

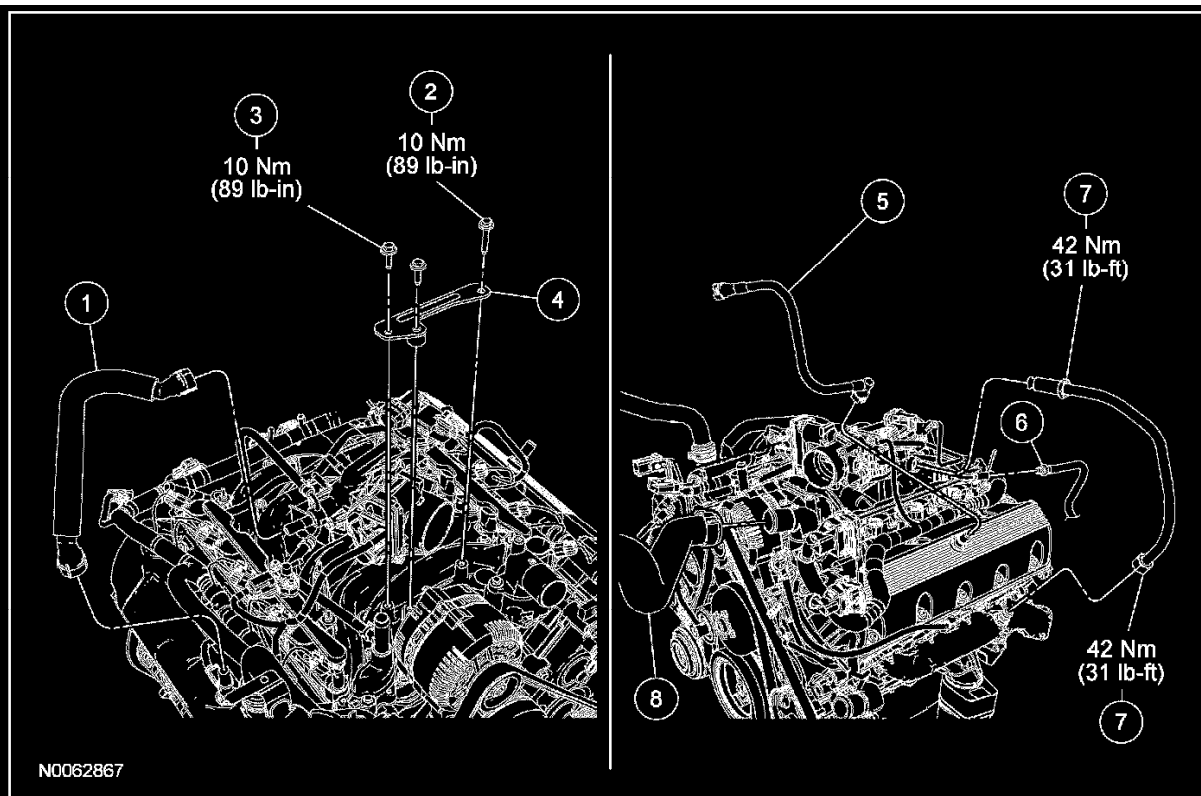
# Intake Manifold: Procedures

Intake Manifold - 4.6L

## Material

Item	Specification
Motorcraft Metal Surface Prep ZC-31	—
Silicone Gasket Remover ZC-30	—

