



## Engine

### Special Tool(s)

 <p>ST1595-A</p>	<p>Lifting Bracket, Engine 303-050 (T70P-6000)</p>
 <p>ST1602-A</p>	<p>Spreader Bar 303-D089 (D93P-6001-A3) or equivalent</p>

### Material

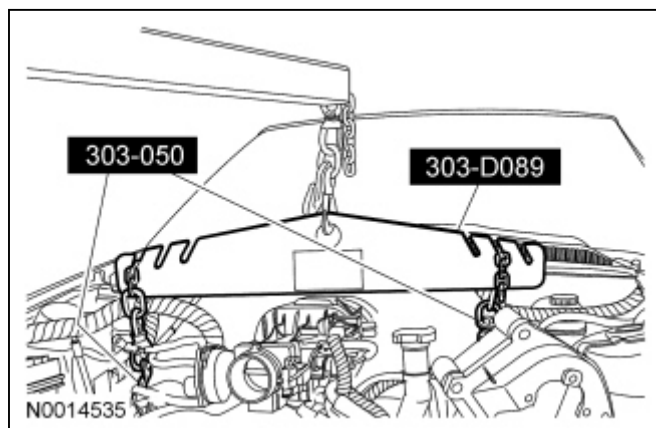
Item	Specification
<p>Motorcraft® SAE 5W-30 Premium Synthetic Blend Motor Oil XO-5W30-QSP (US); Motorcraft® SAE 5W-30 Super Premium Motor Oil CXO-5W30-LSP12 (Canada); or equivalent</p>	<p>WSS-M2C929-A</p>
<p>Silicone Brake Caliper Grease and Dielectric Compound XG-3-A</p>	<p>ESE-M1C171-A</p>

### Installation

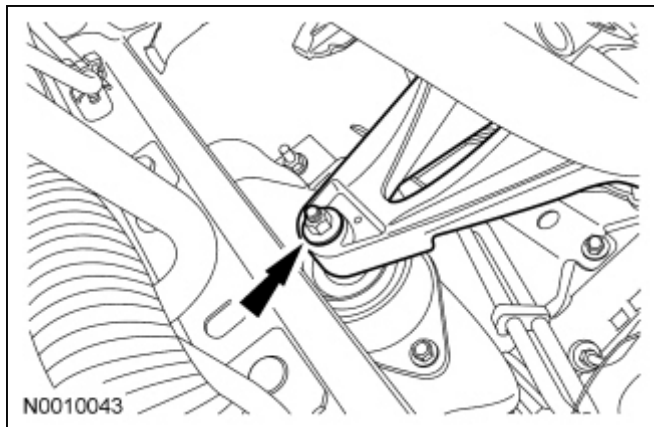
**NOTICE:** Rotating the crankshaft pulley bolt counterclockwise could cause a reduction in clamp load on the crankshaft pulley and timing sprocket, which could cause severe engine damage.

#### All vehicles

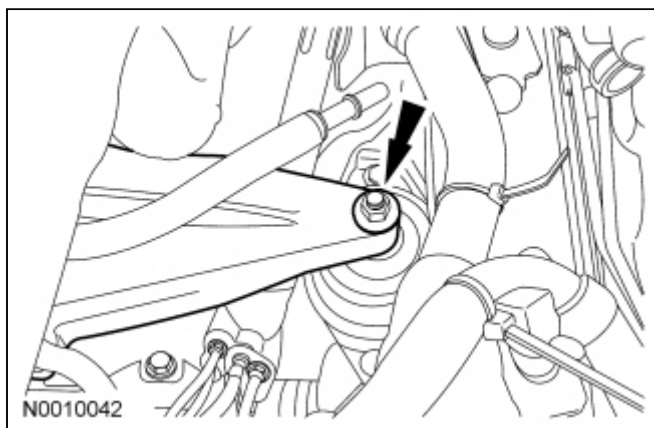
1. Using the Spreader Bar and Engine Lifting Bracket, position the engine in the vehicle.



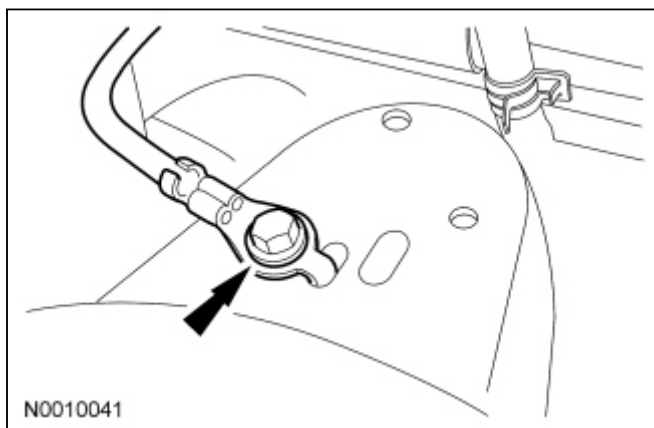
2. Install the RH engine mount nut.
  - Tighten to 63 Nm (46 lb-ft).



