

Component Procedures: Spark Plug

Table of Contents

1. Parts and Labor (itype_189)
2. Components (itype_389)
3. Components (itype_32)
4. Removal and Replacement (itype_401)
5. Electrical (itype_27)
6. Gap (Article 1409081)
7. Torque (Article 1409080)
8. Spark Plug Inspection (Article 1367622)
9. Spark Plug Condition (Article 1412024)

Component Procedures: Spark Plug

Parts and Labor (itype_189)

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Replace	Spark Plugs, R&R	C	1.0	0.0

Components (itype_389)

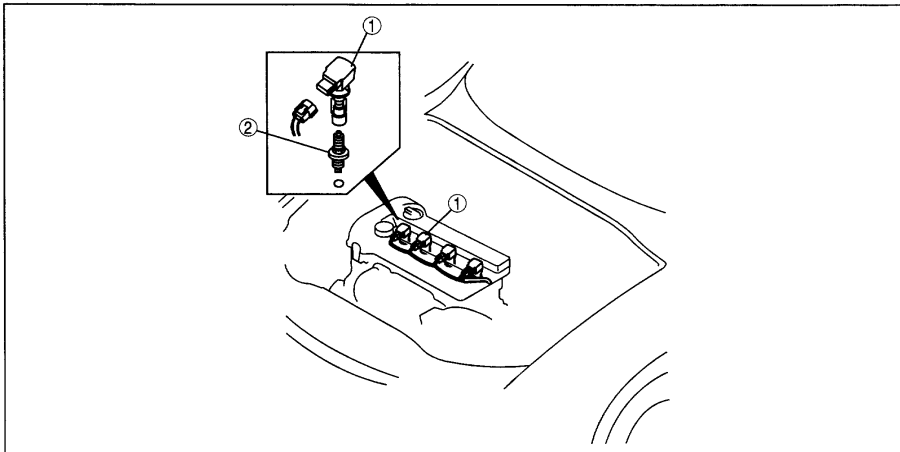
Spark plug

type LFG1 18 110 (ILTR5A-13G), L3Y2 18 110

Components (itype_32)

IGNITION SYSTEM LOCATION INDEX[LF, L3]

id0118a5800100



CPJ118ZWB002

1	Ignition coil
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2	Spark plug
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Removal and Replacement (itype_401)

SPARK PLUG

REMOVAL/INSTALLATION [LF, L3]

CAUTION: If a spark plug that is not as specified is installed, engine performance will be deteriorated.

Install only the specified spark plug when replacing.

1. Remove the battery

cover

2. Disconnect the negative battery cable.

3. Remove the plug hole plate.

4. Remove the

ignition coils

5. Remove the

spark plugs

using a plug-wrench.

6. Install in the reverse order of removal.

Tightening torque:

10 - 14 N.m {1.1 - 1.4 kgf.m, 8 - 10 ft.lbf}

Electrical (itype_27)

Spark plug

Resistance 3.0 - 7.5 kilohms (25°C {77 °F})

