2007 ENGINE

2.4L - Service Information - Sebring

DESCRIPTION

2.4L ENGINE

The 2.4 Liter (148 cu. in.) in-line four cylinder engine is a double over head camshaft design with mechanical lash tappets and four valves per cylinder design. This engine is NOT free-wheeling; meaning that the pistons will contact the valves in the event of a timing chain failure.

The cylinders are numbered from front of the engine to the rear. The firing order is 1-3-4-2.

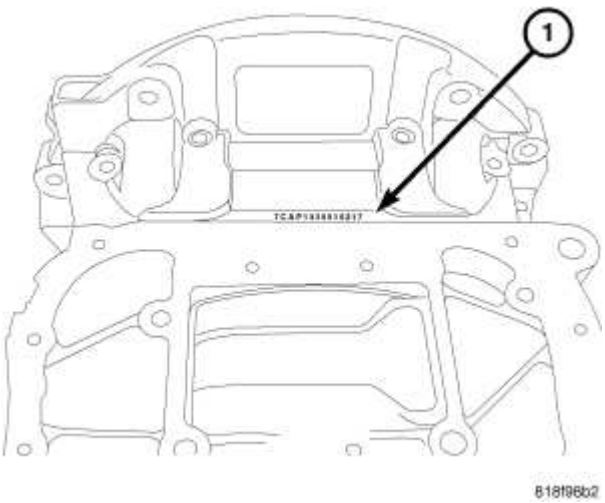


Fig. 1: Locating Engine Serial Number
Courtesy of CHRYSLER LLC

The engine serial number (1) is located on the rear of the cylinder block behind the oil pan. The serial number is visible with the oil pan in place. The serial number contains engine build date information.

DIAGNOSIS AND TESTING

CYLINDER COMBUSTION PRESSURE LEAKAGE TEST

The combustion pressure leakage test provides an accurate means for determining

Courtesy of CHRYSLER LLC

To ensure engine gasket sealing, proper surface preparation must be performed, especially with the use of aluminum engine components and multi-layer steel cylinder head gaskets.

Never use the following to clean gasket surfaces:

Metal scraper.
Abrasive pad or paper to clean cylinder block and head.
High speed power tool with an abrasive pad or a wire brush (1).

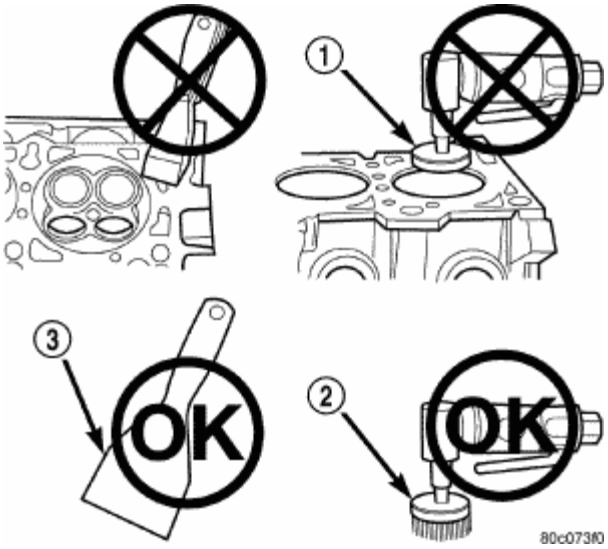


Fig. 3: Identifying Proper Gasket Surface Cleaning Procedures
Courtesy of CHRYSLER LLC

NOTE: Multi-Layer Steel (MLS) head gaskets require a scratch free sealing surface.

Only use the following for cleaning gasket surfaces:

Solvent or a commercially available gasket remover
Plastic or wood scraper (3).
Drill motor with 3M Roloc™ Bristle Disc (white or yellow) (2).

