## Test 1 - Test 4

<table>
<thead>
<tr>
<th>TEST</th>
<th>ACTION</th>
<th>APPLICABILITY</th>
</tr>
</thead>
</table>
| 1 | Road and record the FREEZE FRAME DATA. Select ORD II MONITORS. Road and record the MIS-FIRE SIMILAR CONDITIONS WINDOW DATA. With these screens, attempt to duplicate the condition(s) that has set this DTC. When the vehicle is operating in the SIMILAR CONDITIONS WINDOW, refer to the WHICH CYLINDER IS MISFIRING screen. Observe the WHICH CYLINDER IS MISFIRING screen for at least one minute. Is there a misfire present?  
   - Yes → Go To 2  
   - No → Go To 18 | All |
| 2 | NOTE: Reviewing the vehicle repair history may aid in the repair of the misfire condition. 
Visually and physically inspect the engine for any of the following conditions. 
- Worn serpentine belt 
- Blown Engine-Driven accessories 
- Misaligned water pump, PS pump and AC compressor pulleys 
- Improper CKP sensor mounting 
- Poor connector/terminal to component connection i.e., CKP sensor, Fuel Injector, Ign coil, etc. 
- Vacuum leaks 
- Restricted Air Induction system 
NOTE: Verify the integrity of the powers and grounds for the PCM. Were any of the above conditions present?  
   - Yes → Repair as necessary. 
   - Perform POWERTRAIN VERIFICATION TEST VER. 6  
   - No → Go To 3 | All |
| 3 | Turn the ignition off. 
Disconnect the Ignition wire from the spark plug. 
NOTE: Before continuing, inspect the ignition wire for damage or carbon tracking. Replace as necessary. 
Install a spark tester to the ignition wire. 
While cranking the engine, observe the spark coming from the spark tester. 
NOTE: A crisp blue spark should be generated that is able to jump the gap of the spark tester. 
Is good spark present?  
   - Yes → Go To 4 
   - No → Go To 14 | All |
| 4 | Turn the ignition off. 
Remove the Spark Plug. 
Inspect the Spark Plug for the following conditions. 
- Cracks 
- Carbon Tracking 
- Foreign Material 
- Gap size out of specifications 
- Loose or broke electrode 
NOTE: Lightly tap the bottom of the spark plug on a solid surface. The electrode in the spark plug should not move. Were any of the above condition present?  
   - Yes → Replace the Spark Plug. 
   - Perform POWERTRAIN VERIFICATION TEST VER. 6  
   - No → Go To 5 | All |
5 Warning: The fuel system is under a constant pressure (even with the engine off). Before testing or servicing any fuel system hose, fitting or line, the fuel system pressure must be released.
Install a fuel pressure gauge.
Start the engine and observe the fuel pressure reading.
NOTE: Fuel pressure specification is 400 KPa +/- 34 KPa (58 psi +/- 5 psi).
Choose a conclusion that best matches your fuel pressure reading:

Within Specification
Go To 6

Below Specification
Go To 12

Above Specification
Replace the fuel filter/pressure regulator.
Perform POWERTRAIN VERIFICATION TEST VER 5

6 NOTE: Before continuing visually and physically inspect the fuel delivery system for external leaks or damage. Repair/replace as necessary.
WARNING: The fuel system is under a constant pressure even with the engine off. Before testing or servicing any fuel system hose, fitting or line, the fuel system pressure must be released.
Install special 5/16 fuel line adapter tool #6539.
Attach fuel pressure test gauge to the T-fitting on the tool #6539.
Start the engine and allow the fuel system to reach maximum pressure.
Turn the ignition off.
NOTE: Fuel specification is 400 KPa +/- 34 KPa (58 psi +/- 5 psi).
Using special tool K-4390, hose clamp pliers, slowly clamp off the rubber hose on the Fuel Pressure adapter between the fuel pressure gauge and the fuel pump module.
Monitor the fuel pressure gauge for a minimum of 5 minutes.
NOTE: The pressure shall not fall below 241 KPa (35 psi)
Does the fuel pressure gauge fall below the above specification?
Yes → Replace the leaking Injector(s).
Perform POWERTRAIN VERIFICATION TEST VER 5

