

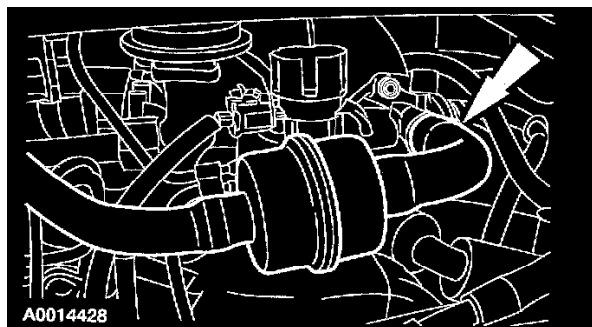
Intake Manifold: Service and Repair

Part 2 of 2

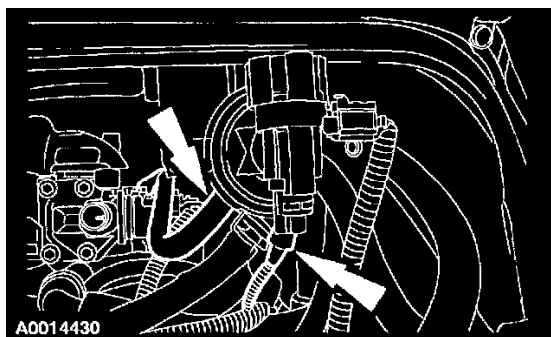
Intake Manifold - 5.4L Continued



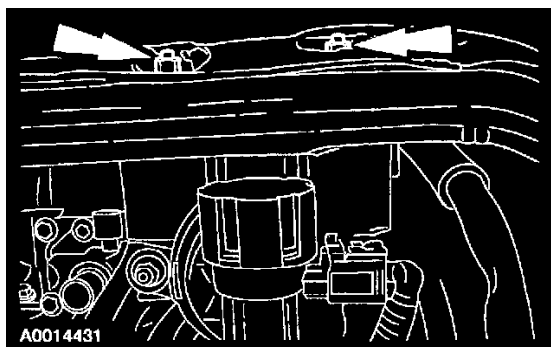
21. If equipped, disconnect the auxiliary heater hoses and position aside.



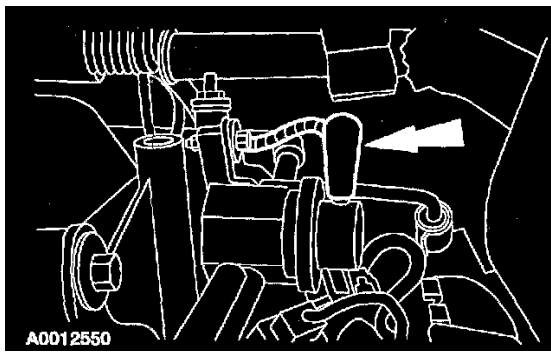
22. Disconnect and remove the Idle Air Control (IAC) valve fresh air hose.



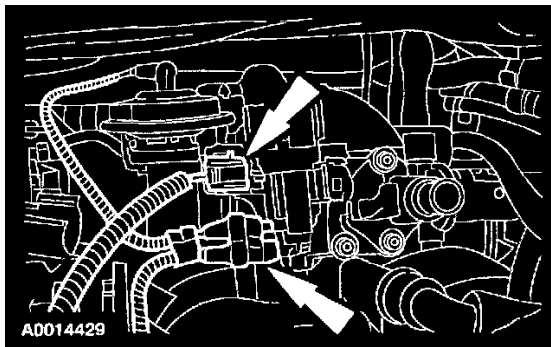
23. Disconnect the evaporative emission canister purge valve hose and vacuum hose.



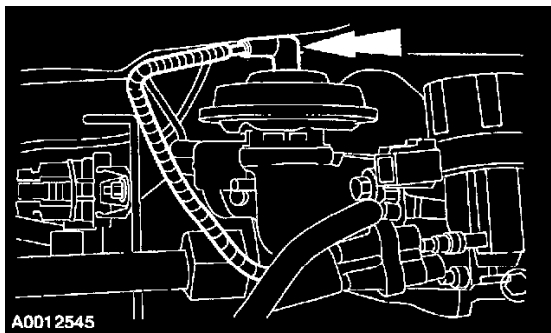
24. Remove the two evaporative emission canister purge valve nuts and position the valve aside.



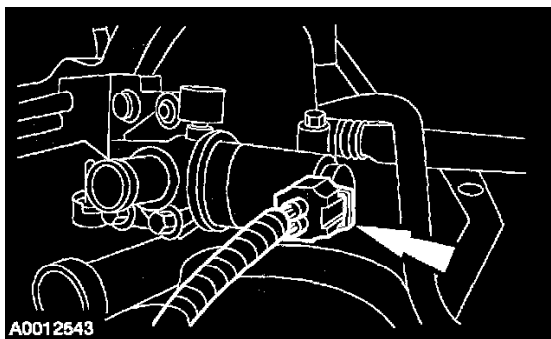
25. Disconnect the fuel pressure regulator vacuum hose.



