

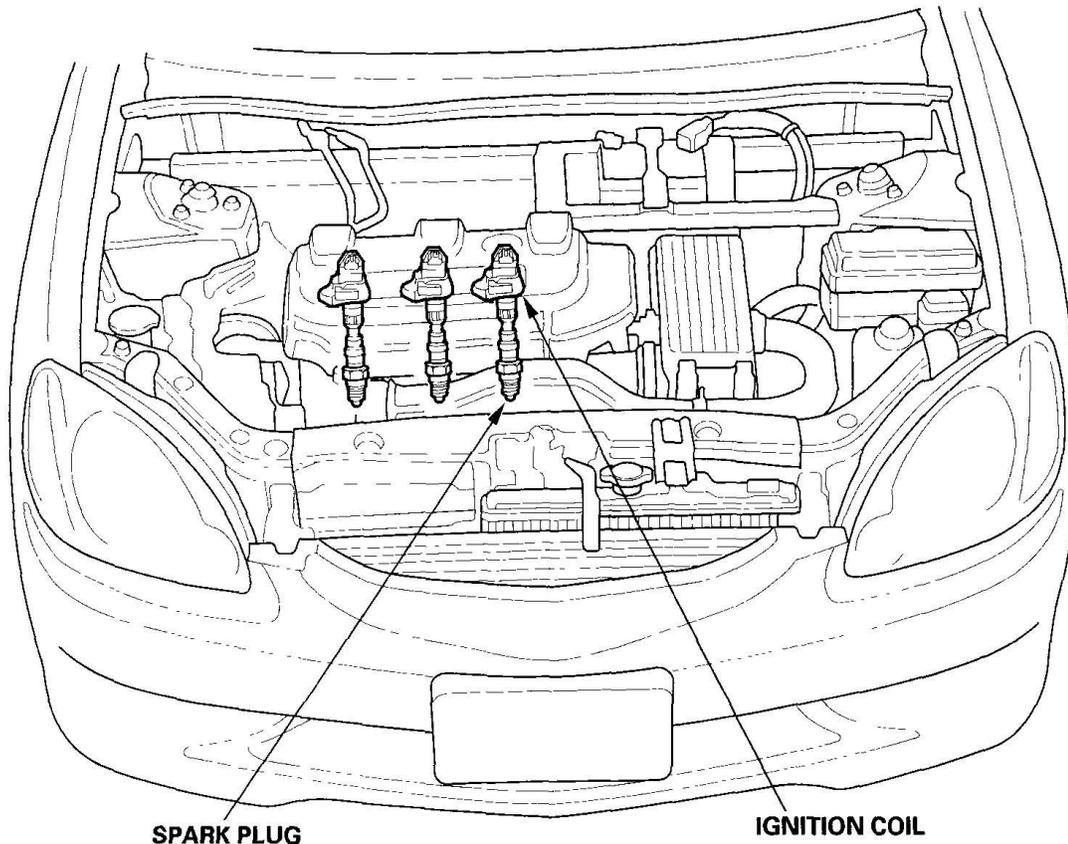
2006 Honda Insight

2000-06 ENGINE Ignition System - Insight

2000-06 ENGINE

Ignition System - Insight

COMPONENT LOCATION INDEX



G03680282

Fig. 1: Identifying Ignition System Component Location
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CIRCUIT DIAGRAM

