

DTC P2187 [ZJ, Z6]

B3E010202100W09

DTC P2187	System too lean at idle
DETECTION CONDITION	<ul style="list-style-type: none"> The PCM monitors short term fuel trim (SHRTFT) and long term fuel trim (LONGFT) during closed loop fuel control during idle. If the LONGFT or the sum total of these fuel trims and correction exceed preprogrammed criteria, PCM determines that fuel system is too lean during idle. <p>Diagnostic support note</p> <ul style="list-style-type: none"> This is a continuous monitor. (Fuel system) MIL illuminates if PCM detects the above malfunctioning condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. PENDING CODE is available if PCM detects the above malfunction conditions during first drive cycle. FREEZE FRAME DATA is available. The DTC is stored in the PCM memory.
POSSIBLE CAUSE	<ul style="list-style-type: none"> Misfire Front HO2S deterioration Front HO2S heater malfunction MAF sensor malfunction Pressure regulator (built-in fuel pump unit) malfunction Fuel pump malfunction Fuel filter clogged or restricted Fuel leakage on fuel line from fuel delivery pipe and fuel pump Leakage exhaust system Purge solenoid valve malfunction Purge solenoid hoses improper connection Air suction in intake-air system Insufficient engine compression Variable valve timing control system improper operation

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.
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 • If misfire DTC is present, go to Step 8. • If other DTC is present, go to the appropriate DTC inspection. (See DTC TABLE [ZJ, Z6].)
		No • If drive ability concern is present, go to Step 8. • If other, go to the next step.
4	IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA • Is DTC P2187 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 (IGNITION SWITCH TO ON/IDLE) <ul style="list-style-type: none"> • Access ECT, MAF, TP and VSS PIDs using WDS or equivalent. • Is there any signal that is far out of specification when KOER? 	Yes	Inspect suspected sensor and excessive resistance in related wiring harnesses. Repair or if necessary. Then go to Step 17.
		No	Go to the next step.
6	VERIFY CURRENT INPUT SIGNAL STATUS UNDER TROUBLE CONDITION <ul style="list-style-type: none"> • Inspect same PIDs as Step 4 while simulating FREEZE FRAME DATA condition. • Is there any signal which causes drastic changes? 	Yes	Inspect suspected sensor and related wiring harnesses repair or replace it. Then go to Step 17.
		No	Go to the next step.
7	VERIFY CURRENT INPUT SIGNAL STATUS OF FRONT HO2S <ul style="list-style-type: none"> • Access O2S11 for P2187 PID using WDS or equivalent. • Verify PID under following accelerator pedal condition (in PARK (ATX) or NEUTRAL (MTX)). • Is PID normal? <ul style="list-style-type: none"> - Above 0.45 V when suddenly depressing accelerator pedal (rich condition) - Below 0.45 V just after releasing accelerator pedal (lean condition) 	Yes	Go to the next step.
		No	Visually inspect for any gas leakage between exhaust manifold and front HO2S. Then go to Step 17.
8	INSPECT MAF PID <ul style="list-style-type: none"> • Start the engine. • Access MAF PID using the WDS or equivalent. • Verify that the MAF PID changes quickly according to the engine speed. • Is the MAF PID response normal? 	Yes	Go to the next step.
		No	Replace the MAF/IAT sensor, then go to Step 17. (See MASS AIR FLOW (MAF)/INTAKE AIR TEMPERATURE (IAT) SENSOR REMOVAL/INSTALLATION [ZJ, Z6].)
9	INSPECT FOR EXCESSIVE AIR SUCTION OF INTAKE AIR SYSTEM <ul style="list-style-type: none"> • Visually inspect hoses in the intake-air system for looseness, cracks or damages. • Is there any malfunction? 	Yes	Repair or replace source of air suction, then go to Step 17.
		No	Go to the next step.
10	INSPECT PURGE SOLENOID VALVE STUCK OPEN <ul style="list-style-type: none"> • Turn the ignition switch off. • Disconnect the both hoses from the purge solenoid valve. • Blow air through the purge solenoid valve. • Does air blow through? 	Yes	Replace the purge solenoid valve. (See PURGE SOLENOID VALVE REMOVAL/INSTALLATION [ZJ, Z6].) Then go to Step 17.
		No	Go to the next step.
11	INSPECT FUEL LINE PRESSURE <ul style="list-style-type: none"> • Turn the ignition switch off. <p>Note</p> <ul style="list-style-type: none"> • If the engine will not start, inspect the fuel line pressure with the ignition switch to the ON position. • 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 13.
		No	If the fuel pressure is too high, replace the fuel pump unit, then go to Step 17. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].) If the fuel line pressure is low, go to the next step.
		Yes	Replace suspected fuel line, then go to Step 17.

12	INSPECT FUEL LINE FROM FUEL PUMP TO FUEL DELIVERY PIPE <ul style="list-style-type: none"> • Visually inspect the fuel line for any leakage. • Is there any fuel leakage? 	No	Inspect for foreign materials or stain inside fuel filter (low pressure). If for foreign materials or stain inside fuel filter (low pressure), clean the fuel tank and filter. Then go to Step 17.
13	INSPECT IGNITION SYSTEM <ul style="list-style-type: none"> • Perform the spark test. (See Spark Test.) • Is strong blue spark visible at each cylinder? 	Yes	Go to the next step.
		No	Repair or replace malfunctioning part according to the spark test results, then go to Step 17.
14	INSPECT ENGINE COMPRESSION <ul style="list-style-type: none"> • Inspect the engine compression. (See COMPRESSION INSPECTION [ZJ, Z6].) • Is it normal? 	Yes	Go to the next step.
		No	Perform the engine overhaul for repairs, then go to Step 17.
15	INSPECT VARIABLE VALVE TIMING CONTROL SYSTEM OPERATION <ul style="list-style-type: none"> • Inspect the variable valve timing control system operation. (See Variable Valve Timing Control System Operation Inspection.) • Does the variable valve timing control system function properly? 	Yes	Go to the next step.
		No	Repair or replace malfunctioning part according to inspection results, then go to Step 17.
16	INSPECT FUEL INJECTOR OPERATION <ul style="list-style-type: none"> • Remove the fuel injector. (See FUEL INJECTOR REMOVAL/INSTALLATION [ZJ, Z6].) • Inspect the fuel injector (resistance, injection amount). (See FUEL INJECTOR INSPECTION [ZJ, Z6, LF].) • Is the fuel injector normal? 	Yes	Go to the next step.
		No	Replace suspected fuel injector, then go to the next step. (See FUEL INJECTOR REMOVAL/INSTALLATION [ZJ, Z6] .)
17	VERIFY TROUBLESHOOTING OF DTC P2187 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 "PCM Adaptive Memory Produce 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.
18	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.