



Crankcase Vent Oil Separator (17.10.04)

Removal

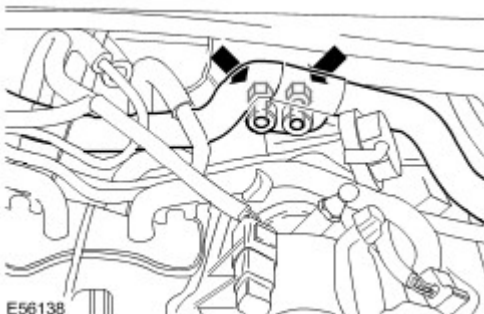
1. Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
2. Remove the intake air shutoff throttle. For additional information, refer to [Intake Air Shutoff Throttle \(19.70.32\)](#) (Section 303-04)
3. Disconnect the low-pressure fuel lines.
▶ Install blanking caps to the exposed ports.



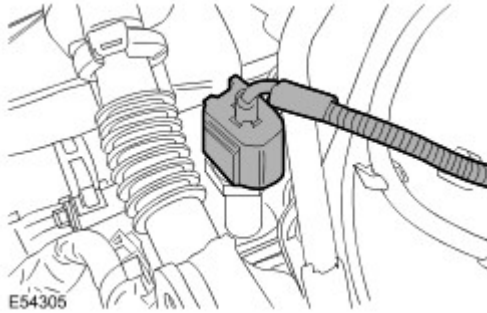
4. Disconnect both exhaust gas recirculation (EGR) coolant cross-over pipe hoses.
▶ Clamp the EGR coolant hoses to minimize coolant loss.



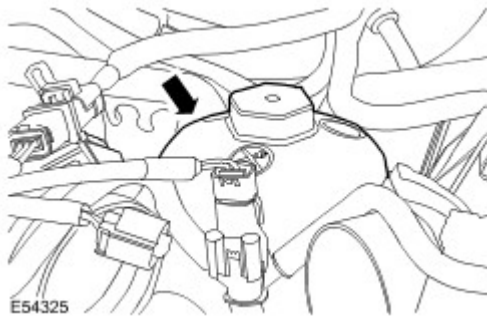
5. Remove the EGR coolant cross-over pipe.
▶ Remove the two retaining bolts.



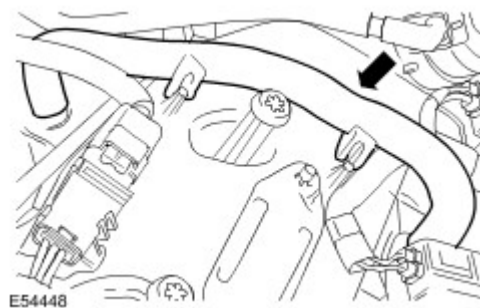
6. Disconnect the engine oil pressure (EOP) sensor electrical connector.



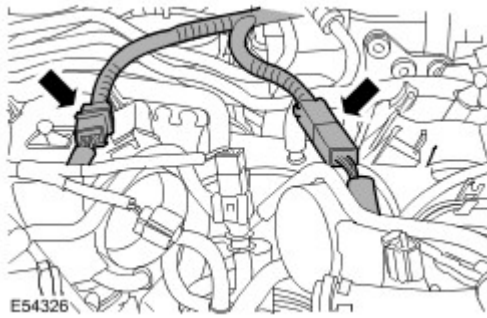
7. Remove the oil filter element.
- ▶ Loosen the element cover 4 complete turns to allow engine oil to drain from the filter cover.
 - ▶ Remove element cover.
 - ▶ Remove and discard the O-ring seal.
 - ▶ Clean the immediate area.



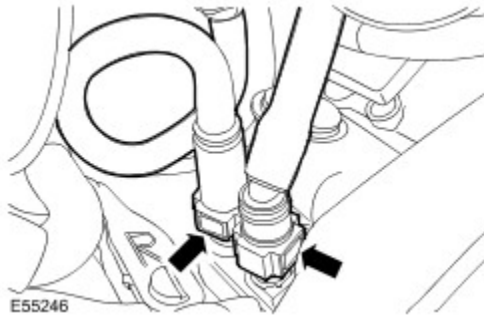
8. **NOTE :**
Left-hand shown, right-hand similar.
Remove the breather pipes.




9. Disconnect the glow plug electrical connectors.



10. Disconnect the low-pressure fuel lines.
➤ Install blanking caps to the exposed ports.



11.  **CAUTION:** Make sure that the high-pressure fuel supply line remains in contact with the fuel pump and fuel injection diverter rail until both unions have been detached and cleaned. Failure to follow this instruction may result in foreign matter ingress to the fuel injection system.

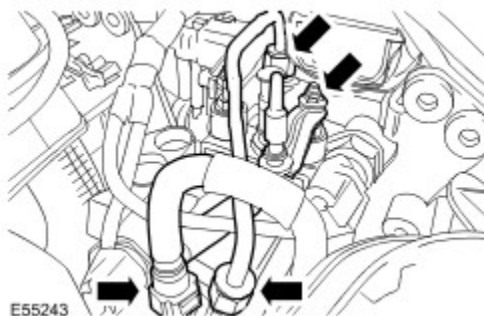
NOTE :

Crankcase vent oil separator shown removed for clarity.

Remove and discard the high-pressure fuel supply line.

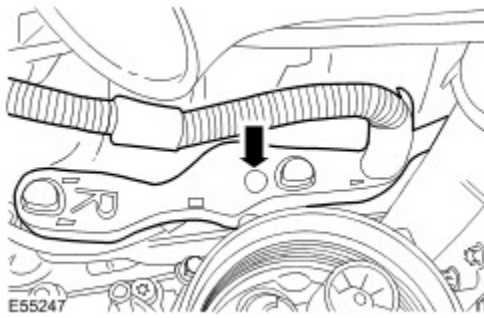
- Install blanking caps to the exposed ports.

