
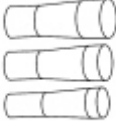



Engine

Special Tool(s)

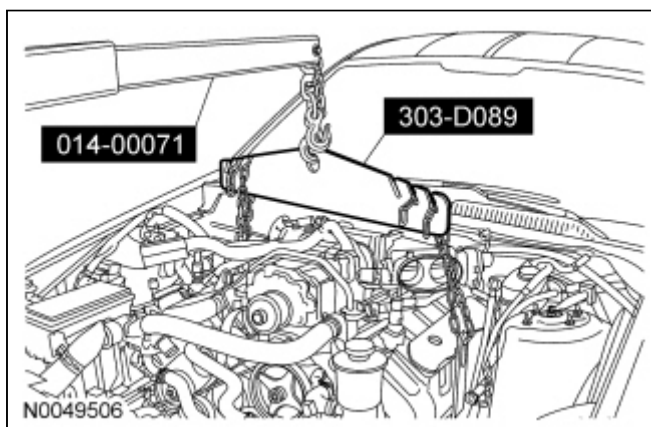
 <p>ST1341-A</p>	<p>Heavy Duty Floor Crane 014-00071 or equivalent</p>
 <p>ST1444-A</p>	<p>Installer Set, Teflon® Seal 211-D027 (D90P-3517-A) or equivalent</p>
 <p>ST1602-A</p>	<p>Lifting Bracket, Engine 303-D089 (D93P-6001-A3) or equivalent</p>

Material

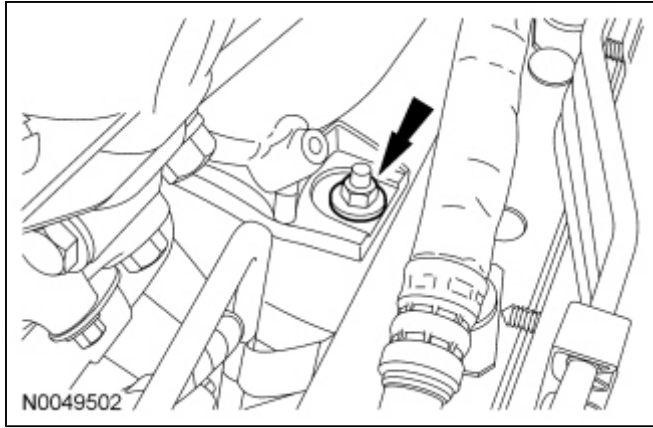
Item	Specification
<p>Motorcraft® SAE 5W-50 Full Synthetic Motor Oil XO-5W50-QGT or equivalent</p>	<p>WSS-M2C931- B</p>

⚠ WARNING: Do not smoke, carry lighted tobacco or have an open flame of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

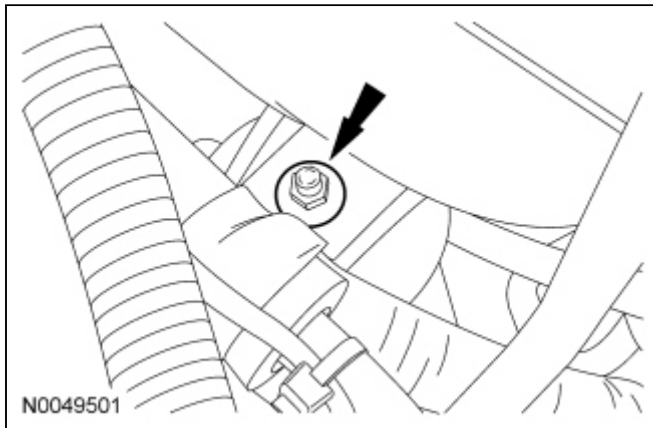
- Using the Heavy Duty Floor Crane and the Engine Lifting Bracket, install the engine into the vehicle.



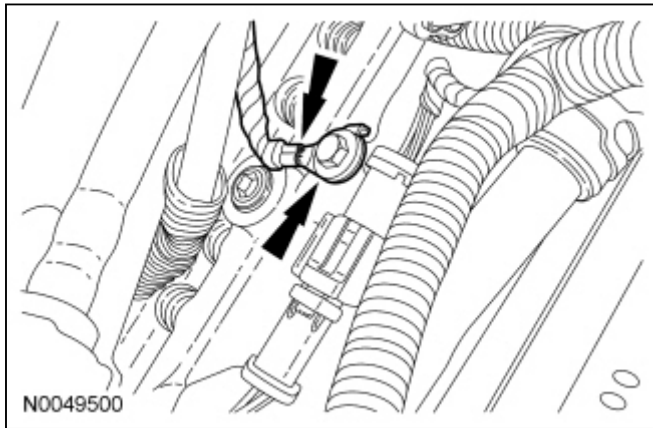
- Install the LH engine insulator nut.
 - Tighten to 63 Nm (46 lb-ft).



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



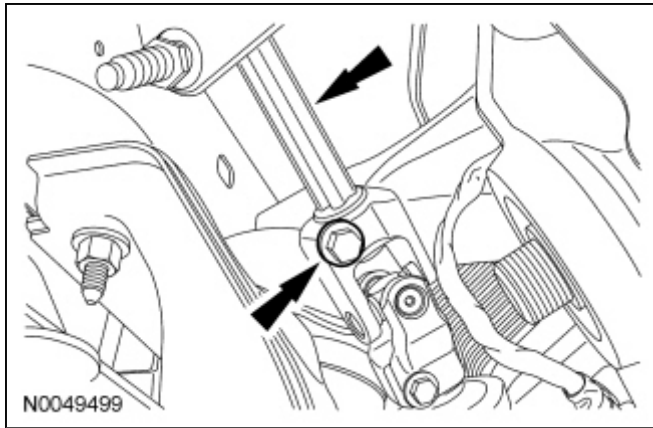
4. Install the ground wire and the bolt to the rear of the LH cylinder head.
 - Tighten to 10 Nm (89 lb-in).



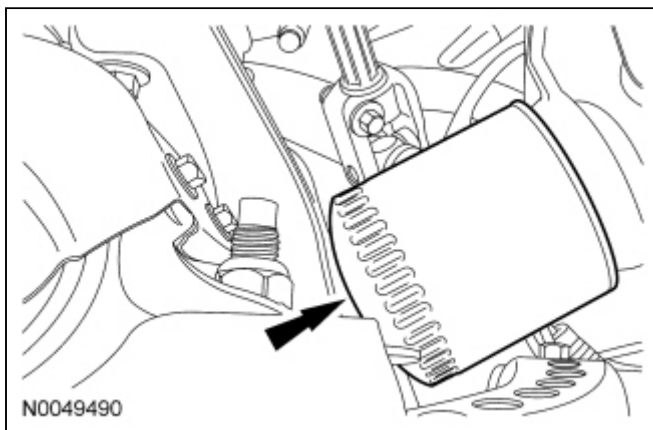
5. Install the clutch disc and pressure plate. For additional information, refer to [Section 308-01](#).
6. **NOTICE:** Do not allow the steering wheel to rotate while the steering column intermediate shaft is disconnected or damage to the clockspring can result. If there is evidence that the wheel has rotated, the clockspring must be removed and recentered. For additional information, refer to [Section 501-20B](#).