36. Remove upper timing chain cover retaining bolts.
37. Remove timing chain cover.

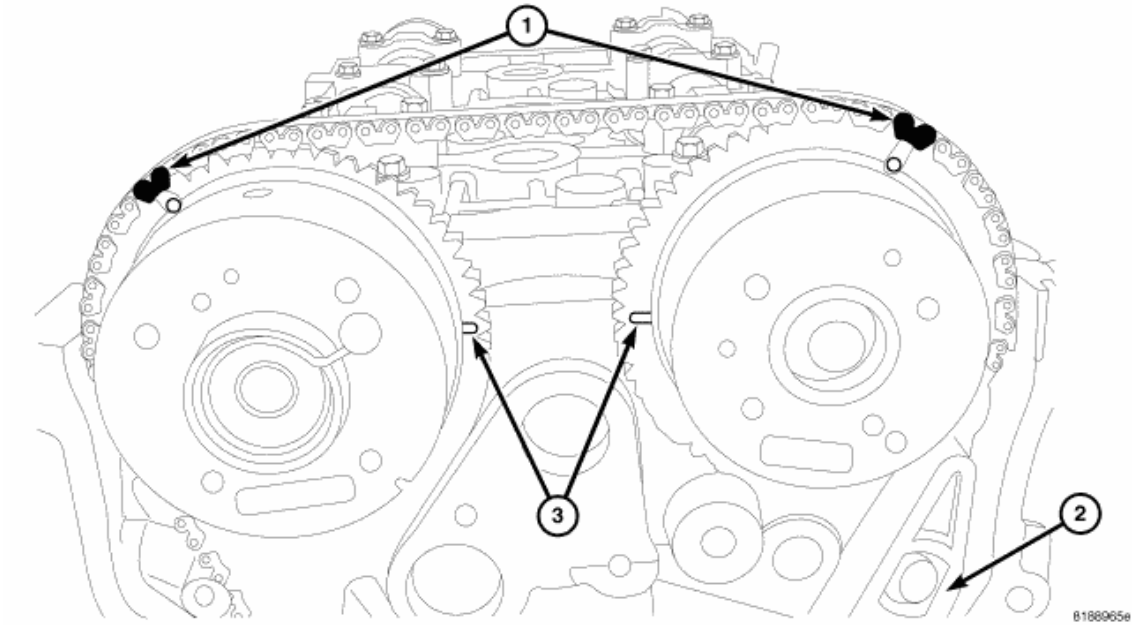


Fig. 71: Locating Timing Chain Timing Marks
Courtesy of CHRYSLER LLC

NOTE: If the timing chain plated links can no longer be seen, the timing chain links corresponding to the timing marks must be marked prior to removal if the chain is to be reused.

38. Mark chain link (1) corresponding to camshaft timing mark.

5. Install PCM.
6. Connect negative battery cable.
7. Install air cleaner assembly (1).

MOUNT-RIGHT

REMOVAL

ENGINE MOUNT - RIGHT

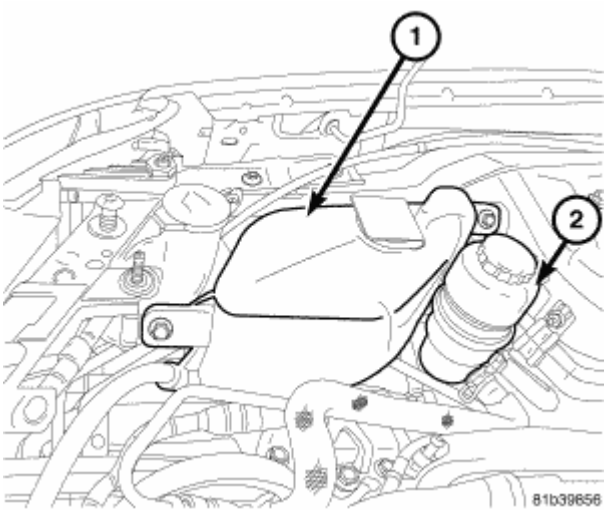
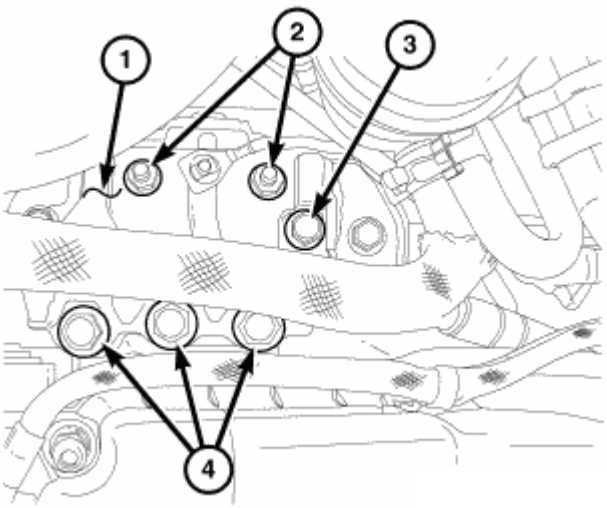


