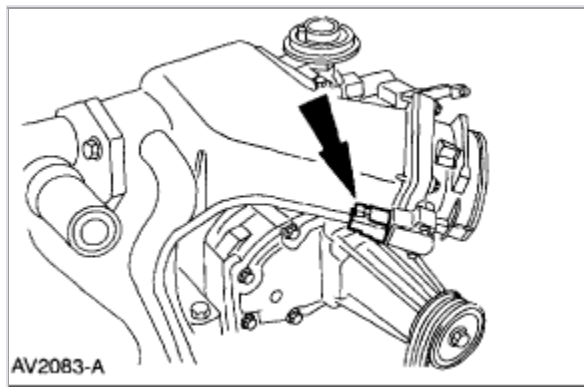


## 2003 Ford Truck F 150 2WD Pickup V8-5.4L SOHC SC VIN 3

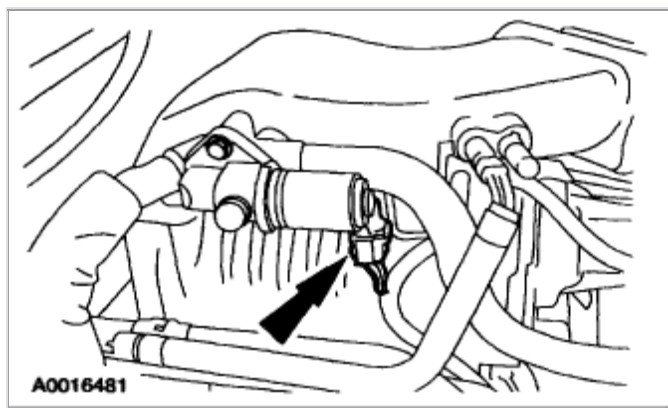
### Charge Air Cooler

#### REMOVAL

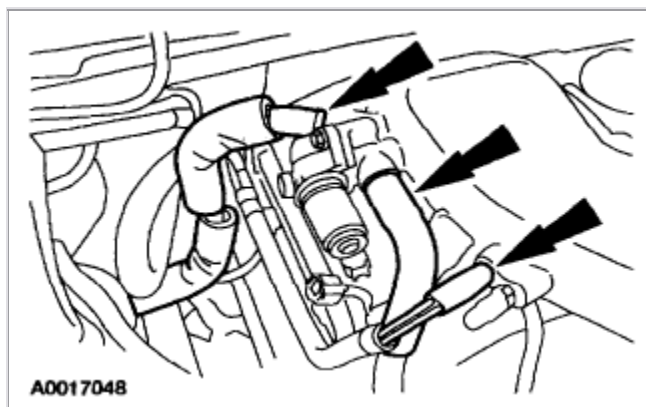
1. Disconnect the battery ground cable. **CAUTION:** Before any supercharger service, clean areas around the supercharger assembly. Cover the openings of the engine and supercharger while supercharger is removed to prevent damage by foreign material.
2. Remove the air cleaner outlet tube.



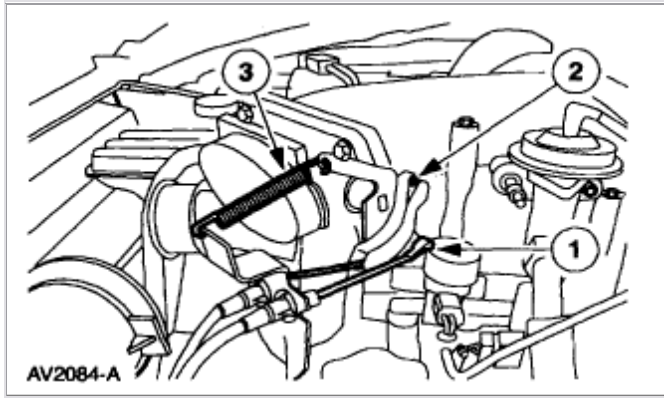
3. Disconnect the Throttle Position (TP) sensor electrical connector.



