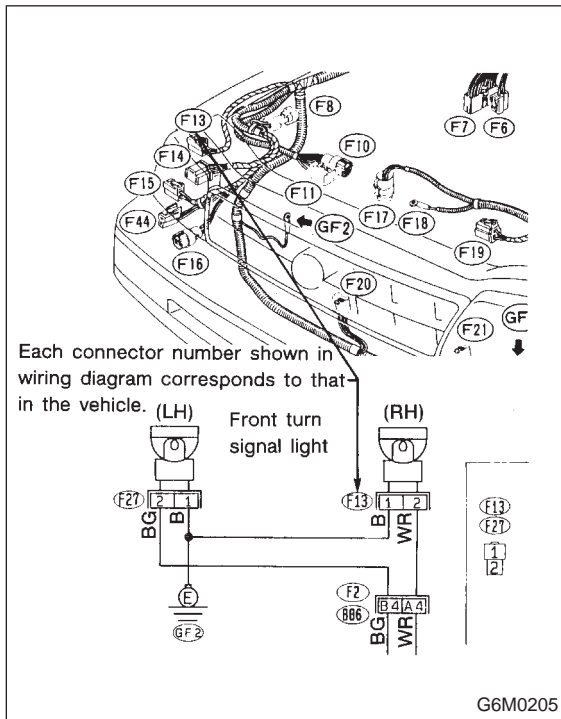


2. Basic Diagnostics Procedure

- Each connector number shown in the wiring diagram corresponds to that in the wiring harness. The location of each connector in the actual vehicle is determined by reading the first character of the connector (for example, a "F" for F8, "i" for i16, etc.) and the type of wiring harness. The first character of each connector number refers to the area or system of the vehicle.

Symbol	Wiring harness and cord
F	Front wiring harness
B	Bulkhead wiring harness
E	Engine wiring harness, Oxygen sensor cord
T	Transmission cord
D	Door cord LH & RH, Rear door cord LH & RH
i	Instrument panel wiring harness
R	Rear wiring harness, Rear defogger cord (Ground) Fuel tank cord, Roof cord, Rear gate cord, Rear gate lock adapter cord



2. Basic Diagnostics Procedure

A: BASIC PROCEDURE

1. GENERAL

The most important purpose of diagnostics is to determine which part is malfunctioning quickly, to save time and labor.

2. IDENTIFICATION OF TROUBLE SYMPTOM

Determine what the problem is based on the symptom.

3. PROBABLE CAUSE OF TROUBLE

Look at the wiring diagram and check the system's circuit. Then check the switch, relay, fuse, ground, etc.

4. LOCATION AND REPAIR OF TROUBLE

- 1) Using the diagnostics narrow down the causes.
- 2) If necessary, use a voltmeter, ohmmeter, etc.
- 3) Before replacing certain component parts (switch, relay, etc.), check the power supply, ground, for open wiring harness, poor connectors, etc. If no problems are encountered, check the component parts.

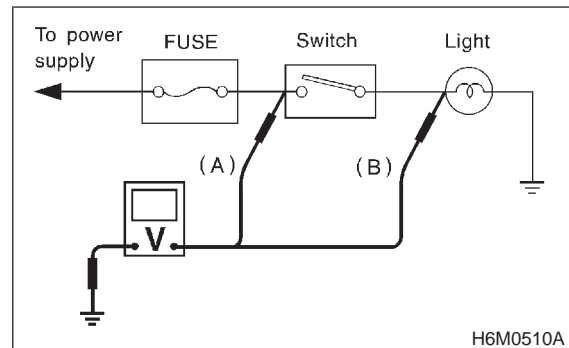
5. CONFIRMATION OF SYSTEM OPERATION

After repairing, ensure that the system operates properly.

B: INSPECTION

1. VOLTAGE MEASUREMENT

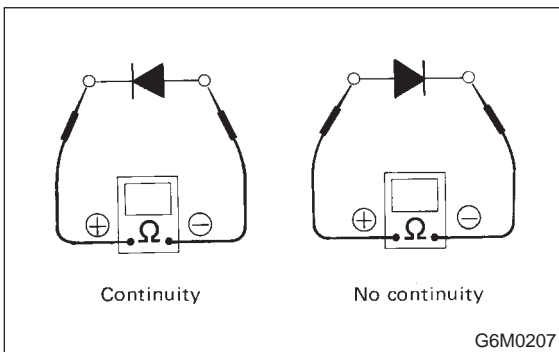
- 1) Using a voltmeter, connect the negative lead to a good ground point or negative battery terminal and the positive lead to the connector or component terminal.
 - 2) Contact the positive probe of the voltmeter on connector (A).
 - 3) Shift the positive probe to connector (B). The voltmeter will indicate a voltage.
- The voltmeter will indicate a voltage.
- The voltmeter will indicate no voltage.



- 4) With test set-up held as it is, turn switch ON. The voltmeter will indicate a voltage and, at the same time, the light will come on.
- 5) The circuit is in good order. If a problem such as a lamp failing to light occurs, use the procedures outlined above to track down the malfunction.

2. CIRCUIT CONTINUITY CHECKS

- 1) Disconnect the battery terminal or connector so there is no voltage between the check points. Contact the two leads of an ohmmeter to each of the check points. If the circuit has diodes, reverse the two leads and check again.
- 2) Use an ohmmeter to check for diode continuity. When contacting the negative lead to the diode positive side and the positive lead to the negative side, there should be continuity. When contacting the two leads in reverse, there should be no continuity.