Fig. 246: Removing/Installing Coolant Reservoir
Courtesy of CHRYSLER LLC

1. Remove coolant reservoir (1) and set aside.



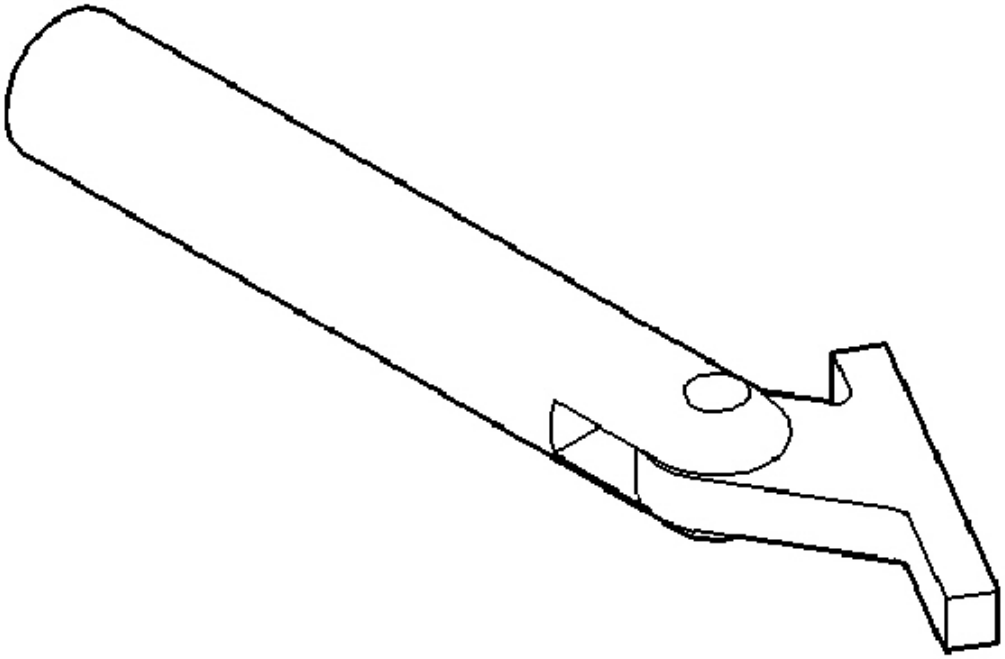


Fig. 83: Main Bearing Remover/Installer C-3059
Courtesy of CHRYSLER LLC

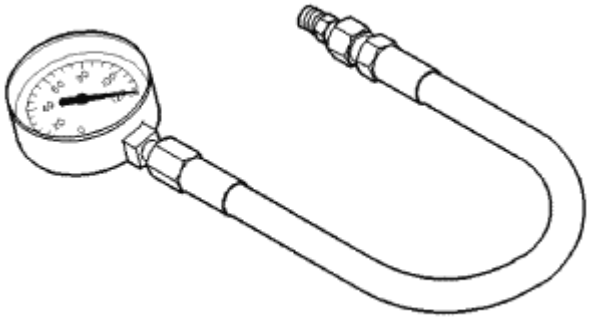


Fig. 84: Oil Pressure Gauge C-3292
Courtesy of CHRYSLER LLC

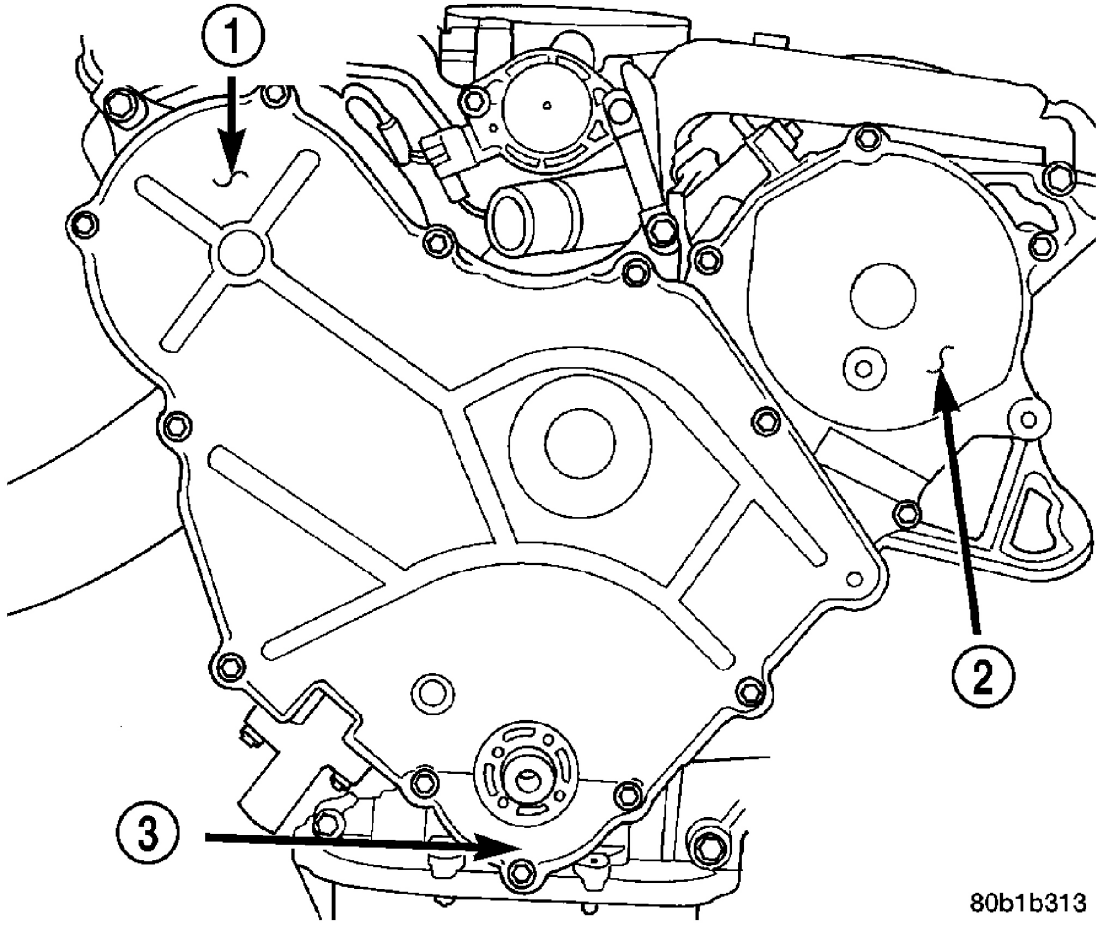


Fig. 94: Identifying Timing Belt Covers
Courtesy of CHRYSLER LLC

1 - RIGHT SIDE COVER (STAMPED)
2 - LEFT SIDE COVER (CAST)
3 - LOWER COVER

27. Remove the remaining outer timing belt cover bolts and remove cover.
28. Remove the timing belt. See **REMOVAL**.
29. Remove the left cylinder head cover to cylinder head ground strap.
30. Remove the left cylinder head cover.

