2003-06 ENGINE

Ignition System - MDX

COMPONENT LOCATION INDEX

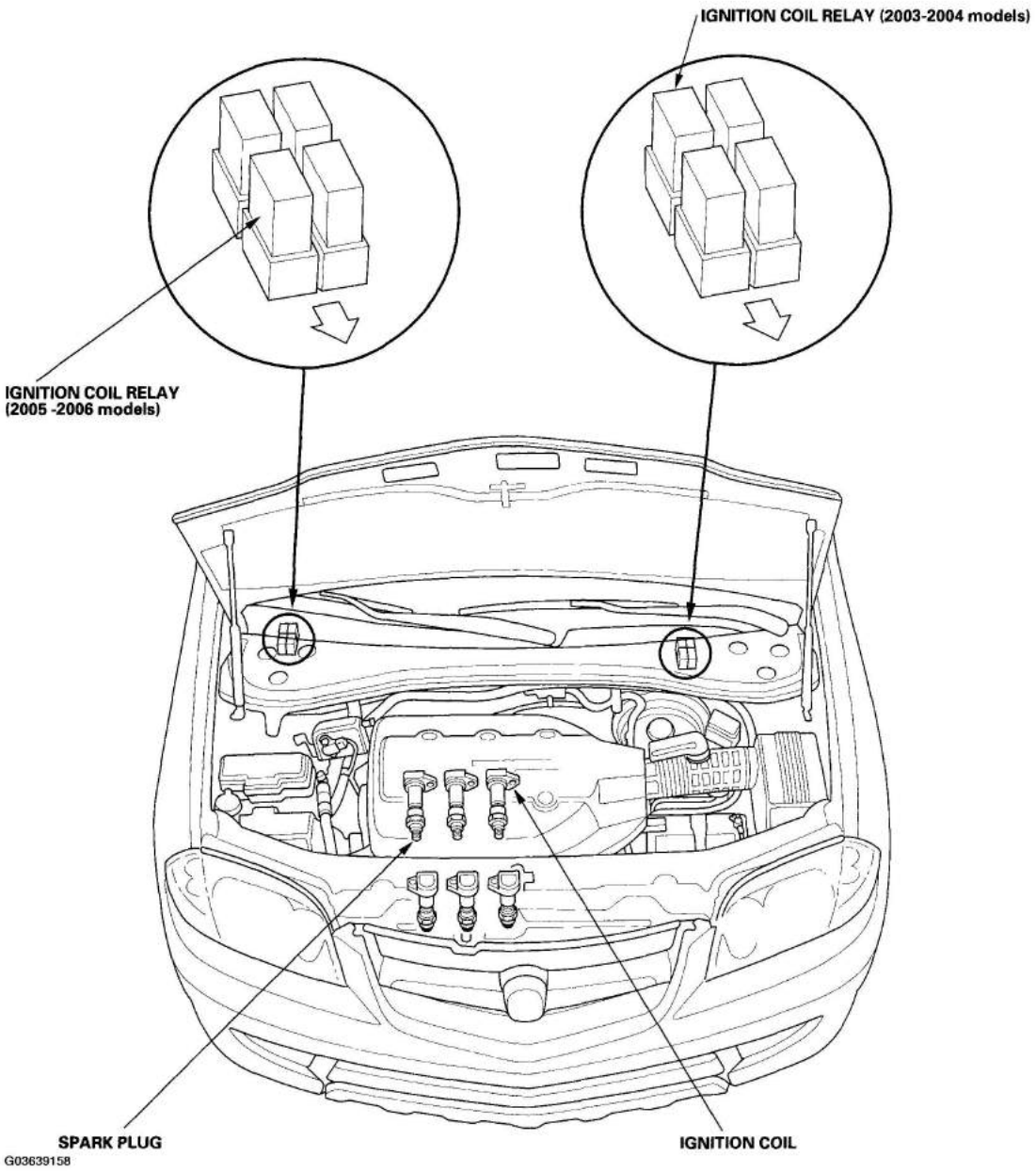

Fig. 1: Locating Ignition System Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CIRCUIT DIAGRAM

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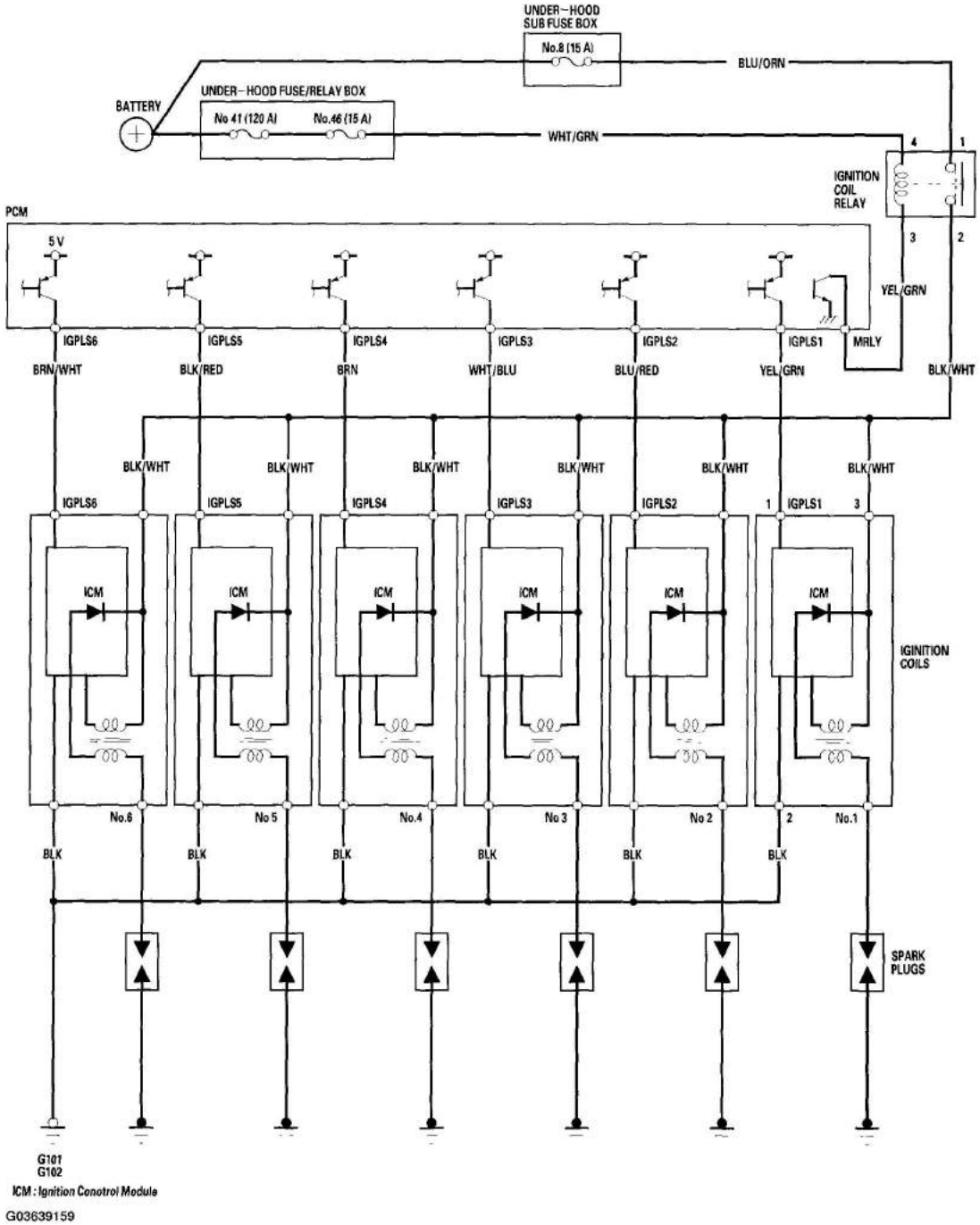

