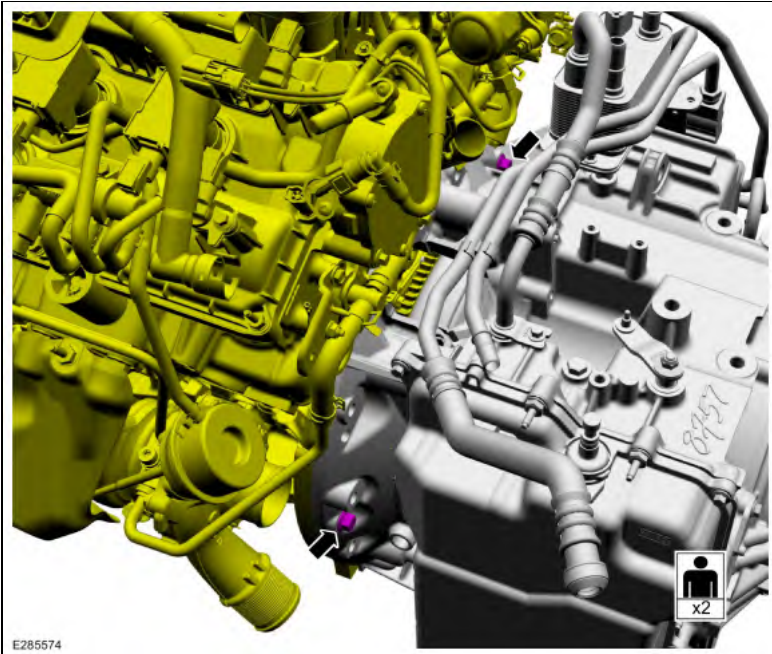
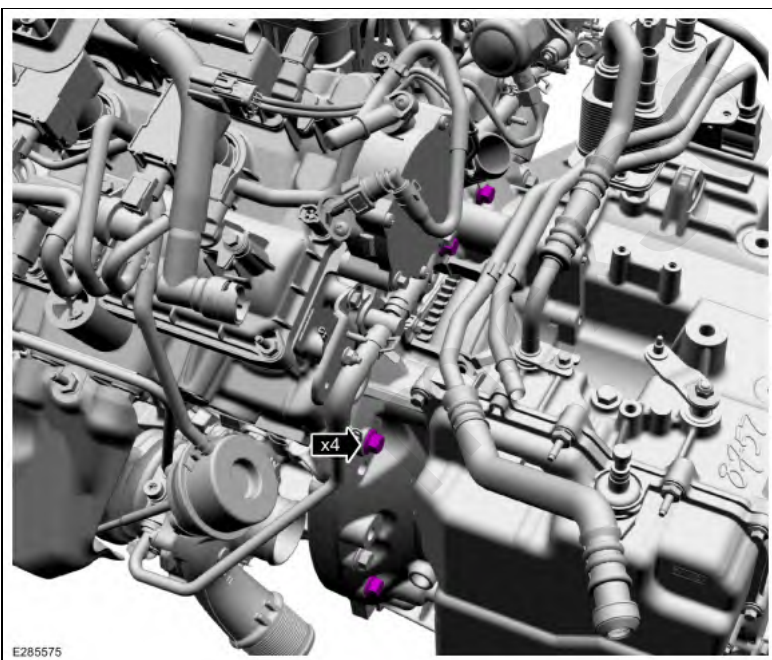
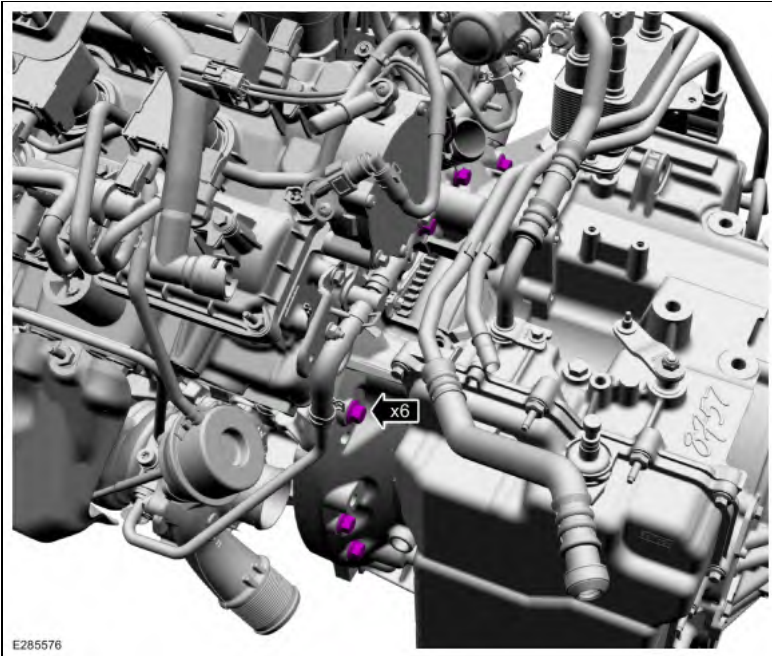




5. Install the transmission bellhousing bolts.

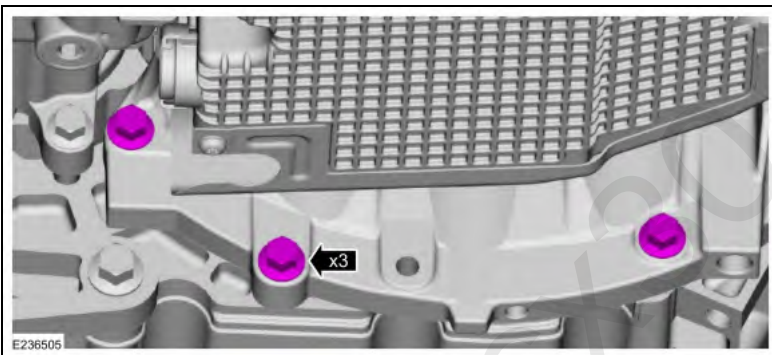


6. Tighten.
Torque: 35 lb.ft (48 Nm)

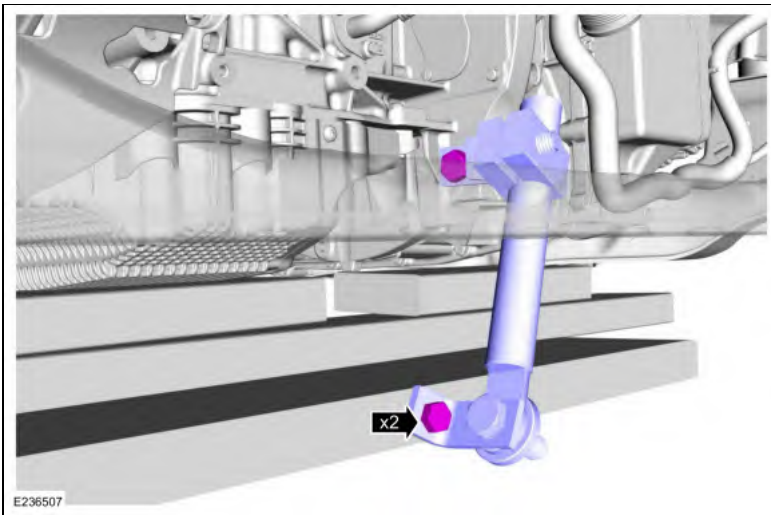


7. **NOTE:** AWD shown, FWD similar.

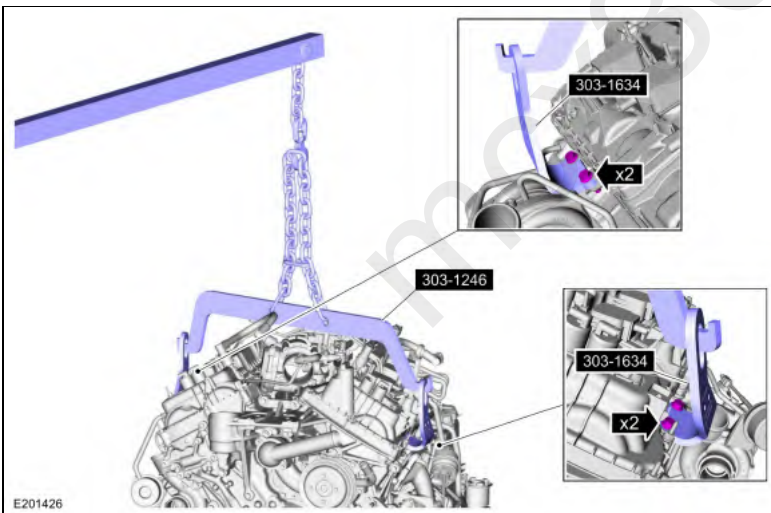
Install the transmission bellhousing bolts.
Torque: 35 lb.ft (48 Nm)



8. Install.
Use the General Equipment: Adjustable Mounting Arm

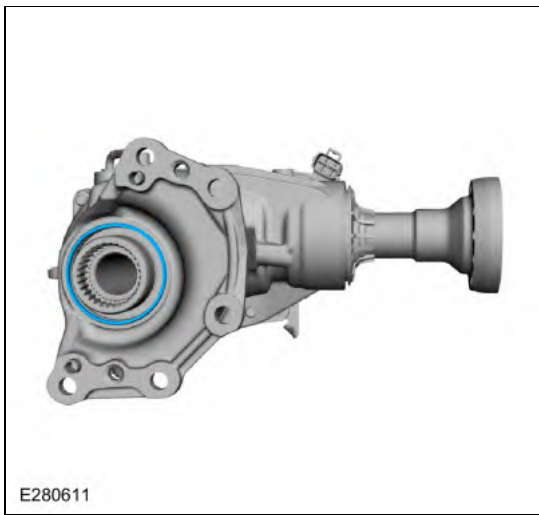


9.
 1. Remove the floor crane and length of chain with connecting links.
Use the General Equipment: Floor Crane
 2. Remove Special Service Tool: 303-1246 Engine Spreader Bar, , 303-1634 Lift Eyes (2).

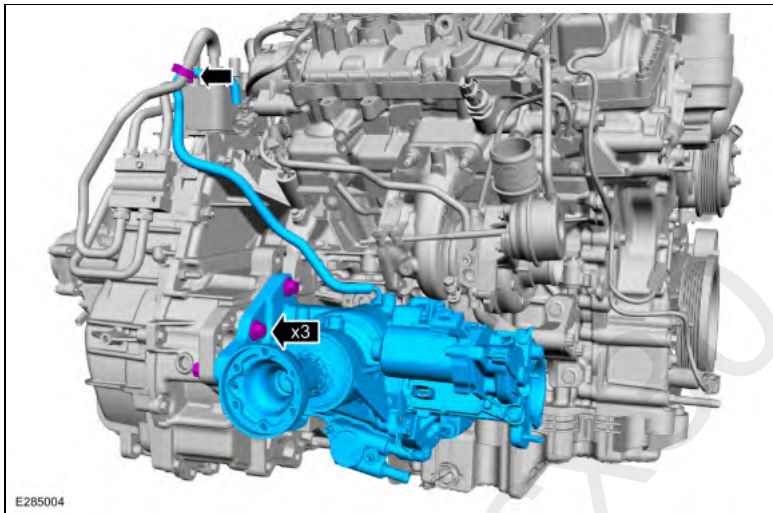


LHD AWD

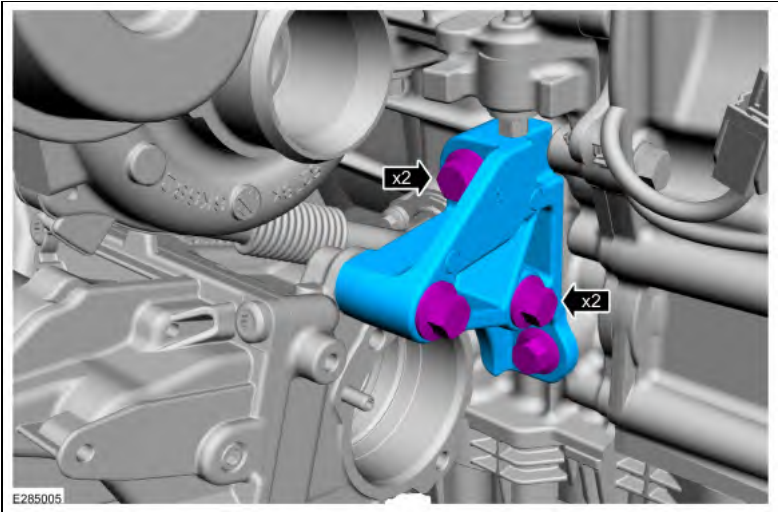
10. Install a new transfer case compression seal.



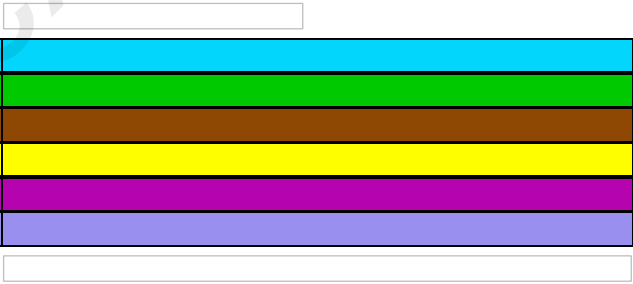
- 11.
1. Install the transfer case.
 2. Install new bolts.
Torque: 76 lb.ft (103 Nm)
 3. Attach the vent hose retainer.



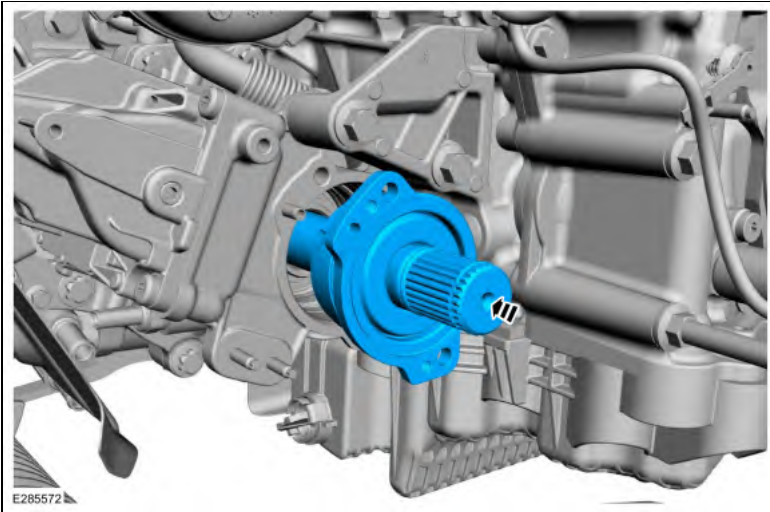
12. Install the bracket and the bolts.
Torque: 35 lb.ft (48 Nm)



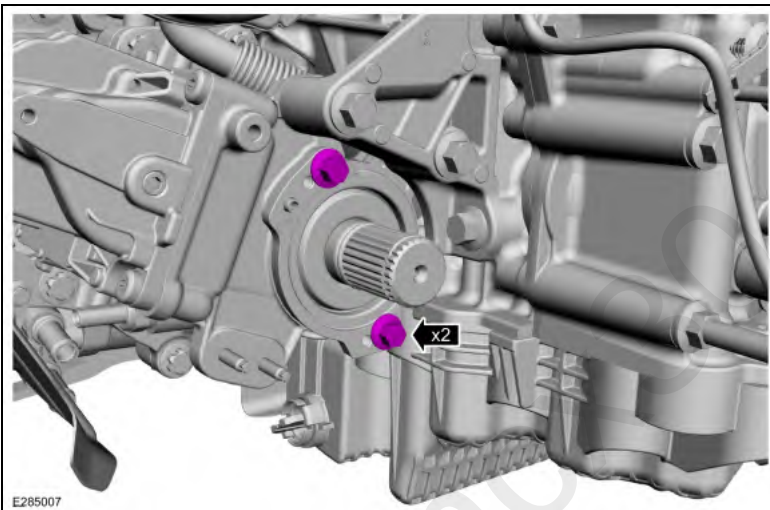
13. Install and lubricate a new transfer case shaft seal.



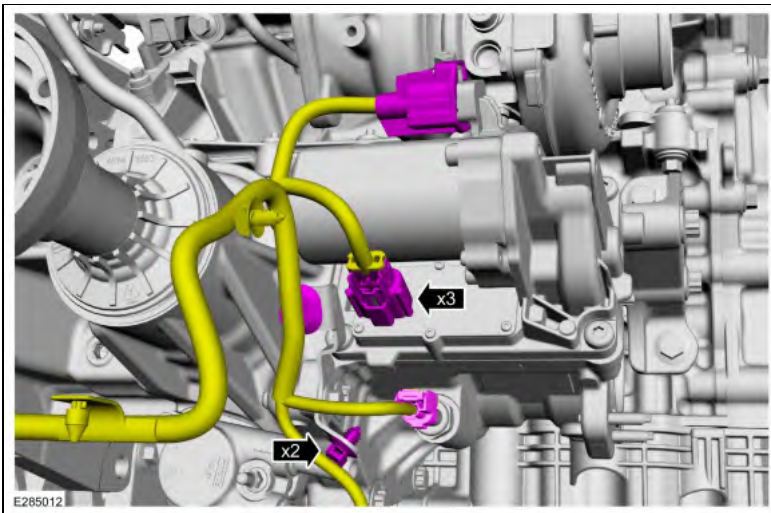
14. Install the transfer case shaft.



