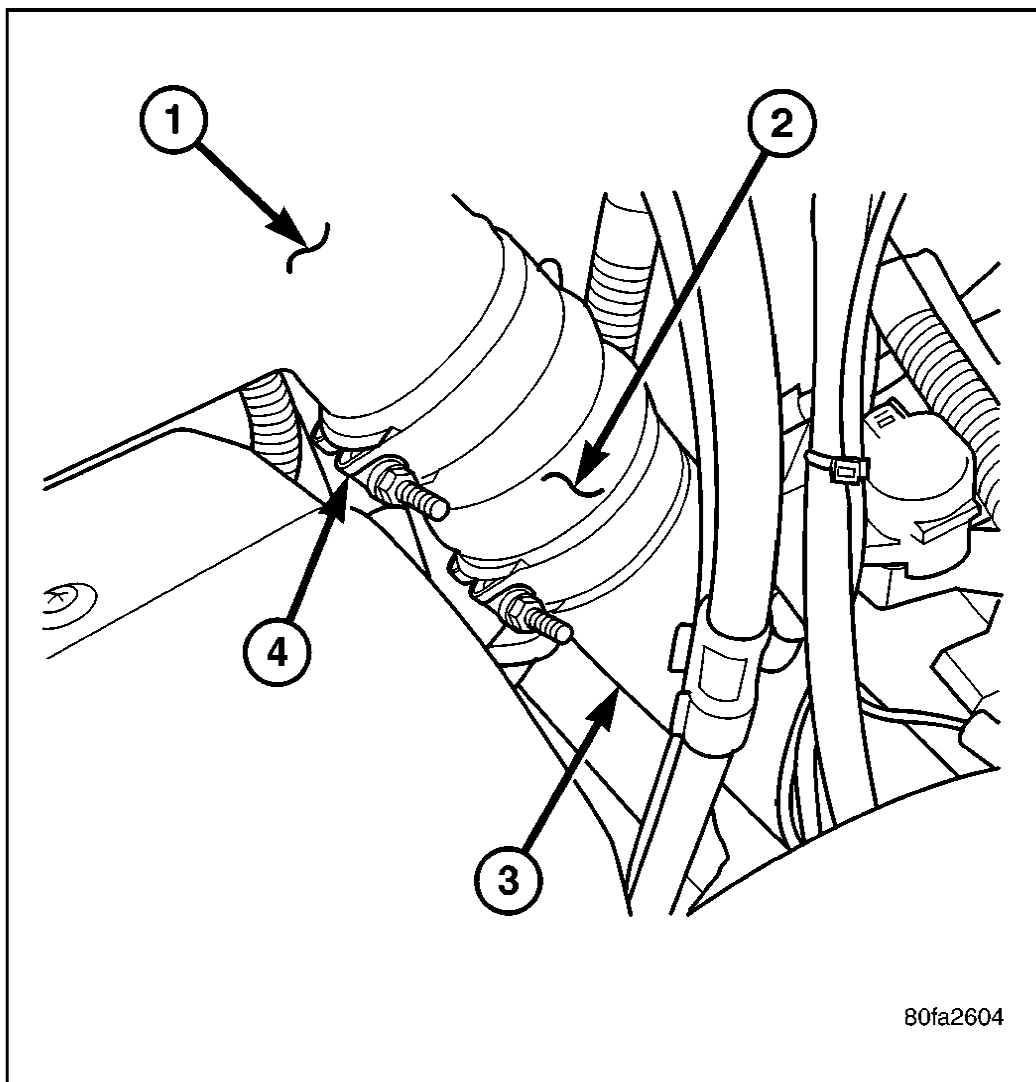


## PROCEDURES

**CAUTION:** Cleanliness cannot be overemphasized when handling or replacing diesel fuel system components. This especially includes the fuel injectors, high-pressure fuel lines and fuel injection pump. Very tight tolerances are used with these parts. Dirt contamination could cause rapid part wear and possible plugging of fuel injector nozzle tip holes. This in turn could lead to possible engine misfire. Always wash/clean any fuel system component thoroughly before disassembly and then air dry. Cap or cover any open part after disassembly. Before assembly, examine each part for dirt, grease or other contaminants and clean if necessary. When installing new parts, lubricate them with clean engine oil or clean diesel fuel only.

