

Crown Victoria, Grand Marquis and Lincoln Town Car Engine Oil Cooler Replacement

Affected Vehicles:

1994 And 1995 Crown Victoria Police Interceptor. 1995 Model Crown Victoria, Grand Marquis And Lincoln Town Car Equipped With Trailer Tow, Limousine, GCC (Gulf Cooperative Council), And Mexico Option Packages.

PARTS REQUIRED - ORDER AS REQUIRED						
3	PART NUMBER	3	DESCRIPTION	3	QUANTITY	3
3	F4PZ-6A642-AA	3	Engine Oil Cooler - 1994 Models	3	1	3
3	F6PZ-6A642-AA	3	Engine Oil Cooler - 1995 Models	3	1	3
3	F4PZ-6A715-AA	3	Oil Cooler Hoses - 1994 Models	3	1	3
3	F6AZ-6A715-AA	3	Oil Cooler Hoses - 1995 Models	3	1	3

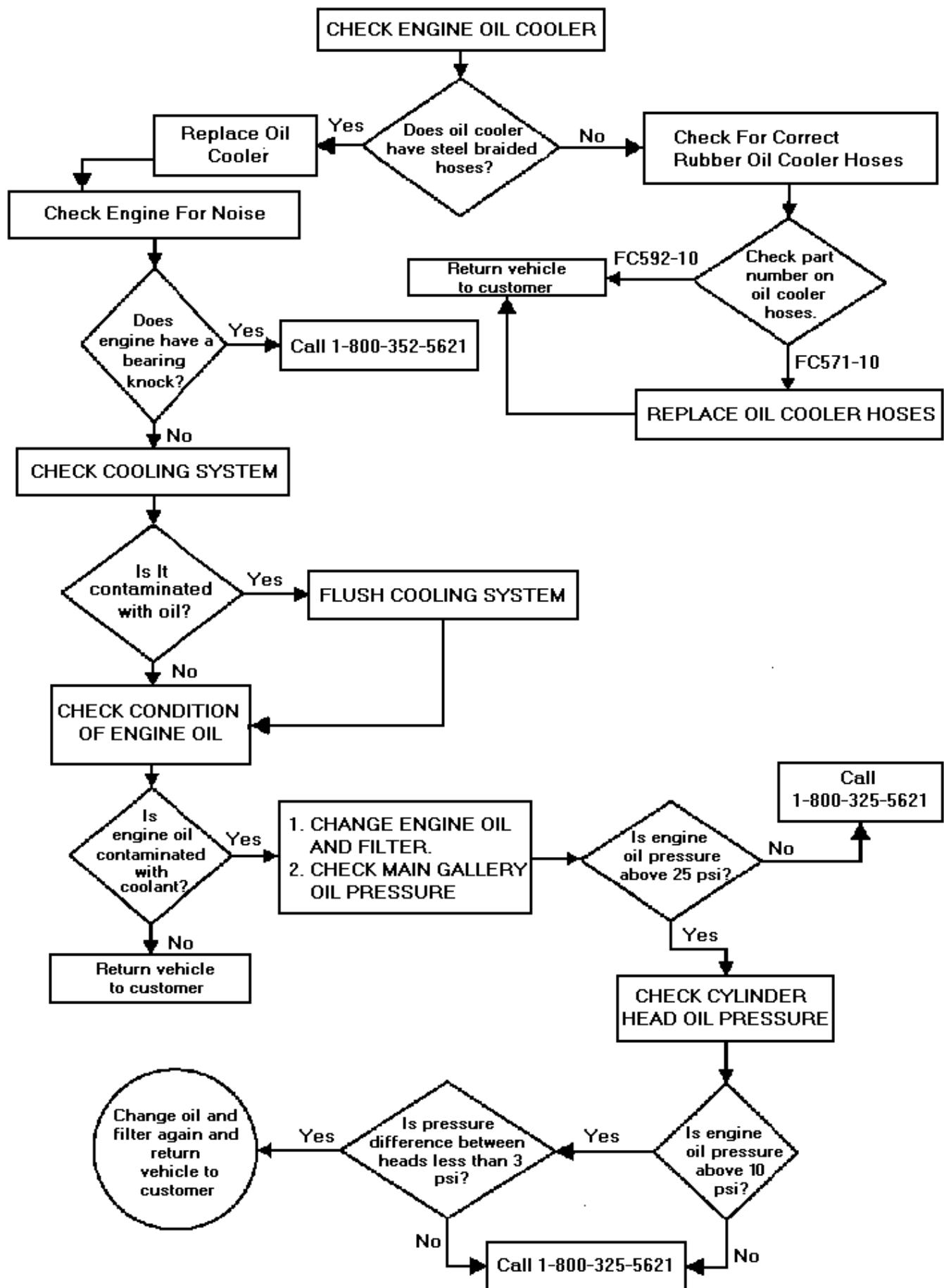
Introduction

A diagnostic and repair flow chart has been developed to guide you during this service action. You will be called upon to perform one or more of the following operations:

- visual inspections
- engine oil cooler replacement
- cooler hose replacement
- engine oil pressure testing
- engine oil and filter changes
- cooling system flush.