Fig. 2: Ignition System Circuit Diagram
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IGNITION TIMING INSPECTION

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 in **GENERAL**

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TROUBLESHOOTING INFORMATION), and check for DTCs. If a DTC is present, diagnose and repair the cause before inspecting the ignition timing.

2. Start the engine. Hold the engine at 3,000 rpm without (in Neutral) until the radiator fan comes on, then let it idle.
3. Check the idle speed (see **IDLE SPEED INSPECTION**).
4. Select "SCS" mode using the HDS.
5. Connect the timing light to the service loop.

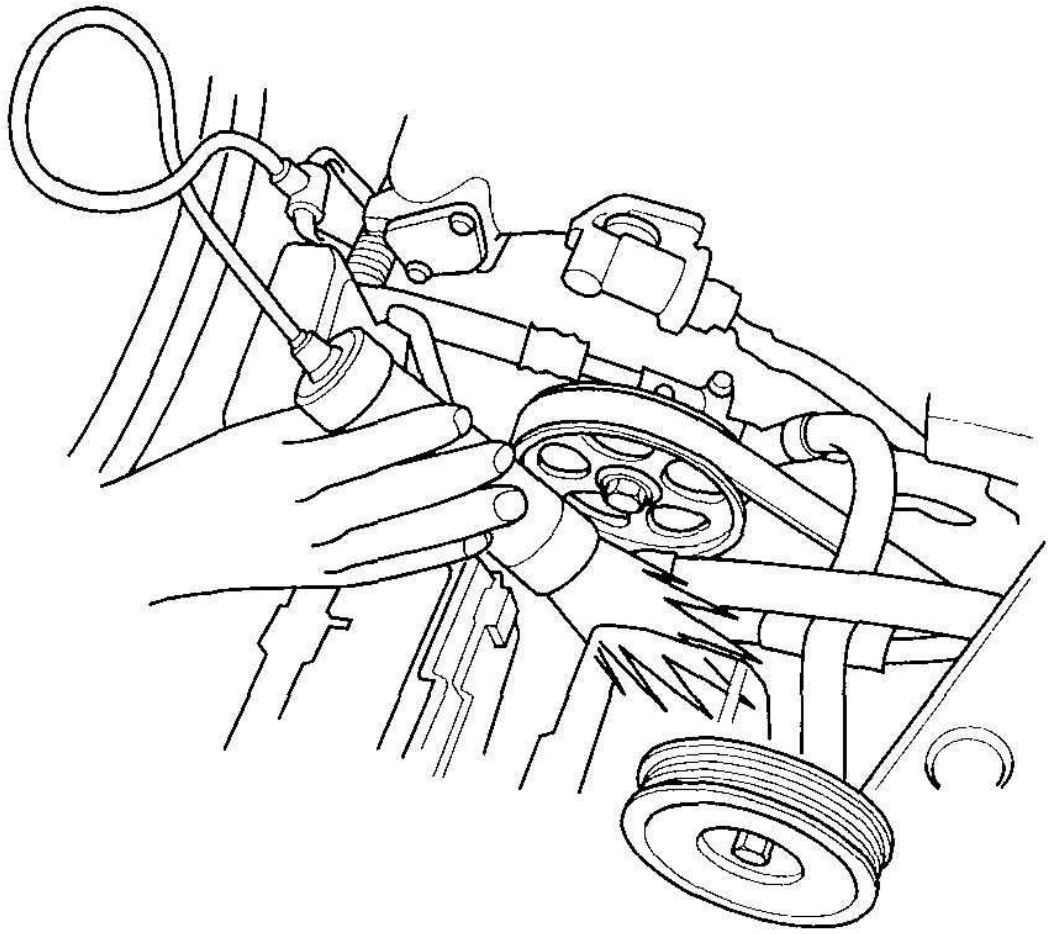

Fig. 3: Connecting Timing Light To Service Loop
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Aim the light toward the pointer (A) on the timing belt cover. Check the ignition timing under a no load condition (headlights, blower fan, rear window defogger, and air conditioner are turned off).

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Ignition Timing: 10°+/-2° BTDC (RED mark (B)) at idle in Park or Neutral