4. Disconnect the idle air control electrical connector.



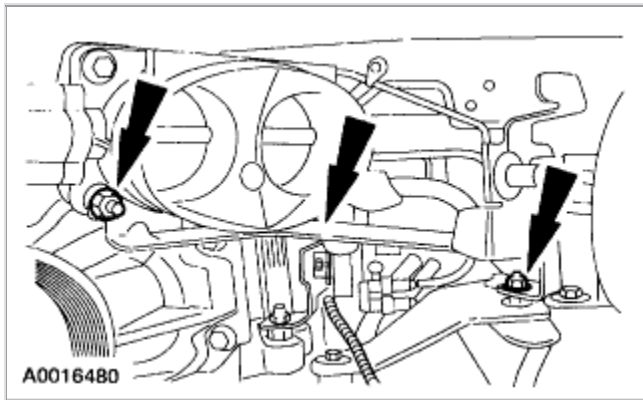
5. Disconnect the vacuum lines and the vent hose.



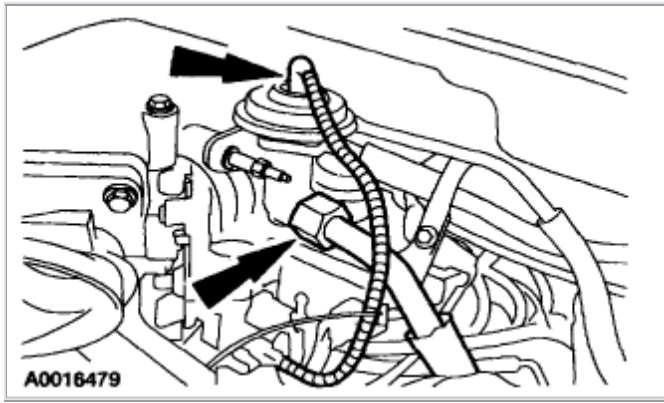
6. Disconnect the throttle control linkages.

- 1 Disconnect the speed control actuator cable.
- 2 Disconnect the accelerator cable.
- 3 Remove the throttle return spring from the throttle lever.

**NOTE:** Pay attention to the throttle return spring orientation. It must be reinstalled in the correct orientation.

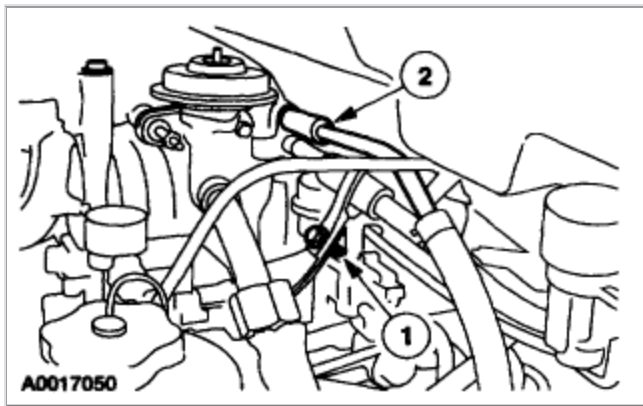


7. Remove the three nuts and position the accelerator cable bracket aside.



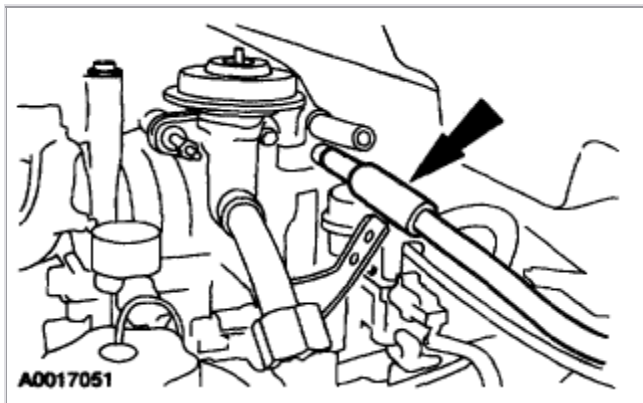
8. Disconnect the Exhaust Gas Recirculation (**EGR**) valve.

- Disconnect the vacuum line.
- Disconnect the EGR valve tube fitting.

