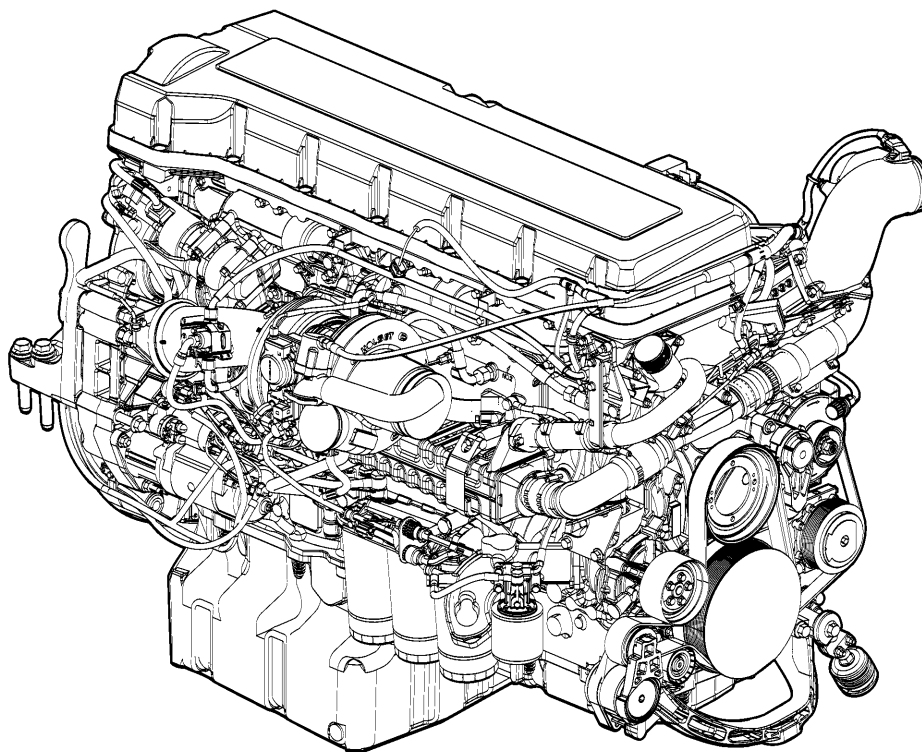


Oil Pump Replacement D16F

Oil Pump, Replacement



W2005772

Contents

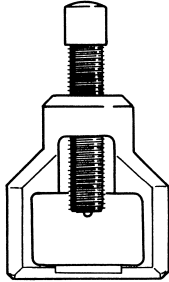
- "Special Tools" page 2
- "Oil Pump, Replacement" page 3

Note: Information is subject to change without notice.
Illustrations are used for reference only and can differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.

Tools

Special Tools

For special tools ordering instructions, refer to Tools Information, group 08.



9996201

Tie Rod Separating Tool

Service Procedures

2211-03-02-01

Oil Pump, Replacement

You must read and understand the precautions and guidelines in Service Information, group 20, "General Safety Practices, Engine" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

Special tools: 9996201

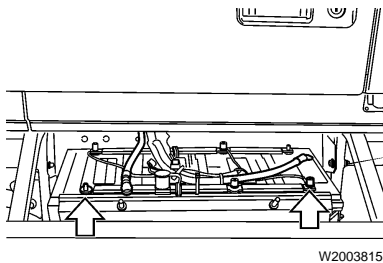
Removal

1

Apply the parking brake and place the shift lever in neutral.

2

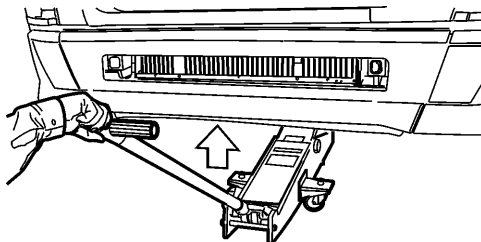
Remove all cables from ground (negative) battery terminals to prevent personal injury from electrical shock.



W2003815

3

Using a hydraulic jack, lift the front axle until the front wheels are off the ground. Position jackstands of a suitable size and capacity under the front axle to support the vehicle.