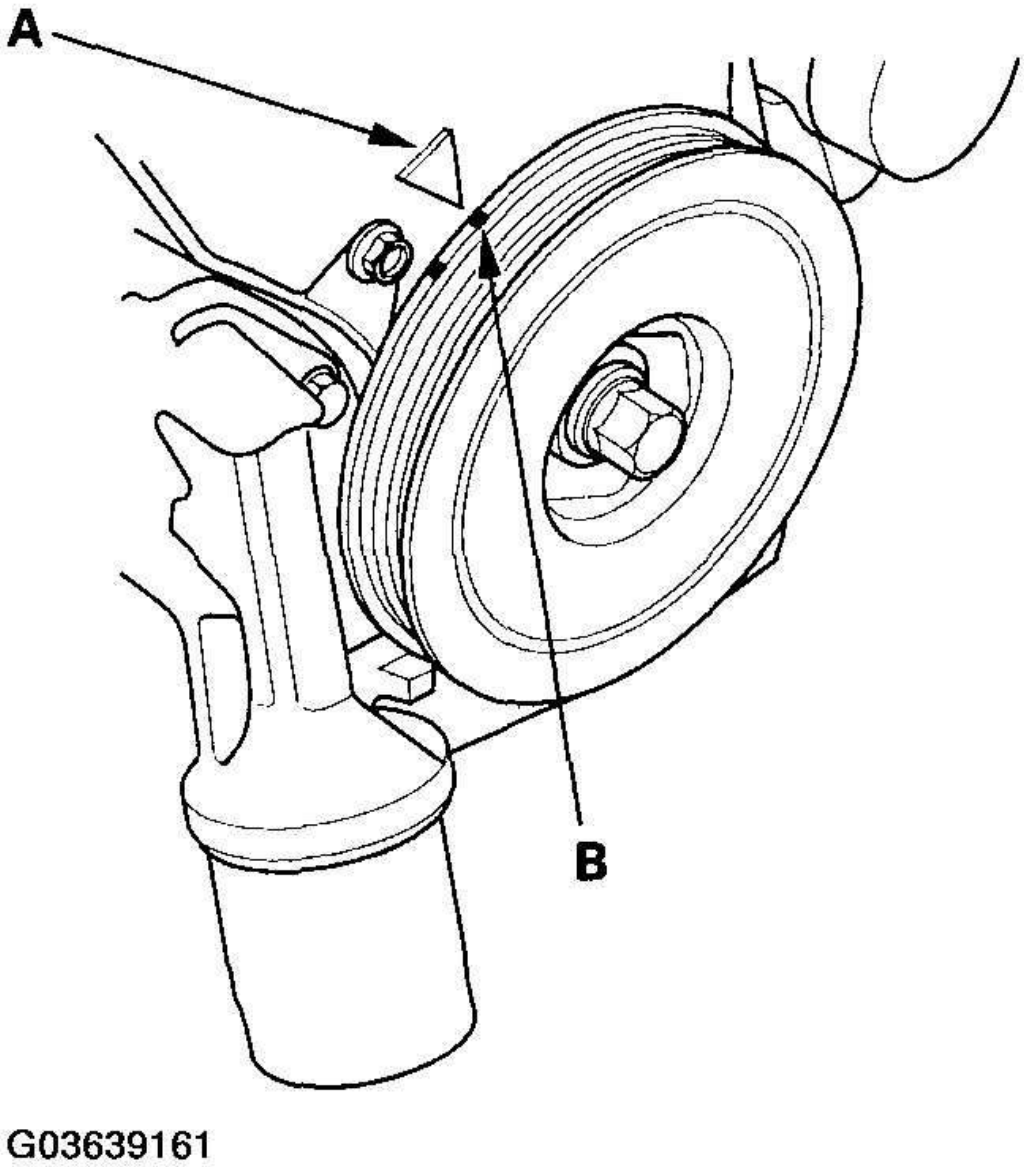

Fig. 4: Aiming Light Toward Pointer On Timing Belt Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. If the ignition timing differs from the specification, check the cam timing. If the cam timing is OK, update the powertrain control module (PCM) if it does not have the latest software (see **PCM UPDATING AND SUBSTITUTION FOR TESTING**), or substitute a known-good PCM (see **HOW**

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TO SUBSTITUTE THE PCM), then recheck. If the ignition system works properly, replace the original PCM (see **PCM REPLACEMENT**).

8. Disconnect the HDS and the timing light.

IGNITION COIL REMOVAL/INSTALLATION

1. Remove the intake manifold cover (A) and ignition coil cover (B).

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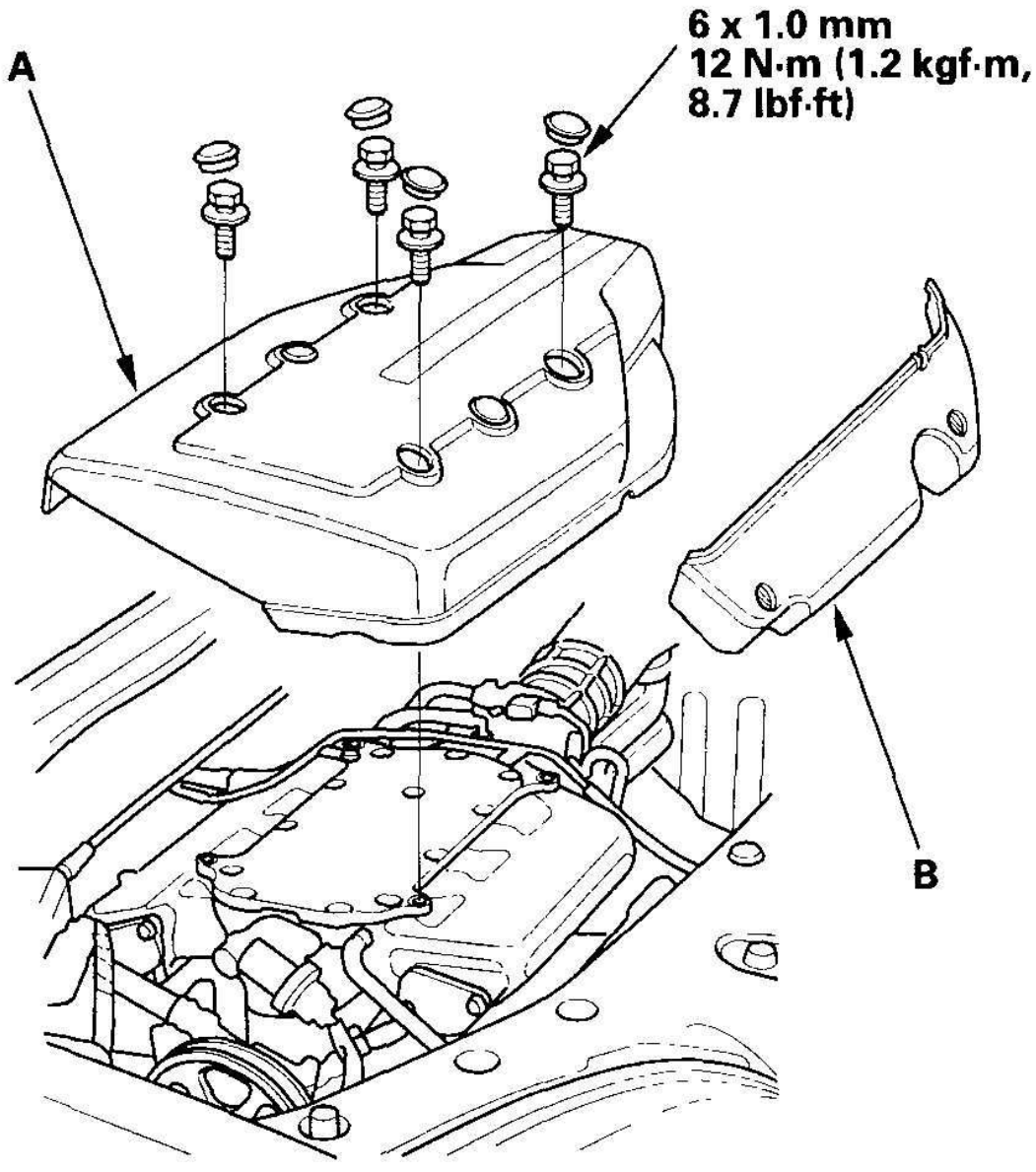

Fig. 5: Removing Intake Manifold Cover And Ignition Coil Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Disconnect the ignition coil connector (A), then remove the ignition coils (B).

