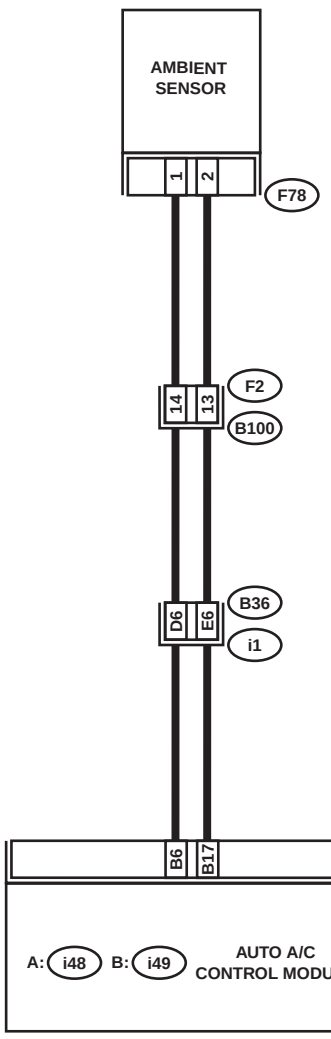
8. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

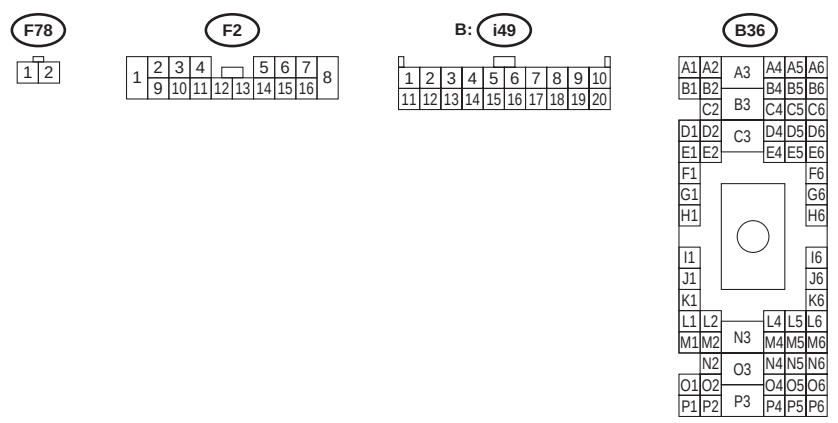
A: DTC 21 OR –21 (AMBIENT SENSOR)

TROUBLE SYMPTOM:

Fan speed, outlets and inlets are not switched when AUTO or ECON switch is ON.

WIRING DIAGRAM:





AC-00322

	Step	Value	Yes	No
1	**CHECK AMBIENT SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ambient sensor. 3) Measure resistance between connector terminals of ambient sensor. ***Terminals:*** ***No. 1 — No. 2*** Is the measured value within the specified range?	Approx. 2.2 kΩ: 25°C (77°F)	Go to step **2.**	Replace ambient sensor.
2	**CHECK INPUT SIGNALS FOR AMBIENT SENSOR.** 1) Turn ignition ON. 2) Measure voltage between ambient sensor harness connector terminals. ***Connector & terminal:*** ***(F78) No. 1 (+) — No. 2 (–):*** Is the measured value within the specified range?	Approx. 4.5 V	Go to step **6.**	Go to step **3.**
3	**CHECK OUTPUT SIGNALS FROM A/C CONTROL MODULE.** 1) Turn ignition switch to OFF. 2) Pull out A/C control panel. 3) Disconnect connector from ambient sensor. 4) Turn ignition switch to ON. 5) Measure voltage between connector terminals of A/C control module. ***Connector & terminal:*** ***(i49) No. 6 (+)— No. 17 (–):*** Is the measured value within the specified range?	Approx. 4.5 V	Go to step **6.**	Go to step **4.**
4	**CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND AMBIENT SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from A/C control module. 3) Measure resistance of harness between A/C control module and ambient sensor. ***Connector & terminal:*** ***(F78) No. 1 — (i49) No. 6*** Is the measured value less than the specified value?	1 Ω	Go to step **5.**	Repair harness between A/C control module and ambient sensor.
5	**CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND AMBIENT SENSOR.** Measure resistance of harness between A/C control module and ambient sensor. ***Connector & terminal:*** ***(F78) No. 2 — (i49) No. 17*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair harness between A/C control module and ambient sensor.
6	**CHECK POOR CONTACT.** Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

