

SECTION HAC

HEATER & AIR CONDITIONING CONTROL SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

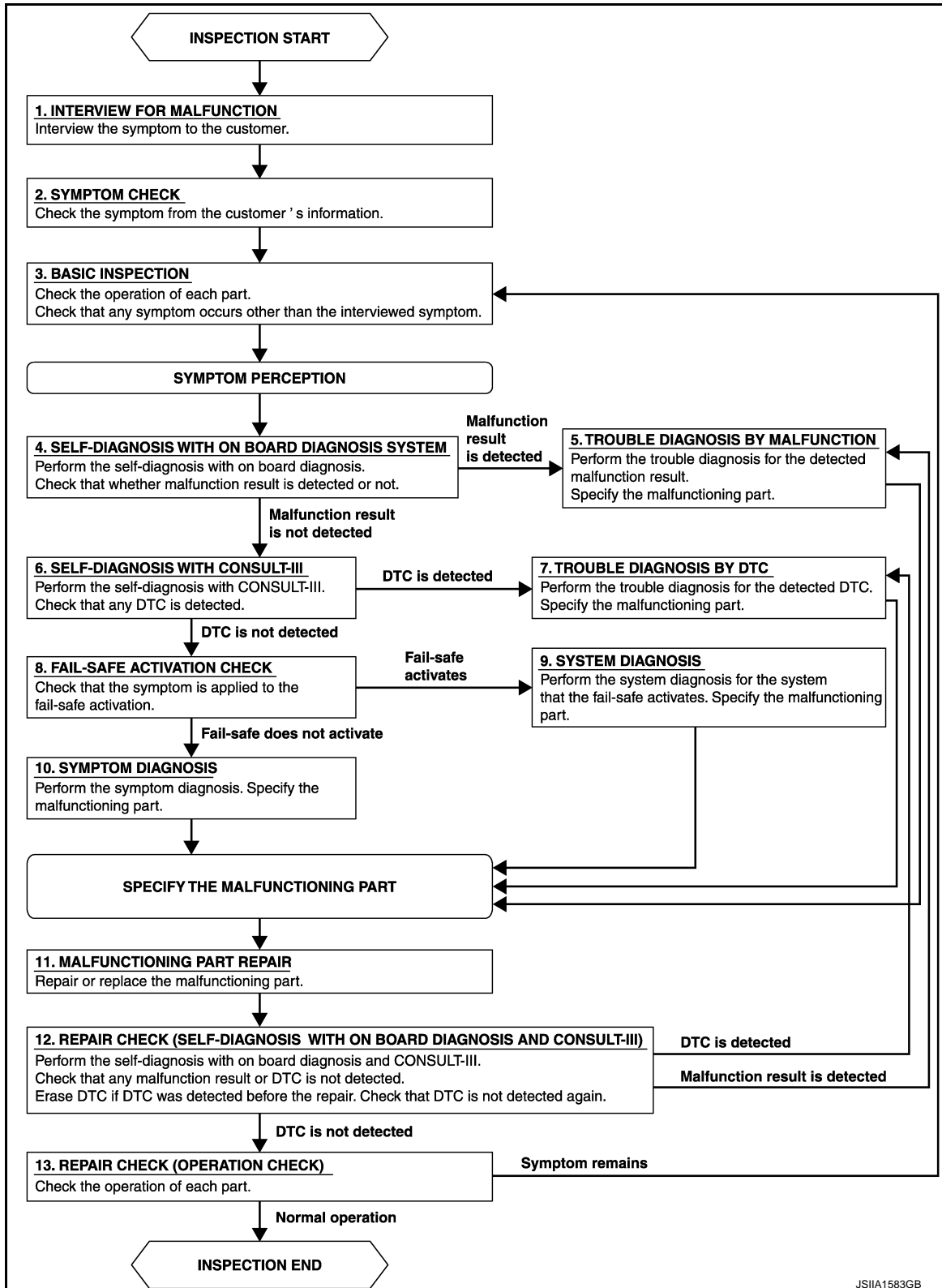
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000004931097

OVERALL SEQUENCE



JSIIA1583GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

[AUTOMATIC AIR CONDITIONER]

< BASIC INSPECTION >

1. INTERVIEW FOR MALFUNCTION

Interview the symptom to the customer.

>> GO TO 2.

2. SYMPTOM CHECK

Check the symptom from the customer's information.

>> GO TO 3.

3. BASIC INSPECTION

Check the operation of each part. Check that any symptom occurs other than the interviewed symptom.

>> GO TO 4.

4. SELF-DIAGNOSIS WITH ON BOARD DIAGNOSIS SYSTEM

Perform the self-diagnosis with on board diagnosis. Check that whether malfunction result is detected or not.

Is malfunction result detected?

YES >> GO TO 5.

NO >> GO TO 6.

5. TROUBLE DIAGNOSIS BY MALFUNCTION

Perform the trouble diagnosis for the detected malfunction result. Specify the malfunctioning part.

>> GO TO 11.

6. SELF-DIAGNOSIS WITH CONSULT-III

Perform the self-diagnosis with CONSULT-III. Check that any DTC is detected.

Is any DTC detected?

YES >> GO TO 7.

NO >> GO TO 8.

7. TROUBLE DIAGNOSIS BY DTC

Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.

>> GO TO 11.

8. FAIL-SAFE ACTIVATION CHECK

Check that the symptom is applied to the fail-safe activation.

Does the fail-safe activate?

YES >> GO TO 9.

NO >> GO TO 10.

9. SYSTEM DIAGNOSIS

Perform the system diagnosis for the system that the fail-safe activates. Specify the malfunctioning part.

>> GO TO 11.

10. SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 11.

11. MALFUNCTION PART REPAIR

Repair or replace the malfunctioning part.

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

>> GO TO 12.

12. REPAIR CHECK (SELF-DIAGNOSIS WITH ON BOARD DIAGNOSIS AND CONSULT-III)

Perform the self-diagnoses with on board diagnosis and CONSULT-III. Check that any malfunction result or DTC is not detected. Erase DTC if DTC was detected before the repair. Check that DTC is not detected again.

Are any malfunction result and DTC detected?

YES-1 >> If any malfunction results are detected. GO TO 5.

YES-2 >> If any DTCs are detected. GO TO 7.

NO >> GO TO 13.

13. REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

YES >> INSPECTION END

NO >> GO TO 3.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

INSPECTION AND ADJUSTMENT

Description & Inspection

INFOID:000000004787869

DESCRIPTION

The purpose of the operational check is to check that the individual system operates normally.

Conditions : Engine running at normal operating temperature

INSPECTION PROCEDURE

1.CHECK MEMORY FUNCTION

1. Turn the ignition switch ON.
2. Turn temperature control dial (driver side) clockwise until 32°C (90°F) is displayed.
3. Press the OFF switch.
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON.
6. Press the AUTO switch.
7. Check that the temperature setting before turning the ignition switch OFF is stored.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Memory function malfunction: [HAC-126, "Inspection procedure"](#).

2.CHECK THE BLOWER MOTOR SPEED

1. Start the engine.
2. Press fan (UP:+) switch. Check that the fan speed changes. Check the operation for all fan speeds.
3. Set the fan speed to max speed.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Blower motor system malfunction: [HAC-59, "Diagnosis Procedure"](#).

3.CHECK DISCHARGE AIR

1. Press the MODE switch and the DEF switch.
2. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to [VTL-5, "System Description"](#).

Is the inspection result normal?

YES-1 >> GO TO 4. (WITHOUT ACCS)

YES-2 >> GO TO 5. (WITH ACCS)

NO >> Mode door system malfunction: [HAC-51, "Diagnosis Procedure"](#).

4.CHECK INTAKE AIR (WITHOUT ACCS)

1. Press intake switch. REC indicator turns ON.
2. Press intake switch again. FRE indicator turns ON.
3. Listen for intake door position change. (Slight change of blower sound can be heard.)

NOTE:

Confirm that the compressor clutch is engaged (sound or visual inspection) and the intake door position is at FRE when D/F or DEF is selected.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Intake door system malfunction: [HAC-57, "Diagnosis Procedure"](#).

5.CHECK INTAKE AIR (WITH ACCS)

1. Press AUTO switch. AUTO INTAKE indicator and REC indicator turns ON (auto intake mode).
2. Press intake switch. AUTO INTAKE indicator and REC indicator turns OFF (fixed FRE mode).
3. Press intake switch again. REC indicator turns ON (fixed REC mode).
4. Press intake switch again. AUTO INTAKE indicator and REC indicator turns ON (auto intake mode).
5. Listen for intake door position change. (Slight change of blower sound can be heard.)

NOTE:

INSPECTION AND ADJUSTMENT

[AUTOMATIC AIR CONDITIONER]

< BASIC INSPECTION >

Confirm that the compressor clutch is engaged (sound or visual inspection) and the intake door position is at FRE when D/F or DEF is selected.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Intake door system malfunction: [HAC-57. "Diagnosis Procedure"](#).

6. CHECK A/C SWITCH

1. Press the A/C switch.
2. A/C switch indicator turns ON.
Confirm that the compressor clutch engages (sound or visual inspection).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Magnet clutch system malfunction: [HAC-59. "Diagnosis Procedure"](#).

7. CHECK WITH TEMPERATURE SETTING LOWERED

1. Turn temperature control dial (driver side) counterclockwise until 18°C (60°F) is displayed.
2. Check that the cool air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Insufficient cooling: [HAC-119. "Inspection procedure"](#).

8. CHECK WITH TEMPERATURE SETTING RAISED

1. Turn temperature control dial (driver side) clockwise until 32°C (90°F) is displayed.
2. Check that the warm air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Insufficient heating: [HAC-121. "Inspection procedure"](#).

9. CHECK LEFT AND RIGHT VENTILATION TEMPERATURE SEPARATELY CONTROL SYSTEM FUNCTION

1. Press the DUAL switch, and then check that "DUAL" is shown on the display.
2. Operate temperature control dial (driver side). Check that the discharge air temperature (driver side) changes.
3. Operate the temperature control dial (passenger side). Check that the discharge air temperature (passenger side) changes.
4. Press the DUAL switch, and then check that the temperature setting (LH/RH) is unified to the driver side temperature setting.

Is the inspection result normal?

YES >> GO TO 10.

NO >> Refer to [HAC-118. "Diagnosis Chart By Symptom"](#) and perform the appropriate diagnosis.

10. CHECK AUTO MODE

1. Press the AUTO switch, and then check that "AUTO" is shown on the display.
2. Check that the discharge air and blower speed depend on ambient temperature, in-vehicle temperature and temperature setting.

Is the inspection result normal?

YES-1 >> INSPECTION END (WITHOUT ACCS)

YES-2 >> GO TO 11. (WITH ACCS)

NO >> Refer to [HAC-118. "Diagnosis Chart By Symptom"](#) and perform the appropriate diagnosis.

11. CHECK PLASMA CLUSTER ION CONTROL FUNCTION (WITH ACCS)

1. Turn ignition switch OFF and restart the engine.
2. Ion indicator (blue) is shown on the display.
3. Press OFF switch.
4. Ion indicator is turned OFF.

Is the inspection result normal?

YES >> GO TO 12.

NO >> Refer to [HAC-127. "Inspection procedure"](#).

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

12. CHECK ION CONTROL MODE (WITH ACCS)

1. Turn ignition switch OFF and restart the engine.
2. Press AUTO switch. AUTO INTAKE indicator turns ON (auto intake mode).
3. Ion indicator (blue) is shown on the display.
4. Ion indicator (blue) changes to ion indicator (green) after approximately 30 minutes.
5. Ion indicator (green) changes to ion indicator (blue) after approximately 15 minutes.
6. Press intake switch. AUTO INTAKE indicator and REC indicator turns OFF (fixed FRE mode).
7. Ion indicator (green) changes to ion indicator (blue) after approximately 15 minutes.
8. Ion indicator (blue) changes to ion indicator (green) after approximately 15 minutes.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace unified meter and A/C amp.

Temperature Setting Trimmer

INFOID:000000004787870

DESCRIPTION

The trimmer compensates for differences in range of $\pm 3^{\circ}\text{C}$ ($\pm 6^{\circ}\text{F}$) between temperature setting (displayed digitally) and temperature felt by customer.

Operating procedures for this trimmer are as per the following:

1. Begin self-diagnosis STEP-5 mode. Refer to [HAC-44, "Diagnosis Description"](#).
2. Press fan (UP: +) switch to set system in auxiliary mode.
3. Display shows "61" in auxiliary mechanism. It takes approximately 3 seconds to enable setting operation.
4. Turn temperature control dial (driver side) as desired. Temperature will change at a rate of 0.5°C (1.0°F) each time a dial is turned.

CAUTION:

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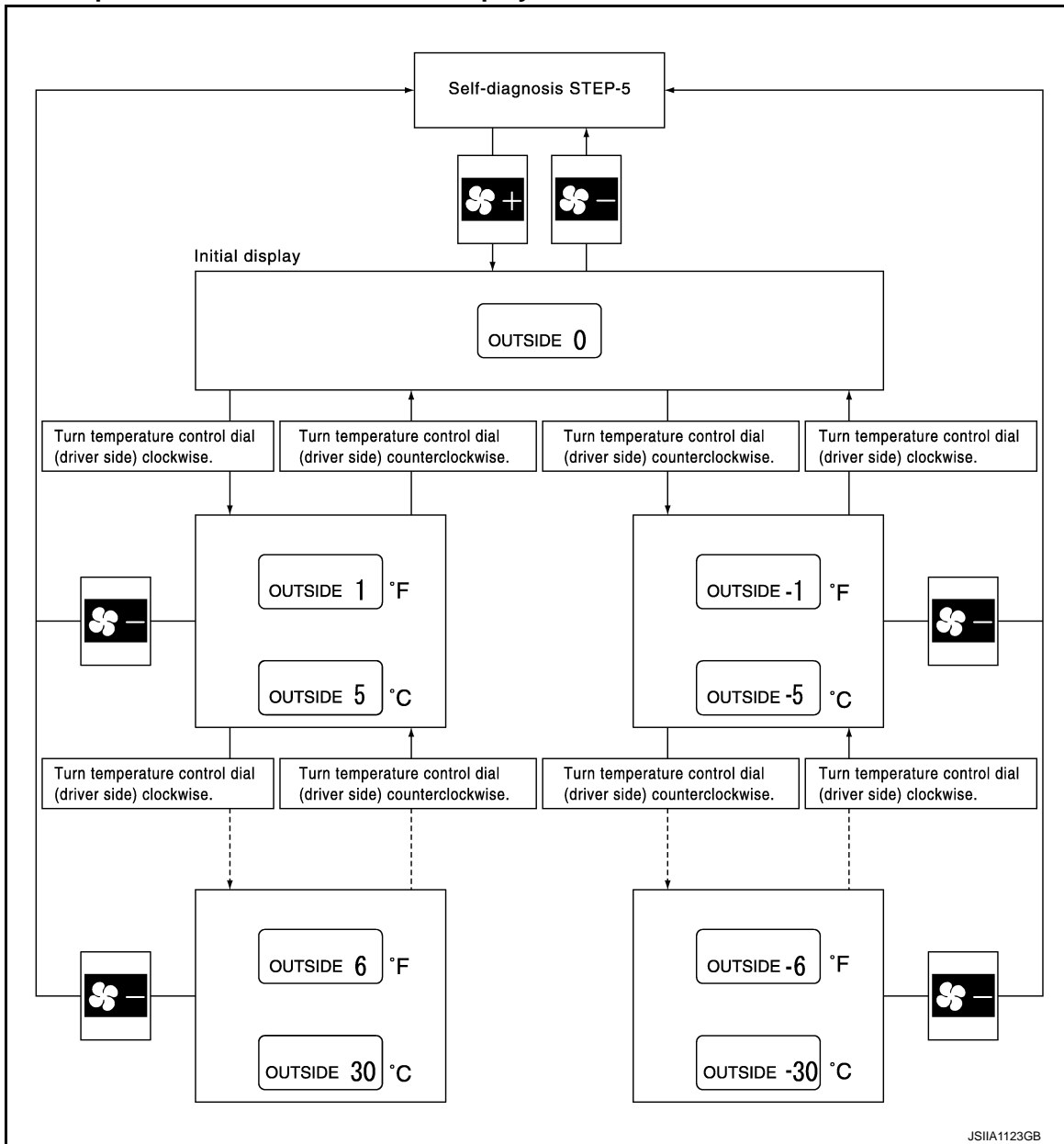
HAC

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

A decimal point is not indicated on the display.



NOTE:

When battery cable is disconnected or battery voltage is below 10 V, trimmer operation is canceled. Temperature set becomes that of initial condition, i.e. 0°C (0°F).

Foot Position Setting Trimmer

INFOID:000000004787871

DESCRIPTION

Wind distribution ratio in FOOT mode can be set.





Operating procedures for this trimmer are as per the following:

1. Begin self-diagnosis STEP-5 mode. Refer to [HAC-44, "Diagnosis Description"](#).
2. Press fan (UP:+) switch to set system in auxiliary mode.
3. Press mode switch as desired.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

| Display | Defroster door position | |
|--|--------------------------------------|---------------------------------|
| | Automatically controls the FOOT mode | Manually controls the FOOT mode |
|  (Initial setting) | OPEN | OPEN |
|  | OPEN | CLOSE |
|  | CLOSE | OPEN |
|  | CLOSE | CLOSE |

NOTE:

When battery cable is disconnected or battery voltage is below 10 V, trimmer operation is canceled. Wind distribution ratio set becomes that of initial condition.

Inlet Port Memory Function

INFOID:000000004787872

DESCRIPTION

When ignition switch is turned from OFF to ON, inlet port can be set to AUTO or manual.

Operating procedures for this trimmer are as per the following:

1. Begin self-diagnosis STEP-5 mode. Refer to [HAC-44. "Diagnosis Description"](#).
2. Press fan (UP:+) switch to set system in auxiliary mode.
3. Press intake switch as desired.

| AUTO INTAKE indicator | REC indicator | Setting status | | Setting changeover method |
|-----------------------|---------------|---------------------------------|---|---------------------------|
| | | FRE | REC | |
| OFF | ON | AUTO control (Initial setting) | Manual REC status is memorized. (Initial setting) | Intake switch: ON |
| ON | ON | Manual FRE status is memorized. | Manual REC status is memorized. | |
| ON | OFF | Manual FRE status is memorized. | AUTO control | |
| OFF | OFF | AUTO control | AUTO control | |

NOTE:

When battery cable is disconnected or battery voltage is below 10 V, memory function is canceled. Memory function set becomes that of initial condition.

WITH ACCS

WITH ACCS : Gas Sensor Sensitivity Adjustment Function

INFOID:000000004787873

DESCRIPTION

According to customer's sense of smell, gas sensor sensitivity can be changed.

Operating procedures for this trimmer are as follows:

1. Begin self-diagnosis STEP-5 mode. Refer to [HAC-44. "Diagnosis Description"](#).
2. Press fan (UP: +) switch two times to set system in auxiliary mode.
3. Turn temperature control dial (driver side) as desired.

| Display | Setting |
|---------|---|
| 71 | Less sensitive setting than display 72 setting (the change to REC is later than display 72 operation) |
| 72 | Less sensitive setting than normal setting (the change to REC is later than normal operation) |
| 73 | Normal (Initial setting) |
| 74 | More sensitive setting than normal setting (the change to REC is earlier than normal operation) |
| 75 | More sensitive setting than display 74 setting (the change to REC is earlier than display 74 operation) |

NOTE:

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONER]

When battery cable is disconnected or battery voltage is below 10 V, Gas sensor sensitivity adjustment function is canceled. Gas sensor sensitivity adjustment function set becomes that of initial condition.

WITH ACCS : Auto Intake Interlocking Movement Change Function

INFOID:000000004787874

DESCRIPTION

Conditions for interlocking movement of intake switch (auto intake mode) and A/C switch can be changed. In addition, operation of the intake switch, which activates the auto intake control system, can be set to become available when the A/C switch is ON.

Operating procedures for this trimmer are as follows:

1. Begin self-diagnosis STEP-5 mode. Refer to [HAC-44. "Diagnosis Description"](#).
2. Press fan (UP:+) switch three times to set system in auxiliary mode.
3. Press A/C switch and intake switch as desired.

| A/C indicator | AUTO IN-TAKE indicator | Setting status |
|---------------|------------------------|--|
| ON | ON | A/C switch indicator turns ON automatically when auto intake mode is selected with Intake switch. Auto intake mode continues after A/C switch turns OFF. |
| OFF | ON | A/C switch indicator stays OFF when auto intake mode is selected with Intake switch. Auto intake mode continues after A/C switch turns OFF. |
| ON | OFF | A/C switch indicator turns ON automatically when auto intake mode is selected with Intake switch. When A/C switch turns OFF, auto intake mode turns OFF automatically. (Initial setting) |
| OFF | OFF | Auto intake mode can be set only when A/C switch is ON. When A/C switch turns OFF, auto intake mode turns OFF automatically. |

NOTE:

When battery cable is disconnected or battery voltage is below 10 V, auto intake interlocking movement change function is canceled. Auto intake interlocking movement change function set becomes that of initial condition.

COMPRESSOR CONTROL FUNCTION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

SYSTEM DESCRIPTION

COMPRESSOR CONTROL FUNCTION

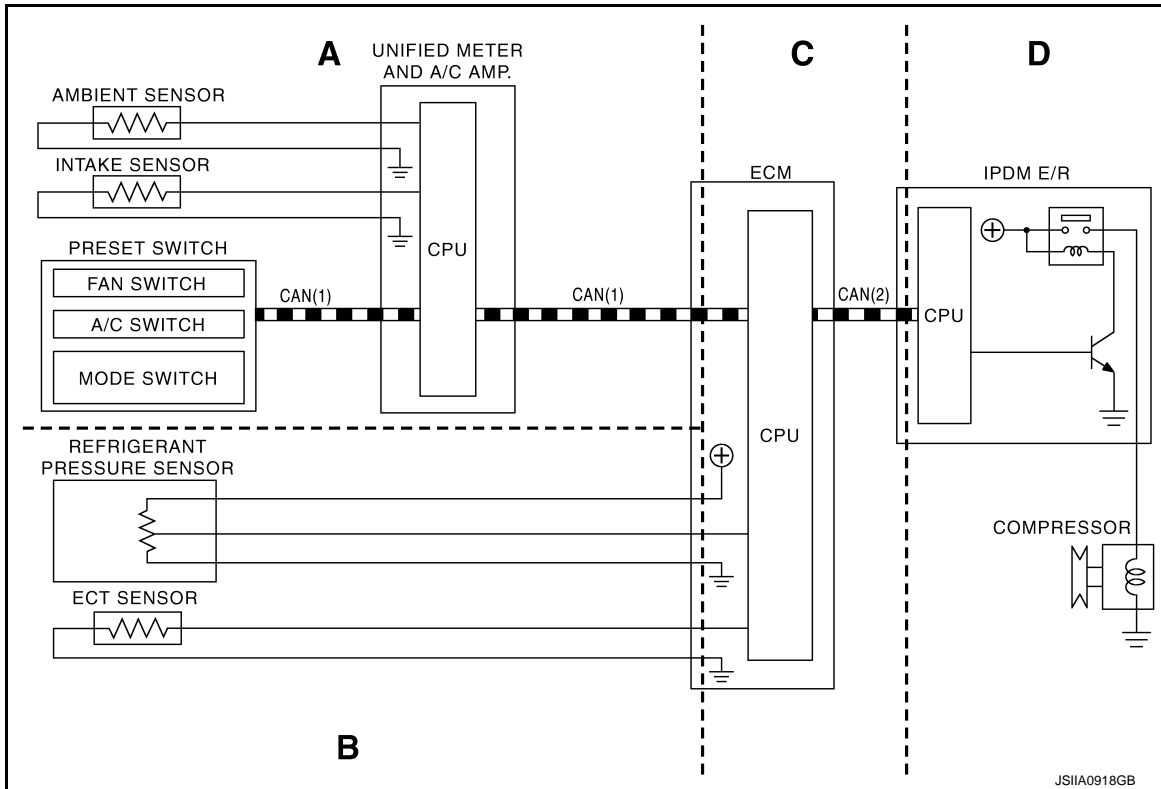
Description

INFOID:000000004787875

PRINCIPLE OF OPERATION

Compressor is not activated.

Functional circuit diagram



CAN(1) : A/C switch signal
: Blower fan motor switch signal

CAN(2) : A/C compressor request signal

Functional initial inspection chart

| Control unit | Diagnosis Item | Location | | | |
|----------------------------|---|----------|---|---|---|
| | | A | B | C | D |
| Unified meter and A/C amp. | Self-diagnosis function | × | — | — | — |
| ECM | ⊕“ENGINE” Self-diagnosis (CAN system diagnosis) | — | — | × | — |
| | Data monitor | × | × | × | — |
| IPDM E/R | ⊕“IPDM E/R” Self-diagnosis (CAN system diagnosis) | — | — | — | × |
| | Data monitor | — | — | × | — |
| | Auto active test | — | — | — | × |

Fail-safe

INFOID:000000004787876

FAIL-SAFE FUNCTION

If a communication error exists between the unified meter and A/C amp., and the AV control unit and preset switch for 30 seconds or longer, air conditioner is controlled under the following conditions:

COMPRESSOR CONTROL FUNCTION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

| | |
|-----------------|---|
| Compressor | : ON |
| Air outlet | : AUTO |
| Air inlet | : FRE (Fresh) |
| Fan speed | : AUTO |
| Set temperature | : Setting before communication error occurs |

Component Part Location

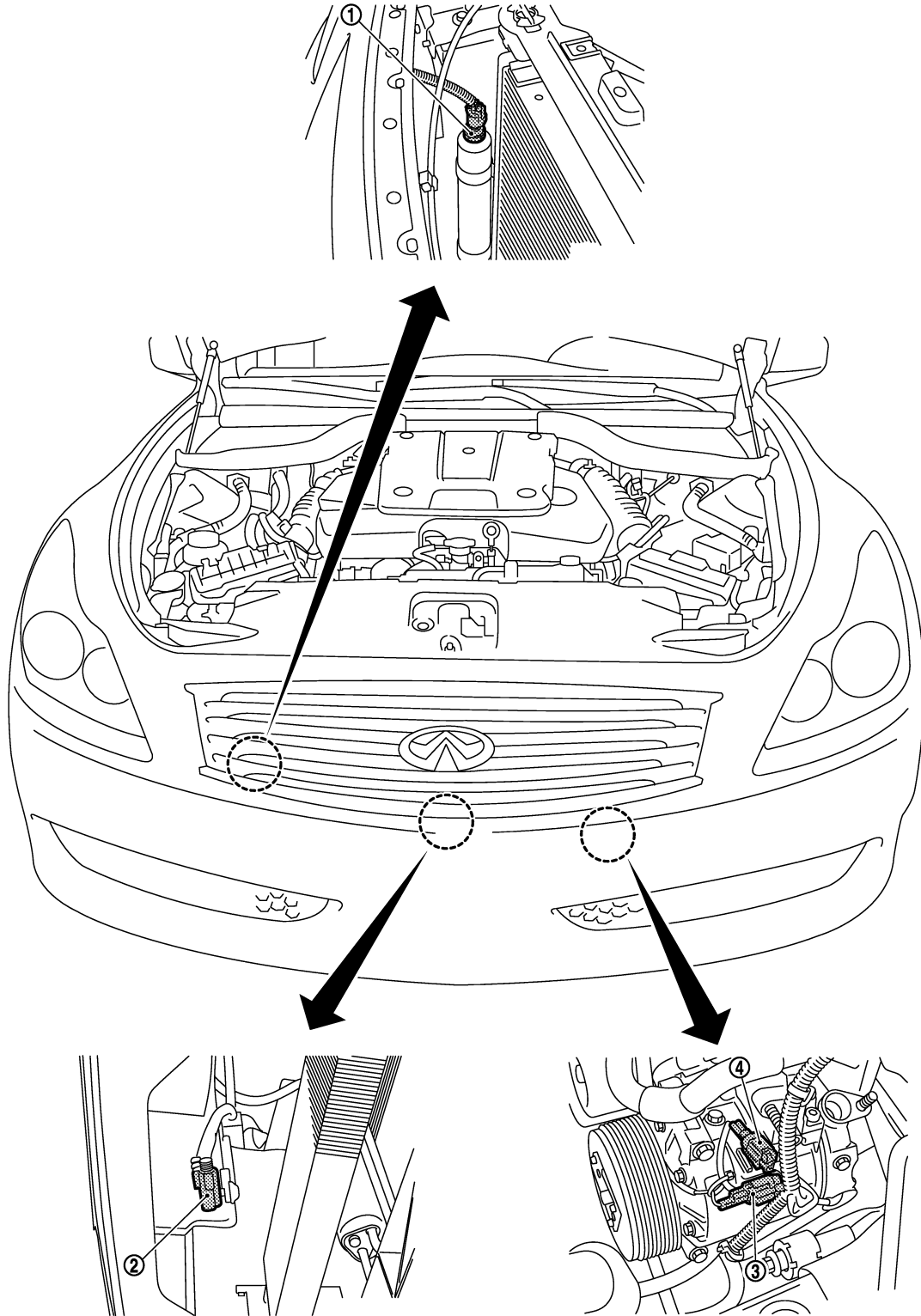
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ENGINE COMPARTMENT

COMPRESSOR CONTROL FUNCTION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]



- 1. Refrigerant pressure sensor
- 4. ECV connector

- 2. Ambient sensor

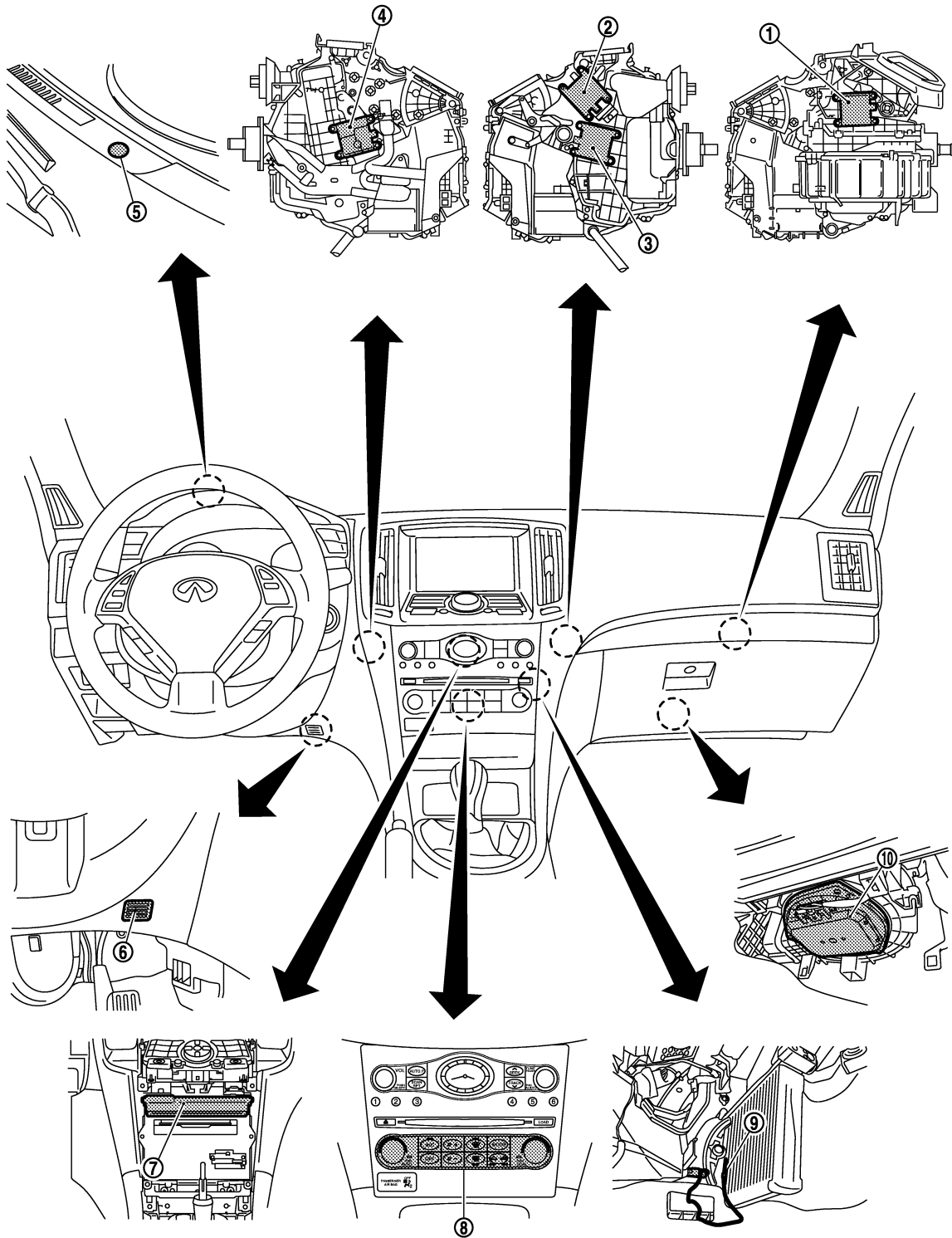
- 3. Magnet clutch connector

PASSENGER COMPARTMENT

COMPRESSOR CONTROL FUNCTION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]