No → Go To 7

7 Warning: The fuel system is under a constant pressure (even with the engine off). Before testing or servicing any fuel system hose, fitting or line, the fuel system pressure must be released.
CAUTION: After each actuation of the Fuel Injector, start the engine to clear the cylinder of fuel. Failure to do so could cause engine damage.
Install a Fuel Pressure Gauge to the fuel rail.
Start the engine and allow the fuel pressure to reach maximum pressure.
Turn the engine off, leaving the ignition on.
Using the DRB300*, actuate the Fuel Injector for the cylinder that indicated the misfire.
Monitor the fuel pressure gauge.
Does the fuel pressure gauge indicate a drop in fuel pressure?
Yes → Go To 8

No → Go To 9

Test 5 - Test 7
ENGINE VALVE TIMING: must be within specifications
ENGINE COMPRESSION: must be within specifications
ENGINE EXHAUST SYSTEM: must be free of any restrictions or leaks.
ENGINE PCV SYSTEM: must flow freely
TORQUE CONVERTER STALL SPEED: must be within specifications
POWER BRAKE BOOSTER: no internal vacuum leaks
FUEL: must be free of contamination

Are there any engine mechanical problems?

Yes → Repair as necessary.
   Perform POWERTRAIN VERIFICATION TEST VER 3

No → Go To 18

9. Turn the ignition off.
   Disconnect the Fuel Injector harness connector.
   Ignition on, engine not running.
   With the DRC1H*, actuate the ASD Relay.
   Using a 12 volt test light connected to ground, probe the ASD Relay Output circuit at the Fuel Injector harness connector.
   Does the test light illuminate brightly?

   Yes → Go To 10
   No → Repair the ASD Relay Output circuit.
   Perform POWERTRAIN VERIFICATION TEST VER 3

10. Turn the ignition off.
    Disconnect the Fuel Injector harness connector.
    Ignition on, engine not running.
    Using a 12 volt test light connected to 12-volts, probe the Injector Control circuit.
    With the DRC1H*, actuate the Fuel Injector.
    Does the test light blink/flash?

    Yes → Replace the Fuel Injector.
    Perform POWERTRAIN VERIFICATION TEST VER 3

    No → Go To 11

11. Turn the ignition off.
    Disconnect the Fuel Injector harness connector.
    CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.
    Check the Injector Control circuit.
    Was a problem found with the Injector Control circuit?

    Yes → Repair the Injector Control circuit.
    Perform POWERTRAIN VERIFICATION TEST VER 3

    No → NOTE: Before continuing, check the PCM harness connector terminals for corrosion, damage, or terminal push-out. Repair as necessary. Replace and program the Powertrain Control Module.
    Perform POWERTRAIN VERIFICATION TEST VER 3
Before testing or servicing any fuel system hose, fitting or line, the fuel system pressure must be released.

13. Turn the ignition off. 

**Warning:** The fuel system is under a constant pressure (even with the engine off). Before testing or servicing any fuel system hose, fitting or line, the fuel system pressure must be released.

Remove the Fuel Pump Module and inspect the Fuel Inlet Strainer.

**Is the Fuel Inlet Strainer plugged?**

| Yes | Replace the Fuel Pump Inlet Strainer. 
|     | Perform POWERTRAIN VERIFICATION TEST VER. 5 |
| No  | Go To 13 |
|     |     |

14. Turn the ignition off.

Remove the ignition wire.

**Is the resistance below 10K ohms?**

| Yes | Go To 15 |
|     |     |
| No  | Replace the Ignition Wire. 
|     | Perform POWERTRAIN VERIFICATION TEST VER. 5 |

15. Turn the ignition off.

Disconnect the Ignition Coil harness connector.

