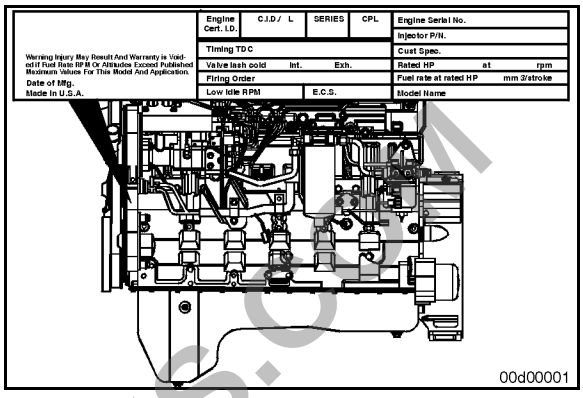
Engine Identification

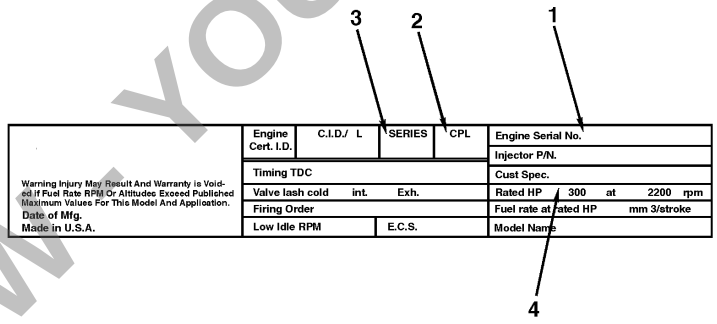
Engine Dataplate

The engine dataplate shows specific information about your engine. The engine serial number (ESN) and Vehicle Parts List provide information for ordering parts and service needs. The engine dataplate must not be changed unless approved by Case Corporation.

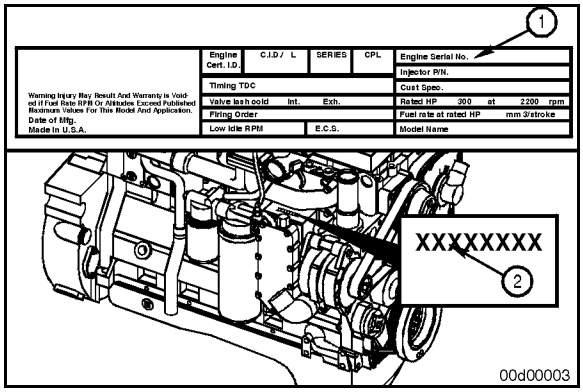


The dataplate is located on the top side of the gear housing. The information on the dataplate is mandatory when sourcing service parts.

1. Engine Serial Number (ESN)
2. Vehicle Parts List
3. Model
4. Horsepower and rpm rating

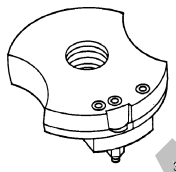
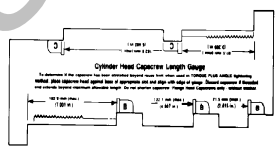
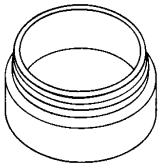
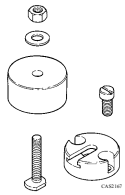
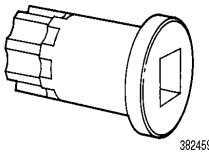
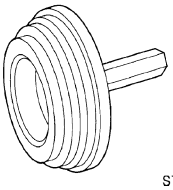
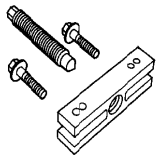


NOTE: If the engine dataplate (1) is not readable, the engine serial number (ESN) (2) can be identified on the engine block on top of the lubricating oil cooler housing. Additional engine information is available by reading the Electronic Control Module (ECM) dataplate.



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Tool No.	Tool Description	Tool Illustration
CAS 10904-1	Cutter Plate Used with Tool No. CAS 10904, cylinder liner counterbore tool.	 3823567
CAS 10904-2	Cutter Bit Used with Tool No. CAS 10904-1, cutter plate, to machine the cylinder liner counterbore ledge.	 3823570
J823921	Capscrew Length Gauge Used to measure capscrew free length.	 3823921
CAS-2430	Lubricating Oil Seal Installation Tool Used to install the front crankshaft lubricating oil seal in the front cover seal carrier.	 3824499
CAS-2167	Front Wear Sleeve Installation Tool Used to install front wear sleeves.	
CAS-1690	Engine Barring Gear Used to engage the flywheel ring gear to rotate the crankshaft.	 3824591
OEM 4083 and OEM 6527 used with OTC plate 1234	Cylinder Liner Driver Used to install cylinder liners into the cylinder block.	 ST-1229
ST-647	Standard Puller Used to remove drive pulleys, impellers, air compressor counterweights, etc.	 ad8toga

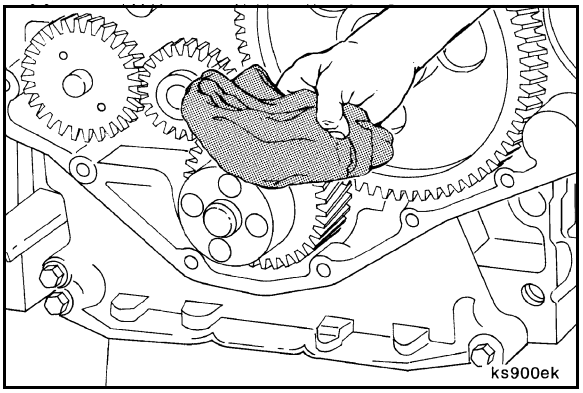
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∆ CAUTION ∆

Do not nick or gouge the crankshaft with the chisel. If the crankshaft is damaged, it must be replaced.

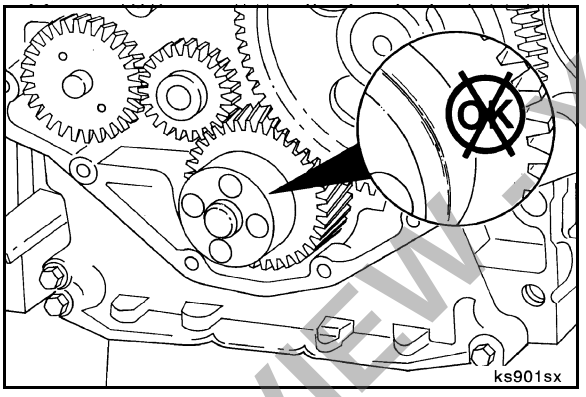
Use a hammer and a chisel that is only as wide as the wear sleeve. Make one or two chisel marks across the wear sleeve. This will expand the wear sleeve allowing the sleeve to be removed.



