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# ENGINE ELECTRICAL

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# IGNITION SYSTEM

## GENERAL

### OUTLINE OF CHANGES

<4G1>

The following service procedures have been established to correspond to the addition of vehicles with 4G13-SOHC 16 valve MPI engine. Items other than those given below are the same as for the 4G13 engine.

- A distributorless 2 coil ignition system has been adopted.
- The spark plug has been changed.
- An ignition failure sensor has been added.
- A detonation sensor has been added.

<4G9>

An ignition failure sensor has been added. The crank angle sensor has been changed. Other items are the same as before.

## GENERAL INFORMATION

### IGNITION COIL SPECIFICATIONS

Items	4G1
Type	Molded 2-coil

### SPARK PLUG SPECIFICATIONS

Items	4G1
NGK	BKR6E-11
DENSO	K20PR-U11

## SERVICE SPECIFICATIONS

### IGNITION COIL

Items	4G1
Secondary coil resistance k $\Omega$	11.7 - 14.3

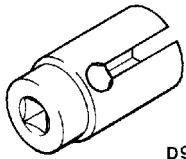
### IGNITION FAILURE SENSOR

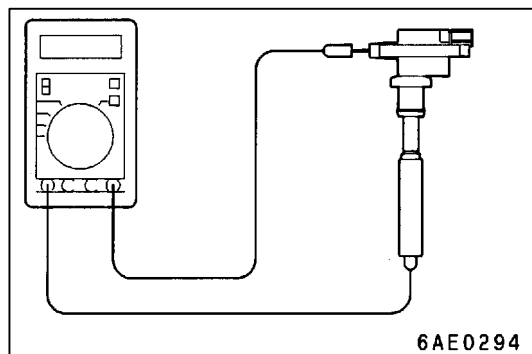
Items	4G1, 4G9
Resistance $\Omega$	0.1 or less

### SPARK PLUG

Items	4G1
Spark plug gap mm	1.0 - 1.1

## SPECIAL TOOL

Tool	Number	Name	Use
 D998773	MD998773	Detonation sensor wrench	Detonation sensor removal and installation



## ON-VEHICLE SERVICE

## IGNITION COIL (WITH BUILT-IN POWER TRANSISTOR) CHECK

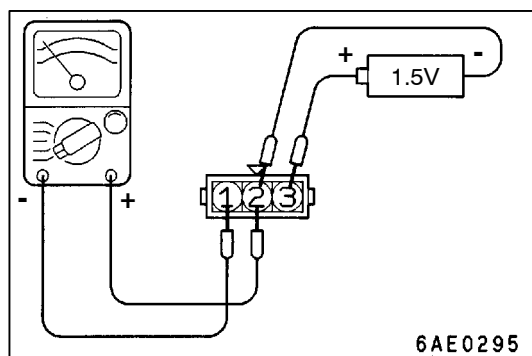
&lt;4G1&gt;

Check by the following procedure, and replace if there is a malfunction.

## SECONDARY COIL RESISTANCE CHECK

Measure the resistance between the high-voltage terminals of the ignition coil.




**Standard value: 11.7 - 14.3 kΩ**

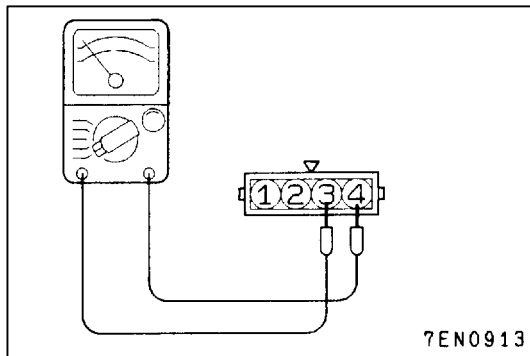


## PRIMARY COIL AND POWER TRANSISTOR CONTINUITY CHECK

## NOTE

An analog-type circuit tester should be used.

Voltage: 1.5V	Terminal No.		
	1	2	3
When current is flowing			
When current is not flowing			



## IGNITION FAILURE SENSOR CHECK

### NOTE

An analog-type circuit tester should be used.

