

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

8. Diagnostic Procedure for Sensors

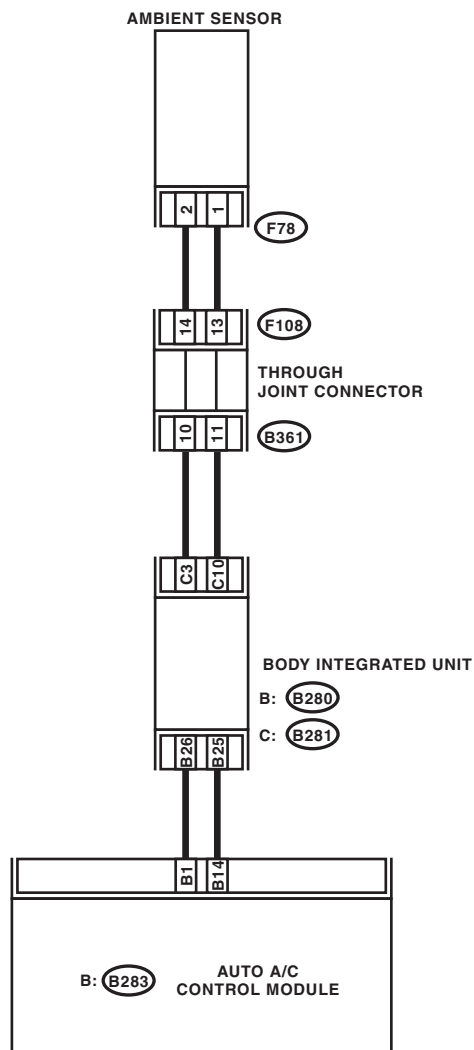
A: AMBIENT SENSOR

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-63, WIRING DIAGRAM, Air Conditioning System.>



F78

1 2

B361

1 2 3 4 5 6
7 8 9 10 11 12 13 14

F108

1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16 17 18

B: B283

1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26

B: B280

1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30

C: B281

1 2 3 4 5 6 7
8 9 10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28

AC-01341

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK AMBIENT SENSOR. Perform the inspection of ambient sensor unit. <Ref. to AC-49, INSPECTION, Ambient Sensor (Auto A/C Model).>	Is the ambient sensor operating properly?	Go to step 2.	Replace the ambient sensor.
2 CHECK INPUT SIGNAL FOR AMBIENT SENSOR. 1) Turn the ignition to ON. 2) Measure the voltage between connector (F78) terminals. Connector & terminal (F78) No. 2 (+) — No. 1 (-):	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 FOR POOR CONTACT. Check poor contact of auto A/C control module connector.	Is there poor contact of connector?	Repair the connector.	Replace the auto A/C control module. <Ref. to AC-33, REMOVAL, Control Unit (Auto A/C Model).>

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

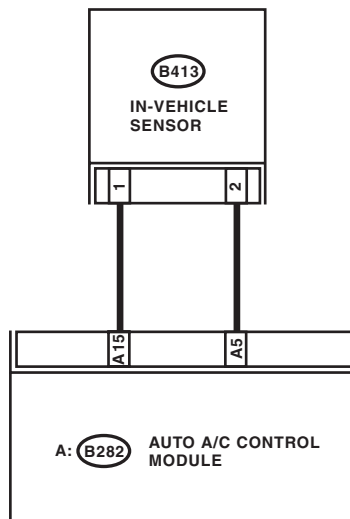
B: IN-VEHICLE SENSOR

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:

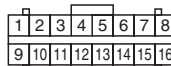
Air conditioning system <Ref. to WI-63, WIRING DIAGRAM, Air Conditioning System.>



B413



A: B282



AC-01630

Step	Check	Yes	No	
1	CHECK IN-VEHICLE SENSOR. Perform the inspection of in-vehicle sensor unit. <Ref. to AC-51, INSPECTION, In-Vehicle Sensor (Auto A/C Model).>	Is the in-vehicle sensor normal?	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 (B413) No. 2 (+) — Chassis ground (-):	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.

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
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 (B413) 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 (B413) 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 FOR POOR CONTACT. Check poor contact of auto A/C control module connector.	Is there poor contact of connector?	Repair the connector.	Replace the auto A/C control module. <Ref. to AC-33, REMOVAL, Control Unit (Auto A/C Model).>

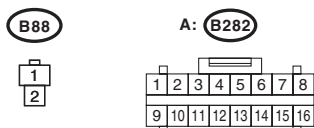
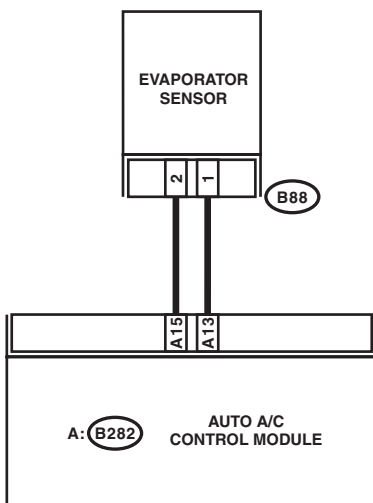
Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: EVAPORATOR SENSOR

WIRING DIAGRAM:

Air conditioning system <Ref. to WI-63, WIRING DIAGRAM, Air Conditioning System.>



AC-01823

Step	Check	Yes	No
1 CHECK EVAPORATOR SENSOR. Perform the inspection of evaporator sensor unit. <Ref. to AC-40, EVAPORATOR SENSOR, INSPECTION, Evaporator.>	Is the evaporator sensor normal?	Go to step 2.	Replace the evaporator sensor. <Ref. to AC-38, REMOVAL, Evaporator.>
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 (+) — Chassis ground (-):	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.

