

Dealer Service Instructions for:

Customer Satisfaction Notification E05 Oil Pump Drive Gear

A revised drive gear parts package has been released. The second roll pin hole must be drilled in the revised drive gear.

Models

2005 (TJ) Jeep® Wrangler

*NOTE: This notification applies only to the above vehicles equipped with a **4.0L engine** (“S” in the 8th VIN position) and an **engine build code** between 902944 (October 20, 2004) and 900325 (February 1, 2005).*

IMPORTANT: Some of the involved vehicles may be in dealer vehicle inventory. Dealers should complete this repair on these vehicles before retail delivery. Dealers should also perform this repair on vehicles in for service. Involved vehicles can be determined by using the VIP inquiry process.

Subject

The oil pump drive gear on about 16,000 of the above vehicles may wear out prematurely and cause engine failure due to a loss of oil pressure.

Repair

The camshaft position sensor/oil pump drive assembly date code label must be inspected. Units within a specific date code range must have the drive gear replaced. **All unsold vehicles must have the oil pump drive gear replaced prior to retail delivery to eliminate the risk of engine failure due to premature oil pump drive gear wear.** On sold vehicles, the cam/crank angle must also be checked with the DRB III scan tool. Engines found with excessive cam/crank angle must have the oil pump drive gear and the engine camshaft replaced.

Alternate Transportation

Dealers should attempt to minimize customer inconvenience by placing the owner in a loaner vehicle if inspection determines that an engine camshaft is required and the vehicle must be held overnight.

Parts Information

<u>Part Number</u>	<u>Description</u>
CDC0E051AB	Cam Sensor and Oil Pump Drive Gear Package

Each package contains the following components:

<u>Quantity</u>	<u>Description</u>
1	Gear, camshaft sensor and oil pump drive
1	Pin, roll
1	Washer, thrust
1	Seal, camshaft sensor and oil pump drive
1	#10 drill bit
1	Instructions, drive gear drilling

Each dealer to whom vehicles in the recall were invoiced will receive enough Cam Sensor and Oil Pump Drive Gear Packages to service about 10% of those vehicles.

Lubriplate[®] White Grease

<u>Part Number</u>	<u>Description</u>
04549615	White Grease (1.75 Oz. Tube)

NOTE: One tube of white grease can lubricate ten drive gears.

Parts Information (Continued)

Due to the small number of involved vehicles expected to require engine camshaft replacement, no parts will be distributed initially. **Camshaft packages should be ordered only after inspection determines that replacement is required. *Very few vehicles are expected to require engine camshaft replacement.***

<u>Part Number</u>	<u>Description</u>
CDC0E052	Camshaft Package

Each package contains the following components:

<u>Quantity</u>	<u>Description</u>
1	Camshaft, engine
1	Gasket, cylinder head
1	Gasket, engine front cover
1	Seal, engine crankshaft
1	Gasket, oil pan
1	Pump, engine oil
1	Gasket, engine oil pump
1	Tube, oil pump inlet
12	Tappet, valve

Engine Oil Filter

<u>Part Number</u>	<u>Description</u>
05281090	Engine Oil Filter

Engine Motor Oil

<u>Part Number</u>	<u>Description</u>
04761839AB	10w-30 Engine Oil

Silicone Rubber Adhesive Engine Sealant

<u>Part Number</u>	<u>Description</u>
04883971	Silicone Rubber Adhesive Engine Sealant

Special Tools

The following Special Tools may be required to perform this service procedure:

- C-4129-A Hydraulic Tappet Installer/Remover
- 7697 Vibration Damper Remover
- 6139 Timing Cover Seal Installer

Service Procedure

A. Inspect Camshaft Position Sensor Date Code Label:

1. Open the hood.
2. Locate the cam sensor on the passenger side of the engine near the oil filter.
3. If the date code label is not visible due to its present location:
 - a. Mark the position of oil pump drive housing in relationship to engine block.
 - b. Loosen the hold-down bolt and clamp.
 - c. Rotate the housing until the label is in a position where the date code label can be read.

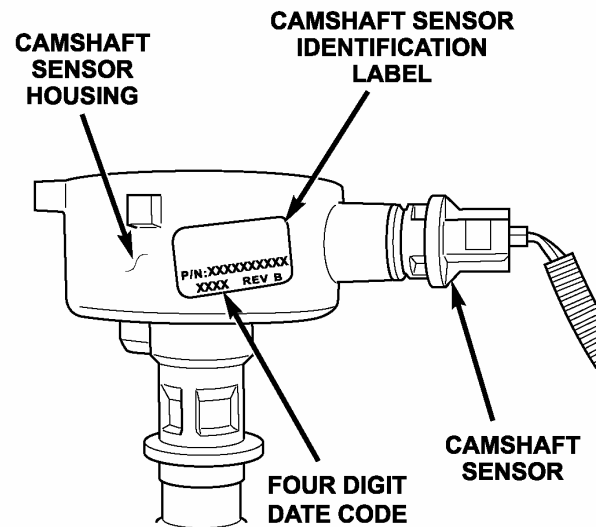


Figure 1

4. Using a small mirror, inspect the date code on the label located on the side of the housing (Figure 1).
 - If the date code is **between 4297 to 4364**, continue with Section “B” Testing the Oil Pump Drive Gear with the DRB III Scan Tool.

NOTE: If the housing was loosened to inspect the date code, rotate the oil pump drive housing until the marks are aligned. Tighten the hold-down clamp bolt to 195 in. lbs. (22 N·m).

- If the date code is **lower than 4297** or **higher than 4364**, the cam sensor/oil pump drive gear **does not** require replacement. If the housing was loosened to inspect the date code, rotate the oil pump drive housing until the marks are aligned. Tighten the hold-down clamp bolt to 195 in. lbs. (22 N·m). Then return the vehicle to the customer.

NOTE: If the date code label can not be read due to engine paint covering the label, carefully clean the label with mineral spirits. DO NOT use carburetor cleaner or brake cleaner to clean the date code label. These cleaners will remove the date code print along with the paint.

Service Procedure (Continued)

B. Testing the Oil Pump Drive Gear with DRB III Scan Tool:

NOTE: The DRB III software must be at level 61.1 or higher to perform this procedure.

1. Connect the DRB III to the vehicle's diagnostic connector.
2. Set the park brake, start the engine and let it idle in neutral.
3. Press **"Yes"** on the DRB III key pad.
4. From the DRB III Main Menu, press **#1** on the DRB III key pad **"Stand-alone"**.
5. From the Stand-Alone Main Menu, press **#1** on the DRB III Key pad **"1998 - 2005 Diagnostics"**.
6. From the 1998 – 2005 Diagnostics Menu, press **#1** on the DRB III key pad **"All (Except Below)"**.
7. From the Select System Menu, press **#1** on the DRB III key pad **"Engine"**.
8. From the Vehicle Learned Configuration display, press **Enter** on the DRB III key pad.
9. From the Select Function Menu, press **#4** on the DRB III key pad **"Sensor Display"**.
10. Record the **CAM CRANK DIFFERENCE and the CAM CRANK LEARNED**.
11. To determine the change in Cam Crank angle for the vehicle, subtract **CAM CRANK LEARNED** from **CAM CRANK DIFFERENCE**.
(Cam Crank Learned - Cam Crank Difference = Change in Cam Crank Angle).
 - If the change in Cam Crank Angle is **less than 2.0 degrees**, the drive gear on the camshaft is good. Continue with Section C – Replace The Camshaft Position Sensor Oil Pump Drive Gear.
 - If the change in Cam Crank Angle is **2.0 degrees or more**, replace the engine camshaft and the oil pump drive gear. Continue with Section D - Camshaft Replacement.

