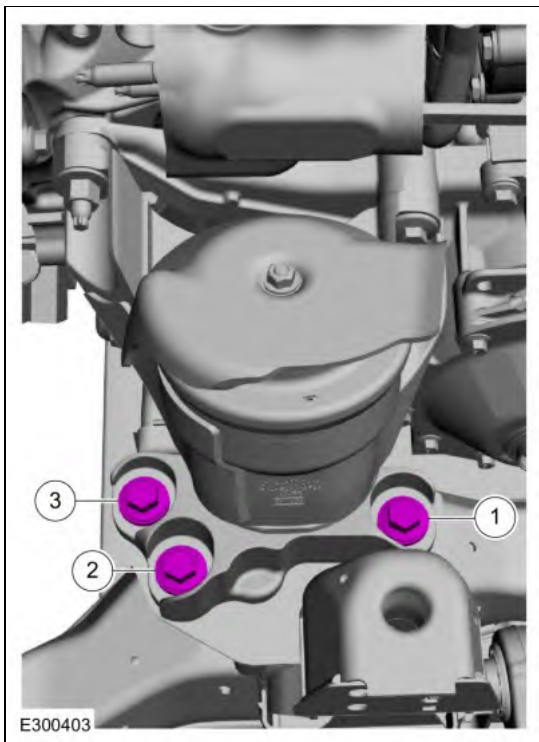
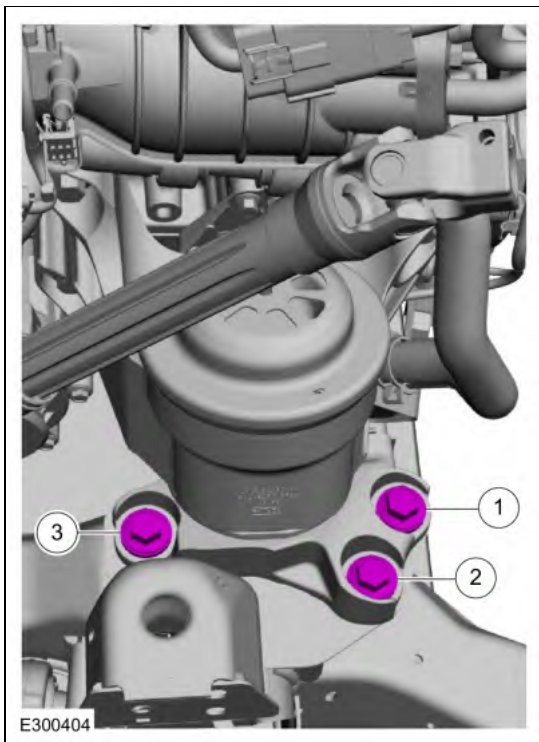
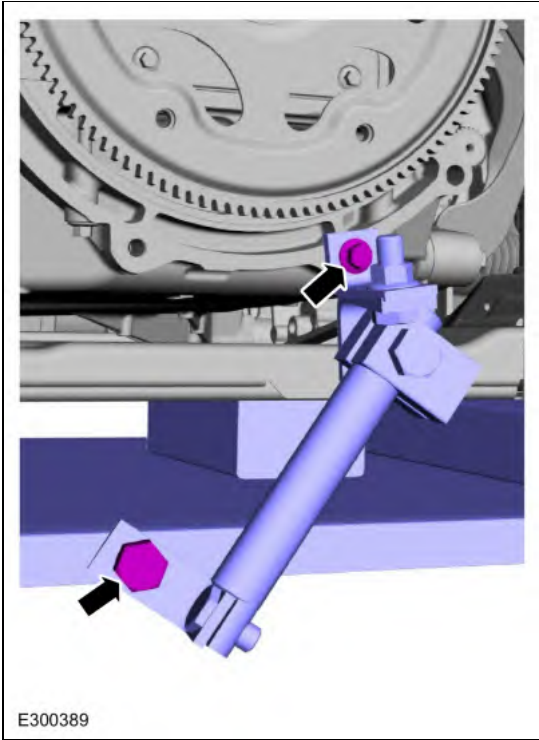




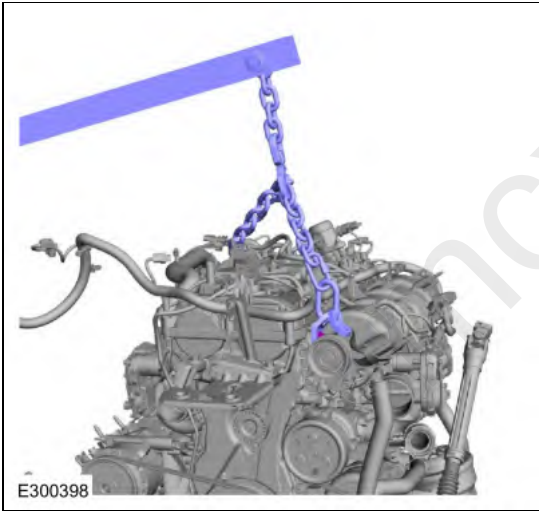
6. Install the LH motor mount bolts and tighten in sequence shown.
Torque: 76 lb.ft (103 Nm)



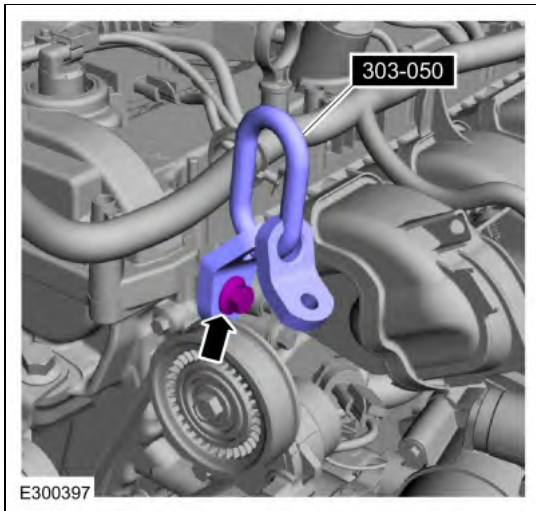
7. Install and tighten the adjustable mounting arm bolts.
Use the General Equipment: Adjustable Mounting Arm



8. Remove the floor crane and chain.

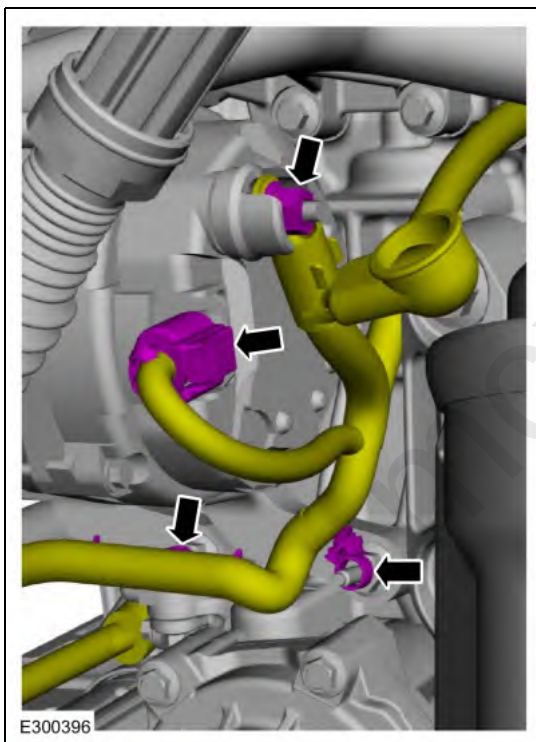


9. Remove Special Service Tool: 303-050 (T70P-6000) Lifting Bracket, Engine.

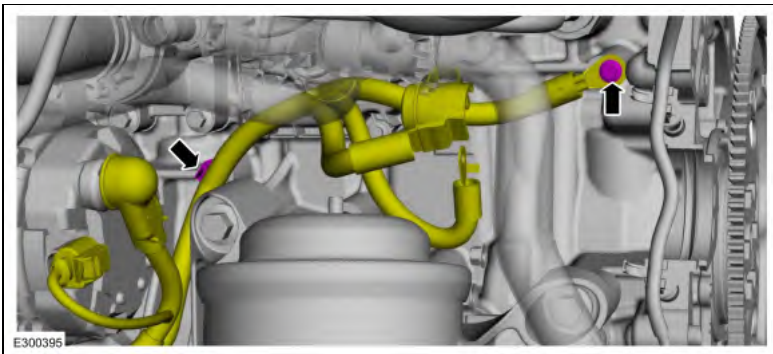


10.

- Attach the wiring harness retainers.
- Connect the generator electrical connector.
- Position the B+ wire and install the nut.
Torque: 155 lb.in (17.5 Nm)
- Position the B+ wire protective cover.

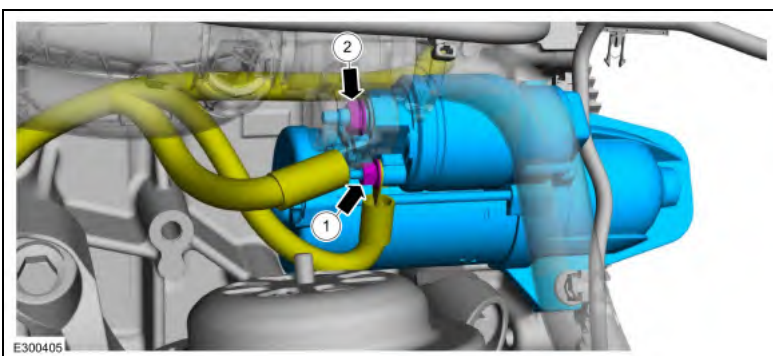


11. Position the ground wire to the engine block and install the bolt and the wiring harness retainer.
Torque: 106 lb.in (12 Nm)



12.

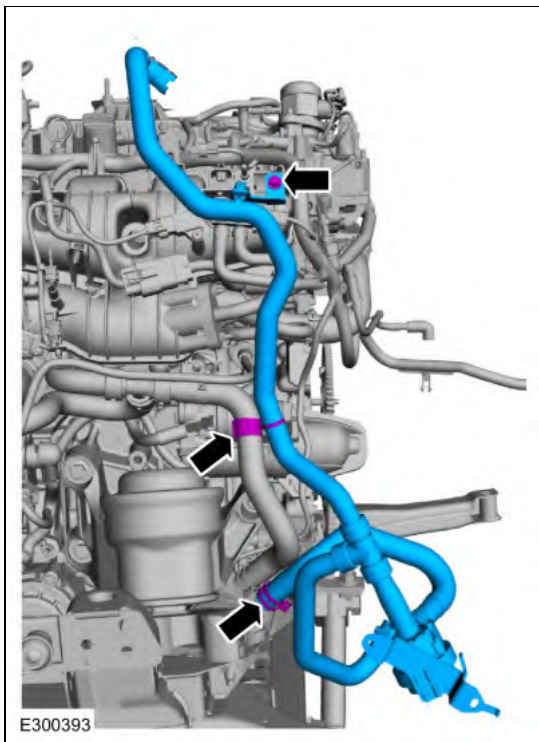
1. Install the starter motor and connect the starter motor control wire to the starter motor and install the nut.
Torque: 53 lb.in (6 Nm)
2. Connect the battery positive cable to the starter motor and install the nut.
Torque: 106 lb.in (12 Nm)



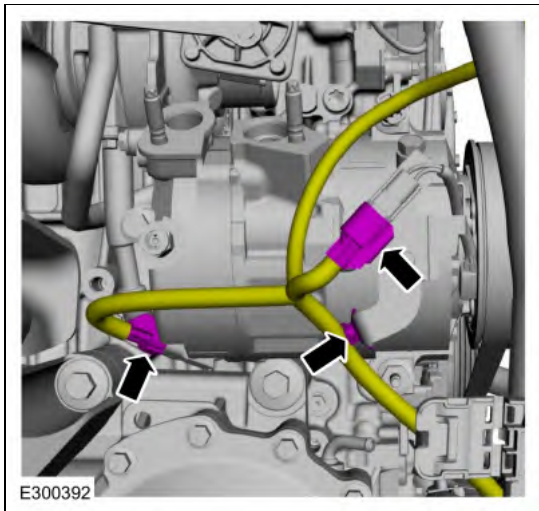
13.