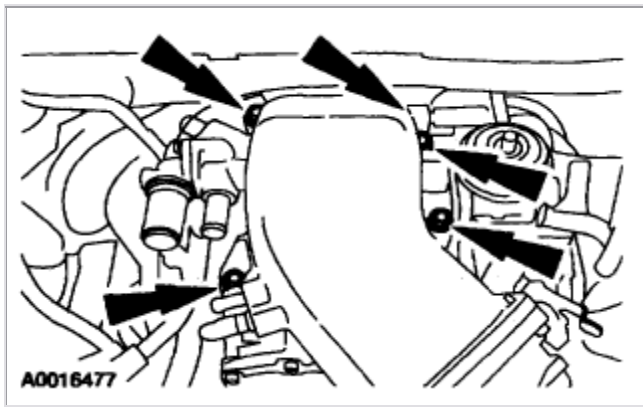


9. Disconnect the brake booster vacuum line.

- 1 Remove the bracket bolt.
- 2 Disconnect the vacuum line.



10. Disconnect the vacuum line.

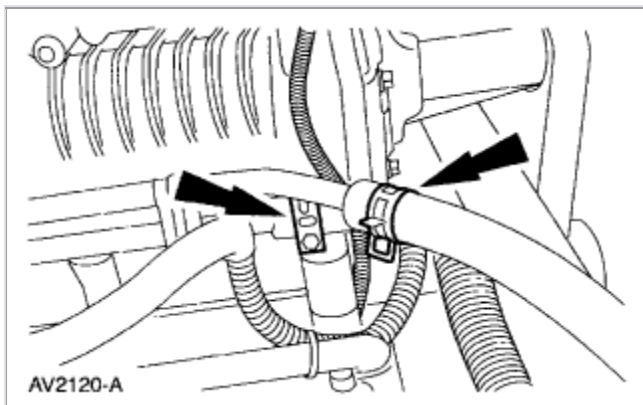


11. Remove the bolts and remove the throttle body spacer.

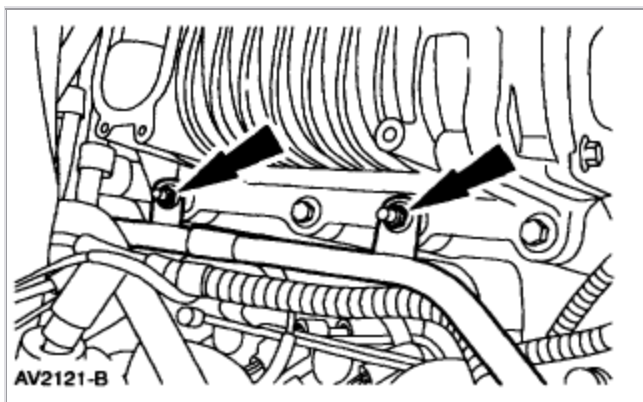
- Discard the gasket

12. Remove the accessory drive belt.

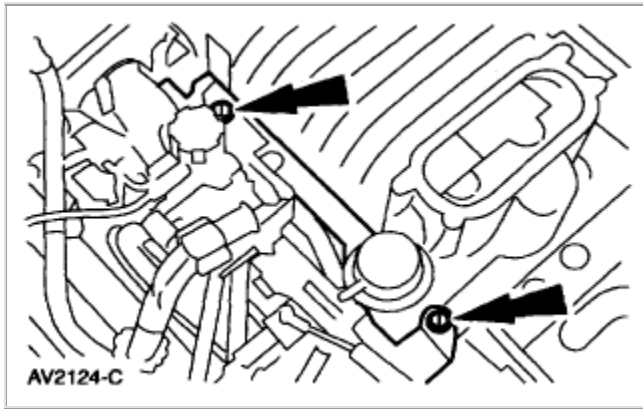
13. Drain the Charge Air Cooling (CAC) system.



