

Engine



Special Tool(s) / General Equipment

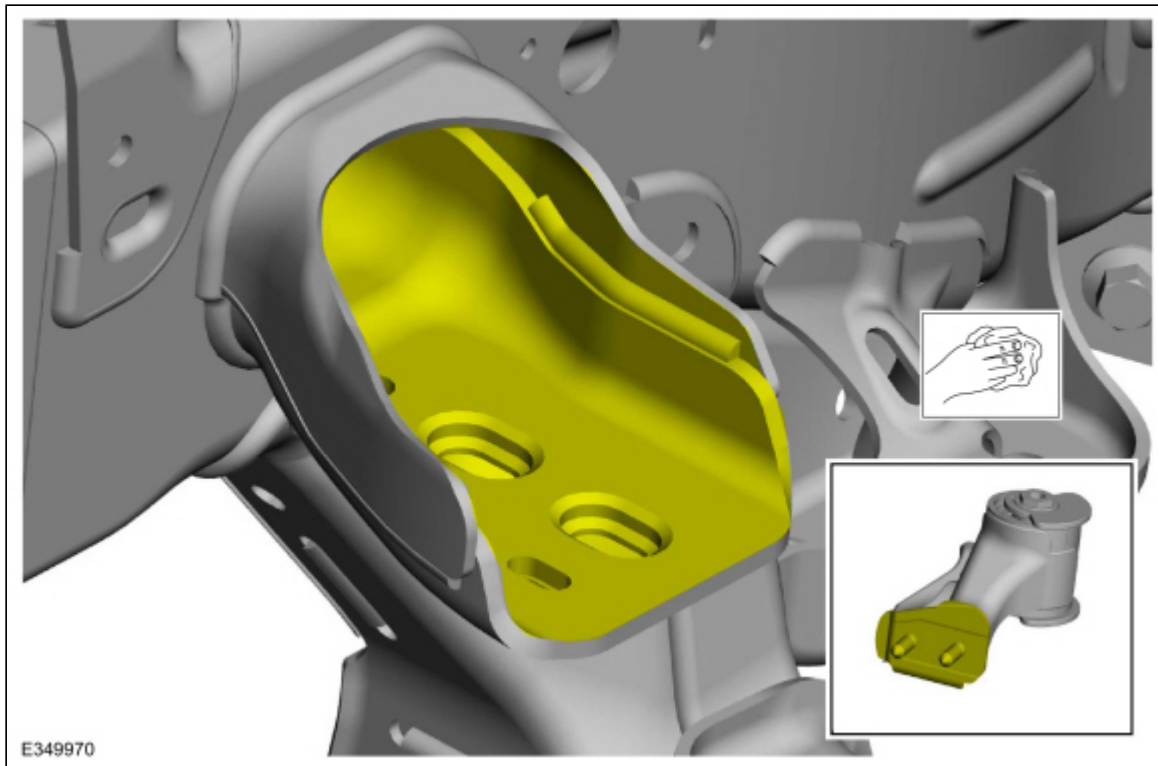
	<p>303-1246 Engine Spreader Bar TKIT-2006UF-FLM TKIT-2006UF-ROW</p>
<p>E188625</p>	<p>303-1634 Lift Eyes (2) TKIT-2014D-ROW3 TKIT-2014D-FL_ROW</p>
Floor Crane	
Trolley Jack	
Vehicle/Axle Stands	
Hose Clamp Remover/Installer	
Wooden Block	

Materials

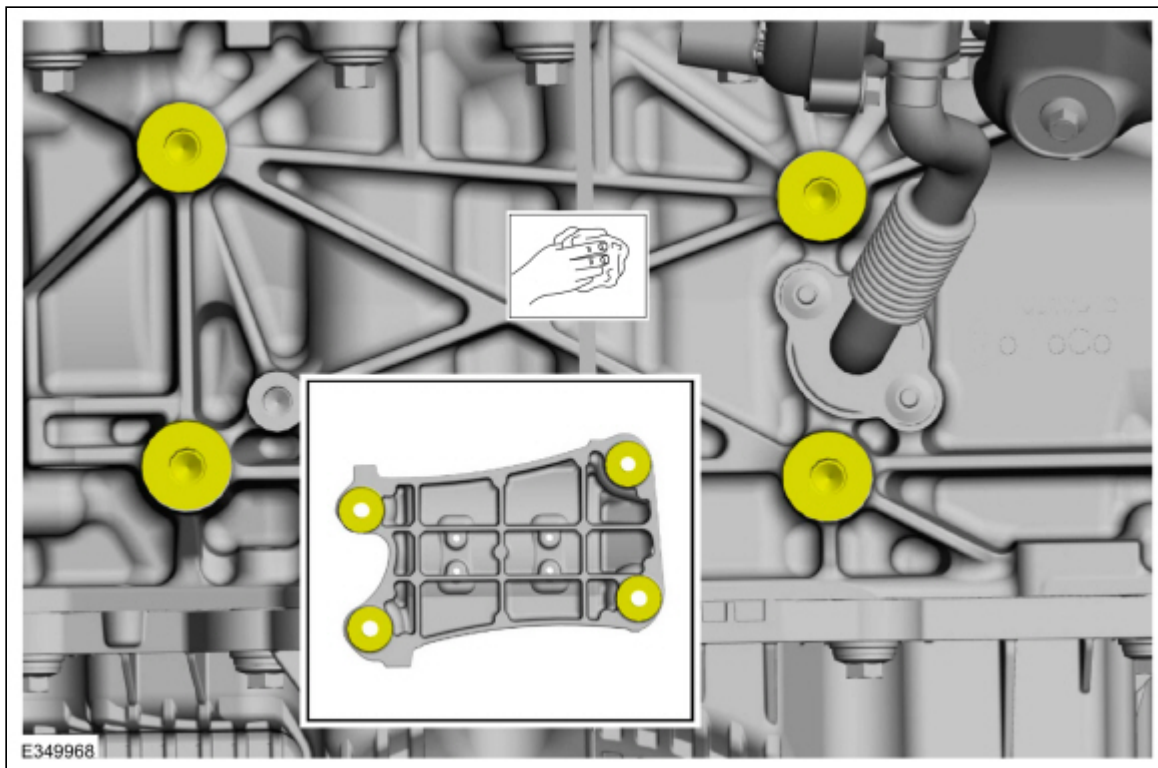
Name	Specification
Motorcraft® Multi-Purpose Grease Spray XL-5-A	ESB-M1C93-B

NOTICE: The turbocharger compressor vanes can be damaged by even the smallest particles. When removing any turbocharger or engine air intake system component, ensure that no debris enters the system. Failure to do so may result in damage to the turbocharger.

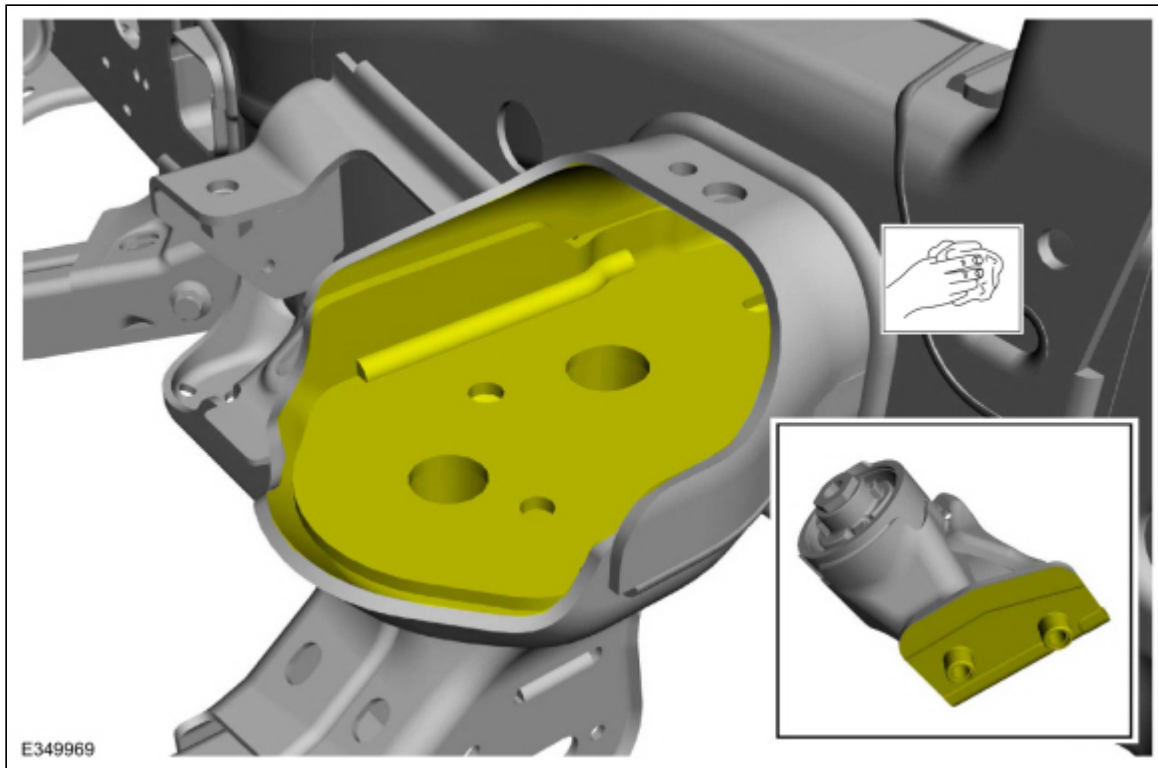
1. Clean the RH engine mount-to-frame surfaces of any dirt or foreign material.



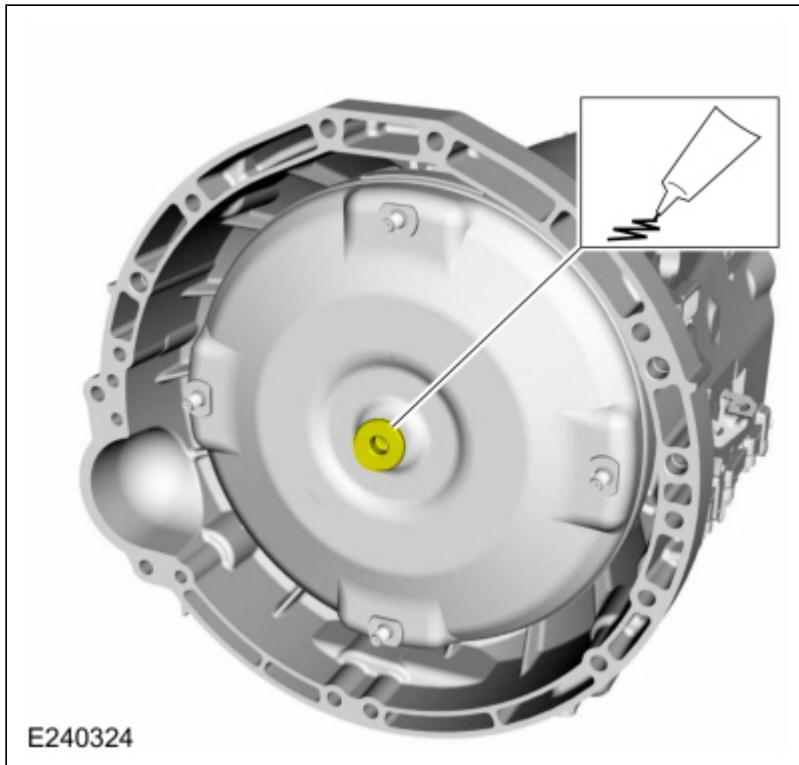
2. Clean the LH engine mount bracket-to-cylinder block surfaces of any dirt or foreign material.



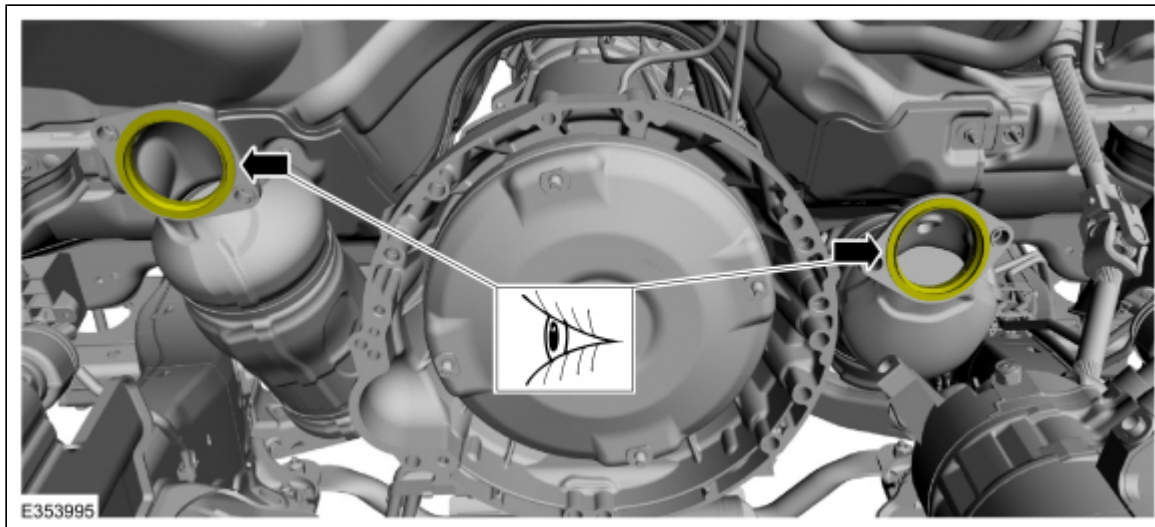
3. Clean the LH engine mount-to-frame surfaces of any dirt or foreign material.



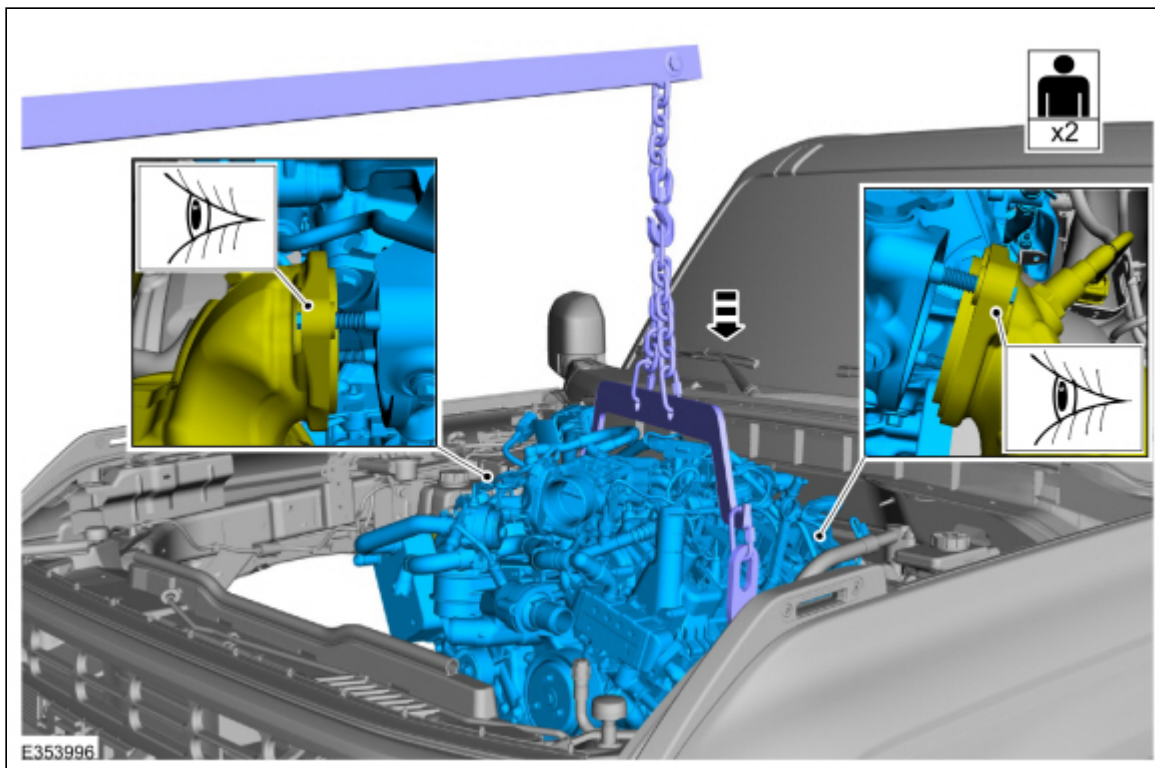
- 4. Lubricate the torque converter pilot hub with multi-purpose grease.
Material: Motorcraft® Multi-Purpose Grease Spray / XL-5-A (ESB-M1C93-B)



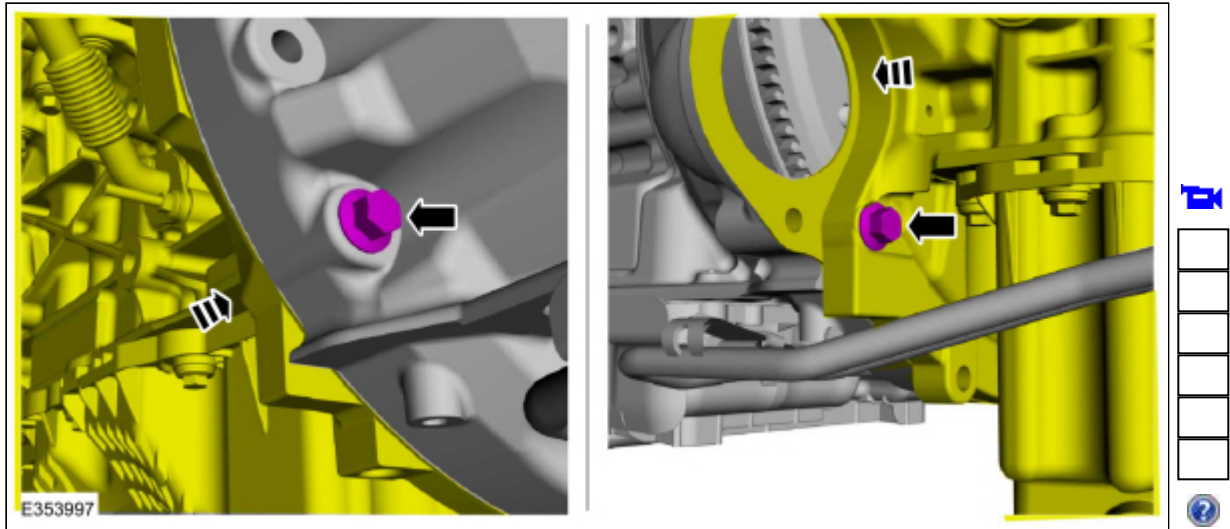
- 5. Make sure the exhaust gaskets are seated in the catalytic converters.



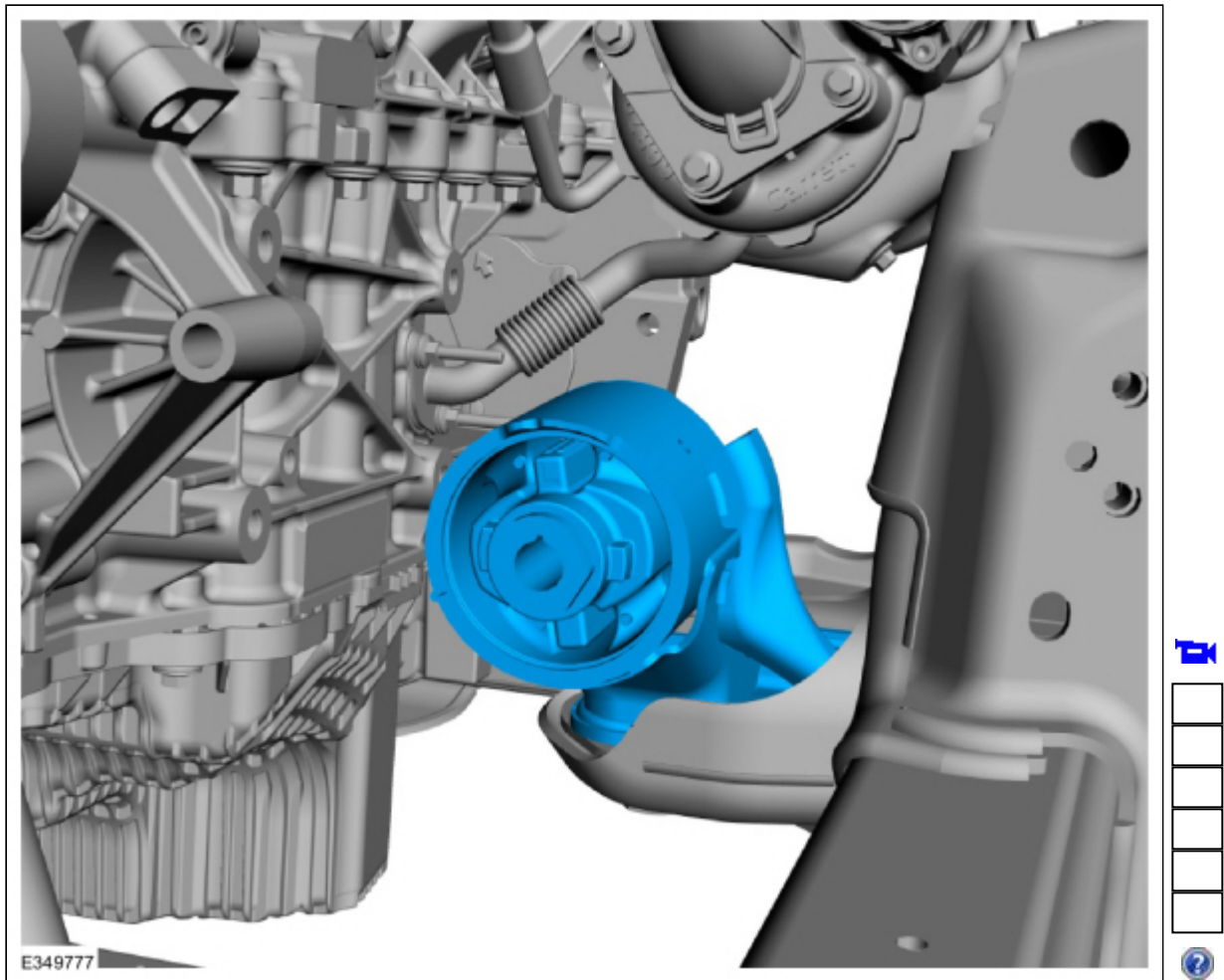
6. With the aid of an assistant, use the floor crane to position the engine in the engine compartment.
- Make sure the exhaust studs are aligned in the catalytic converter flanges.



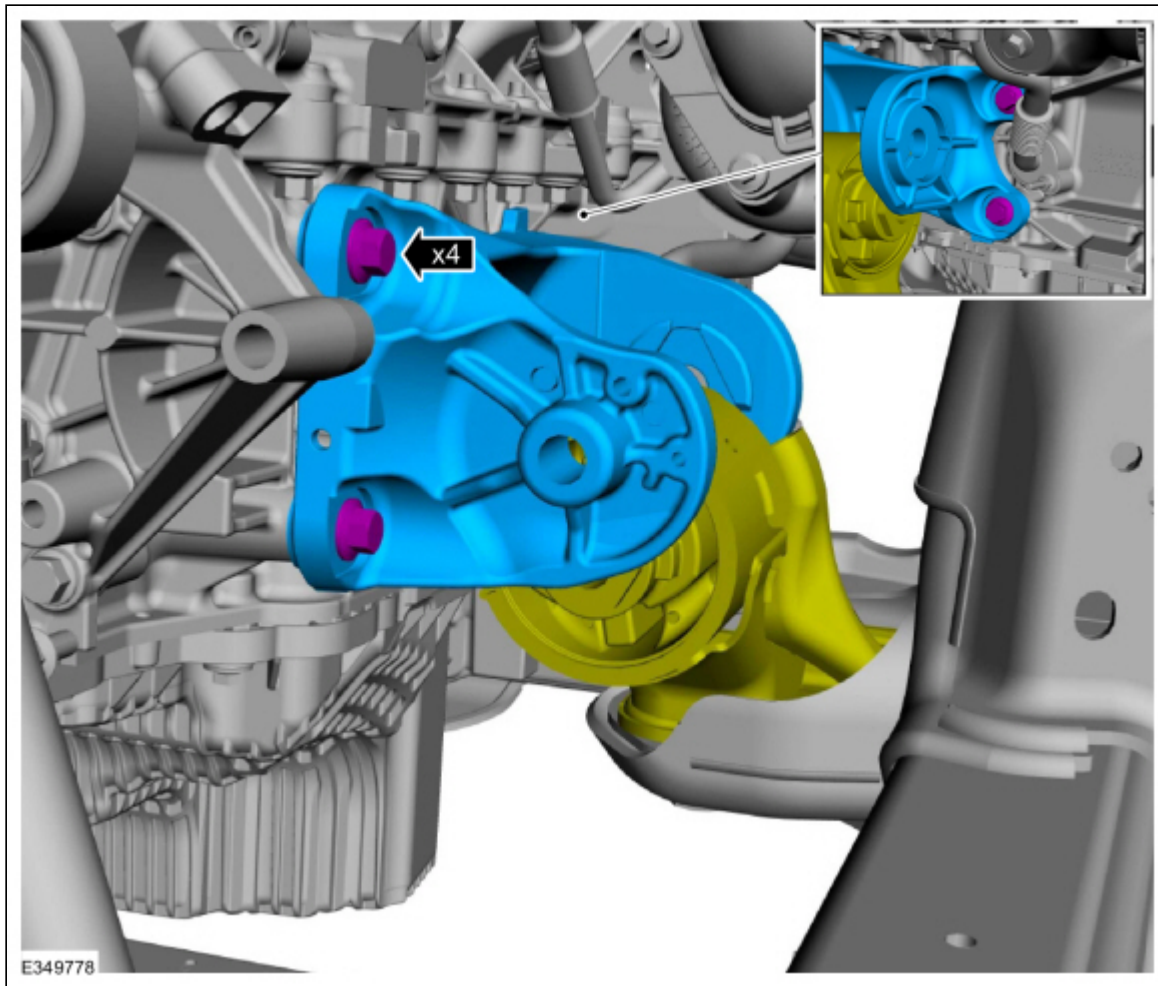
7. Align the engine to the transmission and install the bolts.
Torque: 35 lb.ft (48 Nm)



8. Install the LH engine mount.

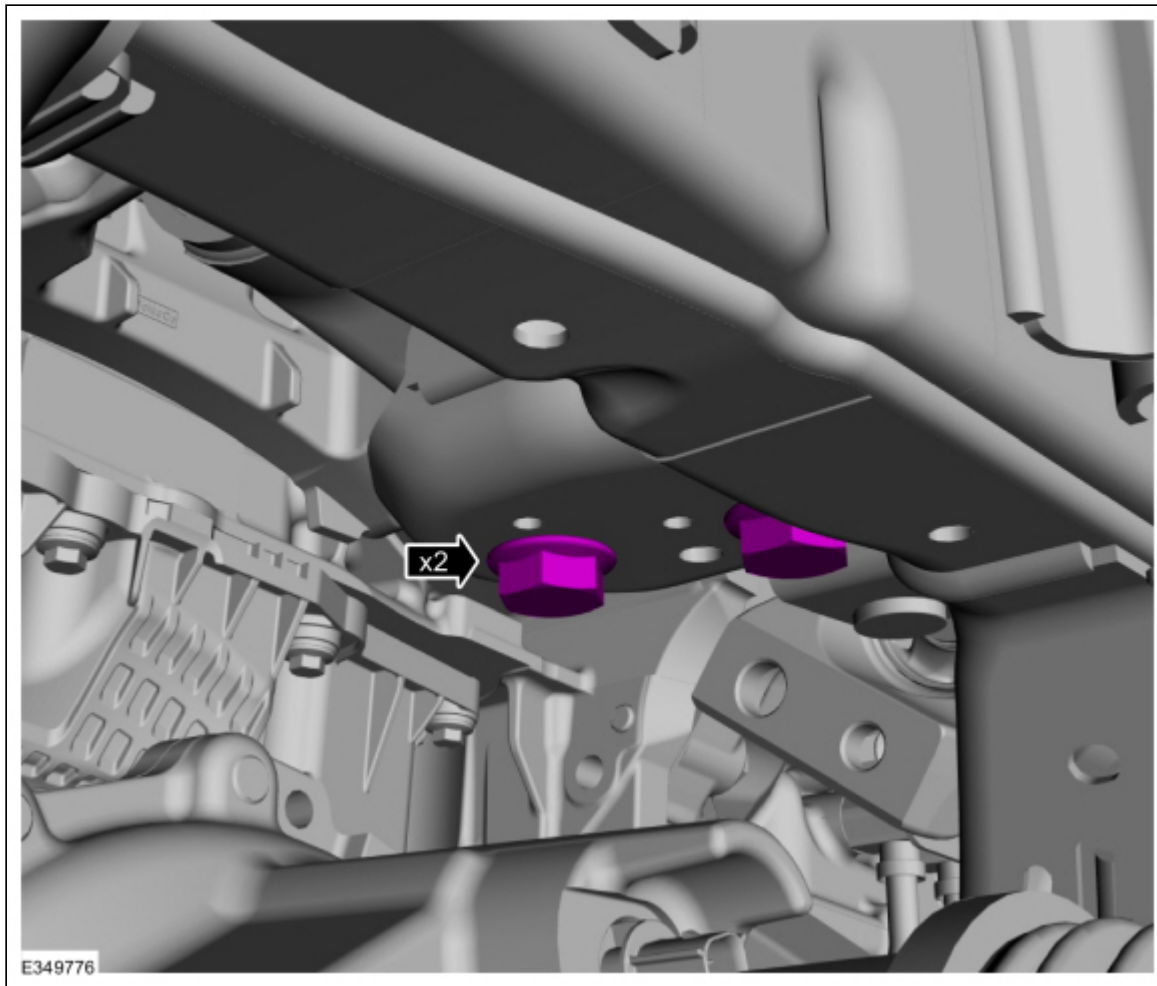


9. Install the LH engine mount bracket and the new bolts.
Torque: 52 lb.ft (70 Nm)

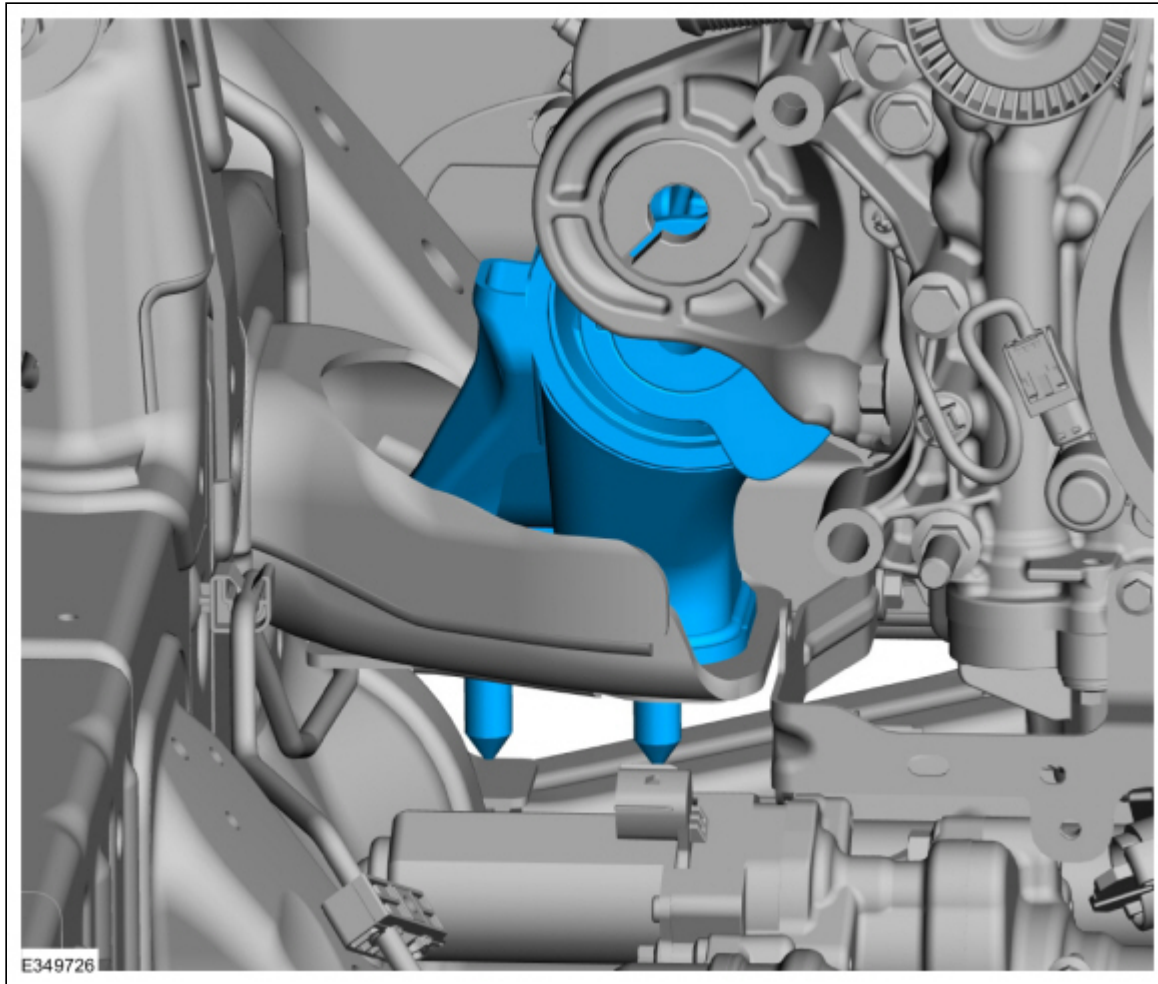


10. **NOTE:** Do not tighten engine mount bolts at this time.

Install the new LH engine mount bolts finger tight.

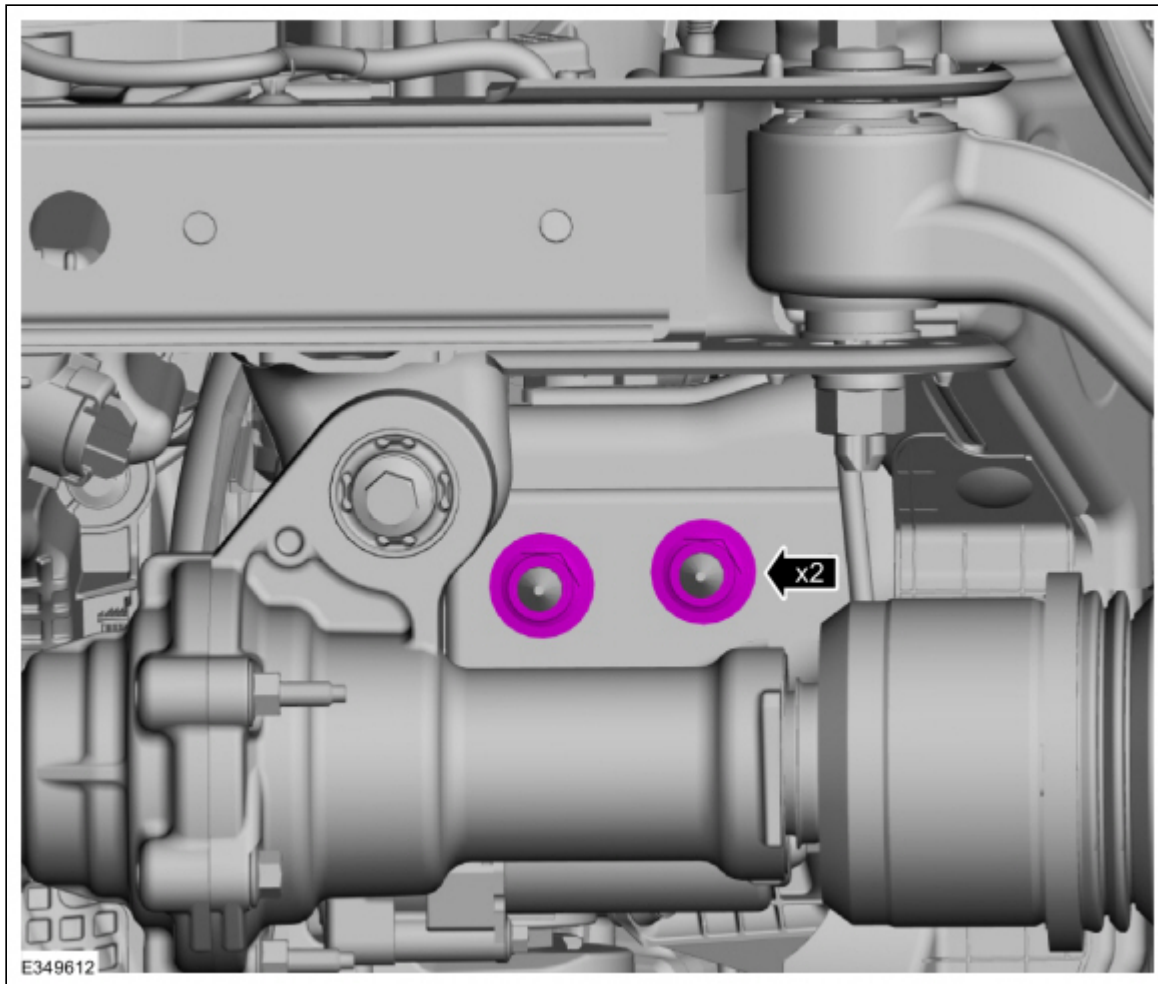


11. Install the RH engine mount.



12. **NOTE:** Do not tighten engine mount bolts at this time.

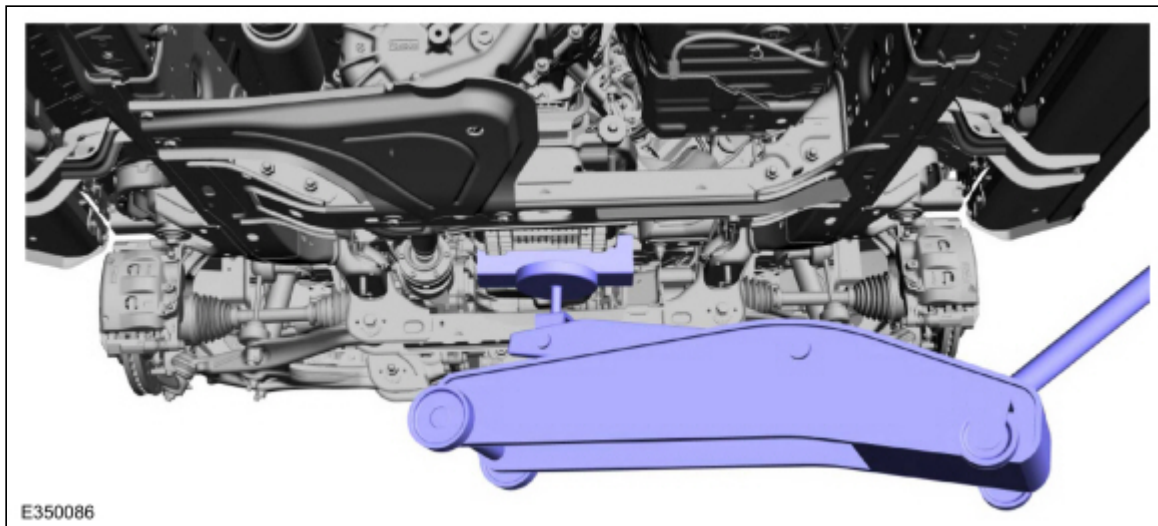
Install the new engine mount nuts finger tight.