- Install the auxiliary coolant pump and hoses and the bolt.
Torque: 97 lb.in (11 Nm)
- Install the coolant hose clamp and retainer.
Use the General Equipment: Hose Clamp Remover/Installer

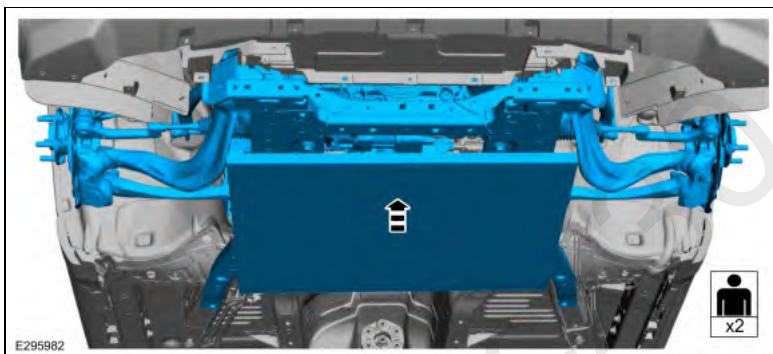
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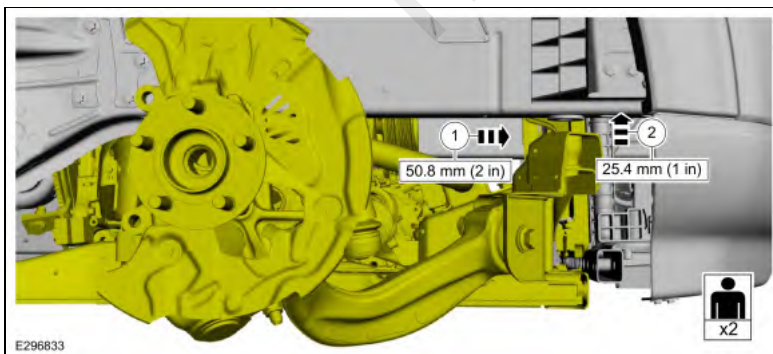
14. Connect the A/C compressor electrical connectors and the wiring harness retainer.



15. With the aid of an assistant and using the powertrain jack, raise the powertrain and subframe as an assembly 25.4 mm (1 in) from the frame.



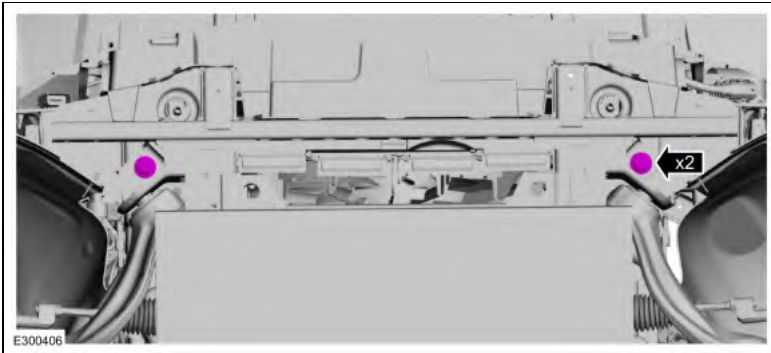
- 16.
1. With the aid of an assistant and using the powertrain jack, position the powertrain and subframe forwards 50.8 mm (2 in).
 2. With the aid of an assistant and using the powertrain jack, raise the powertrain and subframe 25.4 mm (1 in).



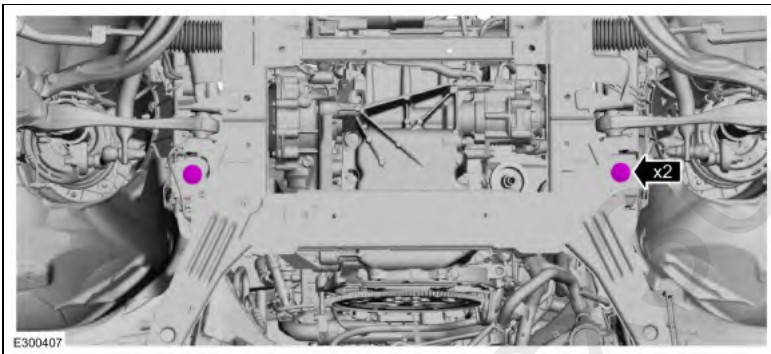
17. Install the new rear subframe bolts finger tight.



18. Install the new front subframe bolts finger tight.



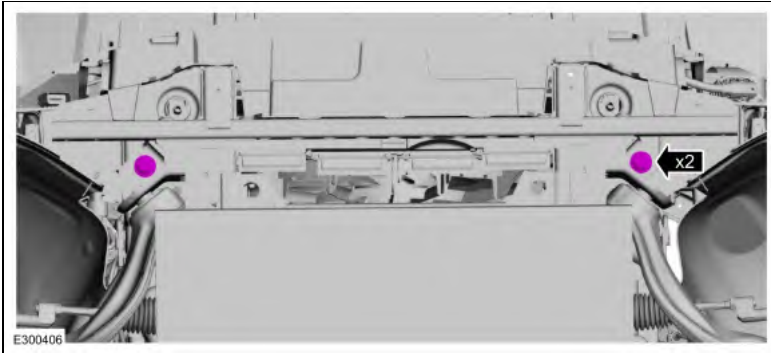
19. Install the new middle subframe bolts finger tight.



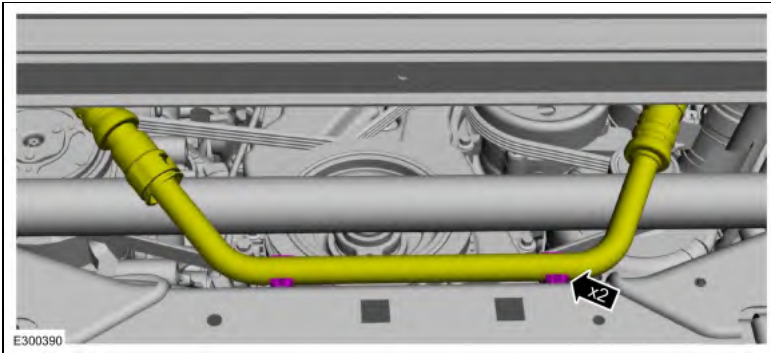
20. Tighten the rear subframe bolts.
Torque: 52 lb.ft (70 Nm)



21. Tighten the front subframe bolts.
Torque: 195 lb.ft (265 Nm)



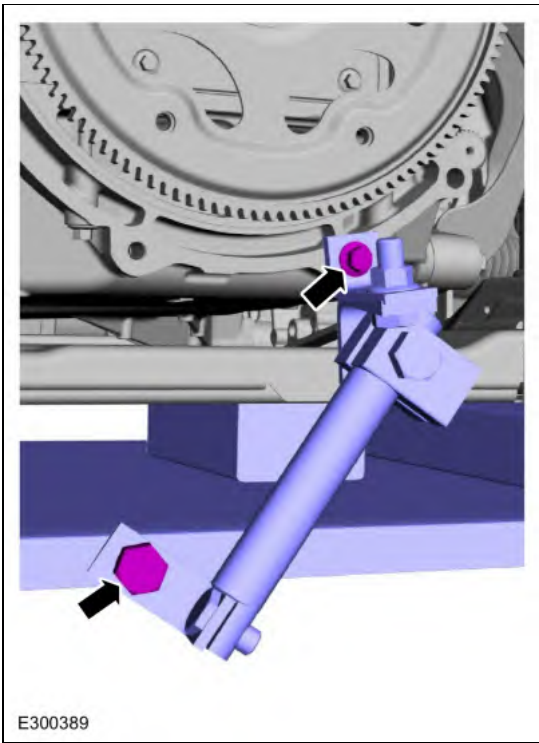
22. Attach the coolant tube retainers to the front of subframe.



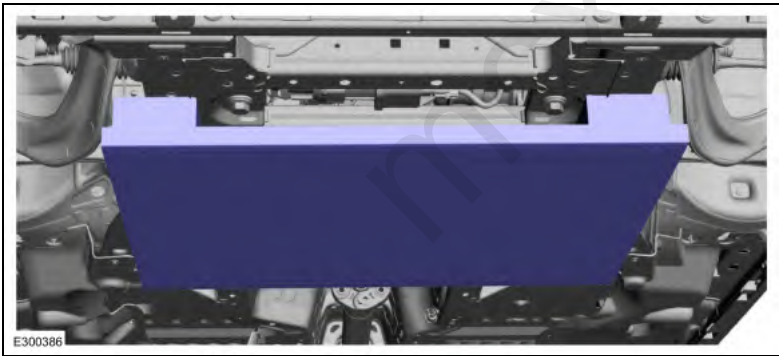
23. Install the front radiator support bar bolts.
Torque: 46 lb.ft (63 Nm)



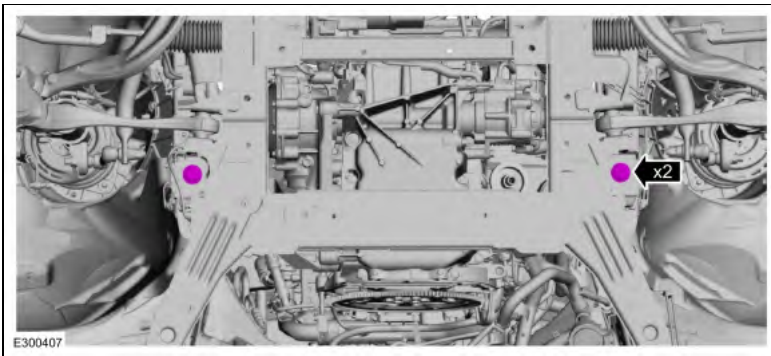
24. Remove.
Use the General Equipment: Adjustable Mounting Arm



25. Remove the powertrain jack and wooden blocks.
Use the General Equipment: Wooden Block



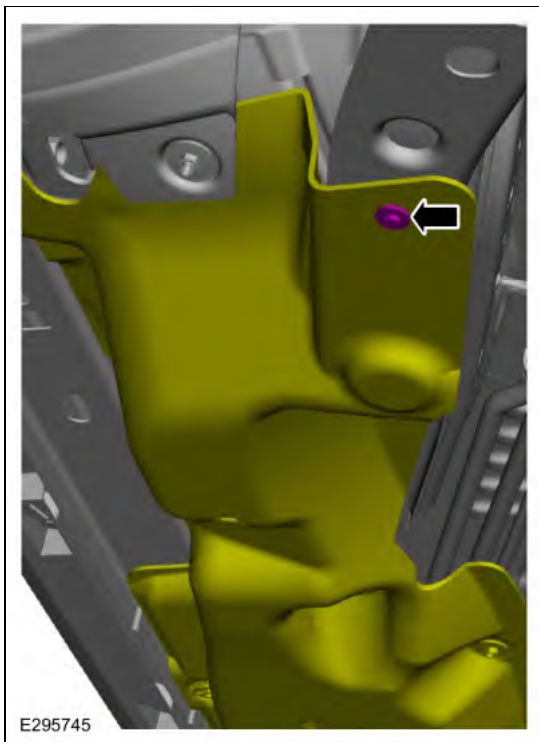
26. Tighten the middle subframe bolts.
Torque: 195 lb.ft (265 Nm)



27. Position the LH underbody shield and install the bolt.
Torque: 22 lb.in (2.5 Nm)



28. Position the RH underbody shield and install the bolt.
Torque: 22 lb.in (2.5 Nm)

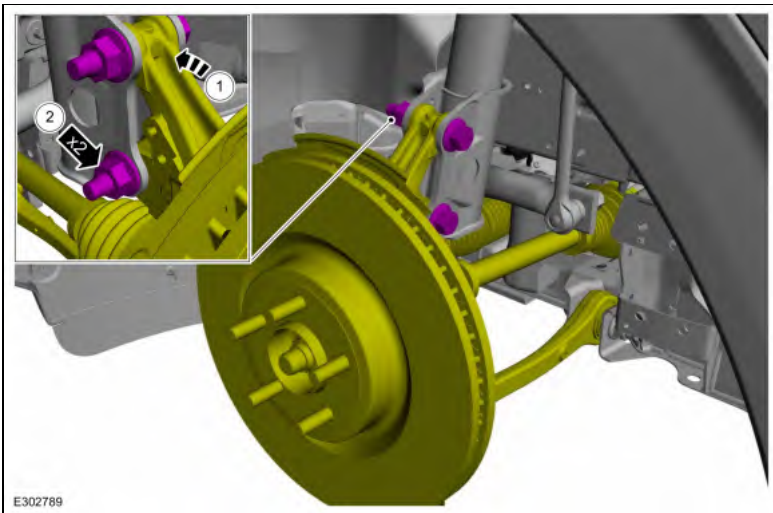


LHD RWD

29. **NOTE:** Two different styles of lower strut-to-wheel knuckle bolts are available: with and without splines. Bolts without splines are used to adjust camber and should be installed when the strut, knuckle, or subframe have been replaced or if the subframe or either lower arm to subframe bolts have been loosened.