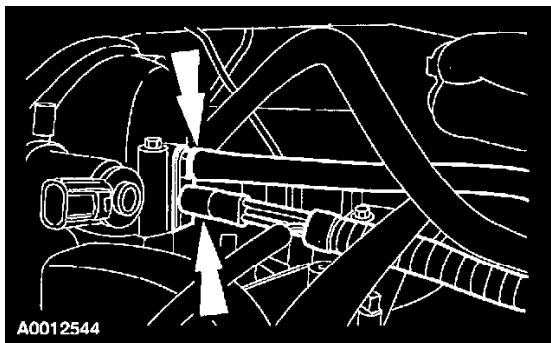
26. Disconnect the EGR vacuum regulator solenoid connections.



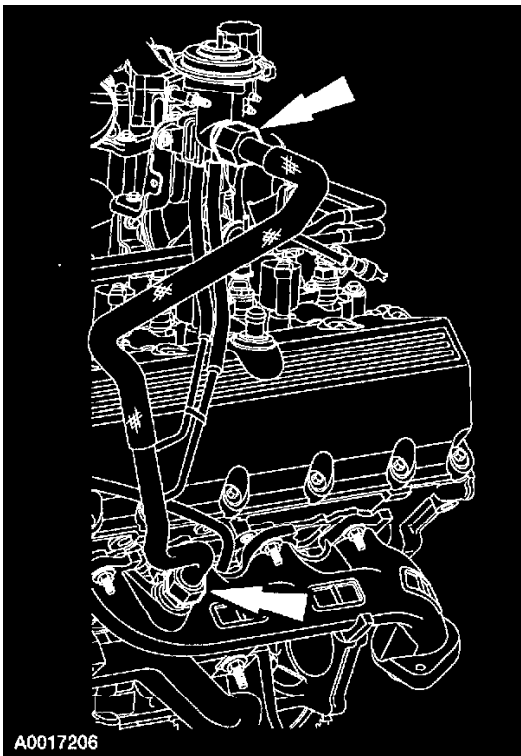
27. Disconnect the EGR valve vacuum hose.



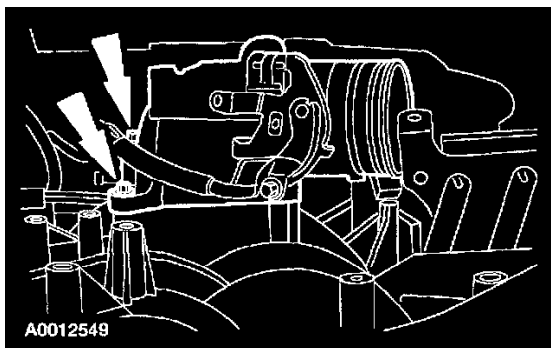
28. Disconnect the IAC valve electrical connector.



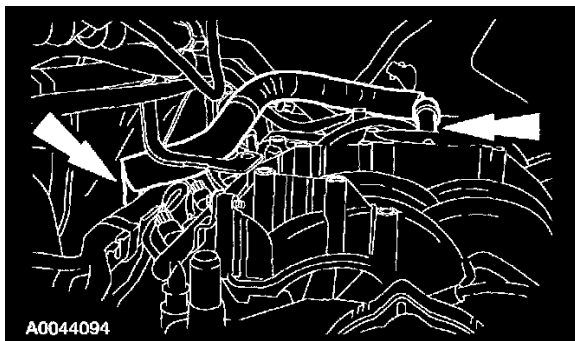
29. Disconnect the brake booster and main engine vacuum harness and position aside.



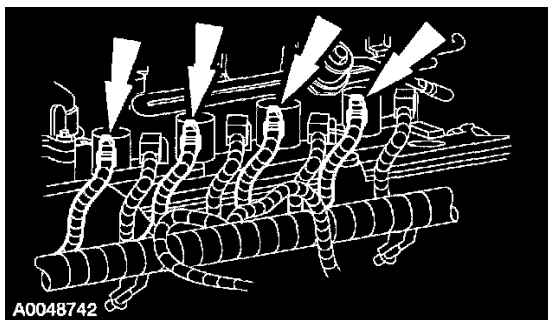
30. Remove the exhaust manifold-to-EGR valve tube.
^ Disconnect the upper fitting.
^ Disconnect the lower fitting and remove the tube.



31. Remove the four bolts, and the throttle body and adapter as an assembly.
^ Discard the throttle body adapter gasket.



32. Disconnect and remove the positive crankcase ventilation hose.



33. **NOTE:** LH shown, RH similar.

Disconnect the eight coil-on-plug electrical connectors.



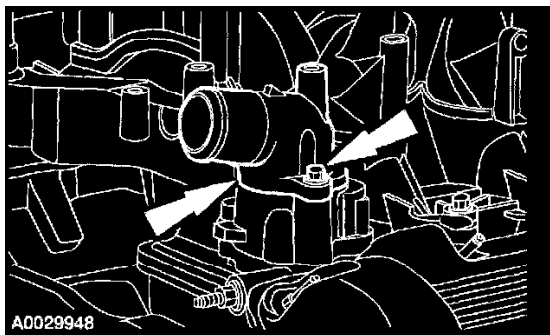
34. **NOTE:** RH shown, LH similar.

Disconnect the eight fuel injector electrical connectors.

