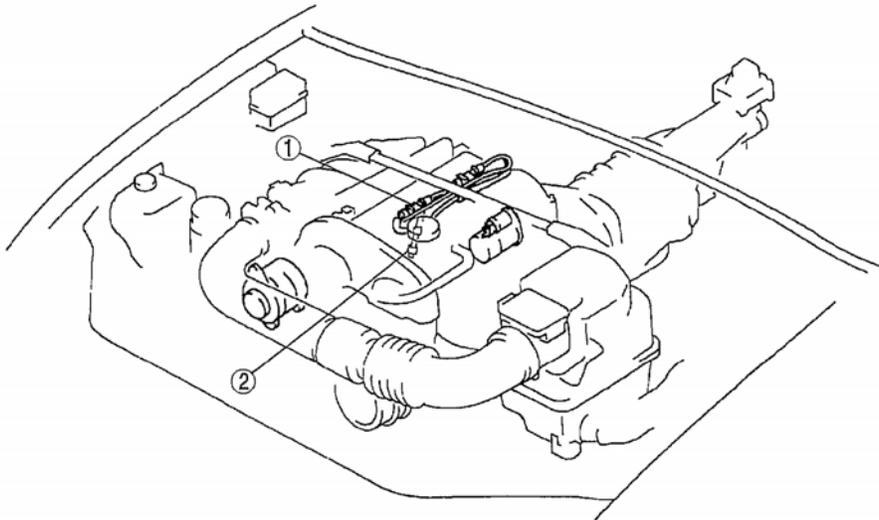


2005 ENGINE PERFORMANCE

Ignition System - MX-5 Miata

IGNITION SYSTEM LOCATION INDEX



1	Ignition coil (See IGNITION COIL REMOVAL/ INSTALLATION.) (See IGNITION COIL INSPECTION.)
---	---

2	Spark plug (See SPARK PLUG REMOVAL/ INSTALLATION.) (See SPARK PLUG INSPECTION [BP].) (See SPARK PLUG INSPECTION [BP WITH TC].)
---	---

G03637895

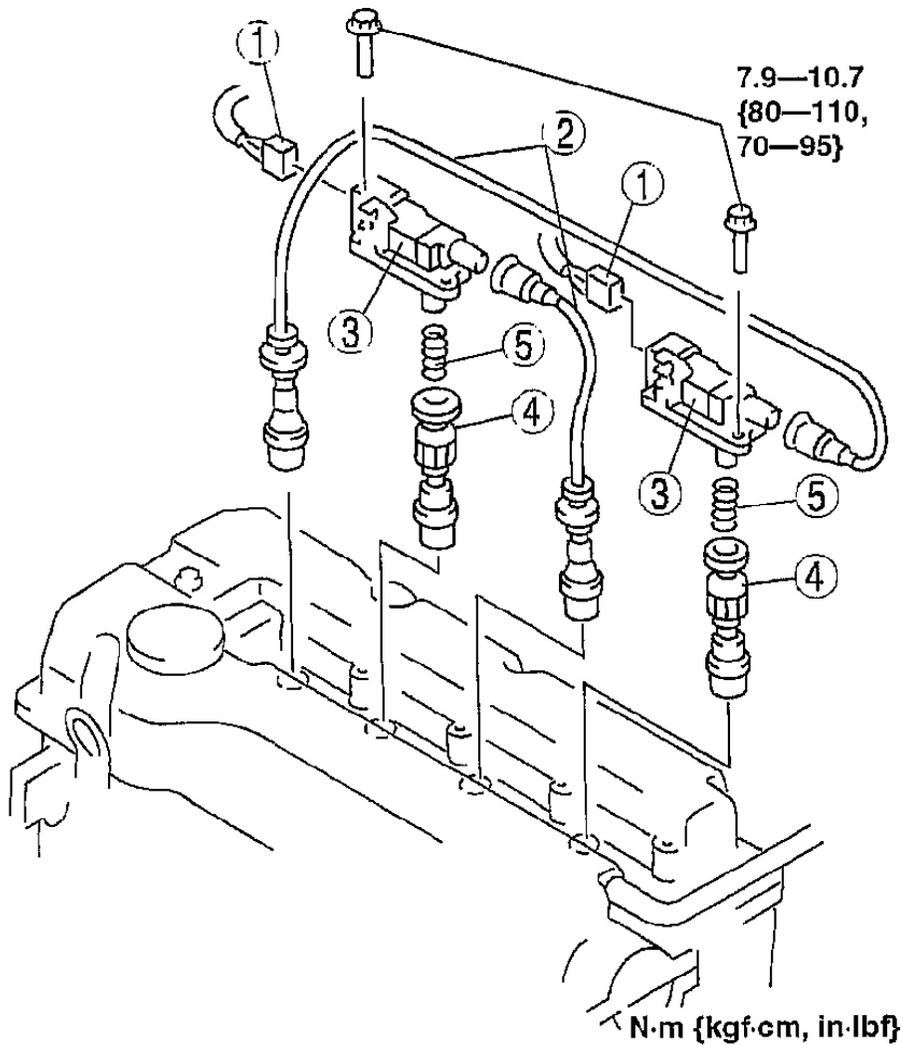
Fig. 1: Locating Components Of Ignition System
Courtesy of MAZDA MOTORS CORP.