Service Procedure (Continued)

C. Replace Camshaft Position Sensor Oil Pump Drive Gear:

NOTE: During camshaft position sensor oil pump drive gear replacement, do not allow engine crankshaft to rotate. Sensor relationship to the camshaft will be lost.

1. Remove two plastic cover screws and remove plastic cover from the camshaft sensor housing.
2. Note and mark the position of trigger wheel in relationship to housing (Figure 2).
3. Disconnect camshaft position sensor electrical jumper harness at engine wiring harness.
4. If not previously performed during date code inspection, mark the position of oil pump drive housing in relationship to engine block (Figure 3).
5. Remove the housing hold-down bolt and clamp.
6. Remove the camshaft position sensor oil pump drive housing assembly from engine.
7. Remove and discard old oil pump drive-to-engine block gasket.

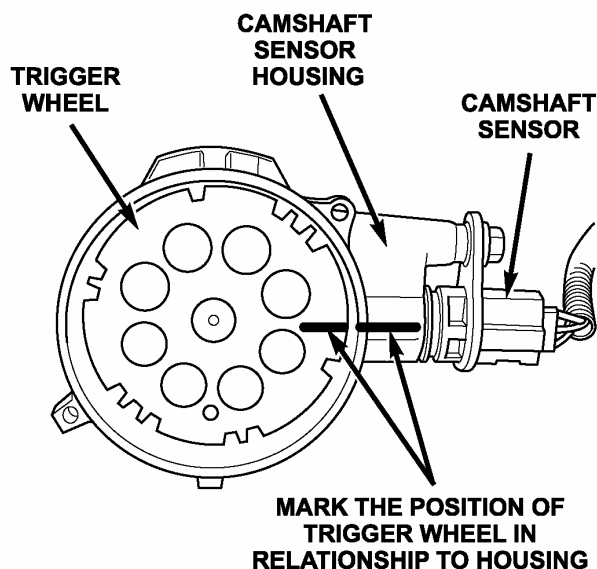


Figure 2

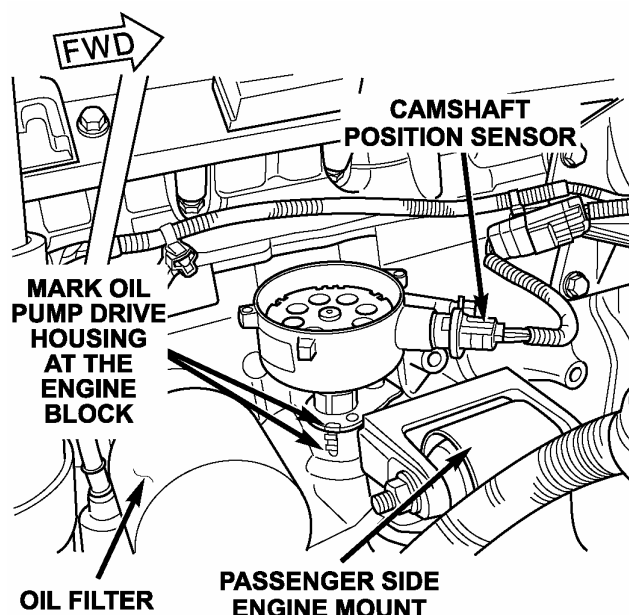


Figure 3

Service Procedure (Continued)

8. With the drive gear clamped in a vise, remove the roll pin that holds the drive gear to the shaft (Figure 4).
9. Remove and discard the old drive gear, thrust washer and roll pin.
10. Install the new thrust washer.
11. Install the new drive gear onto the main shaft.

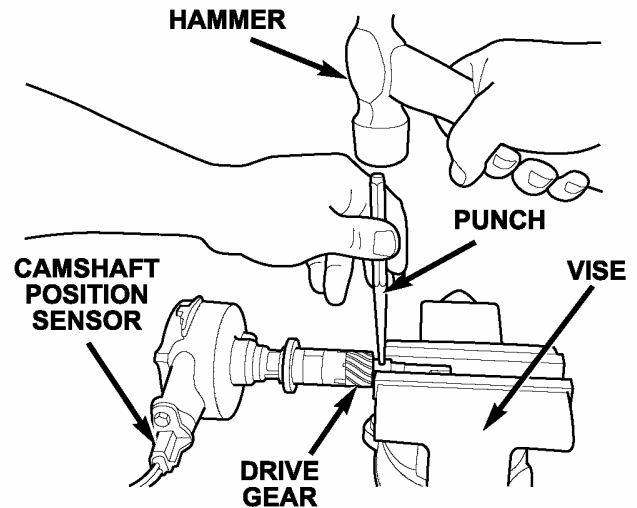


Figure 4

Drive Gear Package P/N CDC0E051:

The drive gear roll pin hole is off-set drilled. Verify that the holes on the drive gear line up with the hole in the main shaft. If the holes do not line up, rotate the drive gear 180 degrees on the main shaft and recheck hole alignment. If the gear holes can not be aligned, order revised drive gear package P/N CDC0E051AB.

Revised Drive Gear Package P/N CDC0E051AB: The second roll pin hole must be drilled in the revised drive gear. Refer to the drive gear drilling instructions provided in the kit for complete details.

12. Install the new roll pin by lightly tapping the pin into the drive gear. Use a vise to press the roll pin flush to the drive gear surface (Figure 5).

CAUTION: Do not attempt to fully install the roll pin into the drive gear with a hammer. Gear damage is possible if the hammer hits any of the drive gear teeth during installation.

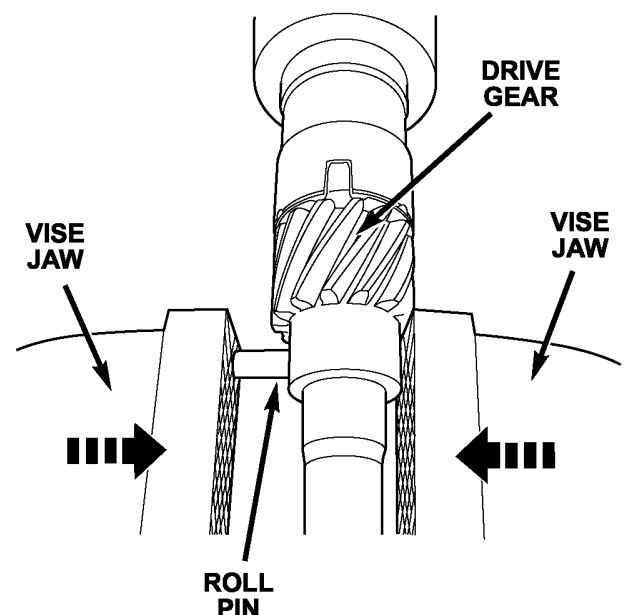


Figure 5

Service Procedure (Continued)

13. Check the clearance between the drive gear and thrust washer using a feeler gauge (Figure 6). The clearance should be between 0.010" to 0.030" (0.25 mm to 0.75 mm).
14. If the clearance between the drive gear and thrust washer is out of specification, use the following process to adjust the clearance:
 - a. If the clearance is **excessive (loose)**, stand the assembly upright on the main shaft.
 - b. Place a ¾ inch deep well socket over the shaft at the trigger wheel (Figure 7).
 - c. **Lightly** tap the top of the socket with a hammer to drive the trigger wheel down slightly.
 - d. Recheck the clearance and repeat as required.

- a. If the clearance is **insufficient (tight)**, hold the housing in your hand and **lightly** tap the main shaft with a hammer where it protrudes through the trigger wheel (Figure 8).