Clean (001-025-006)

Use a crocus cloth to remove any rust or other deposits from the crankshaft flange.

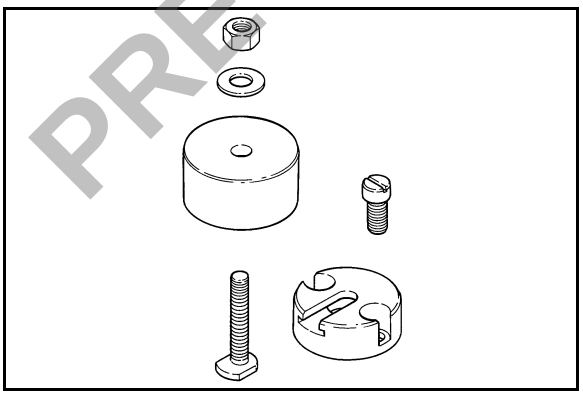
Use a clean cloth to clean the crankshaft flange.



Inspect for Reuse (001-025-007)

Inspect the seal contact area of the crankshaft for a wear groove. If the seal has worn a groove deep enough to be felt with a sharp object or fingernail, it will be necessary to install a wear sleeve to prevent an oil leak.

The oil seal used with the wear sleeve has a larger inside diameter than the standard seal. The two seals are not interchangeable. Refer to the appropriate Case 24 Valve 8.3 Liter Engine Parts Catalog for the correct part number.



Install (001-025-026)

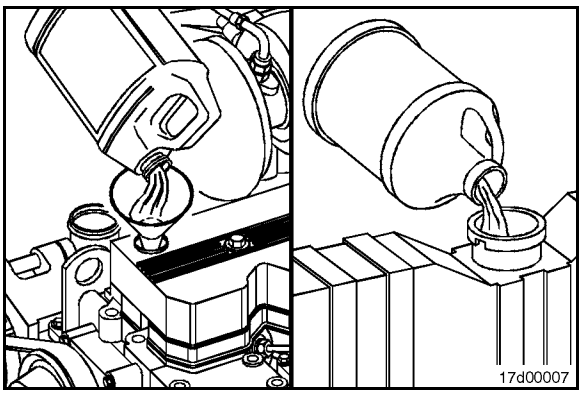
Crankshaft Front Wear Sleeve Installation Tool, Tool No. CAS-2167

Use the driver to install the wear sleeve to the correct position on the crankshaft.

Ref. No.	Description	Qty.
1	Driver	1
2	Spacer	2
3	Capscrew M14x1.5x60 mm	2
4	Hai Pin Cotter	2

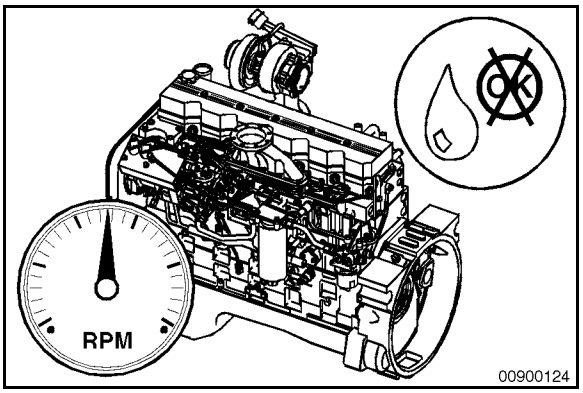
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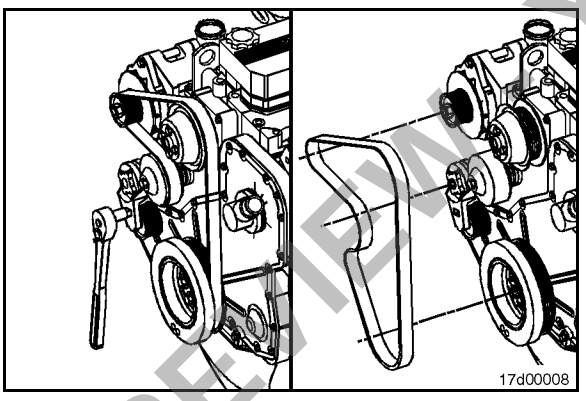


Fill and vent the cooling system. Refer to Procedure 008-018.

Fill lubricating system with oil. Refer to Procedure 007-025.



Operate the engine until the coolant temperature reaches 82°C [180°F] and check for leaks and proper operation.



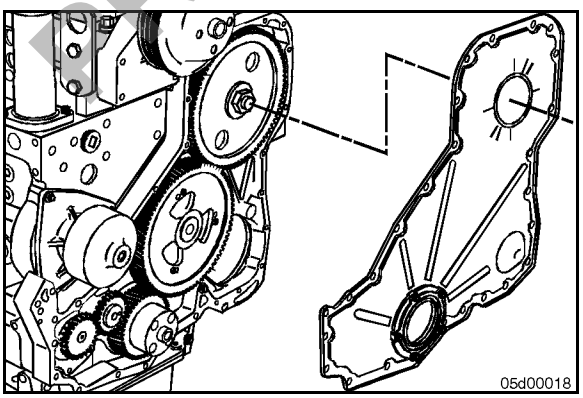
Gear Cover, Front (001-031)

Remove (001-031-002)

Remove the drive belt. Refer to Procedure 008-002.

Remove the vibration damper. Refer to Procedure 001-052.

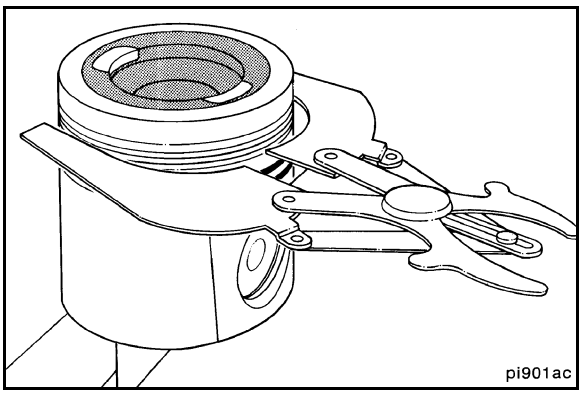
If required, remove the fan hub pulley. Refer to Procedure 008-039.



Remove the front gear cover.

