

Engine

Base Part Number: Base Part Number: 6L084

Special Tool(s) / General Equipment

	303-F047 Lifting Bracket, Engine
Magnetic Socket	
Floor Crane	
Oil Drain Equipment	
Trolley Jack	
Hose Clamp Remover/Installer	
Wooden Block	

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. Release the fuel system pressure.
Refer to: [Fuel System Pressure Release](#) (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).
3. Disconnect the battery ground cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables) .
4. Drain the engine cooling system.
Refer to: Cooling System Draining, Vacuum Filling and Bleeding (303-03 Engine Cooling - 5.0L 32V Ti-VCT) .
5. Remove the following items:
 1. Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).

2. **NOTE:** *It is not necessary to clamp off the degas bottle hose with the cooling system drained.*

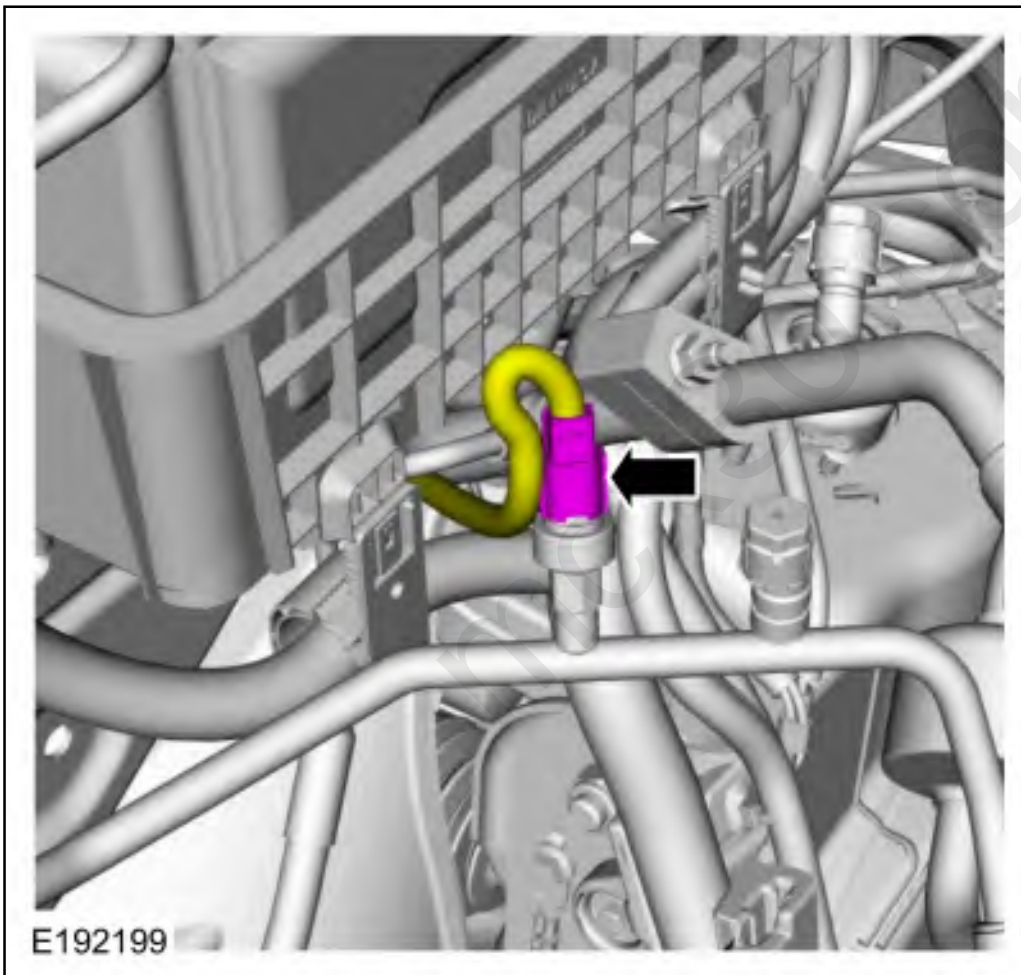
Refer to: [Degas Bottle](#) (303-03D Engine Cooling - 5.0L 32V Ti-VCT, Removal and Installation).

3. Refer to: Cooling Module (303-03 Engine Cooling - 5.0L 32V Ti-VCT) .

4. **NOTICE:** **If the engine is repaired or replaced because of upper engine failure, typically including valve or piston damage, check the intake manifold for metal debris. If metal debris is found, install a new intake manifold. Failure to follow these instructions can result in engine damage.**

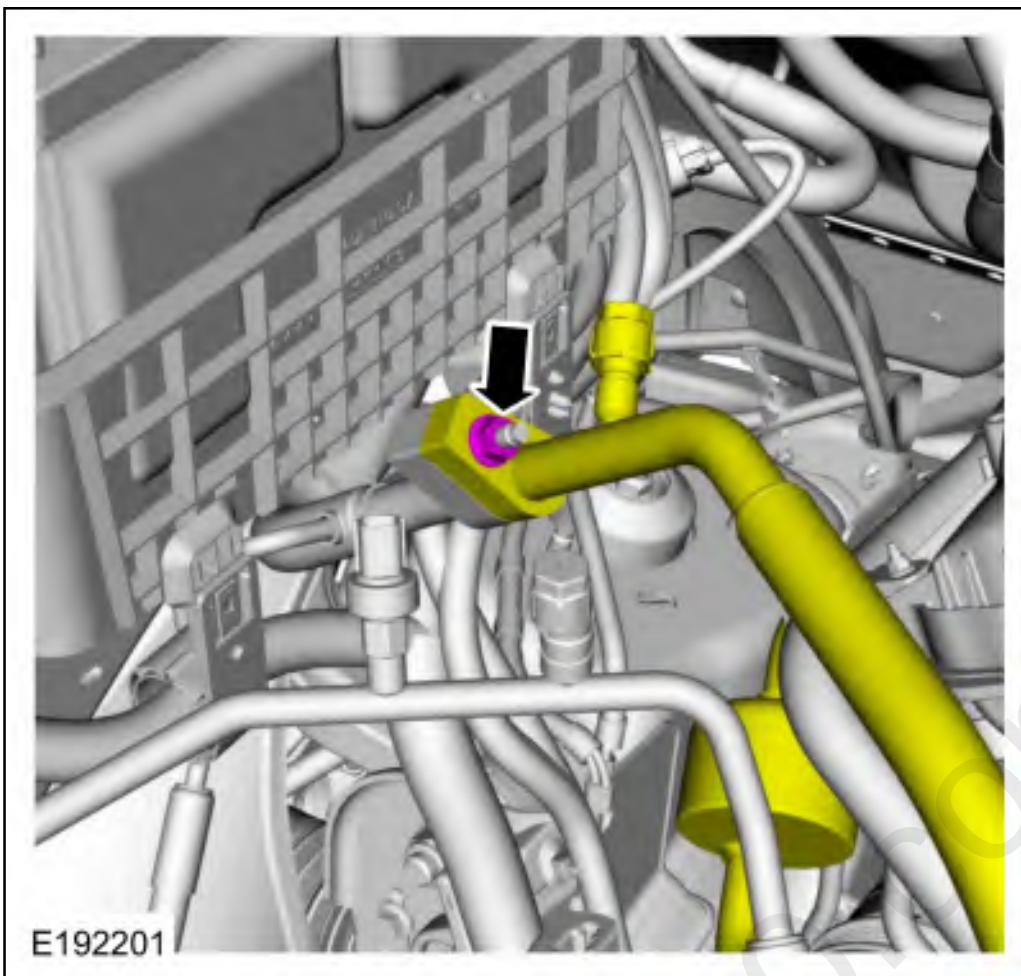
Refer to: Intake Manifold (303-01 Engine - 5.0L 32V Ti-VCT) .

6. Disconnect the A/C pressure transducer electrical connector.



7. Remove the nut and disconnect the A/C tube.

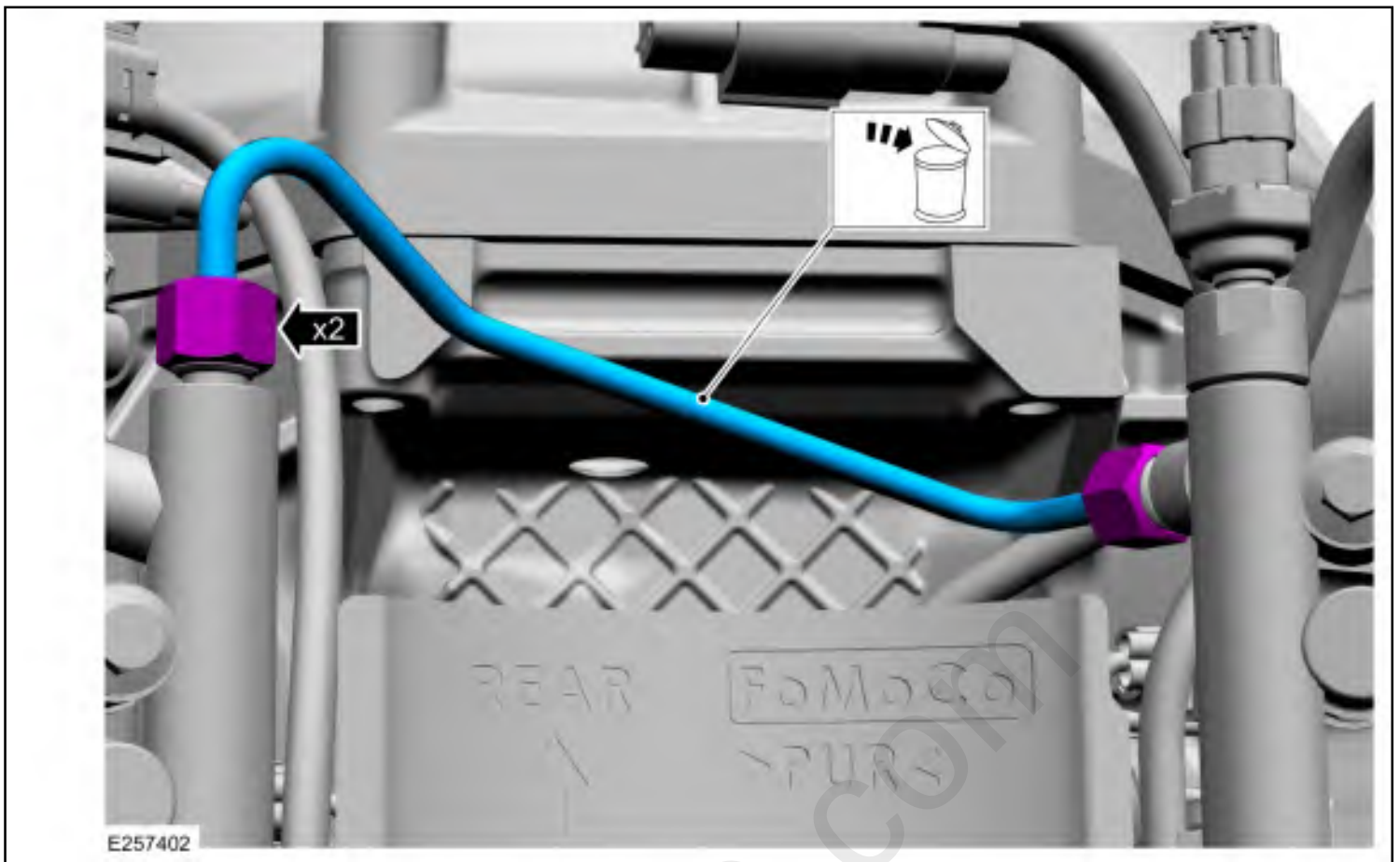
- Discard the O-ring seal and gasket.



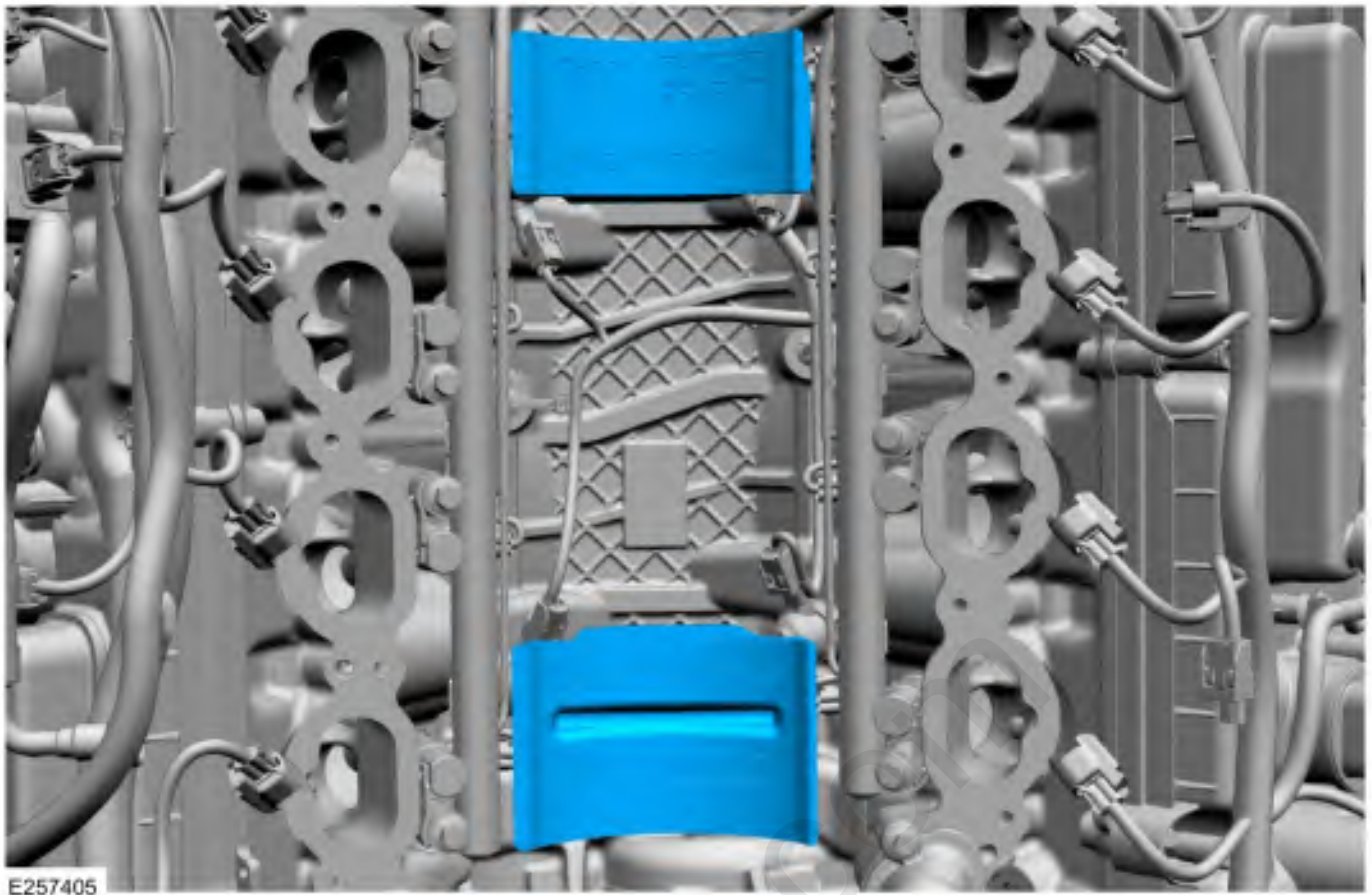
8. **NOTICE:** To release the fuel pressure in the high-pressure fuel tube, wrap the high-pressure fuel tube flare nuts with a shop towel to absorb any residual fuel pressure during the loosening of the high-pressure fuel tube flare nuts.

Loosen the nuts and remove the high pressure fuel tube.