CAUTION: Do not clamp the assembly in a vise or support the housing in any way while tapping on the main shaft.

- b. Recheck the clearance and repeat as required.
15. Clean oil pump drive housing mounting hole area of engine block.

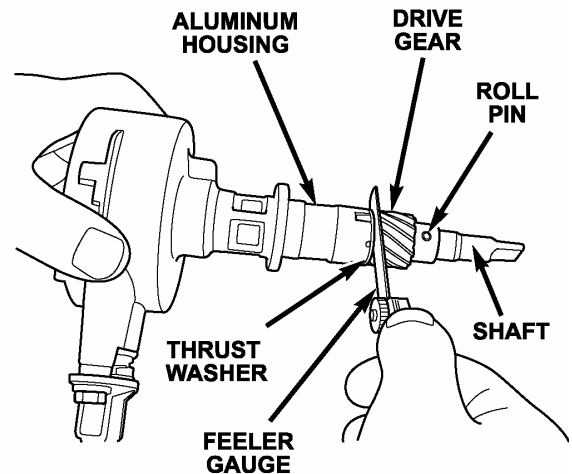


Figure 6

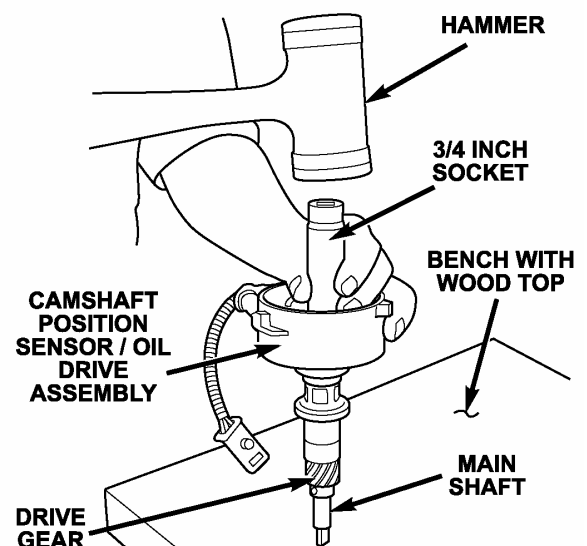


Figure 7

Service Procedure (Continued)

16. Install new oil pump drive-to-engine block gasket.
17. Using a small brush, lubricate the new drive gear and thrust washer on the oil pump drive with Lubriplate (P/N 04549615) white grease (Figure 9).

NOTE: Be sure that the white grease covers the gear teeth and thrust washer completely.

18. Install oil pump drive assembly. Locate the target wheel in the same position as marked in Step 2 and be sure to align the shaft into oil pump slot (Figure 2).

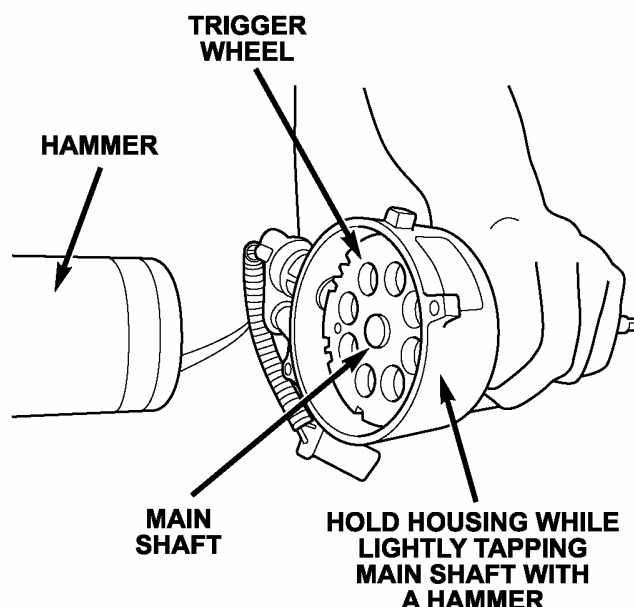


Figure 8

19. Rotate oil pump drive housing back to its original position using the alignment marks made in Step 4 of this procedure (Figure 3).

NOTE: The trigger wheel locating marks and the body locating marks must line up as marked on the assembly before removal.

20. Install the housing hold-down clamp and snug the bolt.
21. Connect the camshaft position sensor electrical jumper harness at engine wiring harness.
22. Install the plastic cover onto the oil drive assembly and install two cover screws. Tighten screws to 53 in. lbs. (6 N·m).
23. Continue with Section E - Adjust Cam/Crank Difference.

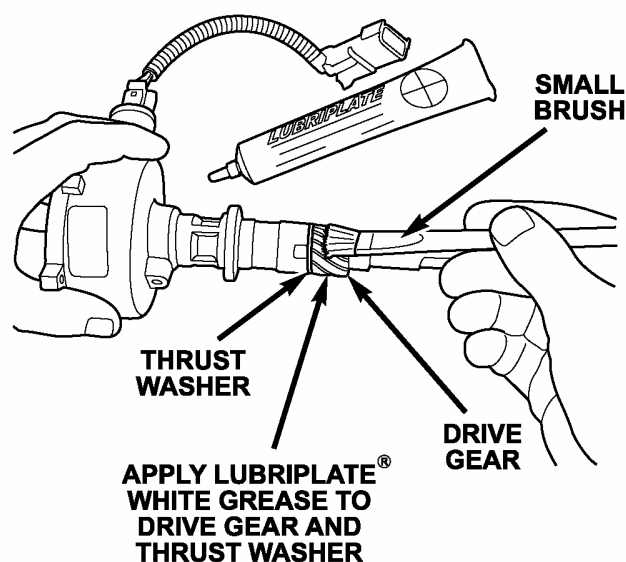


Figure 9

Service Procedure (Continued)

D. Camshaft Replacement:

WARNING: The fuel system is under a constant pressure (even with the engine off). Before removing the cylinder head, the fuel system pressure must be released.

1. Use the following procedure to release the fuel pressure from the fuel system:
 - a. Remove the fuel pump relay from the Power Distribution Center (PDC). To determine the exact location of the fuel pump relay, refer to the label on the underside of the PDC cover.
 - b. Start and run the engine until it stalls.
 - c. Attempt to restart the engine until it will no longer run.
 - d. Turn the ignition to the “OFF” position.
 - e. Install the fuel pump relay back into the PDC.

NOTE: Do not turn the key to the “run” position until after all repairs have been made. Turning the key to the “RUN” position will turn on the fuel pump and pressurize the fuel system.

2. Disconnect negative cable from battery.
3. Drain the cooling system.

WARNING: The coolant in a recently operated engine is hot and pressurized. Release the pressure before removing the drain cock, radiator cap or coolant drain plugs.

4. Remove the radiator from the vehicle.

Service Procedure (Continued)

5. **Vehicles equipped with air conditioning**, discharge the air conditioning system using an approved refrigerant recovery machine.
6. **Vehicles equipped with air conditioning**, remove the air conditioning refrigerant lines at the condenser.
7. Remove Grill Opening Panel (with the condenser if equipped) to provide clearance for camshaft removal.
8. Remove accessory drive belt, tensioner and idler pulley.
9. Remove the throttle body air inlet tube.
10. Remove the throttle control cable(s).
11. Disconnect vacuum hoses from the intake manifold.
12. Disconnect the ignition coil rail electrical connectors and remove the coil rail.
13. Disconnect the engine wiring harness connectors and set aside.
14. Remove the engine rocker arm cover.
15. Remove the rocker arms, bridges, pivots and push rods (Figure 10).