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- | | | |
|-------------------------------------|--------------------|--|
| 1. Intake door motor | 2. Mode door motor | 3. Air mix door motor (passenger side) |
| 4. Air mix door motor (driver side) | 5. Sunload sensor | 6. In-vehicle sensor |
| 7. Unified meter and A/C amp. | 8. Preset switch | 9. Intake sensor |
| 10. Blower motor | | |

COMPRESSOR CONTROL FUNCTION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

Component Description

INFOID:000000004787878

| Component | Description |
|-------------------------------------|--|
| Refrigerant pressure sensor | EC-516. "Description" |
| Ambient sensor | HAC-67. "Description" |
| Magnet clutch | HAC-63. "Description" |
| ECV | HAC-65. "Description" |
| Intake door motor | HAC-57. "Description" |
| Mode door motor | HAC-51. "Description" |
| Air mix door motor (driver side) | HAC-53. "Description" |
| Air mix door motor (passenger side) | HAC-55. "Description" |
| Sunload sensor | HAC-73. "Description" |
| In-vehicle sensor | HAC-70. "Description" |
| Preset switch | The preset switch integrated with the controller for A/C operation and AV switch is installed to the center of the instrument panel. The operation and display data of the preset switch are communicated with the unified meter and A/C amp. through AV control unit via CAN communication. |
| Unified meter and A/C amp. | HAC-50. "Description" |
| Intake sensor | HAC-76. "Description" |
| Blower motor | HAC-59. "Description" |

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AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

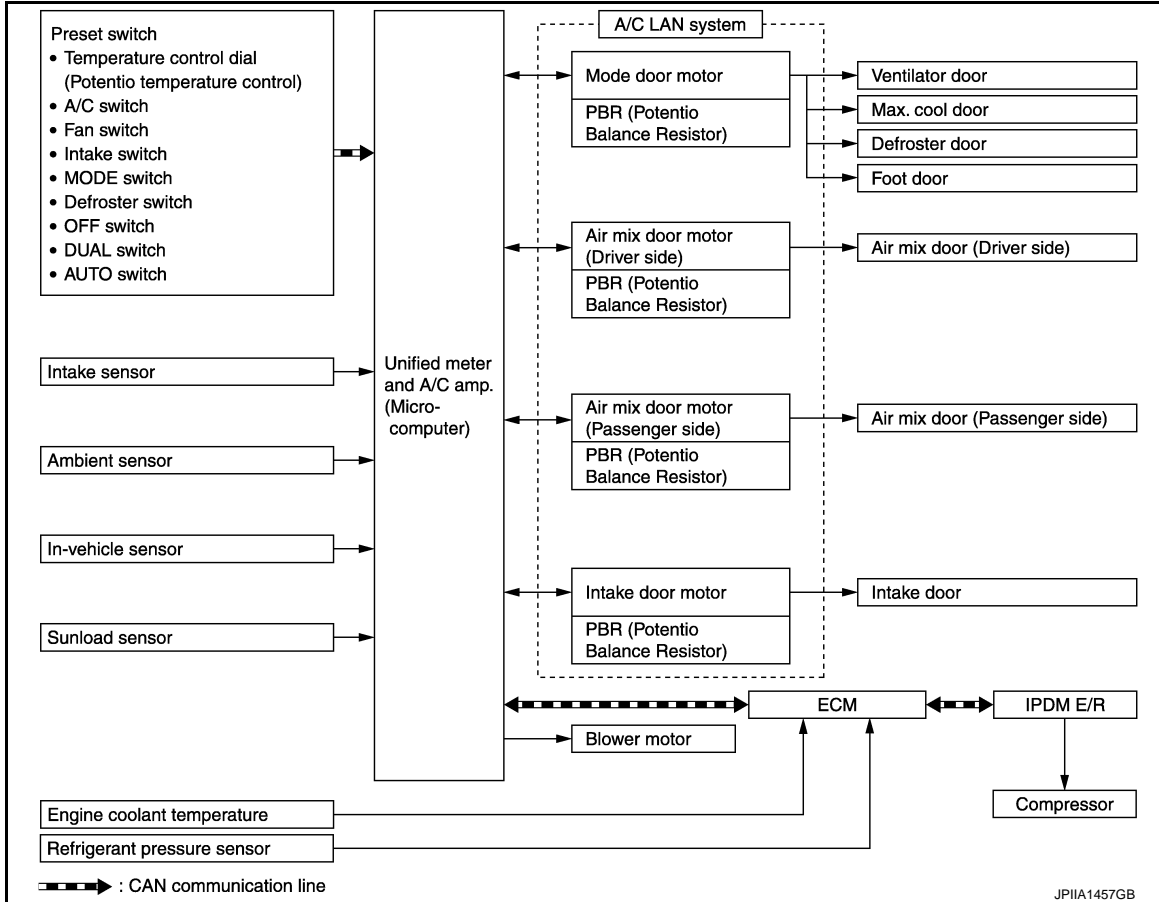
AUTOMATIC AIR CONDITIONER SYSTEM

System Diagram

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CONTROL SYSTEM

The control system consists of input sensors, switches, unified meter and A/C amp. (microcomputer) and outputs. The relationship of these components is as shown in the figure below:



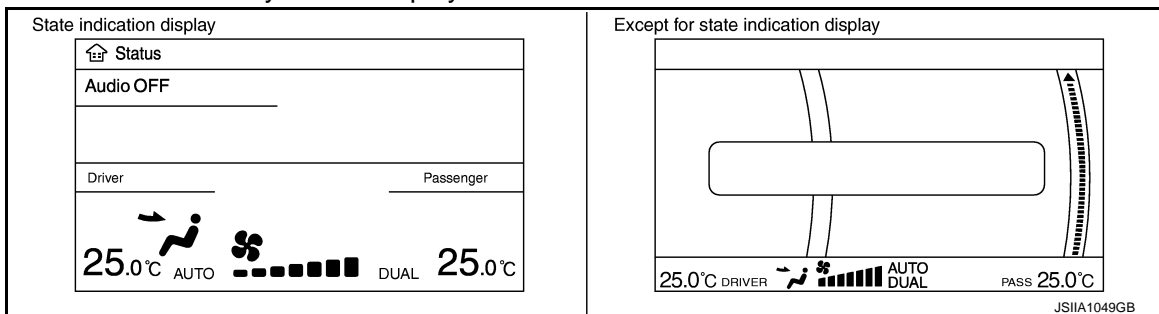
System Description

INFOID:000000004787880

CONTROL OPERATION

Display Screen

The operation status of the system is displayed on the screen.

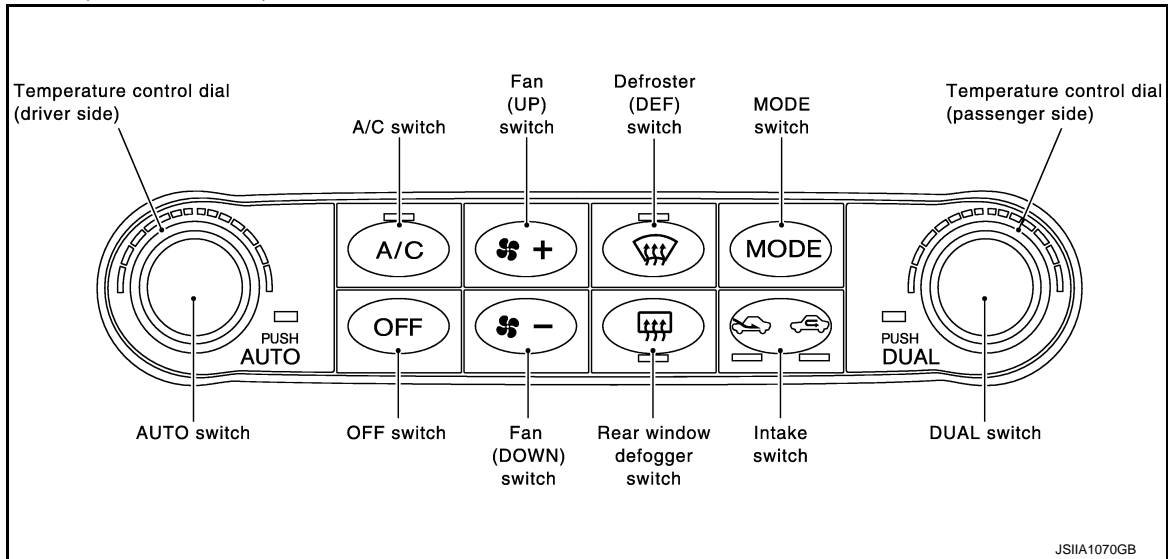


AUTOMATIC AIR CONDITIONER SYSTEM

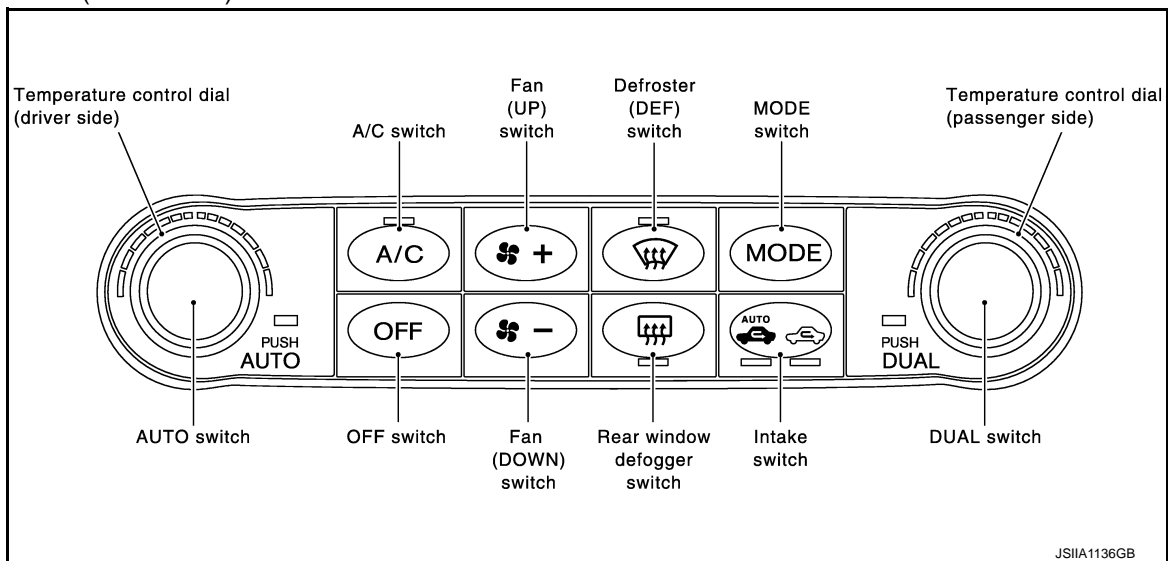
< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

Preset Switch (Without ACCS)



Preset Switch (With ACCS)



MODE Switch

The air discharge outlets is controlled with this switch.

Temperature Control Dial (Potentio Temperature Control) (Driver Side)

The set temperature is increased or decreased with this dial.

Temperature Control Dial (Potentio Temperature Control) (Passenger Side)

- The set temperature is increased or decreased with this dial.
- When the temperature control dial is turned, DUAL switch indicator turns ON.

AUTO Switch

- The compressor, intake doors, air mix doors, mode doors and fan speed are automatically controlled so that the in-vehicle temperature will reach, and be maintained at the set temperature selected by the operator.
- When pressing AUTO switch, air inlet, air outlet, fan speed, and discharge air temperature are automatically controlled.

Defroster (DEF) Switch

Mode doors are set to the defrost position with this switch. Also, intake doors are set to the outside air position, and compressor turns ON.

A/C Switch

Compressor is ON or OFF with this switch.

(Pressing the A/C switch when the A/C switch is ON turns OFF the A/C switch and compressor.)

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AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

FAN Switches

The fan speed is manually controlled with this switch. Seven speeds are available for manual control (as shown on the display screen).

OFF Switch

Compressor and blower are OFF, air inlet is set to FRE, and mode position is set to foot position.

Rear Window Defogger Switch

When indicator is ON, rear window is defogged.

Intake Switch (Without ACCS)

- When intake switch is ON, FRE indicator turns ON, and air inlet is fixed to FRE.
- When intake switch is pressed again, REC indicator turns ON, and air inlet is fixed to REC.
- When intake switch is pressed for approximately 2 seconds or longer, FRE and REC indicators blink twice. Then, automatic control mode is entered. Inlet status is displayed by indicator even during automatic controlled.
- When REC indicator is turned OFF, shifting mode position to D/F or DEF or when compressor is turned from ON to OFF, intake mode position is fixed to FRE mode. REC mode can be re-entered by pressing intake switch again, and then compressor is turned ON. (Except D/F or DEF position)

Intake Switch (With ACCS)

- When AUTO switch is pressed, AUTO intake indicator and REC indicator turns ON, and air inlet is automatic control.
- When intake switch is pressed, AUTO intake indicator and REC indicator turns OFF, and air inlet is fixed to FRE.
- When intake switch is pressed again, REC indicator turns ON, and air inlet is fixed to REC.
- Then auto intake mode is entered, inlet status is displayed by REC indicator even during automatic controlled.
- When REC indicator is turned OFF, shifting mode position to D/F or DEF or when compressor is turned from ON to OFF, intake mode position is fixed to FRE mode. REC mode can be re-entered by pressing intake switch again, and then compressor is turned ON. (Except D/F or DEF position)

DUAL Switch

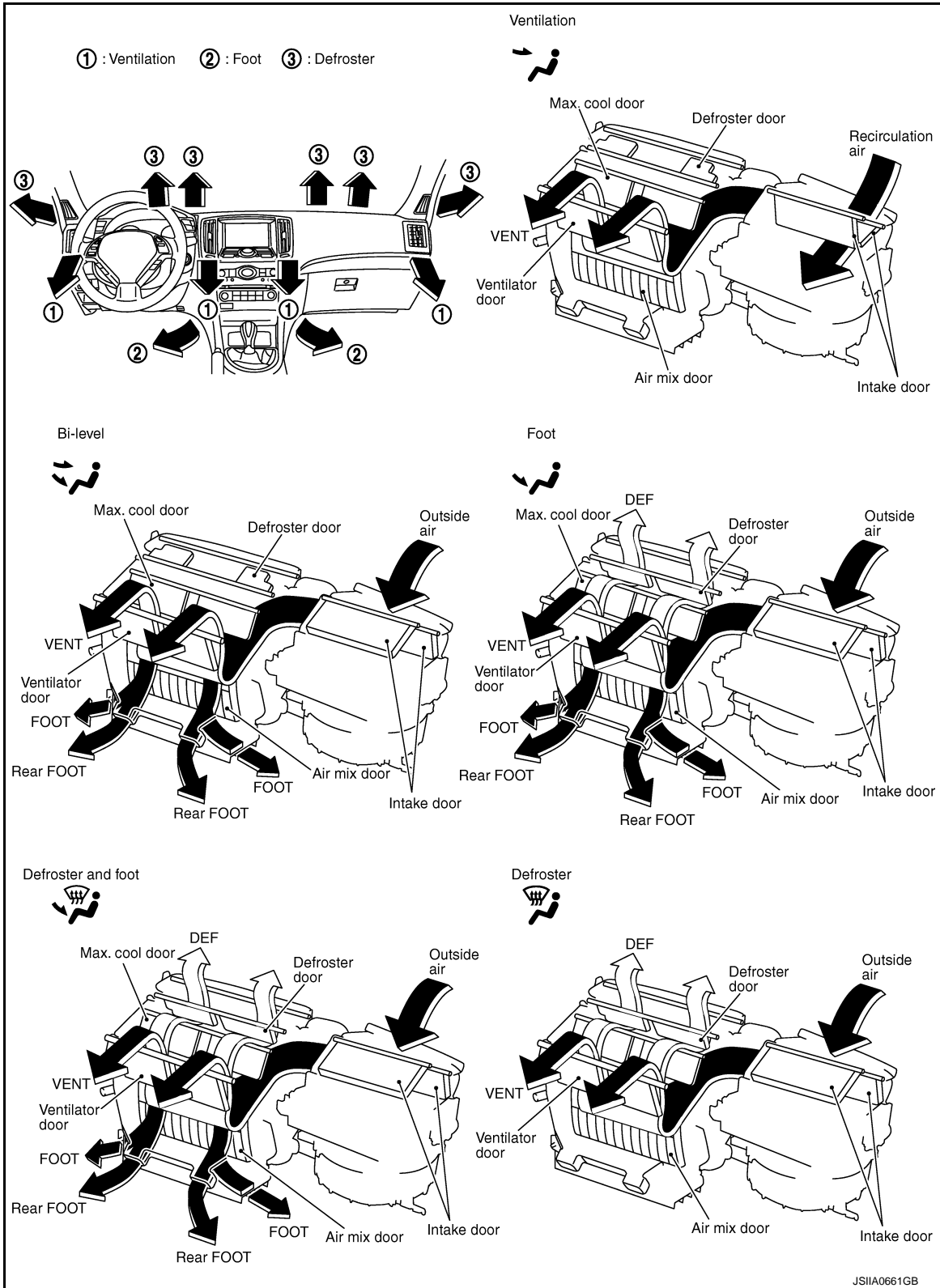
- When the DUAL switch indicator is ON, the driver side and passenger side, temperature can each be set independently.
- When the DUAL switch indicator is OFF, the driver side outlet and setting temperature is applied to both sides.

AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

DISCHARGE AIR FLOW



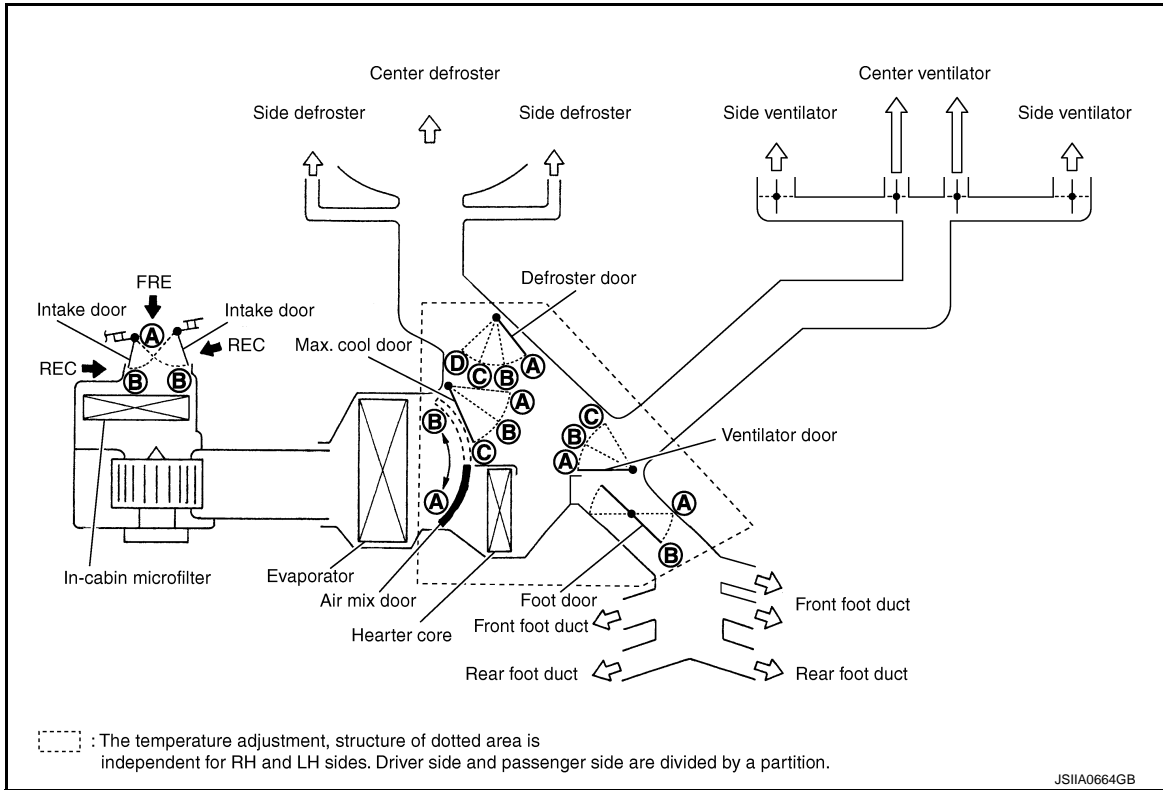
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AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

SWITCHES AND THEIR CONTROL FUNCTION












Without ACCS

| Switch position | | Door position | | | | | |
|-----------------|---|-----------------|----------------|----------------|-----------|-------------|----------------------------|
| | | Ventilator door | Max. cool door | Defroster door | Foot door | Intake door | Air mix door (Driver side) |
| AUTO switch | ☀ | AUTO | | | | | |

AUTOMATIC AIR CONDITIONER SYSTEM


< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

| Switch position | | | Door position | | | | | | Air mix door (Driver side) | Air mix door (Passenger side) |
|---|------------------|---|-----------------|----------------|----------------|-----------|-------------|---|----------------------------|-------------------------------|
| | | | Ventilator door | Max. cool door | Defroster door | Foot door | Intake door | | | |
| MODE switch | VENT |  | A | A | D | B | — | — | — | |
| | B/L |  | B | B | D | B | | | | |
| | FOOT |  | C | C | C | B | | | | B |
| | D/F |  | | | A | A | | | | B |
| DEF switch | |  | — | — | — | — | — | — | — | |
| Intake switch | FRE |  | | | | | | | | B* |
| | REC |  | | | | | | | | A* |
| DUAL switch | DUAL |  | | | | | | | | ON |
| | OFF |  | | | | | | | | |
| Temperature control dial (Driver side) | DUAL switch: OFF | 18.0°C (60°F) | | | | | | | | A |
| | | 18.5°C ⇔ 31.5°C (61°F ⇔ 89°F) | AUTO | | | | | | | |
| | | 32.0°C (90°F) | B | | | | | | | |
| Temperature control dial (Driver side) | DUAL switch: ON | 18.0°C (60°F) | A | — | | | | | | |
| | | 18.5°C ⇔ 31.5°C (61°F ⇔ 89°F) | AUTO | | | | | | | |
| | | 32.0°C (90°F) | B | | | | | | | |
| Temperature control dial (Passenger side) | DUAL switch: ON | 18.0°C (60°F) | A | — | | | | | | |
| | | 18.5°C ⇔ 31.5°C (61°F ⇔ 89°F) | AUTO | | | | | | | |
| | | 32.0°C (90°F) | B | | | | | | | |
| OFF switch | | | C | C | C | B | B | — | — | |

*: Inlet status is displayed by indicator when activating automatic control















With ACCS

| Switch position | | Door position | | | | | |
|-----------------|---|-----------------|----------------|----------------|-----------|-------------|----------------------------|
| | | Ventilator door | Max. cool door | Defroster door | Foot door | Intake door | Air mix door (Driver side) |
| AUTO switch |  | AUTO | | | | | |

AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

| Switch position | | | Door position | | | | | Air mix door (Driver side) | Air mix door (Passenger side) | |
|---|------------------|---|-----------------|----------------|----------------|-----------|-------------|----------------------------|-------------------------------|-----------------|
| | | | Ventilator door | Max. cool door | Defroster door | Foot door | Intake door | | | |
| MODE switch | VENT |  | A | A | D | B | — | — | | |
| | B/L |  | B | B | D | B | | | | |
| | FOOT |  | C | C | C | B | | | | |
| | D/F |  | | | B | B | | | B | |
| DEF switch | |   | — | — | — | — | — | — | | |
| Intake switch | AUTO |   | | | | | | | AUTO* ² | |
| | REC |   | | | | | | | | A* ¹ |
| | FRE |   | | | | | | | | B* ¹ |
| DUAL switch | DUAL |  | | | | | | | ON | |
| | OFF |  | | | | | | | | OFF |
| Temperature control dial (Driver side) | DUAL switch: OFF | 18.0°C (60°F) | | | | | | | A | |
| | | 18.5°C ⇔ 31.5°C (61°F ⇔ 89°F) | | | | | | | | AUTO |
| | | 32.0°C (90°F) | | | | | | | | |
| Temperature control dial (Driver side) | DUAL switch: ON | 18.0°C (60°F) | | | | | | | A | |
| | | 18.5°C ⇔ 31.5°C (61°F ⇔ 89°F) | AUTO | | | | | | | |
| | | 32.0°C (90°F) | B | | | | | | | |
| Temperature control dial (Passenger side) | DUAL switch: ON | 18.0°C (60°F) | A | — | | | | | | |
| | | 18.5°C ⇔ 31.5°C (61°F ⇔ 89°F) | AUTO | | | | | | | |
| | | 32.0°C (90°F) | B | | | | | | | |
| OFF switch | | | C | C | C | B | B | — | — | |

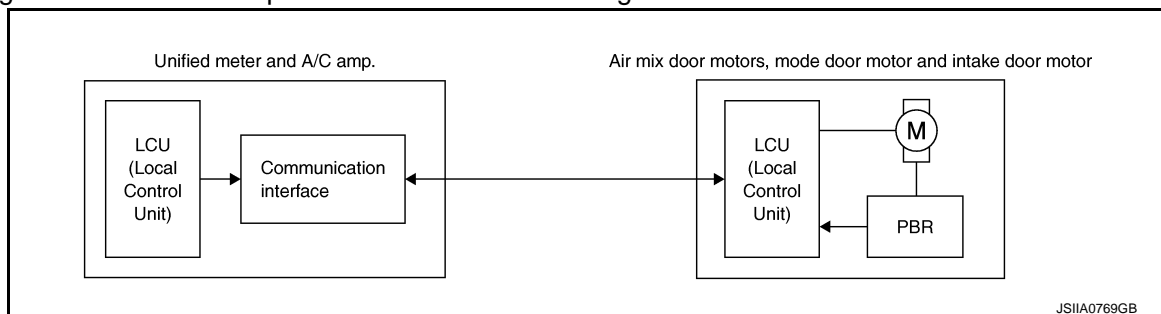
*1: Inlet status is displayed by indicator when activating automatic control

*2: Intake door control applies a gas sensor

AIR CONDITIONER LAN CONTROL SYSTEM

The LAN (Local Area Network) system consists of unified meter and A/C amp., mode door motor, air mix door motors and intake door motor.

A configuration of these components is as shown in the figure below.



JSIIA0769GB

AUTOMATIC AIR CONDITIONER SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

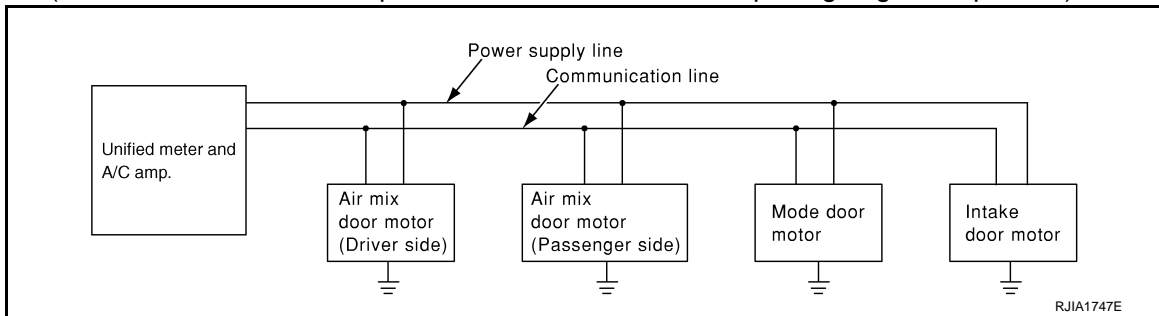
SYSTEM CONSTRUCTION

A small network is constructed between the unified meter and A/C amp., mode door motor, air mix door motors and intake door motor. The unified meter and A/C amp. and motors are connected by data transmission lines and motor power supply lines. The LAN network is built through the ground circuits of each door motor.

Addresses, motor opening angle signals, motor stop signals and error checking messages are all transmitted through the data transmission lines connecting the unified meter and A/C amp. and each door motor.

The following functions are contained in LCUs built into the mode door motor, the air mix door motors and the intake door motor.

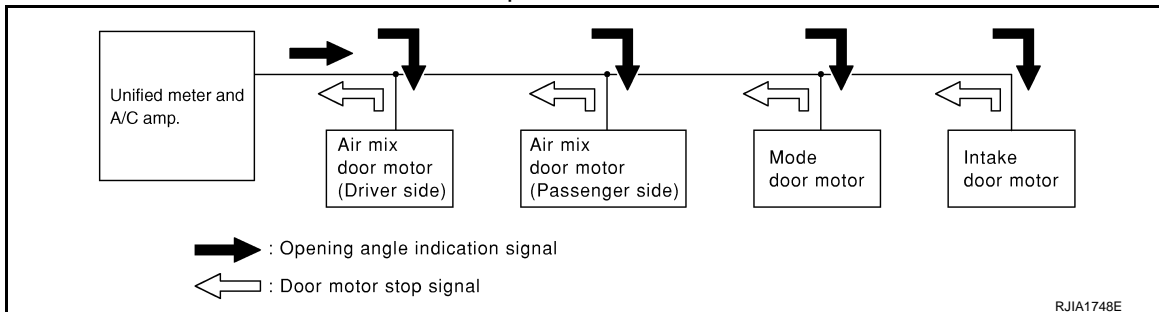
- Address
- Motor opening angle signals
- Data transmission
- Motor stop and drive decision
- Opening angle sensor (PBR function)
- Comparison
- Decision (Unified meter and A/C amp. indicated value and motor opening angle comparison)



Operation

The unified meter and A/C amp. receives data from each of the sensors. The unified meter and A/C amp. sends mode door, air mix door and intake door opening angle data to the mode door motor LCU, air mix door motor LCUs and intake door motor LCU.

The mode door motor, air mix door motors and intake door motor read their respective signals according to the address signal. Opening angle indication signals received from the unified meter and A/C amp. and each of the motor position sensors is compared by the LCUs in each door motor with the existing decision and opening angles. Subsequently, HOT/COLD, DEF/VENT and FRE/REC operation is selected. The new selection data is returned to the unified meter and A/C amp.



Transmission Data and Transmission Order

Unified meter and A/C amp. data is transmitted consecutively to each of the doors motor following the form as shown in the figure below.

START:

- Initial compulsory signal is sent to each of the door motors.

ADDRESS:

- Data sent from the unified meter and A/C amp. are selected according to data-based decisions made by the mode door motor, air mix door motors and intake door motor.
- If the addresses are identical, the opening angle data and error check signals are received by the door motor LCUs. The LCUs then make the appropriate error decision. If the opening angle data have no error, door control begins.
- If an error exists, the received data are rejected and corrected data received. Finally, door control is based upon the corrected opening angle data.

AUTOMATIC AIR CONDITIONER SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

OPENING ANGLE:

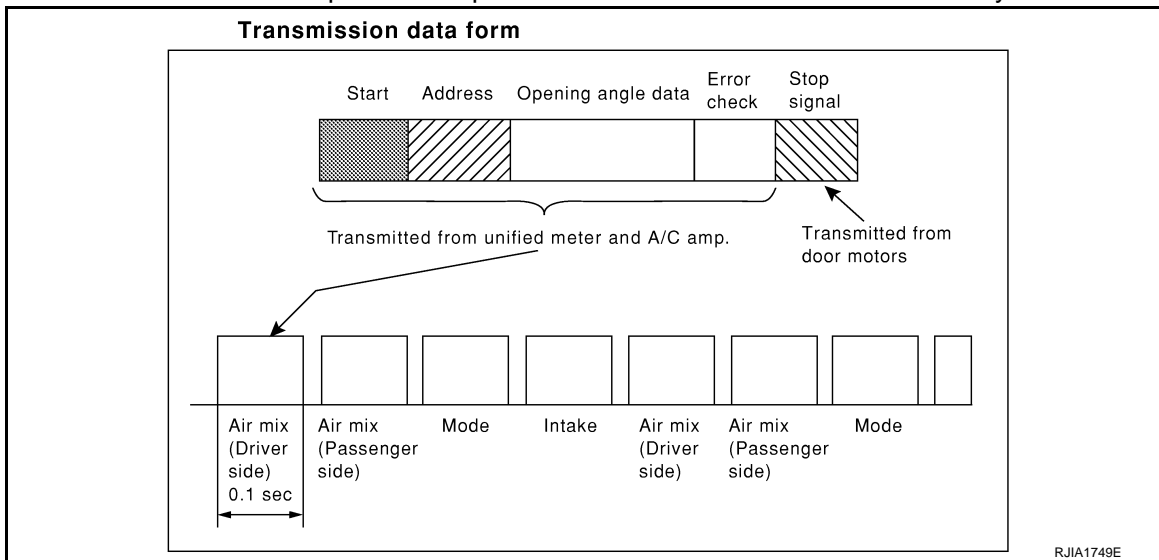
- Data that shows the indicated door opening angle of each door motor.

ERROR CHECK:

- In this procedure, transmitted and received data is checked for errors. Error data are then compiled. The error check prevents corrupted data from being used by the mode door motor, the air mix door motors and the intake door motor. Error data can be related to the following symptoms.
 - Malfunction of electrical frequency
 - Poor electrical connections
 - Signal leakage from transmission lines
 - Signal level fluctuation

STOP SIGNAL:

- At the end of each transmission, a stop operation, in-operation, or internal malfunction message is delivered to the unified meter and A/C amp. This completes one data transmission and control cycle.