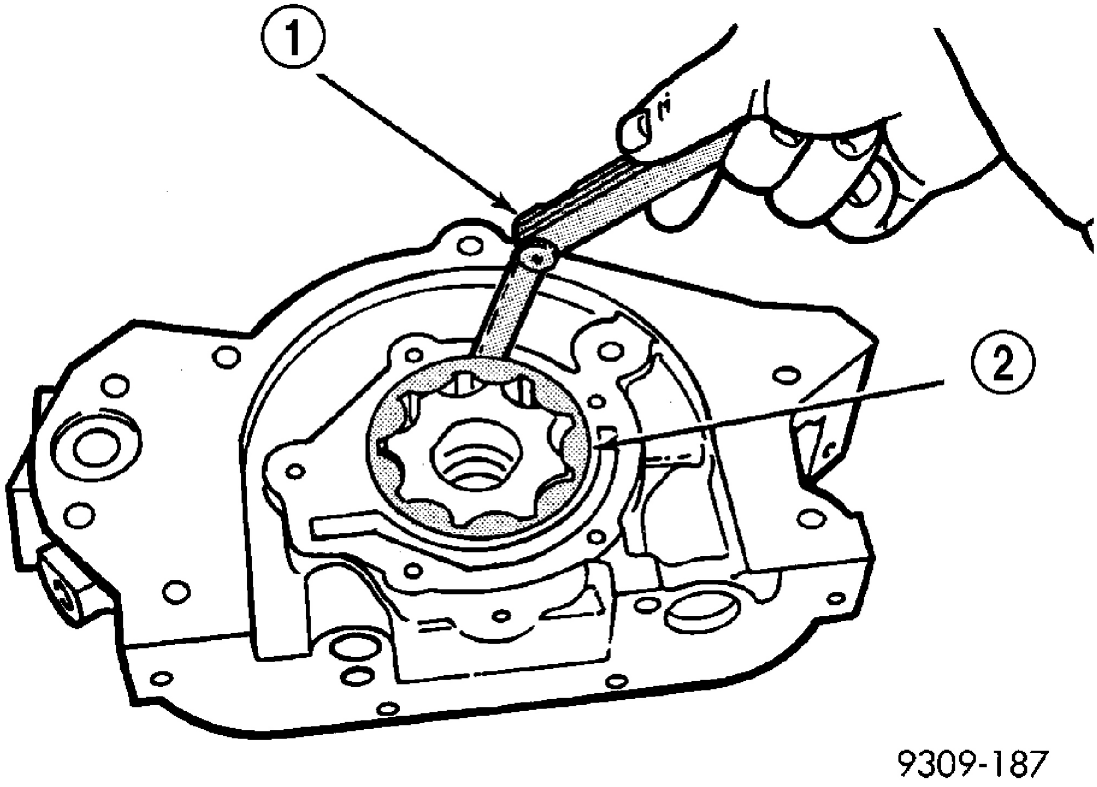


Fig. 313: Measuring Outer Rotor Clearance In Housing
Courtesy of CHRYSLER LLC

1 - FEELER GAUGE
2 - OUTER ROTOR

6. Slide outer rotor into body, press to one side with fingers and measure clearance between rotor and body. If measurement is 0.39 mm (0.015 inch.) or more, replace body only if outer rotor is in specifications.

camshaft sprocket timing marks are aligned with the marks on the inner timing cover. It may take an additional full revolution of the crankshaft before the camshaft sprocket marks are aligned.

CAUTION: The 3.5L is NOT a freewheeling engine. Therefore, loosen the valve train rocker assemblies before servicing the timing drive.

1. Perform fuel pressure release procedure. Refer to **STANDARD PROCEDURE** .
2. Disconnect negative battery cable.
3. Remove both cylinder head covers and loosen the rocker arm assemblies.
4. Remove the front timing belt cover. See **REMOVAL**.
5. Mark belt running direction, if timing belt is to be reused.

CAUTION: When aligning timing marks, always rotate engine by turning the crankshaft. Failure to do so will result in valve and/or piston damage.