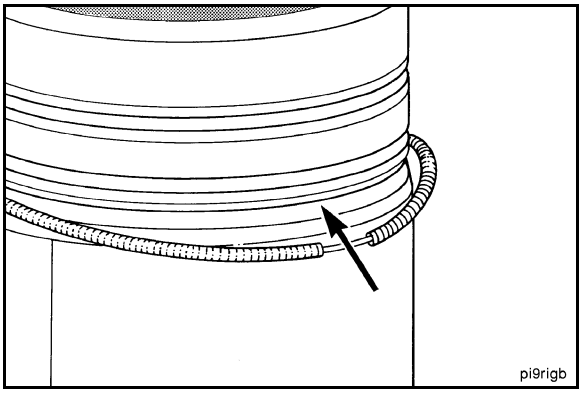
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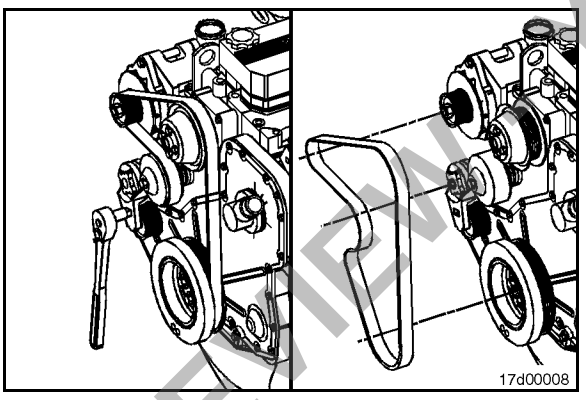


Piston Ring Expander, Tool No. OEM6266

Install the rings on the piston.



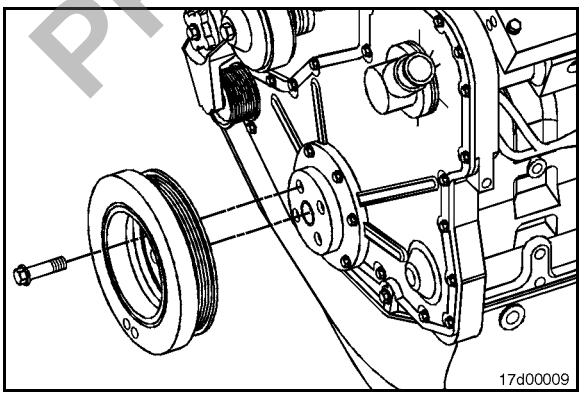
Position the oil ring expander in the oil control ring groove.



Vibration Damper, Rubber (001-051)

Remove (001-051-002)

Remove the drive belt. Refer to Procedure 008-002.

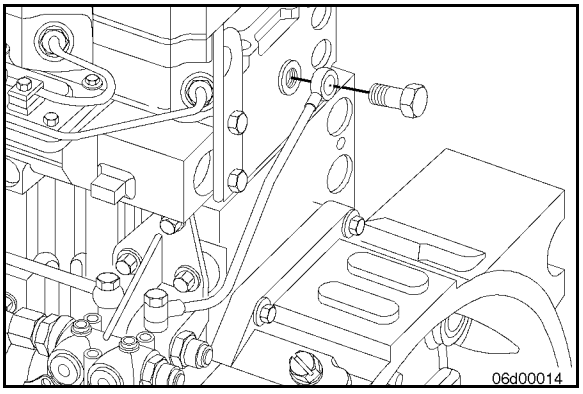


Loosen the vibration damper capscrews.

Remove vibration damper.

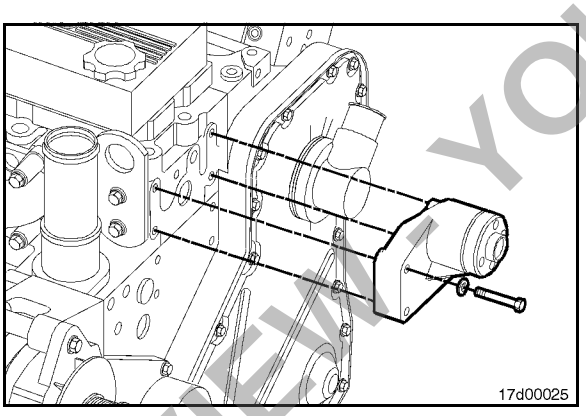
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- Drain the coolant. Refer to Procedure 008-018.
- Remove all water and heater hoses. Remove the intake manifold cover and intake heater (if equipped). Refer to Procedure 010-023.
- Remove the injector supply. Refer to Procedure 006-051.
- Remove the fuel connection tubes. Refer to Procedure 006-052.
- Remove the valve cover. Refer to Procedure 002-020.
- Remove the rocker levers. Refer to Procedure 003-008.
- Remove the injectors. Refer to Procedure 006-026.
- Remove the pushtubes. Refer to Procedure 003-008.
- Remove the fuel drain line. Refer to Procedure 006-013.
- Remove the turbocharger. Refer to Procedure 010-033.
- Remove the exhaust manifold. Refer to Procedure 011-007.

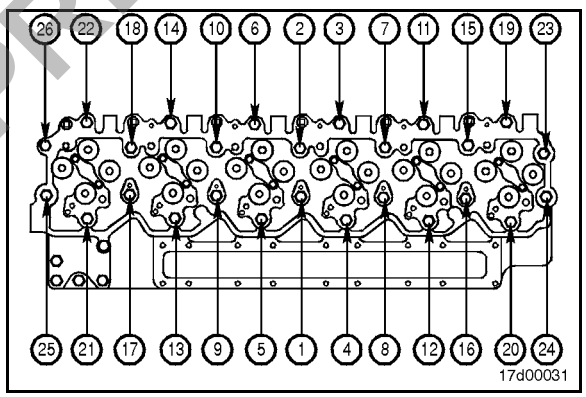
Remove (002-004-002)



Remove drive belt. Refer to Procedure 008-002.

Remove the fan hub assembly.

Omit this step if the fan hub assembly is **not** attached to the cylinder head.



Remove the cylinder head capscrews in the order shown.

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Section 4 - Cam Followers/Tappets - Group 04

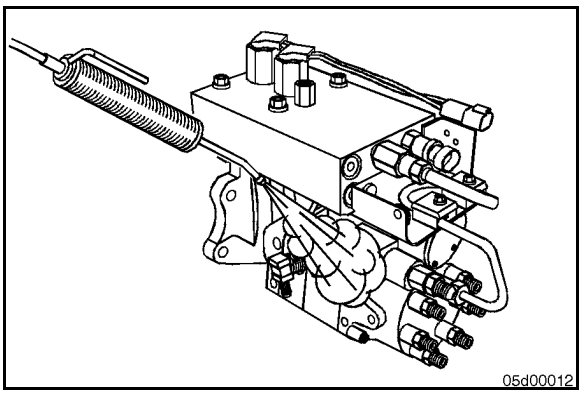
Section Contents

Push Rods or Tubes (004-014) 4-1
Clean (004-014-006) 4-1
Inspect for Reuse (004-014-007) 4-1
Install (004-014-026) 4-2
Preparatory (004-014-000) 4-1
Remove (004-014-002) 4-1

Tappet (004-015) 4-3
Inspect for Reuse (004-015-007) 4-5
Install (004-015-026) 4-6
Preparatory (004-015-000) 4-3
Remove (004-015-002) 4-3

