

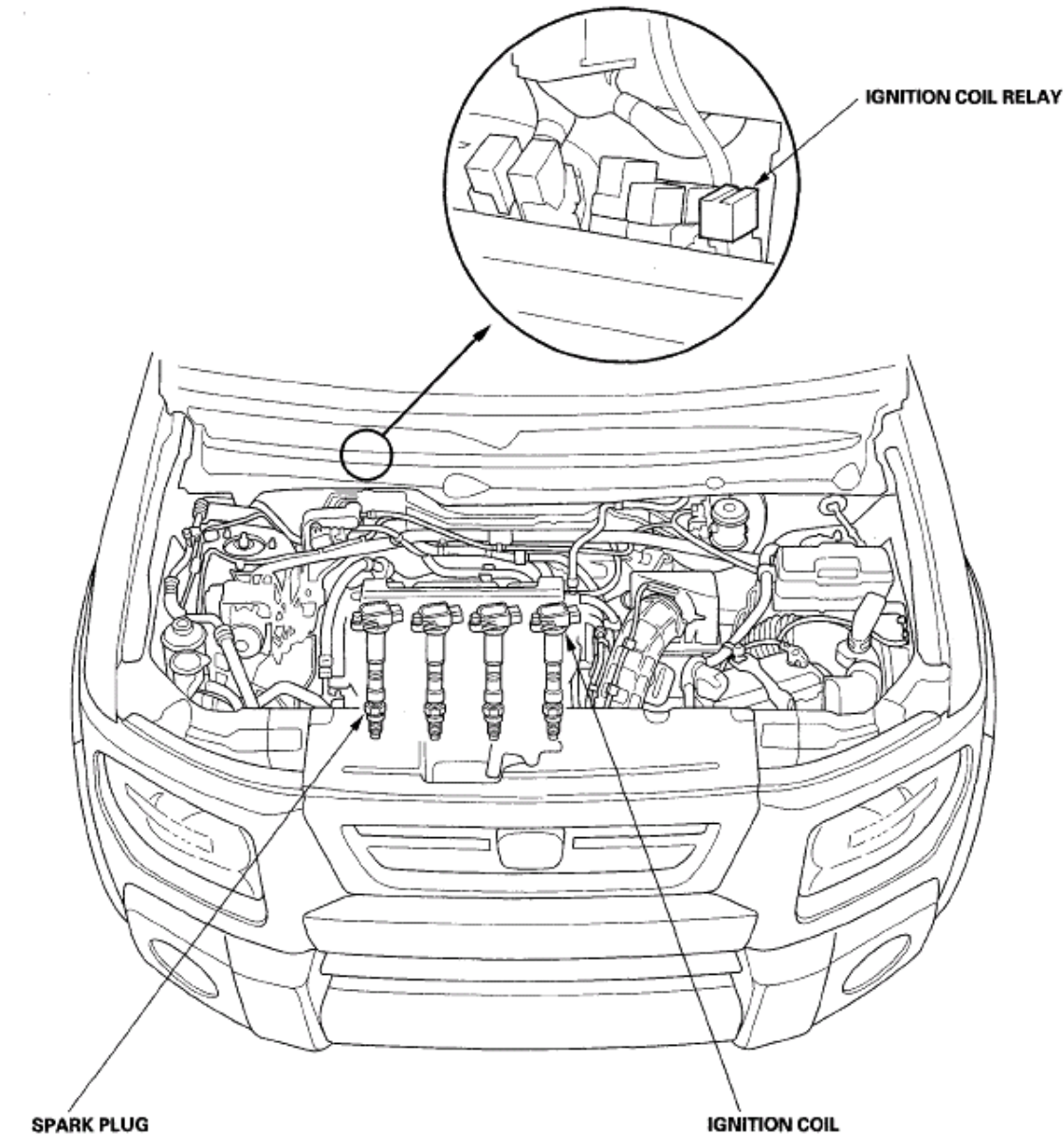
# 2007 Honda Element EX

2007-08 ENGINE Ignition System - Element

## 2007-08 ENGINE

### Ignition System - Element

#### COMPONENT LOCATION INDEX

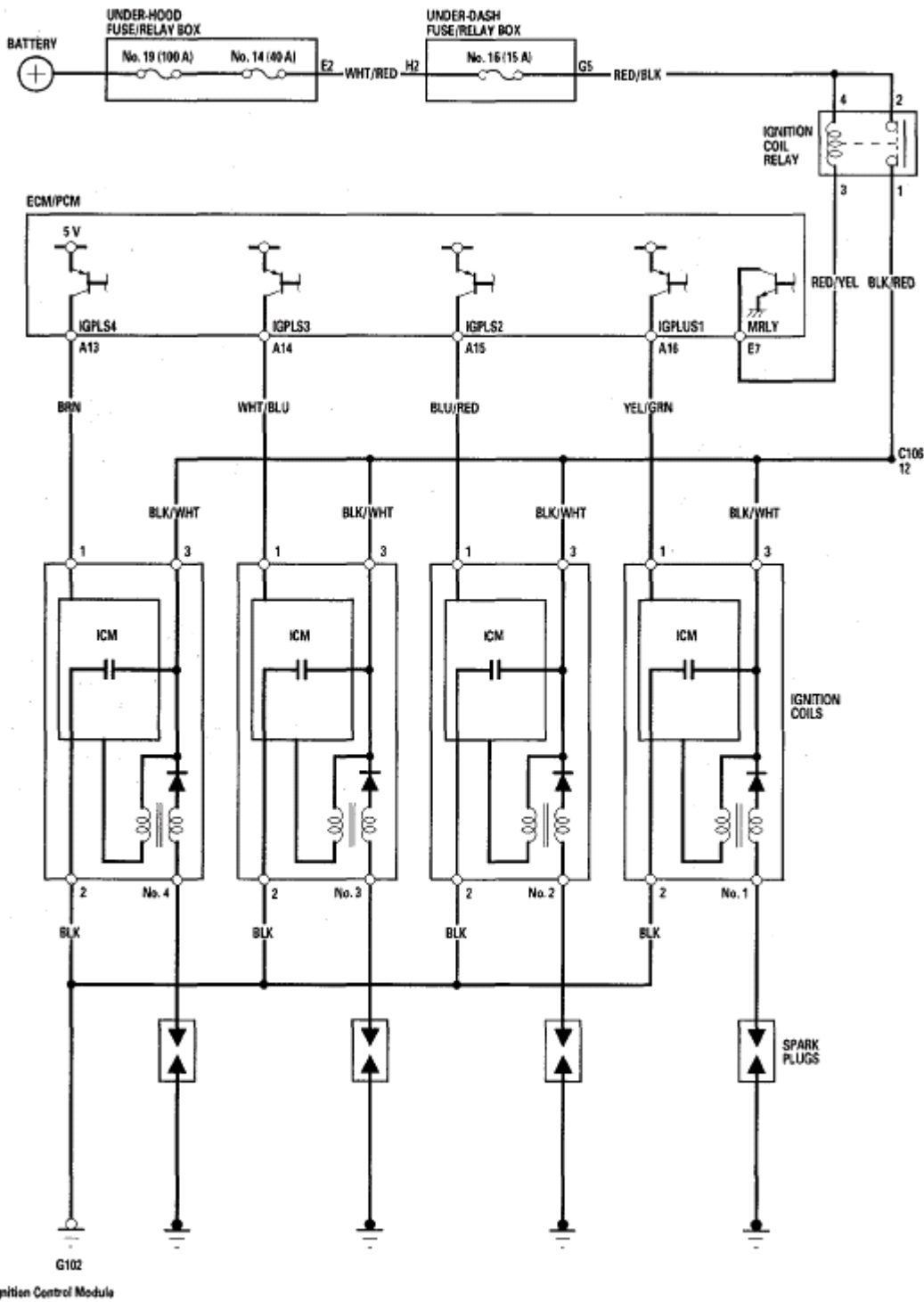


**Fig. 1: Identifying Ignition System Component Location**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

#### CIRCUIT DIAGRAM

# 2007 Honda Element EX

## 2007-08 ENGINE Ignition System - Element

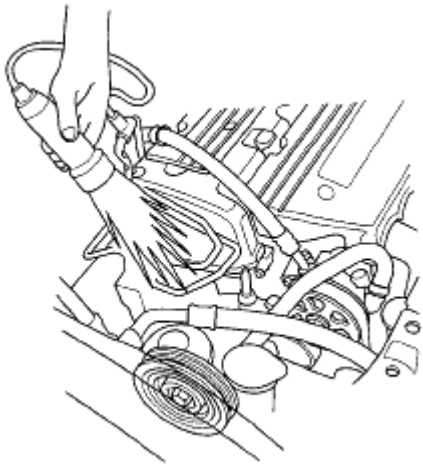


**Fig. 2: Ignition System Circuit Diagram**

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)** ).
2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see **DLC CIRCUIT TROUBLESHOOTING** ).
