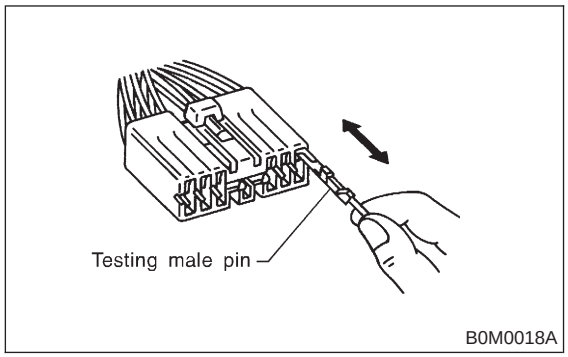
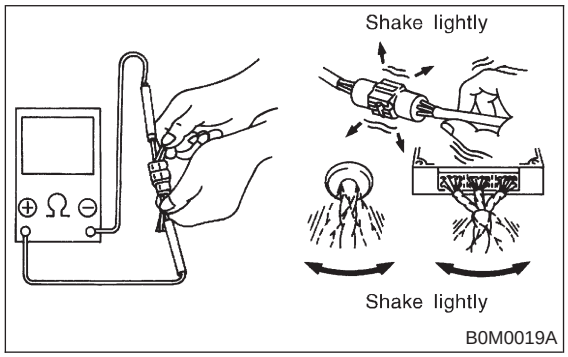
4) Insert the male pin of the connector into the female pin, then pull it out.

NOTE:
If one of the pins allows to pull out easily, it is a likely source of a malfunction.



5) Shake lightly the connector and the harness, and check for sudden changes in voltage or resistance.



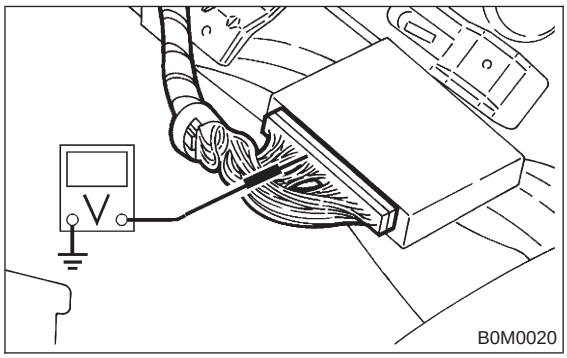
4. Diagnosis and Checking Procedure Using Instruments

A: USING A CIRCUIT TESTER

CAUTION:
Poor contact has been identified as a primary cause of this problem. To measure the voltage and/or resistance of individual sensors or all electrical control modules at the harness side connector, use a tapered pin with a diameter of less than 0.64 mm (0.025 in). Do not insert the pin more than 5 mm (0.20 in) into the part.

1. VOLTAGE CHECK (range set to DC V)

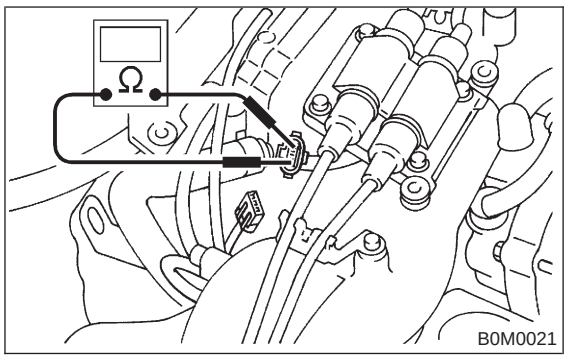
Connect the positive probe to the terminal to be tested, and the negative probe to body ground. (or the ground terminal of the ECM)



2. CHECKING THE CONNECTION (range set to Ω)

Measure the resistance and check for open or shorted wire in the harness or the connector.

NOTE:
This check must be carried out with both connectors disconnected.
(This avoids by-passing the connection through other circuits.)



1) Check for open circuit. (range: Ω × 1K)
Measure the resistance between the respective pins in both connectors.

Specified resistance:
More than 1 MΩ (No continuity) Open circuit
Less than 10 Ω (Continuity) O.K.

2) Check for correct insulation value. (range: Ω × 1K)
Measure the resistance between the pins in both connectors, as well as between the suspected pin and the body. (body short)

Specified resistance:
More than 1 MΩ (No continuity) O.K.
Less than 10 Ω (Continuity) Short circuit

3) Resistance measurement (range set to Ω)
Measuring the internal resistance of sensors, solenoid valves etc. to check the operating condition of components.

NOTE:
● Select the appropriate range for measuring the internal resistance, or the measurement will result in an incorrect reading.
● Before changing the measurement range the gauge must be reset to zero.

B: USING A SUBARU SELECT MONITOR

With this testing procedure the defective component can be determined by directly monitoring input/output signals of the ECM or the trouble codes.

1. FEATURES

● A variety of data can be checked without movements from the drivers seat, passenger's seat or from outside the vehicle.
● This unit allows the identification of the type of malfunction, for example whether the cause is an open or shorted wire in the input/output signal line, or whether the breakdown of a component is caused by a lack of maintenance.

2. DIAGNOSIS

● Refer to the reference values for input/output and control data to determine whether the malfunction is caused by a worn out component, an open wire, a short etc.
● Perform the diagnostics procedure as described in chapter "Check based on trouble codes" by monitoring the trouble codes.

NOTE:
It will be easier to determine a malfunction if the vehicle data for normal conditions are available for comparison.

C: USING AN OSCILLOSCOPE

A malfunction can be determined by displaying the waveforms of input/output signals on the oscilloscope.

1. DIAGNOSIS

A simple comparison of the waveforms may lead to an incorrect diagnosis. To exactly determine the sources of the malfunction it will be necessary to determine them under consideration about information other than waveforms.

2. APPLYING INPUT/OUTPUT SIGNALS

Connect the probe directly with the terminal of the signal.