Install the intermediate steering shaft and the upper bolt.

- Tighten to 47 Nm (35 lb-ft).



7. Install a new engine oil filter in the following sequence.
 1. Lubricate the oil filter gasket with clean engine oil and tighten until the seal makes contact.
 2. Using an oil filter strap wrench, tighten the filter an additional 270 degrees.

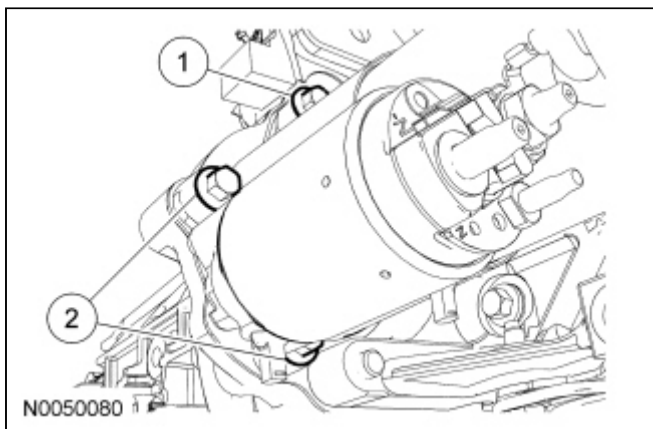


8. **NOTE:** For correct starter installation, the upper bolt must be tightened first.

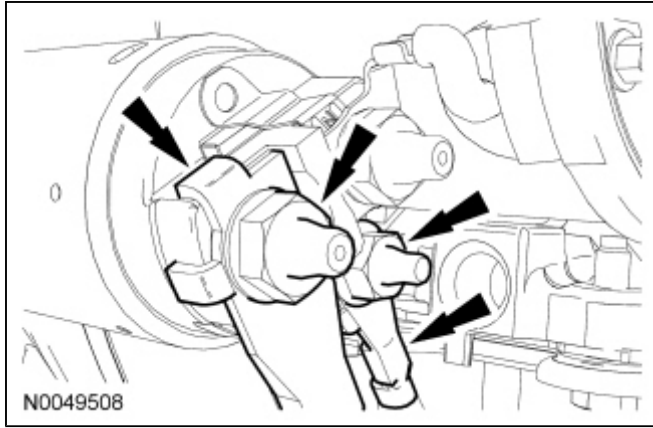
NOTE: Clean the starter motor mounting flange and mating surface of the starter motor to make sure there is a correct ground connection.

Install the starter and the 3 bolts finger-tight.

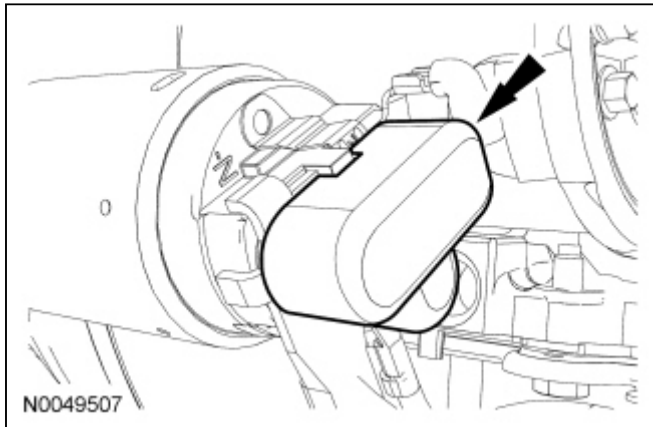
1. Tighten the upper bolt to 25 Nm (18 lb-ft).
2. Tighten the 2 lower bolts to 25 Nm (18 lb-ft).



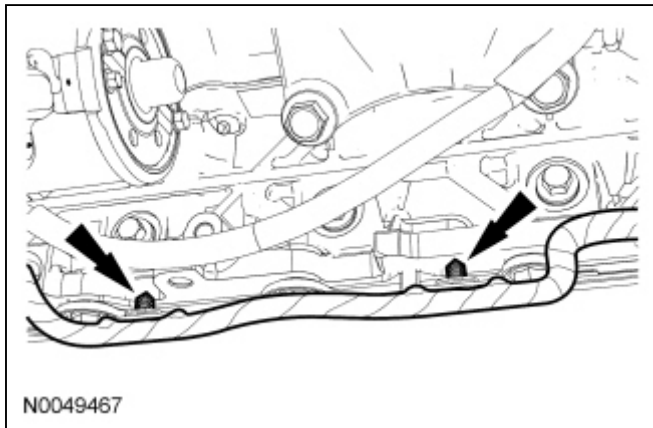
9. Connect the 2 wires and install the 2 nuts on the starter solenoid.
 - Tighten the B+ terminal to 12 Nm (106 lb-in).
 - Tighten the S-terminal to 5 Nm (44 lb-in).



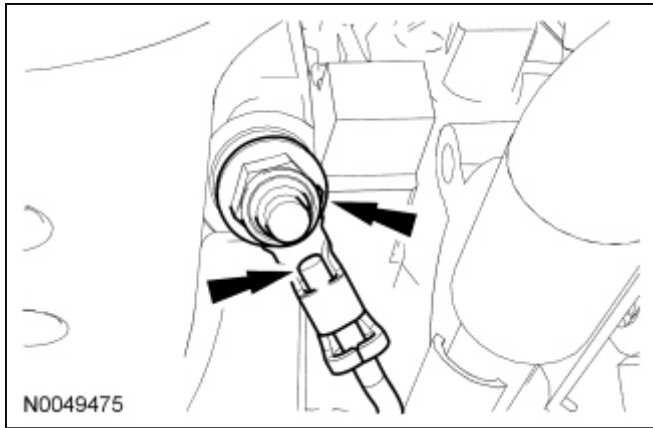
10. Install the starter solenoid terminal cover.