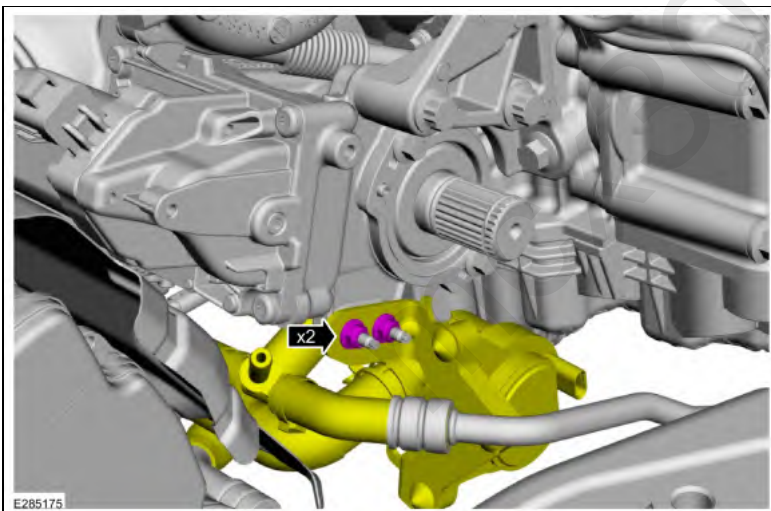
15. Install the transfer case shaft bolts
Torque: 18 lb.ft (25 Nm)



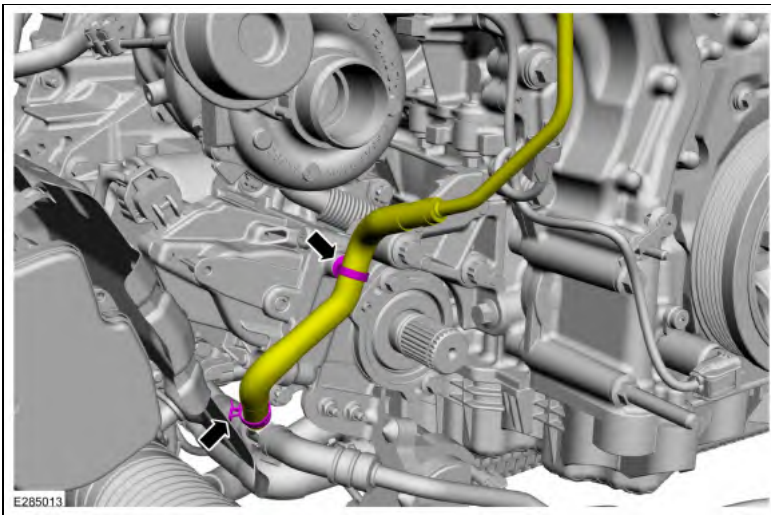
16. Connect the transfer case electrical connectors and attach the wiring harness retainers.



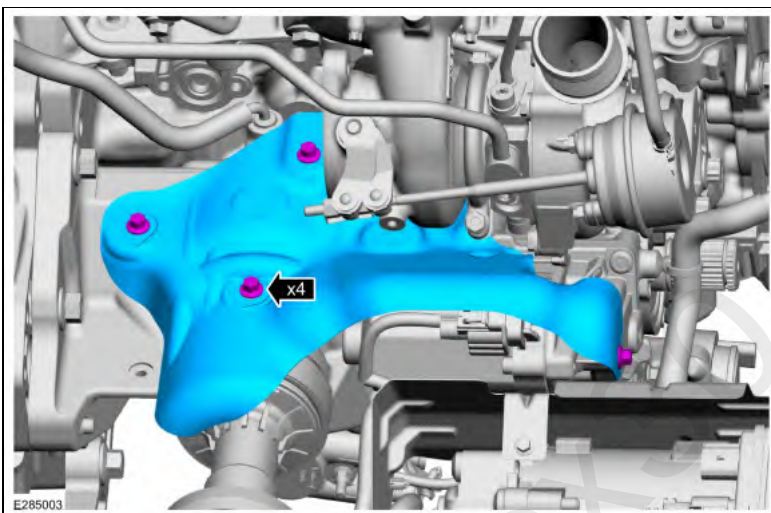
17. Install the coolant pump and the nuts.
Torque: 80 lb.in (9 Nm)



- 18.
- Install the coolant hose and clamp.
Use the General Equipment: Hose Clamp Remover/Installer
 - Attach the coolant hose retainer.



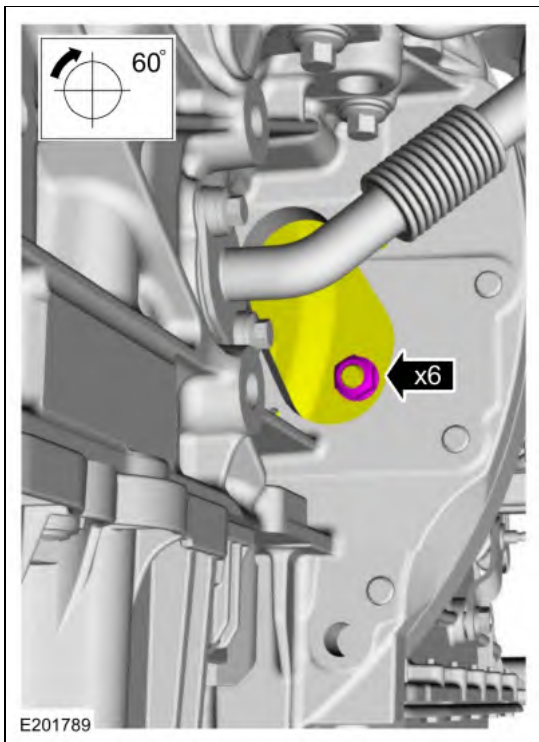
19. Install the heat shield and the bolts.
Torque: 97 lb.in (11 Nm)



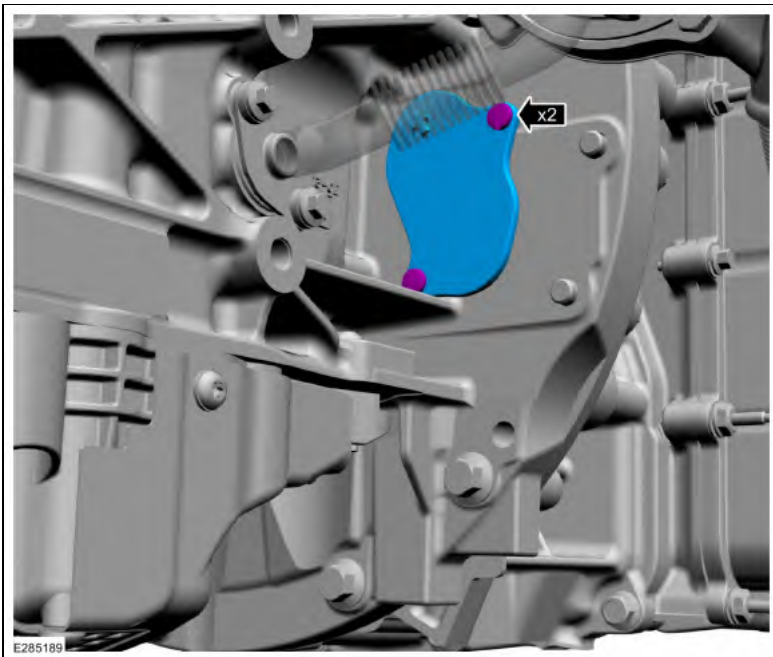
LHD AWD/LHD FWD

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

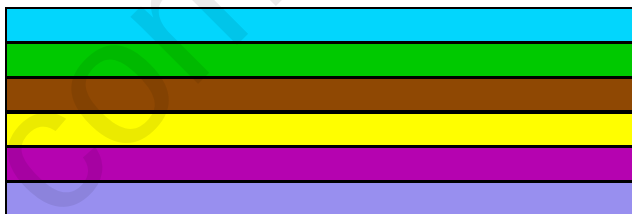
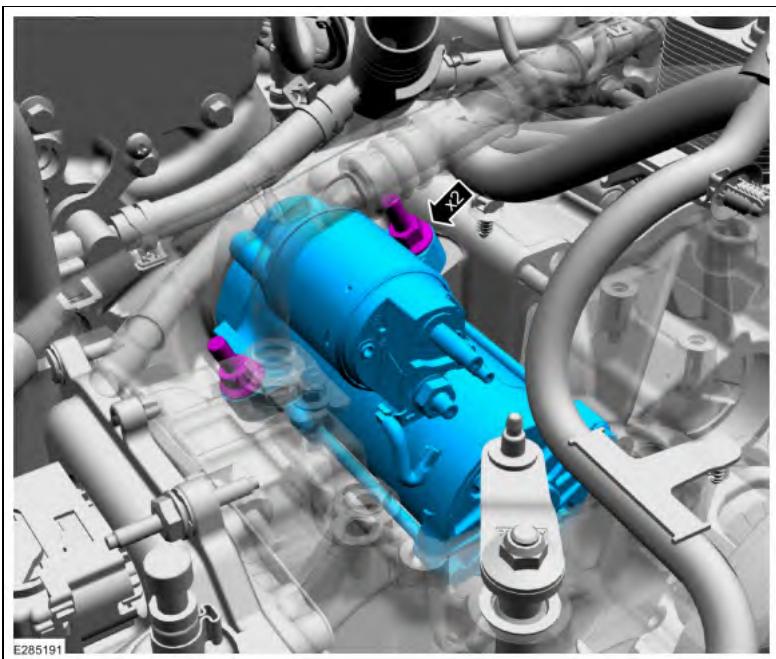
Install the new torque converter nuts.
Torque: 35 lb.ft (48 Nm)



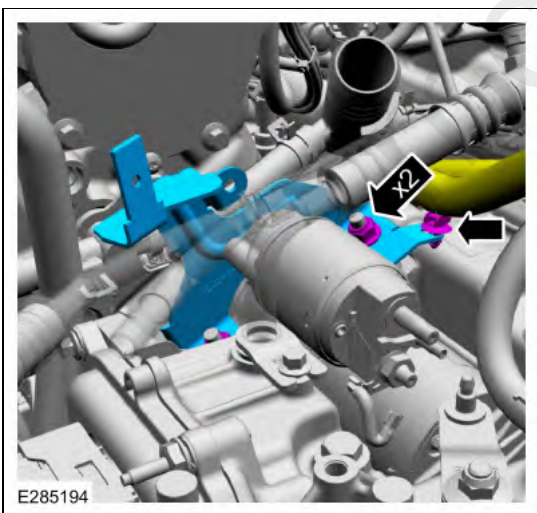
21. Install the access cover and the retainers.



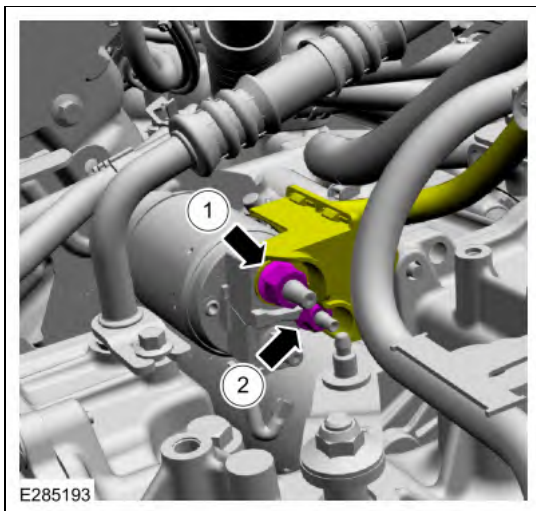
22. Install the starter and the stud bolts.
Torque: 35 lb.ft (48 Nm)



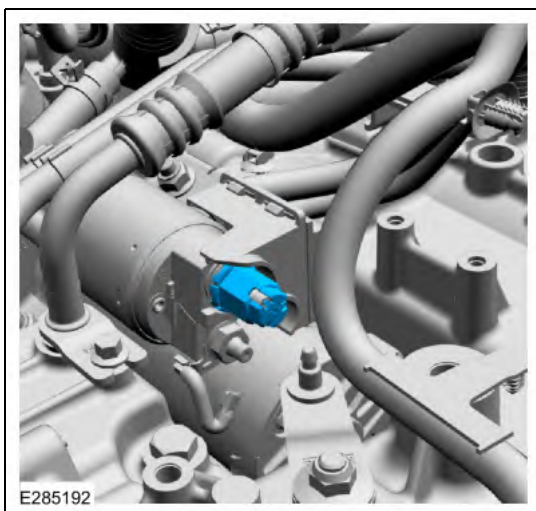
- 23.
1. Install the bracket and the nuts.
Torque: 17 lb.ft (23 Nm)
 2. Position the wiring harness and attach the retainer.



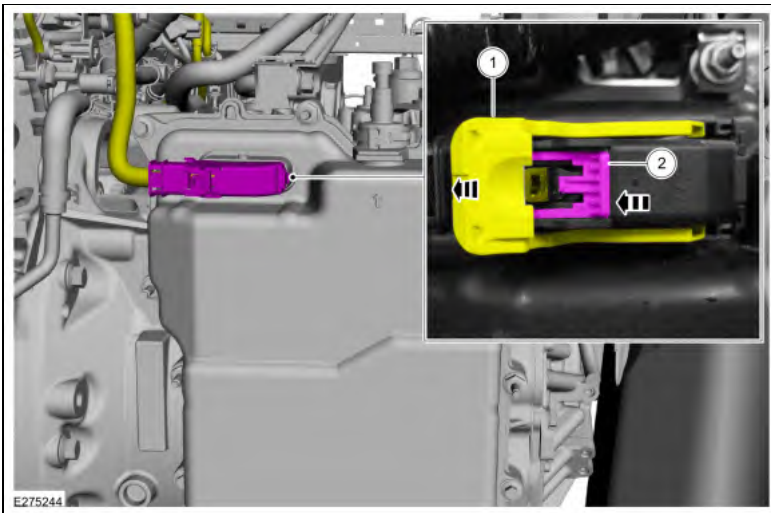
- 24.
1. Position the starter cable and install the nut.
Torque: 106 lb.in (12 Nm)
 2. Install the nut.
Torque: 53 lb.in (6 Nm)



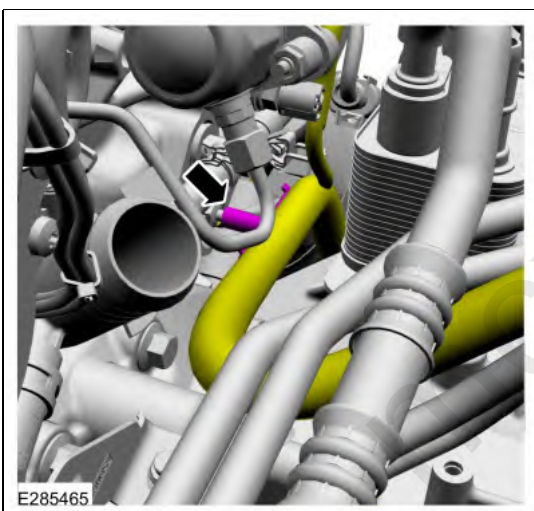
25. Install the starter cable protective cover.



- 26.
- Connect the transmission electrical connector.
1. Rotate the connector latch until it locks in place.
 2. Slide the locking clip back to its original position.

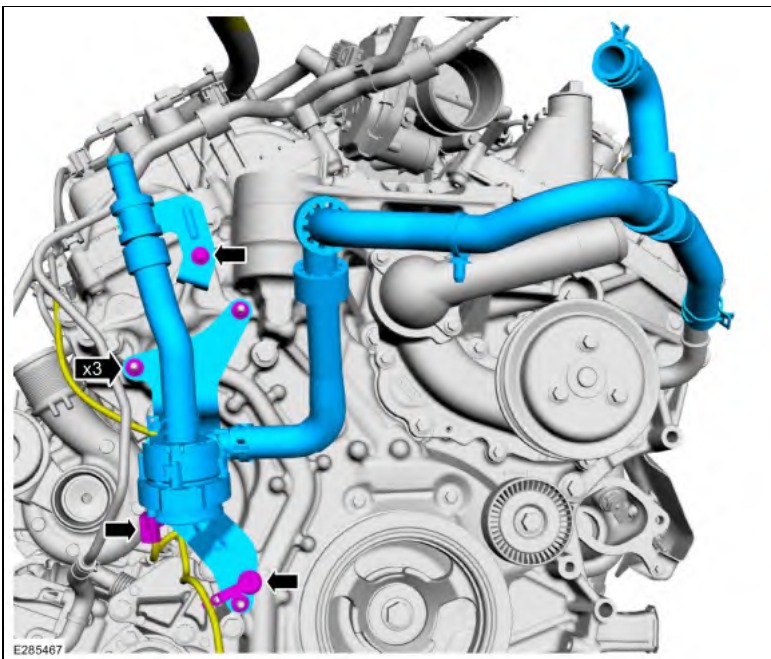


27. Attach the wiring harness retainer.



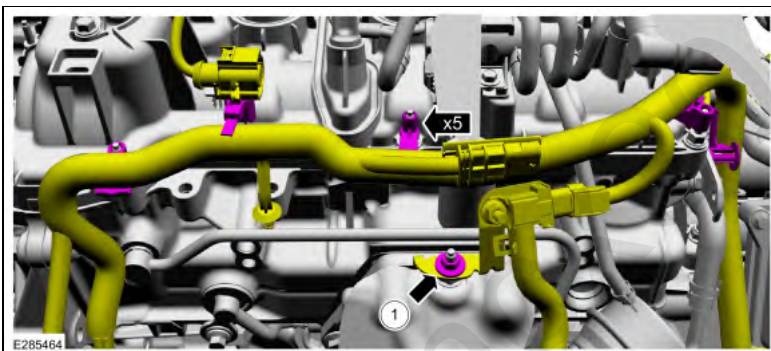
28.

- Install the coolant pump and hose assembly, the nuts and the bolt.
Torque: 80 lb.in (9 Nm)
- Attach the wiring harness retainer.
- Connect the coolant pump electrical connector.



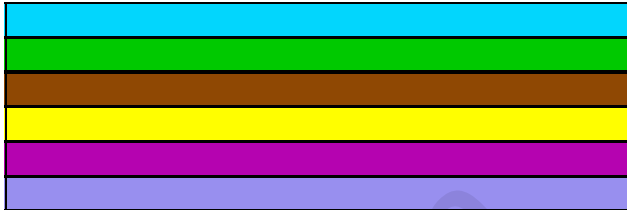
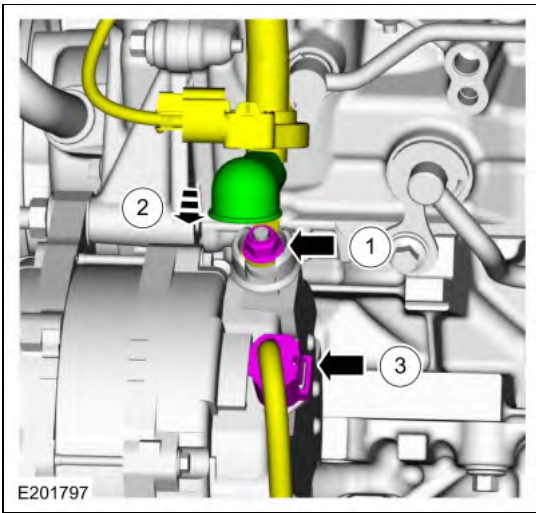
29.

