

DIAGNOSTIC PROCEDURE FOR ACTUATORS

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

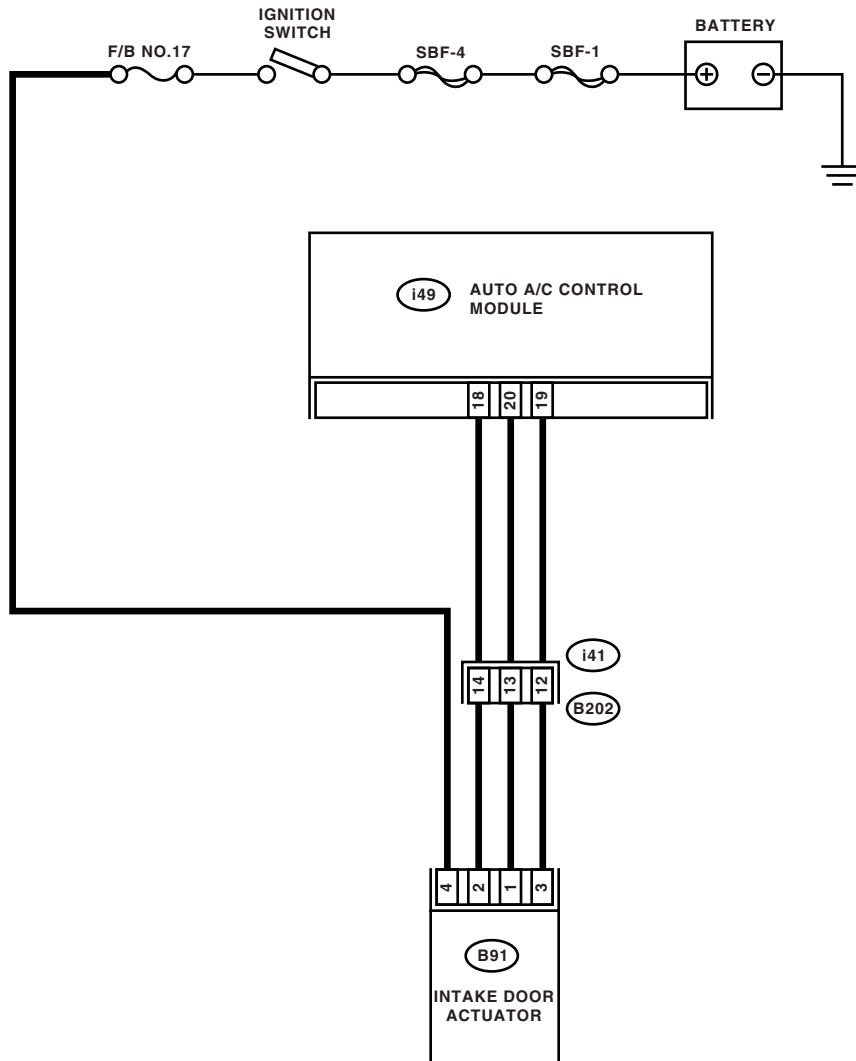
7. Diagnostic Procedure for Actuators

A: INTAKE DOOR ACTUATOR

TROUBLE SYMPTOM:

FRESH/RECIRC mode is not changed.

WIRING DIAGRAM:



(B91)

1	2	3	4
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(149) (GRAY)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

(B202)

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

AC-00800

DIAGNOSTIC PROCEDURE FOR ACTUATORS

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK POWER SUPPLY TO INTAKE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the intake door actuator connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between intake door actuator connector and chassis ground. Connector & terminal (B91) No. 4 (+) — Chassis ground (-):	Is the voltage more than 7 V (At normal temperature)?	Go to step 2.	Check the harness for open or short between intake door actuator and fuse.
2 CHECK HARNESS BETWEEN A/C CONTROL MODULE AND INTAKE DOOR ACTUATOR. 1) Turn the ignition switch to OFF. 2) Disconnect the auto A/C control module connector. 3) Measure the resistance between intake door actuator connector and auto A/C control module connector. Connector & terminal (i49) No. 18 — (B91) No. 2: (i49) No. 20 — (B91) No. 1: (i49) No. 19 — (B91) No. 3:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit in harness between auto A/C control module and intake door actuator.
3 CHECK INTAKE DOOR ACTUATOR OPERATION. 1) Connect the intake door actuator connector. 2) Ground the auto A/C control module connector with a suitable wire. 3) Turn the ignition switch to ON and check movement of intake door actuator. Connector & terminal (i49) No. 20 — Chassis ground:	Is the intake door actuator moved to FRESH?	Go to step 4.	Replace the intake door actuator.
4 CHECK INTAKE DOOR ACTUATOR OPERATION. 1) Turn the ignition switch to OFF. 2) Ground the auto A/C control module connector with a suitable wire. 3) Turn the ignition switch to ON and check movement of intake door actuator. Connector & terminal (i49) No. 18 — Chassis ground:	Is the intake door actuator moved to RECIRC?	Replace the auto A/C control module.	Replace the intake door actuator.

