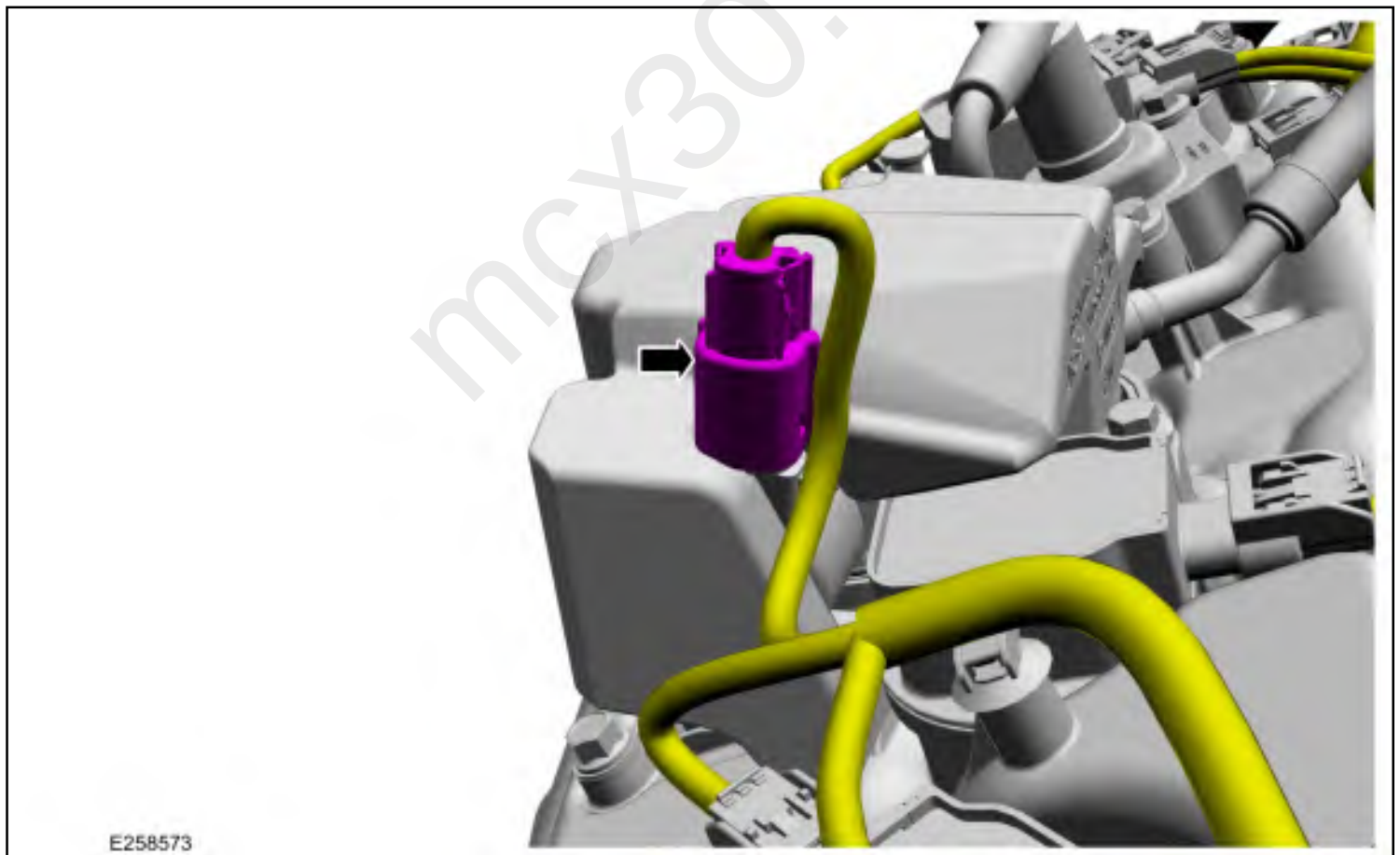


High-Pressure Fuel Pump

Removal

NOTICE: Do not loosen any fittings or plugs on the high-pressure fuel pump.

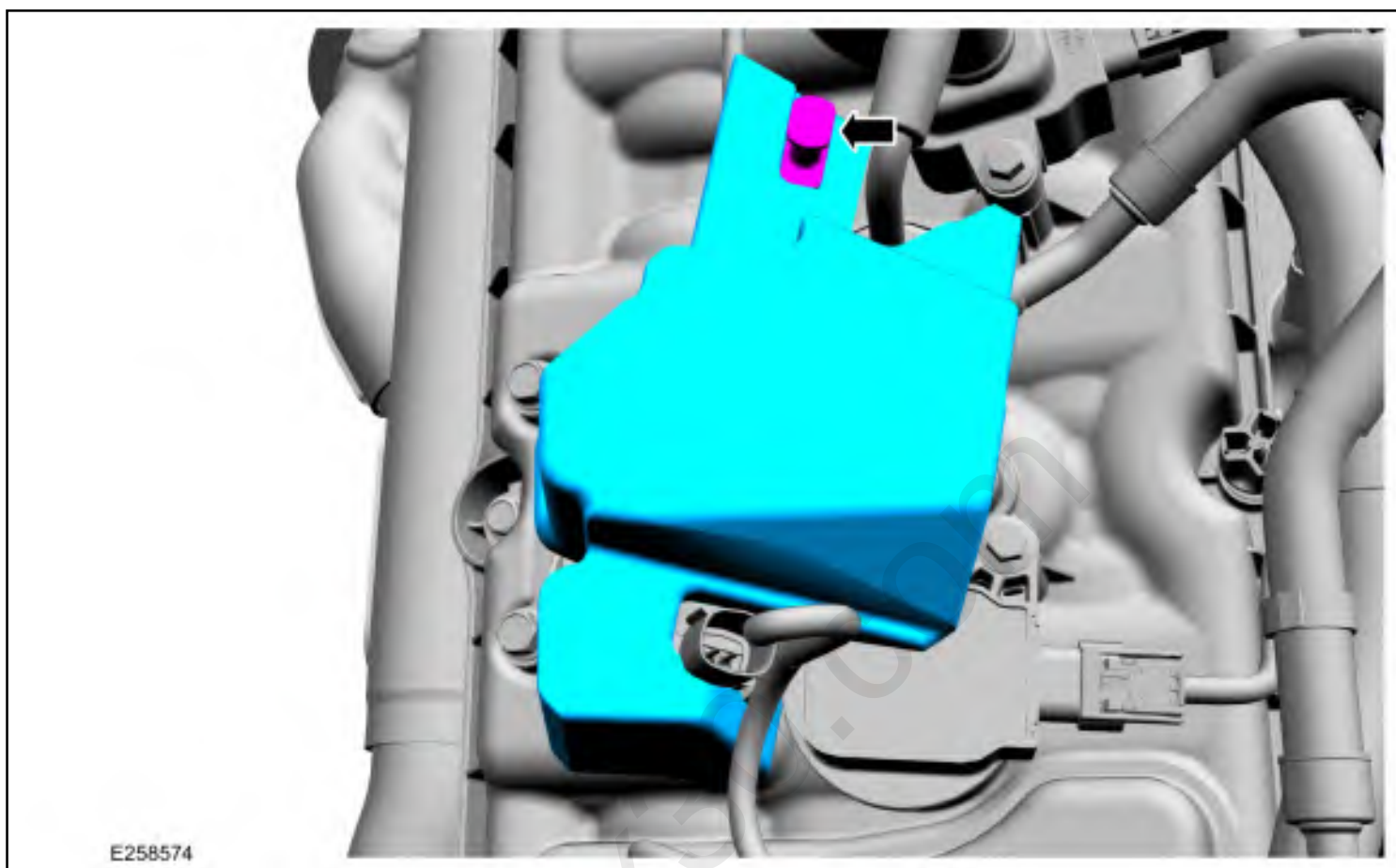
1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: [Jacking and Lifting - Overview](#) (100-02 Jacking and Lifting, Description and Operation).
2. Remove the intake manifold.
Refer to: [Intake Manifold](#) (303-01D Engine - 5.0L 32V Ti-VCT, Removal and Installation).
3. Disconnect the high-pressure fuel pump electrical connector.