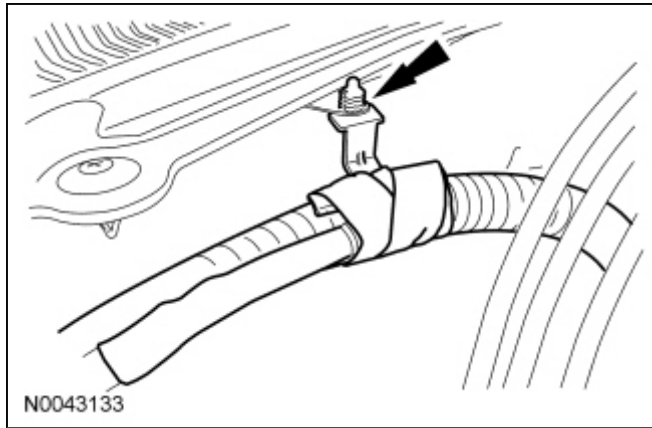
3. Install the LH engine mount nut.
  - Tighten to 63 Nm (46 lb-ft).



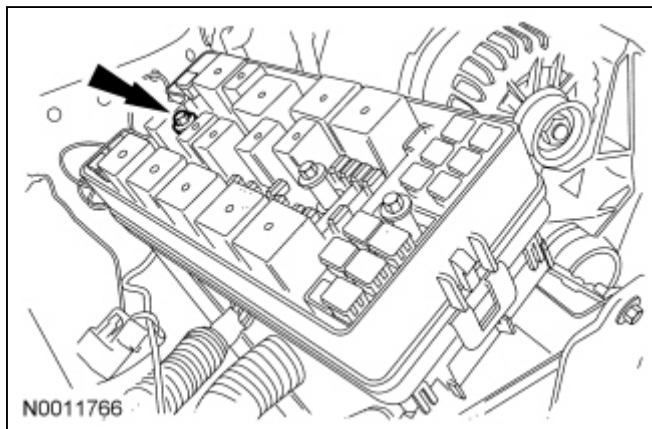
4. Attach the ground cable to the RH strut tower and install the bolt.
  - Tighten to 10 Nm (89 lb-in).



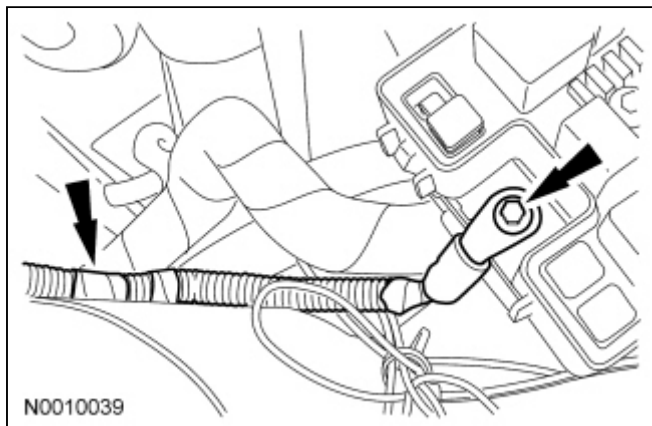
5. Attach the battery cable harness pin-type retainer to the cowl.



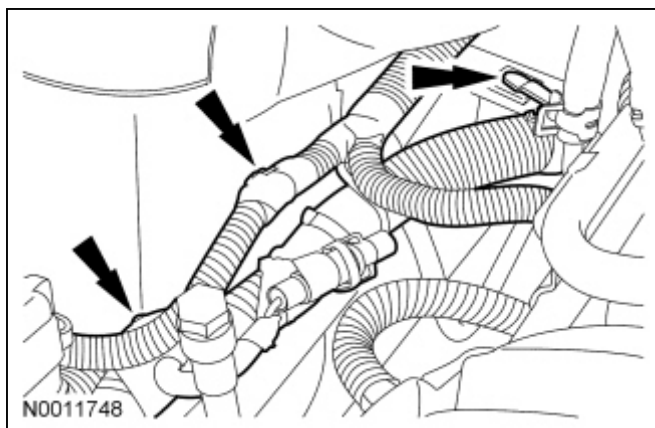
6. Connect the 68-pin connector to the Power Distribution Box (PDB) and tighten the bolt.
  - Tighten to 6 Nm (53 lb-in).
  - Attach the [PDB](#) upper housing to the lower housing.



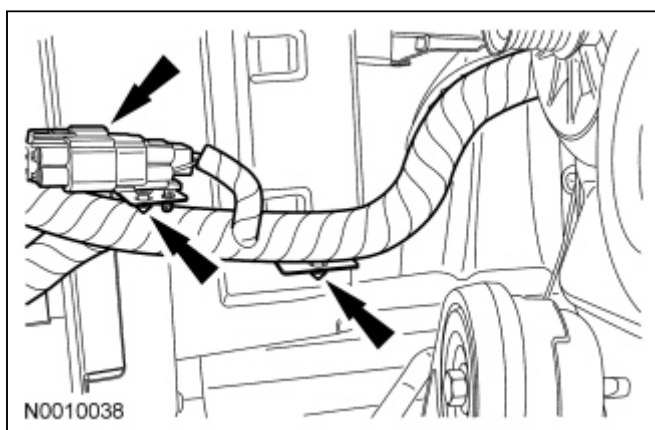
7. Attach the B+ terminal to the [PDB](#) and install the bolt.
  - Tighten to 12 Nm (106 lb-in).
  - Attach the pin-type retainer from the strut tower.



