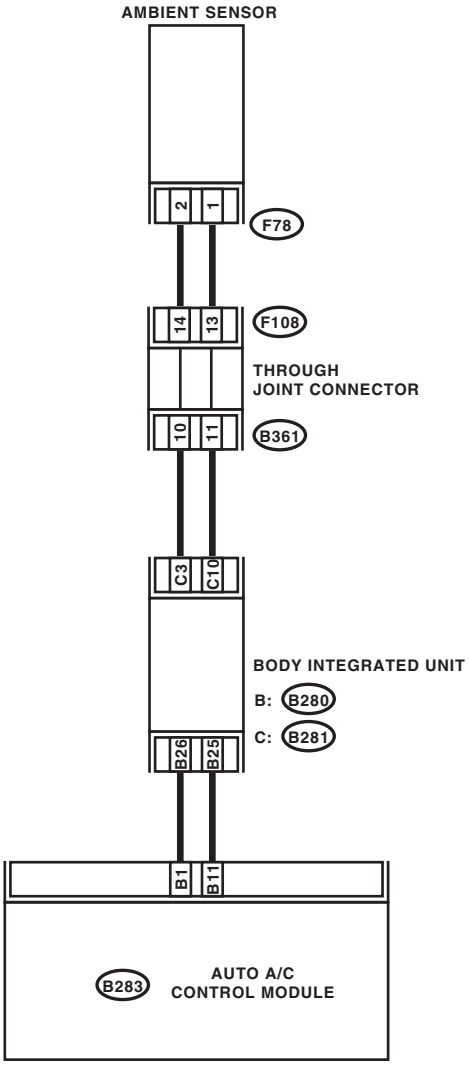
8. Diagnostic Procedure for Sensors

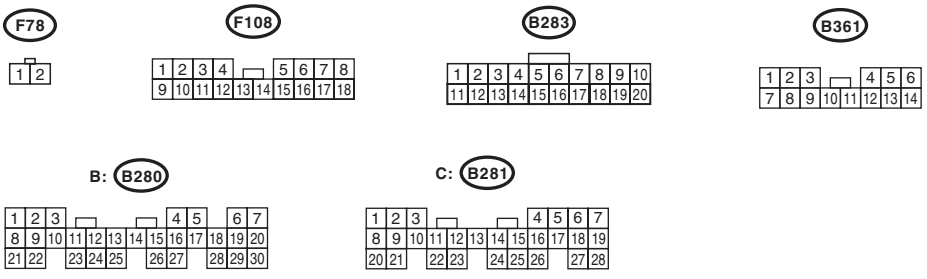
A: AMBIENT SENSOR

TROUBLE SYMPTOM:

Fan speed is not switched when the fan speed control dial is in AUTO position.

WIRING DIAGRAM:





AC-00829

Diagnostic Procedure for Sensors

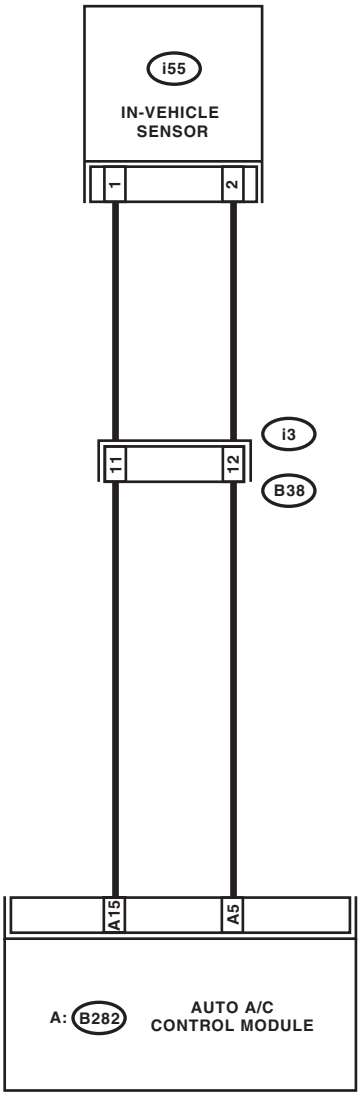
	Step	Check	Yes	No
1	**CHECK AMBIENT SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ambient sensor. 3) Measure the resistance between connector terminals of ambient sensor. ***Terminal*** ***No. 1 — No. 2:***	Is the resistance approximately 2.2 kΩ at 25°C (77°F)?	Go to step **2**.	Replace the ambient sensor.
2	**CHECK INPUT SIGNAL FOR AMBIENT SENSOR.** 1) Turn the ignition ON. 2) Measure the voltage between connector (F78) terminals. ***Connector & terminal*** ***(F78) No. 1 (+) — No. 2 (–):***	Is the voltage approx. 5 V?	Go to step **6**.	Go to step **3**.
3	**CHECK OUTPUT SIGNAL OF BODY INTEGRATED UNIT.** 1) Turn the ignition switch to OFF. 2) Draw out the body integrated unit. 3) Disconnect the connector from ambient sensor. 4) Turn the ignition switch to ON. 5) Measure the voltage between connector terminals of body integrated unit. ***Connector & terminal*** ***(B281) No. 3 (+) — No. 10 (–):***	Is the voltage approx. 5 V?	Go to step **4**.	Go to step **6**.
4	**CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND AMBIENT SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from body integrated unit. 3) Measure the resistance of harness between body integrated unit and ambient sensor. ***Connector & terminal*** ***(F78) No. 1 — (B281) No. 10:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair the open circuit of harness between body integrated unit and ambient sensor.
5	**CHECK HARNESS CONNECTOR BETWEEN BODY INTEGRATED UNIT AND AMBIENT SENSOR.** Measure the resistance of harness between body integrated unit and ambient sensor. ***Connector & terminal*** ***(F78) No. 2 — (B281) No. 3:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the open circuit of harness between body integrated unit and ambient sensor.
6	**CHECK COMMUNICATION ERROR DISPLAY.** 1) Connect the connectors of body integrated unit and ambient sensor as originally connected. 2) Check if “Er xx” is displayed on the Odo/Trip meter in combination meter after turning the ignition switch to ON.	Is “Er xx” displayed?	Check the communication circuit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Go to step **7**.
7	**CHECK POOR CONTACT.** Check poor contact of auto A/C control module connector.	Is there poor contact in the connector?	Repair the connector.	Replace the auto A/C control module.

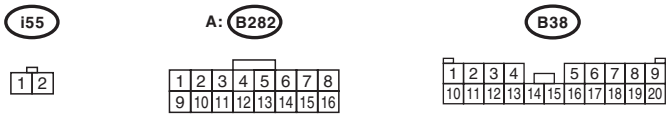
B: IN-VEHICLE SENSOR

TROUBLE SYMPTOM:

Blower fan speed, outlet port and inlet port do not change after turning the AUTO switch ON

WIRING DIAGRAM:





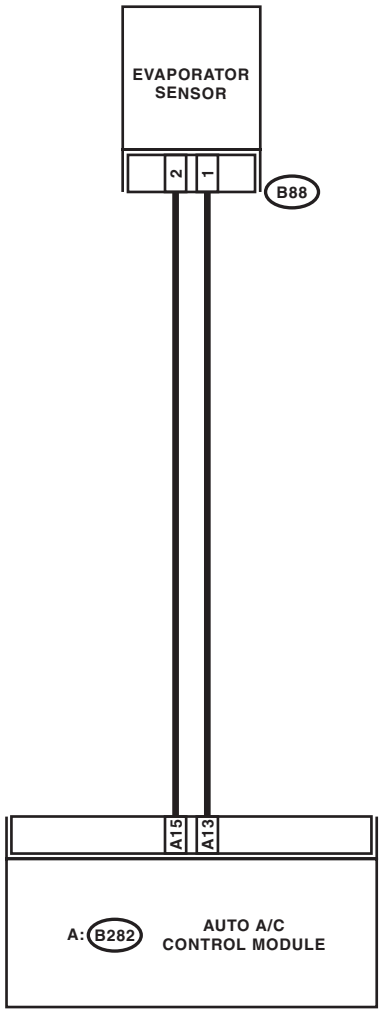
AC-00830

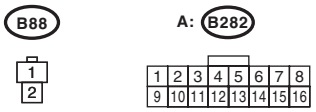
Diagnostic Procedure for Sensors

	Step	Check	Yes	No
1	**CHECK IN-VEHICLE SENSOR.** 1) Turn the ignition switch to OFF. 2) Remove the driver side lower cover. 3) Disconnect the connector from in-vehicle sensor. 4) Measure the resistance between connector terminals of in-vehicle sensor. ***Terminal*** ***No. 1 — No. 2:***	Is the resistance approximately 2.7 kΩ at 20°C (68°F)?	Go to step **2**.	Replace the in-vehicle sensor.
2	**CHECK INPUT SIGNAL FOR IN-VEHICLE SENSOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between in-vehicle sensor harness connector terminal and chassis ground. ***Connector & terminal*** ***(i55) No. 2 (+) — No. 1 (–):***	Is the voltage approx. 5 V?	Go to step **6**.	Go to step **3**.
3	**CHECK AUTO A/C CONTROL MODULE OUTPUT SIGNAL.** 1) Turn the ignition switch to OFF. 2) Remove the auto A/C control module. 3) Turn the ignition switch to ON. 4) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(B282) No. 5 (+) — (B282) No. 15 (–):***	Is the voltage approx. 5 V?	Go to step **4**.	Go to step **6**.
4	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND IN-VEHICLE SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the auto A/C control module. 3) Measure the resistance of harness between auto A/C control module and in-vehicle sensor. ***Connector & terminal*** ***(i55) No. 2 (B282) No. 5:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair the harness between auto A/C control module and in-vehicle sensor.
5	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND IN-VEHICLE SENSOR.** Measure the resistance of harness between auto A/C control module and in-vehicle sensor. ***Connector & terminal*** ***(i55) No. 1 (B282) No. 15:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness between auto A/C control module and in-vehicle sensor.
6	**CHECK POOR CONTACT.** Check poor contact of auto A/C control module connector.	Is there poor contact in the connector?	Repair the connector.	Replace the auto A/C control module.

C: EVAPORATOR SENSOR

WIRING DIAGRAM:





AC-00831

Diagnostic Procedure for Sensors

	Step	Check	Yes	No
1	**CHECK EVAPORATOR SENSOR.** 1) Turn the ignition switch to OFF. 2) Remove the glove box. 3) Disconnect the connector from evaporator sensor. 4) Measure the resistance between connector terminals of the evaporator sensor. ***Terminal*** ***No. 1 — No. 2:***	Is the resistance approximately 3.3 kΩ at 20°C (68°F)?	Go to step **2**.	Replace the evaporator sensor.
2	**CHECK INPUT SIGNAL FOR EVAPORATOR SENSOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between connector (B88) terminal and chassis ground. ***Connector & terminal*** ***(B88) No. 1 (+) — No. 2 (–):***	Is the voltage approx. 5 V?	Go to step **6**.	Go to step **3**.
3	**CHECK AUTO A/C CONTROL MODULE OUTPUT SIGNAL.** 1) Turn the ignition switch to OFF. 2) Remove the auto A/C control module. 3) Turn the ignition switch to ON. 4) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(B282) No. 13 (+) — No. 15 (–):***	Is the voltage approx. 5 V?	Go to step **4**.	Go to step **6**.
4	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND EVAPORATOR SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the auto A/C control module. 3) Measure the resistance of harness between auto A/C control module and evaporator sensor. ***Connector & terminal*** ***(B88) No. 2 — (B282) No. 15:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair the open circuit of harness between auto A/C control module and evaporator sensor.
5	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND EVAPORATOR SENSOR.** Measure the resistance of harness between auto A/C control module and evaporator sensor. ***Connector & terminal*** ***(B88) No. 1 — (B282) No. 13:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the open circuit of harness between auto A/C control module and evaporator sensor.
6	**CHECK POOR CONTACT.** Check poor contact of auto A/C control module connector.	Is there poor contact in the connector?	Repair the connector.	Replace the auto A/C control module.