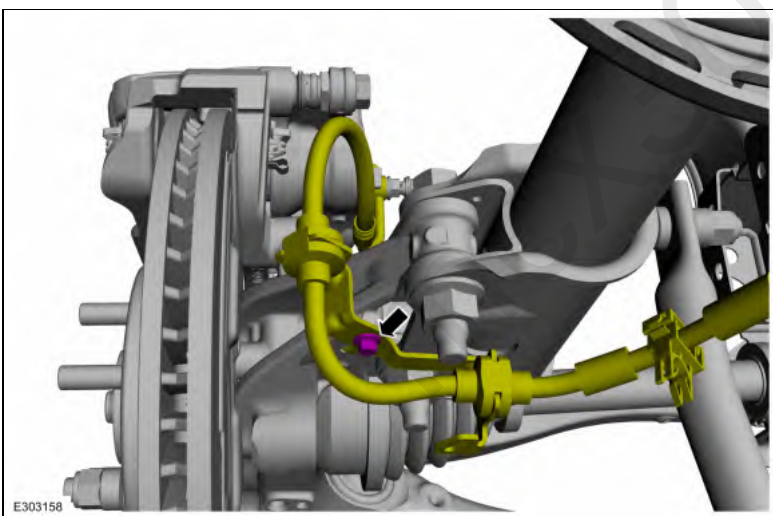
NOTE: LH side shown, RH side similar.

1. On both sides, position the wheel knuckle into the front strut and spring assembly.
2. Install the new lower strut-to-wheel knuckle nuts and bolts.
Torque: 166 lb.ft (225 Nm)



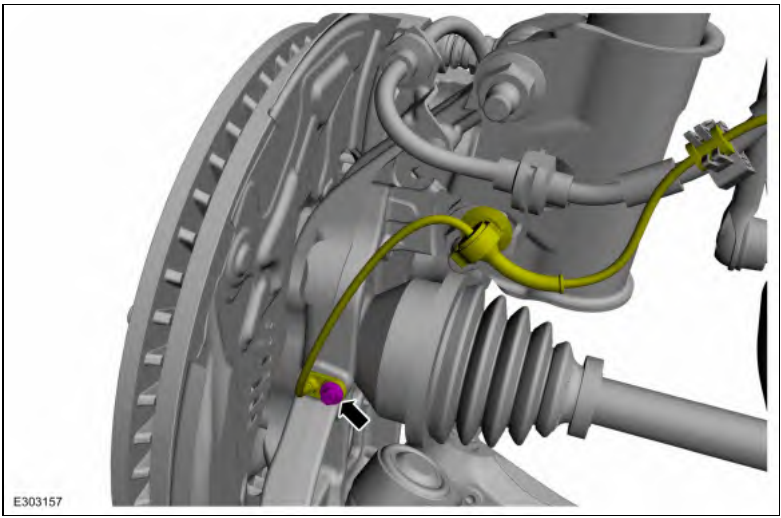
30. **NOTE:** *LH side shown, RH side similar.*

On both sides, install the wheel speed sensor and the bolt.
Torque: 106 lb.in (12 Nm)



31. **NOTE:** *LH side shown, RH side similar.*

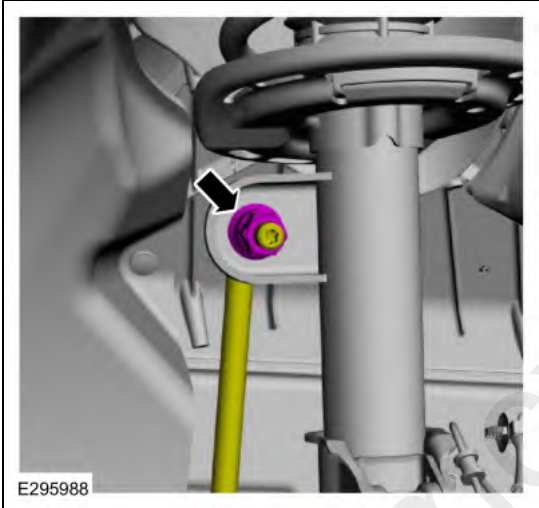
On both sides, install the front brake hose and the bolt.
Torque: 133 lb.in (15 Nm)



LHD AWD/LHD RWD

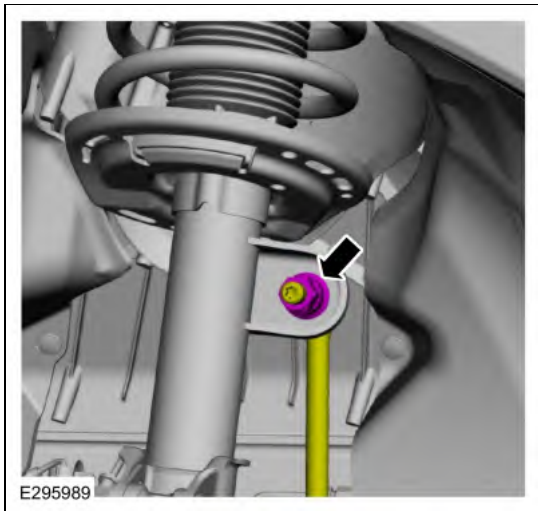
32. **NOTICE:** Use the internal or external hex-holding feature to prevent the ball and stud from turning while removing or installing the stabilizer bar link nuts. The link boot seal must not be allowed to twist while tightening the link nuts or damage to the boot seal will occur.

Position the RH sway bar link and install the new nut.
Torque: 129 lb.ft (175 Nm)

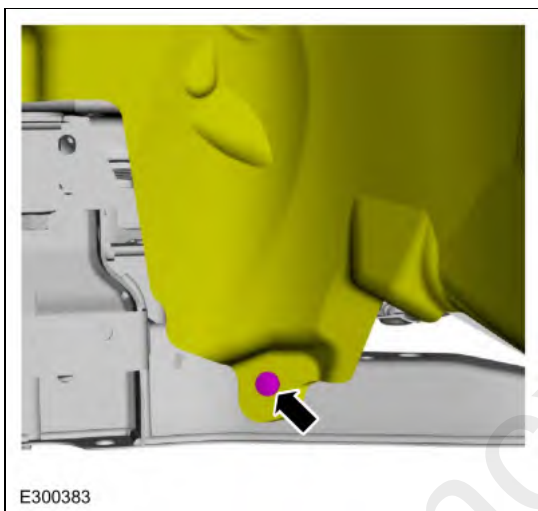


33. **NOTICE:** Use the internal or external hex-holding feature to prevent the ball and stud from turning while removing or installing the stabilizer bar link nuts. The link boot seal must not be allowed to twist while tightening the link nuts or damage to the boot seal will occur.

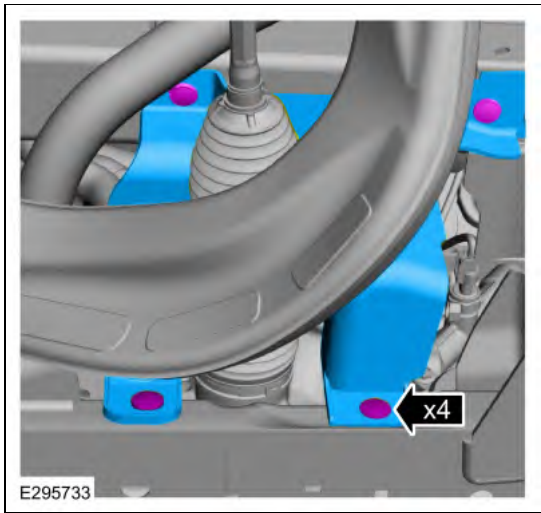
Position the LH sway bar link and install the new nut.
Torque: 129 lb.ft (175 Nm)



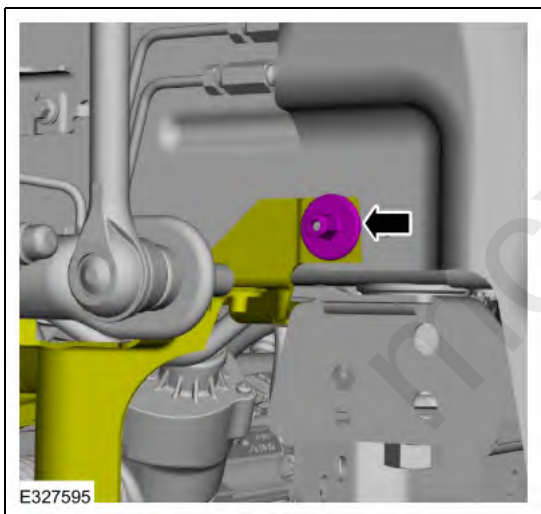
34. Position the splash shield and install the pin-type retainer to the LH subframe.



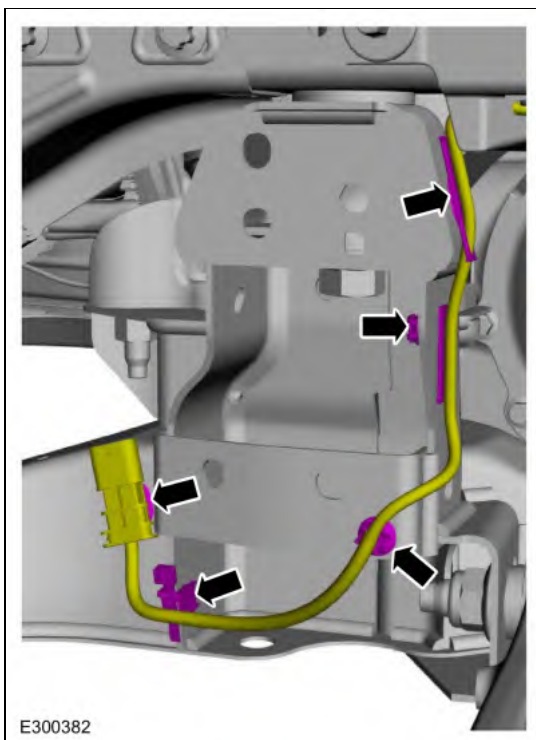
35. If equipped, install the steering shield and the pin-type retainers to the LH subframe.



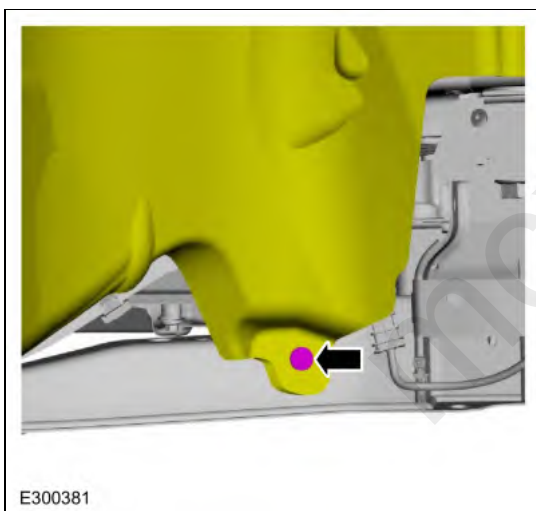
36. If equipped with AWD, install the LH fender splash shield nut.
Torque: 22 lb.in (2.5 Nm)



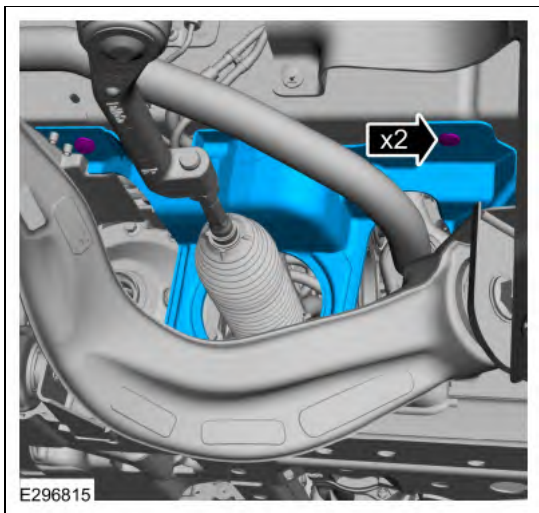
37. Attach the HO2S wiring harness retainers to the RH subframe.