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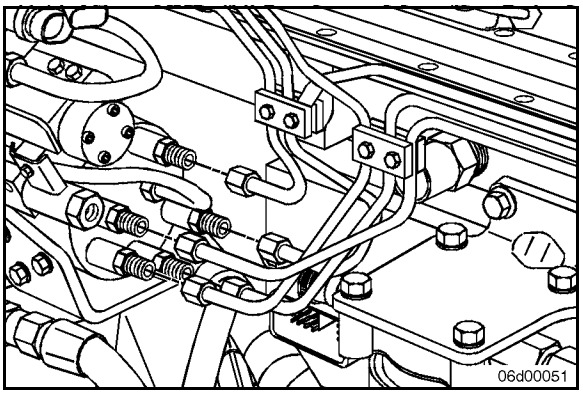


Fuel Pump Delivery Valve (005-020)

Preparatory (005-020-000)

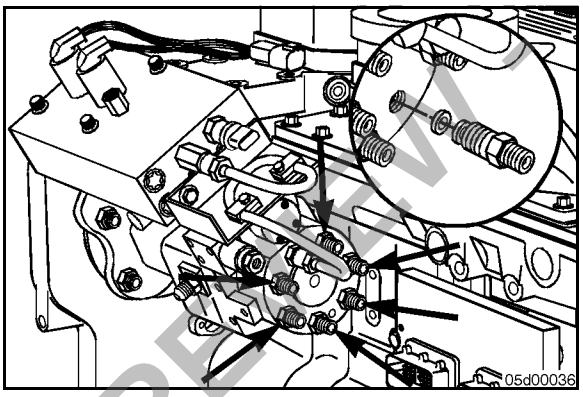
Thoroughly steam clean the distributor snubber and fuel pump area.

Dry with compressed air.



Remove (005-020-002)

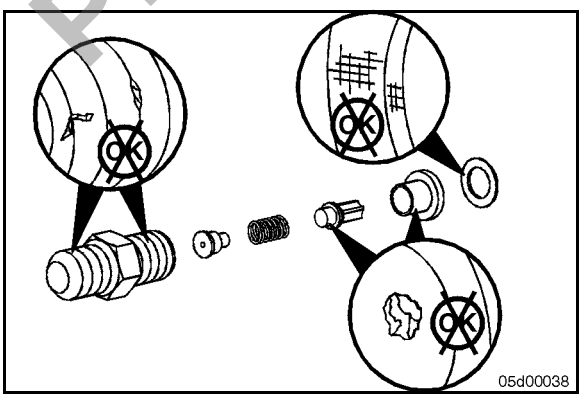
Remove the high pressure fuel supply lines. Refer to Procedure 006-051.



Remove the distributor snubber and the seal disk.

The snubber valve and seat are a matched set; do not mix and match valves and seats with other snubber assemblies.

If either the snubber valve or seat is damaged, the entire snubber assembly must be replaced. Also, the seal washers must always be replaced.



Inspect for Reuse (005-020-007)

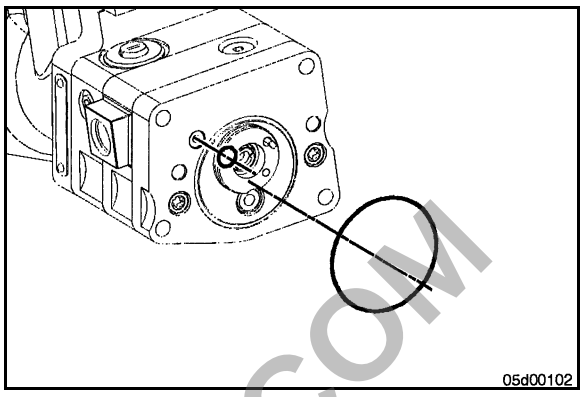
Check for broken parts, debris, or sticking of the snubber valve. Replace the snubber assembly if any parts are damaged. Always replace the seal washer.

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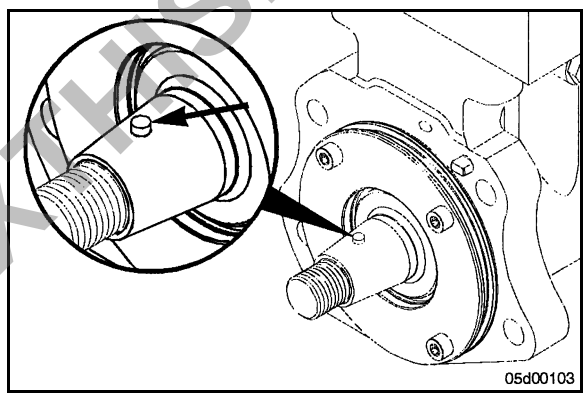
Install new o-rings.

Apply Lubriplate™ 105, or equivalent to o-rings to keep them from falling out during reassembly.



Make sure the dowel pin is facing up toward the top of the pump.

If the shaft needs to be rotated, install the fuel pump drive nut onto the shaft to provide a means for rotating the shaft.



∆ CAUTION ∆

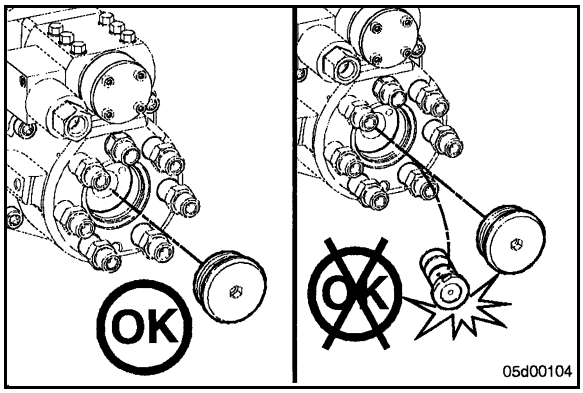
The rotor can slide out once the distributor plug is removed.

∆ CAUTION ∆

Do not drop the rotor. The entire distributor module will be ruined and the rotor damage.

Remove the large plug from the end of the distributor.

Do not remove the rotor.

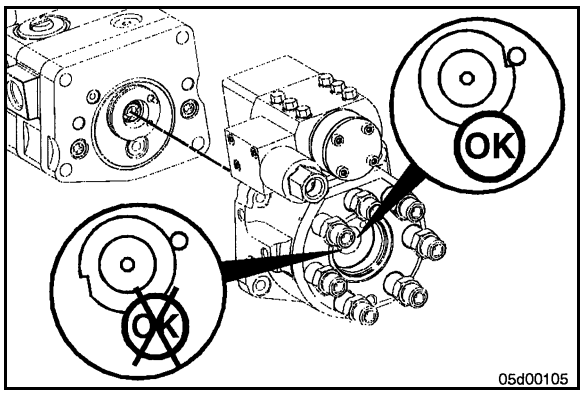


Install the distributor module.