## Material

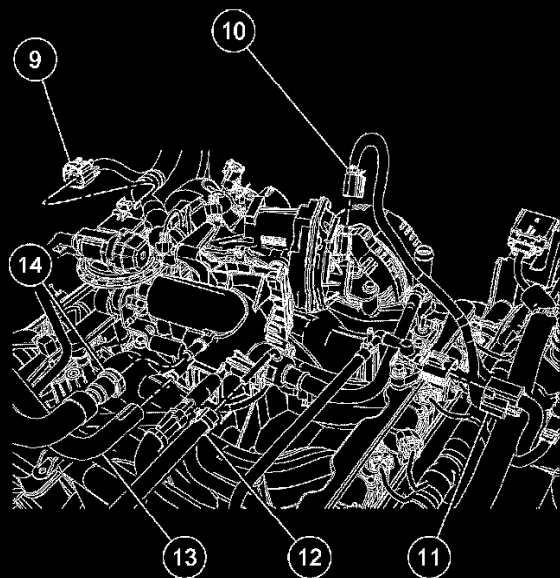


N0062867

Item	Part Number	Description
1	6K817	Positive crankcase ventilation (PCV) tube
2	W704682	Generator support bracket bolt
3	W503924	Generator support bracket bolt (3 required)
4	10153	Generator support bracket
5	18K527	Crankcase vent tube

(Continued)

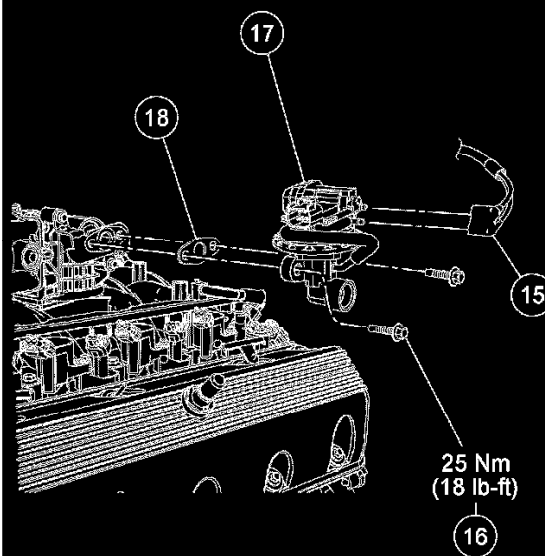
Item	Part Number	Description
6	—	Fuel supply tube spring lock coupling
7	9D477	Exhaust gas recirculation (EGR) system module-to-exhaust manifold tube
8	—	Upper radiator hose



