

Engine

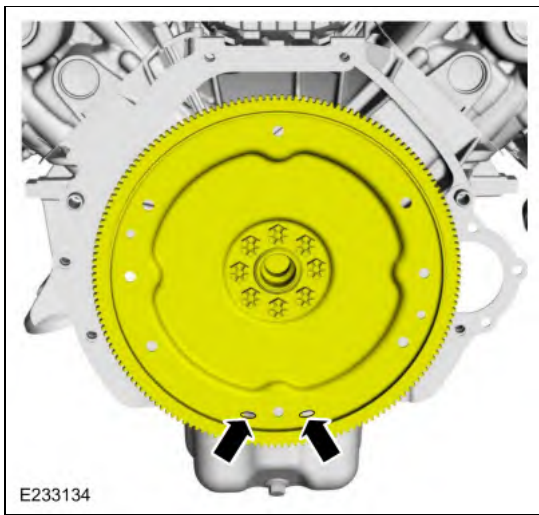
Special Tool(s) / General Equipment

	303-1507 Brackets, Support
	303-214 (T83T-6312-B) Wrench, Fan Clutch Nut
 E233074	303-478 (T94T-6312-AH) Holding Wrench, Fan Clutch Pulley TKIT-1994-FHFMHFLMHLTH
	303-F047 Lifting Bracket, Engine
 307-346	307-346 (T97T-7902-A) Retainer, Torque Converter TKIT-1998-LM (Navigator) TKIT-1997-F/FLM/LT
Magnetic Socket	
Floor Crane	
Trolley Jack	
Hose Clamp Remover/Installer	
1/2 Inch Square Drive Breaker Bar	
Wooden Block	

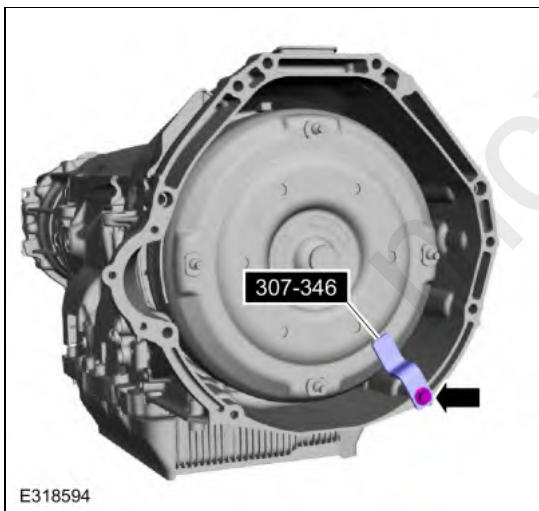
6-Speed Automatic Transmission & 6R100/10-Speed Automatic Transmission & 10R140

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

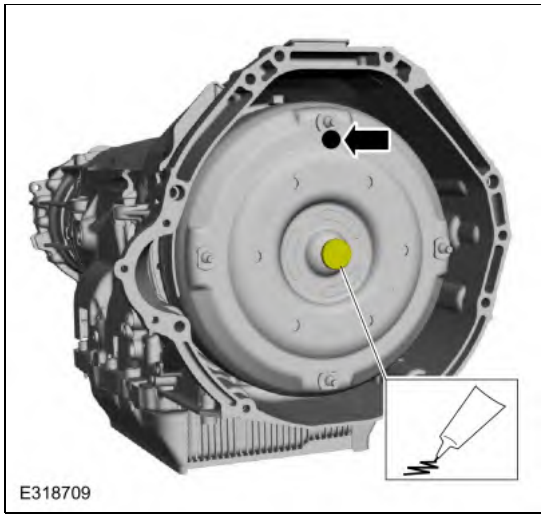
Rotate the flexplate to align the 2 slots at the 6 o'clock position.



2. Remove the special tool.
Use Special Service Tool: 307-346 (T97T-7902-A) Retainer, Torque Converter.

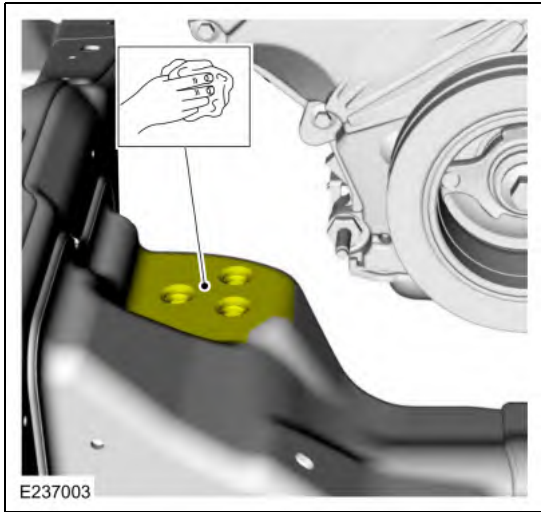


- 3.
- Align the paint dot on the torque converter in the 12 o'clock position.

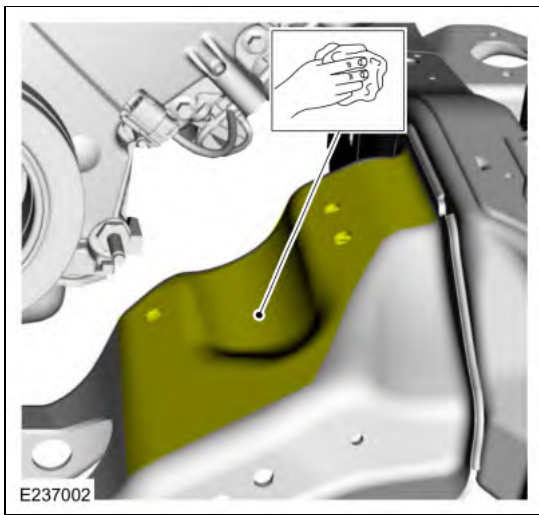


5-Speed Manual Transmission “ TR4050/6-Speed Automatic Transmission “ 6R100/10-Speed Automatic Transmission “ 10R140

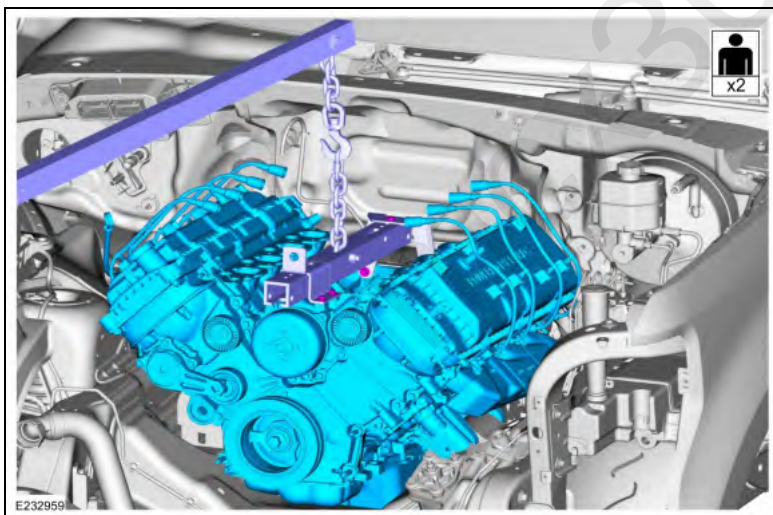
4. Clean the RH engine mount-to-frame mating surfaces of any dirt or foreign material prior to installation.



5. Clean theLH engine mount-to-frame mating surfaces of any dirt or foreign material prior to installation.



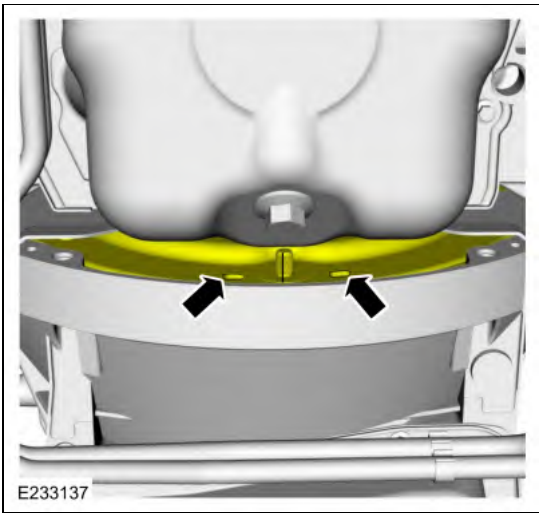
6. With the help of an assistant and using the floor crane, position the engine assembly into the vehicle and onto the transmission.