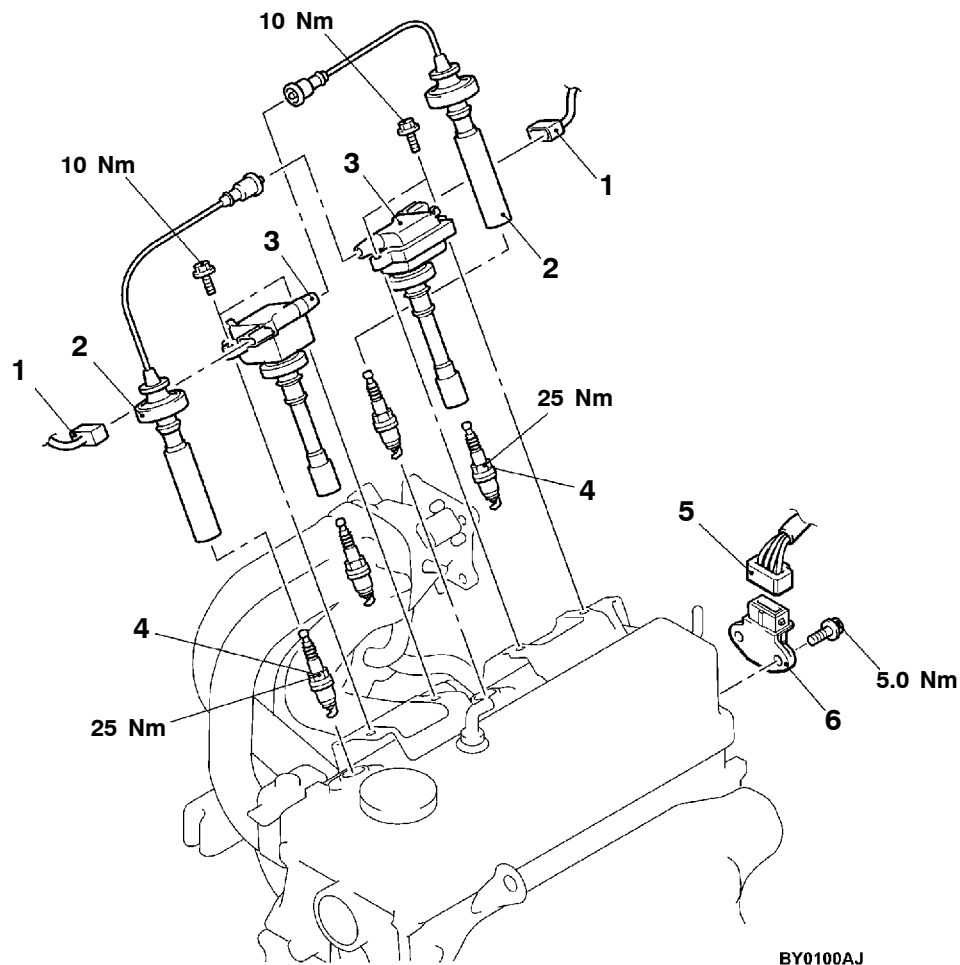
Check that the resistance between terminals 3 and 4 is at the standard value.