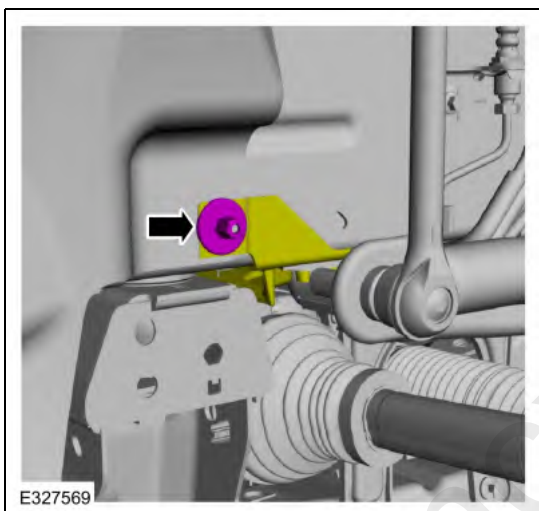
38. Install the splash shield pin-type retainer to the RH subframe.



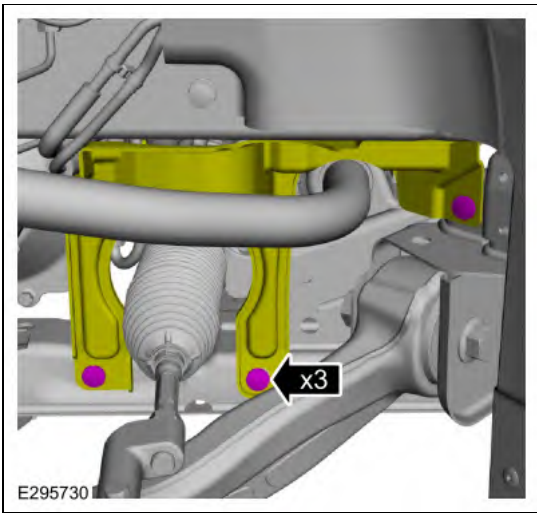
39. If equipped, install the steering shield and the pin-type retainers to the RH subframe.



40. If equipped with AWD, install the RH fender splash shield nut.
Torque: 22 lb.in (2.5 Nm)

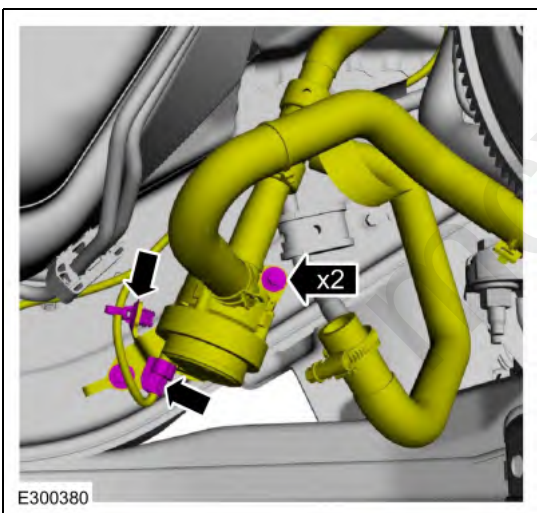


41. If equipped, install the steering shield pin-type retainers to the RH subframe.



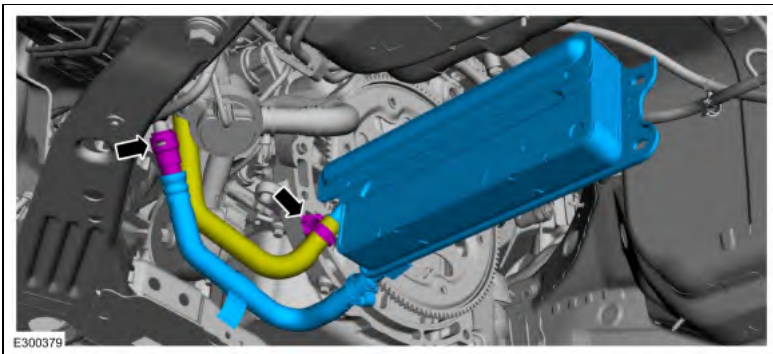
42.

- Position the auxiliary coolant pump and install the bolts.
Torque: 80 lb.in (9 Nm)
- Connect the auxiliary coolant pump wiring harness electrical connector and the retainer.

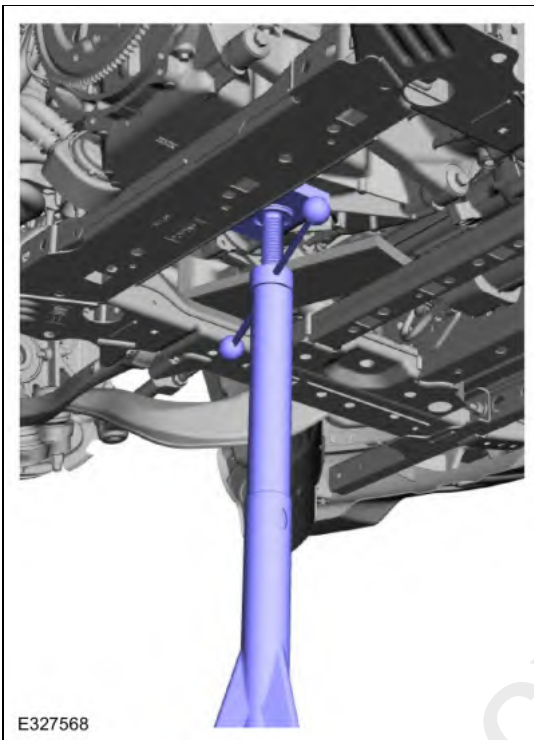


43.

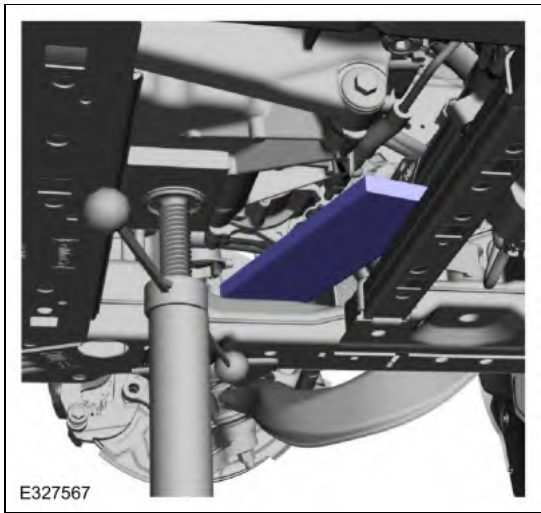
- Install the transmission cooler and connect the coolant tube.
- Position the transmission cooler coolant tube and tighten the clamp.



44. Install the stand.
 Use the General Equipment: Vehicle/Axle Stands



45. **NOTE:** *AWD shown, RWD similar.*
 Remove the board.
 Use the General Equipment: Wooden Block



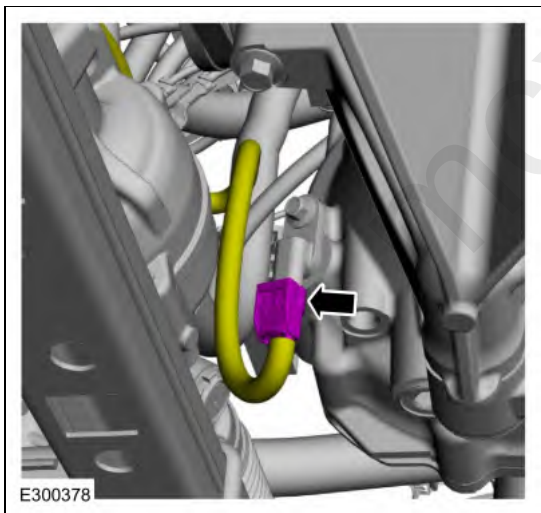
46. **NOTE:** Do not fill the transmission with fluid until the engine is completely installed.

Install the transmission.

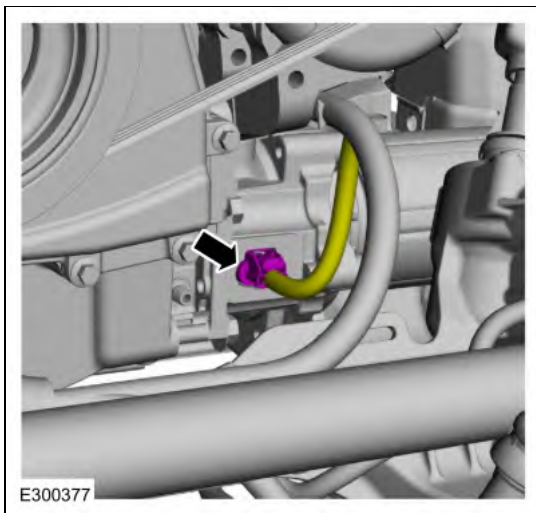
Refer to: Transmission - 2.3L EcoBoost (201kW/273PS) (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission & 10R60, Removal and Installation).

LHD AWD

47. Connect the wiring harness electrical connector to the front axle assembly.

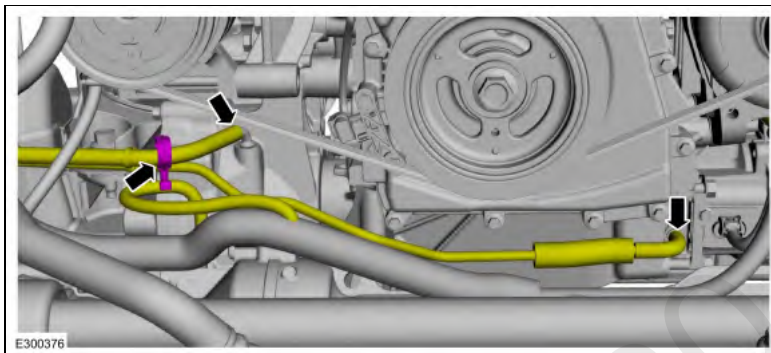


48. Connect the wiring harness electrical connector to the LH axle connector.



49.

- Position the vent tubes and connect the vent hose to the front axle assembly.
- Attach the wiring harness retainer to the vent tubes.
- Connect the vent hose to the LH axle connector.



50. Install the RH and LH halfshafts.

Refer to: Halfshaft (205-04 Front Drive Halfshafts, Removal and Installation).

LHD AWD/LHD RWD

51. **NOTICE: Do not allow the brake caliper and anchor plate assembly to hang from the brake hose or damage to the hose can occur.**

Install both front brake disc.

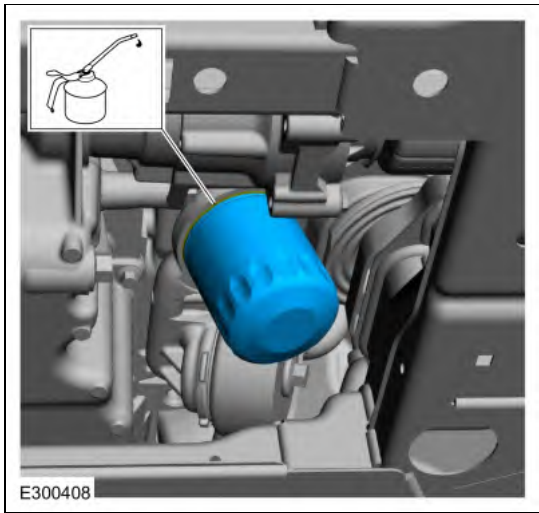
Refer to: Brake Disc (206-03 Front Disc Brake, Removal and Installation).

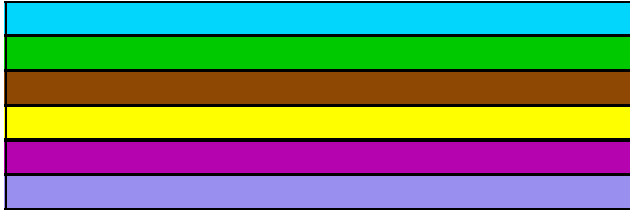
52. Lubricate the new engine oil filter sealing surface with clean engine oil and install.