NOTE: Keep all parts in order so that they can be reinstalled in the same position from which they were removed.

16. Raise the vehicle on an appropriate hoist.
17. Disconnect exhaust pipe bolts from the exhaust manifold.

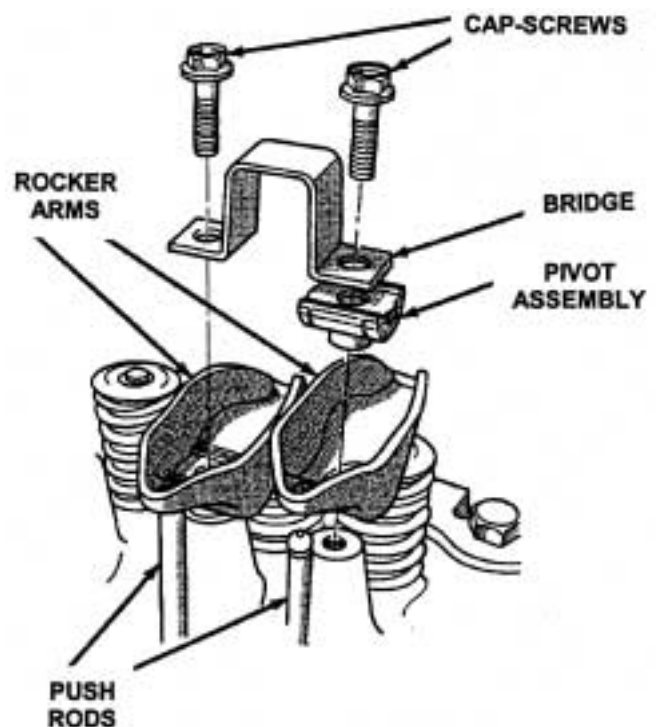


Figure 10

Service Procedure (Continued)

18. Disconnect the back of the exhaust pipe behind the catalytic converter and remove the exhaust pipe.
19. Drain the oil from the engine and remove the oil pan and oil pan gasket.
20. Lower the vehicle.
21. Remove the power steering pump from the intake manifold and set aside.

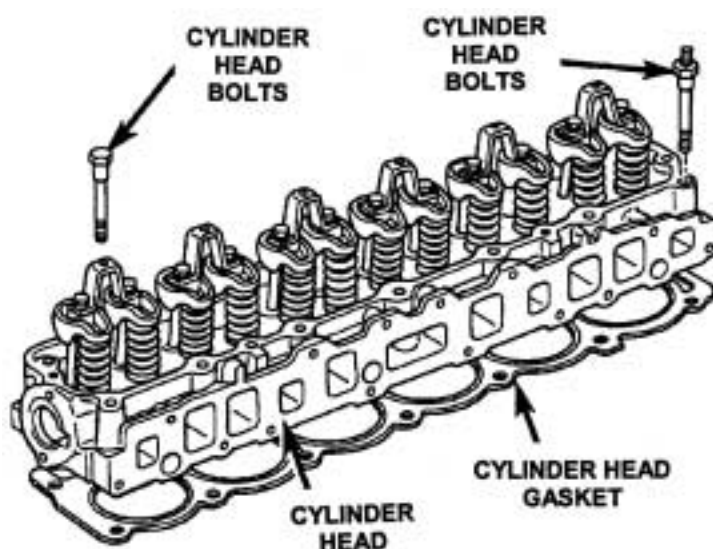


Figure 11

NOTE: DO NOT disconnect the power steering hoses.

22. Remove the generator and generator bracket
23. **Vehicles equipped with air conditioning**, remove the air conditioning refrigerant lines from the compressor ports.
24. Disconnect the fuel supply line and retaining bracket at the fuel rail.
25. Disconnect the heater hoses.
26. Remove the cylinder head bolts (Figure 11).
27. Remove the engine cylinder head and the intake-exhaust manifold as an assembly. Then remove and discard the cylinder head gasket (Figure 11).
28. Remove and discard all of the hydraulic valve tappets from the engine cylinder block using Special Tool C-4129-A or equivalent (Figure 12).

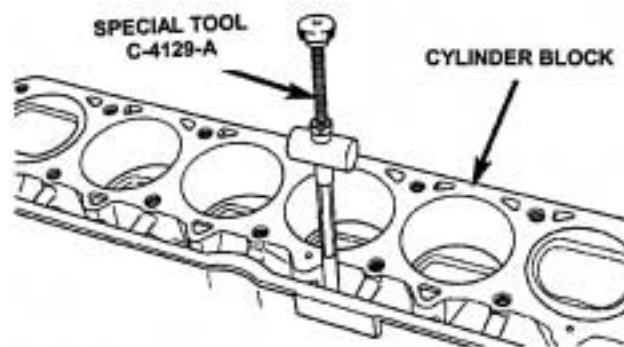


Figure 12

CAUTION: Do not use a magnet to remove or install hydraulic tappets.

Service Procedure (Continued)

29. Using Special Tool 7697, remove the crankshaft vibration damper (Figure 13).
30. Remove the timing case cover from the engine.
31. Rotate the crankshaft until the crankshaft sprocket timing mark is aligned on centerline with the camshaft sprocket timing mark (Figure 14).
32. Remove the timing chain and sprockets from the engine.
33. Remove the camshaft position sensor/ oil pump drive assembly.
34. Remove the two thrust plate retaining screws and thrust plate.

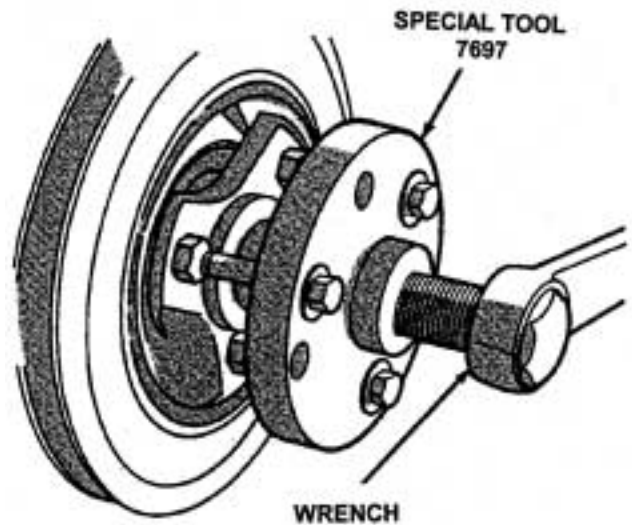


Figure 13

35. Carefully slide the old camshaft out of the engine block and discard.

CAUTION: Do not allow the lobes of the camshaft to drag across the camshaft bearings during removal or installation. Camshaft bearing damage could result.