B: DTC 22 OR –22 (IN-VEHICLE SENSOR)

TROUBLE SYMPTOM:

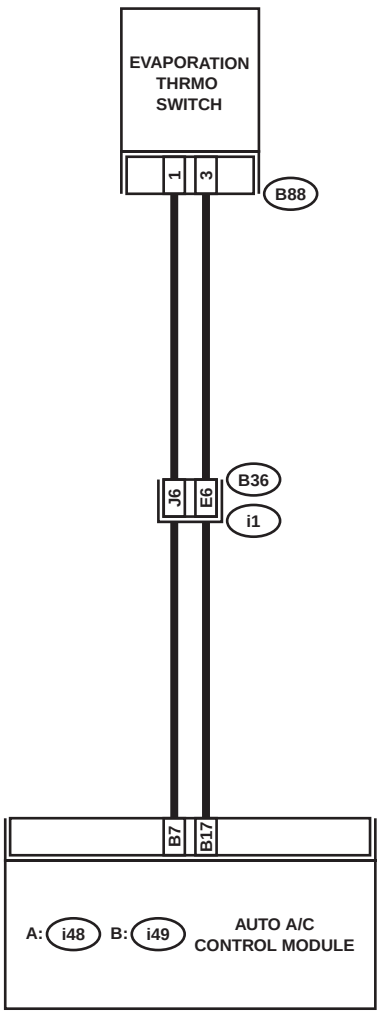
When turning AUTO switch to ON, blower fan speed, outlet port and inlet port is not changed.

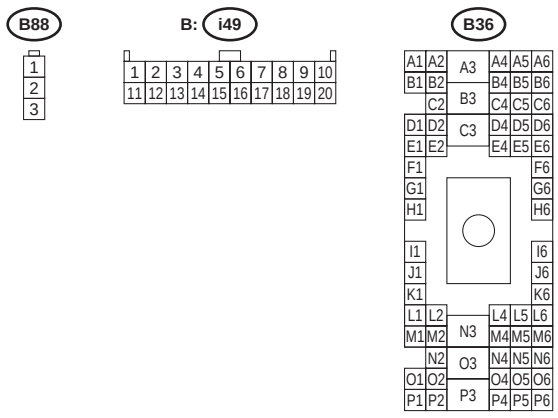
If DTC 22 or –22 appears on the display, replace the A/C control module. The in-vehicle sensor is built into the A/C control module and cannot be replaced as a single unit.

MEMO:

C: DTC 24 OR –24 (EVAPORATOR SENSOR)

WIRING DIAGRAM:





AC-00323

	Step	Value	Yes	No
1	**CHECK EVAPORATOR SENSOR.** 1) Turn ignition switch to OFF. 2) Remove glove box. 3) Disconnect connector from evaporator sensor. 4) Measure resistance between connector terminals of evaporator sensor. ***Terminals:*** ***No. 1 — No. 3*** Is the measured value within the specified range?	Approx. 1.8 to 2.0 kΩ: 20°C (68°F)	Go to step **2.**	Replace evaporator sensor.
2	**CHECK INPUT SIGNALS FOR EVAPORATOR SENSOR.** 1) Turn ignition switch to “ON”. 2) Measure voltage between evaporator sensor harness connector terminal and chassis ground. ***Connector & terminal*** ***(B88) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	Approx. 4.5 V	Go to step **3.**	Replace evaporator sensor.
3	**CHECK OUTPUT SIGNALS FROM A/C CONTROL MODULE.** 1) Turn ignition switch to OFF. 2) Pull out A/C control module. 3) Turn ignition switch to ON. 4) Measure voltage between A/C control module connector terminals. ***Connector & terminal:*** ***(i49) No. 7 (+) — No. 17 (–):*** Is the measured value within the specified range?	Approx. 4.5 V	Go to step **4.**	Go to step **6.**
4	**CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND EVAPORATOR SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from A/C control module. 3) Measure resistance of harness between A/C control module and evaporator sensor. ***Connector & terminal:*** ***(B88) No. 1 — (i49) No. 7*** Is the measured value less than the specified value?	1 Ω	Go to step **5.**	Repair harness between A/C control module and evaporator sensor.
5	**CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND EVAPORATOR SENSOR.** Measure resistance of harness between A/C control module and evaporator sensor. ***Connector & terminal:*** ***(B88) No. 3 — (i49) No. 17*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair harness between A/C control module and evaporator sensor.
6	**CHECK POOR CONTACT.** Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

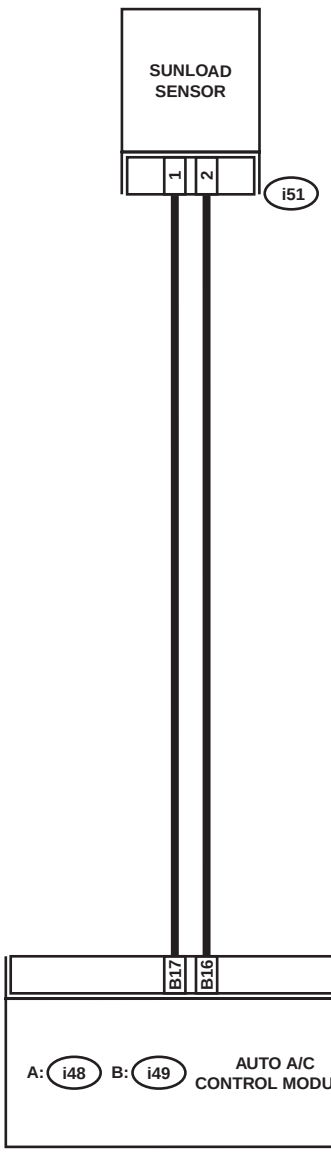
D: DTC 25 OR –25 (SUNLOAD SENSOR)

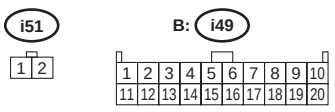
TROUBLE SYMPTOM:

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

NOTE:
When the sunload sensor is checked inside the passenger compartment or in the shade, DTC “25” may appear on the indicator. Always check the sunload sensor in a place where it senses direct sunlight.

WIRING DIAGRAM:





AC-00324

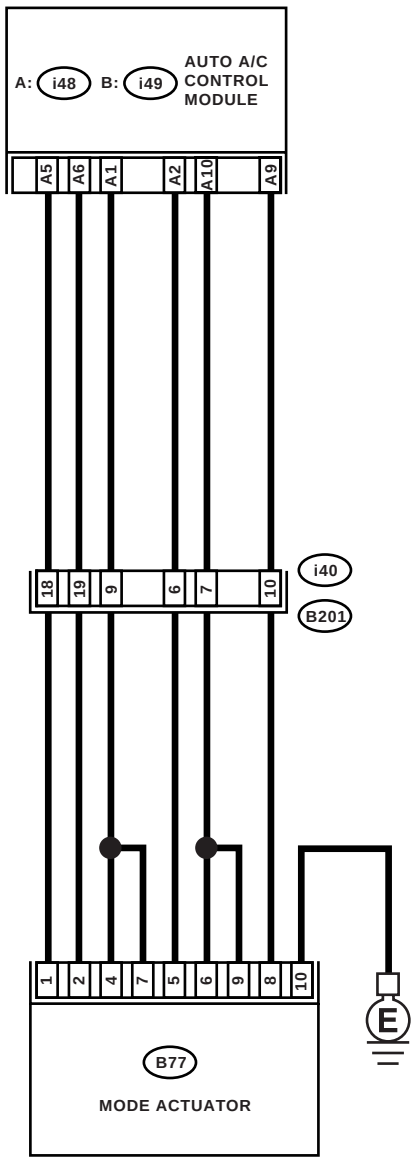
	Step	Value	Yes	No
1	**CHECK INPUT VOLTAGE TO SUNLOAD SENSOR.** 1) Turn ignition switch to OFF. 2) Remove sunload sensor. <Ref. to AC-42, REMOVAL, Sunload Sensor (Auto A/C).> 3) Turn ignition switch to ON. 4) Measure input voltage to sunload sensor. ***Connector & terminal:*** ***(i51) No. 2 (+) — No. 1 (–):*** Is the measured value within the specified range?	Approx. 4.5 V	Go to step **3.**	Go to step **2.**
2	**CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND SUNLOAD SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from A/C control module. 3) Measure resistance of harness between A/C control module and sunload sensor. ***Connector & terminal:*** ***(i51) No. 2 — (i49) No. 16*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair harness between A/C control module and sunload sensor.
3	**CHECK HARNESS CONNECTOR BETWEEN A/C CONTROL MODULE AND SUNLOAD SENSOR.** Measure resistance of harness between A/C control module and sunload sensor. ***Connector & terminal:*** ***(i51) No. 1 — (i49) No. 17*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair harness between A/C control module and sunload sensor.
4	**CHECK VOLTAGE OF INPUT SIGNAL TO A/C CONTROL MODULE.** 1) Connect connectors to A/C control module and sunload sensor. 2) Turn ignition switch to ON. 3) Measure voltage between A/C control module connectors. ***Connector & terminal:*** ***(i49) No. 16 (+) — No. 17 (–):*** Is the measured value within the specified range?	Approx. 2.5 V	Go to step **5.**	Replace sunload sensor.
5	**CHECK POOR CONTACT.** Check poor contact in A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Replace A/C control module.	Repair connector.

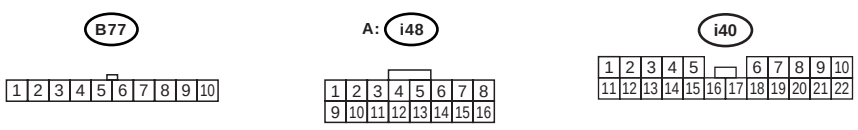
E: DTC 31, 32, 33, 34 OR 35 (MODE DOOR ACTUATOR)

TROUBLE SYMPTOM:

Air flow outlet is not changed.

WIRING DIAGRAM:





AC-00331

	Step	Value	Yes	No
1	**CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE.** 1) Turn the ignition switch to ON. 2) Press the mode switch to VENT position. 3) Press the DEF switch and measure the voltage between auto A/C control module and chassis ground when VENT is changed to DEF position. ***Connector & terminal*** ***(i48) No. 6 (+) — Chassis ground (–):*** Is the measured value more than specified value?	12 V	Go to step **2.**	Replace the auto A/C control module.
2	**CHECK POWER SUPPLY FOR ACTUATOR SIDE.** 1) Press the mode switch to VENT position. 2) Press the DEF switch and measure the voltage between mode door actuator harness connector and chassis ground when VENT is changed to DEF position. ***Connector & terminal*** ***(B77) No. 2 (+) — Chassis ground (–):*** Is the measured value more than specified value?	7 V (At normal temperature)	Go to step **3.**	Repair the harness between auto A/C control module and mode door actuator.
3	**CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE.** 1) Press the DEF switch. 2) Press the mode switch to VENT position and measure the voltage between auto A/C control module and chassis ground when DEF is changed to VENT position. ***Connector & terminal*** ***(i48) No. 5 (+) — Chassis ground (–):*** Is the measured value more than specified value?	12 V	Go to step **4.**	Replace the auto A/C control module.
4	**CHECK POWER SUPPLY FOR ACTUATOR SIDE.** 1) Press the DEF switch. 2) Press the mode switch to VENT position and measure the voltage between mode door actuator harness connector and chassis ground when DEF is changed to VENT position. ***Connector & terminal*** ***(B77) No. 1 (+) — Chassis ground (–):*** Is the measured value more than specified value?	7 V (At normal temperature)	Go to step **5.**	Repair the harness between auto A/C control module and mode door actuator.
5	**CHECK ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Connect the battery positive (+) terminal to terminal No. 1 and ground (–) terminal to terminal No. 2 of mode door actuator to make sure that actuator operates. 4) Connect the battery positive (+) terminal to terminal No. 2 and ground (–) terminal to terminal No. 1 of mode door actuator to make sure that actuator operates. Does the motor operate normally?	The motor operates normally.	Go to step **6.**	Replace the mode door actuator.

