2008 ENGINE

Engine Mechanical - 4.3L - Sierra & Silverado

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Accelerator Control Cable Bracket Nut to Stud	12 N.m	106 lb in
Accelerator Control Cable Bracket Nut to Throttle Body	9 N.m	80 lb in
Accelerator Control Cable Bracket Stud to Intake Manifold	6 N.m	53 lb in
Accelerator Control Cable Bracket Stud to Throttle Body	12 N.m	106 lb in
Air Cleaner Adapter Stud	8 N.m	71 lb in
Balance Shaft Driven Gear Bolt		
• First Pass	20 N.m	15 lb ft
• Final Pass	35 degrees	
Balance Shaft Retainer Bolt	12 N.m	106 lb in
Battery Cable Bracket Bolt to Oil Pan	12 N.m	106 lb in
Battery Negative Cable Bolt to Engine	25 N.m	18 lb ft
Battery Positive Cable Junction Block Bracket Bolt	25 N.m	18 lb ft
Belt Idler Pulley Bolt	50 N.m	37 lb ft
Camshaft Retainer Bolt	12 N.m	106 lb in
Camshaft Sensor Bolt	N.m	lb ft
Camshaft Sprocket Bolt	25 N.m	18 lb ft
Connecting Rod Bolt		
• First Pass	20 N.m	15 lb ft
• Final Pass	100 degrees	
Crankshaft Balancer Bolt	95 N.m	70 lb ft
Crankshaft Bearing Cap Bolt - Preferred Method		
• First Pass	20 N.m	15 lb ft
• Final Pass	73 degrees	

Water Pump Bolt	Sealant	12346004	10953480

COMPONENT LOCATOR

DISASSEMBLED VIEWS

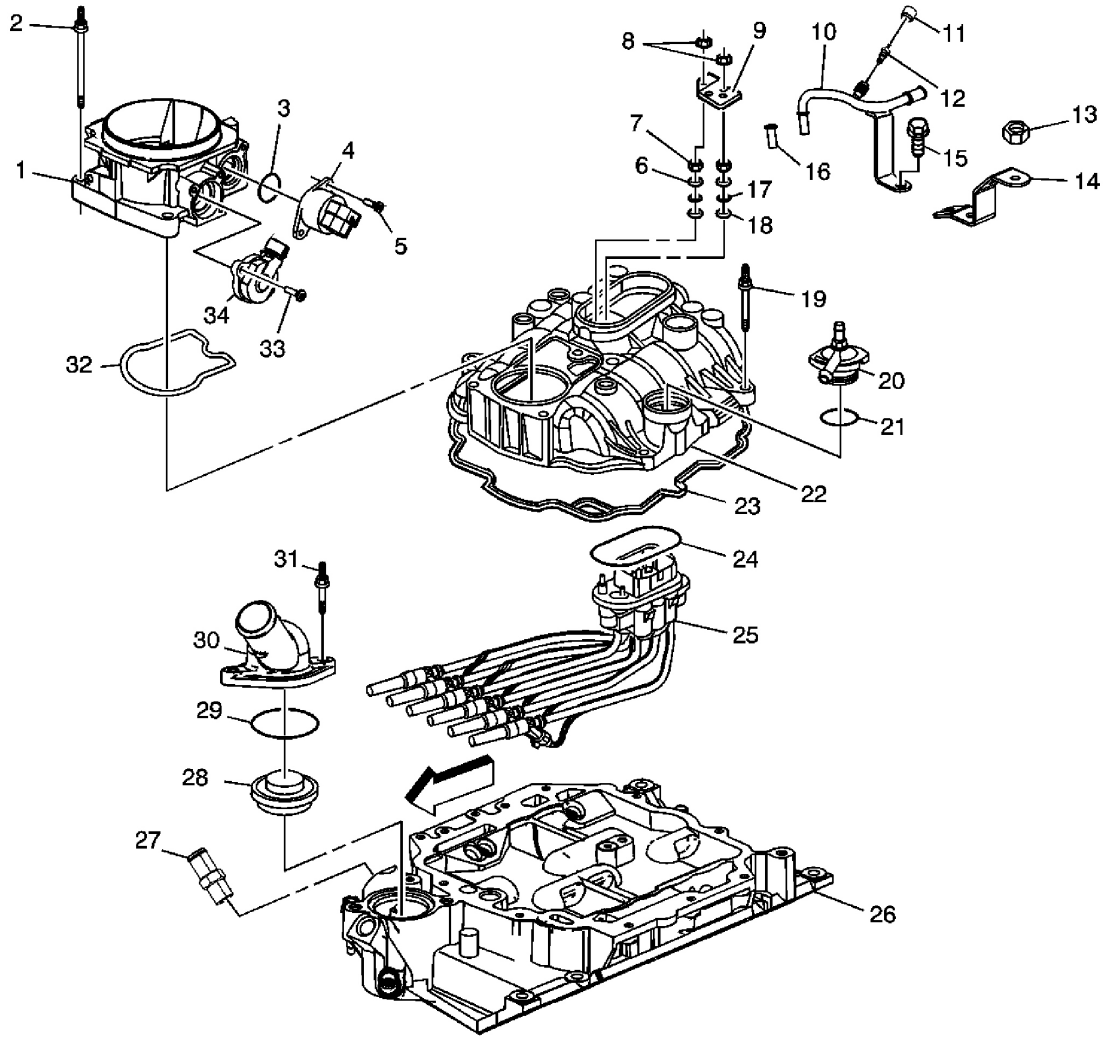

Fig. 1: Upper and Lower Intake Manifold View
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Throttle Body
2	Throttle Body Stud
3	Idle Air Control Valve Seal

4. Disconnect the fuel injector electrical connector.
5. Remove all of the spark plugs.

NOTE: Do not insert objects into the throttle plate opening. Damage to the throttle body can result, requiring replacement of the throttle body assembly.

