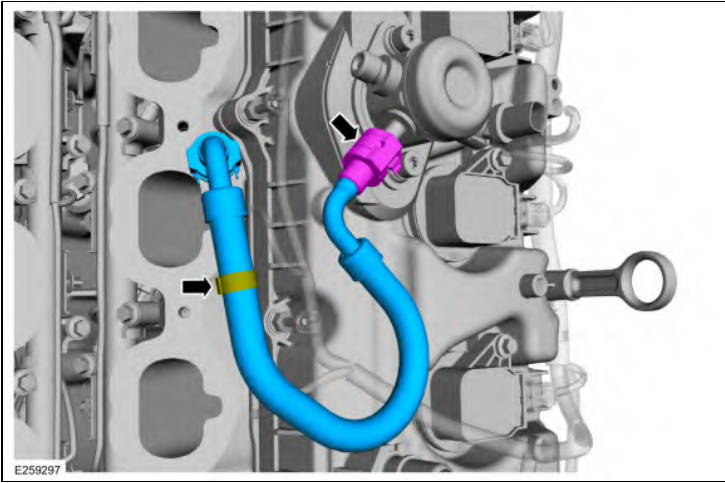
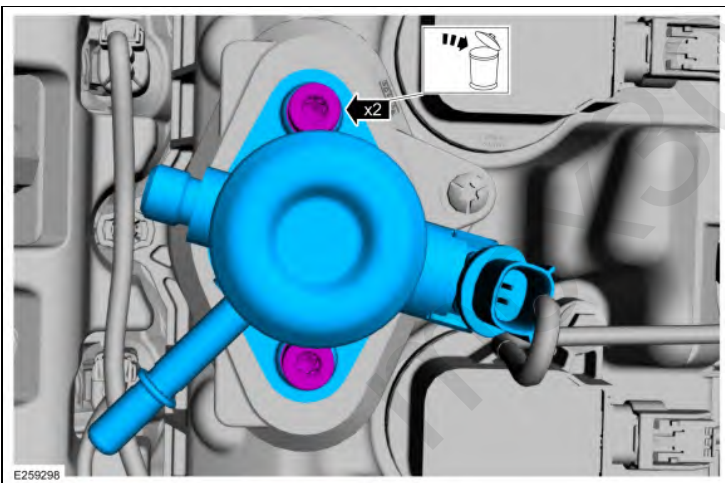


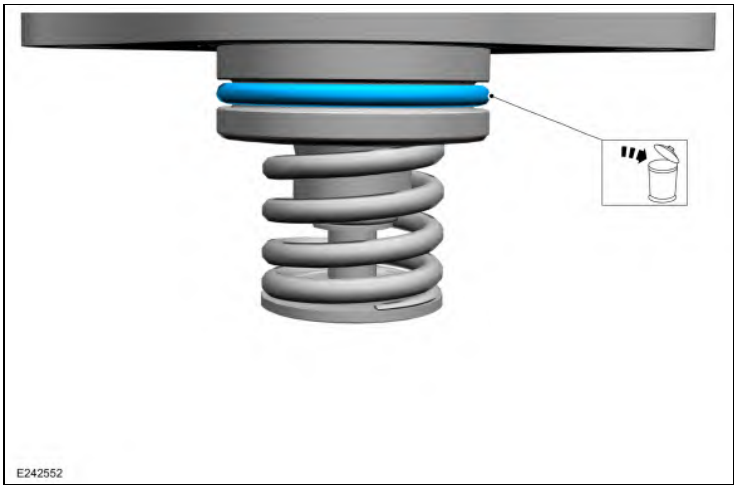


9. **NOTE:** Alternately loosen the high-pressure fuel pump bolts one complete revolution at a time.