36. Lubricate the new camshaft with engine oil.
37. Carefully install the new camshaft into the engine.

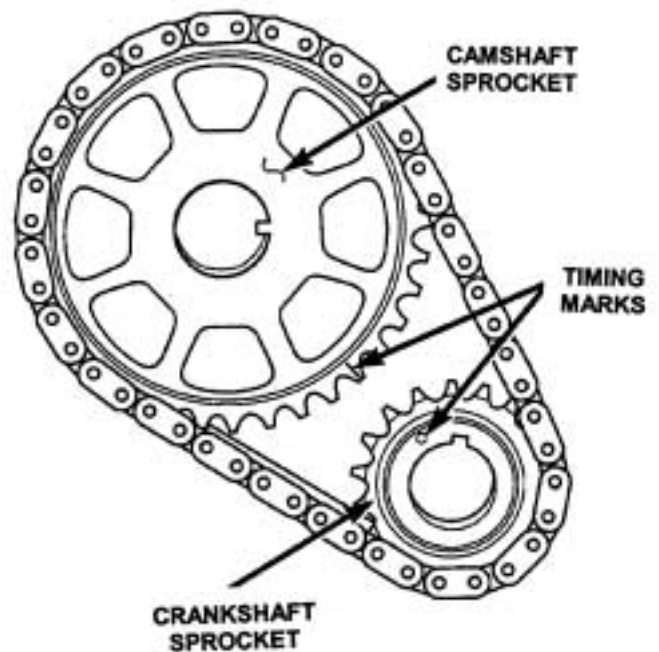


Figure 14

Service Procedure (Continued)

38. Place the thrust plate into position and install retaining screws. Tighten the thrust plate retaining screws to 18 ft. lbs. (24 N·m).
39. Align the timing marks as shown in Figure 14 and install the camshaft sprocket, crankshaft sprocket and timing chain.
40. Tighten the camshaft sprocket bolt and washer to 50 ft. lbs. (68 N·m) (Figure 15).

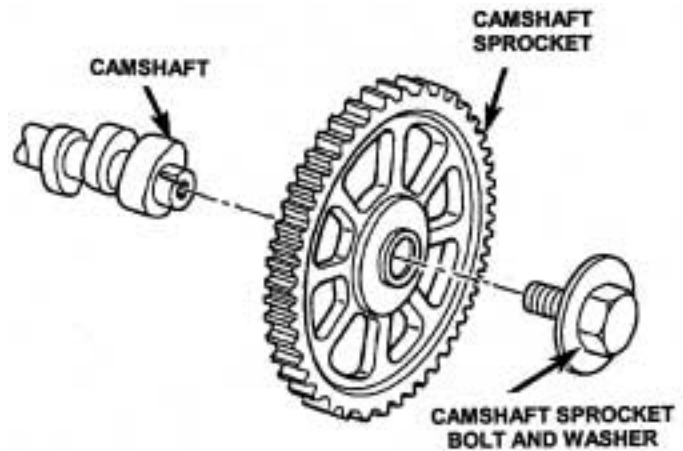


Figure 15

41. To verify the correct installation of the timing chain, turn the crankshaft two full revolutions, then position the camshaft sprocket timing mark as shown in Figure 14.
42. Remove the old timing cover seal.
43. Apply a light coat of engine oil to the timing cover seal lip surface and install a new seal using Special Tool 6139 (Figure 16).
44. Scrape off the old timing cover gasket.
45. Place the new timing cover gasket into position.
46. Insert the Timing Case Cover Alignment and Seal Installation Tool (Special Tool 6139) in the crankshaft opening in the cover (Figure 16).
47. Install the timing case cover and tighten the 1/4 inch cover-to-block bolts to 60 in. lbs. (7 N·m).
48. Tighten the 5/16 inch front cover-to-block bolts to 192 in. lbs. (22 N·m).

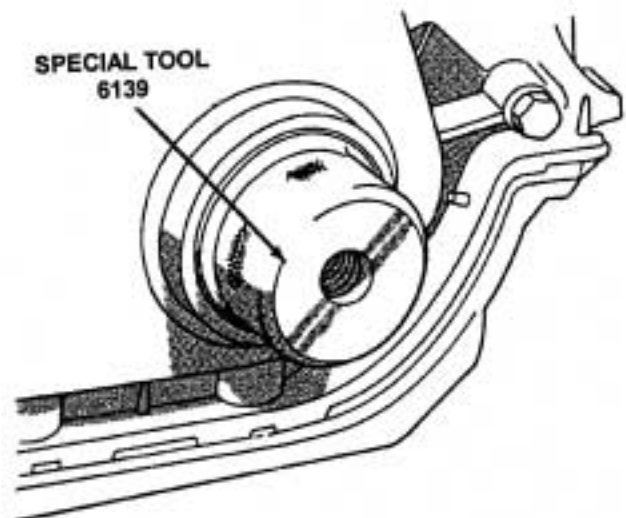


Figure 16

Service Procedure (Continued)

49. Remove the cover alignment tool.
50. Raise the vehicle on a hoist.
51. Remove and discard the old oil pump, oil pump gasket and pick up tube.
52. Prime the new oil pump with clean engine oil.

NOTE: Failure to prime the oil pump before installation may result in a “no oil pressure” condition.

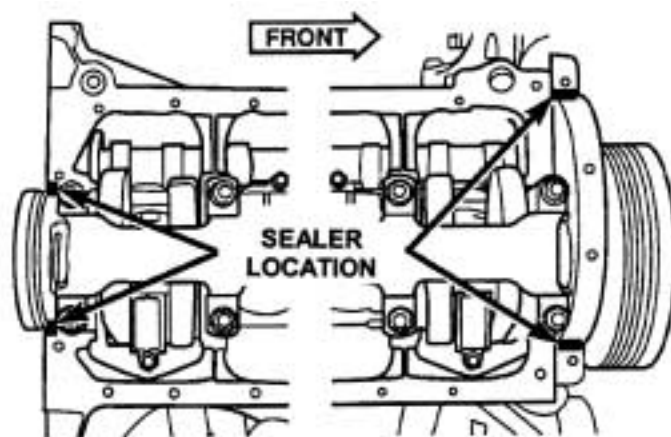


Figure 17

53. Install the new oil pump gasket, oil pump and pick up tube. Tighten the oil pump retaining bolts 17 ft. lbs. (23 N·m).
54. Clean the oil pan mounting surface.
55. Place a small bead of Mopar Silicone Rubber Adhesive Engine Sealant (P/N 04883971) to the corners of the block where the oil pan gasket sets (Figure 17).
56. Clean all debris from the oil pan, timing cover and block.
57. Install the oil pan and gasket.
58. Install the four 5/16 inch oil pan bolts finger tight (Figure 18).
59. Install 1/4 inch oil pan bolts finger tight.
60. Tighten 1/4 inch oil pan bolts to 84 in. lbs. (10 N·m). Tighten the four 5/16 inch oil pan bolts to 132 in. lbs (15 N·m).
61. Tighten the oil pan-to timing cover bolts to 84 in. lbs. (10 N·m).
62. Lower the vehicle.

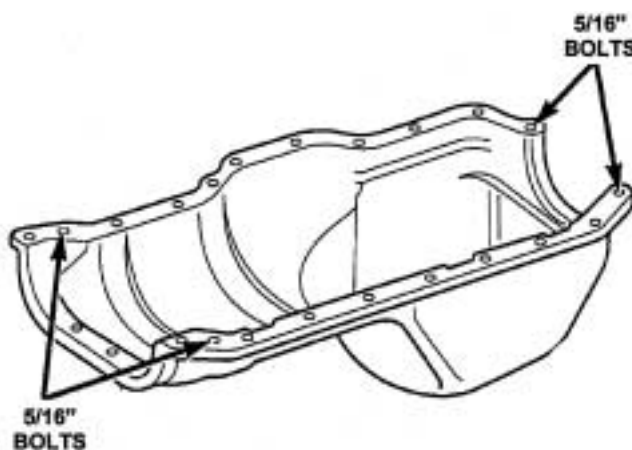


Figure 18

Service Procedure (Continued)

63. Apply a light film of engine oil onto the vibration damper hub area at the seal surface.
64. Remove the crankshaft key from the keyway.
65. Apply Mopar Silicone Rubber Adhesive Engine Sealant (P/N 04883971) to the keyway in the crankshaft and insert the key.