Torque:

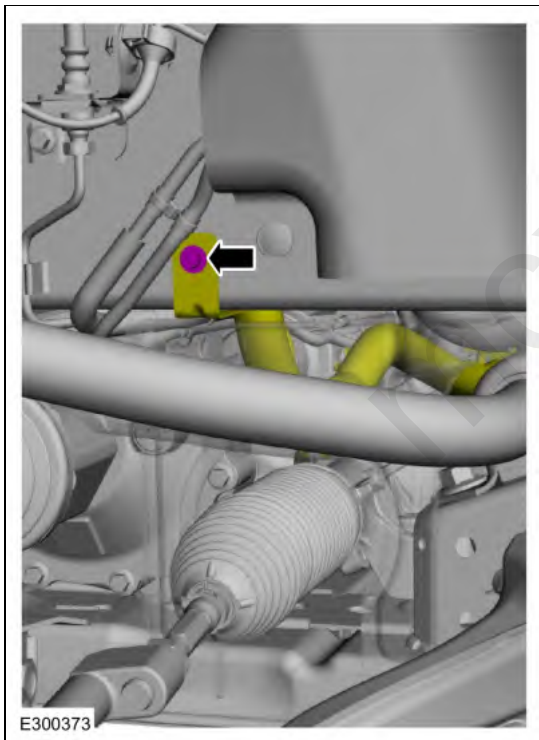
Stage 1: 71 lb.in (8 Nm)

Stage 2: 180°



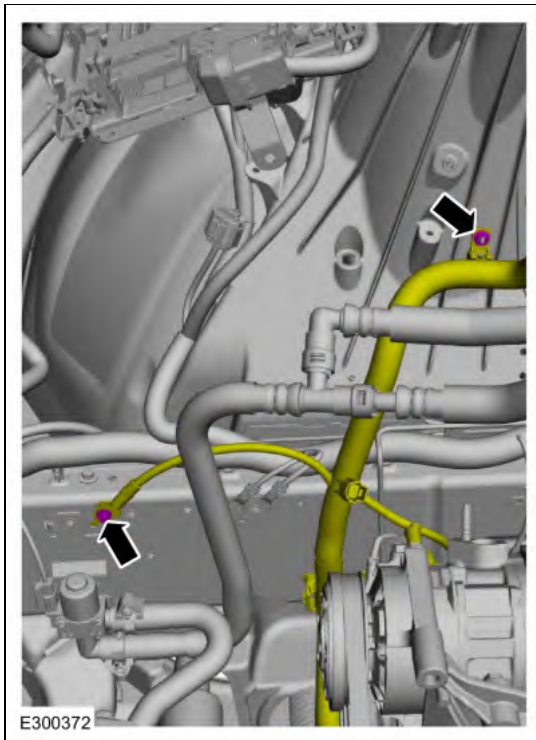


53. Install the engine rear undershield.
Refer to: Engine Rear Undershield (501-02 Front End Body Panels, Removal and Installation).
54. Position the wiring harness, retainer and install the bolt to the frame rail.
Torque: 106 lb.in (12 Nm)



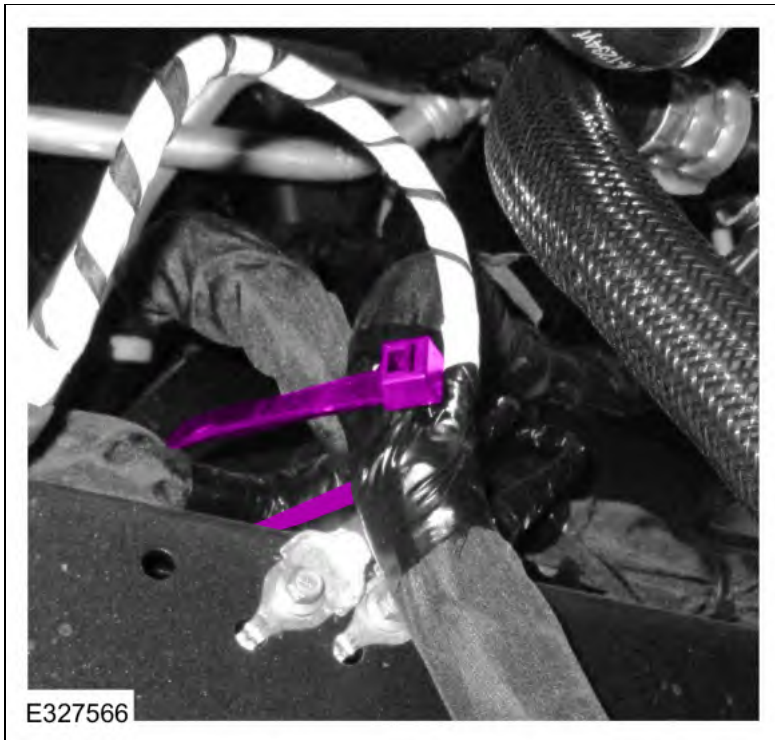


55. Install the LH and RH front wheels and tires.
Refer to: Wheel and Tire (204-04A Wheels and Tires, Removal and Installation).
- 56.
- Position the wiring harness and install the wiring harness retainer nut.
Torque: 106 lb.in (12 Nm)
 - Position the ground wire and install the bolt.
Torque: 106 lb.in (12 Nm)



57. Install the wiring harness cable tie.
Use the General Equipment: Cable Ties

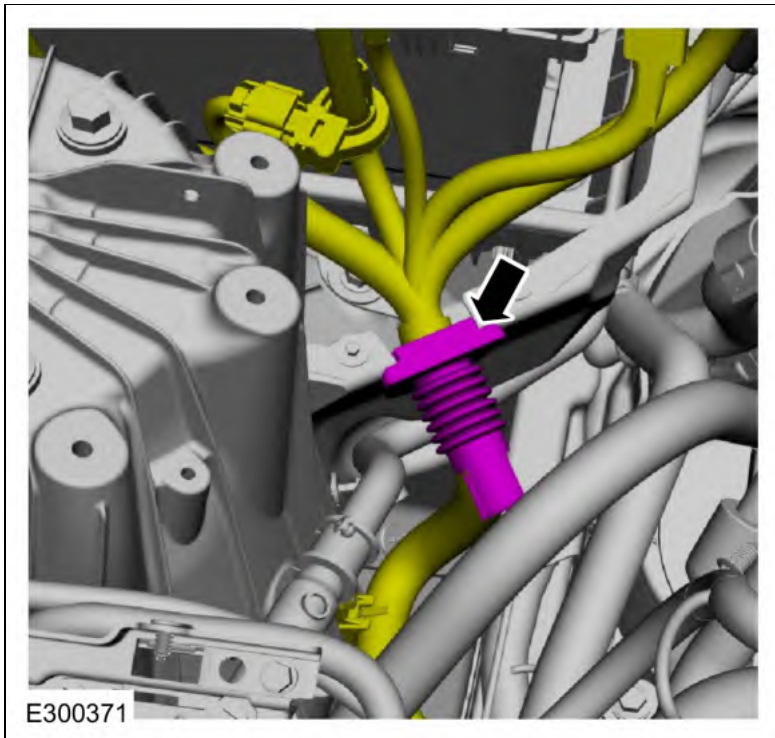
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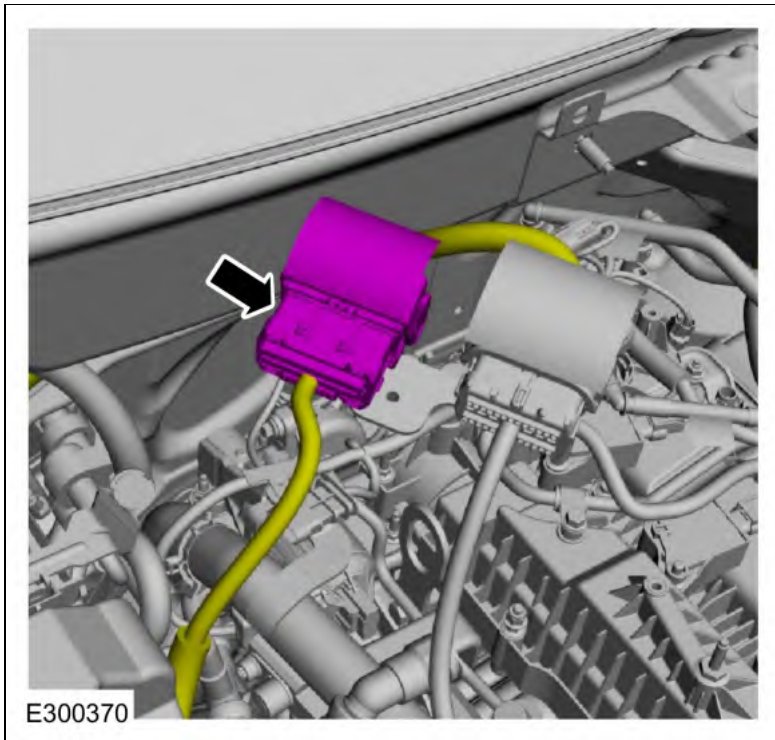
mcx30.com



58. Position the wiring harness electrical grommet.



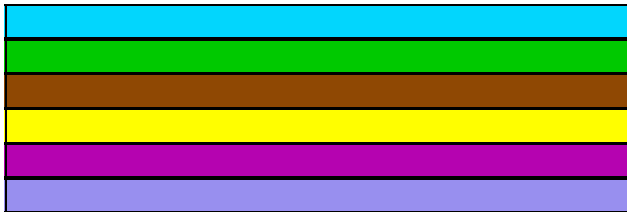
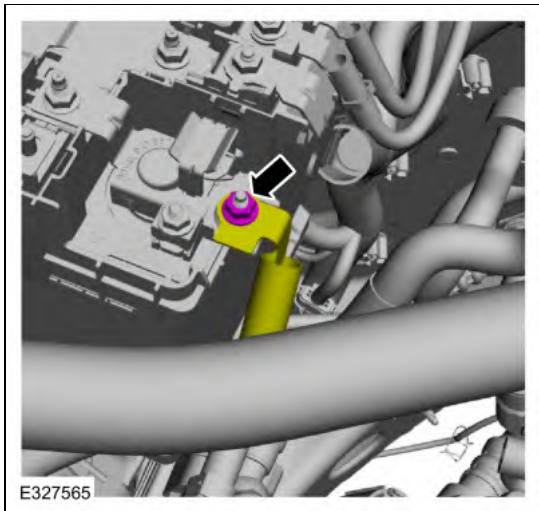
59. Connect the wiring harness electrical connector.



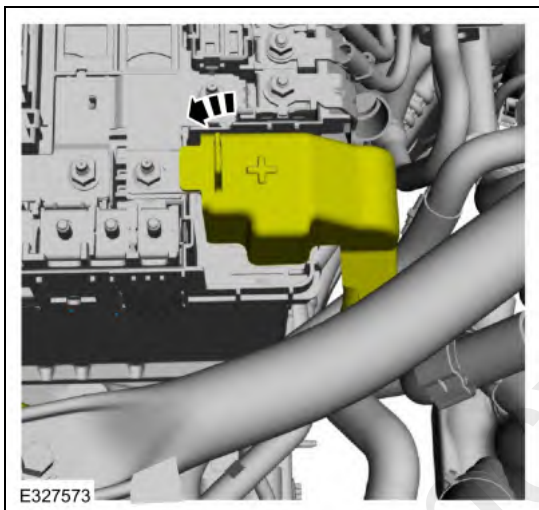
mcx30.com



60. Position the battery wiring harness and install the nut.
Torque: 48 lb.in (5.4 Nm)

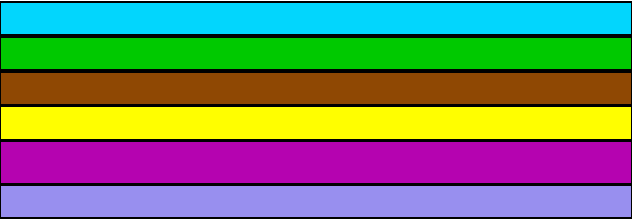
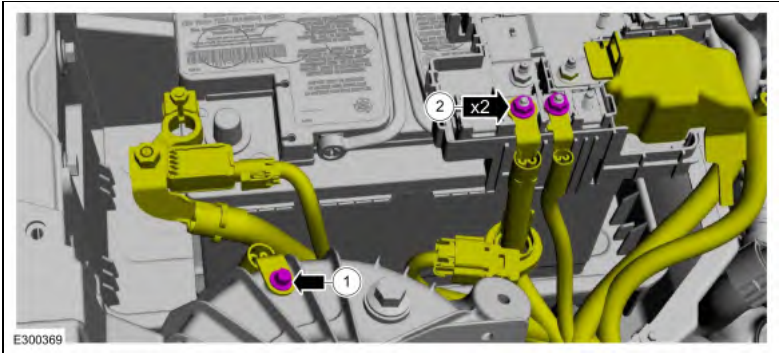


61. Position the battery cable cover over the battery cable.

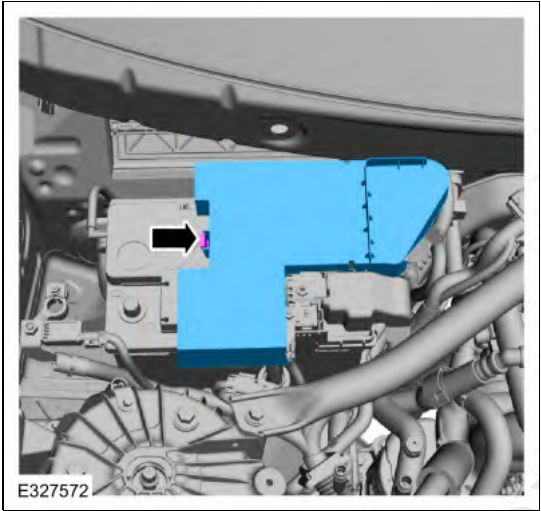


62.