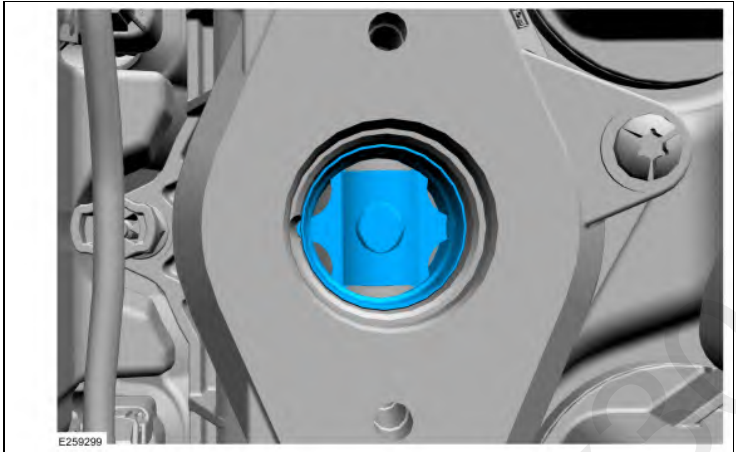
Remove the high-pressure fuel pump bolts, then remove the high-pressure fuel pump.



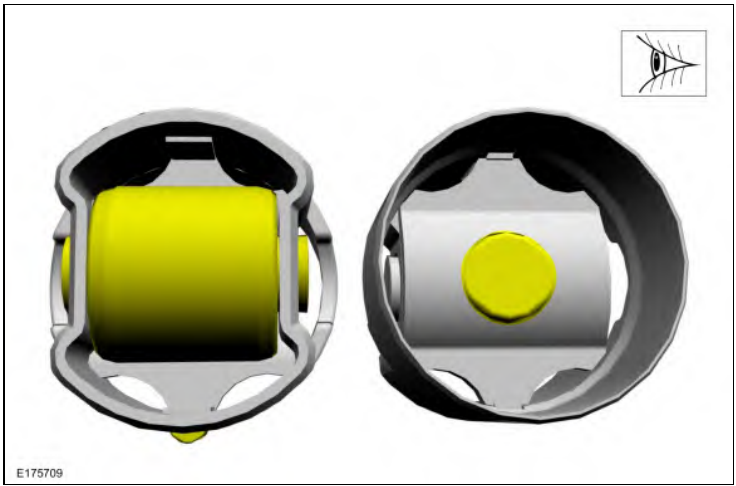
10. Remove and discard the high-pressure fuel pump O-ring seal.



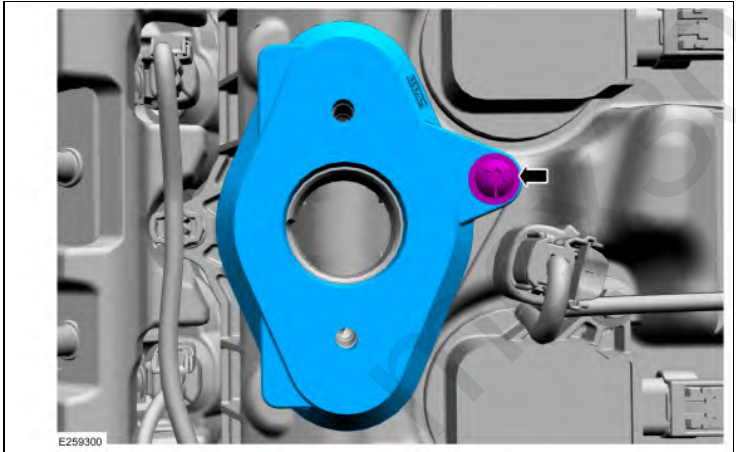
11. Remove the high-pressure fuel pump roller tappet.



12. Inspect the high-pressure fuel pump roller tappet. If any flat spots or scoring are found, especially in the indicated areas, then inspect the high-pressure fuel pump and the high-pressure fuel pump roller tappet drive lobe. Install new components as needed.