2006 Honda Insight

2000-06 ENGINE Ignition System - Insight

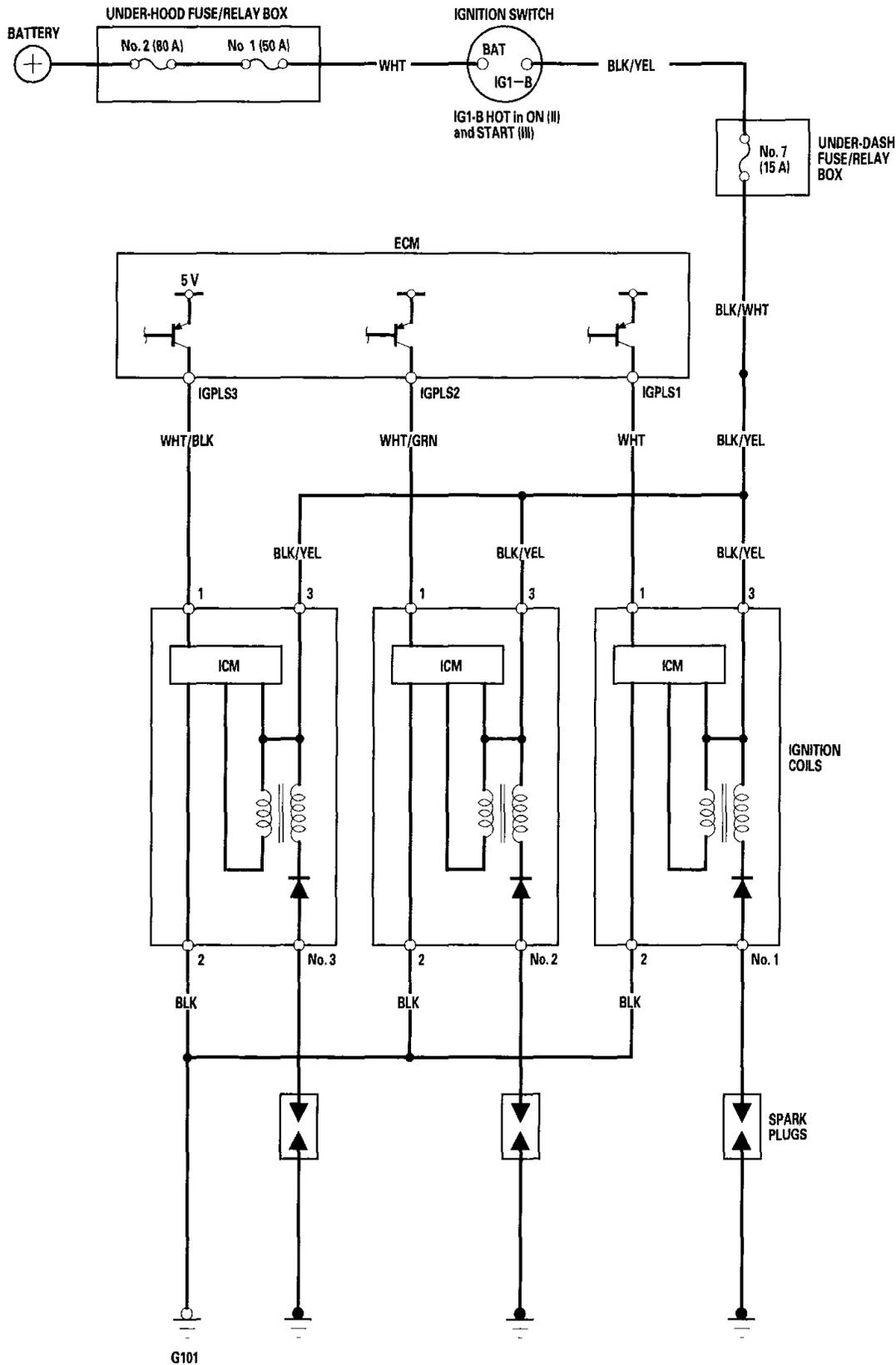
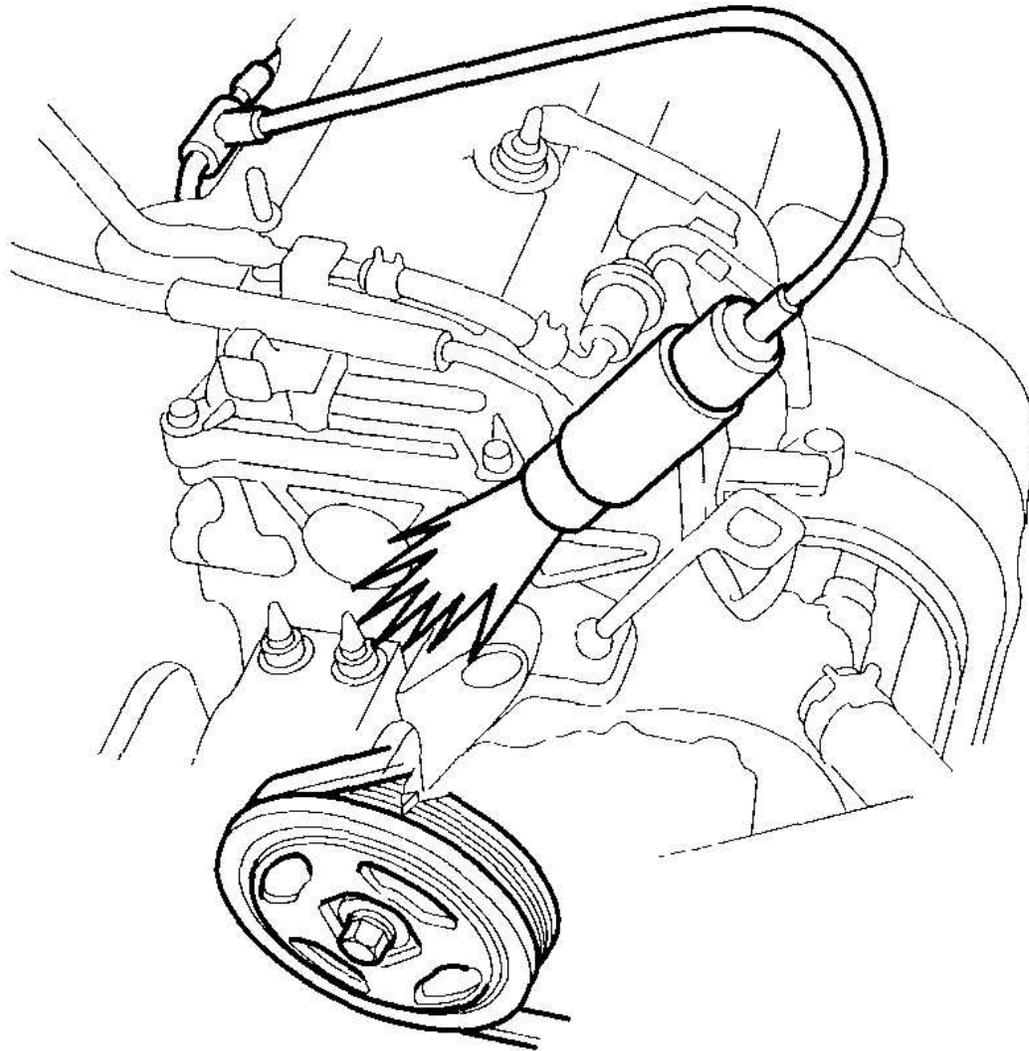


Fig. 2: Circuit Diagram

Courtesy of AMERICAN HONDA MOTOR CO., INC.

IGNITION TIMING INSPECTION

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on **HOW TO USE THE HDS (HONDA DIAGNOSTIC SYSTEM)**), 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 speed at 3,000 RPM without load (in Park or neutral) until the radiator fan comes on, then let it idle.
3. Check the idle speed (see **IDLE SPEED ADJUSTMENT**).
4. Jump the SCS line with the HDS.
5. Connect the timing light to the No. 1 ignition coil wire.