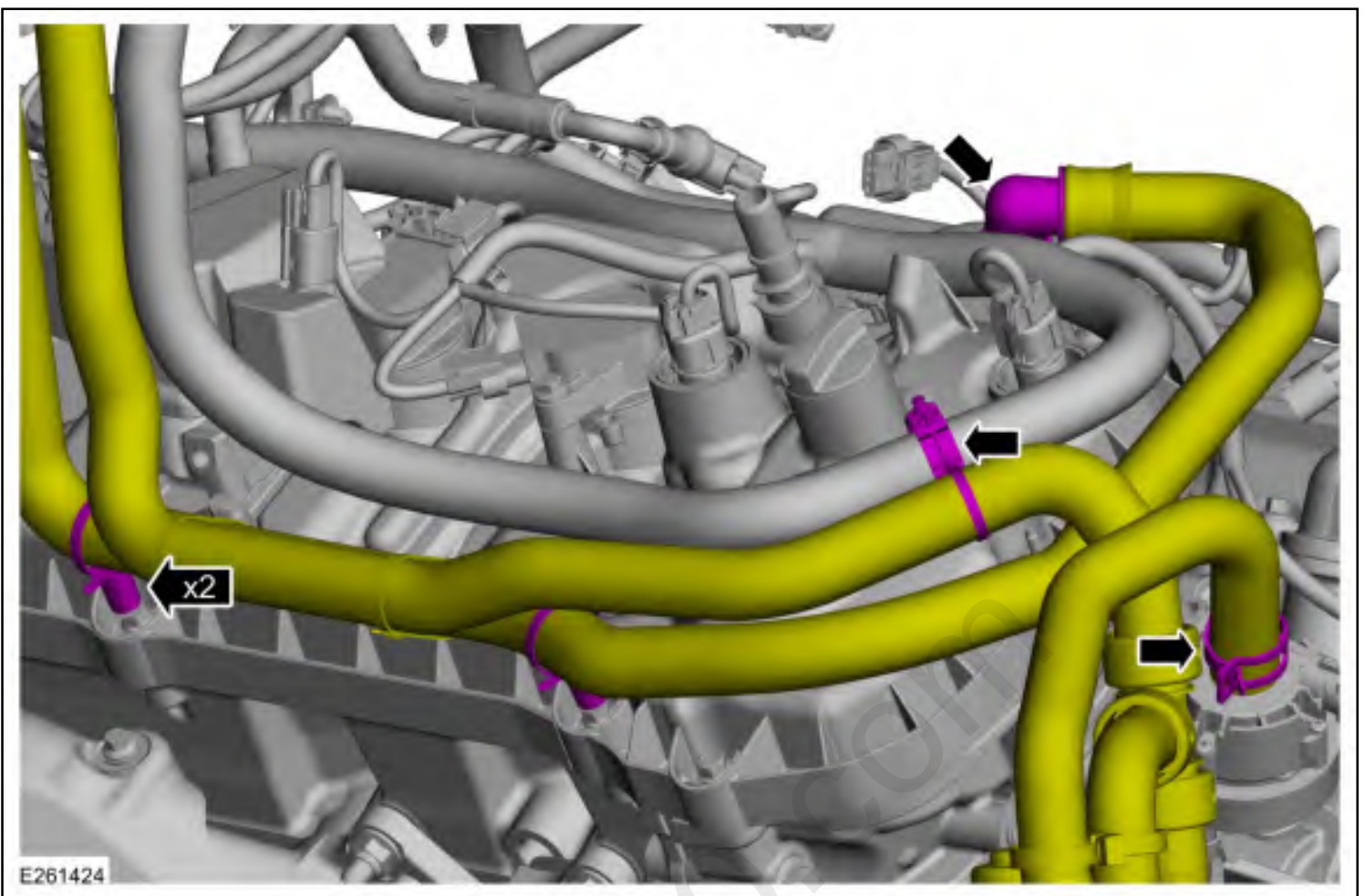
- Discard the high pressure fuel tube.



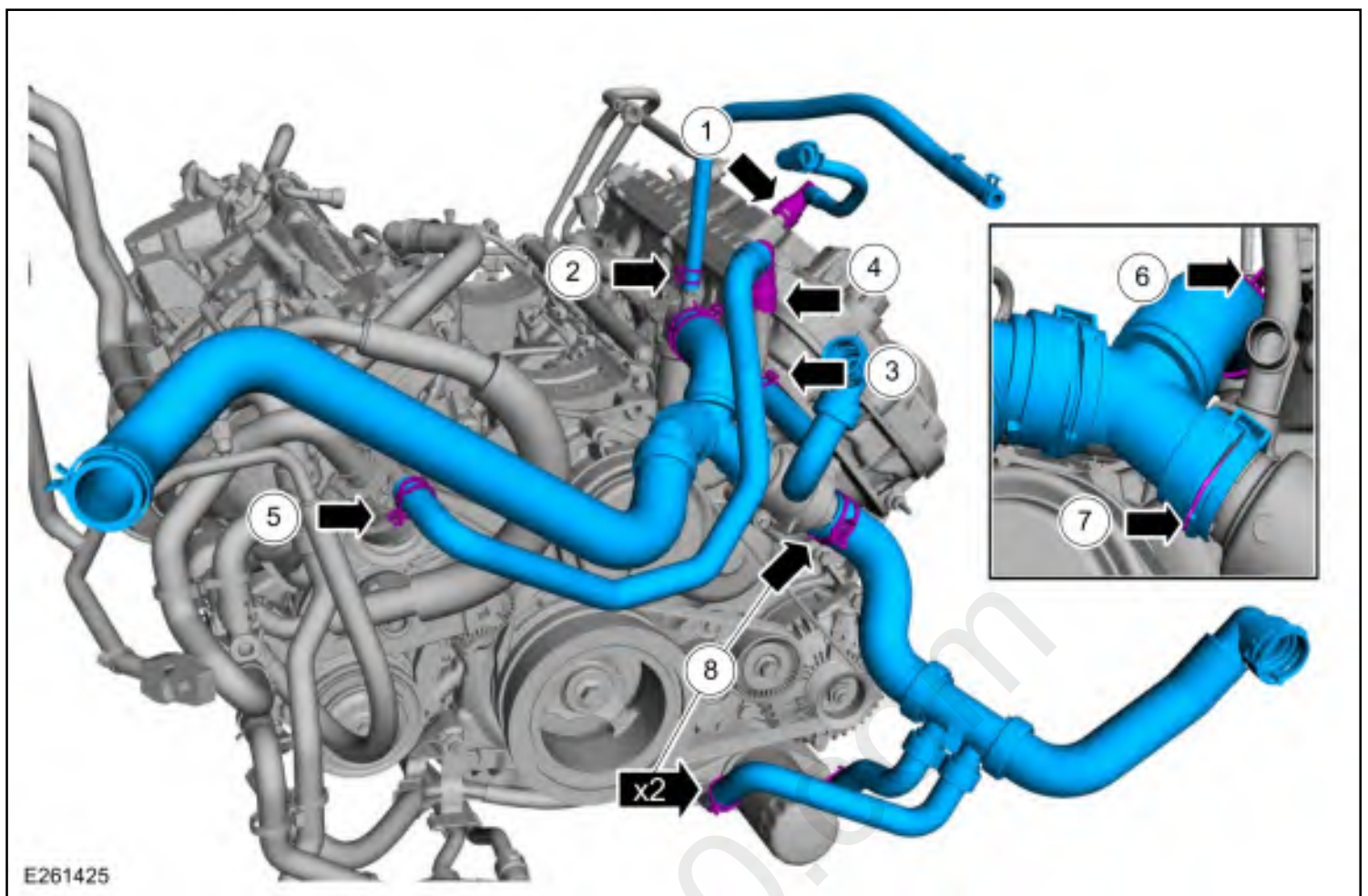
9. Remove the insulators.

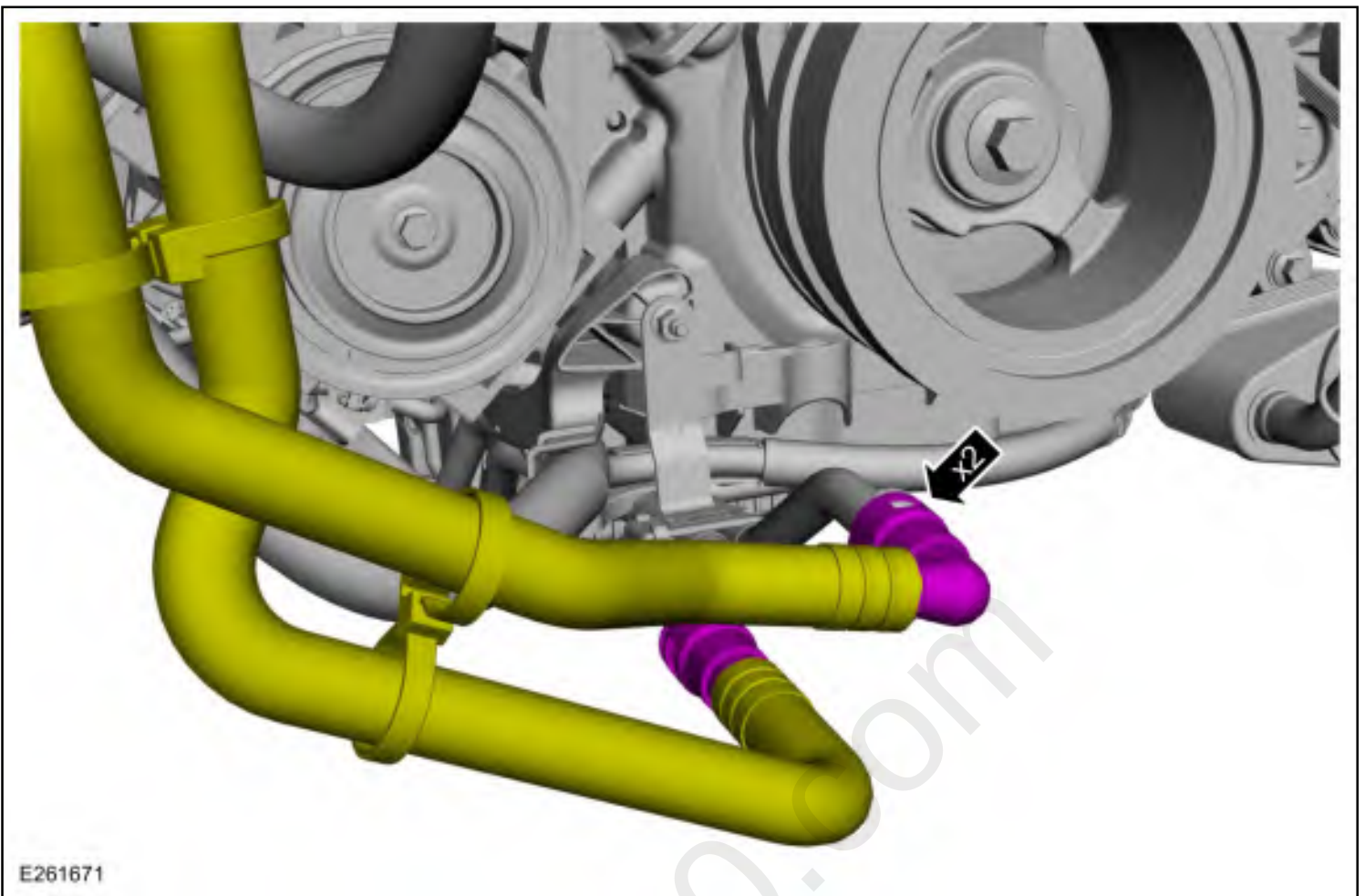


1. Release the clamp and disconnect the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer
2. Disconnect the coolant hose quick release coupling.
3. Detach the coolant hose retainer from the wiring harness.
4. Detach the coolant hose retainers from the valve cover stud bolts.

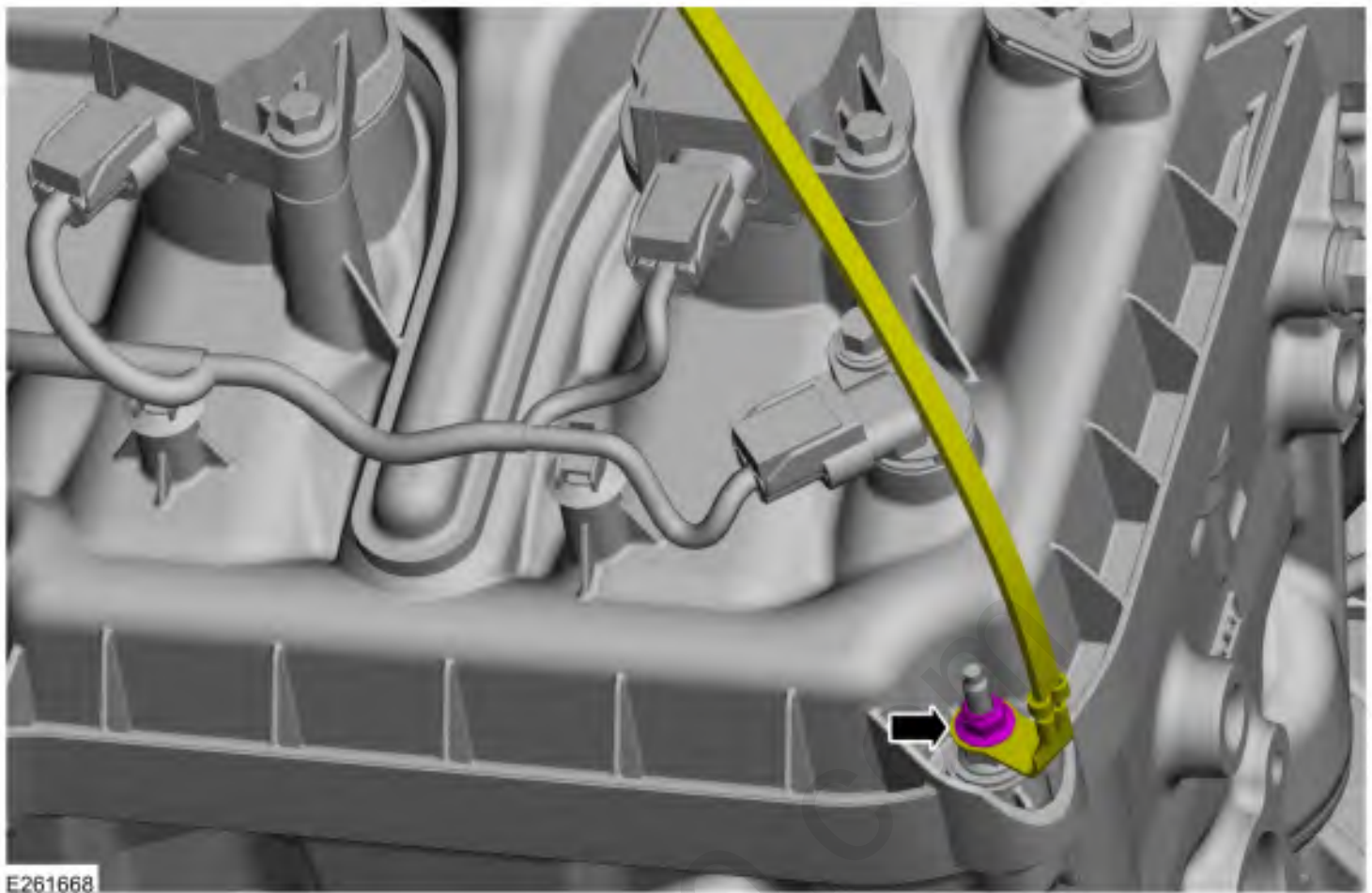


1. Disconnect the quick release coupling and remove the crankcase vent tube.
Refer to: [Quick Release Coupling](#) (310-00D Fuel System - General Information - 5.0L 32V Ti-VCT, General Procedures).
2. Release the clamp and remove the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer
3. Release the clamp and remove the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer
4. Disconnect the quick release coupling.
5. Release the clamp and remove the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer
6. Release the clamp and remove the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer
7. Release the spring clip and remove the coolant bypass T assembly from the engine.
8. Release the clamps and remove the coolant hose assembly.
Use the General Equipment: Hose Clamp Remover/Installer

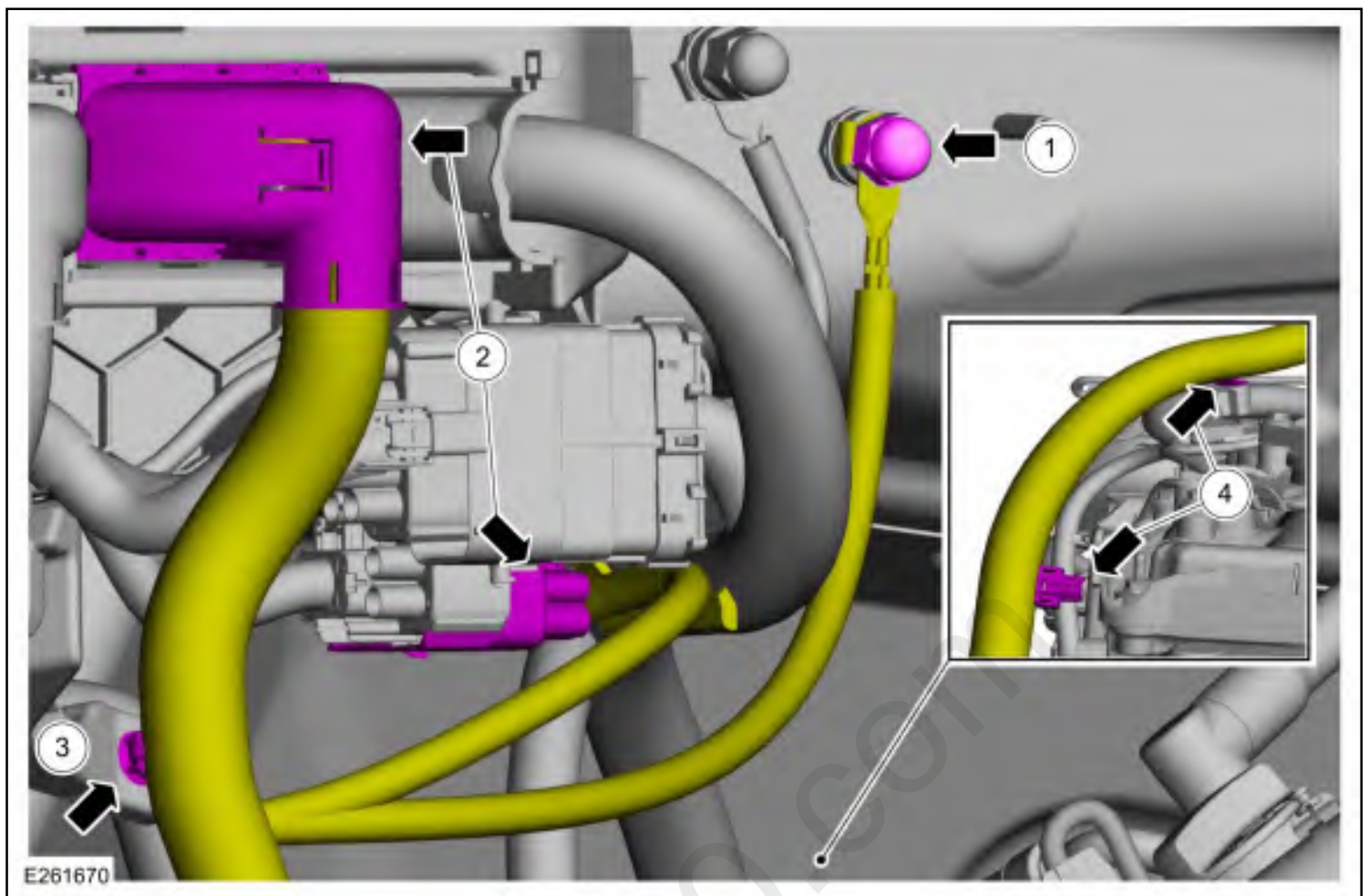




13. Remove the nut and ground strap from the LH valve cover stud bolt.



1. Remove the nut and the ground strap.
2. Disconnect the engine wiring harness connectors.
3. Detach the engine wiring harness retainer.
4. Detach the transmission wiring harness retainers.