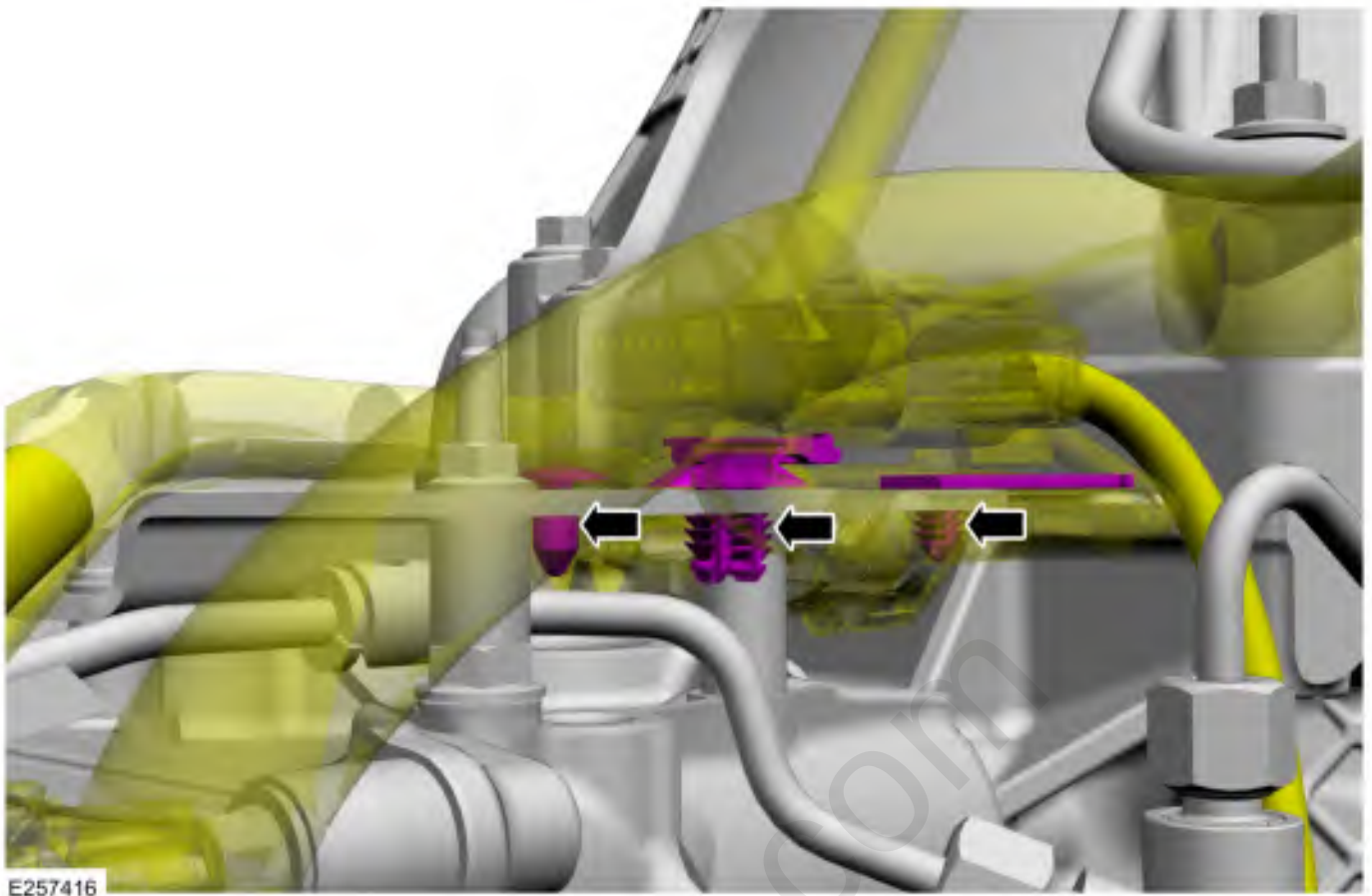
4. **NOTE:** When removing or installing the fuel injection pump noise insulator, spreading the openings

will reduce the risk of damage.

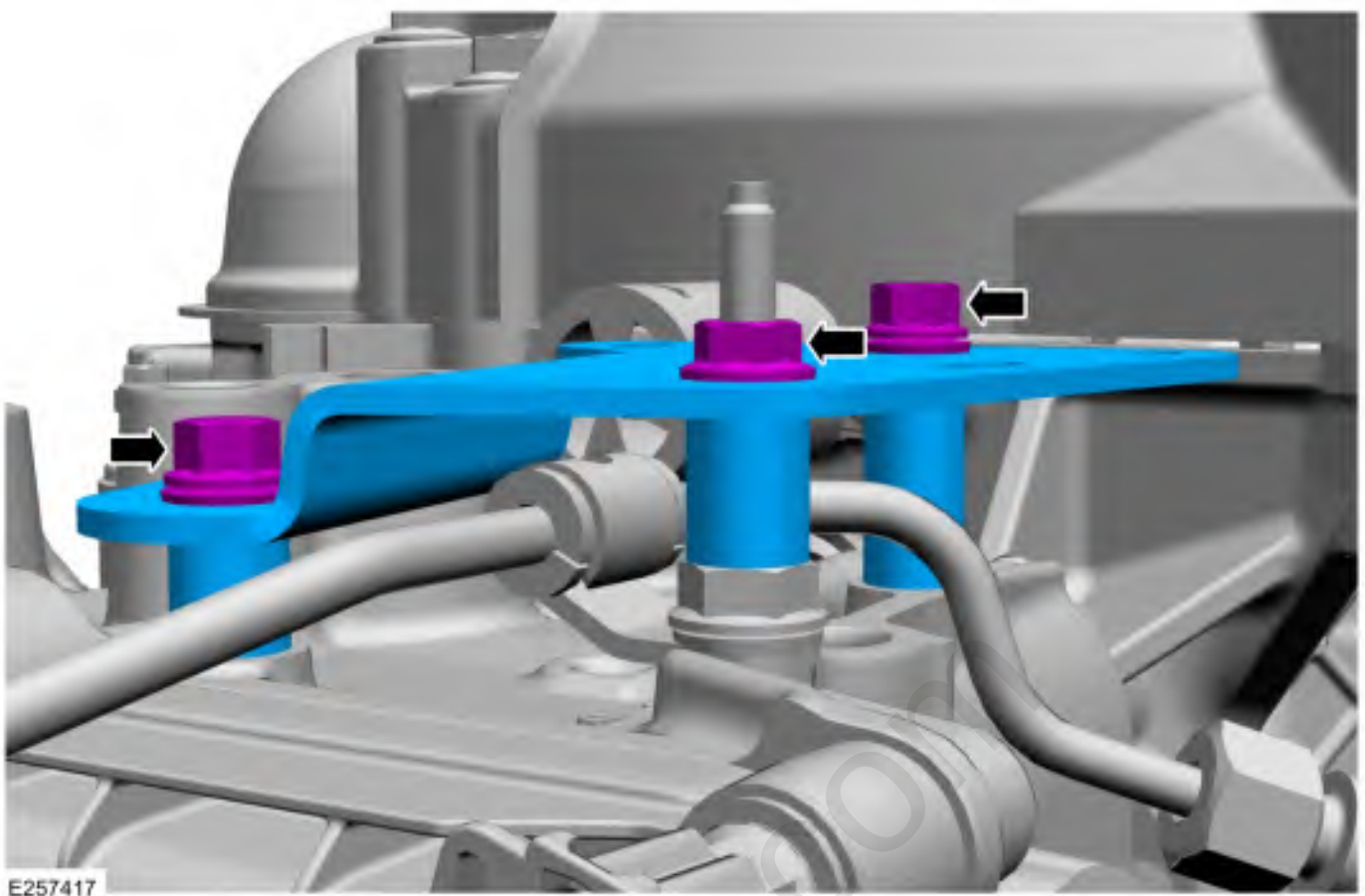
Release the retainer, then remove the fuel injection pump noise insulator.