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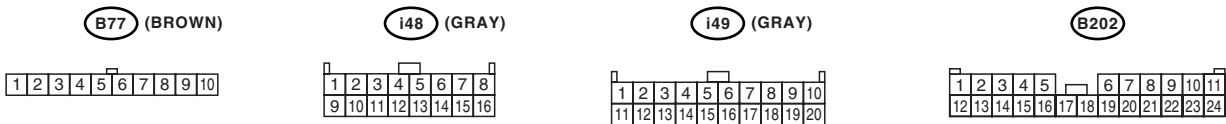
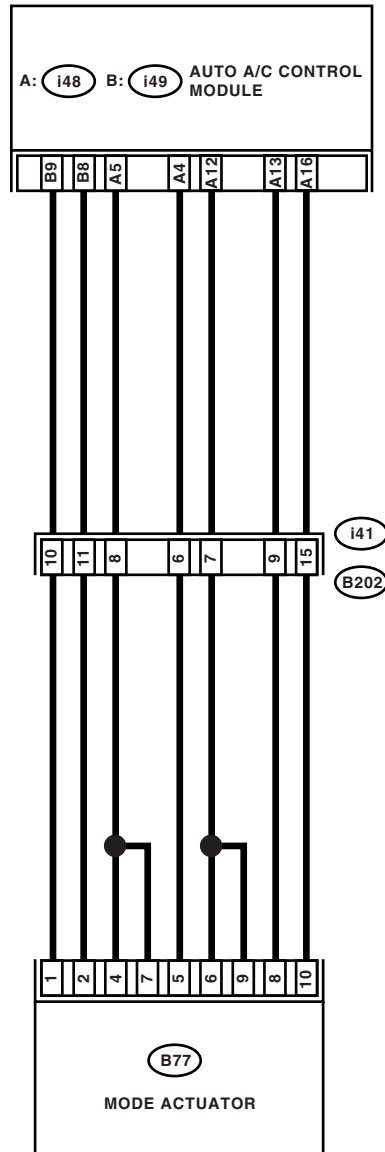
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

B: MODE DOOR ACTUATOR

TROUBLE SYMPTOM:

Air flow outlet is not changed.

WIRING DIAGRAM:



AC-00801

DIAGNOSTIC PROCEDURE FOR ACTUATORS

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK POWER SUPPLY FOR AUTO A/C CONTROL MODULE SIDE. 1) Turn the ignition switch to ON. 2) Turn the mode control dial 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 (i49) No. 9 (+) — Chassis ground (-):	Is the voltage more than 12 V?	Go to step 2.	Replace the auto A/C control module.
2 CHECK POWER SUPPLY FOR ACTUATOR SIDE. 1) Turn the mode control dial to VENT position. 2) Press the DEF switch and measure the voltage between mode door actuator harness connector terminal and chassis ground when VENT is changed to DEF position. Connector & terminal (B77) No. 1 (+) — Chassis ground (-):	Is the voltage more than 7 V (At normal temperature)?	Go to step 3.	Repair the open circuit in 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) Turn the mode control dial 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 (i49) No. 8 (+) — Chassis ground (-):	Is the voltage more than 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) Turn the mode control dial to VENT position and measure the voltage between mode door actuator harness connector terminal and chassis ground when DEF is changed to VENT position. Connector & terminal (B77) No. 2 (+) — Chassis ground (-):	Is the voltage more than 7 V (At normal temperature)?	Go to step 5.	Repair the open circuit in 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?	Go to step 6.	Replace the mode door actuator.

