

TEST TC-107A: CYLINDER #1, #2, #3, #4, #5, #6, #7, #8, #9 OR #10 MISFIRE

NOTE: For connector terminal identification, see **CONNECTOR IDENTIFICATION** . For component location and wiring diagram, see **WIRING DIAGRAMS** article.

NOTE: Repair any other DTCs, including **MULTIPLE CYLINDER MISFIRE DTC**, before proceeding. Inspect only cylinder(s) that sets DTC.

1. On AB, AN, BE/BR and DN bodies, go to next step. On all other bodies, CYLINDER MISFIRE DTC sets when Powertrain Control Module (PCM) senses an absence of spark. Possible causes are: defective ignition coil circuit, defective spark plug, defective spark plug cable or connector, defective fuel pump or filter, mechanical engine problem, defective EGR system, defective fuel injectors or connectors, restricted exhaust, low fuel level, restricted intake system, defective PCM power grounds, defective EVAP system or defective PCM. Go to next step.
2. Inspect ignition cables for proper installation. Repair cable installation as necessary and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If cable are installed properly, go to next step.

NOTE: Refer to manufacturer's operation manual for instructions in use of engine analyzer and procedure for pattern analysis.

3. Turn ignition off. Connect an engine analyzer to engine. Start engine and allow it to idle for 2 minutes. If engine will not idle, maintain constant engine speed at more than idle. Go to next step.
4. Set engine analyzer to read display or parade pattern and check secondary ignition pattern while momentarily removing and reinstalling each spark plug wire from ignition coil or distributor. If secondary voltage is not at least 25,000 volts for each wire, replace ignition coil and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If voltage is as specified, go to next step.

NOTE: DO NOT spray inductive pick-up.

5. Using a spray bottle, spray ignition cables with water while observing secondary ignition pattern. If pattern changes while spraying water, repair appropriate ignition cable(s) and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If pattern is okay, go to next step.
6. Turn ignition off. Remove all spark plugs. Remove Auto Shutdown (ASD) relay. Check engine compression. If cylinder(s) that set DTC is not at least 100 psi and within 25 percent of other cylinders, repair engine mechanical problem as necessary and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If cylinder(s) test as specified, reinstall spark plugs and go to next step.
7. Start engine and allow it to idle. Using scan tool, perform injector kill test while observing scope pattern and engine RPM. If scope pattern or RPM does not change while performing injector kill test, repair engine mechanical problem as necessary and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If engine is okay, replace appropriate fuel injector and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If kill test passes, turn engine off and go to next step.
8. Connect a vacuum gauge to manifold vacuum source. Start engine and allow it to reach normal operating temperature. With parking brake on and shift lever in Neutral, read vacuum gauge. If vacuum gauge does not read at least 13 in. Hg, perform **TEST NTC-13A: CHECKING ENGINE MECHANICAL**

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- SYSTEMS (GASOLINE ENGINES)** . If vacuum gauge reads at least 13 in. Hg, go to next step.
9. Check valve train and timing. Replace engine components or correct valve timing as necessary and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** . If valve train and timing are okay, replace PCM and perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** .
 10. Using scan tool, read DTCs. If DTC SPECIFIC GOOD TRIPS counter is not displayed or displayed count is not "0", go to step **15)** . If DTC SPECIFIC GOOD TRIPS counter is displayed and displayed count is "0", go to next step.
 11. Conditions required to set DTC are not present at this time. Using scan tool, Read and record FREEZE FRAME data. With an assistant, road test vehicle under conditions in FREEZE FRAME data. Using scan tool, read MISFIRE SIM COND, then select WHICH CYL IS MISFIRING screen. If scan tool is counting misfires, go to step **24)** . If scan tool is not counting misfires, go to next step.
 12. Ensure engine is at normal operating temperature. Using FREEZE FRAME data recorded in step **11)** , attempt to determine cause for MULTIPLE CYLINDER MISFIRE DTC. If short term and long term ADAPTIVE FUEL percentages read more than 15 percent, perform **TEST TC-118A: FUEL SYSTEM 1/1 RICH** . If short and long term ADAPTIVE FUEL percentages read less than -15 percent, perform **TEST TC-119A: FUEL SYSTEM 1/1 LEAN** . If percentages are not as specified, go to next step.
 13. If LOAD VALUE percentage reads more than 50 percent, perform tests **TEST NTC-2A: CHECKING SECONDARY IGNITION & TIMING** and **TEST NTC-13A: CHECKING ENGINE MECHANICAL SYSTEMS (GASOLINE ENGINES)** . If percentage is 50 percent or less, go to next step.
 14. If ENGINE RPM reads more than 3000, perform **TEST TC-1A: NO CAM SIGNAL AT PCM** , **TEST TC-40A: NO CRANK REFERENCE SIGNAL AT PCM** and **TEST NTC-13A: CHECKING ENGINE MECHANICAL SYSTEMS (GASOLINE ENGINES)** . If ENGINE RPM reads 3000 or less, go to next step.
 15. Condition required to set DTC is not present at this time. MULTIPLE CYLINDER MISFIRE DTC sets when Powertrain Control Module (PCM) senses a 2 percent misfire rate during 2 trips or a 10-30 percent misfire rate during one trip. Possible causes are: defective secondary ignition wire, defective fuel pump or filter, defective injector harness or connectors, defective ignition coil circuit, defective spark plugs, mechanical engine problem, contaminated fuel (such as water in fuel), faulty PCM power grounds, faulty fuel injectors, restricted exhaust or intake system, defective PCM, defective EGR or EVAP system or defective spark distribution system. See **INACTIVE DTC CONDITION** . Test is complete. Perform **TEST VER-5A: ROAD TEST FOR OBD-II TROUBLE CODES** .

NOTE: **A break in test sequence occurs at this point. Sequence skips from TEST TC-107A: CYLINDER #1, #2, #3, #4, #5, #6, #7, #8, #9 OR #10 MISFIRE -TEST TC-112A: CATALYST 1/1 EFFICIENCY FAILURE . No tests have been omitted.**