Some diagnostic evaluations will prompt you to call 1-800-325-5621 for further instructions related to engine replacement.

Detailed directions for performing each step of the flow chart (except engine replacement) are provided in the instruction sheets. To locate the correct instructions, simply look for the procedure heading that matches the procedure on the flow chart.



Check Engine Oil Cooler

1. Inspect the engine oil cooler hoses to see if they are steel braided or rubber. The hoses can be viewed from under the hood looking down between the cooling fan and power steering pump pulley. Which type of hoses are installed on the cooler assembly? See Figure 1.

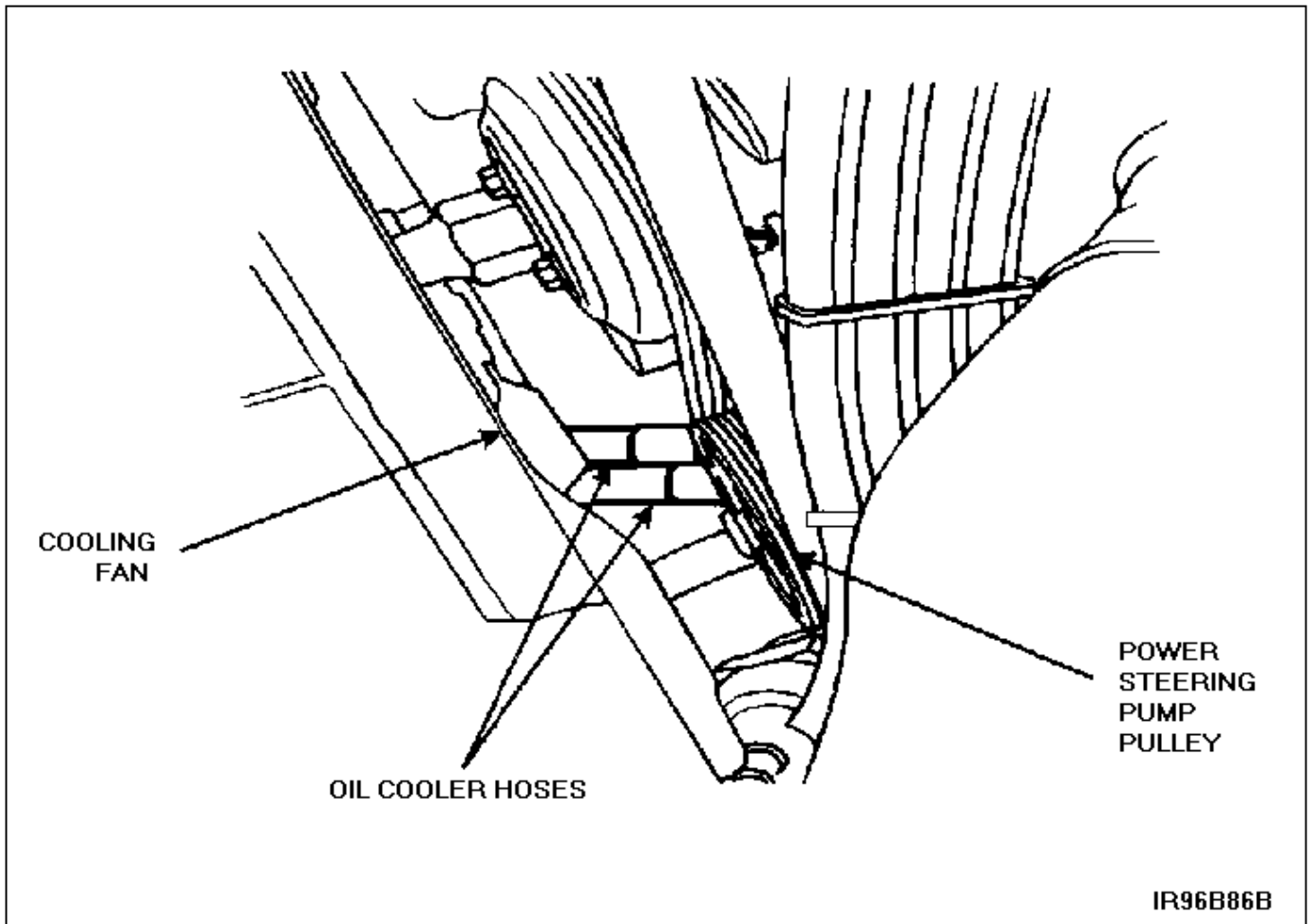


Figure 1

- a. Rubber - Continue diagnosis with Step 2.
 - b. Steel Braided - the cooler assembly must be replaced. Go to ENGINE OIL COOLER REPLACEMENT.
2. Raise vehicle on hoist.
 3. Remove air flow shield (belly pan) from under front of engine.
 4. Clean oil cooler hose if necessary, then check part number on oil cooler hose.
 - a. Part number FC592-10 - no further action is required. Return the vehicle to the customer.
 - b. Part number FC571-10 - go to ENGINE OIL COOLER HOSE REPLACEMENT.

Engine Oil Cooler Hose Replacement

1. Raise the vehicle on hoist.

2. Remove air flow shield (belly pan) from under front of engine.
3. Position a drain pan under the cooler hoses.
4. Remove redundant clips from hoses at oil filter adapter.
5. Disconnect cooler hoses from adapter using appropriate disconnect tool.
6. Remove the hose assembly retaining bolt at the cooler, then remove the hose assembly.
7. Verify the O-rings are in place on the ends of the new hoses, then position the new hose assembly to the cooler. Install and tighten the retaining bolt to 8-12 N-m (6-9 ft-lb).

NOTE:

Hoses are color coded to the fittings on the adapter.

8. Connect hoses to fittings on the adapter, then install redundant clips.
9. Remove drain pan and install air flow shield, then lower vehicle.
10. Open hood and install fender covers.
11. Check and top off engine oil as required. Remove covers and close hood.

Oil Cooler Removal

1. Position drain pan under radiator and drain engine cooling system.
2. Raise vehicle on hoist.
3. Remove air flow shield (belly pan) from under front of engine.
4. Remove redundant clips from engine oil cooler assembly hoses at oil filter adapter.

NOTE:

About 1 pint of oil will flow from hoses once disconnected.