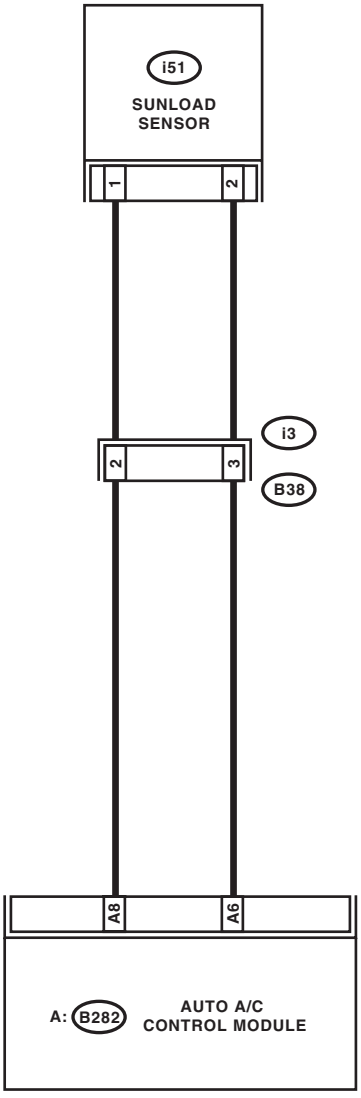
D: SUNLOAD SENSOR

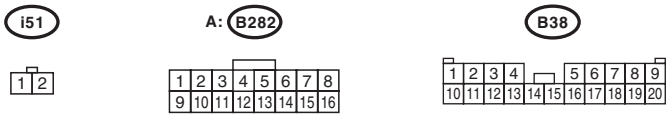
TROUBLE SYMPTOM:

- Sensor identifies that sunlight is at maximum. Then, A/C system is controlled to COOL side.
- Sensor identifies that sunlight is at minimum. Then, A/C system is controlled to HOT side.

NOTE:
When the sunload sensor check is performed indoors or in the shade, it could be diagnosed as having an open circuit. Always check the sunload sensor with the sun shining on it.

WIRING DIAGRAM:





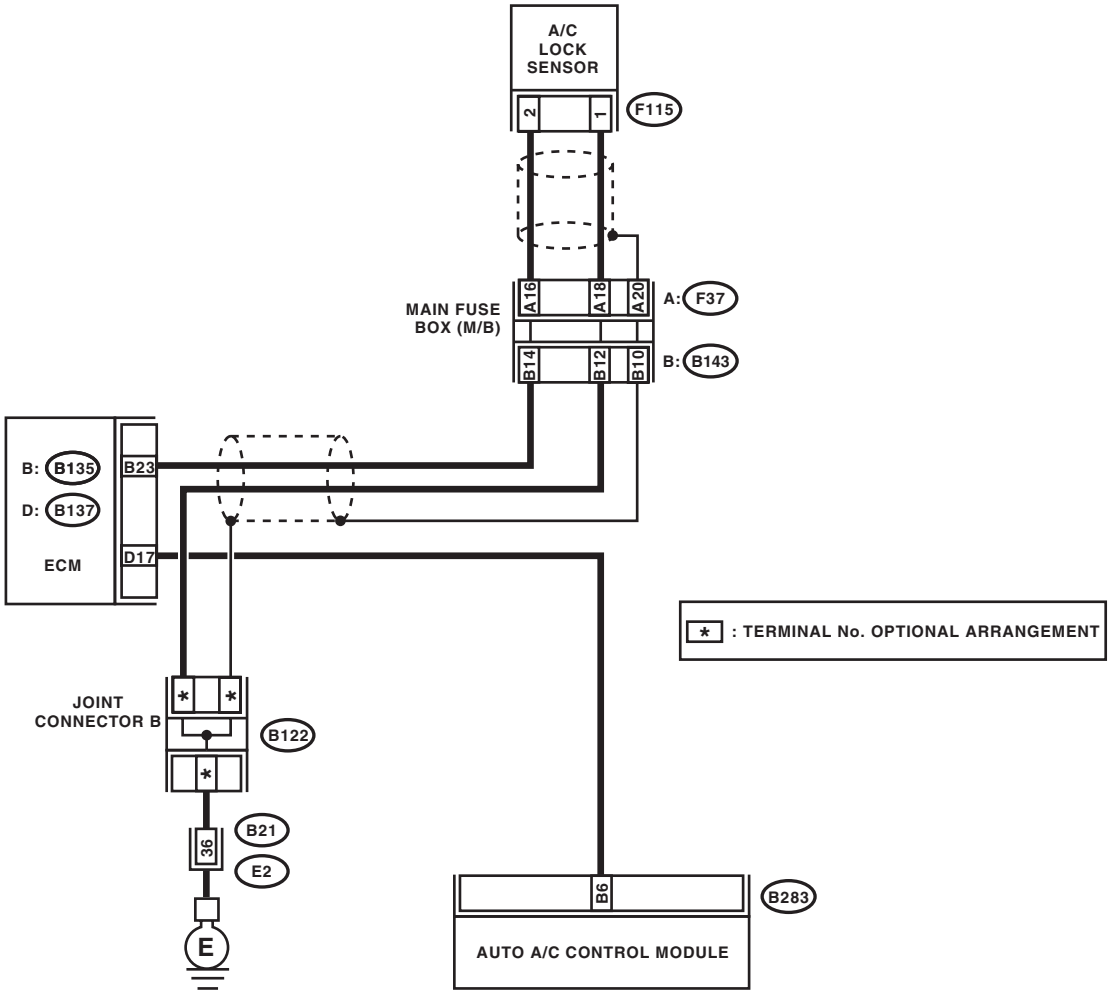
AC-00832

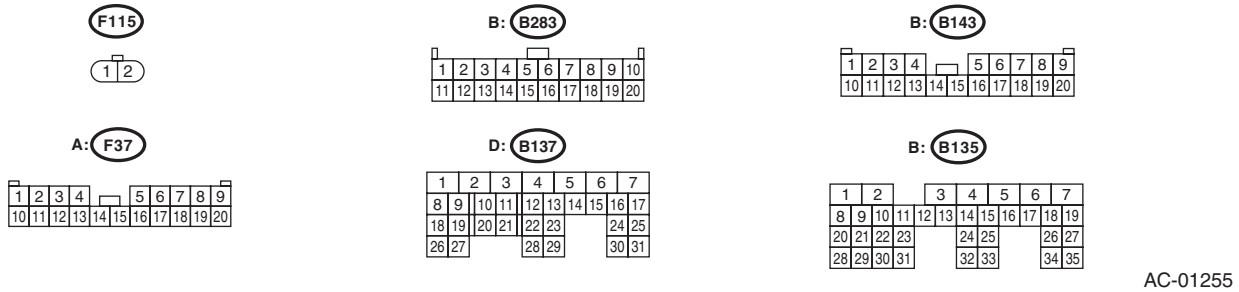
	Step	Check	Yes	No
1	**CHECK POWER SUPPLY VOLTAGE FOR SUNLOAD SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from sunload sensor. 3) Turn the ignition switch to ON. 4) Measure the power supply voltage for sunload sensor. ***Connector & terminal*** ***(i51) No. 1 (+) — No. 2 (–):***	Is the voltage approx. 5 V?	Go to step **4**.	Go to step **2**.
2	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND SUNLOAD SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the auto A/C control module. 3) Measure the resistance of the harness between the auto A/C control module and sunload sensor. ***Connector & terminal*** ***(i51) No. 2 — (B282) No. 6:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness between auto A/C control module and sunload sensor.
3	**CHECK HARNESS CONNECTOR BETWEEN AUTO A/C CONTROL MODULE AND SUNLOAD SENSOR.** Measure the resistance of the harness between the auto A/C control module and sunload sensor. ***Connector & terminal*** ***(i51) No. 1 — (B282) No. 8:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness between auto A/C control module and sunload sensor.
4	**CHECK INPUT VOLTAGE FOR AUTO A/C CONTROL MODULE.** 1) Connect the connectors of sunload sensor and auto A/C control module. 2) Turn the ignition switch to ON. 3) Measure the voltage between connector terminals of auto A/C control module. ***Connector & terminal*** ***(B282) No. 8 (+) — (B282) No. 6 (–):***	Is the voltage approx. 2.5 V?	Go to step **5**.	Replace the sunload sensor.
5	**CHECK POOR CONTACT.** Check poor contact of auto A/C control module connector.	Is there poor contact in the connector?	Repair the connector.	Replace the auto A/C control module.

E: A/C LOCK SENSOR

H6 model

WIRING DIAGRAM:





AC-01255

	Step	Check	Yes	No
