DTC P0301, P0302

BHE010200300W02

DTC P0301 **DTC P0302**	**Front rotor misfire detected** **Rear rotor misfire detected**
DETECTION CONDITION	• The PCM monitors eccentric shaft position sensor input signal interval time. The PCM calculates the change of the interval time for each rotor. If the change of interval time exceeds the preprogrammed criteria, the PCM detects a misfire in the corresponding rotor. While the engine is running, the PCM counts the number of misfires that occurred at **200 eccentric shaft revolutions** and **1,000 eccentric shaft revolutions** and calculates misfire ratio for each eccentric shaft revolution. If the ratio exceeds the preprogrammed criteria, the PCM determines that a misfire, which can damage the catalytic converter or affect emission performance, has occurred. **Diagnostic support note** • 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 the 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 the first drive cycle. • FREEZE FRAME DATA is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Eccentric shaft position sensor malfunction • Spark plug malfunction • High-tension lead malfunction • Excess air suction in intake-air system • Fuel injector malfunction • Leakage engine coolant • Insufficient compression – Metering oil pump malfunction – Engine oil condition malfunction – Rised oil pressure – Oil passage malfunction – Engine malfunction • ECT sensor malfunction • Fuel line pressure malfunction • Fuel pump unit malfunction • PCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
	VERIFY FREEZE FRAME DATA HAS BEEN	Yes	Go to the next step.

1	**RECORDED** • Has FREEZE FRAME DATA been recorded?	No	Record the FREEZE FRAME DATA on the 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 the available repair information. • If the 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 the related PENDING CODE or stored DTCs. • Are other DTCs present?	Yes	Go to the appropriate DTC inspection. (See DTC TABLE.)
		No	Go to the next step.
4	**VERIFY CURRENT INPUT SIGNAL STATUS** • Connect the WDS or equivalent to the DLC-2. • Verify the following PIDs. (See PCM INSPECTION.) – APP – ECT – MAF – TP – VSS • Are the PIDs normal?	Yes	Go to the next step.
		No	Inspect the malfunctioning part according to the inspection results. Then go to Step 19.
5	**VERIFY CURRENT INPUT SIGNAL STATUS UNDER FREEZE FRAME DATA CONDITION** • Connect the WDS or equivalent to the DLC-2. • Verify the following PIDs under the FREEZE FRAME DATA condition. (See PCM INSPECTION.) – APP – ECT – MAF – TP – VSS • Are the PIDs normal?	Yes	Go to the next step.
		No	Inspect the malfunctioning part according to the inspection results. Then go to Step 19.
6	**INSPECT ECCENTRIC SHAFT POSITION SENSOR** • Inspect the eccentric shaft position sensor. (See ECCENTRIC SHAFT POSITION SENSOR INSPECTION.) • Is there any malfunction?	Yes	Replace the eccentric shaft position sensor, then go to Step 19. (See ECCENTRIC SHAFT POSITION SENSOR REMOVAL/INSTALLATION.)
		No	Go to the next step.
7	**INSPECT SPARK PLUG** • Inspect the spark plug. (See SPARK PLUG INSPECTION.)	Yes	Replace the spark plug, then go to Step 19 (See SPARK PLUG REMOVAL/INSTALLATION.)
		No	Go to the next step.

	• Is there any malfunction?	No	Go to the next step.
8	**INSPECT HIGH-TENSION LEAD** • Inspect the high-tension leads. (See HIGH-TENSION LEAD INSPECTION.) • Is there any malfunction?	Yes	Replace the malfunctioning high-tension lead, then go to Step 19. (See HIGH-TENSION LEAD REMOVAL/INSTALLATION.)
		No	Go to the next step.
9	**INSPECT INTAKE-AIR SYSTEM FOR EXCESSIVE AIR SUCTION** • Visually inspect for loosen, cracks or damages hoses in intake-air system. • Is there any malfunction?	Yes	Repair or replace the malfunctioning part, then go to Step 19.
		No	Go to the next step.
10	**INSPECT FUEL INJECTOR WIRING HARNESS** • Disconnect the fuel injector connector. • Connect the noid light to the fuel injector connector terminals. • Remove the fuel pump relay. • Inspect the dim of light during cranking. • Does noid light illuminate?	Yes	Go to the next step.
		No	Inspect for fuel injector wiring harness. • If there is any malfunction, replace the malfunctioning wiring harness. Then go to Step 19.
11	**INSPECT ENGINE COOLANT PASSAGE FOR ENGINE COOLANT LEAKAGE** • Perform the "ENGINE COOLANT LEAKAGE INSPECTION". (See ENGINE COOLANT LEAKAGE INSPECTION.) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results. Then go to Step 19.
		No	Go to the next step.
12	**INSPECT ENGINE COMPRESSION** • Inspect the engine compression. (See COMPRESSION INSPECTION.) • Is there any malfunction?	Yes	Go to the next step.
		No	Go to Step 17.
13	**INSPECT METERING OIL PUMP** • Inspect the metering oil pump. (See METERING OIL PUMP INSPECTION.) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results. Overhaul or replace the engine. Then go to Step 19.
		No	Go to the next step.
14	**INSPECT ENGINE OIL CONDITION** • Inspect the engine oil condition. • Is the engine oil condition normal?	Yes	Go to the next step.
		No	Replace the engine oil. Inspect the ECT sensor and related harnesses. (See ENGINE COOLANT TEMPERATURE (ECT) SENSOR INSPECTION.) Overhaul or replace the engine. Then go to Step 19.
15	**INSPECT OIL PRESSURE** • Inspect the oil pressure. (See OIL PRESSURE INSPECTION.) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results. Overhaul or replace the engine. Then go to Step 19.
		No	Go to the next step.
	INSPECT OIL PASSAGE	Yes	Inspect and repair for leakage and/or clogged in oil passage at engine. Overhaul or replace the engine.

16	• Inspect the oil pipe between metering oil pump and metering oil nozzle. • Is there any malfunction?		Then go to Step 19.
		No	Overhaul or replace the engine. Then go to the next step.
17	**INSPECT FUEL LINE PRESSURE** • Perform the "FUEL LINE PRESSURE INSPECTION". (See FUEL LINE PRESSURE INSPECTION.) • Is there any malfunction?	Yes	Replace the fuel pump unit, then go to Step 19. (See FUEL PUMP UNIT REMOVAL/INSTALLATION.)
		No	Go to the next step.
18	**INSPECT FUEL INJECTOR** • Inspect the fuel injector. (See FUEL INJECTOR INSPECTION.) • Is there any malfunction?	Yes	Replace the fuel injector, then go to the next step. (See FUEL INJECTOR REMOVAL/INSTALLATION.)
		No	Go to the next step.
19	**VERIFY TROUBLESHOOTING OF DTC P0301 OR DTC P0302 COMPLETED** • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the WDS or equivalent. • Start the engine and warm it up completely. • Is the PENDING CODE same as the DTC present?	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION.)
		No	Go to the next step.
20	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE.)
		No	DTC troubleshooting completed.