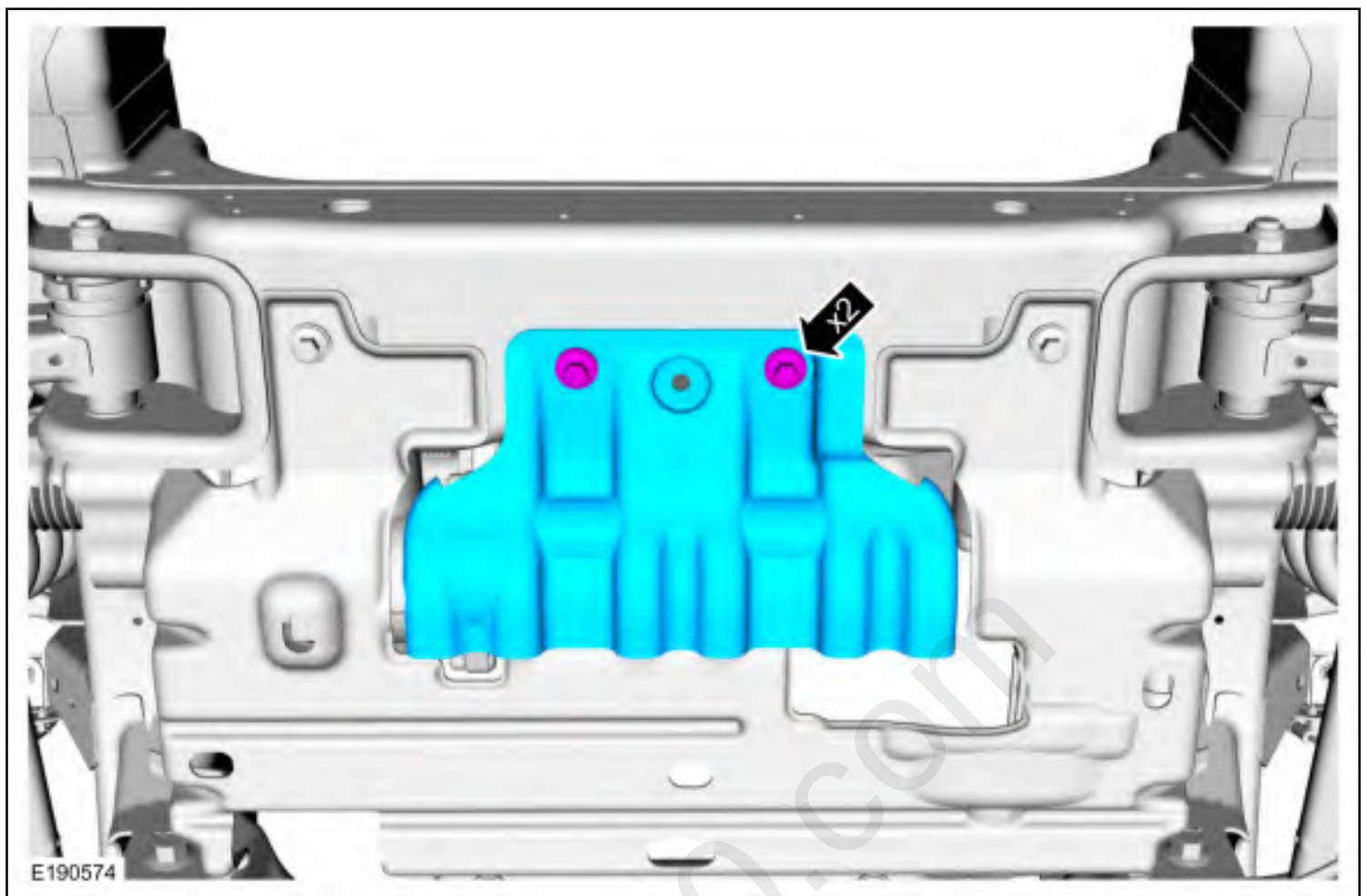


15. Remove the generator.

Refer to: [Generator - 5.0L 32V Ti-VCT](#) (414-02 Generator and Regulator, Removal and Installation).

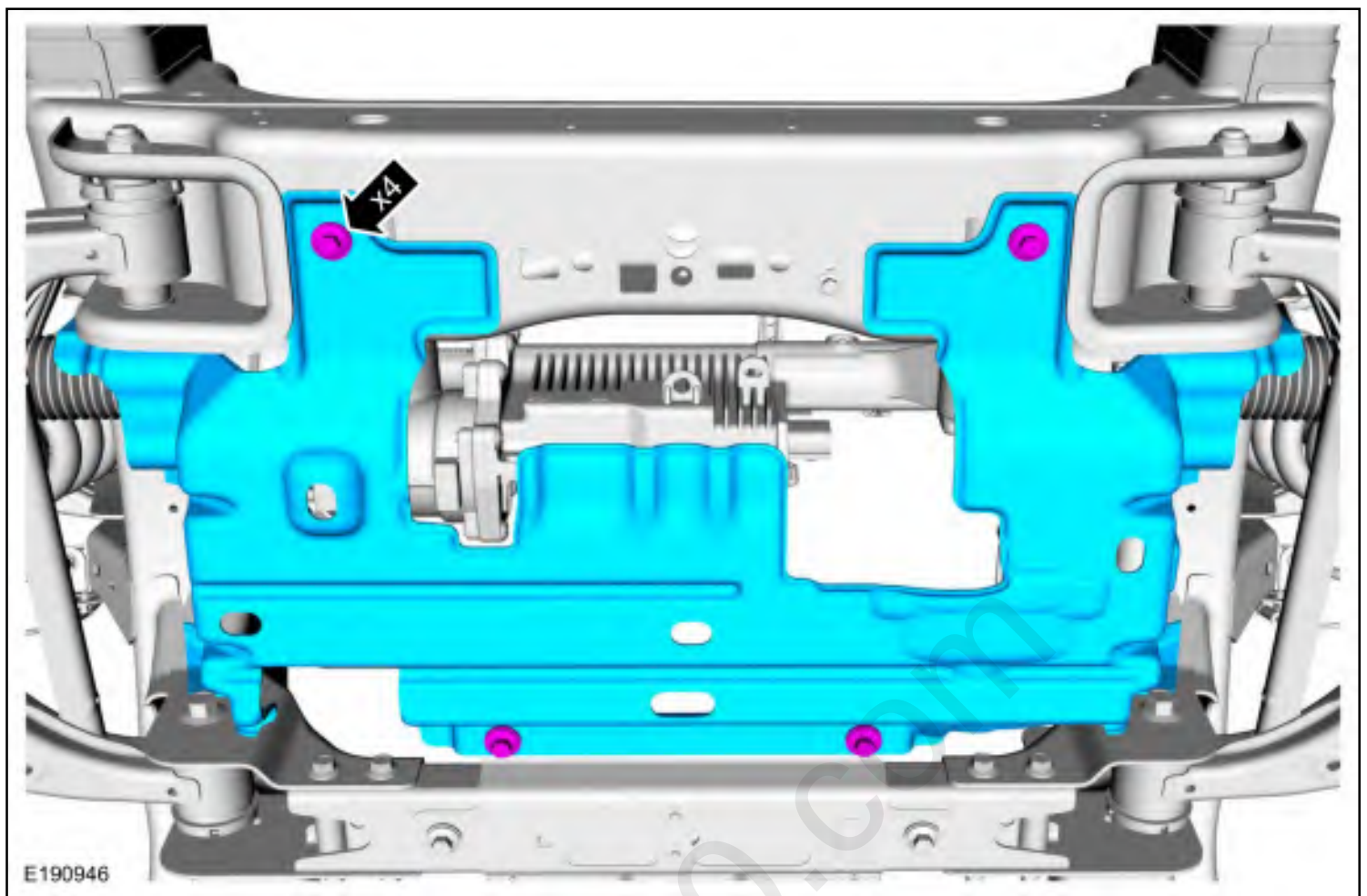
16. **NOTE:** *If equipped.*

Remove the bolts and the skid plate.



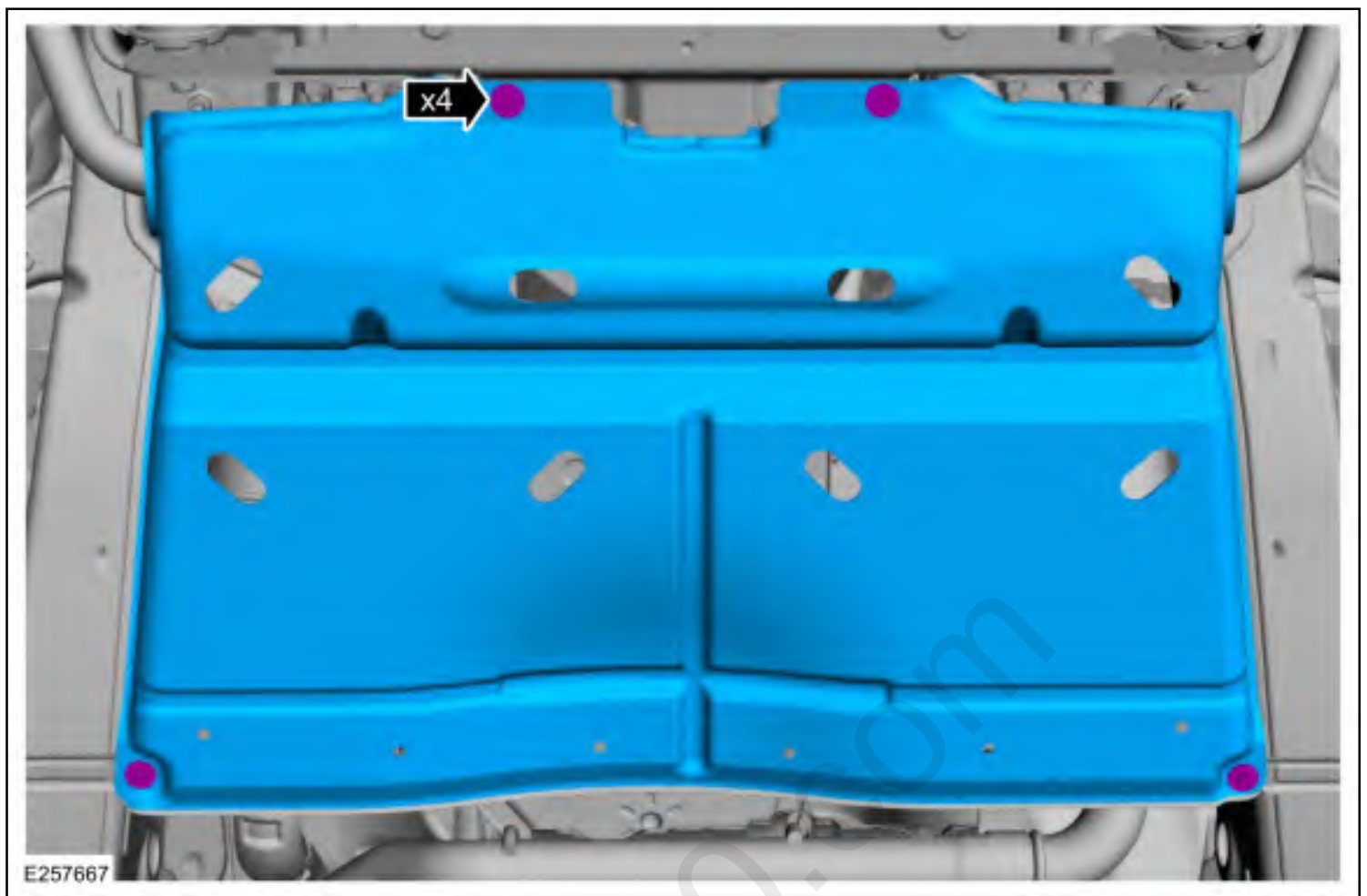
17. **NOTE:** *If equipped.*

Remove the fasteners and the underbody shield.



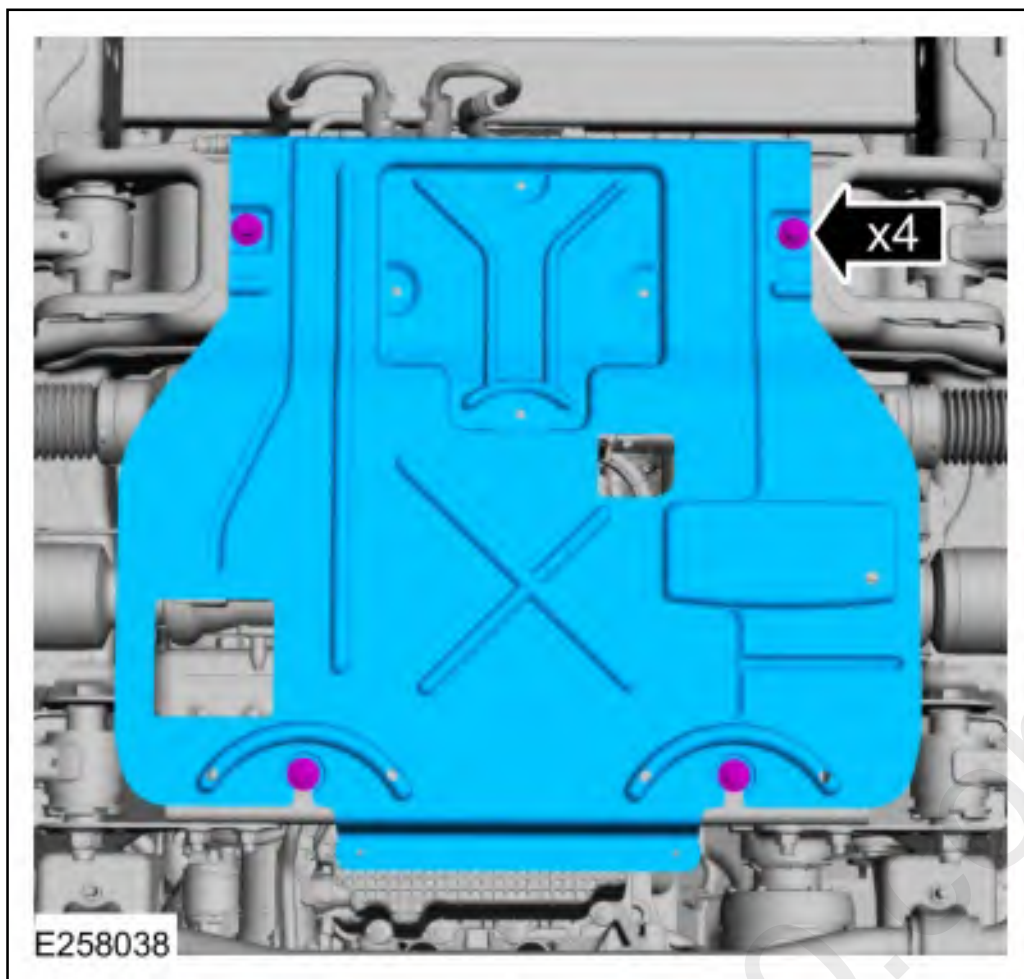
18. **NOTE:** *If equipped.*

Remove the bolts and the underbody shield.



19. **NOTE:** *If equipped.*

Remove the bolts and the skid plate.