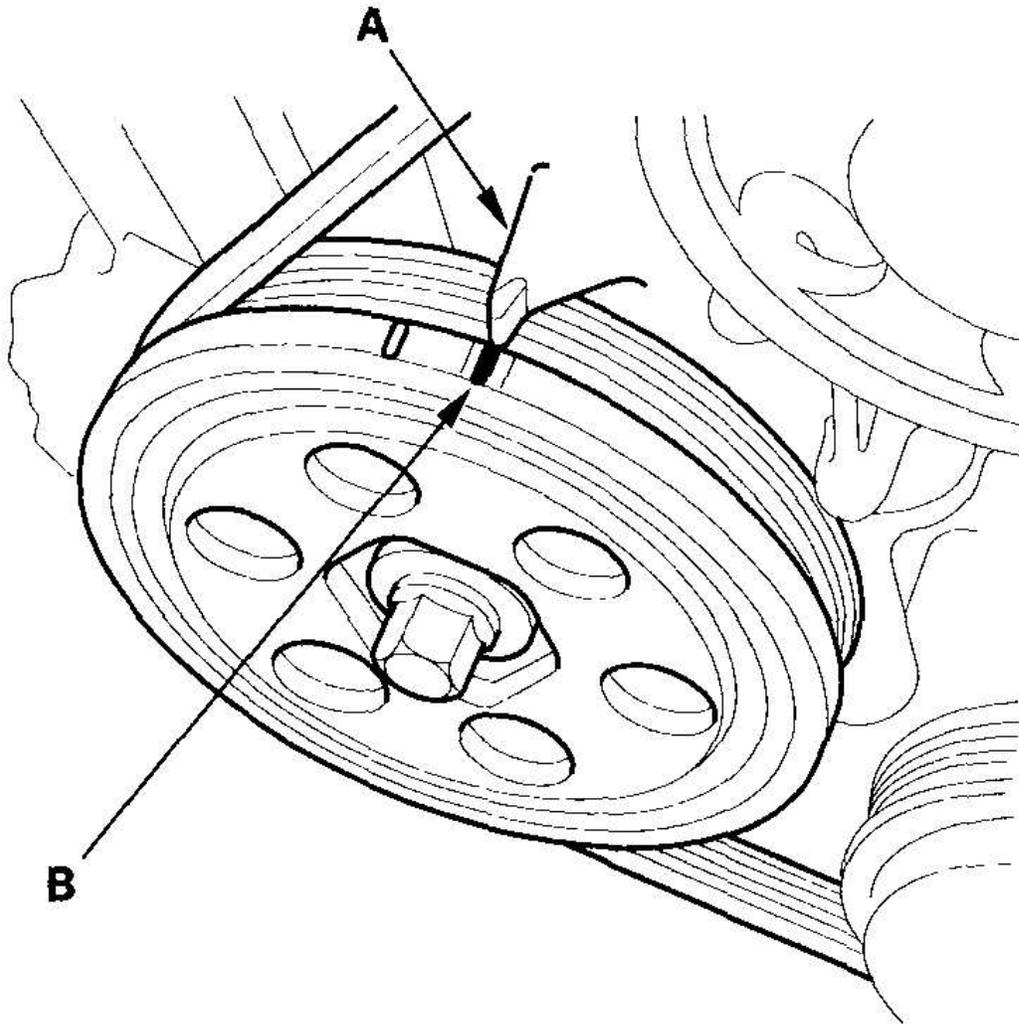
G03680284

Fig. 3: Connecting Timing Light To No. 1 Ignition Coil Wire
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

Ignition Timing:

**12° +/-2° BTDC [RED mark (B)] at idle in P or N
position (CVT) or Neutral (M/T)**



G03680285

Fig. 4: Identifying Ignition Timing
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 engine control module (ECM) if it does not

have the latest software (2002-2006 M/T models and CVT model) (see **ECM UPDATING AND SUBSTITUTION FOR TESTING-2002-2006 M/T MODELS AND CVT MODEL**), or substitute a known-good ECM 2000-2001 M/T models (see **HOW TO SUBSTITUTE THE ECM FOR TESTING PURPOSES-2000-2001 M/T MODELS**), 2002-2006 M/T models and CVT model (see **ECM UPDATING AND SUBSTITUTION FOR TESTING-2002-2006 M/T MODELS AND CVT MODEL**), then recheck. If the system work properly, and the ECM was substituted, replace the original ECM (see **ECM REPLACEMENT**).

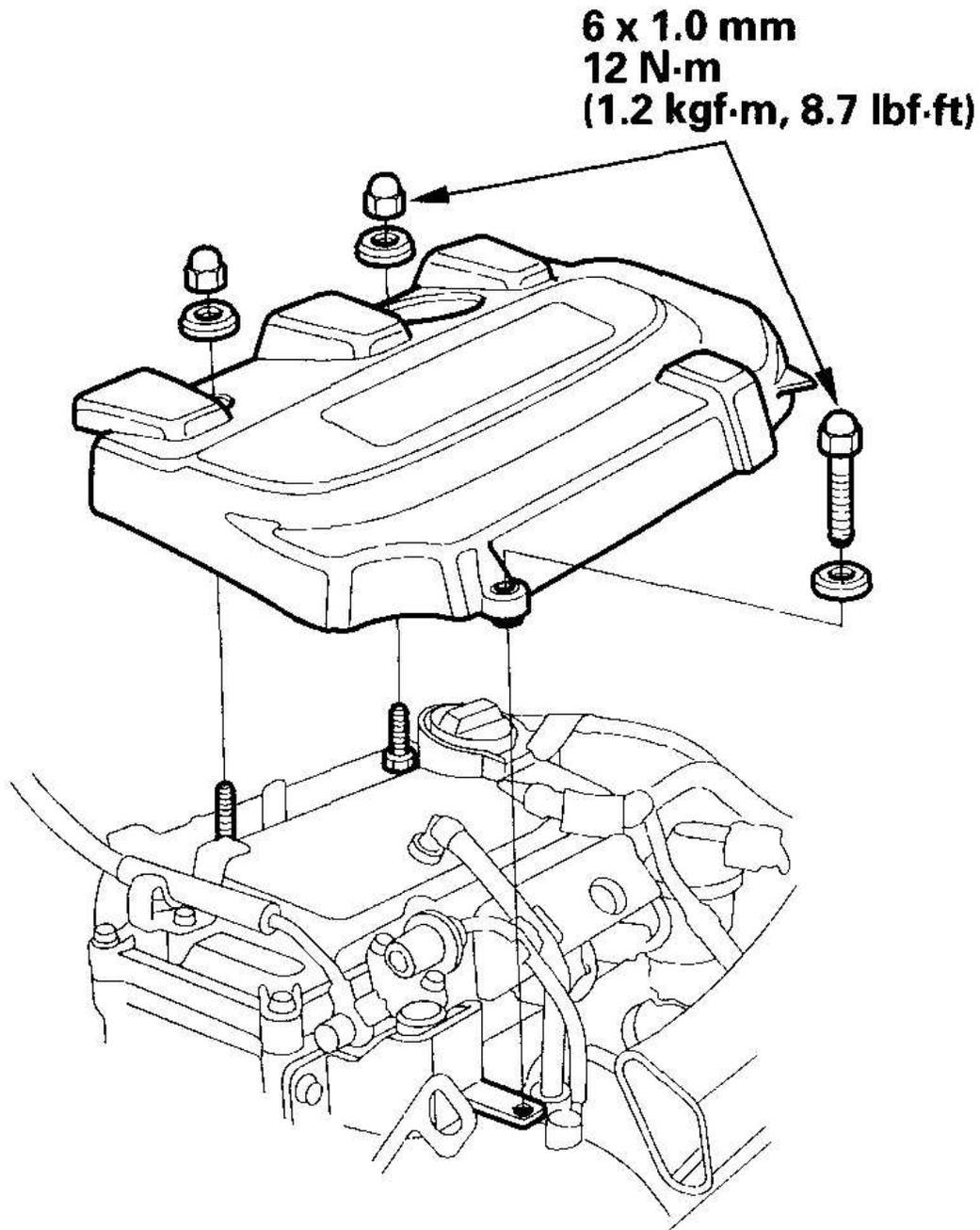
8. Disconnect the HDS and the timing light.

