Published: May 15, 2007

Specifications

Item	Specification
Anti-freeze	WAS-M97B44-D
Anti-freeze concentration - Will provide frost protection to -40°C (-40°F)	50%
Specific gravity of coolant at 20°C (68°F), to protect against frost down to -40°C (-40°F)	1.068

Item	Capacity
Cooling System	10 Liters (17.6 pints) (10.6 quarts)
Radiator	2.3 Liters (4 pints) (2.4 quarts)
Coolant Expansion Tank (To Cold Level)	1.2 Liters (2.1 pints) (1.3 quarts)

Item	Description
Cooling system type	Pressurized, thermostatically controlled with coolant expansion tank
Radiator	Cross flow
Coolant expansion tank	Remote with cold level fill mark
Pressure cap rating	100 kPa (1 bar) (15.9 lbf/in²)
Thermostat: Starts to open	82° C (180°F)
Thermostat: Fully open	96° C (205°F)
Cooling fan	Viscous
Cooling fan control	Bi-metallic
Cooling fan diameter	475 mm (18.70 inches)
Cooling fan direction of rotation	Clockwise when viewed from front of engine
Coolant pump	Centrifugal flow impeller, belt driven from the crankshaft

Torque Specifications

Description	Nm	lb-ft
Heater hose air bleed screw	2	1
Coolant pump bolts	23	17
Coolant pump outlet manifold	10	7
Coolant pump hose clip	3	2
Viscous coupling bolts	10	7
Expansion tank bolt	10	7
Charge air cooler to radiator bolts	20	15
Charge air cooler inlet and outlet hose clips	3	2
Charge air cooler bracket bolts	9	7
Power steering reservoir nuts	4	3

Published: Jan 30, 2007

Cooling System Draining, Filling and Bleeding (26.10.01)

WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank while the system is hot.

CAUTION: The engine cooling system must be maintained with the correct concentration and type of anti-freeze solution to prevent corrosion and frost damage. Failure to follow this instruction may result in damage to the engine.

CAUTION: Engine coolant will damage the paint finished surfaces. If spilt, immediately remove the coolant and clean the area with water.

1. Set the heater controls to Hot.

2.
WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank while the system is hot.

Remove the coolant expansion tank cap.

3.
WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the cooling system bleed screw while the system is hot.

Loosen the cooling system bleed screw.

4.
WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

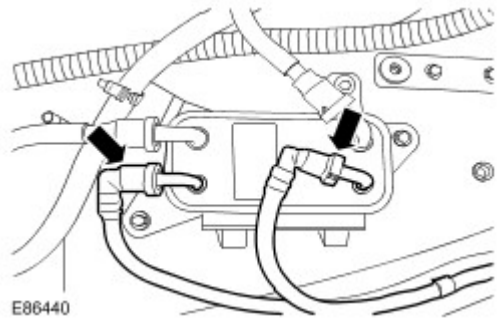
5.
WARNING: Eye protection must be worn.

NOTE:

Position a container to collect the coolant.

Disconnect the 2 fuel cooler coolant pipes.

- Allow the coolant to drain.

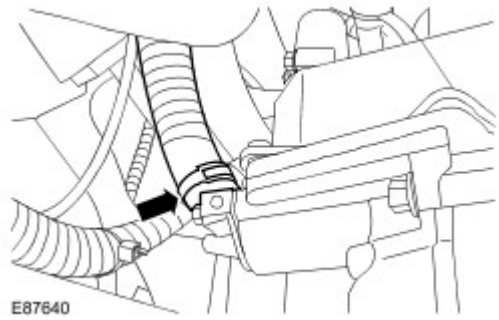


6.

WARNING: Eye protection must be worn.

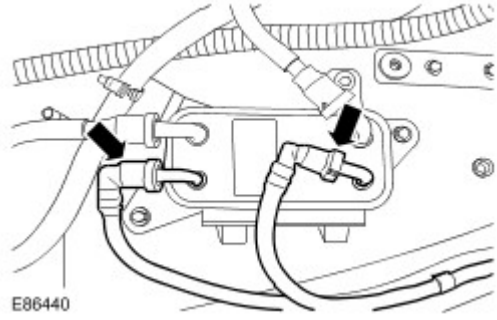
Disconnect the oil thermostat coolant hose.

- Allow the coolant to drain.

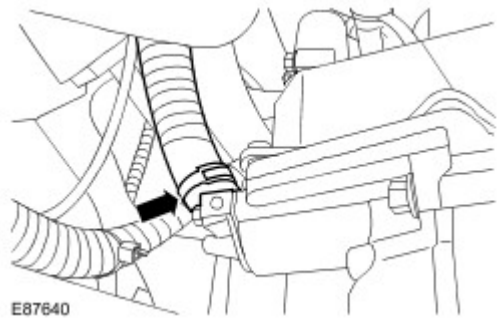


7. Remove the container.

8. Connect the 2 fuel cooler coolant pipes.



9. Connect the oil thermostat coolant hose.



10.

CAUTION: Engine coolant will damage the paint finished surfaces. If spilt, immediately remove the coolant and clean the area with water.

CAUTION: Anti-freeze concentration must be maintained at 50%.

Fill the cooling system expansion tank until the coolant level becomes static with in the ' COLD FILL RANGE' .

11. Tighten the cooling system bleed screw.

12. Install the coolant expansion tank cap.

13.

CAUTION: Make sure the coolant level remains above the "COLD FILL RANGE" lower level mark.

CAUTION: Observe the engine temperature gauge. If the engine starts to over-heat switch off immediately and allow to cool. Failure to follow this instruction may cause damage to the vehicle.

Start and run the engine.

- Hold the engine speed at 3,000 RPM for one minute.
- Return the engine to idle for five minutes.
- Hold the engine speed at 3,000 RPM for one minute.
- Run the engine until the thermostat opens.

14.

WARNING: Release the cooling system pressure by slowly turning the coolant expansion tank cap a quarter of a turn. Cover the expansion tank cap with a thick cloth to prevent the possibility of scalding. Failure to follow this instruction may result in personal injury.

NOTE:

When the coolant bleed is complete and prior to installing the expansion tank cap, top-up the expansion tank to 30mm above the maximum level.

Switch the engine off.

- Remove the coolant expansion cap, allow the level to settle and top-up so that the level is 30mm above the upper level.
- Allow the engine to cool.