4. Check for DTCs (see **GENERAL TROUBLESHOOTING INFORMATION** ). If a DTC is present, diagnose and repair the cause before continuing with this test.
5. Start the engine. Hold the engine speed at 3,000 rpm with no load (in the N or P position) until the radiator fan comes on, then let it idle.
6. Check the idle speed (see **IDLE SPEED INSPECTION** ).
7. Jump the SCS line with the HDS.
8. Free the service loop from the wire harness, then connect the timing light to the service loop.



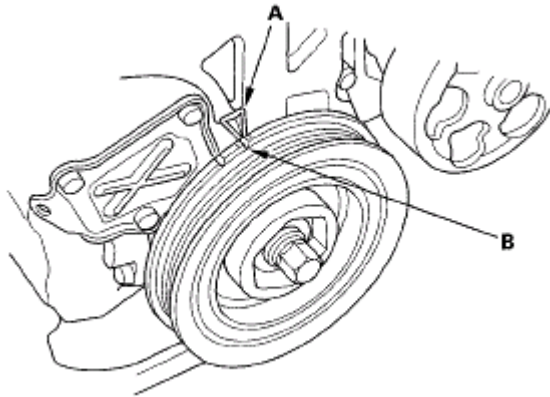
**Fig. 3: Connecting Timing Light To Service Loop**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

### **Ignition Tinning**

**M/T:  $8^{\circ} \pm 2^{\circ}$  BTDC (RED mark (B)) at idle in the Neutral**

**A/T:  $8^{\circ} \pm 2^{\circ}$  BTDC (RED mark (B)) at idle in the N or P position**

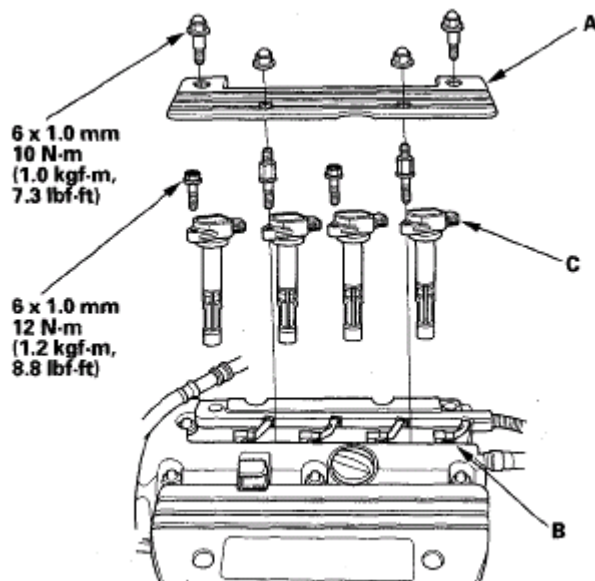


**Fig. 4: Identifying Aim Light Pointer On Cam Chain Case**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. If the ignition timing differs from the specification, check the cam timing. If the cam timing is OK, update the ECM/PCM if it does not have the latest software (see **UPDATING THE ECM/PCM**), or substitute a known-good ECM/PCM (see **SUBSTITUTING THE ECM/PCM**), then recheck. If the system works properly, and the ECM/PCM was substituted, replace the original ECM/PCM (see **ECM/PCM REPLACEMENT**).
11. Disconnect the HDS and the timing light.
12. Secure the service loop to the wire harness with wire ties.