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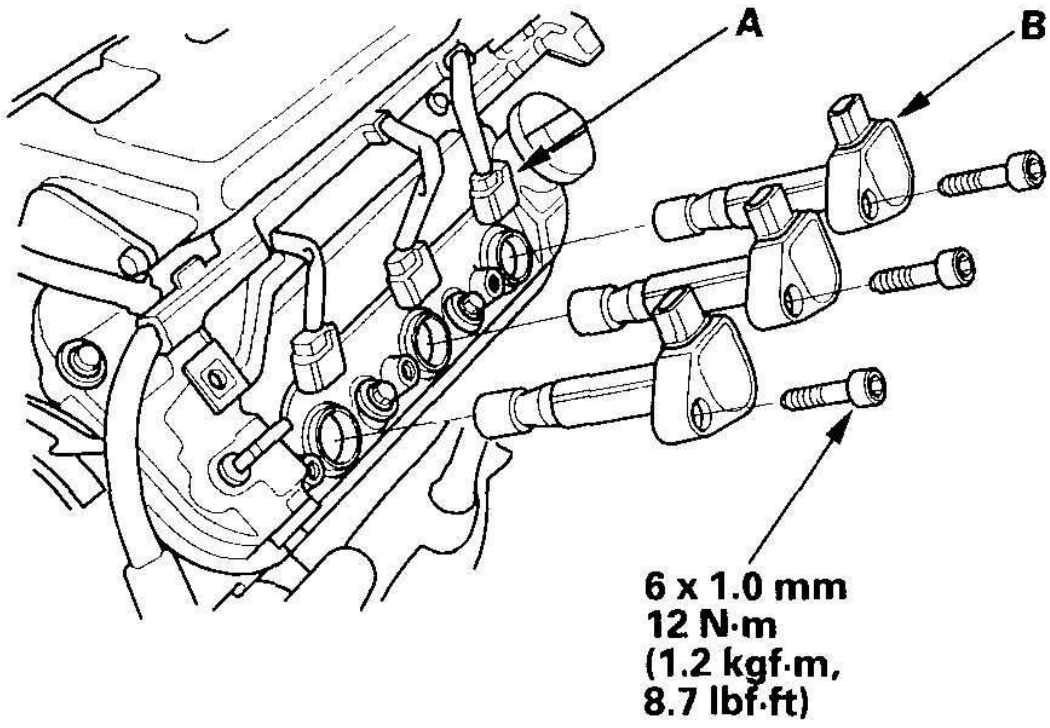

Fig. 6: Disconnecting Ignition Coil Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the ignition coils in the reverse order of removal.

IGNITION COIL RELAY CIRCUIT TROUBLESHOOTING

1. Check the No. 46 (15 A) fuse in the under-hood fuse/relay box and No. 8 (15 A) fuse in the under-hood subfuse box.

   Is the fuse OK?

   YES - Go to step 2.
   NO - Replace the fuse.
2. Remove the ignition coil relay from the relay block, and test it (see **POWER RELAY TEST**).

   Is the relay OK?

   YES - Go to step 3.

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NO - Replace the ignition coil relay.

3. Measure the voltage between ignition coil relay 4P socket terminal No. 1 and body ground.

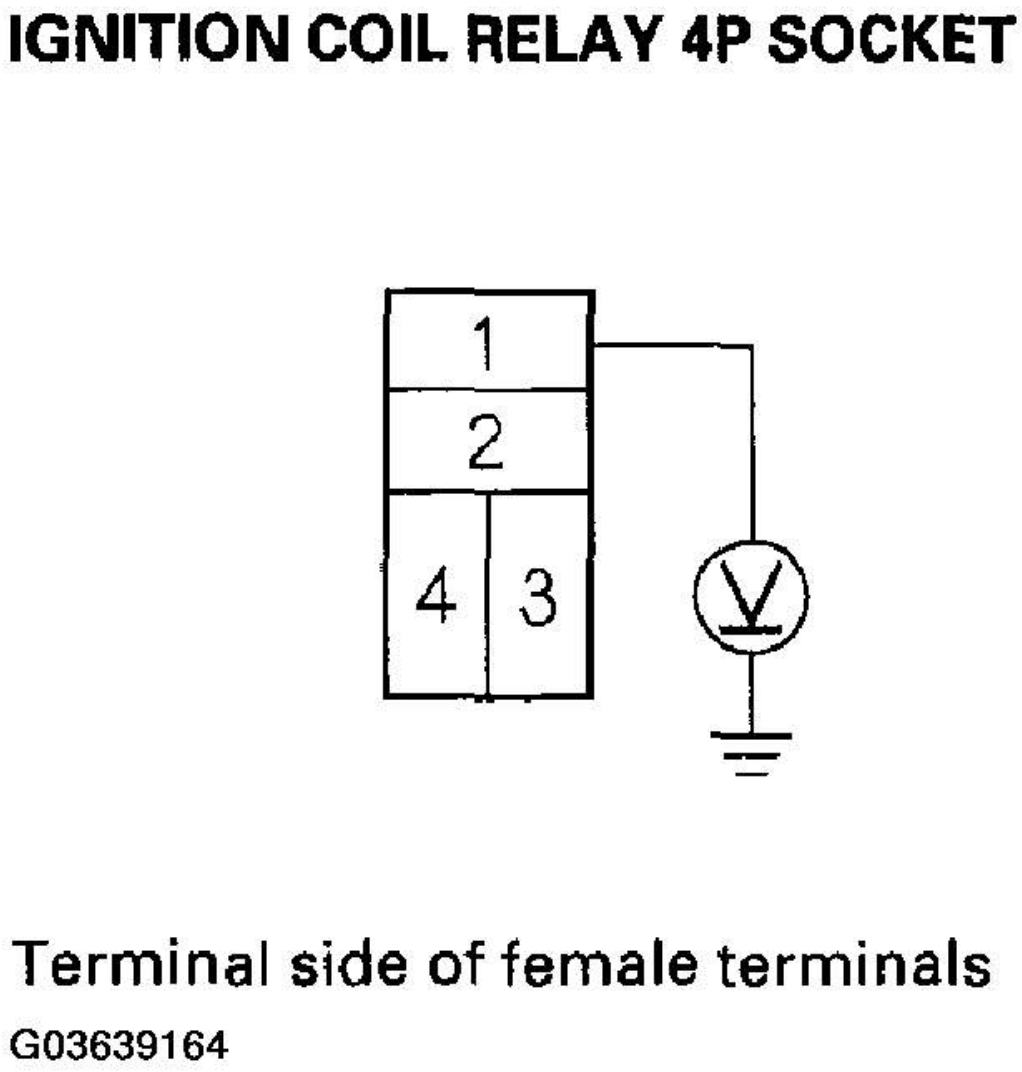

Fig. 7: Measuring Voltage Between Ignition Coil Relay 4P Socket Terminal No. 1 And Body Ground
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there battery voltage?

YES - Go to step 4.

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NO - Repair an open in the wire between ignition coil relay 4P socket terminal No. 1 and the under-hood subfuse box.