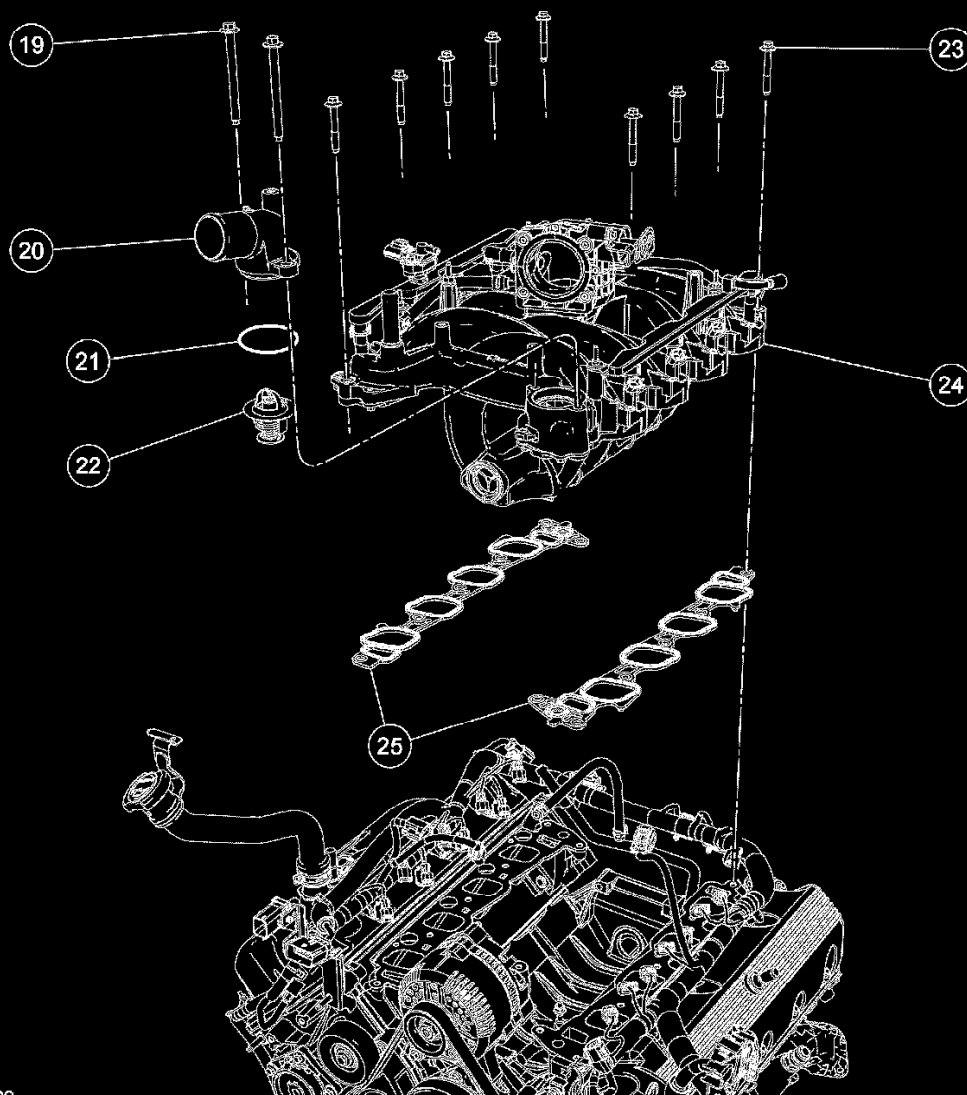
N0062868

Item	Part Number	Description
9	—	EGR system module electrical connector (part of 12B637)
10	—	Electronic throttle control electrical connector (part of 12B637)
11	—	Fuel pressure and temperature sensor electrical connector (part of 12B637)
12	18465	PCV coolant hose
13	—	Vacuum connector (part of 9E498)

(Continued)



Item	Part Number	Description
14	—	Evaporative emissions (EVAP) system vapor tube quick connect coupling
15	—	EGR system module vacuum, connector (part of 9E498)
16	N506024	EGR system module bolt (2 required)
17	9Y456	EGR system module
18	—	EGR system module gasket



N0062869

Item	Part Number	Description
19	W704693	Thermostat housing bolt (2 required)
20	8594	Thermostat housing
21	N806807	Thermostat housing O-ring seal
22	8575	Thermostat

(Continued)

Item	Part Number	Description
23	W503301	Intake manifold bolt (9 required)
24	9S455	Intake manifold
25	9439	Intake manifold gaskets (2 required)

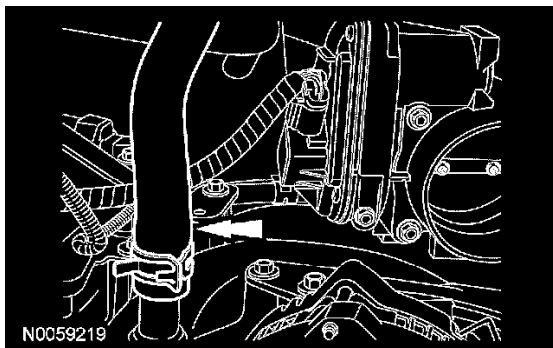
## Removal

**WARNING:** Do not smoke or carry lighted tobacco or 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 personal injury.

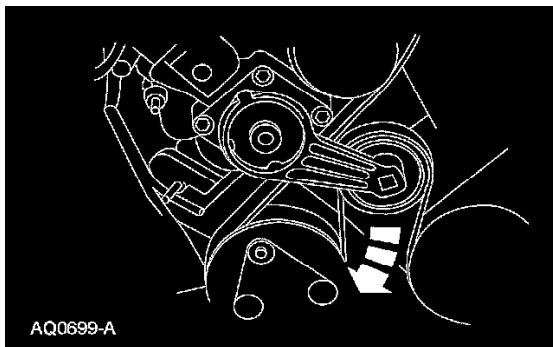
**WARNING:** Fuel in the fuel system remains under high pressure even when the engine is not running. Before servicing or disconnecting any of the fuel lines or fuel system components, the fuel system pressure must be relieved to prevent accidental spraying of fuel, causing personal injury or a fire hazard. Failure to follow these instructions may result in personal injury.