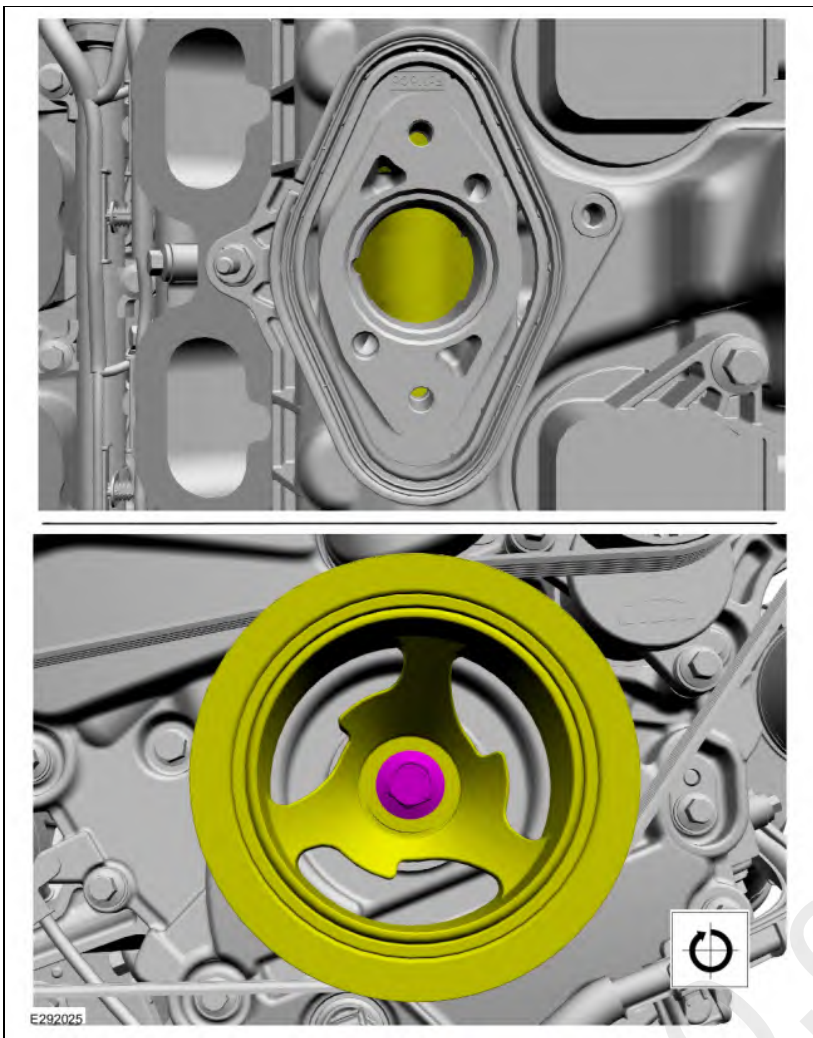


13. Loosen the high-pressure fuel pump mounting plate bolt and then remove the mounting plate.

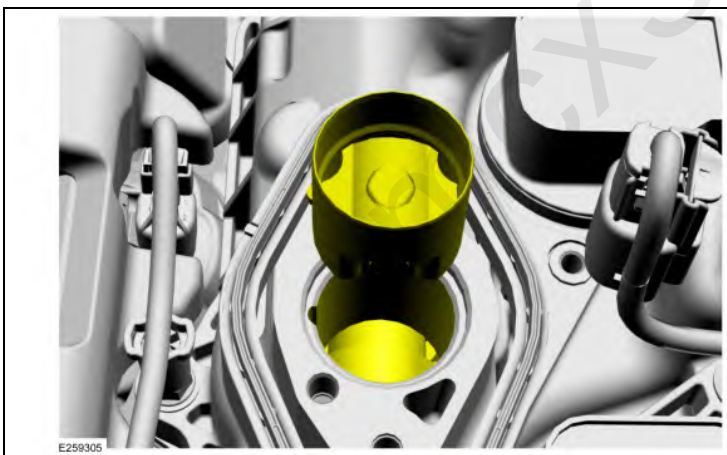


Installation

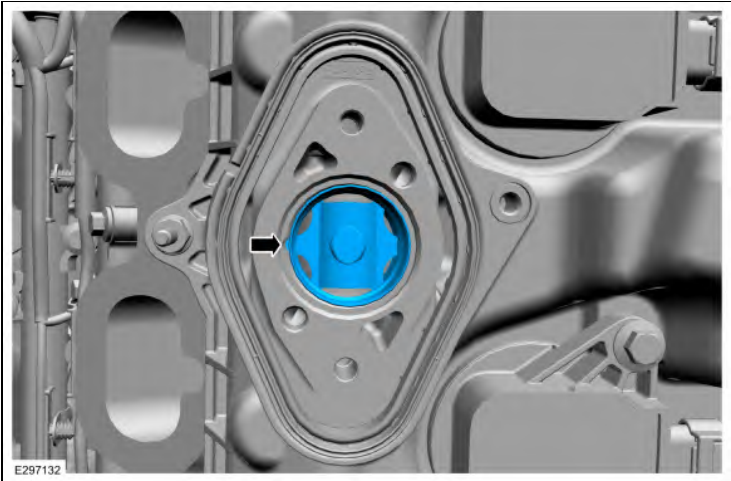
- 1. **NOTICE:** Only rotate the crankshaft Clockwise (CW) or damage to the engine may occur.
NOTICE: The drive lobe for the high-pressure fuel pump must be at BDC (bottom dead center) for the high-pressure fuel pump installation.
Using the crankshaft pulley bolt, turn the crankshaft until the high-pressure fuel pump drive lobe is at BDC (bottom dead center).