6-Speed Automatic Transmission “ 6R100/10-Speed Automatic Transmission “ 10R140

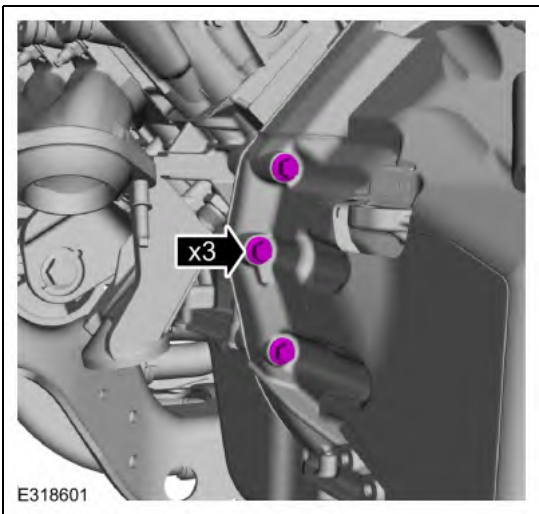
7. **NOTICE:** The torque converter must be installed in it's original orientation to the flexplate or engine damage may occur.

Check that the flexplate is positioned so that the 2 slotted holes are shown at the 6 o'clock position and the index marks are aligned.

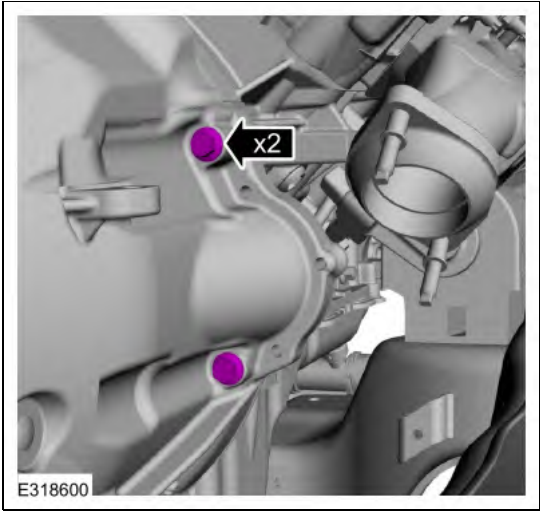


8. **NOTE:** Do not tighten at this time.

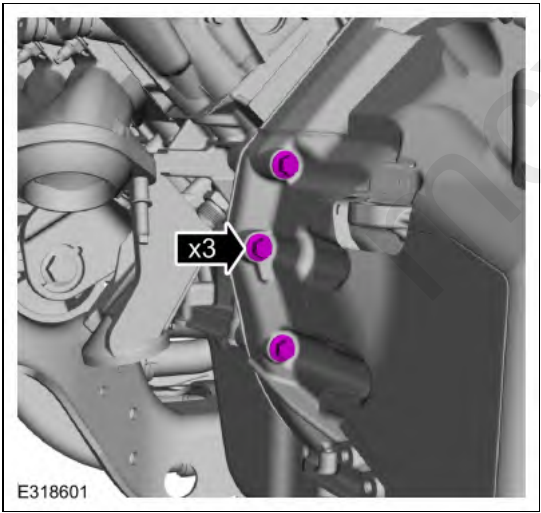
Install the LH transmission-to-engine bolts finger tight.



9. Install the RH transmission-to-engine bolts.
Torque: 35 lb.ft (48 Nm)

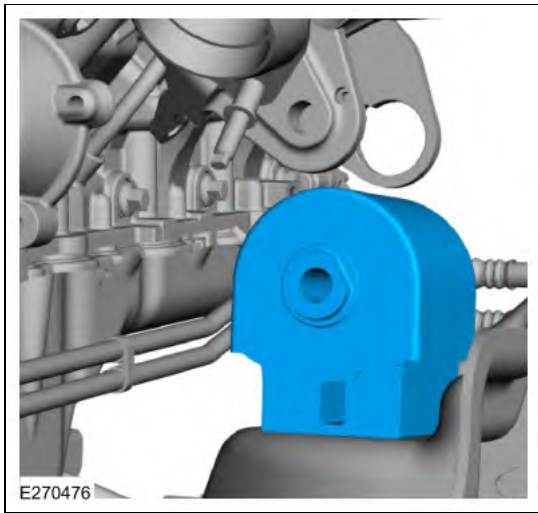


10. Tighten the transmission-to-engine bolts.
Torque: 35 lb.ft (48 Nm)

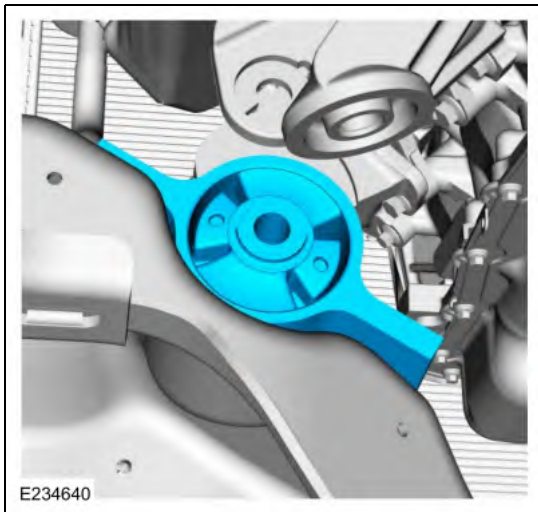


5-Speed Manual Transmission “ TR4050/6-Speed Automatic Transmission “ 6R100/10-Speed Automatic Transmission “ 10R140

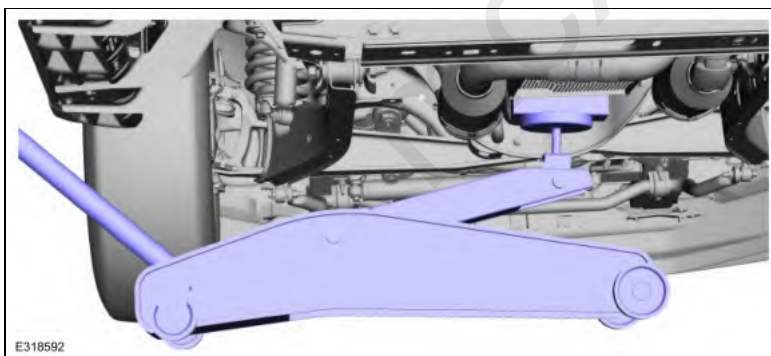
11. Install the RH engine mount.



12. Install the LH engine mount.



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

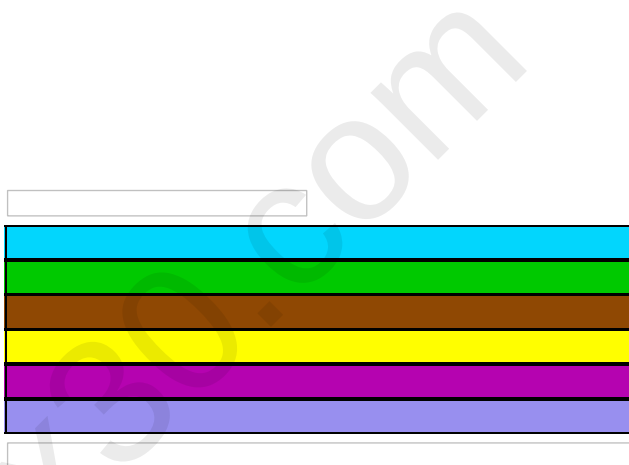


14.

- Using the floor crane and the special tool, lower the engine onto the engine mounts.
- Remove the floor crane, special tool and the bolts.
Use Special Service Tool: 303-1507 Brackets, Support. , 303-F047 Lifting Bracket, Engine.
Use the General Equipment: Floor Crane

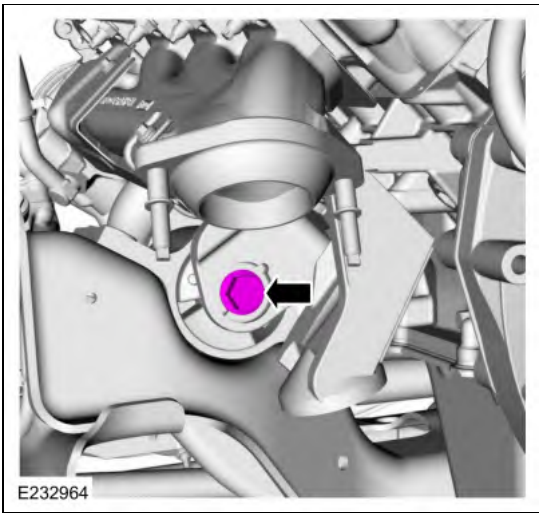


15. Install the upper transmission-to-engine bolts.
Torque: 35 lb.ft (48 Nm)



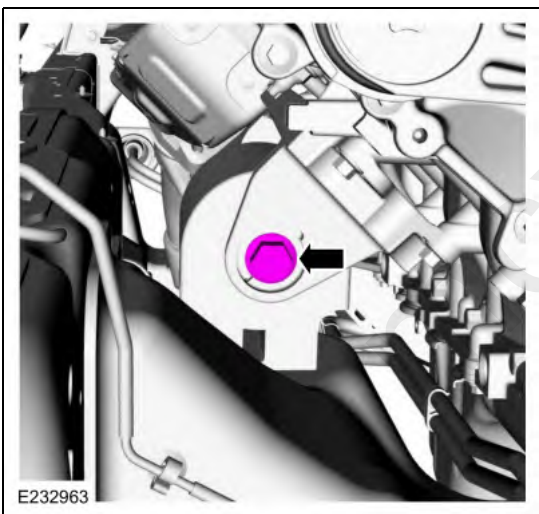
16. **NOTE:** *Do not tighten the fastener at this time.*

Install the new LH engine mount through bolt.