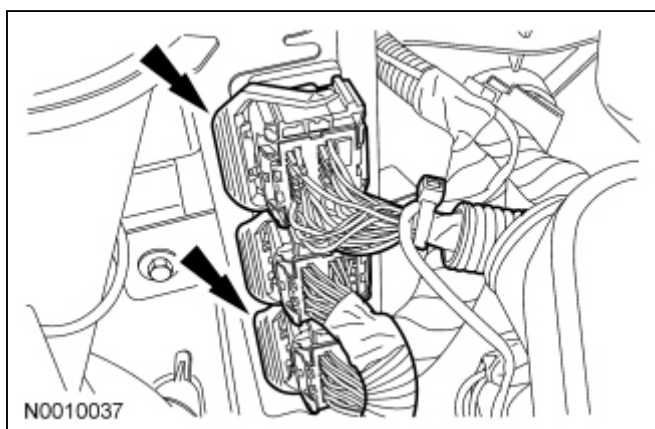
8. Install the [PDB](#) cover.
9. Attach the 3 wiring harness retainers.



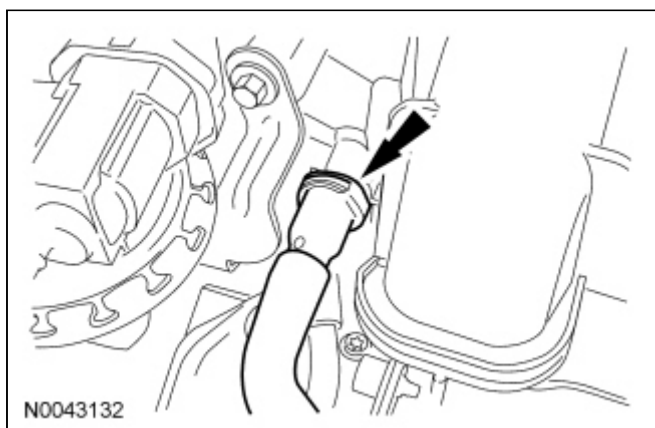
10. Connect the 16-pin electrical connector and attach the 2 wiring retainers.



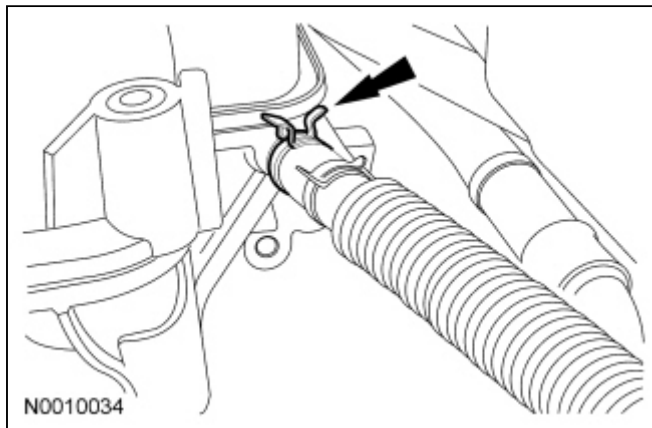
11. Connect the upper and lower PCM electrical connectors.



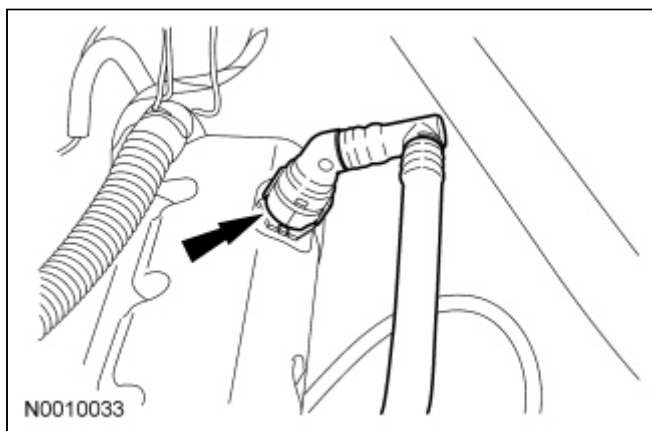
12. Connect the fuel vapor vent tube to the intake manifold.



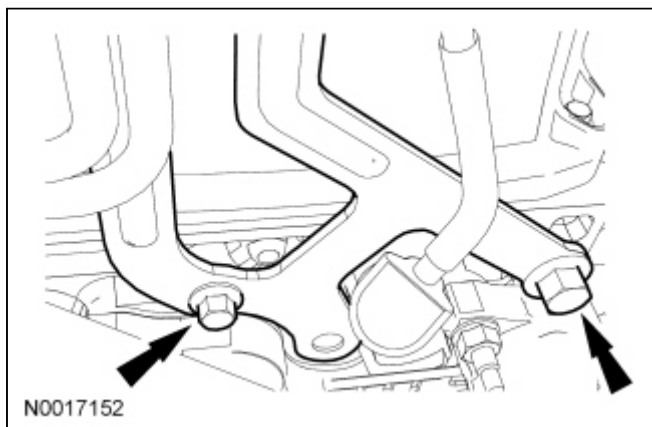
13. Connect the brake booster vacuum hose to the upper intake manifold.



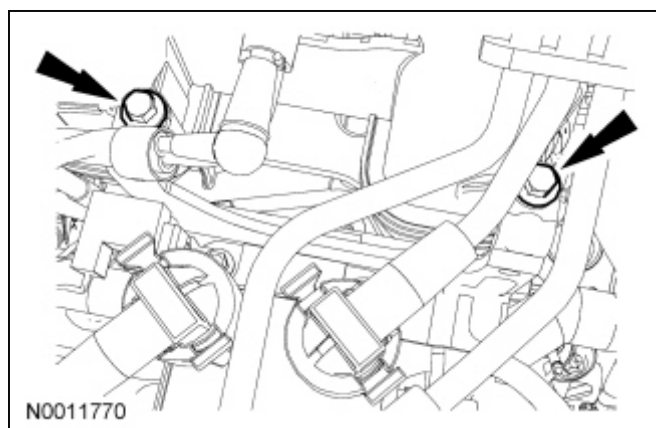
14. Attach the crankcase vent tube to the LH valve cover.