14. Loosen the CAC hose clamps and remove the hoses.

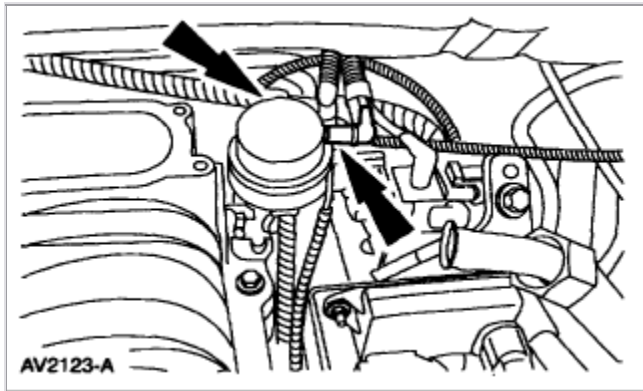


15. Remove the nuts and position the CAC water supply and return tubes aside.

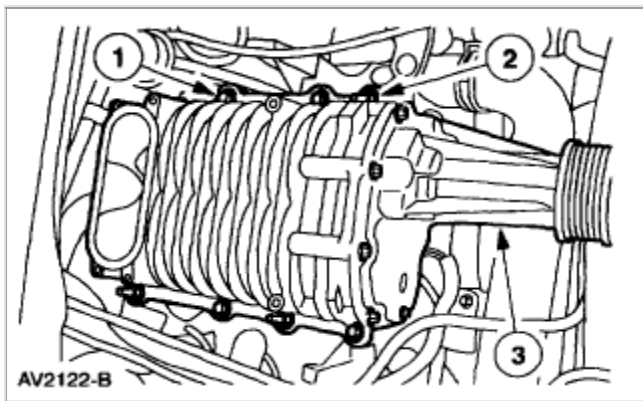


16. Remove the EGR vacuum regulator bracket.

- Remove the nuts.



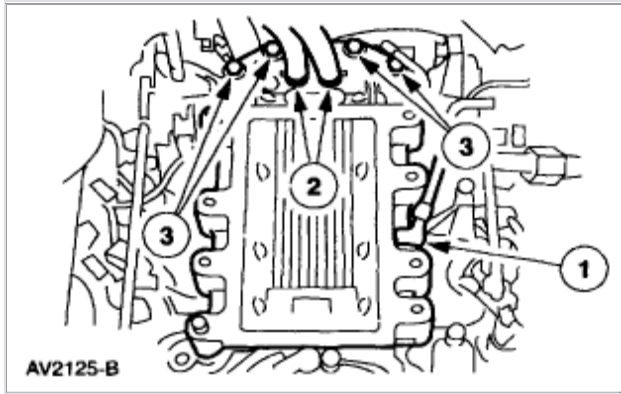
17. Remove the two upper vacuum hoses from the supercharger bypass valve actuator.



18. Remove the supercharger and plenum assembly.

- 1 Remove the bolts.
- 2 Remove the stud bolts.
- 3 Remove the supercharger and plenum assembly.

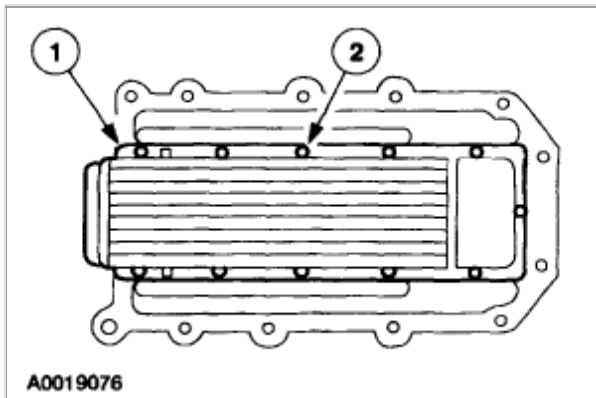
- Discard the gasket.



19. Remove the upper intake manifold.

- 1 Remove the vacuum hose.
- 2 Remove the CAC hoses.
- 3 Remove the bolts and the upper intake manifold.

- Discard the gasket.

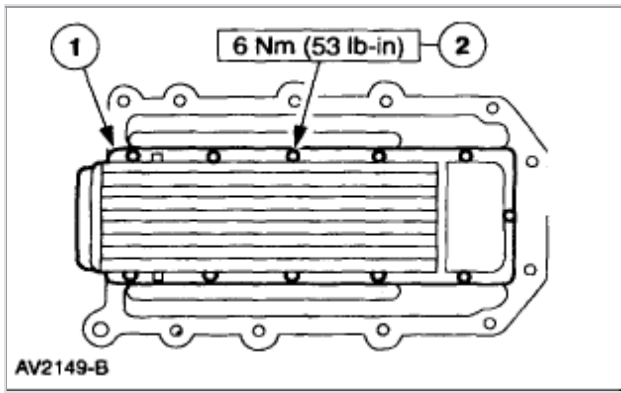


20. Remove the CAC.

- 1 Remove and discard the bolts.
- 2 Remove the CAC.

