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Fuel Pump (19.45.08)

Special Service Tools



Holder - Fuel Pump Pulley
310-139



Reaction Arm - Fuel Pump Pulley
310-138

Removal



WARNING: Do not carry or operate cellular phones when working on or near any fuel related components. Highly flammable vapors are always present and may ignite. Failure to follow these instructions may result in personal injury.



WARNING: Do not carry out any repairs to the fuel system with the engine running. The fuel pressure within the system can be as high as 1650 bar (23,931 lb-sq-in). Failure to follow this instruction may result in personal injury.



WARNING: Do not smoke or carry lighted tobacco or open flame of any type when working on or near any fuel related components. Highly flammable vapors are always present and may ignite. Failure to follow these instructions may result in personal injury.



WARNING: This procedure involves fuel handling. Be prepared for fuel spillage at all times and always observe fuel handling precautions. Failure to follow these instructions may result in personal injury.



CAUTION: Make sure the workshop area in which the vehicle is being worked on is as clean and as dust free as possible. Foreign matter from work on clutches, brakes or from machining or welding operations can contaminate the fuel system and may result in later malfunction.



CAUTION: Always carry out the cleaning process before carrying out any repairs to the fuel injection

system components. Failure to follow this instruction may result in foreign matter ingress to the fuel injection system.

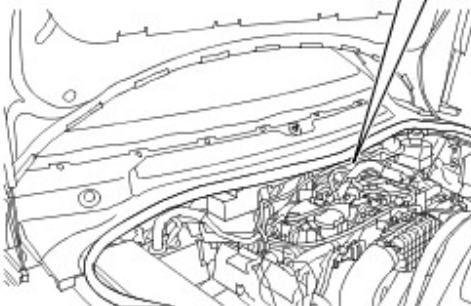
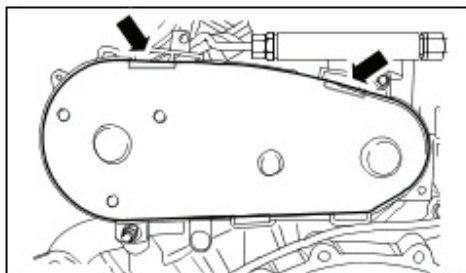


CAUTION: Diesel fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is therefore essential that absolute cleanliness is observed when working with these components. Always install blanking plugs to any open orifices or lines. Failure to follow this instruction may result in foreign matter ingress to the fuel injection system.



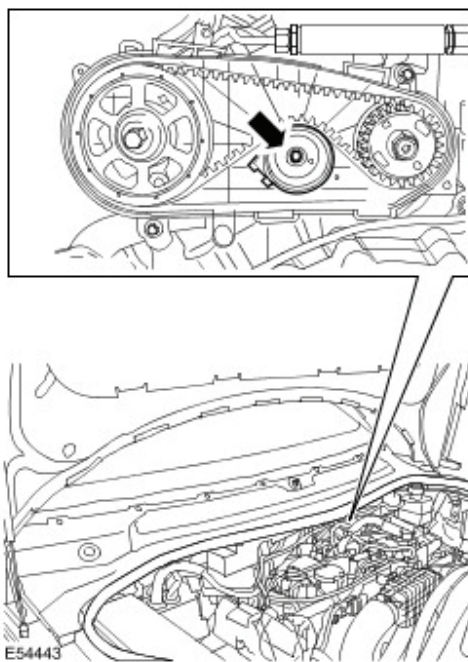
CAUTION: Do not disassemble or clean inside the fuel pump, even with an ultrasonic cleaner. Always install a new fuel pump when required.

1. Disconnect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
2. Remove the crankcase vent oil separator. For additional information, refer to [Crankcase Vent Oil Separator \(17.10.04\)](#) (Section 303-08)
3. Remove the fuel injection pump belt cover.
 - ▶ Reposition the fuel charging wiring harness to allow access to the fuel injection pump belt cover.