Component Part Location

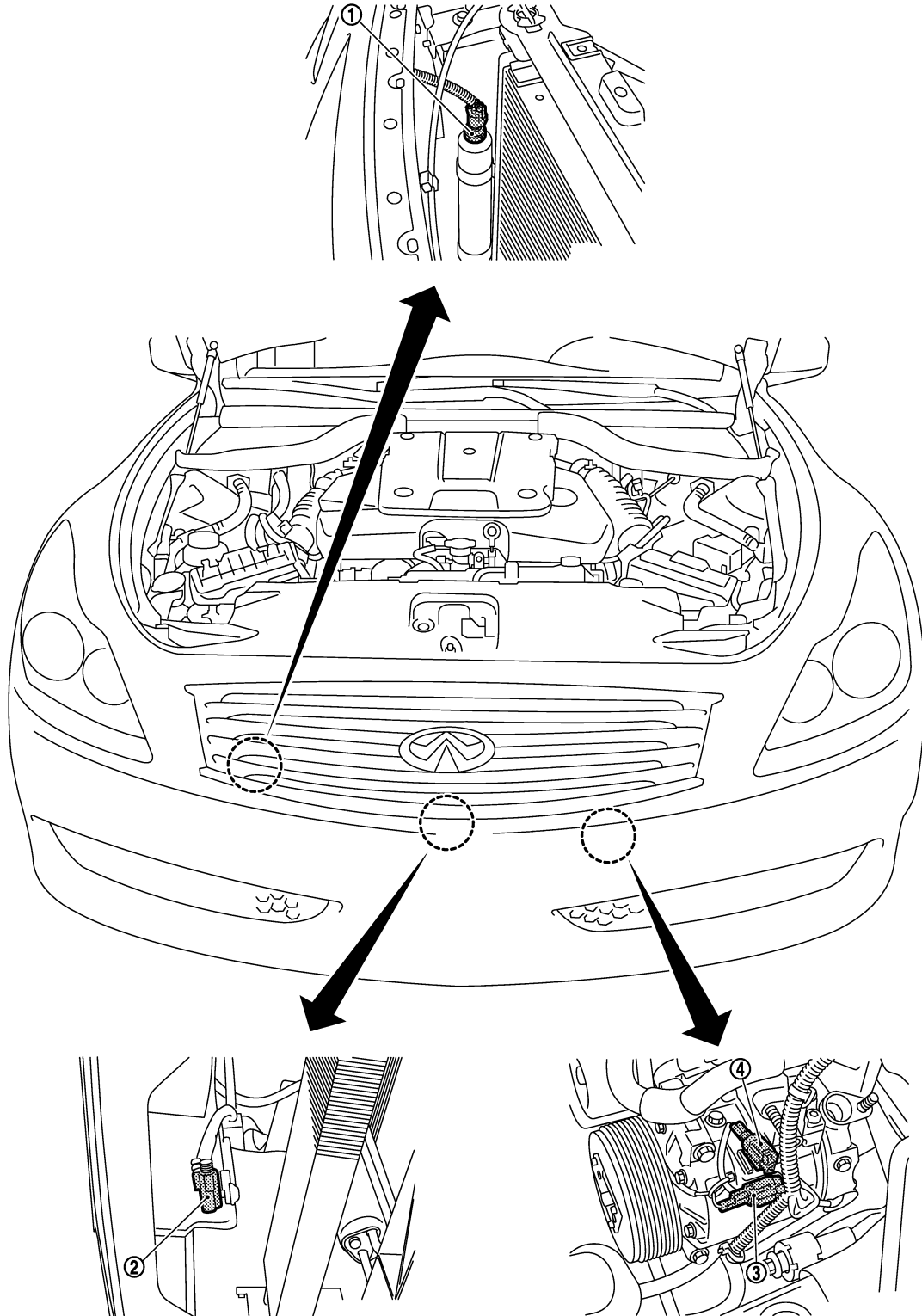
INFOID:000000004787881

ENGINE COMPARTMENT

AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]



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- 1. Refrigerant pressure sensor
- 4. ECV connector

- 2. Ambient sensor

- 3. Magnet clutch connector

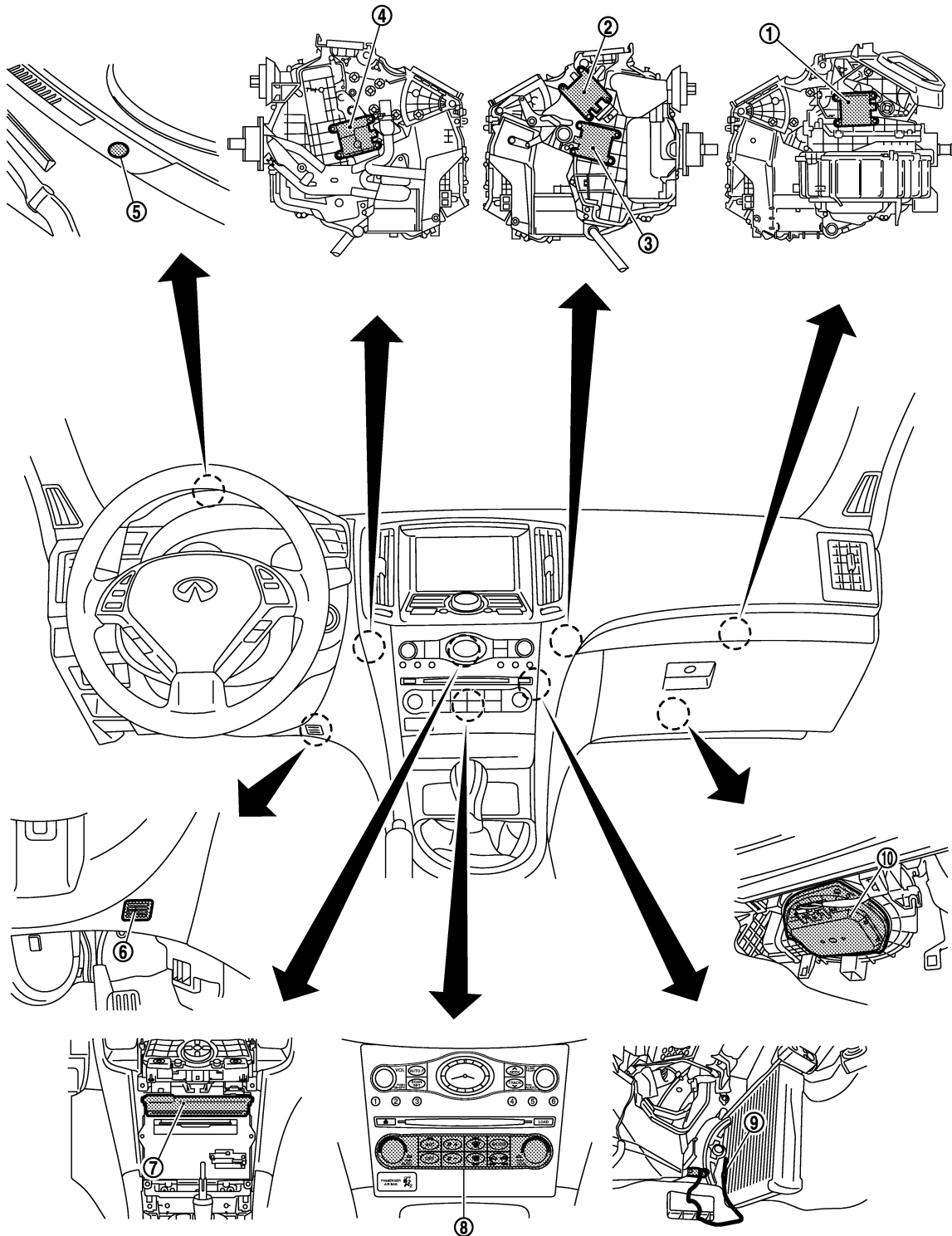
JSIA1590ZZ

PASSENGER COMPARTMENT

AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]



JSIA1561ZZ

- | | | |
|-------------------------------------|--------------------|--|
| 1. Intake door motor | 2. Mode door motor | 3. Air mix door motor (passenger side) |
| 4. Air mix door motor (driver side) | 5. Sunload sensor | 6. In-vehicle sensor |
| 7. Unified meter and A/C amp. | 8. Preset switch | 9. Intake sensor |
| 10. Blower motor | | |

AUTOMATIC AIR CONDITIONER SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

Component Description

INFOID:000000004794389

| Component | Description |
|-------------------------------------|--|
| Refrigerant pressure sensor | EC-516. "Description" |
| Ambient sensor | HAC-67. "Description" |
| Magnet clutch | HAC-63. "Description" |
| ECV | HAC-65. "Description" |
| Intake door motor | HAC-57. "Description" |
| Mode door motor | HAC-51. "Description" |
| Air mix door motor (driver side) | HAC-53. "Description" |
| Air mix door motor (passenger side) | HAC-55. "Description" |
| Sunload sensor | HAC-73. "Description" |
| In-vehicle sensor | HAC-70. "Description" |
| Preset switch | The preset switch integrated with the controller for A/C operation and AV switch is installed to the center of the instrument panel. The operation and display data of the preset switch are communicated with the unified meter and A/C amp. through AV control unit via CAN communication. |
| Unified meter and A/C amp. | HAC-50. "Description" |
| Intake sensor | HAC-76. "Description" |
| Blower motor | HAC-59. "Description" |

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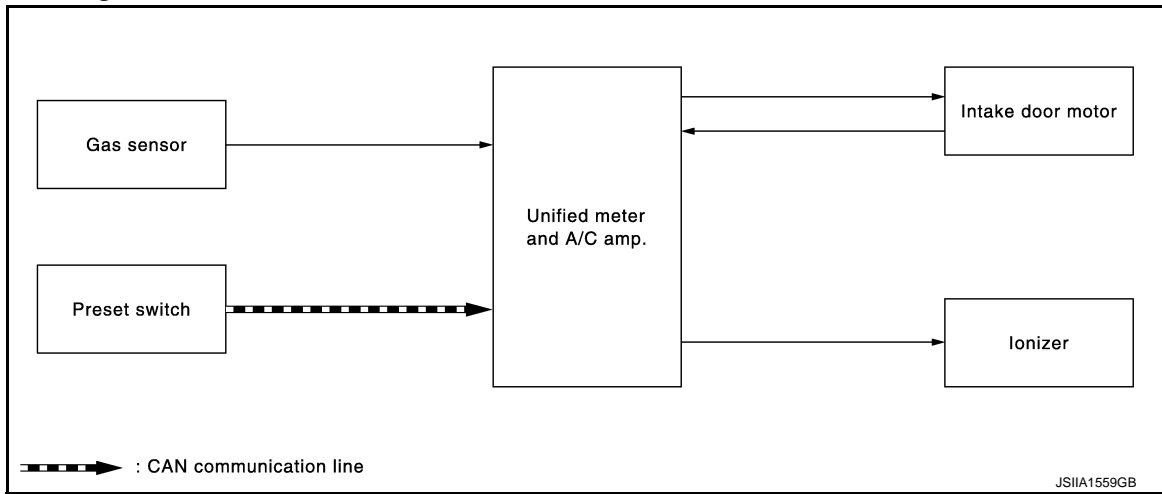
ACCS (ADVANCE CLIMATE CONTROL SYSTEM)

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

ACCS (ADVANCE CLIMATE CONTROL SYSTEM)

System Diagram



System Description

INFOID:000000004787884

The adoption of the ACCS (advance climate control system) enables the maintenance of clean air in the vehicle by combining the plasmacluster™ ion generation function, the automatic recirculation control function, and a high performance filter.

NOTE:

- Plasmacluster™ ion technology developed by Sharp Corporation is installed in this item.
- Plasmacluster™ is a trademark of Sharp Corporation.

PLASMACLUSTER SYSTEM

- The Plasmacluster™ ion generation function operates synchronized with the blower motor. The Plasmacluster™ ion generation function operates when the blower motor operates.
- 2 ion generation modes (clean mode and ion control mode) are switched every 15 minutes while the blower motor turns ON with ignition switch ON.
- When AUTO INTAKE indicator is turned ON, Plasmacluster™ ion generation function extends the operation time of the clean mode to approximately 30 minutes for deactivating impurities more actively.

| Condition | Clean mode | Ion control mode |
|----------------------------|------------|------------------|
| AUTO INTAKE indicator: OFF | 15 minutes | 15 minutes |
| AUTO INTAKE indicator: ON | 30 minutes | 15 minutes |

NOTE:

When the AUTO INTAKE indicator is not turned ON.

- Ignition switch: OFF
- Blower motor: OFF
- Mode position: D/F or DEF
- Ambient temperature: At about 0°C or below (Reactivate at about 2°C or above)
- When gas sensor is malfunctioning
- When the blower motor is stopped, the Plasmacluster™ ion generation function also stops operating (Ion indicator is OFF).

| | |
|------------------|---|
| Clean mode | Emits positive and negative ions into air for deactivating impurities actively. |
| Ion control mode | Emits more negative ions after deactivating impurities actively in clean mode. |

1. Clean mode operation

ACCS (ADVANCE CLIMATE CONTROL SYSTEM)

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

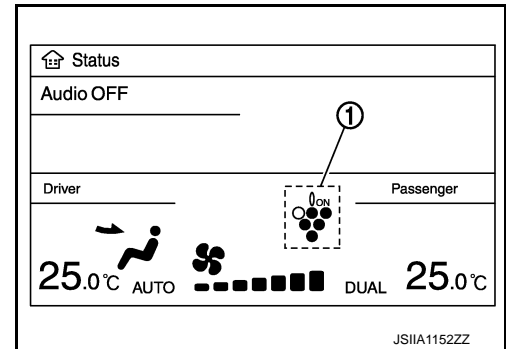
Ion indicator (blue) (1) in the display is turns ON as per the followings.

- Approximately 15 minutes after starting the blower motor.
- Approximately 30 minutes after the AUTO INTAKE indicator is turned ON while the blower motor is operating.
- Clean mode is switched to operate, 15 minutes after ion control mode in operation.

2. Ion control mode operation

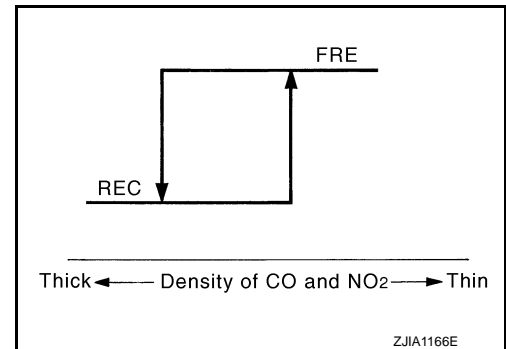
Ion indicator (green) in the display is turns ON as per the followings.

- Ion control mode is switched to operate, 15 minutes after clean mode in operation.
- After approximately 30 seconds of clean mode operation time has passed while the AUTO INTAKE indicator is ON.



AUTO INTAKE CONTROL SYSTEM

In addition to the regular automatic control, intake door condition is controlled by gas sensor output signal when auto intake mode is selected. This system automatically controls the inlet to prevent a smell of exhaust gas from getting into vehicle by receiving signals from the gas sensor that detects ambient atmospheric CO and NO₂.



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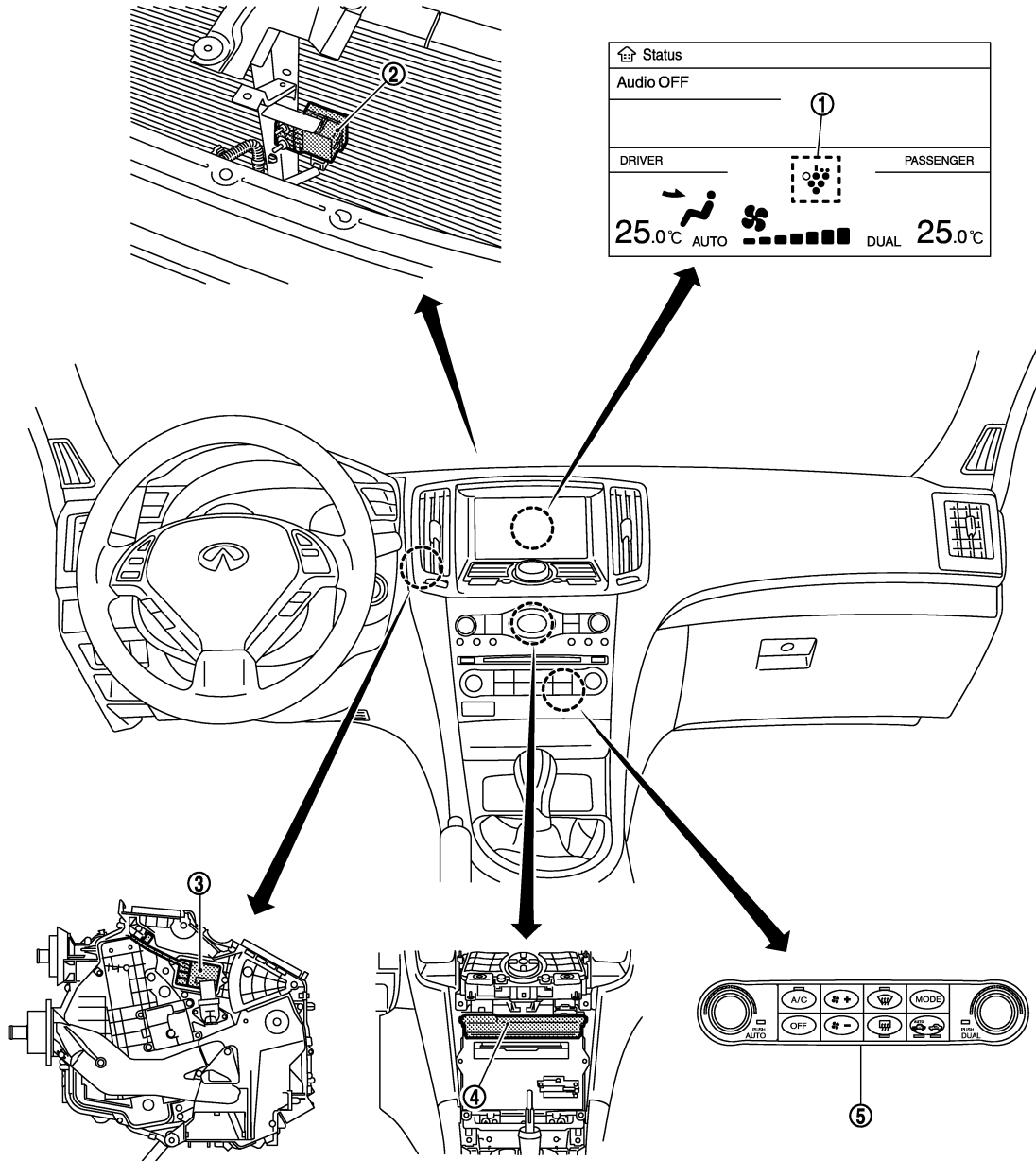
ACCS (ADVANCE CLIMATE CONTROL SYSTEM)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

Component Part Location

INFOID:000000004787885



1. Ion indicator

2. Gas sensor (engine room)

3. Ionizer

4. Unified meter and A/C amp.

5. Preset switch

JSIIA1560ZZ

ACCS (ADVANCE CLIMATE CONTROL SYSTEM)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

Component Description

INFOID:000000004787886

| Component | Description |
|---------------------------------------|---|
| Ion indicator | Plasmacluster ion generation function operating condition is displayed in the ion indicator in the display. |
| Gas sensor | HAC-79. "Description" |
| Ionizer | HAC-82. "Description" |
| Unified meter and A/C amp. | The unified meter and A/C amp. controls ionizer ON/OFF and shifts an ion generation function. |
| Preset switch (AUTO intake indicator) | The auto intake control system is ON or OFF by the AUTO intake indicator is turned ON. |

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CAN COMMUNICATION SYSTEM

System Description

INFOID:000000004787887

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. For details, refer to [LAN-25, "CAN System Specification Chart"](#).

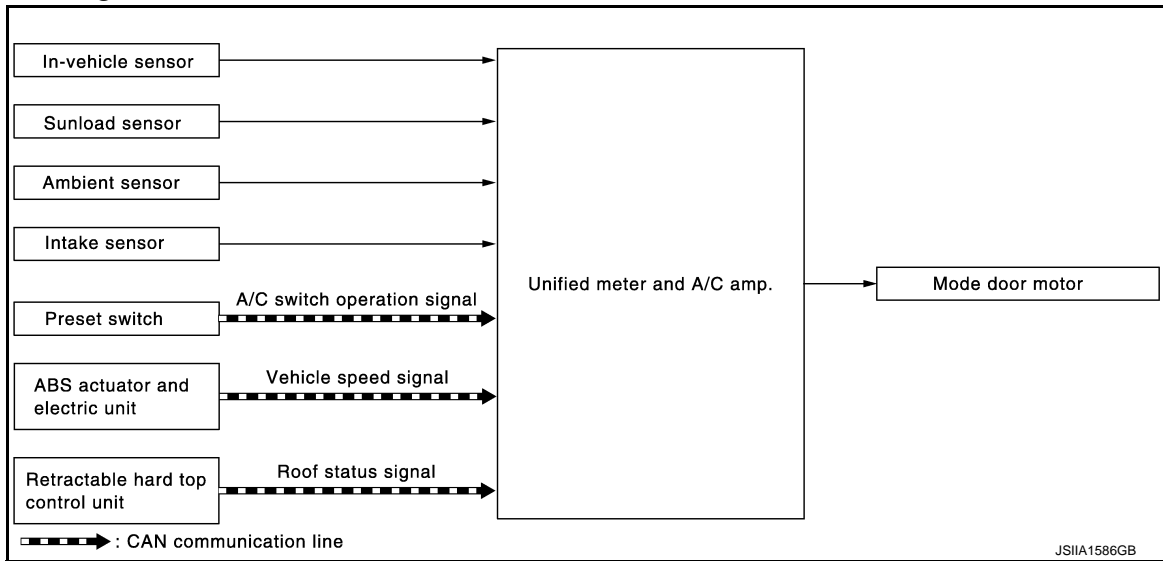
MODE DOOR CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

MODE DOOR CONTROL SYSTEM

System Diagram



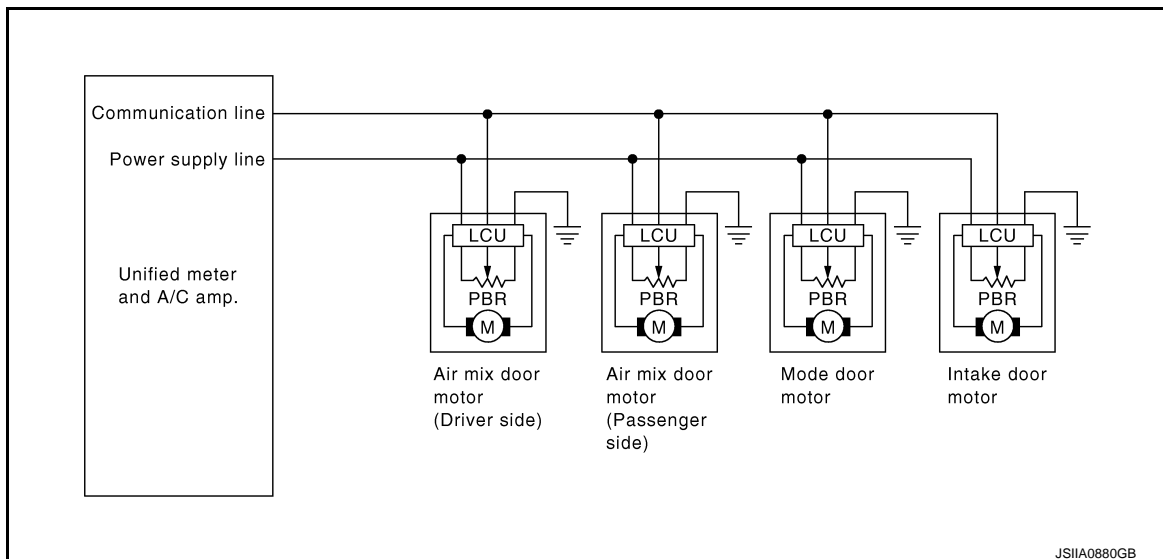
System Description

The mode door is automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature and amount of sunload.

SYSTEM OPERATION

- The unified meter and A/C amp. receives data from each of the sensors.
- The unified meter and A/C amp. sends air mix door, mode door and intake door opening angle data to the air mix door motor LCUs, mode door motor LCU and intake door motor LCU.
- The air mix door motors, mode door motor and intake door motor read their respective signals according to the address signal. Opening angle indication signals received from the unified meter and A/C amp. and each of the motor position sensors are compared by the LCUs in each door motor with the existing decision and opening angles.
- Subsequently, HOT/COLD, DEF/VENT and FRE/REC operation is selected. The new selection data are returned to the unified meter and A/C amp.

Door Motor Circuit



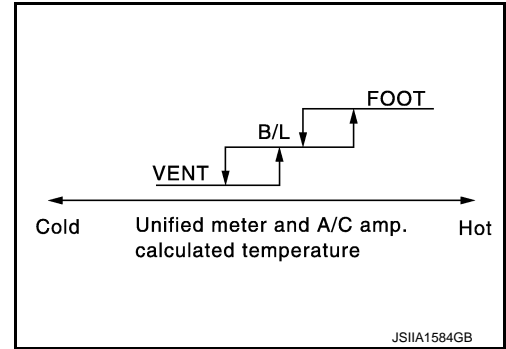
Mode Door Control Specification

MODE DOOR CONTROL SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

Mode position can be selected manually by pressing MODE switch or DEF switch of the preset switch. This enables to fix a mode position. Automatic control by unified meter and A/C amp. Pressing AUTO switch allows automatic control by unified meter and A/C amp. During the automatic control of mode position, a mode door position (VENT, B/L, FOOT, or D/F) is selected based on a target air mix door opening angle and sunload depending on a temperature calculated by unified meter and A/C amp. In addition, D/F is selected to prevent windshield fogging only when ambient temperature is extremely low with mode position [FOOT (roof is closed) or B/L (roof is open)].



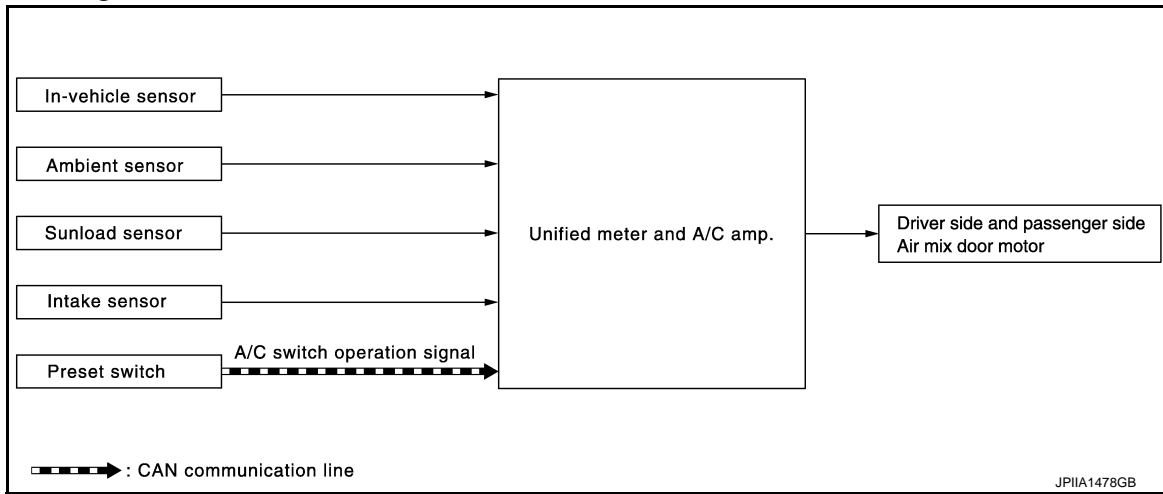
AIR MIX DOOR CONTROL SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

AIR MIX DOOR CONTROL SYSTEM

System Diagram



System Description

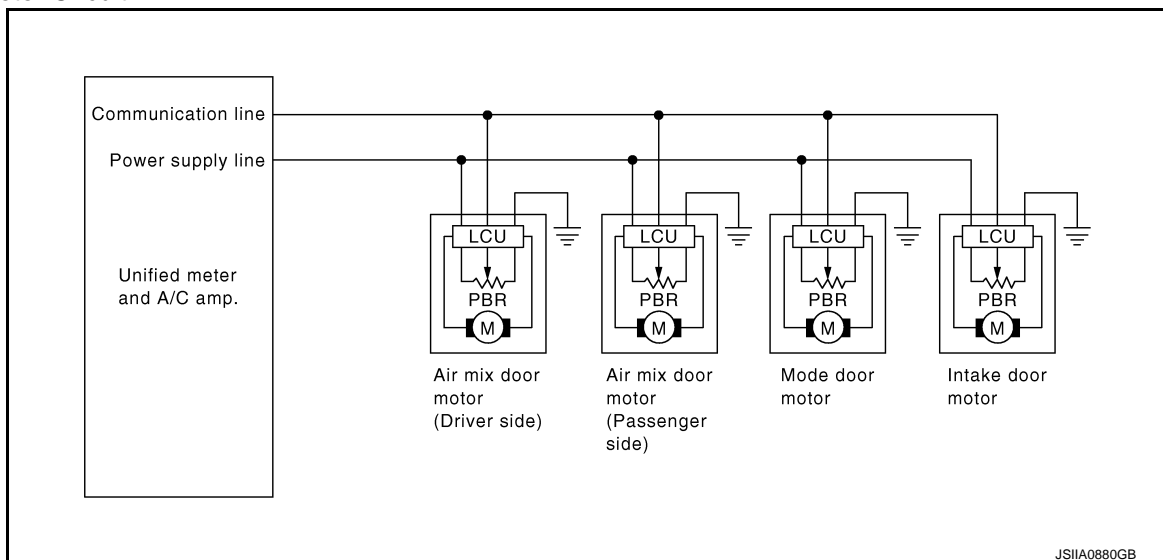
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The air mix doors are automatically controlled so that in-vehicle temperature is maintained at a preset value by the temperature setting, ambient temperature, intake temperature, in-vehicle temperature and amount of sunload.

SYSTEM OPERATION

- The unified meter and A/C amp. receives data from each of the sensors. The unified meter and A/C amp. sends air mix doors, mode door and intake door opening angle data to the air mix door motor LCUs, mode door motor LCU and intake door motor LCU.
- The air mix door motors, mode door motor and intake door motor read their respective signals according to the address signal. Opening angle indication signals received from the unified meter and A/C amp. and each of the motor position sensors are compared by the LCUs in each door motor with the existing decision and opening angles. Subsequently, HOT/COLD, DEF/VENT and FRE/REC operation is selected. The new selection data are returned to the unified meter and A/C amp.

Door Motor Circuit



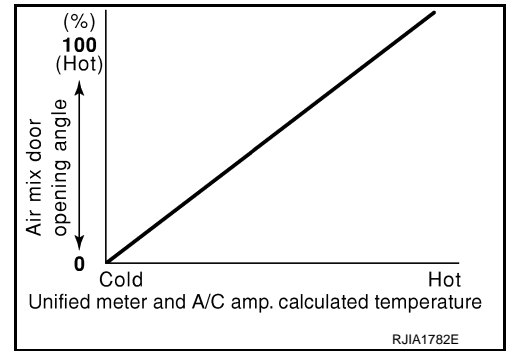
Air Mix Door Control Specification

AIR MIX DOOR CONTROL SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

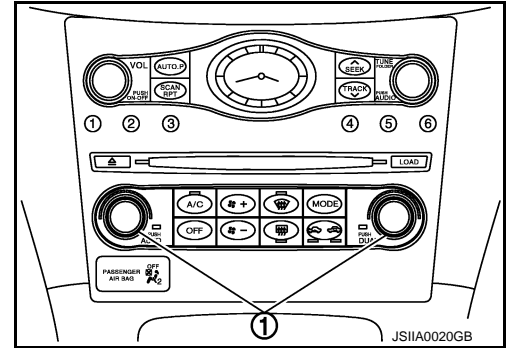
When ignition switch is ON, unified meter and A/C amp. continuously and automatically controls temperatures regardless of air conditioner operational condition. When setting a target temperature with temperature control dial, unified meter and A/C amp. corrects the set temperature and decides a target air mix door opening angle. Unified meter and A/C amp. controls air mix door according to the target air mix door opening angle and current air mix door opening angle for keeping an optimum air mix door opening angle. When a temperature is set at 18.0°C (60°F), air mix door is fixed at full cold, and when a temperature is set at 32.0°C (90°F), it is set at full hot.



RJIA1782E

Potential Temperature Control (PTC)

The PTC (1) is built into the preset switch. It can be set at an interval of 0.5°C (1.0°F) in the 18.0°C (60°F) to 32.0°C (90°F) temperature range by turning temperature control dial. The set temperature is displayed.