5. Using appropriate quick disconnect tool, disconnect both cooler assembly hoses from oil filter adapter. See Figure 2.

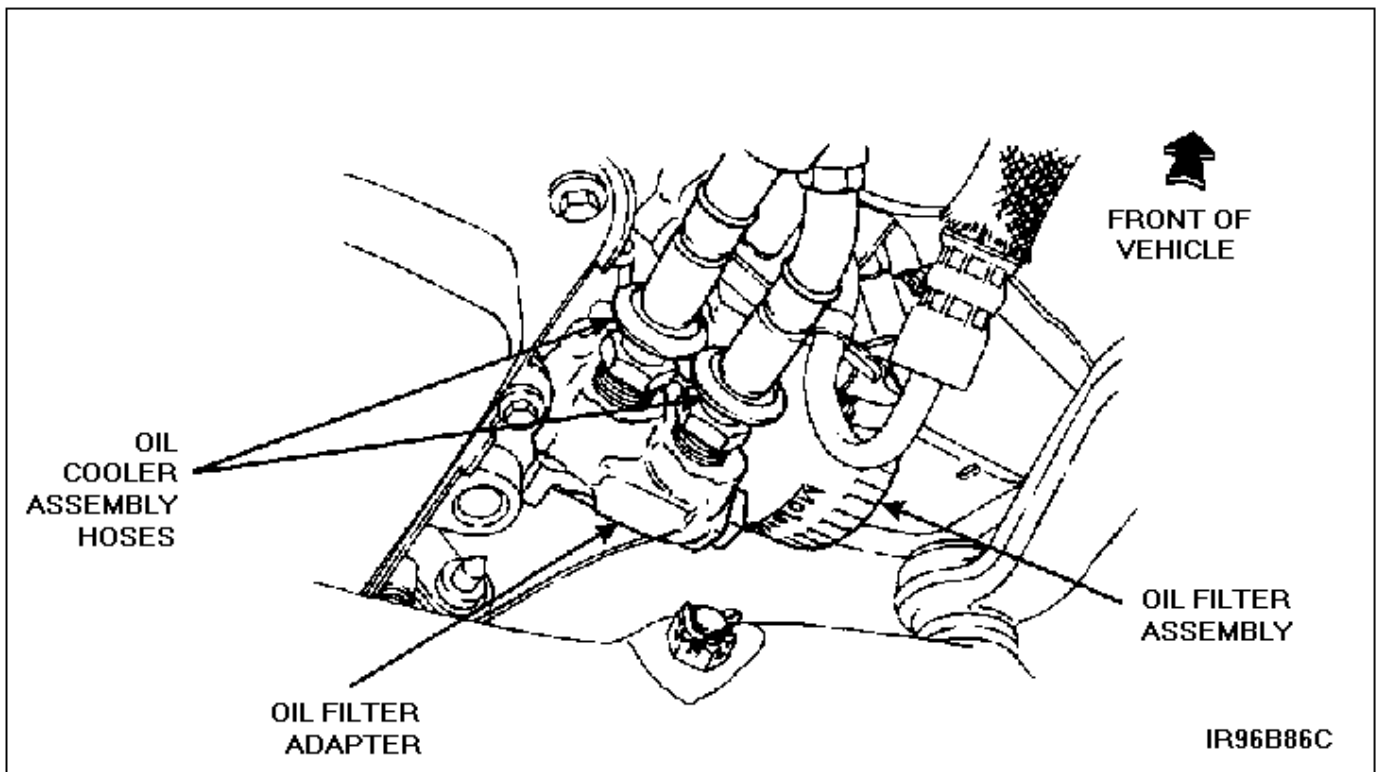


Figure 2

6. Disconnect both radiator hoses from engine oil cooler assembly.
7. The cooler assembly is held in place by two spring clamps. Gently pry cooler away from clamps to disengage then remove cooler assembly from vehicle. See Figure 3.