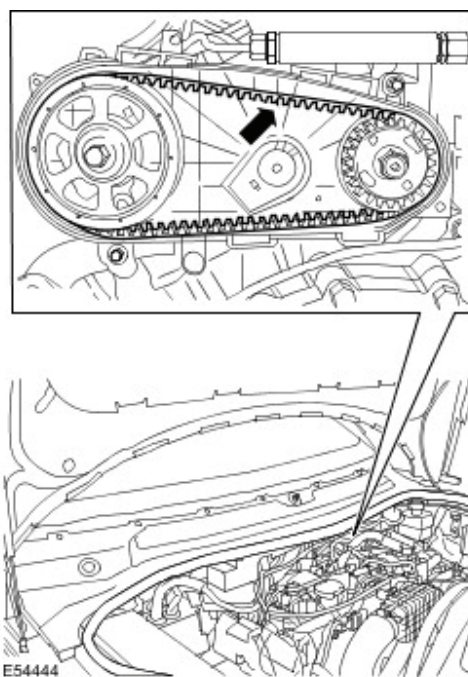


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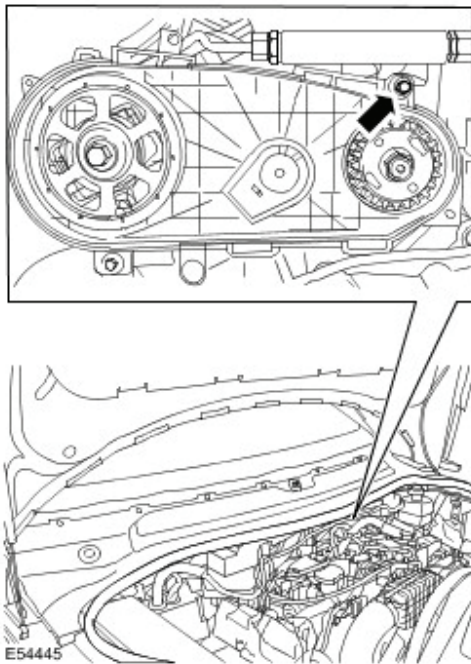
4. **NOTE :**
 - The fuel injection pump belt is not timed to the engine.
 - Remove and discard the fuel injection pump belt tensioner.
 - ▶ Remove the retaining bolt.



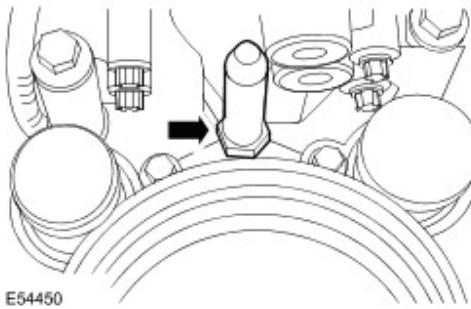
5. **NOTE :**
The fuel injection pump rotates in a counter-clockwise direction when viewed from the rear of the engine.
Remove and discard the fuel injection pump belt.



6. Remove the fuel injection pump belt rear cover retaining bolt.



7. Remove the crankcase vent oil separator locating stud.



8. **NOTE :**
Left-hand shown, right-hand similar.
Release the high-pressure fuel supply lines.

➤ Remove the retaining bolt.

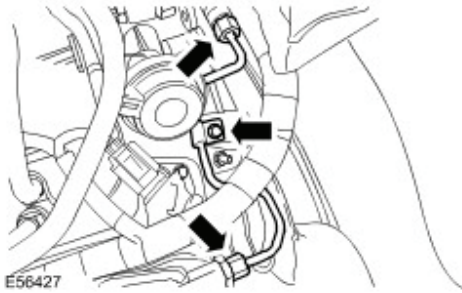
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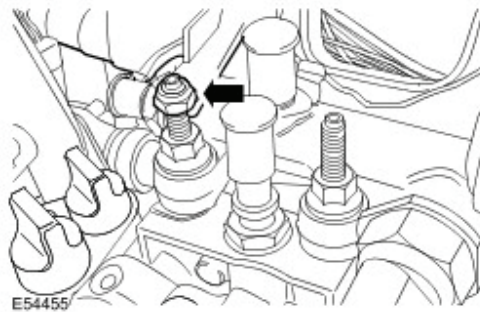
CAUTION: Make sure that the high-pressure fuel supply line remains in contact with the fuel injection supply manifold and the fuel injection diverter rail until both unions have been detached and cleaned. Failure to follow this instruction may result in foreign matter ingress to the fuel injection system.

- NOTE :**
Left-hand shown, right-hand similar.
Remove and discard the high-pressure fuel supply lines.

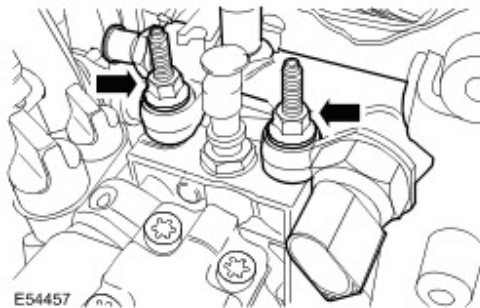
➤ Install blanking caps to the exposed ports.



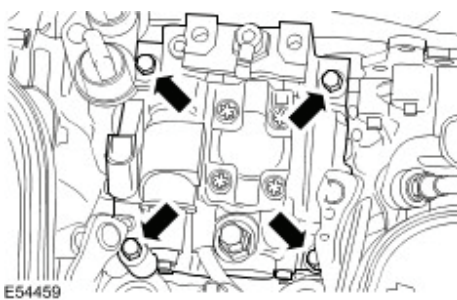
10. Release the fuel charging wiring harness.
 ▶ Remove the retaining nut.



