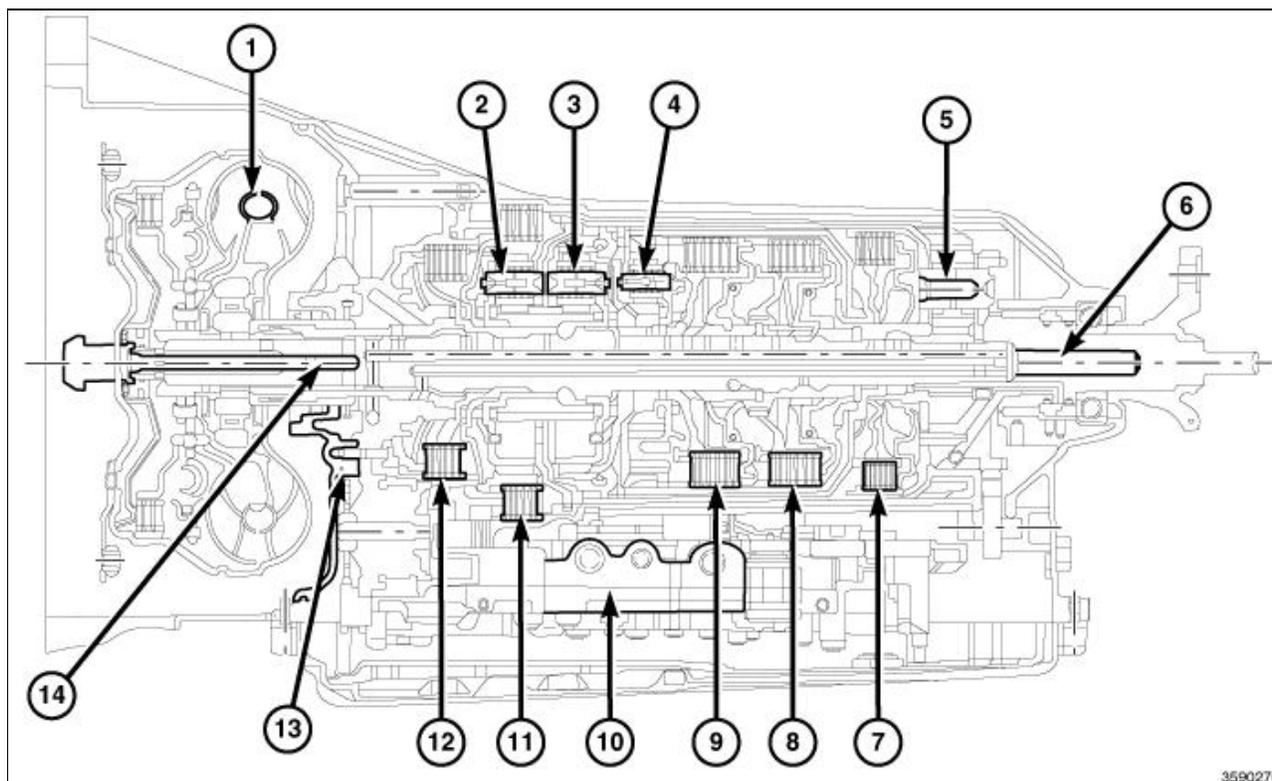


# DESCRIPTION > DESCRIPTION

Fig 1: 8HP70 Automatic Transmission



Courtesy of CHRYSLER GROUP, LLC

1 - TORQUE CONVERTER
2 - P1 PLANETARY
3 - P2 PLANETARY
4 - P3 PLANETARY
5 - P4 PLANETARY
6 - OUTPUT SHAFT
7 - D CLUTCH
8 - C CLUTCH
9 - E CLUTCH
10 - VALVE BODY
11 - B CLUTCH
12 - A CLUTCH

13 - OIL PUMP

14 - INPUT SHAFT

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

The transmission case is a single-piece unit. The starter pocket, cooler line fittings, and manual park release lever are located on the driver's side of the case. The electrical connector and oil fill plug are located on the passenger side of the case. The two-wheel drive model uses a flanged output shaft connection. The four-wheel drive model uses a sealed, externally-splined output shaft to form a dry connection between the adapter plate and the transfer case.

## DESCRIPTION > DESCRIPTION > TRANSMISSION IDENTIFICATION

Two bar code labels are applied to the transmission case. The label on the driver's side rear of the case contains the component tracking number on the top and the service part number on the bottom.

## DESCRIPTION > DESCRIPTION > TRANSMISSION GEAR RATIOS

The gear ratios for the 8HP45 automatic transmission are as follows:

GEAR	RATIO
1ST	4.69:1
2ND	3.13:1
3RD	2.10:1
4TH	1.67:1
5TH	1.28:1
6TH	1.00:1
7TH	0.84:1
8TH	0.67:1
REVERSE	3.30:1

## OPERATION > OPERATION

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

The 8HP70 is an electronic eight-speed automatic transmission. The Transmission Control Module Assembly (TCMA), which is integrated into the valve body, provides fully synchronized clutch-to-clutch shifting through four planetary gear sets. The TCMA includes a mounting plate that holds the Transmission Control Module (TCM) and a molded wiring harness for connection to various transmission sensors and solenoids. The valve body assembly contains all the sensors and solenoids required for operation, completely inside the transmission. Eight speeds allow the engine to maintain its optimal RPM range, increasing fuel economy and performance.

Transmission control is performed by the TCM based on hard-wired and CAN bus signals from sensors and modules. The TCM receives driveability data from the Powertrain Control Module (PCM) and other modules over the CAN-C bus. It also receives shift lever position information from the electronic shifter over a dedicated transmission CAN bus. The TCM processes this input data and controls operation of the torque converter clutch, park lock system, solenoid valves, and pressure regulating valve.

The input and output speed sensors are Hall-effect sensors that measure shaft rotational speed. The input speed sensor is located at the top, near the center, of the of the TCMA and reads input shaft speed from the magnetic ring on the P2 carrier. The output speed sensor is located at the back of the TCMA and reads output shaft speed from the P4 carrier

**FILTER SERVICE** The 8HP70 has a conventional fluid sump design, however, the filter is integrated into the oil pan resulting in a lower profile for improved vehicle packaging. The oil pan gasket is reusable providing it is not damaged during removal.

**FLUID CHECK AND FILL** A fluid fill tube and indicator are not provided. All work is performed under the vehicle while raised on a hoist. In the event of a transmission shift quality concern, a fluid leak, or in conjunction with a transmission repair, the transmission fluid level must be validated and topped off as necessary. The procedure involves the use of a scan tool to monitor transmission fluid temperature. Specific service procedures are necessary to check and fill the transmission with fluid. Refer to FLUID AND FILTER, STANDARD PROCEDURE .

## **OPERATION > OPERATION > CLUTCHES**

The 8HP70 transmission uses two multi-plate holding clutches (A and B) and three multi-plate driving (rotating) clutches (C, D, and E). Gear shifts from one - eight and eight - one are synchronous shifts, meaning one of the clutches must continue to transmit torque at lower pressure until the other clutch is able to accept the input torque.

Clutches A and B are holding clutches. Clutch A is applied by hydraulic pressure and released by a return spring, similar to the driving clutches. Clutch B operation is unique because it has fluid chambers on both sides of the apply piston, and therefore it is applied and released hydraulically. Regulation of fluid pressure on each side of the piston allows precise positioning of clutch B for apply, release, and controlled slip conditions.

Clutches C, D, and E operate in a similar manner. Regulated pressure is available at the clutch C shift

solenoid and the clutch valve. When the shift solenoid is de-energized, fluid flows through the shift solenoid and applies pressure to the clutch valve. During the shift, pressure moves the clutch valve, which begins to apply the clutch. Pressure from the holding valve regulates the opening of the clutch valve, softening the shift. Above a set threshold, the holding valve seats and allows the clutch valve to open completely.

## OPERATION > OPERATION > EMERGENCY RUNNING FUNCTION - LIMP IN MODE

In the event of a complete transmission electrical failure (loss of power to the TCM), the transmission enters default limp-in mode. When the TCM loses power, all solenoids are de-energized. Maximum pressure locks the transmission in 6th gear, and a diagnostic trouble code (DTC) is stored in memory. If the vehicle is in a forward gear range when the fault occurs, the transmission defaults to 6th gear.

If the vehicle is in park, reverse, or neutral, or if the engine is turned off when the fault occurs, the transmission will remain in park because the park lock release system cannot release the parking pawl. No hydraulic pressure is supplied to the driving clutches. In this situation, the manual park release lever must be used to disengage the park pawl.

The limp-in function remains active until the DTC is rectified or the stored DTC is erased with the appropriate scan tool.

## OPERATION > OPERATION > OIL PUMP OPERATION

The oil pump is located just behind the torque converter, between the pump housing and cover assemblies. The torque converter drives the pump assembly using a chain and sprockets. The oil pump is a double-stroke vane pump. The pump has dual chambers, two inlet and two outlet ports, allowing it to produce the fluid volume necessary for all operating conditions. The pump draws fluid through a filter and pressurizes the fluid as the pump rotates. After the fluid is pressurized, it exits the pump through two exhaust ports that feed the system pressure valve. The system pressure valve maintains fluid pressure and allows excess pressure to be returned to the pump. This reduces cavitation and noise. A slipping clutch can often be determined by comparing which internal units are applied in the various gear ranges. The Clutch Application chart provides a basis for analyzing road test results.

### SOLENOID APPLICATION

GEAR	PARK	A	B	C	D	E	TCC	LPS
P	OFF	ON	TP	OFF	OFF	OFF	OFF	OFF
N	ON	ON	TP	OFF	OFF	OFF	OFF	OFF
R	ON	ON	ON	OFF	ON	OFF	OFF	±
1	ON	ON	ON	ON	OFF	OFF	±	±
2	ON	ON	ON	OFF	OFF	ON	±	±
3	ON	OFF	ON	ON	OFF	ON	±	±
4	ON	OFF	ON	OFF	ON	ON	±	±

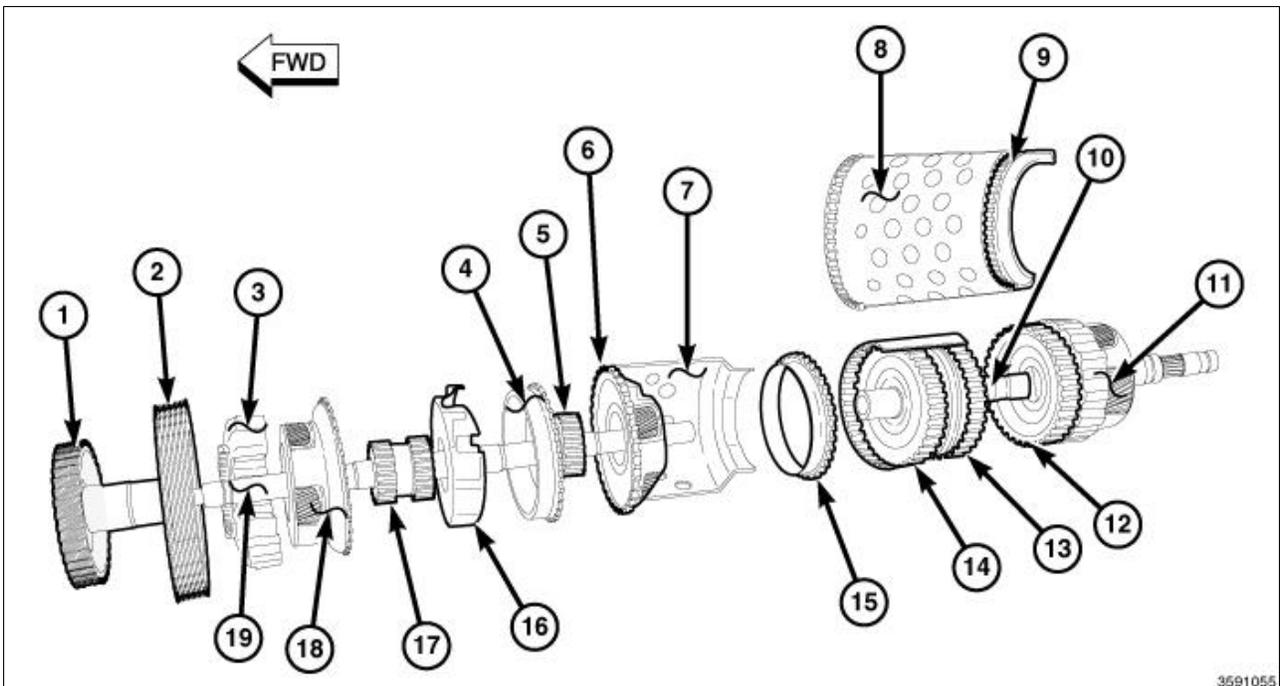
5	ON	OFF	ON	ON	ON	OFF	±	±
6	ON	OFF	OFF	ON	ON	ON	±	±
7	ON	ON	OFF	ON	ON	OFF	±	±
8	ON	ON	OFF	OFF	ON	ON	±	±

TP= Touch Point Pressure

± = Variable Actuation

## OPERATION > OPERATION > POWERFLOW COMPONENTS

Fig 1: Powerflow Components



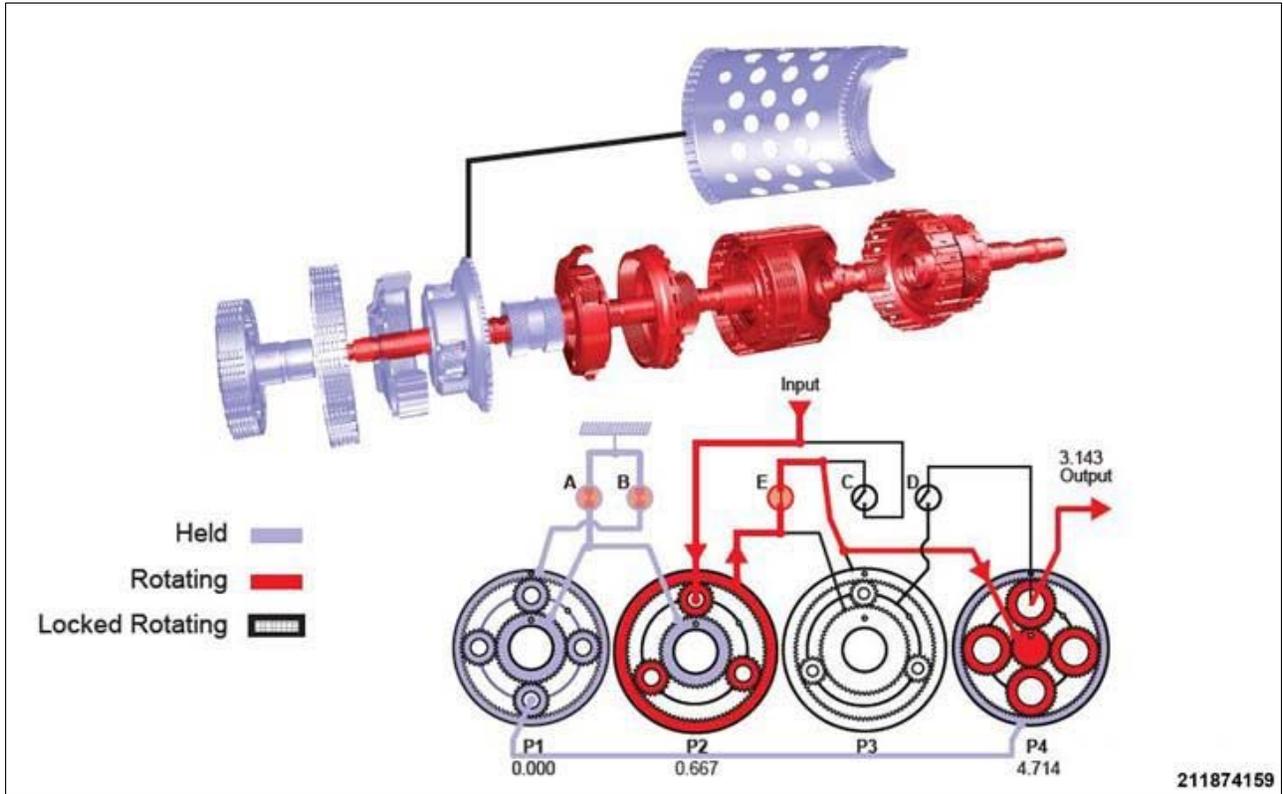
Courtesy of CHRYSLER GROUP, LLC

1- A CLUTCH
2 - B CLUTCH
3 - P1 ANNULUS (PARTIAL CUTAWAY)
4 - P2 ANNULUS
5 - P3 SUN GEAR
6 - P3 CARRIER
7 - D CLUTCH DRUM (PARTIAL CUTAWAY)
8 - P4 ANNULUS DRUM (PARTIAL CUTAWAY)



(13), and the C clutch (13) drives the P4 sun gear (10). The P4 sun gear (10) drives the P4 carrier (11), whose pinions walk around the held P4 annulus (9).

Fig 3: Powerflow In Second Gear

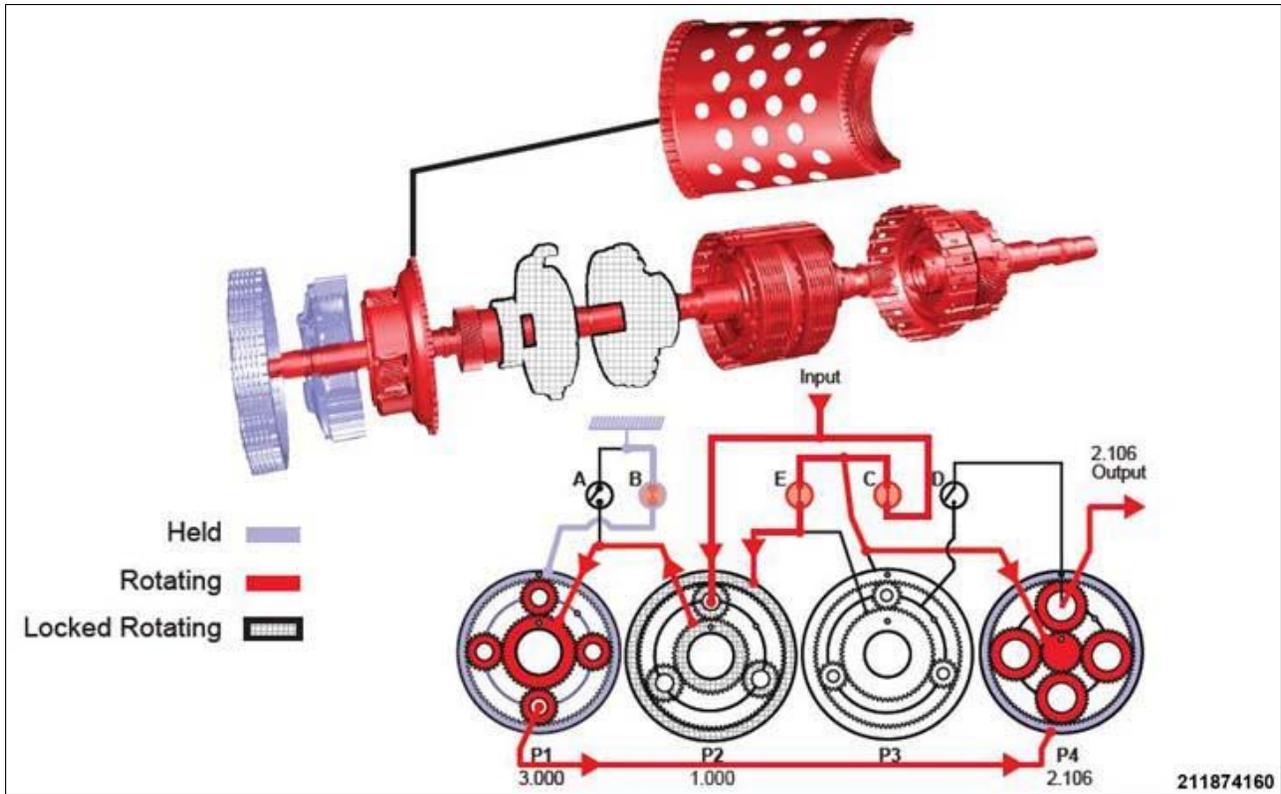


Courtesy of CHRYSLER GROUP, LLC

## SECOND GEAR POWERFLOW

Clutch A (1) holds the P1/P2 sun gear (17) and clutch B (2) holds the P1 annulus (3). As with 1st gear, the entire P1 gear set is stationary. The stationary P1 carrier (18) is connected to the P4 annulus (9), locking the annulus. The input shaft (19) drives the P2 carrier (16). The P2 carrier (16) drives the P2 annulus (4). The P2 annulus (4) drives the E clutch (14) through the P3 sun gear (5) connection. The E clutch (14) then drives the P4 sun gear (10). The P4 sun gear (10) drives the P4 carrier (11), whose pinions walk around the held P4 annulus (9).

Fig 4: Powerflow In Third Gear

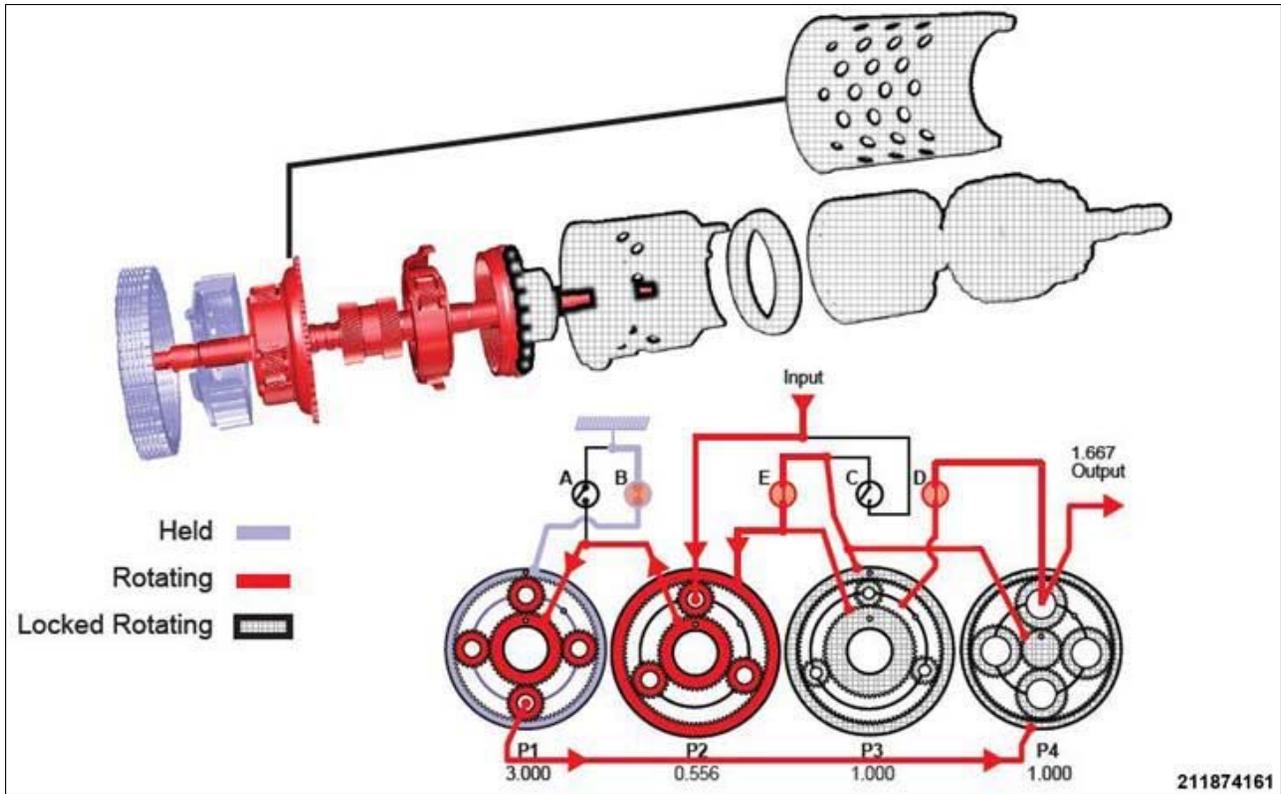


Courtesy of CHRYSLER GROUP, LLC

### THIRD GEAR POWERFLOW

Clutch B (2) holds the P1 (3) annulus. The input shaft (19) drives the C clutch (12), which drives the P4 annulus (9). The C clutch (12) also drives the E clutch (14), which drives the P2 annulus (4). Because the P2 carrier (16) and the P2 annulus (4) are both driven at input shaft speed, the P2 gear set is locked at input shaft speed. The P1/P2 sun gear (17) drives the P1 carrier (18), and the P1 carrier drives the P4 annulus (9).

Fig 5: Powerflow In Fourth Gear

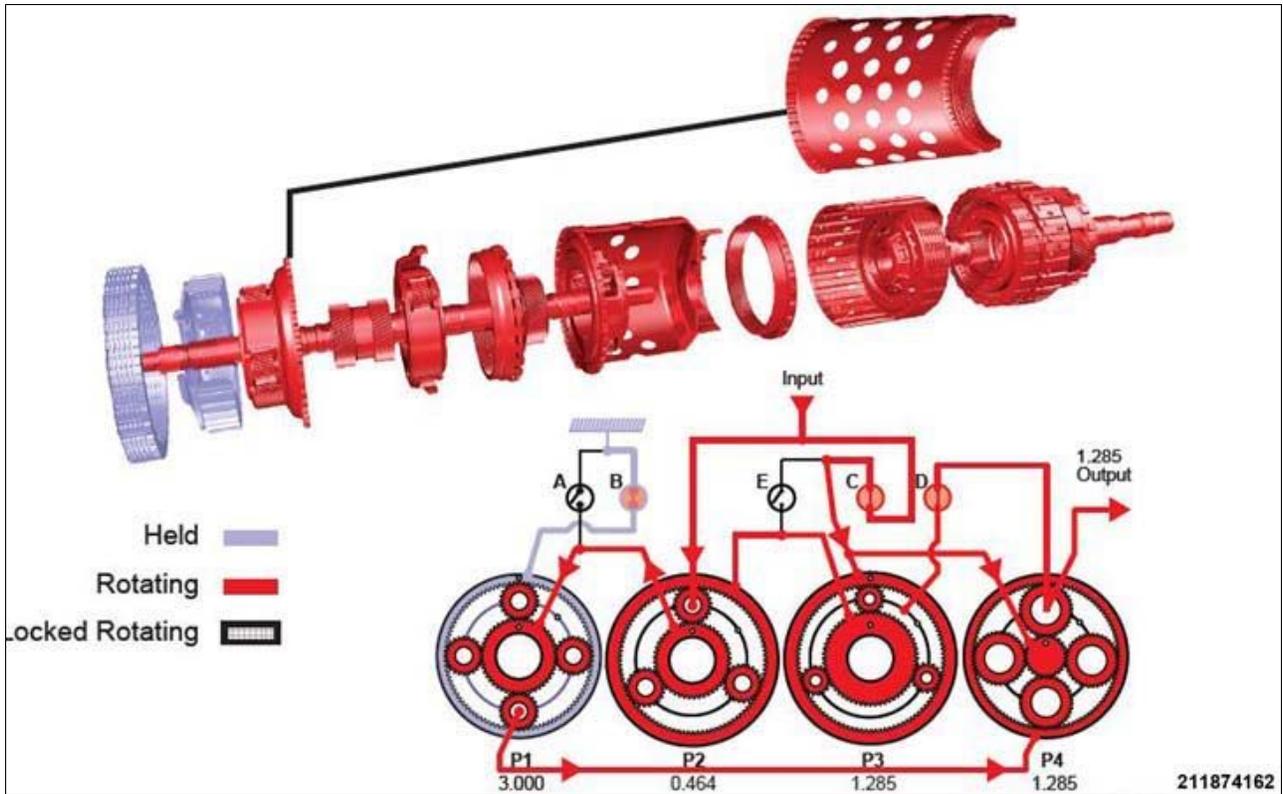


Courtesy of CHRYSLER GROUP, LLC

#### FOURTH GEAR POWERFLOW

Clutch B (2) holds the P1 annulus (3). With the E (14) and D (12) clutches applied, all components of the P3 and P4 gear sets are locked together to rotate at the same speed. The input shaft (19) drives the P2 carrier (16) which drives the P1/P2 sun gear (17). The P1/P2 sun gear drives the P1 carrier (18). The P1 carrier drives the P4 gear set through the P4 annulus (9).

Fig 6: Powerflow In Fifth Gear

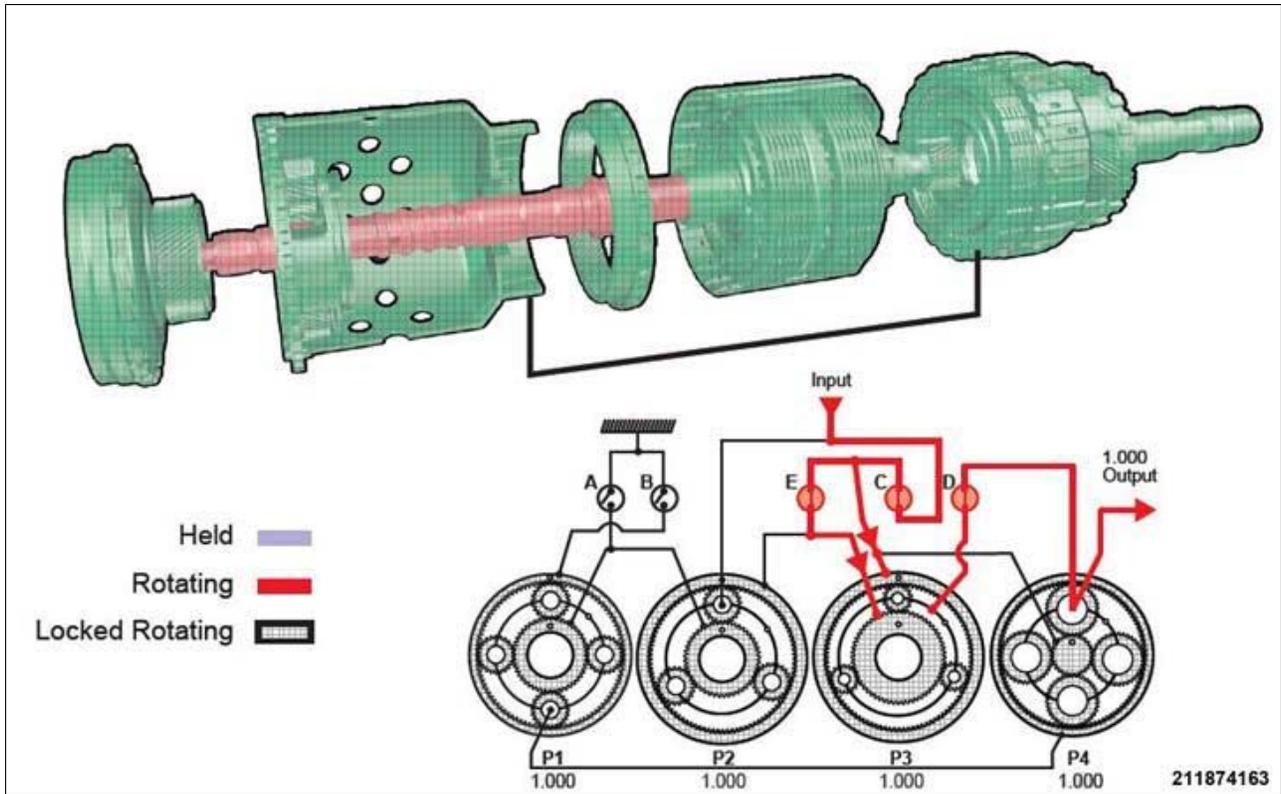


Courtesy of CHRYSLER GROUP, LLC

### FIFTH GEAR POWERFLOW

Clutch B (2) holds the P1 annulus (3). The input shaft (19) always drives the P2 carrier (16). Because the C clutch (13) is applied, the P3 annulus (15) and P4 sun gear (10) are also driven at input shaft speed. The D clutch (12) is applied to connect the P3 carrier (6) with the P4 carrier (11). The P2 carrier (16) drives the P1/P2 sun gear (17), which drives the P1 carrier (18). The P1 carrier walks around the held P1 annulus (3) and drives the P4 annulus (9). Gear reduction is achieved between the P4 sun gear (10) rotating at input shaft speed and the P4 annulus (9) rotating at a reduced speed.

Fig 7: Powerflow In Sixth Gear

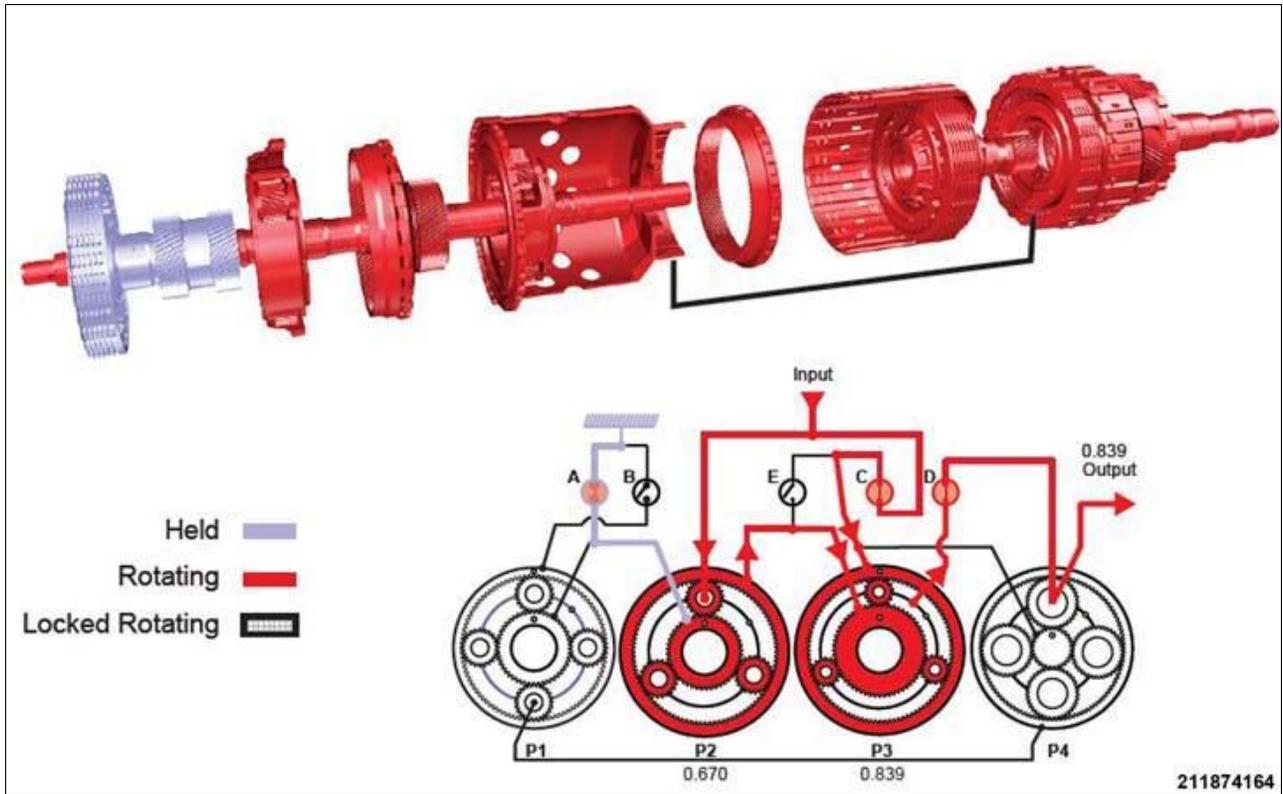


Courtesy of CHRYSLER GROUP, LLC

**SIXTH GEAR POWERFLOW**

Clutch C (13) drives the P3 annulus (15) at input shaft speed and E clutch (14) drives the P3 sun gear (5) at input shaft speed. Because two components of the same gear set are driven at the same speed, the entire gear set is locked in rotation. The D clutch (12) connects the P3 carrier (6) to the P4 carrier (11) and the output shaft.

Fig 8: Powerflow In Seventh Gear

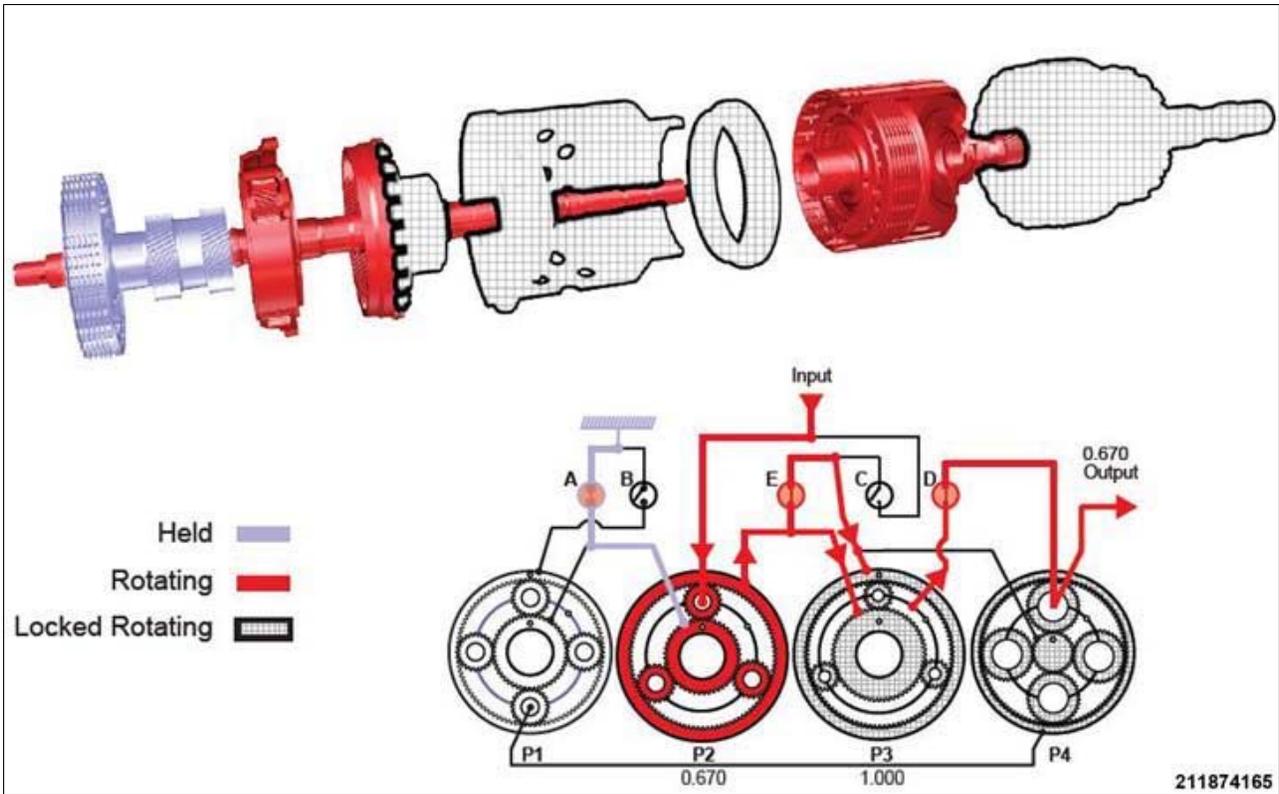


Courtesy of CHRYSLER GROUP, LLC

### SEVENTH GEAR POWERFLOW

Clutch A (1) holds the P1/P2 sun gear (17) stationary. The input shaft drives the P2 carrier which drives the P2 annulus, increasing the speed of the P3 sun gear (5) and creating overdrive. The C clutch (13) drives the P3 annulus (15) at input shaft speed. The P3 sun gear (5) spins at a faster speed than the P3 annulus (15) and the P3 carrier (6) is the output of the gear set. This results in a reduction that offsets the overdrive of the P2 gear set. The D clutch (12) connects the P3 carrier (6) to the P4 carrier (11) and the output shaft.

Fig 9: Powerflow In Eighth Gear

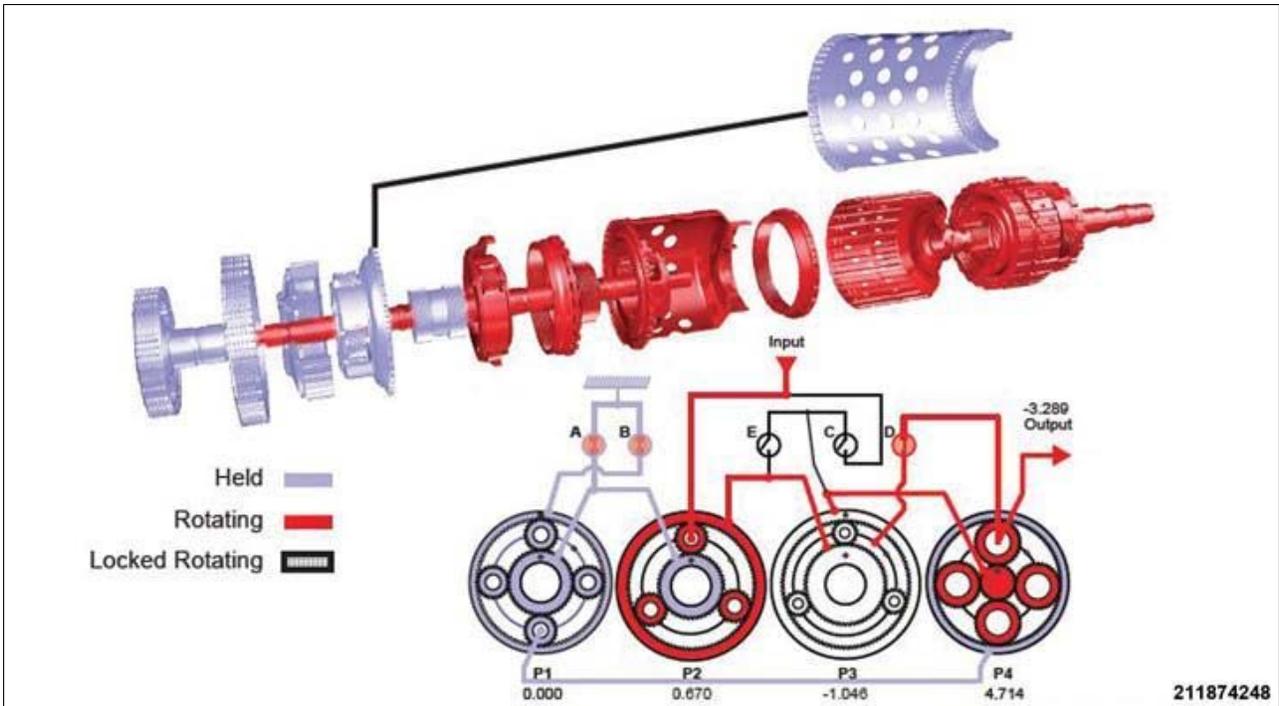


Courtesy of CHRYSLER GROUP, LLC

### EIGHTH GEAR POWERFLOW

Clutch A (1) holds the P1/P2 sun gear (17) stationary. As with 7th gear, the P2 gear set creates an overdrive ratio. However, the E clutch (14) is now applied, which locks together the P3 gear set and eliminates any torque multiplication from the P3 gear set. The overdrive created by P2 is transferred by the D clutch (7) to the output shaft.

Fig 10: Powerflow In Reverse Gear



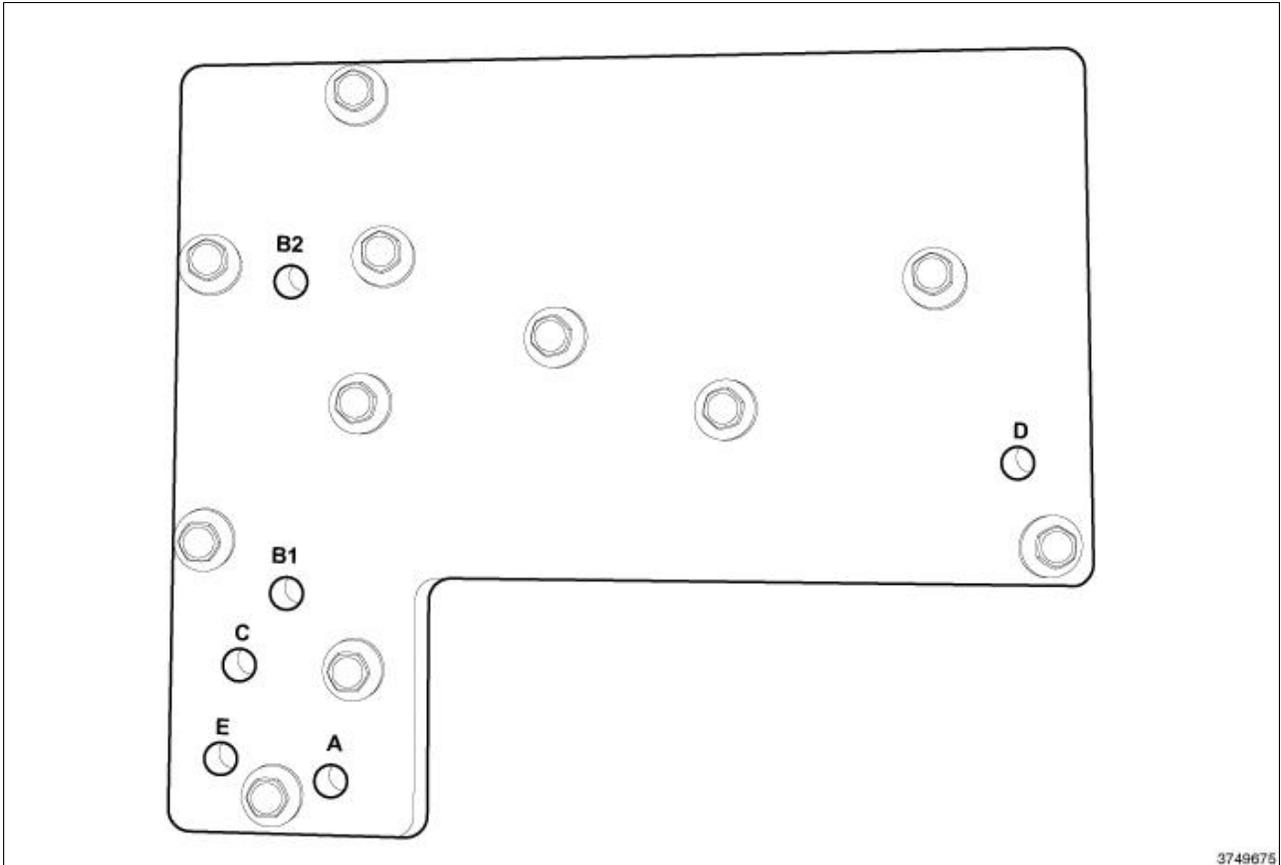
Courtesy of CHRYSLER GROUP, LLC

## REVERSE GEAR POWERFLOW

Clutches A (1) and B (2) hold the P1 gear set to hold the P1/P2 sun gear (17). The input shaft drives the P2 carrier, which produces an overdrive ratio from the P2 gear set, driving the P3 sun gear (5) in engine direction. The P3 carrier (6) is connected to the output shaft by the D clutch (12). This holds the carrier, reversing the direction and multiplying torque. The P3 annulus (15) is connected to the P4 sun gear (10), which drives the P4 gear set opposite of engine direction and multiplies torque again.

## DIAGNOSIS AND TESTING > CLUTCH AIR PRESSURE TESTS

Fig 1: Clutch Pressure Test Passages



Courtesy of CHRYSLER GROUP, LLC

Inoperative clutches can be located using a series of tests by substituting air pressure for fluid pressure using (special tool #10383, Plate, Clutch Pressure Test).

The clutches may be tested by applying air pressure to their respective passages. The valve body must be removed. 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 5-8 bar (73-116 psi).*

Remove the valve body . Refer to VALVE BODY, REMOVAL . Install (special tool #10383, Plate, Clutch Pressure Test) and tighten bolts to 6 N.m (50 in. lbs.). When testing is finished install valve body . Refer to VALVE BODY, INSTALLATION . Fill the transmission . Refer to FLUID AND FILTER, STANDARD PROCEDURE .



**NOTE:**

*If any clutch does not appear to be functioning with the air, add some 8HP transmission fluid and try the test again. Some circuits will not operate without fluid.*

## **DIAGNOSIS AND TESTING > CLUTCH AIR PRESSURE TESTS > A CLUTCH**

Apply air pressure to the feed hole located on the test plate marked **A** , listen for an audible thud. The piston should return to its starting position when the air pressure is removed.

## **DIAGNOSIS AND TESTING > CLUTCH AIR PRESSURE TESTS > B CLUTCH FUNCTION**

Apply air pressure to the feed hole located on the test plate marked **B1** , listen for an audible thud. The piston should not return to its starting position when the air pressure is removed. If air pressure is applied to the B2 circuit, the B1 should return. An audible hiss may be heard when testing this clutch as the seal is designed to allow fluid/air to pass.

## **DIAGNOSIS AND TESTING > CLUTCH AIR PRESSURE TESTS > C CLUTCH**

Apply air pressure to the feed hole located on the test plate marked **C** , listen for an audible thud. The piston should return to its starting position when the air pressure is removed.

## **DIAGNOSIS AND TESTING > CLUTCH AIR PRESSURE TESTS > D CLUTCH**

Apply air pressure to the feed hole located on the test plate marked **D** , listen for an audible thud. The piston should return to its starting position when the air pressure is removed.

## **DIAGNOSIS AND TESTING > CLUTCH AIR PRESSURE TESTS > E CLUTCH**

Apply air pressure to the feed hole located on the test plate marked **E** , listen for an audible thud. The piston should return to its starting position when the air pressure is removed.

## **DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - AUTOMATIC TRANSMISSION - GENERAL CONDITIONS**



**CAUTION:**

*Before attempting any repair on an automatic transmission, check for Diagnostic Trouble Codes with the appropriate scan tool.*

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

Transmission malfunctions may be caused by these general conditions:

- Poor engine performance.
- Improper adjustments.
- Hydraulic malfunctions.
- Mechanical malfunctions.
- Electronic malfunctions.
- Transfer case performance (if equipped).

Diagnosis of these problems should always begin by checking the easily accessible variables: fluid level, fluid condition, and transmission fault codes using the appropriate scan tool. Then perform a road test to determine if the problem has been corrected or if more diagnosis is necessary.

## **DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - PRELIMINARY**

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

Two basic procedures are required. One procedure for vehicles that are drivable and an alternate procedure for disabled vehicles (will not back up or move forward).

## **DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - PRELIMINARY > VEHICLE IS DRIVABLE**

1. Check for transmission fault codes using the appropriate scan tool.
2. Road test and note how transmission upshifts, downshifts, and engages.

3. Check fluid level and condition.

## DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - PRELIMINARY > VEHICLE IS DISABLED

1. Check for transmission fault codes using the appropriate scan tool.
2. Check for cracked, leaking cooler lines.
3. Check fluid level and condition.
4. With the transmission in the Park position, attempt to rotate drive shaft(s) to ensure transmission output shaft coupler/flange is secure.
5. Check the transfer case operation (if equipped).
6. Raise and support vehicle on safety stands, start engine with transmission in the Park position and allow to idle for several minutes, shift transmission into gear, and note following:
  - a. If propeller shaft turns but wheels do not, problem is with differential or axle shafts.
  - b. If propeller shaft does not turn and transmission is noisy, stop engine. Remove oil pan, and check for debris. If pan is clear, remove transmission and check for damaged drive plate, converter, oil pump, or input shaft.
7. Check the TCMA, Wiring, Valve body, and Solenoids (Utilize fault codes to diagnose if available).

## DIAGNOSIS AND TESTING > DIAGNOSIS AND TESTING - ROAD TESTING

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

Before road testing, be sure the fluid level has been checked and adjusted if necessary. Verify that all diagnostic trouble codes have been resolved.

Observe engine performance during the road test. A poorly tuned engine will not allow accurate analysis of transmission operation.

Operate the transmission in all gear ranges. Check for shift variations and engine flare which indicates slippage. Note if shifts are harsh, spongy, delayed, early, or if part throttle downshifts are sensitive.

Slippage indicated by engine flare, usually means clutch, overrunning clutch, or line pressure problems.

A slipping clutch can often be determined by comparing which internal units are applied in the various gear ranges. The Clutch Application chart provides a basis for analyzing road test results.

## CLUTCH APPLICATION

GEAR	A	B	C	D	E	RATIO
1	X	X	X			4.69: 1
2	X	X			X	3.13: 1
3		X	X		X	2.10: 1
4		X		X	X	1.67: 1
5		X	X	X		1.29: 1
6			X	X	X	1.0: 1
7	X		X	X		.84: 1
8	X			X	X	.67: 1
N						N/A
R	X	X		X		3.3: 1

## SPECIFICATIONS > SPECIFICATIONS

### TORQUE SPECIFICATIONS

DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.	COMMENTS
Crossmember to Body Bolt	68	50	-	
Crossmember to Transmission Mount Bolt	47	35	-	
Engine to Bellhousing Bolt	55	41	-	
Extension Housing to Transmission Bolt	27	20	-	
Manual Park Release Cable to Case Bolt	20	15	-	
Manual Park Release Lever Shaft Nut	10	-	89	
Manual Park Release Lever Assembly Nut	10	-	89	
Oil Pan Drain Plug	9	-	80	
Oil fill Plug	35	26	-	
Oil Pan Bolt	10	-	89	

Oil Pump Assembly To Case Bolts	<b>Specific bolts need to be pre-tightened. Refer to PUMP, TRANSMISSION OIL, INSTALLATION .</b>			
Oil Pump Housing To Cover Bolt	5 + 45°	-	44 + 45°	
Output Speed Sensor Bolt	8	-	71	
Torque Converter Bolt	42	31	-	
Park Pawl Lock Rod Guide Plate Bolt	10	-	89	
Park Pawl Shaft Plug	35	26	-	
Propeller Shaft Flange Nut	60	44	-	
Shifter Assembly Bolts	7	-	65	
Shifter Knob Lower Shroud Bolt	7	-	65	
Torque Converter to Flex Plate Bolt	42	31	-	
Transfer Case to Transmission Nut	27	20	-	
Transmission Mount to Adapter	33	24	-	
Valve Body Bolt	8	-	71	

## SPECIFICATIONS > CLUTCH SPECIFICATIONS

Clutch	Condition	Minimum	Normal	Maximum
A	NEW	1.41 mm	1.555 mm	1.7 mm
		0.056 in	0.061 in	0.067 in
	AFTER OPERATION	1.41 mm	1.655 mm	1.9 mm
		0.056 in	0.065 in	0.075 in
B	NEW	1.52 mm	1.725 mm	1.93 mm
		0.060 in	0.068 in	0.076 in
	AFTER OPERATION	1.52 mm	1.825 mm	2.13 mm
		0.060 in	0.072 in	0.084 in
C	NEW	1.62 mm	1.815 mm	2.01 mm
		0.064 in	0.071 in	0.079 in

	AFTER OPERATION	1.62 mm	1.935 mm	2.25 mm
		0.064 in	0.076 in	0.089 in
D	NEW	1.37 mm	1.515 mm	1.66 mm
		0.054 in	0.060 in	0.065 in
	AFTER OPERATION	1.37 mm	1.615 mm	1.86 mm
		0.054 in	0.064 in	0.073 in
E	NEW	1.62 mm	1.815 mm	2.01 mm
		0.064 in	0.071 in	0.079 in
	AFTER OPERATION	1.62 mm	1.935 mm	2.25 mm
		0.064 in	0.076 in	0.089 in

**SPECIFICATIONS > CLUTCH A SELECTABLE SNAP RINGS**

3.2 mm	0.125 in.
3.0 mm	0.118 in.
2.8 mm	0.110 in.
2.6 mm	0.102 in.
2.4 mm	0.0944 in.
2.2 mm	0.0866 in.

**SPECIFICATIONS > CLUTCH B SELECTABLE BACKING PLATES**

6.0 mm	.236 in.
5.8 mm	.228 in.
5.6 mm	.220 in.
5.4 mm	.212 in.
5.2 mm	.204 in.
5.0 mm	.196 in.
4.8 mm	.188 in.

## SPECIFICATIONS > CLUTCH C AND E SELECTABLE BACKING PLATES

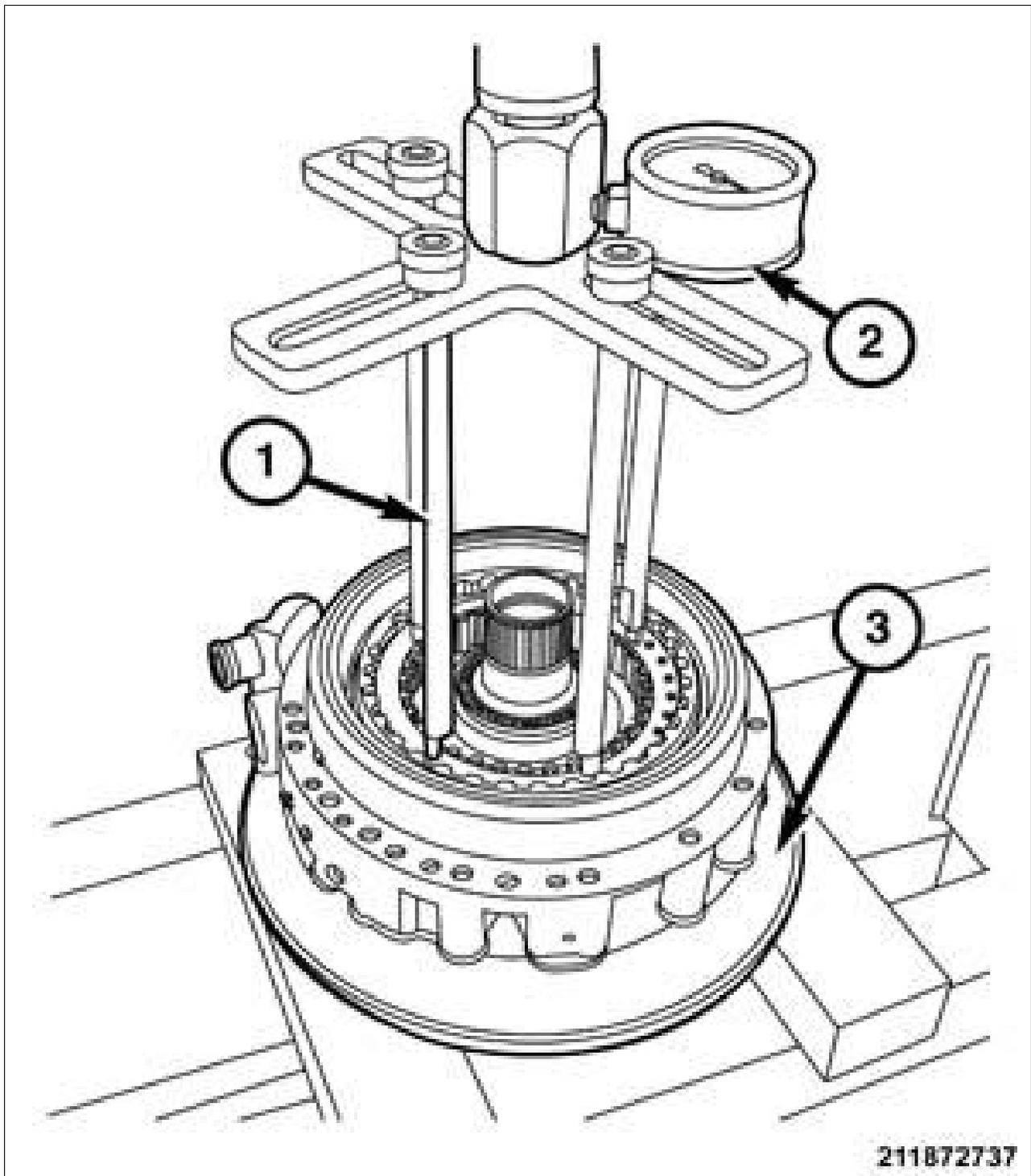
4.8 mm	0.188 in.
4.5 mm	0.177 in.
4.2 mm	0.165 in.
3.9 mm	0.153 in.
3.6 mm	0.141 in.
3.3 mm	0.129 in.
3.0 mm	0.118 in.

## SPECIFICATIONS > CLUTCH D SELECTABLE SNAP RINGS

3.0 mm	0.118 in.
2.8 mm	0.110 in.
2.6 mm	0.102 in.
2.4 mm	0.0944 in.
2.2 mm	0.0866 in.
2.0 mm	0.0787 in.
1.8 mm	0.0708 in.
1.6 mm	0.0629 in.

## STANDARD PROCEDURE > A-CLUTCH MEASUREMENT

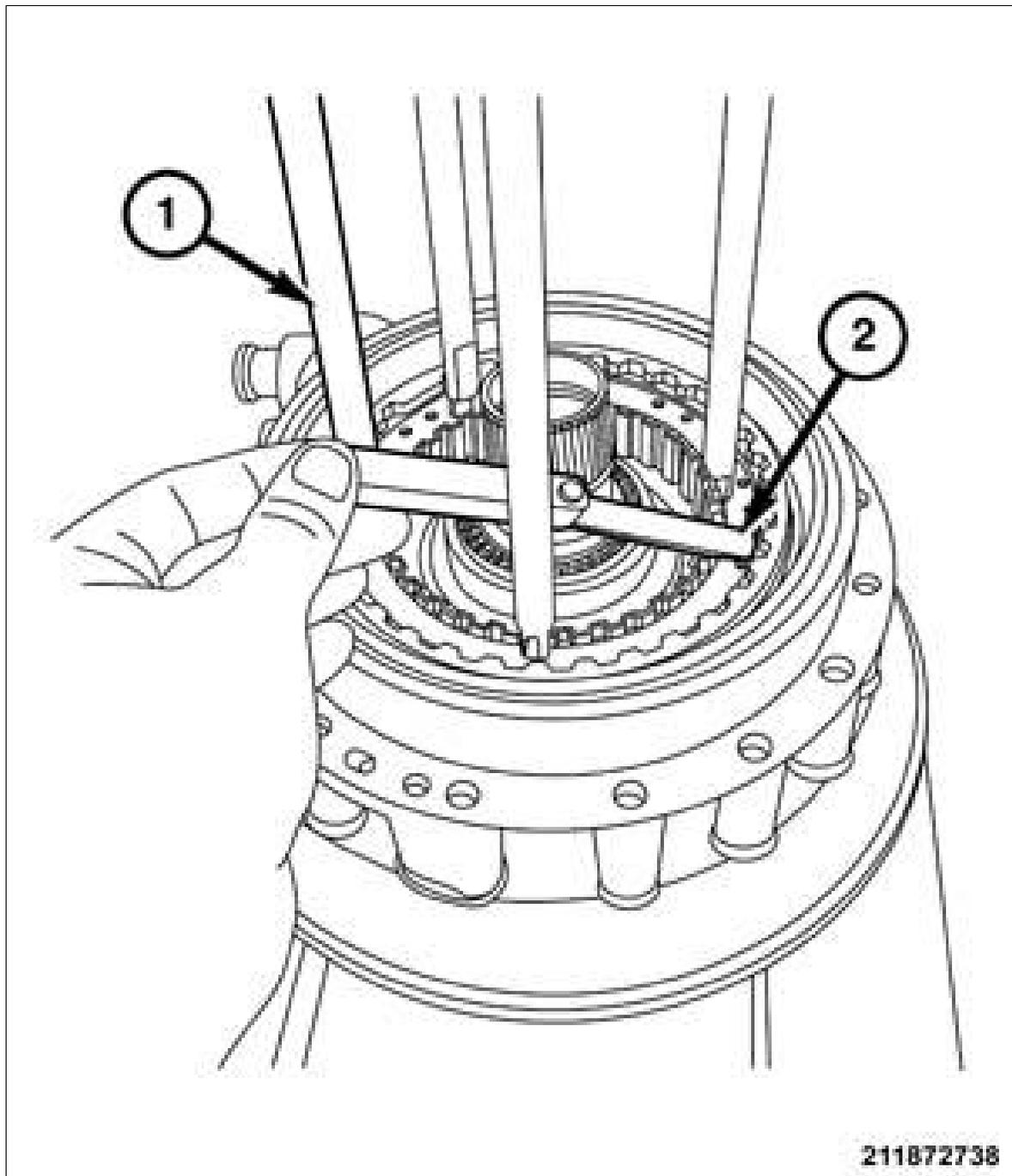
Fig 1: Adapter & Pressing Tool



Courtesy of CHRYSLER GROUP, LLC

1. Using (special tool #10428, Adapter, Pressing Tool) (1) and (special tool #10429, Gauge, Force) (2) Place the A-clutch/oil pump assembly in a suitable arbor press.
2. Apply 200 N (45 lbs.) of force to the A-clutch backing plate to compress the wave plate.

Fig 2: Measuring Gap Between A-Clutch Backing Plate & Snap Ring



Courtesy of CHRYSLER GROUP, LLC

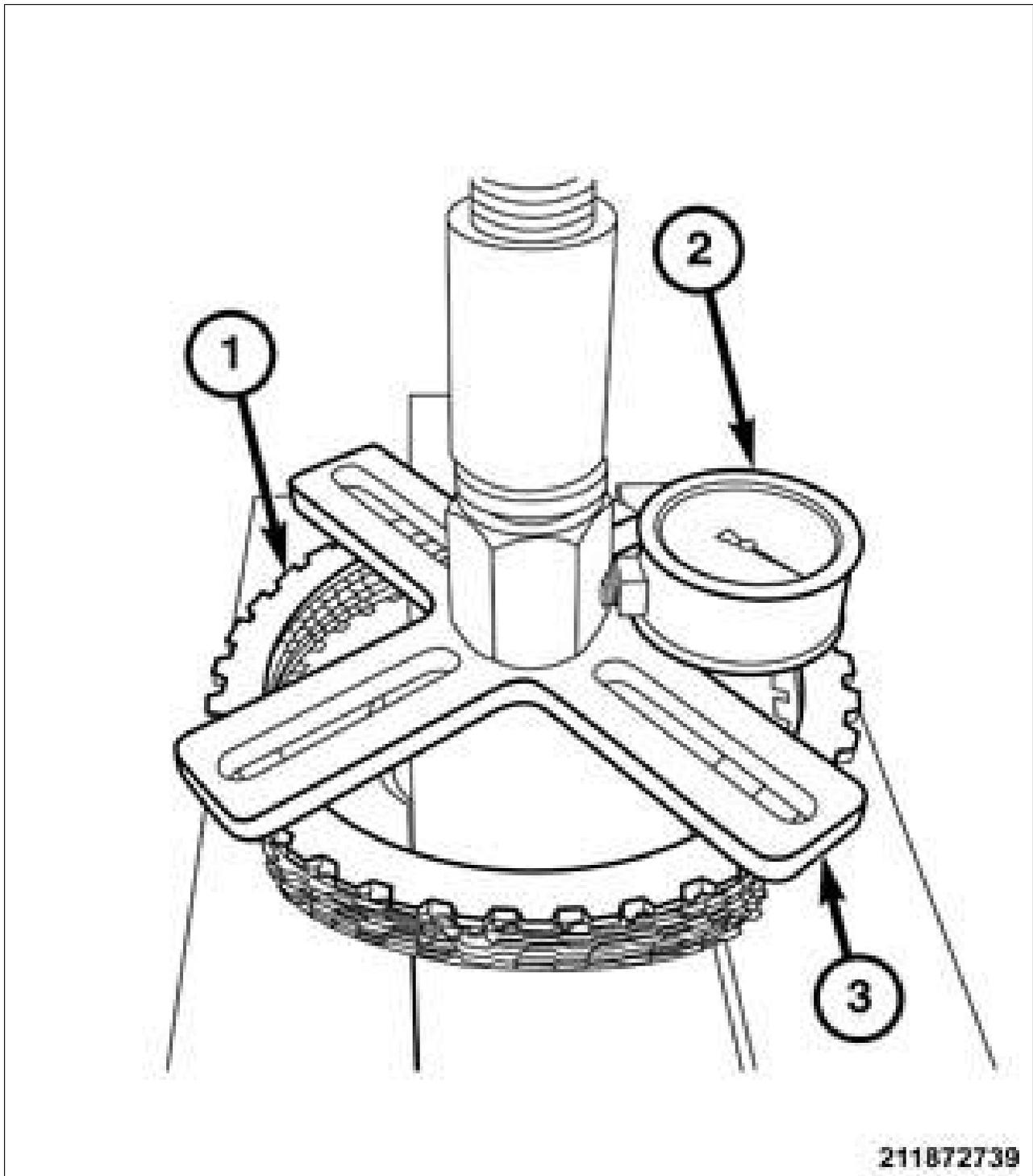
3. With a suitable feeler gauge (2) measure the gap between the A-clutch backing plate and the snap ring.
4. Refer to CLUTCH SPECIFICATIONS for specs. If clearance is not within specification, a thinner or thicker selectable snap ring can be installed for proper clearance.

## STANDARD PROCEDURE > B-CLUTCH MEASUREMENT

When the B-clutch is replaced, the proper selectable shim must be installed to achieve specified clearance.

**Measurement** (special tool #8901A, Pressing Tool), (special tool #10429, Gauge, Force)

Fig 1: Pressing Tool



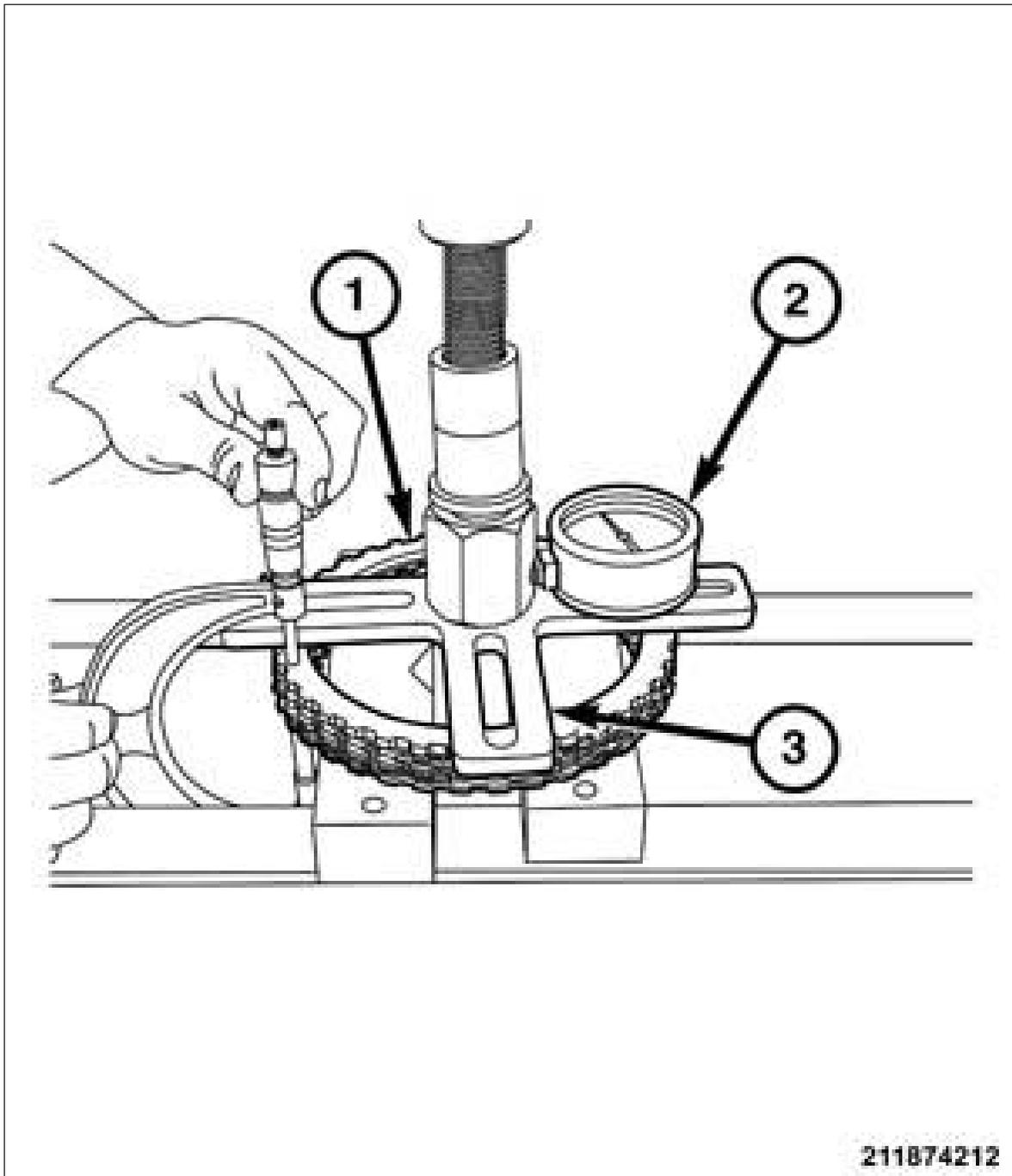
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1. Place the B-clutch, with the wave plate on top, on a suitable arbor press.
2. Position tools (special tool #8901A, Pressing Tool) (3) (using just the cross bar) (3) and

(special tool #10429, Gauge, Force) (2) on top of the B-clutch wave plate (1) and under the press ram.

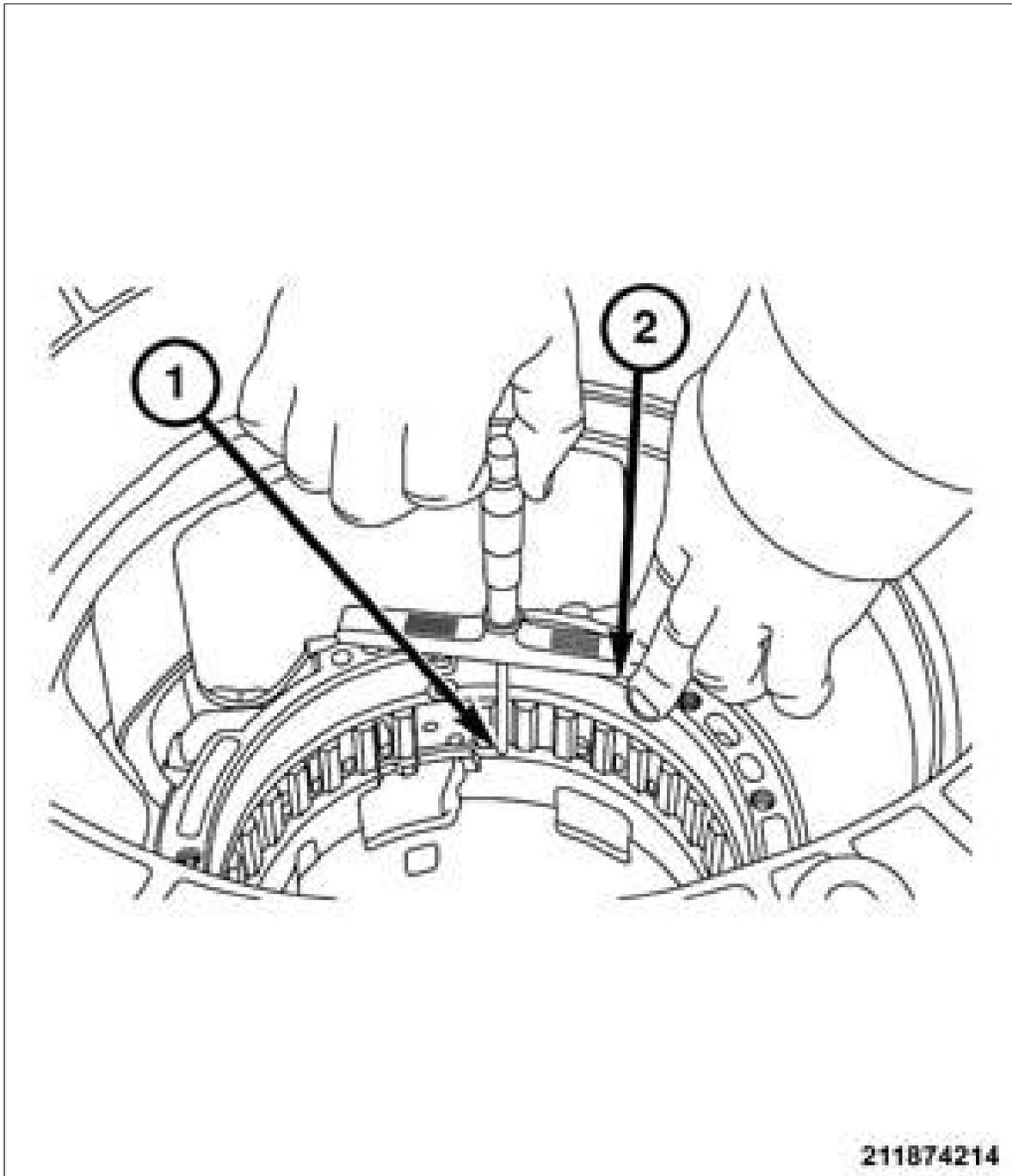
Fig 2: Gauge, Pressing Tool & B-Clutch



Courtesy of CHRYSLER GROUP, LLC

3. Apply 500 N (112 lbs.) of downward force on the B-clutch to compress the wave plate.
4. Using a suitable micrometer, measure the thickness of the compressed B-clutch (3). **Record the measurement as (A)** to calculate the B-clutch clearance in order to determine the correct selectable shim thickness.

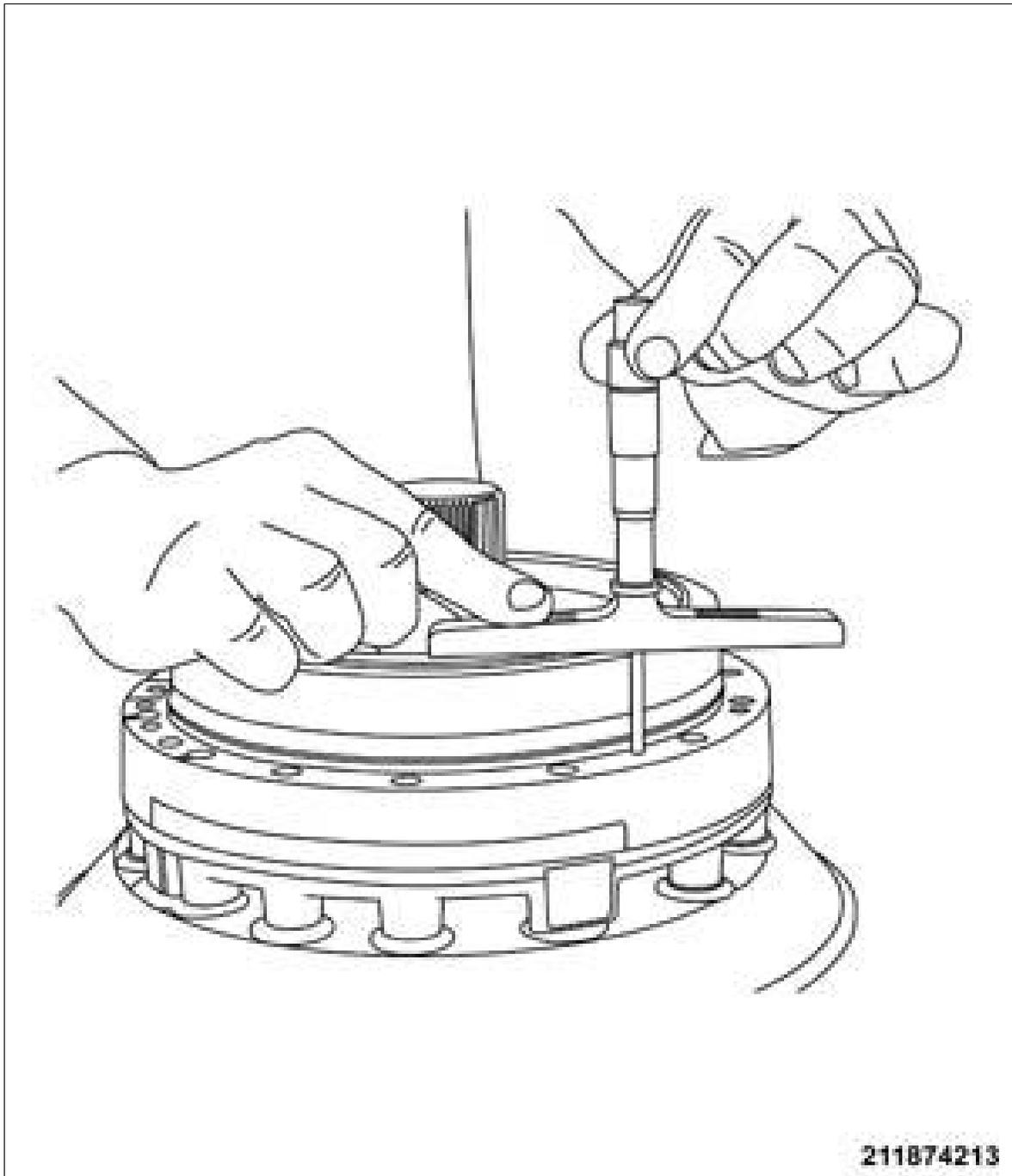
Fig 3: Transmission Oil Pump & B-Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

5. With a suitable depth micrometer, place it at the mounting surface of the transmission oil pump (2) and measure to the base of the B-clutch retainer on the case (1). This measurement should be 61.05 mm. **Record the measurement as (B)** to calculate the B-clutch clearance in order to determine the correct selectable shim thickness.

Fig 4: Measuring B-Clutch Piston Using Depth Micrometer



Courtesy of CHRYSLER GROUP, LLC

6. Using a suitable depth micrometer, measure the B-clutch piston.
7. Measure between the fluid pump sealing surface and the bottom of the straight edge. **Record the measurement as (C)** to calculate the B-clutch clearance in order to determine the correct selectable shim thickness.

#### Calculation

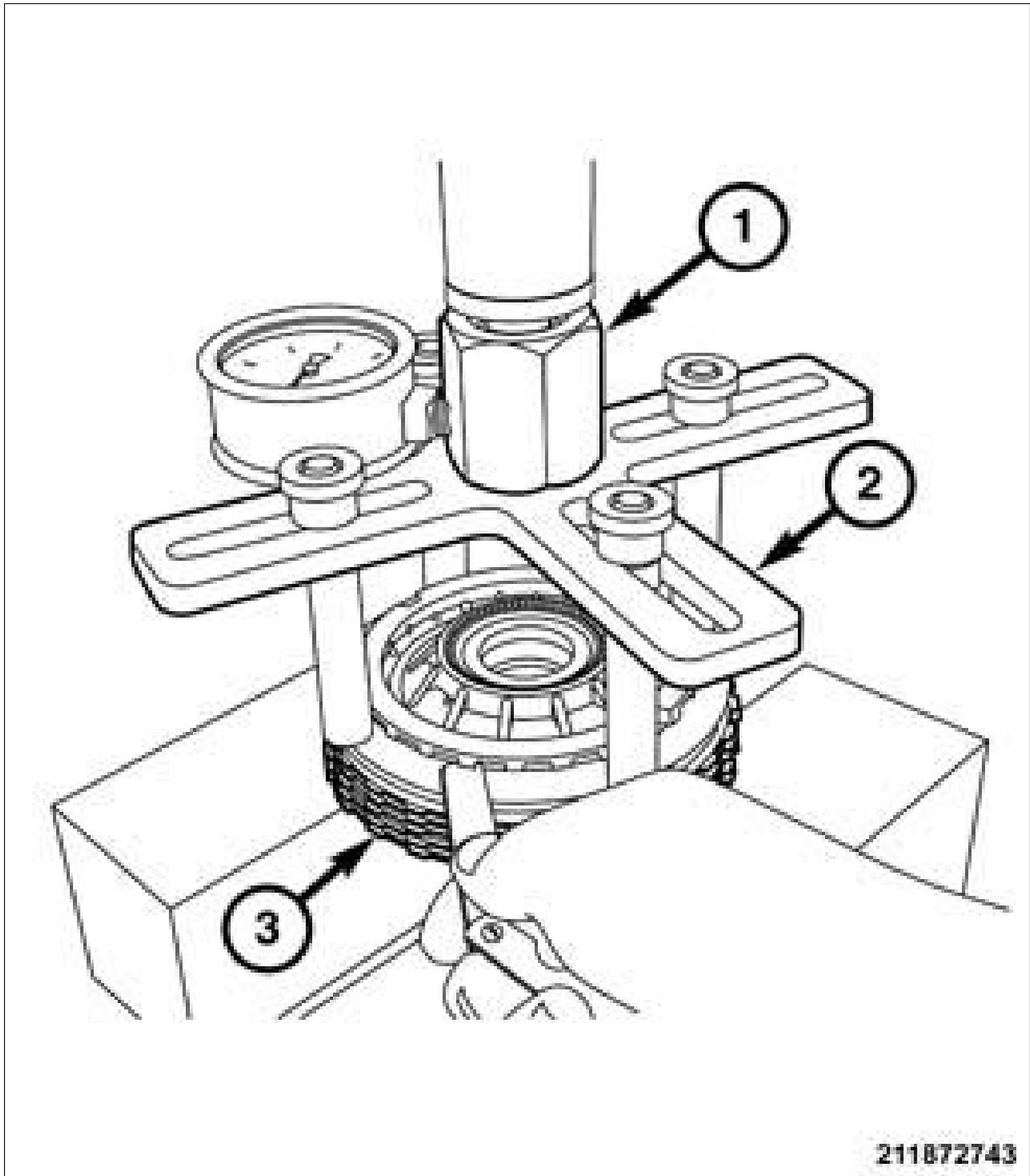
Take the case depth (B) subtract (C) subtract (A) remainder is the clearance of the B-clutch. If the clearance is not within specification a thinner or thicker reaction plate can be installed to achieve proper

clearance.

## **STANDARD PROCEDURE > C-CLUTCH MEASUREMENT**

1. Using (special tool #8901A, Pressing Tool) (2) and (special tool #10429, Gauge, Force) (1) place the C-clutch (3) in a suitable arbor press (with the backing plate facing up).
2. Apply 200 N (45 lbs.) of force to the C-clutch to compress the wave plate.
3. With a suitable feeler gauge, measure the gap between the C-clutch backing plate and the C-clutch retainer.
4. Refer to CLUTCH SPECIFICATIONS for specs. If clearance is not within specification a thinner or thicker selectable backing plate can be installed to achieve proper clearance.

Fig 1: Measuring Gap Between C-Clutch Backing Plate & C-Clutch Retainer

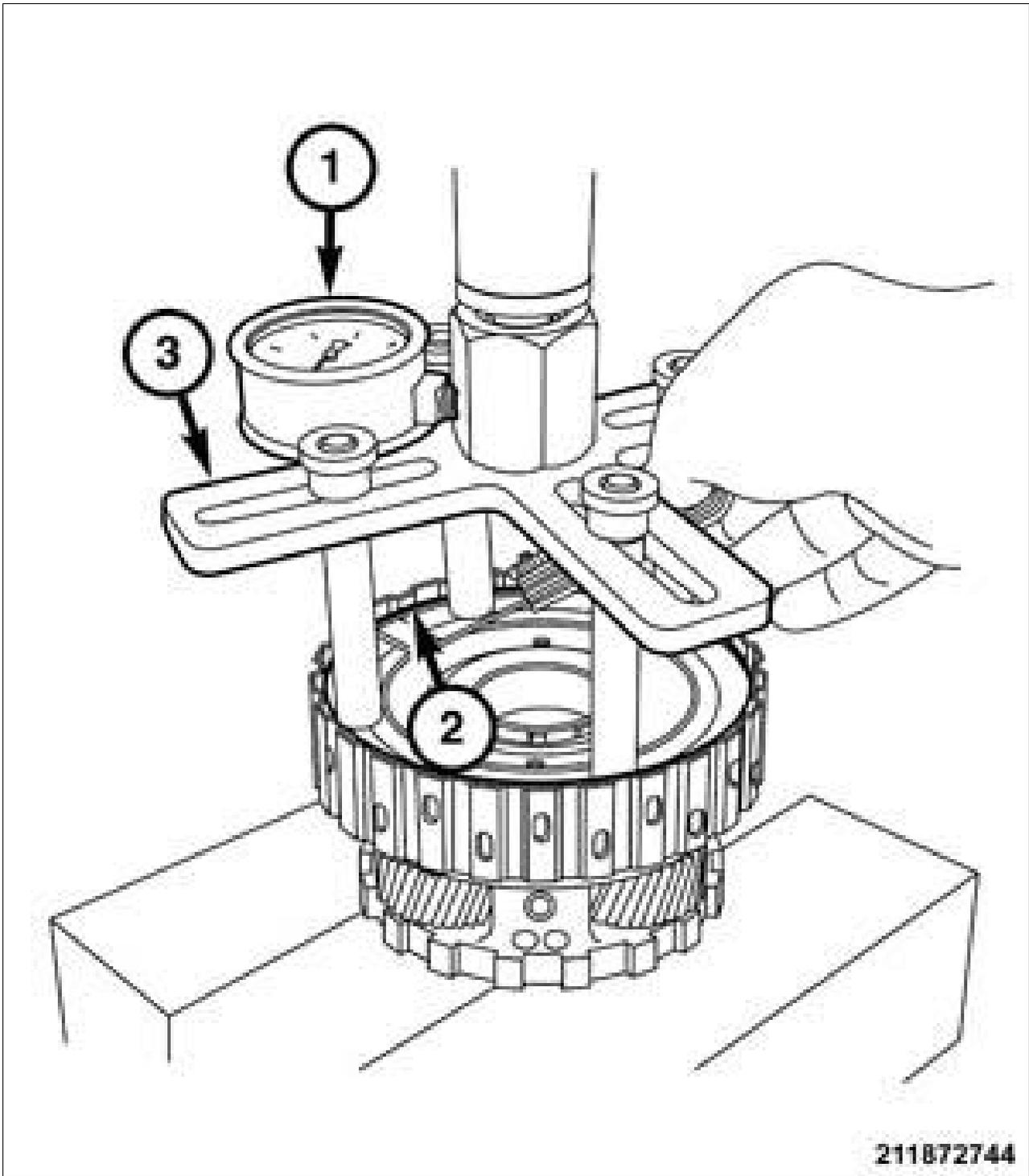


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**STANDARD PROCEDURE > D-CLUTCH MEASUREMENT**

Fig 1: Measuring Gap Between D-Clutch Backing Plate & D-Clutch Retainer



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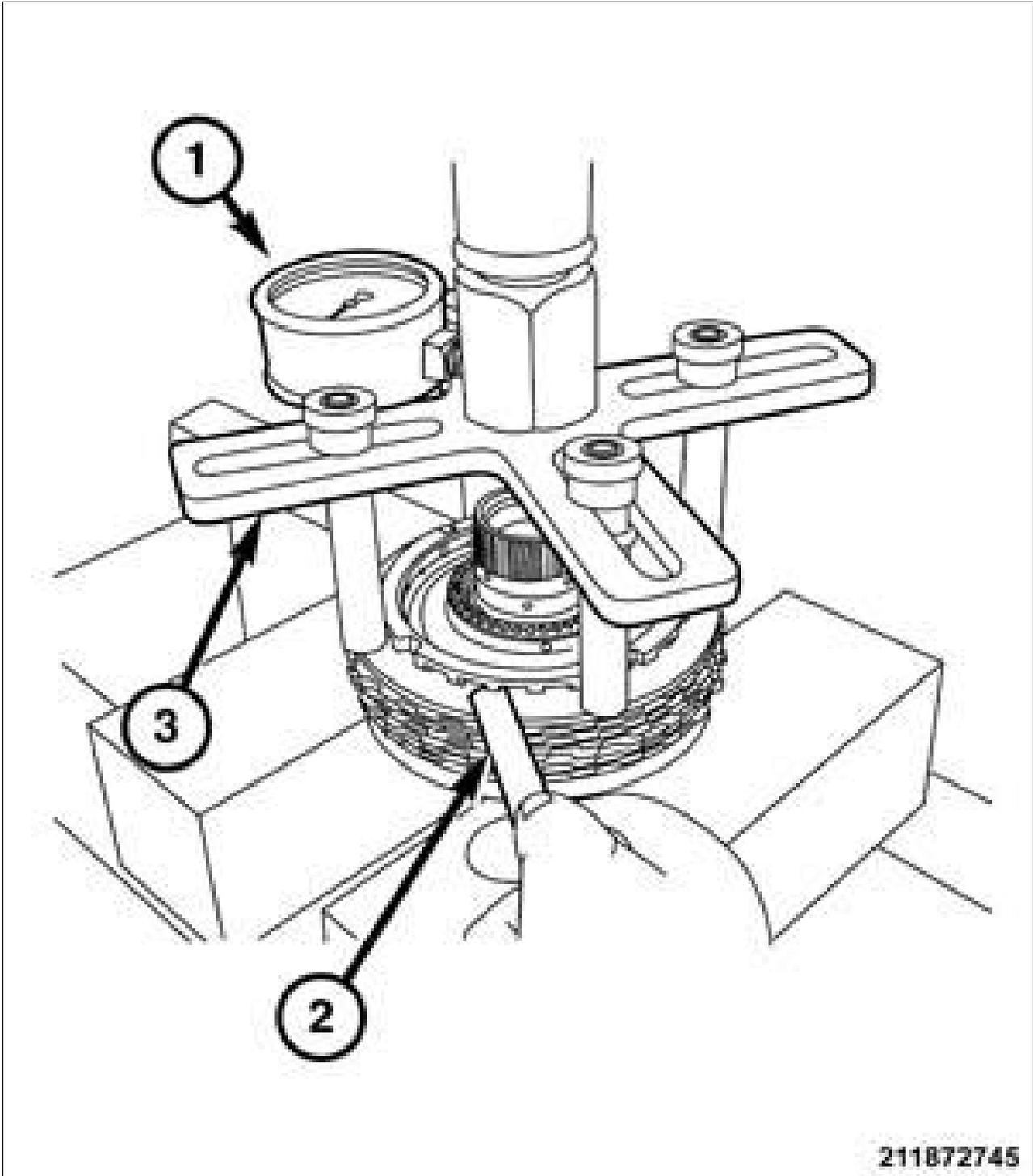
Courtesy of CHRYSLER GROUP, LLC

1. Using (special tool #8901A, Pressing Tool) (3) and (special tool #10429, Gauge, Force) (1) place the D-clutch in a suitable arbor press.
2. Apply 200 N (45 lbs.) of force to the D-clutch backing plate to compress the wave plate.
3. With a suitable feeler gauge (2), measure the gap between the C-clutch backing plate and the C-clutch retainer.

4. Refer to CLUTCH SPECIFICATIONS for specs. If clearance is not within specification a thinner or thicker selectable snap ring can be Installed to achieve proper clearance.

## STANDARD PROCEDURE > E-CLUTCH MEASUREMENT

Fig 1: Measuring Gap Between Backing Plate & Retainer Of E-Clutch



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1. Place the E-clutch in a suitable arbor press.
2. Using (special tool #10429, Gauge, Force) (1) and (special tool #8901A, Pressing Tool) (3) apply 200 N (45 lbs.) to the backing plate of the E-clutch.
3. Using a set of feeler gauges (2), measure the gap between the backing plate and the retainer of the E-clutch.
4. Refer to CLUTCH SPECIFICATIONS for specifications. If clearance is not within specifications, a thinner or thicker selectable backing plate can be installed to achieve proper clearance.

## REMOVAL > 5.7L, 6.4L

 **CAUTION:**

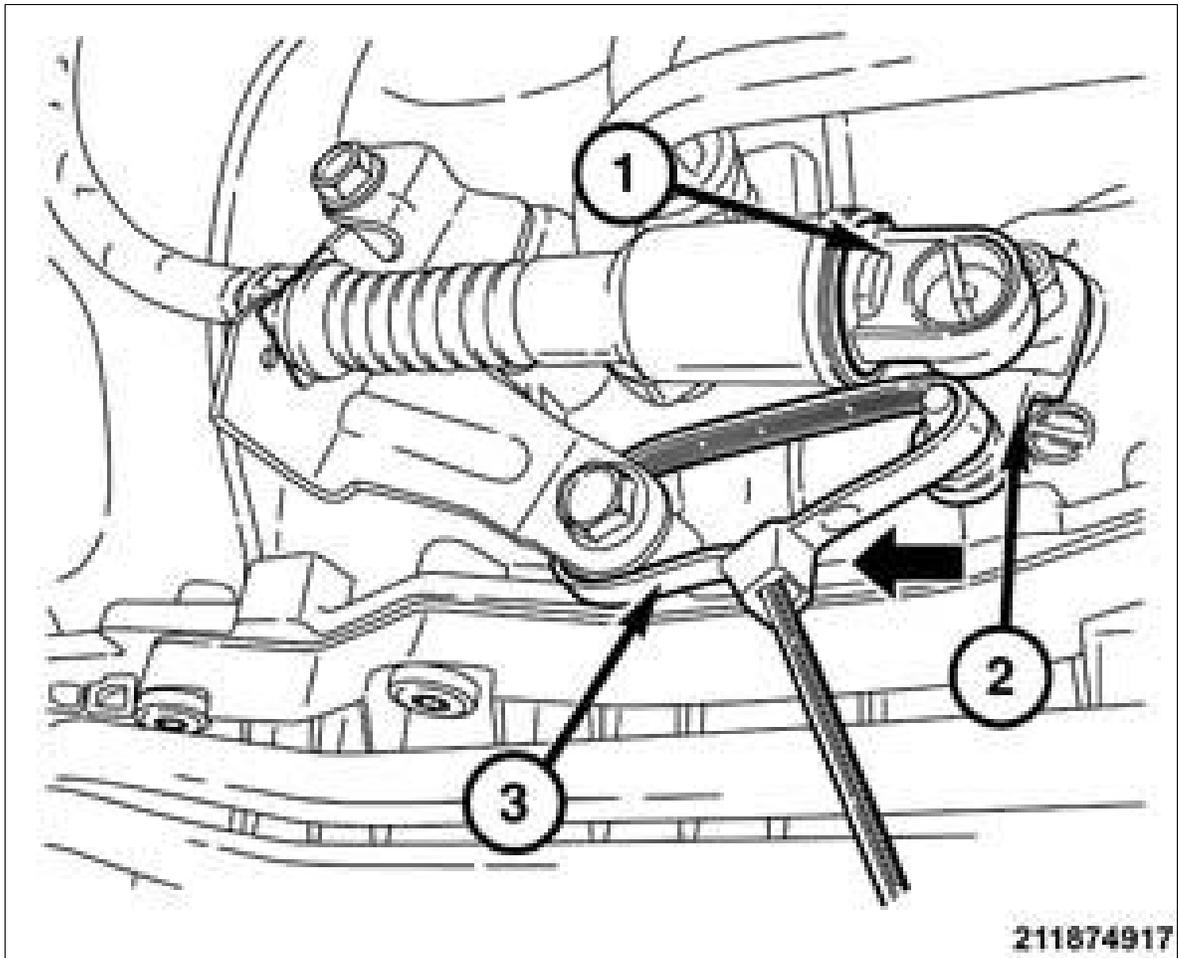
*The transmission and torque converter must be removed as an assembly to avoid component damage. The converter drive plate, oil pump, or oil seal can be damaged if the converter is left attached to the drive plate during removal. Be sure to remove the transmission and converter as an assembly.*

 **NOTE:**

*If the transmission is being reconditioned (clutch/seal replacement) or replaced, it is necessary to perform the TCM Adaptation Procedure using the scan tool. Refer to MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING .*

1. Disconnect the battery negative cable.
2. Raise and support the vehicle.
3. Remove the rear section of exhaust. Refer to MUFFLER, EXHAUST, REMOVAL .
4. Remove the heat shield below rear prop shaft.
5. If equipped, remove skid plates.

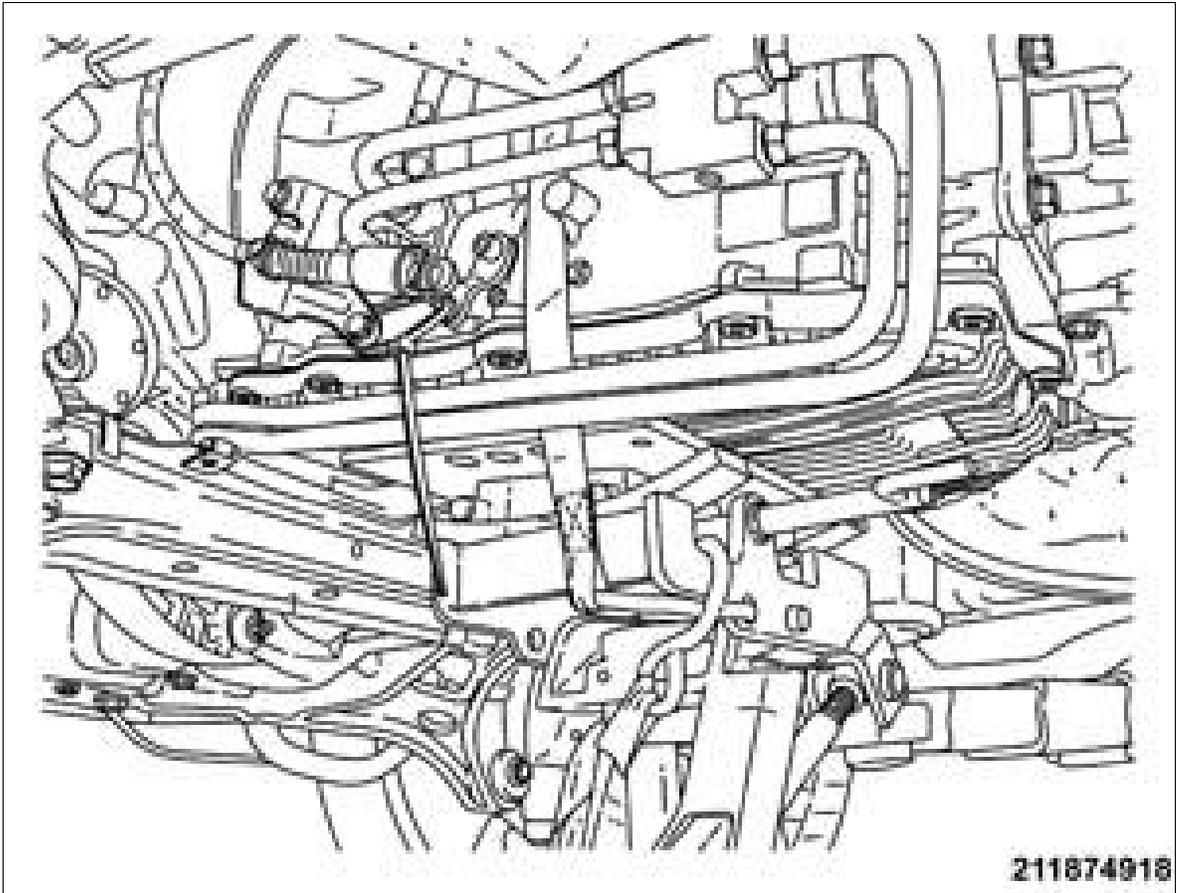
Fig 1: Mechanical Park Release Cable, Lever & Zip Tie



Courtesy of CHRYSLER GROUP, LLC

6. Disconnect the Mechanical Park Release (MPR) cable (1) from the lever (2).
7. Rotate the MPR lever (2) forward to engage neutral position and secure it with a suitable zip tie (3).
8. Remove the rear propeller shaft. Refer to SHAFT, DRIVE, REAR, REMOVAL .

Fig 2: Supporting Transmission With Jack



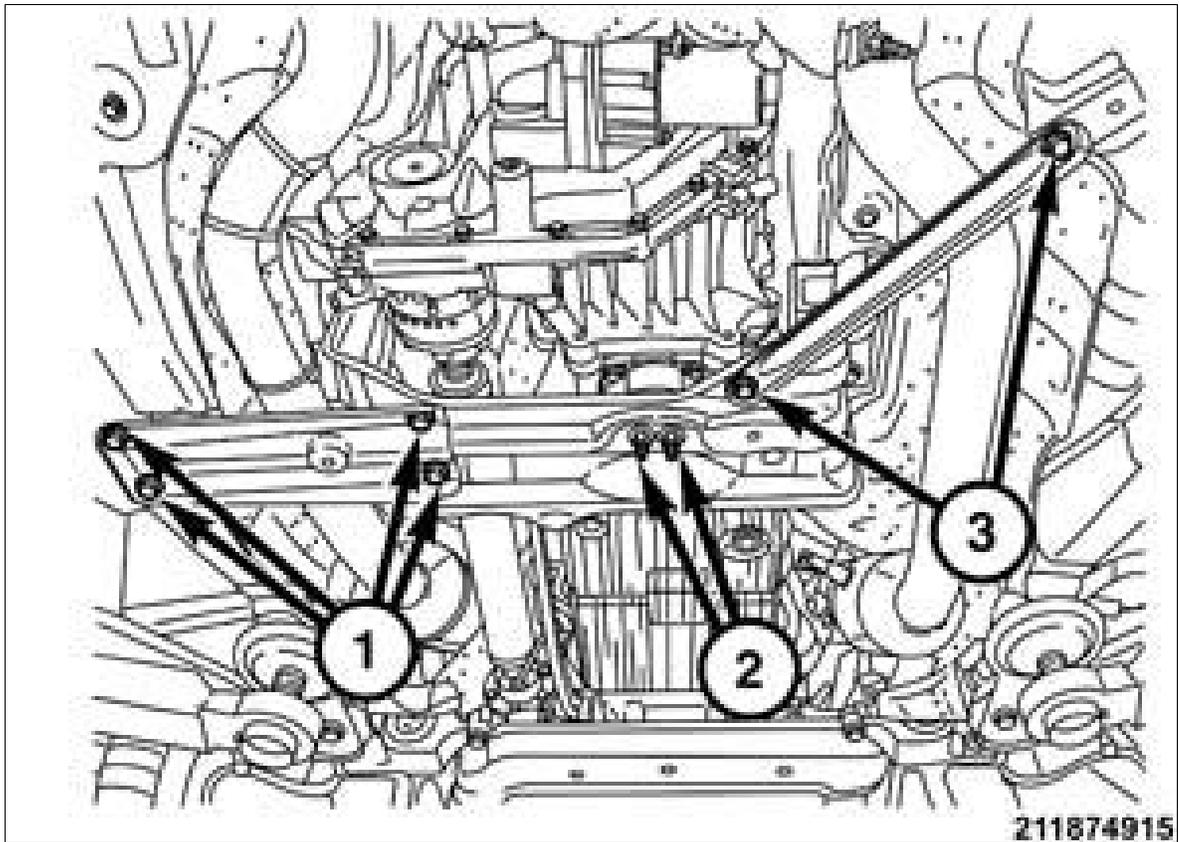
Courtesy of CHRYSLER GROUP, LLC

9. Support the transmission with a suitable jack.

 **NOTE:**

*Be careful not to damage to transmission pan.*

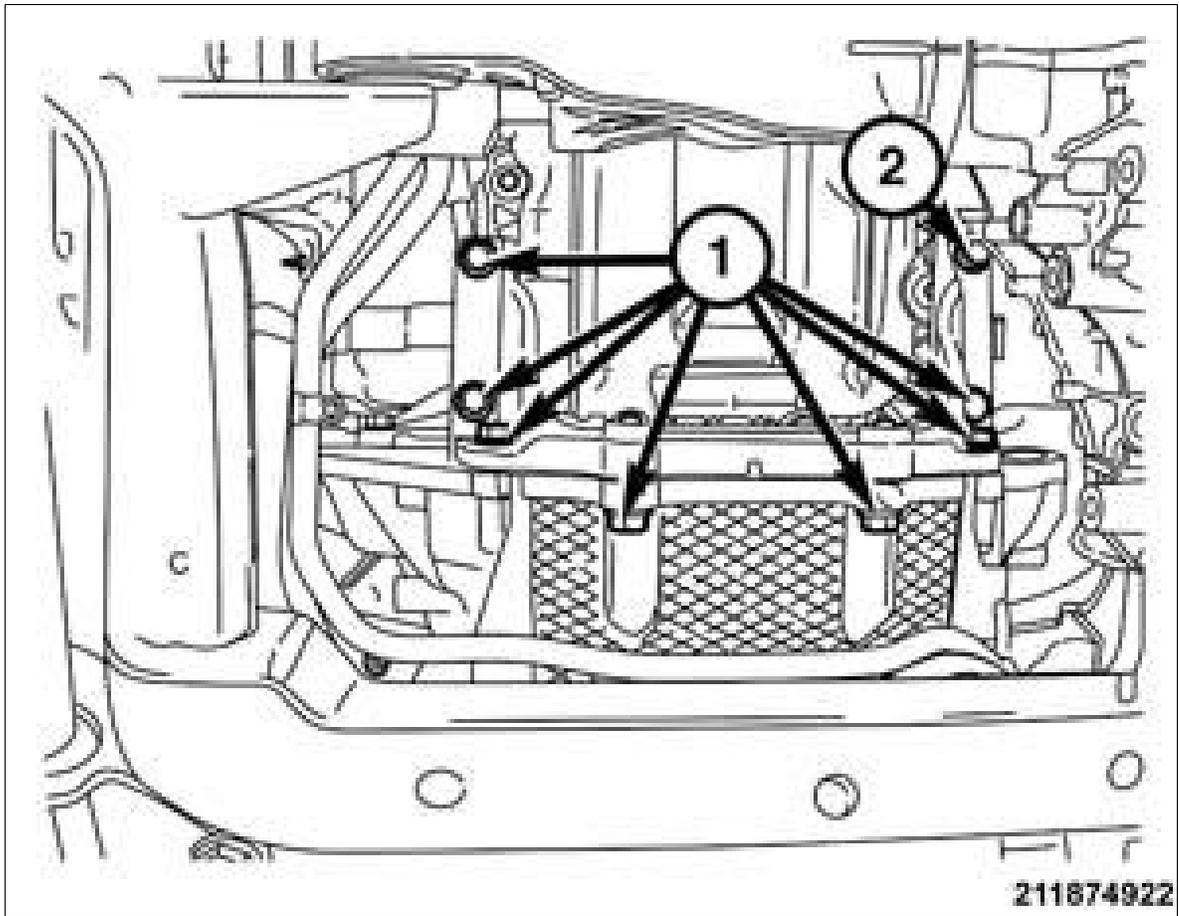
Fig 3: Crossmember Bolts & Nuts



Courtesy of CHRYSLER GROUP, LLC

10. Remove the transmission mount nuts (2).
11. Remove the cross-member bolts (1 and 3).
12. Remove the cross-member.
13. If 4WD, remove the front propeller shaft. Refer to SHAFT, DRIVE, FRONT, REMOVAL .
14. If 4WD, remove the front propeller shaft heat shield.
15. Remove the right and left side Catalytic converters. Refer to CONVERTER, CATALYTIC, REMOVAL .
16. Remove the starter. Refer to STARTER, REMOVAL .

Fig 4: Structural Cover Bolts



Courtesy of CHRYSLER GROUP, LLC

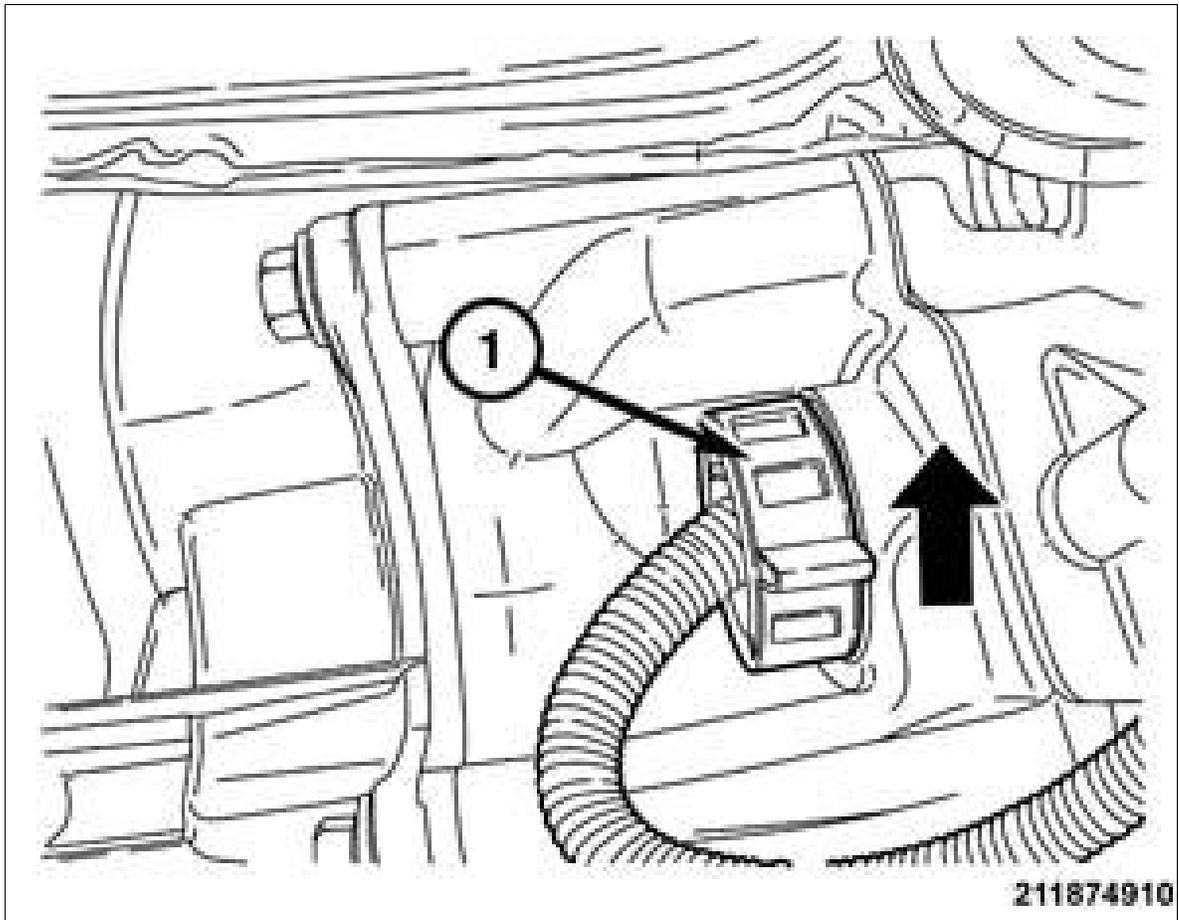
17. Remove the transmission to engine structural cover.

 **NOTE:**

*The left front bolt (2) must be removed with the structural cover.*

18. Remove the transfer case. For MP2010, refer to REMOVAL . For MP3010, refer to REMOVAL . For MP3023, refer to REMOVAL .

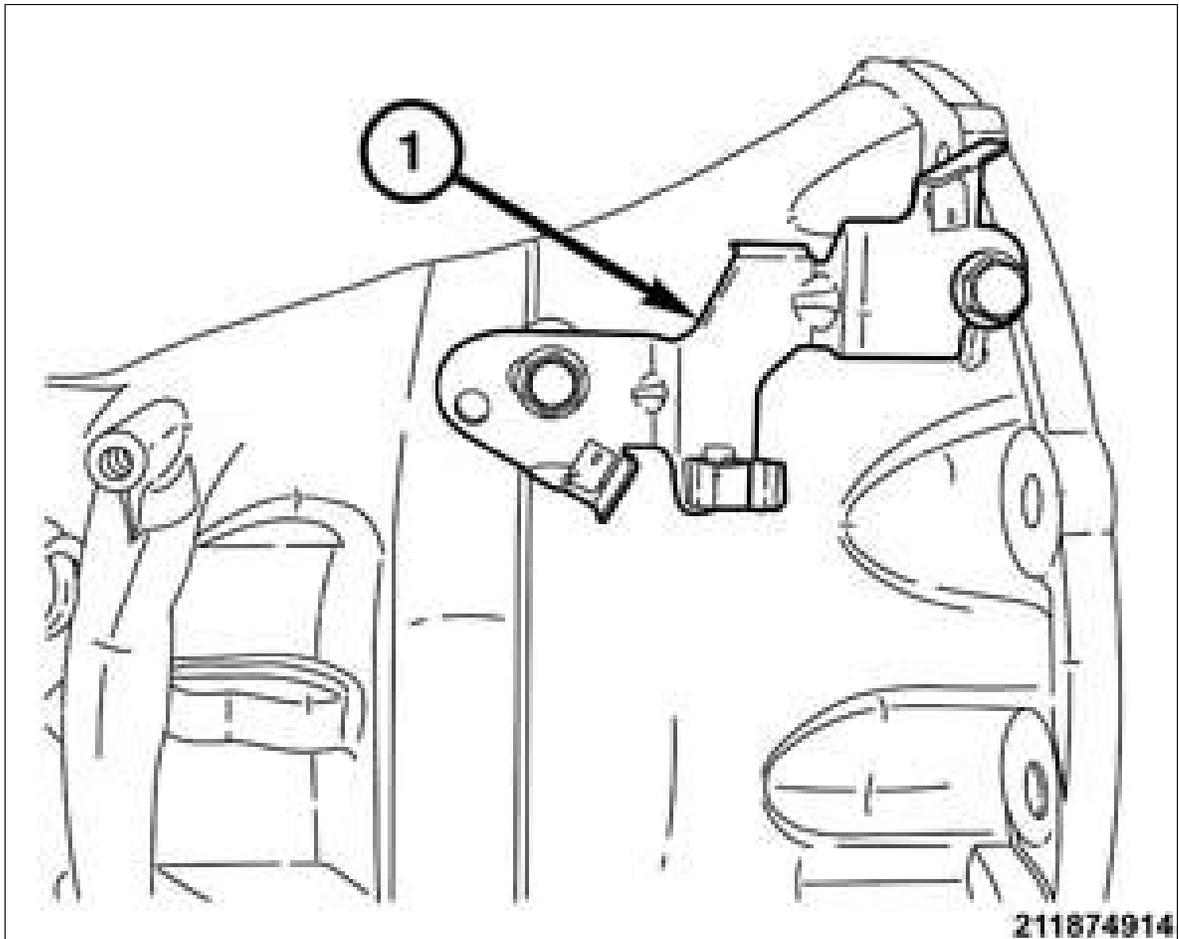
Fig 5: 13-Pin Plug Connector



Courtesy of CHRYSLER GROUP, LLC

19. Disconnect the 13-pin plug connector (1). Turn the connector counter-clockwise to release.
20. Unclip all remaining wiring harness from the transmission.

Fig 6: Wiring Harness Bracket



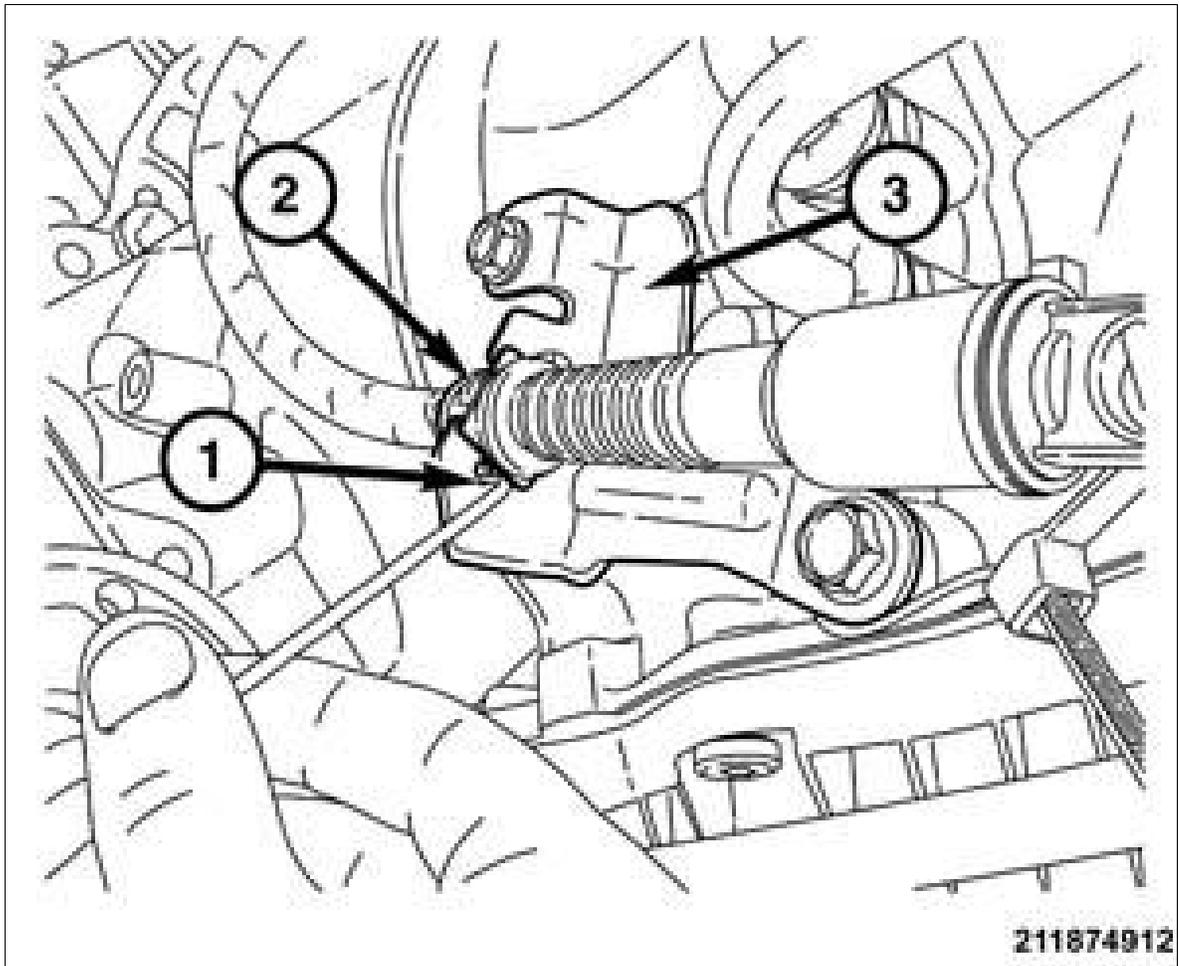
Courtesy of CHRYSLER GROUP, LLC

21. Remove the wiring harness bracket from the right side of the torque convertor housing.

 **NOTE:**

*Removing this bracket will gain clearance to the under body.*

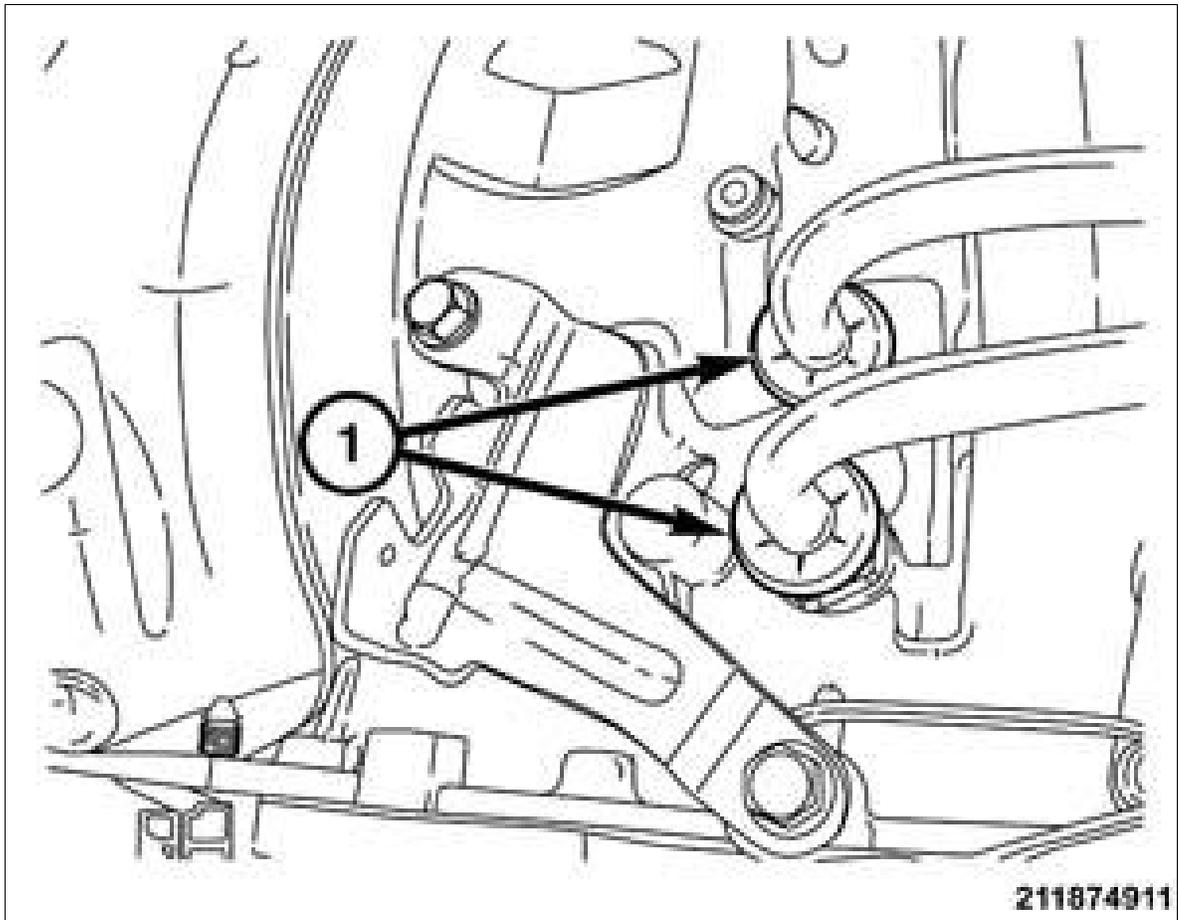
Fig 7: Locking Tab, MPR Cable & Bracket



Courtesy of CHRYSLER GROUP, LLC

22. Release the locking tab (1) from the MPR cable (2) and remove the cable from the bracket (3).

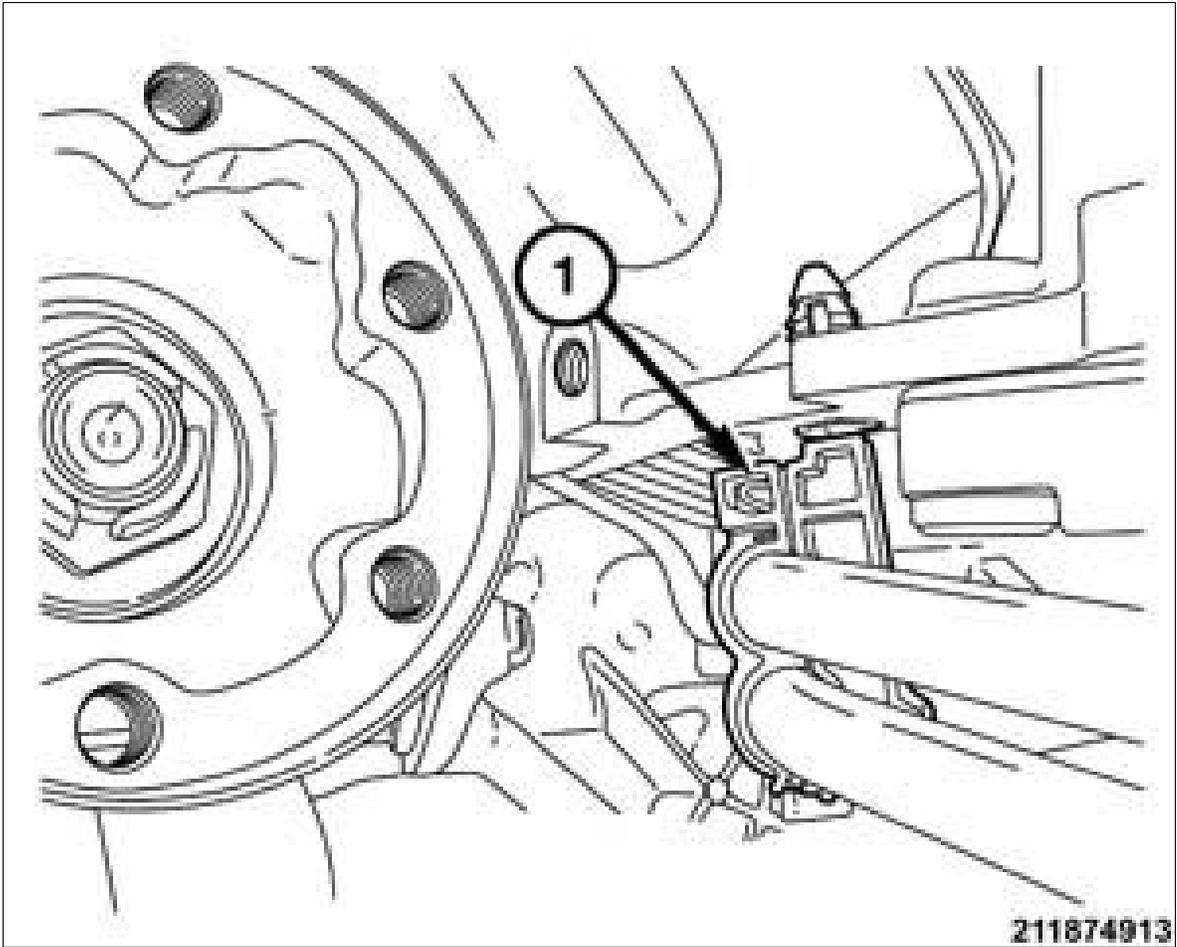
Fig 8: Locking Covers



Courtesy of CHRYSLER GROUP, LLC

23. Unclip the Jiffy Tite locking covers (1) and slide them back onto the transmission lines.
24. Using (special tool #9546, Disconnect Tool) remove the trans cooler lines.
25. Disconnect trans vent hose.

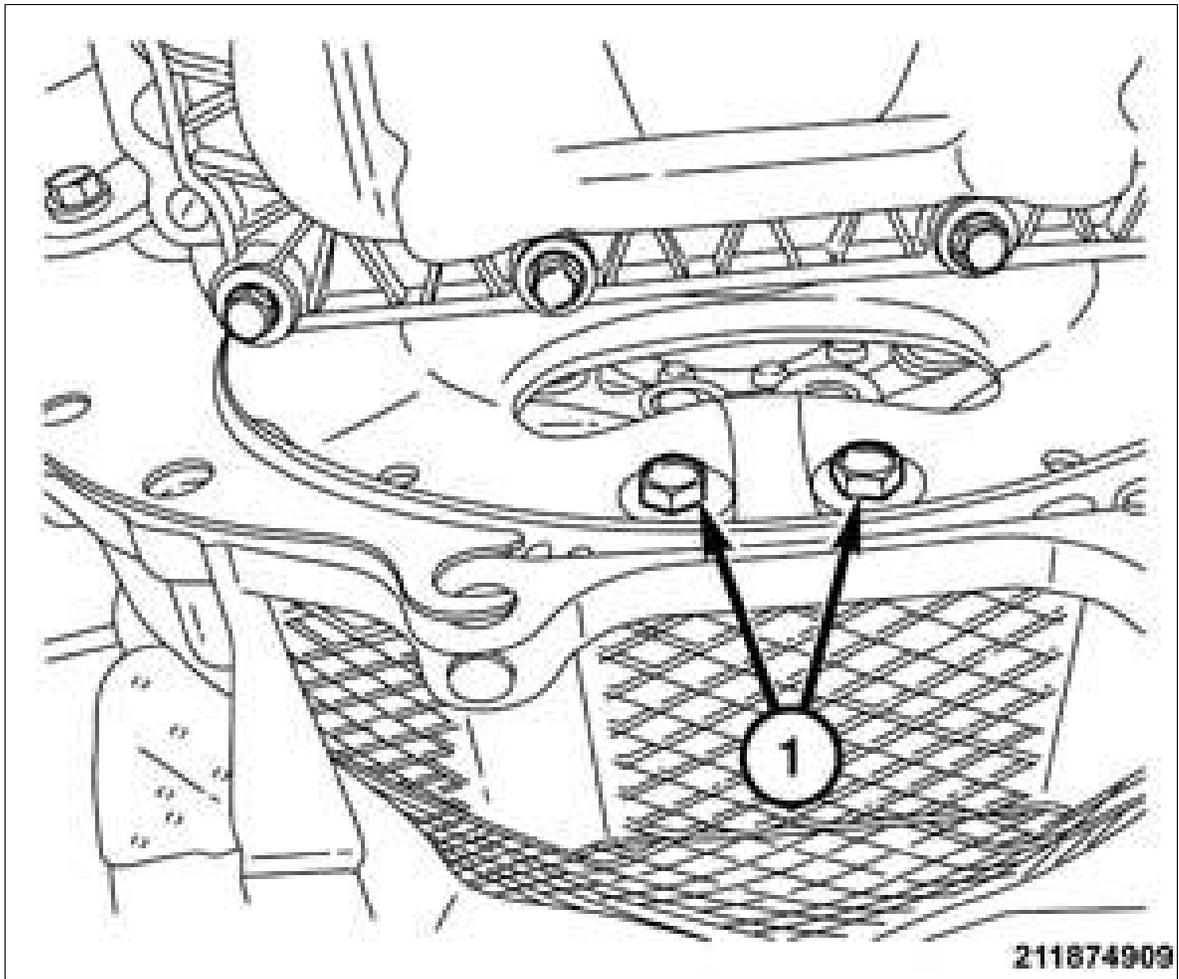
Fig 9: Cooler Line Clip



Courtesy of CHRYSLER GROUP, LLC

26. Disconnect left front cooler line clip (1).

Fig 10: Torque Converter Bolts



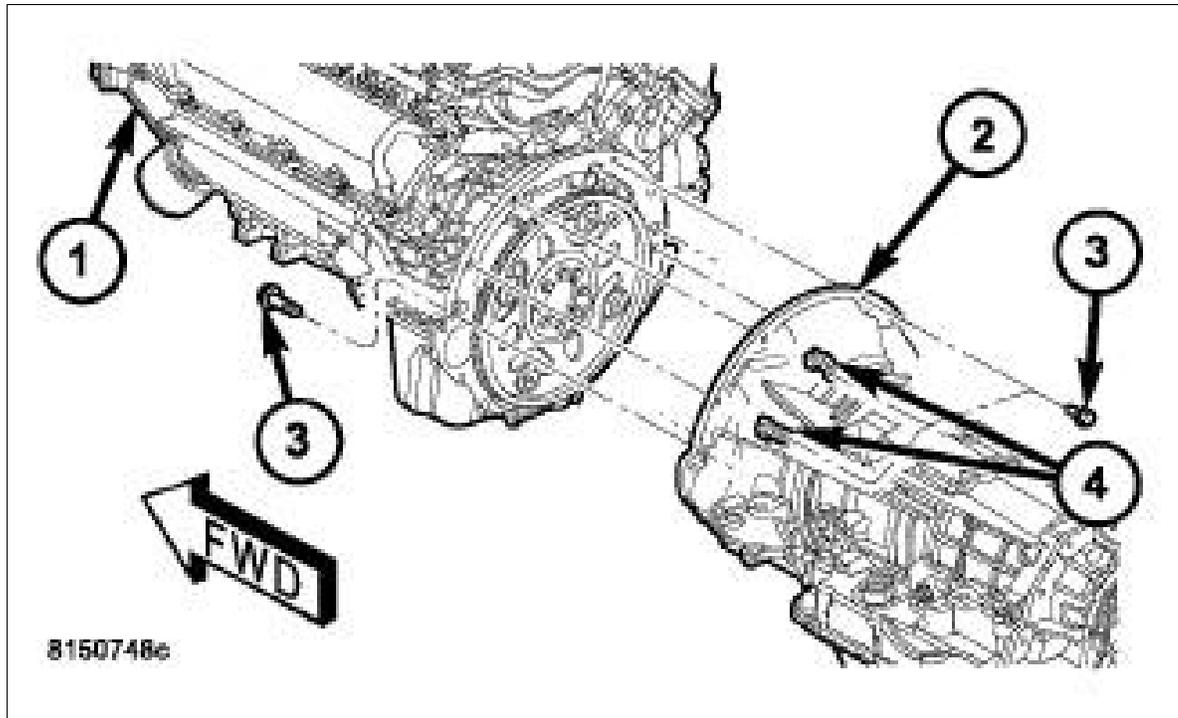
Courtesy of CHRYSLER GROUP, LLC

27. Remove six torque converter bolts (1).

 **NOTE:**

*There are three sets 2 torque converter bolts located 120° apart from each other.*

Fig 11: Removing/Installing Transmission To Engine Bolts



Courtesy of CHRYSLER GROUP, LLC

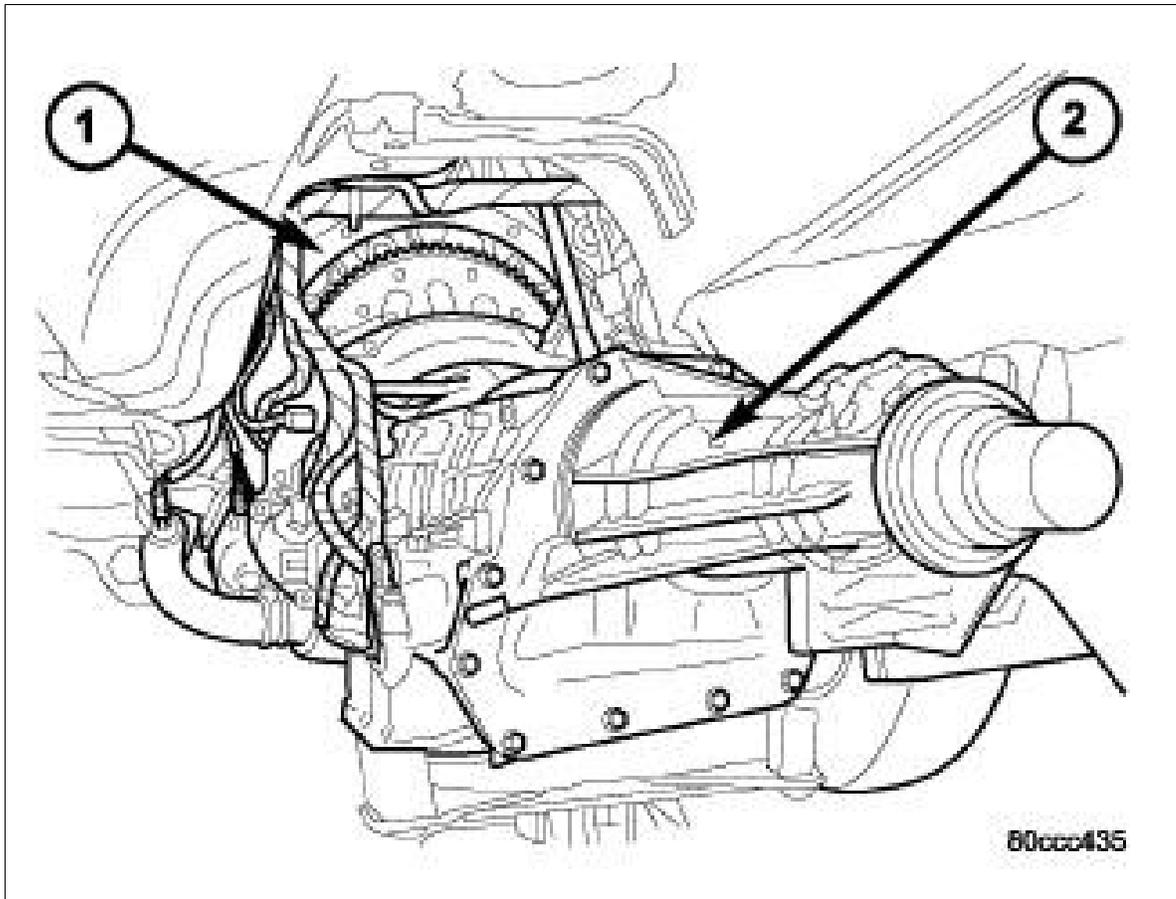
28. Remove two engine to transmission bolts (3).

 **NOTE:**

*It may be necessary to support the rear of the engine during transmission removal.*

29. Remove remaining transmission to engine bolts (4).

Fig 12: Identifying Transmission



Courtesy of CHRYSLER GROUP, LLC

30. Carefully work transmission (2) and torque converter assembly rearward off the engine (1) block dowels.

 **NOTE:**

*Be careful not to damage or bend the transmission oil cooler lines.*

31. Hold torque converter in place during transmission removal.
32. Lower transmission and remove assembly from under the vehicle.
33. To remove the torque converter, carefully slide the torque converter out of the transmission.

## REMOVAL > 3.0L DIESEL

 **CAUTION:**

*The transmission and torque converter must be removed as an assembly to avoid*

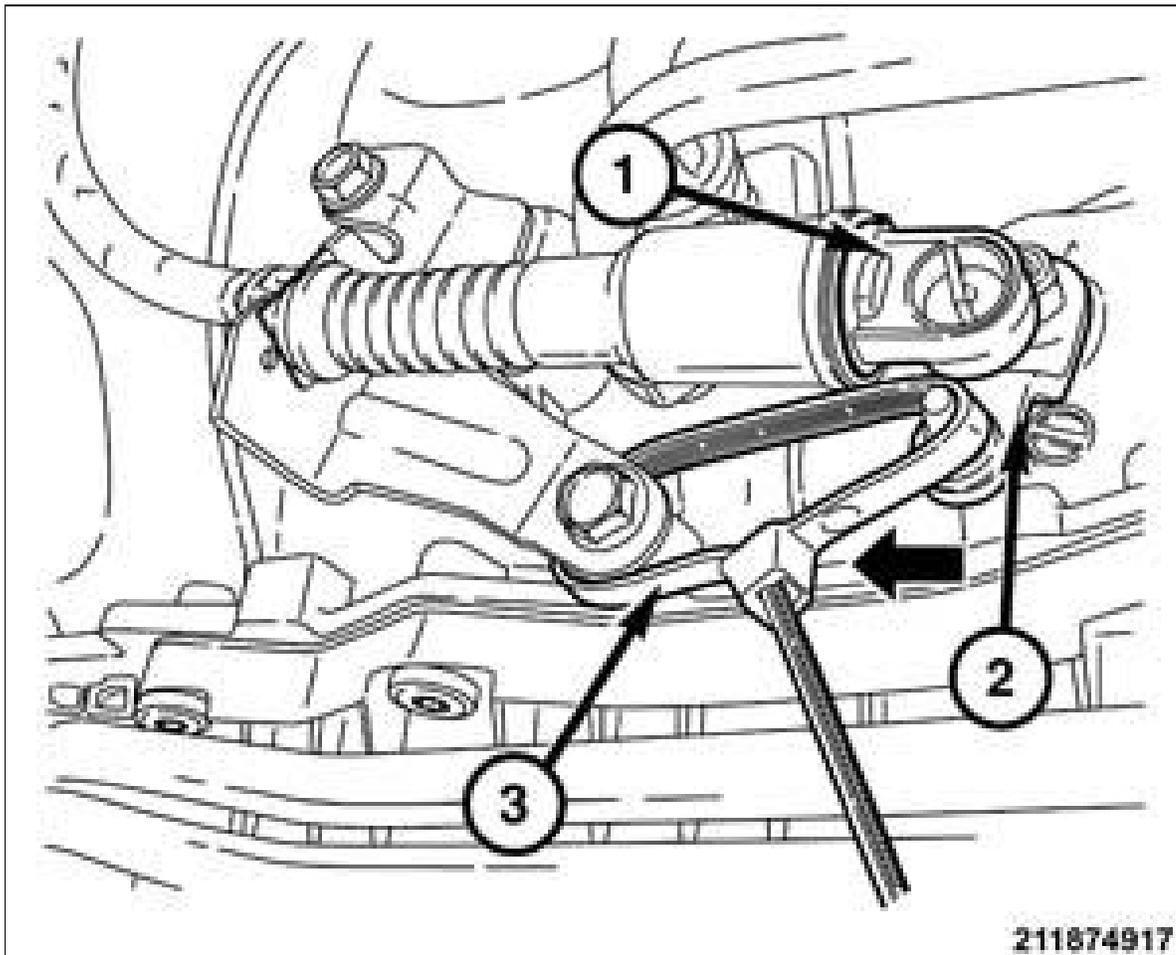
component damage. The converter drive plate, oil pump, or oil seal can be damaged if the converter is left attached to the drive plate during removal. Be sure to remove the transmission and converter as an assembly.

 **NOTE:**

If the transmission is being reconditioned (clutch/seal replacement) or replaced, it is necessary to perform the TCM Adaptation Procedure using the scan tool. Refer to *MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING* .

1. Disconnect the battery negative cable.
2. Raise and support the vehicle.
3. Remove the Selective Range Catalyst (SRC). Refer to *CATALYST, SELECTIVE CATALYTIC REDUCTION (SCR), REMOVAL* .
4. Remove the heat shield below rear prop shaft.
5. If equipped, remove all skid plates and close out panels.

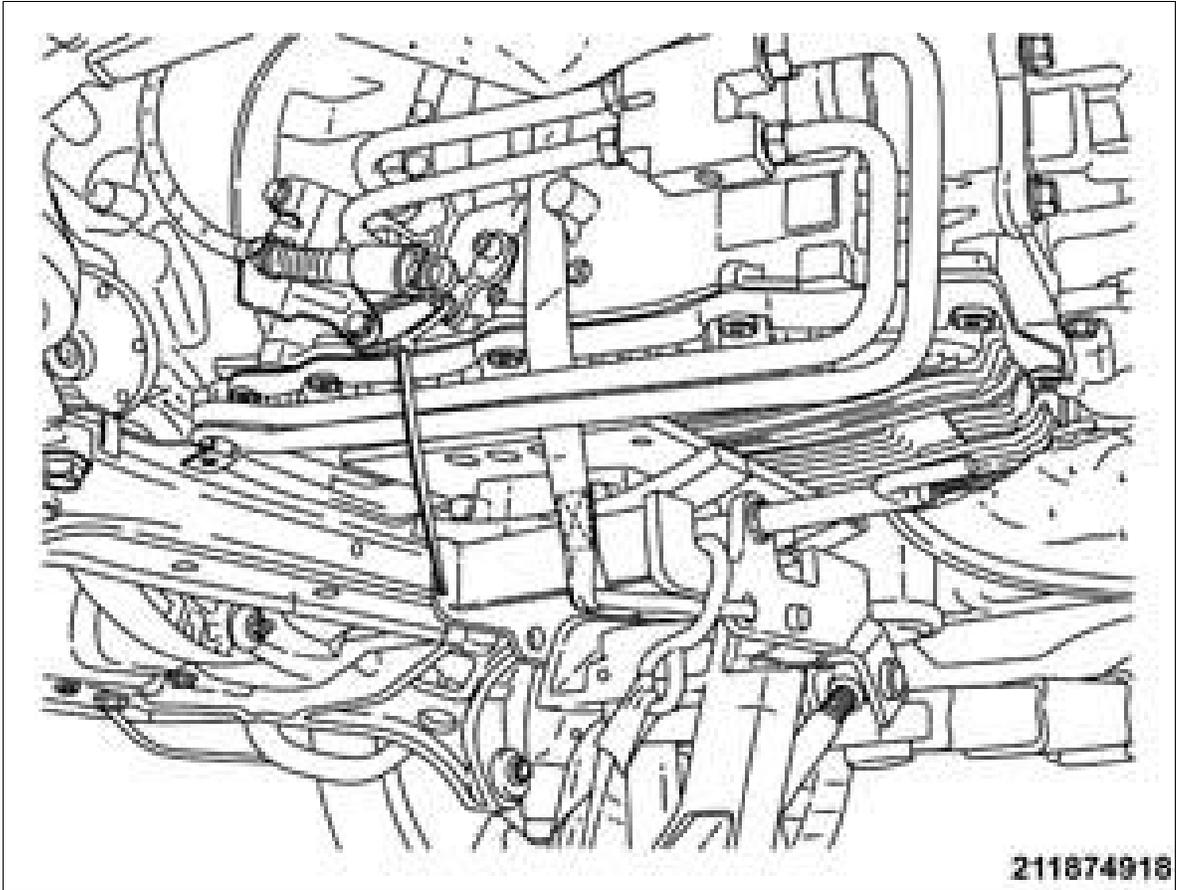
Fig 1: Mechanical Park Release Cable, Lever & Zip Tie



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6. Disconnect the Mechanical Park Release (MPR) cable (1) from the lever (2).
7. Rotate the MPR lever (2) forward to engage neutral position and secure it with a suitable zip tie (3).
8. Remove the rear propeller shaft. Refer to SHAFT, DRIVE, REAR, REMOVAL .

Fig 2: Supporting Transmission With Jack



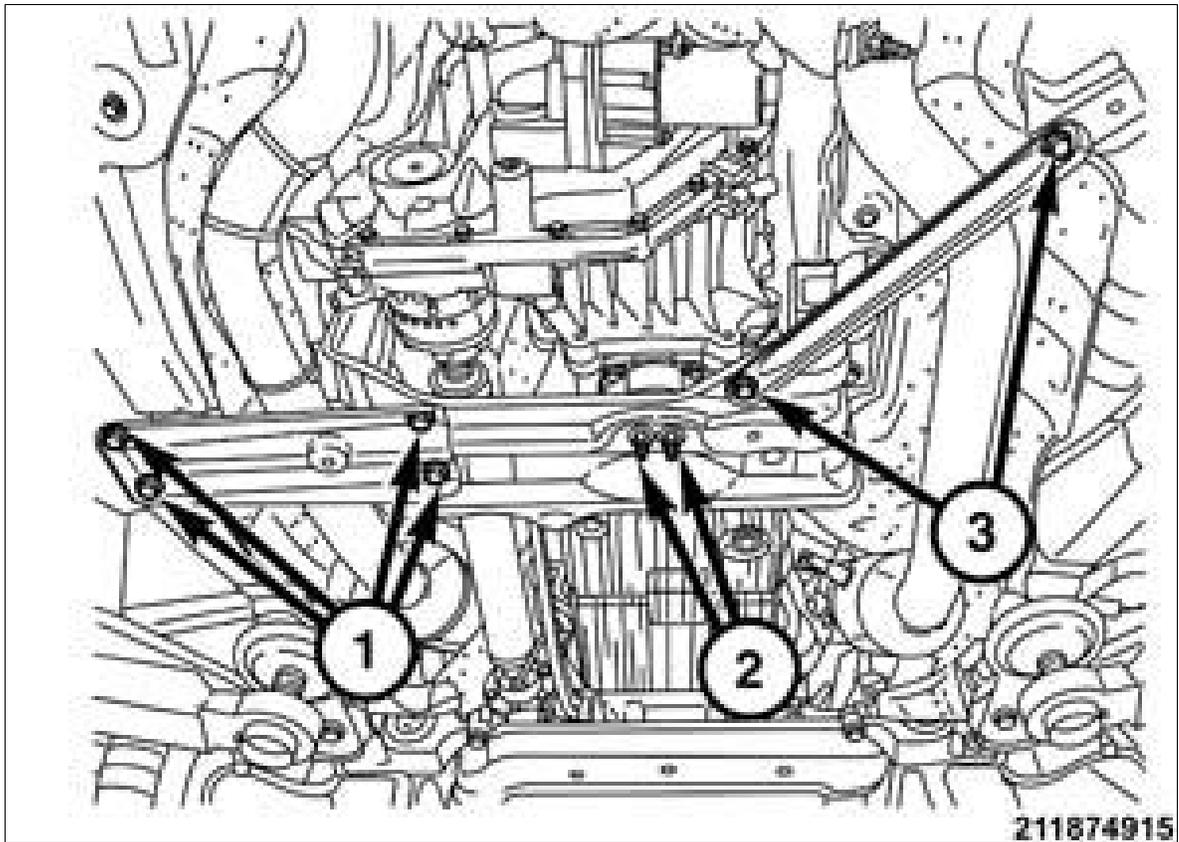
Courtesy of CHRYSLER GROUP, LLC

9. Support the transmission with a suitable jack.

 **NOTE:**

*Be careful not to damage to transmission pan.*

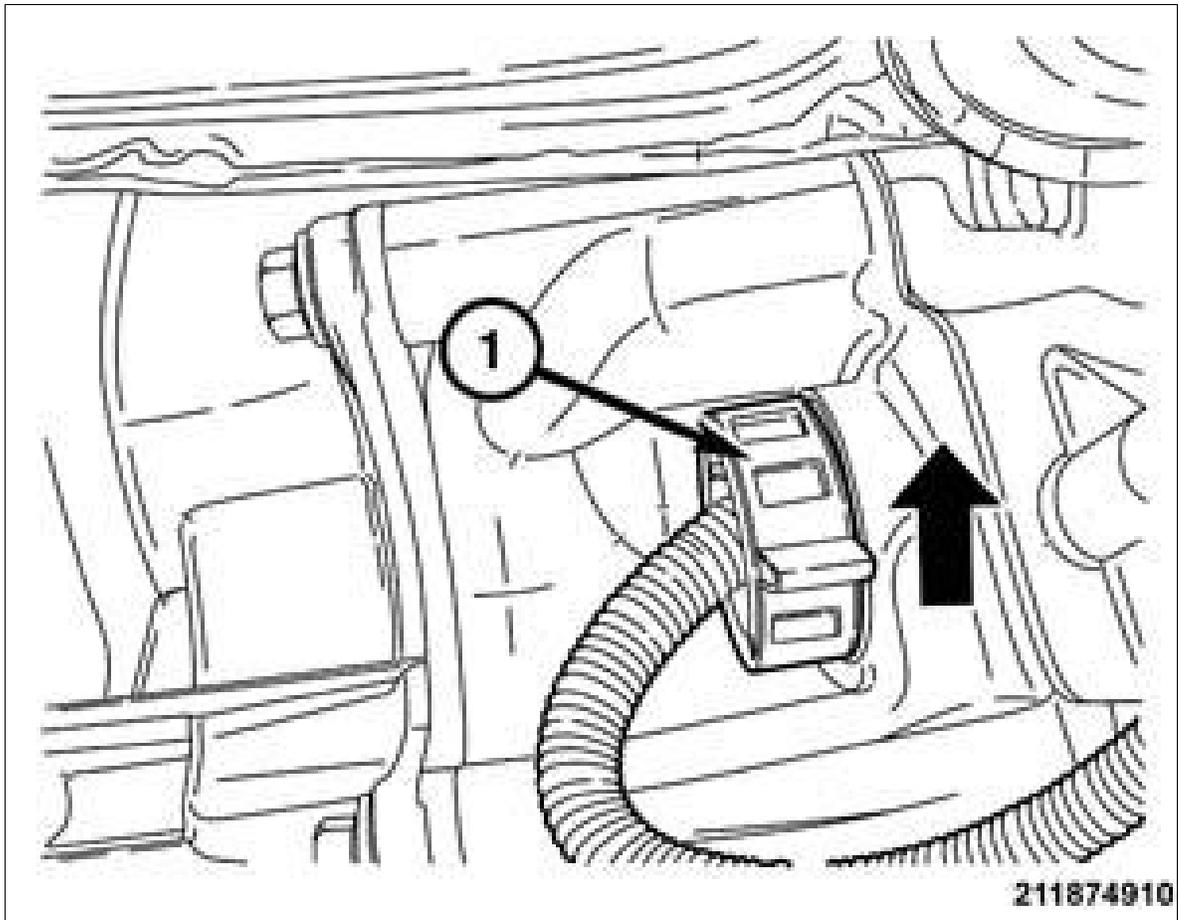
Fig 3: Crossmember Bolts & Nuts



Courtesy of CHRYSLER GROUP, LLC

10. Remove the transmission mount nuts (2).
11. Remove the cross-member bolts (1 and 3).
12. Remove the cross-member.
13. If 4WD, remove the front propeller shaft. Refer to SHAFT, DRIVE, FRONT, REMOVAL .
14. If 4WD, remove the front propeller shaft heat shield.
15. Remove the starter. Refer to STARTER, REMOVAL .
16. Remove the transfer case. For MP2010, refer to REMOVAL . For MP3010, refer to REMOVAL . For MP3023, refer to REMOVAL .

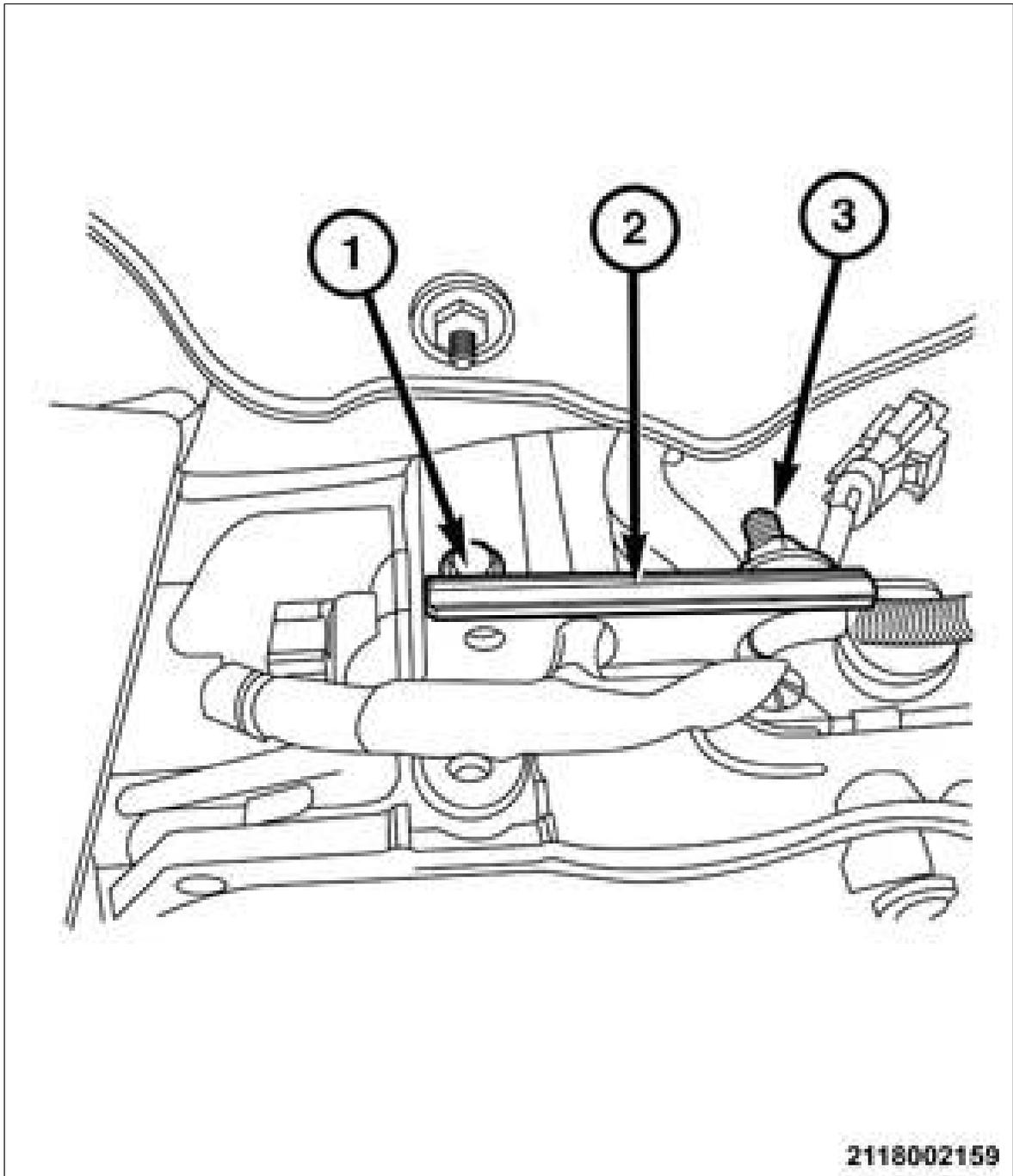
Fig 4: 13-Pin Plug Connector



Courtesy of CHRYSLER GROUP, LLC

17. Disconnect the 13-pin plug connector (1). Turn the connector counter-clockwise to release.

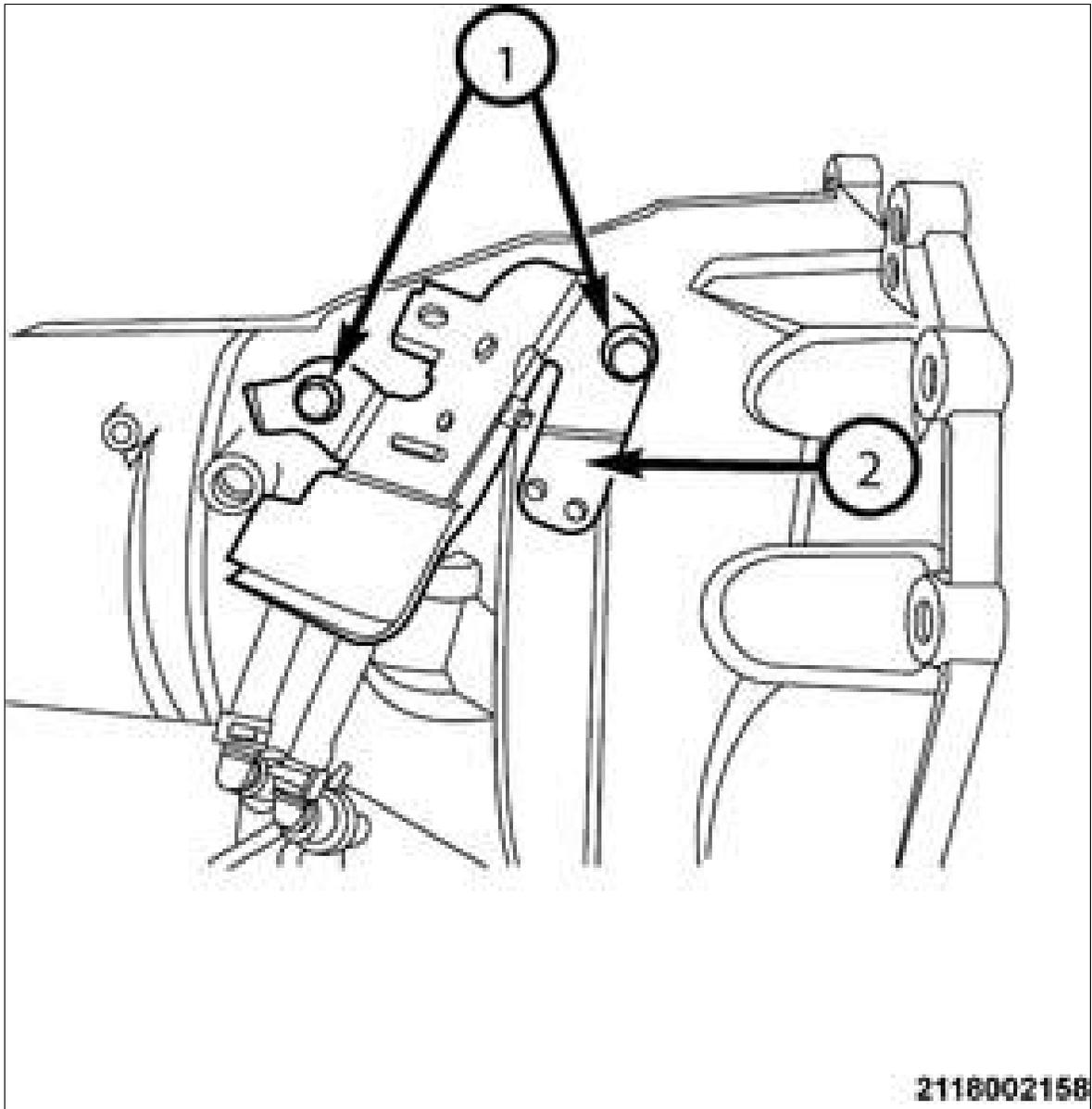
Fig 5: 13-Pin Connector Bracket & Bolts



Courtesy of CHRYSLER GROUP, LLC

18. Remove the 13-pin connector bracket (2) from the transmission case and exhaust.
19. Unclip all remaining wiring harness from the transmission.

Fig 6: Differential Pressure Sensor Bracket & Bolts



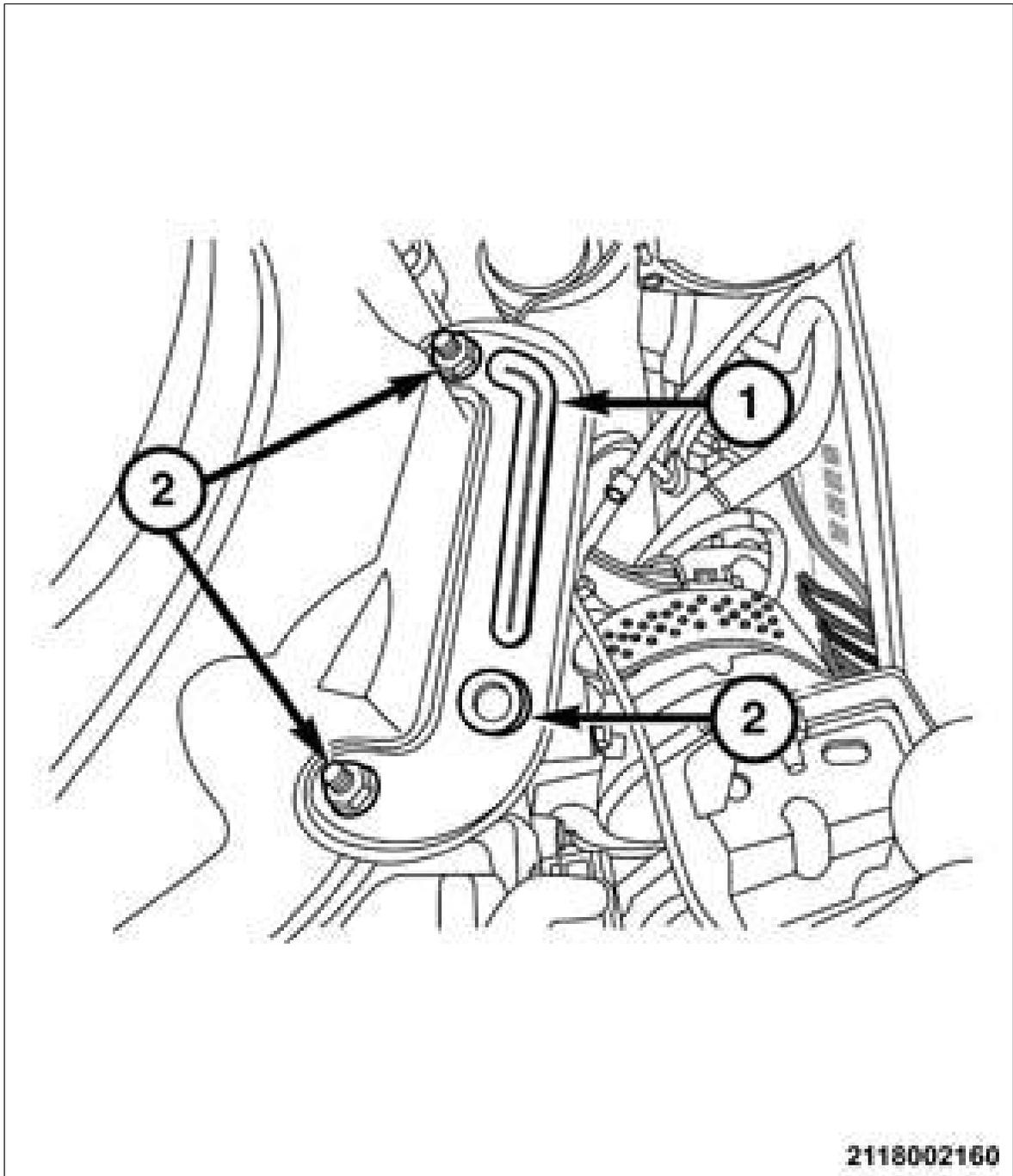
Courtesy of CHRYSLER GROUP, LLC

20. Remove the Differential pressure sensor bracket (1) from the right side of the torque convertor housing.

 **NOTE:**

*Removing this bracket will gain clearance to the under body.*

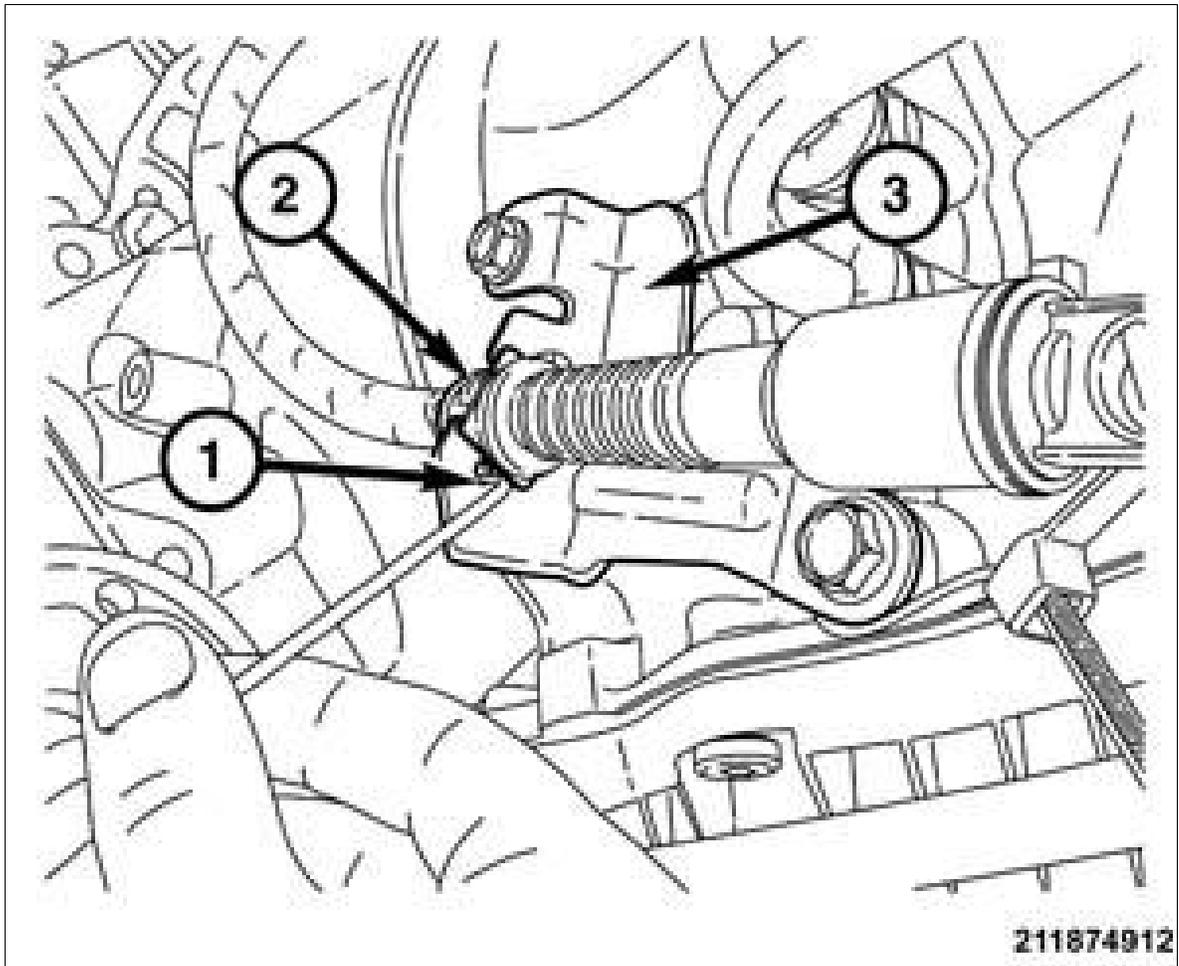
Fig 7: Exhaust Bracket & Bolts



Courtesy of CHRYSLER GROUP, LLC

21. Remove the exhaust bracket (1) from the convertor housing to the exhaust pipe.

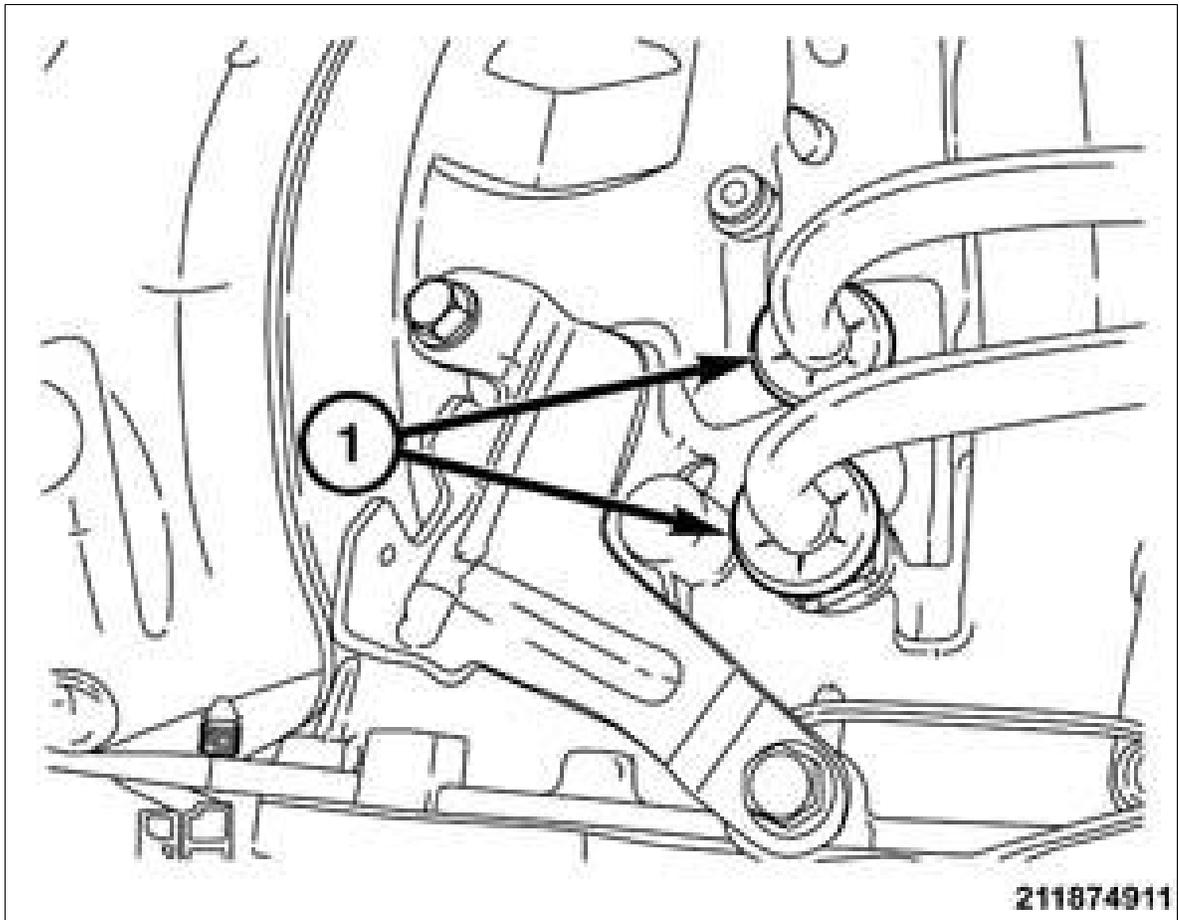
Fig 8: Locking Tab, MPR Cable & Bracket



Courtesy of CHRYSLER GROUP, LLC

22. Release the locking tab (1) from the MPR cable (2) and remove the cable from the bracket (3).

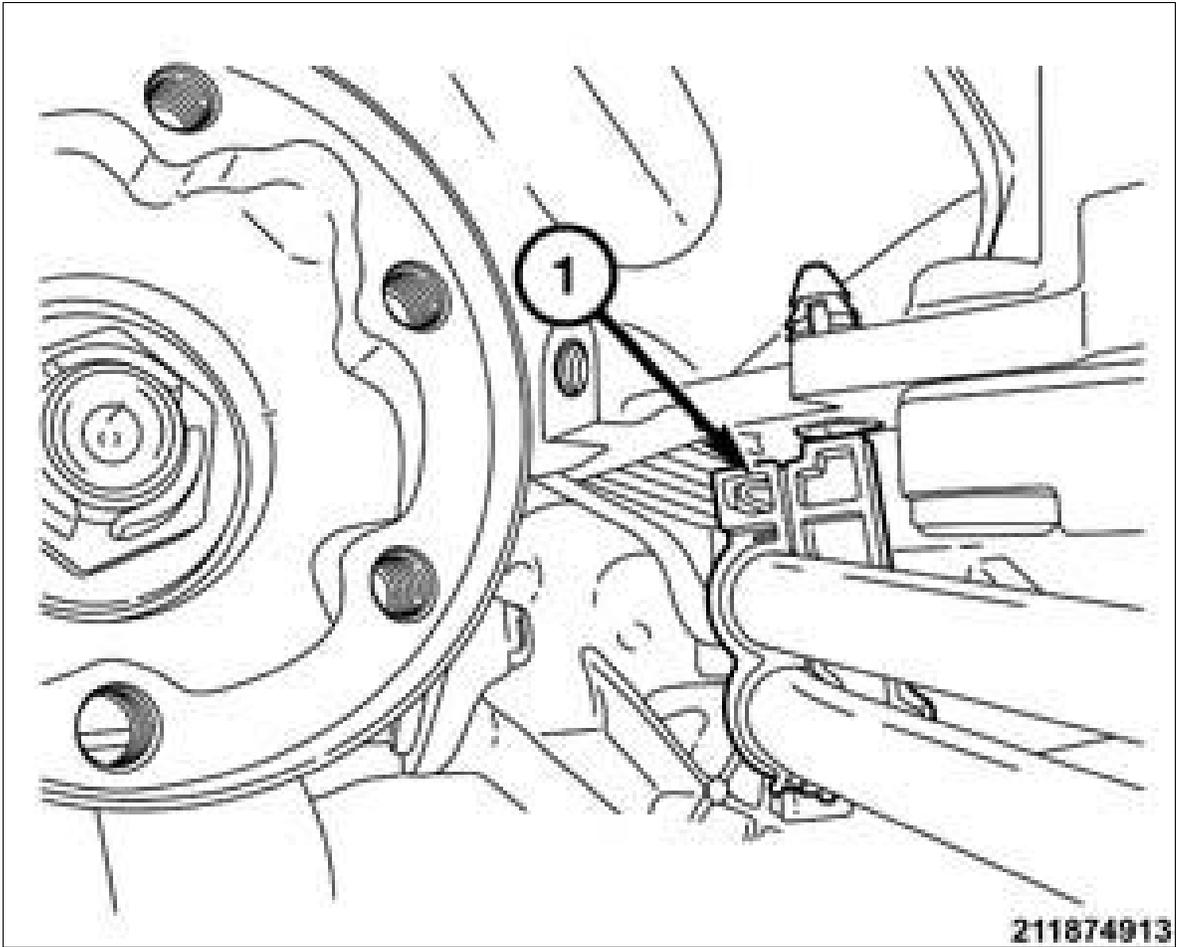
Fig 9: Locking Covers



Courtesy of CHRYSLER GROUP, LLC

23. Unclip the Jiffy Tite locking covers (1) and slide them back onto the transmission lines.
24. Using (special tool #9546, Disconnect Tool) remove the trans cooler lines.
25. Disconnect trans vent hose.

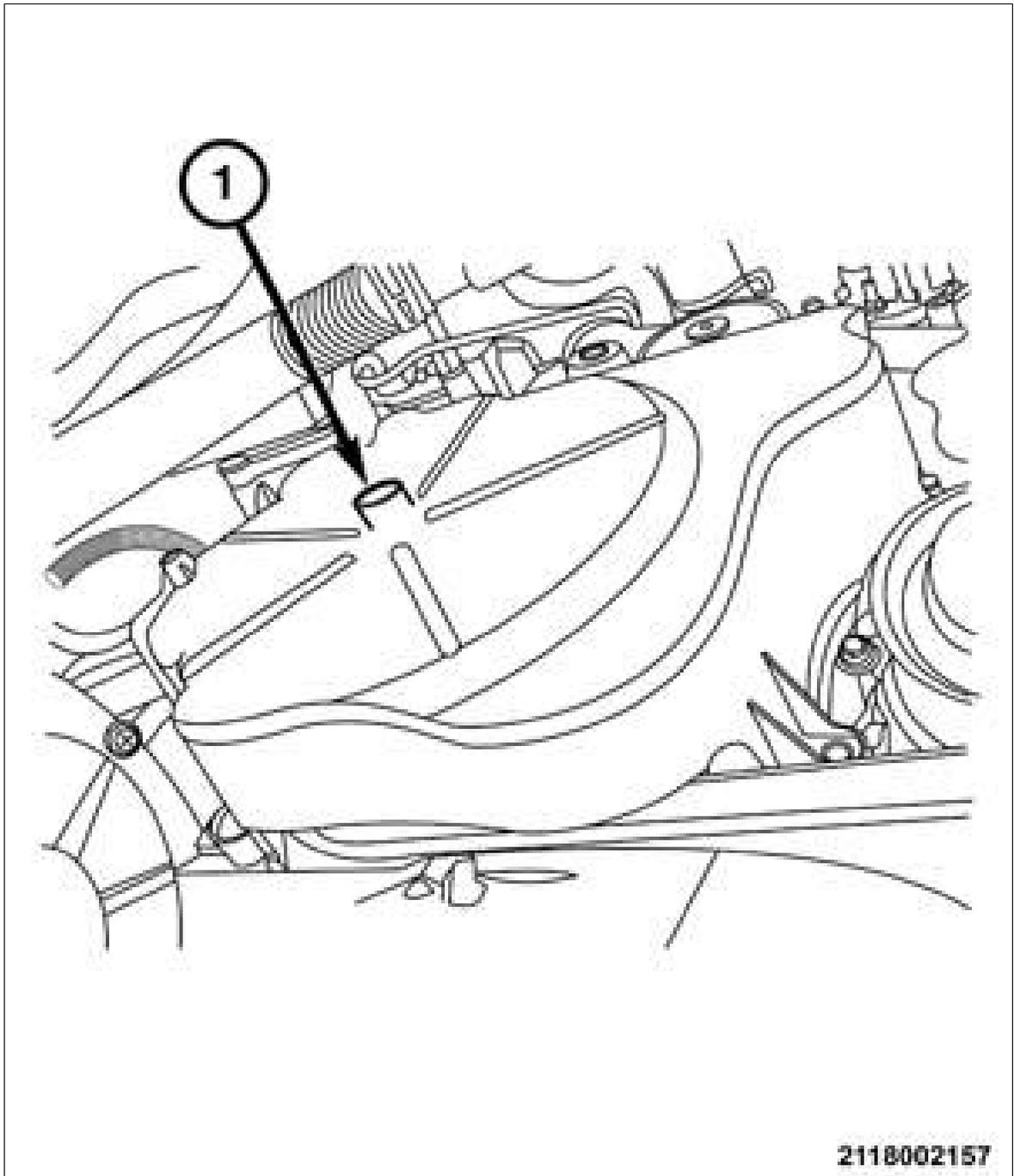
Fig 10: Cooler Line Clip



Courtesy of CHRYSLER GROUP, LLC

26. Disconnect left front cooler line clip (1).

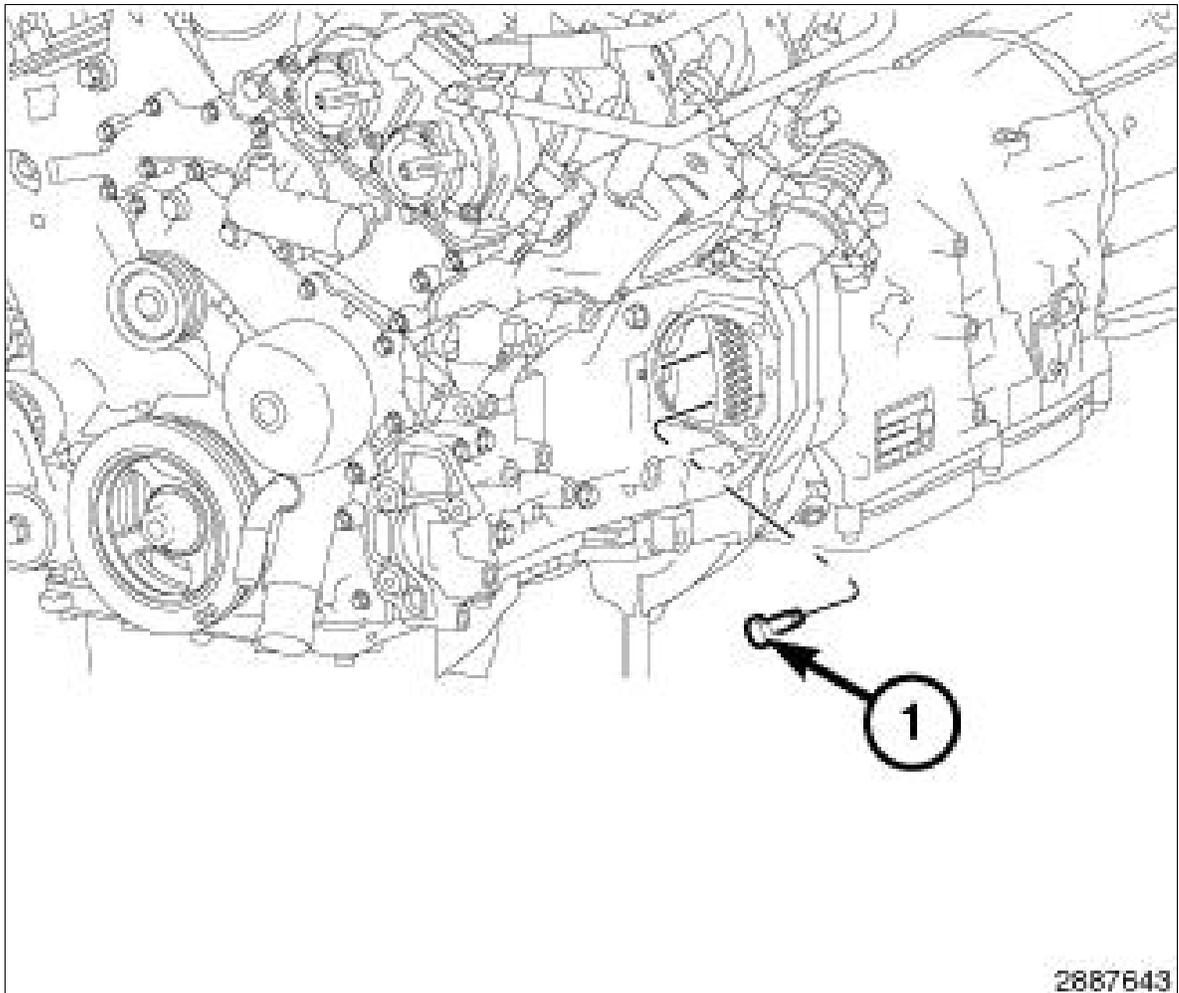
Fig 11: NVH Cover On Crankshaft Damper



Courtesy of CHRYSLER GROUP, LLC

27. Remove the NVH cover (1) from the crankshaft damper.

Fig 12: Torque Converter Bolts



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Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*3.6L engine shown, diesel starter pocket similar.*

28. Rotate crankshaft clockwise and remove six torque converter bolts (1) through the starter pocket.

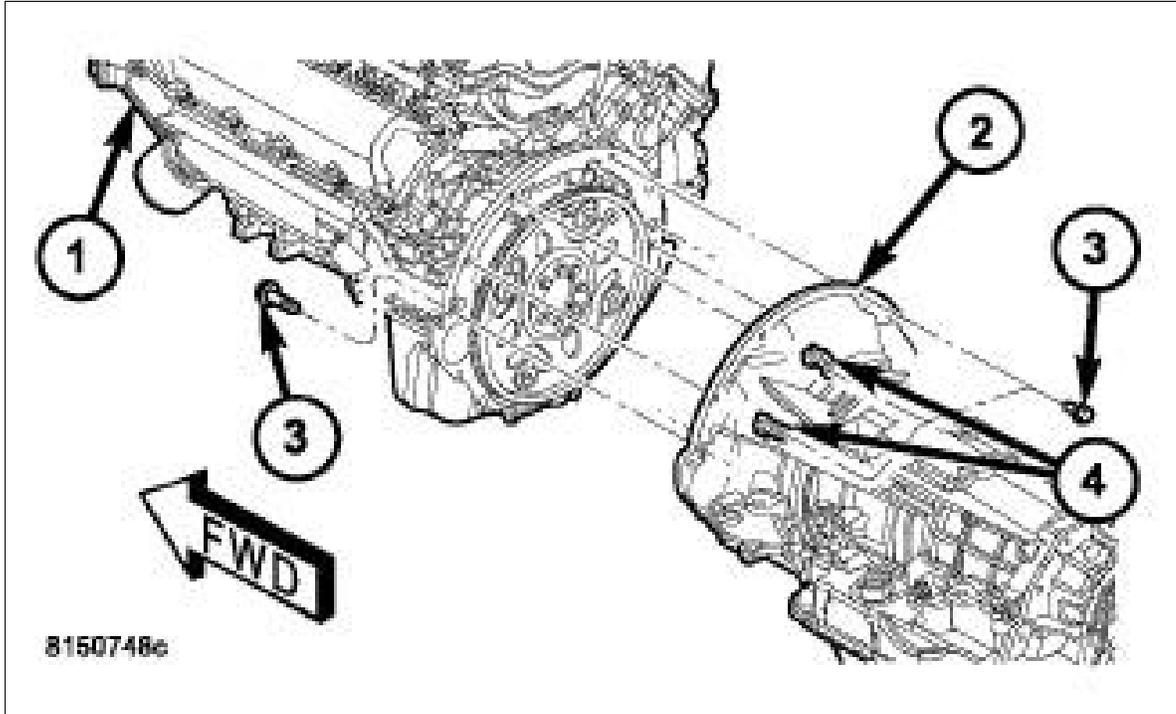
 **NOTE:**

*There are three sets 2 torque converter bolts located 120° apart from each other.*

 **NOTE:**

*If necessary, mark crankshaft pulley for torque converter bolt location every 120°*

Fig 13: Removing/Installing Transmission To Engine Bolts



Courtesy of CHRYSLER GROUP, LLC

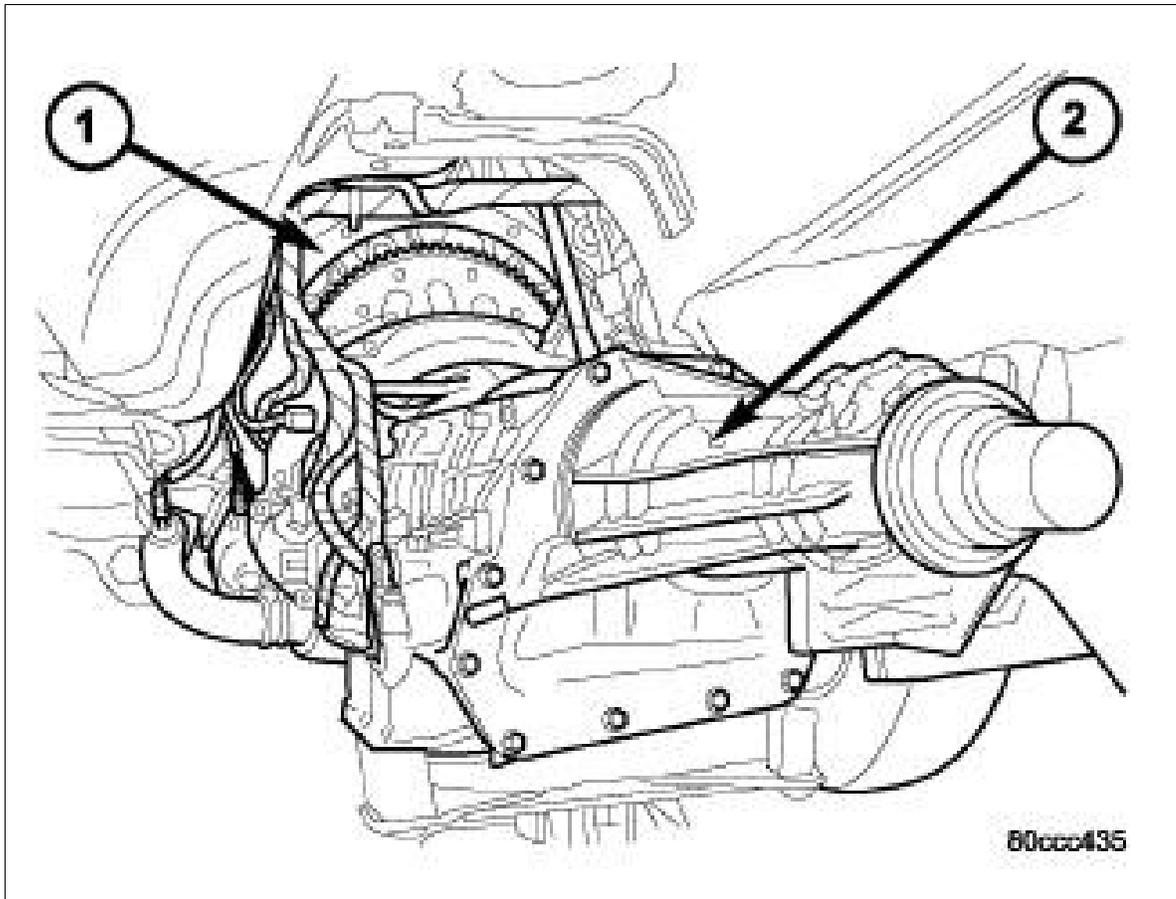
29. Remove two engine to transmission bolts (3).