15. Clean any spilt coolant from the vehicle.

16. Check and top-up the coolant if required.

Published: Jul 3, 2007

Cooling System Draining and Vacuum Filling

WARNING: To avoid having scalding hot coolant or steam blowing out of the cooling system, use extreme care when removing the coolant pressure cap from a hot cooling system. Wait until the engine has cooled, then wrap a thick cloth around the coolant pressure cap and turn it slowly until the pressure begins to release. Step back while the pressure is released from the system. When certain all the pressure has been released (still with a cloth) turn and remove the coolant pressure cap from the coolant expansion tank. Failure to follow these instructions may result in personal injury.

CAUTION: The engine cooling system must be maintained with the correct concentration and type of anti-freeze solution to prevent corrosion and frost damage. Failure to follow this instruction may result in damage to the vehicle.

CAUTION: Engine coolant will damage paint finished surfaces. If spilled, immediately remove coolant and clean area with water.

1. Set the heater controls to maximum HOT.

2. Remove the hood.
Hood

3.

WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank while the system is hot.

Remove coolant expansion tank filler cap.

4. Loosen the cooling system bleed screw.

5.

WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

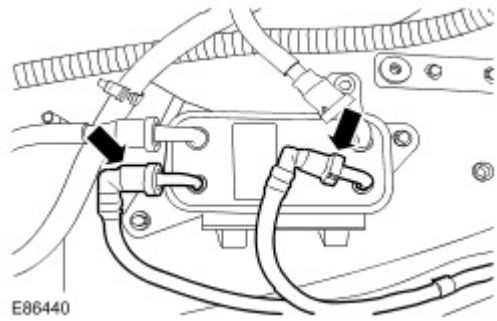
Raise and support the vehicle.

6.

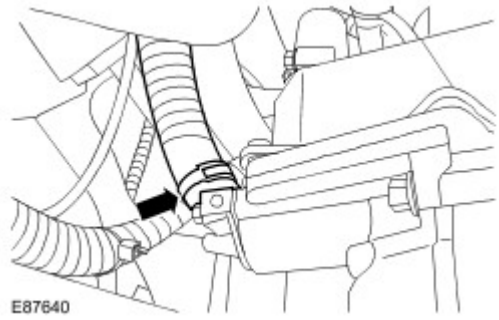
WARNING: Eye protection must be worn.

Position container to collect coolant.

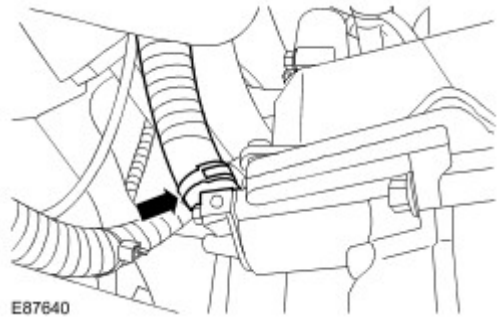
7. Disconnect the 2 fuel cooler coolant pipes.
   - Allow the coolant to drain.



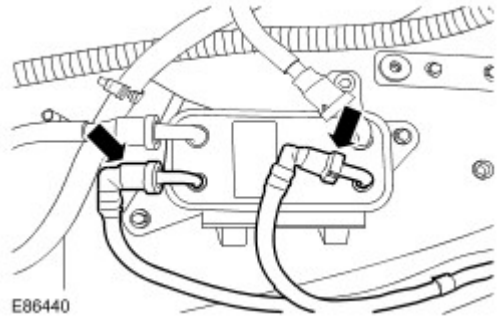
8. Disconnect the coolant hose from the engine oil cooler.
    - Release the clip.
    - Allow the coolant to drain.



9. Connect coolant hose to engine oil cooler.
    - Install the clip.



10. Connect the 2 fuel cooler coolant pipes.
    - Remove the container.



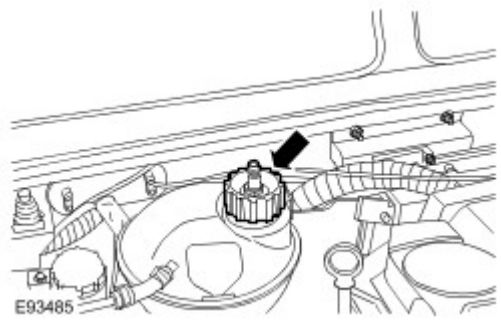
11. Tighten the cooling system bleed screw.

12.

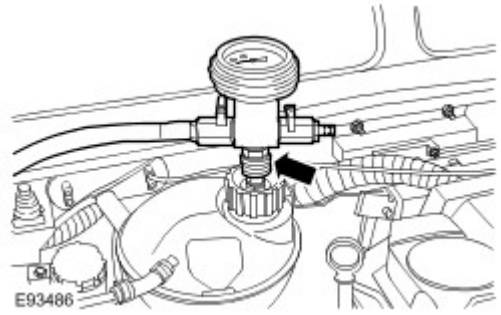
CAUTION: The engine cooling system must be maintained with the correct concentration and type of anti-freeze solution to prevent corrosion and frost damage. Failure to follow this instruction may result in damage to the vehicle.

Prepare a sufficient amount of coolant to the required concentration and transfer to a container.

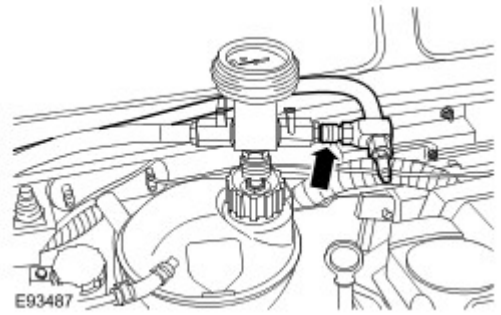
13. Install the cooling system vacuum refill adaptor to the expansion tank.



14. Install the vacuum filler gauge to the cooling system vacuum refill adaptor.



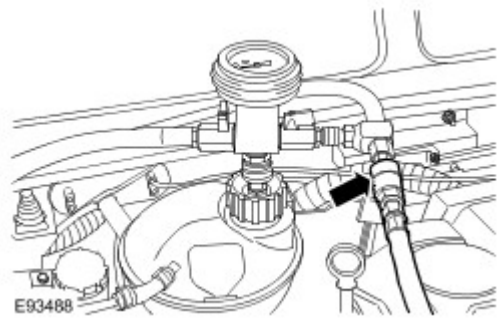
15. Install the venturi tube assembly to the vacuum filler gauge.