12. Remove the low-pressure fuel line.
➤ Disconnect the low-pressure fuel line.
➤ Release the low-pressure fuel line.
➤ Install blanking caps to the exposed ports.

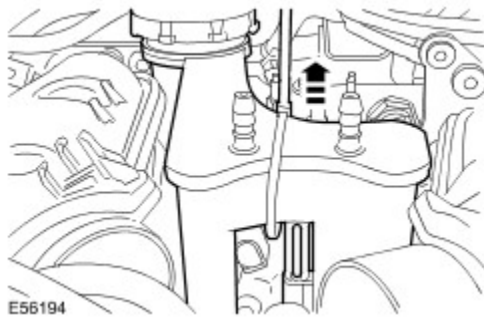


13. **NOTE :**

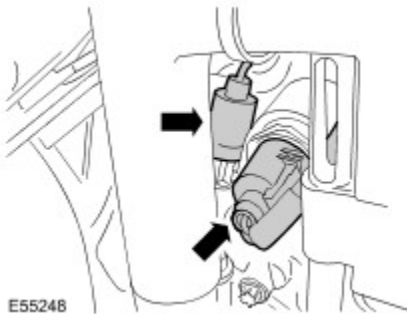
Right-hand shown, left-hand similar.
Remove the glow plug wires.



14. Reposition the crankcase vent oil separator.

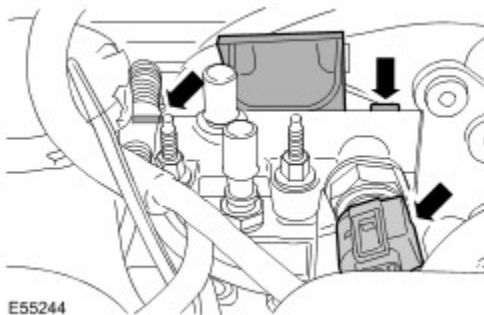


15. Disconnect the fuel injection pump electrical connectors.



16. Disconnect the fuel rail pressure (FRP) sensor electrical connector.

▶ Release the fuel charging wiring harness.



17. **NOTE :**

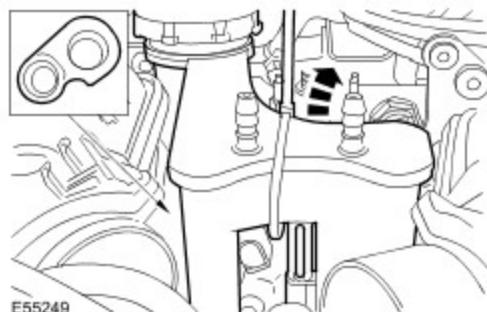
Remove the crankcase vent oil separator drain tube seal prior to the removal of the crankcase vent oil separator.

NOTE :

Using a suitable adhesive tape, protect the oil cooler.

Remove the crankcase vent oil separator.

- Remove and discard the crankcase vent oil separator drain tube seal.
- Remove and discard the crankcase vent oil separator housing seals.



Installation

- 1 . Position the crankcase vent oil separator, but do not fully install at this stage.
 - Clean the immediate area.
 - Install new crankcase vent oil separator housing seals.
 - Install a new crankcase vent oil separator drain tube seal.
- 2 . Connect the FRP sensor electrical connector.
 - Attach the fuel charging wiring harness.
- 3 . Install the crankcase vent oil separator.
- 4 . Connect the fuel injection pump electrical connectors.
- 5 . Install the glow plug wires.
- 6 . Install the low-pressure fuel line.
 - Remove the blanking caps from the ports.
 - Connect the low-pressure fuel line.
 - Attach the low-pressure fuel line.
- 7 . Install the new high-pressure fuel supply line.
 - Remove the blanking caps from the ports.
 - Install the new high-pressure fuel supply line, but do not tighten unions at this stage.
 - Stage 1: Tighten the high-pressure fuel supply line union at the fuel pump to 15 Nm (11 lb.ft).
 - Stage 2: Tighten the high-pressure fuel supply line union at the fuel injection diverter rail to 15 Nm (11 lb.ft).

- ▶ Stage 3: Tighten the high-pressure fuel supply line union at the fuel pump to 30 Nm (22 lb.ft).
 - ▶ Stage 4: Tighten the high-pressure fuel supply line union at the fuel injection diverter rail to 30 Nm (22 lb.ft).
- 8 . Connect the low-pressure fuel lines.
- ▶ Remove the blanking caps from the ports.
- 9 . Connect the glow plug electrical connectors.
- 10 . Install the breather pipes.
- 11 . Install the oil filter element.
- ▶ Clean the components.
 - ▶ Install a new O-ring seal.
 - ▶ Tighten the oil filter element cover to 25 Nm (18 lb.ft).
- 12 . Connect the EOP sensor electrical connector.
- 13 . Install the EGR coolant cross-over pipe.
- ▶ Install the two retaining bolts.
 - ▶ Tighten to 13 Nm (10 lb.ft).
- 14 . Connect both EGR coolant cross-over pipe hoses.
- ▶ Remove the EGR coolant hose clamps.
- 15 . Connect the low-pressure fuel lines.
- ▶ Remove the blanking caps from the ports.



- 16 . Install the intake air shutoff throttle. For additional information, refer to [Intake Air Shutoff Throttle \(19.70.32\)](#) (Section 303-04)
- 17 . Connect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
- 18 . Check and top-up the engine oil.

- 19 . Check and top-up the coolant.
- 20 . Bleed the fuel system.