IGNITION COIL REMOVAL/INSTALLATION

1. Disconnect the negative battery cable.
2. Remove in the order indicated in the table.

2005 Mazda MX-5 Miata

2005 ENGINE PERFORMANCE Ignition System - MX-5 Miata



1	Connector
2	High-tension lead
3	Ignition coil
4	Plug cap
5	Spring

G03637896

Fig. 2: Identifying Ignition Coil & Torque Specifications
Courtesy of MAZDA MOTORS CORP.

3. Install in the reverse order of removal.

IGNITION COIL INSPECTION

IGNITER

1. Perform spark test. (See **SPARK TEST** .)

IGNITION COIL OPERATION INSPECTION

1. Remove the ignition coils, high-tension leads, and spark plugs.
2. Connect the ignition coil, high-tension lead, spark plug, and the battery as shown in **Fig. 3**.

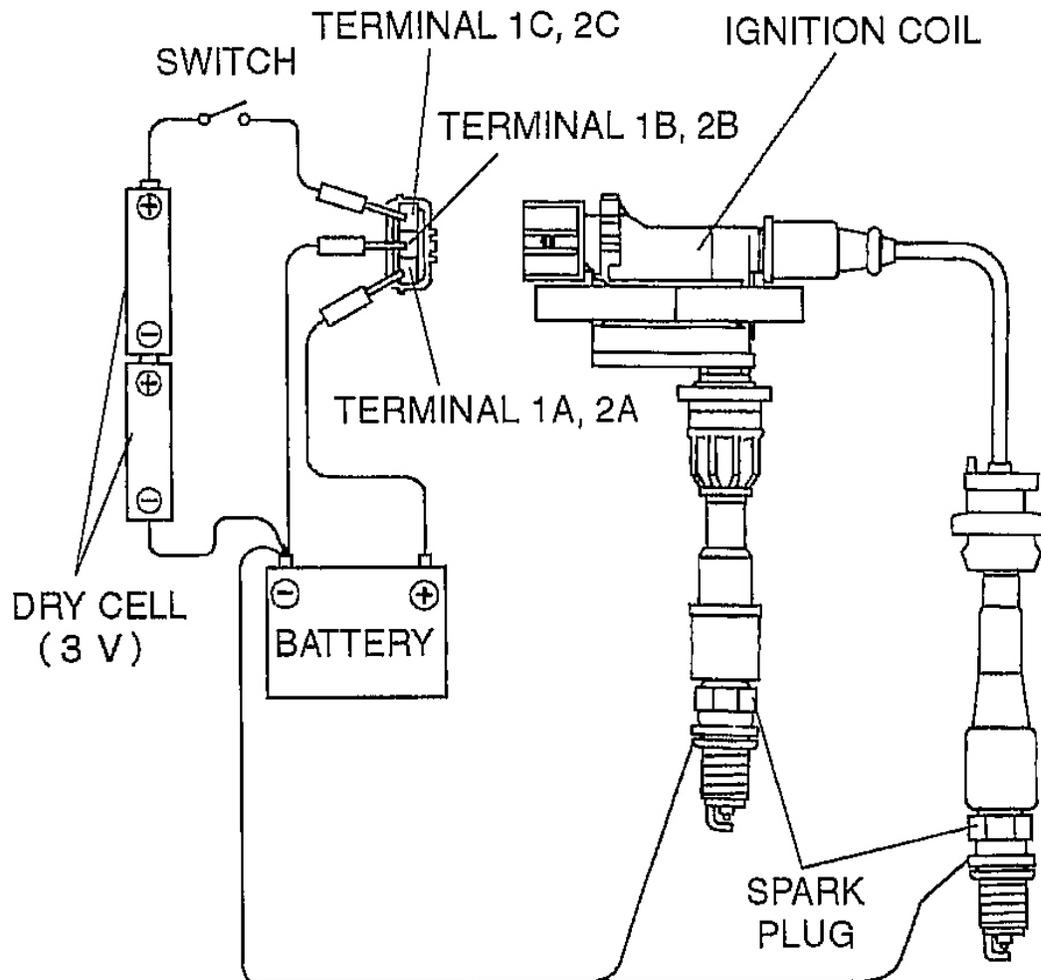


Fig. 3: Connecting Ignition Coil, High-Tension Lead, Spark Plug, And Battery
Courtesy of MAZDA MOTORS CORP.

CAUTION:

- When connecting the ignition coil, be sure to attach as a female terminal to each terminal. Otherwise, coil terminals may come into contact and the ignition coil could be damaged.

NOTE:

- Use the high-tension lead and spark plug that function properly.

3. Verify that the spark plug produces a strong, pale spark when changing the switch off to on.

WARNING:

- Do not hold the spark plug, high-tension lead, or ignition coil while inspecting the ignition coil. You may be subjected to a strong shock.

NOTE:

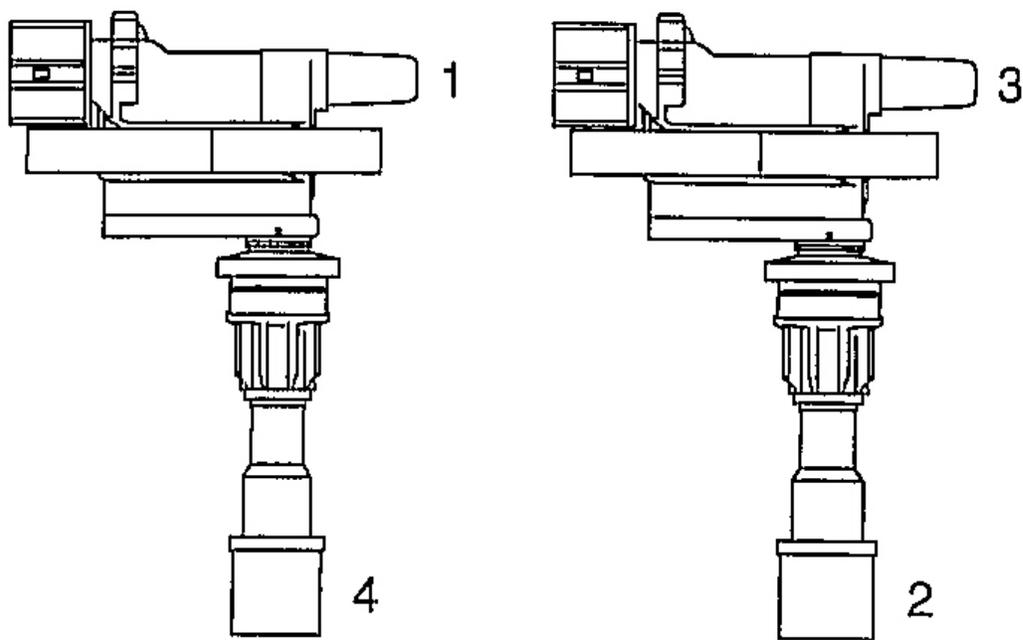
- No.1 and No.4 cylinders and No.2 and No.3 cylinders are ignited simultaneously.

SECONDARY COIL WINDING

1. Remove the ignition coil.
2. Measure the resistance from lead hole 1 to 4, and lead hole 2 to 3 using an ohmmeter.
 - If not within the specification, replace the ignition coil.

Specification

7-11 kilohms



G03637898

Fig. 4: Measuring Resistance From Lead Hole Using An Ohmmeter
Courtesy of MAZDA MOTORS CORP.

INSULATION RESISTANCE OF CASE

1. Disconnect the high-tension lead.
2. Disconnect the ignition coil connector.
3. Measure the insulation resistance from terminal 1A to ignition coil case, and terminal 2A to ignition coil case using an ohmmeter.
 - If not as specified, replace the ignition coil.