6. Block the throttle linkage wide open.
7. Install the engine cylinder compression gage to the cylinder being tested.
8. Using the vehicle starter motor, rotate, or crank the engine for 4 compression strokes, or puffs, for the cylinder being tested. If the engine rotates for more than 4 compression strokes, test the cylinder again.
9. Record the compression reading.
10. Remove the engine cylinder compression gage from the cylinder being tested.
11. Repeat steps 8-11 for each additional cylinder. All cylinders must be tested to obtain valid test results.
12. If any cylinders have low compression, inject approximately 15 ml (1 oz) of engine oil into the cylinder through the spark plug hole.
13. Repeat steps 8-11 for all low compression cylinders.
14. The minimum compression in any one cylinder should not be less than 70 percent of the highest cylinder. No cylinder should read less than 690 kpa (100 psi). For example, if the highest pressure in any one cylinder is 1035 kPa (150 psi), the lowest allowable pressure for any other cylinder would be 725 kPa (105 psi). Multiply the highest cylinder pressure by 70 percent, 1035 kPa x 70 percent = 725 kPa (150 psi x 70 percent = 105 psi), in order to determine the lowest allowable pressure in any other cylinder.
    - Normal

      The compression builds up quickly and evenly to the specified compression.

    - Piston rings leaking

      Compression is low on the first compression stroke. The compression builds up on the following strokes, but does not reach normal. Compression improves considerably when you add oil.

    - Valves leaking

      Compression is low on the first compression stroke. The compression does not build up

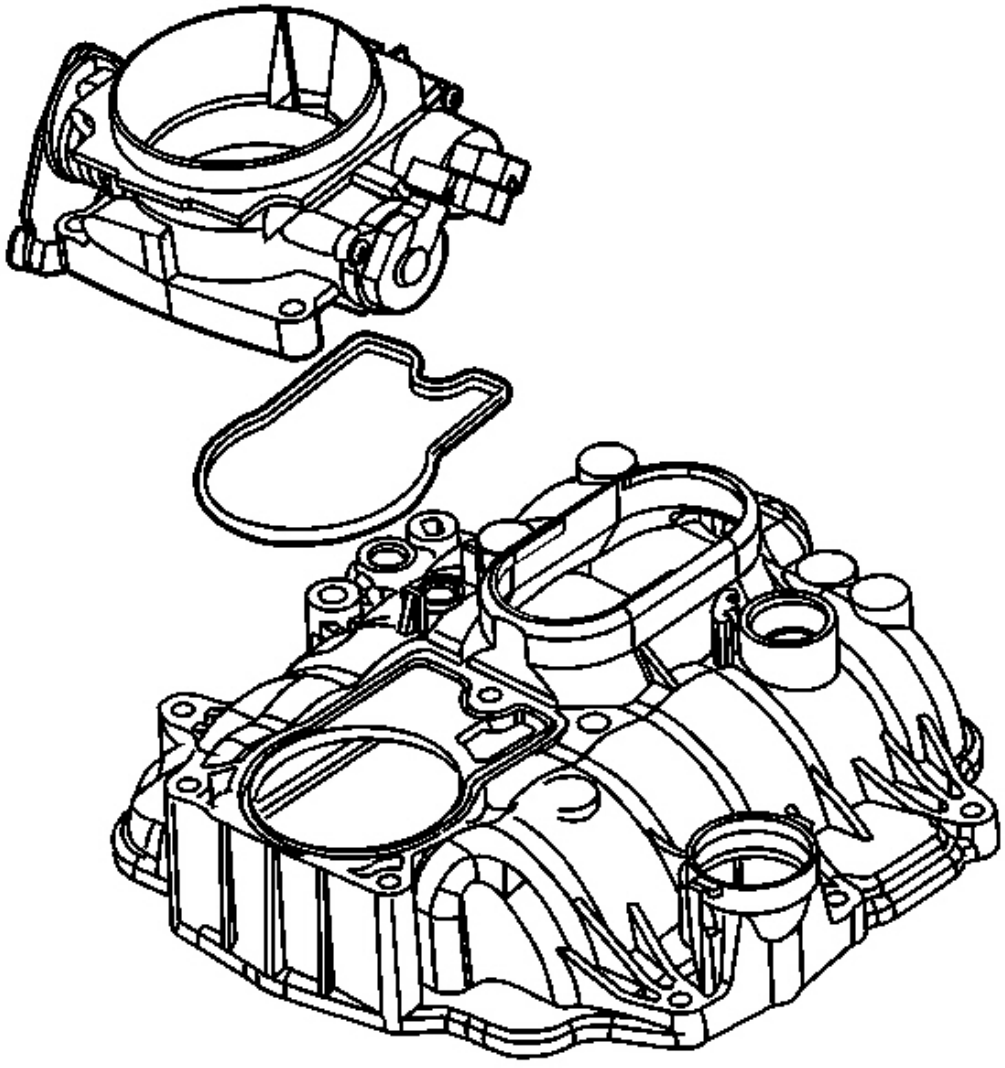

Fig. 57: View Of Throttle Body & Gasket
Courtesy of GENERAL MOTORS CORP.

23. If required, remove the rear throttle body stud.
24. Remove the throttle body.
25. Remove and discard the throttle body gasket.

5. Reposition the engine wiring harness and bracket.
6. Disconnect the power brake booster vacuum hose from the vacuum fitting.