 **NOTE:**

*It may be necessary to support the rear of the engine during transmission removal.*

30. Remove remaining transmission to engine bolts (4).

Fig 14: Identifying Transmission



Courtesy of CHRYSLER GROUP, LLC

31. Carefully work transmission (2) and torque converter assembly rearward off the engine (1) block dowels.

 **NOTE:**

*Be careful not to damage or bend the transmission oil cooler lines.*

32. Hold torque converter in place during transmission removal.
33. Lower transmission and remove assembly from under the vehicle.
34. To remove the torque converter, carefully slide the torque converter out of the transmission.

## DISASSEMBLY > DISASSEMBLY

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly*

*(TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*



**NOTE:**

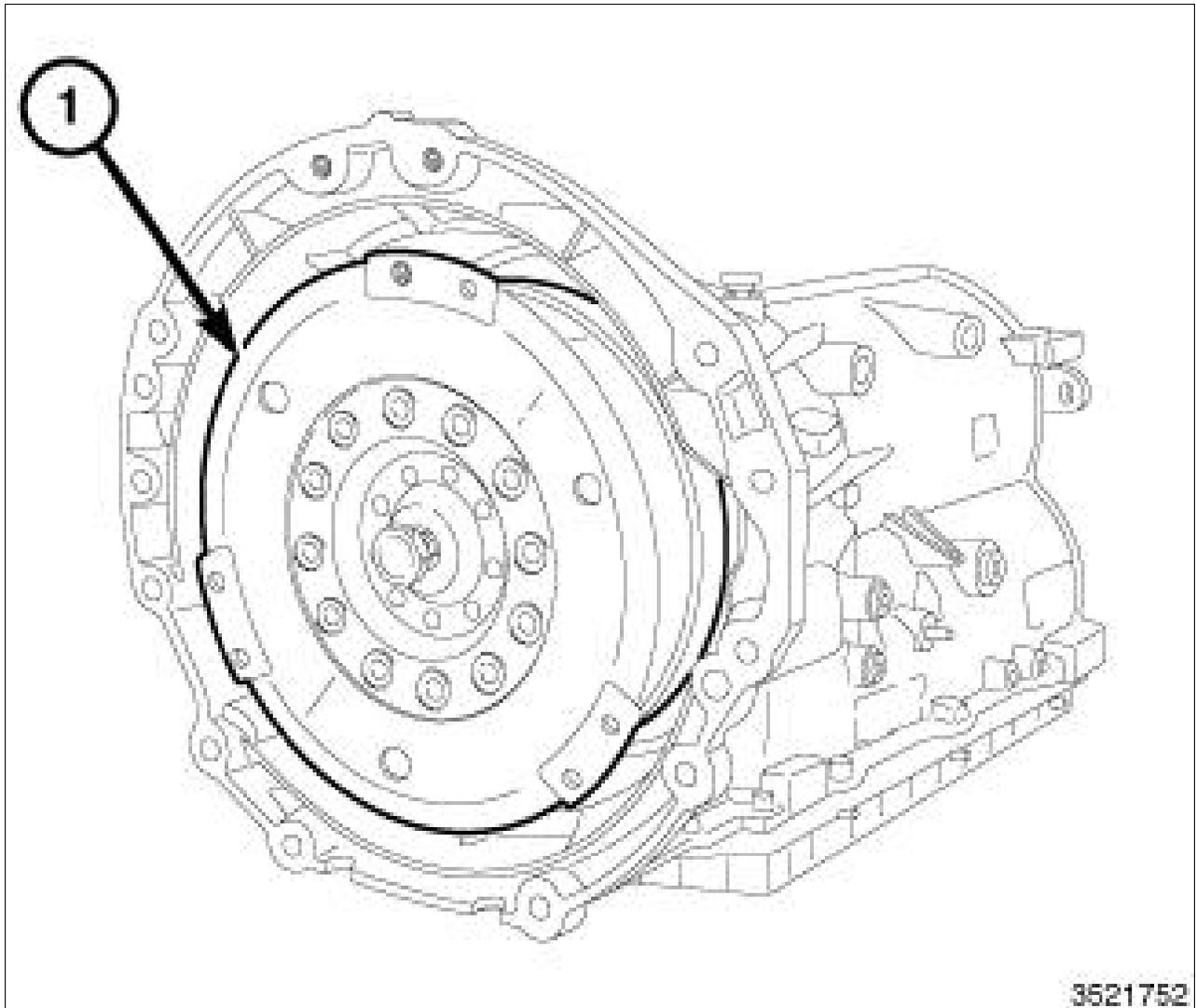
*If the transmission is being reconditioned (clutch/seal replacement) or replaced, it is necessary to perform the TCM Adaptation Procedure. Refer to MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING .*



**NOTE:**

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

Fig 1: Torque Converter



Courtesy of CHRYSLER GROUP, LLC

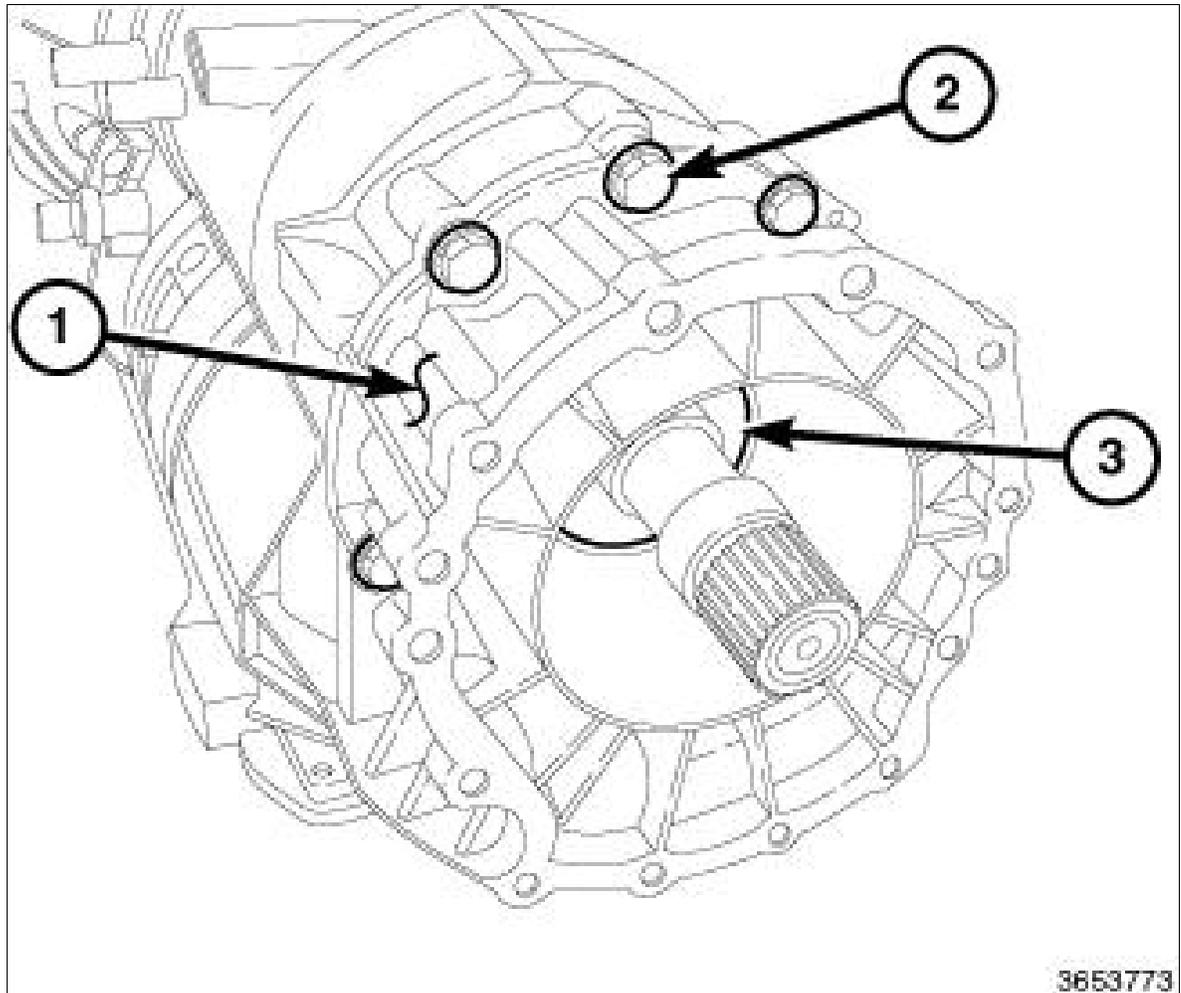


**NOTE:**

*Rear Wheel Drive (RWD) shown, All Wheel Drive (AWD) similar.*

1. Remove the torque converter (1).

Fig 2: Transmission Housing Extension Bolts, Housing & Rear Oil Seal (AWD)



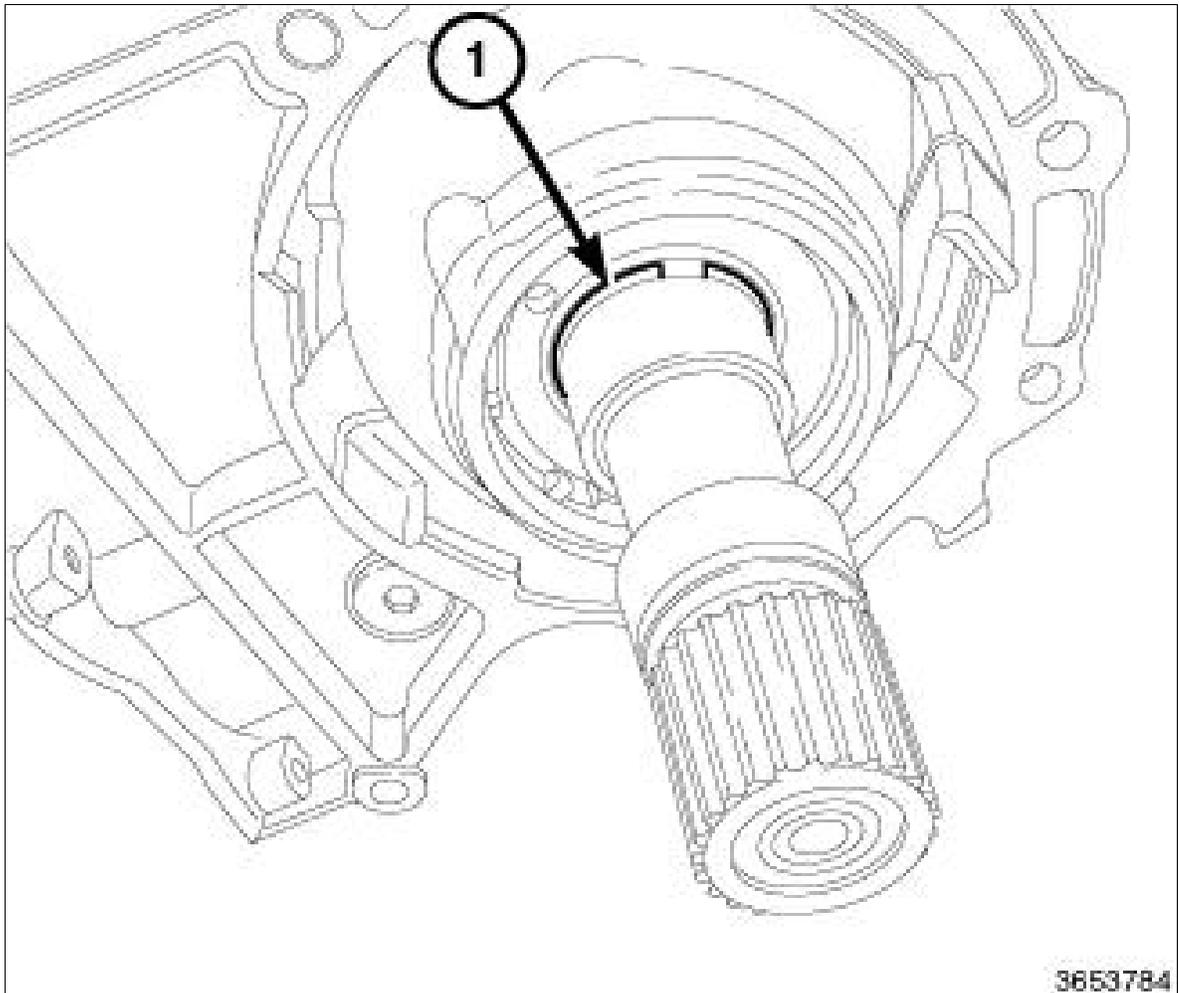
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*AWD only.*

2. Remove the transmission housing extension bolts (2) and remove the housing (1).
3. Remove the transmission rear oil seal (3) with a suitable slide hammer and screw.

Fig 3: Output Shaft Snap Ring (AWD)



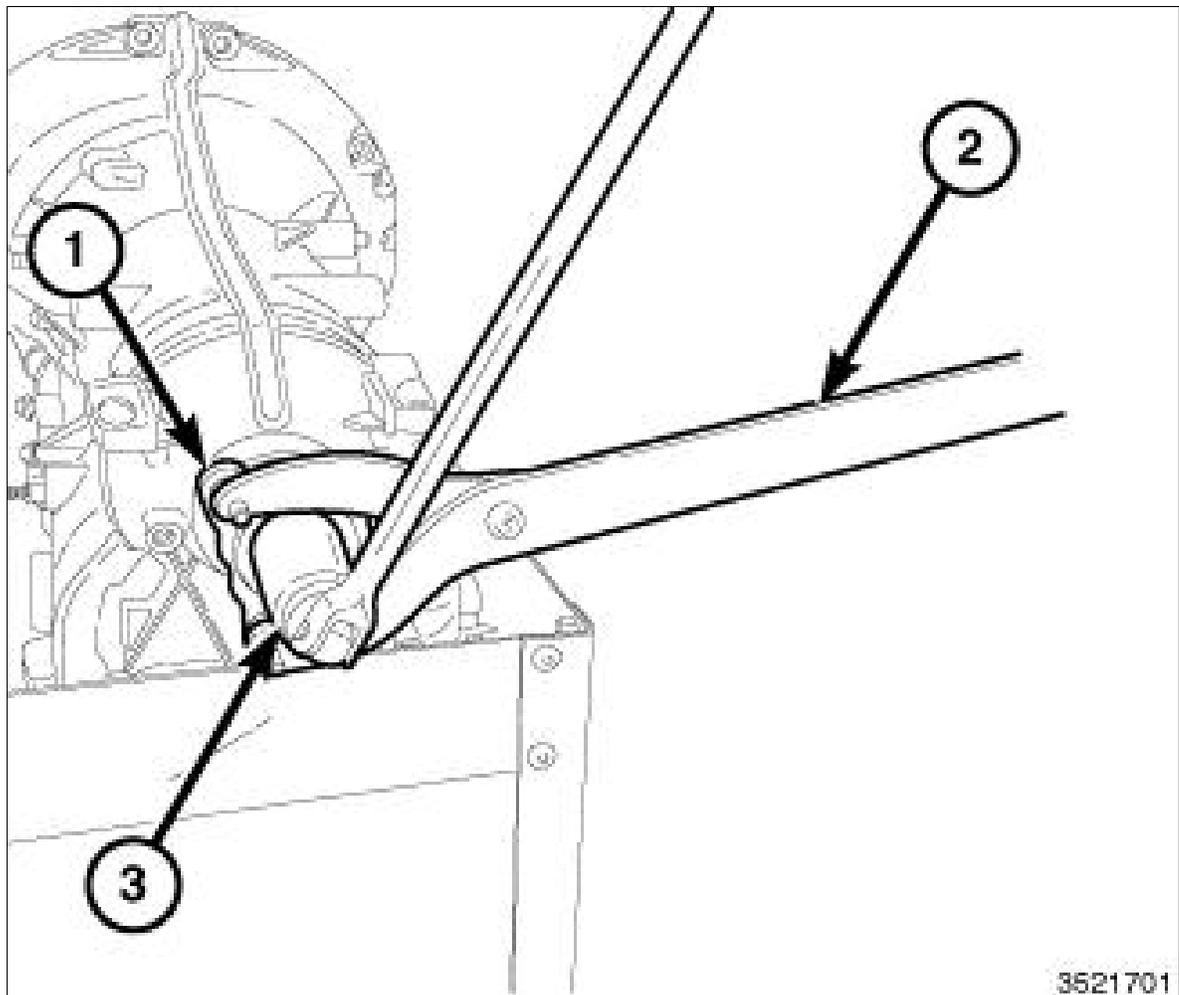
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*AWD only.*

4. Remove the output shaft snap ring (1) and washer.

Fig 4: Flange, Flange Holder & Socket



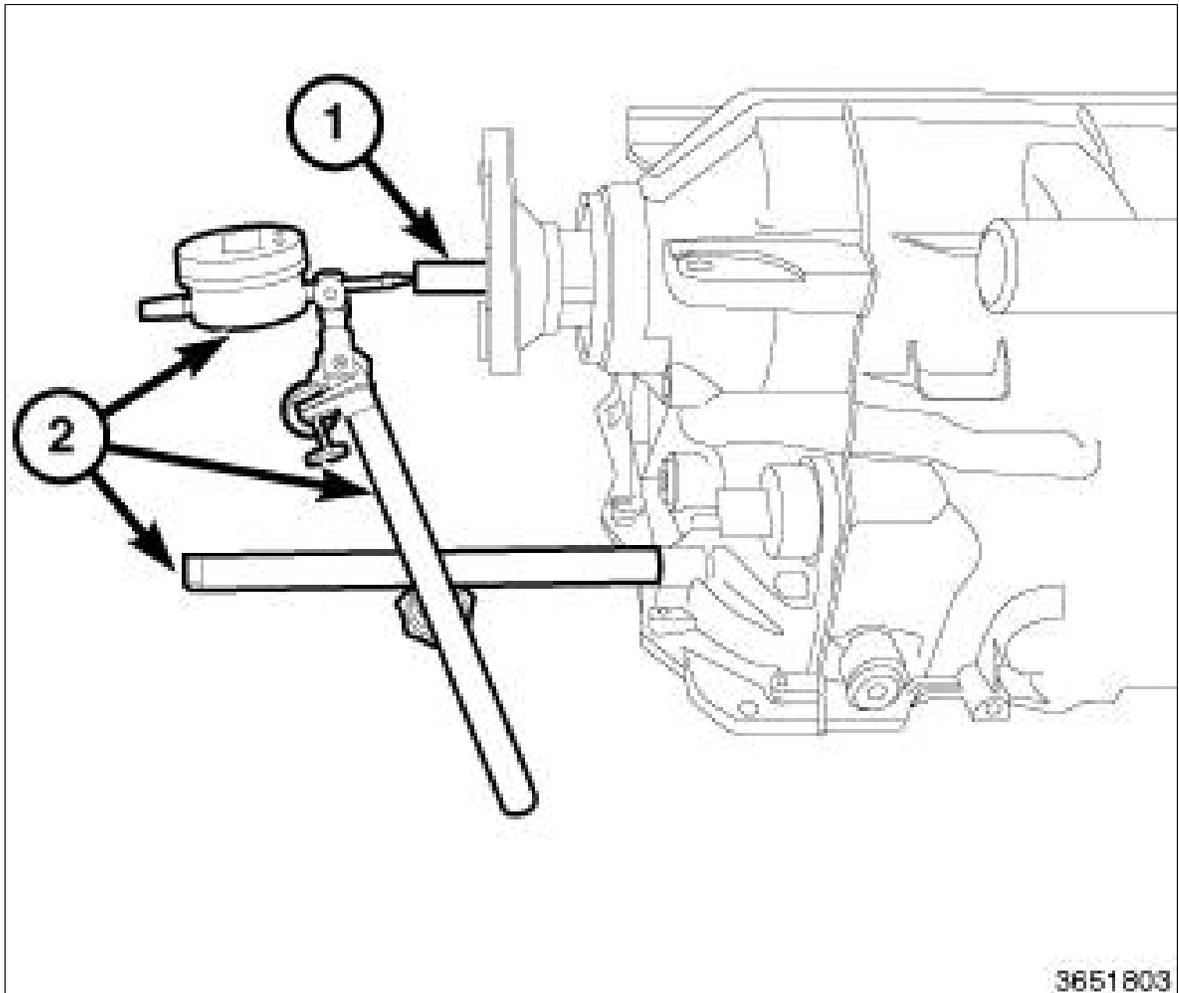
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*RWD only.*

5. Using a suitable punch, remove the staking from the propeller shaft flange nut, and loosen the nut about 1 thread using a 34 mm 12 point socket (3) and (special tool #C-3281, Holder, Flange) (2) to hold the flange (1).

Fig 5: Measuring End Play



Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*RWD shown, AWD similar.*

 **NOTE:**

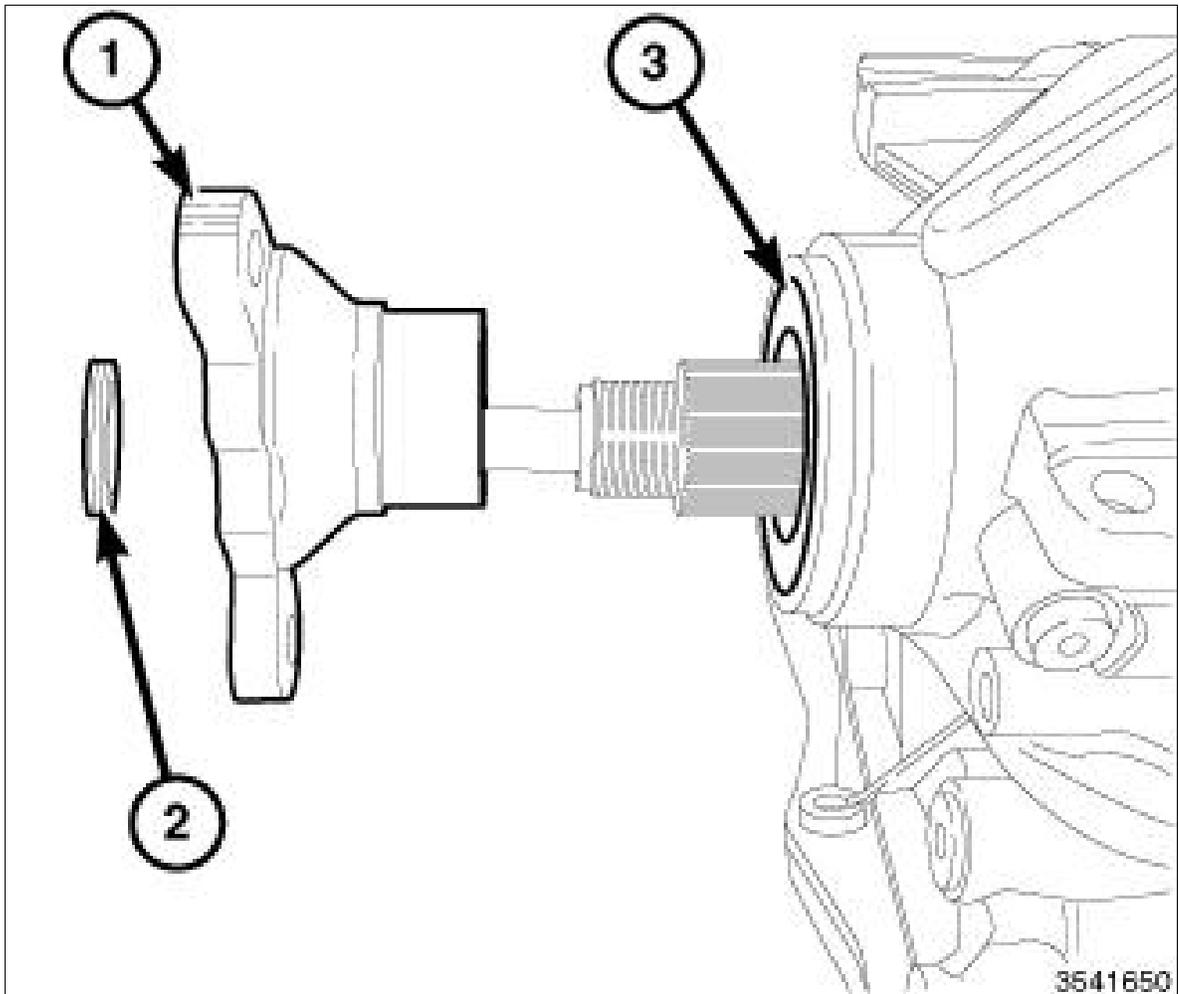
*End play specification is between 0.11 - 0.42 mm (0.0043 - 0.0165 in.). If end play is outside this range, a different selectable end play shim must be used during assembly.*

6. Measure the output shaft (1) end play as follows:

- a. Attach a dial indicator (2) and position the plunger against the end of the output shaft (1).
- b. Zero the dial indicator (2).

- c. Move the output shaft (1) in and out, and record the maximum travel for assembly reference.

Fig 6: Propeller Shaft Flange, Rear Dust Seal & Rear Oil Seal (RWD)



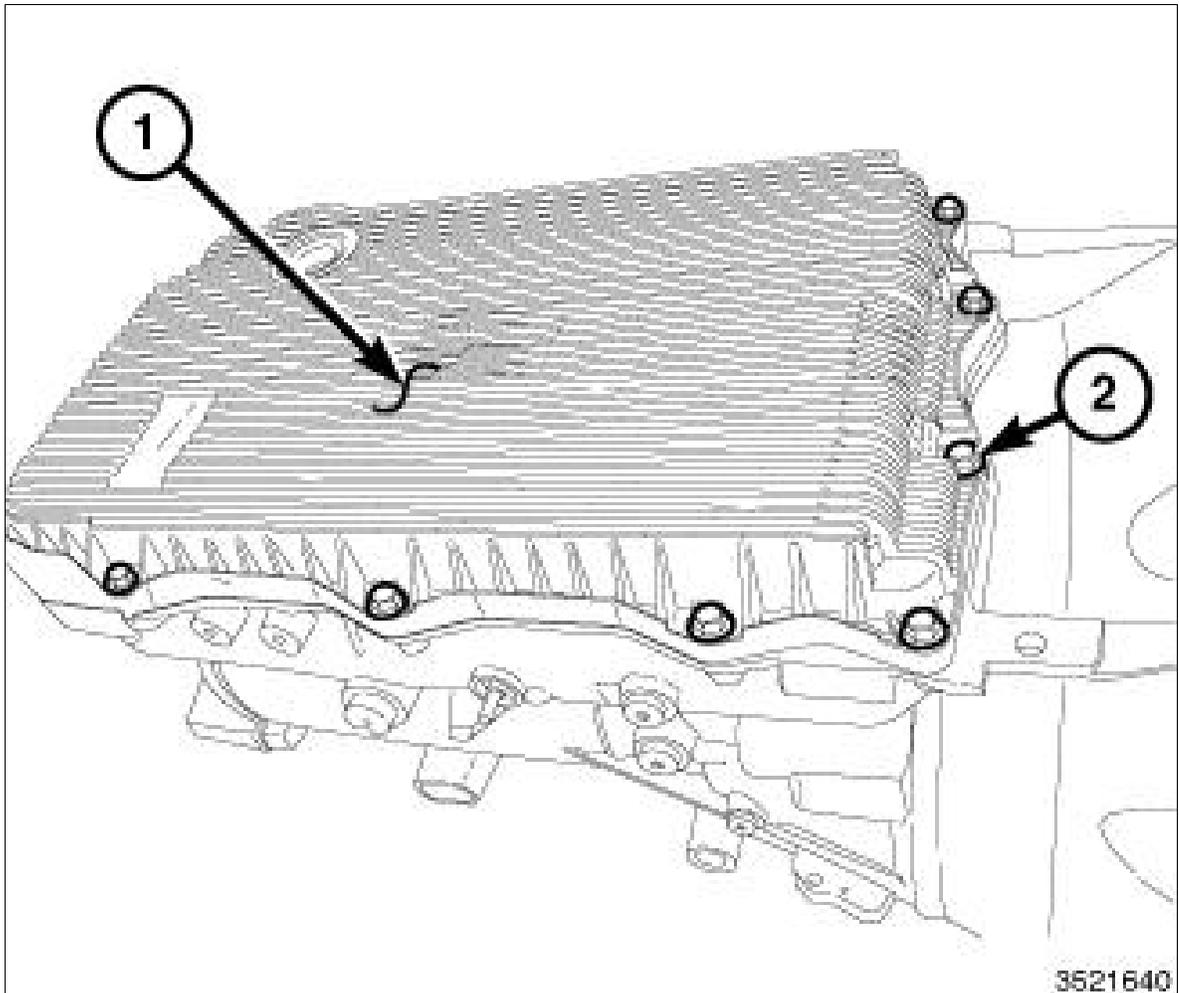
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*RWD only.*

7. Finish removing the propeller shaft flange nut.
8. Remove the propeller shaft flange (1).
9. Remove the transmission rear dust seal (2).
10. Remove the transmission rear oil seal (3) with a suitable slide hammer and screw.
11. Remove the transmission output shaft washer.

Fig 7: Thirteen Oil Pan Retaining Bolts



Courtesy of CHRYSLER GROUP, LLC

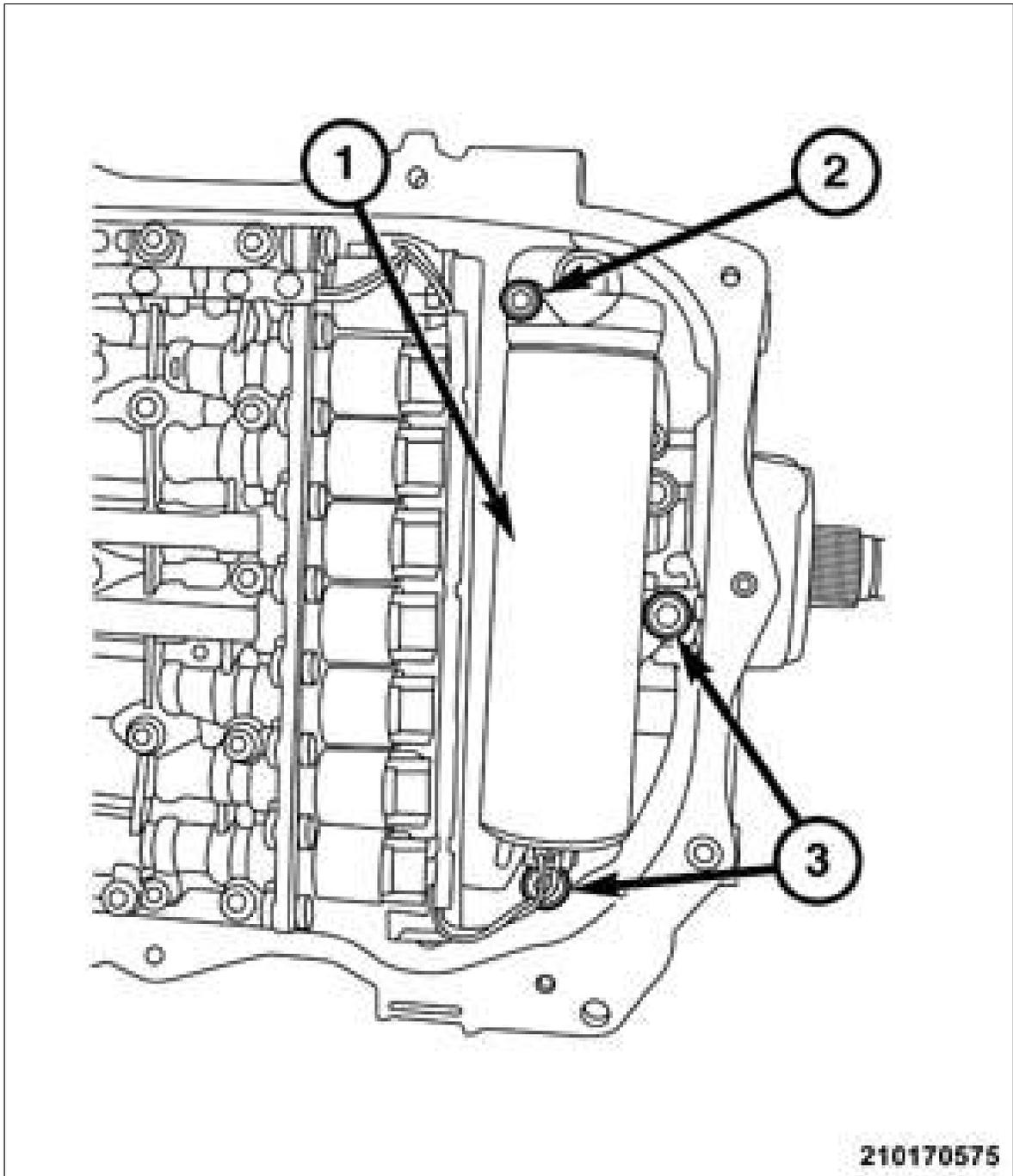
12. Remove the thirteen oil pan retaining bolts (2).

 **NOTE:**

*Inspect the gasket for reuse. If the seal is cut or torn, replace the gasket.*

13. Carefully detach the oil pan (1) and gasket.

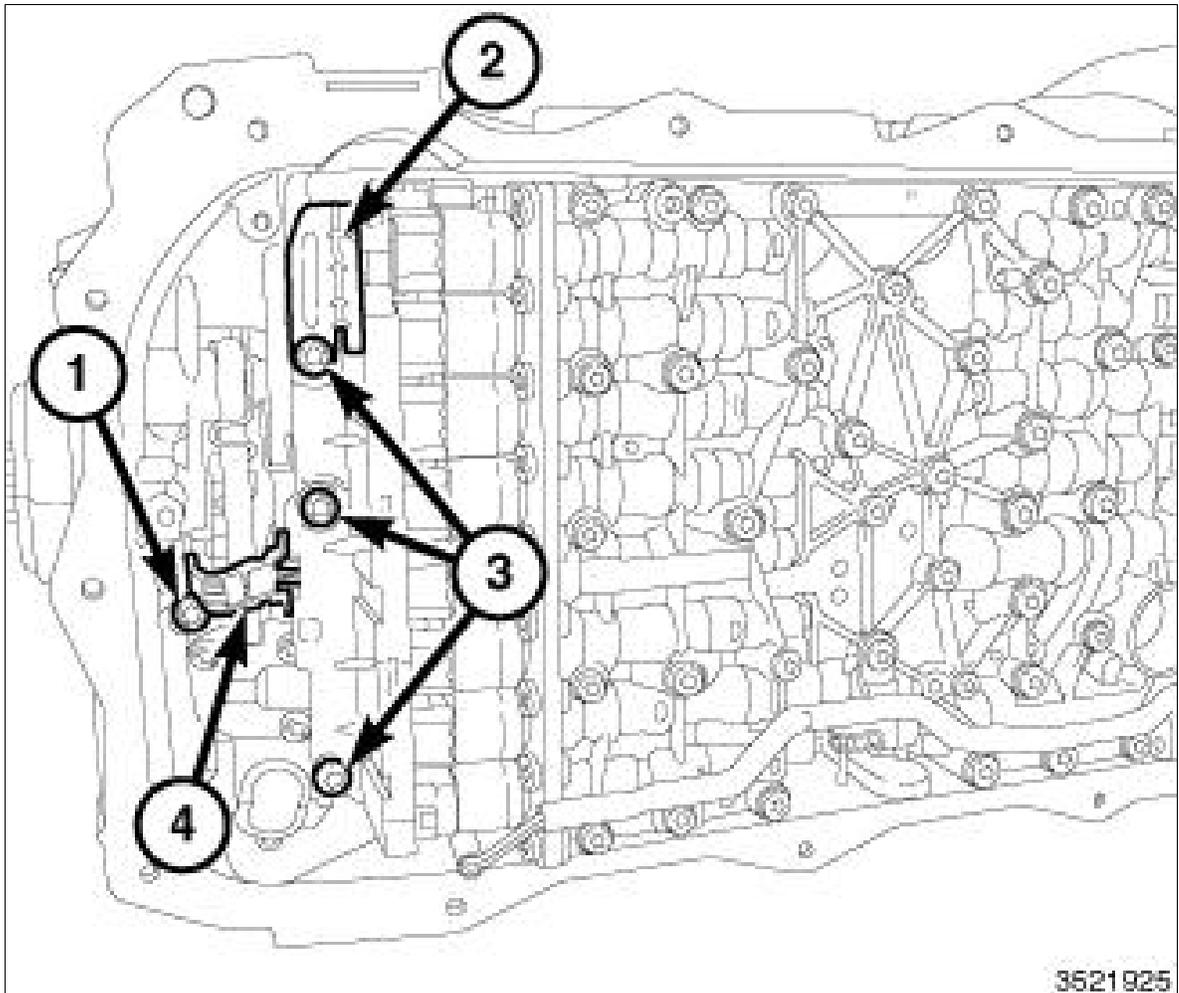
Fig 8: Hydraulic Impulse Storage Unit & Bolts



Courtesy of CHRYSLER GROUP, LLC

14. If equipped, disconnect the electrical connector from the H.I.S. accumulator. Remove three screws (2 and 3) and the accumulator (1).

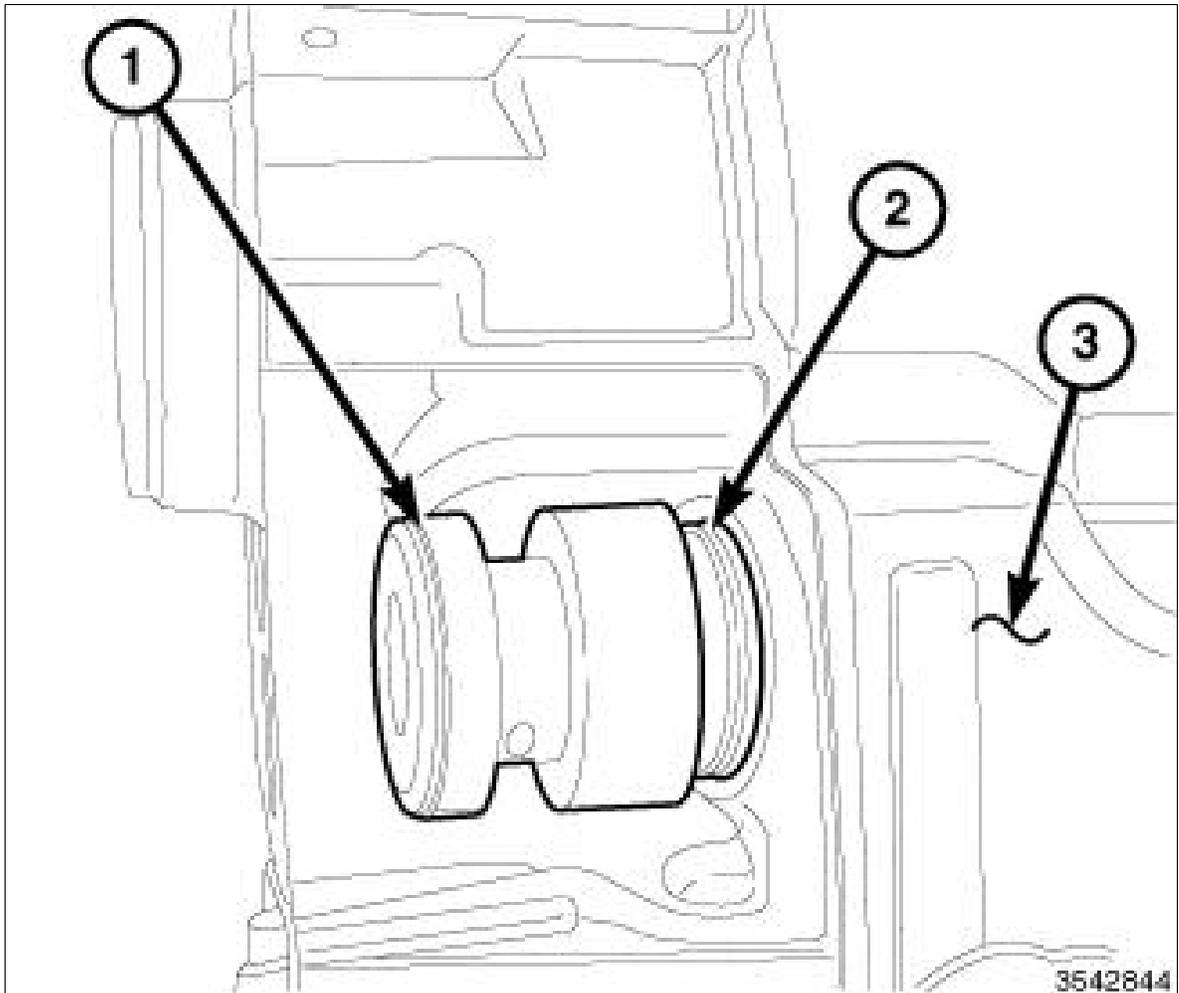
Fig 9: Valve Body Assembly End Retainer Bolts



Courtesy of CHRYSLER GROUP, LLC

15. Remove the valve body assembly end retainer bolts (3).
16. Lift the electrical connector lock (2) to release the internal harness end from inside the transmission for valve body assembly removal.
17. Remove the output speed sensor retaining bolt (1) and pull the sensor (4) loose from the case and clip it onto holder.

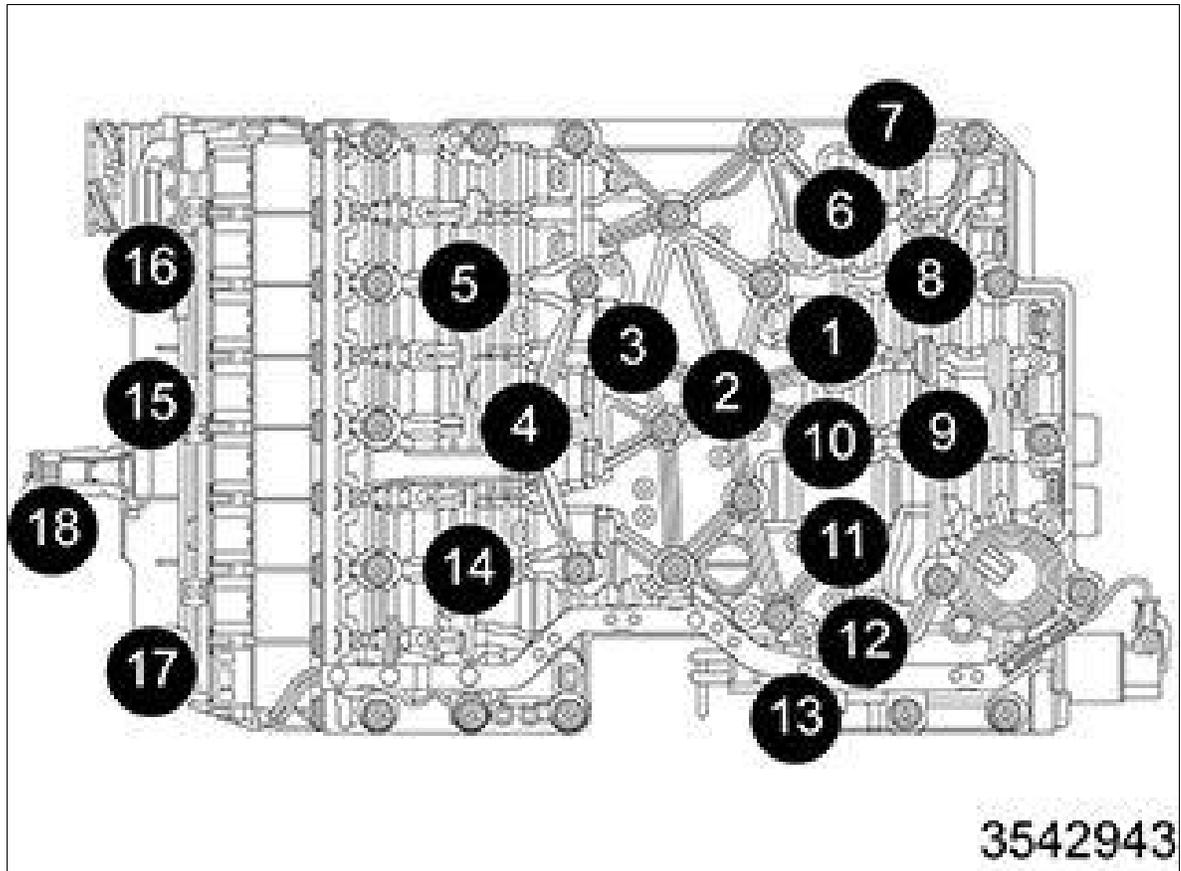
Fig 10: Remover/Installer, Guide Sleeve, Electrical Harness Insulator & Transmission Case



Courtesy of CHRYSLER GROUP, LLC

18. Using (special tool #10377, Remover/Installer, Guide Sleeve) (1) carefully pull the electrical harness insulator (2) straight out from the transmission case (3).

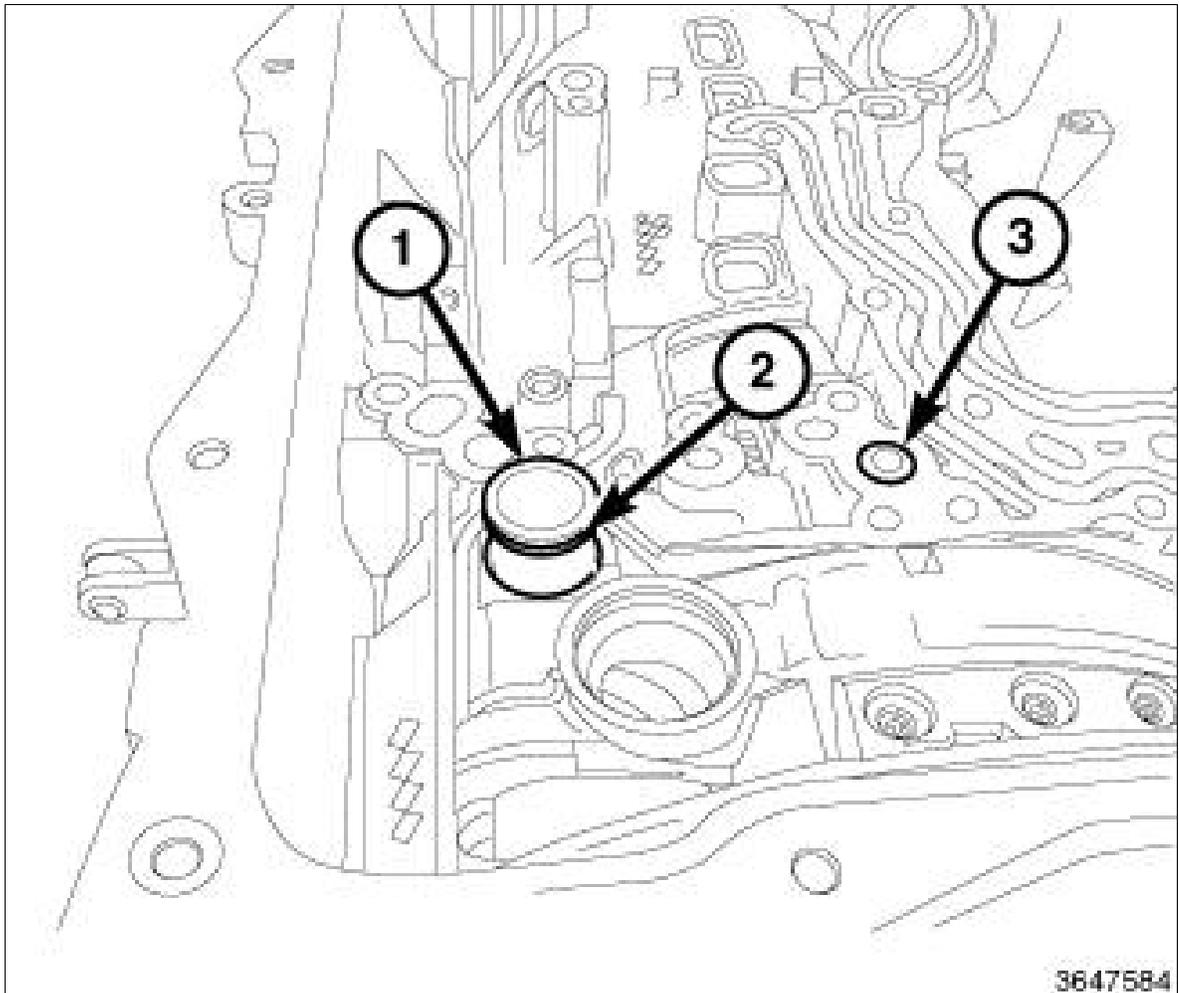
Fig 11: Valve Body Bolts Loosening And Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

19. Remove valve body assembly retaining bolts 1-14 (15-18 are already removed).
20. Carefully lift the valve body assembly from the transmission.

Fig 12: Fluid Port, Two O-Rings, Compression Seal



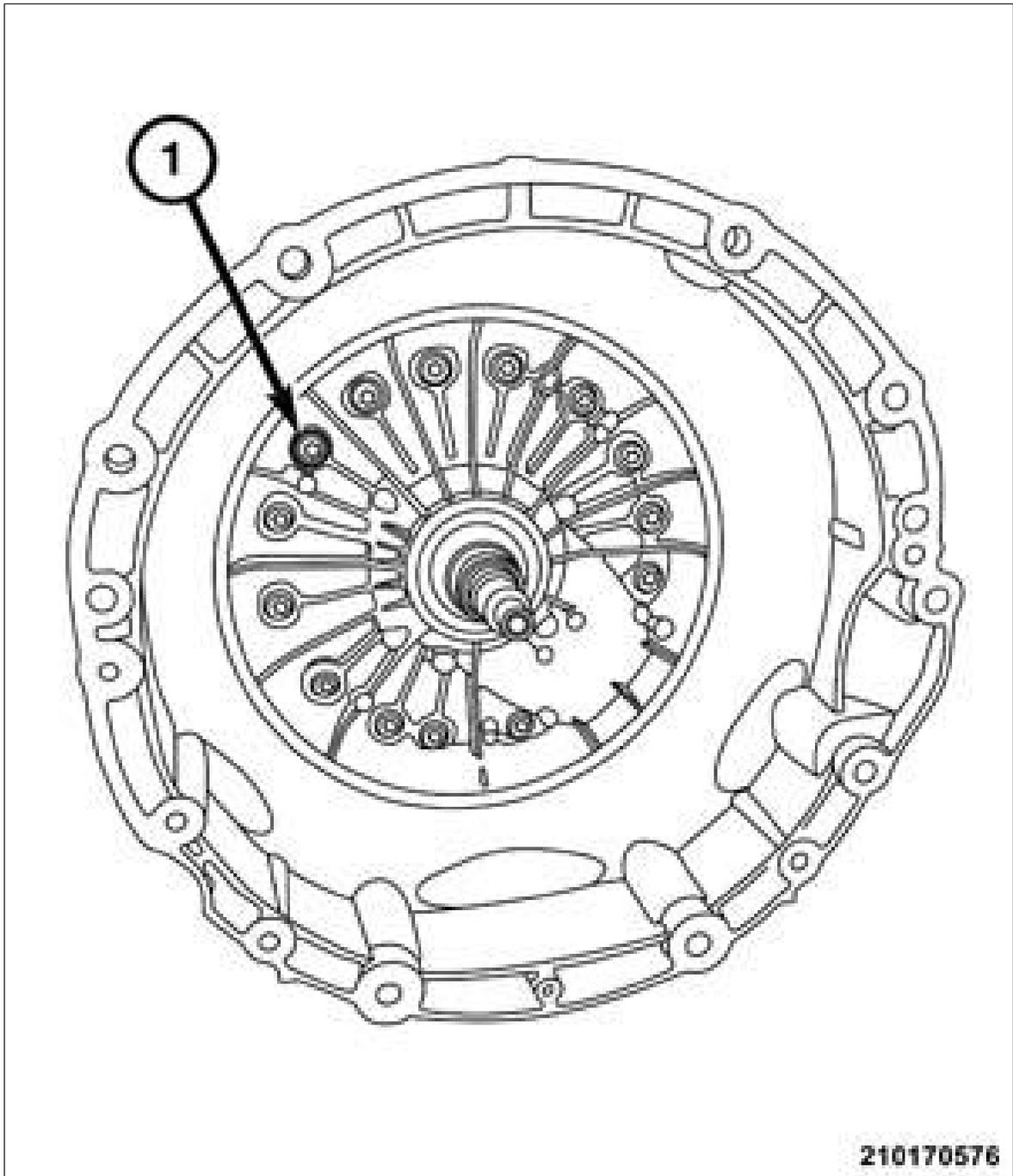
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The fluid port (1) may be in the transmission or the valve body assembly.*

21. Pull the fluid port (1) from the transmission or valve body assembly.
22. Remove the two O-rings (2).
23. Remove the compression seal (3) from the transmission.

Fig 13: Oil Pump Assembly To Case Bolts



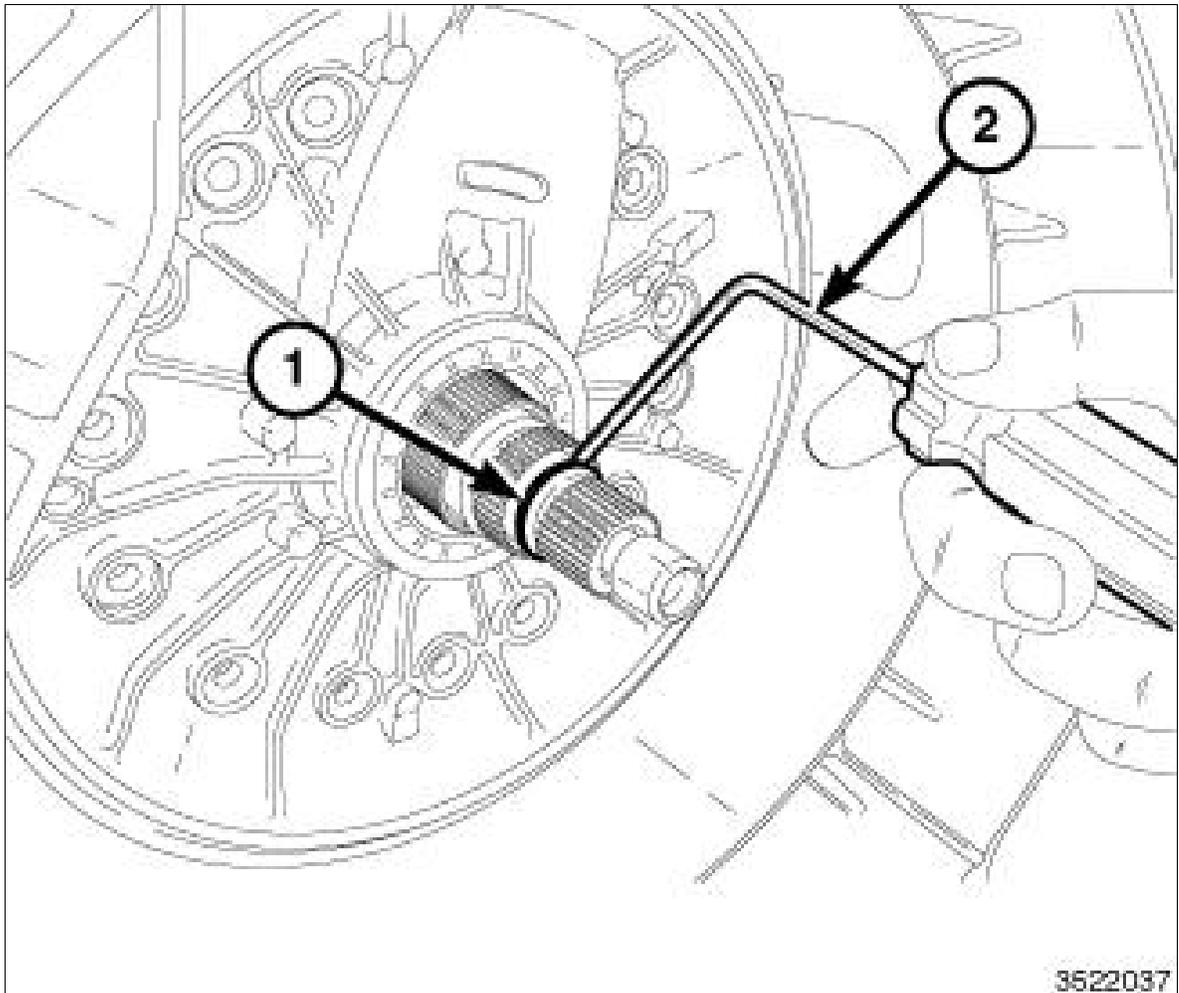
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Discard oil pump housing retaining bolts after removal. Bolts are a one time use.*

24. Remove the fourteen oil pump housing retaining bolts (1).

Fig 14: Input Shaft O-Ring & Small Pick



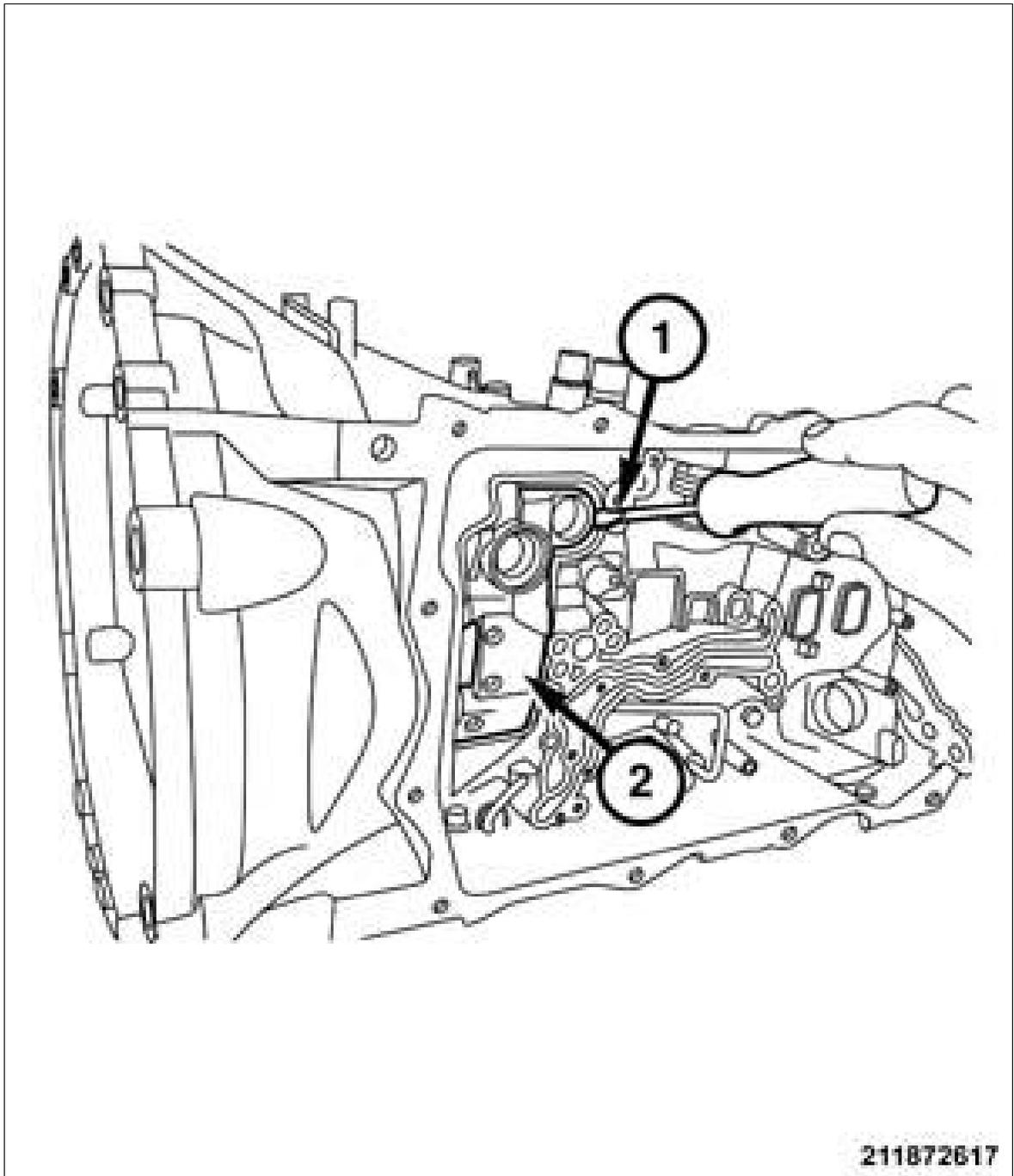
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Remove the input shaft o-ring before the oil pump is removed.*

25. Remove the input shaft O-ring (1) using a small pick (2) or equivalent.

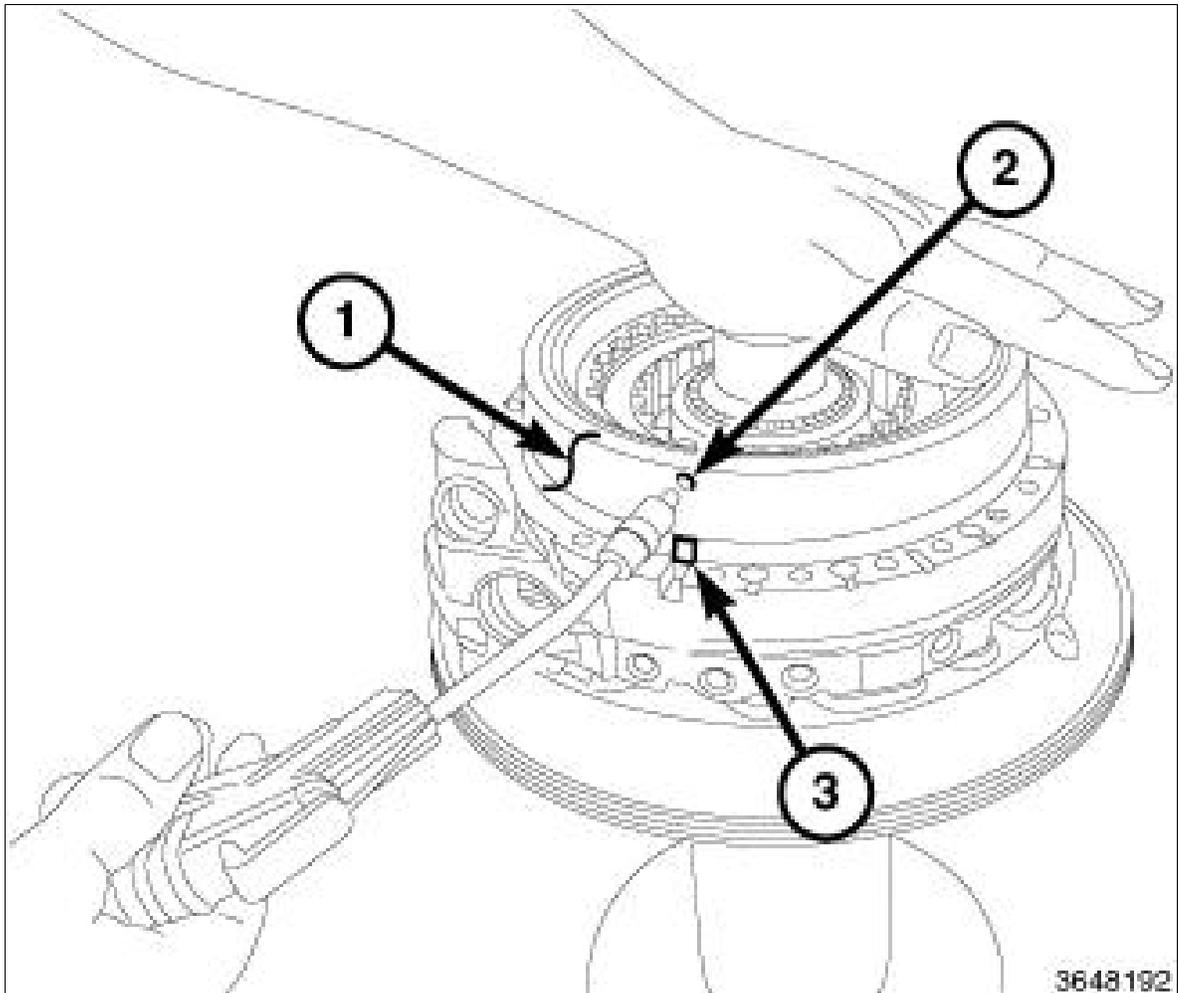
Fig 15: Prying Oil Pump Housing Away From Case



Courtesy of CHRYSLER GROUP, LLC

26. Carefully pry the oil pump housing (1) away from the case (2) with a small flat blade screwdriver or equivalent through the case opening.
27. From the front of the transmission, remove the oil pump housing.

Fig 16: B-Piston, Hole & B-Piston Alignment Tab



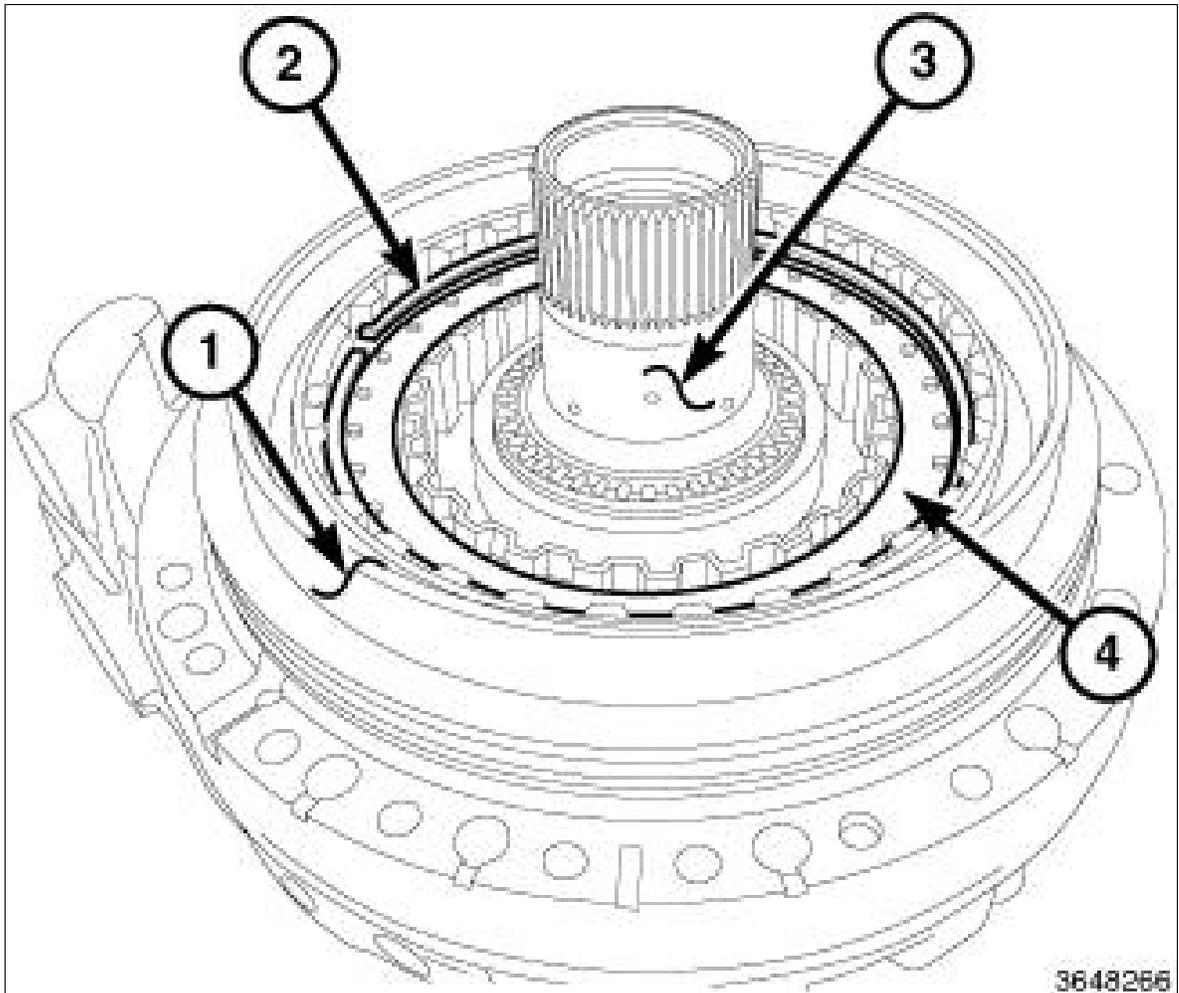
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Apply air pressure slowly because oil may spray when B-piston releases from the assembly.*

28. With one hand above B-piston (1), carefully apply air pressure into the hole (2) directly above the B-piston alignment tab (3) to remove B-piston (1) from the assembly.

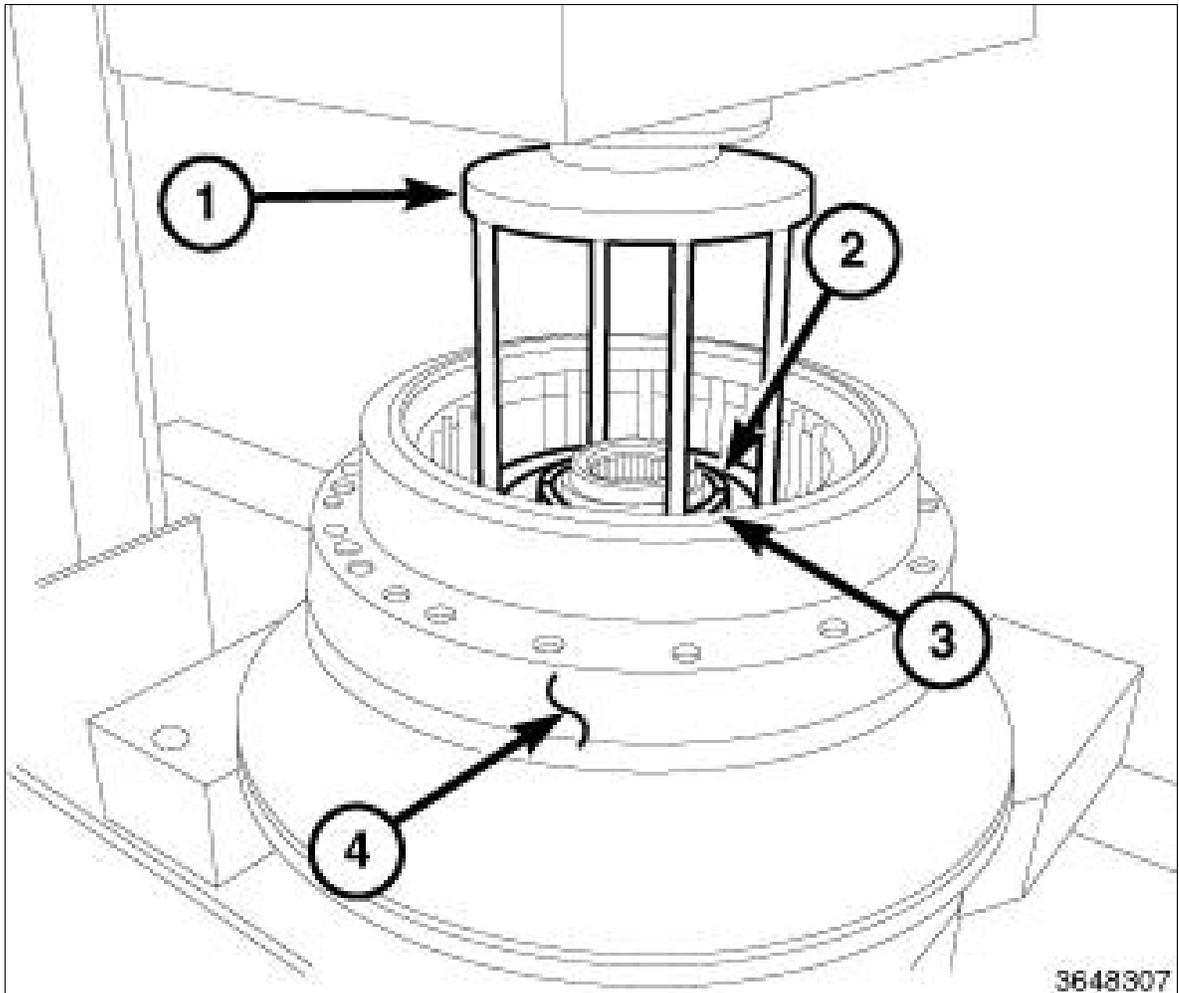
Fig 17: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

29. Remove the outer ring (1) (under B-piston).
30. Remove the snap ring (2).
31. Remove the clutches and spacers (4).
32. Remove the hub (3).

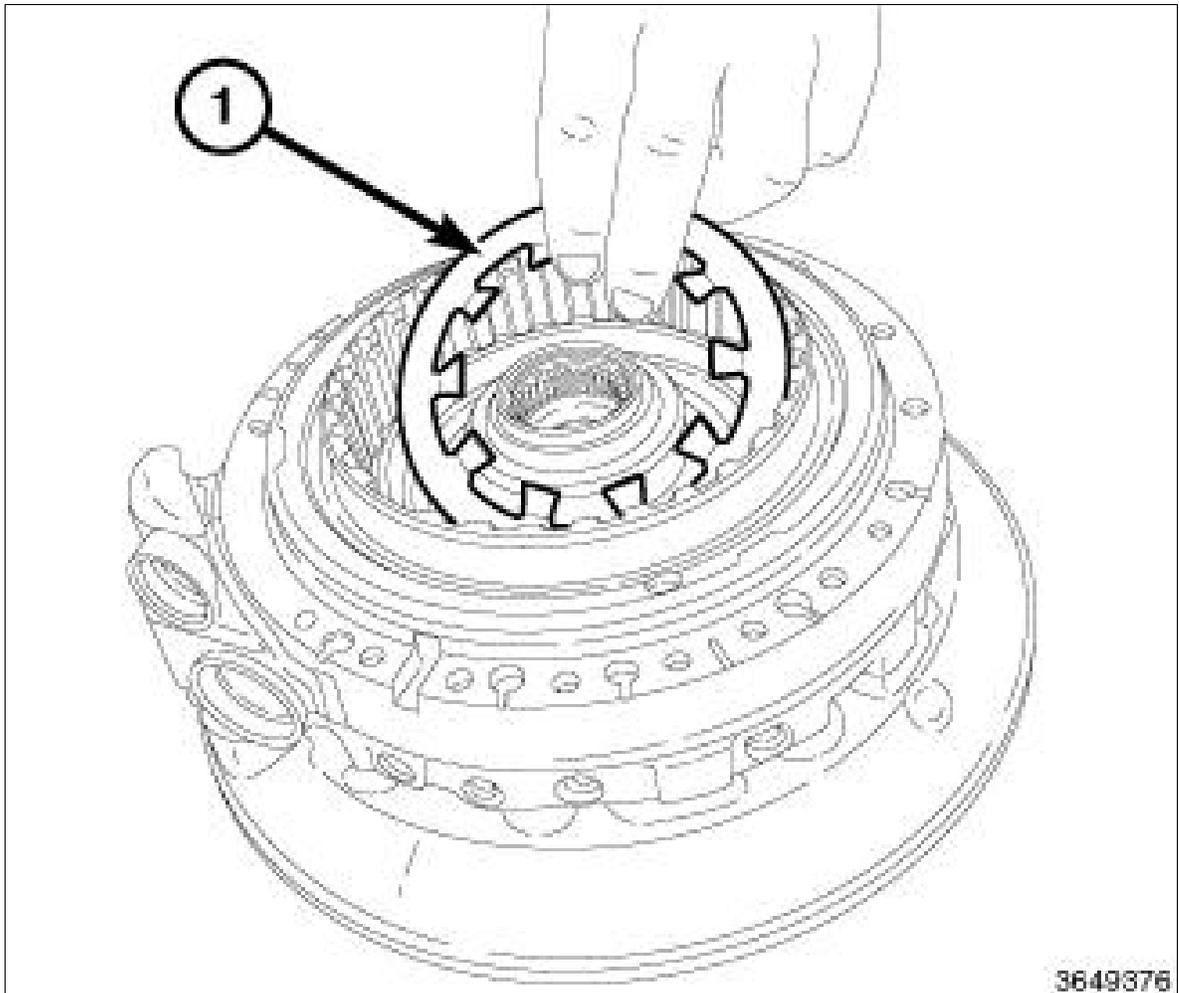
Fig 18: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

33. Position the oil pump housing assembly (4) in a suitable arbor press.
34. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retaining ring to remove tension, and remove the two halves of the split retainer ring (2, 3).

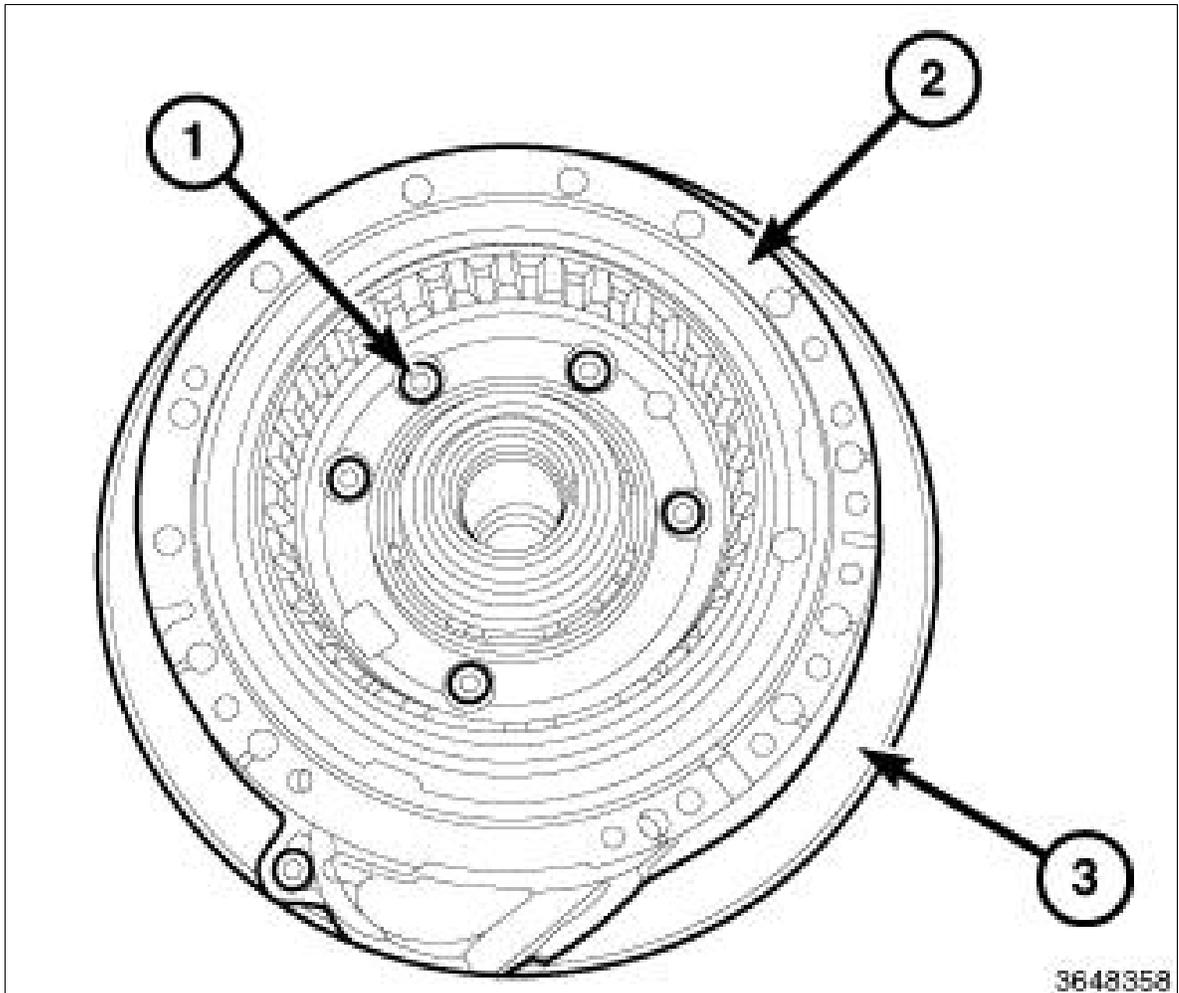
Fig 19: Piston Retaining Ring And Piston



Courtesy of CHRYSLER GROUP, LLC

35. Remove the piston retaining ring and piston below it.

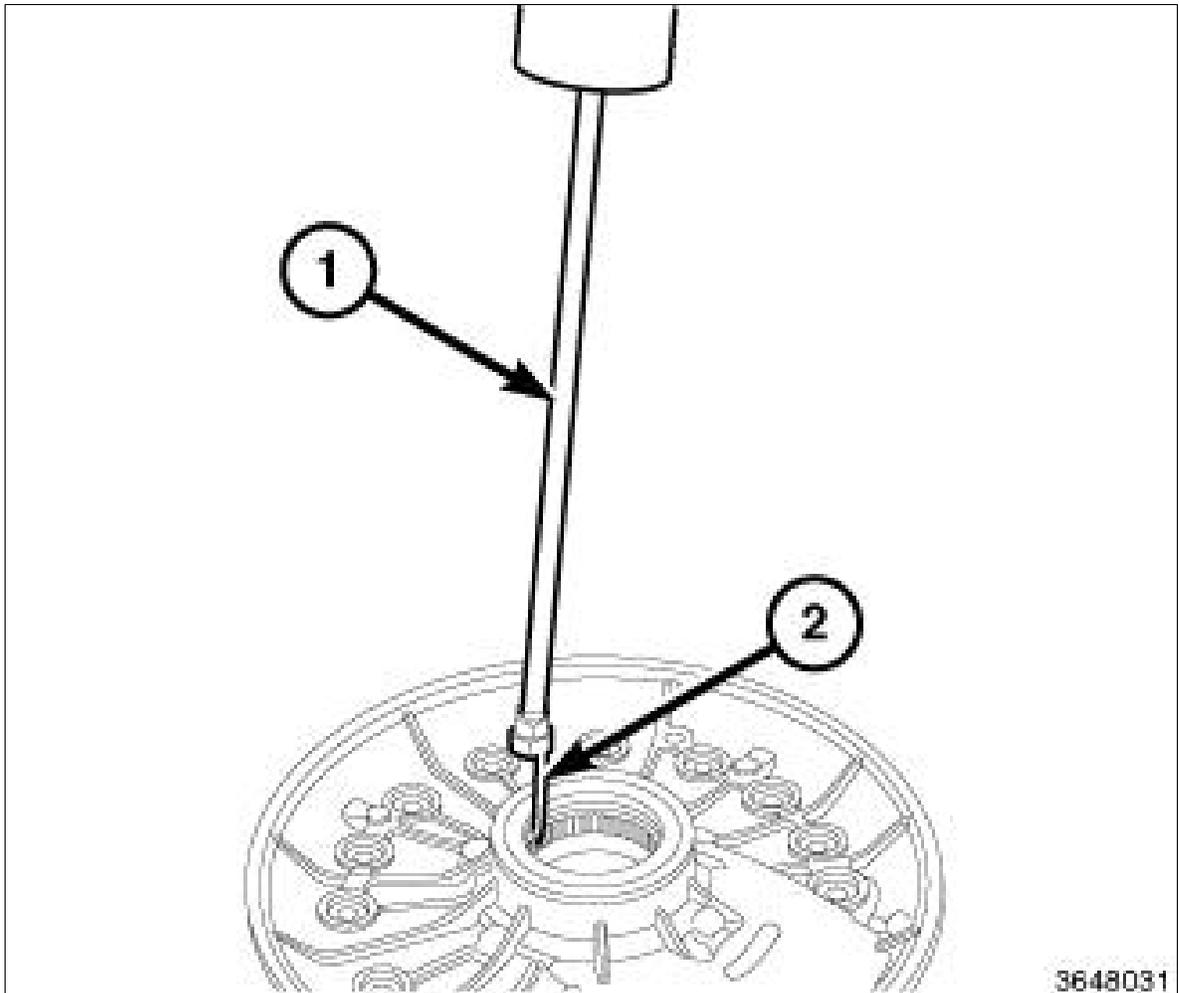
Fig 20: Six Bolts, Oil Pump Housing & Oil Pump Cover



Courtesy of CHRYSLER GROUP, LLC

36. Remove the six bolts (1) and separate the oil pump housing (2) from the oil pump cover (3).

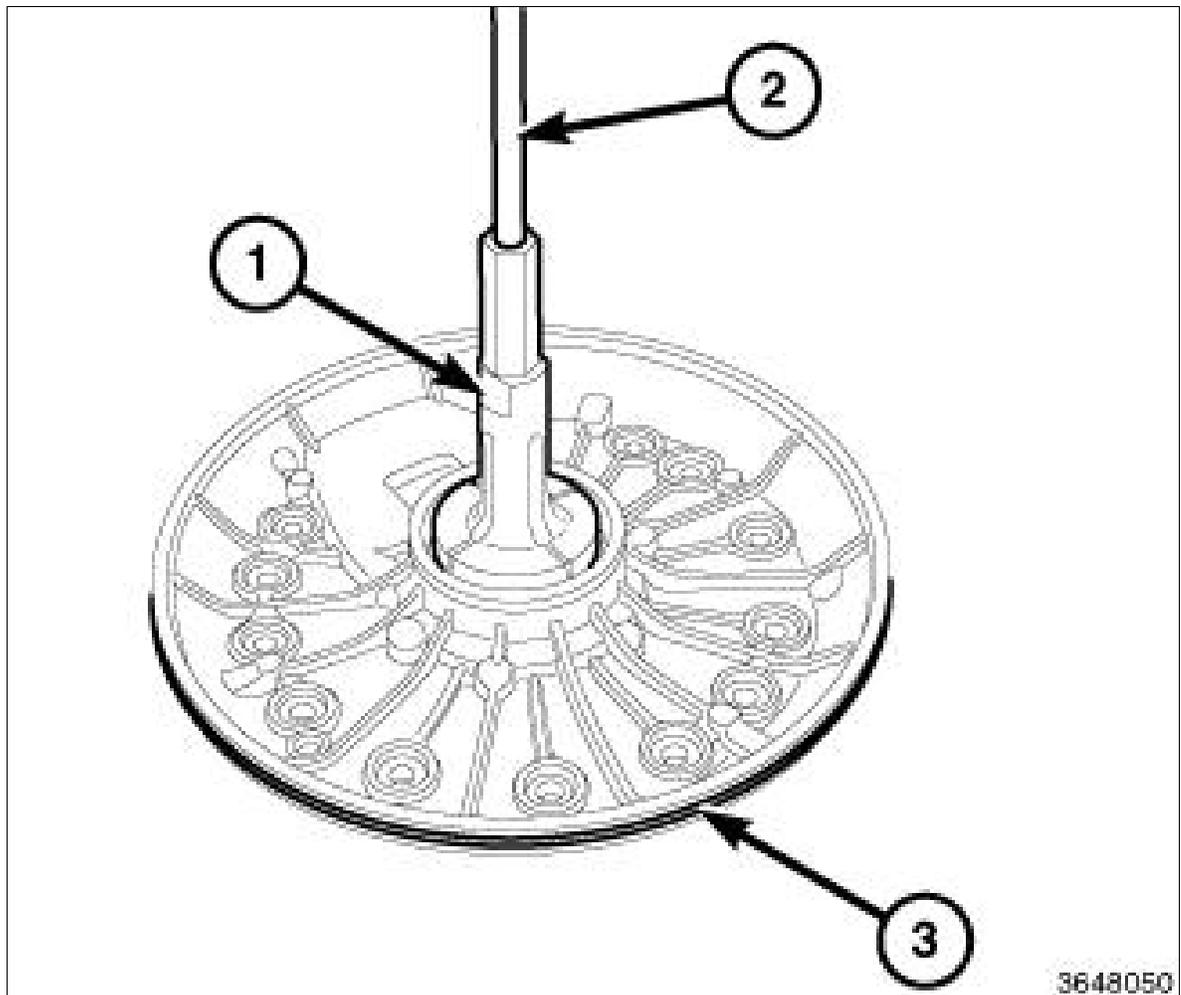
Fig 21: Seal Remover & Slide Hammer



Courtesy of CHRYSLER GROUP, LLC

37. Using (special tool #9667, Remover, Seal) (2) and (special tool #C-3752, Slide Hammers) (1), remove the oil seal from the front pump cover.
38. Remove the outer lip seal from the front pump cover.

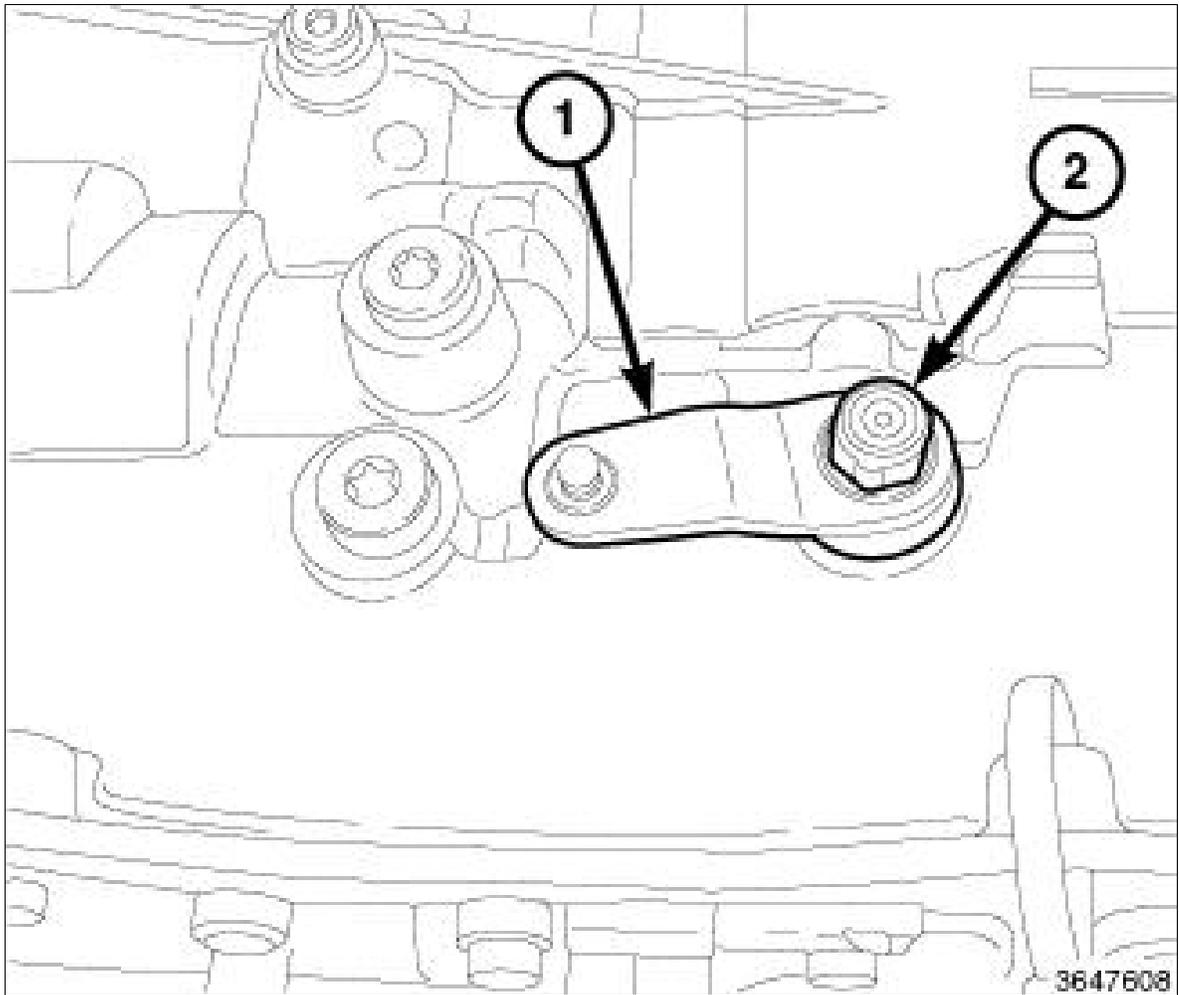
Fig 22: Remover, Bearing Cup & Slide Hammers



Courtesy of CHRYSLER GROUP, LLC

39. Remove the snap ring.
40. Using (special tool #6787A, Remover, Bearing Cup) (1) and (special tool #C-3752, Slide Hammers) (2) remove the needle bearing from the front cover (3).
41. Remove the snap ring.
42. Using (special tool #9585, Remover, Bearing Cup) and (special tool #C-637, Slide Hammer, Universal) remove the needle bearing.

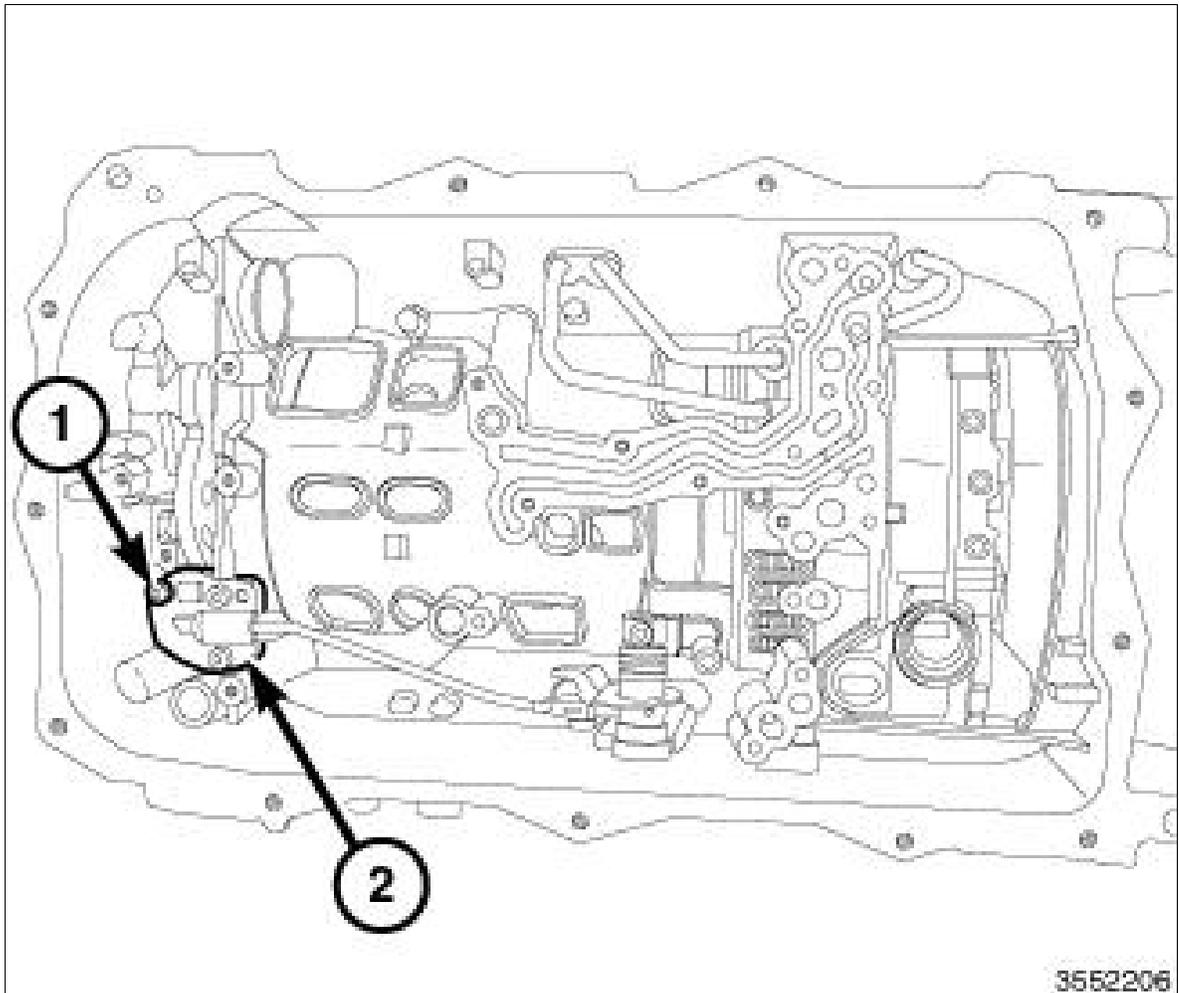
Fig 23: Manual Park Release Lever Retaining Nut & Lever



Courtesy of CHRYSLER GROUP, LLC

43. Remove the manual park release lever retaining nut (2) and remove the lever (1).

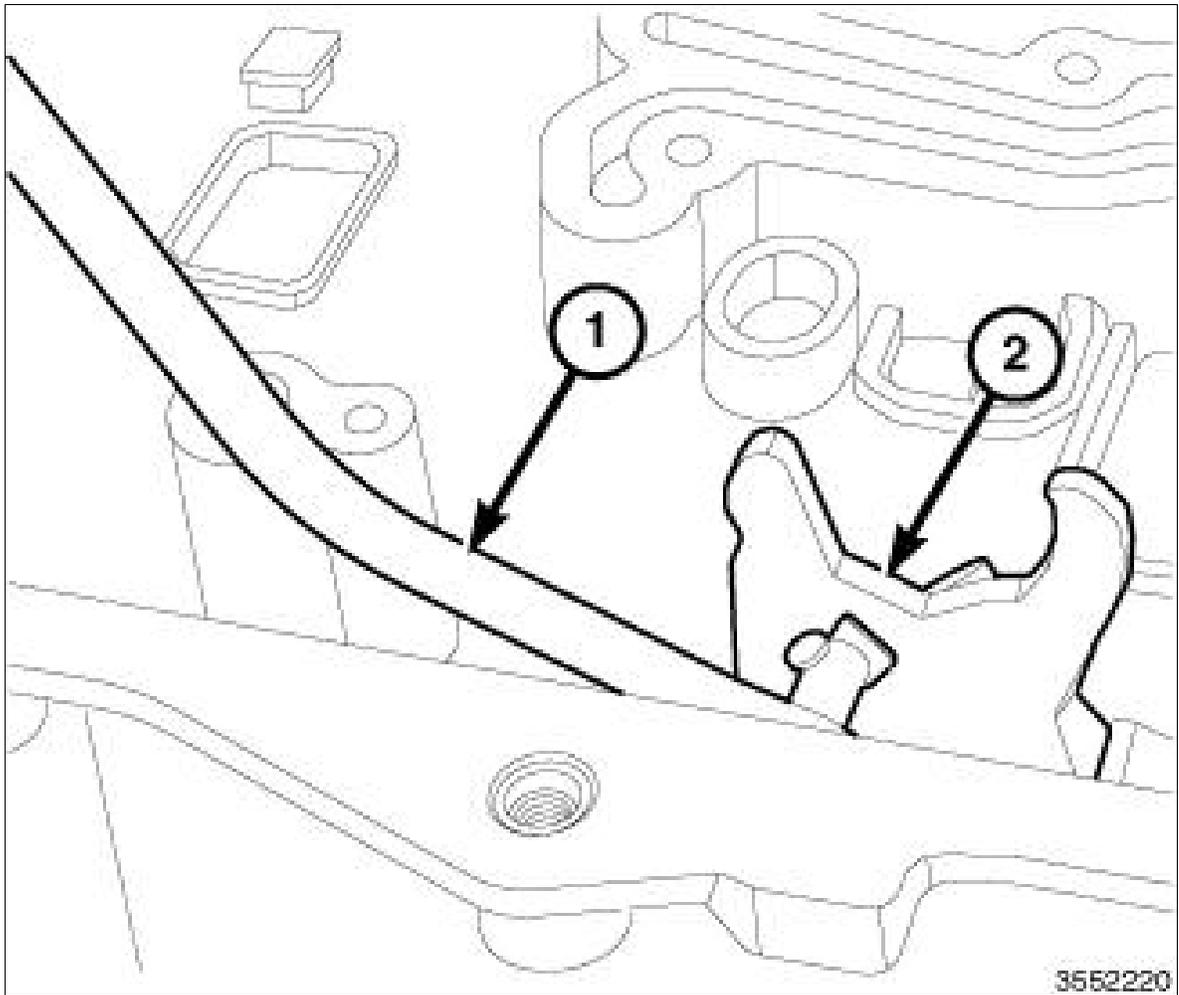
Fig 24: Three Park Pawl Lock Rod Guide Plate Retaining Screws & Plate



Courtesy of CHRYSLER GROUP, LLC

44. Remove the three park pawl lock rod guide plate retaining screws (1) and remove the plate (2).

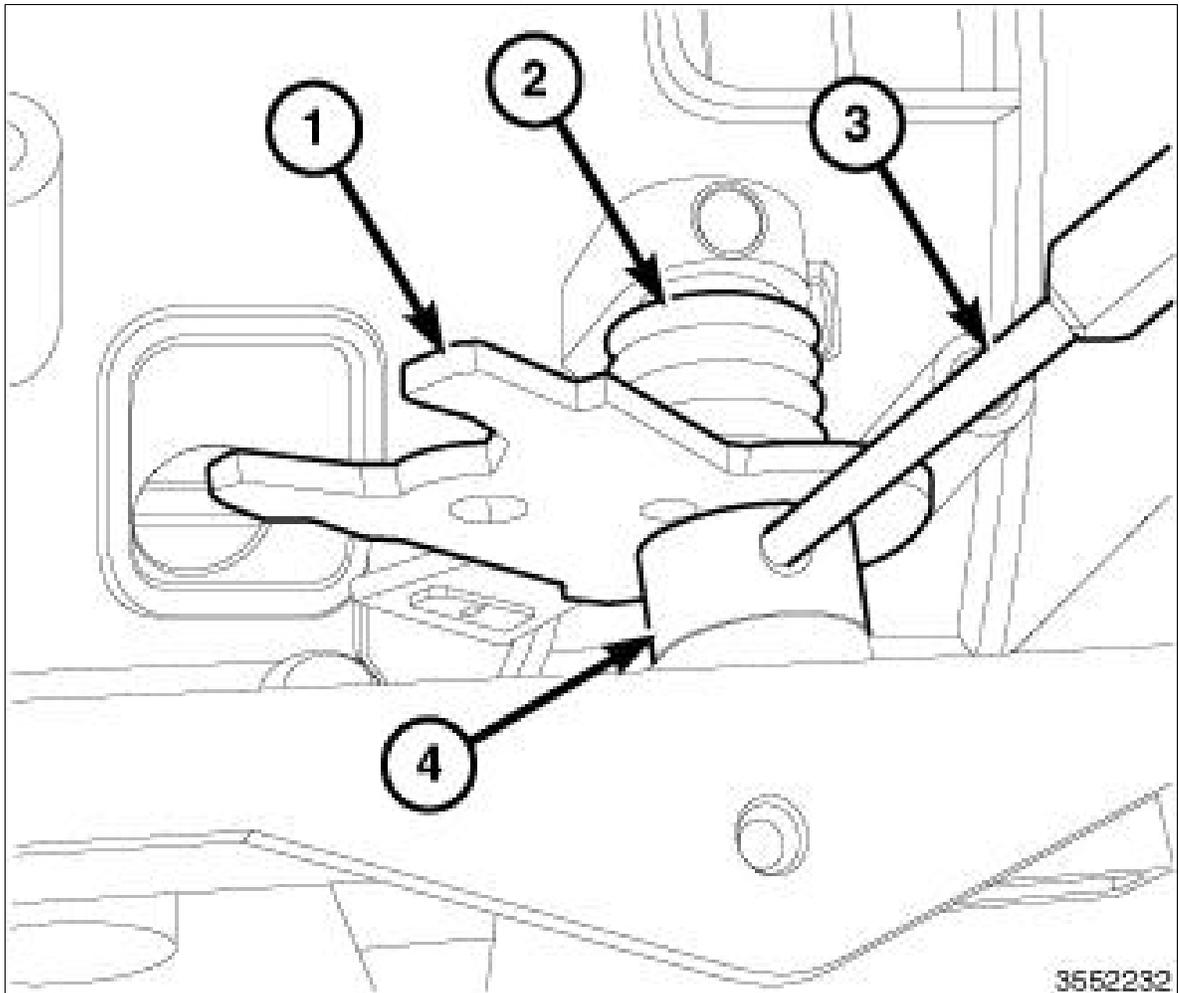
Fig 25: Park Pawl Lock Rod & Fork



Courtesy of CHRYSLER GROUP, LLC

45. Remove the park pawl lock rod (1) from the fork (2).

Fig 26: Selector Shaft, Suitable Pin Punch, Spring & Fork



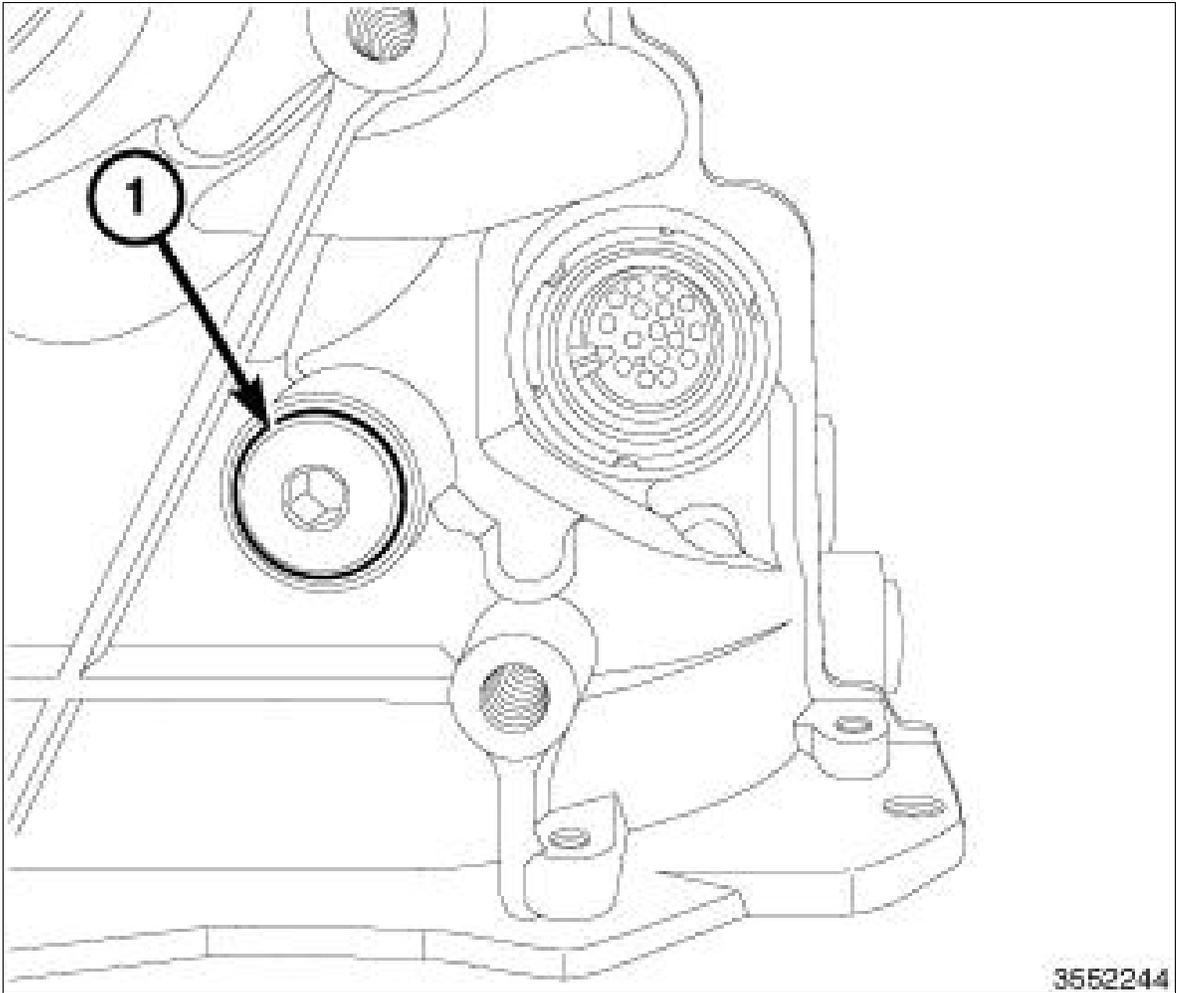
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Pay attention to the spring position for installation.*

46. Remove the roll pin from the selector shaft (4) using a suitable pin punch (3).
47. Remove the shaft (4), spring (2) and fork (1) from the case.
48. Remove the selector shaft seal using a small screwdriver or equivalent.

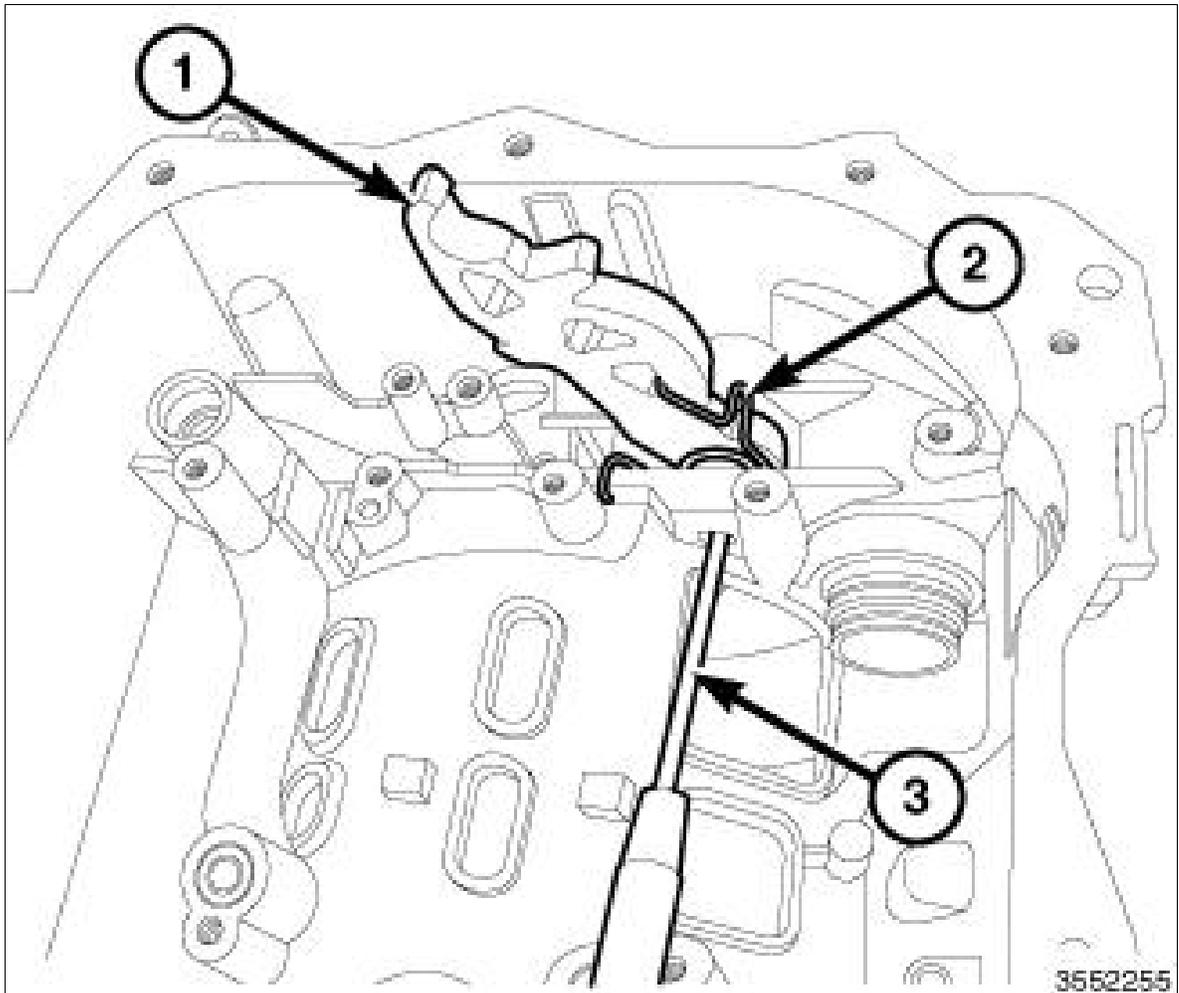
Fig 27: Park Pawl Shaft Plug



Courtesy of CHRYSLER GROUP, LLC

49. Remove the park pawl shaft plug (1) from the rear of the case.

Fig 28: Removing/Installing Park Pawl Shaft Using A Suitable Pin Punch, Park Pawl And Spring



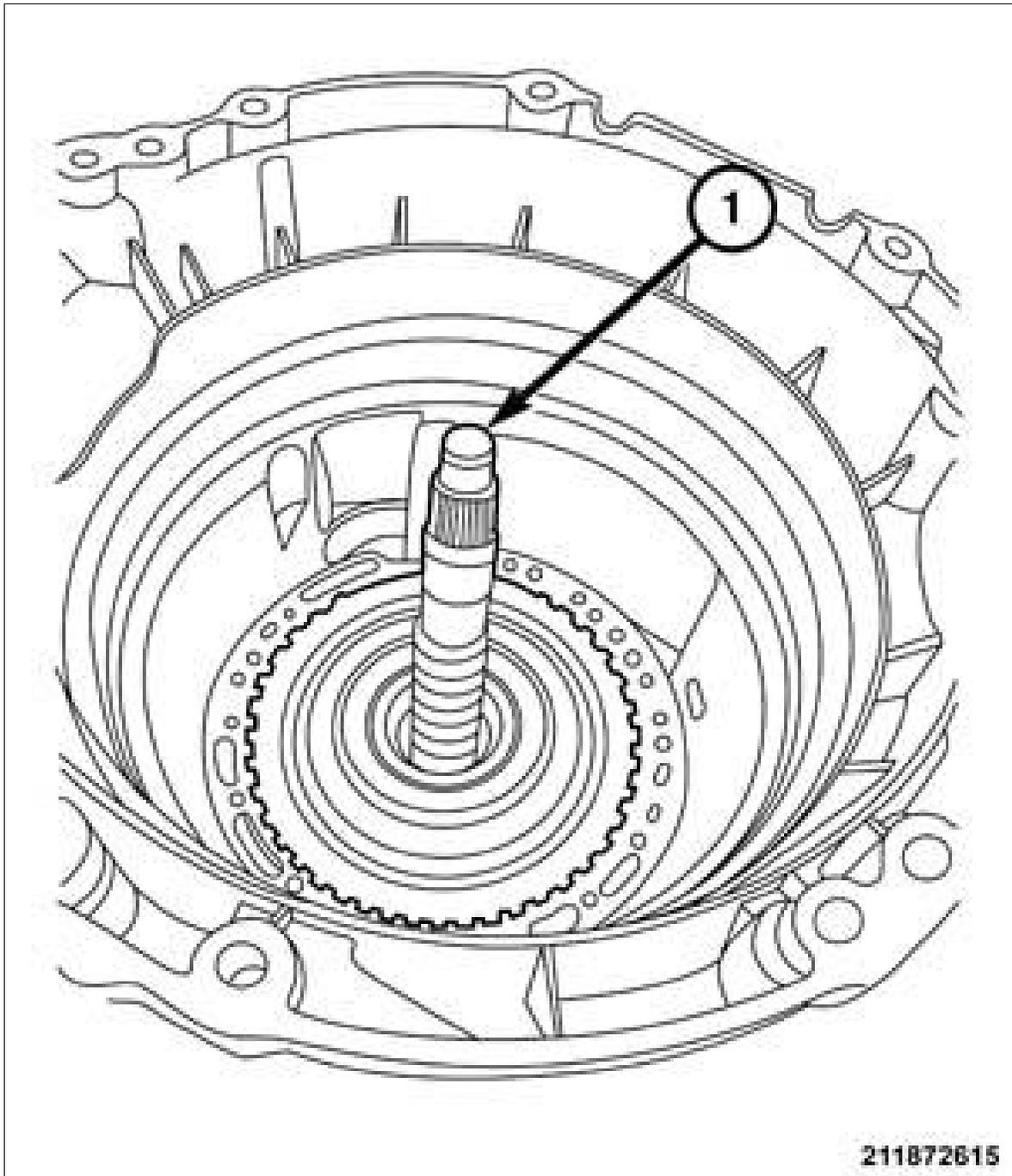
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Pay attention to the spring position for installation.*

50. Remove the park pawl shaft using a suitable pin punch (3), remove the park pawl (1) and spring (2).

Fig 29: Park Pawl



Courtesy of CHRYSLER GROUP, LLC

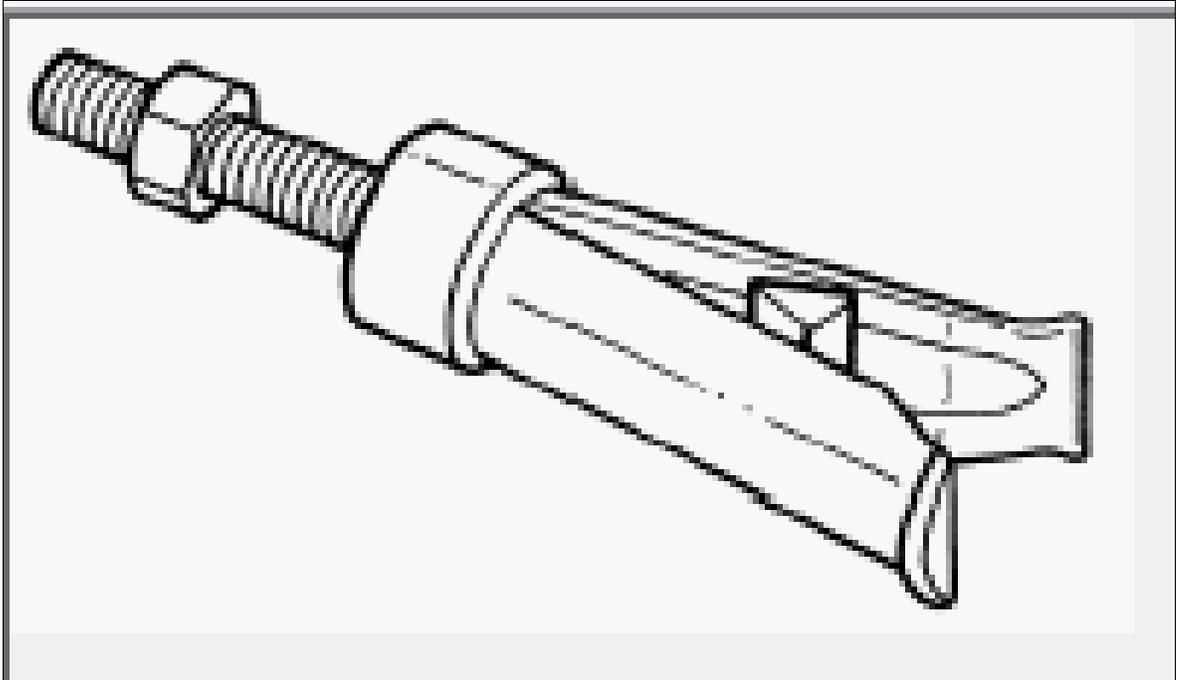
 **NOTE:**

*The transmission must be in a vertical position before the main stack is removed, so damage to the drums does not occur.*

51. Remove the input/output shaft and P4 annulus drum assembly (1) from the case.
52. Using (special tool #8912, Remover, Bearing) and (special tool #C-637, Slide Hammer,

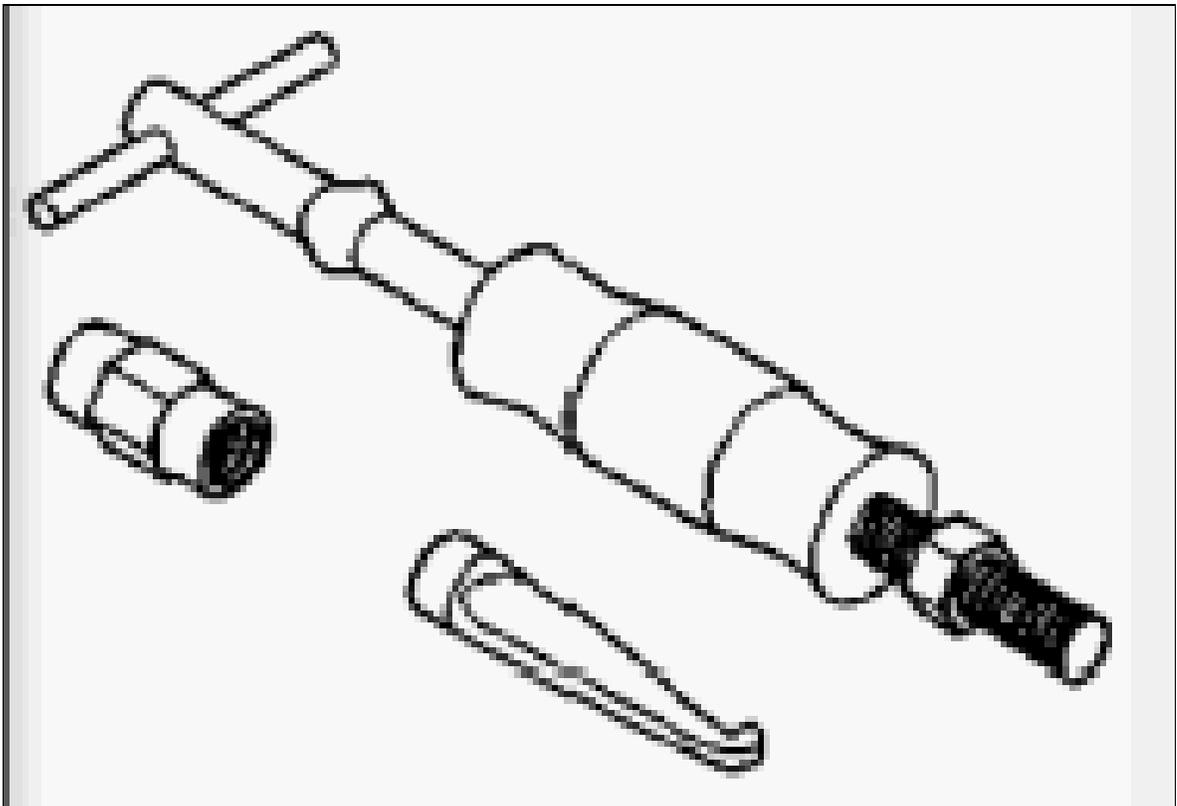
Universal) remove the output seal.

Fig 30: Bearing Remover



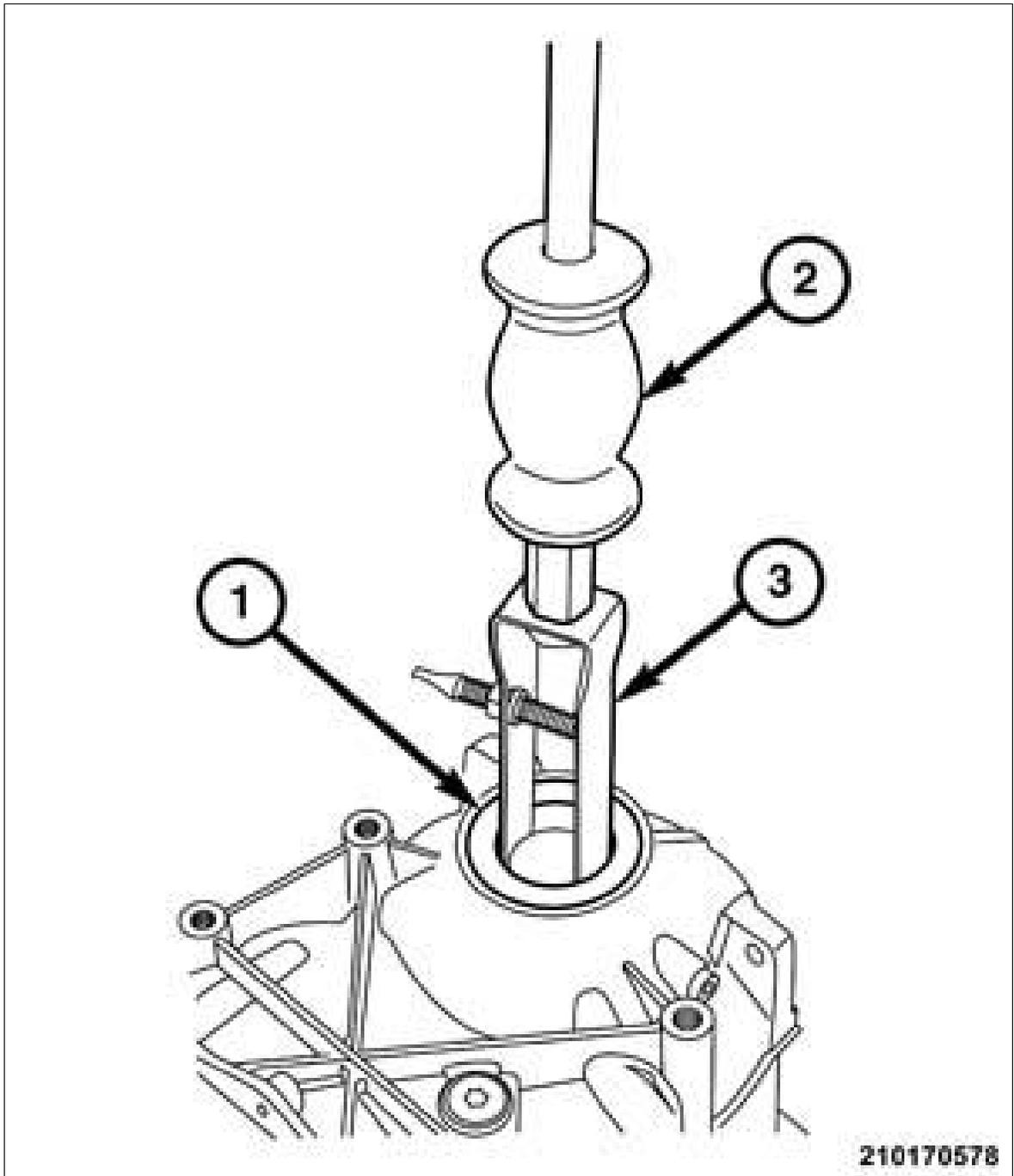
Courtesy of CHRYSLER GROUP, LLC

Fig 31: Special Tool #C-637



Courtesy of CHRYSLER GROUP, LLC

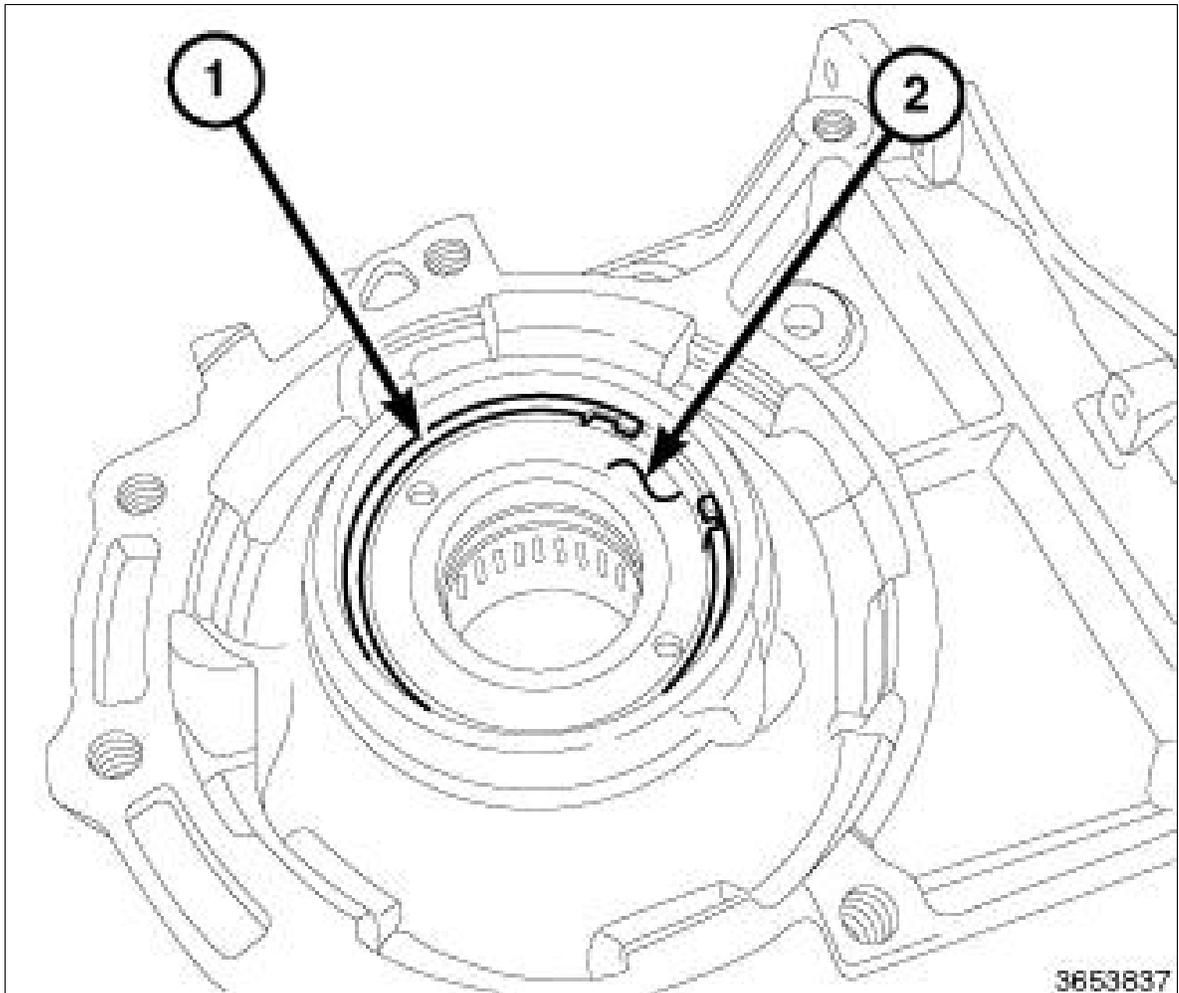
Fig 32: Removing Output Seal



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Courtesy of CHRYSLER GROUP, LLC

Fig 33: Outer Bearing Snap Ring & Outer Needle Bearing



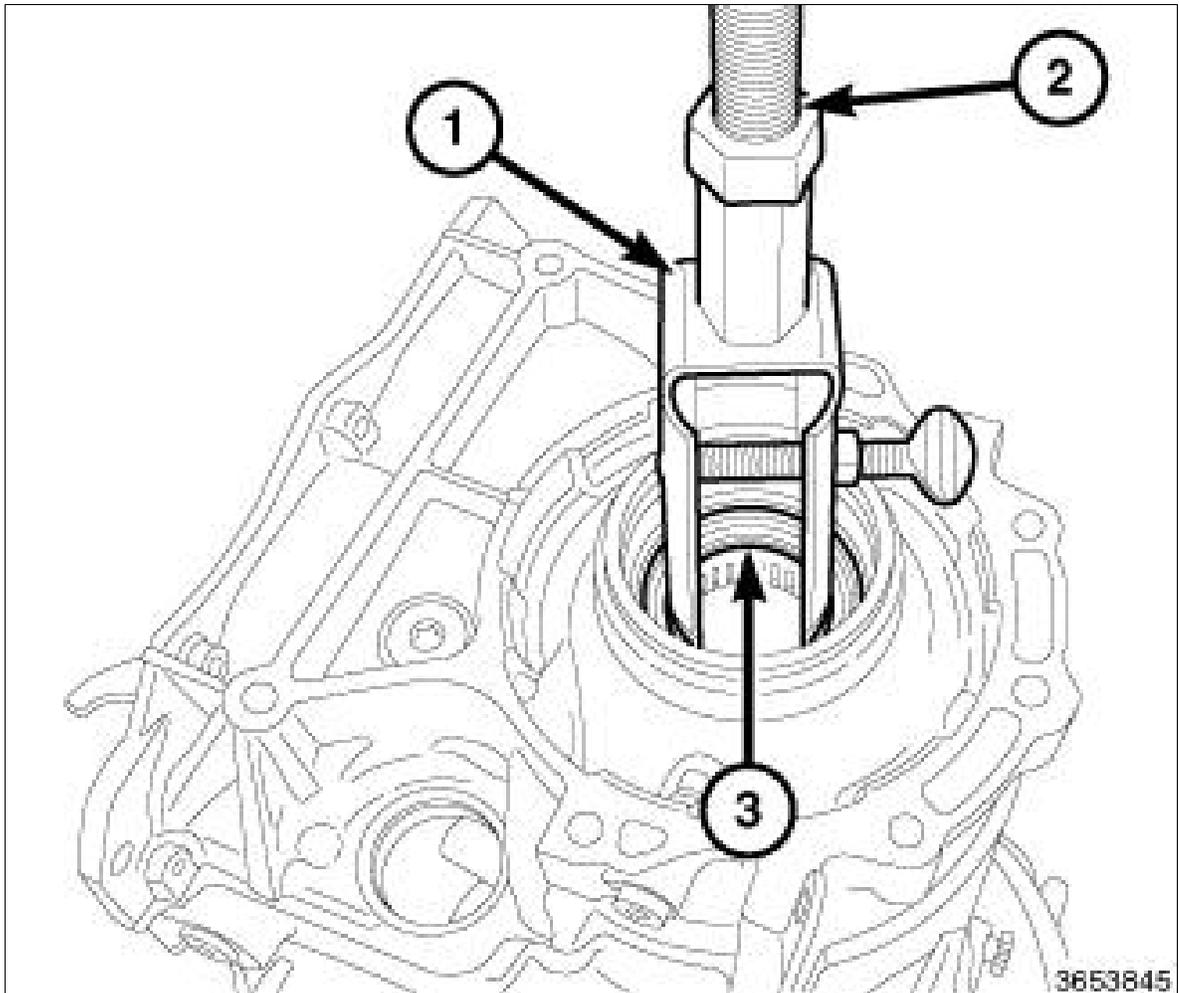
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*AWD shown, RWD similar. The AWD bearing is a needle bearing and the RWD is a ball bearing.*

53. Remove the outer bearing snap ring (1), and the outer needle bearing (2) (AWD) or outer ball bearing (RWD).

Fig 34: Bearing Cup, Slide Hammer, Universal & Oil Dam



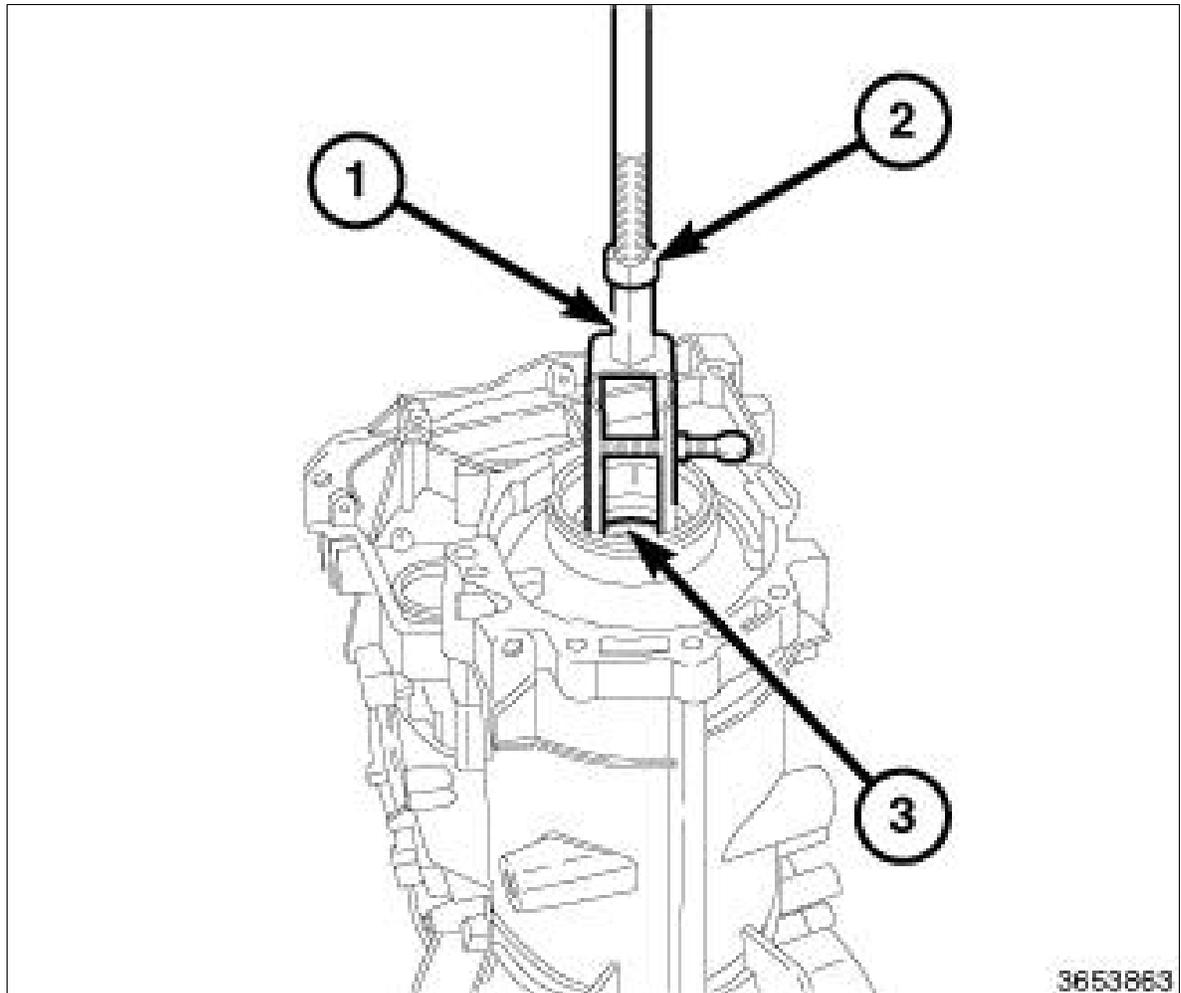
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*AWD shown, RWD similar.*

54. Remove the oil dam snap ring.
55. Using (special tool #9664, Remover, Bearing Cup) (1) and (special tool #C-637, Slide Hammer, Universal) (2), remove the oil dam (3).

Fig 35: Bearing Cup, Slide Hammer & Inner Needle Bearing



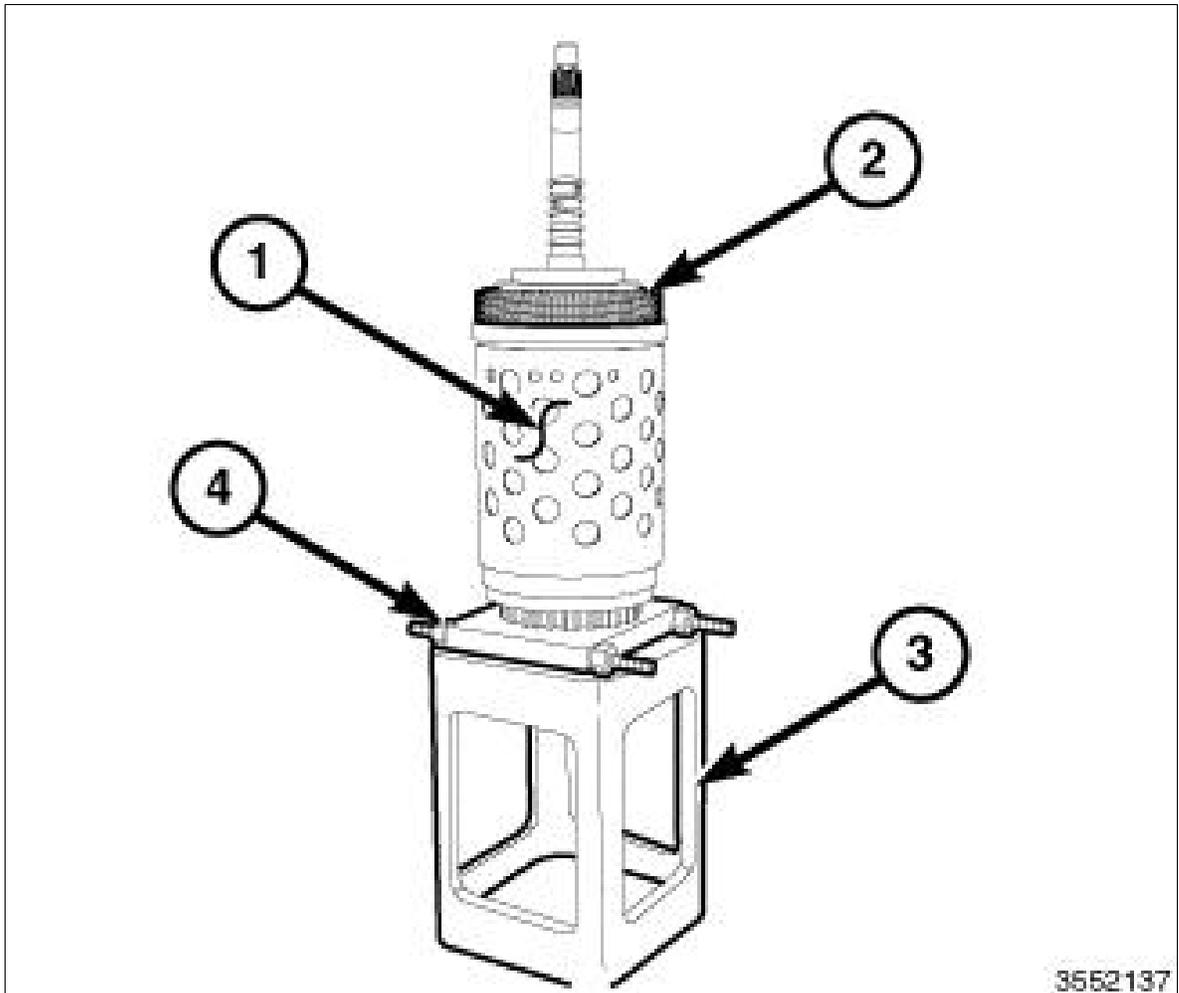
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*AWD shown, RWD similar.*

56. Remove the output shaft inner needle bearing (AWD) or inner ball bearing (RWD) snap ring.
57. Using (special tool #9664, Remover, Bearing Cup) (1) and (special tool #C-637, Slide Hammer, Universal) (2), remove the inner ball bearing (3).

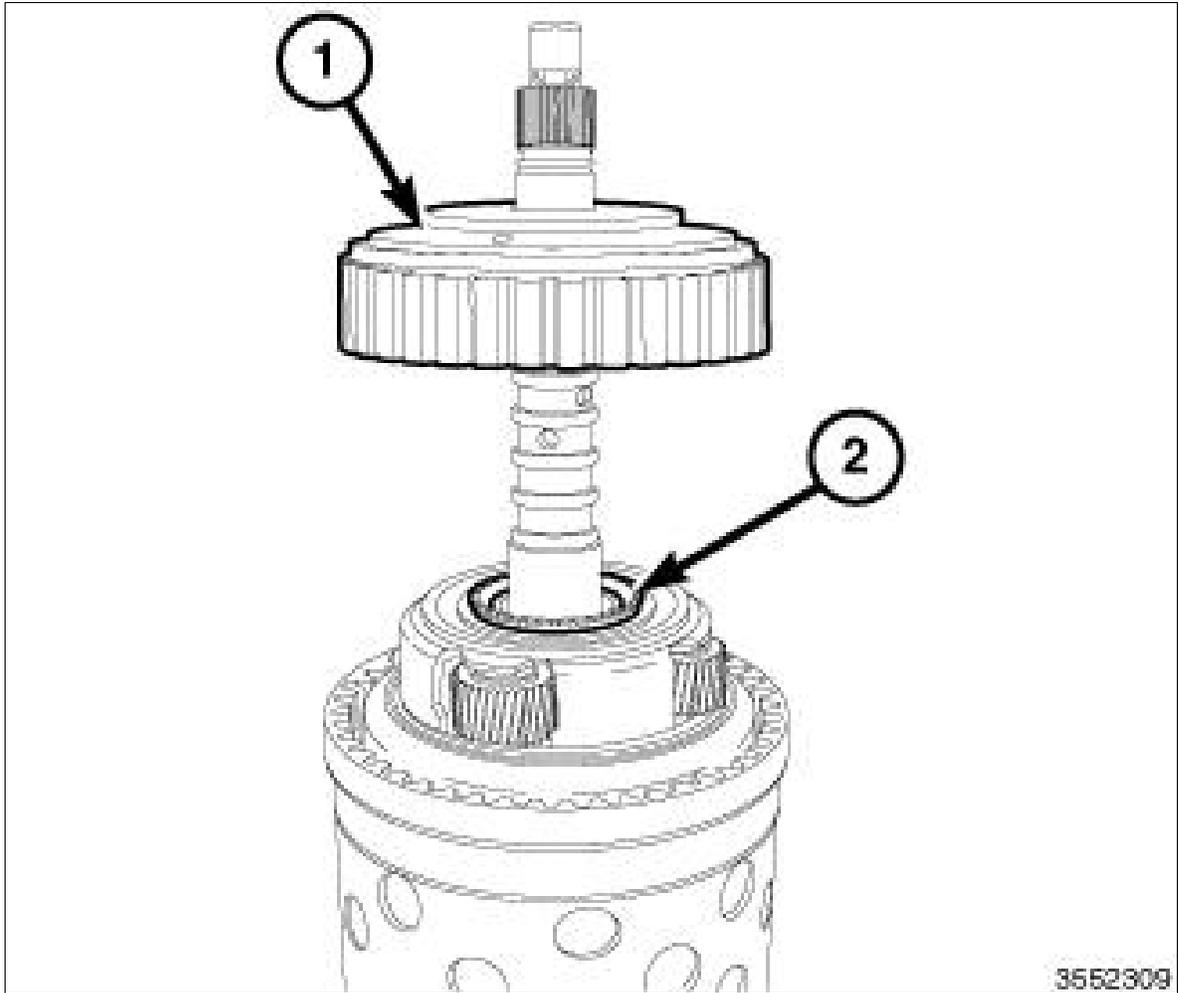
Fig 36: P4 Annulus Drum Assembly, Press Fixture Assembly & Bearing/Gear Splitter



Courtesy of CHRYSLER GROUP, LLC

58. Position the input/output shaft and P4 annulus drum assembly (1) on (special tool #8925-3, Assembly, Press Fixture) (3) and (special tool #1130, Splitter, Bearing/Gear) (4).
59. Remove the B clutch pack (2).

Fig 37: P1 Annulus/B-Clutch Hub Assembly, Needle Bearing And Holding Plate



Courtesy of CHRYSLER GROUP, LLC

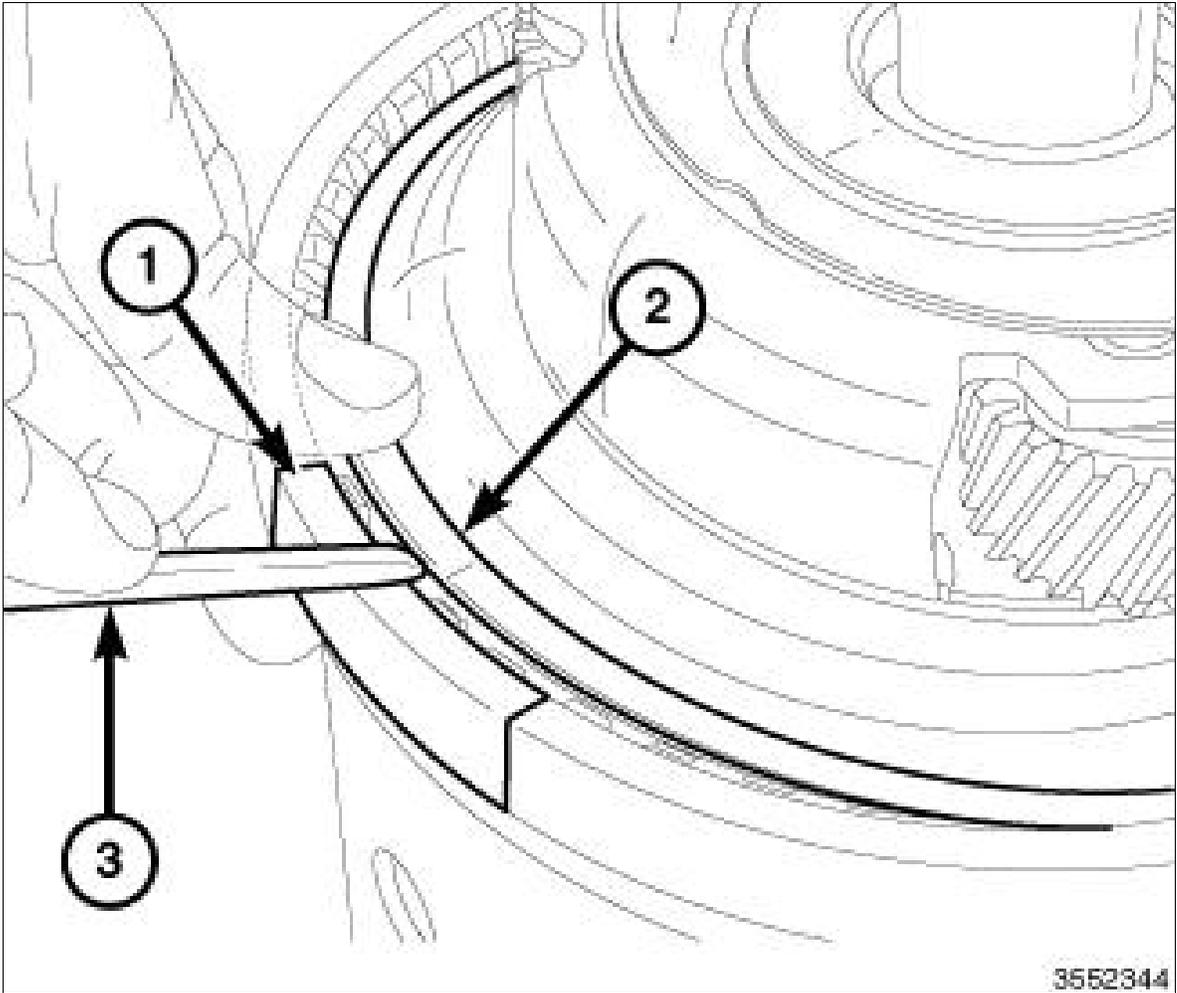
60. Remove the O-ring and 5 squared O-rings.
61. Remove the P1 annulus/B clutch hub assembly (1) from the P4 annulus drum.

 **NOTE:**

*The washer may stick to the bottom of the P1 annulus/B clutch hub assembly (1).*

62. Remove the selectable shim from the P1 annulus/B clutch hub.
63. Remove the needle bearing and holding plate (2) from the P1 planetary carrier.

Fig 38: Tool & Snap Ring



Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The (special tool #10378, Rings, Support) are three pieces intended to be used in multiple locations around the drum.*

64. Position the (special tool #10378, Rings, Support) (1) on the P4 annulus drum assembly to protect the drum.

 **NOTE:**

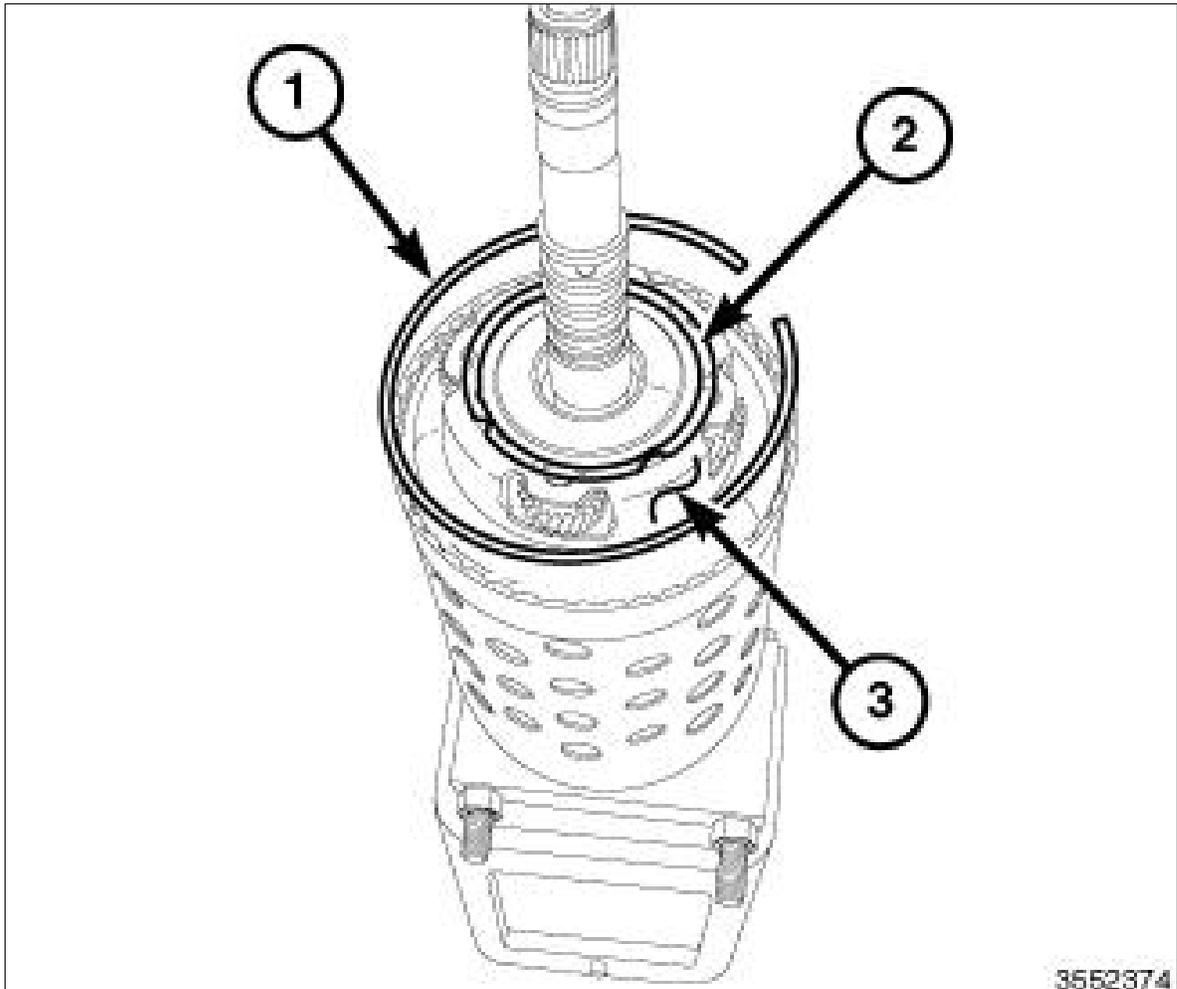
*Pry the snap ring from the opposite side of the snap ring openings to release.*

 **NOTE:**

*When the snap ring is removed the internal clutch drum may drop slightly.*

65. Using a suitable tool (3), release the snap ring (2) by prying in and up from the opposite side of the snap ring openings.

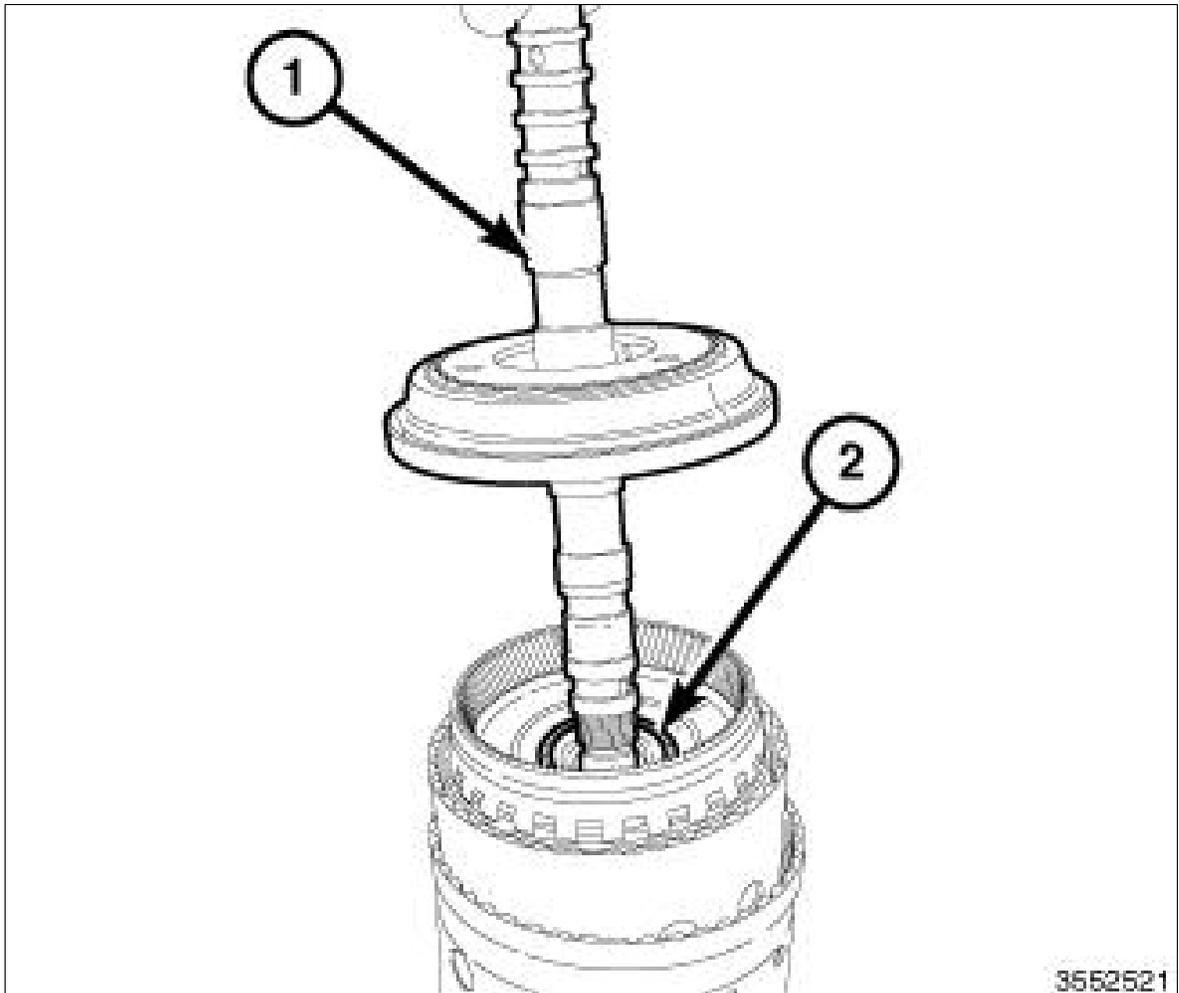
Fig 39: Snap Ring & P1 Planetary Carrier



Courtesy of CHRYSLER GROUP, LLC

66. Remove the P1 planetary carrier (3).
67. Remove P1/P2 sun gear from the bottom of the P1 planetary carrier (3).

Fig 40: P2 Planetary Carrier & Needle Bearing



Courtesy of CHRYSLER GROUP, LLC

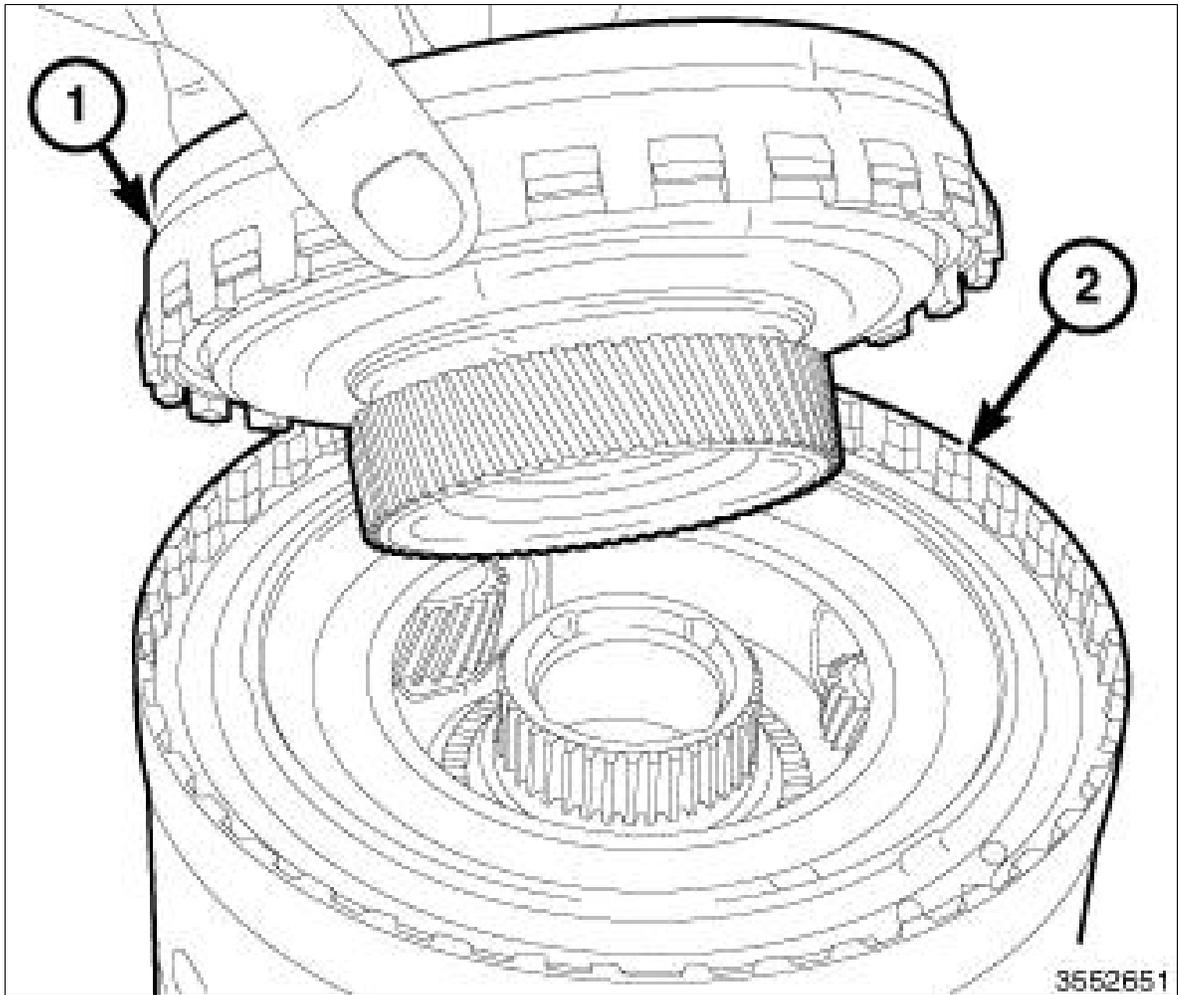
 **NOTE:**

*Be careful not to damage the P2 carrier magnetic pick up for the input sensor.*

68. Remove the input shaft with P2 planetary carrier (1) from the drum assembly.

69. Remove the needle bearing (2) and washer.

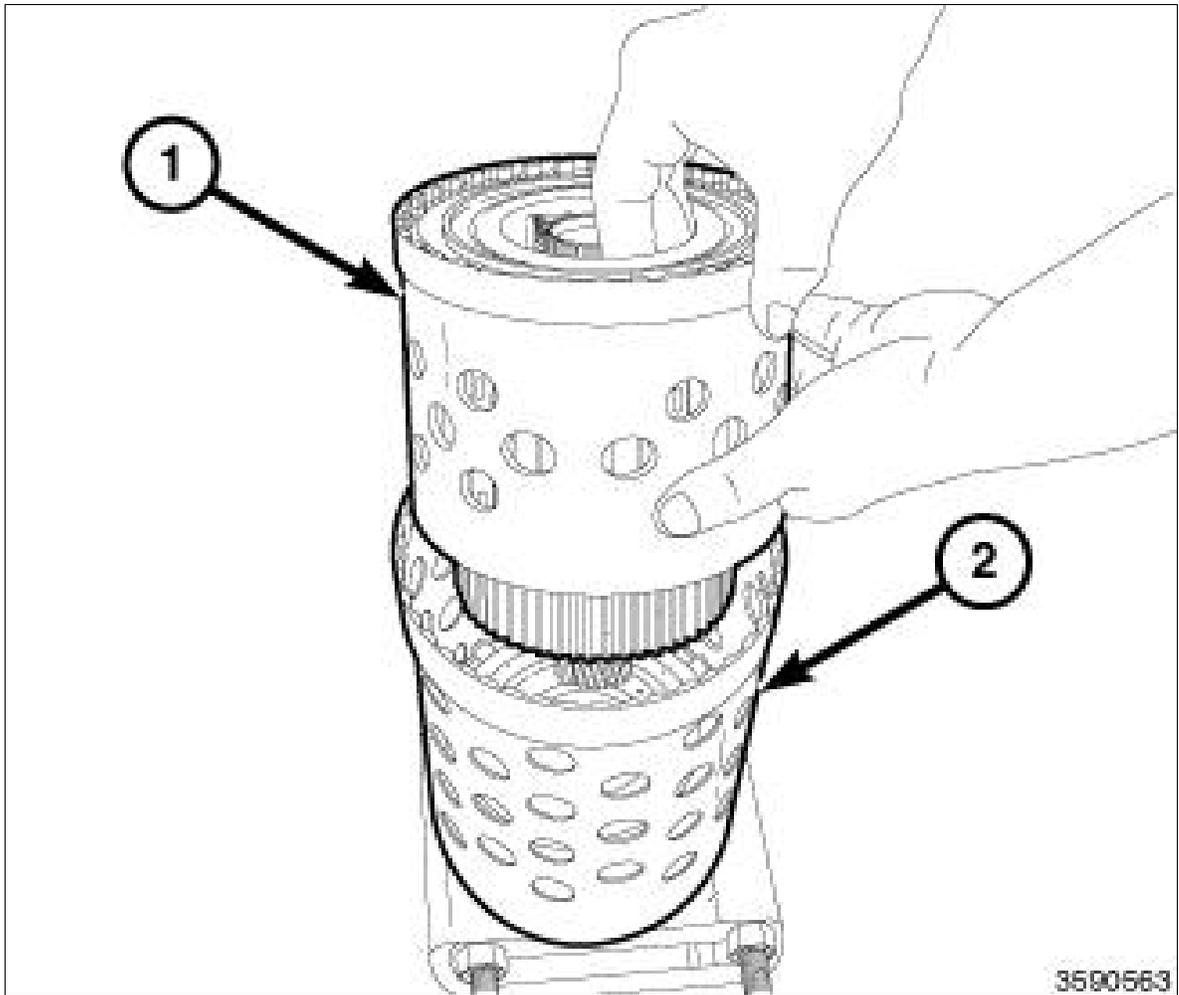
Fig 41: P2 Annulus/P3 Sun Gear & Drum Assembly



Courtesy of CHRYSLER GROUP, LLC

70. Remove the P2 annulus/P3 sun gear (1) from the drum assembly (2).

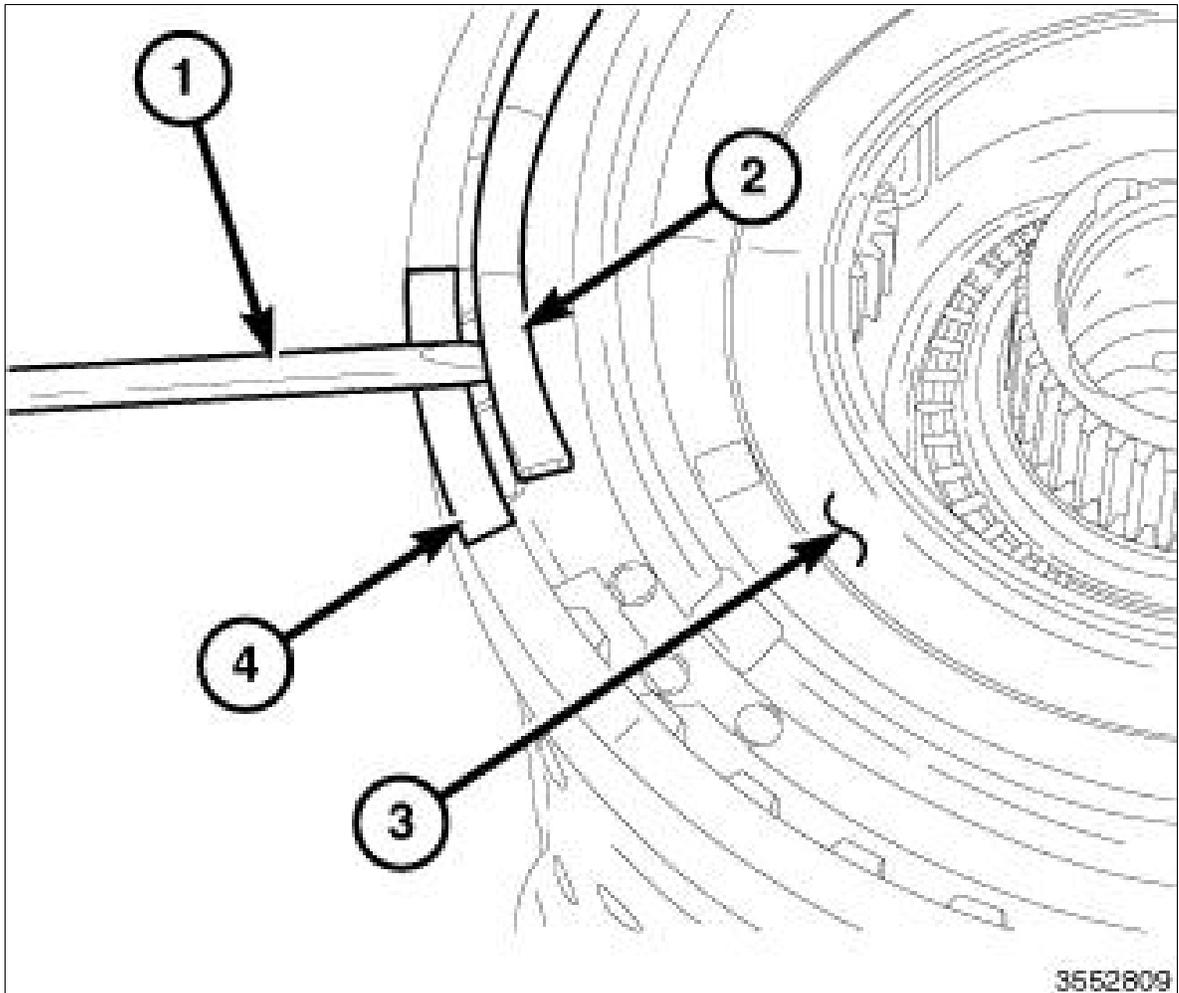
Fig 42: D-Clutch Drum & P4 Annulus Drum



Courtesy of CHRYSLER GROUP, LLC

71. Remove the D clutch drum (1) from the P4 annulus drum (2).

Fig 43: Support Rings, Tool & P3 Planetary Carrier



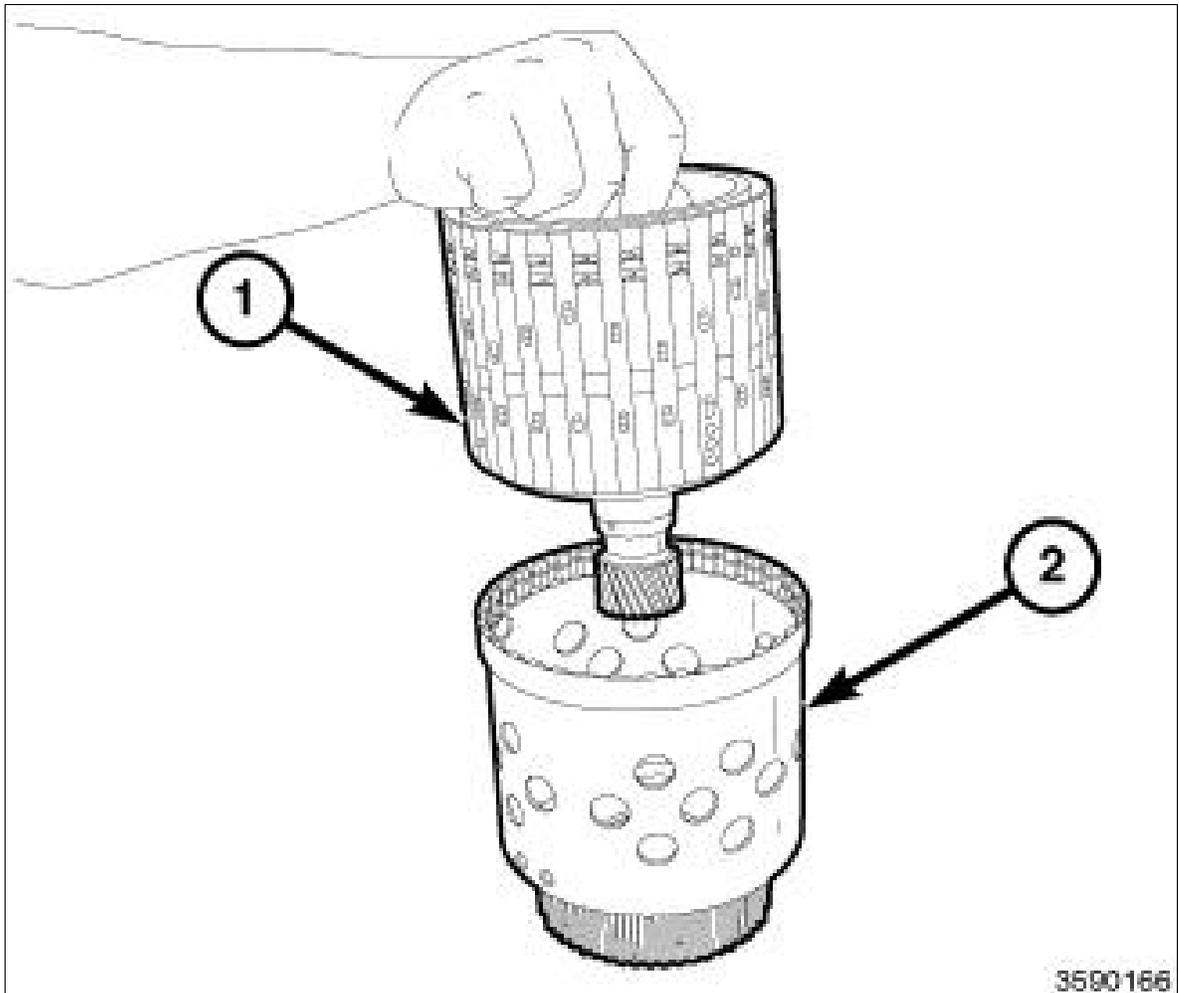
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The (special tool #10378, Rings, Support) are three pieces intended to be used in multiple locations around the drum.*

72. Position the (special tool #10378, Rings, Support) (4) on the P4 annulus drum assembly to protect the drum.
73. Using a suitable tool (1), release and remove the snap ring (2).
74. Remove the P3 planetary carrier (3).
75. Remove the needle bearing from the planetary carrier.

Fig 44: P4 Sun Gear/C/E Clutch Retainer & D-Clutch Drum



Courtesy of CHRYSLER GROUP, LLC

76. Remove the P4 sun gear/C/E clutch retainer (1) from the D clutch drum (2).

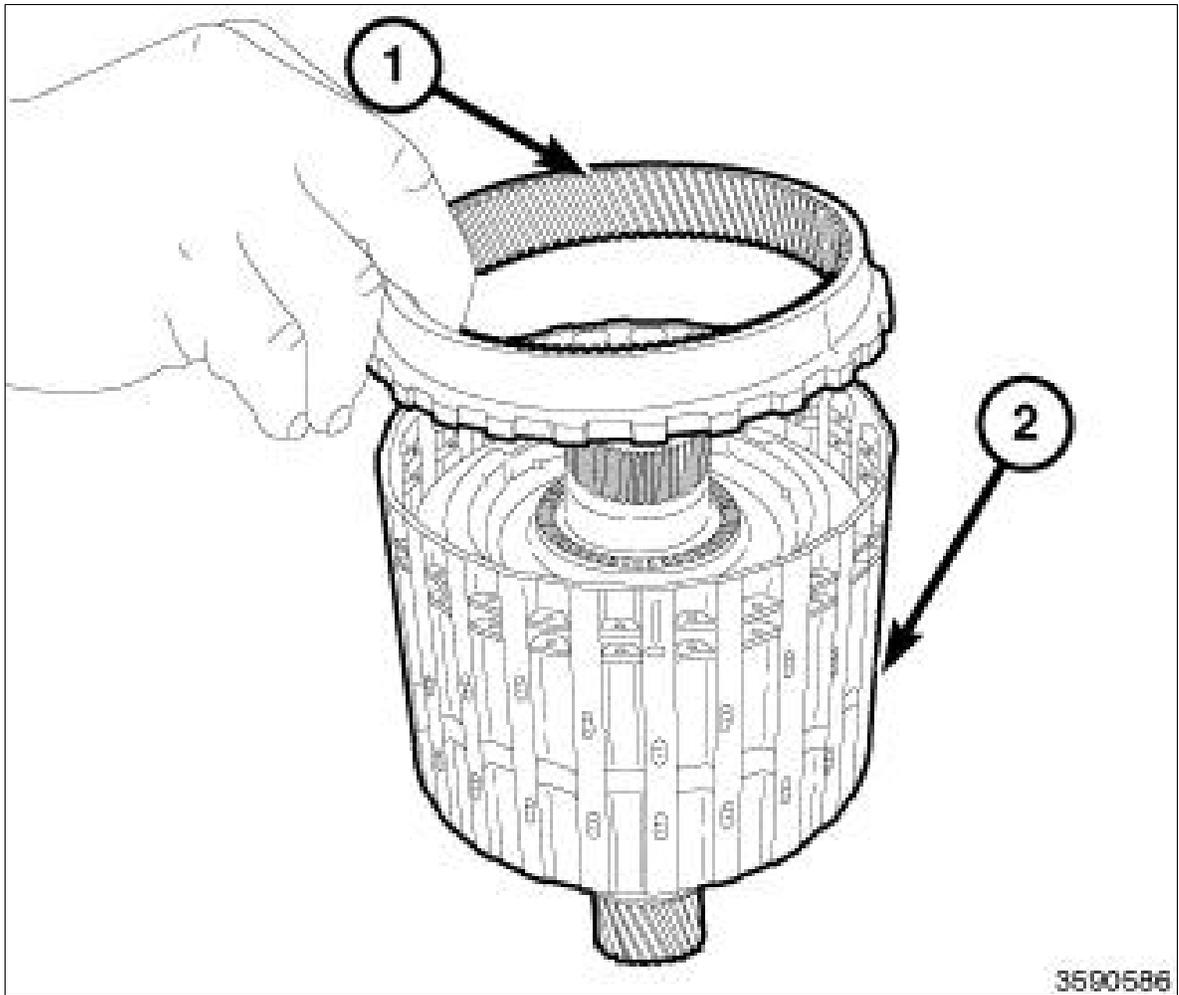
Fig 45: Snap Ring & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

77. Remove the snap ring (1) from the P4 sun gear/C/E clutch retainer (2).

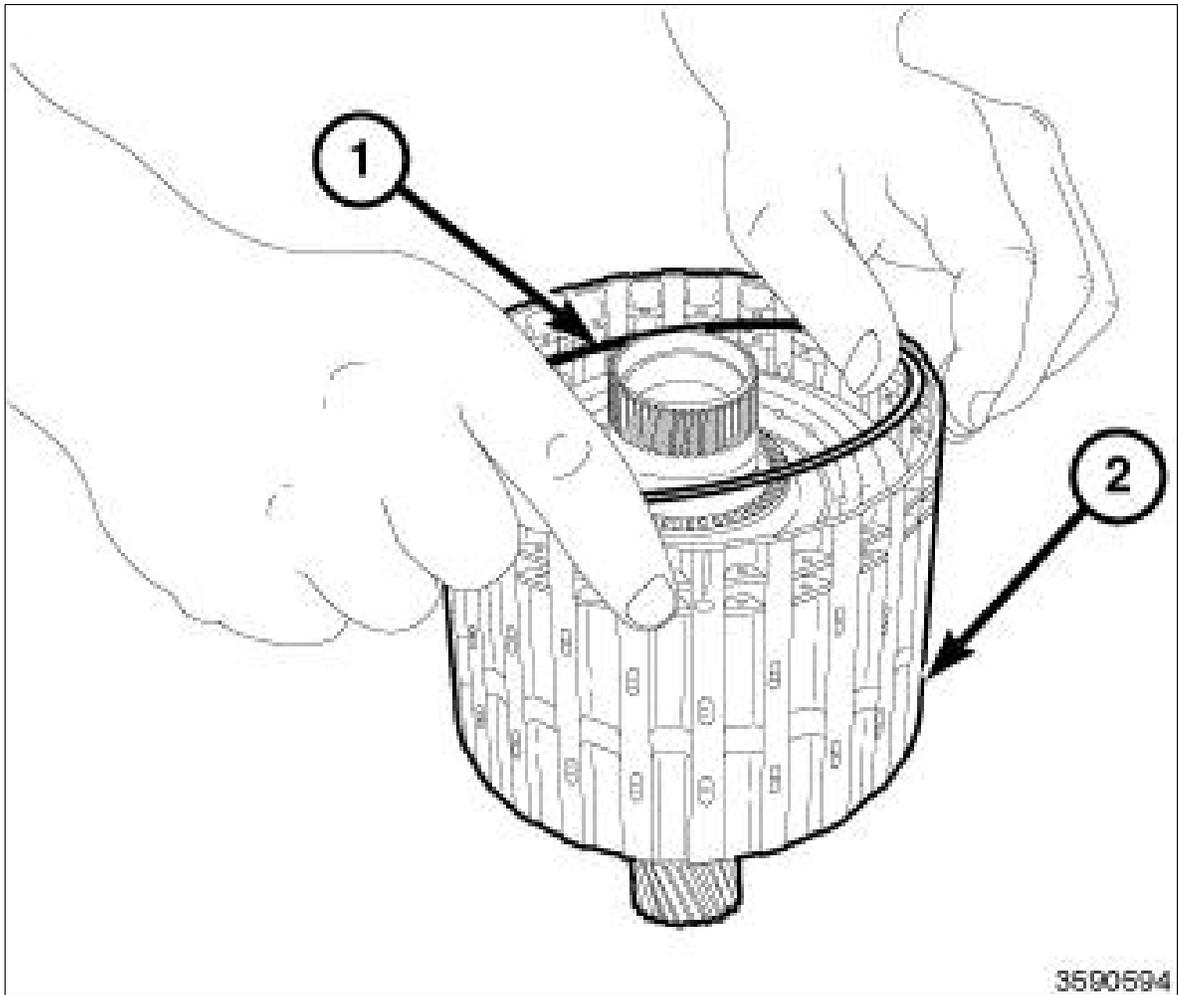
Fig 46: P3 Annulus & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

78. Remove the P3 annulus (1) from the P4 sun gear/C/E clutch retainer (2).

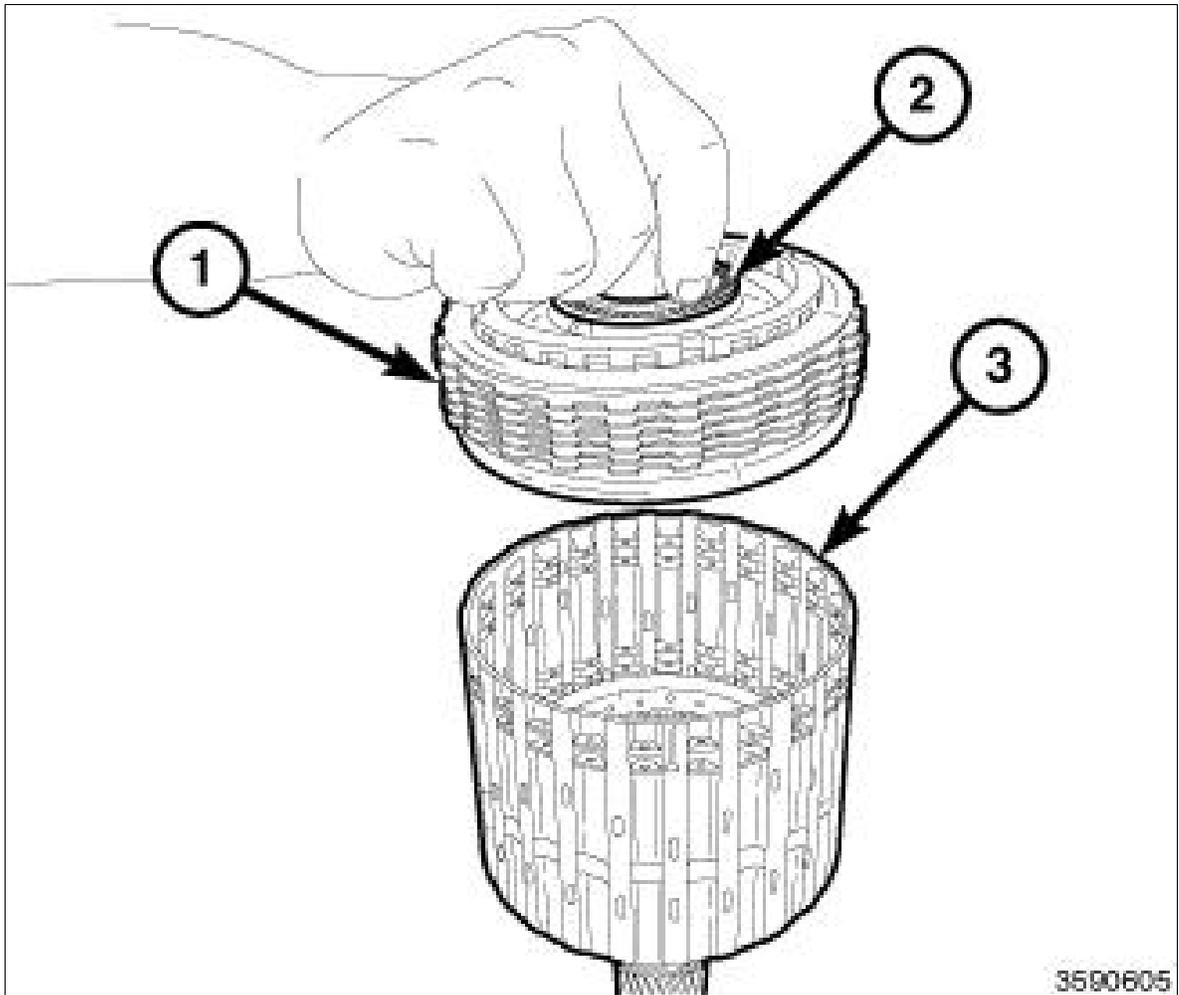
Fig 47: Snap Ring & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

79. Remove the snap ring (1) from the P4 sun gear/C/E clutch retainer (2).

Fig 48: E-Clutch & P4 Sun Gear/C/E Clutch Retainer

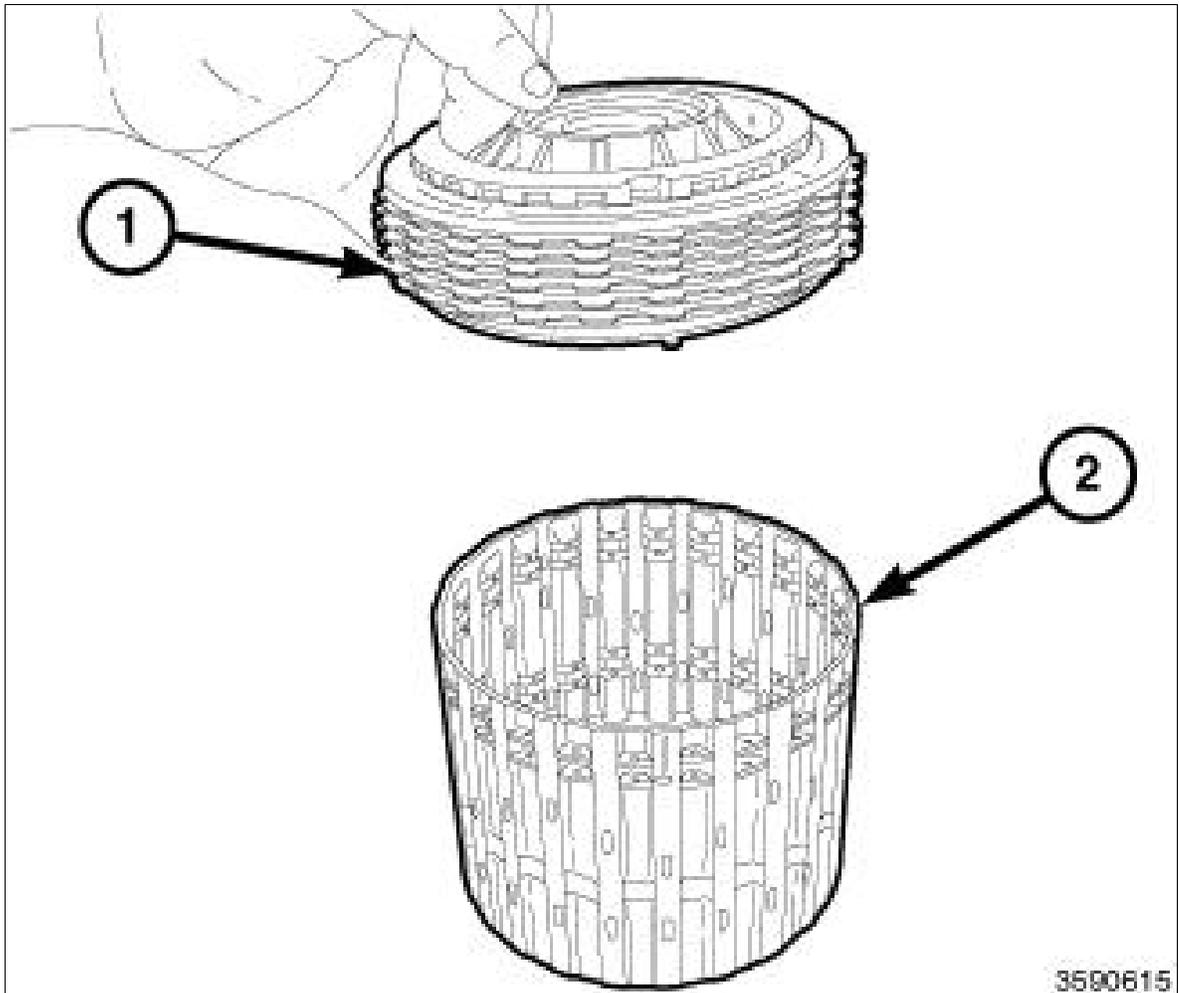


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Courtesy of CHRYSLER GROUP, LLC

80. Remove the E clutch (1) from the P4 sun gear/C/E clutch retainer (3).
81. Remove the needle bearing (2) from the E clutch (1).

