

NO.27 SPARK PLUG CONDITION [LF]

B3E010318881W29

27	SPARK PLUG CONDITION
DESCRIPTION	Incorrect spark plug condition
POSSIBLE CAUSE	<p>Note</p> <ul style="list-style-type: none"> Inspecting spark plugs condition can determine whether problem is related to a specific cylinder possibly all cylinders. <p>Wet/carbon stuck on specific plug:</p> <ul style="list-style-type: none"> Spark-Weak, not visible Air/fuel mixture-Excessive fuel injection volume Compression-No compression, low compression Malfunction spark plug <p>Grayish white with specific plug:</p> <ul style="list-style-type: none"> Air/fuel mixture-Insufficient fuel injection volume Malfunction spark plug <p>Wet/carbon is stuck on all plugs:</p> <ul style="list-style-type: none"> Spark-Spark weak Air/fuel mixture-Too rich Compression-Low compression Clogging in intake/exhaust system <p>Grayish white with all plugs:</p> <ul style="list-style-type: none"> Air/fuel mixture-Too lean
	<p>Warning</p> <p>The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before performing the fuel system services:</p> <ul style="list-style-type: none"> Fuel vapor is hazardous. It can easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel. Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described in this manual. <p>(See BEFORE SERVICE PRECAUTION [ZJ, Z6, LF].) (See AFTER SERVICE PRECAUTION [ZJ, Z6, LF].)</p>
	<p>Caution</p> <ul style="list-style-type: none"> Disconnecting/connecting quick release connector without cleaning it may possibly cause damage to fuel pipe and quick release connector. Always clean quick release connector joint area before disconnecting/connecting, and make sure that it is free of foreign material.

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
		Yes	Troubleshooting completed.
			<p>Specific plug is wet or covered with carbon:</p> <p>Go to the next step.</p>

1	Remove all the spark plugs. Inspect spark plug condition. Is spark plug condition normal?	No	<p>Specific plug looks grayish white:</p> <p>Go to Step 7.</p> <p>All plugs are wet or covered with carbon:</p> <p>Go to Step 9.</p> <p>All plugs look grayish white:</p> <p>Go to Step 15.</p>
2	Are the spark plug wet/covered with carbon by engine oil?	Yes	Inspect all areas related to oil, working up and down.
		No	Go to the next step.
3	Inspect the spark plug for following: • Cracked insulator • Heat range • Air gap • Worn electrode Is the spark plug normal?	Yes	Go to the next step.
		No	Replace the spark plug. (See SPARK PLUG REMOVAL/INSTALLATION [LF] .)
4	Inspect compression pressure at suspected malfunction cylinder. Is compression pressure correct? (See COMPRESSION INSPECTION [LF] .)	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
5	Install all spark plugs. Perform the spark test at suspected malfunction cylinder. Is strong blue spark visible? (Compare with normal cylinder.)	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
6	Perform the fuel line pressure inspection. Is the fuel line pressure correct?	Yes	Inspect fuel injector for following: • Open or short circuit in injector • Leakage • Injection volume
		No	<p>Zero or low:</p> <p>Inspect the fuel pump and fuel pump relay related circuit. Inspect the fuel line for clogging. • If there is no malfunction, replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].)</p> <p>High:</p> <p>Replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].)</p>
7	Inspect the spark plug for following. • Heat range • Air gap Is the spark plug normal?	Yes	Go to the next step.
		No	Replace the spark plug.
8	Remove the suspected fuel injector. Inspect the following: • Resistance (See FUEL INJECTOR INSPECTION [ZJ, Z6, LF] .)	Yes	Inspect for open circuit in wiring harness between the fuel injector terminal and PCM following terminals: • For No.1 cylinder: 2BB • For No.2 cylinder: 2BC

	<ul style="list-style-type: none"> Fuel injection volume (See FUEL INJECTOR INSPECTION [ZJ, Z6, LF].) Are all above items normal?		<ul style="list-style-type: none"> For No.3 cylinder: 2BD For No.4 cylinder: 2AZ
		No	Replace the fuel injector.
9	Is air cleaner element free of restrictions?	Yes	Go to the next step.
		No	Replace the air cleaner element.
10	Perform the spark test. (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF] .) Is strong blue spark visible at each cylinder?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
11	Perform the fuel line pressure inspection. Is fuel line pressure correct? (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF] .)	Yes	Go to the next step.
		No	Zero or low: Inspect the fuel pump and fuel pump relay elated circuit. Inspect the fuel line for clogging. • If there is no malfunction, replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF] .) High: Replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF] .)
12	Inspect the following PIDs. • ECT • O2S11 (When engine can be started) • O2S12 (When engine can be started) • MAF (See PCM INSPECTION [LF] .) Are PIDs normal?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
13	Perform the purge control inspection. (When engine can be started) (See Purge Control System Inspection .) Is the purge control correct?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
14	Perform the compression inspection. (See COMPRESSION INSPECTION [LF] .) Is compression correct?	Yes	Visually inspect for deformed in exhaust system part.
		No	Repair or replace the malfunctioning part.
15	When the engine cannot be started, inspect intake-air system for air leakage. When the engine can be started, perform the intake manifold vacuum inspection. Is air sucked in from the intake-air system?	Yes	Repair or replace the malfunctioning part.
		No	Go to the next step.
		Yes	Inspect the following PIDs. • ECT • O2S11 • O2S12 • MAF

16	Perform the fuel line pressure inspection. Is fuel line pressure correct? (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF] .)		(See PCM INSPECTION [LF] .) Inspect PCM GND condition.
		No	Zero or low: Inspect the fuel pump and fuel pump relay related circuit. Inspect the fuel line for clogging. • If there is no malfunction, replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF] .) High: Replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF] .)
17	Verify test results. • If normal, return to diagnostic index to service any additional symptoms. (See ENGINE SYMPTOM TROUBLESHOOTING [LF] .) • If malfunction remains, inspect related Service information perform repair or diagnosis. - If vehicle repaired, troubleshooting completed. - If vehicle not repaired or additional diagnostic information not available, replace the PCM. (See PCM REMOVAL/INSTALLATION [LF] .)		