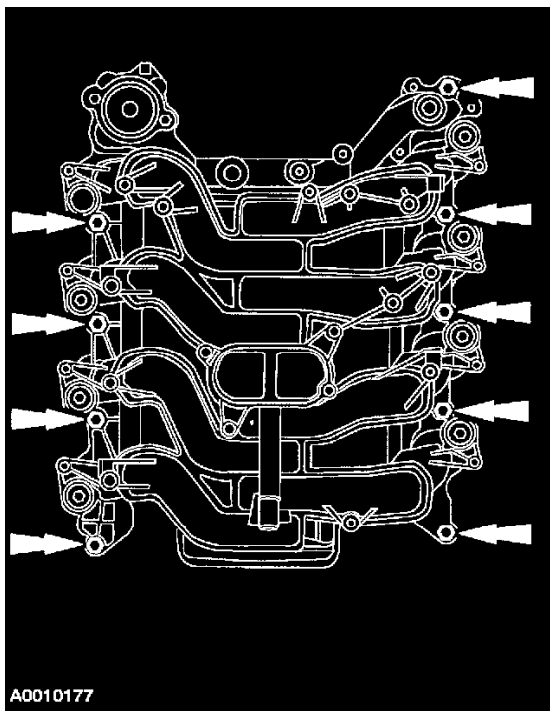


35. **NOTE:** LF shown, RH similar.

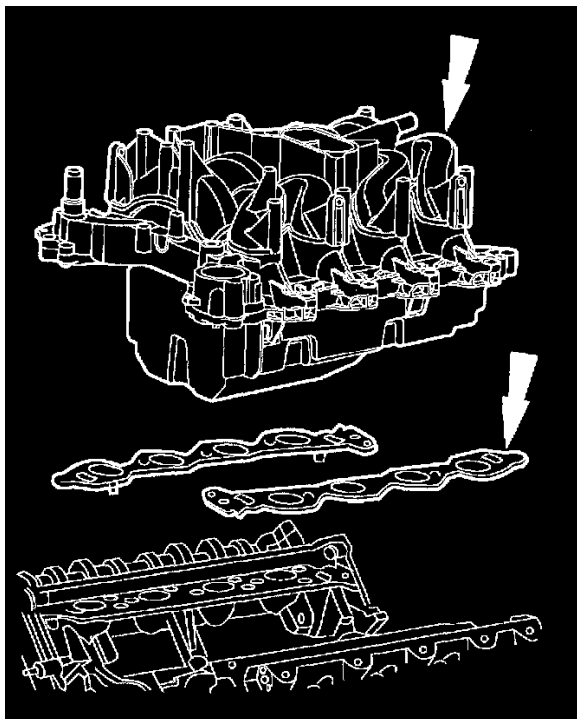
Remove the bolts and the eight ignition coils.



36. Remove the bolts, the thermostat housing and the thermostat.
^ Disconnect the O-ring seal.



37. Remove the nine bolts retaining the intake manifold.



38. Remove the intake manifold.

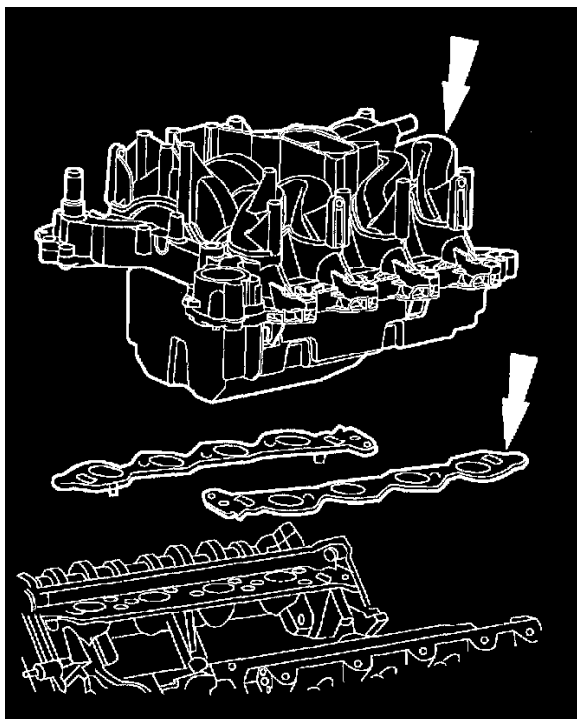
^ Discard the intake manifold gaskets.

39. Inspect the throttle body, the intake manifold, and their sealing surfaces for damage.

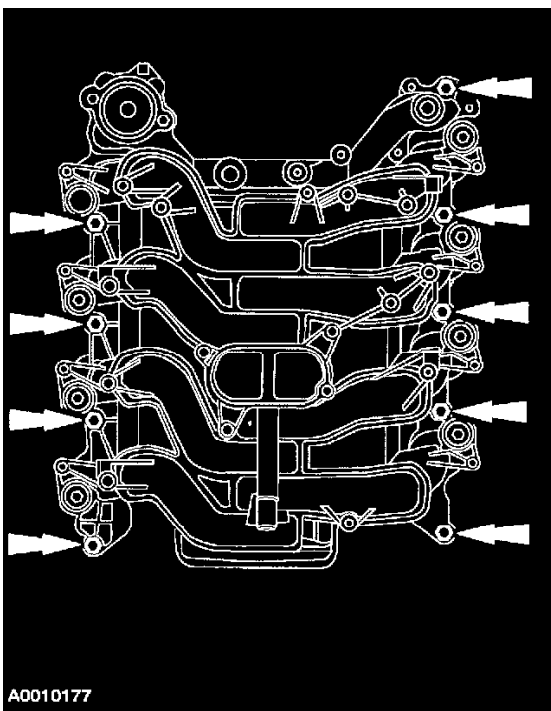
Installation

1. **CAUTION:** Do not use metal scrapers, wire brushes, power abrasive discs or any 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 these surfaces.