4. Measure the voltage between ignition coil relay 4P socket terminal No. 4 and body ground.

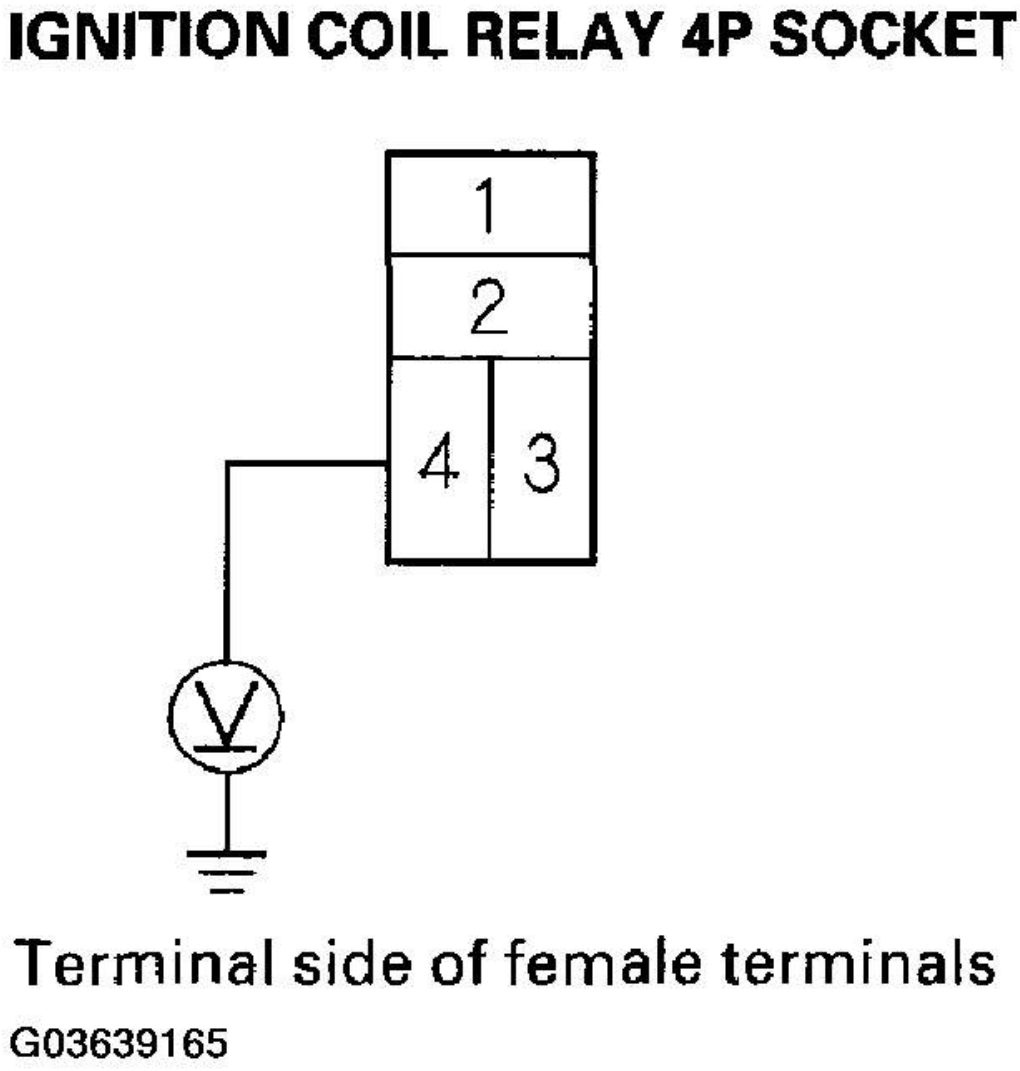

Fig. 8: Measuring Voltage Between Ignition Coil Relay 4P Socket Terminal No. 4 And Body Ground
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Is there battery voltage?

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YES - Go to step 5.

NO - Repair an open in the wire between ignition coil relay 4P socket terminal No. 4 and the under-hood fuse/relay box.

5. Check for continuity between ignition coil relay 4P socket terminal No. 2 and No. 1 ignition coil 3P connector terminal No. 3.

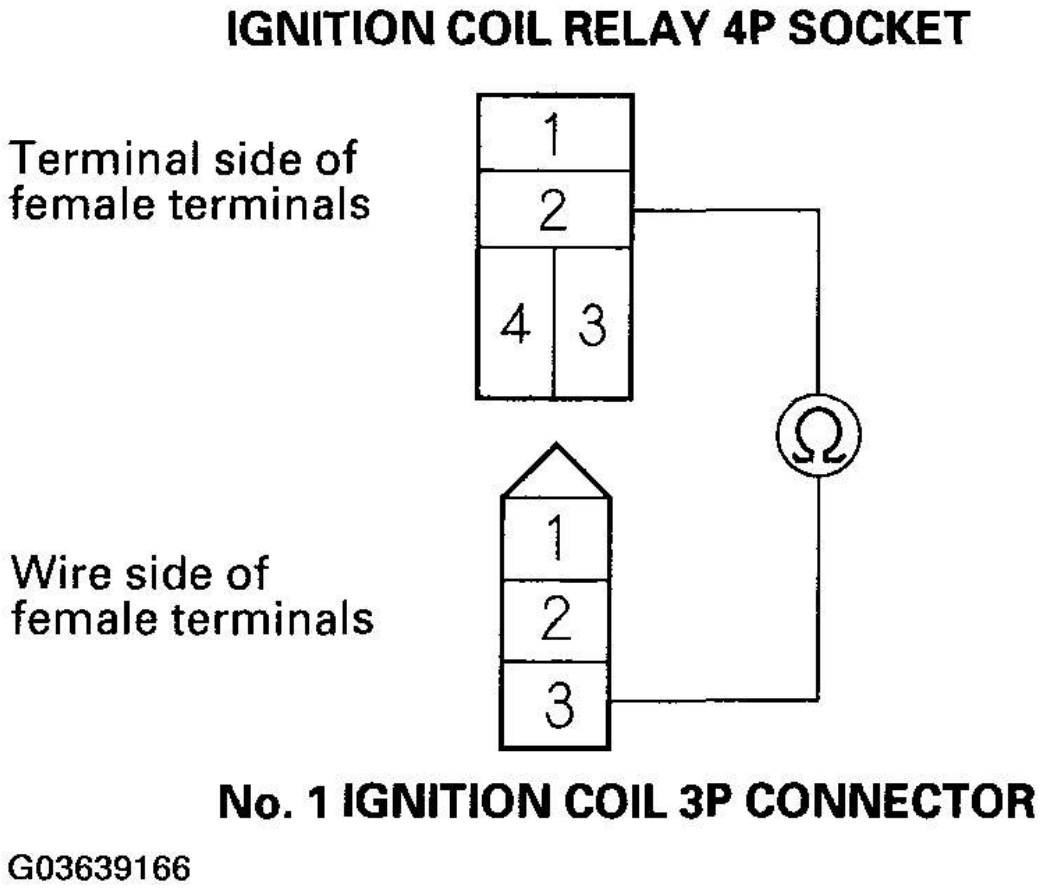

Fig. 9: Checking Continuity Between Ignition Coil Relay 4P Socket Terminal No. 2 And 1 Ignition Coil 3P Connector Terminal No. 3
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Is there continuity?

YES - Go to step 6.