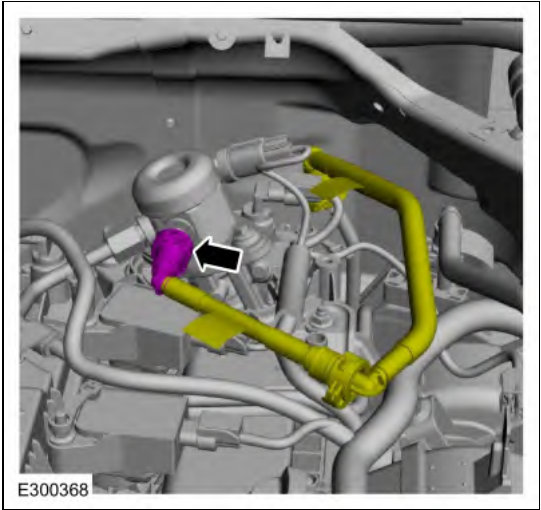
1. Position the ground and install the bolt.
Torque: 106 lb.in (12 Nm)
2. Position the B+ battery cables and install the nuts.
Torque: 80 lb.in (9 Nm)



63. Install the cover.

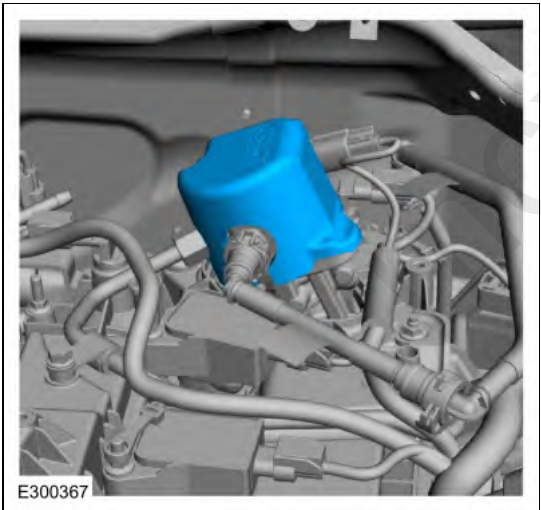


64. Connect the fuel supply tube quick release coupling.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .

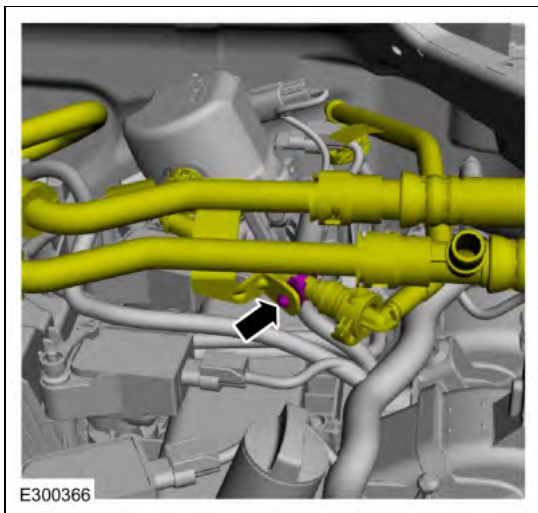


65. **NOTE:** When installing the high-pressure fuel pump noise insulator, spreading the openings will reduce the risk of damage.

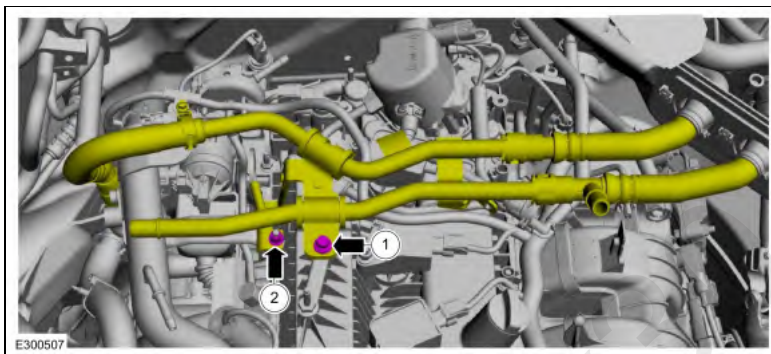
Install the high-pressure fuel pump noise insulator.



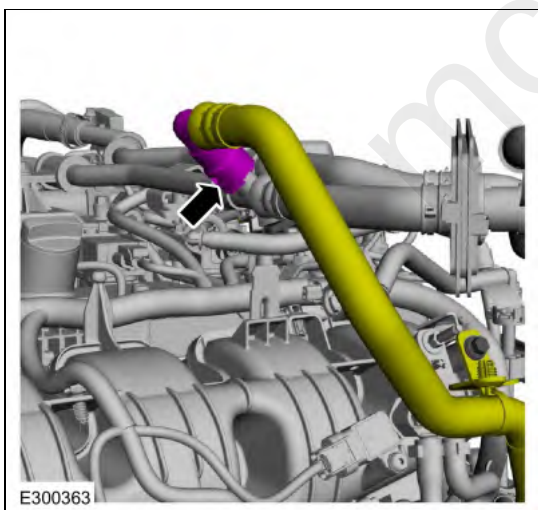
66. Position the coolant tubes and attach the fuel tube retainer.



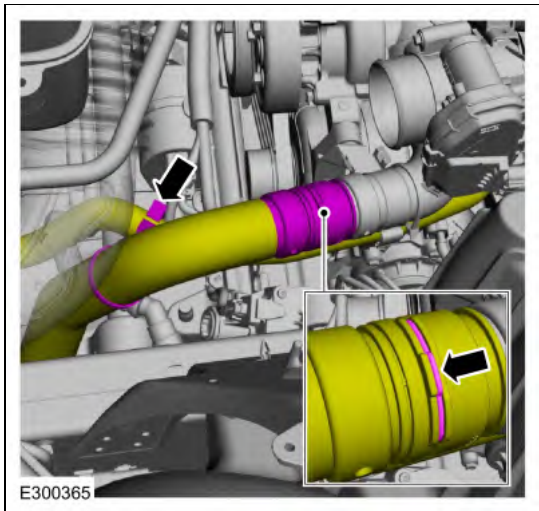
- 67.
1. Position the coolant tubes and install the bolt.
Torque: 124 lb.in (14 Nm)
 2. Install the coolant tubes nut.
Torque: 62 lb.in (7 Nm)



68. Connect the coolant tube to the coolant hoses that are over engine.

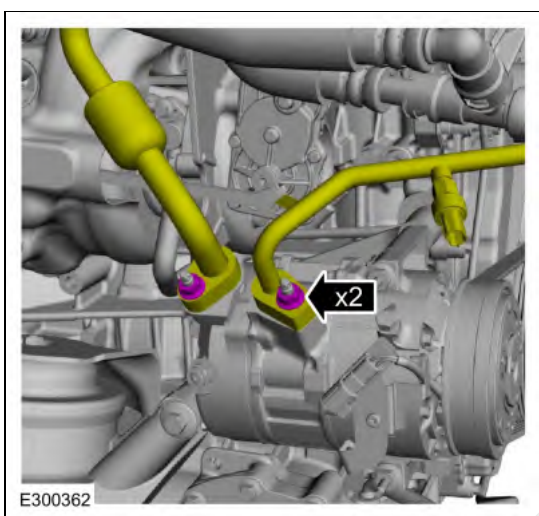


69. Position the lower coolant hose and install the clip and retainer.

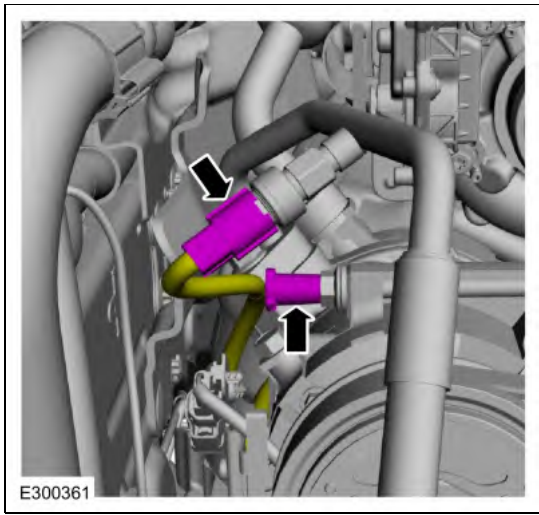


70.

- Install a new O-ring seals.
- Connect the A/C lines and install the nuts.
Torque: 133 lb.in (15 Nm)

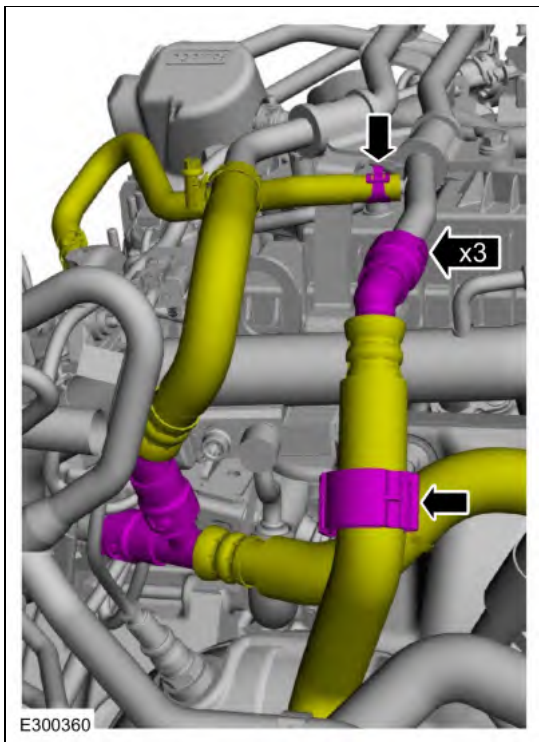


71. Connect the A/C pressure switch and attach the wiring harness retainer.

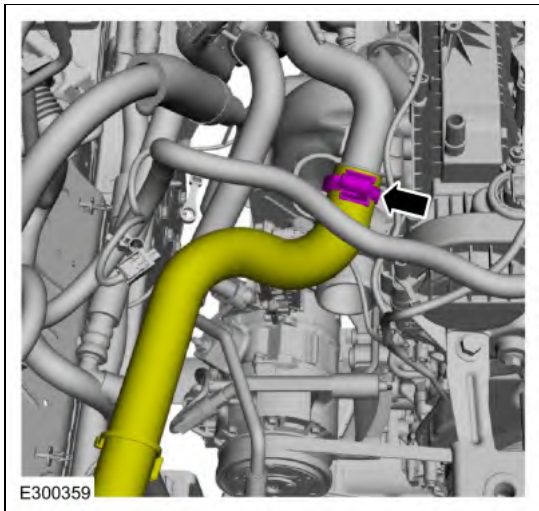


72.