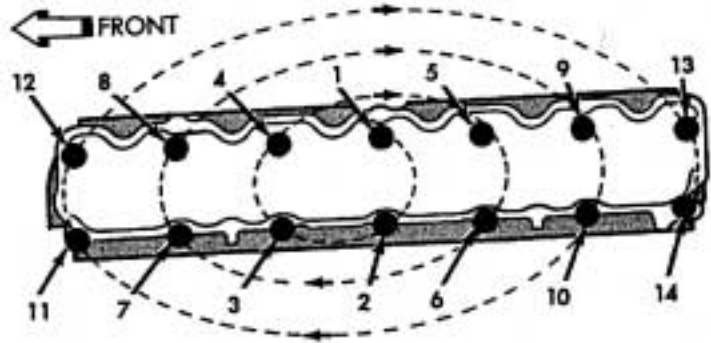


Figure 19

66. With the key inserted in the keyway of the crankshaft, install the vibration damper.
67. Clean the mating surfaces of the cylinder head and the deck of the block.
68. Dip each new tappet in engine oil and insert the tappets into the lifter bores.
69. Place the head gasket and cylinder head into position.
70. Install the head bolts. Be sure to apply Mopar Thread Sealant (P/N 04318034) or equivalent to head bolt number 11 (Figure 19).
71. Use the following procedure to tighten the cylinder head bolts:
 - Tighten all bolts in sequence to 22 ft. lbs. (30 N·m) (Figure 19).
 - Tighten all bolts in sequence to 45 ft. lbs. (61 N·m) (Figure 19).
 - Check all bolts to verify they are set to 45 ft. lbs. (61 N·m) (Figure 19).
 - Tighten bolts in sequence:
 - a. Bolts 1 through 10 to 110 ft. lbs. (149 N·m) (Figure 19).
 - b. Bolt 11 to 100 ft. lbs. (135 N·m) (Figure 19).
 - c. Bolts 12 through 14 to 110 ft. lbs. (149 N·m) (Figure 19).
 - Check all bolts in sequence to verify the correct torque.

Service Procedure (Continued)

72. Place a dab of paint onto each bolt head after tightening.
73. Install the push rods in their original location.
74. Install the rocker arms and pivot and bridge assemblies in their original location. Loosely install the cap-screws at each bridge (Figure 10).
75. Tighten the cap-screws alternately, one turn at a time, to avoid damaging the bridges. Tighten the cap-screws to 21 ft. lbs. (28 N·m).
76. Install the engine cylinder head rocker cover gasket and rocker cover. Tighten the mounting bolts to 85 in. lbs. (10 N·m).
77. **Vehicles equipped with air conditioning**, attach the air conditioning refrigerant lines to the air conditioning compressor ports. Tighten the bolts to 18 ft. lbs. (25 N·m).
78. Install the power steering pump to the intake manifold bracket.
79. Install the generator bracket and generator.
80. Connect all engine wiring harness connectors.
81. Install the ignition coil rail and connect electrical connectors.
82. Connect the fuel supply line and retaining bracket at the fuel rail.
83. Install the throttle control cable(s).
84. Install the engine vacuum lines.
85. Install the throttle body air inlet tube.
86. Install the belt tensioner, idler pulley and accessory drive belt.
87. Install the grill opening panel with condenser if equipped.
88. **Vehicles equipped with air conditioning**, connect the refrigerant lines to the condenser. Tighten the retaining bolts to 105 in. lbs. (12 N·m).

Service Procedure (Continued)

89. Install the radiator assembly, heater hoses and fill the cooling system with coolant.
90. Lift vehicle on a hoist and install the exhaust pipe. Tighten exhaust manifold pipe bolts to 23 ft. lbs. (31 N·m). Then lower the vehicle.
91. Using an approved refrigerant recovery machine, charge the air conditioning system with refrigerant. Refer to the under hood label for the proper amount of refrigerant to install into the system.

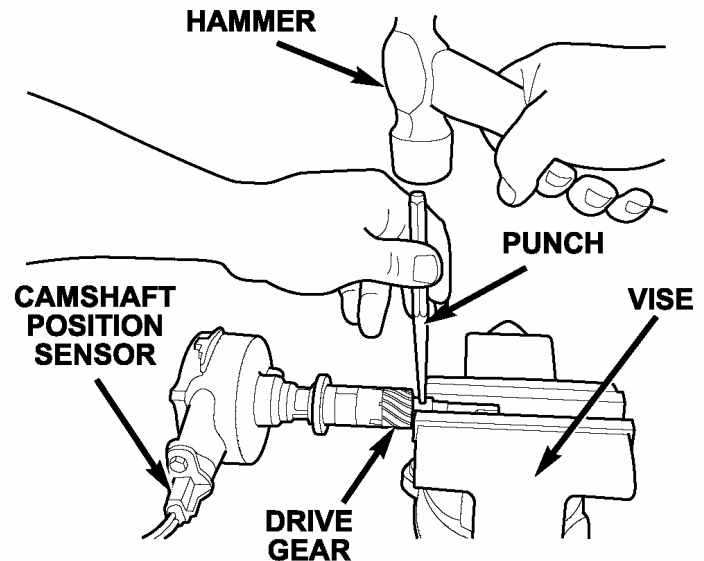


Figure 20

92. Replace the drive gear on the camshaft sensor/oil pump drive assembly. Use the following procedure:
 - a. With the drive gear clamped in a vise, drive out the roll pin that holds the drive gear to the shaft (Figure 20).
 - b. Remove and discard the old drive gear, thrust washer and roll pin.
 - c. Install the new thrust washer.
 - d. Install the new drive gear onto the main shaft.

Drive Gear Package P/N CDC0E051: The drive gear roll pin hole is off-set drilled. Verify that the holes on the drive gear line up with the hole in the main shaft. If the holes do not line up, rotate the drive gear 180 degrees on the main shaft and recheck hole alignment. If the gear holes can not be aligned, order revised drive gear package P/N CDC0E051AB.

Revised Drive Gear Package P/N CDC0E051AB: The second roll pin hole must be drilled in the revised drive gear. Refer to the drive gear drilling instructions provided in the kit for complete details.

Service Procedure (Continued)

- e. Install the new roll pin by lightly tapping the roll pin into the drive gear. Use a vise to press the roll pin flush to the drive gear surface (Figure 21).

CAUTION: Do not attempt to fully install the roll pin into the drive gear with a hammer. Gear damage is possible if the hammer hits any of the drive gear teeth during installation.

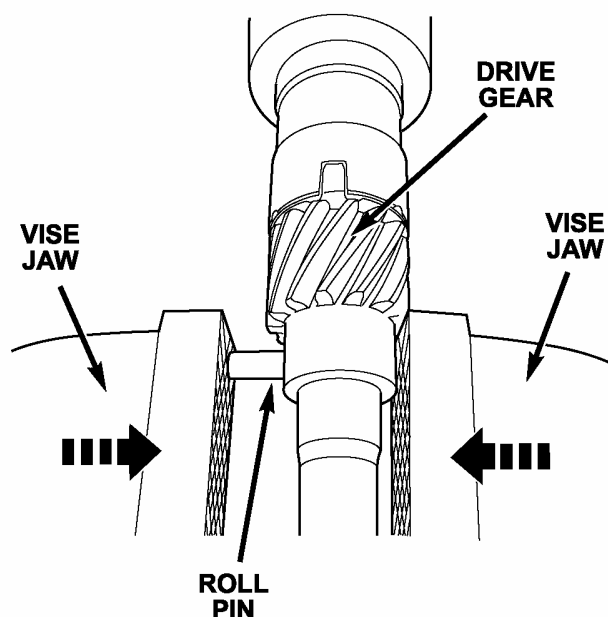


Figure 21

- f. Check the clearance between the drive gear and thrust washer using a feeler gauge (Figure 22). The clearance should be between 0.010" to 0.030" (0.25 mm to 0.75 mm).