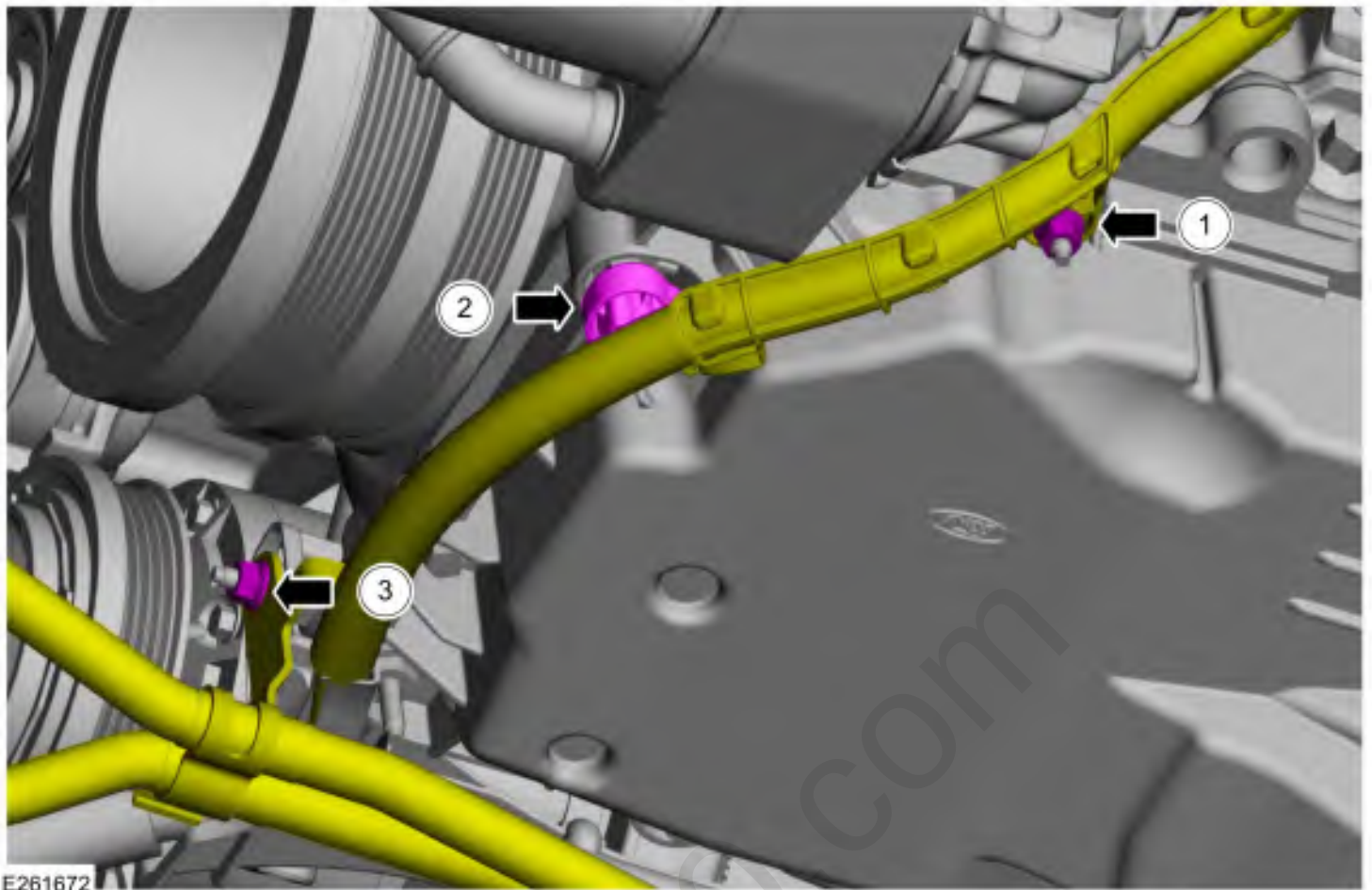


20. Remove the following items:

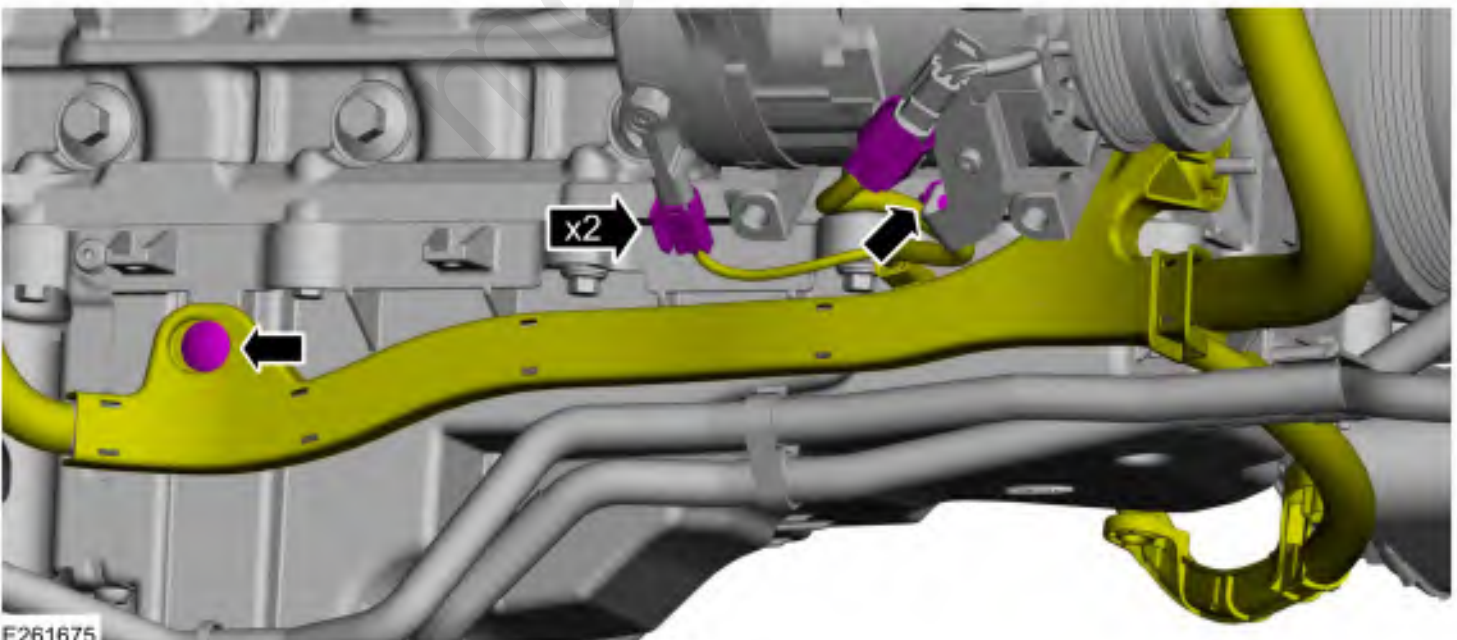
1. Refer to: Starter Motor (303-06 Starting System - 5.0L 32V Ti-VCT) .
2. **NOTE:** *If equipped.*

Refer to: [Front Driveshaft](#) (205-01 Driveshaft, Removal and Installation).

1. Remove the nut.
2. Detach the wiring harness retainer.
3. Remove the nut and position the coolant tube and wiring harness brackets aside.



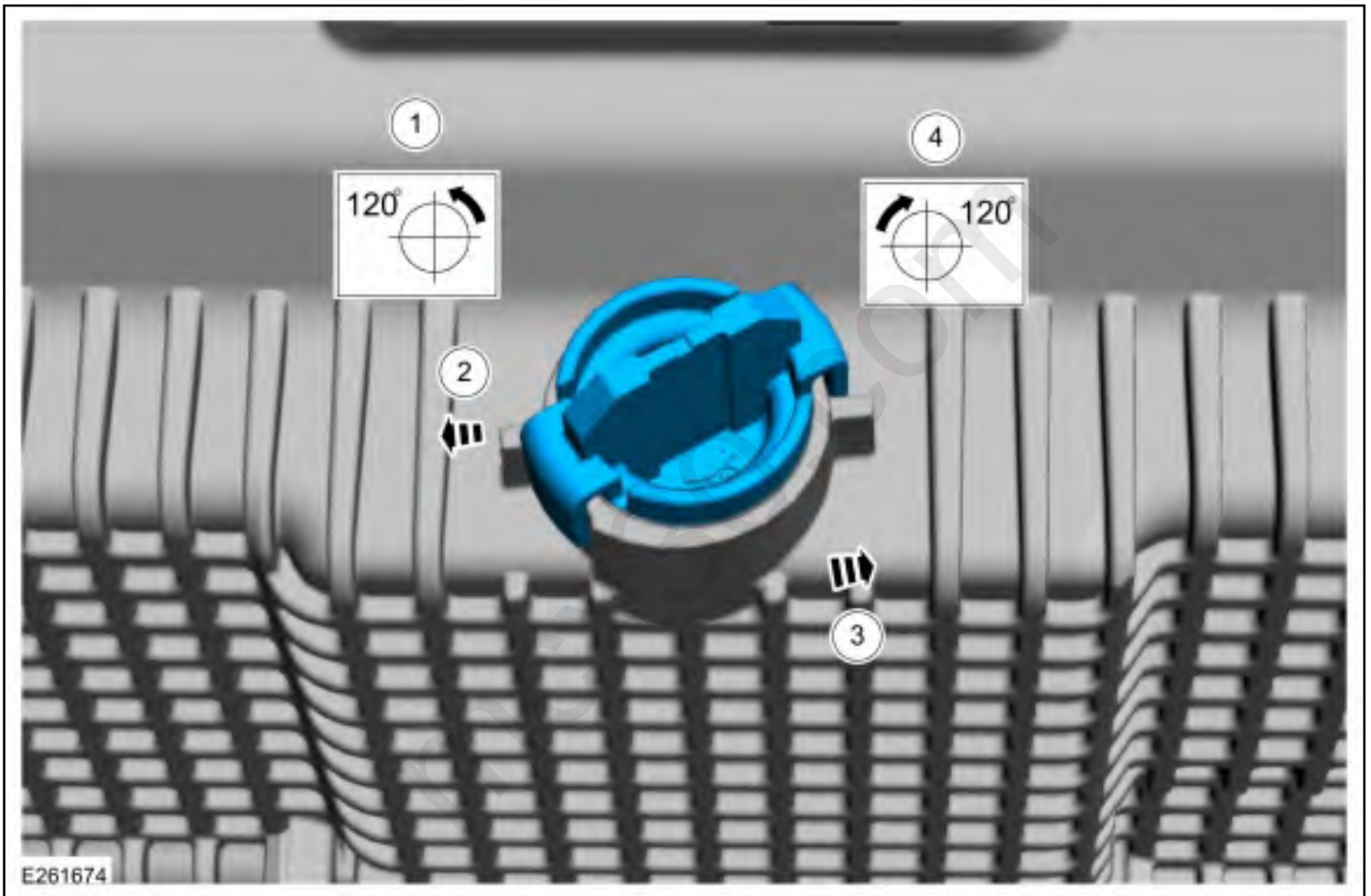
1. Disconnect the A/C compressor electrical connectors.
2. Detach the wiring harness retainers.



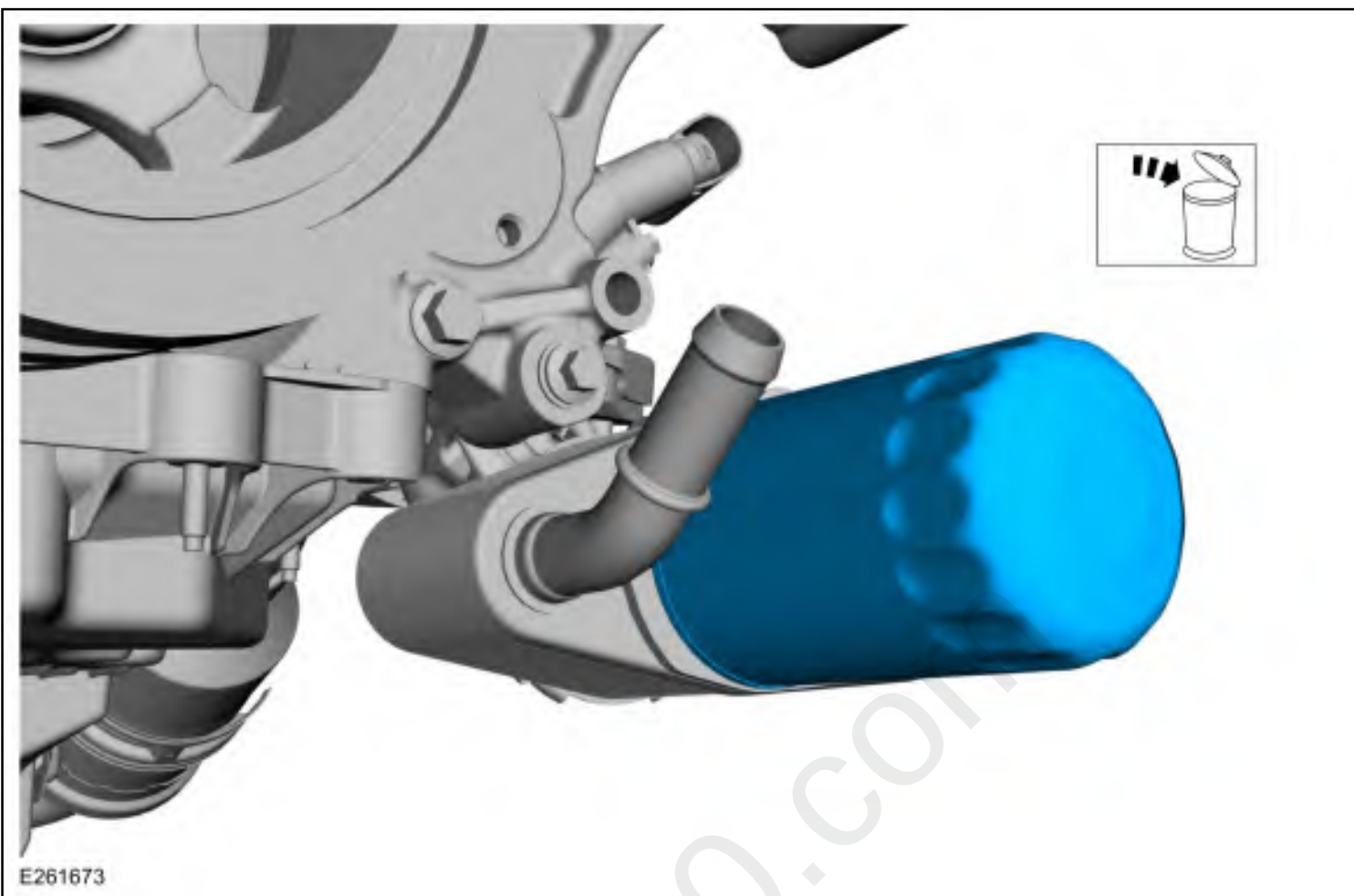
23. **NOTE:** *The drain plug should be removed and installed by hand, do not use tools.*

1. Turn the oil drain plug by hand counterclockwise 120 degrees.
Use the General Equipment: Oil Drain Equipment
2. Pull the oil drain plug out of the oil pan.
3. After the oil has drained, push the oil drain plug into the oil pan.
4. **NOTICE: Overtightening will damage the oil drain plug and possibly the oil pan.**

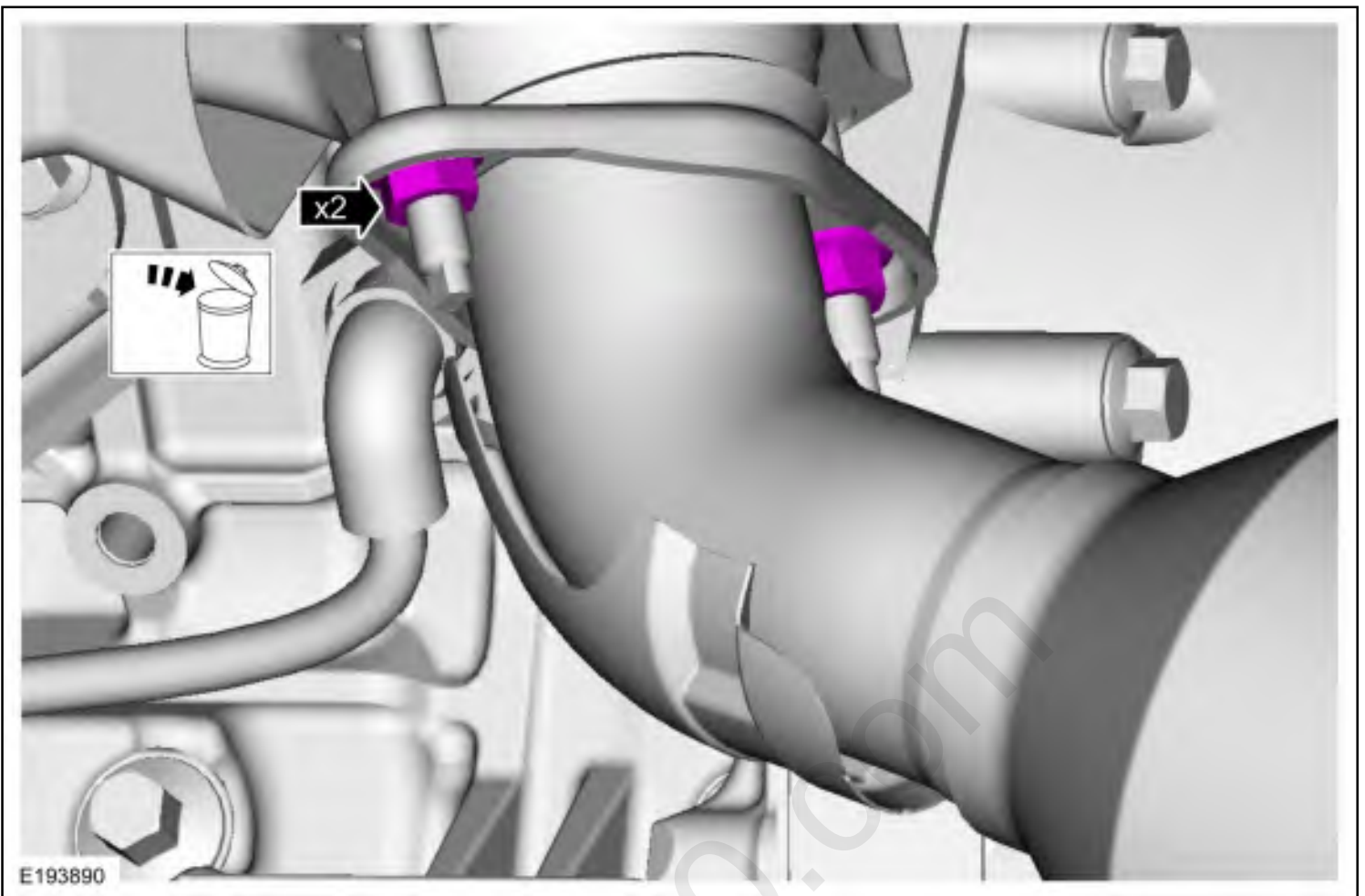
Turn the oil drain plug by hand clockwise 120 degrees.