Fig 49: C-Clutch & P4 Sun Gear/C/E Clutch Retainer



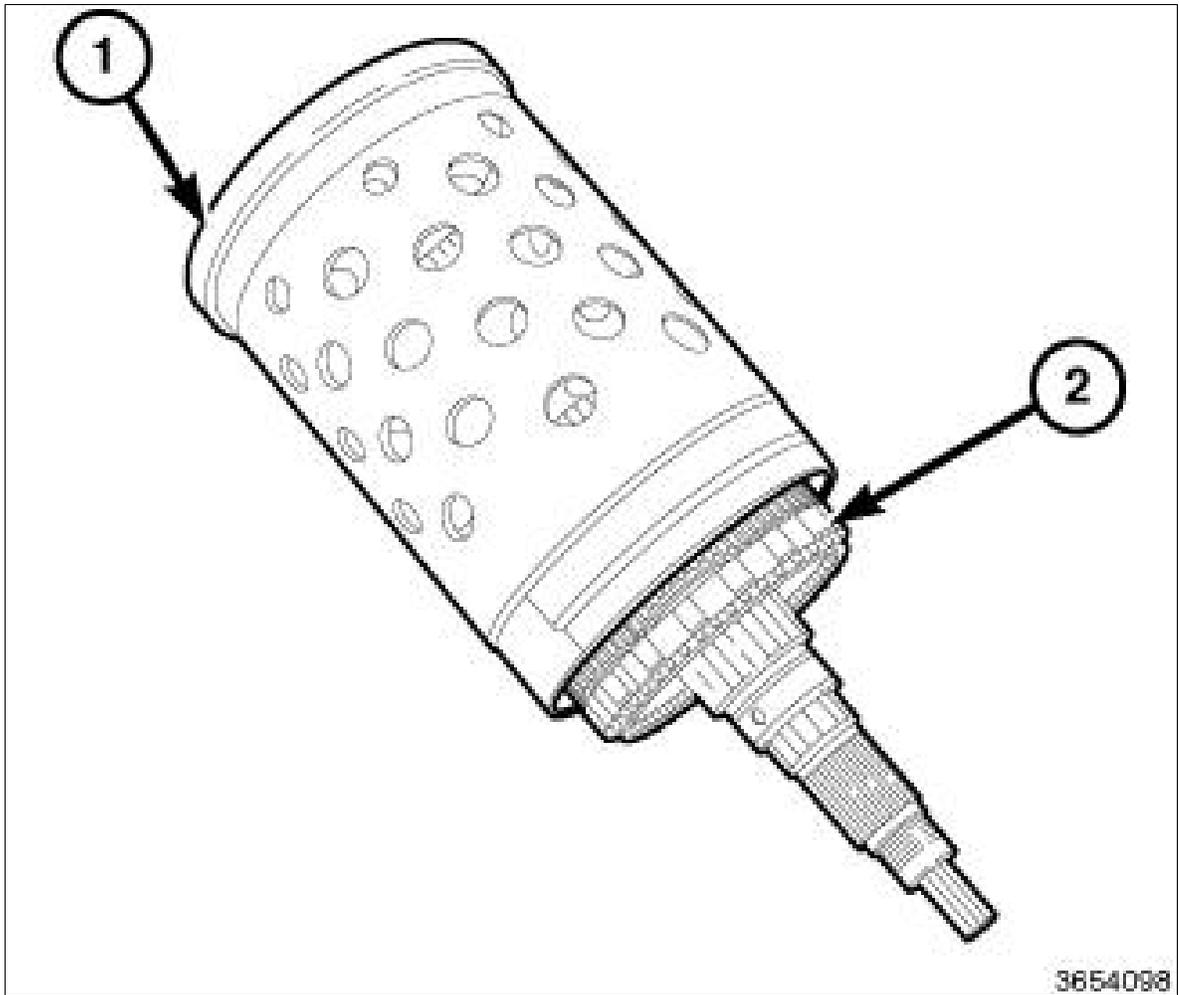
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The E clutch and C clutch are similar. The C clutch hub is removable and has 6 friction plates.*

82. Remove the C clutch (1) from the P4 sun gear/C/E clutch retainer (2).
83. Remove the bearing from top and bottom of C clutch (1).

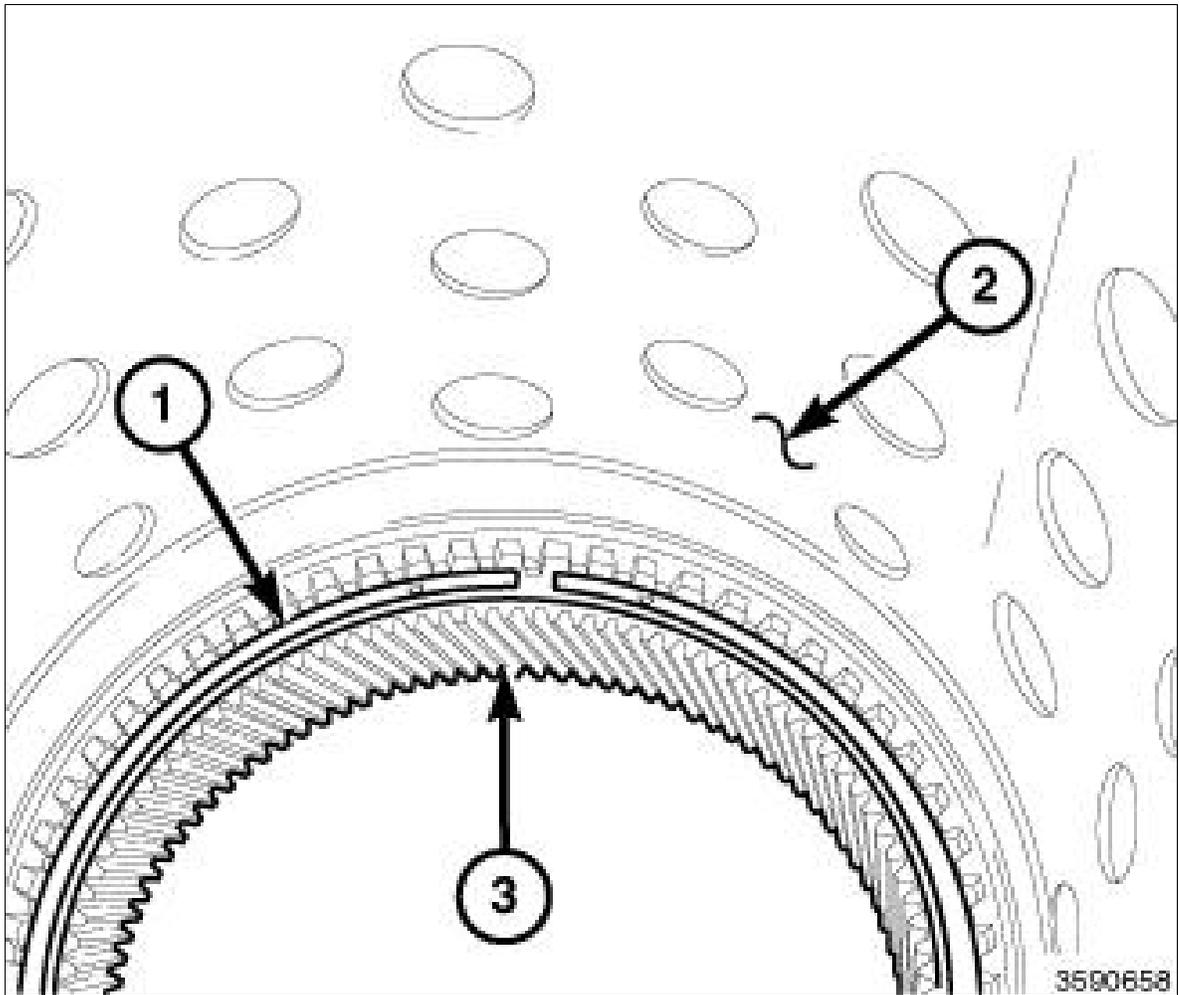
Fig 50: P4 Planetary Carrier/Output Shaft & P4 Annulus Drum



Courtesy of CHRYSLER GROUP, LLC

84. Remove the P4 planetary carrier/output shaft (2) from the P4 annulus drum (1).

Fig 51: Snap Ring & P4 Annulus Drum & P4 Annulus



Courtesy of CHRYSLER GROUP, LLC

85. Remove the snap ring (1) from the P4 annulus drum (2).
86. Remove the P4 annulus (3) from the P4 annulus drum (2).

## CLEANING > CLEANING

**⚠ CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

The use of crocus cloth is permissible where necessary, providing it is used carefully. When used on shafts, or valves, use extreme care to avoid rounding off sharp edges. Sharp edges are vital as they prevent foreign matter from getting between the valve and valve bore.

Do not reuse oil seals, seal rings, or O-rings during overhaul. Replace these parts as a matter of course. Also do not reuse snap rings or E-clips that are bent or distorted. Replace these parts as well.

Lubricate transmission parts with the appropriate automatic transmission fluid only during overhaul and assembly.



**NOTE:**

*Do not use shop towels or rags to dry the case (or any other transmission component) unless they are made from lint-free materials. Lint will stick to case surfaces and transmission components and circulate throughout the transmission after assembly. A sufficient quantity of lint can block fluid passages and interfere with valve body operation.*

Flush the case bores and fluid passages thoroughly with approved transmission fluid. Dry the case and all fluid passages with compressed air. Be sure that all fluid passages are clear.

## **INSPECTION > INSPECTION**

Inspect the case for cracks, porous spots, worn bores, or damaged threads. Damaged threads can be repaired with Helicoil® thread inserts. However, the case will have to be replaced if it exhibits any type of damage or wear.

## **ASSEMBLY > ASSEMBLY**



**CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*



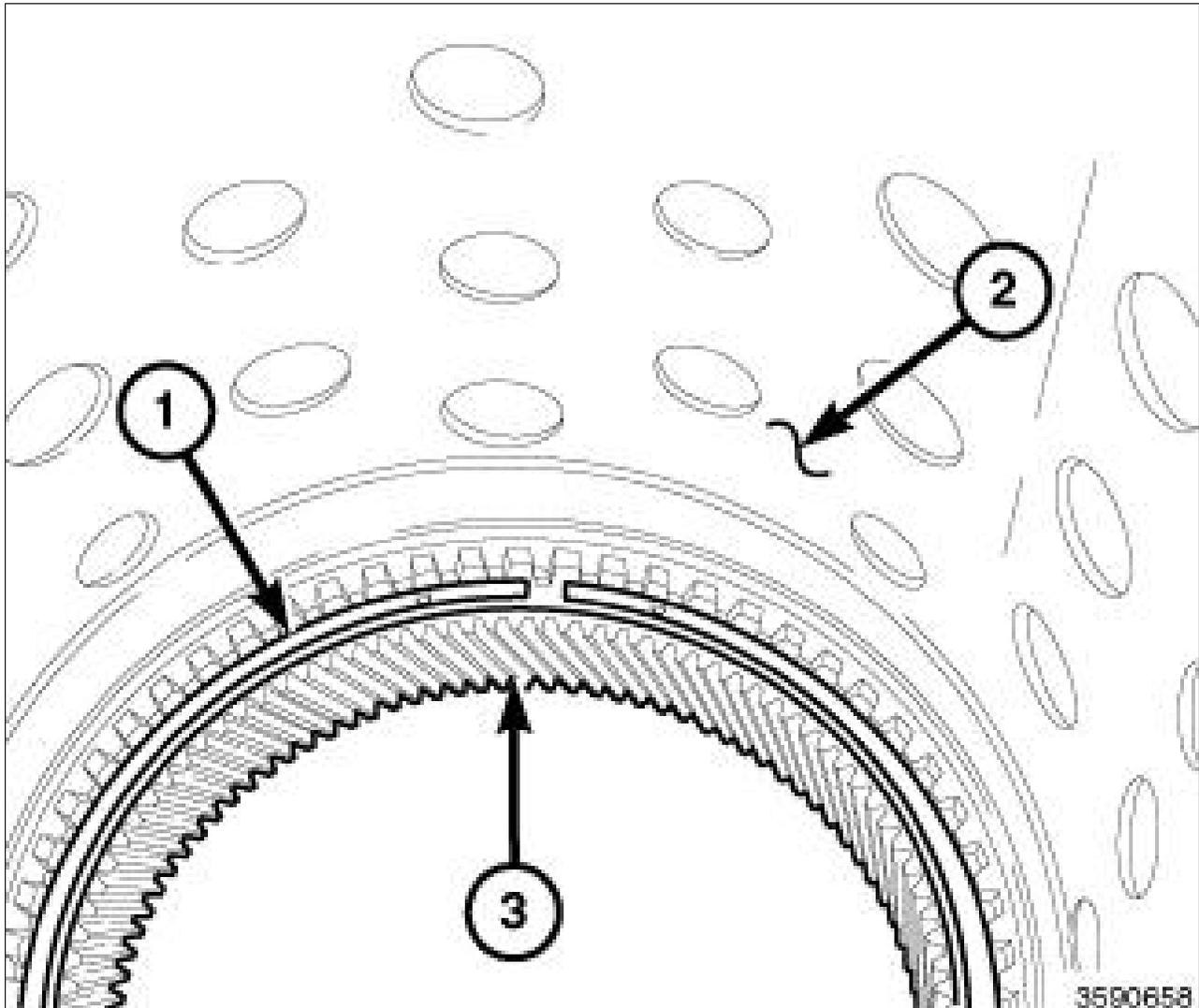
**CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

 **NOTE:**

*If the transmission is being reconditioned (clutch/seal replacement) or replaced, it is necessary to perform the TCM Adaptation Procedure. Refer to MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING .*

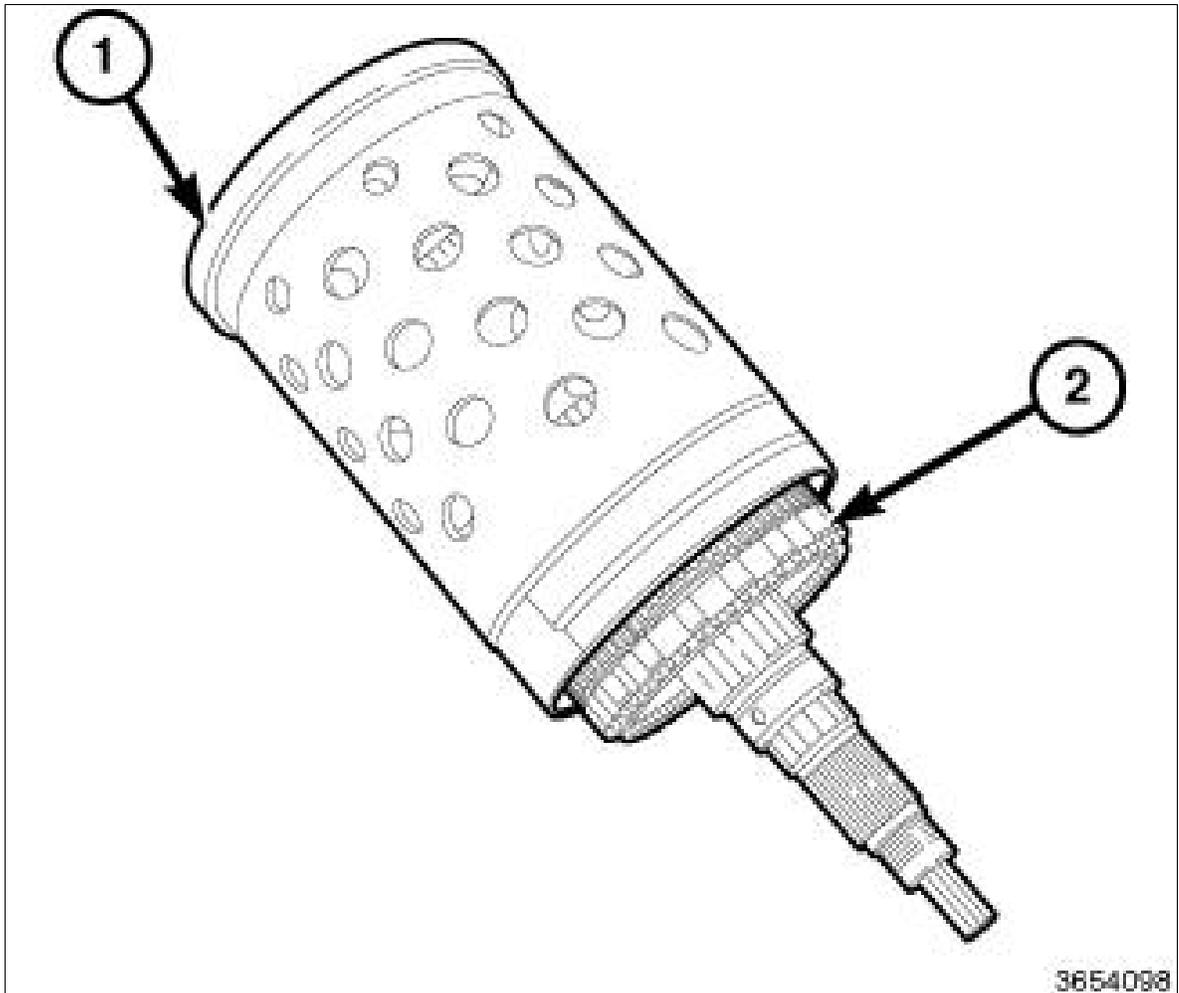
Fig 1: Snap Ring & P4 Annulus Drum & P4 Annulus



Courtesy of CHRYSLER GROUP, LLC

1. Insert the P4 annulus (3) into the P4 annulus drum (2).
2. Install the snap ring (1) into the P4 annulus drum (2).

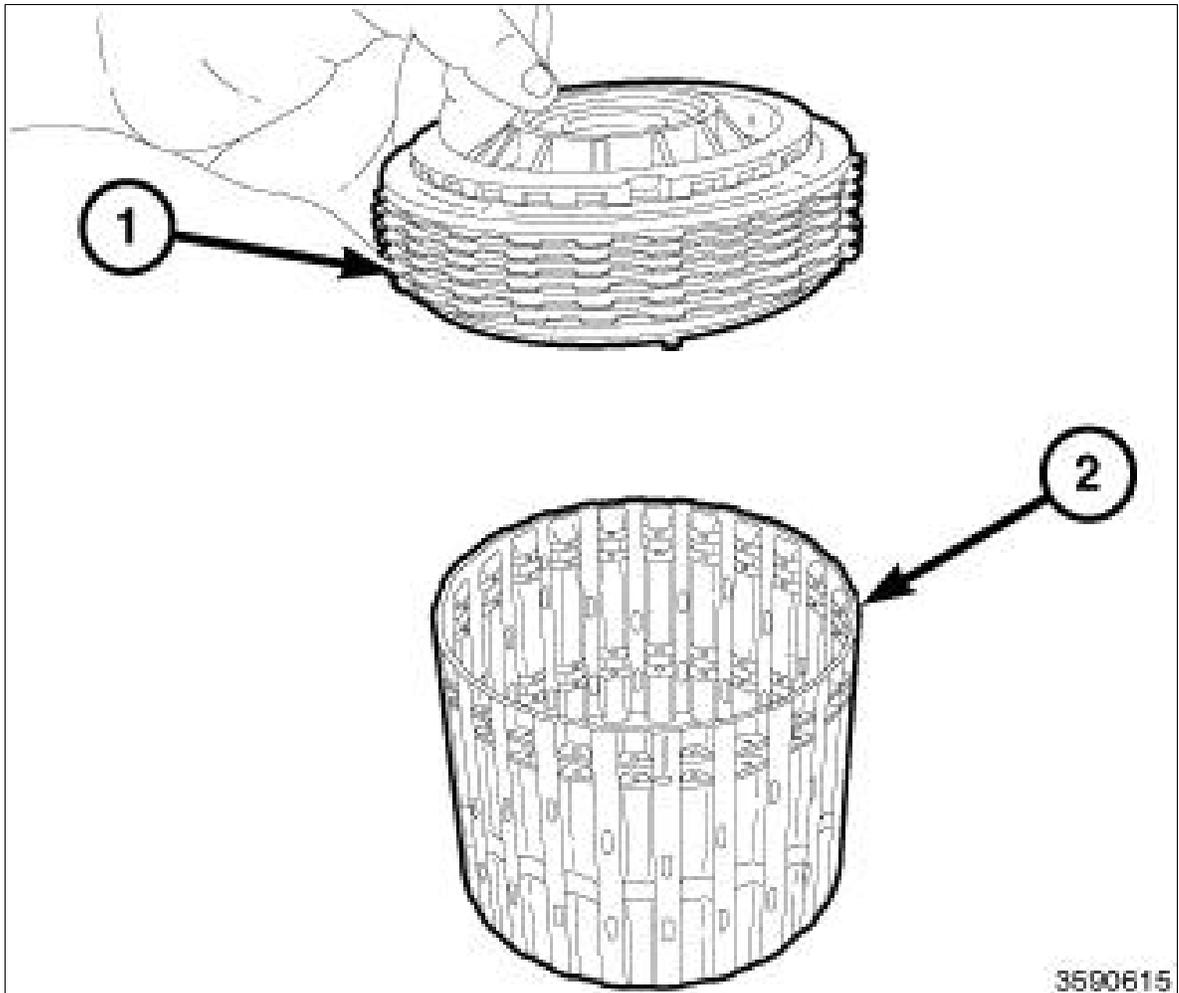
Fig 2: P4 Planetary Carrier/Output Shaft & P4 Annulus Drum



Courtesy of CHRYSLER GROUP, LLC

3. Install the P4 planetary carrier/output shaft (2) into the P4 annulus drum (1).

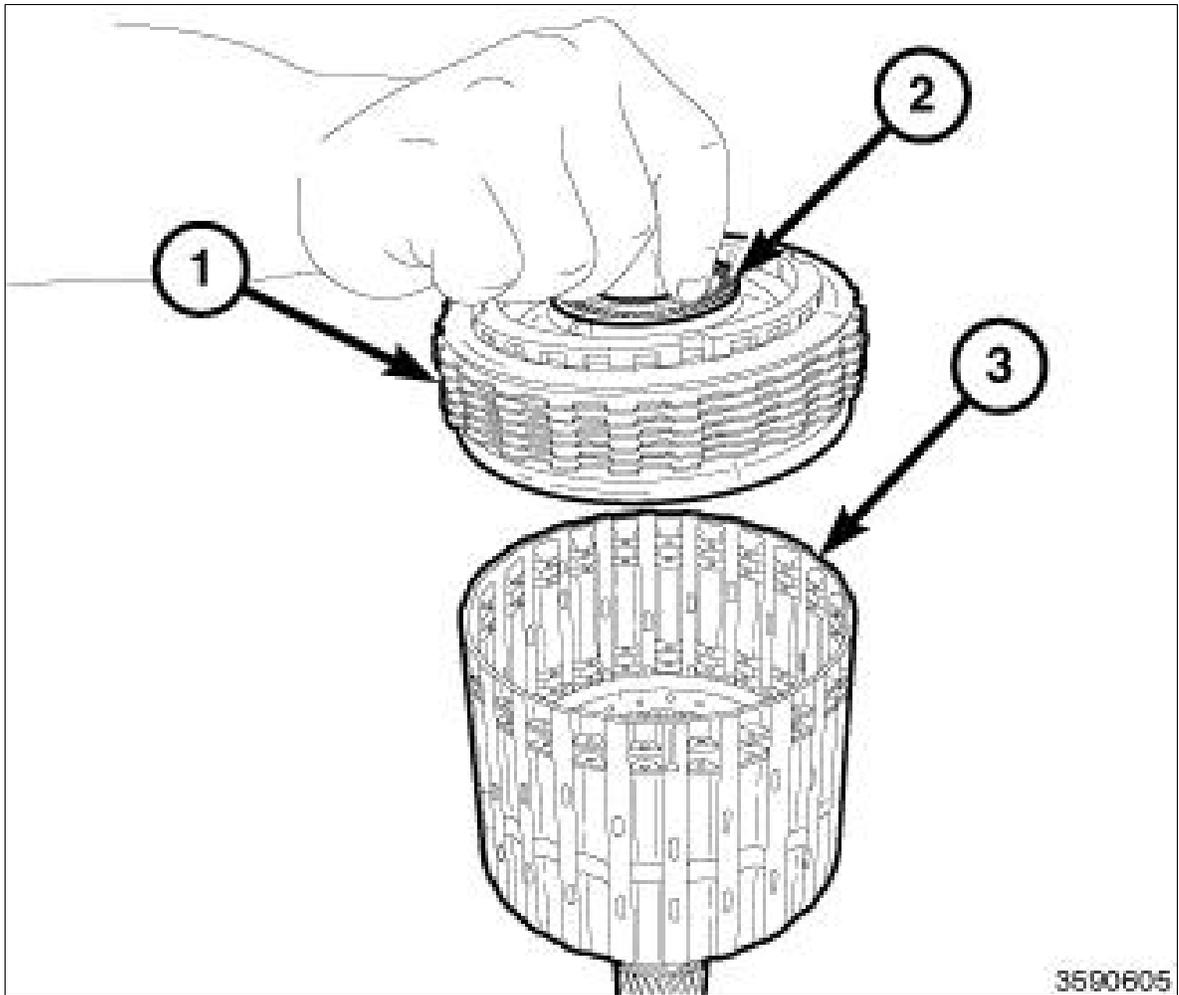
Fig 3: C-Clutch & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

4. Position the bearings on the top and the bottom of C clutch (1).
5. Install the C clutch (1) into the P4 sun gear/C/E clutch retainer (2).

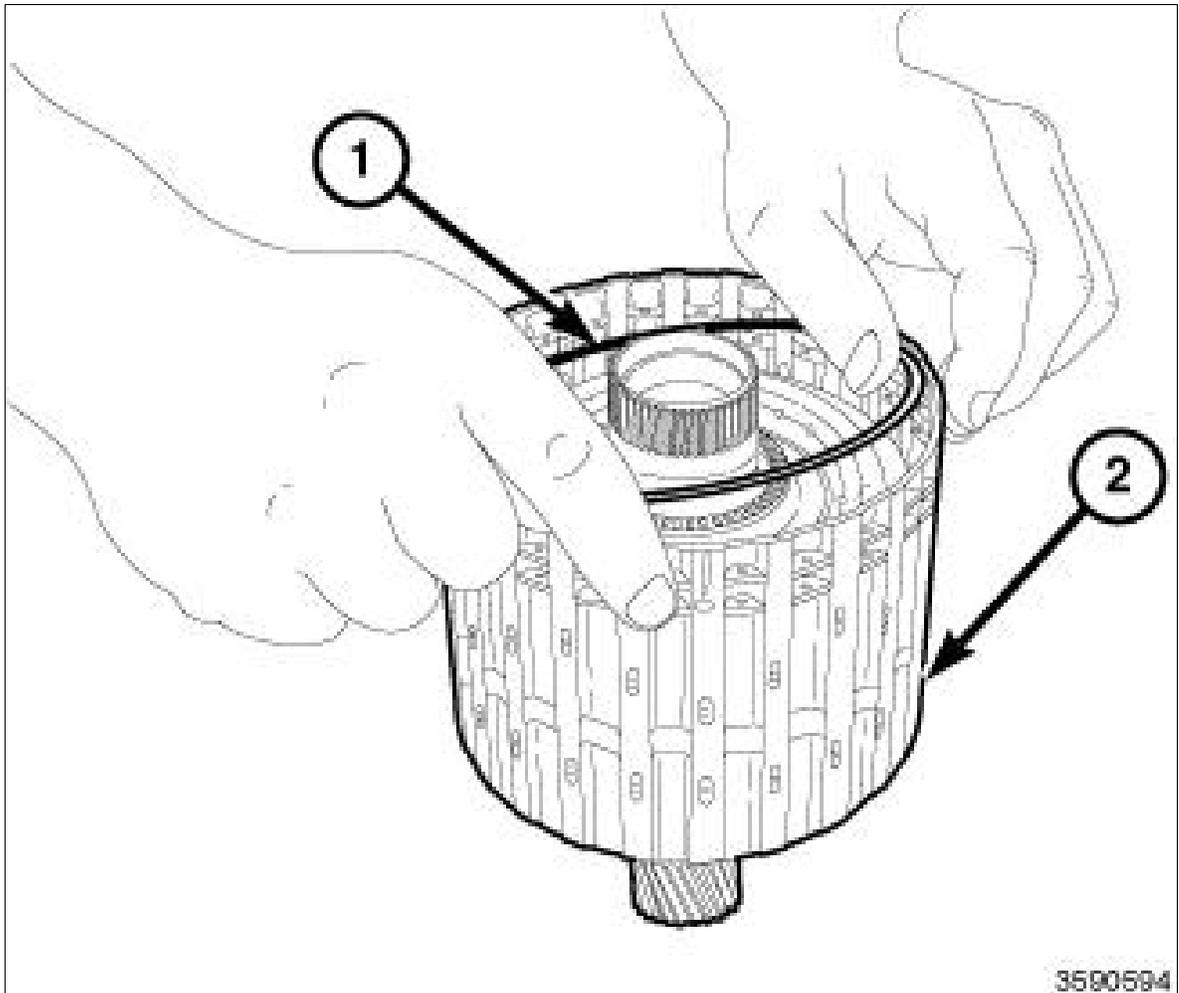
Fig 4: E-Clutch & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

6. Install the needle bearing (2) onto the E clutch (1).
7. Install the E clutch (1) into the P4 sun gear/C/E clutch retainer (3).

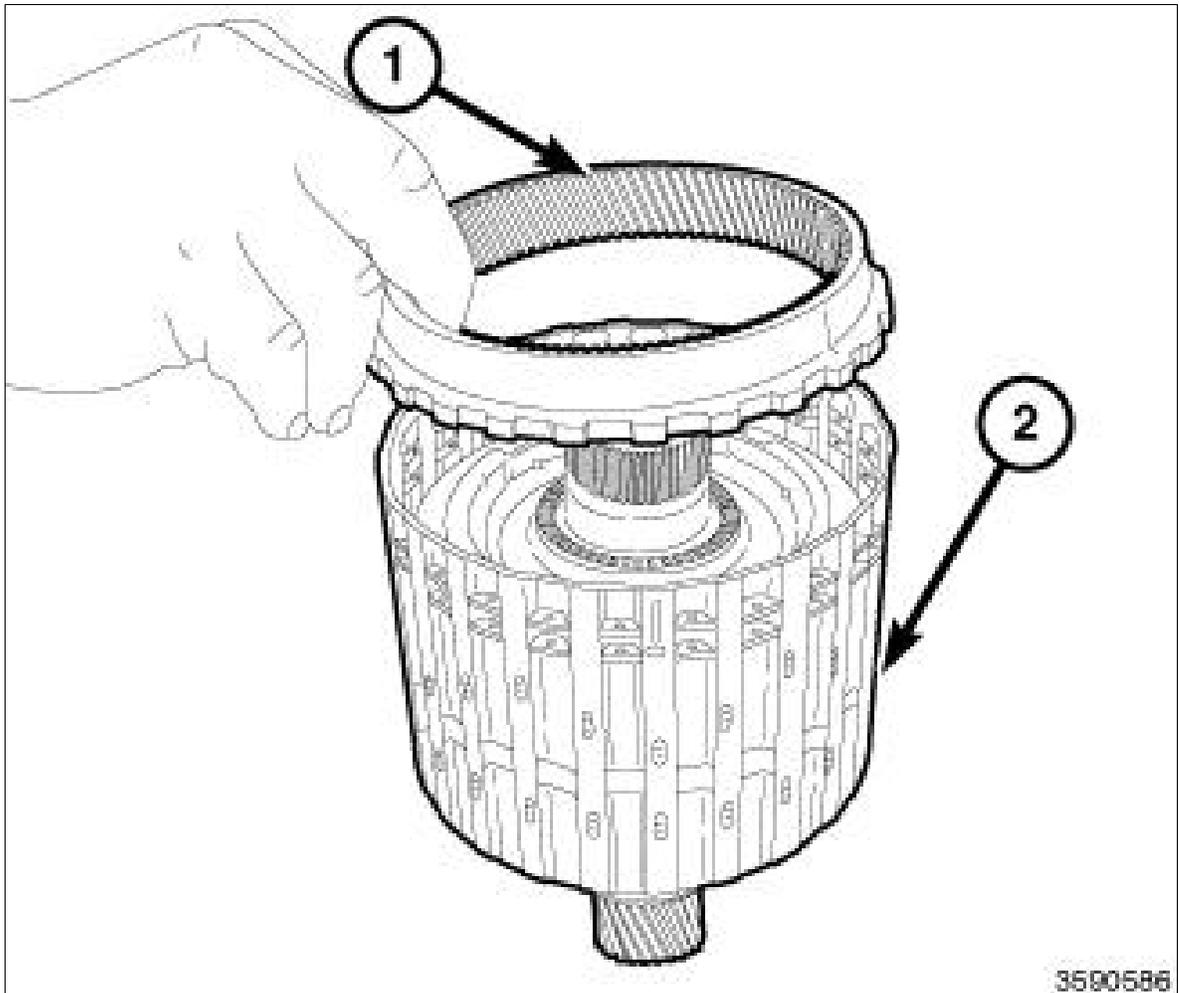
Fig 5: Snap Ring & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

8. Install the snap ring (1) into the P4 sun gear/C/E clutch retainer (2).

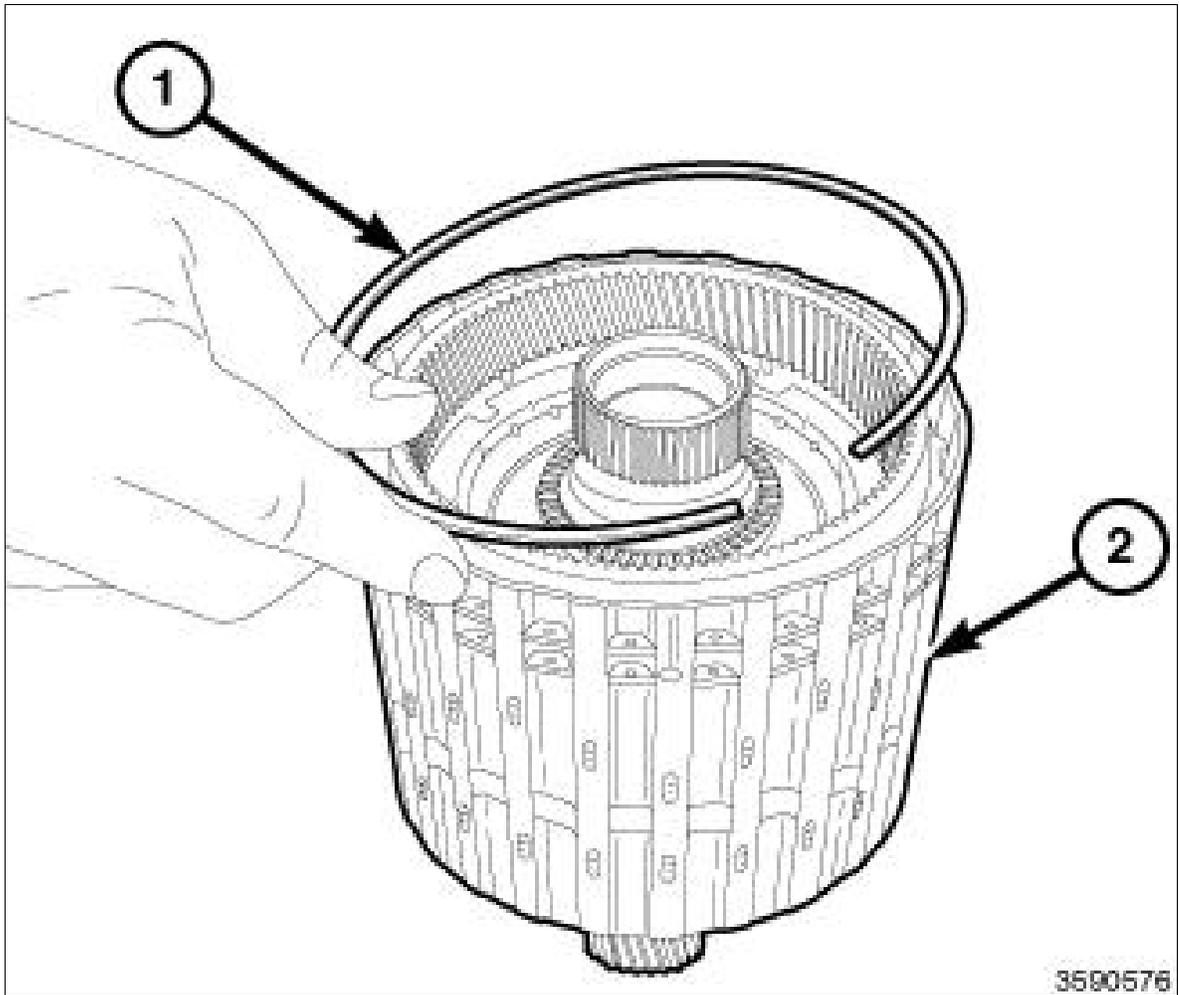
Fig 6: P3 Annulus & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

9. Install the P3 annulus (1) into the P4 sun gear/C/E clutch retainer (2).

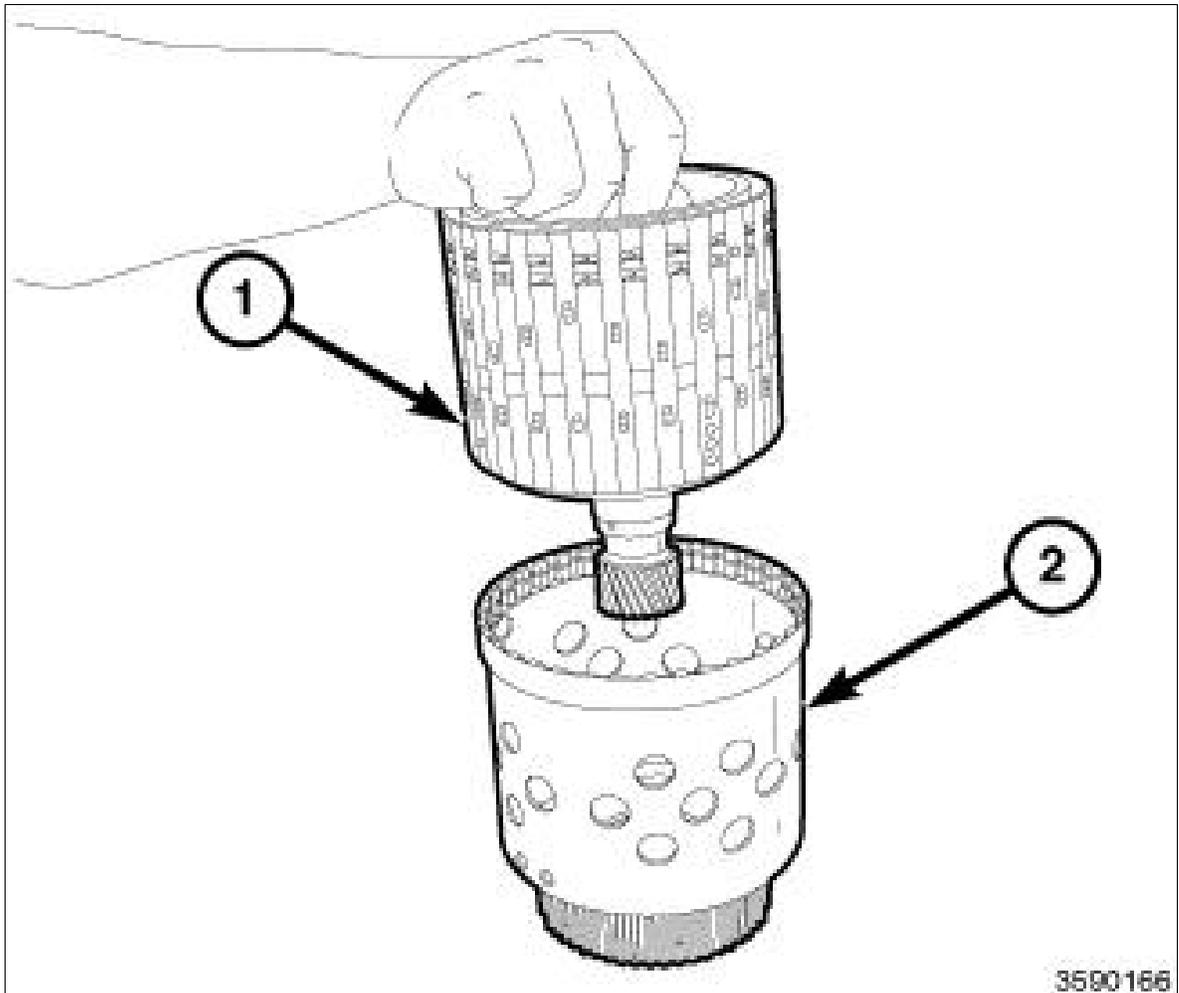
Fig 7: Snap Ring & P4 Sun Gear/C/E Clutch Retainer



Courtesy of CHRYSLER GROUP, LLC

10. Install the snap ring (1) into the P4 sun gear/C/E clutch retainer (2).

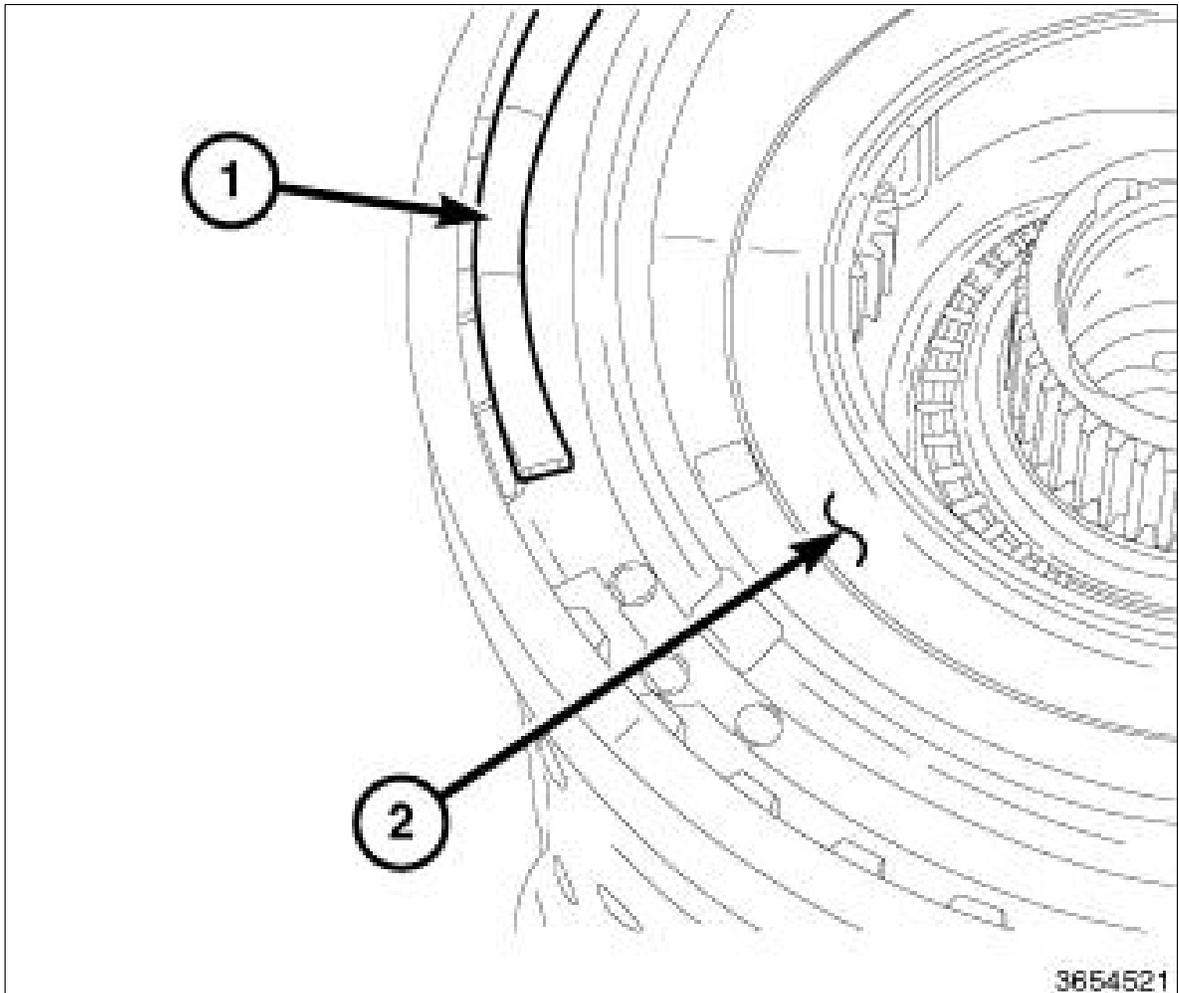
Fig 8: P4 Sun Gear/C/E Clutch Retainer & D-Clutch Drum



Courtesy of CHRYSLER GROUP, LLC

11. Install the P4 sun gear/C/E clutch retainer (1) into the D clutch drum (2).

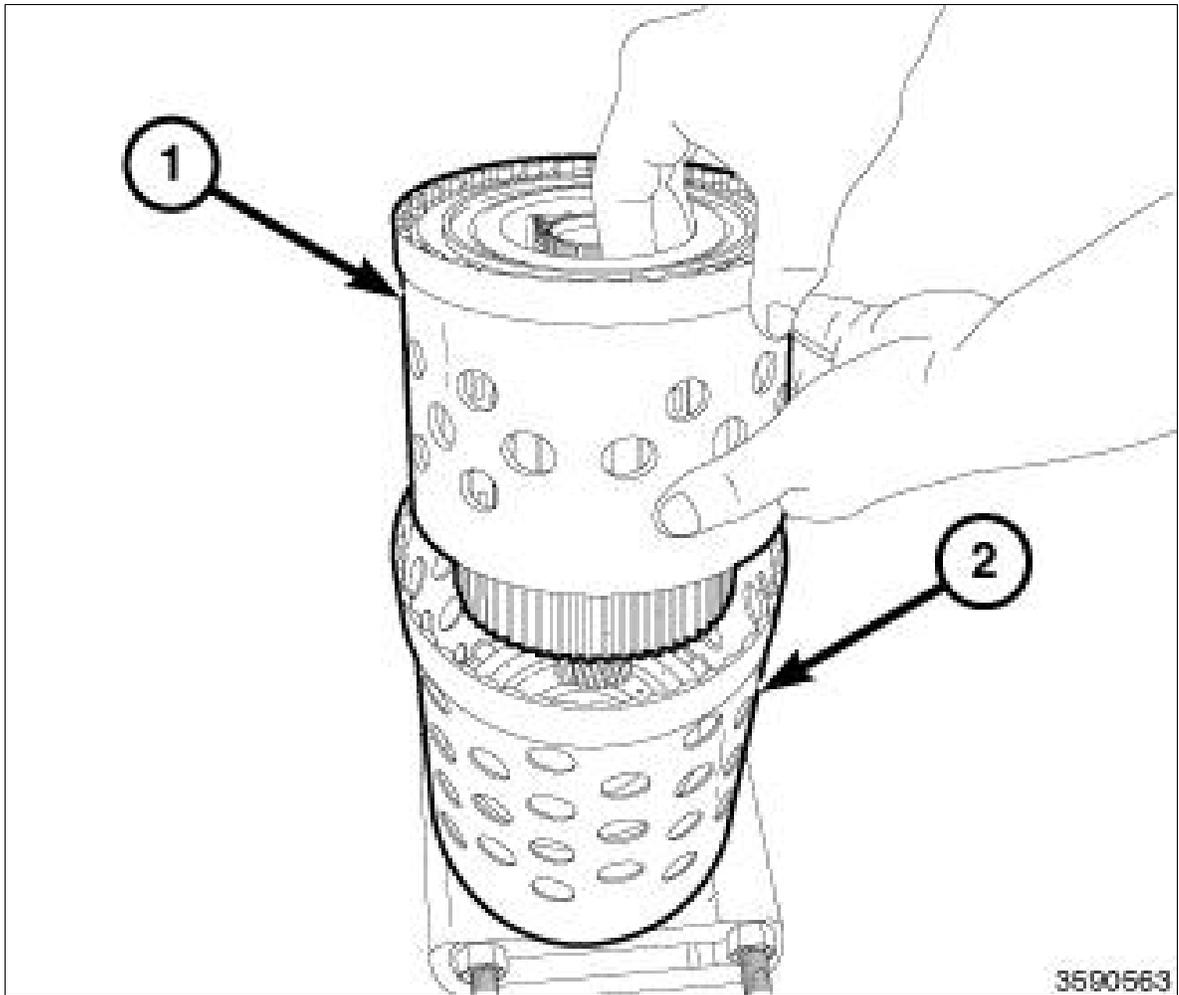
Fig 9: P3 Planetary Carrier & Snap Ring



Courtesy of CHRYSLER GROUP, LLC

12. Install the needle bearing onto the planetary carrier.
13. Install the P3 planetary carrier (2) in the D clutch drum.
14. Install the snap ring (1).

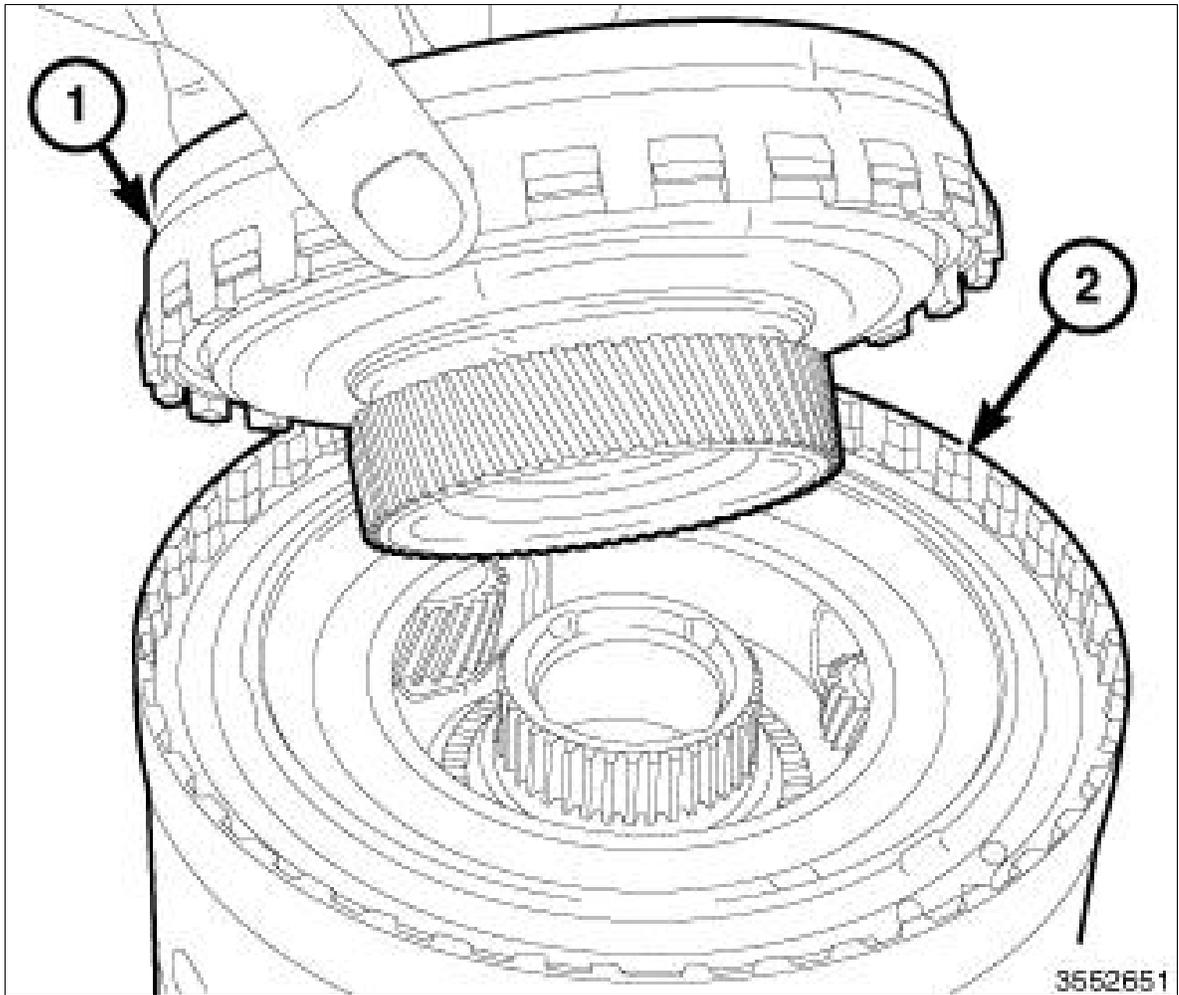
Fig 10: D-Clutch Drum & P4 Annulus Drum



Courtesy of CHRYSLER GROUP, LLC

15. Install the D clutch drum (1) into the P4 annulus drum (2).

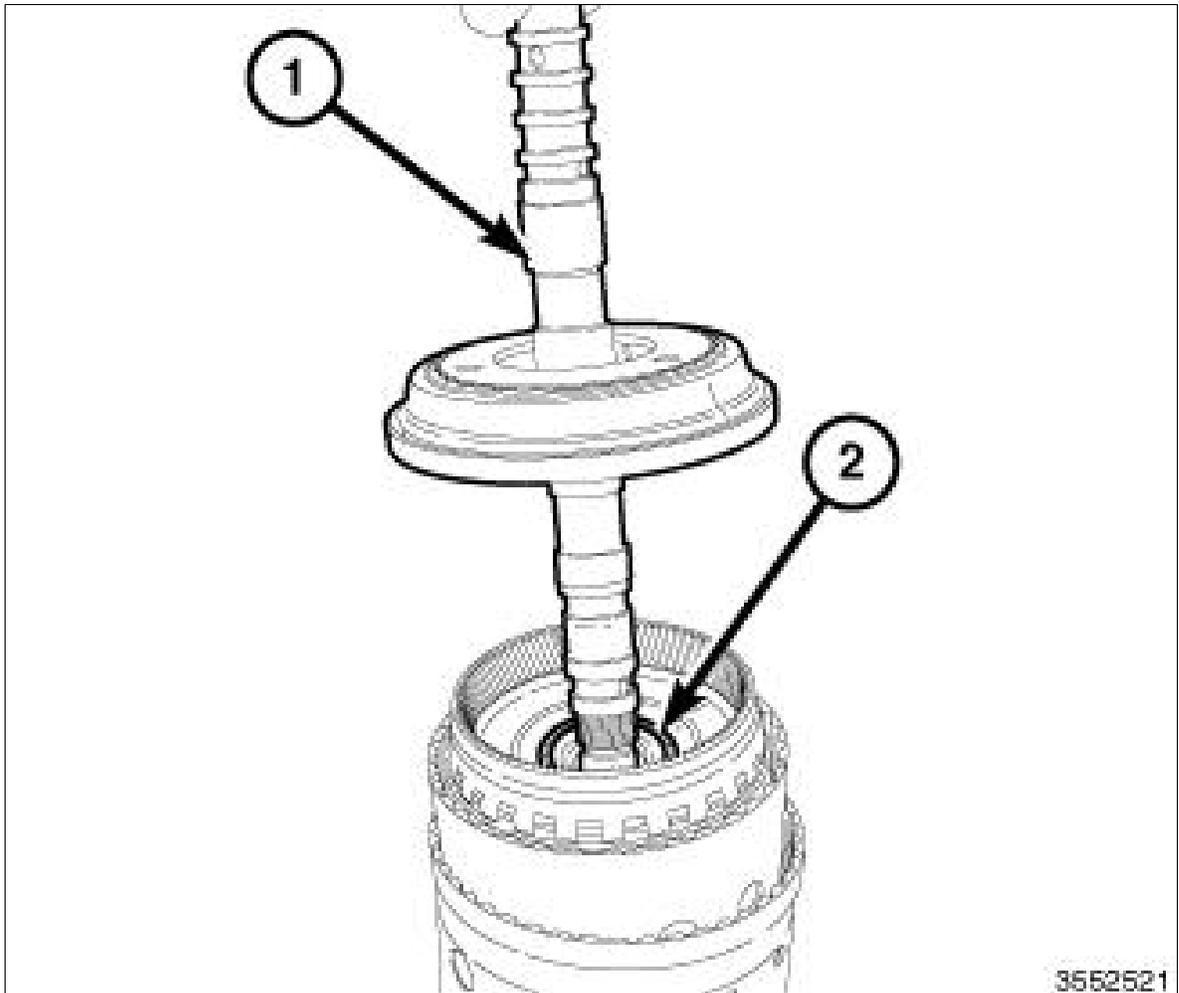
Fig 11: P2 Annulus/P3 Sun Gear & Drum Assembly



Courtesy of CHRYSLER GROUP, LLC

16. Install the P2 annulus\P3 sun gear (1) onto the drum assembly (2).

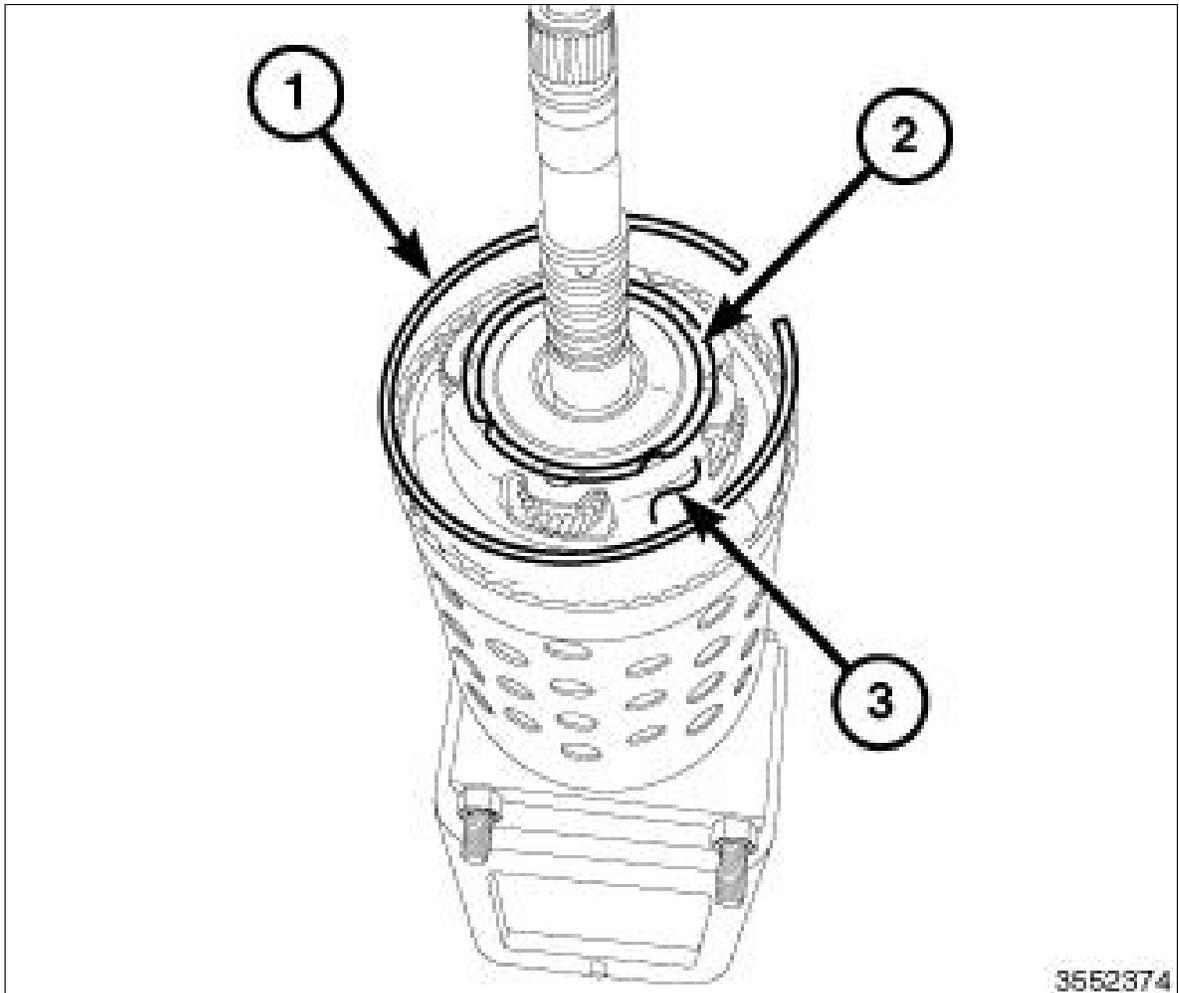
Fig 12: P2 Planetary Carrier & Needle Bearing



Courtesy of CHRYSLER GROUP, LLC

17. Install the needle bearing (2) and washer.
18. Install the input shaft with P2 planetary carrier (1) into the drum assembly.

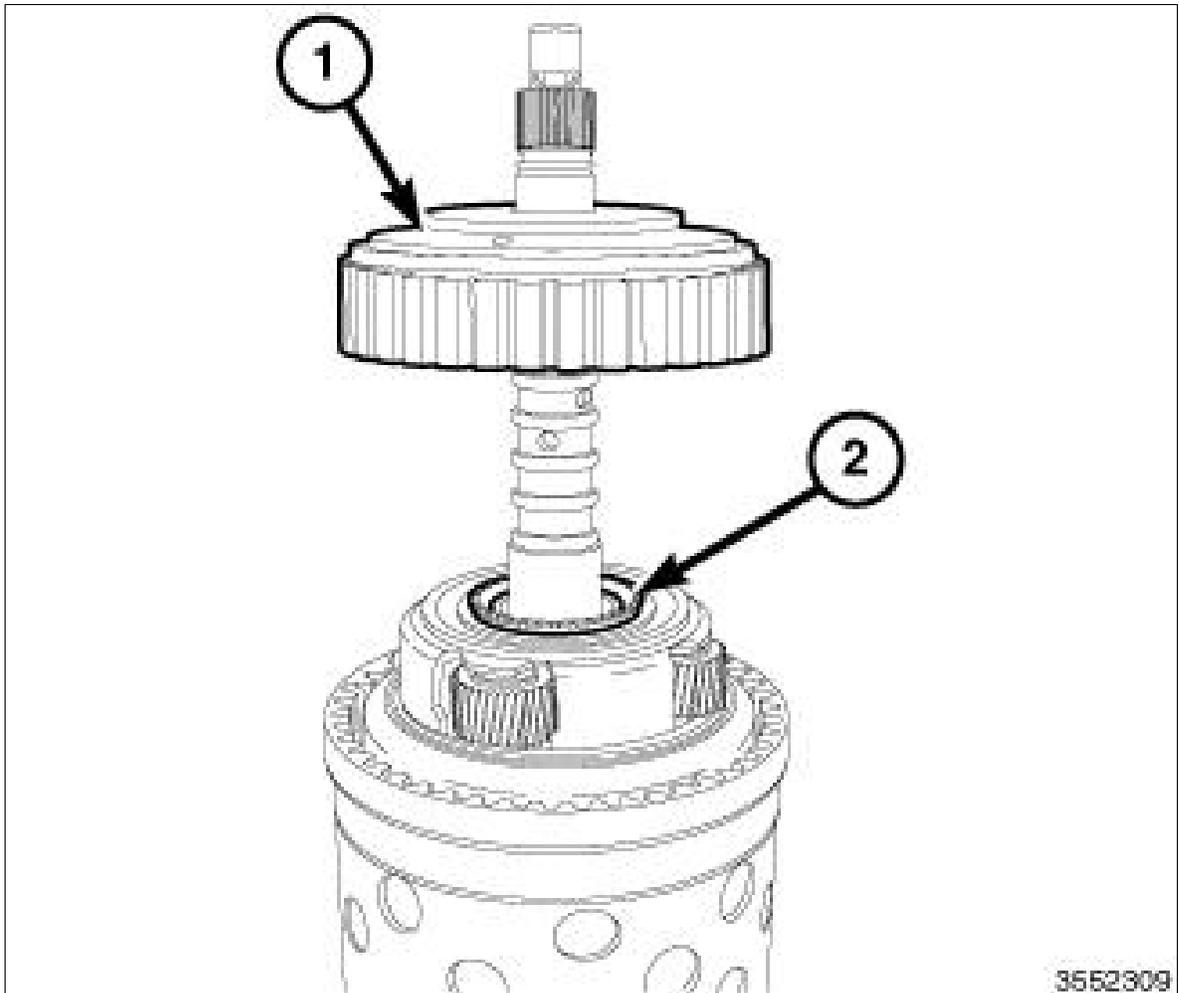
Fig 13: Snap Ring & P1 Planetary Carrier



Courtesy of CHRYSLER GROUP, LLC

19. Install P1/P2 sun gear into the bottom of the P1 planetary carrier (3).
20. Install the P1 planetary carrier (3).
21. Install the snap ring (1).

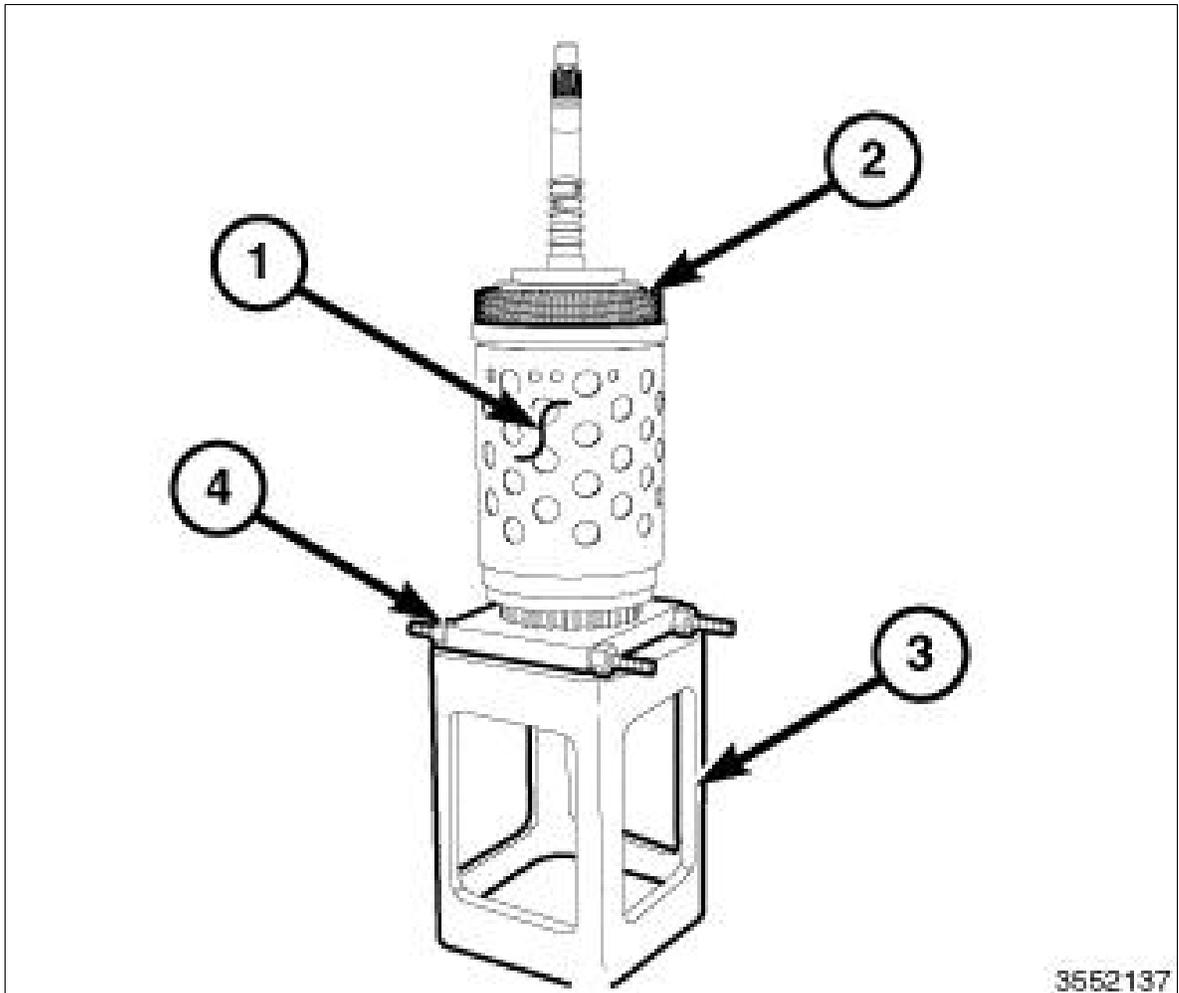
Fig 14: P1 Annulus/B-Clutch Hub Assembly, Needle Bearing And Holding Plate



Courtesy of CHRYSLER GROUP, LLC

22. Install the needle bearing and holding plate (2) onto the P1 planetary carrier.
23. Install the selectable shim to the P1 annulus/B clutch hub.
24. Install the P1 annulus\B clutch hub assembly (1) onto the P4 annulus drum.
25. Install the O-ring and five squared O-rings.

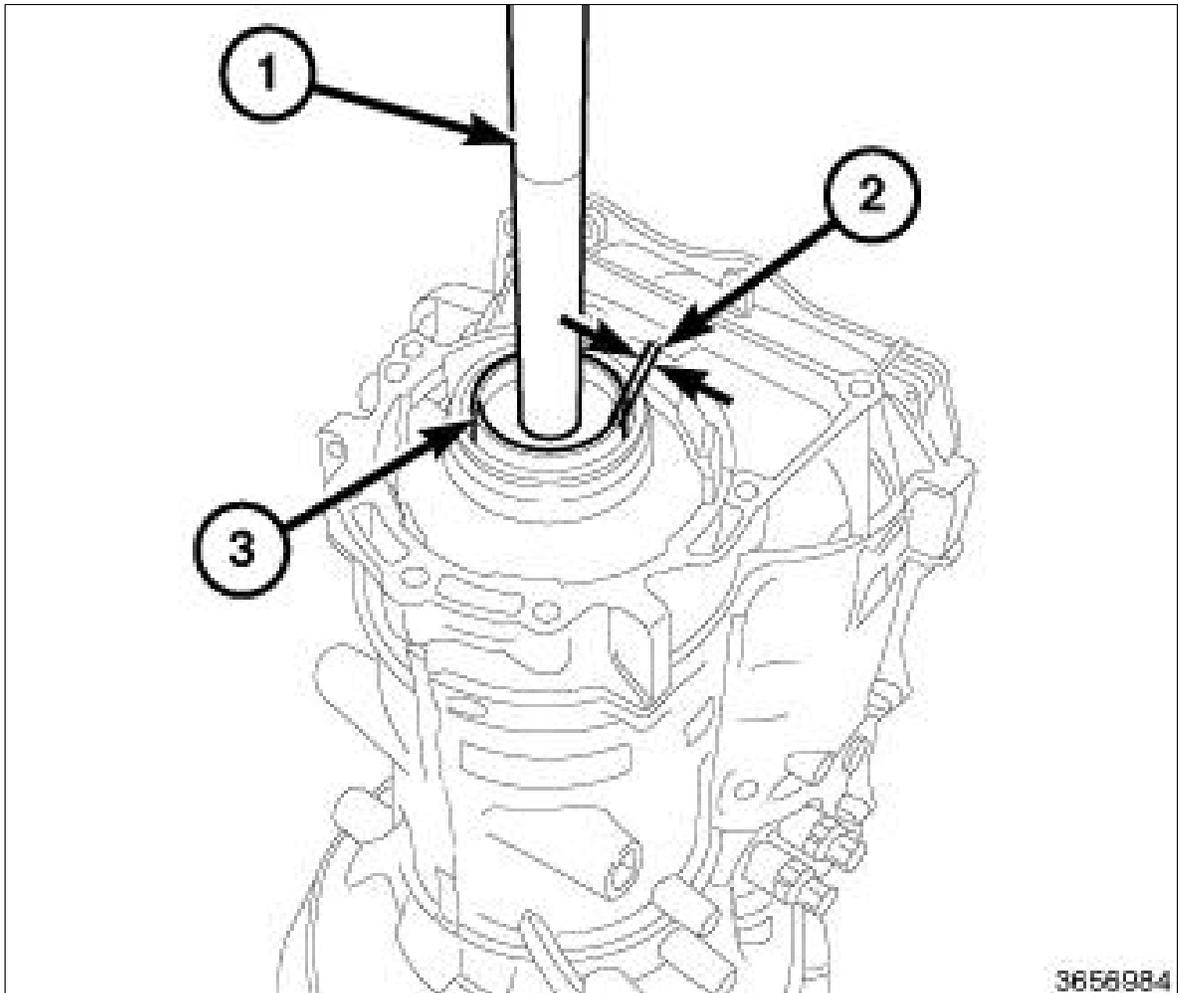
Fig 15: P4 Annulus Drum Assembly, Press Fixture Assembly & Bearing/Gear Splitter



Courtesy of CHRYSLER GROUP, LLC

26. Install the clutch pack (2).

Fig 16: Output Needle Bearing/Rear Oil Dam, Thick Walled Side & Universal Driver Handle



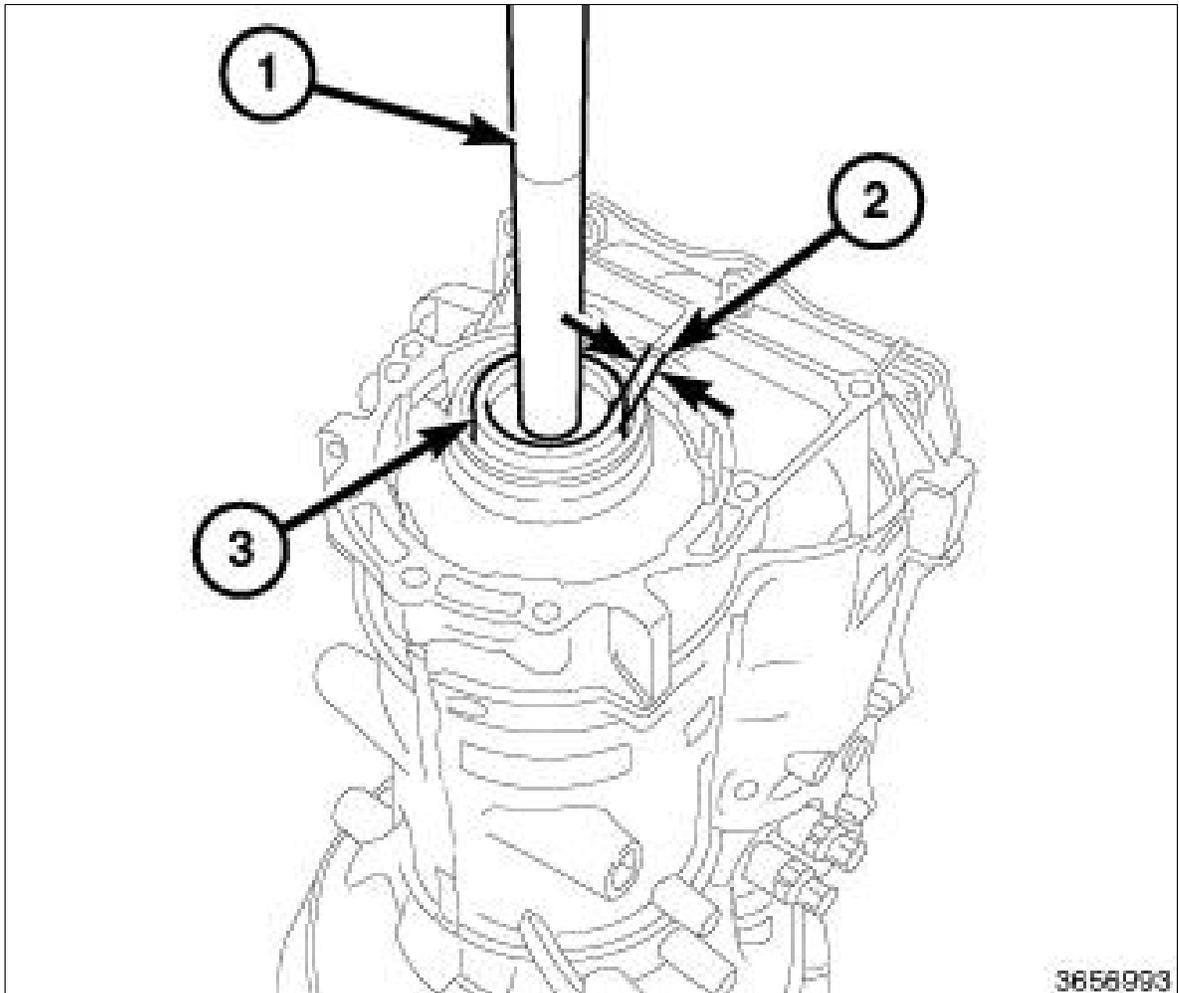
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The (special tool #10373A, Installer, Output Needle Bearing/Rear Oil Dam) (3) is a combination tool that is reversed to install the oil dam and output shaft inner needle bearing. For use to install the output shaft inner needle bearing, use the thick walled side (2) of the tool against the bearing.*

27. Using (special tool #10373A, Installer, Output Needle Bearing/Rear Oil Dam) (3) and (special tool #C-4171, Driver Handle, Universal) (1), install the output shaft inner needle bearing.
28. Install the snap ring.

Fig 17: Output Needle Bearing/Rear Oil Dam, Thin Walled Side & Universal Driver Handle



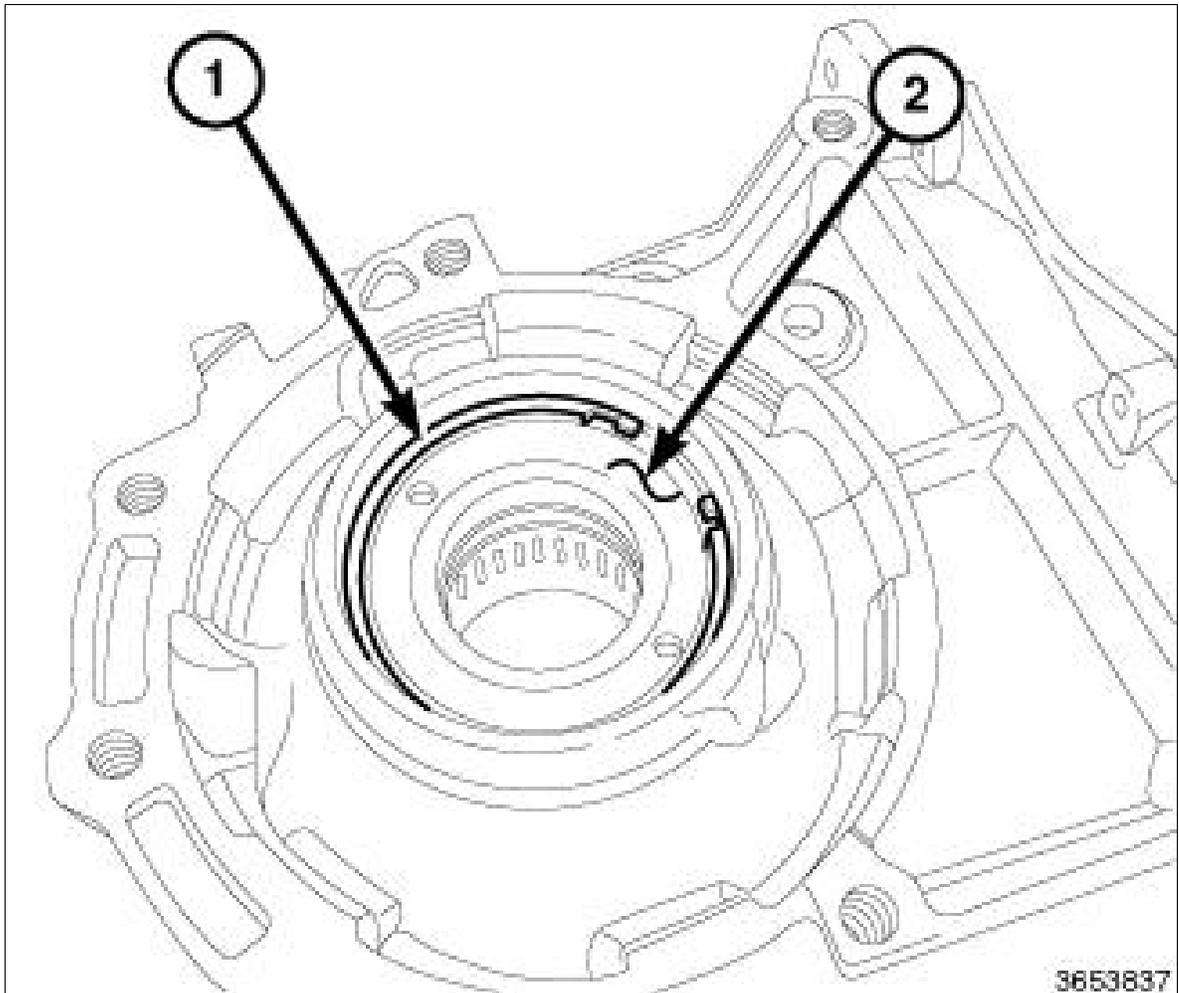
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The (special tool #10373A, Installer, Output Needle Bearing/Rear Oil Dam) (3) is a combination tool that is reversed to install the oil dam and output shaft inner needle bearing. For use to install the oil dam, use the thin walled side (2) of the tool against the oil dam.*

29. Using (special tool #10373A, Installer, Output Needle Bearing/Rear Oil Dam) (3) and (special tool #C-4171, Driver Handle, Universal) (1), install the oil dam.
30. Install the snap ring.

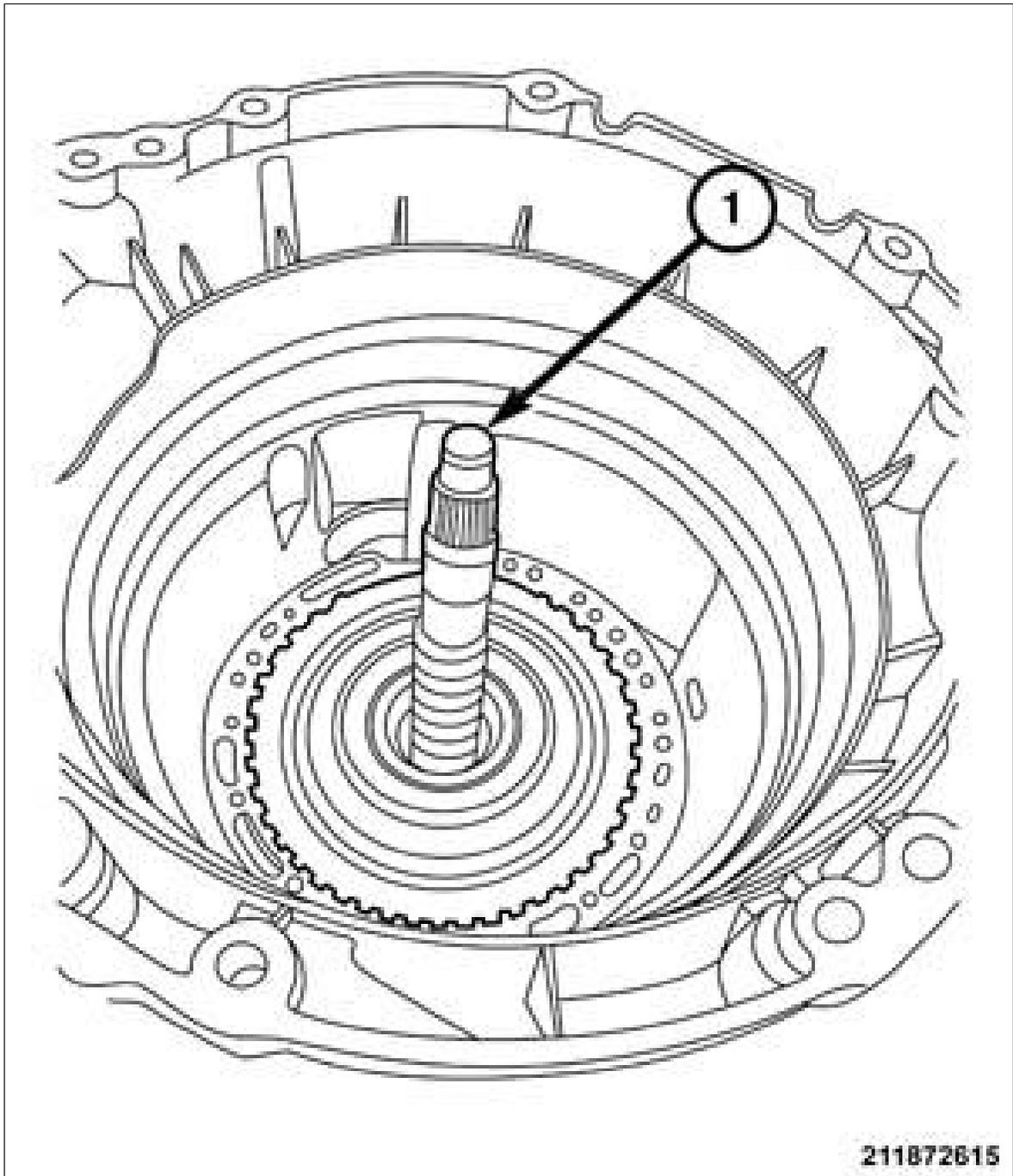
Fig 18: Outer Bearing Snap Ring & Outer Needle Bearing



Courtesy of CHRYSLER GROUP, LLC

31. Install the needle bearing (AWD) or ball bearing (RWD).
32. Install the snap ring (1).

Fig 19: Park Pawl



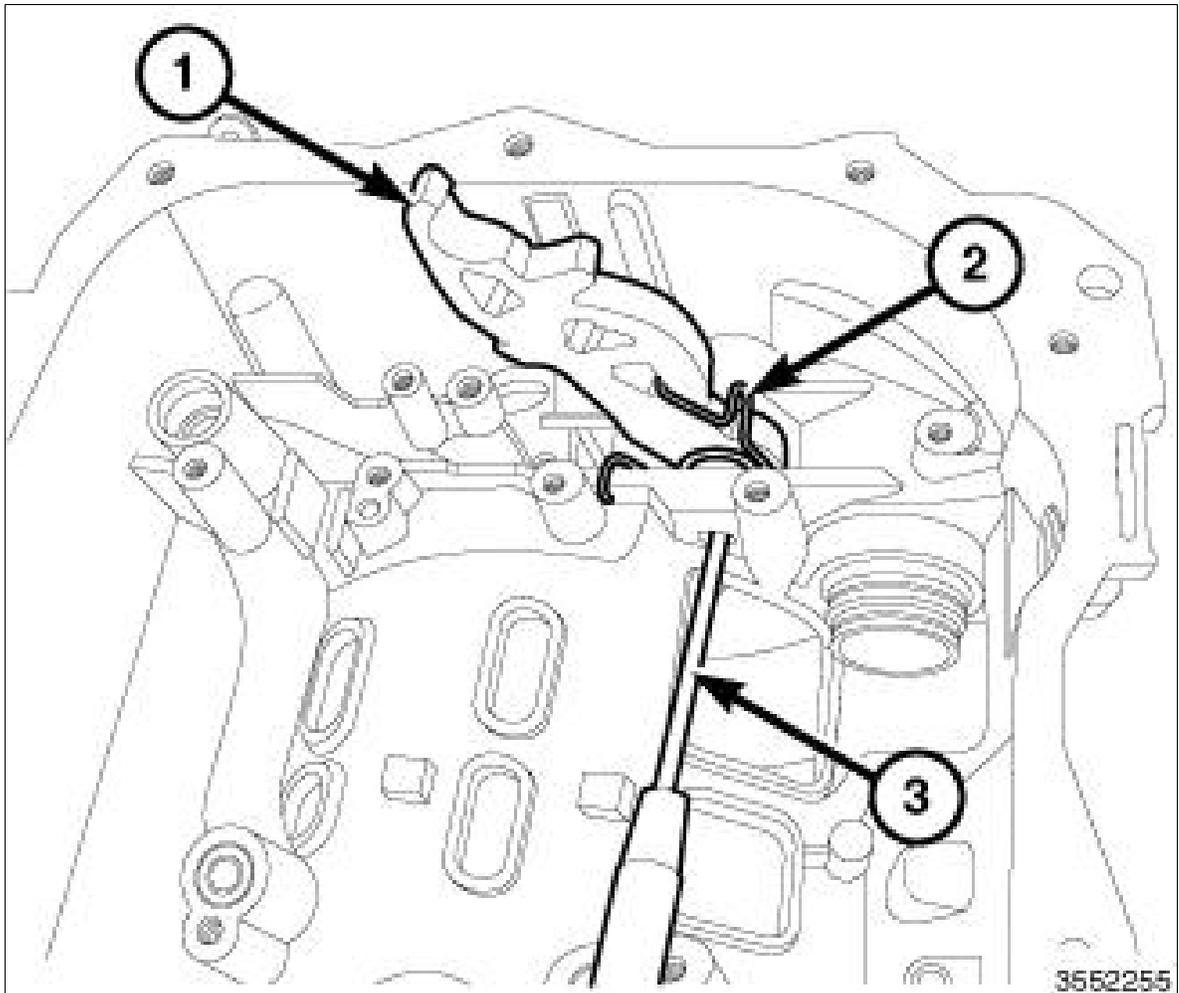
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The transmission must be in a upright position when the input/output shaft and the P4 annulus drum assembly (1) is installed.*

33. Install the input/output shaft and P4 annulus drum assembly (1) into the case.

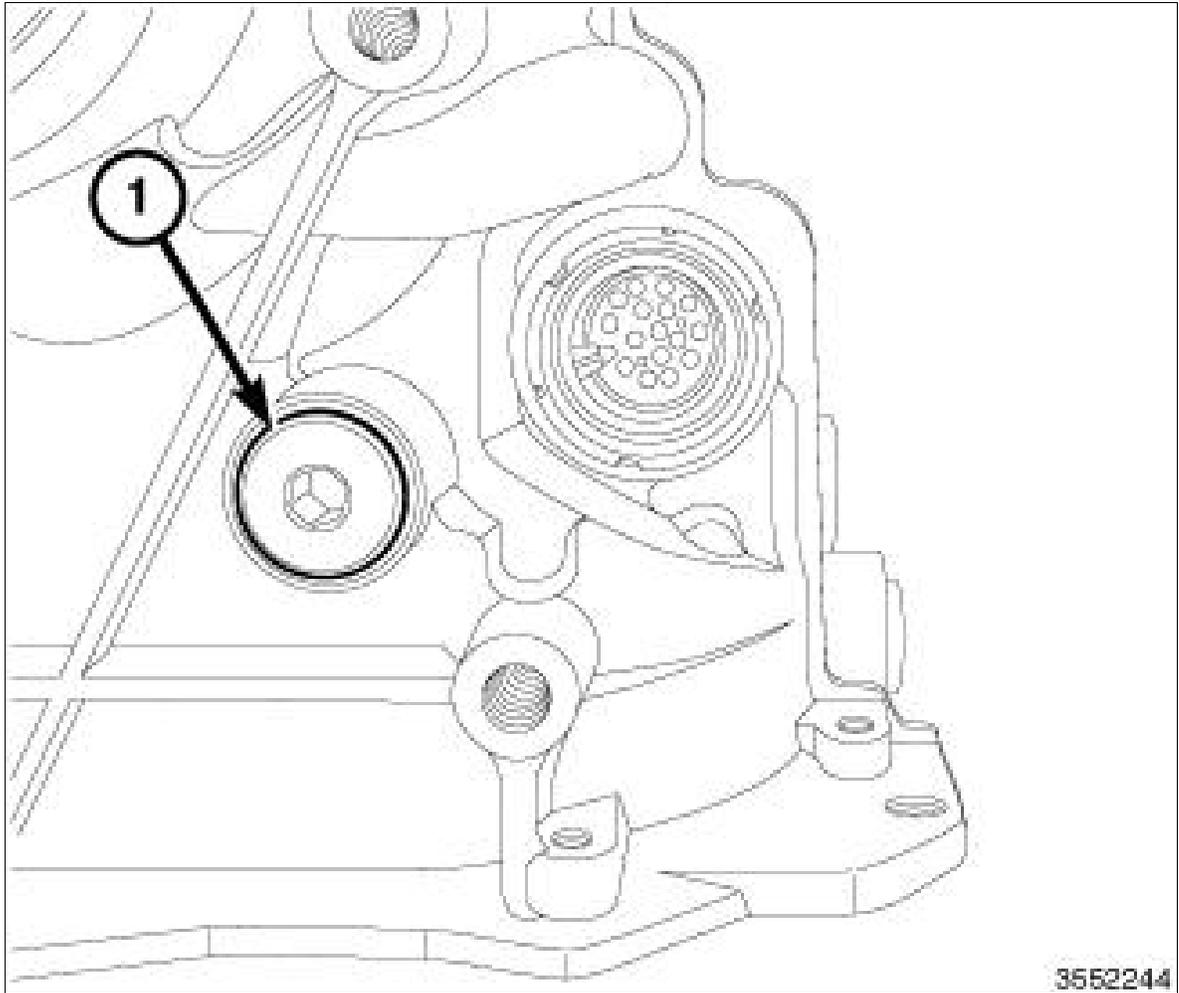
Fig 20: Removing/Installing Park Pawl Shaft Using A Suitable Pin Punch, Park Pawl And Spring



Courtesy of CHRYSLER GROUP, LLC

34. From outside the transmission case, install the park pawl shaft and install the park pawl (1) and spring (2).

Fig 21: Park Pawl Shaft Plug

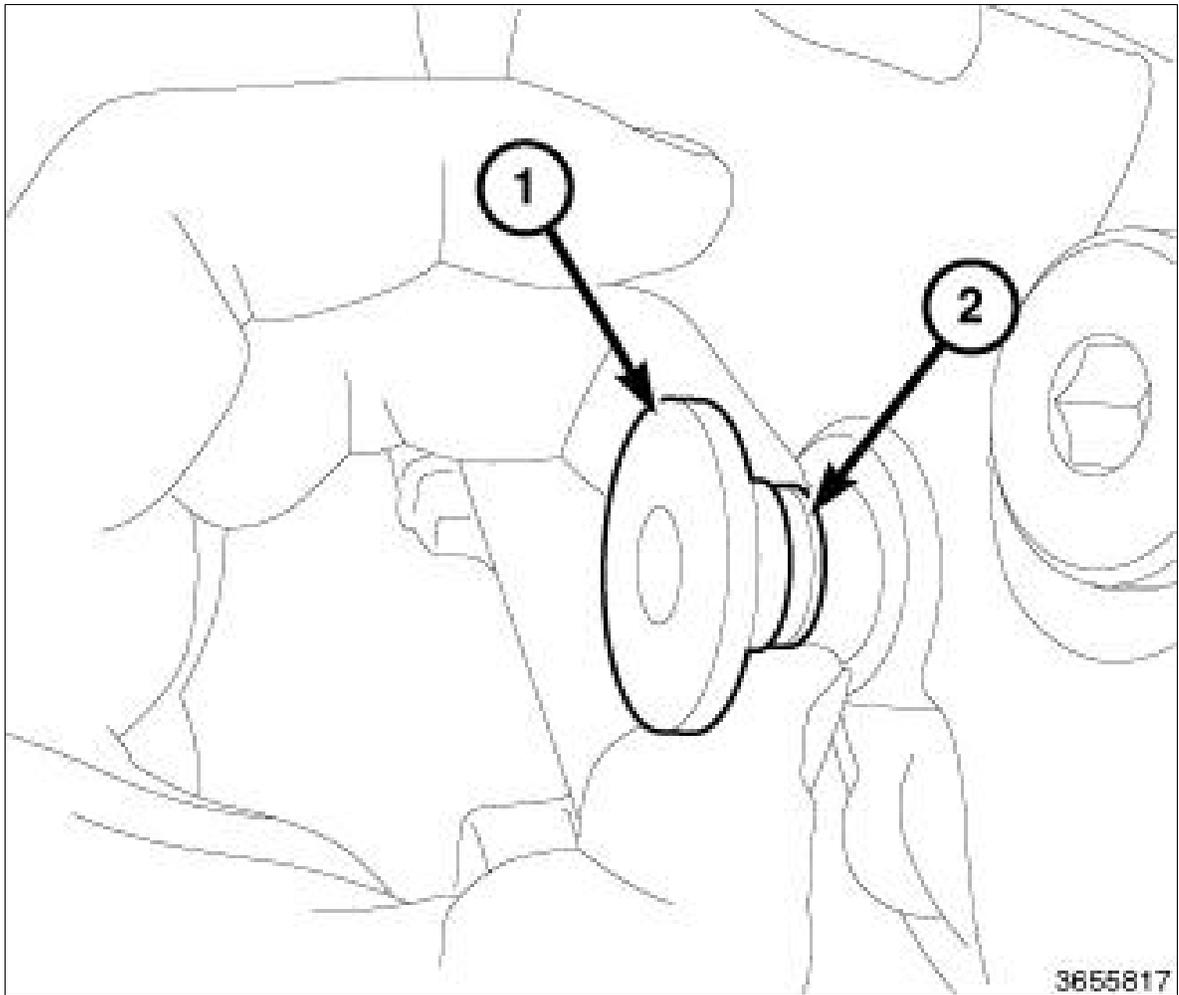


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Courtesy of CHRYSLER GROUP, LLC

35. Install the park pawl shaft plug (1) into the rear of the case and tighten to 35 N.m (26 ft. lb.).

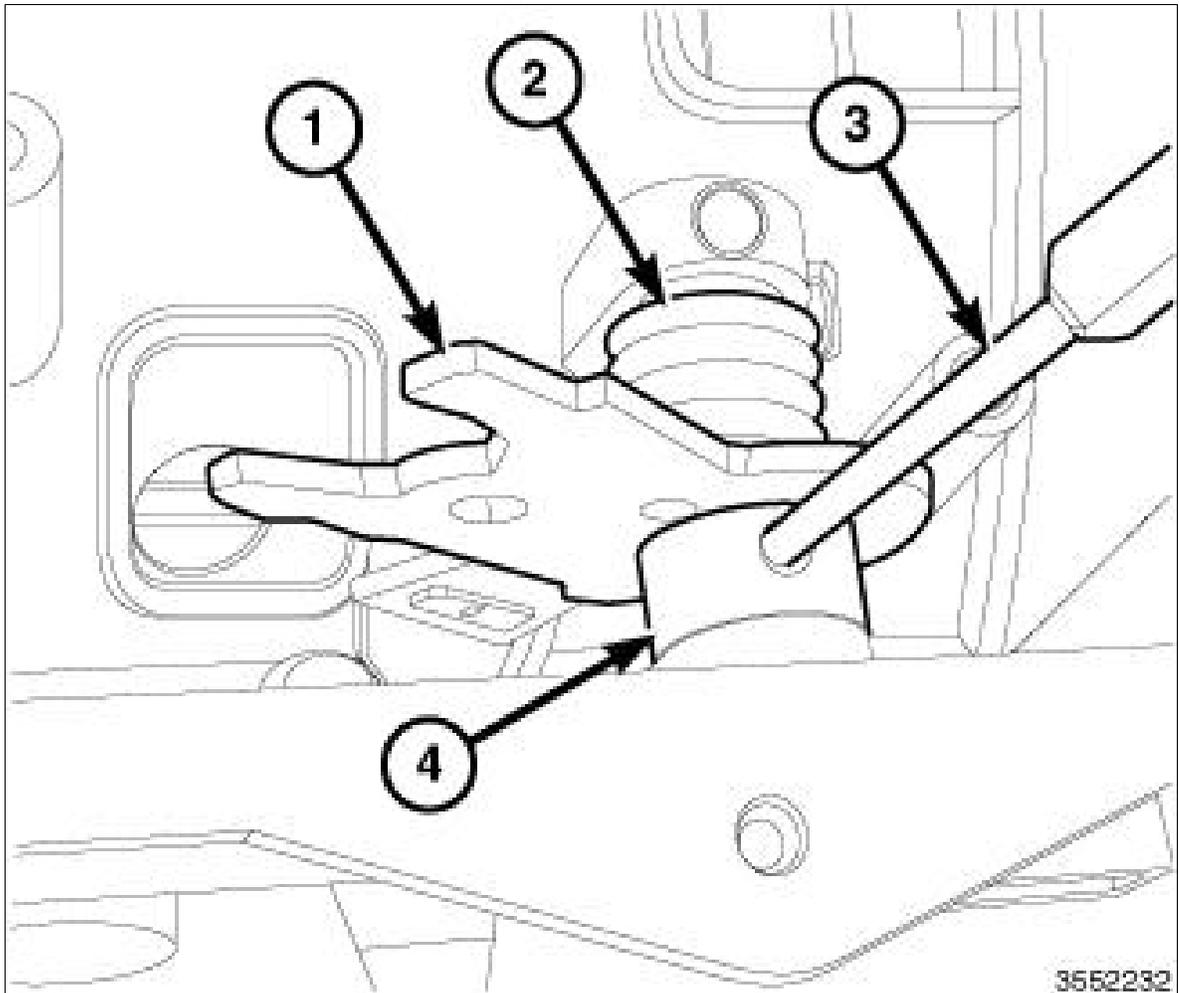
Fig 22: Spacer & Selector Shaft Seal



Courtesy of CHRYSLER GROUP, LLC

36. Using (special tool #6936, Spacer) (1), install the selector shaft seal (2).

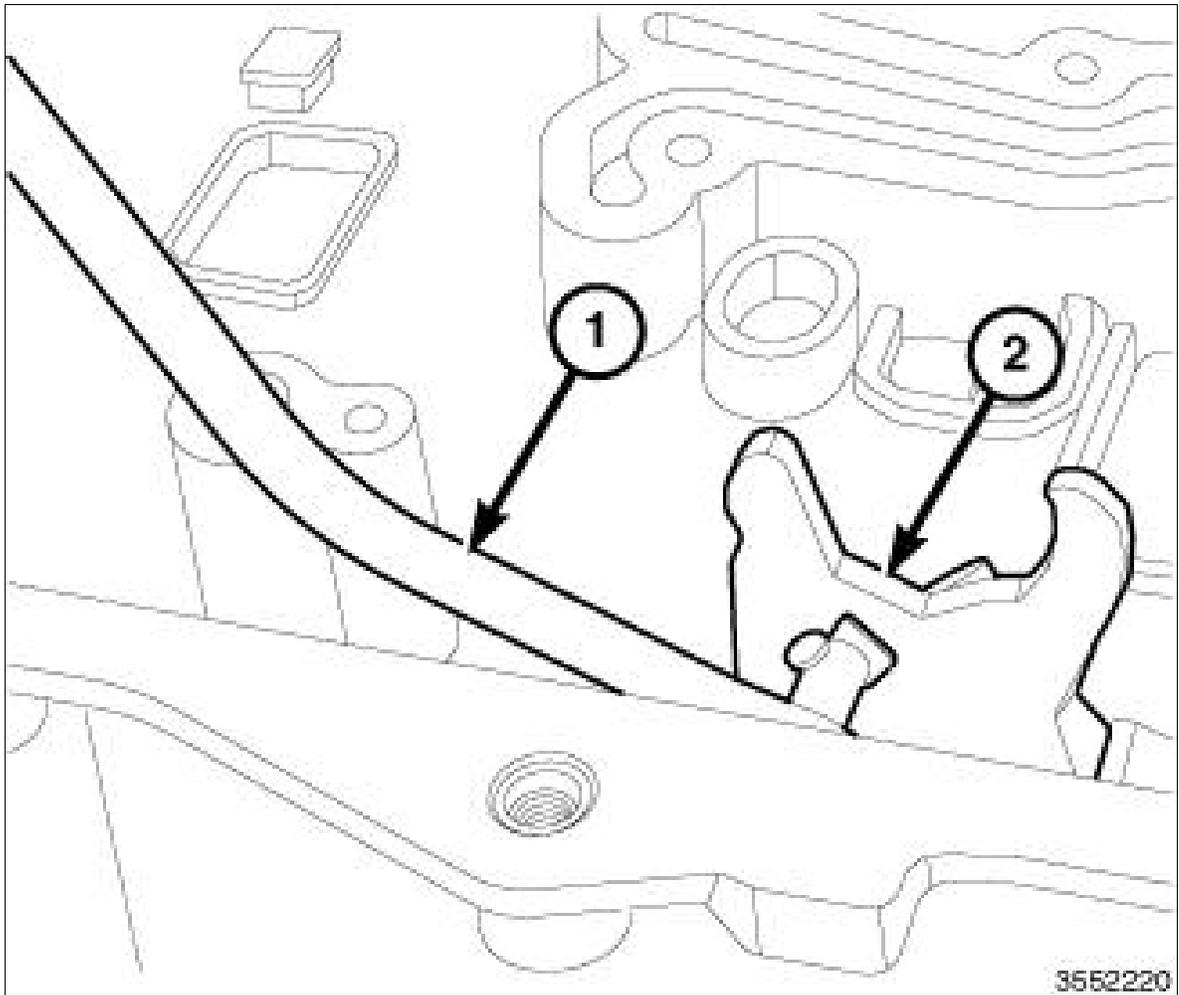
Fig 23: Selector Shaft, Suitable Pin Punch, Spring & Fork



Courtesy of CHRYSLER GROUP, LLC

37. Install the shaft (4), spring (2), and fork (1) into the case.
38. Install the roll pin into the selector shaft (4) using a suitable pin punch (3).

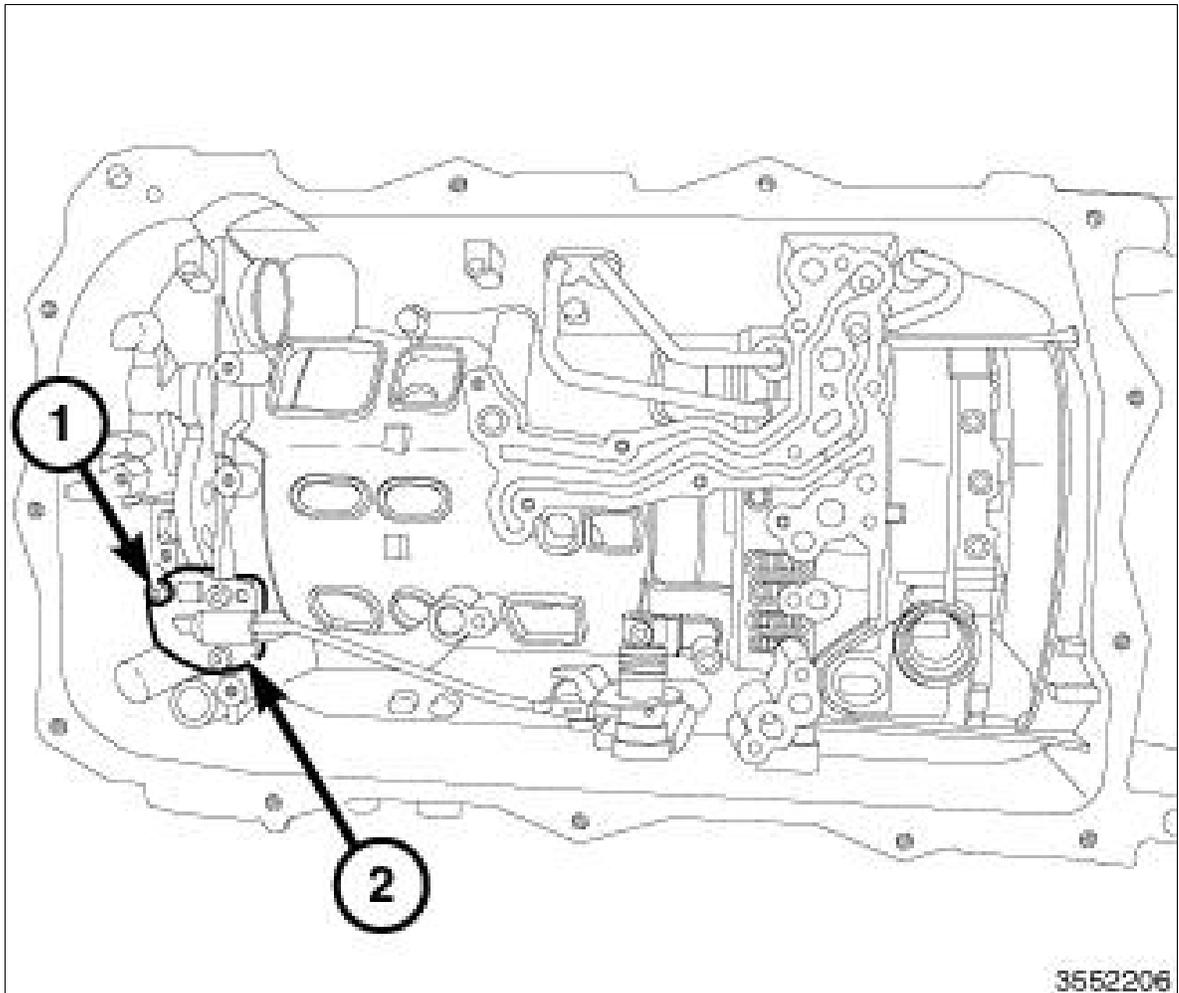
Fig 24: Park Pawl Lock Rod & Fork



Courtesy of CHRYSLER GROUP, LLC

39. Install the park pawl lock rod (1) onto the fork (2).

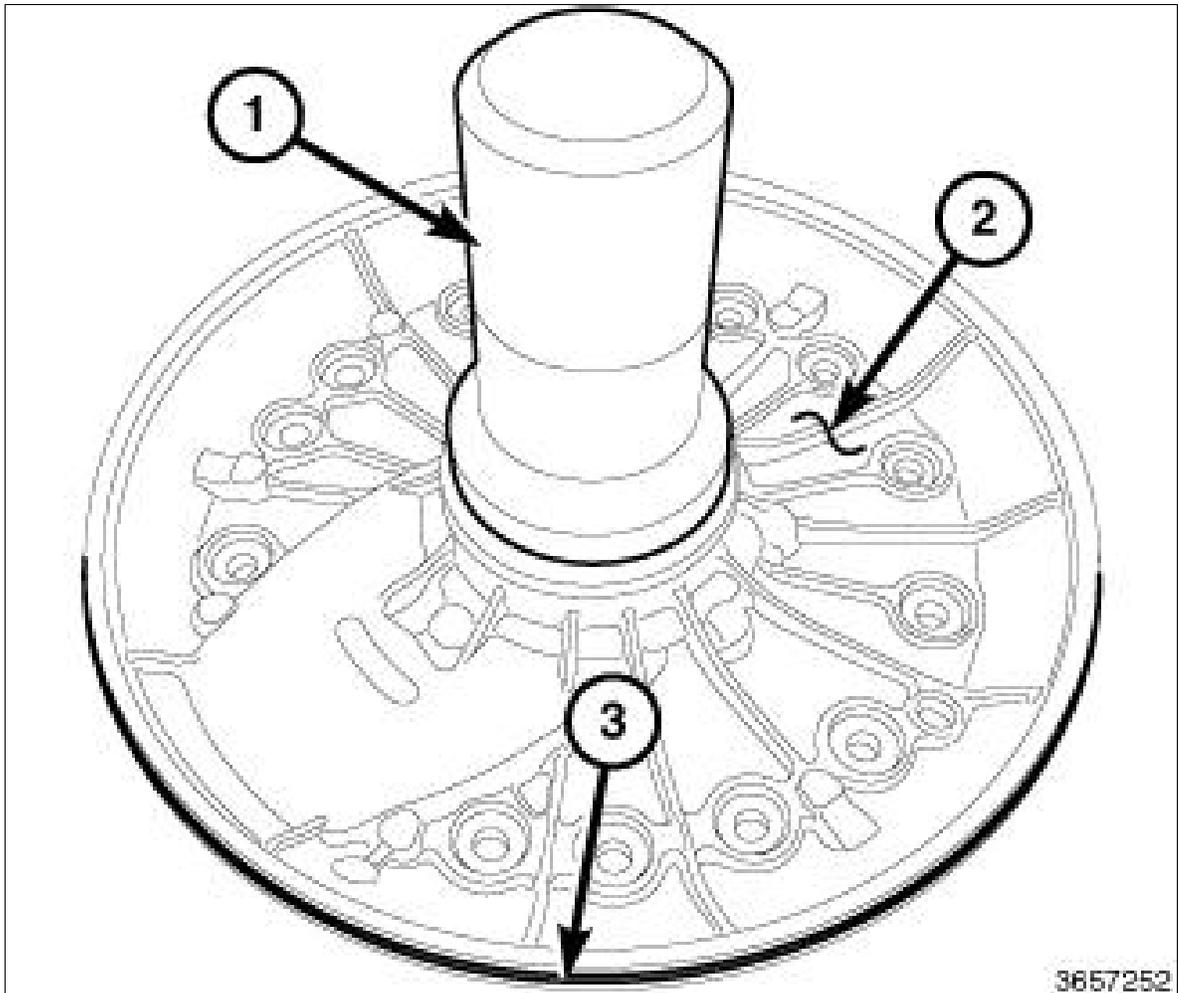
Fig 25: Three Park Pawl Lock Rod Guide Plate Retaining Screws & Plate



Courtesy of CHRYSLER GROUP, LLC

40. Position the park pawl lock rod guide plate (2), install the three park pawl lock rod guide plate retaining screws (1) and tighten to 10 N.m (89 in. lb.).

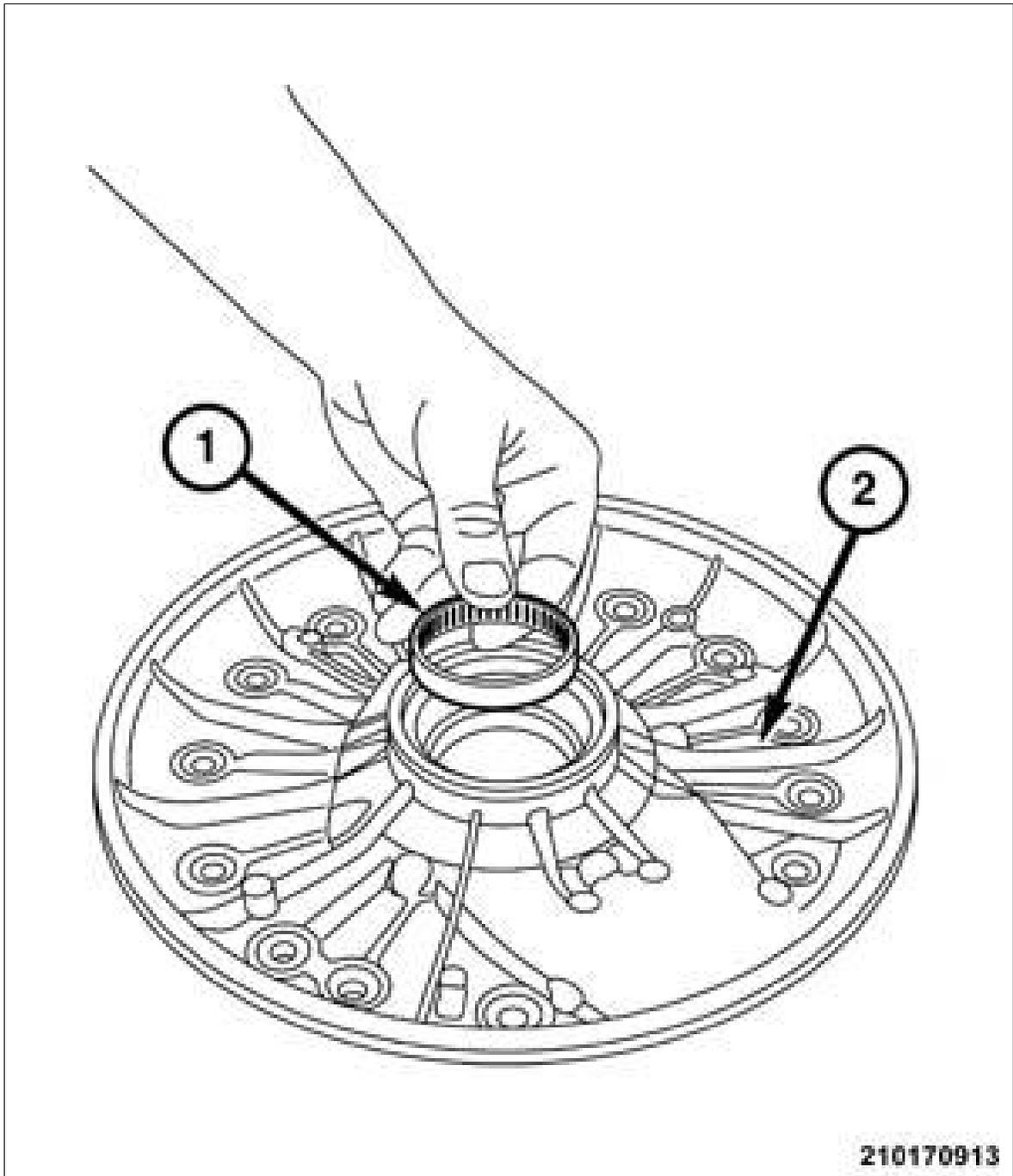
Fig 26: Oil Pump Cover Lip Seal & Oil Pump Cover



Courtesy of CHRYSLER GROUP, LLC

41. Install the oil pump cover lip seal (3) on the oil pump cover (2).

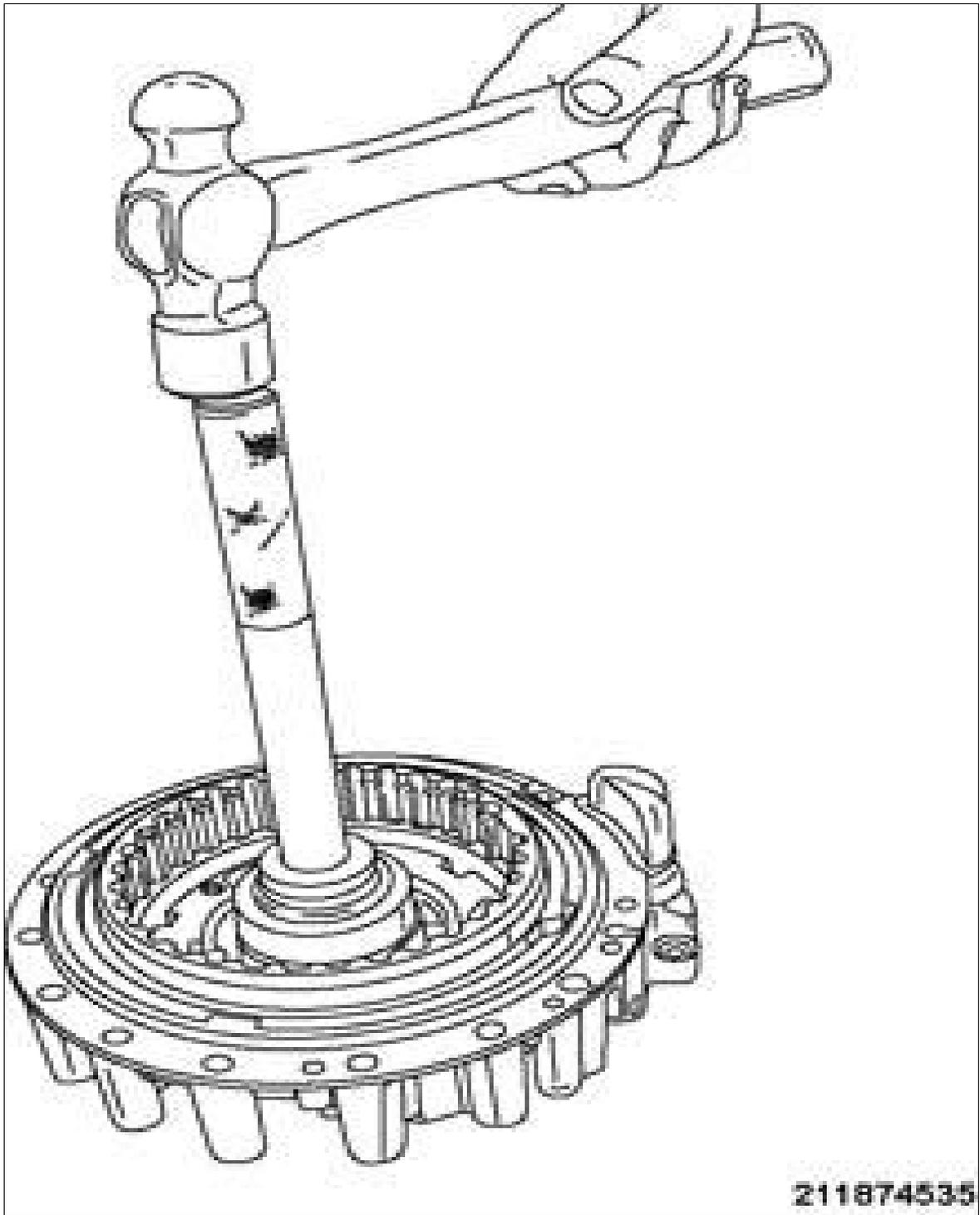
Fig 27: Oil Pump Needle Bearing & Oil Pump Cover



Courtesy of CHRYSLER GROUP, LLC

42. If removed, install a new oil pump needle bearing using (special tool #10376, Installer, Input Shaft Needle Bearing) and (special tool #C-4171, Driver Handle, Universal).

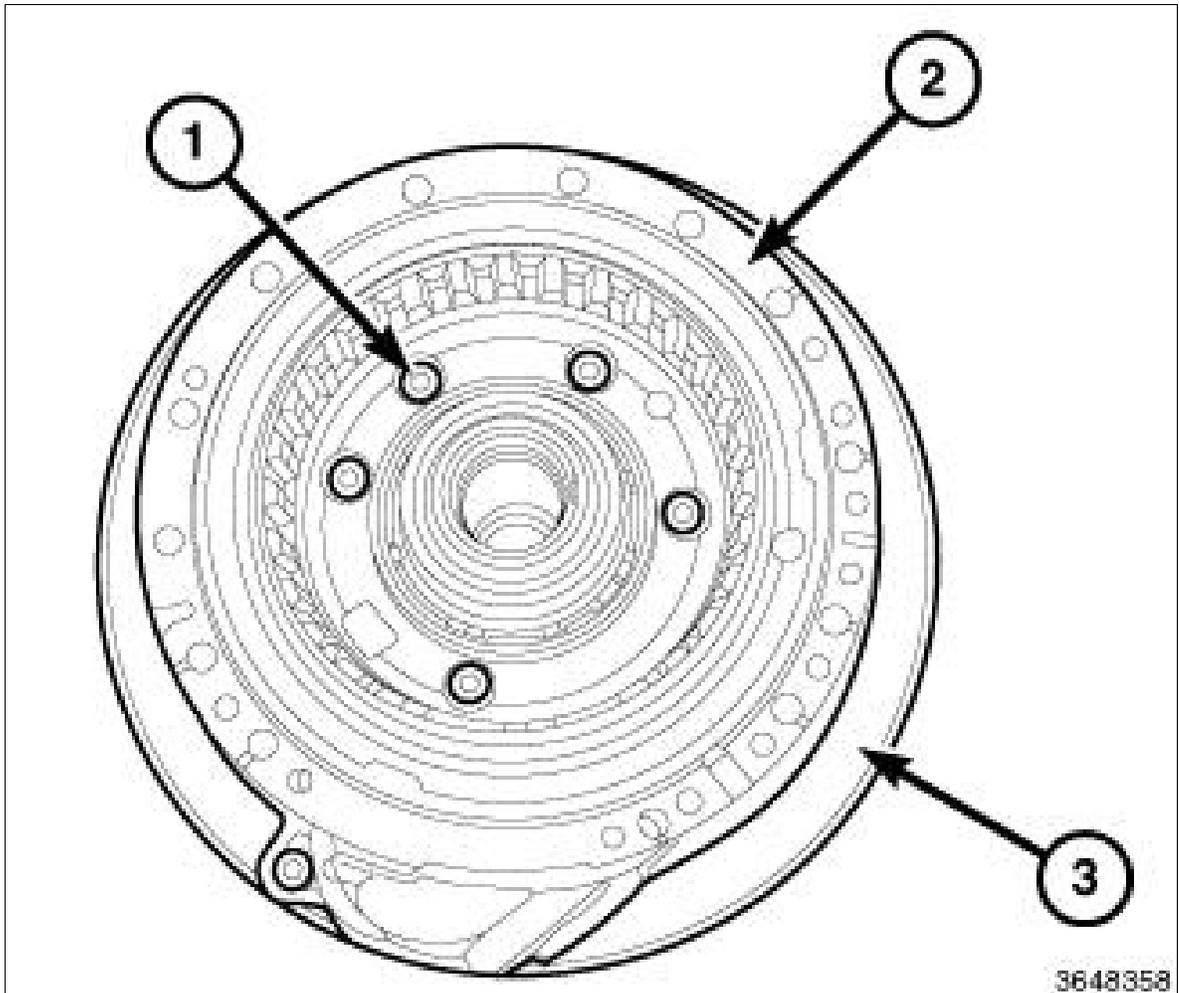
Fig 28: Installing Oil Pump Housing Needle Bearing



Courtesy of CHRYSLER GROUP, LLC

43. If removed, install the inner oil pump needle bearing using (special tool #10382, Installer, Oil Pump Housing Needle Bearing) and (special tool #C-4171, Driver Handle, Universal)
44. Using (special tool #10375, Installer, Oil Pump Cover Oil Seal) (1), install the input shaft seal in the oil pump cover (2).

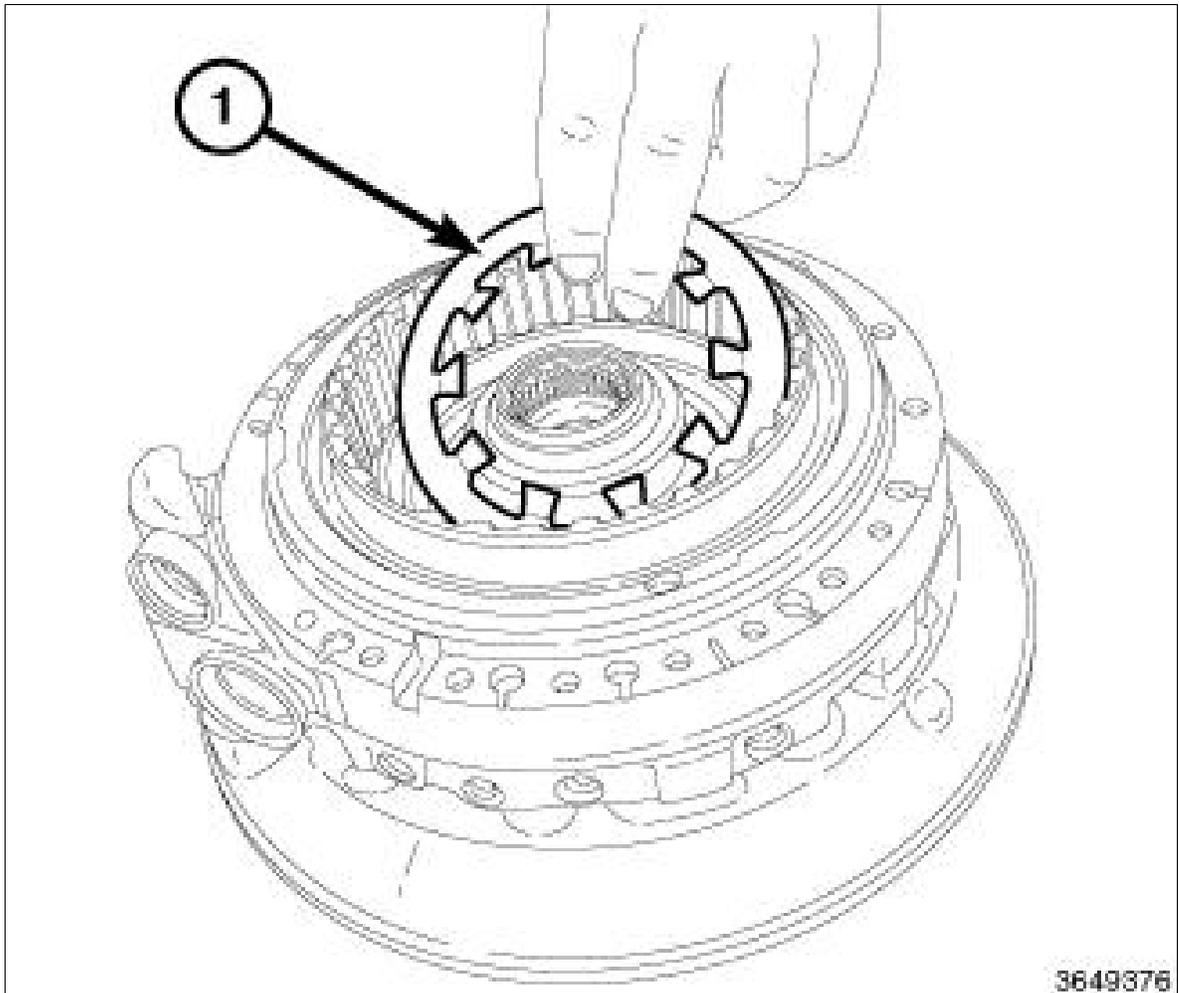
Fig 29: Six Bolts, Oil Pump Housing & Oil Pump Cover



Courtesy of CHRYSLER GROUP, LLC

45. Position the oil pump housing (2) and oil pump cover (3) together.
46. Install the five bolts (1) and tighten to 5 N.m (44 in. lb.) plus 45°.

Fig 30: Piston Retaining Ring And Piston

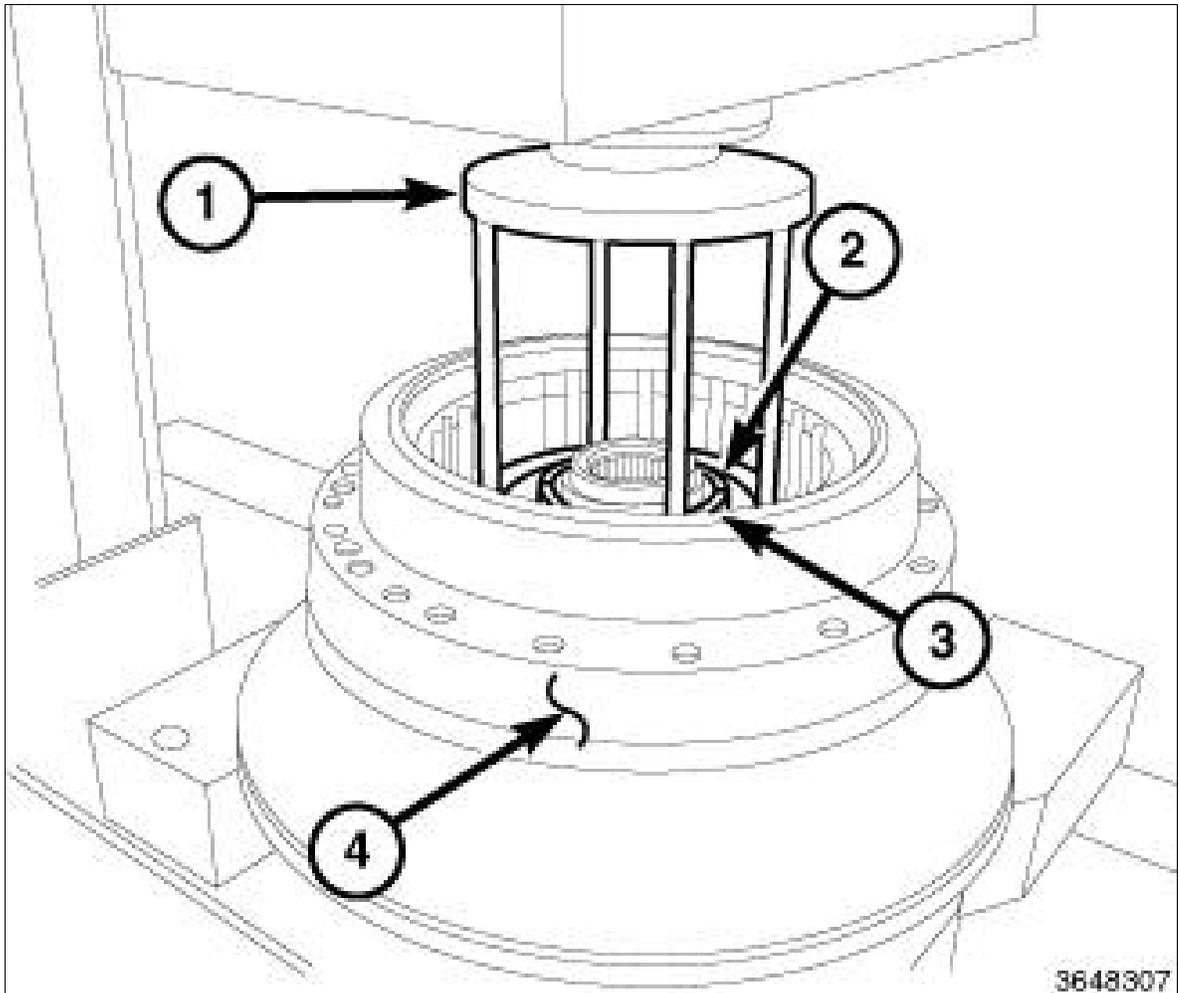


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Courtesy of CHRYSLER GROUP, LLC

47. Insert the piston and the retaining ring (1) into the housing.

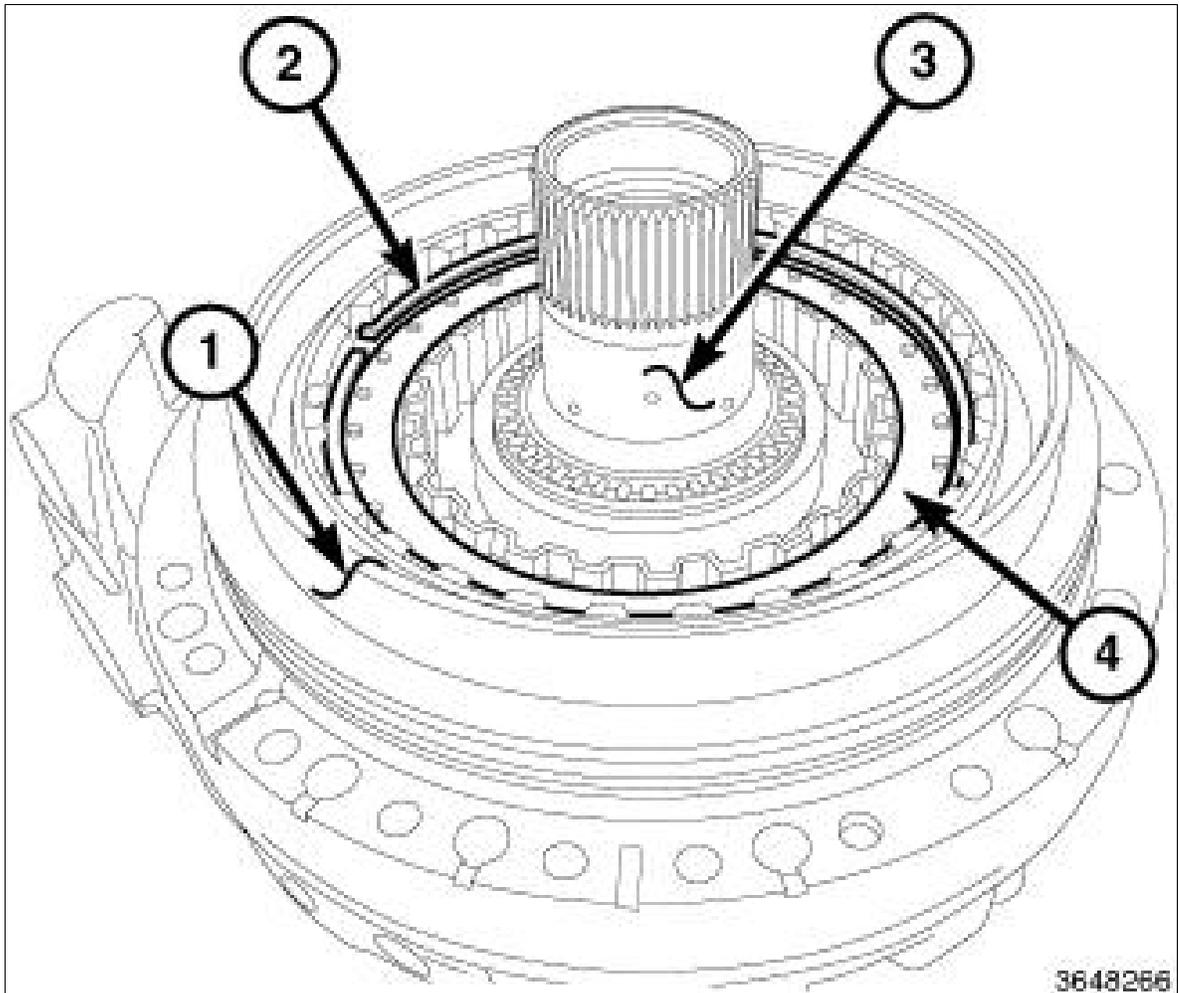
Fig 31: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

48. Position the oil pump housing assembly (4) in a suitable arbor press.
49. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retaining ring to remove tension, and install the two halves of the split retainer ring (2).

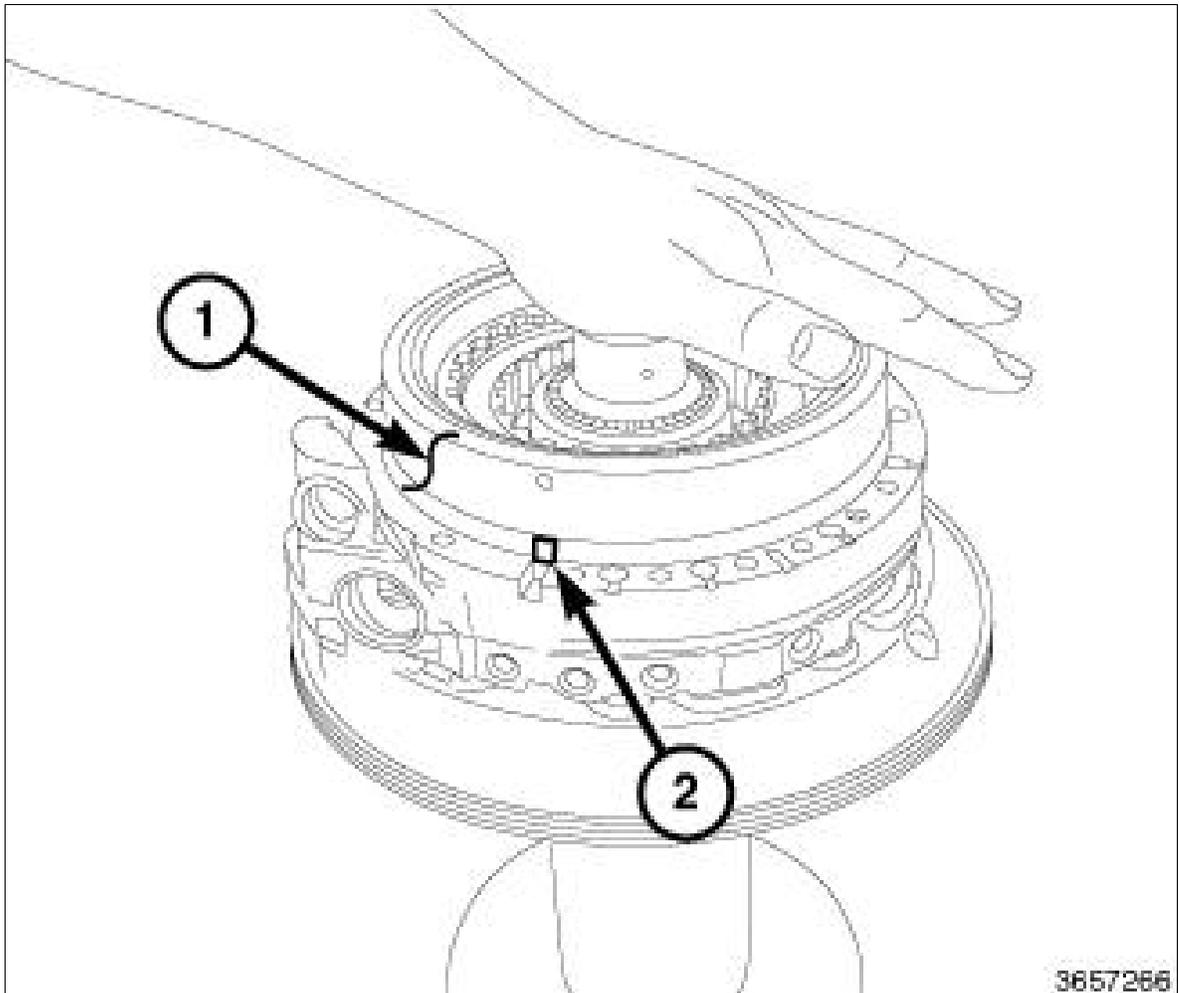
Fig 32: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

50. Install the hub (3).
51. Install the clutches and spacers (4).
52. Install the snap ring (2).
53. Install the outer ring (1) (below B-piston).

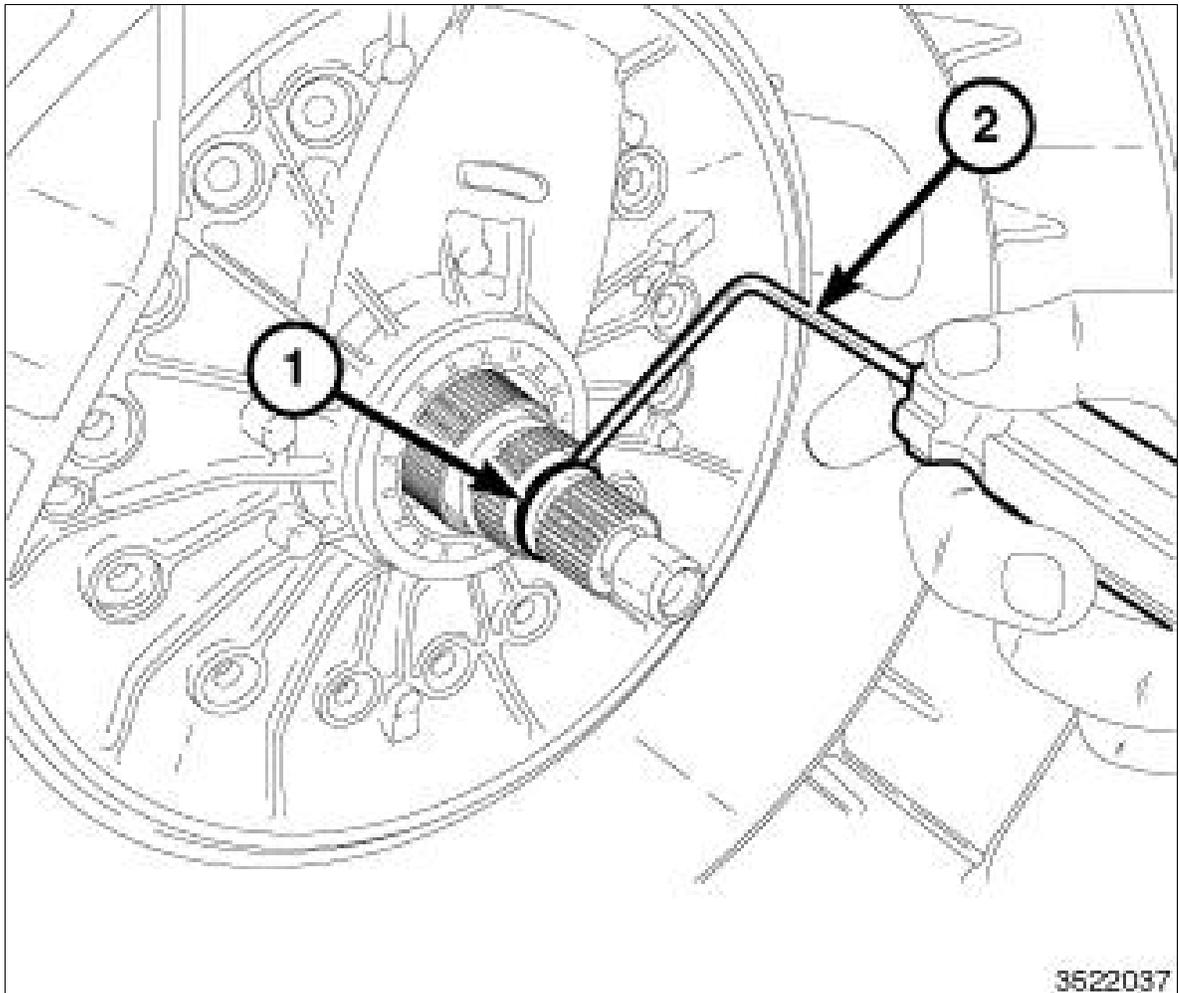
Fig 33: B-Piston Alignment Tab & B-Piston



Courtesy of CHRYSLER GROUP, LLC

54. Position the B-piston alignment tab (2) above the notch and install B-piston (1) on the assembly.

Fig 34: Input Shaft O-Ring & Small Pick



Courtesy of CHRYSLER GROUP, LLC

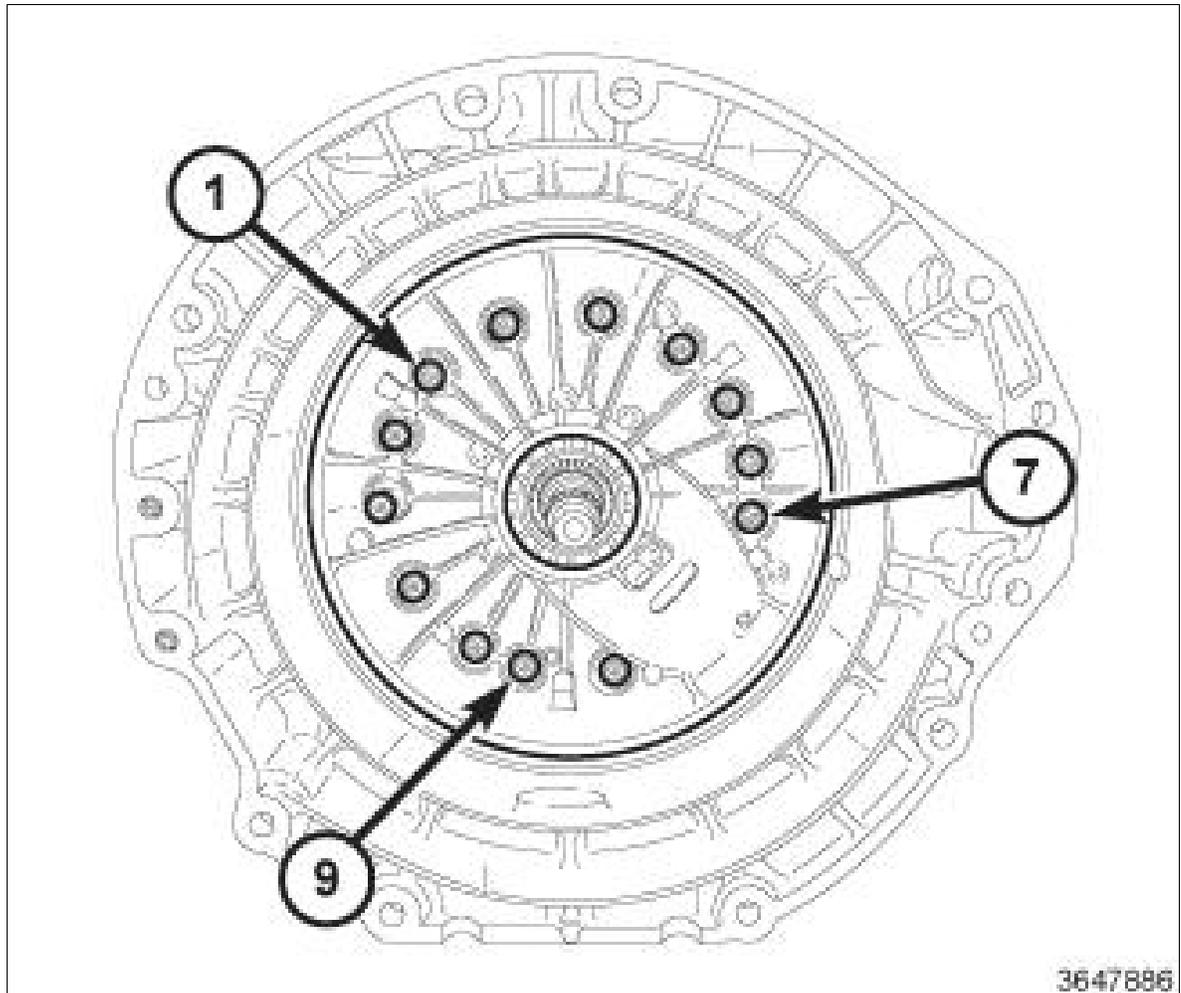
55. Carefully position the oil pump housing assembly into the case, firmly press the oil pump into place before drawing it in with the bolts.

 **NOTE:**

*Check the transmission end play before installing the new oil pump bolts, in case adjustment is needed.*

56. Install the **new** input shaft O-ring.

Fig 35: Pre Tighten Bolts One, Seven And Nine

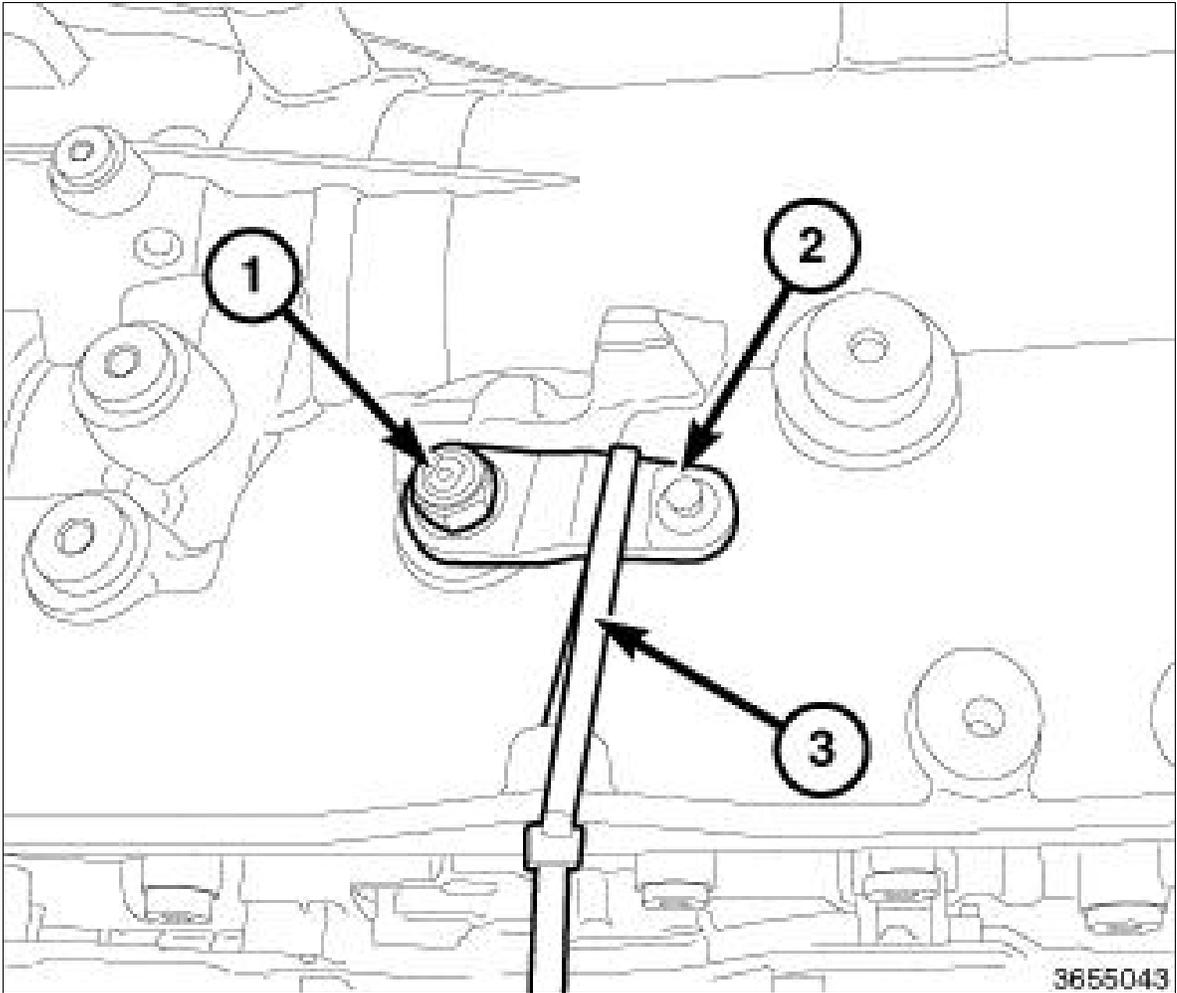


Courtesy of CHRYSLER GROUP, LLC

57. Install the thirteen oil pump cover retaining bolts and tighten the oil pump cover as follows:

- a. In order to seat the oil pump cover properly, pre tighten bolts one, seven and nine to 6 N.m (53 in. lb.).
- b. Working in a clockwise pattern, beginning with number one, tighten to 10 N.m (89 in. lb.).
- c. Working in a clockwise pattern, beginning with number one, tighten an additional 90°.

Fig 36: Manual Park Release Lever, Nut & Tie Strap



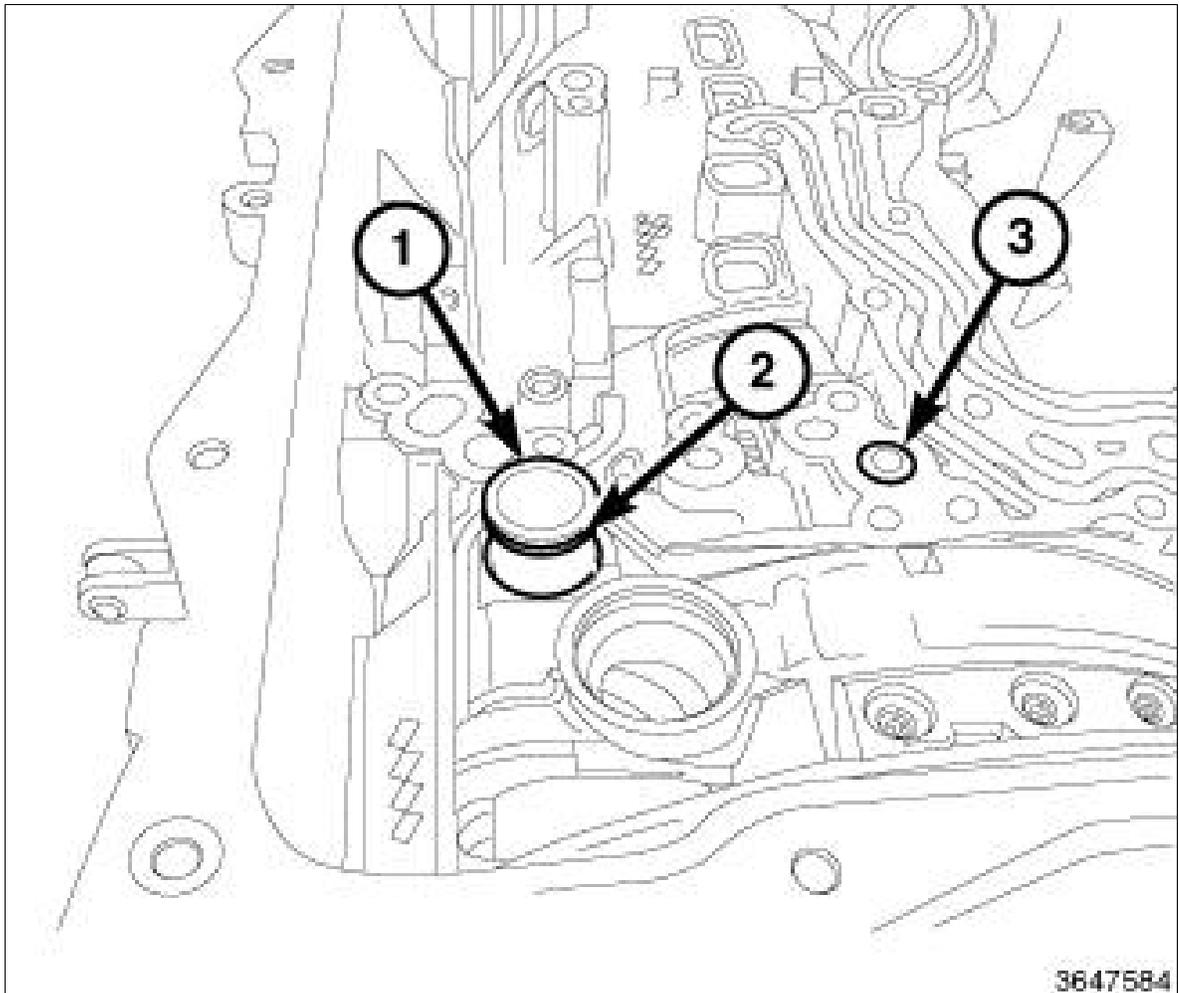
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The manual park release lever (2) can be reversed to release tension and ease the installation of the valve body assembly.*

58. Temporarily install the manual park release lever (2) to release tension on the shift fork as follows:
- a. Install the manual shift shaft lever (2) 180 degrees offset from its original position.
  - b. Install the nut (1) and hand tighten.
  - c. Turn the manual park release lever (2) and using a tie strap (3), secure the lever (2) into position so the park release fork is in the same position as it was before valve body assembly removal.

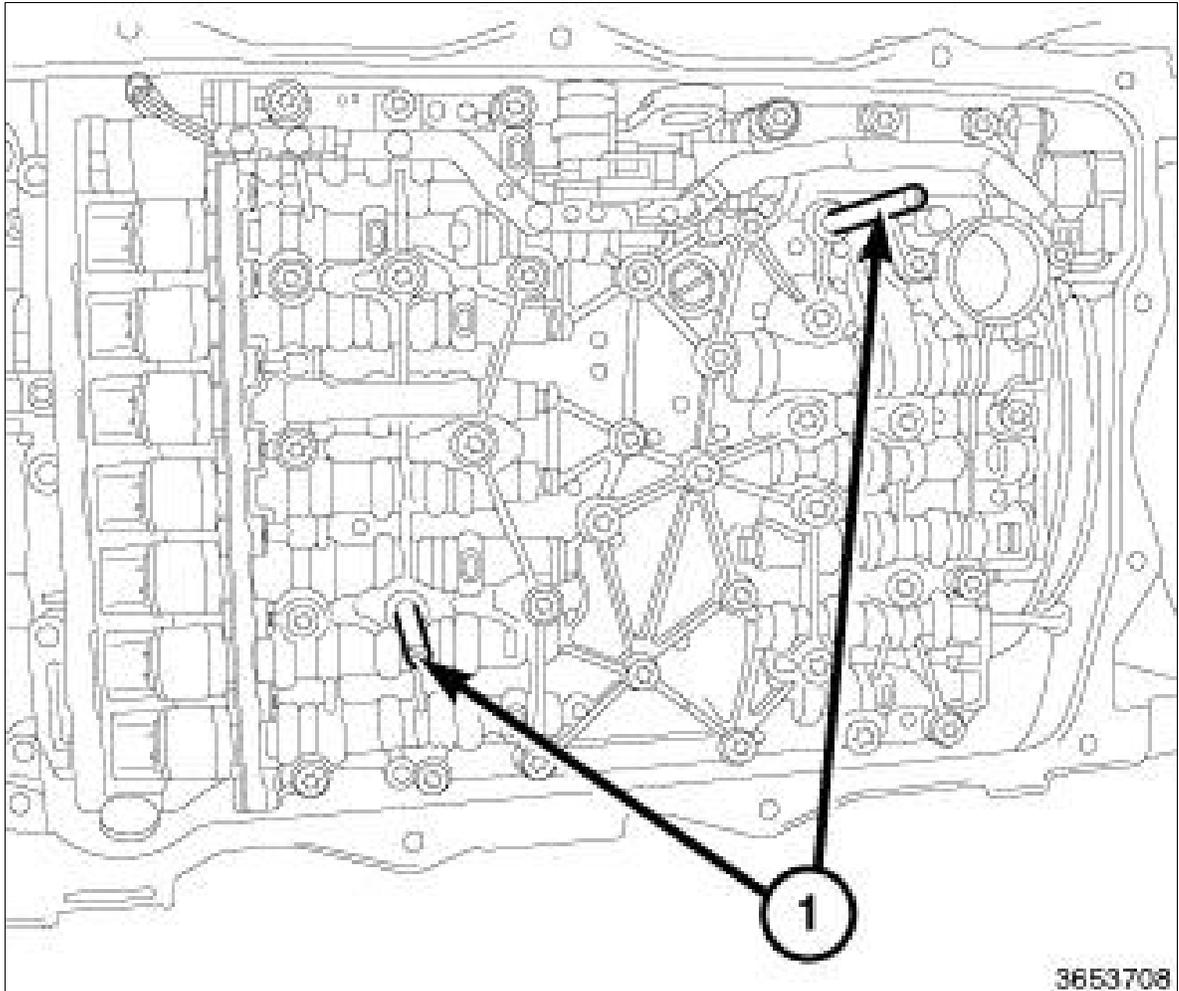
Fig 37: Fluid Port, Two O-Rings, Compression Seal



Courtesy of CHRYSLER GROUP, LLC

59. Install a new compression seal (3) into the transmission case.
60. Install the fluid port (1) with **new** O-rings to the transmission case.

Fig 38: Valve Body Alignment Pins



Courtesy of CHRYSLER GROUP, LLC

61. Install the (special tool #10379, Pins, Valve Body Alignment) (1) in the transmission case as guides for the valve body assembly.

 **NOTE:**

*Make sure the shift fork lines up properly.*

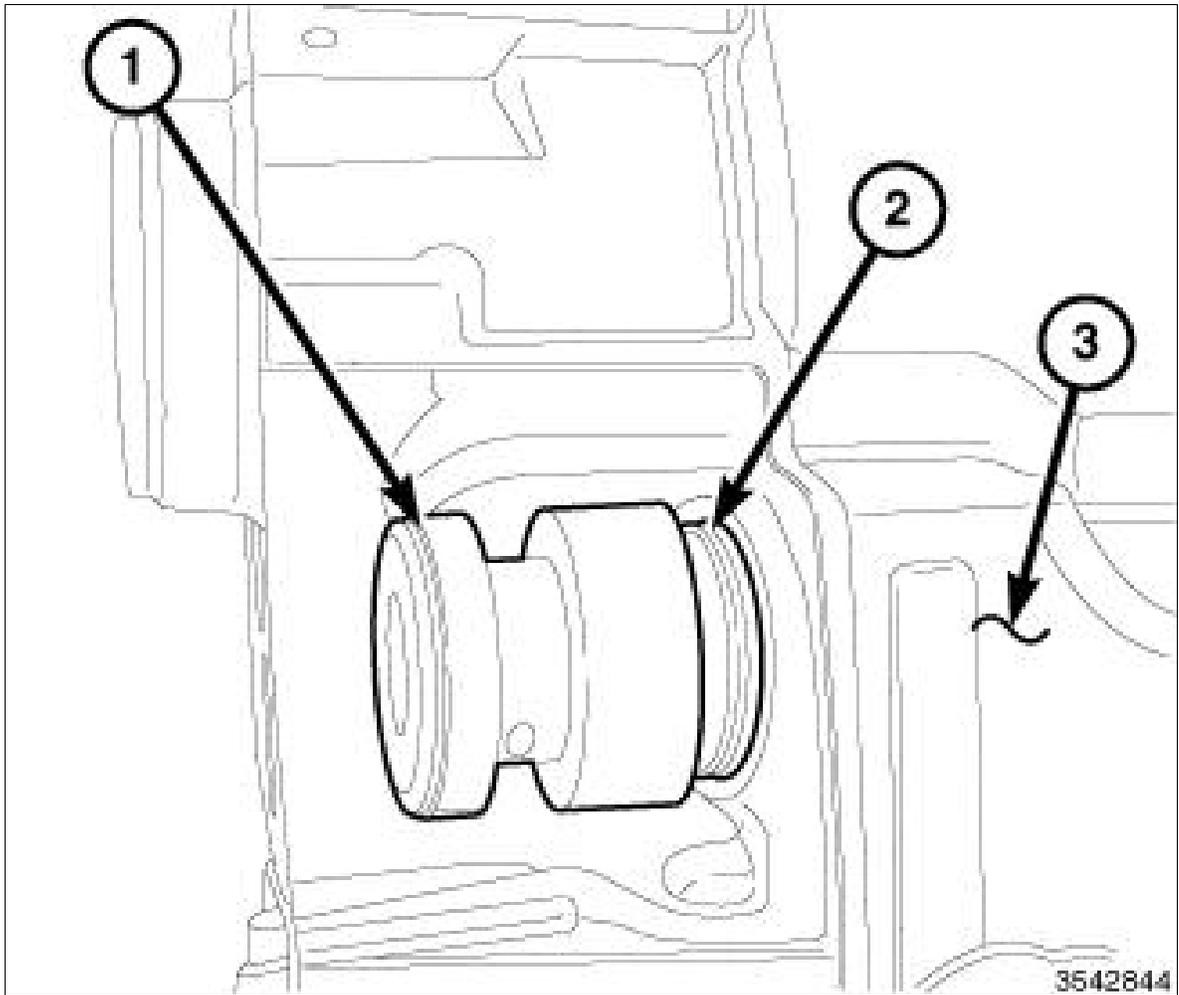
62. Using the valve body alignment pins (1) to guide, position the valve body assembly to the transmission.

 **NOTE:**

*After several bolts have been hand tightened, remove the guide pins (1).*

63. Install the fourteen valve body assembly retaining bolts and hand tighten.

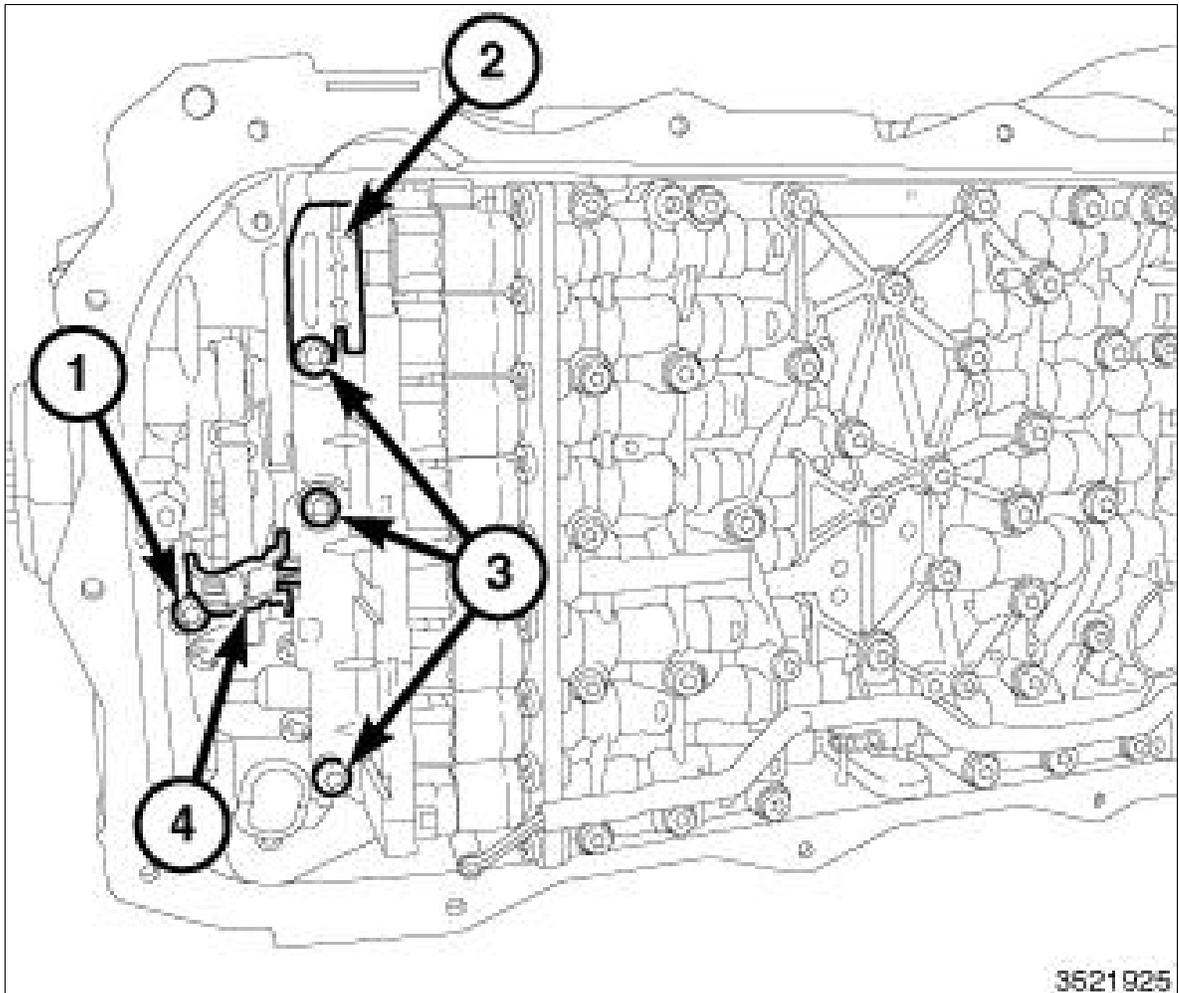
Fig 39: Remover/Installer, Guide Sleeve, Electrical Harness Insulator & Transmission Case



Courtesy of CHRYSLER GROUP, LLC

64. Using (special tool #10377, Remover/Installer, Guide Sleeve) (1) carefully install the electrical harness insulator (2) into the transmission case (3).

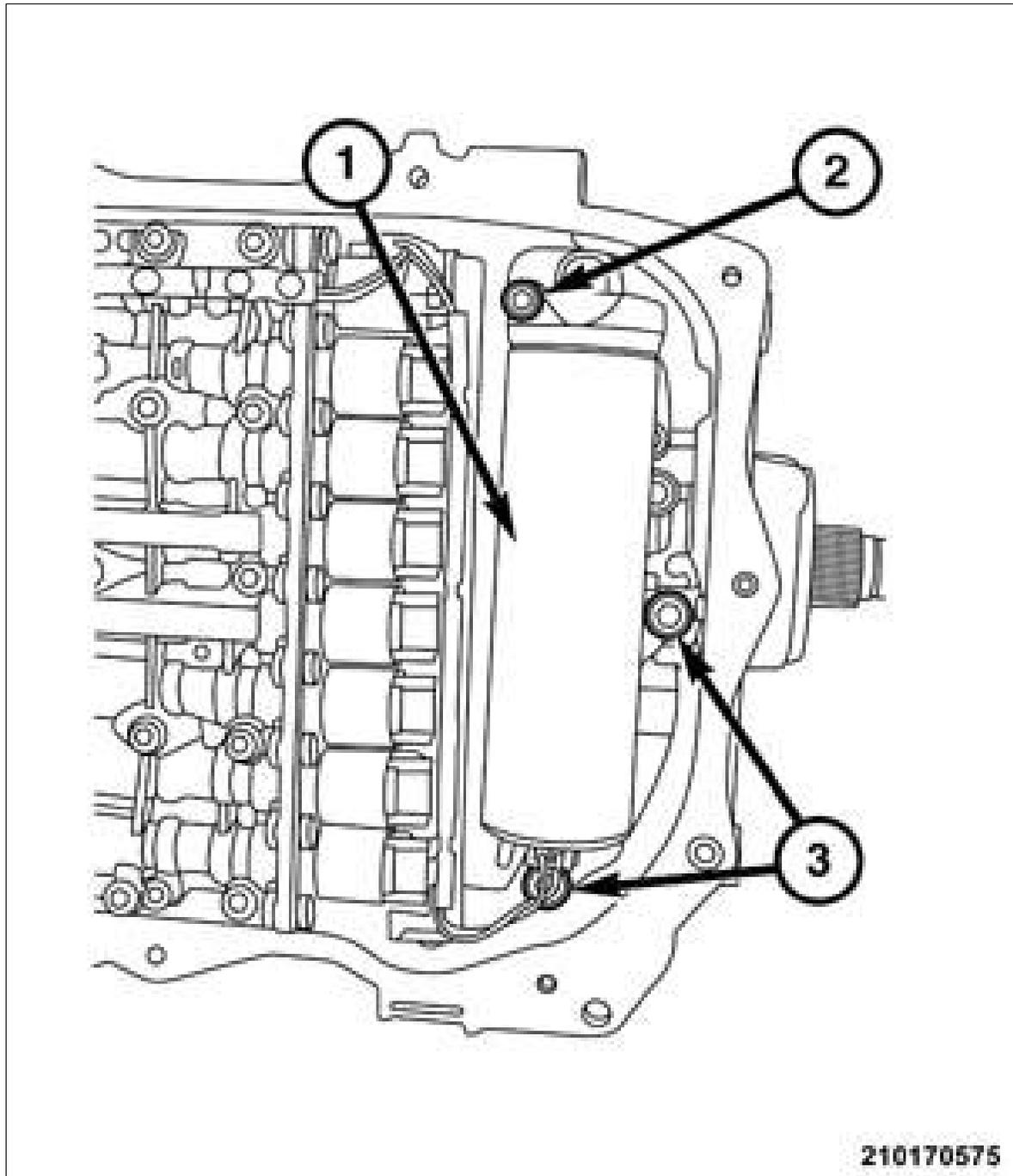
Fig 40: Valve Body Assembly End Retainer Bolts



Courtesy of CHRYSLER GROUP, LLC

65. Install the sensor (4) and the sensor retaining bolt (1) and hand tighten.
66. Latch the electrical connector insulator lock (2) by pushing in.

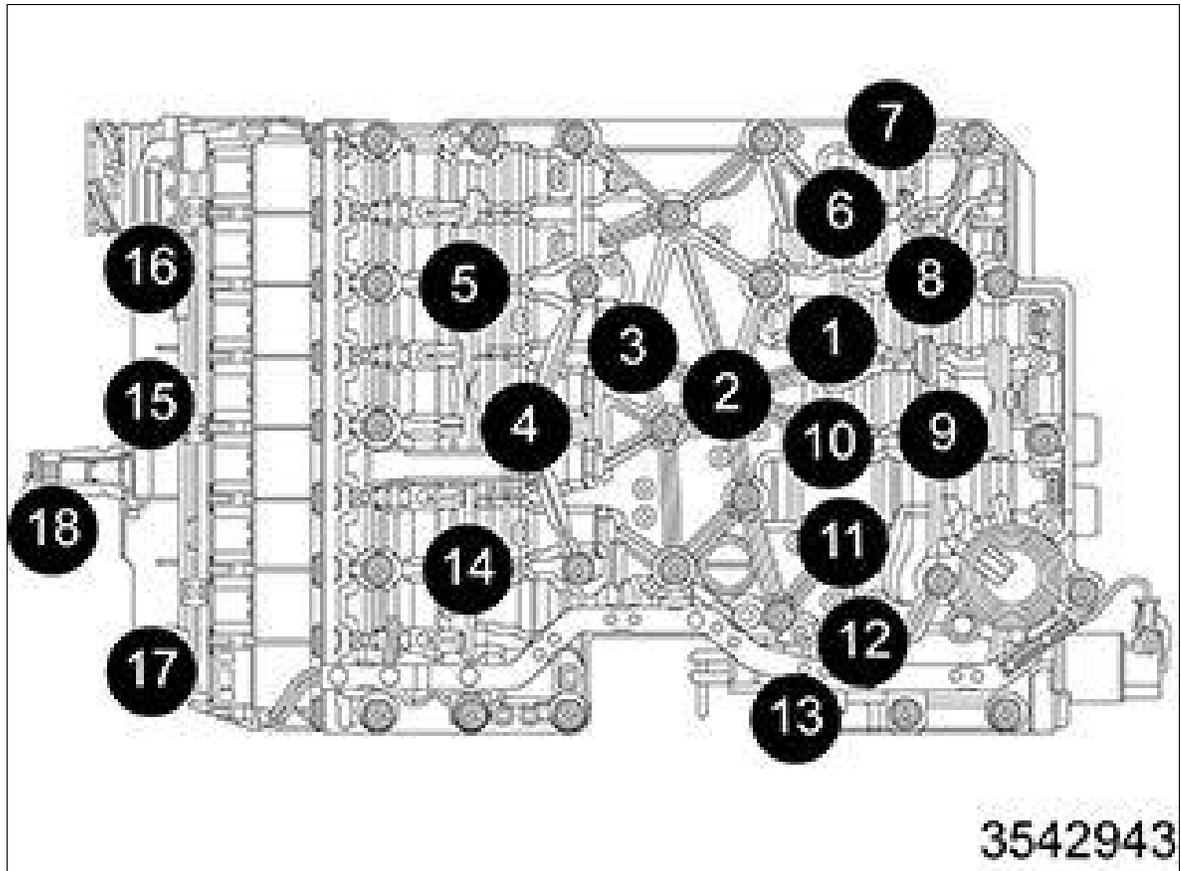
Fig 41: Hydraulic Impulse Storage Unit & Bolts



Courtesy of CHRYSLER GROUP, LLC

67. If equipped, install the Hydraulic Impulse Storage Unit (H.I.S.).
68. Tighten the bolts (2 and 3) to 8 N.m (71 in. lbs.).
69. Install the valve body assembly end retainer bolts (3) and hand tighten.

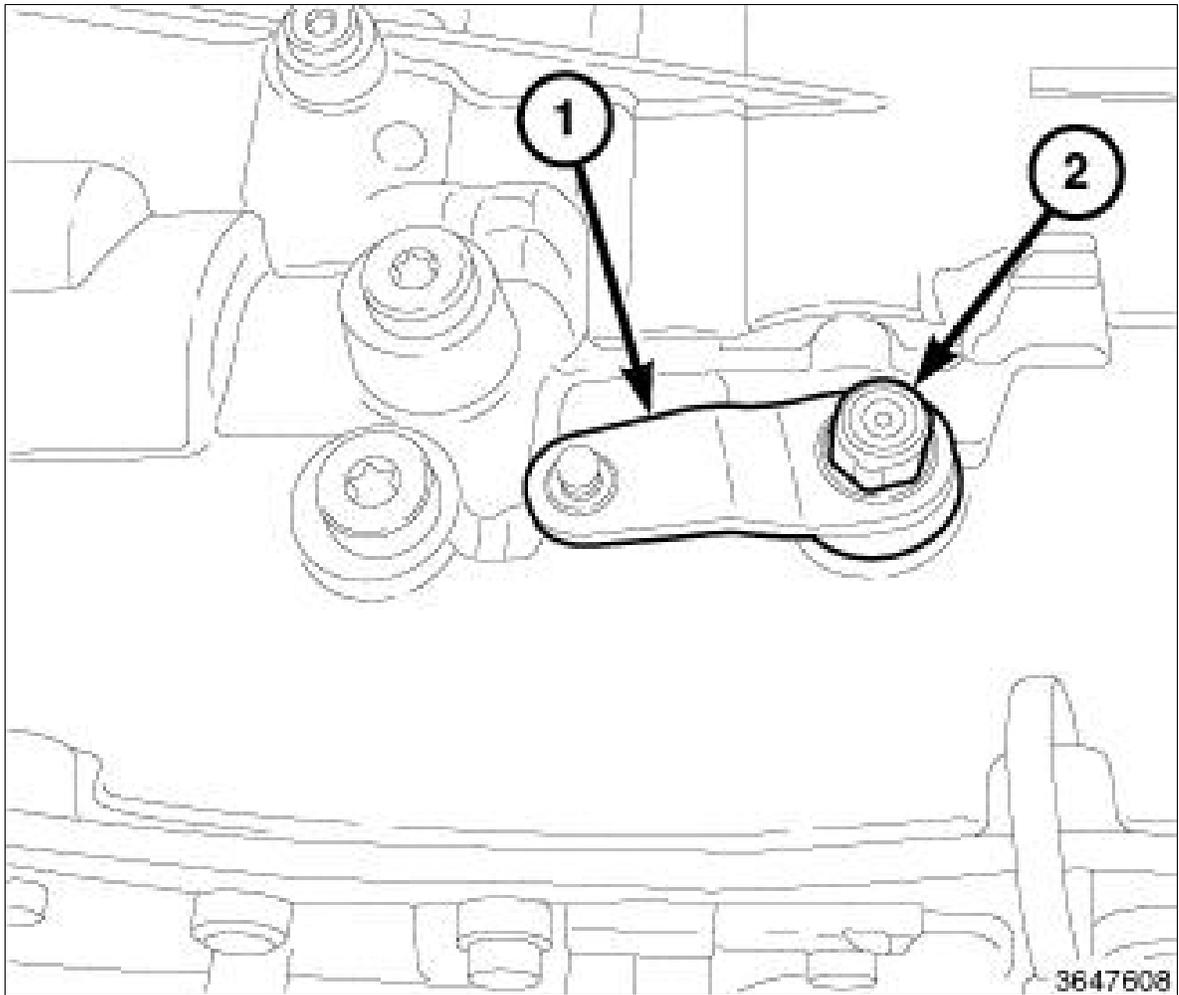
Fig 42: Valve Body Bolts Loosening And Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

70. Tighten the valve body assembly retaining bolts 1-18 in the sequence shown to 8 N.m (71 in. lbs.).

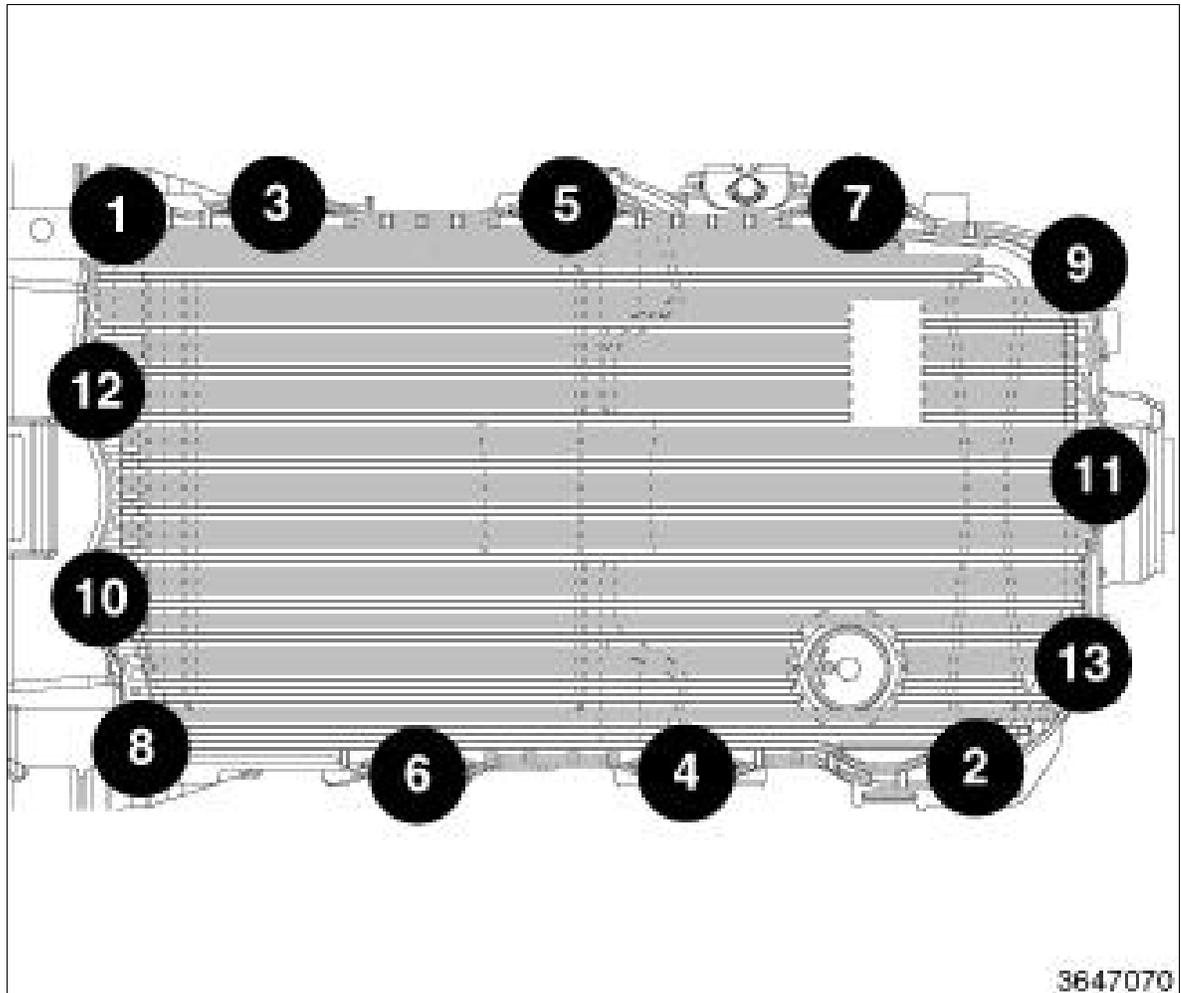
Fig 43: Manual Park Release Lever Retaining Nut & Lever



Courtesy of CHRYSLER GROUP, LLC

71. Remove the tie strap and return the manual release lever (1) to the original position.
72. Install the nut (2) and tighten to 10 N.m (89 in. lbs.).

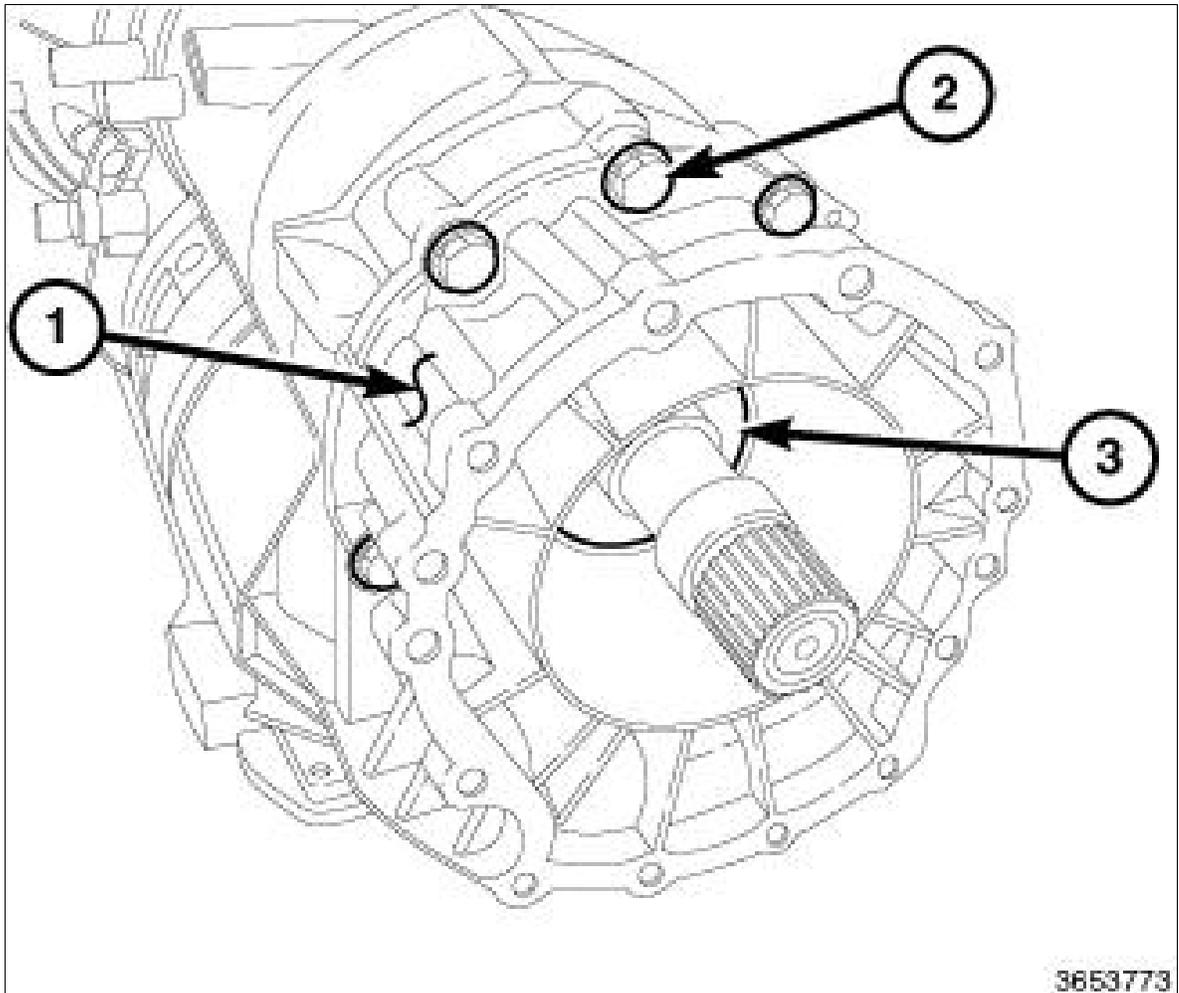
Fig 44: Oil Pan Retaining Bolts Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

73. Position the oil pan and gasket.
74. Install the thirteen oil pan retaining bolts and using the sequence shown and tighten to 10 N.m (89 in. lbs.).

Fig 45: Transmission Housing Extension Bolts, Housing & Rear Oil Seal (AWD)



Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

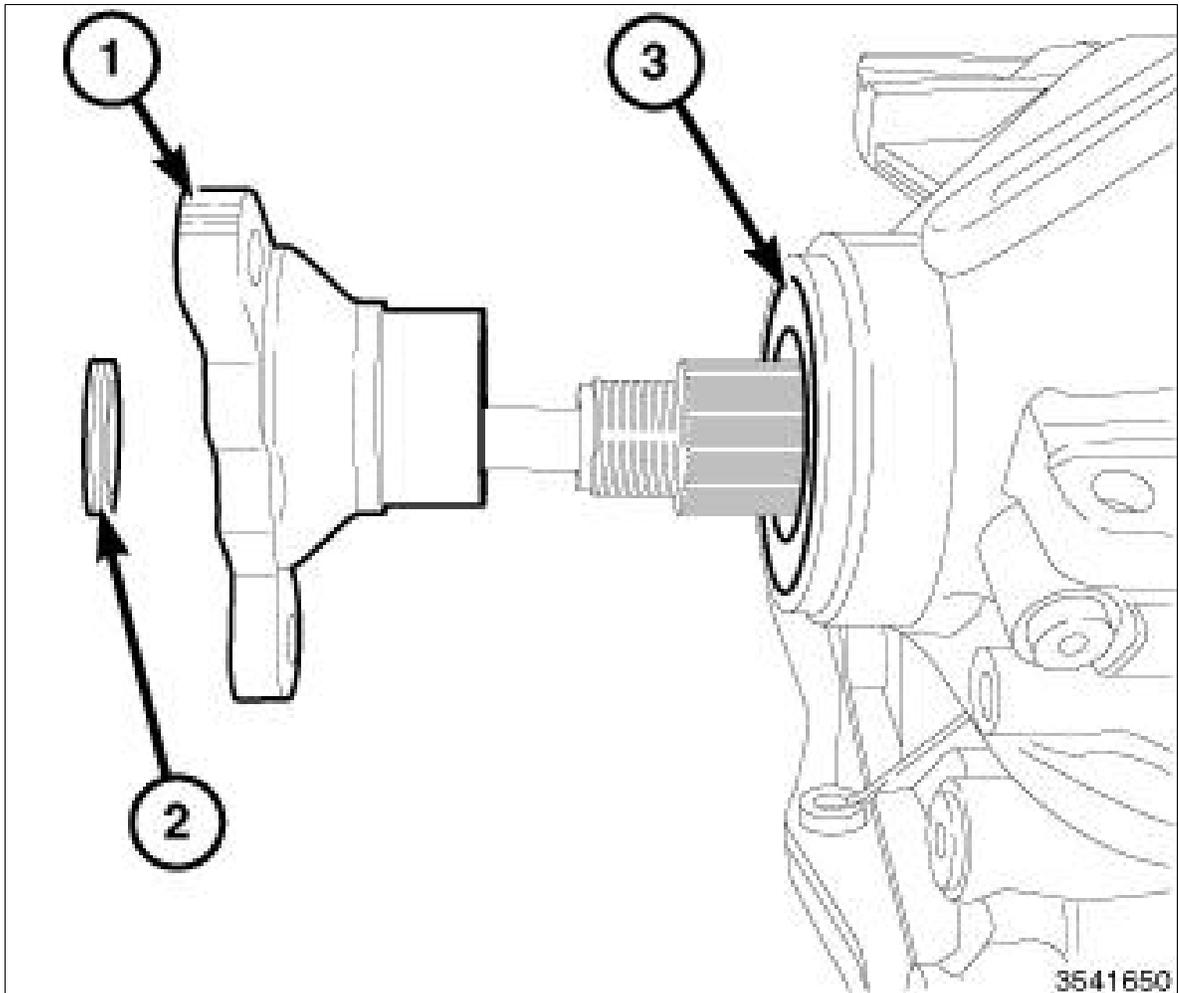
*AWD only.*

 **CAUTION:**

*The seal must be installed flush with the case. Driving the seal deeper could damage the seal causing a leak.*

75. Position the new output shaft seal (3) over the output shaft and against the transmission case.
76. Using (special tool #8481, Installer, Gear) install the output shaft seal.
77. Position the extension housing.
78. Install the seven transmission housing extension bolts (2) and tighten to 27 N.m (20 ft. lbs.).