NO - Repair an open in the wire between ignition coil relay 4P socket terminal No. 2 and ignition coil 3P connector terminal No. 3.

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6. Check for continuity between ignition coil relay 4P socket terminal No. 3 and body ground.

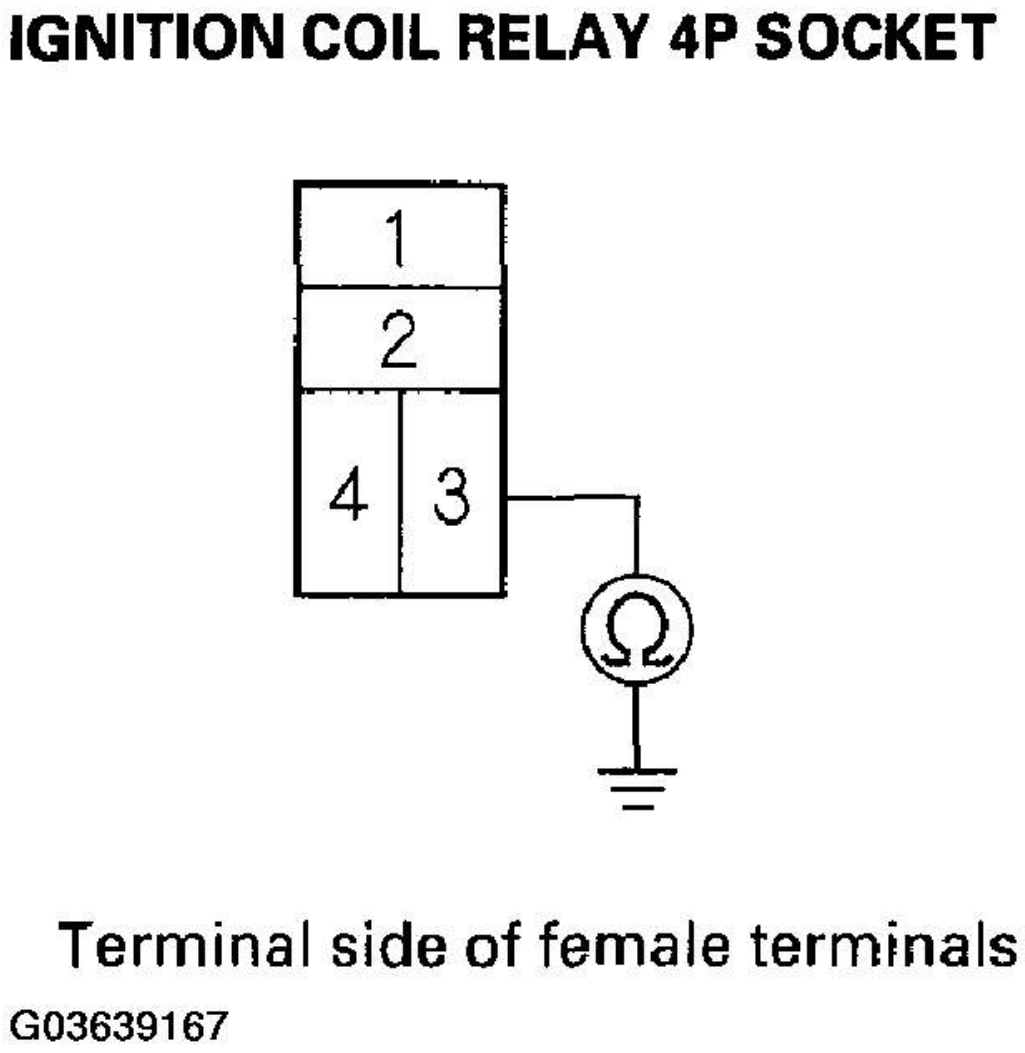

Fig. 10: Checking Continuity Between Ignition Coil Relay 4P Socket Terminal No. 3 And Body Ground
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Is there continuity?

YES - Repair a short in the wire between ignition coil relay 4P socket terminal No. 3 and the PCM (B12).

NO - Go to step 7.

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7. Turn the ignition switch OFF.
8. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on **GENERAL TROUBLESHOOTING INFORMATION**). Turn the ignition switch ON (II), and jump the SCS line with the HDS, then turn the ignition switch OFF.

NOTE: This step must be done to protect the powertrain control module (PCM) from damage.

9. Disconnect PCM connector B (56P).
10. Check for continuity between ignition coil relay 4P socket terminal No. 3 and PCM connector terminal B12.