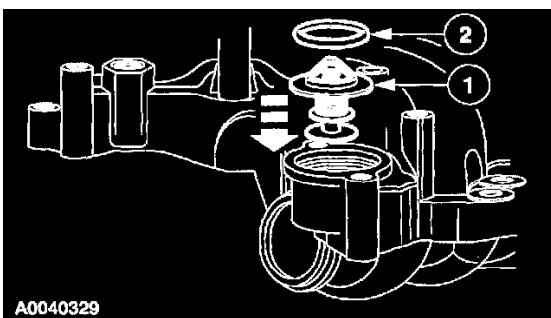
Clean and inspect all sealing surfaces.



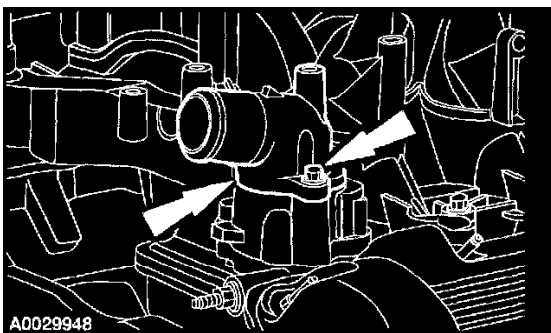
2. Position the intake manifold gaskets and the intake manifold.



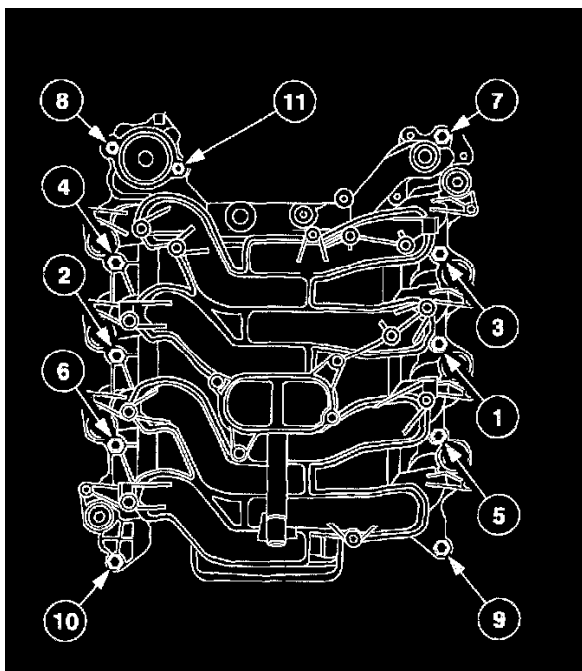
3. Loosely install the nine bolts.



4. Install the thermostat.
 - 1 Install the thermostat.
 - 2 Install a new O-ring seal.



5. **NOTE:** The thermostat housing bolts are tightened in sequence with the intake manifold bolts.
Loosely install the thermostat housing and bolts.

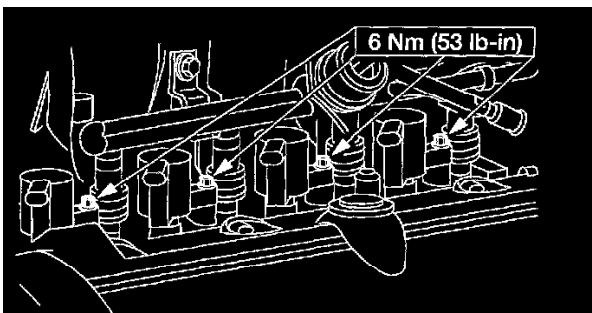


5.4L - Lower Intake To Upper Intake Sequence

6. Tighten the bolts in two stages, in the sequence shown.

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

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



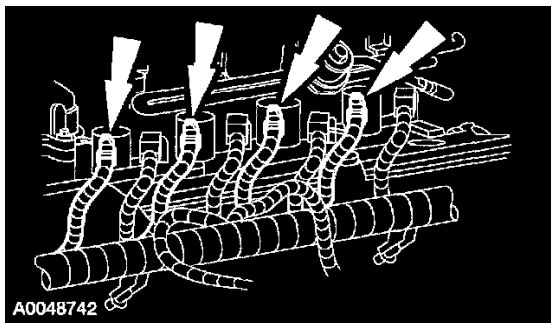
7. **NOTE:** LH shown, RH similar.

Install the eight ignition coils and bolts.