6. Rotate engine clockwise until crankshaft mark aligns with the TDC mark on oil pump housing and the camshaft sprocket timing marks are aligned with the marks on the rear cover.
7. Remove the timing belt tensioner and remove timing belt.

Does the test light illuminate brightly?

Yes

Go to step 6).

No

Repair the (B1) Right Rear WSS Signal circuit for an open.

Perform **ABS VERIFICATION TEST**.

6) CHECK (B1) RIGHT REAR WSS SIGNAL CIRCUIT SHORT TO VOLTAGE

When Monitored:

Upon ignition on, prior to switching the (G4) Dynamics Sensor Supply circuit power on.

Set Condition:

If the Anti-Lock Brakes Module detects voltage on the (G4) Dynamics Sensor Supply circuit when the circuit's power is turned off.

Possible Causes
WIRING HARNESS, TERMINAL, CONNECTOR DAMAGE (G4) DYNAMICS SENSOR SUPPLY CIRCUIT SHORTED TO VOLTAGE ANTI-LOCK BRAKES MODULE

Diagnostic Test

1) VERIFY DTC IS ACTIVE

Turn the ignition on.

With the scan tool, read and record ABS DTCs.

With the scan tool, read and record Environmental Data (EV Data).

With the scan tool, erase ABS DTCs.

Cycle the ignition switch.

With the scan tool, read ABS DTCs.

Does this DTC reset?

Yes

Go to step 2).

No

Module C4 connector.

WARNING: To avoid serious or fatal injury, turn the ignition on, then reconnect the battery.

With the scan tool, read the active ORC DTCs.

Does the scan tool display: B1B01-DRIVER AIRBAG SQUIB 1 CIRCUIT HIGH?

Yes

Go to step 4).

No

Replace the Steering Control Module in accordance with the Service Information.

Perform ***AIRBAG SYSTEM VERIFICATION TEST - VER 1**.

4) CHECK (R43) DRIVER SQUIB 1 LINE 2 CIRCUIT AND (R45) DRIVER SQUIB 1 LINE 1 CIRCUIT FOR A SHORT TO BATTERY

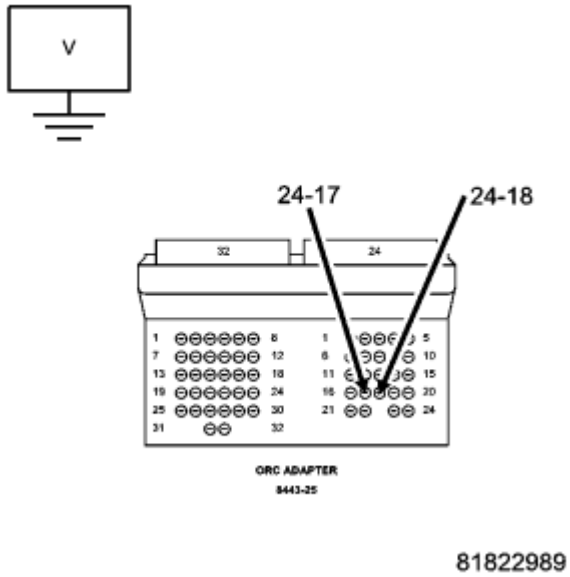


Fig. 8: ORC Adaptor
Courtesy of CHRYSLER LLC

WARNING: To avoid serious or fatal injury, maintain a safe distance from all airbags while performing the following steps.

Wiggle the wiring harness and connectors of the related airbag circuit or component.

If codes are related to the Driver Airbag circuits, rotate the steering wheel from stop to stop.

If only stored codes return continue the test until the problem area has been isolated.

In the previous steps you have attempted to recreate the conditions responsible for setting active DTC in question.

Are any ACTIVE DTCs present?

Yes

Select appropriate symptom from Symptom List.

No

No problem found at this time. Erase all codes before returning vehicle to customer.