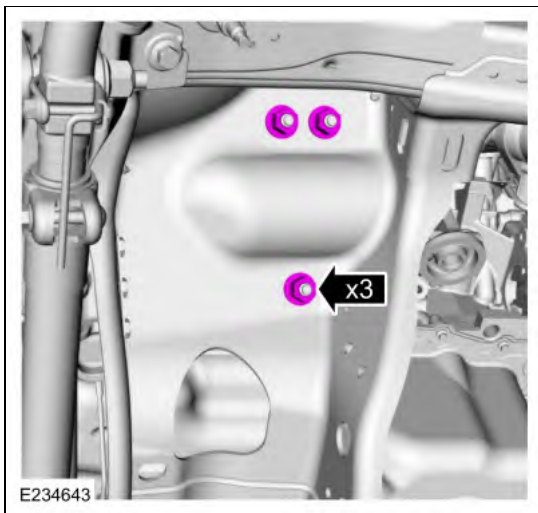
17. **NOTE:** Do not tighten the fastener at this time.

Install the RH engine mount through bolt.



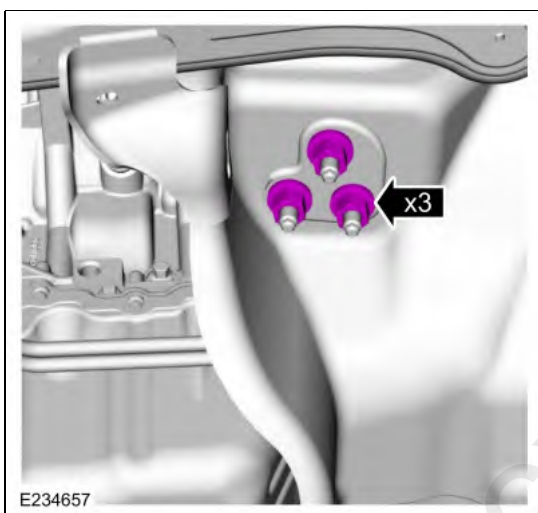
18. **NOTICE:** Only use hand tools when tightening the engine mount bolts or damage to the engine mount may occur.

Install the new LH engine support insulator bracket nuts.
Torque: 148 lb.ft (200 Nm)



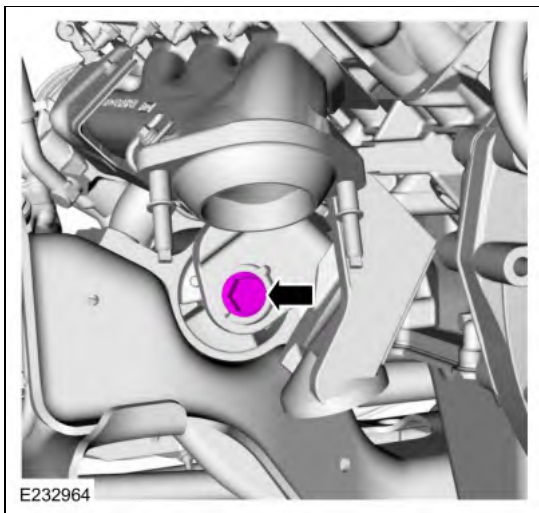
19. **NOTICE:** Only use hand tools when tightening the engine mount bolts or damage to the engine mount may occur.

Install the new RH engine support insulator bracket nuts.
Torque: 111 lb.ft (150 Nm)



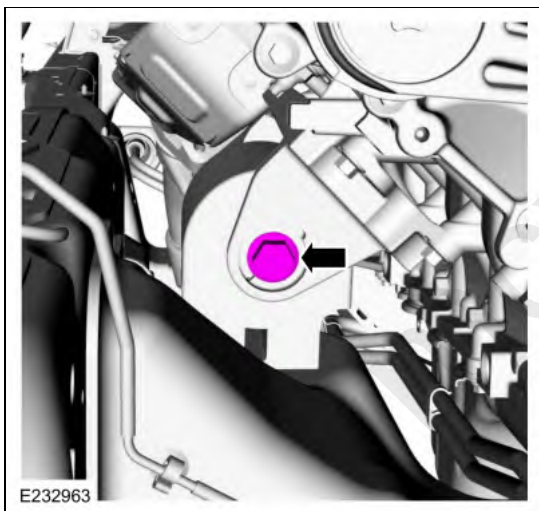
20. **NOTICE:** Only use hand tools when tightening the engine support insulator nuts or damage to the engine support insulator may occur.

Tighten the LH engine mount through bolt.
Torque: 258 lb.ft (350 Nm)



21. **NOTICE:** Only use hand tools when tightening the engine support insulator nuts or damage to the engine support insulator may occur.

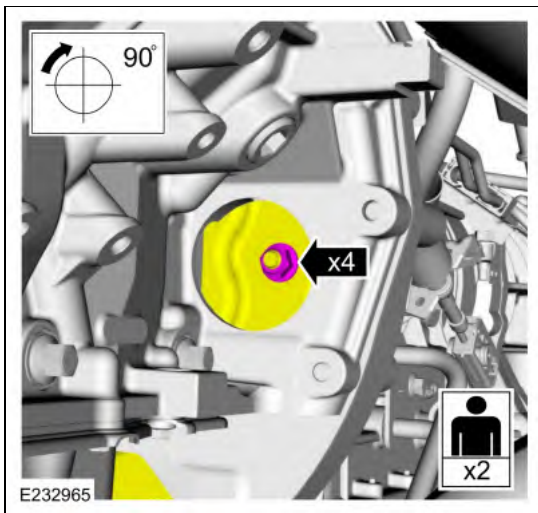
Install and tighten the RH engine mount through bolt.
Torque: 258 lb.ft (350 Nm)



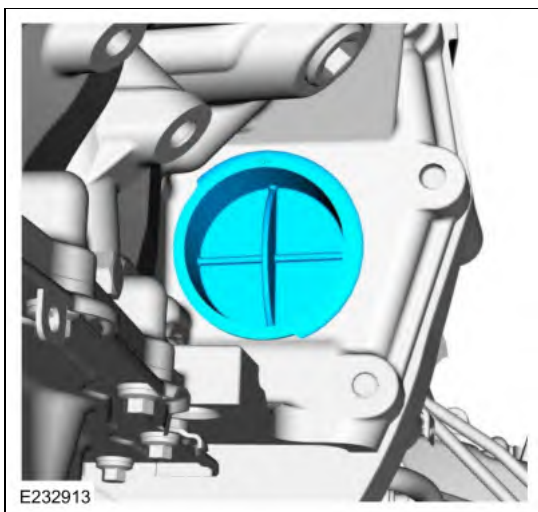
6-Speed Automatic Transmission “ 6R100/10-Speed Automatic Transmission “ 10R140

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

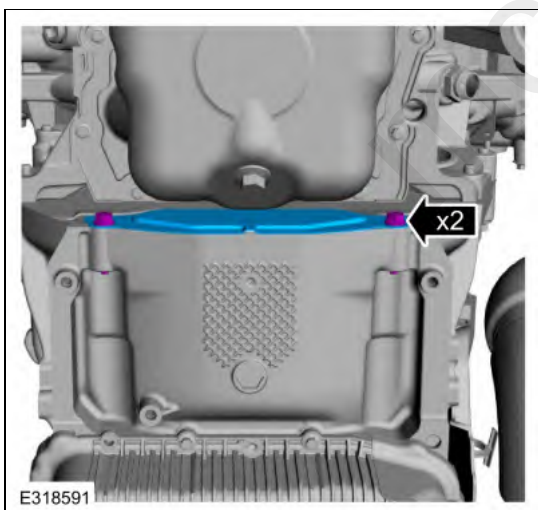
Install the new the torque converter nuts.
 Use the General Equipment: Magnetic Socket
Torque: 26 lb.ft (35 Nm)



