Date:	**June 3, 2005**	**Bulletin Number:**	**05D-J-105**
To:	**All Distributors and Jobbers**	**Category:**	**Service**
From:	**Stephen Sigg, Product Service**	**Line(s):**	**10, 21**

Subject: Fuel Injector Cleaning

Description

Certain parts of the United States are experiencing injector problems, which may be due to fuel and climate changes. Certain additives in the fuel from the refinery or added by the consumer can lead to these premature problems. Some injectors are more susceptible than others. Most injectors are deposit-controlled and do not require a maintenance interval cleaning, but may require service cleaning.

The scan tool can provide an indication of fuel quality, pressure and volume, and injector condition. A value of 0 percent indicates that fuel delivery requires no compensation to maintain the PCM commanded air/fuel ratio. A negative value significantly below 0 percent indicates that the fuel system is rich and fuel delivery is being reduced. A positive value significantly more than 0 percent indicates that a lean condition exists and the PCM is compensating by adding fuel.

Cleaning techniques will vary depending on the injection system but should include: testing, cleaning, retesting, servicing injectors that do not respond to the cleaning procedures and a preventive maintenance fuel treatment. It is not necessary to replace all injectors if only a few are found to be restricted or leaking. The J-35800-A Fuel Injector Cleaner is available and is recommended for use in on-car cleaning of all appropriate GM applications of port fuel injectors (see Figure 5-5).

Figure 5-5, Fuel Injector Cleaner

The following is an overview of the cleaning procedure for different fuel injection systems. Always refer to the latest service bulletins for the procedures.

Multec I: Pre-1994 Multec I injectors should not be cleaned, and no additives are recommended. These are wet-coil injectors with deposit-control tips. Multec I injectors built after 1994 are wet coil injectors with deposit control, but because of internal changes, these injectors can be cleaned, and an additive can be used to prevent deposit buildup. There is a GM bulletin with the proper procedures and precautions for cleaning these injectors.

Multec II: Multec II injectors are a dry-coil, deposit control design with several internal changes, including the use of stainless steel and an increase in core stroke. If deposits build at the tips of the injectors, there is a cleaning procedure bulletin.

Central Multiport Fuel Injection (CMFI): There is a recommended cleaning procedure for the poppet valves of the CPI assembly. If, after cleaning the poppet nozzles, there are still deposits on the nozzles, the entire unit needs to be replaced. Special hoses are required to route the fuel supplied from the pump back to the fuel tank, and an additional hose is used to route the cleaning chemical back to the CPI assembly. The cleaning solution is not to reach the tank because it could cause fuel pump failure.

Central Sequential Fuel Injection (CSFI): The cleaning procedure involves the use of the EVAP Pressure/Purge Station. The EVAP tool, along with the proper adapters, is used to unseat any poppet nozzles. The pressure used is 150 psi. Then the cleaning procedure can take place, followed by replacement of the individual poppet nozzle(s) that did not respond to cleaning. If necessary, the entire unit can be replaced with a Multiport Flexible Injection (MFI) unit.

TOP TIER DETERGENT GASOLINE

Top Tier Detergent Gasoline is a class of gasoline with enhanced detergency. It meets new voluntary deposit control standards developed by four automotive companies that exceed the detergent requirements imposed by the EPA.

RELATED BULLETINS

The following is a list of some of the more common GM bulletins related to fuel injector service.

#04-06-04-047B: Info - Top Tier Detergent Gasoline (October 19, 2004)

#99-06-04-005B: Driveability symptoms due to clogged fuel injectors. Affects several 1994-1999 GM vehicles with Multec I injectors (August, 2001).

#03-06-04-030A: Multiple driveability symptoms due to clogged fuel injectors (clean injectors). Affects several 2000-2004 GM vehicles with Multec II injectors (June, 2004).

#99-06-01-022: No start, hard start, rough idle after start (clean CPI poppet valve). Affects 1992-1995 truck applications (December 1999).

#00-06-04-003B: Rough idle after start and/or an SES light (unstick and clean CSFI or convert to MFI). Affects 1995-2002 trucks. Special policy adjustment for California for a period of 10 years or 200,000 miles (January 2003).

#04-06-04-051A: Info - maintenance cleaning of fuel injectors. Affects all 2005 and prior GM passenger cars and trucks (September 2004).

ADDITIONAL INFORMATION

All injector cleaning procedures involve using Top Engine Cleaner, GM part number 1050002 (0.8 ounce container) or GM part number 12346535 (0.812 ounce container). ACDelco X66-P Top Engine Cleaner can be used, except in California because it is not packaged in a 0.8 ounce container.

Ford and DaimlerChrysler also recommend cleaning injectors if necessary. Ford engines can use Siemens, Bosch or Nippondenso injectors. Some of the injectors are deposit-control, such as the Bosch EV6. Ford recommends cleaning injectors using the Rotunda Cleaning Kit.

To prevent deposit build-up on injectors due to variations in fuel quality in different areas of the United States, the only preventative maintenance currently endorsed by GM regarding its gasoline engine fuel systems is the addition of GM Fuel System Treatment, part number 12345104 (United States) or part number 89020804 (Canada). This product is added to a tank of fuel at each oil change. ACDelco 10-5023 (20-ounce) or 10-3000 (12-ounce) Fuel System Treatment (see Figure 5-6) meets these requirements. The addition of the Fuel System Treatment should not be necessary for those customers who exclusively use Top Tier Detergent Gasoline only.

Figure 5-6, ACDelco Fuel System Treatment