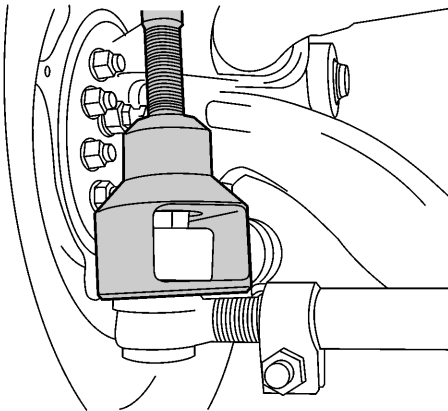


W2003873

4

Depending on chassis installation, remove the cotter pin and locknut from the left-side tie rod.

Note: This step is only required on chassis equipped with a rear sump oil pan.



W2004875

5

Depending on chassis installation, remove the tie rod from the left-side steering knuckle using a tie rod separating tool. Disconnecting the tie rod allows more clearance for oil pan removal.

Note: This step is only required on chassis equipped with a rear sump oil pan.

9996201

6

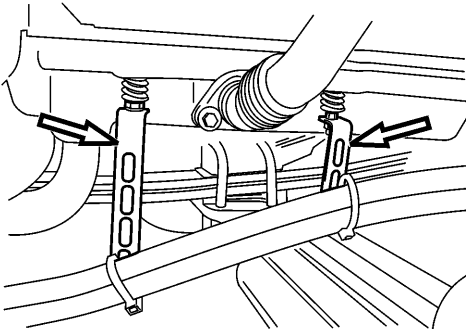
Place an approved container under the oil pan. Drain the oil by removing the drain plug.

Note: Use only hand tools when removing and installing the drain plug. Do not use an air ratchet or similar air tool.

7

Remove the transmission cooler line bracket nuts and separate the brackets from the oil pan fasteners. Position the cooler lines out of the way.

Note: Mark the transmission oil cooler bracket stud locations to aid in reassembly.



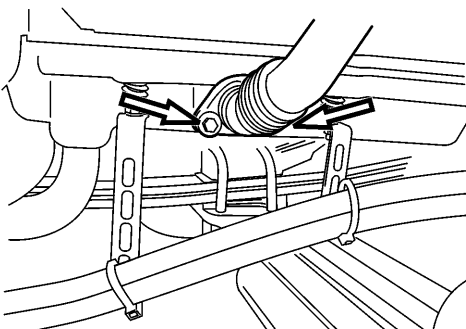
W2004874

8

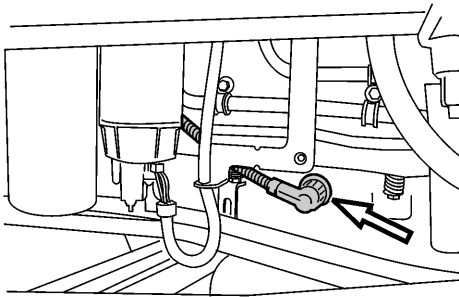
Pull the dipstick partially out of the dipstick tube. Remove the dipstick tube fastener and tube from the oil pan. Remove and discard the O-ring.

9

Remove the oil fill tube fasteners and tube from the oil pan. Remove and discard the tube O-ring.



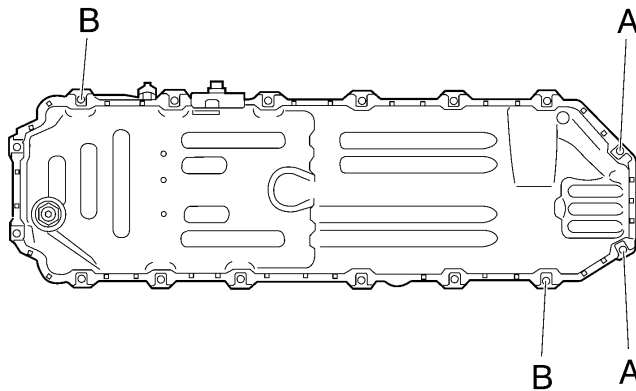
W2004884



W2004876

10

Disconnect the oil level/temperature sensor connector.