IGNITION COIL REMOVAL/INSTALLATION

1. Remove the engine cover.

2006 Honda Insight

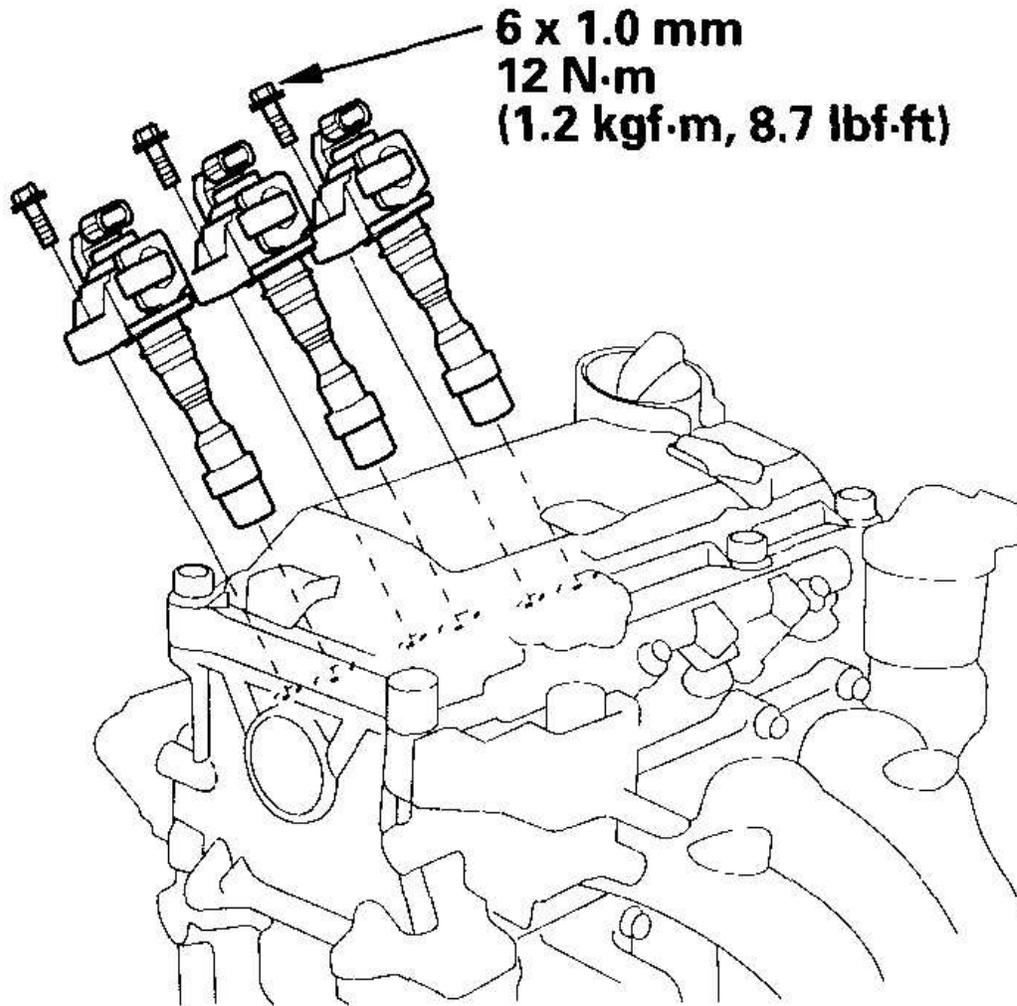
2000-06 ENGINE Ignition System - Insight



G03680286

**Fig. 5: Removing Engine Cover And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.**

2. Disconnect the ignition coil connectors.
3. Remove the ignition coils.



G03680287

Fig. 6: Removing Ignition Coils And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

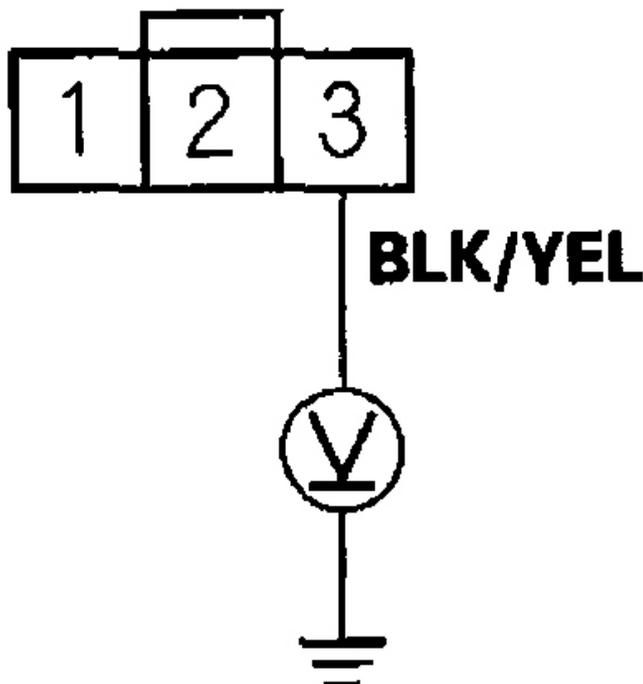
4. Install the ignition coils in the reverse order of removal.

