**SERVICE INFORMATION BULLETIN**

**NUMBER:** 1 09-09  **S.M. REF.:** Listed in Table  **ENGINE:** EPA07 DD15  **DATE:** January 2009

**SUBJECT:** FUEL INJECTOR

**ADDITIONS, REVISIONS, OR UPDATES**

<table>
<thead>
<tr>
<th>Publication Number</th>
<th>Platform</th>
<th>Section Title</th>
<th>Change</th>
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<td>DDC-SVC-MAN-0002</td>
<td>EPA07 DD15</td>
<td>2.2 Removal of the Injector</td>
<td>The fuel injector procedures have been revised.</td>
<td></td>
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<tr>
<td>DDC-SVC-MAN-0037</td>
<td>EPA07 DD15</td>
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**NOTE:** Page numbers are based on the most recent version of the individual publication and may be adjusted throughout the annual print cycle.
REMOVAL OF THE INJECTOR

Remove as follows:

1. Shut off engine and apply the parking brake, chock the wheels, disconnect vehicle battery power, and perform any other applicable safety steps.
2. Steam clean the engine.
3. Remove the rocker cover.
4. Disconnect the appropriate 14-pin injector harness connector.
5. Disconnect the appropriate injector wiring harness from the injectors.

NOTE:
The injector harness can be removed with the engine brake solenoids still attached.
6. Remove spring clip holding the appropriate injector harness connector to camshaft frame. Remove the injector wiring harness.

![Warning sign]

**WARNING:**
**PERSONAL INJURY**

To prevent the escape of high pressure fuel that can penetrate skin, ensure the engine has been shut down for a minimum of 10 minutes before servicing any component within the high pressure circuit. Residual high fuel pressure may be present within the circuit.

7. Loosen the bolts (1) securing the appropriate injector feed line seal to the cam frame.

![Image of engine part]

8. Disconnect the appropriate high pressure injector feed line at the camshaft frame and fuel rail. Using fuel line tool J–48770.
9. Remove appropriate injector hold-down bolt (3) and clamp (4).

10. Lift the clamp and injector from its seat in the cylinder head (2) using J-47391 (1) injector removal tool.

11. Remove clamps from injectors and install a tip protector onto the injector nozzle.

12. Cover the injector holes with a clean towel to keep out foreign material.
13. Carefully remove carbon material from the injector exterior in the area where the tip joins the nut using a clean rag soaked with clean diesel fuel.

**NOTICE:**

Avoid cleaning (wire brushing etc.) the injector tip spray holes to prevent damage and plugging.

14. Inspect the injector body for visible damage. Replace the injector if damaged.

15. If the injector is intended to be reused, remove and discard the three injector O-rings, copper washer, and the injector clamp bolt.

**NOTICE:**

Injector O-ring seals, injector clamp bolt and the injector copper washer are considered one-use items and cannot be reused. Any time an injector is removed, the injector bolt, three injector O-ring seals and copper washer must be replaced with new parts. Failure to replace the O-ring seals, copper washer and bolt can result in leakage.
INSTALLATION OF THE INJECTOR

Install as follows:

NOTE:
Ensure excess fuel is removed from the top of the piston dome before injector installation.

1. If the fuel system is contaminated:
   [a] Drain the fuel tanks and refill with clean fuel.
   [b] Clean the fuel water/separator and replace the fuel filters.
2. If the coolant system is contaminated with fuel, flush and reverse flush the system.
3. If the oil system is contaminated, change the engine oil and filters.

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<td>The injector tube bore should be cleaned and inspected for damage or leakage of coolant before installation of the injector.</td>
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4. Check to make sure the injector tube bore is thoroughly clean.
5. If new injectors are being used, write down the injector's calibration code and note the cylinder location where it will be installed.
6. Remove injector nozzle tip protector.

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<td>The copper washer must be installed with recess (1) facing injector body. Incorrect installation can cause combustion gasses to enter the fuel system.</td>
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7. Install a new copper washer with recess facing UP (1) toward the injector and the flat side of the washer facing DOWN (2).

8. Using J-48837 (injector O-ring installer), apply a thin coat of acid free grease or clean engine oil to the injector seal rings and then install them in the injector nut ring grooves. Make sure they are properly seated.

9. Install the injector and clamp as an assembly into its respective injector bore. Align the clamp over the bolt hole, install the new bolt into injector clamp and snug until the injector fully seats, then release the injector bolt. DO NOT torque.

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<td>If the high pressure lines leak after installation the lines need to be replaced.</td>
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10. Install high pressure line to the injectors and fuel rail; finger tighten the cap nuts.

11. Torque the injector hold-down bolt to 20 N·m (15 lb·ft) + 90 degrees.
12. Using J-48770, torque the high pressure lines to the injector to 40 N·m (29 lb·ft).
13. Torque bolts securing injector feed line seal (1) to 15 N·m (11 lb·ft).

14. Install engine brake solenoids if they have been previously removed.
15. Insert the 14–pin connector of the injector harness into the hole in the cam frame and install electrical connections and Allen head hold-down bolts before torquing.
16. Install the spring clip onto the 14–pin connector.
17. Torque all of the injector connections to 1.5 N·m (12 lb·in).
18. Torque all of the Allen head injector harness hold-down bolts to 10 N·m (7 lb·ft).
19. Input the injector calibration codes that were recorded earlier into DDDL using the service routine.

20. Install rocker cover and torque bolts in a cross pattern to 20 N·m (15 lb·ft).
22. If more than one injector was changed, refer to section 5.6 "Fuel System Leak Detection and Threshold Resetting" to reset the leak detection threshold for the high pressure fuel system.
ADDITIONAL SERVICE INFORMATION

Additional service information is available in *Power Service Literature.*