Ignition on, engine not running.

Using a 12 volt test light connected to ground, probe the ASD Relay output circuit at the Ignition Coil harness connector.

**Does the test light illuminate brightly?**

| Yes | Go To 16 |
|     |     |
| No  | Repair the ASD Relay Output Circuit. 
|     | Perform POWERTRAIN VERIFICATION TEST VER. 5 |

---

**Test 12 - Test 15**

---

**Zoom and Print Options**
Using a 12-volt test light connected to 12volts, probe the Ignition coil control circuit.
Crank the engine for 5 seconds while observing the test light.
Does the test light blink/flicker?

Yes → Replace the Ignition Coil. Perform POWERTRAIN VERIFICATION TEST VER 5.

No → Go To 17.

17
Turn the ignition off.
Disconnect the Ignition Coil harness connector.
Disconnect the PCM harness connector.
CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.
Check the coil control circuit.
Was a problem found with the coil control circuit?

Yes → Repair the coil control circuit. Perform POWERTRAIN VERIFICATION TEST VER 5.

No → NOTE: Before continuing, check the PCM harness connector terminals for corrosion, damage, or terminal push out. Repair as necessary. Replace and program the Powertrain Control Module. Perform POWERTRAIN VERIFICATION TEST VER 5.

Test 16 - Test 17

Zoom and Print Options

<table>
<thead>
<tr>
<th>TEST</th>
<th>ACTION</th>
<th>APPLICABILITY</th>
</tr>
</thead>
</table>
| 18   | NOTE: The conditions that set the DTC are not present at this time. WARNING: WHEN THE ENGINE IS OPERATING, DO NOT STAND IN A DIRECT LINE WITH THE FAN. DO NOT PUT YOUR HANDS NEAR THE PULLEYS, BELTS OR FAN. DO NOT WEAR LOOSE CLOTHING. Refer to any Technical Service Bulletins (TSBs) that may apply. Review the DRB Freeze Frame information. If possible, try to duplicate the conditions under which the DTC set. With the engine running at normal operating temperature, monitor the DRB parameters related to the ECU while wiggling the wire harness. Look for parameter values to change and/or a DTC to set. Visually inspect the related wire harness. Look for any chafed, pierced, pinched, partially broken wires and broken, bent, pushed out, or corroded terminals. CAUTION: NEVER PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS. Inspect and clean all PCM, engine, and chassis grounds. NOTE: Reviewing the vehicle repair history may aid in the repair of the misfire condition. Visually and physically inspect the engine for any of the following conditions:
- Warped serpentine belt
- Binding Engine-Driven accessories
- Misaligned water pump, PS pump and AC compressor pulleys
- Improper CKP sensor mounting
- Poor connector/terminal to component connection i.e., CKP sensor, Fuel Injector, Ign coil, etc.
- Vacuum leaks
- Restricted Air Induction system
Were any of the above conditions present?

Yes → Repair as necessary. Perform POWERTRAIN VERIFICATION TEST VER 5.

No → Test Complete.
TEST NOTE
This symptom is diagnosed using the test P0300-MULTIPLE CYLINDER MISFIRE.

WHEN MONITORED
Any time the engine is running, and the Target Learning Coefficient has been successfully updated.

SET CONDITION
When more than a 1.8% misfire rate is measured during two trips, or with a 10% to 30% misfire rate during one trip.

POSSIBLE CAUSES
- Intermittent misfire
- Visual and physical inspection
- Ignition wire
- ASD relay output circuit (coil)
- Engine mechanical problem
- Ignition coil
- Coil control circuit
- Spark plug
- Checking fuel pressure
- Fuel pump inlet strainer plugged
- Restricted fuel supply line
- Fuel pump module
- Checking fuel leak down
- Fuel injector operation
- ASD relay output circuit (injector)
- Fuel injector
- Injector control circuit
- PCM (ignition system)
- PCM