IGNITION COIL TROUBLESHOOTING

NOTE: Do an ignition coil test after finishing the fundamental tests for the ignition system and the fuel and emissions system.

1. Disconnect the three ignition coil 3P connectors.
2. Measure the voltage at each ignition coil 3P connector terminal No. 3 with the ignition switch ON (II).

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

G03680288

Fig. 7: Measuring Voltage In Ignition Coil 3P Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

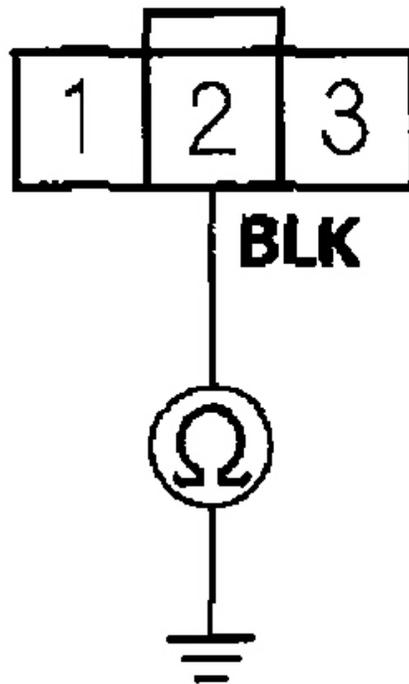
Is there battery voltage?

YES -Go to step 3.

NO -Repair an open in the wire between the ignition coil and the No. 7 (15 A) fuse in the under-dash fuse/relay box.

3. Turn the ignition switch OFF.
4. Check for continuity between each ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

G03680289

Fig. 8: Checking Continuity Between Each Ignition Coil 3P Connector Terminal No. 2 And Body Ground

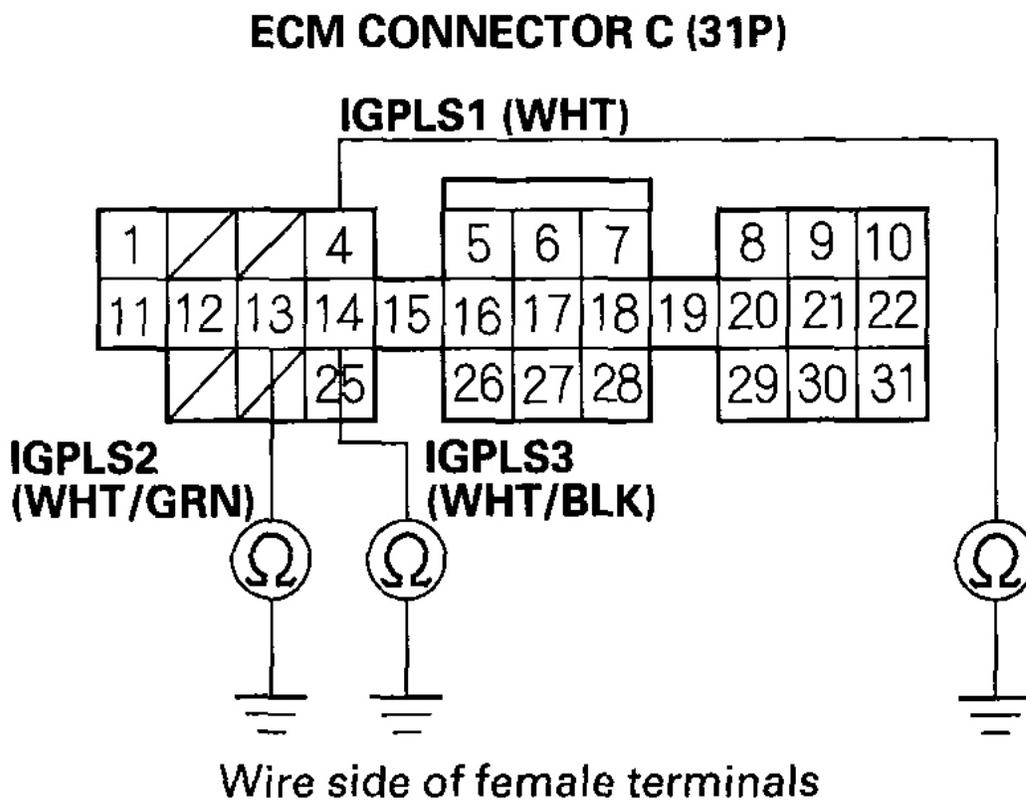
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Is there continuity?

YES -Go to step 5.

NO -Repair an open in the wire between the ignition coil and body ground (G101).

5. Disconnect ECM connector C (31P).
6. Check for continuity between the body ground and ECM connector terminals C4, C13, and C14 individually.



G03680290

Fig. 9: Checking Continuity Between Body Ground And ECM Connector Terminals C4, C13, And C14

Courtesy of AMERICAN HONDA MOTOR CO., INC.