1. Remove the engine cover.
2. Disconnect the fuel supply tube spring lock coupling. For additional information, refer to Fuel Delivery and Air Induction.
3. Disconnect the battery ground cable. For additional information, refer to Battery.
4. Drain the cooling system. For additional information, refer to Cooling System.
5. Disconnect the quick connect couplings and remove the positive crankcase ventilation (PCV) tube. For additional information, refer to Fuel Delivery and Air Induction.

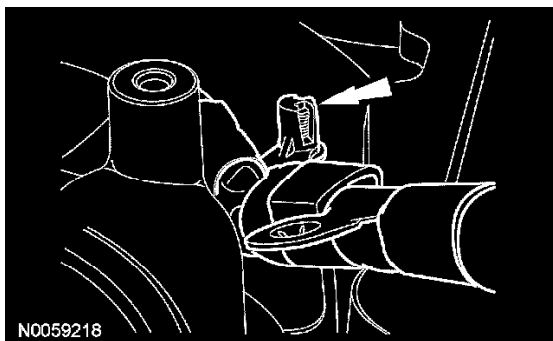
6. Remove the throttle body (TB). For additional information, refer to Fuel Delivery and Air Induction.
7. Remove the 8 ignition coils. For additional information, refer to Ignition System.
8. Disconnect the upper radiator hose.
9. Disconnect the heater coolant hose.



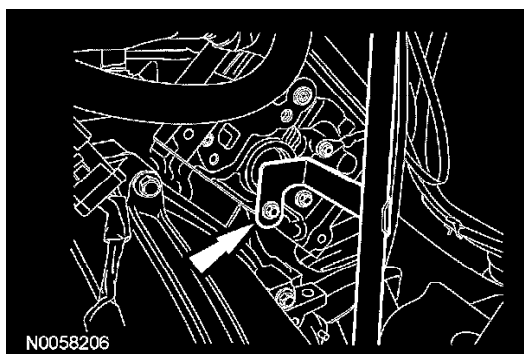
10. Rotate the tensioner **clockwise** and remove the accessory drive belt from the generator pulley.



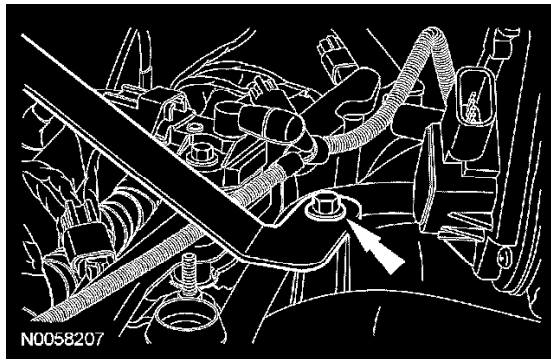
11. Disconnect the generator wiring harness retainer.



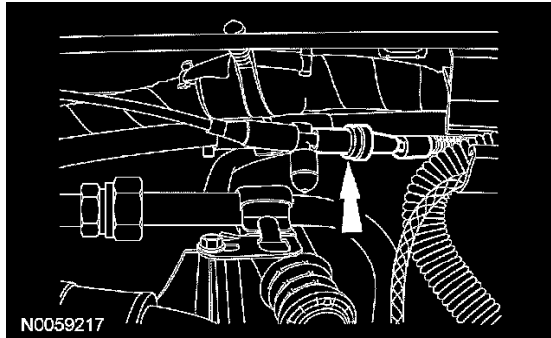
12. Remove the 3 bolts and the generator support bracket.
13. Remove the transmission fluid level indicator and tube bolt.  
^ To install, tighten to **28 Nm (21 ft. lbs)**.