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HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
<p>6 CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.</p> <p>1) Turn the ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector terminal and chassis ground for each mode.</p> <p>Connector & terminal (i48) No. 4 (+) — Chassis ground (-):</p>	<p>Is the voltage the value shown in the followings? HEAT, D/H, DEF: Approx. 5 V, VENT, BI-LEVEL: Approx. 0 V</p>	Go to step 9.	Go to step 7.
<p>7 CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.</p> <p>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 terminal and chassis ground.</p> <p>Connector & terminal (B77) No. 5 (+) — Chassis ground (-):</p>	<p>Is the voltage approx. 5 V?</p>	Go to step 9.	Go to step 8.
<p>8 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND MODE DOOR ACTUATOR.</p> <p>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.</p> <p>Connector & terminal (i48) No. 4 — (B77) No. 5:</p>	<p>Is the resistance less than 1 Ω?</p>	Replace the auto A/C control module.	Repair the open circuit in harness between auto A/C control module and mode door actuator.
<p>9 CHECK AUTO A/C CONTROL MODULE SIGNAL VOLTAGE.</p> <p>1) Turn ignition switch to ON. 2) Turn the mode control dial and measure voltage between auto A/C control module harness connector terminal and chassis ground for each mode.</p> <p>Connector & terminal (i48) No. 12 (+) — Chassis ground (-):</p>	<p>Is the voltage the value shown in the followings? VENT, D/H: Approx. 5 V, BI-LEVEL, HEAT, DEF: Approx. 0 V</p>	Go to step 12.	Go to step 10.
<p>10 CHECK AUTO A/C CONTROL MODULE SIGNAL POWER SUPPLY.</p> <p>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 terminal and chassis ground.</p> <p>Connector & terminal (B77) No. 6 (+) — Chassis ground (-): (B77) No. 9 (+) — Chassis ground (-):</p>	<p>Is the voltage approx. 5 V?</p>	Go to step 12.	Go to step 11.

DIAGNOSTIC PROCEDURE FOR ACTUATORS

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
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. <i>Connector & terminal</i> <i>(i48) No. 12 — (B77) No. 6:</i> <i>(i48) No. 12 — (B77) No. 9:</i>	Is the resistance less than 1 Ω ?	Replace the auto A/C control module.	Repair the open circuit in 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. <i>Connector & terminal</i> <i>(i48) No. 5 (+) — Chassis ground (-):</i>	Is the voltage the value shown in the followings? BI-LEVEL, DEF: Approx. 5 V, VENT, HEAT, D/H: Approx. 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 terminal and chassis ground. <i>Connector & terminal</i> <i>(B77) No. 4 (+) — Chassis ground (-):</i> <i>(B77) No. 7 (+) — Chassis ground (-):</i>	Is the voltage approx. 5 V?	Go to step 15.	Go to step 14.
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. <i>Connector & terminal</i> <i>(i48) No. 5 — (B77) No. 4:</i> <i>(i48) No. 5 — (B77) No. 7:</i>	Is the resistance less than 1 Ω ?	Replace the auto A/C control module.	Repair the open circuit in 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) Turn the mode control dial and measure voltage between auto A/C control module harness connector terminal and chassis ground for each mode. <i>Connector & terminal</i> <i>(i48) No. 13 (+) — Chassis ground (-):</i>	Is the voltage the value shown in the followings? VENT, BI-LEVEL, HEAT: Approx. 5V D/H, DEF: Approx. 0 V	Go to step 19.	Go to step 16.

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HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
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. <i>Connector & terminal (B77) No. 8 (+) — Chassis ground (-):</i>	Is the voltage approx. 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. <i>Connector & terminal (i48) No. 13 — (B77) No. 8:</i>	Is the resistance less than 1 Ω ?	Replace the auto A/C control module.	Repair the open circuit in harness between auto A/C control module and mode door actuator.
18 CHECK ACTUATOR GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from auto A/C control module. 3) Measure the resistance of harness between auto A/C control module and mode door actuator. <i>Connector & terminal (i48) No. 16 — (B77) No. 10:</i>	Is the resistance less than 1 Ω ?	Replace the mode door actuator.	Repair the open circuit in 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?	Repair the connector.	Repair the poor contact in auto A/C control module.