**Standard value: 0.1  $\Omega$  or less**

## IGNITION COIL

### REMOVAL AND INSTALLATION

<4G1>



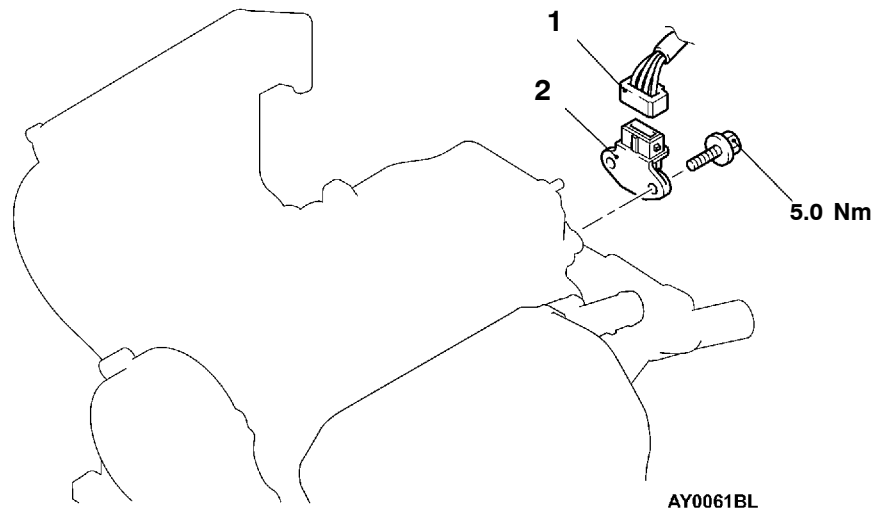
#### Ignition coil removal steps

1. Ignition coil connector
2. Spark plug cable assembly
3. Ignition coil
4. Spark plug

#### Ignition failure sensor removal steps

5. Ignition failure sensor connector
6. Ignition failure sensor

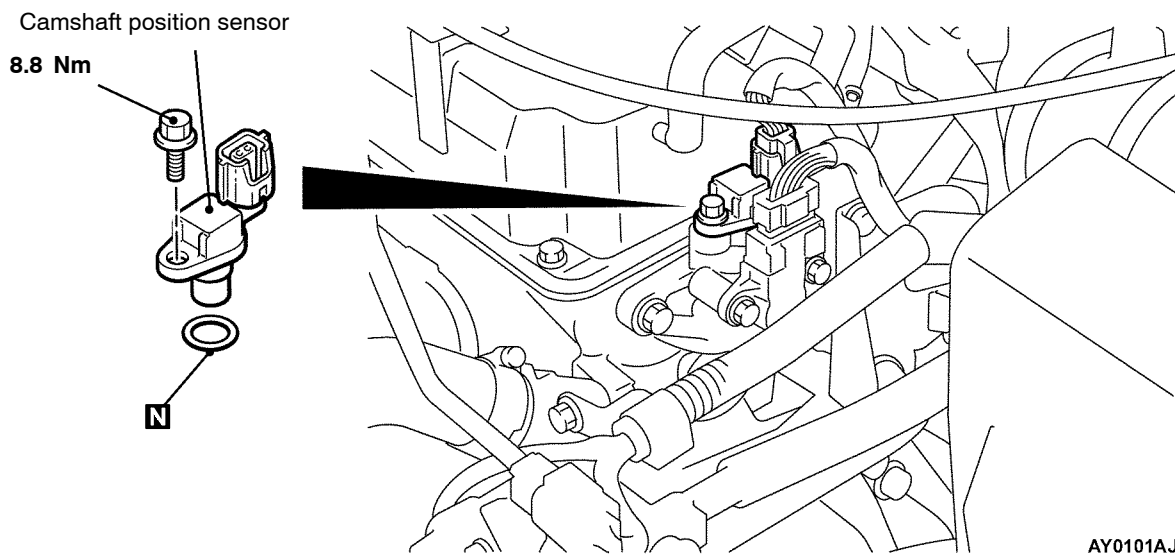
&lt;4G9&gt;

**Removal steps**

1. Ignition failure sensor connector
2. Ignition failure sensor

**CAMSHAFT POSITION SENSOR**

&lt;4G1&gt;