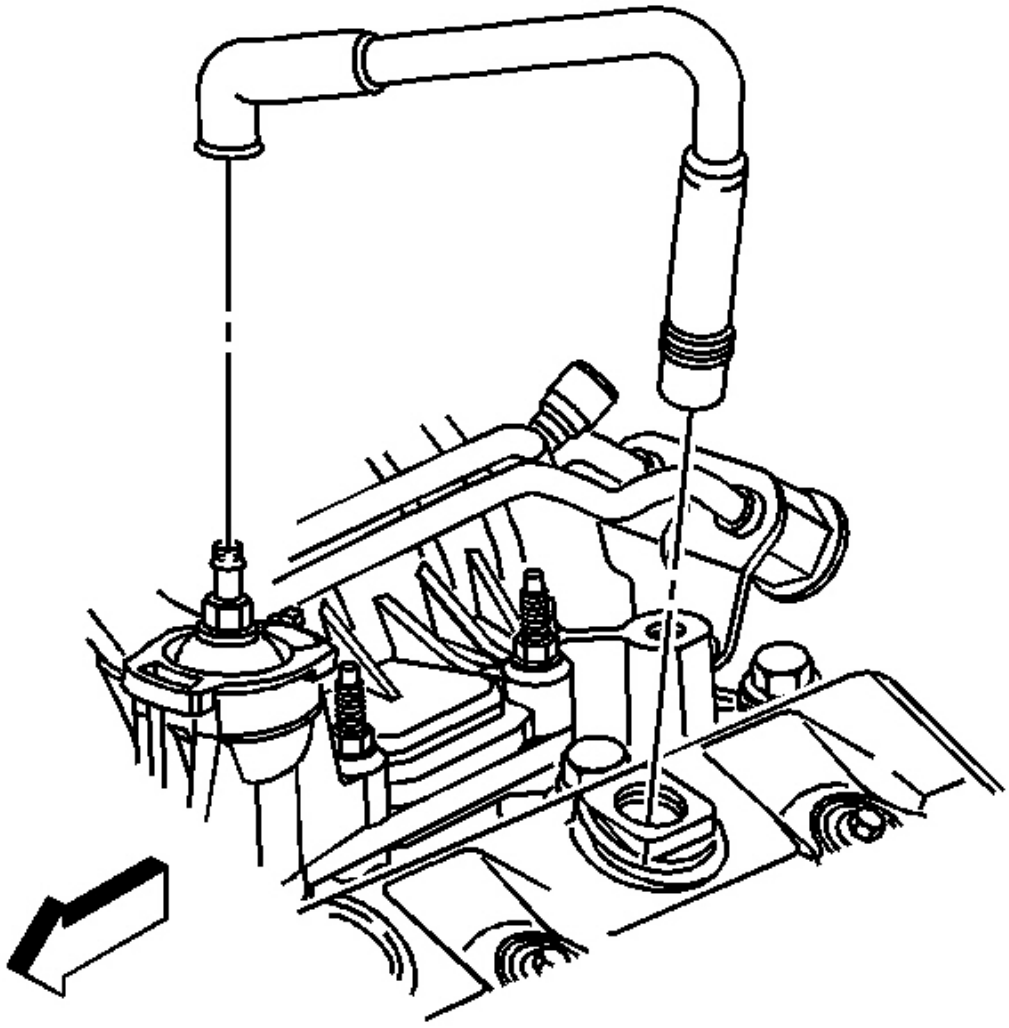

Fig. 115: Locating PCV Valve Hose At Valve & Rocker Cover
Courtesy of GENERAL MOTORS CORP.

7. Remove the positive crankcase ventilation (PCV) valve hose from the valve cover and rocker cover.

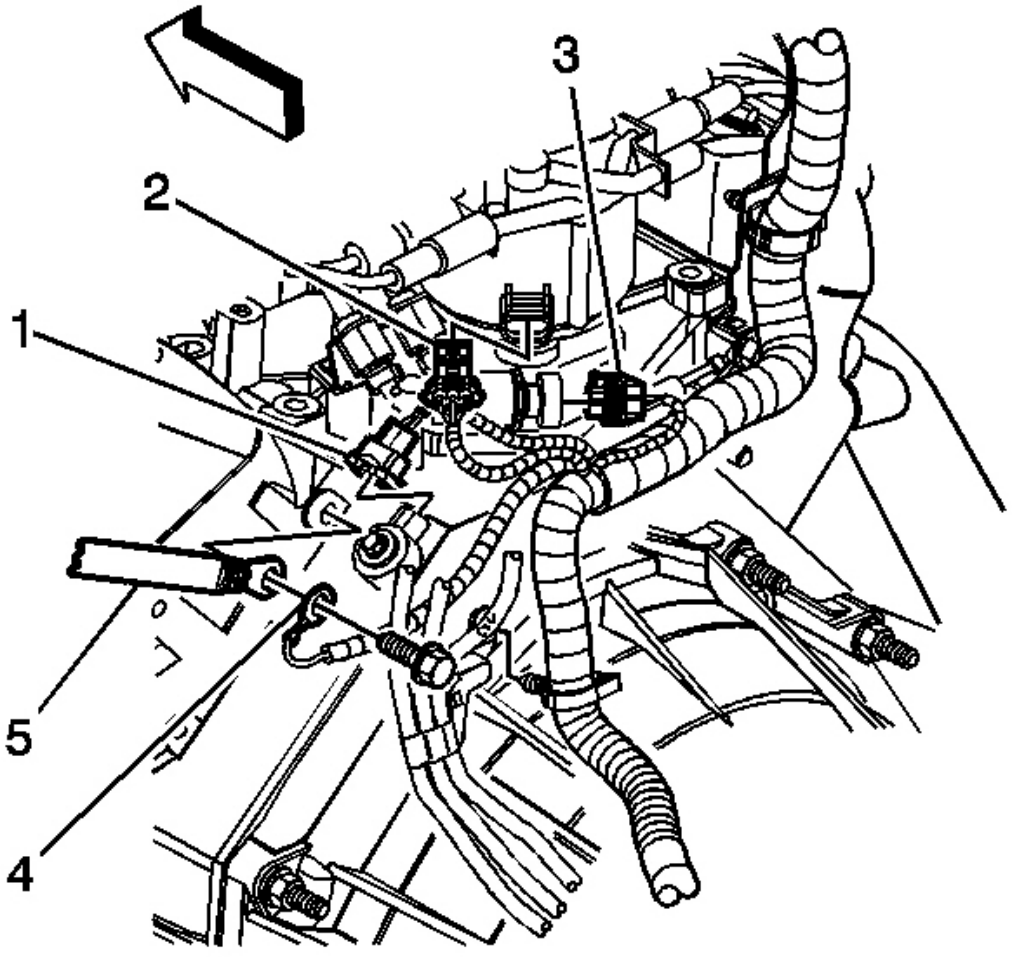

Fig. 165: View Of Ground Strap And CMP & Fuel Pump/Oil Pressure Sensor Connectors
Courtesy of GENERAL MOTORS CORP.