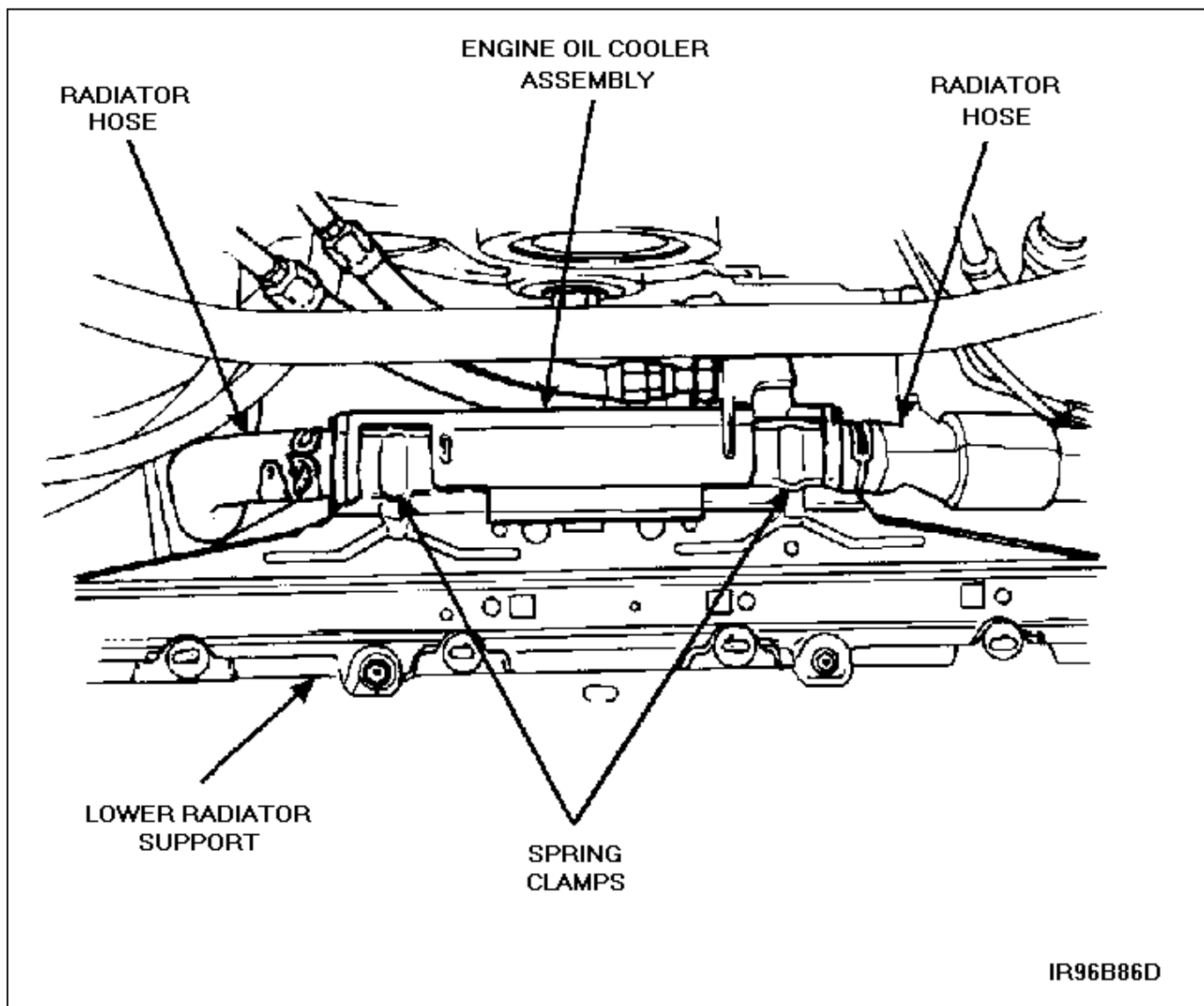


Figure 3

Installation

1. Position new cooler assembly and engage spring clips to secure in place.
2. Connect both radiator hoses to cooler assembly and position clamps.

NOTE:

Engine oil cooler assembly hose ends are color coded to match fittings on oil filter adapter to ensure proper orientation.

3. Connect cooler assembly hoses to oil filter adapter making sure hoses are properly oriented.
4. Install redundant clips over cooler hose connections at oil filter adapter.
5. Install air flow shield.
6. Lower vehicle.
7. Check engine oil level and top off as necessary.

8. Refill cooling system with 50/50 mixture of Ford Premium Cooling System Fluid E2FZ-19549-AA or -B (in Canada, Motorcraft CXC-8-B) or equivalent meeting Ford Specification ESE-M97B44-A and water.

Check Engine For Noise

1. Verify engine oil coolant are topped off.
2. Using a mechanics' stethoscope or other listening device, listen for an engine main bearing knock. Is there a bearing knock present?
 - a. If a bearing knock is heard, Call 1-800-325-5621 for further instructions regarding engine replacement.
 - b. No bearing knock is heard, continue diagnosis. Go to CHECK COOLING SYSTEM.

Check Cooling System

1. Inspect the coolant recovery reservoir for signs of contamination by engine oil. The inside wall of the reservoir will be coated with engine oil, leaving a dark residue. Is the cooling system contaminated?
 - a. Yes - go to FLUSH COOLING SYSTEM then continue diagnosis.
 - b. No - go to CHECK CONDITION OF ENGINE OIL then continue diagnosis.

Flush Cooling System