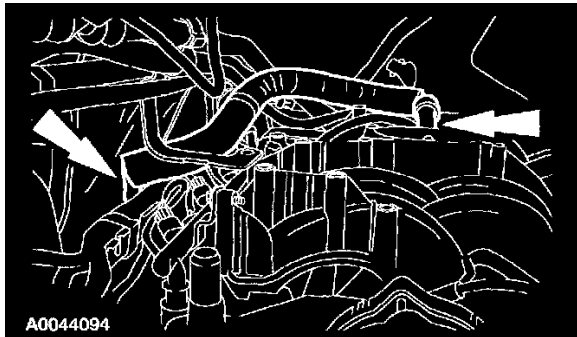
8. **NOTE:** LH shown, RH similar.

Connect the eight fuel injector electrical connectors.

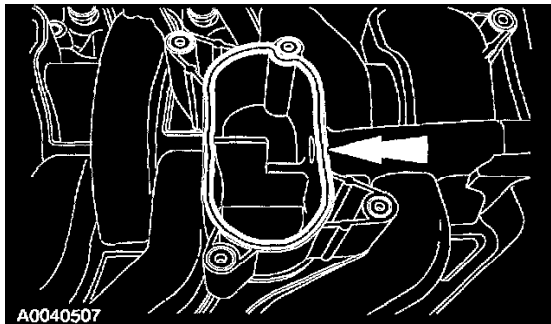


9. **NOTE:** LH shown, RH similar.

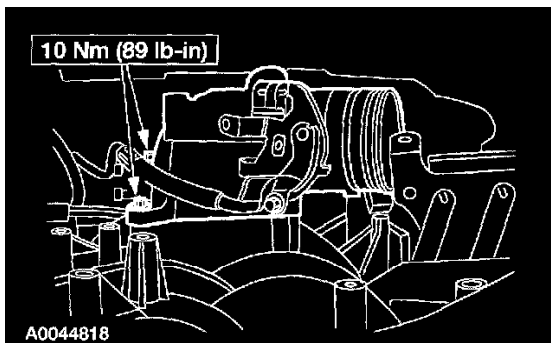
Connect the eight coil-on-plug electrical connectors.



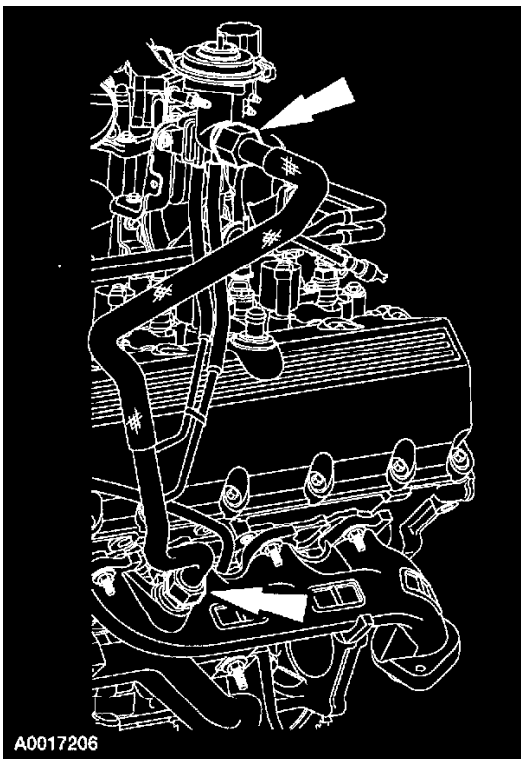
10. Install the PCV hose and valve.



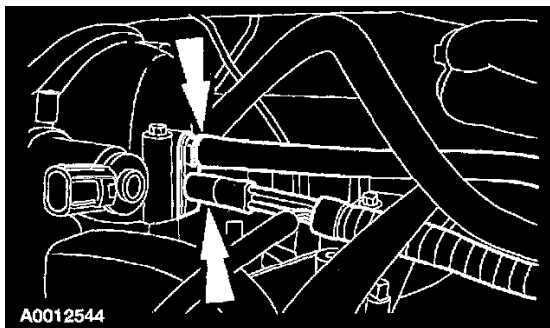
11. Install the new throttle body adapter gasket.



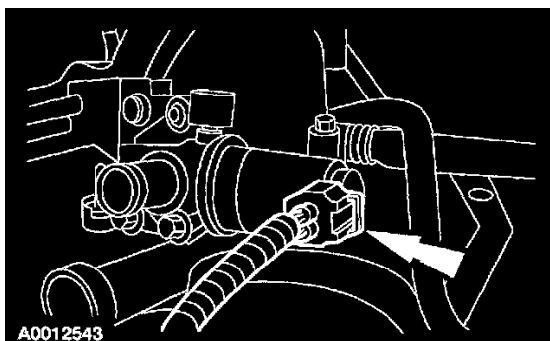
12. Install the throttle body and adapter assembly.



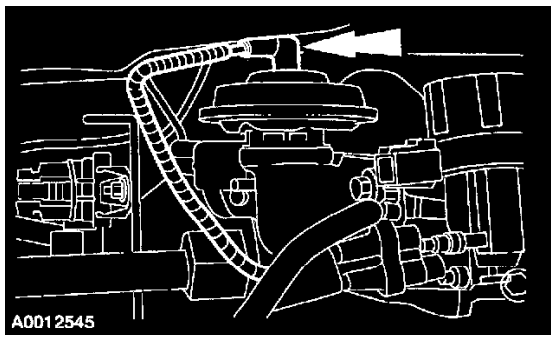
13. Install the exhaust manifold-to-EGR valve tube and tighten the fitting in two stages.
- ^ Hand-tighten the fittings.
 - ^ Tighten the fittings to **40 - 60 Nm (30 - 44 ft. lbs.)**.