14. Remove the harness ground bolt.
15. Position the harness ground (4) and ground strap (5).

1. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** .
2. If equipped, remove the oil pan skid plate bolts and plate.

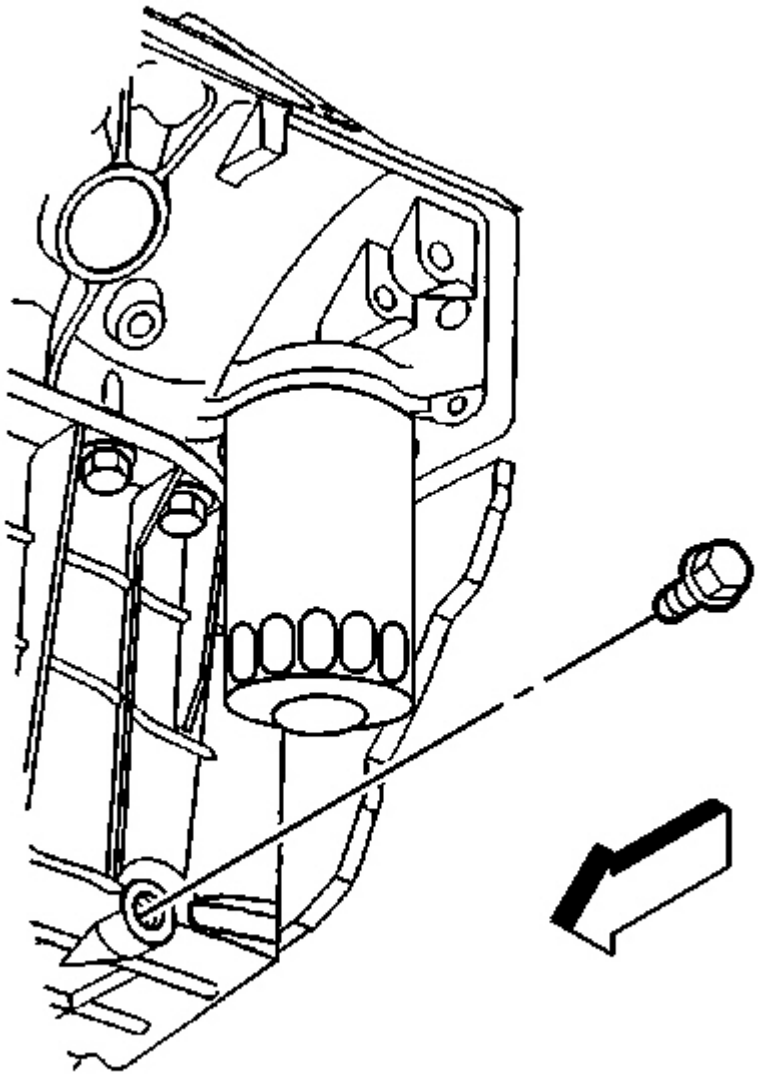

Fig. 257: Identifying Oil Drain Plug
Courtesy of GENERAL MOTORS CORP.