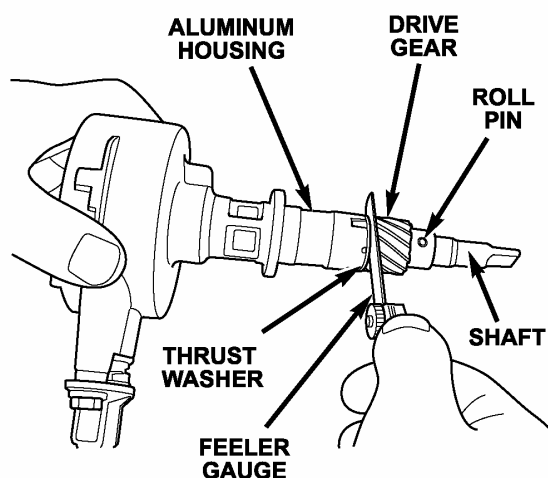


Figure 22

Service Procedure (Continued)

g. If the clearance between the drive gear and thrust washer is out of specification, use the following process to adjust the clearance:

- 1. If the clearance is **excessive (loose)**, stand the assembly upright on the main shaft, place a $\frac{3}{4}$ inch deep well socket over the shaft at the trigger wheel (Figure 23).
- 2. **Lightly** tap the top of the socket with a hammer to drive the trigger wheel down slightly.
- 3. Recheck the clearance and repeat as required.

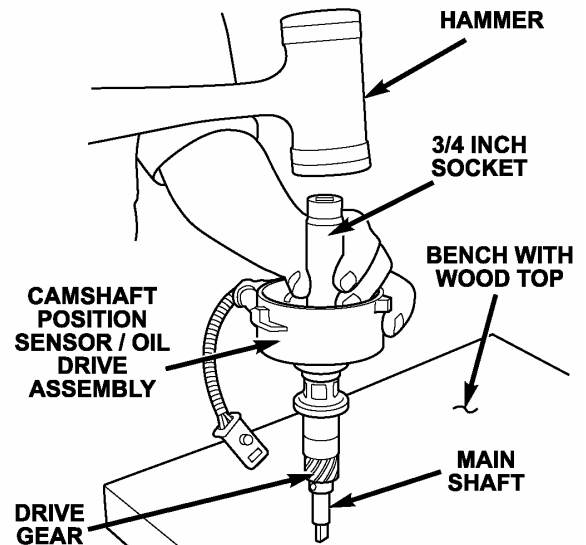


Figure 23

- 1. If the clearance is **insufficient (tight)**, hold the housing in your hand and **lightly** tap the main shaft with a hammer where it protrudes through the trigger wheel (Figure 24).

CAUTION: Do not clamp the assembly in a vise or support the housing in any way while tapping on the main shaft.

- 2. Recheck the clearance and repeat as required.

- h. Clean oil pump drive housing mounting hole area of engine block.
- i. Install new oil pump drive-to-engine block gasket.

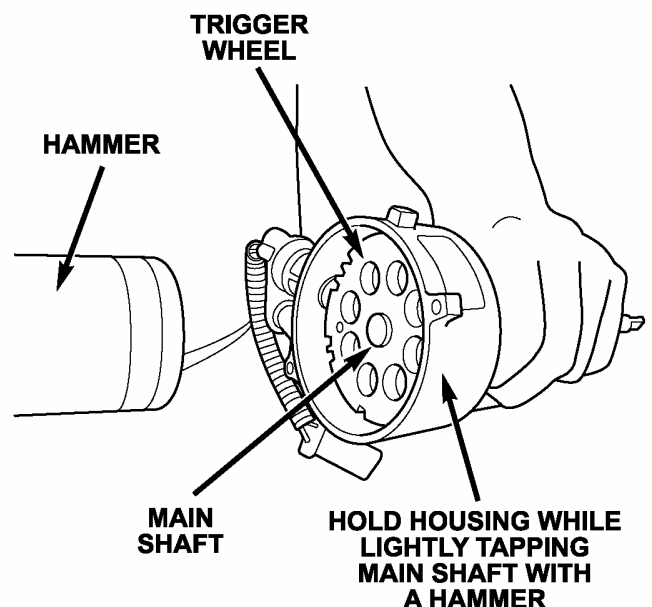


Figure 24

Service Procedure (Continued)

- j. Using a small brush, lubricate the new drive gear and thrust washer on the oil pump drive with Lubriplate (P/N 04549615) white grease (Figure 25).

NOTE: Be sure that the white grease covers the gear teeth and thrust washer completely.

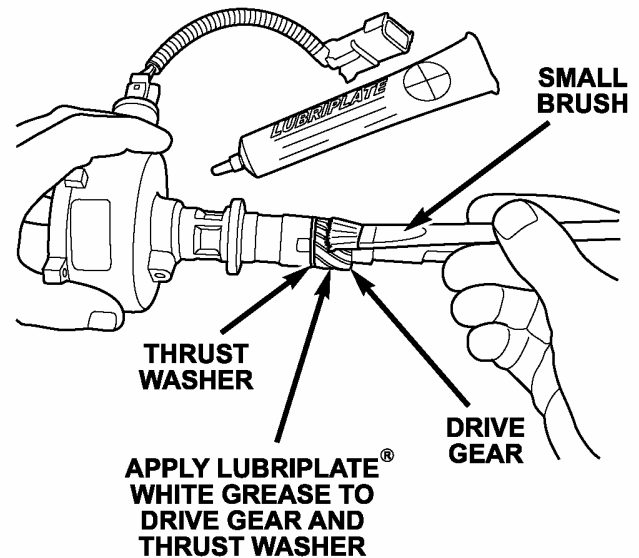


Figure 25

- k. Ensure that the #1 piston is at Top Dead Center (TDC) of the compression stroke.

- l. Temporarily install a small screwdriver or similar tool through the trigger wheel access hole and then through the mating hole in the housing (Figure 26).

- m. Rotate the oil pump slot (in the block) to slightly before the one o'clock position.

- n. Install the oil pump drive assembly into the engine with the cam sensor pointing toward the front of the engine and up against the side of the block.

93. Install the housing hold-down clamp and snug the bolt.

94. Remove the screwdriver from the housing alignment hole and trigger wheel (Figure 26).

95. Connect the camshaft position sensor electrical jumper harness at engine wiring harness.

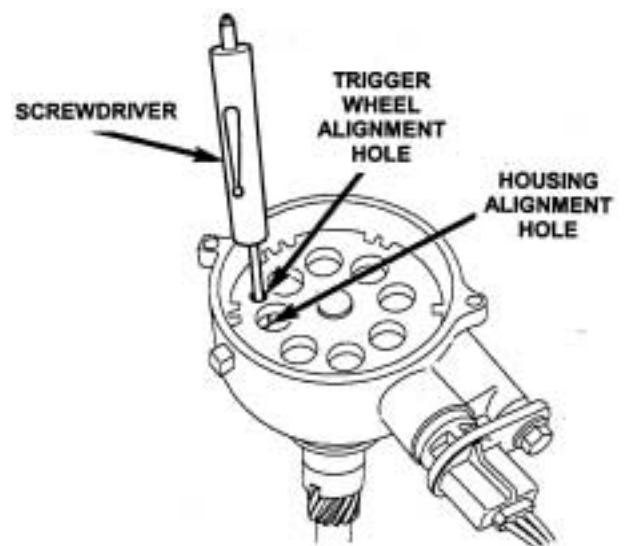


Figure 26

Service Procedure (Continued)

96. Install the plastic cover onto the oil drive assembly and install two cover screws. Tighten screws to 53 in. lbs. (6 N·m).
97. Replace the oil filter (P/N 05281090) and install Mopar 10w-30 motor oil (P/N 04761839AB) or equivalent.
98. Connect the negative battery cable.
99. Continue with Section E – Adjust Cam/Crank Difference.

