



NUMBER: 09-005-05

GROUP: Engine

DATE: December 2, 2005

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SUBJECT:

Multiple Cylinder Misfire Or Rough Idle

OVERVIEW:

This bulletin involves rotating all engine exhaust valves, decarbonizing the combustion chamber.

MODELS:

2004 - 2006 (CS) Pacifica
2005 - 2006 (LX) Chrysler 300/Magnum/Charger

NOTE: This bulletin applies to all CS vehicles built after February 1, 2004 (MDH 0201XX) equipped with a 3.5L engine (Sales Code EGN).

NOTE: This bulletin applies to all LX vehicles equipped with a 3.5L engine (sales code EGG).

SYMPTOM/CONDITION:

The customer may experience occasional engine misfire during certain vehicle operating conditions.

A MIL illumination may also have occurred due to Diagnostic Trouble Code (DTC) P0300 - Multiple Cylinder Misfire. Various single cylinder misfire DTC's may also be present. If the frequency of misfire is high the Powertrain Control Module (PCM) may place the engine in "Limp-In" mode.

The misfire condition may be caused by one or more engine exhaust valves that are slow to close. Late closure of an exhaust valve may be the result of no valve rotation and the associated build up of carbon on the exhaust valve stem.



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DIAGNOSIS:

1. This condition may occur when the engine is not allowed to run at engine RPM's that are greater than 3,500 RPM. At 3,500 RPM or higher the engine exhaust valves will rotate if not impeded by high carbon deposits. Low engine RPM's and high carbon deposits are associated with short trip driving where the engine is not allowed to fully warm to normal engine operating temperatures. Cold ambient temperatures will increase engine warm-up time and increase the likelihood of carbon deposit build-up on the stem of the engine exhaust valve. Fuel detergent quality may also contribute to the condition; the customer may want to try a different brand of fuel.
2. Verify that the engine misfire condition is not caused by faulty engine mechanical or electrical components.
3. If the engine mechanical and electrical systems are operating properly perform the Repair Procedure.

PARTS REQUIRED:

Qty.	Part No.	Description
1	05174566AA	Premium Fuel System Cleaning Kit
	WN-04010	Wynn's Enviropurge Fuel Injector Cleaning Apparatus and Adaptors available through teamPSE
1	05183546AA	Combustion Clean

SPECIAL TOOLS/EQUIPMENT REQUIRED:**All Vehicles**

MD 998772A	Valve Spring Compressor
6527	Valve Spring Adapter
NPN	Battery Charger

LX Vehicles

CH9401	StarSCAN Tool
CH9404	StarSCAN Vehicle Cable
CH9409	StarSCAN Documentation Kit

CS Vehicles

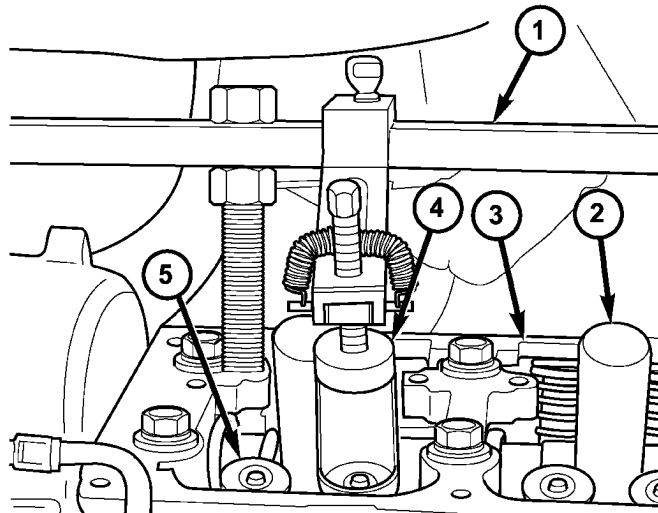
CH2002	General Purpose Interface Bus Cable Assembly
CH6000A	Scan Tool (DRBIII®)
CH7000A/7001A	J1962 Cable with red DRBIII® connector

REPAIR PROCEDURE:

VALVE ROTATION:

1. Using the procedures available in TechCONNECT relieve the fuel pressure.
2. Remove upper intake manifold (Refer to 9 - Engine/Manifolds/Intake Manifold - Removal).
3. Remove cylinder head cover(s) (Refer to 9 - Engine/Cylinder Head/Cylinder Head Cover(s) - Removal).
4. Remove rocker arm and shaft assembly (Refer to 9 - Engine/Cylinder Head/Rocker Arm / Adjuster Assembly - Removal).
5. Clean and mark the tip of each exhaust valve stem with a paint marker. The paint mark will be used later to assist with determining if the valves have been rotated 90°.
6. Using Tool MD 998772A (1) with adapter 6527 (4) or equivalent, **slightly compress** the exhaust valve spring to release tension against the valve and valve keepers (Fig. 1).

NOTE: It is important that the valve rotation section of this repair procedure be performed.



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Fig. 1 VALVE SPRING COMPRESSION

- 1 - MD 998772A
- 2 - SPARK PLUG TUBES
- 3 - CYLINDER HEAD
- 4 - 6527 - ADAPTOR
- 5 - VALVE SPRING RETAINER

CAUTION: Only grab the valve stem tip being careful not to cause damage.

7. Using **needle nose pliers grab the tip of the valve stem** and rotate each exhaust valve 90°.
8. Install rocker arm and shaft assembly, refer to the service information available in TechCONNECT group 9 - Engine/Cylinder Head/Rocker Arm / Adjuster assembly - Installation.
9. Install cylinder head cover(s), refer to the service information available in TechCONNECT group 9 - Engine/Cylinder Head/Cylinder Head Cover(s) - Installation.
10. Install upper intake manifold, refer to the service information available in TechCONNECT group 9 - Engine/Manifolds/Intake Manifold - Installation.

DECARBONING COMBUSTION CHAMBER AND VALVES:

CAUTION: Do not use the Premium Air intake cleaner provided with kit 05174566AA for this application.

NOTE: Use both fuel tank additives.

1. Pour the premium fuel system cleaner and combustion clean into the fuel tank
2. Start the vehicle engine and allow the engine to reach normal operating temperature.
3. Disable the fuel pump by removing the fuel pump relay
4. Disconnect the fuel supply line quick disconnect fitting from the fuel rail.
5. Install the appropriate adapter, either #31814 or #31815. Be sure to engage the adapter completely (push until a "click" is noticed).
6. Pour the premium combustion chamber cleaner into the cleaning canister.
7. Suspend the cleaning equipment from under the hood. The regulator knob must be fully counterclockwise to the OFF position. Connect the cleaning equipment service hose to the supply adapter.
8. Turn the regulator knob clockwise to the recommended cleaning pressure (58 psi). Be sure there are no leaks before starting the engine.
9. Start the engine and run at normal idle (or fast idle, 1200- 1500 rpm, to shorten service time) until the product has been used up and the engine stalls.
10. When the engine stalls, turn the ignition off.
11. Disconnect the cleaning equipment and adapter.
12. Reconnect fuel line and the fuel pump relay.
13. Turn ignition key to the "ON" position to energize the fuel pump. Check for leaks. Start the engine and run for at least 2 minutes to clear the fuel system of any residual product.
14. Using the DRBIII® or the StarSCAN erase any engine DTC's.

Road Test:

1. In a safe vehicle operating location that will allow the vehicle to be driven safely and at the posted speed limit, accelerate the vehicle until the engine reaches 4500 RPM.
2. Hold the engine speed at this RPM for 15 seconds.
3. Slow down and in a safe location pull to the side of the road. Allow the engine to idle for five seconds.
4. Repeat steps 1 through 3 five more times.

POLICY:

Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

Labor Operation No:	Description	Amount
09-95-01-95	Exhaust valve rotation and fuel system cleaning.	3.8 Hrs. CS Vehicles
09-95-01-94	Exhaust valve rotation and fuel system cleaning.	3.7 Hrs. LX Vehicles

FAILURE CODE:

ZZ	Service Action
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