1. The coolant recovery reservoir should have adequate clearance to add 12 ounces of Ford Premium Cooling System Flush, F1AZ-19A503-A or equivalent. Drain fluid as required from radiator drain cock.
2. Shake can thoroughly and empty entire contents into reservoir.
3. Run engine at fast idle for 10 minutes or drive 10-20 miles.
4. Position drain pan under radiator draincock and drain entire cooling system.
5. Flush system until water coming out of radiator runs clear.
6. Close radiator draincock.
7. Dispose of all old coolant and flush water in accordance with local, state and federal laws.
8. Refill cooling system with a 50/50 mixture of Ford Premium Cooling System Fluid E2FZ-19549-AA or -B (in Canada, Motorcraft CXC-8-B) or equivalent meeting Ford Specification ESE-M97B44-A and water
9. Go to CHECK CONDITION OF ENGINE OIL.

Check Condition OF Engine Oil

1. Inspect the engine oil for signs of contamination by engine coolant, such as a white milky substance on the dipstick. Is the engine oil contaminated?
 - a. Yes - Change engine oil and filter, then go to CHECK ENGINE OIL PRESSURE AT MAIN OIL GALLERY.

- b. No - no further action is required. Return the vehicle to the customer.

Check Engine Oil Pressure At Main Oil Gallery (Check Main Gallery Oil Pressure)

1. Run engine until it reaches full operation temperature (about 10-15 minute).
2. Raise vehicle on a hoist.
3. Position a drain pan under oil filter adapter.
4. Unscrew the blue oil cooler hose from the oil filter adapter. About 1 pint of oil will drain from the hose when disconnected.
5. Disconnect, then remove the oil pressure sending unit from the adapter.
6. Connect oil pressure gauge to the oil pressure sending unit port on the adapter. See Figure 4.