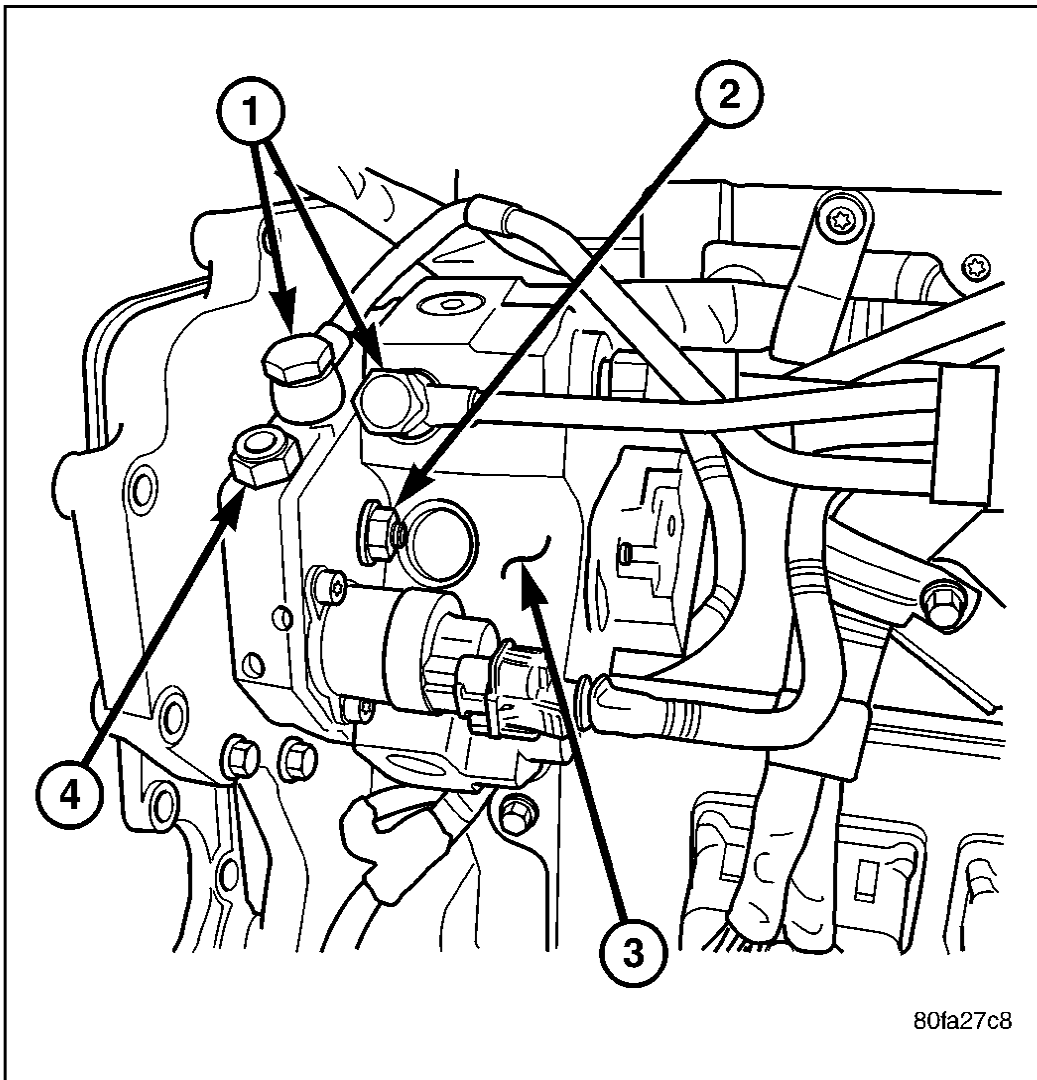
### REMOVAL



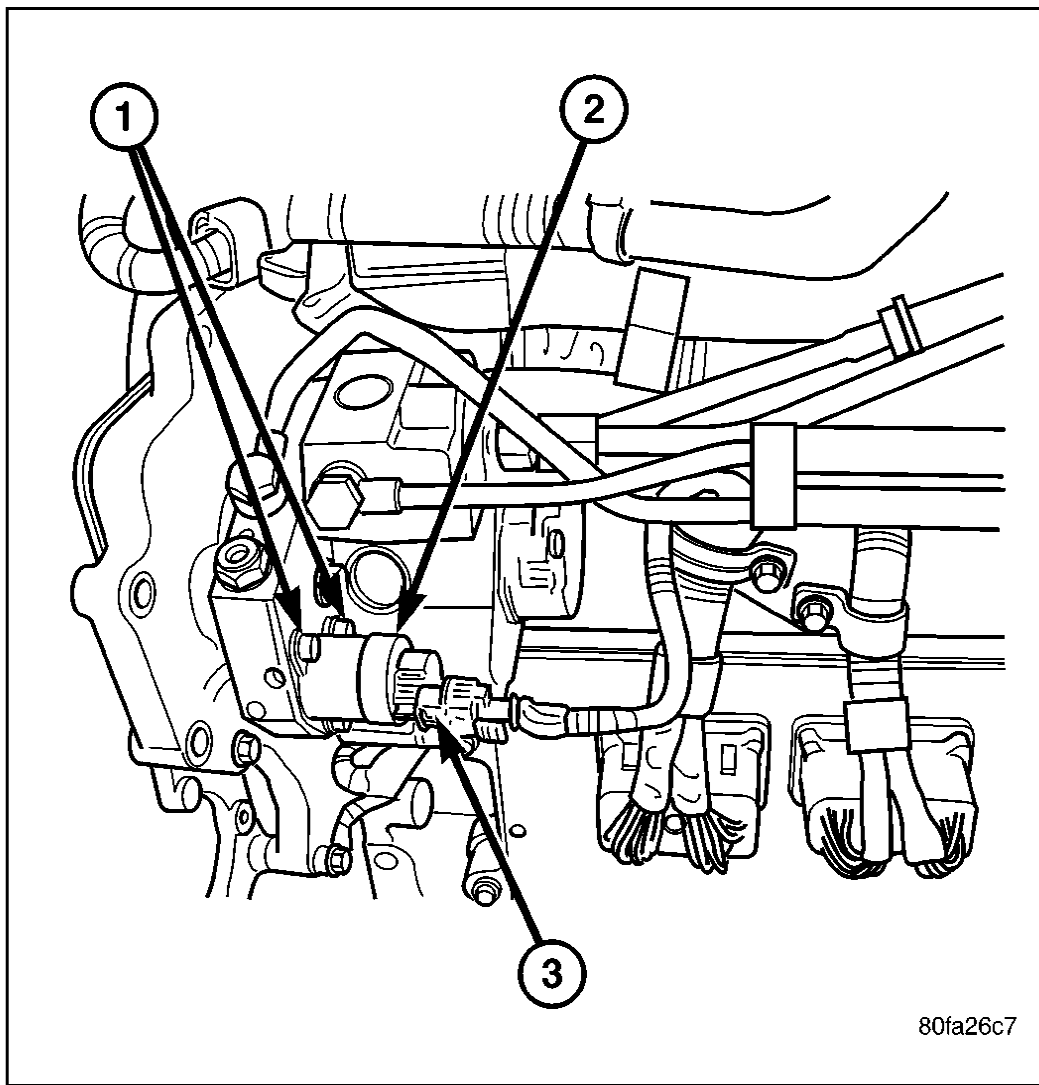
80fa2604

1. Disconnect both negative battery cables at both batteries. Cover and isolate ends of both cables.
2. Remove intake manifold air intake tube (above injection pump) and its rubber connector hose (2).
3. Remove fan shroud.

4. Remove fan assembly.
5. Remove accessory drive belt.



6. Thoroughly clean the rear of injection pump, and attachment points for its 3 fuel lines. Also clean the opposite ends of these same 3 lines at their attachment points.