## IGNITION COIL REMOVAL/INSTALLATION

1. Remove the ignition coil cover (A), disconnect the ignition coil connectors (B), then remove the ignition coils (C).



**Fig. 5: Identifying Ignition Coil Cover And Ignition Coil Connectors With Torque Specifications**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

## IGNITION COIL RELAY CIRCUIT TROUBLESHOOTING

1. Check the No. 16(15 A) fuse in the under-dash fuse/relay box.

*Is the fuse OK?*

**YES** - Reinstall the fuse, then go to step 2.

**NO** - Replace the fuse. If the fuse continues to blow, locate and repair the short in the circuit between the under-dash fuse/relay box and the ignition coils.

2. Remove the ignition coil relay, and test it (see **POWER RELAY TEST**).

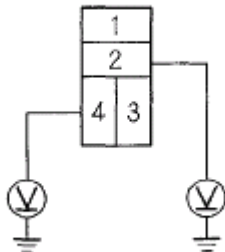
*Is the relay OK?*

**YES** - Go to step 3.

**NO** - Replace the ignition coil relay.

3. Measure the voltage between ignition coil relay 4P socket terminal No. 2 and body ground, then terminal No. 4 and body ground.

**IGNITION COIL RELAY 4P SOCKET**



Terminal side of female terminals

**Fig. 6: Measuring Voltage Between Ignition Coil Relay 4P Socket Terminal No. 2 And 4 With Body Ground**

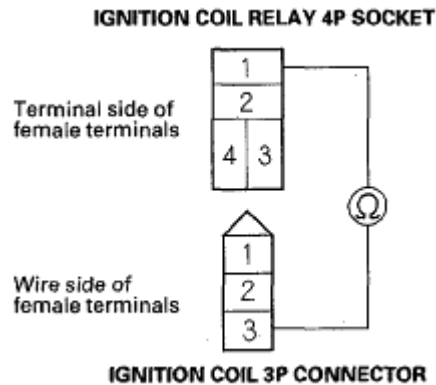
Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there battery voltage?*

**YES** - Go to step 4.

**NO** - Repair the open in the wire between under-dash fuse/relay box and ignition coil relay.

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



**Fig. 7: Checking Continuity Between Ignition Coil Relay 4P Socket Terminal No. 1 And Body Ground**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

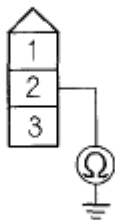
*Is there continuity?*

**YES** - Go to step 5.

**NO** - Repair open in the wire between ignition coil relay 4P socket terminal No. 1 and each ignition coil 3P connector terminal No. 3.

5. Check for continuity between each ignition coil 3P connector terminal No. 2 and body ground.

**IGNITION COIL 3P CONNECTOR**



Wire side of female terminals

**Fig. 8: Checking Continuity Between Ignition Coil 3P Connector Terminal No. 2 And Body Ground**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there continuity?*

**YES** - Go to step 6.

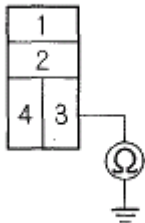
**NO** - Repair open in the wire between ignition coil 3P connector terminal No. 2 and body ground.

6. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
7. Turn the ignition switch ON (II).
8. Make sure the HDS communicates with the vehicle and the engine control module (ECM)/powertrain control module (PCM). If it doesn't communicate, troubleshoot the DLC circuit (see **DLC CIRCUIT TROUBLESHOOTING** ).
9. Jump the SCS line with the HDS, then turn the ignition switch OFF.

**NOTE:** This step must be done to protect the ECM/PCM from damage.

10. Disconnect ECM/PCM connector E (31P).
11. Check for continuity between ignition coil relay 4P socket terminal No. 3 and body ground.