1. If equipped, position the transducer and install the nut.
Torque: 80 lb.in (9 Nm)
- Attach the retainers and position the battery cable aside.

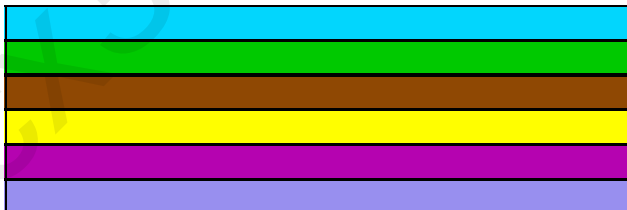
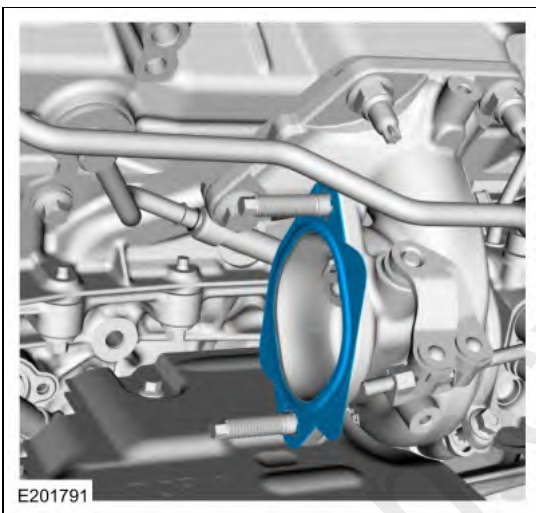


30.

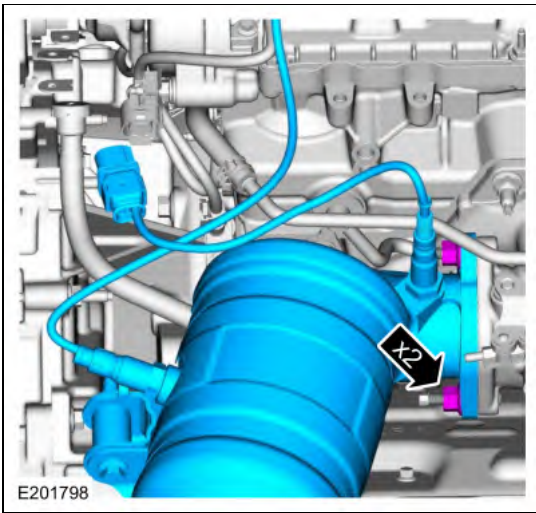
1. Connect the generator cable and install the nut.
Torque: 159 lb.in (18 Nm)
2. Position the generator cable protective cover.
3. Connect the generator electrical connector.



31. Install a new RH catalytic converter gasket.

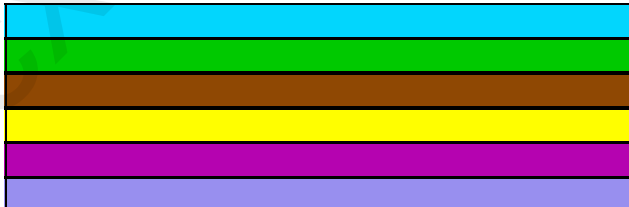
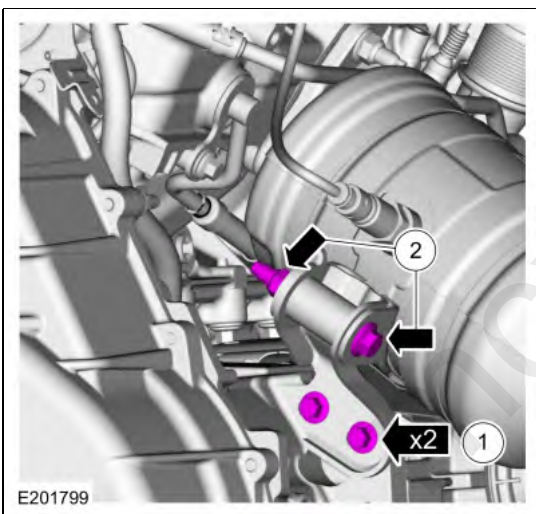


- 32.
1. Install the RH catalytic converter.
 2. Install new RH catalytic converter nuts.
Torque: 30 lb.ft (40 Nm)

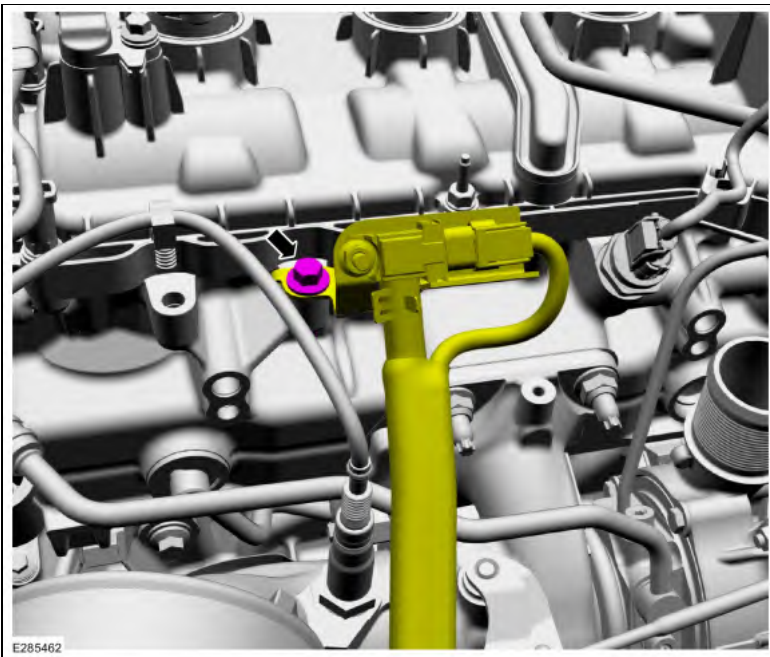


33.

1. Install.
Torque: 22 lb.ft (30 Nm)
2. Tighten.
Torque: 35 lb.ft (48 Nm)

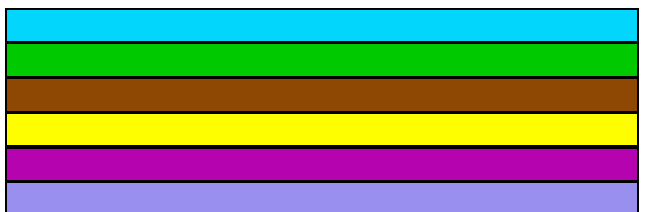
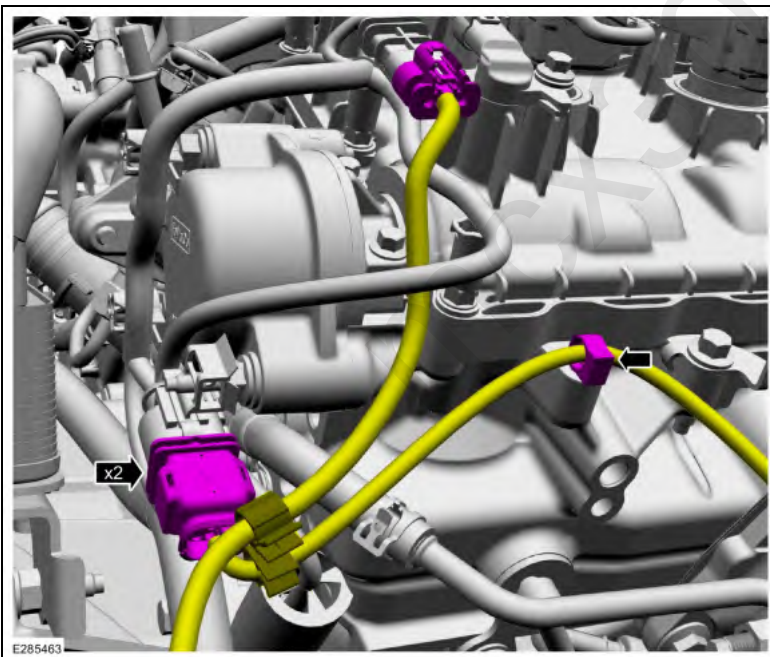


34. If equipped, position the transducer and install the bolt.
Torque: 97 lb.in (11 Nm)



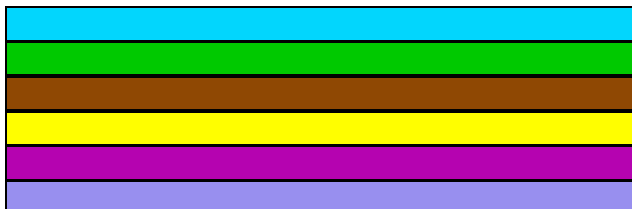
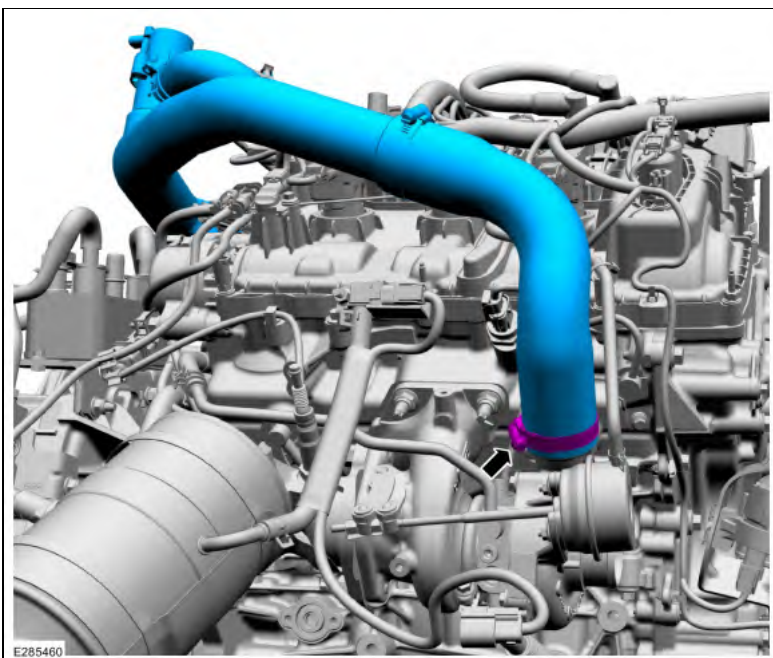
35.

- Connect the HO2S and the catalyst monitor sensor electrical connectors.
- Attach the wiring harness retainer.



36. **NOTICE:** When removing any turbocharger air intake system components, make sure to cover any open ports to prevent debris from entering the system. The turbocharger compressor vanes can be damaged by even the smallest particles. All components need to be inspected and cleaned prior to installation or reassembly.

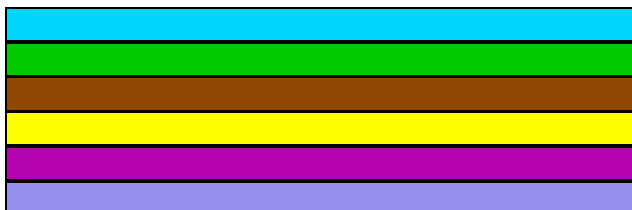
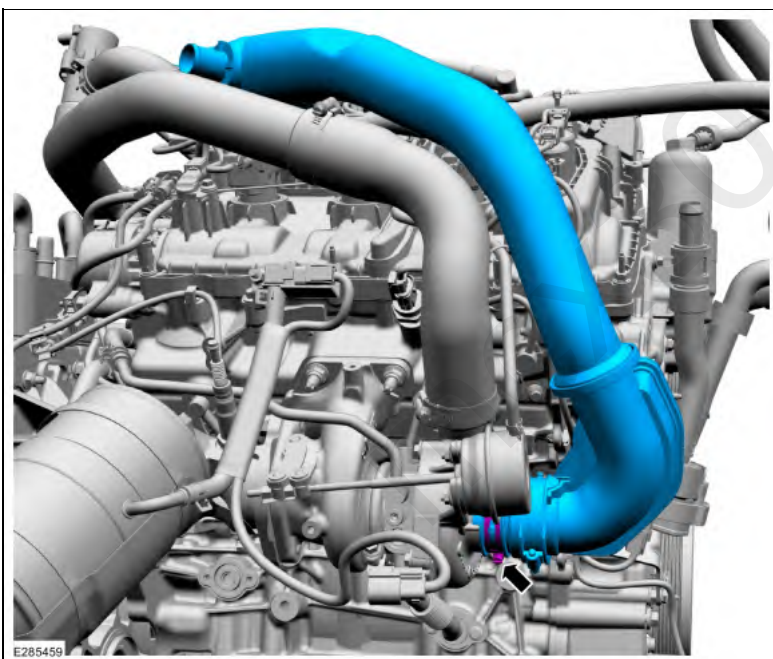
1. Uncover, clean and inspect all open ports.
2. Install the turbocharger outlet pipe and clamp.
Torque: 44 lb.in (5 Nm)



37. **NOTICE:** When removing any turbocharger air intake system components, make sure to cover any open ports to prevent debris from entering the system. The turbocharger compressor vanes can be damaged by even the smallest particles. All components need to be inspected and cleaned prior to installation or reassembly.

1. Uncover, clean and inspect all open ports.
2. Install the turbocharger intake pipe and clamp.

Torque: 44 lb.in (5 Nm)

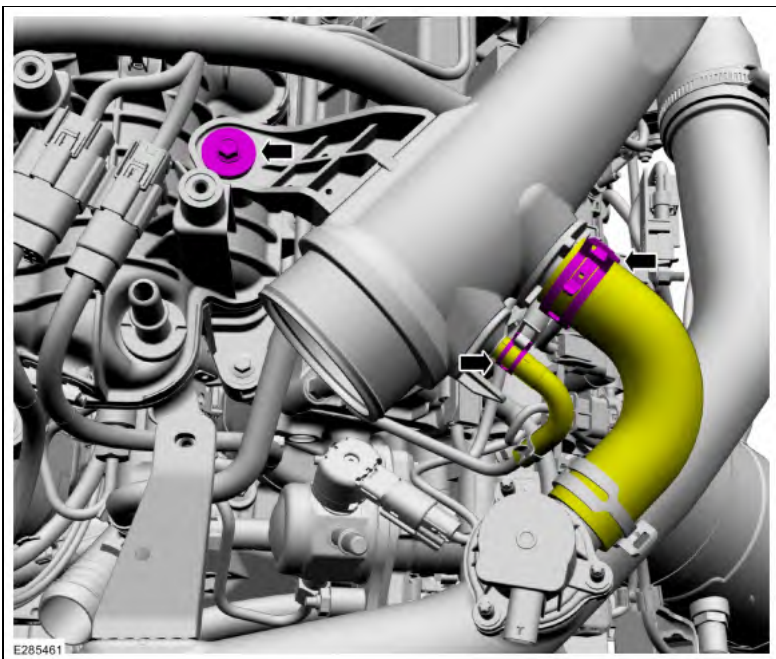


38. **NOTICE:** When removing any turbocharger air intake system components, make sure to cover any open ports to prevent debris from entering the system. The turbocharger compressor vanes can be damaged by even the smallest particles. All components need to be inspected and cleaned prior to installation or reassembly.

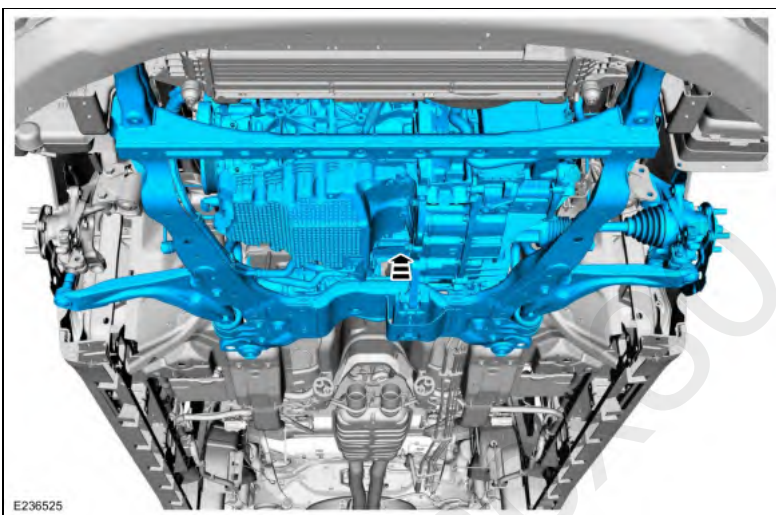
1. Uncover, clean and inspect all open ports.
2. Install the bolt.
3. Install the hoses and the clamps.