Specification

Above 10 megohms

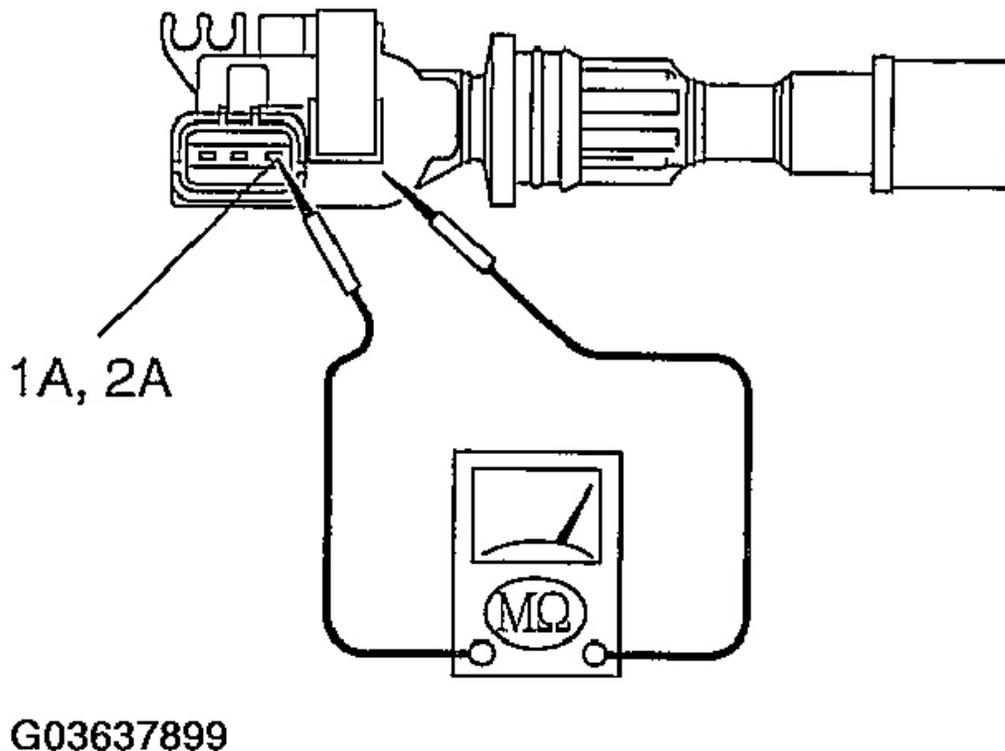


Fig. 5: Measuring Insulation Resistance From Terminal 1A To Ignition Coil Case
Courtesy of MAZDA MOTORS CORP.