80fa26c7

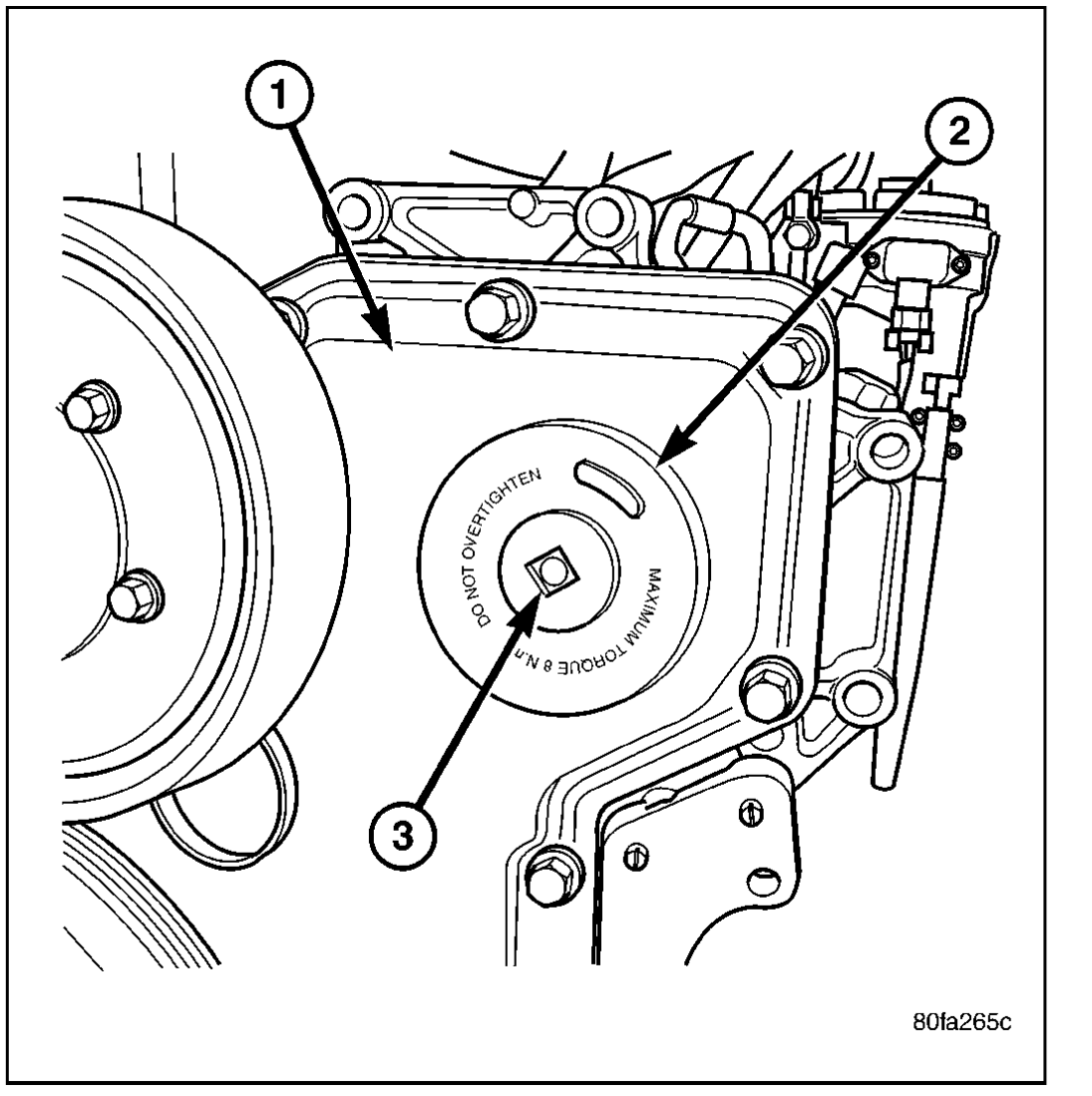
7. Disconnect Fuel Control Actuator (FCA) electrical connector (3) at rear of injection pump.

**CAUTION:** Whenever a fuel line fitting is connected to a secondary fitting, always use a back-up wrench on the secondary fitting. Do not allow the secondary fitting to rotate.