Torque: 71 lb.in (8 Nm)

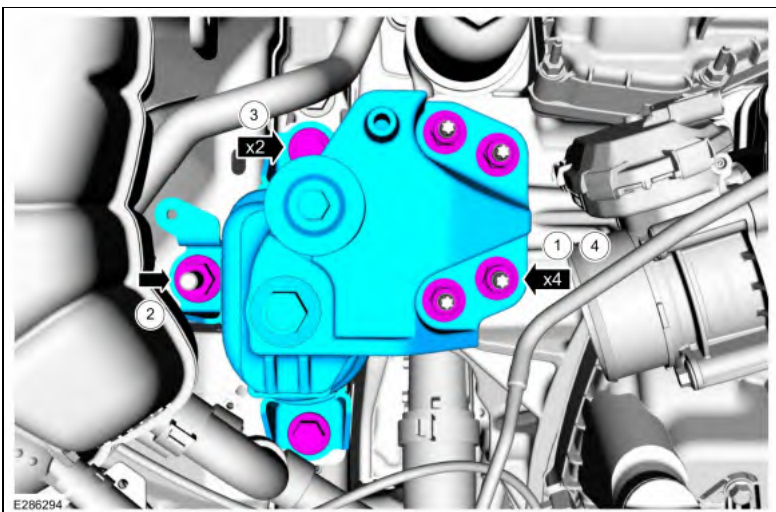
Use the General Equipment: Hose Clamp Remover/Installer



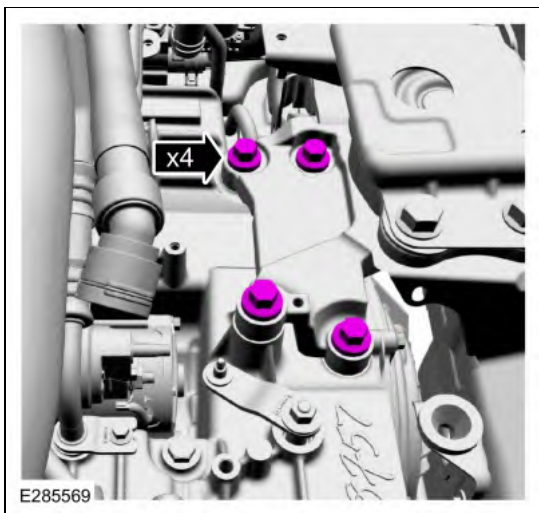
39. Using the powertrain jack, raise the powertrain and subframe assembly into the engine compartment.
Use the General Equipment: Powertrain Jack



40. Install the engine mount and bracket assembly.
1. Install the new engine mount bracket-to-engine nuts finger tight.
 2. Install the new engine mount-to-frame nut finger tight.
 3. Install the new engine mount-to-frame bolts finger tight.
 4. Tighten the engine mount bracket-to-engine nuts.
- Torque: 59 lb.ft (80 Nm)*



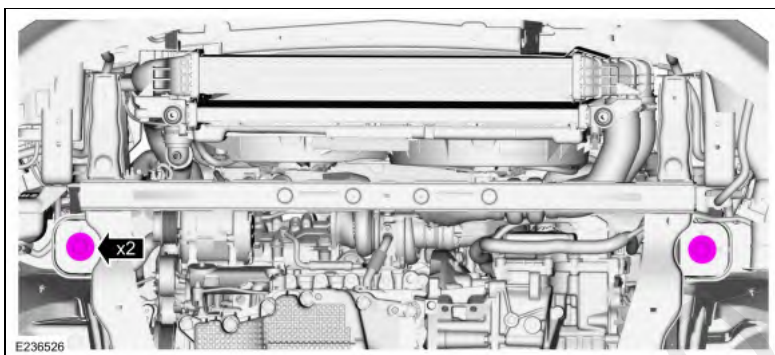
41. Install the new transmission mount bolts.
Torque: 66 lb.ft (90 Nm)



42. **NOTE:** Align the reference marks made during removal.

NOTE: Only tighten the bolts finger tight at this stage.

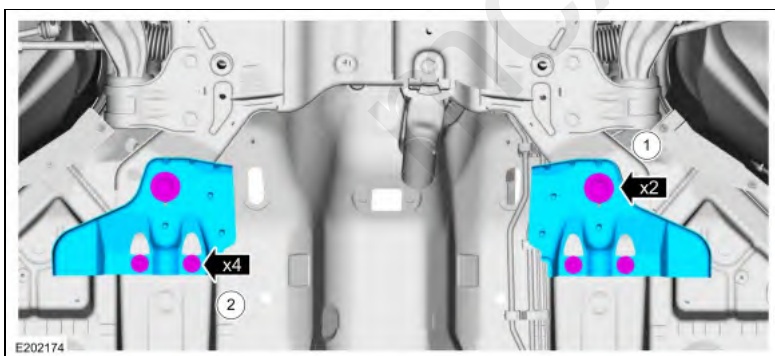
Install the new subframe bolts.



43. **NOTE:** Align the reference marks made during removal.

NOTE: Only tighten the bolts finger tight at this stage.

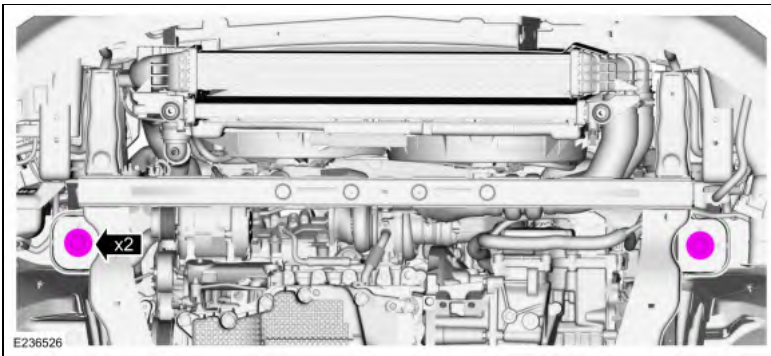
1. Install the subframe brackets and the new subframe bolts.
2. Install the subframe bracket bolts.



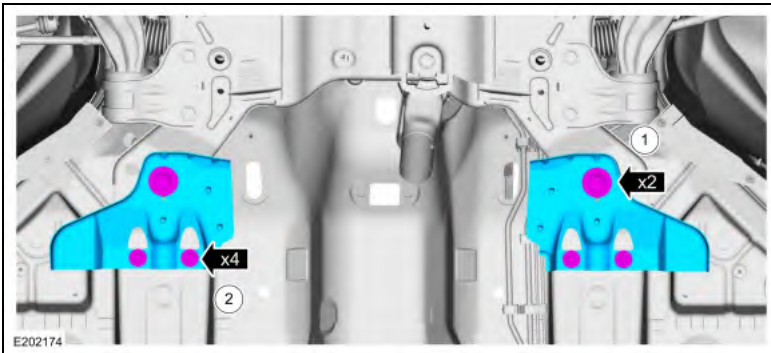
44. **NOTE:** While tightening the subframe bolts, make sure the front subframe does not move.

Tighten the subframe bolts.

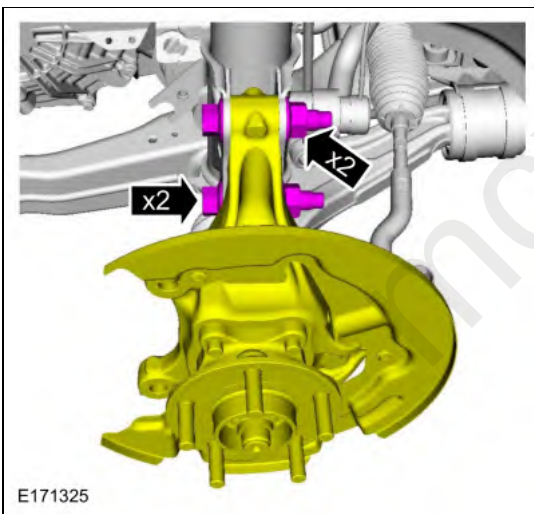
Torque: 173 lb.ft (235 Nm)



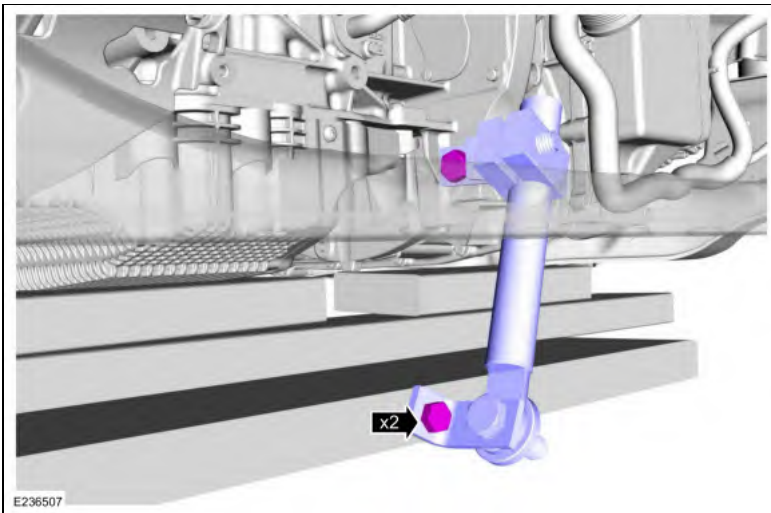
- 45.
1. Tighten.
Torque:
Stage 1: 76 lb.ft (103 Nm)
Stage 2: 270°
 2. Tighten.
Torque: 35 lb.ft (48 Nm)



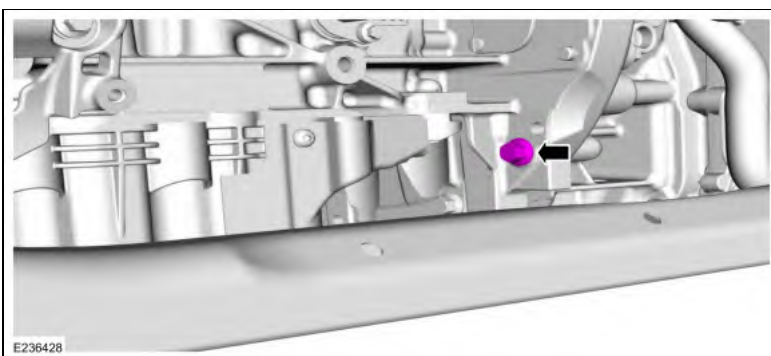
46. Install the bolts and nuts.
Torque: 173 lb.ft (235 Nm)



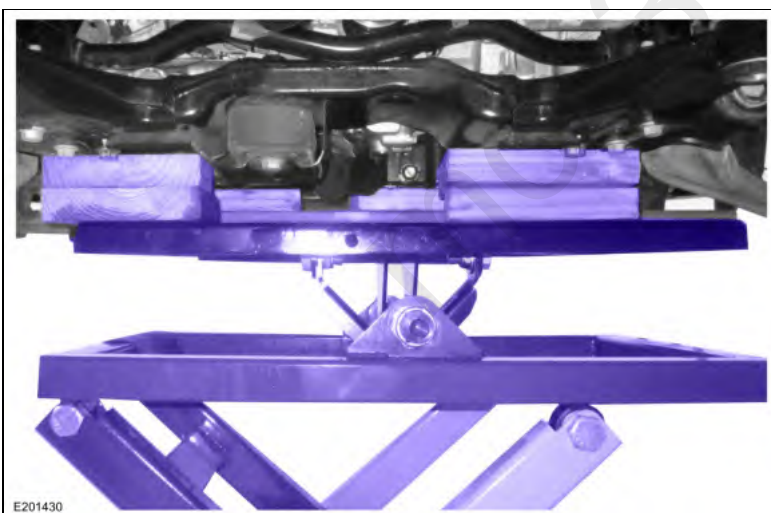
47. Remove.
Use the General Equipment: Adjustable Mounting Arm



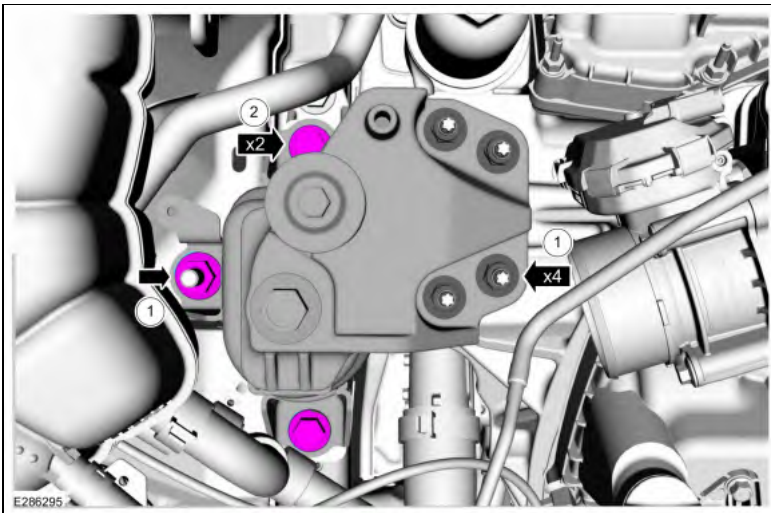
48. Install the bellhousing bolt.
Torque: 35 lb.ft (48 Nm)



49. Remove.
Use the General Equipment: Powertrain Jack
Use the General Equipment: Wooden Block

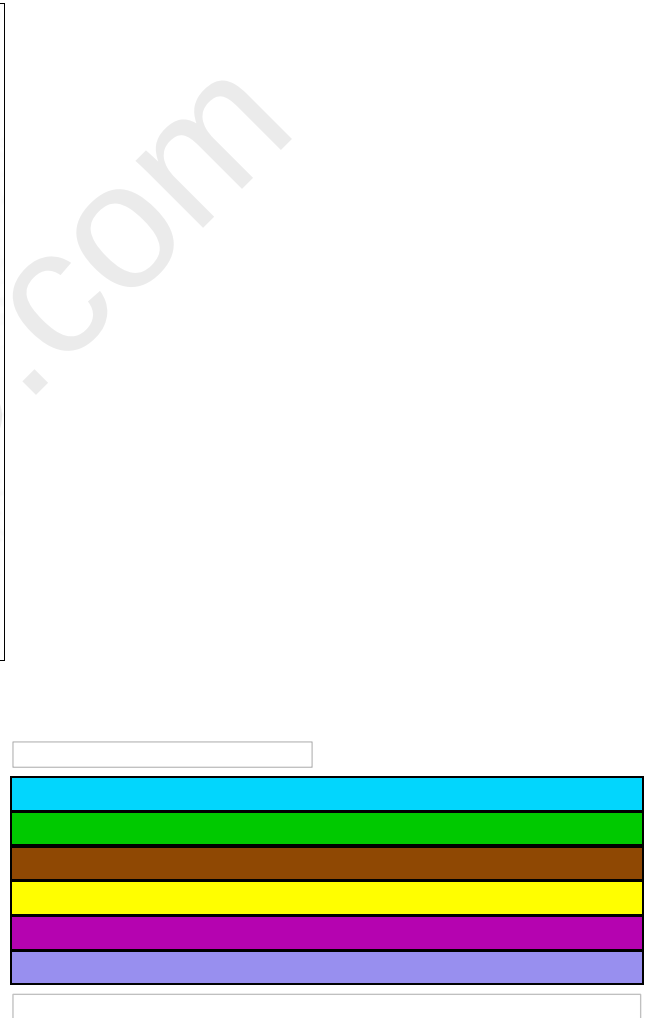
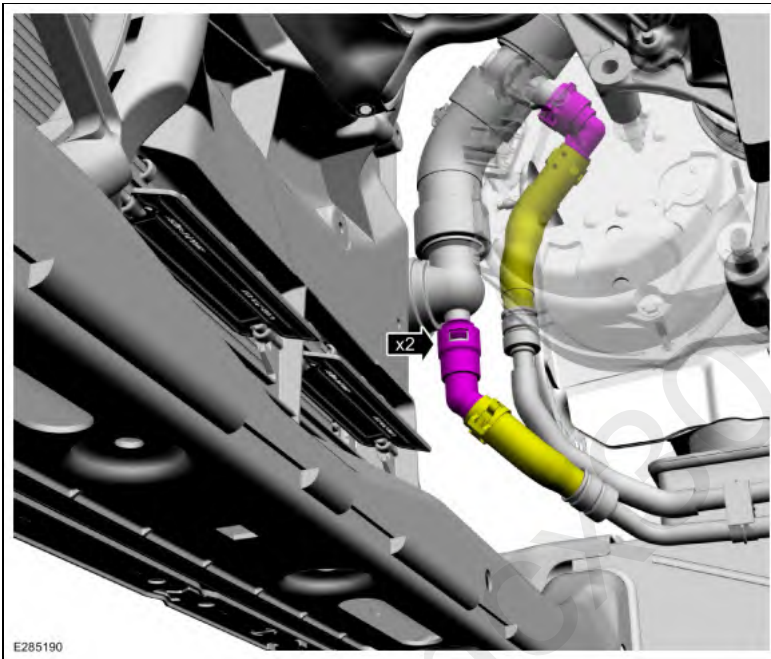


- 50.
1. Tighten the engine mount-to-frame nut.
Torque: 66 lb.ft (90 Nm)
 2. Tighten the engine mount-to-frame bolts.
Torque: 81 lb.ft (110 Nm)

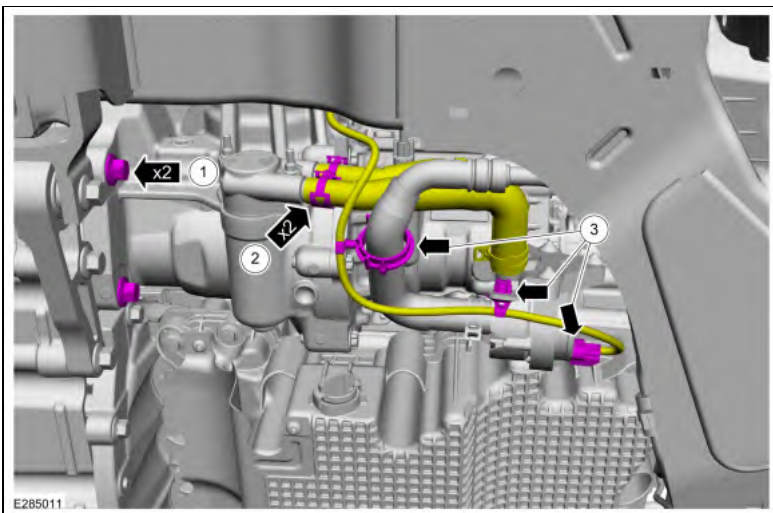


LHD AWD

51. Connect the transfer case coolant hose quick connect couplings.



- 52.
1. Install the lower transfer case bolts.
Torque: 76 lb.ft (103 Nm)
 2. Install the coolant hoses and clamps.
Use the General Equipment: Hose Clamp Remover/Installer
 3. Connect the coolant pump electrical connector and attach the wiring harness retainers.



53. Install the driveshaft.

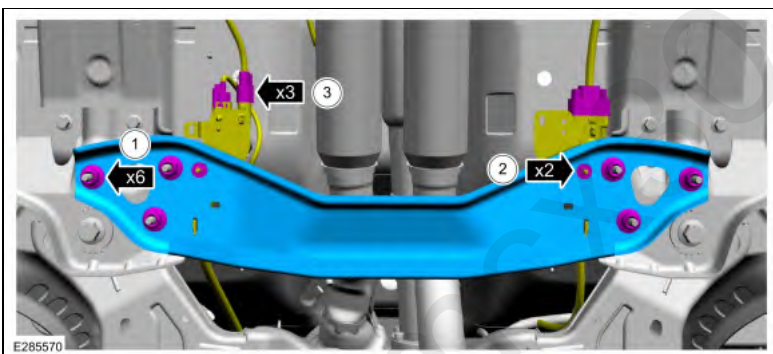
LHD AWD/LHD FWD

54. Install the following items:

1. LH catalytic converter.
Refer to: Catalytic Converter LH (309-00B Exhaust System - 2.7L EcoBoost (238kW/324PS), Removal and Installation).
2. Exhaust flexible pipes.
Refer to: Exhaust Flexible Pipe (309-00B Exhaust System - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

55.