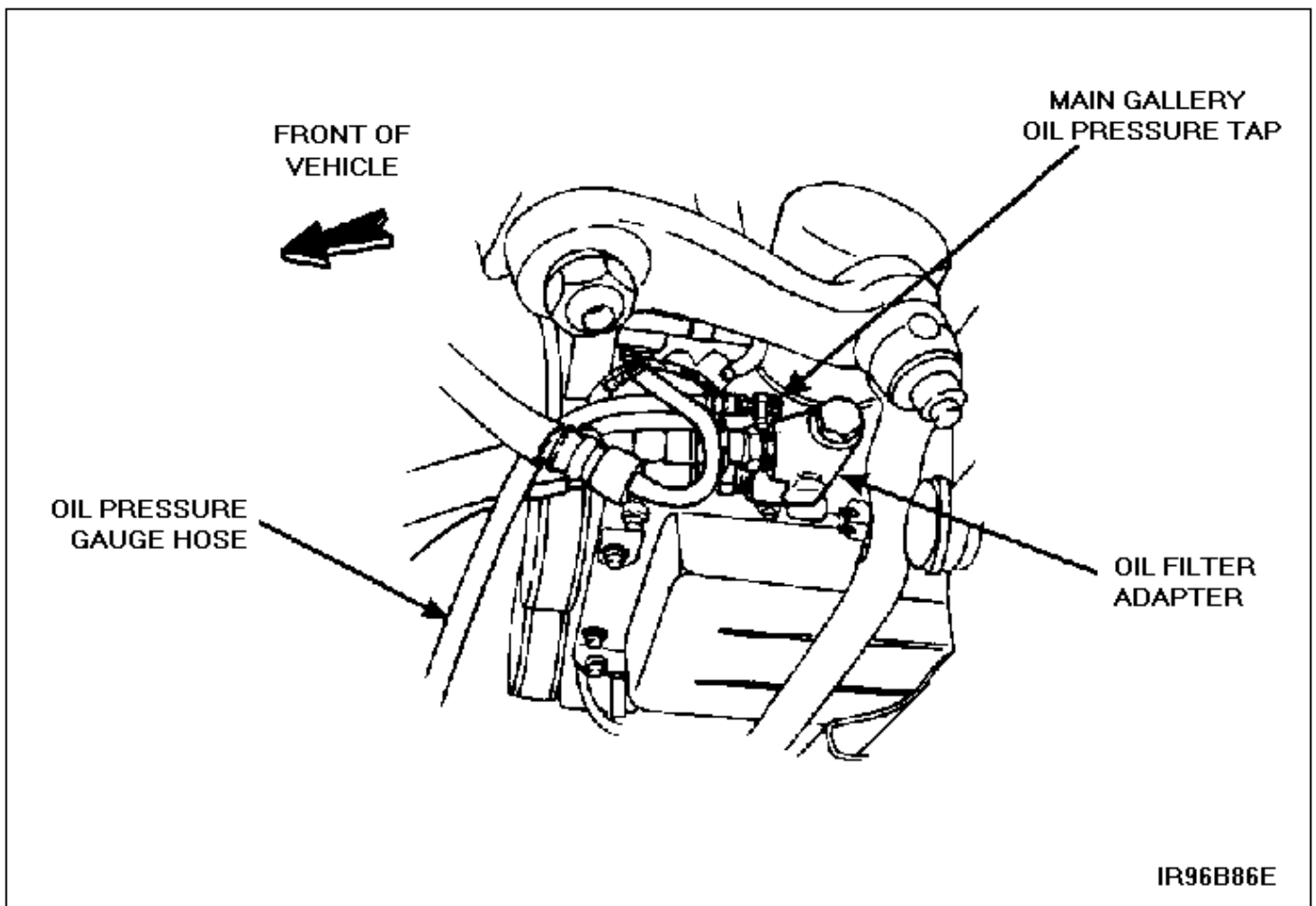


Figure 4

7. Reconnect the blue oil cooler hose to the adapter.
8. Lower the vehicle. Top off the engine oil with 5W30 engine oil, XO-5W30-QSP or equivalent, as required.
9. Start the engine and allow the engine to stabilize at idle, then record the oil pressure gauge reading. Is the engine oil pressure above 25 psi?

- a. Yes - Reinstall the oil pressure sending unit and top off engine oil, then continue diagnosis. Go to CHECK CYLINDER HEAD OIL PRESSURE
- b. No - Call 1-800-325-5621 for further instructions regarding engine replacement.