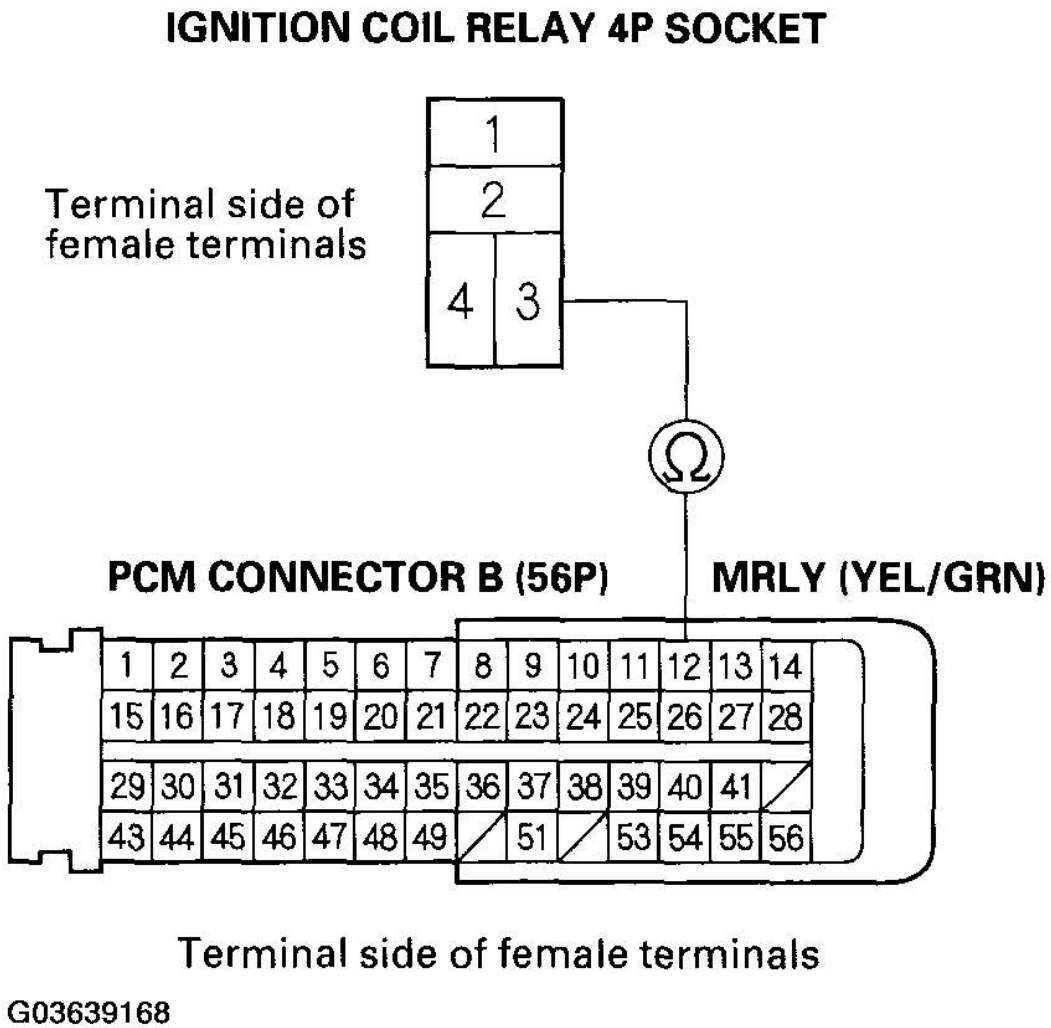

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Fig. 11: Checking Continuity Between Ignition Coil Relay 4P Socket Terminal No. 3 And PCM Connector Terminal B12
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Is there continuity?

YES - The system is OK at this time. Check for loose or poor connections at the ignition coil relay and the PCM (B12).

NO - Repair an open in the wire between ignition coil relay 4P socket terminal No.3 and the PCM (B12).

SPARK PLUG INSPECTION

1. Inspect the electrodes and ceramic insulator.
   - Burned or worn electrodes may be caused by:
     - Advanced ignition timing
     - Loose spark plug
     - Plug heat range too hot
     - Insufficient cooling
   - Fouled plug may be caused by:
     - Retarded ignition timing
     - Oil in combustion chamber
     - Incorrect spark plug gap
     - Plug heat range too cold
     - Excessive idling/low speed running
     - Clogged air cleaner element
     - Deteriorated ignition coils

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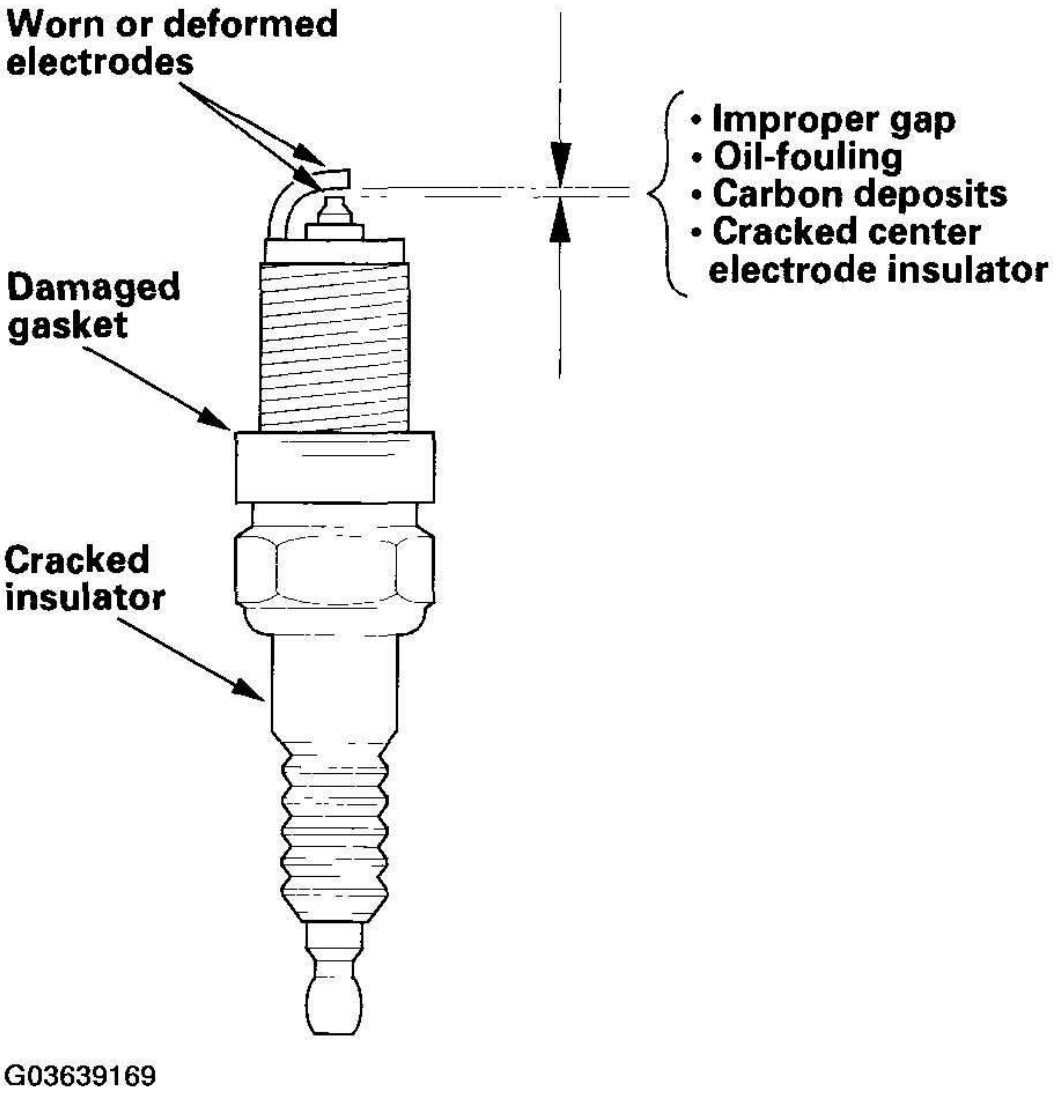

Fig. 12: Inspecting Electrodes And Ceramic Insulator
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. If the spark plug electrode is dirty or contaminated, clean the electrode with a plug cleaner.

NOTE:

- **Do not use a wire brush or scrape the iridium electrode since this will damage the electrode.**
- **Use a chemical cleaner such as Carb Spray to clean contamination on the electrode.**
- **When using a sand blaster spark plug cleaner, do not clean for more than 20 seconds to avoid damaging the electrode.**

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3. Do not adjust the gap (A) of iridium tip plugs; replace the spark plug if the gap is out of specification.

   Electrode Gap

   Standard (New): 1.0-1.1 mm (0.039-0.043 in.)