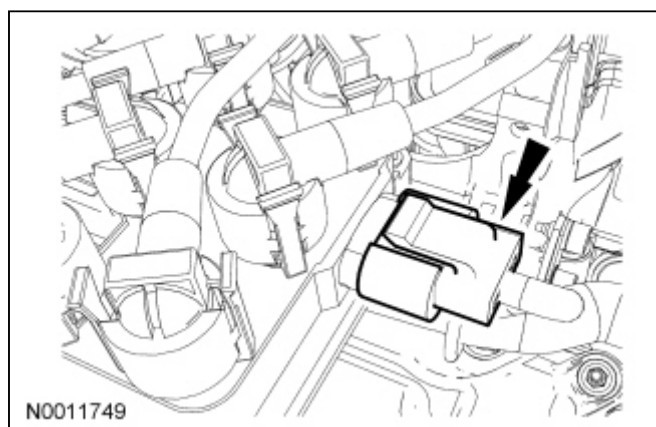
15. Position the ignition coil and spark plug wires and install the 2 bolts.
- Tighten the M8 bolt to 24 Nm (18 lb-ft).
  - Tighten the M12 bolt to 34 Nm (25 lb-ft).



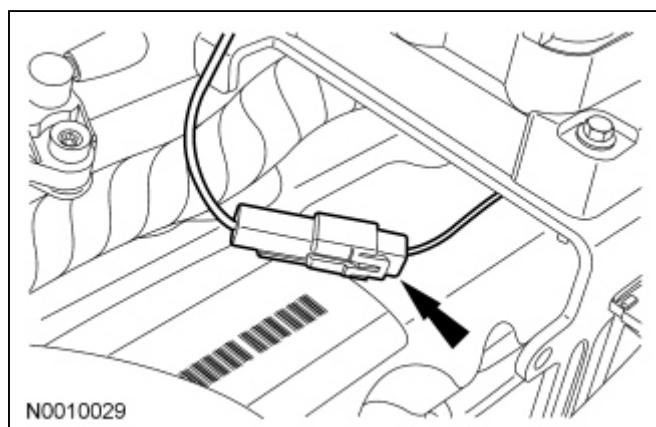
16. Install the 2 upper ignition coil bracket bolts.
- Tighten to 9 Nm (80 lb-in).



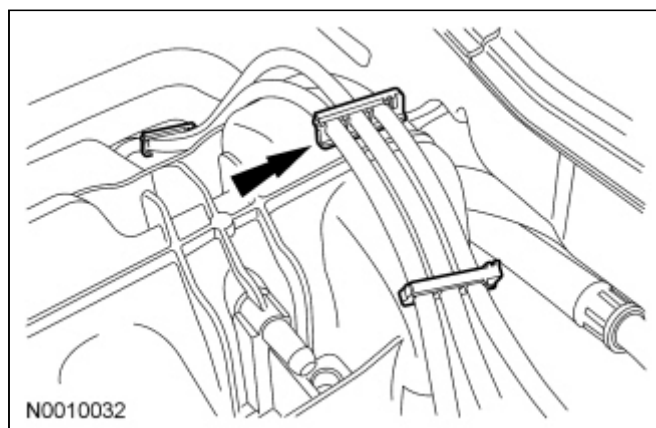
17. Connect the ignition coil electrical connector.



18. Connect the radio ignition interference capacitor electrical connector.



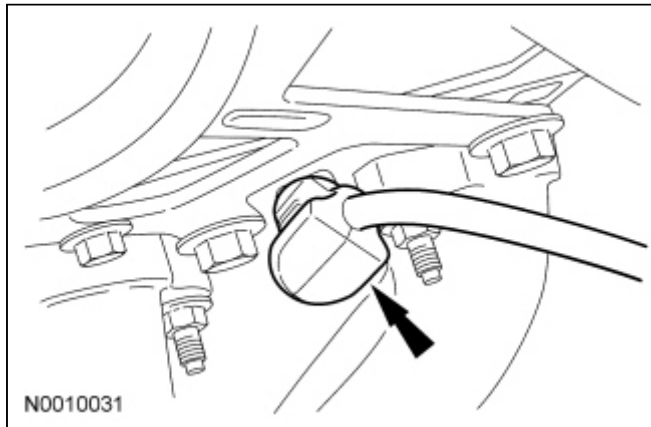
19. Attach the spark plug wire retainer to the intake manifold.



20. **NOTE:** Apply a light film of silicone brake caliper grease and dielectric compound to the inside of the spark plug wire boots before installation.

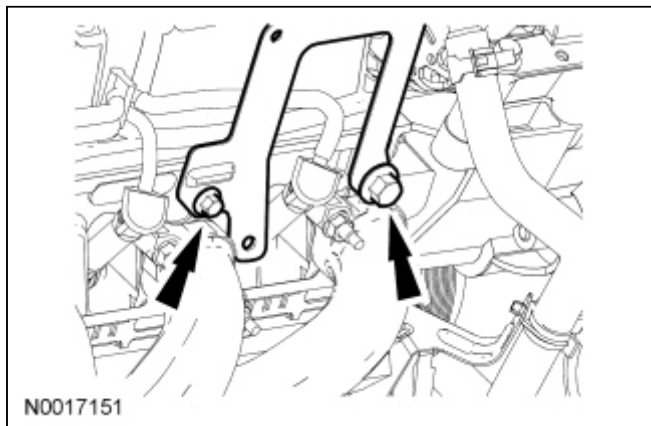
Connect the 6 spark plug wires to the spark plugs.