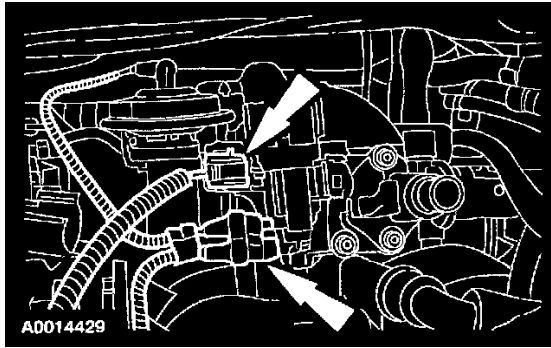
14. Connect the brake booster and the main engine vacuum harnesses.



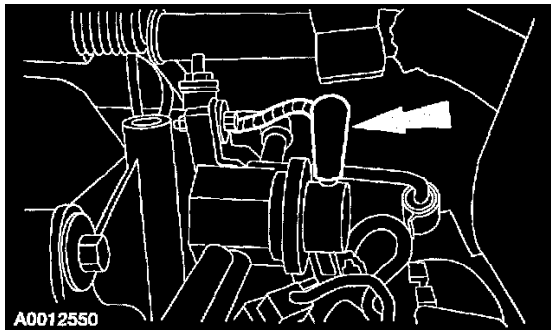
15. Connect the IAC electrical connector.



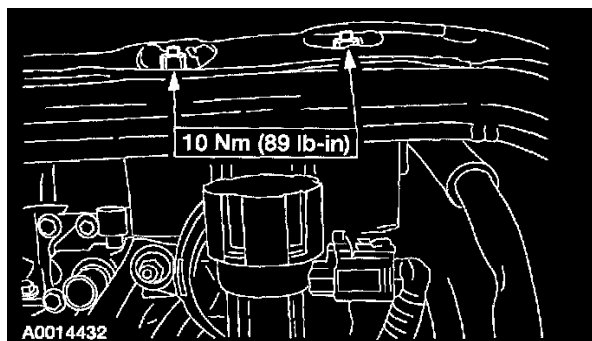
16. Connect the EGR vacuum hose.



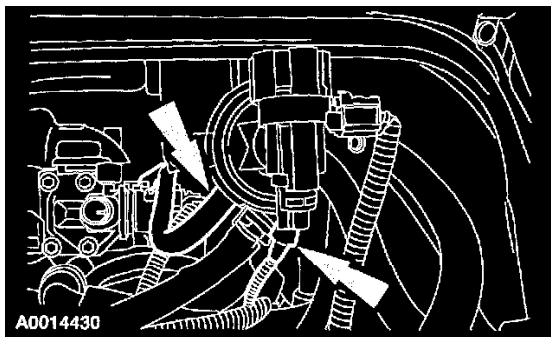
17. Connect the EGR vacuum regulator solenoid connections.



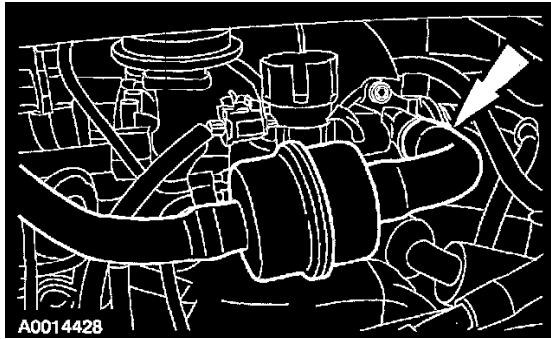
18. Connect the fuel pressure regulator vacuum hose.



19. Install the evaporative emission canister purge valve and bracket.



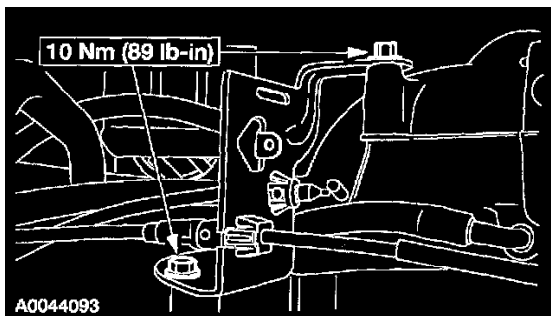
20. Connect the evaporative emission canister purge valve hoses.



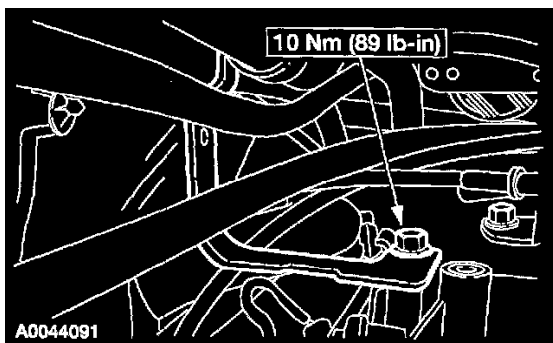
21. Connect the IAC fresh air hose.