3. Remove the drain plug and drain the oil into a suitable container.

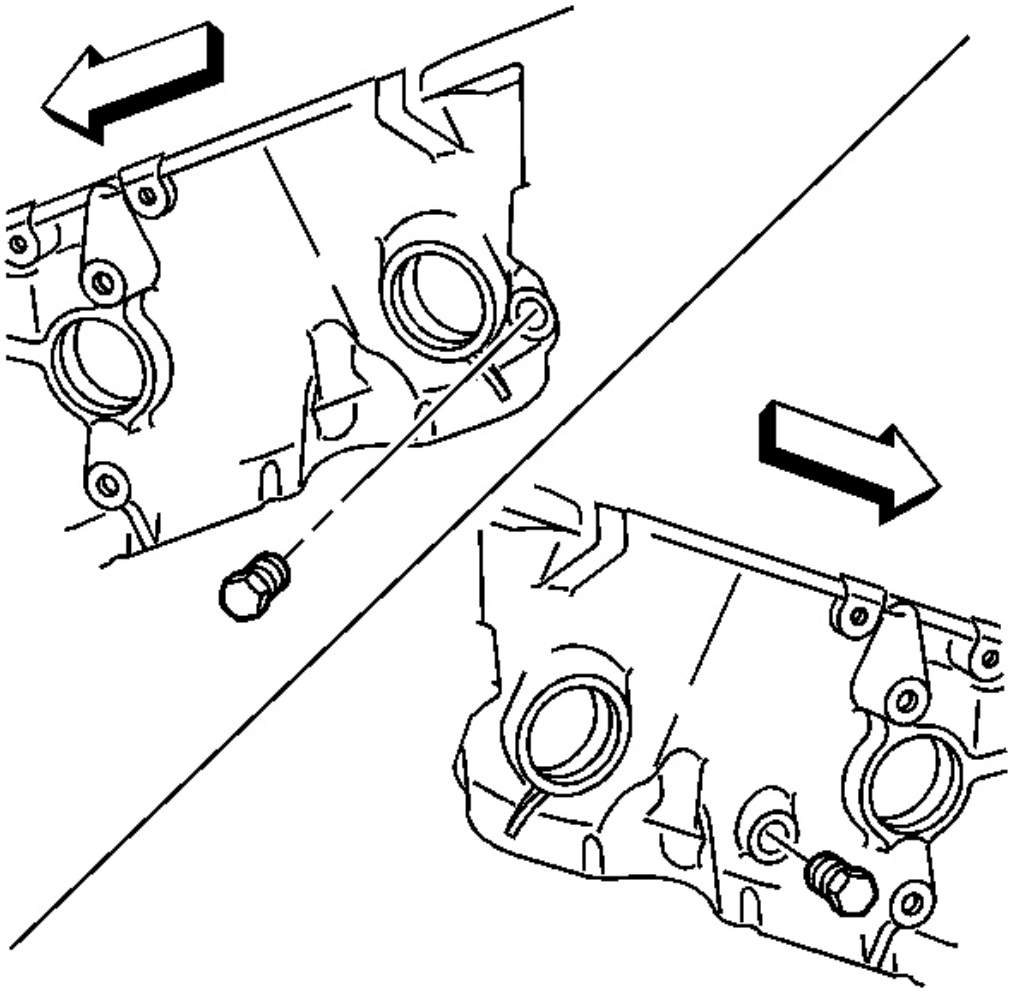

Fig. 364: View Of Engine Block Coolant Drain Hole Plugs
Courtesy of GENERAL MOTORS CORP.

4. Remove both the engine block coolant drain hole plugs and allow the coolant to drain into a suitable container.

ENGINE FLYWHEEL REMOVAL

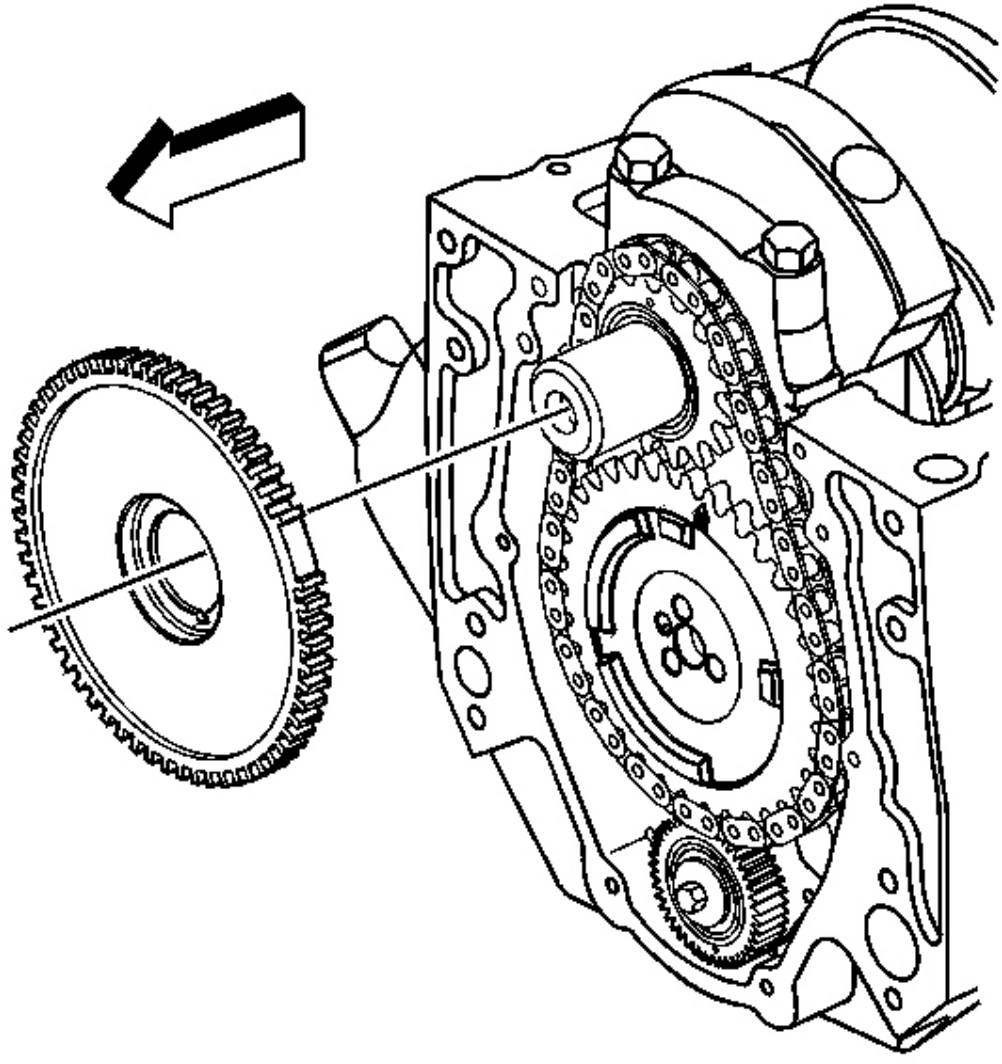

Fig. 423: View Of Crankshaft Position Sensor Reluctor Ring
Courtesy of GENERAL MOTORS CORP.

1. Remove the crankshaft position sensor reluctor ring.

soft cloth, do not scratch the crankshaft bearing surfaces.