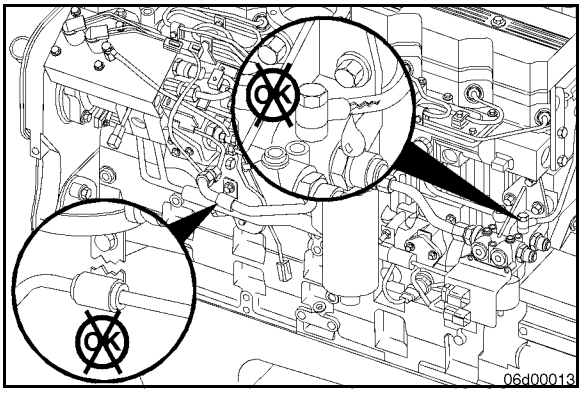
Lightly rotate the rotor with finger-pressure until it drops into the slot in the drive coupling.

When properly engaged, the notch in the rotor will align with the hole in the distributor.

If the rotor will not engage, remove the distributor, and reposition the drive coupling in the center of the shaft.



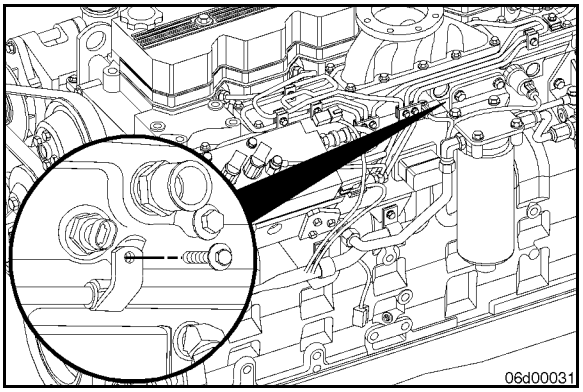
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Fuel Drain Lines (006-013)

Initial Check (006-013-001)

Inspect the drain lines for any signs of leaks, cracks, chafing, loose, or broken brackets.

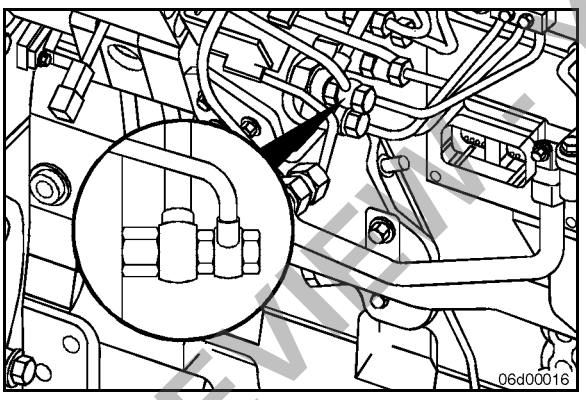


Remove (006-013-002)

10 mm

Remove the capscrew from the fuel line brace.

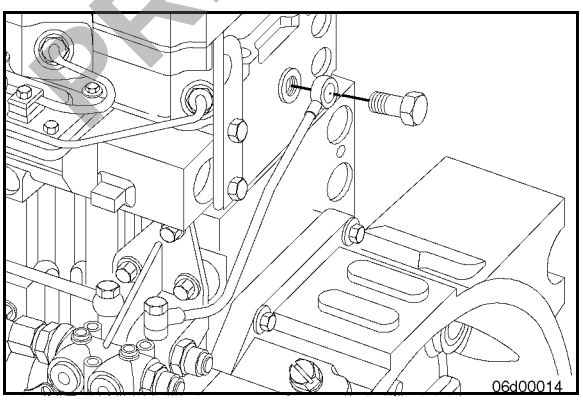
Clean all fittings before disassembly. Dirt or contaminants can damage the fuel system.



19 mm, 15 mm

Remove the banjo fitting at the fuel pump return line. Use two wrenches to prevent the fuel line from being bent.

Remove drain line fittings at CAPS pump.



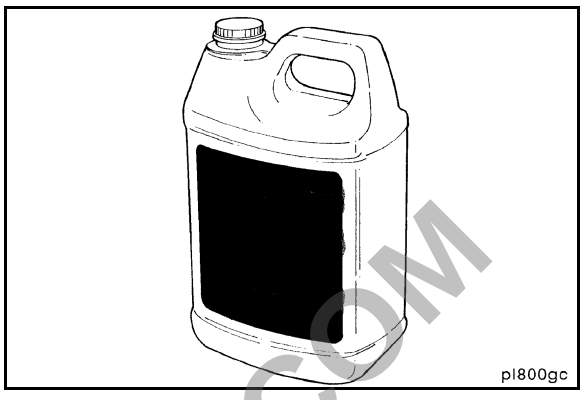
17 mm

Remove drain line from the banjo connection at the rear of the head.

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Lubricating Oil System - General Information



Δ WARNING Δ

Some state and federal agencies in the United States of America have determined that used engine oil can be carcinogenic and can cause reproductive toxicity. Avoid inhalation of vapors, ingestion, and prolonged contact with used engine oil.

Δ WARNING Δ

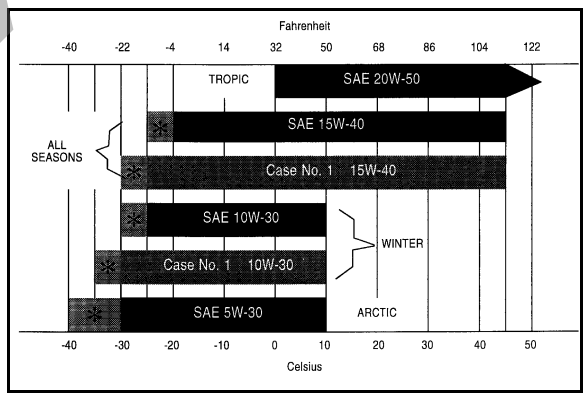
Avoid direct contact of hot oil with your skin. Hot oil can cause personal injury.

Case Corporation recommends the use of a high quality SAE 15W-40 heavy duty engine oil which meets the American Petroleum Institute (API) performance classification CE/SG.

APi grade CG-4/CF-4 engine oils can be used in areas where CE oil is **not** yet available, but the lubricating oil change interval **must** be reduced to 1/2 of the interval given in the maintenance schedule.