Check Engine Oil Pressure At Each Cylinder Head (Check Cylinder Head Oil Pressure)

NOTE:

To Ensure Accurate Diagnosis, Use The Same Oil Pressure Gauge To Check The Pressure At Each Cylinder Head.

1. On the right cylinder head, the oil pressure tap is located on the side of the head between the front exhaust manifold port and the front cover and beneath the rocker cover. Remove the plug and connect the oil pressure gauge. See Figure 5.

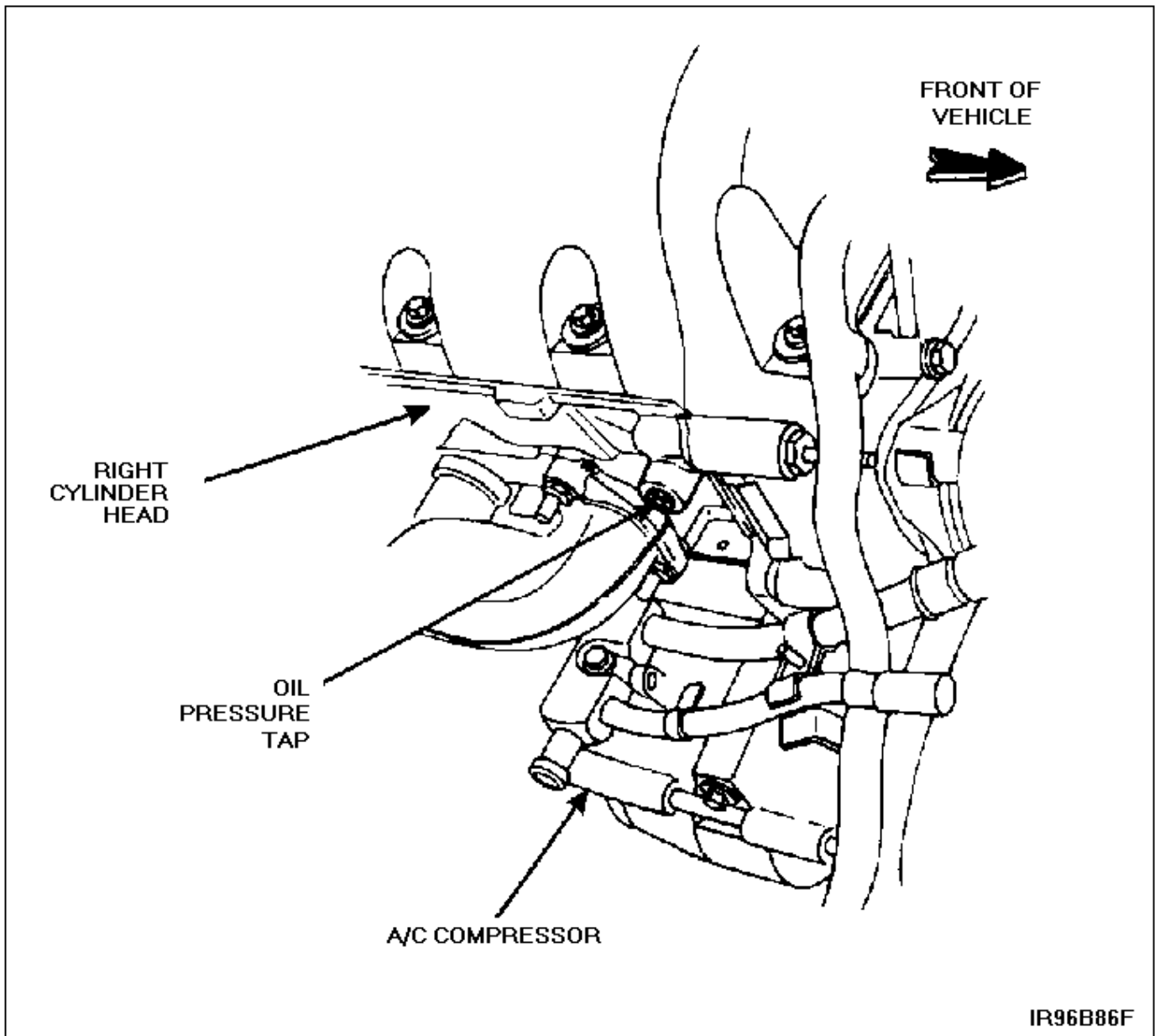


Figure 5

2. Start the engine and allow the engine to stabilize at idle, then record oil pressure gauge reading.

3. Shut the engine off. Remove the gauge and reinstall the plug.
4. On the left cylinder head, the oil pressure tap is located exactly opposite where the tap was on the right head. Remove the plug and connect the oil pressure gauge. See Figure 6.