JSIA0020GB

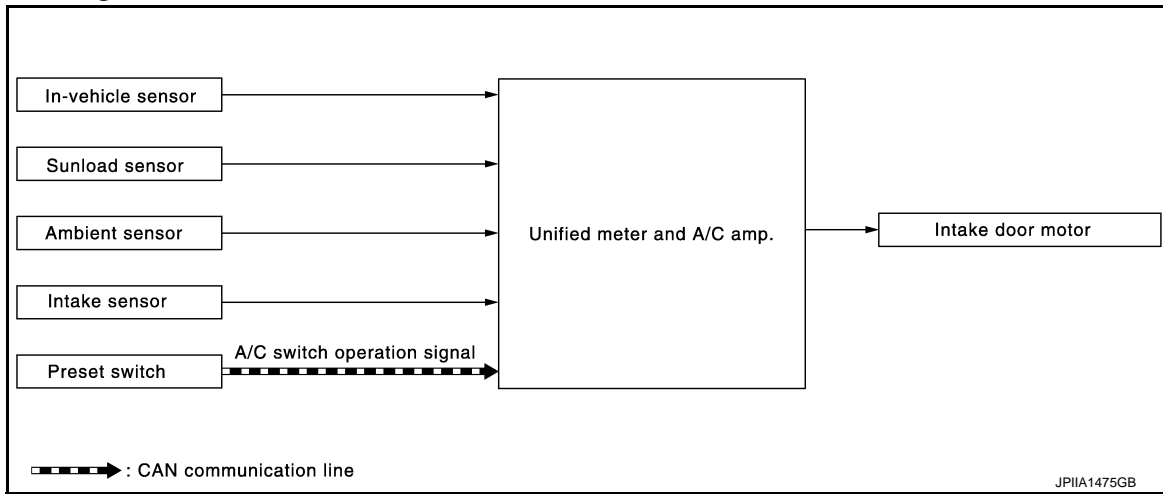
INTAKE DOOR CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

INTAKE DOOR CONTROL SYSTEM

System Diagram



System Description

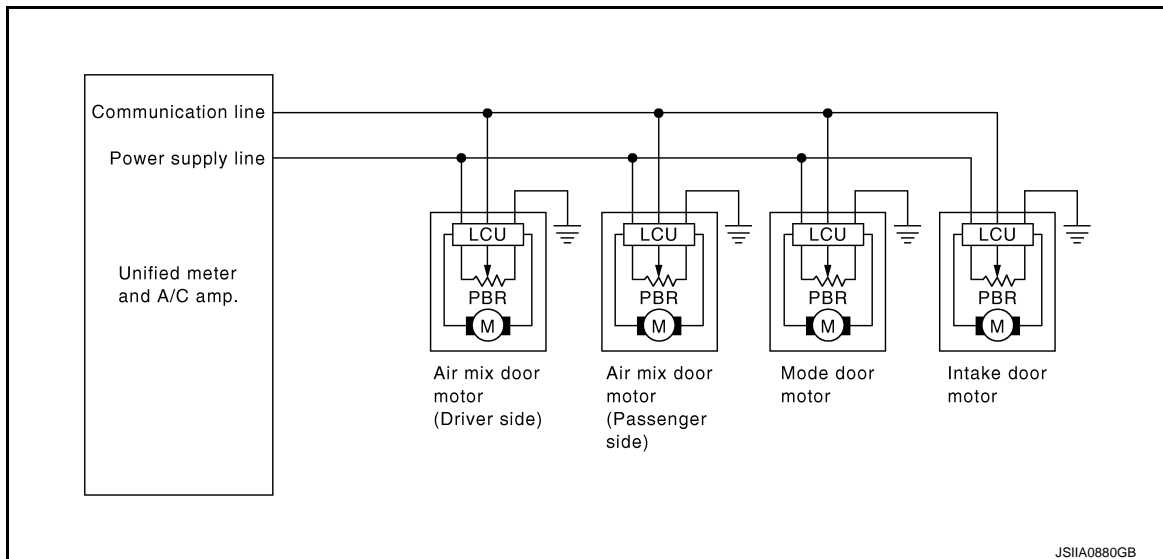
INFOID:000000004787893

The intake door is automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature, amount of sunload and ON/OFF operation of the compressor.

SYSTEM OPERATION

The intake door control judges intake door position based on the ambient temperature, the intake air temperature and the in-vehicle temperature. When shifting mode position D/F, when the DEF or OFF switches are pressed, or when A/C switch is OFF, the unified meter and A/C amp. sets the intake door at the FRE position.

Door Motor Circuit



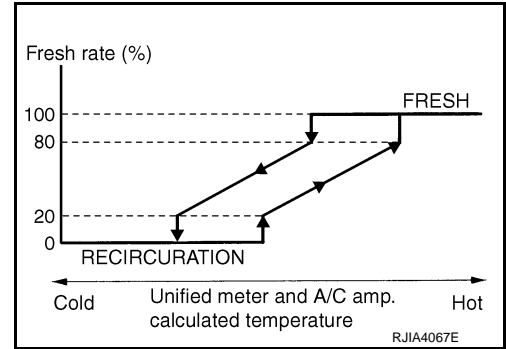
Intake Door Control Specification

INTAKE DOOR CONTROL SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

- Intake door position is basically fixed at FRE when REC indicator of intake switch is OFF or DEF switch is ON.
- Intake door position is basically fixed at REC when REC indicator of intake switch is ON.
- Intake door automatic control selects FRE, 20 - 80%FRE, or REC depending on a target air mix door opening angle, based on in-vehicle temperature, ambient temperature, and sunload.



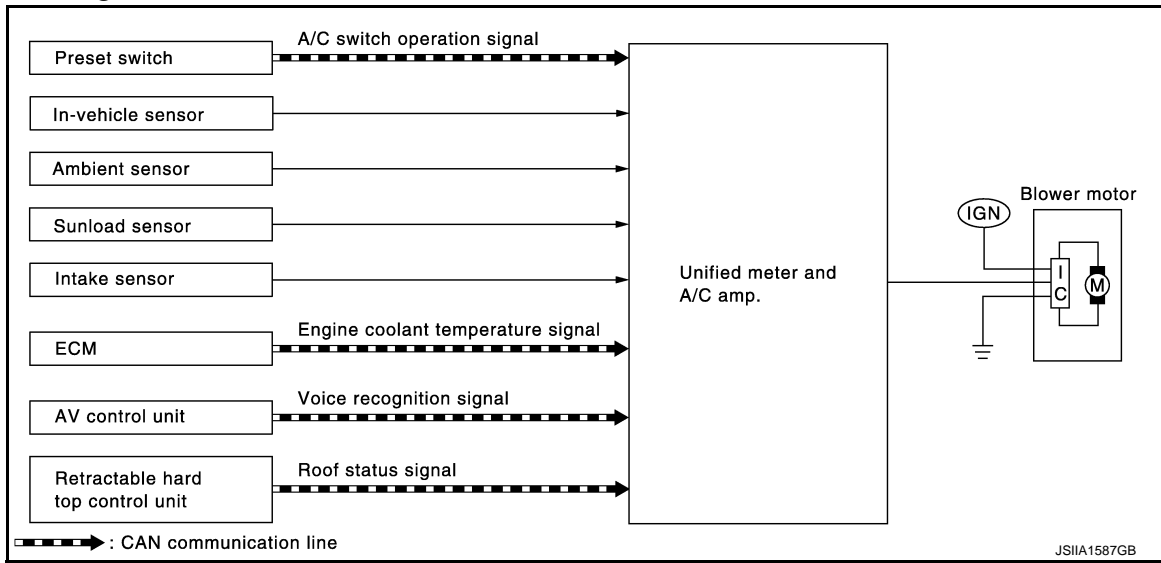
BLOWER MOTOR CONTROL SYSTEM

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

BLOWER MOTOR CONTROL SYSTEM

System Diagram



System Description

INFOID:000000004932984

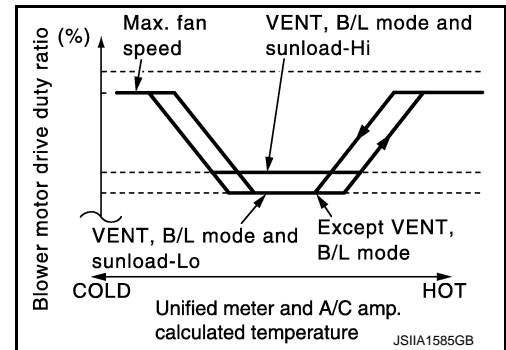
SYSTEM OPERATION

- For air flow, the manual selection (1-7 speed) with the fan control dial has priority.
- If the AUTO switch is pressed or if the DEF switch is pressed while in the OFF condition, it changes to the automatic control by unified meter and A/C amp.
- When increasing the air flow, it changes the duty ratio of blower fan motor control signal to prevent the air flow from suddenly increasing.
- There are the following types of air flow control: starting air flow control, starting air flow control at low coolant temperature, starting air flow control at high interior air temperature, air flow control at actuator operation, and air flow control at voice recognition in addition to manual control, normal automatic air flow control.

AIR FLOW CONTROL

Automatic Air Flow Control

- When the target temperature is set by the temperature control dial of preset switch, the unified meter and A/C amp. performs the calculation and decides the target air flow according to the signal from each sensor.
- The unified meter and A/C amp. changes the duty ratio of blower motor control signal and controls the air flow continuously so that the air flow becomes the target air flow.
- The minimum air flow will change according to the sunload when the air discharge outlet is VENT or B/L.



Starting Air Flow Control

- When starting the automatic control of air flow, the system gradually increases the duty ratio of the blower motor control signal to prevent too much air from blowing.
- The time period from when the air flow changes from LOW to HI is approximately 8 seconds.
- It becomes the starting air flow control at low coolant temperature according to the calculation result of auto amp and engine coolant temperature [approximately 56°C (133°F) or less] during the automatic air flow control.

BLOWER MOTOR CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

- Do not perform the starting air flow control when the air discharge outlet is set to DEF.

Low Coolant Temperature Starting Control

- It stops the blower motor for approximately 150 seconds at the maximum according to the target air mix door position based on the calculation result of unified meter and A/C amp. and engine coolant temperature [approximately 56°C (133°F) or less] when starting the automatic air flow control. Then, it increases the duty ratios gently so as not to blow cold air underfoot.
- Change the increase rate of the duty ratio to the normal automatic air flow control when the engine coolant temperature is approximately 56°C (133°F) or more in the starting air flow control at low coolant temperature.

High In-vehicle Temperature Starting Control

Turn the blower motor to OFF while the evaporator is cooled by the refrigerant (approximately 3 seconds) to prevent the hot air from blowing out when the evaporator temperature is high [approximately 35°C (95°F) or more of intake sensor detection temperature] at starting the blower motor.

Fan Speed Control at Door Motor Operation

When the mode door motor operated at the air flow automatic control, it decreases the air flow of the blower motor once and controls it so that the mode door motor moves smoothly.

Fan Speed Control at Voice Recognition (With Navigation)

When the voice command switch is operated at the air flow automatic control, it decreases the air flow of the blower motor once and controls it so as not to disturb the voice recognition function. In addition, this control continues while the voice recognition function is operating.

Fan Speed Control at roof open

When the roof is open and ambient temperature is low and high, the air flow is increased depending on vehicle speed. When the ambient temperature is low, the air flow is increased by vehicle speed becomes early. When the ambient temperature is high, the air flow is increased by vehicle speed becomes slowly.

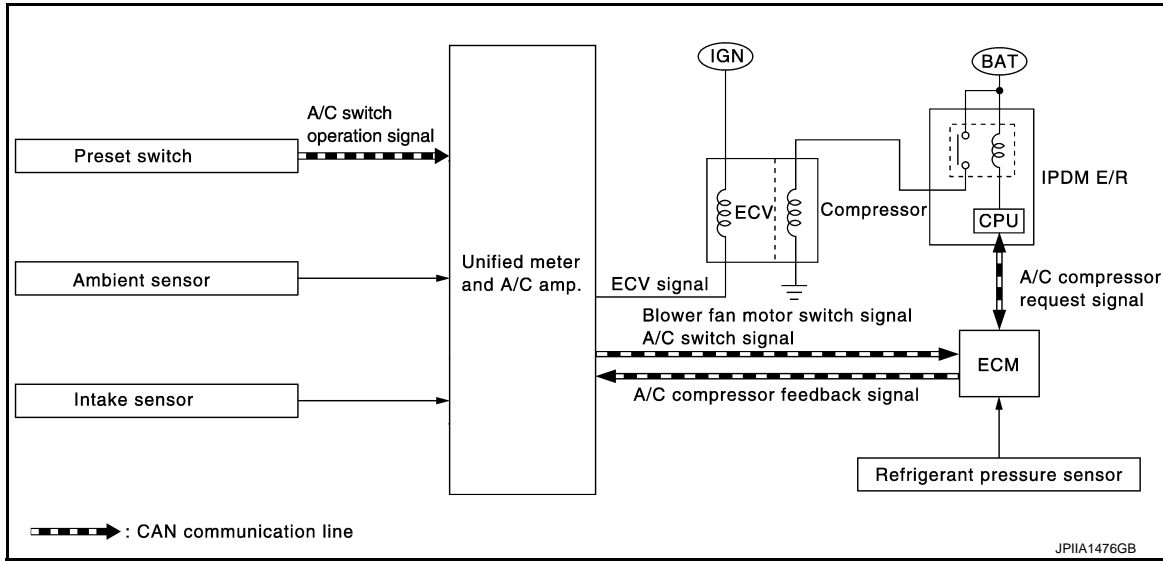
MAGNET CLUTCH CONTROL SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

MAGNET CLUTCH CONTROL SYSTEM

System Diagram



System Description

Unified meter and A/C amp. controls compressor operation by ambient temperature, intake air temperature and signal from ECM.

SYSTEM OPERATION

When A/C switch, AUTO switch, DEF switch is pressed, unified meter and A/C amp. transmits A/C switch signal and blower fan motor switch signal to ECM, via CAN communication.

ECM judges whether compressor can be turned ON, based on each sensor status (refrigerant-pressure sensor signal, throttle angle, etc.). If it judges compressor can be turned ON, it sends A/C compressor request signal to IPDM E/R, via CAN communication.

Upon receipt of A/C compressor request signal from ECM, IPDM E/R turns A/C relay ON to operate compressor.

When sending A/C compressor request signal to IPDM E/R via CAN communication line, ECM simultaneously sends A/C compressor feedback signal to unified meter and A/C amp. via CAN communication line.

ECM sends A/C compressor feedback signal to unified meter and A/C amp., then, uses input A/C compressor feedback signal to control air inlet.

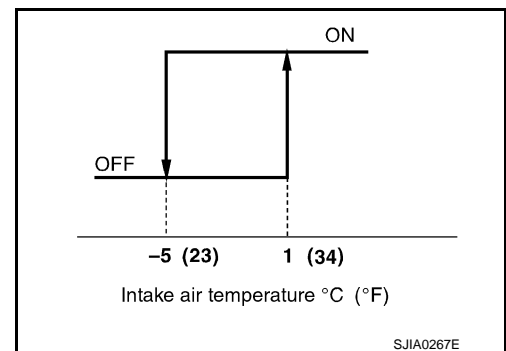
Compressor Protection Control

ECM makes the A/C relay go OFF and stops the compressor when pressure on the high-pressure side detected by refrigerant pressure sensor is over approximately 3,119 kPa (31.19 bar, 31.8 kg/cm², 452 psi), or below approximately 118 kPa (1.18 bar, 1.2 kg/cm², 17 psi).

Low Temperature Protection Control

It turns the A/C relay OFF and stops the compressor by the signal from unified meter and A/C amp. according to the evaporator passing air temperature detected by the intake sensor.

It turns the compressor to OFF when the evaporator passing air temperature becomes -5°C (23°F) or less. In addition, it turns the compressor to ON when the evaporator passing air temperature becomes 1°C (34°F) or more.



DIAGNOSIS SYSTEM (UNIFIED METER & A/C AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

DIAGNOSIS SYSTEM (UNIFIED METER & A/C AMP.)

Diagnosis Description

INFOID:000000004787898

SELF-DIAGNOSIS SYSTEM

The self-diagnosis system is built into the unified meter and A/C amp. to quickly locate the cause of malfunctions. The self-diagnosis system diagnoses sensors, door motors, blower motor, etc. by system line. Refer to applicable sections (items) for details.

OPERATION PROCEDURE

1. Start the engine (turn ignition switch ON).

NOTE:

When checking the procedure except step-4, it is possible to perform in the state of ignition switch ON.

2. Press the OFF switch at 5 seconds or more (within 10 seconds after ignition switch is turned ON).
3. Unified meter and A/C amp. self diagnosis mode starts.
4. "Test item" are changed by the following operation.

| Test item | | Operation | |
|---------------------|---|---|-----------------------|
| STEP-1 | Indicator and display screen are checked. | Former STEP-1 does not exist in this self-diagnosis function. | |
| STEP-2 | Input signals from each sensor are checked. | Turn temperature control dial (driver side) clockwise | ⇒ STEP-3 |
| STEP-3 | Mode and intake door motor positions are checked. | Turn temperature control dial (driver side) clockwise | ⇒ STEP-4 |
| | | Turn temperature control dial (driver side) counterclockwise | ⇒ STEP-2 |
| STEP-4*1 | Door motors are checked. | Turn temperature control dial (driver side) clockwise | ⇒ STEP-5 (1) |
| | | Turn temperature control dial (driver side) counterclockwise | ⇒ STEP-3 |
| STEP-5 (1) | Temperature detected by each sensor is checked. | Turn temperature control dial (driver side) counterclockwise | ⇒ STEP-4 |
| | | Press intake switch | ⇒ STEP-5 (2) |
| | | Press fan (UP: +) switch | ⇒ AUXILIARY MECHANISM |
| STEP-5 (2) | Communication error. | Turn temperature control dial (driver side) counterclockwise | ⇒ STEP-4 |
| | | Press intake switch | ⇒ STEP-5 (1) |
| | | Press fan (UP: +) switch | ⇒ AUXILIARY MECHANISM |
| AUXILIARY MECHANISM | Temperature setting trimmer. | Press fan (DOWN: -) switch | ⇒ STEP-5 (1) |
| | Foot position setting trimmer. | | |
| | Inlet port memory function. | | |
| | Gas sensor sensitivity adjustment function*2 | | |
| | Auto intake interlocking movement change function*2 | | |

*1: Engine must be running for compressor to operate.

*2: With ACCS

5. Self-diagnosis mode is canceled by either pressing AUTO switch or turning the ignition switch OFF.

CONFORMATION METHOD

1.SET IN SELF-DIAGNOSIS MODE

1. Turn ignition switch ON.
2. Set in self-diagnosis mode as per the following. Press OFF switch for at least 5 seconds Within 10 seconds after starting engine (ignition switch is turned ON).

DIAGNOSIS SYSTEM (UNIFIED METER & A/C AMP.)

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

NOTE:

- If battery voltage drops below 12 V during diagnosis STEP-3, door motor speed becomes slower and as a result, the system may generate an error even when operation is normal. Start engine before performing this diagnosis to avoid this.
- Former STEP-1 (indicators and display screen are checked) does not exist in this self-diagnosis function.
- OFF switch may not be recognized according to the timing of pressing it. Operate OFF switch after the intake switch indicators are turned ON.

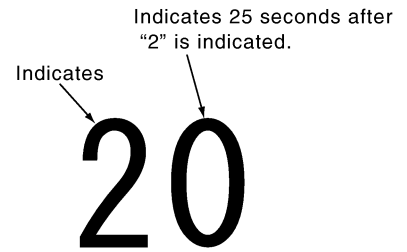
>> GO TO 2.

2. STEP-2: SENSOR AND DOOR MOTOR CIRCUITS ARE CHECKED FOR OPEN OR SHORT CIRCUIT

Does code No. 20 appear on the display?

- YES >> GO TO 3.
NO >> GO TO 11.

Display (when all sensors are in good order)



SJIA1778E

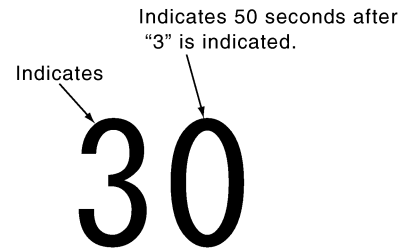
3. STEP-3: MODE DOOR AND INTAKE DOOR POSITIONS ARE CHECKED

Turn temperature control dial (driver side) clockwise.

Does code No. 30 appear on the display?

- YES >> GO TO 4.
NO >> GO TO 12.

Display (when all doors are in good order)



SJIA1779E

4. STEP-4: OPERATION OF EACH DOOR MOTOR IS CHECKED

1. Turn temperature control dial (driver side) clockwise.
2. Press DEF (DEF) switch. Code No. of each door motor test is indicated on the display.

>> GO TO 5.



SJIA1780E

5. CHECK DOOR MOTORS

Refer to the following chart and check discharge air flow, air temperature, blower motor duty ratio and compressor operation.

| Code No. | 41 | 42 | 43 | 44 | 45 | 46 |
|-----------------------|-----------|-----------|----------|----------|----------|----------|
| Mode door position | VENT | B/L 1 | B/L 2 | FOOT | D/F | DEF |
| Intake door position | REC | REC | 20% FRE | FRE | FRE | FRE |
| Air mix door position | FULL COLD | FULL COLD | FULL HOT | FULL HOT | FULL HOT | FULL HOT |

DIAGNOSIS SYSTEM (UNIFIED METER & A/C AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

| Code No. | 41 | 42 | 43 | 44 | 45 | 46 |
|---|------|------|-------|-------|-----|------|
| Blower motor duty ratio | 37% | 91% | 65% | 65% | 65% | 91% |
| Compressor (Magnet clutch) | ON | ON | OFF | OFF | ON | ON |
| Electronic control valve (ECV) duty ratio | 100% | 100% | 0% | 0% | 50% | 100% |
| Ionizer* | ON | ON | ON | ON | ON | OFF |
| Ion mode* | ION | ION | CLEAN | CLEAN | ION | OFF |

*: With ACCS

Checks must be made visually, by listening the sound, or by touching air outlets with hand, etc. for improper operation. Refer to [VTL-5, "System Description"](#).

Is this inspection result normal?

YES >> GO TO 6.

NO-1 >> Air outlet does not change. Refer to [HAC-51, "Diagnosis Procedure"](#).

NO-2 >> Intake door does not change. Refer to [HAC-57, "Diagnosis Procedure"](#).

NO-3 >> Discharge air temperature (driver side) does not change. Refer to [HAC-53, "Diagnosis Procedure"](#).

NO-4 >> Discharge air temperature (passenger side) does not change. Refer to [HAC-55, "Diagnosis Procedure"](#).

NO-5 >> Blower motor operation is malfunctioning. Refer to [HAC-59, "Diagnosis Procedure"](#).

NO-6 >> Magnet clutch does not engage. Refer to [HAC-63, "Diagnosis Procedure"](#).

NO-7 >> Plasmacluster system does not operate. Refer to [HAC-127, "Inspection procedure"](#).

6. STEP-5: TEMPERATURE OF EACH SENSOR IS CHECKED

- Turn temperature control dial (driver side) clockwise.
- Code No. 51 appears on the display.

>> GO TO 7.

7. CHECK AMBIENT SENSOR

Press DEF (⚡) switch one time. Temperature detected by ambient sensor is indicated on the display.

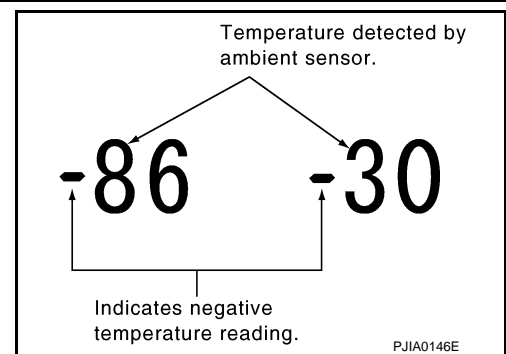
NOTE:

Check sensor circuit first if the temperature indicated on the display greatly differs from the actual temperature, and then check sensor.

Is this inspection result normal?

YES >> GO TO 8.

NO >> Go to Ambient Sensor Circuit. Refer to [HAC-67, "Diagnosis Procedure"](#).



8. CHECK IN-VEHICLE SENSOR

Press DEF (⚡) switch for the second time. Temperature detected by in-vehicle sensor is indicated on the display.

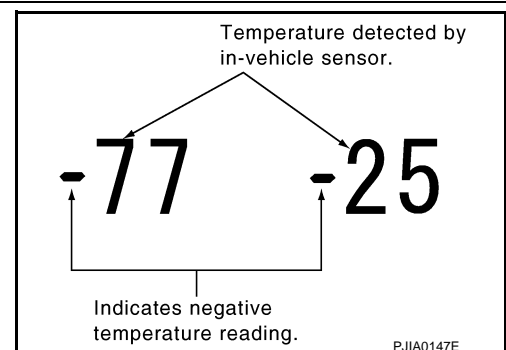
NOTE:

Check sensor circuit first if the temperature indicated on the display greatly differs from the actual temperature, and then check sensor.

Is this inspection result normal?

YES >> GO TO 9.

NO >> Go to In-vehicle Sensor Circuit. Refer to [HAC-71, "Diagnosis Procedure"](#).



9. CHECK INTAKE SENSOR

DIAGNOSIS SYSTEM (UNIFIED METER & A/C AMP.)

[AUTOMATIC AIR CONDITIONER]

< SYSTEM DESCRIPTION >

Press DEF (⚡) switch for the third time. Temperature detected by intake sensor is indicated on the display.

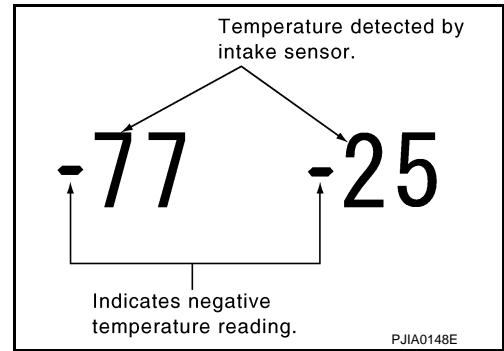
NOTE:

Check sensor circuit first if the temperature indicated on the display greatly differs from the actual temperature, and then check sensor.

Is this inspection result normal?

YES >> GO TO 10.

NO >> Go to Intake Sensor Circuit. Refer to [HAC-76. "Diagnosis Procedure"](#).



10. CHECK CAN COMMUNICATION ERROR

1. Press intake switch.
2. CAN communication error between each unit that uses the unified meter and A/C amp. can be detected as self-diagnosis results. (The display of each error will blink twice for 0.5 second intervals if plural errors occur.)

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to CAN communication (Unified meter and A/C amp. - AV control unit). Refer to [MWI-41. "Diagnosis Procedure"](#).

| Display | CAN communication error |
|----------|--|
| 52 | In good order |
| 52 ■■■■■ | AV Control unit ⇨ Unified meter and A/C amp. |
| 52 ■■■■■ | Unified meter and A/C amp. ⇨ All unit |

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11. CHECK MALFUNCTIONING SENSOR AND DOOR MOTOR

Refer to the following chart for malfunctioning code No.

(Corresponding code Nos. indicates 1 second each if two or more sensors and door motors malfunction.)

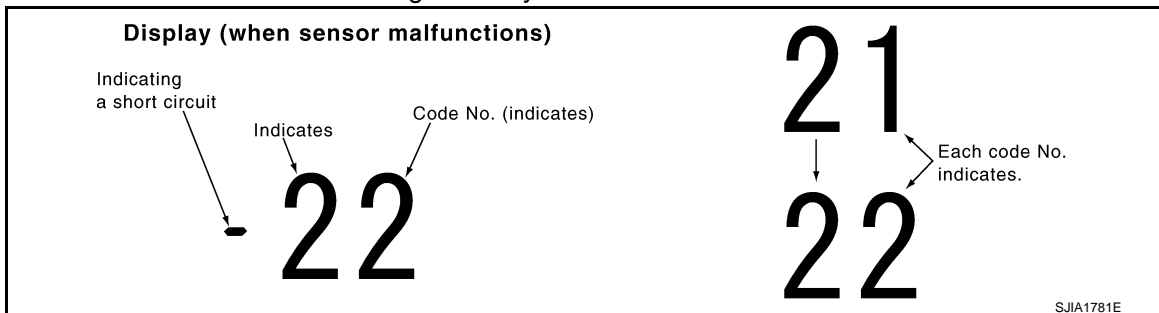
(Corresponding code Nos. indicates 0.5 second each if two door motors malfunction.)

| Code No. | Malfunctioning sensor and door motor (Including circuits) | Reference |
|----------|---|---|
| 21 / -21 | Ambient sensor | HAC-67. "Diagnosis Procedure" |
| 22 / -22 | In-vehicle sensor | HAC-71. "Diagnosis Procedure" |
| 24 / -24 | Intake sensor | HAC-76. "Diagnosis Procedure" |
| 25 / -25 | Sunload sensor *1 | HAC-73. "Diagnosis Procedure" |
| 26 / -26 | Air mix door motor PBR (Driver side) | HAC-53. "Diagnosis Procedure" |
| 27 / -27 | Air mix door motor PBR (Passenger side) | HAC-55. "Diagnosis Procedure" |
| 28 / -28 | Gas sensor *2 | HAC-80. "Diagnosis Procedure" |
| 29 / -29 | Harness of gas sensor *2 | |

*1: Perform self-diagnosis STEP-2 under sunshine.

*2: With ACCS

When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise code No. 25 indicates despite that sunload sensor is functioning normally.



>> INSPECTION END

DIAGNOSIS SYSTEM (UNIFIED METER & A/C AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONER]

12.CHECK MALFUNCTIONING DOOR MOTOR POSITION SWITCH

Mode and/or intake door motor PBR(s) is/are malfunctioning.

| Code No. *1 *2 | Mode or intake door position | | Reference |
|----------------|------------------------------|-------------------|---|
| 31 | VENT | Mode door motor | HAC-51. "Diagnosis Procedure" |
| 32 | DEF | | |
| 37 | FRE | Intake door motor | HAC-57. "Diagnosis Procedure" |
| 38 | 20% FRE | | |
| 39 | REC | | |

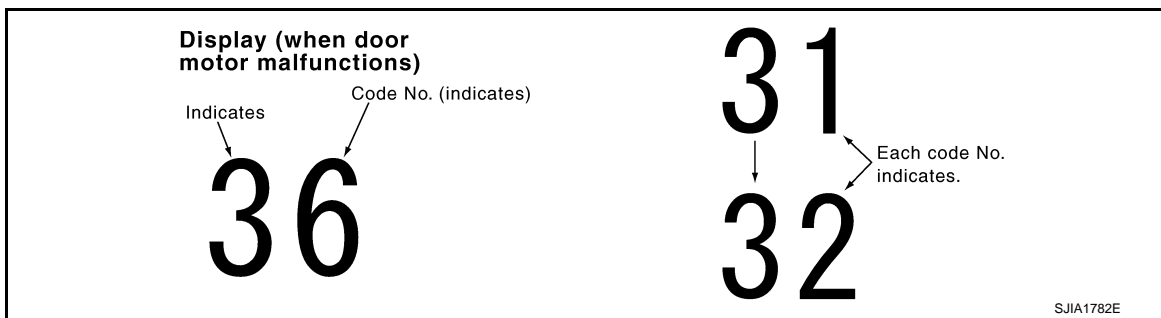
(Corresponding code Nos. indicates 1 second each if two or more mode or intake door motors malfunction.)

*1: The following display pattern will appear if mode door motor harness connector is disconnected.

31→32→Return to 31

*2: The following display pattern will appear if intake door motor harness connector is disconnected.

37→38→39→Return to 37



>> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT UNIFIED METER AND A/C AMP.

UNIFIED METER AND A/C AMP. : Diagnosis Procedure

INFOID:000000004803029

1. CHECK FUSE

Check 10A fuses [Nos. 3, 11 and 19, located in the fuse block (J/B)].

NOTE:

Refer to [PG-94, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check harness for short circuit and replace fuse.

2. CHECK POWER SUPPLY CIRCUIT FOR UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check voltage between unified meter and A/C amp. harness connector and ground.

| (+) | | (-) | Voltage | | |
|----------------------------|----------|--------|--------------------------|-----------------|-----------------|
| Unified meter and A/C amp. | | — | Ignition switch position | | |
| Connector | Terminal | | OFF | ACC | ON |
| M67 | 54 | Ground | Battery voltage | Battery voltage | Battery voltage |
| | 41 | | Approx. 0 V | Battery voltage | Battery voltage |
| | 53 | | Approx. 0 V | Approx. 0 V | Battery voltage |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK GROUND CIRCUIT FOR UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Check continuity between unified meter and A/C amp. harness connector and ground.

| Unified meter and A/C amp. | | (-) | Continuity |
|----------------------------|----------|-----|------------|
| Connector | Terminal | — | Ground |
| M67 | 55 | | |
| | 71 | | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

UNIFIED METER AND A/C AMP.

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

UNIFIED METER AND A/C AMP.