- Attach the retainers to the valve cover stud bolts and the ignition coil bracket.

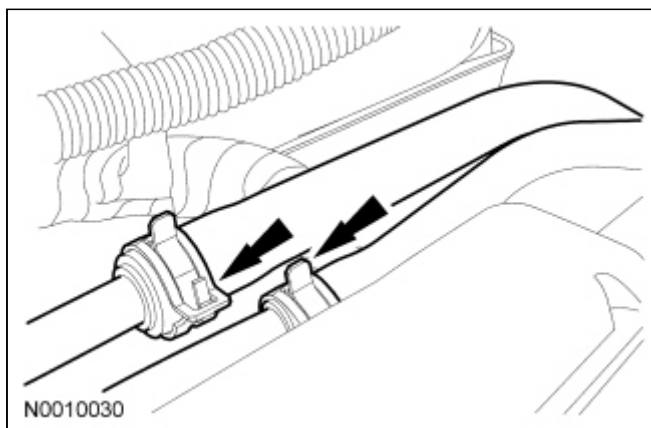


21. Install the 2 coolant tube bracket bolts.

- Tighten the M12 bolt to 34 Nm (25 lb-ft).
- Tighten the M8 bolt to 23 Nm (17 lb-ft).

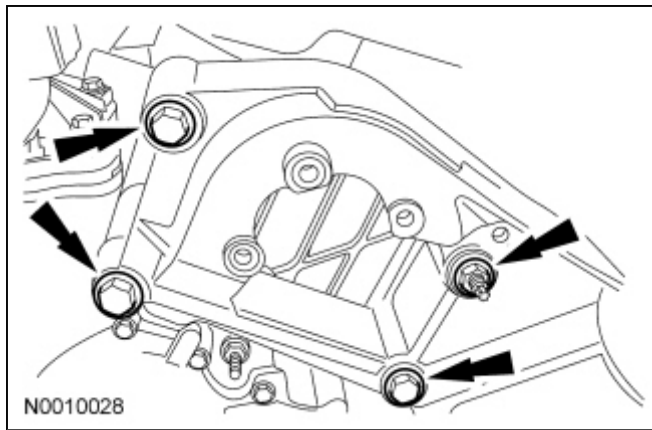


22. Connect the 2 heater hoses to the coolant tube.

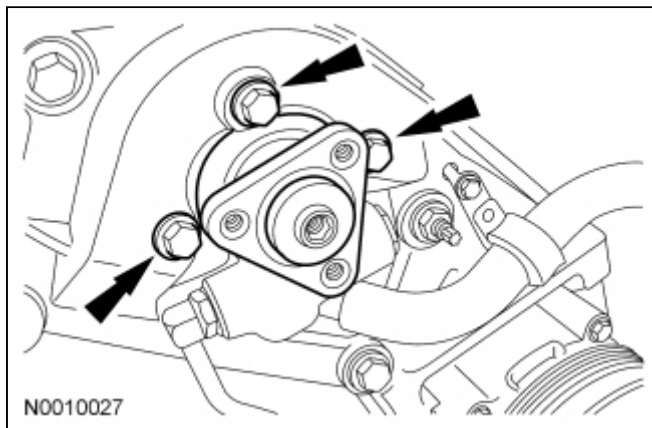


23. Position the Front End Accessory Drive (FEAD) bracket and A/C compressor. Install the 3 bolts and the nut.

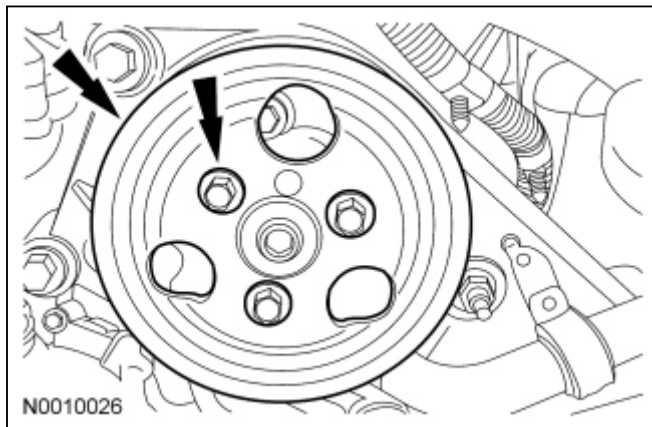
- Tighten to 48 Nm (35 lb-ft).