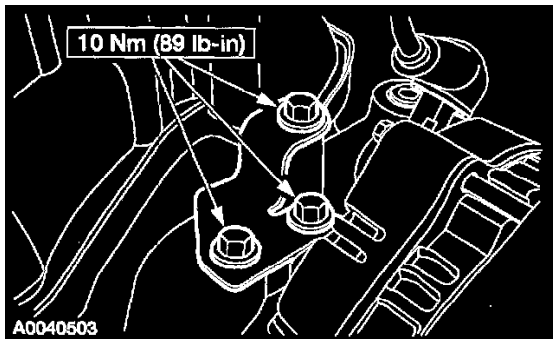
22. If equipped, connect the auxiliary heater hoses.
23. Connect the fuel hose spring lock couplings.



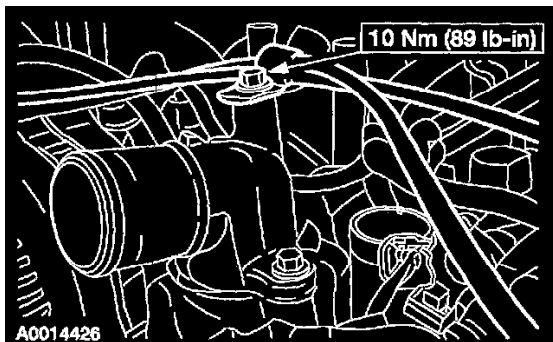
24. Install the accelerator cable bracket.



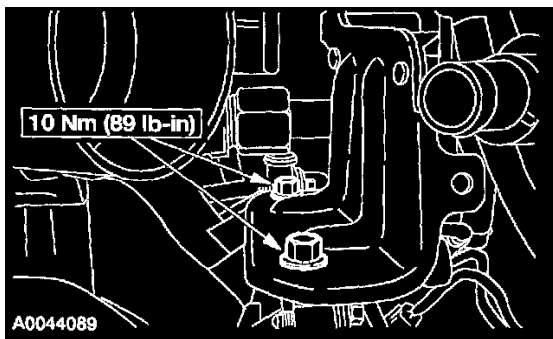
25. Install the transmission fluid filler tube bracket and bolt.



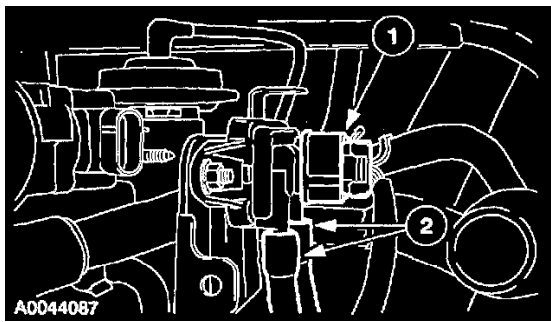
26. Install the generator upper support bracket.



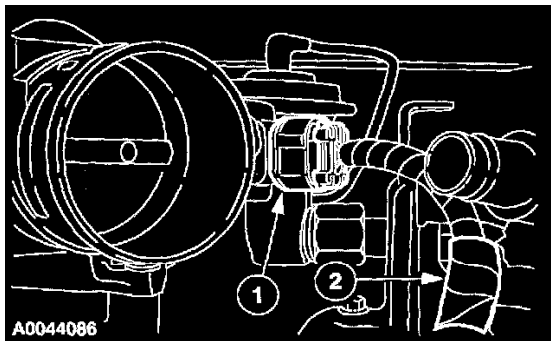
27. Install the accelerator cable routing bracket.



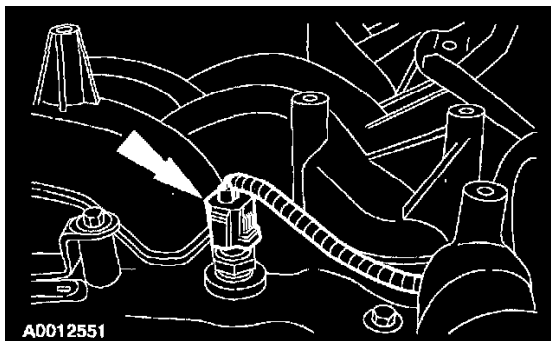
28. Install the differential pressure feedback EGR system bracket.



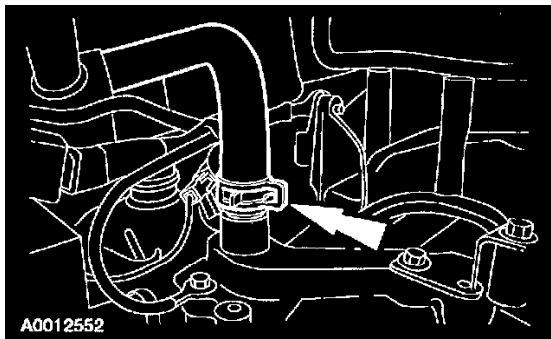
29. Connect the differential pressure feedback EGR system.
- 1 Connect the electrical connector.
 - 2 Connect the two hoses.



