

DTC P0133 [ZJ, Z6]

B3E010200100W13

DTC P0133	Front HO2S circuit slow response
DETECTION CONDITION	<ul style="list-style-type: none"> The PCM monitors the inversion cycle period, lean-to-rich response time and rich-to-lean response time of the sensor. The PCM calculates the average of the inversion cycle period-specified inversion cycles, average response time from lean-to-rich, and from rich-to-lean when the following conditions are met. If any exceeds the threshold, the PCM determines that circuit has a malfunction. <p>MONITORING CONDITIONS</p> <ul style="list-style-type: none"> - HO2S heater, HO2S, and TWC repair verification drive mode - Following conditions are met: <ul style="list-style-type: none"> • Calculation load is 18.0-59.4 % (at 2,000 rpm). • Engine speed is 1,410- 4,000 rpm. • Vehicle speed is more than 3.76 km/h {2.33 mph}. • Engine coolant temperature is more than -10 °C {14 °F}. • Front HO2S signal inversion cycle is more than 10 cycles. <p>Diagnostic support note</p> <ul style="list-style-type: none"> • This is a intermittent monitor (HO2S). • The MIL illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • DIAGNOSTIC MONITORING TEST RESULTS is available. • PENDING CODE is available if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • Front HO2S deterioration • Looseness front HO2S • Pressure regulator (built-in fuel pump unit) malfunction • Fuel pump malfunction • Clogged or restricted fuel filter (built-in fuel pump unit) • Fuel leakage on fuel line from fuel distribution pipe and fuel pump • Leakage exhaust system • Purge solenoid valve malfunction • Purge solenoid hoses improper connection • Insufficient compression • Engine malfunction (leakage engine coolant)

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 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.
	VERIFY RELATED PENDING CODE OR STORED DTC • Turn the ignition switch off, then to the ON	Yes Go to the appropriate DTC inspection. (See DTC TABLE [ZJ, Z6] .)

3	position (Engine off). • Verify the related PENDING CODE or stored DTCs. • Is DTC P0443 present?	No	Go to the next step.
4	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA • Is DTC P0133 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to the FREEZE FRAME DATA DTC inspection. (See DTC TABLE [ZJ, Z6].)
5	VERIFY CURRENT INPUT SIGNAL STATUS • Warm up the engine. • Access the O2S11 PID using the WDS or equivalent. • Inspect the PID under following accelerator pedal conditions (in PARK (ATX) or NEUTRAL (MTX)). • Is the PID normal? - More than 0.55 V when suddenly depressing the accelerator pedal (rich condition) - Less than 0.55 V just after releasing the accelerator pedal (lean condition)	Yes	Go to step 8.
		No	Go to the next step.
6	INSPECT INSTALLATION OF FRONT HO2S • Inspect if the front HO2S is loosely installed. • Is the front HO2S installed securely?	Yes	Go to the next step.
		No	Retighten the front HO2S, then go to Step 13. (See FRONT HEATED OXYGEN SENSOR (HO2S) REMOVAL/INSTALLATION [ZJ, Z6].)
7	INSPECT GAS LEAKAGE FROM EXHAUST SYSTEM • Visually inspect if there is any gas leakage between the exhaust manifold and front HO2S. • Is there gas leakage?	Yes	Repair or replace any malfunctioning exhaust part, then go to Step 13.
		No	Replace the front HO2S, then go to Step 13. (See FRONT HEATED OXYGEN SENSOR (HO2S) REMOVAL/INSTALLATION [ZJ, Z6].)
8	INSPECT LONG TERM FUEL TRIM • Access the LONGFT1 PID. • Compare it with FREEZE FRAME DATA recorded at Step 1. • Is it below FFD value?	Yes	The engine is driven under rich condition. Go to the next step.
		No	The engine is driven under lean condition. Go to step 10.
9	INSPECT FUEL LINE PRESSURE (EXCESSIVE FUEL LINE PRESSURE) • Turn the ignition switch off. • Inspect the fuel line pressure while the engine running. (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF].) • Is the fuel line pressure normal?	Yes	Go to Step 12.
		No	Inspect the fuel pump maximum pressure and fuel return pipe for clogging. (See FUEL PUMP UNIT INSPECTION [ZJ, Z6, LF].) • If there is any malfunction, repair or replace suspected parts. • If all items above are normal, replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].) Then go to Step 13.
10	INSPECT FUEL LINE PRESSURE (LOW FUEL LINE PRESSURE) • Turn the ignition switch off. • Inspect the fuel line pressure while the engine running. (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF].) • Is the fuel line pressure normal?	Yes	Go to step 12.
		No	Go to the next step.
		Yes	Replace suspected fuel line, then go to Step 13.

11	INSPECT FUEL LINE FROM FUEL PUMP TO FUEL DELIVERY PIPE <ul style="list-style-type: none"> • Visually inspect fuel line for any leakage. • Is any fuel leakage found? 	No	Inspect the fuel filter for following: <ul style="list-style-type: none"> • Foreign materials or stain inside fuel filter (low-pressure side) Perform following actions according to result. <ul style="list-style-type: none"> • If there is any foreign material or stain inside fuel filter (low-pressure side), clean the fuel tank and filter. • If there is no malfunction, replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].) Then go to Step 13.
12	INSPECT SEALING OF ENGINE COOLANT PASSAGE <ul style="list-style-type: none"> • Perform the "ENGINE COOLANT LEAKAGE INSPECTION". (See ENGINE COOLANT LEAKAGE INSPECTION.) • Is there any malfunction? 	Yes	Repair or replace malfunctioning part according to the inspection result. Then go to the next step.
		No	Go to the next step.
13	VERIFY TROUBLESHOOTING OF DTC P0133 COMPLETED <ul style="list-style-type: none"> • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the WDS or equivalent. • Perform the "HO2S heater, HO2S, and TWC Repair Verification Drive Mode". (See OBD DRIVE MODE [ZJ, Z6].) • Is the PENDING CODE for this DTC present? 	Yes	Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [ZJ, Z6].)
		No	Go to the next step.
14	VERIFY AFTER REPAIR PROCEDURE <ul style="list-style-type: none"> • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [ZJ, Z6].) • Are any DTCs present? 	Yes	Go to the applicable DTC inspection. (See DTC TABLE [ZJ, Z6].)
		No	DTC troubleshooting completed.