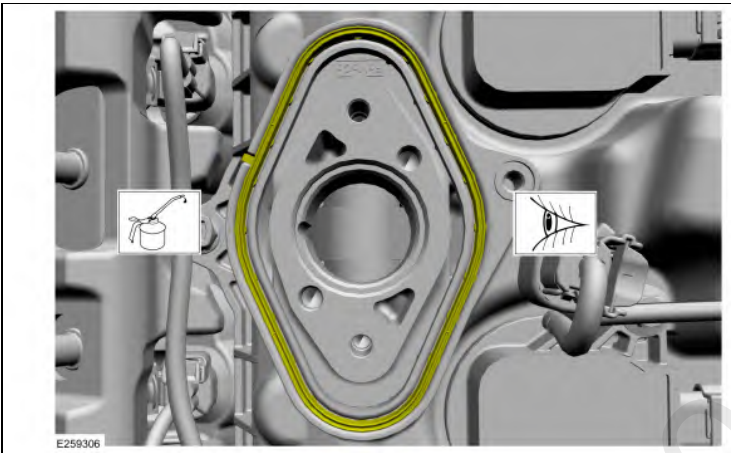
2. Apply clean engine oil to the high-pressure fuel pump mounting pedestal bore, the drive lobe and the roller tappet.
Refer to: Specifications (303-01C Engine - 3.3L Duratec-V6, Specifications).



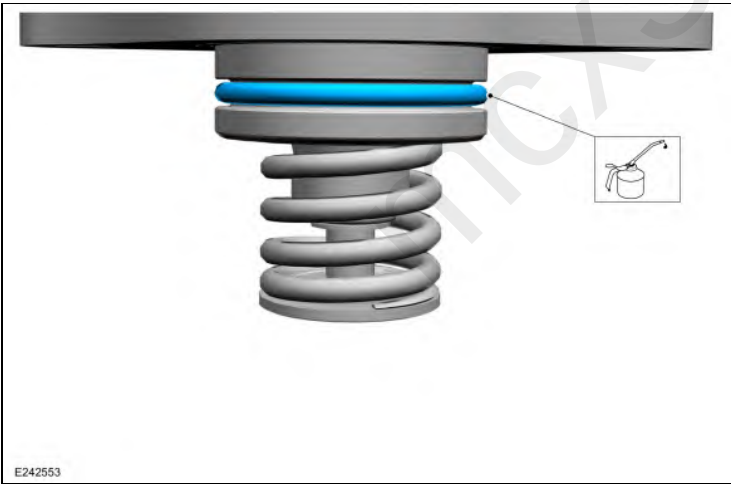
3. **NOTE:** Align the notch on the high-pressure fuel pump tappet and with the groove in the high-pressure fuel pump drive unit bore.
Install the high-pressure fuel pump roller tappet.