Description

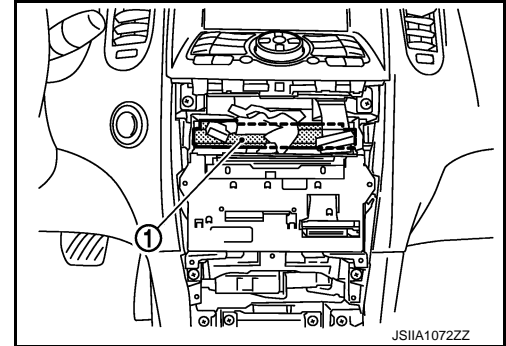
INFOID:000000004803030

COMPONENT DESCRIPTION

Unified Meter and A/C Amp. (Automatic Amplifier)

The unified meter and A/C amp. (1) has a built-in microcomputer which processes information sent from various sensors needed for air conditioner operation. The air mix door motors, mode door motor, intake door motor, blower motor and compressor are then controlled. When the various switches and temperature control dial are operated, data is input to the unified meter and A/C amp. from the AV control unit using CAN communication.

Self-diagnosis functions are also built into unified meter and A/C amp. to provide quick check of malfunctions in the auto air conditioner system.



Component Function Check

INFOID:000000004803031

1. CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Press AUTO switch.
2. Display should indicate AUTO. Confirm that the compressor clutch engages (sound or visual inspection). (Discharge air and fan speed depend on ambient, in-vehicle and set temperatures.)

Does magnet clutch engaged?

- YES >> INSPECTION END
NO >> Go to Diagnosis Procedure. Refer to [HAC-50. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004803032

1. INSPECTION BY FAIL-SAFE FUNCTION

1. Turn the ignition switch ON.
2. After approximately 30 seconds, check that the air conditioner is operated by the fail-safe function (the operation display of air conditioner is not performed). Refer to [HAC-116. "Fail-safe"](#).

Is the fail-safe function operated?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK UNIFIED METER AND A/C AMP. POWER SUPPLY CIRCUIT AND GROUND

Check unified meter and A/C amp. power supply circuit and ground circuit. Refer to [HAC-49. "UNIFIED METER AND A/C AMP. : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace parts according to the inspection results.

3. CHECK PRESET SWITCH

Check preset switch. Refer to the following.

- [AV-146. "Symptom Table"](#) (BASE AUDIO WITHOUT NAVIGATION)
- [AV-444. "Symptom Table"](#) (BOSE AUDIO WITHOUT NAVIGATION)
- [AV-725. "Symptom Table"](#) (BOSE AUDIO WITH NAVIGATION)

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Repair or replace malfunctioning part.

MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

MODE DOOR MOTOR

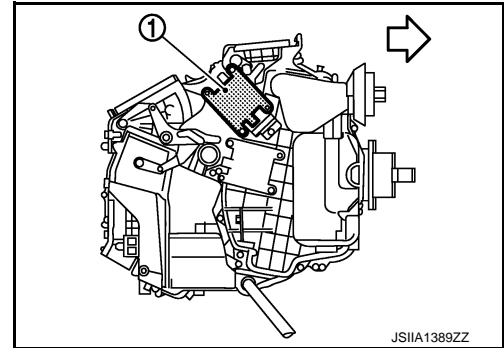
Description

INFOID:000000004803033

COMPONENT DESCRIPTION

Mode Door Motor

The mode door motor (1) is attached to the heater & cooling unit assembly. It rotates so that air is discharged from the outlet set by the unified meter and A/C amp. Motor rotation is conveyed to a link which activates the mode door.



←: Vehicle front

Component Function Check

INFOID:000000004803034

1. CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Press MODE switch and DEF switch.
2. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to [VTL-5, "System Description"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to diagnosis procedure. Refer to [HAC-51, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004803035

1. CHECK MODE DOOR CONTROL LINKAGE

Check mode door control linkage is properly installed. Refer to [HAC-138, "Exploded View"](#).

Is it installed normally?

YES >> GO TO 2.

NO >> Repair or adjust control linkage.

2. CHECK POWER SUPPLY FOR MODE DOOR MOTOR

Check voltage between mode door motor harness connector and ground.

| (+) | | (-) | Voltage (Approx.) |
|-----------------|----------|--------|----------------------|
| Mode door motor | | — | |
| Connector | Terminal | | |
| M253 | 1 | Ground | 12 V |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

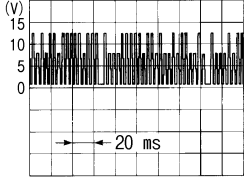
3. CHECK SIGNAL FOR MODE DOOR MOTOR

Confirm A/C LAN signal between mode door motor harness connector and ground using an oscilloscope.

MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage |
|-----------------|----------|--------|--|
| Mode door motor | | — | |
| Connector | Terminal | | |
| M253 | 3 | Ground |  <p style="text-align: right;">SJIA1453J</p> |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK MODE DOOR MOTOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect mode door motor connector.
3. Check continuity between mode door motor harness connector and ground.

| Mode door motor | | — | Continuity |
|-----------------|----------|--------|------------|
| Connector | Terminal | | |
| M253 | 2 | Ground | Existed |

Is the inspection result normal?

YES >> Replace mode door motor.

NO >> Repair harness or connector.

AIR MIX DOOR MOTOR (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

AIR MIX DOOR MOTOR (DRIVER SIDE)

Description

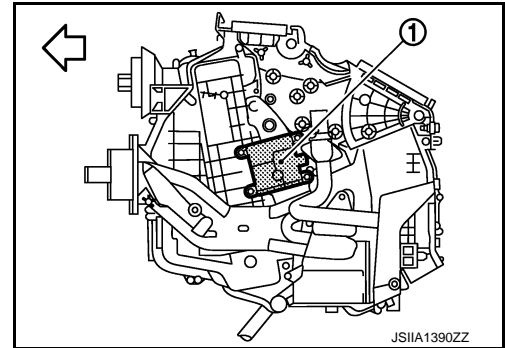
INFOID:000000004941308

COMPONENT DESCRIPTION

Air Mix Door Motor

The air mix door motor (driver side) (1) is attached to the heater & cooling unit assembly. It rotates so that the air mix door is opened or closed to a position set by the unified meter and A/C amp. Motor rotation is then conveyed through a shaft and the air mix door position feedback is then sent to the unified meter and A/C amp. by PBR built-in air mix door motors.

←: Vehicle front



Component Function Check

INFOID:000000004941309

1. CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Turn temperature control dial (driver side) clockwise until 32.0°C (90°F) is displayed.
2. Check for warm air at discharge air outlets.
3. Turn temperature control dial (driver side) counterclockwise until 18.0°C (60°F) is displayed.
4. Check for cool air at discharge air outlets.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to diagnosis procedure. Refer to [HAC-53. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004941310

1. CHECK INSTALLATION OF AIR MIX DOOR MOTOR (DRIVER SIDE)

Check air mix door motor (driver side) is properly installed. Refer to [HAC-138. "Exploded View"](#).

Is it installed normally?

YES >> GO TO 2.

NO >> Repair or replace air mix door motor.

2. CHECK POWER SUPPLY FOR AIR MIX DOOR MOTOR (DRIVER SIDE)

Check voltage between air mix door motor (driver side) harness connector and ground.

| (+) | | (-) | Voltage (Approx.) |
|--------------------|----------|--------|-------------------|
| Air mix door motor | | — | |
| Connector | Terminal | | |
| M252 | 1 | Ground | 12 V |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

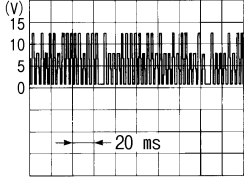
3. CHECK SIGNAL FOR AIR MIX DOOR MOTOR (DRIVER SIDE)

Confirm A/C LAN signal between air mix door motor (driver side) harness connector and ground using an oscilloscope.

AIR MIX DOOR MOTOR (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage |
|--------------------|----------|--------|---|
| Air mix door motor | | — | |
| Connector | Terminal | | |
| M252 | 3 | Ground |  <p style="text-align: right; font-size: small;">SJI1453J</p> |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect air mix door motor (driver side) connector.
3. Check continuity between air mix door motor (driver side) harness connector and ground.

| Air mix door motor | | — | Continuity |
|--------------------|----------|--------|------------|
| Connector | Terminal | | |
| M252 | 2 | Ground | Existed |

Is the inspection result normal?

YES >> Replace air mix door motor (driver side).

NO >> Repair harness or connector.

AIR MIX DOOR MOTOR (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

AIR MIX DOOR MOTOR (PASSENGER SIDE)

Description

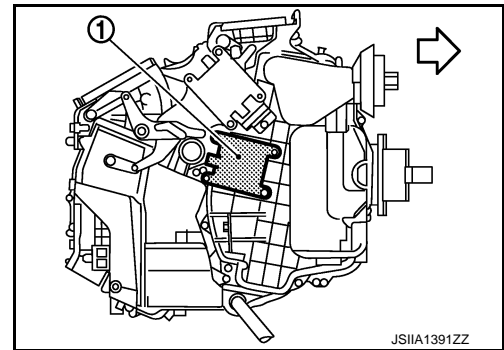
INFOID:000000004941311

COMPONENT DESCRIPTION

Air Mix Door Motor

The air mix door motor (passenger side) (1) is attached to the heater & cooling unit assembly. It rotates so that the air mix door is opened or closed to a position set by the unified meter and A/C amp. Motor rotation is then conveyed through a shaft and the air mix door position feedback is then sent to the unified meter and A/C amp. by PBR built-in air mix door motors.

←: Vehicle front



JSIA1391ZZ

Component Function Check

INFOID:000000004941312

1.CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Turn temperature control dial (passenger side) clockwise until 32.0°C (90°F) is displayed.
2. Check for warm air at discharge air outlets.
3. Turn temperature control dial (passenger side) counterclockwise until 18.0°C (60°F) is displayed.
4. Check for cool air at discharge air outlets.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to diagnosis procedure. Refer to [HAC-55. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004941313

1.CHECK INSTALLATION OF AIR MIX DOOR MOTOR (PASSENGER SIDE)

Check air mix door motor (passenger side) is properly installed. Refer to [HAC-138. "Exploded View"](#).

Is it installed normally?

YES >> GO TO 2.

NO >> Repair or replace air mix door motor.

2.CHECK POWER SUPPLY FOR AIR MIX DOOR MOTOR (PASSENGER SIDE)

Check voltage between air mix door motor (passenger side) harness connector and ground.

| (+) | | (-) | Voltage (Approx.) |
|--------------------|----------|--------|----------------------|
| Air mix door motor | | — | |
| Connector | Terminal | | |
| M255 | 1 | Ground | 12 V |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

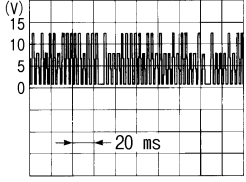
3.CHECK SIGNAL FOR AIR MIX DOOR MOTOR (PASSENGER SIDE)

Confirm A/C LAN signal between air mix door motor (passenger side) harness connector and ground using an oscilloscope.

AIR MIX DOOR MOTOR (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage |
|--------------------|----------|--------|---|
| Air mix door motor | | — | |
| Connector | Terminal | — | |
| M255 | 3 | Ground |  <p style="text-align: right; font-size: small;">SJI1453J</p> |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect air mix door motor (passenger side) connector.
3. Check continuity between air mix door motor (passenger side) harness connector and ground.

| Air mix door motor | | — | Continuity |
|--------------------|----------|--------|------------|
| Connector | Terminal | — | |
| M255 | 2 | Ground | Existed |

Is the inspection result normal?

YES >> Replace air mix door motor (passenger side).

NO >> Repair harness or connector.

INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

INTAKE DOOR MOTOR

Description

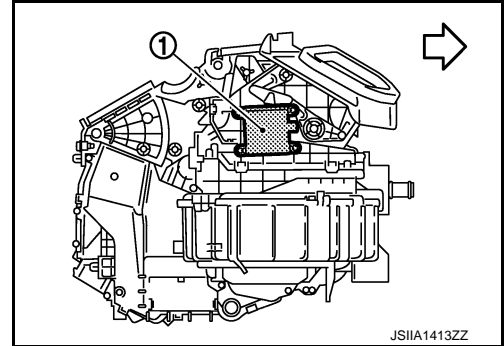
INFOID:000000004803041

COMPONENT DESCRIPTION

Intake Door Motor

The intake door motor (1) is attached to the blower unit. It rotates so that air is drawn from inlets set by the unified meter and A/C amp. Motor rotation is conveyed to a lever which activates the intake door.

←: Vehicle front



Component Function Check

INFOID:000000004803042

1.CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Press intake switch.
2. REC indicator turns ON.
3. Listen for intake door position change (Slight change of blower sound can be heard).
4. Press intake switch again.
5. FRE indicator turns ON.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to diagnosis procedure. Refer to [HAC-57, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004803043

1.CHECK INTAKE DOOR CONTROL LINKAGE

Check intake door control linkage is properly installed. Refer to [HAC-138, "Exploded View"](#).

Is it installed normally?

YES >> GO TO 2.

NO >> Repair or adjust control linkage.

2.CHECK POWER SUPPLY FOR INTAKE DOOR MOTOR

Check voltage between intake door motor harness connector and ground.

| (+) | | (-) | Voltage (Approx.) |
|-------------------|----------|--------|----------------------|
| Intake door motor | | — | |
| Connector | Terminal | Ground | |
| M254 | 1 | | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

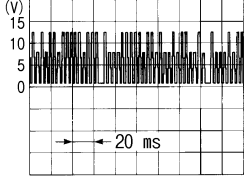
3.CHECK SIGNAL FOR INTAKE DOOR MOTOR

Confirm A/C LAN signal between intake door motor harness connector and ground using an oscilloscope.

INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage |
|-------------------|----------|--------|--|
| Intake door motor | | — | |
| Connector | Terminal | | |
| M254 | 3 | Ground |  <p style="text-align: right; font-size: small;">SJIA1453J</p> |

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Repair harness or connector.

4. CHECK INTAKE DOOR MOTOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect intake door motor connector.
3. Check continuity between intake door motor harness connector and ground.

| Intake door motor | | — | Continuity |
|-------------------|----------|--------|------------|
| Connector | Terminal | | |
| M254 | 2 | Ground | Existed |

Is the inspection result normal?

- YES >> Replace intake door motor.
 NO >> Repair harness or connector.

BLOWER MOTOR

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

BLOWER MOTOR

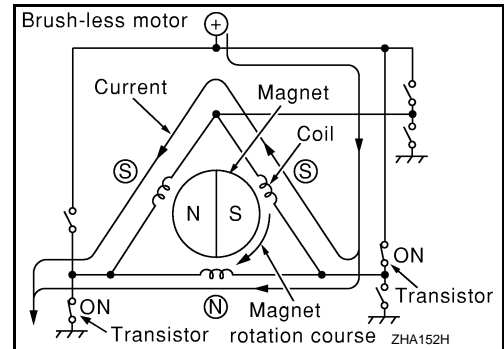
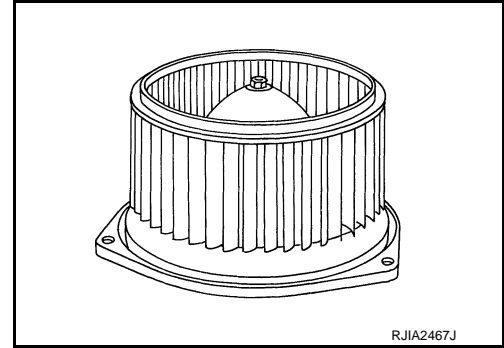
Description

INFOID:000000004787913

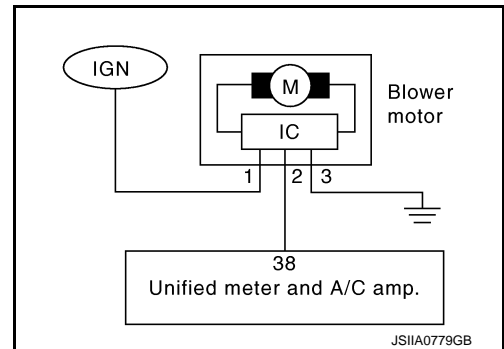
COMPONENT DESCRIPTION

Brush-less Motor

The blower motor utilizes a brush-less motor with a rotating magnet. Quietness is improved over previous motors where the brush was the point of contact and the coil rotated.



Blower motor circuit



Component Function Check

INFOID:000000004787914

1. CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Start engine and warm it up to normal operating temperature.
2. Press fan (UP: +) switch. Blower should operate on low speed.
3. Press fan (UP: +) switch, and continue checking fan speed and fan symbol until all speeds checked.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to diagnosis procedure. Refer to [HAC-59, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004803044

1. CHECK POWER SUPPLY FOR THE BLOWER MOTOR

1. Turn ignition switch OFF.

BLOWER MOTOR

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect the blower motor connector.
3. Turn ignition switch ON.
4. Check voltage between the blower motor harness connector and ground.

| (+) | | (-) | Voltage |
|--------------|----------|--------|-----------------|
| Blower motor | | — | |
| Connector | Terminal | | |
| M109 | 1 | Ground | Battery voltage |

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 5.

2. CHECK THE BLOWER MOTOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between the blower motor harness connector and ground.

| Blower motor | | — | Continuity |
|--------------|----------|--------|------------|
| Connector | Terminal | | |
| M109 | 3 | Ground | Existed |

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair harness or connector.

3. CHECK CIRCUIT CONTINUITY BETWEEN THE BLOWER MOTOR AND UNIFIED METER AND A/C AMP.

1. Disconnect unified meter and A/C amp. connector.
2. Check continuity between the blower motor harness connector and unified meter and A/C amp. harness connector.

| Blower motor | | Unified meter and A/C amp. | | Continuity |
|--------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M109 | 2 | M66 | 38 | Existed |

3. Check continuity between the blower motor harness connector and ground.

| Blower motor | | — | Continuity |
|--------------|----------|--------|-------------|
| Connector | Terminal | | |
| M109 | 2 | ground | Not existed |

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4. CHECK UNIFIED METER AND A/C AMP. OUTPUT SIGNAL

1. Reconnect the blower motor connector and unified meter and A/C amp. connector.
2. Turn ignition switch ON.
3. Set MODE switch to VENT position.
4. Change fan speed from Lo to Hi, and check duty ratios between the blower motor harness connector and ground by using an oscilloscope.

NOTE:

Calculate the drive signal duty ratio as shown in the figure.

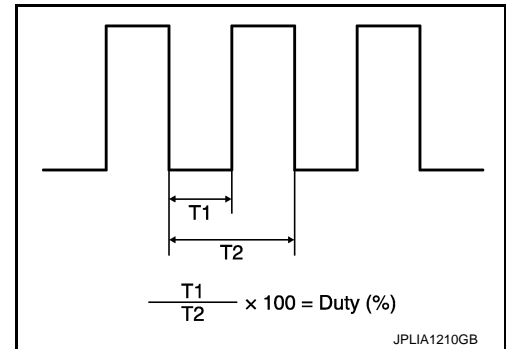
BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

T2 = 1.6 ms

| Blower motor | | Condition | Duty ratio (Approx.) |
|--------------|----------|--|----------------------|
| Connector | Terminal | <ul style="list-style-type: none"> fan speed: manual VENT mode | |
| M109 | 2 | 1st | 25 % |
| | | 2nd | 33 % |
| | | 3rd | 41 % |
| | | 4th | 51 % |
| | | 5th | 61 % |
| | | 6th | 71 % |
| | | 7th | 83 % |



Is the inspection result normal?

- YES >> Replace the blower motor after confirming the fan air flow does not change.
 NO >> Replace unified meter and A/C amp.

5. CHECK POWER VOLTAGE OF BLOWER RELAY

- Turn ignition switch OFF.
- Remove blower relay. Refer to [PG-94, "Fuse, Connector and Terminal Arrangement"](#).
- Turn ignition switch ON.
- Check the voltage between blower relay fuse block terminals and ground. Refer to [PG-92, "Description"](#) for relay terminal assignment.

| (+) | (-) | Voltage |
|--------------|--------|-----------------|
| Blower relay | — | |
| 1 | Ground | Battery voltage |
| 3 | | |

Is the inspection result normal?

- YES >> GO TO 6.
 NO >> Check ignition power supply circuit. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).

6. CHECK BLOWER RELAY

- Turn ignition switch OFF.
- Install blower relay. Refer to [PG-94, "Fuse, Connector and Terminal Arrangement"](#).
- Check operation sound of the blower relay after switching ignition switch ON.

Is the inspection result normal?

- YES >> GO TO 7.
 NO >> Replace blower relay.

7. CHECK FUSE

Check fuse 15A [Nos 21 and 22, located in the fuse block (J/B)]. Refer to [PG-94, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> Repair harness or connector.
 NO >> Be sure to eliminate cause of malfunction before installing new fuse.

Component Inspection

INFOID:000000004803045

1. CHECK THE BLOWER MOTOR

- Remove the blower motor. Refer to [VTL-16, "Exploded View"](#).
- Confirm smooth rotation of the blower motor.

Is the inspection result normal?

BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

YES >> INSPECTION END

NO >> Replace the blower motor.

MAGNET CLUTCH

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

MAGNET CLUTCH

Description

INFOID:000000004803046

Magnet clutch drives a compressor, by a signal of IPDM E/R.

Component Function Check

INFOID:000000004803047

1. CONFIRM SYMPTOM BY PERFORMING THE FOLLOWING OPERATIONAL CHECK

1. Press AUTO switch.
2. Display should indicate AUTO. Confirm that the magnet clutch engages (sound or visual inspection). (Discharge air and fan speed depend on ambient, in-vehicle and set temperatures.)

Does the magnet clutch operate?

- YES >> INSPECTION END
NO >> Go to Diagnosis Procedure. Refer to [HAC-63, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004950548

1. PERFORM IPDM E/R AUTO ACTIVE TEST

Perform IPDM E/R auto active test. Refer to [PCS-9, "Diagnosis Description"](#).

Does the magnet clutch operate?

- YES-1 >> WITH CONSULT-III: GO TO 4.
YES-2 >> WITHOUT CONSULT-III: GO TO 5.
NO >> Check 10A fuse (No. 49, located in IPDM E/R), and GO TO 2.

2. CHECK CIRCUIT CONTINUITY BETWEEN IPDM E/R AND COMPRESSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and compressor connector.
3. Check continuity between IPDM E/R harness connector and compressor harness connector.

| IPDM E/R | | Compressor | | Continuity |
|-----------|----------|------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E7 | 48 | F43 | 1 | Existed |

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair harness or connector.

3. CHECK MAGNET CLUTCH CIRCUIT

Check for operation sound when applying battery voltage direct current to terminal.

Is the inspection result normal?

- YES >> Replace IPDM E/R.
NO >> Replace magnet clutch. Refer to [HA-39, "MAGNET CLUTCH : Removal and Installation of Compressor Clutch"](#).

4. CHECK CAN COMMUNICATION

Check CAN communication. Refer to [LAN-16, "Trouble Diagnosis Flow Chart"](#).

- ECM – IPDM E/R
- ECM – Unified meter and A/C amp.

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. CHECK REFRIGERANT PRESSURE SENSOR

WITH CONSULT-III

1. Start the engine.
2. Check voltage of refrigerant pressure sensor in "Data monitor". Refer to [EC-518, "Reference Value"](#).

MAGNET CLUTCH

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

WITHOUT CONSULT-III

Check voltage between ECM harness connector and ground. Refer to [EC-516. "Component Function Check"](#).

Is the inspection result normal?

YES-1 >> WITH CONSULT-III: GO TO 6.

YES-2 >> WITHOUT CONSULT-III: Repair harness or connector.

NO >> Refer to [EC-516. "Diagnosis Procedure"](#).

6. CHECK ECM INPUT SIGNAL

Check A/C switch signal and blower fan motor switch signal in "Data monitor". Refer to [EC-518. "Reference Value"](#).

| Monitor item | Condition | Status |
|---------------|-----------------|--------|
| AIR COND SIG | A/C switch: OFF | Off |
| | A/C switch: ON | On |
| HEATER FAN SW | Fan switch: OFF | Off |
| | Fan switch: ON | On |

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace unified meter and A/C amp.

7. CHECK IPDM E/R INPUT SIGNAL

Check A/C compressor request signal in "Data monitor". Refer to [EC-518. "Reference Value"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> Replace ECM.

ECV (ELECTRICAL CONTROL VALVE)

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

ECV (ELECTRICAL CONTROL VALVE)

Description

INFOID:000000004941496

The ECV (electrical control valve) is installed on the compressor and controls it for emitting appropriate amount of refrigerant when necessary.

Diagnosis Procedure

INFOID:000000004941497

1. CHECK FUSE

Check 10A fuse [No. 3, located in the fuse block (J/B)].

NOTE:

Refer to [PG-94, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the fuse after repairing the applicable circuit.

2. CHECK ECV POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the ECV connector.
3. Turn the ignition switch ON.
4. Check voltage between the ECV harness connector and ground.

| (+) | | (-) | Voltage |
|-----------|----------|--------|-----------------|
| ECV | | — | |
| Connector | Terminal | | |
| F44 | 2 | Ground | Battery voltage |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3. CHECK ECV CONTROL SIGNAL

1. Turn the ignition switch OFF.
2. Connect the ECV connector.
3. Perform the self-diagnosis STEP-4 (Code No. 45). Refer to [HAC-44, "Diagnosis Description"](#).
4. Check output waveform between the unified meter and A/C amp. harness connector and ground with the oscilloscope.

| (+) | | (-) | Condition | Output waveform |
|----------------------------|----------|--------|---|---|
| unified meter and A/C amp. | | — | | |
| Connector | Terminal | | | |
| M67 | 65 | Ground | <ul style="list-style-type: none">• Ignition switch ON• Self-diagnosis. STEP-4 (Code No. 45) | Duty ratio: approx. 50 % SJIA1607E |

Is the inspection result normal?

YES >> Replace the compressor.

NO >> GO TO 4.

4. CHECK CONTINUITY BETWEEN ECV AND UNIFIED METER AND A/C AMP.

1. Turn the ignition switch OFF.
2. Disconnect the ECV connector.

ECV (ELECTRICAL CONTROL VALVE)

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

3. Disconnect the unified meter and A/C amp. connector.
4. Check continuity between the ECV harness connector and unified meter and A/C amp. harness connector.

| ECV | | unified meter and A/C amp. | | Continuity |
|-----------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| F44 | 3 | M67 | 65 | Existed |

5. Check for continuity between the ECV harness connector and ground.

| ECV | | — | Continuity |
|-----------|----------|--------|-------------|
| Connector | Terminal | | |
| F44 | 3 | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5.CHECK ECV

Check continuity between the ECV connector terminals.

| ECV | | Continuity |
|----------|----------|------------|
| Terminal | Terminal | |
| 2 | 3 | Existed |

Is the inspection result normal?

YES >> Replace the unified meter and A/C amp.

NO >> Replace the compressor.

AMBIENT SENSOR

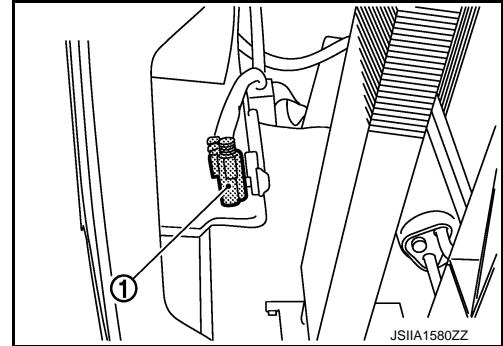
Description

INFOID:000000004803049

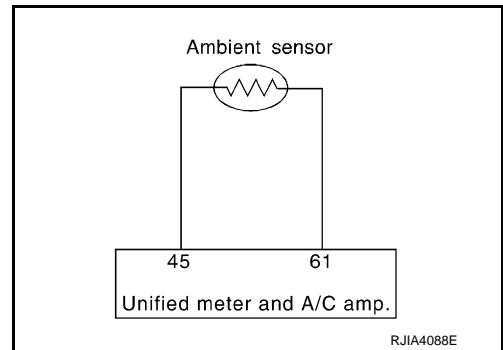
COMPONENT DESCRIPTION

Ambient Sensor

The ambient sensor (1) is attached on hood lock stay assembly. It detects ambient temperature and converts it into a resistance value which is then input into the unified meter and A/C amp.



Ambient Sensor Circuit



AMBIENT TEMPERATURE INPUT PROCESS

The unified meter and A/C amp. equips a processing circuit for the ambient sensor input. However, when the temperature detected by the ambient sensor increases quickly, the processing circuit retards the unified meter and A/C amp. function. It only allows the unified meter and A/C amp. to recognize an ambient temperature increase of 0.33°C (0.6°F) per 100 seconds.

As an example, consider stopping for a few minutes after high speed driving. Although the actual ambient temperature has not changed, the temperature detected by the ambient sensor increases. This is because the heat from the engine compartment can radiate to the front bumper area, location of the ambient sensor.

Component Function Check

INFOID:000000004803050

1.PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function STEP-2. Refer to [HAC-44, "Diagnosis Description"](#).

21 or -21 is displayed.

- YES >> Go to Diagnosis Procedure. Refer to [HAC-67, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000004803051

1.CHECK VOLTAGE BETWEEN AMBIENT SENSOR AND GROUND

1. Turn ignition switch OFF.
2. Disconnect ambient sensor connector.
3. Turn ignition switch ON.
4. Check voltage between ambient sensor harness connector and ground.

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

AMBIENT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage (Approx.) |
|----------------|----------|--------|----------------------|
| Ambient sensor | | — | |
| Connector | Terminal | | |
| E76 | 1 | Ground | 5 V |

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2. CHECK CIRCUIT CONTINUITY BETWEEN AMBIENT SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between ambient sensor harness connector and unified meter and A/C amp. harness connector.

| Ambient sensor | | Unified meter and A/C amp. | | Continuity |
|----------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E76 | 2 | M67 | 61 | Existed |

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair harness or connector.

3. CHECK AMBIENT SENSOR

Check ambient sensor. Refer to [HAC-68. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Replace ambient sensor.

4. CHECK CIRCUIT CONTINUITY BETWEEN AMBIENT SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between ambient sensor harness connector and unified meter and A/C amp. harness connector.

| Ambient sensor | | Unified meter and A/C amp. | | Continuity |
|----------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E76 | 1 | M67 | 45 | Existed |

4. Check continuity between ambient sensor harness connector and ground.

| Ambient sensor | | (-) | Continuity |
|----------------|----------|--------|-------------|
| Connector | Terminal | | |
| E76 | 1 | Ground | Not existed |

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Repair harness or connector.

Component Inspection

INFOID:000000004803052

1. CHECK AMBIENT SENSOR

1. Turn ignition switch OFF.
2. Disconnect ambient sensor connector. Refer to [HAC-132. "Exploded View"](#).
3. Check resistance between ambient sensor terminals.

AMBIENT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| Terminal | | Condition | Resistance kΩ |
|----------|---|---------------------|---------------|
| | | Temperature °C (°F) | |
| 1 | 2 | -15 (5) | 12.73 |
| | | -10 (14) | 9.92 |
| | | -5 (23) | 7.80 |
| | | 0 (32) | 6.19 |
| | | 5 (41) | 4.95 |
| | | 10 (50) | 3.99 |
| | | 15 (59) | 3.24 |
| | | 20 (68) | 2.65 |
| | | 25 (77) | 2.19 |
| | | 30 (86) | 1.81 |
| | | 35 (95) | 1.51 |
| | | 40 (104) | 1.27 |
| | | 45 (113) | 1.07 |

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace ambient sensor.

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HAC

IN-VEHICLE SENSOR

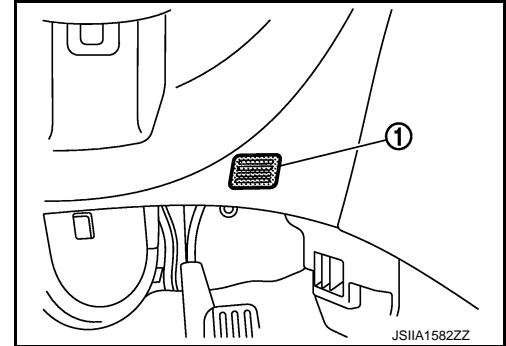
Description

INFOID:000000004803053

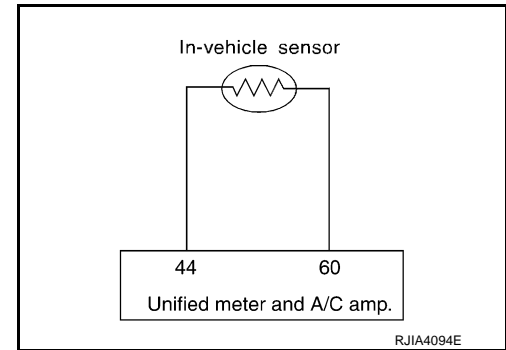
COMPONENT DESCRIPTION

In-vehicle Sensor

The in-vehicle sensor (1) is located on instrument driver lower panel. It converts variations in compartment air temperature drawn from the aspirator into a resistance value. It is then input into the unified meter and A/C amp.