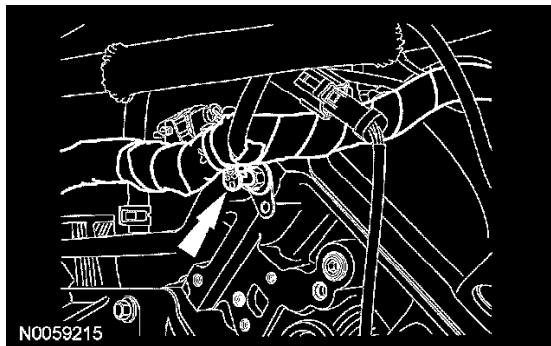
14. Remove the nut and position the transmission fluid level indicator and tube aside.  
^ To install, tighten to **10 Nm (89 inch lbs)**.



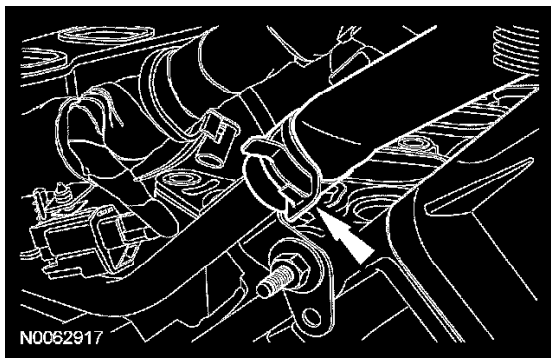
15. Disconnect the vacuum harness connector.



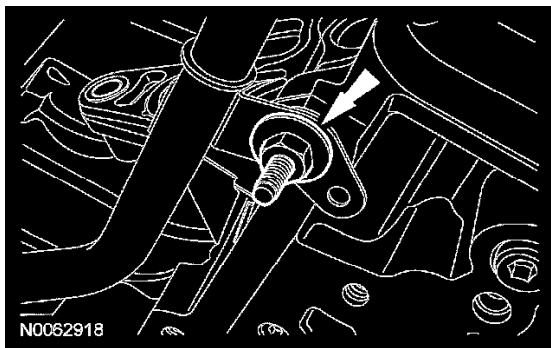
16. Disconnect the crankcase vent tube quick connect coupling from the LH valve cover. For additional information, refer to Fuel Delivery and Air Induction.
17. Disconnect the exhaust gas recirculation (EGR) system module electrical connector.
18. Disconnect the EGR system module vacuum hose connector.
19. Disconnect the upper and lower fittings and remove the exhaust manifold-to-EGR system module tube.
20. Remove the 2 bolts and the EGR system module.
  - ^ Discard the EGR system module gasket.
21. Disconnect the fuel pressure and temperature sensor electrical connector.
22. Disconnect the evaporative emissions (EVAP) system vapor tube quick connect coupling from the intake manifold. For additional information, refer to Fuel Delivery and Air Induction.
23. Disconnect the PCV coolant hose from the TB adapter.
24. Disconnect the vacuum harness connector from the intake manifold.
25. Disconnect the 8 fuel injector electrical connectors.
26. Disconnect the wiring harness retainer from the rear of the RH cylinder head.



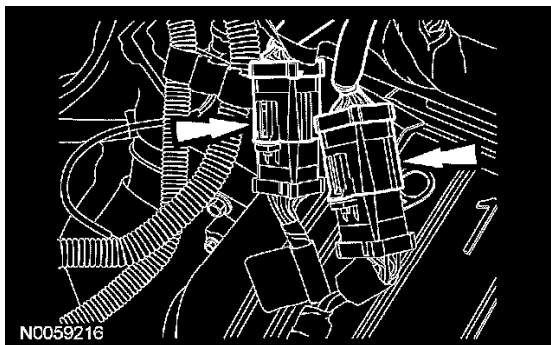
27. Disconnect the coolant hose from the heater outlet tube.