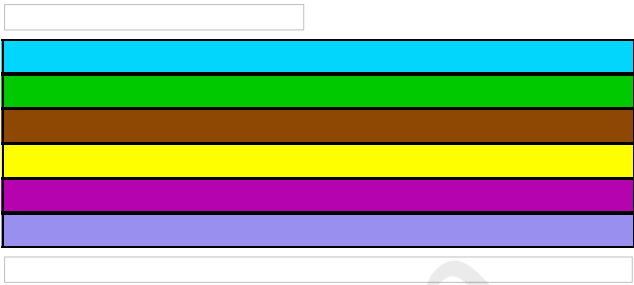
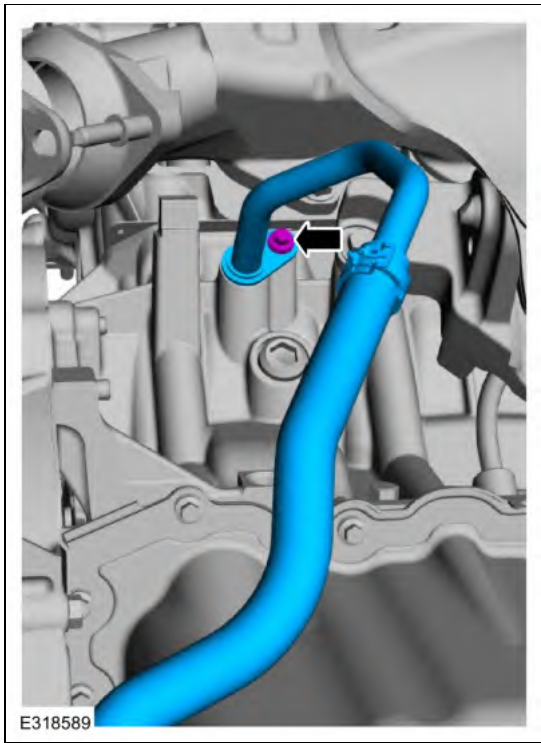
23. Install the torque converter nut access cover.



24. Install the transmission inspection plate and the bolts.
Torque: 25 lb.ft (34 Nm)



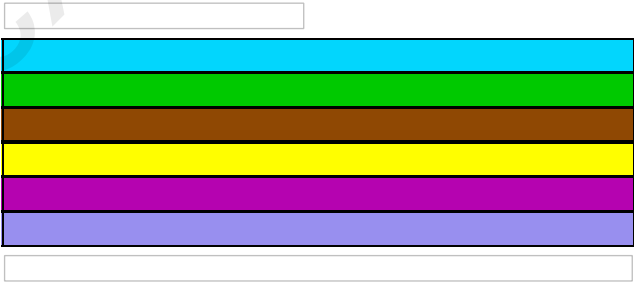
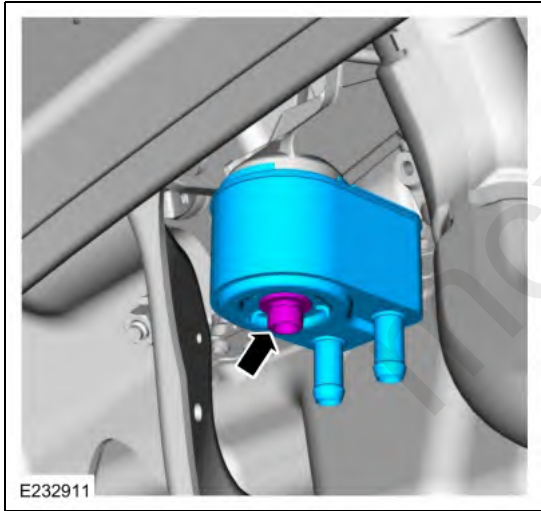
25. If equipped with 10R40 transmission, install the transmission cooler coolant tube to the RH side of engine block.
Torque: 177 lb.in (20 Nm)



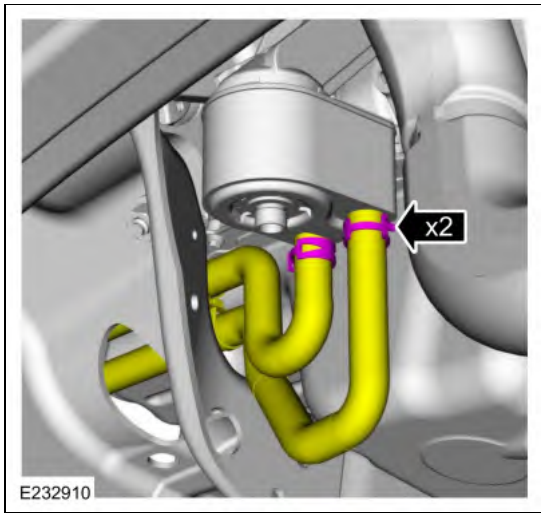
26. If equipped with 10R40 transmission, install the transmission cooler.
Refer to: Transmission Fluid Cooler - 6.2L V8/7.3L 2V DEVCT V8 (239kW/320PS) (J0) (307-02B Transmission Cooling - 10-Speed Automatic Transmission “ 10R140, Removal and Installation).

5-Speed Manual Transmission “ TR4050/6-Speed Automatic Transmission “ 6R100/10-Speed Automatic Transmission “ 10R140

27. Install a new engine oil cooler and the retainer.
Torque: 43 lb.ft (58 Nm)

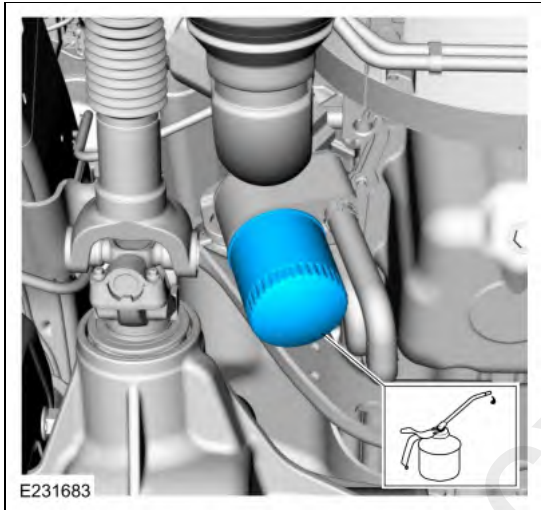


28. Connect the oil cooler coolant hoses.
Use the General Equipment: Hose Clamp Remover/Installer

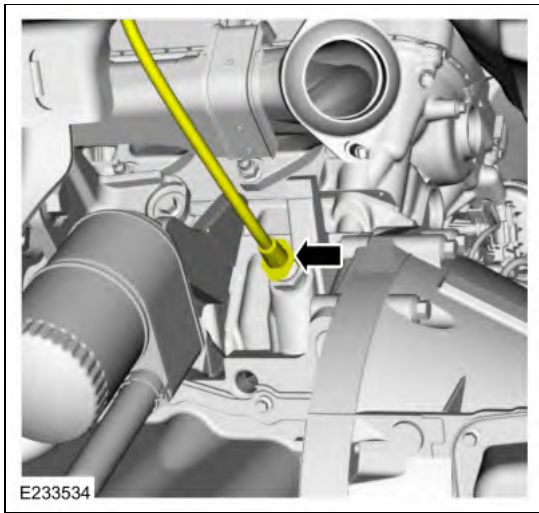


29. **NOTE:** Lubricate the oil filter gasket with clean engine oil.

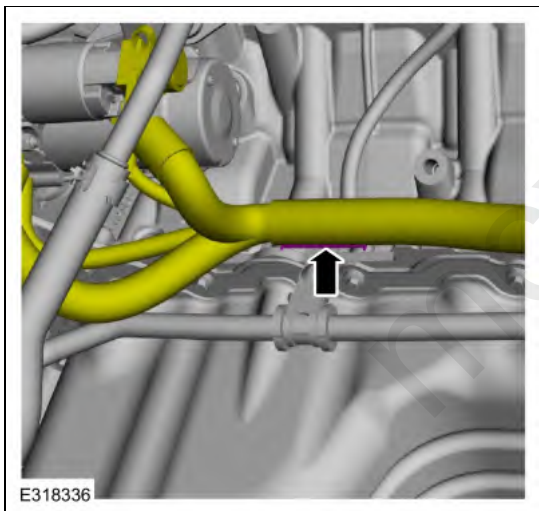
Install a new engine oil filter.
Torque:
Stage 1: 44 lb.in (5 Nm)
Stage 2: 180°



30. If equipped with an engine block heater, position the wiring harness and connect the engine block heater electrical connector.