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
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 FOR POOR CONTACT. Check poor contact of auto A/C control module connector.	Is there poor contact of connector?	Repair the connector.	Replace the auto A/C control module. <Ref. to AC-33, REMOVAL, Control Unit (Auto A/C Model).>

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

D: SUNLOAD SENSOR

TROUBLE SYMPTOM:

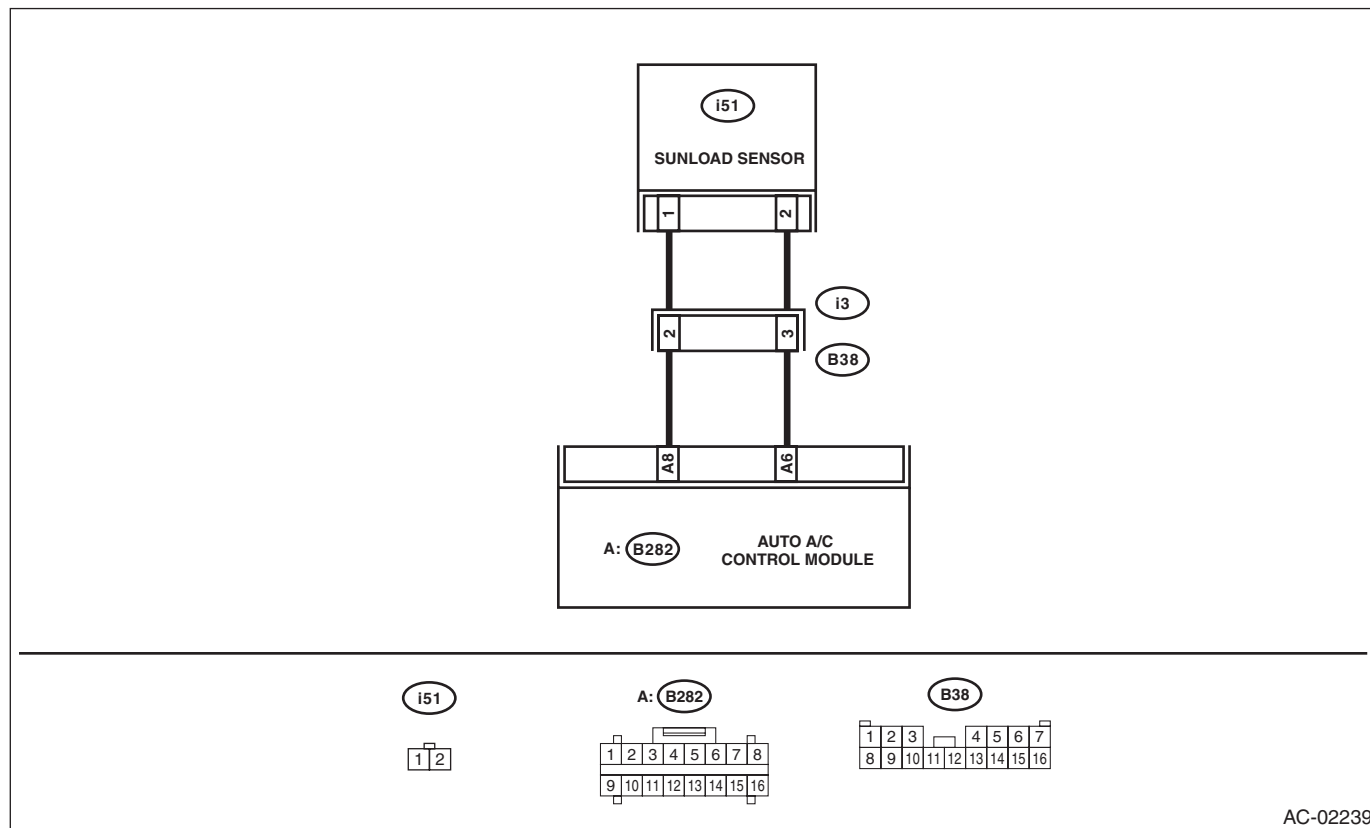
- Sensor identifies that sunlight is at maximum. Then, A/C system is controlled to COOL side.
- Sensor identifies that sunlight is at minimum. Then, A/C system is controlled to HOT side.

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:

Air conditioning system <Ref. to WI-63, WIRING DIAGRAM, Air Conditioning System.>



AC-02239

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.

Diagnostic Procedure for Sensors

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
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. <i>Connector & terminal</i> <i>(i51) No. 1 — (B282) No. 8:</i>	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. <i>Connector & terminal</i> <i>(B282) No. 8 (+) — (B282) No. 6 (-):</i>	Is the voltage approx. 3.0 V?	Go to step 5.	Replace the sunload sensor. <Ref. to AC-50, REMOVAL, Sunload Sensor (Auto A/C Model).>
5 CHECK FOR POOR CONTACT. Check poor contact of auto A/C control module connector.	Is there poor contact of connector?	Repair the connector.	Replace the auto A/C control module. <Ref. to AC-33, REMOVAL, Control Unit (Auto A/C Model).>