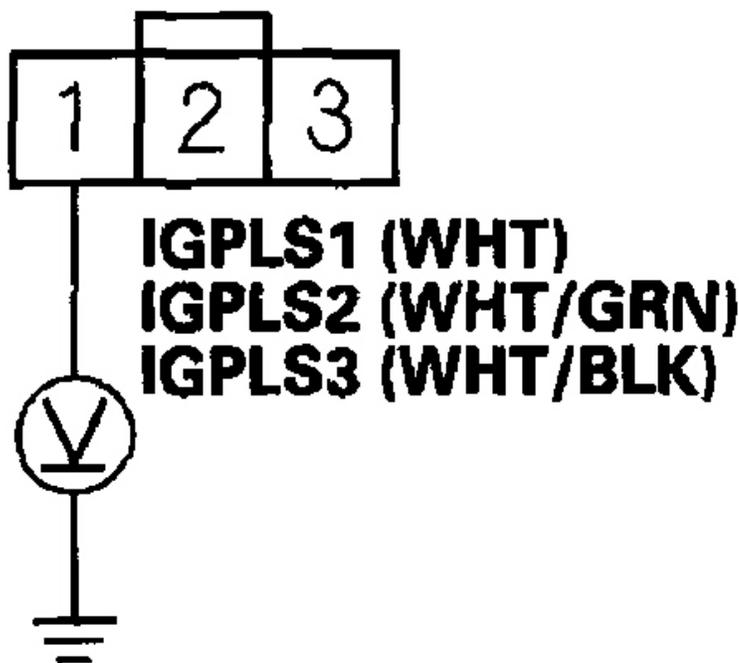
Is there continuity?

YES -Repair a short in the wire between the ignition coil and the ECM.

NO -Go to step 7.

7. Connect the ECM connector C (31P).
8. Measure the voltage at each ignition coil 3P connector terminal No. 1 with the ignition switch in START (III).

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

G03680291

Fig. 10: Measuring Voltage In Ignition Coil 3P Connector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

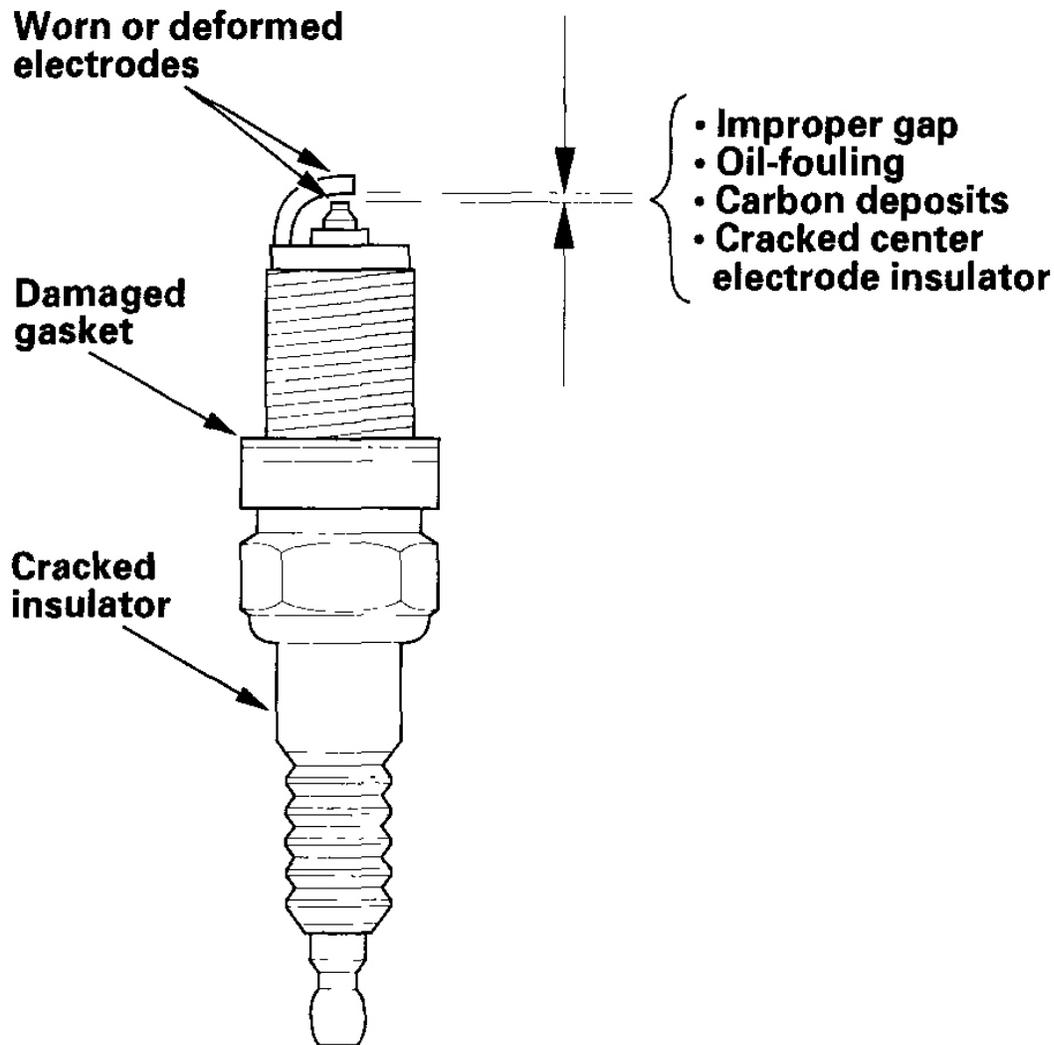
Is there about 0.5 V?

YES -Replace the ignition coil.

NO -Repair an open in the wire between the ignition coil and the ECM.