24. Position the power steering pump and install the 3 bolts.
- Tighten to 25 Nm (18 lb-ft).

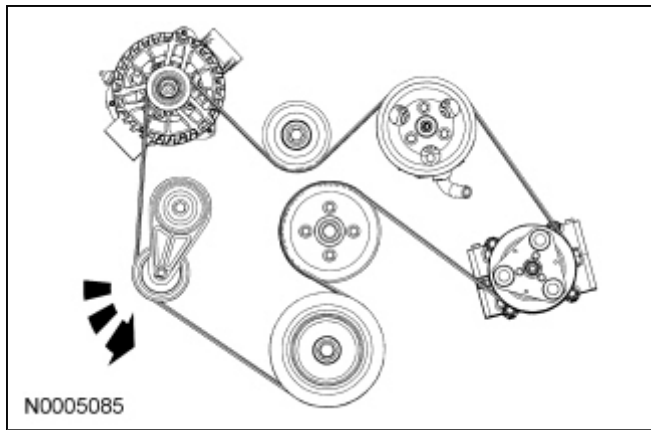


25. Position the power steering pump pulley and install the 3 bolts.
- Do not tighten at this time.

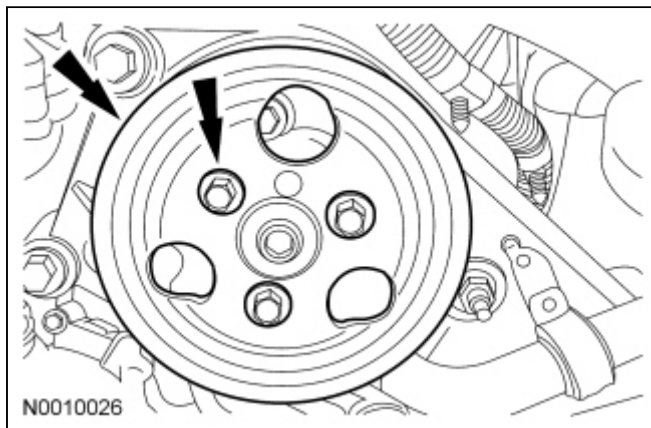


26. Rotate the accessory drive belt tensioner counterclockwise and install the accessory drive belt.

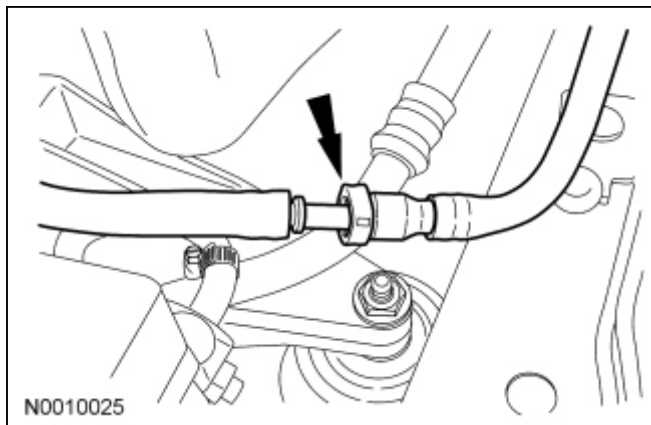




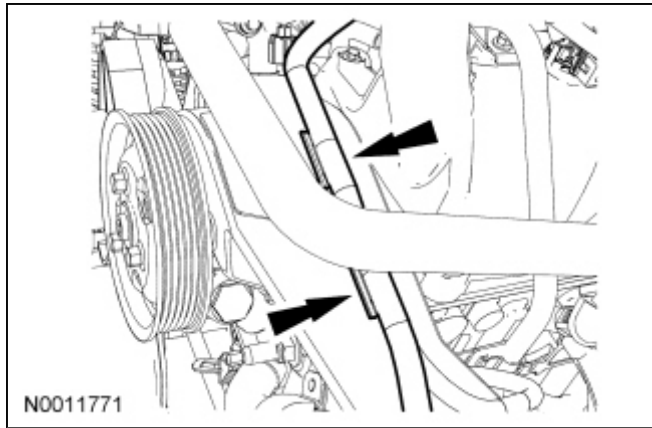
27. Tighten the 3 power steering pulley bolts.
  - Tighten to 25 Nm (18 lb-ft).



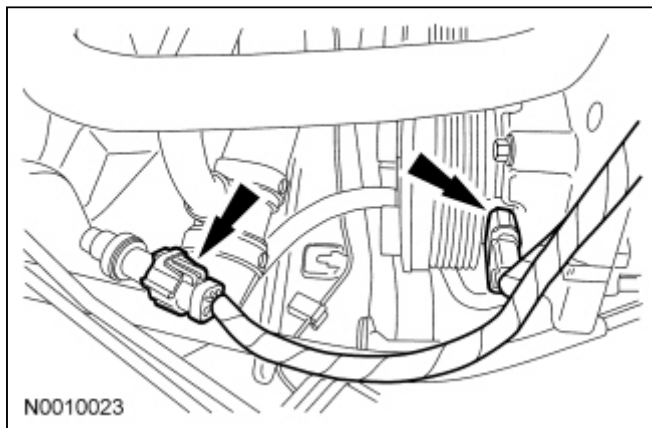
28. Connect the fuel supply tube coupling. For additional information, refer to [Section 310-00](#).



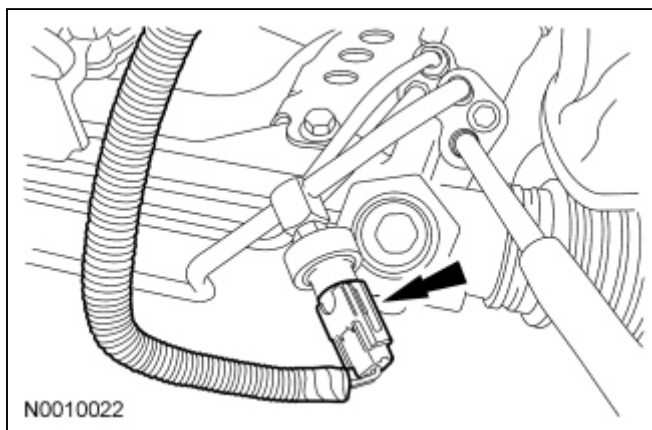
29. Attach the 2 wiring retainers to the **FEAD** bracket.