16. **NOTE:**

Make sure both valves on gauge assembly are in the closed position.

Connect a regulated compressed air supply to the venturi tube assembly.



17. **NOTE:**
    Make sure air cannot enter the hose.

Position the coolant pick-up pipe into a container of clean coolant.

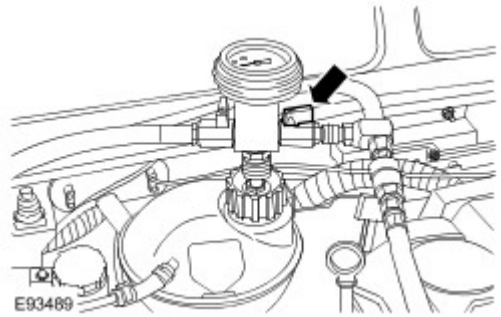
18. Position the evacuated air hose into a container.

19. **NOTE:**
    Make sure the coolant supply valve is in the closed position on the vacuum filler gauge assembly.

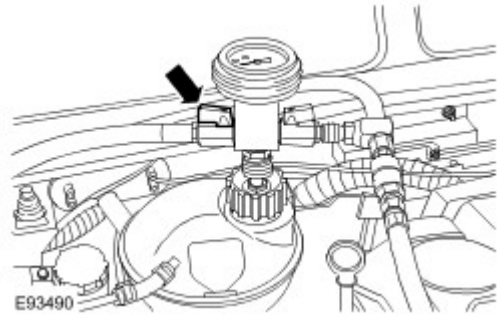
NOTE:
The coolant vacuum fill tool needs an air pressure of 6 to 8 bar (87 to 116 psi) to operate correctly.

NOTE:
Small diameter or long airlines may restrict airflow to the coolant vacuum fill tool.

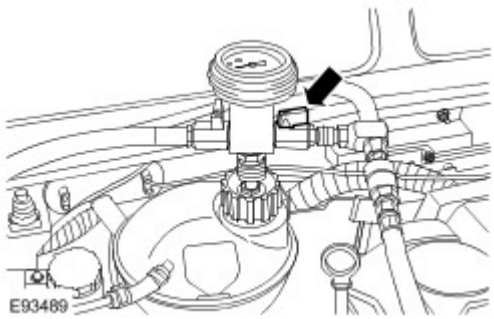
Open air supply valve.



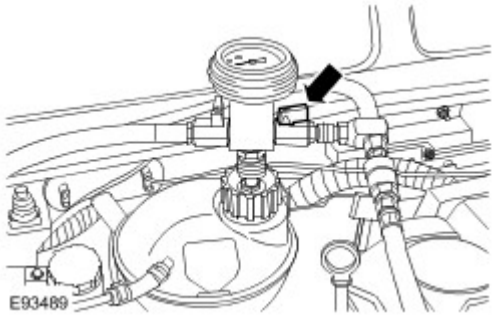
20. Open coolant supply valve for 2 seconds to prime coolant supply hose.



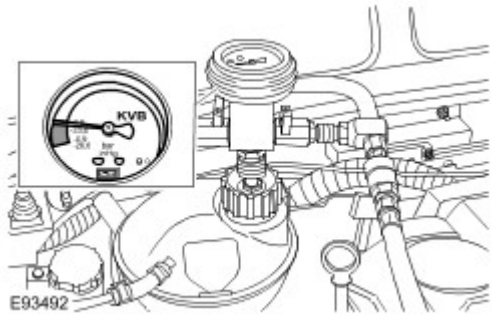
21. Apply air pressure progressively until the arrow on the vacuum filler gauge reaches the green segment.



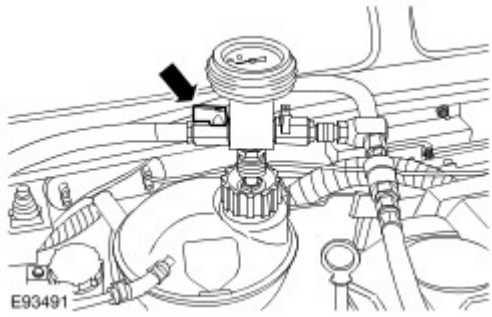
22. Close air supply valve and disconnect air supply.



23. Allow 1 minute to check vacuum is held.



24. Open coolant supply valve and allow coolant to be drawn into system.



25. When expansion tank is full and coolant movement has ceased close coolant supply valve.

26. Remove vacuum refill adaptor and gauge from expansion tank.

27. Install the coolant expansion tank filler cap.

28. Install the hood.
Hood

29.

 **CAUTION: Make sure the coolant level remains above the "COLD FILL RANGE" lower level mark.**

 **CAUTION: Observe the engine temperature gauge. If the engine starts to over-heat switch off immediately and allow to cool. Failure to follow this instruction may cause damage to the vehicle.**

Start and run engine.

- Hold the engine speed at 3,000 RPM for one minute.
- Return the engine to idle for five minutes.
- Hold the engine speed at 3,000 RPM for one minute.
- Run the engine until normal operating temperature is reached.

30. Switch off the engine and allow to cool.

31.