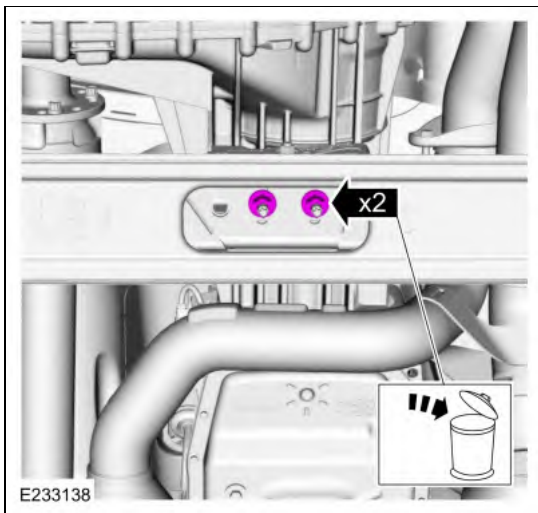
31. Attach the starter motor wiring harness pin-type retainer to the oil pan.



6-Speed Automatic Transmission “6R100/10-Speed Automatic Transmission “10R140

32. **NOTICE:** The transmission support insulator-to-crossmember nuts must be discarded and new nuts installed, or damage to the vehicle or transmission support insulator may occur.

Remove and discard the transmission support insulator nuts.



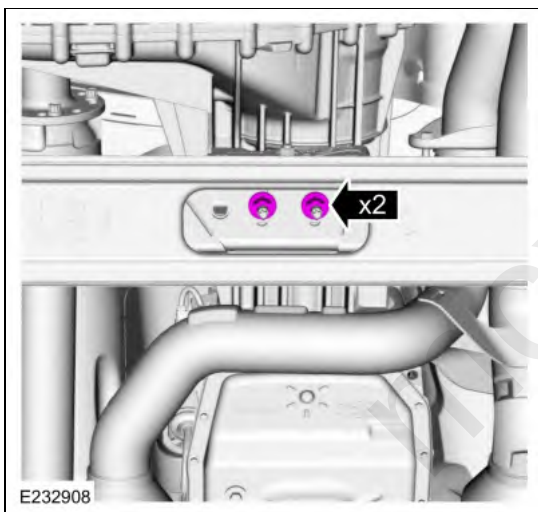
33.

- **NOTE:** The transmission support insulator studs may come out of the insulator while removing the nuts.

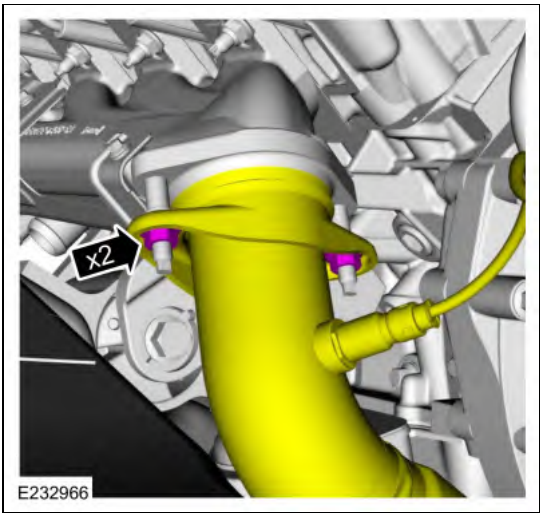
If required, tighten transmission support insulator studs.

Torque: 55 lb.ft (75 Nm)

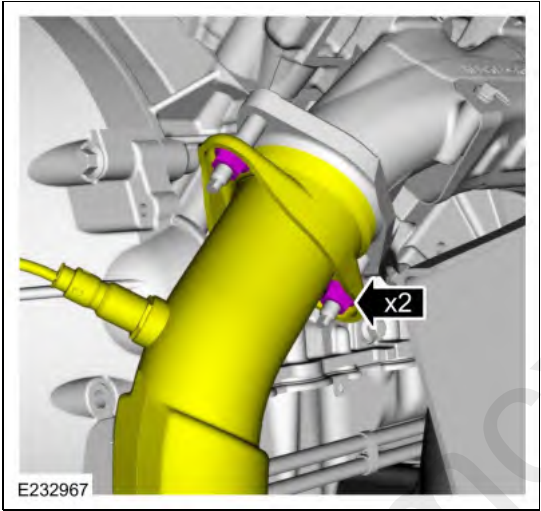
- If the transmission support insulator studs can not be tightened, the transmission support insulator must be replaced.
Refer to: Transmission Support Insulator (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 6-Speed Automatic Transmission â€“ 6R100, Removal and Installation).
Refer to: Transmission Support Insulator (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).
- Install new transmission support insulator nuts.
Torque: 85 lb.ft (115 Nm)



34. Install the new LH catalytic converter pipe-to-manifold nuts.
Torque: 30 lb.ft (40 Nm)



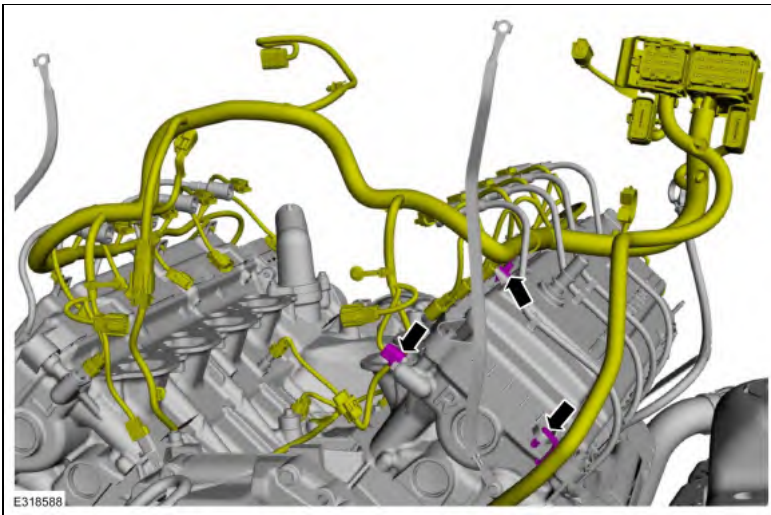
35. Install the new RH catalytic converter pipe-to-manifold nuts.
Torque: 30 lb.ft (40 Nm)



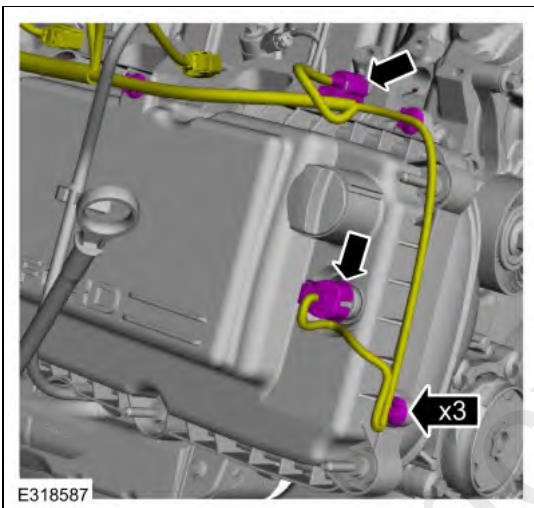
36. Install the starter motor.
Refer to: Starter Motor (303-06A Starting System - 6.2L V8, Removal and Installation).

5-Speed Manual Transmission “TR4050/6-Speed Automatic Transmission “6R100/10-Speed Automatic Transmission “10R140

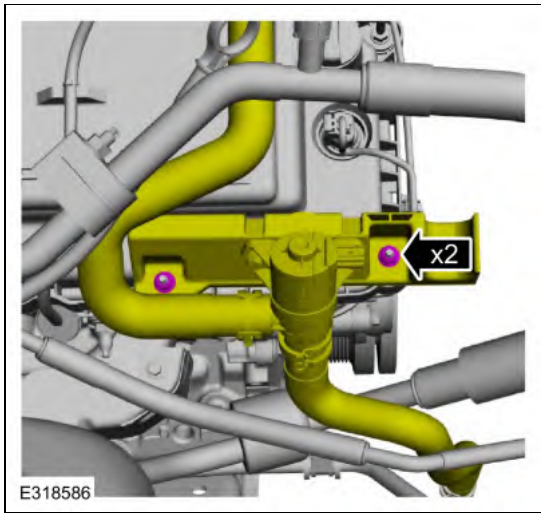
37. Position the engine wiring harness and connect the wiring harness electrical connector and the retainers.