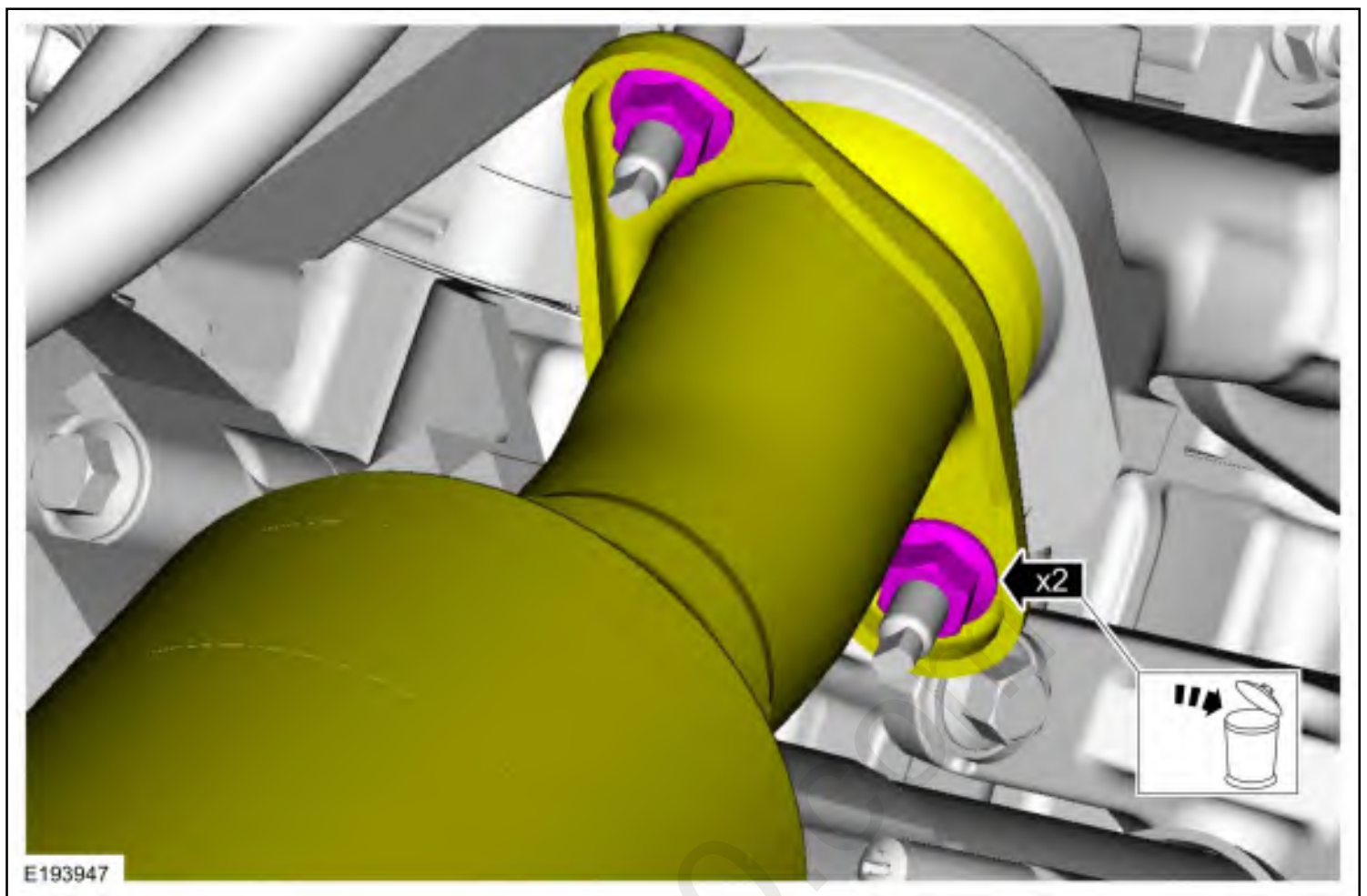
24. Remove and discard the engine oil filter.



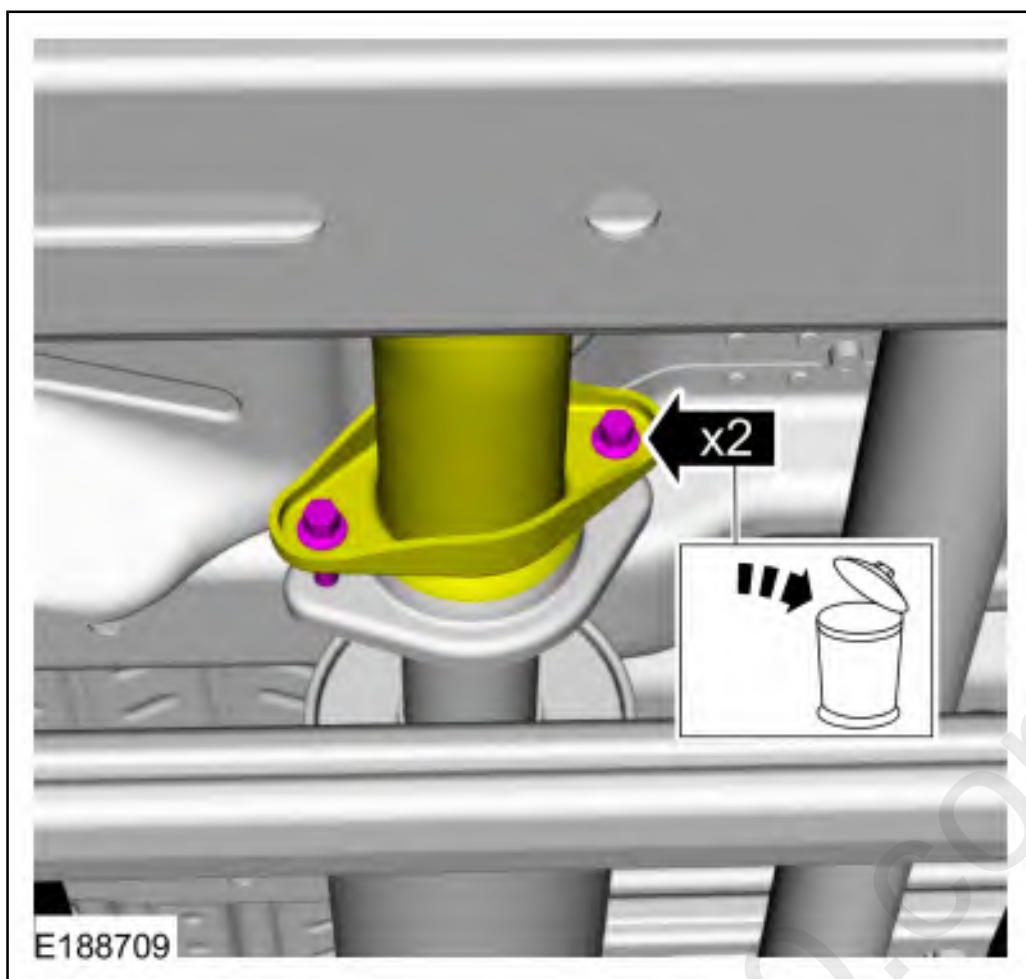
25. Remove and discard the catalytic converter-to-LH exhaust manifold nuts.



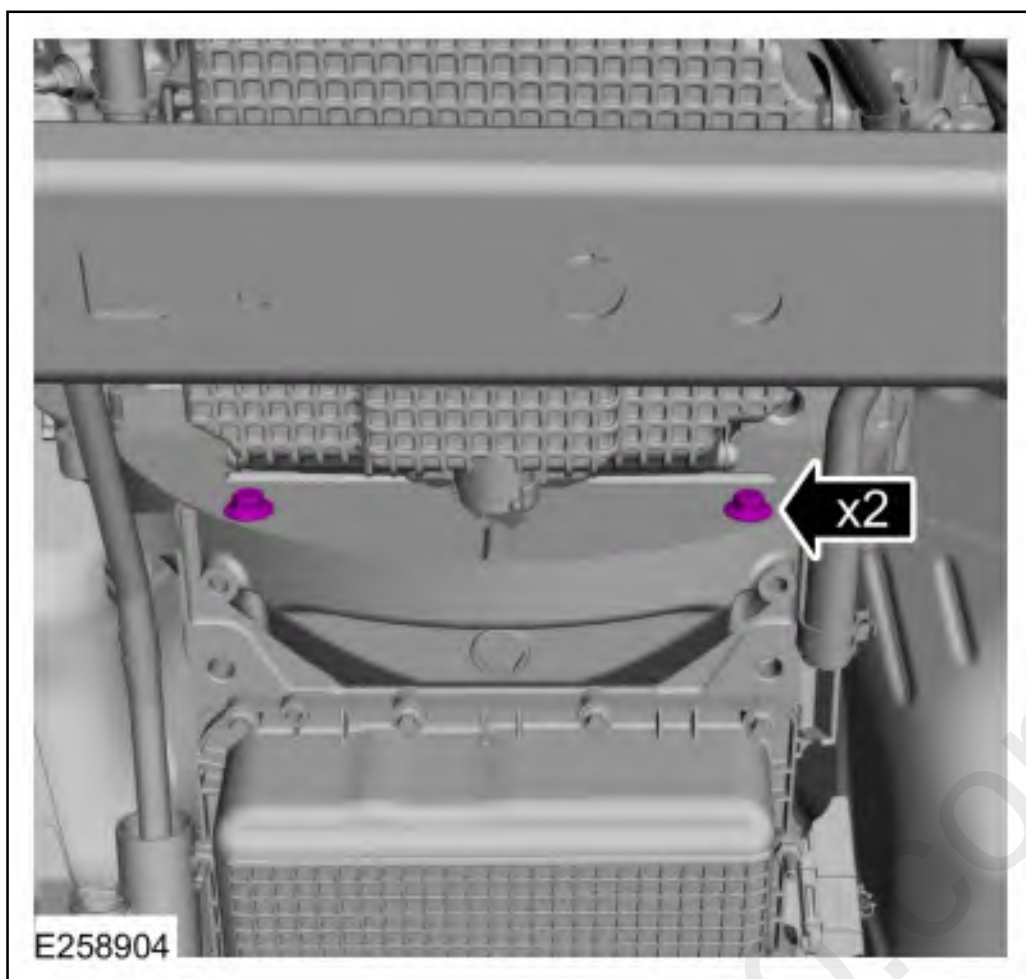
26. Remove and discard the catalytic converter-to-RH exhaust manifold nuts.
- Separate the exhaust Y-pipe dual catalytic converter from the exhaust manifolds.



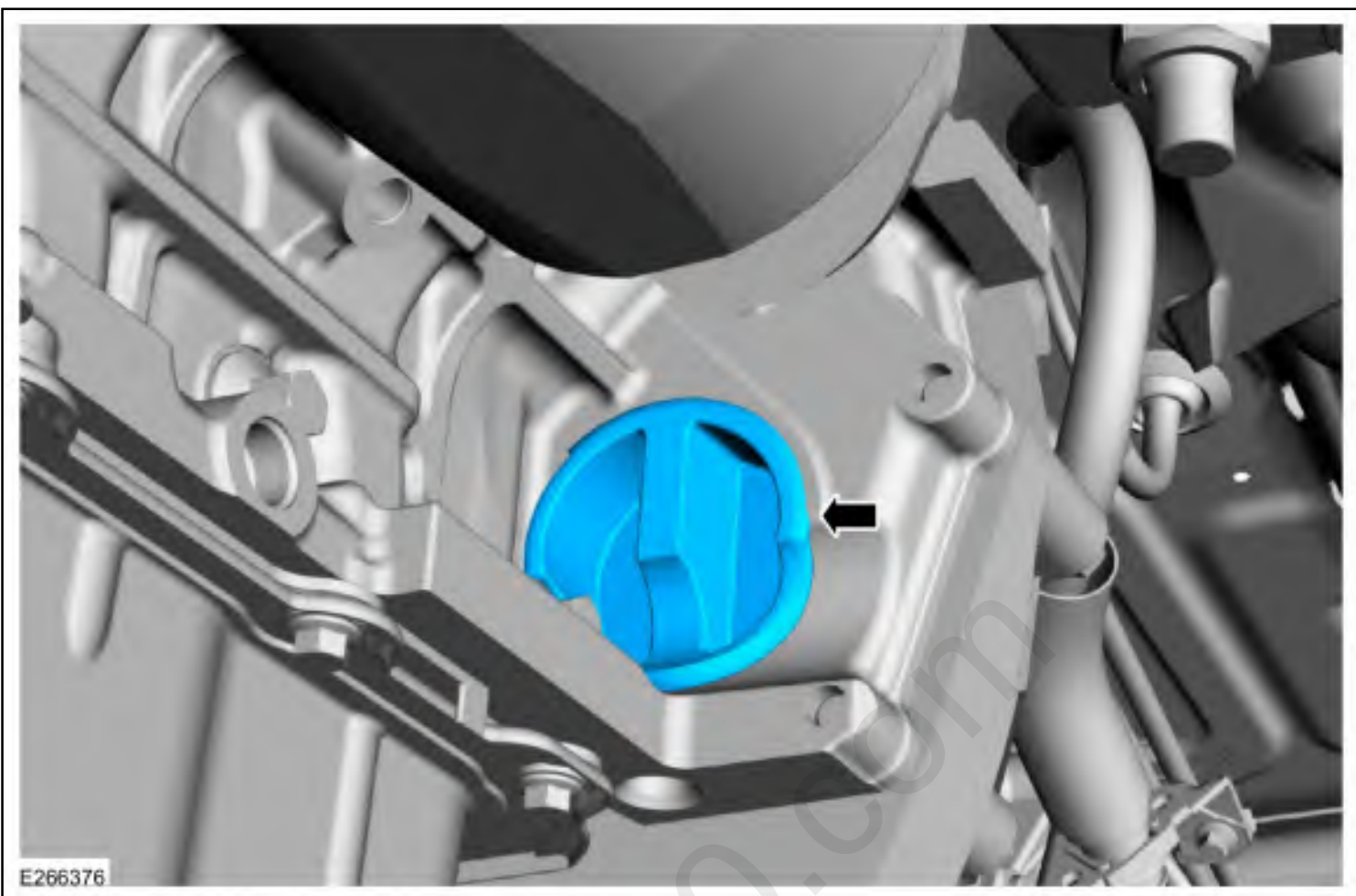
27. Remove and discard the exhaust Y-pipe dual catalytic converter-to-exhaust intermediate pipe bolts and separate.
- Clean all of the exhaust mating surfaces.