W2005226

11

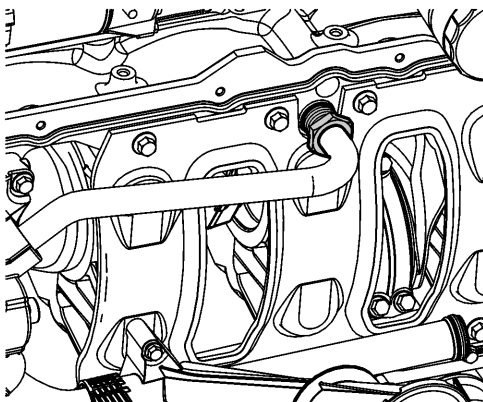
Remove the two bolts marked A. Loosen the two bolts marked B but do not remove. Remove all other bolts.

12

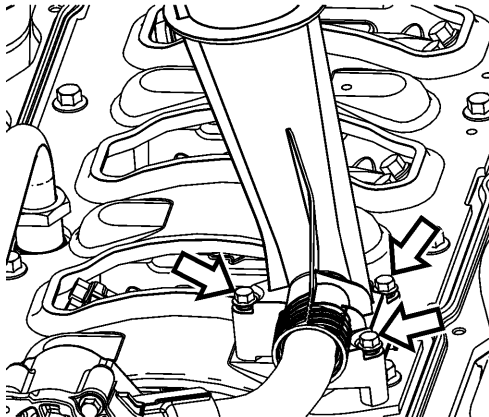
With assistance, remove the two remaining bolts (B) and carefully lower and remove the oil pan.

13

Remove the oil supply tube from the oil pump to the engine block. Loosen the tube nut at the engine block.



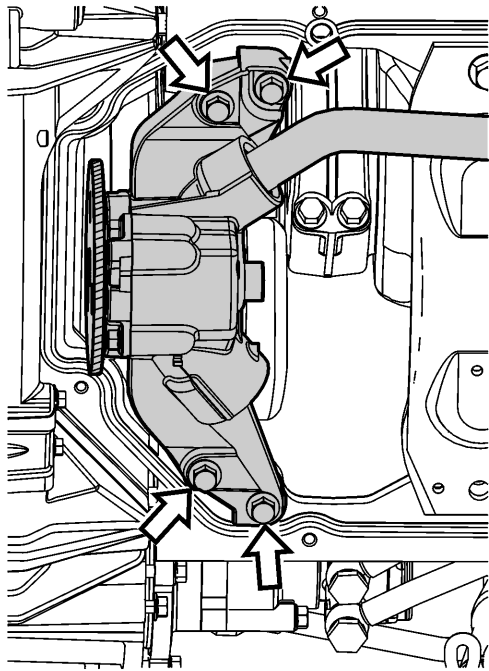
W2004958



W2004952

14

Remove the bolts securing the oil strainer and remove the strainer and suction pipe.



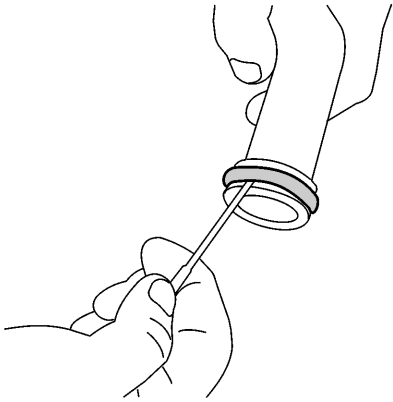
W2004955

15

Remove the bolts securing the oil pump and remove the pump and oil supply tube as an assembly.

16

Separate the oil supply tube from the oil pump housing.



W2004956

17

Remove the O-rings from the oil supply and pickup tubes and replace with new O-rings. Lubricate with engine oil.

18

Separate the oil suction tube from the oil strainer.

Installation

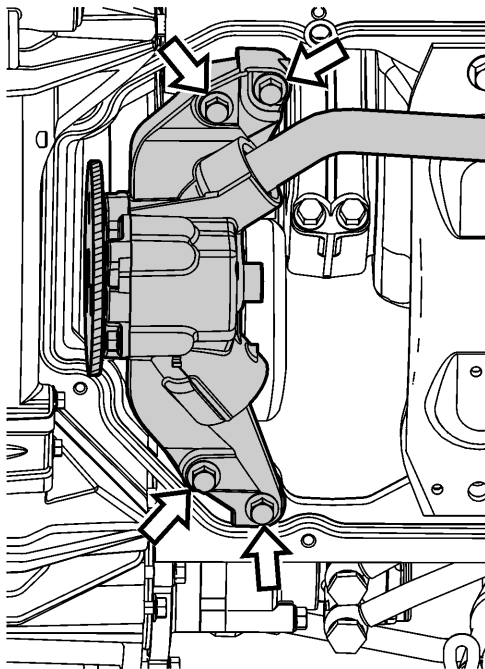
Note: Clean the oil pump mounting surface on the cylinder block before installing the new oil pump. Clean and inspect the oil strainer and suction pipe for cracks. Replace if necessary.