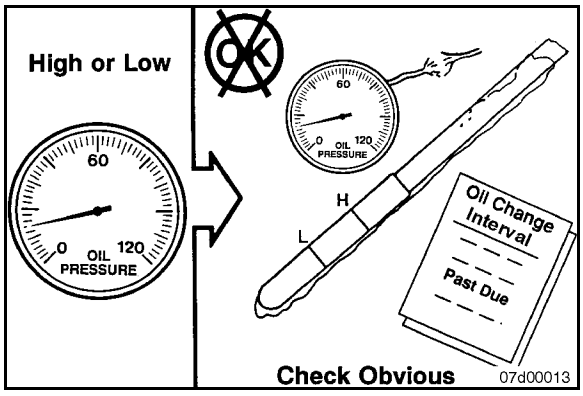
Δ CAUTION Δ

Limited use of low viscosity lubricating oils, such as 10W-30, can aid in starting the engine and providing sufficient lubricating oil flow at ambient temperatures below -5°C [23°F]. However, the continuous use of low viscosity lubricating oils can decrease engine life. Refer to the accompanying chart.



Diagnosing Lubricating System Malfunctions

When diagnosing lubrication system malfunctions, check all obvious items related to oil pressure, such as gauges; high and low oil level; excessive oil contamination; and oil viscosity.

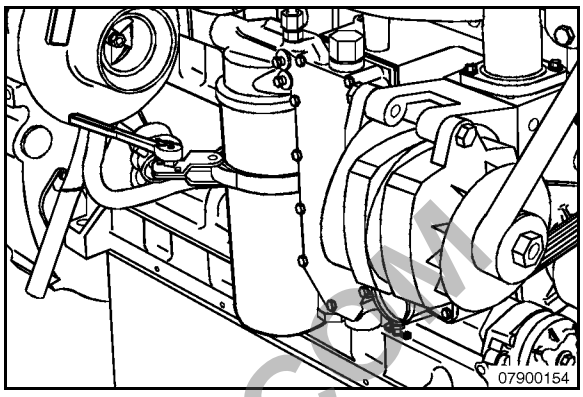


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Lubricating Oil Filter (Spin-On) (007-013)

Remove (007-013-026)

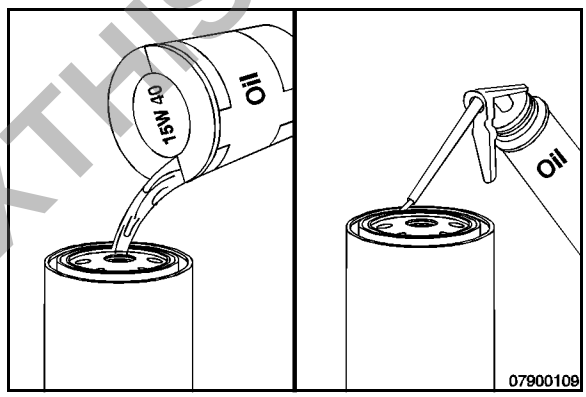


Clean the area around the lubricating oil filter head.

Remove the filter.

Clean the gasket surface of the filter head.

Install (007-013-026)

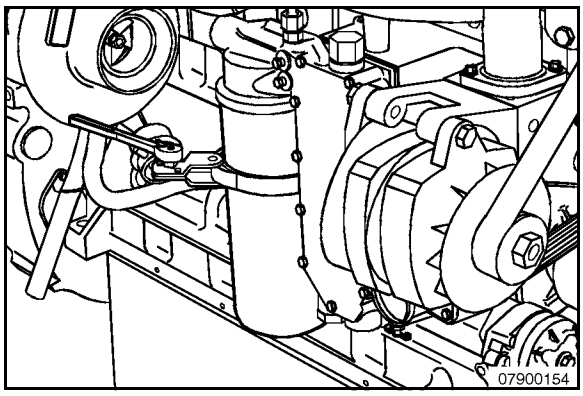


Use clean 15W-40 oil to coat the gasket surface of the filter.

Δ CAUTION Δ

Lubrication oil filter should be full of oil at startup to prevent engine damage.

Fill the filter with clean 15W-40 oil.

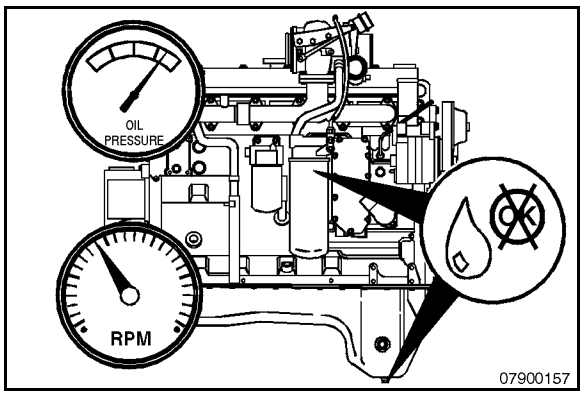


Δ CAUTION Δ

Mechanical overtightening of the filter can distort the threads or damage the filter element seal.

Install the filter on the oil filter head. Tighten the filter until the gasket contacts the filter head surface.

Tighten the filter. Refer to the instructions supplied with the filter.

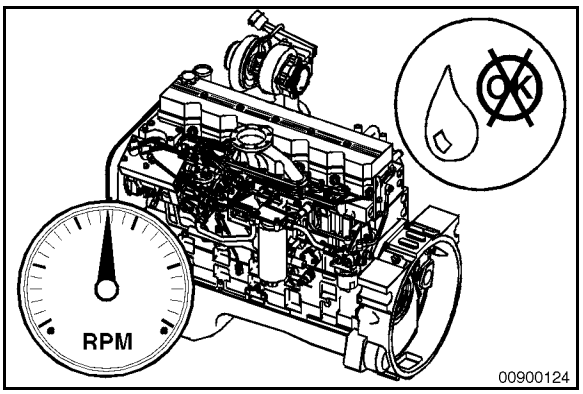


Operate the engine and check for leaks.

NOTE: Engine oil pressure **must** be indicated on the gauge within 15 seconds after starting. If oil pressure is **not** registered within 15 seconds, shut off the engine immediately to avoid engine damage. Confirm that the oil pan has the correct oil level.

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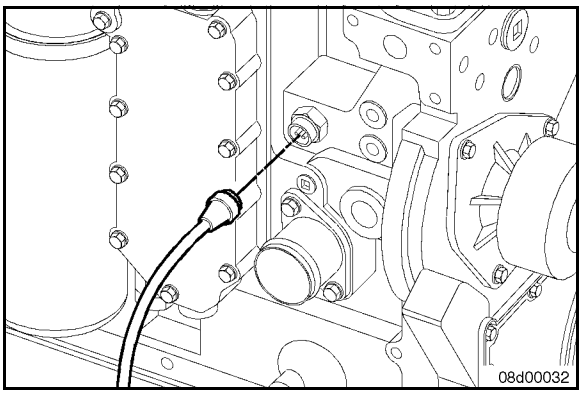


Operate the engine and check for leaks.