4. Dry the crankshaft bearings with compressed air.

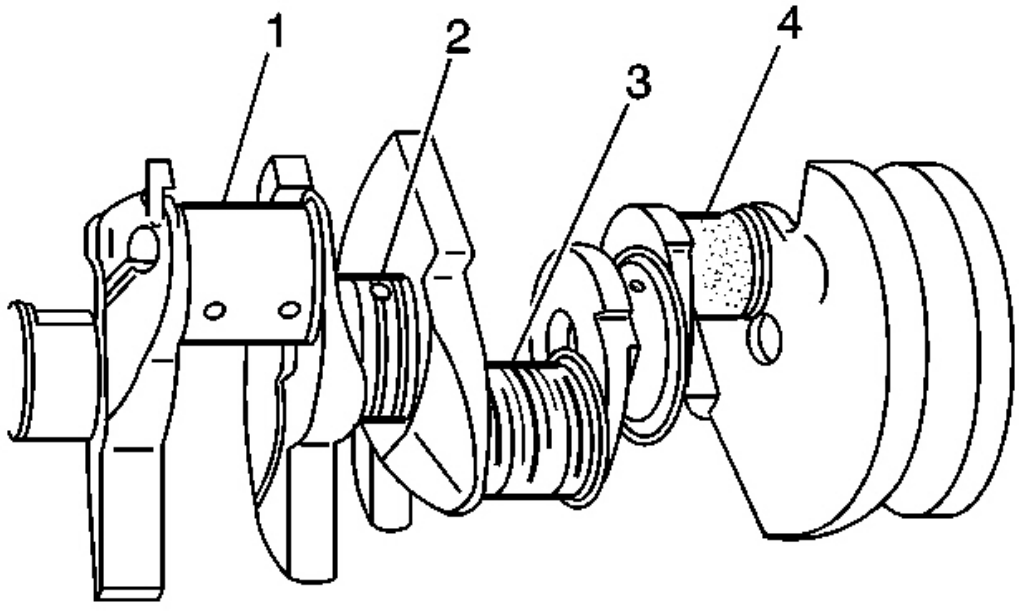

Fig. 478: Identifying Different Crankshaft Journal Wear Patterns
Courtesy of GENERAL MOTORS CORP.

5. Inspect the crankshaft for the following:
   - Crankshaft journals (1) should be smooth with no evidence of scoring or damage.
   - Deep grooves (2)
   - Scratches or uneven wear (3)
   - Pitted surfaces (4)
   - Wear or damage to the thrust journal surfaces
   - Scoring or damage to the rear seal surface
   - Restrictions to the oil passages
   - Damage to the threaded bolt holes

and help center the camshaft inner bearings during the installation process. See Special Tools.

2. Install the NEW camshaft outer bearings #4 and #1.
    1. Install the NEW camshaft outer bearing #4 onto the **J 33049** expander assembly. See **Special Tools**.
    2. Tighten the **J 33049** expander assembly nut until snug. See **Special Tools**.
    3. Align the lubrication hole of the camshaft outer bearing #4 above the 3 o'clock position or the 9 o'clock position of the camshaft outer bearing bore #4 at the rear of the engine block.
    4. Drive the camshaft outer bearing #4 into the camshaft outer bearing bore #4 at the rear of the engine block.
    5. Loosen the **J 33049** expander assembly nut. See **Special Tools**.
    6. Remove the camshaft outer bearing #4 from the **J 33049** expander assembly. See **Special Tools**.
    7. Install the NEW camshaft outer bearing #1 onto the **J 33049** expander assembly. See **Special Tools**.
    8. Tighten the **J 33049** expander assembly nut until snug. See **Special Tools**.
    9. Align the lubrication hole of the camshaft outer bearing #1 above the 3 o'clock position or the 9 o'clock position of the camshaft outer bearing bore #1 at the front of the engine block.
    10. Drive the camshaft outer bearing #1 into the camshaft outer bearing bore #1 at the front of the engine block.
    11. Loosen the **J 33049** expander assembly nut. See **Special Tools**.
    12. Carefully slide the **J 33049** into the engine block until the **J 33049** expander assembly is positioned between the camshaft inner bearing bores. See **Special Tools**.
3. Install the NEW camshaft inner bearings #3 and #2.
    1. Install the NEW camshaft inner bearing #3 onto the **J 33049** expander assembly. See **Special Tools**.
    2. Tighten the **J 33049** expander assembly nut until snug. See **Special Tools**.
    3. Align the lubrication hole of the camshaft inner bearing #3 above the 3 o'clock position or the 9 o'clock position of the camshaft inner bearing bore #3 of the engine block.
    4. Push the **J 33049** guide cone into the camshaft front bearing bore #1 in order to align the **J 33049** . See **Special Tools**.

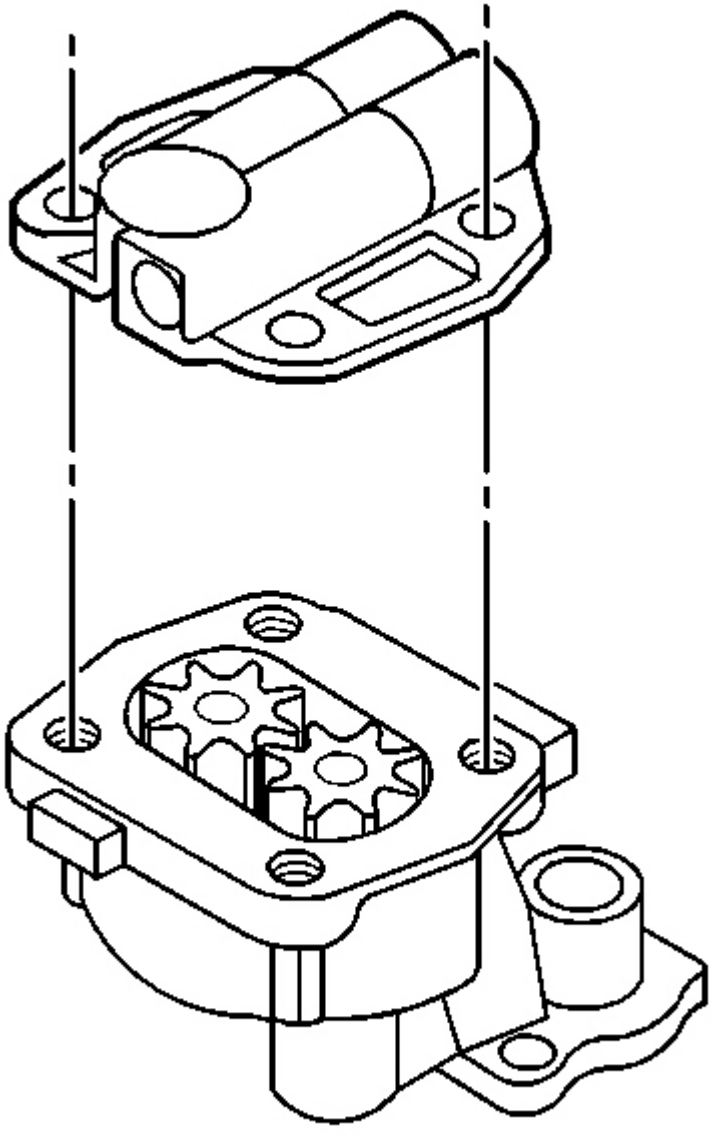

Fig. 566: View Of Oil Pump Cover
Courtesy of GENERAL MOTORS CORP.