Fig 46: Propeller Shaft Flange, Rear Dust Seal & Rear Oil Seal (RWD)



Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*RWD only.*

79. Install the transmission output shaft washer.

 **CAUTION:**

*The seal must be installed flush with the case. Driving the seal deeper could damage the seal causing a leak.*

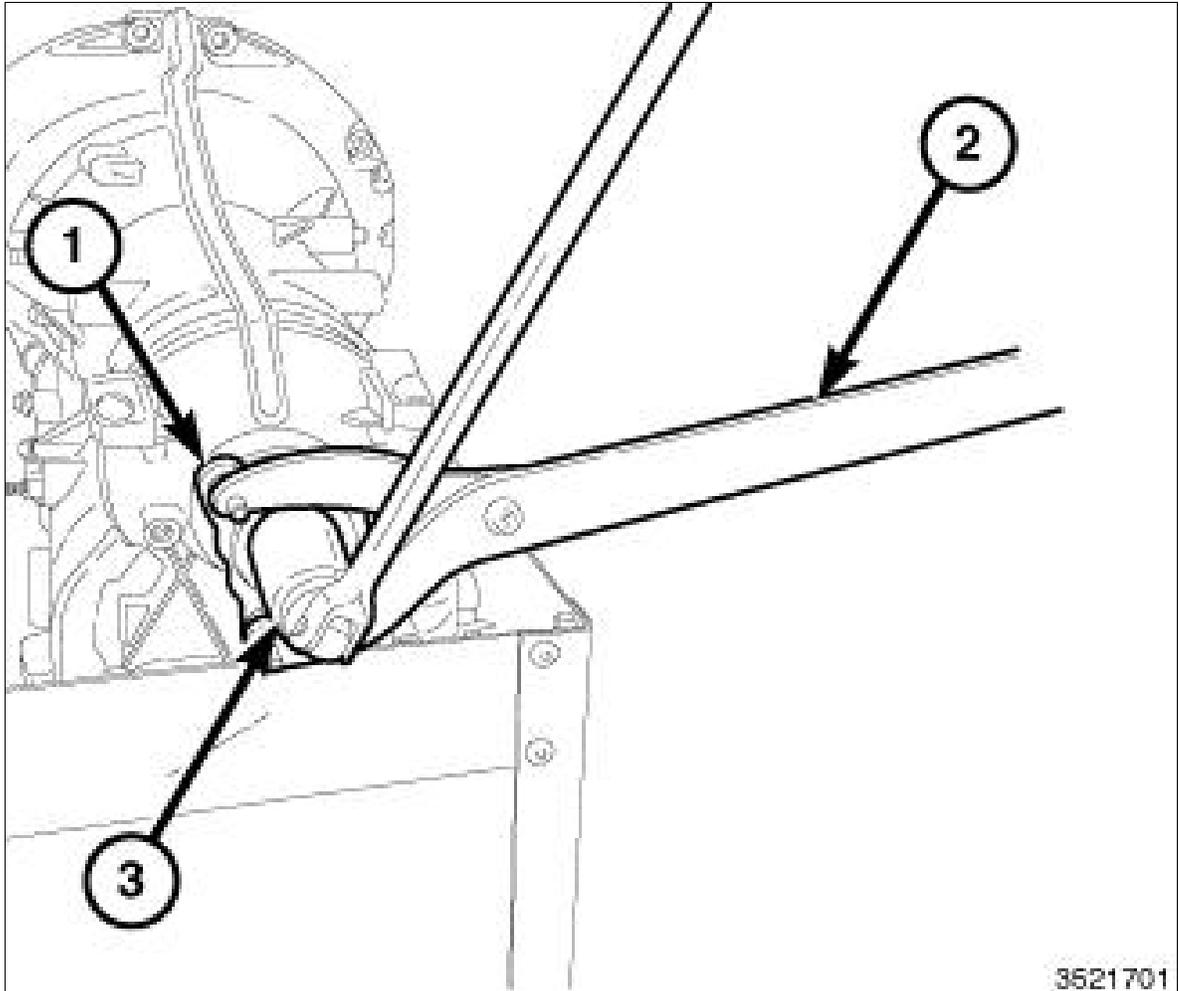
80. Position the new output shaft seal (3) over the output shaft and against the transmission case.

81. Using (special tool #8481, Installer, Gear) install the output shaft seal.

82. Install the transmission rear dust seal (2).

83. Install the propeller shaft flange (1).

Fig 47: Flange, Flange Holder & Socket

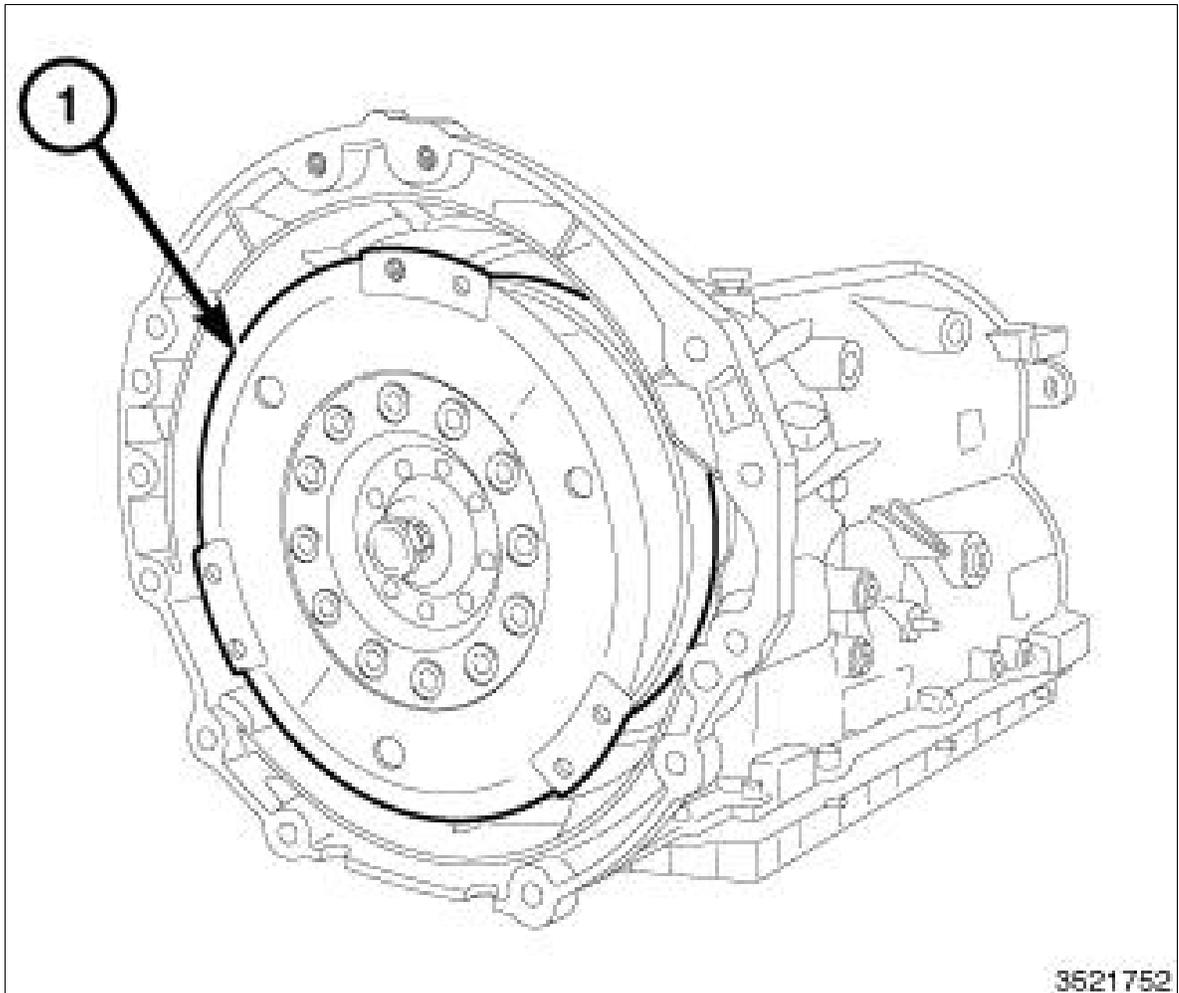


Courtesy of CHRYSLER GROUP, LLC

84. Install the **new** propeller shaft flange nut and washer using a 34 mm 12 point socket (3) and (special tool #C-3281, Holder, Flange) (2) to hold the flange (1). Tighten to 60 N.m (44 Ft. lbs.).

85. Stake the nut.

Fig 48: Torque Converter



Courtesy of CHRYSLER GROUP, LLC

86. Install the torque converter (1). Refer to TORQUE CONVERTER, INSTALLATION .
87. Before installing the transmission in the vehicle, pre-fill the transmission as outlined in FILL TRANSMISSION AFTER SERVICE. Refer to FLUID AND FILTER, STANDARD PROCEDURE .

## INSTALLATION > 5.7L, 6.4L

 **CAUTION:**

*The transmission and torque converter must be removed as an assembly to avoid component damage. The converter drive plate, oil pump, or oil seal can be damaged if the converter is left attached to the drive plate during removal. Be sure to remove the transmission and converter as an assembly.*

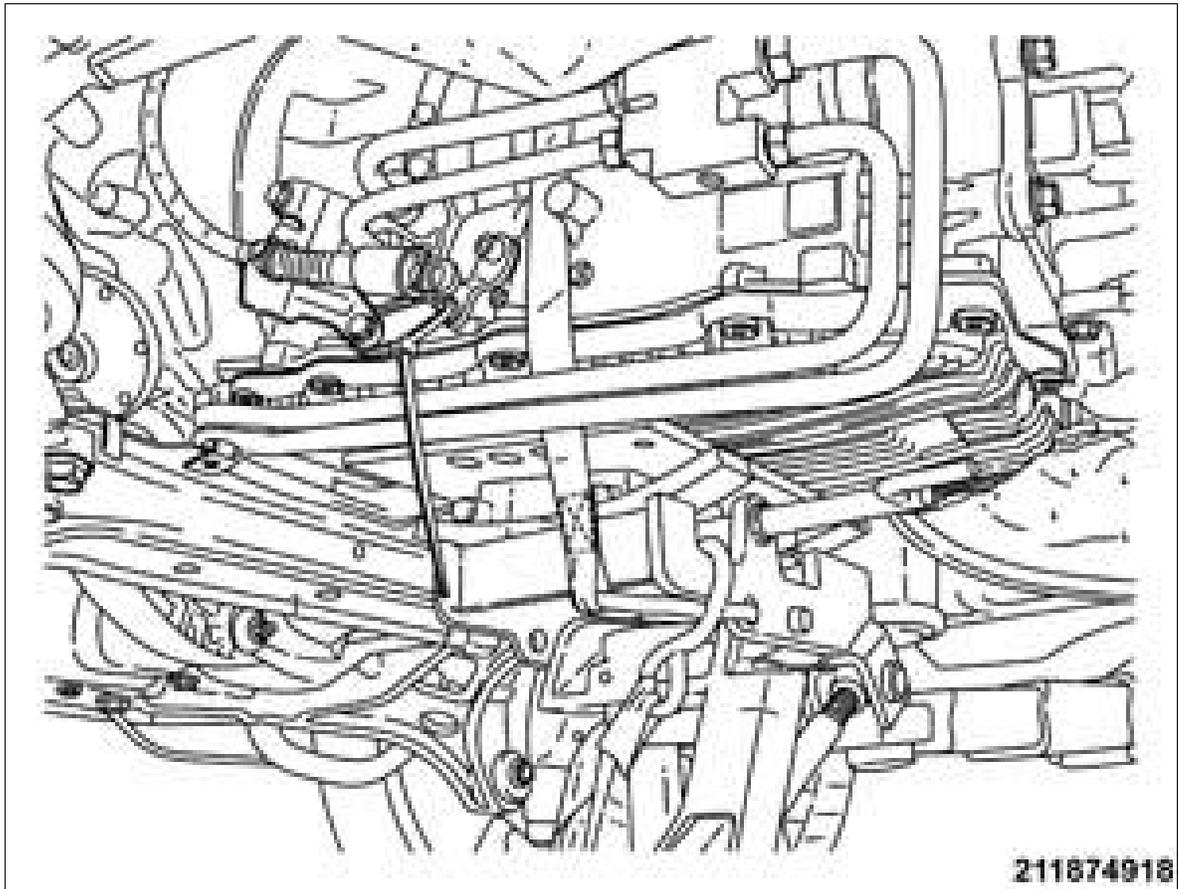
 **NOTE:**

*If the transmission is being reconditioned (clutch/seal replacement) or replaced, it is necessary to perform the TRANSMISSION VERIFICATION TEST*

*Refer to STANDARD PROCEDURE .*

1. If a replacement transmission is being installed, transfer any components necessary, such as the manual shift lever and shift cable bracket, Mechanical Park Release bracket from the original transmission onto the replacement transmission.
2. Apply a light coating of Mopar® High Temp Grease to the torque converter hub pocket in the rear pocket of the engine's crankshaft.
3. Install the torque converter. Refer to TORQUE CONVERTER, INSTALLATION .

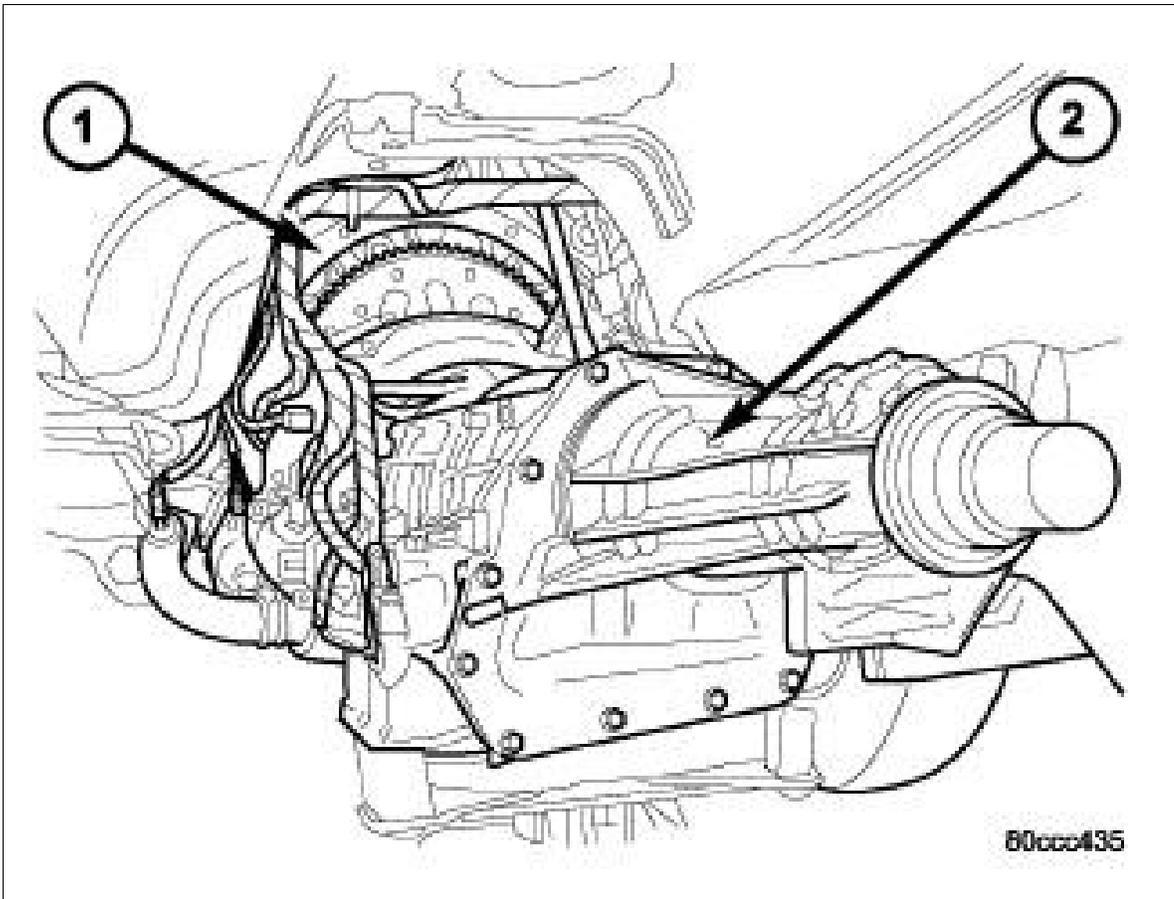
Fig 1: Supporting Transmission With Jack



Courtesy of CHRYSLER GROUP, LLC

4. Place the transmission on a jack and secure with chains or similar.

Fig 2: Identifying Transmission



Courtesy of CHRYSLER GROUP, LLC

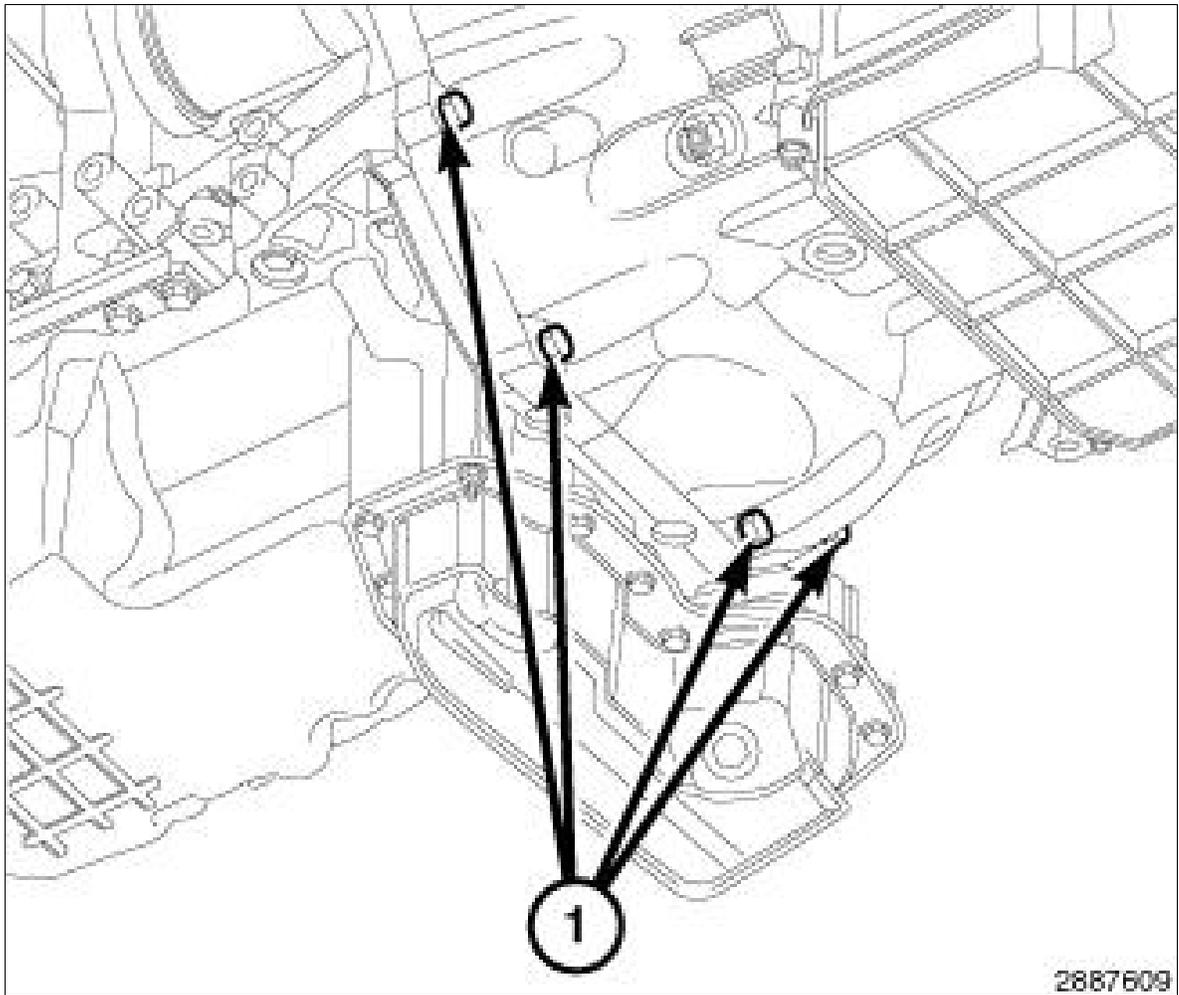
5. Raise transmission and align the torque converter with the drive plate and the transmission converter housing with the engine block.
6. Move transmission forward. Then raise, lower, or tilt transmission to align the converter housing with the engine block dowels.

 **NOTE:**

*It may be necessary to support the rear of the engine during transmission installation.*

7. Carefully work transmission (2) forward and over engine block dowels until converter hub is seated in crankshaft. Verify that no wires, or the transmission vent hose, have become trapped between the engine block and the transmission.

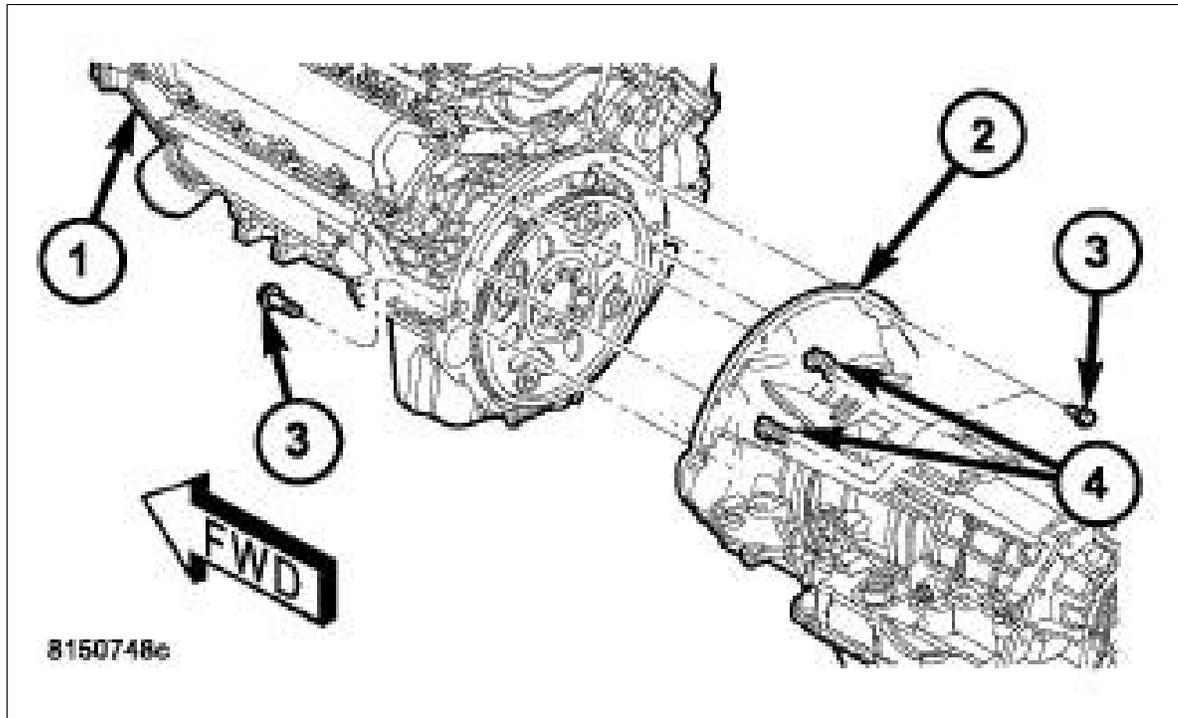
Fig 3: Lower Transmission Bolts



Courtesy of CHRYSLER GROUP, LLC

8. Install two bolts (1) to attach the transmission to the engine.

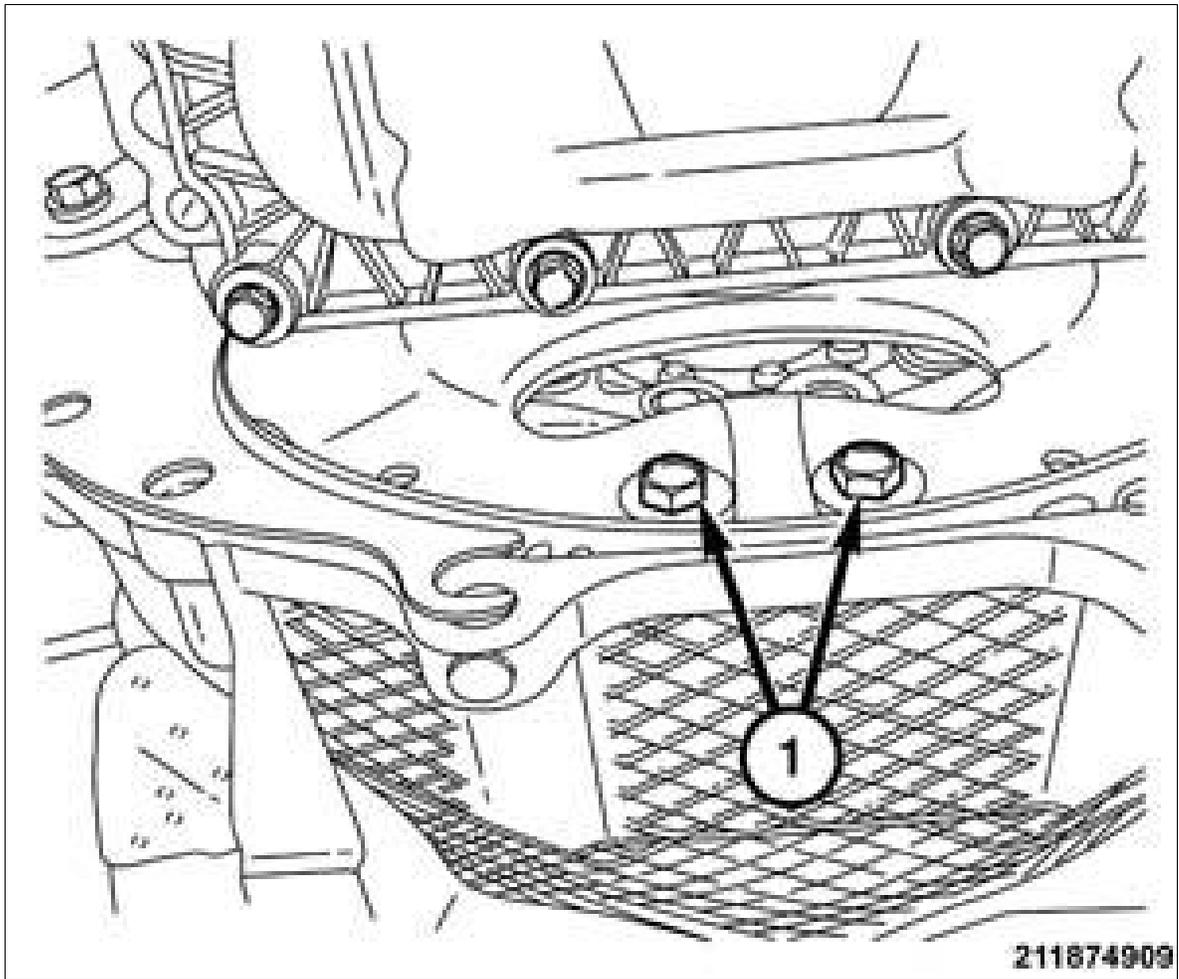
Fig 4: Removing/Installing Transmission To Engine Bolts



Courtesy of CHRYSLER GROUP, LLC

9. Install remaining torque converter housing to engine bolts (3 and 4). Tighten all torque converter housing bolts to 55 N.m (41 ft. lbs.).

Fig 5: Torque Converter Bolts



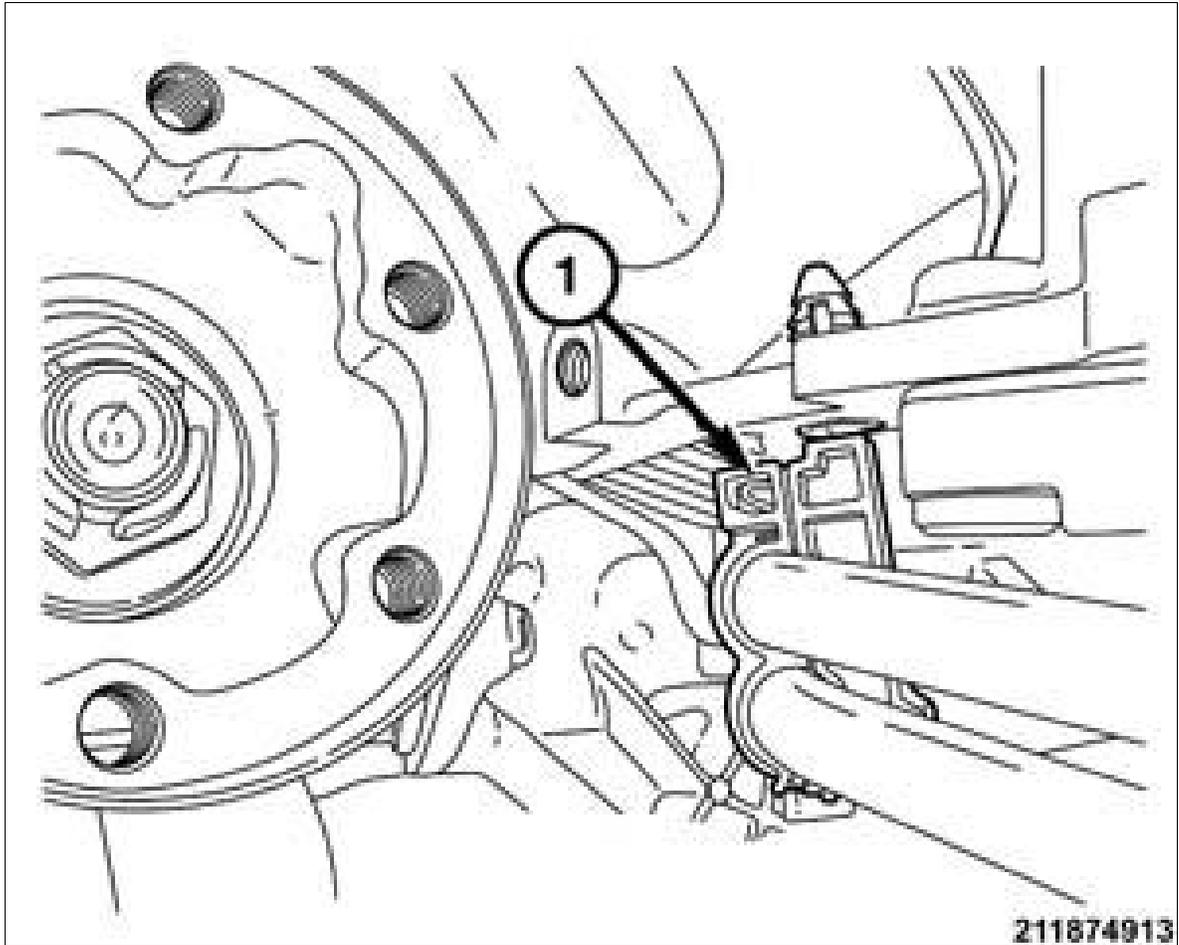
Courtesy of CHRYSLER GROUP, LLC

10. Install torque converter bolts (1) and torque to 42 N.m (31 ft. lbs.).

 **NOTE:**

*Install all torque converter bolts (1) by hand first. There are 3 sets of two bolts 120° apart.*

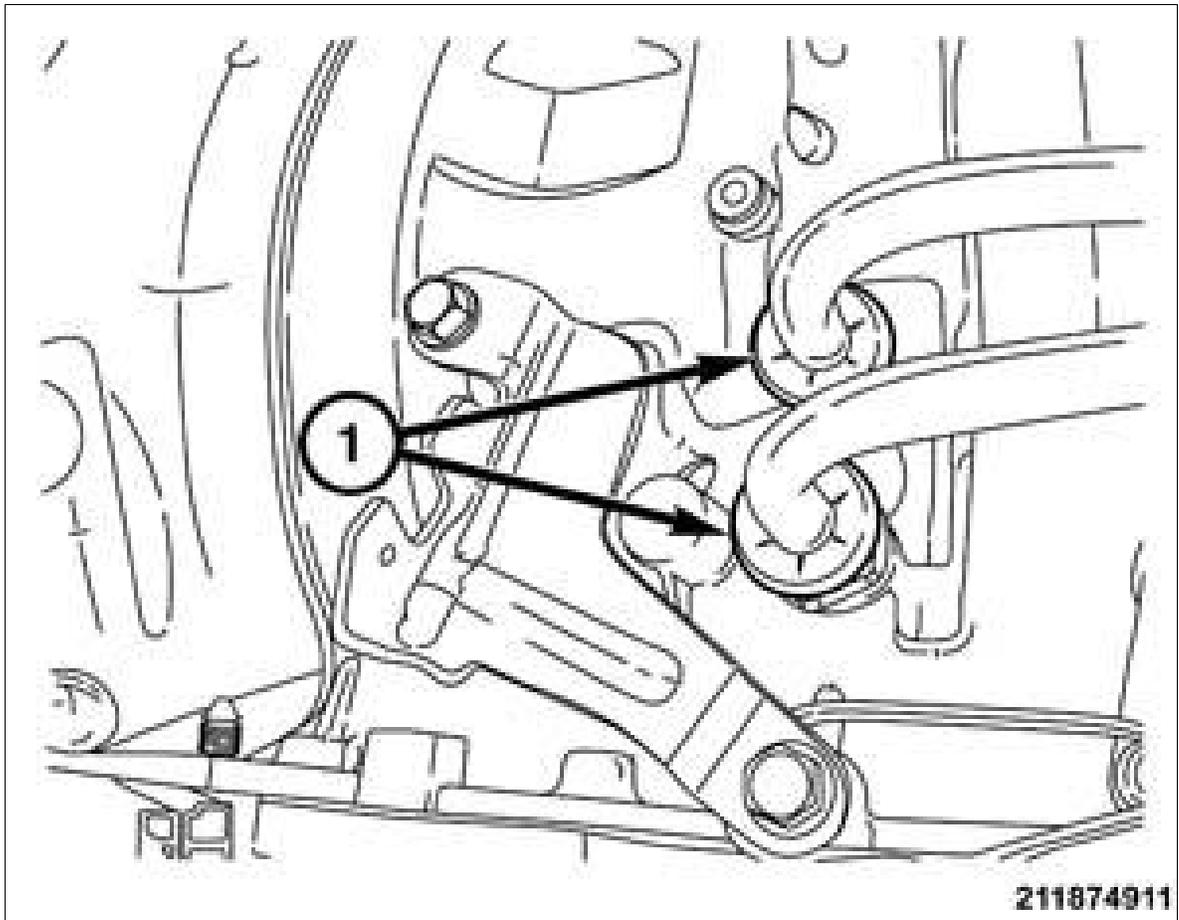
Fig 6: Cooler Line Clip



Courtesy of CHRYSLER GROUP, LLC

11. Connect left front transmission line clip (1).
12. Connect the transmission vent hose.

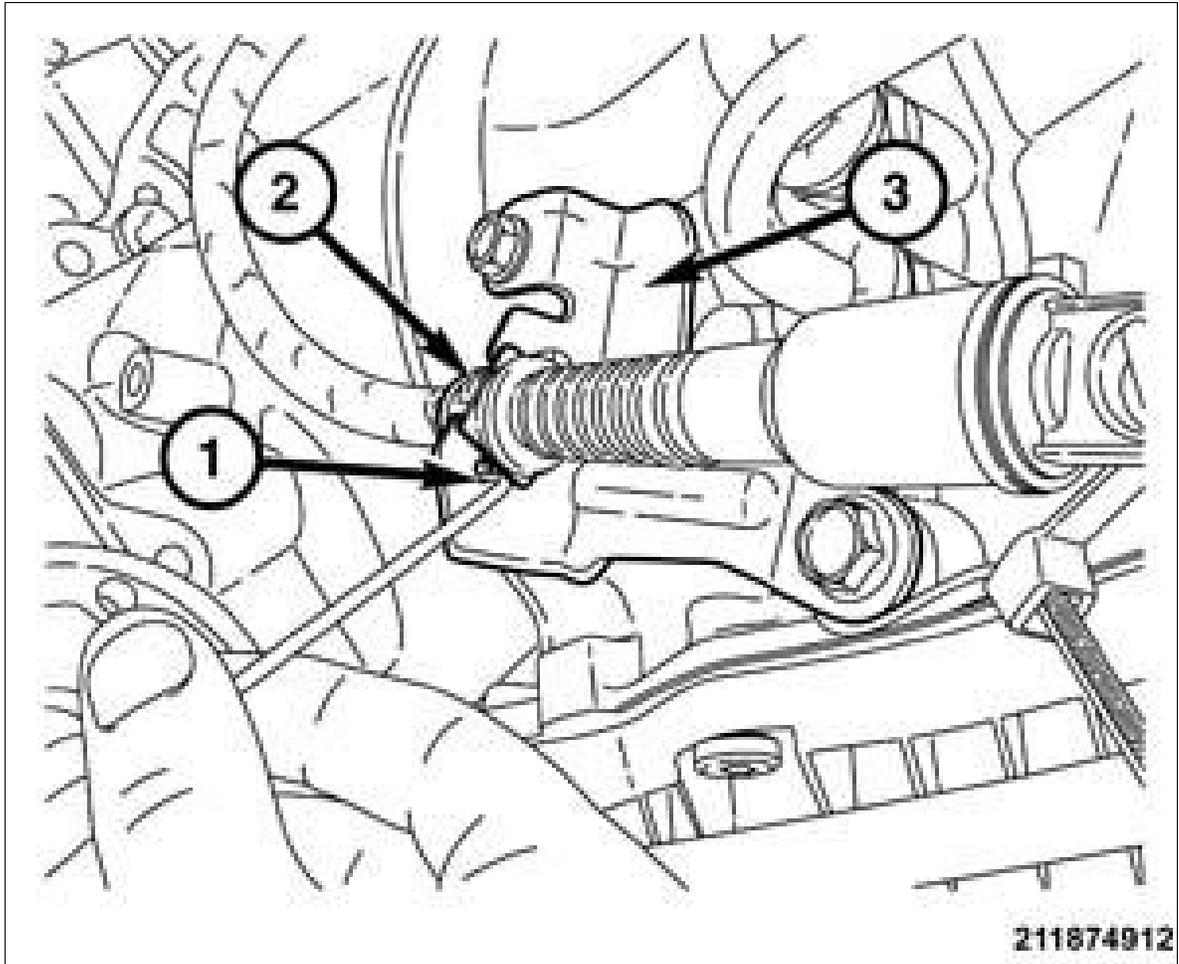
Fig 7: Locking Covers



Courtesy of CHRYSLER GROUP, LLC

13. Connect the transmission lines. Be sure that the lines are fully seated.
14. Snap the Jiffy Tite lock (1) over the line fitting.

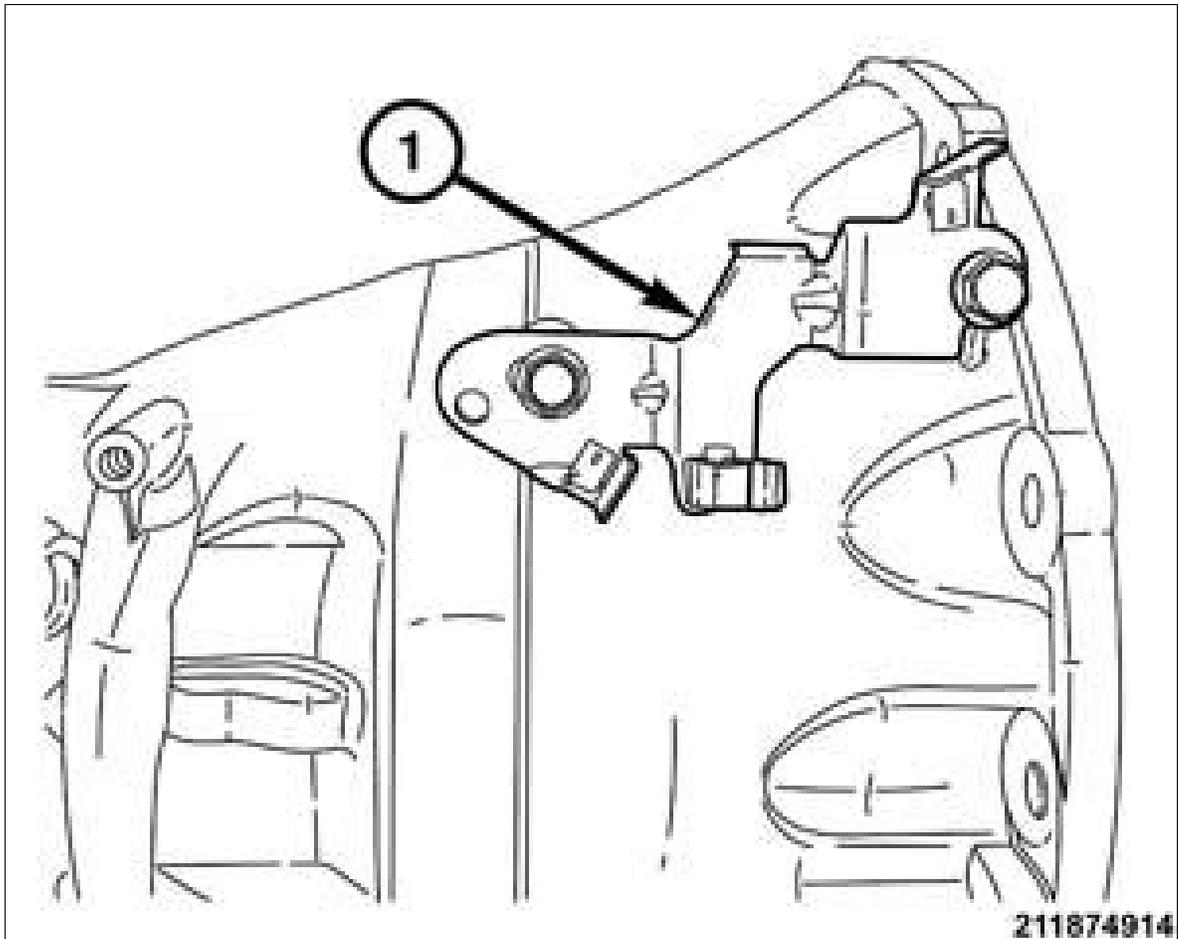
Fig 8: Locking Tab, MPR Cable & Bracket



Courtesy of CHRYSLER GROUP, LLC

15. Install the MPR cable (2) into the bracket (3) and lock into place.

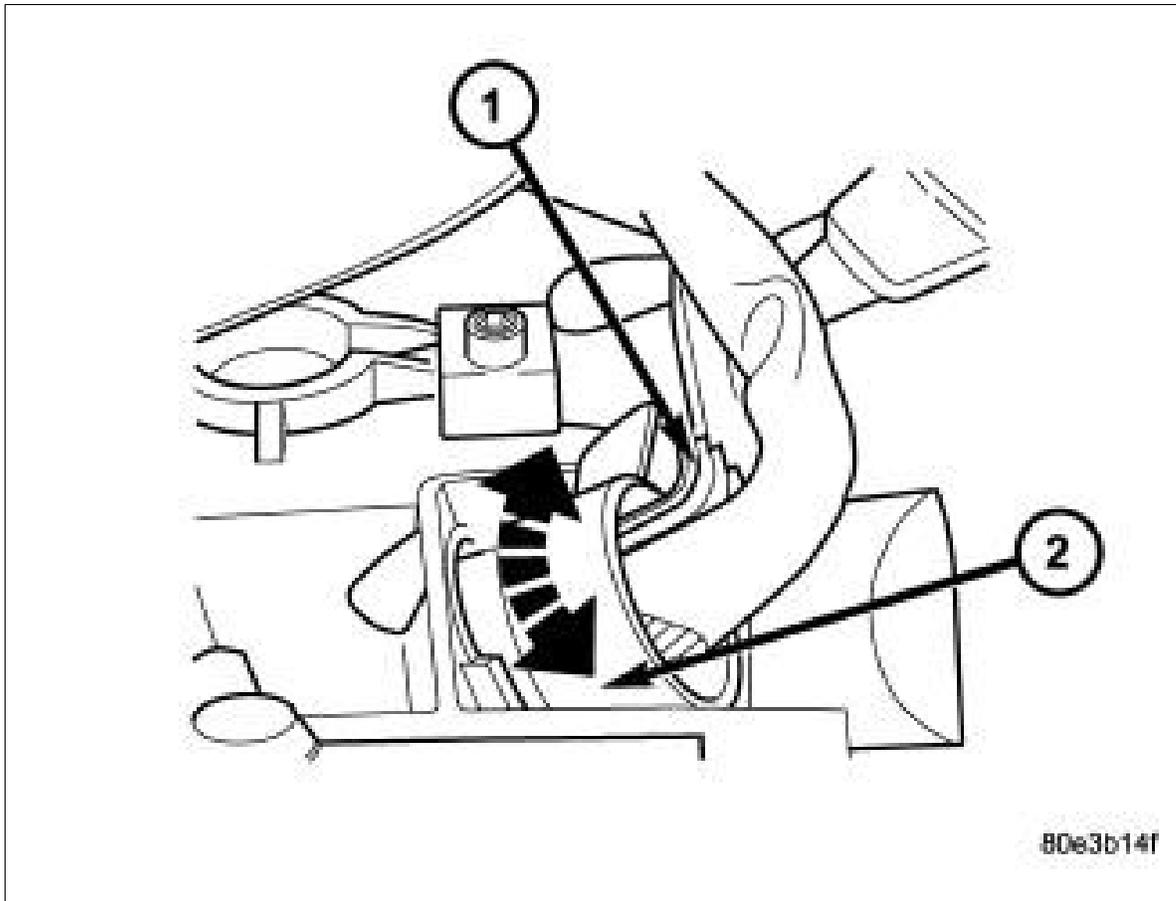
Fig 9: Wiring Harness Bracket



Courtesy of CHRYSLER GROUP, LLC

16. Install the wiring harness bracket (1) onto the right side of the torque converter housing and torque to 10 N.m (89 in. lbs.).

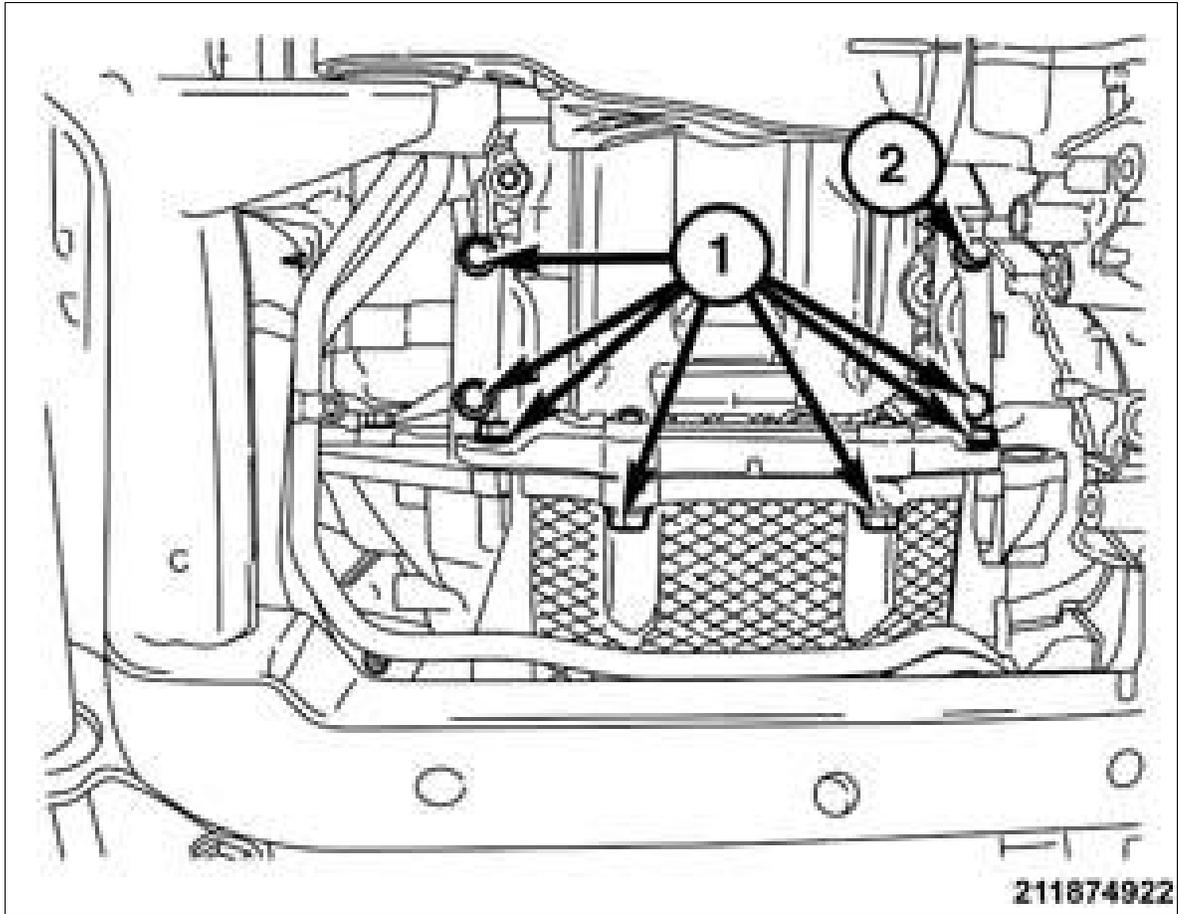
Fig 10: Removing/Installing Wiring Connector Plug



Courtesy of CHRYSLER GROUP, LLC

17. Check O-ring on plug connector (1), and replace if necessary.
18. Install the plug connector (1) into the adapter plug (2). Turn bayonet lock of the adapter plug (2) clockwise to connect plug connector (1).
19. Install the transfer case. For MP2010, refer to INSTALLATION . For MP3010, refer to INSTALLATION . For MP3023, refer to INSTALLATION .

Fig 11: Structural Cover Bolts



Courtesy of CHRYSLER GROUP, LLC

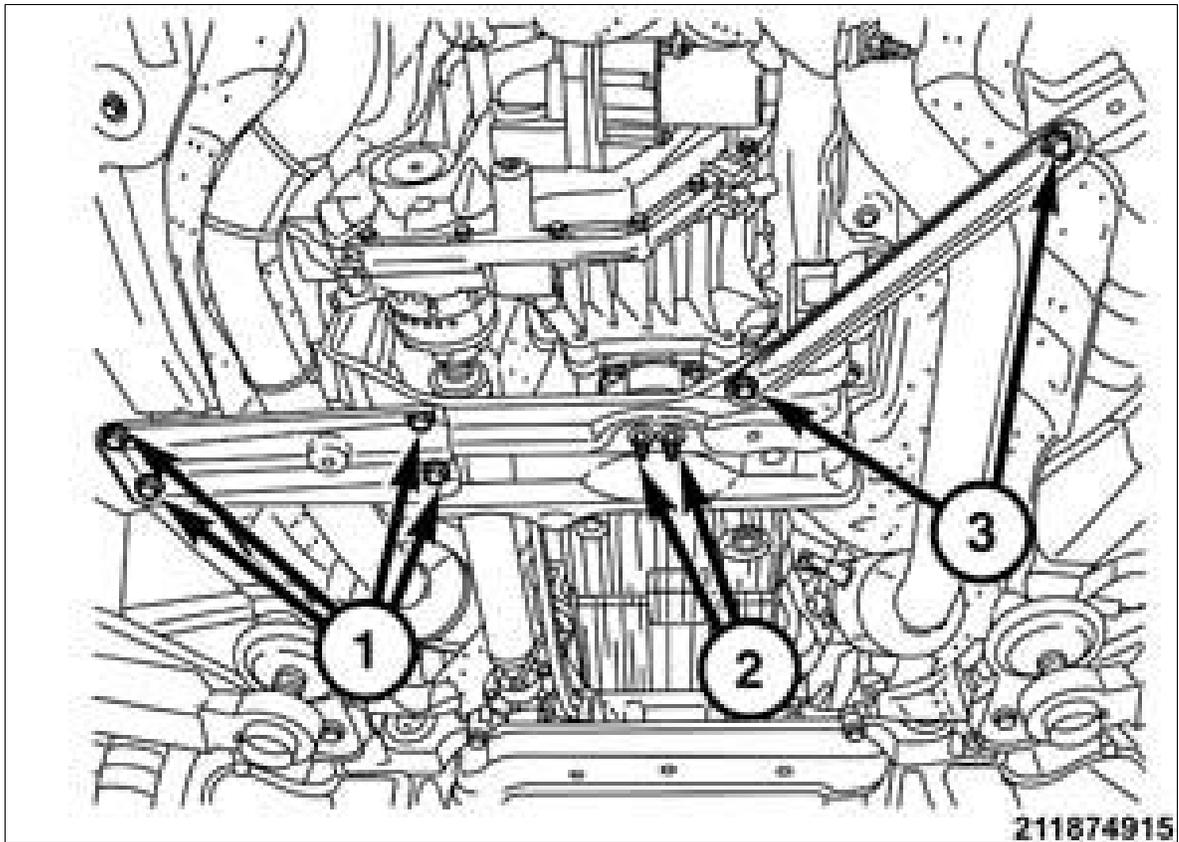
20. Install the engine structural cover and torque bolts first to 9 N.m (80 in. lbs.)

 **NOTE:**

*The left front structural cover bolt (2) must be installed with the cover.*

21. Finally torque the structural cover to 54 N.m (40 ft. lbs.)
22. Install the starter. Refer to STARTER, INSTALLATION .
23. Install the left and right Catalytic converters. Refer to CONVERTER, CATALYTIC, INSTALLATION .
24. If 4WD, install the front propeller shaft heat shield.
25. If 4WD, install the front propeller shaft. Refer to SHAFT, DRIVE, FRONT, INSTALLATION .

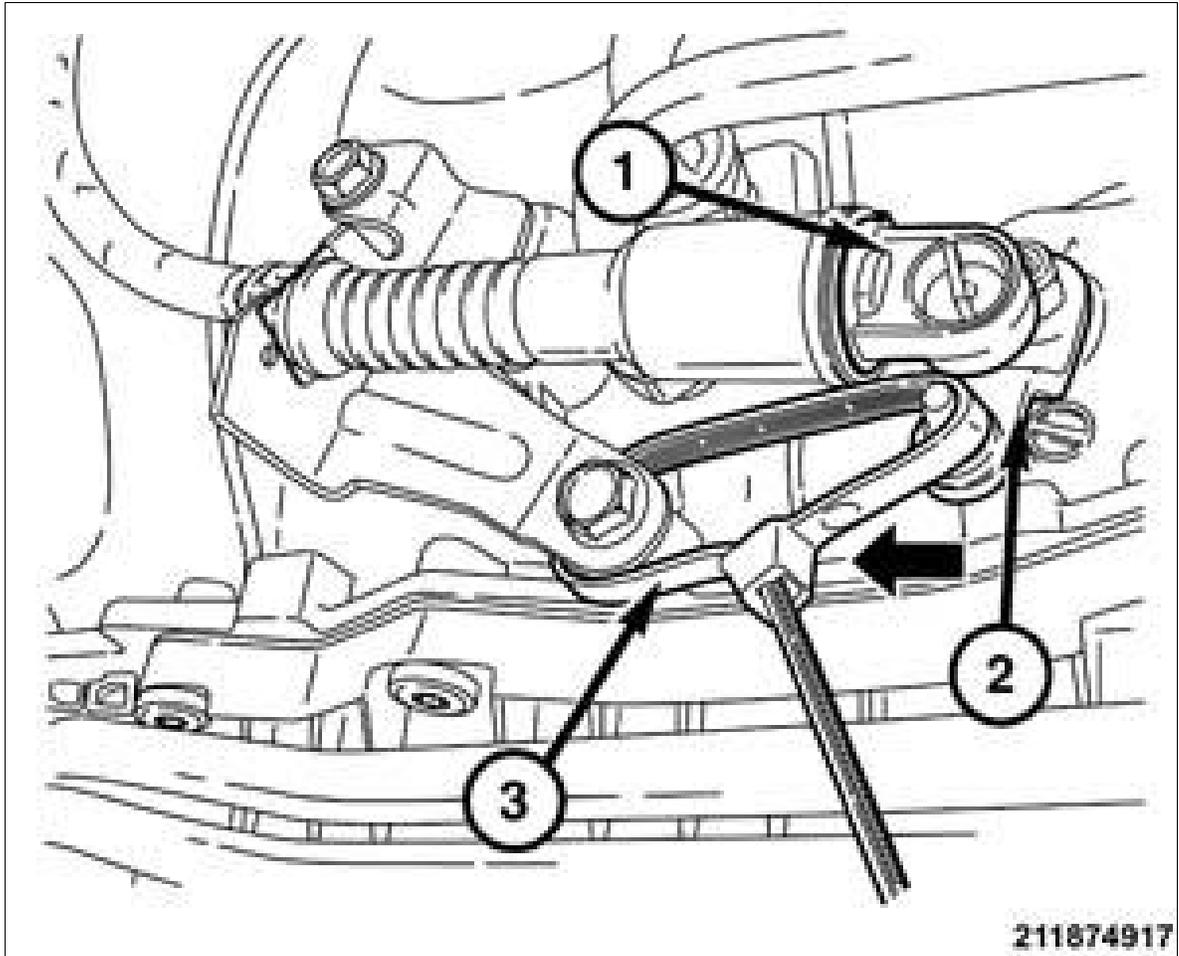
Fig 12: Crossmember Bolts & Nuts



Courtesy of CHRYSLER GROUP, LLC

26. Install the cross-member and tighten bolts (1 and 3) to 68 N.m (50 ft. lbs.)
27. Install the transmission mount nuts (2) and torque to 47 N.m (35 ft. lbs.)
28. Install the rear propeller shaft. Refer to SHAFT, DRIVE, REAR, INSTALLATION .

Fig 13: Mechanical Park Release Cable, Lever & Zip Tie



Courtesy of CHRYSLER GROUP, LLC

29. Remove the zip tie (3) from the MPR lever.
30. Connect the MPR cable (1) to the MPR lever (2).
31. Install heat shield for rear propeller shaft/muffler.
32. Install the rear section of exhaust. Refer to MUFFLER, EXHAUST, INSTALLATION .
33. If equipped install skid plates.
34. Fill the transmission with appropriate fluid. Refer to FLUID AND FILTER, STANDARD PROCEDURE .
35. Lower the vehicle.
36. Connect the battery negative cable.
37. If the valve body is replaced, program the Transmission Control Module (TCM). Refer to MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING .
38. Perform the TRANSMISSION VERIFICATION TEST. Refer to STANDARD PROCEDURE .

## INSTALLATION > 3.0L DIESEL

 **CAUTION:**

*The transmission and torque converter must be removed as an assembly to avoid component damage. The converter drive plate, oil pump, or oil seal can be damaged if the converter is left attached to the drive plate during removal. Be sure to remove the transmission and converter as an assembly.*

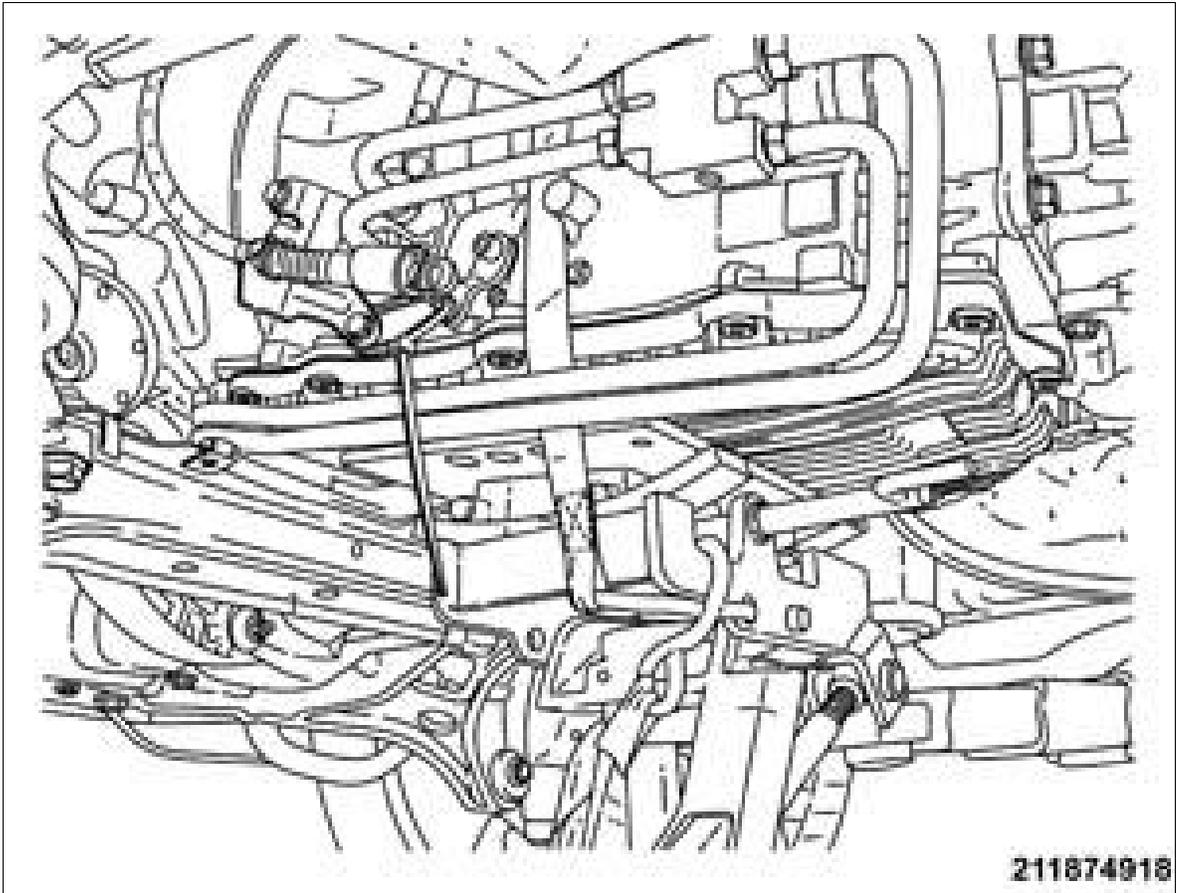
 **NOTE:**

*If the transmission is being reconditioned (clutch/seal replacement) or replaced, it is necessary to perform the TRANSMISSION VERIFICATION TEST*

*Refer to STANDARD PROCEDURE .*

1. If a replacement transmission is being installed, transfer any components necessary, such as the manual shift lever and shift cable bracket, Mechanical Park Release bracket from the original transmission onto the replacement transmission.
2. Install the torque converter. Refer to TORQUE CONVERTER, INSTALLATION .

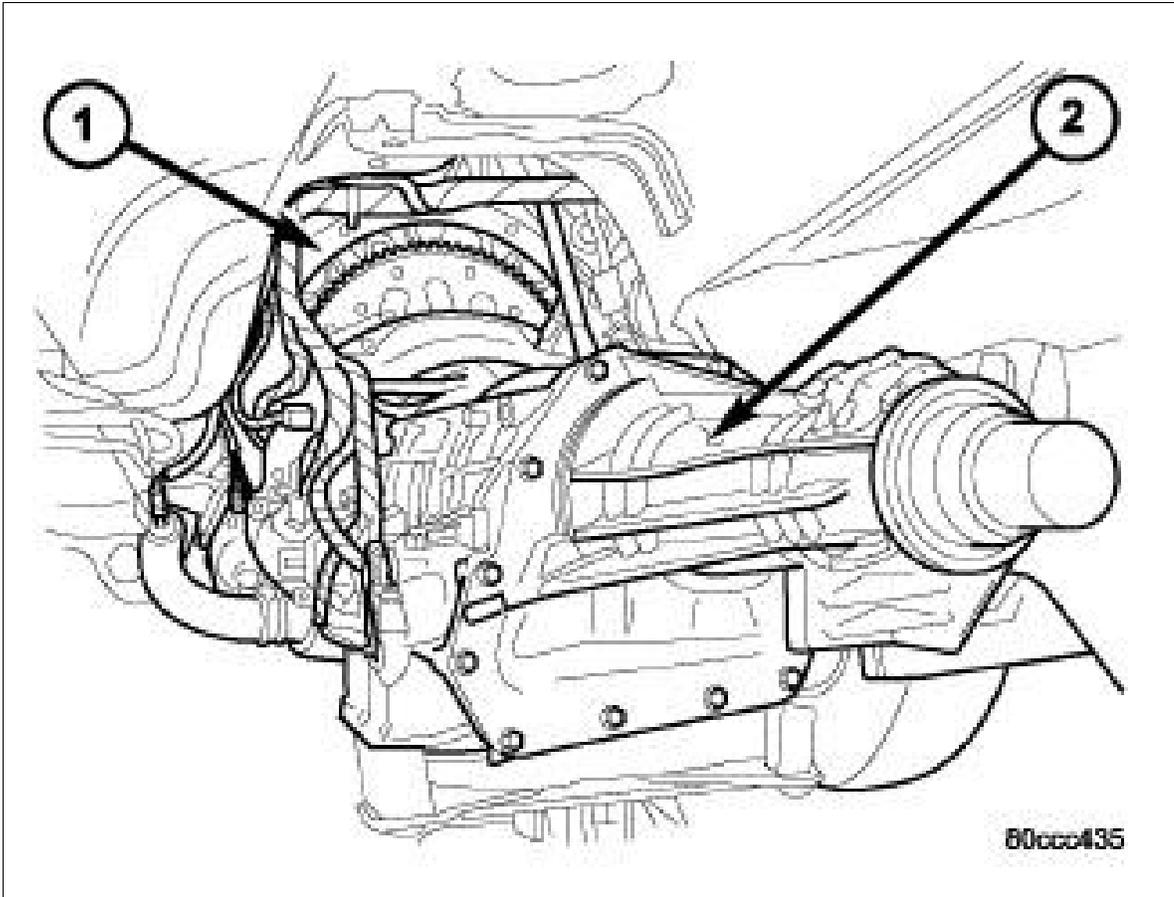
Fig 1: Supporting Transmission With Jack



Courtesy of CHRYSLER GROUP, LLC

3. Place the transmission on a jack and secure with chains or similar.
4. Apply a light coating of Mopar® High Temp Grease to the torque converter hub pocket in the rear pocket of the engine's crankshaft.

Fig 2: Identifying Transmission



Courtesy of CHRYSLER GROUP, LLC

5. Raise transmission and align the torque converter with the drive plate and the transmission converter housing with the engine block.

 **NOTE:**

*If the torque converter was spun or removed, align torque converter bolts holes with the starter pocket to ease bolt installation.*

6. Move transmission forward. Then raise, lower, or tilt transmission to align the converter housing with the engine block dowels.

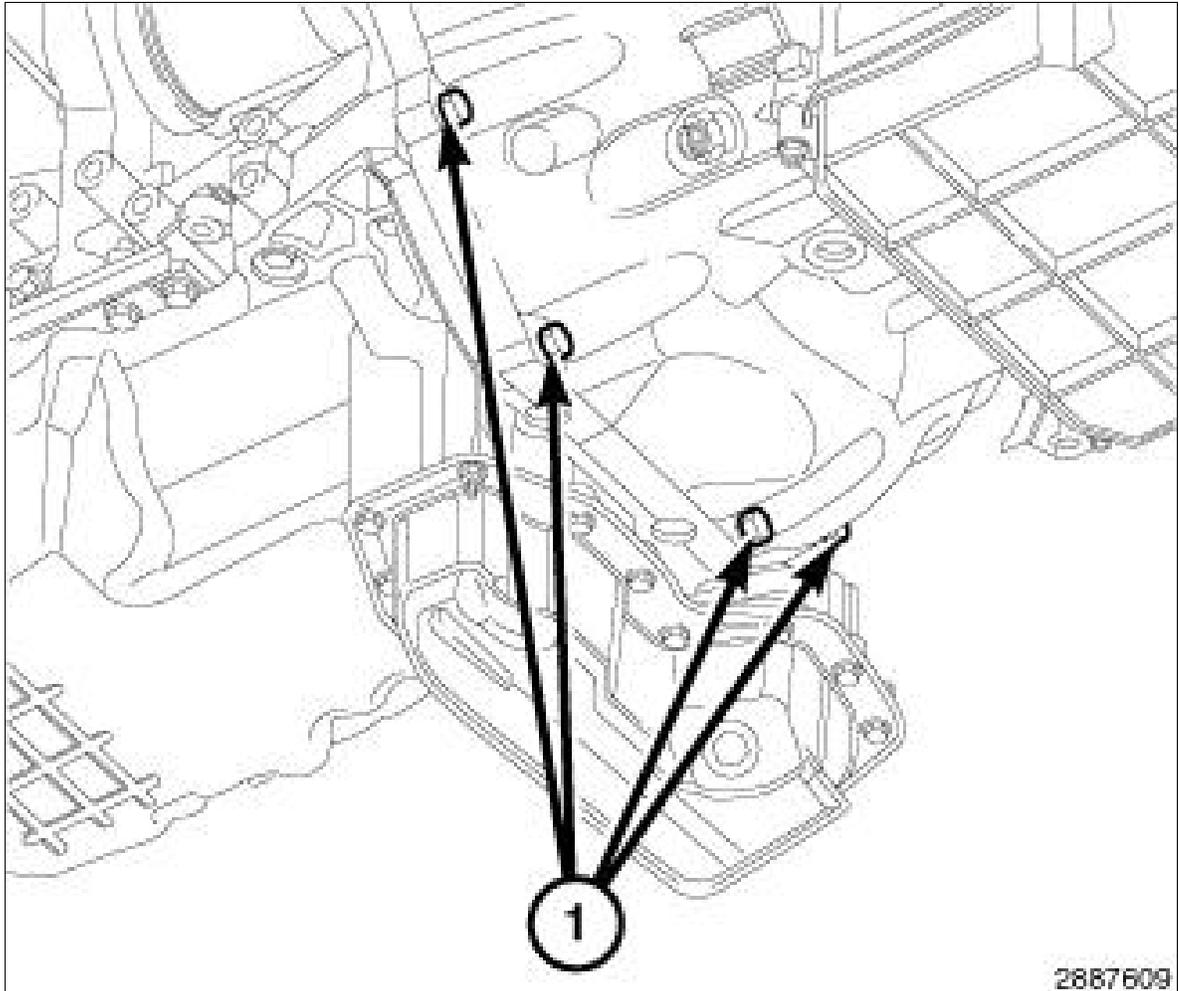
 **NOTE:**

*It may be necessary to support the rear of the engine during transmission installation.*

7. Carefully work transmission (2) forward and over engine block dowels until converter hub is seated in crankshaft. Verify that no wires, or the transmission vent hose, have become trapped

between the engine block and the transmission.

Fig 3: Lower Transmission Bolts

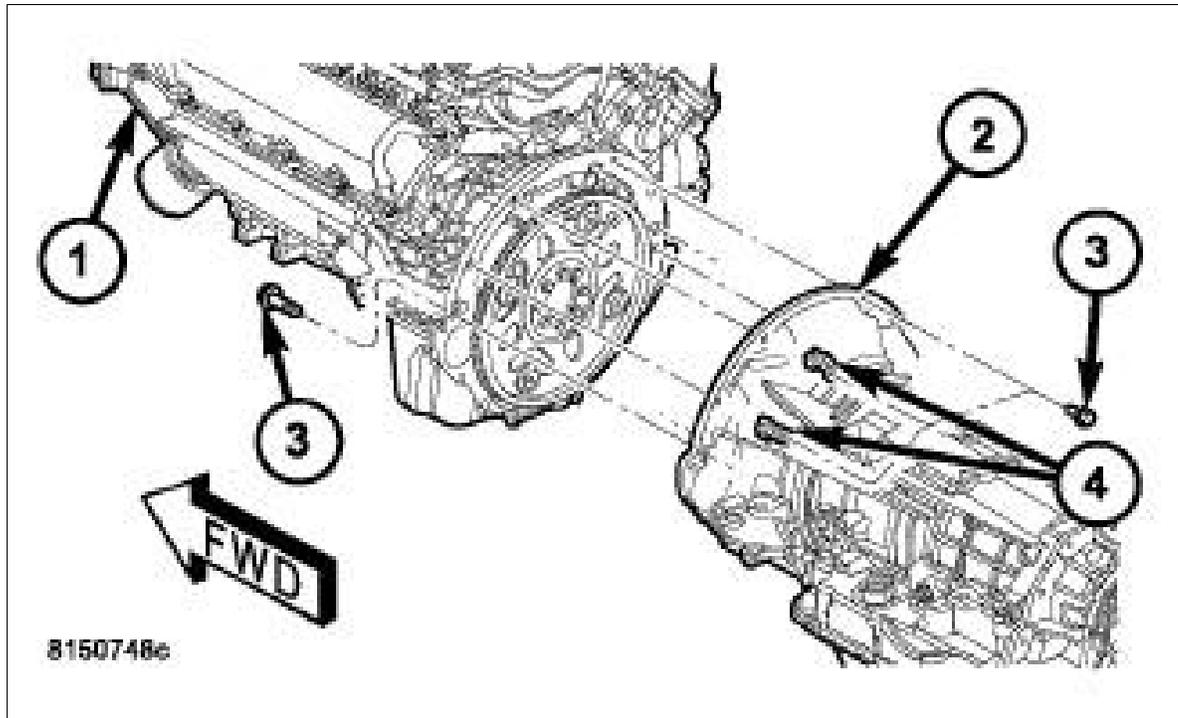


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Courtesy of CHRYSLER GROUP, LLC

8. Install two bolts (1) to attach the transmission to the engine.

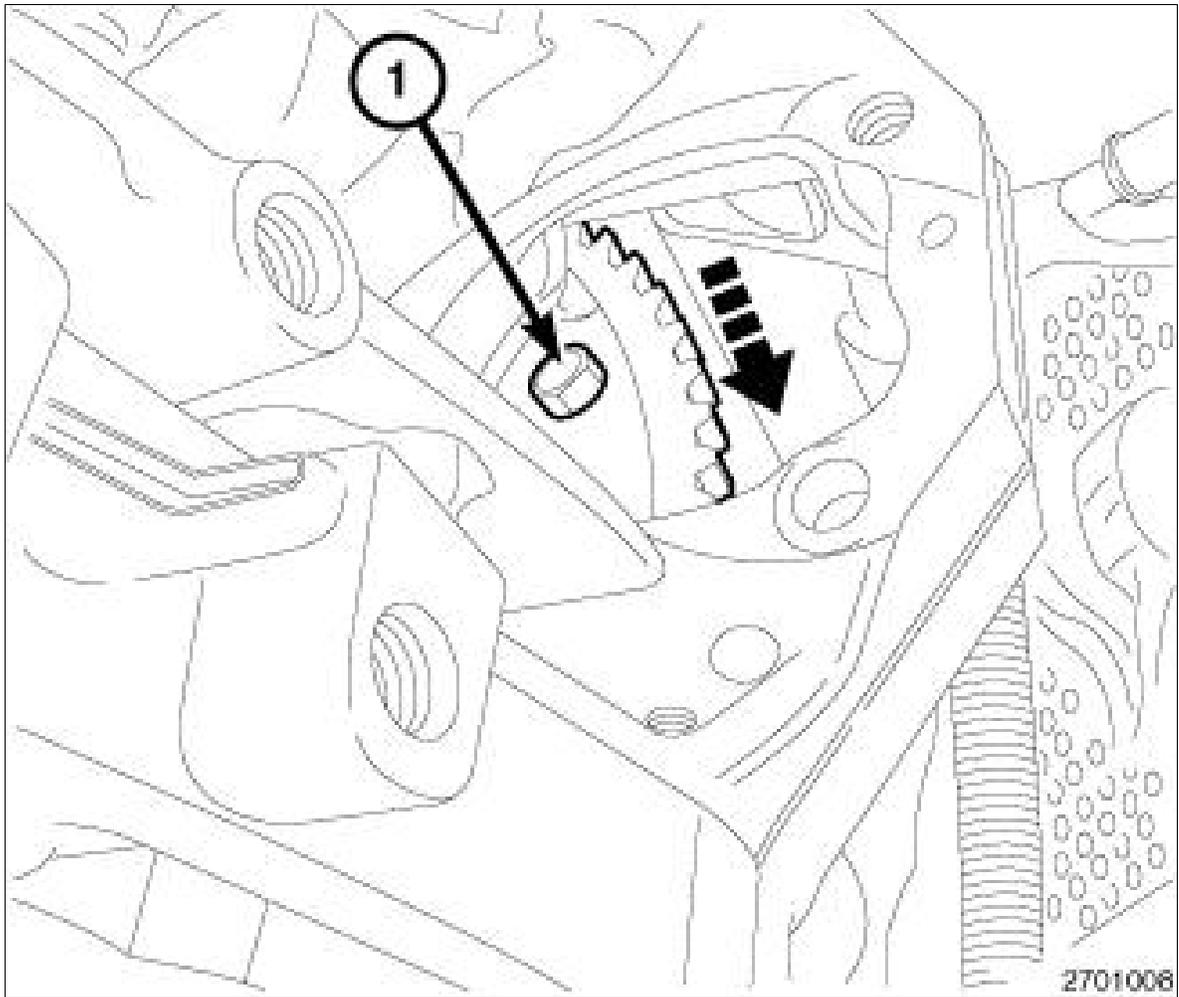
Fig 4: Removing/Installing Transmission To Engine Bolts



Courtesy of CHRYSLER GROUP, LLC

9. Install remaining torque converter housing to engine bolts (3 and 4). Tighten all torque converter housing bolts to 55 N.m (41 ft. lbs.).

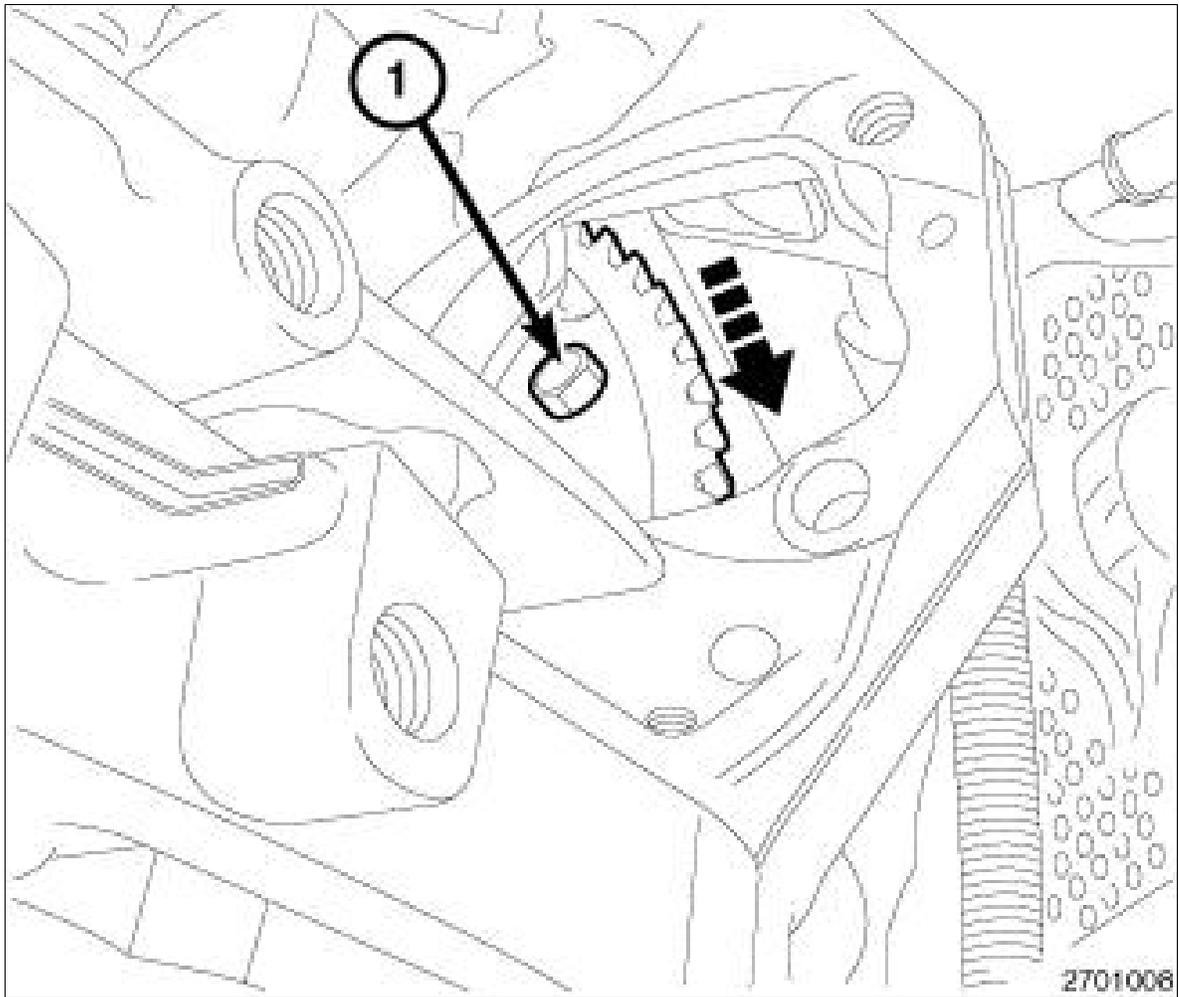
Fig 5: Torque Converter Bolt



Courtesy of CHRYSLER GROUP, LLC

10. Rotate the crankshaft in a clockwise direction to line up the alignment hole (1) in the flex plate, then start the first bolt.

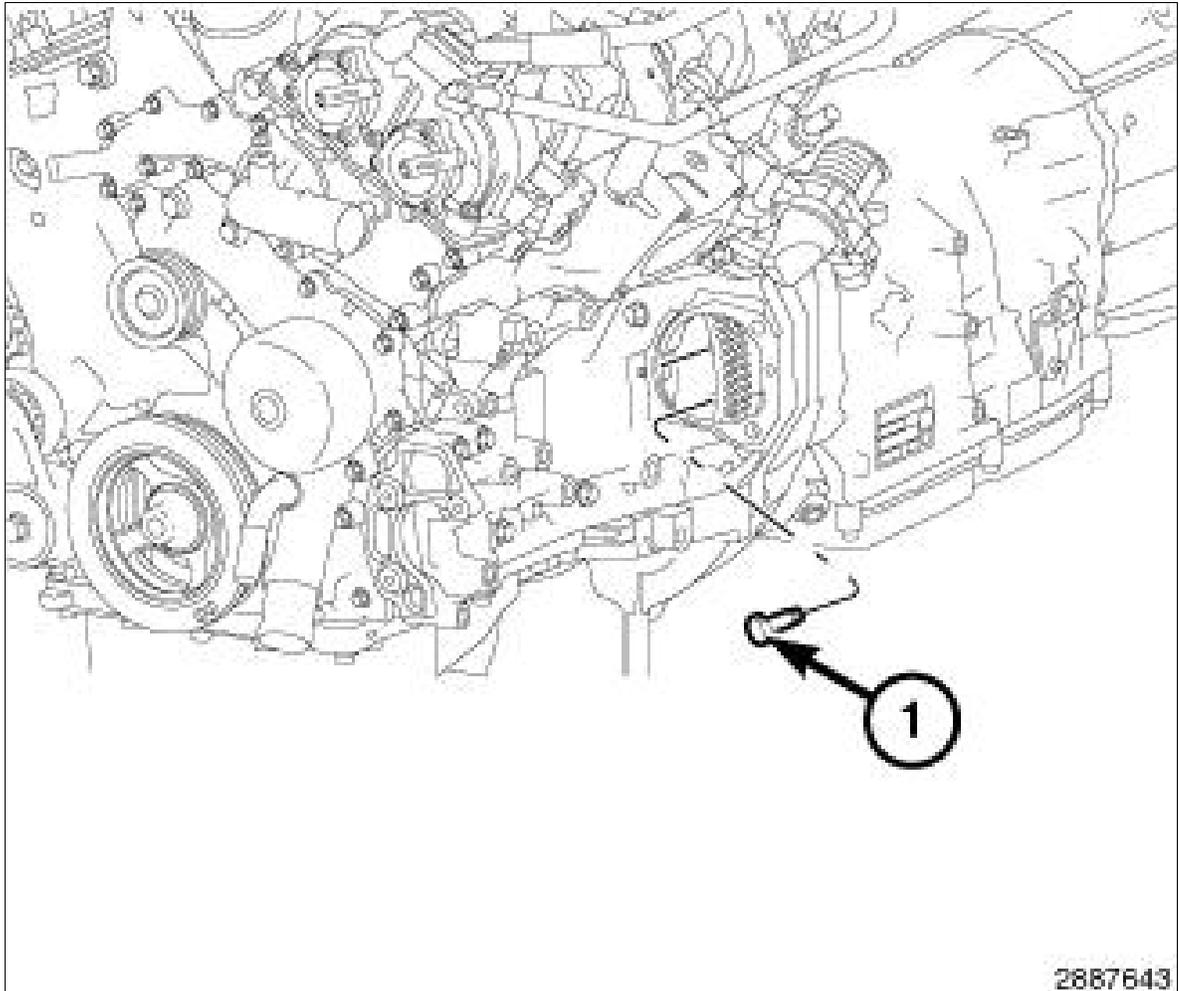
Fig 6: Torque Converter Bolt



Courtesy of CHRYSLER GROUP, LLC

11. Rotate the crankshaft in a clockwise direction until the converter bolts (1) are accessible.

Fig 7: Torque Converter Bolts



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Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*3.6L engine shown, diesel engine similar.*

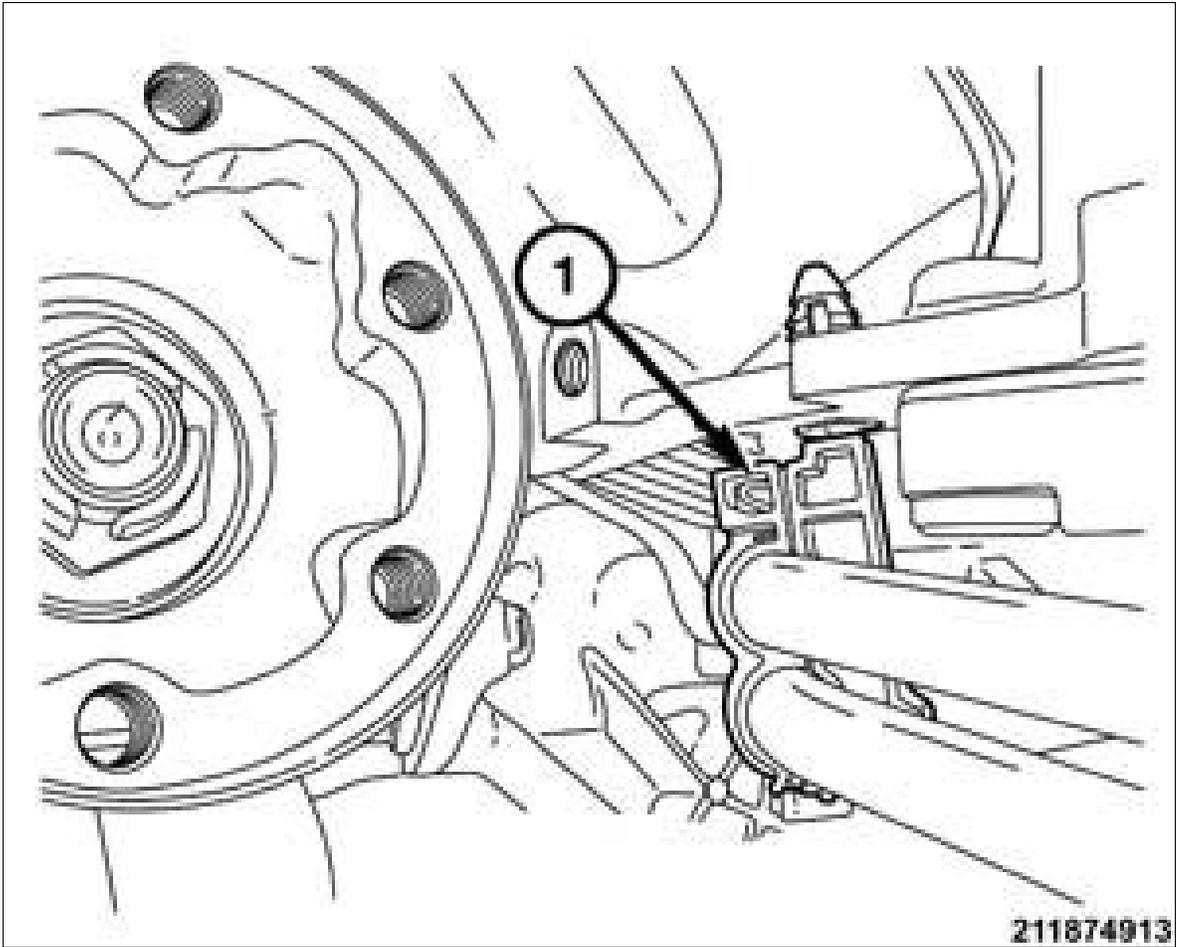
12. Install torque converter bolts (1) and torque to 42 N.m (31 ft. lbs.).

 **NOTE:**

*Install all torque converter bolts (1) by hand first. There are 3 sets of two bolts 120° apart.*



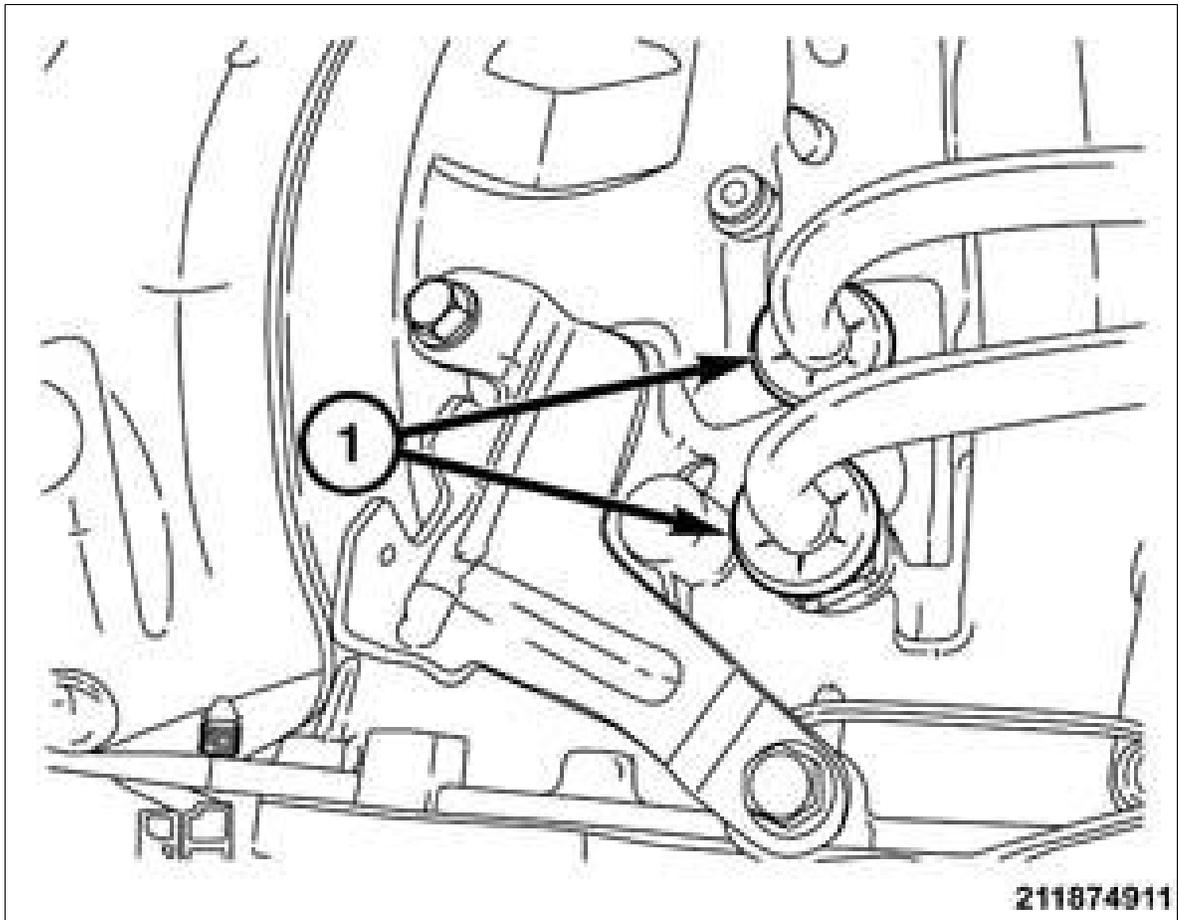
Fig 9: Cooler Line Clip



Courtesy of CHRYSLER GROUP, LLC

14. Connect left front transmission line clip (1).
15. Connect the transmission vent hose.

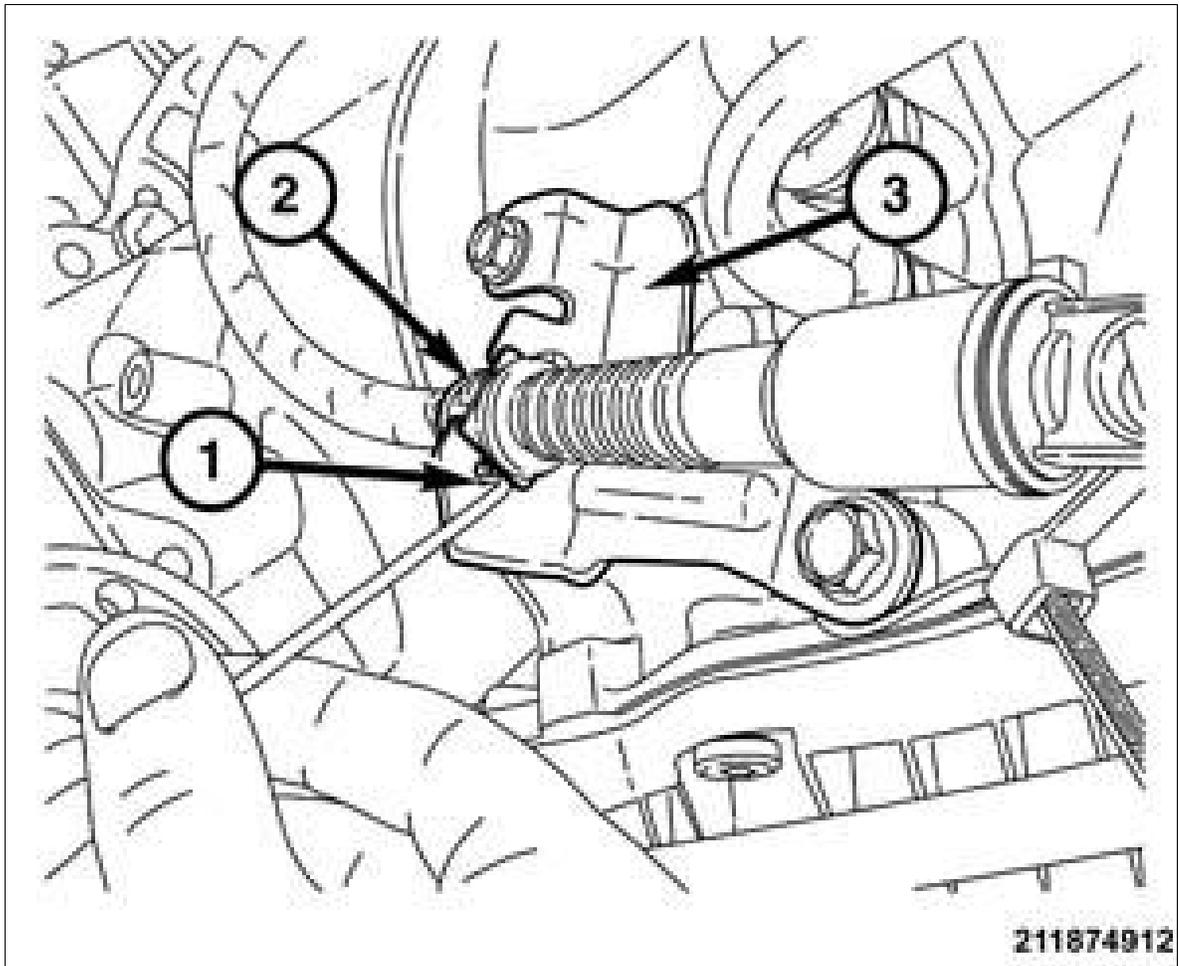
Fig 10: Locking Covers



Courtesy of CHRYSLER GROUP, LLC

16. Connect the transmission cooler lines. Be sure that the lines are fully seated.
17. Snap the Jiffy Tite lock (1) over the line fitting.

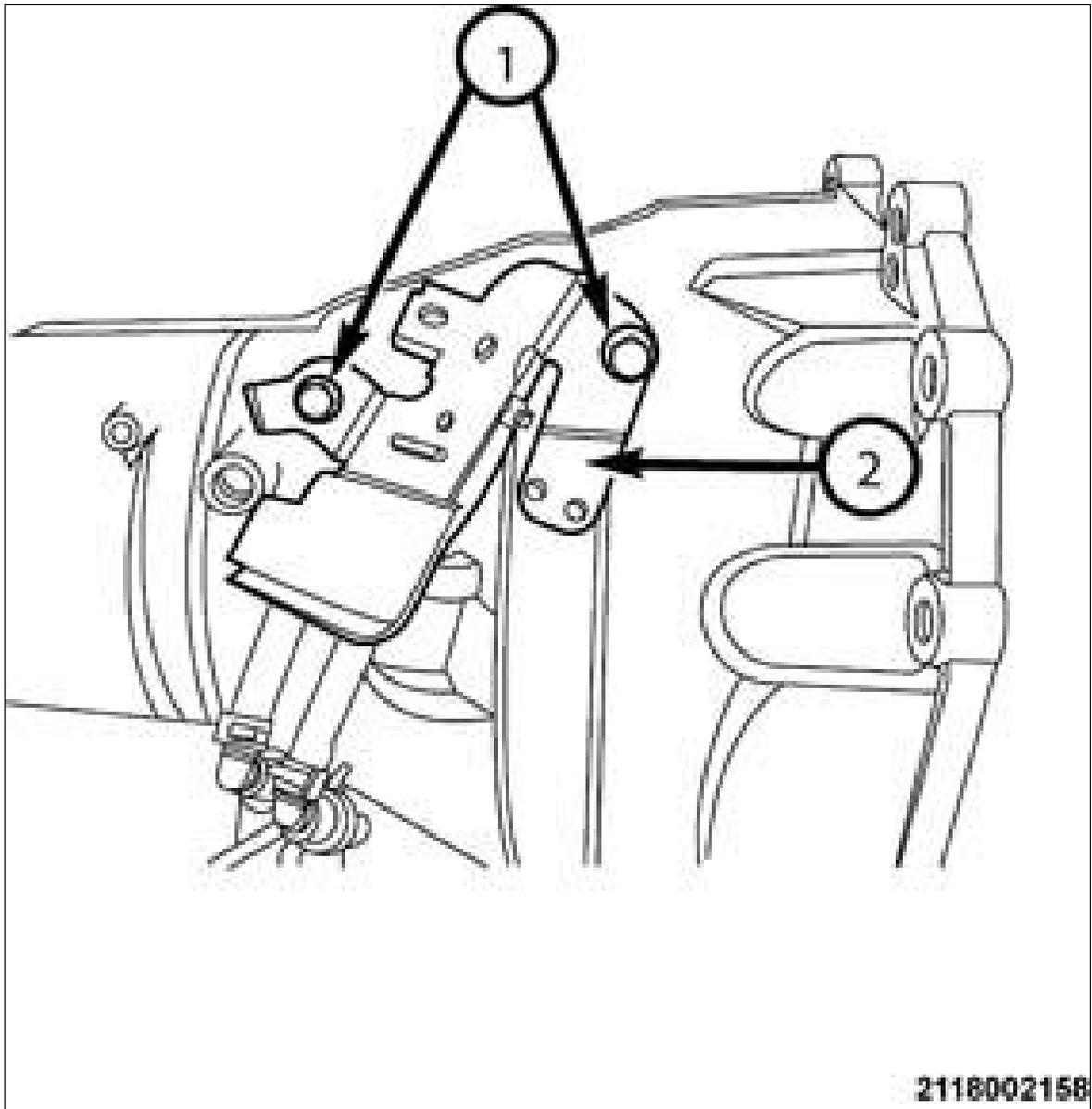
Fig 11: Locking Tab, MPR Cable & Bracket



Courtesy of CHRYSLER GROUP, LLC

18. Install the MPR cable (2) into the bracket (3) and lock into place.

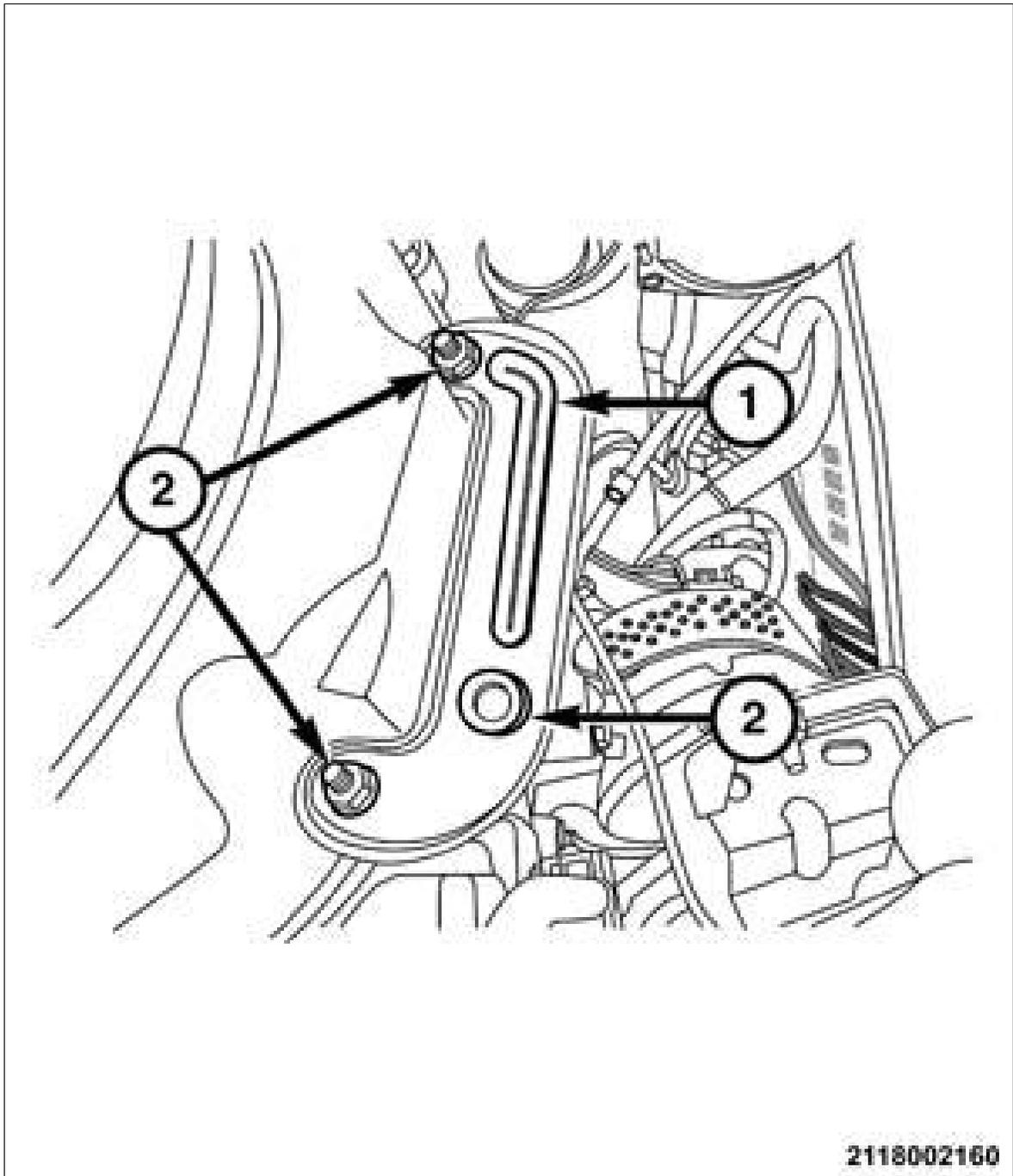
Fig 12: Differential Pressure Sensor Bracket & Bolts



Courtesy of CHRYSLER GROUP, LLC

19. Install the differential pressure sensor bracket (1) onto the right side of the torque converter housing and torque to 10 N.m (89 in. lbs.).

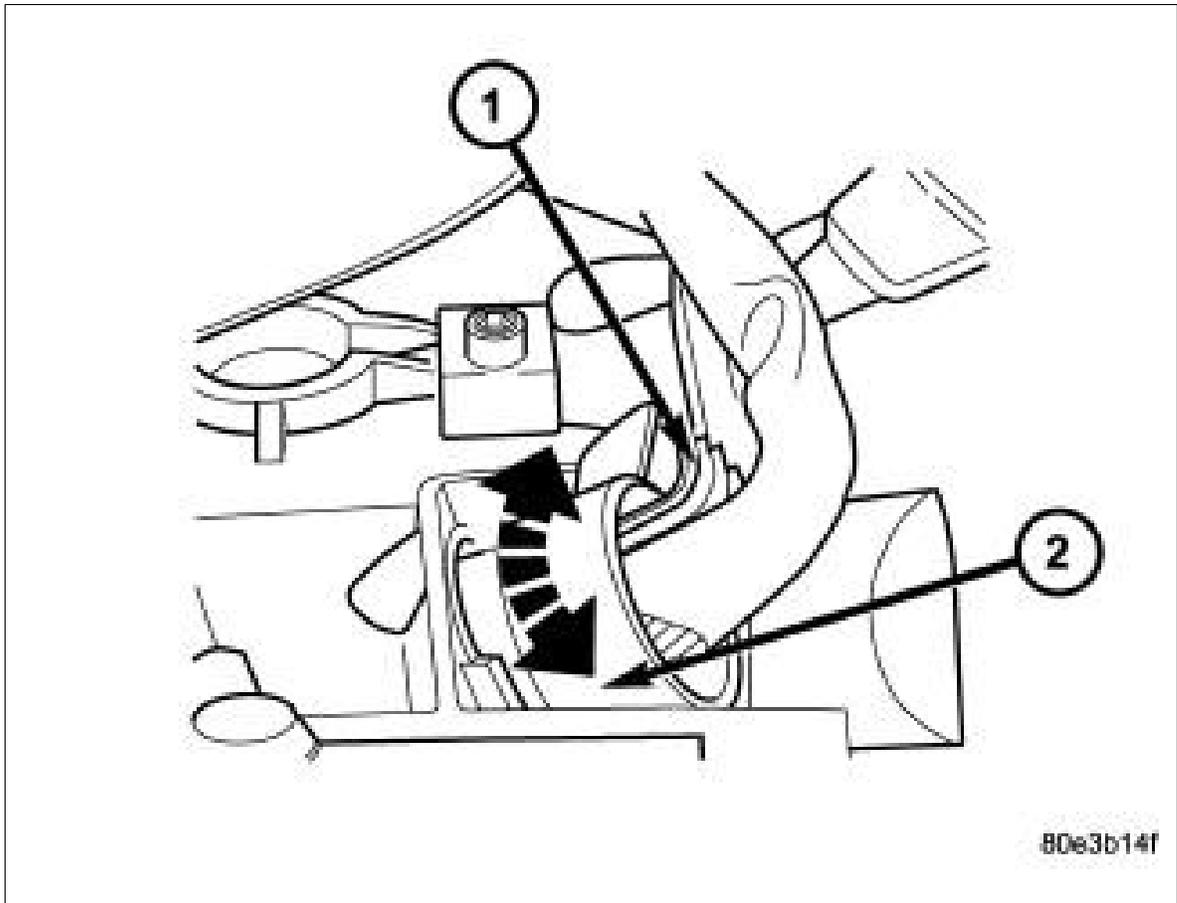
Fig 13: Exhaust Bracket & Bolts



Courtesy of CHRYSLER GROUP, LLC

20. Install the exhaust to transmission case bracket. Tighten the nuts to 25 N.m (18 ft. lbs.).

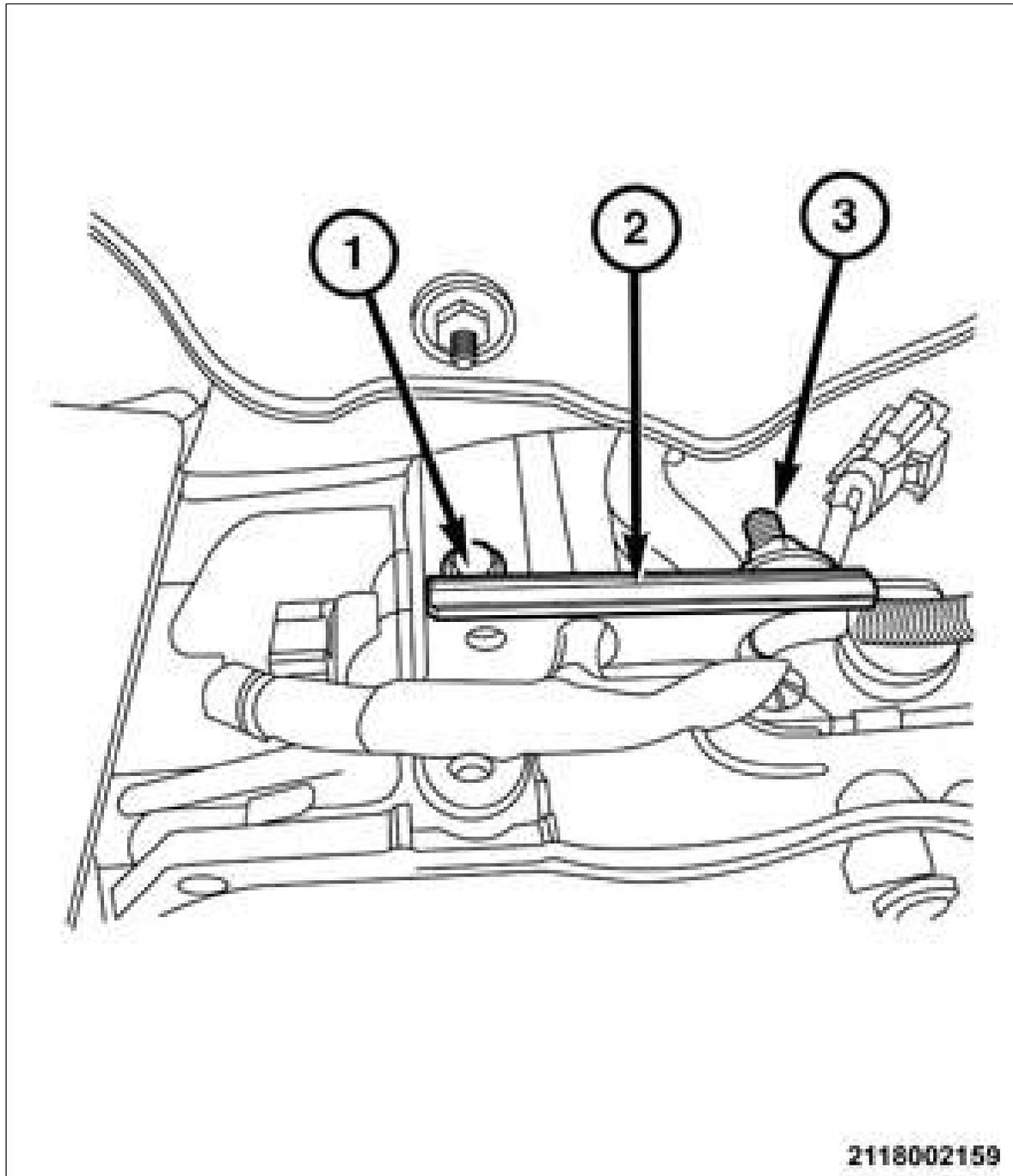
Fig 14: Removing/Installing Wiring Connector Plug



Courtesy of CHRYSLER GROUP, LLC

21. Check O-ring on plug connector (1), and replace if necessary.
22. Install the plug connector (1) into the adapter plug (2). Turn bayonet lock of the adapter plug (2) clockwise to connect plug connector (1).

Fig 15: 13-Pin Connector Bracket & Bolts

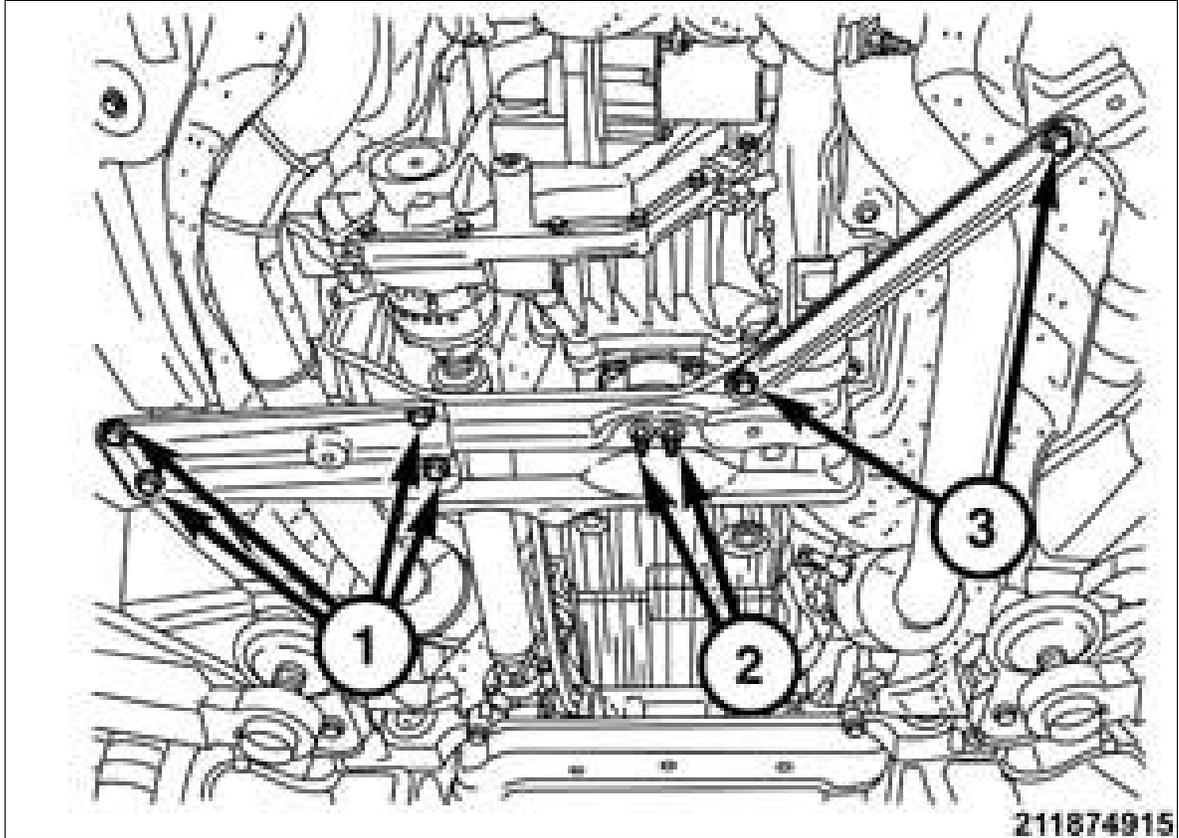


Courtesy of CHRYSLER GROUP, LLC

23. Install the 13-way connector bracket to the transmission case and catalytic converter. Tighten bolts to 25 N.m (18 ft.lbs.).
24. Install the transfer case. For MP2010, refer to INSTALLATION . For MP3010, refer to INSTALLATION . For MP3023, refer to INSTALLATION .
25. Install the starter. Refer to STARTER, INSTALLATION .
26. If 4WD, install the front propeller shaft heat shield.

27. If 4WD, install the front propeller shaft. Refer to SHAFT, DRIVE, FRONT, INSTALLATION .

Fig 16: Crossmember Bolts & Nuts



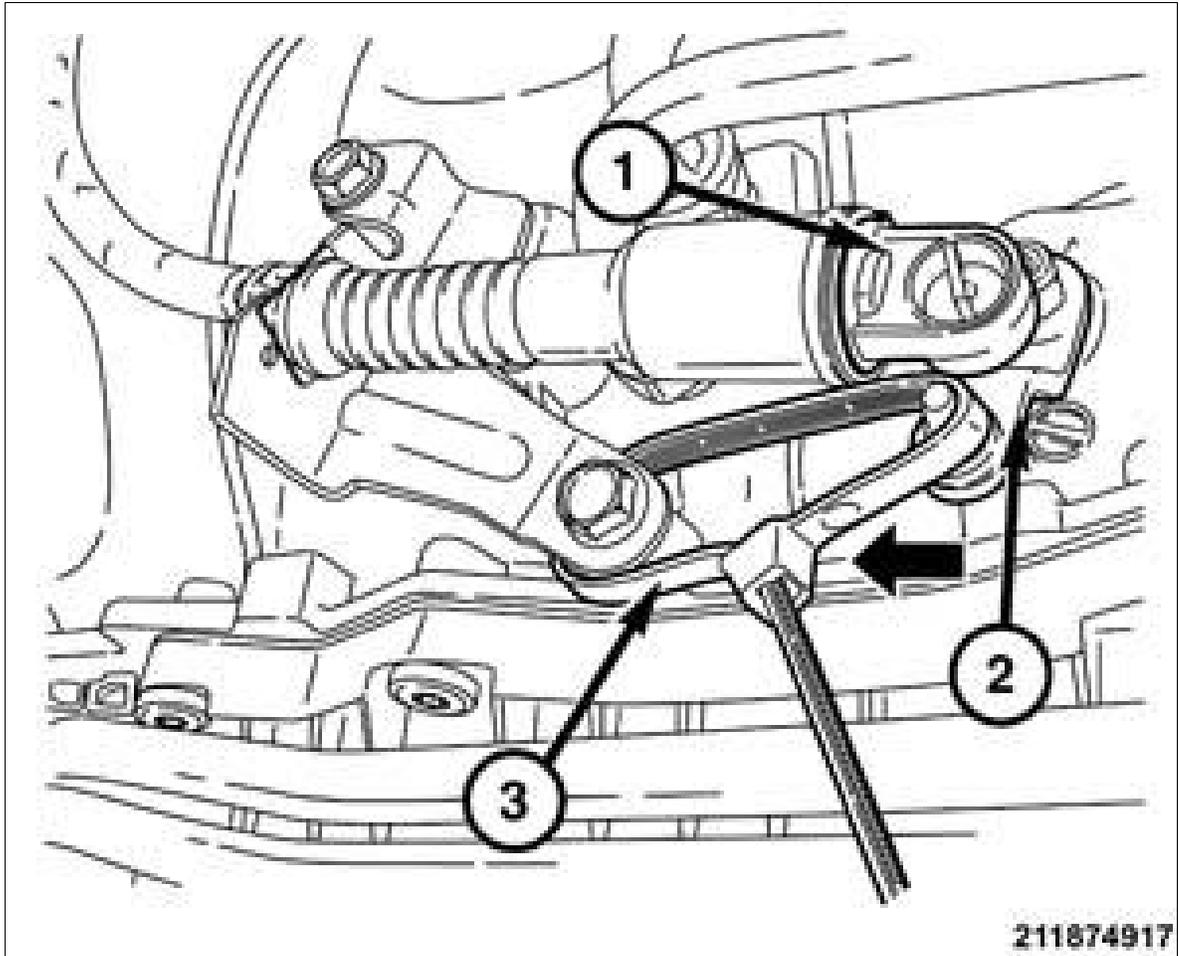
Courtesy of CHRYSLER GROUP, LLC

28. Install the cross-member and tighten bolts (1 and 3) to 68 N.m (50 ft. lbs.)

29. Install the transmission mount nuts (2) and torque to 47 N.m (35 ft. lbs.)

30. Install the rear propeller shaft. Refer to SHAFT, DRIVE, REAR, INSTALLATION .

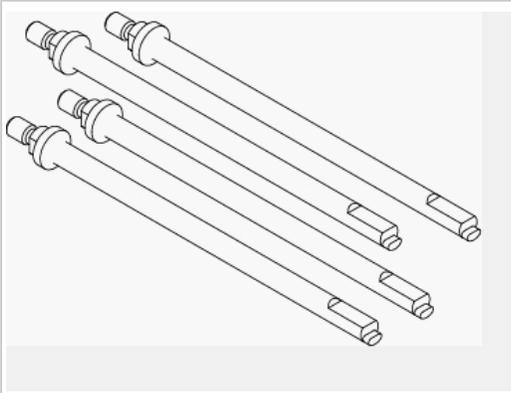
Fig 17: Mechanical Park Release Cable, Lever & Zip Tie



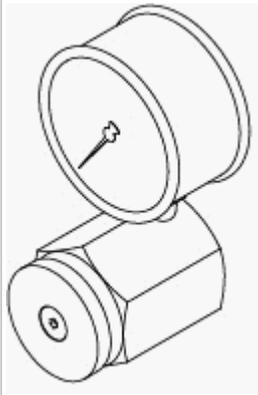
Courtesy of CHRYSLER GROUP, LLC

31. Remove the zip tie (3) from the MPR lever.
32. Connect the MPR cable (1) to the MPR lever (2).
33. Install heat shield for rear propeller shaft/muffler.
34. Install the Selective Range Catalyst (SRC). Refer to CATALYST, SELECTIVE CATALYTIC REDUCTION (SCR), INSTALLATION .
35. If equipped install skid plates and close out panels.
36. Fill the transmission with appropriate fluid. Refer to FLUID AND FILTER, STANDARD PROCEDURE .
37. Lower the vehicle.
38. Connect the battery negative cable.
39. If the valve body is replaced, program the Transmission Control Module (TCM). Refer to MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING .
40. Perform the TRANSMISSION VERIFICATION TEST. Refer to STANDARD PROCEDURE .

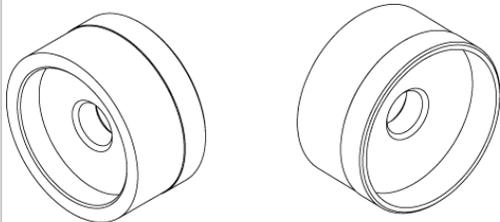
## SPECIAL TOOLS > SPECIAL TOOLS



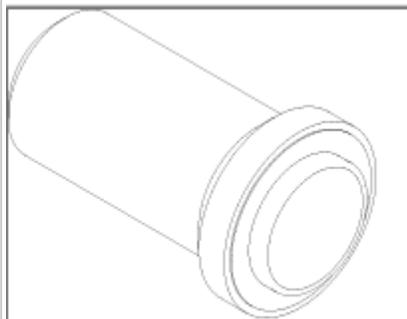
10428 - Adapter, Pressing Tool  
(Originally Shipped In Kit Number(s).)



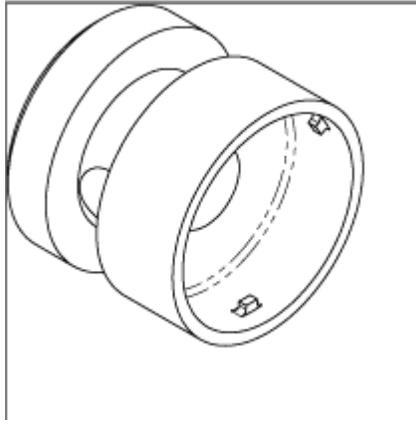
10429 - Gauge, Force  
(Originally Shipped In Kit Number(s) 10419.)



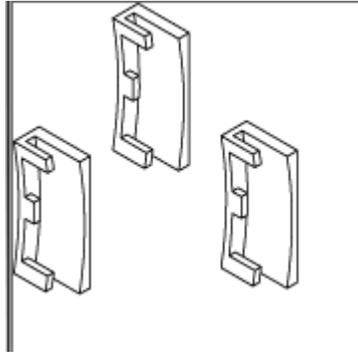
10373A - Installer, Output Needle Bearing/Rear Oil Dam  
(Originally Shipped In Kit Number(s) 10394A.)



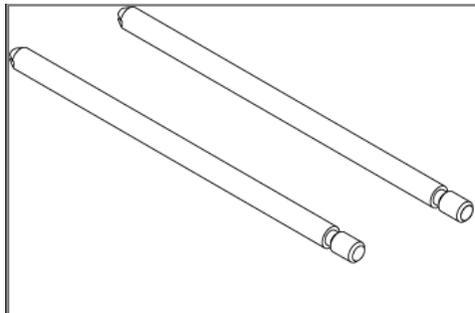
10375 - Installer, Oil Pump Cover Oil Seal



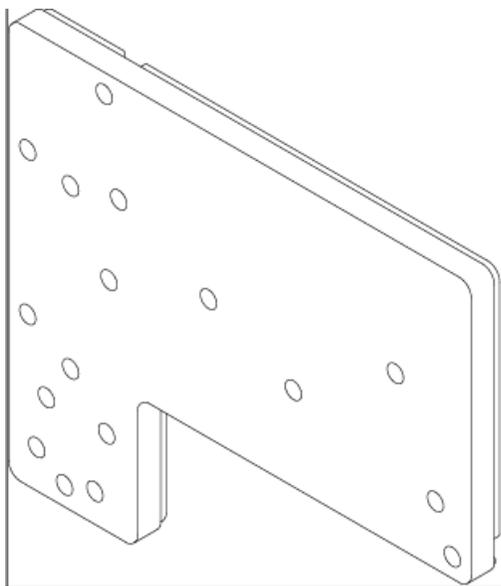
10377 - Remover/Installer, Guide Sleeve



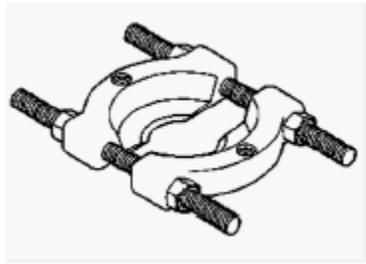
10378 - Rings, Support



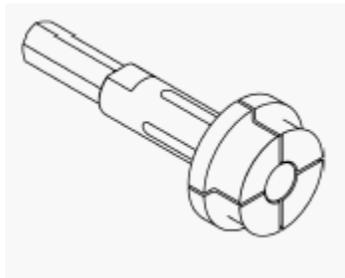
10379 - Pins, Valve Body Alignment



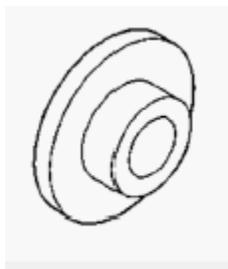
10383 - Plate, Clutch Pressure Test



1130 - Splitter, Bearing/Gear  
(Originally Shipped In Kit Number(s) 6745, 6947, 6949, 9202, 9202A-CAN, 9202CC, 9299.)



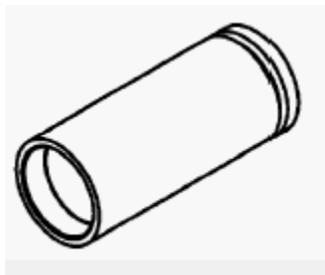
6787A - Remover, Bearing Cup  
(Originally Shipped In Kit Number(s) 6784, 6809.)



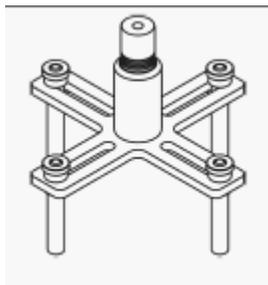
6936 - Spacer  
(Originally Shipped In Kit Number(s) 6945, 6946, 6947, 6948.)



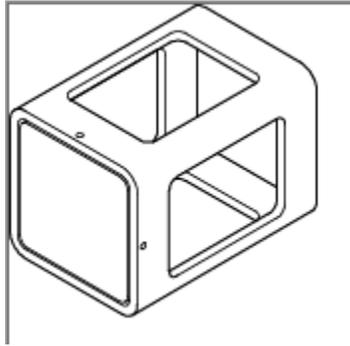
8285 - Compressor, Spring  
(Originally Shipped In Kit Number(s) 8283, 8283CC, 8527, 8527CC, 8575, 8575CC, 9975.)



8481 - Installer, Gear  
(Originally Shipped In Kit Number(s) 8708, 8708CC.)



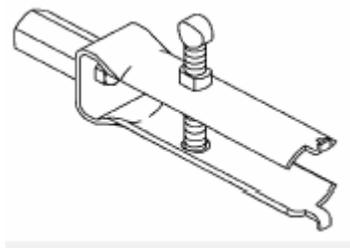
8901A - Pressing Tool  
(Originally Shipped In Kit Number(s) 8901A.)



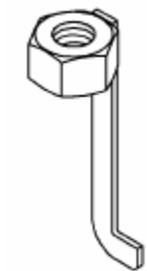
8925-3 - Assembly, Press Fixture  
(Originally Shipped In Kit Number(s) 8998, 8998CC.)



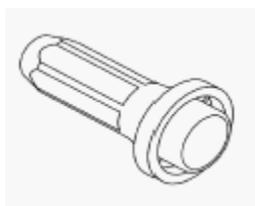
9585 - Remover, Bearing Cup  
(Originally Shipped In Kit Number(s) 9691.)



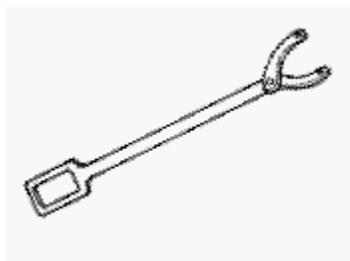
9664 - Remover, Bearing Cup  
(Originally Shipped In Kit Number(s) 9675, 9685, 9695.)



9667 - Remover, Seal  
(Originally Shipped In Kit Number(s) 9691.)



9677 - Installer, Seal  
(Originally Shipped In Kit Number(s) 9675, 9685, 9695.)



C-3281 - Holder, Flange  
(Originally Shipped In Kit Number(s) 9202, 9202A-CAN,  
9202CC, 9299, 9299CC, 9299CC, 9300A-CAN.)

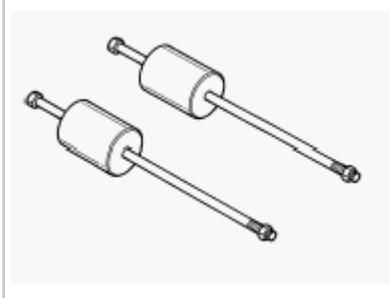
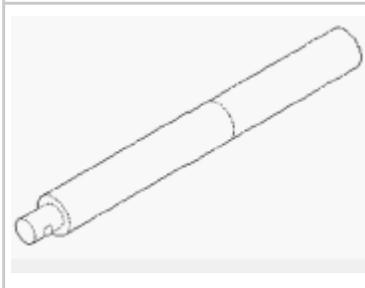
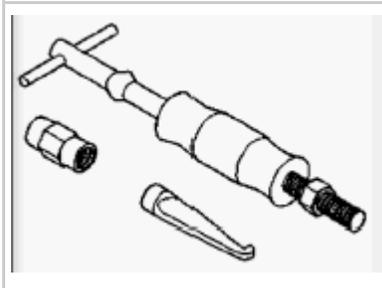
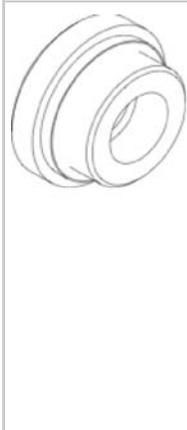
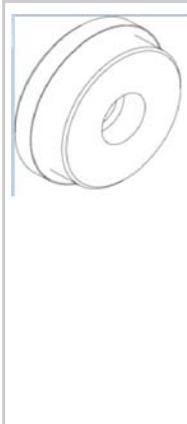
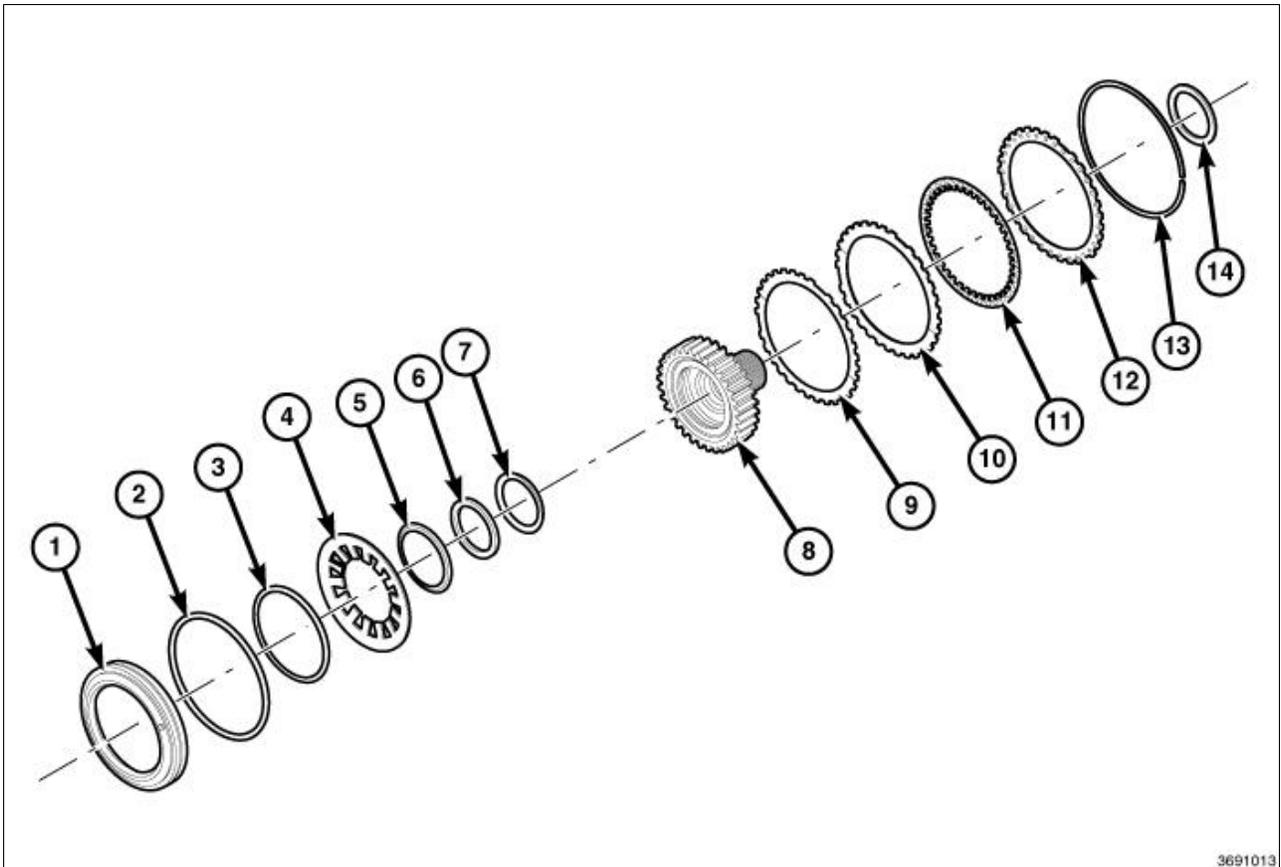
	<p>C-3752 - Slide Hammers  (Originally Shipped In Kit Number(s) 9202, 9202A-CAN, 9202-CAN, 9202CC.)</p>
	<p>C-4171 - Driver Handle, Universal  (Originally Shipped In Kit Number(s) 9202, 9202A-CAN, 9202CC, 9299, 9299CC, 9299CC, 9300A-CAN.)</p>
	<p>C-637 - Slide Hammer, Universal  (Originally Shipped In Kit Number(s) 9202.)</p>
	<p>10382 - Installer, Oil Pump Housing Needle Bearing  (Originally Shipped In Kit Number(s) 10394A, 10394-UPD.)</p>
	<p>10376 - Installer, Input Shaft Needle Bearing  (Originally Shipped In Kit Number(s) 10394A, 10394-UPD.)</p>

Fig 1: Exploded View Of A Clutch



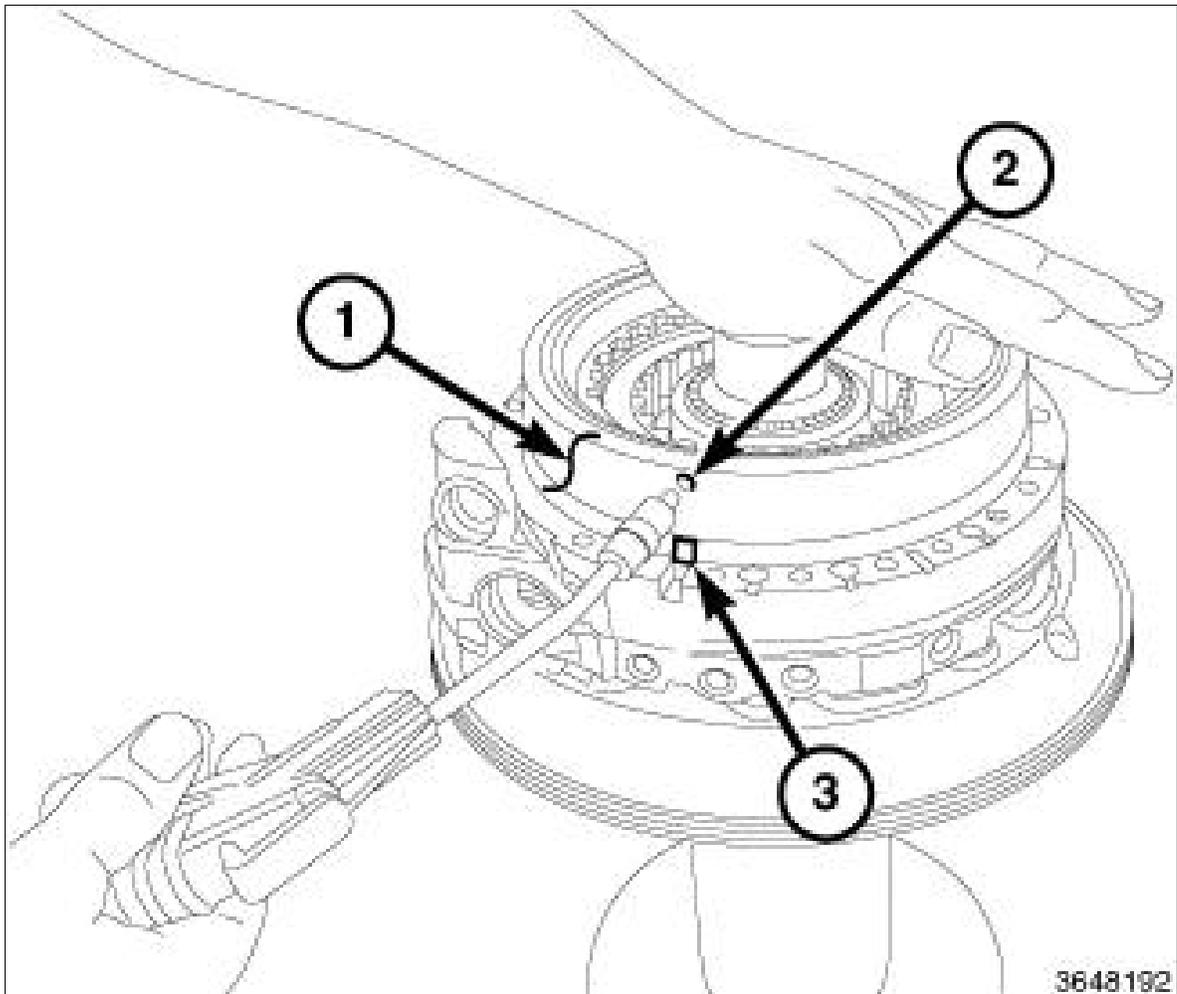
3691013

Courtesy of CHRYSLER GROUP, LLC

1 - A CLUTCH PISTON
2 - LIP SEAL
3 - LIP SEAL
4 - RETURN SPRING
5 - RING
6 - BEARING
7 - WASHER
8 - SUN GEAR
9 - WAVE SPRING
10 - SEPARATOR PLATE
11 - FRICTION PLATES
12 - END PLATE
13 - SNAP RING
14 - SELECTABLE SHIM

1. Remove the oil pump from the transmission case. Refer to PUMP, TRANSMISSION OIL, REMOVAL .

Fig 2: B-Piston, Hole & B-Piston Alignment Tab



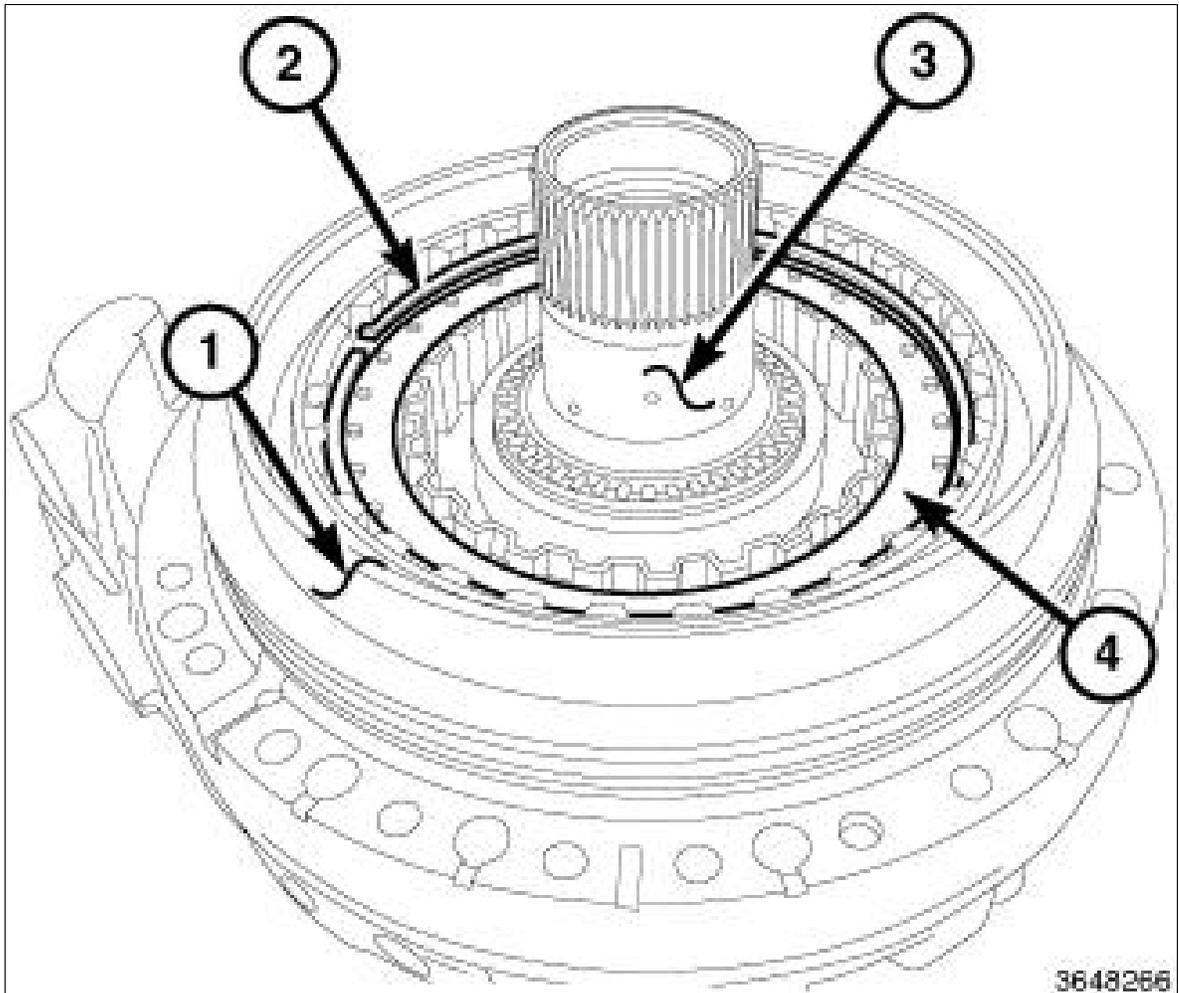
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Apply air pressure slowly, oil may spray when B-piston releases from the assembly.*

2. With one hand above B-piston (1), carefully apply air pressure into the hole directly above the B-piston alignment tab (3) to remove B-piston (2) from the assembly.

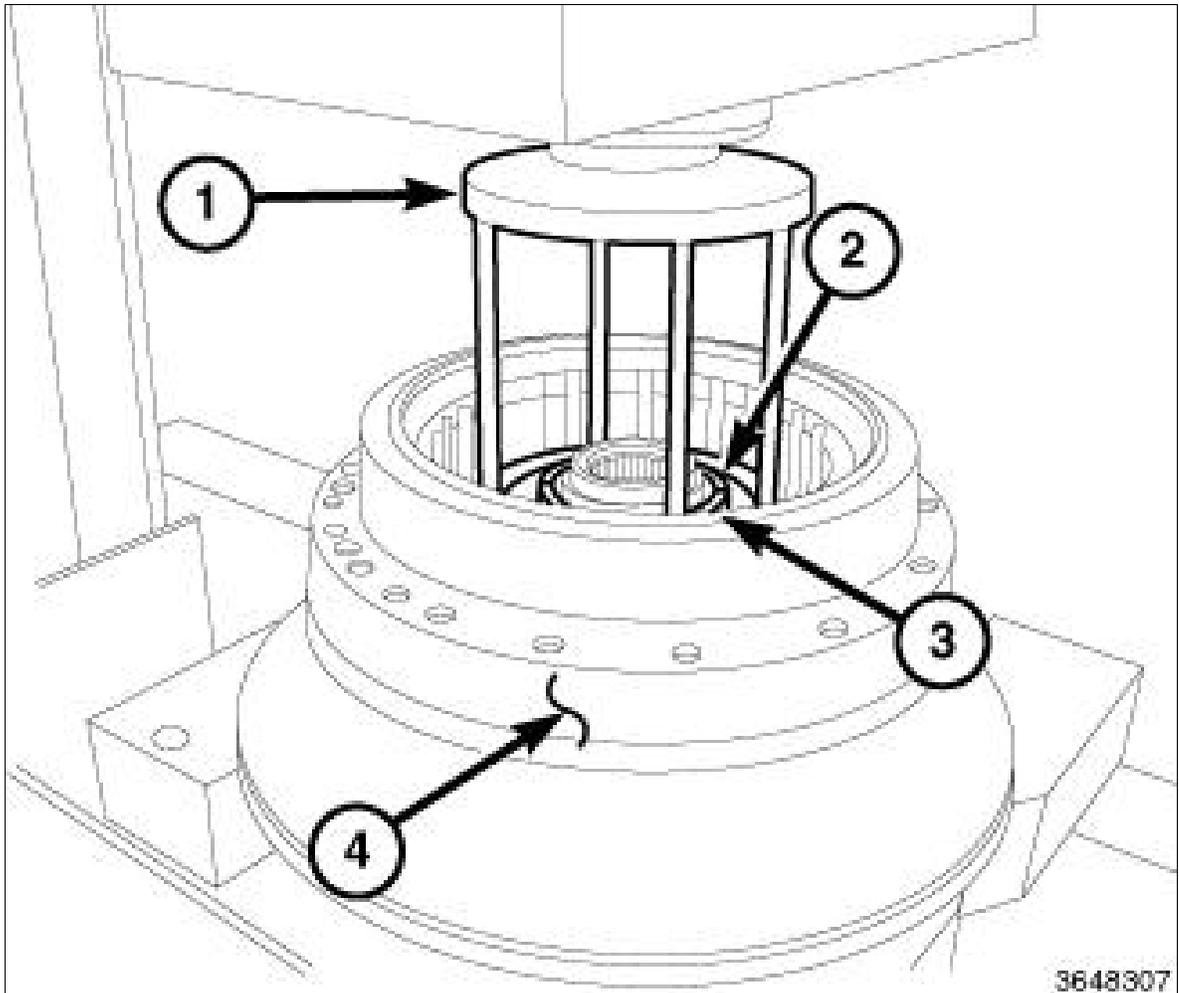
Fig 3: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

3. Remove the outer ring (1) (inside B-piston).
4. Remove the snap ring (2).
5. Remove the clutches and spacers (4).
6. Remove the hub (3).

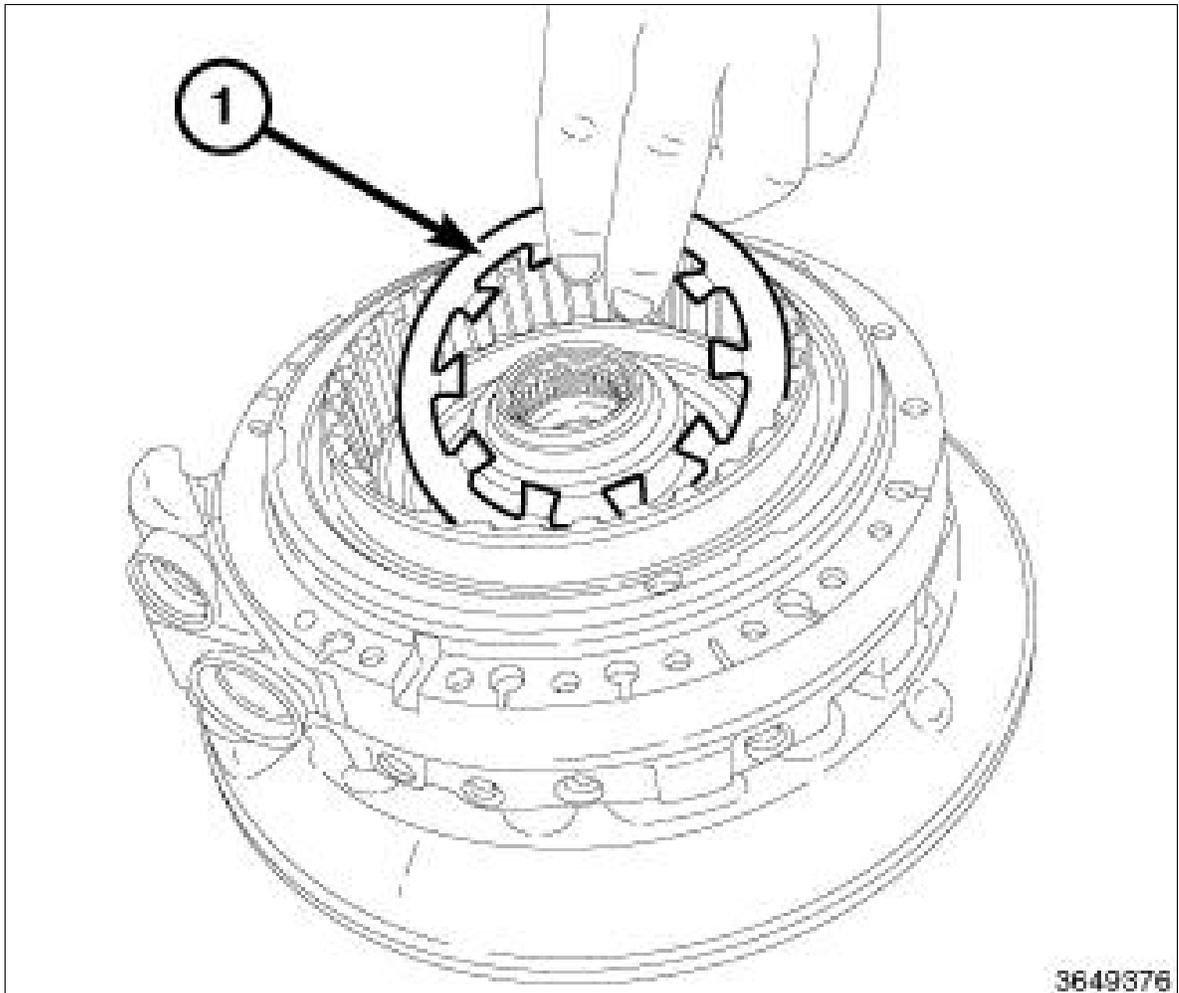
Fig 4: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

7. Position the oil pump housing assembly (4) in a suitable press.
8. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retainer to remove tension on the split retaining ring (2), and remove the two halves of the retaining ring (2).

Fig 5: Piston Retaining Ring And Piston



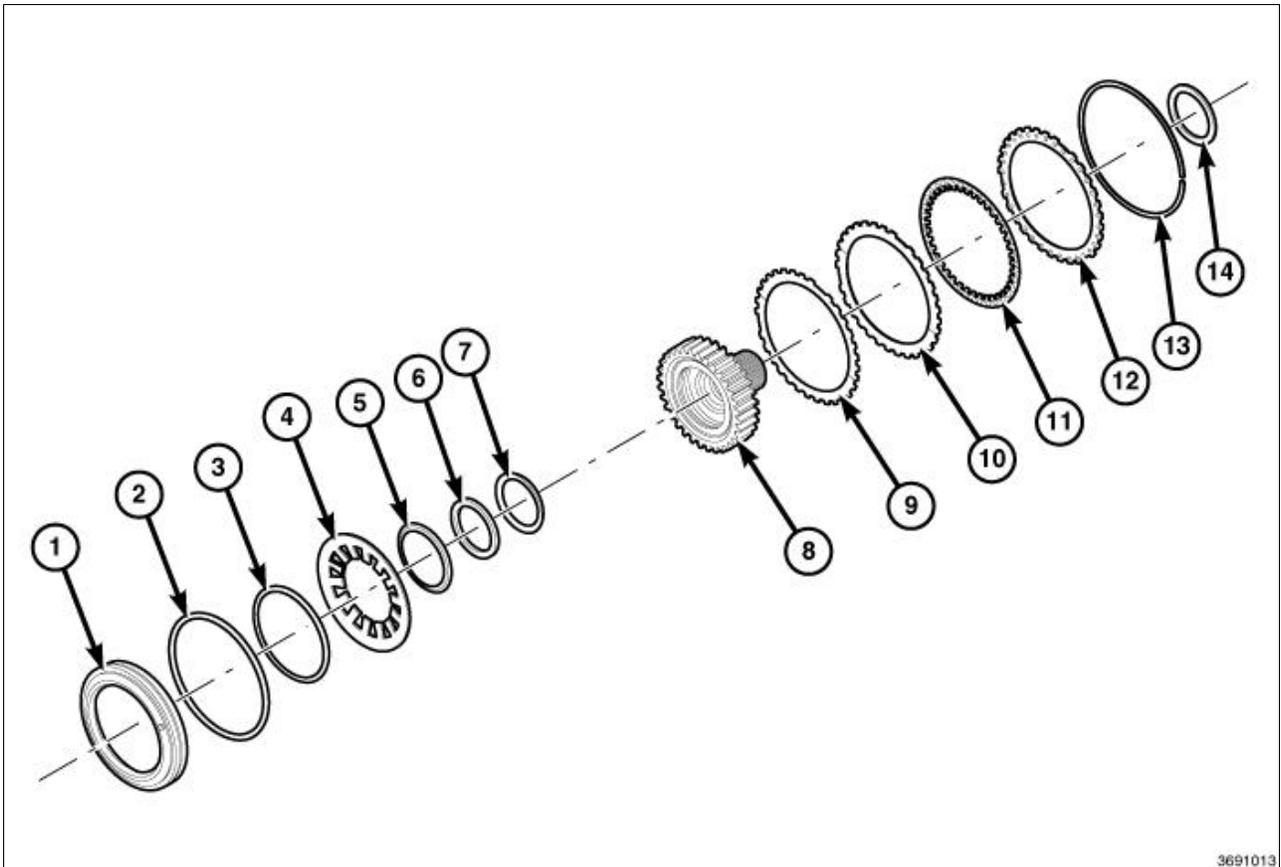
3649376

Courtesy of CHRYSLER GROUP, LLC

9. Remove the piston retainer and plate.

**CLUTCH, A > ASSEMBLY > ASSEMBLY**

Fig 1: Exploded View Of A Clutch



3691013

Courtesy of CHRYSLER GROUP, LLC

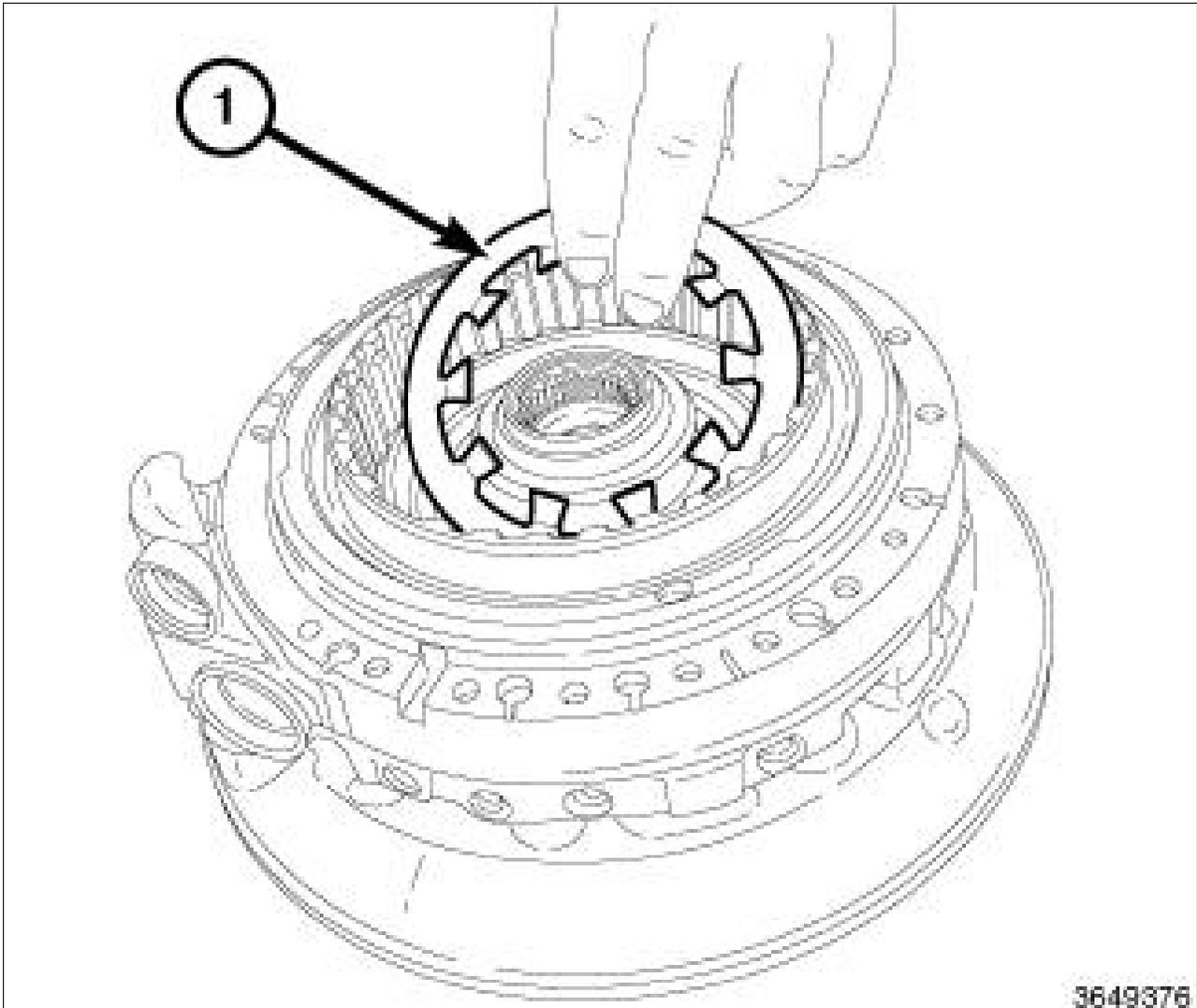
1 - A CLUTCH PISTON
2 - LIP SEAL
3 - LIP SEAL
4 - RETURN SPRING
5 - RING
6 - BEARING
7 - WASHER
8 - SUN GEAR
9 - WAVE SPRING
10 - SEPARATOR PLATE
11 - FRICTION PLATES
12 - END PLATE
13 - SNAP RING
14 - SELECTABLE SHIM



**NOTE:**

*If clutch discs are being replaced, soak in 8HP trans fluid before assembly.*

Fig 2: Piston Retaining Ring And Piston

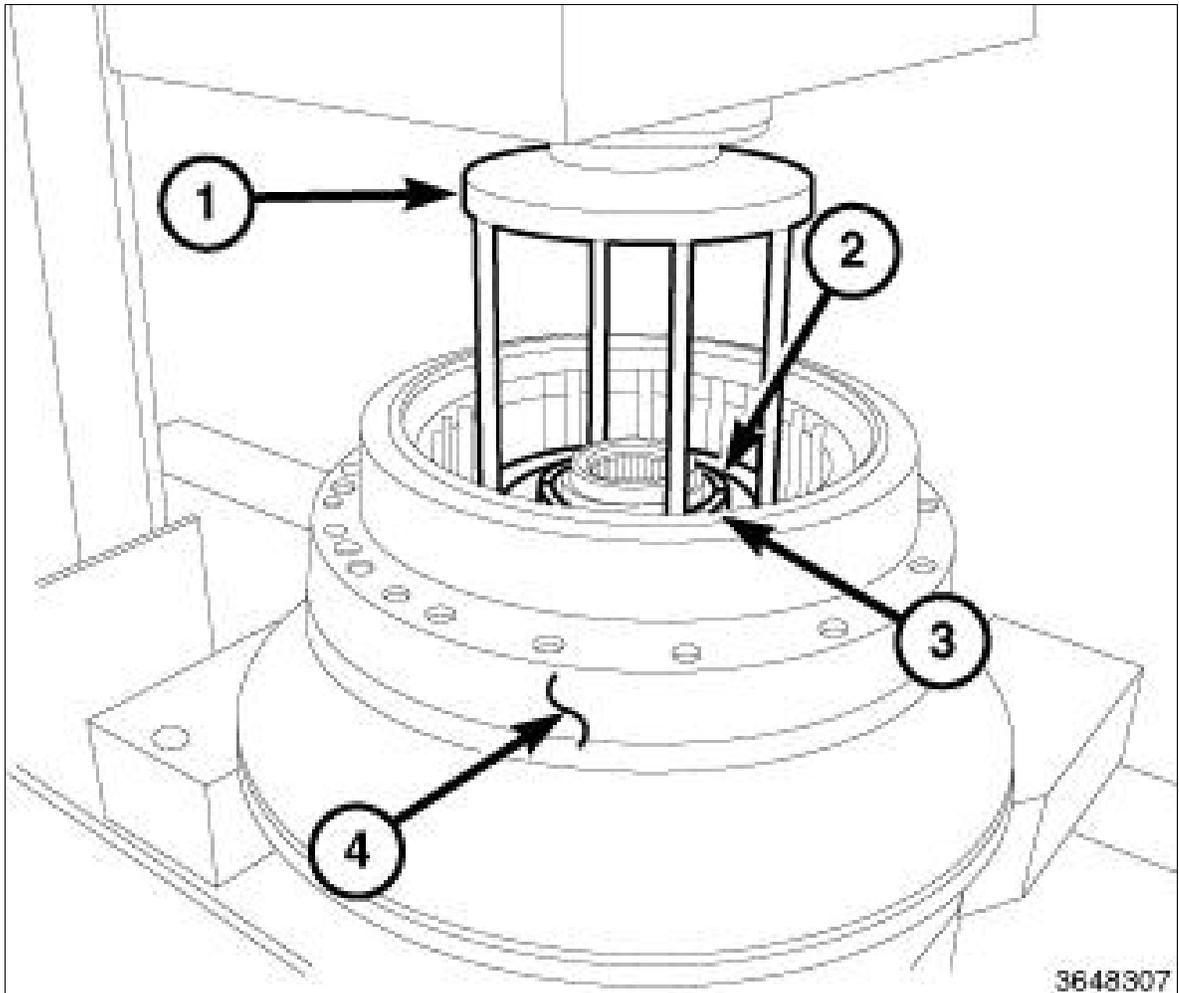


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Courtesy of CHRYSLER GROUP, LLC

1. Insert the piston and the retaining ring (1) into the housing.

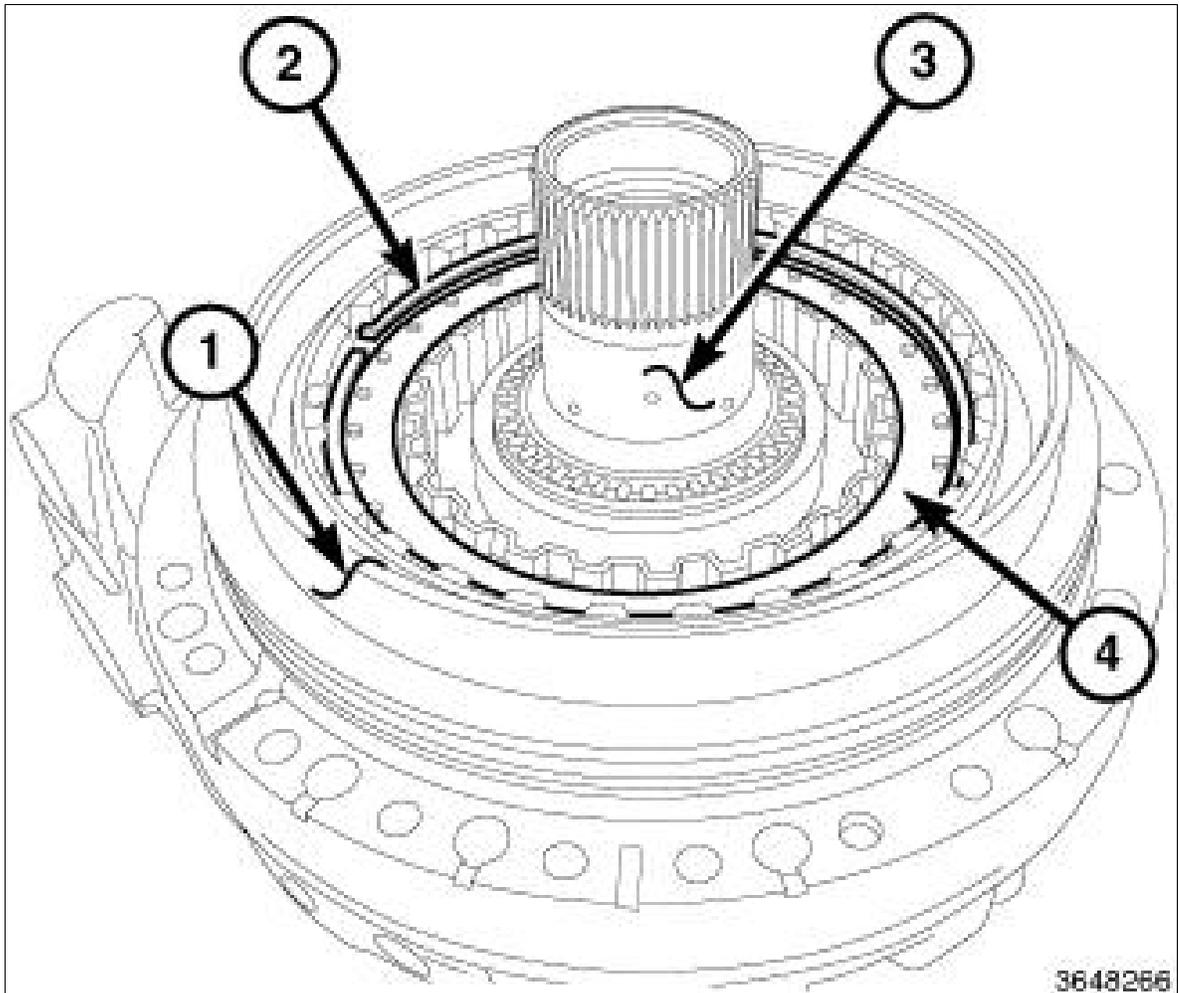
Fig 3: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

2. Position the oil pump housing assembly (4) in a suitable arbor press.
3. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retaining ring to remove tension, and install the two halves of the split retainer ring (2).

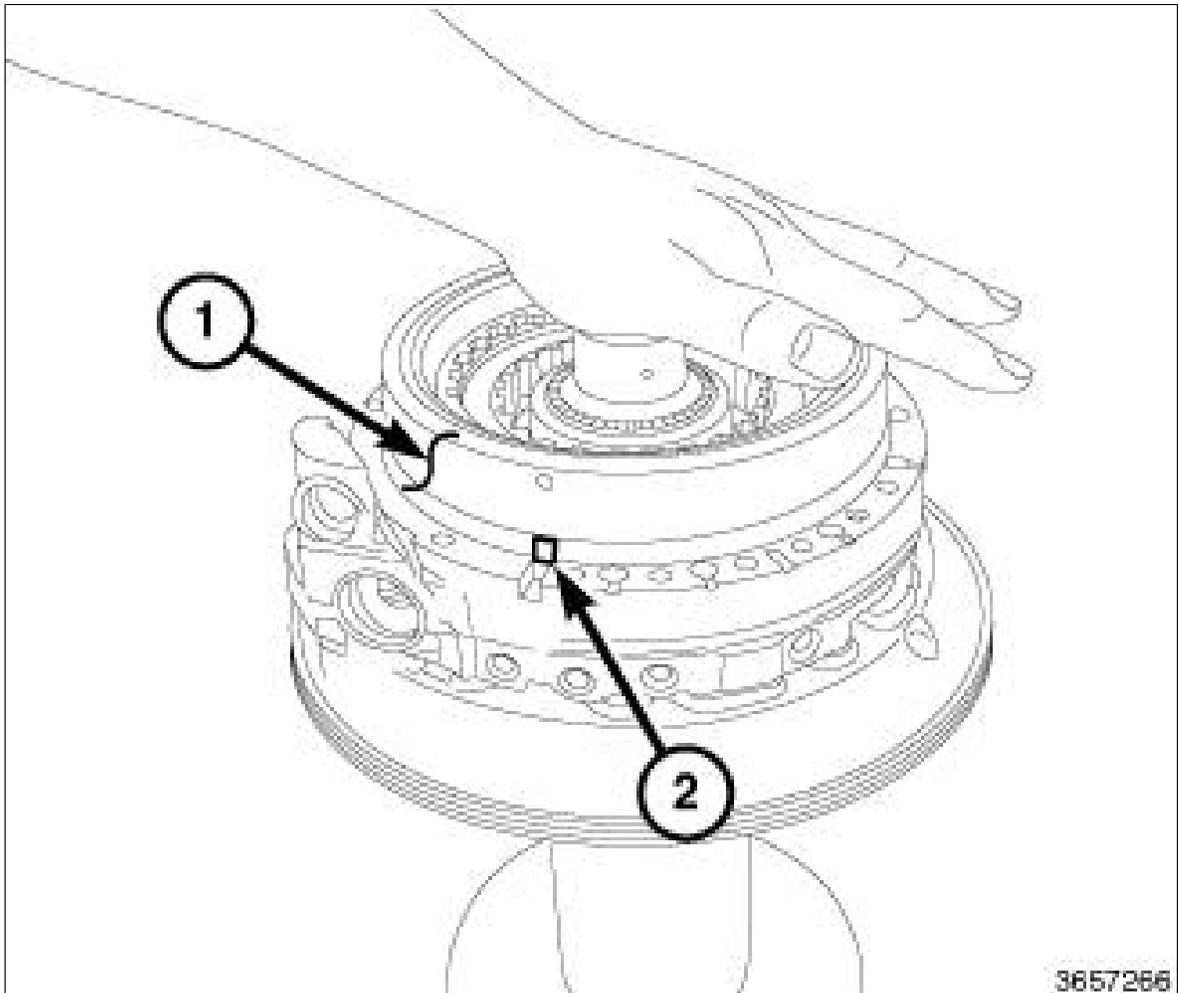
Fig 4: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

4. Install the hub (3).
5. Install the clutches and spacers (4).
6. Install the snap ring (2).
7. Install the outer ring (1) (below B-piston).

Fig 5: B-Piston Alignment Tab & B-Piston

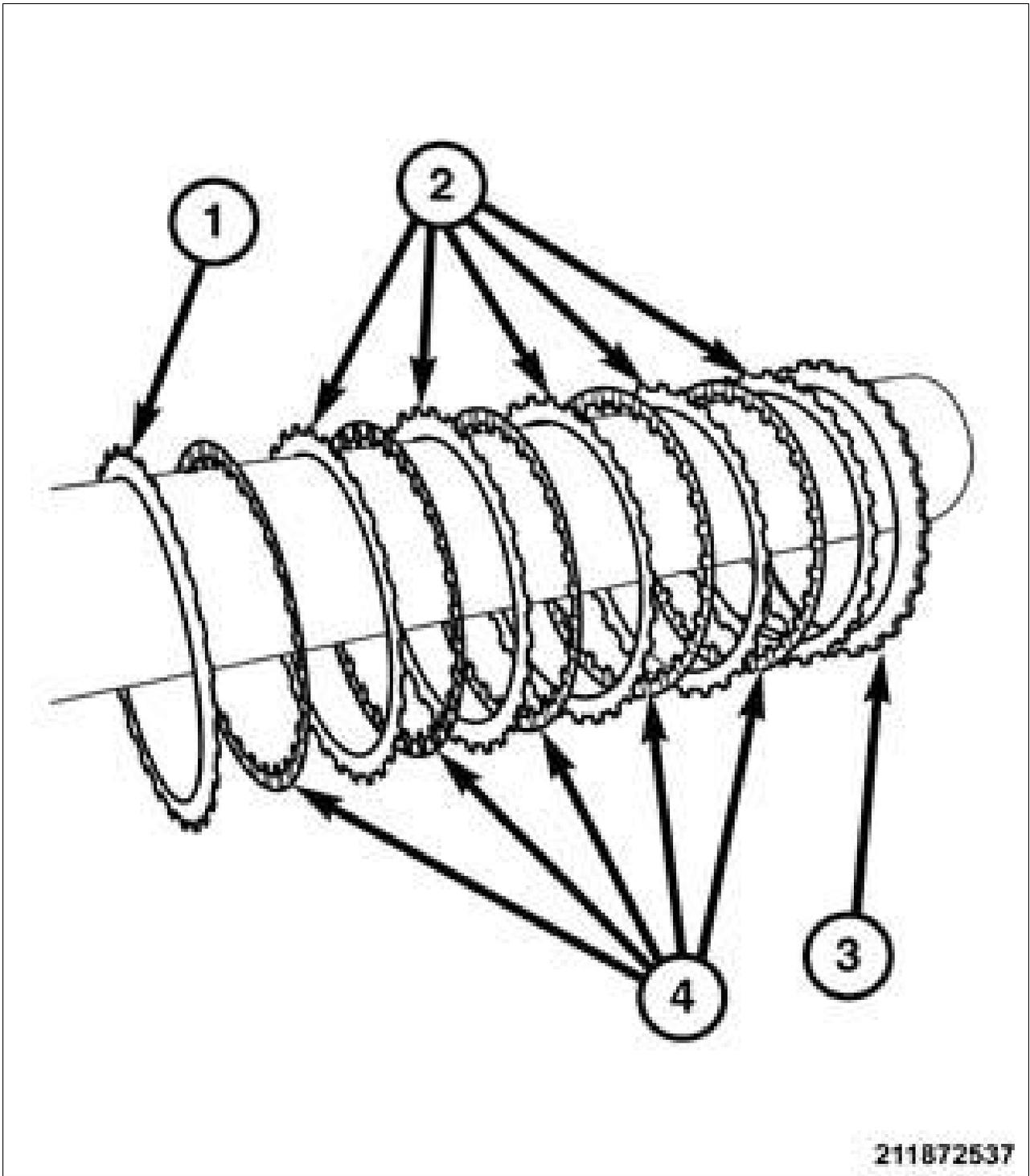


Courtesy of CHRYSLER GROUP, LLC

8. Position the B-piston alignment tab (2) above the notch and install B-piston (1) on the assembly.
9. Install the transmission oil pump. Refer to PUMP, TRANSMISSION OIL, INSTALLATION .

**CLUTCH, B > DISASSEMBLY > CLUTCH B DISASSEMBLY**

Fig 1: Wave, Steel, Backing & Friction Plates



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Courtesy of CHRYSLER GROUP, LLC

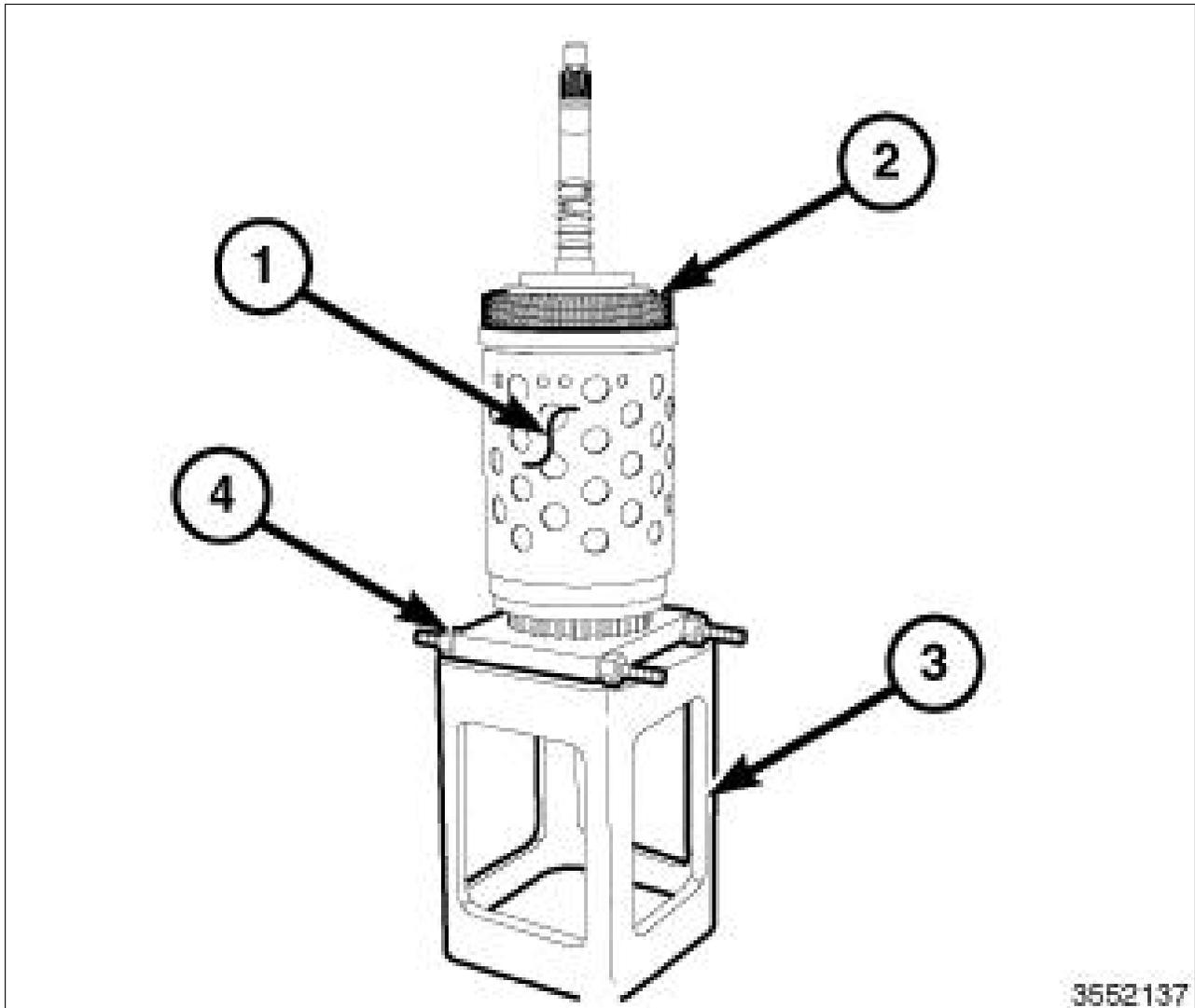
1. Wave plate

2. Steel plate

3. Backing plate

4. Friction plate

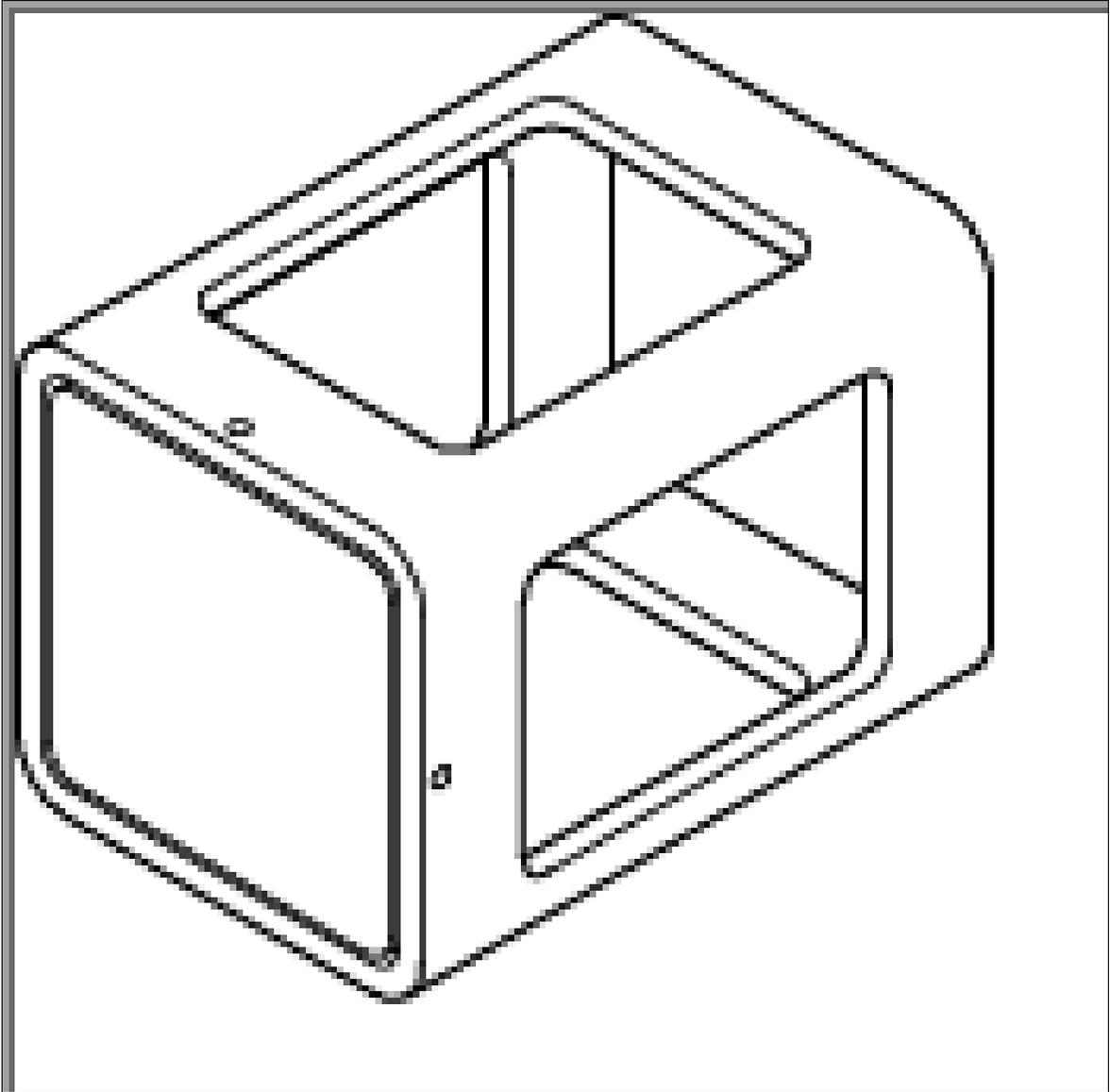
Fig 2: P4 Annulus Drum Assembly, Press Fixture Assembly & Bearing/Gear Splitter



Courtesy of CHRYSLER GROUP, LLC

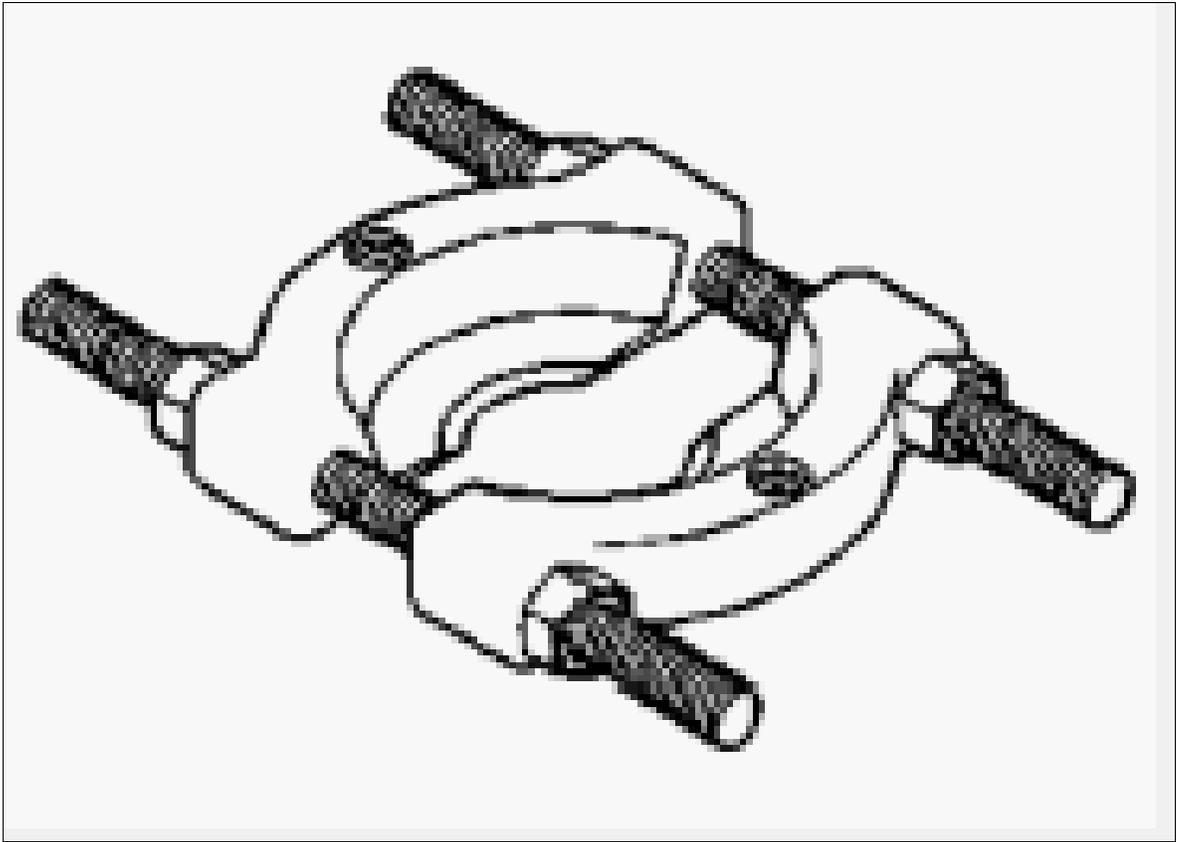
1. Position the input/output shaft and the P4 annulus drum assembly (1) on Assembly, Press Fixture 8925-3 (special tool #8925-3, Assembly, Press Fixture) and Splitter, Bearing/Gear 1130 (special tool #1130, Splitter, Bearing/Gear).