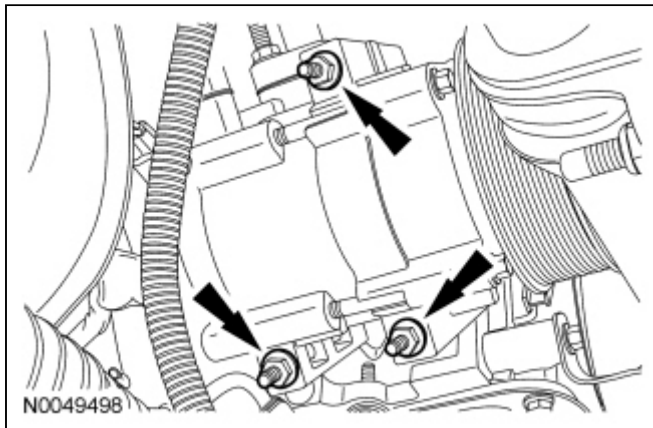
11. Attach the 2 wiring harness pin-type retainers to the oil pan.



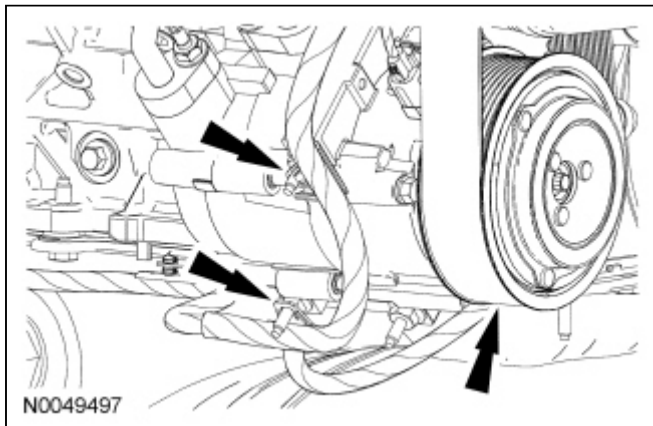
12. Install the ground wire and the nut to the RH engine insulator bracket stud bolt.
- Tighten to 25 Nm (18 lb-ft).



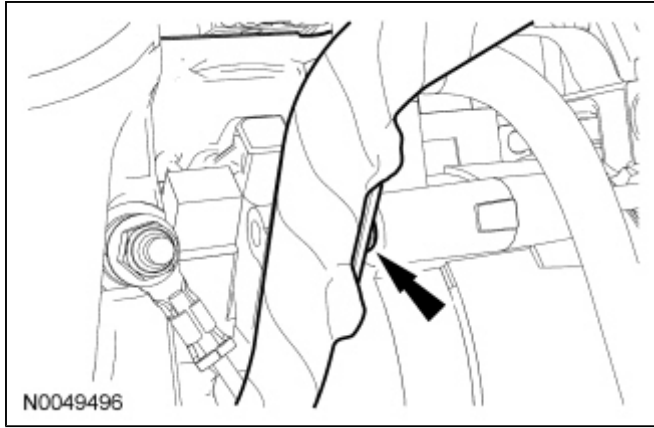
13. Install the A/C compressor and the 3 stud bolts.
 - Tighten to 25 Nm (18 lb-ft).



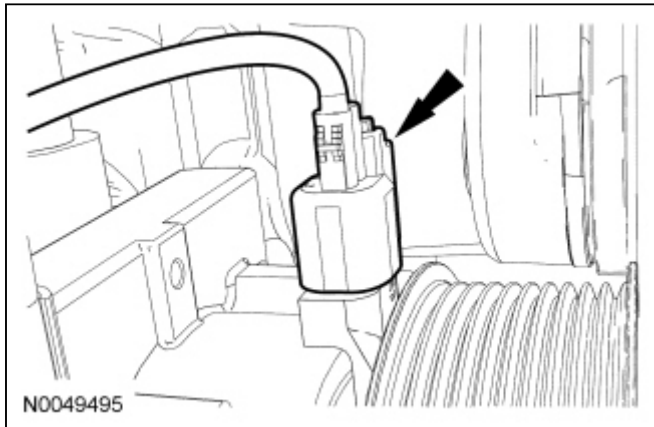
14. Position the Supercharger (SC) drive onto the A/C compressor and attach the 2 wiring harness retainers onto the A/C compressor stud bolts.



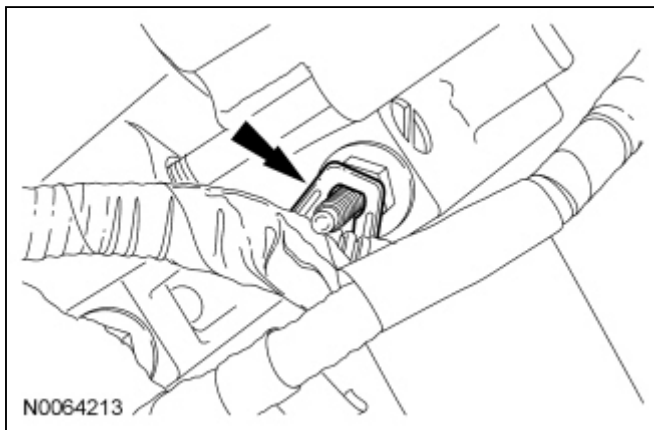
15. Attach the wiring harness pin-type retainer to the back of the A/C compressor.



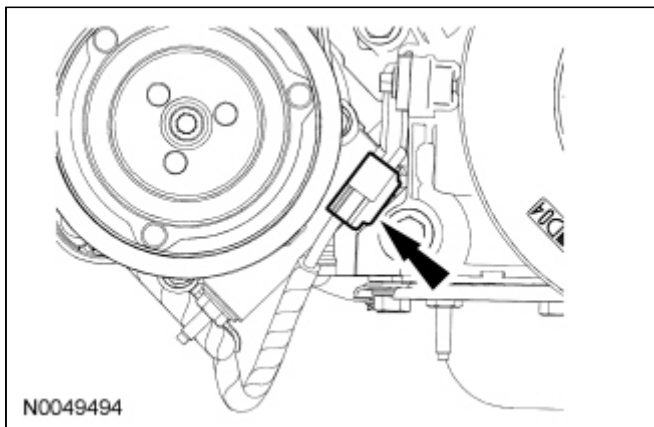
16. Connect the A/C compressor electrical connector.



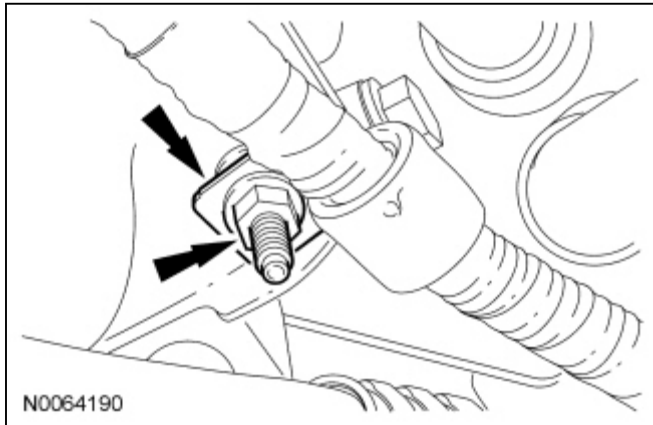
17. Attach the wire harness retainer to the A/C compressor stud bolt.