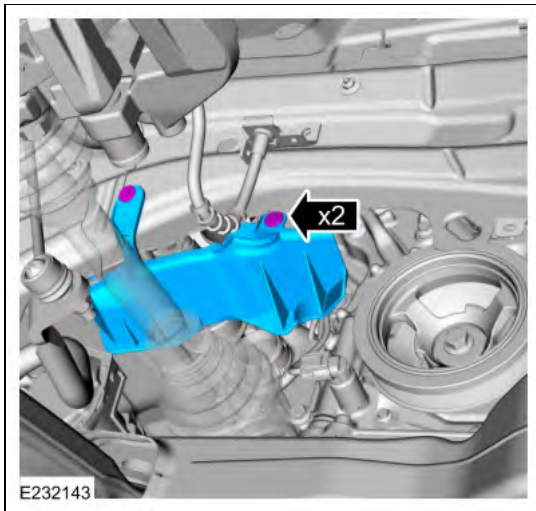
1. Install the subframe support bracket and the nuts.
Torque: 30 lb.ft (40 Nm)
2. If equipped, install the wiring harness support bracket(s) and the nut(s).
Torque: 80 lb.in (9 Nm)
3. If equipped, connect the wiring harness electrical connectors.



56. Install the following items:

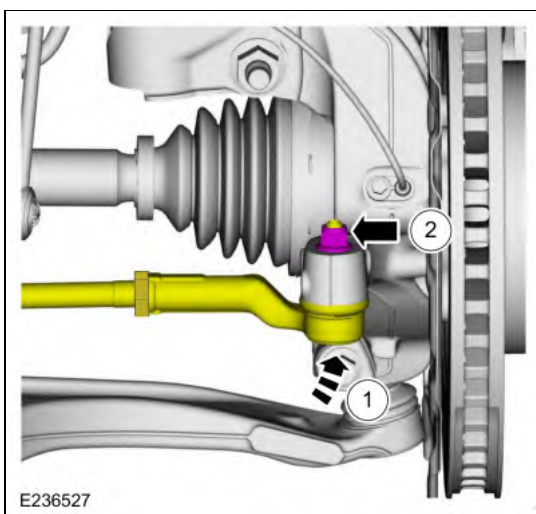
1. **NOTICE: Do not allow the brake caliper and anchor plate assembly to hang from the brake hose or damage to the hose can occur.**
Remove the LH brake disc.
Refer to: Brake Disc (206-03 Front Disc Brake, Removal and Installation).
2. RH front halfshaft.
Refer to: Front Halfshaft RH - 2.0L EcoBoost (184kW/250PS) â€“ MI4, All-Wheel Drive (AWD) (205-04 Front Drive Halfshafts, Removal and Installation).
Refer to: Front Halfshaft RH - 2.0L EcoBoost (184kW/250PS) â€“ MI4, All-Wheel Drive (AWD) (205-04 Front Drive Halfshafts, Removal and Installation).

57. Install the shield and the retainers.



58.

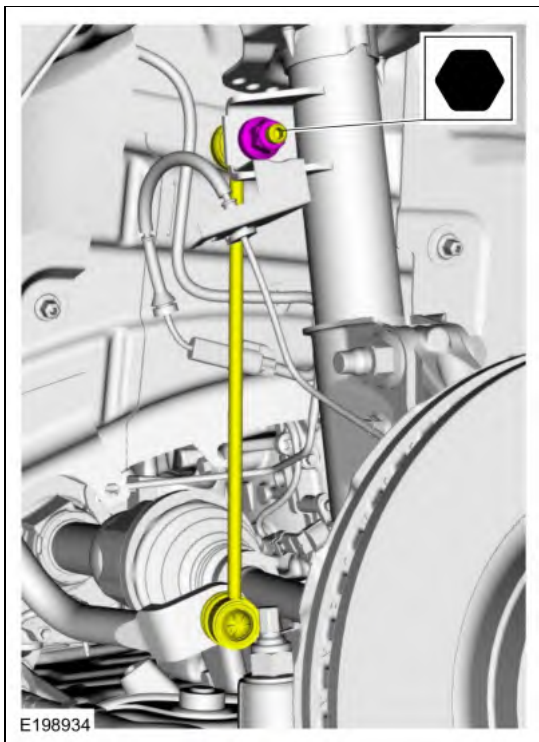
1. Position the RH tie rod end into the wheel knuckle.
 2. Install the new tie rod end nut.
- Torque: 111 lb.ft (150 Nm)*



59. **NOTICE:** Use the internal or external hex-holding feature to prevent the ball and stud from turning while removing or installing the stabilizer bar link nuts. The link boot seal must not be allowed to twist while tightening the link nuts or damage to the boot seal will occur.

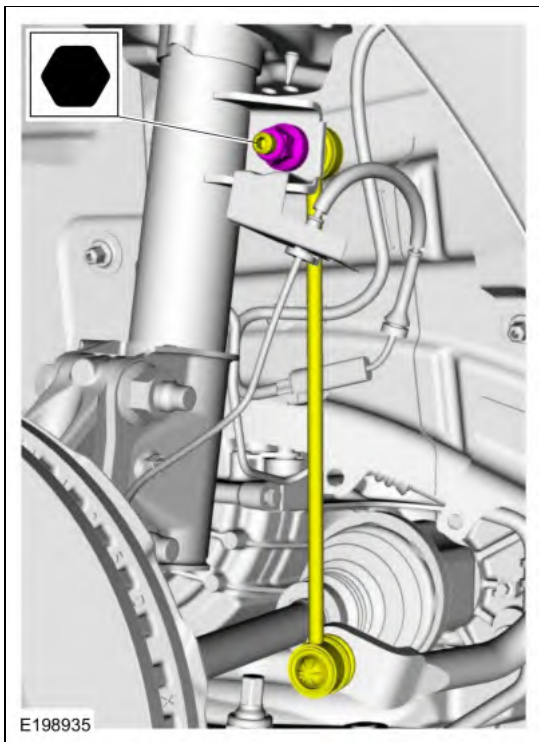
Position the RH sway bar link and install the new nut.

Torque: 85 lb.ft (115 Nm)

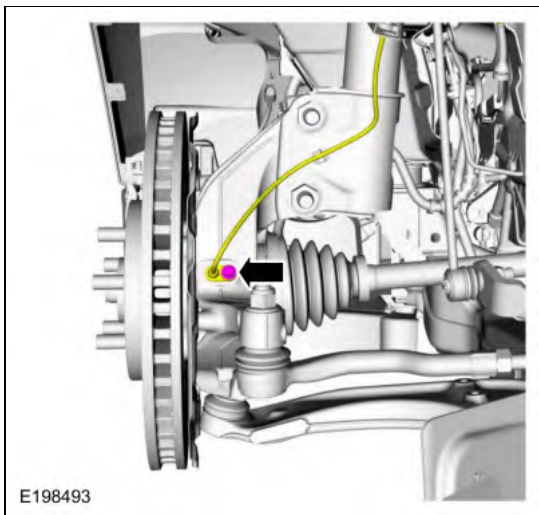


60. **NOTICE:** Use the internal or external hex-holding feature to prevent the ball and stud from turning while removing or installing the stabilizer bar link nuts. The link boot seal must not be allowed to twist while tightening the link nuts or damage to the boot seal will occur.

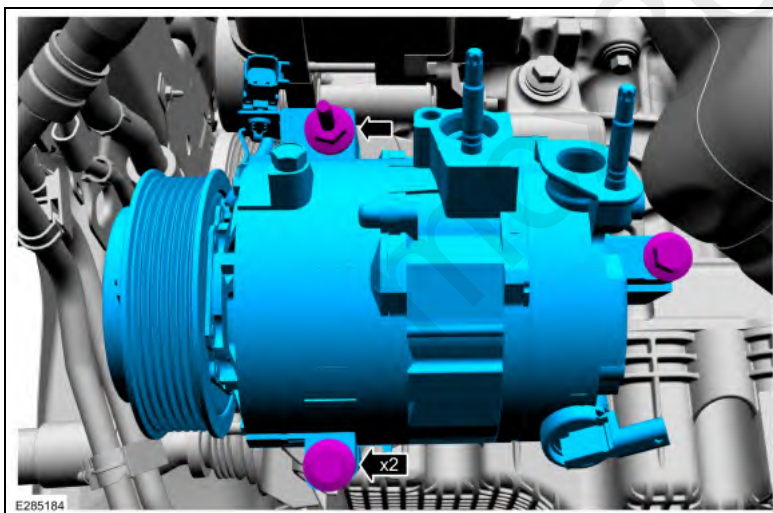
Position the LH sway bar link and install the new nut.
Torque: 85 lb.ft (115 Nm)



61. Install the LH anti-lock sensor and the bolt.
Torque: 80 lb.in (9 Nm)

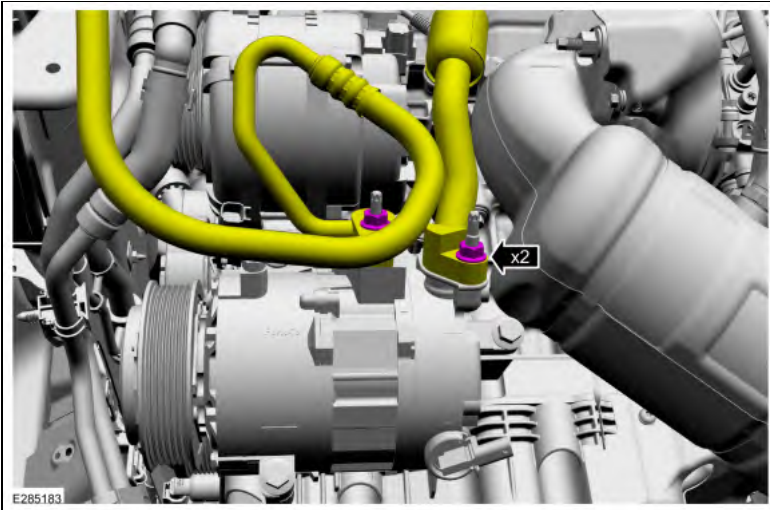


62. Install the A/C compressor, the bolts and the stud bolt.
Torque: 18 lb.ft (25 Nm)

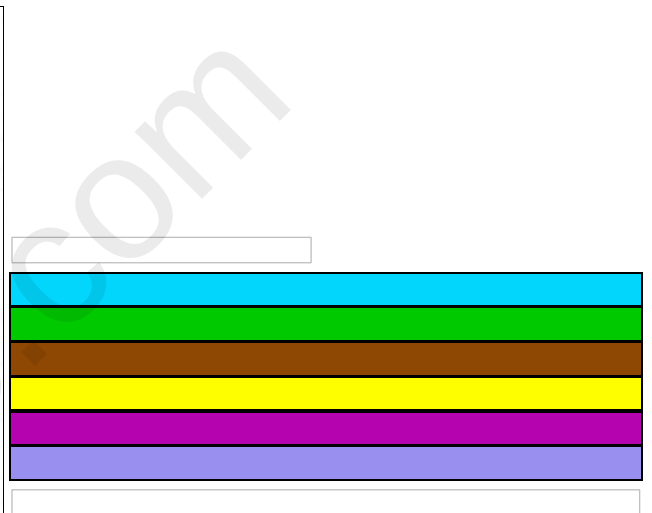
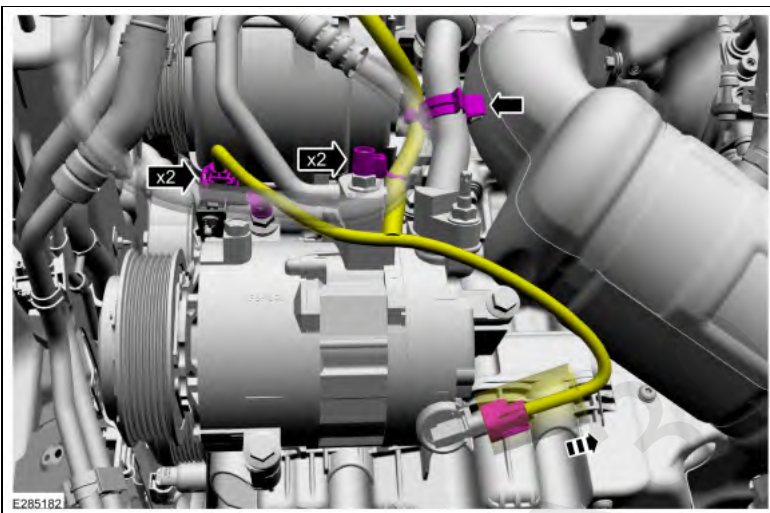


63. **NOTICE:** During the removal of components, cap, tape or otherwise appropriately protect all openings to prevent the ingress of dirt or other contamination. Remove protective materials prior to installation.

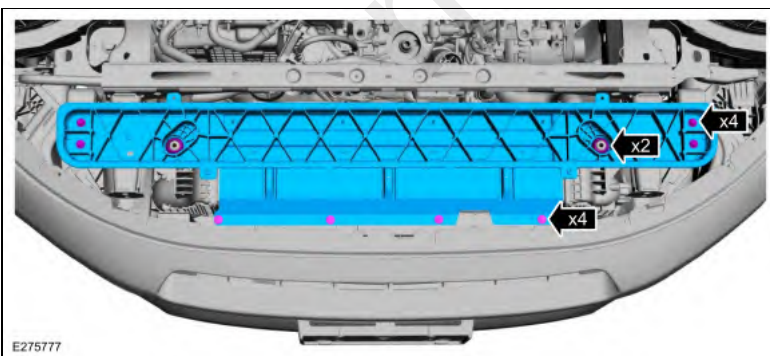
1. Make sure to uncover any open ports.
2. Install new the O-ring seals and gasket seals.
3. Connect the A/C compressor inlet and outlet line fittings and install the nuts.
Torque: 159 lb.in (18 Nm)



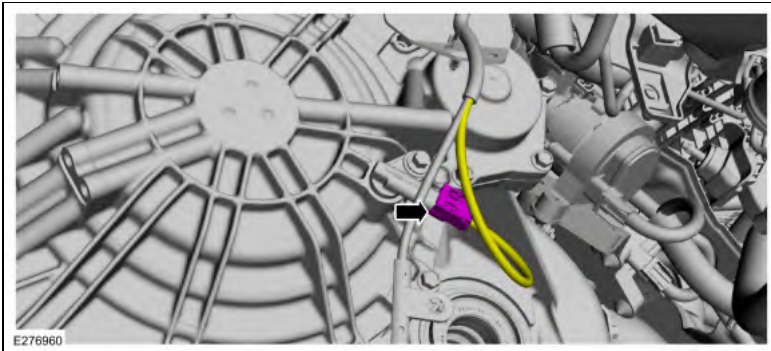
- 64.
- Connect the A/C compressor electrical connectors.
 - Slide the insulator over the A/C compressor electrical connector.
 - Attach the wiring harness retainers.



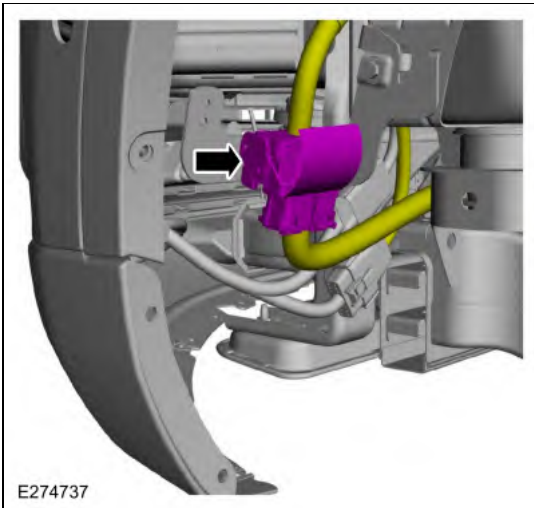
- 65.
- Install the cooling module support panel and the bolts.
Torque: 18 lb.ft (24 Nm)
 - Install the pin-type retainers.



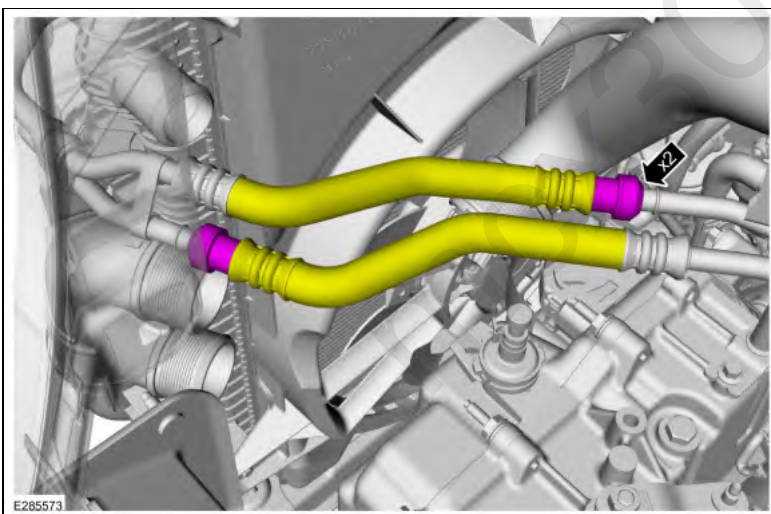
66. Connect the TSS sensor.



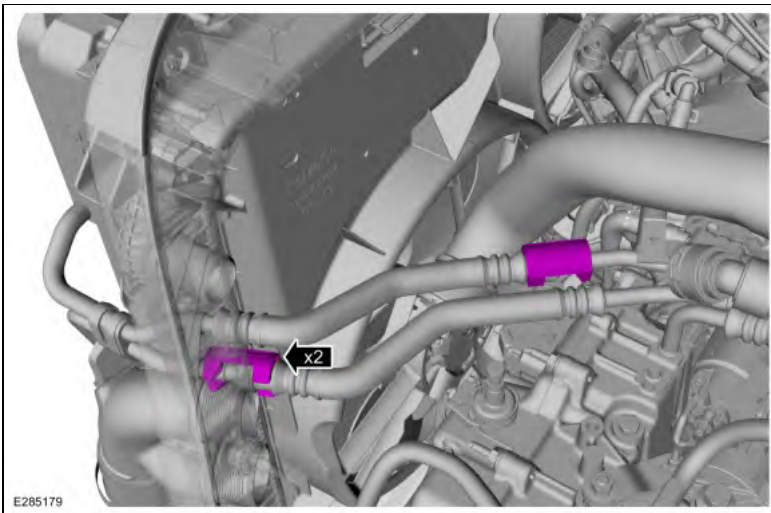
67. Connect and attach the engine harness electrical connector.