28. Remove the stud bolt and position the heater outlet tube aside.



29. Disconnect the 2 electrical connector position retainers from the support bracket and position the wiring harness onto the transmission.



30. Remove the 2 bolts, thermostat housing and thermostat.  
 ^ Discard the O-ring seal.
31. Remove the 9 intake manifold bolts.
32. Remove the intake manifold and discard the intake manifold gaskets.  
 ^ Inspect the intake manifold assembly for damage.

## Installation

1. **CAUTION: Do not use metal scrapers, wire brushes, power abrasive discs or other abrasive means to clean the sealing surfaces. These tools cause scratches and gouges which can cause leak paths. Use a plastic scraping tool to clean sealing surfaces.**

Clean and inspect the sealing surfaces with silicone gasket remover and metal surface prep. Follow the directions on the packaging.

2. Position the new intake manifold gaskets, the intake manifold and loosely install the 9 bolts.
3. Using a new O-ring seal, install the thermostat.

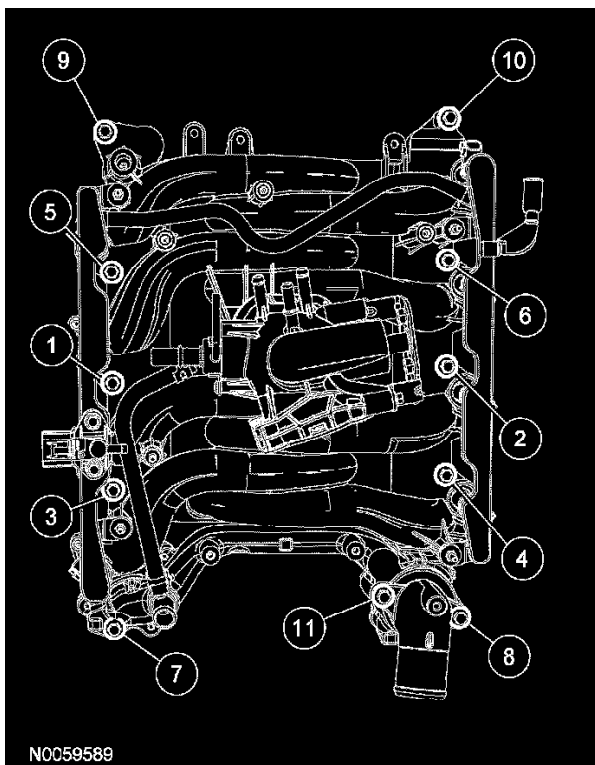
4. **NOTE:** The thermostat housing bolts are tightened in sequence with the intake manifold bolts.

Install the thermostat housing and loosely install the 2 bolts.

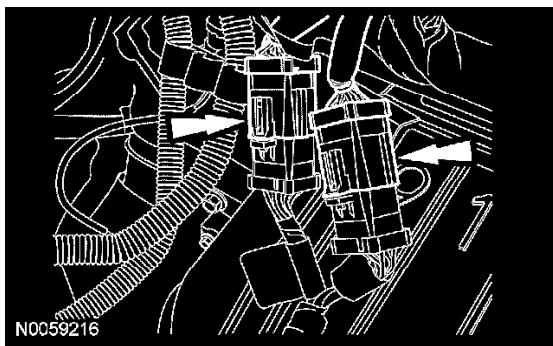
5. Tighten the 11 bolts in 2 stages in the sequence shown.

^ Stage 1: Tighten to **2 Nm (18 inch lbs)**.

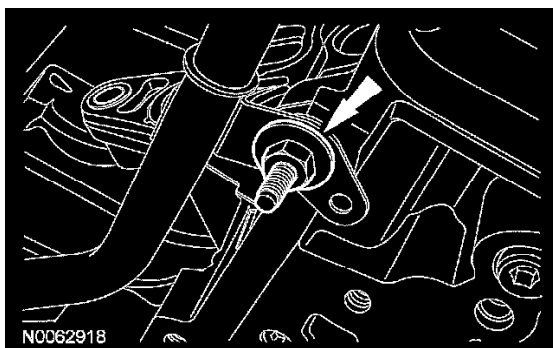
^ Stage 2: Tighten to **25 Nm (18 ft. lbs)**.