1

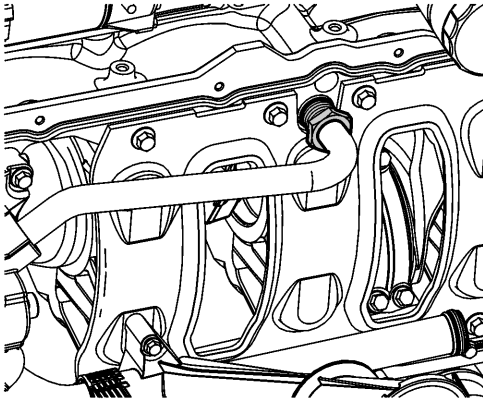
Insert the oil supply tube with new O-ring into the oil pump housing.

2

Assemble the pump and oil supply tube to the cylinder block. Align the pump with the dowel pins. Loosely install the pump bolts.



W2004955



W2004958

3

Loosely install the oil supply tube nut by at least a few threads.

Note: Make sure the supply tube nut is not cross threaded.

4

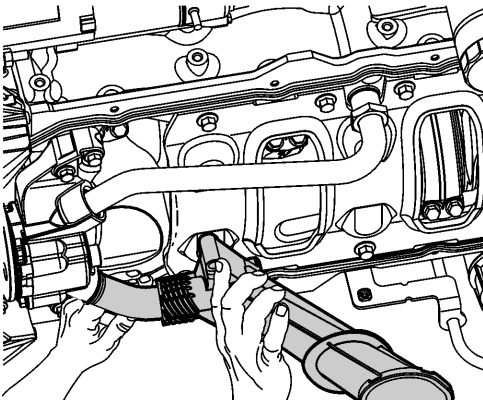
Tighten the oil pump mounting bolts to 35 ± 3 Nm (26 ± 2 ft-lb) plus 90 degrees rotation.

35 ± 3 Nm (26 ± 2 ft-lb)
Plus 90 degrees

5

Tighten the oil supply tube nut at the cylinder block until it bottoms out at approximately 10 Nm (7.4 ft-lb). Tighten the supply tube nut to a final torque of 201 ± 20 Nm (148 ± 15 ft-lb).

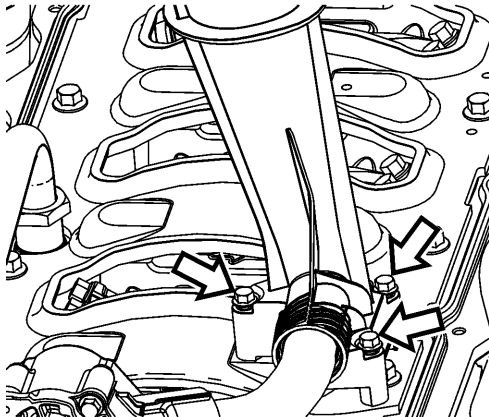
201 ± 20 Nm
(148 ± 15 ft-lb)



W2004957

6

Place the oil strainer on the suction pipe with new O-ring. Lubricate the O-ring.

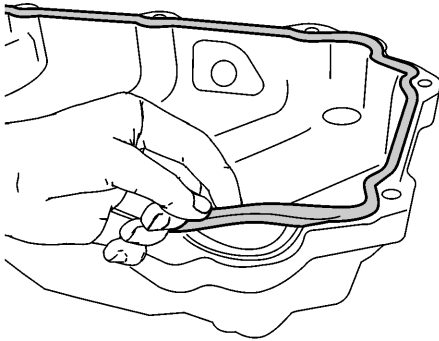


W2004952

7

Install the oil strainer and suction pipe to the oil pump housing. Tighten the bolts to 27 ± 3 Nm (20 ± 2 ft-lb).