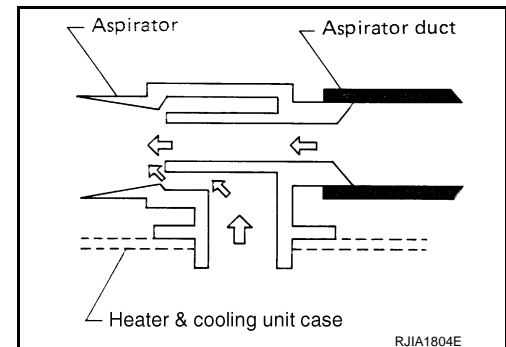
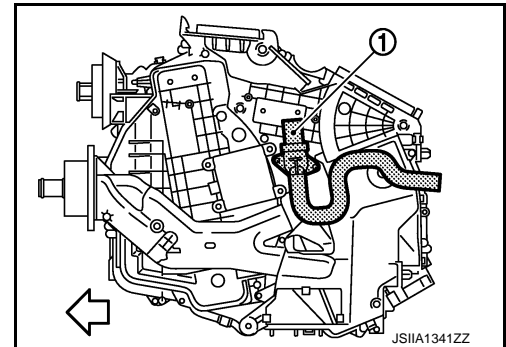
In-vehicle Sensor Circuit



Aspirator

The aspirator (1) is located on driver's side of heater & cooling unit assembly. It produces vacuum pressure due to air discharged from the heater & cooling unit assembly, continuously taking compartment air in the aspirator.

← Vehicle front



Component Function Check

INFOID:000000004803054

1.PERFORM SELF-DIAGNOSIS

IN-VEHICLE SENSOR

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

Perform self-diagnosis function STEP-2. Refer to [HAC-44. "Diagnosis Description"](#).

22 or -22 is displayed.

- YES >> Go to Diagnosis Procedure. Refer to [HAC-71. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000004803055

1. CHECK VOLTAGE BETWEEN IN-VEHICLE SENSOR AND GROUND

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector.
3. Turn ignition switch ON.
4. Check voltage between in-vehicle sensor harness connector and ground.

| (+) | | (-) | Voltage (Approx.) |
|-------------------|----------|--------|----------------------|
| In-vehicle sensor | | — | |
| Connector | Terminal | | |
| M61 | 1 | Ground | 5 V |

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2. CHECK CIRCUIT CONTINUITY BETWEEN IN-VEHICLE SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between in-vehicle sensor harness connector and unified meter and A/C amp. harness connector.

| In-vehicle sensor | | Unified meter and A/C amp. | | Continuity |
|-------------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M61 | 2 | M67 | 60 | Existed |

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair harness or connector.

3. CHECK IN-VEHICLE SENSOR

Check in-vehicle sensor. Refer to [HAC-72. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Replace in-vehicle sensor.

4. CHECK CIRCUIT CONTINUITY BETWEEN IN-VEHICLE SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between in-vehicle sensor harness connector and unified meter and A/C amp. harness connector.

| In-vehicle sensor | | Unified meter and A/C amp. | | Continuity |
|-------------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M61 | 1 | M67 | 44 | Existed |

4. Check continuity between in-vehicle sensor harness connector and ground.

IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| In-vehicle sensor | | — | Continuity |
|-------------------|----------|--------|-------------|
| Connector | Terminal | | |
| M61 | 1 | Ground | Not existed |

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
 NO >> Repair harness or connector.

Component Inspection

INFOID:000000004803056

1. CHECK IN-VEHICLE SENSOR

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector. Refer to [HAC-133. "Exploded View"](#).
3. Check resistance between in-vehicle sensor terminals.

| Terminal | | Condition | Resistance kΩ |
|----------|------|---------------------|---------------|
| | | Temperature °C (°F) | |
| 1 | 2 | -15 (5) | 12.73 |
| | | -10 (14) | 9.92 |
| | | -5 (23) | 7.80 |
| | | 0 (32) | 6.19 |
| | | 5 (41) | 4.95 |
| | | 10 (50) | 3.99 |
| | | 15 (59) | 3.24 |
| | | 20 (68) | 2.65 |
| | | 25 (77) | 2.19 |
| | | 30 (86) | 1.81 |
| | | 35 (95) | 1.51 |
| | | 40 (104) | 1.27 |
| 45 (113) | 1.07 | | |

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace in-vehicle sensor.

SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

SUNLOAD SENSOR

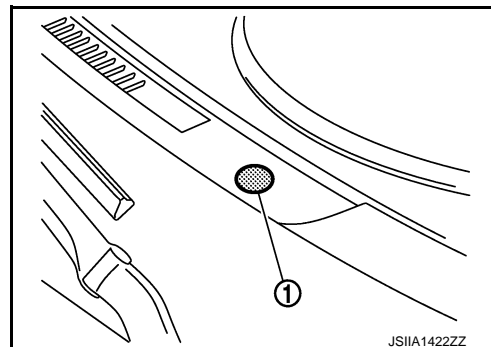
Description

INFOID:000000004803065

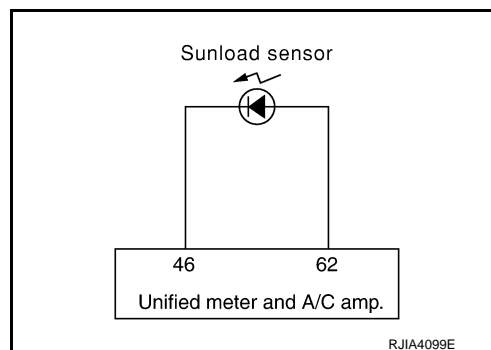
COMPONENT DESCRIPTION

Sunload Sensor

The sunload sensor (1) is located on the front defroster grille LH. It detects sunload entering through windshield by means of a photo diode. The sensor converts the sunload into a current value which is then input into the unified meter and A/C amp.



Sunload Sensor Circuit



SUNLOAD INPUT PROCESS

The unified meter and A/C amp. also equips a processing circuit which averages the variations in detected sunload over a period of time. This prevents drastic swings in the air temperature control system operation due to small or quick variations in detected sunload.

For example, consider driving along a road bordered by an occasional group of large trees. The sunload detected by the sunload sensor varies whenever the trees obstruct the sunlight. The processing circuit averages the detected sunload over a period of time, so that the (insignificant) effect of the trees momentarily obstructing the sunlight does not cause any change in the air temperature control system operation. On the other hand, shortly after entering a long tunnel, the system recognizes the change in sunload, and the system reacts accordingly.

Component Function Check

INFOID:000000004803066

1. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function STEP-2. Refer to [HAC-44. "Diagnosis Description"](#).

25 or -25 is displayed.

- YES >> Go to Diagnosis Procedure. Refer to [HAC-73. "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000004803067

1. CHECK VOLTAGE BETWEEN SUNLOAD SENSOR AND GROUND

1. Turn ignition switch OFF.
2. Disconnect sunload sensor connector.
3. Turn ignition switch ON.
4. Check voltage between sunload sensor harness connector and ground.

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SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage (Approx.) |
|----------------|----------|--------|----------------------|
| Sunload sensor | | — | |
| Connector | Terminal | | |
| M46 | 1 | Ground | 5 V |

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> GO TO 4.

2. CHECK CIRCUIT CONTINUITY BETWEEN SUNLOAD SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between sunload sensor harness connector and unified meter and A/C amp. harness connector.

| Sunload sensor | | Unified meter and A/C amp. | | Continuity |
|----------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M46 | 2 | M67 | 62 | Existed |

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair harness or connector.

3. CHECK SUNLOAD SENSOR

1. Reconnect sunload sensor connector and unified meter and A/C amp. connector.
2. Check sunload sensor. Refer to [HAC-74, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
- NO >> Replace sunload sensor.

4. CHECK CIRCUIT CONTINUITY BETWEEN SUNLOAD SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between sunload sensor harness connector and unified meter and A/C amp. harness connector.

| Sunload sensor | | Unified meter and A/C amp. | | Continuity |
|----------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M46 | 1 | M67 | 46 | Existed |

4. Check continuity between sunload sensor harness connector and ground.

| Sunload sensor | | (-) | Continuity |
|----------------|----------|--------|-------------|
| Connector | Terminal | | |
| M46 | 1 | Ground | Not existed |

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
- NO >> Repair harness or connector.

Component Inspection

INFOID:000000004803068

1. CHECK SUNLOAD SENSOR

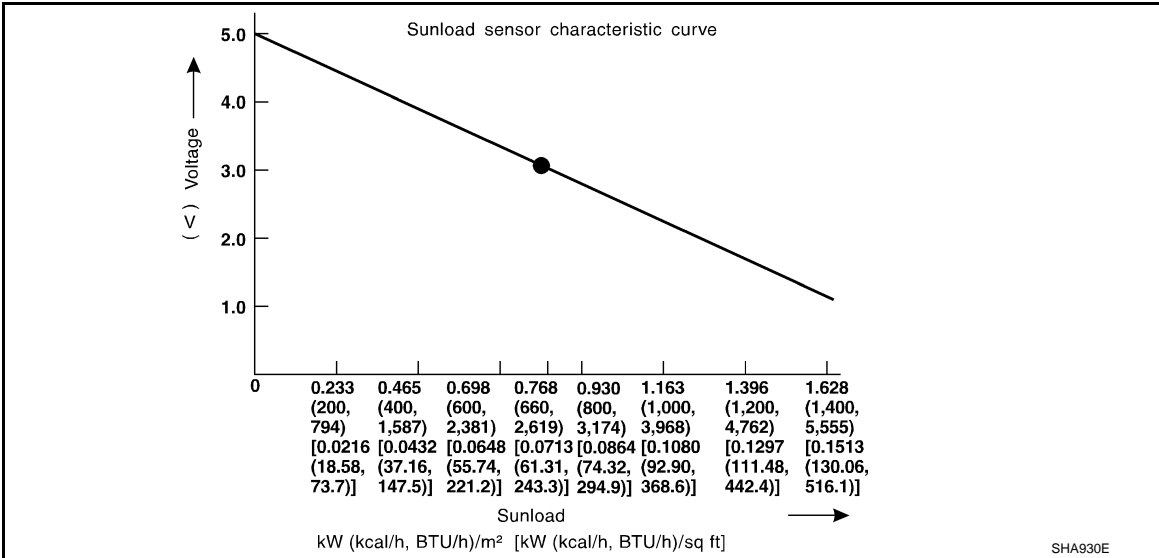
1. Turn ignition switch ON.
2. Check voltage between unified meter and A/C amp. harness connector and ground.

SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| | | |
|----------------------------|----------|--------|
| (+) | | (-) |
| Unified meter and A/C amp. | | — |
| Connector | Terminal | |
| M67 | 46 | Ground |



NOTE:

Select a place where sunshine directly on it when checking sunload sensor.

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace sunload sensor.

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INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

INTAKE SENSOR

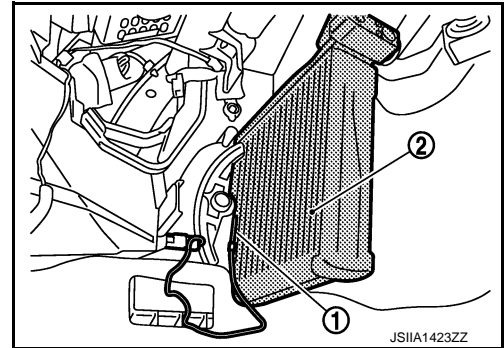
Description

INFOID:000000004803061

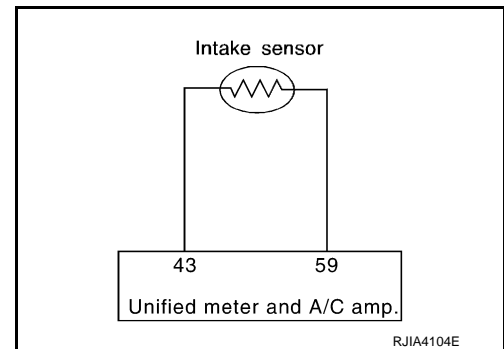
COMPONENT DESCRIPTION

Intake Sensor

The intake sensor (1) is located on the evaporator. It converts air temperature after it passes through the evaporator (2) into a resistance value which is then input to the unified meter and A/C amp.



Intake Sensor Circuit



Component Function Check

INFOID:000000004803062

1.PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function STEP-2. Refer to [HAC-44, "Diagnosis Description"](#).
24 or -24 is displayed.

- YES >> Go to Diagnosis Procedure. Refer to [HAC-76, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000004803063

1.CHECK VOLTAGE BETWEEN INTAKE SENSOR AND GROUND

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.
3. Turn ignition switch ON.
4. Check voltage between intake sensor harness connector and ground.

| (+) | | (-) | Voltage (Approx.) |
|---------------|----------|--------|----------------------|
| Intake sensor | | — | |
| Connector | Terminal | | |
| M77 | 1 | Ground | 5 V |

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> GO TO 4.

INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

2.CHECK CIRCUIT CONTINUITY BETWEEN INTAKE SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between intake sensor harness connector and unified meter and A/C amp. harness connector.

| Intake sensor | | Unified meter and A/C amp. | | Continuity |
|---------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M77 | 2 | M67 | 59 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK INTAKE SENSOR

Check intake sensor. Refer to [HAC-77, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace unified meter and A/C amp.

NO >> Replace intake sensor.

4.CHECK CIRCUIT CONTINUITY BETWEEN INTAKE SENSOR AND UNIFIED METER AND A/C AMP.

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between intake sensor harness connector and unified meter and A/C amp. harness connector.

| Intake sensor | | Unified meter and A/C amp. | | Continuity |
|---------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M77 | 1 | M67 | 43 | Existed |

4. Check continuity between intake sensor harness connector and ground.

| Intake sensor | | — | Continuity |
|---------------|----------|--------|-------------|
| Connector | Terminal | | |
| M77 | 1 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace unified meter and A/C amp.

NO >> Repair harness or connector.

Component Inspection

INFOID:000000004803064

1.CHECK INTAKE SENSOR

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.
3. Check resistance between intake sensor terminals.

INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| Terminal | | Condition | Resistance kΩ |
|----------|---|---------------------|---------------|
| | | Temperature °C (°F) | |
| 1 | 2 | -15 (5) | 12.28 |
| | | -10 (14) | 9.58 |
| | | -5 (23) | 7.55 |
| | | 0 (32) | 6.00 |
| | | 5 (41) | 4.81 |
| | | 10 (50) | 3.88 |
| | | 15 (59) | 3.16 |
| | | 20 (68) | 2.59 |
| | | 25 (77) | 2.14 |
| | | 30 (86) | 1.77 |
| | | 35 (95) | 1.48 |
| | | 40 (104) | 1.24 |
| | | 45 (113) | 1.05 |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake sensor.

GAS SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

GAS SENSOR

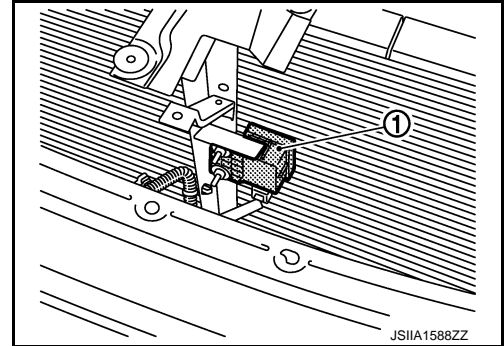
Description

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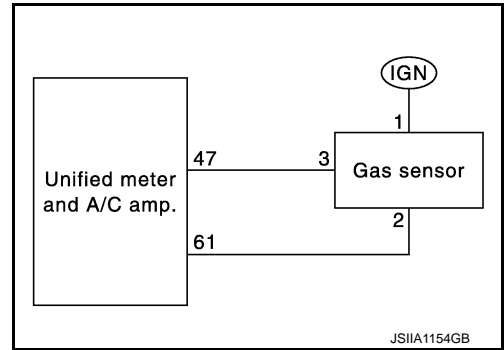
COMPONENT DESCRIPTION

Gas Sensor

The gas sensor (1) is attached on the radiator core support. It detects smell of exhaust gas and converts it into a duty ratio which is then input into the unified meter and A/C amp.



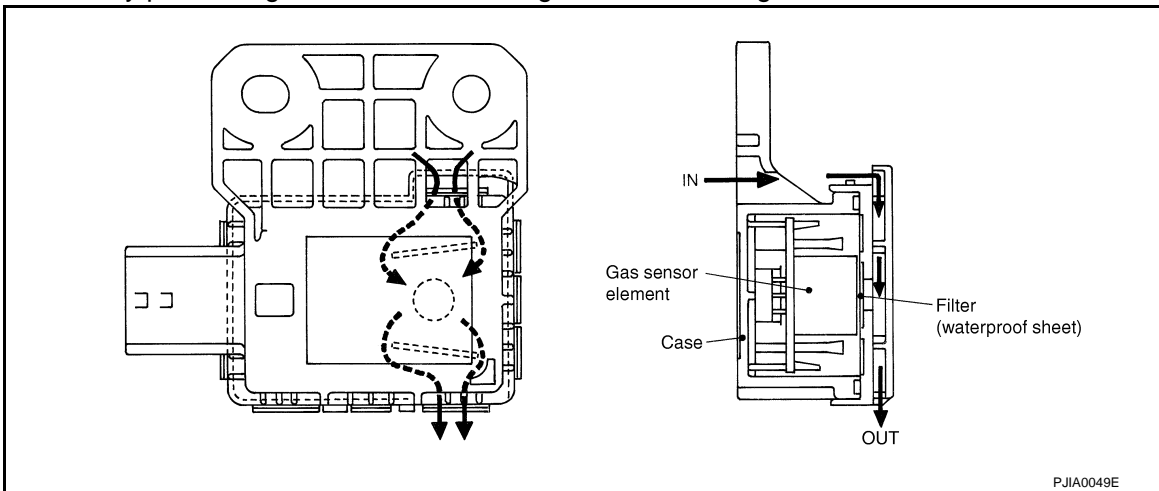
Gas Sensor Circuit



SMELL OF EXHAUST GAS INPUT PROCESS

Gas sensor detects ambient atmospheric CO and NO₂, and converts them to values of resistance. The values are converted to signals with the gas sensor internal circuit, then the unified meter and A/C amp. inputs the signals.

Gas sensor has a construction that detects CO and NO₂ by gas sensor element from the air intake of the case through a filter (waterproof sheet). It sends output signals to the unified meter and A/C amp. in response to a resistance value conversion by gas sensor elements. Output signals prevent a smell of exhaust gas from getting into vehicle by performing corrections according to various driving conditions.



Component Function Check

INFOID:000000004787937

1.PERFORM SELF-DIAGNOSIS STEP-2

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GAS SENSOR

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

Perform self-diagnosis STEP-2. Refer to [HAC-44. "Diagnosis Description"](#), see Nos. 1 to 2.

28, -28, 29 or -29 is displayed.

YES >> Go to Diagnosis Procedure. Refer to [HAC-80. "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000004787938

1. ADJUST GAS SENSOR SENSITIVITY

1. Turn ignition switch ON.
2. Adjust the gas sensor sensitivity. Refer to [HAC-11. "WITH ACCS : Gas Sensor Sensitivity Adjustment Function"](#).

Are the symptoms solved?

YES >> INSPECTION END

NO >> GO TO 2.

2. CHECK POWER SUPPLY FOR GAS SENSOR

1. Turn ignition switch OFF.
2. Disconnect gas sensor connector.
3. Turn ignition switch ON.
4. Check voltage between gas sensor harness connector and ground.

| (+) | | (-) | Voltage |
|------------|----------|--------|-----------------|
| Gas sensor | | — | |
| Connector | Terminal | | |
| E120 | 1 | Ground | Battery voltage |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check power supply circuit and 10A fuse (No. 3, located in the fuse block). Refer to [PG-94. "Fuse, Connector and Terminal Arrangement"](#).

- If fuse is OK, check harness for open circuit. Repair or replace if necessary.
- If fuse is NG, check harness for short circuit and replace fuse.

3. CHECK GROUND CIRCUIT FOR GAS SENSOR

1. Turn ignition switch OFF.
2. Check continuity between gas sensor harness connector and ground.

| Gas sensor | | — | Continuity |
|------------|----------|--------|------------|
| Connector | Terminal | | |
| E120 | 2 | Ground | Existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

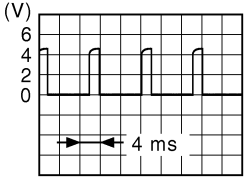
4. CHECK GAS SENSOR SIGNAL

1. Reconnect gas sensor connector.
2. Turn ignition switch ON.
3. Check signal between gas sensor harness connector and ground using an oscilloscope.

GAS SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

| (+) | | (-) | Voltage |
|------------|----------|--------|--|
| Gas sensor | | — | |
| Connector | Terminal | | |
| E120 | 3 | Ground |  |

NOTE:

The signal is different by measurement environment of a vehicle.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace gas sensor.

5. CHECK CIRCUIT CONTINUITY BETWEEN UNIFIED METER AND A/C AMP. AND GAS SENSOR

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between unified meter and A/C amp. harness connector and gas sensor harness connector.

| Gas sensor | | Unified meter and A/C amp. | | Continuity |
|------------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| E120 | 3 | M67 | 47 | Existed |

Is the inspection result normal?

YES >> Replace unified meter and A/C amp.

NO >> Repair harnesses or connectors.

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IONIZER

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

IONIZER

Description

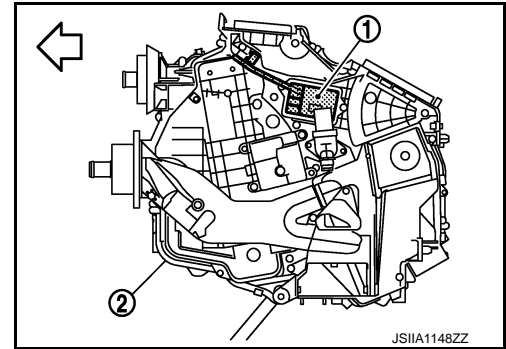
INFOID:000000004787939

Ionizer (1) is attached to the heater & cooling unit assembly (2).

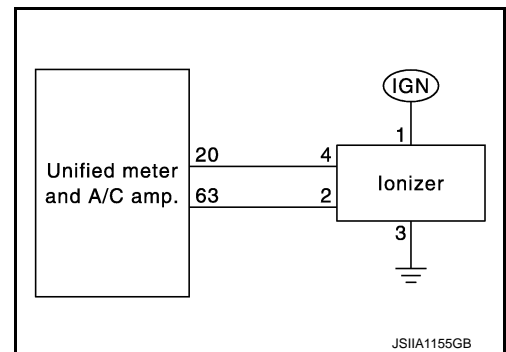
← Vehicle front

Ionizer has two types of operation mode and emits ions into the air

- Clean mode: Emits positive and negative ions at the same ratio.
- Ion control mode: Emits more negative ions.



Ionizer circuit



Component Function Check

INFOID:000000004787940

1. CHECK IONIZER OPERATION SOUND

1. Turn ignition switch ON.
2. Press AUTO switch.
3. Ion indicator (blue) is shown on the display.
4. Check the ionizer operation sound (whirring sound) in the duct by putting an ear to the center ventilator grille (LH) outlet.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Go to Diagnosis Procedure. Refer to [HAC-82. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000004787941

1. CHECK POWER SUPPLY FOR IONIZER

1. Turn ignition switch OFF.
2. Disconnect ionizer connector.
3. Turn ignition switch ON.
4. Press fan (UP:+) switch.
5. Check voltage between ionizer harness connector and ground.

| (+) | | (-) | Voltage |
|-----------|----------|--------|-----------------|
| Ionizer | | — | |
| Connector | Terminal | | |
| M160 | 1 | Ground | Battery voltage |

Is the inspection result normal?

YES >> GO TO 2.

IONIZER

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

- NO >> Check 10A fuse (No. 3, located in the fuse block). Refer to [PG-94. "Fuse, Connector and Terminal Arrangement"](#).
- If fuse is OK, check harness for open circuit. Repair or replace if necessary.
 - If fuse is NG, replace fuse and check for short circuit. Repair or replace if necessary.

2.CHECK ION ON/OFF SIGNAL

Check voltage between ionizer harness connector and ground.

| (+) | | (-) | | Voltage |
|-----------|----------|--------|--|---------|
| Ionizer | | — | | |
| Connector | Terminal | | | |
| M160 | 4 | Ground | | 0 V |

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK ION CONTROL MODE OUTPUT SIGNAL

Check voltage between ionizer harness connector and ground.

| (+) | | (-) | | Condition | Voltage |
|-----------|----------|--------|--|--|---------|
| Ionizer | | — | | | |
| Connector | Terminal | | | | |
| M160 | 2 | Ground | | Clean mode (Ion indicator: Blue) | 12 V |
| | | | | Ion control mode (Ion indicator: Green) | 0 V |

Is the inspection result normal?

- YES >> GO TO 5.
NO >> GO TO 6.

4.CHECK CIRCUIT CONTINUITY BETWEEN UNIFIED METER AND A/C AMP. AND IONIZER

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between unified meter and A/C amp. harness connector and ionizer harness connector.

| Ionizer | | Unified meter and A/C amp. | | Continuity |
|-----------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M160 | 4 | M66 | 20 | Existed |

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Repair harnesses or connectors.

5.CHECK CIRCUIT CONTINUITY BETWEEN IONIZER AND GROUND

1. Turn ignition switch OFF.
2. Check continuity between ionizer harness connector and ground.

| Ionizer | | — | | Continuity |
|-----------|----------|--------|--|------------|
| Connector | Terminal | | | |
| M160 | 3 | Ground | | Existed |

Is the inspection result normal?

- YES >> Replace ionizer.
NO >> Repair harnesses or connectors.

A

B

C

D

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HAC

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N

O

P

IONIZER

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

6. CHECK CIRCUIT CONTINUITY BETWEEN UNIFIED METER AND A/C AMP. AND IONIZER

1. Turn ignition switch OFF.
2. Disconnect unified meter and A/C amp. connector.
3. Check continuity between unified meter and A/C amp. harness connector and ionizer harness connector.

| Ionizer | | Unified meter and A/C amp. | | Continuity |
|-----------|----------|----------------------------|----------|------------|
| Connector | Terminal | Connector | Terminal | |
| M160 | 2 | M67 | 63 | Existed |

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Repair harnesses or connectors.

ECU DIAGNOSIS INFORMATION

ECM

Reference Value

INFOID:000000005184457

VALUES ON THE DIAGNOSIS TOOL

NOTE:

- Specification data are reference values.
- Specification data are output/input values which are detected or supplied by the ECM at the connector.
 - * Specification data may not be directly related to their components signals/values/operations.
 - i.e. Adjust ignition timing with a timing light before monitoring IGN TIMING, because the monitor may show the specification data in spite of the ignition timing not being adjusted to the specification data. This IGN TIMING monitors the data calculated by the ECM according to the signals input from the camshaft position sensor and other ignition timing related sensors.

CONSULT-III MONITOR ITEM

| Monitor Item | Condition | | Values/Status |
|-----------------|--|---------------------------------------|--|
| ENG SPEED | • Run engine and compare CONSULT-III value with the tachometer indication. | | Almost the same speed as the tachometer indication |
| MAS A/F SE-B1 | See EC-132, "Description" . | | |
| MAS A/F SE-B2 | See EC-132, "Description" . | | |
| B/FUEL SCHDL | See EC-132, "Description" . | | |
| A/F ALPHA-B1 | See EC-132, "Description" . | | |
| A/F ALPHA-B2 | See EC-132, "Description" . | | |
| COOLAN TEMP/S | • Ignition switch: ON | | Indicates engine coolant temperature |
| A/F SEN1 (B1) | • Engine: After warming up | Maintaining engine speed at 2,000 rpm | Fluctuates around 2.2 V |
| A/F SEN1 (B2) | • Engine: After warming up | Maintaining engine speed at 2,000 rpm | Fluctuates around 2.2 V |
| HO2S2 (B1) | <ul style="list-style-type: none"> • Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | | 0 - 0.3 V ↔ Approx. 0.6 - 1.0 V |
| HO2S2 (B2) | <ul style="list-style-type: none"> • Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | | 0 - 0.3 V ↔ Approx. 0.6 - 1.0 V |
| HO2S2 MNTR (B1) | <ul style="list-style-type: none"> • Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | | LEAN ↔ RICH |
| HO2S2 MNTR (B2) | <ul style="list-style-type: none"> • Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | | LEAN ↔ RICH |
| VHCL SPEED SE | • Turn drive wheels and compare CONSULT-III value with the speedometer indication. | | Almost the same speed as speedometer indication |
| BATTERY VOLT | • Ignition switch: ON (Engine stopped) | | 11 - 14 V |
| ACCEL SEN 1 | • Ignition switch: ON (Engine stopped) | Accelerator pedal: Fully released | 0.45 - 1.00 V |
| | | Accelerator pedal: Fully depressed | 4.4 - 4.8 V |
| ACCEL SEN 2*1 | • Ignition switch: ON (Engine stopped) | Accelerator pedal: Fully released | 0.45 - 1.00 V |
| | | Accelerator pedal: Fully depressed | 4.3 - 4.8 V |

ECM

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | Values/Status |
|---------------|---|---|
| TP SEN 1-B1 | • Ignition switch: ON (Engine stopped) • Selector lever: D (A/T) or 1st (M/T) | Accelerator pedal: Fully released More than 0.36 V |
| | | Accelerator pedal: Fully depressed Less than 4.75 V |
| TP SEN 2-B1*1 | • Ignition switch: ON (Engine stopped) • Selector lever: D (A/T) or 1st (M/T) | Accelerator pedal: Fully released More than 0.36 V |
| | | Accelerator pedal: Fully depressed Less than 4.75 V |
| FUEL T/TMP SE | • Ignition switch: ON | Indicates fuel tank temperature |
| INT/A TEMP SE | • Ignition switch: ON | Indicates intake air temperature |
| EVAP SYS PRES | • Ignition switch: ON | Approx. 1.8 - 4.8 V |
| FUEL LEVEL SE | • Ignition switch: ON | Depending on fuel level of fuel tank |
| START SIGNAL | • Ignition switch: ON → START → ON | OFF → ON → OFF |
| CLSD THL POS | • Ignition switch: ON (Engine stopped) | Accelerator pedal: Fully released ON |
| | | Accelerator pedal: Slightly depressed OFF |
| AIR COND SIG | • Engine: After warming up, idle the engine | Air conditioner switch: OFF OFF |
| | | Air conditioner switch: ON (Compressor operates.) ON |
| P/N POSI SW | • Ignition switch: ON | Selector lever: P or N (A/T), Neutral (M/T) ON |
| | | Selector lever: Except above OFF |
| PW/ST SIGNAL | • Engine: After warming up, idle the engine | Steering wheel: Not being turned OFF |
| | | Steering wheel: Being turned ON |
| LOAD SIGNAL | • Ignition switch: ON | Rear window defogger switch: ON and/or Lighting switch: 2nd position ON |
| | | Rear window defogger switch and lighting switch: OFF OFF |
| IGNITION SW | • Ignition switch: ON → OFF → ON | ON → OFF → ON |
| HEATER FAN SW | • Engine: After warming up, idle the engine | Heater fan switch: ON ON |
| | | Heater fan switch: OFF OFF |
| BRAKE SW | • Ignition switch: ON | Brake pedal: Fully released OFF |
| | | Brake pedal: Slightly depressed ON |
| INJ PULSE-B1 | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle 2.0 - 3.0 msec |
| | | 2,000 rpm 1.9 - 2.9 msec |
| INJ PULSE-B2 | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle 2.0 - 3.0 msec |
| | | 2,000 rpm 1.9 - 2.9 msec |
| IGN TIMING | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle 7° BTDC |
| | | 2,000 rpm 25° - 45° BTDC |
| CAL/LD VALUE | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle 5% - 35% |
| | | 2,500 rpm 5% - 35% |

ECM

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | Values/Status | | |
|----------------|---|--|---|-----|
| MASS AIRFLOW | <ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (A/T), Neutral (M/T) Air conditioner switch: OFF No load | Idle | 2.0 - 6.0 g·m/s | A |
| | | 2,500 rpm | 7.0 - 20.0 g·m/s | B |
| PURG VOL C/V | <ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (A/T), Neutral (M/T) Air conditioner switch: OFF No load | Idle (Accelerator pedal: Not depressed even slightly, after engine starting.) | 0% | C |
| | | 2,000 rpm | — | |
| INT/V TIM (B1) | <ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (A/T), Neutral (M/T) Air conditioner switch: OFF No load | Idle | - 5 - 5°C | D |
| | | 2,000 rpm | Approx. 0 - 30°C | E |
| INT/V TIM (B2) | <ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (A/T), Neutral (M/T) Air conditioner switch: OFF No load | Idle | - 5 - 5°C | F |
| | | 2,000 rpm | Approx. 0 - 30°C | |
| INT/V SOL (B1) | <ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (A/T), Neutral (M/T) Air conditioner switch: OFF No load | Idle | 0 - 2% | G |
| | | 2,000 rpm | Approx. 0 - 50% | H |
| INT/V SOL (B2) | <ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (A/T), Neutral (M/T) Air conditioner switch: OFF No load | Idle | 0 - 2% | HAC |
| | | 2,000 rpm | Approx. 0 - 50% | |
| TP SEN 1-B2 | <ul style="list-style-type: none"> Ignition switch: ON (Engine stopped) Selector lever: D (A/T) or 1st (M/T) | Accelerator pedal: Fully released | More than 0.36 V | J |
| | | Accelerator pedal: Fully depressed | Less than 4.75 V | |
| TP SEN 2-B2*1 | <ul style="list-style-type: none"> Ignition switch: ON (Engine stopped) Selector lever: D (A/T) or 1st (M/T) | Accelerator pedal: Fully released | More than 0.36 V | K |
| | | Accelerator pedal: Fully depressed | Less than 4.75 V | |
| AIR COND RLY | <ul style="list-style-type: none"> Engine: After warming up, idle the engine | Air conditioner switch: OFF | OFF | L |
| | | Air conditioner switch: ON (Compressor operates) | ON | |
| FUEL PUMP RLY | <ul style="list-style-type: none"> For 1 second after turning ignition switch: ON Engine running or cranking | | ON | M |
| | <ul style="list-style-type: none"> Except above | | OFF | |
| VENT CONT/V | <ul style="list-style-type: none"> Ignition switch: ON | | OFF | N |
| THRTL RELAY | <ul style="list-style-type: none"> Ignition switch: ON | | ON | |
| HO2S2 HTR (B1) | <ul style="list-style-type: none"> Engine speed: Below 3,600 rpm after the following conditions are met. <ul style="list-style-type: none"> Engine: After warming up Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | | ON | O |
| | <ul style="list-style-type: none"> Engine speed: Above 3,600 rpm | | OFF | |
| HO2S2 HTR (B2) | <ul style="list-style-type: none"> Engine speed: Below 3,600 rpm after the following conditions are met. <ul style="list-style-type: none"> Engine: After warming up Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | | ON | P |
| | <ul style="list-style-type: none"> Engine speed: Above 3,600 rpm | | OFF | |
| VEHICLE SPEED | <ul style="list-style-type: none"> Turn drive wheels and compare CONSULT-III value with the speedometer indication. | | Almost the same speed as the speedometer indication | |