5. Detach the wiring harness retainers from high-pressure fuel line shield.

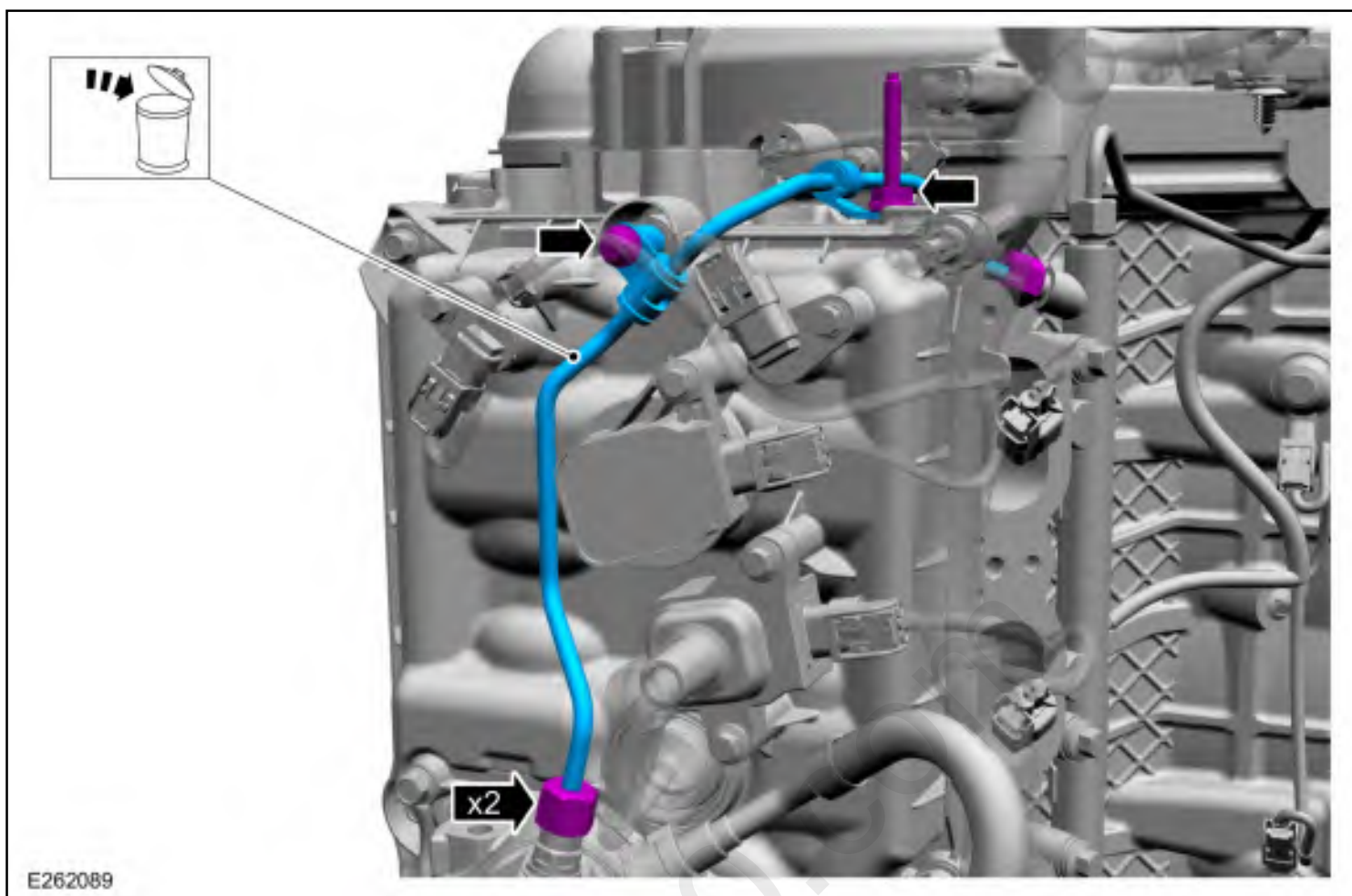


6. Remove the high-pressure fuel line shield retainers, then remove high-pressure fuel line shield.

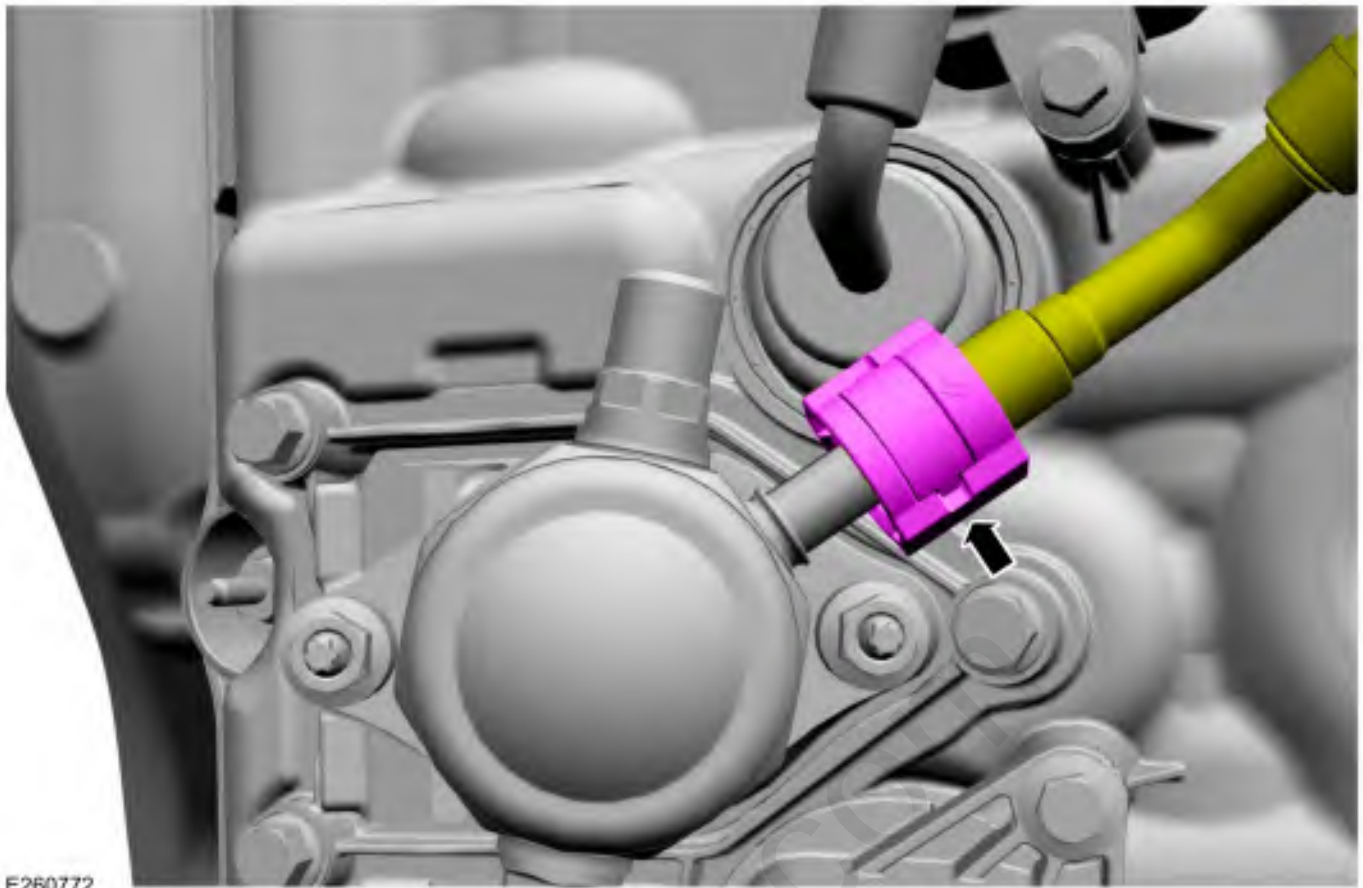


7. **NOTICE:** To release the fuel pressure in the high-pressure fuel tube, wrap the high-pressure fuel tube flare nuts with a shop towel to absorb any residual fuel pressure during the loosening of the high-pressure fuel tube flare nuts.

Remove the high-pressure fuel tube retainers. Disconnect the high-pressure fuel tube flare nuts, then remove and discard the high-pressure fuel tube.

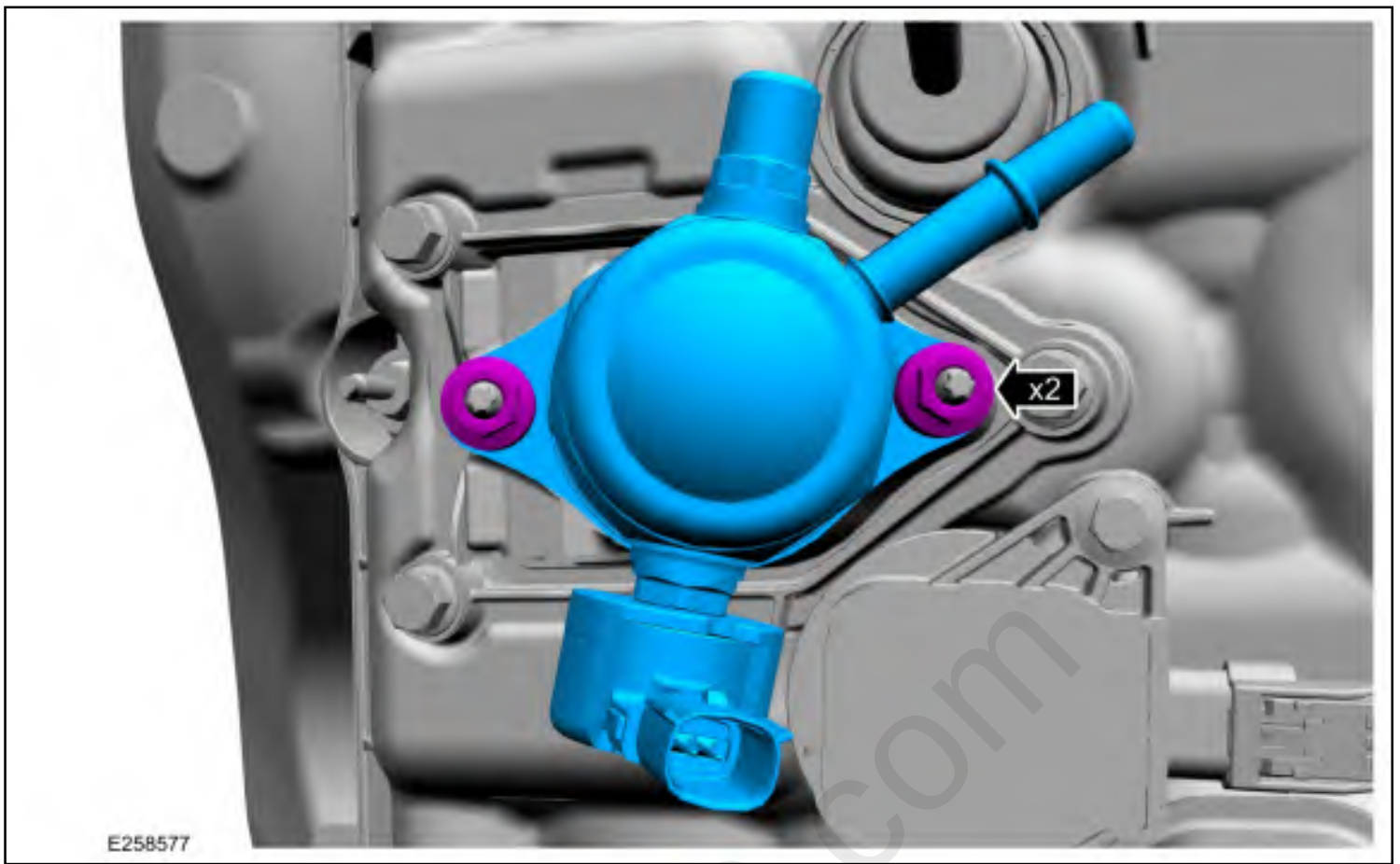


8. Disconnect the high-pressure fuel pump fuel feed quick release coupling.
Refer to: [Quick Release Coupling](#) (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).

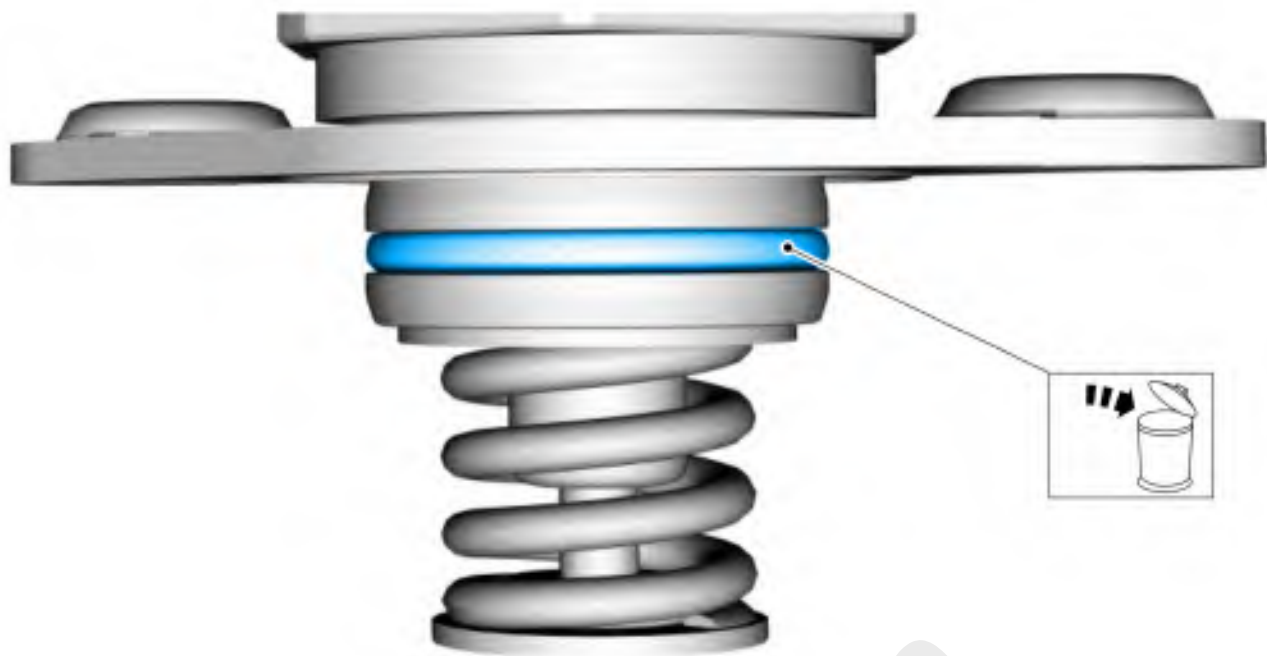


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9. Alternately loosen the high-pressure fuel pump nuts one complete revolution at a time and remove, then remove the high-pressure fuel pump.