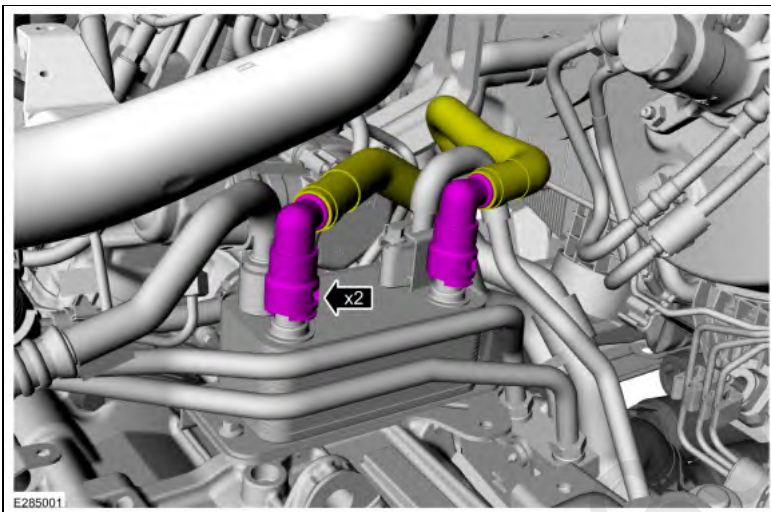
68. Connect the transmission fluid cooler tubes.



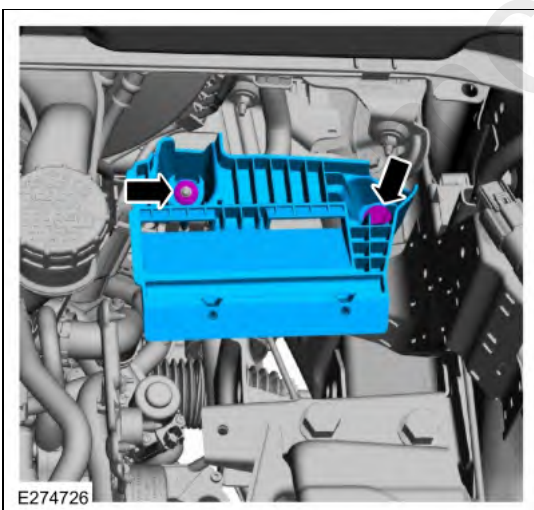
69. Install the transmission fluid cooler tube secondary latches.



70. Connect the coolant tube couplings.

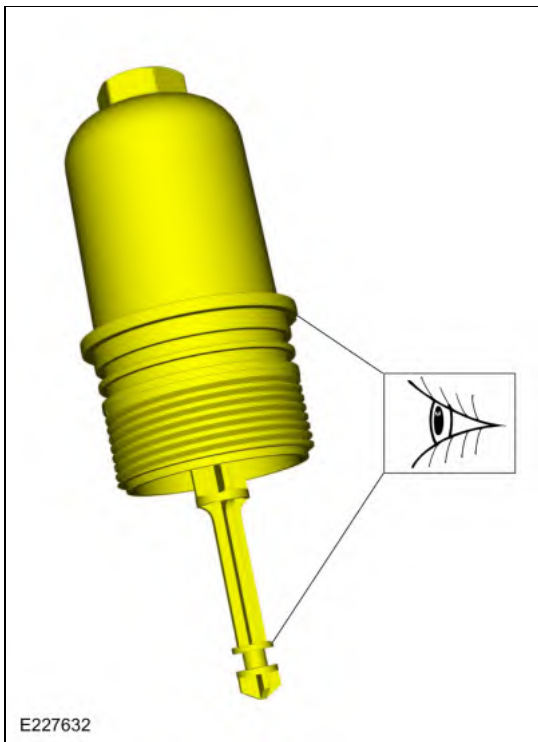


71. Install the battery tray support bracket and the nut and bolt.
Torque: 18 lb.ft (24 Nm)



72. **NOTE:** If the filter housing stem is damaged or missing the oil will flow through the reservoir drain port and a **loss** of engine oil pressure will occur.

Inspect the oil filter housing and stem for damage including cracks or separation of the stem from the housing. If damaged, a new oil filter housing assembly must be installed.



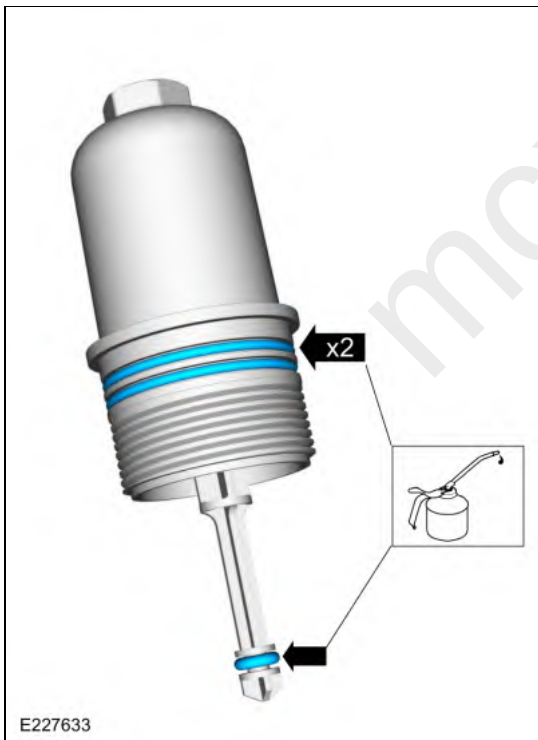
73.

- **NOTE:** Failure to install new oil filter housing-to-engine front cover seals may result in oil leakage.

Install new oil filter housing-to-engine front cover seals and lubricate with clean engine oil.

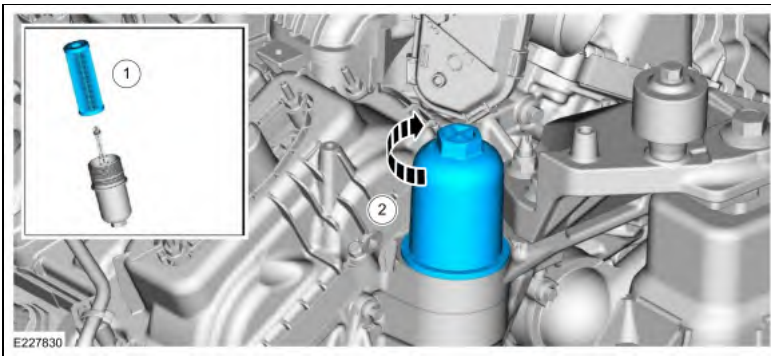
- **NOTE:** Failure to install a new oil filter housing stem-to-oil reservoir drain port seal will result with the oil flowing through the reservoir drain port and a loss of engine oil pressure.

Install a new oil filter housing stem-to-oil reservoir drain port seal and lubricate with clean engine oil.

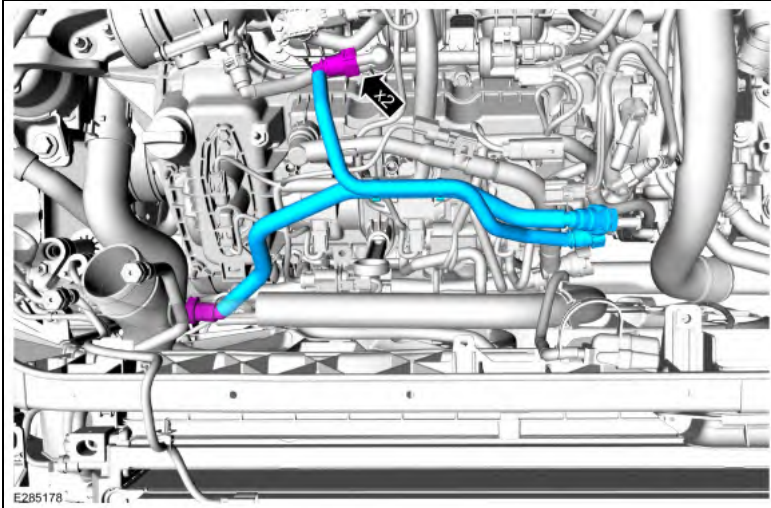


74.

1. Install a new oil filter element.
2. Install the oil filter housing.
Torque: 18 lb.ft (24 Nm)

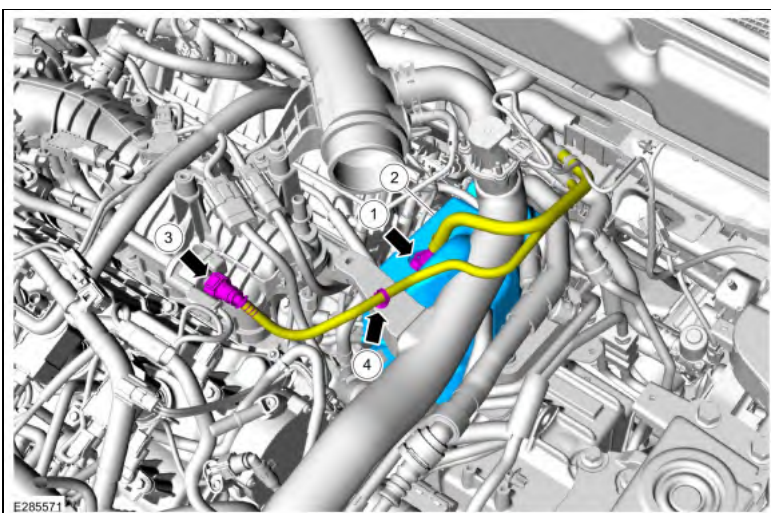


75. Install and connect the EVAP tube.



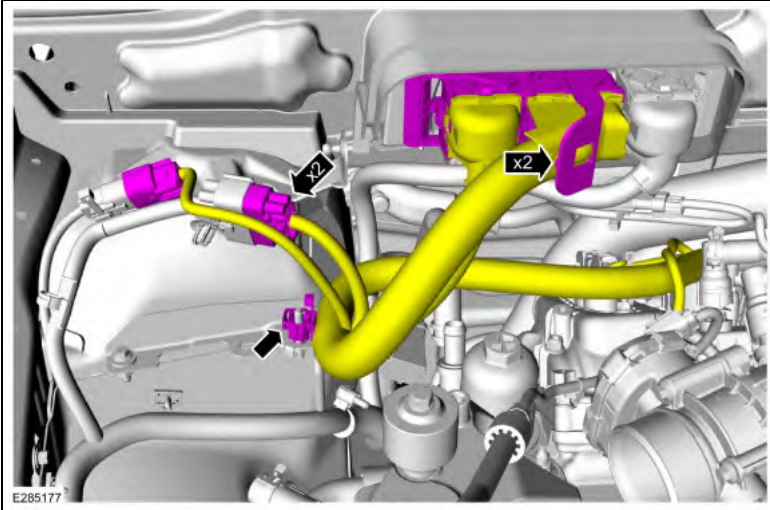
76.

1. Connect the high-pressure fuel pump fuel supply tube quick release coupling.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .
2. Install the high-pressure fuel pump insulator.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .
3. Connect the EVAP tube quick release coupling.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .
4. Attach the EVAP tube retainer.



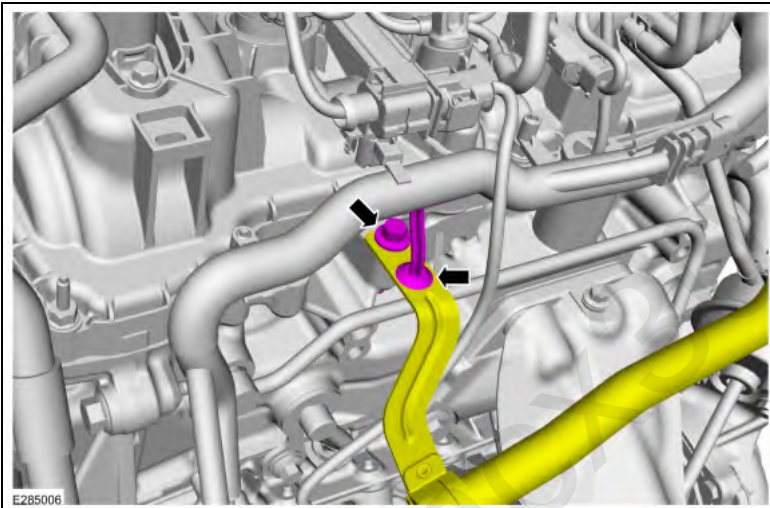
77.

- Connect the engine harness electrical connectors and attach the retainer.
- Connect the PCM electrical connectors.



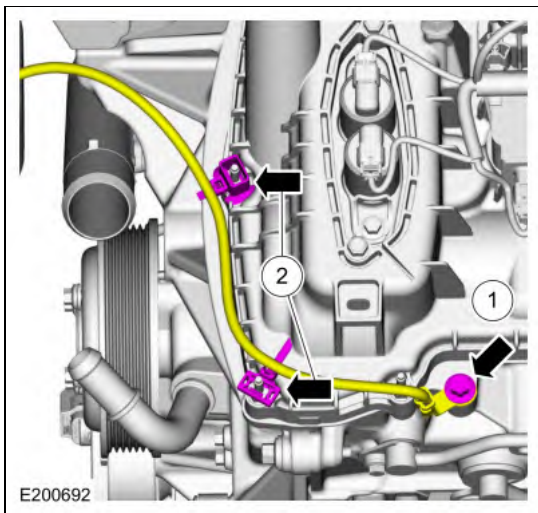
78.

- Position the bracket and install the bolt.
Torque: 159 lb.in (18 Nm)
- Attach the wiring harness retainer.



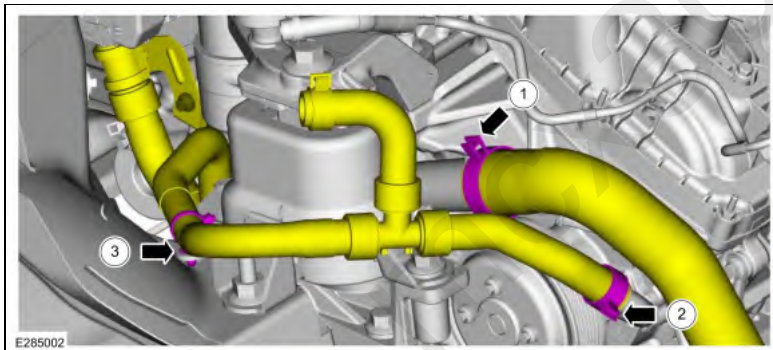
79.

1. Install the ground wire and the bolt.
Torque: 159 lb.in (18 Nm)
2. Attach the wiring harness retainers.



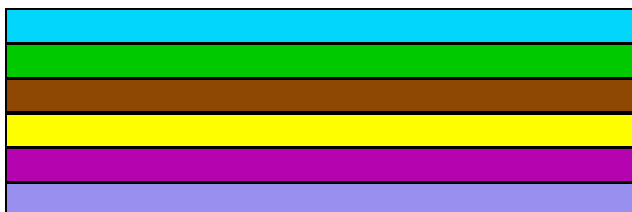
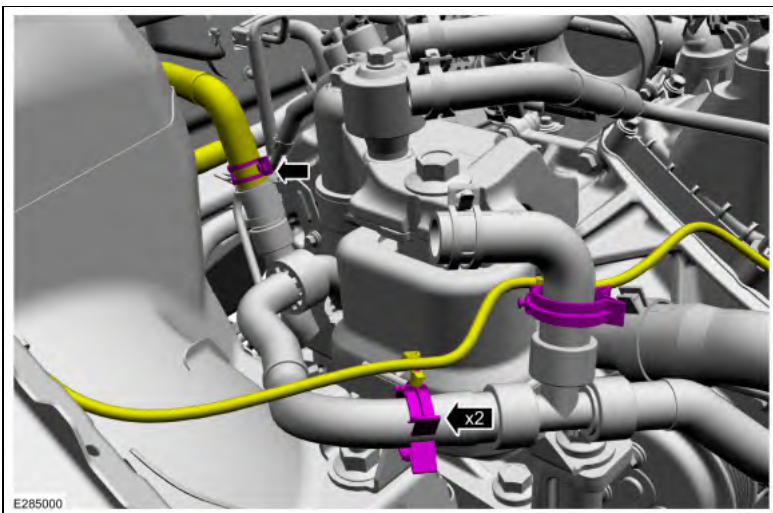
80.

1. Install the lower radiator hose and clamp.
Use the General Equipment: Hose Clamp Remover/Installer
2. Install the heater hose and clamp.
3. Attach the heater hose retainer.



81.

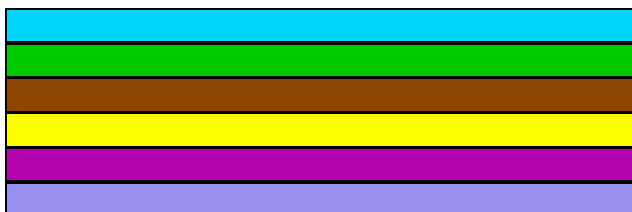
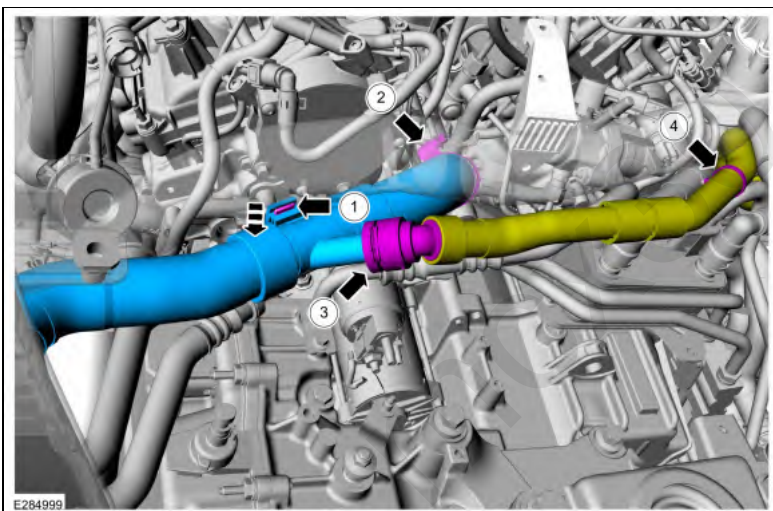
1. Install the heater hose and clamp.
Use the General Equipment: Hose Clamp Remover/Installer
2. Attach the wiring harness retainers.