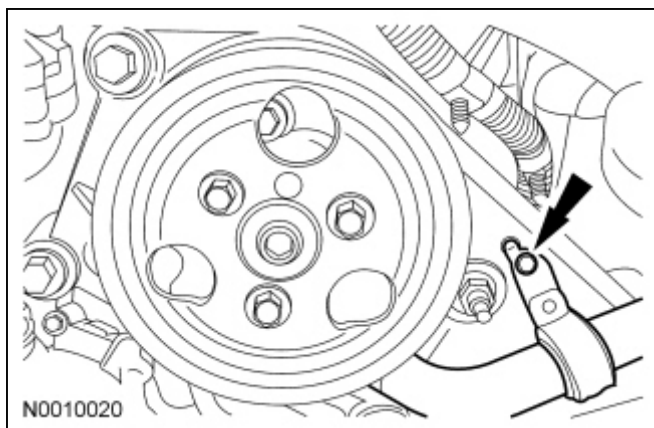
30. Connect the A/C compressor and A/C high pressure switch electrical connectors.



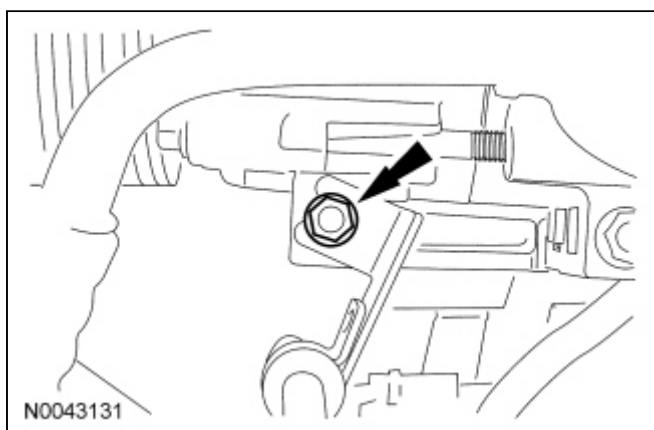
31. Connect the Power Steering Pressure (PSP) switch electrical connector.



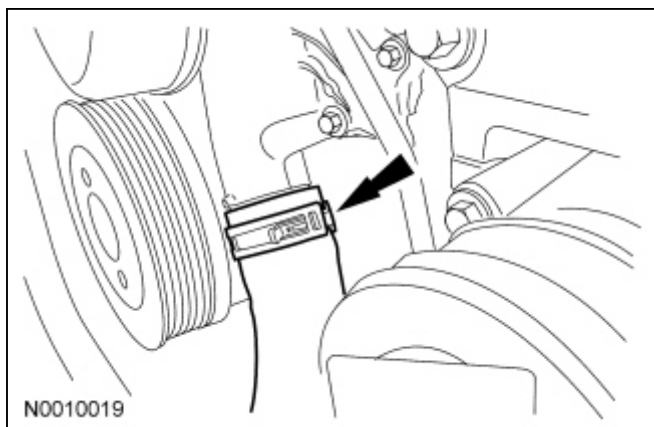
32. Attach the power steering supply hose bracket to the FEAD bracket and install the bolt.
- Tighten to 11 Nm (97 lb-in).



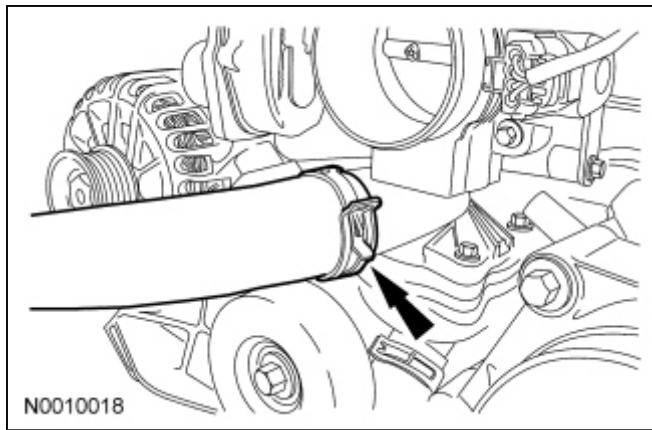
33. Position the Power Steering Pressure (PSP) tube bracket on the A/C compressor and install the nut.
- Tighten to 7 Nm (62 lb-in).



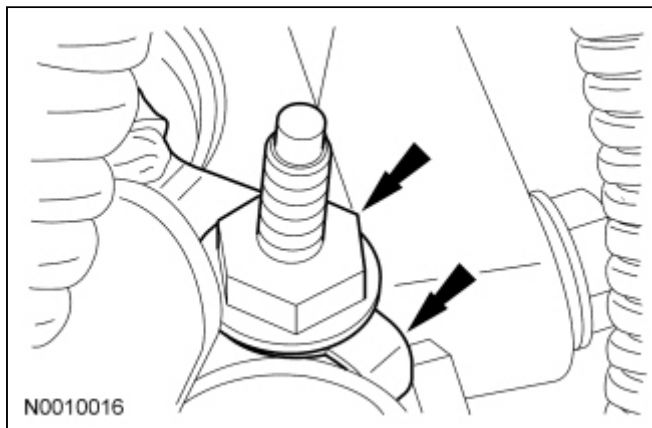
34. Connect the lower radiator hose to the coolant pump.