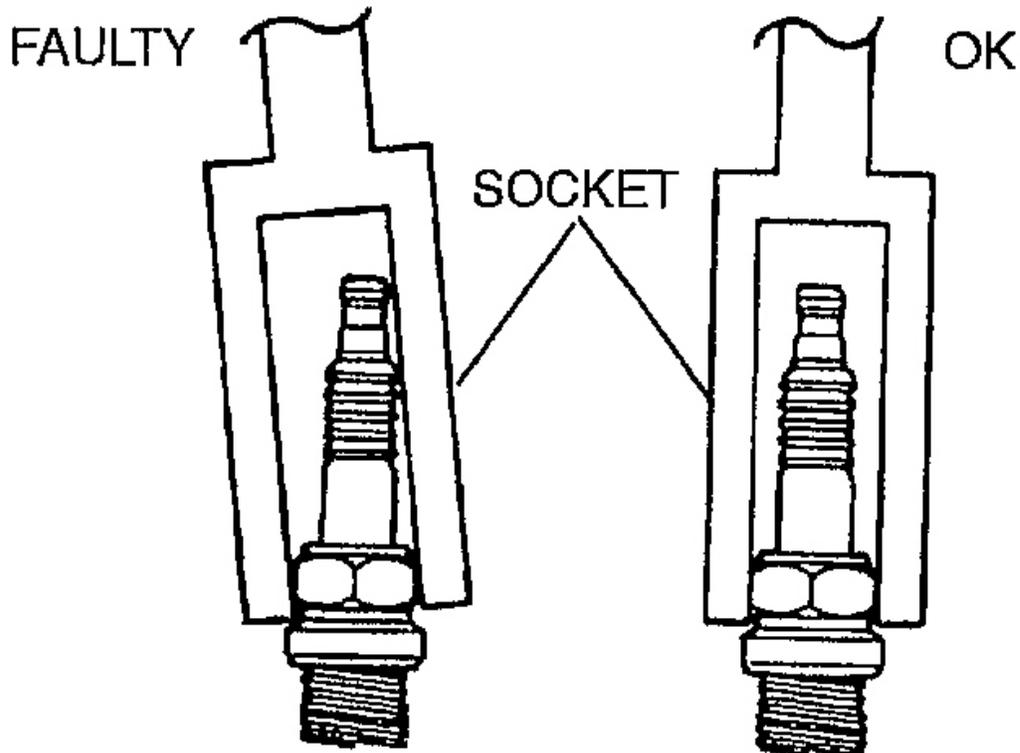
SPARK PLUG REMOVAL/INSTALLATION

CAUTION: • To avoid breaking the spark plug, be sure to fit the socket squarely over it.

1. Disconnect the high-tension lead. (See **IGNITION COIL REMOVAL/INSTALLATION.**)
2. Remove the ignition coil. (See **IGNITION COIL REMOVAL/INSTALLATION.**)
3. Remove the spark plug.
4. Install in the reverse order of removal.

Tightening torque

15-22 N.m {1.5-2.3 kgf.m, 11-16 ft.lbf}



G03637900

Fig. 6: Identifying Spark Plug Socket
Courtesy of MAZDA MOTORS CORP.

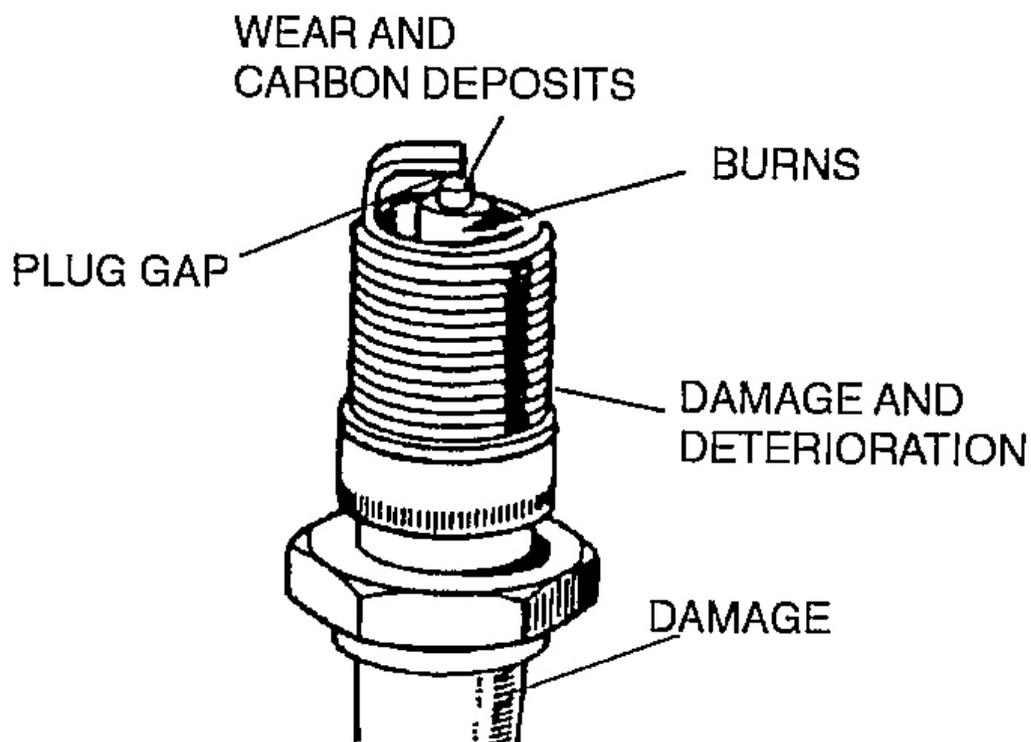
SPARK PLUG INSPECTION [BP]

VISUAL INSPECTION

1. Inspect the following and replace the spark plugs if necessary.
 - Damaged insulation
 - Worn electrode
 - Carbon deposits
 - If cleaning is necessary, use a plug cleaner or a wire brush. Wipe the upper insulator.
 - Damaged gasket
 - Burnt condition
 - Plug gap