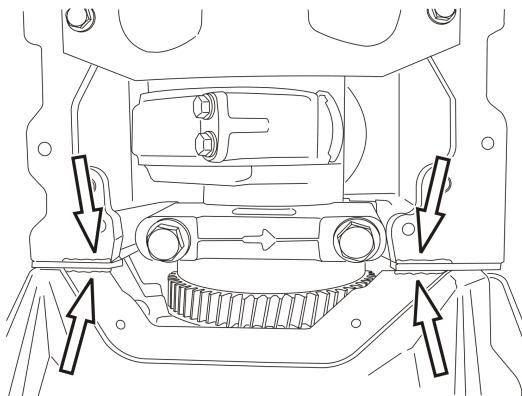
27 ± 3 Nm
(20 ± 2 ft-lb)



W2004878

8

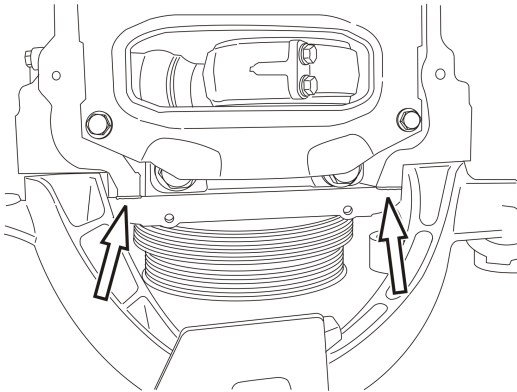
Inspect the rubber oil pan gasket for damage and replace if necessary. Clean the oil pan and the engine block flanges.



W2005222

9

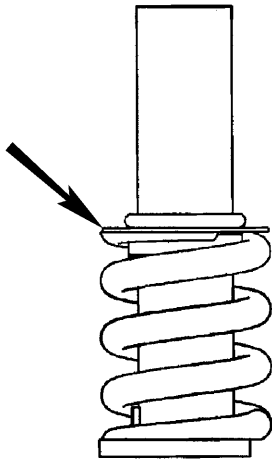
Apply a two mm (0.079 inch) bead of Volvo sealant to the seams between the flywheel housing and the timing gear mounting plate and between the timing gear mounting plate and the engine block.



W2005223

10

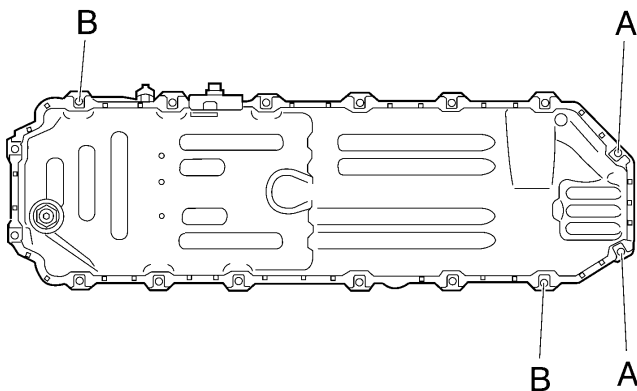
Apply a two mm (0.079 inch) bead of Volvo sealant to the seam between the front seal cover and the engine block.



T2017887

11

Position the spring assembly on the oil pan bolts so that the washer faces the oil pan end of the assembly.



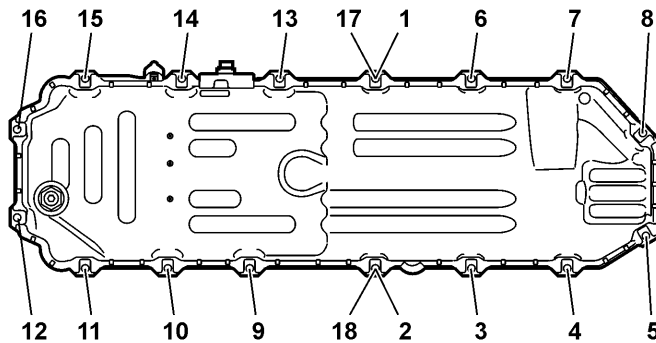
12

With assistance, position the oil pan to the bottom of the engine block and install the two bolts marked B. Install all other bolts except those marked A.

Note: Press the pan toward its rearmost position before tightening the bolts.

Note: Use caution not to damage the oil pickup.