ECM

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | | Values/Status |
|--------------------------------------|---|---|---|
| IDL A/V LEARN | • Engine: Running | Idle air volume learning has not been performed yet. | YET |
| | | Idle air volume learning has already been performed successfully. | CMPLT |
| ENG OIL TEMP | • Engine: After warming up | | More than 70°C (158°F) |
| TRVL AFTER MIL | • Ignition switch: ON | Vehicle has traveled after MIL has illuminated. | 0 - 65,535 km (0 - 40,723 miles) |
| A/F S1 HTR (B1) | • Engine: After warming up, idle the engine (More than 140 seconds after starting engine) | | 4 - 100% |
| A/F S1 HTR (B2) | • Engine: After warming up, idle the engine (More than 140 seconds after starting engine) | | 4 - 100% |
| AC PRESS SEN | • Engine: Idle • Both A/C switch and blower fan switch: ON (Compressor operates) | | 1.0 - 4.0 V |
| VHCL SPEED SE | • Turn drive wheels and compare CONSULT-III value with the speedometer indication. | | Almost the same speed as the speedometer indication |
| SET VHCL SPD | • Engine: Running | ASCD: Operating | The preset vehicle speed is displayed |
| MAIN SW | • Ignition switch: ON | MAIN switch: Pressed | ON |
| | | MAIN switch: Released | OFF |
| CANCEL SW | • Ignition switch: ON | CANCEL switch: Pressed | ON |
| | | CANCEL switch: Released | OFF |
| RESUME/ACC SW | • Ignition switch: ON | RESUME/ACCELERATE switch: Pressed | ON |
| | | RESUME/ACCELERATE switch: Released | OFF |
| SET SW | • Ignition switch: ON | SET/COAST switch: Pressed | ON |
| | | SET/COAST switch: Released | OFF |
| BRAKE SW1 (ICC/ASCD brake switch) | • Ignition switch: ON | Brake pedal: Fully released | ON |
| | | Brake pedal: Slightly depressed | OFF |
| BRAKE SW2 (Stop lamp switch) | • Ignition switch: ON | Brake pedal: Fully released | OFF |
| | | Brake pedal: Slightly depressed | ON |
| VHCL SPD CUT | • Ignition switch: ON | | NON |
| LO SPEED CUT | • Ignition switch: ON | | NON |
| AT OD MONITOR | • Ignition switch: ON | | OFF |
| AT OD CANCEL | • Ignition switch: ON | | OFF |
| SET LAMP | • Set switch: ON • Vehicle Speed: Between 40 km/h (25 MPH) and 144 km/h (89 MPH) | SET/COAST switch: Pressed | ON |
| | | SET/COAST switch: Released | OFF |
| CRUISE LAMP | • Ignition switch: ON | MAIN switch: Pressed at the 1st time → at the 2nd time | ON → OFF |
| BAT CUR SEN | • Engine speed: Idle • Battery: Fully charged*2 • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | | Approx. 2,600 - 3,500 mV |
| ALT DUTY | • Engine: Idle | | 0 - 80% |
| ATOM PRES SEN | • This item is displayed but is not applicable to this model. | | |
| BRAKE BST PRES SE | • This item is displayed but is not applicable to this model. | | |

ECM

< ECU DIAGNOSIS INFORMATION >

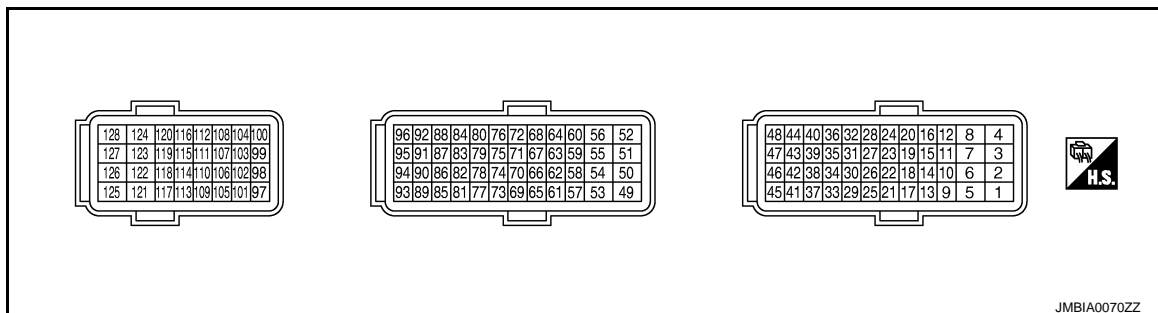
[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | Values/Status |
|----------------------|---|--|
| VVEL POSITION SEN-B1 | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle Approx. 0.25 - 1.40 V |
| | | When revving engine up to 2,000 rpm quickly Approx. 0.25 - 4.75 V |
| VVEL POSITION SEN-B2 | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle Approx. 0.25 - 1.40 V |
| | | When revving engine up to 2,000 rpm quickly Approx. 0.25 - 4.75 V |
| VVEL TIM-B1 | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle Approx. 0 - 20 deg |
| | | When revving engine up to 2,000 rpm quickly Approx. 0 - 90 deg |
| VVEL TIM-B2 | • Engine: After warming up • Selector lever: P or N (A/T), Neutral (M/T) • Air conditioner switch: OFF • No load | Idle Approx. 0 - 20 deg |
| | | When revving engine up to 2,000 rpm quickly Approx. 0 - 90 deg |
| VVEL LEARN | • Ignition switch: OFF → ON (After warming up) | VVEL learning has not been performed yet. YET |
| | | VVEL learning has already been performed successfully. DONE |
| VVEL SEN LEARN-B1 | • VVEL learning has already been performed successfully | Approx. 0.30 - 0.80 V |
| VVEL SEN LEARN-B2 | • VVEL learning has already been performed successfully | Approx. 0.30 - 0.80 V |
| A/F ADJ-B1 | • Engine: Running | -0.330 - 0.330 |
| A/F ADJ-B2 | • Engine: Running | -0.330 - 0.330 |
| FAN DUTY | • Engine: Running | 0 - 100% |
| ALT DUTY SIG | • Power generation voltage variable control: Operating | ON |
| | • Power generation voltage variable control: Not operating | OFF |

*1: Accelerator pedal position sensor 2 signal and throttle position sensor 2 signal are converted by ECM internally. Thus, they differ from ECM terminals voltage signal.

*2: Before measuring the terminal voltage, confirm that the battery is fully charged. Refer to [PG-3, "How to Handle Battery"](#).

TERMINAL LAYOUT



PHYSICAL VALUES

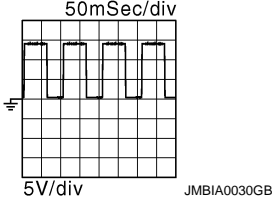
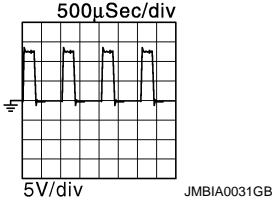
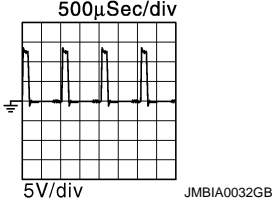
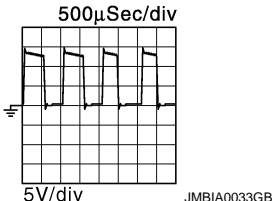
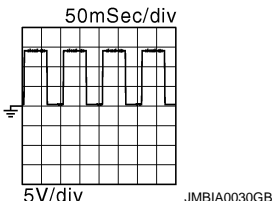
NOTE:

- ECM is located behind the instrument assist lower panel. For this inspection, remove passenger side instrument lower panel.
- Specification data are reference values and are measured between each terminal and ground.
- Pulse signal is measured by CONSULT-III.

ECM

< ECU DIAGNOSIS INFORMATION >

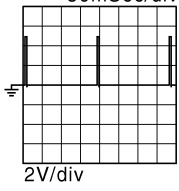
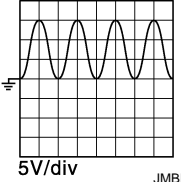
[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|---|------------------|---|---|
| + | — | Signal name | Input/ Output | | |
| 1 (W) | 128 (B) | A/F sensor 1 heater (bank 1) | Output | [Engine is running] • Warm-up condition • Idle speed (More than 140 seconds after starting engine) | 2.9 - 8.8 V★  |
| 2 (G) | 128 (B) | Throttle control motor (Open) (bank 1) | Output | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully depressed | 0 - 14 V★  |
| | | | | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully released | 0 - 14 V★  |
| 3 (R) | 128 (B) | Throttle control motor power supply (bank 1) | Input | [Ignition switch: ON] | BATTERY VOLTAGE (11 - 14 V) |
| 4 (BR) | 128 (B) | Throttle control motor (Close) (bank 1) | Output | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: In the middle of re- leasing operation | 0 - 14 V★  |
| 5 (W) | 128 (B) | A/F sensor 1 heater (bank 2) | Output | [Engine is running] • Warm-up condition • Idle speed (More than 140 seconds after starting engine) | 2.9 - 8.8 V★  |
| 8 (B) | — | ECM ground | — | — | — |

ECM

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

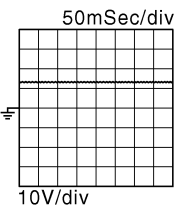
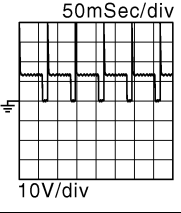
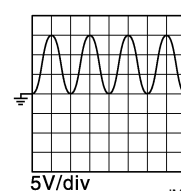
| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|---|------------------|---|---|
| + | -- | Signal name | Input/ Output | | |
| 11 (GR) | 128 (B) | Ignition signal No. 4 | Output | [Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle | 0 - 0.2 V★ |
| 12 (L) | | Ignition signal No. 3 | | |  |
| 15 (V) | | Ignition signal No. 5 | | | |
| 16 (G) | | Ignition signal No. 2 | | | |
| 19 (SB) | | Ignition signal No. 6 | | | |
| 20 (Y) | | Ignition signal No. 1 | | | |
| 17 (P) | 128 (B) | Heated oxygen sensor 2 heater (bank 1) | Output | [Engine is running] • Engine speed: Below 3,600 rpm after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | |
| | | | Output | [Ignition switch: ON] • Engine stopped [Engine is running] • Engine speed: Above 3,600 rpm | BATTERY VOLTAGE (11 - 14 V) |
| 18 (W) | 128 (B) | Intake valve timing control solenoid valve (bank 1) | Output | [Engine is running] • Warm-up condition • Idle speed | BATTERY VOLTAGE (11 - 14 V) |
| | | | Output | [Engine is running] • Warm-up condition • Engine speed: 2,000rpm | 7 - 12 V★ |
| | | | | |  |

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< ECU DIAGNOSIS INFORMATION >

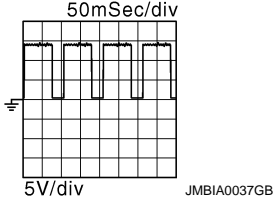
[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|---|------------------|---|--|
| + | - | Signal name | Input/ Output | | |
| 21 (GR) | 128 (B) | EVAP canister purge volume control solenoid valve | Output | [Engine is running] <ul style="list-style-type: none"> Idle speed Accelerator pedal: Not depressed even slightly, after engine starting | BATTERY VOLTAGE (11 - 14 V)★  |
| | | | | [Engine is running] <ul style="list-style-type: none"> Engine speed: About 2,000 rpm (More than 100 seconds after starting engine) | BATTERY VOLTAGE (11 - 14 V)★  |
| 22 (R) | 128 (B) | Fuel pump relay | Output | [Ignition switch: ON] <ul style="list-style-type: none"> For 1 second after turning ignition switch ON | 0 - 1.5 V |
| | | | | [Engine is running] <ul style="list-style-type: none"> More than 1 second after turning ignition switch ON | BATTERY VOLTAGE (11 - 14 V) |
| 24 (P) | 128 (B) | ECM relay (Self shut-off) | Output | [Engine is running] <ul style="list-style-type: none"> [Ignition switch: OFF] A few seconds after turning ignition switch OFF | 0 - 1.5 V |
| | | | | [Ignition switch: OFF] <ul style="list-style-type: none"> More than a few seconds after turning ignition switch OFF | BATTERY VOLTAGE (11 - 14 V) |
| 25 (O) | 128 (B) | Throttle control motor relay | Output | [Ignition switch: ON → OFF] | 0 - 1.0 V ↓ BATTERY VOLTAGE (11 - 14 V) ↓ 0 V |
| | | | | [Ignition switch: ON] | 0 - 1.0 V |
| 28 (BR) | 128 (B) | VVEL actuator motor relay abort signal [VVEL control module] | Output | [Engine is running] <ul style="list-style-type: none"> Warm-up condition Idle speed | 0 V |
| 29 (G) | 128 (B) | Intake valve timing control solenoid valve (bank 2) | Output | [Engine is running] <ul style="list-style-type: none"> Warm-up condition Idle speed | BATTERY VOLTAGE (11 - 14 V) |
| | | | | [Engine is running] <ul style="list-style-type: none"> Warm-up condition Engine speed: 2,000rpm | 7 - 12 V★  |

ECM

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|---|------------------|--|---|
| + | -- | Signal name | Input/ Output | | |
| 30 (Y) | 40 (R) | Throttle position sensor 1 (bank 1) | Input | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully released | More than 0.36 V |
| | | | | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully depressed | Less than 4.75 V |
| 31 (R) | 48 (B) | Throttle position sensor 1 (bank 2) | Input | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully released | More than 0.36 V |
| | | | | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully depressed | Less than 4.75 V |
| 33 (SB) | 128 (B) | Heated oxygen sensor 2 heater (bank 2) | Output | [Engine is running] • Engine speed: Below 3,600 rpm after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | 10 V★  |
| | | | | [Ignition switch: ON] • Engine stopped [Engine is running] • Engine speed: Above 3,600 rpm | BATTERY VOLTAGE (11 - 14 V) |
| 34 (B) | 40 (R) | Throttle position sensor 2 (bank 1) | Input | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully released | Less than 4.75 V |
| | | | | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully depressed | More than 0.36 V |
| 35 (W) | 48 (B) | Throttle position sensor 2 (bank 2) | Input | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully released | Less than 4.75 V |
| | | | | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully depressed | More than 0.36 V |
| 36 (O) | — | Sensor ground [Brake booster pressure sensor] | — | — | — |

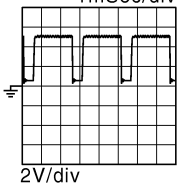
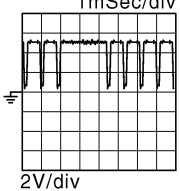
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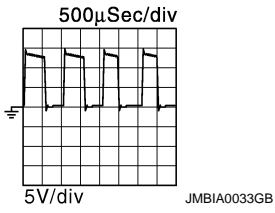
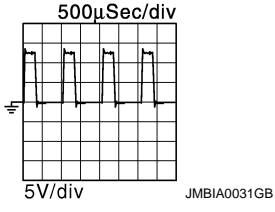
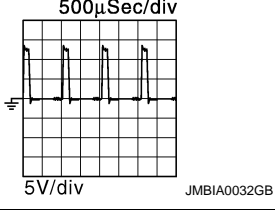
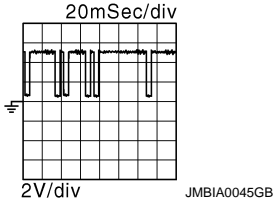
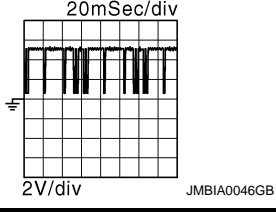
[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|-----------|--|------------------|--|---|
| + | - | Signal name | Input/ Output | | |
| 37 (W) | 47 (Y) | Crankshaft position sensor (POS) | Input | [Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle | 4.0 - 5.0 V★  JMBIA0041GB |
| | | | | [Engine is running] • Engine speed: 2,000 rpm | 4.0 - 5.0 V★  JMBIA0042GB |
| 38 (O) | 96 (P) | Manifold absolute pressure (MAP) sensor | Input | [Engine is running] • Warm-up condition • Idle speed | 1.2 V |
| | | | | [Engine is running] • Warm-up condition • Engine speed: 2,000 rpm | 1.5 V |
| 39 (P) | 36 (O) | Brake booster pressure sensor | Input | [Engine is running] • Warm-up condition • Idle speed • Brake pedal: Fully released | 1.2 V |
| | | | | [Engine is running] • Warm-up condition • Idle speed • Brake pedal: Fully depressed | 3.0 V |
| 40 (R) | — | Sensor ground [Throttle position sensor (bank 1)] | — | — | — |
| 43 (G) | 48 (B) | Sensor power supply [Throttle position sensor (bank 2)] | — | [Ignition switch: ON] | 5 V |
| 44 (L) | 40 (R) | Sensor power supply [Throttle position sensor (bank 1)] | — | [Ignition switch: ON] | 5 V |
| 45 (LG) | 36 (O) | Sensor power supply [Brake booster pressure sensor] | — | [Ignition switch: ON] | 5 V |
| 46 (R) | 47 (Y) | Sensor power supply [Crankshaft position sensor (POS)] | — | [Ignition switch: ON] | 5 V |
| 47 (Y) | — | Sensor ground [Crankshaft position sensor (POS)] | — | — | — |
| 48 (B) | — | Sensor ground [Throttle position sensor (bank 2)] | — | — | — |

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< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|---|------------------|---|---|
| + | -- | Signal name | Input/ Output | | |
| 49 (GR) | 128 (B) | Throttle control motor (Close) (bank 2) | Output | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: In the middle of re- leasing operation | 0 - 14 V★  |
| 50 (V) | 128 (B) | Throttle control motor (Open) (bank 2) | Output | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully depressed | 0 - 14 V★  |
| | | | | [Ignition switch: ON] • Engine stopped • Selector lever: D (A/T) or 1st (M/T) • Accelerator pedal: Fully released | 0 - 14 V★  |
| 52 (R) | 128 (B) | Throttle control motor power supply (bank 2) | Input | [Ignition switch: ON] | BATTERY VOLTAGE (11 - 14 V) |
| 53 (W) | 128 (B) | Ignition switch | Input | [Ignition switch: OFF] | 0 V |
| | | | | [Ignition switch: ON] | BATTERY VOLTAGE (11 - 14 V) |
| 54 (Y) | — | CAN communication line [VVEL control module] | Input/ output | — | — |
| 55 (LG) | — | CAN communication line [VVEL control module] | Input/ output | — | — |
| 57 (L) | 128 (B) | A/F sensor 1 (bank 1) | Input | [Ignition switch: ON] | 2.2 V |
| 59 (O) | 128 (B) | Camshaft position sen- sor (PHASE) (bank 1) | Input | [Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle | 3.0 - 5.0 V★  |
| | | | | [Engine is running] • Engine speed: 2,000 rpm | 3.0 - 5.0 V★  |

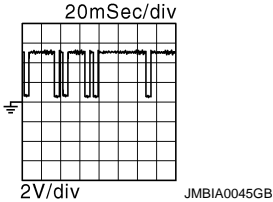
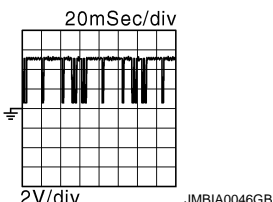
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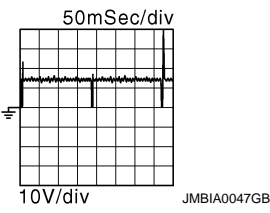
[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|--|------------------|--|--|
| + | -- | Signal name | Input/ Output | | |
| 60 (G) | 96 (P) | Sensor power supply [Camshaft position sensor (PHASE) (bank 1), Manifold absolute pressure (MAP) sensor, Power steering pressure sensor] | — | [Ignition switch: ON] | 5 V |
| 61 (R) | 128 (B) | A/F sensor 1 (bank 1) | Input | [Engine is running] • Warm-up condition • Engine speed: 2,000 rpm | 1.8 V Output voltage varies with air fuel ratio. |
| 63 (L) | 92 (G) | Camshaft position sensor (PHASE) (bank 2) | Input | [Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle | 3.0 - 5.0 V★  |
| | | | | [Engine is running] • Engine speed: 2,000 rpm | 3.0 - 5.0 V★  |
| 64 (SB) | 92 (G) | Sensor power supply [Camshaft position sensor (PHASE) (bank 2), Battery current sensor] | — | [Ignition switch: ON] | 5 V |
| 65 (LG) | 128 (B) | A/F sensor 1 (bank 2) | Input | [Ignition switch: ON] | 2.2 V |
| 66 (V) | 128 (B) | A/F sensor 1 (bank 2) | Input | [Engine is running] • Warm-up condition • Engine speed: 2,000 rpm | 1.8 V Output voltage varies with air fuel ratio. |
| 67 (P) | 68 (LG) | Intake air temperature sensor | Input | [Engine is running] | 0 - 4.8 V Output voltage varies with intake air temperature. |
| 68 (LG) | — | Sensor ground [Mass air flow sensor (bank 1), Intake air temperature sensor] | — | — | — |
| 69 (W) | 128 (B) | Knock sensor (bank 2) | Input | [Engine is running] • Idle speed | 2.5 V*1 |
| 71 (Y) | 84 (B) | Engine coolant temperature sensor | Input | [Engine is running] | 0 - 4.8 V Output voltage varies with engine coolant temperature. |
| 72 (—) | — | Sensor ground (Knock sensor) | — | — | — |
| 73 (W) | 128 (B) | Knock sensor (bank 1) | Input | [Engine is running] • Idle speed | 2.5 V*1 |

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< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|---|------------------|---|--|
| + | -- | Signal name | Input/ Output | | |
| 76 (W) | 128 (B) | Heated oxygen sensor 2 (bank 1) | Input | [Engine is running] • Revving engine from idle to 3,000 rpm quickly after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | 0 - 1.0 V |
| 77 (SB) | 68 (LG) | Mass air flow sensor (bank 1) | Input | [Engine is running] • Warm-up condition • Idle speed | 0.7 - 1.2 V |
| | | | | [Engine is running] • Warm-up condition • Engine speed: 2,500 rpm | 1.3 - 1.7 V |
| 78 (G) | 84 (B) | Engine oil temperature sensor | Input | [Engine is running] | 0 - 4.8 V Output voltage varies with engine oil temperature. |
| 79 (BR) | 94 (Y) | Mass air flow sensor (bank 2) | Input | [Engine is running] • Warm-up condition • Idle speed | 0.7 - 1.2 V |
| | | | | [Engine is running] • Warm-up condition • Engine speed: 2,500 rpm | 1.3 - 1.7 V |
| 80 (O) | 128 (B) | Heated oxygen sensor 2 (bank 2) | Input | [Engine is running] • Revving engine from idle to 3,000 rpm quickly after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load | 0 - 1.0 V |
| 81 (R) | 128 (B) | Fuel injector No. 3 | Output | [Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle | BATTERY VOLTAGE (11 - 14 V)★  |
| 82 (V) | | Fuel injector No. 6 | | | |
| 85 (BR) | | Fuel injector No. 2 | | | |
| 86 (W) | | Fuel injector No. 5 | | | |
| 89 (GR) | | Fuel injector No. 1 | | | |
| 90 (O) | | Fuel injector No. 4 | | | |
| 84 (B) | -- | Sensor ground (Heated oxygen sensor 2, Engine coolant temperature sensor, Engine oil temperature sensor) | -- | -- | -- |

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< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|-------------|--|------------------|---|--------------------------------|
| + | -- | Signal name | Input/ Output | | |
| 87 (Y) | 96 (P) | Power steering pressure sensor | Output | [Engine is running] • Steering wheel: Being turned | 0.5 - 4.5 V |
| | | | | [Engine is running] • Steering wheel: Not being turned | 0.4 - 0.8 V |
| 91 (SB) | 95 (G) | Battery current sensor | Input | [Engine is running] • Battery: Fully charged*2 • Idle speed | 2.6 - 3.5 V |
| 92 (G) | — | Sensor ground [Camshaft position sensor (PHASE) (bank 2)] | — | — | — |
| 93 (P) | 128 (B) | Power supply for ECM (Back-up) | Input | [Ignition switch: OFF] | BATTERY VOLTAGE (11 - 14 V) |
| 94 (Y) | — | Sensor ground [Mass air flow sensor (bank 2)] | — | — | — |
| 95 (G) | — | Sensor ground (Battery current sensor) | — | — | — |
| 96 (P) | — | Sensor ground [Camshaft position sensor (PHASE) (bank 1), Manifold absolute pressure (MAP) sensor, Power steering pressure sensor] | — | — | — |
| 97 (R) | 100 (W) | Accelerator pedal position sensor 1 | Input | [Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully released | 0.45 - 1.00 V |
| | | | | [Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully depressed | 4.2 - 4.8 V |
| 98 (P) | 104 (GR) | Accelerator pedal position sensor 2 | Input | [Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully released | 0.22 - 0.50 V |
| | | | | [Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully depressed | 2.1 - 2.5 V |
| 99 (L) | 100 (W) | Sensor power supply (Accelerator pedal position sensor 1) | — | [Ignition switch: ON] | 5 V |
| 100 (W) | — | Sensor ground (Accelerator pedal position sensor 1) | — | — | — |

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< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|-------------|---|------------------|--|---|
| + | -- | Signal name | Input/ Output | | |
| 101 (SB) | 108 (Y) | ICC steering switch (models with ICC system) | Input | [Ignition switch: ON] • ICC steering switch: OFF | 4.3 V |
| | | | | [Ignition switch: ON] • MAIN switch: Pressed | 0 V |
| | | | | [Ignition switch: ON] • CANCEL switch: Pressed | 1.3 V |
| | | | | [Ignition switch: ON] • RESUME/ACCELERATE switch: Pressed | 3.7 V |
| | | | | [Ignition switch: ON] • SET/COAST switch: Pressed | 3 V |
| | | | | [Ignition switch: ON] • DISTANCE switch: Pressed | 2.2 V |
| 101 (SB) | 108 (Y) | ASCD steering switch (models with ASCD system) | Input | [Ignition switch: ON] • ASCD steering switch: OFF | 4 V |
| | | | | [Ignition switch: ON] • MAIN switch: Pressed | 0 V |
| | | | | [Ignition switch: ON] • CANCEL switch: Pressed | 1 V |
| | | | | [Ignition switch: ON] • RESUME/ACCELERATE switch: Pressed | 3 V |
| | | | | [Ignition switch: ON] • SET/COAST switch: Pressed | 2 V |
| 102 (G) | 112 (R) | EVAP control system pressure sensor | Input | [Ignition switch: ON] | 1.8 - 4.8 V |
| 103 (G) | 104 (GR) | Sensor power supply (Accelerator pedal position sensor 2) | — | [Ignition switch: ON] | 5 V |
| 104 (GR) | — | Sensor ground (Accelerator pedal position sensor 2) | — | — | — |
| 105 (L) | 112 (R) | Refrigerant pressure sensor | Input | [Engine is running] • Warm-up condition • Both A/C switch and blower fan motor switch: ON (Compressor operates) | 1.0 - 4.0 V |
| 106 (W) | 128 (B) | Fuel tank temperature sensor | Input | [Engine is running] | 0 - 4.8 V Output voltage varies with fuel tank temperature. |
| 107 (BR) | 112 (R) | Sensor power supply (EVAP control system pressure sensor, Refrigerant pressure sensor) | — | [Ignition switch: ON] | 5 V |
| 108 (Y) | — | Sensor ground (ASCD/ICC steering switch) | — | — | — |
| 109 (G) | 128 (B) | PNP switch | Input | [Ignition switch: ON] • Selector lever: P or N (A/T), Neutral (M/ T) | BATTERY VOLTAGE (11 - 14 V) |
| | | | | [Ignition switch: ON] • Selector lever: Except above | 0 V |

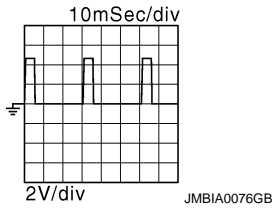
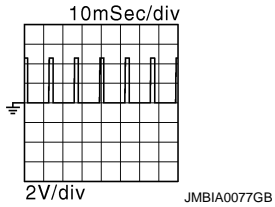
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< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|------------------------------|------------|--|------------------|--|---|
| + | — | Signal name | Input/ Output | | |
| 110 (R) | 128 (B) | Engine speed output signal | Output | [Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle | 1 V★  |
| | | | | [Engine is running] • Engine speed is 2,000 rpm | 1 V★  |
| 112 (R) | — | Sensor ground (EVAP control system pressure sensor, Refrigerant pressure sensor) | — | — | — |
| 113 (P) | — | CAN communication line | Input/ Output | — | — |
| 114 (L) | — | CAN communication line | Input/ Output | — | — |
| 117 (V) | 128 (B) | Data link connector | Input/ Output | — | — |
| 121 (LG) | 128 (B) | EVAP canister vent control valve | Output | [Ignition switch: ON] | BATTERY VOLTAGE (11 - 14 V) |
| 122 (P) | 128 (B) | Stop lamp switch | Input | [Ignition switch: OFF] • Brake pedal: Fully released | 0 V |
| | | | | [Ignition switch: OFF] • Brake pedal: Slightly depressed | BATTERY VOLTAGE (11 - 14 V) |
| 123 (B) 124 (B) | — | ECM ground | — | — | — |
| 125 (R) | 128 (B) | Power supply for ECM | Input | [Ignition switch: ON] | BATTERY VOLTAGE (11 - 14 V) |
| 126 (BR) | 128 (B) | ICC brake switch (models with ICC system) ASCDC brake switch (models with ASCDC system) | Input | [Ignition switch: ON] • Brake pedal: Slightly depressed | 0 V |
| | | | | [Ignition switch: ON] • Brake pedal: Fully released | BATTERY VOLTAGE (11 - 14 V) |
| 127 (B) 128 (B) | — | ECM ground | — | — | — |

★: Average voltage for pulse signal (Actual pulse signal can be confirmed by oscilloscope.)

*1: This may vary depending on internal resistance of the tester.

**2: Before measuring the terminal voltage, confirm that the battery is fully charged. Refer to [PG-3, "How to Handle Battery"](#).

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

UNIFIED METER AND A/C AMP.

