**Meets ASE Task:** (A8-D-8) P-1 Inspect and test fuel pump(s) and pump control system for pressure, regulation, and volume; determine needed action.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_

Time on Task:\_\_\_\_\_\_\_\_\_\_\_\_\_

Make/Model/Year:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

VIN:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evaluation (Enter number from 4, 3, 2, 1) :\_\_\_\_\_\_\_\_\_

**Fuel-Injection System Diagnosis**

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**[ ]  1.** Check service information for the recommended procedure to follow to diagnose the

fuel injection system.

**[ ]  2.** Attach a fuel pressure gauge to the Schrader valve on the fuel rail, if available.

**[ ]  3.** Turn the ignition key to "on" or start the engine to build up the fuel pump pressure.

 \_\_\_\_\_psi (should reach specified fuel pressure, usually about 35-45 psi)

**[ ]  4.** Turn the ignition off and wait 20 minutes and observe the fuel pressure retained in the

 fuel rail = \_\_\_\_\_\_\_ psi. If the drop is less than 20 psi in 20 minutes, everything is OK.

 (The fuel pressure should *not* drop more than 20 psi in 20 minutes.)

 If the drop is *greater* than 20 psi in 20 minutes, there is a possible problem with:

 a. the check valve in the fuel pump.

 b. leaking injectors.

 c. a defective (leaking) fuel pressure regulator.

 To determine which unit is defective, perform the following:

 Step #1: Re-energize the electric fuel pump.

 Step #2: Clamp the fuel *supply* line, wait 10 minutes. If the pressure drop does *not* occur - replace the fuel pump. If the pressure drop still occurs - continue with Step #3.

 Step #3: Repeat the pressure build up of the electric pump and clamp the fuel return line. If the pressure drop time is now OK, replace the fuel pressure regulator.

 Step #4: If the pressure drop still occurs, the injectors are leaking. Remove the injectors with the fuel rail and hold over paper. Replace those injectors that drip a drop or more after 10 minutes with pressurized fuel.

 **CAUTION:** Do not clamp plastic fuel lines. Connect shut-off valves to the fuel system

 to shut off supply and return lines.

**[ ]  5.** Based on the test results, what is the needed action? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_