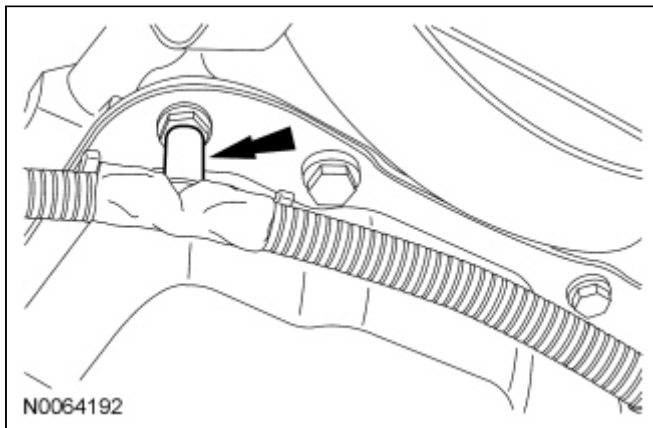
18. Connect the Crankshaft Position (CKP) sensor electrical connector.



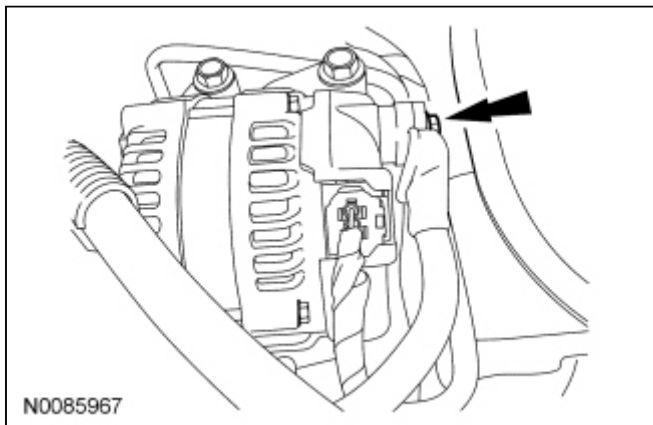
19. Install the wire harness bracket to the oil pan stud bolt and install the nut.
- Tighten to 10 Nm (89 lb-in).



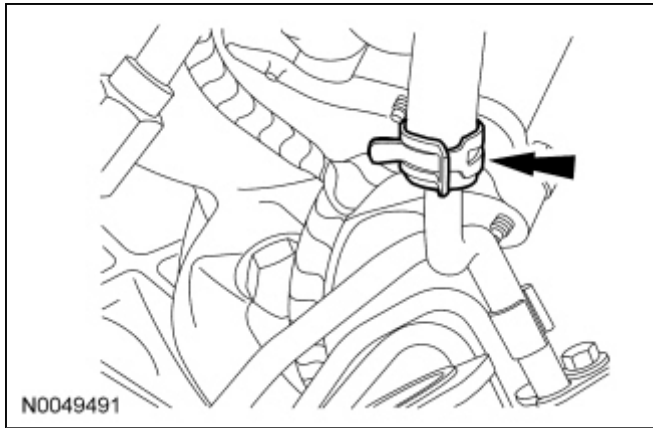
20. Attach the wiring harness retainer to the oil pan stud bolt.



21. Connect the B+ wire to the generator and install the nut.
- Tighten to 8 Nm (71 lb-in).

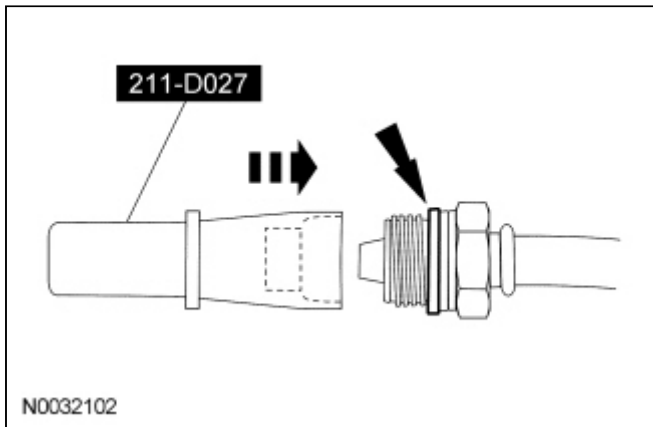


22. Connect the power steering return hose.

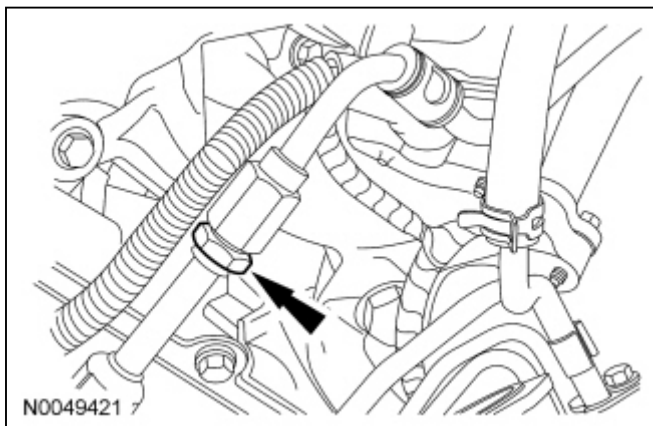


23. **NOTE:** A new Teflon® seal must be installed.

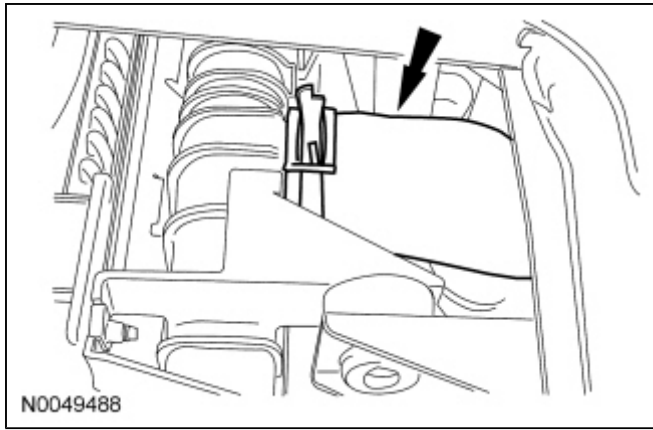
Using the Teflon® Seal Installer Set, install a new Teflon® seal on the Power Steering Pressure (PSP) tube fitting.