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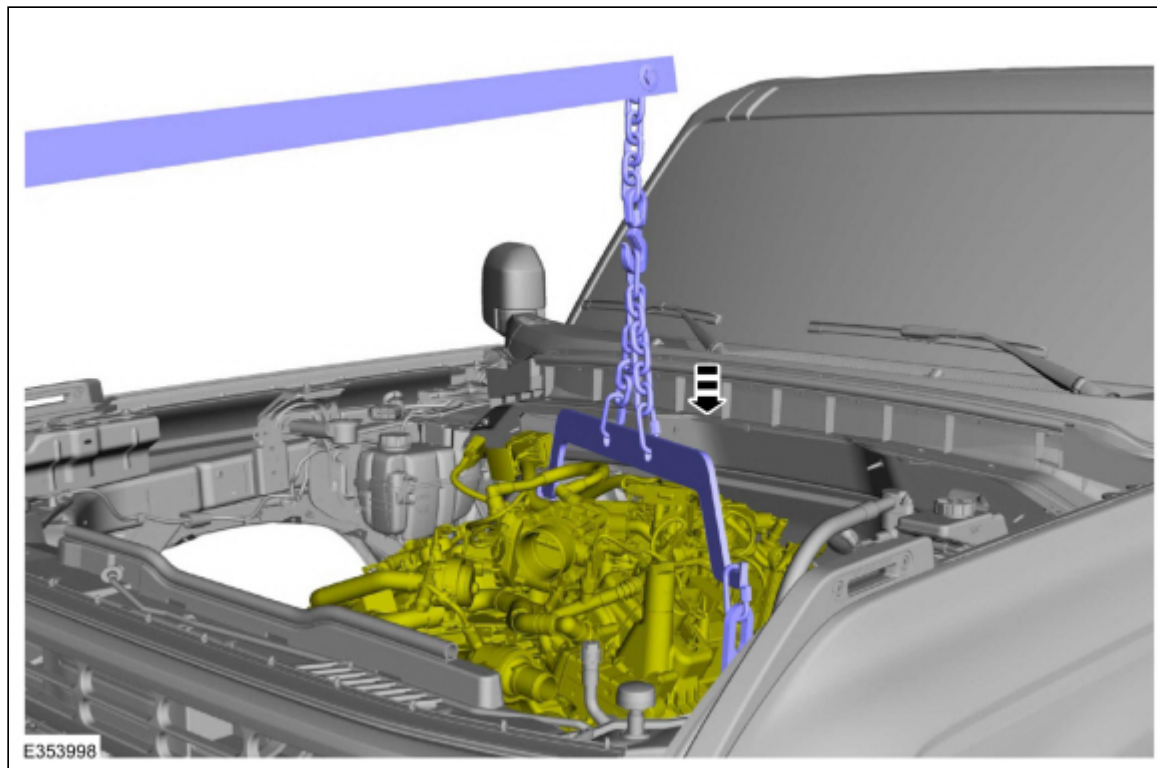
13. Remove the floor jack and the block of wood.
 Use the General Equipment: Trolley Jack
 Use the General Equipment: Wooden Block



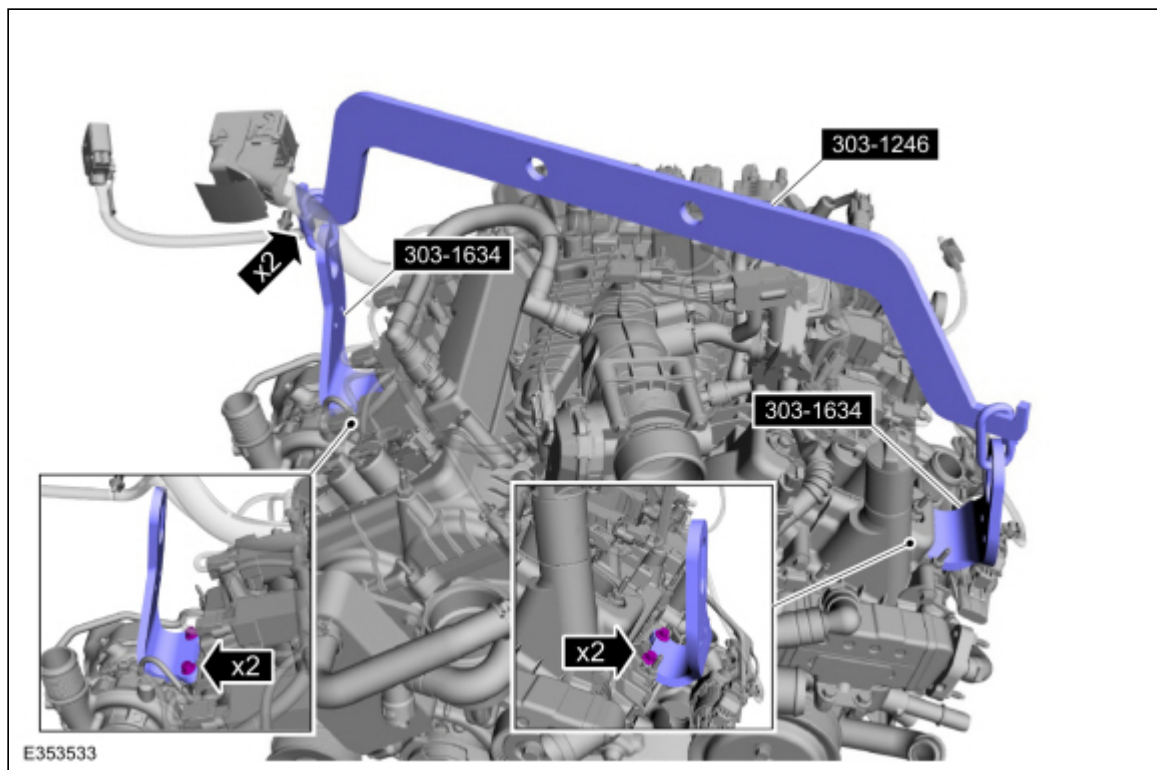
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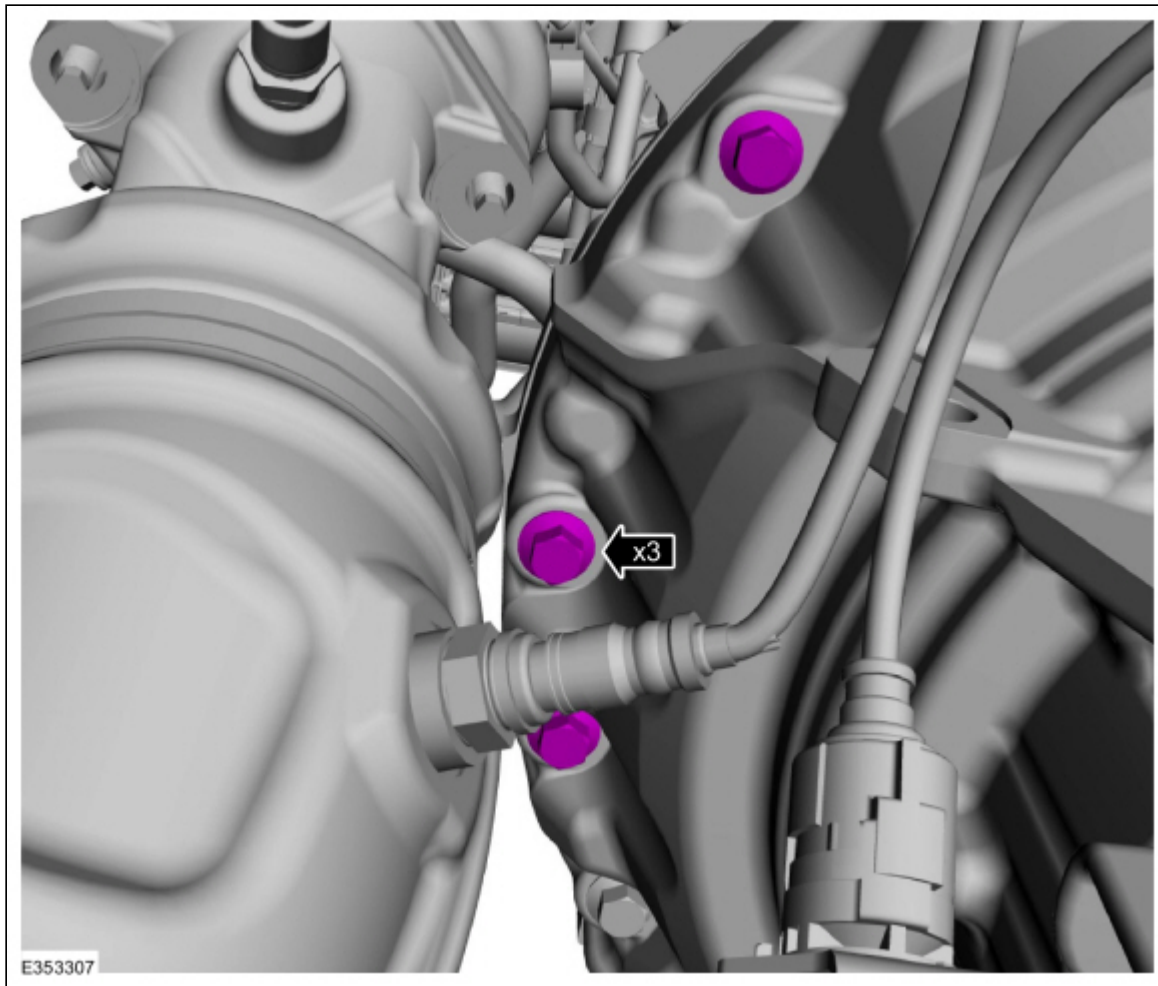
14. Lower the engine onto the engine mounts.
 1. Remove the floor crane and chains.
 Use the General Equipment: Floor Crane



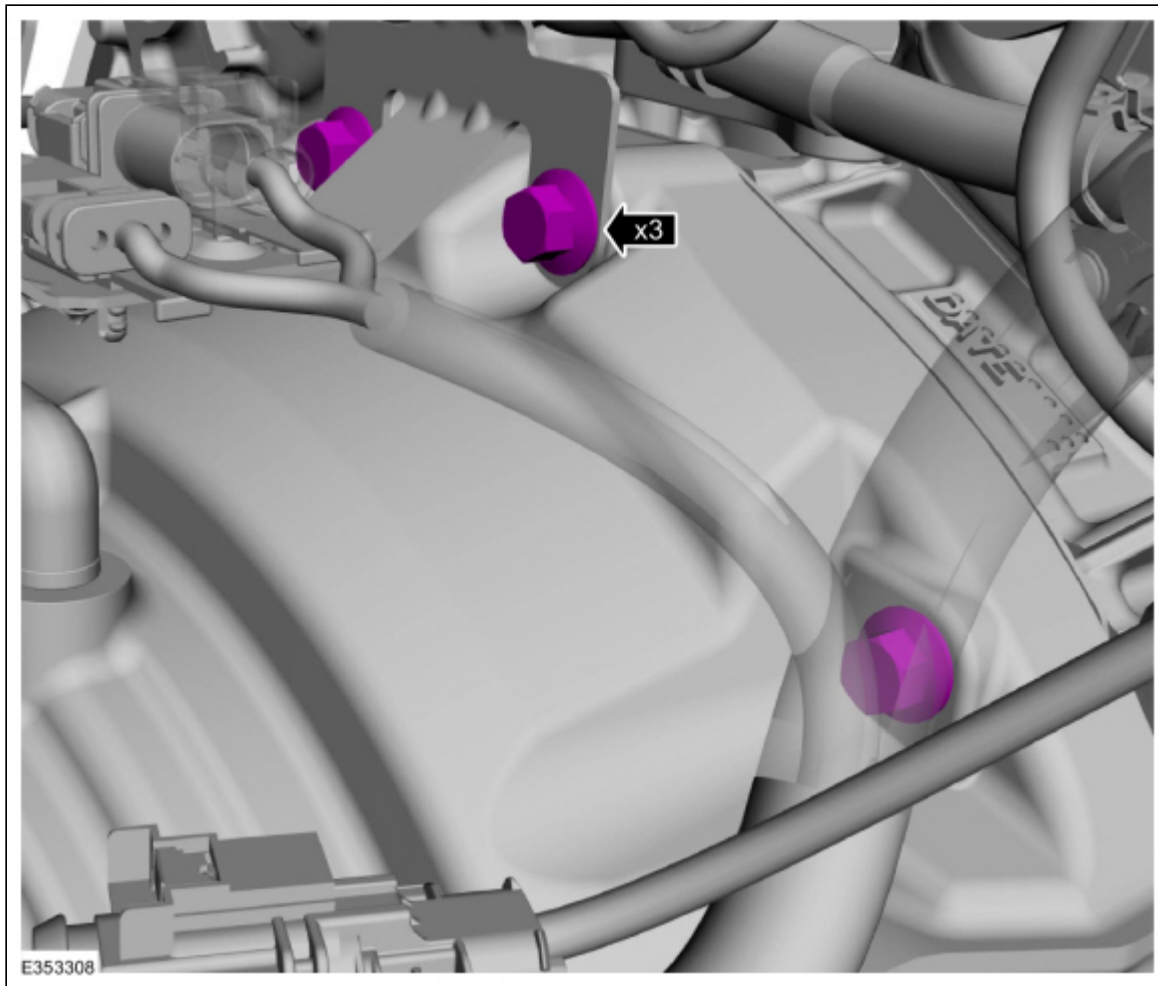
15. Remove Special Service Tool: [303-1634 Lift Eyes \(2\)](#) , [303-1246 Engine Spreader Bar](#).



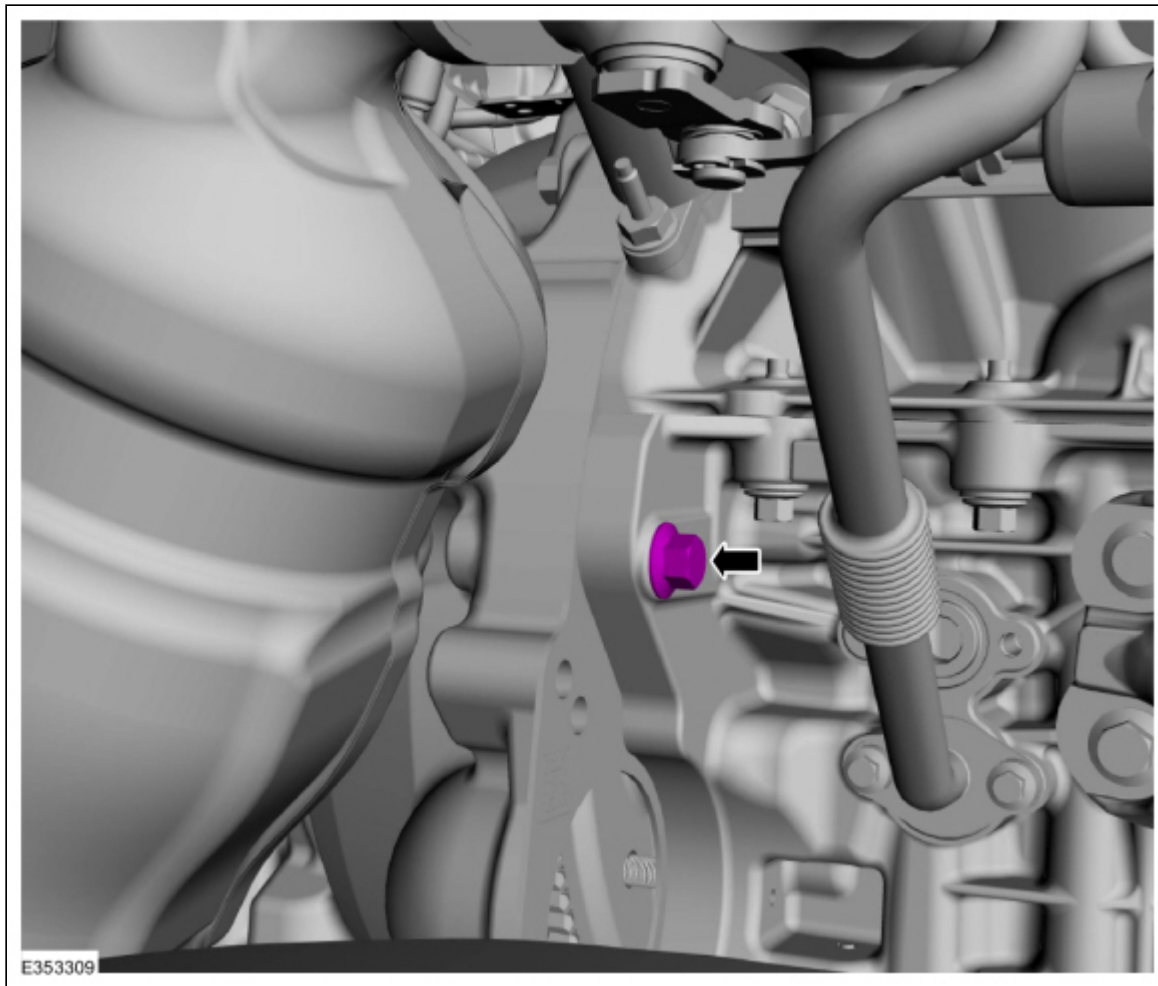
16. Install the LH bellhousing bolts.
Torque: 35 lb.ft (48 Nm)



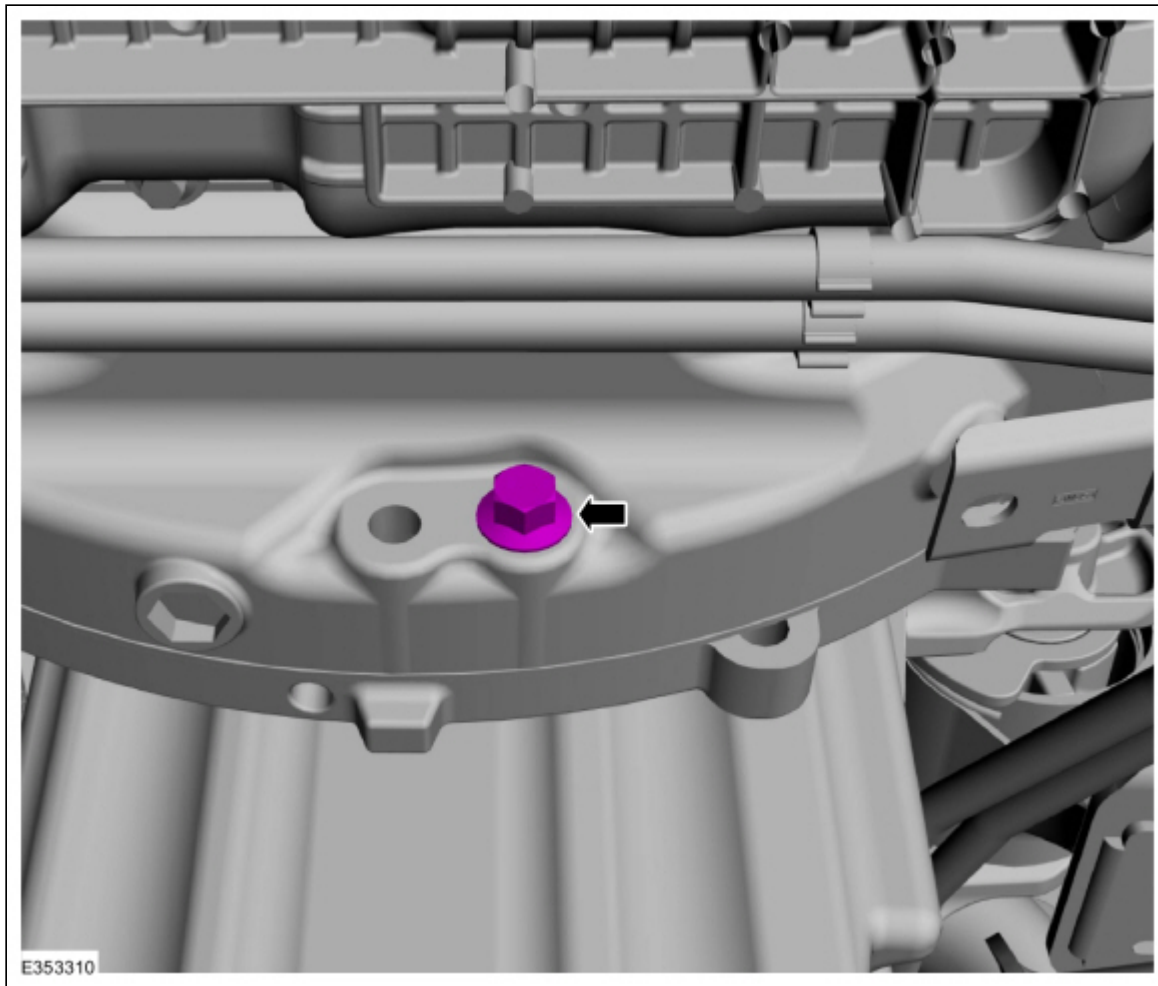
- 17. Install the top bellhousing bolts.
Torque: 35 lb.ft (48 Nm)



18. Remove the RH bellhousing bolt.
Torque: 35 lb.ft (48 Nm)



19. Install the lower bellhousing bolt.
Torque: 35 lb.ft (48 Nm)



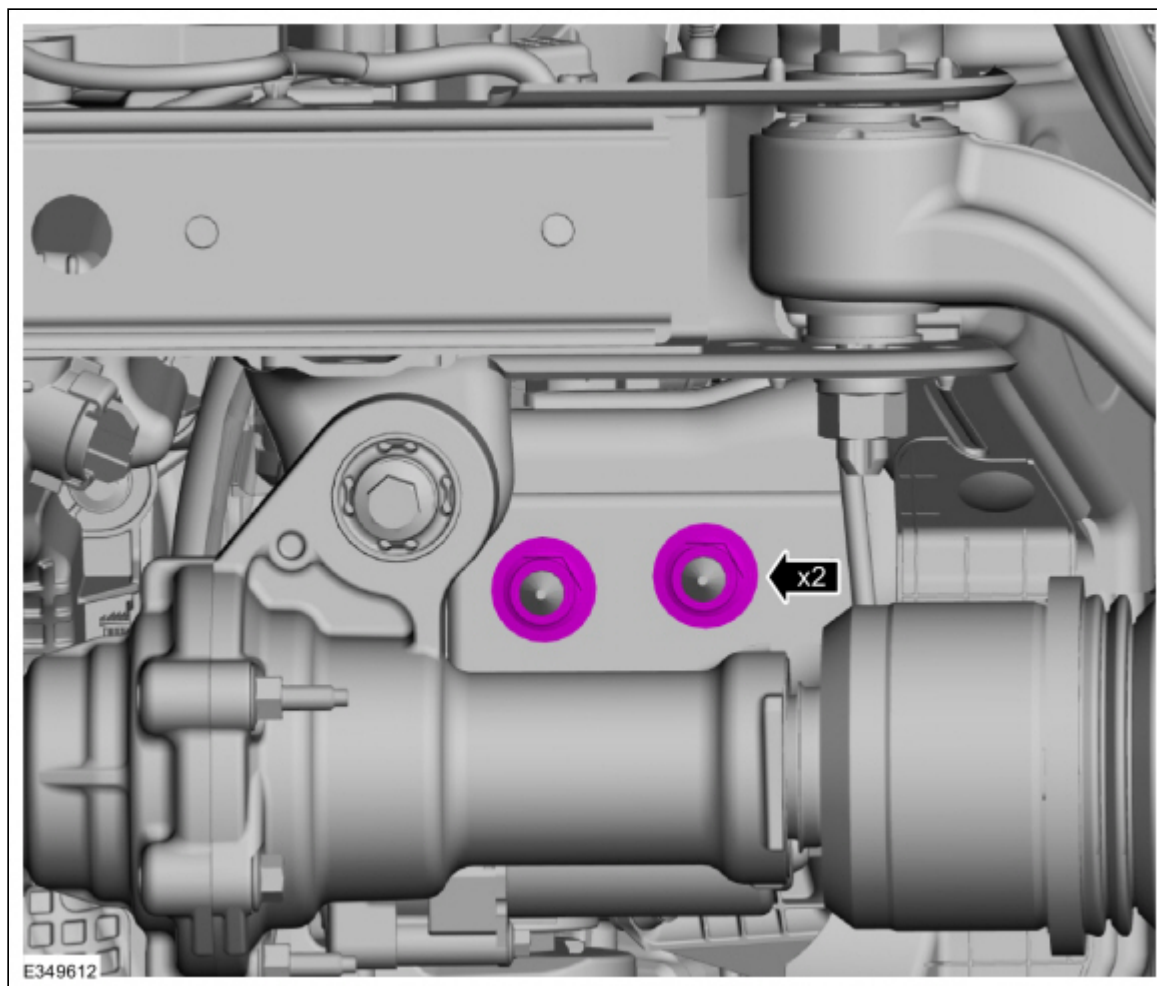
20. **NOTICE:** Only use hand tools when tightening the engine mount nuts or damage to the engine mount can occur.

Tighten engine mount nuts.

Torque:

Stage 1: 81 lb.ft (110 Nm)

Stage 2: 120°



21. **NOTICE:** Only use hand tools when tightening the engine mount bolts or damage to the engine mount can occur.

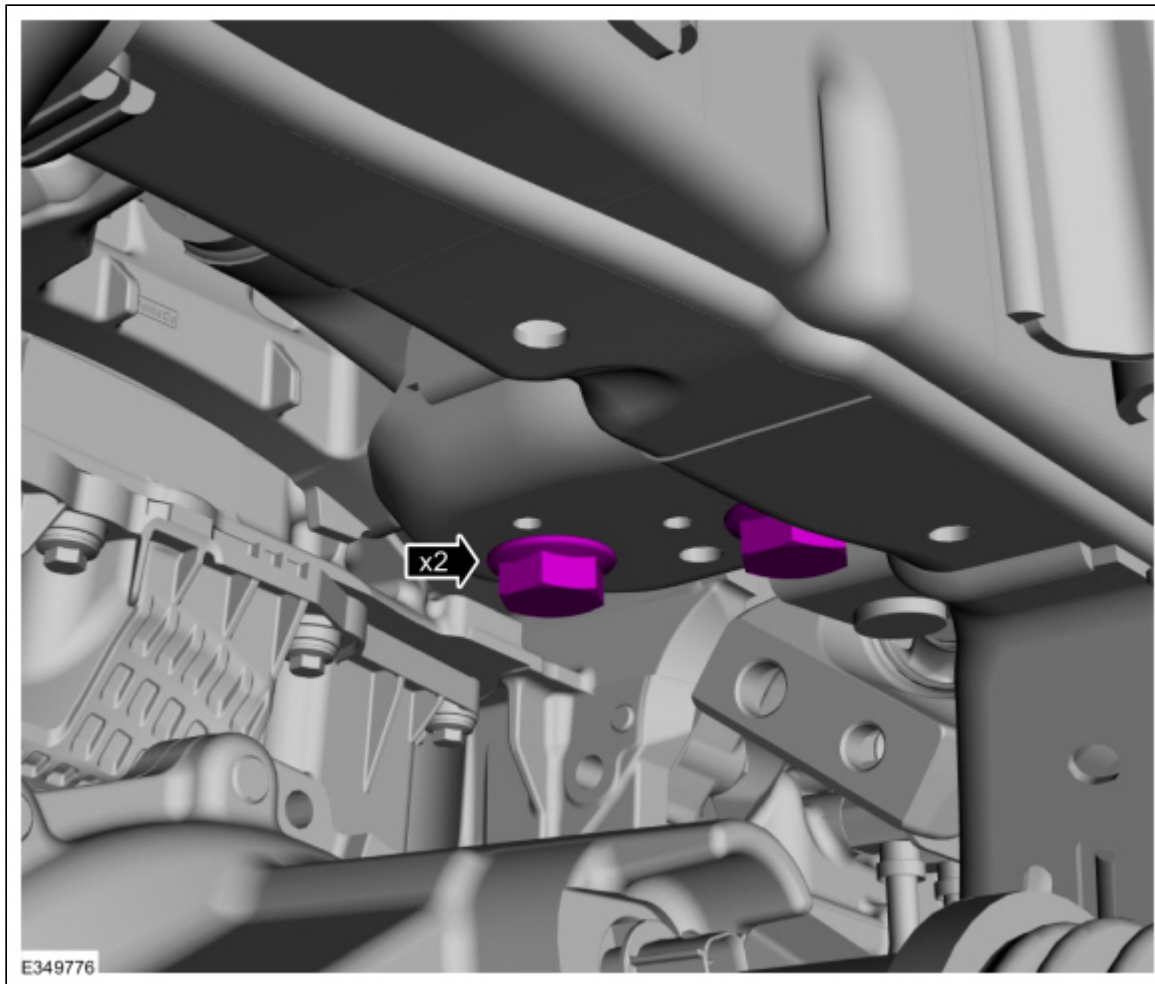
NOTE: Use a 1/2 inch drive 12-point 1 inch standard torque adaptor (such as a Snap-on SRDH321, or equivalent).

Using a standard torque adaptor, tighten the LH engine mount bolts.

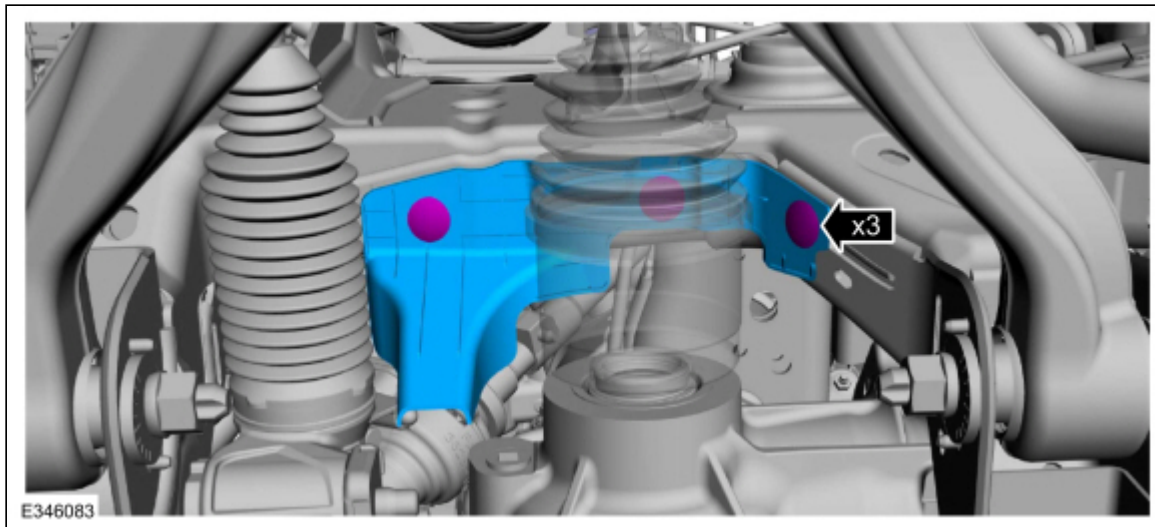
Torque:

Stage 1: 111 lb.ft (150 Nm)

Stage 2: 60°

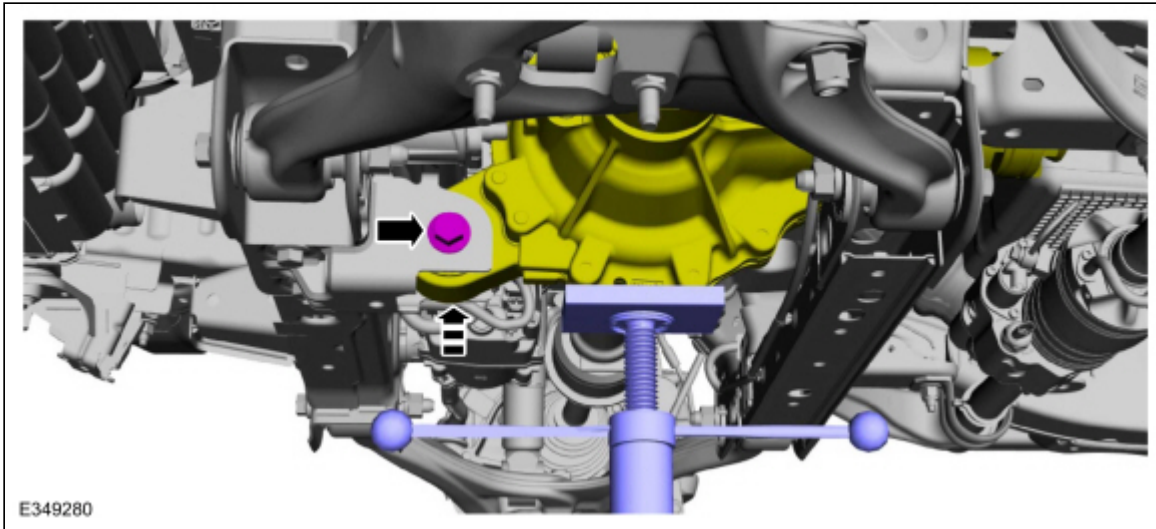


22. Install the LH axle shield and the retainers.



NOTE: Steps 23 thru 25 are for vehicles equipped with an electronic locking axle.

23. Using the adjustable stand, raise the axle and install the new bolt finger tight.
Use the General Equipment: Vehicle/Axle Stands

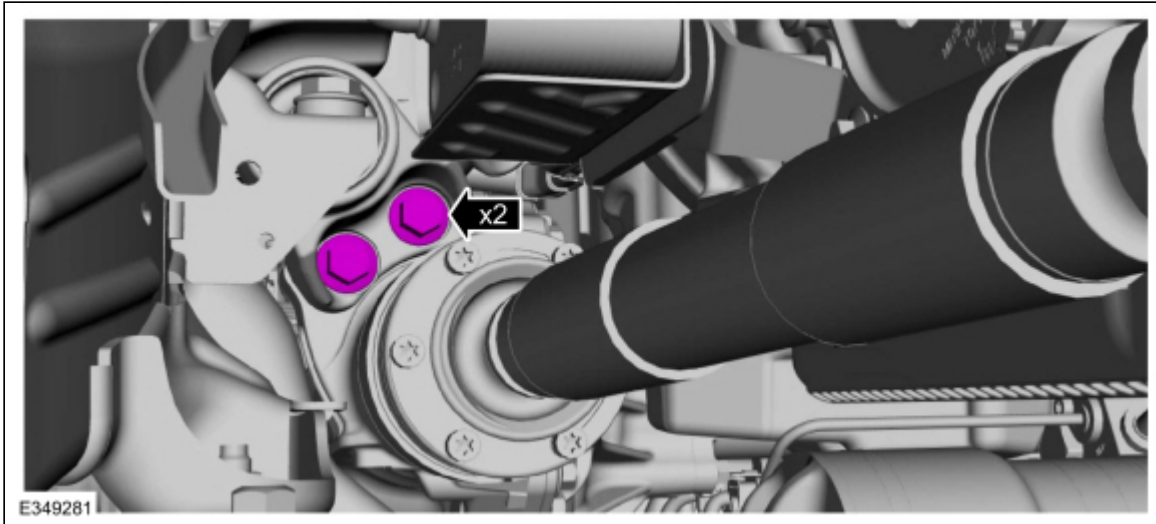


24. Install the new rear axle bolts.

Torque:

Stage 1: 30 lb.ft (40 Nm)

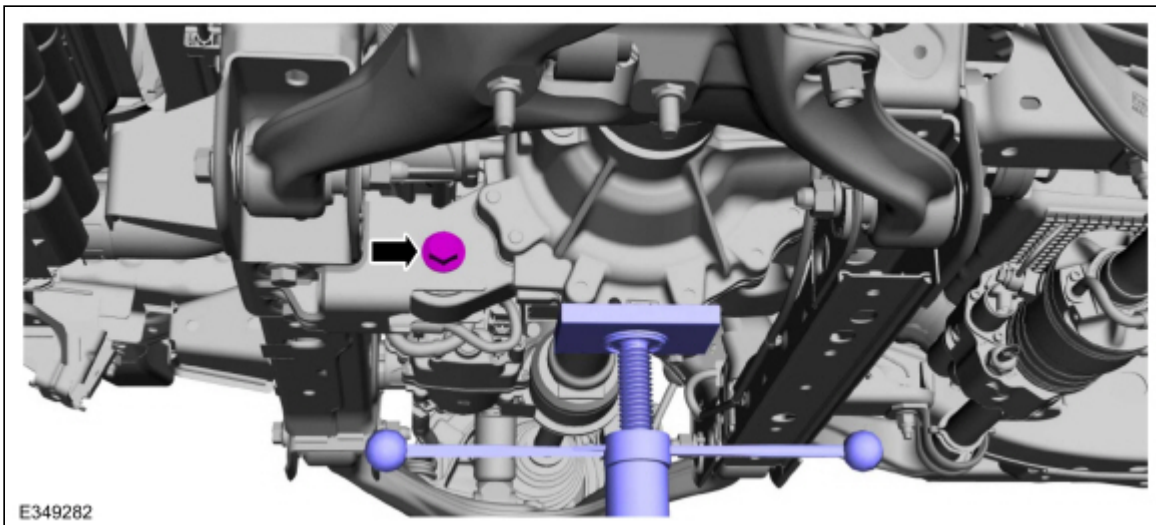
Stage 2: 70°



25. Tighten the bolt and remove the adjustable stand.

Use the General Equipment: Vehicle/Axle Stands

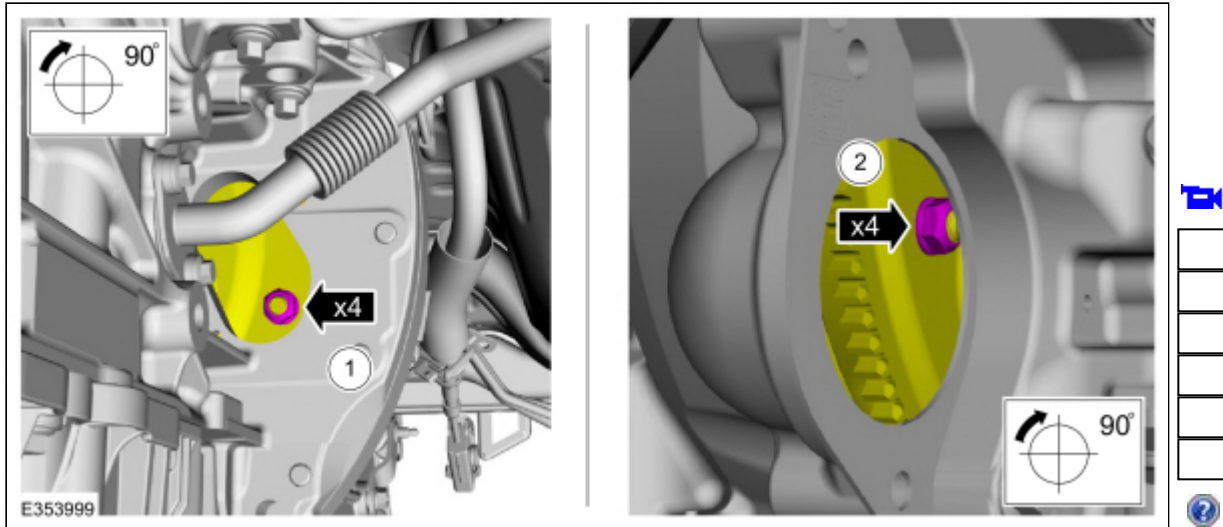
Torque: 195 lb.ft (265 Nm)



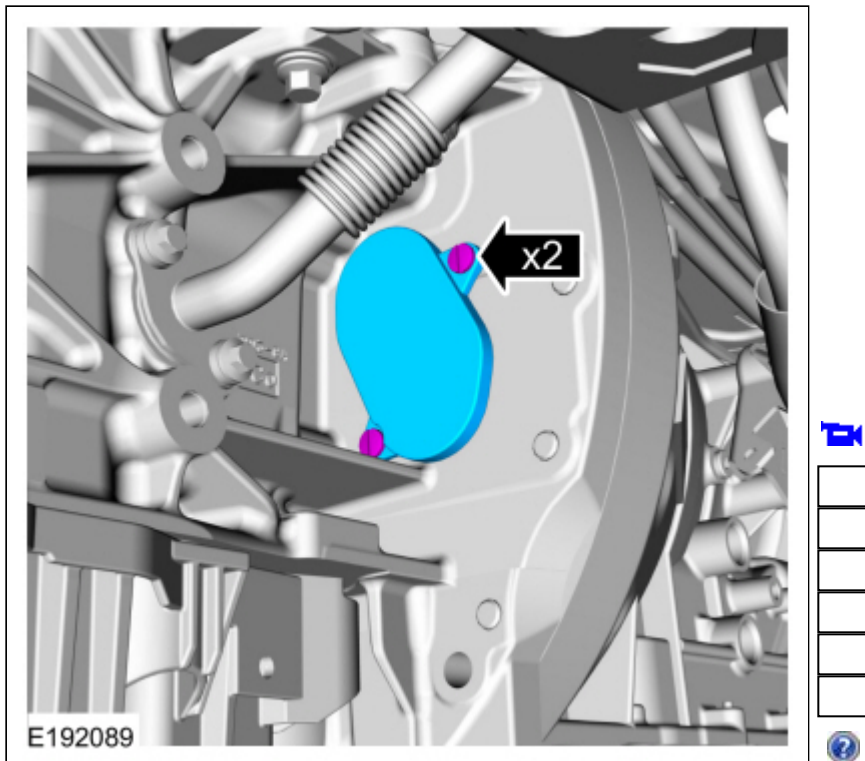
26. **NOTE:** Using the crankshaft pulley bolt, turn the engine clockwise.

NOTE: Due to limited access and variations in torque wrenches, it may be necessary to tighten the torque converter nuts through the starter hole using an open ended crow foot torque adapter.

1. Install the new torque converter nuts.
2. Calculate the correct torque wrench setting for the following torque using the Torque Wrench Adapter Formulas.
Torque: 30 lb.ft (40 Nm)

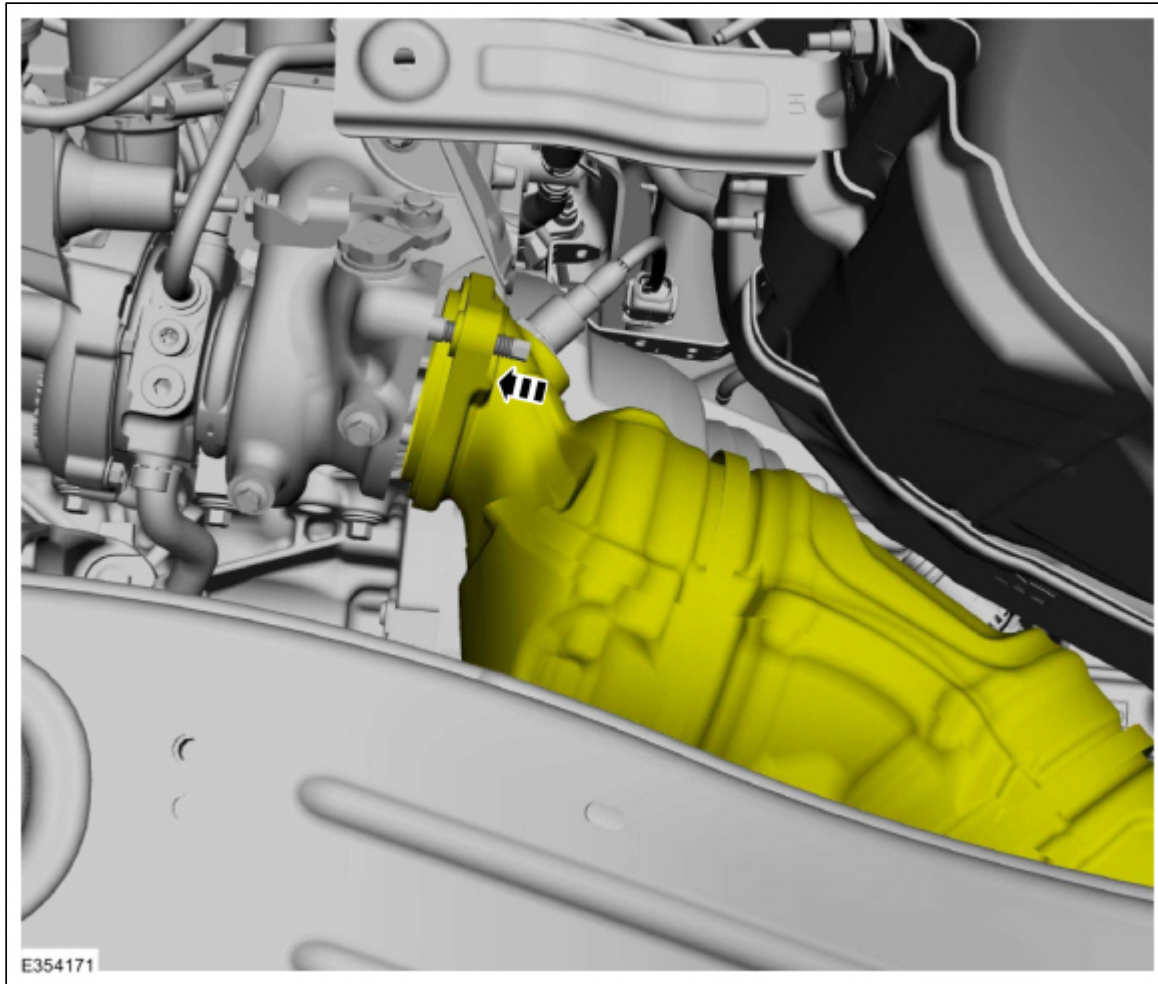


27. Install the access cover and the retainers.

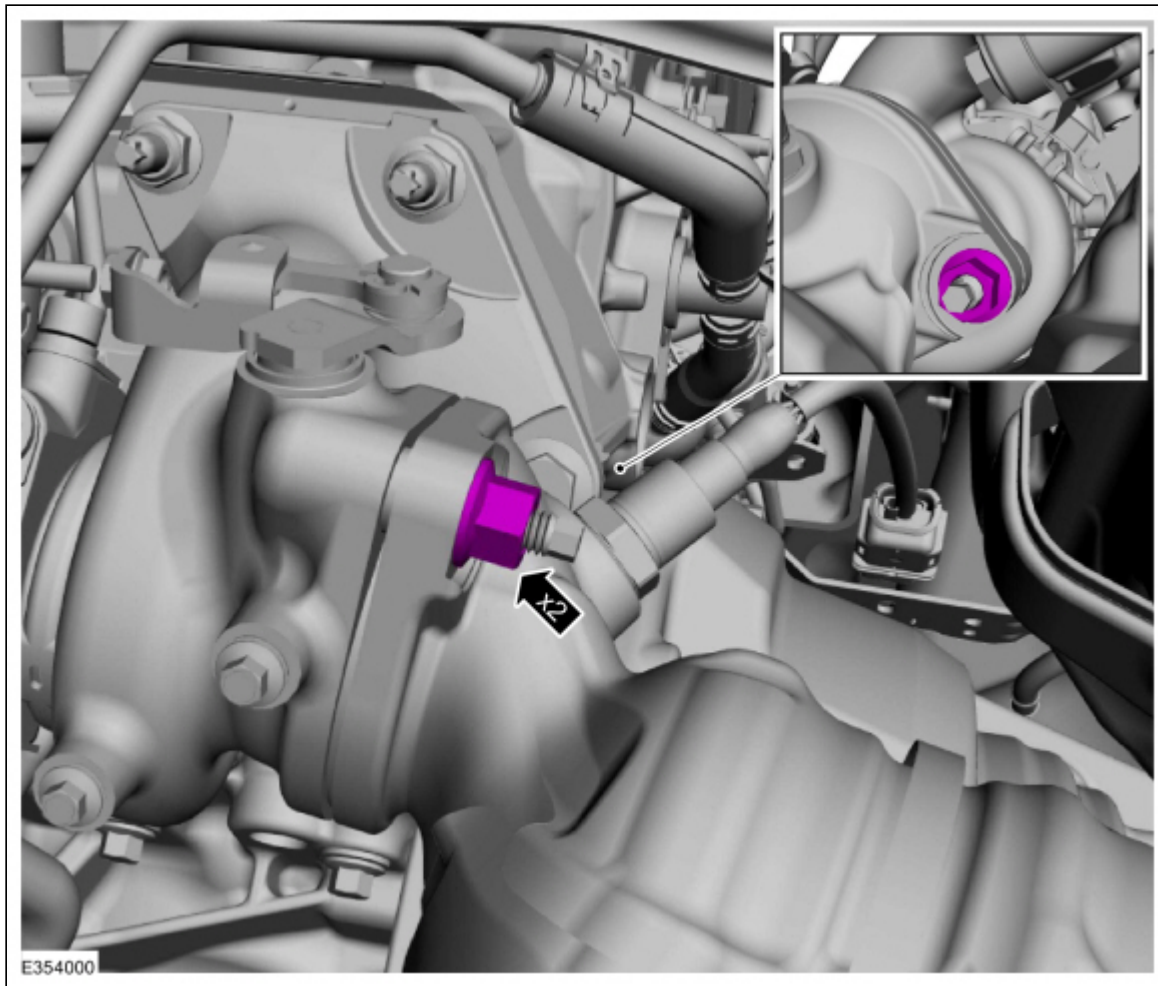


28. **NOTE:** Left hand (LH) shown, right hand (RH) similar.

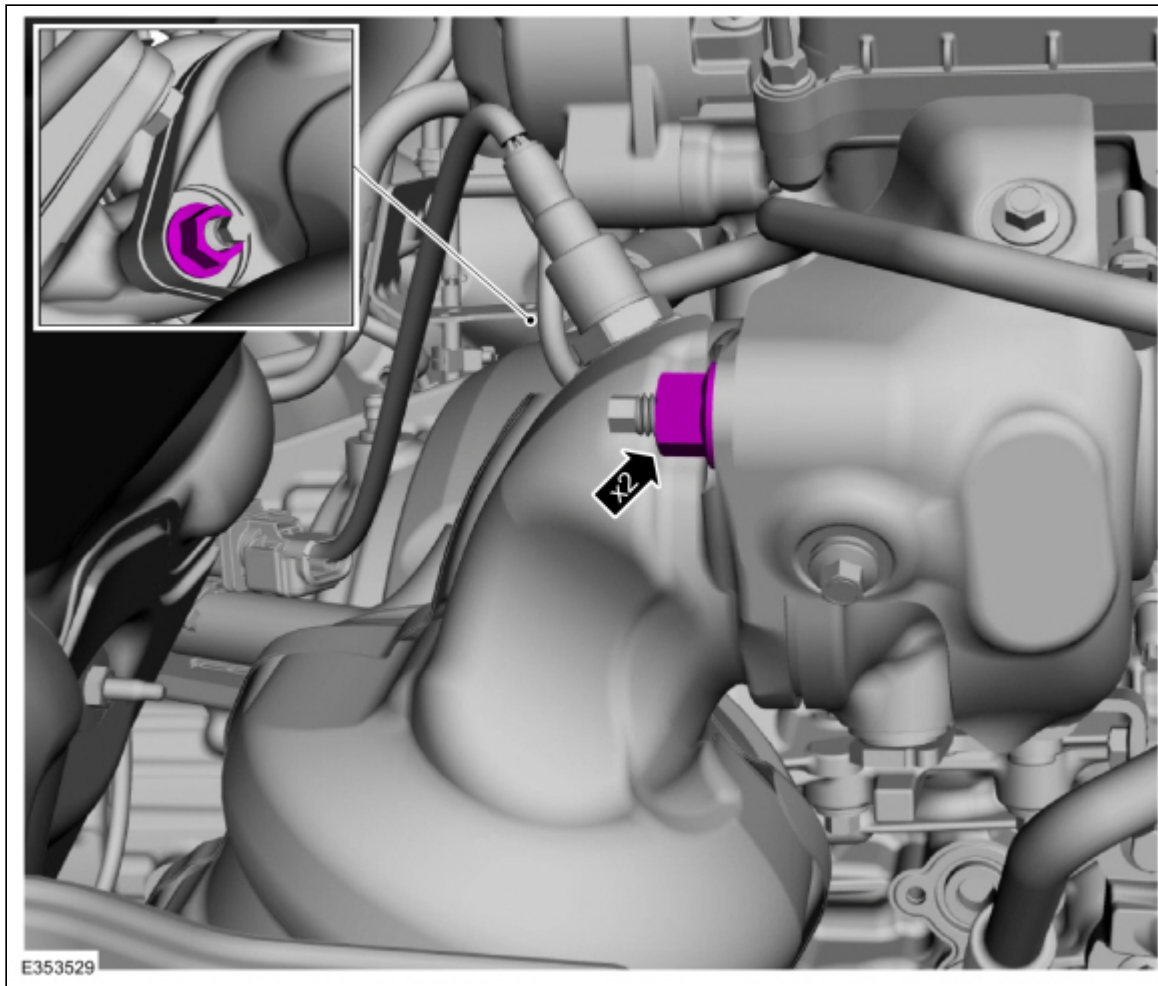
Position the catalytic converters forward into the installed position.