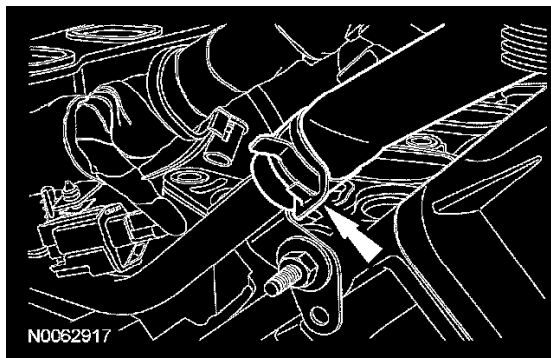
6. Connect the 2 electrical connector position retainers to the support bracket.



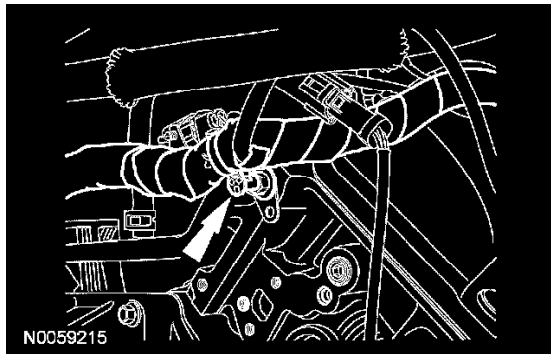
7. Position the heater outlet tube and install the stud bolt.  
^ Tighten to **25 Nm (18 ft. lbs)**.



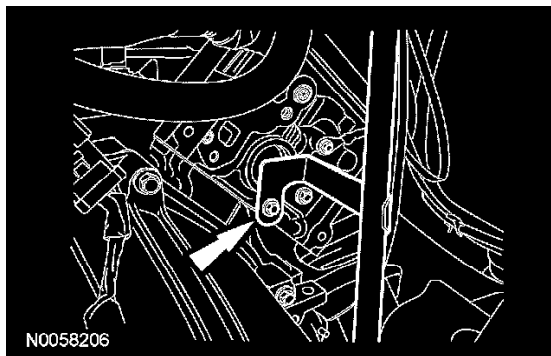
8. Connect the coolant hose to the heater outlet tube.



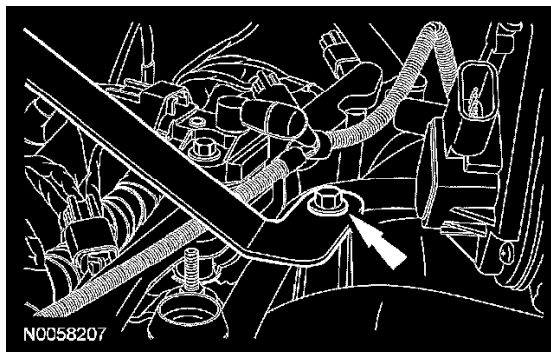
9. Connect the wiring harness retainer to the rear of the RH cylinder head.