Coolant Heater (008-011)

Preparatory (008-011-000)

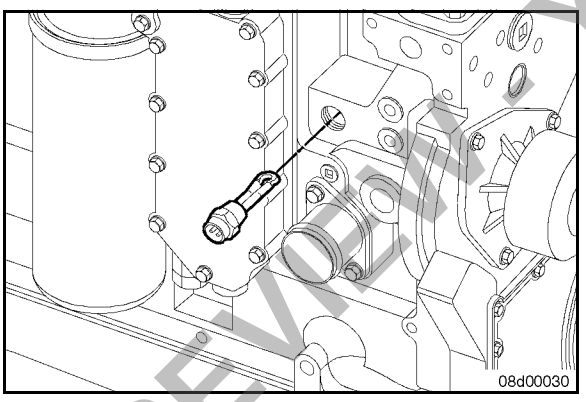
Drain at least 19 liters [5 U.S. gal] of coolant. Refer to Procedure 008-018.



Disconnect the block heater electrical cord.

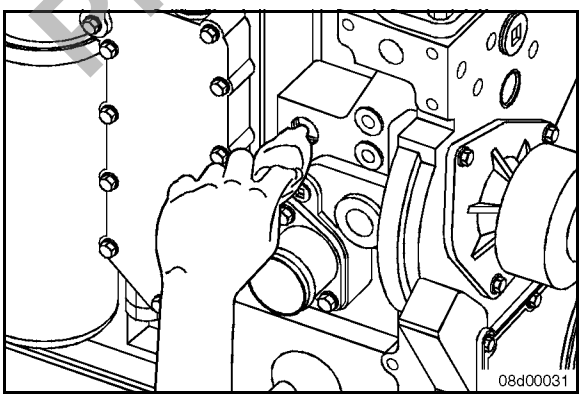
Remove (008-011-002)

1-1/8 Inch



Loosen the block heater and remove it from the block.

Clean (008-011-006)



Clean the heater threads thoroughly.

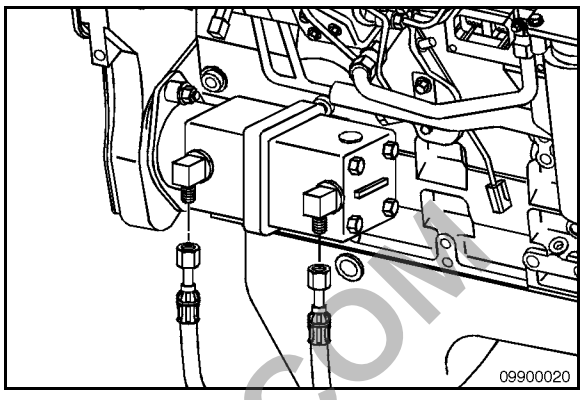
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Hydraulic Pump Drive (009-016)

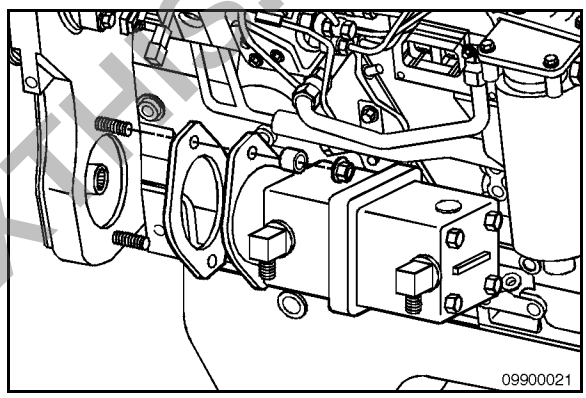
Remove (009-016-002)

Disconnect all hydraulic lines from the pump.



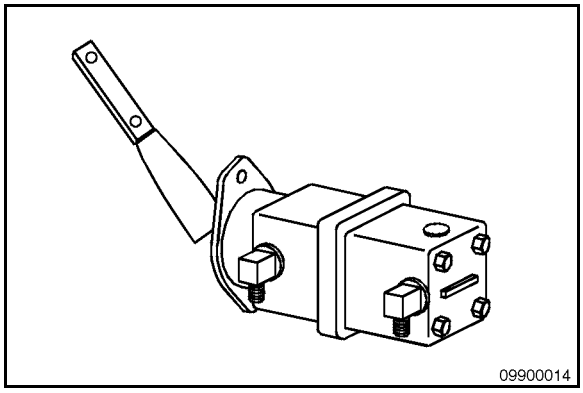
Remove the hydraulic pump and gear assembly.

Refer to the vehicle service manual for removal procedures.



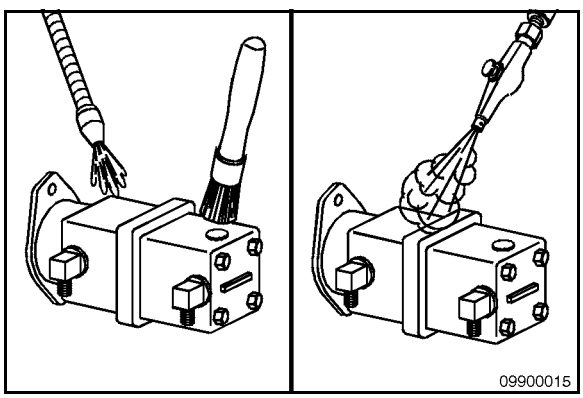
Clean (009-016-006)

Clean the gasket material from the hydraulic pump.



Clean the hydraulic pump gear with solvent.

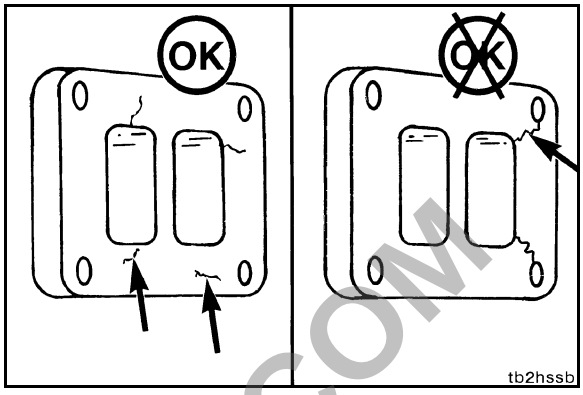
Dry with compressed air.