- 29. Install the LH catalytic converter nuts.
Torque: 30 lb.ft (40 Nm)

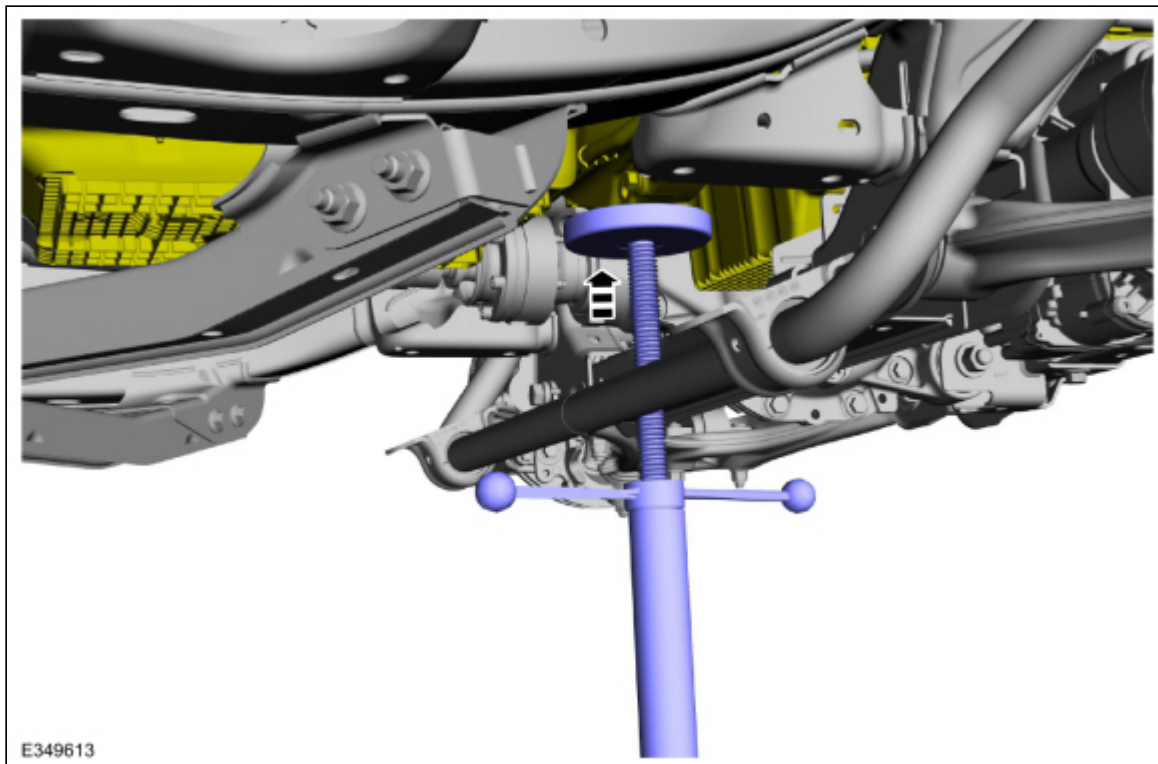


- 30. Install the RH catalytic converter nuts.
Torque: 30 lb.ft (40 Nm)



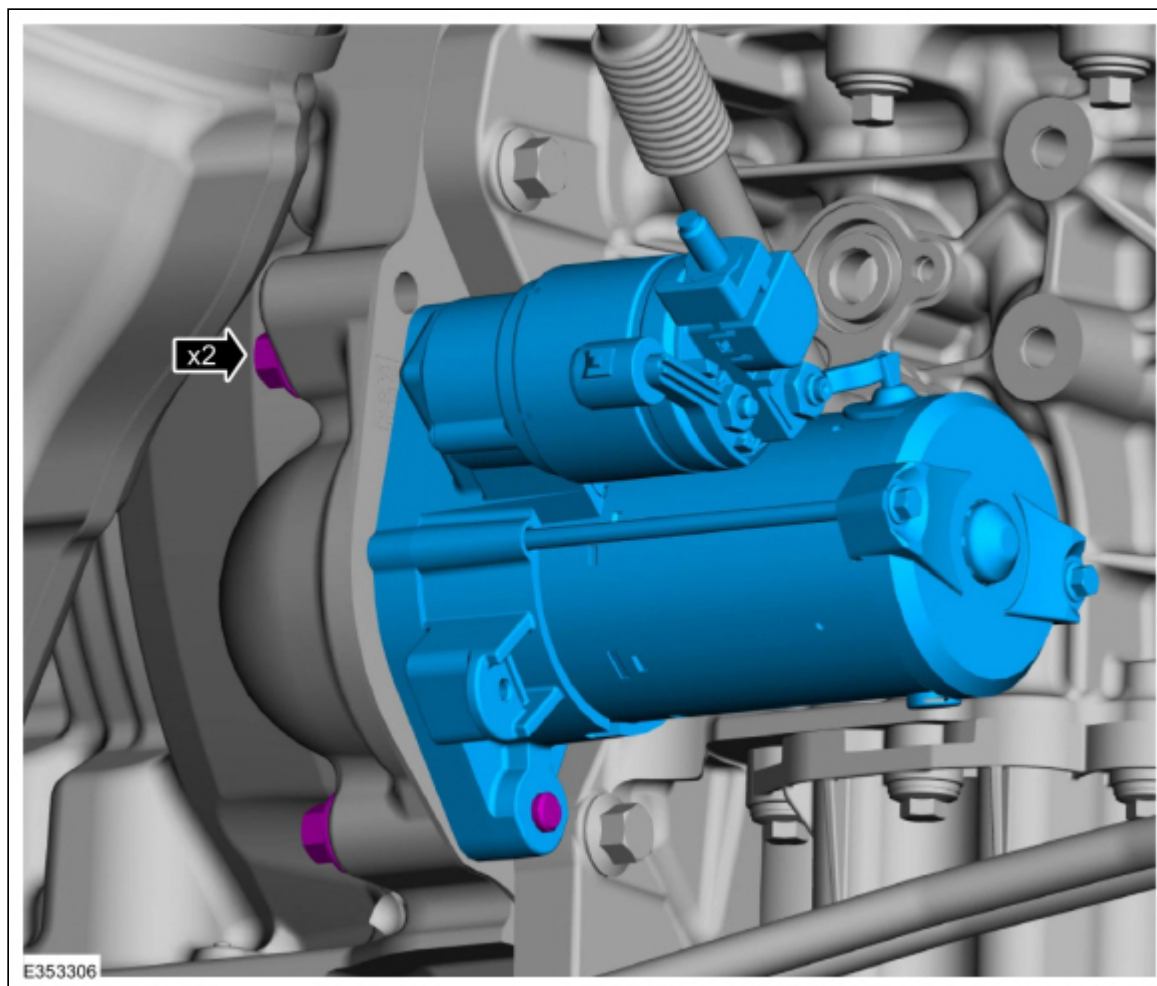
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- 31.
- Position an adjustable stand under the rear of the engine/transmission. Use the General Equipment: Vehicle/Axle Stands
 - Using the adjustable stand, raise the engine 38 mm (1.5 in).

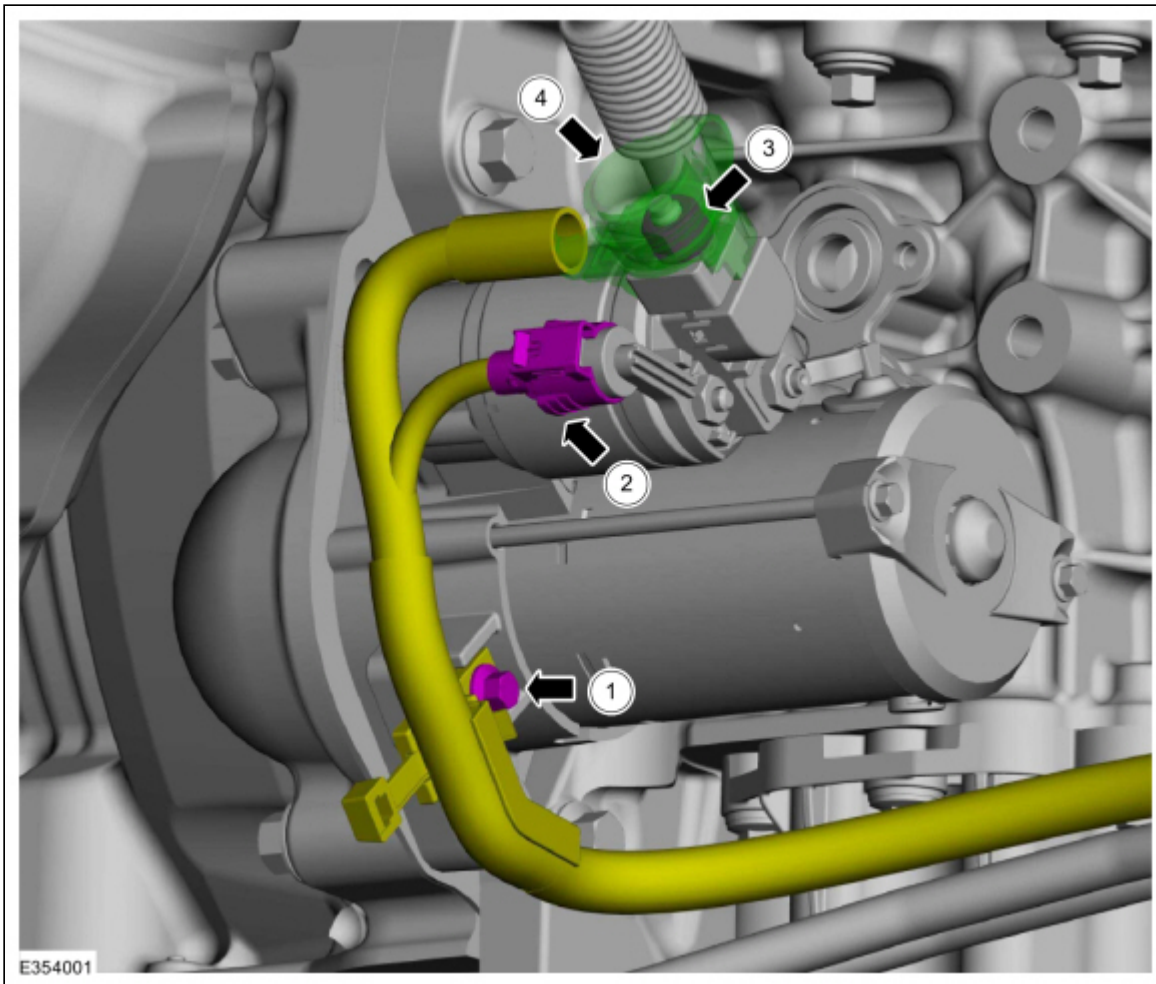


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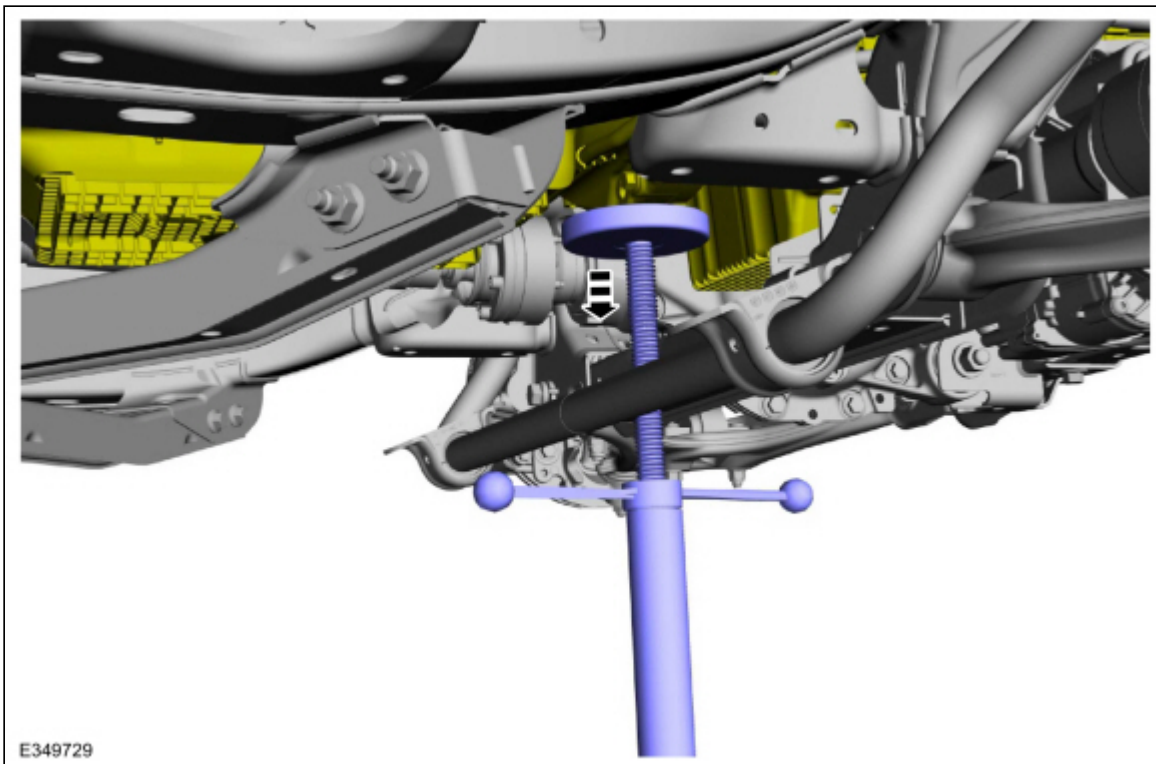
32. Install the starter motor and the bolts.
Torque: 35 lb.ft (48 Nm)



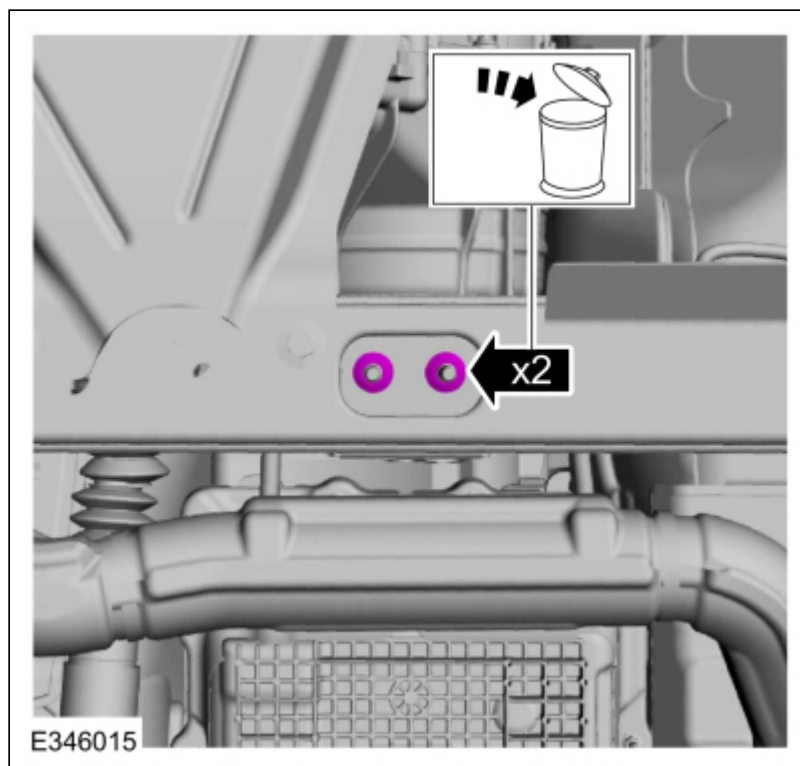
33. 1. Position the wiring harness retainer and install the bolt.
Torque: 106 lb.in (12 Nm)
2. Connect the starter electrical connector.
3. Install the nut.
Torque: 106 lb.in (12 Nm)
4. Close the starter motor electrical connection cover.



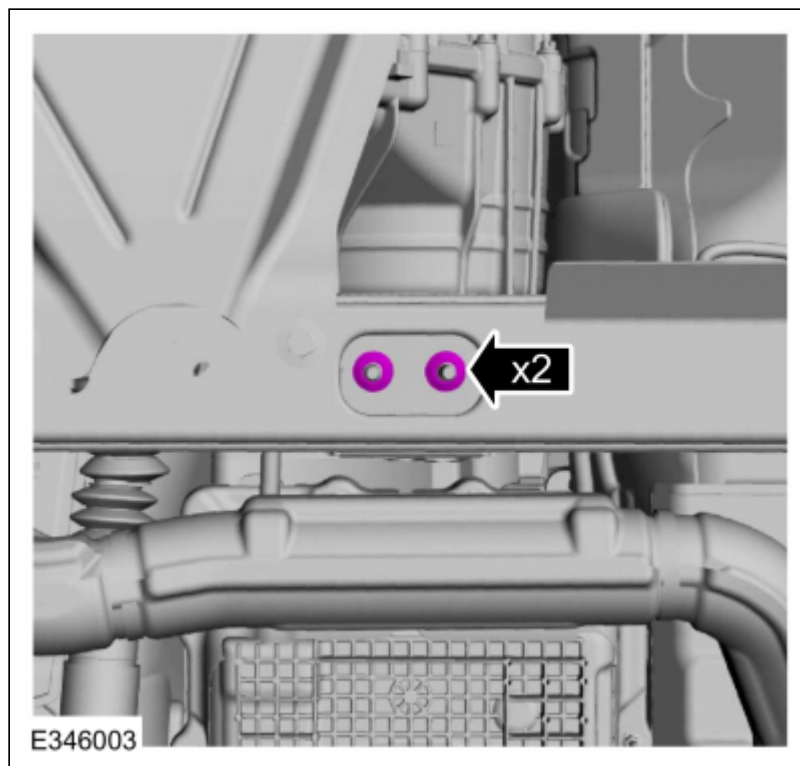
- 34. 1. Using the adjustable stand, lower the engine to the installed position.
Use the General Equipment: Vehicle/Axle Stands
- 2. Remove the stand.



35. Remove and discard the transmission mount nuts.

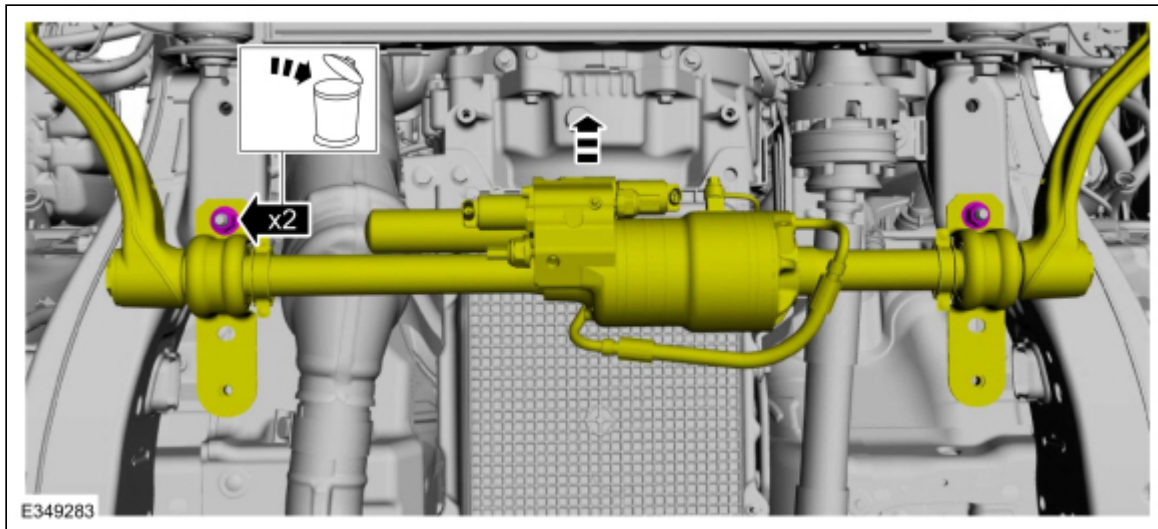


36. Install the new transmission mount nuts and tighten.
Torque: 85 lb.ft (115 Nm)

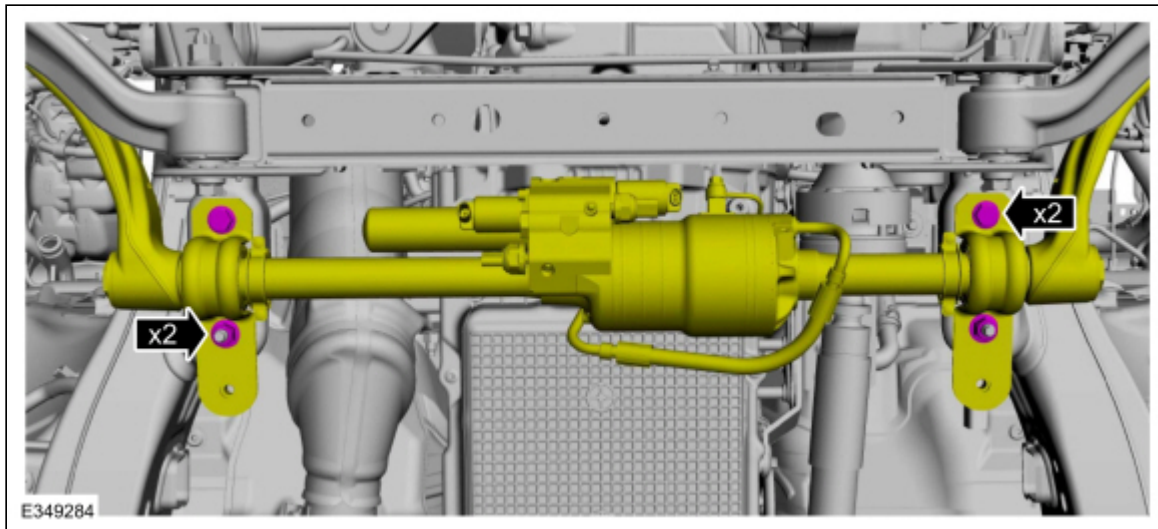


NOTE: Steps 37 thru 39 are for vehicles with sway bar disconnect. Step 40 is for vehicles with a sway bar.

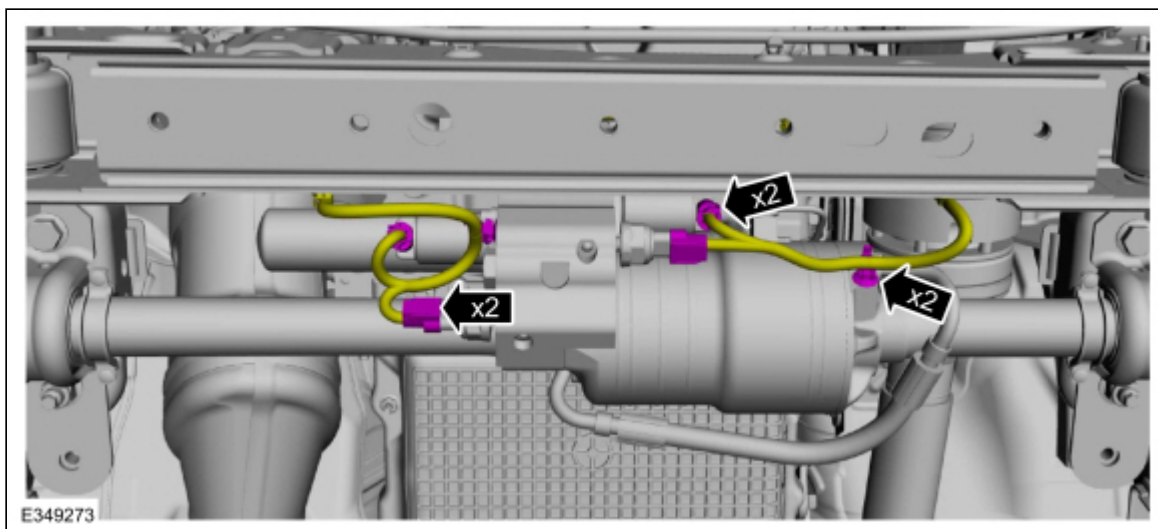
37. Remove and discard the nuts and position the sway bar disconnect forward.



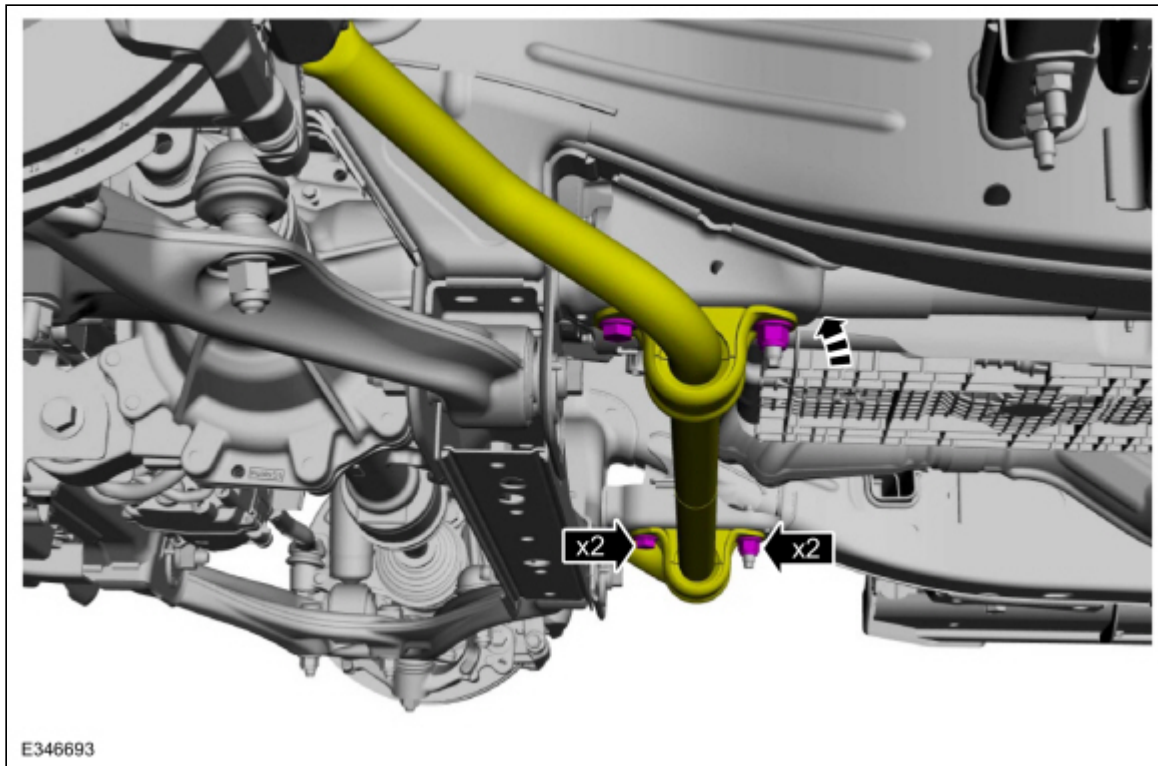
38. Position the sway bar disconnect and install the new nuts and bolts.
Torque: 66 lb.ft (90 Nm)



39. Connect the sway bar disconnect wiring harness electrical connectors and retainers.

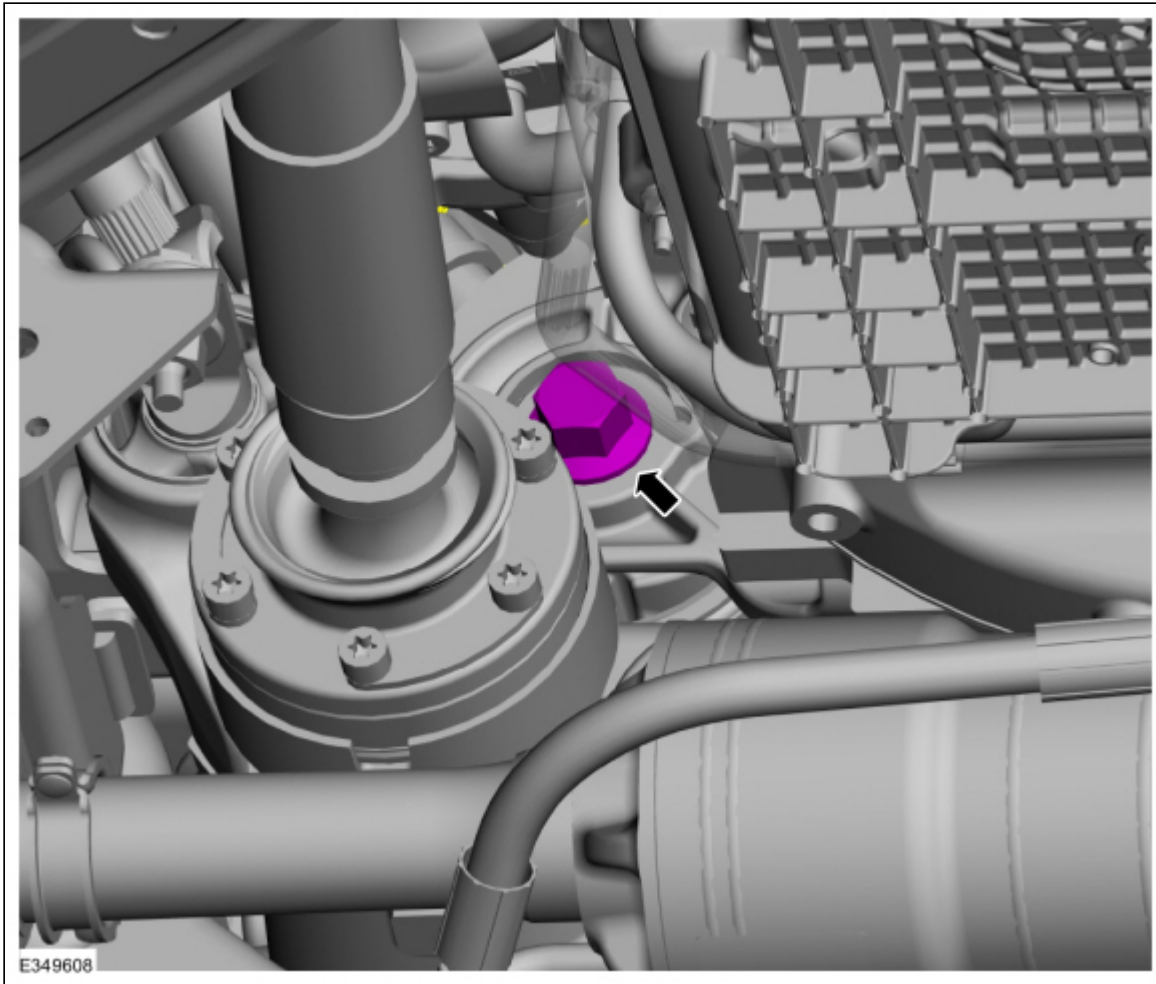


40. Position the sway bar and install the new nuts and bolts.
Torque: 66 lb.ft (90 Nm)



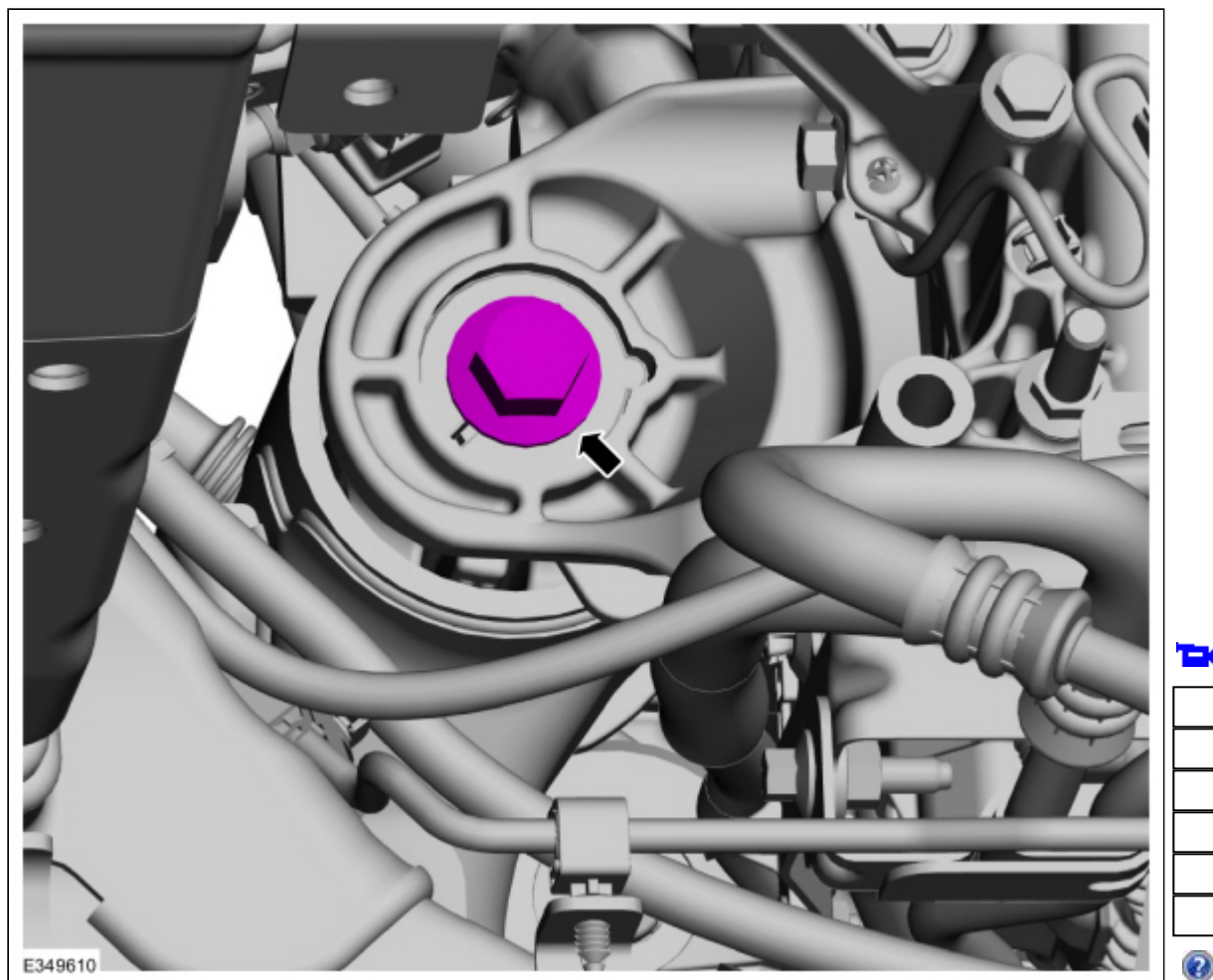
41. **NOTICE:** Only use hand tools when tightening the engine mount through bolts or damage to the engine mount-to-cylinder block bracket can occur.

Install the new LH engine mount through bolt.
Torque: 184 lb.ft (250 Nm)

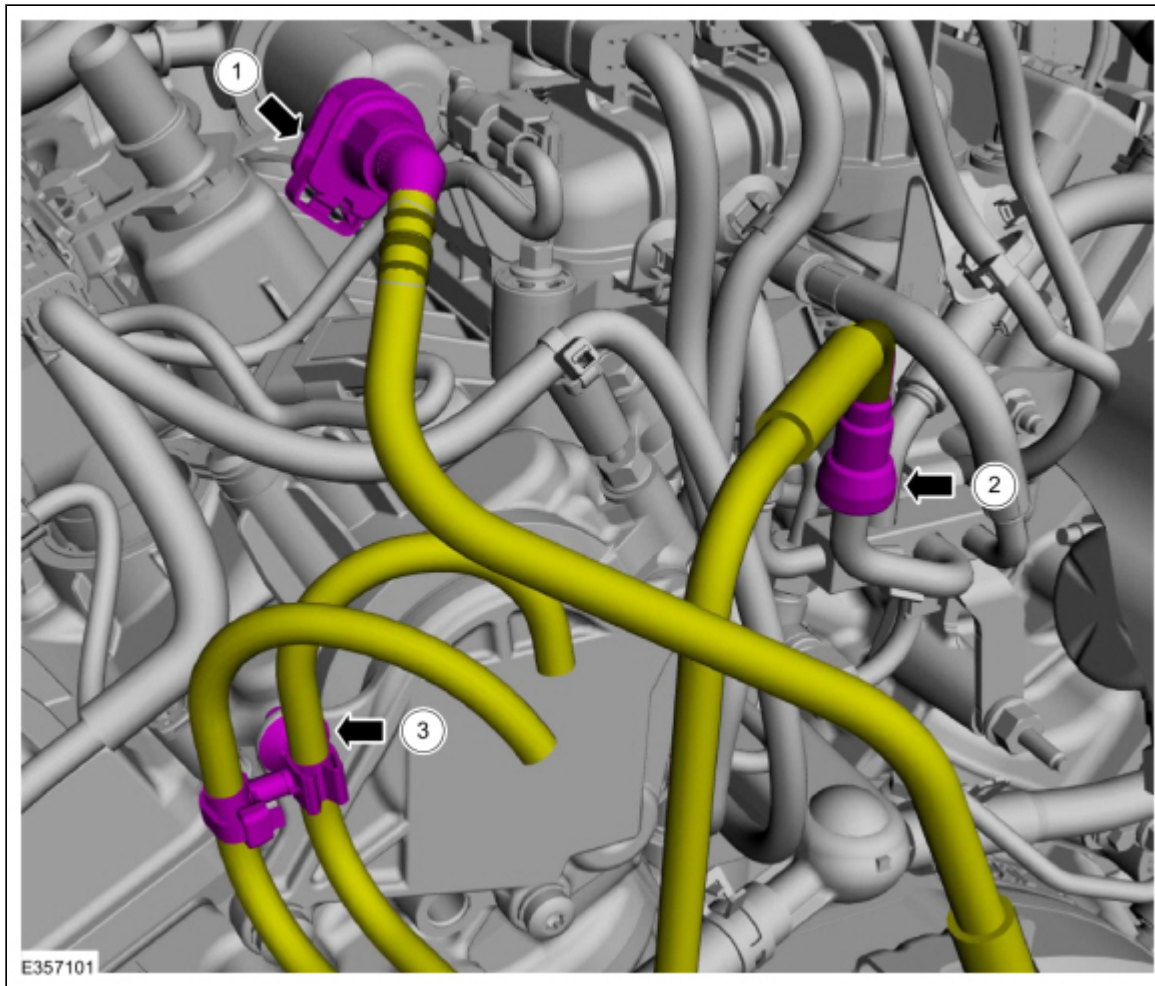


42. **NOTICE:** Only use hand tools when tightening the engine mount through bolts or damage to the engine mount-to-cylinder block bracket can occur.

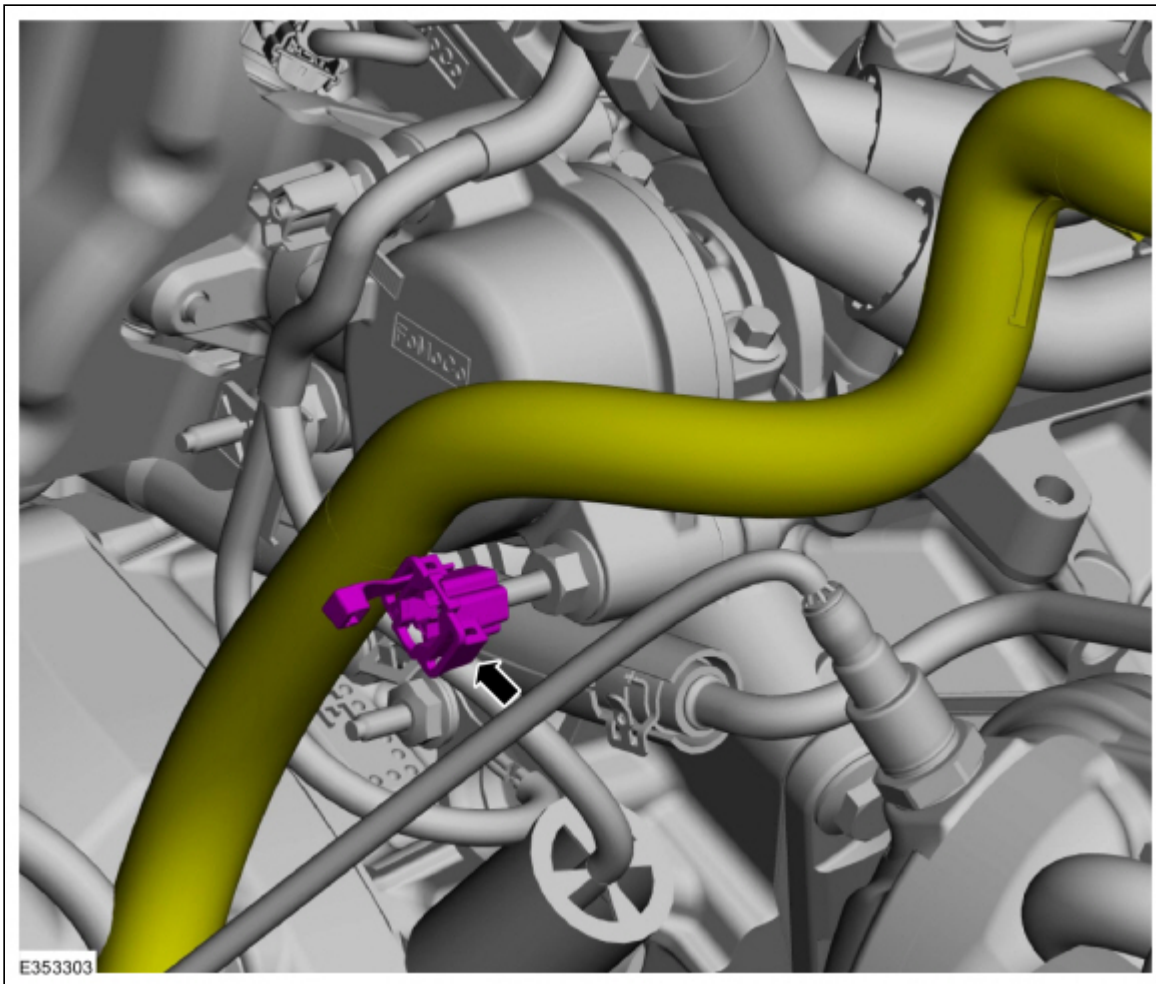
Install the new RH engine mount through bolt.
Torque: 184 lb.ft (250 Nm)



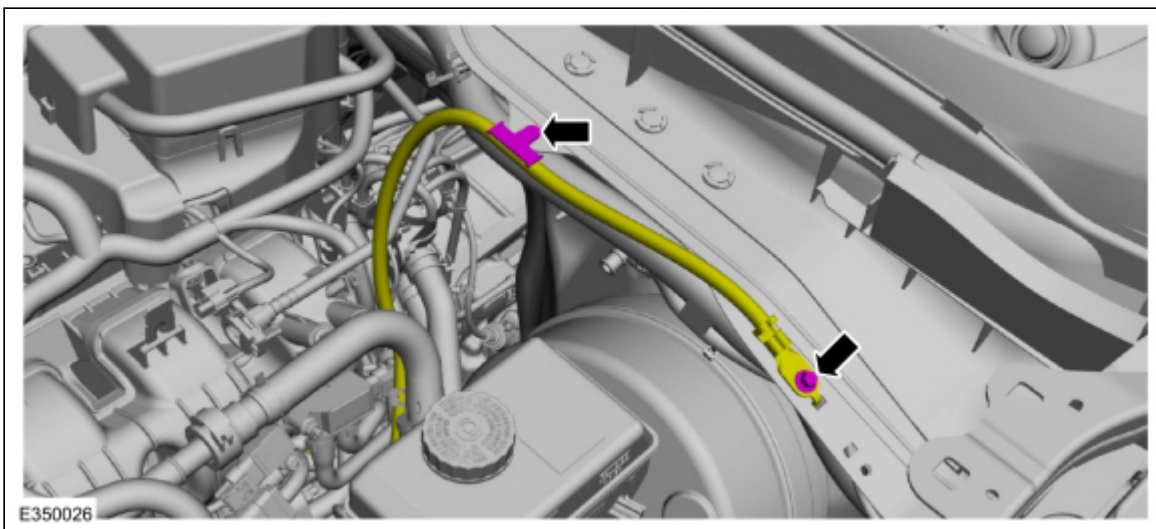
- 43.
1. Follow directions to connect the quick release coupling type 1. Connect the EVAP tube quick release coupling.
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
 2. Connect the high-pressure fuel pump fuel feed tube spring lock coupling.
Refer to: [Spring Lock Couplings](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
 3. Attach the transmission vent tube retainer.