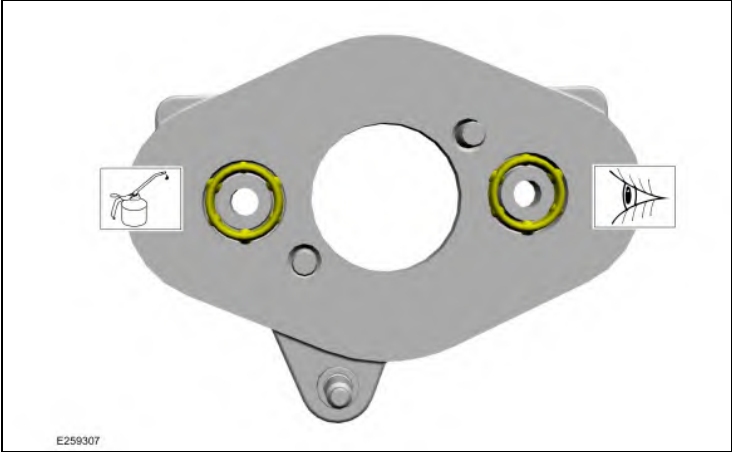
4. Inspect the high-pressure fuel pump mounting plate seal, clean and replace as needed. Lubricate the seal with clean engine oil.
Refer to: Specifications (303-01C Engine - 3.3L Duratec-V6, Specifications).



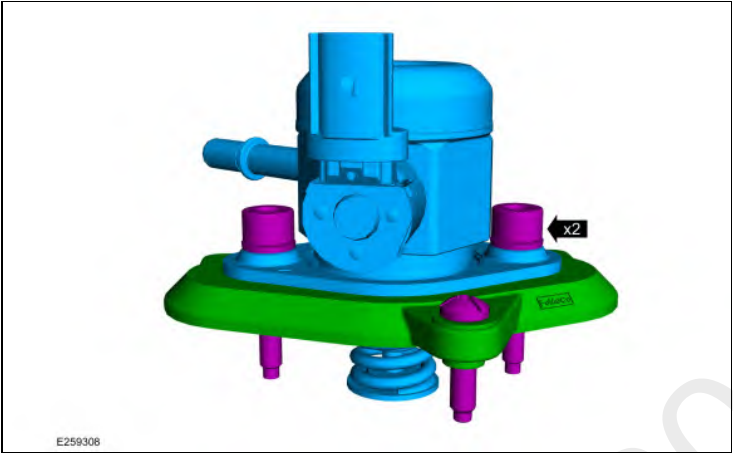
5. Install a new high-pressure fuel pump O-ring seal. Lubricate with clean engine oil.
Refer to: Specifications (303-01C Engine - 3.3L Duratec-V6, Specifications).



6. Inspect the high-pressure fuel pump mounting plate O-ring seals, clean and replace as needed. Lubricate with clean engine oil.
Refer to: Specifications (303-01C Engine - 3.3L Duratec-V6, Specifications).

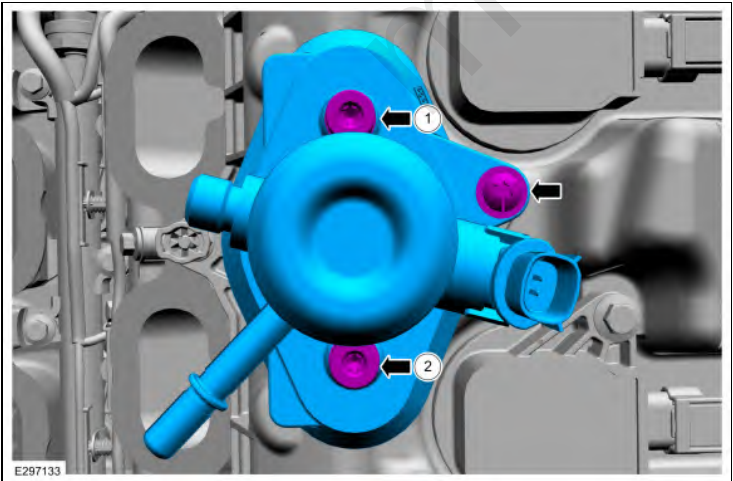


7. Install the high-pressure fuel pump mounting plate on to the high-pressure fuel pump. Install the high-pressure fuel pump bolts.