28. Remove the bolts .

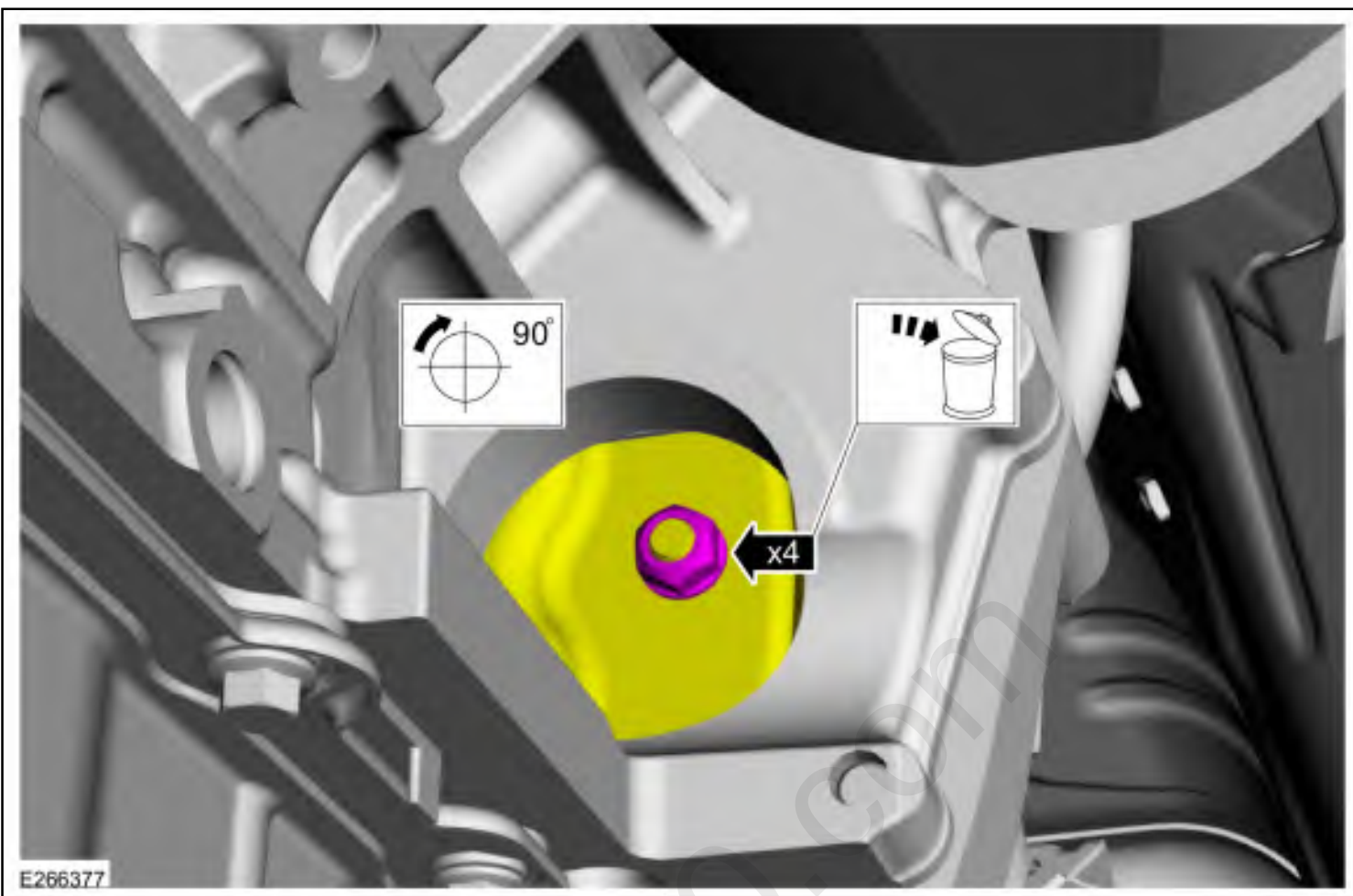


29. Remove the cylinder block opening cover.

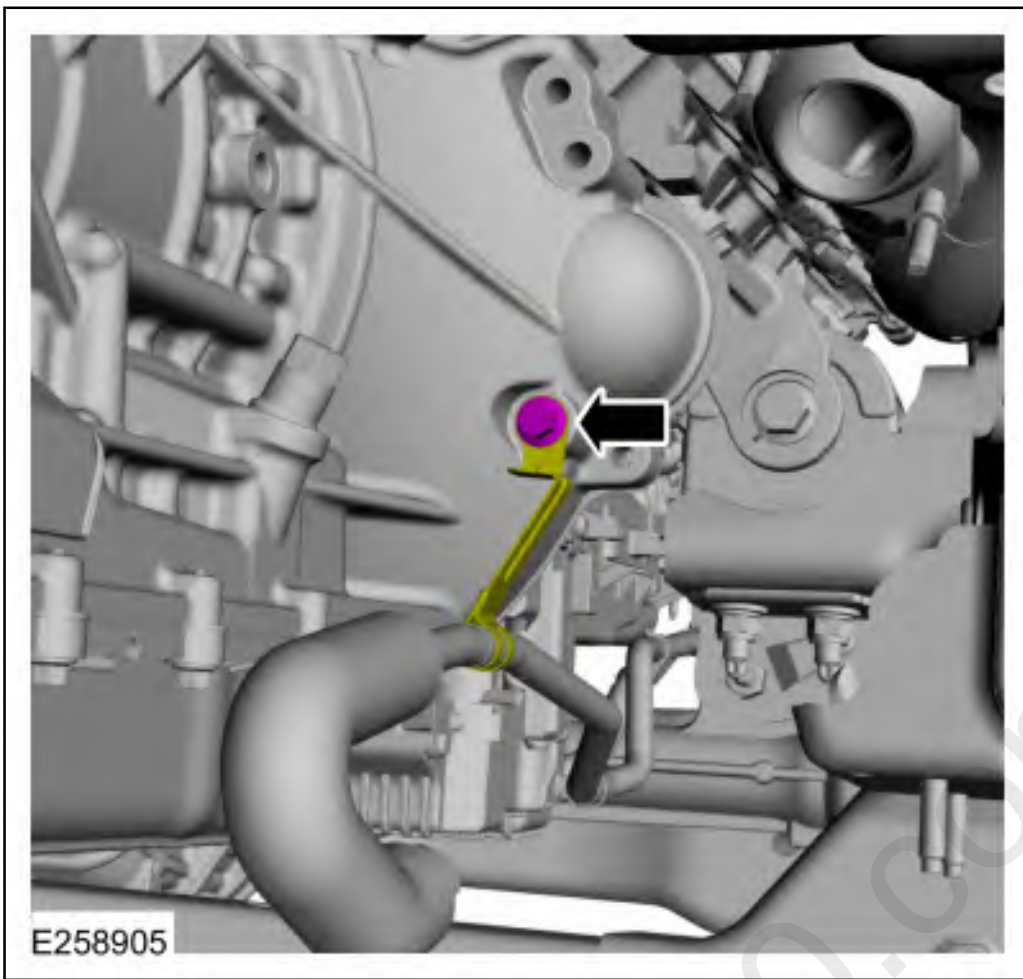


30. **NOTE:** Only rotate the crankshaft in a clockwise direction.

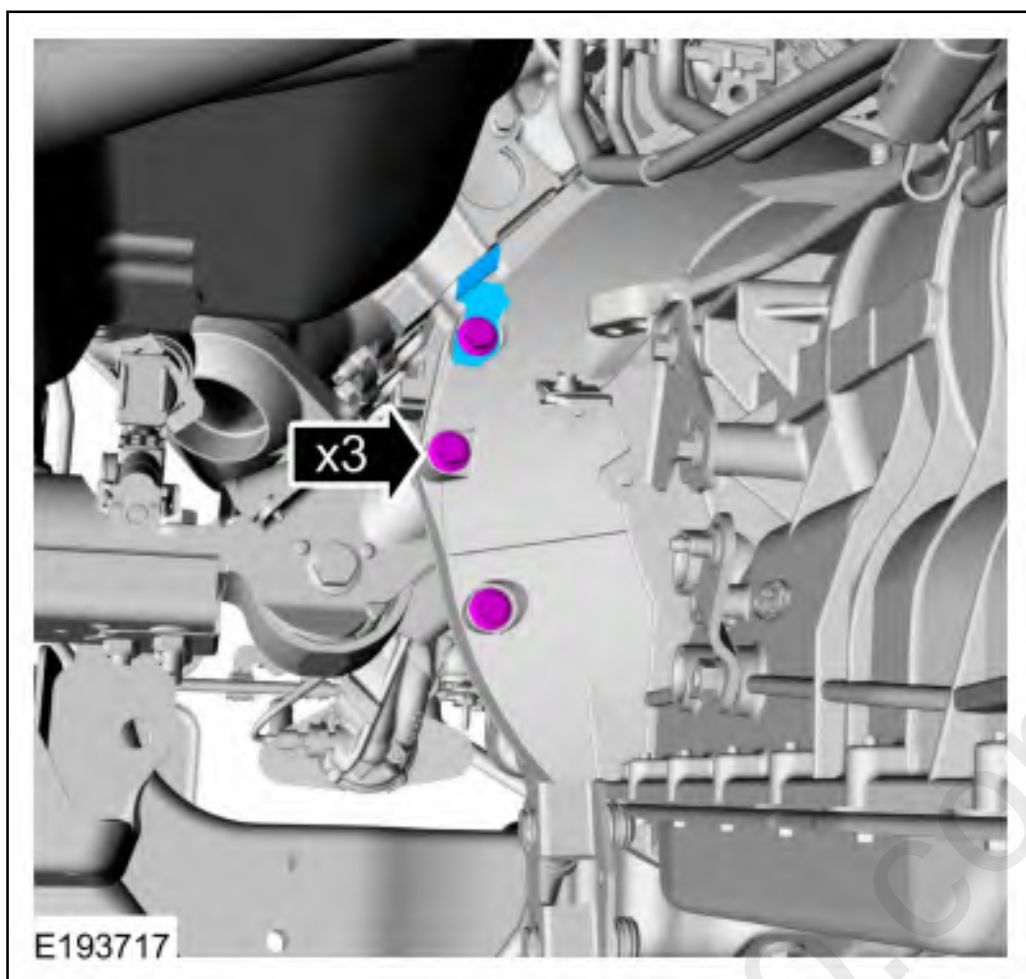
Remove and discard the torque converter-to-flexplate nuts.
Use the General Equipment: Magnetic Socket



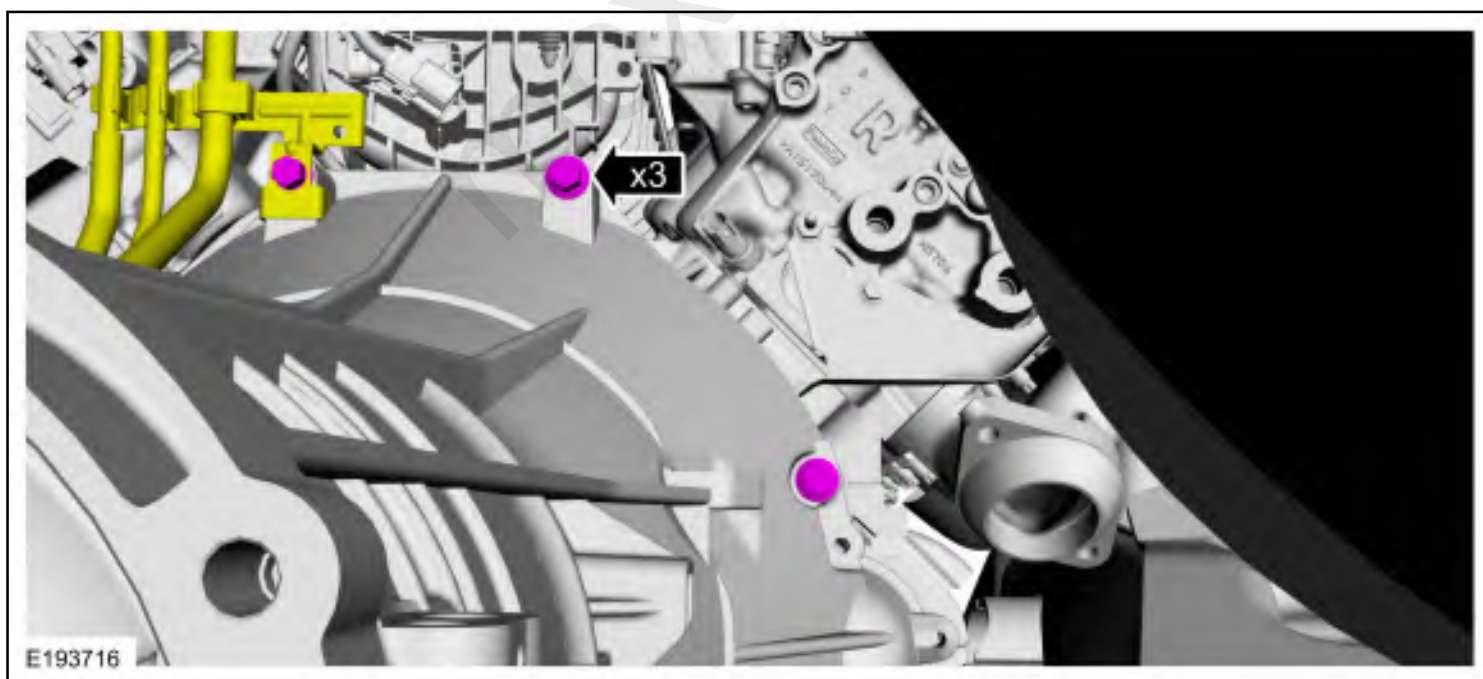
31. Remove the transmission-to-engine bolt and transmission cooler tube support bracket.



32. Remove the transmission-to-engine bolts.
- Remove the clip.

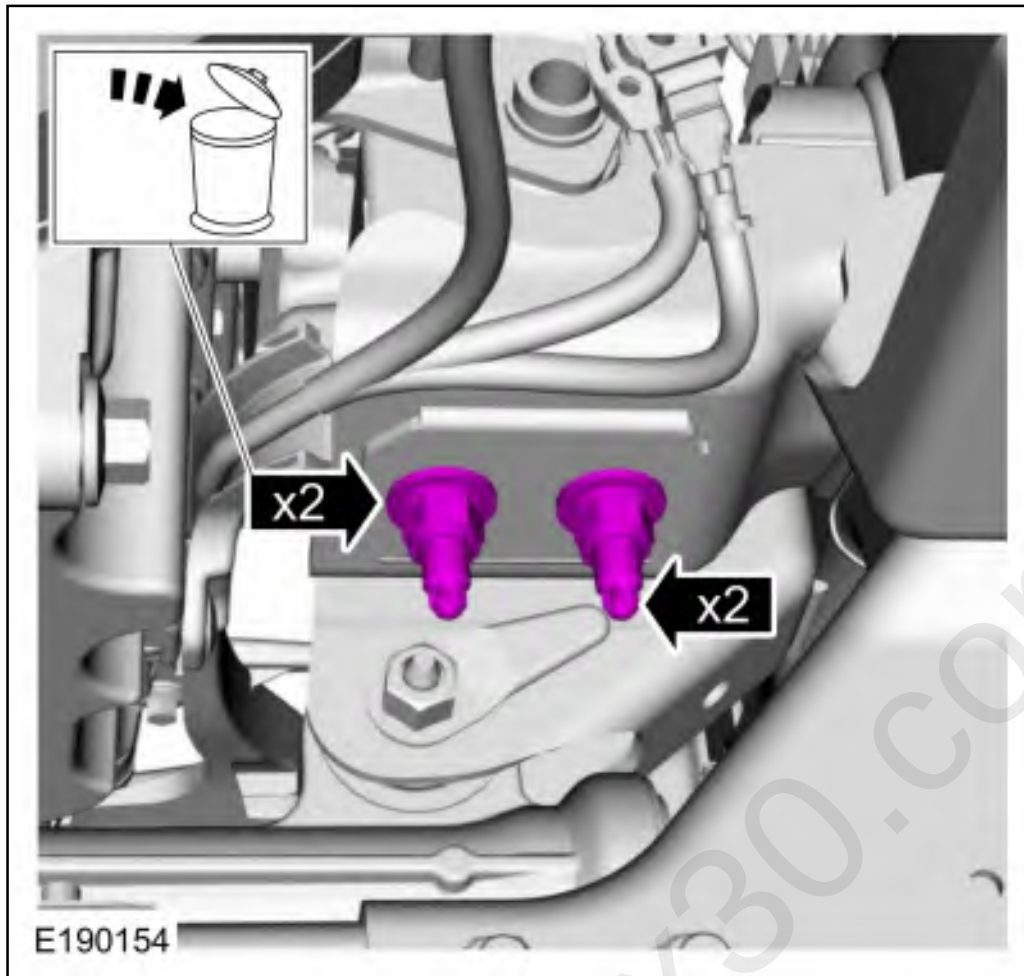


33. Remove the top bellhousing bolts and position the bracket aside.



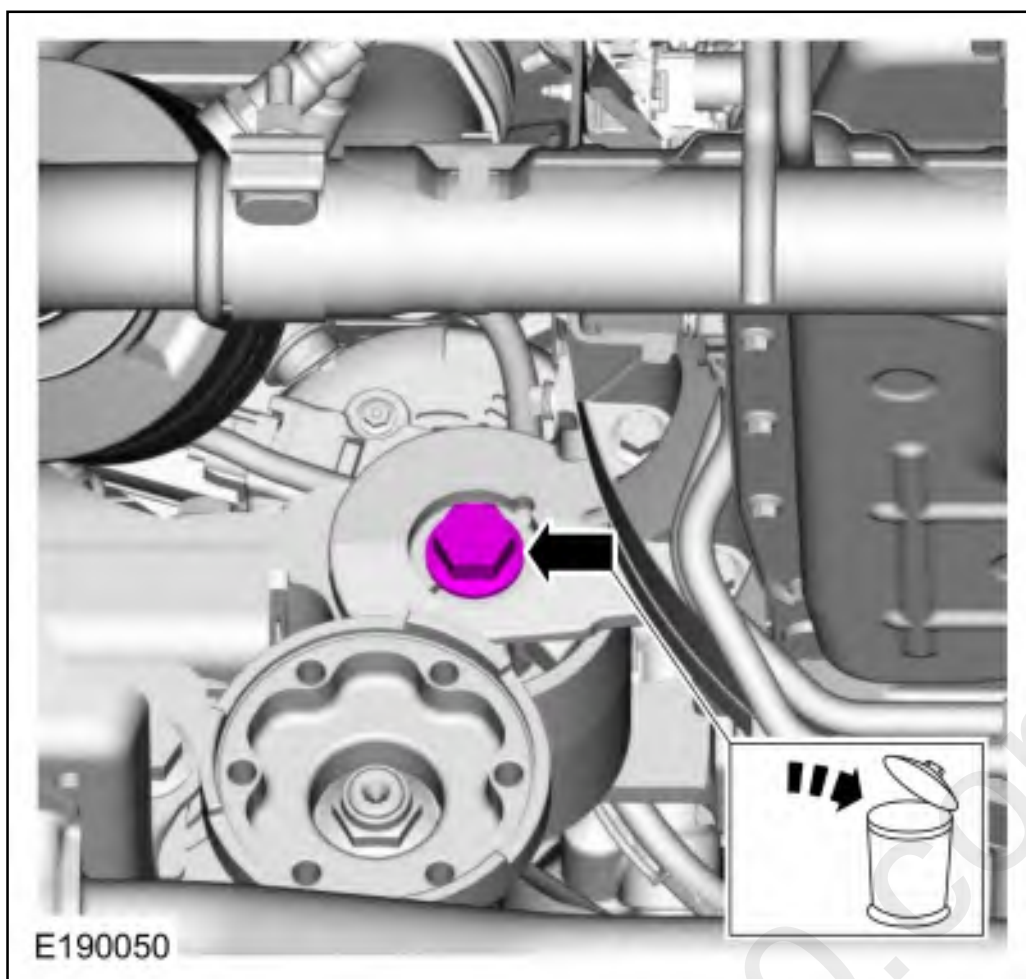
34. **NOTICE:** Only use hand tools when removing the engine mount nuts, stud bolts or damage to the engine mount can occur.