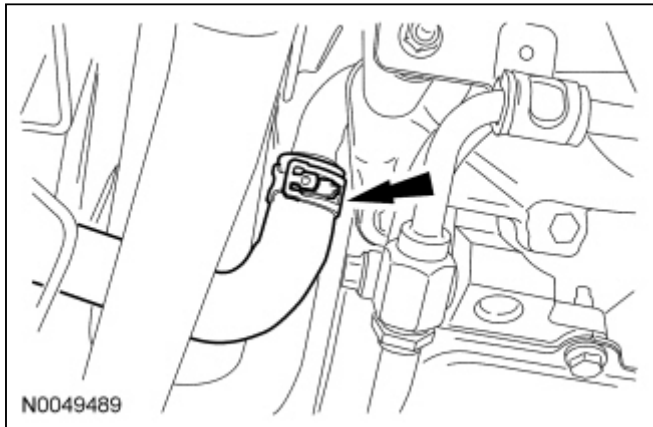
24. Connect the pressure **PSP** tube fitting.
- Tighten to 65 Nm (48 lb-ft).



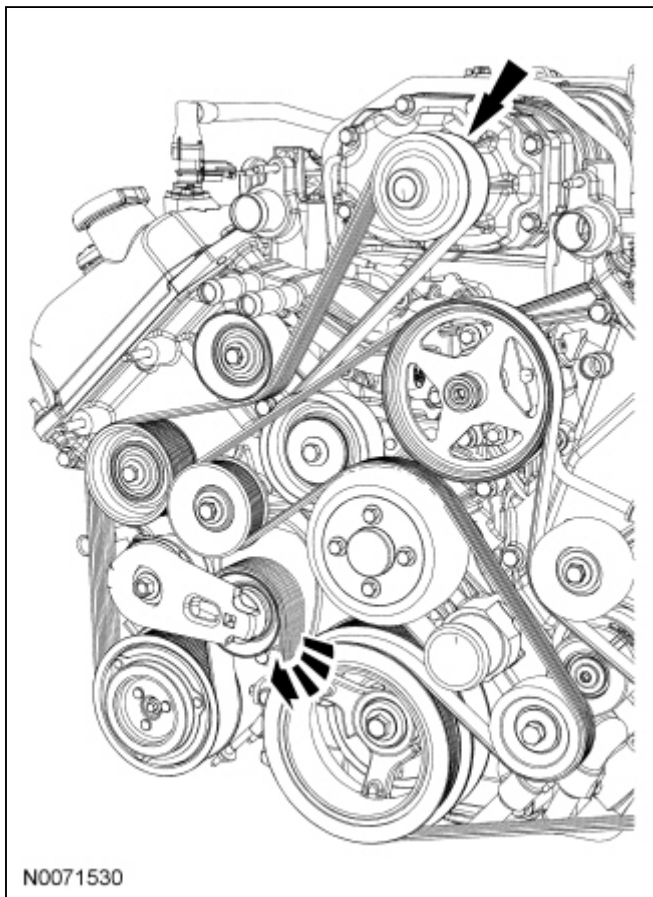
25. Position the lower radiator hose assembly into the vehicle.
- Connect the lower radiator hose to the radiator.



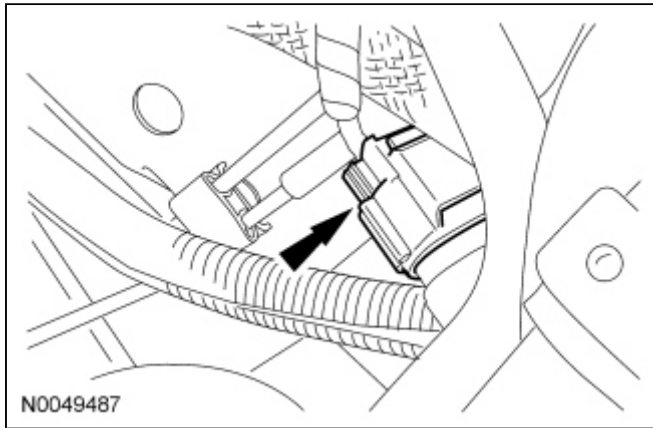
26. Connect the coolant hose to the oil cooler.



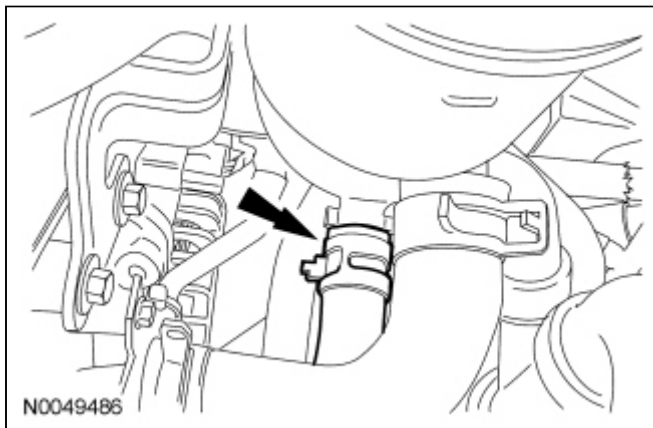
27. Rotate the SC drive belt tensioner clockwise and install the drive belt onto the SC drive pulley.



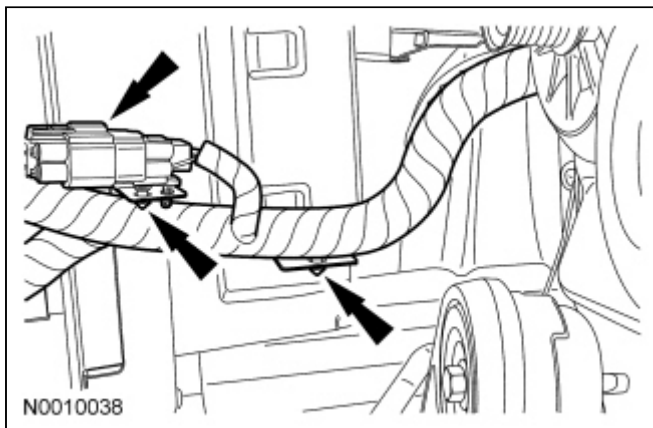
28. Connect the A/C pressure transducer electrical connector.



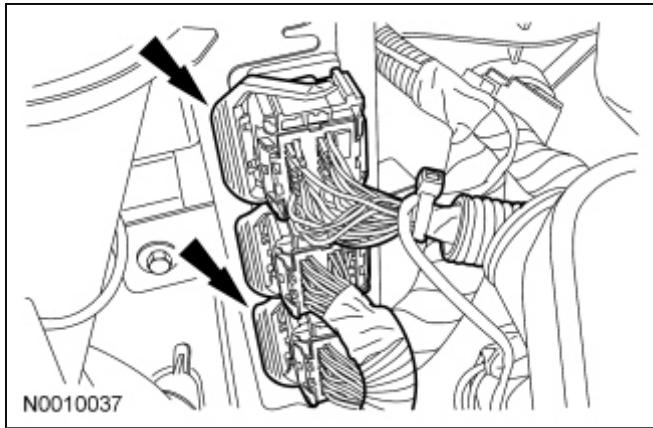
29. Connect the hose to the power steering reservoir.