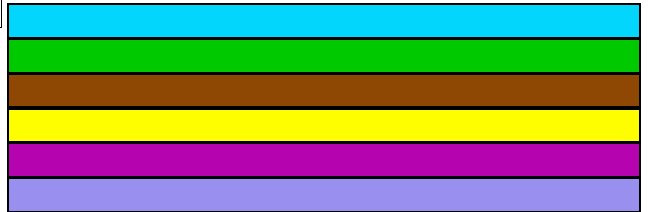
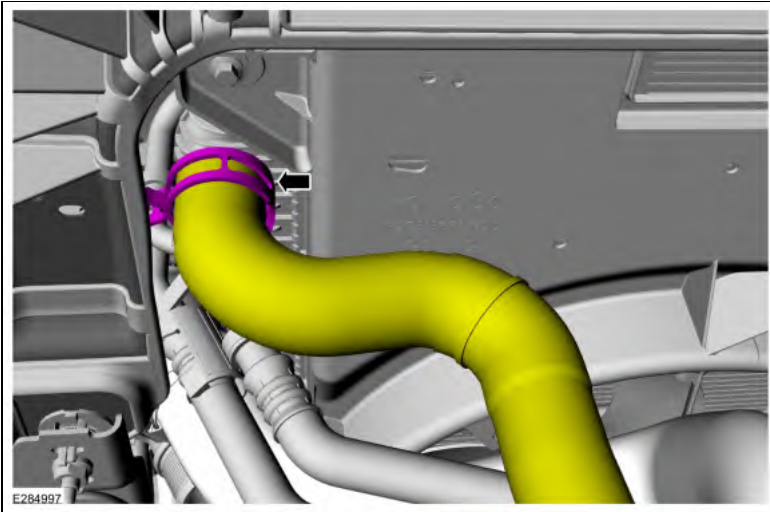
82.

1. Install the radiator hose onto the engine and retaining tab.
2. Tighten the radiator hose clamp.
Torque: 48 lb.in (5.4 Nm)
3. Connect the heater hose coupling.
4. Attach the heater hose retainer.

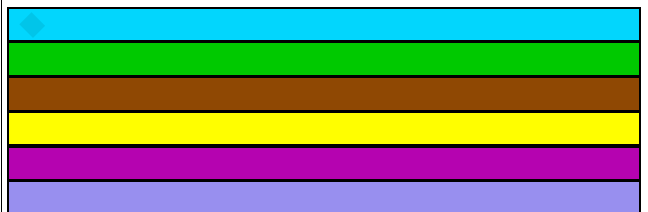
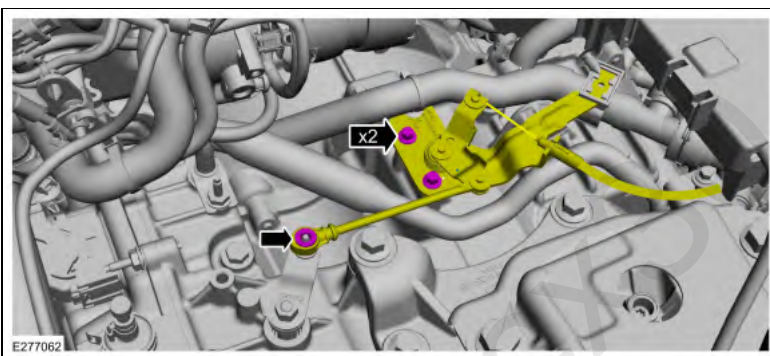
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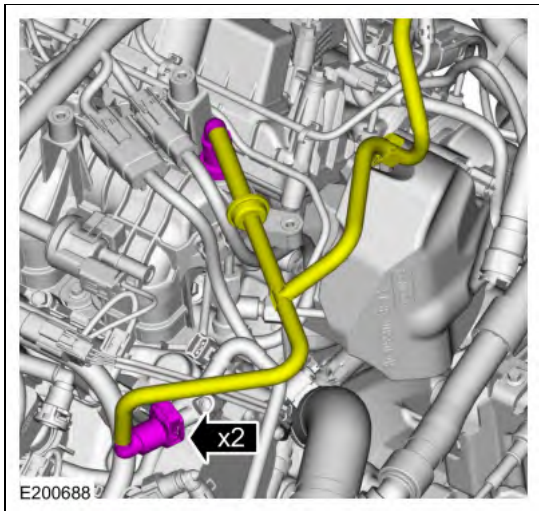
83. Install the upper radiator hose and clamp.
Use the General Equipment: Hose Clamp Remover/Installer



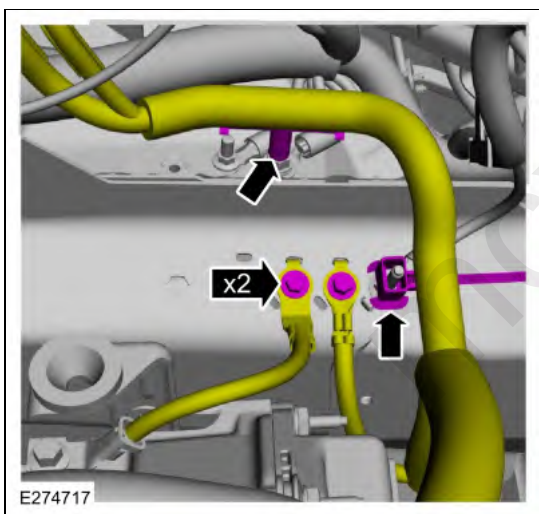
- 84.
1. Position the cable and install the bolts.
Torque: 62 lb.in (7 Nm)
 2. Attach the cable to the manual control lever.



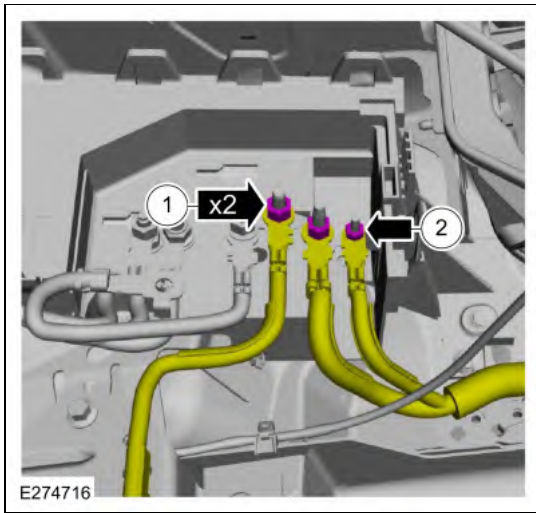
85. Connect the vacuum tube quick release couplings.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .



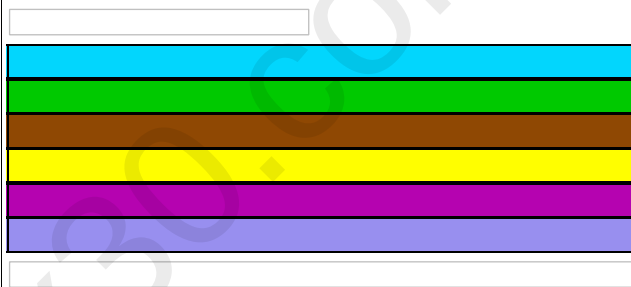
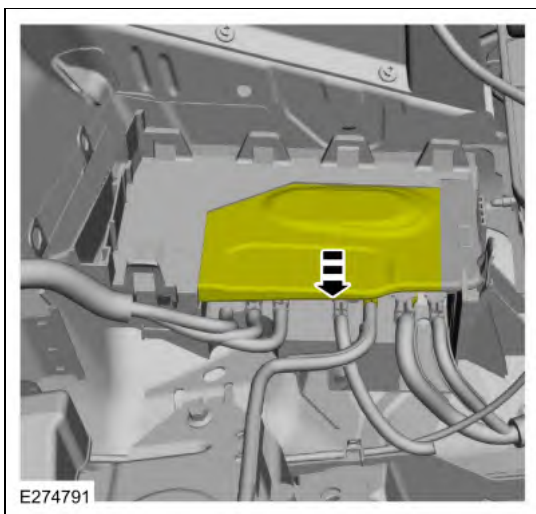
86. Install the bolts and attach the wiring harness retainers.
Torque: 106 lb.in (12 Nm)



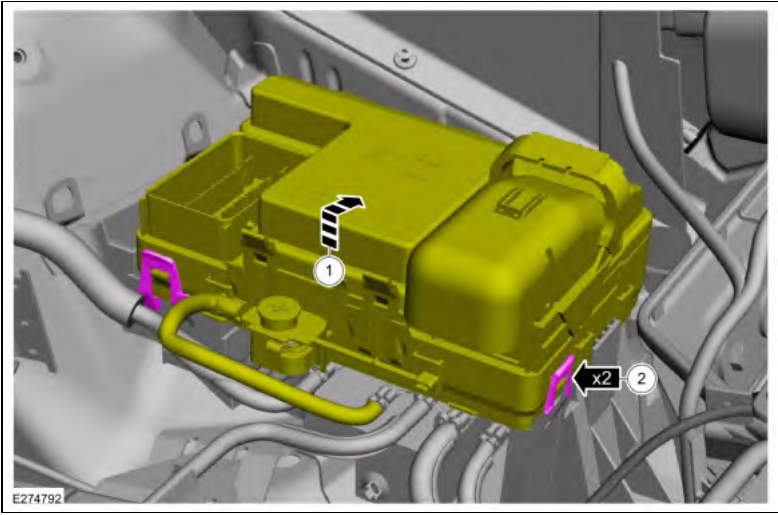
- 87.
1. Install the electrical wiring harness and the nuts.
Torque: 106 lb.in (12 Nm)
 2. Install the electrical wiring harness and the nut.
Torque: 71 lb.in (8 Nm)



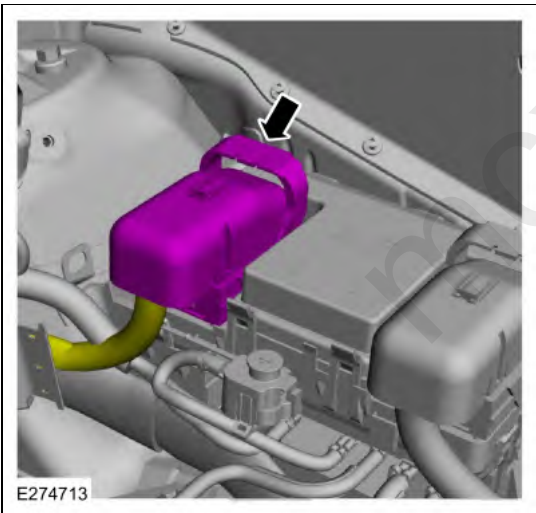
88. Close the cover.



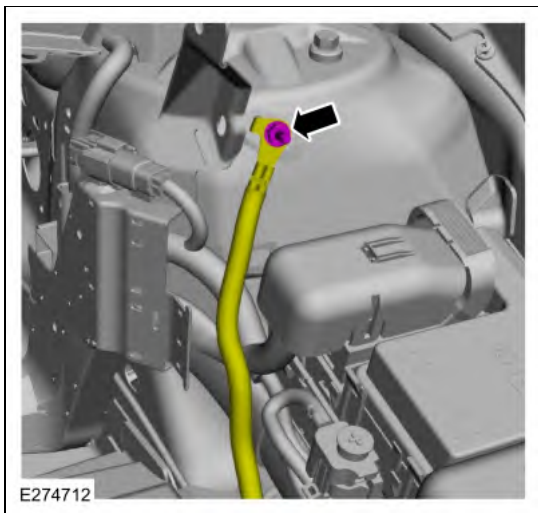
- 89.
- Position the top part of junction box.
 - Latch the tabs.



90. Connect the junction box electrical connector.



91. Install the ground cable and stud bolt.
Torque: 106 lb.in (12 Nm)

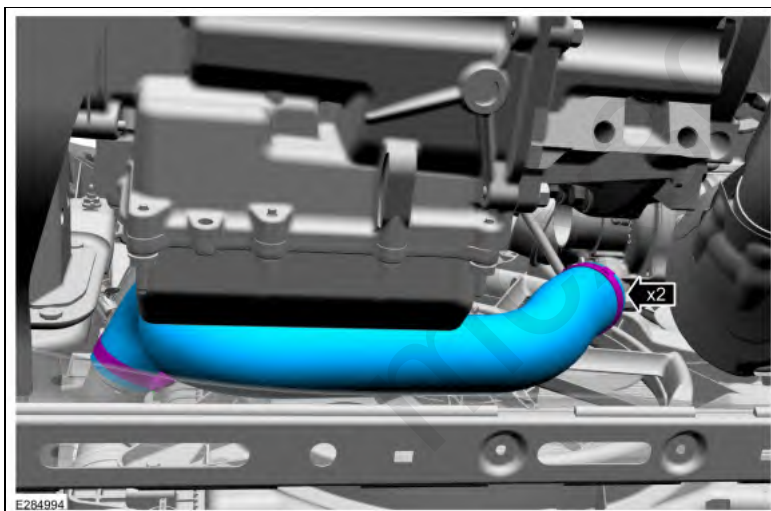


92. Install the following items:

1. Battery tray.
Refer to: Battery Tray (414-01 Battery, Mounting and Cables, Removal and Installation).
2. Accessory drive belt.
Refer to: Accessory Drive Belt (303-05B Accessory Drive - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

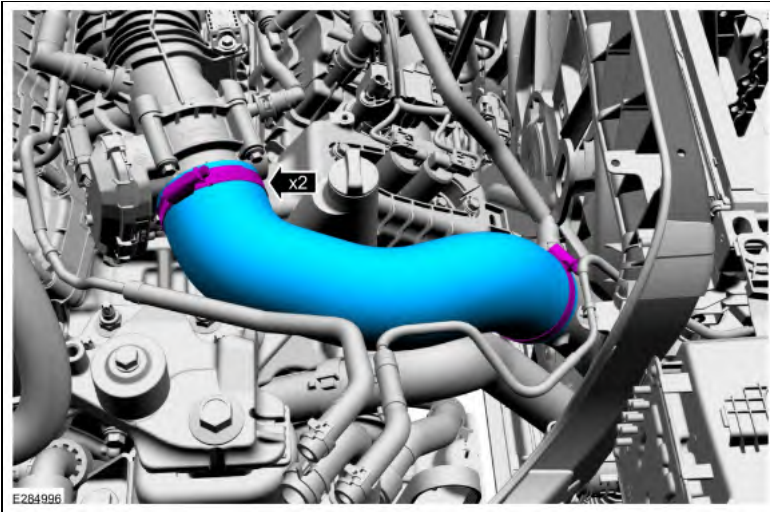
93. **NOTICE:** When removing any turbocharger air intake system components, make sure to cover any open ports to prevent debris from entering the system. The turbocharger compressor vanes can be damaged by even the smallest particles. All components need to be inspected and cleaned prior to installation or reassembly.

1. Uncover, clean and inspect all open ports.
2. Install the CAC inlet pipe and tighten the clamps.
Torque: 44 lb.in (5 Nm)

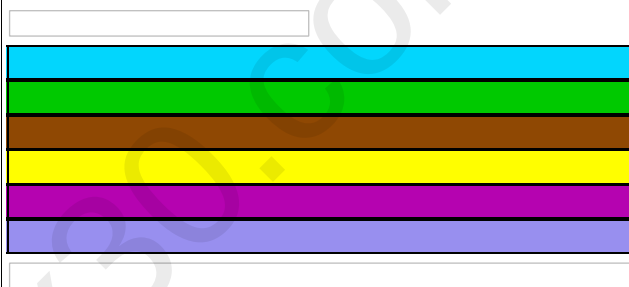
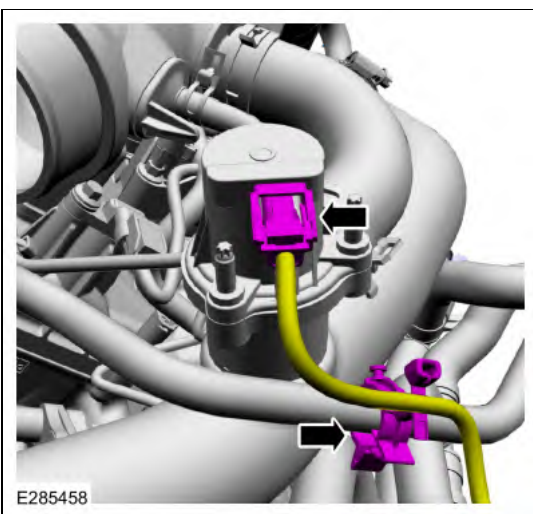


94. **NOTICE:** When removing any turbocharger air intake system components, make sure to cover any open ports to prevent debris from entering the system. The turbocharger compressor vanes can be damaged by even the smallest particles. All components need to be inspected and cleaned prior to installation or reassembly.