Plug gap

1.0-1.1 mm {0.040-0.043 in}



G03637901

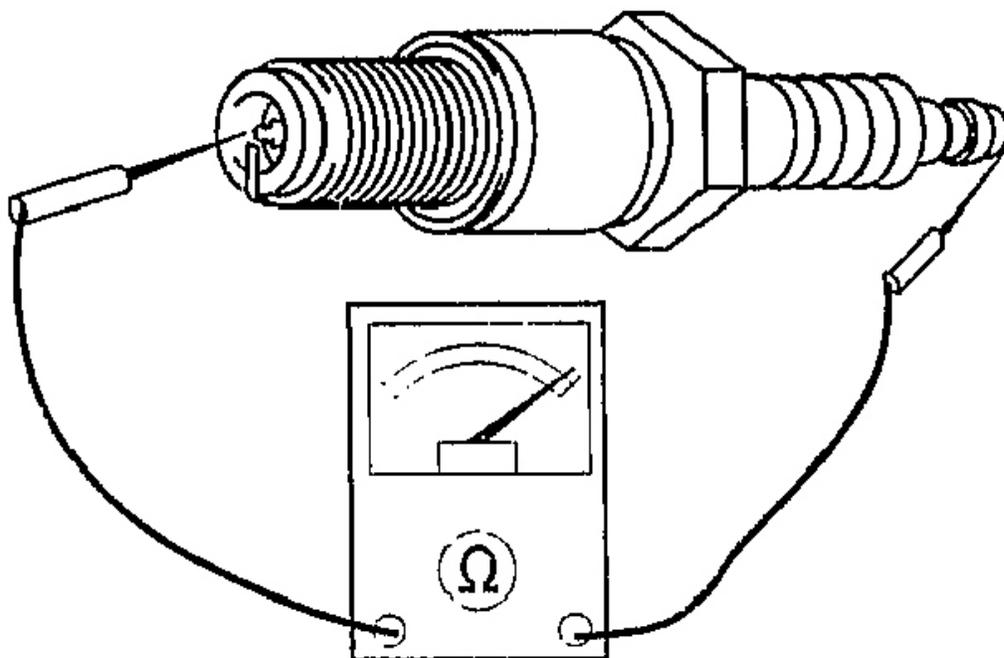
Fig. 7: Identifying Spark Plugs Components
Courtesy of MAZDA MOTORS CORP.

RESISTANCE INSPECTION

1. Measure the resistance of the spark plug using a tester as shown in **Fig. 8**.
 - If not within the specification, replace the spark plug.

Resistance

3.0-7.5 kilohms [20 °C {68°F}]



G03637902

Fig. 8: Measuring Resistance Of Spark Plug Using A Tester
Courtesy of MAZDA MOTORS CORP.

SPARK PLUG INSPECTION [BP WITH TC]

SPECIFICATION

Spark plug type

SK16PR-F8*1

SK20PR-F8*2

*1: Standard plug

*2: Cold type plug

PLUG GAP INSPECTION

2005 Mazda MX-5 Miata

2005 ENGINE PERFORMANCE Ignition System - MX-5 Miata

- CAUTION:**
- To avoid possible damage to the tip, do not adjust the plug gap.
 - To prevent damaging the tip, use wire type plug gap gauge when inspecting the plug gap.

1. Measure the spark plug gap using the wire type plug gap gauge.
 - If it exceeds the specification, replace the spark plug.