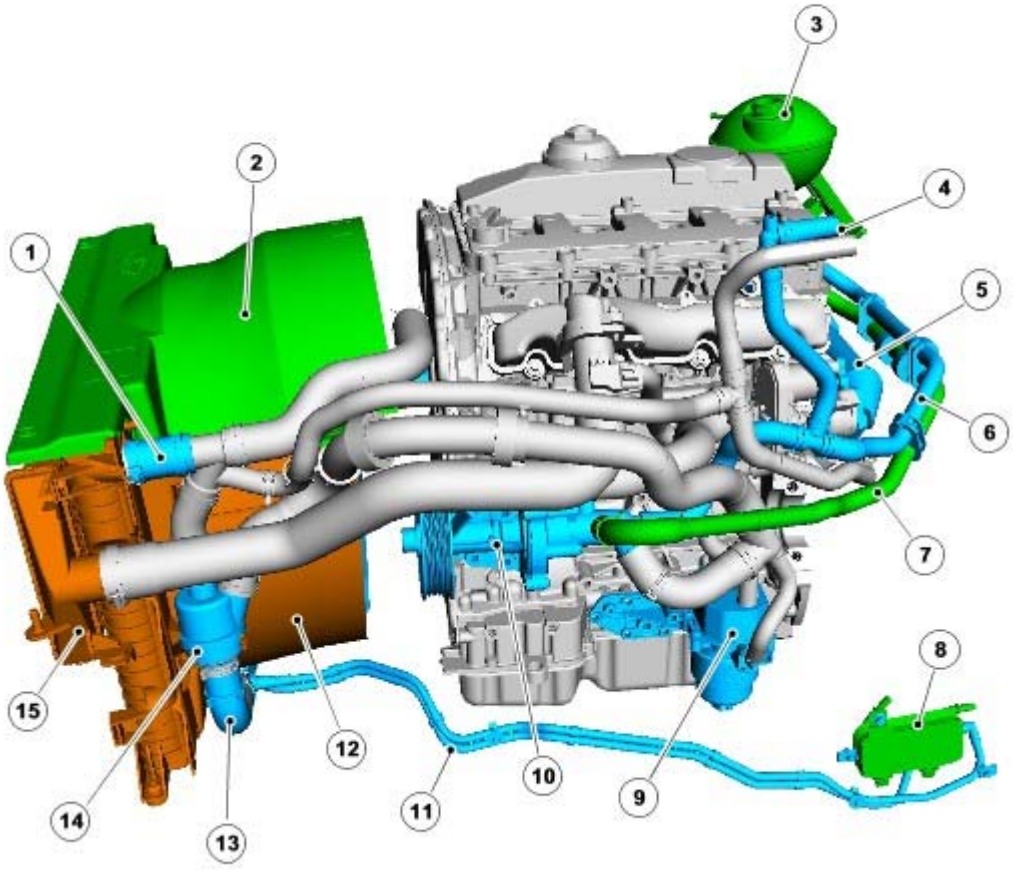
 **WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank while the system is hot.**

Check and top-up the coolant level if required.

Published: Jan 8, 2007

Engine Cooling

COMPONENT LOCATION



E87781

Item	Part Number	Description
1		Radiator top hose
2		Cooling fan top cowl
3		Expansion tank
4		Passenger compartment heater connections
5		Exhaust Gas Recirculation (EGR) cooler
6		EGR cooler outlet hose
7		Expansion tank hose
8		Fuel cooler
9		Engine oil cooler
10		Coolant pump
11		Fuel cooler feed and return hoses
12		Cooling fan lower cowl
13		Radiator bottom hose
14		Thermostat assembly
15		Intercooler

OVERVIEW

The cooling system employed is the bypass type, which allows coolant to circulate around the engine and the heater circuit while the thermostat is closed. The primary function of the cooling system is to maintain the engine within an optimum temperature range under changing ambient and engine operating conditions. Secondary functions are to provide heating for the passenger compartment and cooling for the Exhaust Gas Recirculation (EGR) system.

The cooling system comprises:

- A radiator
- A passenger compartment heater matrix
- An EGR cooler
- A coolant pump
- An expansion tank
- A cooling fan
- Connecting hoses and pipes

The coolant is circulated by a centrifugal type pump mounted on the front Left Hand (LH) side of the engine and driven by the ancillary drive 'polyvee' belt. The coolant pump circulates coolant around the cylinder block and cylinder head, to the radiator, heater matrix and the EGR cooler, via the coolant hoses.

The thermostat is located in the bottom hose assembly on the inlet side of the cooling circuit and provides a stable control of the coolant temperature in the engine.

The radiator is a cross flow type with an aluminium matrix and moulded plastic end tanks. The radiator end tanks have brackets which allow for the attachment of the fan cowl assembly, intercooler and, if fitted, air conditioning system condenser. The bottom of the radiator is located in rubber bushes supported by brackets on the chassis longitudinals. The top of the radiator is located in rubber bushes secured by brackets fitted to the bonnet locking platform.

An air-to-air intercooler is located in front of the radiator and is used to cool the compressed air from the turbocharger before it enters the inlet side of the engine. For additional information, refer to Intake Air Distribution and Filtering - 2.4L Duratorq-TDCi (Puma) Diesel (303-12)

The radiator top hose is connected to a coolant outlet elbow, which is bolted to the cylinder head. The top hose also has a connection for the feed to the heater matrix. The radiator bottom hose is routed around the front of the engine and is connected to the thermostat assembly. The bottom hose also has a return connection from the fuel cooler. The feed for the fuel cooler comes from a connection just below the bottom hose connection on the Right Hand (RH) side of the radiator assembly.

An expansion tank is fitted to the RH suspension turret in the engine compartment. The expansion tank allows for expansion of the coolant when the engine is hot and replaces the coolant into the system as the engine cools down.

The EGR cooler is located in the coolant return line from the engine and top hose. The fluid cools the exhaust gases returning to the inlet manifold, which improves emissions.

The heater matrix outlet hose incorporates a bleed screw to bleed air when filling the cooling system.

Published: Mar 12, 2007

Engine Cooling

Overview

For information on the operation of the systems:
Engine Cooling

Inspection and Verification

1 . Verify the customer concern.

2 . Visually inspect for obvious mechanical or electrical faults.

Mechanical	Electrical
• Coolant leaks • Coolant hoses • Coolant expansion tank • Radiator • Heater core • Accessory drive belt • Viscous fan	• Fuses Fuse 29, passenger compartment • Harnesses • Loose or corroded connector(s) • Cylinder head temperature (CHT) sensor • Engine oil temperature (EOT) sensor

3 . If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

4 . Use the approved diagnostic system or a scan tool to retrieve any diagnostic trouble codes (DTCs) before moving onto the symptom chart or DTC index.

Make sure that all DTCs are cleared following rectification.

Make sure that all DTCs are cleared following rectification.

