

NO.27 SPARK PLUG CONDITION [ZJ, Z6]

B3E010318881W60

27	SPARK PLUG CONDITION
DESCRIPTION	Incorrect spark plug condition
POSSIBLE CAUSE	<p>Note</p> <ul style="list-style-type: none"> Inspecting spark plug 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 Malfunctioning spark plug <p>Grayish white with specific plug:</p> <ul style="list-style-type: none"> Air/fuel mixture-Insufficient fuel injection volume Malfunctioning 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 the "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described in this manual. (See BEFORE SERVICE PRECAUTION [ZJ, Z6, LF].) (See AFTER SERVICE PRECAUTION [ZJ, Z6, LF].)
	<p>Caution</p> <ul style="list-style-type: none"> If there is foreign material on the connecting area of the quick release connector, it might damage the connector or fuel pipe. To prevent this, disconnect the connector and clean the connecting area before connecting.

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 the spark plug condition. Is the 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 10.</p> <p>All plugs look grayish white:</p> <p>Go to Step 16.</p>
2	Are the spark plugs 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 the 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 [ZJ, Z6].)
4	Inspect compression pressure at suspected malfunctioning cylinder. Is compression pressure correct? (See COMPRESSION INSPECTION [ZJ, Z6].)	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
5	Install all spark plugs. Perform the spark test at suspected malfunctioning cylinder. Is strong blue spark visible? (See Spark Test.) (Compare with normal cylinder.)	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
6	Perform the fuel line pressure inspection. (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF].) Is fuel line pressure correct?	Yes	Inspect the fuel injector for following: • Open or short circuit in injector • Leakage • Injection volume
		No	<p>Zero or low:</p> <p>Inspect fuel pump and the fuel pump relay related circuit. Inspect the main fuel line for clogging. • If normal, replace 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 spark plug normal?	Yes	Go to the next step.
		No	Replace the spark plug.
8	Turn the ignition switch off. Disconnect suspected fuel injector connector. Turn the ignition switch to the ON position.	Yes	Go to the next step.

	Measure terminal voltage for the fuel injector terminal A. Is voltage B+ ?	No	Repair open or short fuel injector power supply circuit.
9	Turn the ignition switch off. Disconnect the PCM connector. Measure resistance between suspected the fuel injector terminal B and the PCM connector following terminal: • For No.1 cylinder: 2B • For No.2 cylinder: 2C • For No.3 cylinder: 2D • For No.4 cylinder: 2H Is resistance less than 5.0 ohms ?	Yes	Inspect the fuel injector for following: (See FUEL INJECTOR INSPECTION [ZJ, Z6, LF] .) • Resistance • Fuel injection volume
		No	Repair open the fuel injector control circuit.
10	Is the air cleaner element free of restrictions?	Yes	Go to the next step.
		No	Replace the air cleaner element.
11	Perform the spark test. Is strong blue spark visible at each cylinder?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
12	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 related circuit. Inspect the main fuel line for clogging. • If normal, replace 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] .)
13	Inspect the following PIDs. • ECT • O2S11 (When engine can be started) • MAF (See PCM INSPECTION [ZJ, Z6] .) Are PIDs normal?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
14	Perform the purge control inspection. (When engine can be started) (See Purge Control System Inspection .) Is purge control correct?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
15	Perform the compression inspection. Is compression correct?	Yes	Inspect for deformed exhaust system part.
		No	Repair or replace the malfunctioning part.
16	When the engine cannot be started, inspect the intake-air system for air leakage. When the engine can be started, perform the intake manifold vacuum inspection. Is air sucked in from intake-air system?	Yes	Repair or replace the malfunctioning part.
		No	Go to the next step.
			Inspect following PIDs: • ECT • O2S11 • O2S12

17	<p>Perform the fuel line pressure inspection. Is fuel line pressure correct? (See FUEL LINE PRESSURE INSPECTION [ZJ, Z6, LF].)</p>	Yes	<ul style="list-style-type: none"> • MAF <p>(See PCM INSPECTION [ZJ, Z6].)</p> <p>Inspect PCM GND condition.</p>
		No	<p>Zero or low:</p> <p>Inspect the fuel line for clogging.</p> <ul style="list-style-type: none"> • If there is no malfunction, replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].) <p>High:</p> <p>Replace the fuel pump unit. (See FUEL PUMP UNIT REMOVAL/INSTALLATION [ZJ, Z6, LF].)</p>
18	<p>Verify test results.</p> <ul style="list-style-type: none"> • If normal, return to diagnostic index to service any additional symptoms. (See ENGINE SYMPTOM TROUBLESHOOTING [ZJ, Z6].) • If malfunction remains, inspect related Service information perform repair or diagnosis. <p>- If vehicle repaired, troubleshooting completed.</p> <p>- If vehicle not repaired or additional diagnostic information not available, replace PCM. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [ZJ, Z6].)</p>		