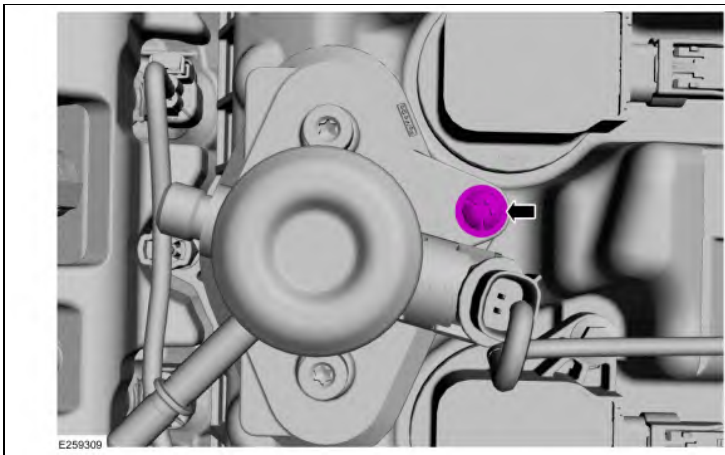


8. Install the high-pressure fuel pump with the mounting plate, then install and finger tighten the high-pressure fuel pump bolts and the mounting plate bolt. Alternately tighten each high-pressure fuel pump bolt one complete revolution until seated. Tighten the fuel high-pressure fuel pump bolts in the following 2 stages.

Torque:
Stage 1: 89 lb.in (10 Nm)
Stage 2: 45°

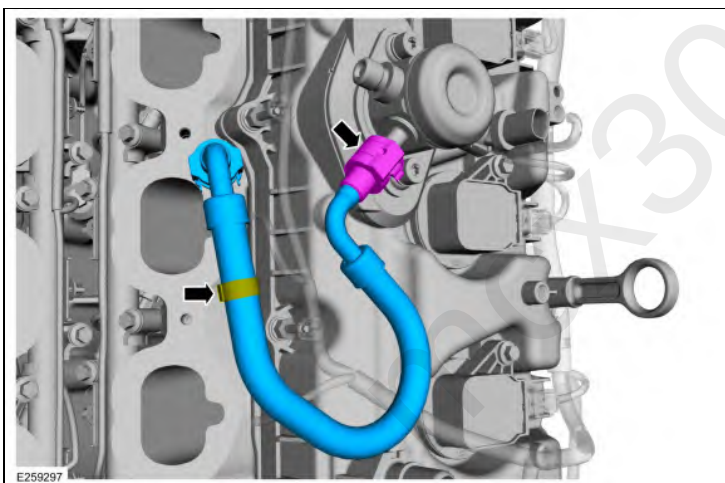


9. Tighten the high-pressure fuel pump mounting plate bolt.
Torque: 89 lb.in (10 Nm)



10. **NOTICE:** The high-pressure fuel pump supply tube must be installed with the Oetiker® clamp end installed to the port fuel rail; if it is installed backwards a check valve will prevent the engine from running properly.

Install and connect the high-pressure fuel pump fuel feed quick release coupling with the Oetiker® clamp end installed towards the port fuel rail.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information - 3.3L Duratec-V6) .



11. **NOTE:** Calculate the correct torque wrench setting for the following torque using the Torque Wrench Adapter Formulas.

NOTE: Make sure that a new high-pressure fuel tube and a new retaining nut is installed.

1. Install the new high-pressure fuel tube and tighten the flare nuts finger tight.
2. Install new the high-pressure fuel tube retaining nut finger tight.
3. **NOTICE:** In stage 3, if the torque required to tighten any flare nut on the new high-pressure fuel tube reaches or exceeds 55 lb.ft (75 Nm), then that high pressure fuel tube must be discarded and replaced with another new high-pressure fuel tube.

Tighten the high-pressure fuel tube flare nuts in the following 3 stages.

Torque:

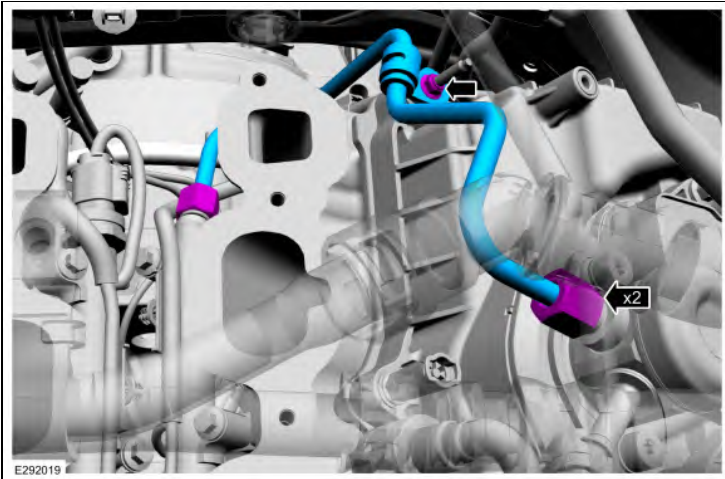
Stage 1: 80 lb.in (9 Nm)