Symptom Chart

Symptom	Possible cause	Action
Coolant loss	• Hoses • Hose connections • Radiator • Water pump • Heater core • Gaskets • Engine casting cracks • Engine block core plugs	Carry out a visual inspection. If there are no obvious leaks, carry out a pressure test using your workshop tester. Rectify as necessary.
Overheating	• Low/contaminated coolant • Thermostat • Viscous fan • Cylinder head temperature (CHT) sensor • Restricted air flow over the radiator	Check the coolant level and condition. Carry out a pressure test using your workshop tester. Rectify as necessary. Check the thermostat and rectify as necessary. Check the viscous fan operation, make sure the viscous fan rotates freely. Check for obstructions to the air flow over the radiator. Rectify as necessary.
Engine not reaching normal temperature	• Thermostat • Viscous fan • Electric fan	Check the thermostat operation. Check the viscous fan operation, make sure the viscous fan is not seized. Rectify as necessary.

DTC Index

NOTE:

If a control module or component is suspect and the vehicle remains under manufacturer warranty, refer to the Warranty Policy and Procedures manual (section B1.2), or determine if any prior approval program is in operation, before the replacement of a component.

NOTE:

Generic scan tools may not read the codes listed, or may read only 5-digit codes. Match the 5 digits from the scan tool to the first 5 digits of the 7-digit code listed to identify the fault (the last 2 digits give extra information read by the manufacturer-approved diagnostic system).

NOTE:

When performing voltage or resistance tests, always use a digital multimeter (DMM) accurate to three decimal places, and with an up-to-date calibration certificate. When testing resistance always take the resistance of the DMM leads into account.

NOTE:

Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests.

NOTE:

Inspect connectors for signs of water ingress, and pins for damage and/or corrosion.

NOTE:

If DTCs are recorded and, after performing the pinpoint tests, a fault is not present, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

NOTE:

For a full list of engine control module (ECM) DTCs:

Electronic Engine Controls

DTC	Description	Possible causes	Action
P01152F	Engine coolant temperature (ECT) (cylinder head temperature (CHT)) sensor 1 circuit - signal erratic	• CHT sensor circuit: short circuit to power • CHT sensor circuit: short circuit to ground • CHT sensor circuit: open circuit • CHT sensor fault	Check the CHT sensor and circuit. Refer to the electrical guides. Install a new CHT sensor if necessary. Cylinder Head Temperature (CHT) Sensor Clear the DTCs and test for normal operation.
P011516	Engine coolant temperature (ECT) (cylinder head temperature (CHT)) sensor 1 circuit - circuit voltage below threshold	• CHT sensor circuit: short circuit to ground • CHT sensor circuit: open circuit • CHT sensor fault	
P011517	Engine coolant temperature (ECT) (cylinder head temperature (CHT)) sensor 1 circuit - circuit voltage above threshold	• CHT sensor circuit: short circuit to power • CHT sensor fault	
P048000	Fan 1 control circuit on/off	• Cooling fan control circuit: short circuit to ground • Cooling fan control circuit: short circuit to power • Cooling fan control circuit: open circuit • Cooling fan fault	Check the cooling fan and circuits. Refer to the electrical guides. Install a new cooling fan if necessary. Cooling Fan (26.25.19) Clear the DTCs and test for normal operation.

Published: Jan 15, 2007

Coolant Expansion Tank (26.15.01)

Removal

1 .

WARNING: Release the cooling system pressure by slowly turning the coolant expansion tank cap a quarter of a turn. Cover the expansion tank cap with a thick cloth to prevent the possibility of scalding. Failure to follow this instruction may result in personal injury.

WARNING: Since injury such as scalding could be caused by escaping steam or coolant, do not remove the filler cap from the coolant expansion tank while the system is hot.

CAUTION: Engine coolant will damage the paint finished surfaces. If spilt, immediately remove the coolant and clean the area with water.

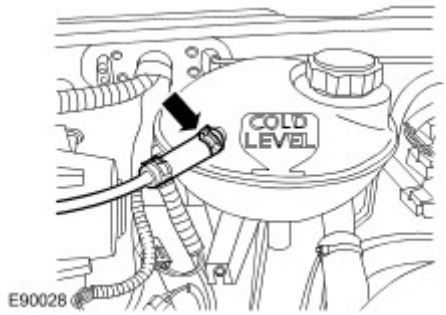
Release the cooling system pressure.

2 . Disconnect the coolant hose.

- Clamp the hose to minimize coolant loss.
- Position a container to collect the fluid spillage.
- Release the clip.

3 . Disconnect the radiator bleed hose.

- Release the clip.



4 . Remove the coolant expansion tank.

- Remove the bolt.

Installation

1 . Install the coolant expansion tank.
- Tighten the bolt to 10 Nm (7 lb.ft).

2 . Connect the radiator bleed hose.
- Secure with the clip.

3 . Connect the coolant hose.
- Secure with the clip.
- Remove the hose clamp.

4 . Check and top up the coolant.
- Remove the container.

Published: Jan 30, 2007

Cooling Fan (26.25.19)

Special Service Tools

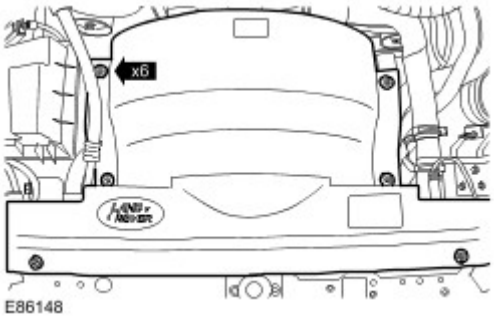
303-1142
Cooling fan spanner

303-1334
Cooling fan retaining tool

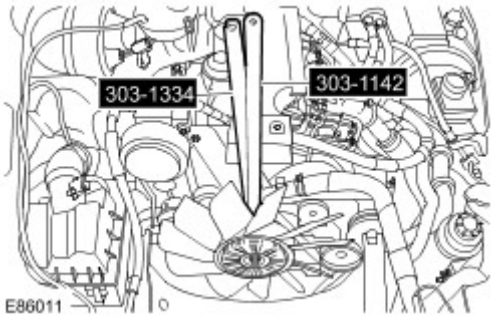
Removal

1 . Disconnect the battery ground cable.
For additional information, refer to Battery Disconnect and Connect

2 . Remove the cooling fan upper shroud.
Release the 6 clips.



3 . Using the special tools, remove the cooling fan.



4 . **NOTE:**
Do not disassemble further if the component is removed for access only.

Remove the viscous coupling.