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



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



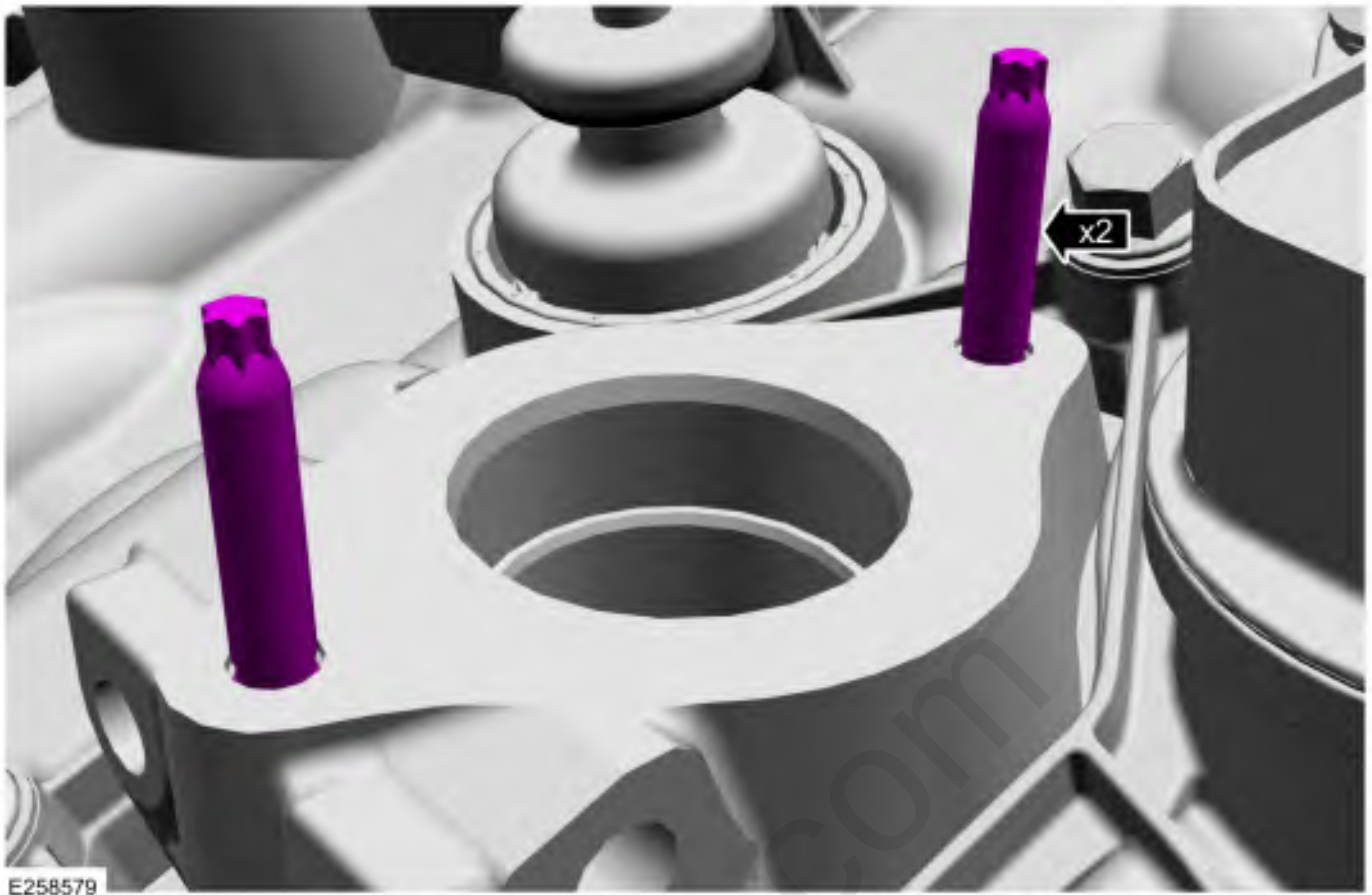
12. Inspect the high-pressure fuel pump roller tappet. If any flat spots or scoring are found, especially in the indicated areas, then inspect the high-pressure fuel pump and the high-pressure fuel pump roller tappet drive lobe. Install new components as needed.



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13. If needed, remove the high-pressure fuel pump mounting studs.

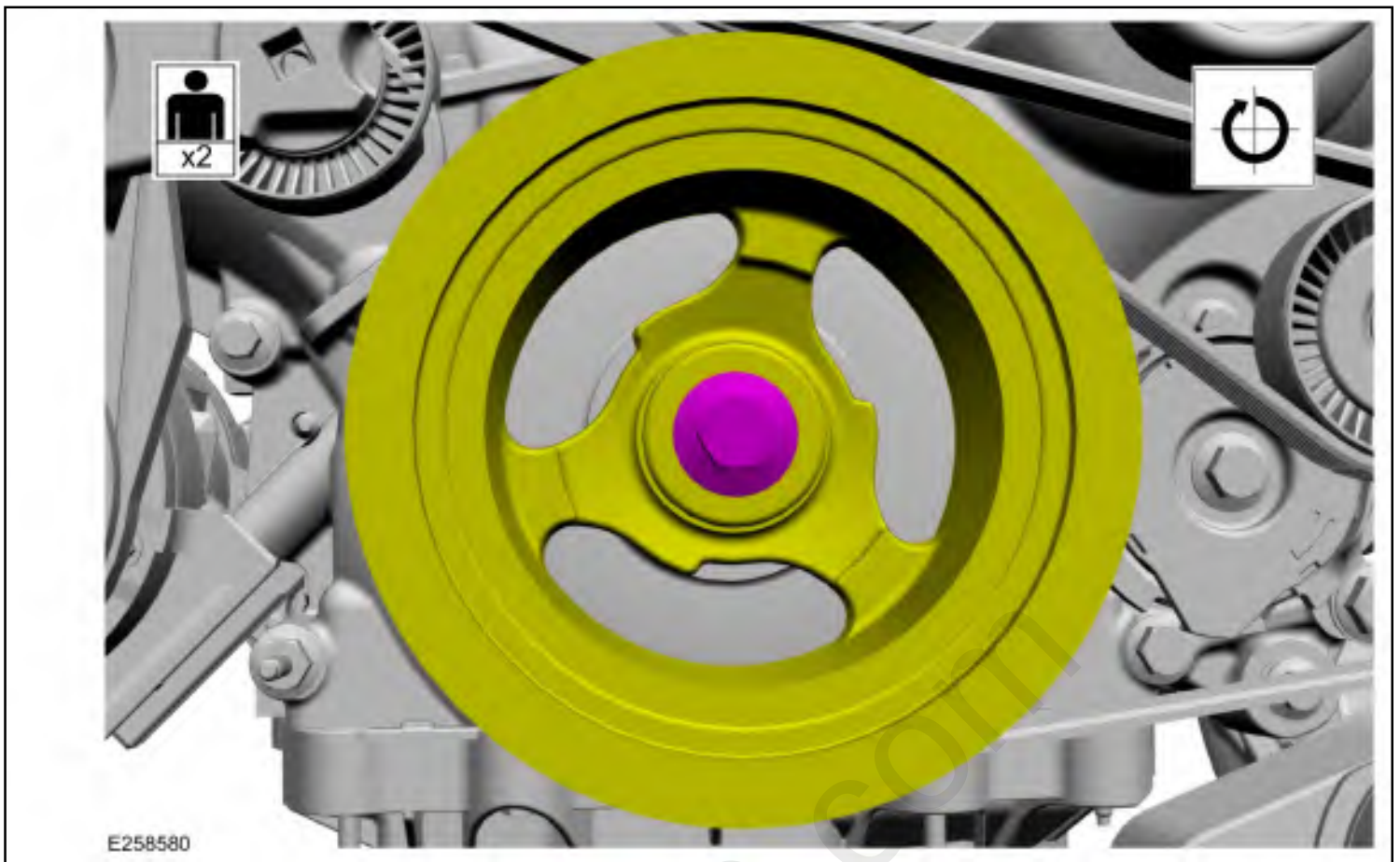


Installation

1. **NOTICE:** Only rotate the crankshaft Clockwise (CW) or damage to the engine may occur.