- Discard the gasket.

## INSTALLATION



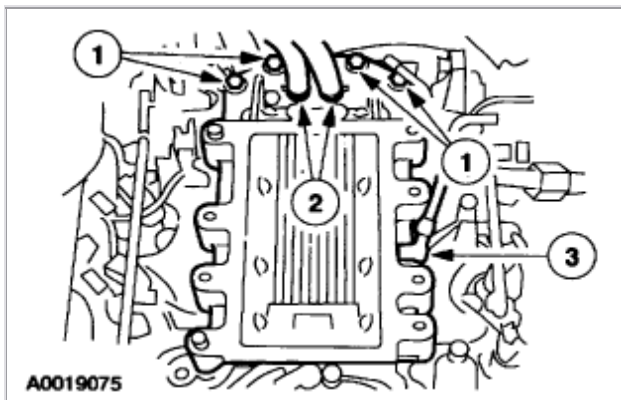
1. Install the CAC.

1 Install the CAC.

- Install a new gasket.

2 Install the new bolts.

**NOTE:** New bolts must be used during assembly of the charge air cooler (CAC).



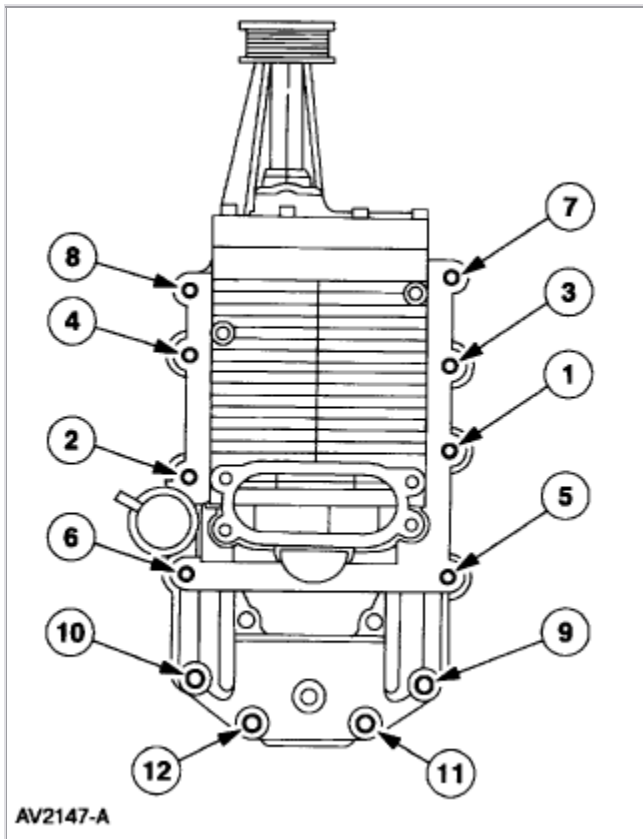
2. Install the upper intake manifold.

1 Install the upper intake manifold and the four rear bolts loosely.

2 Install the CAC hoses.

- Install a new gasket.

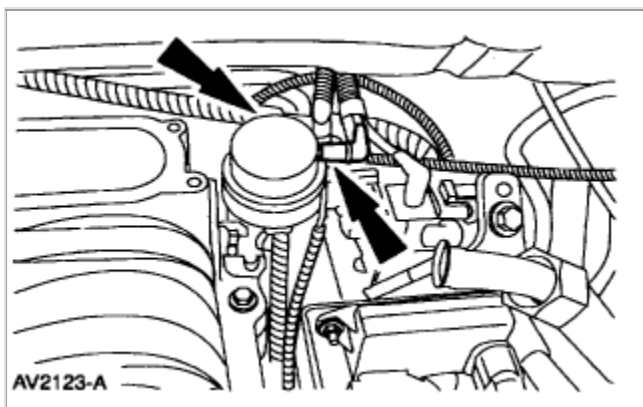
3 Install the vacuum hose.