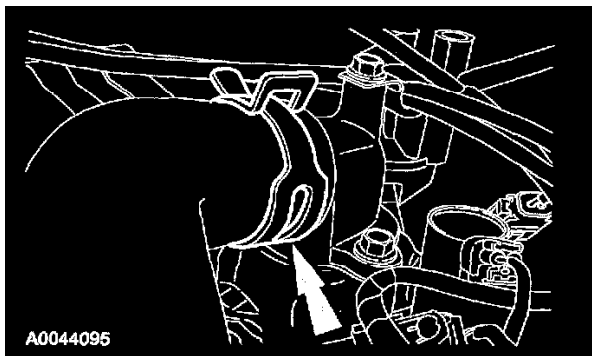
30. Connect the TP sensor.
- 1 Connect the electrical connector.
 - 2 Attach the harness routing clip.



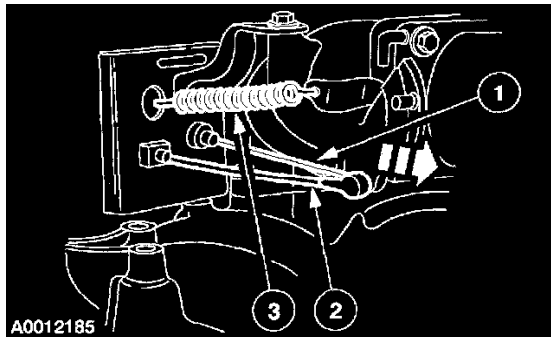
31. Connect the water temperature sensor electrical connector.



32. Connect the heater hose.



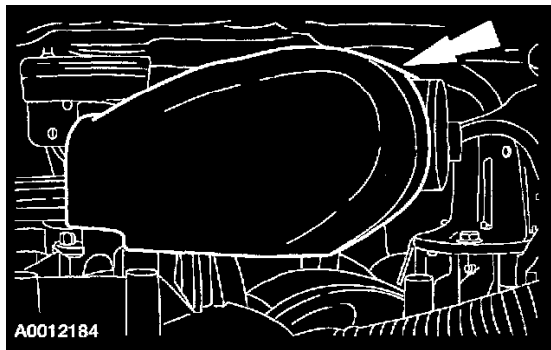
33. Connect the upper radiator hose.



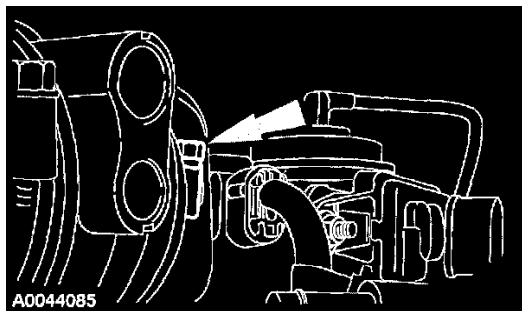
34. **NOTE:** Typical is shown.

Connect the throttle controls.

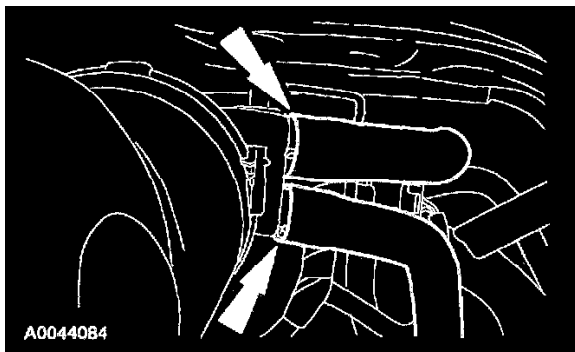
- 1 Connect the accelerator cable.
- 2 Connect the speed control actuator cable.
- 3 Install the throttle return spring.



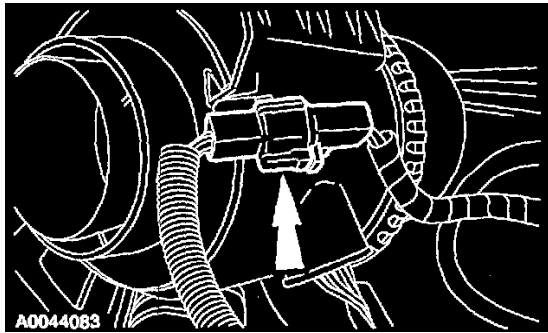
35. Install the accelerator cable snow shield.



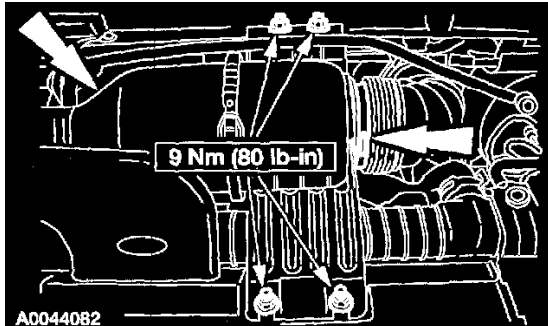
36. Install the air cleaner outlet pipe and tighten the clamp.



37. Connect the two hoses to the air cleaner outlet pipe.



38. Connect the MAF sensor and position the ACL.



39. Install the ACL.
^ Install the four bolts.
^ Tighten the clamp.
40. Install the interior engine cover.
41. Connect the battery ground cable.
42. Fill and bleed the engine cooling system.