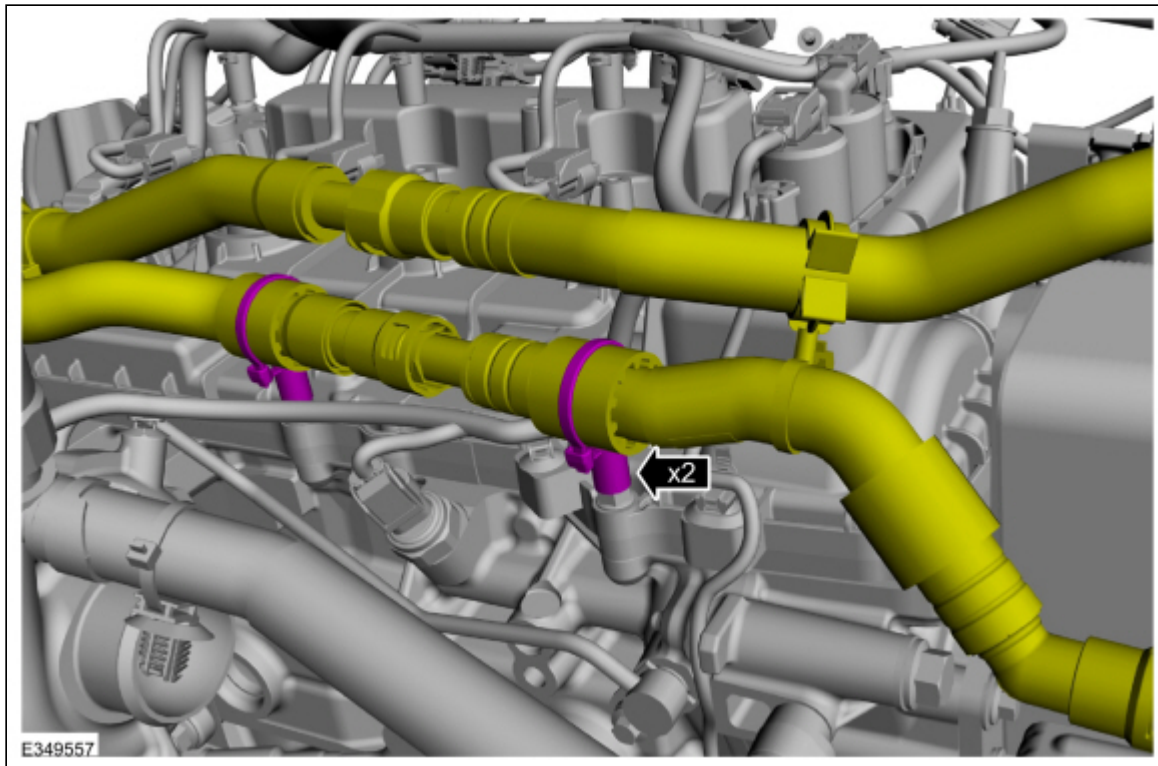
44. Attach the transmission wiring harness retainer.



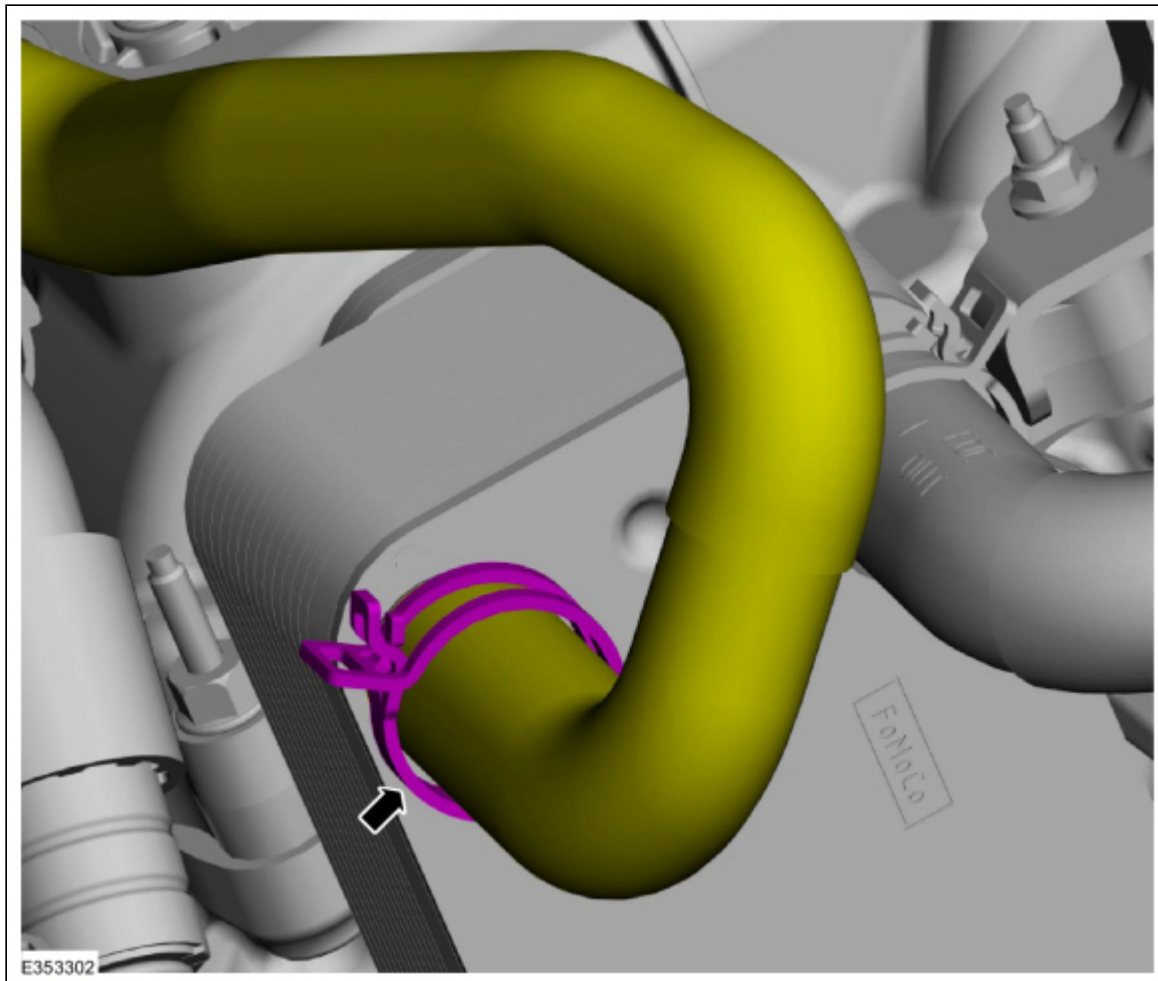
45. Position the ground cable, attach the retainer and install the bolt.
Torque: 106 lb.in (12 Nm)



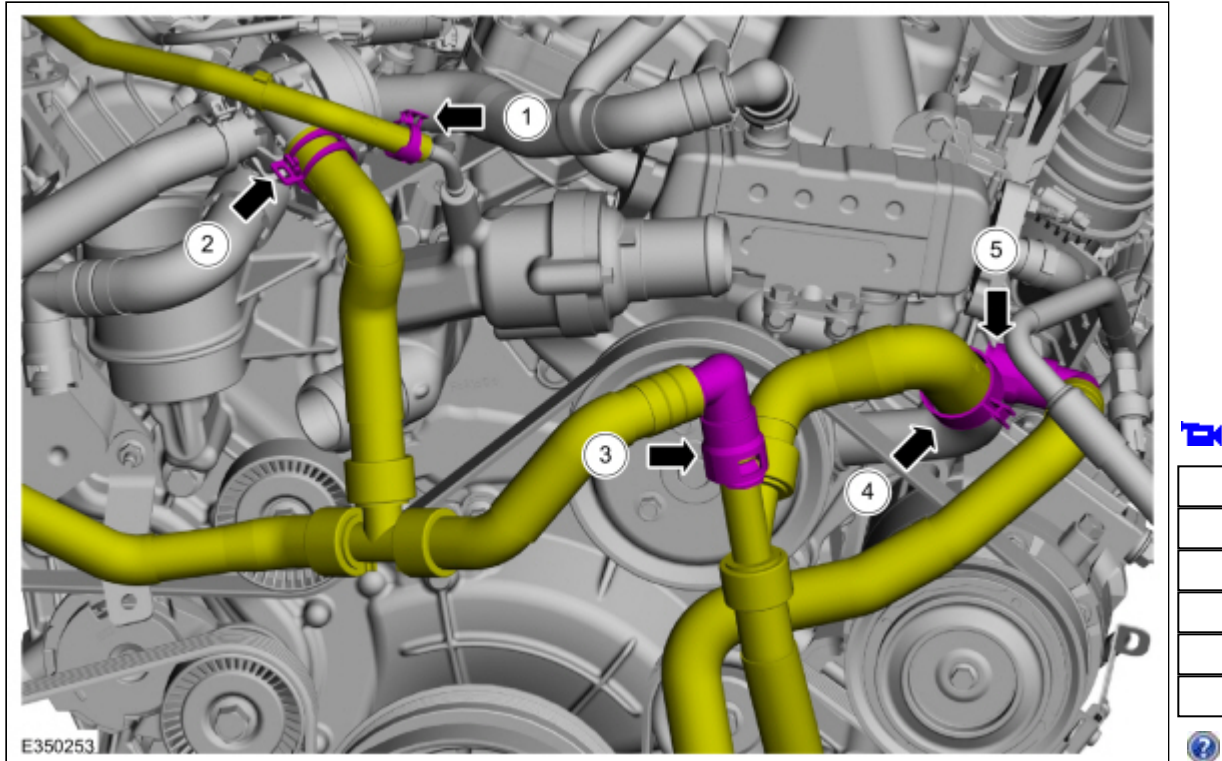
46. Position the coolant hoses and attach the retainers.



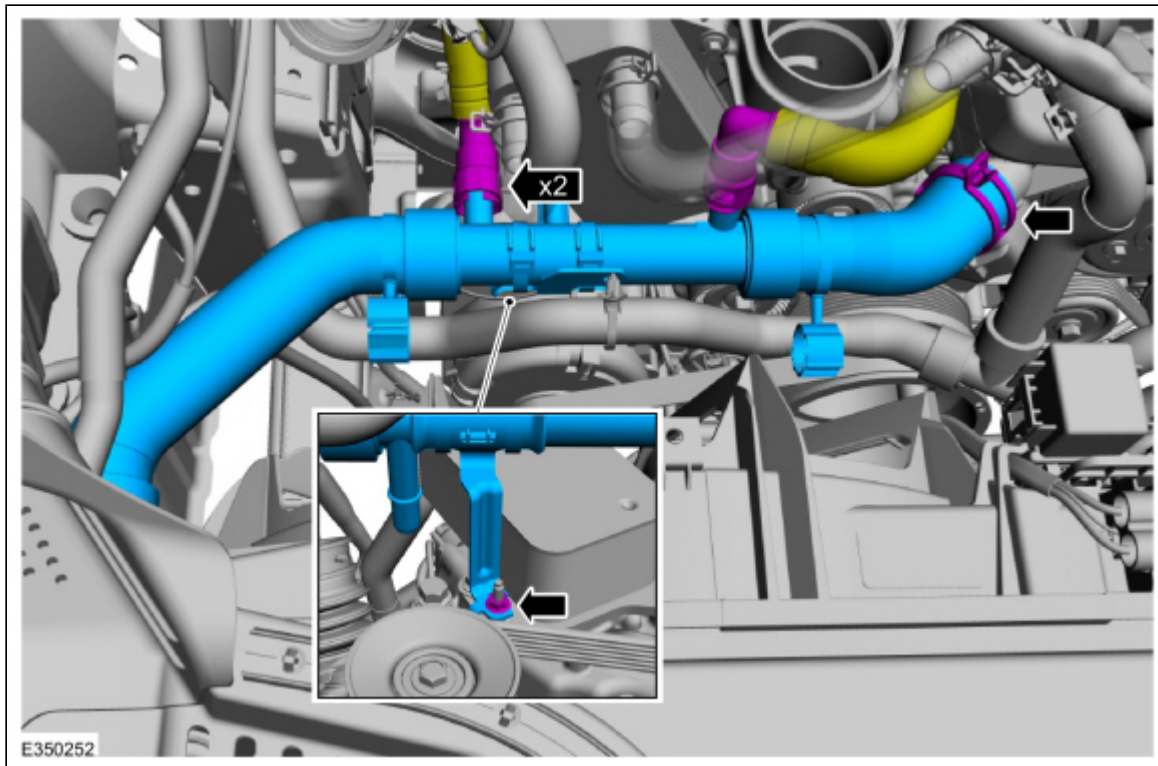
- 47. Install the coolant hose and clamp.
Use the General Equipment: Hose Clamp Remover/Installer



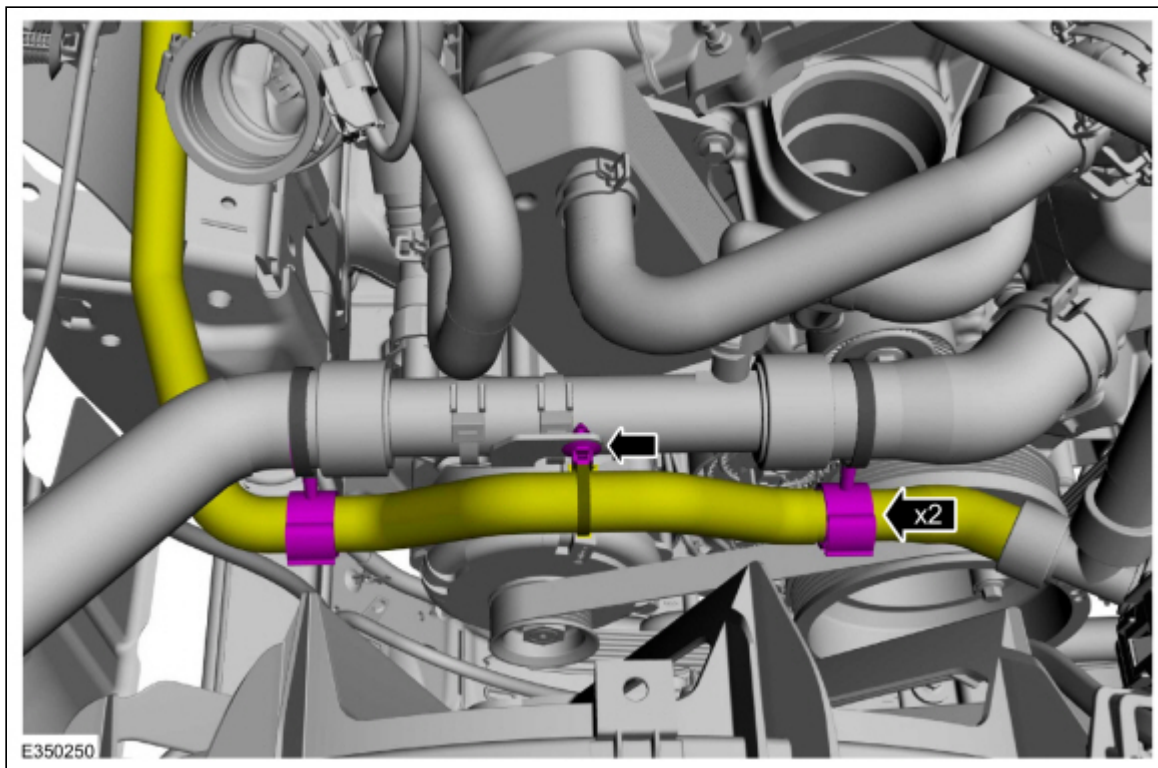
- 48.
1. Install the degas hose and clamp
Use the General Equipment: Hose Clamp Remover/Installer
 2. Install the coolant hose and clamp
Use the General Equipment: Hose Clamp Remover/Installer
 3. Follow directions to connect the quick release coupling type 5. Connect the coolant hose and position the hose aside.
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
 4. Install the coolant hose and clamp
Use the General Equipment: Hose Clamp Remover/Installer
 5. Follow directions to connect the quick release coupling type 5. Connect the coolant hose and position the hose aside.
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).



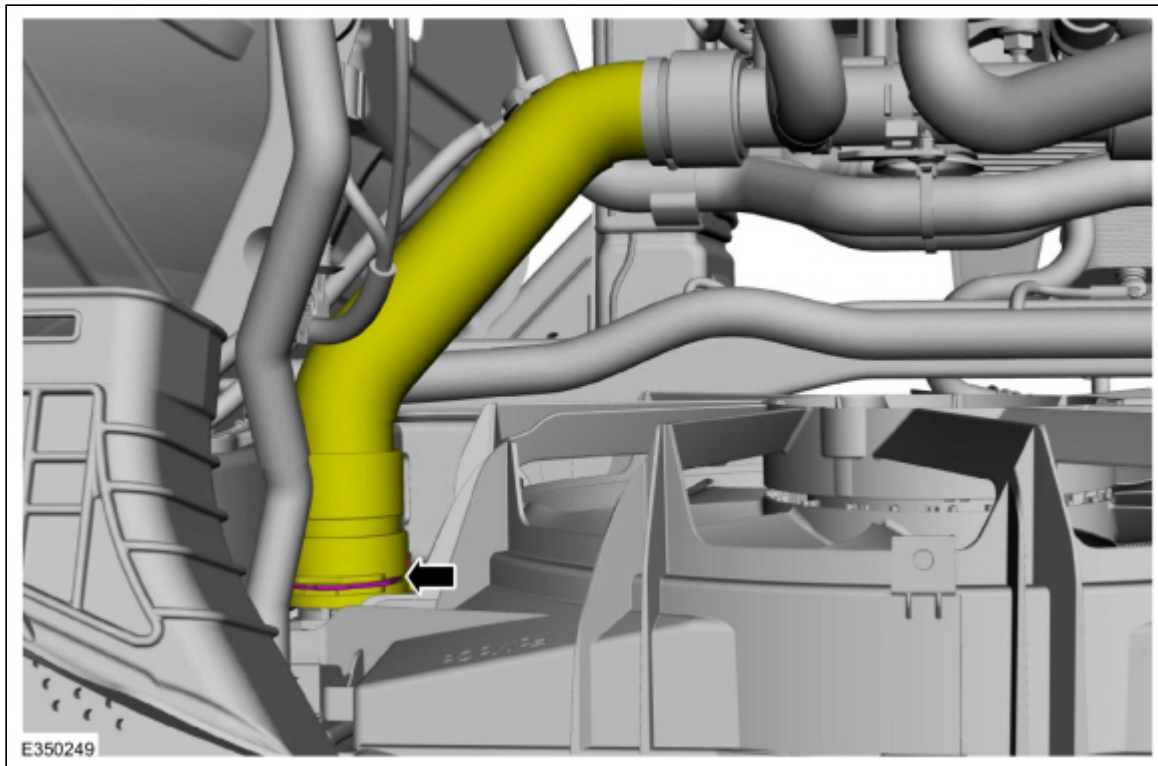
- 49.
- Install the radiator hose and clamp.
Use the General Equipment: Hose Clamp Remover/Installer
 - Install the radiator hose bracket nut.
Torque: 93 lb.in (10.5 Nm)
 - Follow directions to connect the quick release coupling type 5. Connect the coolant hoses.
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).



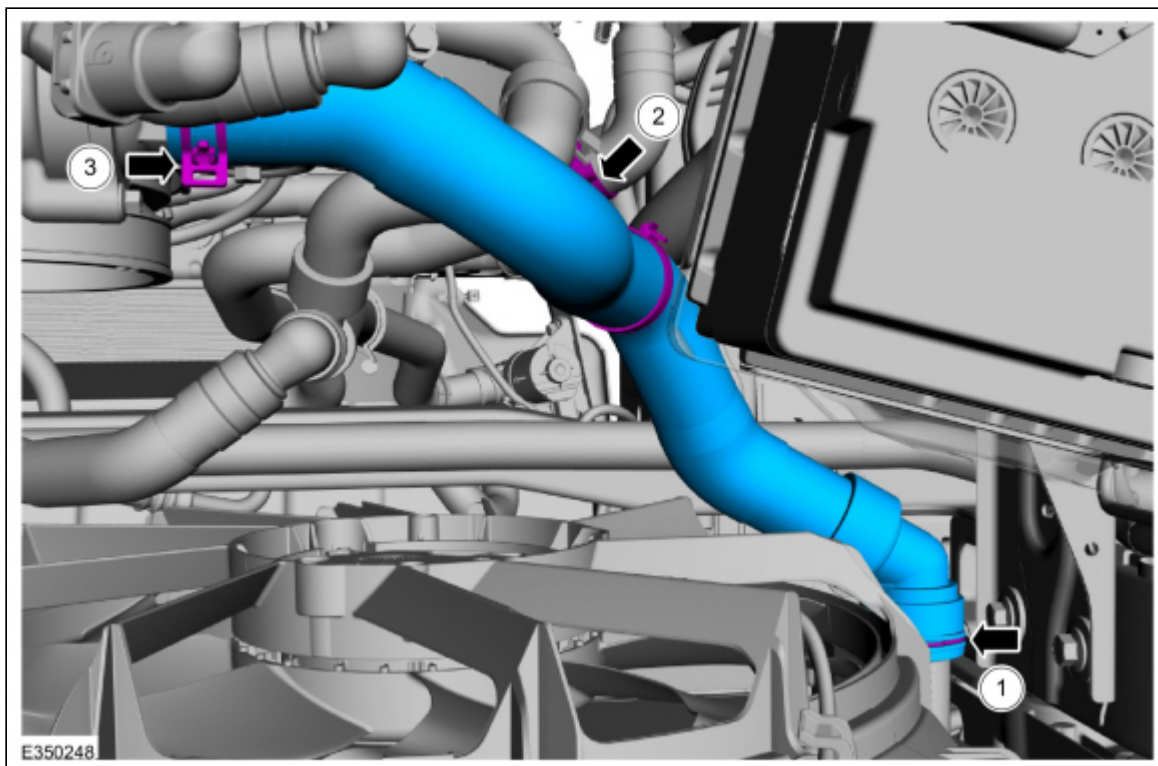
50. Attach the coolant hose retainers.



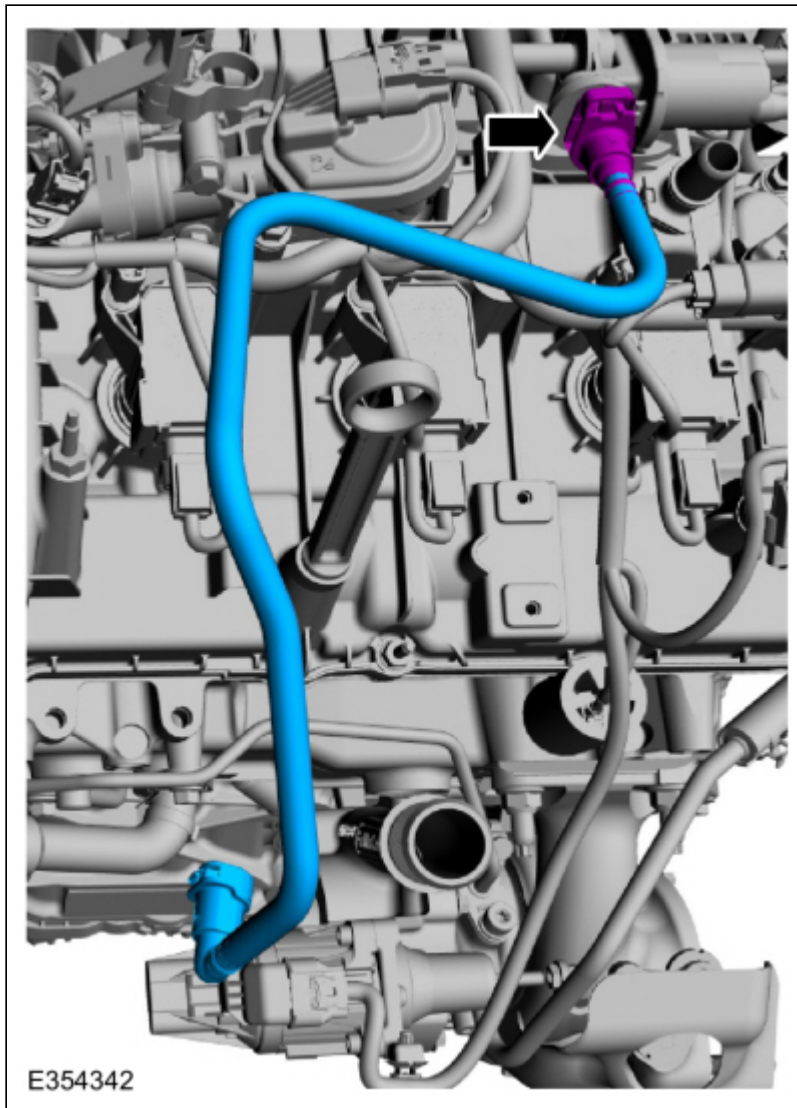
51. Install the radiator hose and the retaining clip.



52.
 1. Install the radiator hose and the retaining clip.
 2. Attach the radiator hose retainer.
 3. Connect the radiator hose and clamp.
 Use the General Equipment: Hose Clamp Remover/Installer



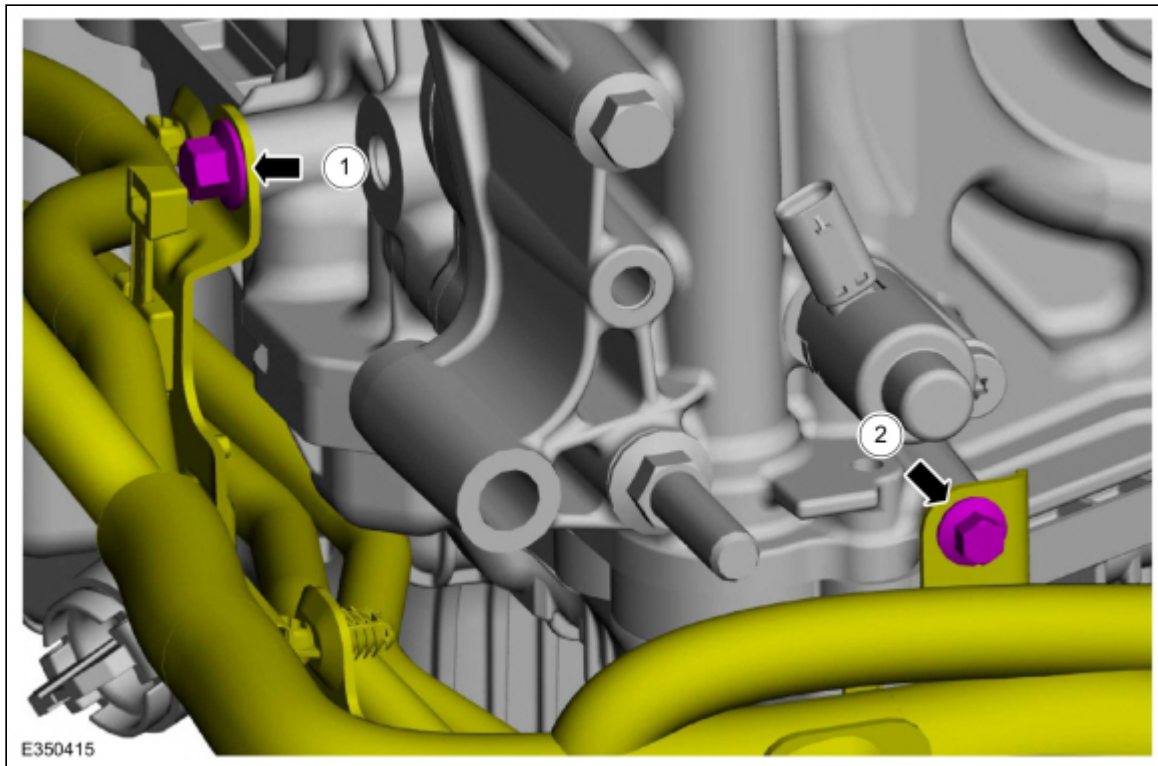
53. Follow directions to connect the quick release coupling type 1. Install the EVAP tube.
 Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).



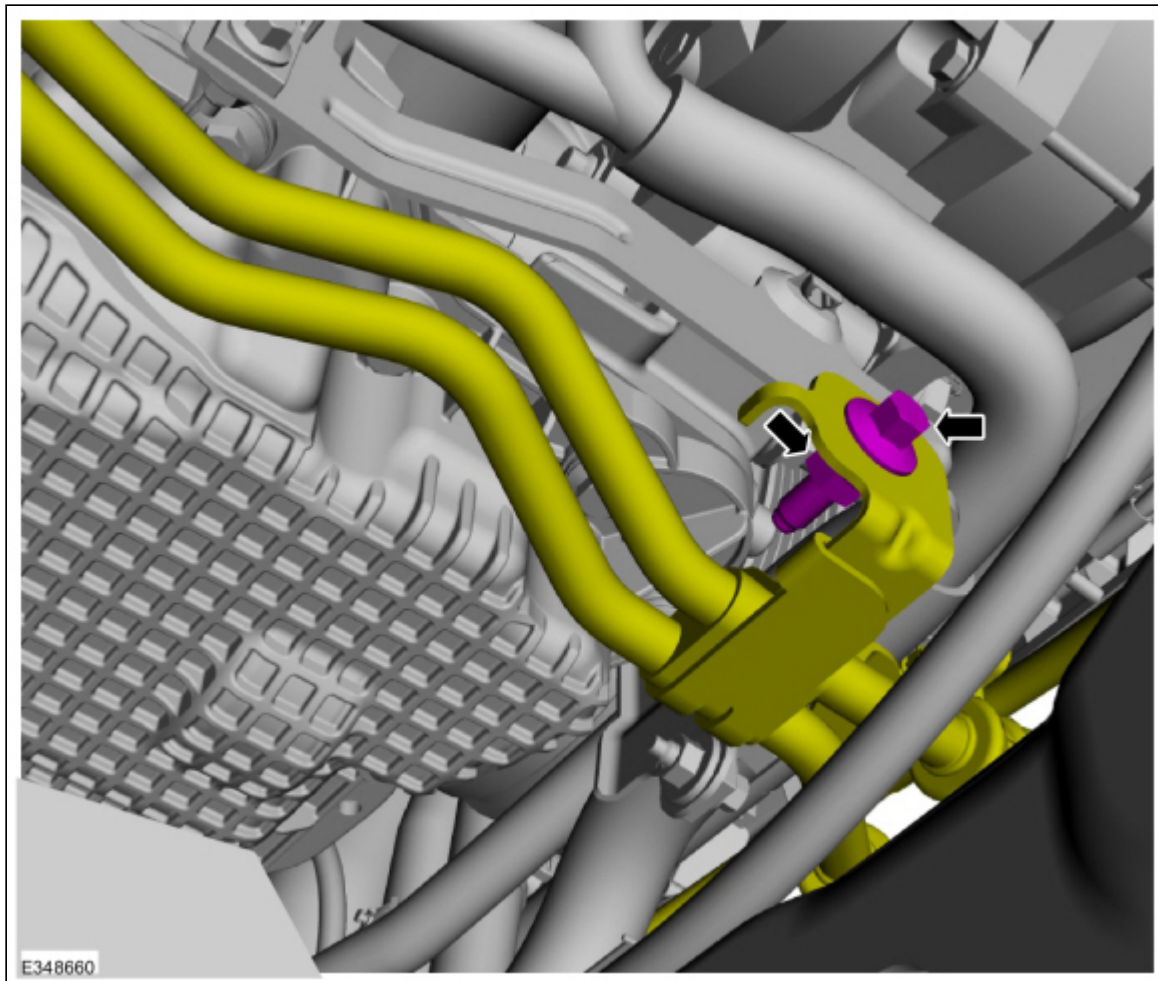
54. Position the bracket and install the bolts.

Torque:

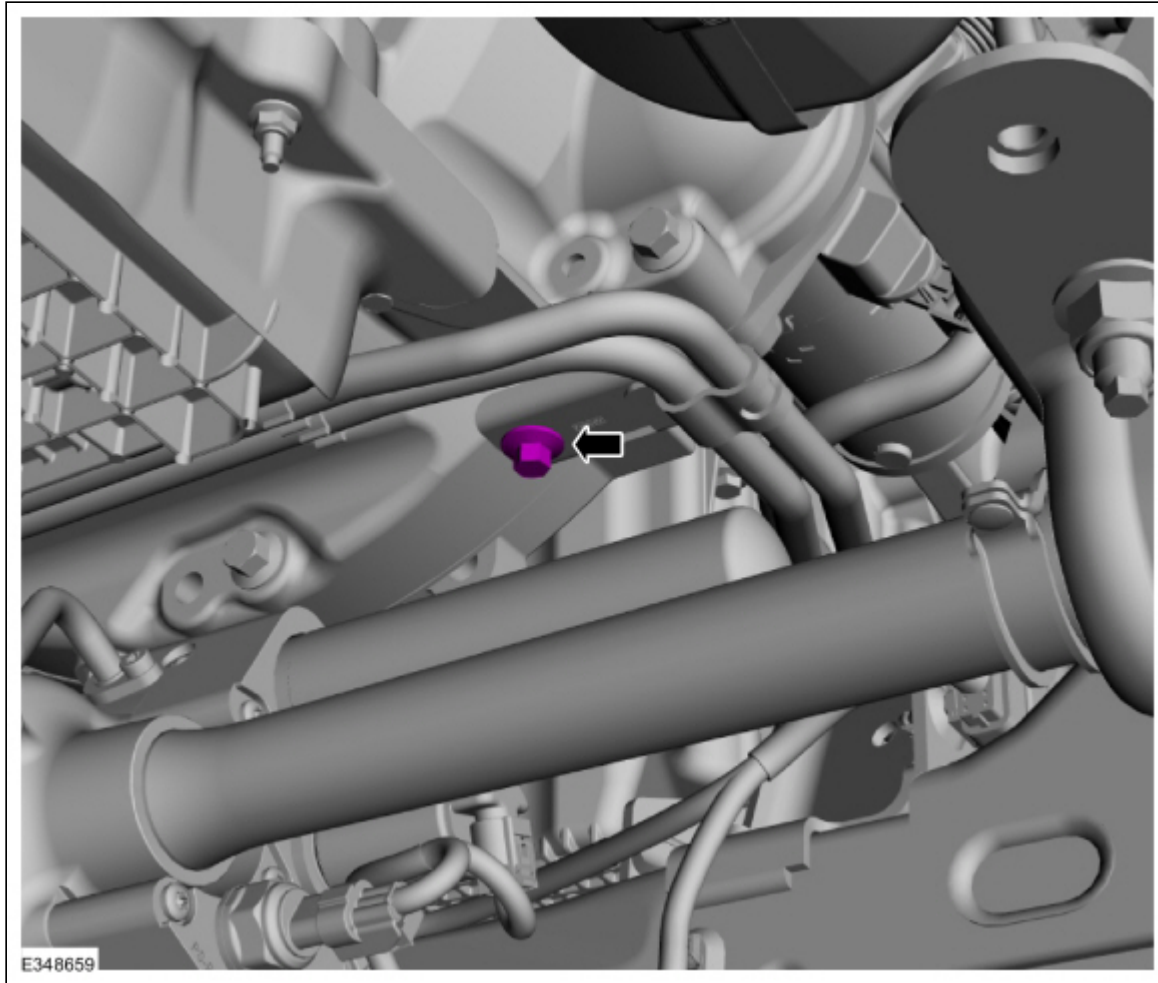
- 1: 177 lb.in (20 Nm)
- 2: 93 lb.in (10.5 Nm)



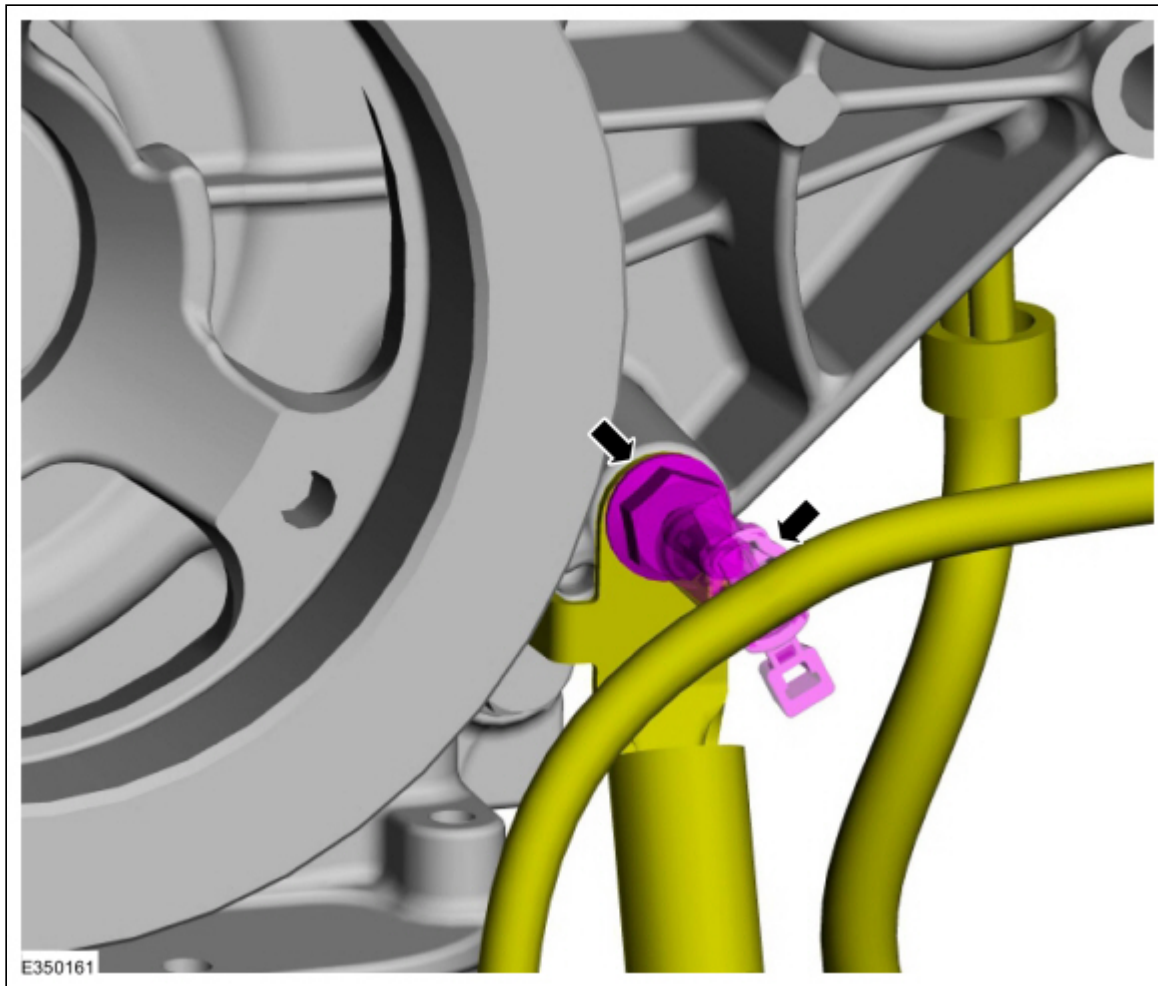
55. Position the transmission cooler tubes and install the bolt and nut.
Torque: 177 lb.in (20 Nm)



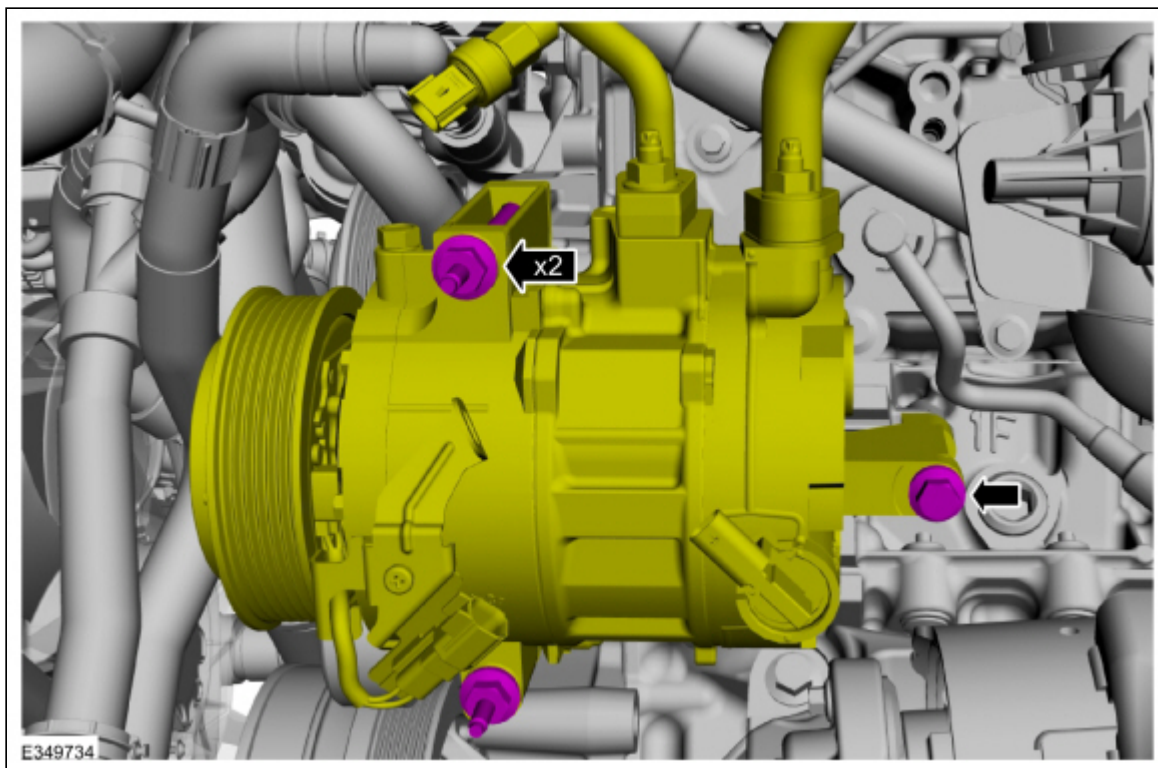
- 56. Install the transmission cooler tube bracket bolt.
Torque: 177 lb.in (20 Nm)



- 57.
 1. Install the ground wire and stud bolt.
Torque: 177 lb.in (20 Nm)
 2. Attach the wiring harness retainer.

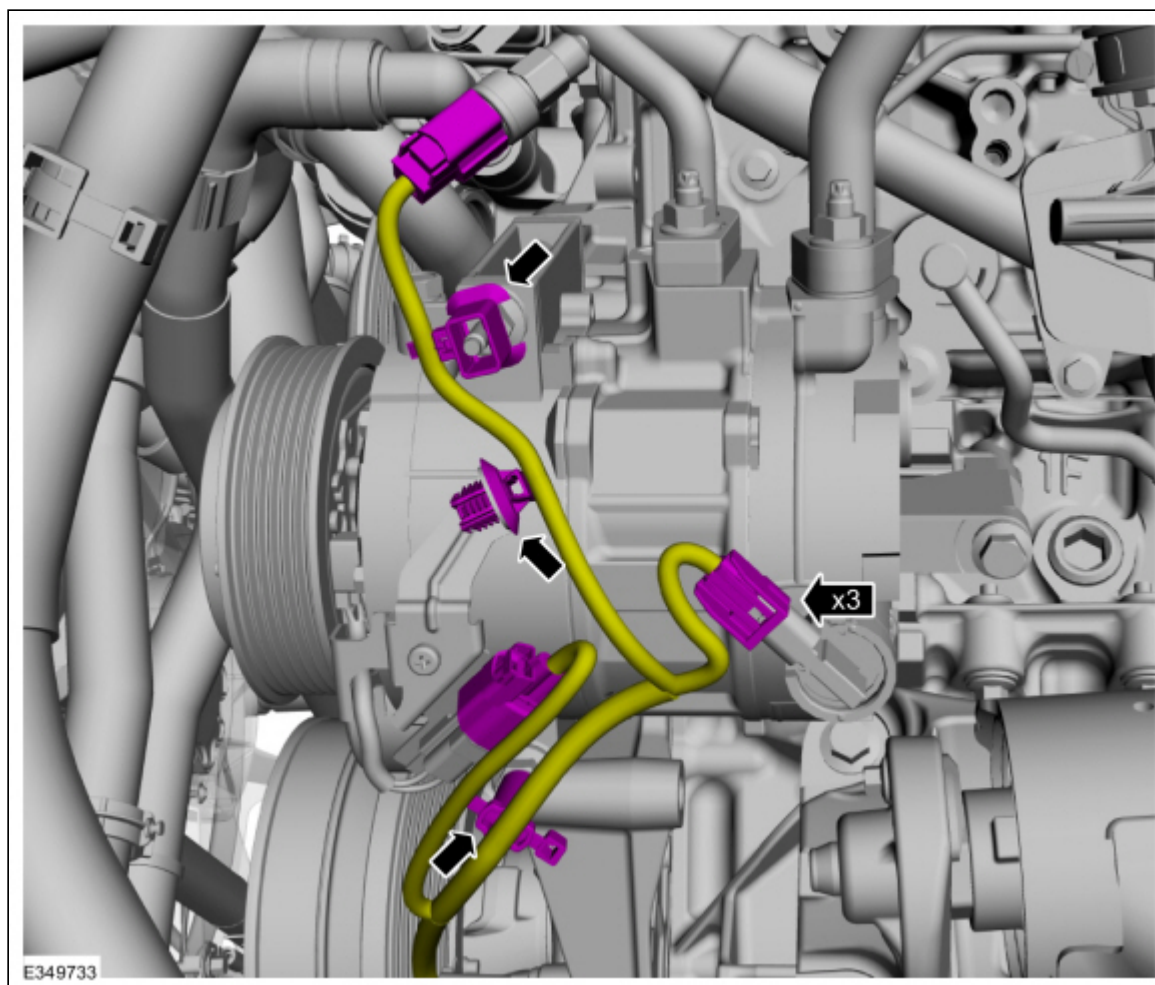


58. Remove the fasteners and position the A/C compressor aside.
Torque: 18 lb.ft (25 Nm)



59. 1. Connect the wiring harness electrical connectors.