Remove and discard the RH engine mount nuts and stud bolts.



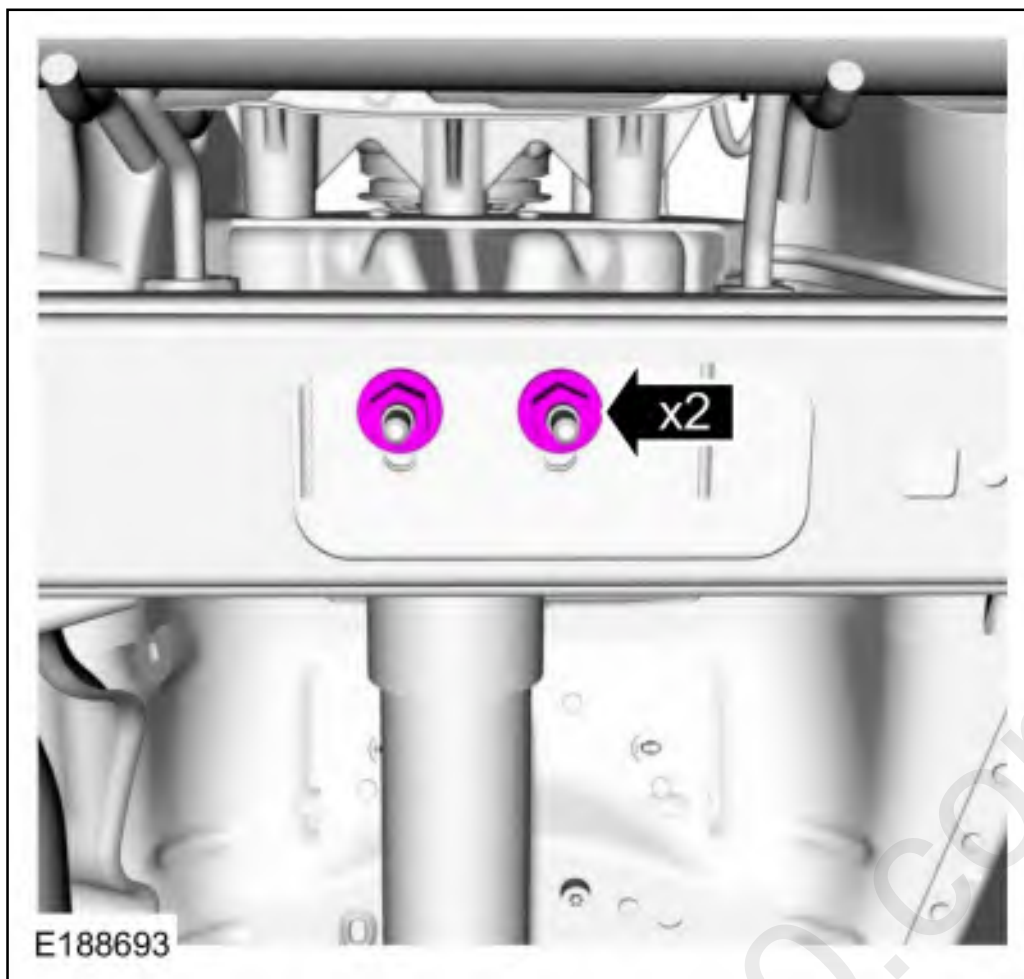
35. **NOTICE:** Only use hand tools when loosening the engine mount through bolts or damage to the engine mount-to-cylinder block bracket can occur.

Remove and discard the LH engine mount through bolt.



36. **NOTICE:** Only use hand tools when removing the transmission mount-to-crossmember nuts or damage to the transmission mount can occur.

Loosen the transmission mount-to-crossmember nuts.

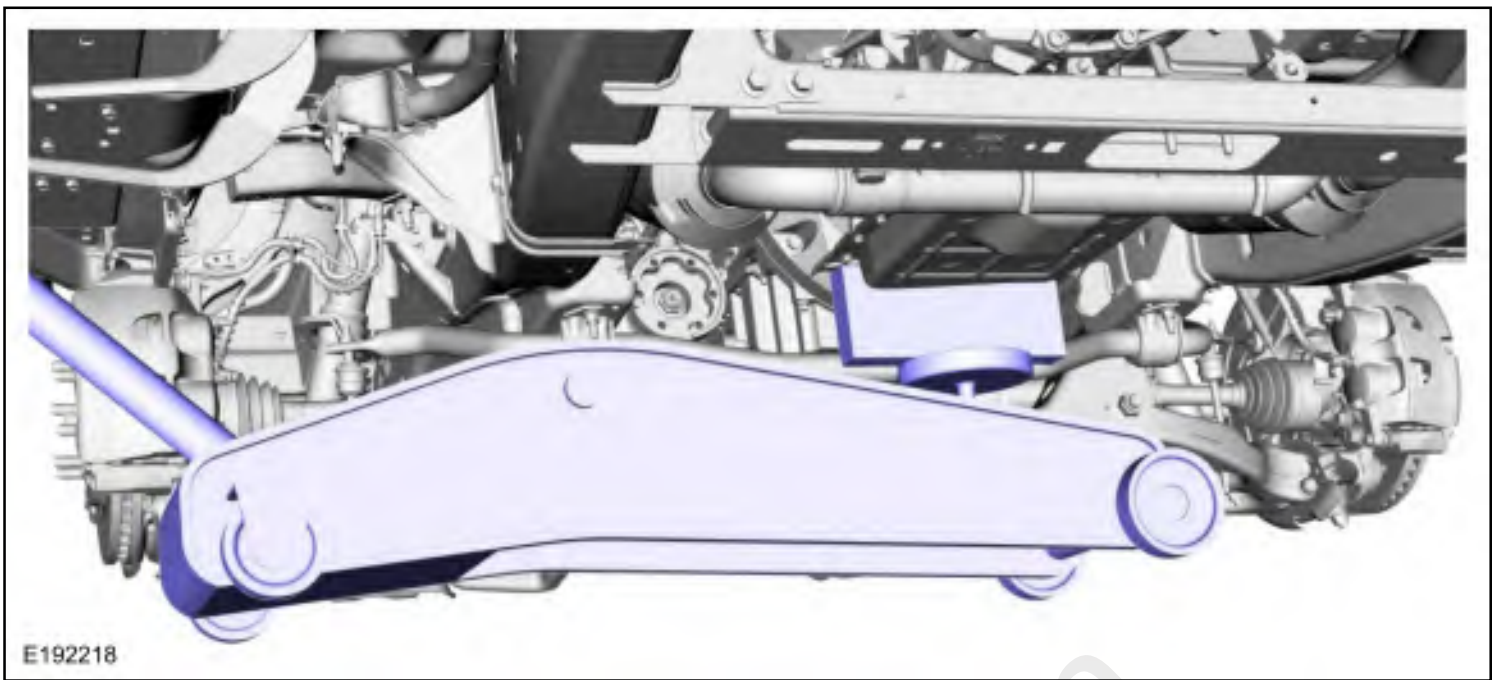


37. **NOTICE: Do not support the transmission by the fluid pan, failure to follow this instruction may result in serious damage to the transmission.**

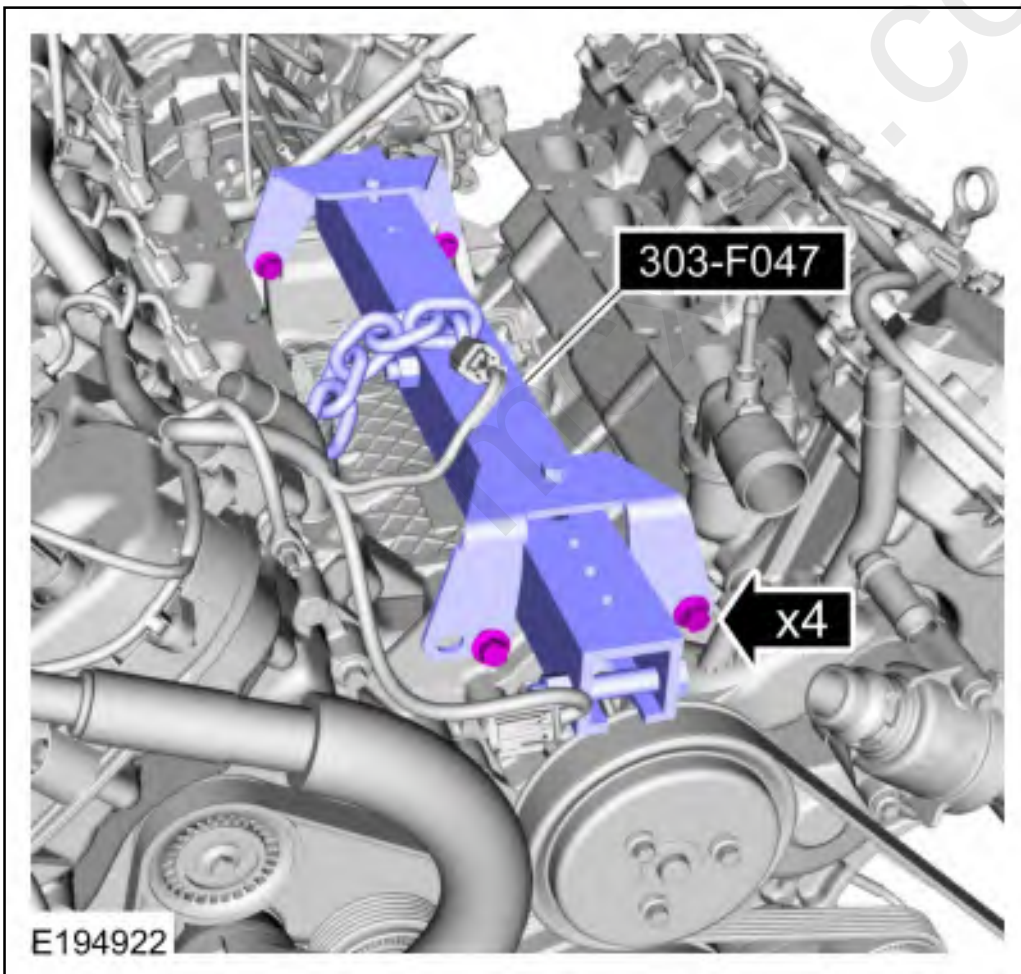
Support the bellhousing of the transmission with a suitable floor jack and a block of wood.

Use the General Equipment: Trolley Jack

Use the General Equipment: Wooden Block



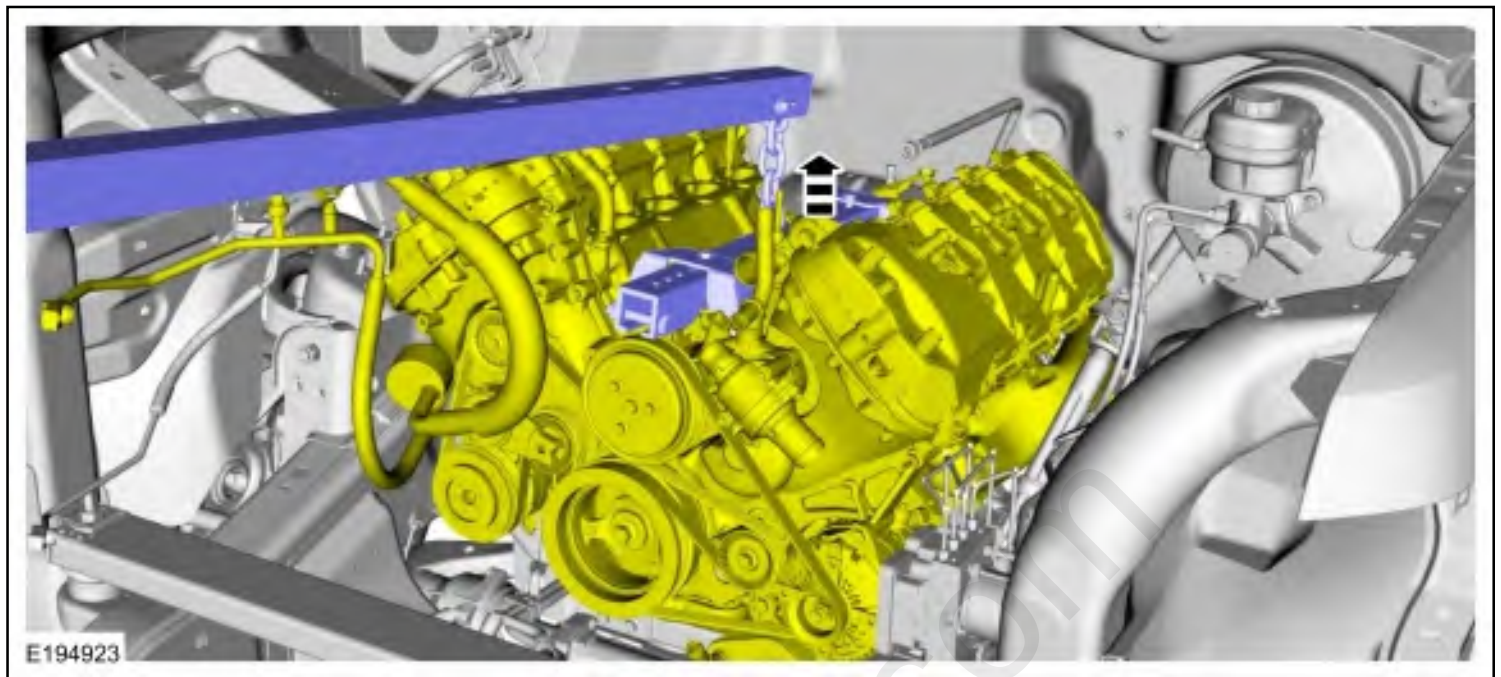
38. Install Special Service Tool: 303-F047 Lifting Bracket, Engine.



39. **NOTE:** It will be necessary to adjust the height floor jack to support the transmission.