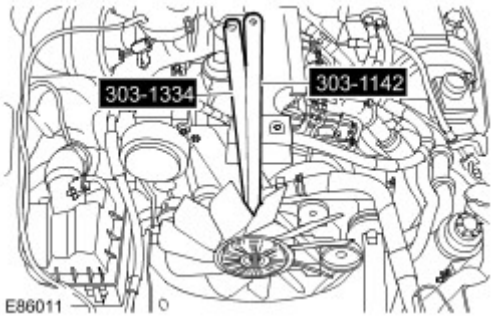
- Remove the 4 bolts.

Installation

1 . Install the viscous coupling.

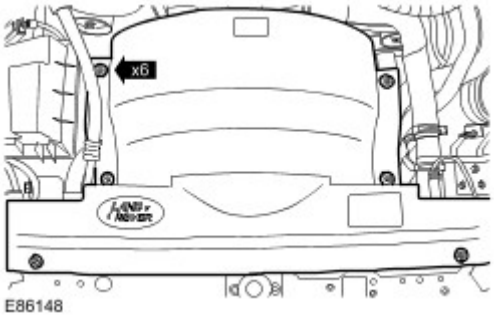
- Clean the component mating faces.
- Tighten the bolts to 10 Nm (7 lb.ft).

2 . Using the special tools, install the cooling fan.



3 . Install the cooling fan upper shroud.

- Secure the 6 clips.



4 . Connect the battery ground cable.
For additional information, refer to Battery Connect

Published: Jan 30, 2007

Cooling Fan Shroud (26.25.11)

Removal

1 . Disconnect the battery ground cable.
For additional information, refer to Battery Disconnect and Connect

2 . Drain the cooling system.
For additional information, refer to Cooling System Draining, Filling and Bleeding (26.10.01)

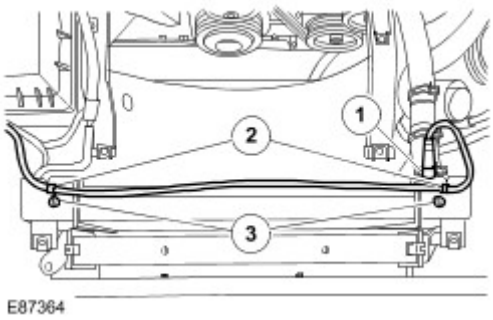
3 . Remove the cooling fan.
For additional information, refer to Cooling Fan (26.25.19)

4 .

CAUTION: Make sure that all openings are sealed. Use new blanking caps.

Release the cooling fan shroud.

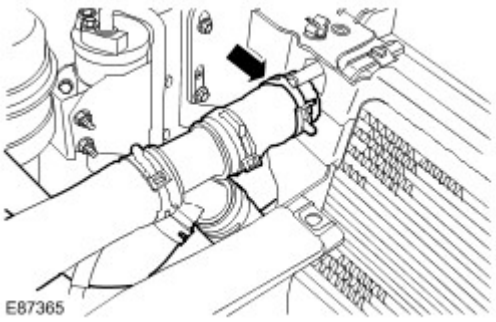
1) Disconnect the coolant expansion tank hose.
2) Release the coolant expansion tank hose from the cooling fan shroud.
3) Release the cooling fan shroud remove the 2 screws.



5 .

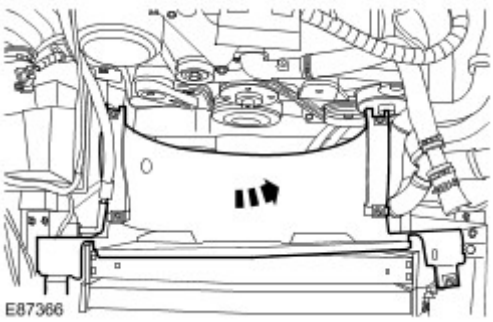
CAUTION: Make sure that all openings are sealed. Use new blanking caps.

Disconnect the radiator top hose.



6 . Release the thermostat from the cooling fan shroud.

7 . Remove the cooling fan shroud.



Installation

1 . To install, reverse the removal procedure.

2 . Connect the battery ground cable.
For additional information, refer to Battery Connect

Published: Jan 31, 2007

Coolant Pump (26.50.01)

Removal

1 . Disconnect the battery ground cable.
For additional information, refer to Battery Disconnect and Connect

2 .

WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

3 . Drain the cooling system.
For additional information, refer to Cooling System Draining, Filling and Bleeding (26.10.01)

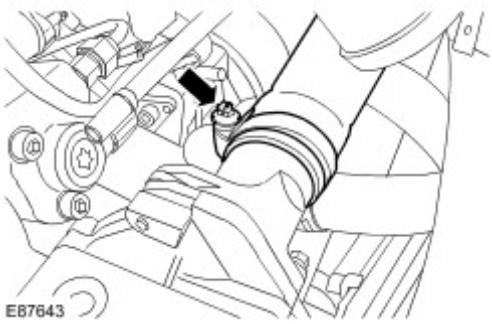
4 . Remove the brake vacuum pump.
For additional information, refer to Brake Vacuum Pump (70.50.19)

5 .

CAUTION: Make sure that all openings are sealed. Use new blanking caps.

Disconnect the coolant hose from the coolant pump.

- Release the clip.

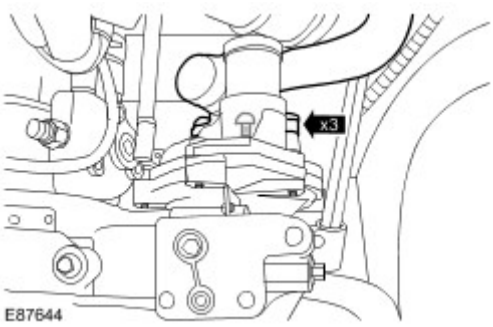


6 .

CAUTION: Make sure that all openings are sealed. Use new blanking caps.

Release the coolant pump outlet manifold.

- Remove the 3 bolts.
- Remove and discard the O-ring seal.

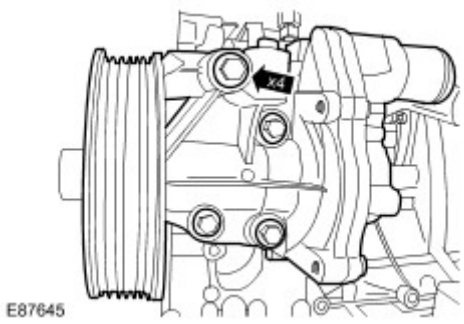


7 .

