

Port Fuel-Injection System Diagnosis

Meets NATEF Task: (A8-D-1) Diagnose hot or cold no-starting, hard starting, poor driveability, incorrect idle speed, poor idle, flooding, hesitation, surging; determine necessary action. (P-1)

Name _____ Date _____ Time on Task _____

Make/Model/Year _____ VIN _____ Evaluation: 4 3 2 1

- _____ 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 necessary action? _____