SPARK PLUG INSPECTION/REPLACEMENT

1. Remove the spark plugs, and note which cylinder each one came from.
2. Inspect the electrodes and ceramic insulator.
 - Burned or worn electrodes may be caused by:
 - Advanced ignition timing
 - Loose spark plug
 - Insufficient cooling
 - Fouled plug may be caused by:
 - Retarded ignition timing
 - Oil in combustion chamber
 - Incorrect spark plug gap
 - Excessive idling/low speed running
 - Clogged air cleaner element
 - Deteriorated ignition coil



G03680292

Fig. 11: Inspecting Electrodes And Ceramic Insulator
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. 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

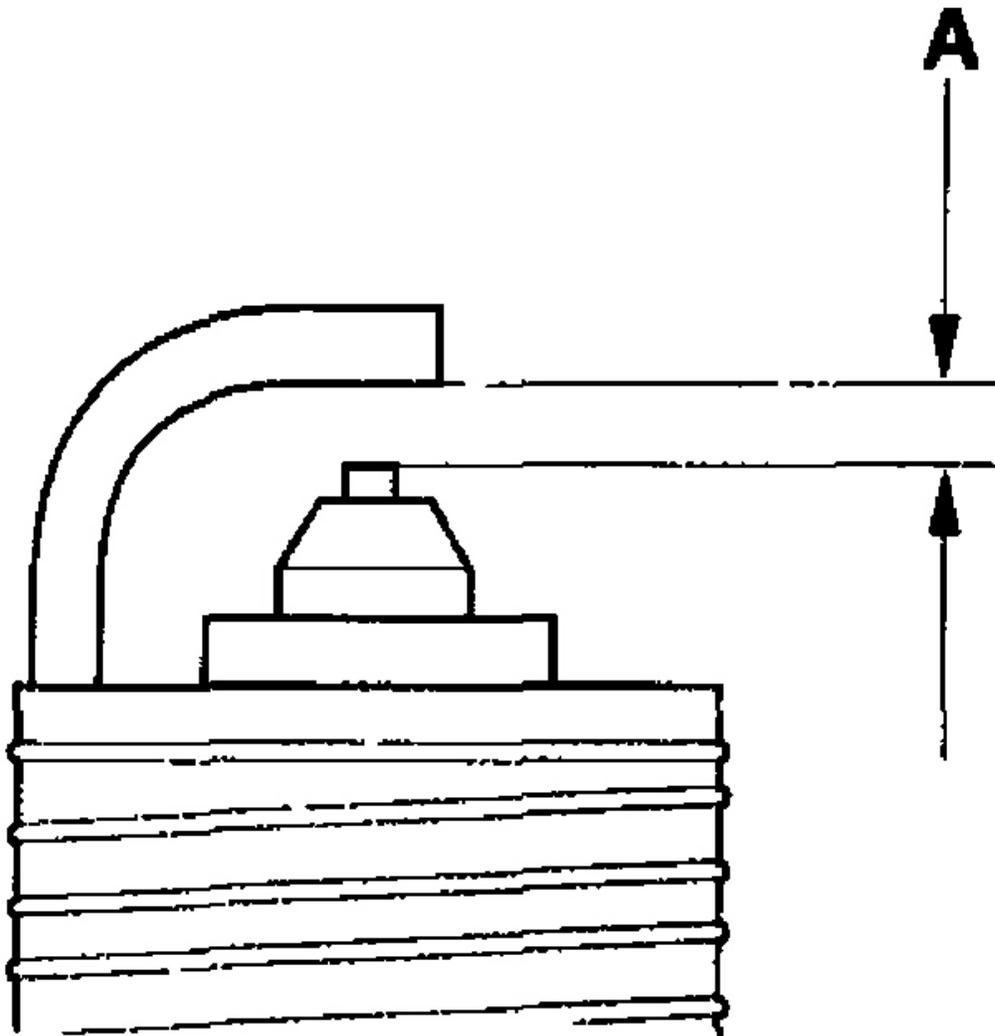
contamination on the electrode.

- **When using a sand blaster spark plug cleaner, do not clean for more than 20 seconds to avoid damaging the electrode.**

4. Do not adjust the gap (A) on 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.)



G03680293

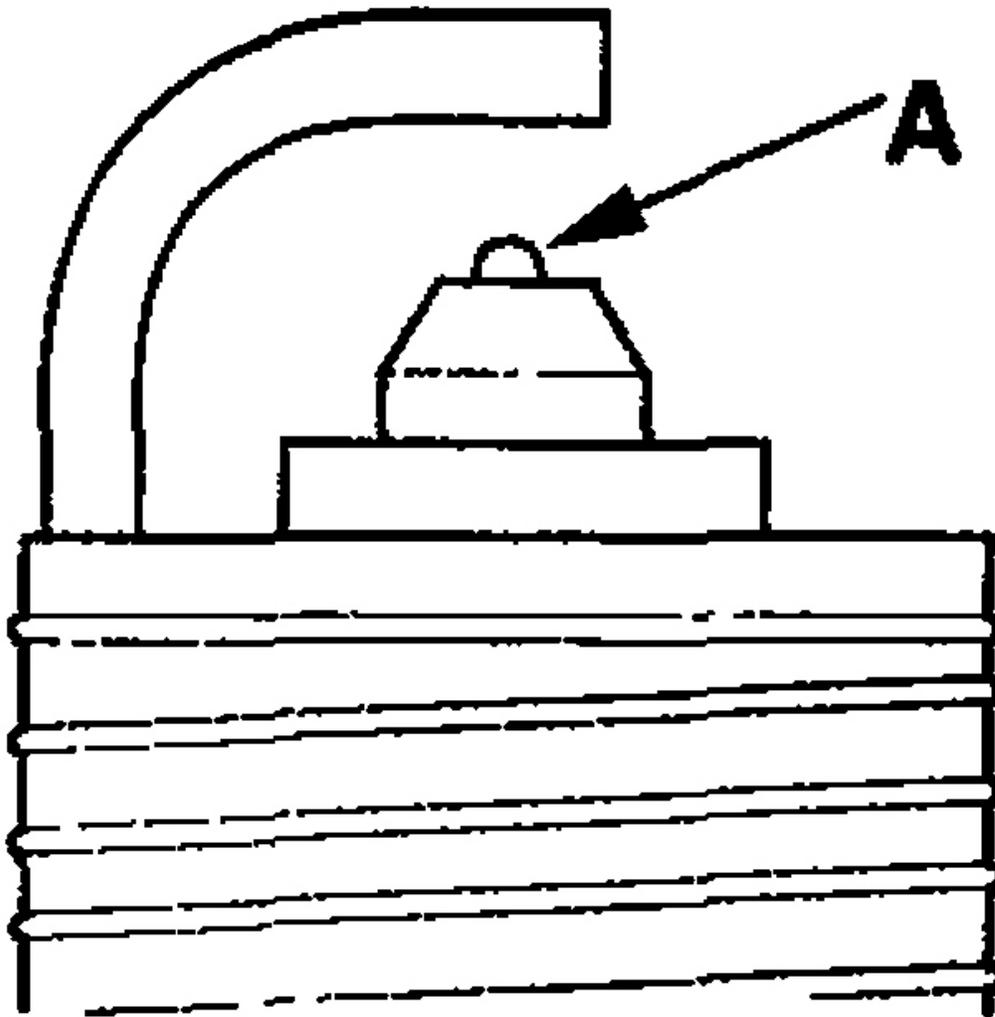
Fig. 12: Identifying Spark Plug Gap

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

Spark Plug:

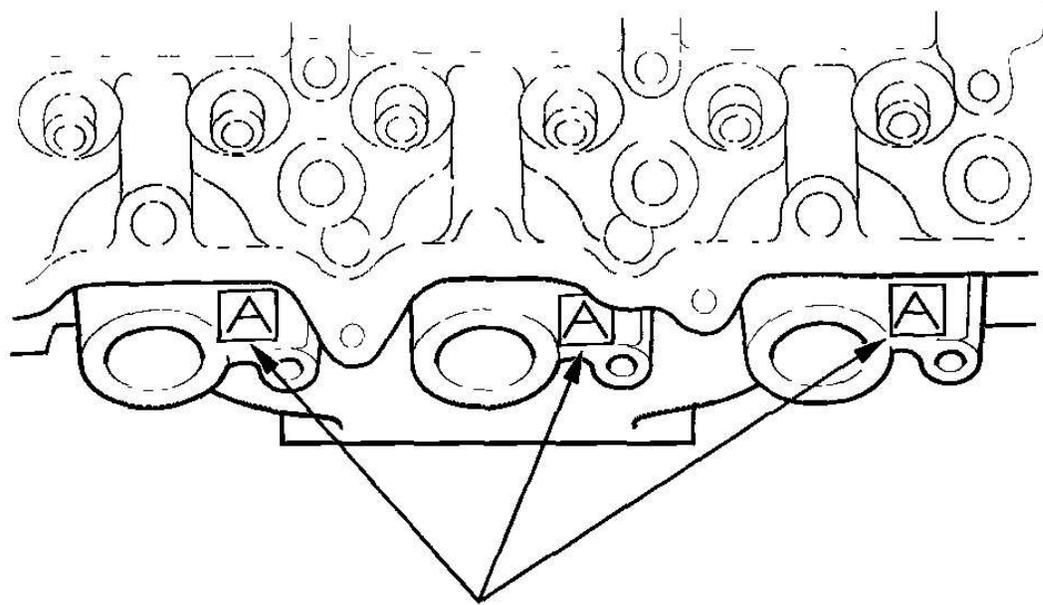
ILZFR5A11 (NGK)



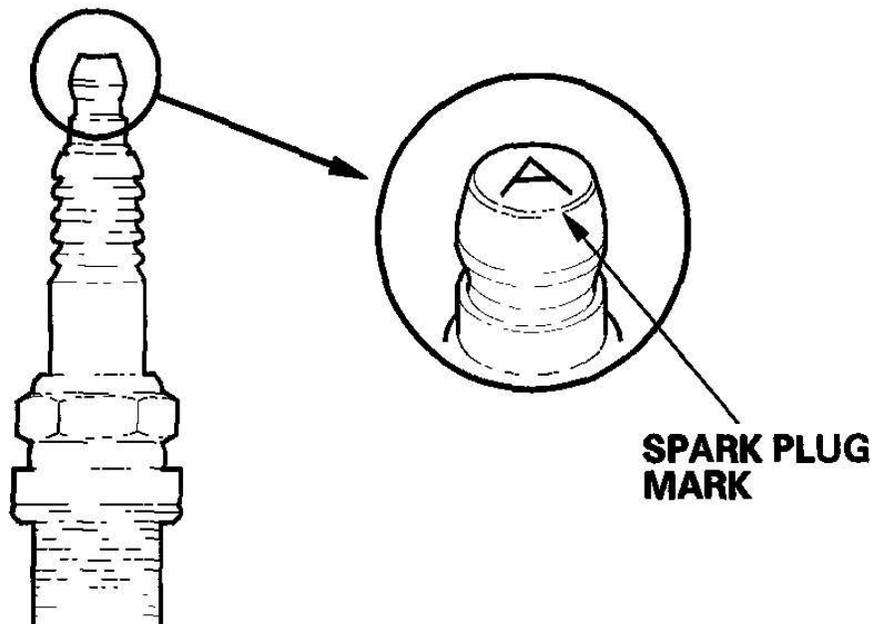
G03680294

Fig. 13: Identifying Spark Plug Center Electrode
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If spark plugs need to be replaced, select the spark plugs according to the designation on the cylinder head and the table shown.



**CYLINDER HEAD
MARKS**



**SPARK PLUG
MARK**

G03680295

Fig. 14: Identifying Cylinder Head Marks
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MARK SPECIFICATIONS

Cylinder mark head	Spark plug mark
A	A(P/N 12290-PHM-A01)
B	B(P/N 12291-PHM-A01)
C	C(P/N 12292-PHM-A01)
D	D(P/N 12293-PHM-A01)

7. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger-tight. Torque them to 23 N.m (2.3 kgf.m, 17 lbf.ft).

NOTE: If a spark plug is to be reused, use it in the cylinder where the plug was originally located.

INTEGRATED MOTOR ASSIST (IMA) SYSTEM (IF ENGINE MAINTENANCE IS REQUIRED)

IMA components are located in this area. The IMA is a high-voltage system. The high voltage cables and their covers are identified by orange coloring. The safety labels are attached to high voltage and other related parts (see **DANGER/WARNING/CAUTION LABEL LOCATIONS**). You must be familiar with the IMA system before working on or around it. Make sure you have read the Service Precautions in the IMA section before performing repairs or service (see **SERVICE PRECAUTIONS**).