Stage 2: 89 lb.in (10 Nm)

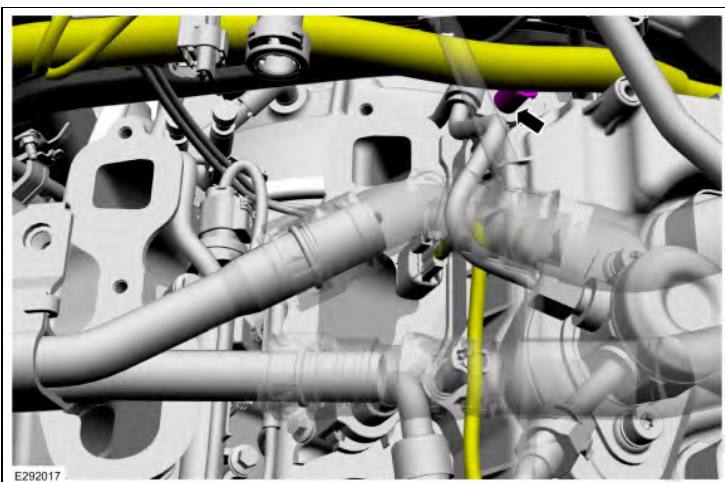
Stage 3: Tighten an additional: : 30°

4. Tighten the high-pressure fuel pump to fuel rail high-pressure fuel tube retaining nut.

Torque: 71 lb.in (8 Nm)

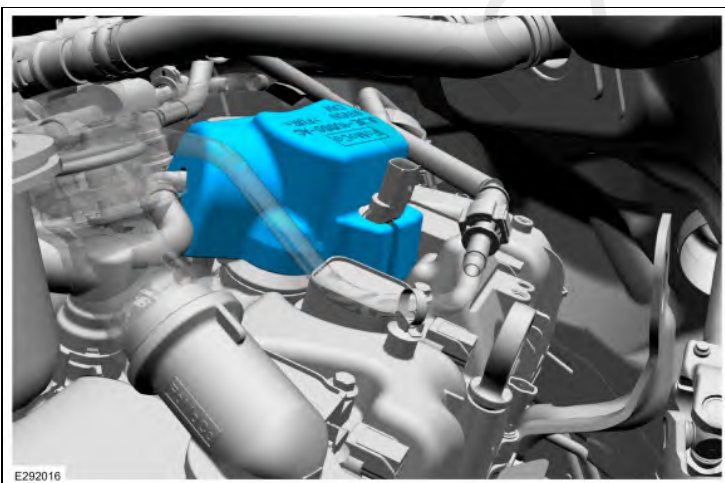


12. Attach the harness retainer.

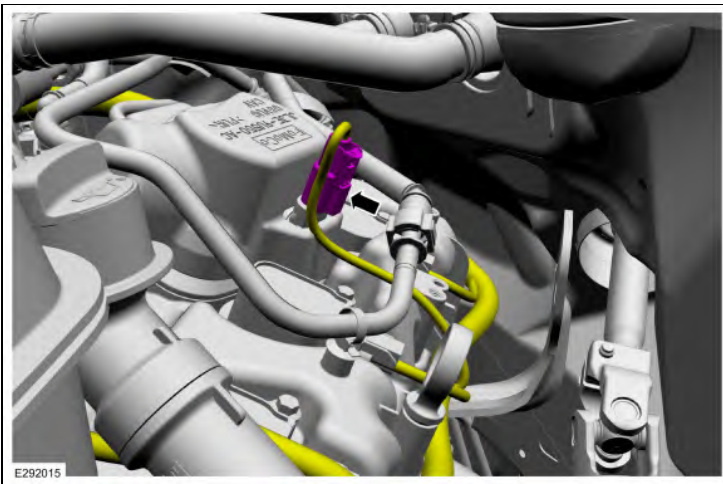


13. Install the lower intake manifold.
Refer to: Lower Intake Manifold (303-01C Engine - 3.3L Duratec-V6, Removal and Installation).