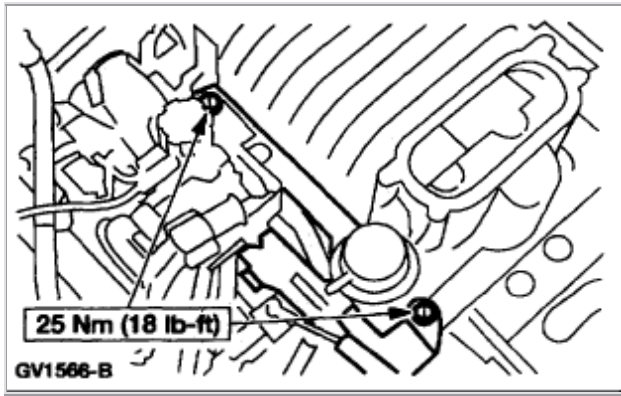
3. Install a new gasket and install the supercharger and plenum assembly, bolts, and the stud bolts.

- Stage 1: Tighten to **2 Nm (18 Lb-In )**.
- Stage 2: Tighten **45 Nm (33 Lb-Ft )**.

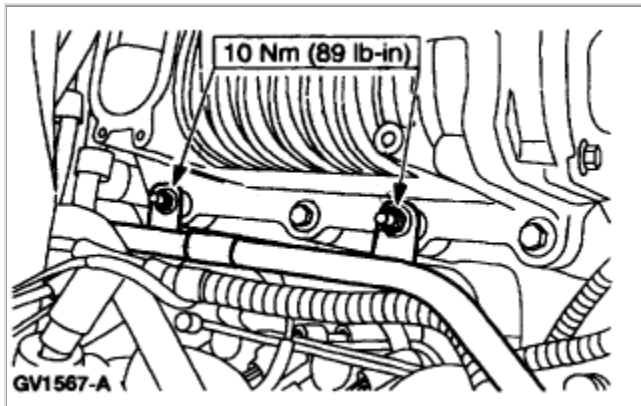
**NOTE:** Tighten the retainers in two stages, in the sequence shown.



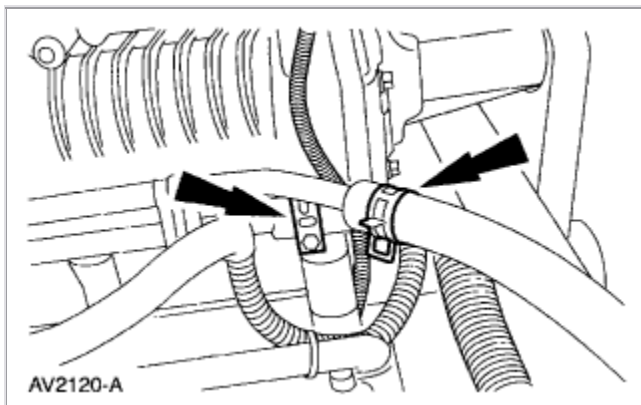
4. Install the two upper vacuum hoses to the supercharger bypass valve actuator.



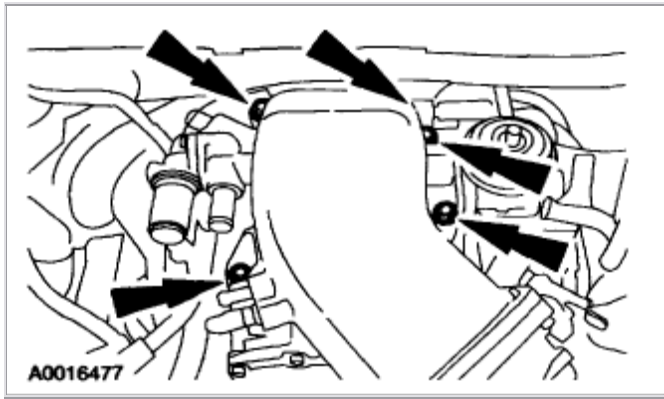
5. Install the EGR vacuum regulator bracket and install the nuts.
  - Position the bracket and install the nuts.