Fig 3: Press Fixture



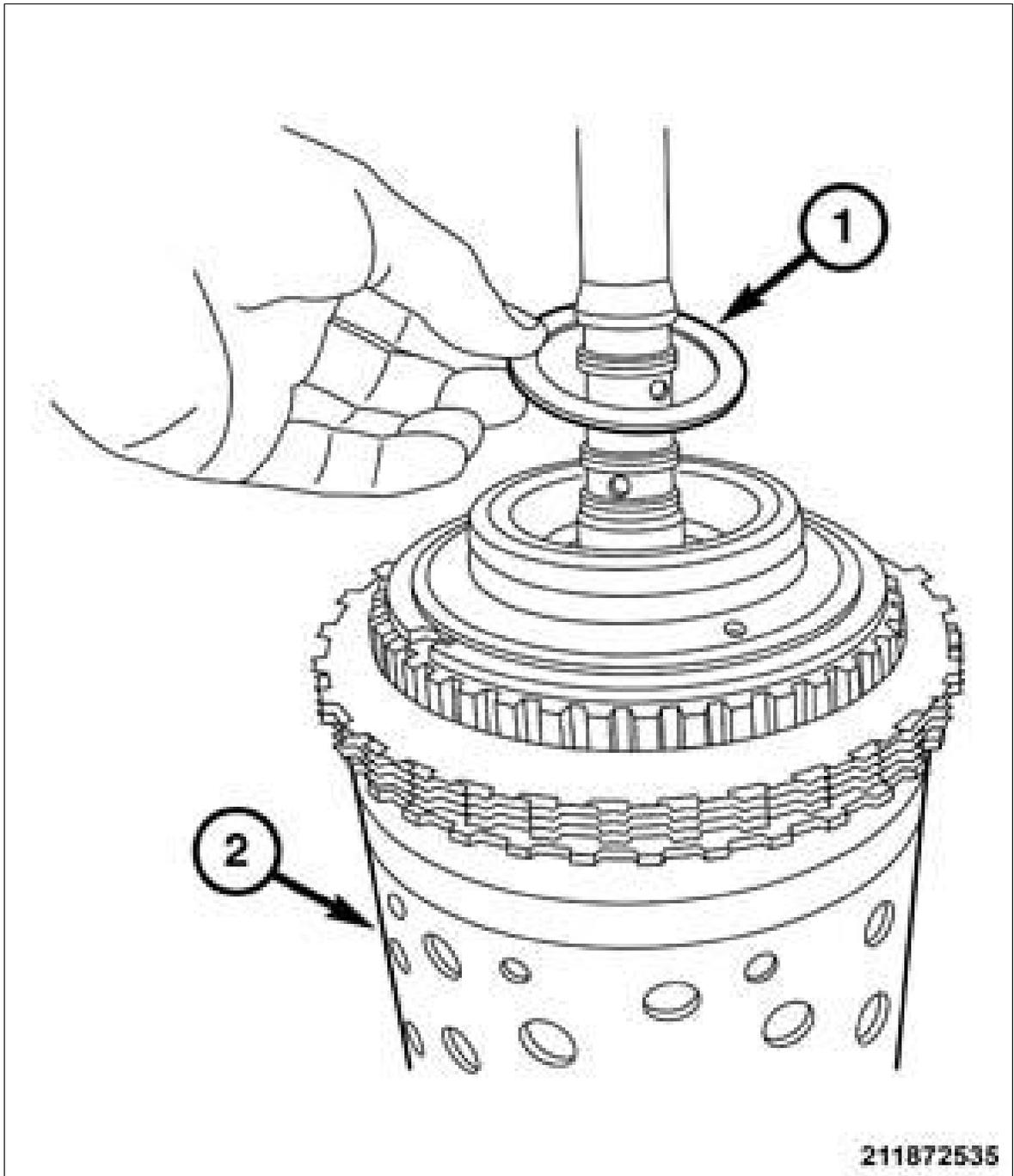
Courtesy of CHRYSLER GROUP, LLC

Fig 4: Splitter, Bearing/Gear



Courtesy of CHRYSLER GROUP, LLC

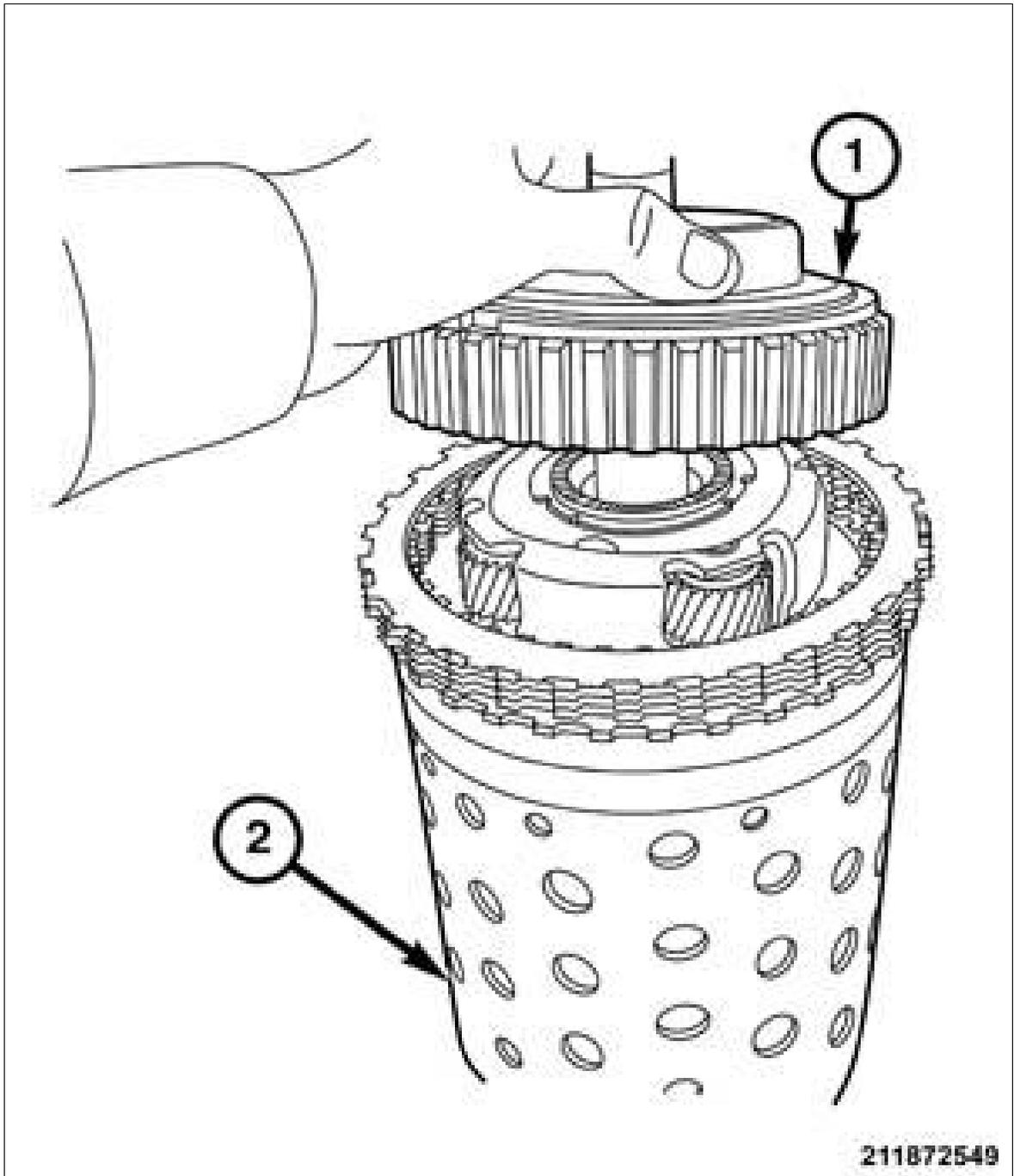
Fig 5: Annulus Assembly & Shim



Courtesy of CHRYSLER GROUP, LLC

2. Remove the selectable shim (1).

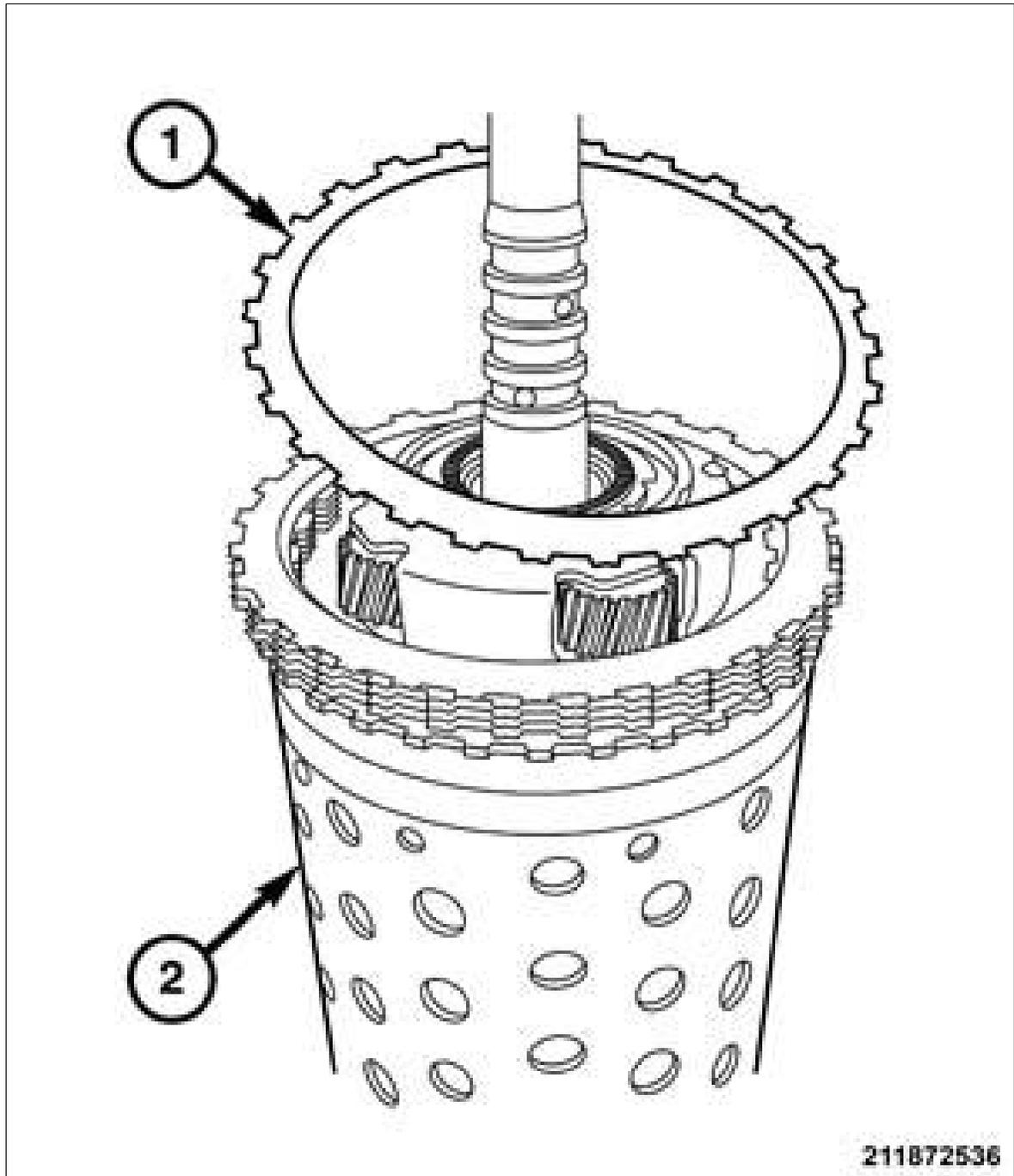
Fig 6: Annulus Assembly & Gear



Courtesy of CHRYSLER GROUP, LLC

3. Remove the P1 (1) annulus from the assembly.

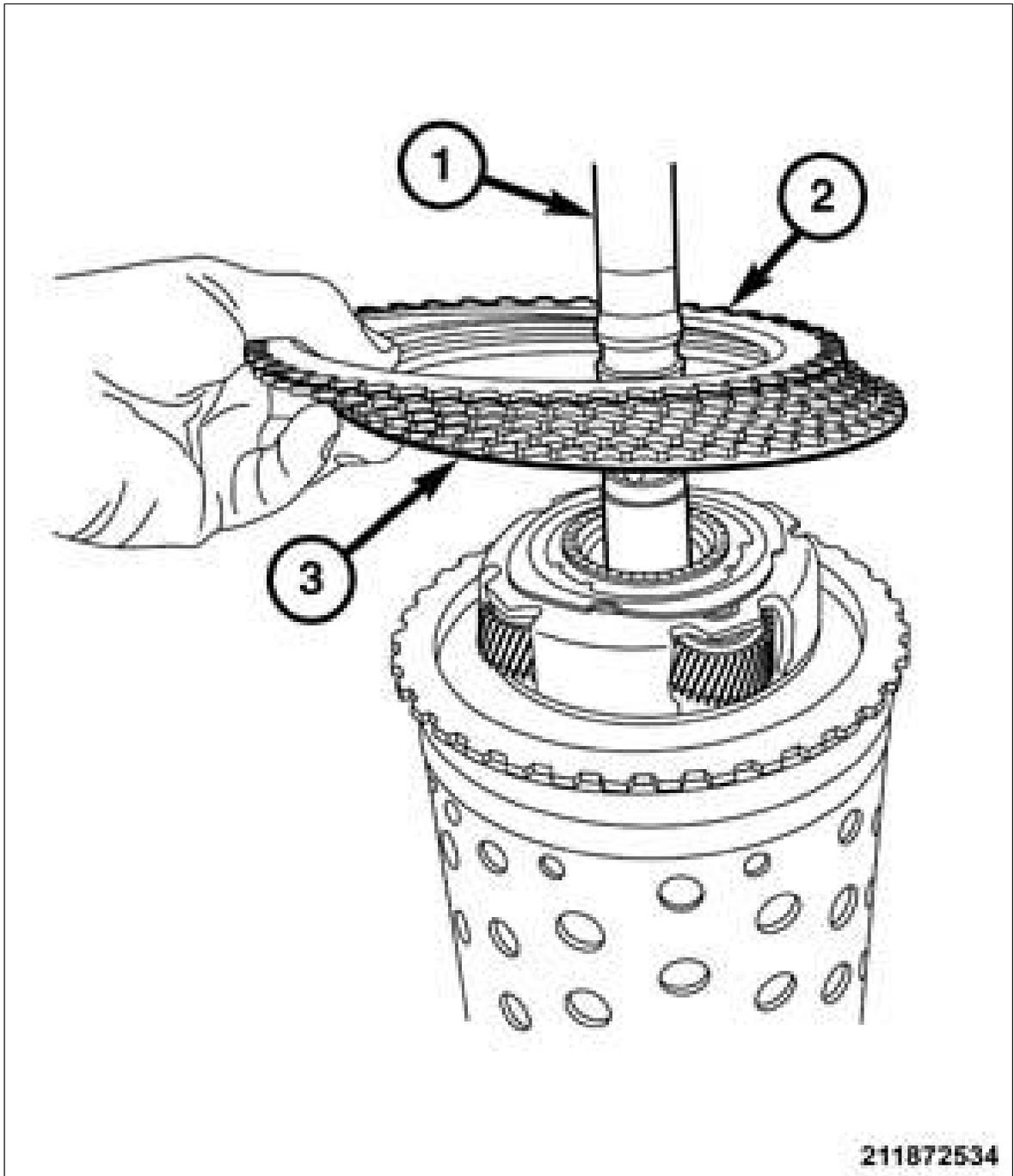
Fig 7: Annulus Assembly & B-Clutch Wave Plate



Courtesy of CHRYSLER GROUP, LLC

4. Remove the B-clutch wave plate (1).

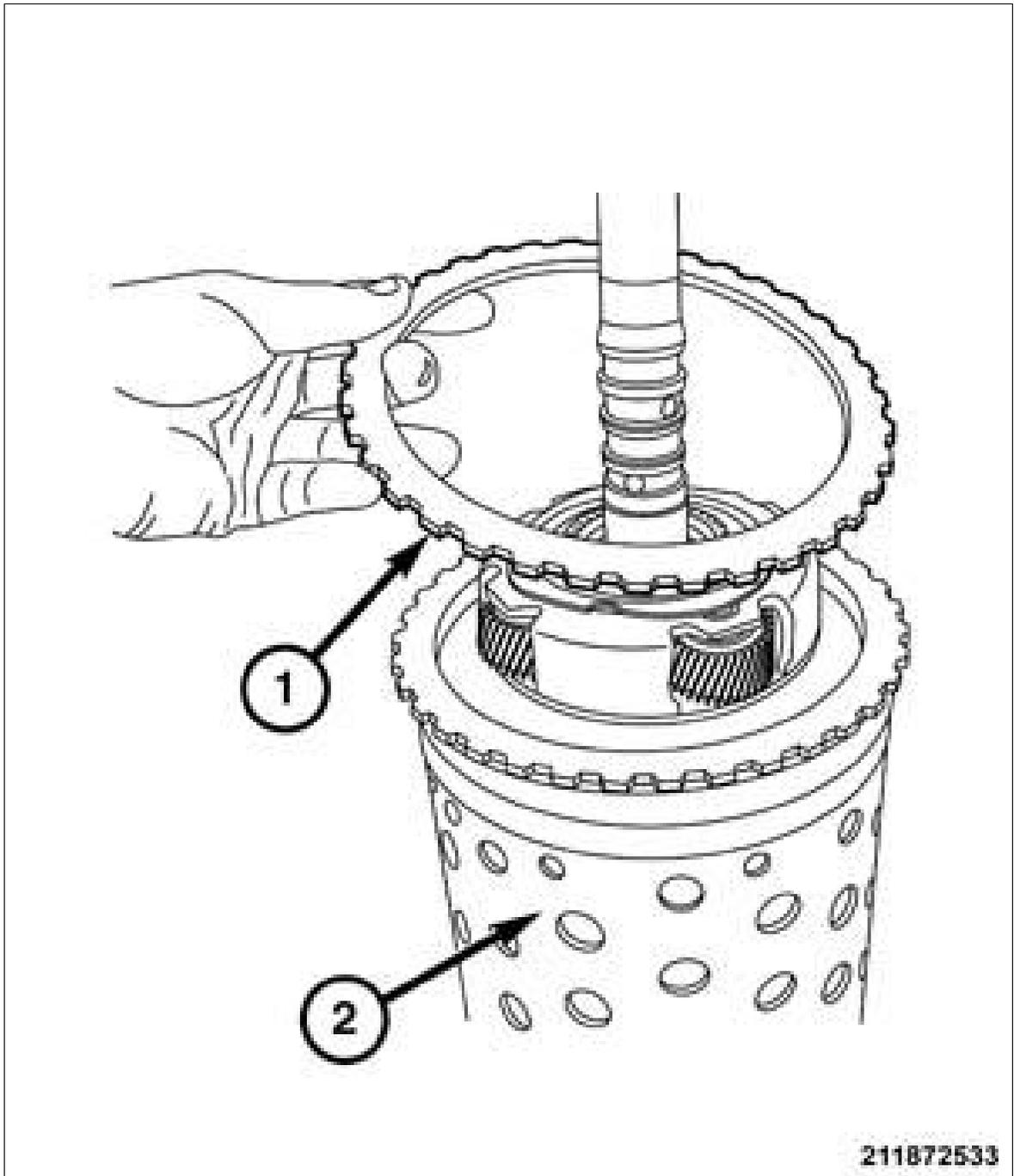
Fig 8: Friction & Steel Plates



Courtesy of CHRYSLER GROUP, LLC

5. Remove the friction and steel plates (2).

Fig 9: Backing Plate & Annulus Assembly



Courtesy of CHRYSLER GROUP, LLC

6. Remove the backing plate (1) from the assembly (2).

**CLUTCH, B > ASSEMBLY > CLUTCH B ASSEMBLY**

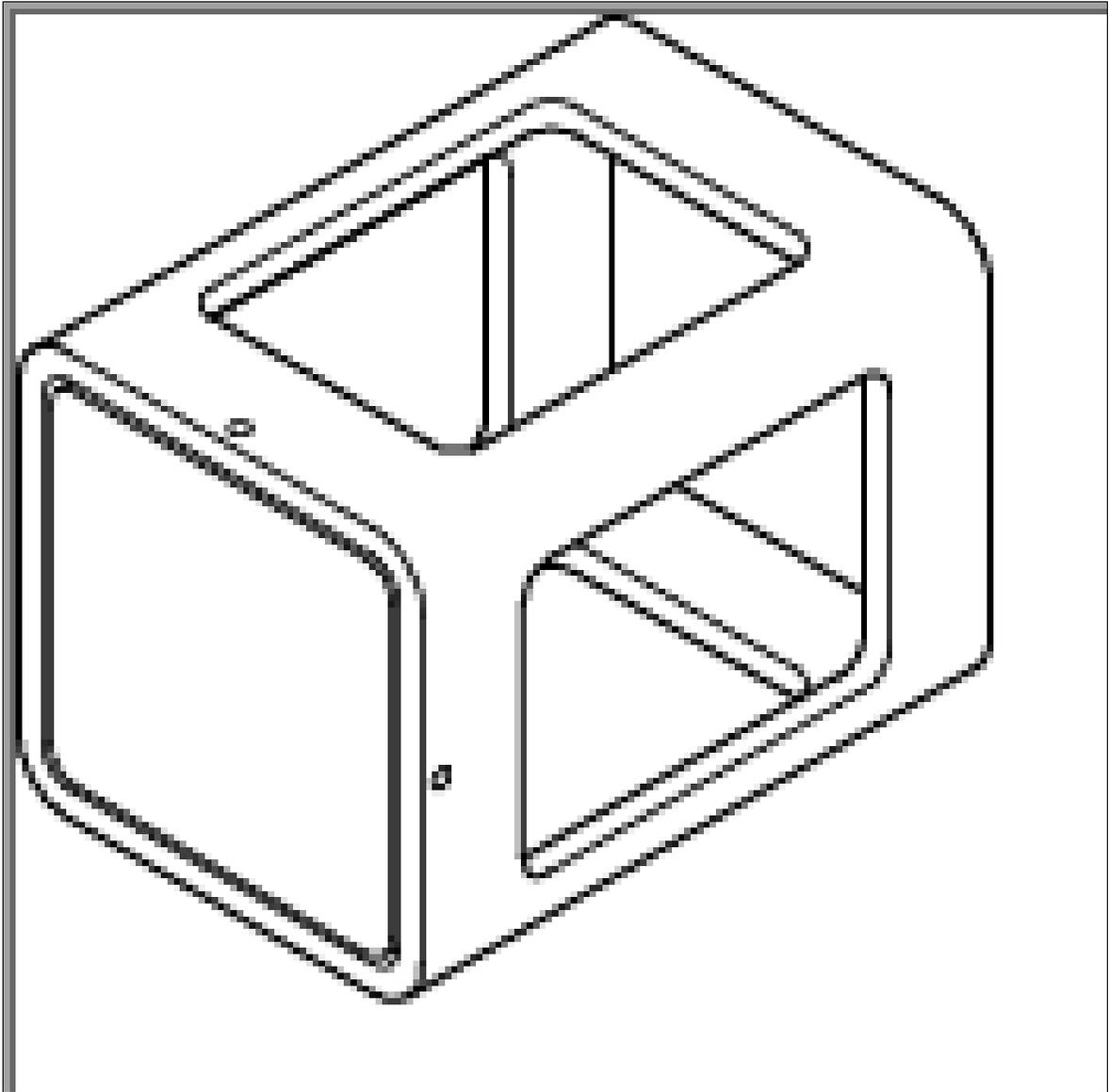


**NOTE:**

*If clutch discs are being replaced, soak in 8HP trans fluid before assembly.*

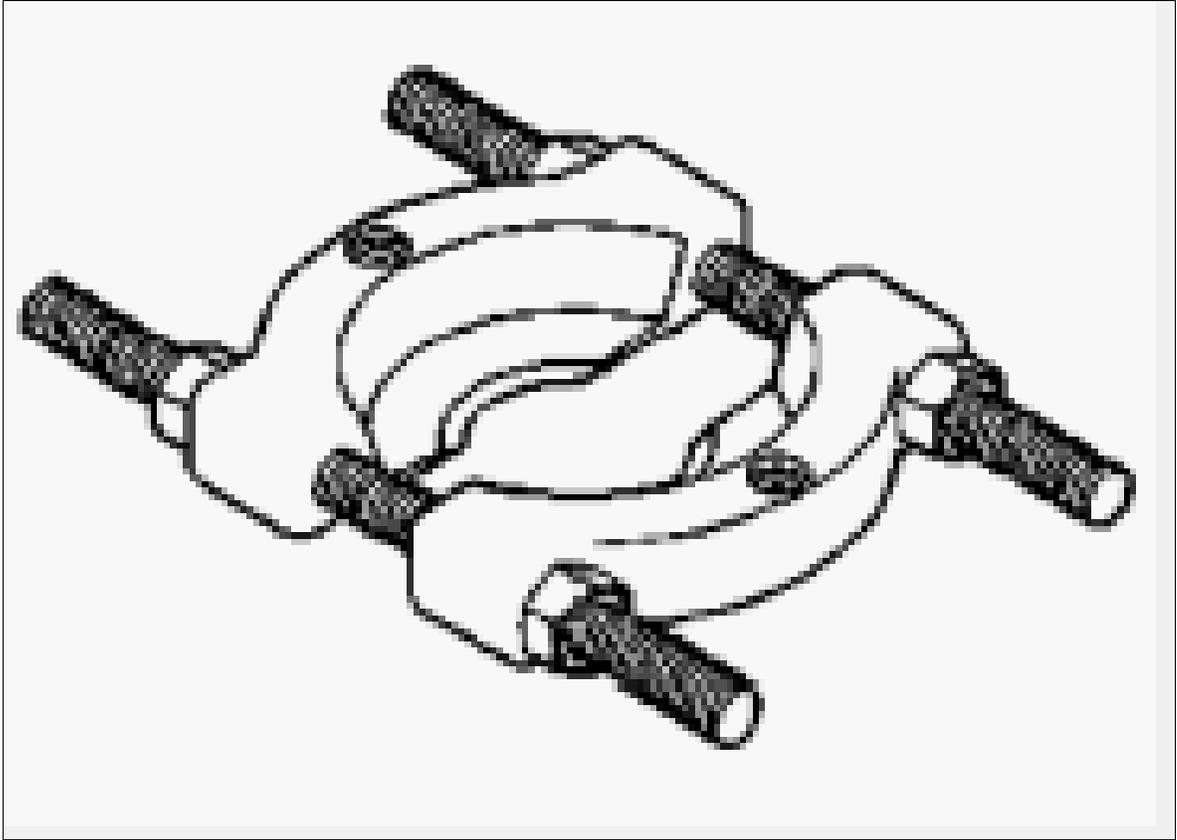
1. Position the input/output and the P4 annulus drum assembly on (special tool #8925-3, Assembly, Press Fixture) and (special tool #1130, Splitter, Bearing/Gear).

Fig 1: Press Fixture



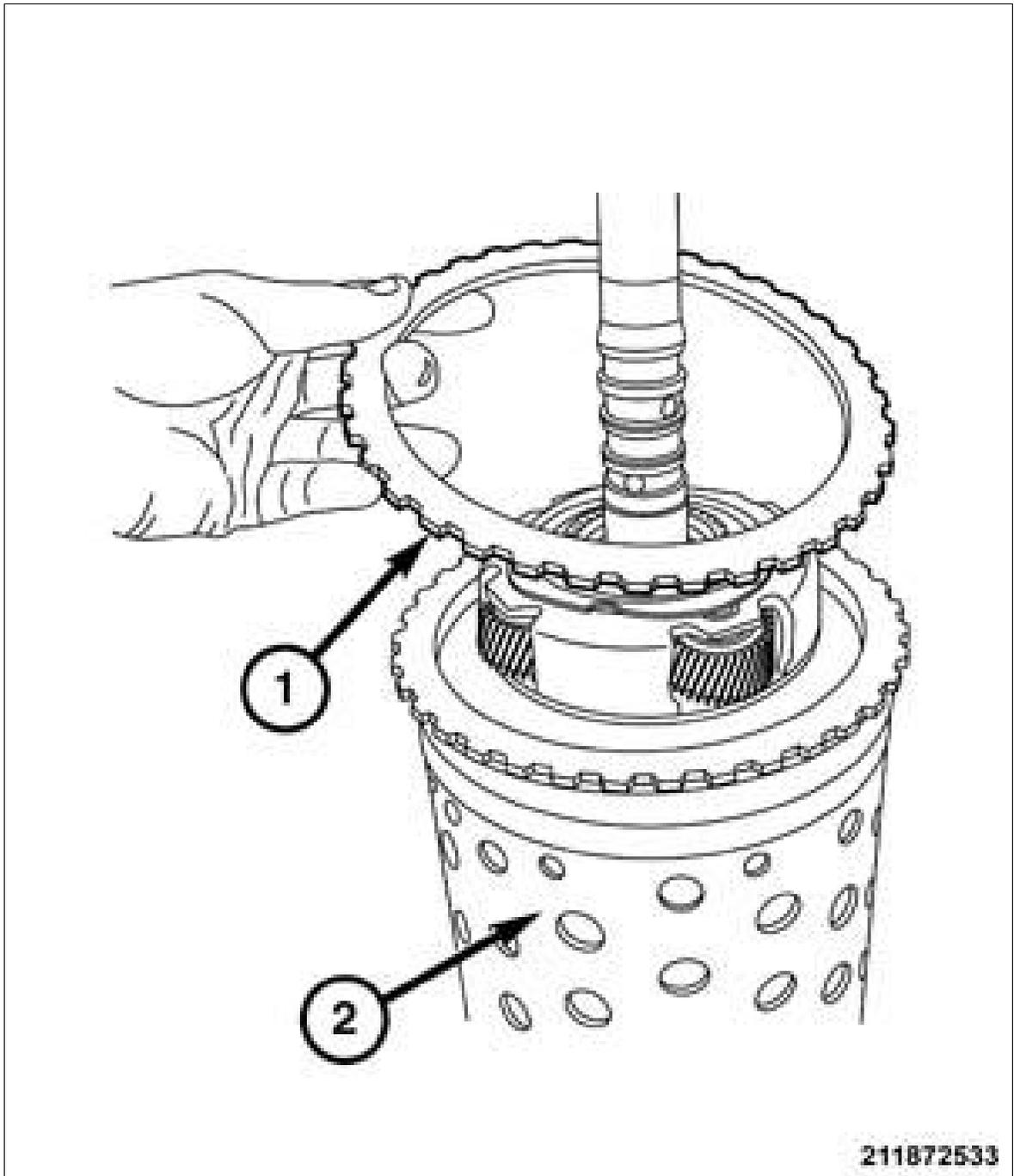
Courtesy of CHRYSLER GROUP, LLC

Fig 2: Splitter, Bearing/Gear



Courtesy of CHRYSLER GROUP, LLC

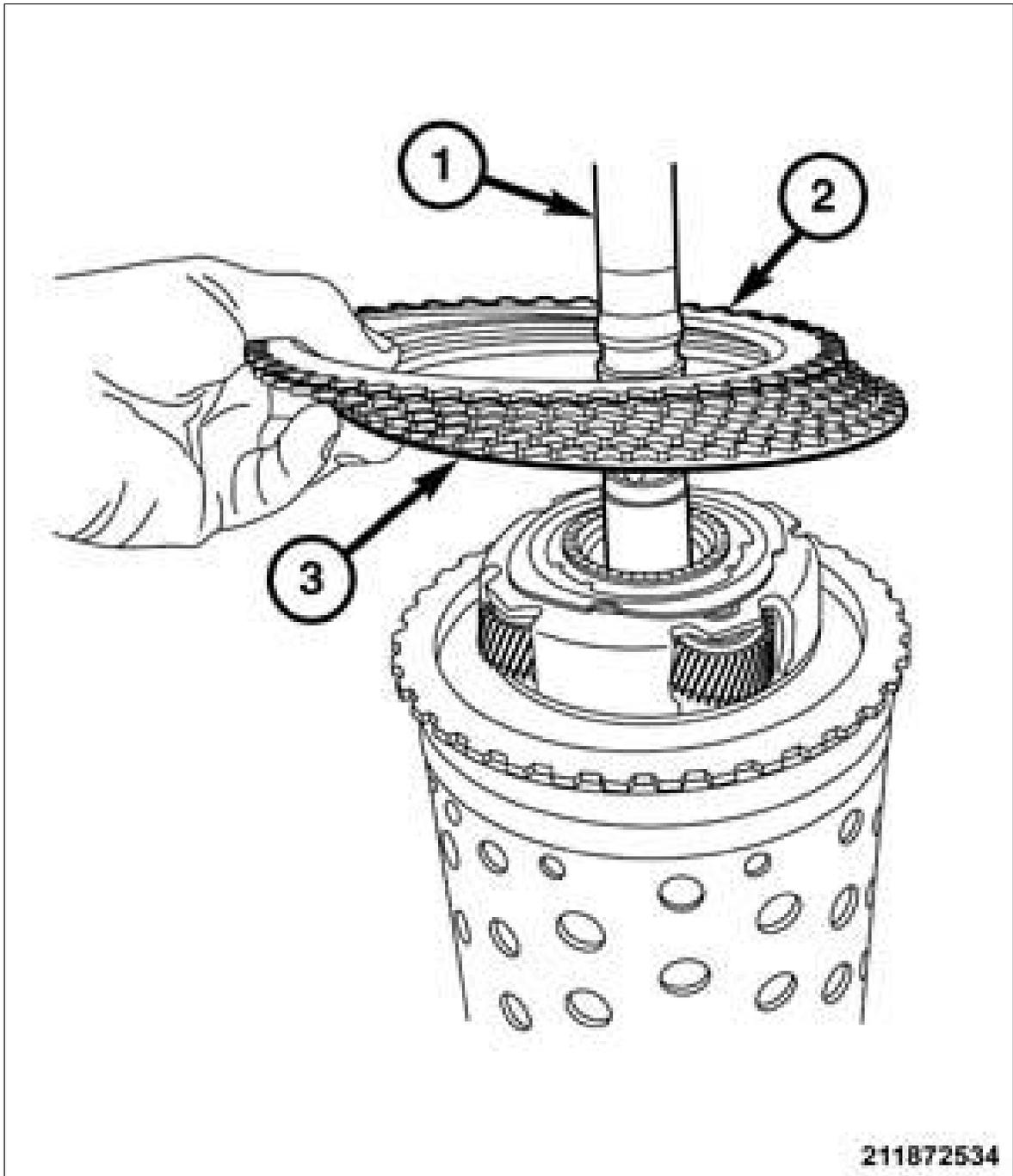
Fig 3: Backing Plate & Annulus Assembly



Courtesy of CHRYSLER GROUP, LLC

2. Install the backing plate (1) onto the input/output shaft.

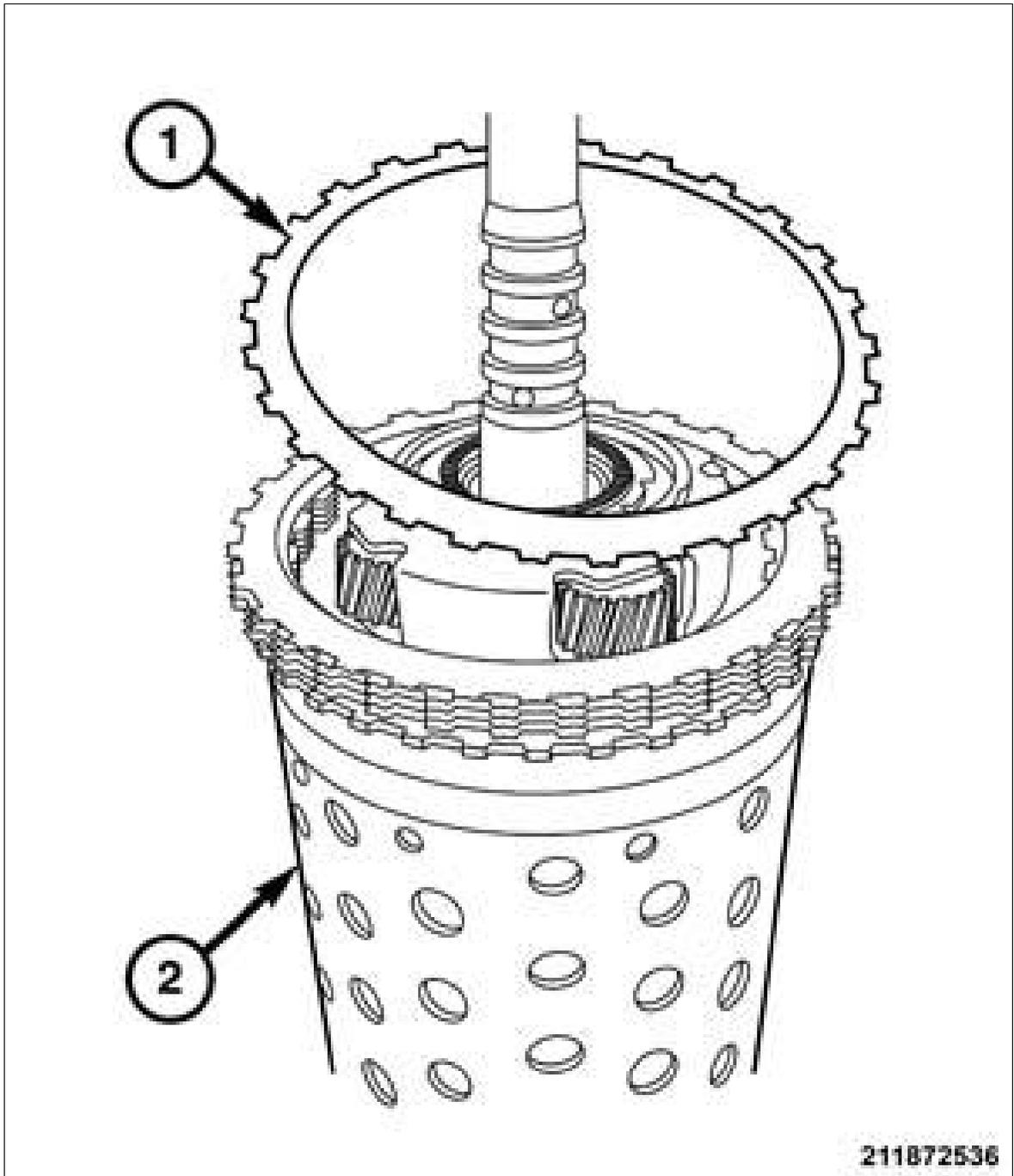
Fig 4: Friction & Steel Plates



Courtesy of CHRYSLER GROUP, LLC

3. Install the friction and steel plates (2).

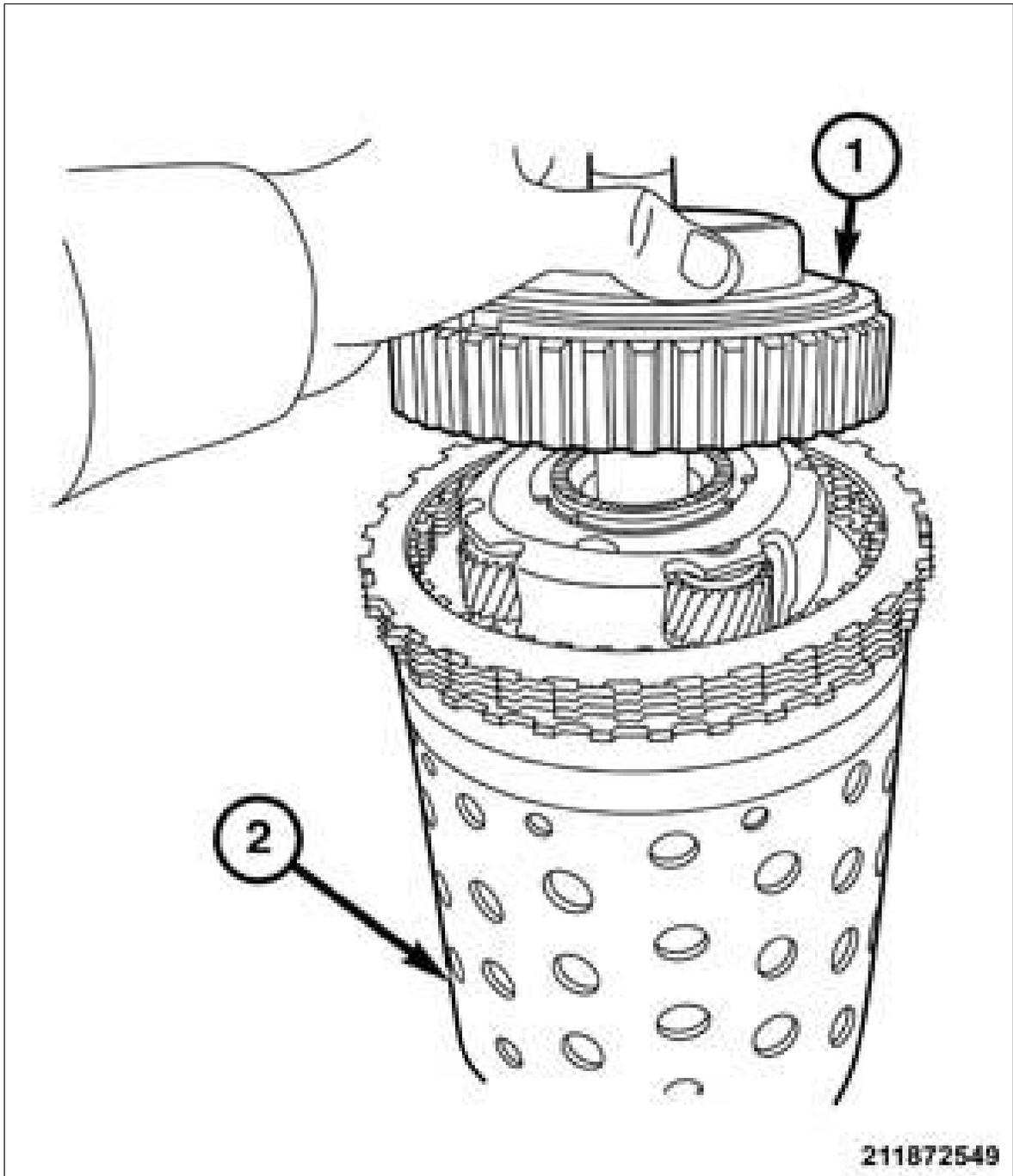
Fig 5: Annulus Assembly & B-Clutch Wave Plate



Courtesy of CHRYSLER GROUP, LLC

4. Install the B-clutch wave plate (1).

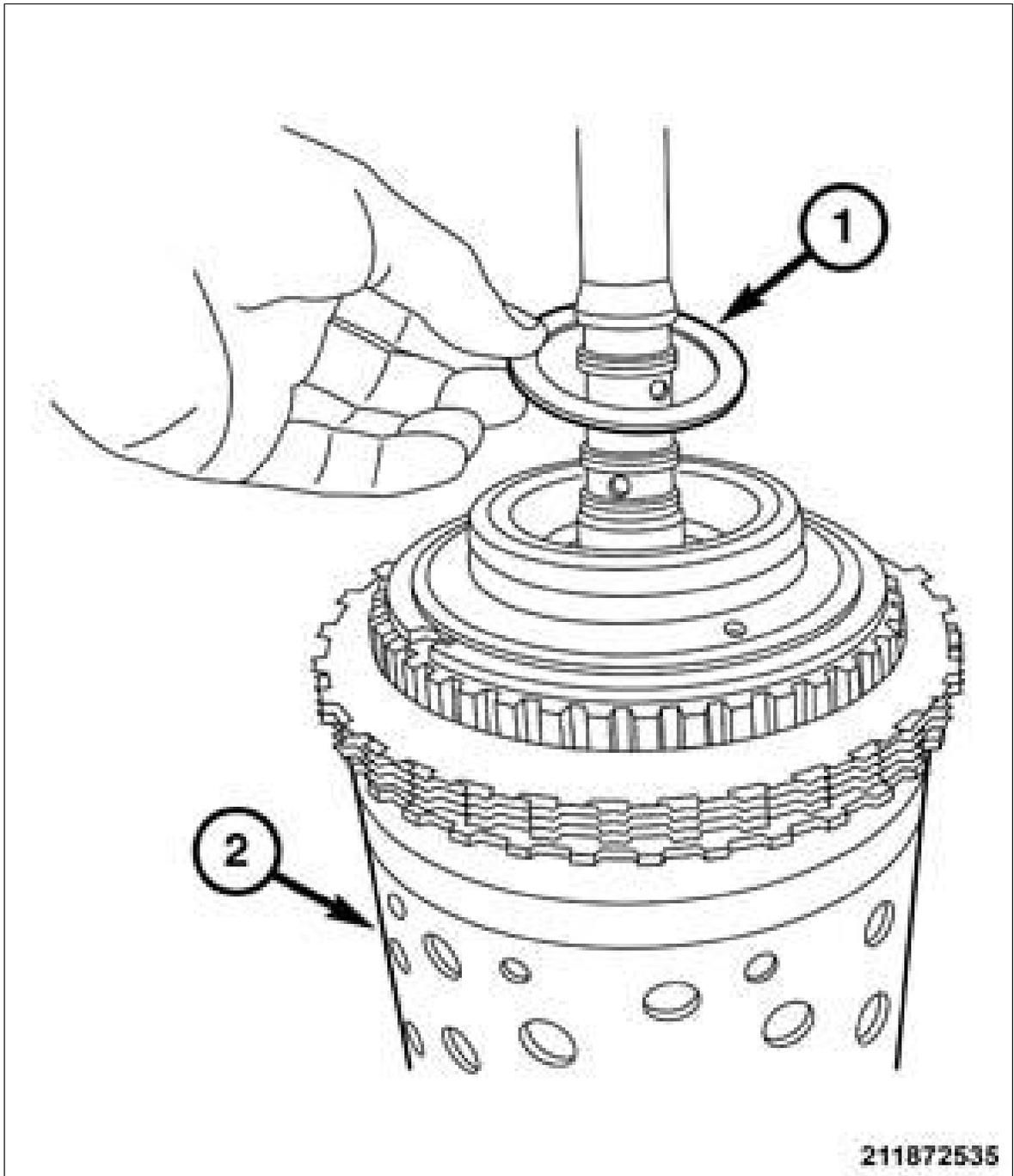
Fig 6: Annulus Assembly & Gear



Courtesy of CHRYSLER GROUP, LLC

5. Install the P1 annulus onto the input/output shaft (1).

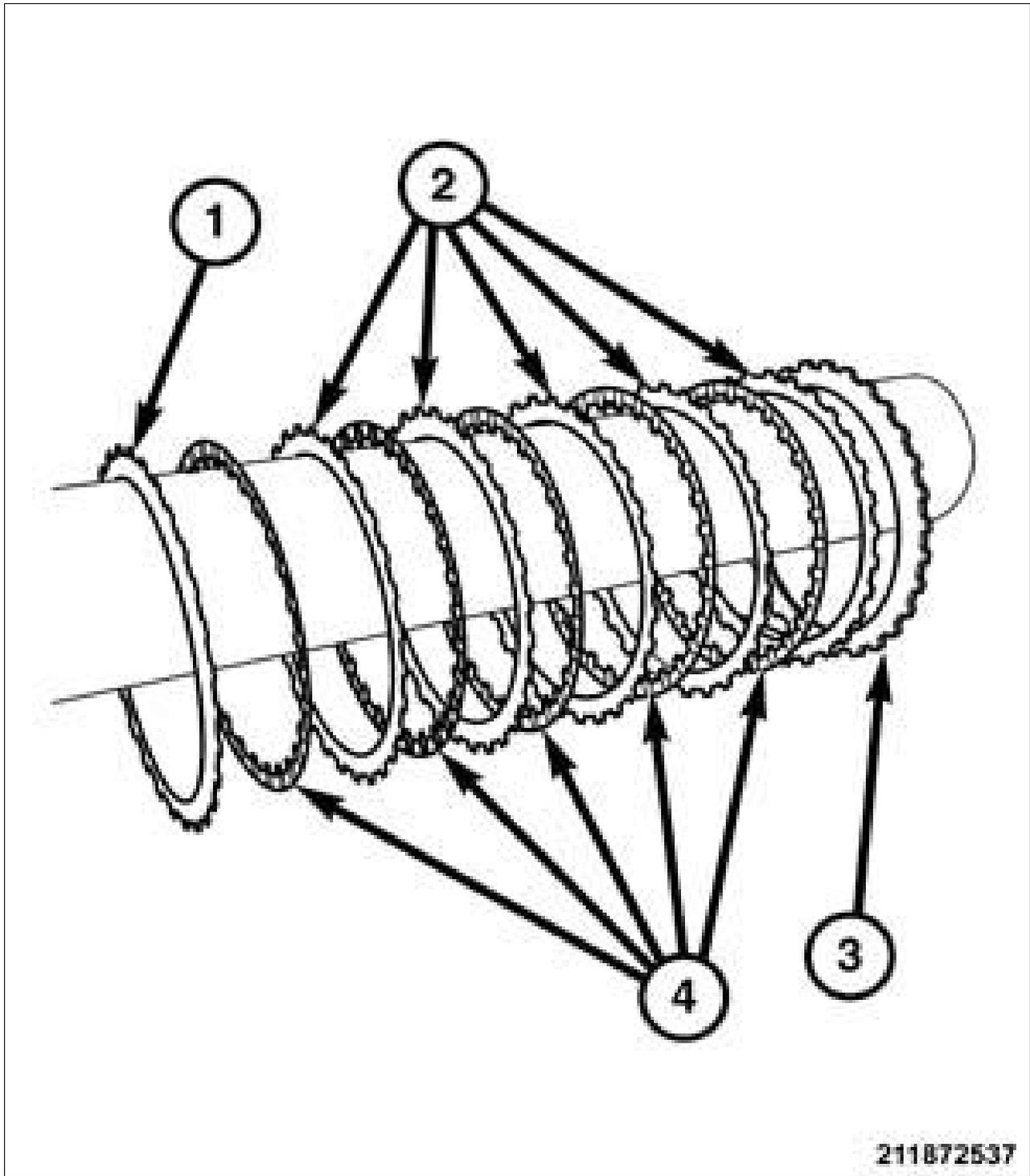
Fig 7: Annulus Assembly & Shim



Courtesy of CHRYSLER GROUP, LLC

6. Install the correct selectable shim (1) onto the P1 annulus.

Fig 8: Wave, Steel, Backing & Friction Plates



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1. Wave plate

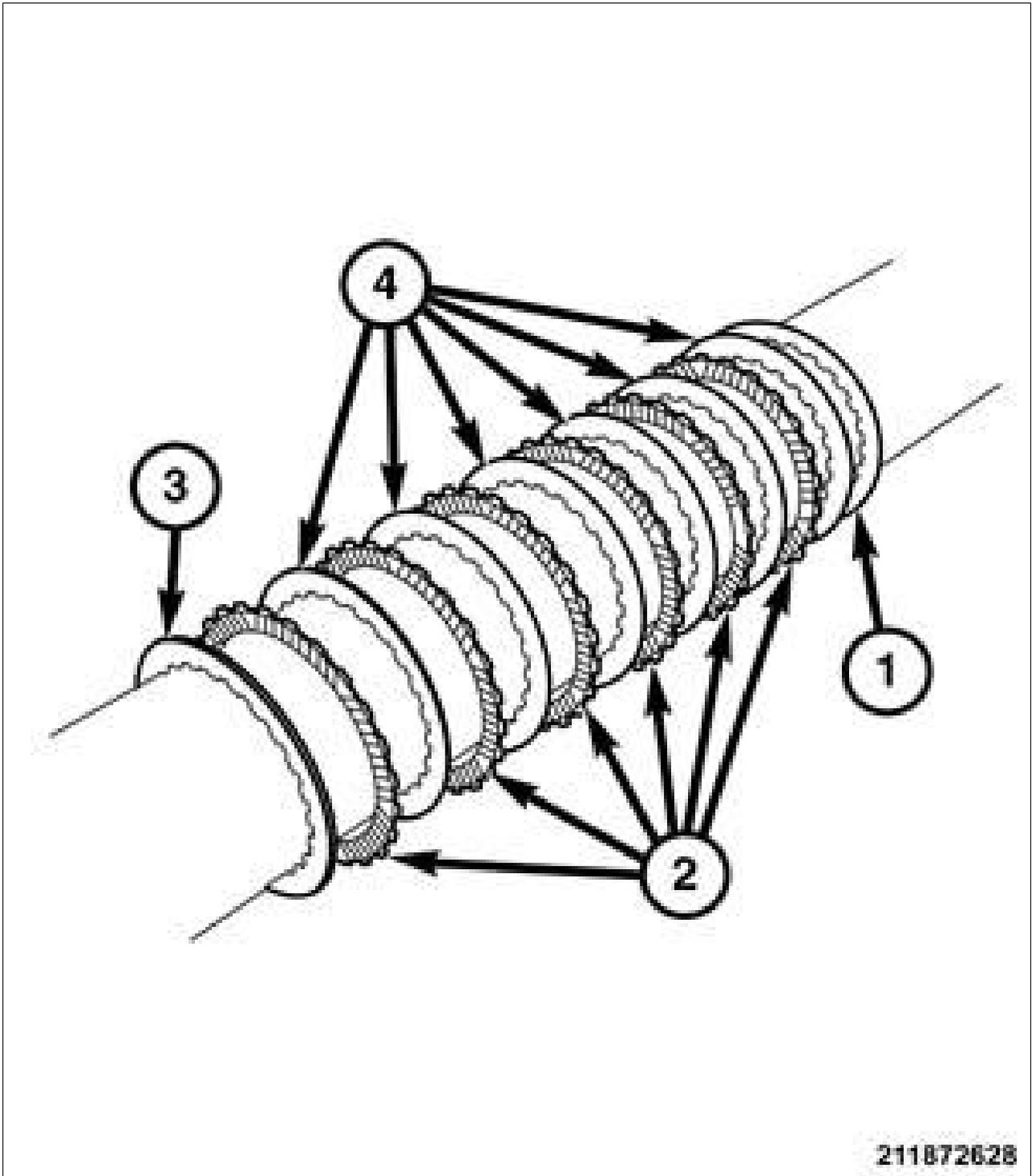
2. Steel plate

3. Backing plate

4. Friction plate

# CLUTCH, C > DISASSEMBLY > CLUTCH C DISASSEMBLY

Fig 1: Wave, Friction, Backing & Steel Plates



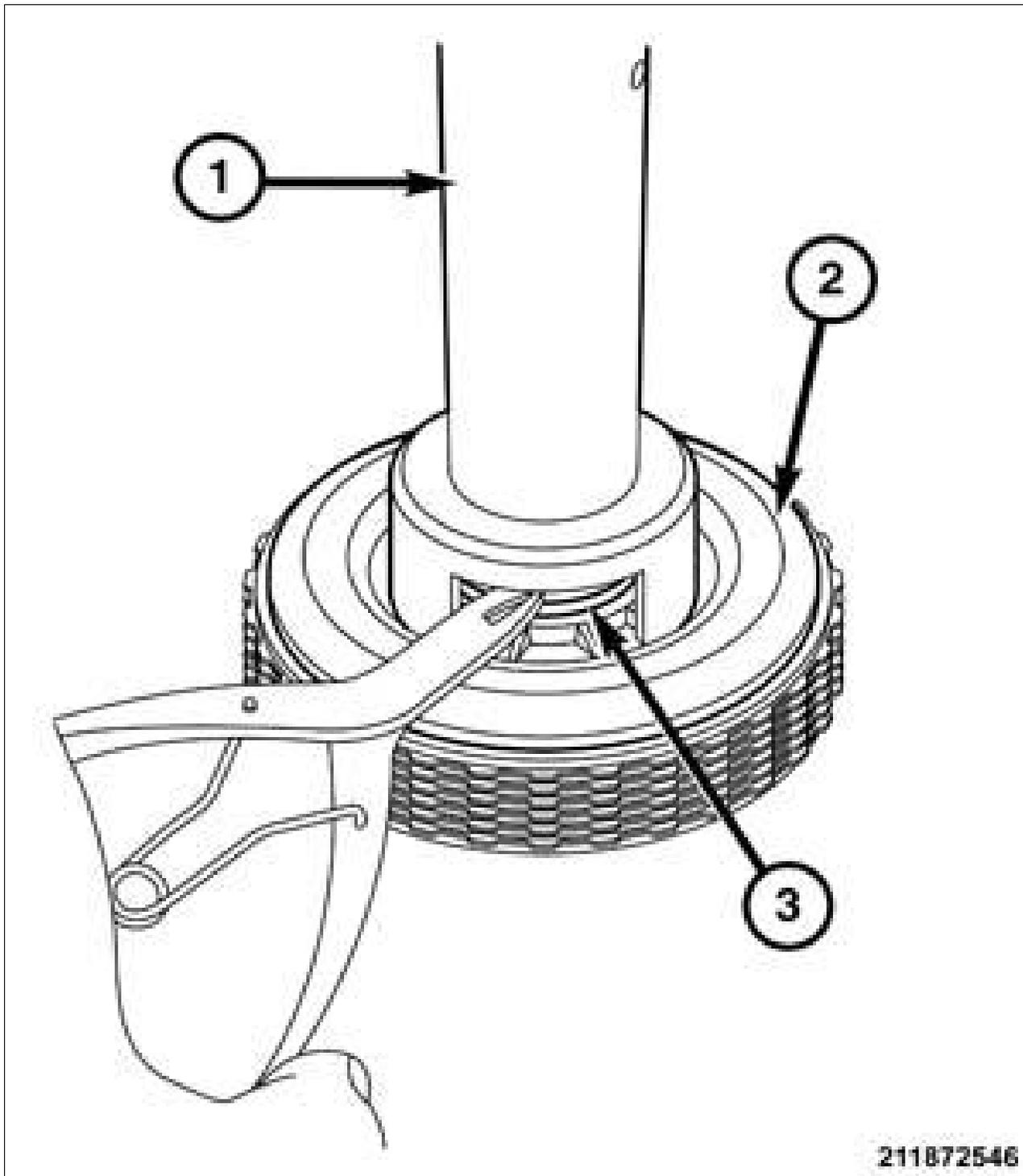
Courtesy of CHRYSLER GROUP, LLC

- 1. Wave plate
- 2. Friction plate

3. Backing plate

4. Steel plate

Fig 2: Special Tool, C-Clutch & Snap Ring

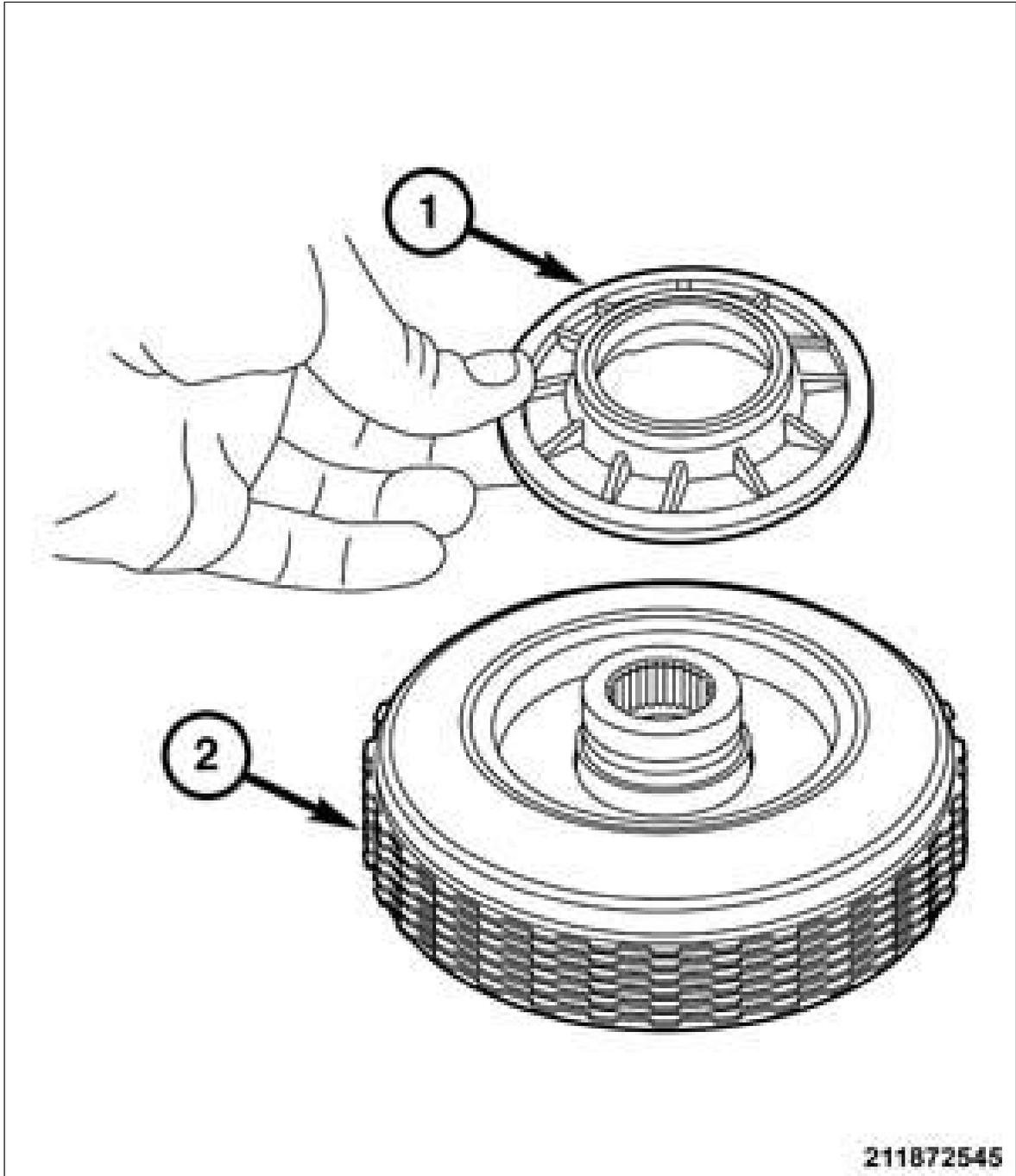


Courtesy of CHRYSLER GROUP, LLC

1. Place the C-clutch (2) in a suitable press.
2. Using special tool 8680 (1) compress the C-clutch (2) enough to remove the snap ring (3).

3. Remove the snap ring (3).

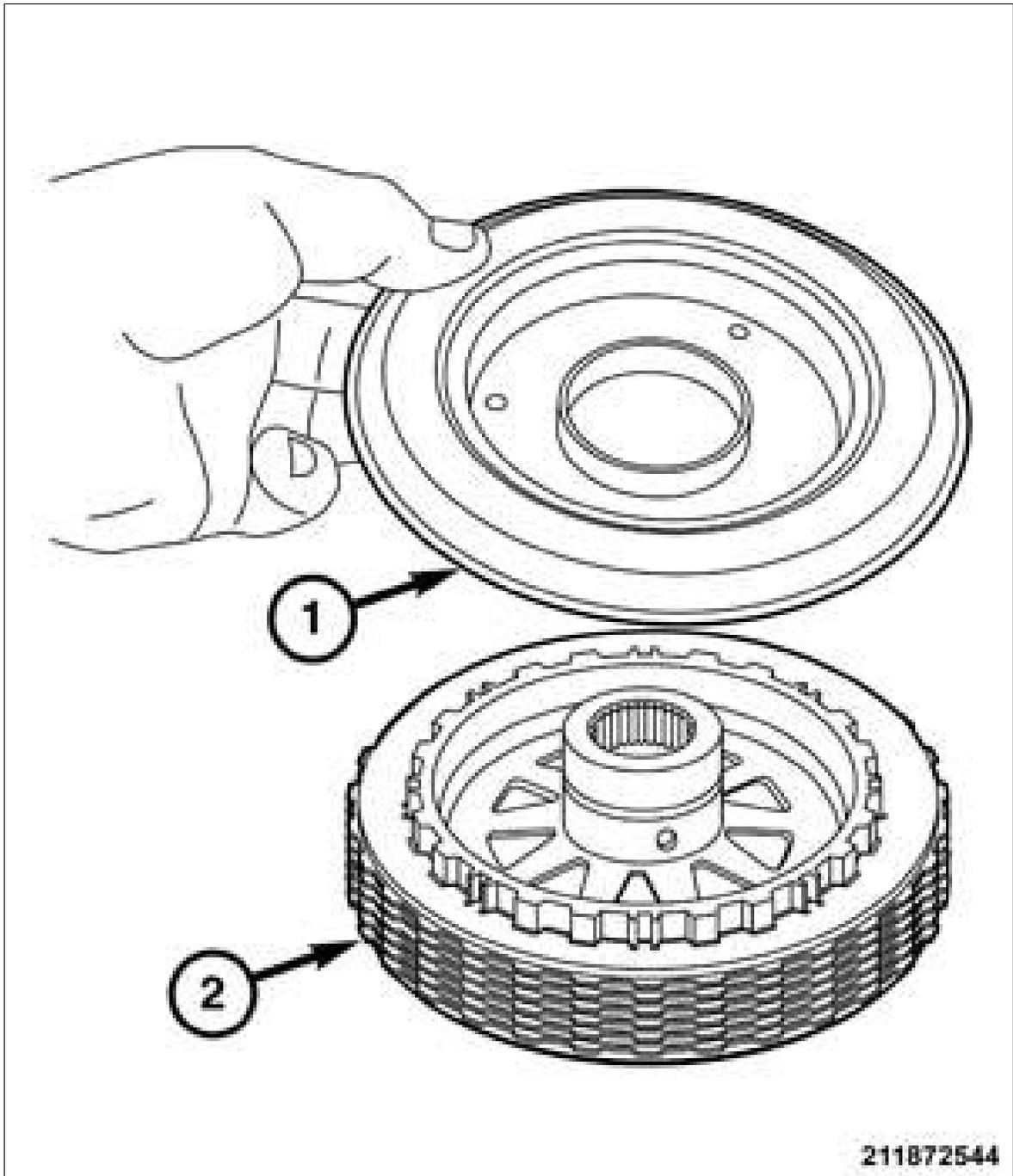
Fig 3: C-Clutch & Retainer



Courtesy of CHRYSLER GROUP, LLC

4. Remove the C-clutch retainer (1).

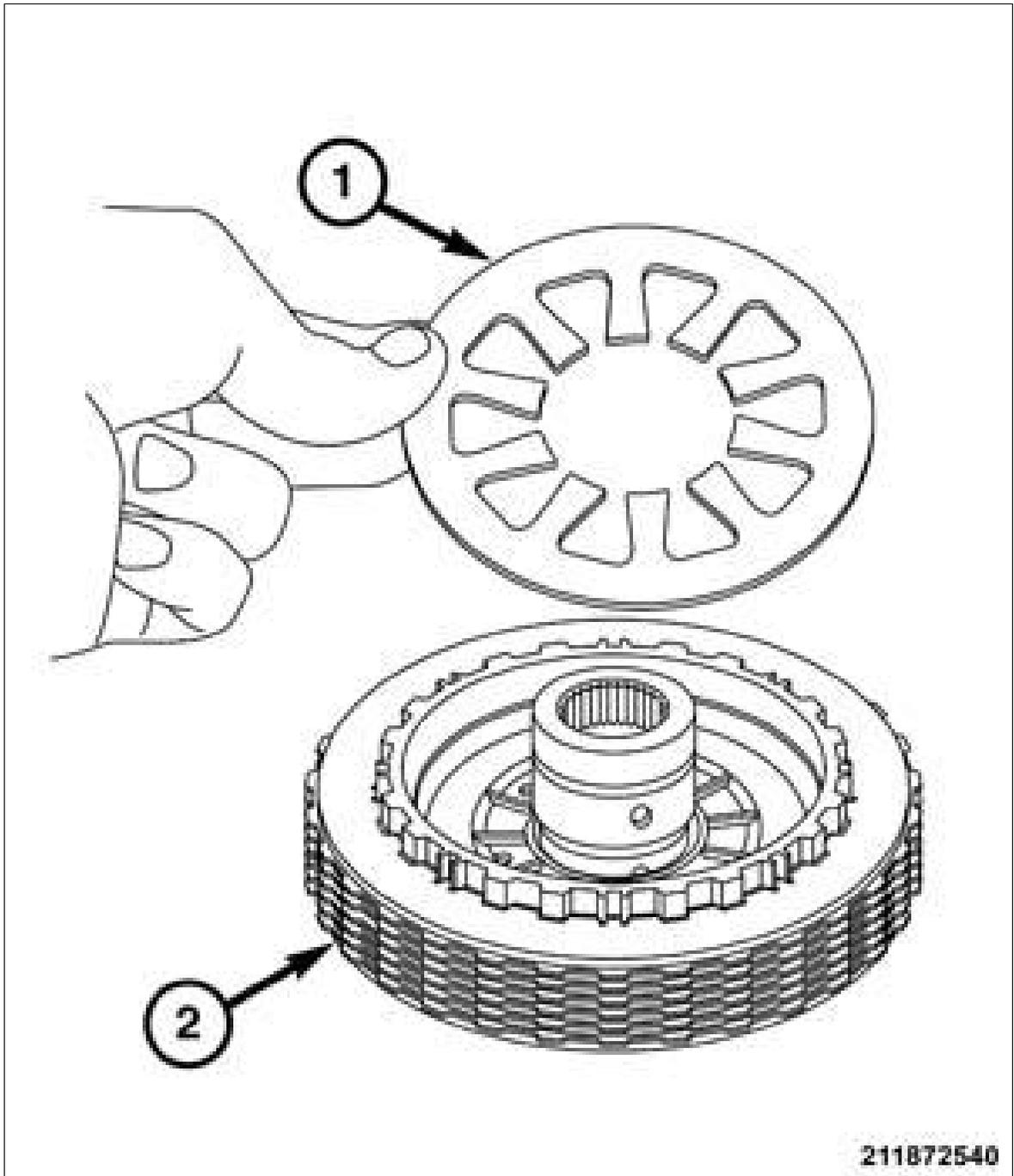
Fig 4: Friction Plates & Retainer



Courtesy of CHRYSLER GROUP, LLC

5. Remove the C-clutch piston (1).

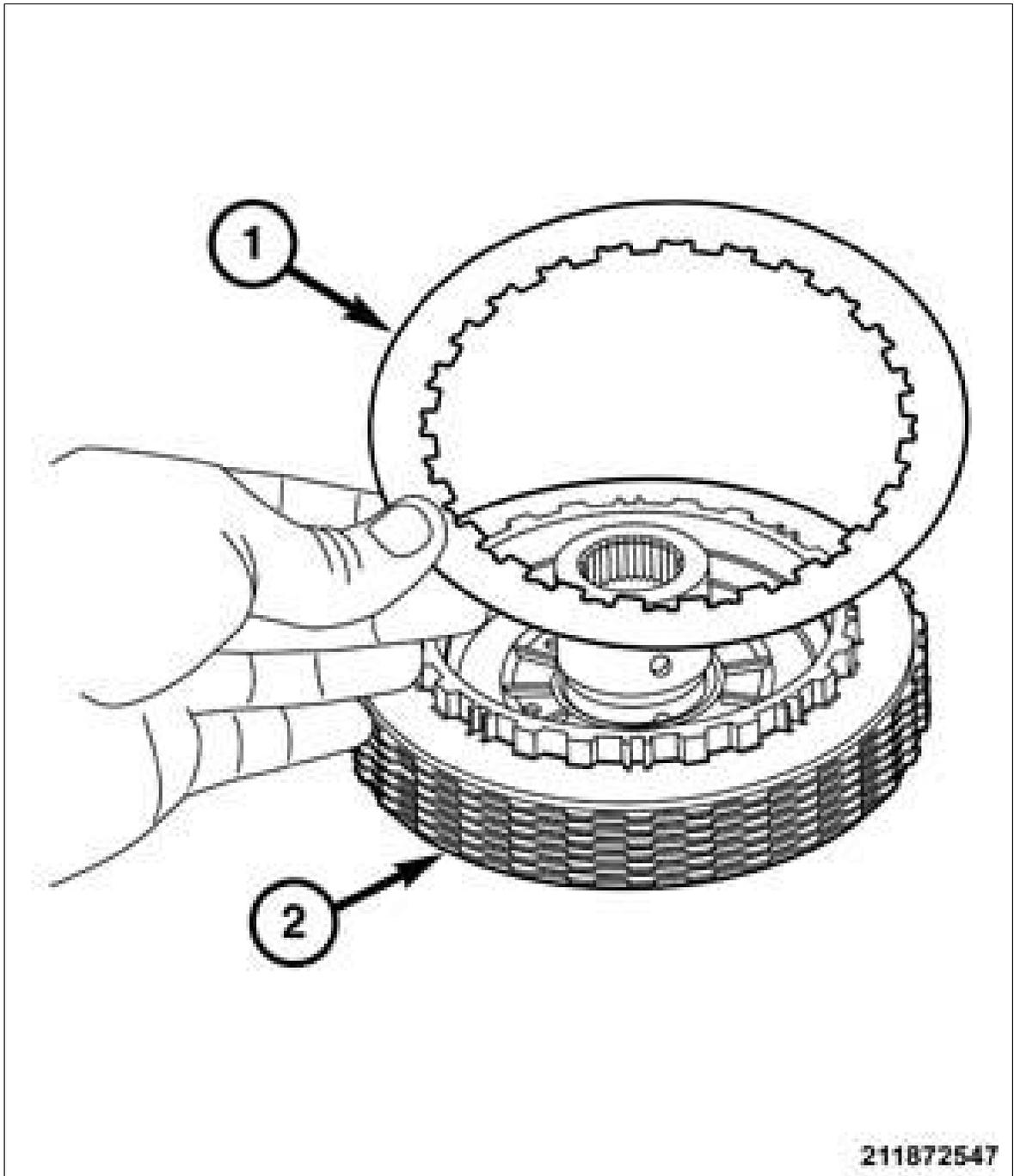
Fig 5: Friction Plates & Belleville Spring



Courtesy of CHRYSLER GROUP, LLC

6. Remove the belleville spring (1).

Fig 6: Wave Plate



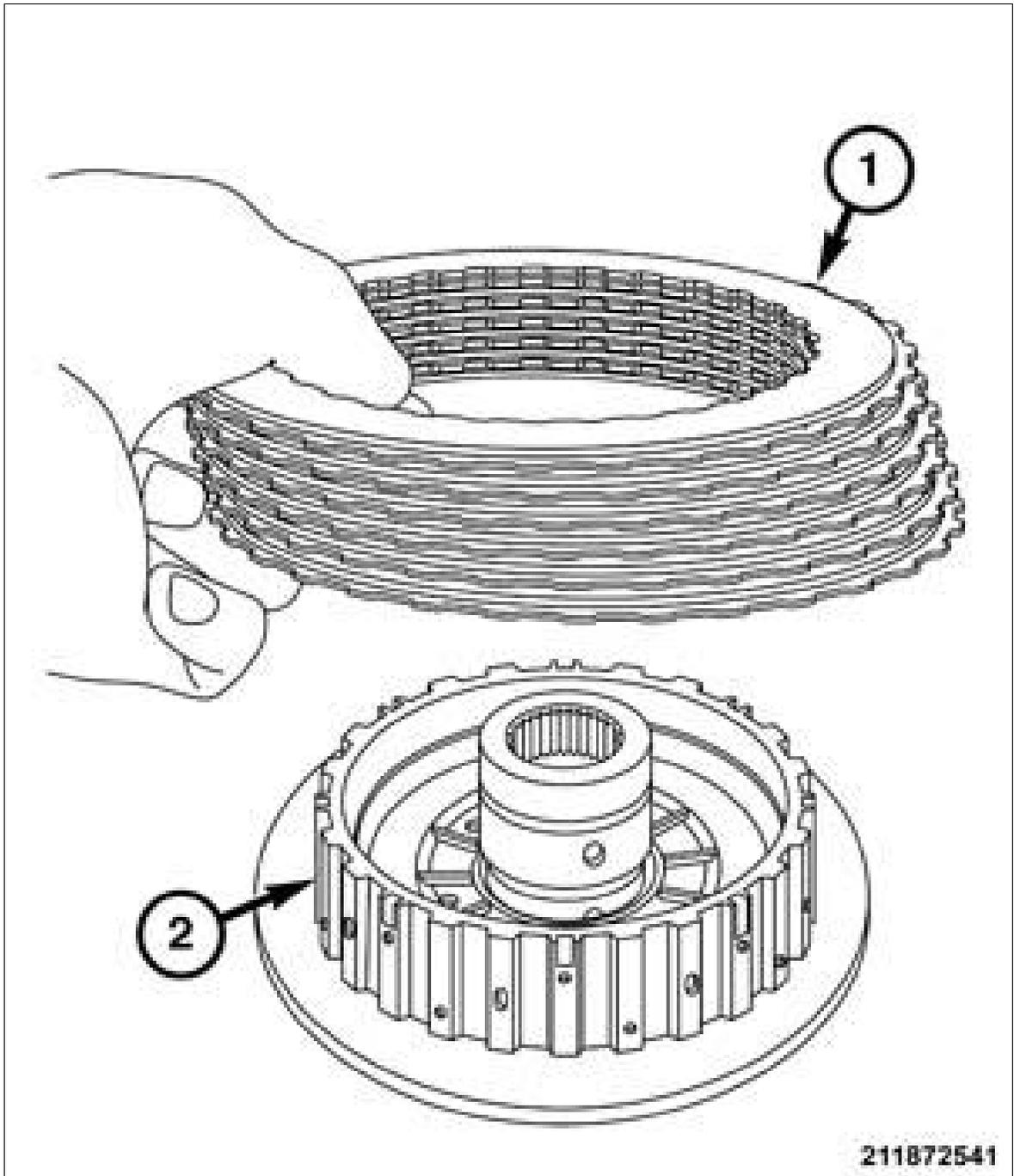
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7. Remove the wave plate (1).

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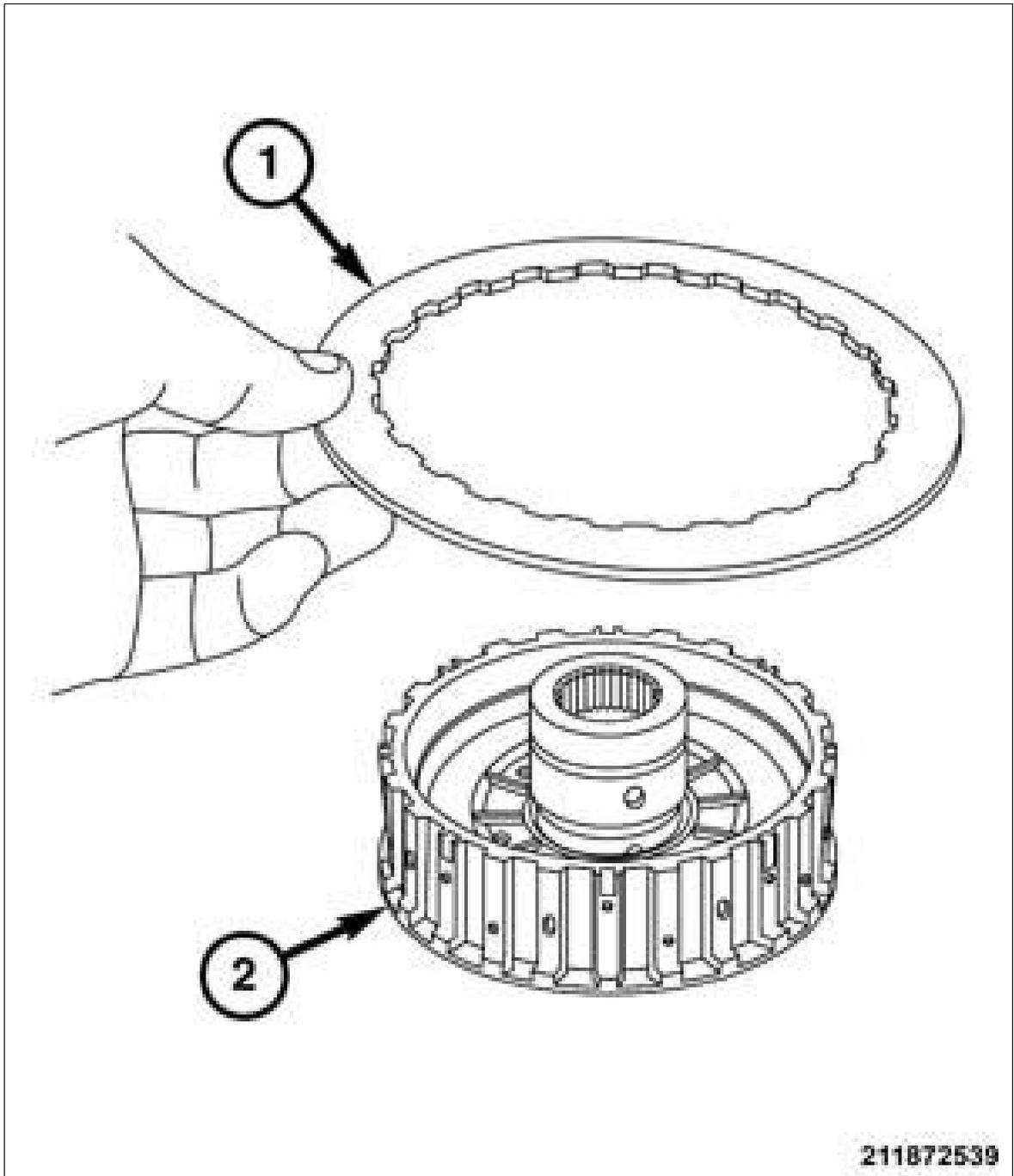
Fig 7: Friction & Steel Plates



Courtesy of CHRYSLER GROUP, LLC

8. Remove the 6 friction and steel plates (1).

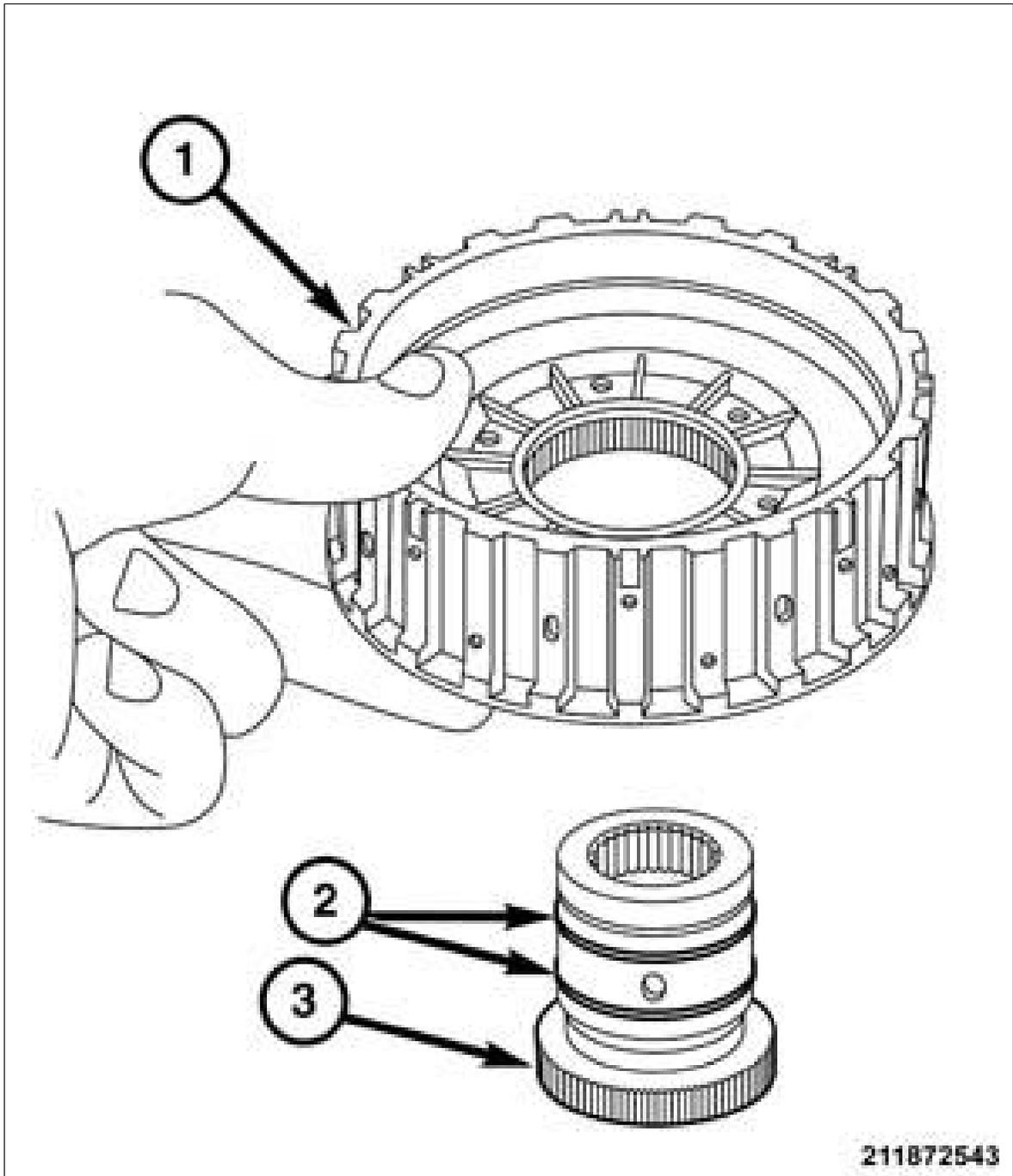
Fig 8: Backing Plate



Courtesy of CHRYSLER GROUP, LLC

9. Remove the backing plate (1).

Fig 9: Clutch Hub, C-Clutch Shaft & O-Rings

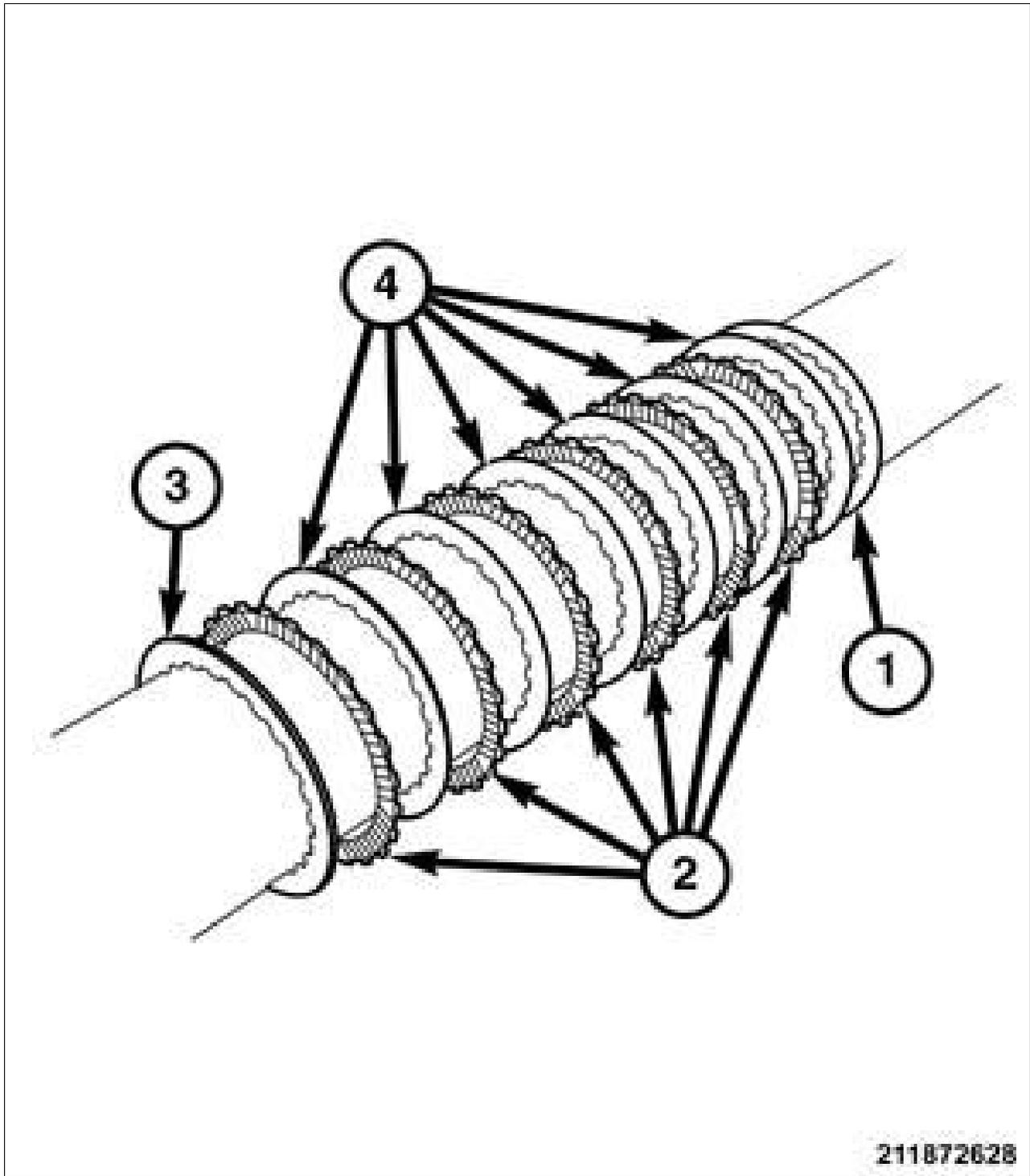


Courtesy of CHRYSLER GROUP, LLC

10. Separate the clutch shaft (3) from the clutch hub (1).
11. Remove two O-rings from the C-clutch shaft (2).

**CLUTCH, C > ASSEMBLY > CLUTCH C ASSEMBLY**

Fig 1: Wave, Friction, Backing & Steel Plates



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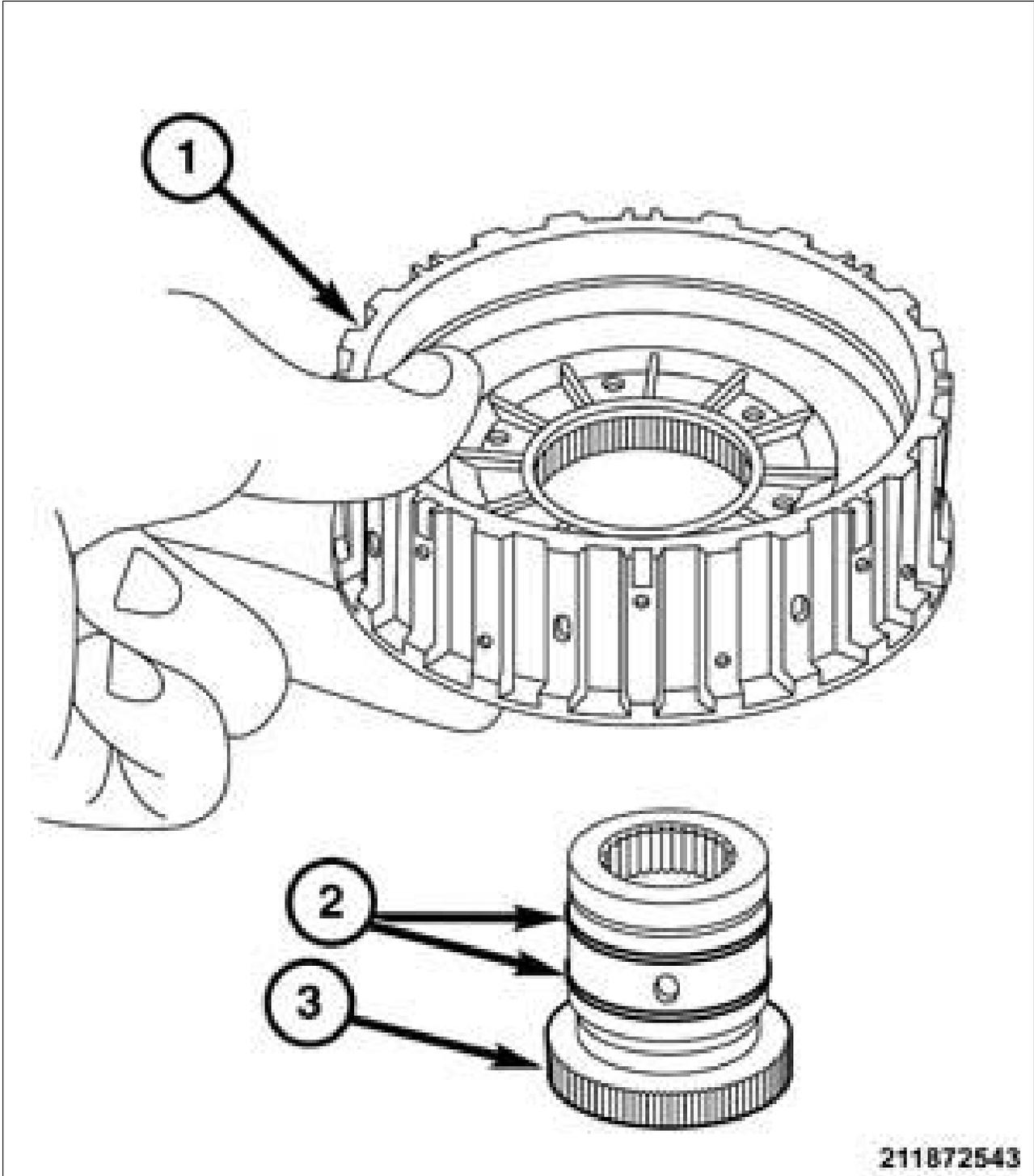
Courtesy of CHRYSLER GROUP, LLC

1. Wave plate
2. Friction plate
3. Backing plate
4. Steel plate

 **NOTE:**

*If clutch discs are being replaced, soak in 8HP trans fluid before assembly.*

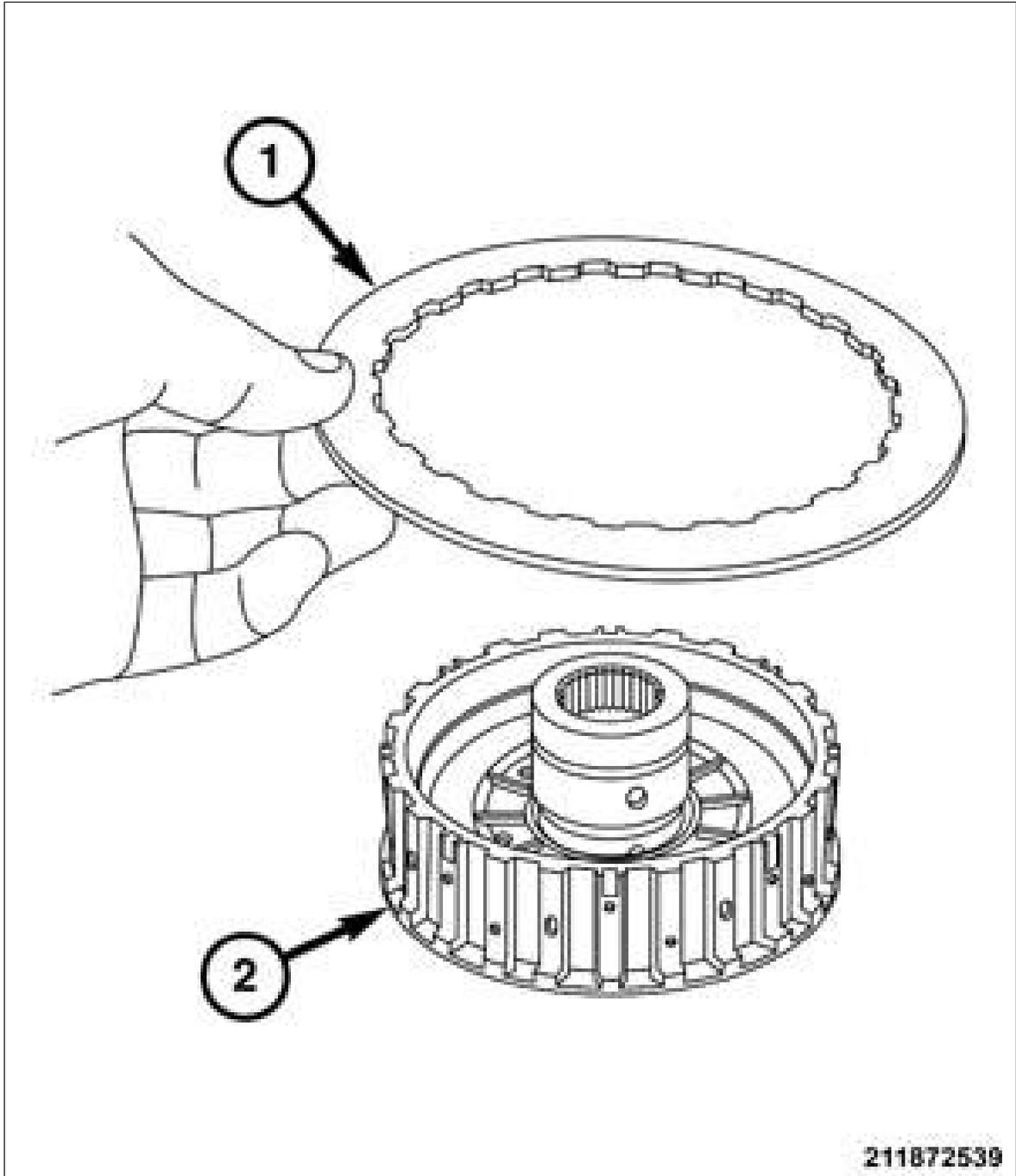
Fig 2: Clutch Hub, C-Clutch Shaft & O-Rings



1. Replace the C-clutch seals (2).

2. Install C-clutch hub (1) onto the C-clutch shaft (3).

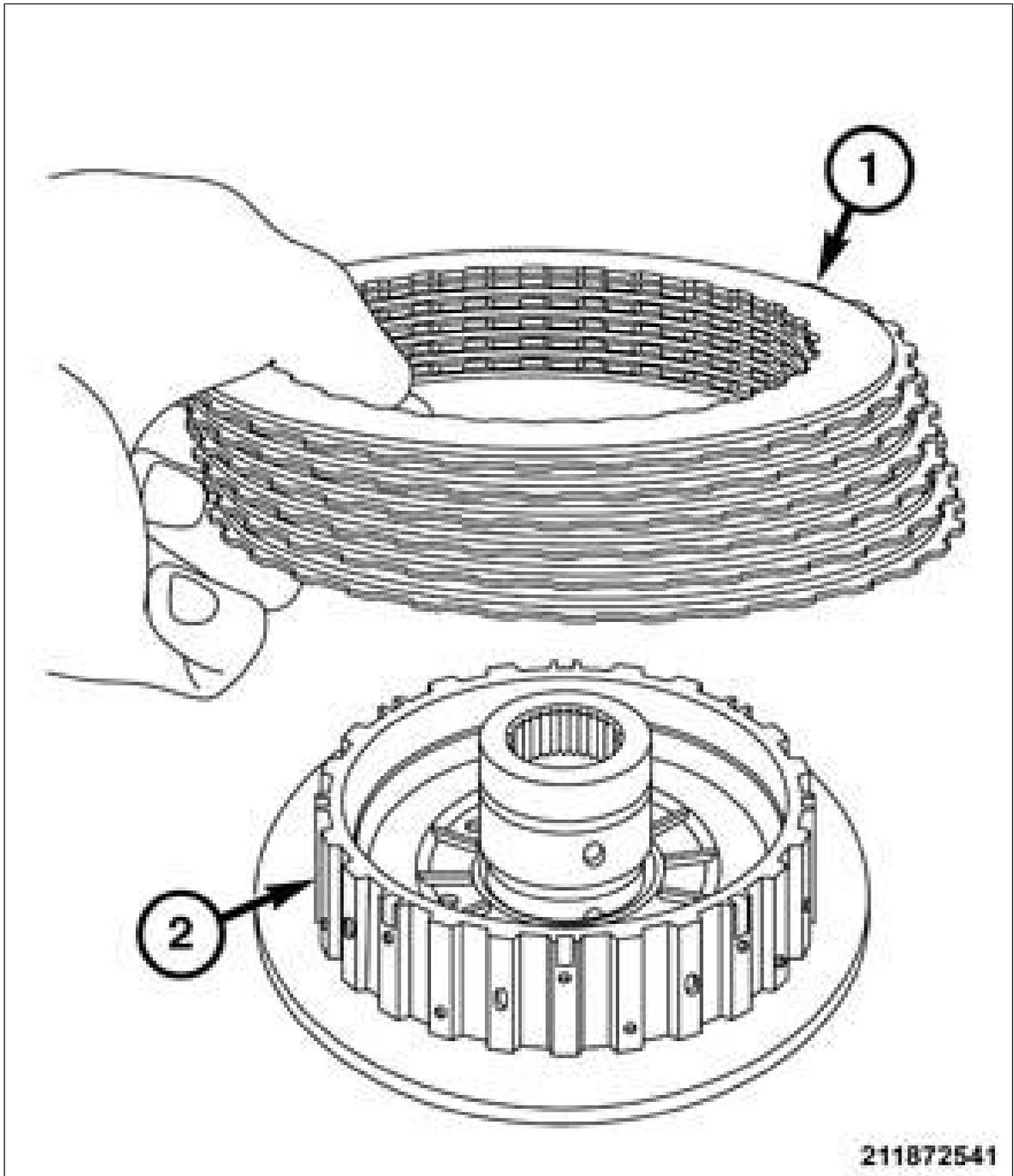
Fig 3: Backing Plate



Courtesy of CHRYSLER GROUP, LLC

3. Install the backing plate (1).

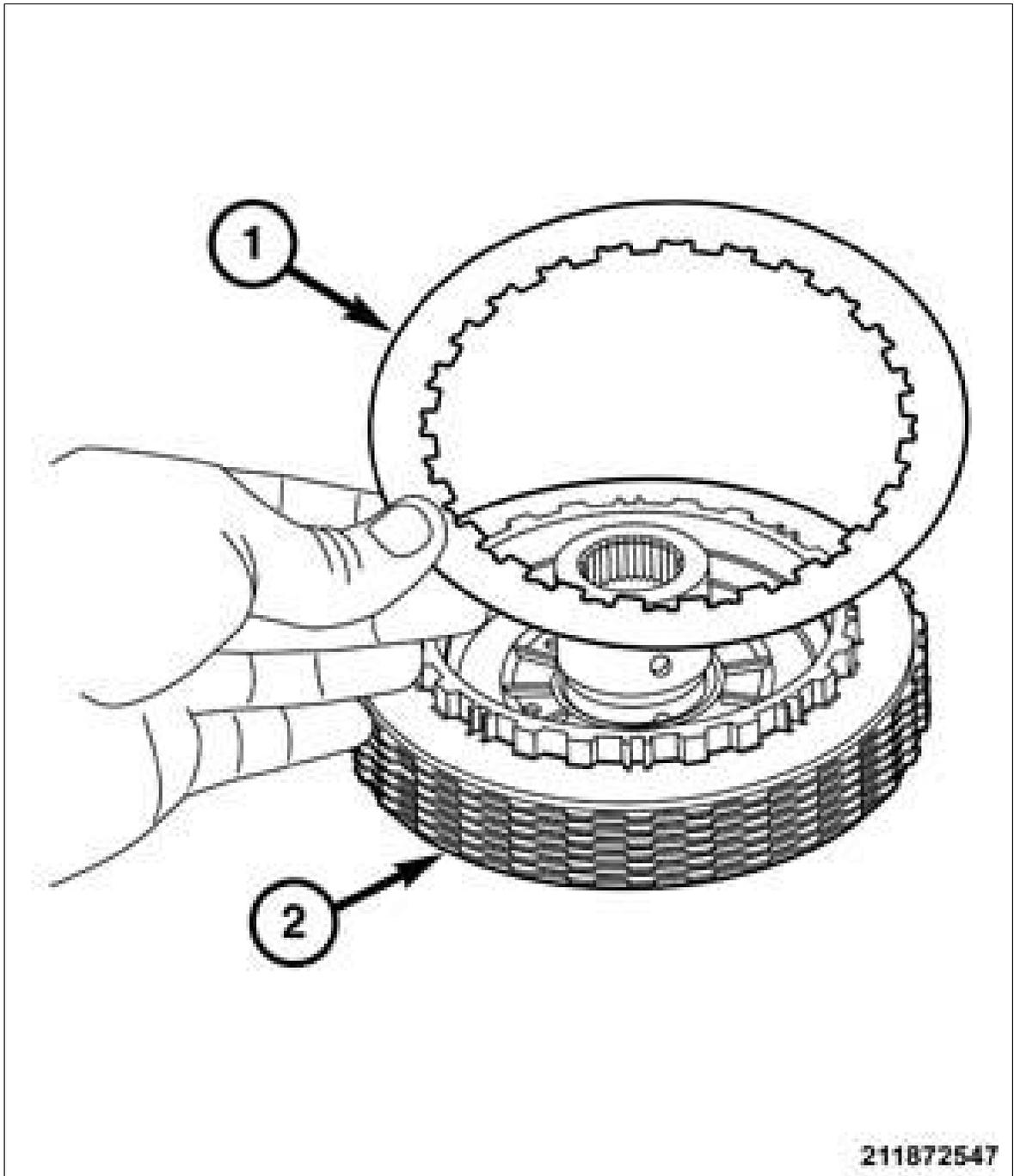
Fig 4: Friction & Steel Plates



Courtesy of CHRYSLER GROUP, LLC

4. Install 6 friction and steel clutch plates (1).

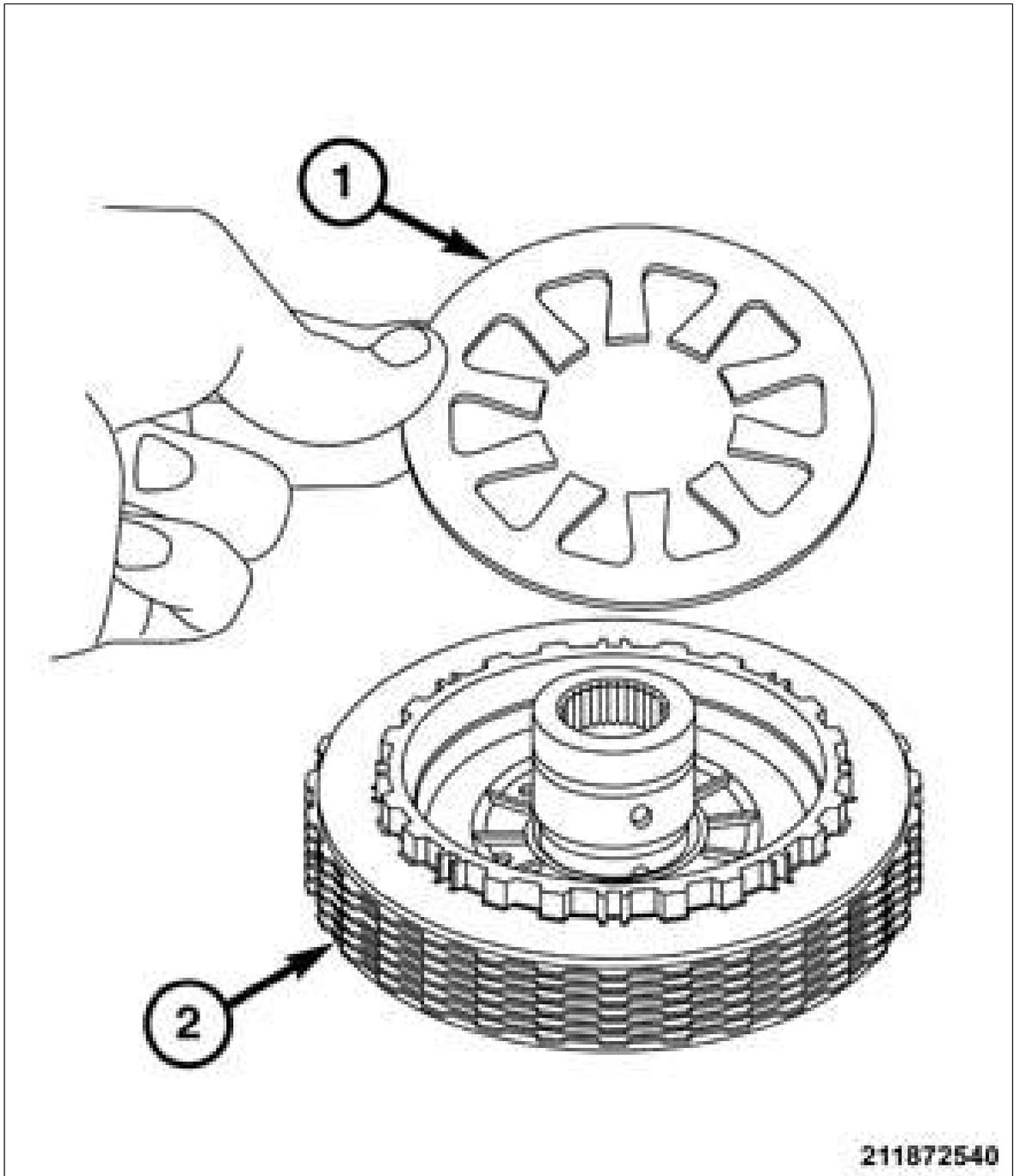
Fig 5: Wave Plate



Courtesy of CHRYSLER GROUP, LLC

5. Install the wave plate (1).

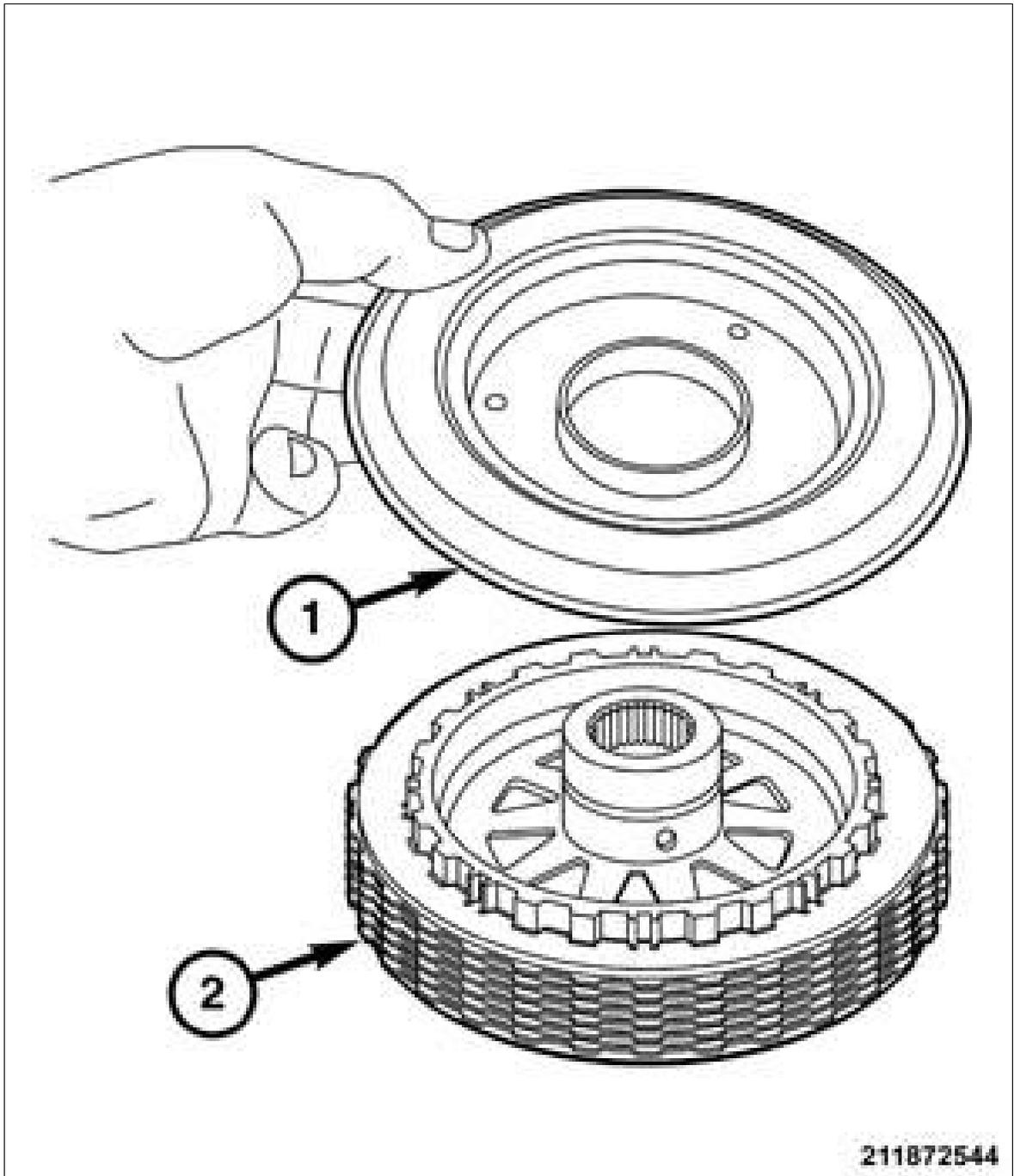
Fig 6: Friction Plates & Belleville Spring



Courtesy of CHRYSLER GROUP, LLC

6. Install the belleville spring (1).

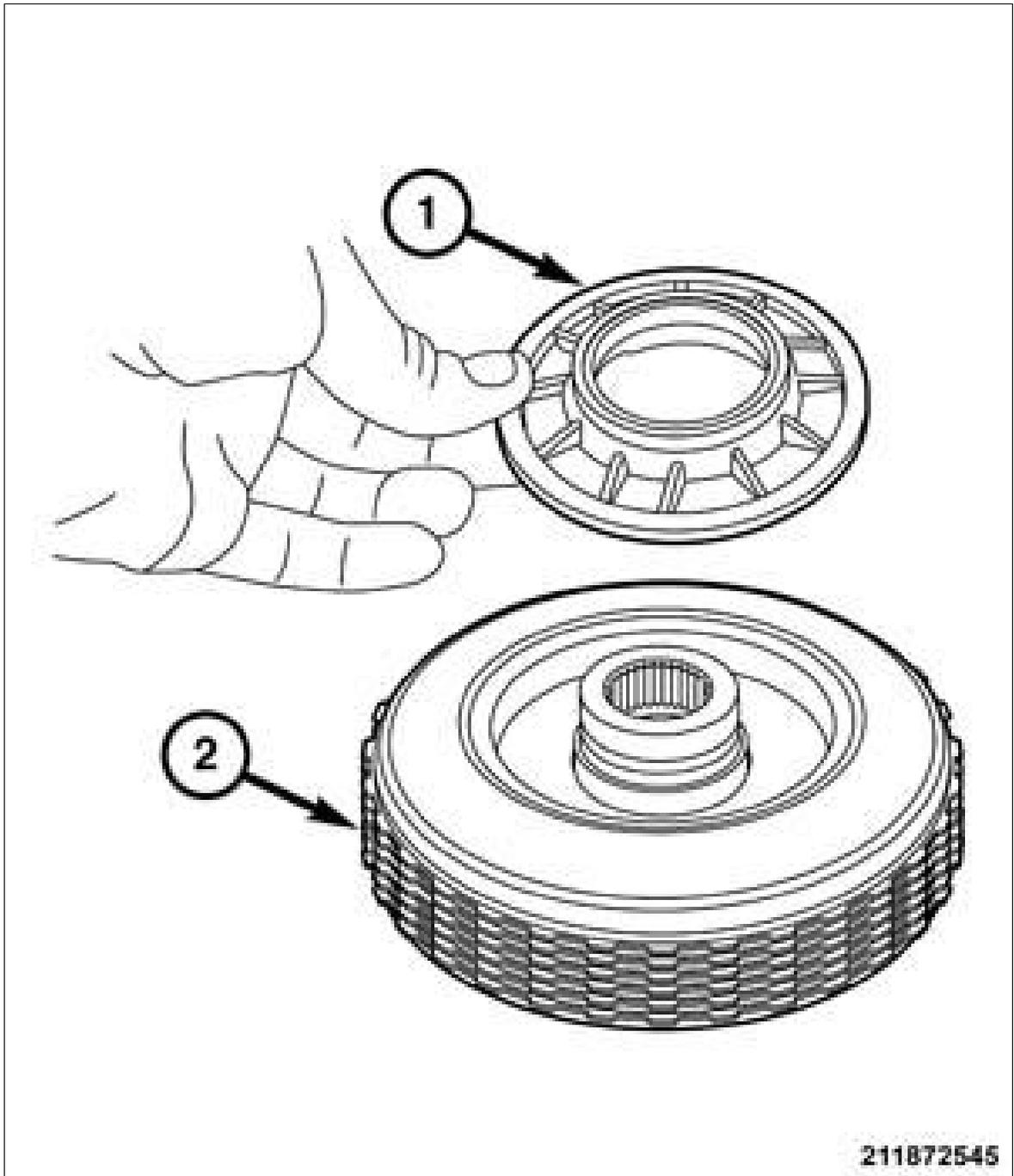
Fig 7: Friction Plates & Retainer



Courtesy of CHRYSLER GROUP, LLC

7. Install the C-clutch piston (1).

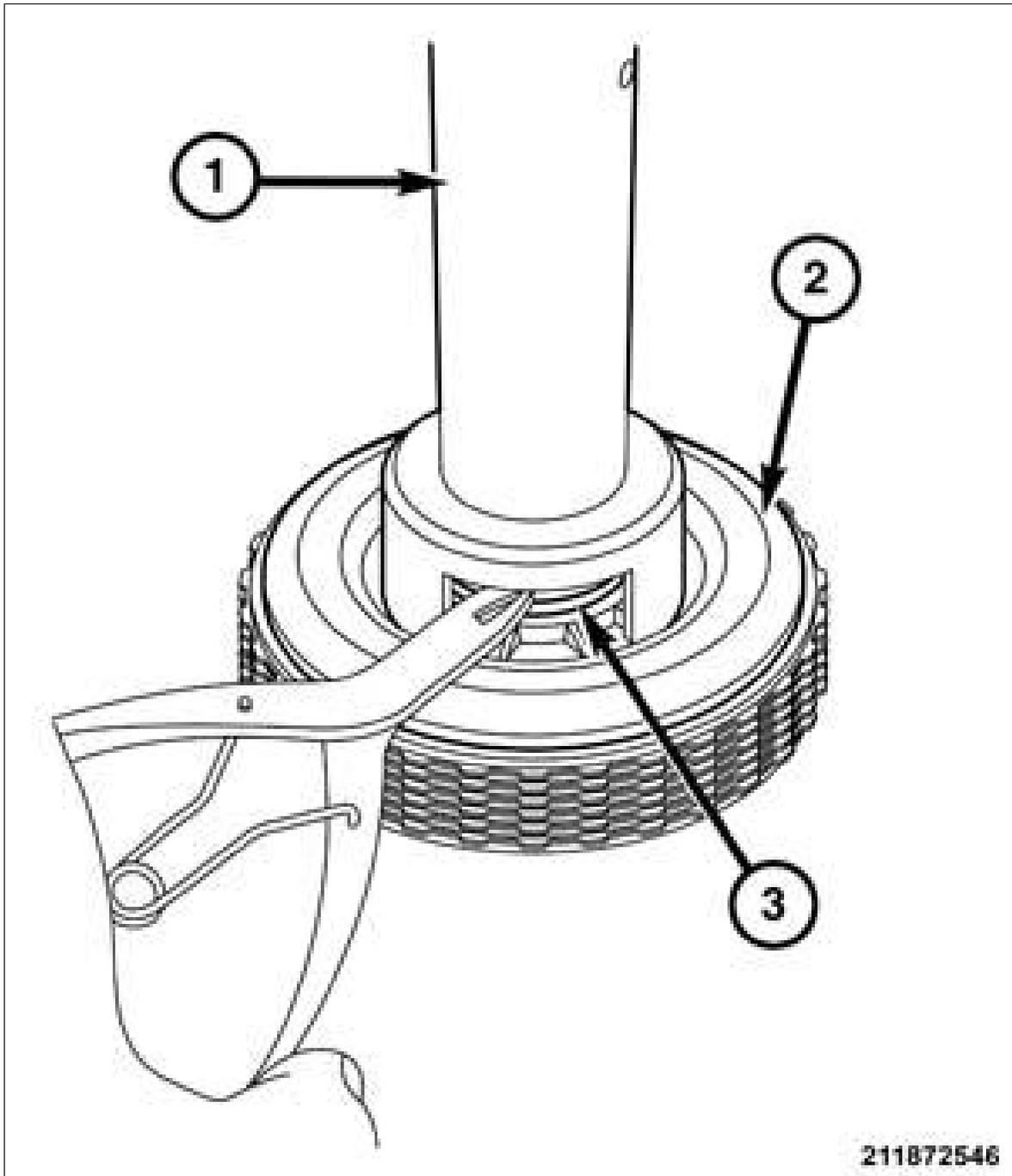
Fig 8: C-Clutch & Retainer



Courtesy of CHRYSLER GROUP, LLC

8. Install the C-clutch retainer (1).

Fig 9: Special Tool, C-Clutch & Snap Ring

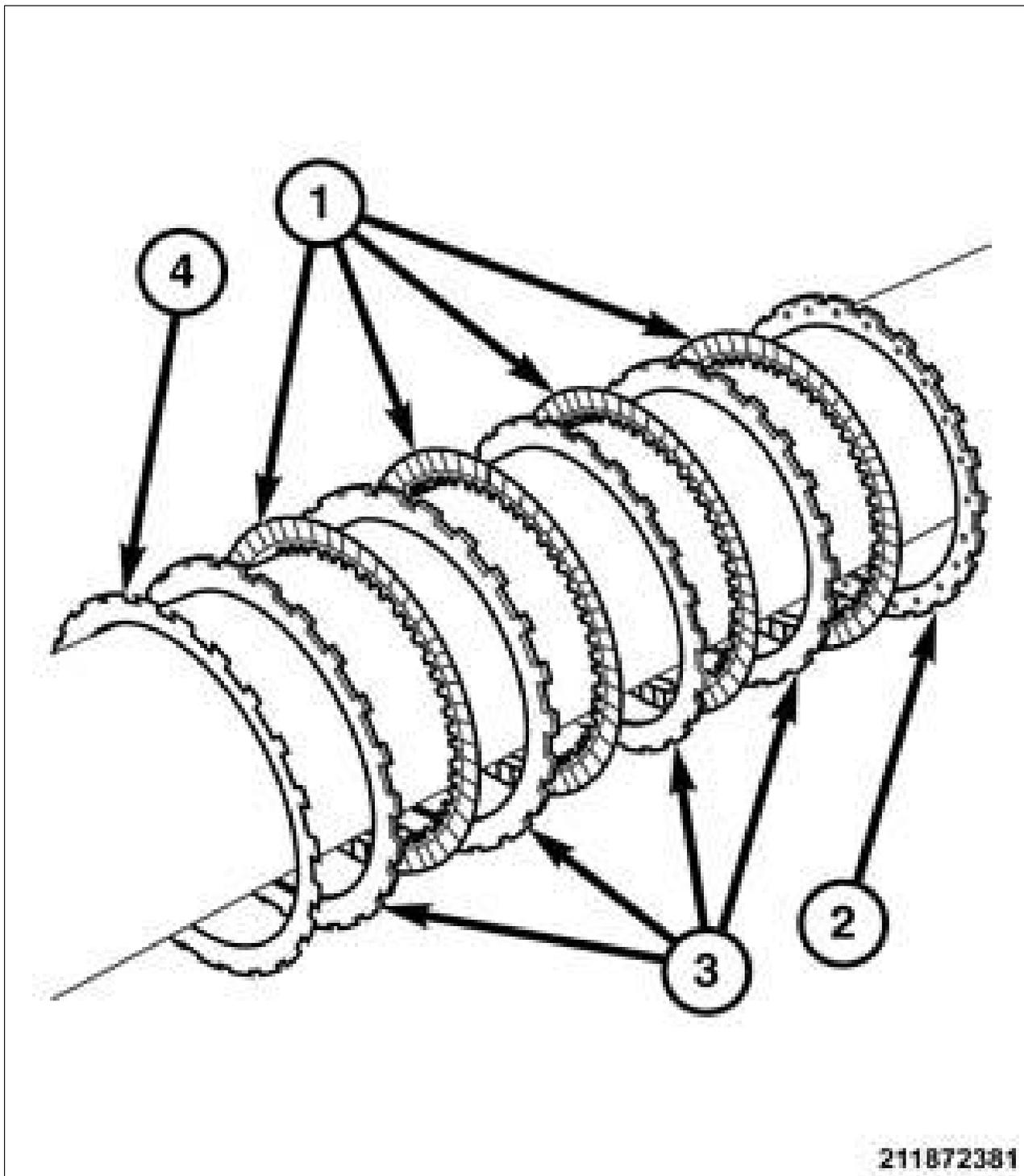


Courtesy of CHRYSLER GROUP, LLC

9. Place the C-clutch (2) in a suitable press.
10. Using special tool 8680 (1) compress the clutch enough to install the snap ring (3).
11. Install the snap ring (3).
12. Using (special tool #8901A, Pressing Tool) and (special tool #10429, Gauge, Force) measure the C-clutch clearance. Refer to CLUTCH SPECIFICATIONS for specifications.

# CLUTCH, D > DISASSEMBLY > CLUTCH D DISASSEMBLY

Fig 1: Friction, Backing & Wave Plates



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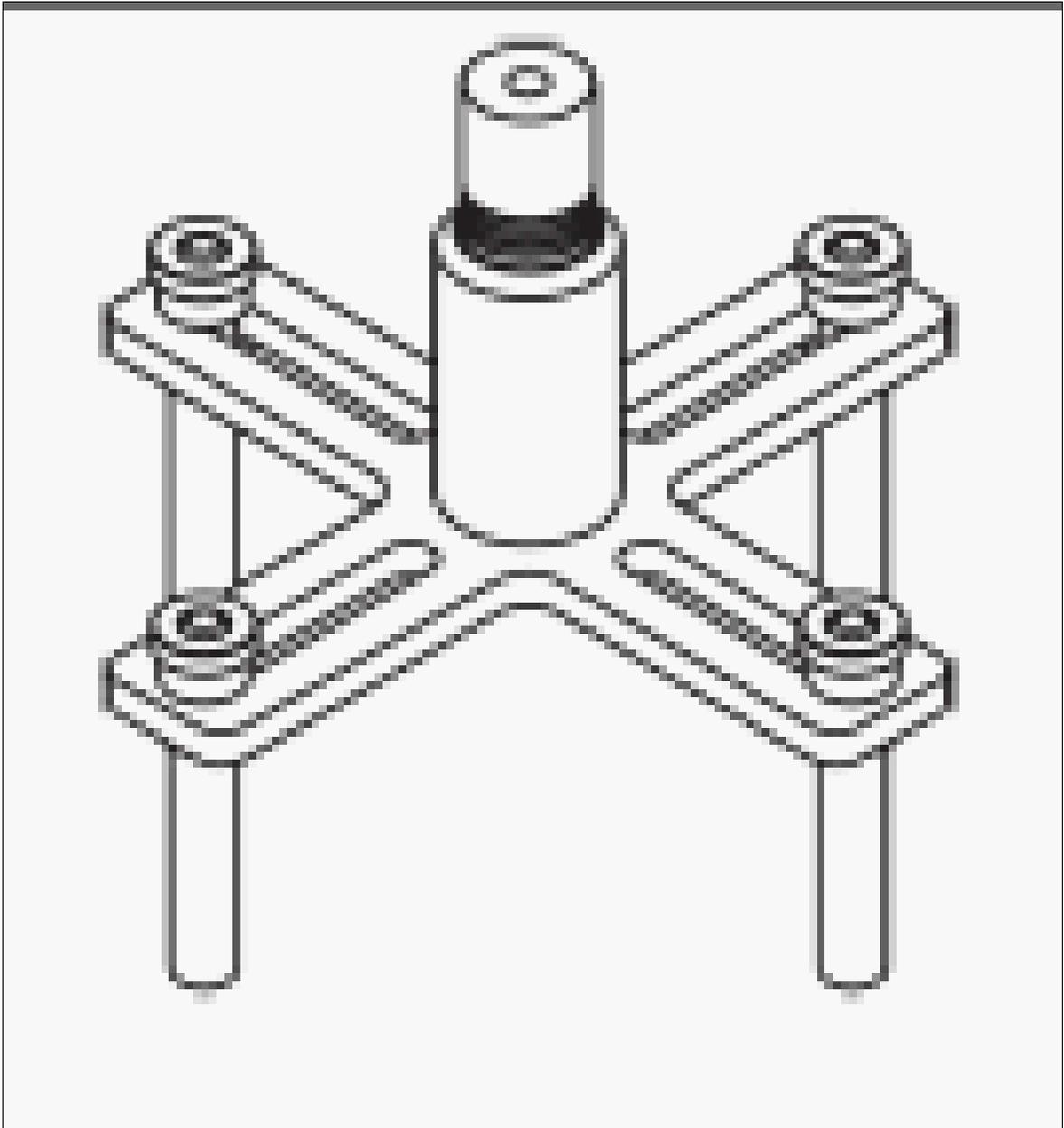
- 1. Friction plate
- 2. Backing plate

3. Backing plate

4. Wave plate

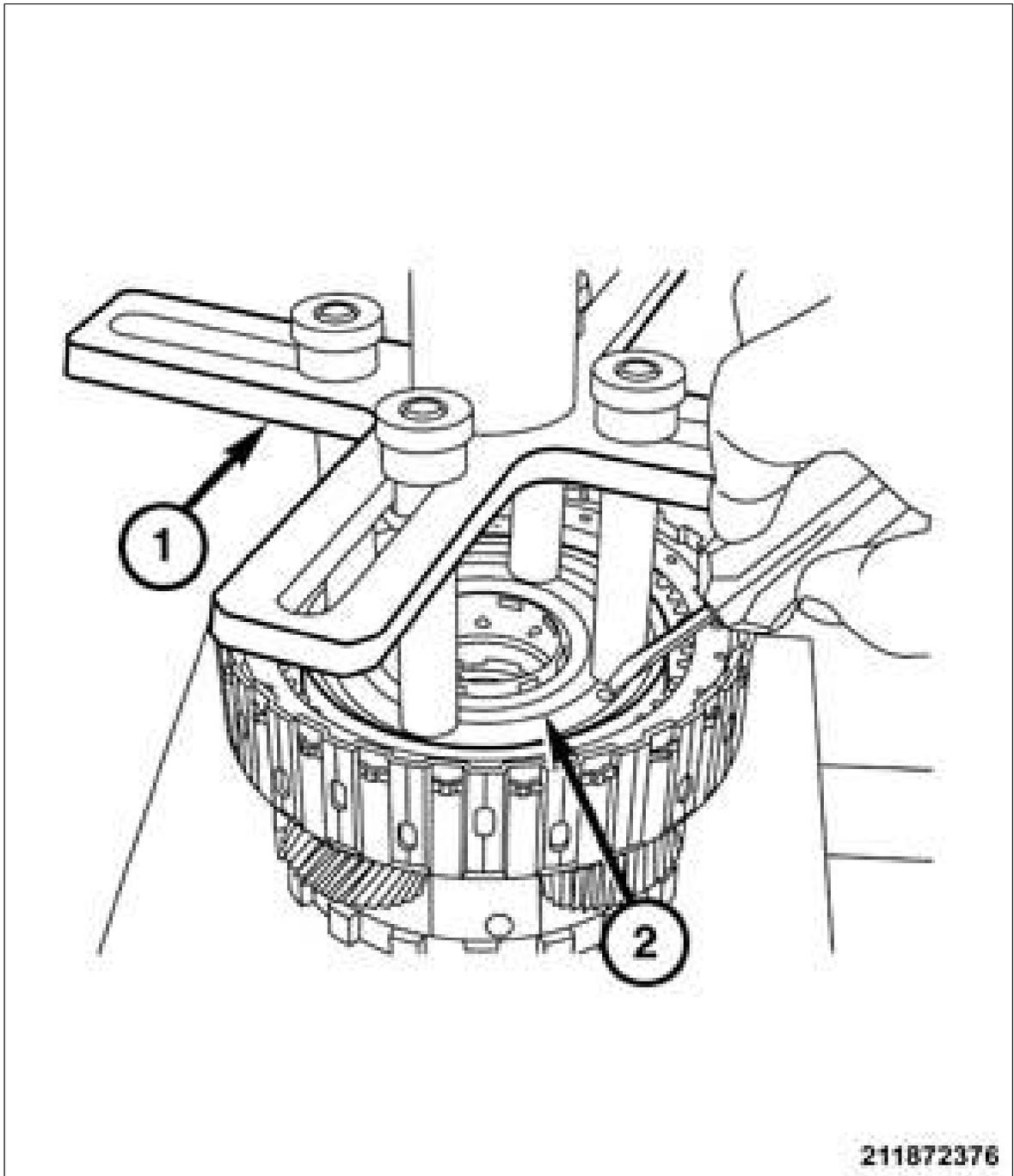
1. Place the D-clutch (3) in a suitable arbor press (1).
2. Using (special tool #8901A, Pressing Tool) (4) to compress the oil baffle (2) enough the clear the locking tabs.

Fig 2: Cross Bar Tool



Courtesy of CHRYSLER GROUP, LLC

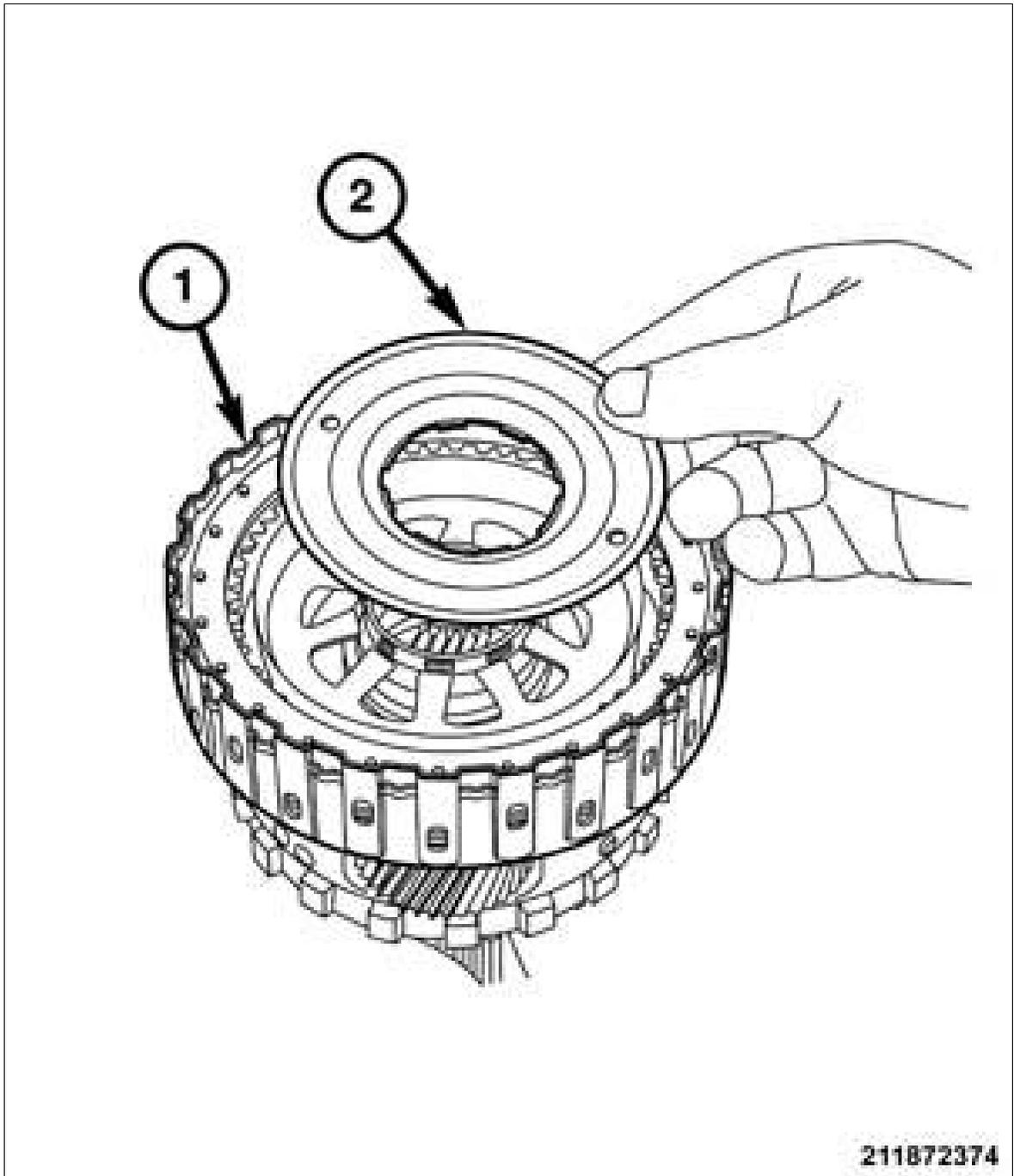
Fig 3: Oil Baffle & Tabs



Courtesy of CHRYSLER GROUP, LLC

3. Rotate the oil baffle (2) slightly until the tabs on the hub are clear of the baffle.

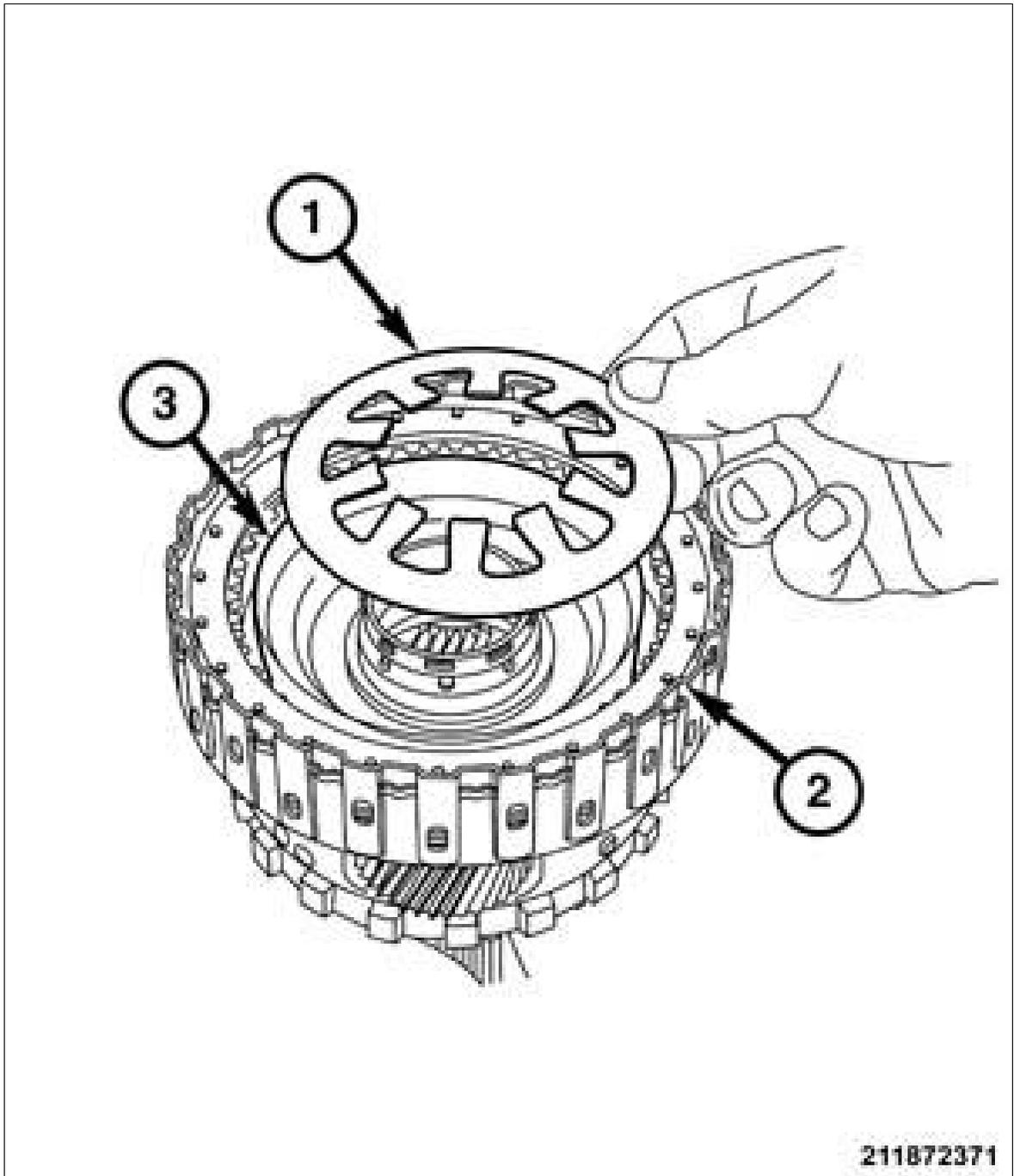
Fig 4: Hub & Oil Baffle



Courtesy of CHRYSLER GROUP, LLC

4. Remove the oil baffle (2).

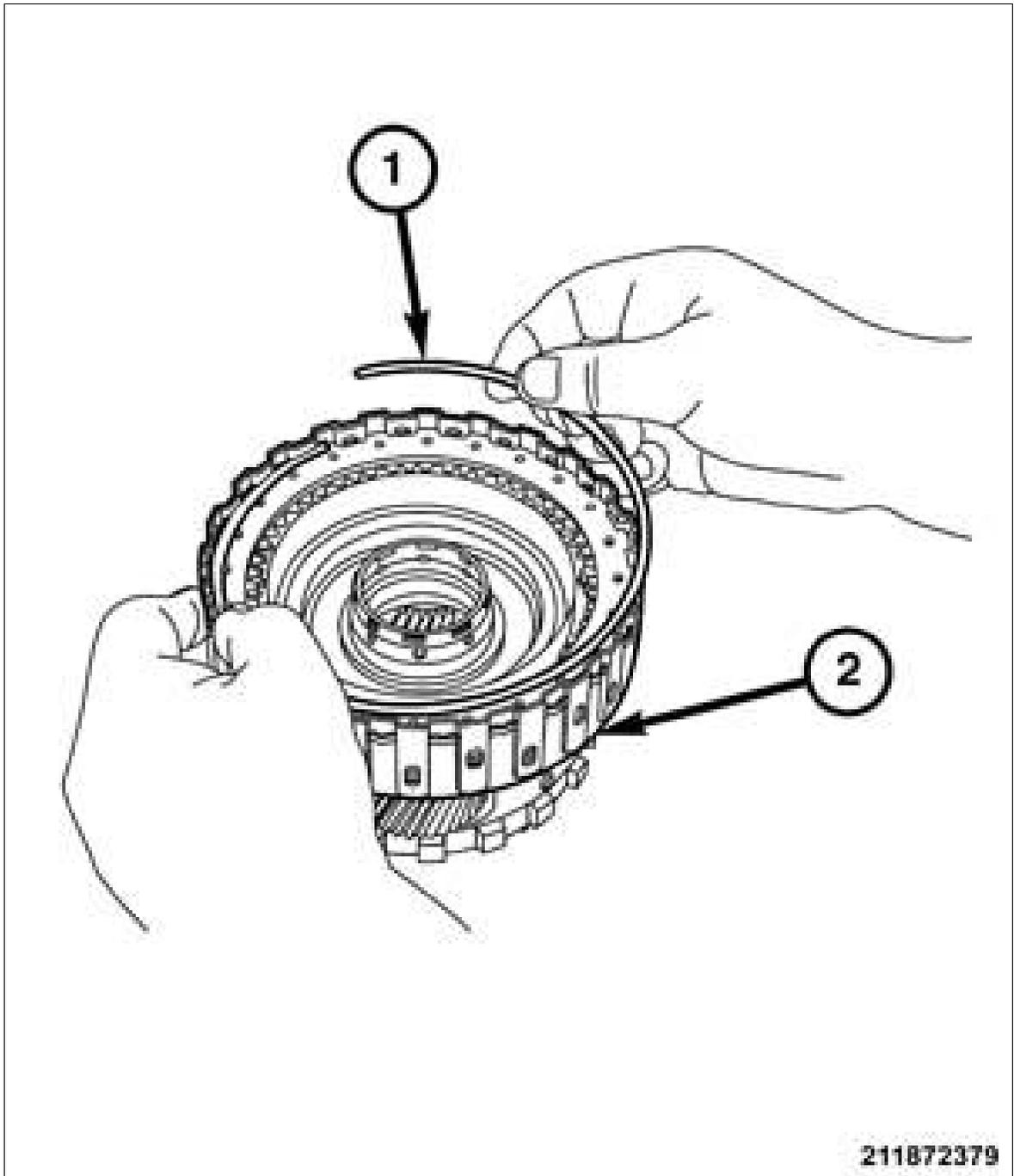
Fig 5: Hub, Oil Baffle & Belleville Spring



Courtesy of CHRYSLER GROUP, LLC

5. Remove the belleville spring (1).

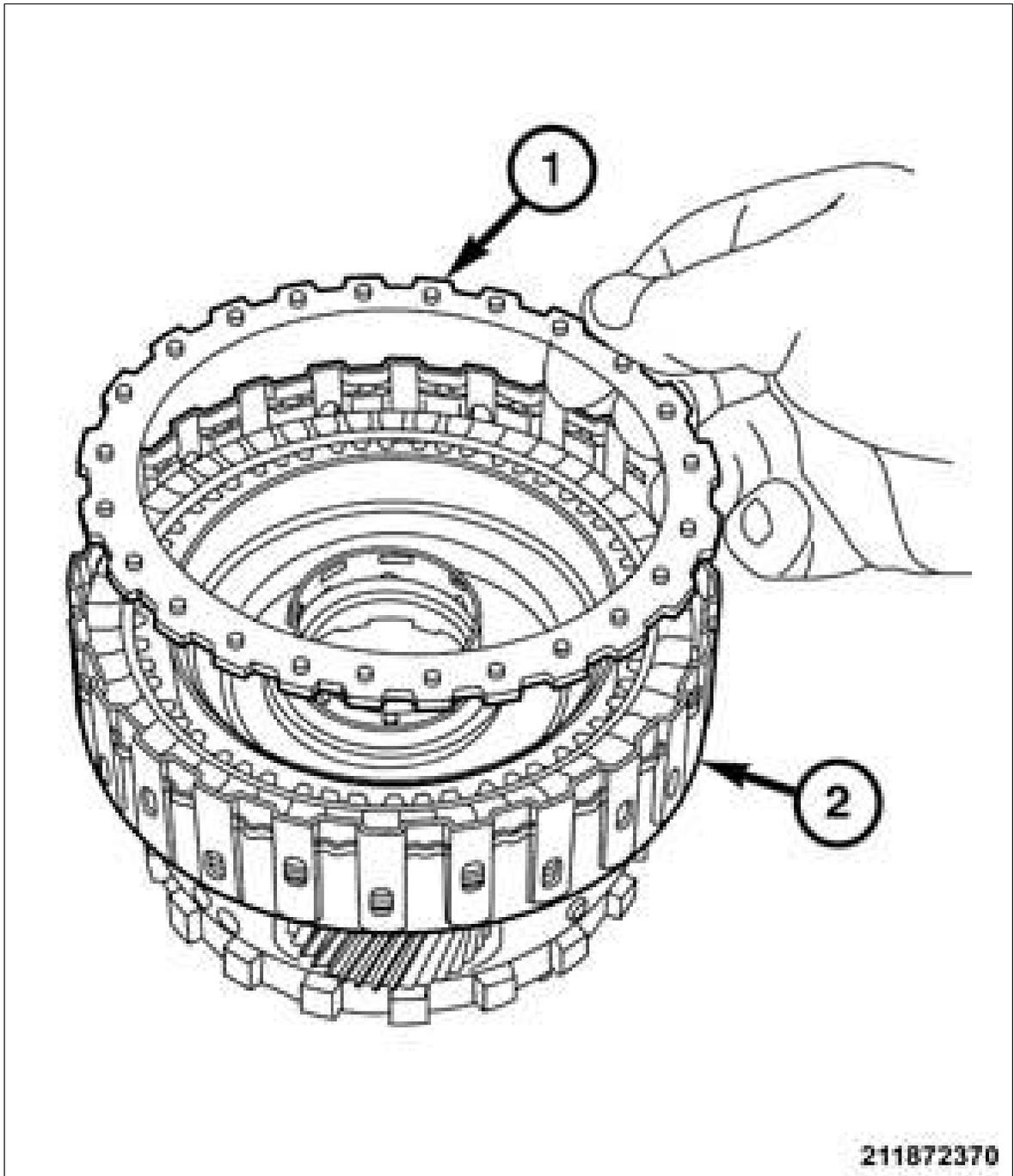
Fig 6: Oil Baffle & Spring



Courtesy of CHRYSLER GROUP, LLC

6. Remove the selective snap ring (1).

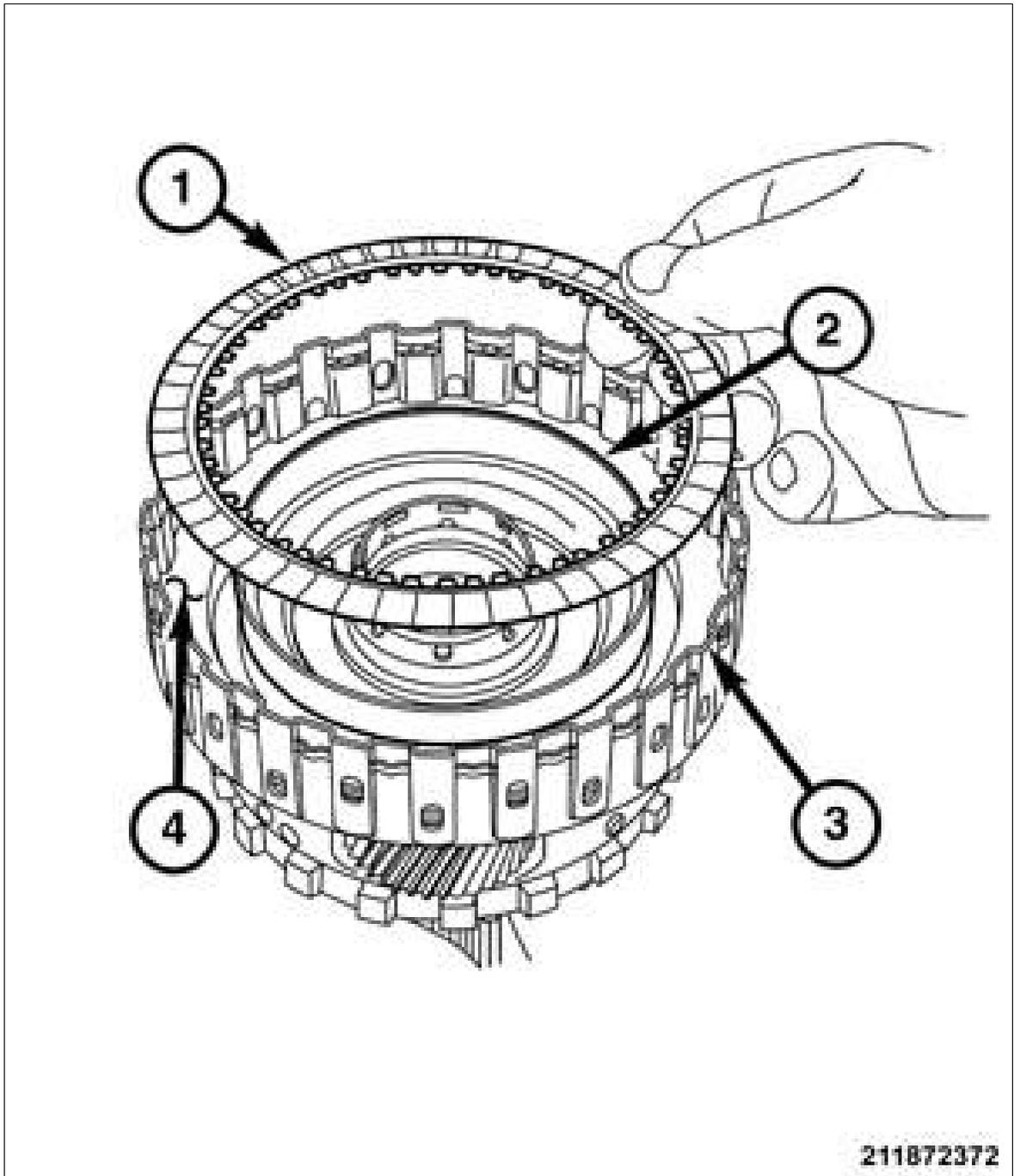
Fig 7: Oil Baffle & D-Clutch Backing Plate



Courtesy of CHRYSLER GROUP, LLC

7. Remove the D-Clutch backing plate (1).

Fig 8: Oil Baffle, D-Clutch, Friction & Steels

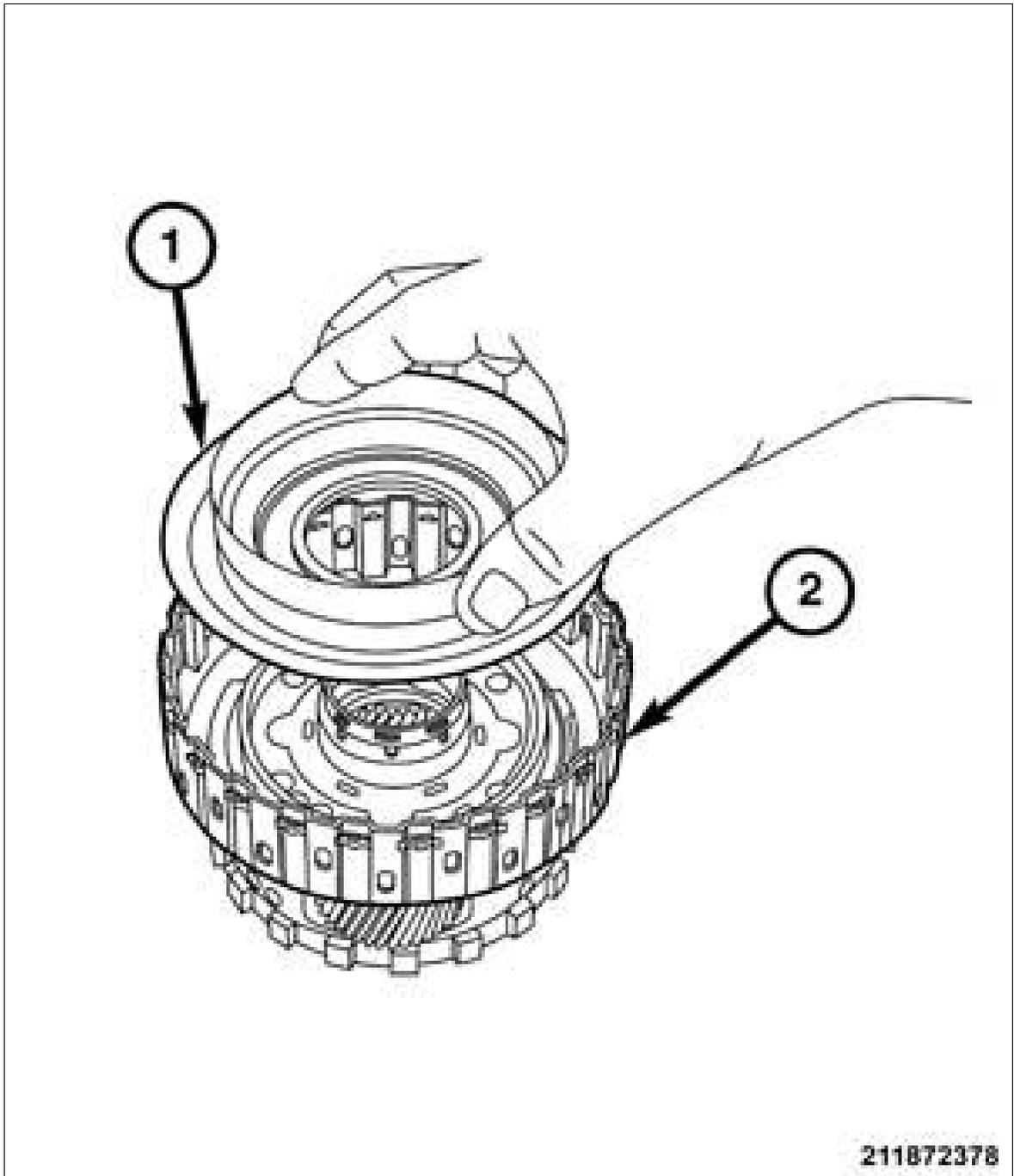


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8. Remove the D-Clutch (3) frictions and steels (1), paying attention to the orientation.

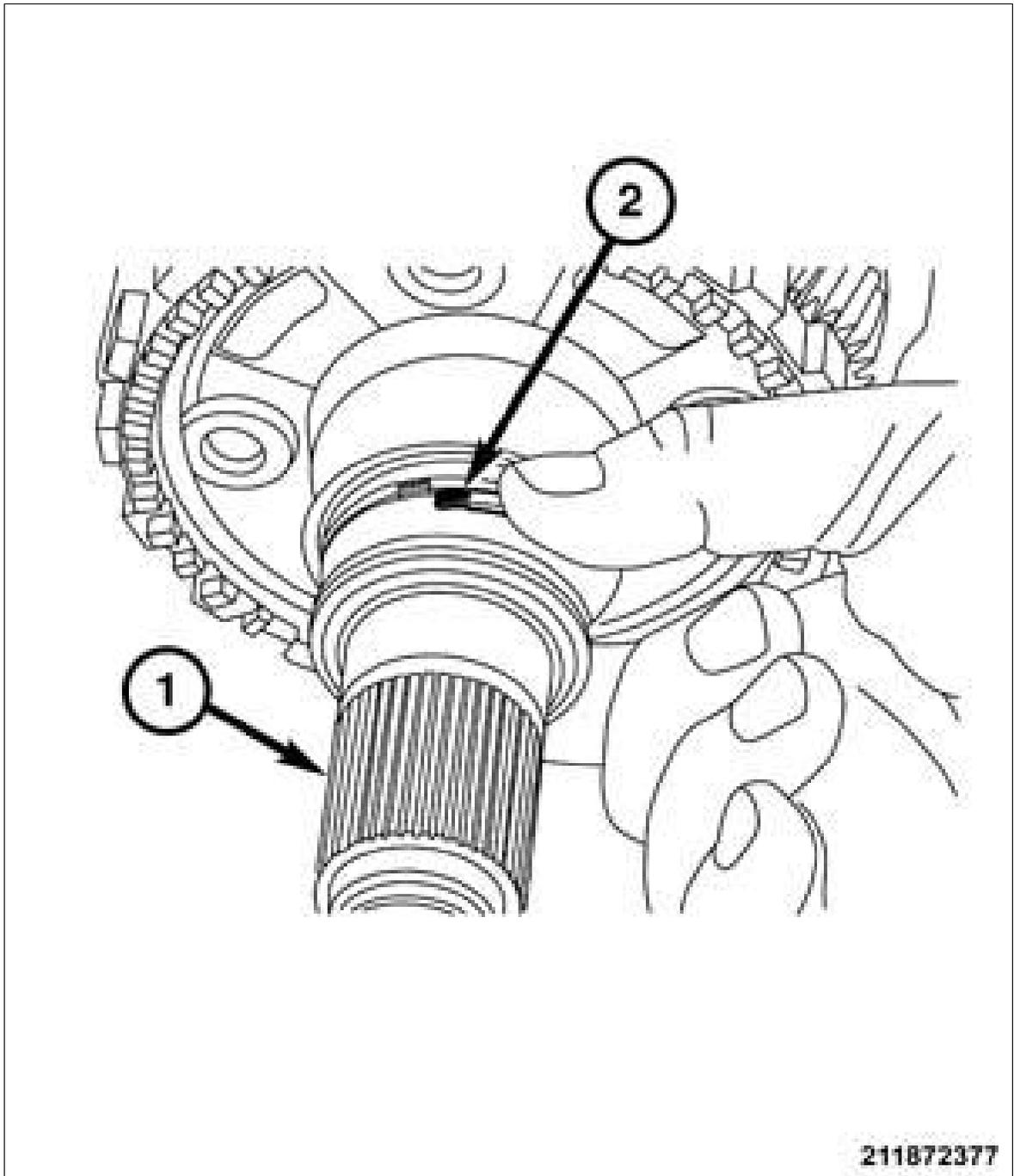
Fig 9: D-Clutch & Piston



Courtesy of CHRYSLER GROUP, LLC

9. Remove the D-Clutch (2) piston (1).

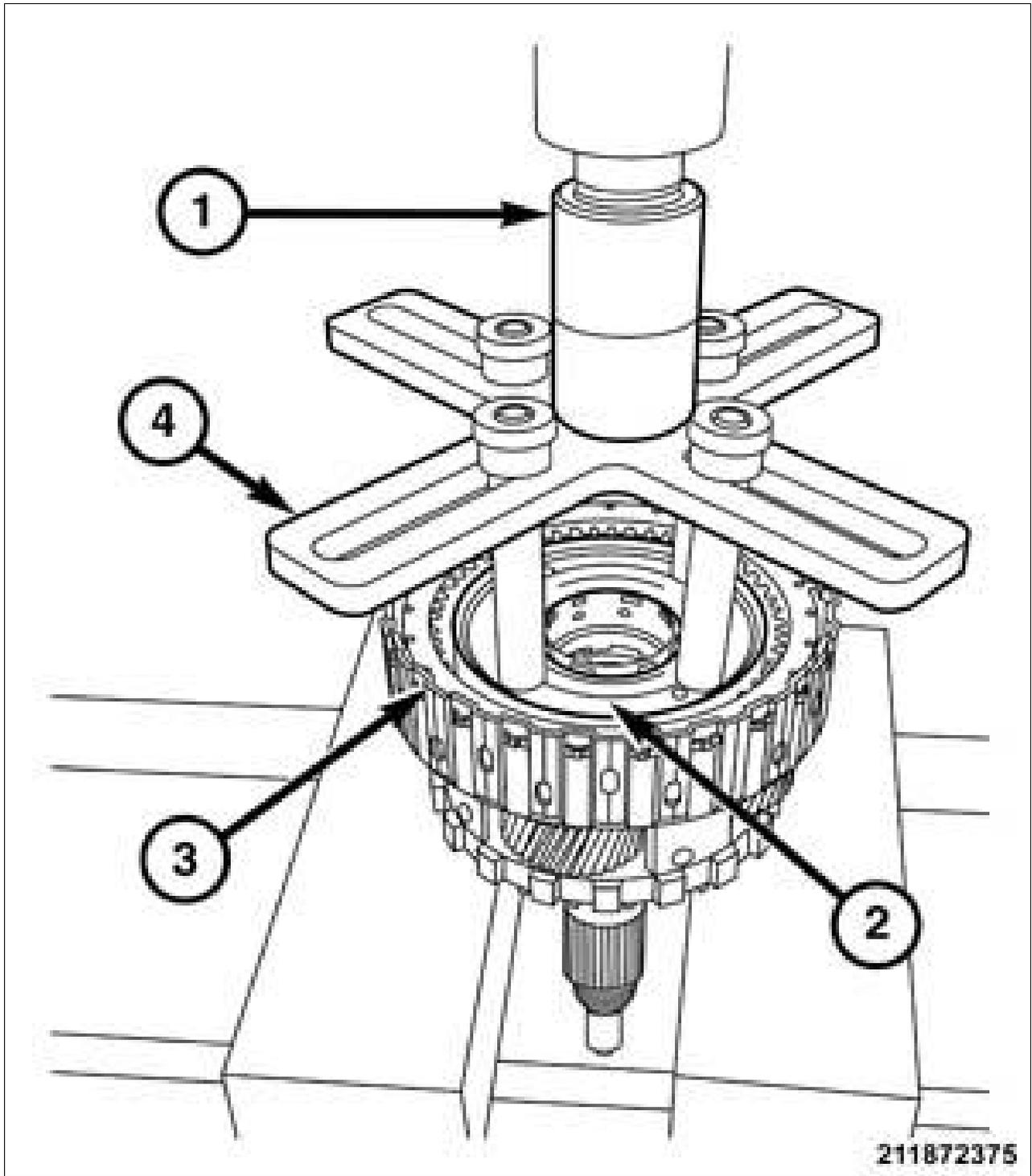
Fig 10: D-Clutch Carrier Seal Rings



Courtesy of CHRYSLER GROUP, LLC

10. Remove the D-Clutch carrier seal rings (2).

Fig 11: D-Clutch & Arbor Press

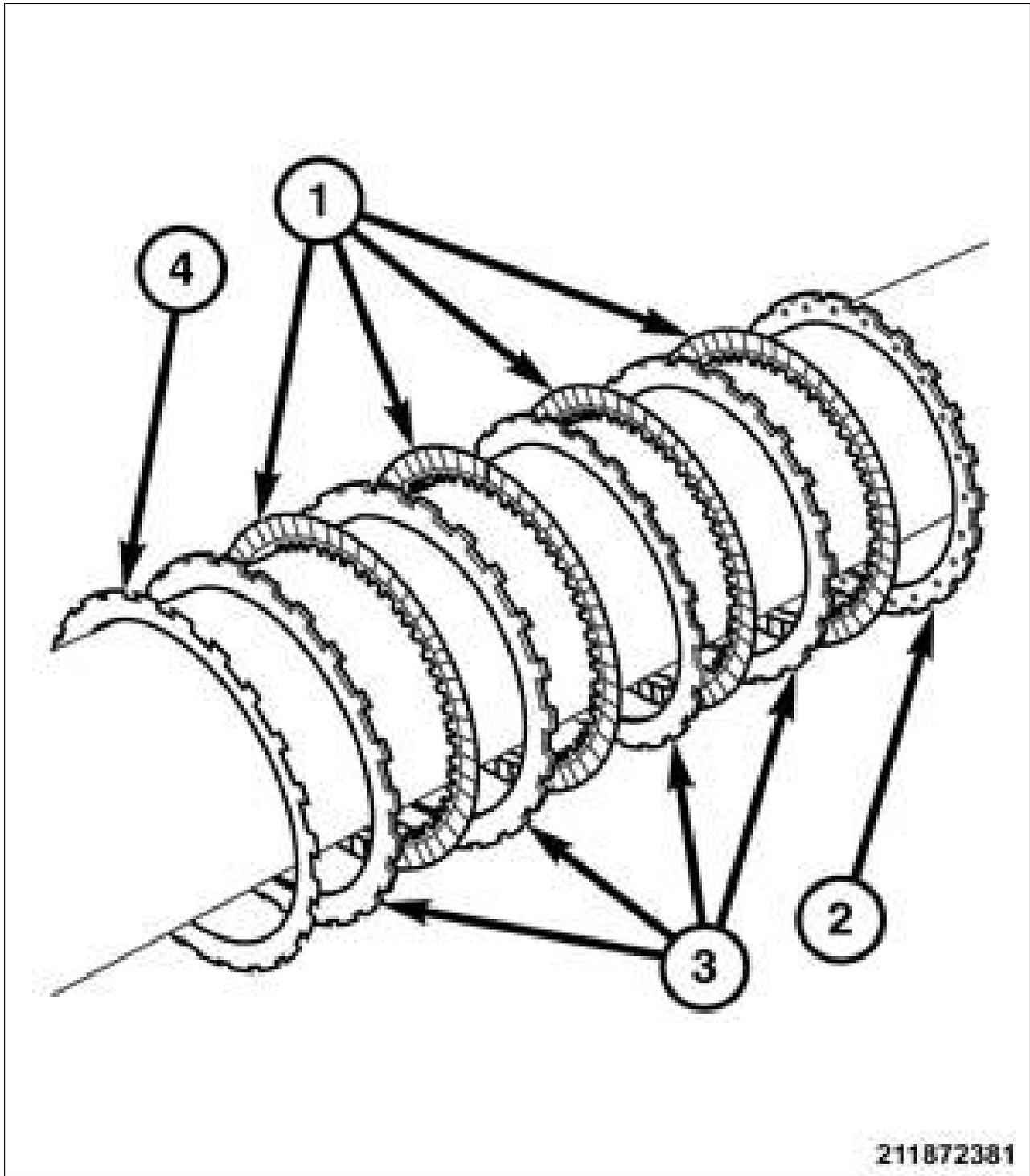


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**CLUTCH, D > ASSEMBLY > CLUTCH D ASSEMBLY**

Fig 1: Friction, Backing & Wave Plates



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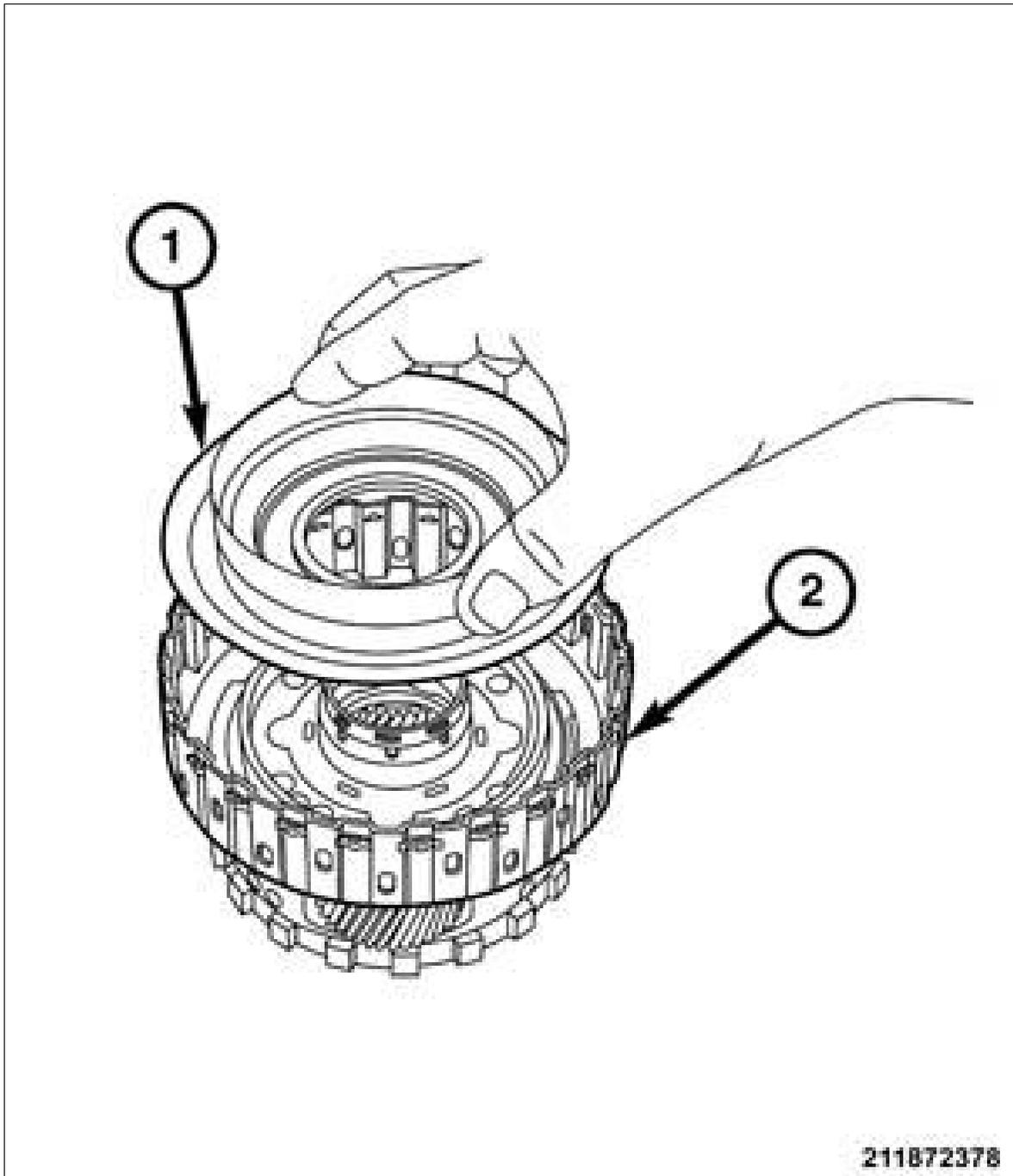
1. Friction plate
2. Backing plate
3. Steel plate
4. Wave plate

 **NOTE:**

*If clutch discs are being replaced, soak them in 8HP trans fluid before assembly.*

1. Install D-Clutch carrier seal rings (2).
2. Place the D-Clutch in a suitable arbor press.

Fig 2: D-Clutch & Piston

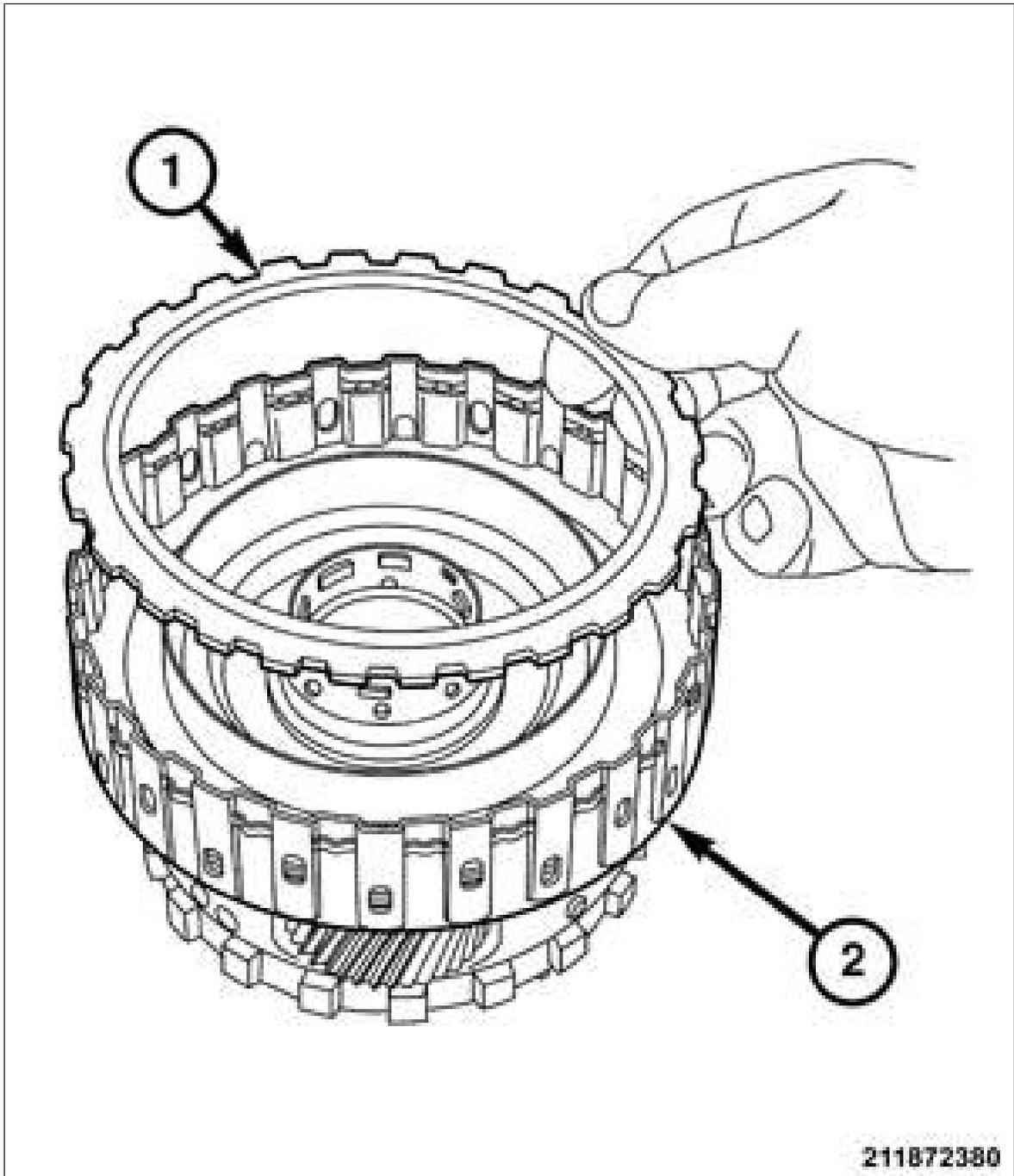


Courtesy of CHRYSLER GROUP, LLC

3. Coat the O-rings with 8HP fluid on the D-Clutch (2) piston (1) and install the piston (1) onto the

carrier.

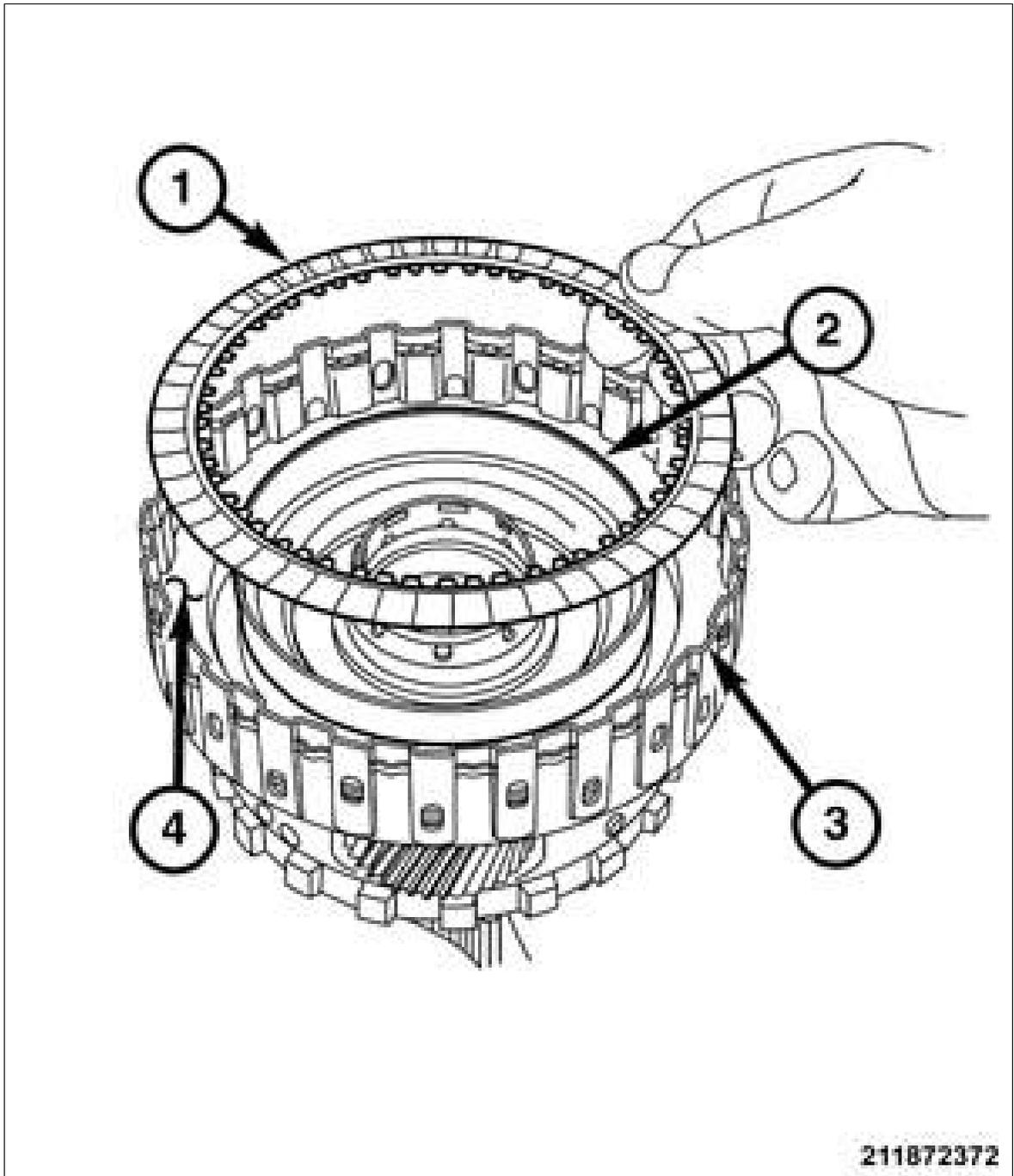
Fig 3: D-Clutch & Wave Plate



Courtesy of CHRYSLER GROUP, LLC

4. Install the wave plate (1) into the carrier first.

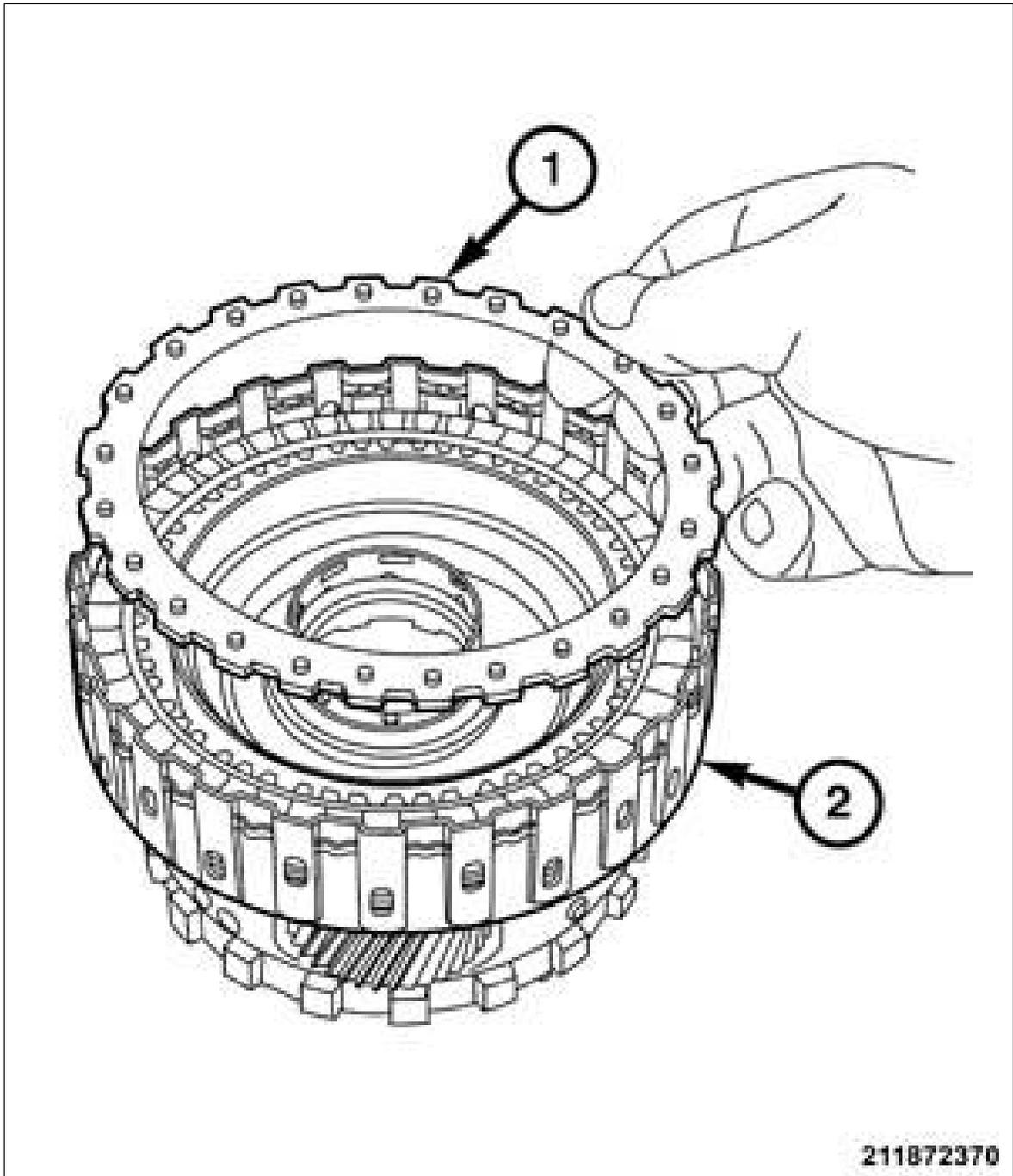
Fig 4: Oil Baffle, D-Clutch, Friction & Steels



Courtesy of CHRYSLER GROUP, LLC

5. Install the frictions and steels (1) into the carrier (3).

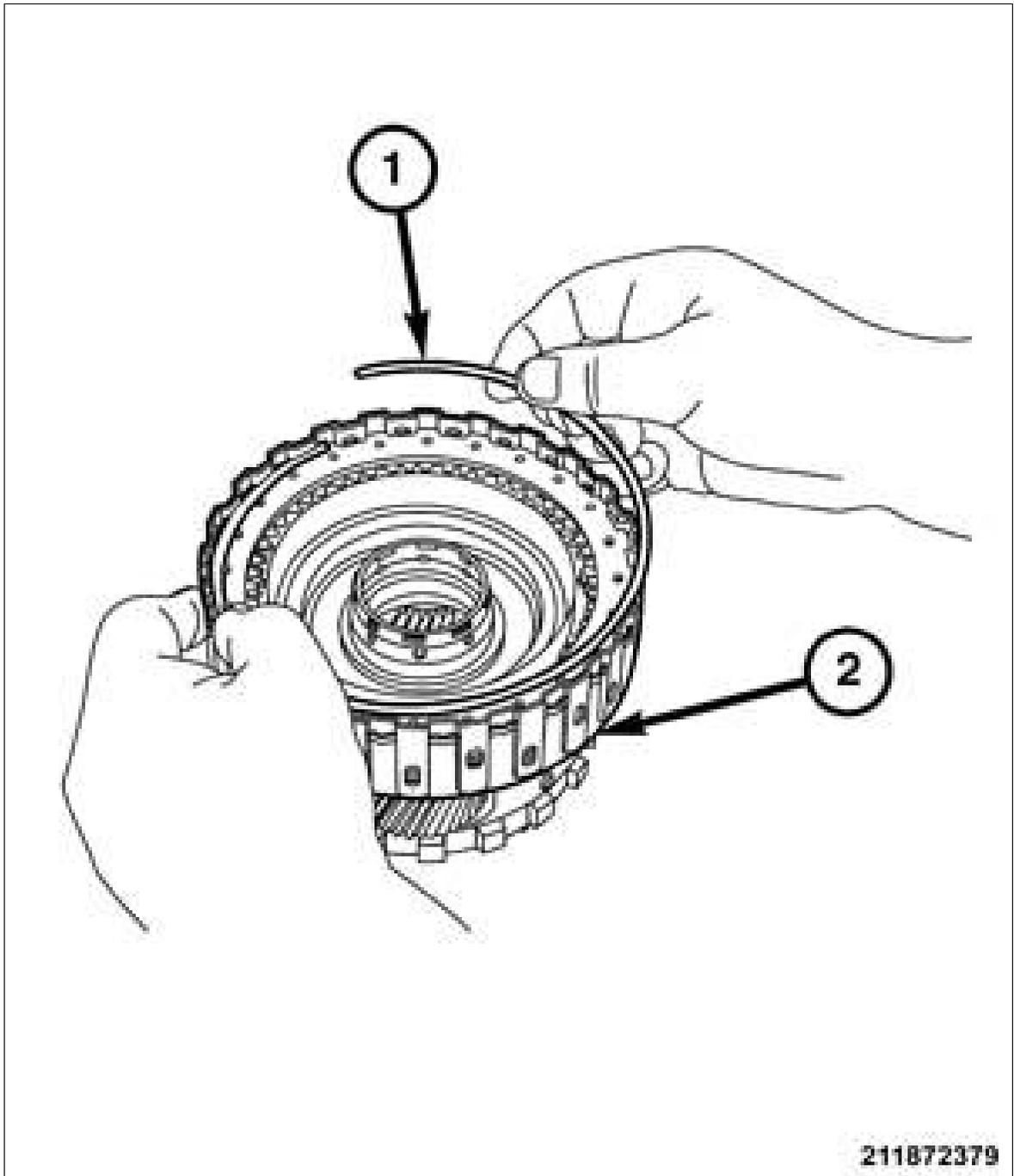
Fig 5: Oil Baffle & D-Clutch Backing Plate



Courtesy of CHRYSLER GROUP, LLC

6. Install the backing plate (1) last onto the carrier.

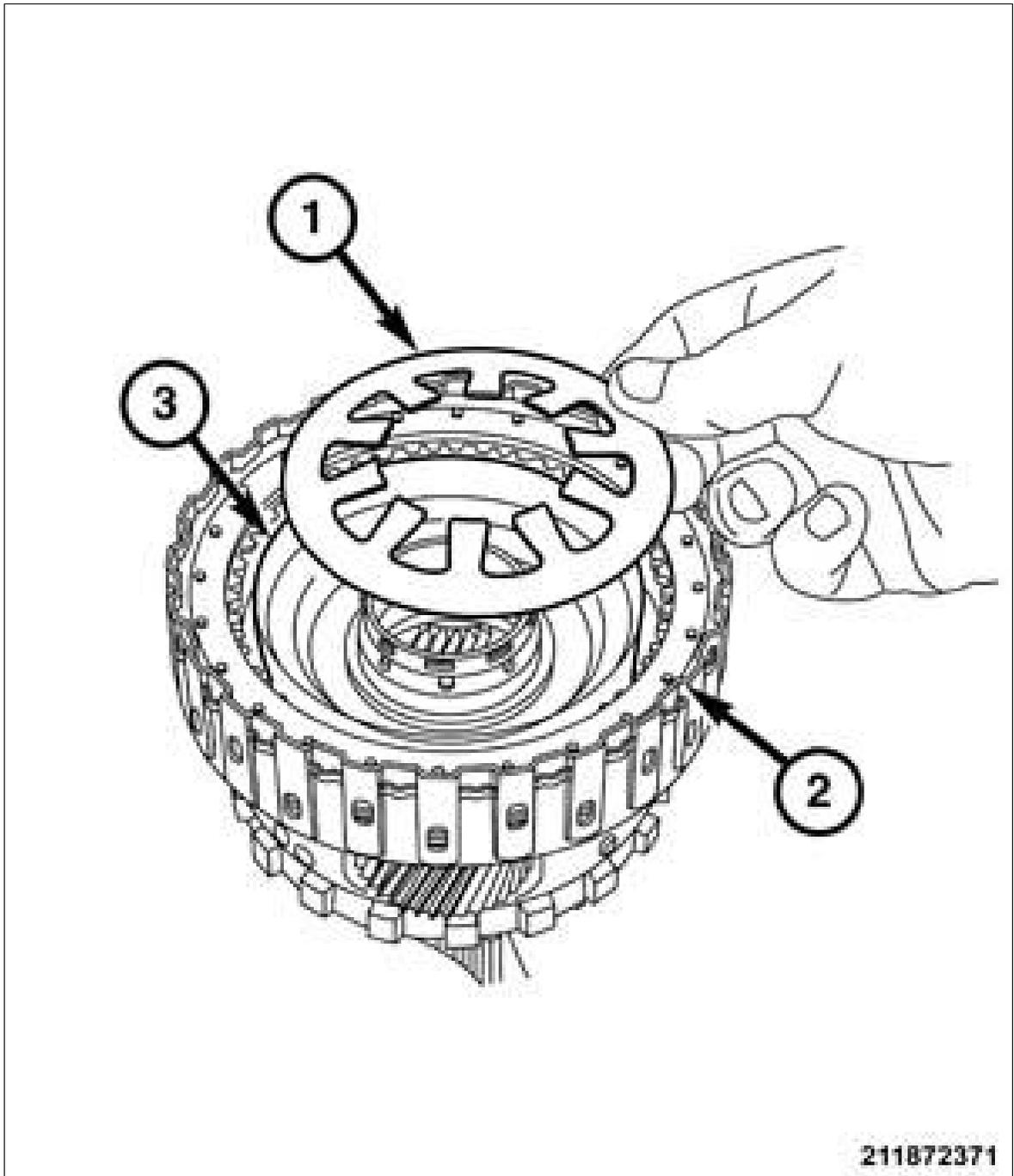
Fig 6: Oil Baffle & Spring



Courtesy of CHRYSLER GROUP, LLC

7. Install the proper selective snap ring (1) onto the D-Clutch carrier (2).

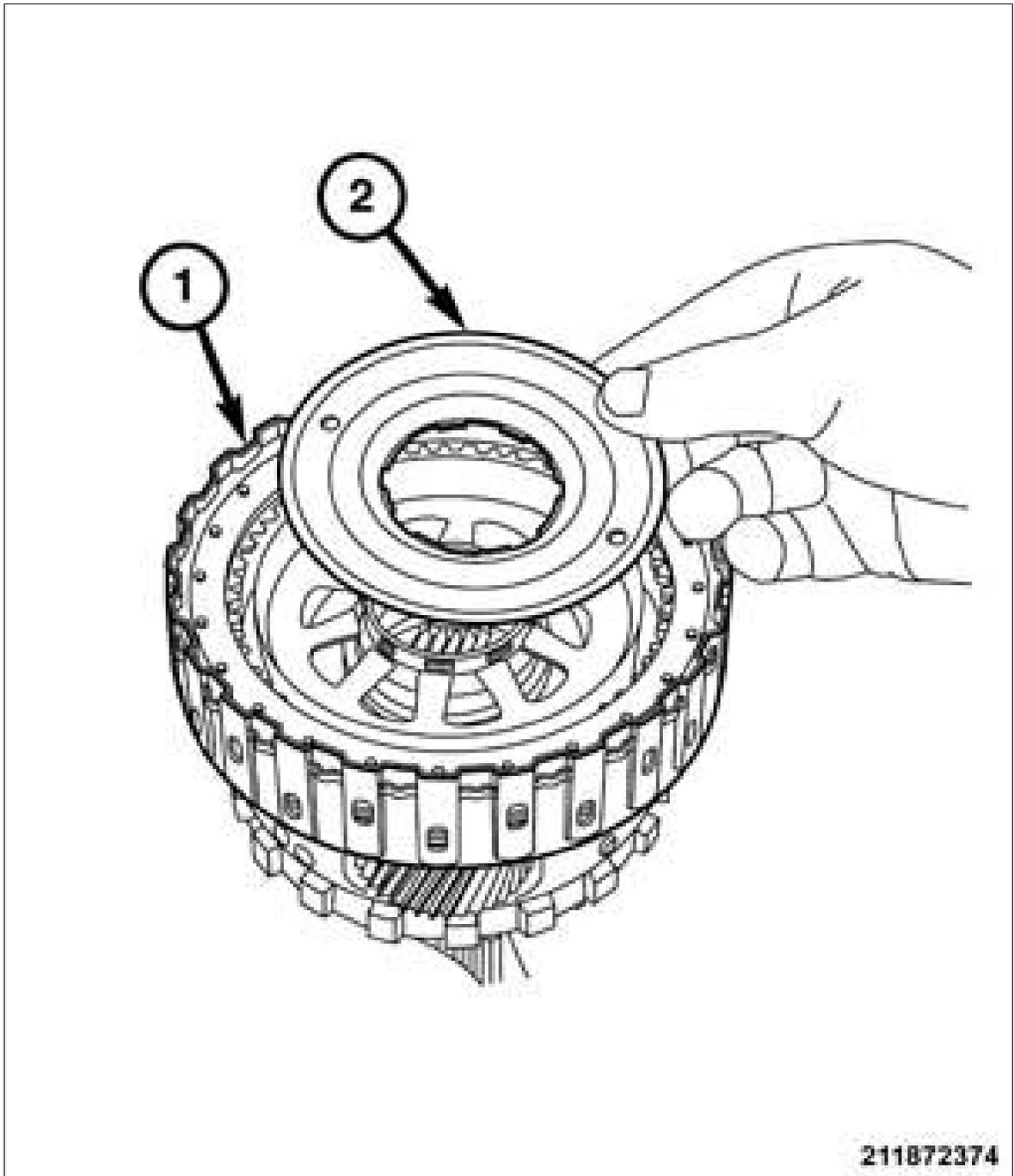
Fig 7: Hub, Oil Baffle & Belleville Spring



Courtesy of CHRYSLER GROUP, LLC

8. Install the belleville spring (1).

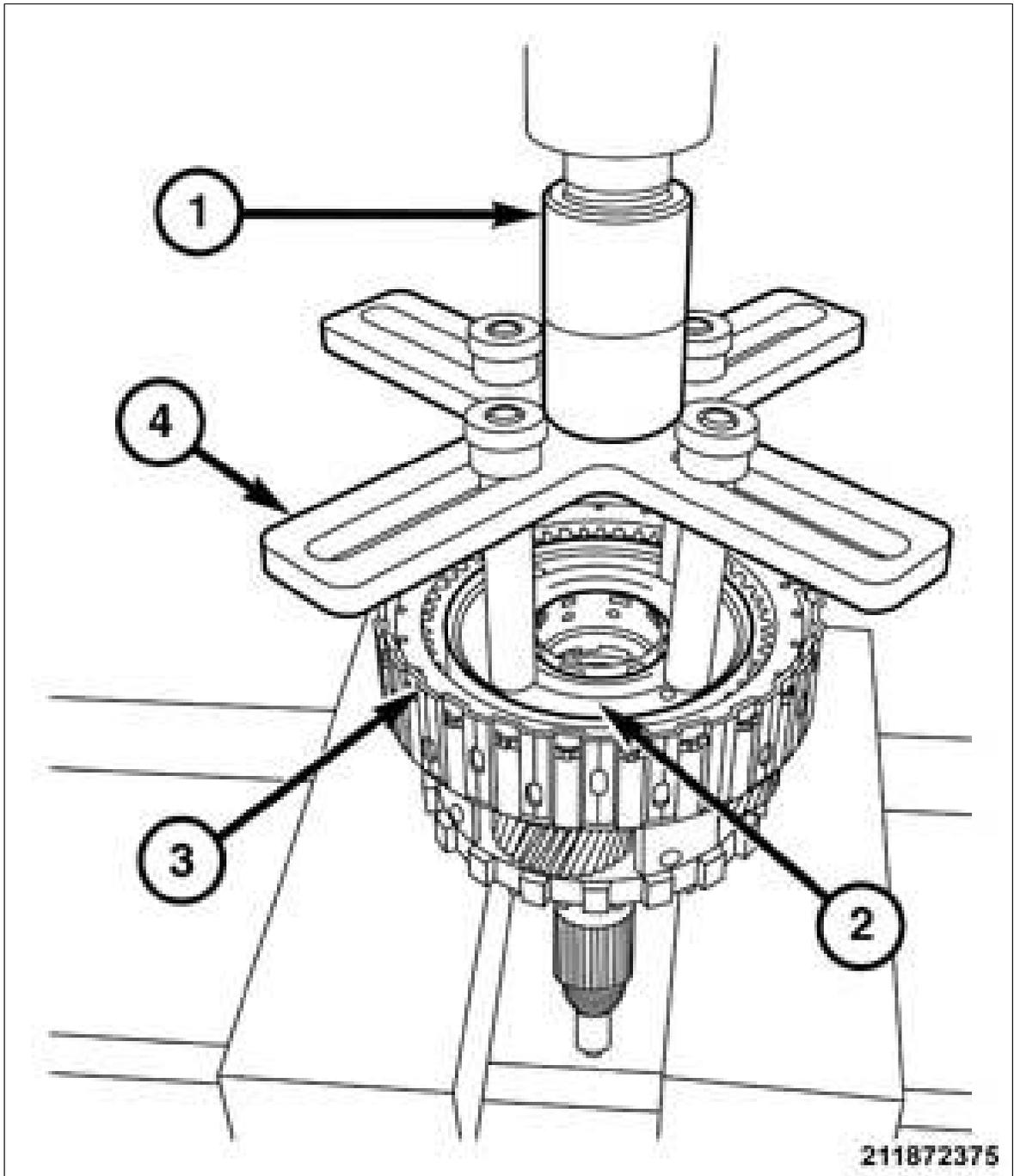
Fig 8: Hub & Oil Baffle



Courtesy of CHRYSLER GROUP, LLC

9. Place the oil baffle (2) onto the hub of the D-clutch carrier (1).

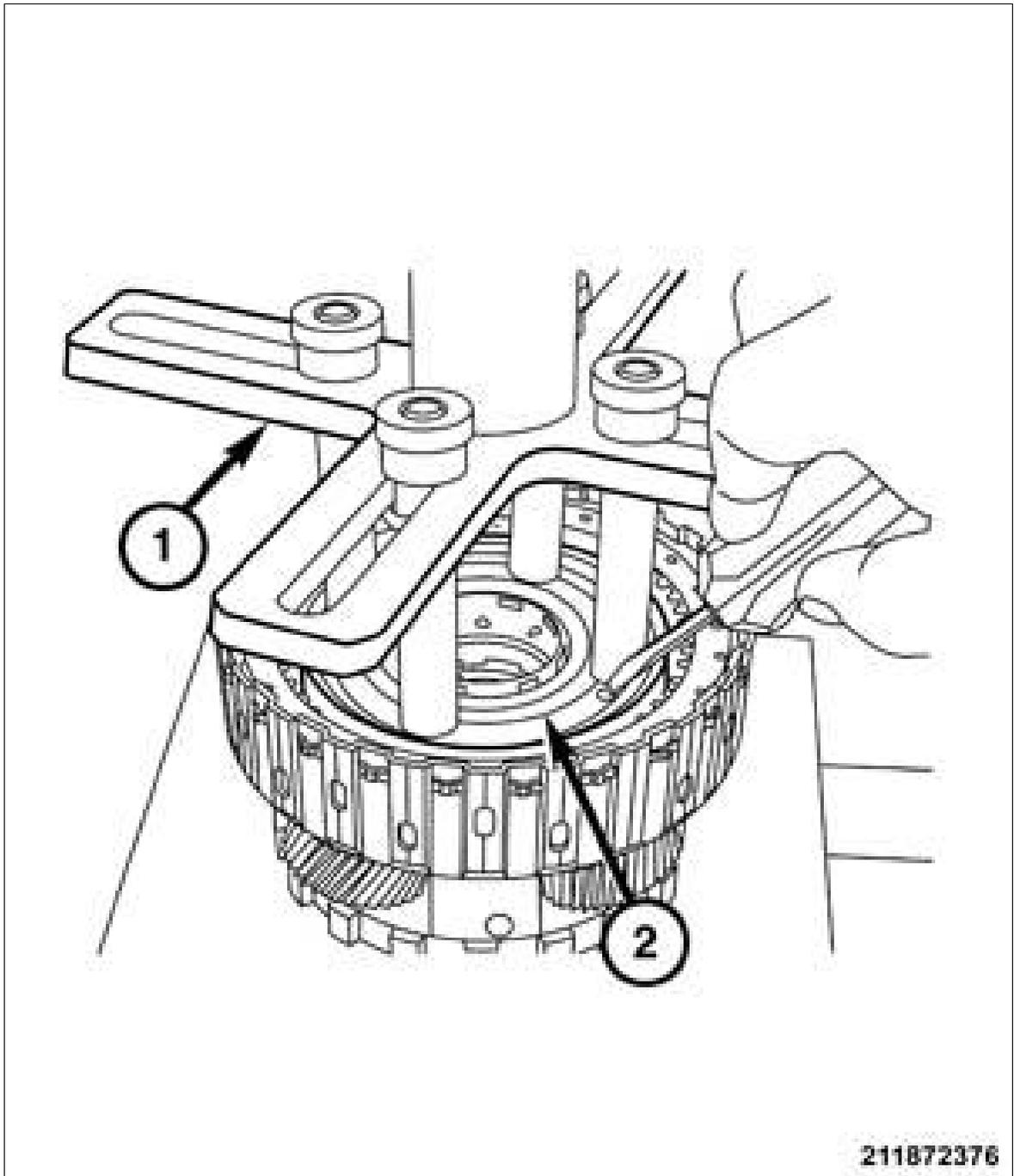
Fig 9: D-Clutch & Arbor Press



Courtesy of CHRYSLER GROUP, LLC

10. Line up the locking tabs on the D-Clutch hub and the oil baffle (2).

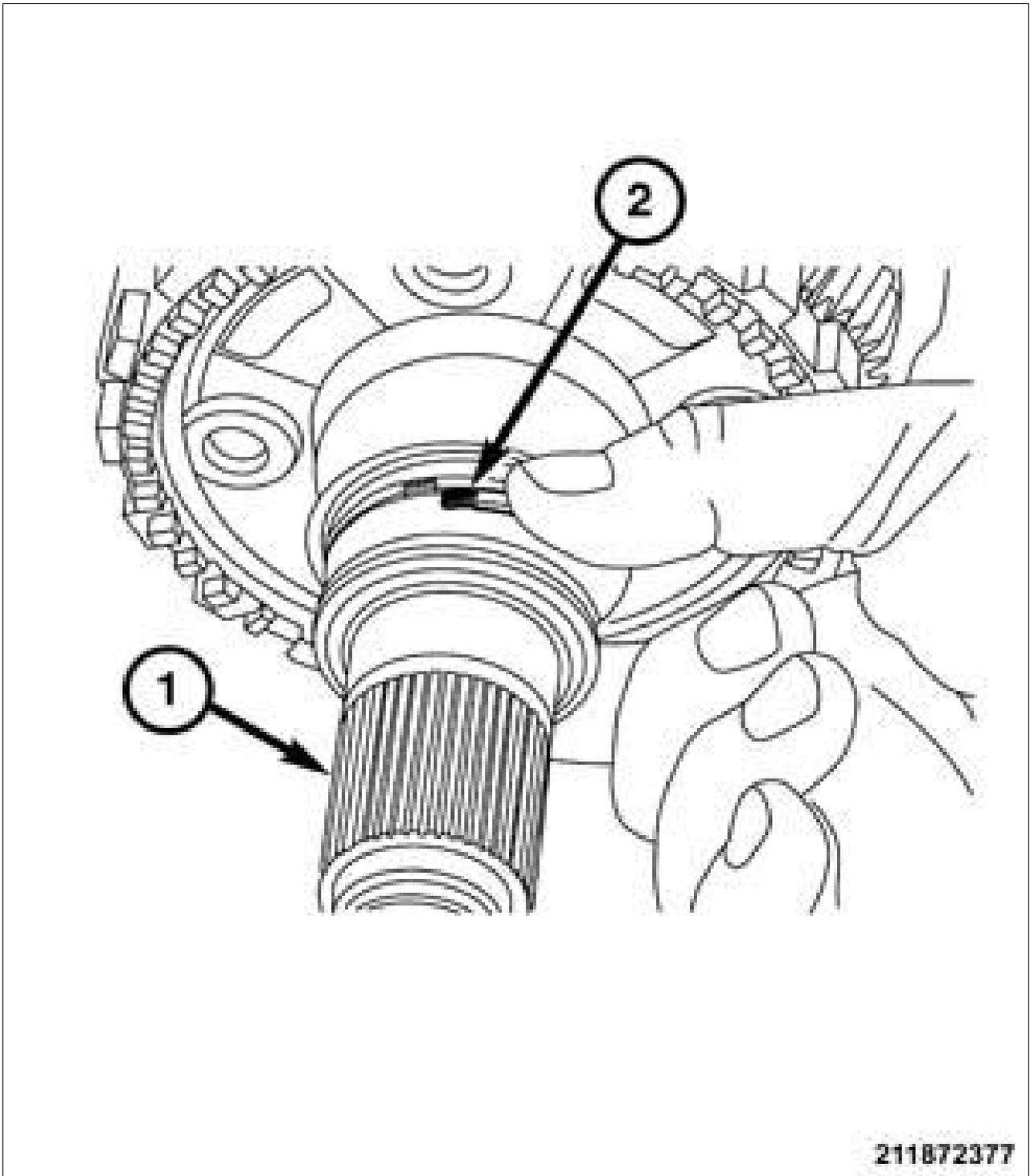
Fig 10: Oil Baffle & Tabs



Courtesy of CHRYSLER GROUP, LLC

11. Compress the oil baffle (2) enough to clear the lock tabs, and rotate the baffle to the locked position.
12. Release the arbor press.