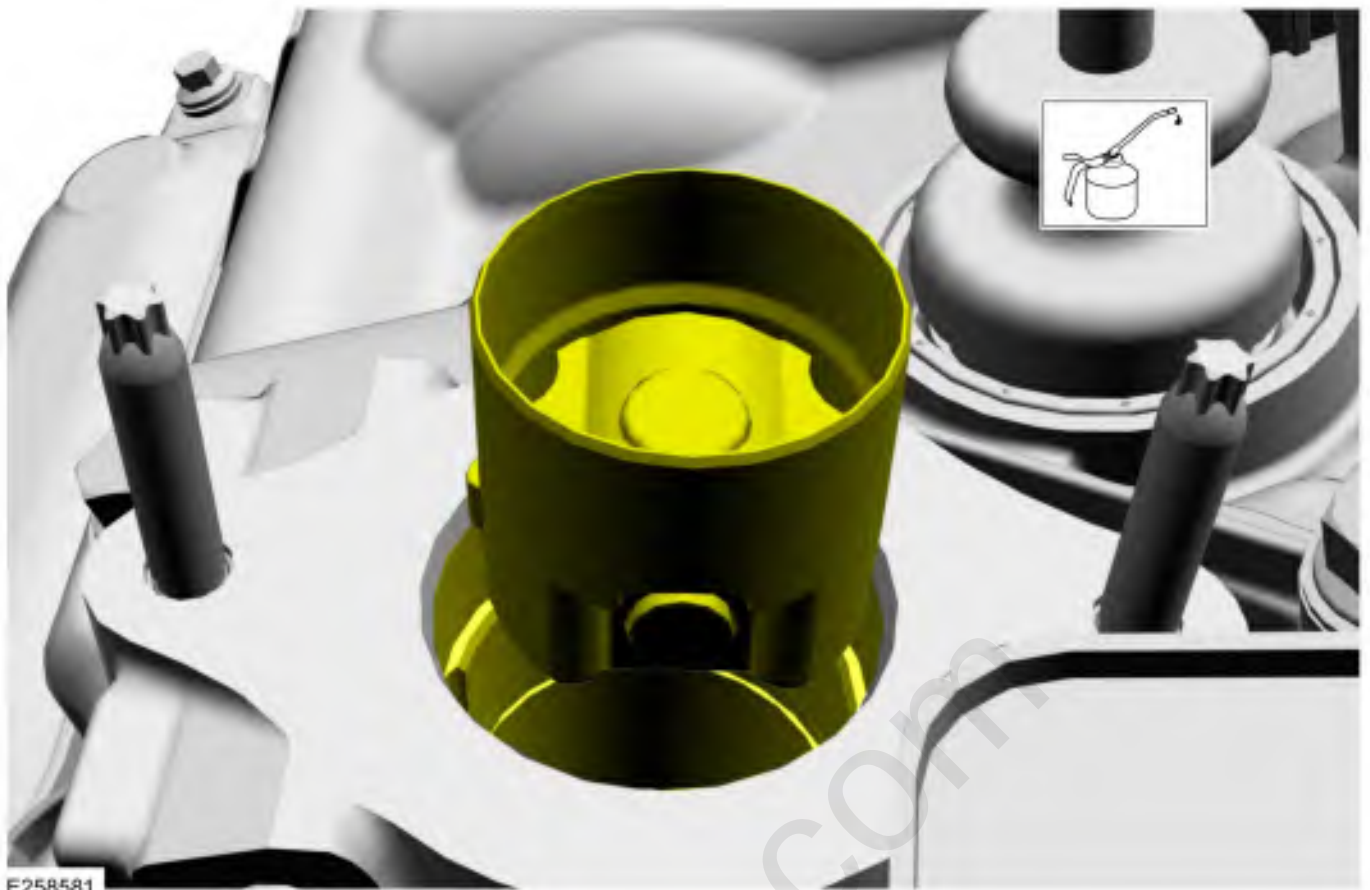
NOTICE: The drive lobe for the high-pressure fuel pump must be at BDC (bottom dead center) for the high-pressure fuel pump installation.

With the help of an assistant, using the crankshaft pulley bolt, turn the crankshaft until the high-pressure fuel pump drive lobe is at BDC.



2. Apply clean engine oil to the high-pressure fuel pump mounting pedestal bore, the drive lobe and the roller tappet.

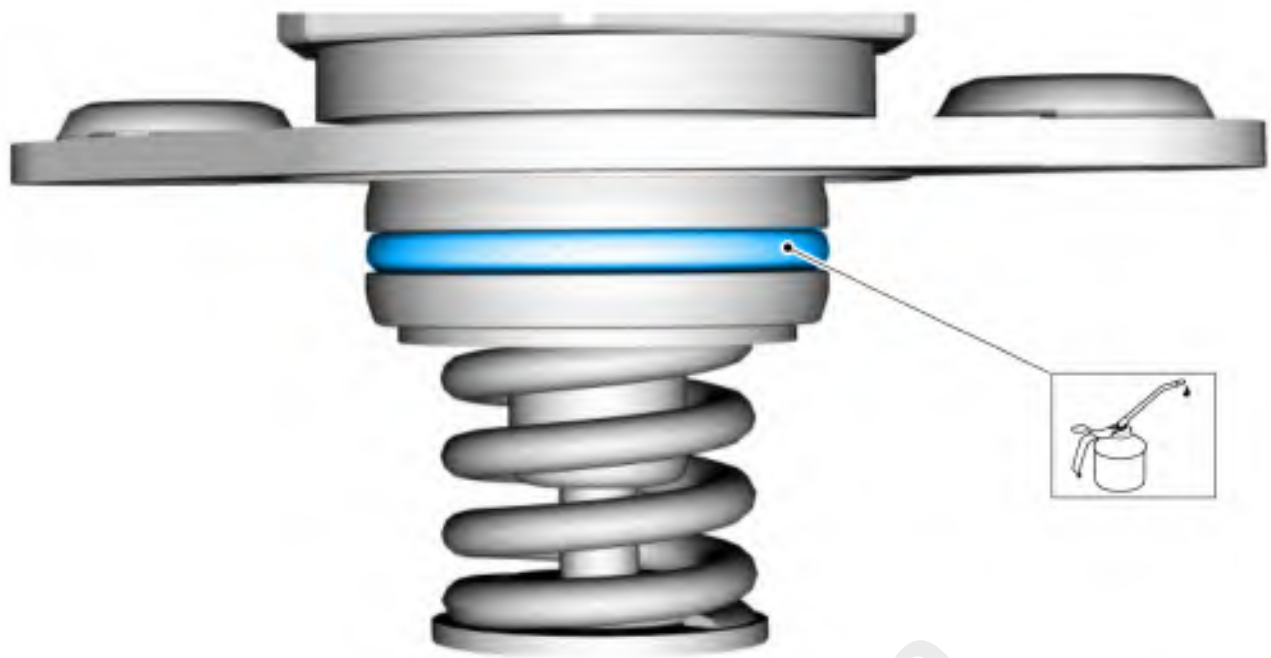
Refer to: [Specifications](#) (303-01D Engine - 5.0L 32V Ti-VCT, Specifications).



3. Install the high-pressure fuel pump roller tappet.

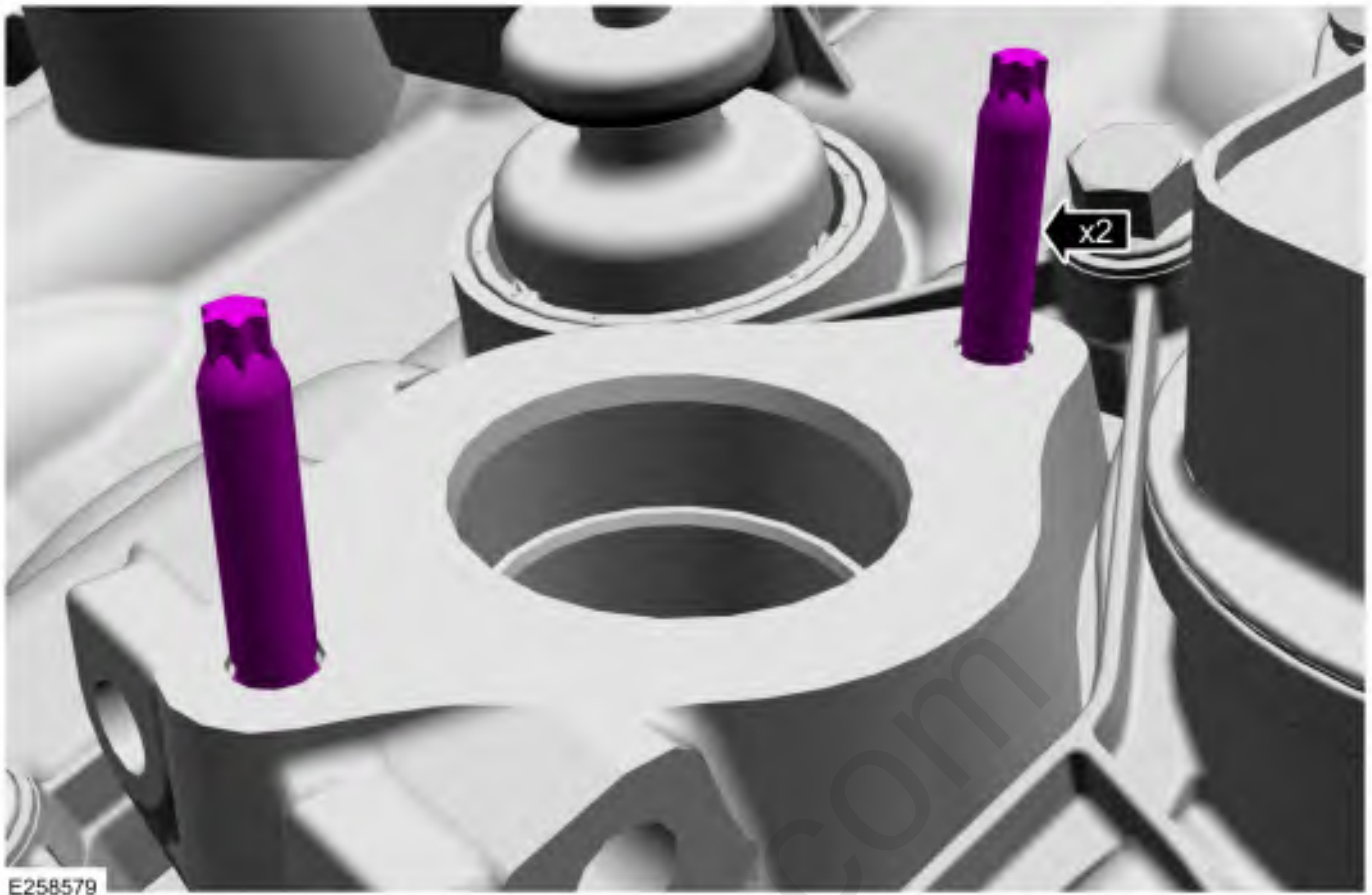


4. Install a new high-pressure fuel pump O-ring seal. Lubricate with clean engine oil.
Refer to: [Specifications](#) (303-01D Engine - 5.0L 32V Ti-VCT, Specifications).