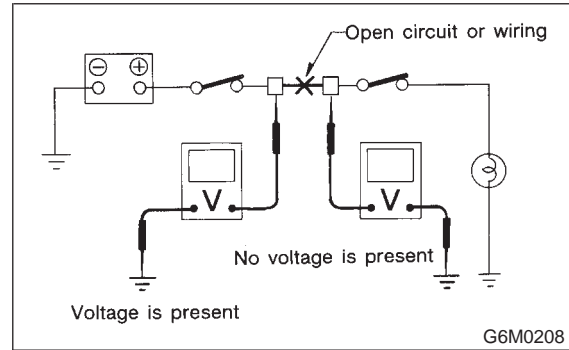


3) Symbol “○—○” indicates that continuity exists between two points or terminals. For example, when a switch position is “3”, continuity exists among terminals 1, 3 and 6, as shown in table below.

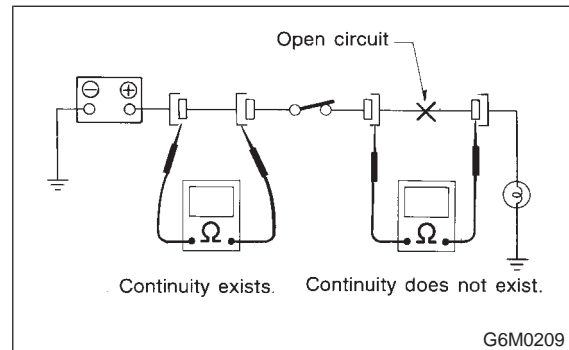
Terminal	1	2	3	4	5	6
Switch Position						
OFF						
1	○				○	○
2	○			○		○
3	○		○			○
4	○	○				○

3. HOW TO DETERMINE AN OPEN CIRCUIT

- 1) Voltmeter Method: An open circuit is determined by measuring the voltage between respective connectors and ground using a voltmeter, starting with the connector closest to the power supply. The power supply must be turned ON so that current flows in the circuit. If voltage is not present between a particular connector and ground, the circuit between that connector and the previous connector is open.



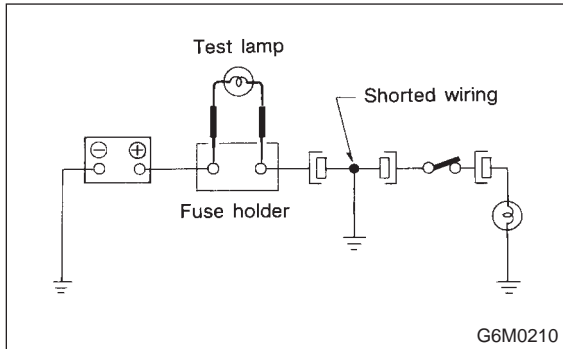
- 2) Ohmmeter method: Disconnect all connectors affected, and check continuity in the wiring between adjacent connectors. When the ohmmeter indicates “infinite”, the wiring is open.



4. HOW TO DETERMINE A SHORTCIRCUIT

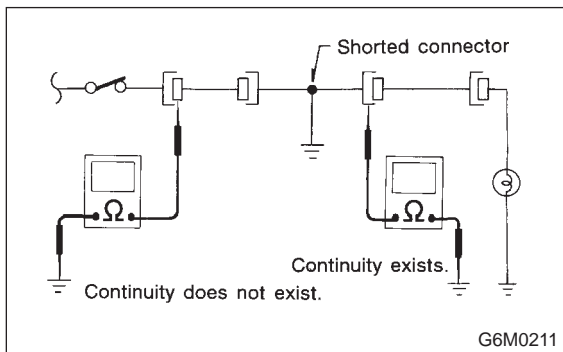
1) Test lamp method:

Connect a test lamp (rated at approximately 3 watts) in place of the blown fuse and allow current to flow through the circuit. Disconnect one connector at a time from the circuit, starting with the one located farthest from the power supply. If the test lamp goes out when a connector is disconnected, the wiring between that connection and the next connector (farther from the power supply) is shorted.



2) Ohmmeter method:

Disconnect all affected connectors, and check continuity between each connector and ground. When ohmmeter indicates continuity between a particular connector and ground, that connector is shorted.



3. Working Precautions

A: PRECAUTIONS WHEN WORKING WITH THE PARTS MOUNTED ON THE VEHICLE

- 1) When working under a vehicle which is jacked-up, always be sure to use safety stands.
- 2) The parking brake must always be applied during working. Also, in automatic transmission vehicles, keep the select lever set to the P (Parking) range.
- 3) Be sure the workshop is properly ventilated when running the engine. Further, be careful not to touch the belt or fan while the engine is operating.
- 4) Be careful not to touch hot metal parts, especially the radiator and exhaust system immediately after the engine has been shut off.

B: PRECAUTIONS IN TROUBLE DIAGNOSIS AND REPAIR OF ELECTRIC PARTS

- 1) The battery cable must be disconnected from the battery's (-) terminal, and the ignition switch must be set to the OFF position, unless otherwise required by the diagnostics.
- 2) Securely fasten the wiring harness with clamps and slips so that the harness does not interfere with the body end parts or edges and bolts or screws.
- 3) When installing parts, be careful not to catch them on the wiring harness.
- 4) When disconnecting a connector, do not pull the wires, but pull while holding the connector body.