W2005226



T2020557

13

Tighten the oil pan bolts to 24 ± 4 Nm (18 ± 3 ft-lb) in the sequence shown.

Note: Before tightening the oil pan bolts, make sure the oil pan gasket is seated properly in the groove.

24 ± 4 Nm
(18 ± 3 ft-lb)

14

Install the drain plug. Tighten the oil drain plug to 60 ± 10 Nm (44 ± 7 ft-lb).

Note: The drain plug must not be installed with a copper washer. Always use the steel washer.

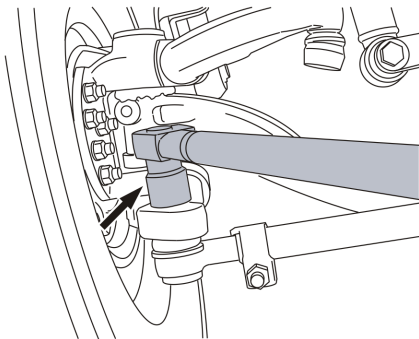
Note: Do not use an air impact ratchet or similar air tool to remove or install the oil drain plug.

60 ± 10 Nm
(44 ± 7 ft-lb)

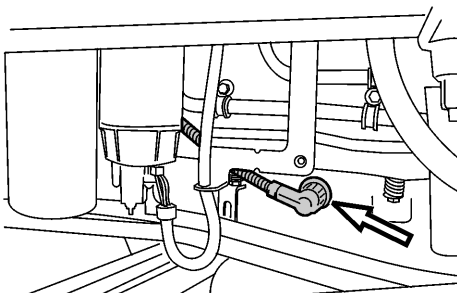
15

If removed, connect the tie rod into the left-side steering knuckle and tighten the locknut to 200 ± 30 Nm (148 ± 22 ft-lb). Insert the cotter pin and bend it to lock it in place.

200 ± 30 Nm
(148 ± 22 ft-lb)



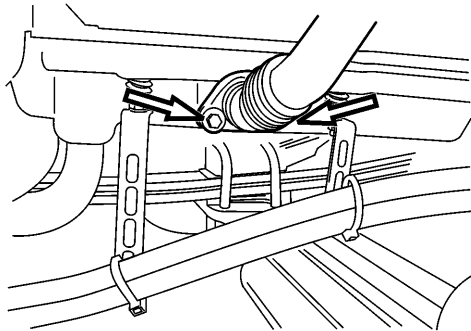
W2005190



W2004876

16

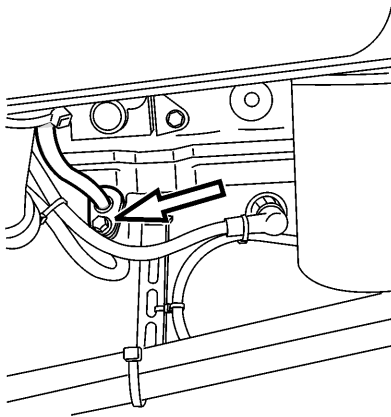
Plug in the oil level/temperature sensor connector.



W2004884

17

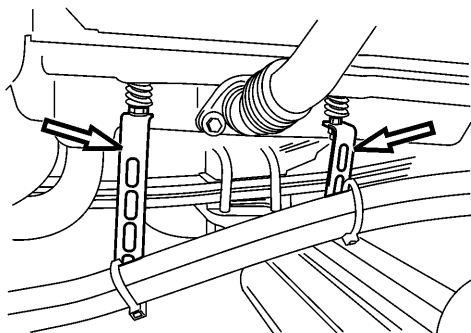
Install a new fill tube O-ring and position the fill tube onto the side of the oil pan. Install the oil fill tube fasteners and tighten to secure.



W2005086

18

Install a new O-ring on the dipstick tube, then install the dipstick tube and secure with the fastener. Install the dipstick.



W2004874

19

Position the transmission oil cooler line brackets onto the oil pan fastener stud locations. Install the cooler line bracket nuts and tighten to secure.

20

Install all previously removed cables to the ground (negative) battery terminals.

21

Using a hydraulic jack, raise the front axle and remove the jackstands from under the front axle. Lower the front axle and remove the hydraulic jack.

22

Fill the engine with approved oil to the full level on the dipstick.

23

Start the engine, check the oil pressure, run the engine until operating temperature is reached and check for oil leaks.