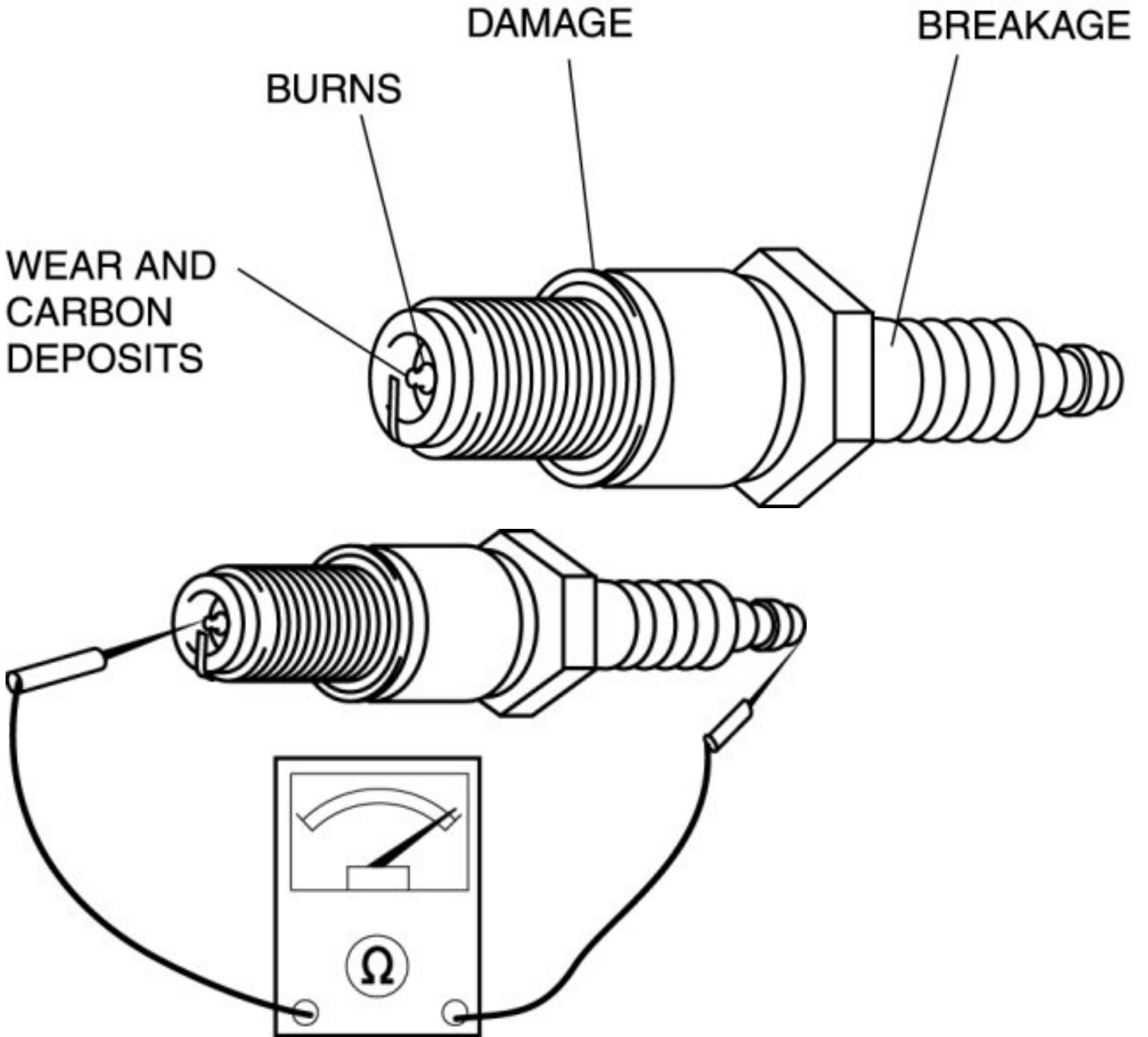
Gap (Article 1409081)

Gap 0.7 - 0.8 mm (0.028 - 0.031 in)

Torque (Article 1409080)

Torque 10 - 14 Nm (7 - 10 lb-ft)

Spark Plug Inspection (Article 1367622)



Spark Plug Condition (Article 1412024)

29 SPARK PLUG CONDITION	
DESCRIPTION	Incorrect spark plug condition
	Note
	<ul style="list-style-type: none"> Inspecting spark plugs condition can determine whether problem is related to a specific cylinder or possibly all cylinders.
	Wet/carbon stuck on specific plug:
	<ul style="list-style-type: none"> Spark—Weak, not visible Air/fuel mixture—Excessive fuel injection volume Compression—No compression, low compression Malfuction spark plug
	Grayish white with specific plug:
	<ul style="list-style-type: none"> Air/fuel mixture—Inefficient fuel injection volume Malfuction spark plug
	Wet/carbon is stuck on all plugs:
	<ul style="list-style-type: none"> Spark—Spark weak Air/fuel mixture—Too rich Compression—Low compression Clogging in intake/exhaust system
POSSIBLE CAUSE	Grayish white with all plugs:
	<ul style="list-style-type: none"> Air/fuel mixture—Too lean
	Warning
	The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before servicing the fuel system:
	<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.
	Caution
	<ul style="list-style-type: none"> Disconnecting/connecting quick release connector without cleaning it may 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
1	Remove all the spark plugs. Inspect spark plug condition. Is spark plug condition normal?	Yes No	Troubleshooting completed. Specific plug is wet or covered with carbon: Go to the next step. Specific plug looks grayish white: Go to Step 7. All plugs are wet or covered with carbon: Go to Step 9. All plugs look grayish white: Go to Step 15.
2	Are the spark plug wet/covered with carbon by the engine off?	Yes No	Inspect all areas related to oil, working up and down. Go to the next step.
3	Inspect the spark plug for the following: <ul style="list-style-type: none"> Cracked insulator Heat range Air gap Worn electrodes Is the spark plug normal?	Yes No	Go to the next step. Replace the spark plug.
4	Inspect compression pressure at suspected malfunctioning cylinder. Is compression pressure correct?	Yes No	Go to the next step. Repair or replace the malfunctioning part.