Standard plug gap

0.7-0.8 mm {0.028-0.031 in}

CLEANING

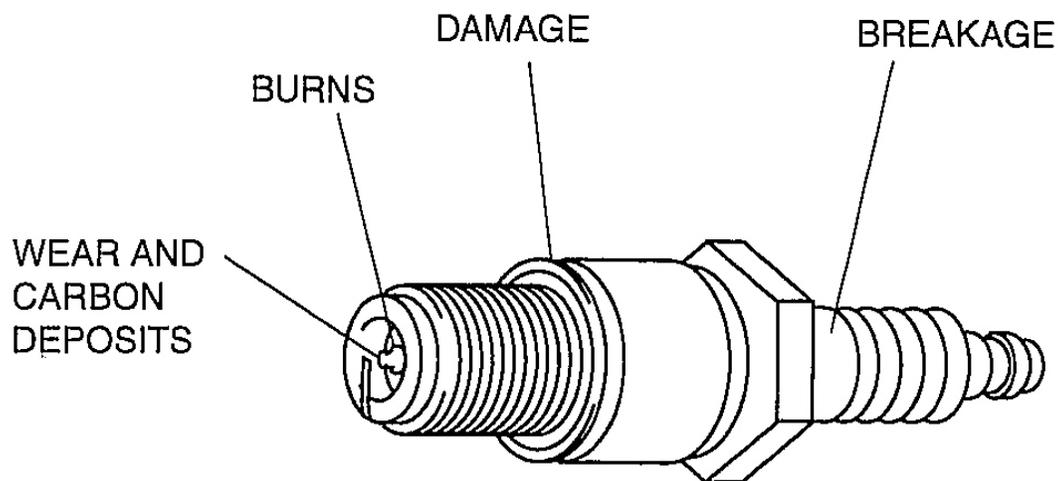
- CAUTION:**
- Carbon may adhere to the tip of the spark plug during vehicle delivery or repeated short distance driving during the winter time. If there is any malfunction such as rough idling or start difficulty due to carbon adhesion causing plug fouling, burn off the carbon by no-load racing the engine.
 - When performing the no-load racing, apply the side brake and foot brake, move the shift lever to neutral (MT) to prevent serious injury.
 - To avoid possible damage to the spark plug tip, do not use a wire brush for cleaning.

- NOTE:**
- To avoid possible damage to the tip, use gasoline to clean the spark plugs after removing dirt.

1. If there is carbon adhering to the spark plug, perform no-load racing at **3,000 rpm for 3 min.**

VISUAL INSPECTION

1. Inspect the following items:
 - If there is any malfunction, replace the spark plug.



G03637903

Fig. 9: Identifying Worn Electrode
Courtesy of MAZDA MOTORS CORP.

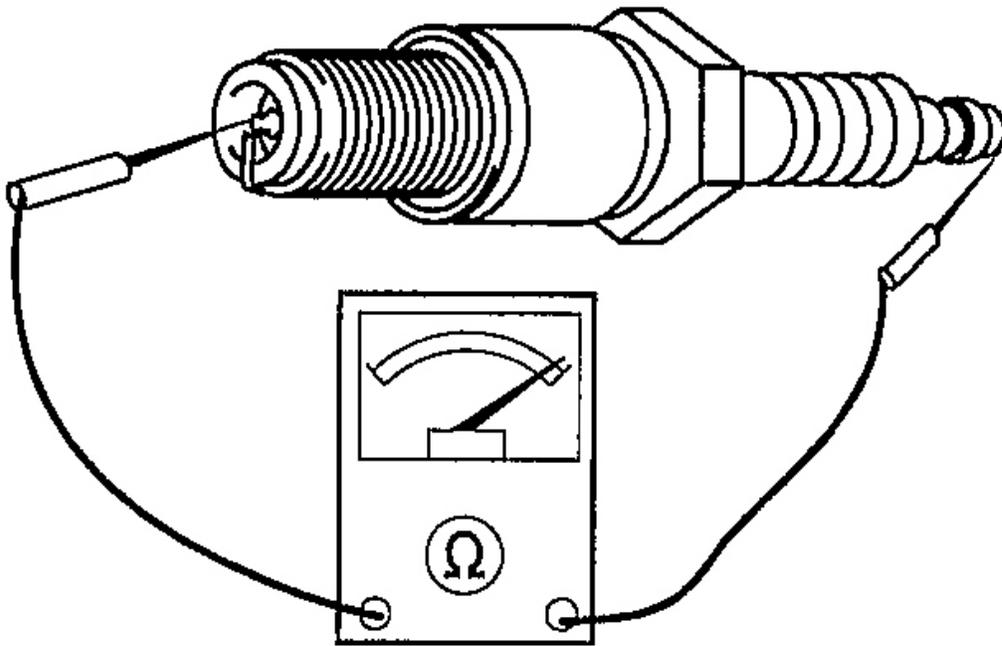
- Insulator breakage
- Worn electrode
- Damaged gasket
- Badly burned insulator (sparking side)

RESISTANCE INSPECTION

1. Measure the resistance of the spark plug using a tester as shown in **Fig. 10**.
 - If not within the specification, replace the spark plug.

Resistance

3.0-7.5 kilohms [20 °C {68°F}]



G03637904

Fig. 10: Measuring Resistance Of Spark Plug Using A Tester
Courtesy of MAZDA MOTORS CORP.