	Step	Value	Yes	No
6	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn the ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 2 (+) — Chassis ground (–):*** Is the measured value within specified value?	HEAT, D/H, DEF: 5 V, VENT, BI-LEVEL: 0 V	Go to step **9.**	Go to step **7.**
7	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 5 (+) — Chassis ground (–):*** Is the measured value within specified value?	5 V	Go to step **9.**	Go to step **8.**
8	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 2 — (B77) No. 5:*** Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
9	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn ignition switch to ON. 2) Press the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 10 (+) — Chassis ground (–):*** Is the measured value within specified value?	VENT, D/H: 5 V, BI-LEVEL, HEAT, DEF: 0 V	Go to step **12.**	Go to step **10.**

	Step	Value	Yes	No
10	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 6, 9 (+) — Chassis ground (–):*** Is the measured value within specified value?	5 V	Go to step **12.**	Go to step **11.**
11	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 10 — (B77) No. 6, 9:*** Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
12	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 1 (+) — Chassis ground (–):*** Is the measured value within specified value?	BI-LEVEL, DEF: 5 V, VENT, HEAT, D/H: 0 V	Go to step **15.**	Go to step **13.**
13	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 4, 7 (+) — Chassis ground (–):*** Is the measured value within specified value?	5 V	Go to step **15.**	Go to step **14.**

	Step	Value	Yes	No
14	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 1 — (B77) No. 4, 7:*** Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.
15	**CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.** 1) Turn ignition switch to ON. 2) Press the mode switch and measure voltage between auto A/C control module harness connector and chassis ground for each mode. ***Connector & terminal*** ***(i48) No. 9 (+) — Chassis ground (–):*** Is the measured value within specified value?	VENT, BI-LEVEL, HEAT: 5V, D/H, DEF: 0 V	Go to step **19.**	Go to step **16.**
16	**CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Turn the ignition switch to ON. 4) Measure the voltage between mode door actuator harness connector and chassis ground. ***Connector & terminal*** ***(B77) No. 8 (+) — Chassis ground (–):*** Is the measured value within specified value?	5 V	Go to step **18.**	Go to step **17.**
17	**CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from auto A/C control module and mode door actuator. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. ***Connector & terminal*** ***(i48) No. 9 — (B77) No. 8:*** Is the measured value less than specified value?	1 Ω	Replace the auto A/C control module.	Repair the harness between auto A/C control module and mode door actuator.

	Step	Value	Yes	No
18	**CHECK ACTUATOR GROUND CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mode door actuator. 3) Measure the resistance of harness between mode door actuator and chassis ground. ***Connector & terminal*** ***(B77) No. 10 — Chassis ground:*** Is the measured value less than specified value?	1 Ω	Replace the mode door actuator.	Repair the harness between auto A/C control module and mode door actuator.
19	**CHECK POOR CONTACT.** Check poor contact in auto A/C control module connector. Is there poor contact in connector?	There is no poor contact.	Repair the poor contact in auto A/C control module.	Repair the connector.