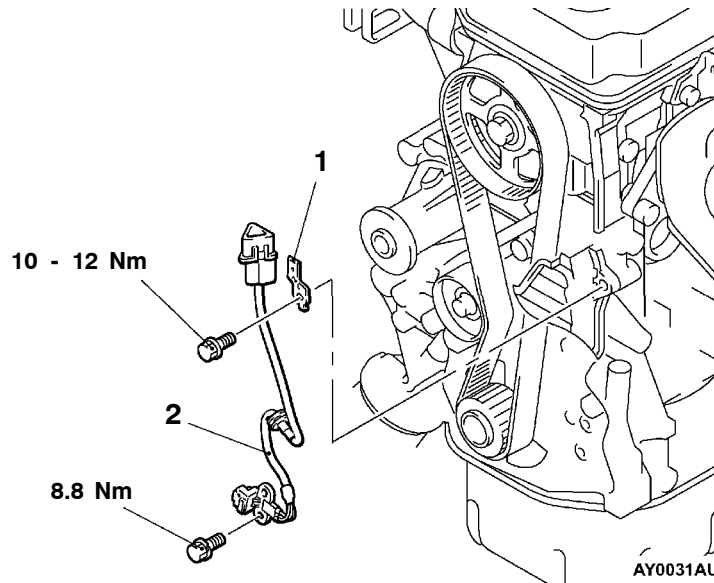


## CRANK ANGLE SENSOR

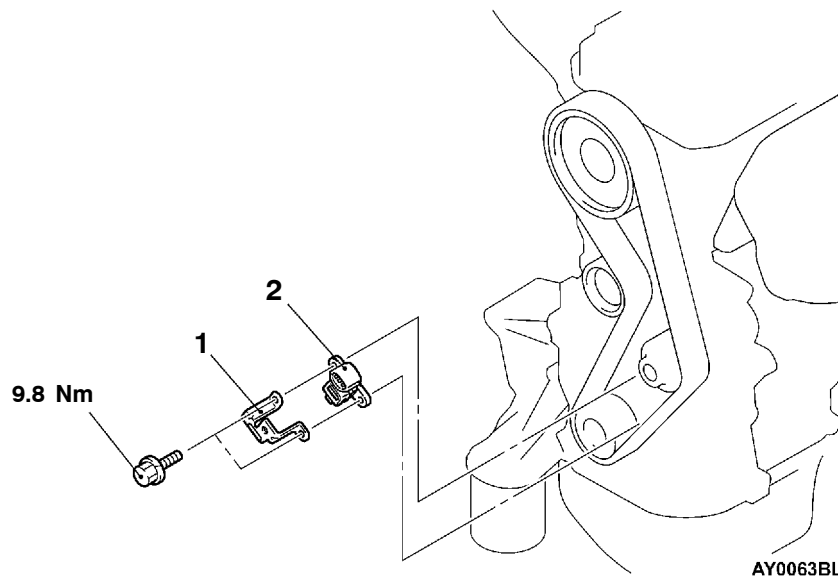
### REMOVAL AND INSTALLATION

**Pre-removal and Post-installation Operation**  
Timing Belt Cover Removal and Installation

<4G1>



<4G9>



#### Removal steps

1. Crank angle sensor bracket
2. Crank angle sensor

## DETONATION SENSOR

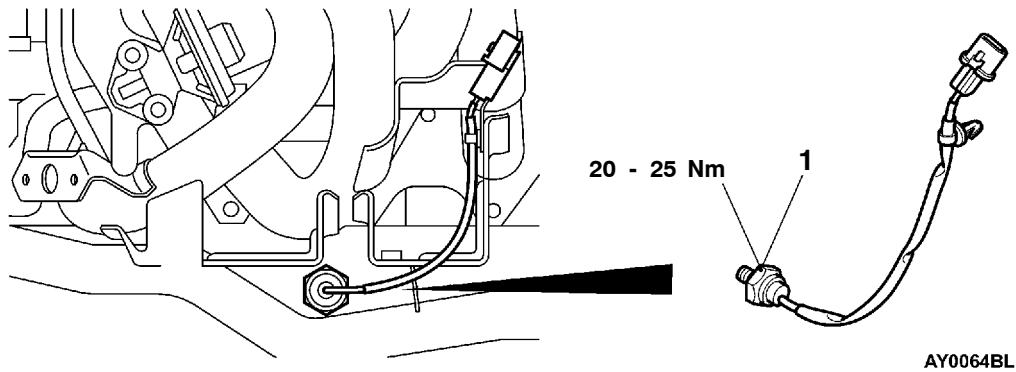
### Caution

Do not subject the detonation sensor to any shocks.

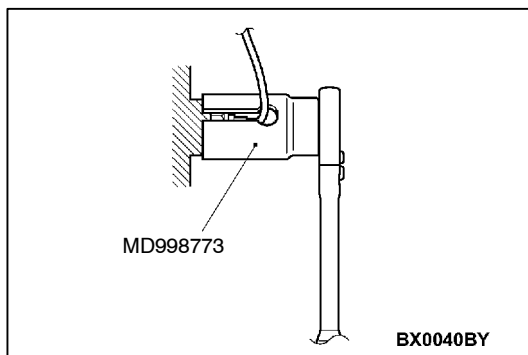
### REMOVAL AND INSTALLATION

<4G1>

**Pre-removal and Post-installation Operation**  
Intake Manifold Stay Removal and Installation  
(Refer to GROUP 15.)



◀A▶ ▶A◀ 1. Detonation sensor



### REMOVAL SERVICE POINT

◀A▶ DETONATION SENSOR REMOVAL

INSTALLATION SERVICE POINT

▶A◀ DETONATION SENSOR INSTALLATION