2. Attach the wiring harness retainers.



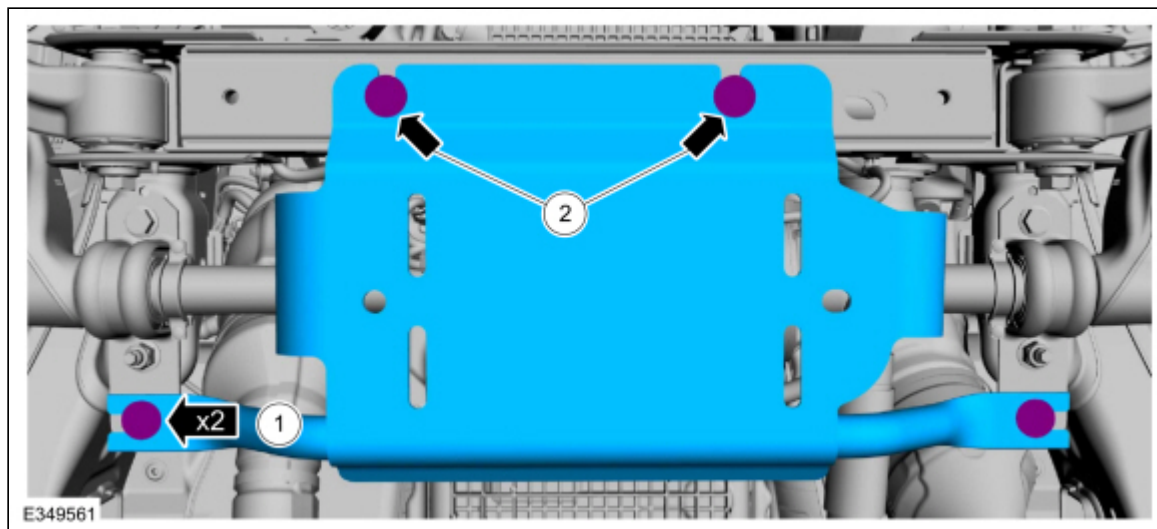
60. Install a new engine oil filter and fill the engine with clean engine oil.
Refer to: [Engine Oil Draining and Filling](#) (303-01B Engine - 2.7L EcoBoost (238kW/324PS), General Procedures).

61. Install the following items:

1. Generator.
Refer to: [Generator - 2.7L EcoBoost \(238kW/324PS\)](#) (414-02 Generator and Regulator, Removal and Installation).
2. Accessory drive belt.
Refer to: [Accessory Drive Belt](#) (303-05B Accessory Drive - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
3. Right hand (RH) and left hand (LH) [CAC](#) intake pipes.
Refer to: [Charge Air Cooler \(CAC\) Intake Pipe](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
4. Right hand (RH) and left hand (LH) [CAC](#) outlet pipes.
Refer to: [Charge Air Cooler \(CAC\) Outlet Pipe](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
5. Right hand (RH) and left hand (LH) air cleaner outlet pipes.
Refer to: [Air Cleaner Outlet Pipe RH](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
Refer to: [Air Cleaner Outlet Pipe LH](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
6. Left hand (LH) crankcase ventilation tube.
Refer to: [Crankcase Ventilation Tube](#) (303-08B Engine Emission Control - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
7. [PCM](#) Cowl panel.
Refer to: [Powertrain Control Module \(PCM\)](#) (303-14B Electronic Engine Controls - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
8. Hood.
Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).

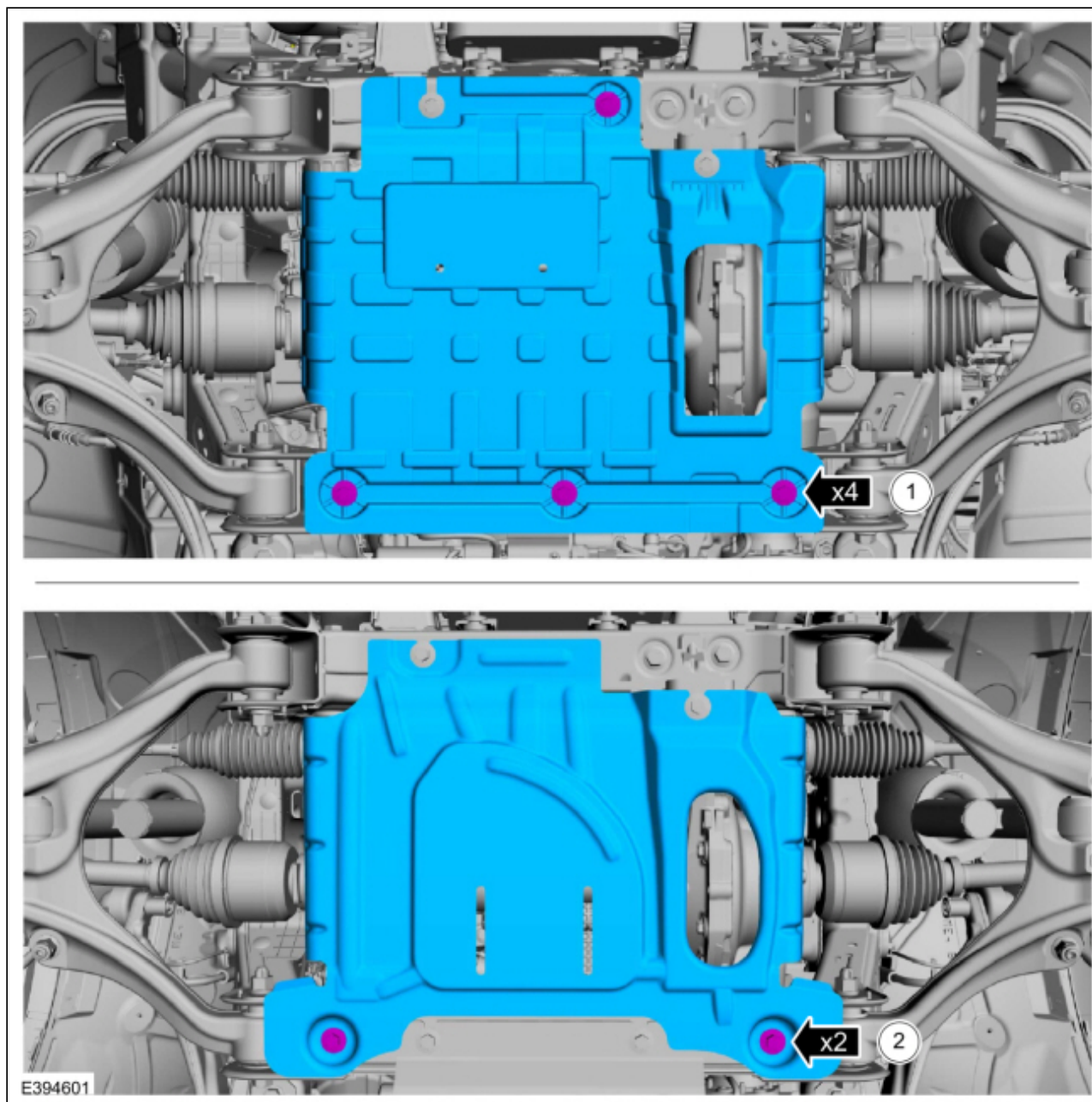
62. **NOTE:** *If equipped.*

1. Install the underbody shield and the bolts.
Torque: 26 lb.ft (35 Nm)
2. Tighten the bolts.
Torque: 26 lb.ft (35 Nm)



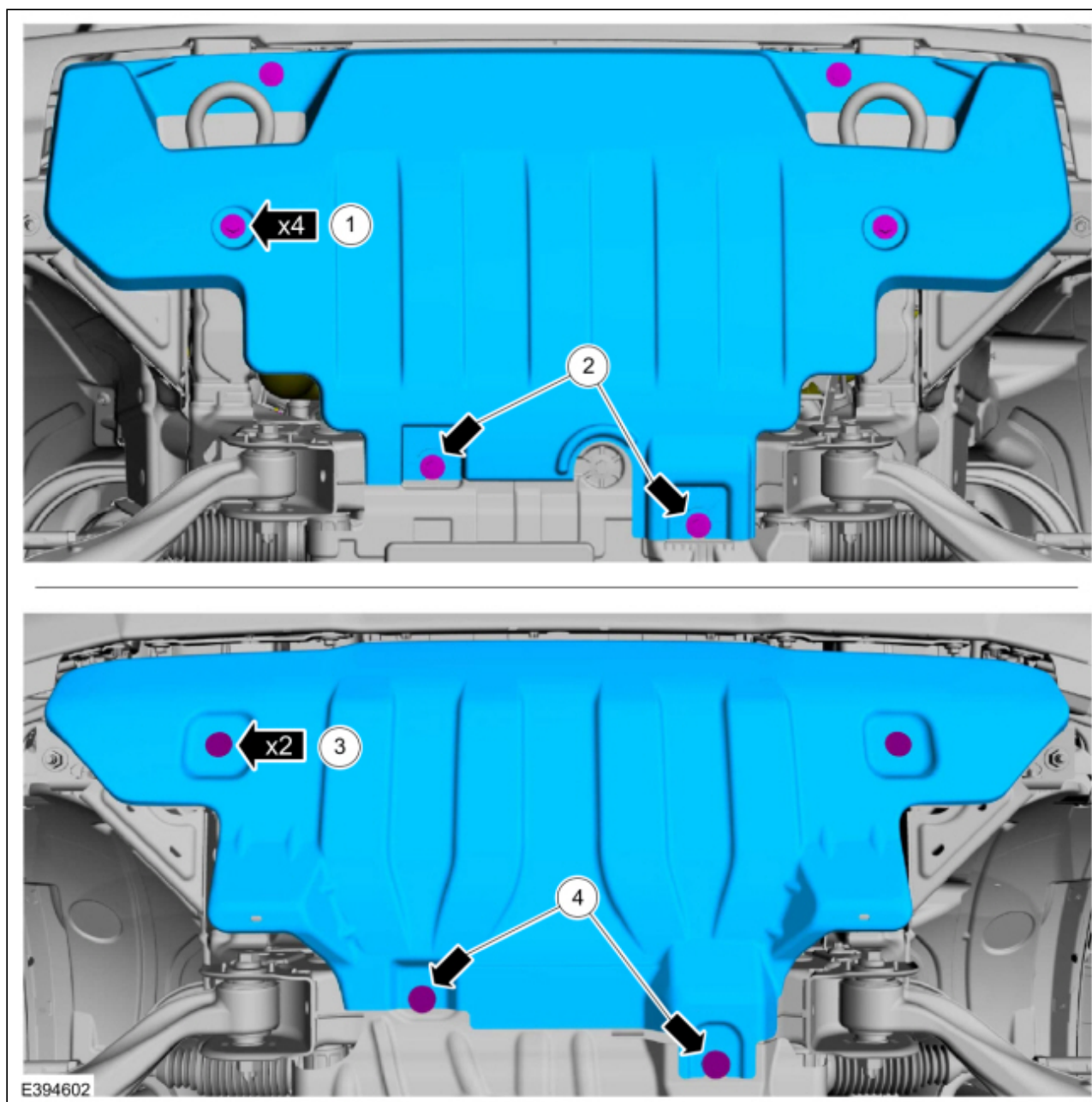
63. **NOTE:** *Underbody shields vary by model.*

1. Install the underbody shield (plastic shield) and the bolts.
Torque: 124 lb.in (14 Nm)
2. Install the underbody shield (metal shield) and the bolts.
Torque: 26 lb.ft (35 Nm)



64. **NOTE:** Underbody shields vary by model.

1. Install the underbody shield (plastic shield) and the bolts.
Torque: 124 lb.in (14 Nm)
2. Tighten the bolts.
Torque: 124 lb.in (14 Nm)
3. Install the underbody shield (metal shield) and the bolts.
Torque: 26 lb.ft (35 Nm)
4. Tighten the bolts.
Torque: 26 lb.ft (35 Nm)



65. Install the RH and LH fender splash shields.
Refer to: [Fender Splash Shield](#) (501-02 Front End Body Panels, Removal and Installation).
66. Connect the battery ground cable.
Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
67. Pressurize the fuel system.
Refer to: [Fuel System Pressure Release](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
68. Fill and bleed the engine cooling system.
Refer to: [Engine Cooling System Draining, Vacuum Filling and Bleeding](#) (303-03B Engine Cooling - 2.7L EcoBoost (238kW/324PS), General Procedures).
69. Start and check the exhaust system for leaks.
70. Use the Powertrain Control Module (PCM) Misfire Monitor Profile Correction routine in the diagnostic scan tool.
71. Road test the vehicle.

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Engine

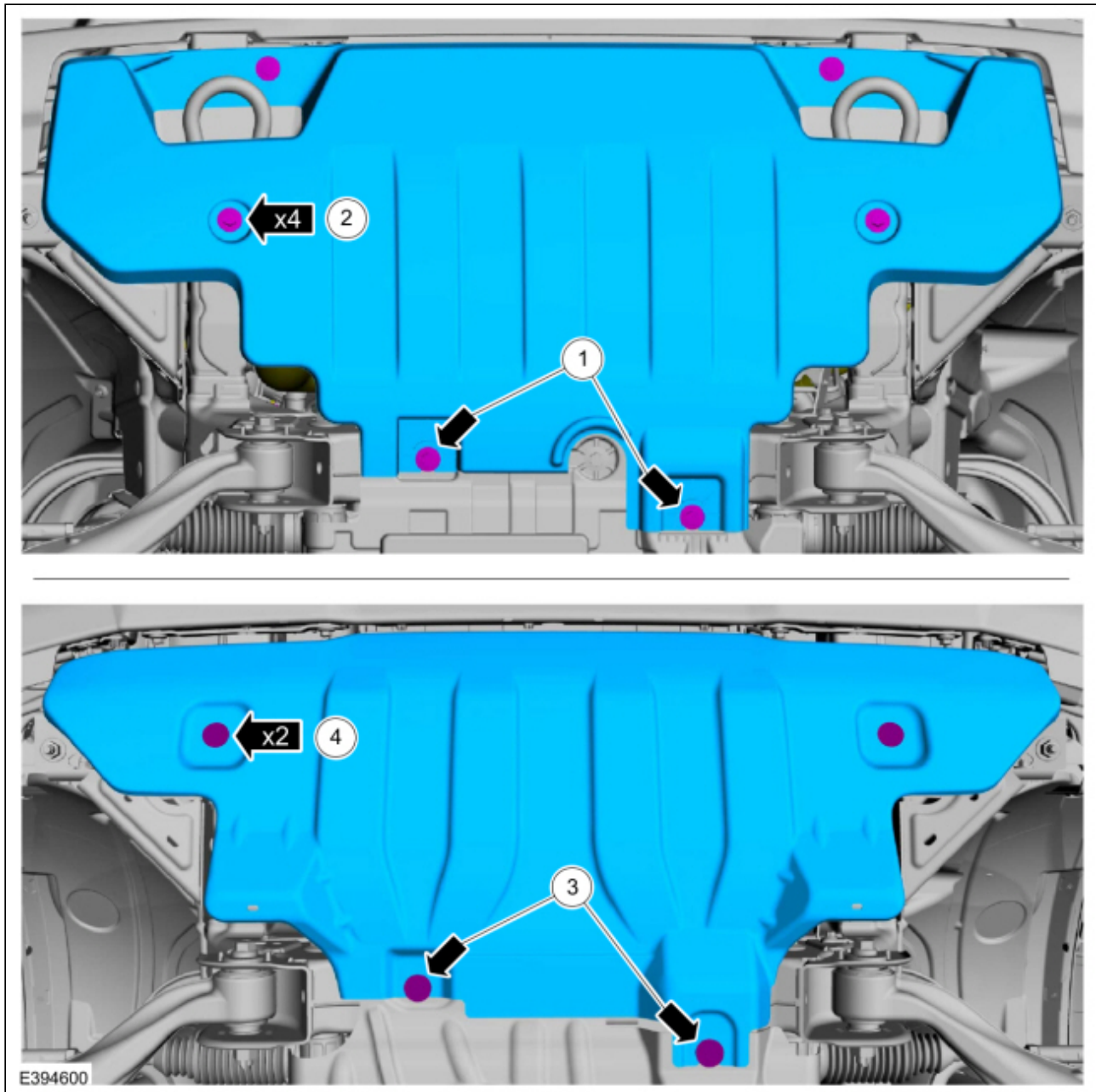


Special Tool(s) / General Equipment

	<p>303-1246 Engine Spreader Bar TKIT-2006UF-FLM TKIT-2006UF-ROW</p>
<p>E188625</p>	<p>303-1634 Lift Eyes (2) TKIT-2014D-ROW3 TKIT-2014D-FL_ROW</p>
<p>Floor Crane</p>	
<p>Trolley Jack</p>	
<p>Vehicle/Axle Stands</p>	
<p>Hose Clamp Remover/Installer</p>	
<p>Wooden Block</p>	

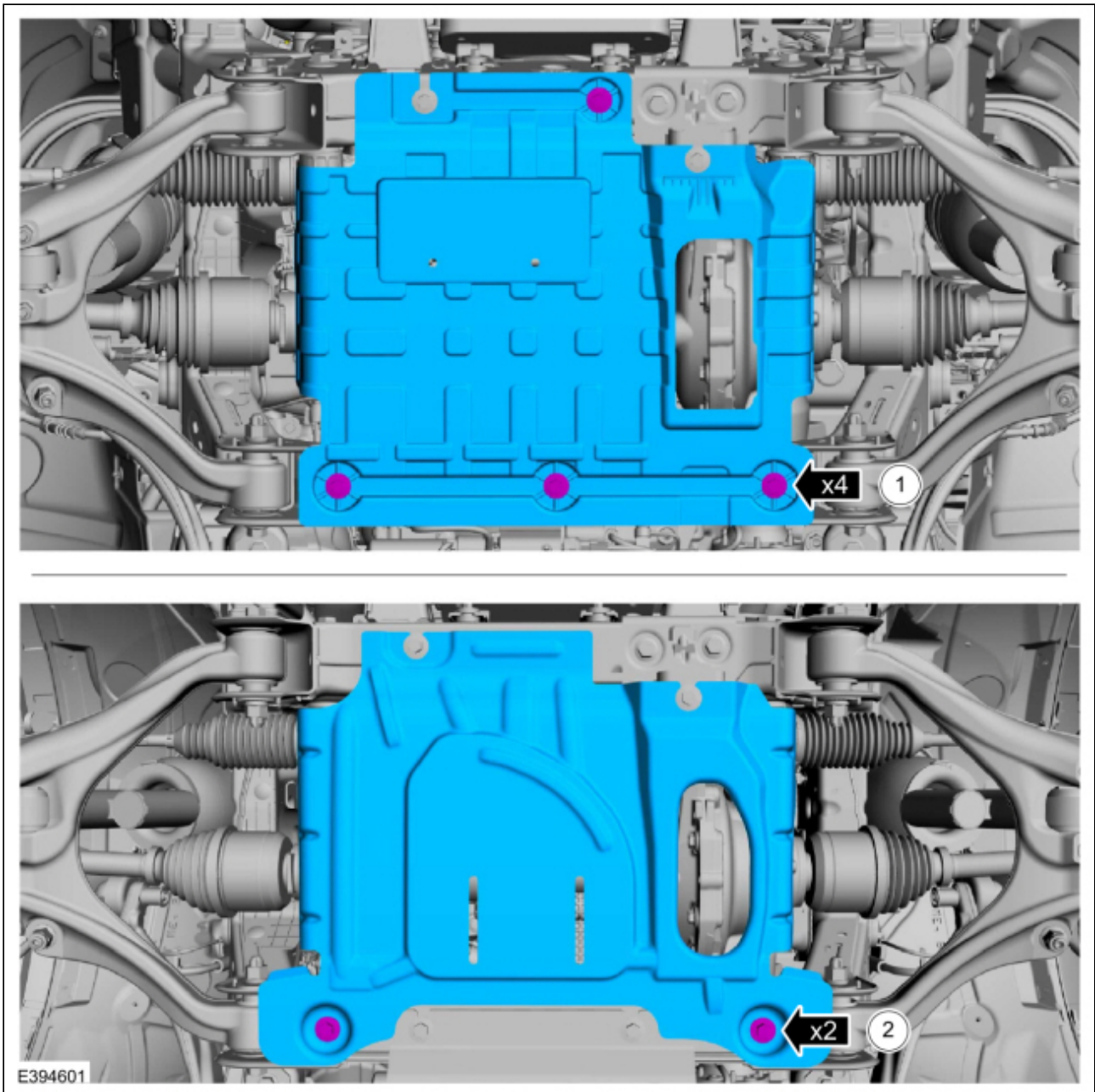
NOTICE: The turbocharger compressor vanes can be damaged by even the smallest particles. When removing any turbocharger or engine air intake system component, ensure that no debris enters the system. Failure to do so may result in damage to the turbocharger.

1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: [Jacking and Lifting](#) (100-02 Jacking and Lifting, Description and Operation).
2. Release the fuel system pressure.
Refer to: [Fuel System Pressure Release](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
3. **NOTE:** *Underbody shields vary by model.*
 1. Loosen the bolts.
 2. Remove the bolts and the underbody shield (plastic shield).
 3. Loosen the bolts.
 4. Remove the bolts and the underbody shield (metal shield).



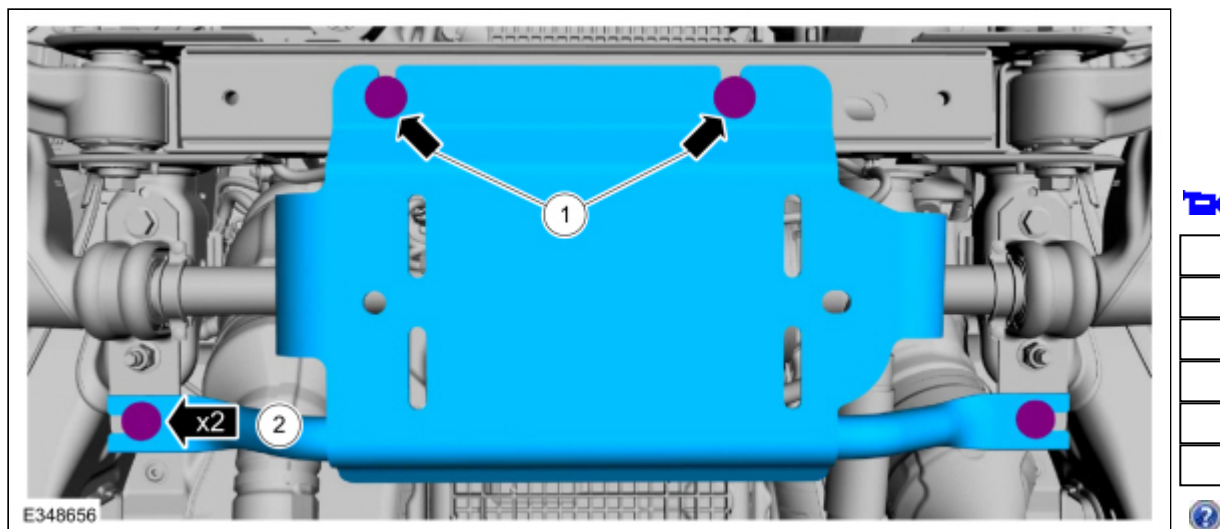
4. **NOTE:** Underbody shields vary by model.

1. Remove the bolts and the underbody shield (plastic shield).
2. Remove the bolts and the underbody shield (metal shield).

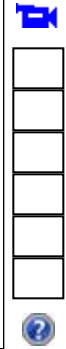
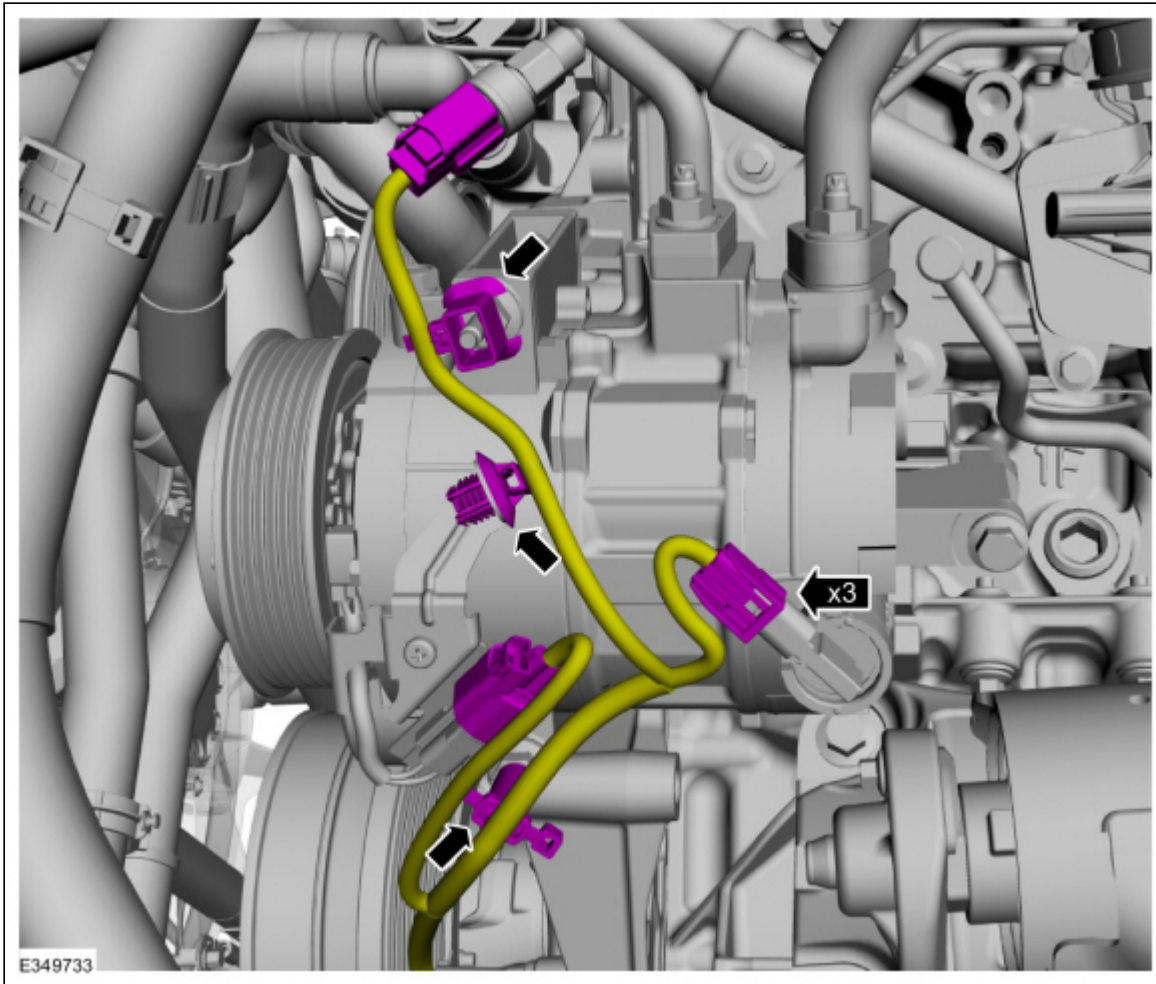


5. **NOTE:** *If equipped.*

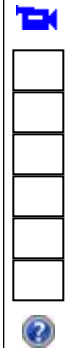
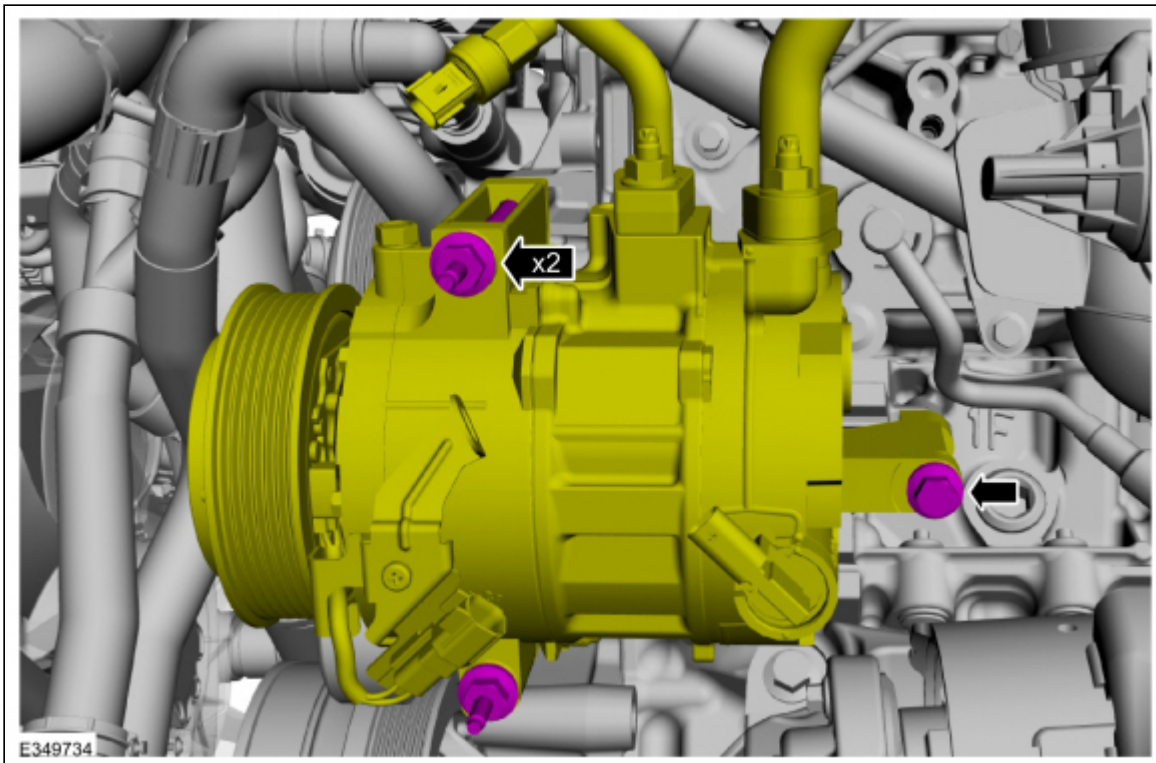
- 1. Loosen the bolts.
- 2. Remove the bolts and the underbody shield.



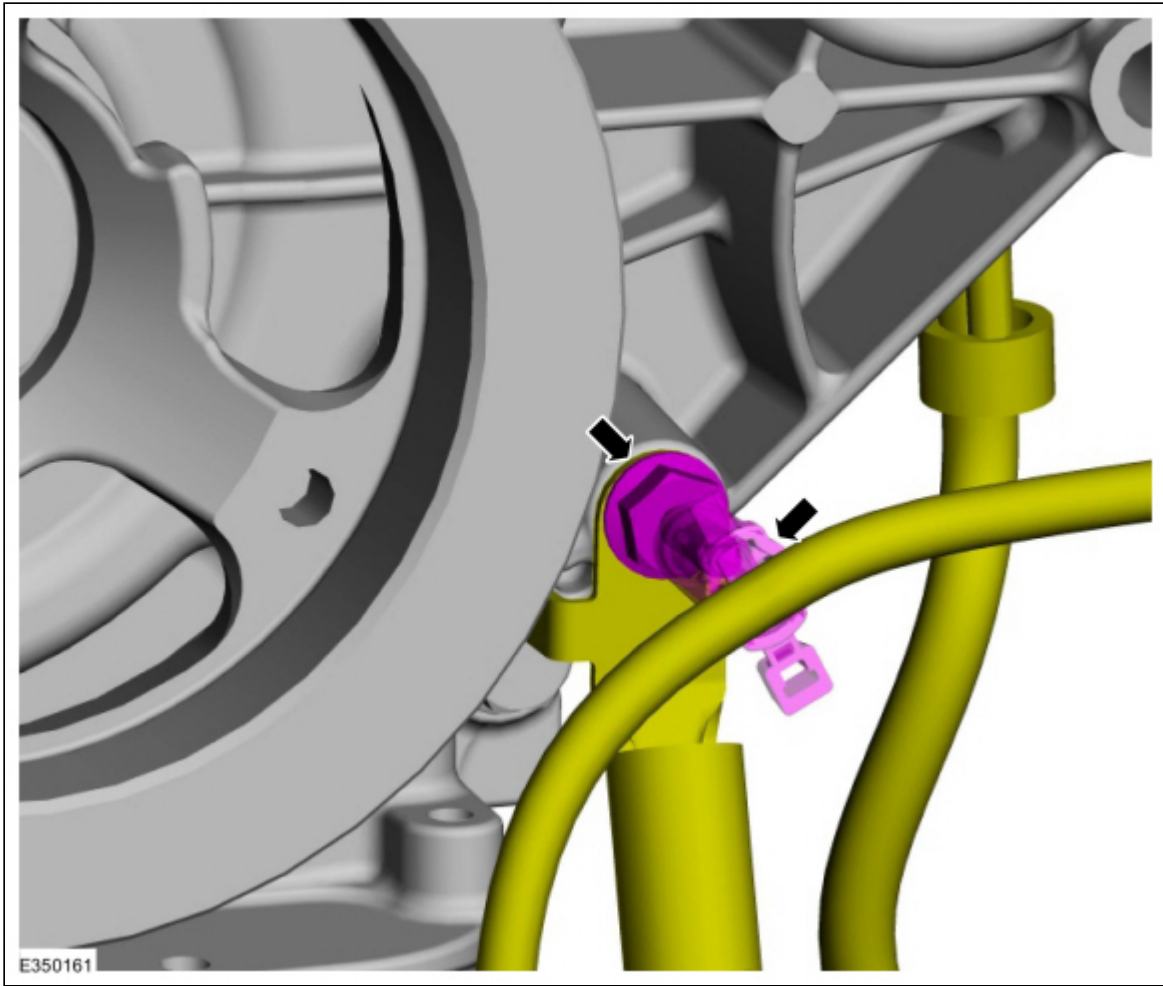
6. Drain the engine cooling system.
Refer to: [Engine Cooling System Draining, Vacuum Filling and Bleeding](#) (303-03B Engine Cooling - 2.7L EcoBoost (238kW/324PS), General Procedures).
7. Remove the following items:
 1. Hood.
Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).
 2. PCM Cowl panel.
Refer to: [Powertrain Control Module \(PCM\)](#) (303-14B Electronic Engine Controls - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
 3. Left hand (LH) crankcase ventilation tube.
Refer to: [Crankcase Ventilation Tube](#) (303-08B Engine Emission Control - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
 4. Right hand (RH) and left hand (LH) air cleaner outlet pipes.
Refer to: [Air Cleaner Outlet Pipe RH](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
Refer to: [Air Cleaner Outlet Pipe LH](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
 5. Right hand (RH) and left hand (LH) CAC outlet pipes.
Refer to: [Charge Air Cooler \(CAC\) Outlet Pipe](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
 6. Right hand (RH) and left hand (LH) CAC intake pipes.
Refer to: [Charge Air Cooler \(CAC\) Intake Pipe](#) (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
 7. Accessory drive belt.
Refer to: [Accessory Drive Belt](#) (303-05B Accessory Drive - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
 8. Generator.
Refer to: [Generator - 2.7L EcoBoost \(238kW/324PS\)](#) (414-02 Generator and Regulator, Removal and Installation).
8. Remove and discard the engine oil filter and drain the engine oil.
Refer to: [Engine Oil Draining and Filling](#) (303-01B Engine - 2.7L EcoBoost (238kW/324PS), General Procedures).
9.
 1. Disconnect the wiring harness electrical connectors.
 2. Detach the wiring harness retainers.



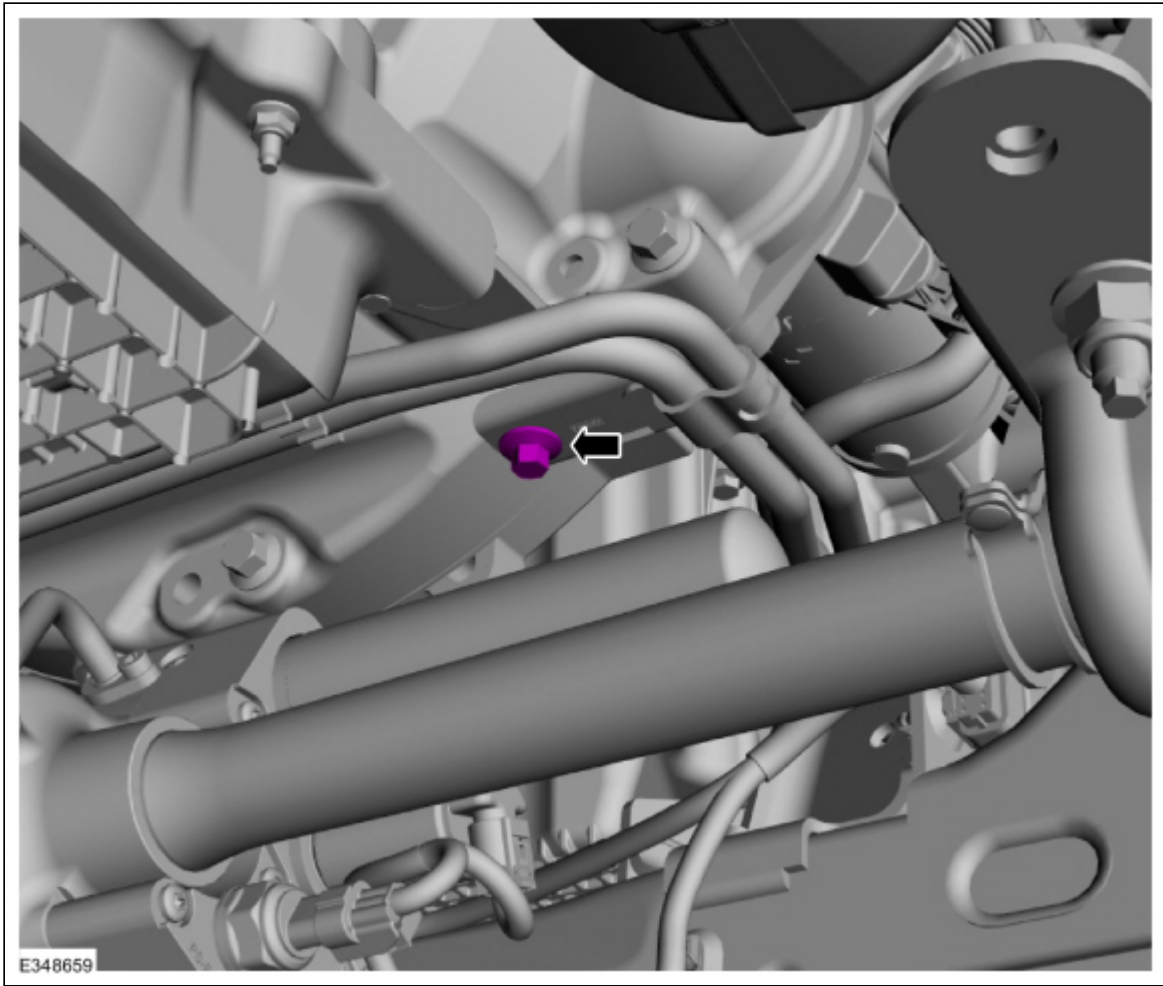
10. Remove the fasteners and position the A/C compressor aside.



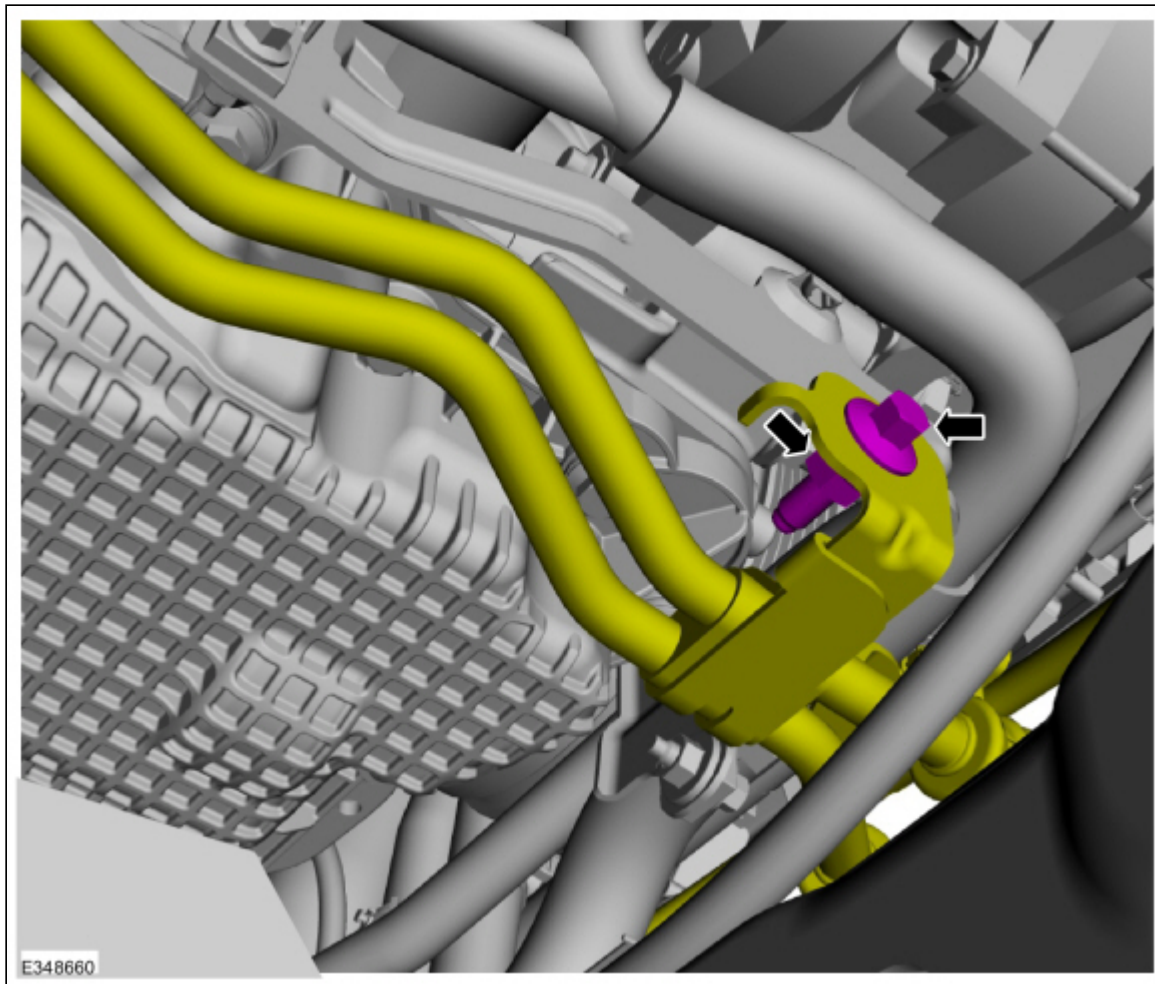
11.
 1. Detach the wiring harness retainer.
 2. Remove the stud bolt and ground wire.



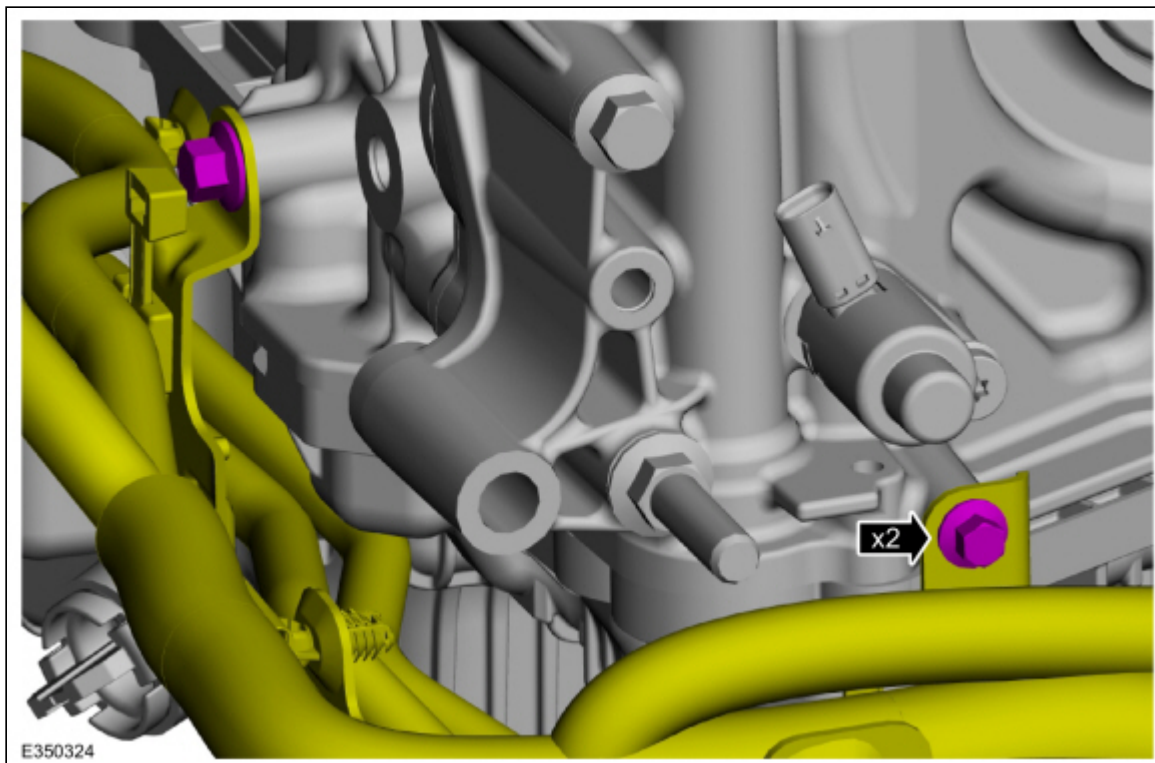
12. Remove the transmission cooler tube bracket bolt.