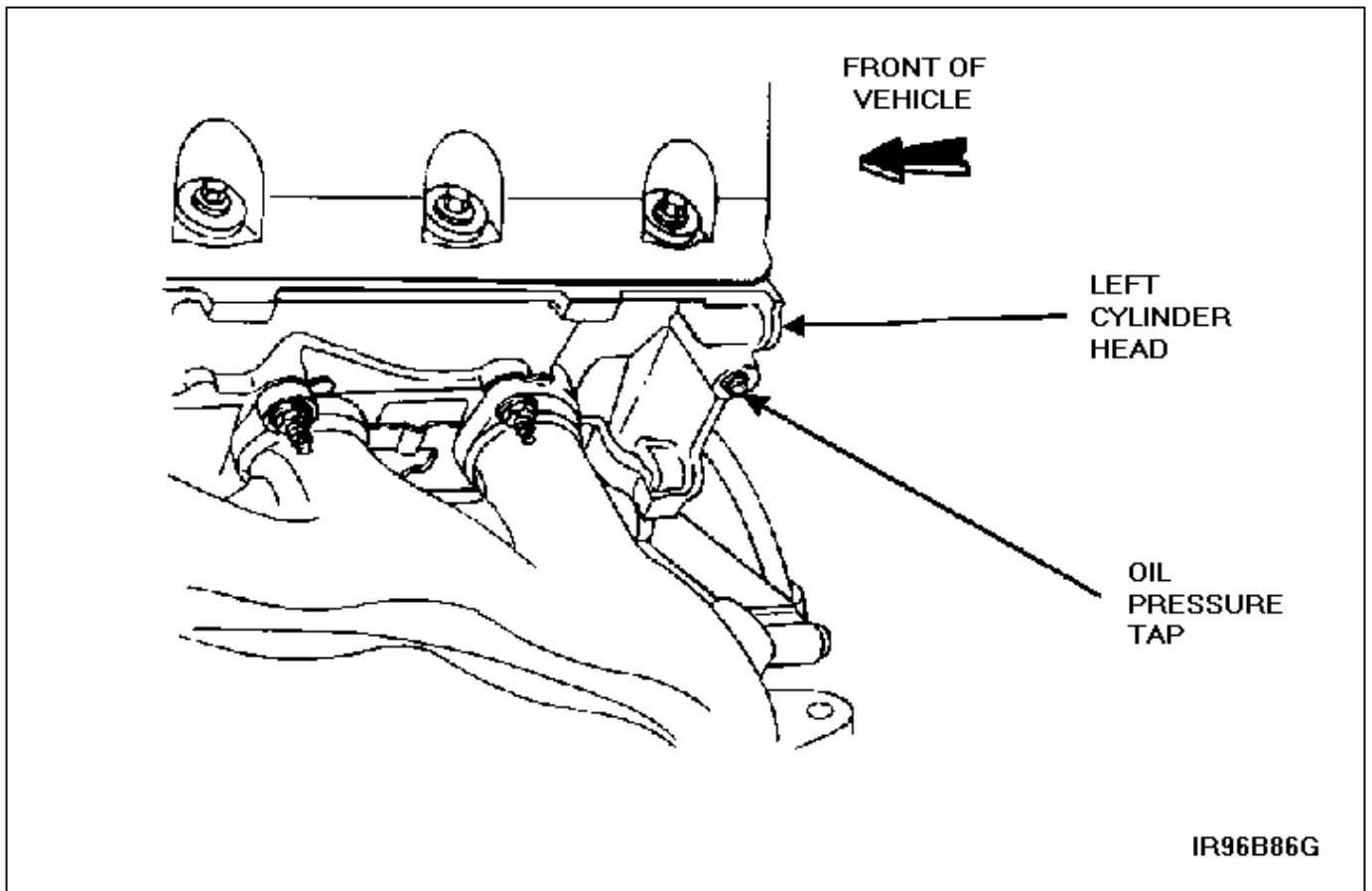


Figure 6

5. Start the engine and allow the engine to stabilize at idle, then record the oil pressure gauge reading.
 6. Remove the gauge and reinstall the plug.
 7. Compare the readings. Are both readings 10 psi or above, and is the difference between the two readings less than 3 psi?
 - a. Yes - Change engine oil and filter again. Return the vehicle to the customer. No further action is required.
 - b. No - Call 1-800-325-5621 for further instructions regarding engine replacement.
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