14. **NOTE:** When removing or installing the high-pressure fuel pump noise insulator, spreading the openings will reduce the risk of damage.
Install the high-pressure fuel pump noise insulator.



15. Connect the high-pressure fuel pump electrical connector.



16. Connect the battery negative cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
17. Pressurize the fuel system.
Refer to: Fuel System Pressure Release (310-00C Fuel System - General Information - 3.3L Duratec-V6, General Procedures).

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High-Pressure Fuel Pump Drive Unit

Removal and Installation

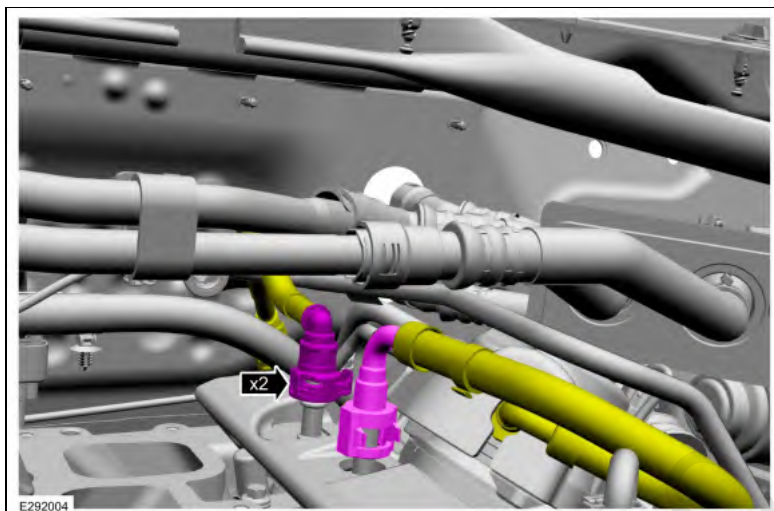
1. The high-pressure fuel pump drive unit is part of the left cylinder head.
Refer to: Cylinder Head LH (303-01C Engine - 3.3L Duratec-V6, Removal and Installation).
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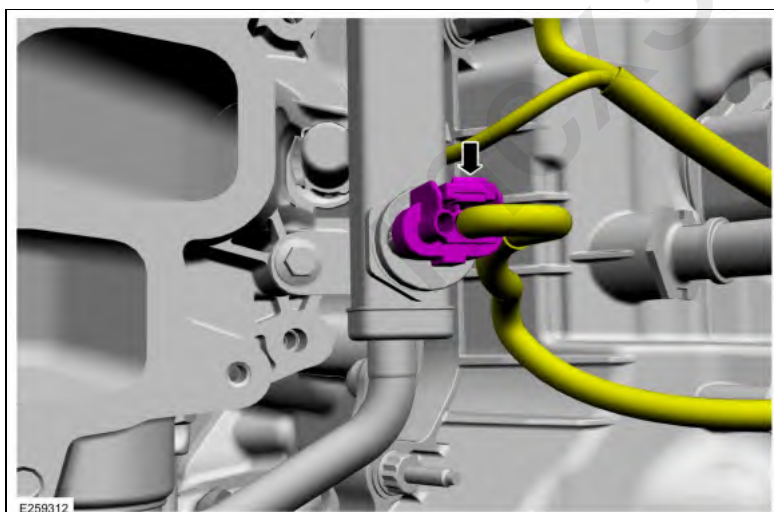
Port Injection Fuel Rail

Removal

1. Release the fuel system pressure.
Refer to: Fuel System Pressure Release (310-00C Fuel System - General Information - 3.3L Duratec-V6, General Procedures).
2. Disconnect the battery negative cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
3. Remove the upper intake manifold.
Refer to: Upper Intake Manifold (303-01C Engine - 3.3L Duratec-V6, Removal and Installation).
4. Disconnect the fuel rail fuel tube quick release couplings.
Refer to: Quick Release Coupling (310-00C) .



5. Disconnect the electrical connector.



6. Remove the right and left fuel rail insulators.