5. Install the oil pump cover.

and the engine block left side oil gallery plug.

Tighten:

- Tighten the engine block left side oil gallery plug and the engine block right rear oil gallery plug to 20 N.m (15 lb ft).
- Tighten the engine block left rear oil gallery plug to 30 N.m (22 lb ft).

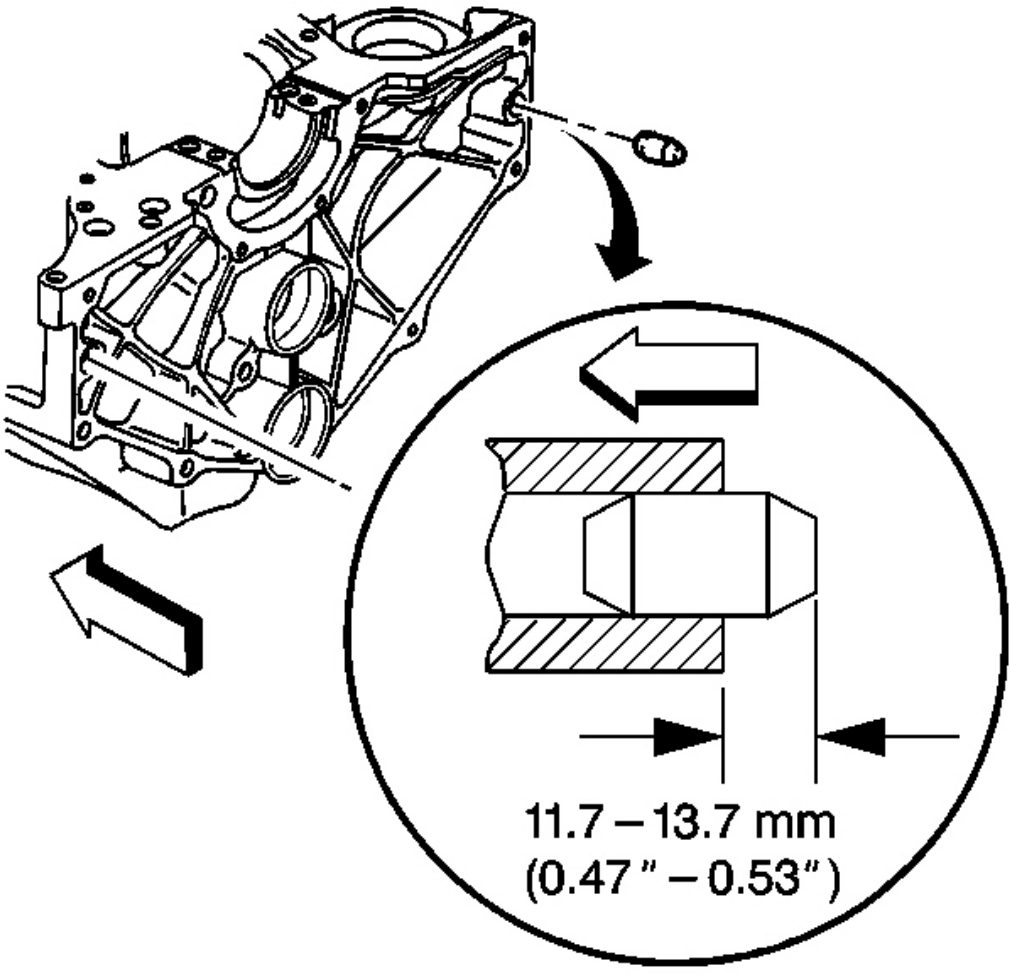

Fig. 612: Installing Transmission Locator Dowel Straight Pins
Courtesy of GENERAL MOTORS CORP.