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5. If removed, install and tighten the high-pressure fuel pump mounting studs.
Torque: 53 lb.in (6 Nm)

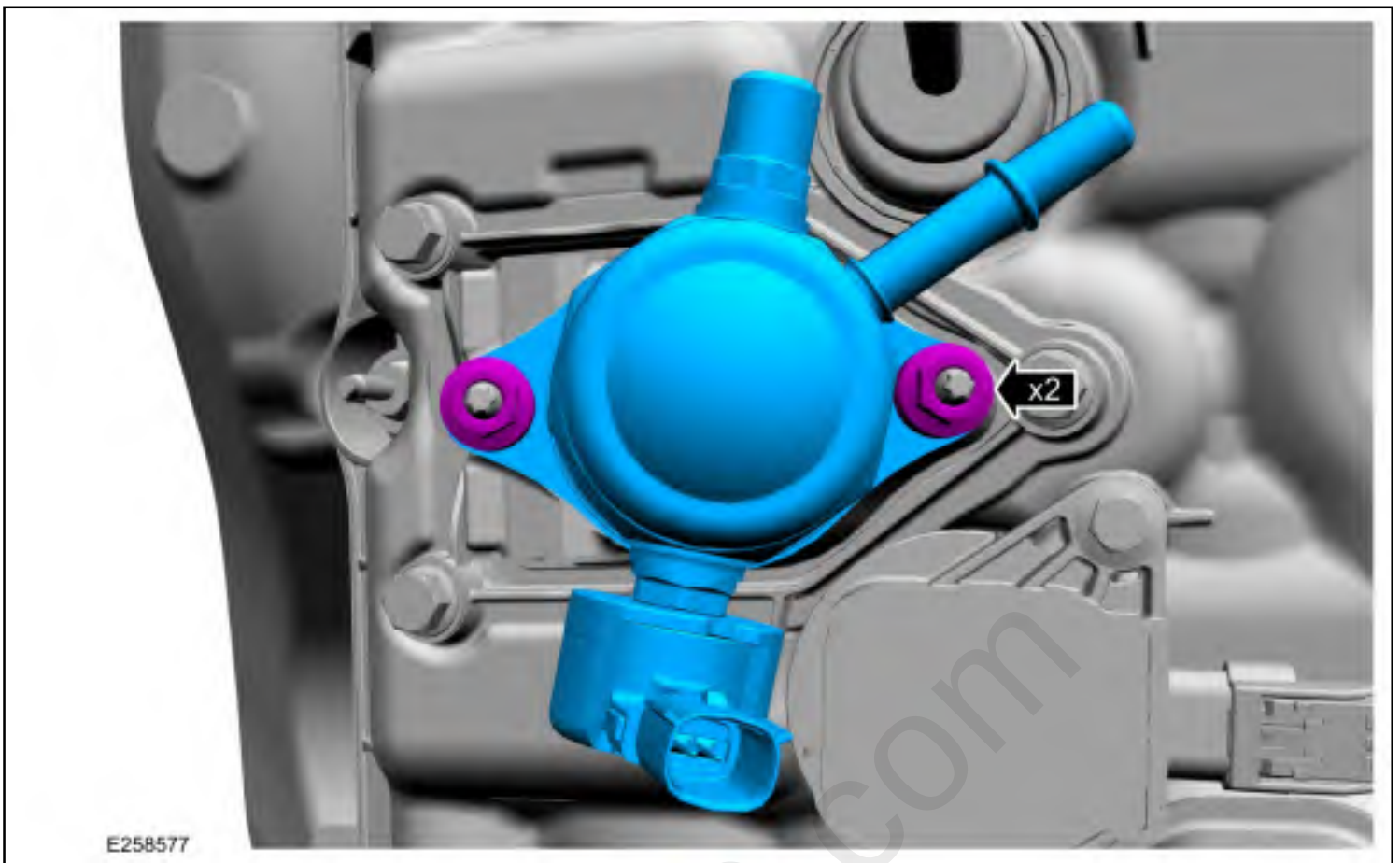


6. Install the high-pressure fuel pump, then install the mounting nuts finger tight. Alternately tighten each high-pressure fuel pump nut one complete revolution until seated. Tighten the fuel high-pressure fuel pump nuts in the following 2 stages.

Torque:

Stage 1: 89 lb.in (10 Nm)

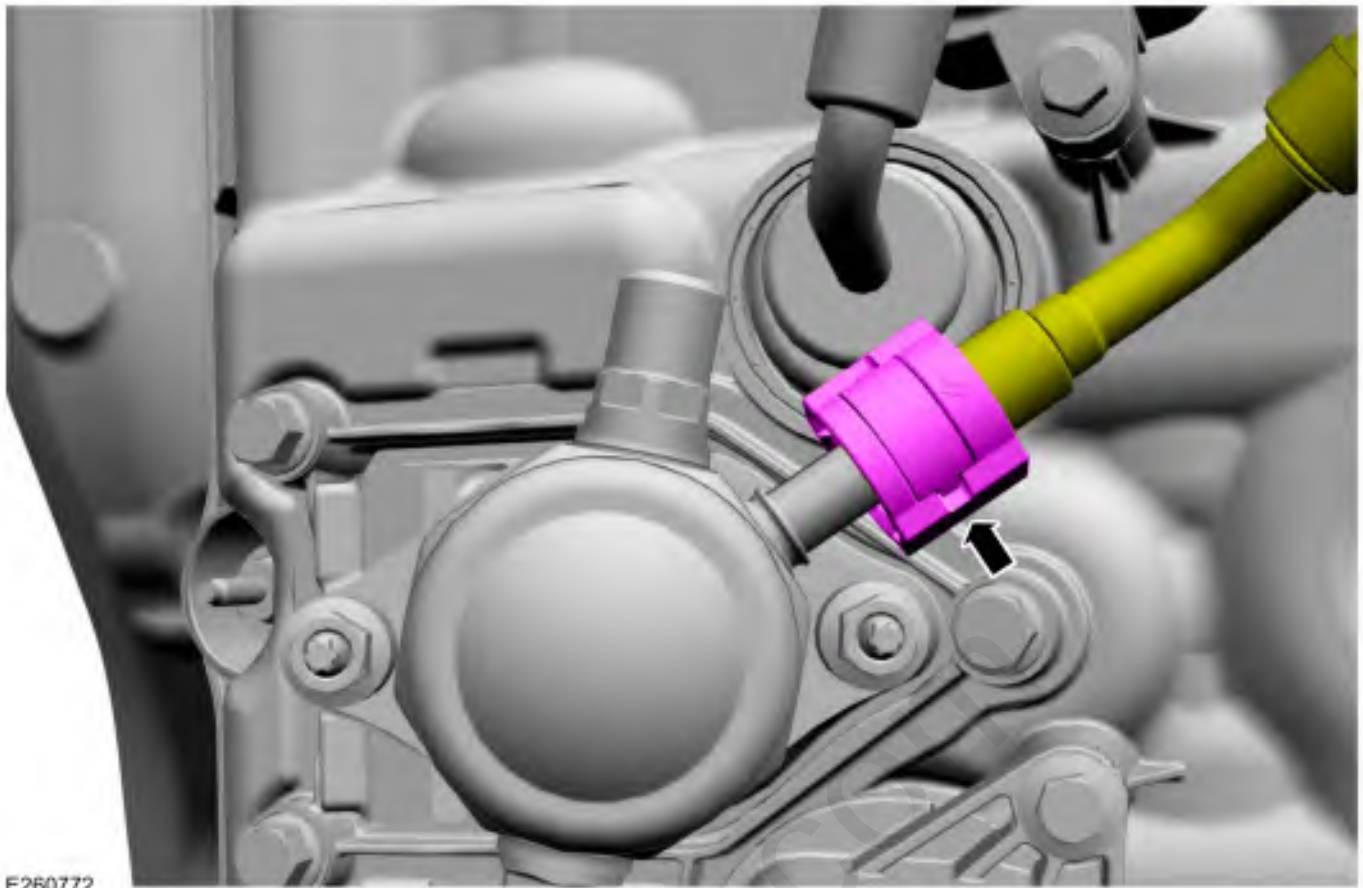
Stage 2: 30°



7. **NOTICE:** The fuel high-pressure fuel pump supply tube must be installed with the 90 degree spring lock end installed to the port fuel rail; if it is installed backwards a check valve will prevent the engine from running properly.

Connect the high-pressure fuel pump fuel feed quick release coupling.

Refer to: [Quick Release Coupling](#) (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).



8. **NOTICE:** In stage 6, if the torque required to tighten any flare nut on the new high-pressure fuel tube reaches or exceeds 37 lb.ft (50 Nm), then that high pressure fuel tube must be discarded and replaced with another new high-pressure fuel tube.