35. Connect the upper radiator hose to the thermostat housing.



36. Position the ground strap and install the stud bolt.
- Tighten to 10 Nm (89 lb-in).



#### Vehicles with manual transmission

37. Install the clutch. For additional information, refer to [Section 308-01](#).

#### Vehicles with automatic transmission

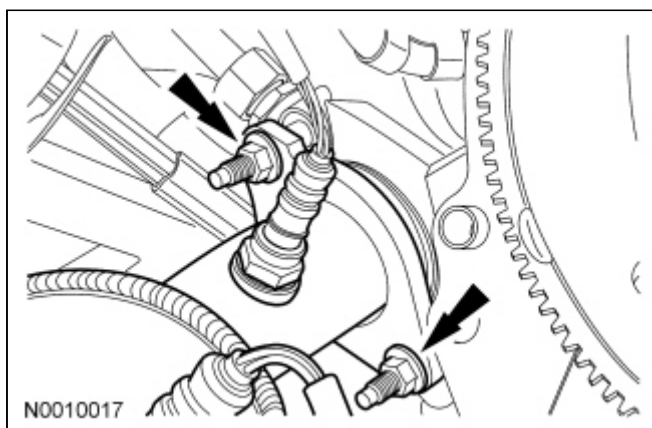
38. Install the transmission. For additional information, refer to [Section 307-01](#).

#### All vehicles

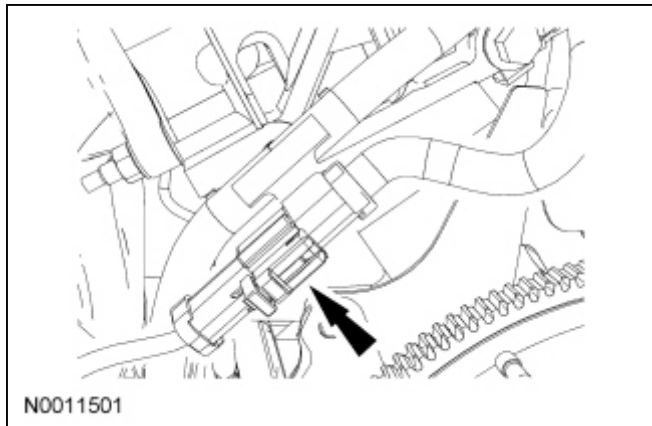
39. **NOTE:** LH side shown, RH side similar.

Install the 4 new catalytic converter-to-exhaust manifold nuts.

- Tighten to 45 Nm (33 lb-ft).



40. Connect the 2 Heated Oxygen Sensor (HO2S) and the 2 Catalyst Monitor Sensor (CMS) electrical connectors (1 shown).

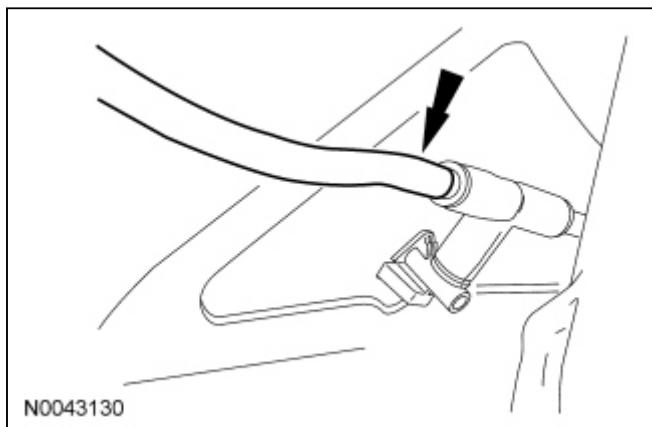


41. **NOTE:** Use the index marks made during the removal procedure for correct hood alignment.

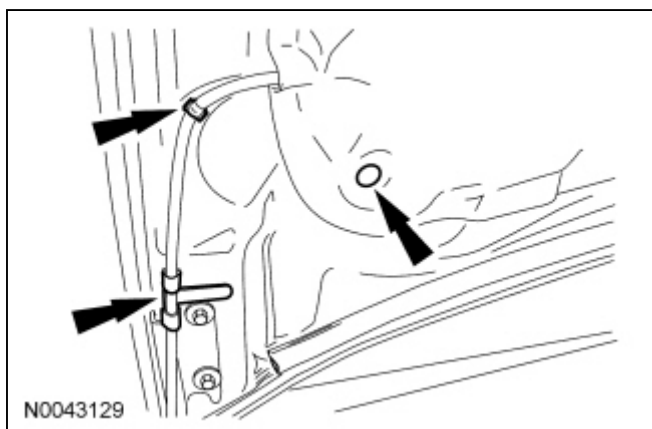
Position the hood and install the 4 bolts.

- Tighten to 12 Nm (106 lb-in).

42. Connect the windshield washer hose and position the hood insulation.



43. Install the 1 hood insulation pin-type retainer and attach the 2 windshield washer hose retainers.



44. Install the Air Cleaner (ACL) and [ACL](#) outlet pipe. For additional information, refer to [Section 303-12](#).
45. Fill the engine with clean engine oil.
46. Connect the battery ground and positive cables. For additional information, refer to [Section 414-01](#).

47. Fill and bleed the cooling system. For additional information, refer to [Section 303-00](#).

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