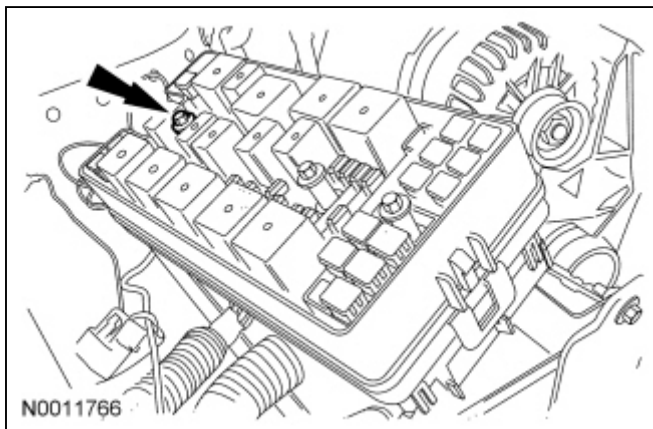
30. Connect the 16-pin electrical connector and attach the 2 wiring retainers



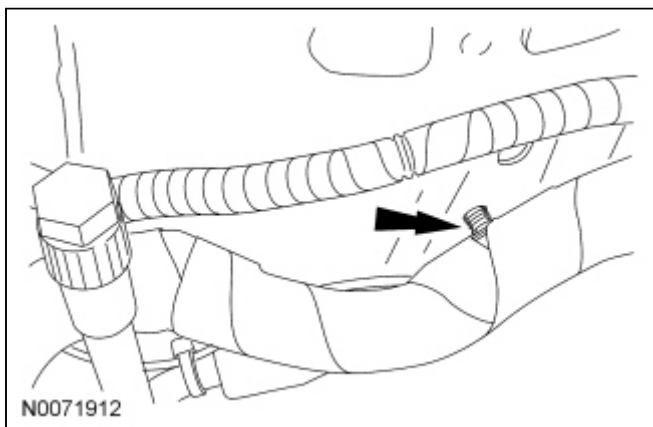
31. Connect the upper and lower PCM electrical connectors.



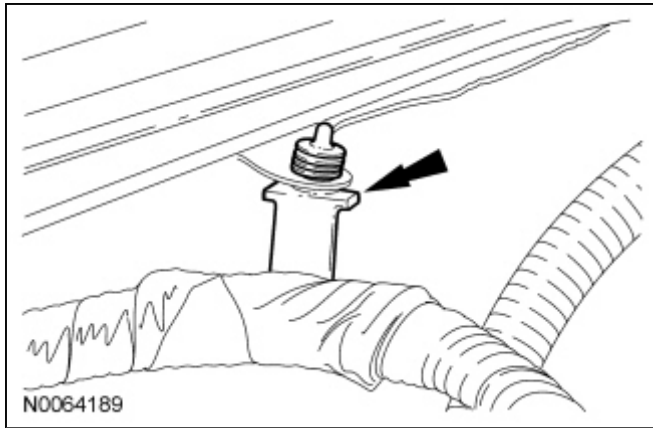
32. Connect the 68-pin connector to the Power Distribution Box (PDB).
 - Tighten to 6 Nm (53 lb-in).
 - Attach the [PDB](#) upper housing to the lower housing.



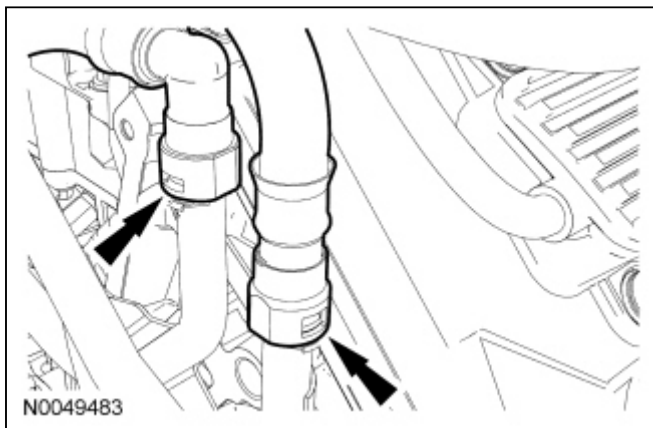
33. Install the [PDB](#) cover.
34. Attach the 2 wiring harness pin-type retainers.



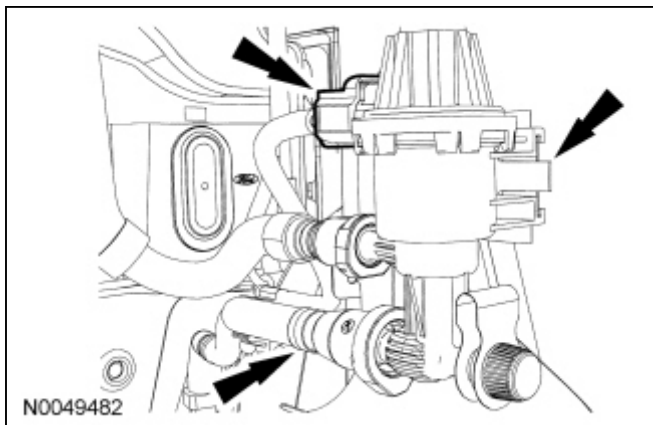
35. Attach the pin-type wire harness retainer to the cowl.



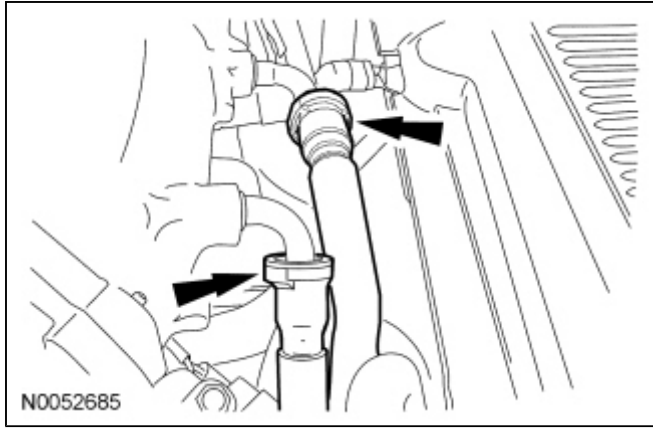
36. Connect the 2 heater hoses to the coolant tube assembly at the rear of the engine.