8. Remove fuel line (injection pump-to-fuel pressure limiting valve).

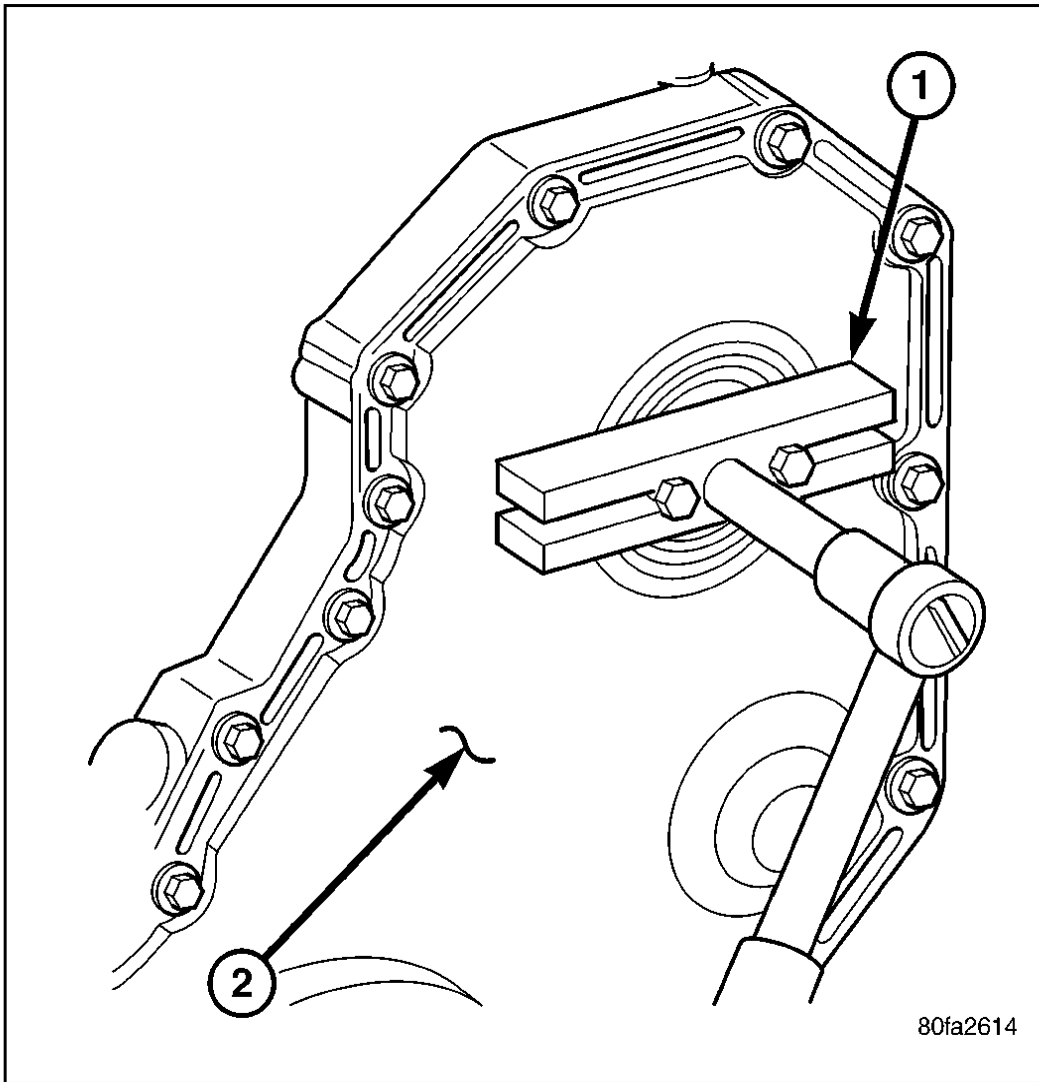
9. Remove fuel line (injection pump-to-fuel rail). Use back-up wrench on fitting at fuel pump.