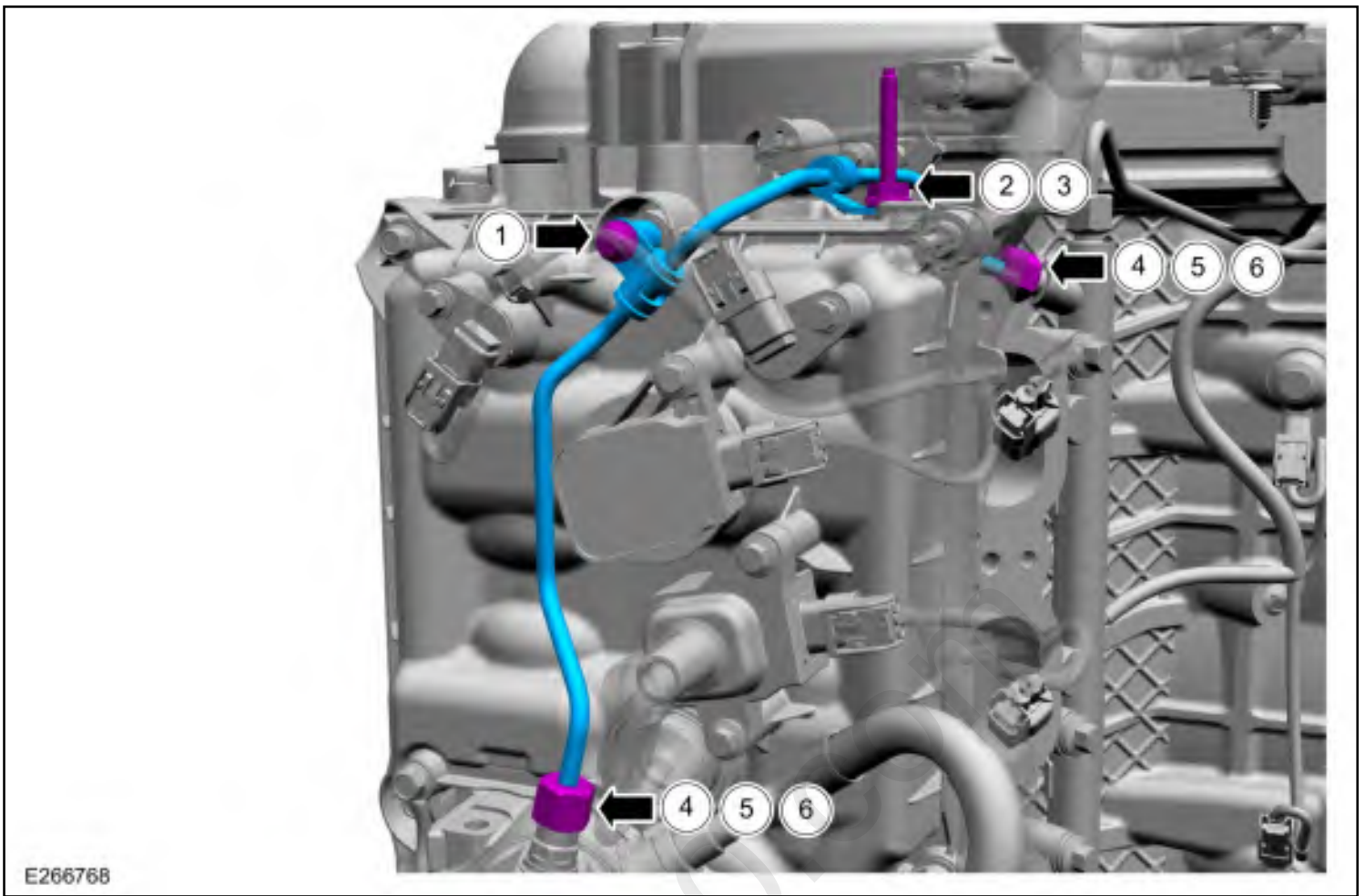
NOTE: Calculate the correct torque wrench setting for the following torque using the Torque Wrench Adapter Formulas.

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

Install the high-pressure fuel tube and retainers, tighten the high-pressure fuel tube flare nuts and retainers finger tight.

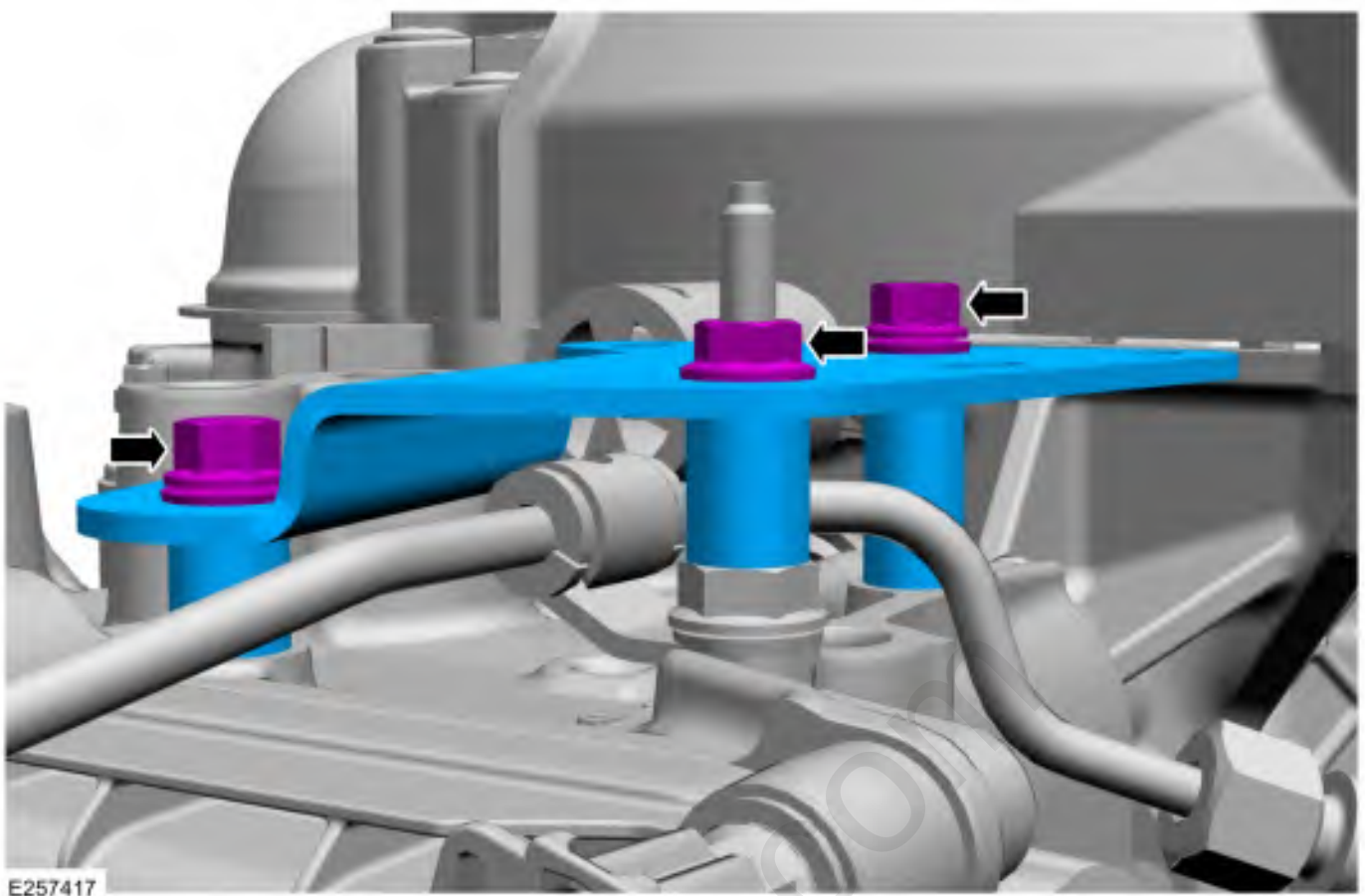
Torque:

- Stage 1: Tighten the high-pressure fuel tube bolt to : 89 lb.in (10 Nm)
- Stage 2: Tighten the high-pressure fuel tube stud-bolt to : 89 lb.in (10 Nm)
- Stage 3: Tighten the high-pressure fuel tube stud-bolt an additional : 30°
- Stage 4: Tighten the high-pressure fuel tube flare nuts to : 71 lb.in (8 Nm)
- Stage 5: Tighten the high-pressure fuel tube flare nuts to : 89 lb.in (10 Nm)
- Stage 6: Tighten the high-pressure fuel tube flare nuts an additional : 25°