**IGNITION COIL RELAY 4P SOCKET**



Terminal side of female terminals

**Fig. 9: Checking Continuity Between Ignition Coil Relay 4P Socket Terminal No. 3 And Body Ground**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

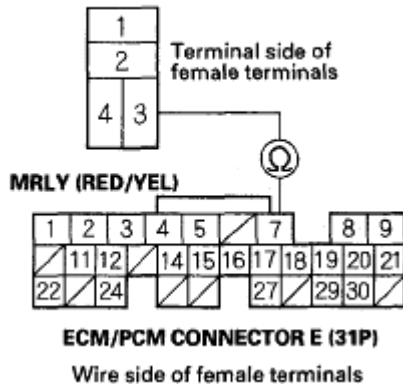
*Is there continuity?*

**YES** - Repair short in the wire between ignition coil relay 4P socket terminal No. 3 and the ECM/PCM (E7).

**NO** - Go to step 12.

12. Check for continuity between ignition coil relay 4P socket terminal No. 3 and the ECM/PCM connector terminal E7.

## IGNITION COIL RELAY 4P SOCKET



**Fig. 10: Checking Continuity Between Ignition Coil Relay 4P Socket Terminal No. 3 And Body Ground**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

*Is there continuity?*

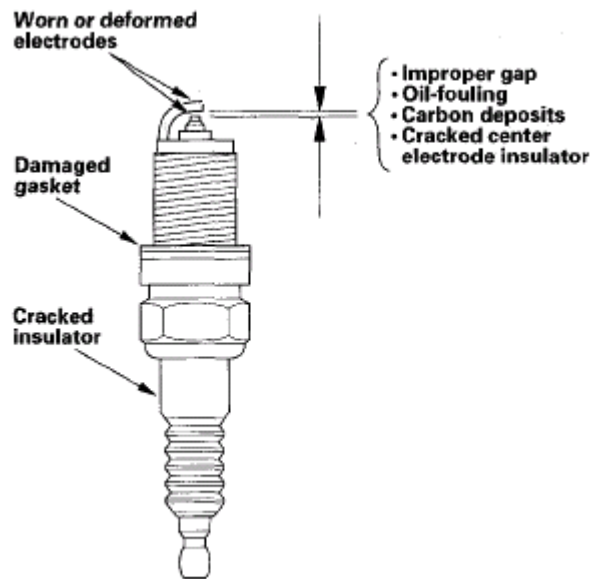
**YES** - The system is OK at this time. Check for loose or poor connections at the ignition coil relay and the ECM/PCM (E7).

**NO** - Repair open in the wire between ignition coil relay 4P socket terminal No. 3 and the ECM/PCM (E7).

## SPARK PLUG INSPECTION

1. Remove the spark plugs, and inspect the electrodes and the ceramic insulator.
  - Burned or worn electrodes may be caused by these conditions:
    - Advanced ignition timing
    - Loose spark plug
    - Plug heat range too hot
    - Insufficient cooling
  - Fouled plugs may be caused by these conditions:
    - 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





**Fig. 11: Identifying Spark Plugs And Electrodes Ceramic Insulator**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

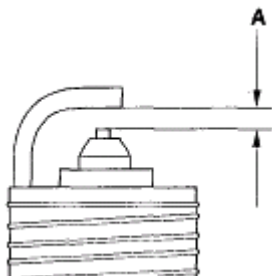
**NOTE:**

- Do not use a wire brush or scrape the iridium electrode since this will damage the electrode.
- When using a sand blaster spark plug cleaner, do not clean for more than 20 seconds to avoid damaging the electrode.

- 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.)**

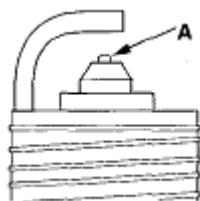


**Fig. 12: Identifying Spark Plugs And Electrode Gap**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

plugs listed.

**Spark Plugs IZFR6K11 (NGK)**



**Fig. 13: Identifying Spark Plugs And Rounded Center Electrode**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. 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 18 N-m (1.8 kgf.m, 13 lbf.ft).