Fig 11: D-Clutch Carrier Seal Rings

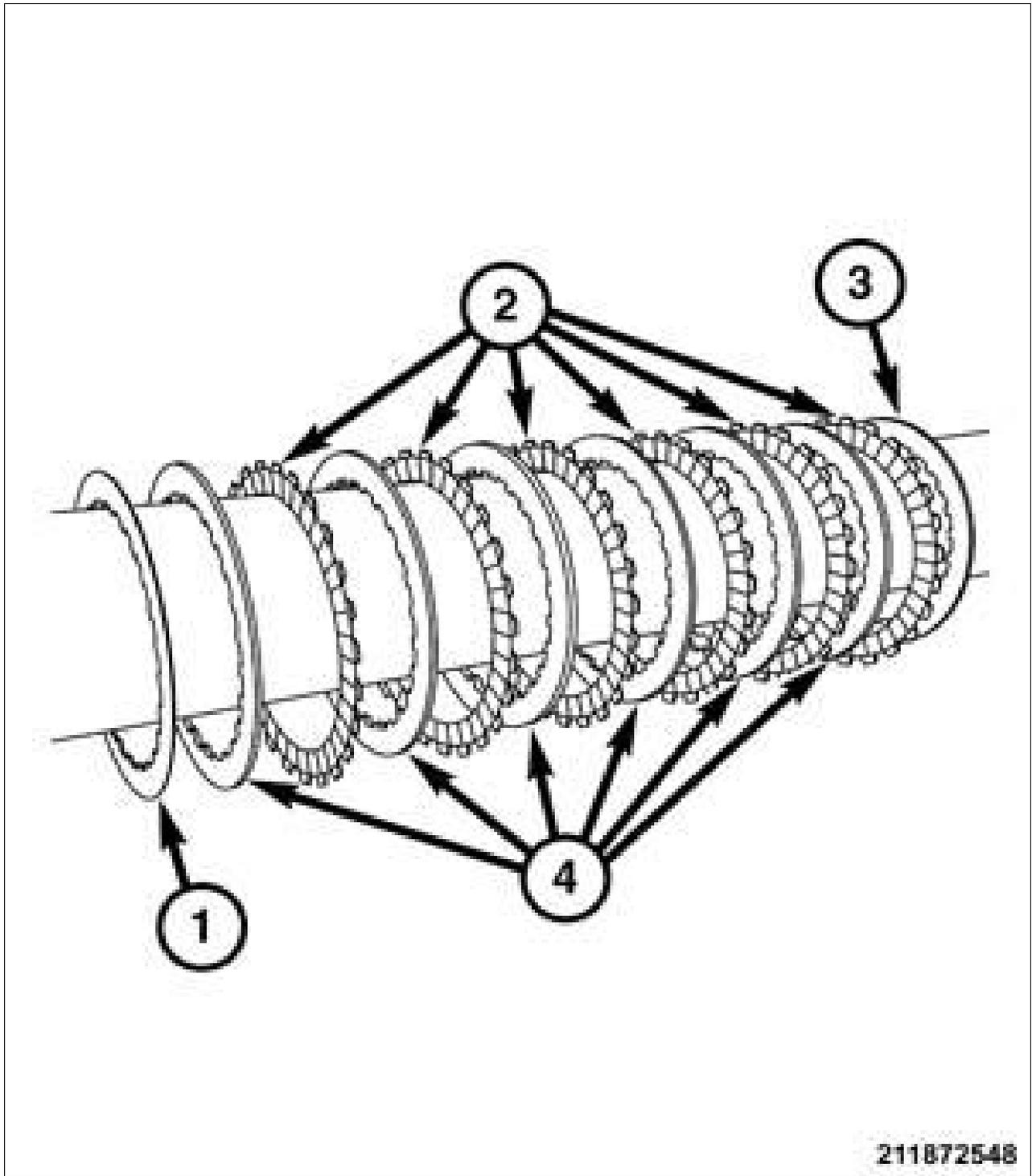


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Courtesy of CHRYSLER GROUP, LLC

**CLUTCH, E > DISASSEMBLY > CLUTCH E DISASSEMBLY**

Fig 1: Wave, Friction, Backing & Steel Plates



Courtesy of CHRYSLER GROUP, LLC

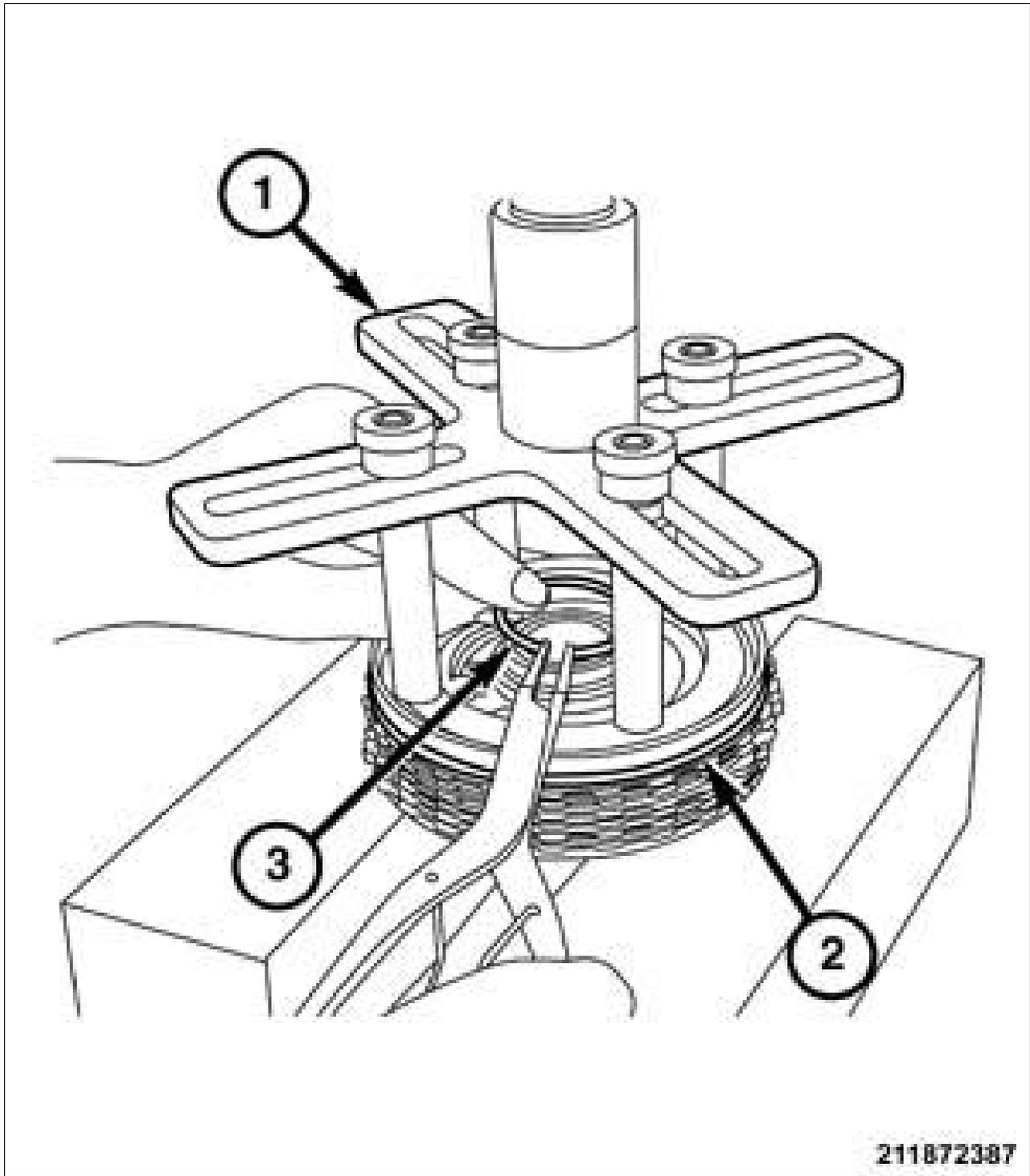
1. Wave plate

2. Friction plate

3. Backing plate

4. Steel plate

Fig 2: E-Clutch & Pressing Tool

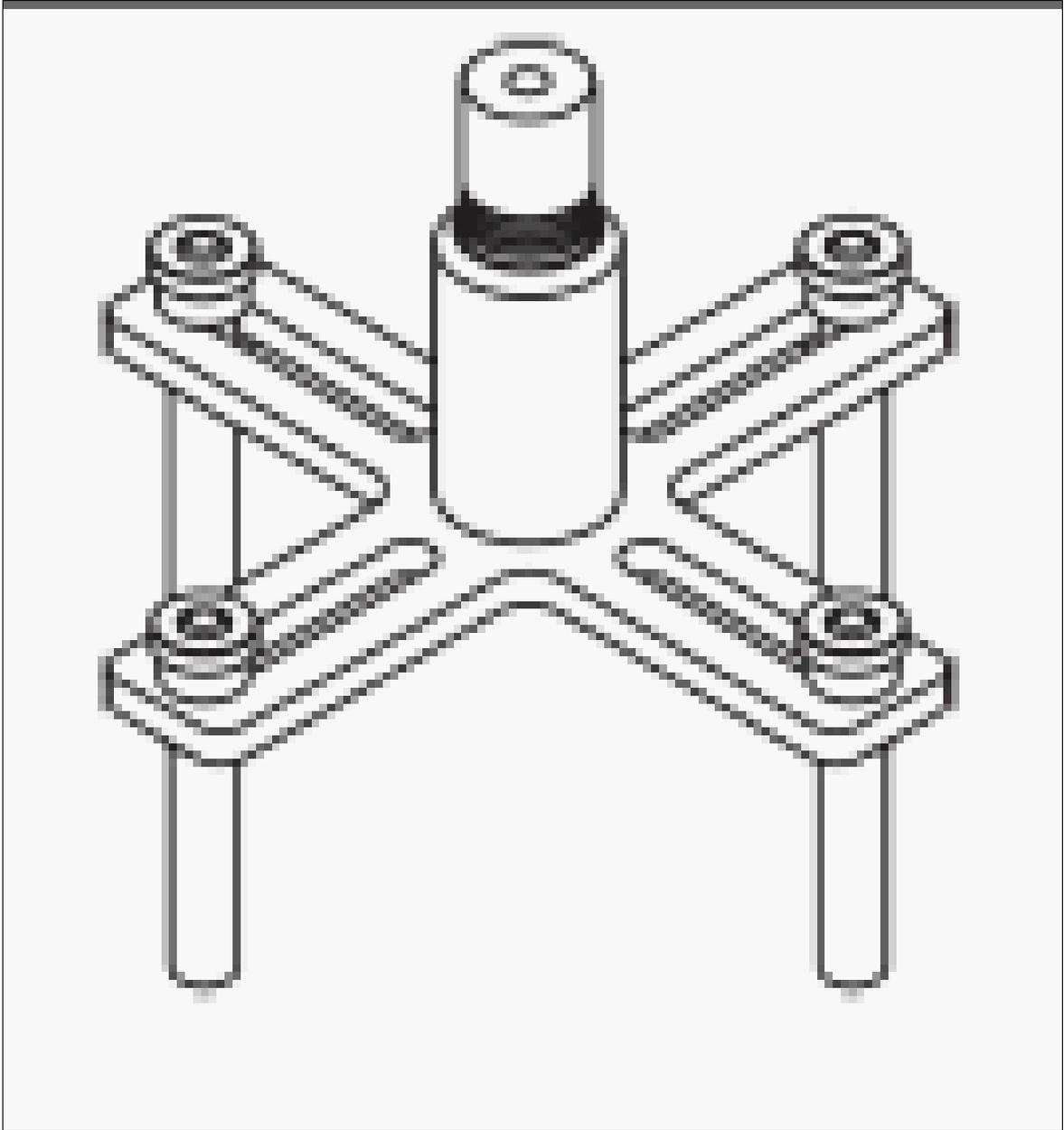


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Courtesy of CHRYSLER GROUP, LLC

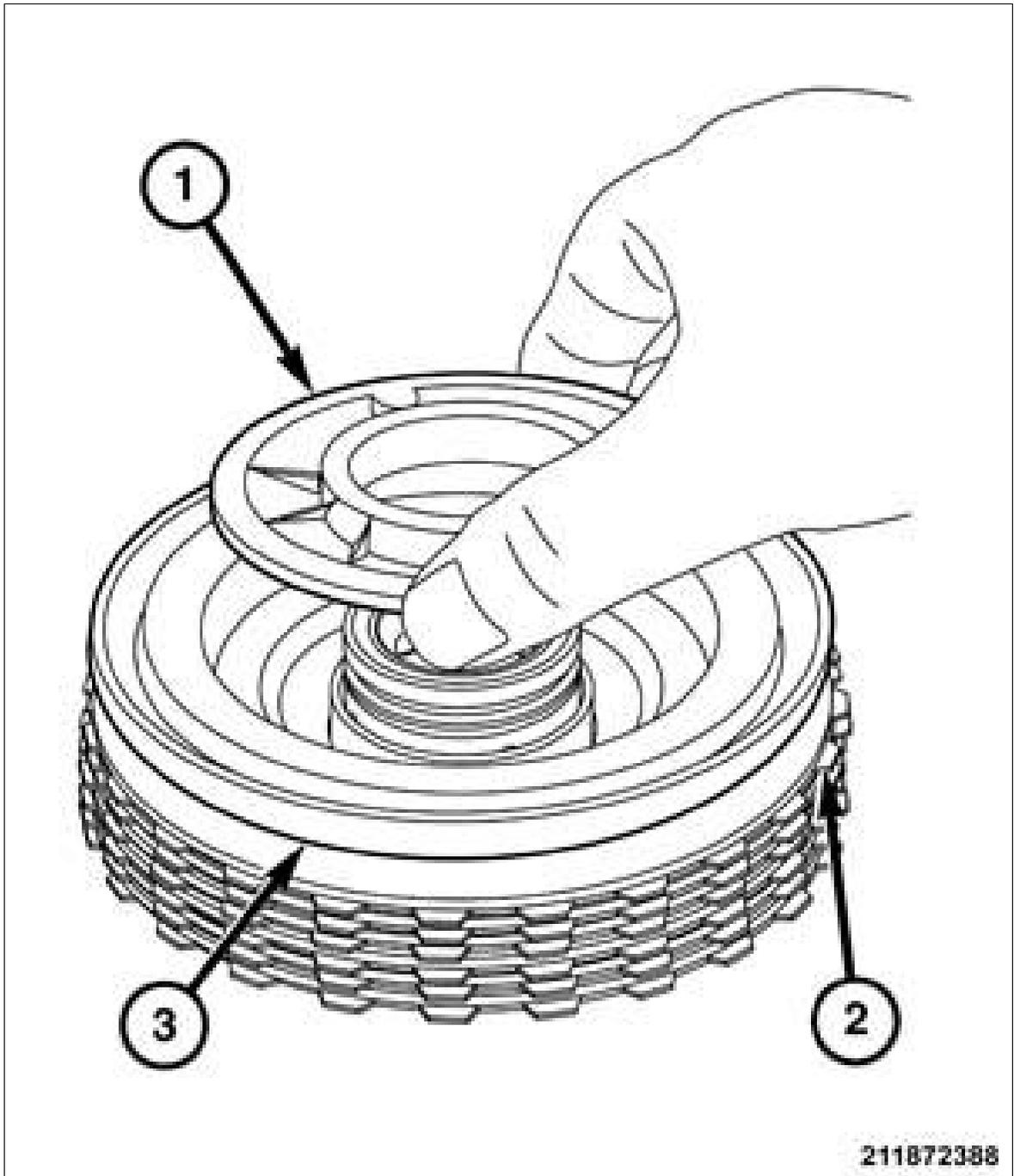
1. Place E-clutch (2) in a suitable press.
2. Using Pressing Tool 8901A (special tool #8901A, Pressing Tool) (1) compress the E-clutch piston enough to remove the snap ring (3).

Fig 3: Cross Bar Tool



Courtesy of CHRYSLER GROUP, LLC

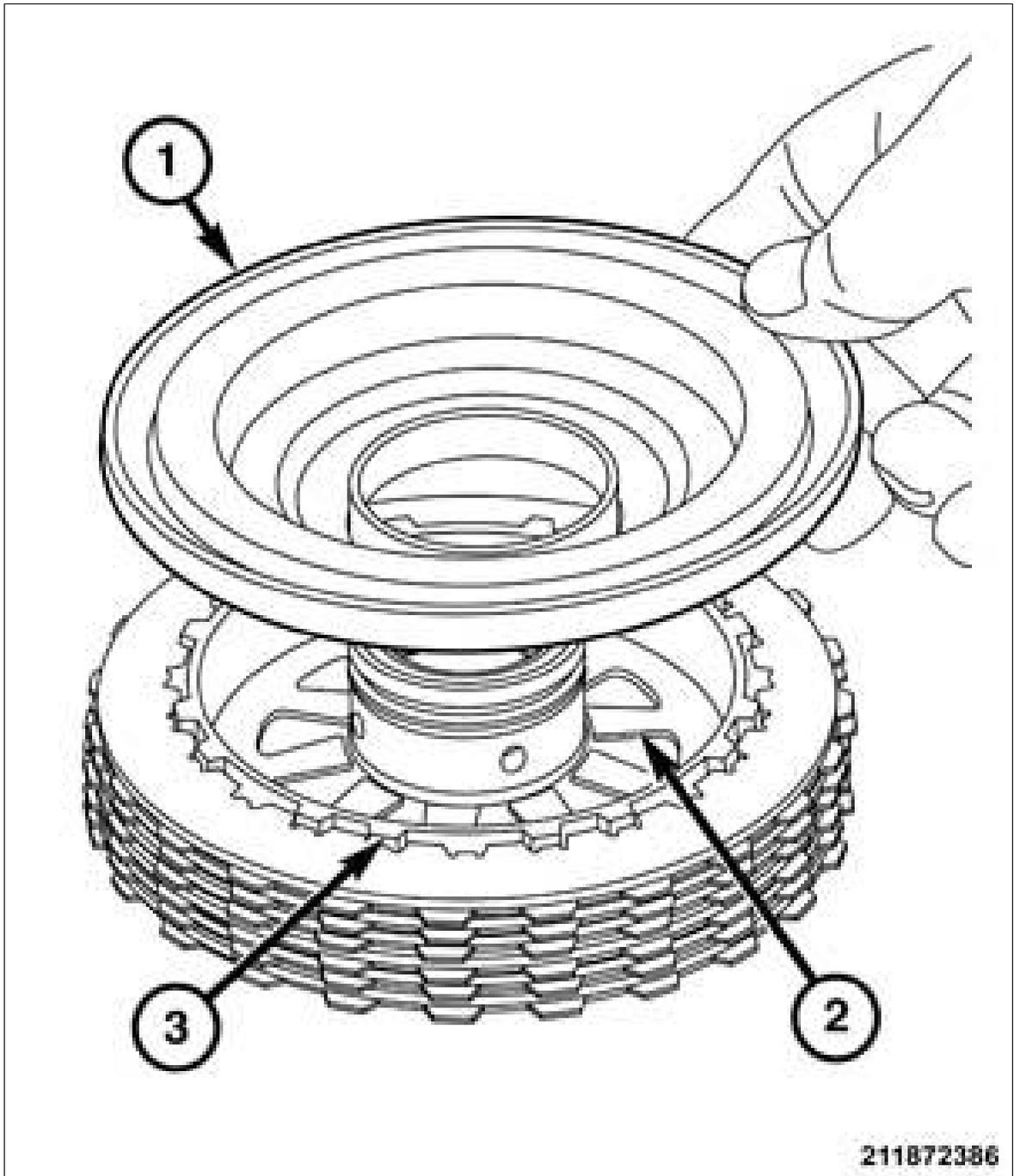
Fig 4: E-Clutch Piston Support



Courtesy of CHRYSLER GROUP, LLC

3. Remove the E-clutch piston support (1).

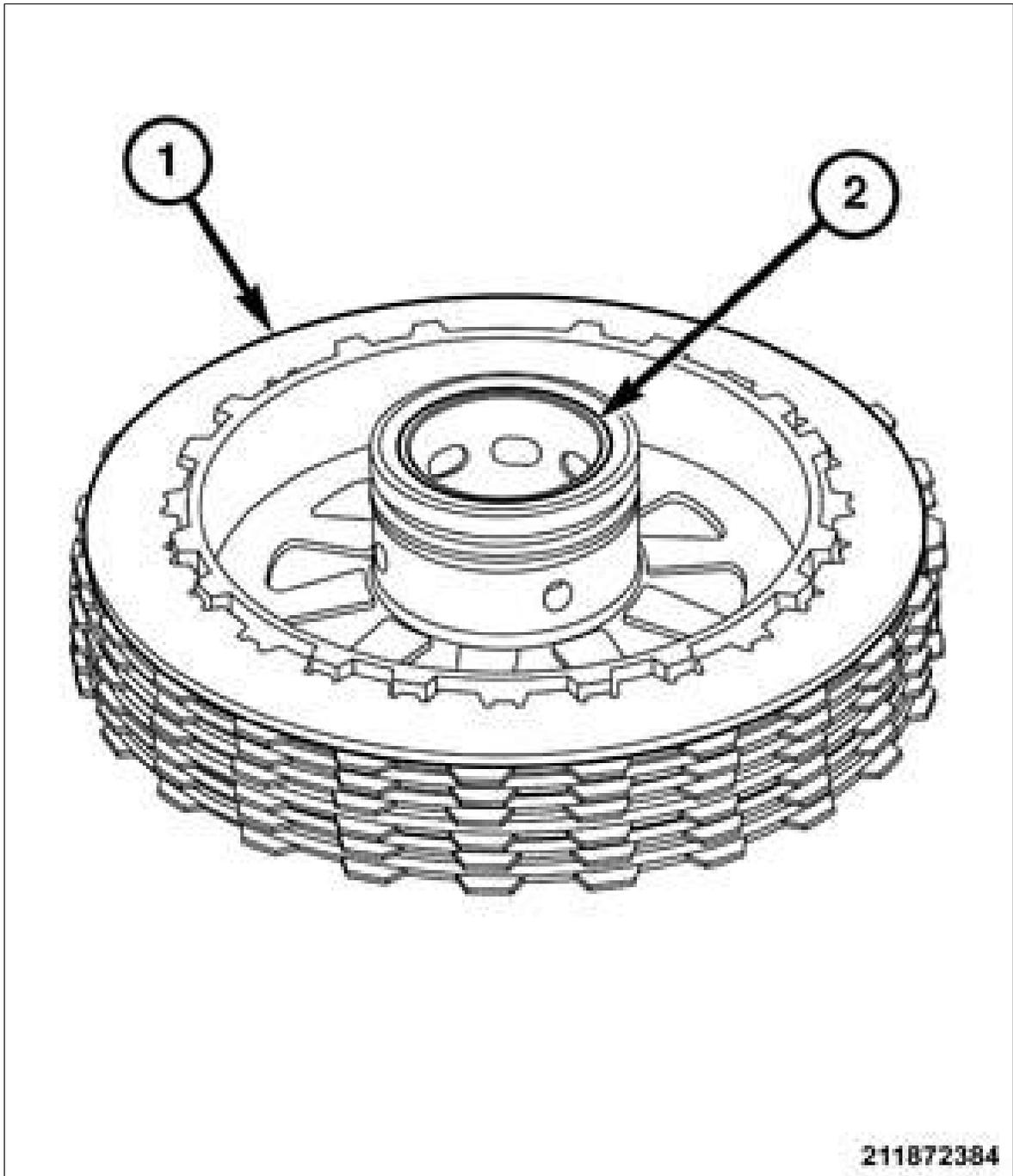
Fig 5: E-Clutch Piston Support



Courtesy of CHRYSLER GROUP, LLC

4. Remove the E-clutch piston (1).

Fig 6: E-Clutch Wave Washer



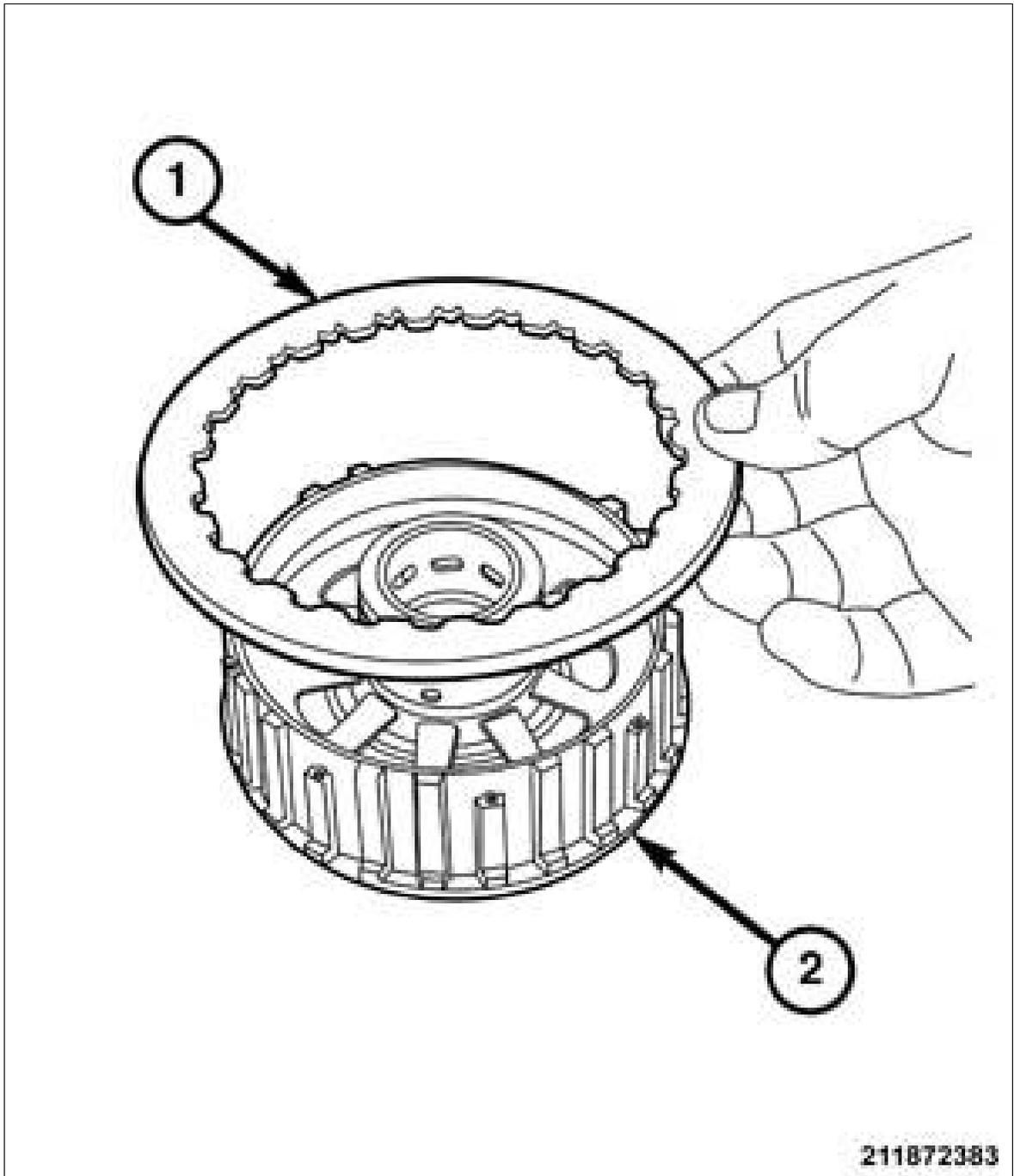
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Pay attention to the orientation of the plates.*

5. Remove the wave washer (1), frictions and steels.

Fig 7: E-Clutch Thrust Plate

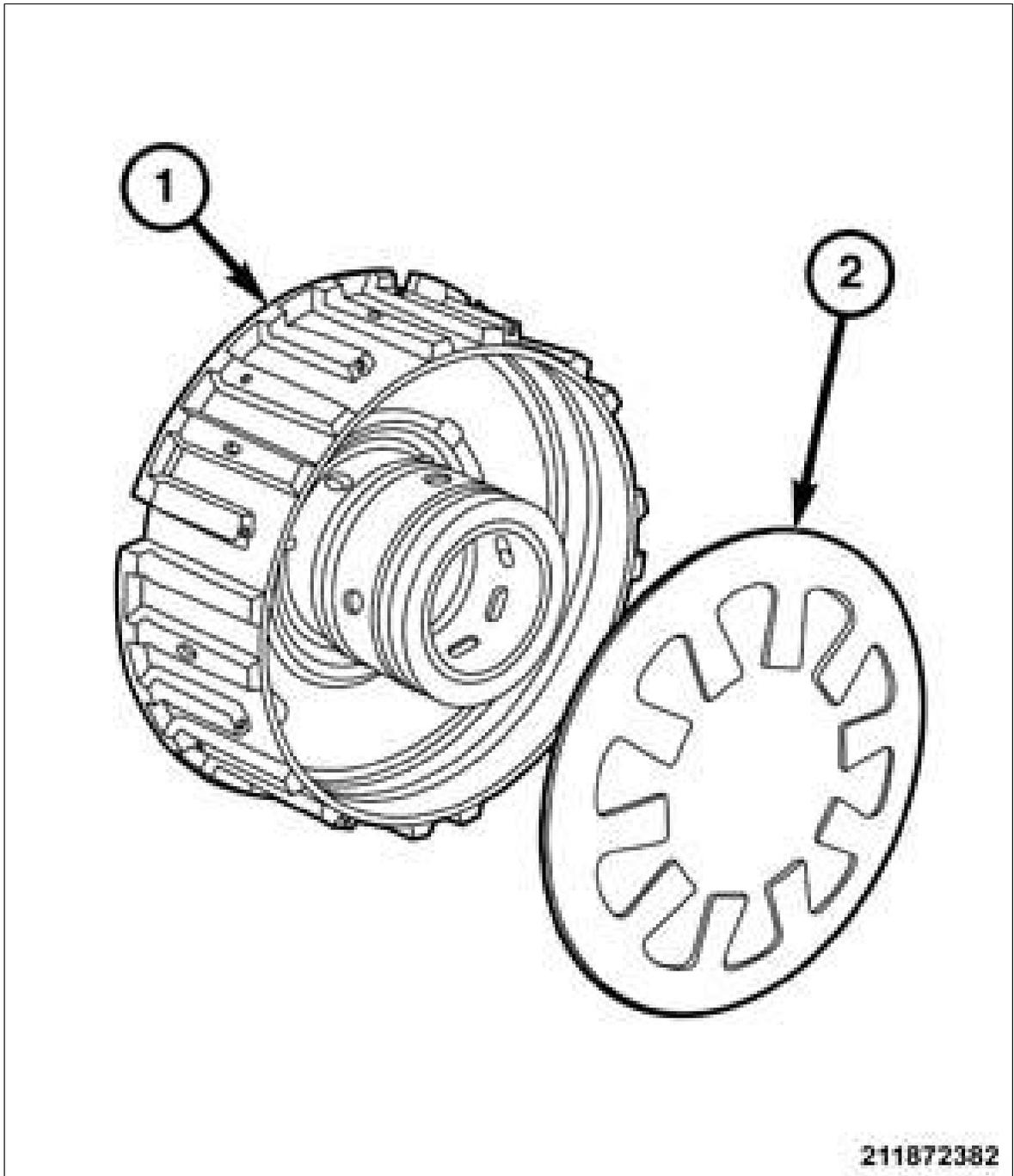


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Courtesy of CHRYSLER GROUP, LLC

6. Remove the thrust plate (1) last.

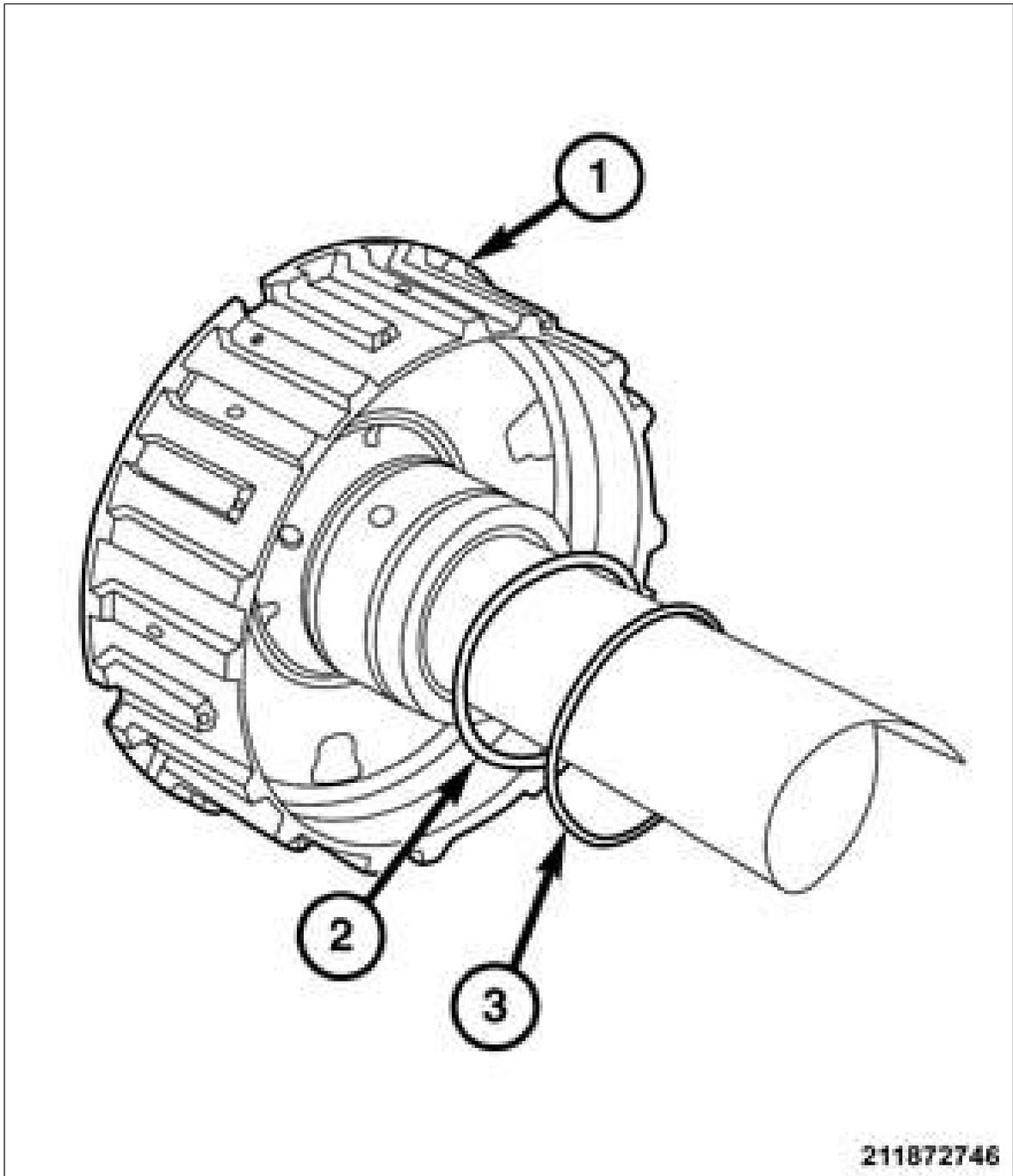
Fig 8: Belleville Spring & E-Clutch Hub



Courtesy of CHRYSLER GROUP, LLC

7. Remove the belleville spring (2) from the E-clutch hub (1).

Fig 9: E-Clutch, Seal & O-Ring

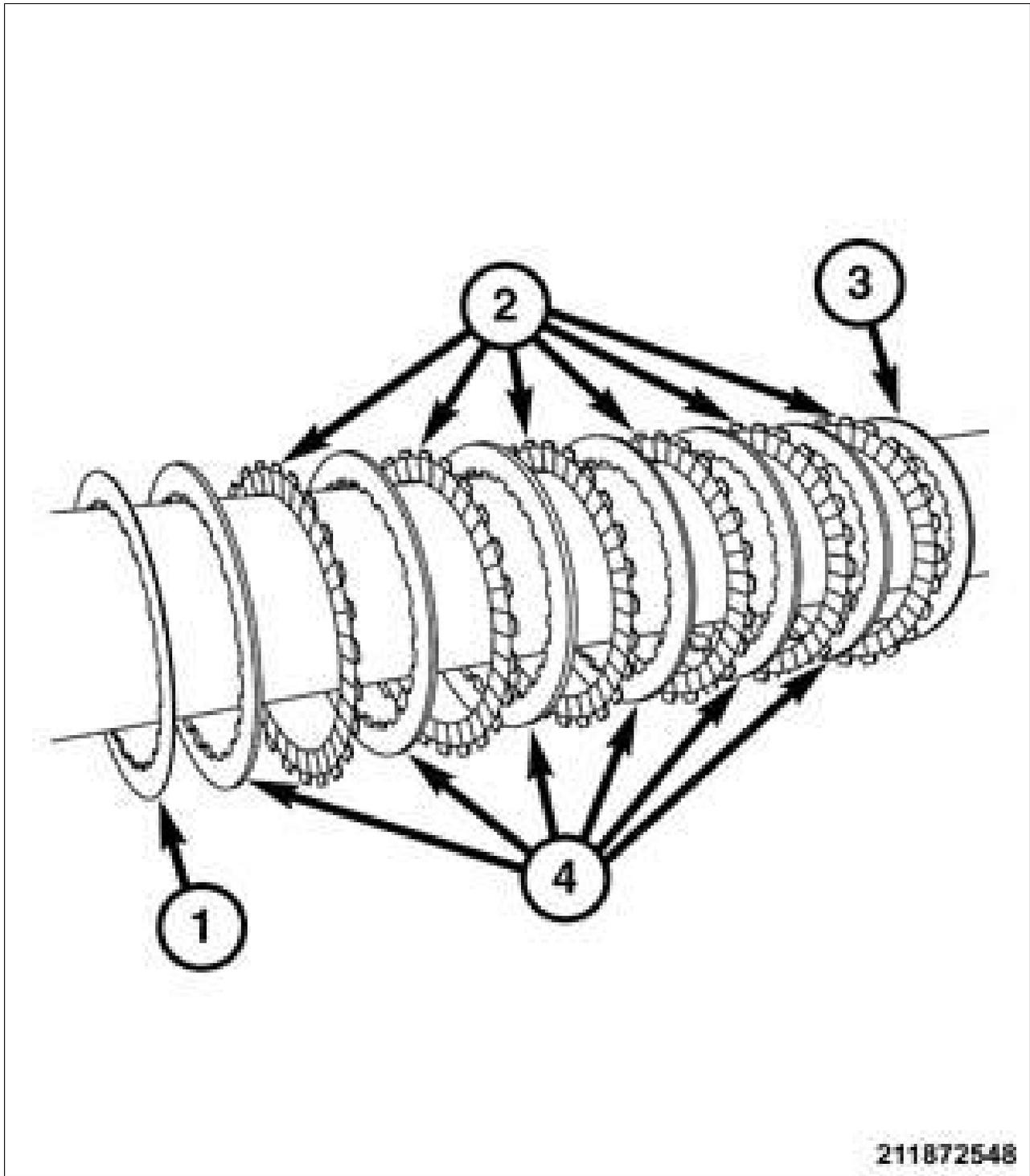


Courtesy of CHRYSLER GROUP, LLC

8. Remove the E-clutch (1) seal (2) and O-ring (3).

**CLUTCH, E > ASSEMBLY > CLUTCH E ASSEMBLY**

Fig 1: Wave, Friction, Backing & Steel Plates



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Courtesy of CHRYSLER GROUP, LLC

1. Wave plate

2. Friction plate

3. Backing plate

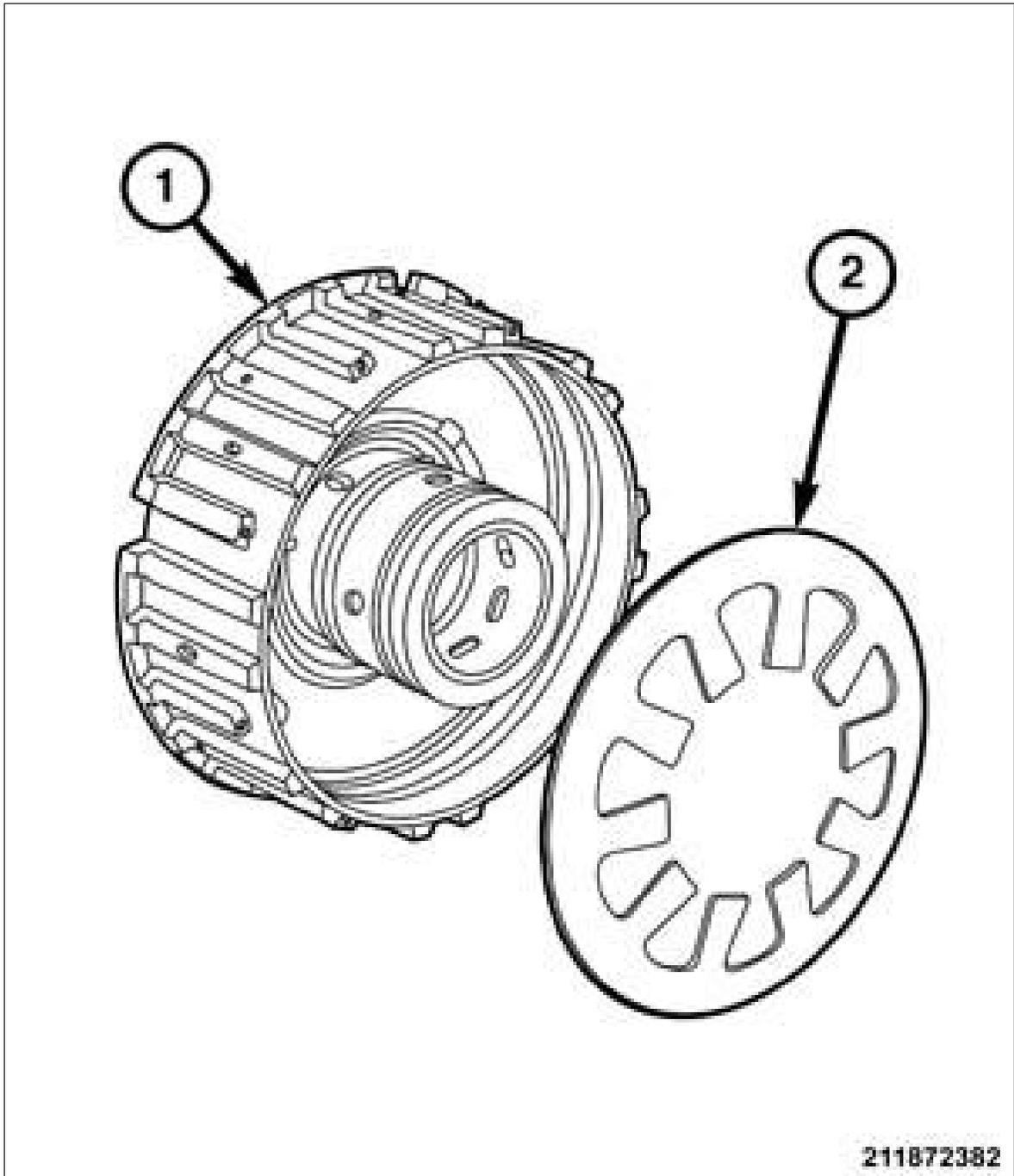
4. Steel plate

 **NOTE:**

*If clutch discs are being replaced, soak in 8HP trans fluid before assembly.*

1. Install the E-clutch (1) seal (2) and O-ring (3).

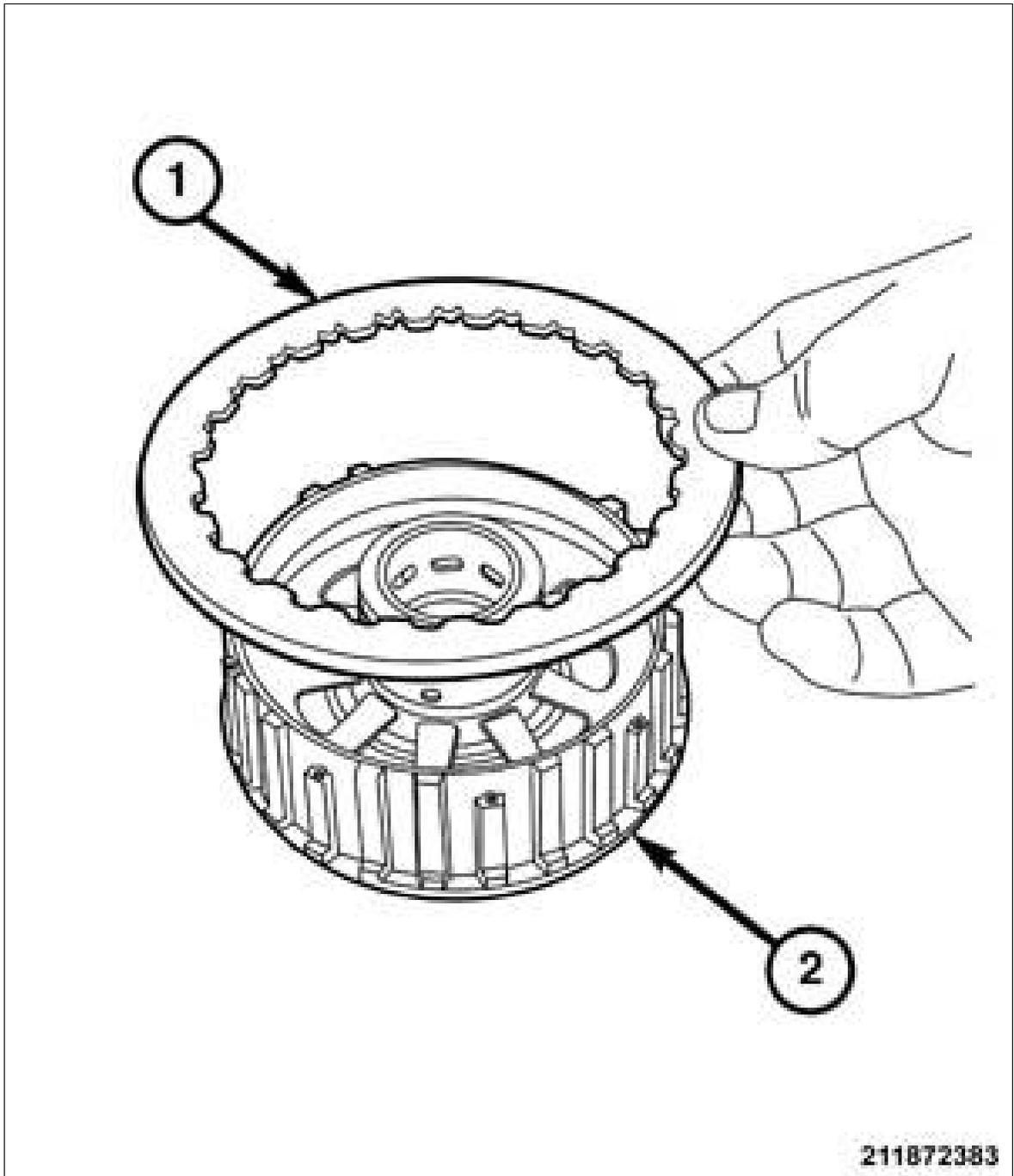
Fig 2: Belleville Spring & E-Clutch Hub



Courtesy of CHRYSLER GROUP, LLC

2. Install the belleville (2) spring into the E-clutch hub (1).

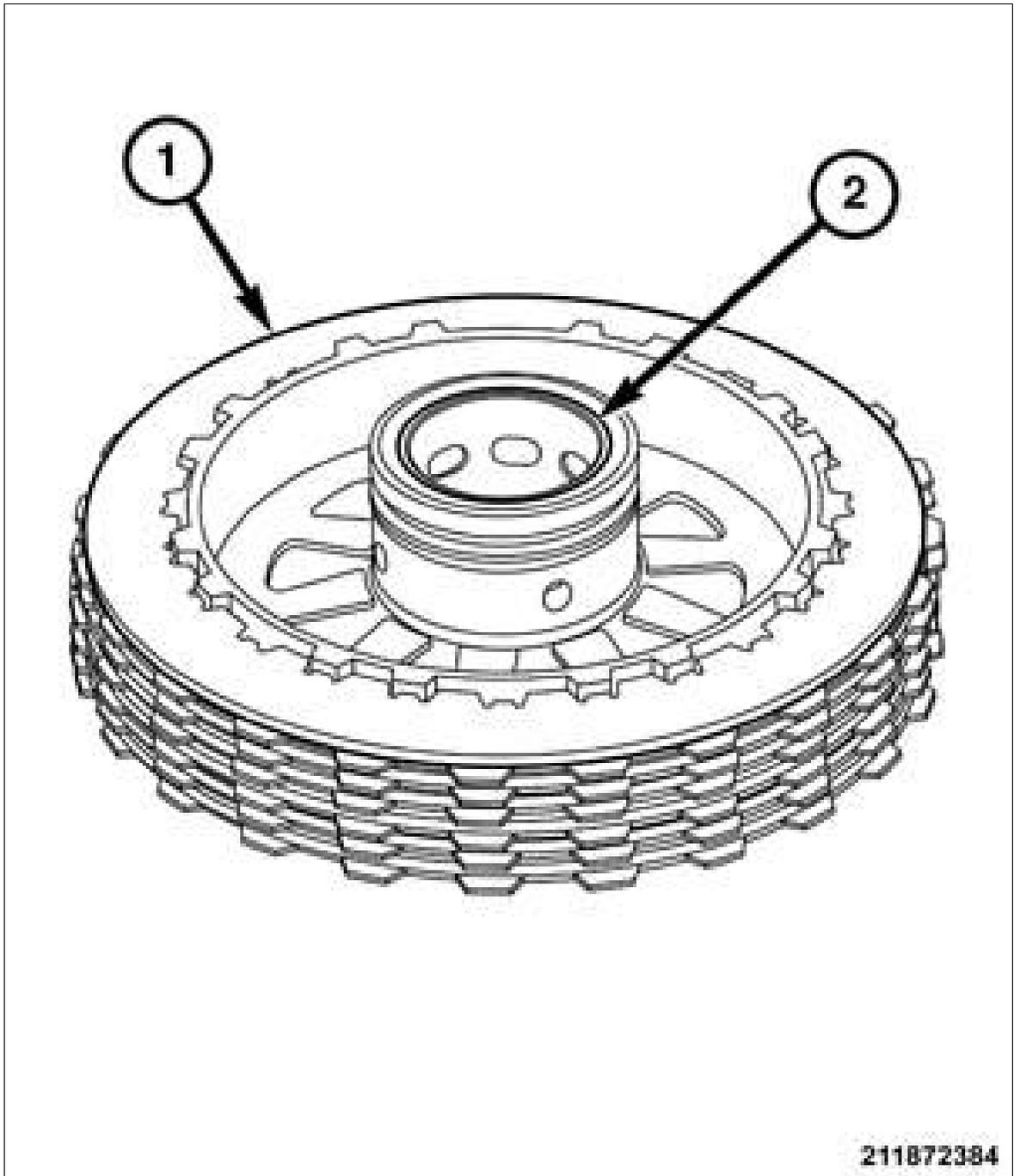
Fig 3: E-Clutch Thrust Plate



Courtesy of CHRYSLER GROUP, LLC

3. Install the clutch pack thrust plate (1).

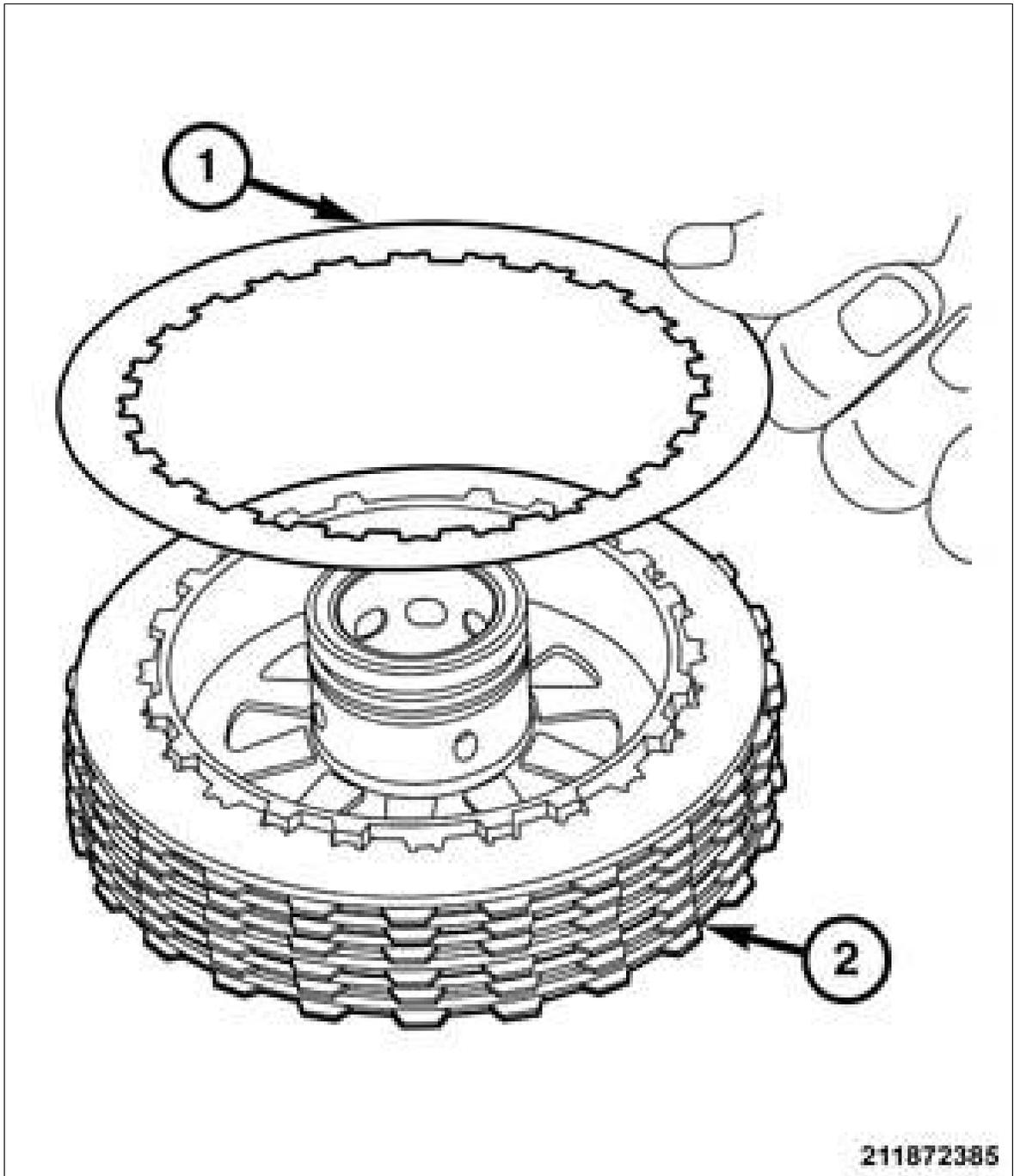
Fig 4: E-Clutch Wave Washer



Courtesy of CHRYSLER GROUP, LLC

4. Install the clutch pack frictions and steels (1).

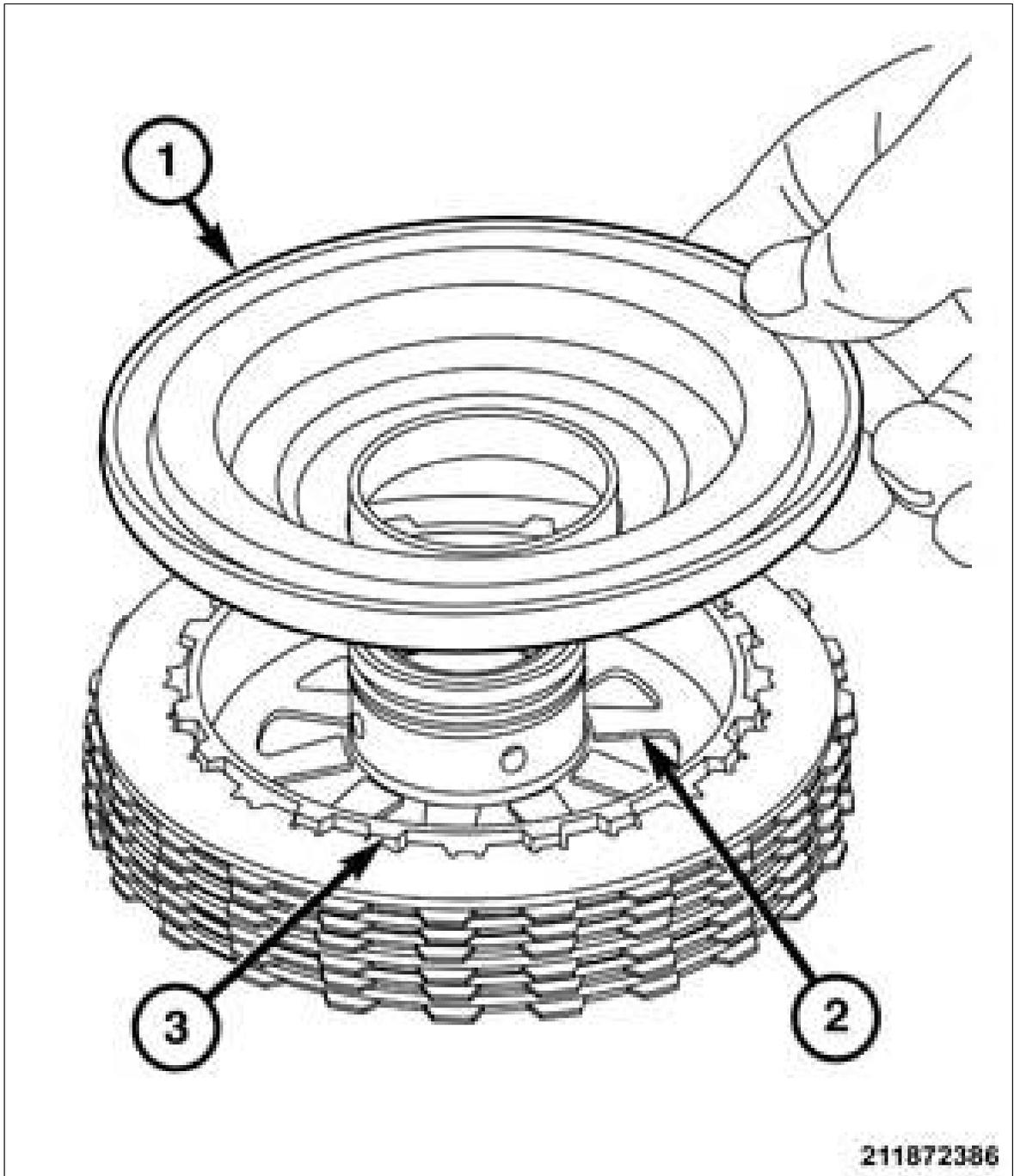
Fig 5: E-Clutch Wave Washer



Courtesy of CHRYSLER GROUP, LLC

5. Install the wave washer (1) last.

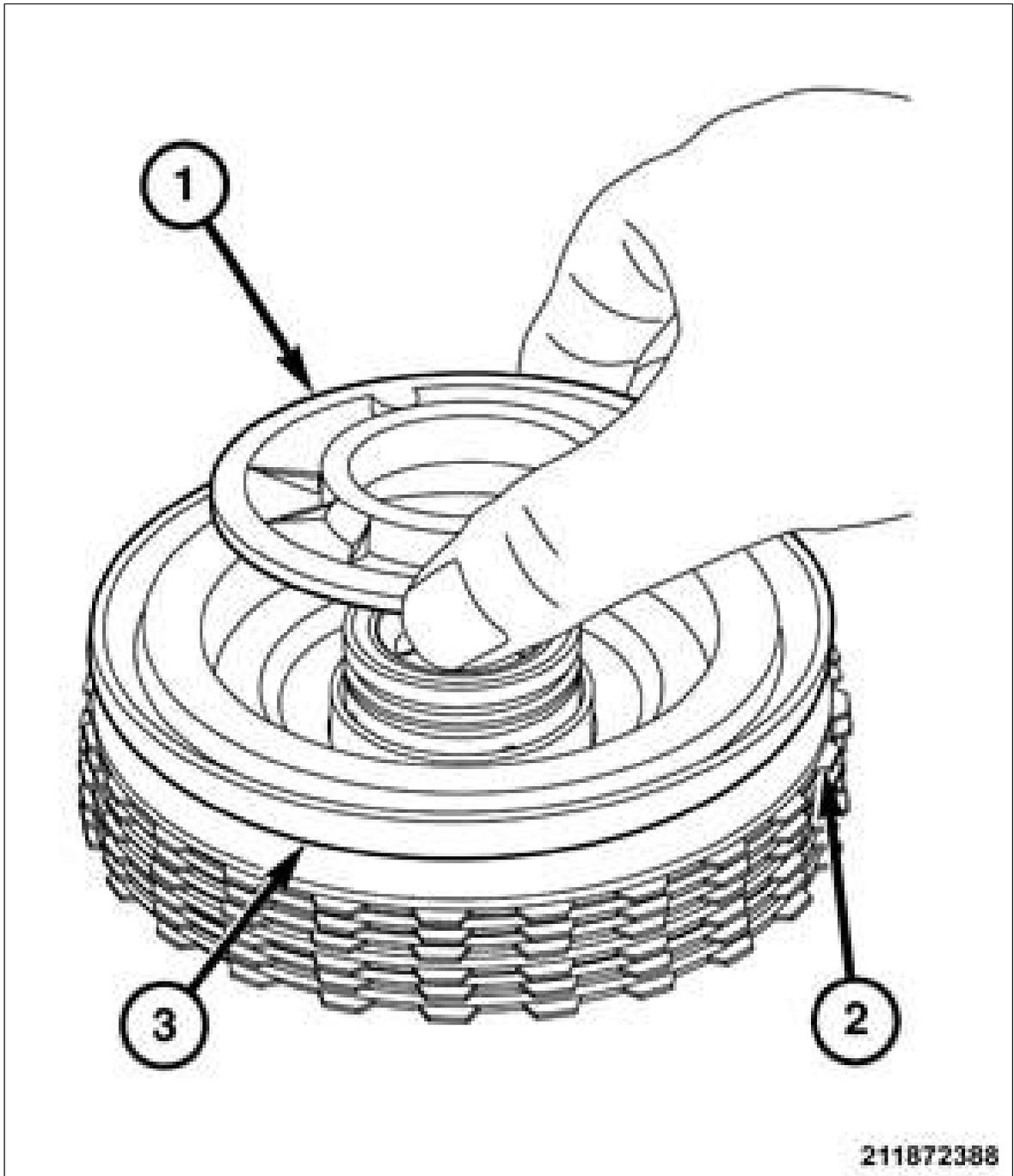
Fig 6: E-Clutch Piston Support



Courtesy of CHRYSLER GROUP, LLC

6. Install the E-clutch piston (1) onto the hub.

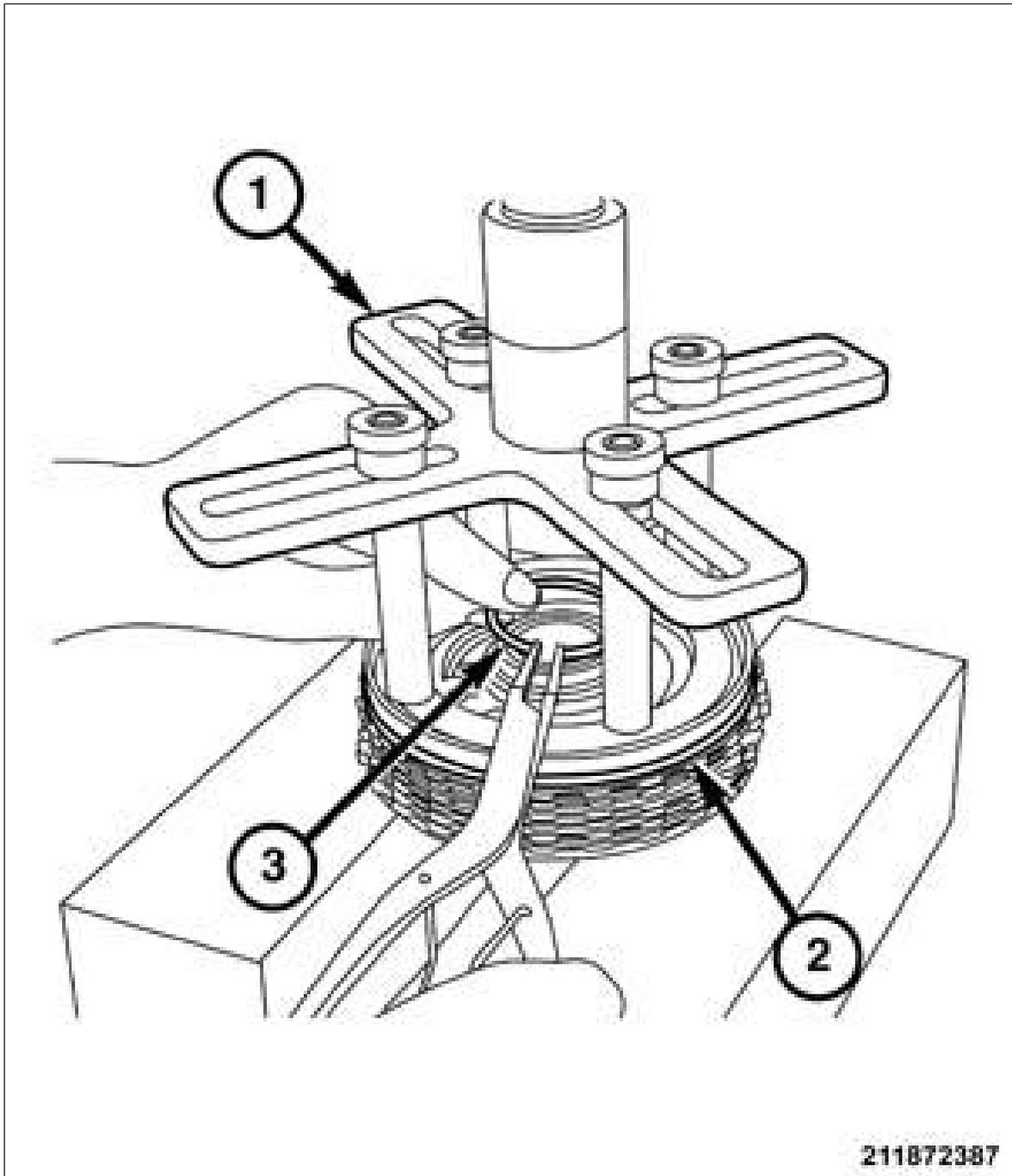
Fig 7: E-Clutch Piston Support



Courtesy of CHRYSLER GROUP, LLC

7. Install the E-clutch piston support (1).

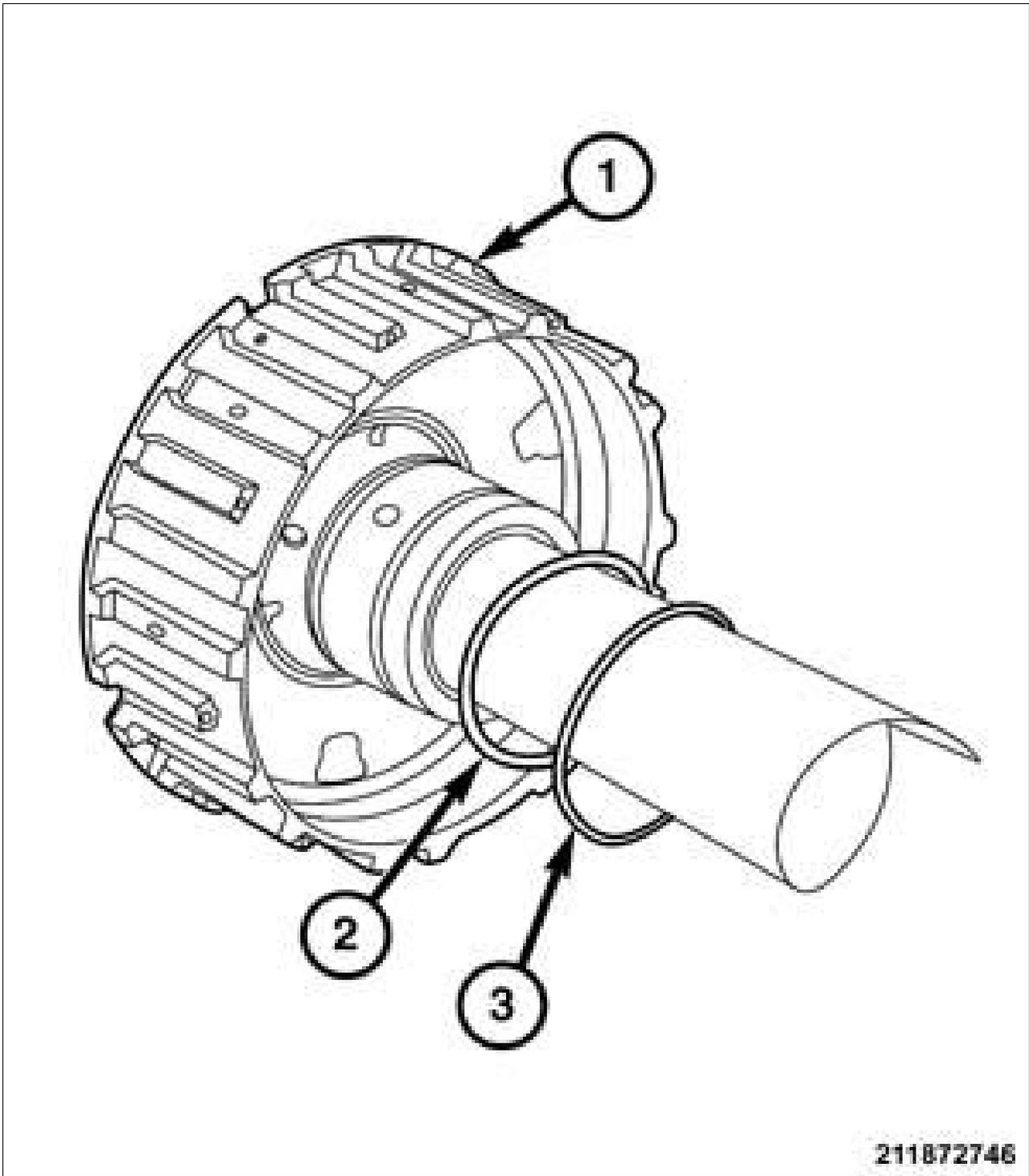
Fig 8: E-Clutch & Pressing Tool



Courtesy of CHRYSLER GROUP, LLC

8. Place the E-clutch in a suitable arbor press.
9. Using Pressing Tool 8901A (special tool #8901A, Pressing Tool) compress the E-clutch enough to install the snap ring.

Fig 9: E-Clutch, Seal & O-Ring



Courtesy of CHRYSLER GROUP, LLC

### FLUID AND FILTER > DESCRIPTION > DESCRIPTION > FILTER SERVICE

The 8HP has a conventional fluid sump design, however, the filter is integrated into the oil pan resulting in a lower profile for improved vehicle packaging. The oil pan gasket is reusable providing it is not damaged during removal.

## FLUID AND FILTER > STANDARD PROCEDURE > STANDARD PROCEDURE - CHECK OIL LEVEL

To properly check and fill the transmission, perform the following procedure:

 **WARNING:**

*There is a risk of accident from vehicle moving when the engine is running. Secure vehicle to prevent it from moving. There is a risk of injury from contusions and burns if you insert your hands into the engine when it is running. Do not touch hot or rotating parts. Wear properly fitted work clothes.*

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

 **NOTE:**

*Oil dye is not required to find leaks in the 8HP transmission. The oil dye can cause shift quality issues and is not recommended. The 8HP fluid has illuminance that is visible under a black light.*

1. Raise and support the vehicle **on a level hoist** . Refer to HOISTING, STANDARD PROCEDURE .
2. Start the engine. The engine must continue to run for the entire test.
3. Using a scan tool or the vehicle information center, verify that the transmission fluid temperature is below 30°C (86°F).
4. Disable Electronic Stability Control (ESC).
5. Remove the fill plug from the right rear of the transmission case.
6. Add transmission fluid until it trickles from the fill opening.
7. Install the fill plug.
8. Lower the vehicle for access to inside of the vehicle, leaving the tires at least 8 inches off the ground.
9. With the brakes applied, place the transmission in REVERSE and hold for 5 seconds.
10. Place the transmission in DRIVE and hold for 5 seconds.

11. Release the brakes, slowly accelerate to 2nd gear and hold for 5 seconds.
12. Apply the brakes and place the transmission in NEUTRAL.
13. Raise the engine speed to 2000 RPM for 5 seconds.
14. Return the engine to idle and place the transmission in PARK.

 **NOTE:**

*A full transmission will have fluid at the fill hole with the transmission between 30°C (86°F) and 50°C (122°F). Do not over fill.*

15. Remove the fill plug and allow excess fluid to drain from fill hole or add fluid as necessary.
16. Install the fill plug.
17. Using a scan tool, clear any DTCs.

## **FLUID AND FILTER > STANDARD PROCEDURE > STANDARD PROCEDURE - TRANSMISSION FILL AFTER SERVICE**

 **CAUTION:**

*A unique transmission fluid has been developed for this transmission. This fluid is NOT compatible with ATF+4 or any other current Chrysler transmission fluid. For specifics about this unique fluid, see CAPACITIES AND RECOMMENDED FLUIDS .*

To properly fill the transmission after an in vehicle service or overhaul, perform the following procedure:

 **NOTE:**

*If the transmission cooler was replaced, add an additional 0.7L (0.72 qts) of transmission fluid.*

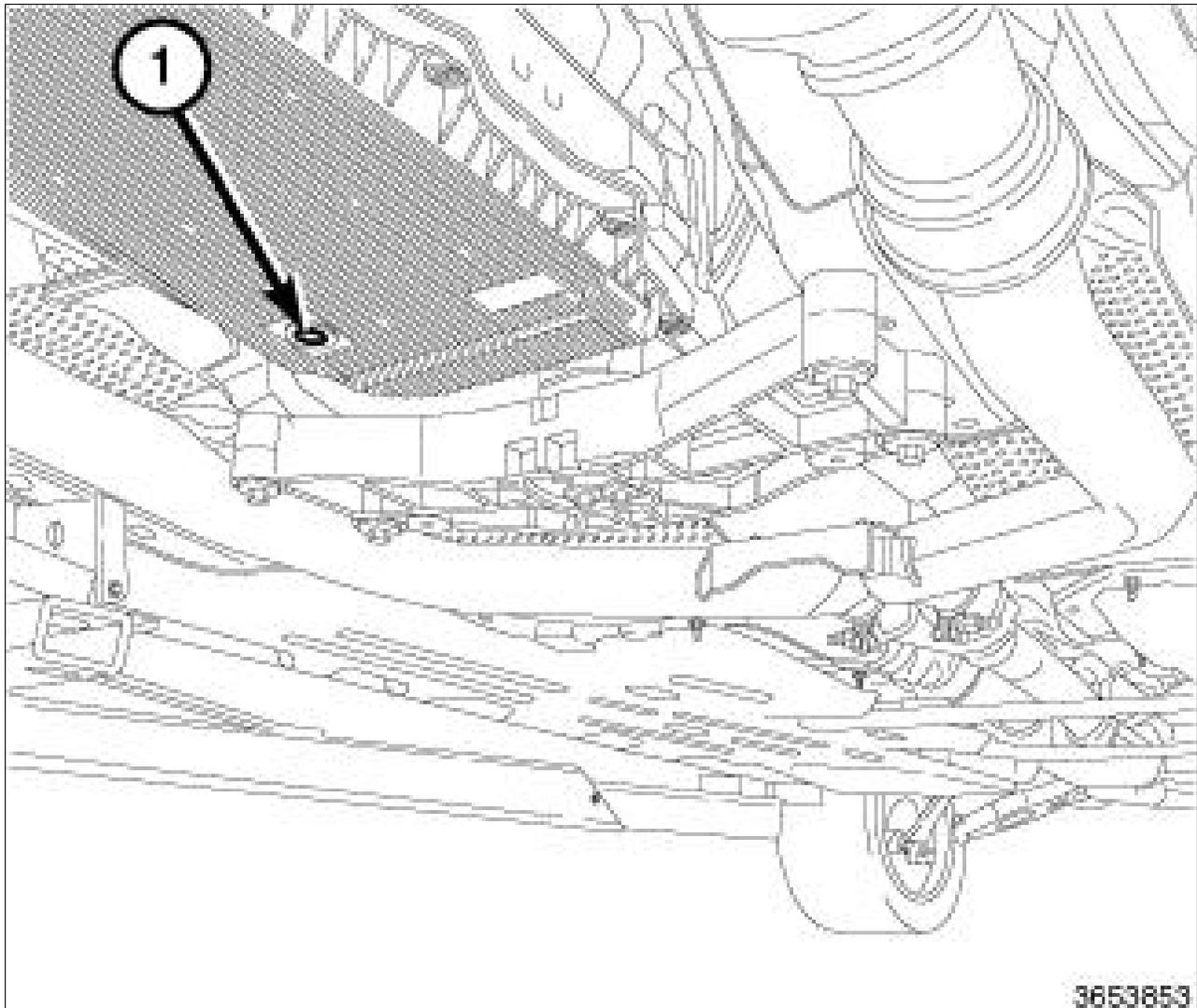
1. **If the transmission was overhauled** , prior to installing in the vehicle, tip the transmission on it side, remove the oil fill plug on the right rear side of the case and install 9L (9.5 qts) of transmission fluid. Install the fill plug. After installing the transmission, perform the CHECK OIL LEVEL procedure. Refer to FLUID AND FILTER, STANDARD PROCEDURE .
2. **If an in vehicle service was performed** , raise and support the vehicle **on a level hoist** , and perform the CHECK OIL LEVEL procedure. Refer to HOISTING, STANDARD PROCEDURE and FLUID AND FILTER, STANDARD PROCEDURE .

## FLUID AND FILTER > STANDARD PROCEDURE > STANDARD PROCEDURE - FLUID/FILTER SERVICE

 **NOTE:**

*The oil pan and filter are an integrated assembly that cannot be serviced separately.*

Fig 1: Transmission Oil Pan Plug



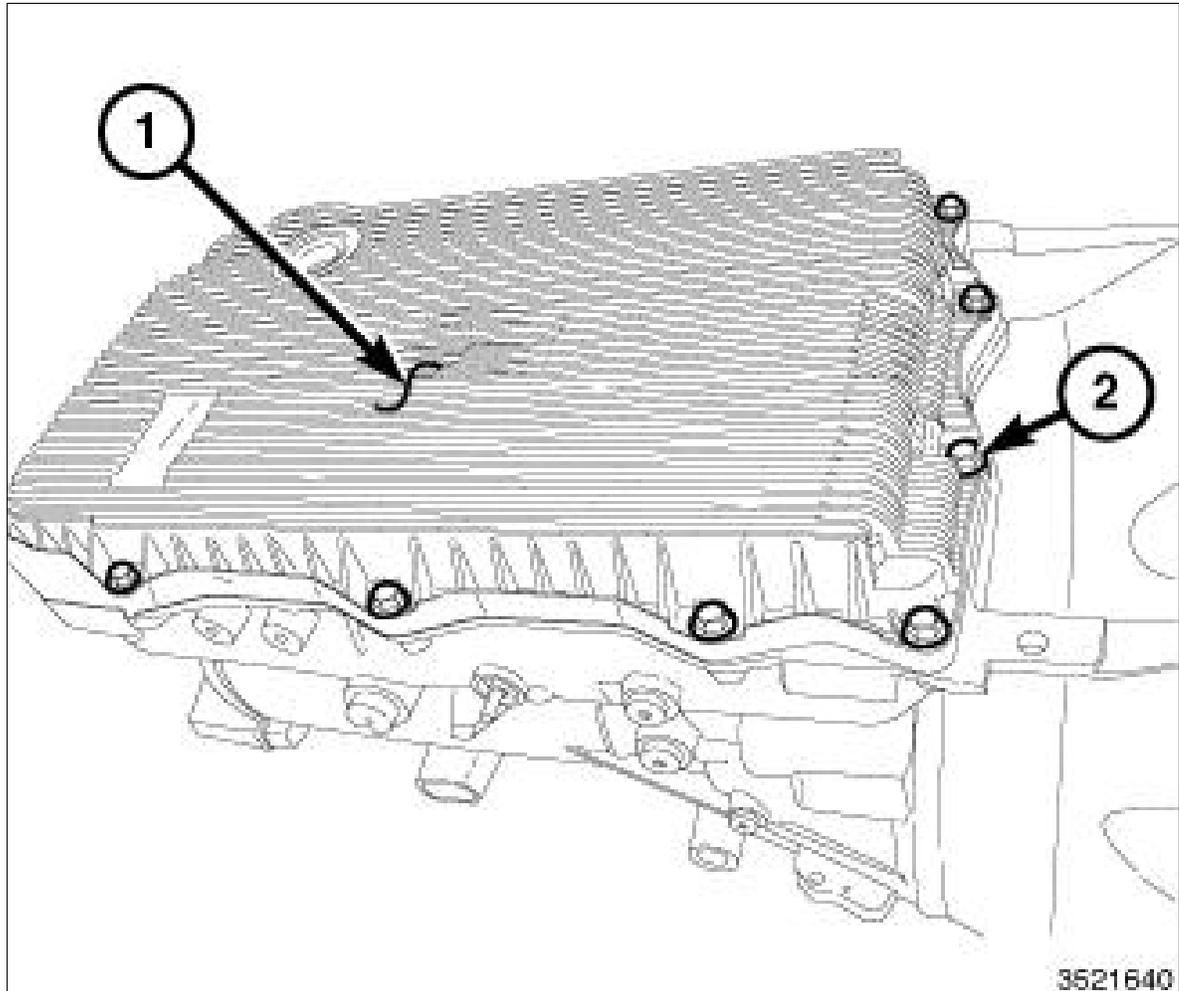
Courtesy of CHRYSLER GROUP, LLC

1. Raise the vehicle. Refer to HOISTING, STANDARD PROCEDURE .
2. Remove the transmission oil pan plug and allow the transmission to drain.

 **NOTE:**

*Inspect the gasket for reuse. If the seal is cut or torn, replace the gasket.*

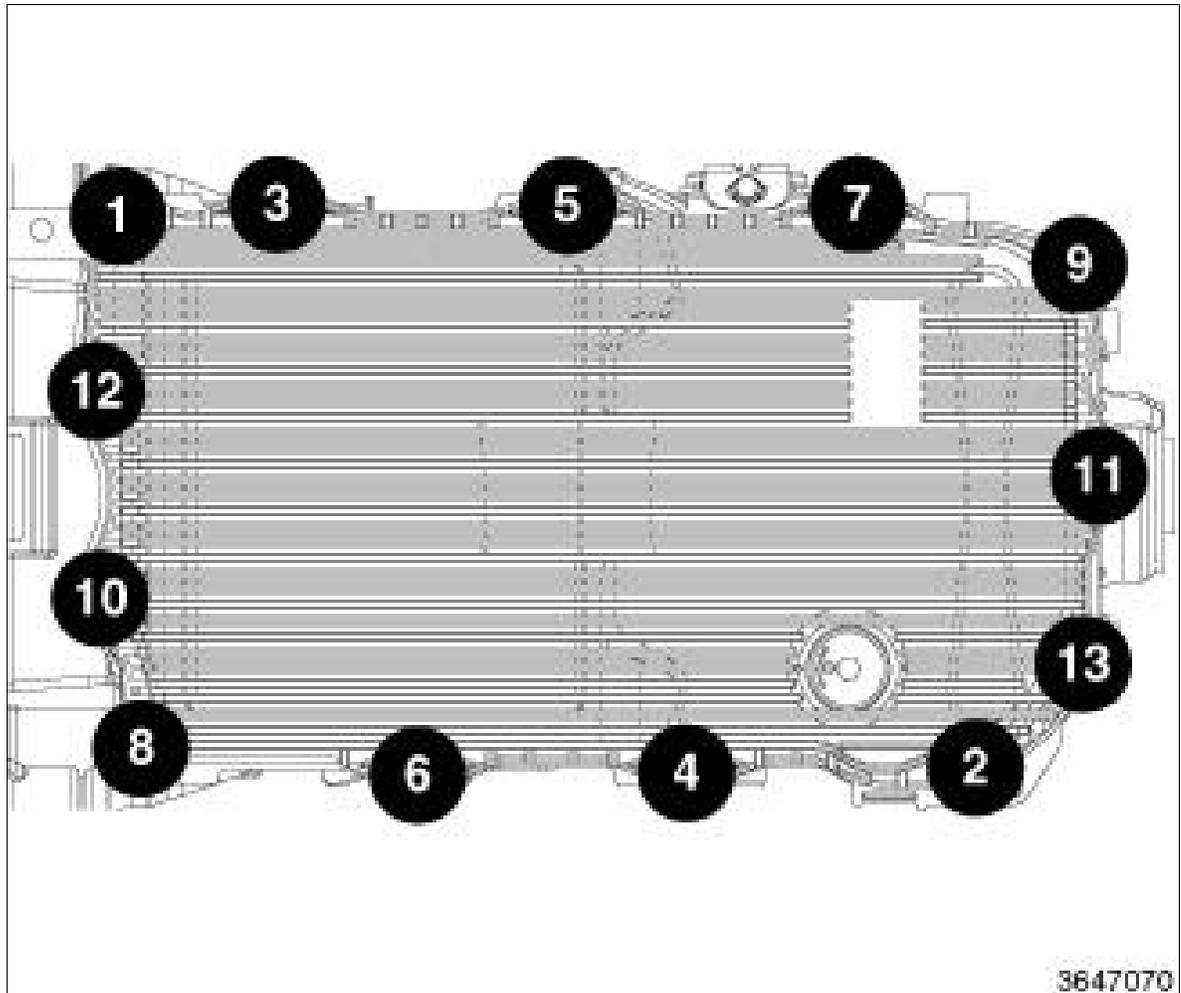
Fig 2: Thirteen Oil Pan Retaining Bolts



Courtesy of CHRYSLER GROUP, LLC

3. Remove the 13 oil pan retaining bolts (2).
4. Remove the oil pan (1) and gasket. If the pan is being removed for contamination concerns discard the pan.
5. Install the **new** oil pan (1) and gasket.

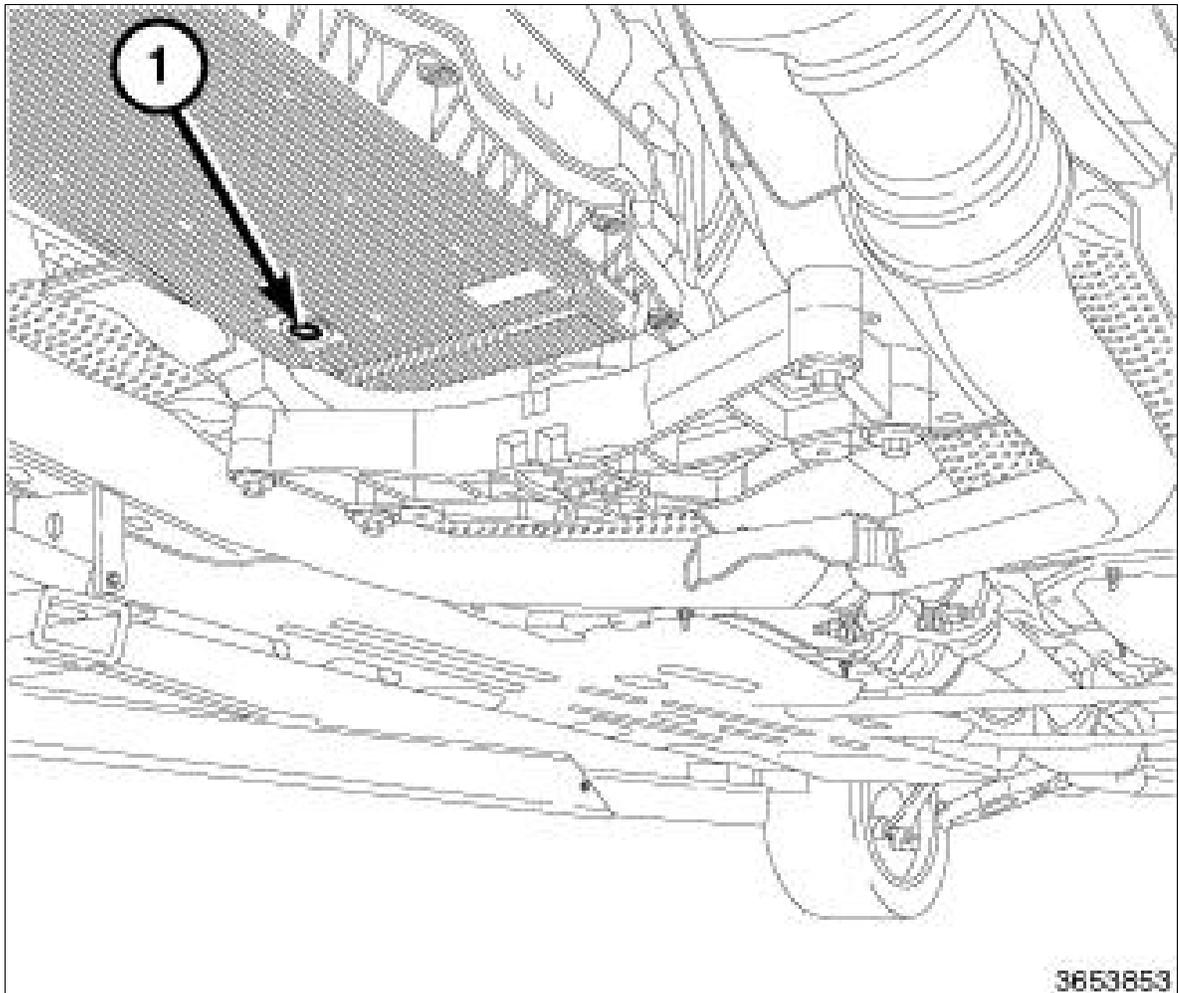
Fig 3: Oil Pan Retaining Bolts Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

6. Install the 13 oil pan retaining bolts and tighten to 10 N.m (89 in. lbs.) using the sequence given.

Fig 4: Transmission Oil Pan Plug

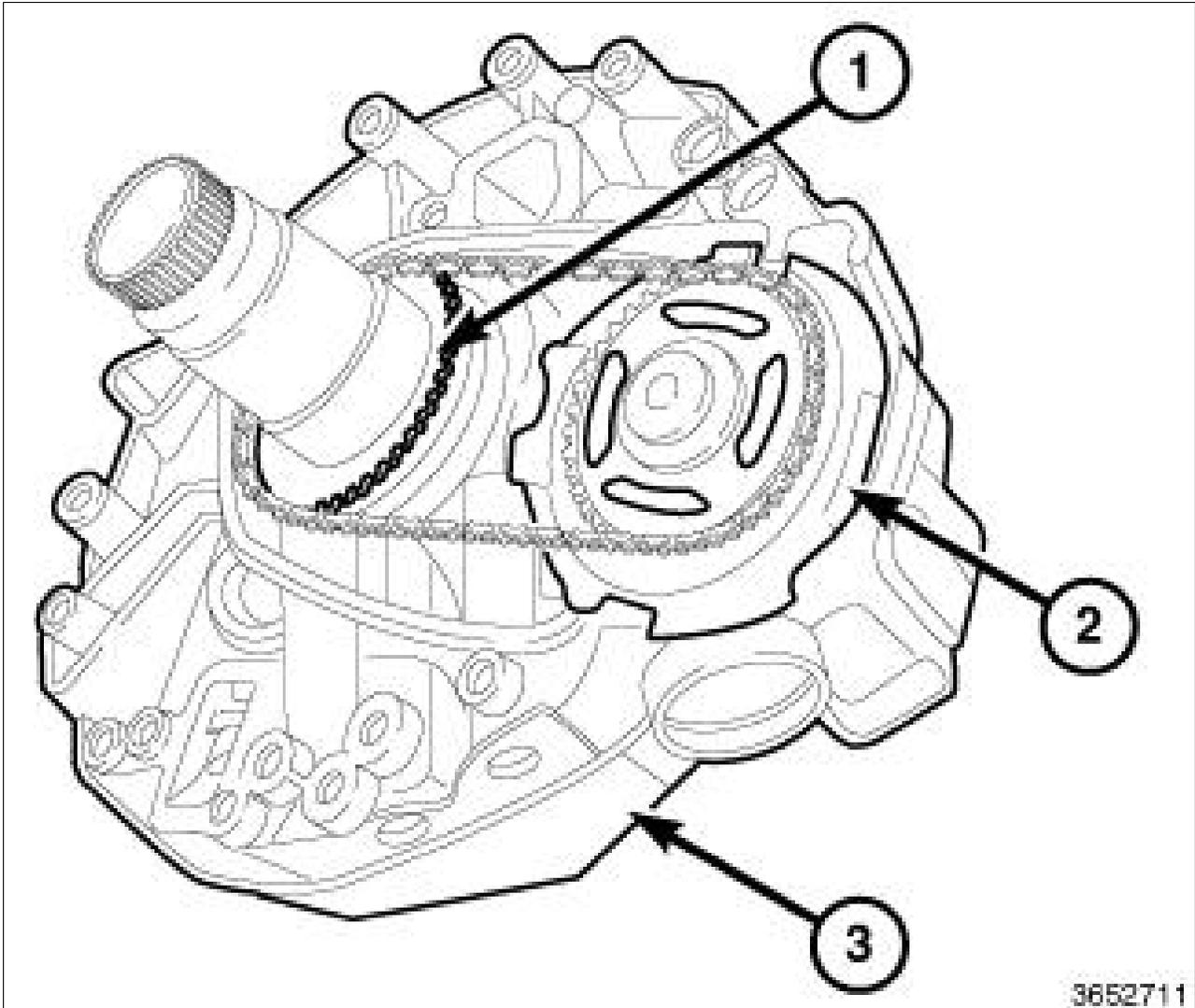


Courtesy of CHRYSLER GROUP, LLC

7. Inspect and adjust the fluid level. Refer to FLUID AND FILTER, STANDARD PROCEDURE .
8. Lower the vehicle.

**PUMP, TRANSMISSION OIL > DESCRIPTION > DESCRIPTION**

Fig 1: Transmission Oil Pump, Chain And Sprocket & Oil Pump Housing

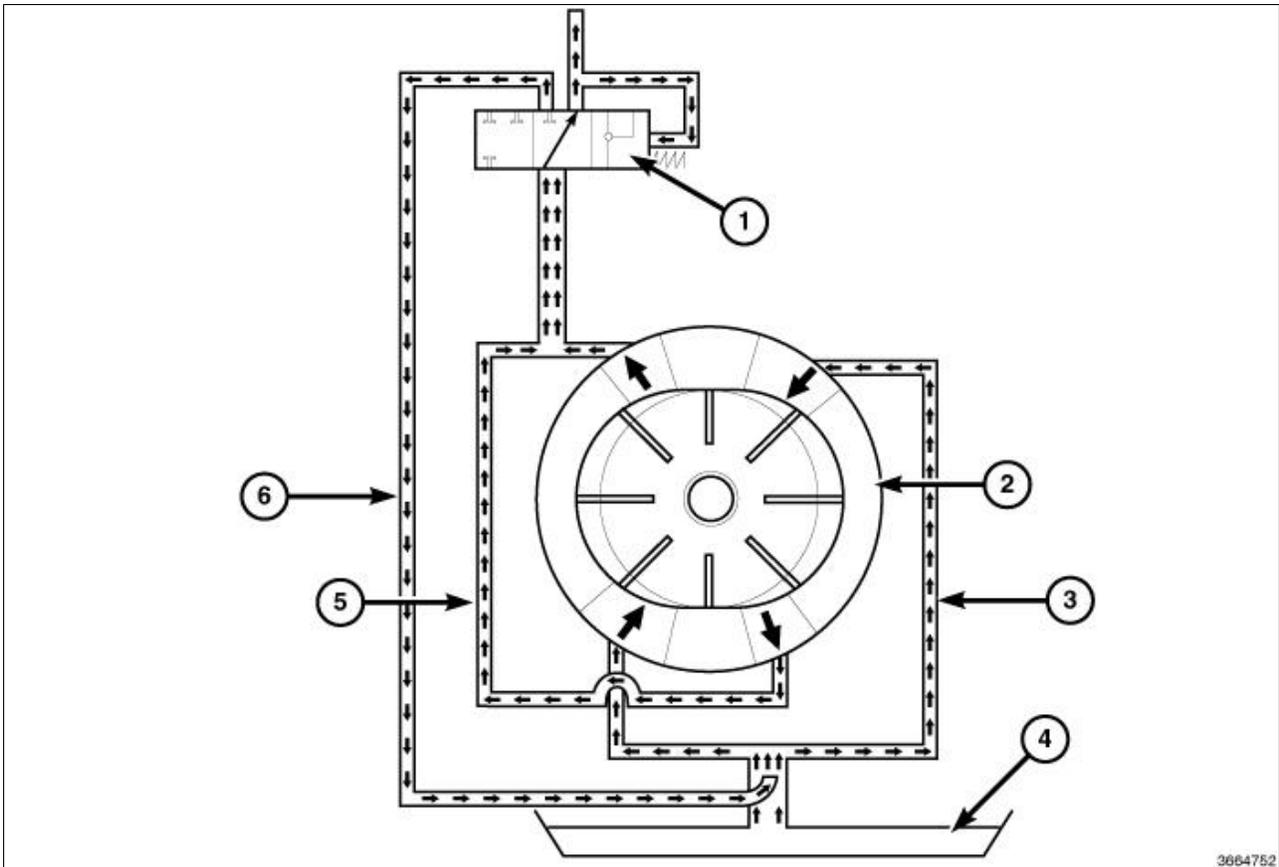


Courtesy of CHRYSLER GROUP, LLC

The transmission oil pump (2) is driven by a chain and sprocket (1). The oil pump is located just behind the torque converter, inside of the pump housing (3). The pump is a double-stroke vane pump. The pump has dual chambers, two inlet and two outlet ports. The pump provides necessary lubrication and cooling throughout all phases of transmission operation.

## **PUMP, TRANSMISSION OIL > OPERATION > OPERATION**

Fig 1: Transmission Oil Pump Flow Diagram



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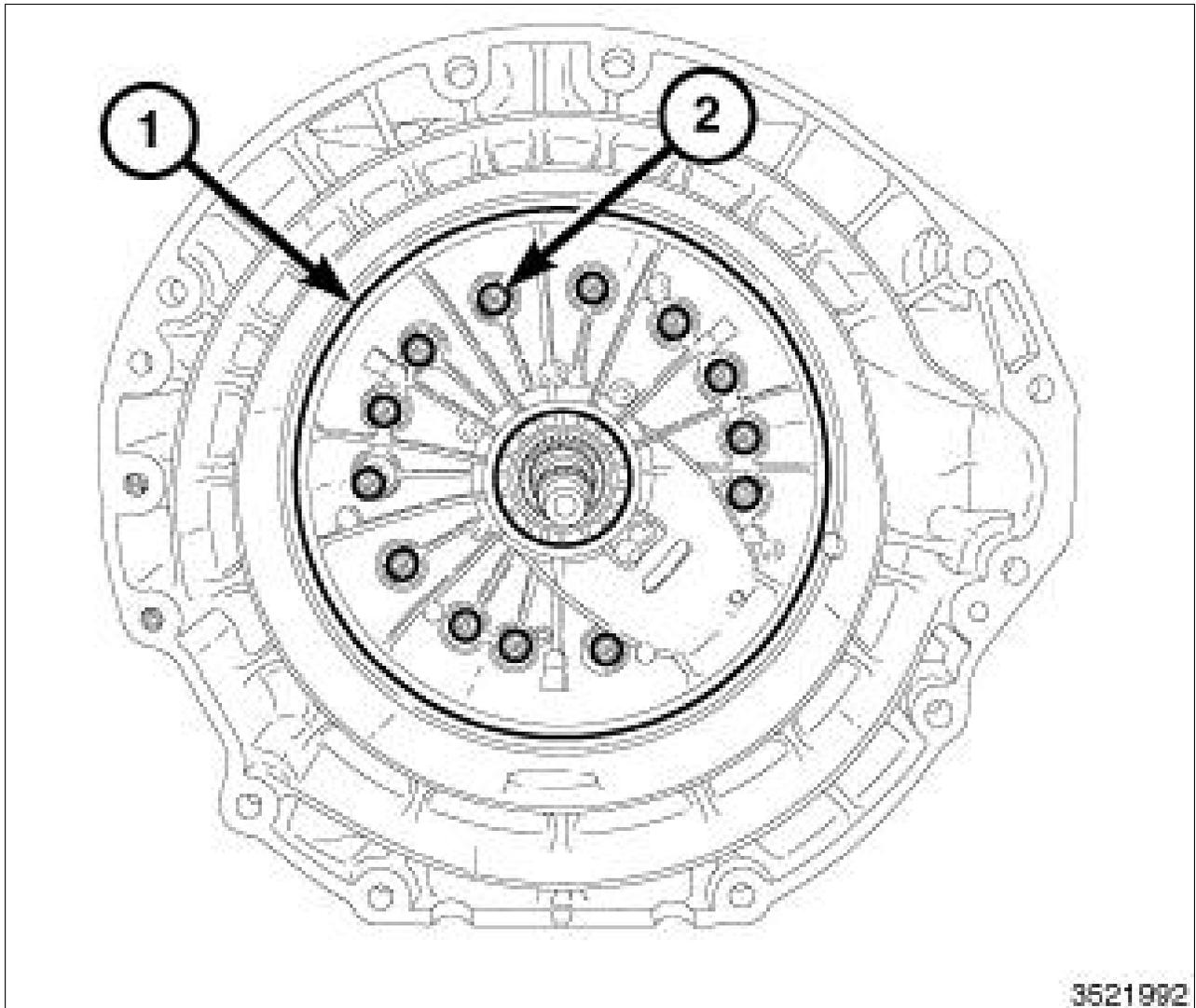
Courtesy of CHRYSLER GROUP, LLC

1 - SYSTEM PRESSURE VALVE	4 - SUMP
2 - PUMP	5 - PRESSURE PIPE
3 - INTAKE PIPE	6 - RETURN OF REDUNDANT OIL

The transmission oil pump is driven by a chain and sprocket. The oil pump has two intake ports and two exhaust ports. The pump draws fluid through a filter and pressurizes the fluid as the pump rotates. After the fluid is pressurized, it exits the pump through two exhaust ports that feed the system pressure valve. The system pressure valve maintains fluid pressure and allows excess pressure to return to the pump. This reduces cavitation and noise.

## PUMP, TRANSMISSION OIL > REMOVAL > REMOVAL

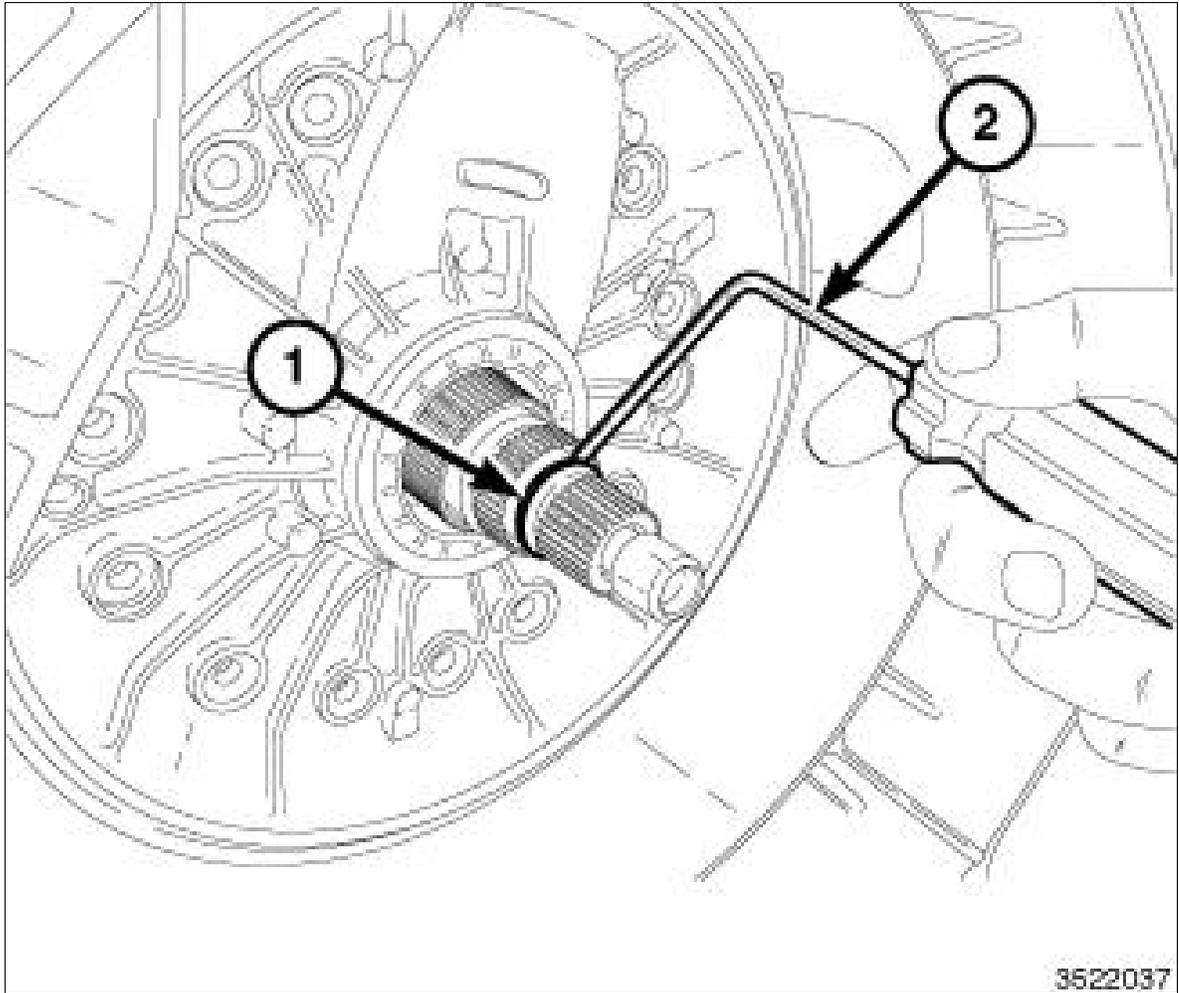
Fig 1: Thirteen Oil Pump Housing Retaining Bolts



Courtesy of CHRYSLER GROUP, LLC

1. Remove the transmission. Refer to REMOVAL .
2. Remove the valve body. Refer to VALVE BODY, REMOVAL .
3. Remove the thirteen oil pump assembly to case bolts (2).

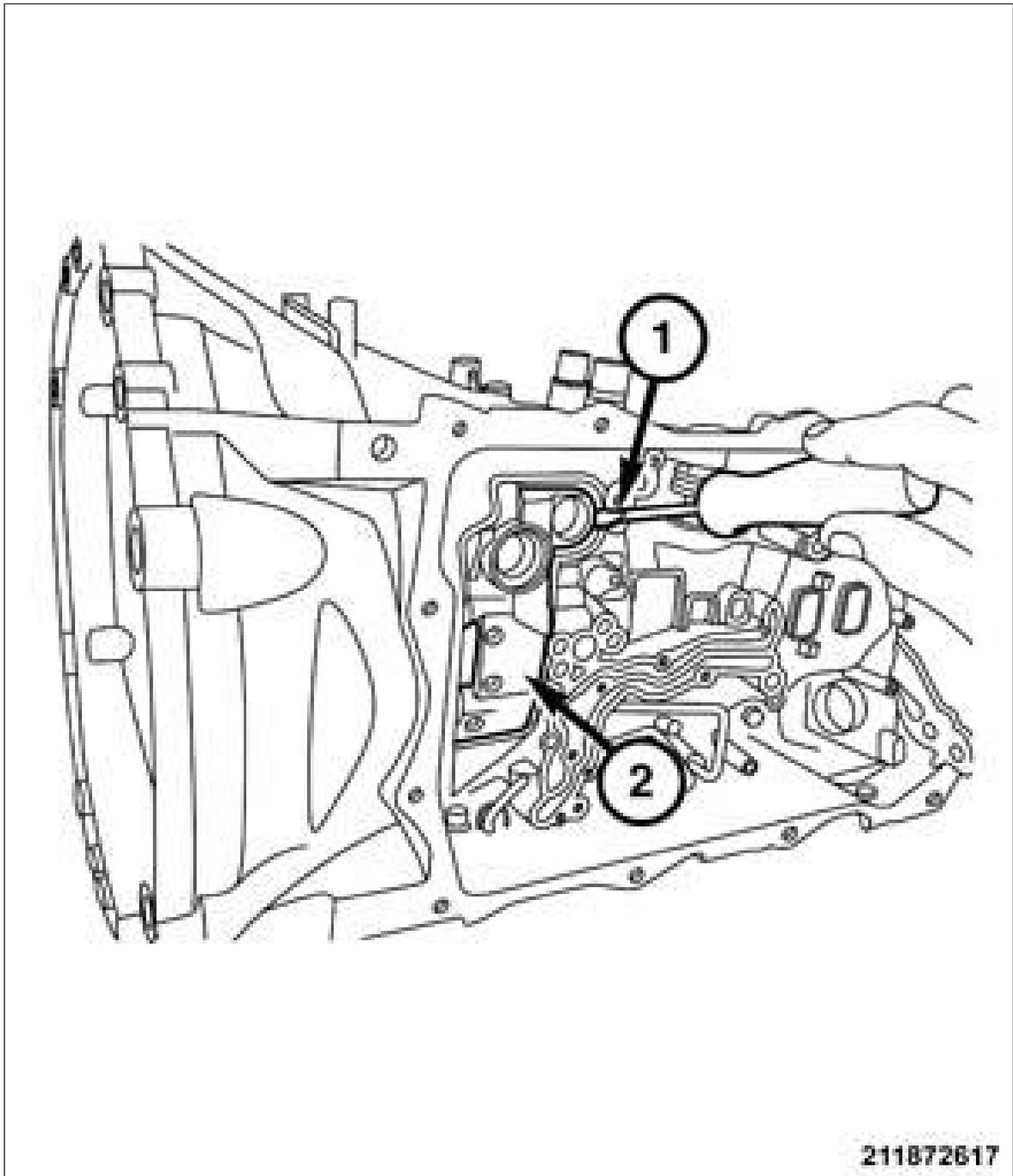
Fig 2: Input Shaft O-Ring & Small Pick



Courtesy of CHRYSLER GROUP, LLC

4. Remove the input shaft O-ring (1) using a small pick (2) or equivalent.

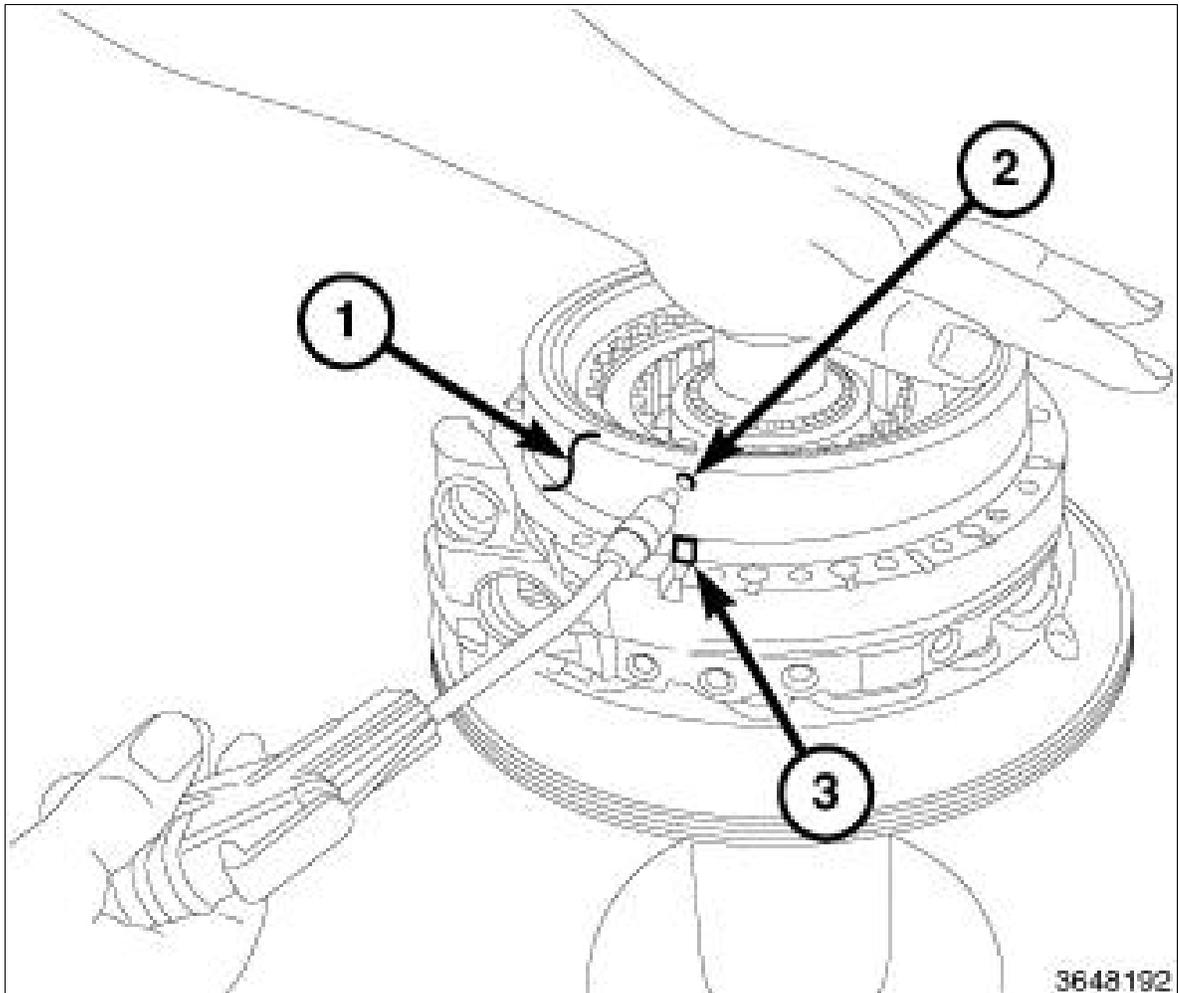
Fig 3: Prying Oil Pump Housing Away From Case



Courtesy of CHRYSLER GROUP, LLC

5. Carefully pry the oil pump housing (1) away from the case (2) with a small flat blade screwdriver or equivalent through the case opening.
6. From the front of the transmission, remove the oil pump housing.

Fig 4: B-Piston, Hole & B-Piston Alignment Tab



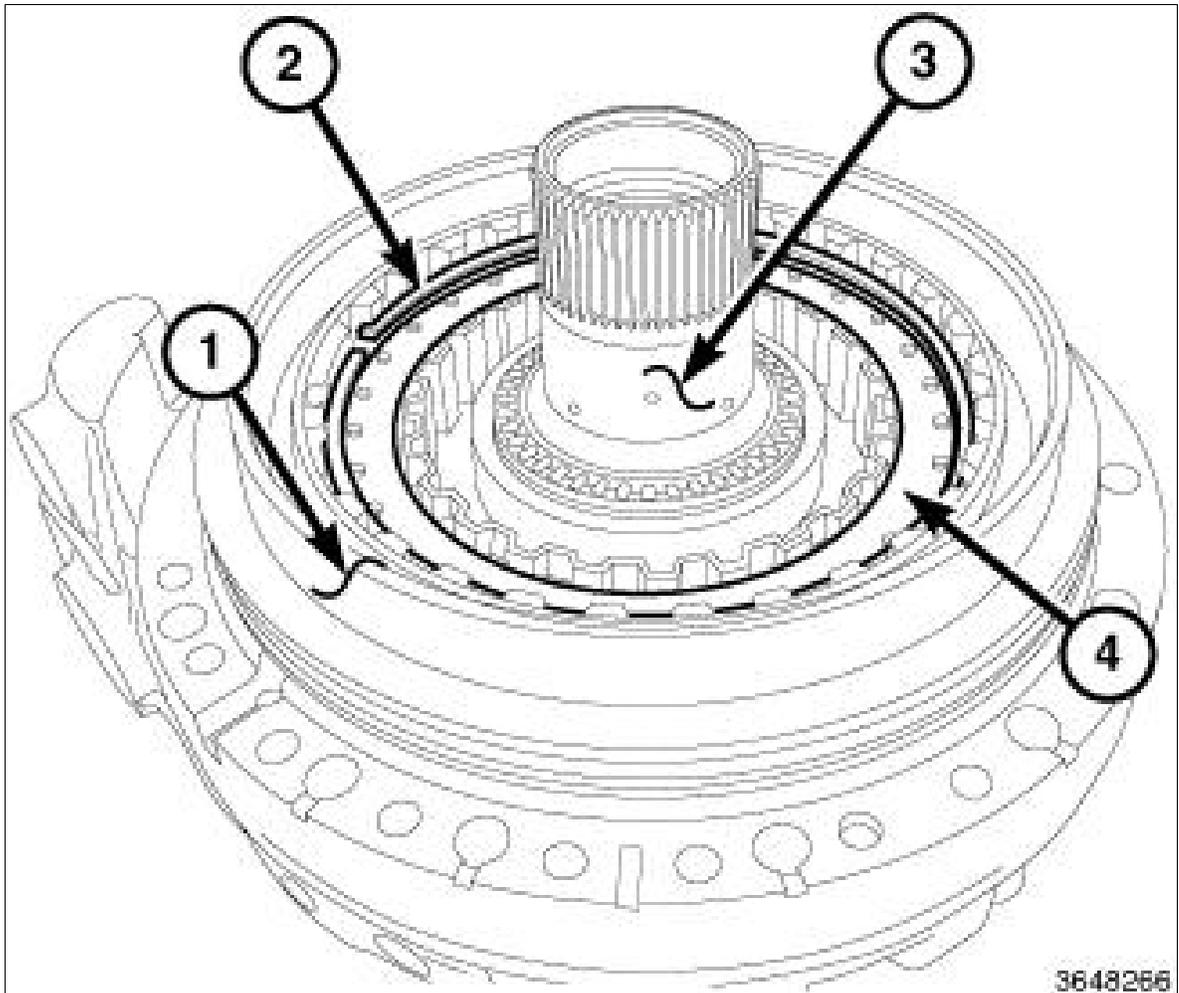
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Apply air pressure slowly, oil may spray when B-piston releases from the assembly.*

7. With one hand above B-piston (1), carefully apply air pressure into the hole directly above the B-piston alignment tab (3) to remove B-piston (2) from the assembly.

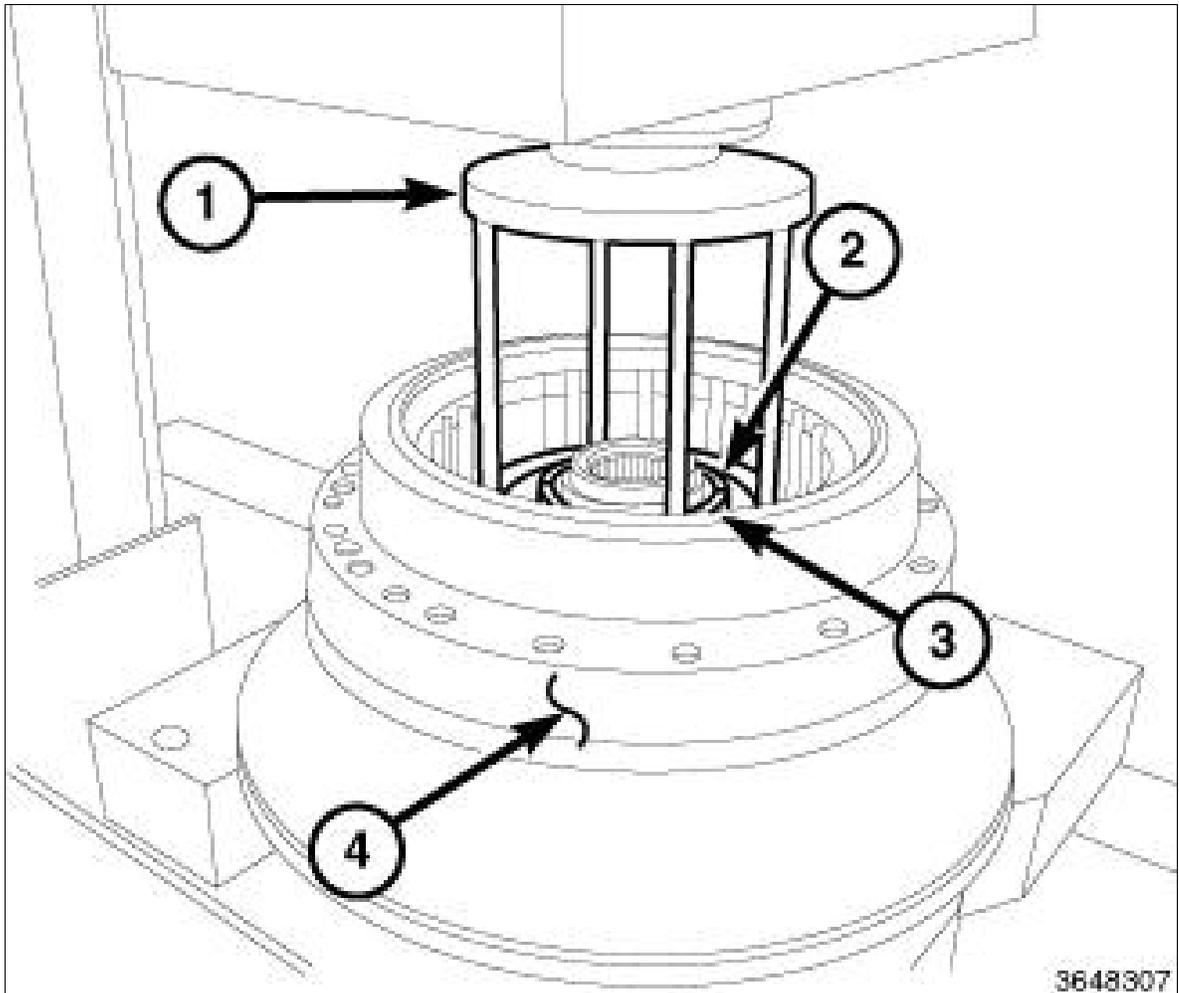
Fig 5: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

8. Remove the outer ring (1) (inside B-piston).
9. Remove the snap ring (2).
10. Remove the clutches and spacers (4).
11. Remove the hub (3).

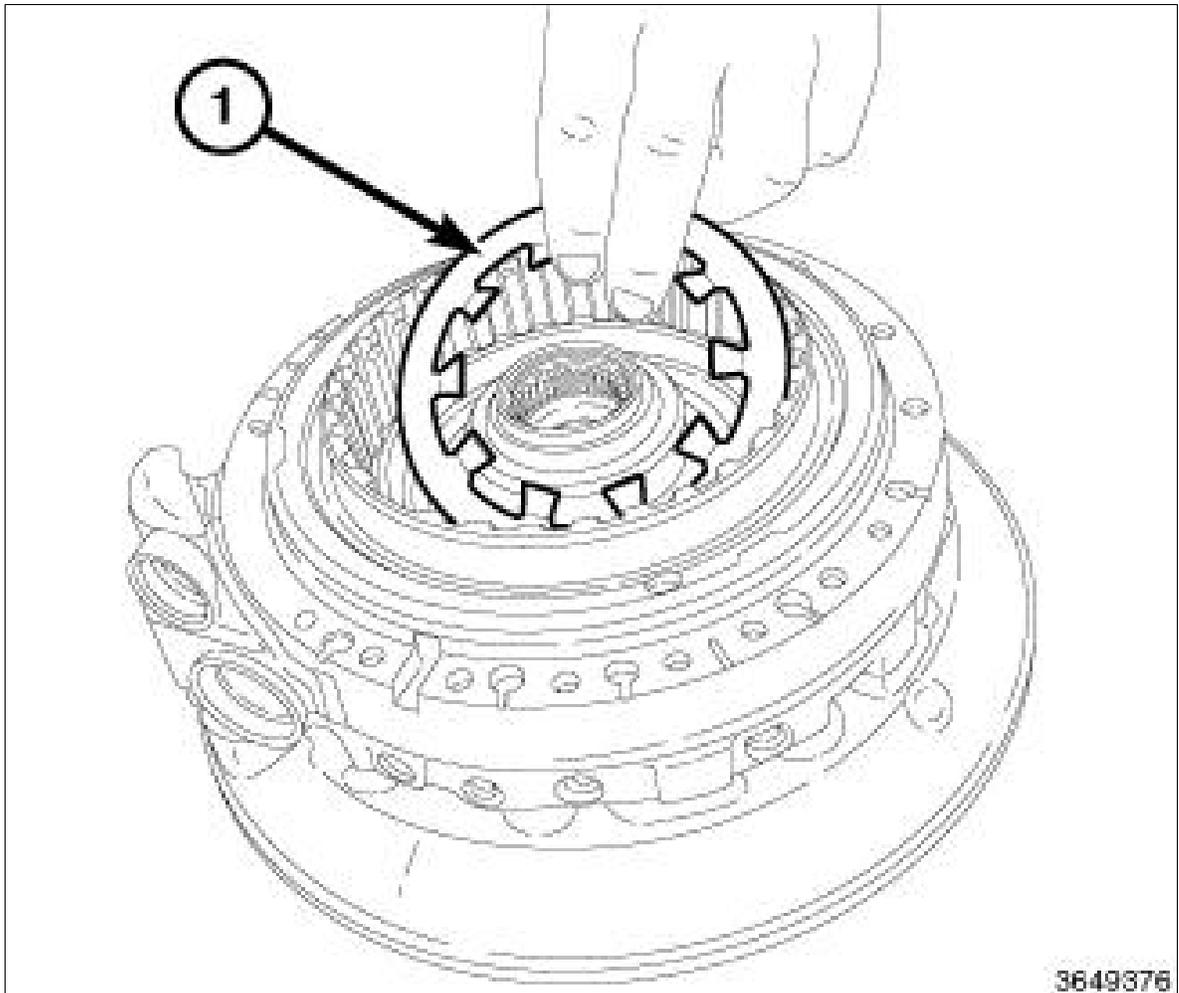
Fig 6: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

12. Position the oil pump housing assembly (4) in a suitable press.
13. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retainer to remove tension on the split retaining ring (2), and remove the two halves of the retaining ring (2).

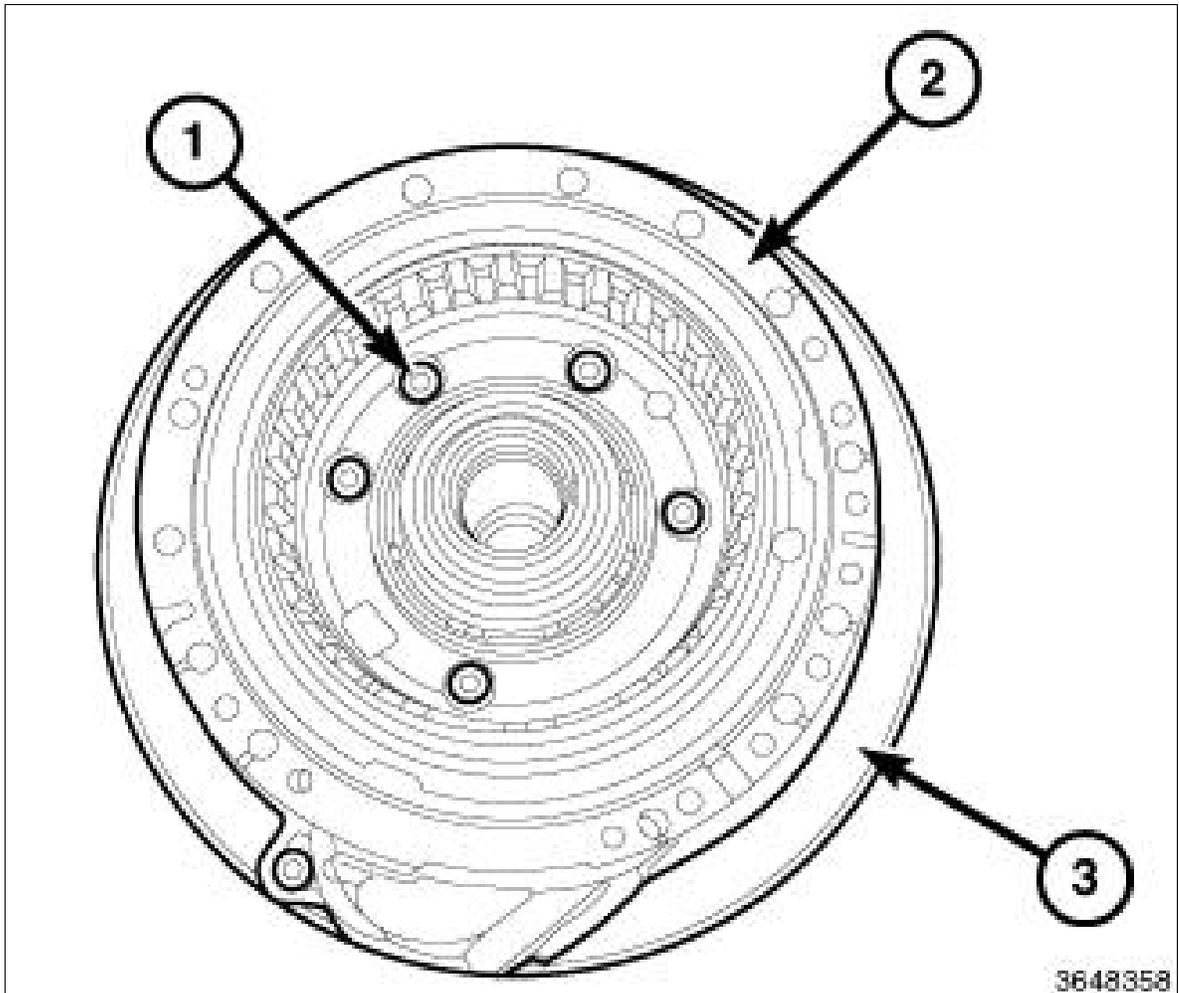
Fig 7: Piston Retaining Ring And Piston



Courtesy of CHRYSLER GROUP, LLC

14. Remove the piston retainer and plate.

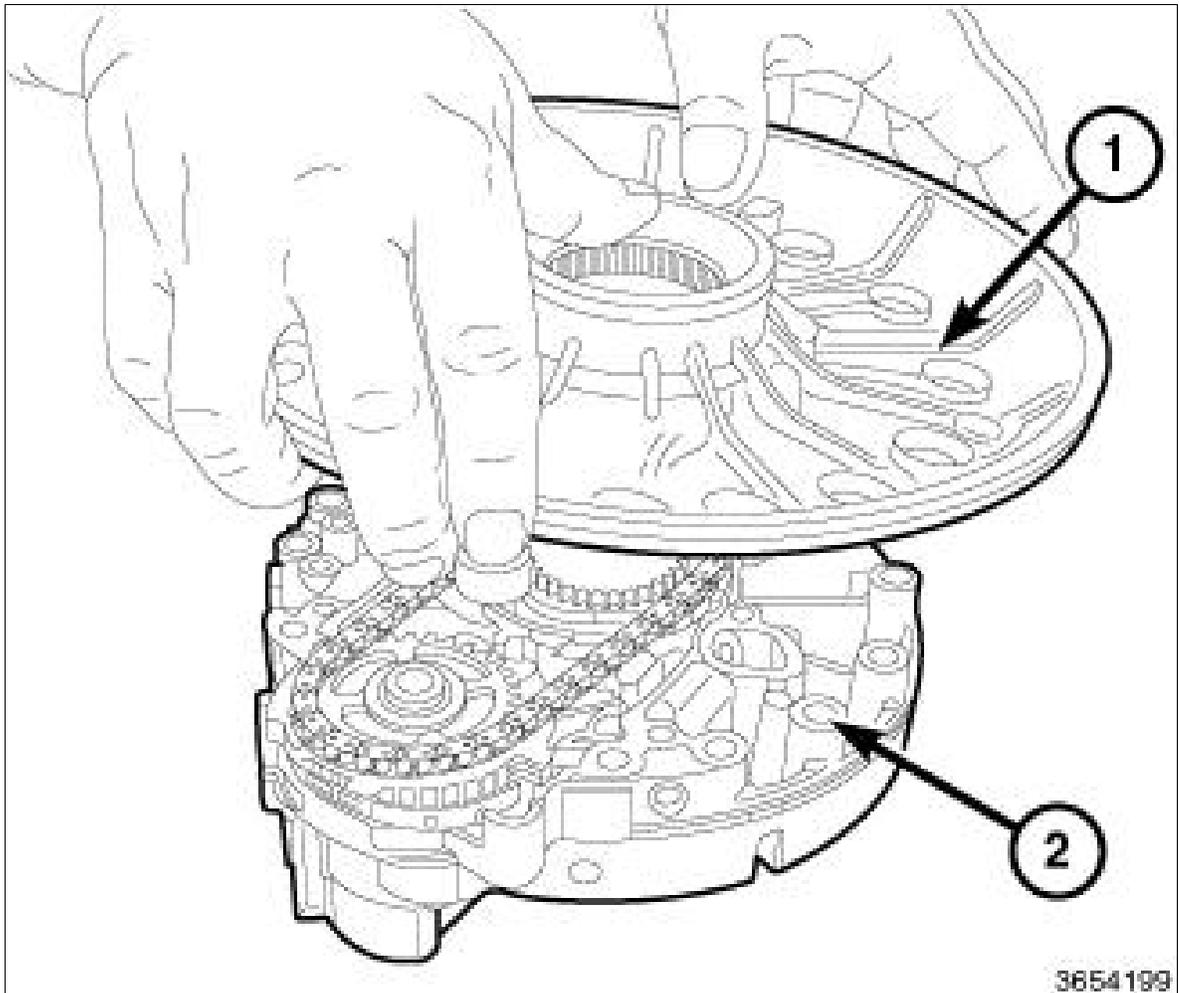
Fig 8: Six Bolts, Oil Pump Housing & Oil Pump Cover



Courtesy of CHRYSLER GROUP, LLC

15. Remove the five bolts (1) and separate the oil pump housing (2) from the front oil pump cover (3).

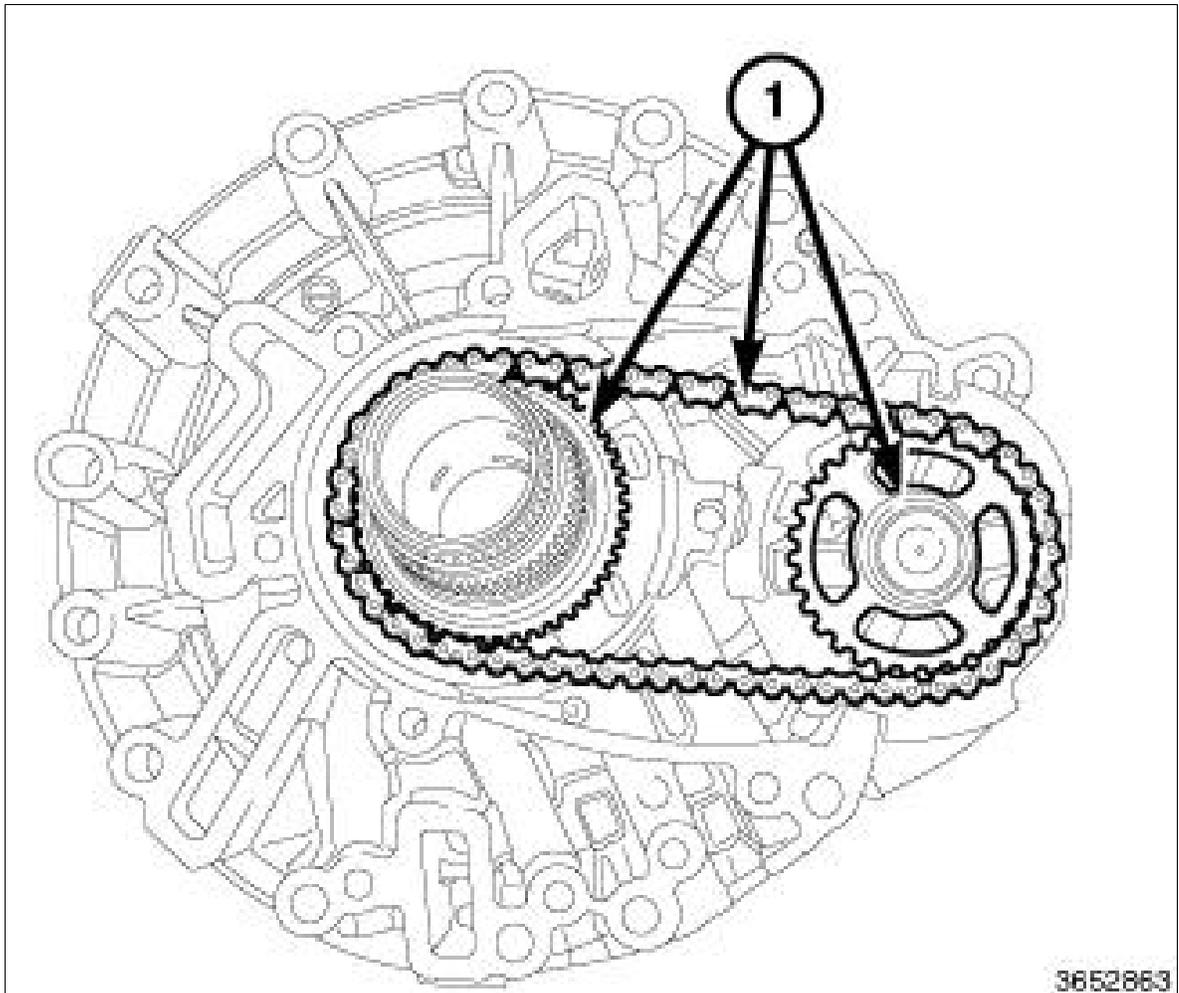
Fig 9: Front Cover & Oil Pump Housing



Courtesy of CHRYSLER GROUP, LLC

16. Separate the front cover (1) from the oil pump housing (2).

Fig 10: Drive Sprocket, Chain And Pump Body



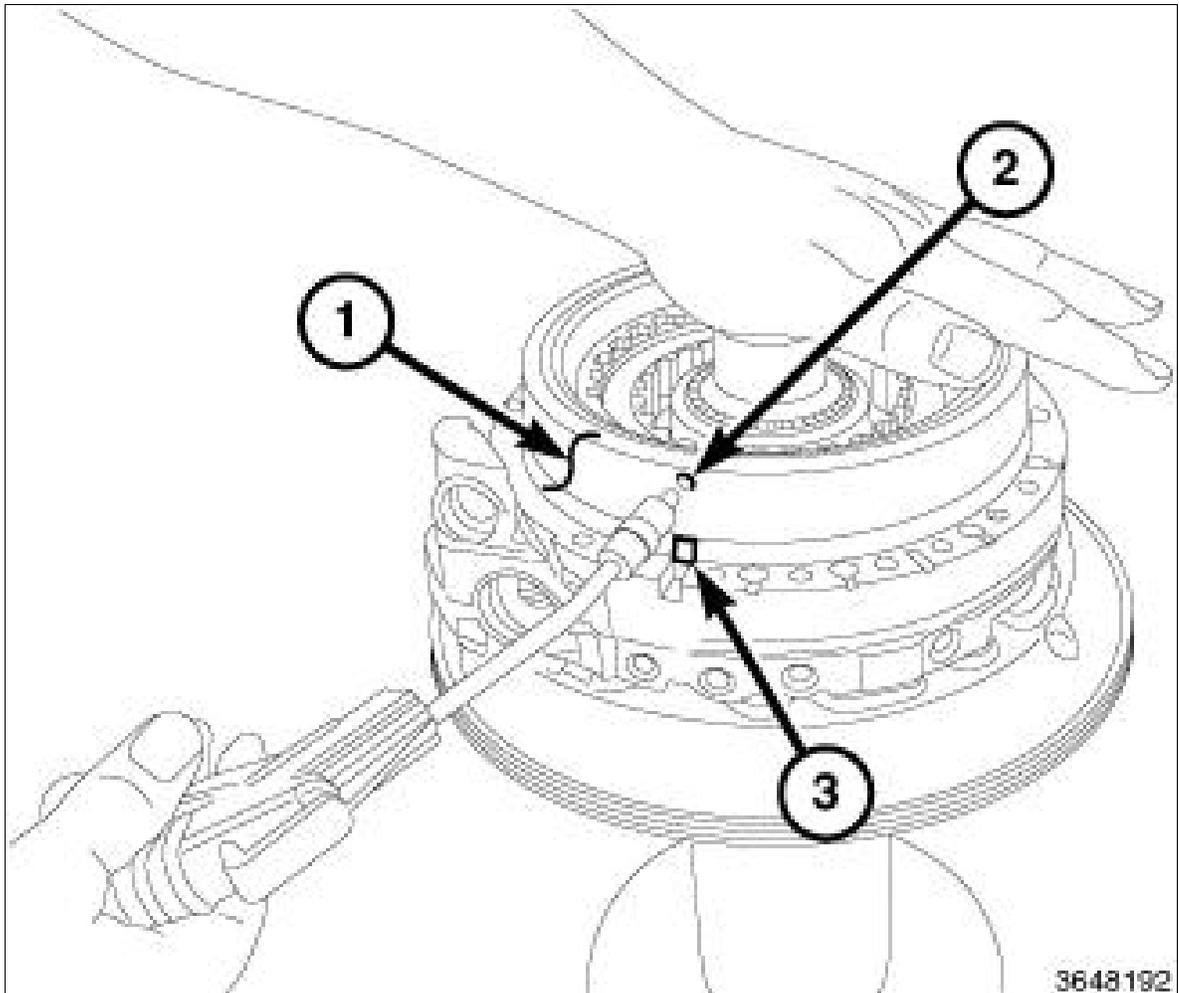
Courtesy of CHRYSLER GROUP, LLC

17. Remove the drive sprocket, chain and pump body (1) as an assembly.
18. Remove and discard all O-rings.

### **PUMP, TRANSMISSION OIL > DISASSEMBLY > DISASSEMBLY**

1. Remove the oil supply from the transmission case. Refer to PUMP, TRANSMISSION OIL, REMOVAL .

Fig 1: B-Piston, Hole & B-Piston Alignment Tab



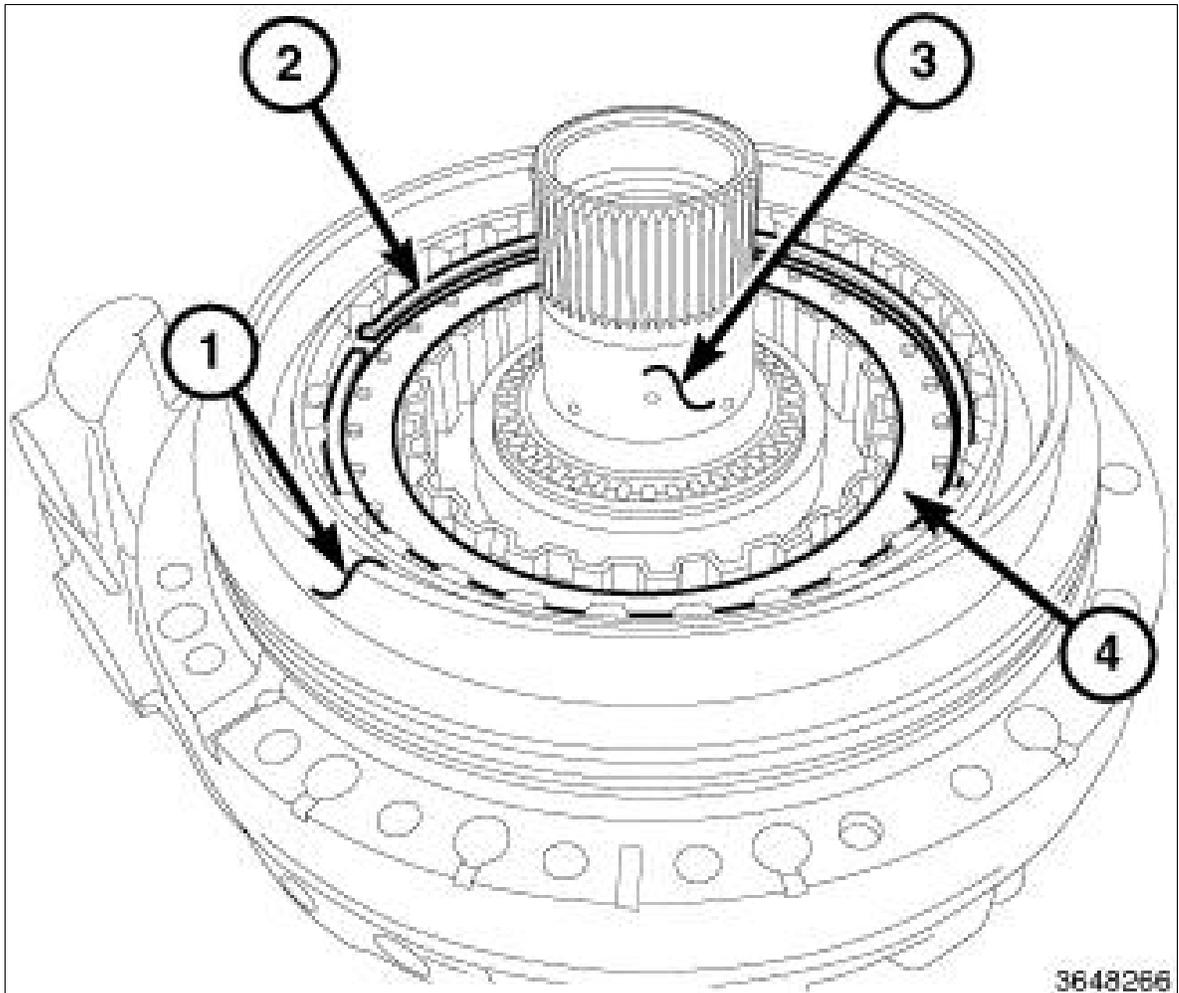
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Apply air pressure slowly, oil may spray when B-piston releases from the assembly.*

2. With one hand above B-piston (1), carefully apply air pressure into the hole directly above the B-piston alignment tab (3) to remove B-piston (2) from the assembly.

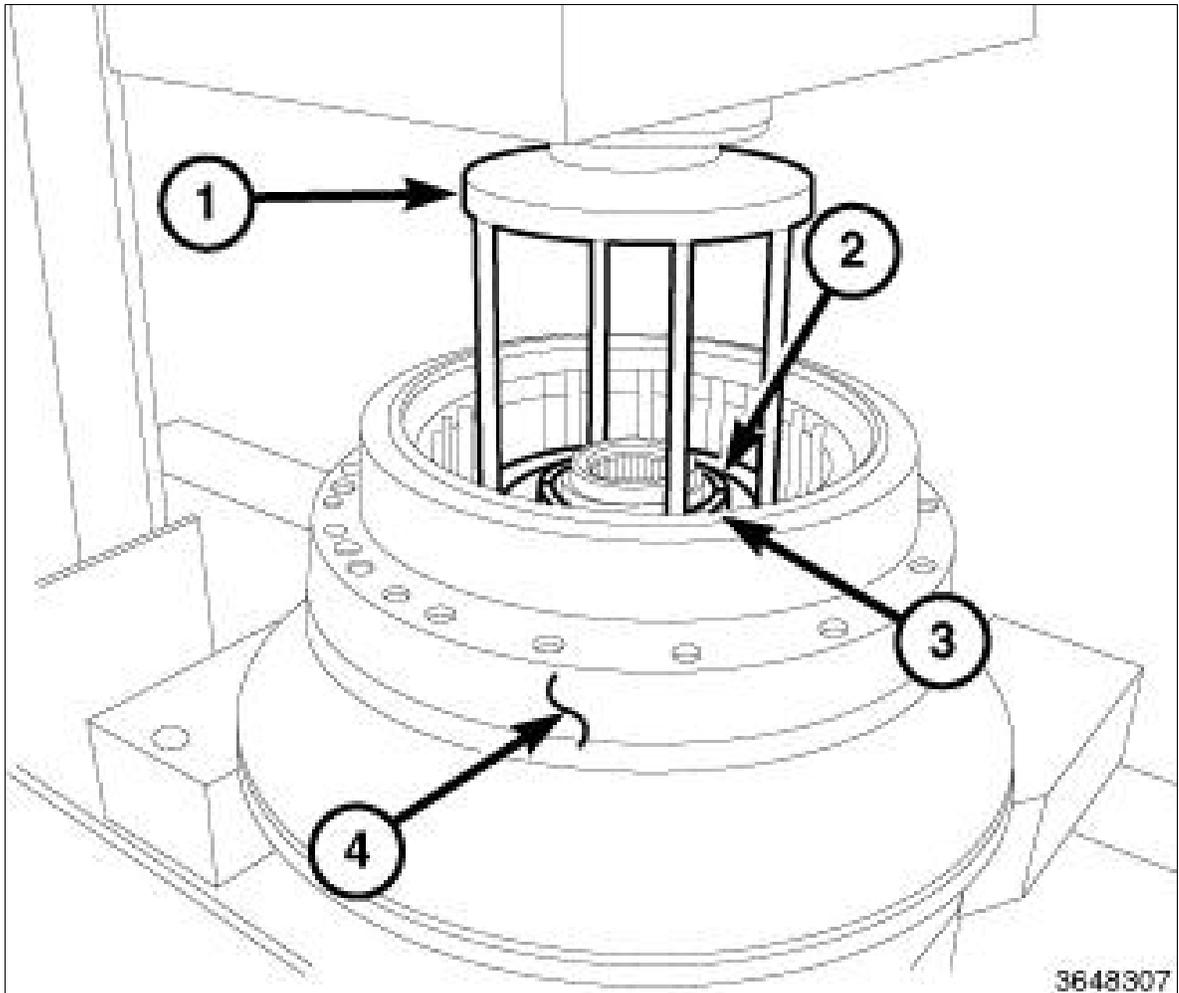
Fig 2: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

3. Remove the outer ring (1) (inside B-piston).
4. Remove the snap ring (2).
5. Remove the clutches and spacers (4).
6. Remove the hub (3).

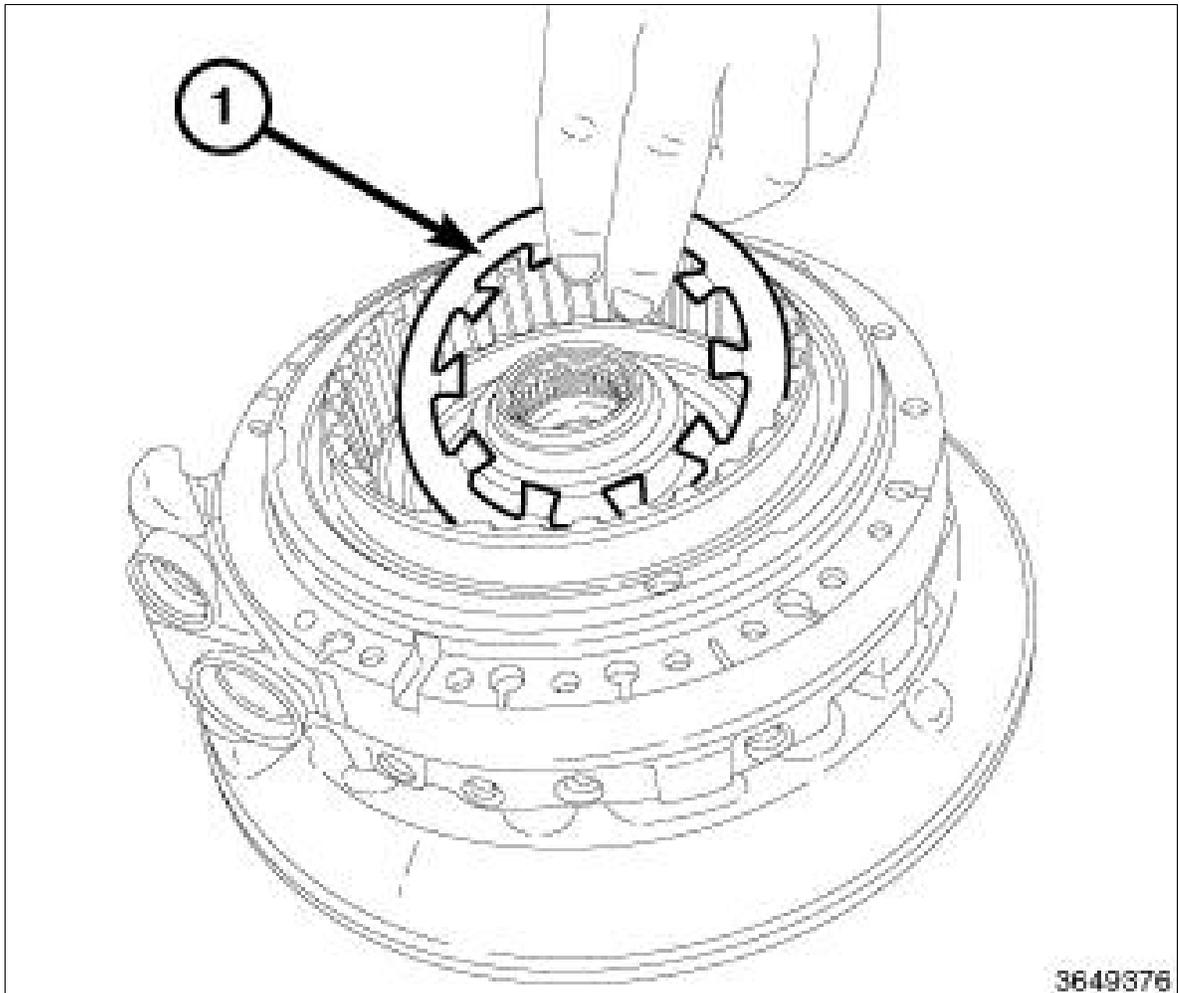
Fig 3: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

7. Position the oil pump housing assembly (4) in a suitable press.
8. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retainer to remove tension on the split retaining ring (2), and remove the two halves of the retaining ring (2).

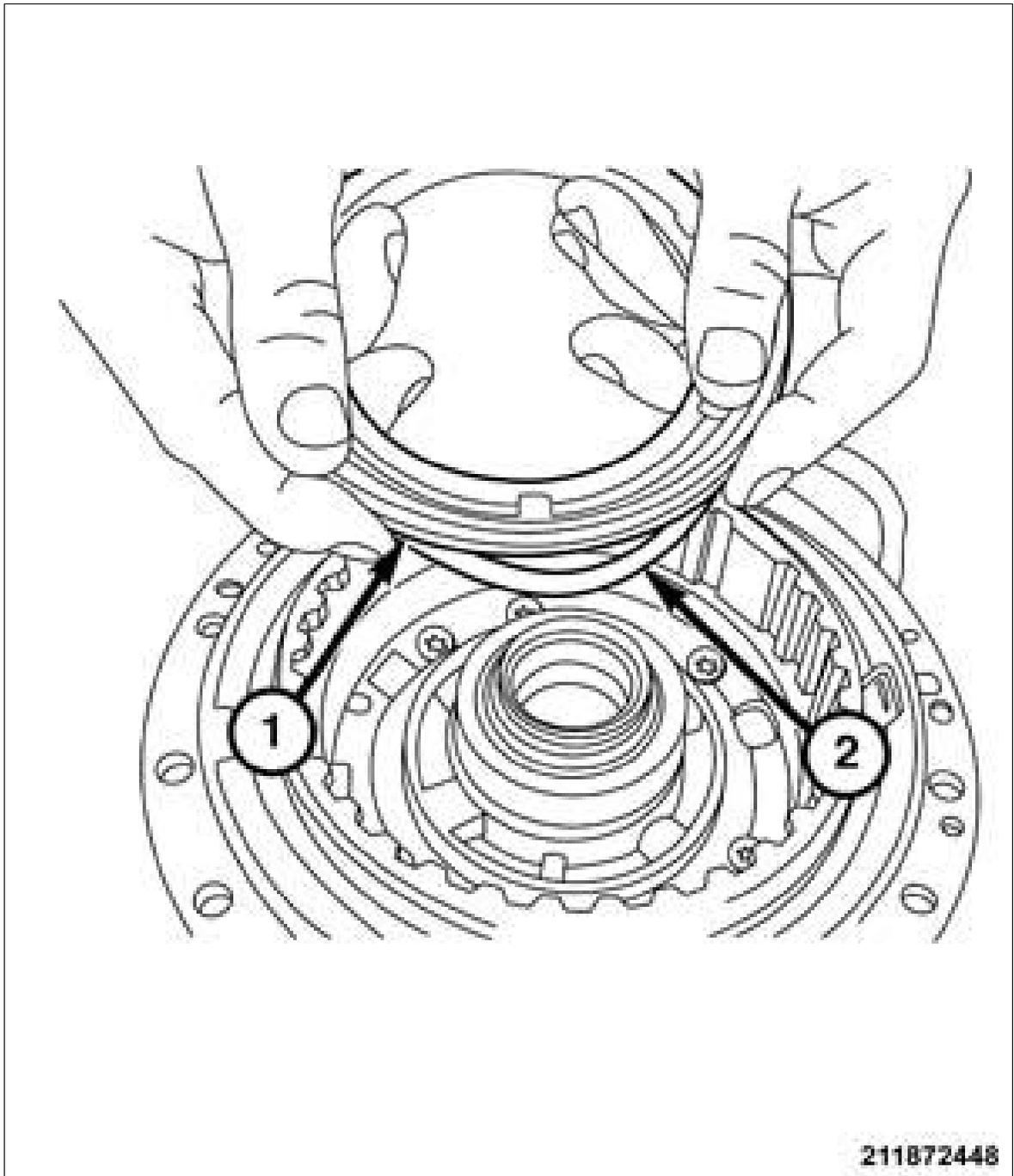
Fig 4: Piston Retaining Ring And Piston



Courtesy of CHRYSLER GROUP, LLC

9. Remove the piston retainer and plate.

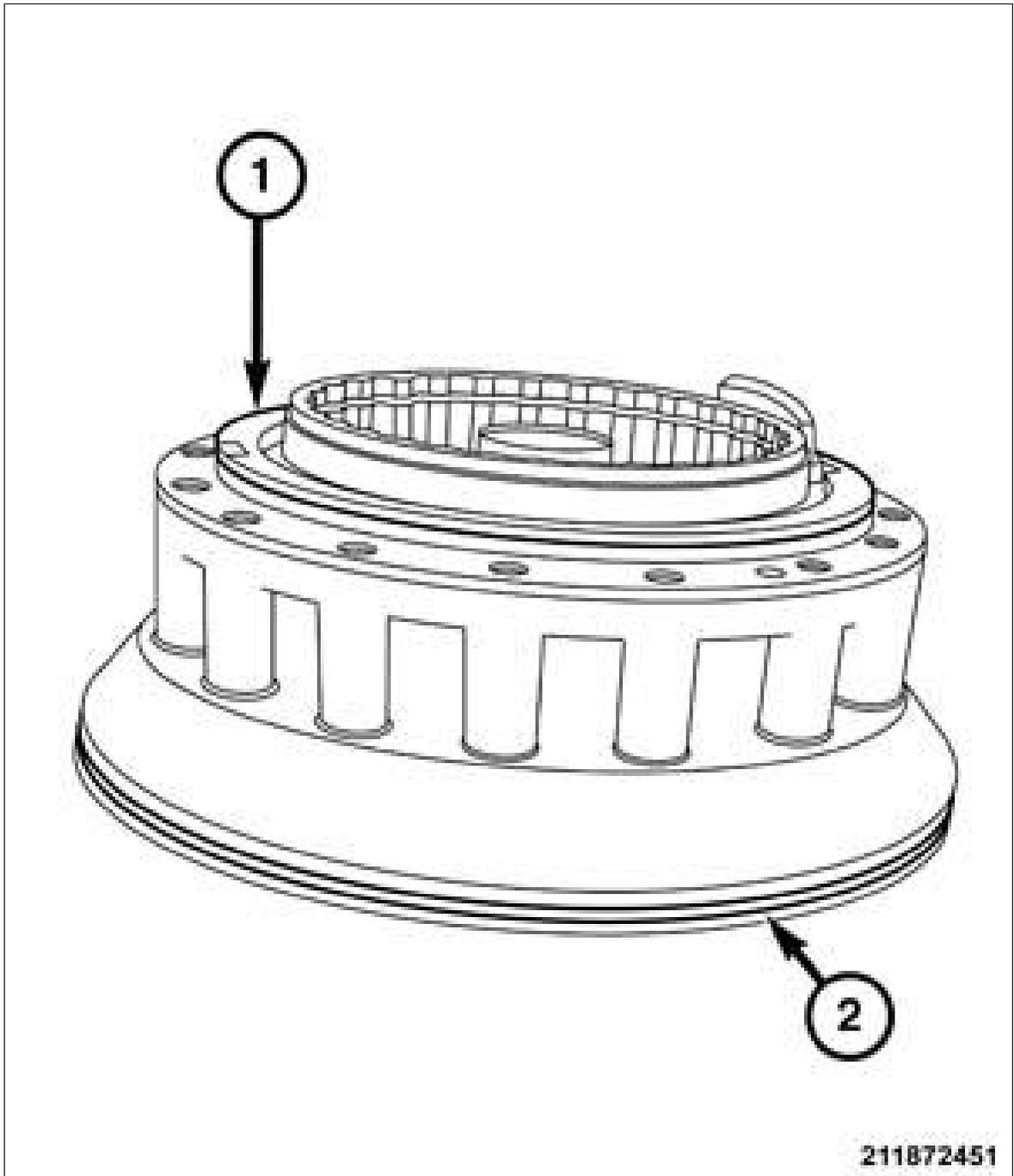
Fig 5: A-Piston & Seal



Courtesy of CHRYSLER GROUP, LLC

10. Remove the A-piston (1) and seal (2) from the oil pump.

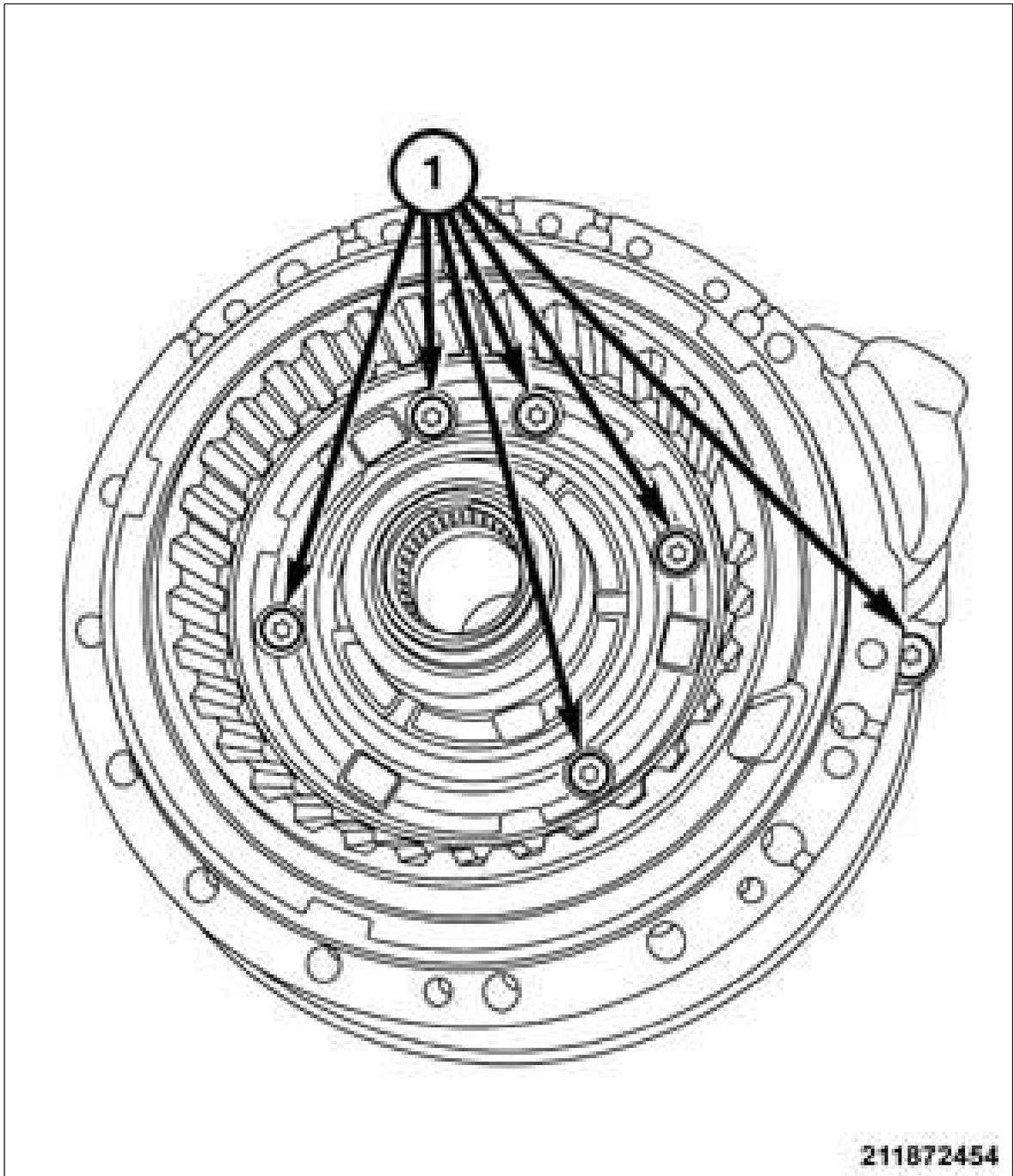
Fig 6: Inner & Outer Oil Pump O-Rings



Courtesy of CHRYSLER GROUP, LLC

11. Remove the inner (1) and outer (2) oil pump O-rings.

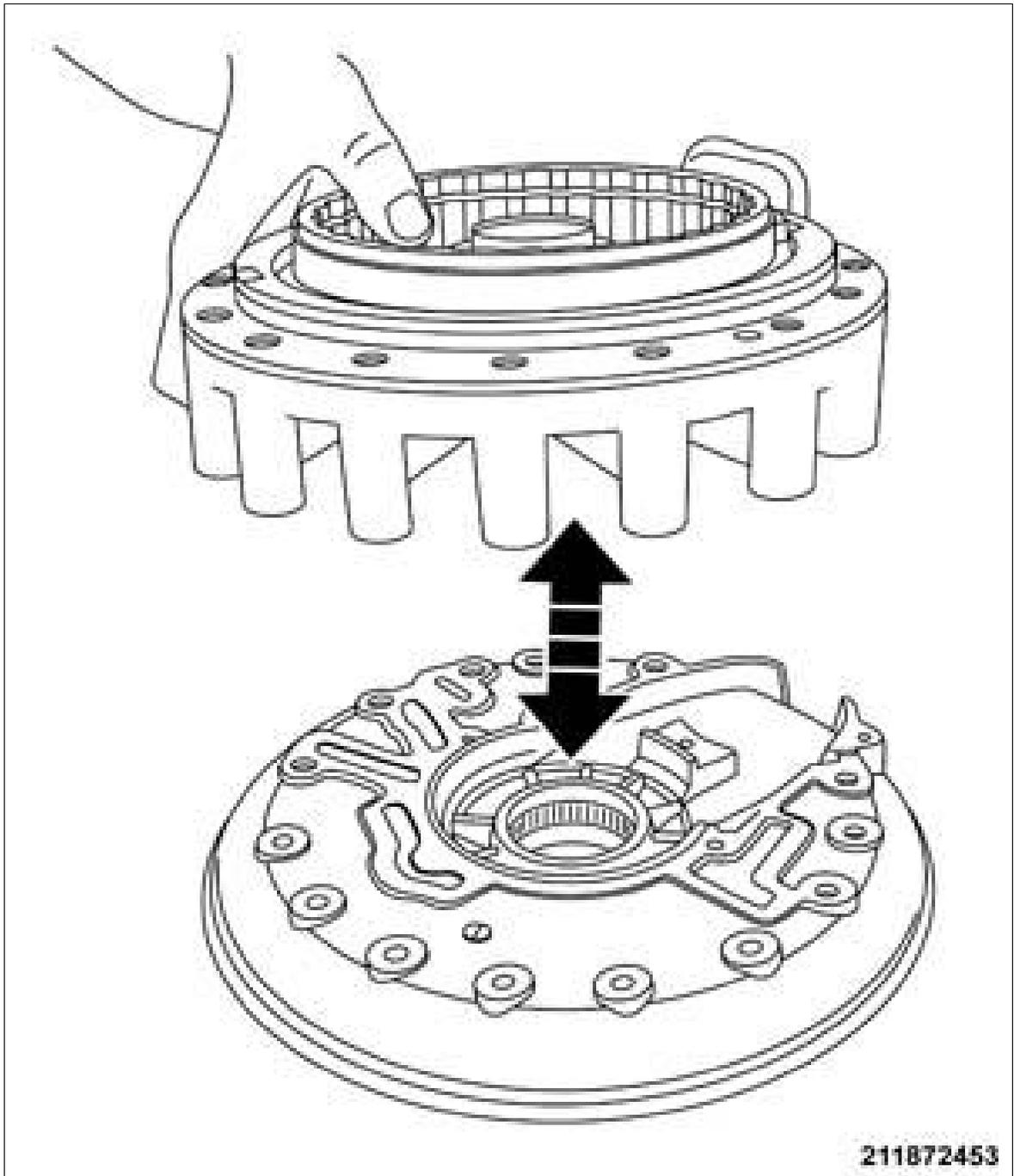
Fig 7: Oil Pump Torx(R) Bolts



Courtesy of CHRYSLER GROUP, LLC

12. Remove the six Torx® bolts (1) from the oil pump.

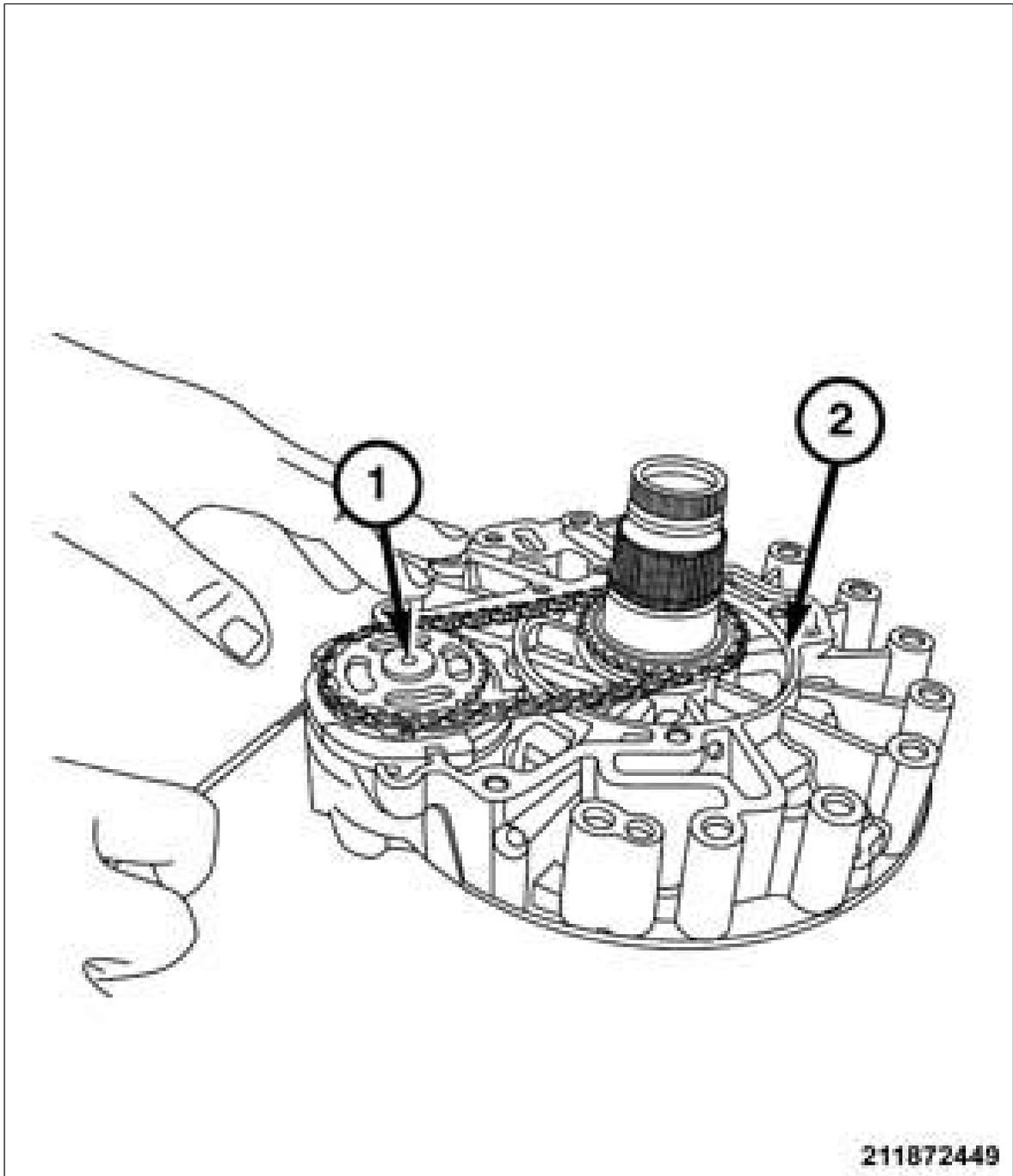
Fig 8: Two Halves Of Oil Pump



Courtesy of CHRYSLER GROUP, LLC

13. Separate the two halves of the oil pump, by pushing on the hub.

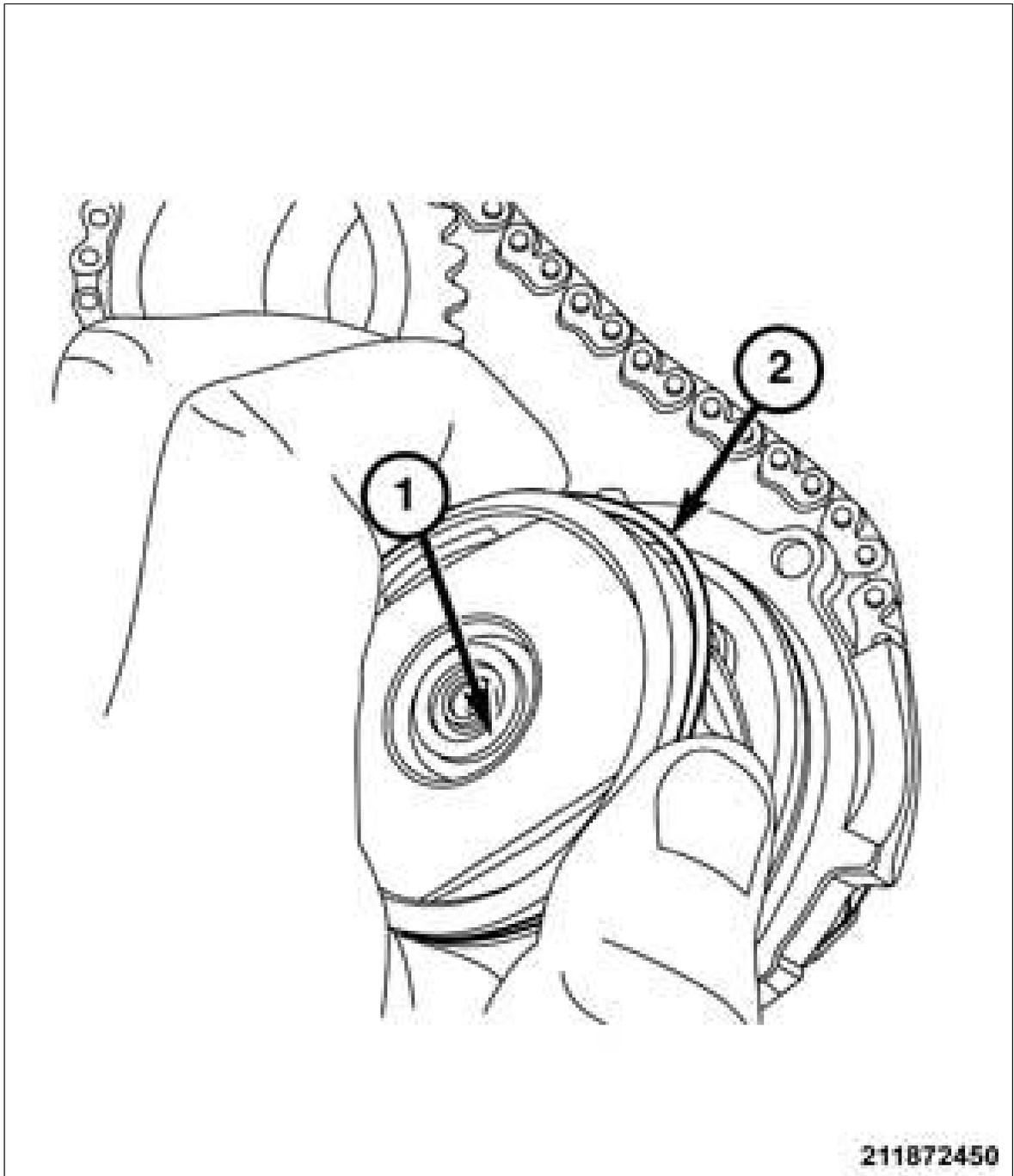
Fig 9: Prying Up On Oil Pump & Separating It From The Housing



Courtesy of CHRYSLER GROUP, LLC

14. Carefully pry up on the oil pump (1), separating it from the housing (2).

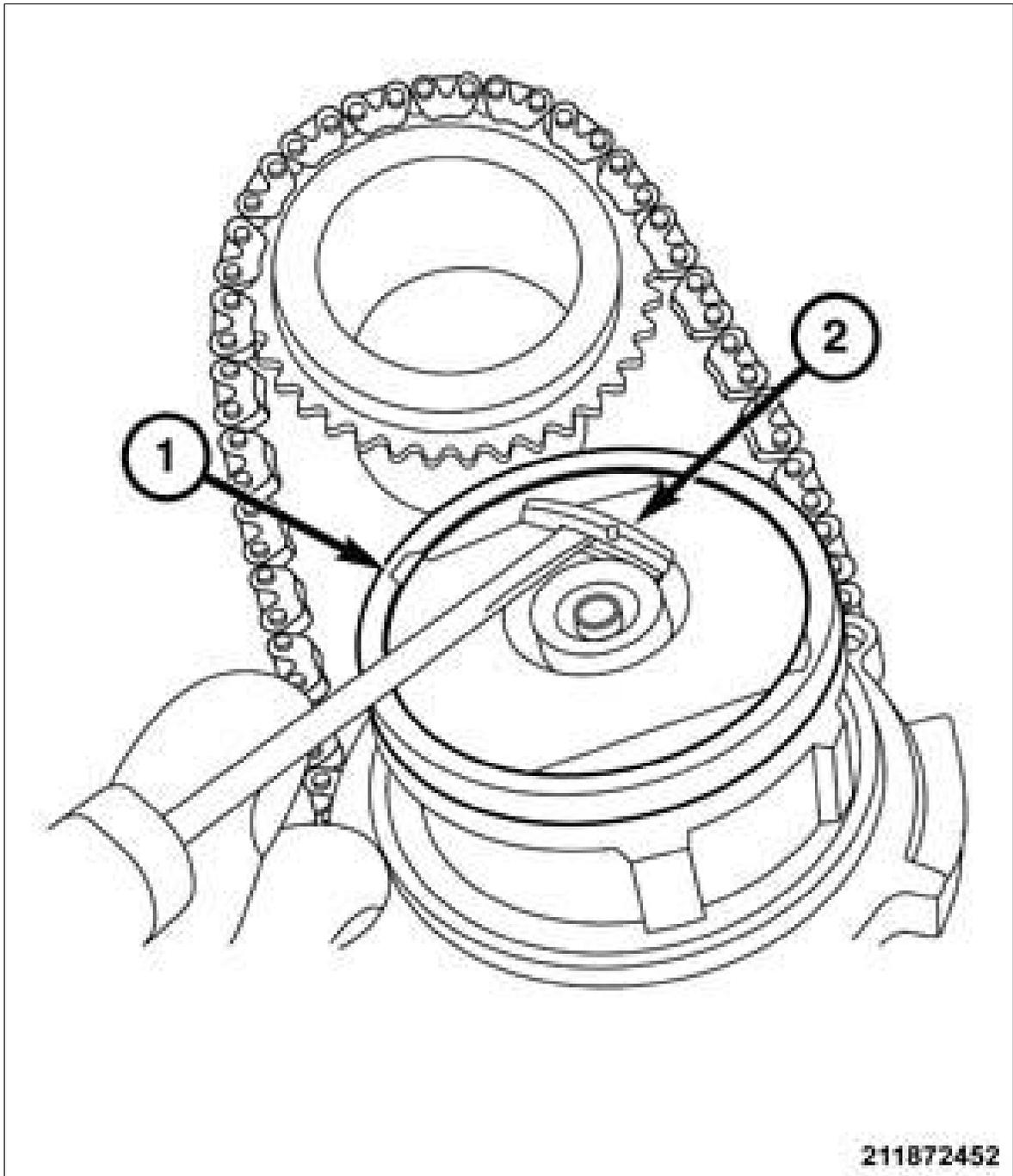
Fig 10: Oil Pump Housing & O-Ring



Courtesy of CHRYSLER GROUP, LLC

15. Remove the oil pump O-ring (2).

Fig 11: Removing Oil Pump O-Ring

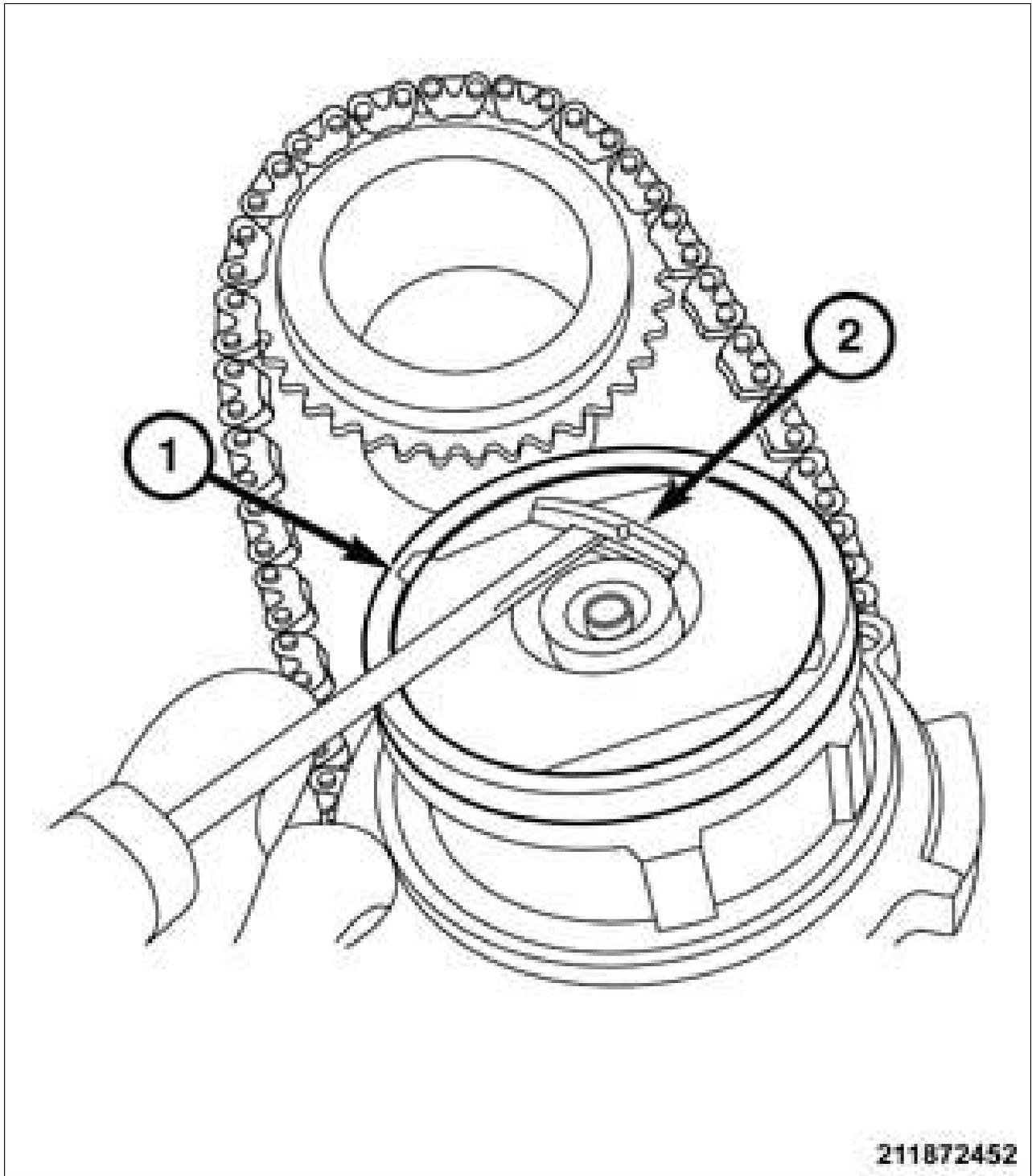


Courtesy of CHRYSLER GROUP, LLC

16. Remove the oil pump seal (2).

**PUMP, TRANSMISSION OIL > ASSEMBLY > ASSEMBLY**

Fig 1: Removing Oil Pump O-Ring

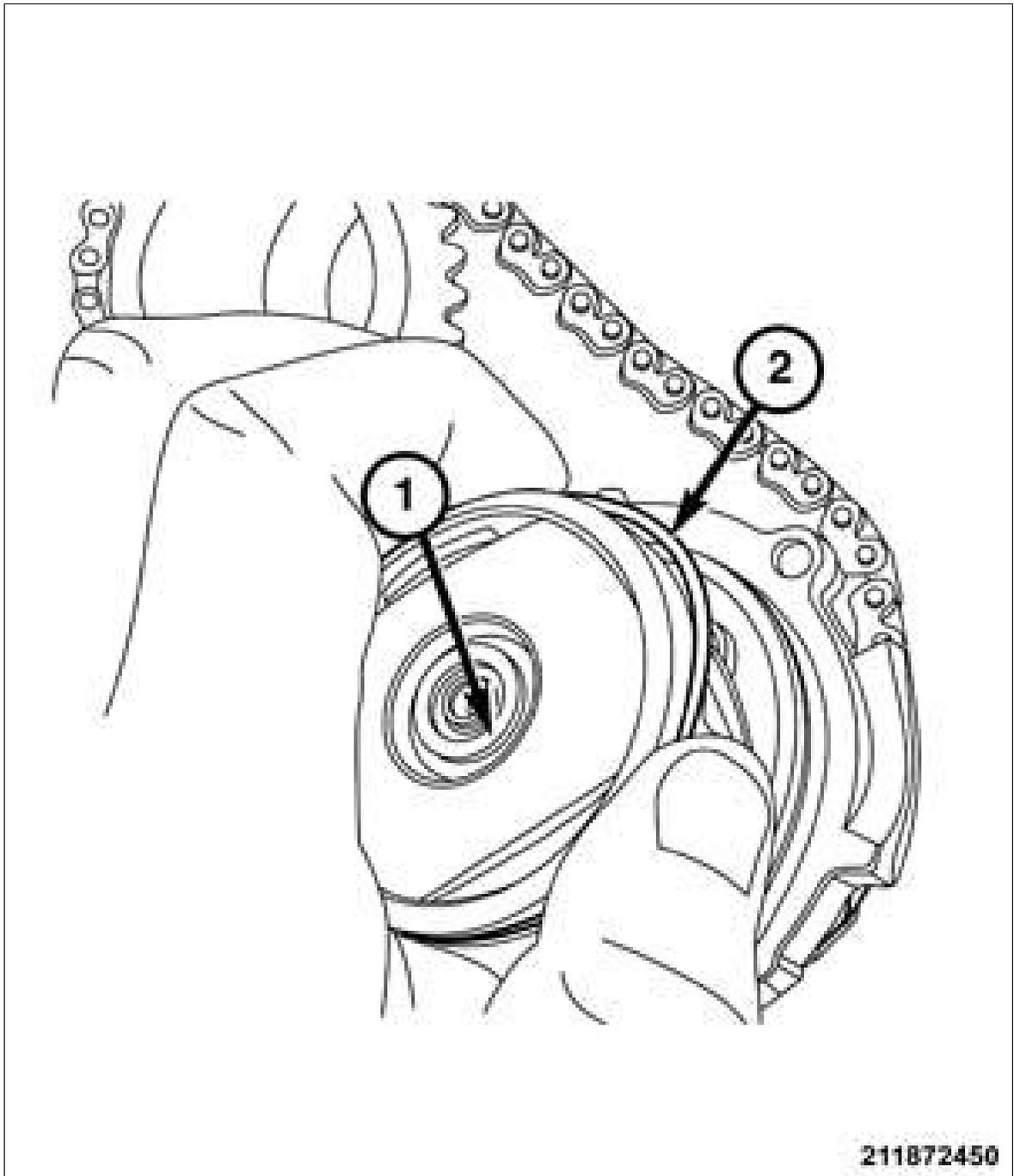


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Courtesy of CHRYSLER GROUP, LLC

1. Install the oil pump seal (2).

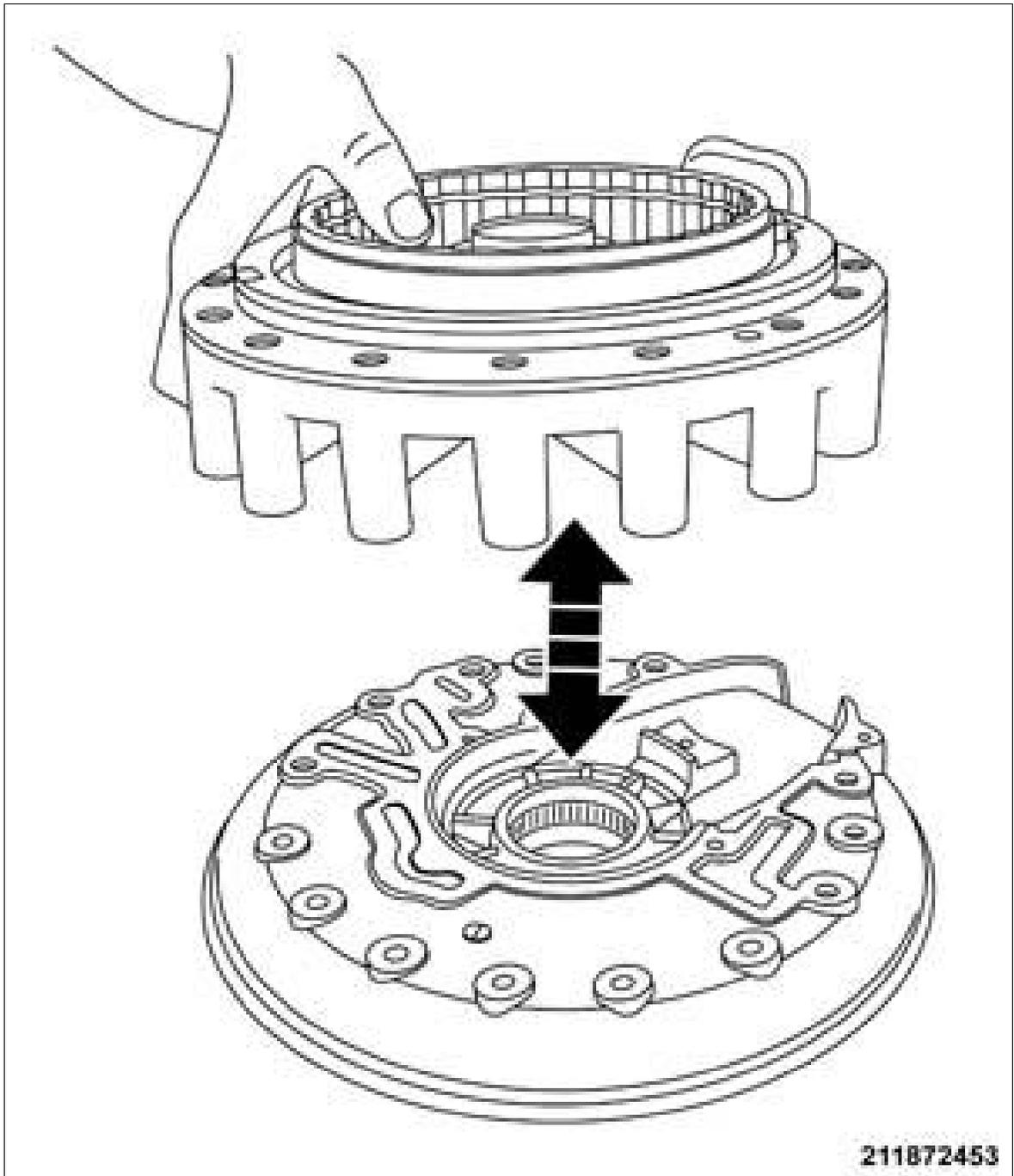
Fig 2: Oil Pump Housing & O-Ring



Courtesy of CHRYSLER GROUP, LLC

2. Install the oil pump O-ring (2).
3. Carefully seat the oil pump into the housing, make sure the pump is seated properly.