13. Remove the nut, the bolt and position the transmission cooler tubes aside.

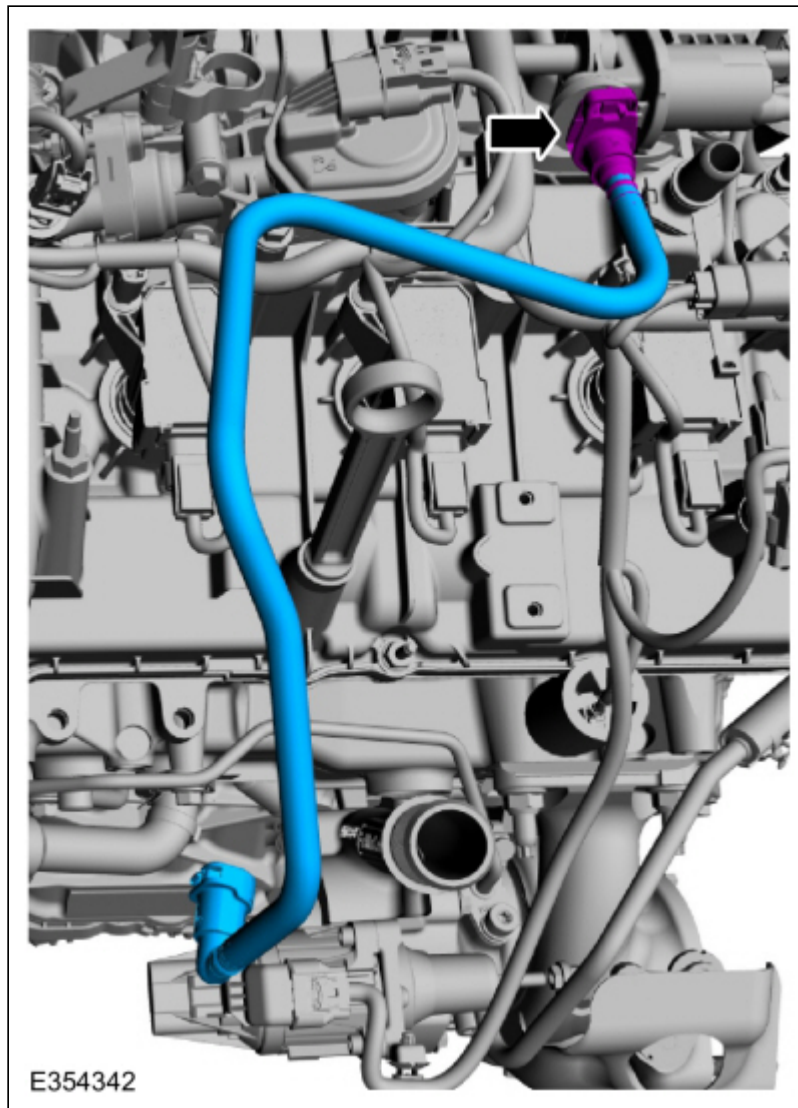


14. Remove the bolts and position the bracket aside.

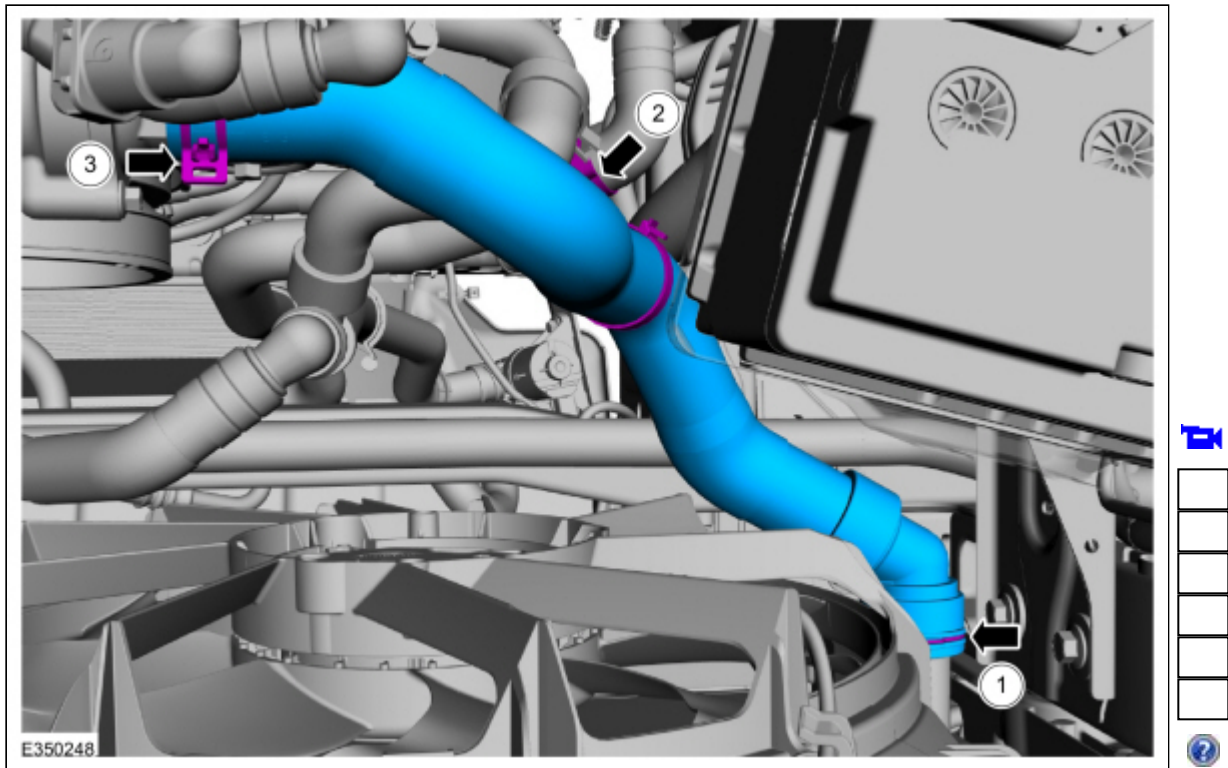


15. Follow directions to release the quick release coupling type 1. Remove the EVAP tube.
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS),

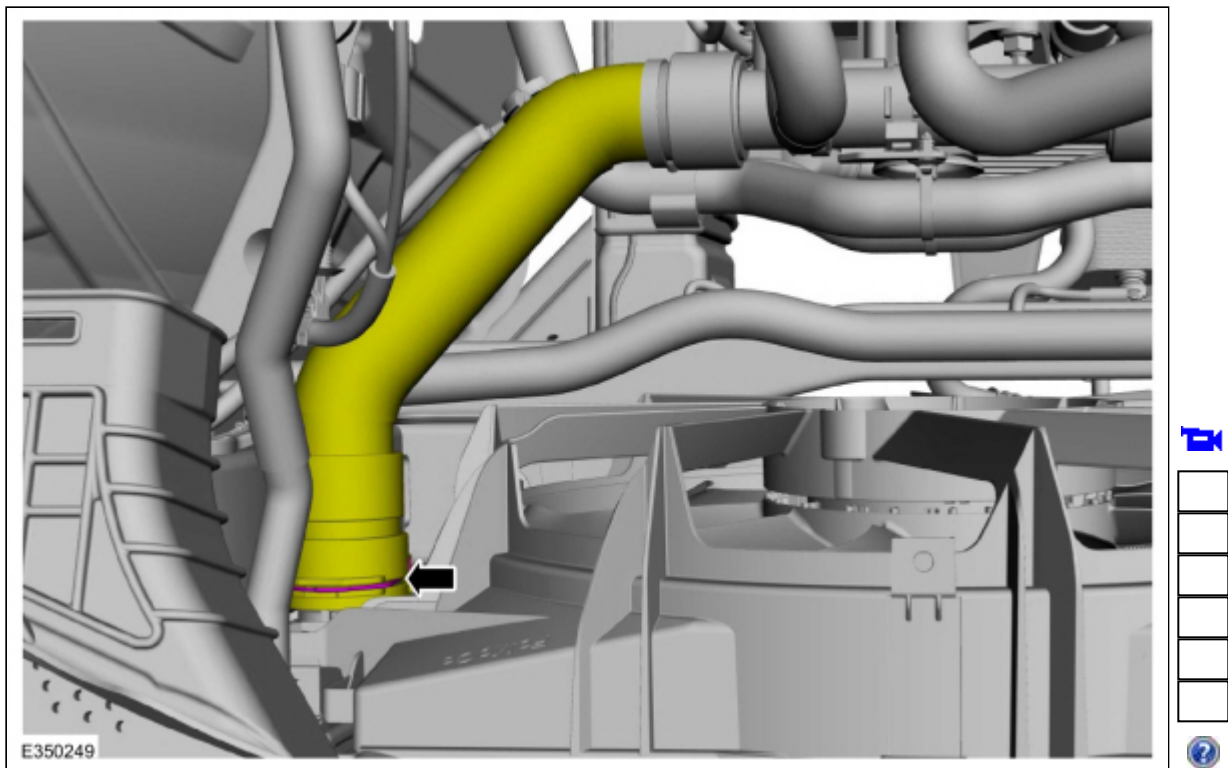
General Procedures).



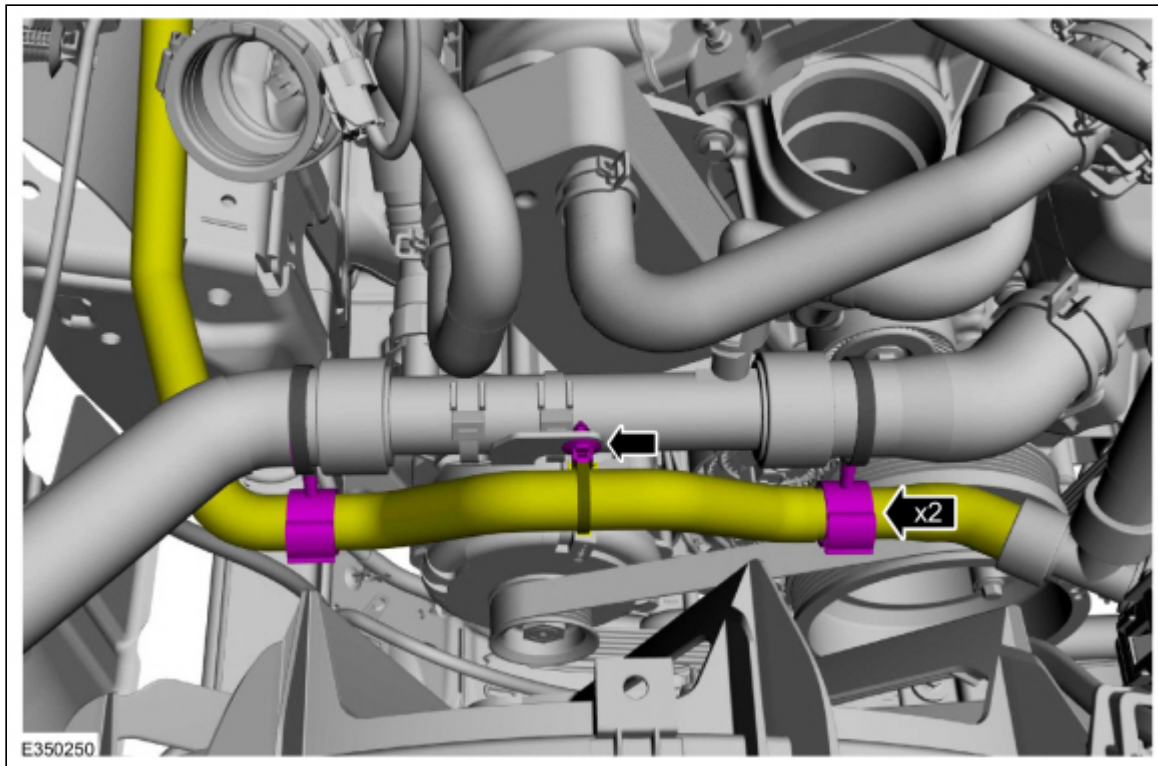
16.
 1. Release the retaining clip and disconnect the radiator hose from the radiator.
 2. Detach the radiator hose retainer.
 3. Release the clamp and remove the radiator hose.
Use the General Equipment: Hose Clamp Remover/Installer



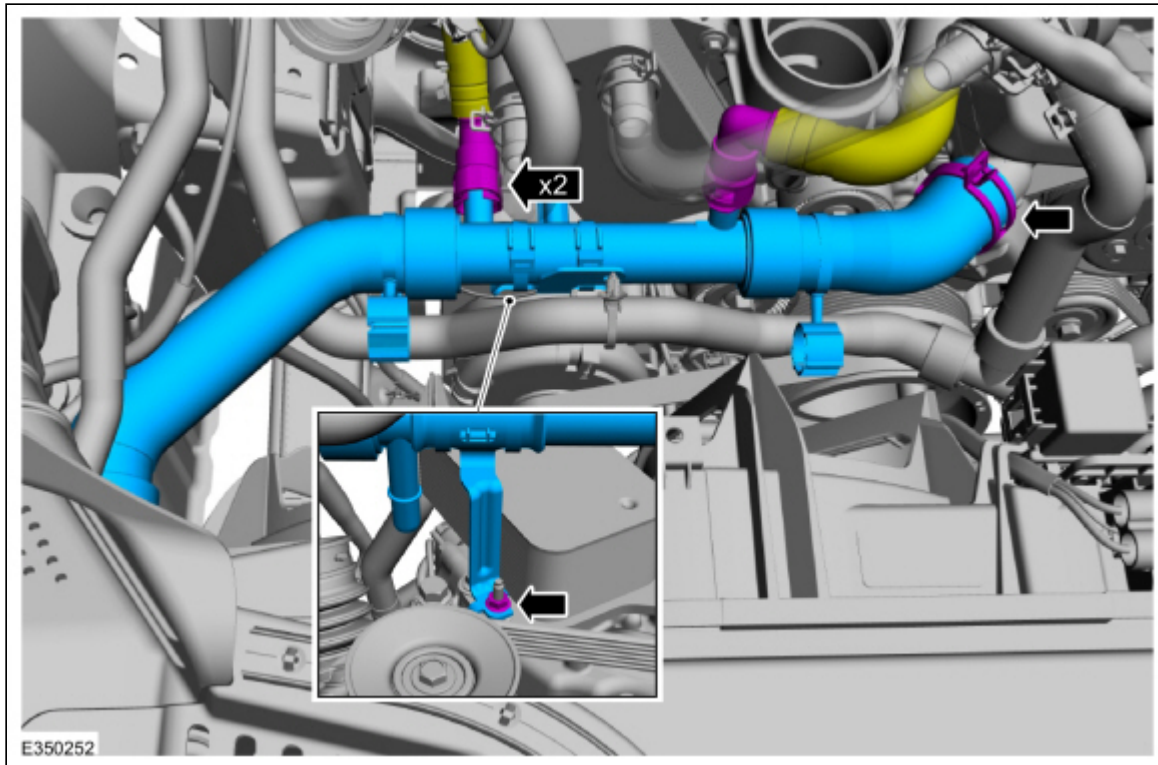
17. Release the retaining clip and disconnect the radiator hose from the radiator.



18. Detach the coolant hose retainers.



- 19.
- Follow directions to release the quick release coupling type 5. Disconnect the coolant hoses. Refer to: [Quick Release Coupling \(310-00B Fuel System - General Information - 2.7L EcoBoost \(238kW/324PS\), General Procedures\)](#).
 - Remove the radiator hose bracket nut.
 - Release the clamp and remove the radiator hose.
Use the General Equipment: Hose Clamp Remover/Installer



- 20.
1. Release the clamp and position the degas hose aside.
Use the General Equipment: Hose Clamp Remover/Installer
 2. Release the clamp and disconnect the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer

3. Follow directions to release the quick release coupling type 5. Disconnect the coolant hose and position the hose aside.

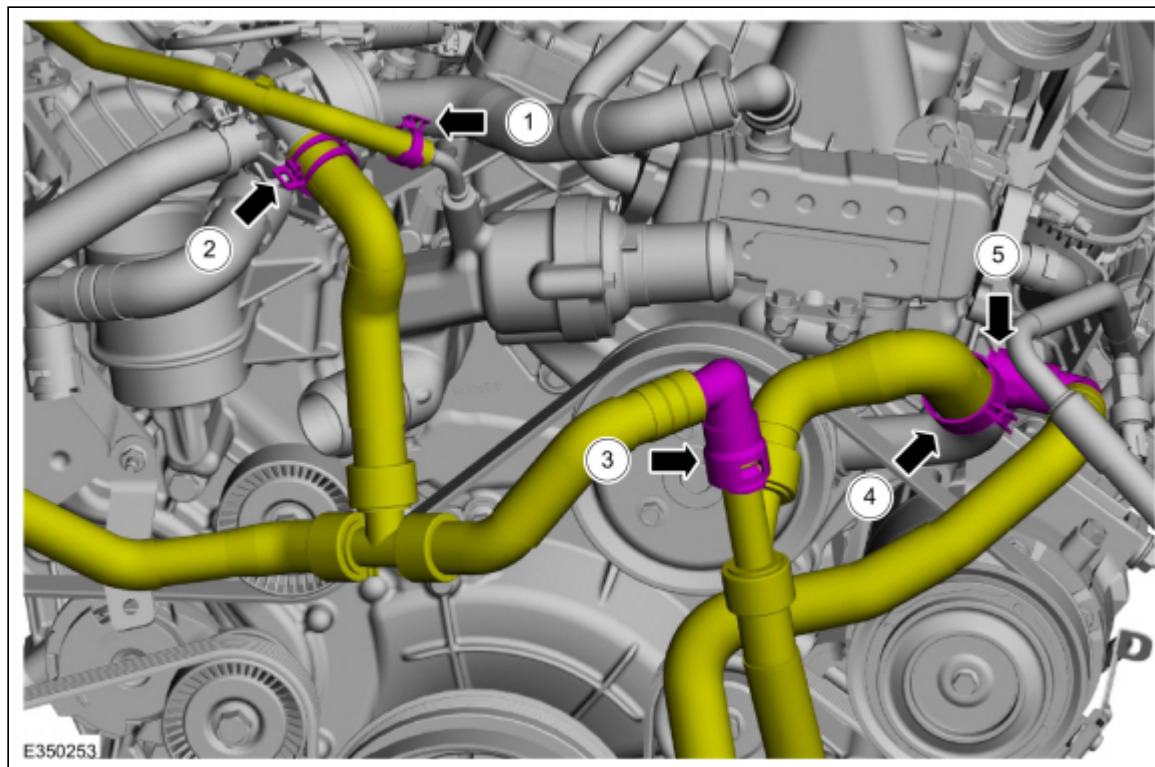
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).

4. Release the clamp and position the coolant hose aside.

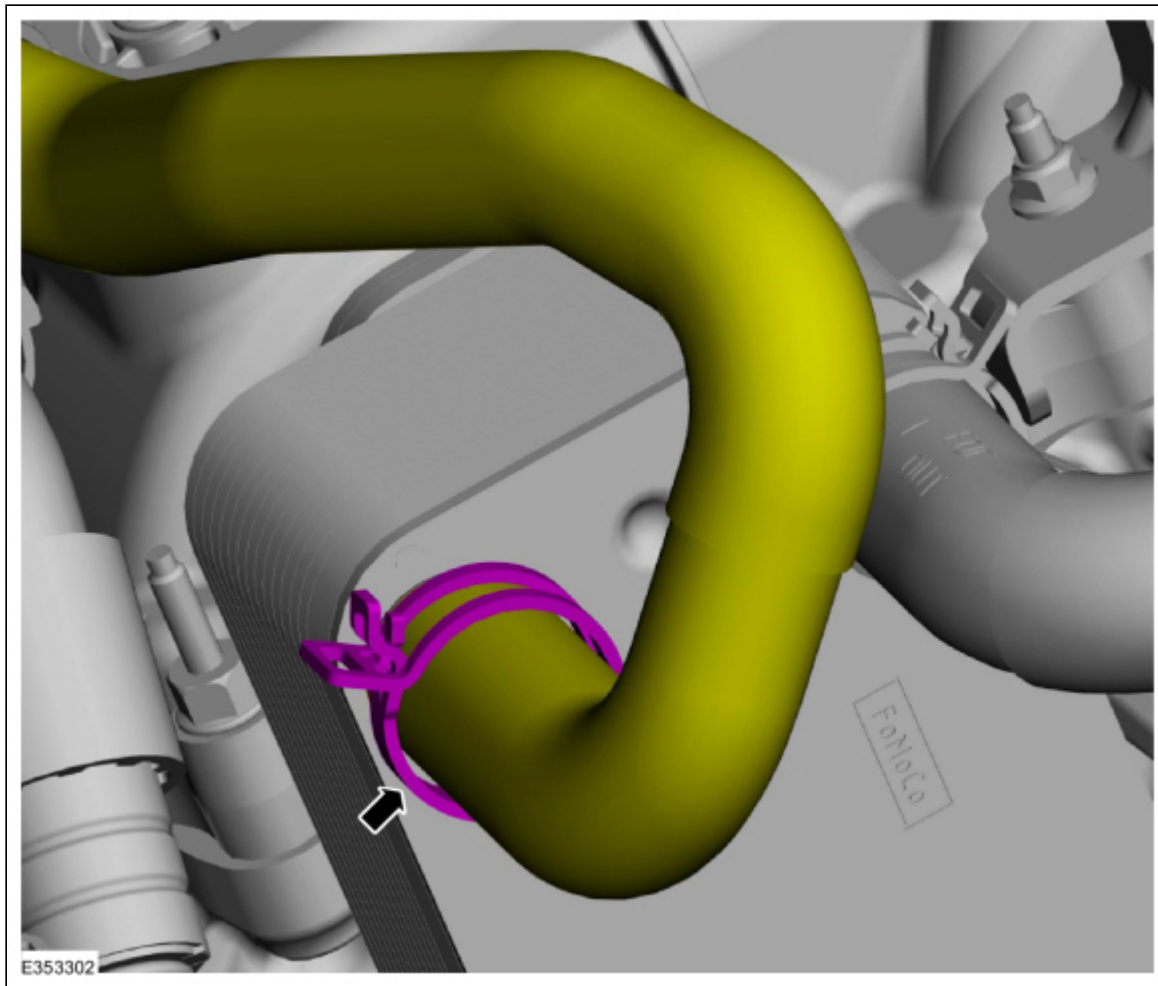
Use the General Equipment: Hose Clamp Remover/Installer

5. Follow directions to release the quick release coupling type 5. Disconnect the coolant hose and position the hose aside.

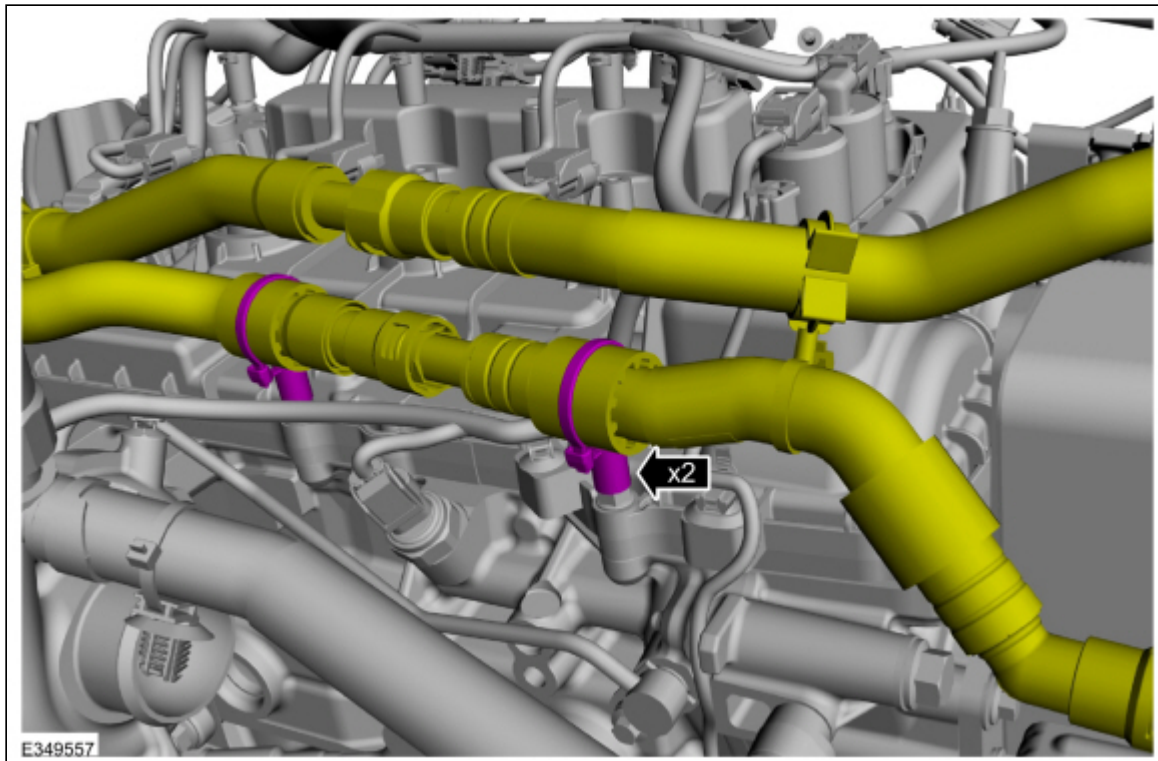
Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).



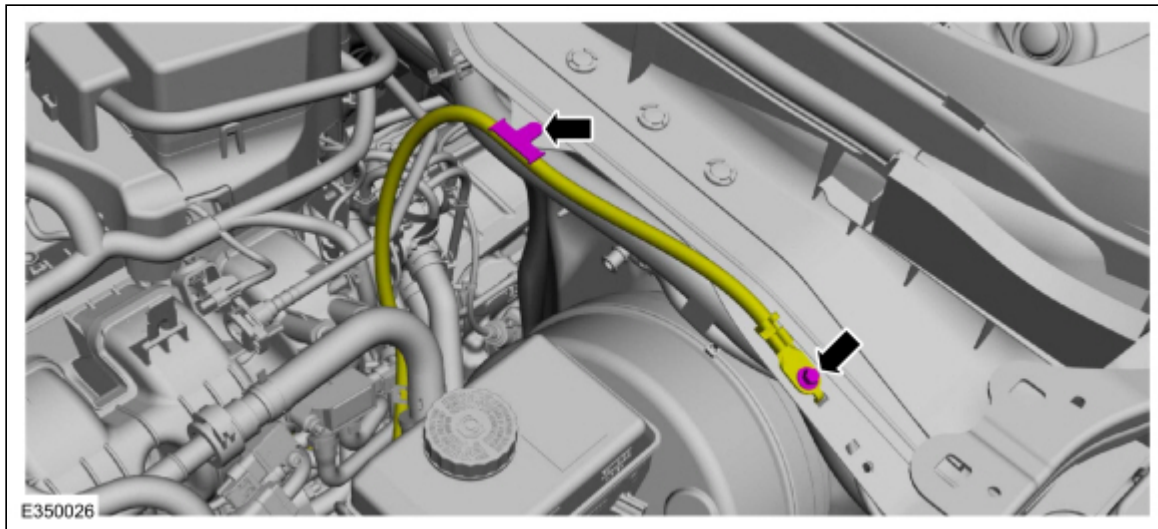
21. Release the clamp and disconnect the coolant hose.
Use the General Equipment: Hose Clamp Remover/Installer



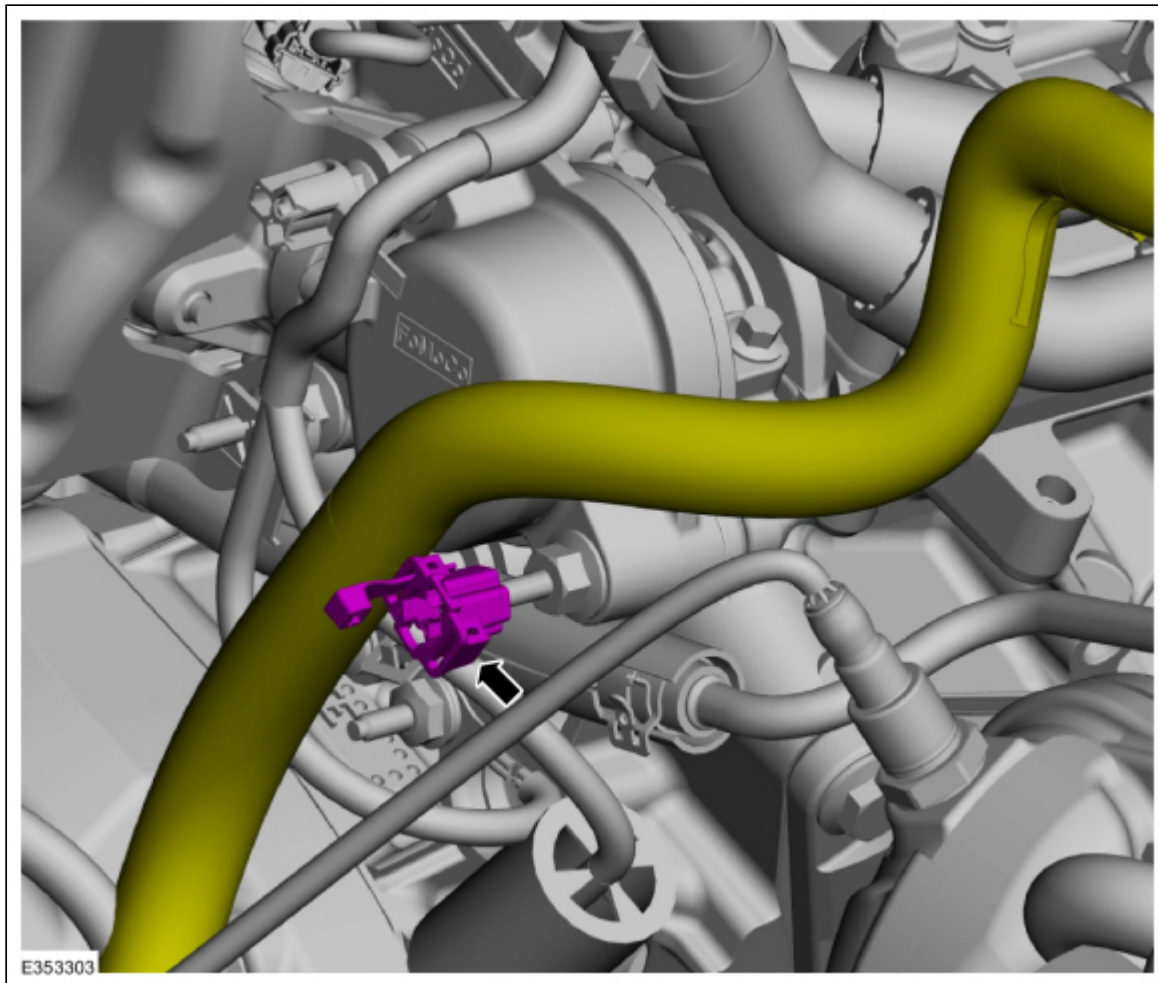
22. Detach the retainers and position the coolant hoses aside.



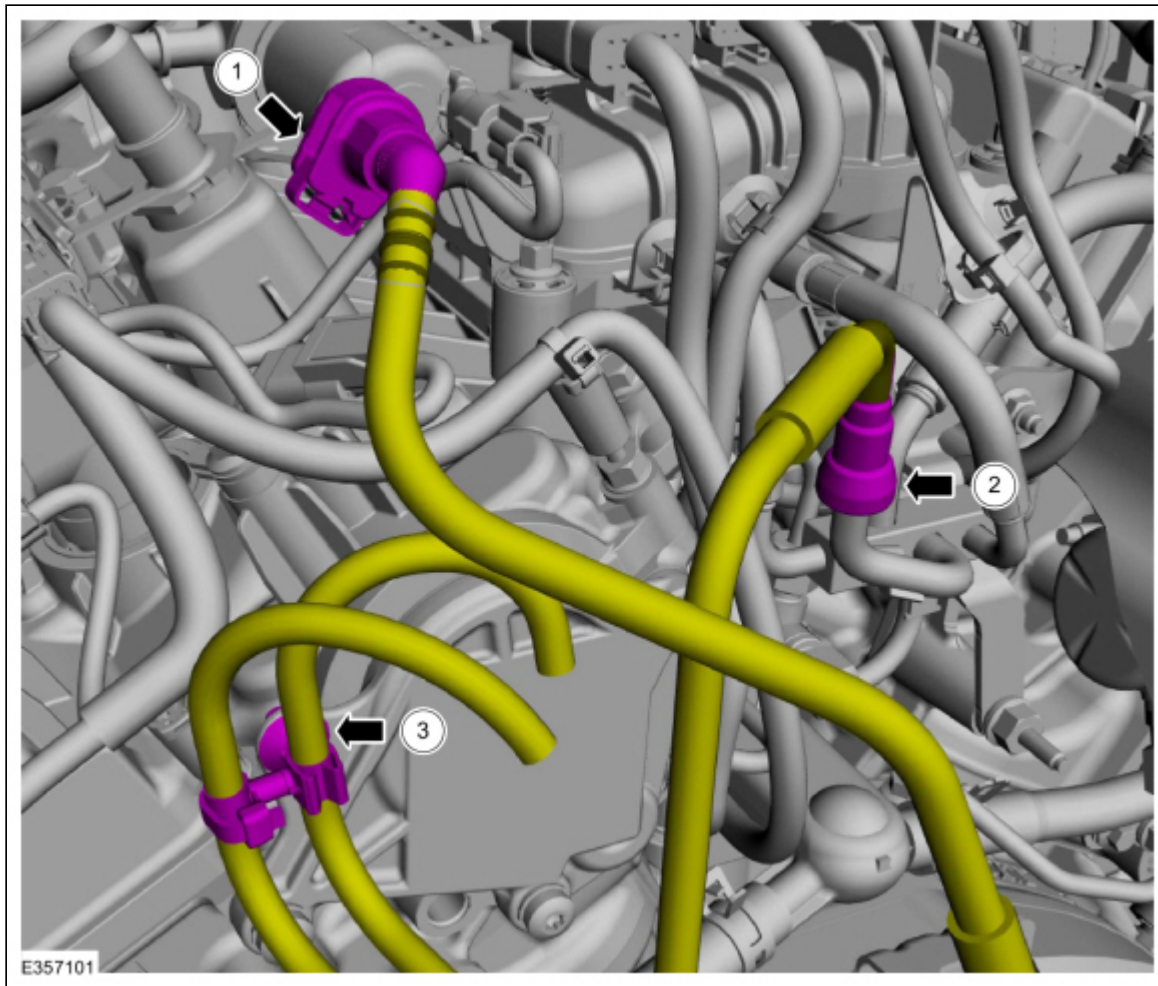
23. Remove the bolt, detach the retainer and position the ground cable on the engine



24. Detach the transmission wiring harness retainer.

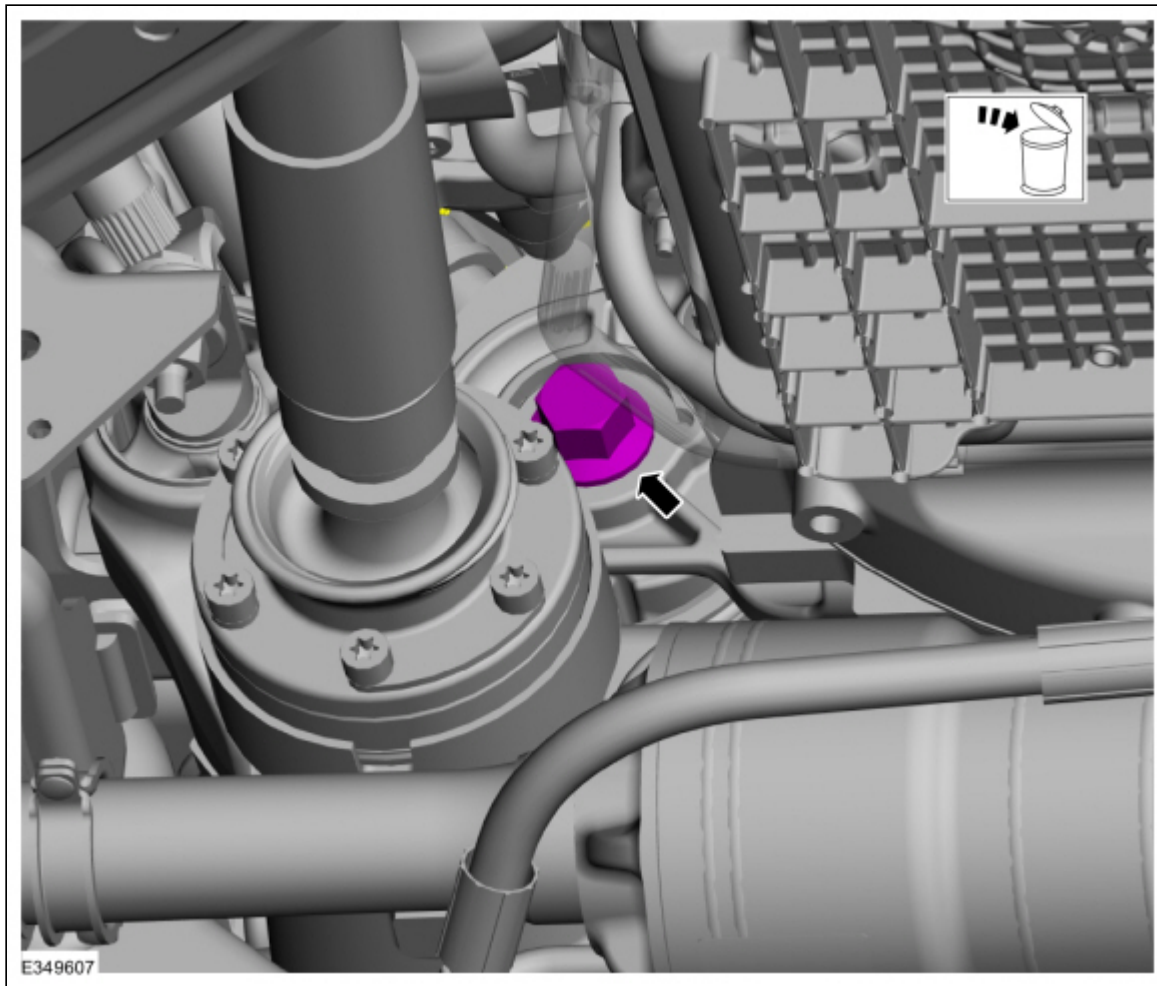


25. 1. Follow directions to release the quick release coupling type 1. Disconnect the EVAP tube quick release coupling.
 Refer to: [Quick Release Coupling](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
2. Disconnect the high-pressure fuel pump fuel feed tube spring lock coupling.
 Refer to: [Spring Lock Couplings](#) (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
3. Detach the transmission vent tube retainer.



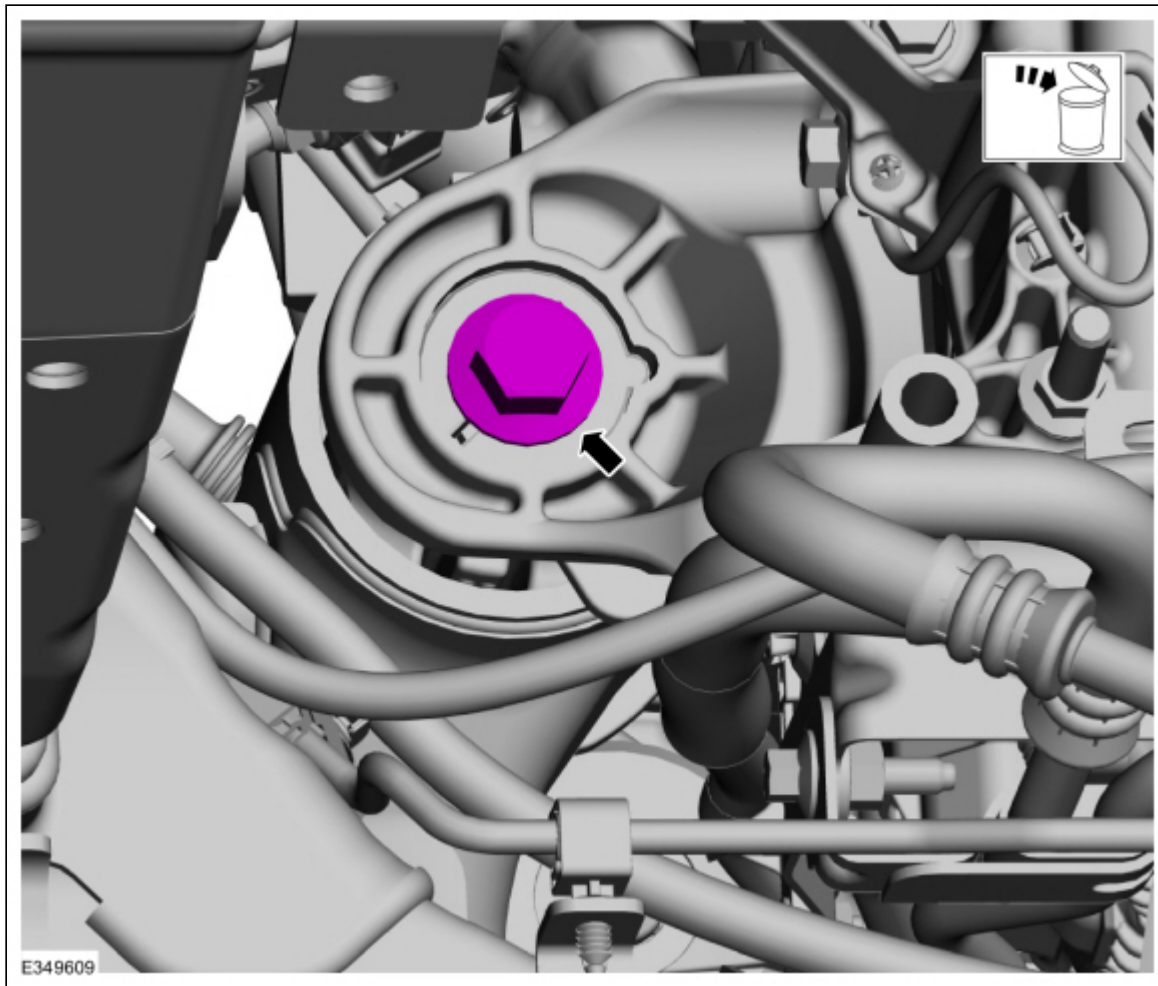
26. **NOTICE:** Only use hand tools when loosening the engine mount through bolts or damage to the engine mount-to-cylinder block bracket can occur.

Remove and discard the LH engine mount through bolt.



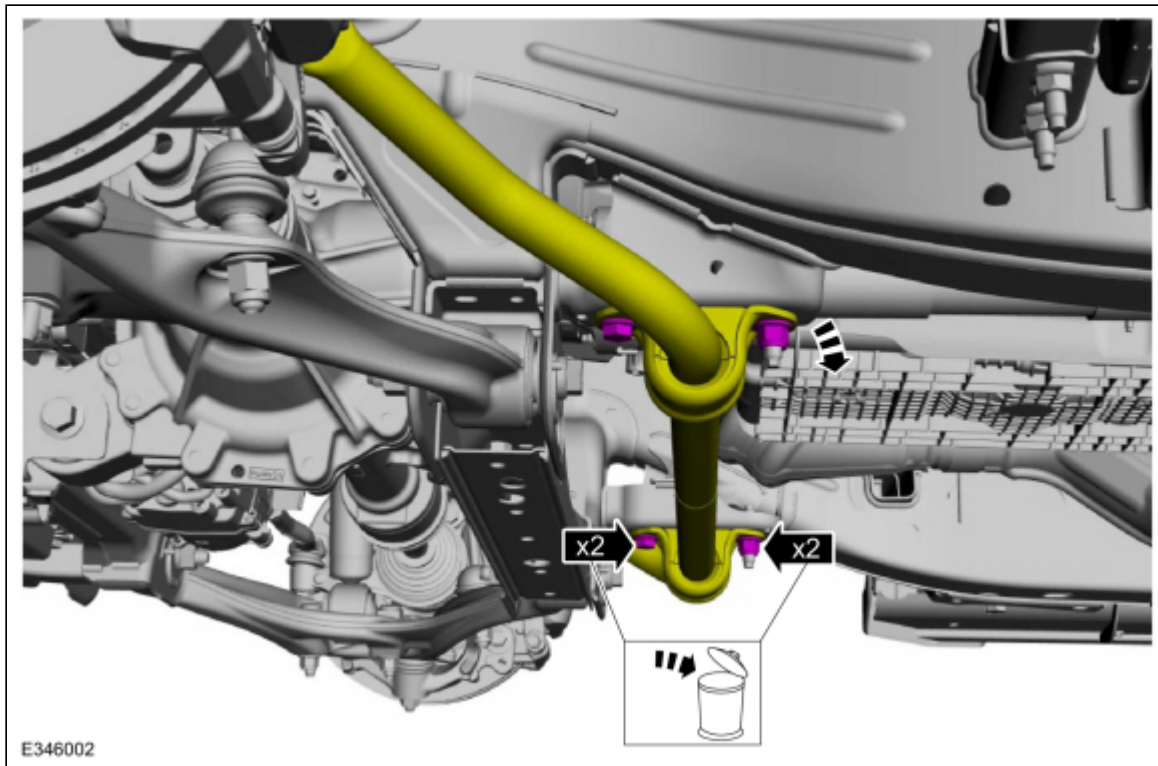
27. **NOTICE:** Only use hand tools when loosening the engine mount through bolts or damage to the engine mount-to-cylinder block bracket can occur.

Remove and discard the RH engine mount through bolt.