1. Uncover, clean and inspect all open ports.
2. Install the CAC outlet pipe and tighten the clamps.
Torque: 44 lb.in (5 Nm)

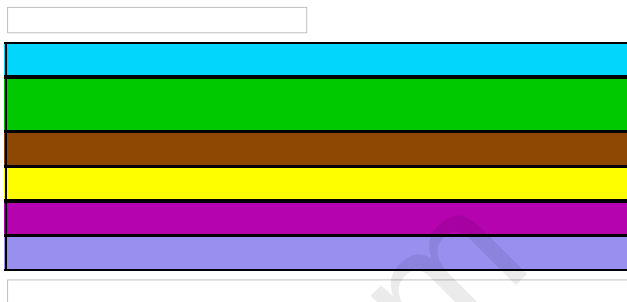
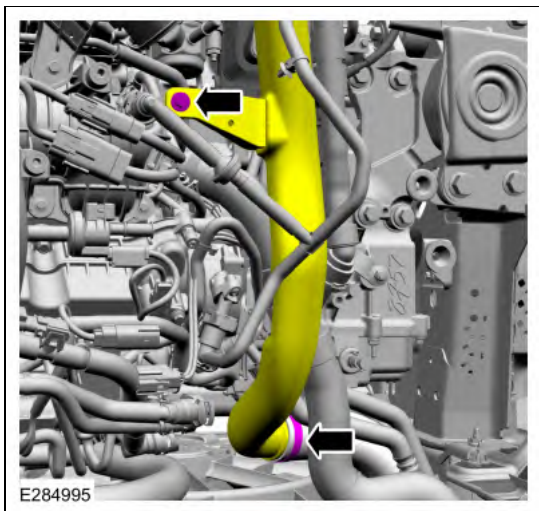


95. Connect the wiring harness electrical connector and attach the retainer.



96. **NOTICE:** When removing any turbocharger air intake system components, make sure to cover any open ports to prevent debris from entering the system. The turbocharger compressor vanes can be damaged by even the smallest particles. All components need to be inspected and cleaned prior to installation or reassembly.

1. Uncover, clean and inspect all open ports.
2. Connect the CAC inlet pipe and tighten the clamps.
Torque: 44 lb.in (5 Nm)
3. Install the bolt.
Torque: 71 lb.in (8 Nm)



97. Install the following items:

1. Upper RH air cleaner outlet pipe.

Refer to: Air Cleaner Outlet Pipe RH (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

2. LH air cleaner outlet pipe.

Refer to: Air Cleaner Outlet Pipe LH (303-12B Intake Air Distribution and Filtering - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

3. Degas bottle.

Refer to: Degas Bottle (303-03B Engine Cooling - 2.7L EcoBoost (238kW/324PS), Removal and Installation).

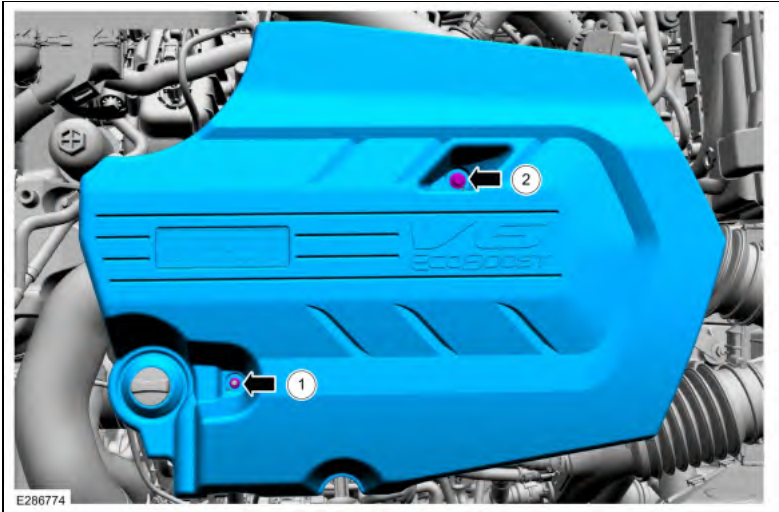
98.

1. Install the engine appearance cover and the nut.

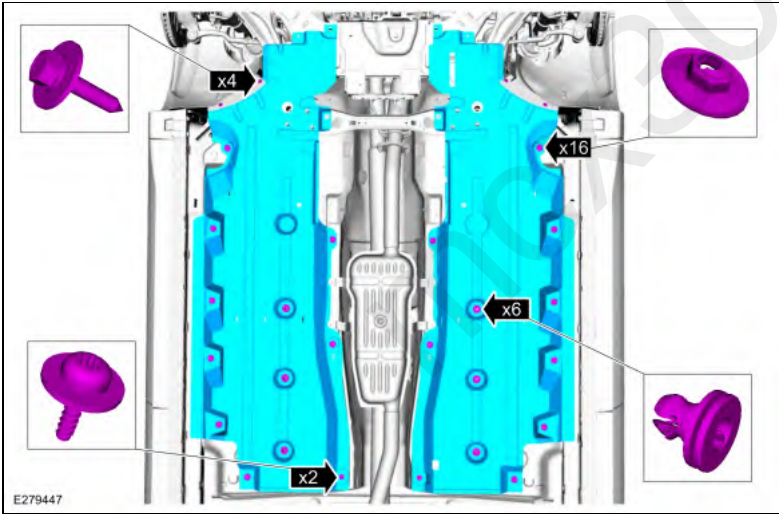
Torque: 42 lb.in (4.8 Nm)

2. Install the bolt.

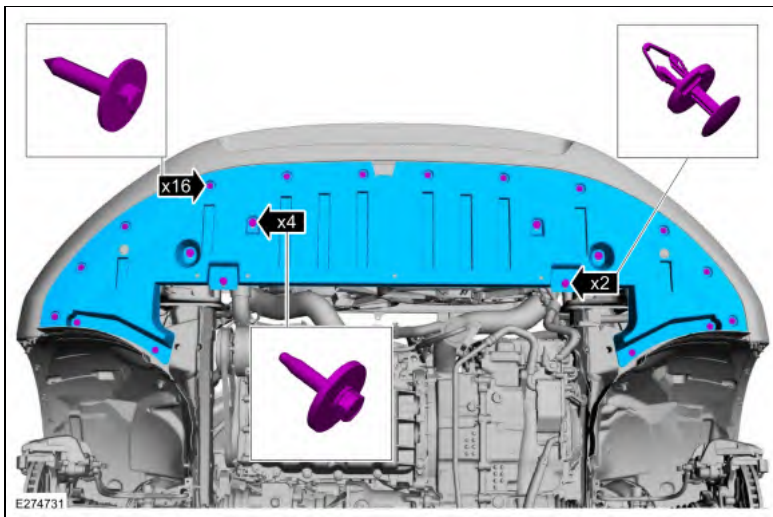
Torque: 93 lb.in (10.5 Nm)



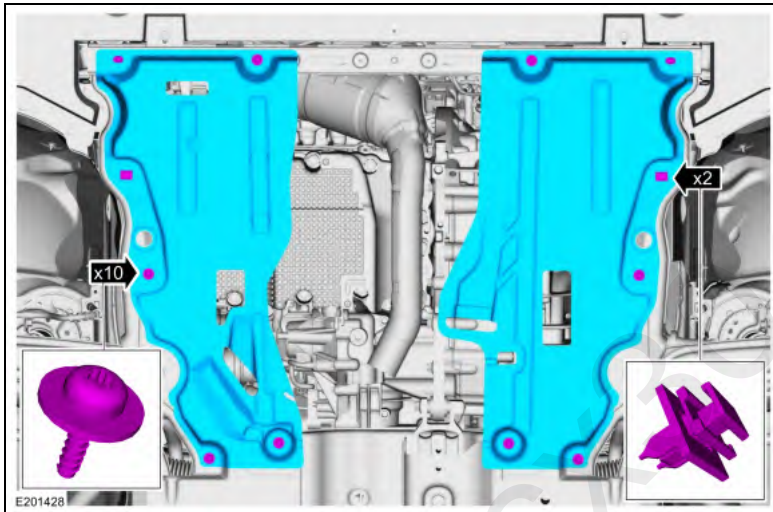
99. Install the underbody shields and the retainers.



100. Install the front underbody shield and the retainers.



101. Install the underbody shields and the retainers.

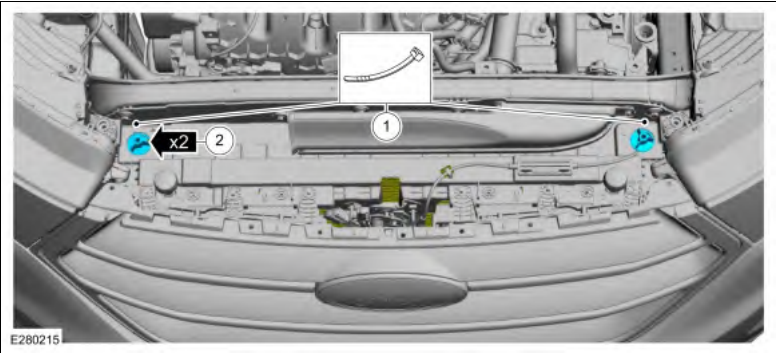


102. Install the following items:

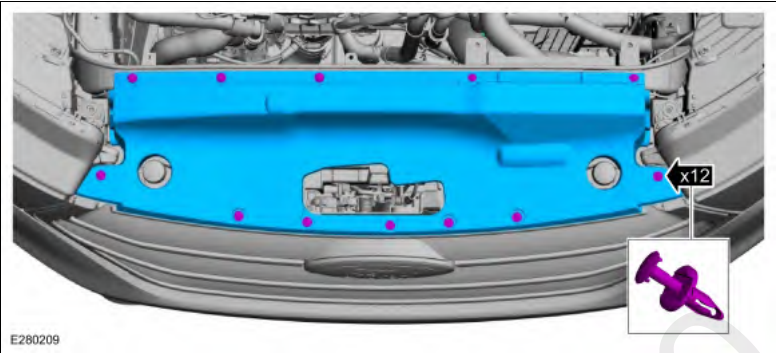
1. Front headlamp leveling sensor.
Refer to: Headlamp Leveling Sensor (417-01 Exterior Lighting, Removal and Installation).
2. Front fender splash shields.
Refer to: Fender Splash Shield (501-02 Front End Body Panels, Removal and Installation).

103.

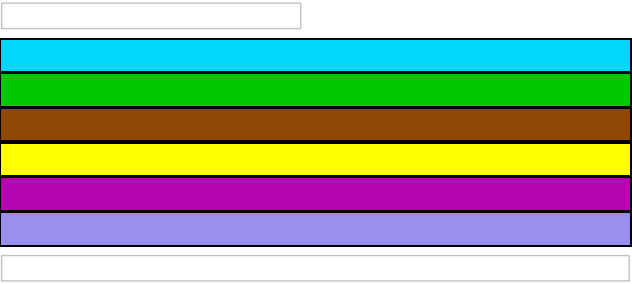
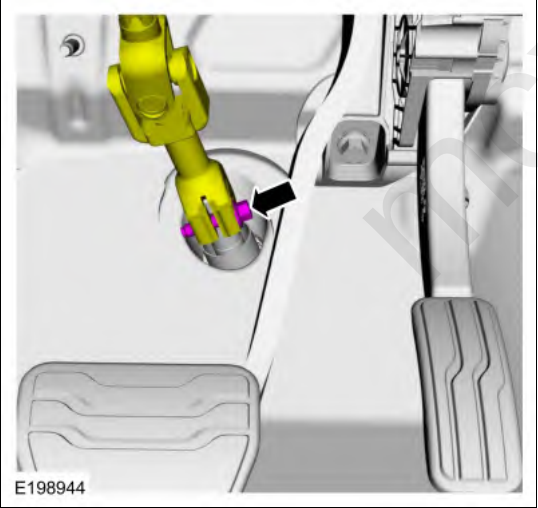
1. Remove the cable ties or mechanics wire.
2. Install the upper cooling module support brackets.



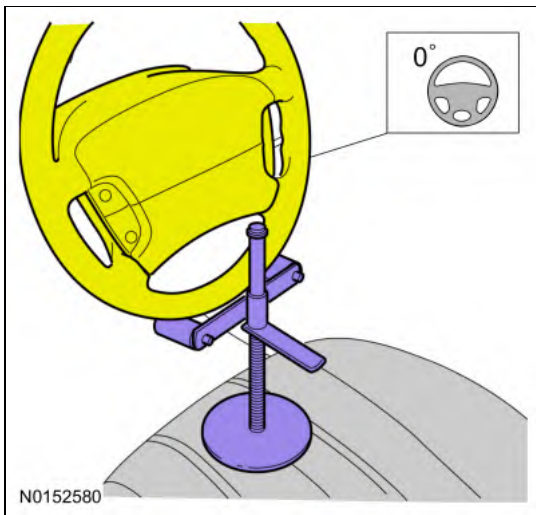
104. Install the upper air deflector and the retainers.



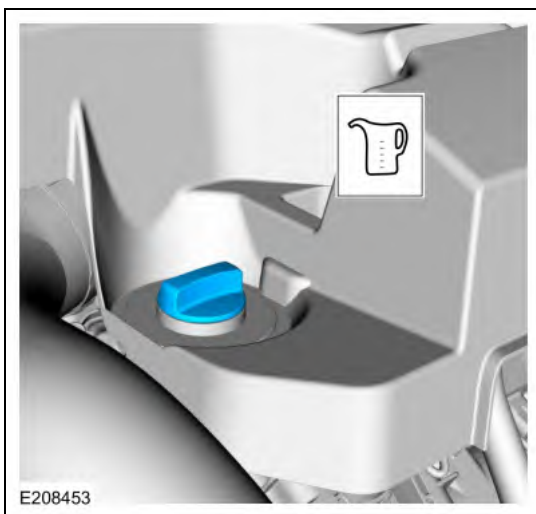
105. Position steering column shaft and install a new bolt.
Torque: 18 lb.ft (25 Nm)



106. Remove the holding device.



107. Fill the engine with clean engine oil.



108. Pressurize the fuel system.
Refer to: Fuel System Pressure Release (310-00B Fuel System - General Information - 2.7L EcoBoost (238kW/324PS), General Procedures).
109. 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).
110. Charge the A/C system.
Refer to: Air Conditioning (A/C) System Recovery, Evacuation and Charging - Vehicles With: R134A Refrigerant (412-00 Climate Control System - General Information, General Procedures).
111. Start and check the exhaust system for leaks.
112. Check and top off the transmission fluid.
Refer to: Transmission Fluid Level Check (307-01B Automatic Transmission - 8-Speed Automatic Transmission & 8F57, General Procedures).
113. Use the Powertrain Control Module (PCM) Misfire Monitor Profile Correction routine in the diagnostic scan tool.

Engine Block Skirt Stiffener

Special Tool(s) / General Equipment

 E133913	205-153 (T80T-4000-W) Handle
	303-1246 Engine Spreader Bar TKIT-2006UF-FLM TKIT-2006UF-ROW
 E175042	303-1247 VCT Spark Plug Tube Seal Remover and Installer TKIT-2006UF-FLM TKIT-2006UF-ROW
 E274084	303-1250 Seal Installer, Rear Main TKIT-2006UFFLM
 E216458	303-1531 Installer, Front Crank Seal and Damper
 E188625	303-1634 Lift Eyes (2) TKIT-2014D-ROW3 TKIT-2014D-FL_ROW
 E222985	303-335 (T88T-6701-A) Installer, Front Cover Oil Seal TKIT-1988-FLM TKIT-1988-F
Floor Crane	
Mounting Stand	
Flat-Bladed Screwdriver	
Vise	
Vise Jaw Protectors	

Materials

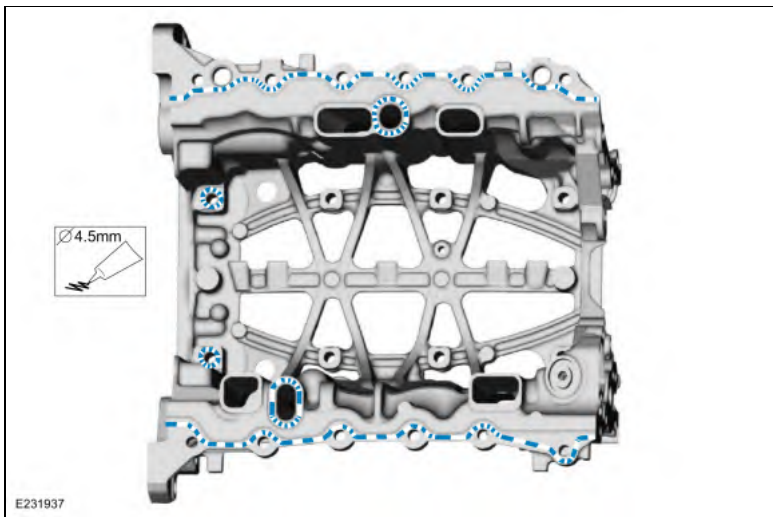
Name	Specification
Motorcraft® High Performance Engine RTV Silicone TA-357	WSE-M4G323-A6
Motorcraft® Metal Brake Parts Cleaner PM-4-A, PM-4-B	-

NOTICE: During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces, that enters the oil passages, coolant passages or the oil pan, can cause engine failure.

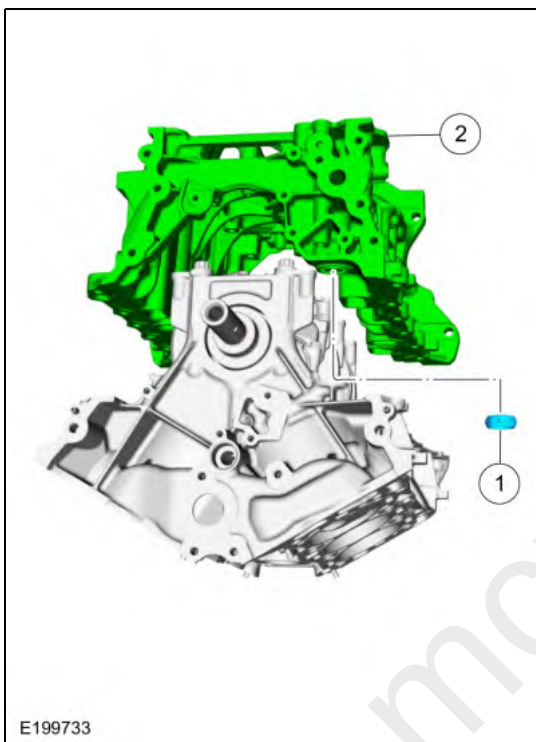
- NOTICE:** If the engine block skirt stiffener is not installed, aligned and the bolts tightened to minimum specification within 10 minutes, the sealant must be removed and the sealing area cleaned.

Apply a 4.5 mm (0.18 in) bead of Motorcraft® High Performance Engine RTV Silicone to the engine block skirt stiffener.

Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)



- 2.
1. Position the oil seal.
 2. Install the engine block skirt stiffener.



- 3.
1. Install the bolts finger tight.
 2. Tighten the 2 bolts.
- Torque:*
 Stage 1: 35 lb.in (4 Nm)
 Stage 2: Loosen: 360°