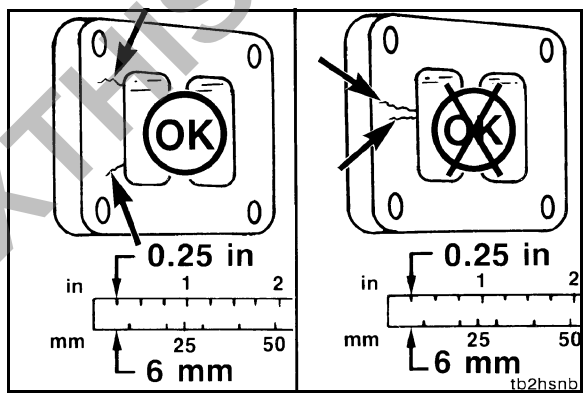
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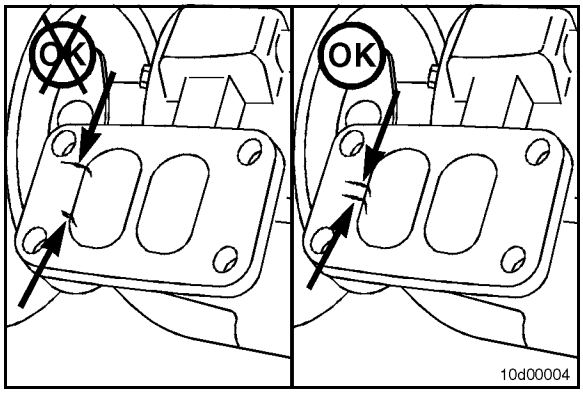
Cracks of any length that reach mounting holes are **not** acceptable.



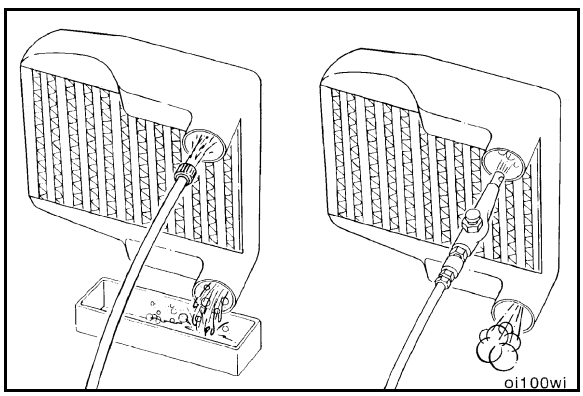
Two cracks **must** be separated by at least 6.4 mm [0.25 in].



Cracks in the divider are acceptable only if they are separated by at least 12.5 mm [0.50 in].



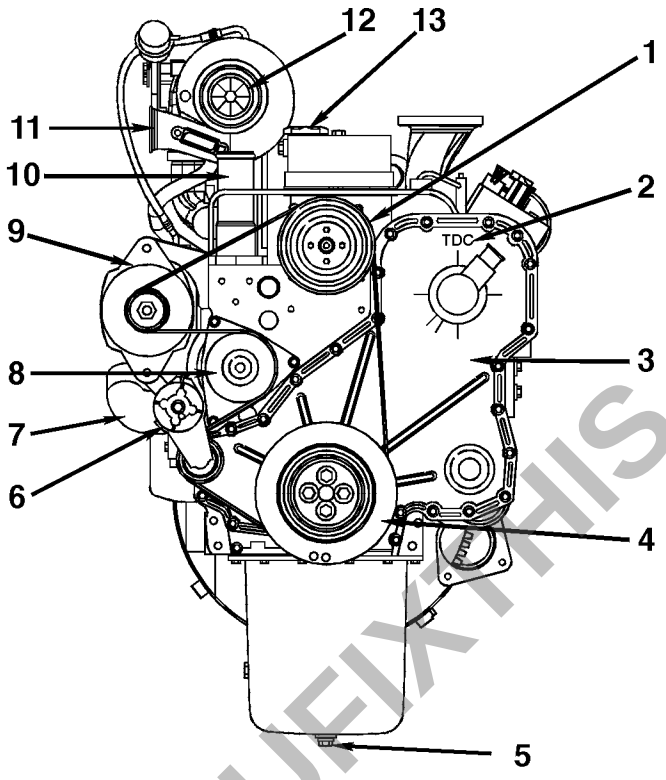
NOTE: If the engine experiences a turbocharger failure or any other occasion where oil or debris is put into the charge air system, the charge air system **must** be inspected and cleaned. Refer to Procedures 010-027 and 010-023.



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Engine Views

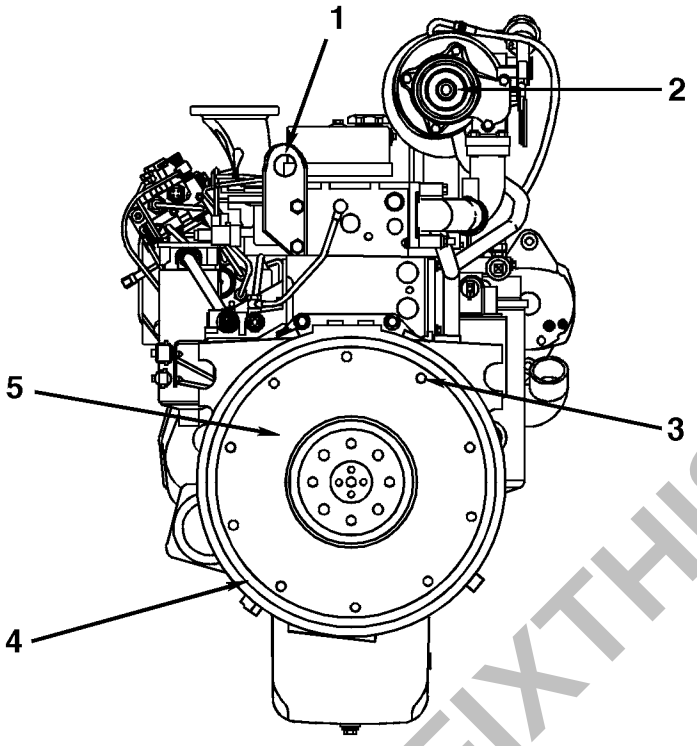


Front View

1. Fan Pulley
2. Top Dead Center Mark
3. Front Gear Cover
4. Vibration Damper
5. Engine Oil Pan Drain Plug
6. Automatic Belt Tensioner
7. Water Inlet
8. Water Pump
9. Alternator
10. Water Outlet
11. Turbocharger Air Outlet
12. Turbocharger Air Inlet
13. Engine Rocker Housing Oil Fill

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Rear View

1. Rear Engine Lifting Bracket
2. Turbocharger Exhaust Outlet
3. Clutch Mounting Holes
4. Flywheel Housing
5. Flywheel

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TABLE OF CONTENTS

	Section	Form Number
Introduction	i	7-89330
Engine Identification	E	7-89340
Troubleshooting Symptoms	TS	7-89351
Cylinder Block - Group 01	1	7-89370
Cylinder Head - Group 02	2	7-89380
Rocker Levers - Group 03	3	7-89390
Cam Followers/Tappets - Group 04	4	7-89400
Fuel System - Group 05	5	7-89411
Injectors and Fuel Lines - Group 06	6	7-89421
Lubricating Oil System - Group 07	7	7-89430
Cooling System - Group 08	8	7-89440
Drive Units - Group 09	9	7-89450
Air Intake System - Group 10	10	7-89460
Exhaust System - Group 11	11	7-89470
Miscellaneous - Group 017	17	7-89510
Specifications	V	7-89520

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