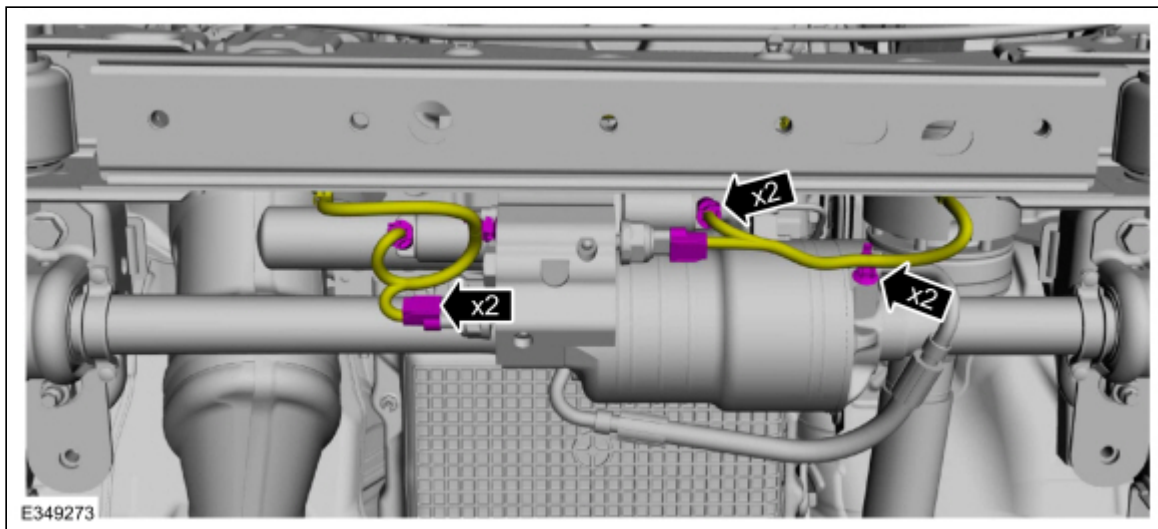
NOTE: Step 31 is for vehicles equipped with a sway bar. Steps 32 thru 34 are for vehicles equipped with a sway bar disconnect.

- 28.
 - Remove the nuts and bolts and lower the sway bar.
 - Discard the nuts and bolts.



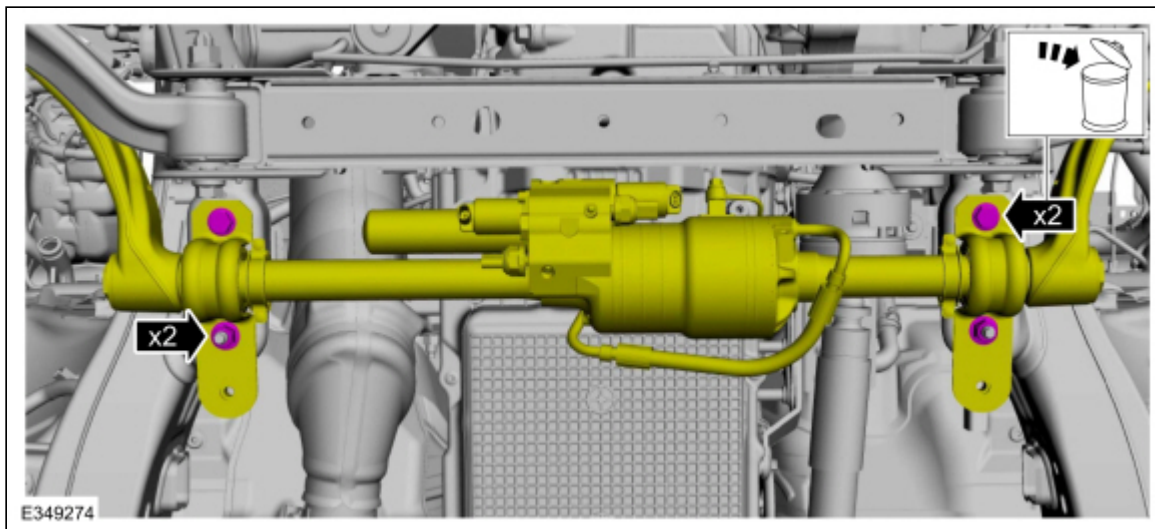
E346002

29. Disconnect the sway bar disconnect wiring harness electrical connectors and retainers.

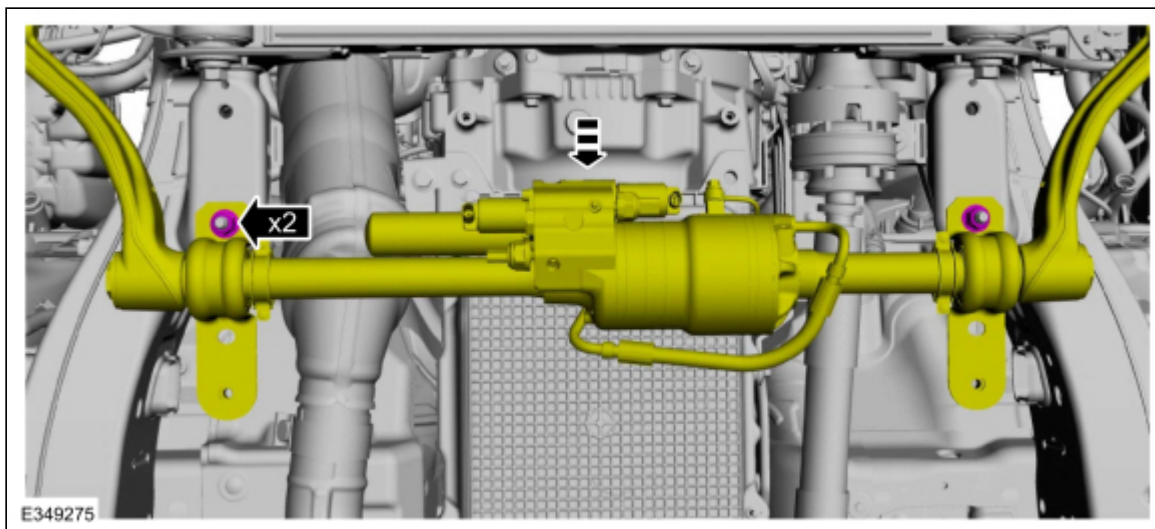


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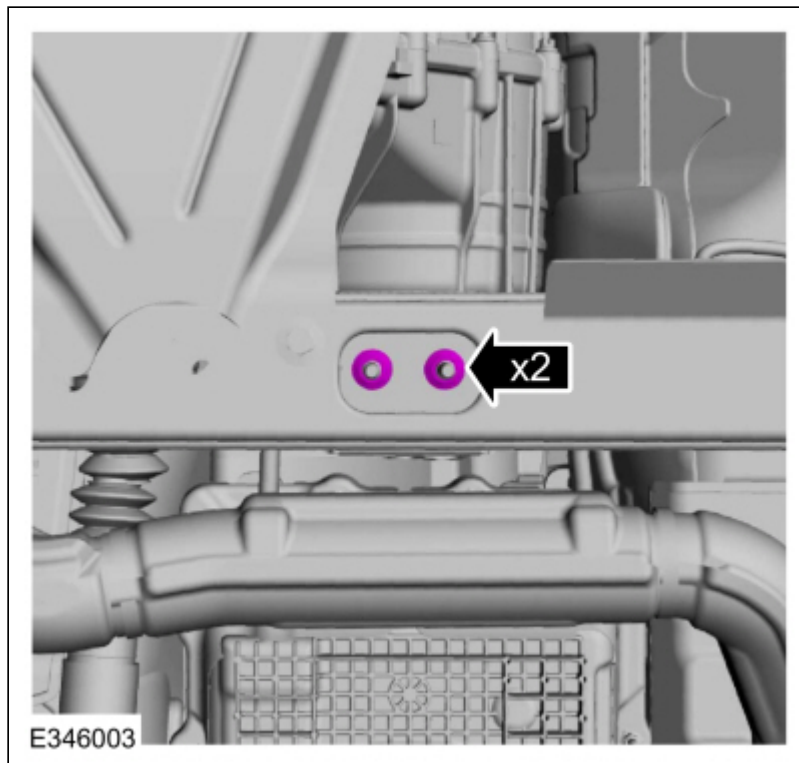
- 30.
- Remove the nuts and bolts and lower the sway bar disconnect.
 - Discard the bolts.



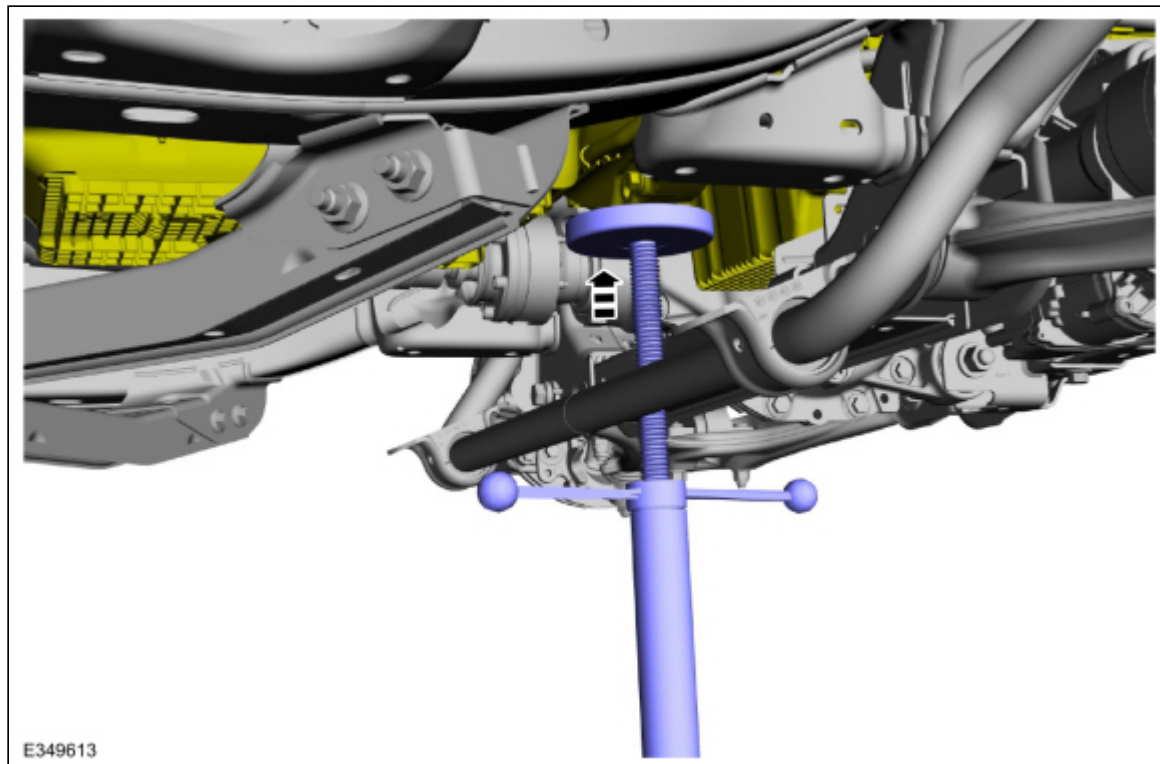
31. Position the sway bar disconnect back so the front bracket holes are on the studs and install the original nuts finger tight to position the sway bar disconnect aside.



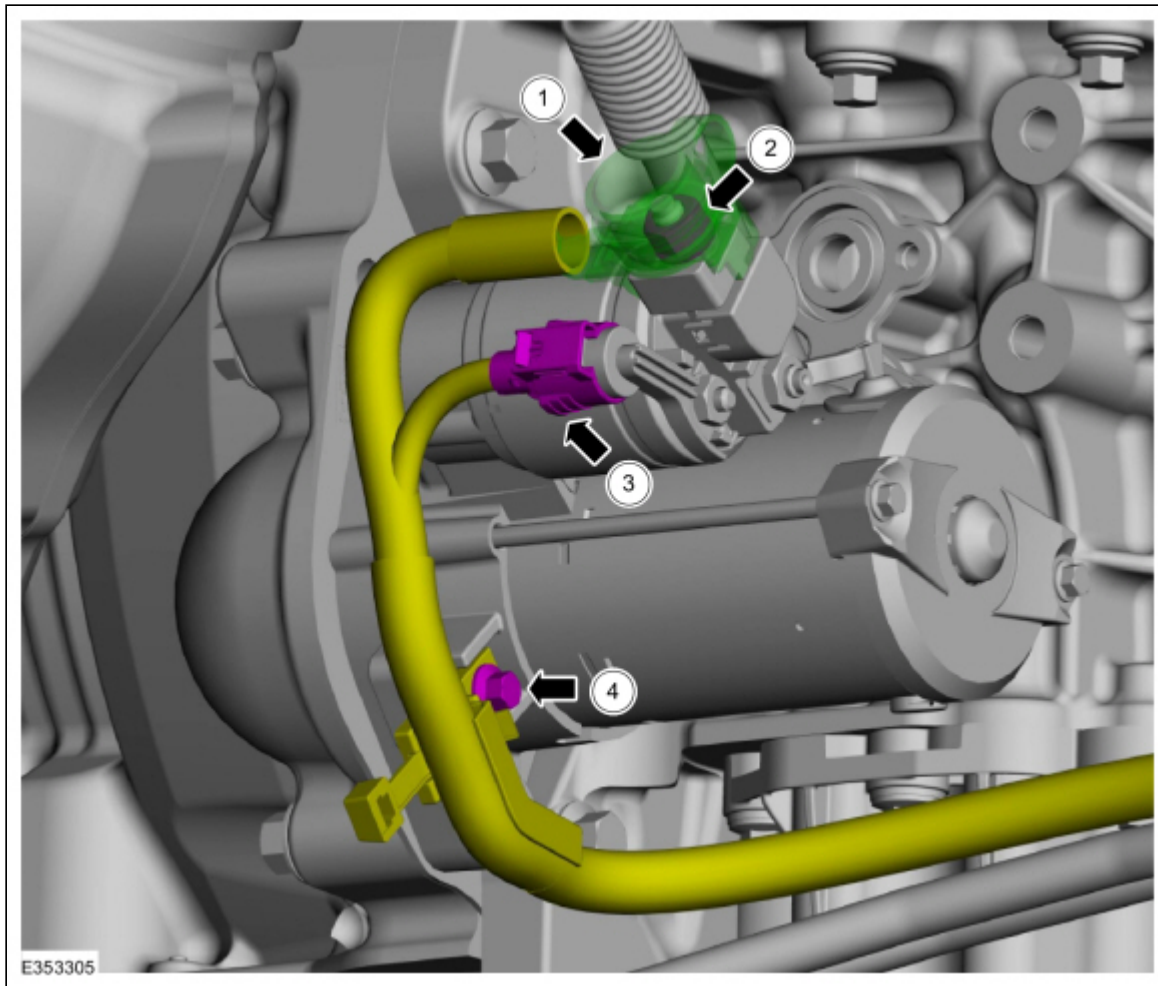
32. Loosen the transmission mount nuts.



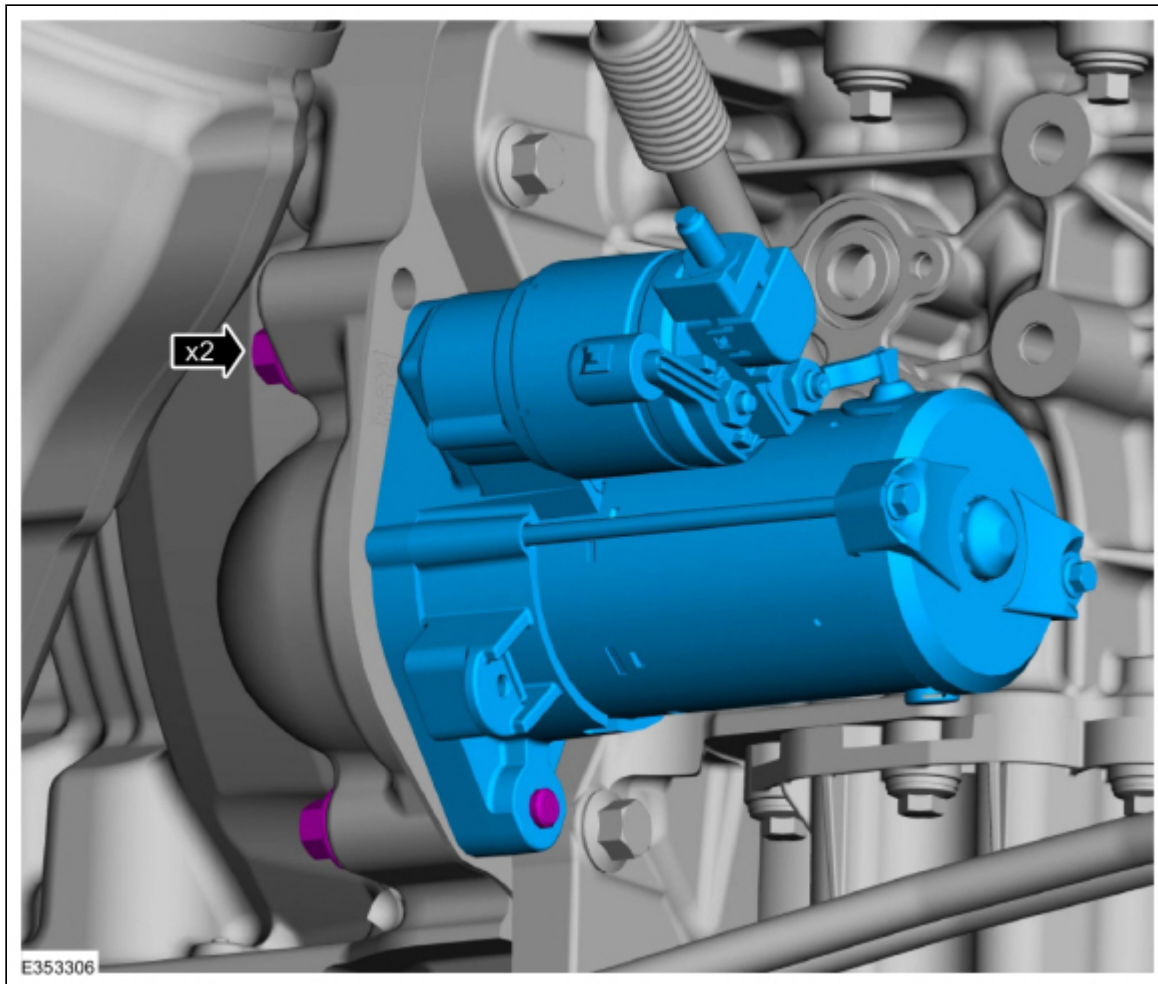
- 33.
- Position an adjustable stand under the rear of the engine/transmission. Use the General Equipment: Vehicle/Axle Stands
 - Using the adjustable stand, raise the engine 38 mm (1.5 in).



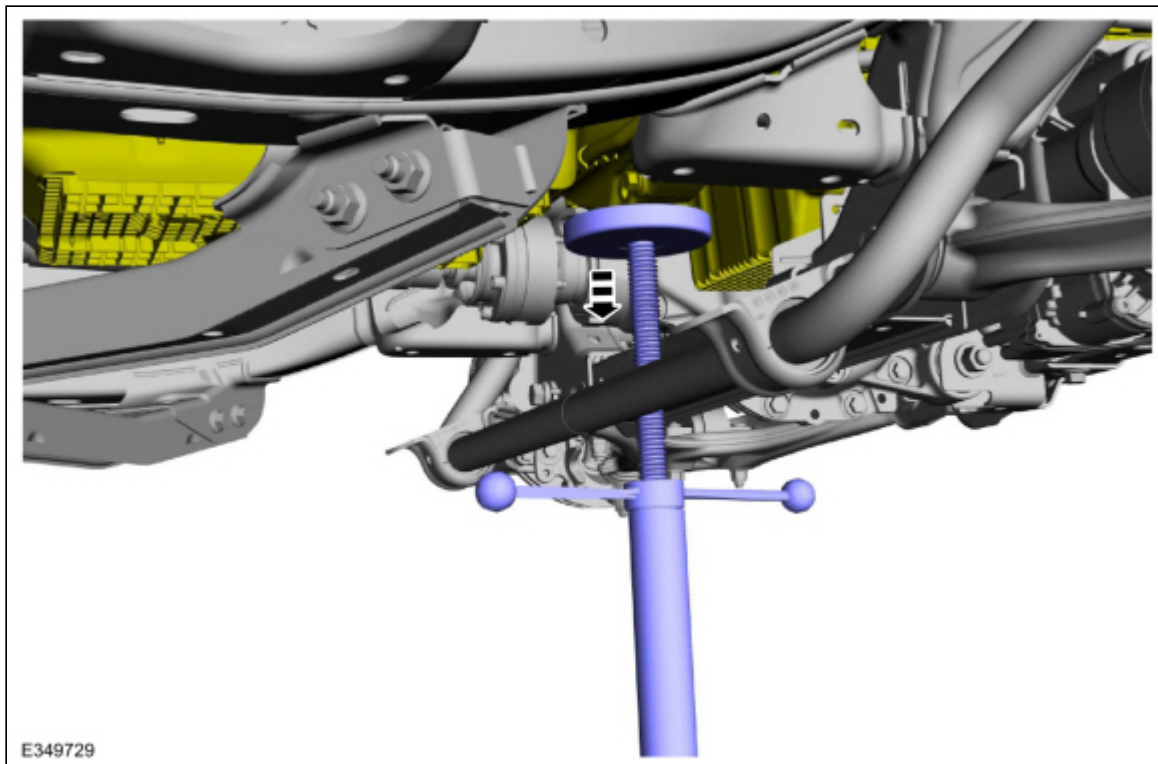
- 34.
1. Open the starter motor electrical connection cover.
 2. Remove the nut.
 3. Disconnect the starter electrical connector.
 4. Remove the wiring harness retainer bolt and position the wiring harness aside.



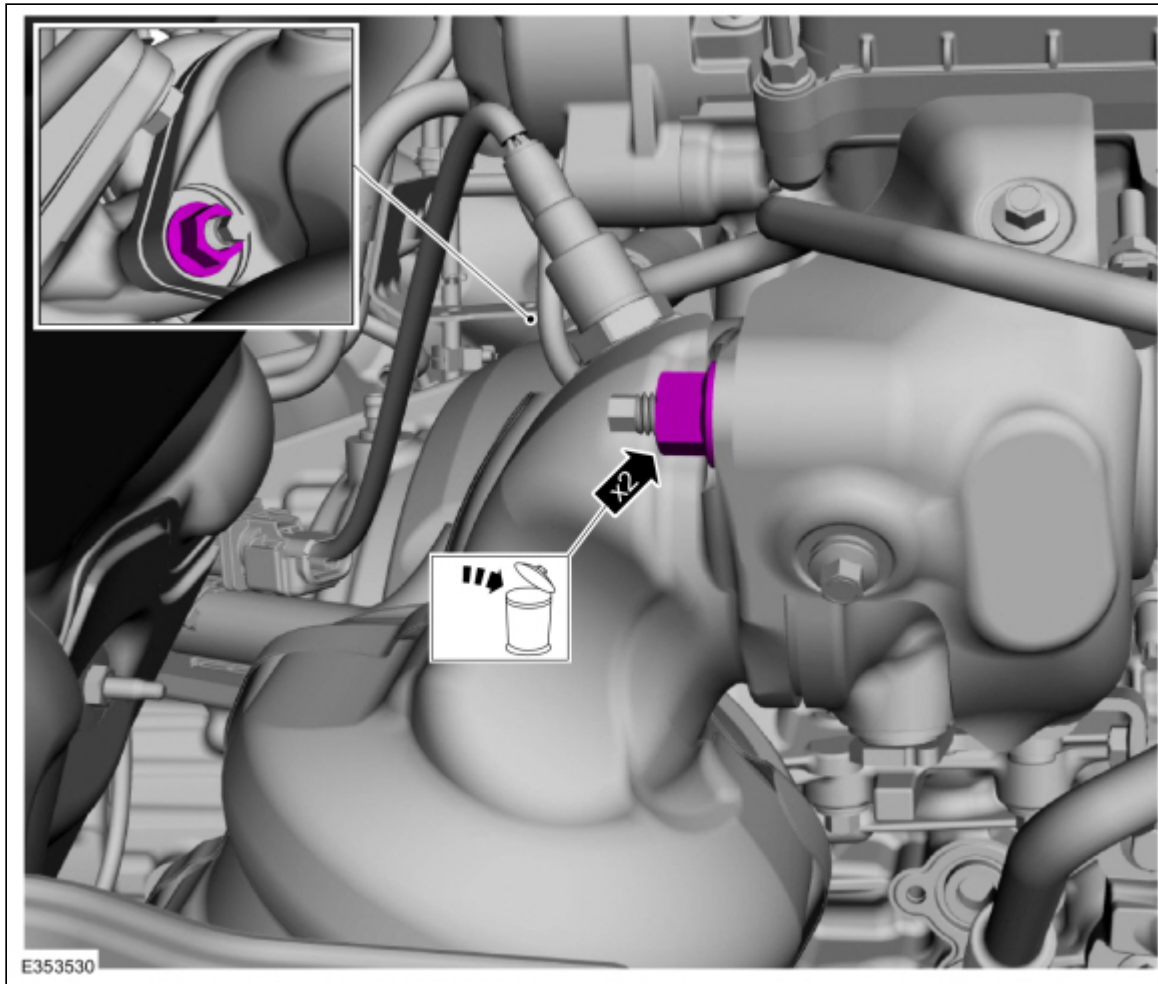
35. Remove the bolts and the starter motor.



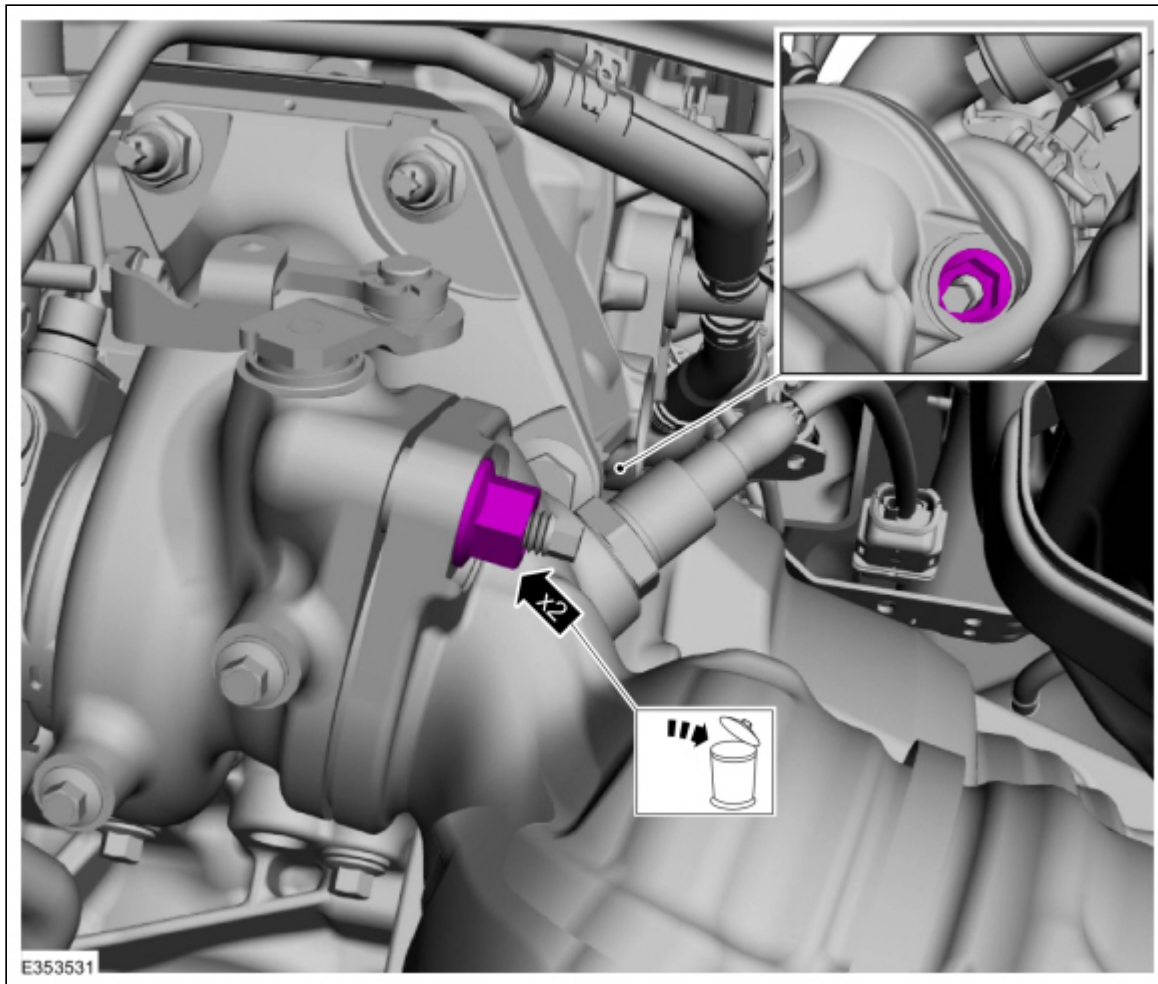
- 36.
 1. Using the adjustable stand, lower the engine to the installed position.
Use the General Equipment: Vehicle/Axle Stands
 2. Remove the stand.



37. Remove and discard the RH catalytic converter nuts.

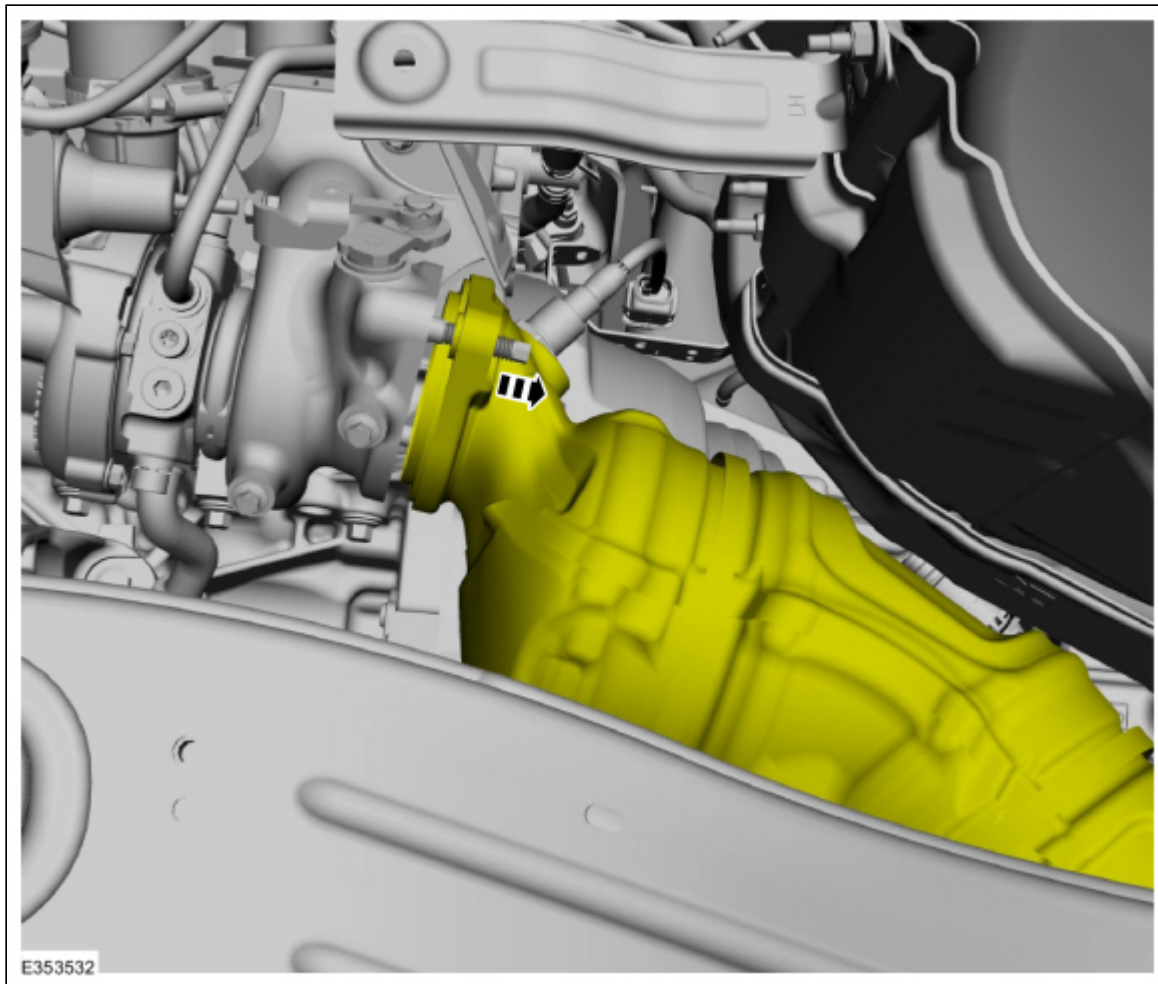


38. Remove and discard the LH catalytic converter nuts.

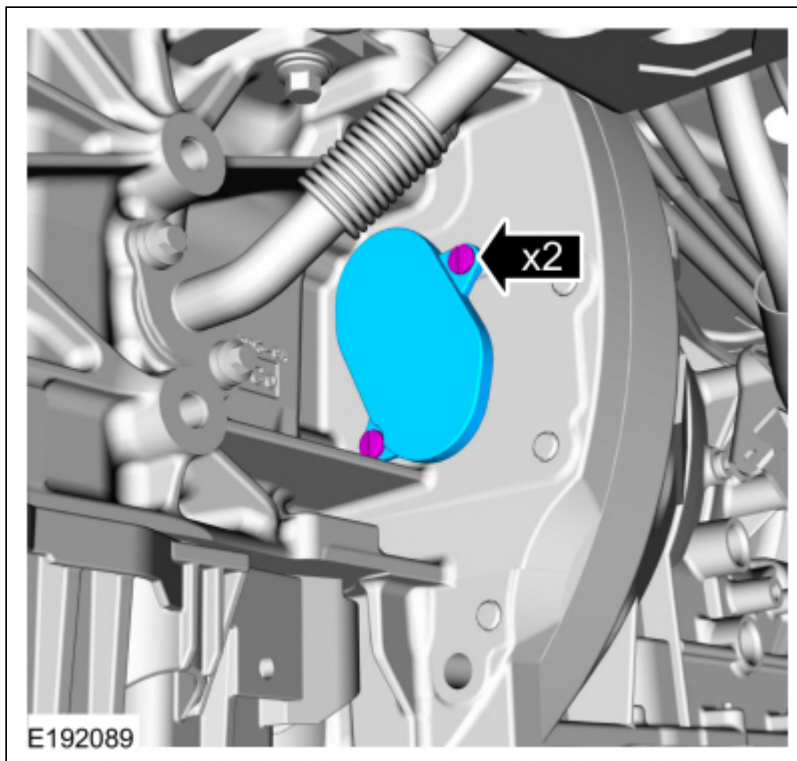


39. **NOTE:** Left hand (LH) shown, right hand (RH) similar.

Position the catalytic converters back.

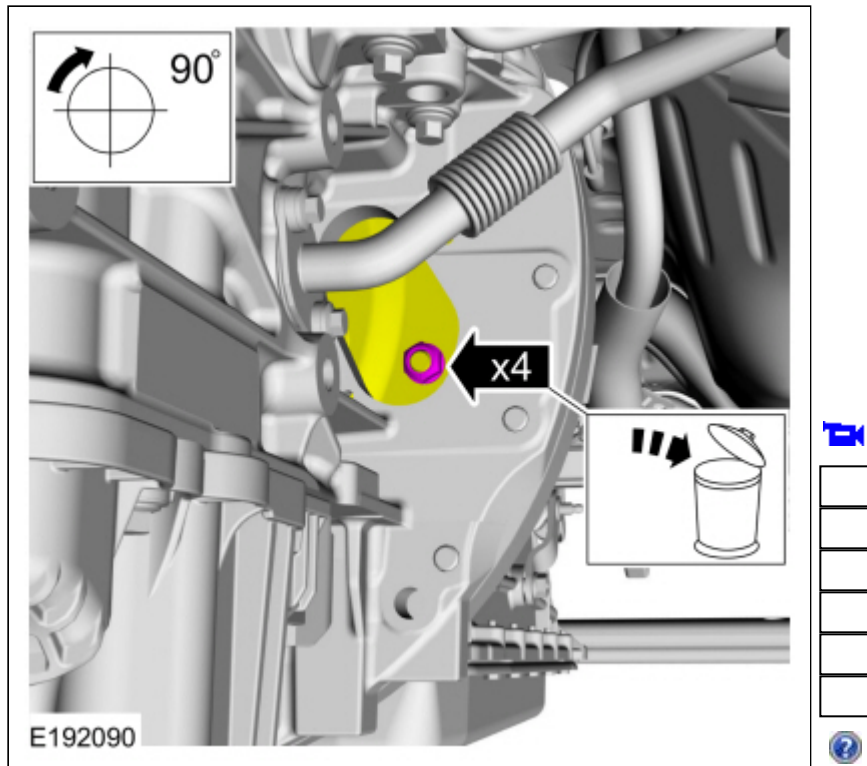


40. Remove the retainers and the access cover.



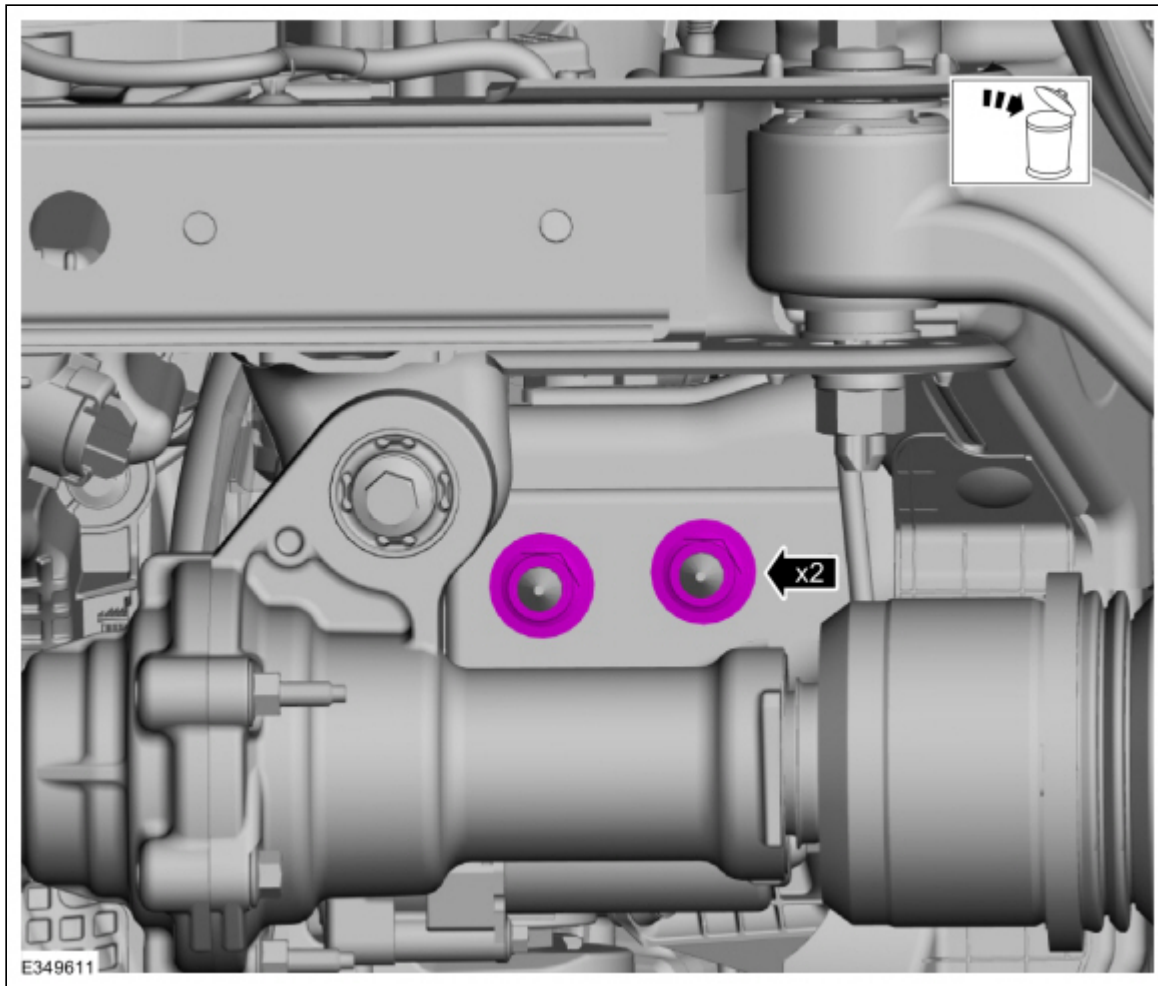
41. **NOTE:** Using the crankshaft pulley bolt, turn the engine clockwise.

Remove and discard the torque converter nuts.



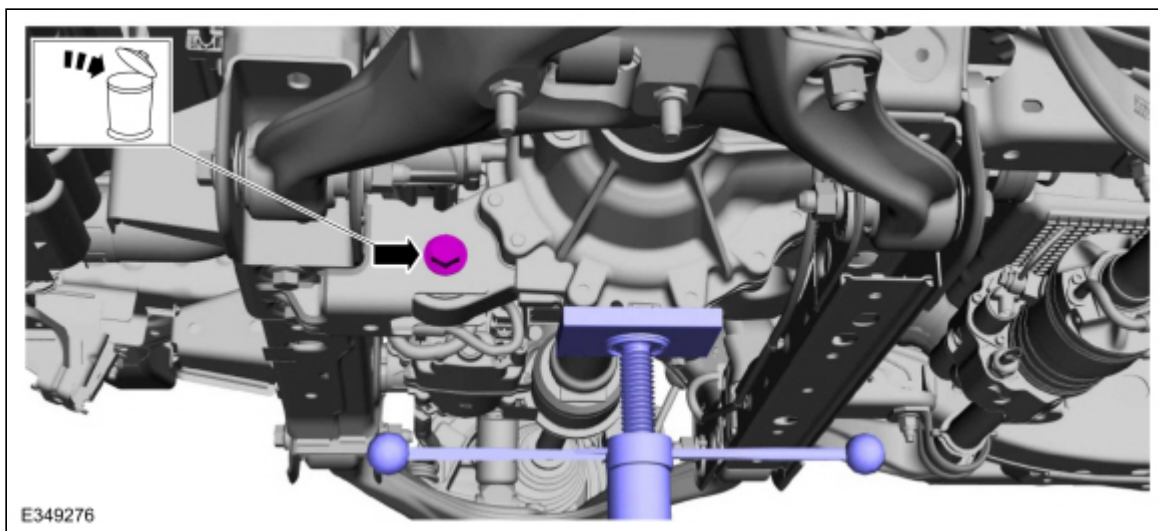
42. **NOTICE:** Only use hand tools when removing the engine mount nuts or damage to the engine mount can occur.

Remove and discard the RH engine mount nuts.

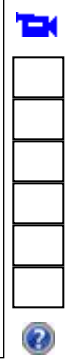
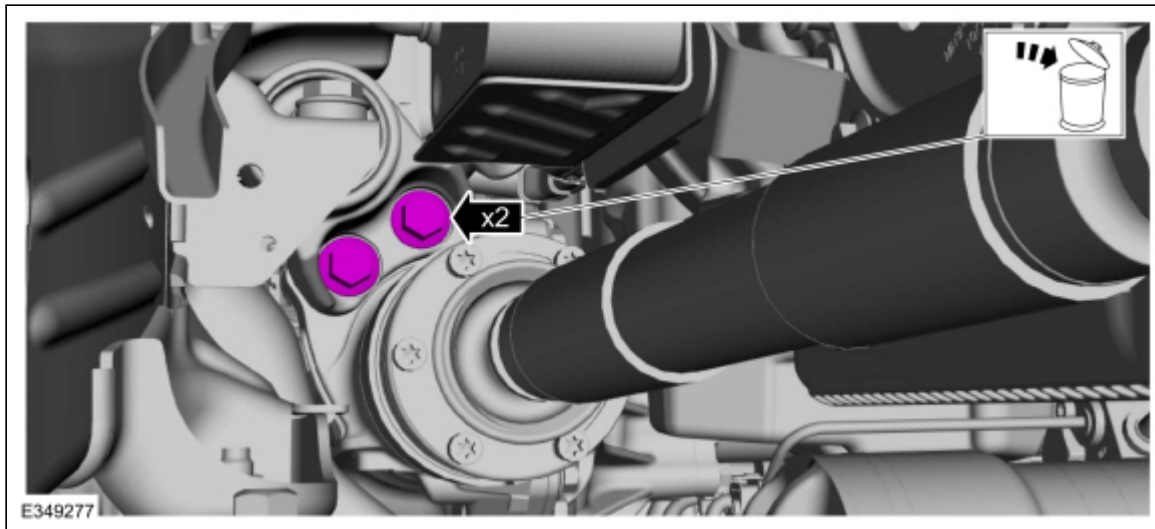


NOTE: Vehicles with an electronic locking axle will require lowering the axle assembly to access the lower engine mount bolts. Steps 46 thru 48 are for vehicles equipped with an electronic locking axle.