B1B76-RIGHT SIDE SATELLITE ACCELERATION SENSOR 2 INTERNAL

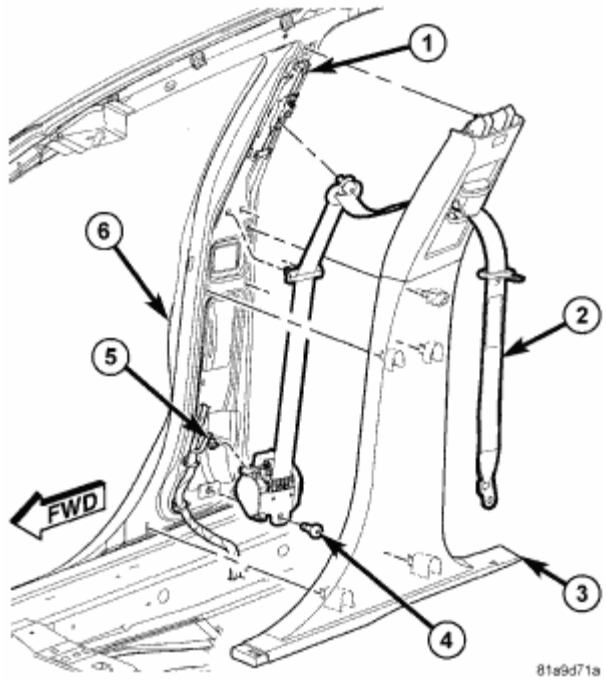


Fig. 52: Removing/Installing Front Seat Belt Retractor
Courtesy of CHRYSLER LLC

5. Remove the B-pillar trim panel (3). Refer to **REMOVAL** .
6. Feed the seat belt webbing through the upper trim panel.
7. Remove the seat belt upper turning loop bolt.
8. Using a trim stick or equivalent, gently pry the seat belt webbing guide from the B-pillar (6).
9. Remove the lower seat belt retractor mounting bolt (4).
10. Disconnect the two connectors to the retractor (5 - tensioner squib and seat belt switch).
11. Remove seat belt and retractor from vehicle.

INSTALLATION

RETRACTOR-FRONT SEAT BELT

Fig. 329: Identifying Holding Clutches
Courtesy of CHRYSLER LLC

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

Two hydraulically applied multi-disc clutches are used to hold planetary geartrain components (1,4) stationary while the input clutches drive others. The 2/4 (2) and Low/Reverse (3) clutches are considered holding clutches and are contained at the rear of the transaxle case. See **Fig. 329**.

OPERATION

HOLDING CLUTCHES

2/4 CLUTCH

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

LOW/REVERSE CLUTCH

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

CONVERTER-TORQUE

DESCRIPTION

TORQUE CONVERTER

Courtesy of CHRYSLER LLC

NOTE: Before power brake booster (1) installation, be certain a NEW dash seal (2) is installed on the booster mounting studs.

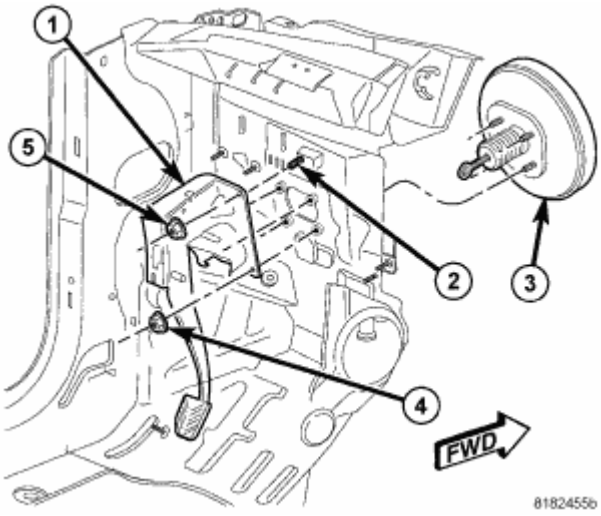


Fig. 180: Identifying Pedal & Booster Mounting - LHD
Courtesy of CHRYSLER LLC

1. Install the power brake booster (3) by sliding the push rod and studs through the dash panel and into mounting position.
2. Under the instrument panel, install the four power brake booster mounting nuts (4). To tighten the nuts, refer to the following step.