13. Install the transmission locator dowel straight pins, if required.

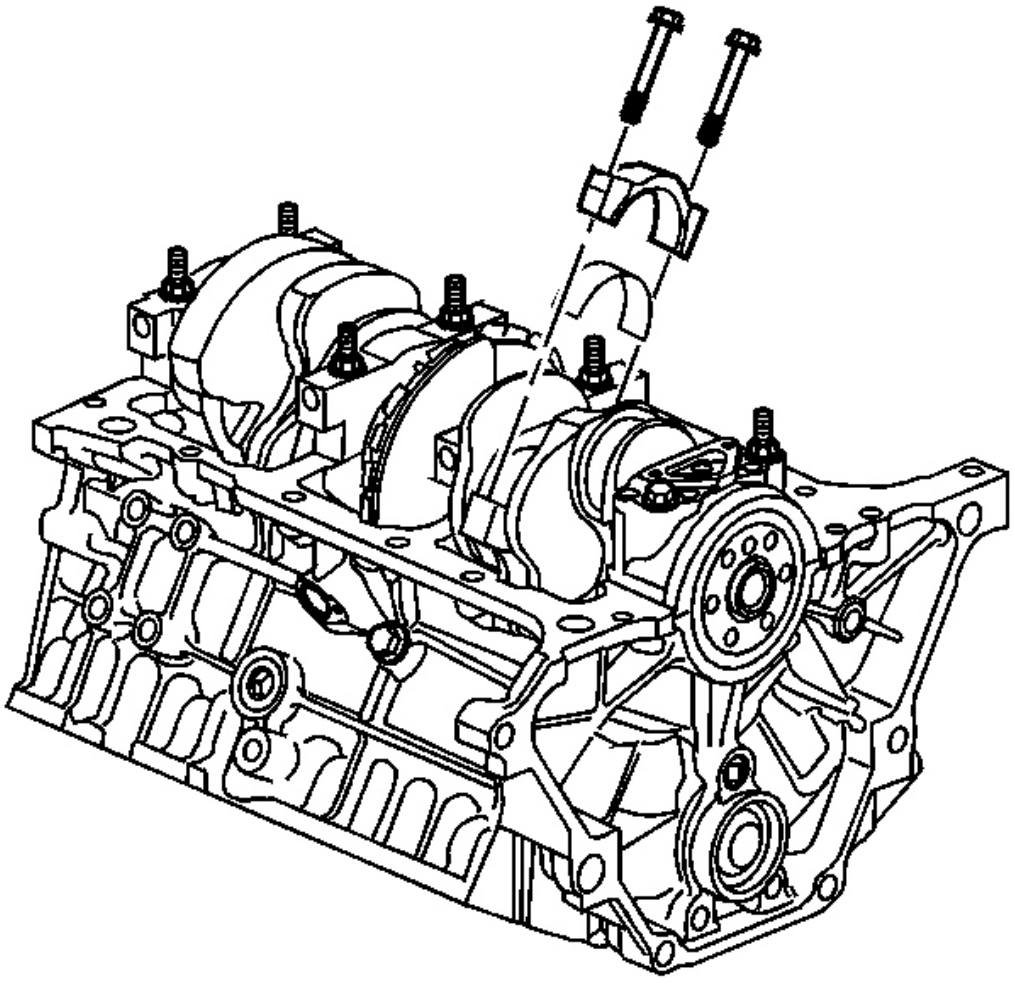

Fig. 638: View Of Bearing, Bearing Cap & Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice .

6. Install the connecting rod bearing, cap, and bolts.

Tighten:

1. Tighten the bolts evenly on the first pass to 20 N.m (15 lb ft).
2. Use the **J 45059** in order to tighten the bolts on the final pass an additional 100

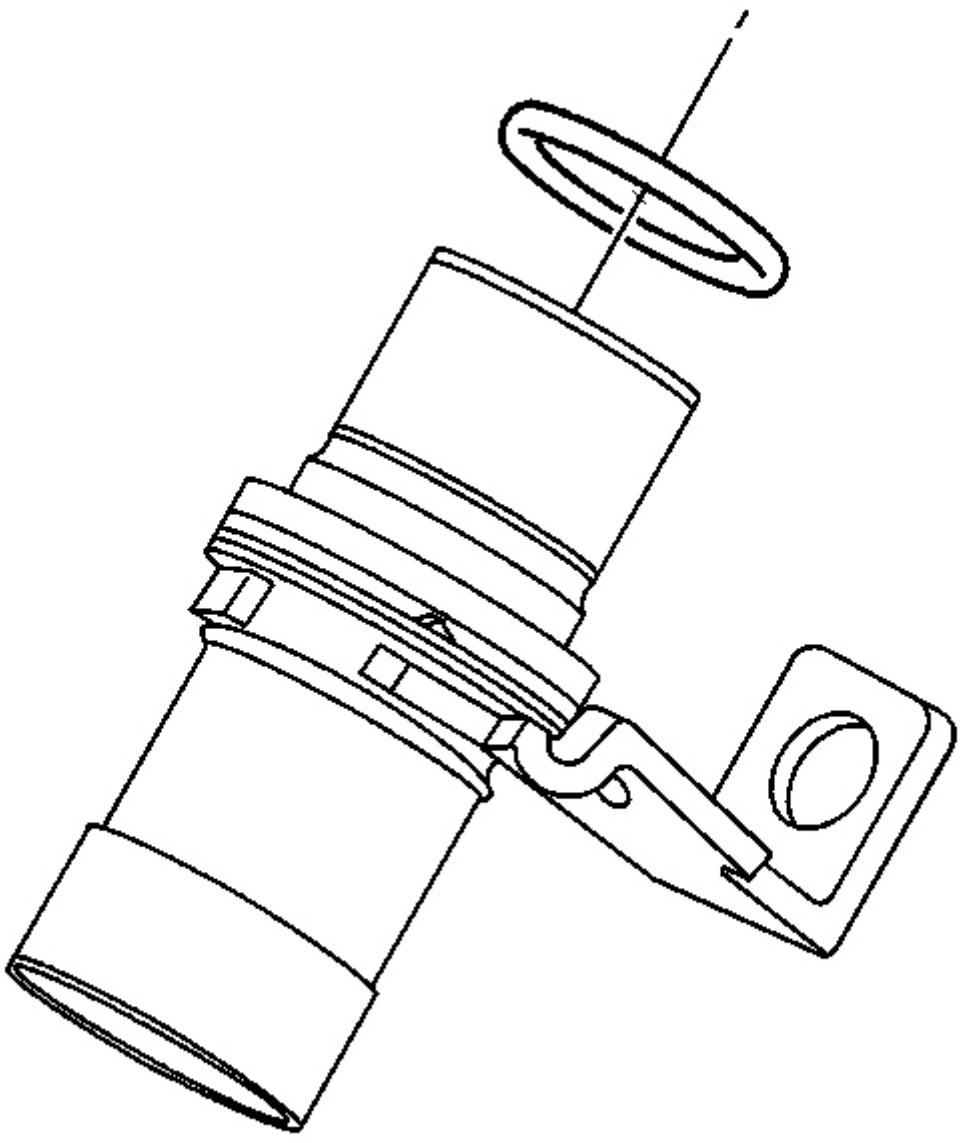

Fig. 659: View Of Crankshaft Position Sensor Seal O-Ring
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: DO NOT reuse the original crankshaft position sensor seal, O-ring. When installing the crankshaft position sensor be sure the crankshaft position sensor is fully seated and held