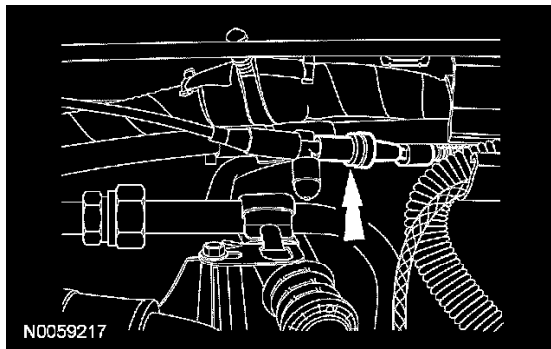
10. Connect the 8 fuel injector electrical connectors.
11. Connect the PCV coolant hose to the TB adapter.
12. Connect the vacuum harness connector to the intake manifold.
13. Connect the EVAP system vapor tube quick connect coupling to the intake manifold. For additional information, refer to Fuel Delivery and Air Induction.
14. Connect the fuel pressure and temperature sensor electrical connector.
15. Using a new gasket, position the EGR system module and install the 2 bolts.
  - ^ Tighten to **25 Nm (18 ft. lbs)**.
16. Position the exhaust manifold-to-EGR system module tube and connect the upper and lower fittings.
  - ^ Tighten to **42 Nm (31 ft. lbs)**.
17. Connect the EGR system module vacuum hose and electrical connector.
18. Connect the crankcase vent tube quick connect coupling to the LH valve cover. For additional information, refer to Fuel Delivery and Air Induction.
19. Install the transmission fluid level indicator and tube bolt.
  - ^ To install, tighten to **28 Nm (21 ft. lbs)**.



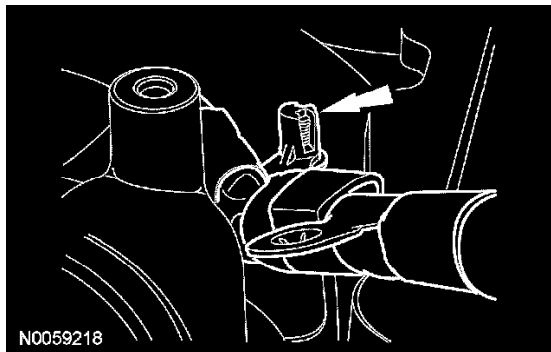
20. Install the transmission fluid level indicator and tube nut.
  - ^ Tighten to **10 Nm (89 lb-in)**



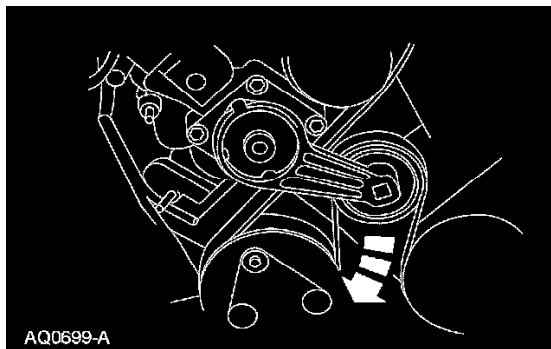
21. Connect the vacuum harness connector.



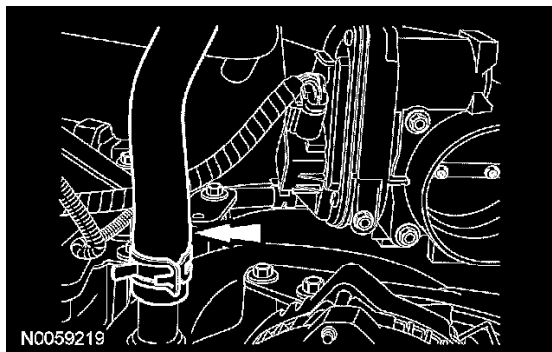
22. Position the generator support bracket and install the 3 bolts.  
23. Connect the generator wiring harness retainer.



24. Rotate the tensioner **clockwise** and install the accessory drive belt onto the generator pulley.



25. Connect the heater coolant hose.



26. Connect the upper radiator hose.
27. Connect the fuel supply tube spring lock coupling. For additional information, refer to Fuel Delivery and Air Induction.
28. Install the 8 ignition coils. For additional information, refer to Ignition System.
  - ^ Position the PCV tube and connect the quick connect couplings. For additional information, refer to Fuel Delivery and Air Induction.
29. Install the throttle body (TB). For additional information, refer to Fuel Delivery and Air Induction.
30. Install the engine cover.
31. Connect the battery ground cable. For additional information, refer to Battery.
32. Fill and bleed the engine cooling system. For additional information, refer to Cooling System.