10. Remove fuel line (injection pump-to-fuel filter housing).

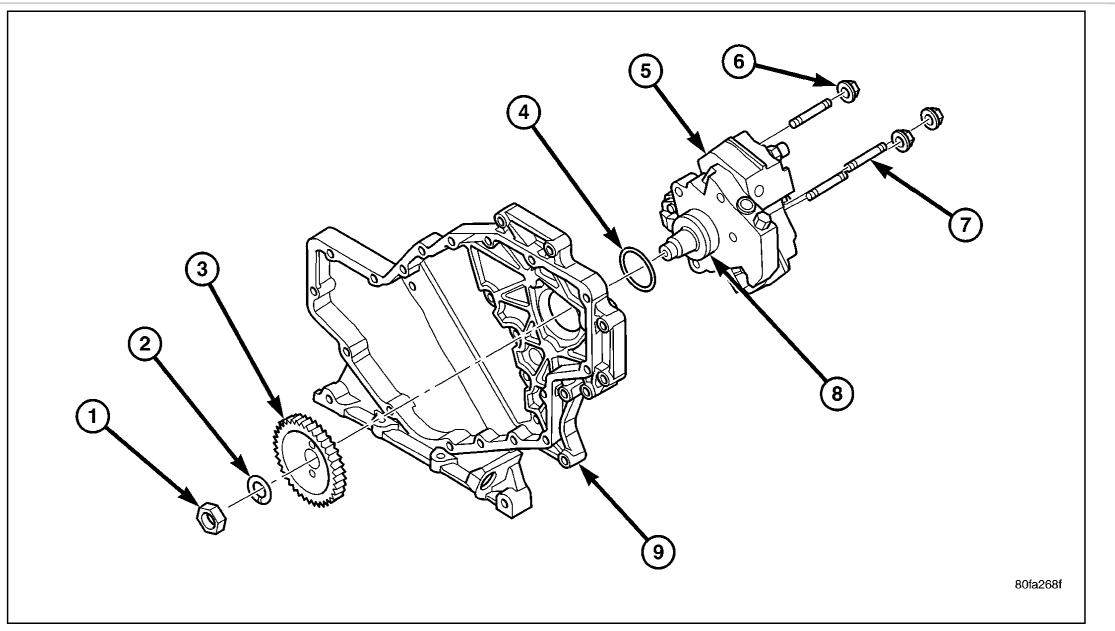


80fa265c

11. Remove fuel pump drive gear access cover (plate) with a 3/8 inches drive ratchet. Plate (2) is threaded to timing gear cover.
12. Remove fuel pump drive gear mounting nut and washer.



13. Attach C3428B, or L4407A (or equivalent) gear puller (2) to pump drive gear with 2 bolts, and separate gear from pump (a keyway is not used on this particular injection pump). Leave drive gear hanging loose within timing gear cover.



14. Remove 3 injection pump mounting nuts (6) , and remove pump from engine.

### INSTALLATION

1. Inspect pump mounting surfaces at pump and mounting flange for nicks, cuts or damage. Inspect O-ring surfaces for nicks, cuts or damage.

2. Clean injection pump mounting flange at gear housing. Also clean front of injection pump.

3. Install new rubber O-ring into machined groove at pump mounting area.

4. Apply clean engine oil to injection pump O-ring only. The machined tapers on both injection pump shaft and injection pump gear must be absolutely dry, clean and free of any dirt or oil film. This will ensure proper gear-to-shaft tightening.

5. Clean pump gear and pump shaft at machined tapers with an evaporative type cleaner such as brake cleaner.

6. Position injection pump to mounting flange on gear housing while aligning injection pump shaft through back of injection pump gear.

7. After pump is positioned flat to mounting flange, install 3 pump mounting nuts and tighten finger tight only. Do not attempt a final tightening at this time. Do not attempt to tighten (pull) pump to gear housing using mounting nuts. Damage to pump or gear cover may occur. The pump must be positioned flat to its mounting flange before attempting to tighten 3 mounting nuts.

8. To prevent damage or cracking of components, install and tighten nuts in the following sequence:

a. Install injection pump shaft washer and nut to pump shaft. Tighten nut finger tight only.

b. Do preliminary (light) tightening of injection pump shaft nut.

c. Tighten 3 injection pump mounting nuts to **24 Nm (18 ft. lbs.)**.

d. Do a final tightening of pump shaft nut to **105 Nm (77 ft. lbs.)**.

9. Install drive gear access cover (plate) using a 3/8 inches drive ratchet. Plate is threaded to timing gear cover. Tighten to **8 Nm (71 in. lbs.)** torque.

10. Install fuel line (injection pump-to-pressure limiting valve). Tighten bolts to **24 Nm (18 ft. lbs.)** torque.

11. Install fuel line (injection pump-to-fuel rail).

a. Tighten fitting at fuel pump to **37 Nm (27 ft. lbs.)** torque. Use a back-up wrench.

b. Tighten fitting at fuel rail to **37 Nm (27 ft. lbs.)** torque.

12. Install fuel line (injection pump-to-fuel filter housing). Tighten to **24 Nm (18 ft. lbs.)** torque.

13. Connect Fuel Control Actuator (FCA) electrical connector to rear of injection pump.
14. Install intake manifold air intake tube (above injection pump). Tighten clamps.
15. Install accessory drive belt.
16. Install cooling fan shroud.
17. Install cooling fan assembly.
18. Connect both negative battery cables to both batteries.
19. Check system for fuel or engine oil leaks.