CAUTION: Make sure that all openings are sealed. Use new blanking caps.

Remove the coolant pump.

- Remove the 4 bolts.
- Remove and discard the gasket.



Installation

1 . **NOTE:**

Remove and discard the blanking caps.

NOTE:

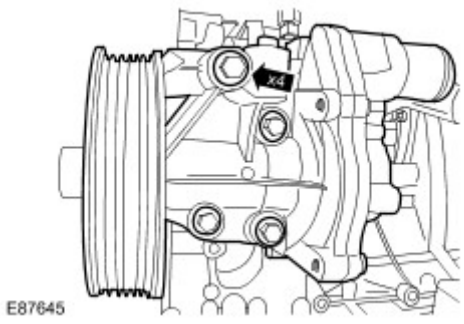
Clean the component mating faces.

NOTE:

Install a new gasket.

Install the coolant pump.

- Tighten to 23 Nm (17 lb.ft).



2 . **NOTE:**

Remove and discard the blanking caps.

NOTE:

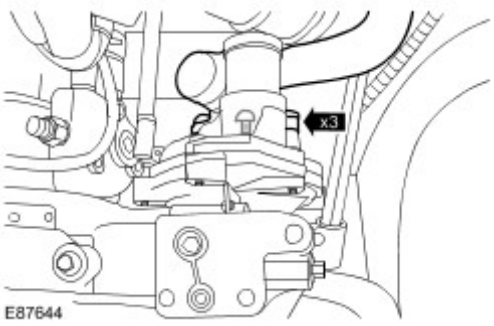
Clean the component mating faces.

NOTE:

Install a new O-ring seal.

Secure the coolant pump outlet manifold.

- Tighten to 10 Nm (7 lb.ft).



3 . **NOTE:**
Remove and discard the blanking caps.

Connect the coolant hose to the coolant pump.
Tighten the clip to 3 Nm (2 lb.ft).

4 . Install the brake vacuum pump.
For additional information, refer to Brake Vacuum Pump (70.50.19)

5 . Fill and bleed the cooling system.
For additional information, refer to Cooling System Draining, Filling and Bleeding (26.10.01)

6 . Connect the battery ground cable.
For additional information, refer to Battery Connect

Published: Jan 30, 2007

Radiator (26.40.01)

Removal

1 . Disconnect the battery ground cable.
For additional information, refer to Battery Disconnect and Connect

2 . Remove the cooling fan shroud.
For additional information, refer to Cooling Fan Shroud (26.25.11)

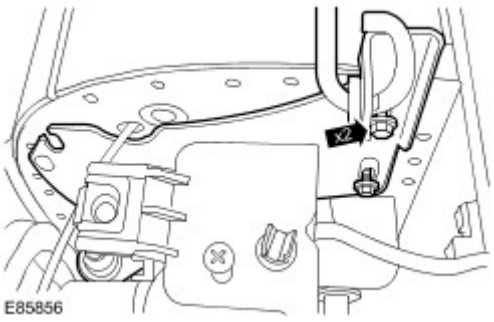
3 . Remove the hood latch panel.
For additional information, refer to Hood Latch Panel (76.16.22)

4 . **NOTE:**
RH shown, LH similar.

Remove the 2 O-rings.

5 . **NOTE:**
RH shown, LH similar.

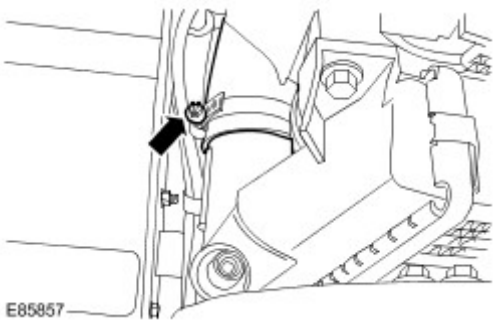
Remove the 2 charge air cooler brackets.
Remove the 4 bolts.



6 . **CAUTION: Make sure that all openings are sealed. Use new blanking caps.**

NOTE:
RH shown, LH similar.

Disconnect the charge air cooler inlet hose and charge air cooler outlet hose.



7 .

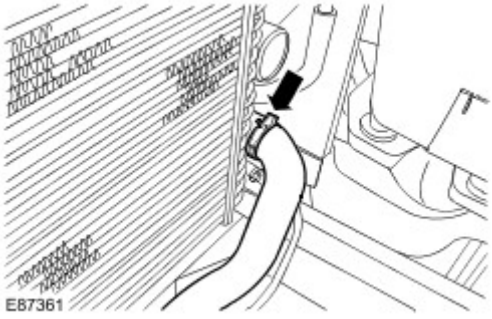
CAUTION: Make sure that all openings are sealed. Use new blanking caps.

Disconnect the fuel cooler to radiator hose.

8 .

CAUTION: Make sure that all openings are sealed. Use new blanking caps.

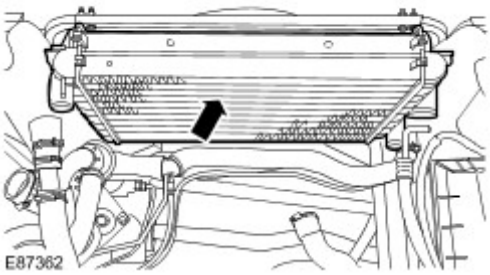
Disconnect the radiator bottom hose.



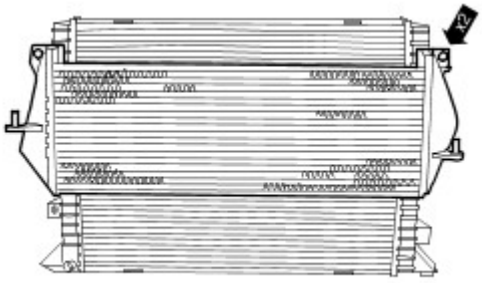
9 .

CAUTION: Make sure that the radiator and charge air cooler are not damaged when removed.

Remove the radiator and charge air cooler assembly.