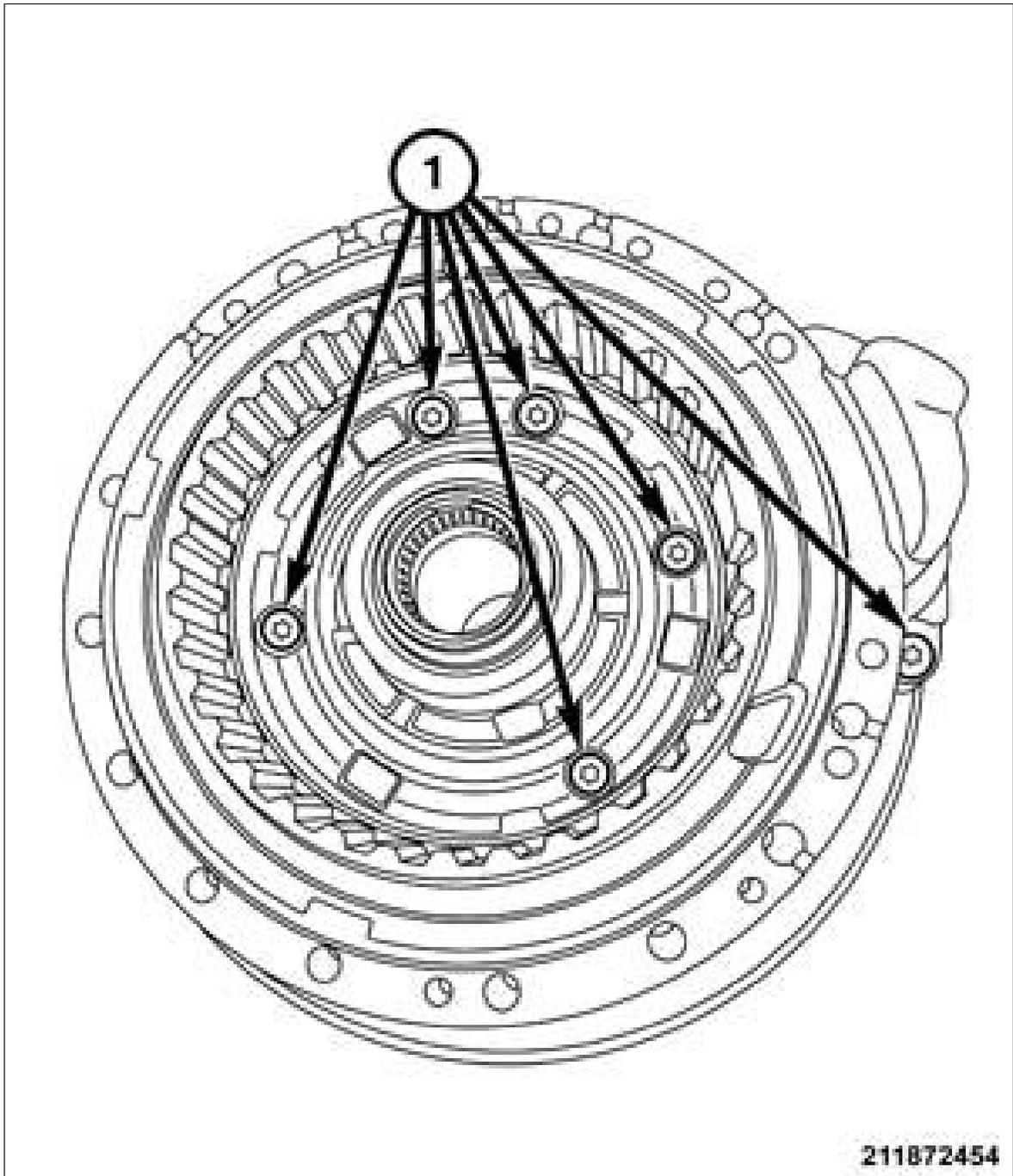
Fig 3: Two Halves Of Oil Pump



Courtesy of CHRYSLER GROUP, LLC

4. Install the two oil pump housing halves together.

Fig 4: Oil Pump Torx(R) Bolts



Courtesy of CHRYSLER GROUP, LLC

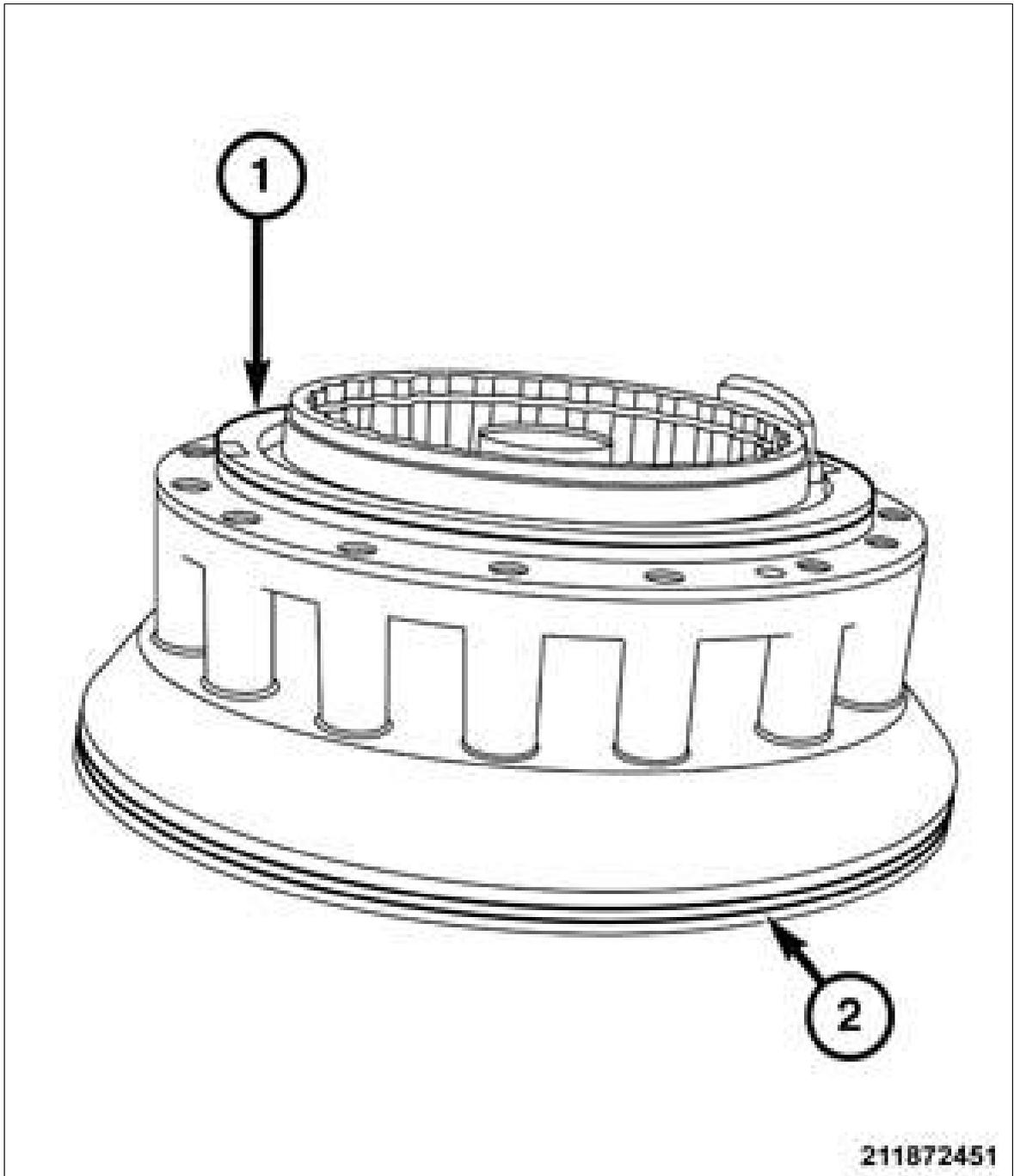
5. Install six

**NEW**

oil pump housing Torx® bolts (1).

6. Tighten the bolts to 5 N.m (44 in. lbs). plus 45°.

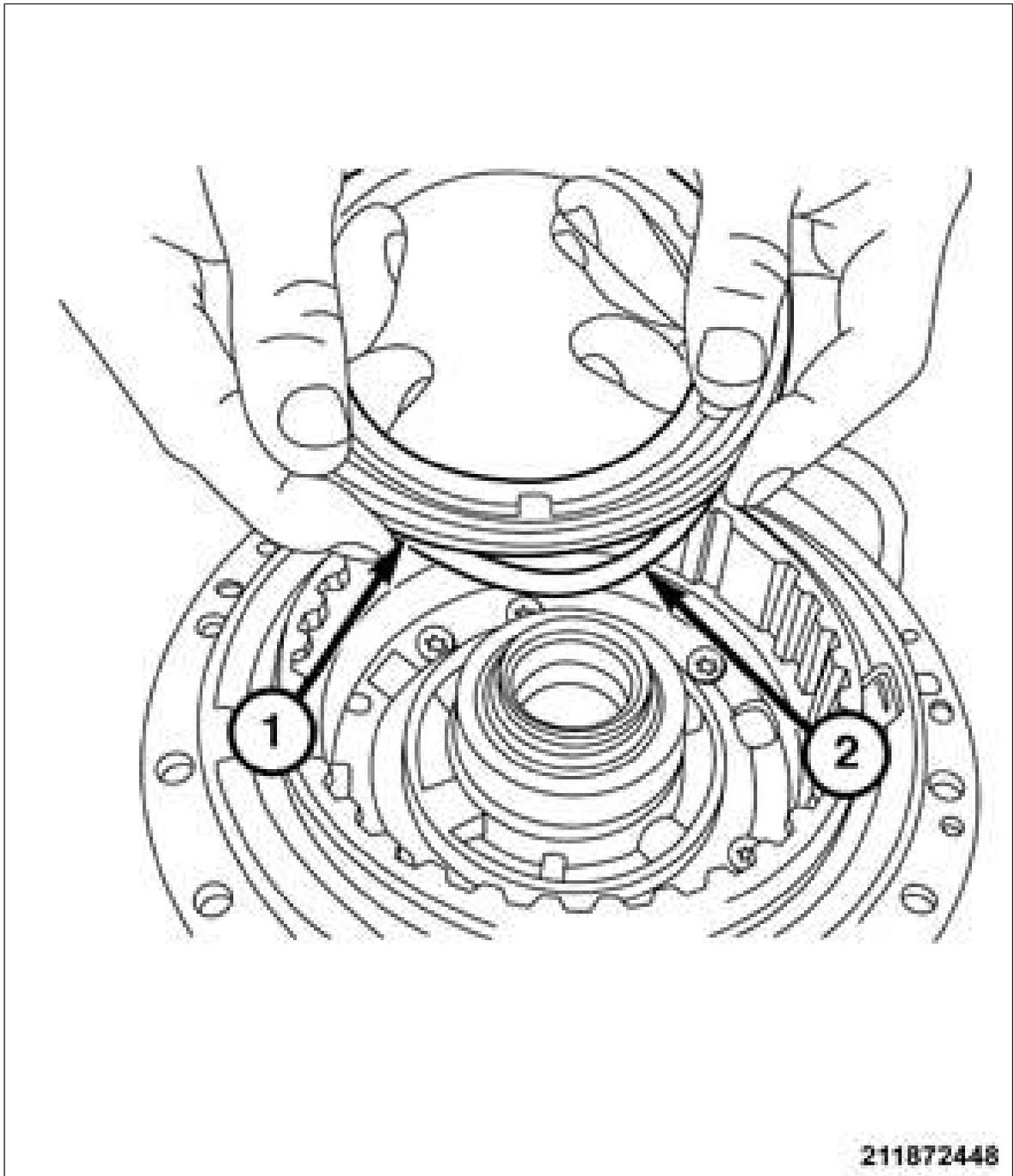
Fig 5: Inner & Outer Oil Pump O-Rings



Courtesy of CHRYSLER GROUP, LLC

7. Replace the inner and outer oil pump housing O-rings (1).

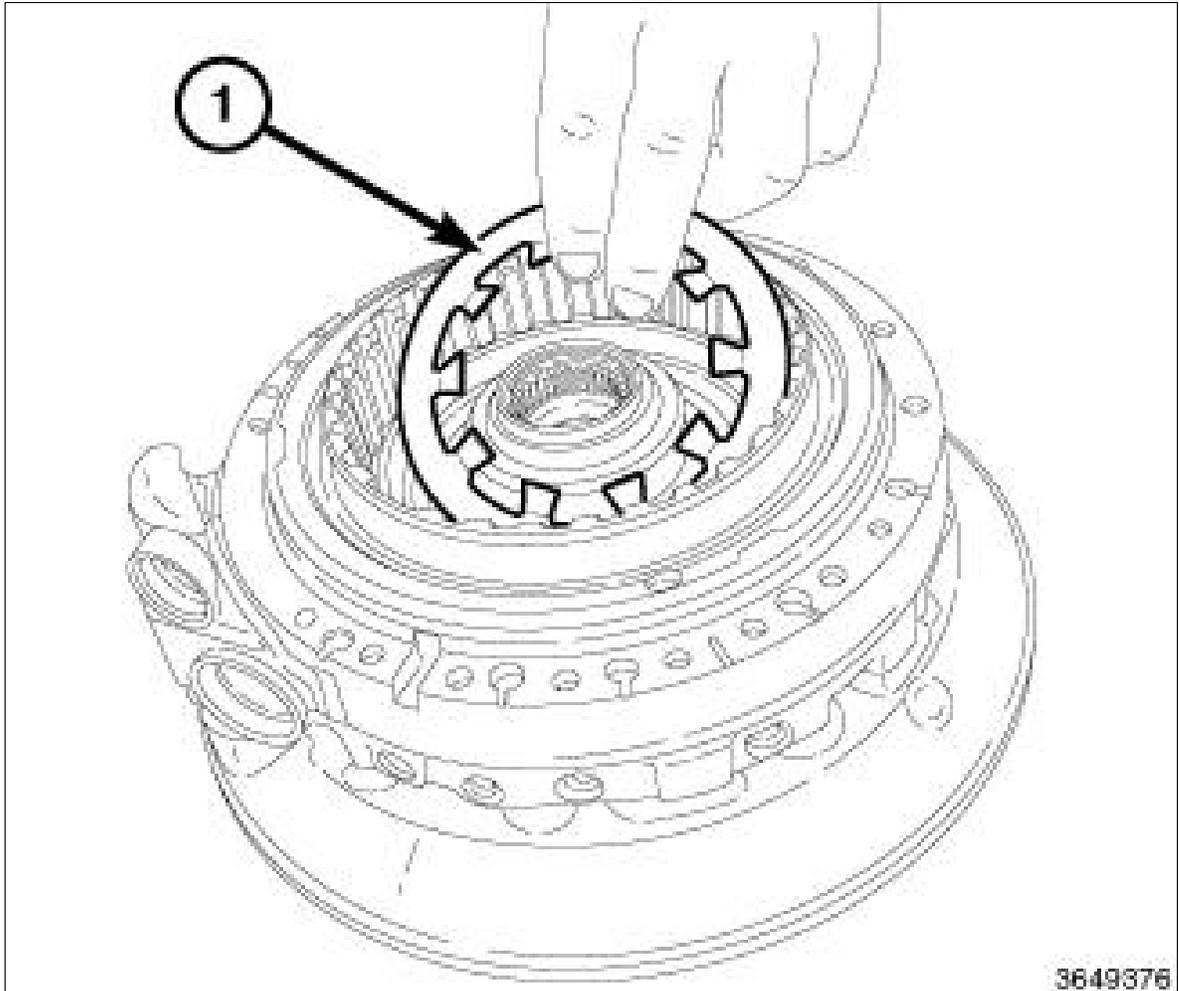
Fig 6: A-Piston & Seal



Courtesy of CHRYSLER GROUP, LLC

8. Replace the A- piston seal (2) and install the A-piston (1).

Fig 7: Piston Retaining Ring And Piston

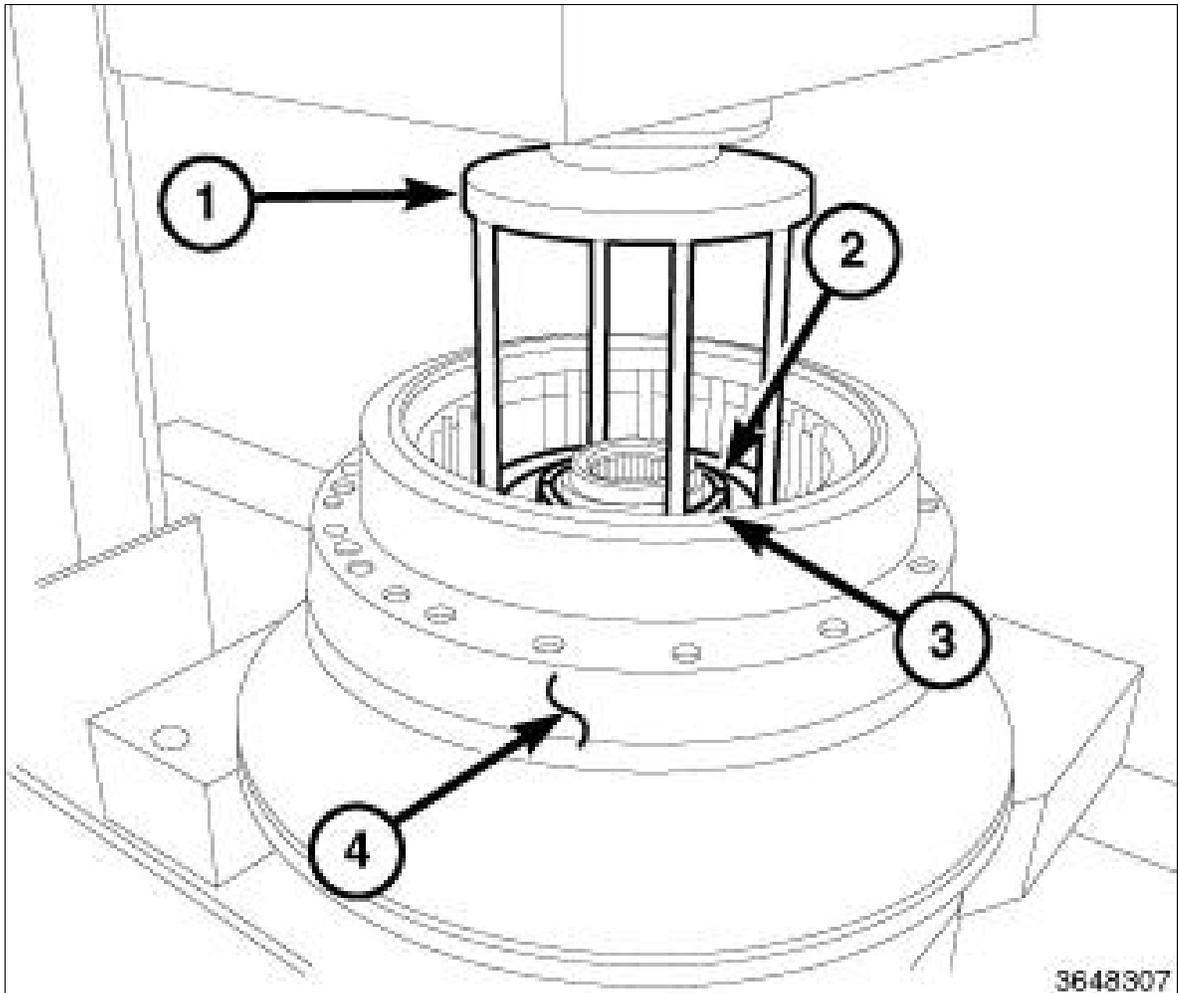


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Courtesy of CHRYSLER GROUP, LLC

9. Install the belleville spring (1).

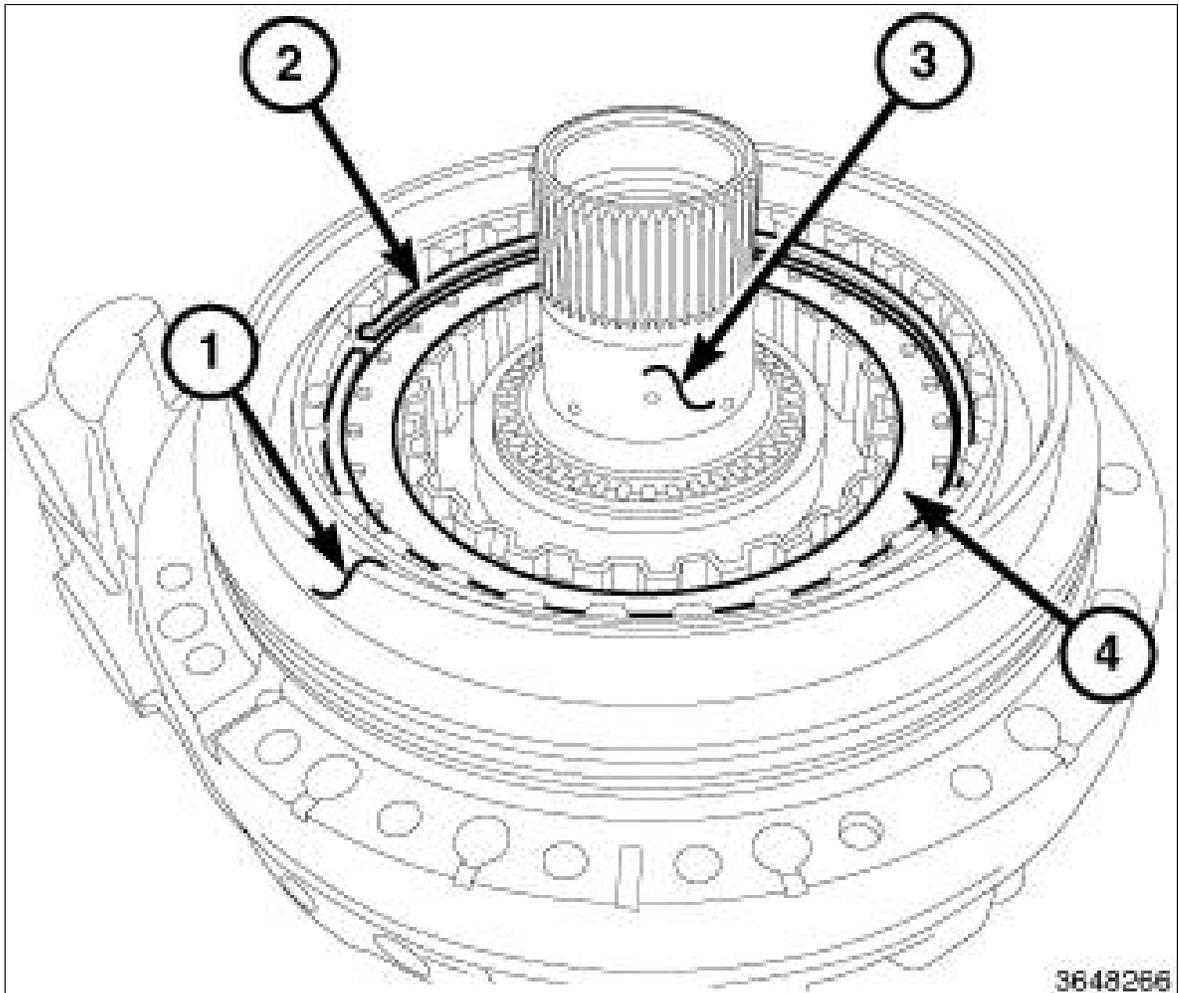
Fig 8: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

10. Position the oil pump housing assembly (4) in a suitable arbor press.
11. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retaining ring to remove tension, and install the two halves of the split retainer ring (2).

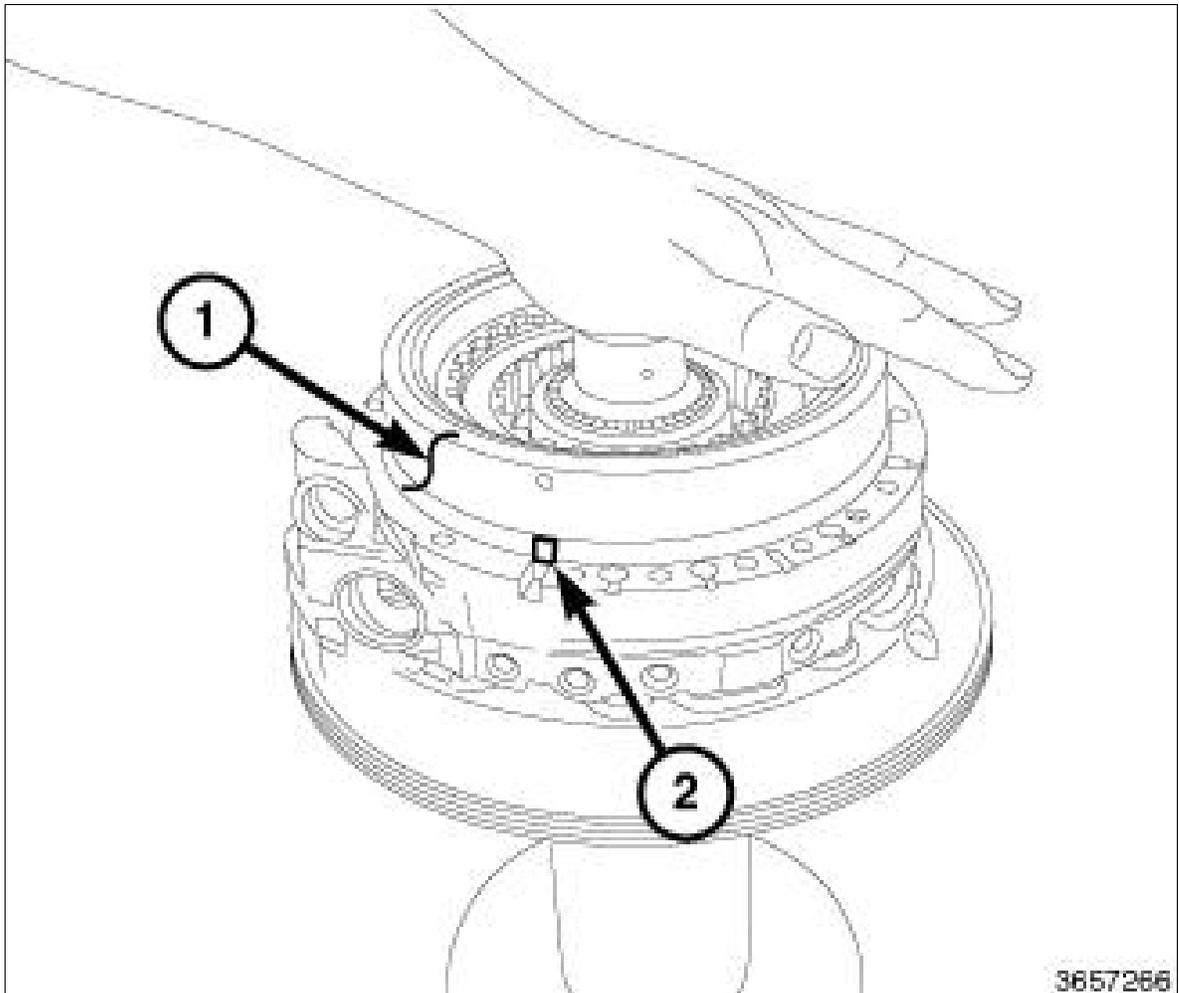
Fig 9: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

12. Install the hub (3).
13. Install the clutches and spacers (4).
14. Install the snap ring (2).
15. Install the outer ring (1) (below B-piston).

Fig 10: B-Piston Alignment Tab & B-Piston



Courtesy of CHRYSLER GROUP, LLC

16. Position the B-piston alignment tab (2) above the notch and install B-piston (1) on the assembly.

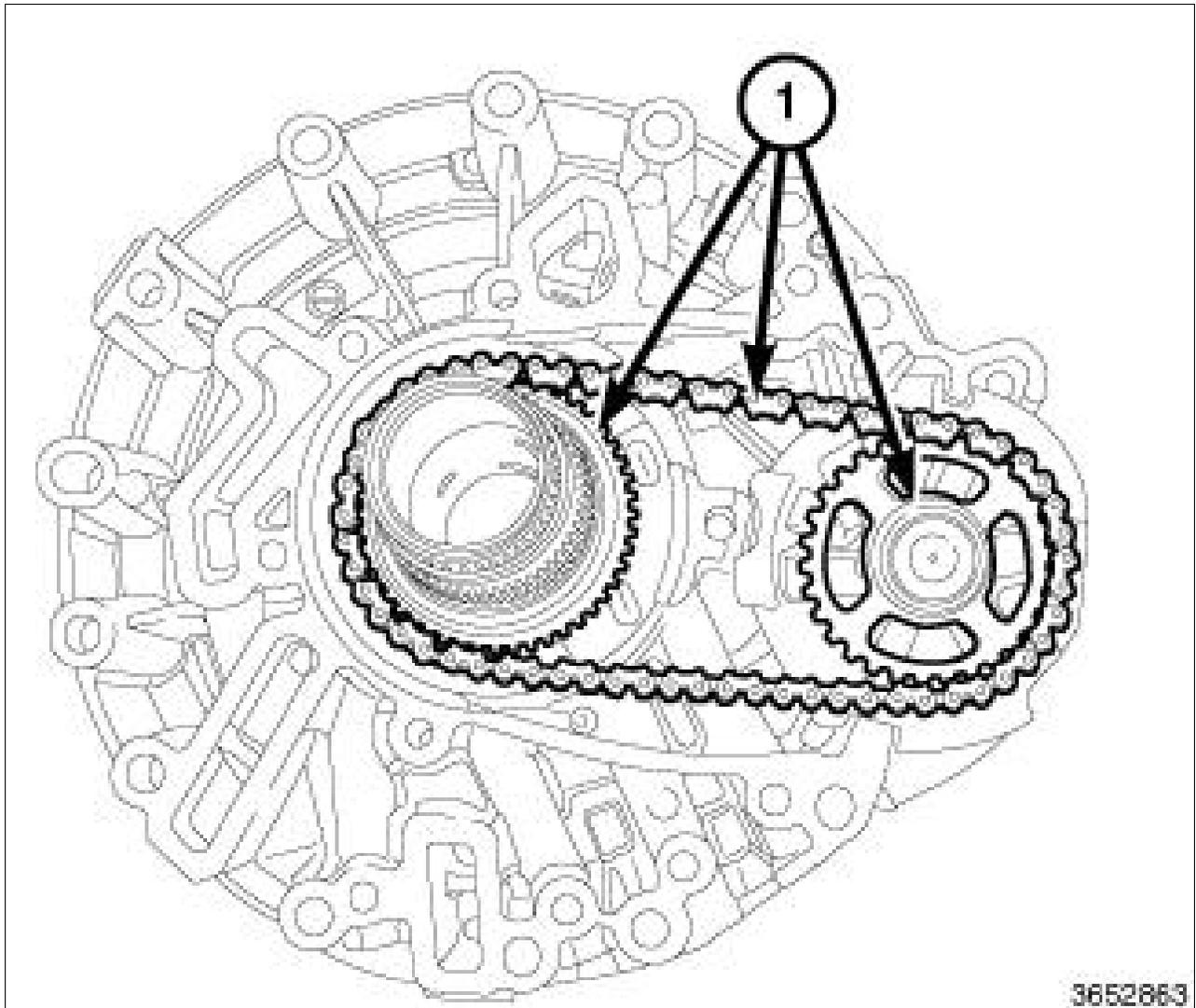
## PUMP, TRANSMISSION OIL > INSTALLATION > INSTALLATION



### NOTE:

*If oil pump was disassembled, replace all O-rings.*

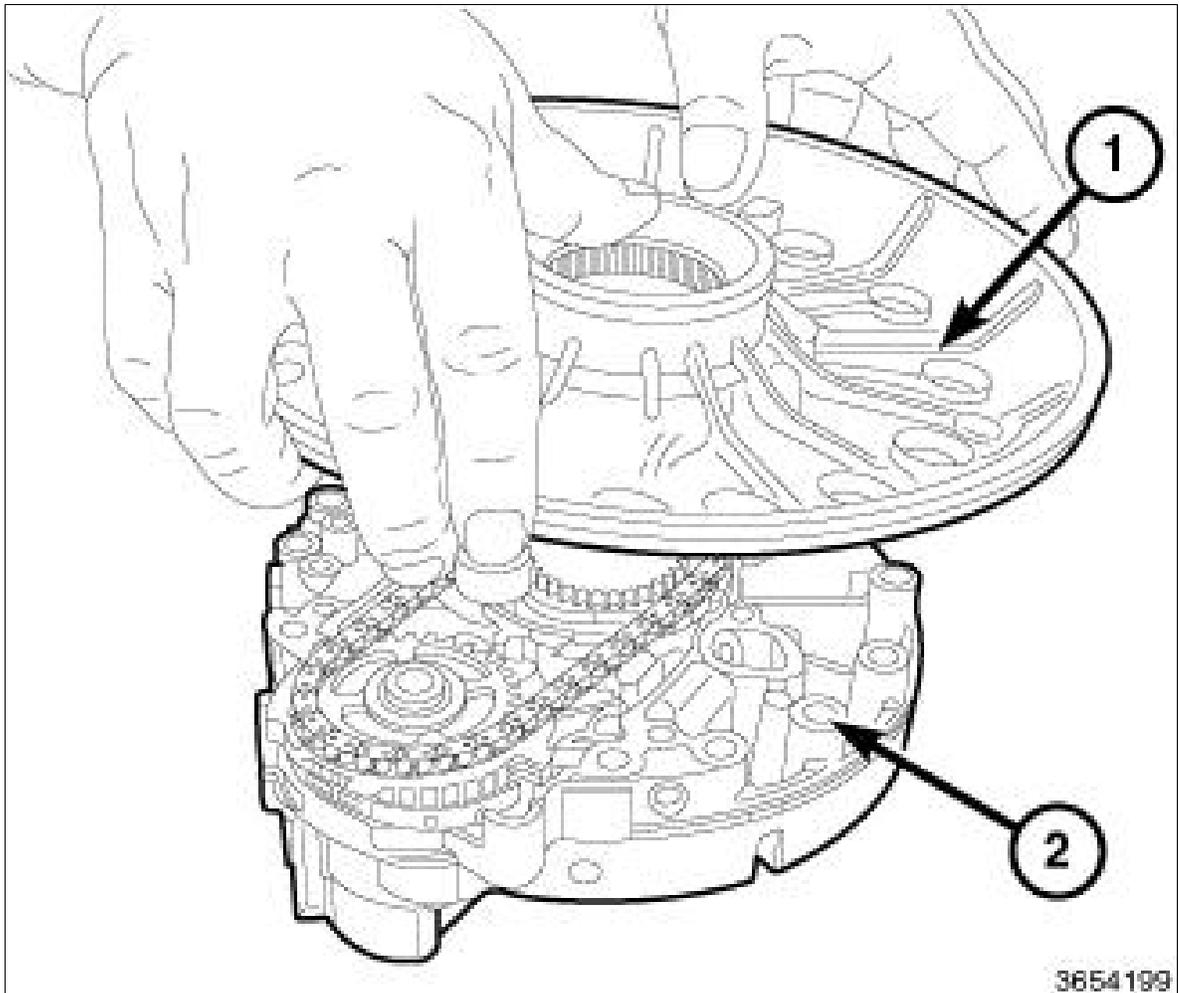
Fig 1: Drive Sprocket, Chain And Pump Body



Courtesy of CHRYSLER GROUP, LLC

1. Install the drive sprocket, chain and pump body (1) as an assembly into the oil pump housing.

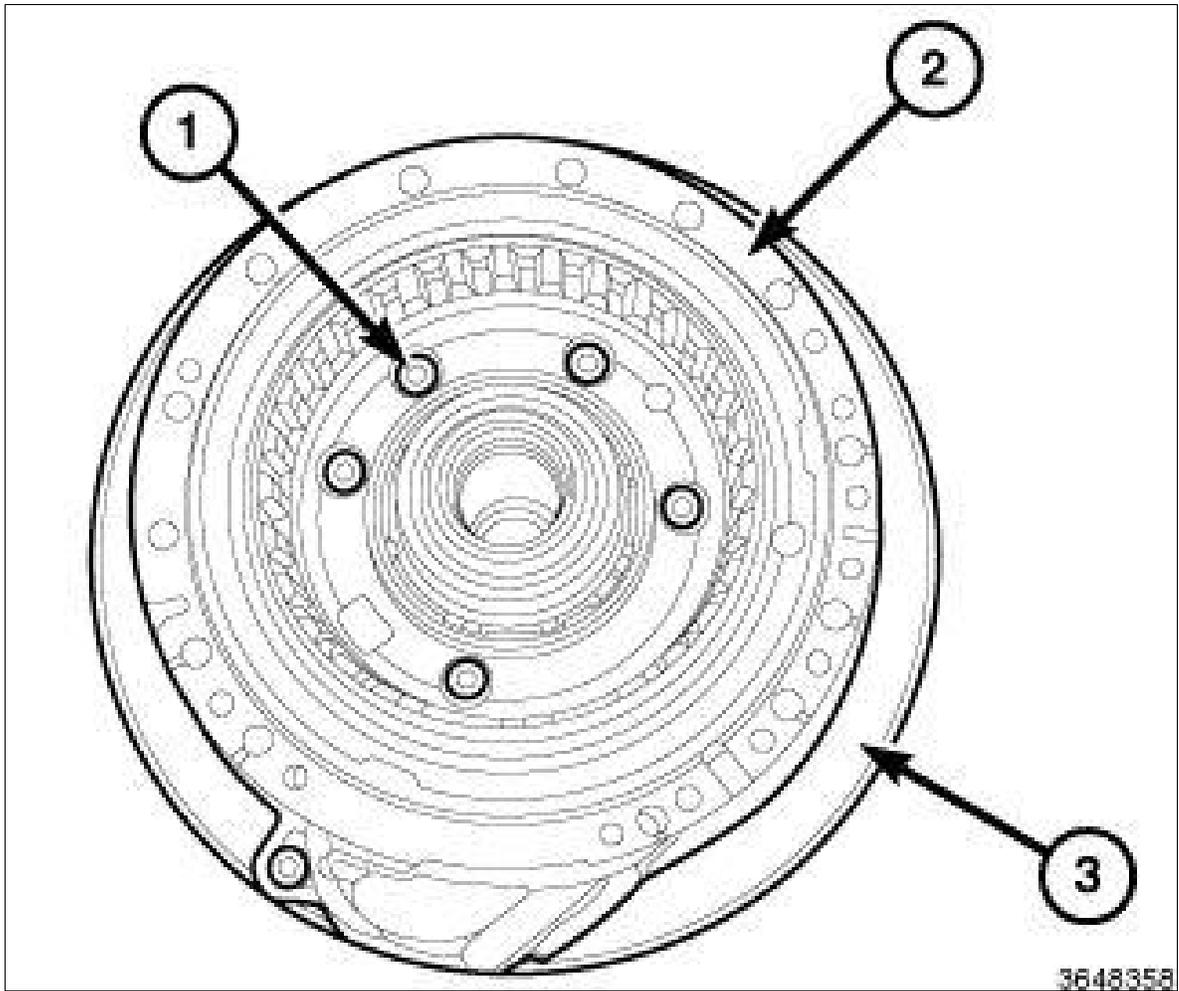
Fig 2: Front Cover & Oil Pump Housing



Courtesy of CHRYSLER GROUP, LLC

2. Set the pump cover (1) onto the oil pump housing (2).

Fig 3: Oil Pump Housing & Oil Pump Cover Bolts



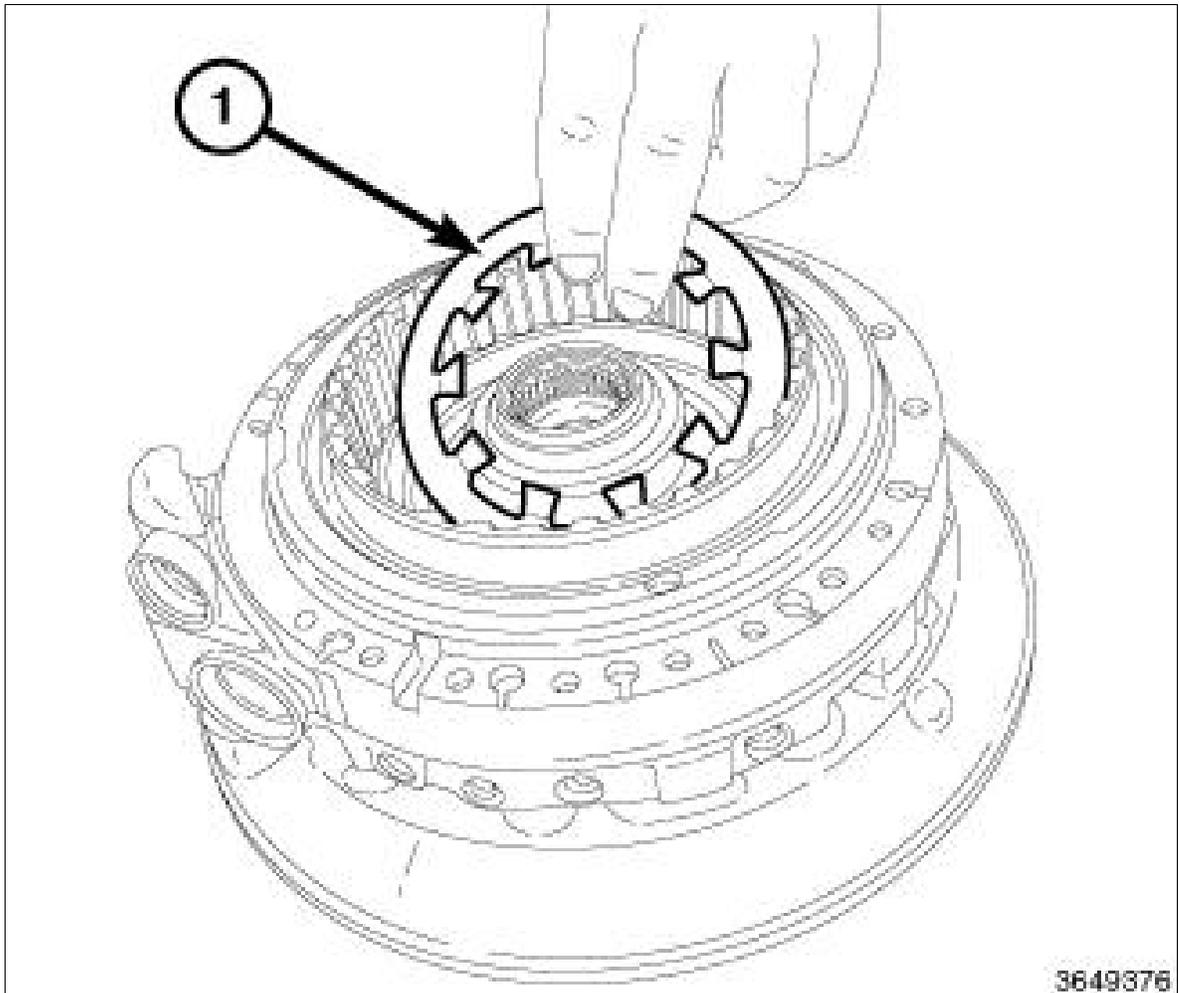
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The oil pump bolts under the A-clutch must be replaced.*

3. Install the **NEW** six bolts (1) and tighten to 5 N.m (44 in. lbs.) plus 45°.

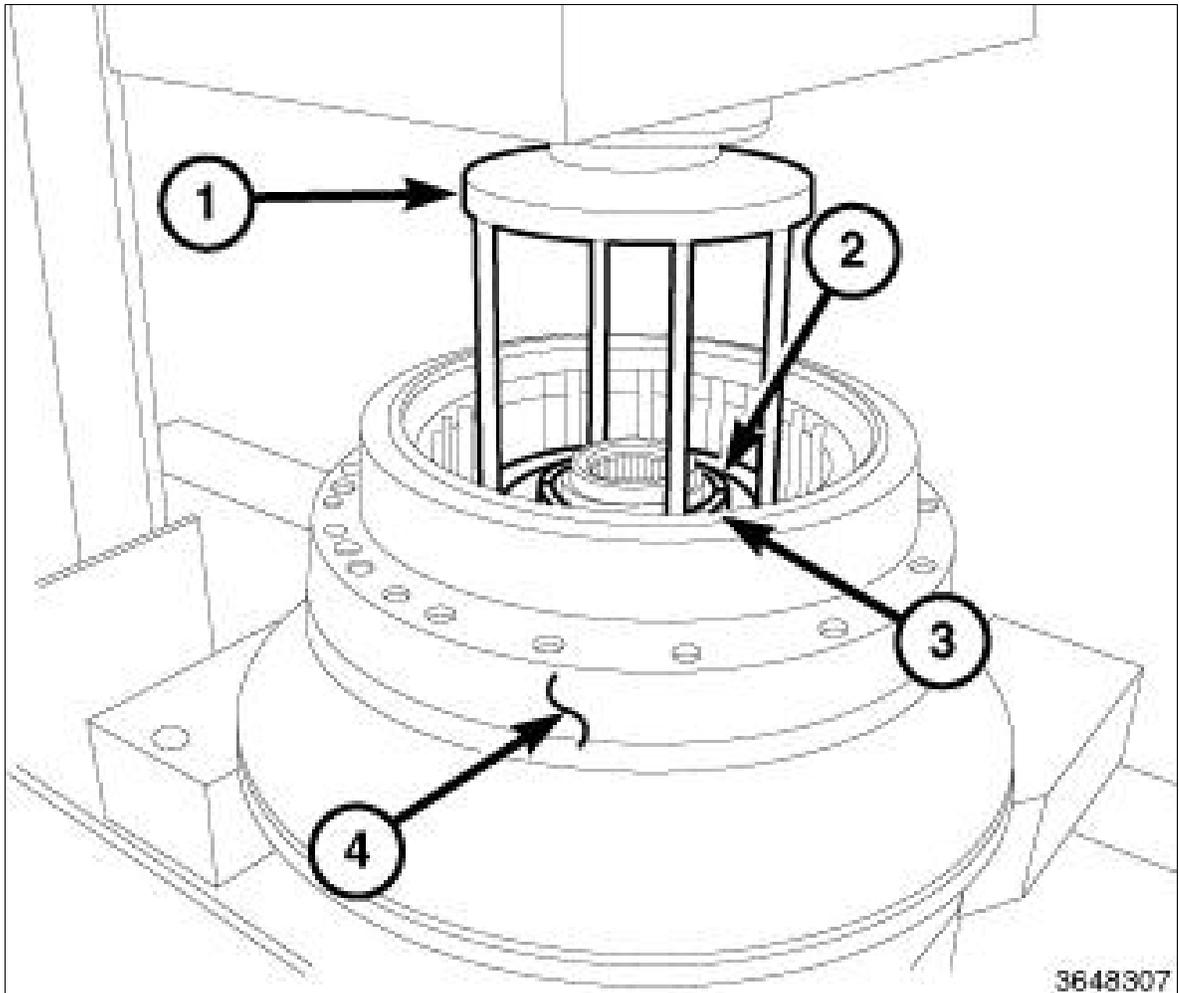
Fig 4: Piston Retaining Ring And Piston



Courtesy of CHRYSLER GROUP, LLC

4. Install the piston plate and the piston retainer.

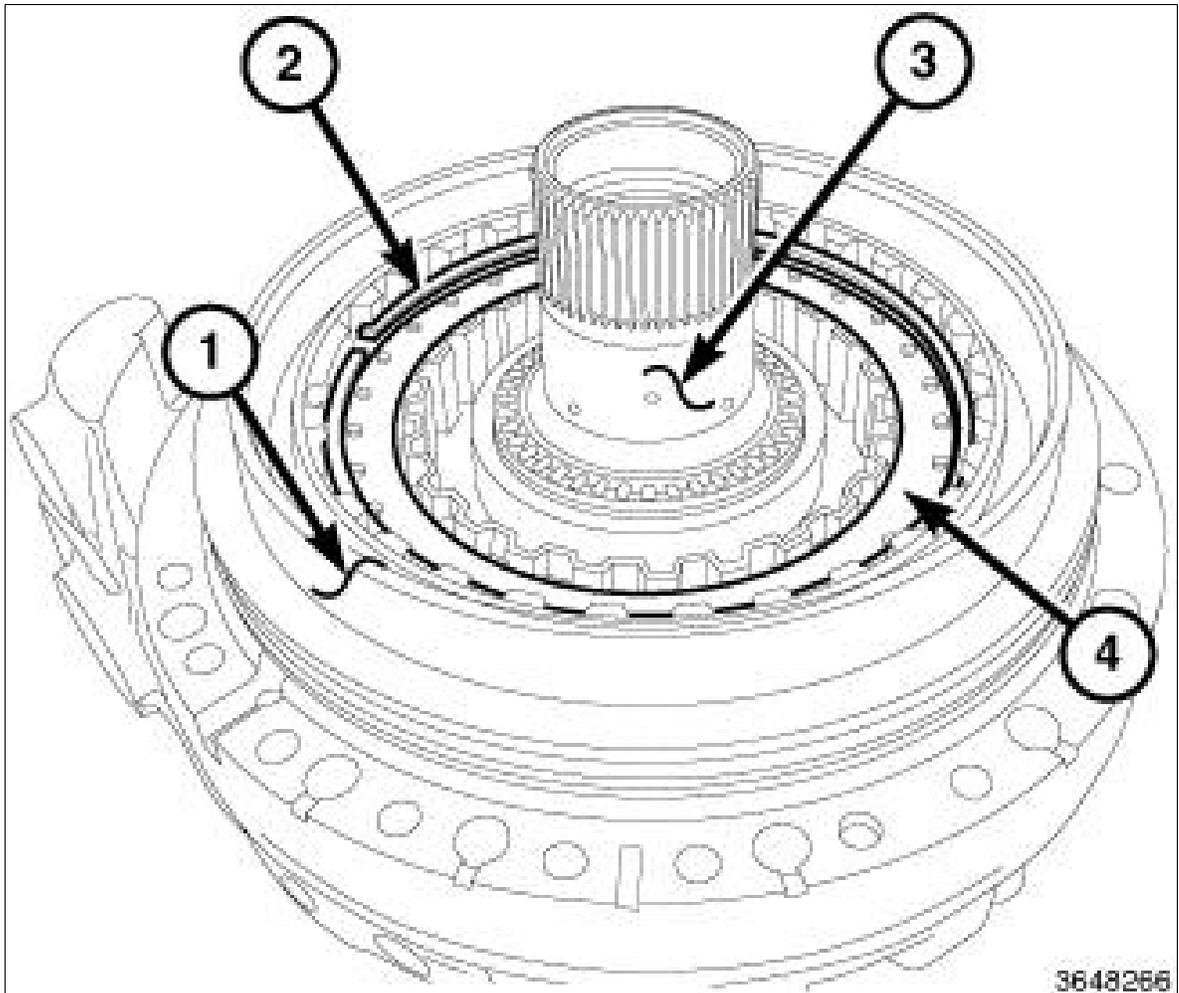
Fig 5: Oil Pump Housing Assembly



Courtesy of CHRYSLER GROUP, LLC

5. Position the oil pump housing assembly (4) in a suitable arbor press.
6. Using (special tool #8285, Compressor, Spring) (1), press on the fingers of the piston retainer and install the two halves of the retaining ring (2).

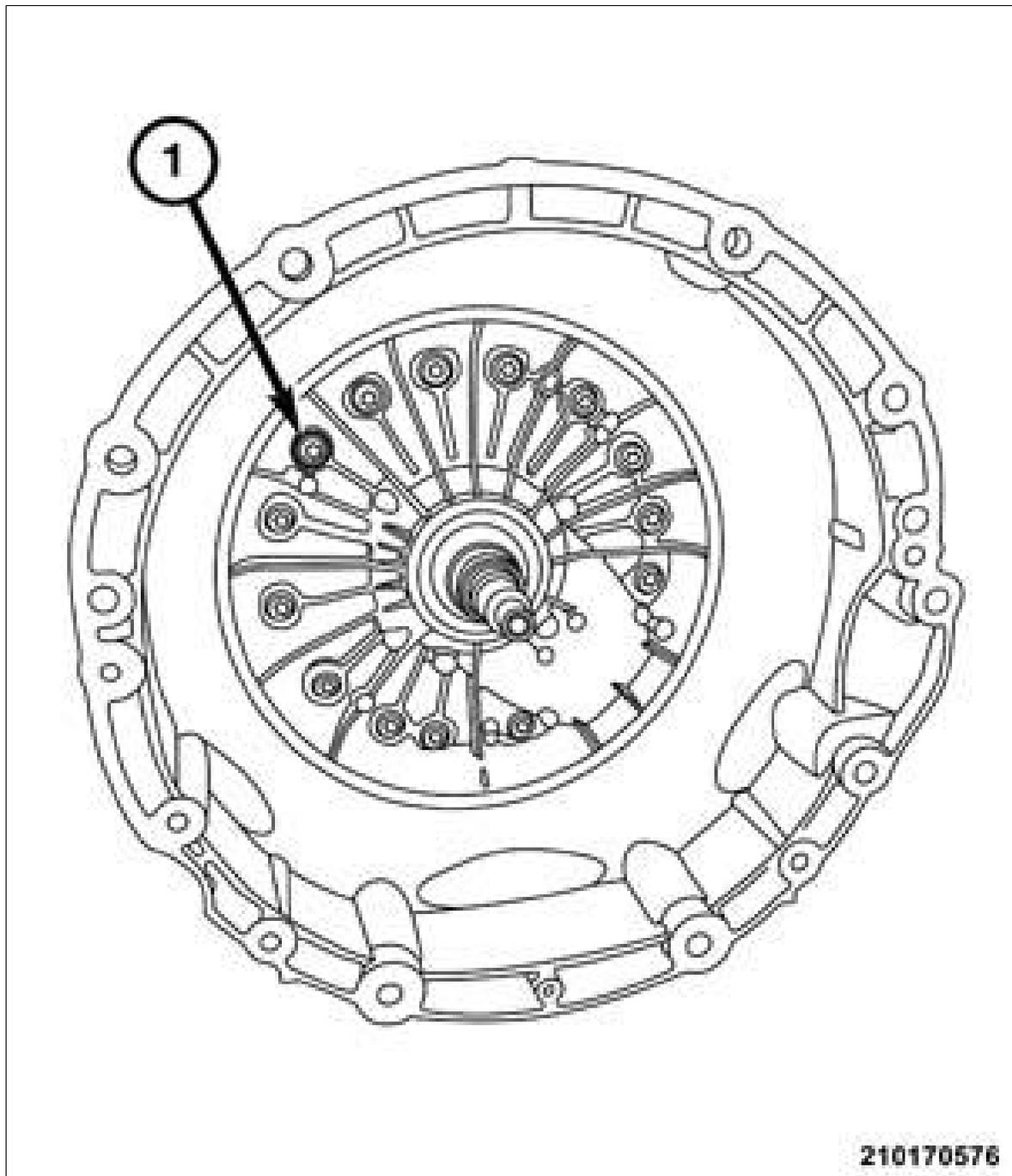
Fig 6: Outer Ring, Snap Ring, Hub & Spacers



Courtesy of CHRYSLER GROUP, LLC

7. Install the hub (3).
8. Install the clutches and spacers (4).
9. Install the snap ring (2).
10. Install the outer ring (1) (inside B-piston).
11. Install the B-piston.

Fig 7: Oil Pump Assembly To Case Bolts



Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

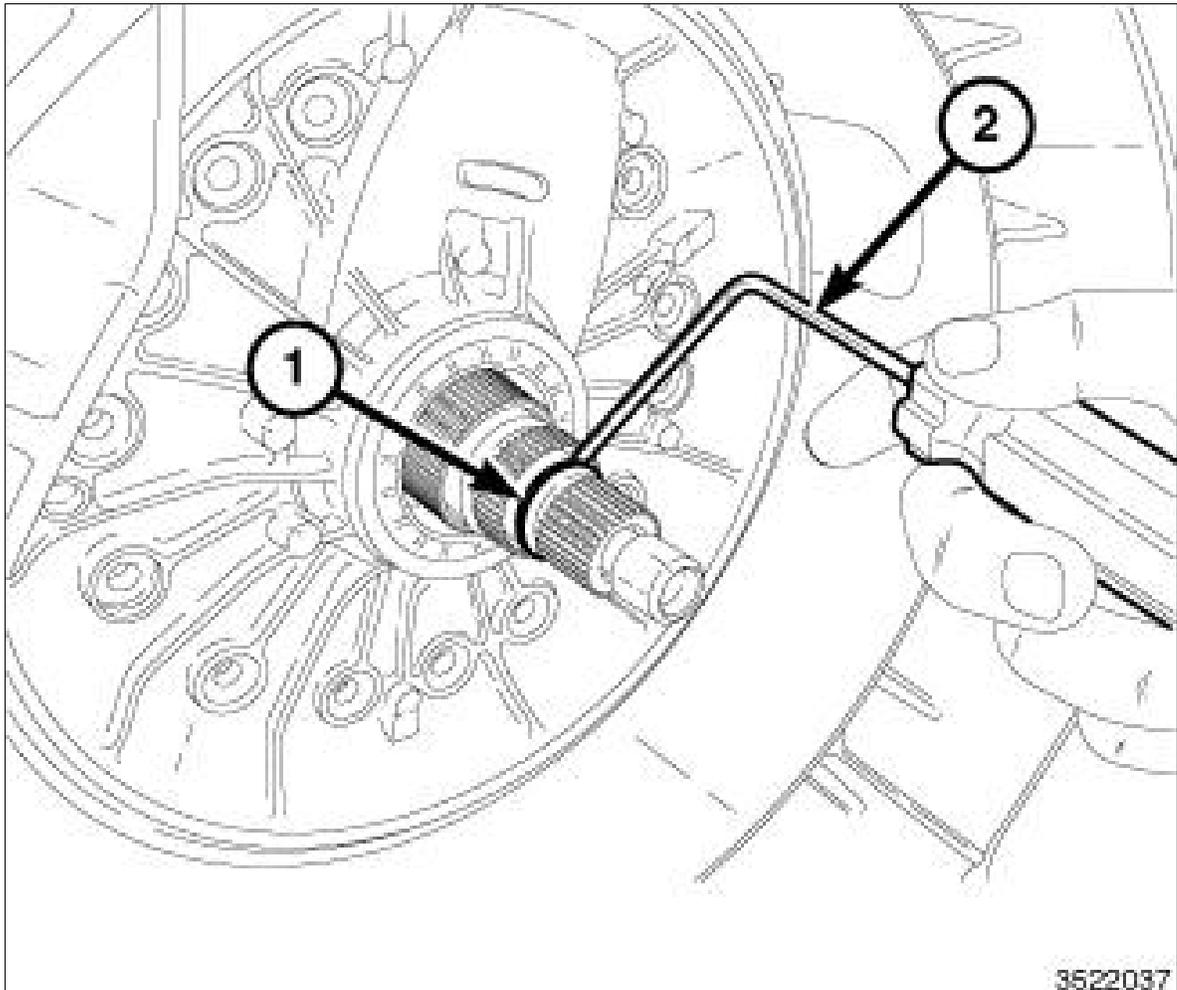
*Firmly press the oil pump in place hand before drawing it in with bolts.*

12. Install the 14 **new** oil pump cover retaining bolts (2) and tighten the oil pump cover as follows:
  - a. In order to seat the oil pump cover properly, pre tighten bolts one, seven and nine to 6 N.m (53 in. lb.).

b. Working in a clockwise pattern, beginning with number one, tighten to 10 N.m (89 in. lb.).

c. Working in a clockwise pattern, beginning with number one, tighten an additional 90°.

Fig 8: Input Shaft O-Ring & Small Pick



Courtesy of CHRYSLER GROUP, LLC

13. Install the **new** input shaft O-ring (1).
14. Install the valve body. Refer to VALVE BODY, INSTALLATION .
15. Install the transmission. Refer to INSTALLATION .

## **CABLE, MANUAL PARK RELEASE > OPERATION > OPERATION**

The 8HP utilizes a fully electronic shifter mechanism with no physical connections to the transmission such as shifter linkage or cables. Due to this design the park function of the transmission is performed using electronic inputs and hydraulic pressure to hold to parking pawl lever in the disengaged position while moving. Once in park this hydraulic pressure is reduced which allows the lever to engage the parking pawl which in turn keeps the vehicle from rolling forward or rearward.

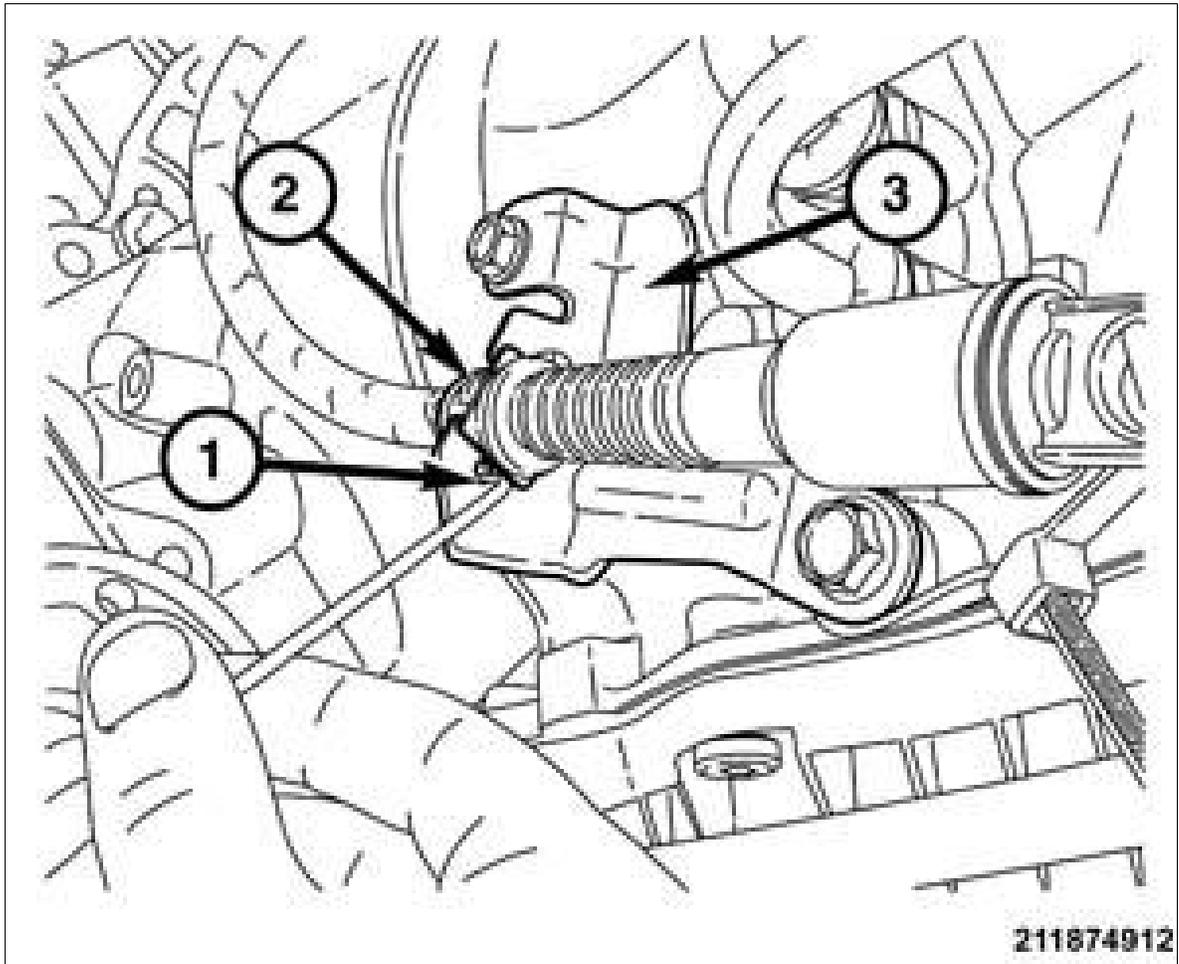
Should the vehicle or any component of the E-Shifter lose power or communication the parking pawl will

be engaged and the vehicle cannot be moved. To move the vehicle there is a manual park release mechanism that will allow first responders to disengage the parking pawl and allow the vehicle to be moved further facilitating vehicle recovery such as towing or moving the vehicle to allow jump starting.

## CABLE, MANUAL PARK RELEASE > REMOVAL > REMOVAL > LOWER

1. Raise and support the vehicle. Refer to HOISTING, STANDARD PROCEDURE .

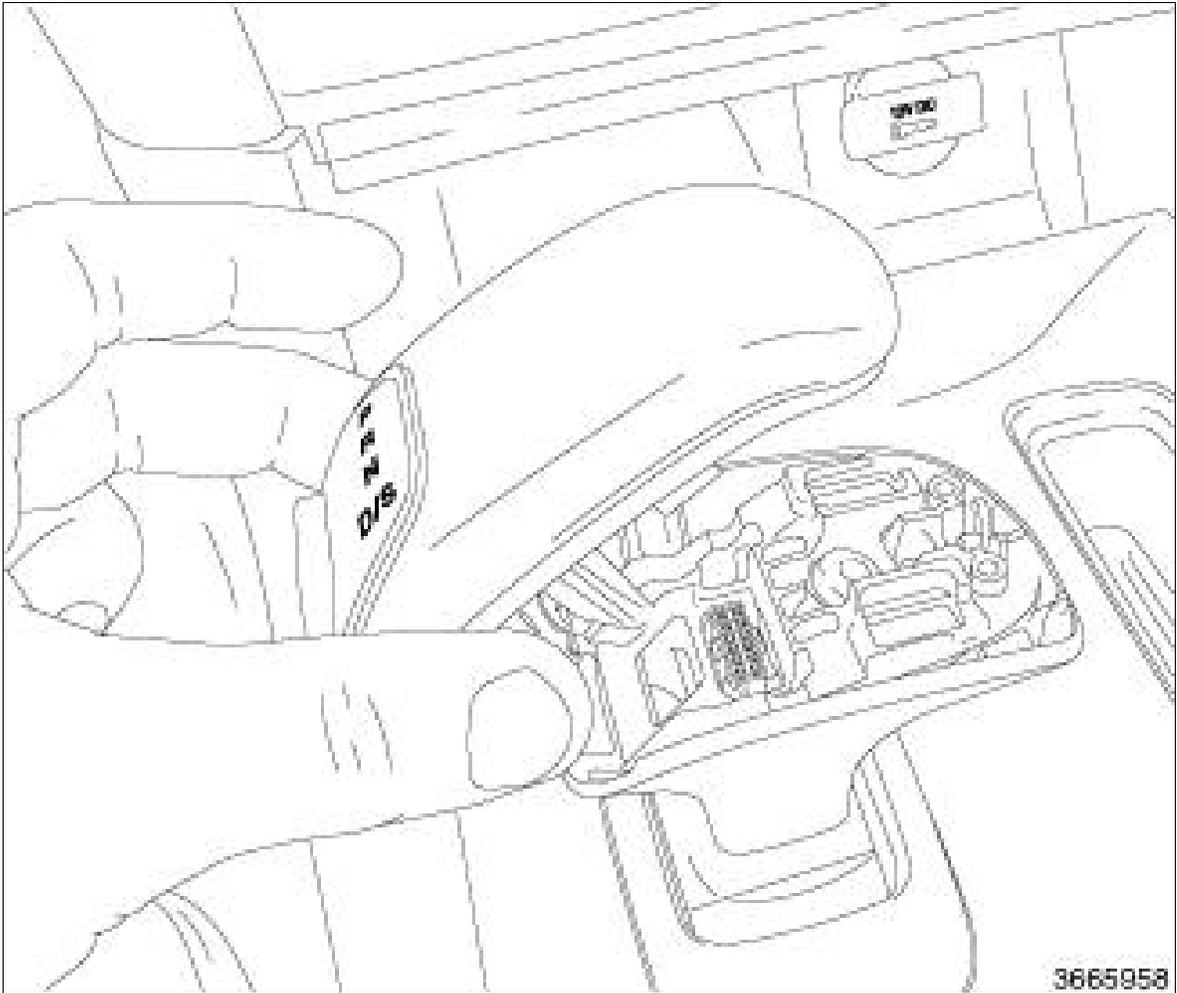
Fig 1: Locking Tab, MPR Cable & Bracket



Courtesy of CHRYSLER GROUP, LLC

2. Unclip the Manual Park Release (MPR) cable from the lever.
3. Release the locking tab (1) on the MPR cable and remove the cable from the bracket (3).
4. Release the grommet from the body, and push the cable inward.
5. Lower the vehicle.

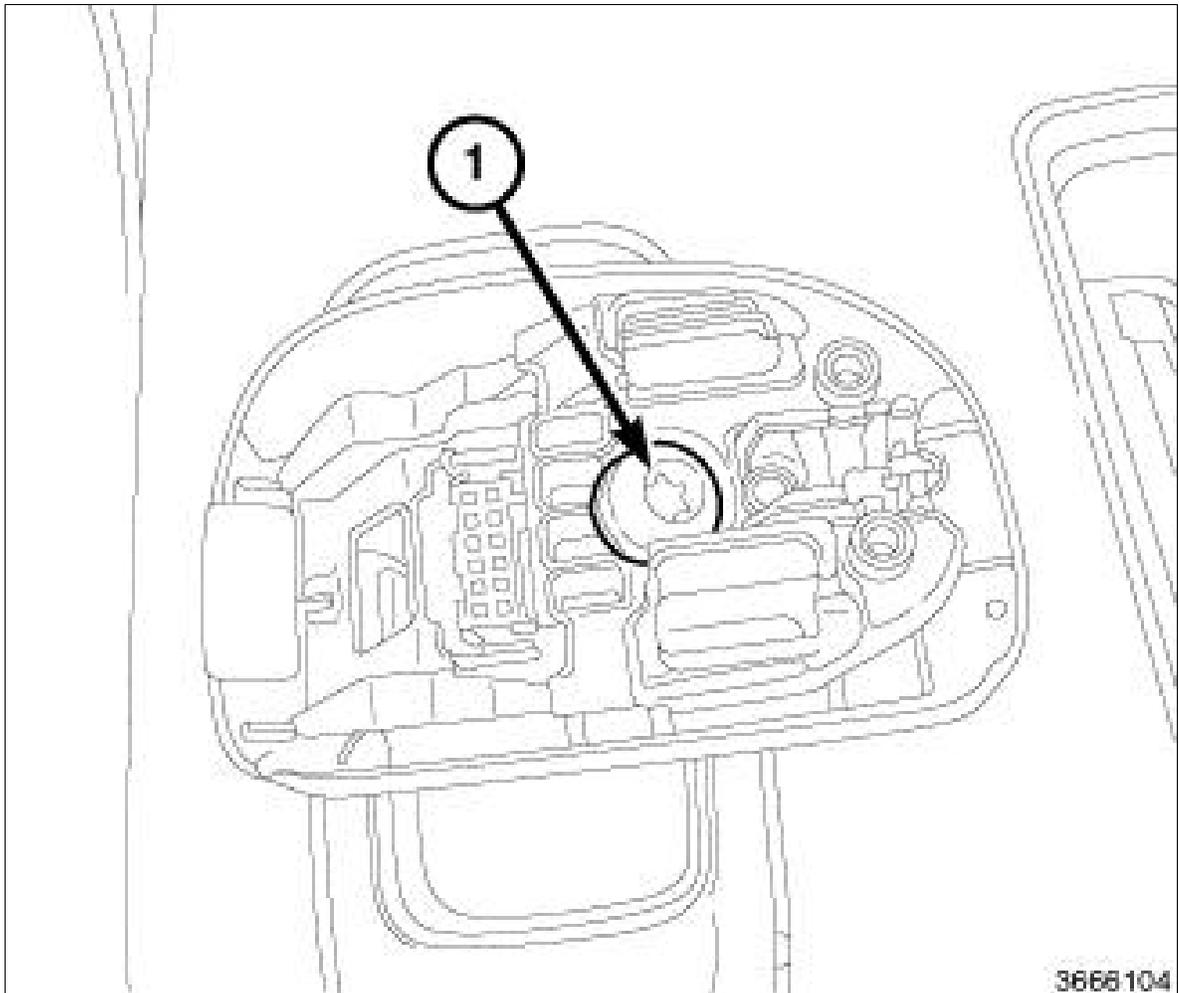
Fig 2: Upper Gear Shift Knob



Courtesy of CHRYSLER GROUP, LLC

6. Using a trim stick, remove the shifter knob.

Fig 3: Screw



Courtesy of CHRYSLER GROUP, LLC

7. Remove the screw (1) from the shifter, and pull the shifter handle off.
8. Remove the shifter bezel.
9. Remove the center console left side bezel.
10. Carefully pull the MPR cable through the body.

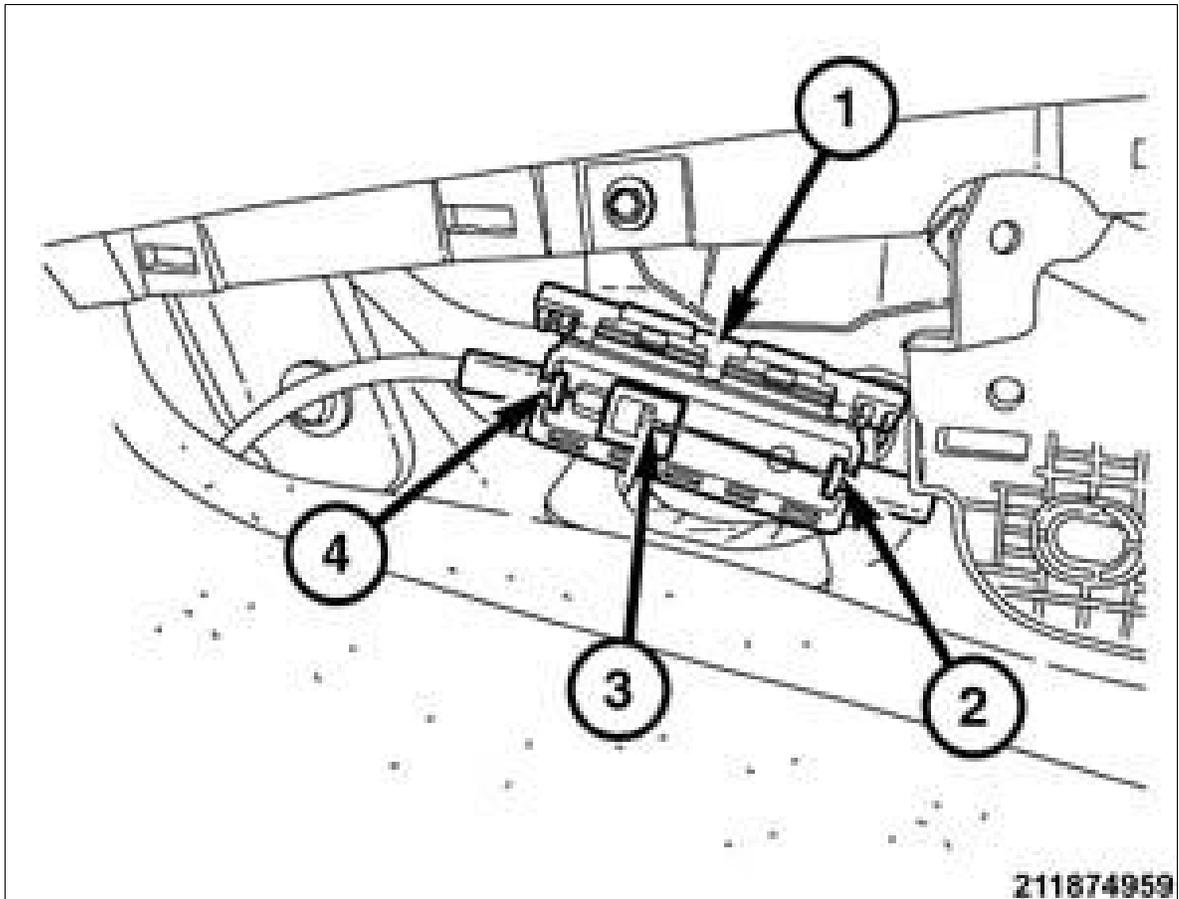
### **CABLE, MANUAL PARK RELEASE > REMOVAL > REMOVAL > UPPER**

 **NOTE:**

*Before center console is removed, the upper and lower Mechanical Park Release (MPR) cables must be released from each other.*

1. Remove the center floor console. Refer to CONSOLE, FLOOR, REMOVAL .

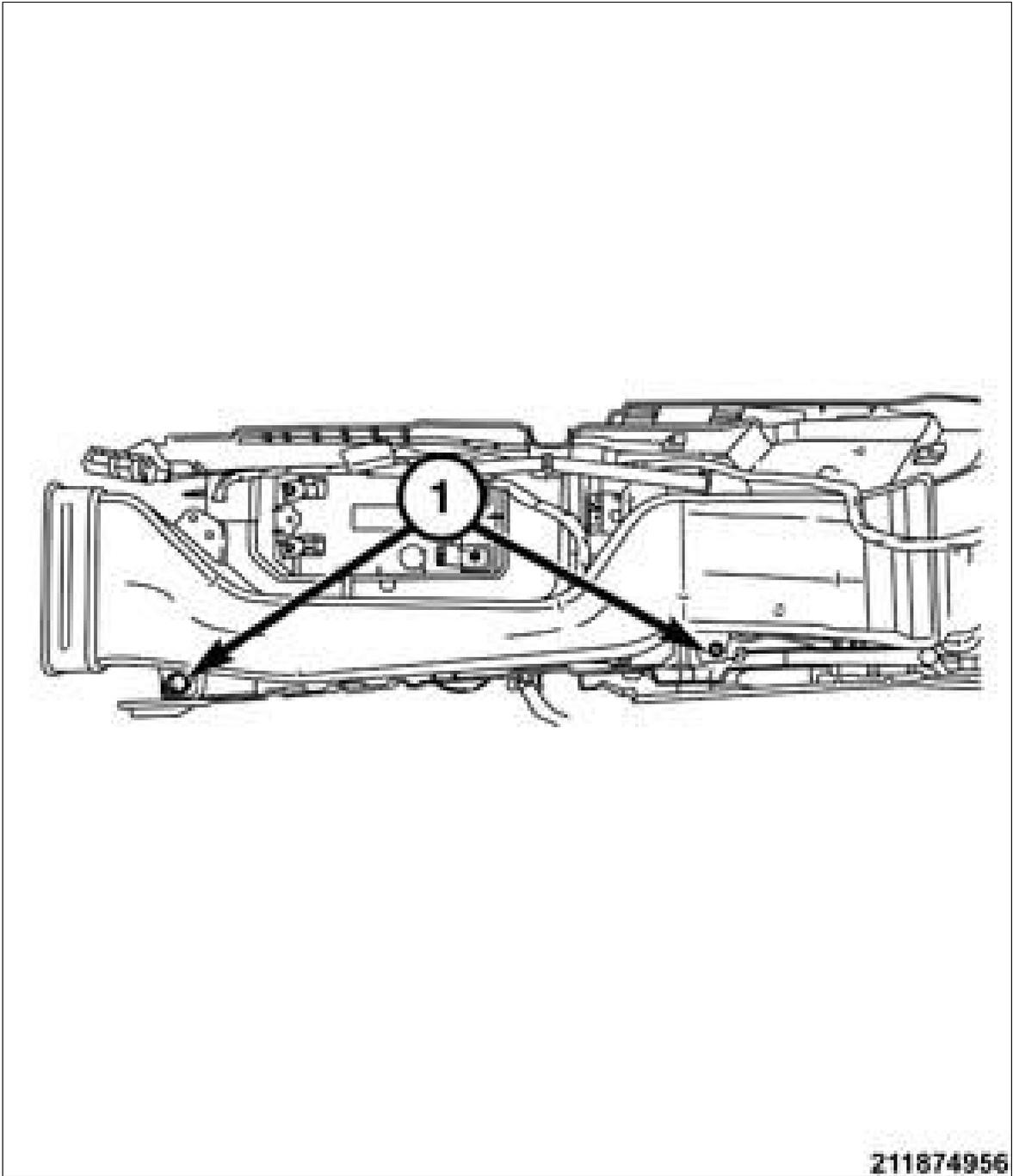
Fig 1: Attaching The Upper And Lower Cables To The Junction



Courtesy of CHRYSLER GROUP, LLC

2. Open the Manual Park Release (MPR) junction cover (1).
3. Unclip the lower (4) part of the cable from the junction.
4. Release the upper and lower cables (3) from each other.
5. Remove the center console from the vehicle.
6. Remove the rear trim bezel from the center console.

Fig 2: Removing/Installing Center Console Duct Tube, Rear Trim Bezel, And Console

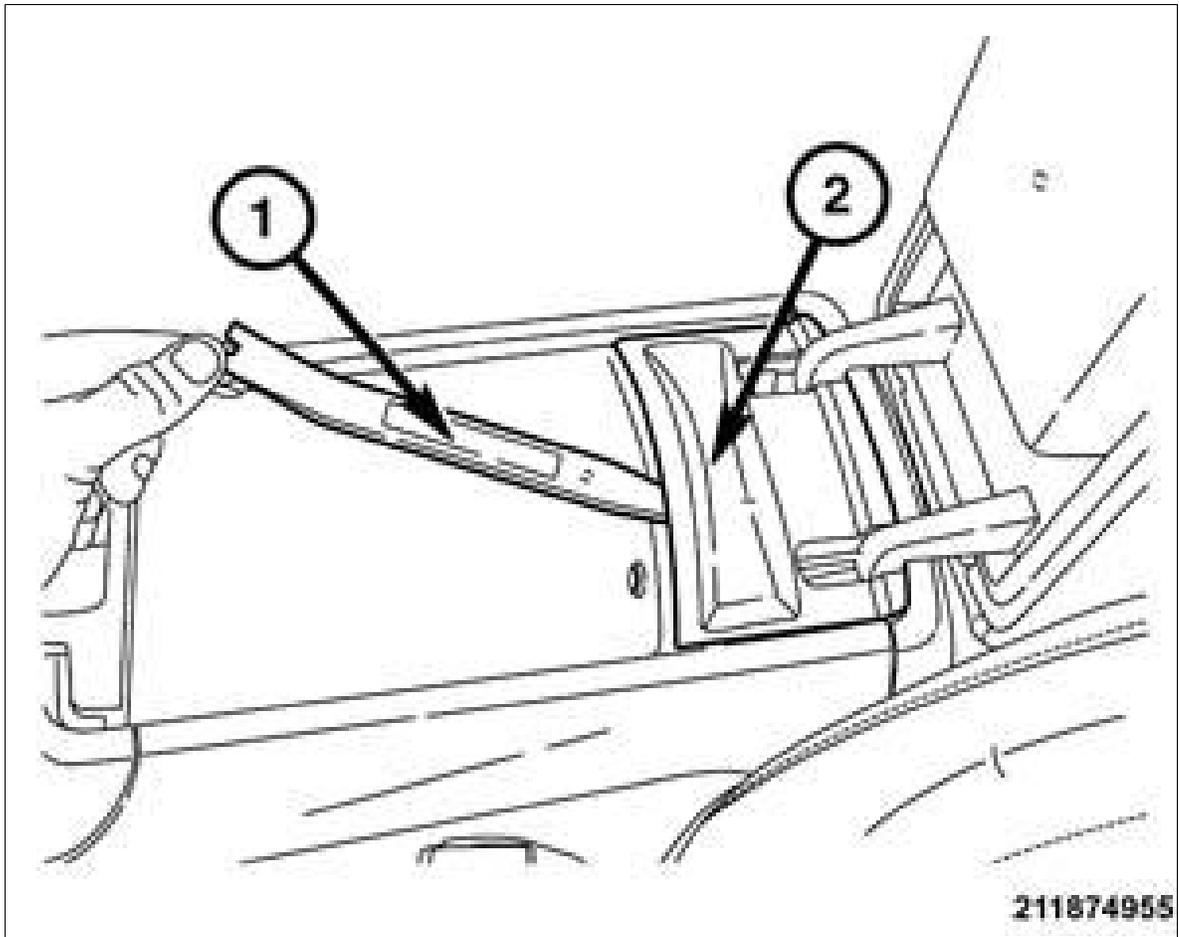


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Courtesy of CHRYSLER GROUP, LLC

7. Remove the clips from the duct and remove the center console rear duct tube.
8. From under the center console, release the clip holding the MPR cable.

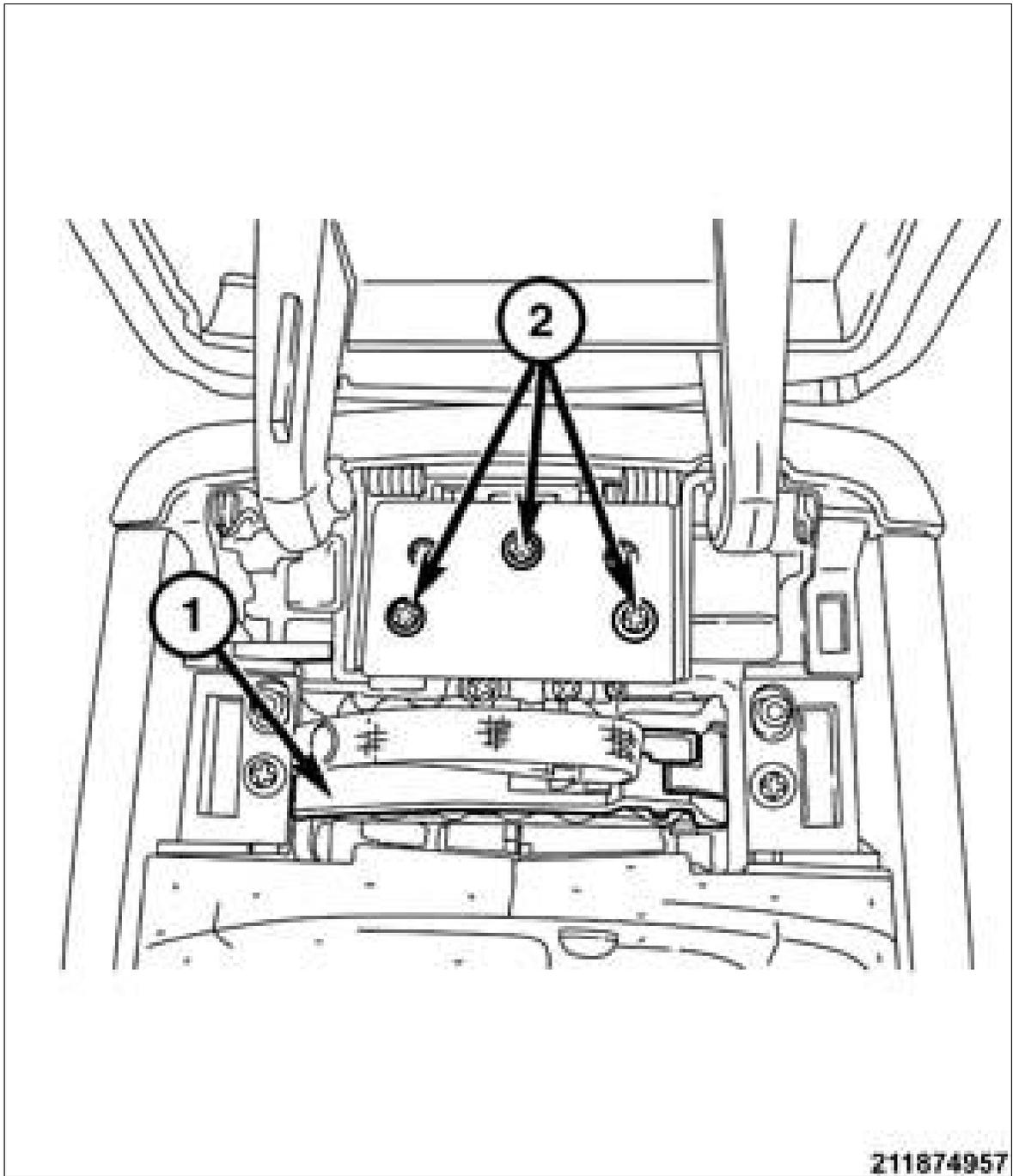
Fig 3: Trim Stick & Mechanical Park Release Cover



Courtesy of CHRYSLER GROUP, LLC

9. Remove the MPR cover.

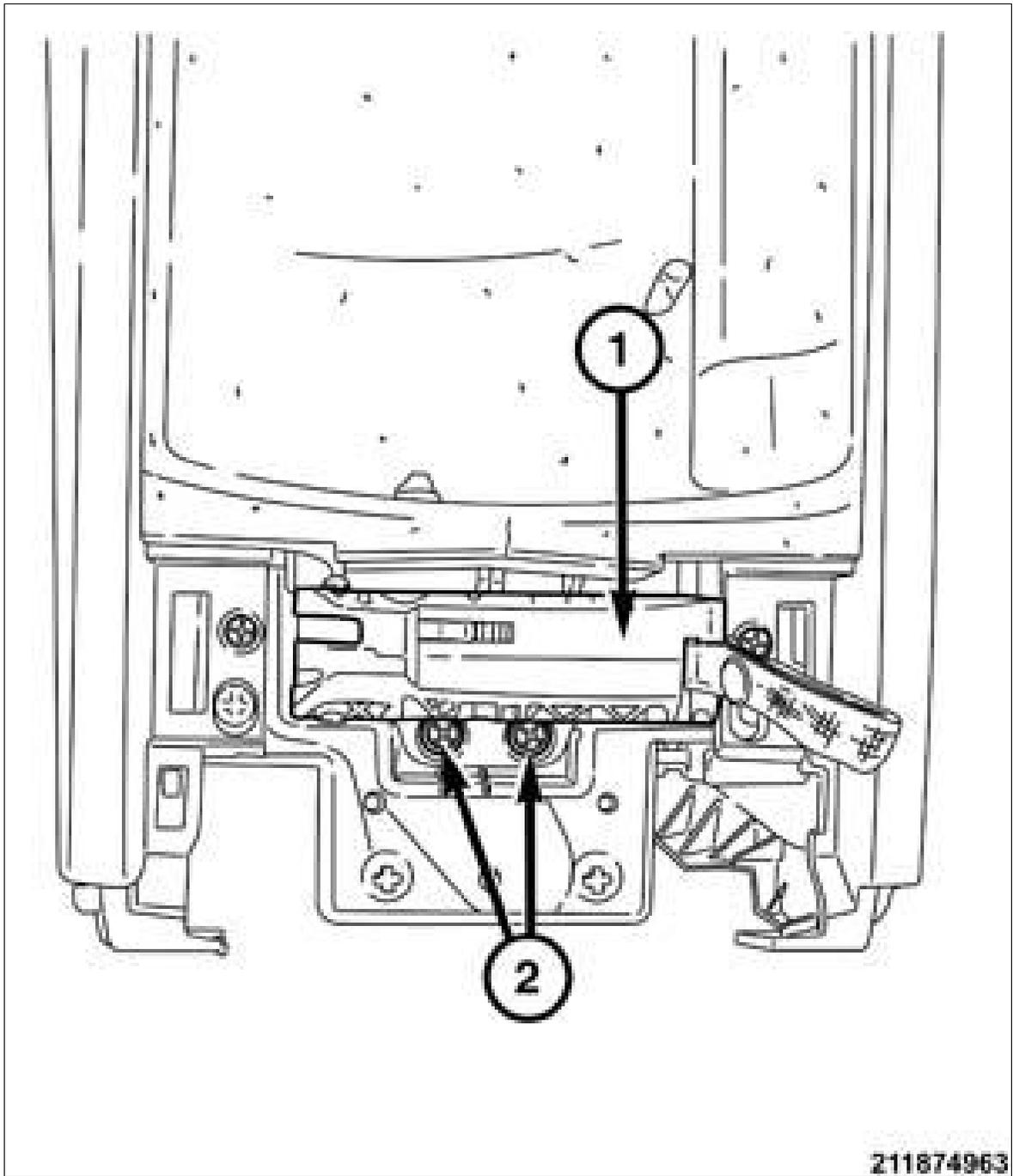
Fig 4: Removing/Installing Center Console Lid With 3 Mounting Screws



Courtesy of CHRYSLER GROUP, LLC

10. Remove the three console lid screws (2) and remove the center console lid.

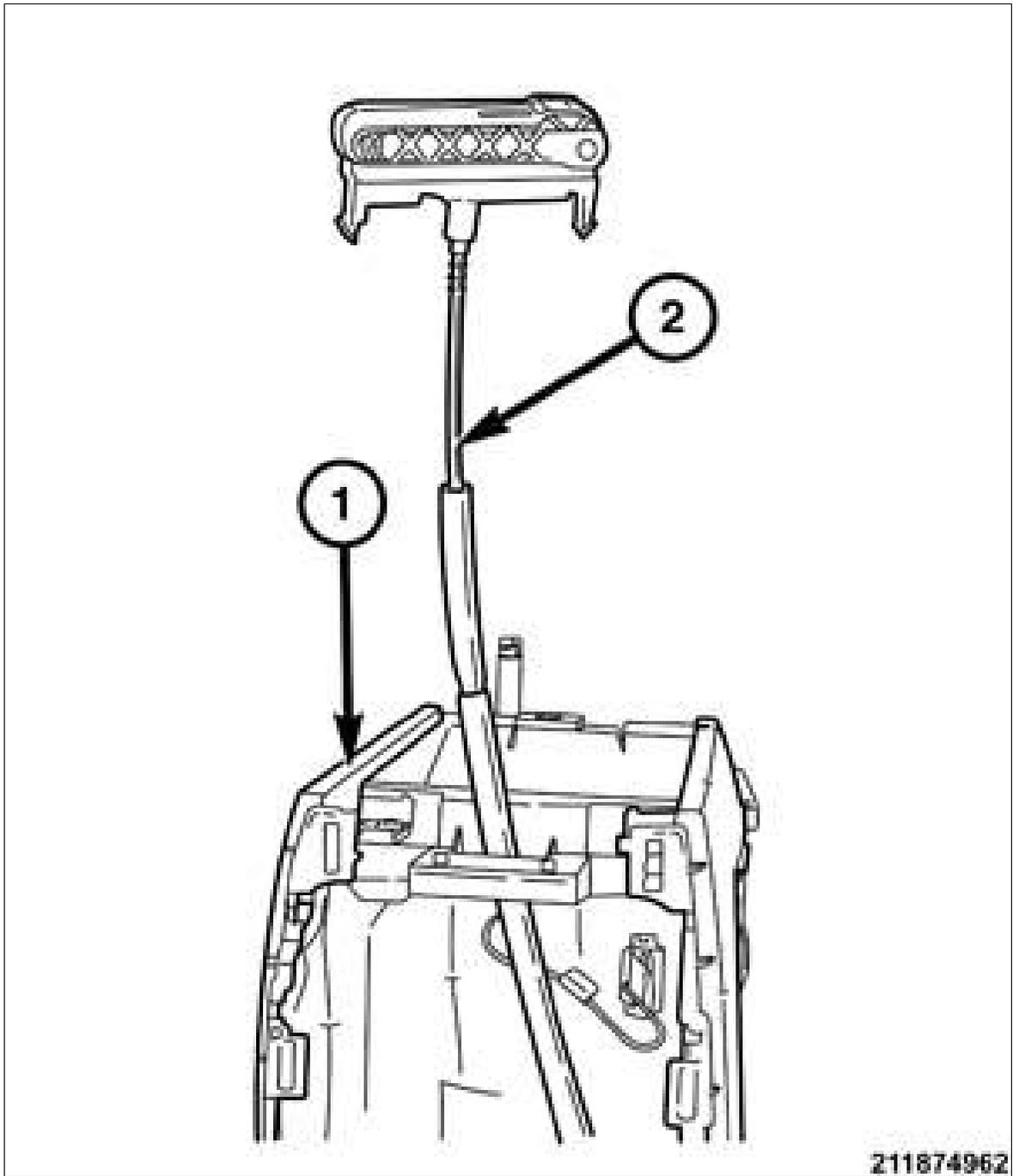
Fig 5: Clipping MPR Lever Into Place & Securing With 2 Screws



Courtesy of CHRYSLER GROUP, LLC

11. Remove the two screws (2) holding the MPR lever.

Fig 6: Unclip MPR Lever From Center Console & Remove The Cable



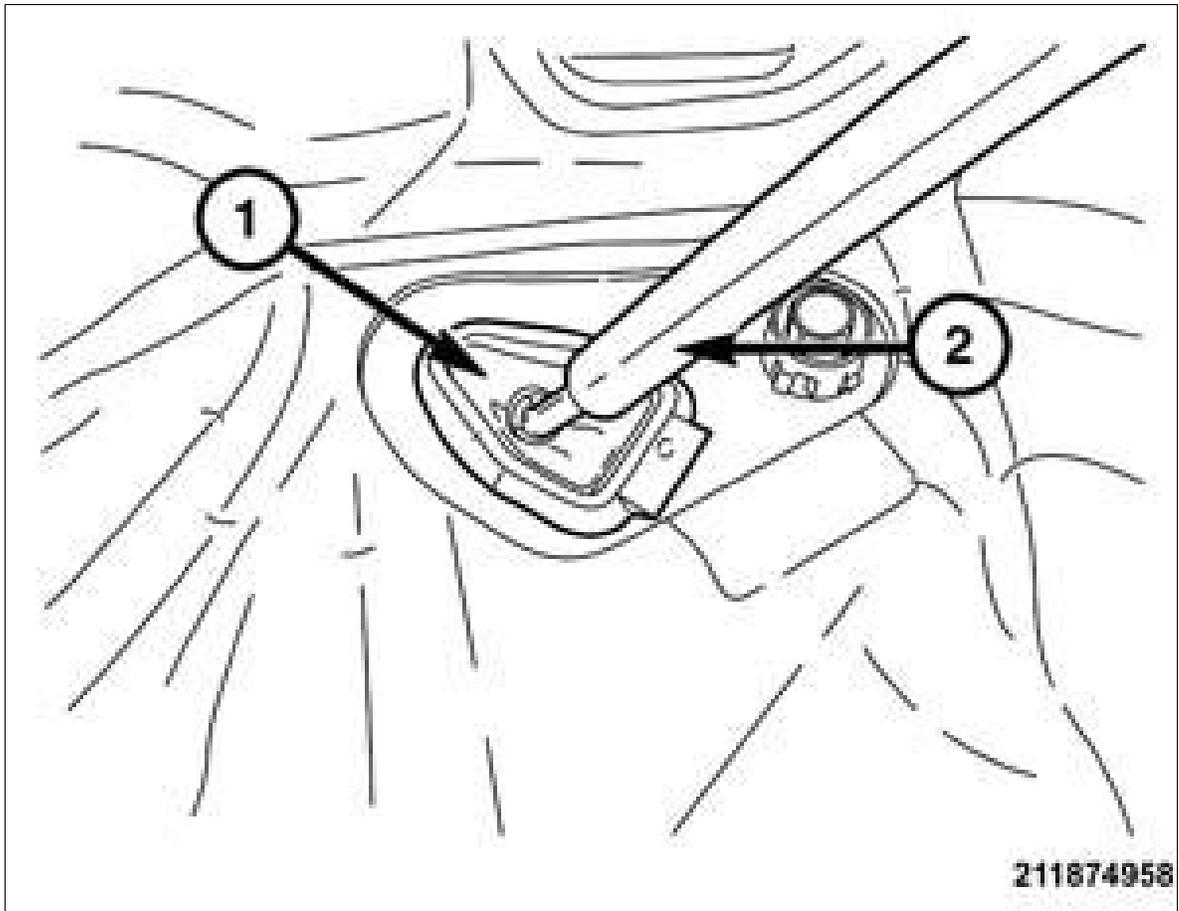
Courtesy of CHRYSLER GROUP, LLC

12. Unclip the MPR lever from the center console (1) and pull the cable (2) through.

## **CABLE, MANUAL PARK RELEASE > INSTALLATION > INSTALLATION > LOWER**

1. Remove the shifter bezel.
2. Remove the center console left side panel.

Fig 1: Routing The MPR Cable Through The Grommet & Access Hole In Body



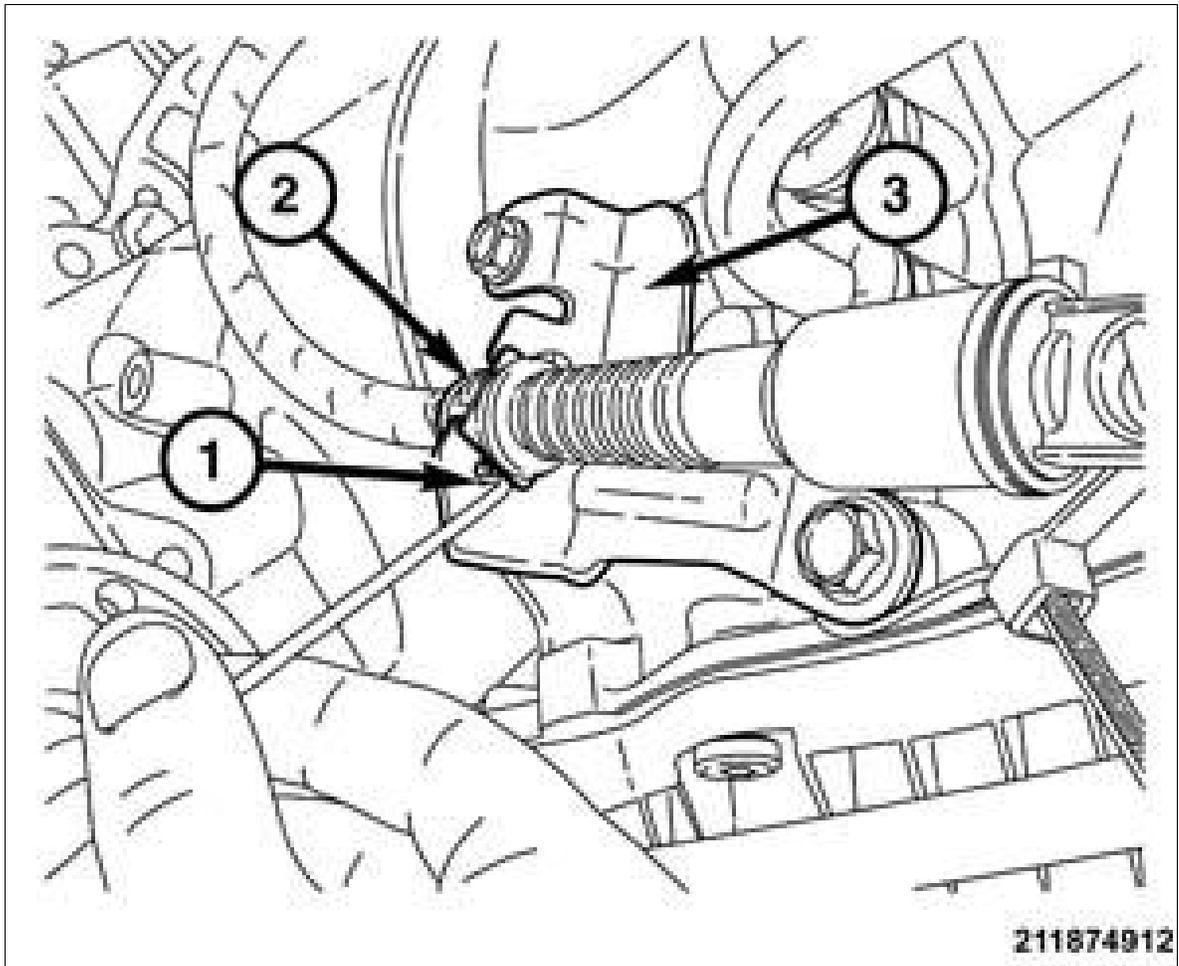
Courtesy of CHRYSLER GROUP, LLC

3. Route the MPR cable through the access hole in the body. Seat the grommet (1) in the body.
4. Raise and support the vehicle. Refer to HOISTING, STANDARD PROCEDURE .

 **NOTE:**

*Be sure that the cable grommet (1) is seated in position from the under body side.*

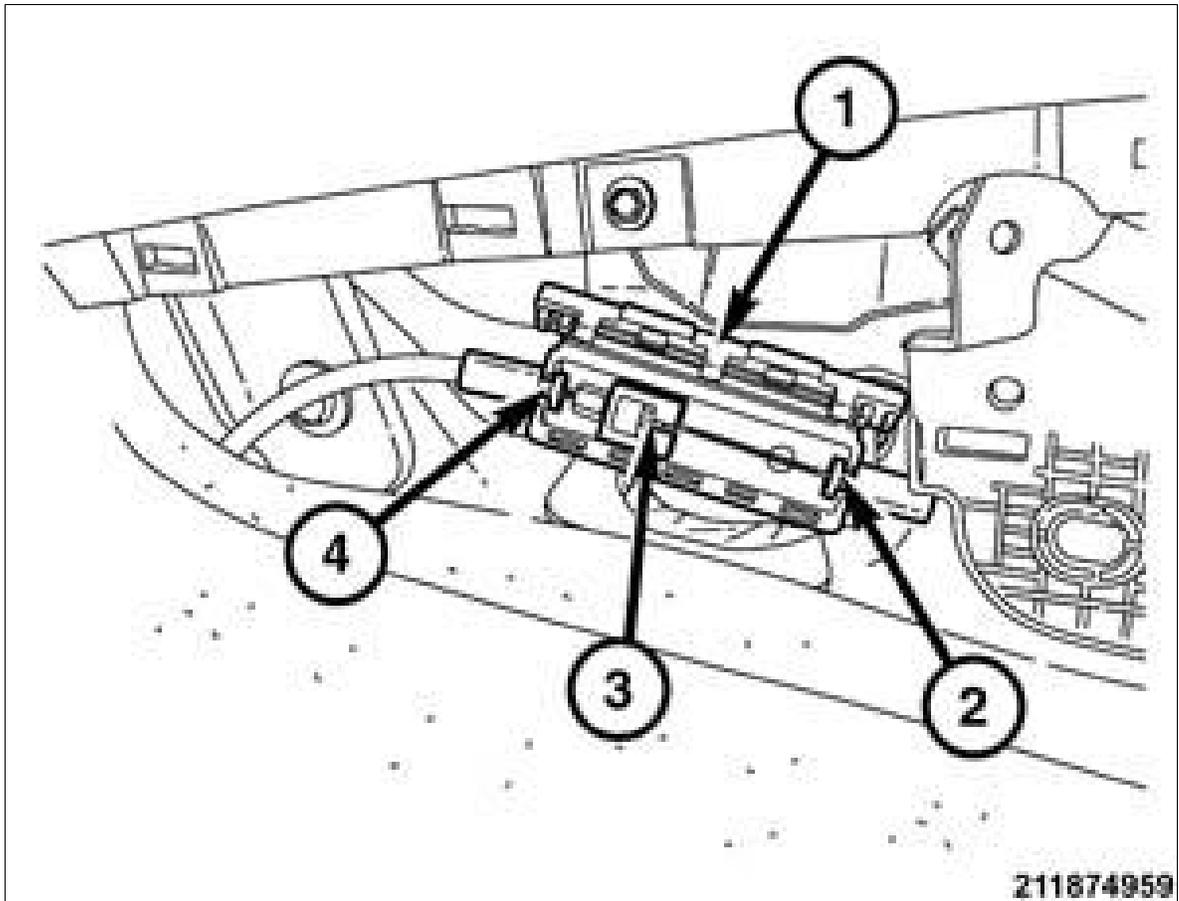
Fig 2: Locking Tab, MPR Cable & Bracket



Courtesy of CHRYSLER GROUP, LLC

5. Install the MPR cable (2) into the bracket (3) and lock it in place.
6. Install the MPR cable onto the lever ball stud.
7. Lower the vehicle.

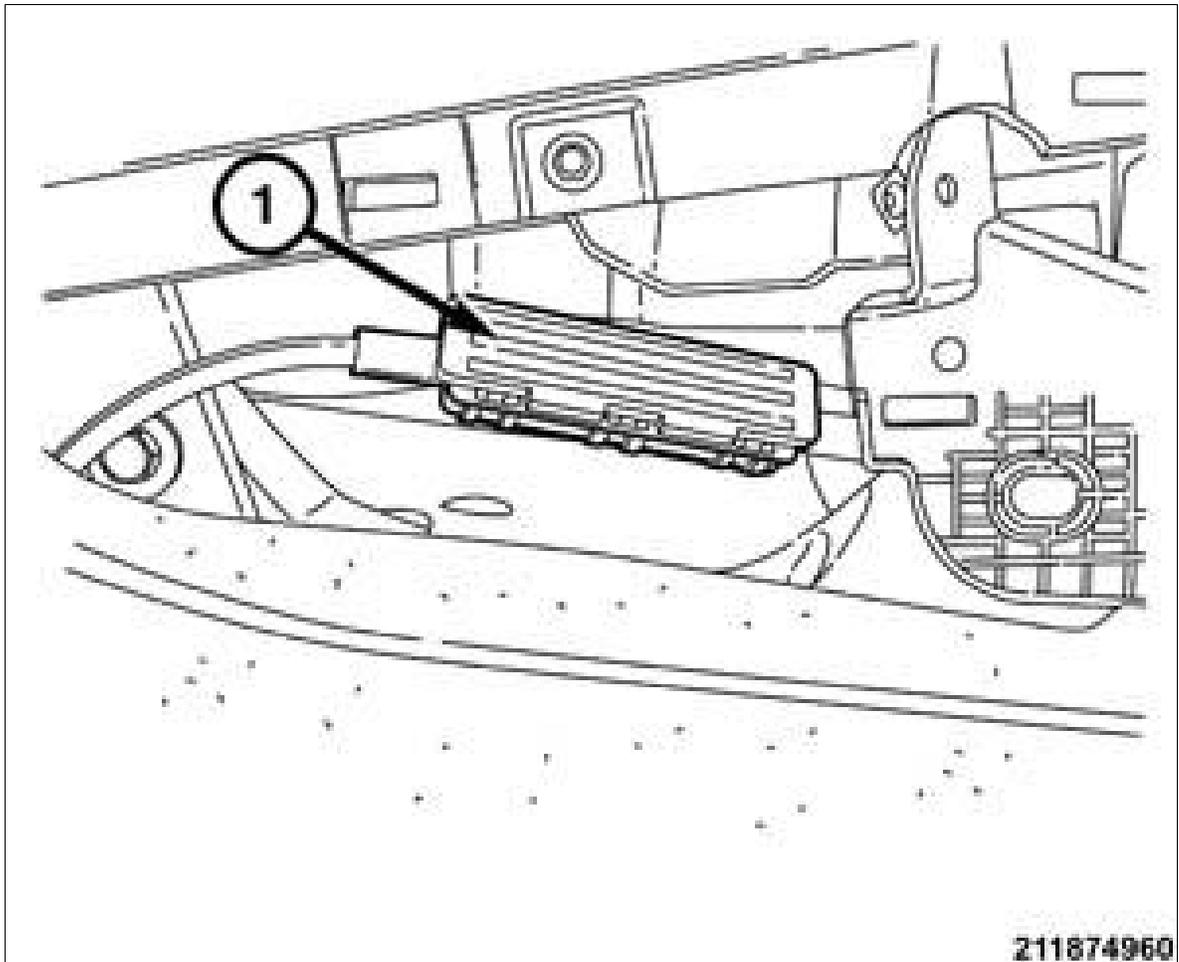
Fig 3: Attaching The Upper And Lower Cables To The Junction



Courtesy of CHRYSLER GROUP, LLC

8. Attach the upper (2) and lower (4) cables to the junction (3).

Fig 4: Identifying The Junction Block & Cover

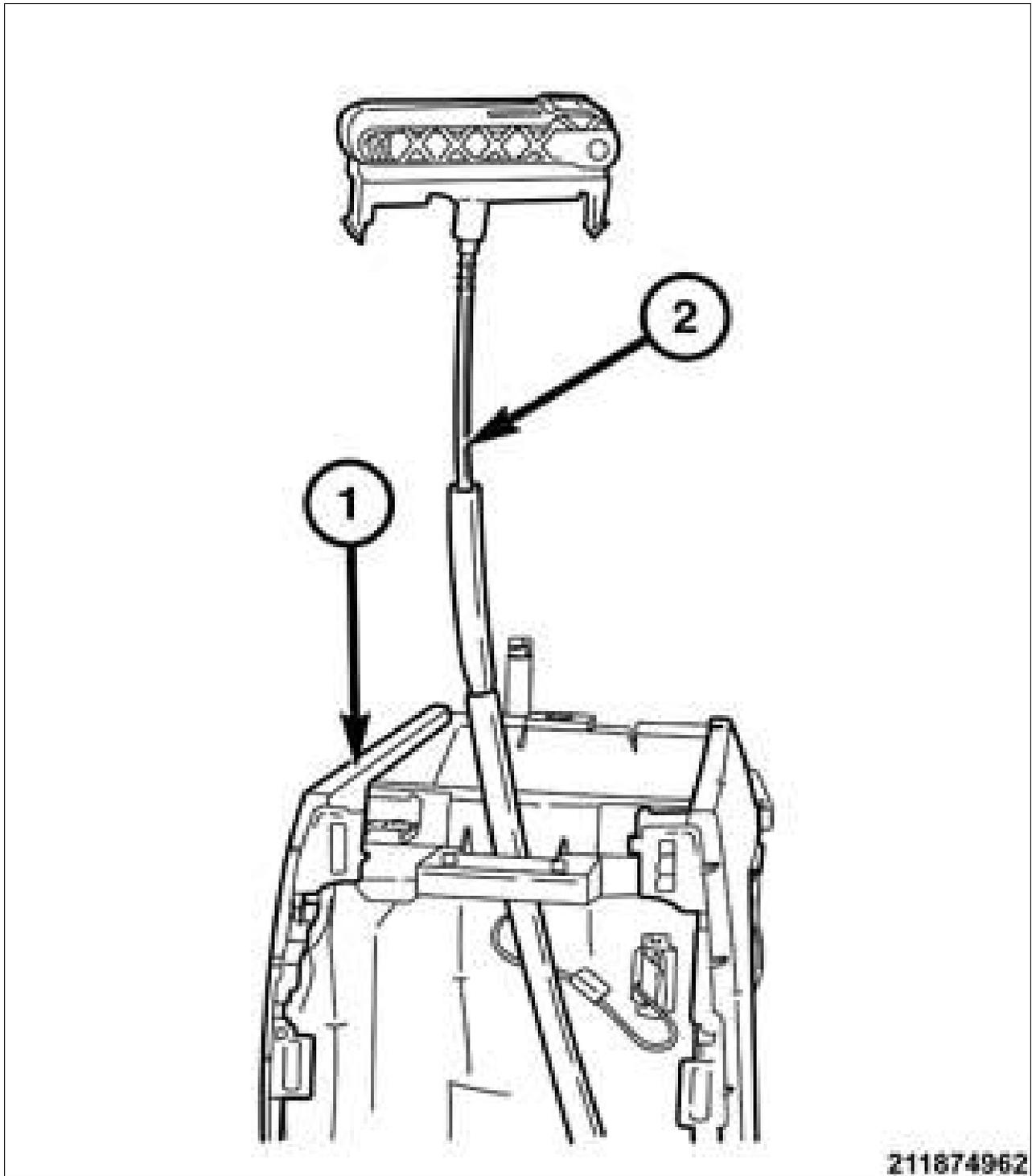


Courtesy of CHRYSLER GROUP, LLC

9. Close and secure the junction cover (1).
10. Install the left side center console bezel.
11. Install the shifter bezel.
12. Verify operation of the MPR.

**CABLE, MANUAL PARK RELEASE > INSTALLATION > INSTALLATION > UPPER**

Fig 1: Unclip MPR Lever From Center Console & Remove The Cable

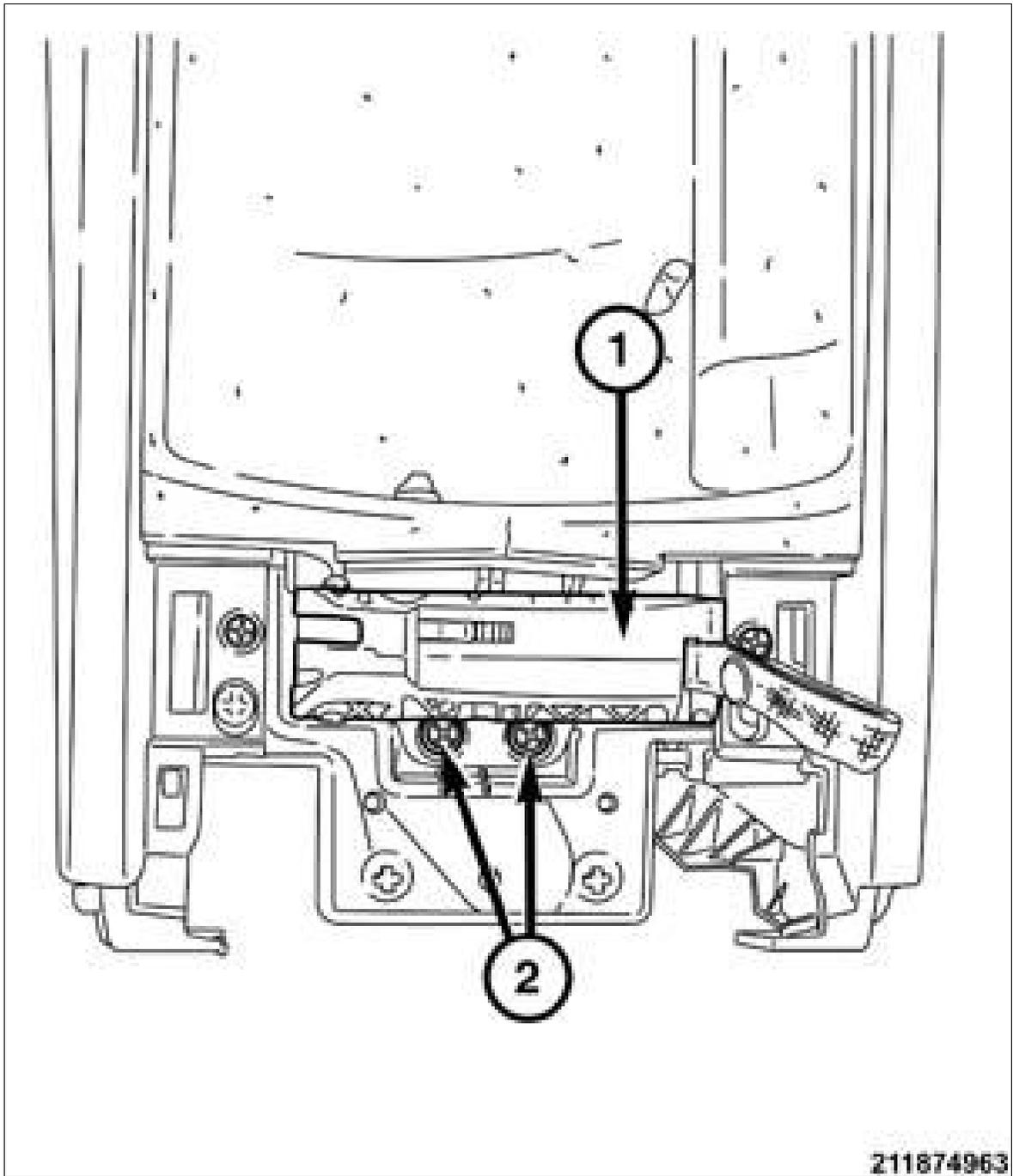


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Courtesy of CHRYSLER GROUP, LLC

1. Route the MPR cable (2) through the center console (1).

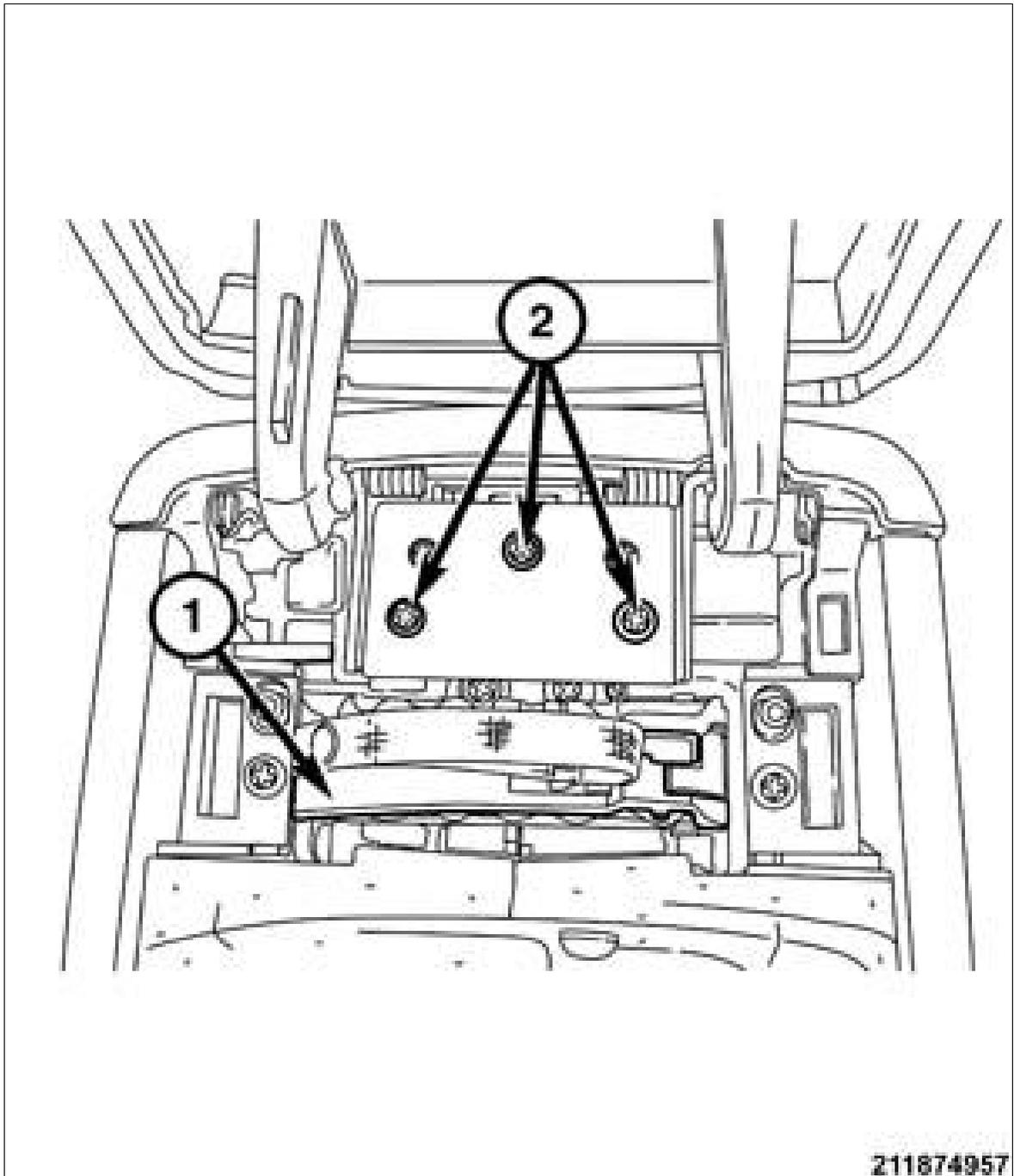
Fig 2: Clipping MPR Lever Into Place & Securing With 2 Screws



Courtesy of CHRYSLER GROUP, LLC

2. Clip the MPR lever (1) into place.
3. Install two screws (2) holding MPR lever.

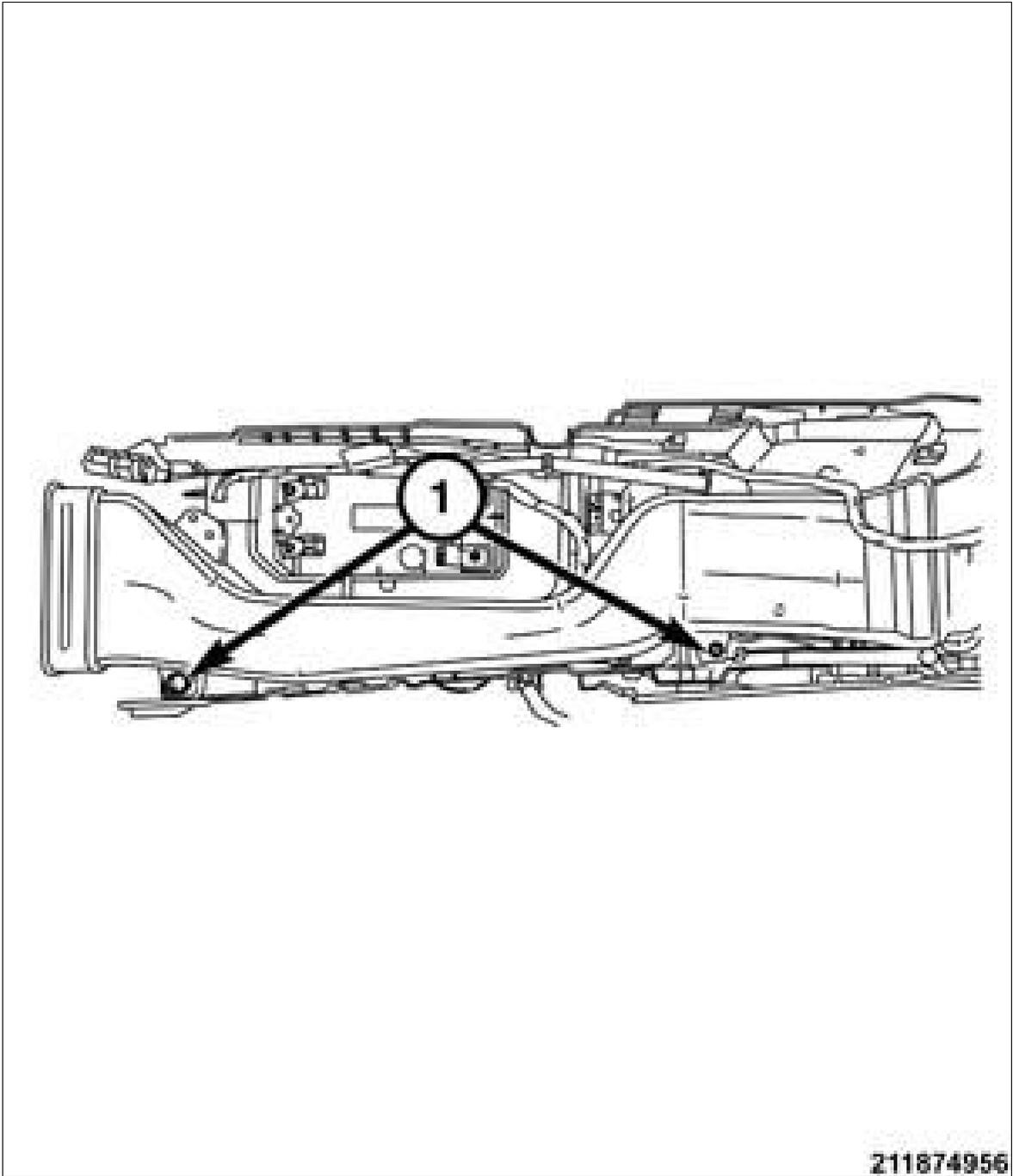
Fig 3: Removing/Installing Center Console Lid With 3 Mounting Screws



Courtesy of CHRYSLER GROUP, LLC

4. Install the center console lid and tighten three screws (2).
5. From underneath the center console, install the MPR cable into the holding clips.

Fig 4: Removing/Installing Center Console Duct Tube, Rear Trim Bezel, And Console



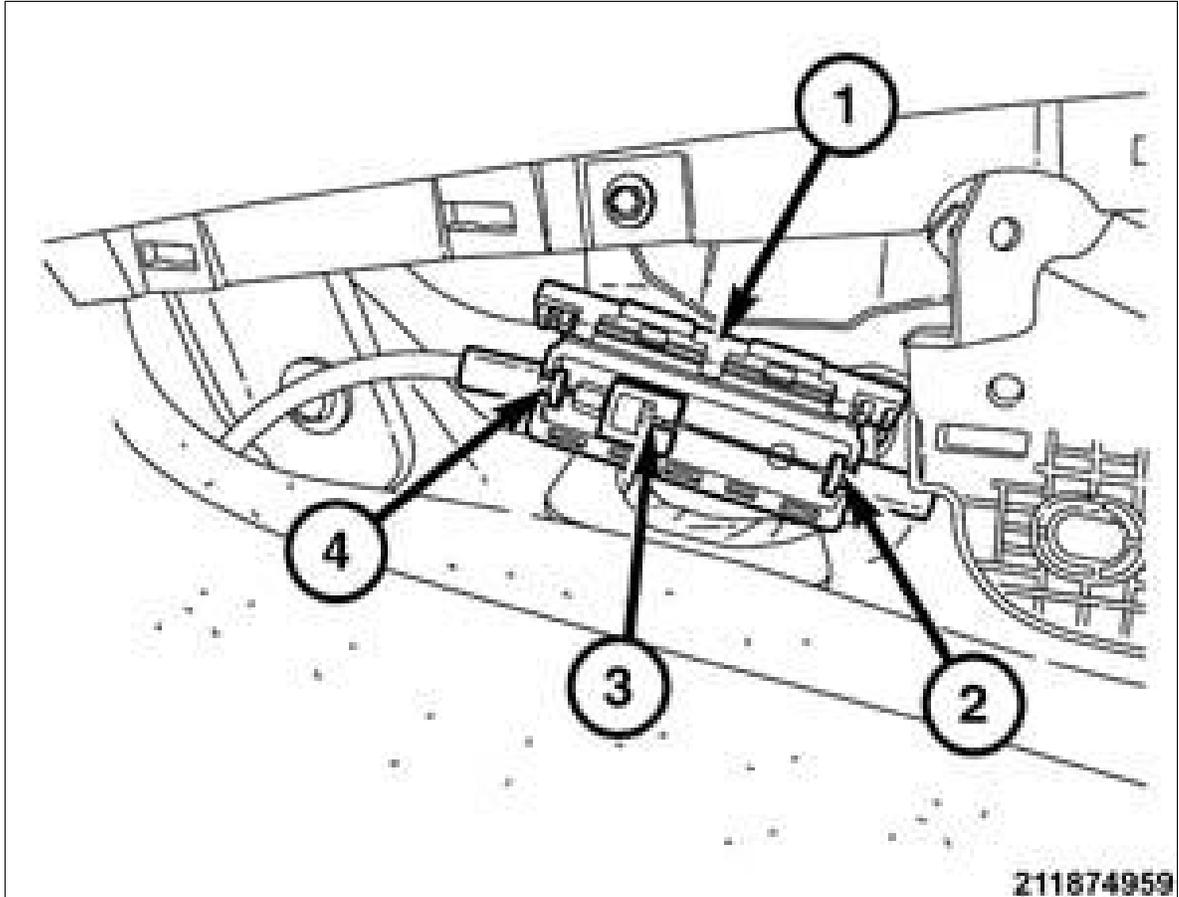
Courtesy of CHRYSLER GROUP, LLC

6. Install the center console duct tube.
7. Install the center console rear trim bezel.
8. Install the center console. Refer to CONSOLE, FLOOR, INSTALLATION .

 **NOTE:**

*The upper and lower cables must be attached before trim is installed.*

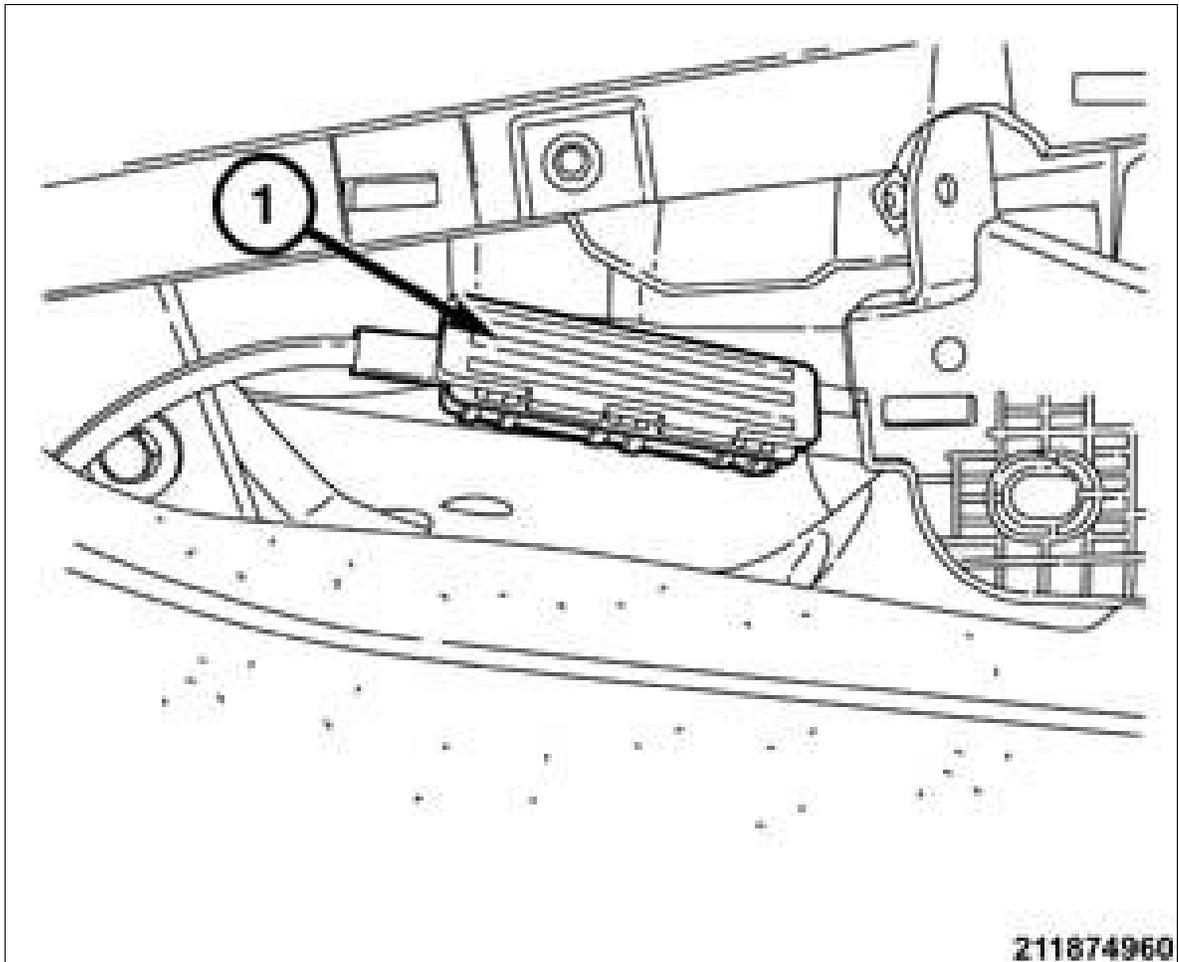
Fig 5: Attaching The Upper And Lower Cables To The Junction



Courtesy of CHRYSLER GROUP, LLC

9. Connect the upper (4) and lower (2) MPR cables to the junction (3).

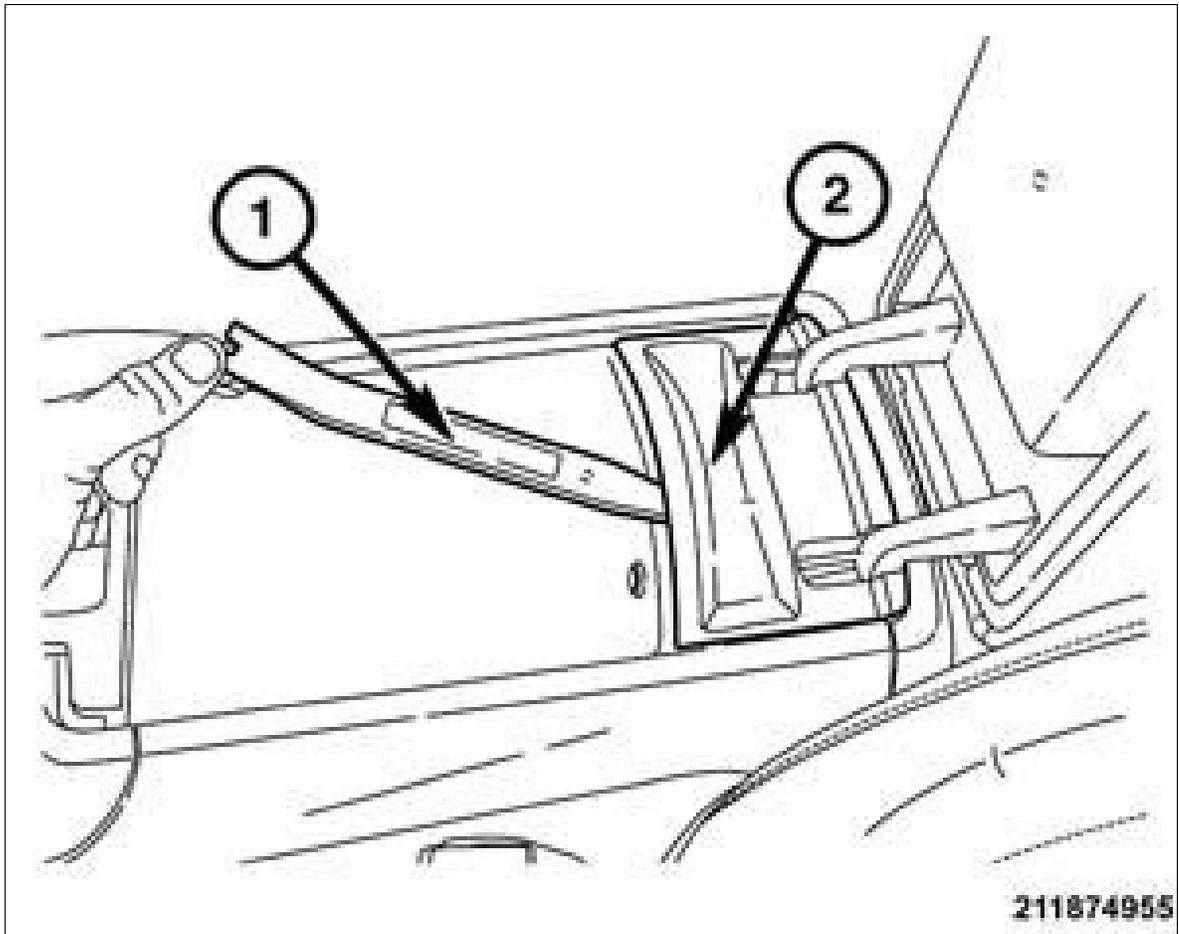
Fig 6: Identifying The Junction Block & Cover



Courtesy of CHRYSLER GROUP, LLC

10. Close and secure the junction cover (1).
11. Install the left center console trim panel.

Fig 7: Trim Stick & Mechanical Park Release Cover

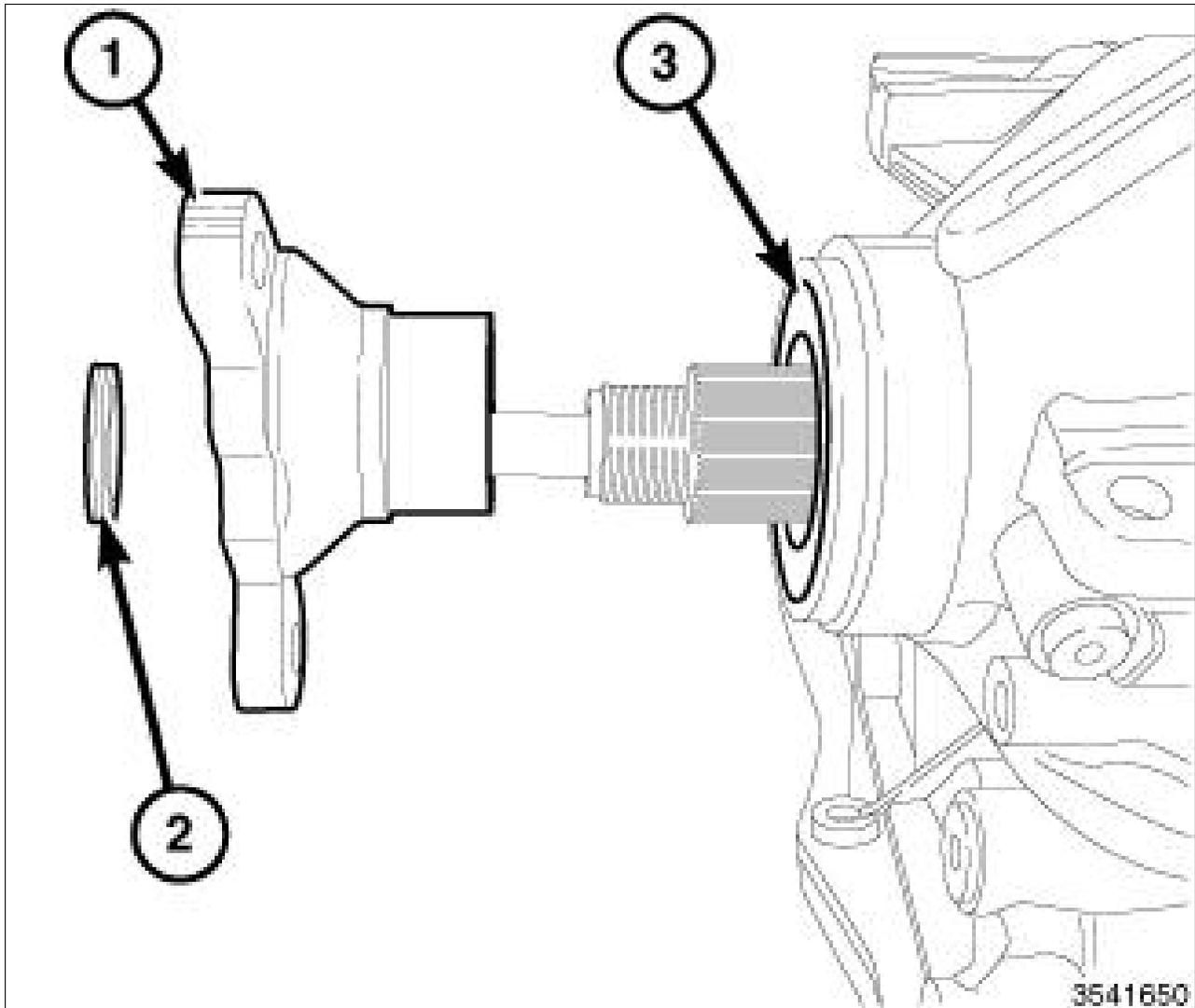


Courtesy of CHRYSLER GROUP, LLC

12. Install the MPR cover (2).

**SEAL, OUTPUT SHAFT > REMOVAL > REAR WHEEL DRIVE**

Fig 1: Propeller Shaft Flange, Rear Dust Seal & Rear Oil Seal (RWD)



Courtesy of CHRYSLER GROUP, LLC



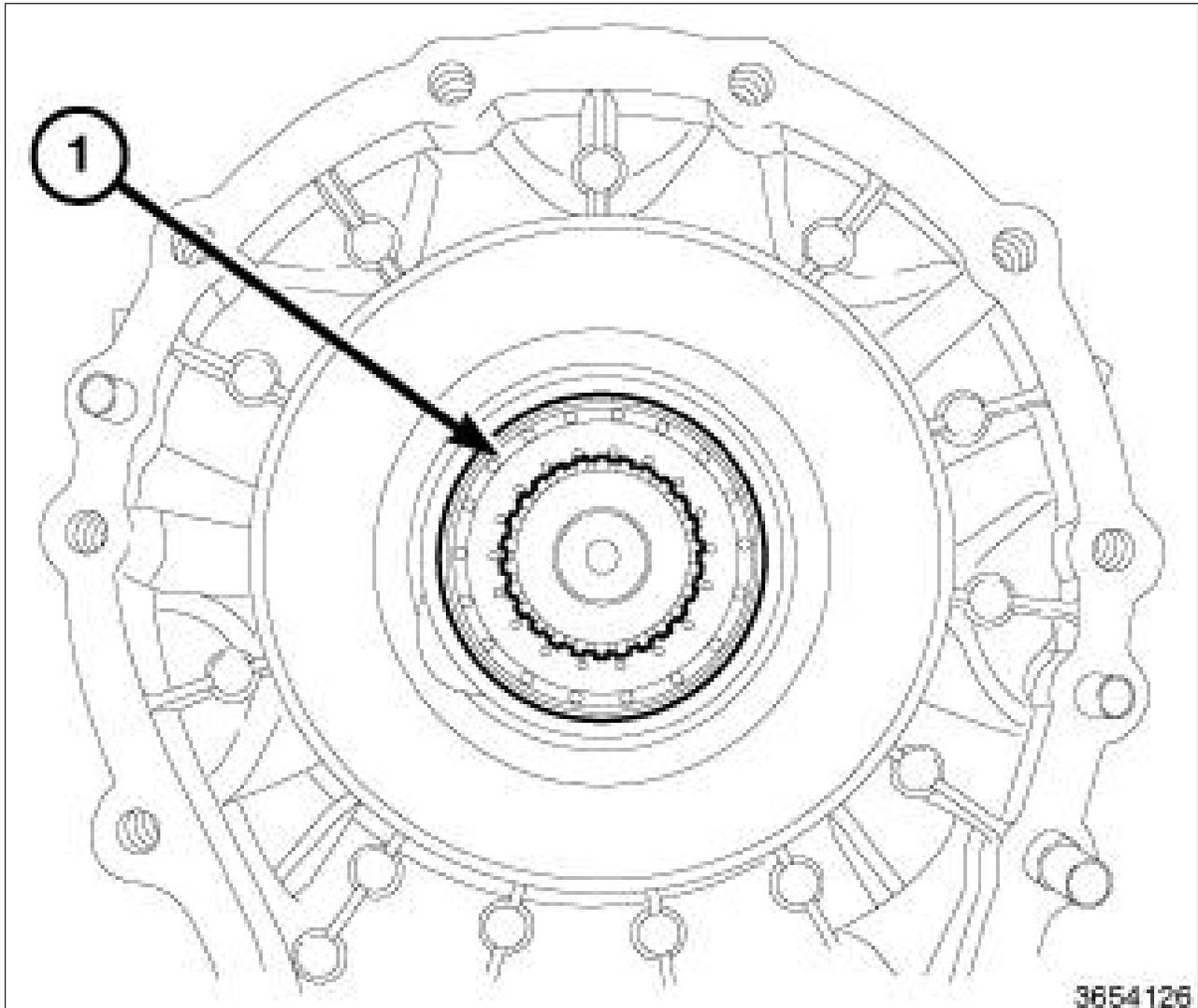
**NOTE:**

*Mark the propeller to transmission output flange for assembly reference.*

1. Remove the propeller shaft from the transmission output flange. Move propeller shaft to the right and tie up.
2. Using a suitable punch, remove the staking from the nut.
3. Remove the propeller shaft flange nut about using a 34 mm 12 point socket (3) and (special tool #C-3281, Holder, Flange) (2) to hold the flange (1).
4. Remove the flange (1), and flange dust seal (2).
5. Remove the output shaft seal (3) with suitable screw and slide hammer.

## SEAL, OUTPUT SHAFT > REMOVAL > ALL WHEEL DRIVE

Fig 1: Output Shaft Seal



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Courtesy of CHRYSLER GROUP, LLC

1. Remove the transfer case. For MP2010, refer to REMOVAL . For MP3010, refer to REMOVAL . For MP3023, refer to REMOVAL .
2. Remove the output shaft seal (1) with suitable screw and slide hammer.

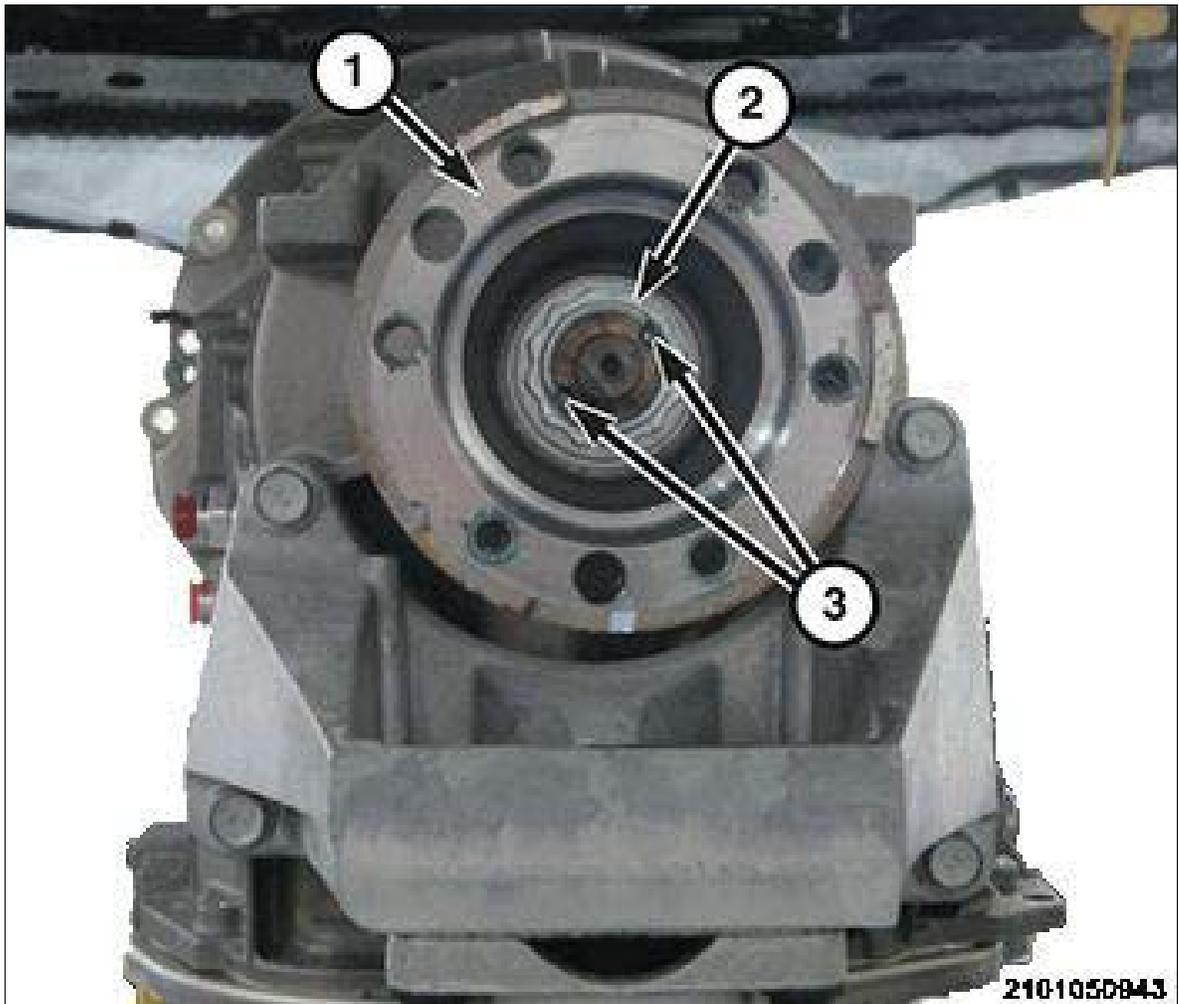
## SEAL, OUTPUT SHAFT > INSTALLATION > REAR WHEEL DRIVE

**⚠ CAUTION:**

*The seal must be installed flush with the case. Driving the seal deeper could damage the seal causing a leak.*

1. Position the new output shaft seal over the output shaft and against the transmission case.
2. Using (special tool #8481, Installer, Gear) install the output shaft seal.
3. Verify that the transmission is in PARK in order to prepare for the installation of the output shaft nut.

Fig 1: Drive Shaft Flange, Nut & Staking Area



Courtesy of CHRYSLER GROUP, LLC

4. Install the drive shaft flange (1) onto the output shaft and install a **NEW** flange nut (2). Tighten the nut, with a 34 mm 12 point socket, to the proper SPECIFICATIONS .
5. Stake (3) the nut.
6. Install the drive shaft. Refer to SHAFT, DRIVE, FRONT, INSTALLATION and SHAFT, DRIVE, REAR, INSTALLATION .

7. Perform the CHECK OIL LEVEL procedure . Refer to FLUID AND FILTER, STANDARD PROCEDURE .

## **SEAL, OUTPUT SHAFT > INSTALLATION > 4WD/ ALL WHEEL DRIVE**

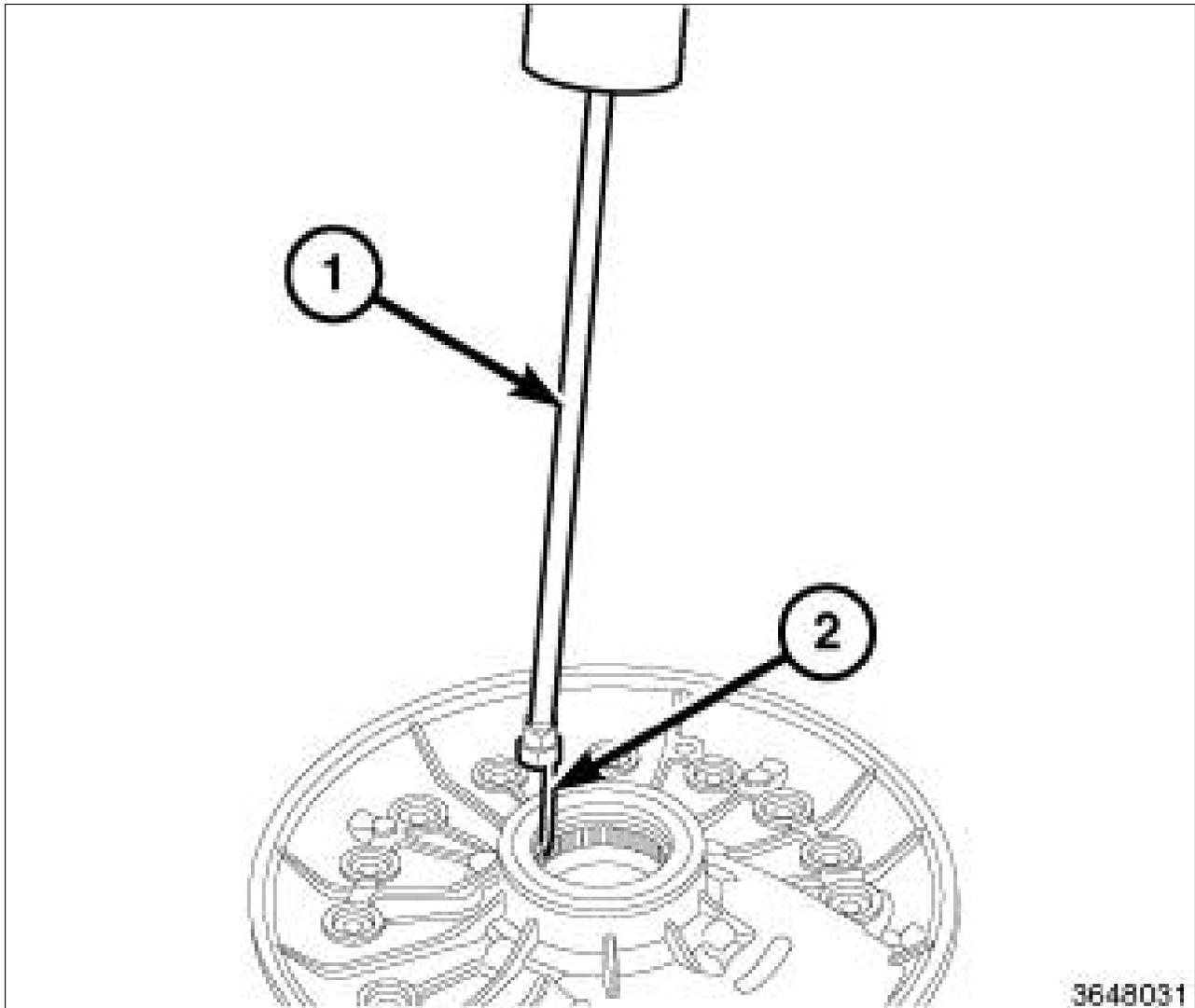
 **CAUTION:**

*The seal must be installed flush with the case. Driving the seal deeper could damage the seal causing a leak.*

1. Position the new output shaft seal over the output shaft and against the transmission case.
2. Using (special tool #8481, Installer, Gear) install the output shaft seal.
3. Install the transfer case. For MP2010, refer to INSTALLATION . For MP3010, refer to INSTALLATION . For MP3023, refer to INSTALLATION .
4. Perform the CHECK OIL LEVEL procedure. Refer to FLUID AND FILTER, STANDARD PROCEDURE .

## **SEAL, TORQUE CONVERTER HUB > REMOVAL > REMOVAL**

Fig 1: Seal Remover & Slide Hammer

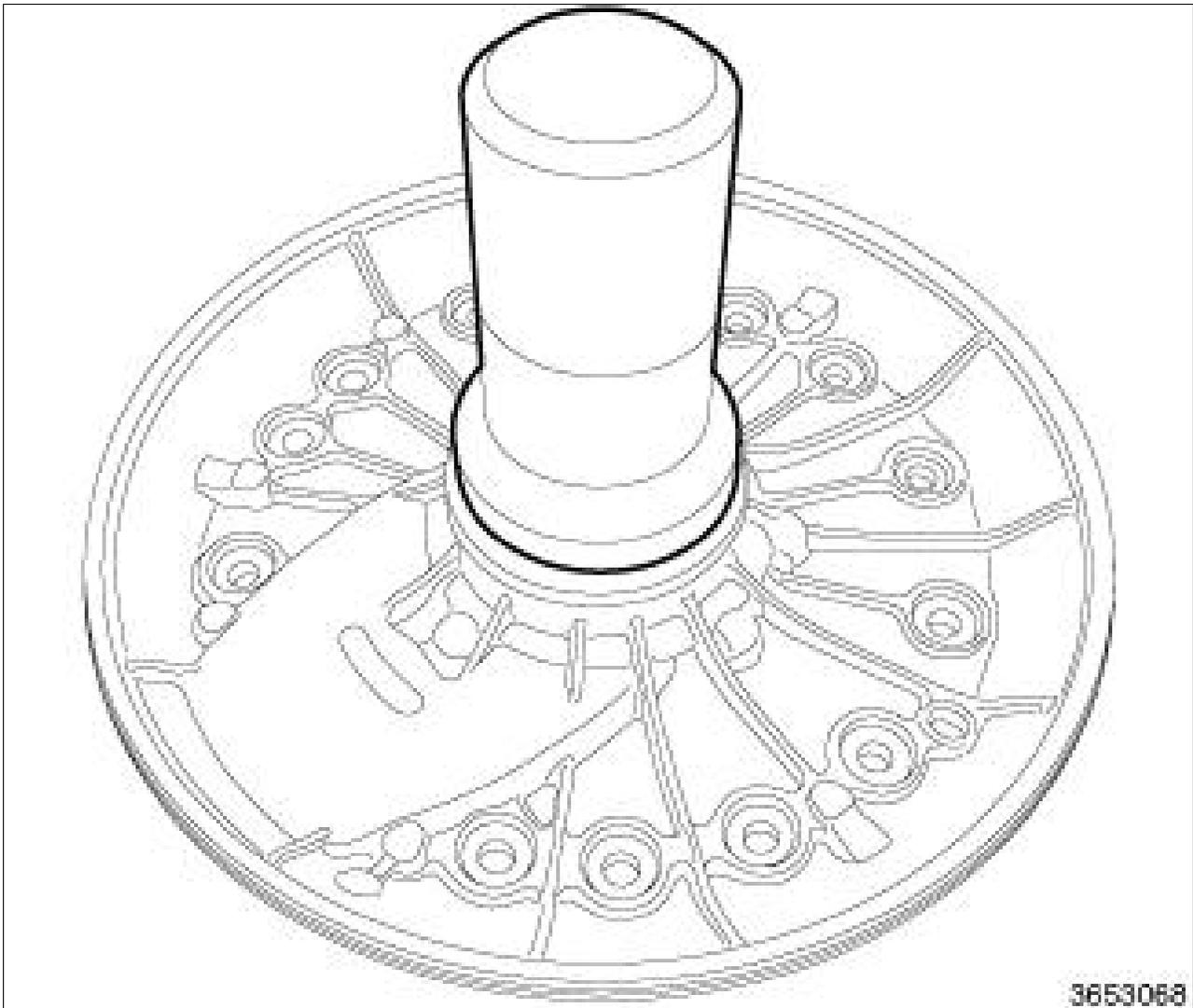


Courtesy of CHRYSLER GROUP, LLC

1. Remove the torque converter. Refer to TORQUE CONVERTER, REMOVAL .
2. Using (special tool #9667, Remover, Seal) and (special tool #C-3752, Slide Hammers) remove the torque converter hub seal.

**SEAL, TORQUE CONVERTER HUB > INSTALLATION > INSTALLATION**

Fig 1: Oil Pump Cover Oil Seal

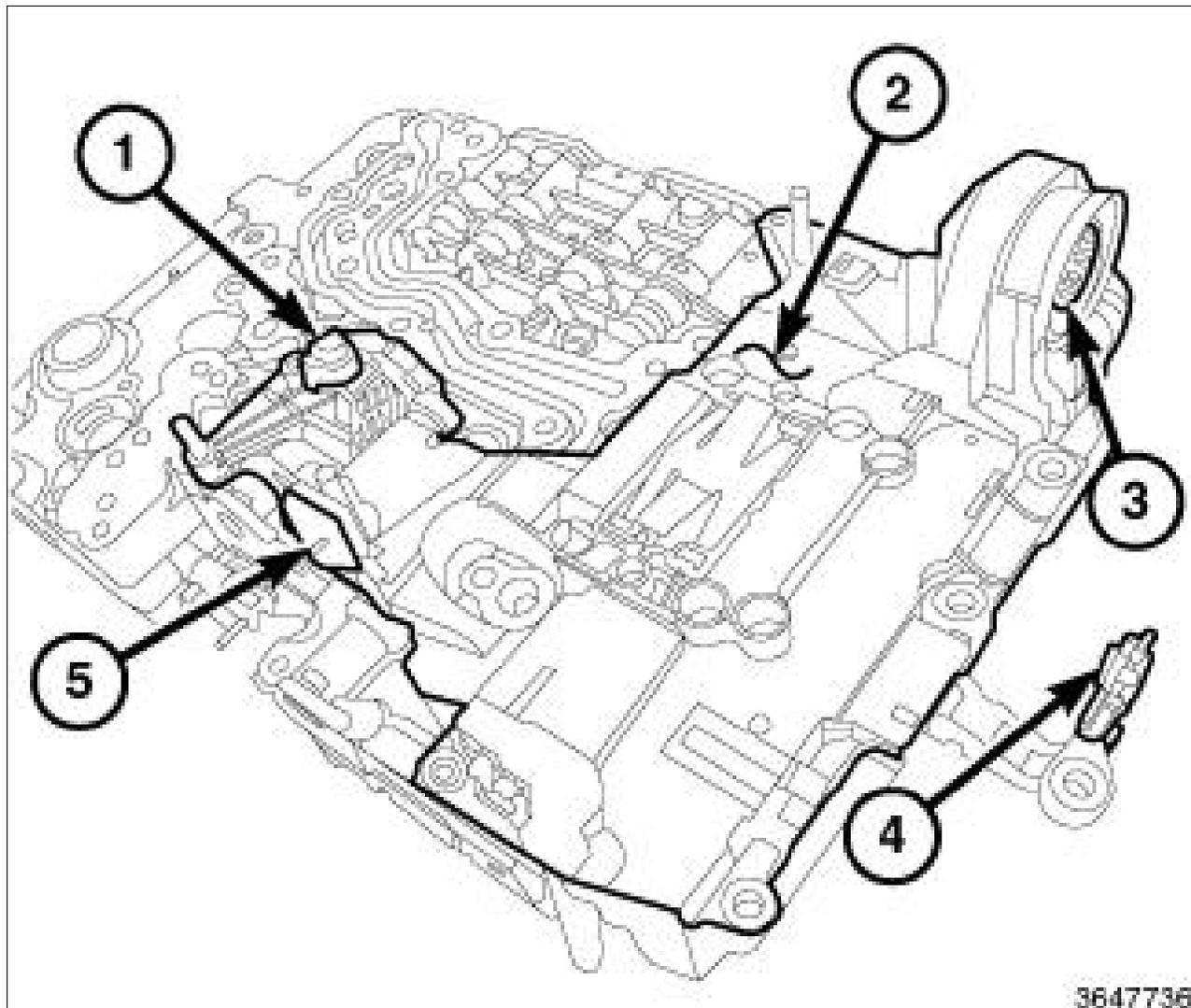


Courtesy of CHRYSLER GROUP, LLC

1. Position the torque converter hub seal over the input shaft and against the transmission oil pump cover.
2. Using (special tool #10375, Installer, Oil Pump Cover Oil Seal) install a new torque converter hub seal.
3. Install the torque converter. Refer to TORQUE CONVERTER, INSTALLATION .

**SENSOR, SPEED > DESCRIPTION > DESCRIPTION**

Fig 1: Input Speed Sensor, Output Speed Sensor, TCM (Includes Transmission Temperature Sensor) & Park Position Sensor



Courtesy of CHRYSLER GROUP, LLC

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1 - Input Speed Sensor

2 - TCM (Includes Transmission Temperature Sensor)

3 - External Wire Harness Connector

4 - Output Speed Sensor

5 - Park Position Sensor

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

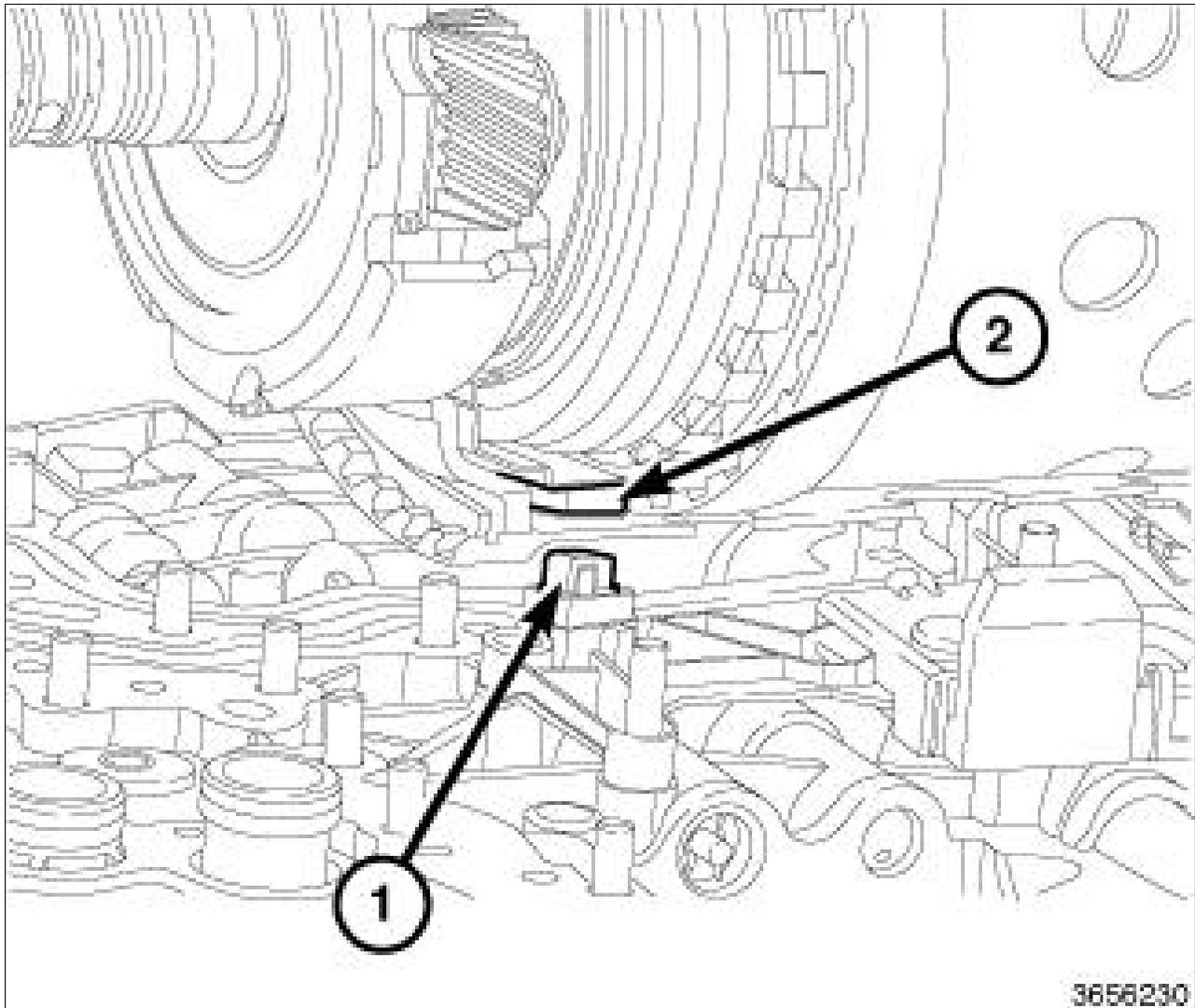
The input speed sensor (1) and the output speed sensor (4) are integrated components of the TCMA and not serviced individually.

## **SENSOR, SPEED > OPERATION > OPERATION**

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

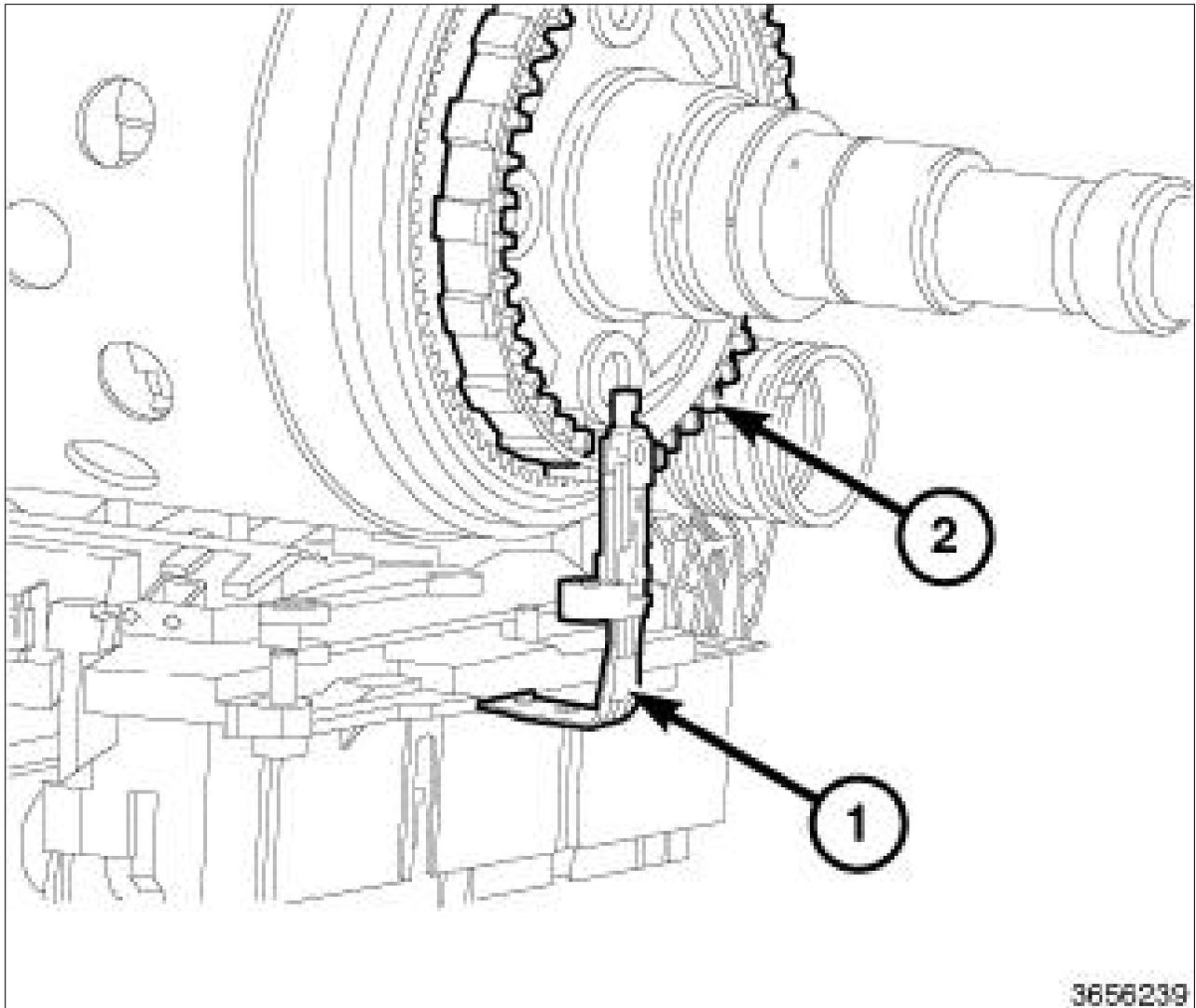
Fig 1: ISS & Magnetic Ring



Courtesy of CHRYSLER GROUP, LLC

The input speed sensor (ISS) and output speed sensor (OSS) are Hall-effect sensors that measure shaft rotational speed. The ISS (1) is located at the front of the TCMA and reads input shaft speed from the magnetic ring (2) on the P2 carrier.

Fig 2: OSS & P4 Carrier



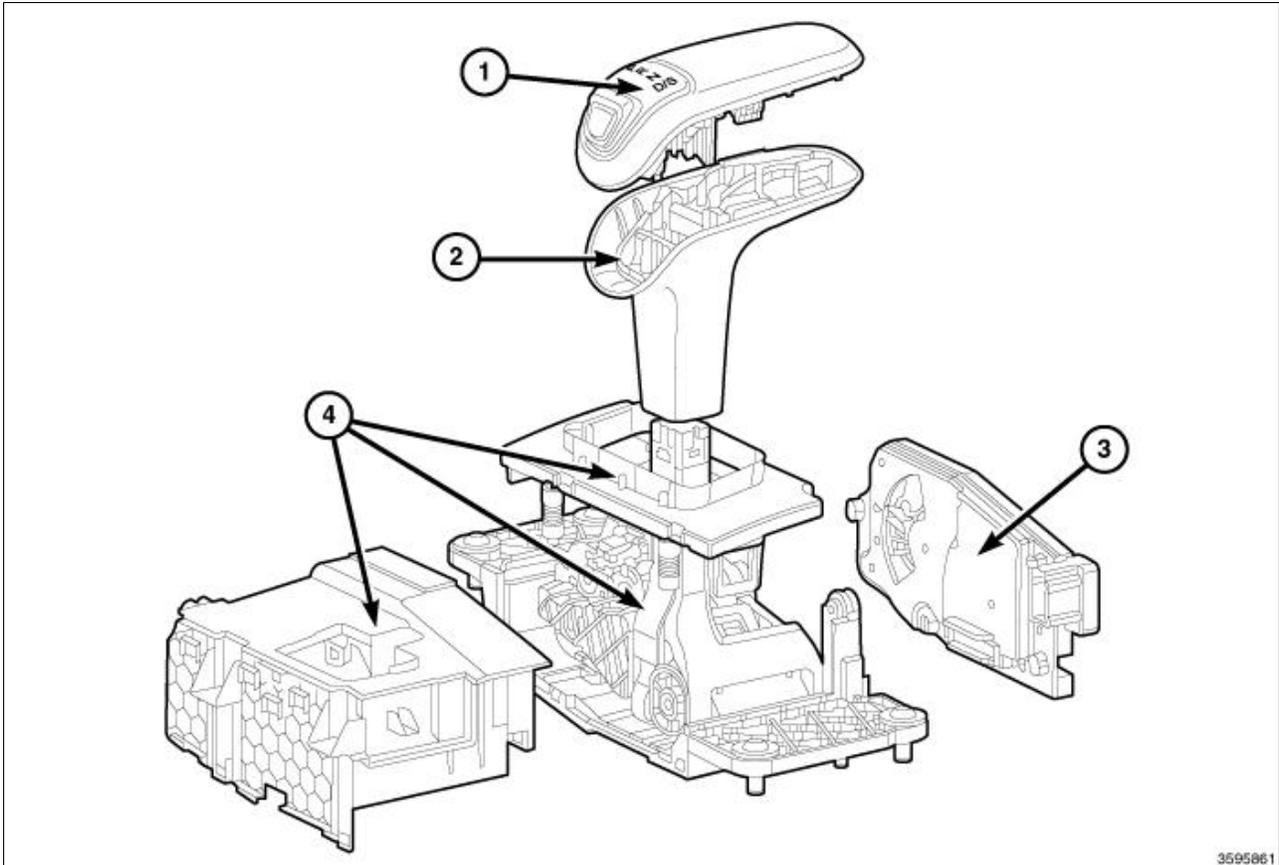
Courtesy of CHRYSLER GROUP, LLC

The OSS (1) is located at the back of the TCMA and reads output shaft speed from the P4 carrier (2).

**SHIFTER, TRANSMISSION > DESCRIPTION > FLOOR SHIFT**

**COMPONENTS**

Fig 1: Upper Shifter Knob Assembly, Lower Shifter Knob/Shroud, Electronic Module & Shifter Assembly



Courtesy of CHRYSLER GROUP, LLC

1- UPPER SHIFTER KNOB ASSEMBLY

2 - LOWER SHIFTER KNOB / SHROUD

3 - ELECTRONIC MODULE

4 - SHIFTER ASSEMBLY

The E-Shifter is a floor mounted device which controls the transmission without the benefit of a physical connection.

### **SHIFTER, TRANSMISSION > DESCRIPTION > PADDLE SHIFT**

Some vehicles may be equipped with optional paddle shift. For more information on paddle shift, refer to SWITCH, REMOTE RADIO, DESCRIPTION .

### **SHIFTER, TRANSMISSION > OPERATION > FLOOR SHIFT**

The E-Shifter:

- communicates with the Transmission Control Module (TCM) via a Controller Area Network (CAN).

- incorporates a solenoid that allows the lever to be locked for purposes of Brake Transmission Shift Interlock (BTSI) function.
- lever-lock function is controlled electronically by the TCM via CAN message, and mechanically by the release trigger on the knob.
- indicates the selected/non-selected gears provided via illumination of PRNDM+- in the bezel.
- communicates driver requests for transmission gear changes without a mechanical connection.
- is comprised of an upper knob and a lower base, which can be serviced separately.
- some models may have optional steering wheel-mounted paddle shifters available. Refer to SWITCH, REMOTE RADIO, DESCRIPTION .

The Electronic Shifter (E-Shifter) offers (P, R, N, D, M) modes of function.

The M selection (MANUAL mode) is engaged by moving the shift-lever sideways to M. Requests to up/down shift are achieved by moving the lever fore/aft once in the manual position.

## **SHIFTER, TRANSMISSION > OPERATION > PADDLE SHIFT**

Some vehicles may be equipped with optional paddle shift . Refer to SWITCH, REMOTE RADIO, DESCRIPTION .

## **SHIFTER, TRANSMISSION > STANDARD PROCEDURE > DISENGAGE MANUAL PARK RELEASE (MPR)**

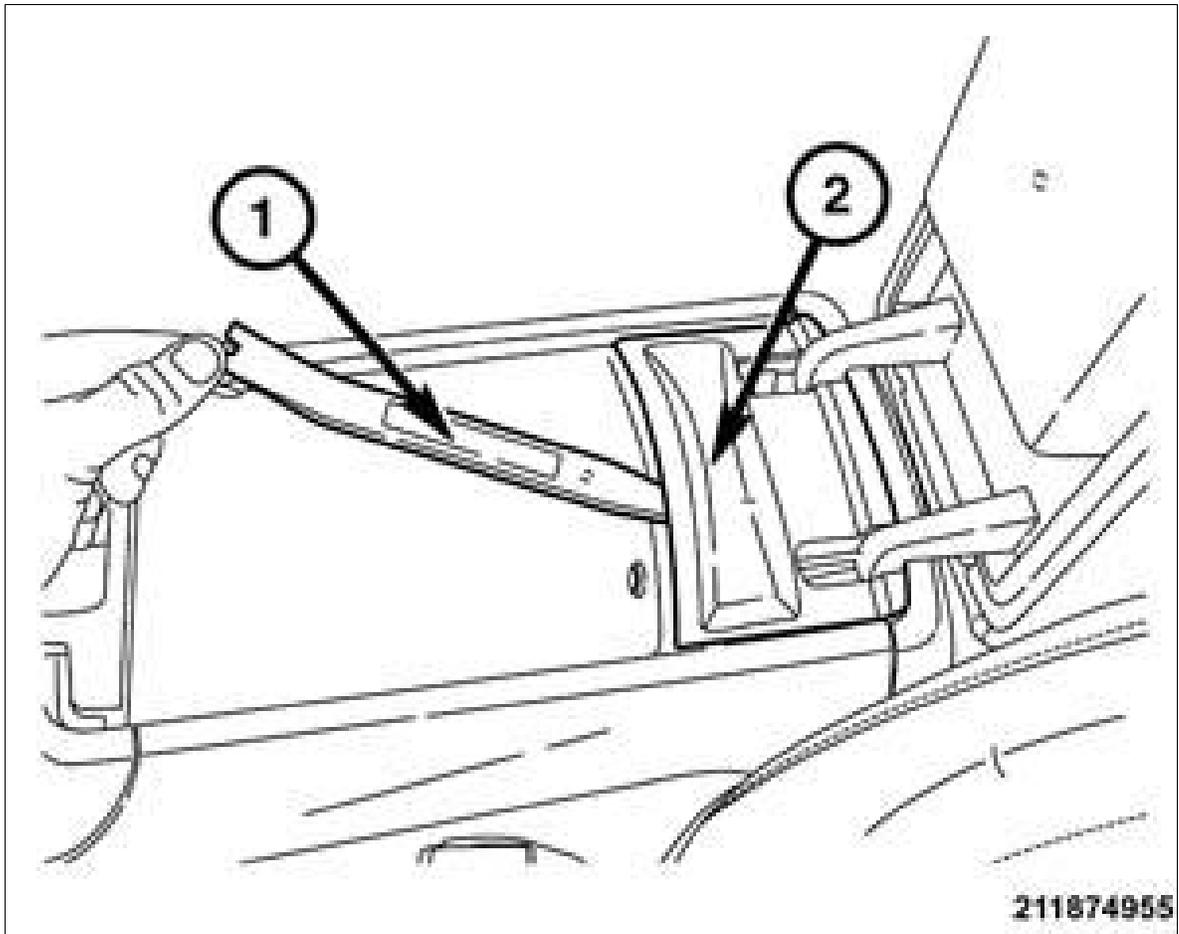
The Manual Park Release lever is used for putting the transmission in neutral anytime the vehicle needs to be moved with the engine off in neutral. This is achieved by a cable attached to the transmission park pawl. When the cable is pulled, the transmission is put into neutral, and when the cable is released, the transmission is back into park.