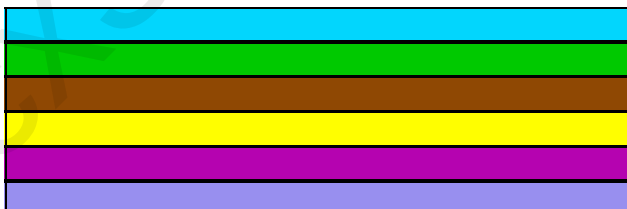
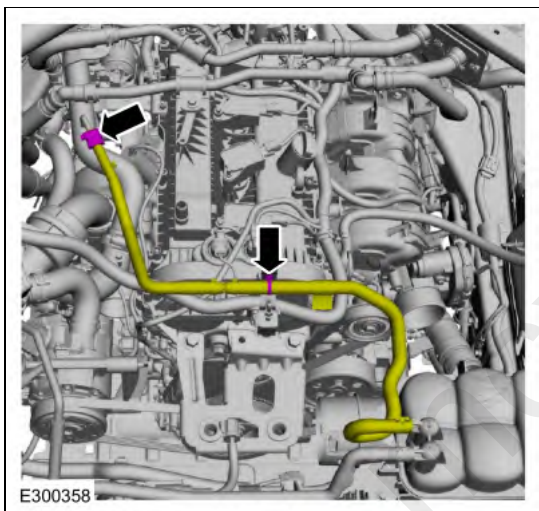
- Position and connect the coolant hose quick connect couplings.
- Position the coolant hose and install the clamp.
Use the General Equipment: Hose Clamp Remover/Installer



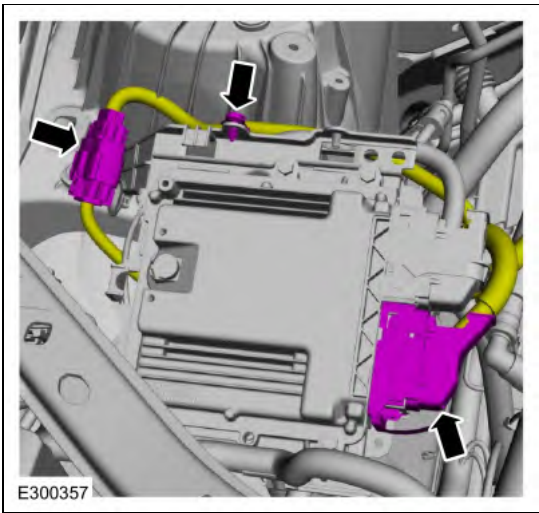
73. Connect the upper radiator hose to the coolant tube and tighten the clamp.
Torque: 44 lb.in (5 Nm)



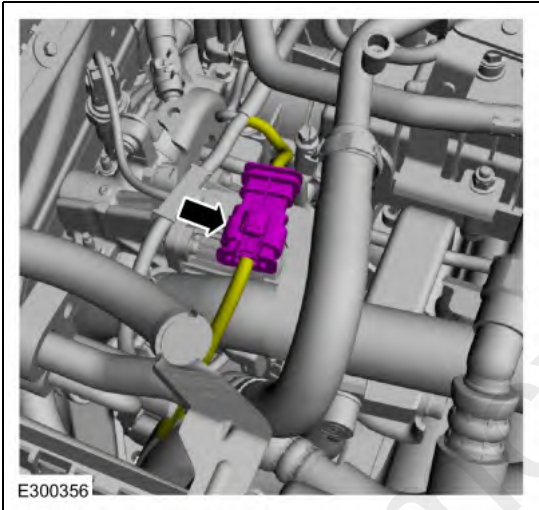
74. Position the degas bottle coolant hose and tighten the clamp and attach the coolant hose retainer.
Torque: 44 lb.in (5 Nm)



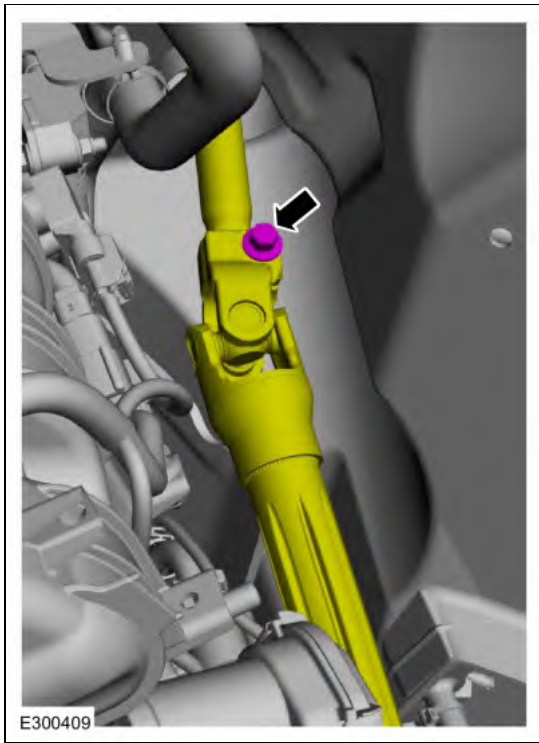
- 75.
- Position and connect the engine harness electrical connector and retainer.
 - Connect the PCM electrical connector.



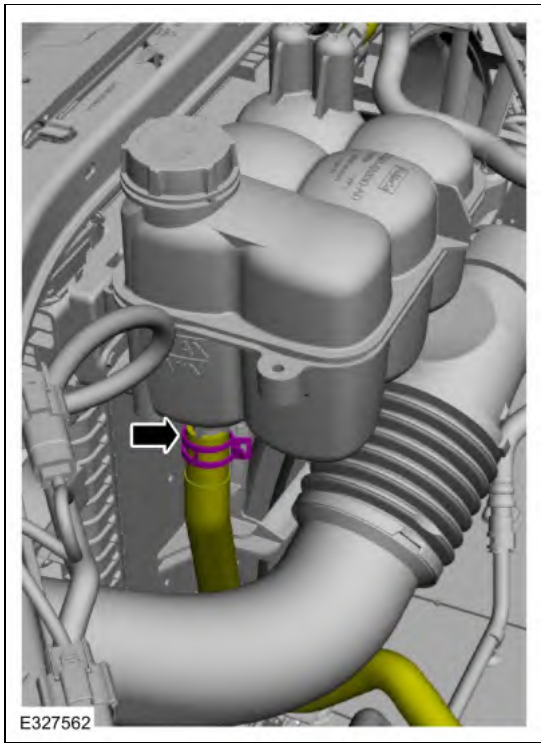
76. Connect the HO2S sensor electrical connector.



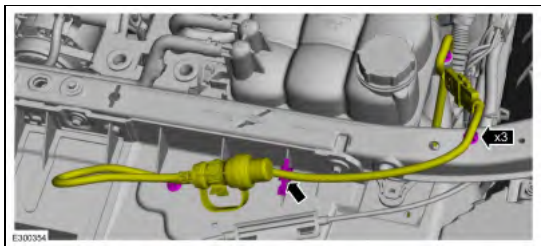
77. Install the new steering shaft bolt.
Torque: 22 lb.ft (30 Nm)



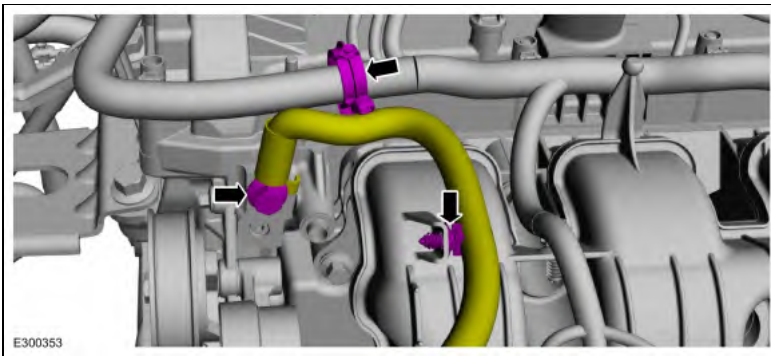
78. Position the coolant hose and install the clamp.
Use the General Equipment: Hose Clamp Remover/Installer



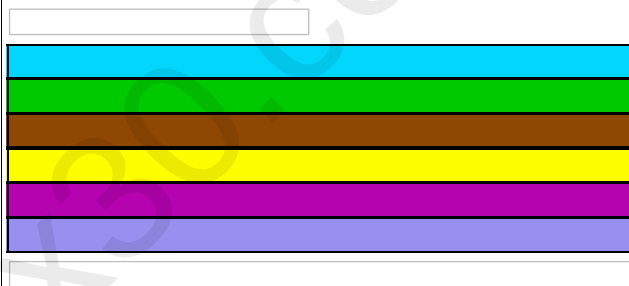
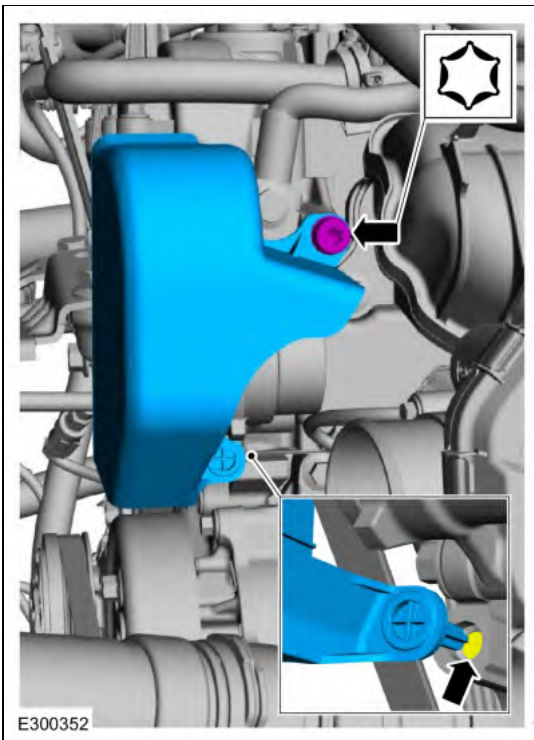
79. If equipped, position the block heater electrical wiring harness and attach the retainers.



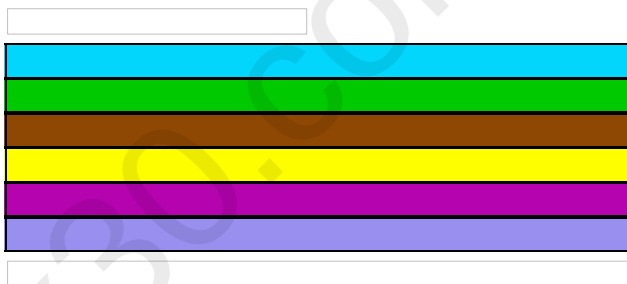
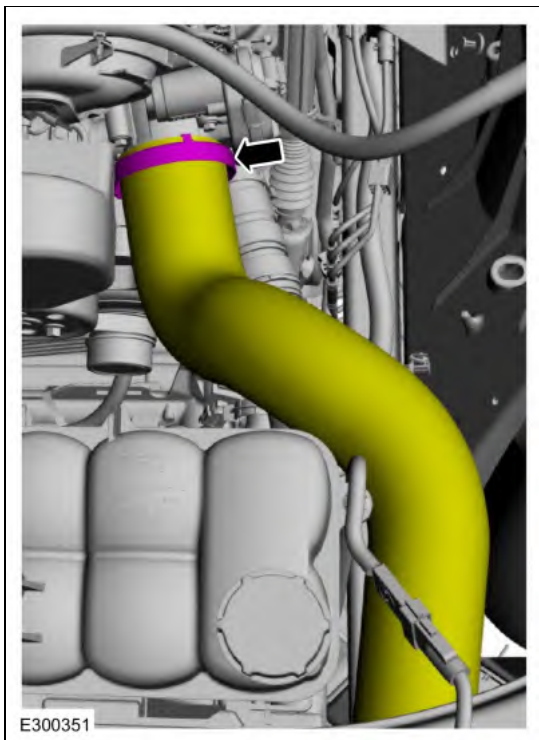
80. Position the ground wire and install the bolt and attach the retainers.
Torque: 159 lb.in (18 Nm)