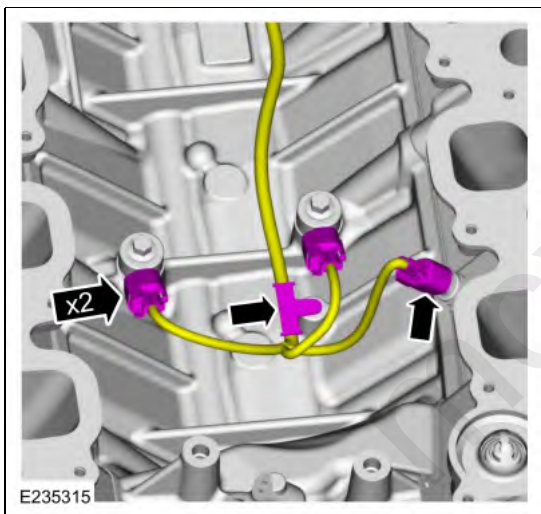
38. Connect the wiring harness electrical connector and the retainers.



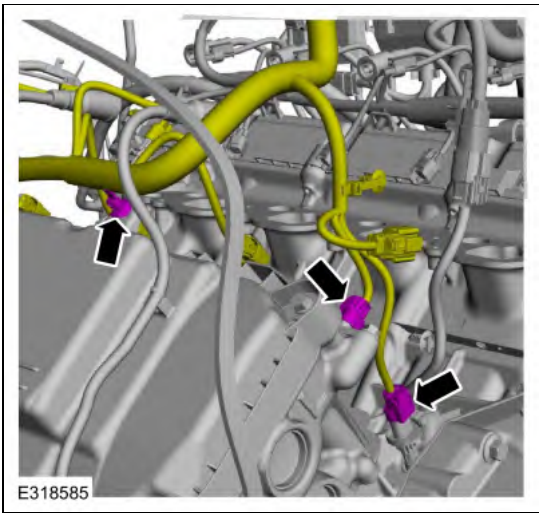
39. Position the coolant valve and bracket and install the nuts.
Torque: 53 lb.in (6 Nm)



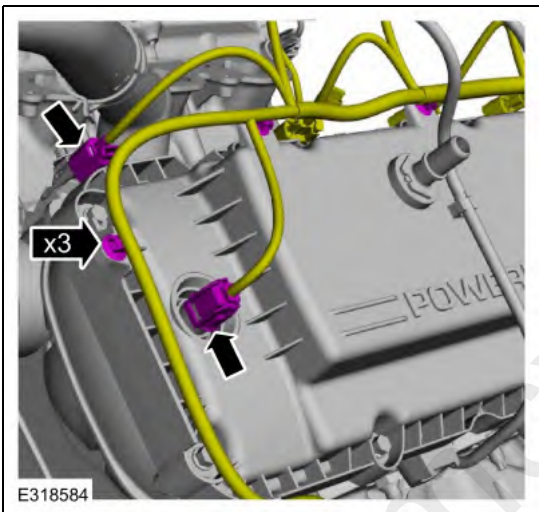
40. Connect the wiring harness electrical connectors and the retainer.



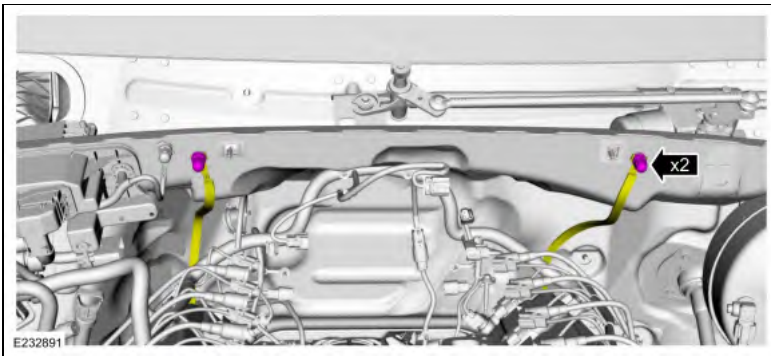
41. Connect the wiring harness electrical connectors and the retainer.



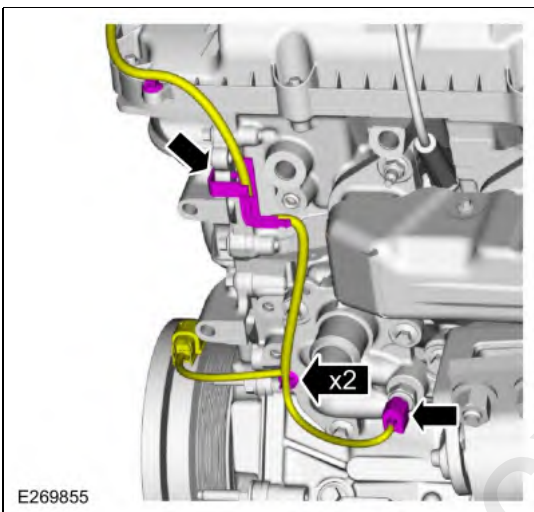
42. Connect the wiring harness electrical connectors and the retainers.



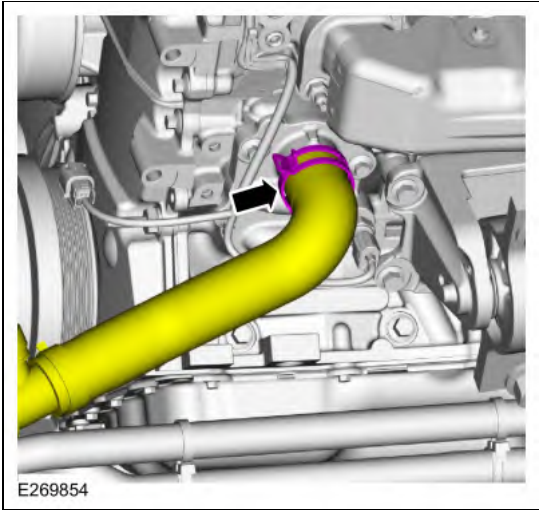
43. Position the engine ground straps and install the nuts.
Torque: 89 lb.in (10 Nm)



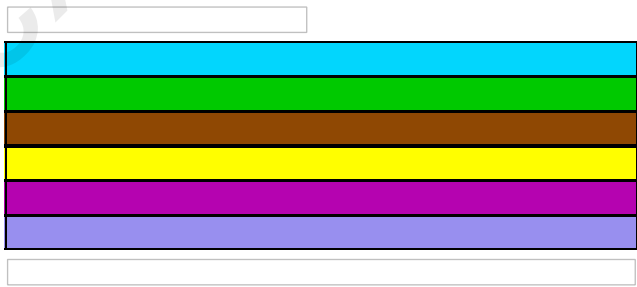
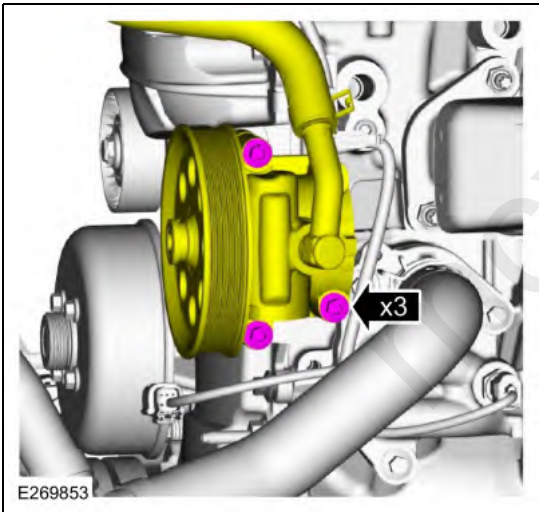
44. Connect the oil pressure switch wiring harness electrical connector and the retainers.