6. Position the CAC water supply and return tubes and install the nuts.



7. Install the CAC hoses and the clamps.
8. Fill the CAC [cooling system](#).
9. Install the accessory drive belt.

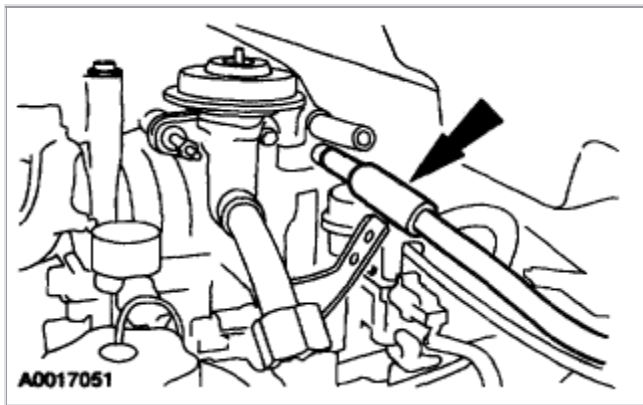


10. Install a new gasket and install the throttle body spacer. Tighten the bolts in two stages.

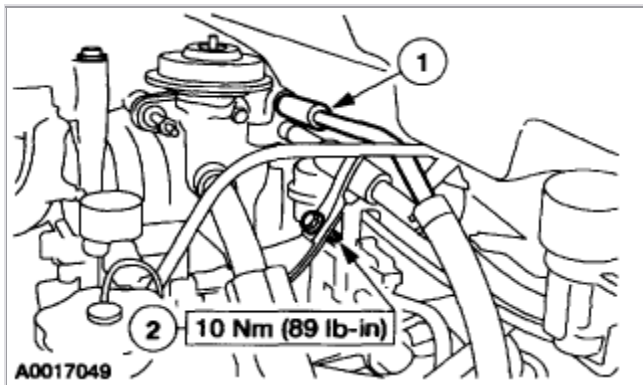
- Stage 1: Tighten to **10 Nm (89 Lb-In)** .
- Stage 2: Tighten an additional **90 degrees** .

**CAUTION:** The throttle body spacer sealing surfaces are soft metals. Carefully clean both sealing surfaces.

**NOTE:** Inspect the throttle body spacer gasket and install a new gasket if necessary.



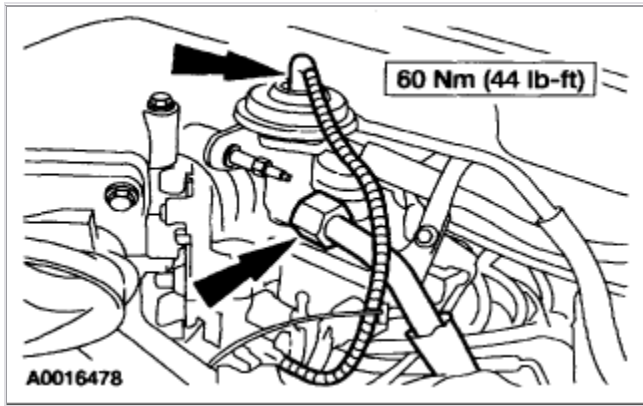
11. Connect the vacuum lines.



12. Connect the brake booster vacuum line.

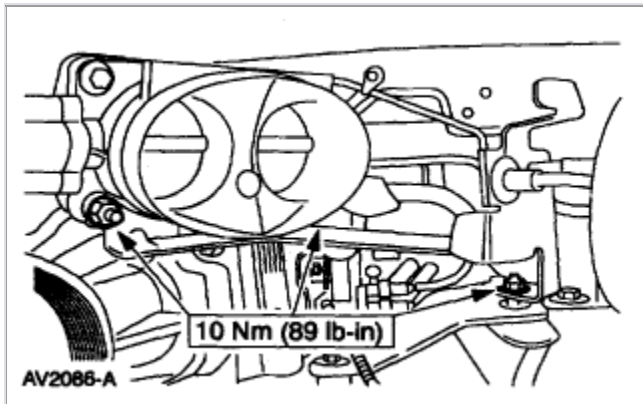
1 Connect the vacuum line.