81. Install the shield and the bolt (Enhanced Hexalobular or TORX PLUS Â® Acument Intellectual Properties, LLC as the owner).
Torque: 18 lb.ft (25 Nm)

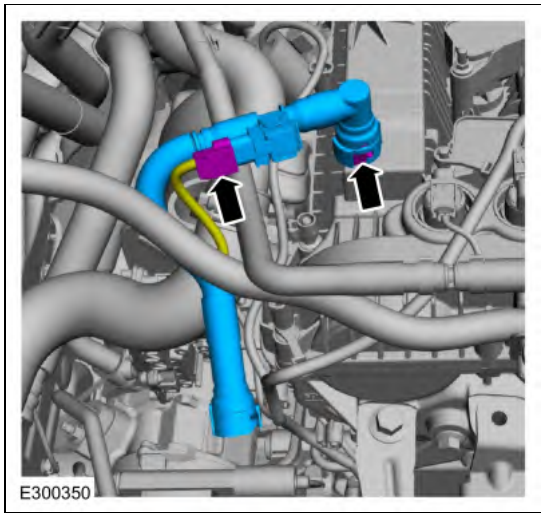


82. Position the CAC tube clamp and tighten the clamp.
Torque: 44 lb.in (5 Nm)

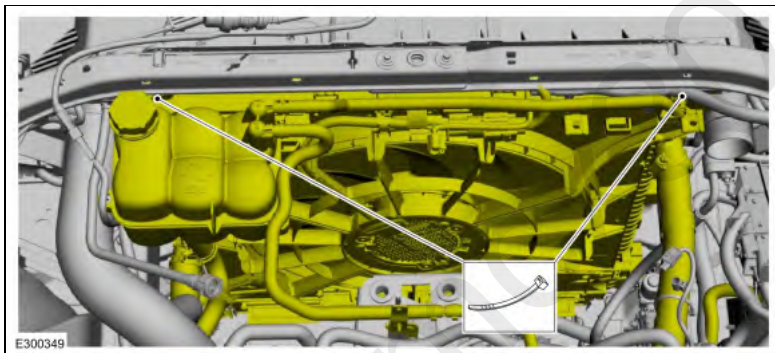


83.

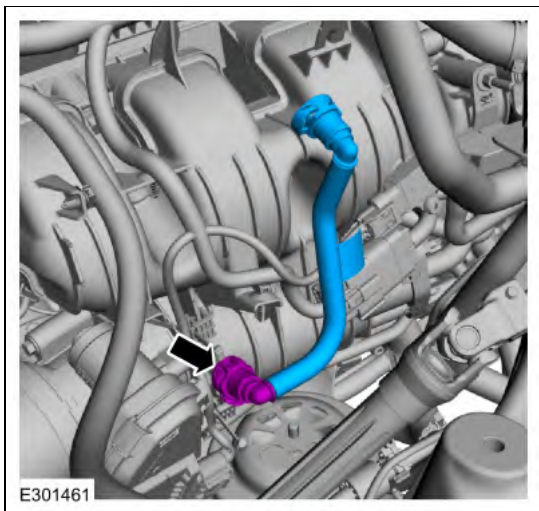
- Install the new crankcase vent tube.
- If the replacement crankcase vent tube part comes with no crankcase pressure sensor, reprogram the PCM.
Refer to: Module Programming (418-01 Module Configuration, General Procedures).
- If the replacement crankcase vent tube came without a crankcase pressure sensor, tape the wiring harness electrical connector back to the wiring harness.
- If the replacement crankcase vent tube comes with a crankcase pressure sensor, connect the wiring harness electrical connector.



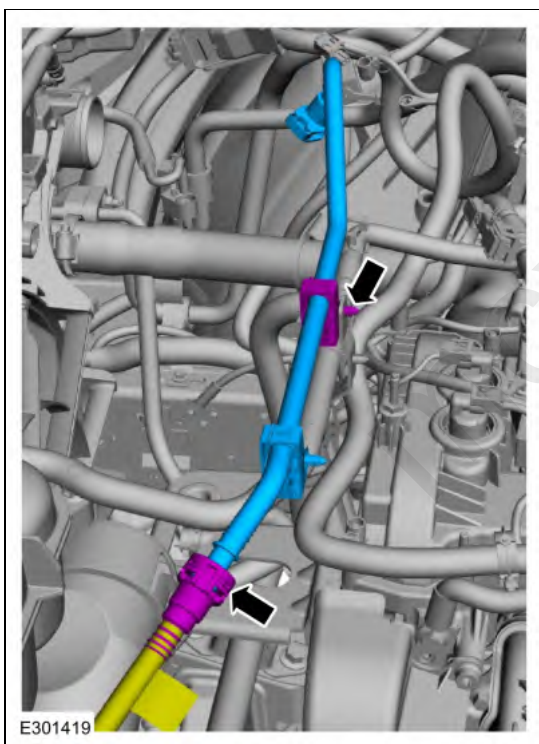
84. Remove cable ties or mechanics wire support the cooling module.
Use the General Equipment: Cable Ties



85. Install the EVAP canister tube and connect the quick release coupling to the intake manifold.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .



86. Install the EVAP canister tube and connect the quick release coupling and the retainer.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information) .



87. Install the following items:

1. Install the air cleaner outlet pipe.
Refer to: Air Cleaner Outlet Pipe (303-12A Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
2. Install the CAC intake pipe.
Refer to: Charge Air Cooler (CAC) Intake Pipe (303-12A Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
3. Install the air cleaner.
Refer to: Air Cleaner (303-12A Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
4. Install the EVAP canister purge valve.
Refer to: Evaporative Emission Canister Purge Valve (303-13A Evaporative Emissions - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
5. Install the cowl panel.
Refer to: Cowl Panel (501-02 Front End Body Panels, Removal and Installation).

88.

1. **NOTE:** Lubricating the grommets with silicone grease will aid in the installation of the engine appearance cover, and any future removal and

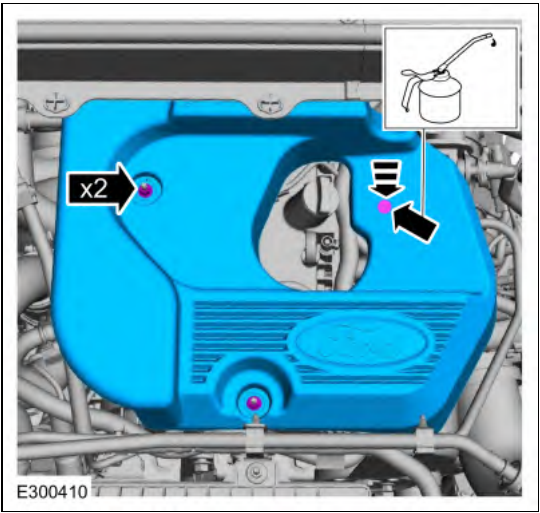
installation of the cover.

Lubricate each grommet with silicone grease.

Material: Motorcraft® Silicone Brake Caliper Grease and Dielectric Compound / XG-3-A (ESE-M1C171-A)

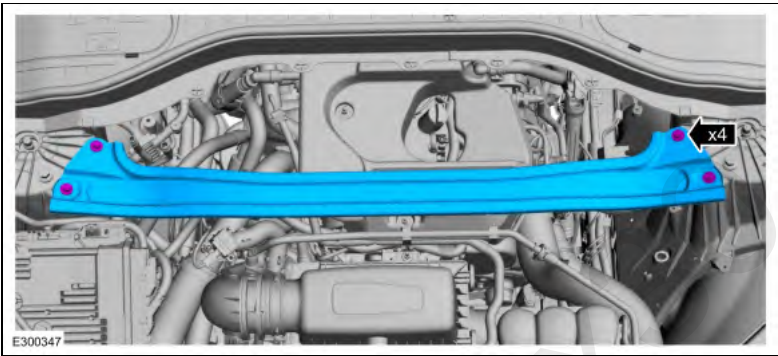
2. Position the engine appearance cover onto engine with the grommet aligned with the stud.
3. Press down on the engine appearance cover at the grommet location to attach the grommet onto the stud and install the nuts.

Torque: 44 lb.in (5 Nm)

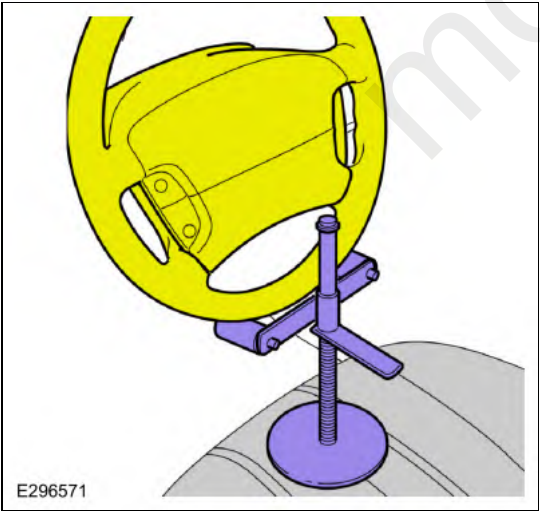


89. Install the suspension support bar and the bolts.

Torque: 22 lb.ft (30 Nm)

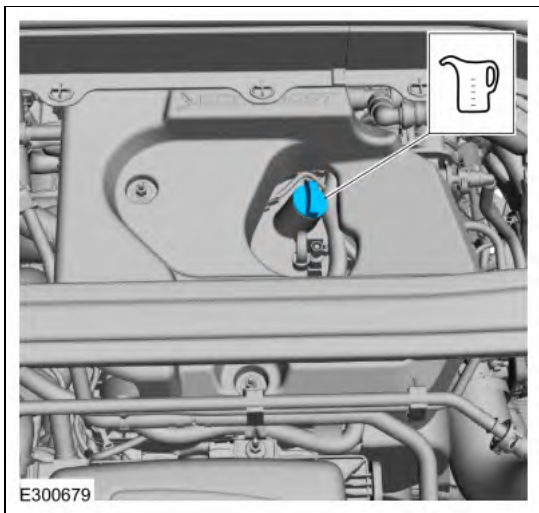


90. Remove the holding device.



91. Fill the engine with clean engine oil.

Refer to: Specifications (303-01A Engine - 2.3L EcoBoost (201kW/273PS), Specifications).



92. Connect the positive and battery negative cables.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
93. Recharge the A/C system.
Refer to: Air Conditioning (A/C) System Recovery, Evacuation and Charging - Vehicles With: R1234YF Refrigerant (412-00 Climate Control System - General Information, General Procedures).
94. Pressurize the fuel system.
Refer to: Fuel System Pressure Release (310-00A Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).
95. Fill the cooling system.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03A Engine Cooling - 2.3L EcoBoost (201kW/273PS), General Procedures).
96. Check the transmission fluid level.
Refer to: Transmission Fluid Level Check (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R60, General Procedures).
97. Start and check the exhaust system for leaks.
98. Use the Powertrain Control Module (PCM) Misfire Monitor Profile Correction routine in the diagnostic scan tool.

303-01B Engine - 3.0L EcoBoost

Specifications

Engine

Item	Specification
Displacement	2.956L (4V) (164 CID)
No. of cylinders	6
Bore/stroke	85.4/86 mm (3.362/3.386 in)
Firing order	1-4-2-5-3-6
Spark plug	12405
Spark plug gap	0.028â€³0.031 in (0.7â€³0.8 mm)
Compression ratio	9.5:1
Engine weight	409 Lb (189 Kg)

Lubricants

Item	Specification
Motorcraft® SAE 5W-30 Premium Synthetic Blend Motor Oil (US), XO-5W30-QSP (US); Motorcraft® SAE 5W-30 Super Premium Motor Oil (Canada), CXO-5W30-LSP6 (Canada)	WSS-M2C946-B1

Engine Oil Capacity

Item	Specification
Service fill including oil filter	6.0 qt (5.68 L)

Oil Pressure

NOTE: The following oil pressure readings are acquired using a scan tool and monitoring the **EOP_PRESS** PID.

Item	Specification
Reading 1: Minimum average oil pressure @ 2,000 rpm after 15 secs with engine at normal operating temperature and transmission in Park	21 psi (144.8 kPa)
Reading 2: Minimum average oil pressure @ 2,000 rpm after 15 secs with engine at normal operating temperature and transmission in Park (Oil Pressure Control Solenoid connector disconnected)	Reading 1 value plus 8 psi (55.1 kPa)