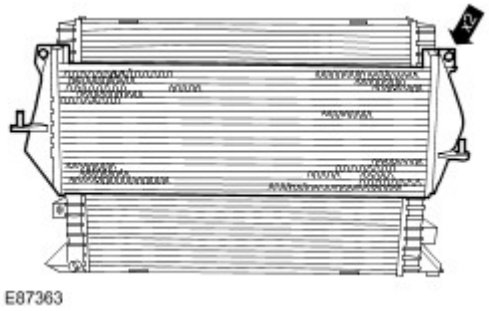
10 . Remove the radiator.



Installation

1 . To install, reverse the removal procedure.

Tighten to 20 Nm (15 lb.ft).



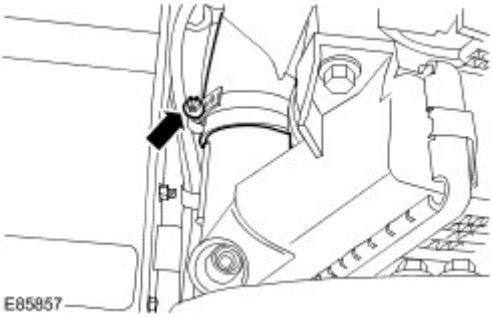
2 . **NOTE:**

Remove and discard the blanking caps.

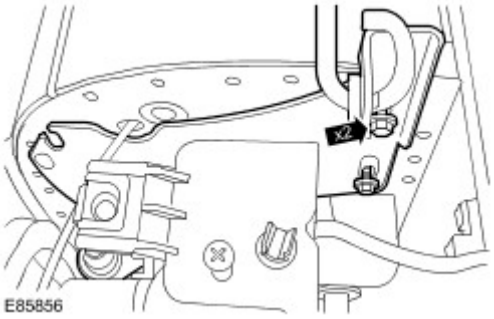
NOTE:

RH shown, LH similar.

Tighten to 3 Nm (2 lb.ft).



3 . Tighten to 9 Nm (7 lb.ft).



4 . Connect the battery ground cable.
For additional information, refer to Battery Connect

Published: Jan 30, 2007

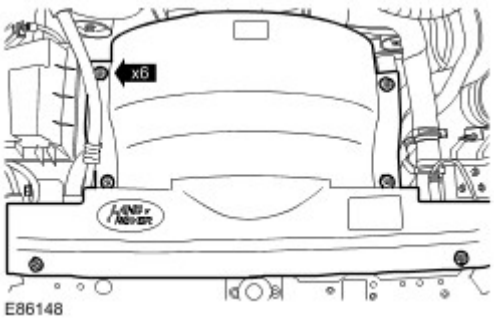
Thermostat (26.45.01)

Removal

1 . Disconnect the battery ground cable.
For additional information, refer to Battery Disconnect and Connect

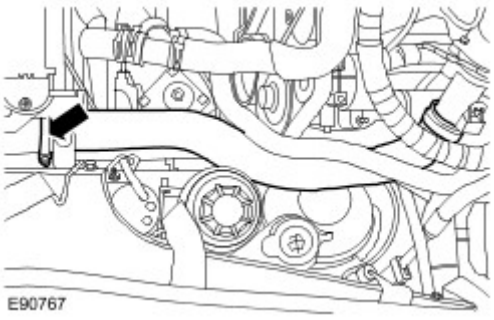
2 . Drain the cooling system.
For additional information, refer to Cooling System Draining, Filling and Bleeding (26.10.01)

3 . Remove the cooling fan upper shroud.
Release the 6 clips.



4 . Release the power steering fluid reservoir.
Remove the 2 nuts.

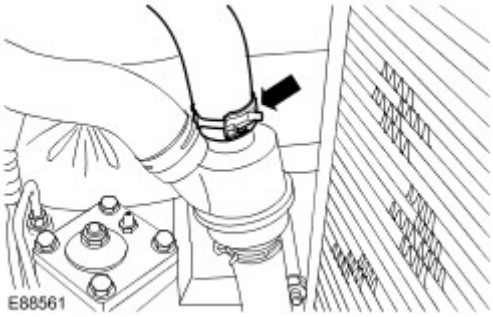
5 . Disconnect the charge air cooler outlet hose.



6 . **NOTE:**
Cooling fan shroud removed for clarity.

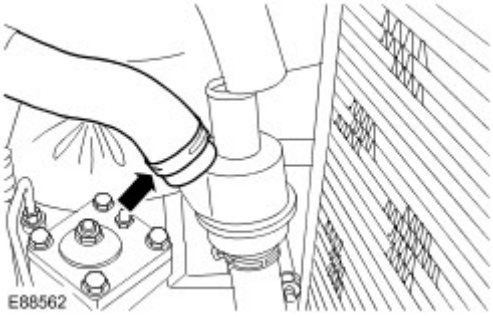
Disconnect the thermostat to radiator top hose.

- Release the clip.



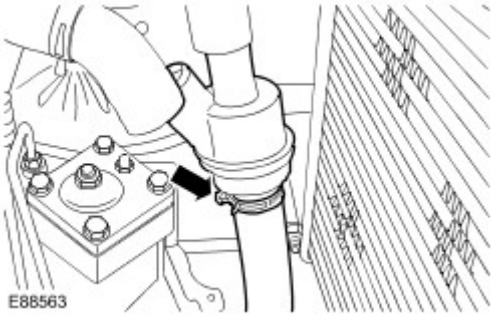
7 . **NOTE:**
Cooling fan shroud removed for clarity.

Disconnect the thermostat to coolant pump inlet hose.
- Release the clip.



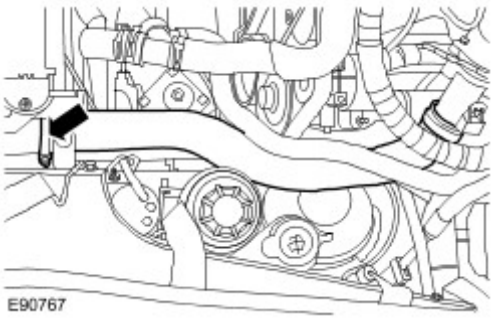
8 . **NOTE:**
Cooling fan shroud removed for clarity.

Remove the thermostat.



Installation

1 . To install, reverse the removal procedure.
- Tighten to 3 Nm (2 lb.ft).



2 . Tighten to 4 Nm (3 lb.ft).

3 . Connect the battery ground cable.
For additional information, refer to Battery Connect