STEP	INSPECTION	RESULTS	ACTION
5	Install all spark plugs. Perform the spark test at suspected malfunctioning cylinder. Is strong blue spark visible? (Compare with normal cylinder)	Yes No	Go to the next step. Repair or replace the malfunctioning part.
6	Install the fuel pressure gauge between fuel filter and fuel distributor. Short check connector terminal FIP to body GND using a jumper wiring. Turn the ignition switch to the ON position (Engine off). Is the fuel line pressure correct with the ignition switch at ON? (See FUEL LINE PRESSURE INSPECTION [L,F, L3].)	Yes No	Inspect fuel injector for the following: <ul style="list-style-type: none"> Open or short circuit in injector Leakage Injection volume Zero or low: Inspect the fuel pump relay and fuel pump circuit. Inspect the fuel line for clogging. If there is no malfunction, replace the fuel pump unit. High: Replace the fuel pump unit.
7	Inspect the spark plug for the following: <ul style="list-style-type: none"> Heat range Air gap Is the spark plug normal?	Yes No	Go to the next step. Replace the spark plug.
8	Remove the suspected fuel injector. Inspect the following: <ul style="list-style-type: none"> Resistance Fuel injection volume Are all above items normal?	Yes No	Inspect for open circuit in wiring harness between fuel injector connector terminal A and PCM at the following terminals: <ul style="list-style-type: none"> For No.1 cylinder: 2AW⁺, 2BB⁻, 2BA⁺, 2BE⁻, 2BA⁺ For No.2 cylinder: 2AS⁺, 2BC⁻, 2AW⁺, 2BF⁻, 2AX⁺ For No.3 cylinder: 2AX⁺, 2BD⁻, 2AX⁺, 2BG⁻, 2AX⁺ For No.4 cylinder: 2AT⁺, 2AZ⁻, 2AT⁺, 2BH⁻, 2AT⁺ Replace the fuel injector.
9	Is the air cleaner element free of clogging?	Yes No	Go to the next step. Replace the air cleaner element.
10	Perform the seak test . (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [L,F, L3].) Is strong blue spark visible at each cylinder?	Yes No	Go to the next step. Repair or replace the malfunctioning part.
11	Install the fuel pressure gauge between the fuel filter and fuel distributor. Short check connector terminal FIP to body GND using a jumper wiring. Turn the ignition switch to the ON position (Engine off). Is the fuel line pressure correct with ignition switch at ON? (See FUEL LINE PRESSURE INSPECTION [L,F, L3].)	Yes No	Go to the next step. Zero or low: Inspect the fuel pump relay and fuel pump circuit. Inspect the fuel line for clogging. If there is no malfunction, replace the fuel pump unit. High: Replace the fuel pump unit.
12	Inspect the following PIDs: <ul style="list-style-type: none"> ECT O2B11 (When engine can be started.) O2B12 (When engine can be started.) O2B13 (When engine can be started.) MAF (See PCM INSPECTION [L,F, L3].) Are PIDs normal?	Yes No	Go to the next step. Repair or replace the malfunctioning part.

STEP	INSPECTION	RESULTS	ACTION
13	Perform the purge control inspection. (When engine can be started.) (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [LF, L3].) Is the purge control correct?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
14	Perform compression inspection. (See COMPRESSION INSPECTION [LF, L3].) Is compression correct?	Yes	Visually inspect for deformed exhaust system part.
		No	Repair or replace the malfunctioning part.
15	When the engine cannot be started, inspect the intake-air system for air leakage. When the engine can be started, perform 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.
16	Install the fuel pressure gauge between the fuel filter and the fuel distributor. Short check connector terminal F/P to body GND using a jumper wiring. Turn the ignition switch to the ON position (Engine off). Is fuel line pressure correct with the ignition switch at ON? (See FUEL LINE PRESSURE INSPECTION [LF, L3].)	Yes	Inspect the following PIDs: • ECT • O2S11 • O2S12 • O2S13 ^{*1} • MAF (See PCM INSPECTION [LF, L3].) Inspect PCM GND condition.
		No	Zero or low: Inspect the fuel pump relay and fuel pump circuit. Inspect the fuel line for clogging. If there is no malfunction, replace the fuel pump unit. High: Replace the fuel pump unit.
17	<ul style="list-style-type: none"> • Verify test results. <ul style="list-style-type: none"> — If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [LF, L3].) — If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. <ul style="list-style-type: none"> • If vehicle is repaired, troubleshooting completed. • If vehicle is not repaired or additional diagnostic information is not available, replace the PCM. 		

*1 : California emission regulation applicable model

*2 : Except for California emission regulation applicable model with LF engine ATX

*3 : Except for California emission regulation applicable model with LF engine MTX and L3 engine