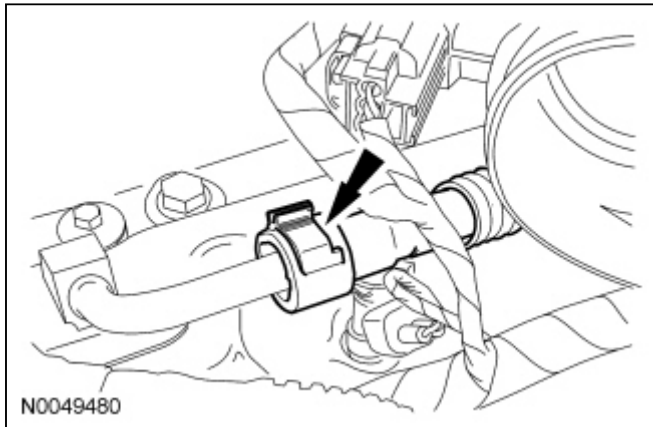
37. Install the Evaporative Emission (EVAP) canister purge valve.
- Connect the lower EVAP tube and electrical connector to the EVAP canister purge valve.



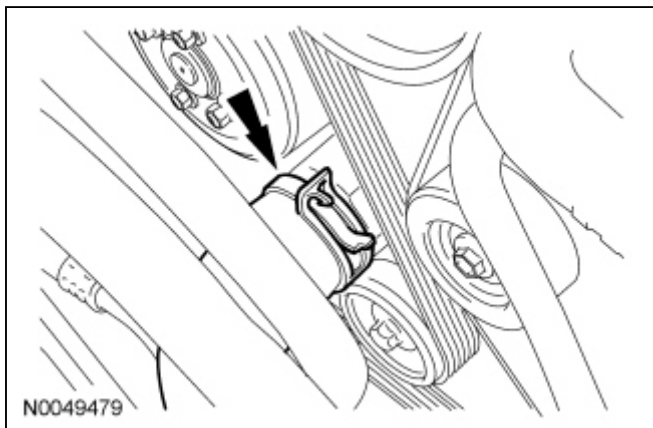
38. Connect the EVAP tube and brake booster vacuum supply tube to the Throttle Body (TB) spacer.



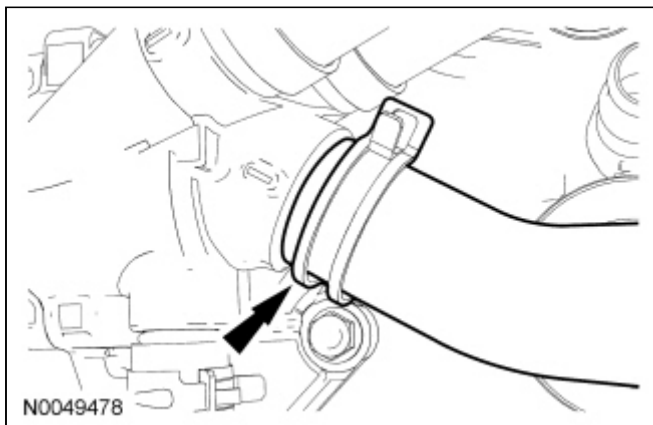
39. Connect the fuel supply tube. For additional information, refer to [Section 310-00](#).



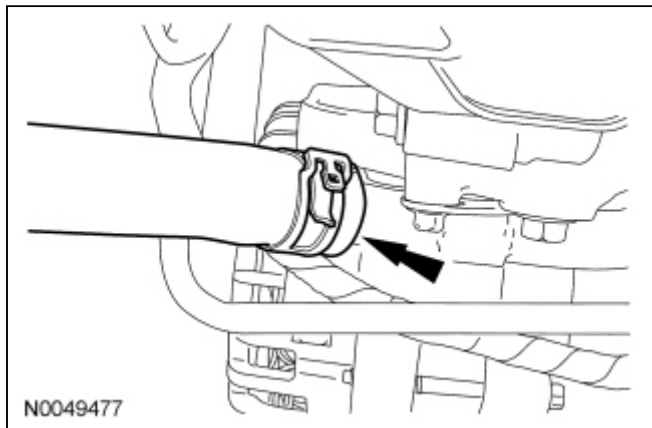
40. Connect the coolant hose to the coolant pump.



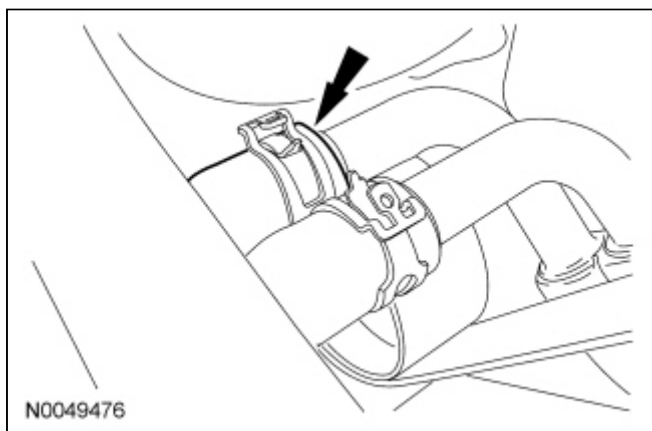
41. Connect the coolant hose to the thermostat housing.



42. Connect the coolant hose to the coolant tube assembly (above the generator).



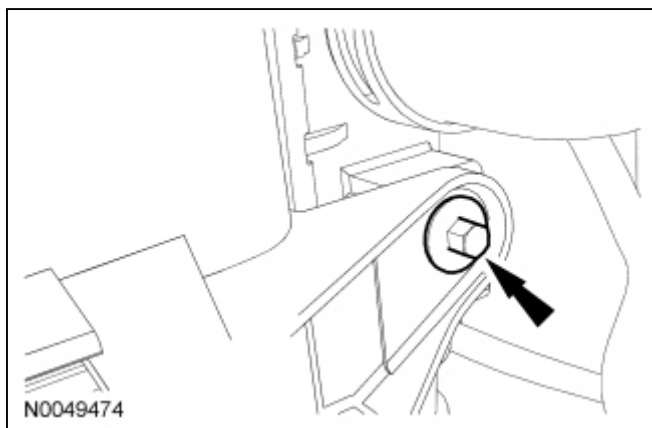
43. Connect the coolant hose from the Charge Air Cooler (CAC).