### **WARNING:**

*Always secure your vehicle by fully applying the parking brake, before activating the Manual Park Release. Activating the Manual Park Release will allow your vehicle to roll away if it is not secured by the parking brake or by proper connection to a tow vehicle. Activating the Manual Park Release on an unsecured vehicle could lead to serious injury or death for those in or around the vehicle.*

1. Set the parking brake.
2. Open the center console to access the storage compartment.

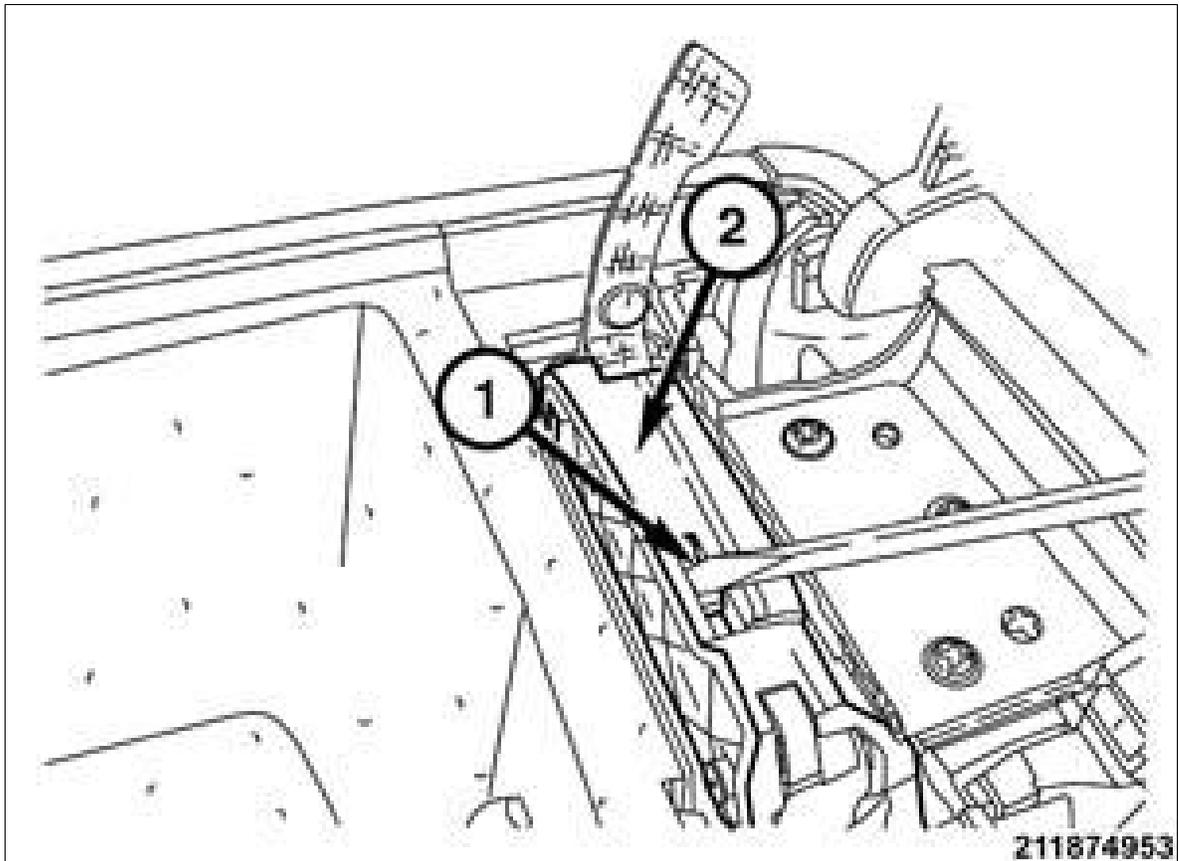
Fig 1: Trim Stick & Mechanical Park Release Cover



Courtesy of CHRYSLER GROUP, LLC

3. Remove the Mechanical Park Release cover using a trim stick.

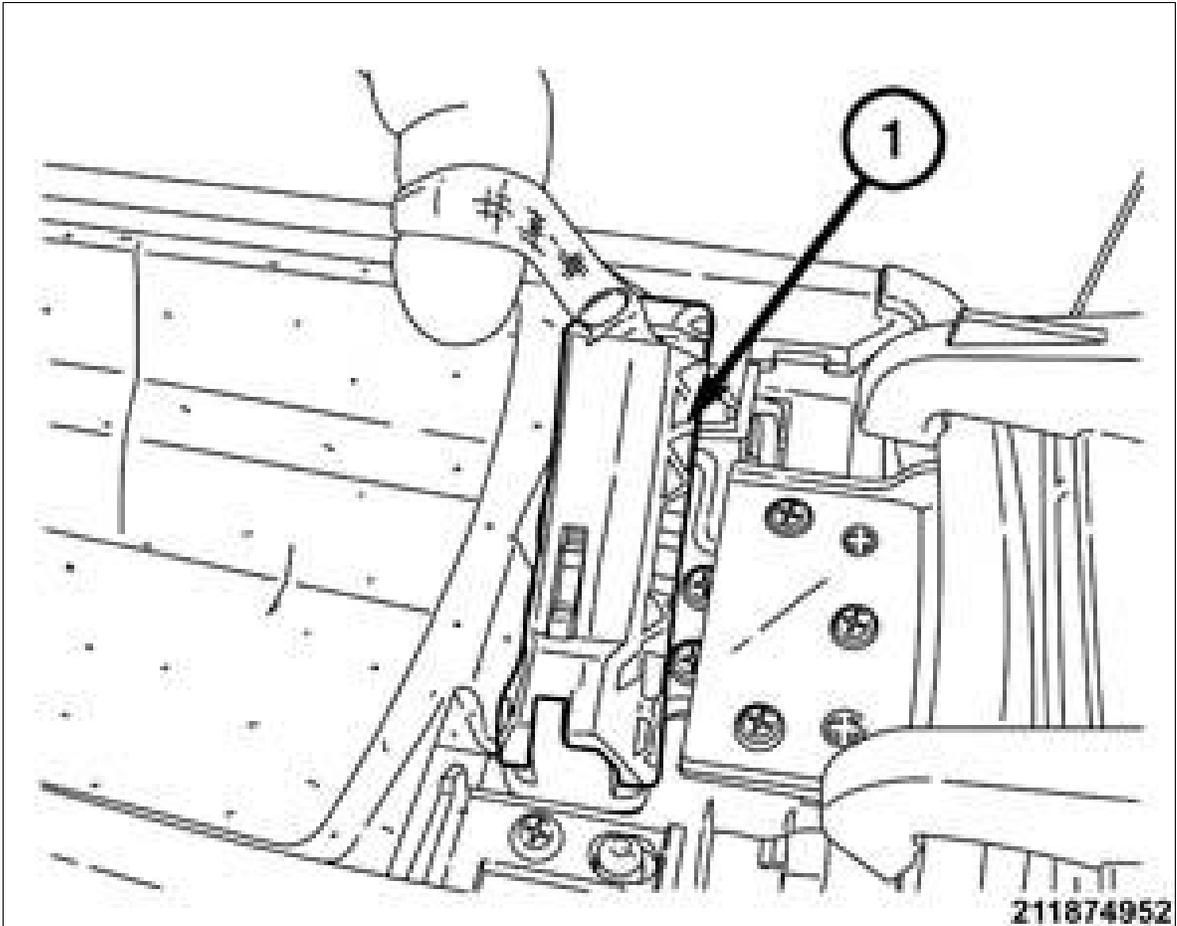
Fig 2: Small Screw Driver, Locking Tab & Lever



Courtesy of CHRYSLER GROUP, LLC

4. Using a small screw driver or similar, push the locking tab (1) to release the lever (2).

Fig 3: Lever



Courtesy of CHRYSLER GROUP, LLC

5. Pull the tether upward until the lever (1) locks in place. The vehicle is now in neutral.

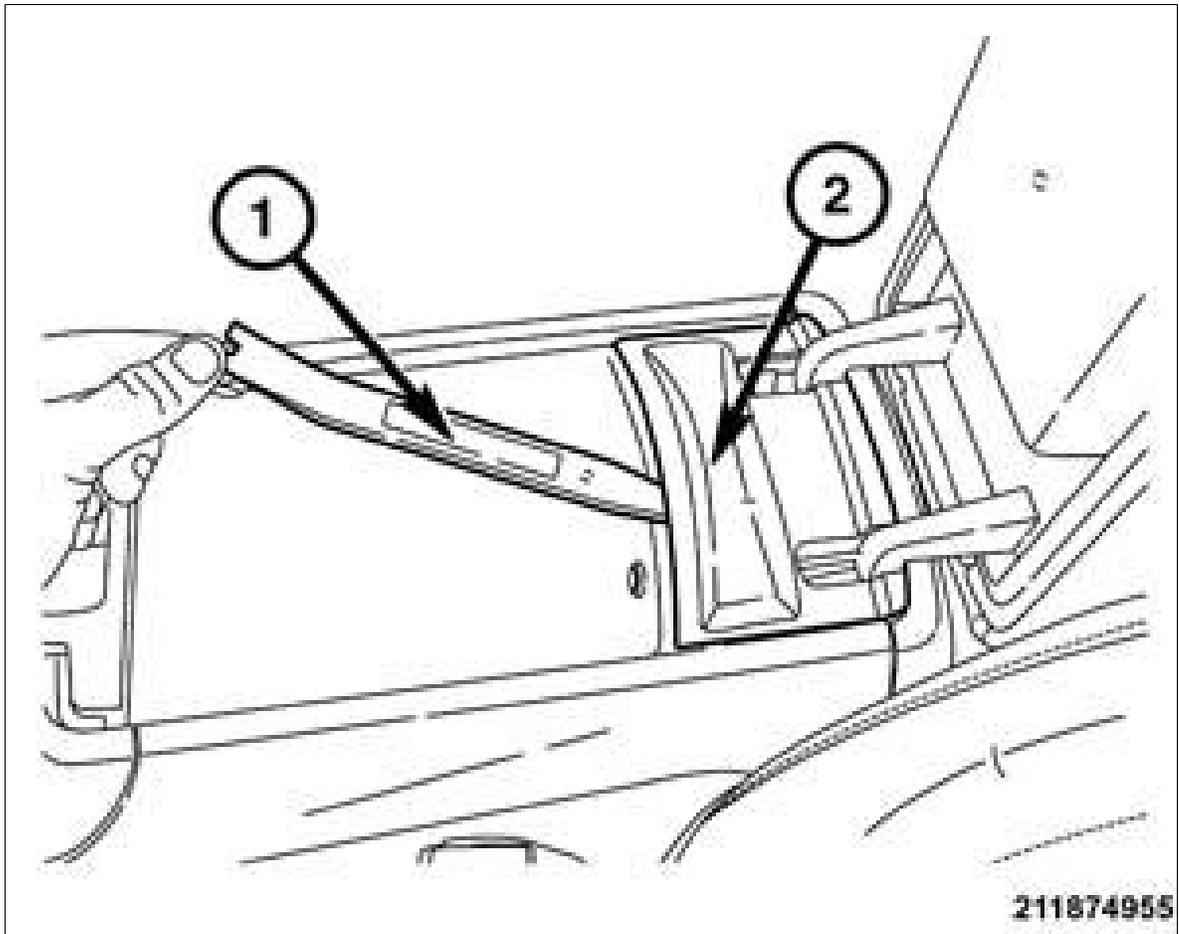
## SHIFTER, TRANSMISSION > STANDARD PROCEDURE > ENGAGE MANUAL PARK RELEASE (MPR)

**⊗ WARNING:**

*Always secure your vehicle by fully applying the parking brake, before activating the Manual Park Release. Activating the Manual Park Release will allow your vehicle to roll away if it is not secured by the parking brake or by proper connection to a tow vehicle. Activating the Manual Park Release on an unsecured vehicle could lead to serious injury or death for those in or around the vehicle.*

1. Pull the tether upward and push the lock tab (1) with a small screw driver or similar to release the lever (2).
2. Allow the lever to seat into position. Verify the lever is locked in position.

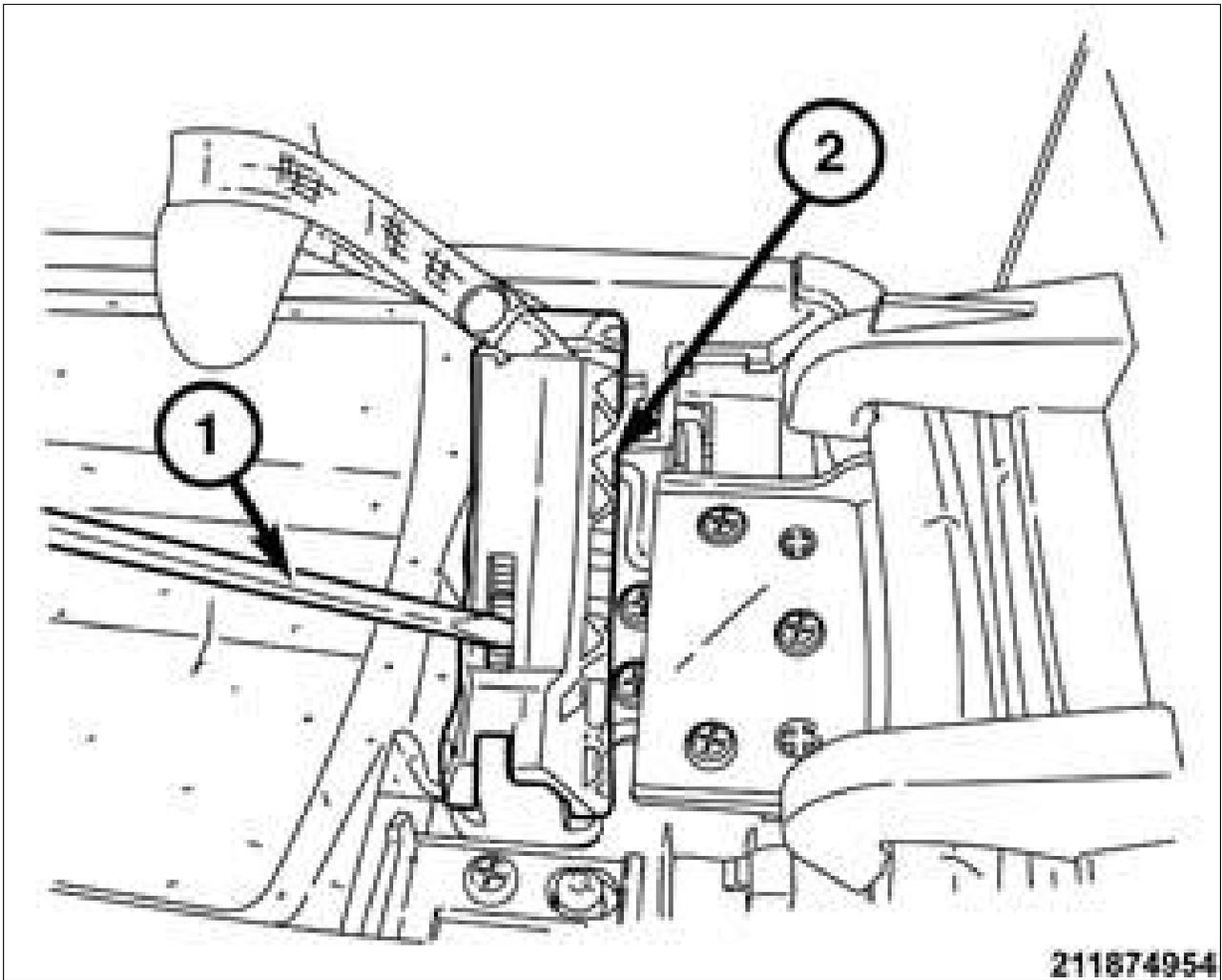
Fig 1: Trim Stick & Mechanical Park Release Cover



Courtesy of CHRYSLER GROUP, LLC

3. Install the Mechanical Park Release trim cover (2).
4. Verify that the transmission is in park.

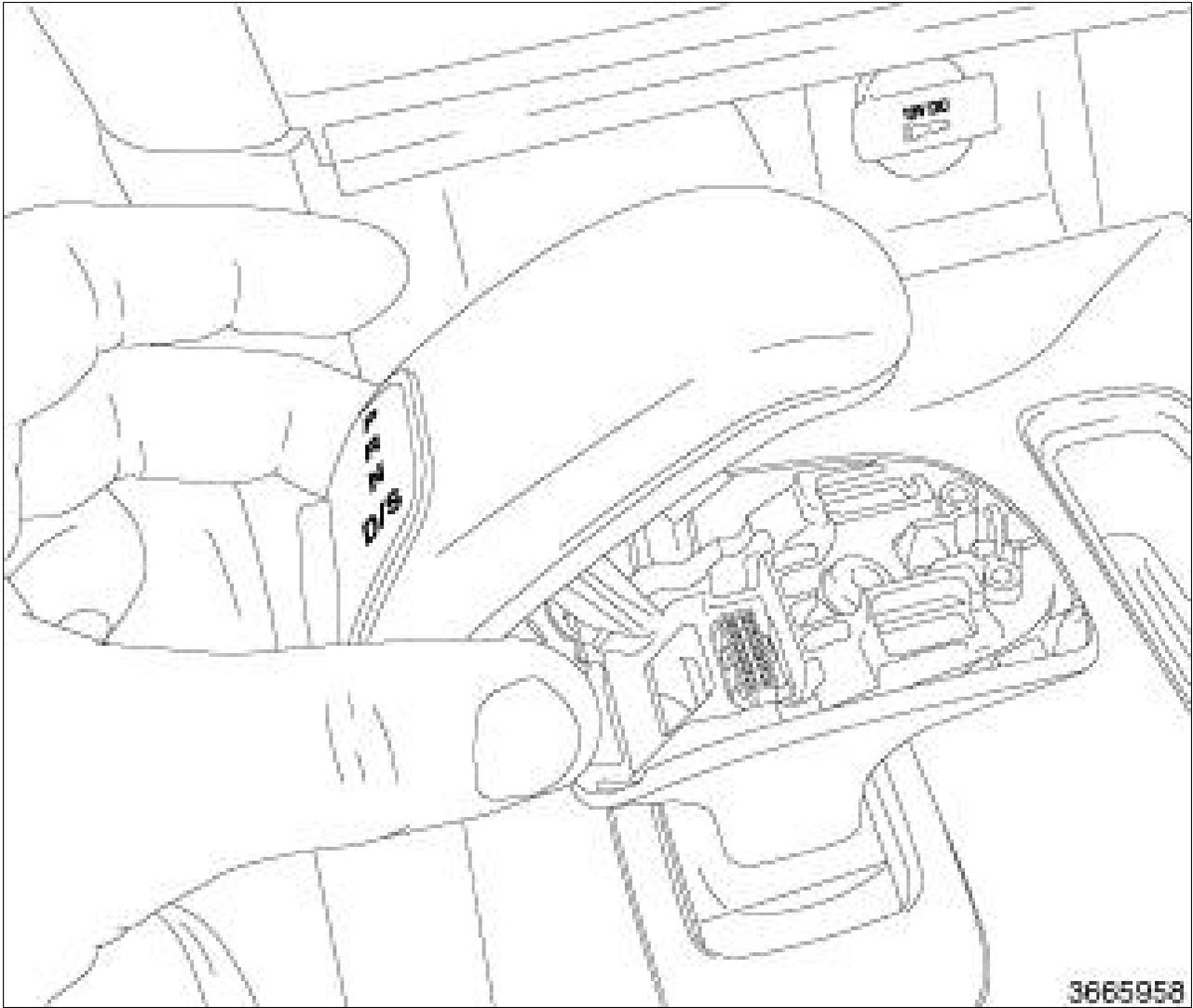
Fig 2: Lock Tab & Lever



Courtesy of CHRYSLER GROUP, LLC

**SHIFTER, TRANSMISSION > REMOVAL > REMOVAL**

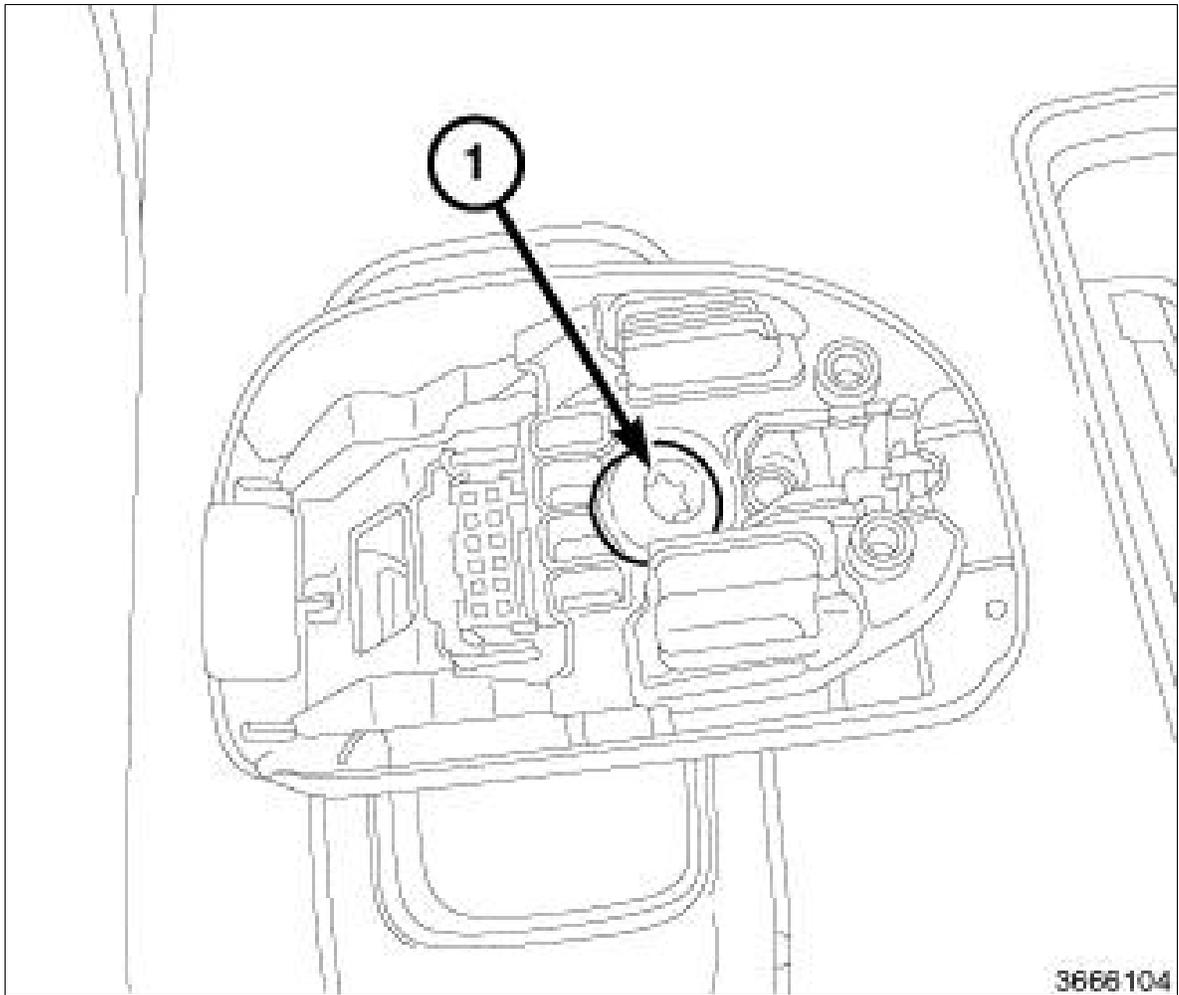
Fig 1: Upper Gear Shift Knob



Courtesy of CHRYSLER GROUP, LLC

1. Disconnect the battery negative cable.
2. Remove the upper gear shift knob.

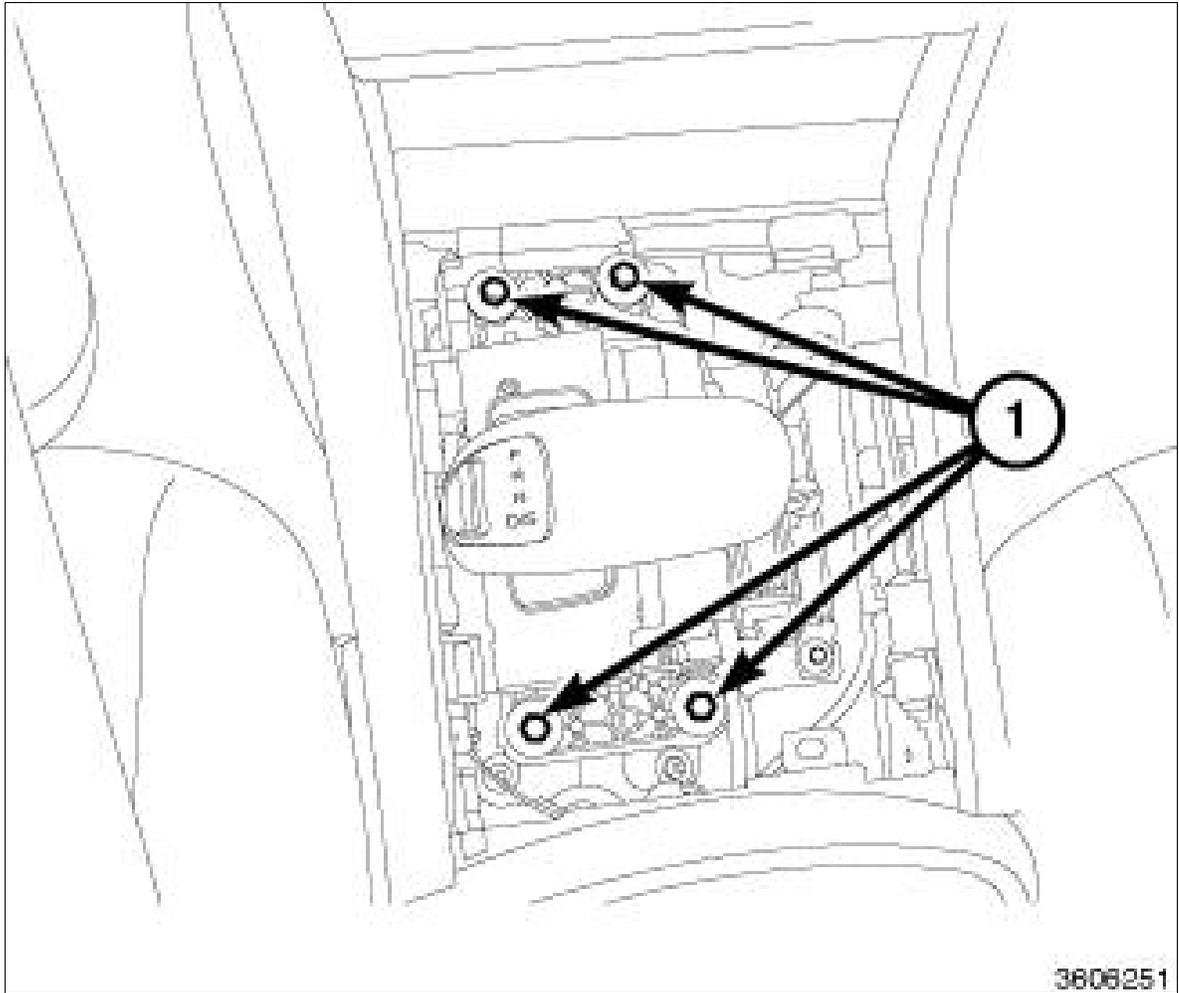
Fig 2: Screw



Courtesy of CHRYSLER GROUP, LLC

3. Remove the screw (1) then remove the lower knob/shroud.
4. Remove the shifter bezel.

Fig 3: Shift Mechanism Bolts

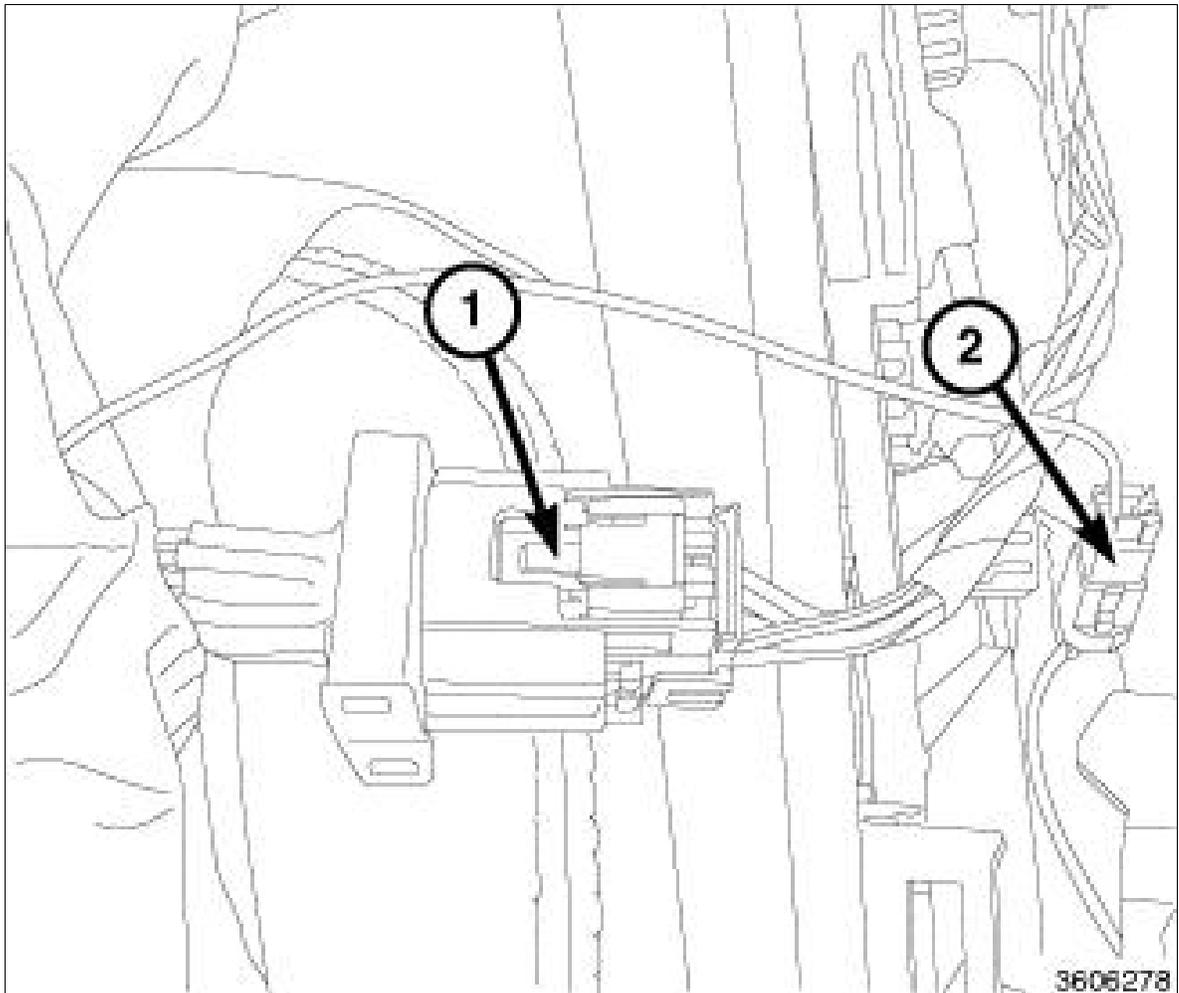


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Courtesy of CHRYSLER GROUP, LLC

5. Remove the shift mechanism bolts (1).

Fig 4: Two Electrical Connections

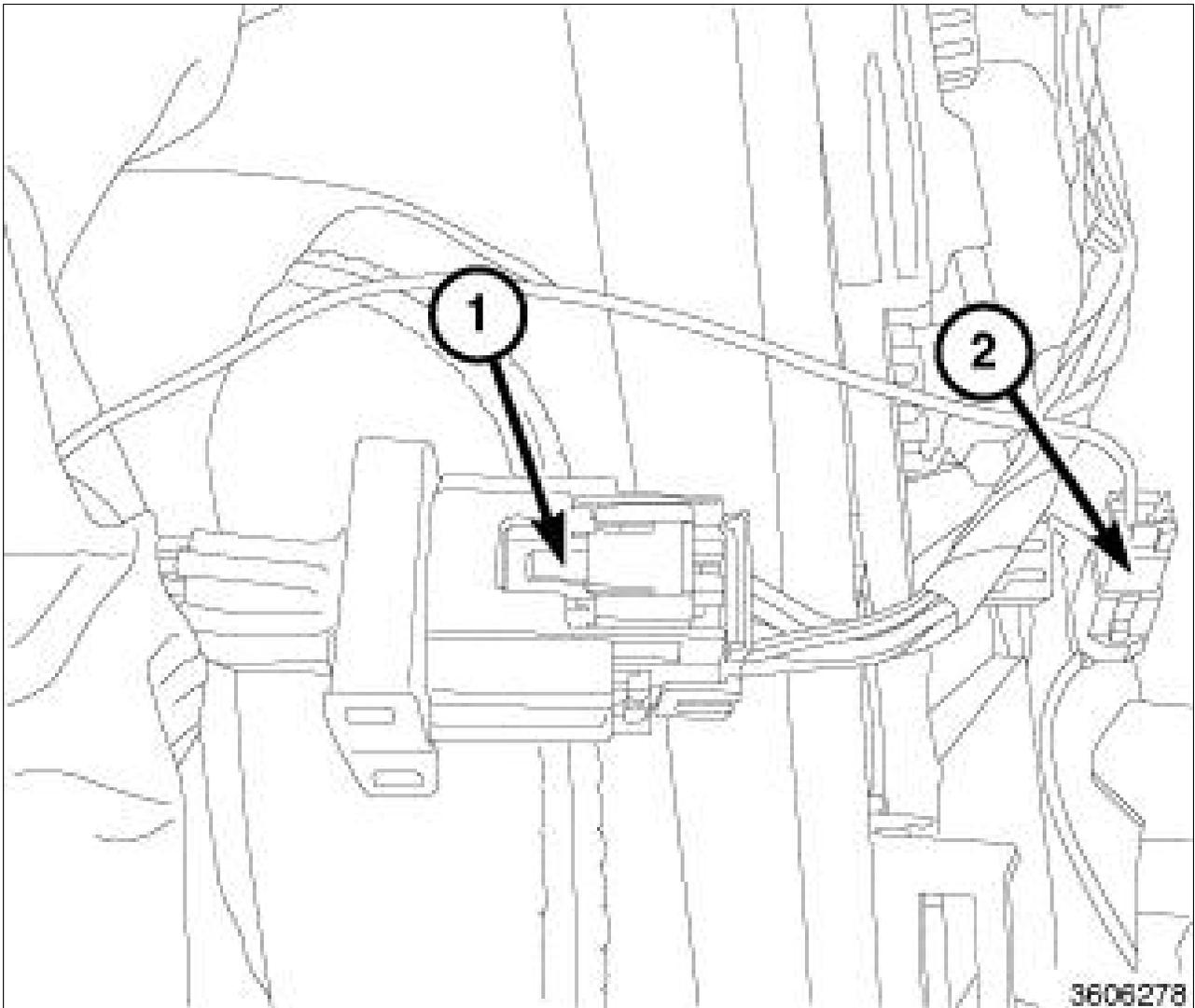


Courtesy of CHRYSLER GROUP, LLC

6. Disconnect the two electrical connections (1 & 2) prior to removing the shifter mechanism from the vehicle.

## SHIFTER, TRANSMISSION > INSTALLATION > INSTALLATION

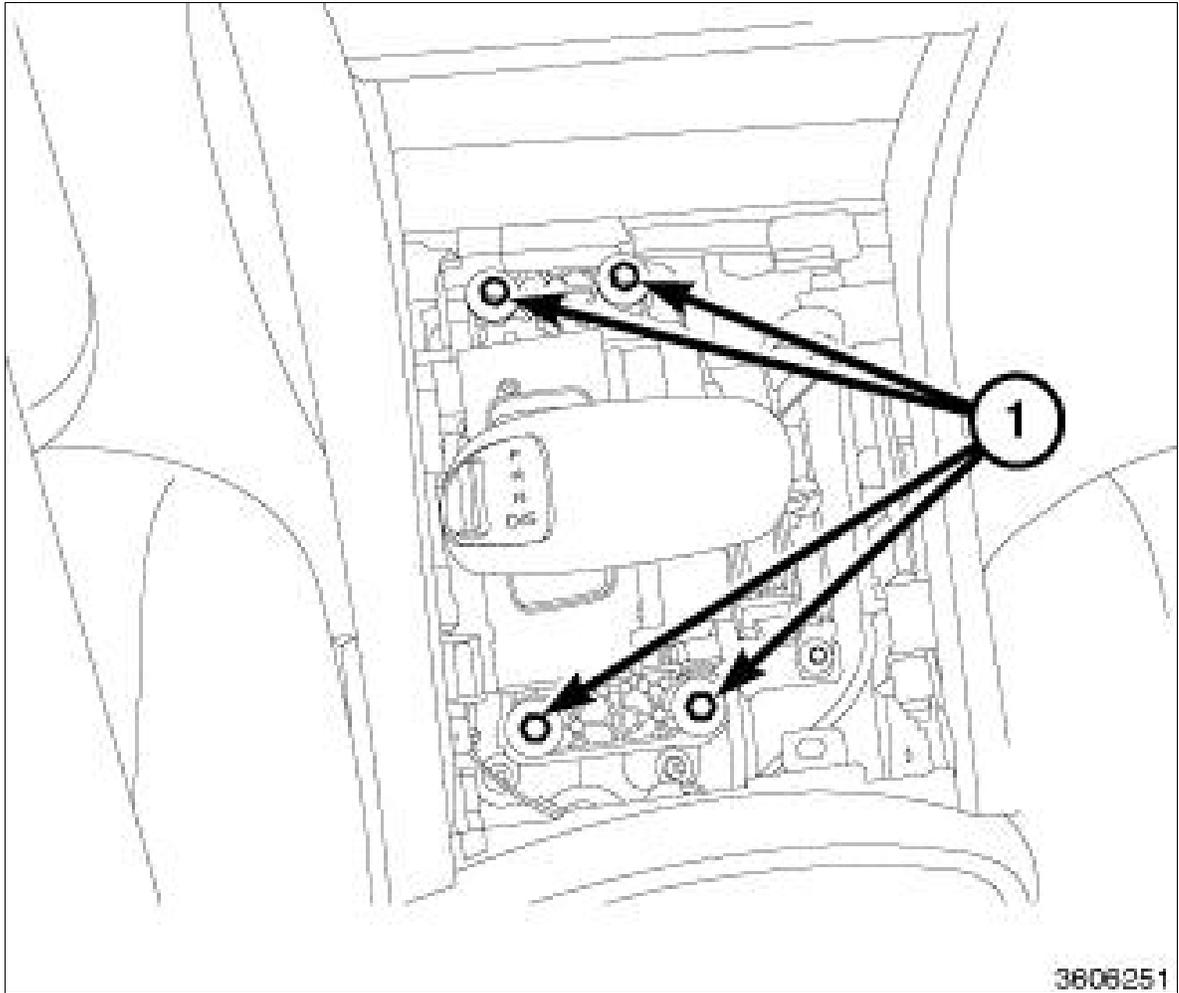
Fig 1: Two Electrical Connections



Courtesy of CHRYSLER GROUP, LLC

1. Connect the two electrical connections (1, 2) prior to installing the shifter mechanism to the vehicle.

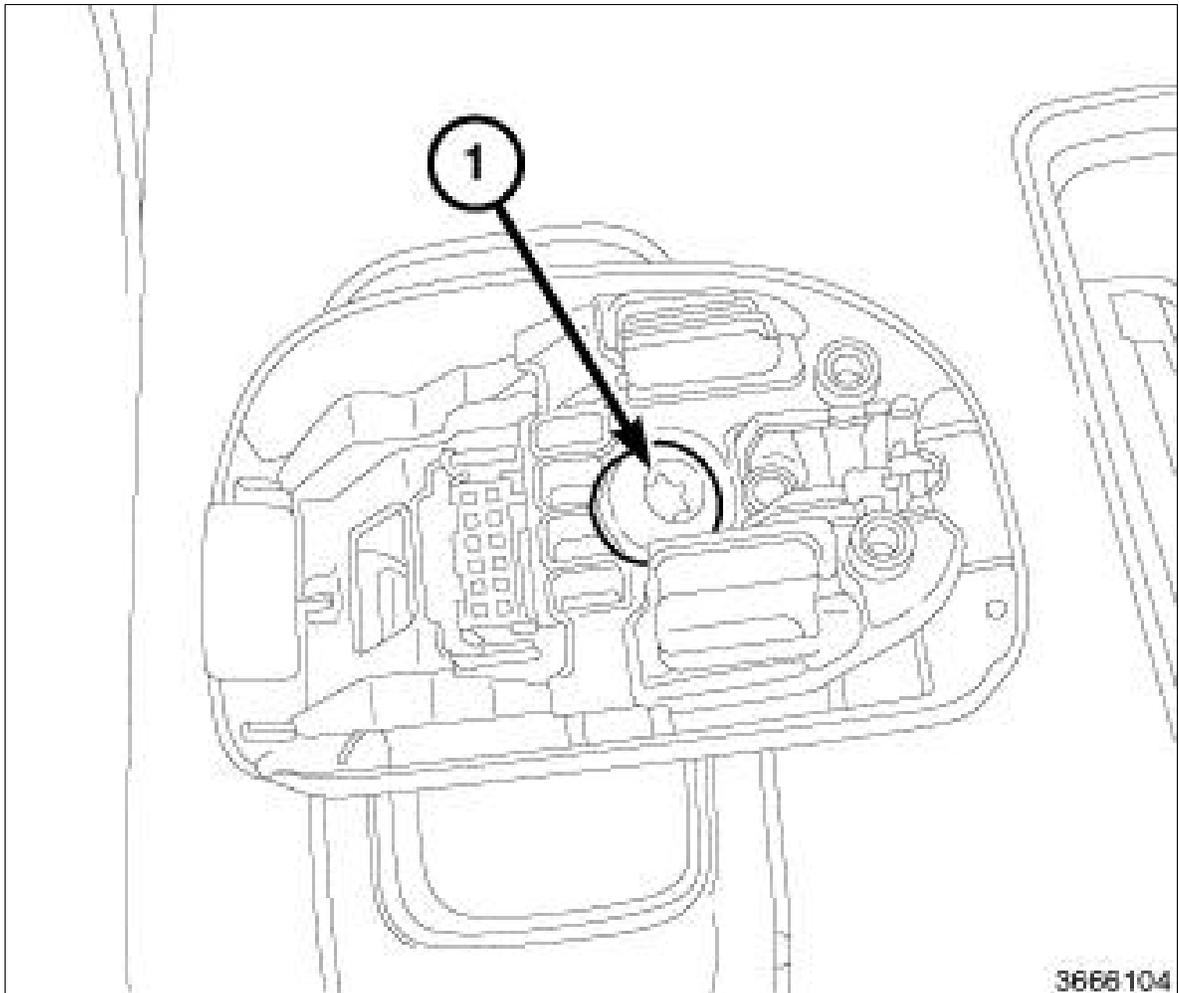
Fig 2: Shift Mechanism Bolts



Courtesy of CHRYSLER GROUP, LLC

2. Install the shift mechanism bolts (1), tighten to 7 N.m (65 lb in.).

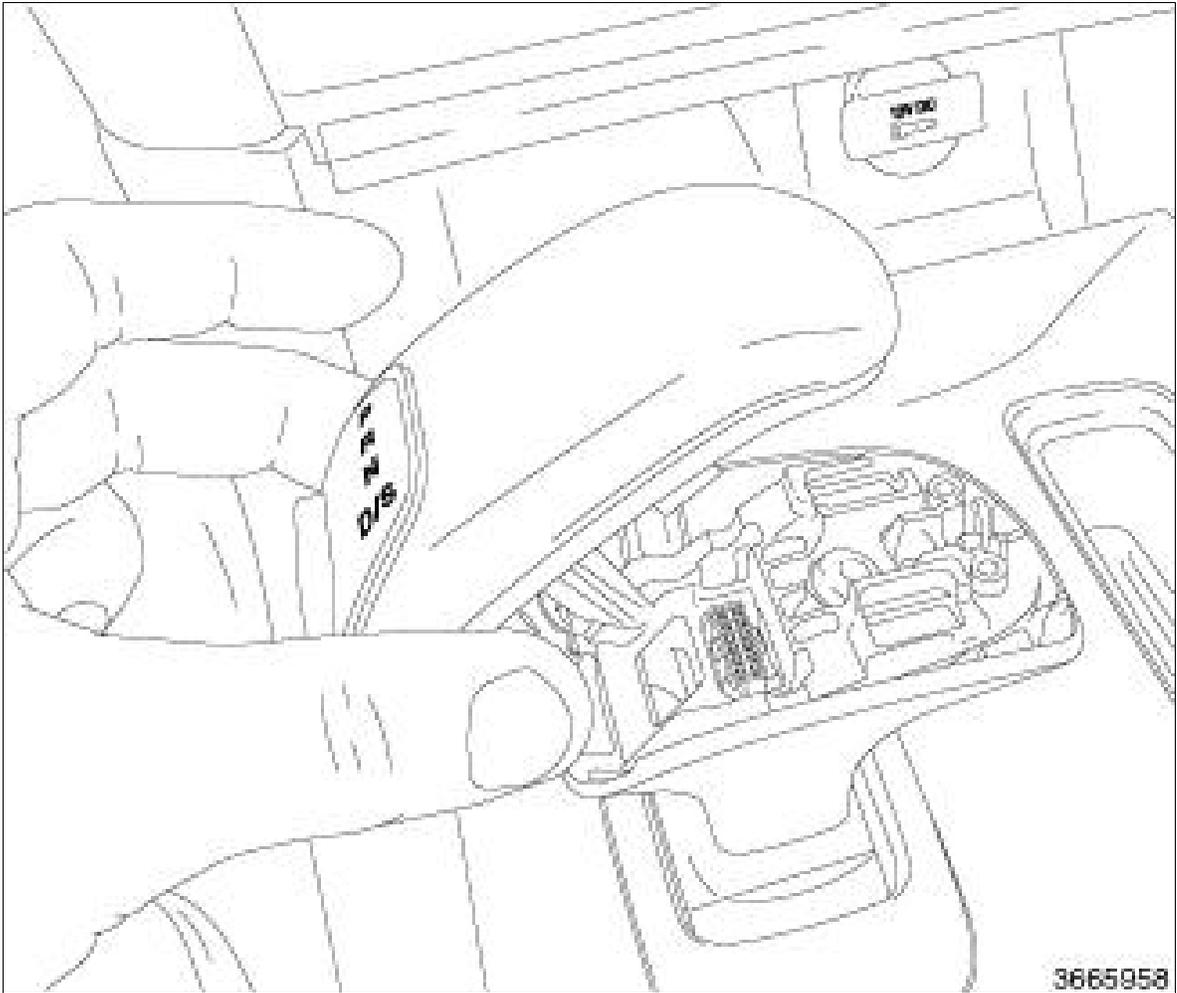
Fig 3: Screw



Courtesy of CHRYSLER GROUP, LLC

3. Install the shifter bezel.
4. Install the lower knob shroud.
5. Install the bolt (1), tighten to 7 N.m (65 lb in.).

Fig 4: Upper Gear Shift Knob

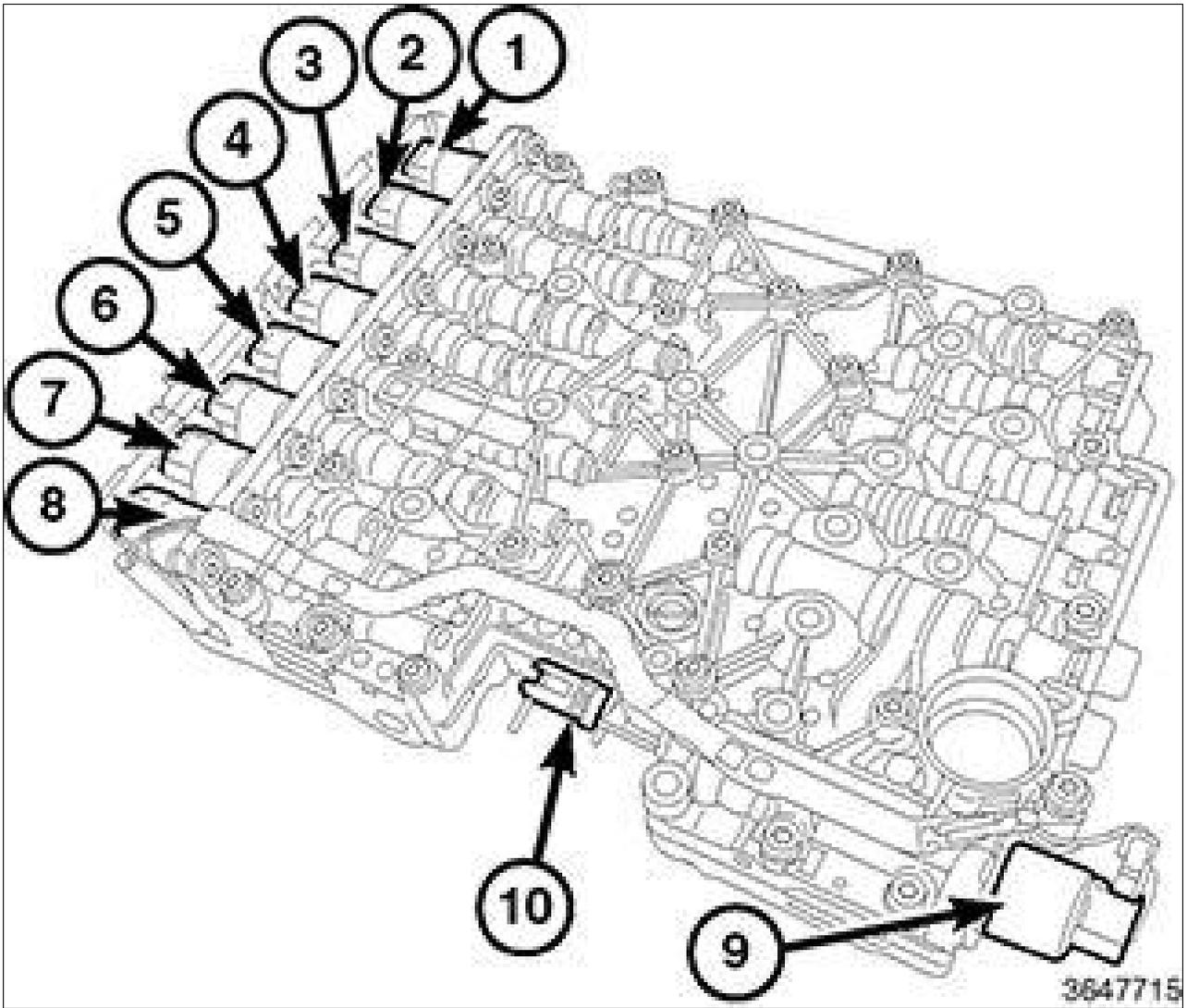


Courtesy of CHRYSLER GROUP, LLC

6. Install the upper gear shift knob.
7. Connect the battery negative cable.

**SOLENOID, TRANSMISSION > DESCRIPTION > DESCRIPTION**

Fig 1: Transmission Solenoids



Courtesy of CHRYSLER GROUP, LLC

1 - Solenoid A

2- Solenoid D

3 - Solenoid B

4 - Solenoid E

5 - Solenoid C

6 - TCC Solenoid

7 - Line Pressure Solenoid

8 - Park Release Solenoid

9 - Park Hold Mechanical Solenoid

10 - Park Release Mechanical Valve

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

The solenoids are integrated into the Transmission Control Module Assembly (TCMA) of the 8HP transmission and are not replaceable individually.

## **SOLENOID, TRANSMISSION > OPERATION > OPERATION**

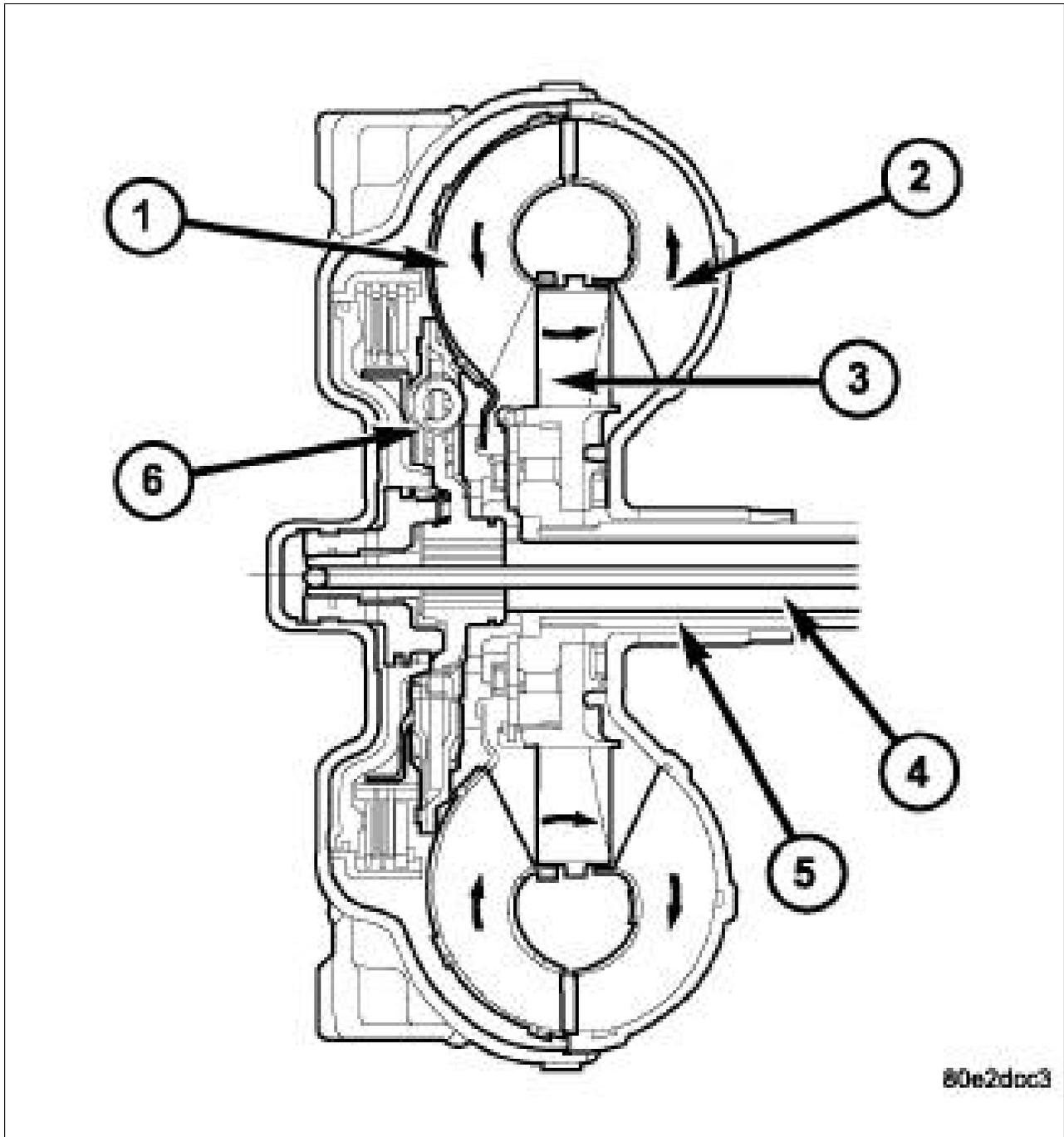
 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

The TCM will actuate the valves via solenoids based on the position of the shifter, transmission fluid temperature, engine operating conditions, traction conditions, and driver demands. During a shift, the TCM will actuate the solenoids to match the gear ranges to the optimal torque range of the engine based on the position of the accelerator pedal, shifter, and vehicle speed as determined by the PCM based on input from the Vehicle Speed Sensor (VSS) and ABS module.

## **TORQUE CONVERTER > DESCRIPTION > DESCRIPTION**

Fig 1: Torque Converter



Courtesy of CHRYSLER GROUP, LLC

1 - TURBINE
2 - IMPELLER
3 - STATOR
4 - INPUT SHAFT
5 - STATOR SHAFT
6 - TURBINE DAMPER

**⚠ CAUTION:**

*The torque converter must be replaced if a transmission failure resulted in large amounts of metal or fiber contamination in the fluid.*

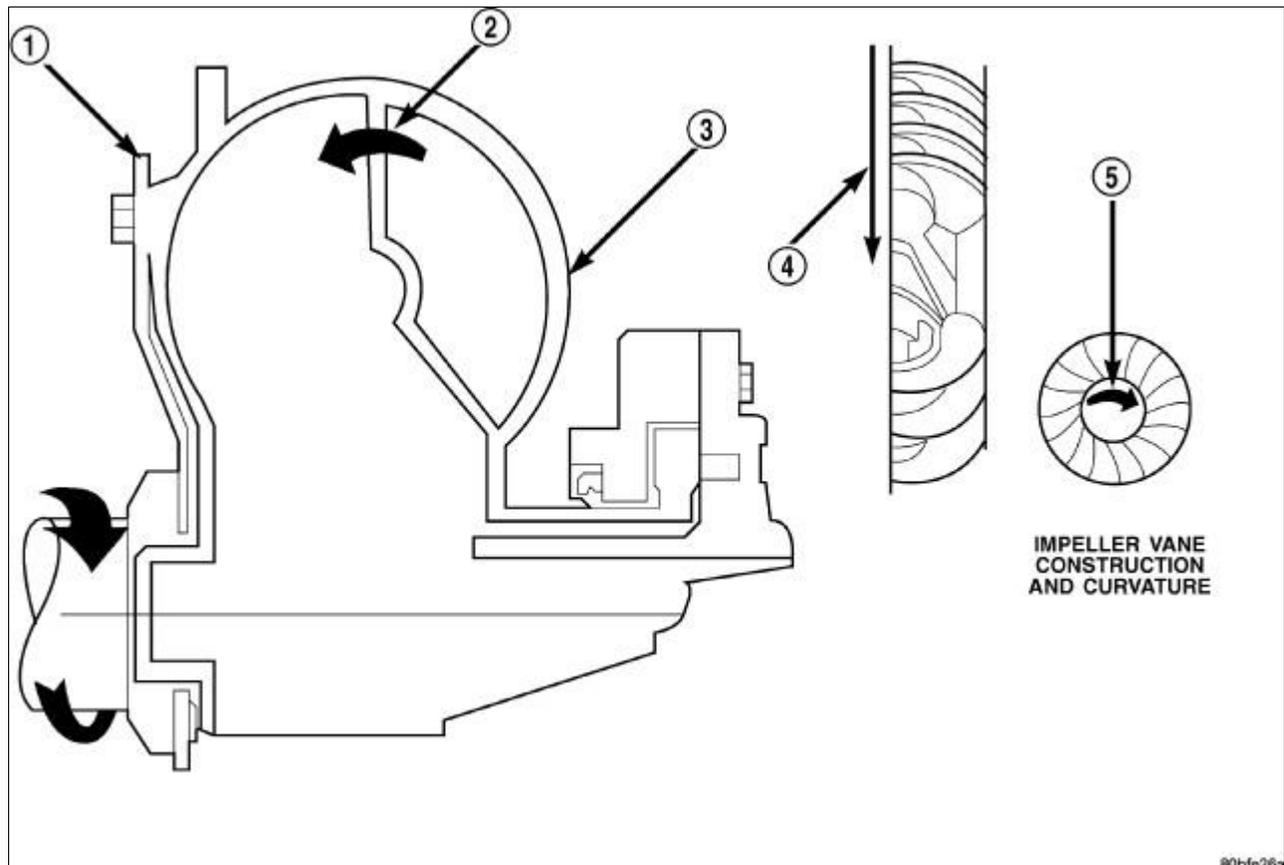
The torque converter is a hydraulic device that couples the engine crankshaft to the transmission. The torque converter consists of an outer shell with an internal turbine (1), a stator (3), an overrunning clutch, an impeller (2), and an electronically applied converter clutch. The converter clutch provides reduced engine speed and greater fuel economy when engaged. Clutch engagement also provides reduced transmission fluid temperatures. The converter clutch engages in third through fifth gears. The torque converter hub drives the transmission oil (fluid) pump.

A turbine damper (6) has been added for some applications to help improve vehicle Noise, Vibration, and Harshness (NVH) characteristics.

The torque converter is a sealed, welded unit that is not repairable and is serviced as an assembly.

## TORQUE CONVERTER > DESCRIPTION > DESCRIPTION > IMPELLER

Fig 1: Identifying Impeller



Courtesy of CHRYSLER GROUP, LLC

1 - ENGINE FLEXPLATE

2 - OIL FLOW FROM IMPELLER SECTION INTO TURBINE SECTION

3 - IMPELLER VANES AND COVER ARE INTEGRAL

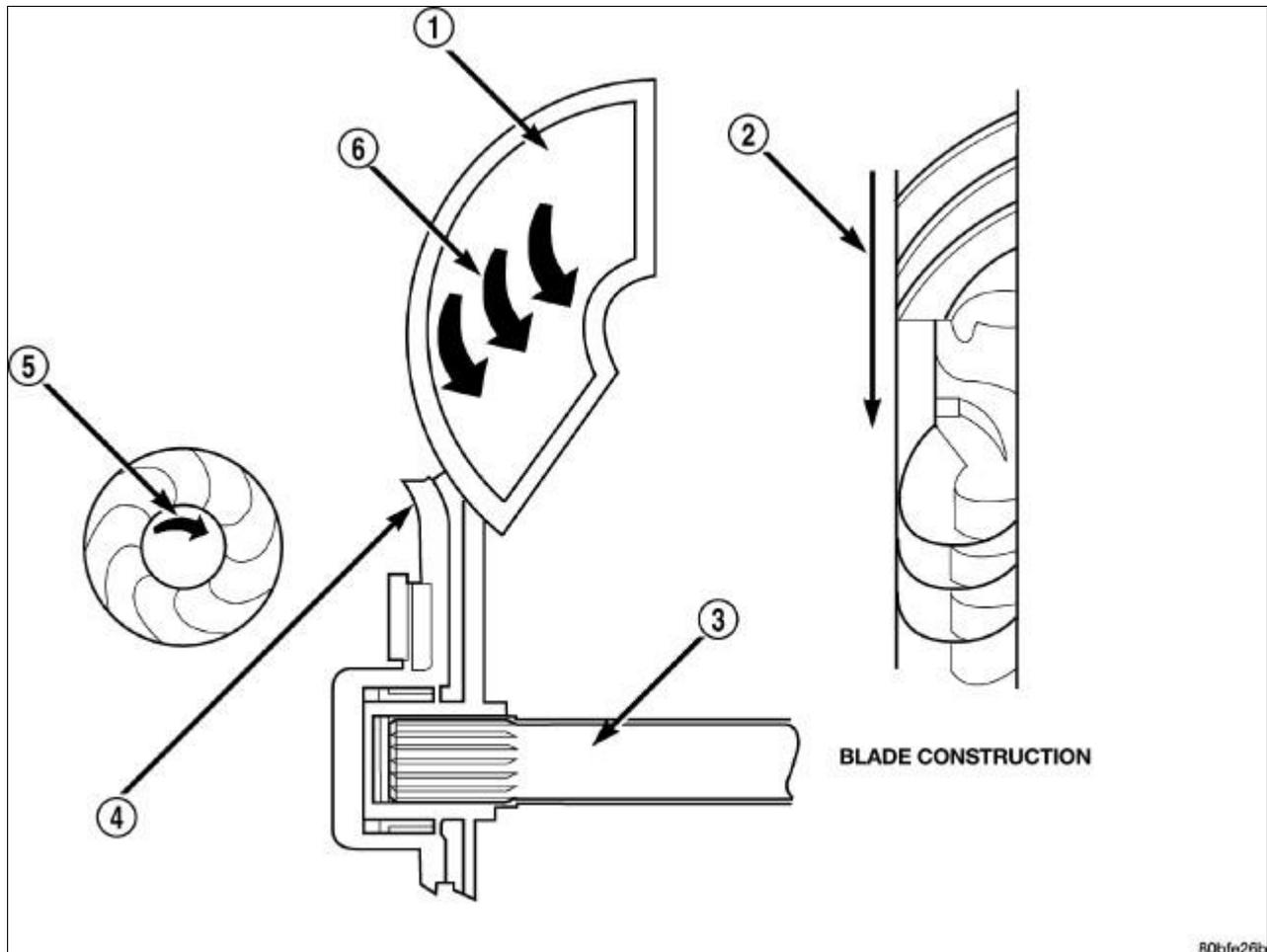
4 - ENGINE ROTATION

5 - ENGINE ROTATION

The impeller (3) is an integral part of the converter housing. The impeller consists of curved blades placed radially along the inside of the housing on the transmission side of the converter. As the converter housing is rotated by the engine, so is the impeller, because they are one and the same and are the driving members of the system.

## TORQUE CONVERTER > DESCRIPTION > DESCRIPTION > TURBINE

Fig 1: Identifying Turbine



Courtesy of CHRYSLER GROUP, LLC

1 - TURBINE VANE

2 - ENGINE ROTATION

3 - INPUT SHAFT

4 - PORTION OF TORQUE CONVERTER COVER

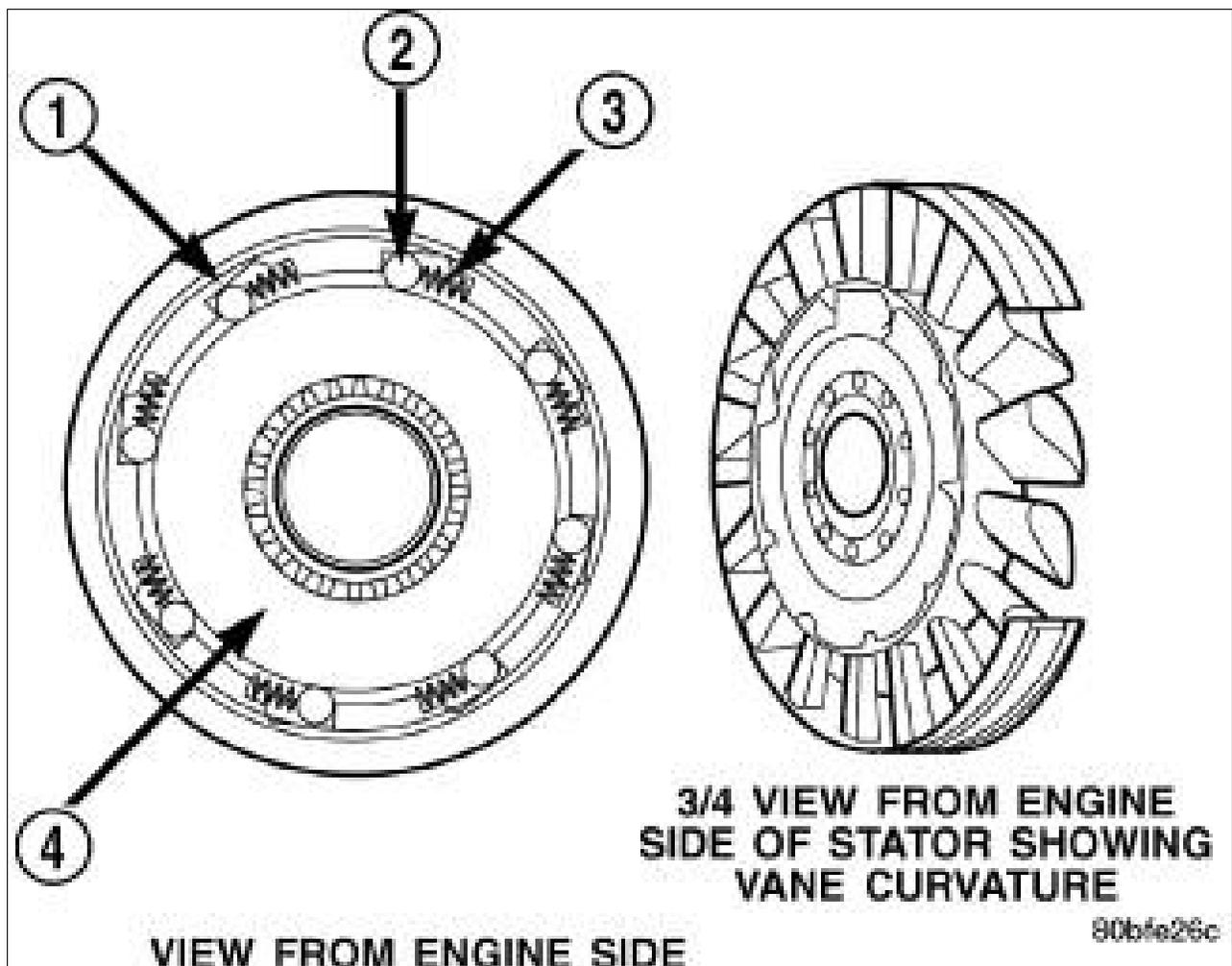
5 - ENGINE ROTATION

6 - OIL FLOW WITHIN TURBINE SECTION

The turbine (1) is the output, or driven, member of the converter. The turbine is mounted within the housing opposite the impeller, but is not attached to the housing. The input shaft is inserted through the center of the impeller and splined into the turbine. The design of the turbine is similar to the impeller, except the blades of the turbine are curved in the opposite direction.

## TORQUE CONVERTER > DESCRIPTION > DESCRIPTION > STATOR

Fig 1: Identifying Over-Running Clutch



Courtesy of CHRYSLER GROUP, LLC

1 - CAM (OUTER RACE)

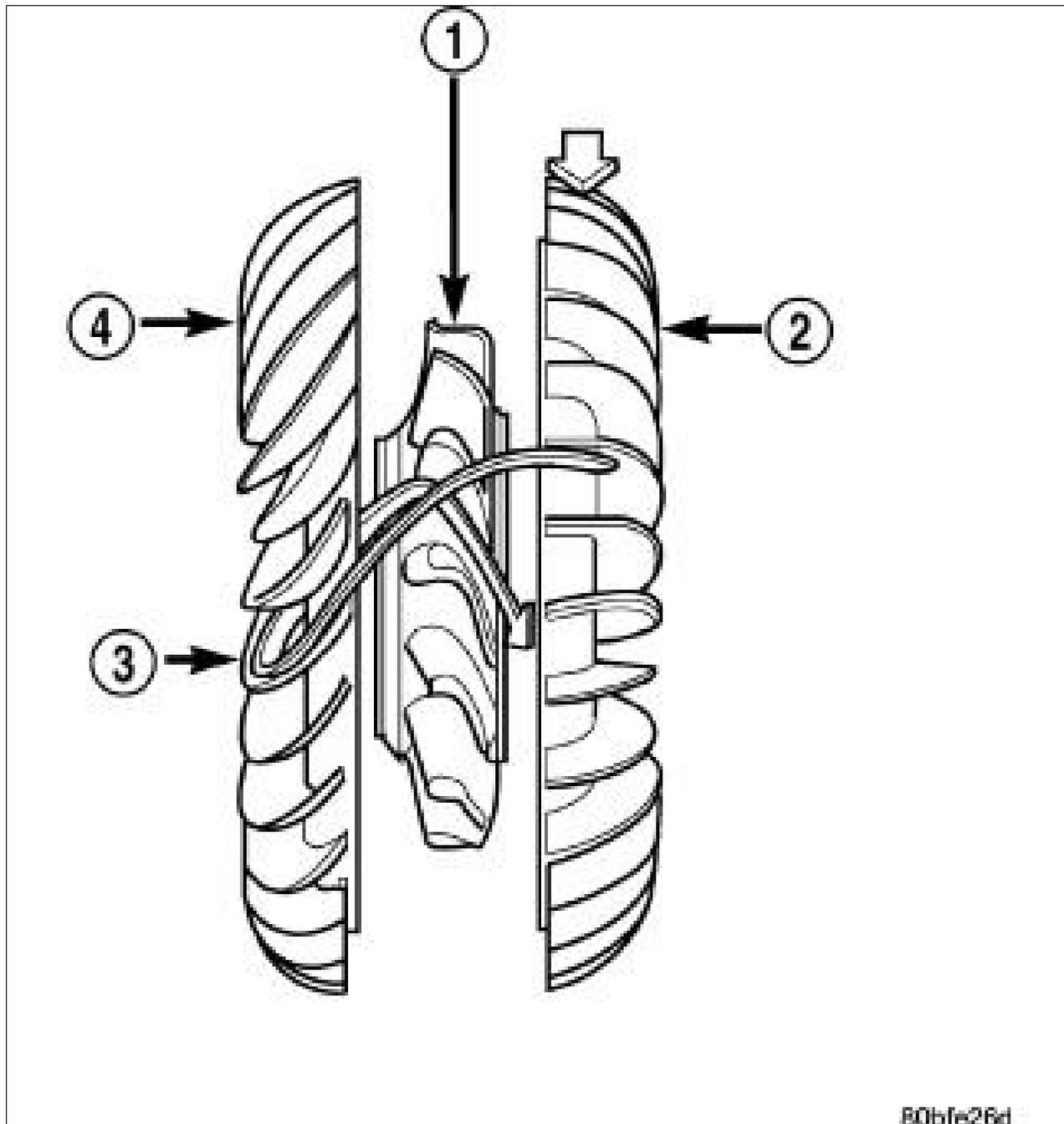
2 - ROLLER

3 - SPRING

#### 4 - INNER RACE

The stator assembly (1-4) is mounted on a stationary shaft which is an integral part of the oil pump.

Fig 2: Identifying Stator Components



Courtesy of CHRYSLER GROUP, LLC

1 - STATOR

2 - IMPELLER

3 - FLUID FLOW

4 - TURBINE



1 - TURBINE
2 - IMPELLER
3 - STATOR
4 - INPUT SHAFT
5 - STATOR SHAFT
6 - PISTON
7 - COVER SHELL
8 - INTERNALLY TOOTHED DISC CARRIER
9 - CLUTCH PLATE SET
10 - EXTERNALLY TOOTHED DISC CARRIER
11 - TURBINE DAMPER

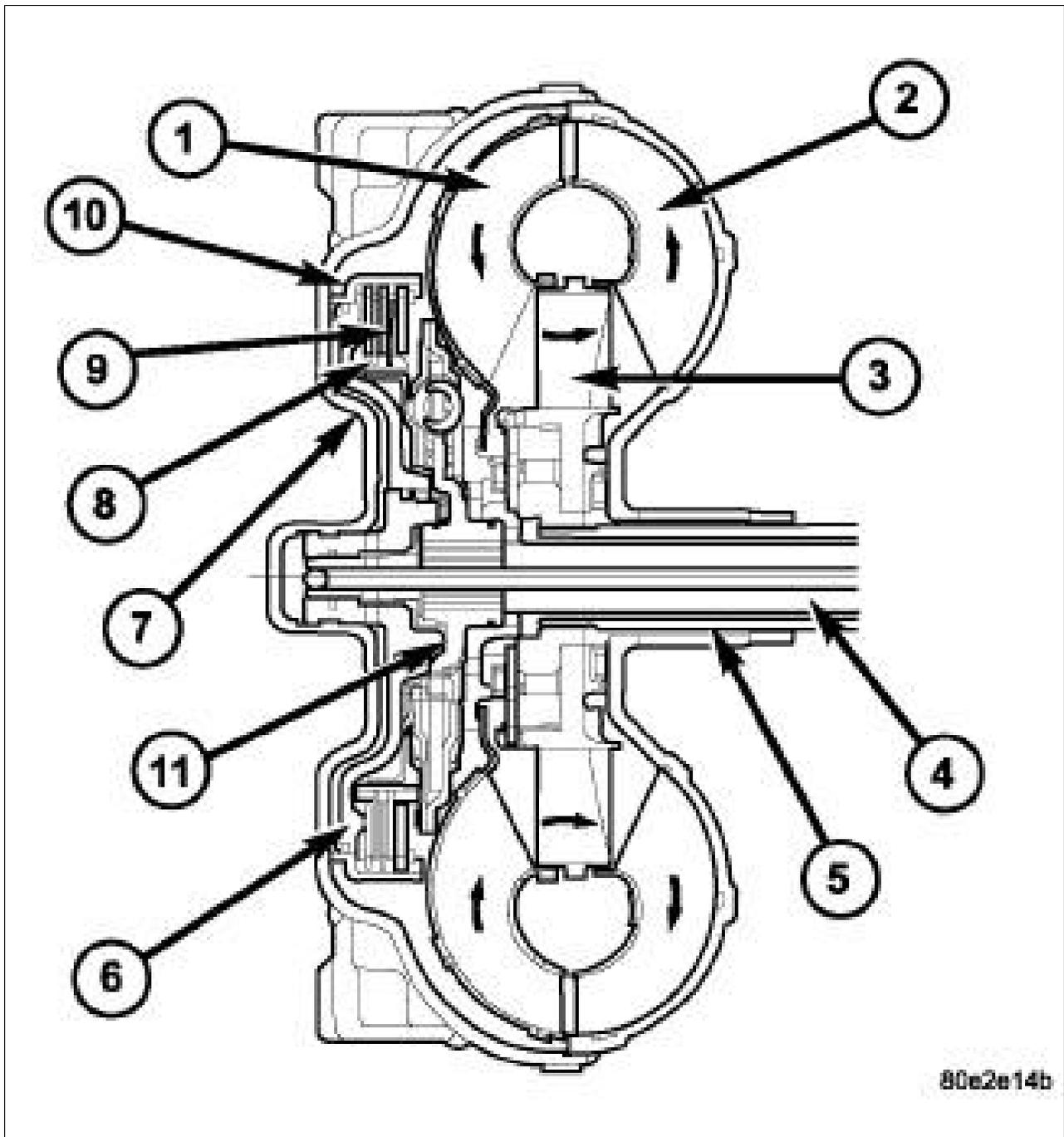
The TCC (9) was installed to improve the efficiency of the torque converter that is lost to the slippage of the fluid coupling. Although the fluid coupling provides smooth, shock-free power transfer, it is natural for all fluid couplings to slip. If the impeller and turbine were mechanically locked together, a zero slippage condition could be obtained. A hydraulic piston with friction material was added to the turbine assembly to provide this mechanical lock-up.

In order to reduce heat build-up in the transmission and buffer the powertrain against torsional vibrations, the TCM can duty cycle the torque converter lock-up solenoid to achieve a smooth application of the torque converter clutch. This function, referred to 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
- Input speed
- Throttle angle
- Engine speed

**TORQUE CONVERTER > OPERATION > OPERATION**

Fig 1: Identifying Torque Converter Components



Courtesy of CHRYSLER GROUP, LLC

1 - TURBINE
2 - IMPELLER
3 - STATOR
4 - INPUT SHAFT
5 - STATOR SHAFT
6 - PISTON

7 - COVER SHELL
8 - INTERNALLY TOOTHED DISC CARRIER
9 - CLUTCH PLATE SET
10 - EXTERNALLY TOOTHED DISC CARRIER
11 - TURBINE DAMPER

The torque converter housing has a unique shape to incorporate the Torque Converter Clutch (TCC) and flex plate connection. The torque converter uses the typical turbine, impeller and stator assemblies found in a standard torque converter assembly. The torque converter drives the pump through the splines on the inside of the hub. The torque converter uses a multi-disc torque converter clutch system that improves the durability and the holding pressure in the lock-up circuit. The torque converter incorporates a turbine dampening system. This system suppresses torsional vibrations from the engine to ensure optimal shift quality and reduce noise and vibration concerns.

**TCC RELEASE** When the TCC is open, the TCC piston is pushed to its default position by torque converter chamber pressure. The Torque Converter Switch Valve (SV-TC) provides pressure for torque converter operation which has been regulated by the Torque Converter Pressure Regulating Valve (TC-V). After exiting the torque converter, fluid moves into the cooling and lubrication circuits. The converter pressure retention valve (TCH1-V) ensures the torque converter pressure is a minimum of 0.35 bar (5 psi) when the TCC is open.

**TCC APPLY** When the TCC solenoid is energized, fluid is directed to the torque converter switch valve (SV-TC) and TCC lockup valve (TCC-V). The TCC lockup valve directs fluid to the TCC and torque converter chamber. The torque converter switch valve directs fluid exiting the converter chamber to a secondary pressure retention valve (TCH2-V) which is calibrated to retain 1.0 bar (14.5 psi) of pressure in the converter. The torque converter switch valve also directs line pressure to the cooler and lubrication circuit.

## TORQUE CONVERTER > OPERATION > OPERATION > TURBINE

When the fluid that was put into motion by the impeller blades strikes the blades of the turbine, some of the energy and rotational force is transferred into the turbine and the input shaft. This causes both of them (turbine and input shaft) to rotate in a clockwise direction following the impeller. As the fluid is leaving the trailing edges of the turbine's blades it continues in a "hindering" direction back toward the impeller. If the fluid is not redirected before it strikes the impeller, it will strike the impeller in such a direction that it would tend to slow it down.

## TORQUE CONVERTER > OPERATION > OPERATION > STATOR

Torque multiplication is achieved by locking the stator's over-running clutch to its shaft. Under stall conditions (the turbine is stationary), the oil leaving the turbine blades strikes the face of the stator blades and tries to rotate them in a counterclockwise direction. When this happens the over-running clutch of the stator locks and holds the stator from rotating. With the stator locked, the oil strikes the stator blades and is redirected into a "helping" direction before it enters the impeller. This circulation of oil from impeller to turbine, turbine to stator, and stator to impeller, can produce a maximum torque multiplication of about 2.0:1. As the turbine begins to match the speed of the impeller, the fluid that was hitting the stator in such a way as to cause it to lock-up is no longer doing so. In this condition of

operation, the stator begins to free wheel and the converter acts as a fluid coupling

## **TORQUE CONVERTER > OPERATION > OPERATION > TORQUE CONVERTER CLUTCH (TCC)**

In a standard torque converter, the impeller (2) and turbine are rotating at about the same speed and the stator (3) is freewheeling, providing no torque multiplication. By applying the turbine's piston and friction material (9) a total converter engagement can be obtained. The result of this engagement is a direct 1:1 mechanical link between the engine and the transmission.

### **HYDRO-MECHANICAL AND ELECTRICAL**

The Torque Converter Clutch (TCC) is engaged and released by the Transmission Control Module Assembly (TCMA). The TCC can be engaged and controlled in any forward gear from 1 through 8. In addition, the 8HP transmission incorporates a neutral idle control (NIC) function. Instead of the engine continuing to drive the converter when the vehicle comes to rest, the converter is partially disconnected from the driveline so only a slight residual load remains. Decoupling of the torque converter during NIC is accomplished by allowing clutch B to slip.

## **TORQUE CONVERTER > REMOVAL > REMOVAL**

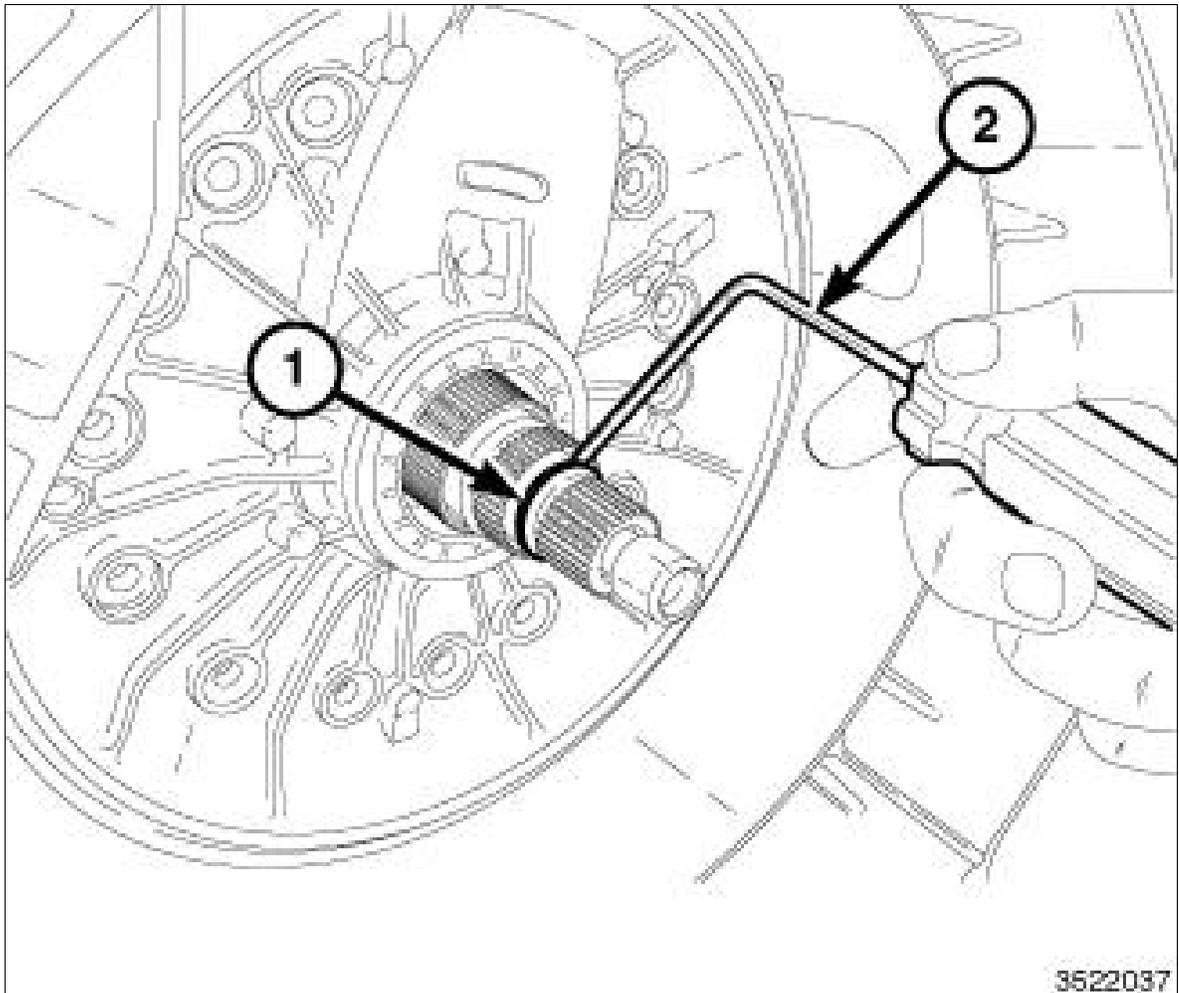
1. Remove the transmission from the vehicle. Refer to REMOVAL .
2. Place a suitable drain pan under the torque converter housing end of the transmission.

 **CAUTION:**

*Verify that transmission is secure on the lifting device or work surface, the center of gravity of the transmission will shift when the torque converter is removed creating an unstable condition. The torque converter is a heavy unit. Use caution when separating the torque converter from the transmission.*

3. Pull the torque converter forward until the center hub clears the oil pump seal.
4. Separate the torque converter from the transmission.

Fig 1: Input Shaft O-Ring & Small Pick



Courtesy of CHRYSLER GROUP, LLC

5. Check the input shaft O-ring (1) for damage, replace if necessary.

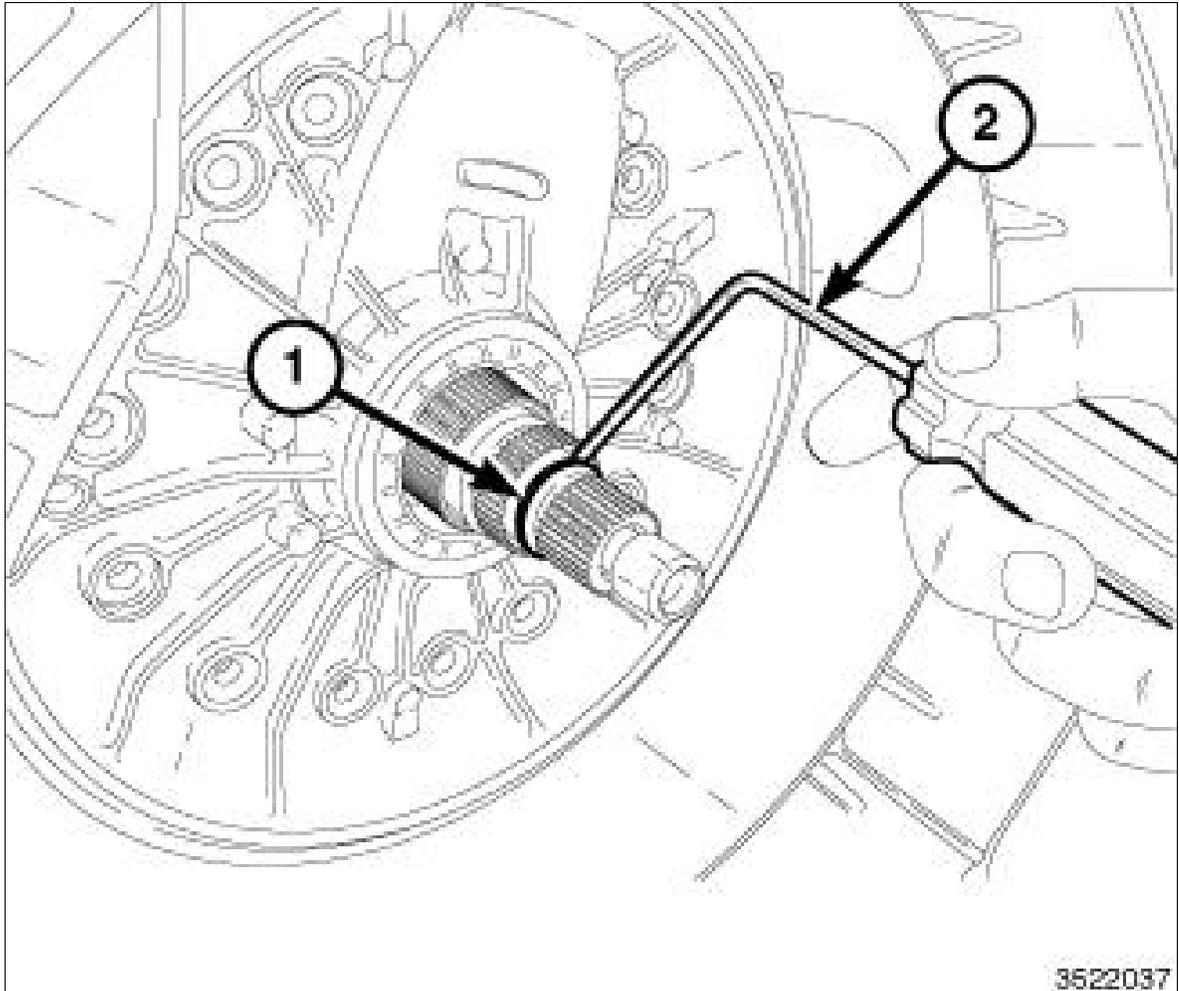
## TORQUE CONVERTER > INSTALLATION > INSTALLATION

 **NOTE:**

*Check the torque converter hub for sharp edges, burrs, scratches, or nicks. Polish the hub with 320/400 grit paper or crocus cloth if necessary. The hub must be smooth to avoid damaging the pump seal at installation.*

1. Lubricate the oil pump seal lip with transmission fluid.

Fig 1: Input Shaft O-Ring & Small Pick



Courtesy of CHRYSLER GROUP, LLC

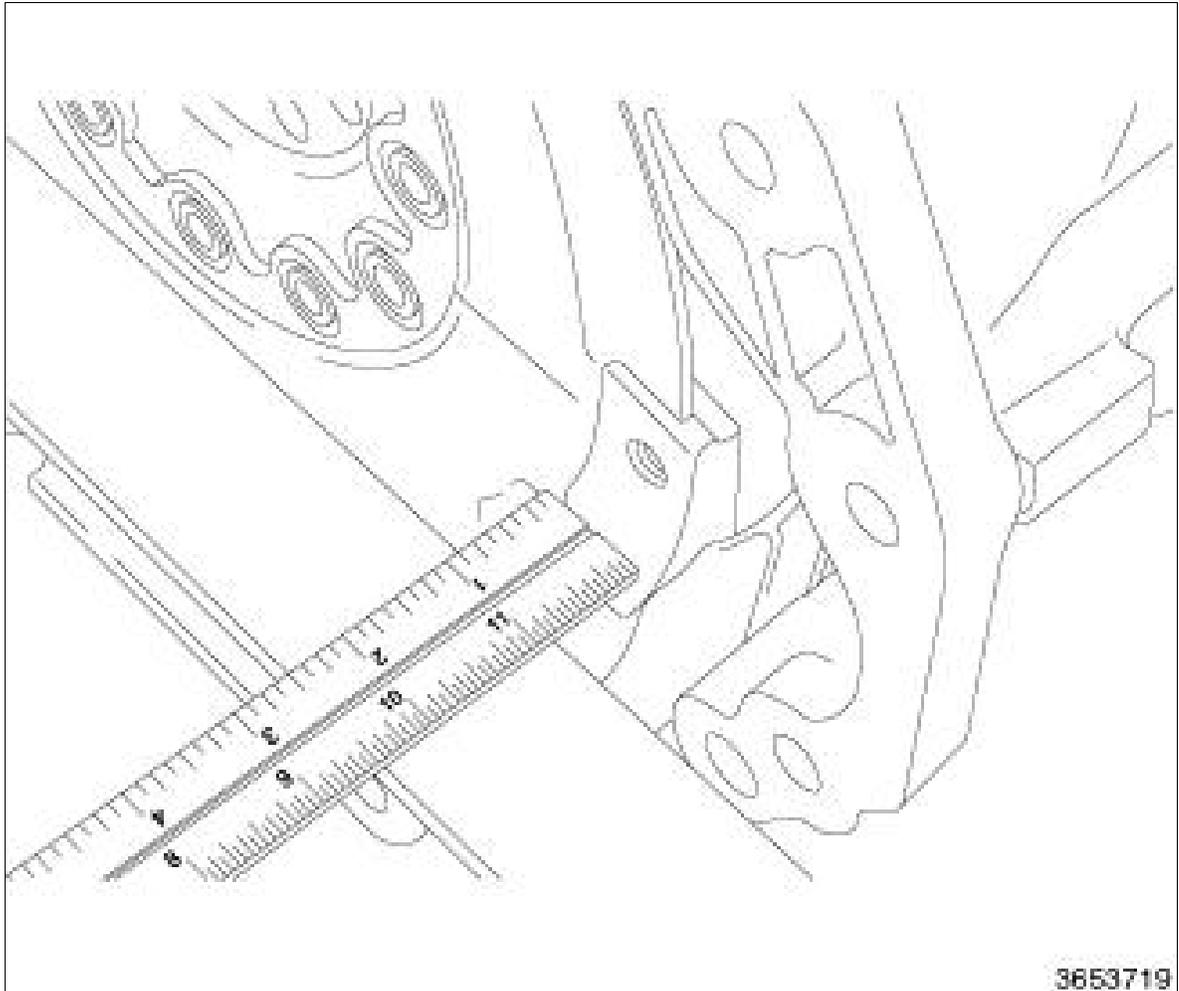
2. Check the input shaft O-ring (1) for any damage. Replace if necessary.
3. Place the torque converter in position on the transmission.

**⚠ CAUTION:**

*Do not damage oil pump seal or converter hub while inserting torque converter into the front of the transmission.*

4. Align the torque converter to the oil pump seal opening.
5. Insert the torque converter hub into the oil pump drive gear.
6. While pushing the torque converter inward, rotate the torque converter until the torque converter is fully seated into the oil pump drive gear.

Fig 2: Straightedge



Courtesy of CHRYSLER GROUP, LLC

7. Check the torque converter seating with a scale and straightedge. The surface of the torque converter lugs should be at least 19 mm (3/4 in.) to the rear of the straightedge when the torque converter is fully seated.
8. If necessary, temporarily secure the torque converter with a C-clamp attached to the torque converter housing.
9. Install the transmission in the vehicle . Refer to INSTALLATION .
10. Fill the transmission . Refer to FLUID AND FILTER, STANDARD PROCEDURE .

## VALVE BODY > DESCRIPTION > DESCRIPTION

 **CAUTION:**

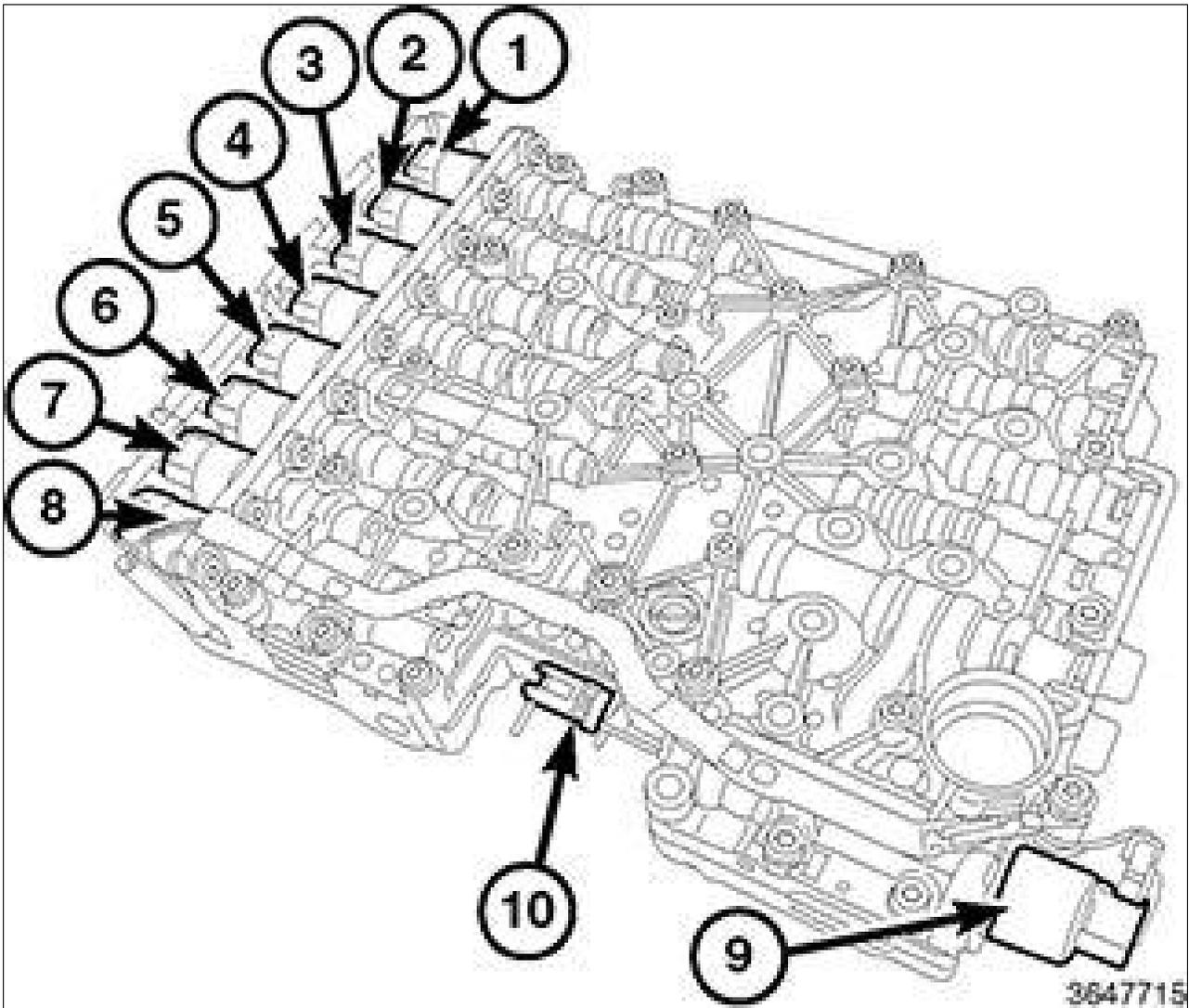
*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE*

DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.

The valve body includes the Transmission Control Module (TCM), all solenoids and sensors, and can be referred to as the Transmission Control Module Assembly (TCMA). The TCM is attached to the valve body between the transmission case and the valve body. If any component of the valve body **including the TCM** sensors or solenoids need replaced, the complete TCMA (valve body) must be replaced. For replacement of the TCMA (valve body), refer to VALVE BODY, REMOVAL .

## VALVE BODY > OPERATION > 8-SPEED TCM OPERATION

Fig 1: Transmission Solenoids



Courtesy of CHRYSLER GROUP, LLC

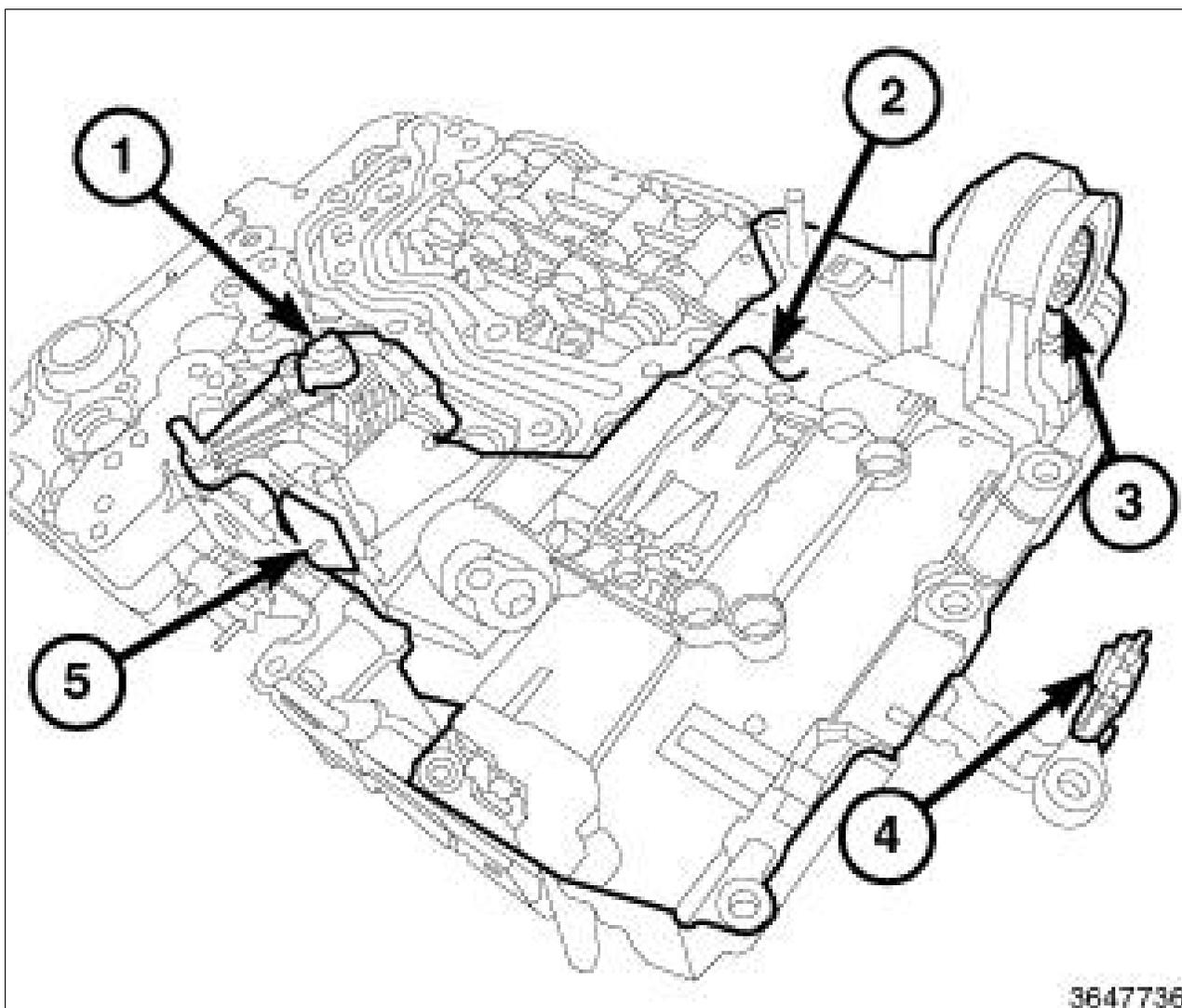
1 - Solenoid A

2- Solenoid D

3 - Solenoid B

- 4 - Solenoid E
- 5 - Solenoid C
- 6 - TCC Solenoid
- 7 - Line Pressure Solenoid
- 8 - Park Release Solenoid
- 9 - Park Hold Mechanical Solenoid
- 10 - Park Release Mechanical Valve

Fig 2: Input Speed Sensor, Output Speed Sensor, TCM (Includes Transmission Temperature Sensor) & Park Position Sensor



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Courtesy of CHRYSLER GROUP, LLC

- 1 - Input Speed Sensor
- 2 - TCM (Includes Transmission Temperature Sensor)
- 3 - External Wire Harness Connector

4 - Output Speed Sensor

5 - Park Position Sensor

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

The valve body, which includes the Transmission Control Module (TCM), controls the delivery and pressure of transmission fluid. The TCM is integrated into the valve body. The TCM regulates the amount of hydraulic pressure used to engage the clutches and the Torque Converter Clutch (TCC), in addition to directing hydraulic pressure to engage or release any given clutch for any given required gear. The TCM will actuate the valves via solenoids based on the position of the shifter, transmission fluid temperature, engine operating conditions, traction conditions and driver demands. During a shift, the TCM will actuate the solenoids to match the gear ranges to the optimal torque range of the engine based on the position of the accelerator pedal, shifter and vehicle speed as determined by the PCM based on input from the Vehicle Speed Sensor (VSS) and ABS module. Due to the complexity of the 8HP45 transmission control system, always refer to the transmission electrical/electronic diagnostics in this service information when attempting to diagnose transmission problems.

If the Transmission Control Module Assembly (TCMA) is replaced, it **must** be programmed and a drive learn needs to be performed before returning the vehicle to the customer. For programming and drive learn procedures, refer to MODULE PROGRAMMING .

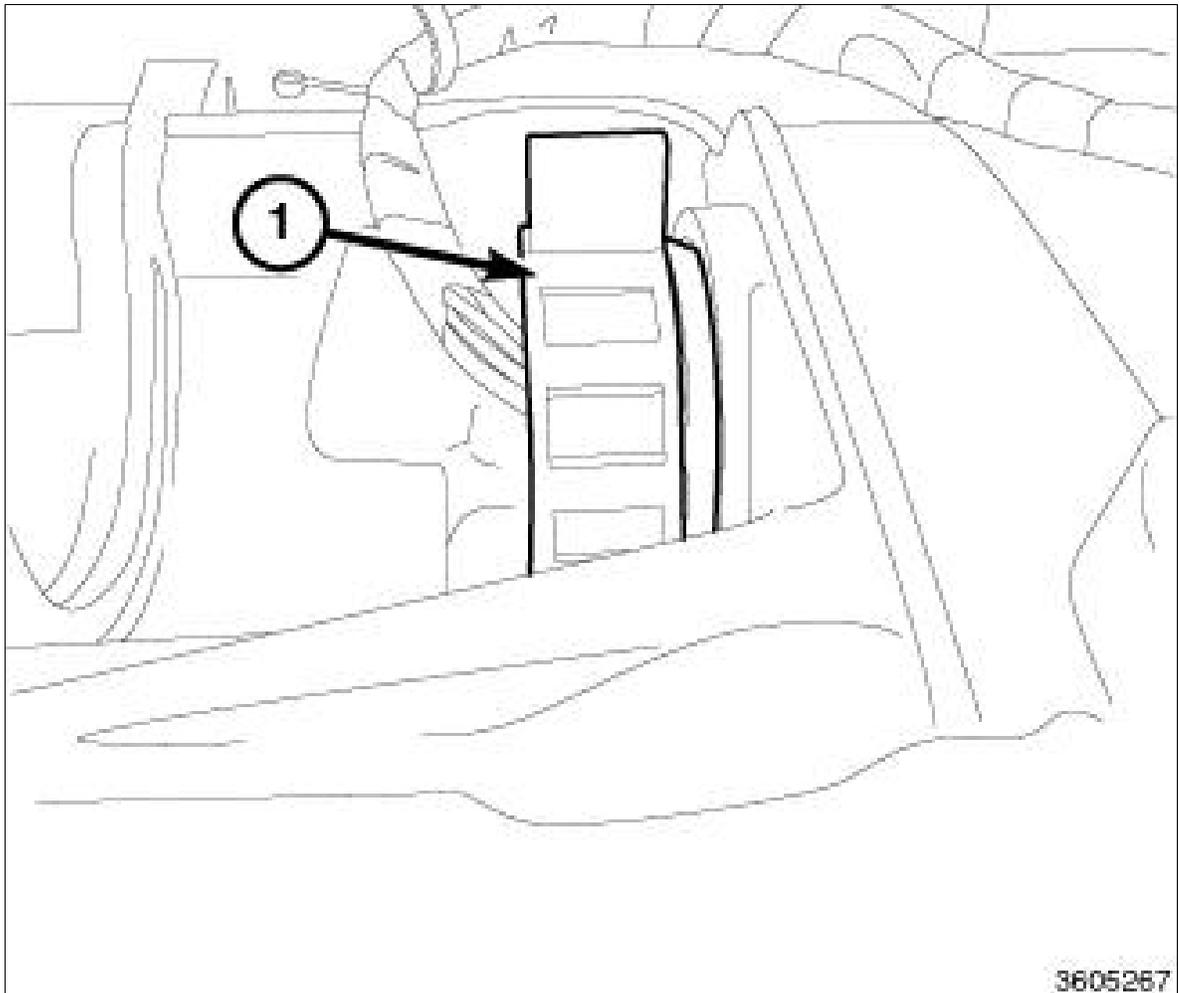
## VALVE BODY > REMOVAL > REMOVAL

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.*

1. Disconnect and isolate the negative battery cable.
2. Raise and support the vehicle. Refer to HOISTING, STANDARD PROCEDURE .
3. Drain the transmission fluid into a clean container. Refer to FLUID AND FILTER, STANDARD PROCEDURE .

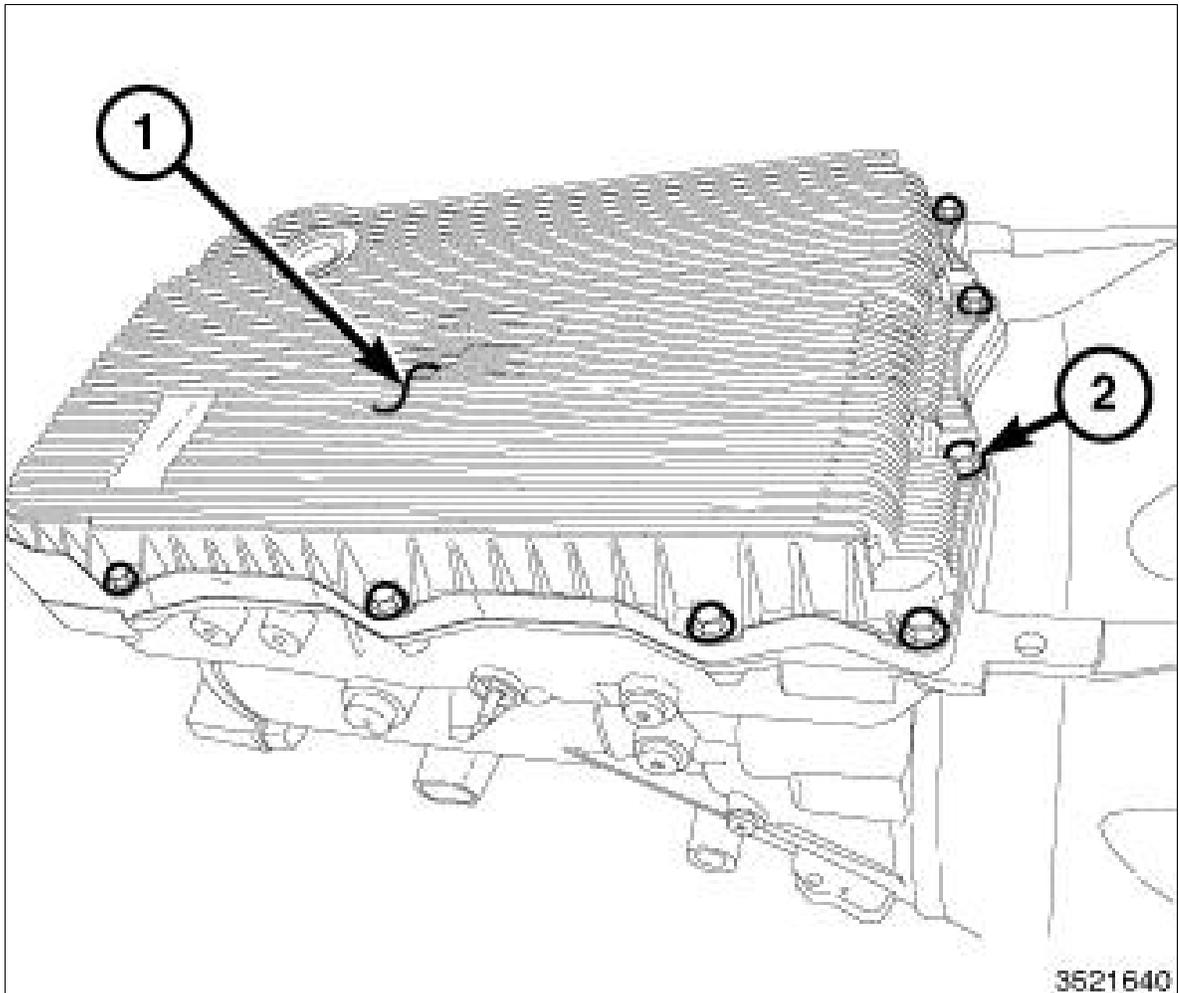
Fig 1: Adapter Plug Connector



Courtesy of CHRYSLER GROUP, LLC

4. Turn the locking mechanism lock (1) of the adapter plug counter-clockwise and disconnect the connector from the transmission.

Fig 2: Thirteen Oil Pan Retaining Bolts



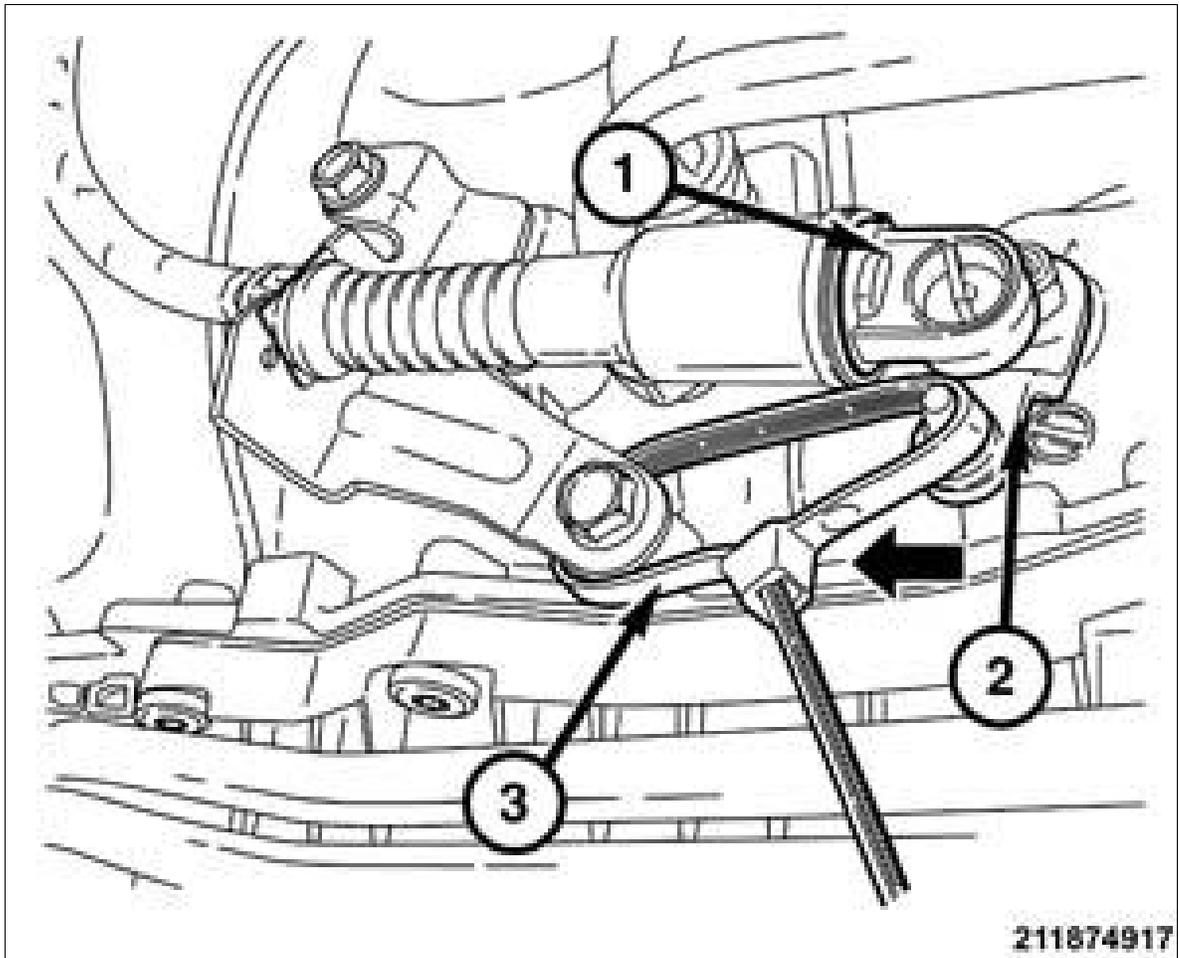
Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*Inspect the gasket for reuse. If the seal is cut or torn, replace the gasket.*

5. Remove the thirteen oil pan retaining bolts (2).
6. Carefully detach the oil pan (1) and gasket.

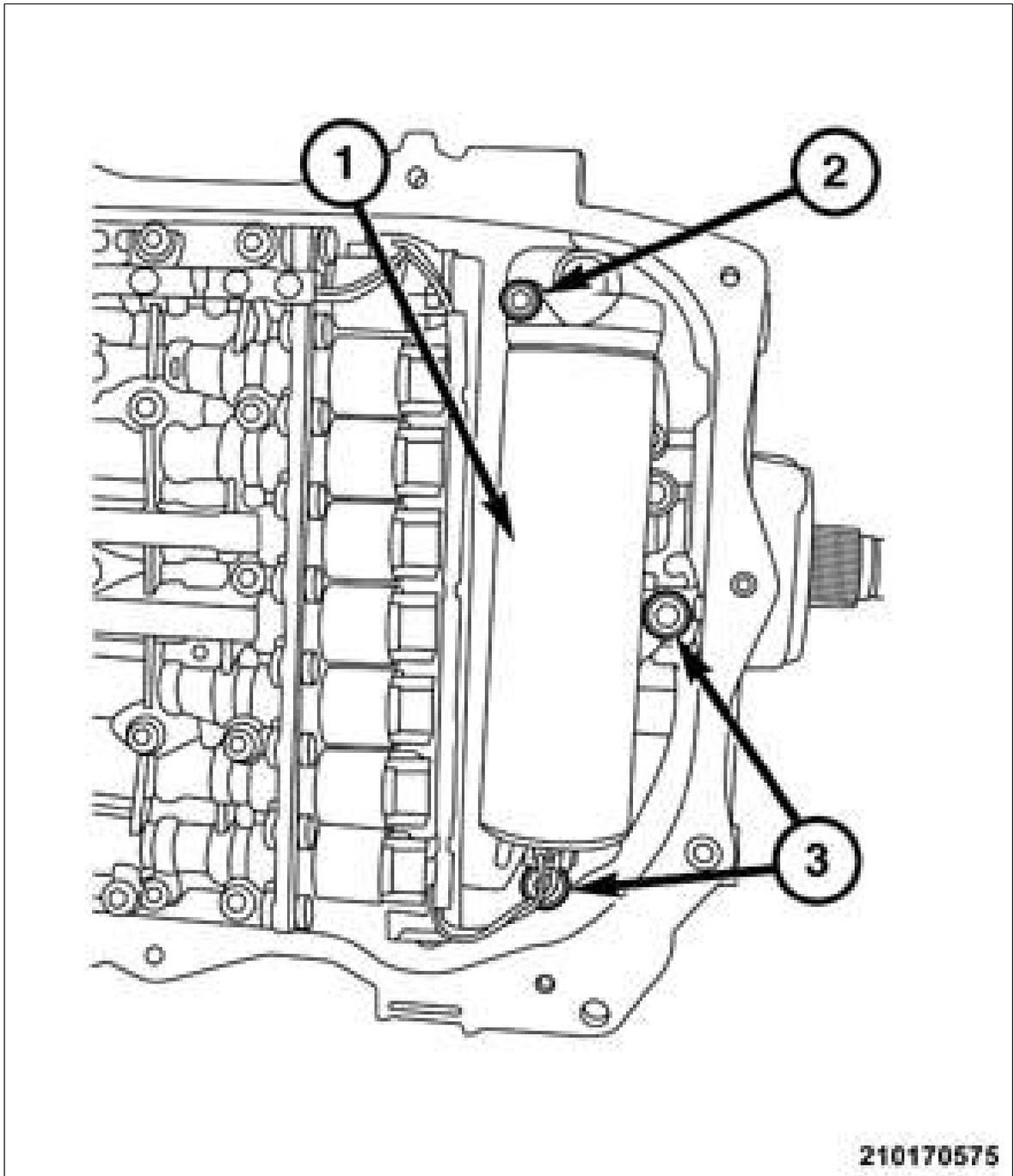
Fig 3: Mechanical Park Release Cable, Lever & Zip Tie



Courtesy of CHRYSLER GROUP, LLC

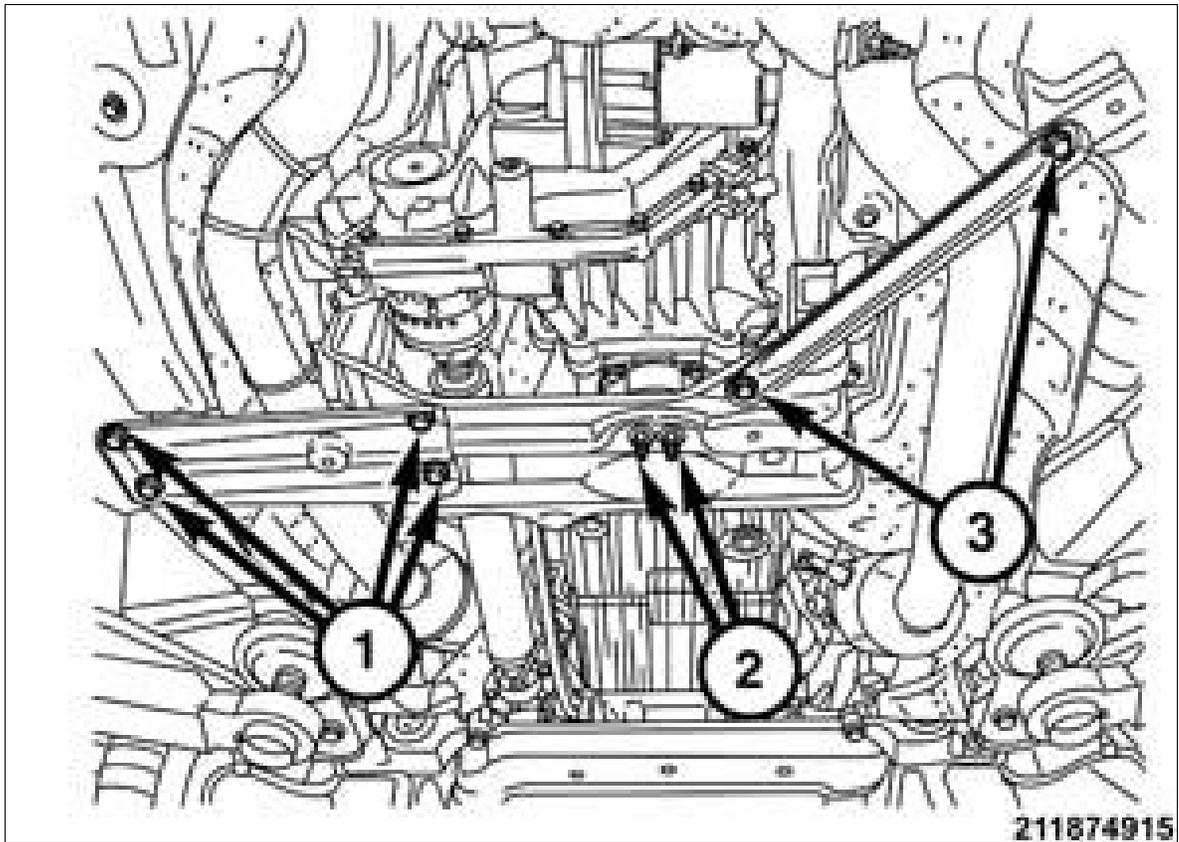
7. Detach the Manual Park Release (MPR) cable (1) from the lever (2).
8. Using a suitable tie strap (3), secure the MPR lever into position so the park release fork remains in the same position for installation of the valve body assembly.

Fig 4: Hydraulic Impulse Storage Unit & Bolts



Courtesy of CHRYSLER GROUP, LLC

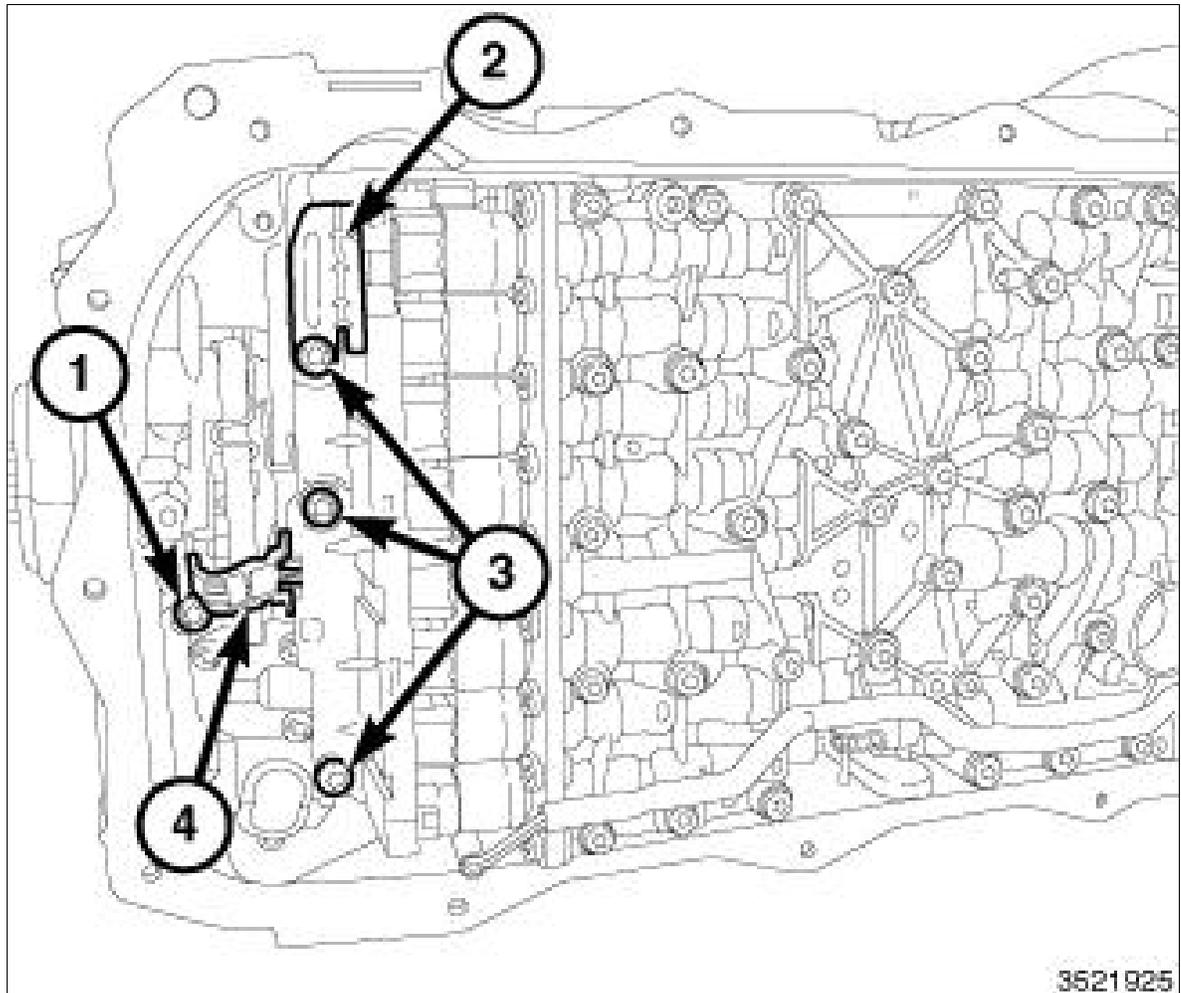
Fig 5: Crossmember Bolts & Nuts



Courtesy of CHRYSLER GROUP, LLC

9. Remove the nuts (2) from the rear mount to the transmission crossmember.
10. Using a high stand or equivalent tool, carefully raise the back of the transmission.
11. If equipped, disconnect the Hydraulic Impulse Oil Storage (H.I.S) connector.
12. If equipped, remove three bolts (2 and 3) and the H.I.S. accumulator (1).

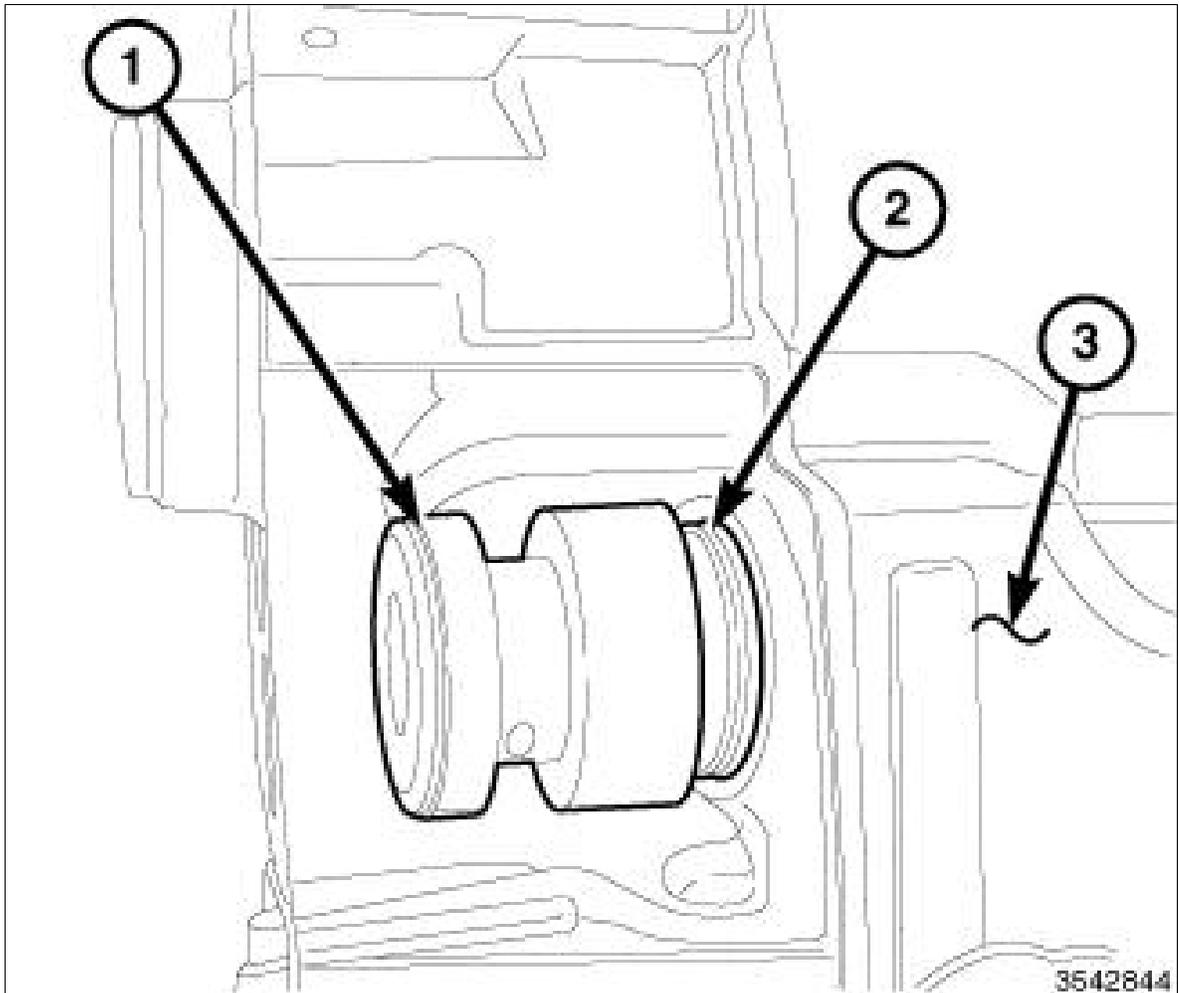
Fig 6: Valve Body Assembly End Retainer Bolts



Courtesy of CHRYSLER GROUP, LLC

13. Remove the valve body assembly end retainer bolts (3).
14. Lift the electrical connector lock (2) to release the internal harness end from inside the transmission for valve body assembly removal.
15. Remove the speed sensor retaining bolt (1) and pull the sensor (4) loose from the case.

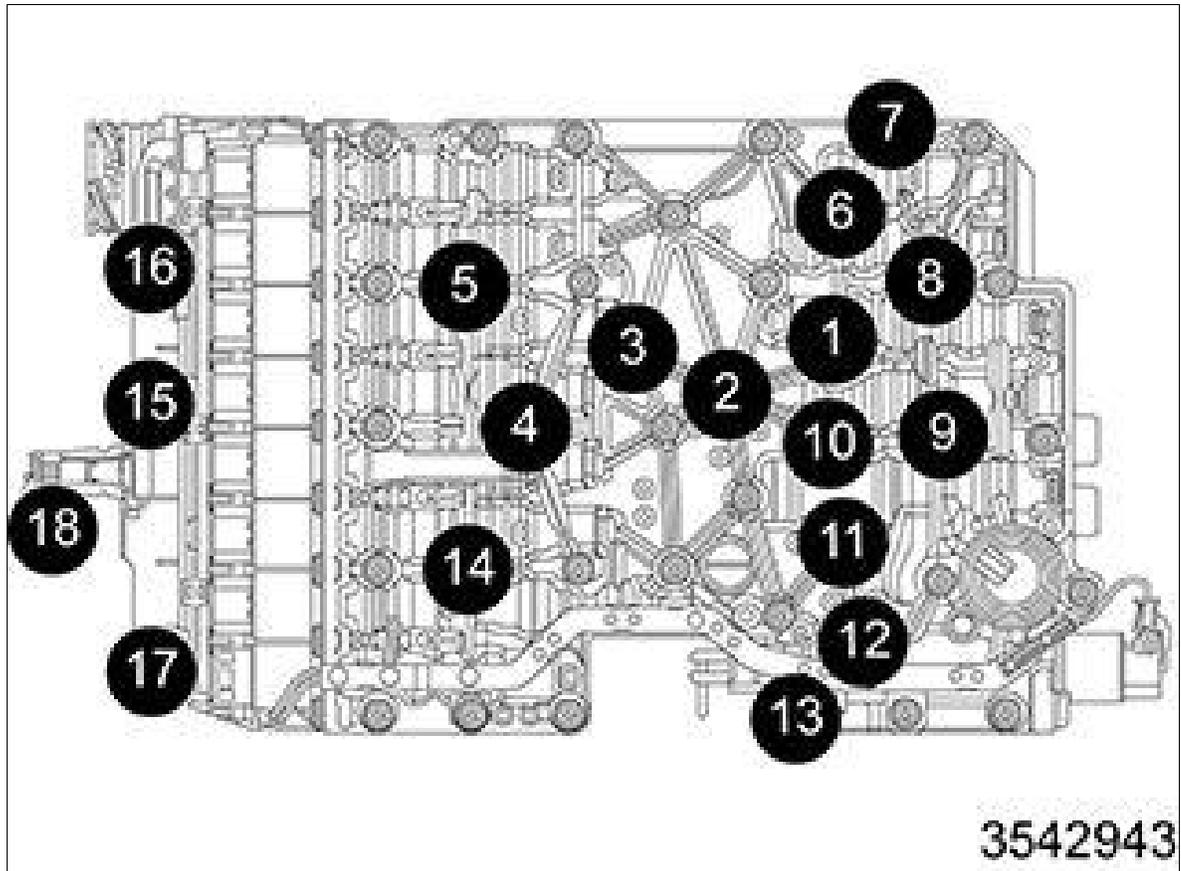
Fig 7: Remover/Installer, Guide Sleeve, Electrical Harness Insulator & Transmission Case



Courtesy of CHRYSLER GROUP, LLC

16. Using (special tool #10377, Remover/Installer, Guide Sleeve) (1) carefully pull the electrical harness insulator (2) straight out from the transmission case (3).

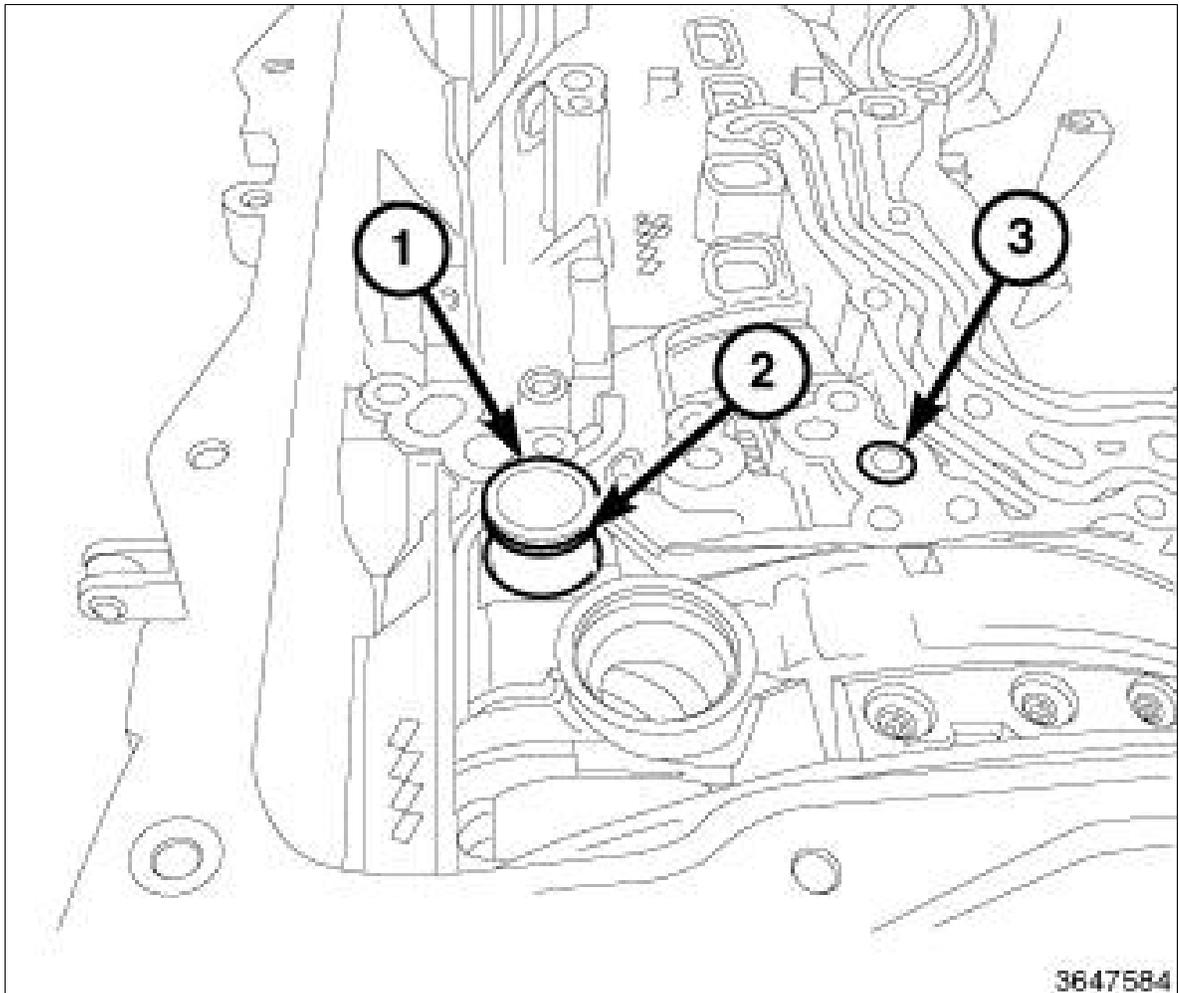
Fig 8: Valve Body Bolts Loosening And Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

17. Remove the valve body assembly retaining bolts.
18. Carefully lower the valve body assembly from the transmission.

Fig 9: Fluid Port, Two O-Rings, Compression Seal



Courtesy of CHRYSLER GROUP, LLC

 **NOTE:**

*The fluid port may remain in the valve body upon removal, remove and discard the O-rings.*

19. Remove the fluid transfer port (1) from the transmission.
20. Remove and discard the O-ring (2) and seal (3).

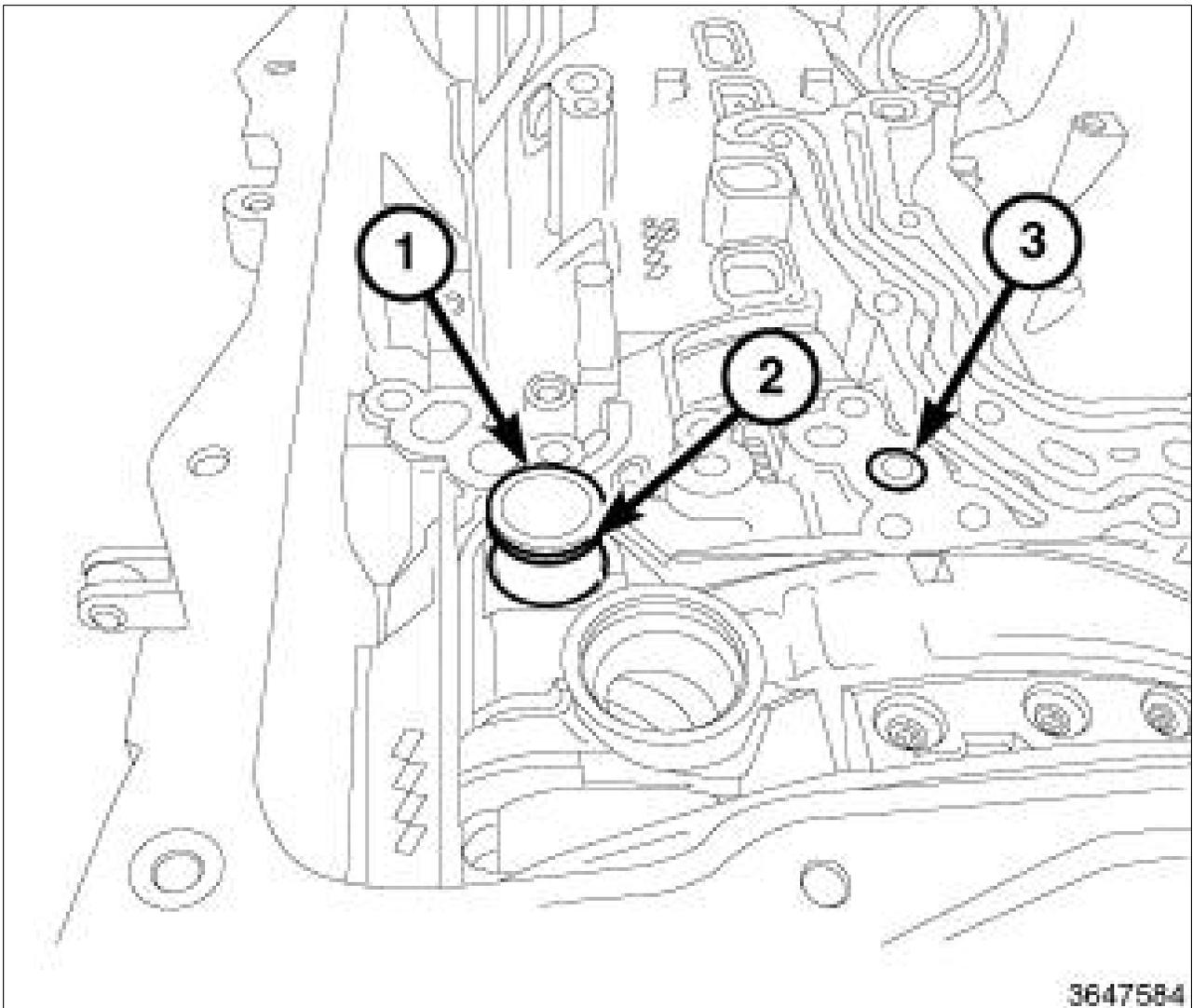
## VALVE BODY > INSTALLATION > INSTALLATION

 **CAUTION:**

*The Transmission Control Module (TCM), or Transmission Control Module Assembly (TCMA) is extremely sensitive to Electrostatic Discharge (ESD). Always use a ground strap*

and follow the ESD guidelines in ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES. Failure to follow these instructions may result in damage to the TCM/TCMA.

Fig 1: Fluid Port, Two O-Rings, Compression Seal

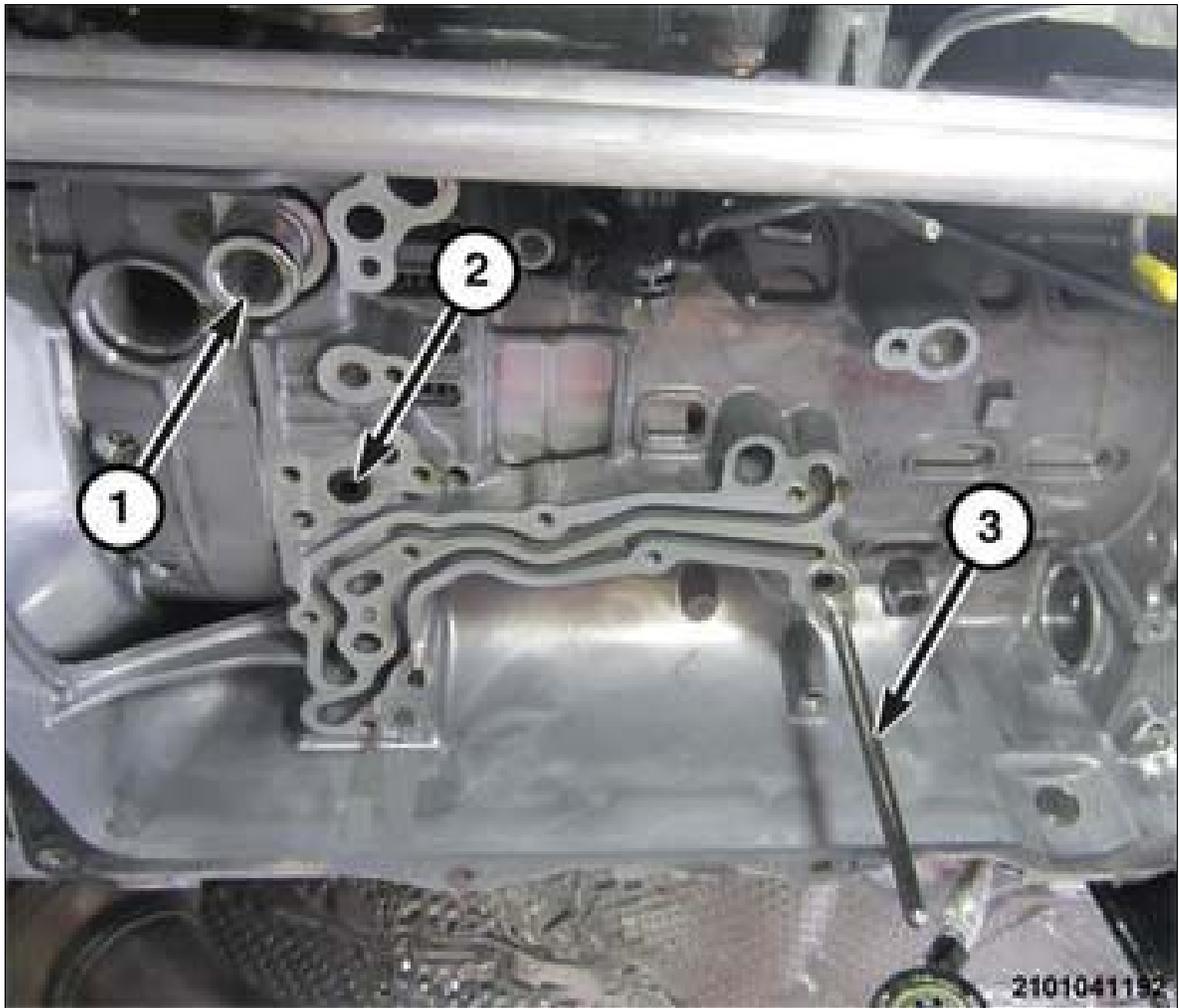


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Courtesy of CHRYSLER GROUP, LLC

1. Install the fluid port (1) with **new** O-rings (2) and seal (3) to the valve body.

Fig 2: Alignment Pin



Courtesy of CHRYSLER GROUP, LLC

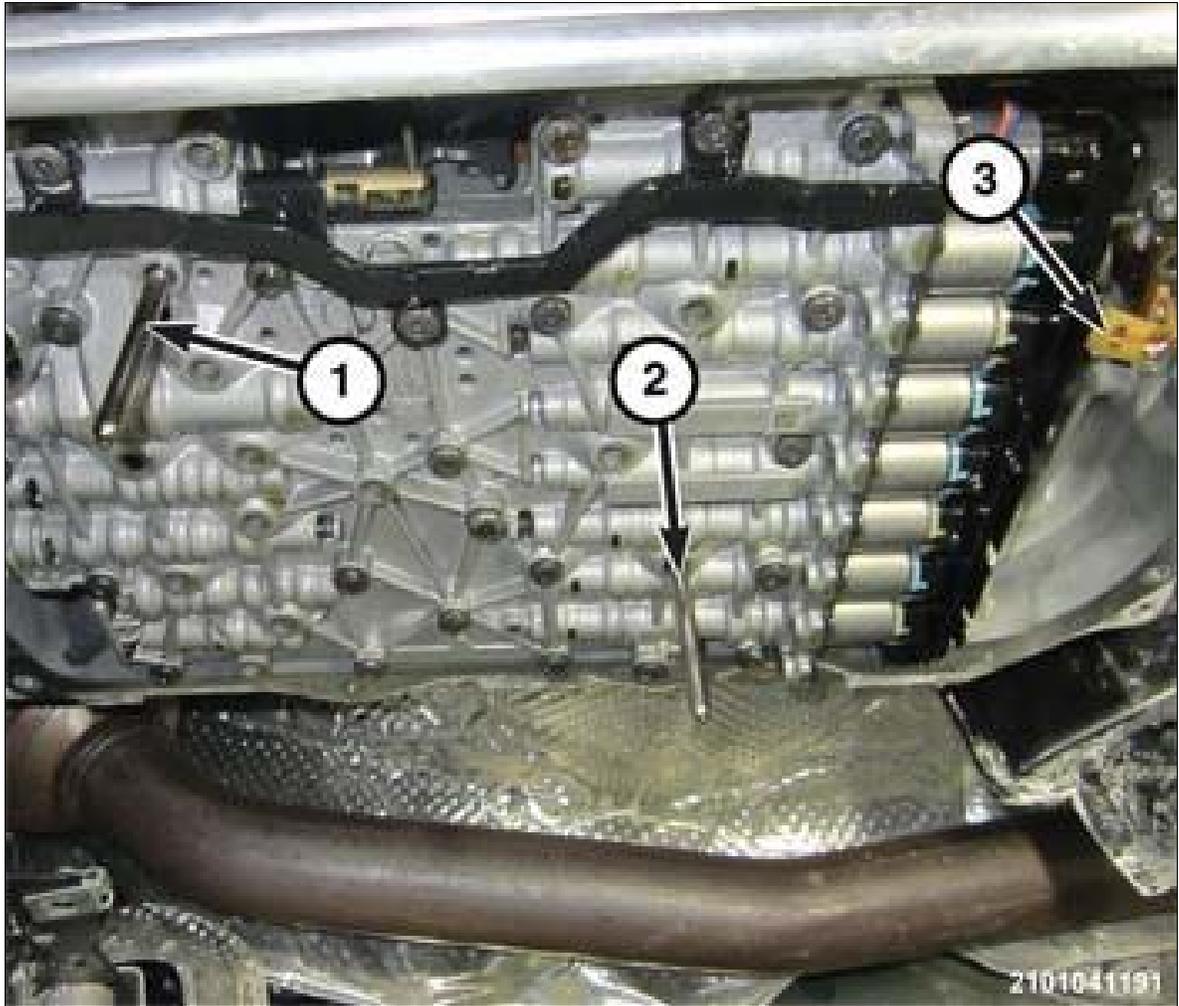
2. Install one of the valve body (special tool #10379, Pins, Valve Body Alignment) (3) in the rear of the transmission as shown as a guide.

 **NOTE:**

***Make sure the speed sensor at the rear of the valve body does not get caught between the valve body and the transmission case when positioning the valve body to the case.***

3. Carefully guide the front of the valve body over the cradle while aligning the rear of the valve body with the alignment pin.

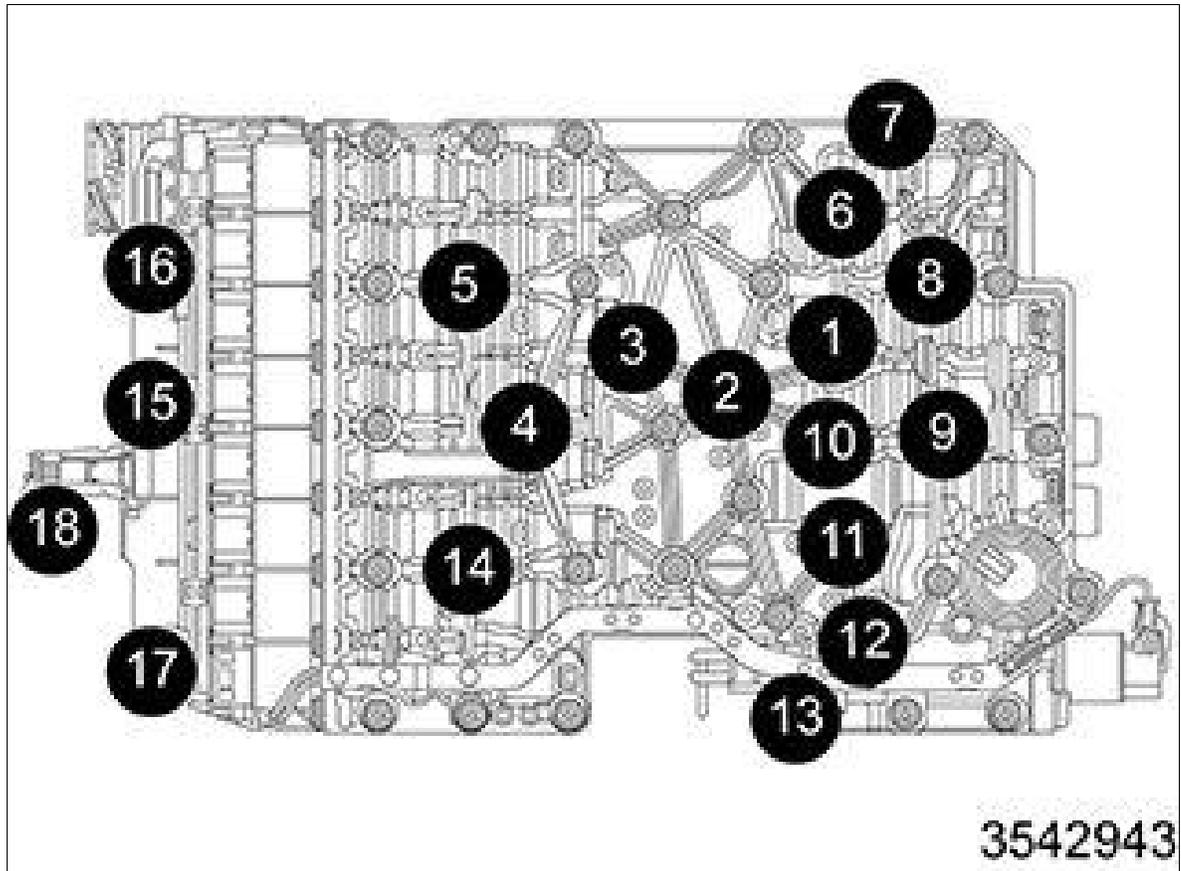
Fig 3: Alignment Pins



Courtesy of CHRYSLER GROUP, LLC

4. Install the front alignment pin (1).
5. Use an appropriate tool on one of the alignment pins to assist in holding the valve body in position while installing the remaining fasteners.

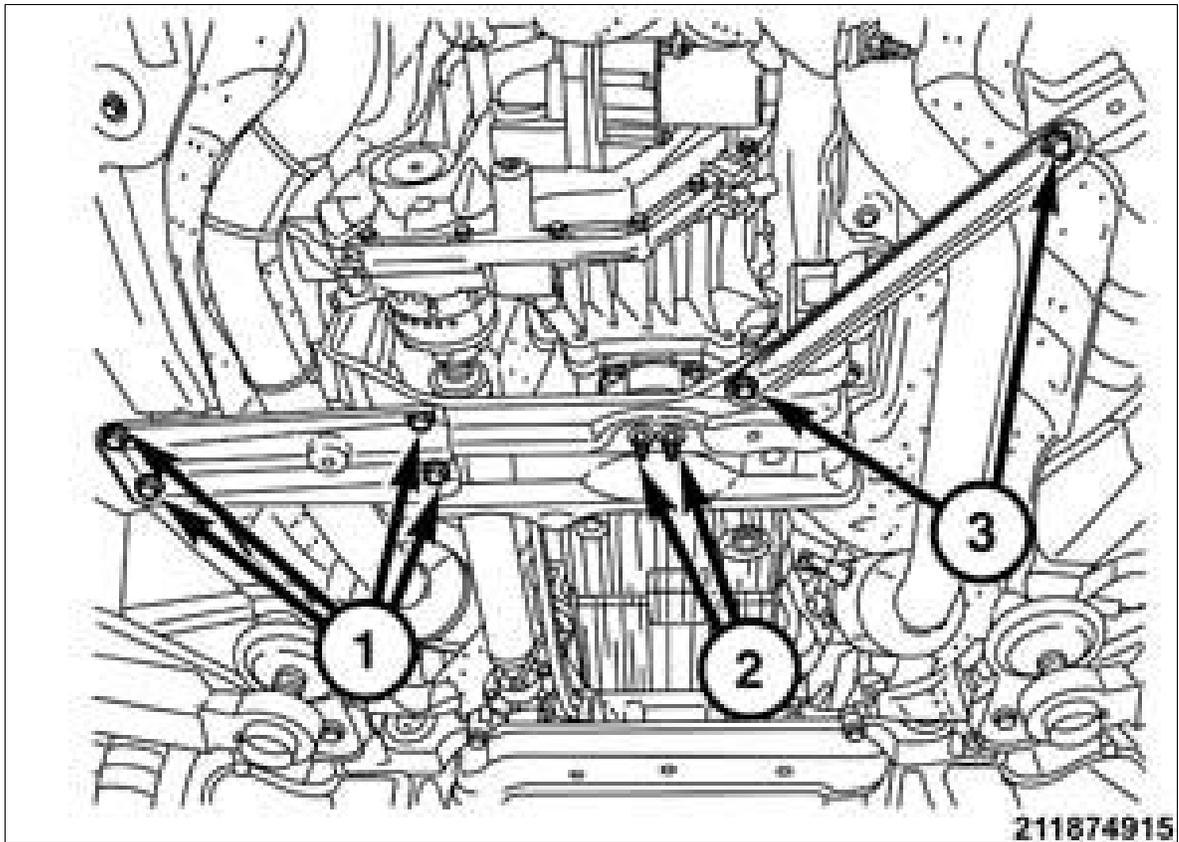
Fig 4: Valve Body Bolts Loosening And Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

6. Install the valve body assembly retaining bolts not including 16-18 and hand tighten.
7. Remove the pins and install the remaining bolts.

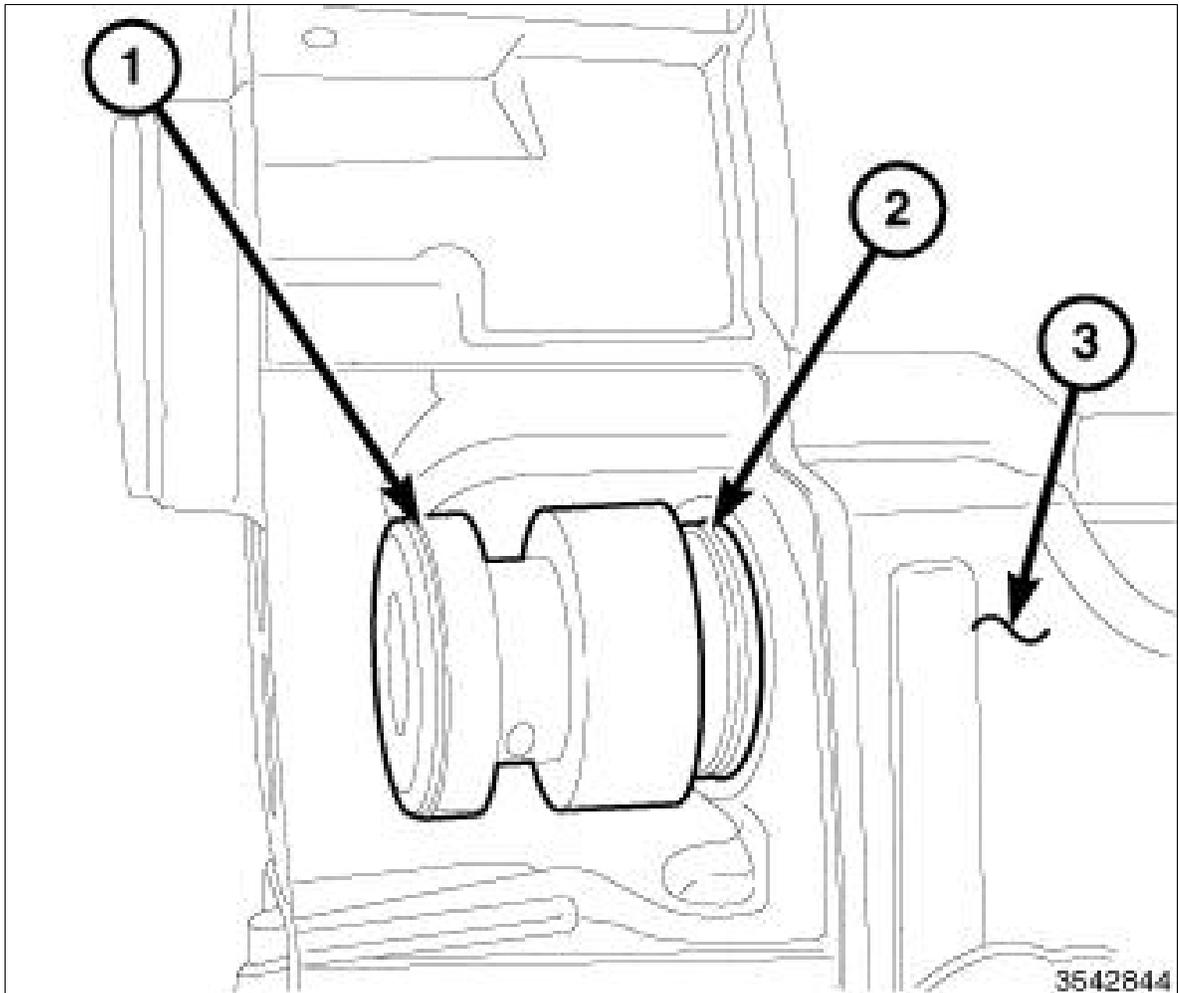
Fig 5: Crossmember Bolts & Nuts



Courtesy of CHRYSLER GROUP, LLC

8. Lower the transmission back onto the crossmember.
9. Install the rear mount nuts (2) and tighten to SPECIFICATIONS .

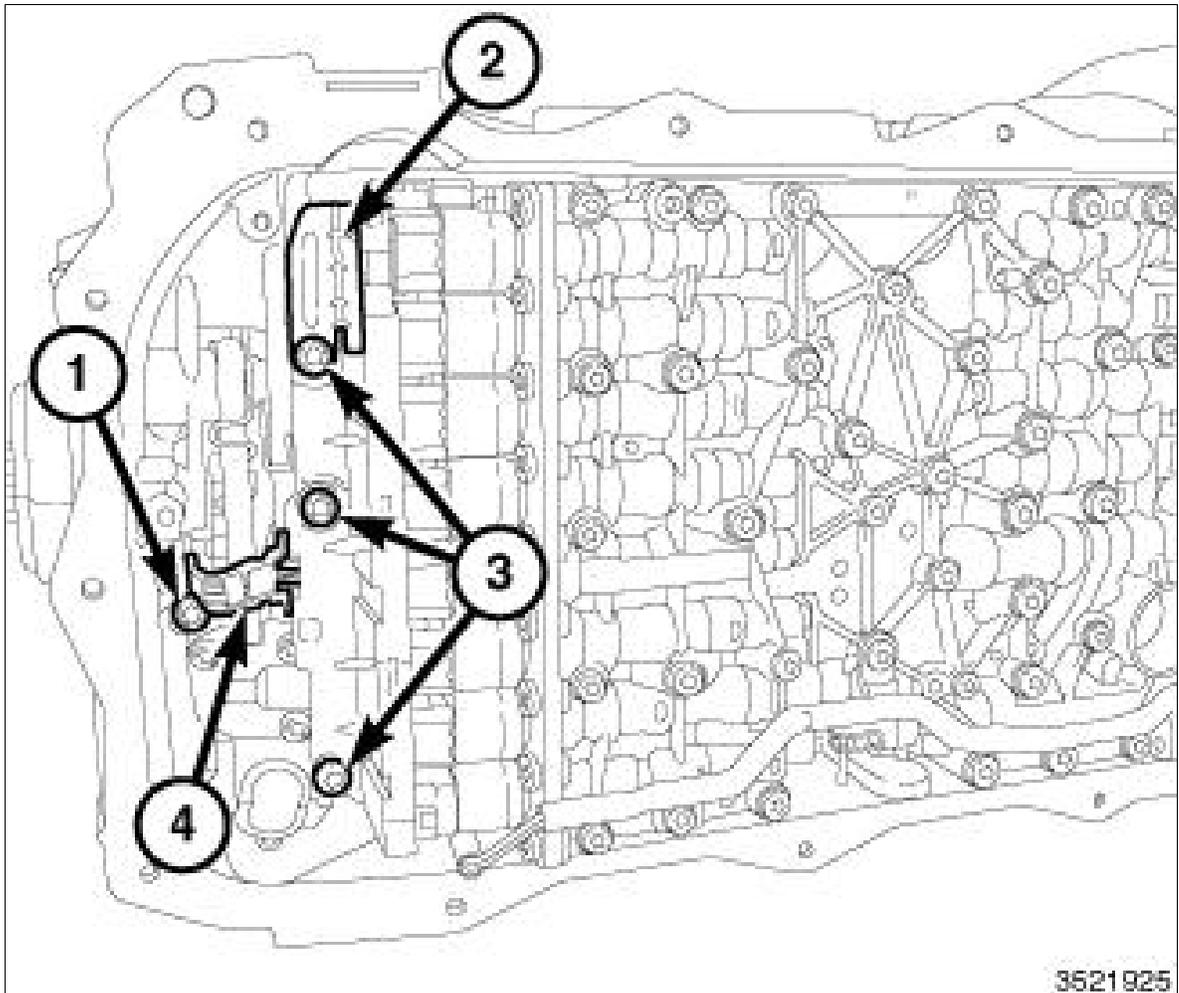
Fig 6: Remover/Installer, Guide Sleeve, Electrical Harness Insulator & Transmission Case



Courtesy of CHRYSLER GROUP, LLC

10. Using (special tool #10377, Remover/Installer, Guide Sleeve) (1) carefully install the electrical harness insulator (2) to the transmission case (3).

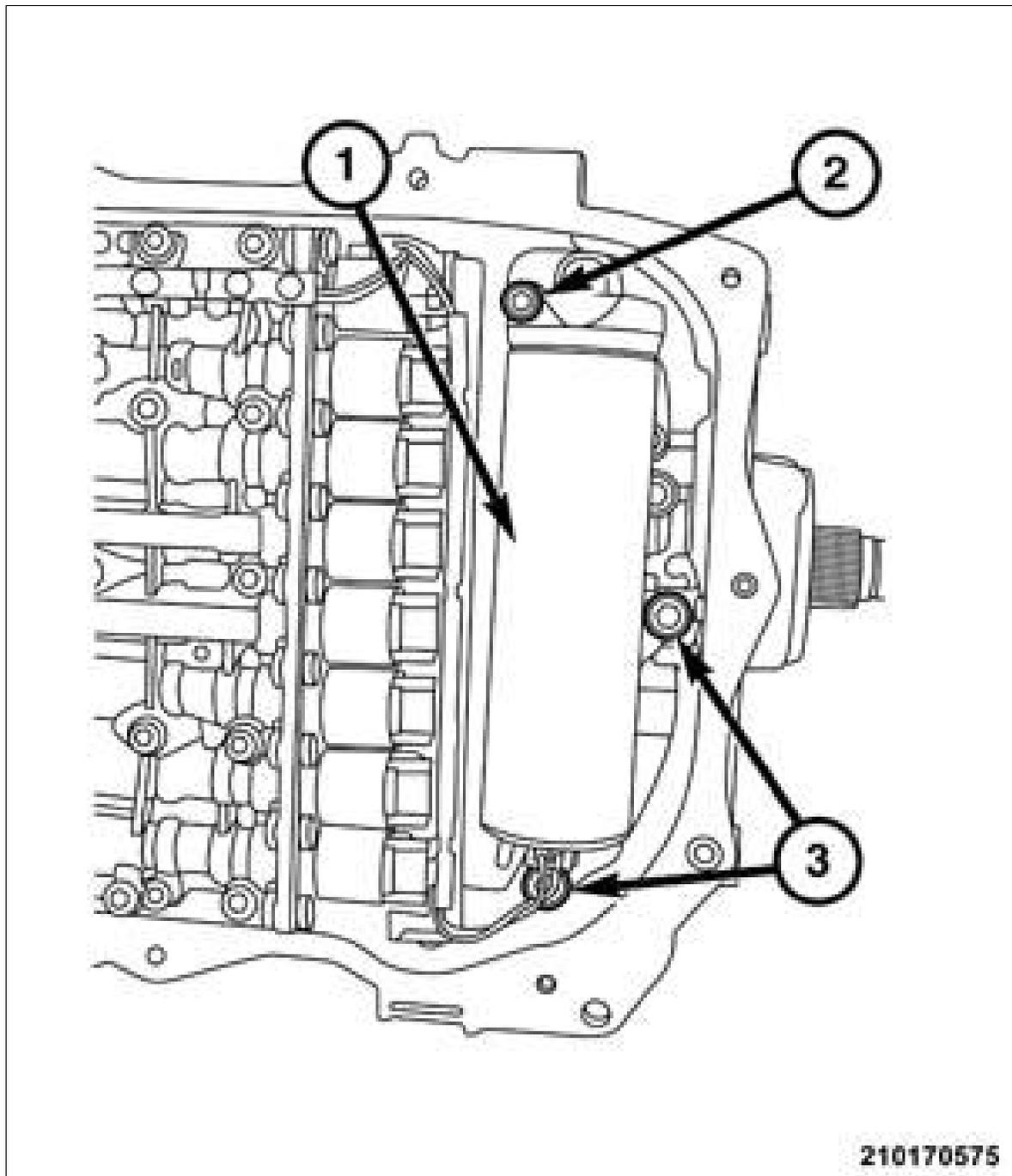
Fig 7: Valve Body Assembly End Retainer Bolts



Courtesy of CHRYSLER GROUP, LLC

11. Lock the electrical connector lock (2) to the internal harness end.
12. Install the speed sensor (4) to the case install the retaining bolt (1) and tighten to SPECIFICATIONS .

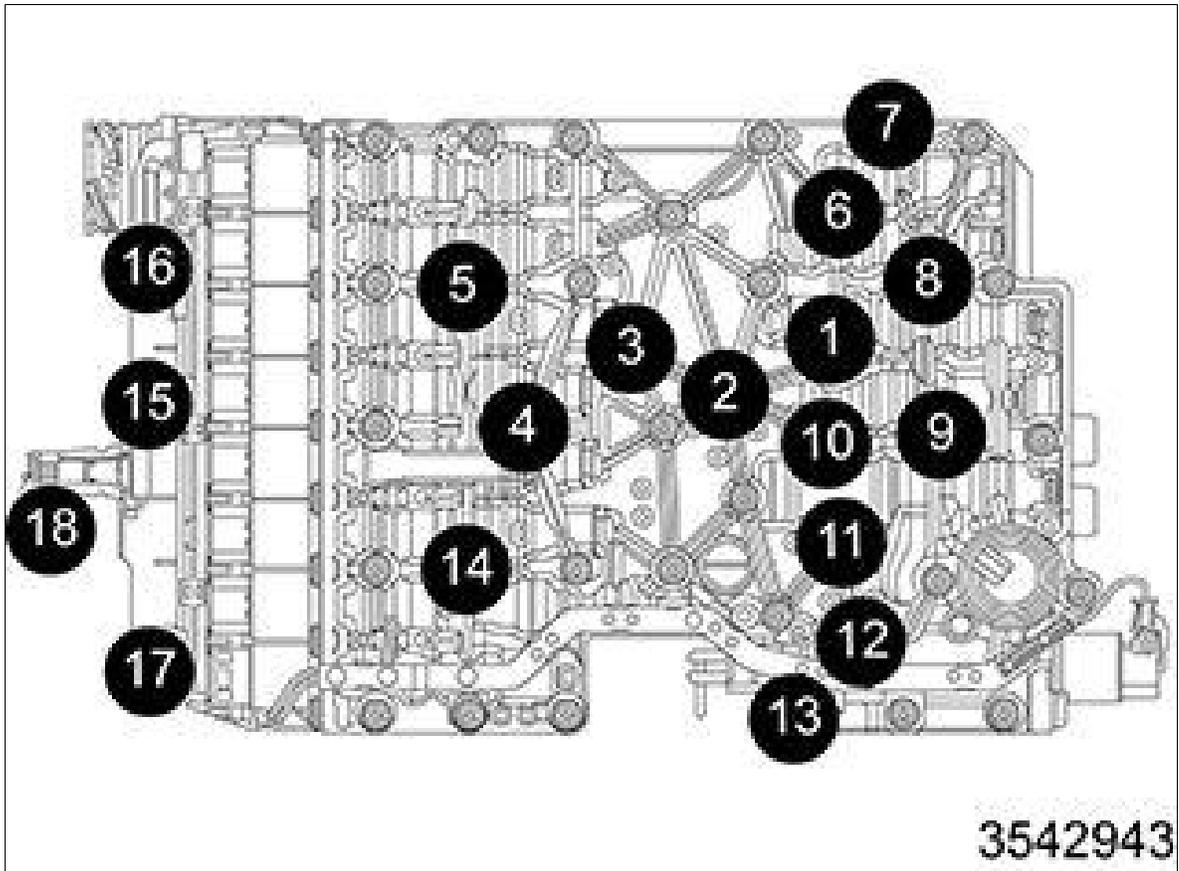
Fig 8: Hydraulic Impulse Storage Unit & Bolts



Courtesy of CHRYSLER GROUP, LLC

13. If equipped, install the Hydraulic Impulse Oil Storage (H.I.S.) accumulator (1).
14. Tighten the bolts (2 and 3) to SPECIFICATIONS .
15. Connect the H.I.S. electrical connector.
16. Install the valve body assembly end retainer bolts (3) and hand tighten.

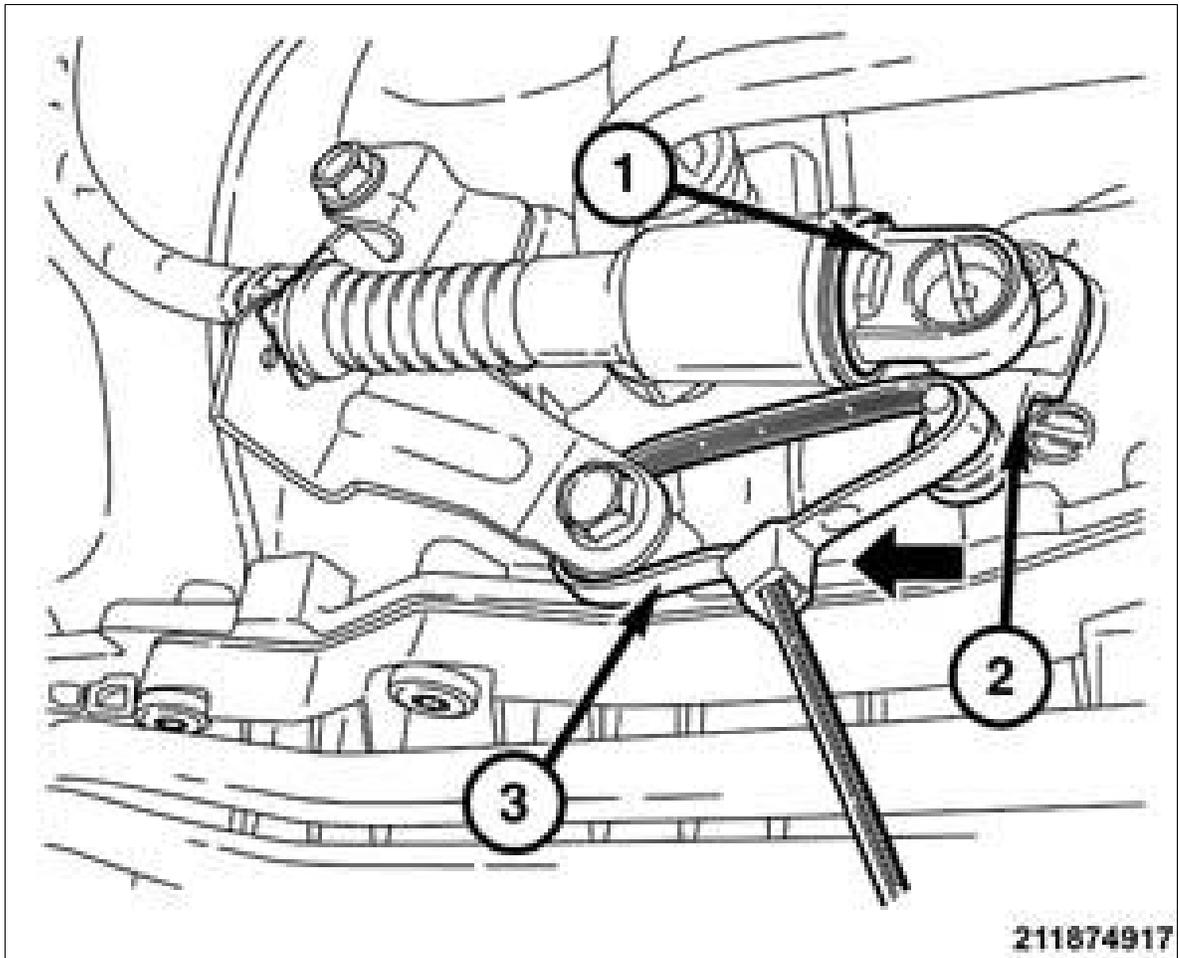
Fig 9: Valve Body Bolts Loosening And Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

17. Tighten the valve body fasteners to SPECIFICATIONS .

Fig 10: Mechanical Park Release Cable, Lever & Zip Tie

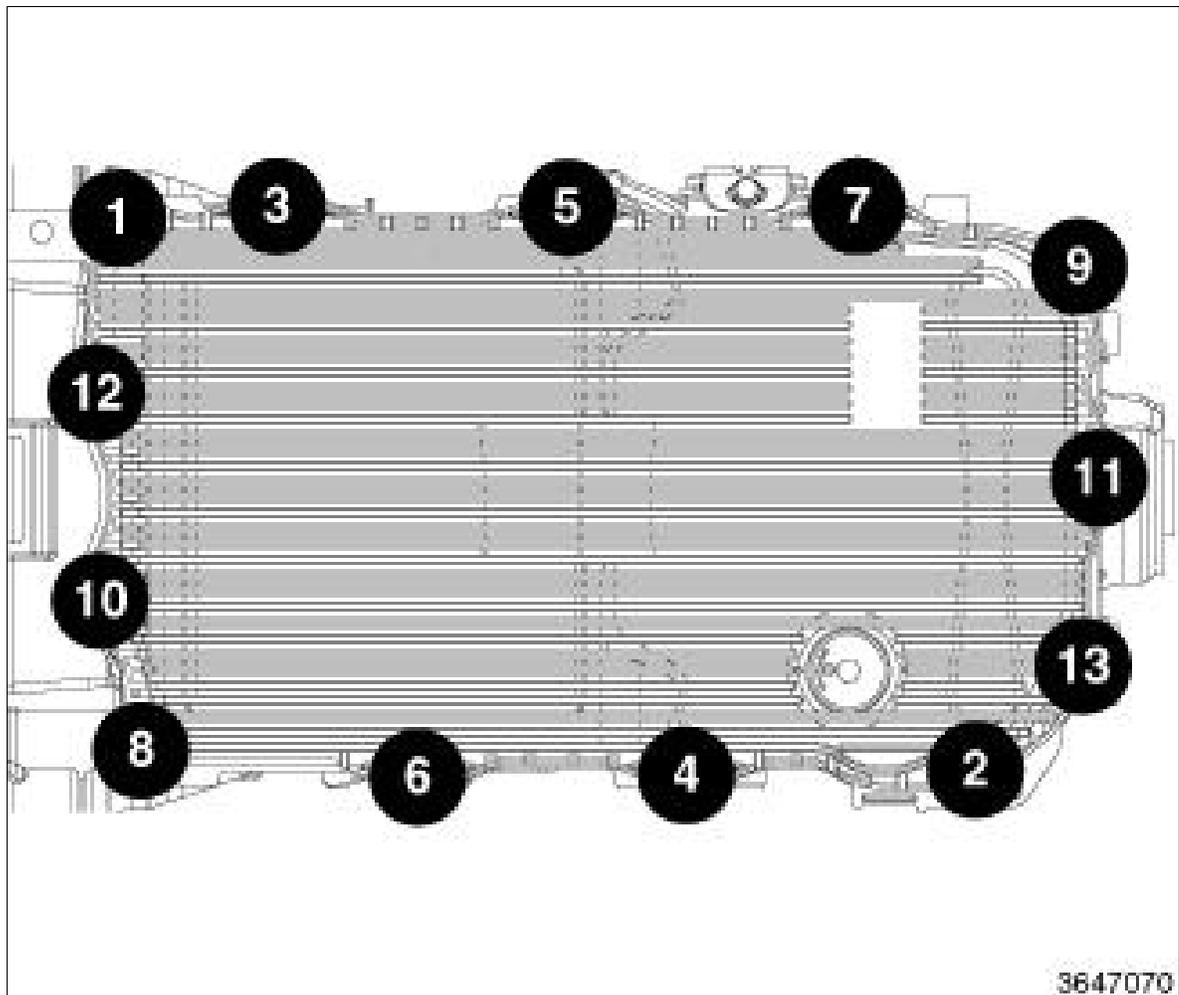


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18. Remove the tie strap (3).

19. Attach the Manual Park Release (MPR) cable (1) to the MPR lever (2).

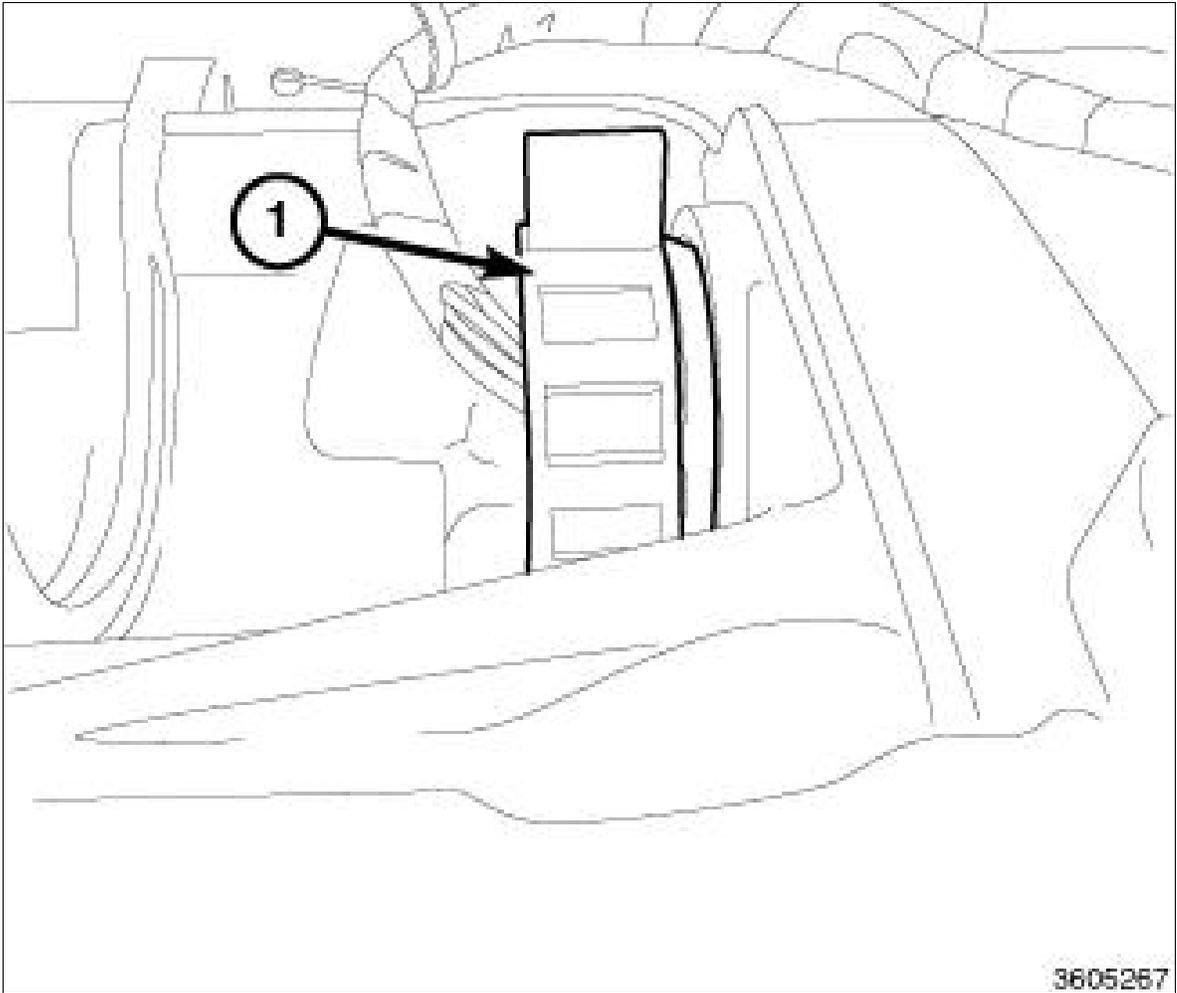
Fig 11: Oil Pan Retaining Bolts Tightening Sequence



Courtesy of CHRYSLER GROUP, LLC

20. Install the oil pan and gasket.
21. Install the thirteen oil pan retaining bolts and tighten the fasteners to using the sequence given. Refer to SPECIFICATIONS .

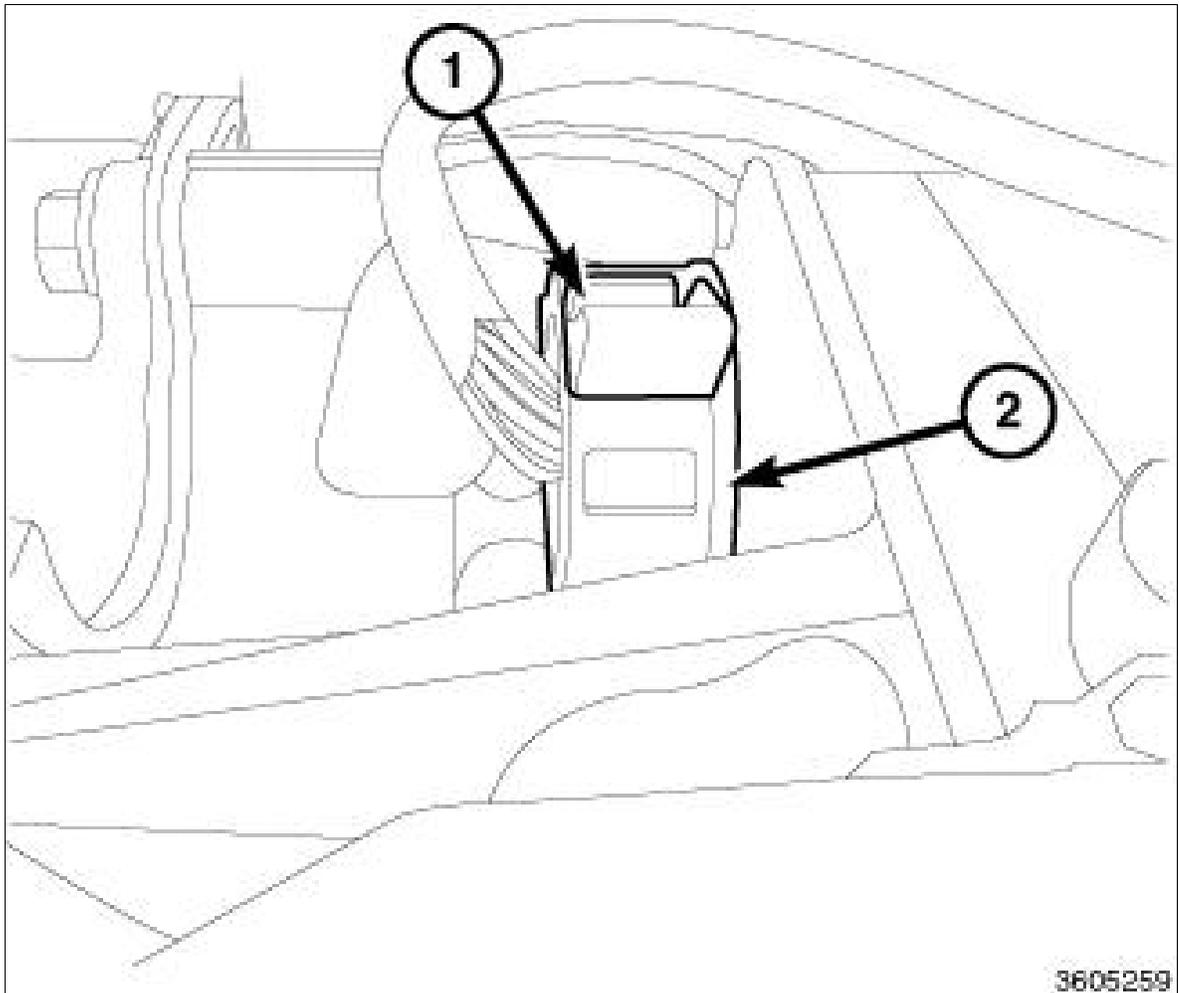
Fig 12: Adapter Plug Connector



Courtesy of CHRYSLER GROUP, LLC

22. Connect the plug connector (1).

Fig 13: Locking Mechanism Lock & Adapter Plug Connector



Courtesy of CHRYSLER GROUP, LLC

23. Turn the locking mechanism (1) of the harness plug clockwise and lock in place.
24. If the valve body is replaced, program the TCM. Refer to MODULE, TRANSMISSION CONTROL, MODULE PROGRAMMING .
25. Perform the TRANSMISSION FILL AFTER SERVICE procedure. Refer to FLUID AND FILTER, STANDARD PROCEDURE .
26. Perform the TRANSMISSION VERIFICATION TEST. Refer to STANDARD PROCEDURE .