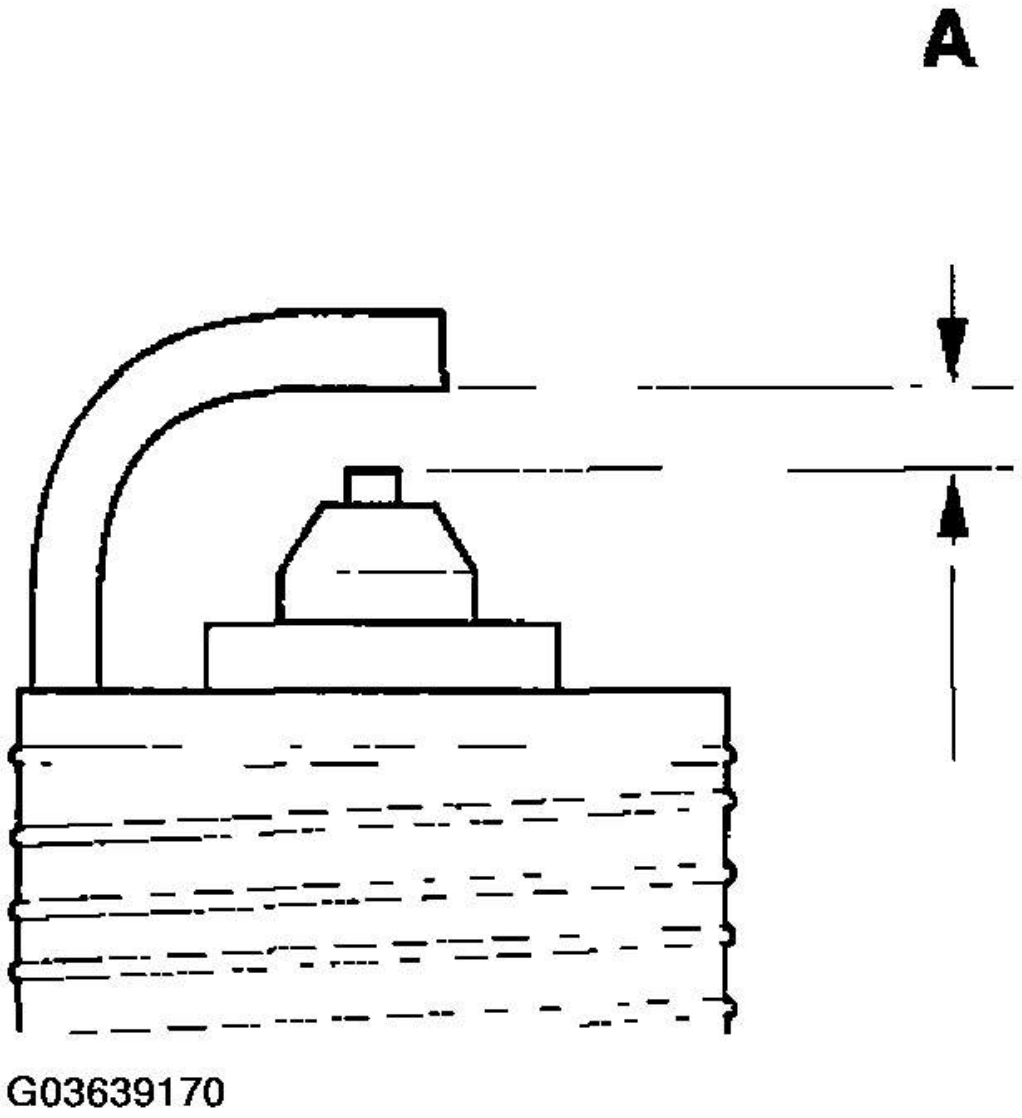

Fig. 13: Checking Plug Cleaner
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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4. Replace the plug at the specified interval or if the center electrode is rounded (A). Use only the listed spark plugs.

Spark Plugs

NGK: IZFR5K11
DENSO: SKJ16DR-M11

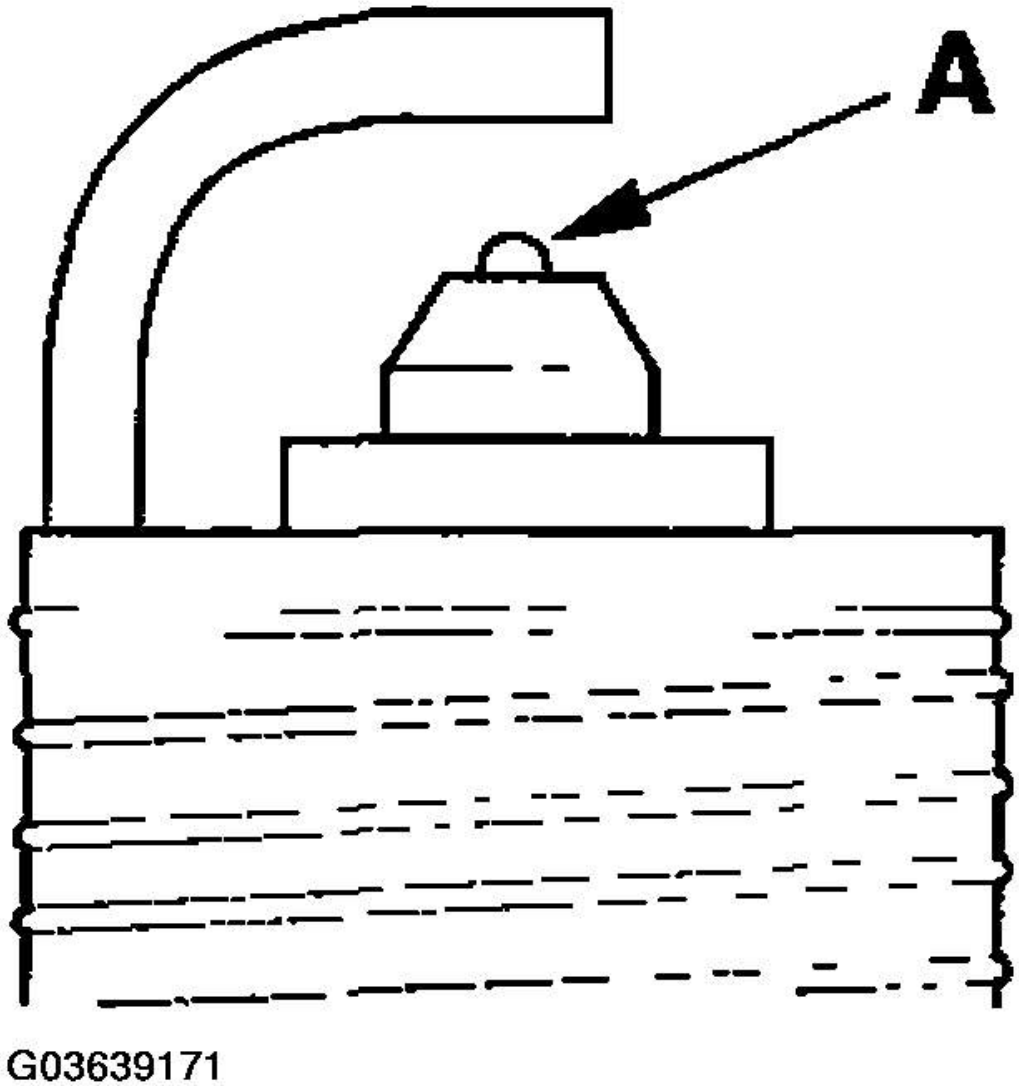

Fig. 14: Replacing Plug At Specified Interval Or If Center Electrode Is Rounded

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5. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger-tight. Then torque them to 18 N.m (1.8 kgf.m, 13 lbf.ft).

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