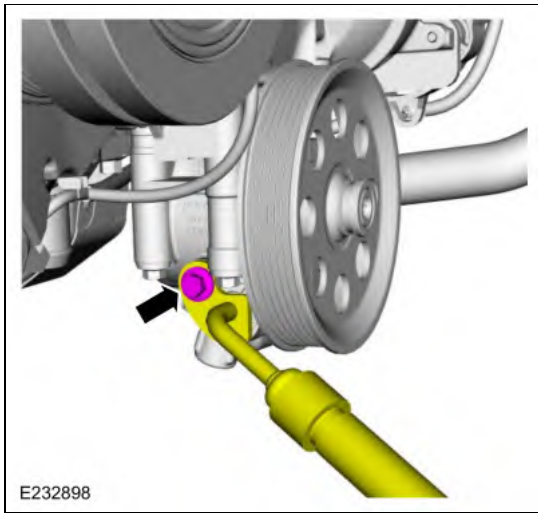
45. Connect the lower radiator hose to the block.
Use the General Equipment: Hose Clamp Remover/Installer



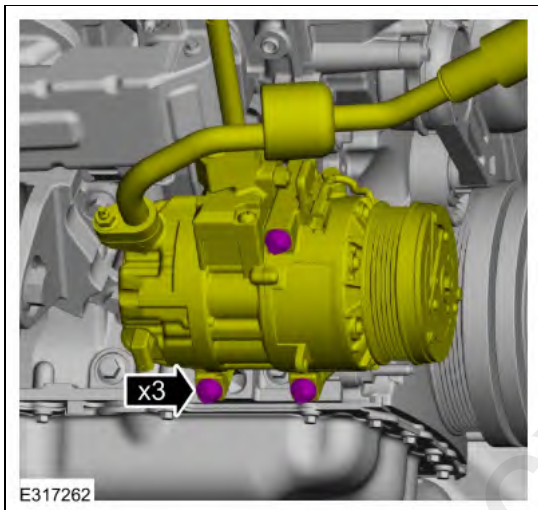
46. Position the power steering pump and install the bolts.
Torque: 18 lb.ft (25 Nm)



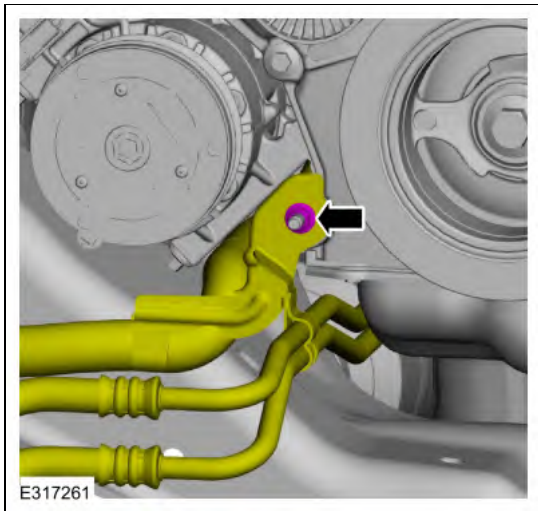
47. Install the power steering pump pressure line and the bolt.
Torque: 18 lb.ft (25 Nm)



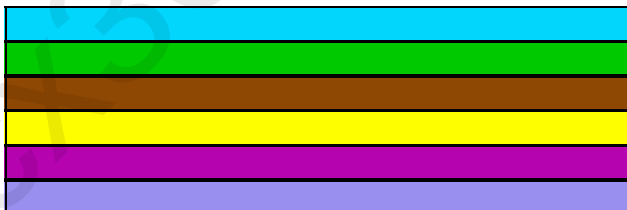
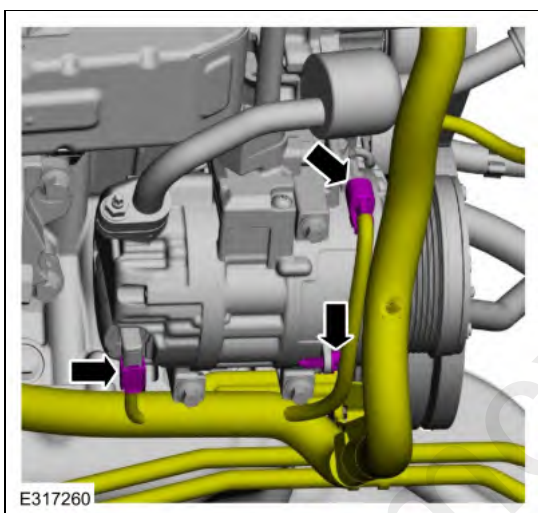
48. Position the A/C compressor and install the bolts.
Torque: 18 lb.ft (25 Nm)



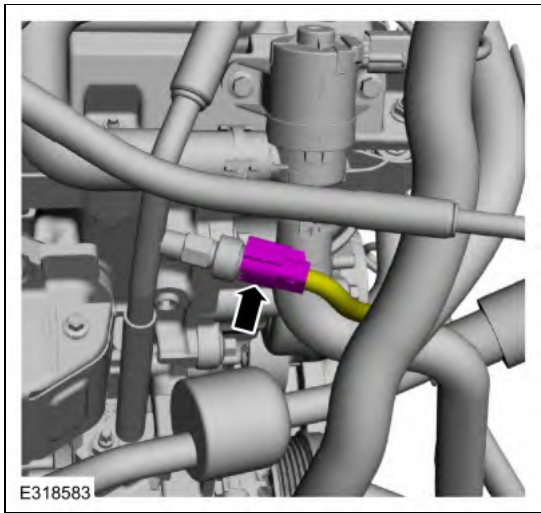
- 49.
- Install the starter motor wiring harness bracket.
 - **NOTE:** 6R100 transmission lines shown, 10R140 similar.
If equipped with automatic transmission, install the transmission cooler lines bracket.
 - Install the nut.
Torque: 18 lb.ft (25 Nm)



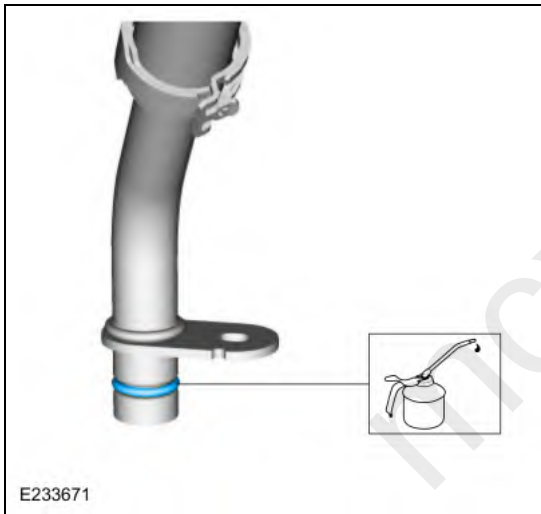
50. Connect the A/C compressor wiring harness electrical connectors and attach the wiring harness retainer.



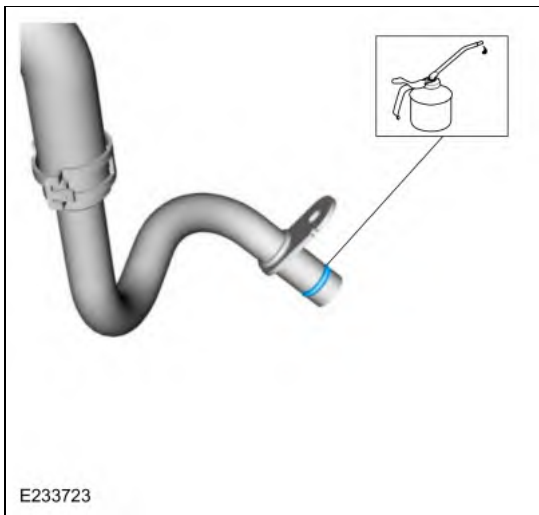
51. Connect the A/C pressure switch wiring harness electrical connector.



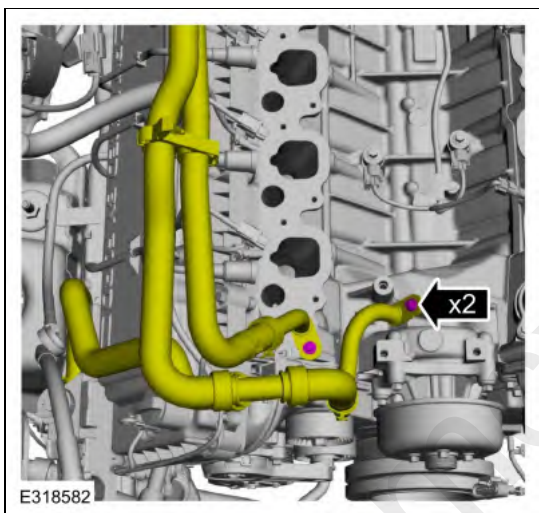
52. Install and lubricate the coolant tube O-ring seal.



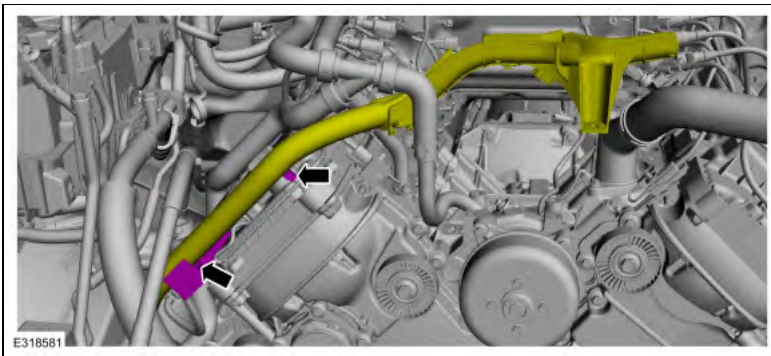
53. Install and lubricate the coolant tube O-ring seal.