2 Install the bracket bolt.

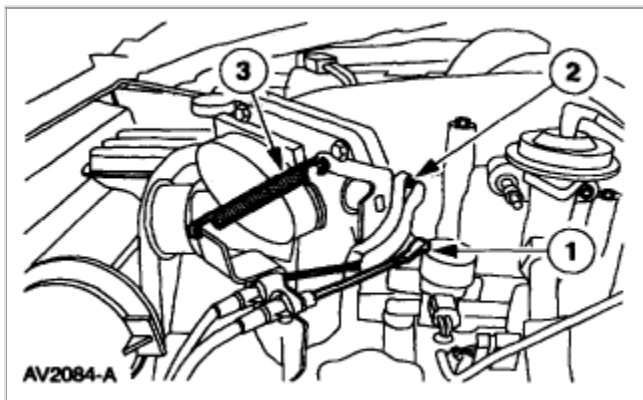


13. Connect the exhaust gas recirculation (EGR) valve.

- Connect the vacuum line.
- Connect the EGR vacuum tube fitting.



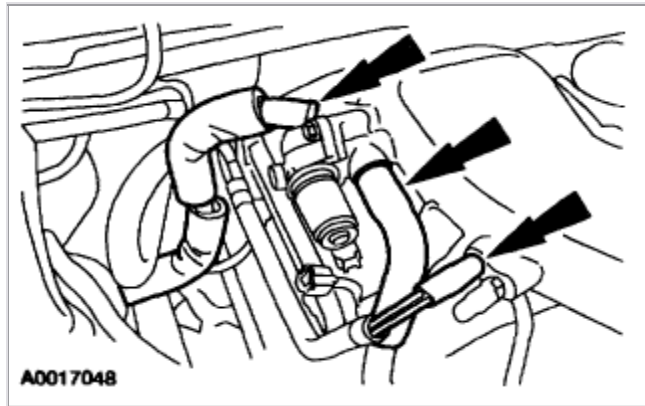
14. Install the accelerator cable bracket and install the three bolts.



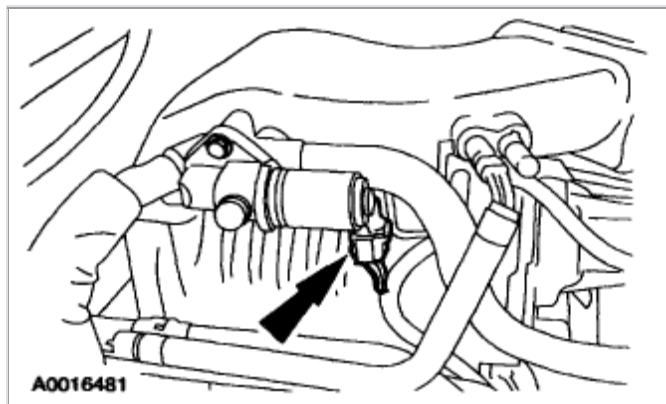
15. Connect the throttle control linkages.

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

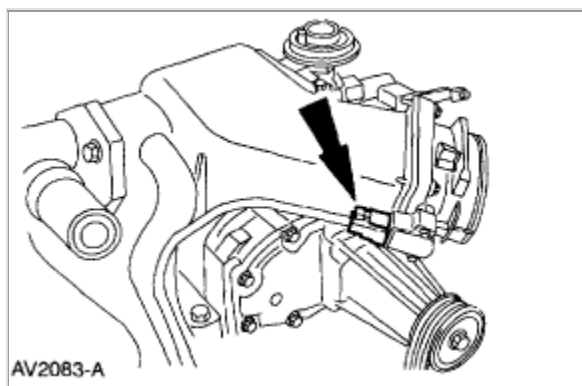
**NOTE:** Pay attention to the throttle return spring orientation. It must be reinstalled in the correct orientation.



16. Connect the vacuum lines and the vent hose.



17. Connect the idle air control electrical connector.



18. Connect the throttle position (TP) sensor electrical connector.
19. Install the air cleaner outlet tube.
20. Connect the battery ground cable.