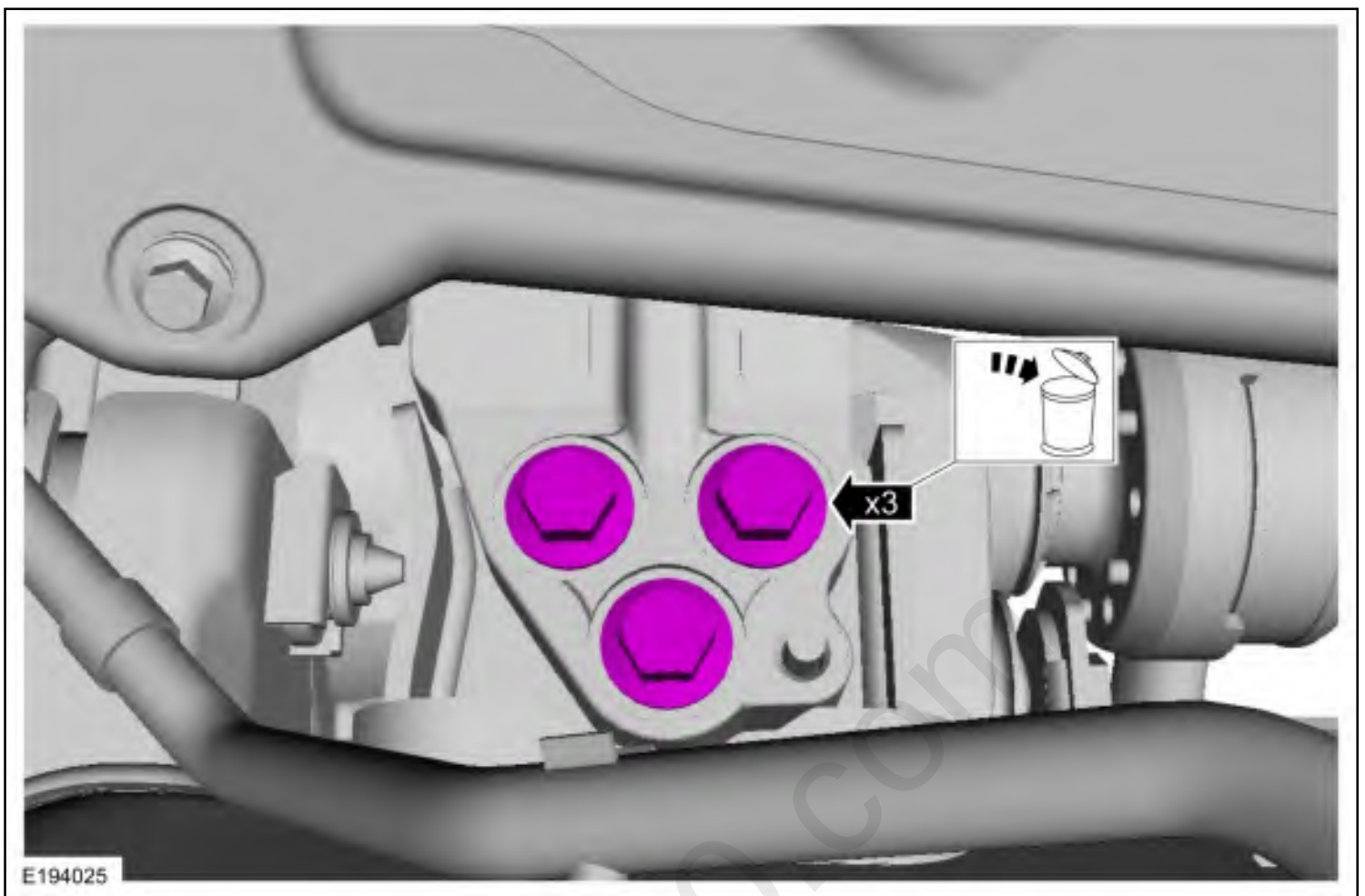
Using the Heavy Duty Floor Crane, raise the engine assembly to gain access to the LH engine mount bolts.

Use the General Equipment: Floor Crane

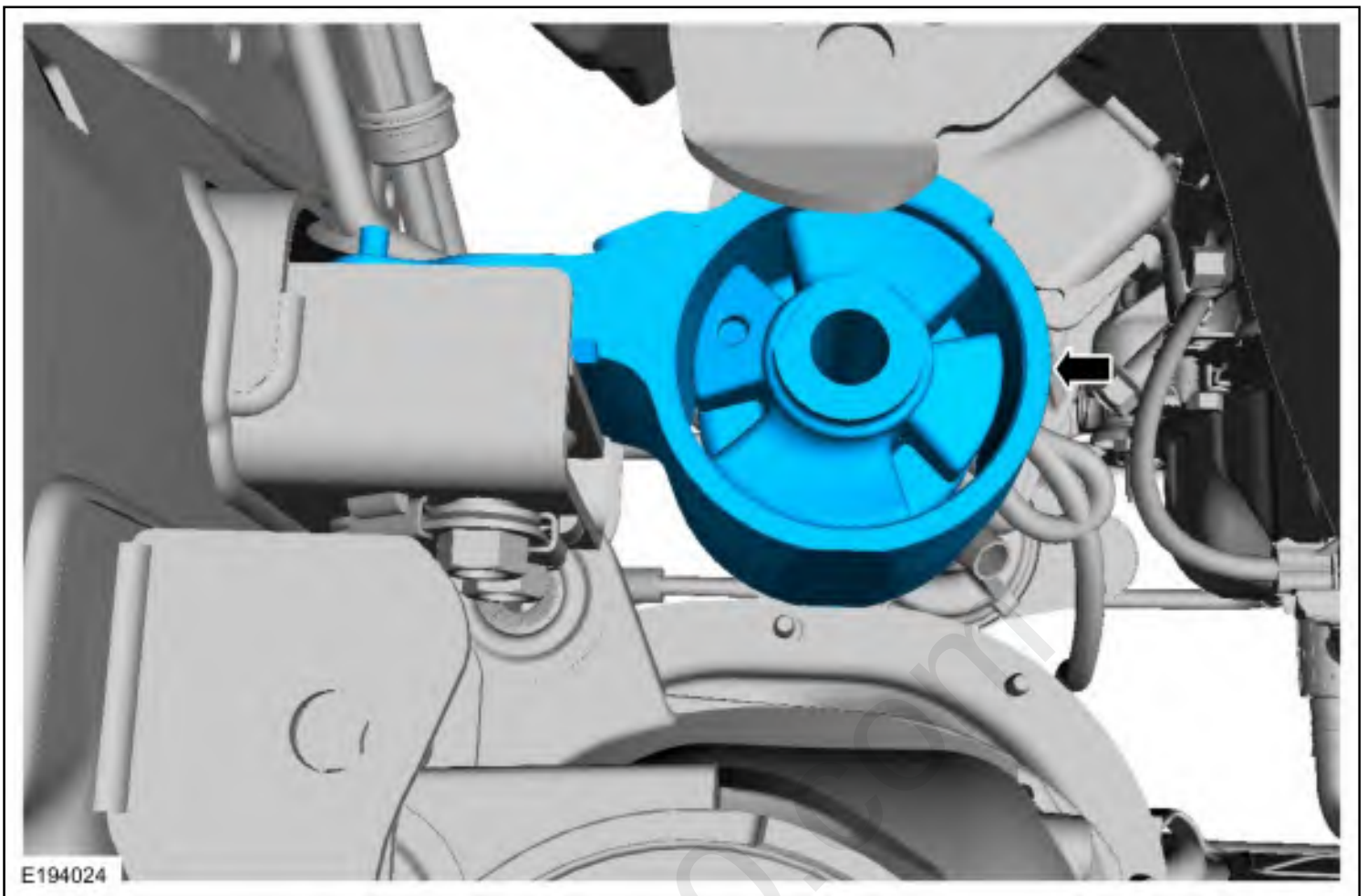


40. **NOTICE:** Only use hand tools when removing or installing the engine mount-to-frame bolts or damage to the engine mount-to-frame nut plate can occur.

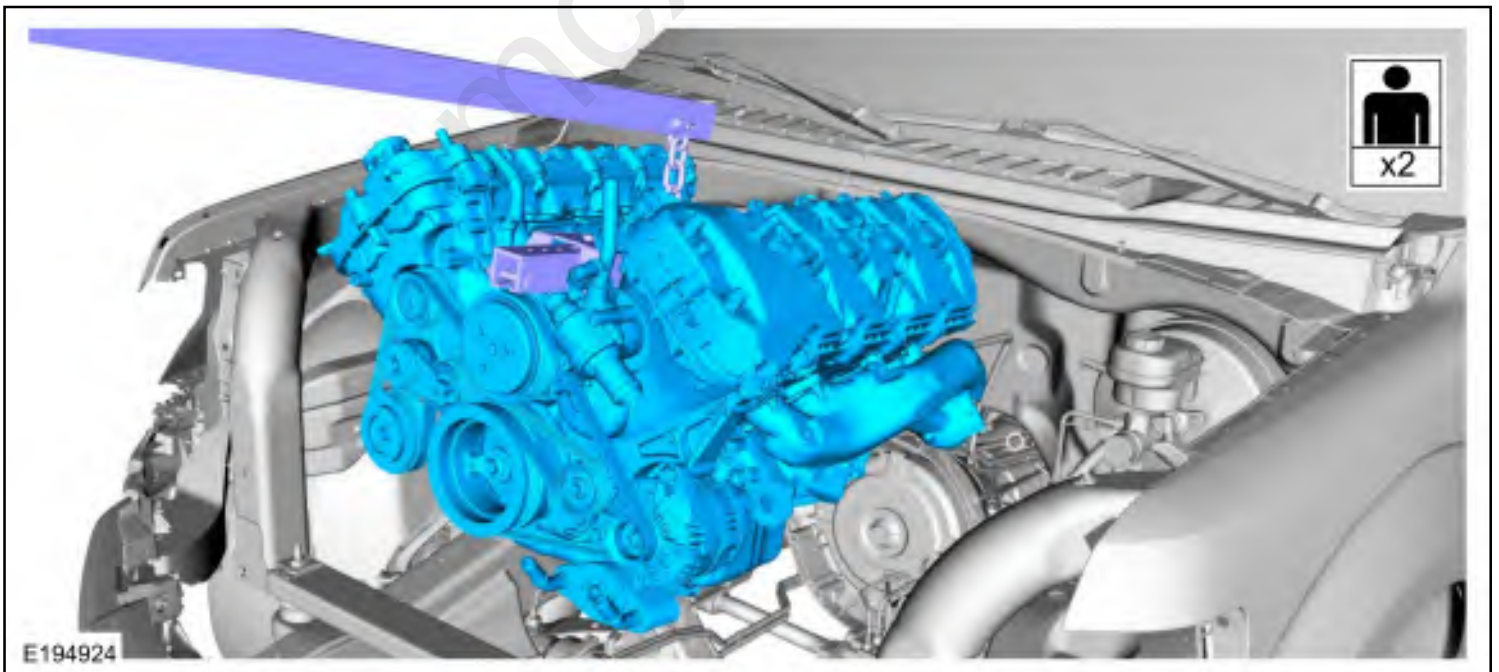
Remove and discard the LH engine mount-to-frame bolts.



41. Remove the LH engine mount.

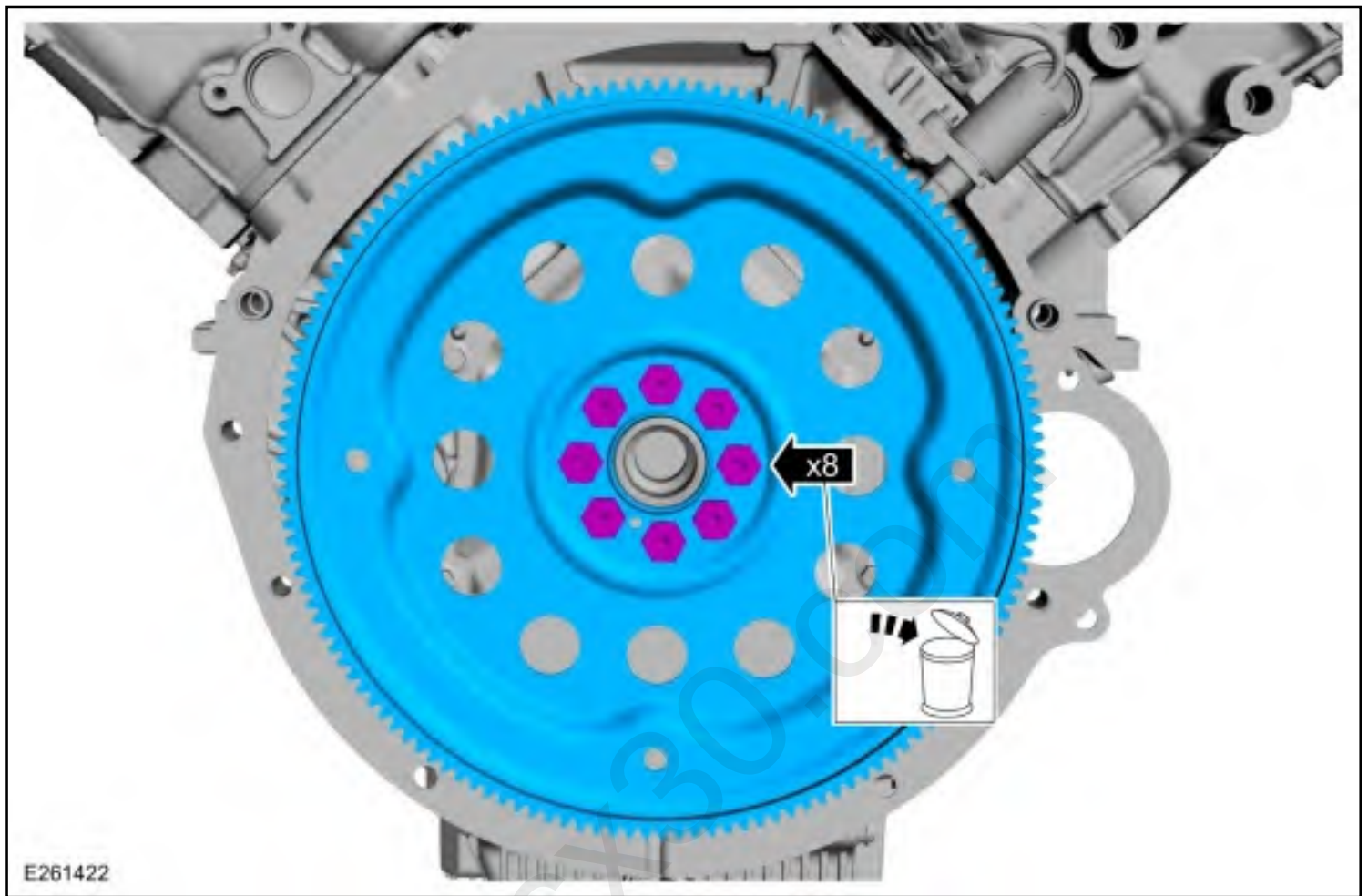


42. Using the Heavy Duty Floor Crane, remove the engine assembly from the vehicle.
Use the General Equipment: Floor Crane

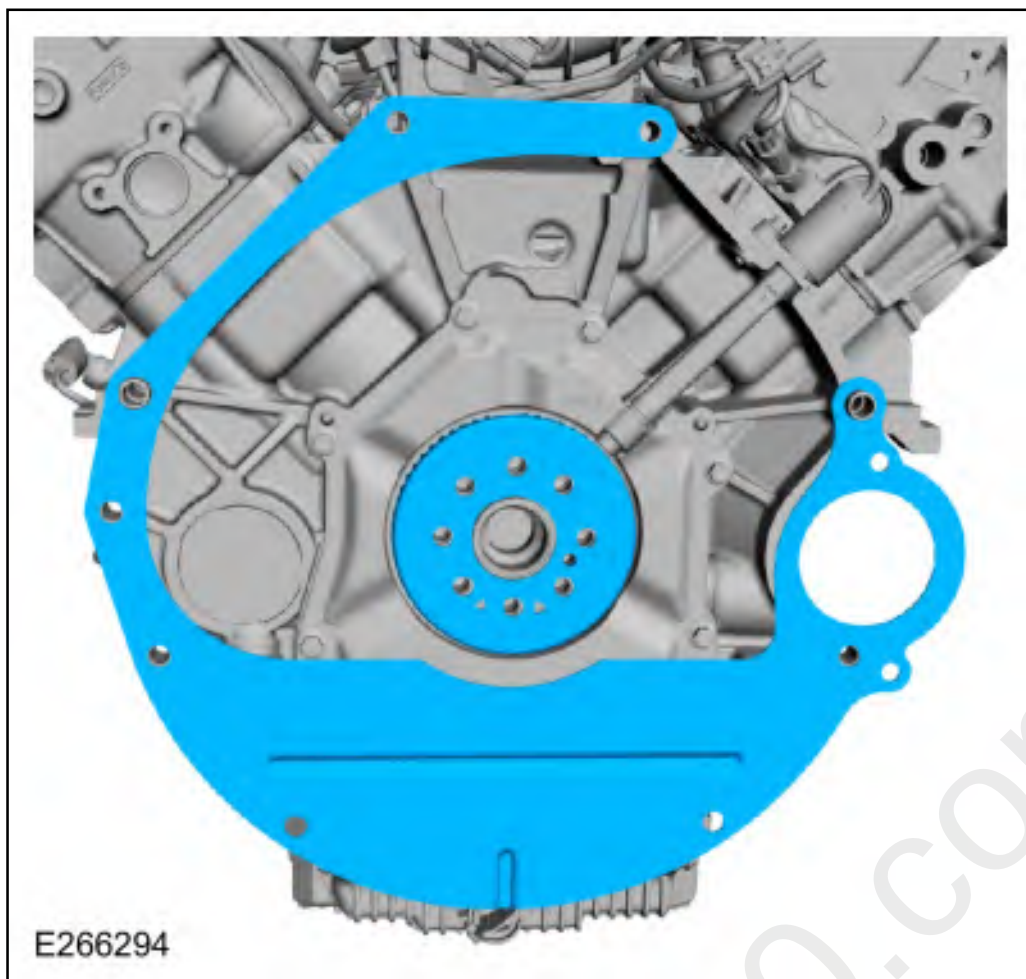


43. **NOTE:** The flexplate bolts are torque-to-yield design and are not reusable.

- Remove and discard the bolts.
- Remove the flexplate.



44. Remove the crankshaft sensor ring and the engine-to-transmission spacer plate.



45. Inspect the crankshaft sensor ring for damage. If the crankshaft sensor ring has been dropped or has any visual damage, it must be replaced.