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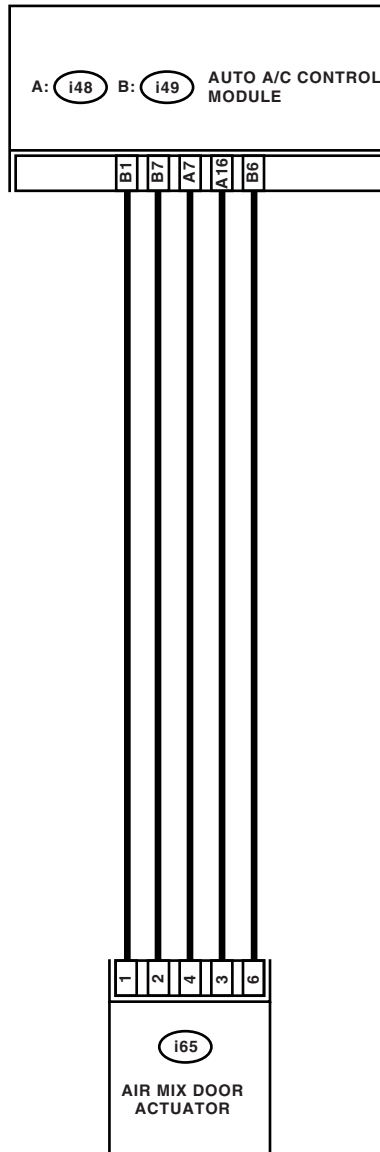
HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

C: AIR MIX DOOR ACTUATOR

TROUBLE SYMPTOM:

Outlet air temperature is not changed.

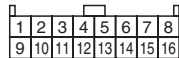
WIRING DIAGRAM:



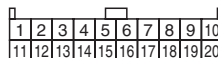
i65



A: i48 (GRAY)



B: i49 (GRAY)



AC-00802

DIAGNOSTIC PROCEDURE FOR ACTUATORS

HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK POWER SUPPLY TO AIR MIX DOOR ACTUATOR PBR. 1) Turn the ignition switch to OFF. 2) Disconnect the air mix door actuator connector. 3) Turn the ignition switch and AUTO switch to ON. 4) Measure the voltage between A/C control module connector terminals. <i>Connector & terminal (i48) No. 7 (+) — (i48) No. 16 (-):</i>	Is the voltage approx. 5 V?	Go to step 2.	Replace the auto A/C control module.
2 CHECK POWER SUPPLY TO AIR MIX DOOR ACTUATOR. Measure the voltage between auto A/C control module connector terminal and chassis ground when setting temperature control dial to FULL COOL. <i>Connector & terminal (i49) No. 6 (+) — Chassis ground (-):</i>	Is the voltage more than 7 V (At normal temperature)?	Go to step 3.	Replace the auto A/C control module.
3 CHECK POWER SUPPLY TO AIR MIX DOOR ACTUATOR. Measure the voltage between auto A/C control module connector terminal and chassis ground when setting temperature control dial to FULL HOT. <i>Connector & terminal (i49) No. 7 (+) — Chassis ground (-):</i>	Is the voltage more than 7 V (At normal temperature)?	Go to step 4.	Replace the auto A/C control module.
4 CHECK HARNESS BETWEEN AUTO A/C CONTROL MODULE AND AIR MIX DOOR ACTUATOR. 1) Turn the A/C and ignition switch to OFF. 2) Disconnect the auto A/C control module connector. 3) Measure the resistance between auto A/C control module and air mix door actuator connector. <i>Connector & terminal (i65) No. 1 — (i49) No. 1: (i65) No. 2 — (i49) No. 7: (i65) No. 3 — (i48) No. 16: (i65) No. 4 — (i48) No. 7: (i65) No. 6 — (i49) No. 6:</i>	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit in harness between auto A/C control module and air mix door actuator.
5 CHECK AIR MIX DOOR ACTUATOR PBR SIGNAL. 1) Connect the auto A/C control module and air mix door actuator connector. 2) Turn the ignition switch and AUTO switch to ON. 3) Change the set temperature between FULL COOL and FULL HOT, check voltage between auto A/C control module connector terminals. <i>Connector & terminal (i49) No. 1 (+) — (i48) No. 16 (-):</i>	Is the voltage 0.5 V (FULL COOL) — 4.5 V (FULL HOT)?	Go to step 6.	Replace the air mix door actuator.
6 CHECK POOR CONTACT. Check poor contact in the auto A/C control module connector.	Is there poor contact in the connector?	Repair the connector.	Replace the auto A/C control module.