

DTC P0301, P0302, P0303, P0304 [LF]

B3E010201085W02

DTC P0301	Cylinder No.1 misfire detected
DTC P0302	Cylinder No.2 misfire detected
DTC P0303	Cylinder No.3 misfire detected
DTC P0304	Cylinder No.4 misfire detected
DETECTION CONDITION	<p>• The PCM monitors CKP sensor input signal interval time. The PCM calculates the change of interval time for each cylinder. If the change of interval time exceeds the preprogrammed criteria, the PCM detects a misfire in the corresponding cylinder. While the engine is running, the PCM counts number of misfires that occurred at 200 crankshaft revolutions and 1,000 crankshaft revolutions and calculates misfire ratio for each crankshaft revolution. If the ratio exceeds the preprogrammed criteria, the PCM determines that a misfire, which can damage catalytic converter or affect emission performance, has occurred.</p> <p>Diagnostic support note</p> <ul style="list-style-type: none"> • This is a continuous monitor (MISFIRE). • The MIL illuminates if the PCM detects the misfire which affects emission performance in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • The MIL flashes if the PCM detects the misfire which can damage the catalytic converter during first drive cycle. Therefore, PENDING CODE is not available while the MIL flashes. • PENDING CODE is available if the PCM detects the misfire which affects emission performance during first drive cycle. • FREEZE FRAME DATA is available. • DTC is stored in the PCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • Spark plug malfunction • Erratic signal to ignition coil • Fuel injector malfunction • Air suction in intake air system (between dynamic chamber and cylinder head) • Inadequate engine compression due to engine internal malfunction • Related connector or terminal malfunction • Related wiring harness malfunction

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED • Has FREEZE FRAME DATA been recorded?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on repair order, then go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related service repair information availability. • Is any related repair information available?	Yes Perform repair or diagnosis according to available repair information. • If vehicle is not repaired, go to the next step.
		No Go to the next step.
3	VERIFY RELATED PENDING CODE OR STORED DTC • Turn the ignition switch off, then to the ON position (Engine off). • Verify related pending code or stored DTCs. • Is other DTCs present?	Yes Go to the appropriate DTC troubleshooting. (See DTC TABLE [LF] .)
		No Go to the next step.

4	VERIFY CURRENT INPUT SIGNAL STATUS (KEY TO ON /IDLE) • Access BOO, ECT, IAT, MAF, RPM, TP and VSS PIDs using WDS or equivalent. (See PCM INSPECTION [LF] .) • Is there any signal that is far out of specification when ignition switch is turned to the ON position and engine idles?	Yes	Inspect suspected circuit and/or part according to inspection results. Then go to Step 13. (See PCM INSPECTION [LF] .)
		No	Go to the next step.
5	VERIFY CURRENT INPUT SIGNAL STATUS UNDER TROUBLE CONDITION • Inspect same PIDs as in Step 4 while simulating FREEZE FRAME DATA condition. • Is there any signal which causes drastic changes?	Yes	Inspect suspected circuit and/or part according to inspection results. Then go to Step 13. (See PCM INSPECTION [LF] .)
		No	Go to the next step.
6	INSPECT SPARK PLUG CONDITION • Turn the ignition switch off. • Remove spark plug from suspected cylinder. • Inspect spark plug condition: - Cracks - Excess wear - Gap - Wet • Is any problem found on spark plug?	Yes	• If spark plug is wet, fuel flooding is suspected. Go to step 13. • If spark plug has a cracks, excessive wear or improper gap, replace the malfunctioning spark plug. Then go to Step 13.
		No	Go to the next step.
7	INSPECT IGNITION COIL WIRING HARNESSES • Inspect the ignition coil related wiring harness condition (intermittent open or short circuit) for all cylinders. • Are wiring harness conditions normal?	Yes	Go to the next step.
		No	Repair the wiring harnesses, then go to Step 13.
8	INSPECT FOR AIR SUCTION AT INTAKE-AIR SYSTEM • Inspect for air leakage at following: - Around connection of dynamic chamber and intake manifold - Around connection of intake manifold and cylinder head • Is air leakage found?	Yes	Repair or replace suspected part, then go to Step 13.
		No	Go to the next step.
9	INSPECT FUEL INJECTOR WIRING HARNESS • Remove intake air system parts. • Disconnect the fuel injector connector on suspected cylinder. • Connect NOID LIGHT to fuel injector terminals. • Inspect dim of light during cranking. • Does noid light illuminate?	Yes	Go to the next step.
		No	Inspect for fuel injector wiring harnesses. Repair or replace it if necessary, then go to Step 13.
10	INSPECT SEALING OF ENGINE COOLANT PASSAGE • Perform ENGINE COOLANT LEAKAGE INSPECTION. (See ENGINE COOLANT LEAKAGE INSPECTION .) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to inspection result. Then go to Step 13.
		No	Go to the next step.
	INSPECT ENGINE COMPRESSION • Inspect engine compression.	Yes	Go to the next step.

11	(See COMPRESSION INSPECTION [LF] .) • Is engine compression normal?	No	Overhaul the engine, then go to Step 13.
12	INSPECT FUEL INJECTOR OPERATION • Remove the fuel injector from suspected cylinder. • Switch the injector with the injector on other cylinder. • Start the engine and idle it. • Is misfire DTC for cylinder which has a suspected fuel injector?	Yes	Replace the injector, then go to the next step.
		No	Go to the next step.
13	VERIFY TROUBLESHOOTING OF MISFIRE DTC COMPLETED • Make sure to reconnect all disconnected connectors. • Start the engine. • Clear the DTC from the PCM memory using the WDS or equivalent. • Perform the PCM Adaptive Memory Produce Drive Mode. (See OBD DRIVE MODE [LF] .) • Is the PENDING CODE for this DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [LF] .)
		No	Go to the next step.
14	VERIFY AFTER REPAIR PROCEDURE • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [LF] .) • Are any DTC present?	Yes	Go to the applicable DTC troubleshooting. (See DTC TABLE [LF] .)
		No	Troubleshooting completed.