E. Adjust Cam/Crank Difference:

1. Connect the DRB III scan tool to the diagnostic connector.

NOTE: The diagnostic connector is located in the passenger compartment, below steering column.

2. From the DRB III main menu, select “**DRB III Stand-Alone**”.
3. From the DRB III Stand-Alone menu, select “**1998 – 2005 Diagnostics**” and press the “enter” key on the DRB III key pad.
4. From the 1998 – 2005 Diagnostics menu, select “**All (Except Below)**” and press the “enter” key on the DRB III key pad.
5. Follow the prompts on the DRB III screen.
6. From the Select functions screen, select “**Sensor Display**” and press the “enter” key on the DRB III key pad.
7. Start the engine and read “**Cam Crank Difference**” on the DRB III display screen. The preferred value is 0 degrees (+\ - 6 degrees). Rotate the oil pump drive assembly to adjust angle as required.
8. Tighten the housing hold-down clamp bolt to 195 in. lbs. (22 N·m).
9. Turn off the engine.
10. Continue with Section F. Powertrain Control Module Cam/Crank Relearn

Service Procedure (Continued)

F. Powertrain Control Module Cam/Crank Relearn:

Use the following procedure to reset the cam/crank values by using the “CAM/CRANK RELEARN” screen on DRB III scan tool.

1. Begin at the “**Select Functions Menu**” on the DRB III.
2. Press the right arrow on the DRB III key pad.
3. Select “**Miscellaneous Function**” and then press the “**Enter**” button on the DRB III key pad.
4. Select “**Relearn Cam/Crank**” and then press the “**Enter**” button on the DRB III key pad.
5. Follow the DRB III prompts to complete the relearn process.

NOTE: The engine must be allowed to run at idle for 4 minutes after the Cam/Crank relearn process has been completed. This will allow the Powertrain Control Module (PCM) to update the cam/crank angle values.

6. If the fuel pump relay was removed to release fuel pressure from the fuel system, one or more Diagnostic Trouble Codes (DTC's) may have been stored in the Powertrain Control Module (PCM). Use the DRB III scan tool to erase all DTC's.

NOTE: Erase any DTC's in the PCM only after all other modules have had their DTC's erased.

7. Remove the DRB III from the vehicle.

Completion Reporting and Reimbursement
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Claims for vehicles that have been serviced must be submitted on the DealerCONNECT Claim Entry Screen located on the Service tab. Claims submitted will be used by DaimlerChrysler to record Customer Satisfaction Notification service completions and provide dealer payments.

Use one of the following labor operation numbers and time allowances:

	<u>Labor Operation Number</u>	<u>Time Allowance</u>
Inspect camshaft position sensor/ oil drive assembly date code label	09-E0-51-81	0.2 hours
Inspect camshaft position sensor/ oil drive assembly date code, check cam gear with DRB III scan tool and replace oil pump drive gear	09-E0-51-82	0.8 hours
Inspect camshaft position sensor/ oil drive assembly date code, check cam gear with DRB III and replace engine camshaft and oil pump drive gear (includes oil/filter change) <u>without</u> air conditioning	09-E0-51-83	8.5 hours
Inspect camshaft position sensor/ oil drive assembly date code, check cam gear with DRB III and replace engine camshaft and oil pump drive gear (includes oil/filter change) <u>with</u> air conditioning	09-E0-51-84	9.3 hours

Add the cost of the parts package plus applicable dealer allowance to your claim.

NOTE: See the Warranty Administration Manual, Recall Claim Processing Section, for complete claim processing instructions.

Dealer Notification

All dealers will receive a copy of this dealer notification letter by mail. Two additional copies will be sent through the DCMMS. This notification can be viewed on DealerCONNECT by selecting “Global Recall System” on the Service tab, then clicking on the description of this notification.

Owner Notification and Service Scheduling

All involved vehicle owners known to DaimlerChrysler are being notified of the service requirement by mail. They are requested to schedule appointments for this service with their dealers. A generic copy of the owner letter is attached.

Enclosed with each owner letter is an Owner Notification postcard to allow owners to update our records if applicable.

Vehicle Lists, Global Recall System, VIP and Dealer Follow Up

All involved vehicles have been entered into the DealerCONNECT Global Recall System (GRS) and Vehicle Information Plus (VIP) for dealer inquiry as needed.

GRS provides involved dealers with an updated VIN list of their incomplete vehicles. The owner’s name, address and phone number are listed if known. Completed vehicles are removed from GRS within several days of repair claim submission.

To use this system, click on the “**Service**” tab and then click on “**Global Recall System.**” Your dealer’s VIN list for each recall displayed can be sorted by: those vehicles that were unsold at recall launch, those with a phone number, city, zip code, or VIN sequence.

Dealers should perform this repair on all unsold vehicles before retail delivery. Dealers should also use the VIN list to follow up with all owners to schedule appointments for this repair.

VIN lists may contain confidential, restricted owner name and address information that was obtained from the Department of Motor Vehicles of various states. Use of this information is permitted for this notification only and is strictly prohibited from all other use.

Additional Information

If you have any questions or need assistance in completing this action, please contact your Service and Parts District Manager.

Customer Services Field Operations
DaimlerChrysler Corporation

DAIMLERCHRYSLER

*Buckle up
for Safety!*

CUSTOMER SATISFACTION NOTIFICATION – OIL PUMP DRIVE GEAR

Dear: (Name)

The satisfaction of our customers is very important to DaimlerChrysler. Because of this, we are requesting owners of some **2005 model year Jeep® Wrangler vehicles equipped with a 4.0L engine** to contact their dealer to have the following service performed.

The problem is... **The oil pump drive gear on your Jeep (VIN: xxxxxxxxxxxxxxxxx) may wear out prematurely and cause engine failure due to a loss of oil pressure.**

What your dealer will do... **DaimlerChrysler will repair your vehicle free of charge (parts and labor).** To do this, your dealer will inspect and replace the oil pump drive gear if necessary. Inspection and gear replacement will take about one hour to complete. If the camshaft gear is also found to require replacement, an additional 8 or 9 hours will be required. However, additional time may be necessary depending on how dealer appointments are scheduled and processed.

What you must do... Simply **contact your dealer** right away to schedule a service appointment. Ask the dealer to hold the parts for your vehicle or to order them before your appointment. **Remember to bring this letter with you to your dealer.**

If you need help... If you have questions or concerns which your dealer is unable to resolve, please contact DaimlerChrysler at 1-800-853-1403.

Please help us update our records, by filling out the enclosed prepaid postcard, if any of the conditions listed on the card apply to you or your vehicle. Be sure to print the last eight (8) characters of the VIN (VVVVVVVV) and notification code E05 on the postcard.

If you have already experienced this condition and have paid to have it repaired, you may send your original receipts and/or other adequate proof of payment to the following address for reimbursement: DaimlerChrysler, P.O. Box 610207, Port Huron, MI 48061-0207, Attention: Reimbursement.

We're sorry for any inconvenience, but we believe that this service will help to ensure your continuing satisfaction with your vehicle. Thank you for your attention to this important matter.

Customer Services Field Operations
DaimlerChrysler Corporation
Notification Code E05