11. Remove the fuel injection diverter rail.
 ▶ Remove the 2 studs.

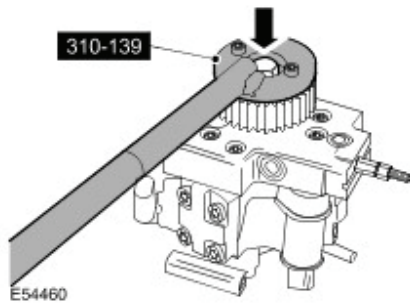


12. Remove the fuel injection pump.
 ▶ Remove the four retaining bolts.

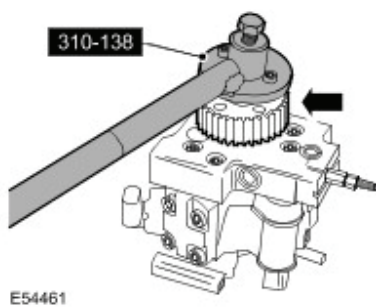


13. **NOTE :**
 Do not disassemble further if the component is removed for access only.

Using the special tool, remove the fuel injection pump pulley retaining nut.

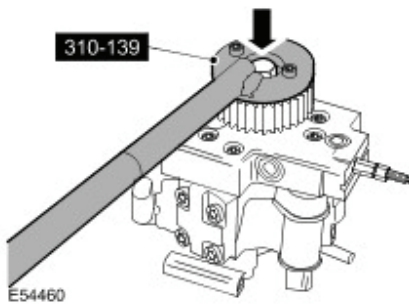


14. Using the special tool, remove the fuel injection pump pulley.



Installation

1. Using the special tool, install the fuel injection pump pulley.
 ▶ Tighten to 50 Nm (37 lb.ft).

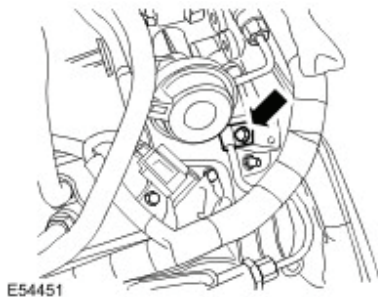


2. Install the fuel injection pump.
 ▶ Tighten the bolts to 23 Nm (17 lb.ft).
3. Install the fuel injection diverter rail.
 ▶ Install the fuel injection diverter rail retaining studs, but do not fully tighten at this stage.
4. Attach the fuel charging wiring harness.
 ▶ Install the retaining nut.
5. Install the new high-pressure fuel supply lines.

- ▶ Remove the blanking caps from the ports.
- ▶ Loosely install the new high-pressure fuel supply lines.
- ▶ Tighten the fuel injection diverter rail retaining studs to 23 Nm (17 lb.ft).
- ▶ Stage 1: Tighten the high-pressure fuel supply line union at the fuel injection supply manifold 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 injection supply manifold 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).

6. Attach the high-pressure fuel supply lines.

- ▶ Install the two retaining bolts.
- ▶ Tighten to 10 Nm (7 lb.ft).



7. Install the crankcase vent oil separator locating stud.

- ▶ Tighten the stud to 10 Nm (7 lb.ft).

8. Install the fuel injection pump belt rear cover retaining bolt.

- ▶ Tighten to 7 Nm (5 lb.ft).

- 9.



CAUTION: Do not install the new fuel injection pump belt to the pulleys with the fuel pump belt tensioner installed. Failure to follow this instruction may result in damage to the fuel pump belt.

NOTE :

The fuel injection pump rotates in a counter-clockwise direction when viewed from the rear of the engine.

Install the new fuel injection pump belt.

- 10.



CAUTION: Make sure that the fuel injection pump belt tensioner tang is correctly located to the fuel injection pump belt rear cover. Failure to follow this instruction may result in damage to the engine.

Install a new fuel injection pump belt tensioner.

- ▶ Locate the tang on the new fuel injection pump belt tensioner into the fuel injection pump rear cover.

- ▶ Tighten to 25 Nm (18 lb.ft).
 - ▶ Remove and discard the fuel injection pump belt tensioner locking pin.
- 11 . Install the fuel injection pump belt cover.
- ▶ Reposition the fuel charging wiring harness to allow access to the fuel injection pump belt cover.
- 12 . Install the crankcase vent oil separator. For additional information, refer to [Crankcase Vent Oil Separator \(17.10.04\)](#) (Section 303-08)
- 13 . Connect the battery ground cable. For additional information, refer to [Specifications](#) (Section 414-00)
- 14 . Bleed the fuel system.