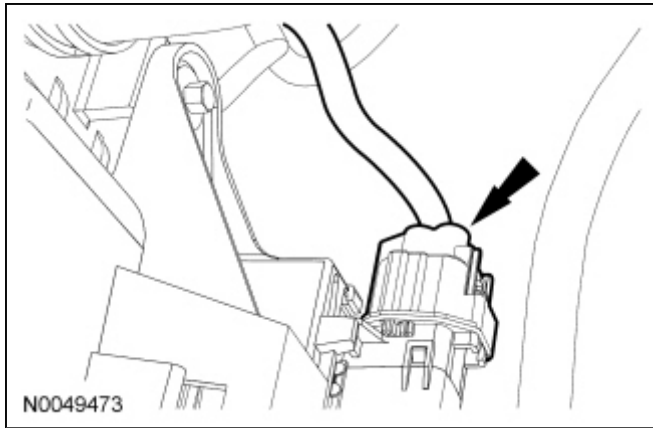
44. **NOTE:** RH bolt shown, LH similar.

Install the cooling fan assembly and the 2 bolts.

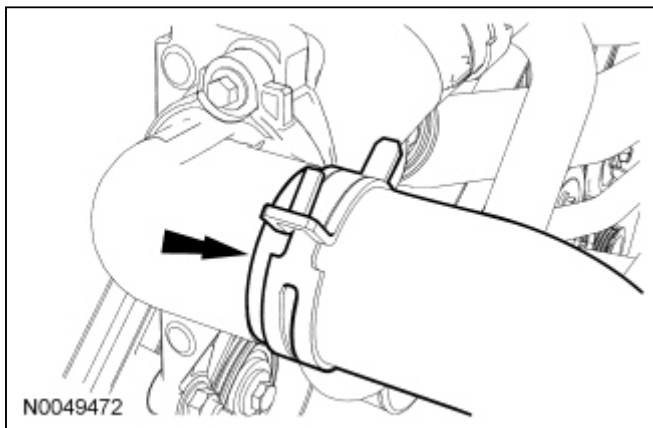
- Tighten to 9 Nm (80 lb-in).



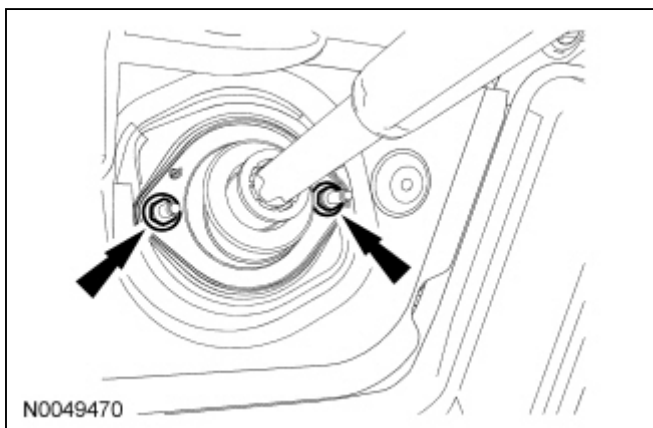
45. Connect the cooling fan electrical connector.



46. Connect the upper radiator hose from the thermostat housing.



47. Install the [SC](#) coolant degas bottle. For additional information, refer to [Section 303-03B](#).
48. Install the engine coolant degas bottle. For additional information, refer to [Section 303-03A](#).
49. Install the 2 steering column dash boot nuts.
- Tighten to 9 Nm (80 lb-in).

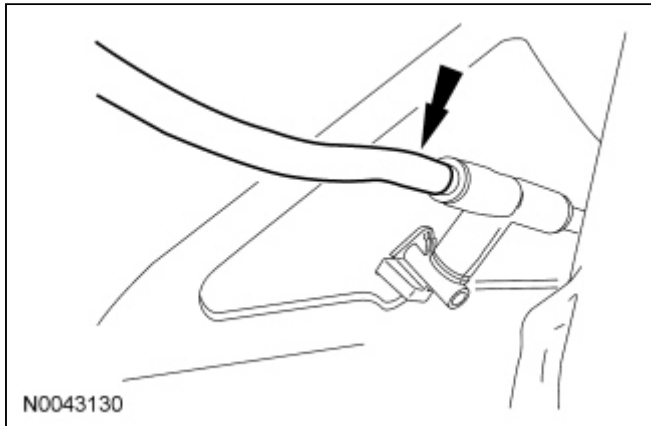


50. Install the battery tray and battery. For additional information, refer to [Section 414-01](#).
51. Install the Air Cleaner (ACL) and [ACL](#) outlet pipe. For additional information, refer to [Section 303-12](#).
52. **NOTE:** Use the hood hinge location index marks made during removal to aid in hood installation.

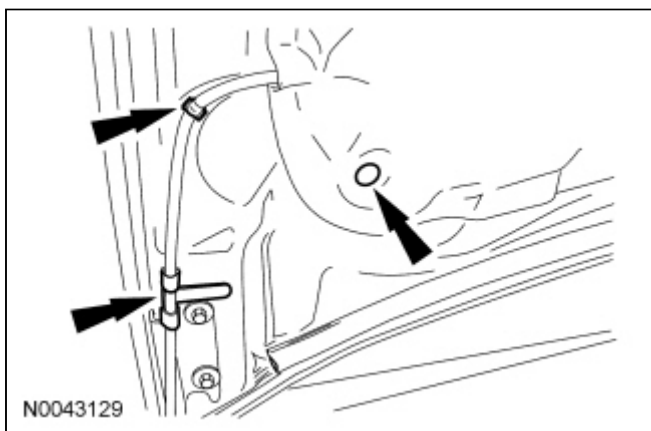
Install the hood and 4 bolts.

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

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

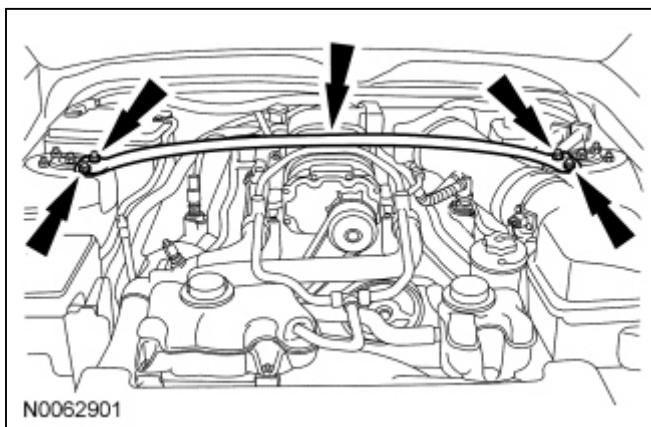


54. Install the hood insulation pin-type retainer and attach the 2 windshield washer hose retainers.



55. Install the strut tower cross brace and the 4 nuts.

- Tighten to 35 Nm (26 lb-ft).



56. Fill the engine with clean engine oil.

57. Install the battery and tray. For additional information, refer to [Section 414-01](#).

58. Fill and bleed the engine cooling system. For additional information, refer to [Section 303-03A](#).

59. Fill and bleed the [SC](#) cooling system. For additional information, refer to [Section 303-03B](#).

60. Fill the power steering system. For additional information, refer to [Section 211-00](#).