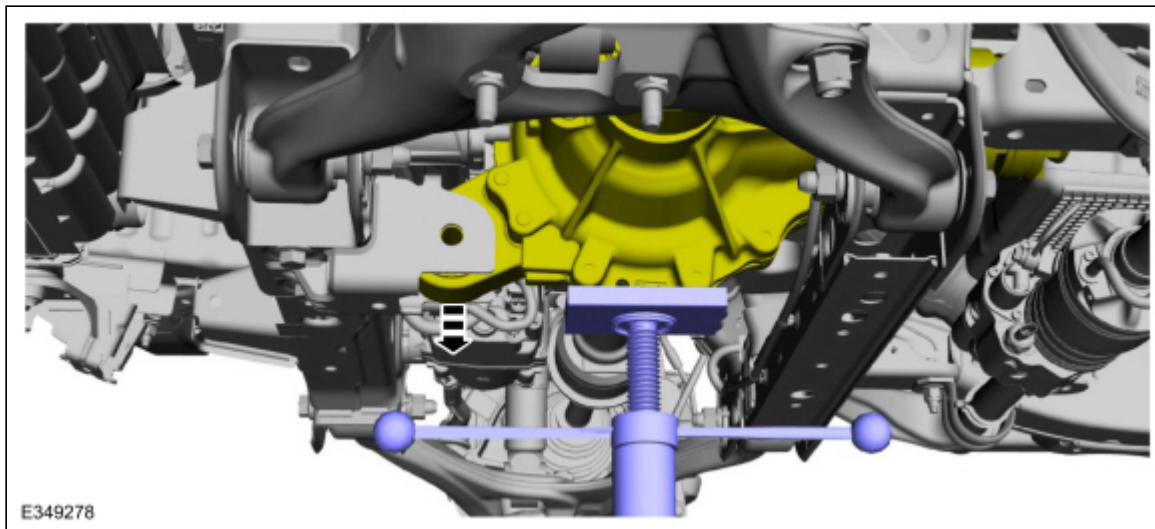
- 43. Position an adjustable stand under the axle and remove and discard the bolt. Use the General Equipment: Vehicle/Axle Stands



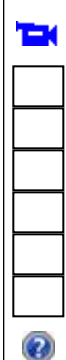
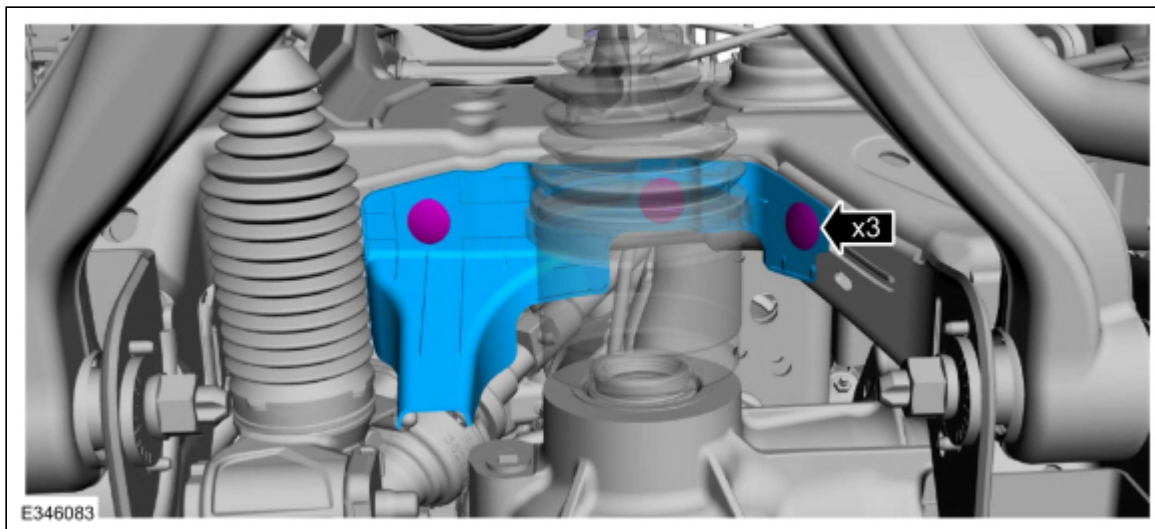
- 44. Remove and discard the rear axle bolts.



- 45. 1. Using the adjustable stand, lower the axle.
Use the General Equipment: Vehicle/Axle Stands
- 2. Remove the stand.

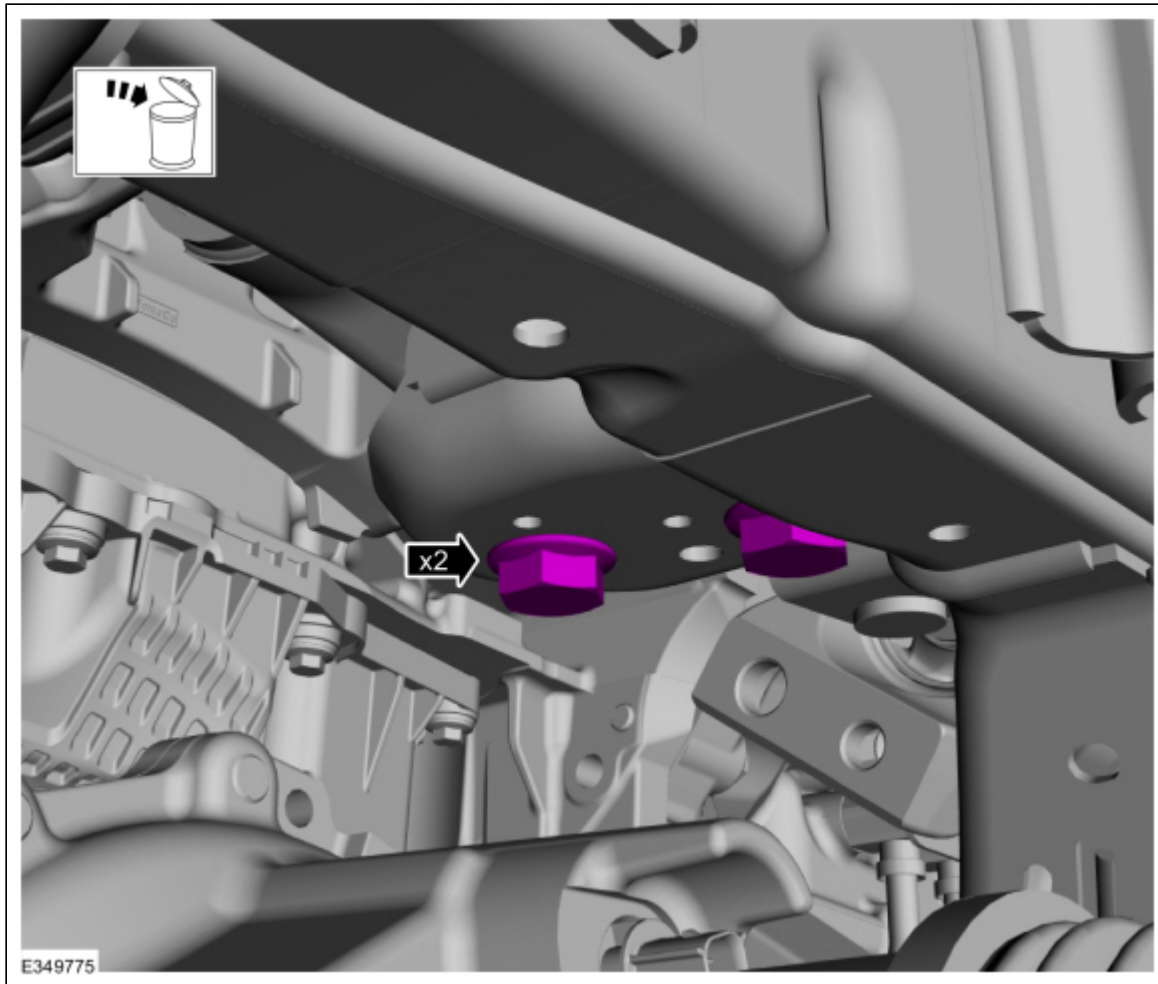


- 46. Remove the retainers and the LH axle shaft shield.

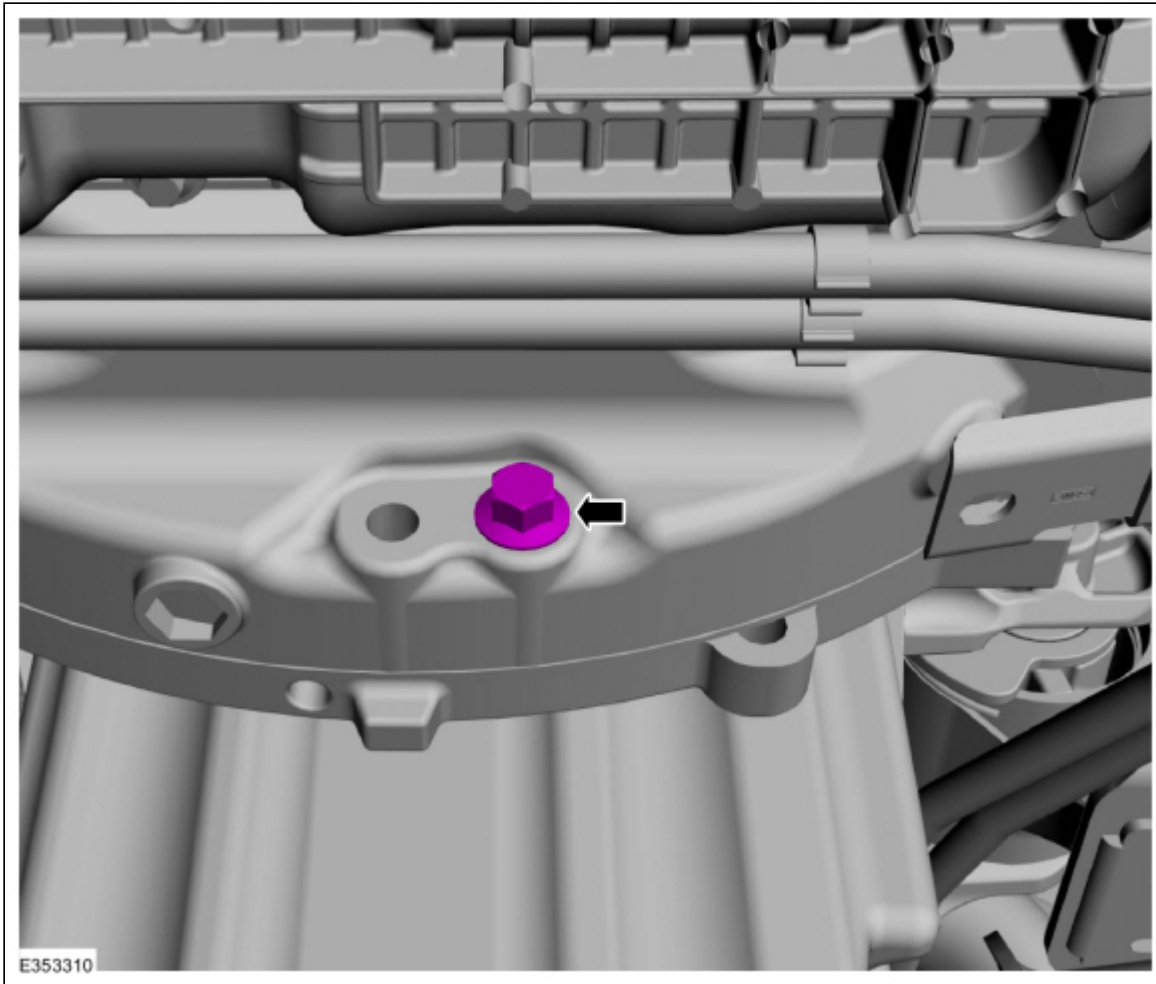


- 47. **NOTE:** Use a 1/2 inch drive 12-point 1 inch standard torque adaptor (such as a Snap-on SRDH321, or equivalent).

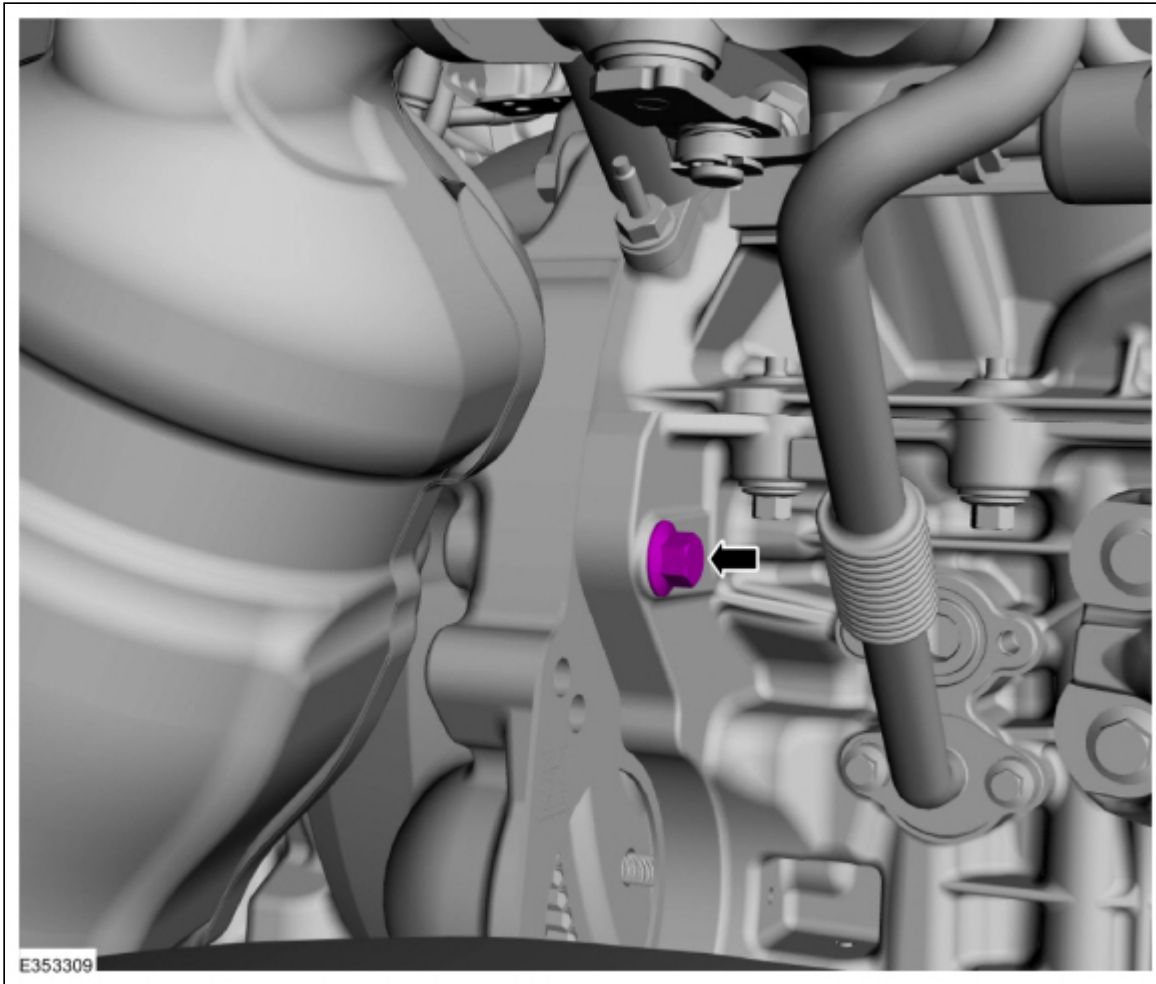
Using a standard torque adaptor, remove and discard the LH engine mount bolts.



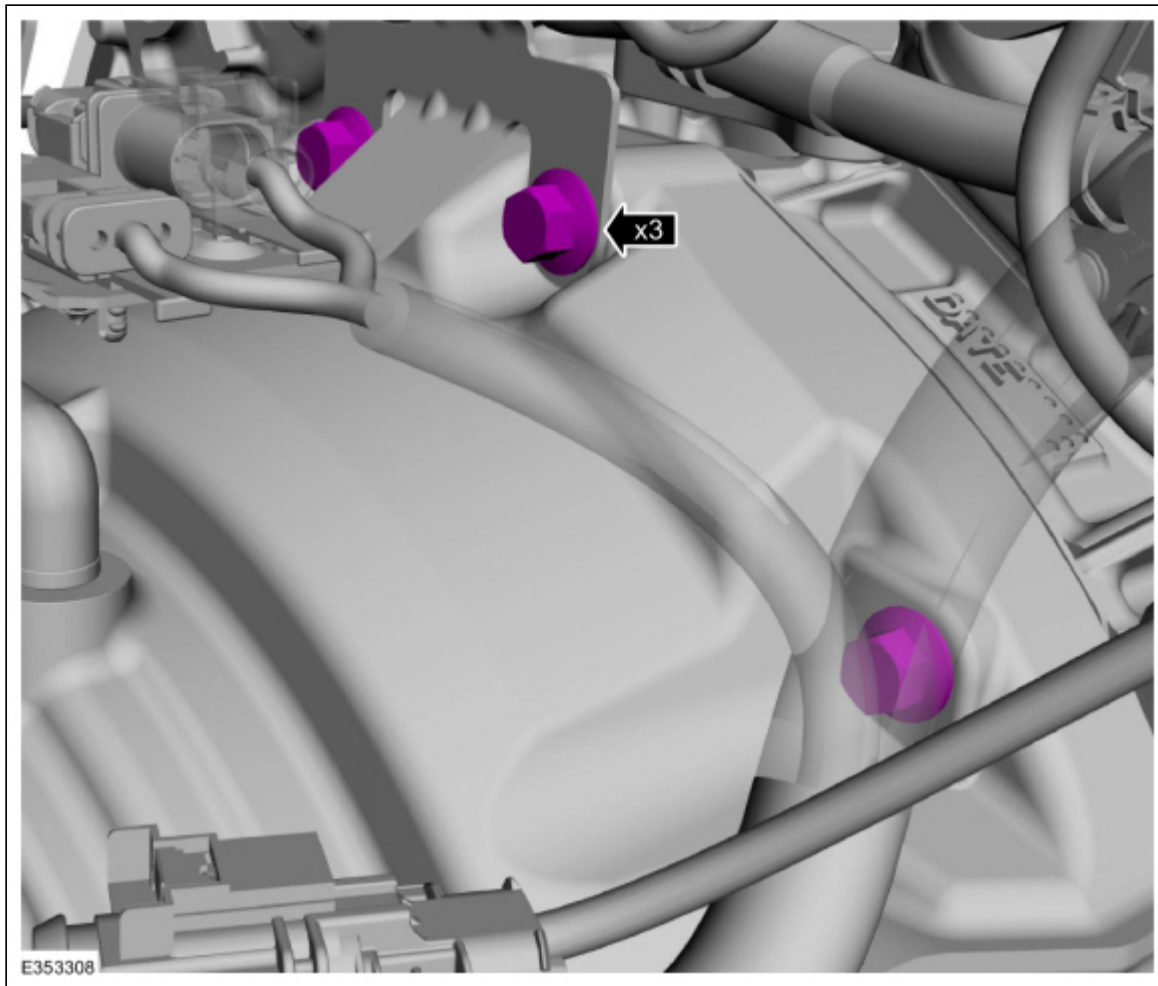
48. Remove the lower bellhousing bolt.



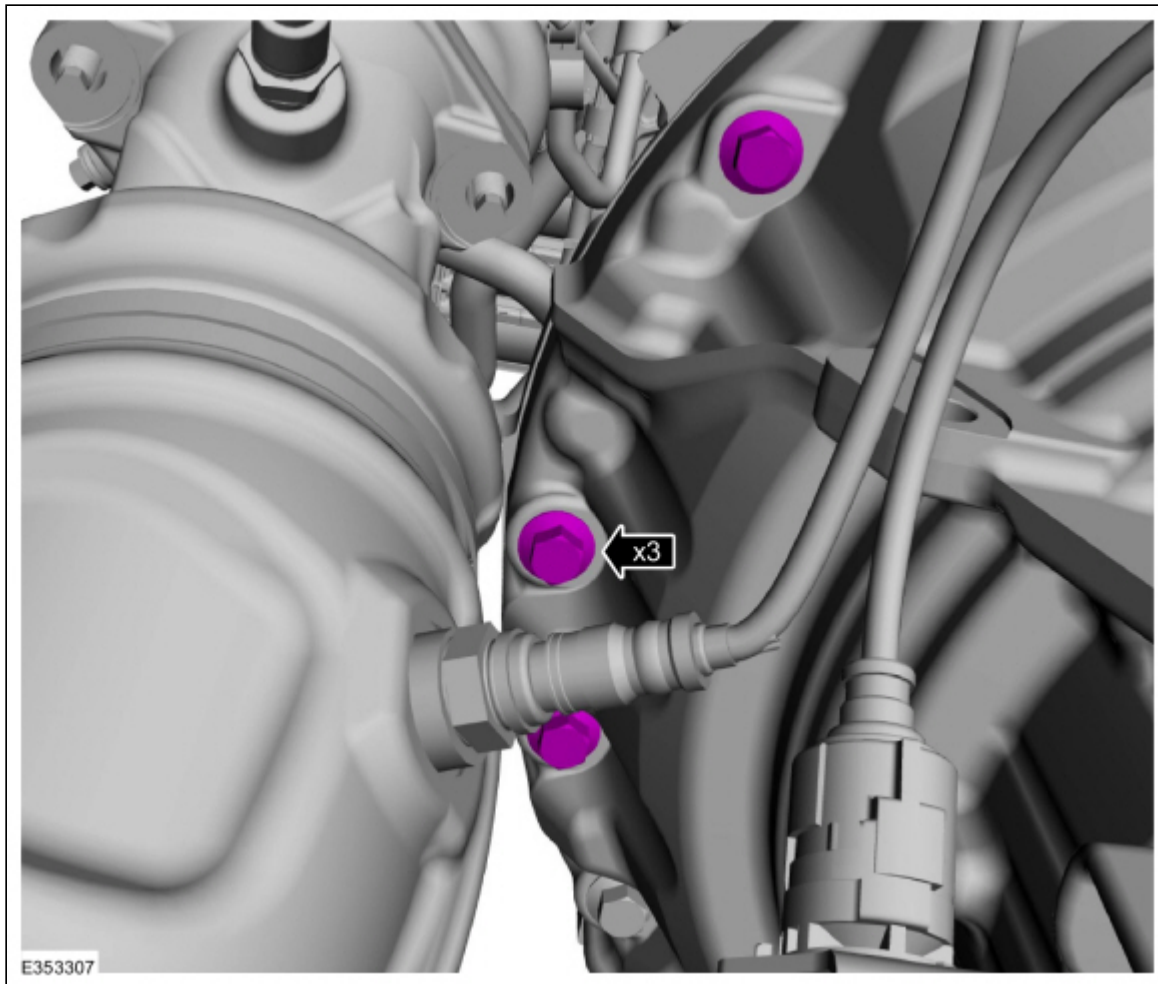
49. Remove the RH bellhousing bolt.



50. Remove the top bellhousing bolts.



51. Remove the LH bellhousing bolts.

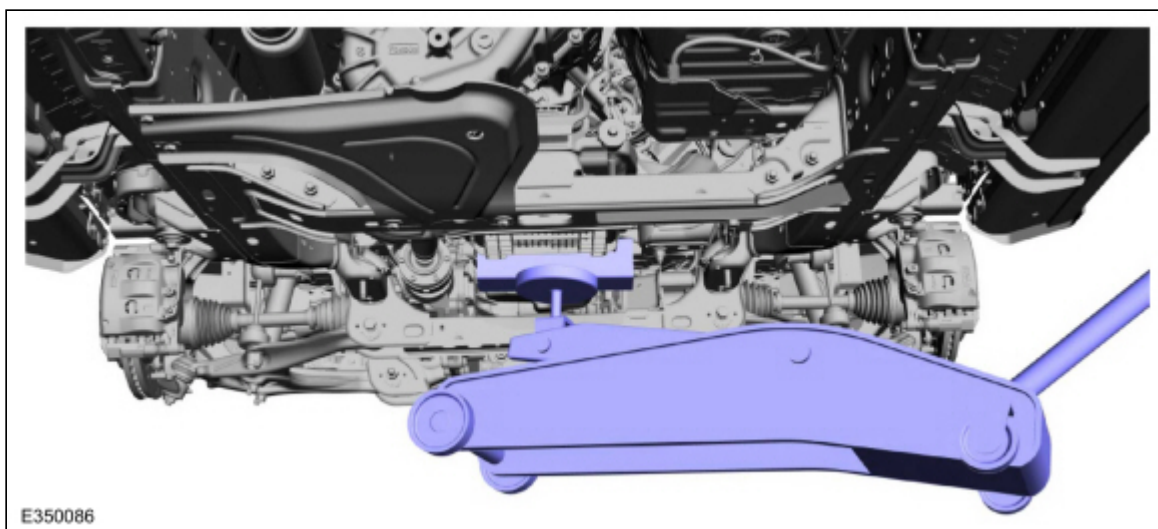


52. **NOTICE:** Do not support the transmission by the fluid pan, failure to follow this instruction may result in serious damage to the transmission.

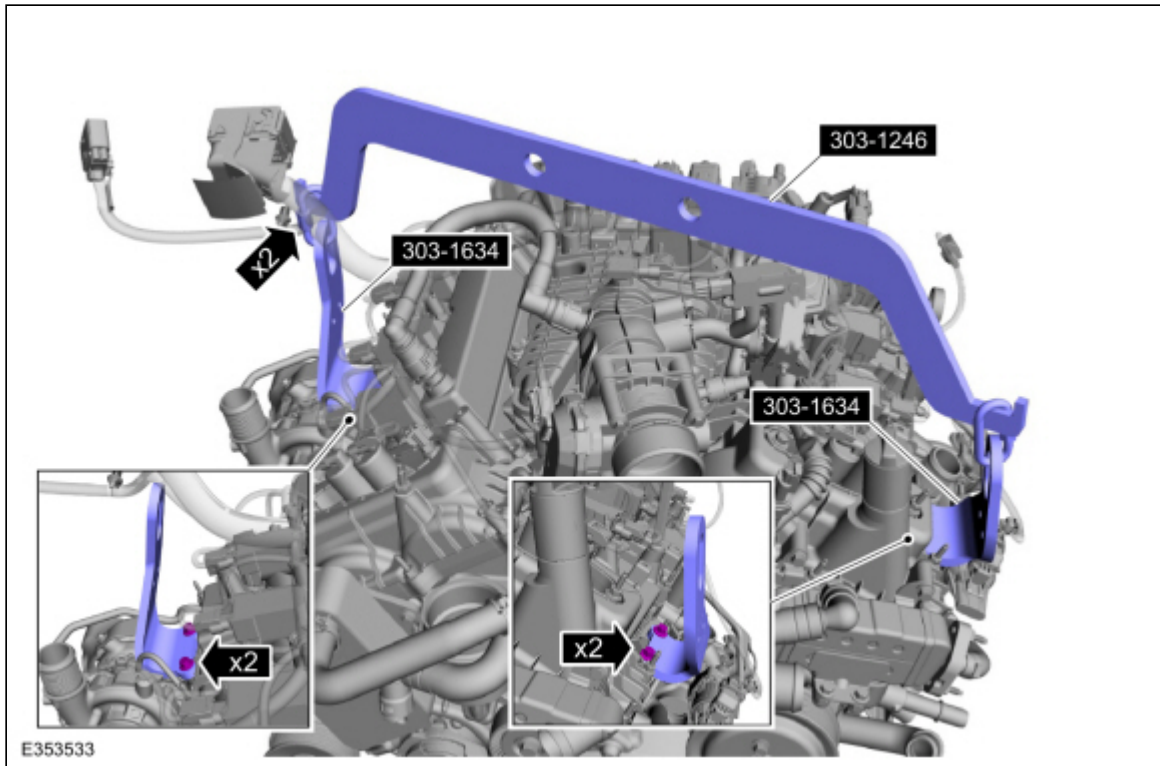
Support the bellhousing of the transmission with a suitable floor jack and a block of wood.

Use the General Equipment: Trolley Jack

Use the General Equipment: Wooden Block

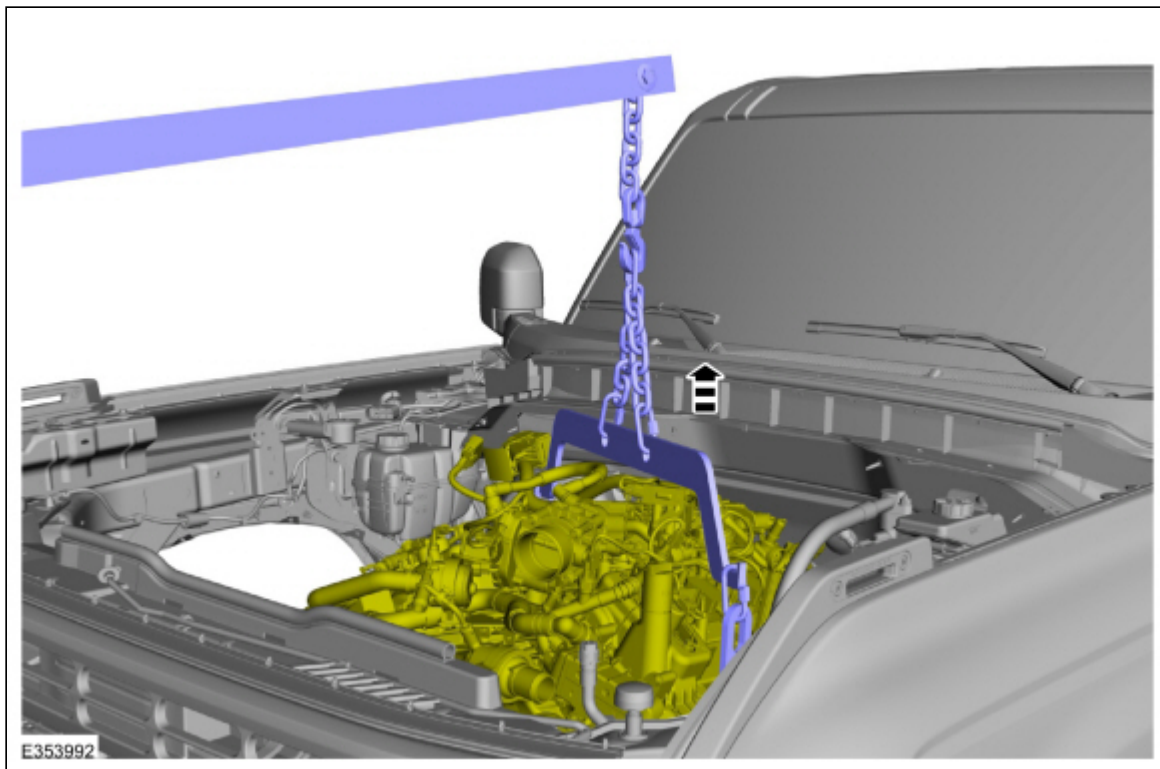


53. Install commercially available quick links to the spreader bar and lift eyes.
Install Special Service Tool: [303-1634 Lift Eyes \(2\)](#) , [303-1246 Engine Spreader Bar](#).

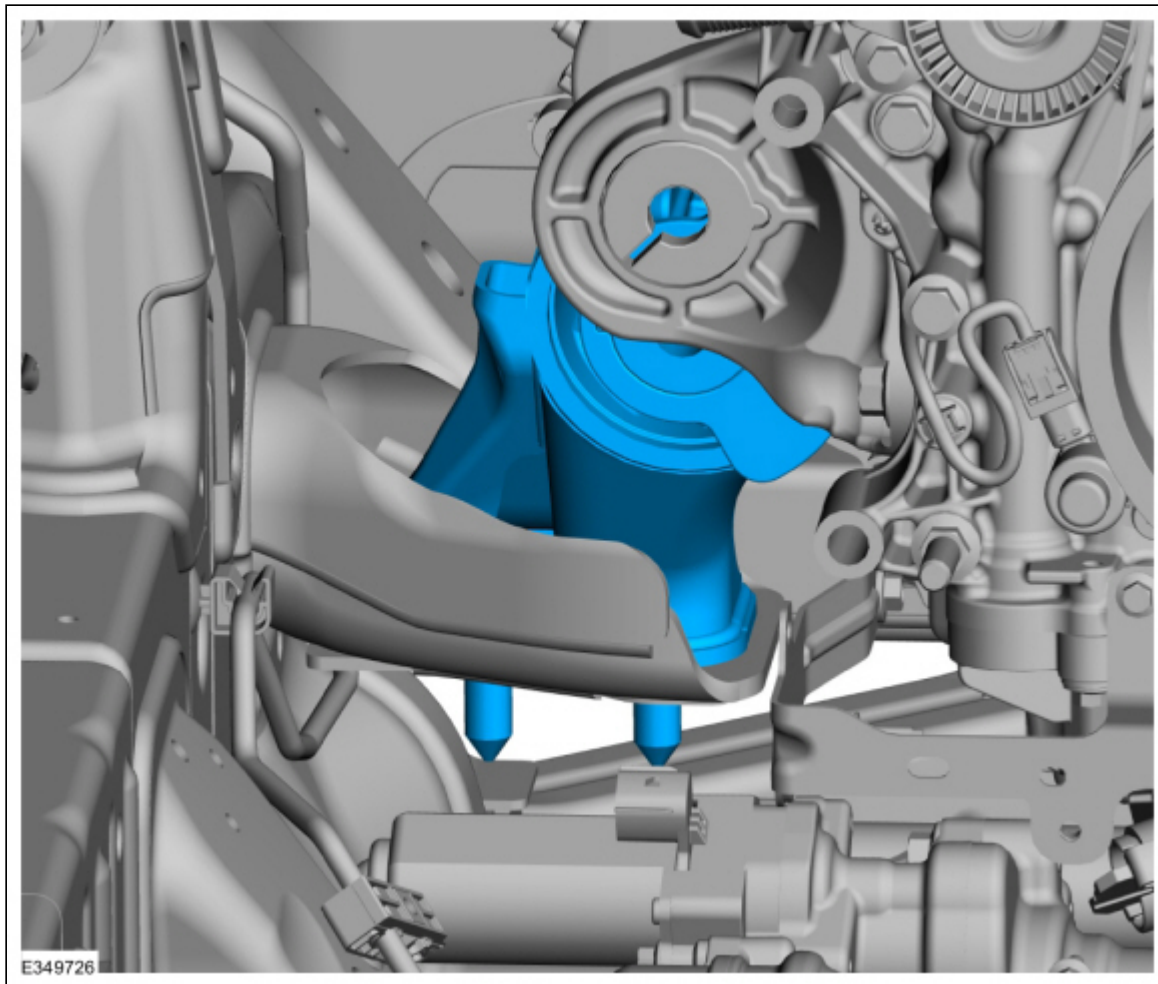


54. **NOTE:** It will be necessary to adjust the height floor jack to support the transmission.

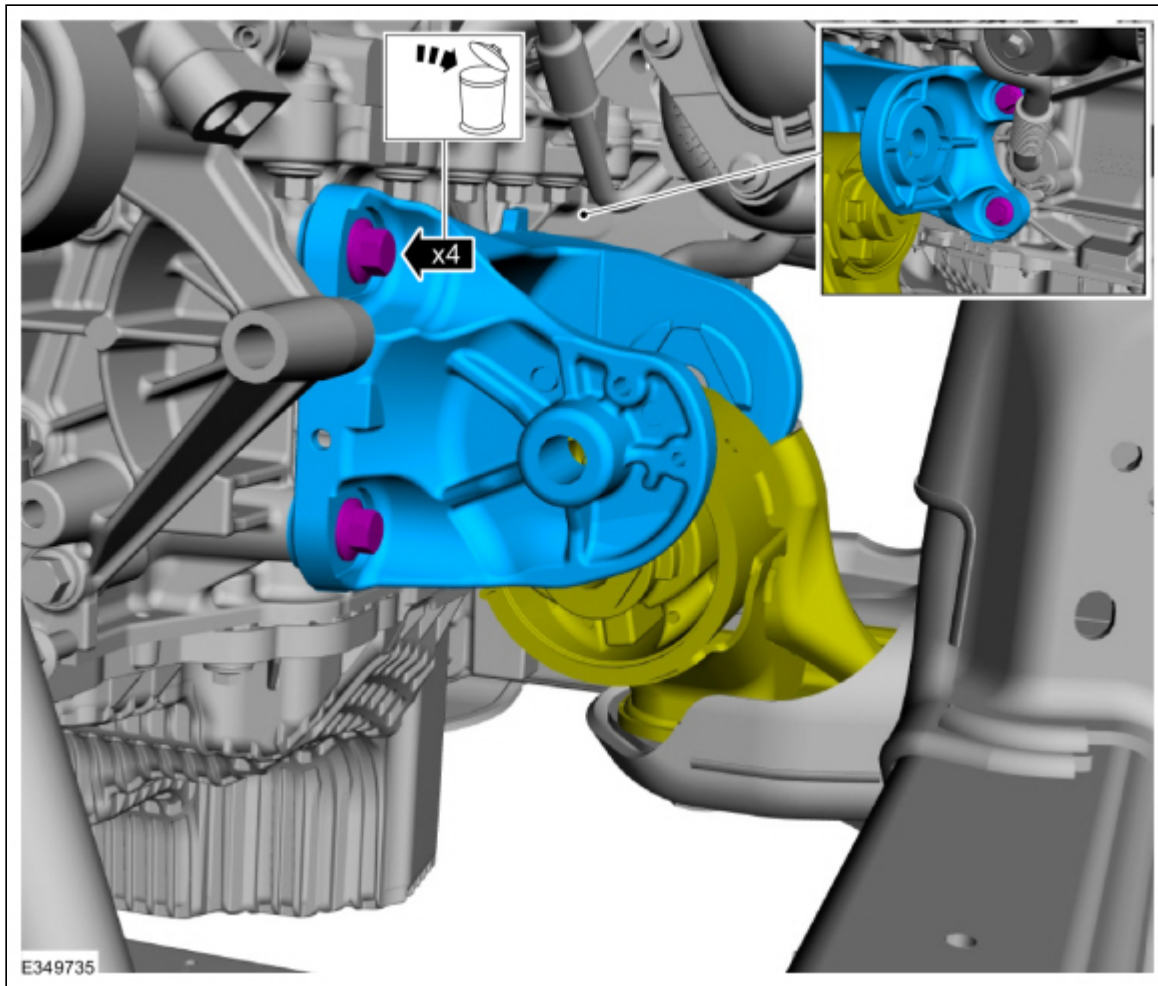
Install a floor crane and lengths of chain with connecting links and raise the engine off of the engine mounts. Use the General Equipment: Floor Crane



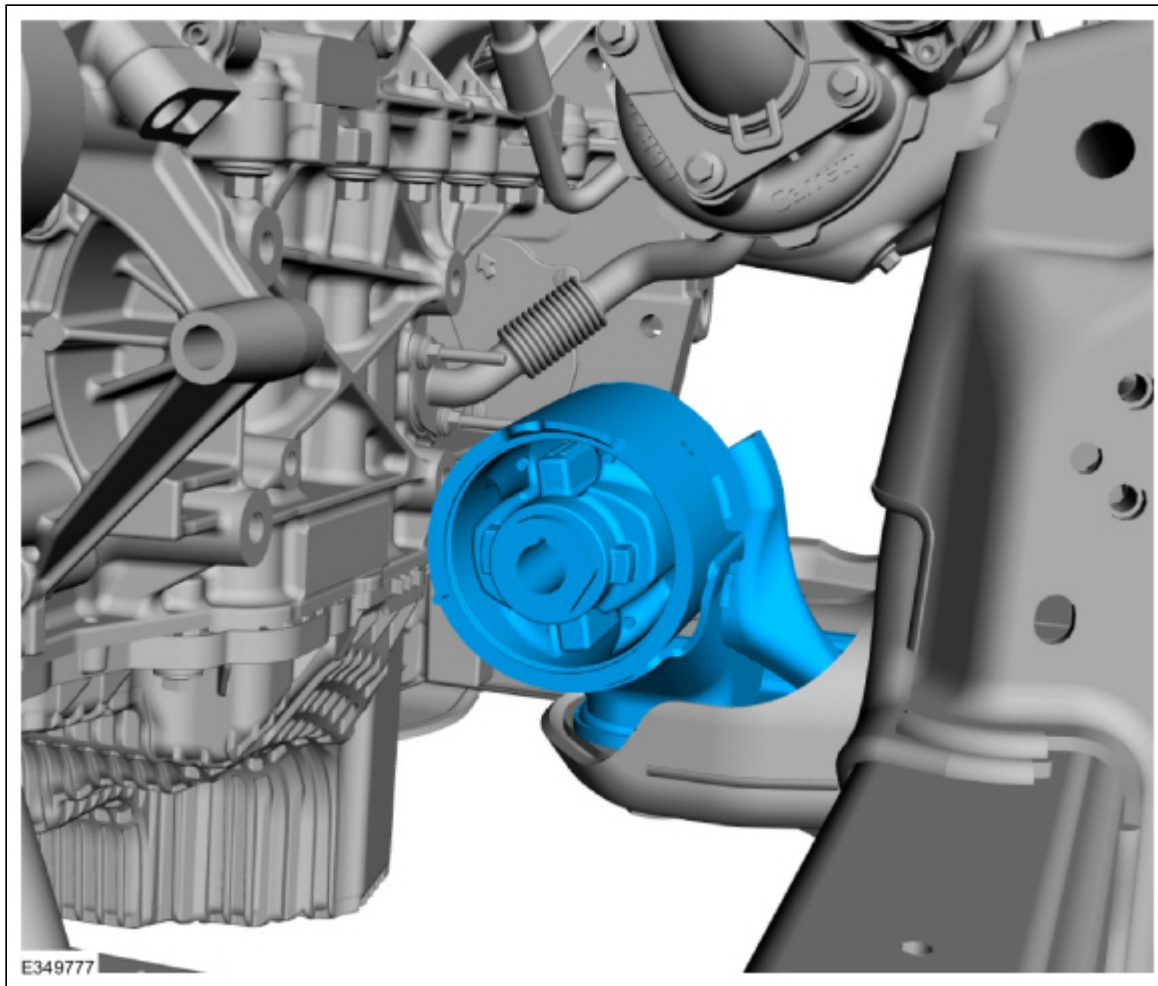
55. Remove the RH engine mount.



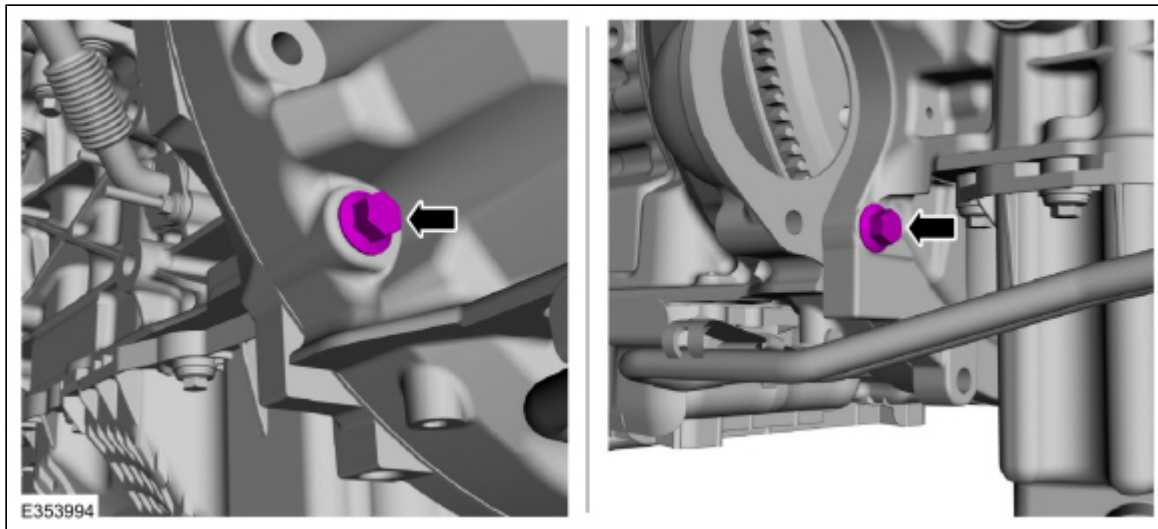
- 56.
- Remove the bolts and the LH engine mount bracket.
 - Discard the bolts.



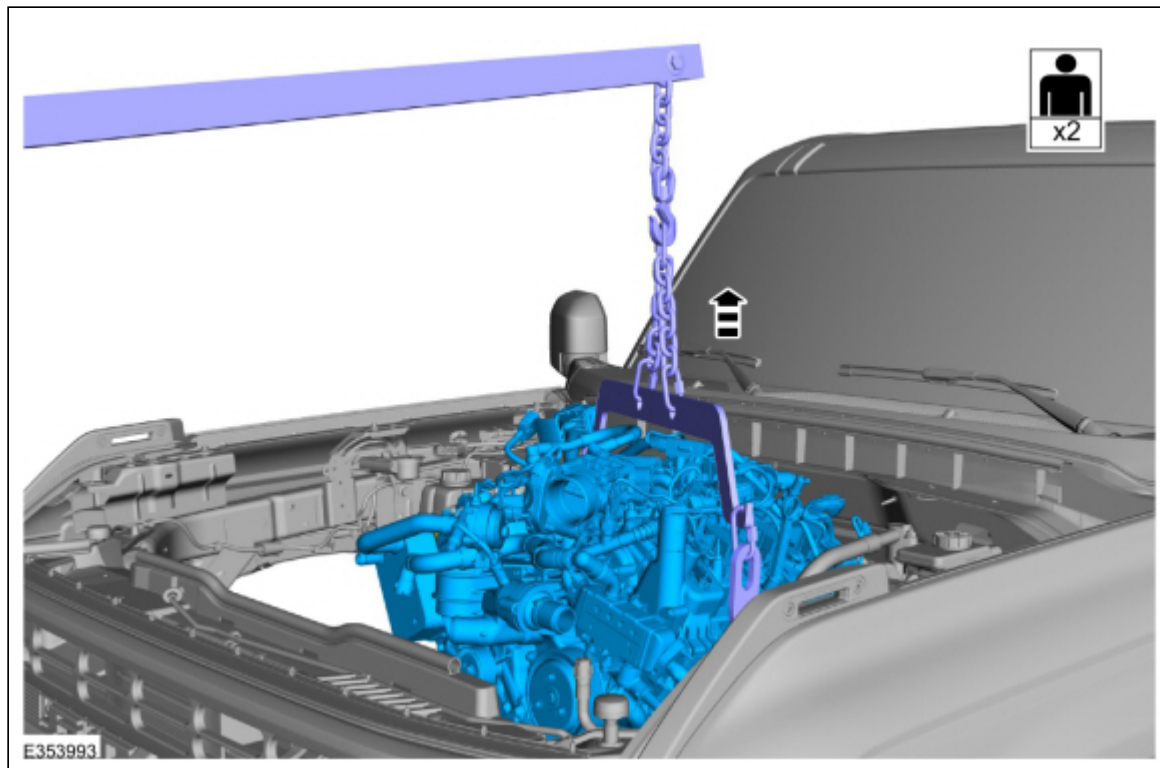
57. Remove the LH engine mount.



58. Remove the remaining transmission bellhousing bolts.



59. With the aid of an assistant, use the floor crane to remove the engine assembly from the vehicle.
Use the General Equipment: Floor Crane



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