54. Position the coolant tubes and install the bolts. Connect the coolant hose to the coolant valve on right valve cover.
Torque: 89 lb.in (10 Nm)



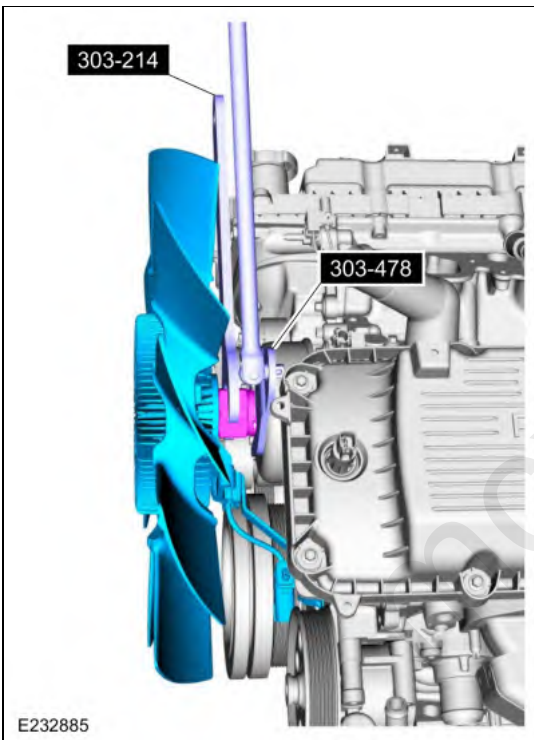
55. **NOTE:** *Primary battery vehicles shown, secondary battery vehicles similar.*
 Attach the generator wiring harness pin-type retainers.



56. Using the special tools, install the cooling fan.

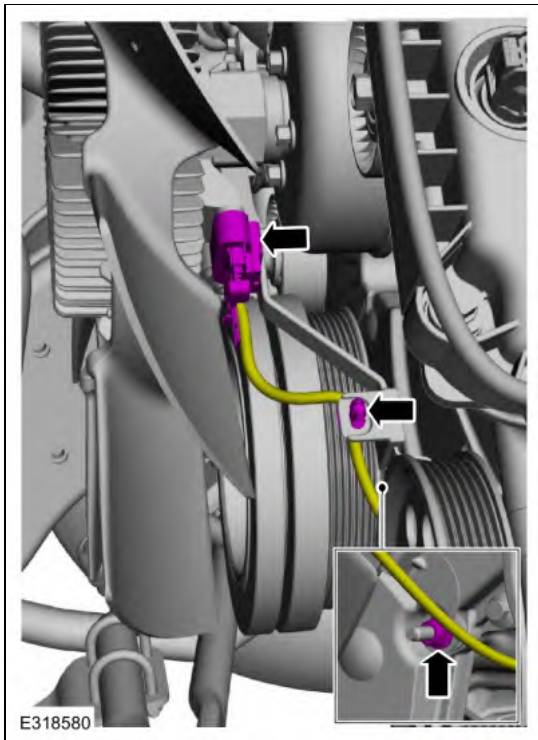
Use Special Service Tool: 303-478 (T94T-6312-AH) Holding Wrench, Fan Clutch Pulley. , 303-214 (T83T-6312-B) Wrench, Fan Clutch Nut.

Use the General Equipment: 1/2 Inch Square Drive Breaker Bar



57.

- Install the cooling fan wiring harness support bracket nut.
Torque: 177 lb.in (20 Nm)
- Connect the cooling fan wiring harness electrical connector and retainer.

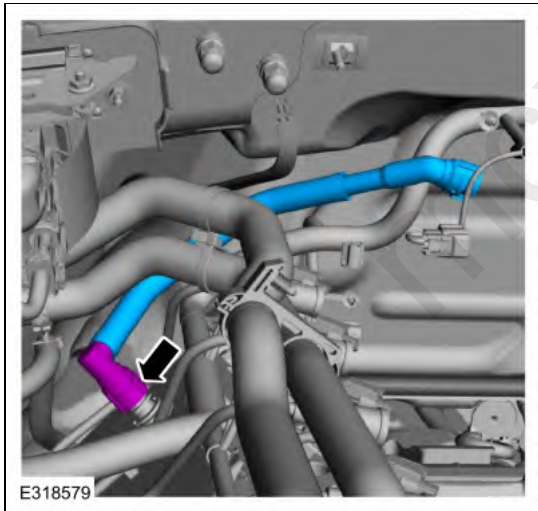


5-Speed Manual Transmission “ TR4050

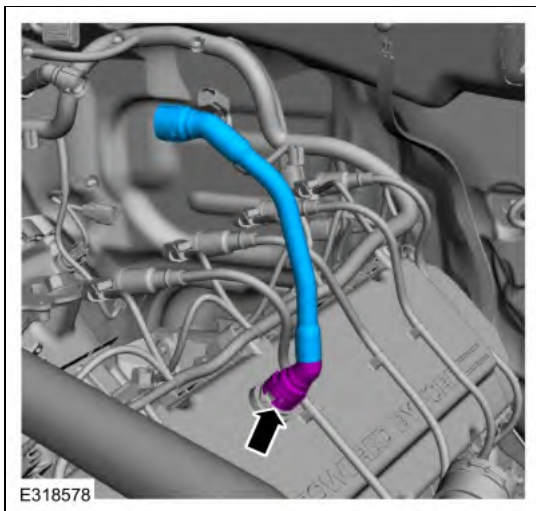
- 58. Install the clutch and pressure plate.
Refer to: Clutch Disc and Pressure Plate (308-01 Clutch, Removal and Installation).

5-Speed Manual Transmission “ TR4050/6-Speed Automatic Transmission “ 6R100/10-Speed Automatic Transmission “ 10R140

- 59. Follow directions to release the quick release coupling type 3. Install and connect the PCV tube.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .



- 60. Follow directions to release the quick release coupling type 3. Install and connect the crankcase vent tube.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .

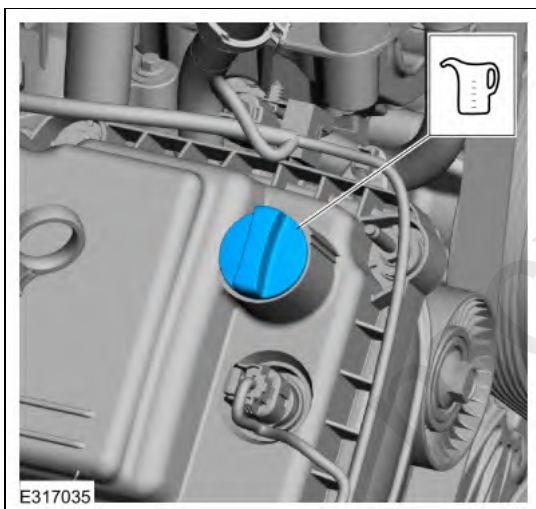


61. Install the following items:

1. Install the air cleaner.
Refer to: Air Cleaner (303-12A Intake Air Distribution and Filtering - 6.2L V8, Removal and Installation).
2. Install the cooling module.
Refer to: Cooling Module (303-03A Engine Cooling - 6.2L V8, Removal and Installation).
3. Install the intake manifold.
Refer to: Intake Manifold (303-01A Engine - 6.2L V8, Removal and Installation).
4. Install the accessory drive belt.
Refer to: Accessory Drive Belt (303-05A Accessory Drive - 6.2L V8, Removal and Installation).
5. Install the cowl panel.
Refer to: Cowl Panel (501-02 Front End Body Panels, Removal and Installation).

62. Fill the engine with clean engine oil.

Refer to: Specifications (303-01A Engine - 6.2L V8, Specifications).



63. Fill and bleed the cooling system

Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03A Engine Cooling - 6.2L V8, General Procedures).

64. Pressurize the fuel system

Refer to: Fuel System Pressure Release (310-00A Fuel System - General Information - 6.2L V8, General Procedures).

65. If equipped with an 10R140 automatic transmission, check the transmission fluid.

Refer to: Transmission Fluid Level Check (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, General Procedures).

66. If equipped with an 6R100 automatic transmission, check the transmission fluid.

Refer to: Transmission Fluid Level Check (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 6-Speed Automatic Transmission â€” 6R100, General Procedures).

67. Fill the power steering system

Refer to: Power Steering System Filling (211-02 Power Steering, General Procedures).

68. Use the Powertrain Control Module (PCM) Misfire Monitor Profile Correction routine in the diagnostic scan tool.