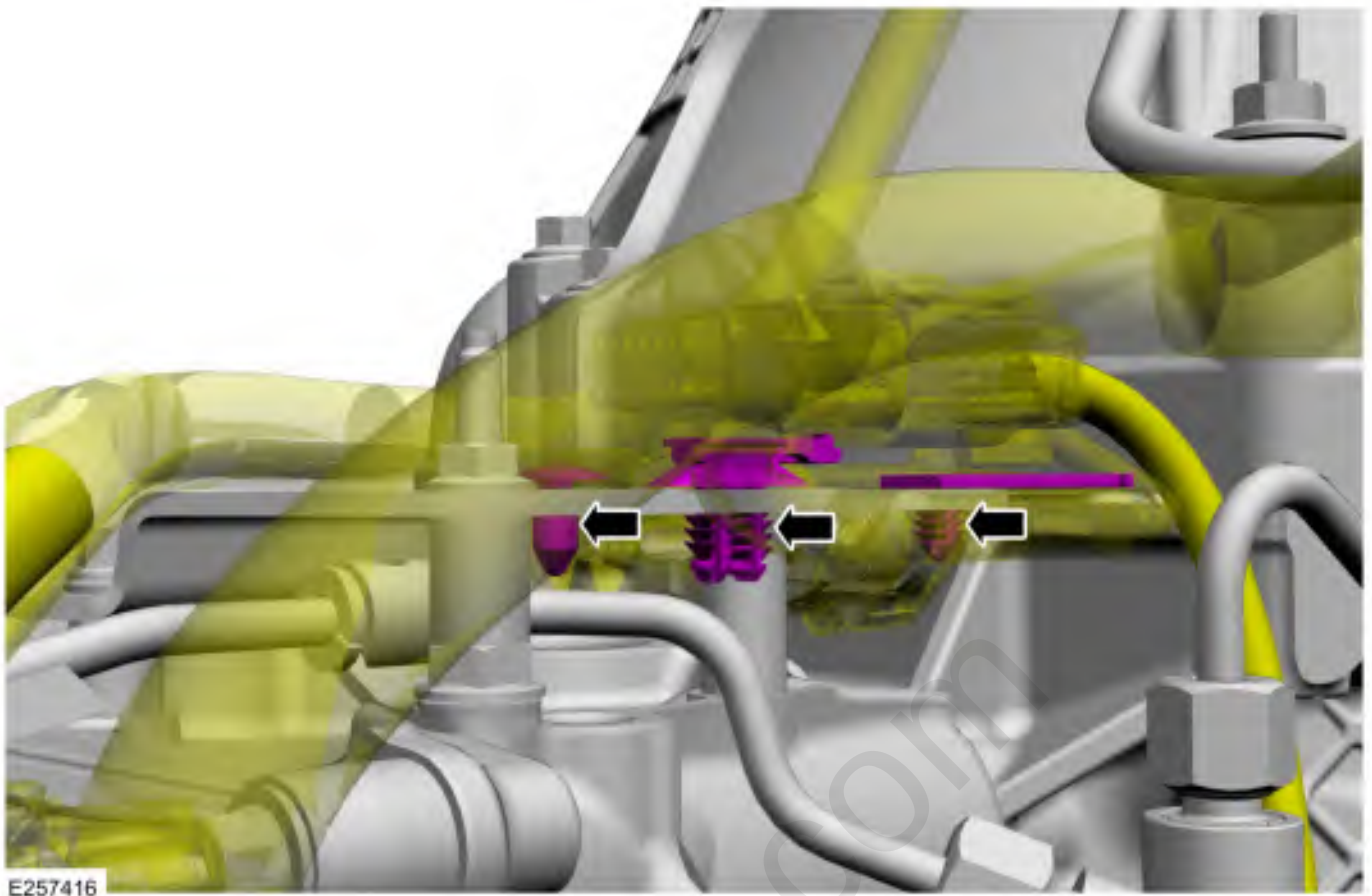


9. Install the high-pressure fuel line shield, then install and tighten the high-pressure fuel line shield retainers.

Torque: 89 lb.in (10 Nm)

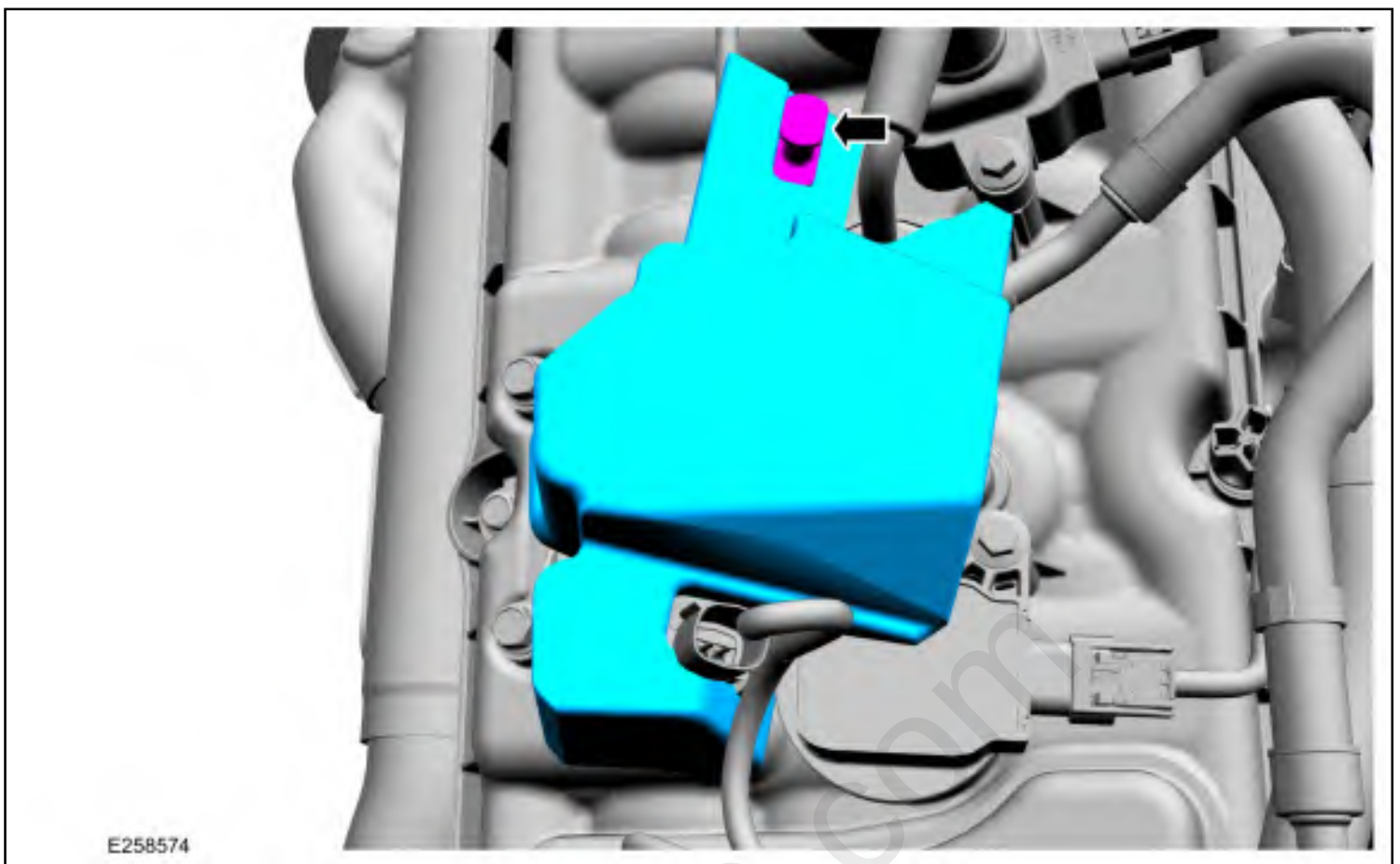


10. Attach the wiring harness retainers to high-pressure fuel line shield.

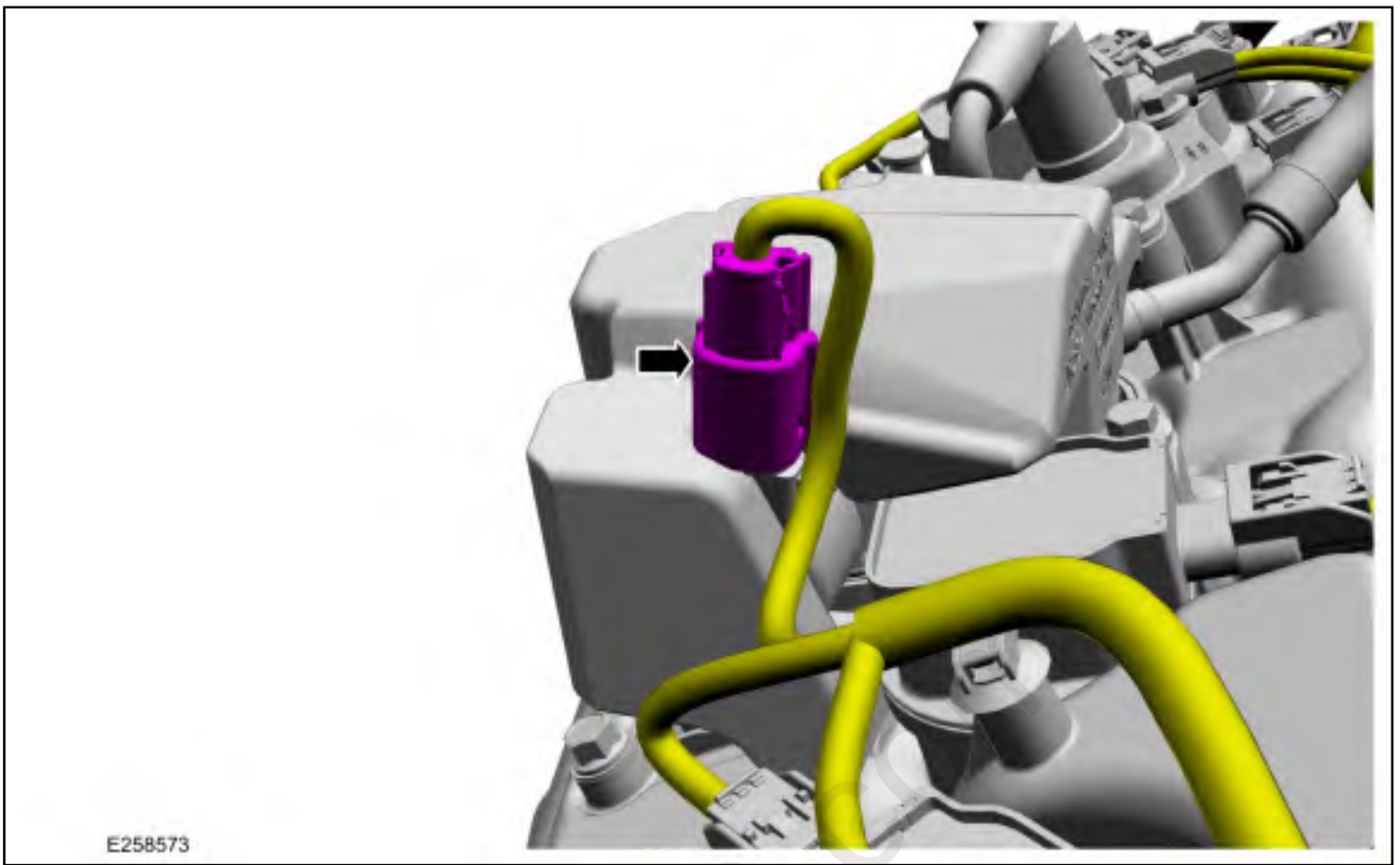


11. **NOTE:** *When removing or installing the fuel injection pump noise insulator, spreading the openings will reduce the risk of damage.*

Install the fuel injection pump noise insulator, then engage the retainer.



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



13. Install the intake manifold.

Refer to: [Intake Manifold](#) (303-01D Engine - 5.0L 32V Ti-VCT, Removal and Installation).