1	**CHECK A/C LOCK SENSOR SIGNAL.** 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Start the engine and turn the A/C switch ON. 4) Read the data of A/C lock signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO) (diag)-28, READ CURRENT DATA FOR ENGINE (NORMAL MODE), OPERATION, Subaru Select Monitor.>	Is the A/C lock signal switch ON?	Go to step **4**.	Go to step **2**.
2	**A/C LOCK SENSOR SIGNAL INSPECTION.** 1) Start the engine and turn the A/C switch ON. 2) Measure the voltage between auto A/C control module harness connector and chassis ground. ***Connector & terminal*** ***(B283) No. 6 (+) — Chassis ground (–):***	Is the voltage 7 — 14 V?	Replace the auto A/C control module.	Go to step **3**.
3	**CHECK ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 24 (+) — Chassis ground (–):***	Is the voltage 7 — 14 V?	Repair the harness between the ECM and the auto A/C control module connector.	Replace the ECM.
4	**CHECK A/C LOCK SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 14 — Chassis ground:***	Is the resistance between 240 and 290 Ω?	Replace the ECM.	Go to step **5**.
5	**CHECK A/C LOCK SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the main fuse box harness connector. 3) Measure the resistance between main fuse box terminal. ***Connector & terminal*** ***(F37) No. 16 — No. 18:***	Is the resistance between 240 and 290 Ω?	Go to step **7**.	Go to step **6**.
6	**A/C LOCK SENSOR INSPECTION.** 1) Turn the ignition switch to OFF. 2) Disconnect the A/C lock sensor connector. 3) Measure the resistance between A/C lock sensor terminals. ***Connector & terminal*** ***(F115) No. 1 — No. 2:***	Is the resistance between 240 and 290 Ω?	Repair or Replace harness between A/C lock sensor and main fuse box.	Replace the A/C compressor assembly. (A/C lock switch malfunction)
7	**CHECK MAIN FUSE BOX.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector and then measure the resistance between main fuse box terminal. ***Connector & terminal*** ***(F37) No. 16 — (F143) No. 12:*** ***(F37) No. 18 — (F143) No. 14:***	Is the resistance less than 10 Ω?	Repair or Replace the harness between A/C lock sensor and main fuse box.	Replace the main fuse box.