Reference Value

INFOID:000000004944763

VALUES ON THE DIAGNOSIS TOOL

CONSULT-III MONITOR ITEM

| Monitor Item | Condition | | Value/Status |
|------------------------|-----------------------|--|---|
| SPEED METER [km/h] | Ignition switch ON | While driving | Equivalent to speedometer reading NOTE: 655.35 is displayed when the malfunction signal is received |
| SPEED OUTPUT [km/h] | Ignition switch ON | While driving | Equivalent to speedometer reading NOTE: 655.35 is displayed when the malfunction signal is received |
| ODO OUTPUT [km] | Ignition switch ON | — | Equivalent to odometer reading in combination meter |
| TACHO METER [rpm] | Ignition switch ON | While driving | Equivalent to tachometer reading NOTE: 8191.875 is displayed when the malfunction signal is received |
| FUEL METER [L] | Ignition switch ON | — | Values according to fuel level |
| W TEMP METER [°C] | Ignition switch ON | — | Values according to engine coolant temperature NOTE: 215 is displayed when the malfunction signal is input |
| ABS W/L | Ignition switch ON | ABS warning lamp ON | On |
| | | ABS warning lamp OFF | Off |
| VDC/TCS IND | Ignition switch ON | VDC OFF indicator lamp ON | On |
| | | VDC OFF indicator lamp OFF | Off |
| SLIP IND | Ignition switch ON | SLIP indicator lamp ON | On |
| | | SLIP indicator lamp OFF | Off |
| BRAKE W/L | Ignition switch ON | Blake warning lamp ON | On |
| | | Blake warning lamp OFF | Off |
| DOOR W/L | Ignition switch ON | Door warning displayed | On |
| | | Door warning not displayed | Off |
| TRUNK/GLAS-H | Ignition switch ON | Trunk warning displayed | On |
| | | Trunk warning not displayed | Off |
| HI-BEAM IND | Ignition switch ON | Hi-beam indicator lamp ON | On |
| | | Hi-beam indicator lamp OFF | Off |
| TURN IND | Ignition switch ON | Turn indicator lamp ON | On |
| | | Turn indicator lamp OFF | Off |
| FR FOG IND | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| RR FOG IND | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| LIGHT IND | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | | Value/Status |
|---------------|--------------------|--|--------------|
| OIL W/L | Ignition switch ON | Oil pressure warning lamp ON | On |
| | | Oil pressure warning lamp OFF | Off |
| MIL | Ignition switch ON | Malfunction warning lamp ON | On |
| | | Malfunction warning lamp OFF | Off |
| GLOW IND | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| C-ENG2 W/L | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| CRUISE IND | Ignition switch ON | Cruise indicator displayed | On |
| | | Cruise indicator not displayed | Off |
| SET IND | Ignition switch ON | Set indicator lamp ON | On |
| | | Set indicator lamp OFF | Off |
| CRUISE W/L | Ignition switch ON | Cruise warning lamp ON | On |
| | | Cruise warning lamp OFF | Off |
| BA W/L | Ignition switch ON | Models with ICC NOTE: This item is displayed, but cannot be monitored. | On |
| | | Models without ICC NOTE: This item is displayed, but cannot be monitored. | Off |
| ATC/T-AMT W/L | Ignition switch ON | A/T check warning lamp ON | On |
| | | A/T check warning lamp OFF | Off |
| 4WD W/L | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| 4WD LOCK IND | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| FUEL W/L | Ignition switch ON | Low-fuel warning lamp displayed | On |
| | | Low-fuel warning lamp not displayed | Off |
| WASHER W/L | Ignition switch ON | Washer warning displayed | On |
| | | Washer warning not displayed | Off |
| AIR PRES W/L | Ignition switch ON | Low tire pressure lamp ON | On |
| | | Low tire pressure lamp OFF | Off |
| KEY G/Y W/L | Ignition switch ON | Key warning lamp ON | On |
| | | Key warning lamp OFF | Off |
| AFS OFF IND | Ignition switch ON | AFS OFF indicator lamp ON | On |
| | | AFS OFF indicator lamp OFF | Off |
| 4WAS/RAS W/L | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| DDS W/L | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| LANE W/L | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | | Value/Status | |
|---------------|----------------------|--|---------------|-----|
| LDP IND | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off | A |
| LCD | Ignition switch ON | Engine start information display (A/T model) | B&P I | B |
| | | Engine start information display (M/T model) | C&P I | |
| | Ignition switch ACC | Engine start information display (A/T model) | B&P N | C |
| | | Engine start information display (M/T model) | C&P N | |
| | Ignition switch LOCK | Key ID warning display | ID NG | D |
| | Ignition switch LOCK | Steering lock information display | ROTAT | |
| | Ignition switch LOCK | P position warning display | SFT P | E |
| | Ignition switch LOCK | Intelligent Key insert information display | INSRT | F |
| | Ignition switch LOCK | Intelligent Key low battery warning display | BATT | |
| | Ignition switch ON | Take away warning display | NO KY | G |
| | Ignition switch LOCK | Key warning display | OUTKY | H |
| | Ignition switch ON | ICC sensor integrated unit warning display | LK WN | |
| ACC TARGET | Ignition switch ON | Vehicle ahead detection indicator displayed | On | HAC |
| | | Vehicle ahead detection indicator not displayed | Off | |
| ACC DISTANCE | Ignition switch ON | When following distance set to "LONG" | Long | J |
| | | When following distance set to "MIDDLE" | Middle | |
| | | When following distance set to "SHORT" | Short | K |
| | | Set distance indicator not displayed | Off | |
| ACC OWN VHL | Ignition switch ON | Own vehicle indicator displayed | On | L |
| | | Own vehicle indicator not displayed | Off | |
| ACC SET SPEED | Ignition switch ON | ICC set vehicle speed display | Vehicle speed | |
| ACC UNIT | Ignition switch ON | Set vehicle speed indicator unit display ON | On | M |
| | | Set vehicle speed indicator unit display OFF | Off | |
| O/D OFF SW | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off | N |
| | | | | O |
| | | | | P |

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | Value/Status | |
|---------------------------|--------------------|--|---|
| SHIFT IND | Ignition switch ON | Shift position indicator P display | P |
| | | Shift position indicator R display | R |
| | | Shift position indicator N display | N |
| | | Shift position indicator D display | D |
| | | Shift position indicator M1 display | M1 |
| | | Shift position indicator M2 display | M2 |
| | | Shift position indicator M3 display | M3 |
| | | Shift position indicator M4 display | M4 |
| | | Shift position indicator M5 display | M5 |
| | | Shift position indicator M6 display | M6 |
| | | Shift position indicator M7 display | M7 |
| AT S MODE SW | Ignition switch ON | Snow mode switch ON | On |
| | | Snow mode switch OFF | Off |
| AT P MODE SW | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| M RANGE SW | Ignition switch ON | Selector lever DS position | On |
| | | Other than the above | Off |
| NM RANGE SW | Ignition switch ON | Selector lever DS position | Off |
| | | Other than the above | On |
| AT SFT UP SW | Ignition switch ON | Selector lever up position | On |
| | | Other than the above | Off |
| AT SFT DWN SW | Ignition switch ON | Selector lever – position | On |
| | | Other than the above | Off |
| ST SFT UP SW | Ignition switch ON | Paddle shifter up operation | On |
| | | Other than the above | Off |
| ST SFT DWN SW | Ignition switch ON | Paddle shifter down operation | On |
| | | Other than the above | Off |
| COMP F/B SIG | Ignition switch ON | A/C compressor activation condition | On |
| | | A/C compressor deactivation condition | Off |
| 4WD LOCK SW | Ignition switch ON | NOTE: This item is displayed, but cannot be monitored. | Off |
| PKB SW | Ignition switch ON | Parking brake applied | On |
| | | Parking brake released | Off |
| BUCKLE SW | Ignition switch ON | Seat belt (driver side) unfastened | On |
| | | Seat belt (driver side) fastened | Off |
| BRAKE OIL SW | Ignition switch ON | Brake fluid level is lower than the low level | On |
| | | Brake fluid level is normal | Off |
| DISTANCE [km] | Ignition switch ON | — | Possible driving distance calculated by unified meter and A/C amp. |
| OUTSIDE TEMP [°C] or [°F] | Ignition switch ON | — | Equivalent to ambient temperature NOTE: This may not match the indicated value on the information display. |
| FUEL LOW SIG | Ignition switch ON | Low-fuel warning signal output | On |
| | | Low-fuel warning signal not output | Off |

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

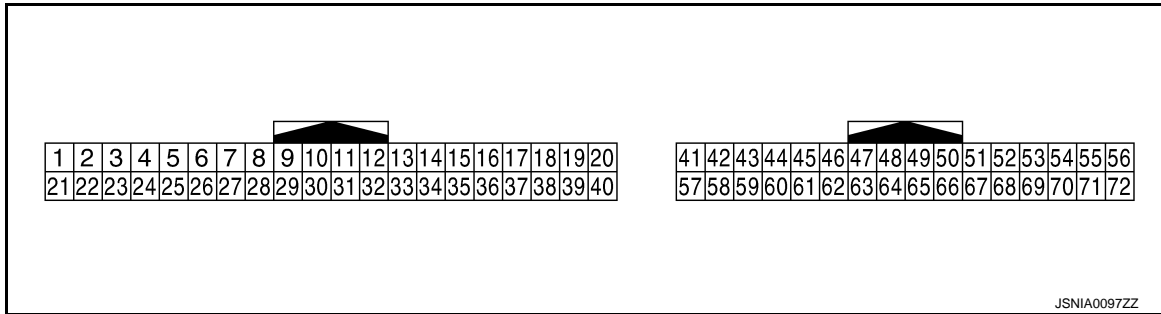
[AUTOMATIC AIR CONDITIONER]

| Monitor Item | Condition | Value/Status |
|--------------|--------------------|--------------|
| BUZZER | Ignition switch ON | Buzzer ON |
| | | Buzzer OFF |

NOTE:

Some items are not available according to vehicle specification.

TERMINAL LAYOUT



PHYSICAL VALUES

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|------------------------------|--------|--|------------------|---------------------|--|---|
| + | - | Signal name | Input/ Output | | | |
| 4 (G) | Ground | Stop lamp switch signal | Input | Ignition switch OFF | Brake pedal is depressed | 12 V |
| | | | | | Other than the above | 0 V |
| 5 (L) | Ground | Manual mode shift up signal | Input | Ignition switch ON | Selector lever up position | 0 V |
| | | | | | Other than the above | 12 V |
| 6 (O) | Ground | Paddle shifter up signal | Input | Ignition switch ON | Paddle shifter up operation | 0 V |
| | | | | | Other than the above | 12 V |
| 7 (GR) | Ground | Communication signal (AMP. → METER) | Output | Ignition switch ON | — | <p style="text-align: right; font-size: x-small;">SKIA3362E</p> |
| 8 (L) | Ground | Vehicle speed signal output (2-pulse) | Output | Ignition switch ON | Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)] | <p>NOTE: The maximum voltage varies depending on the specification (destination unit).</p> <p style="text-align: right; font-size: x-small;">JSNIA0015GB</p> |
| 9 (SB) | Ground | Seat belt buckle switch signal (driver side) | Input | Ignition switch ON | When seat belt (driver side) is fastened | 12 V |
| | | | | | When seat belt (driver side) is unfastened | 0 V |

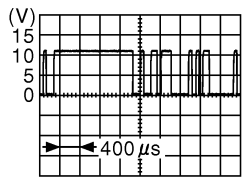
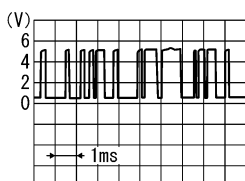
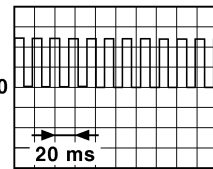
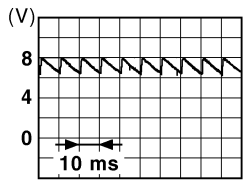
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UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

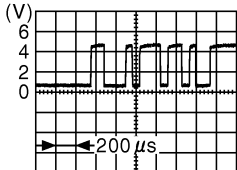
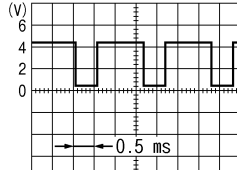
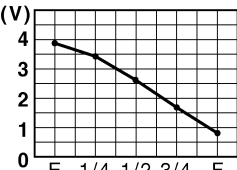
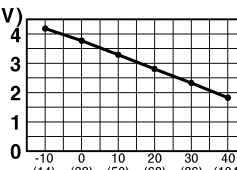
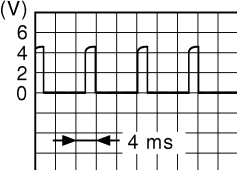
[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|------------------------------|--------|--|------------------|--------------------|--|---|
| + | - | Signal name | Input/ Output | | | |
| 10 (W) | Ground | Manual mode signal | Input | Ignition switch ON | Selector lever DS position | 0 V |
| | | | | | Other than the above | 12 V |
| 11 (G) | Ground | Not manual mode signal | Input | Ignition switch ON | Selector lever DS position | 12 V |
| | | | | | Other than the above | 0 V |
| 14 (BR) | Ground | Communication signal (LCD → AMP.) | Input | Ignition switch ON | — |  <p style="text-align: right; font-size: small;">JSNIA0028GB</p> |
| 20* (G) | Ground | ION ON/OFF signal | Output | Ignition switch ON | Blower motor: ON | 0 V |
| | | | | | Blower motor: OFF | 12 V |
| 25 (V) | Ground | Manual mode shift down signal | Input | Ignition switch ON | Selector lever down position | 0 V |
| | | | | | Other than the above | 12 V |
| 26 (G) | Ground | Paddle shift down signal | Input | Ignition switch ON | Paddle shifter down operation | 0 V |
| | | | | | Other than the above | 12 V |
| 27 (LG) | Ground | Communication signal (METER → AMP.) | Input | Ignition switch ON | — |  <p style="text-align: right; font-size: small;">SKIA3361E</p> |
| 28 (R) | Ground | Vehicle speed signal output (8-pulse) | Output | Ignition switch ON | Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)] | <p>NOTE: The maximum voltage varies depending on the specification (destination unit).</p>  <p style="text-align: right; font-size: small;">JSNIA0012GB</p> |
| 30 (V) | Ground | Parking brake switch signal | Input | Ignition switch ON | Parking brake applied | 0 V |
| | | | | | Parking brake released |  <p style="text-align: right; font-size: small;">JSNIA0007GB</p> |

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|------------------------------|--------|--------------------------------------|------------------|---------------------------|---|---|
| + | - | Signal name | Input/ Output | | | |
| 34 (Y) | Ground | Communication signal (AMP. → LCD) | Output | Ignition switch ON | — |  <p style="text-align: right; font-size: small;">JSNIA0027GB</p> |
| 38 (P) | Ground | Blower motor control signal | Output | Ignition switch ON | Fan speed: 1st speed (manual) |  <p style="text-align: right; font-size: small;">JSIIA0096ZZ</p> |
| 41 (L) | Ground | ACC power supply | Input | Ignition switch ACC | — | Battery voltage |
| 42 (BR) | Ground | Fuel level sensor signal | Input | Ignition switch ON | — |  <p style="text-align: right; font-size: small;">JSNIA0013GB</p> |
| 43 (R) | Ground | Intake sensor signal | Input | Ignition switch ON | — | 0 - 4.8 V Output voltage varies with intake temperature. |
| 44 (LG) | Ground | In-vehicle sensor signal | Input | Ignition switch ON | — | 0 - 4.8 V Output voltage varies with in-ve- hicle temperature. |
| 45 (V) | Ground | Ambient sensor signal | Input | Ignition switch ON | — |  <p style="text-align: right; font-size: small;">JSNIA0014GB</p> |
| 46 (O) | Ground | Sunload sensor signal | Input | Ignition switch ON | — | 0 - 4.8 V Output voltage varies with amount of sunload. |
| 47* (G) | Ground | Gas sensor signal | Input | Ignition switch ON | NOTE: The signal is different by measurement environment of a vehicle |  <p style="text-align: right; font-size: small;">ZJIA1163J</p> |
| 53 (W) | Ground | Ignition power supply | Input | Ignition switch ON | — | Battery voltage |

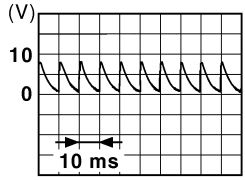
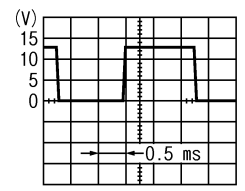
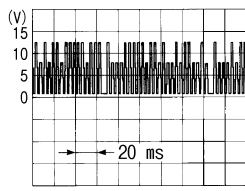
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UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|------------------------------|--------|---------------------------------|------------------|---------------------------|---|---|
| + | - | Signal name | Input/ Output | | | |
| 54 (Y) | Ground | Battery power supply | Input | Ignition switch OFF | — | Battery voltage |
| 55 (B) | Ground | Ground | — | Ignition switch ON | — | 0 V |
| 56 (L) | Ground | CAN-H | — | — | — | — |
| 57 (LG) | Ground | Brake fluid level switch signal | Input | Ignition switch ON | Brake fluid level is normal. |  <p style="text-align: right; font-size: small;">JSNIA0008GB</p> |
| | | | | | The brake fluid level is lower than the low level | 0 V |
| 58 (Y) | Ground | Fuel level sensor ground | — | Ignition switch ON | — | 0 V |
| 59 (GR) | Ground | Intake sensor ground | — | Ignition switch ON | — | 0 V |
| 60 (L) | Ground | In-vehicle sensor ground | — | Ignition switch ON | — | 0 V |
| 61 (R) | Ground | Ambient sensor signal ground | — | Ignition switch ON | — | 0 V |
| 62 (SB) | Ground | Sunload sensor ground | — | Ignition switch ON | — | 0 V |
| 63* (L) | Ground | Ion control mode output signal | Output | Ignition switch ON | Clean mode | 12 V |
| | | | | | Ion control mode | 0 V |
| 65 (O) | Ground | ECV signal | Output | Ignition switch ON | Self-diagnosis. STEP-4 (Code No. 45) |  <p style="text-align: right; font-size: small;">SJIA1607E</p> |
| 69 (L) | Ground | A/C LAN signal | Input/ Output | Ignition switch ON | — |  <p style="text-align: right; font-size: small;">SJIA1453J</p> |

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|------------------------------|--------|------------------------------|------------------|--------------------|---|--------------------|
| + | - | Signal name | Input/ Output | | | |
| 70 (R) | Ground | Each door motor power supply | Output | Ignition switch ON | — | Battery voltage |
| 71 (GR) | Ground | Ground | — | Ignition switch ON | — | 0 V |
| 72 (P) | Ground | CAN-L | — | — | — | — |

*: With ACCS

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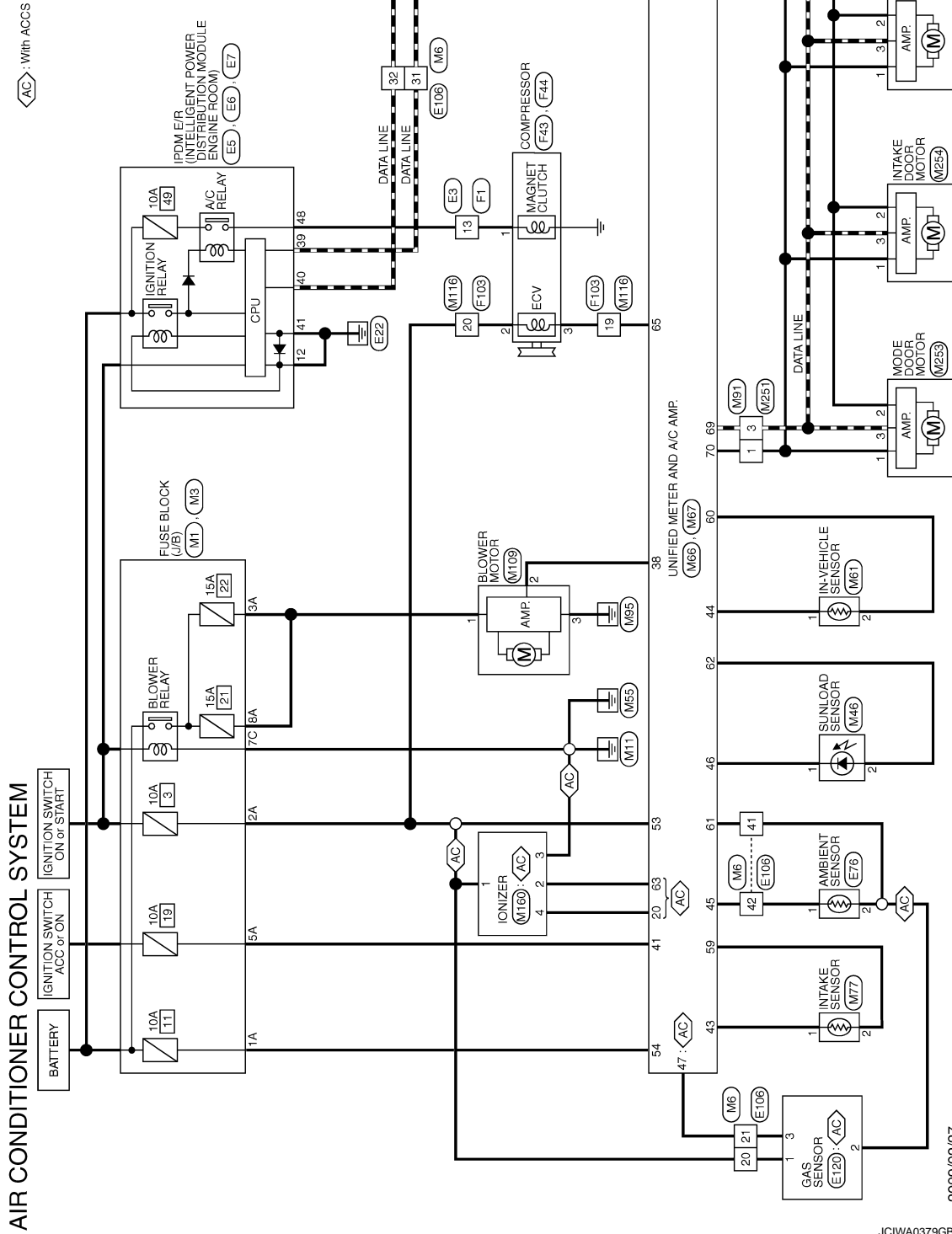
UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

Wiring Diagram - AIR CONDITIONER CONTROL SYSTEM -

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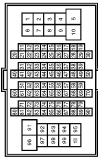

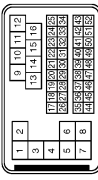

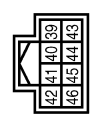

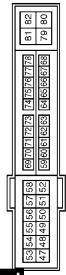



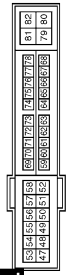
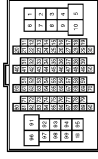
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UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

AIR CONDITIONER CONTROL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------------------------|----------------|--|----------------|-------------------|--|--------------|---------------|-----------------------------|----|-----|--|----|---|--|----|-----|--|----|---|--|----|---|--|----|---|--|----|---|--|----|---|--|----|---|--|
| <table border="1"> <tr> <td>Connector No.</td> <td>E1</td> </tr> <tr> <td>Connector Name</td> <td>WIRE TO WIRE</td> </tr> <tr> <td>Connector Type</td> <td>TH80FW-CS16-TM4</td> </tr> </table>  | Connector No. | E1 | Connector Name | WIRE TO WIRE | Connector Type | TH80FW-CS16-TM4 | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>67</td> <td>P</td> <td></td> </tr> <tr> <td>68</td> <td>L</td> <td></td> </tr> <tr> <td>69</td> <td>P</td> <td></td> </tr> <tr> <td>70</td> <td>L</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 67 | P | | 68 | L | | 69 | P | | 70 | L | | | | | | | | | | | | | | | | |
| Connector No. | E1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80FW-CS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 67 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 69 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E2</td> </tr> <tr> <td>Connector Name</td> <td>BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM</td> </tr> <tr> <td>Connector Type</td> <td>TH80FW-NH</td> </tr> </table>  | Connector No. | E2 | Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | Connector Type | TH80FW-NH | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>39</td> <td>P</td> <td></td> </tr> <tr> <td>40</td> <td>L</td> <td></td> </tr> <tr> <td>41</td> <td>B/W</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 39 | P | | 40 | L | | 41 | B/W | | | | | | | | | | | | | | | | | | | |
| Connector No. | E2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80FW-NH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | B/W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E3</td> </tr> <tr> <td>Connector Name</td> <td>WIRE TO WIRE</td> </tr> <tr> <td>Connector Type</td> <td>SA438MB-RSP-SH28</td> </tr> </table>  | Connector No. | E3 | Connector Name | WIRE TO WIRE | Connector Type | SA438MB-RSP-SH28 | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>13</td> <td>BR</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 13 | BR | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | SA438MB-RSP-SH28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | BR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E4</td> </tr> <tr> <td>Connector Name</td> <td>BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM</td> </tr> <tr> <td>Connector Type</td> <td>TH20FW-CS12-M4-1V</td> </tr> </table>  | Connector No. | E4 | Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | Connector Type | TH20FW-CS12-M4-1V | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>12</td> <td>B/W</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 12 | B/W | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH20FW-CS12-M4-1V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | B/W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E5</td> </tr> <tr> <td>Connector Name</td> <td>BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM</td> </tr> <tr> <td>Connector Type</td> <td>TH20FW-CS16-TM4</td> </tr> </table>  | Connector No. | E5 | Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | Connector Type | TH20FW-CS16-TM4 | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>39</td> <td>P</td> <td></td> </tr> <tr> <td>40</td> <td>L</td> <td></td> </tr> <tr> <td>41</td> <td>B/W</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 39 | P | | 40 | L | | 41 | B/W | | | | | | | | | | | | | | | | | | | |
| Connector No. | E5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH20FW-CS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | B/W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E6</td> </tr> <tr> <td>Connector Name</td> <td>BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM</td> </tr> <tr> <td>Connector Type</td> <td>TH80FW-NH</td> </tr> </table>  | Connector No. | E6 | Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | Connector Type | TH80FW-NH | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>39</td> <td>P</td> <td></td> </tr> <tr> <td>40</td> <td>L</td> <td></td> </tr> <tr> <td>41</td> <td>B/W</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 39 | P | | 40 | L | | 41 | B/W | | | | | | | | | | | | | | | | | | | |
| Connector No. | E6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80FW-NH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | B/W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E7</td> </tr> <tr> <td>Connector Name</td> <td>BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM</td> </tr> <tr> <td>Connector Type</td> <td>TH20FW-CS12-M4</td> </tr> </table>  | Connector No. | E7 | Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | Connector Type | TH20FW-CS12-M4 | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>48</td> <td>BR</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 48 | BR | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH20FW-CS12-M4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | BR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E7</td> </tr> <tr> <td>Connector Name</td> <td>REFRIGERANT PRESSURE SENSOR</td> </tr> <tr> <td>Connector Type</td> <td>FRK03FB</td> </tr> </table>  | Connector No. | E7 | Connector Name | REFRIGERANT PRESSURE SENSOR | Connector Type | FRK03FB | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>1</td> <td>V</td> <td></td> </tr> <tr> <td>2</td> <td>L</td> <td></td> </tr> <tr> <td>3</td> <td>O</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 1 | V | | 2 | L | | 3 | O | | | | | | | | | | | | | | | | | | | |
| Connector No. | E7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | REFRIGERANT PRESSURE SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | FRK03FB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E7</td> </tr> <tr> <td>Connector Name</td> <td>REFRIGERANT PRESSURE SENSOR</td> </tr> <tr> <td>Connector Type</td> <td>FRK03FB</td> </tr> </table>  | Connector No. | E7 | Connector Name | REFRIGERANT PRESSURE SENSOR | Connector Type | FRK03FB | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>1</td> <td>V</td> <td></td> </tr> <tr> <td>2</td> <td>L</td> <td></td> </tr> <tr> <td>3</td> <td>O</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 1 | V | | 2 | L | | 3 | O | | | | | | | | | | | | | | | | | | | |
| Connector No. | E7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | REFRIGERANT PRESSURE SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | FRK03FB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E7</td> </tr> <tr> <td>Connector Name</td> <td>AMBIENT SENSOR</td> </tr> <tr> <td>Connector Type</td> <td>RS02FB</td> </tr> </table>  | Connector No. | E7 | Connector Name | AMBIENT SENSOR | Connector Type | RS02FB | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>1</td> <td>G</td> <td></td> </tr> <tr> <td>2</td> <td>P</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 1 | G | | 2 | P | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | AMBIENT SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | RS02FB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | G | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E7</td> </tr> <tr> <td>Connector Name</td> <td>BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM</td> </tr> <tr> <td>Connector Type</td> <td>TH20FW-CS12-M4</td> </tr> </table>  | Connector No. | E7 | Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | Connector Type | TH20FW-CS12-M4 | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>48</td> <td>BR</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 48 | BR | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector No. | E7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | BOWE B INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH20FW-CS12-M4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | BR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>Connector No.</td> <td>E106</td> </tr> <tr> <td>Connector Name</td> <td>WIRE TO WIRE</td> </tr> <tr> <td>Connector Type</td> <td>TH80FW-CS16-TM4</td> </tr> </table>  | Connector No. | E106 | Connector Name | WIRE TO WIRE | Connector Type | TH80FW-CS16-TM4 | <table border="1"> <tr> <td>Terminal No.</td> <td>Color of Wire</td> <td>Signal Name [Specification]</td> </tr> <tr> <td>20</td> <td>V</td> <td></td> </tr> <tr> <td>21</td> <td>G</td> <td></td> </tr> <tr> <td>31</td> <td>P</td> <td></td> </tr> <tr> <td>32</td> <td>L</td> <td></td> </tr> <tr> <td>41</td> <td>P</td> <td></td> </tr> <tr> <td>42</td> <td>G</td> <td></td> </tr> <tr> <td>43</td> <td>V</td> <td></td> </tr> <tr> <td>44</td> <td>L</td> <td></td> </tr> <tr> <td>45</td> <td>O</td> <td></td> </tr> </table> | Terminal No. | Color of Wire | Signal Name [Specification] | 20 | V | | 21 | G | | 31 | P | | 32 | L | | 41 | P | | 42 | G | | 43 | V | | 44 | L | | 45 | O | |
| Connector No. | E106 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Name | WIRE TO WIRE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector Type | TH80FW-CS16-TM4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal No. | Color of Wire | Signal Name [Specification] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | G | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | G | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | O | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

JCIWA0381GB

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

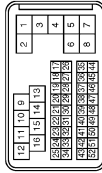
AIR CONDITIONER CONTROL SYSTEM

| | |
|----------------|------------|
| Connector No. | E120 |
| Connector Name | GAS SENSOR |
| Connector Type | RH03FB |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | V | POWER |
| 2 | P | GND |
| 3 | G | GAS SENSOR SIGNAL |

| | |
|----------------|------------------|
| Connector No. | F1 |
| Connector Name | WIRE TO WIRE |
| Connector Type | SA438FB-RSS-S1Z3 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 13 | L | - |

| | |
|----------------|------------|
| Connector No. | F43 |
| Connector Name | COMPRESSOR |
| Connector Type | RS01FB |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | L | - |

| | |
|----------------|------------|
| Connector No. | F44 |
| Connector Name | COMPRESSOR |
| Connector Type | RK02FCY |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2 | Y | - |
| 3 | O | - |

| | |
|----------------|--------------|
| Connector No. | F103 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TK38FW-NS10 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 19 | O | - |
| 20 | Y | - |

| | |
|----------------|------------------|
| Connector No. | M1 |
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS06FW-M2 |



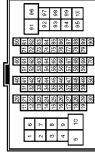
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1A | V | - |
| 2A | G | - |
| 3A | L | - |
| 5A | L | - |
| 8A | L | - |

| | |
|----------------|------------------|
| Connector No. | M3 |
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS12FW-CS |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 7C | B | - |

| | |
|----------------|-----------------|
| Connector No. | M6 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TR60MW-CS16-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 20 | V | - |
| 21 | G | - |
| 31 | P | - |
| 32 | L | - |
| 41 | R | - |
| 42 | V | - |
| 43 | W | - |
| 44 | L | - |
| 45 | O | - |

A
B
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E
F
G
H
HAC
J
K
L
M
N
O
P

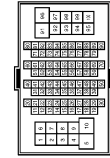
UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

AIR CONDITIONER CONTROL SYSTEM

| | |
|----------------|----------------|
| Connector No. | M7 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH8DW-CS16-TM4 |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 67 | P | - |
| 68 | L | - |
| 69 | P | - |
| 70 | L | - |

| | |
|----------------|--------------|
| Connector No. | M17 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TK2FW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | L | - |
| 2 | P | - |

| | |
|----------------|--------------|
| Connector No. | M18 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TK2MW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | L | - |
| 2 | P | - |

| | |
|----------------|----------------|
| Connector No. | M46 |
| Connector Name | SUNLOAD SENSOR |
| Connector Type | K2FB |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | O | - |
| 2 | SB | - |

| | |
|----------------|-------------------|
| Connector No. | M61 |
| Connector Name | IN-VEHICLE SENSOR |
| Connector Type | A2FW |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | LG | - |
| 2 | L | - |

| | |
|----------------|----------------------------|
| Connector No. | M66 |
| Connector Name | UNIFIED METER AND A/C AMP. |
| Connector Type | TH4FW-NH |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 20 | G | ION ON/OFF SIGNAL |
| 38 | P | BLOWER MOTOR CONTROL SIGNAL |

| | |
|----------------|----------------------------|
| Connector No. | M67 |
| Connector Name | UNIFIED METER AND A/C AMP. |
| Connector Type | TH2FW-NH |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 41 | L | ACC POWER SUPPLY |
| 43 | R | INTAKE SENSOR SIGNAL |
| 44 | LG | IN-VEHICLE SENSOR SIGNAL |
| 45 | V | AMBIENT SENSOR SIGNAL |
| 46 | O | SUNLOAD SENSOR SIGNAL |
| 47 | G | GAS SENSOR SIGNAL |
| 53 | W | IGNITION POWER SUPPLY |
| 54 | Y | BATTERY POWER SUPPLY |
| 55 | B | GROUND |
| 56 | L | CAN-L |
| 59 | GR | INTAKE SENSOR GROUND |

| | | |
|----|----|---------------------------------|
| 60 | L | IN-VEHICLE SENSOR GROUND |
| 61 | R | AMBIENT SENSOR GROUND |
| 62 | SB | SUNLOAD SENSOR GROUND |
| 63 | L | ION CONTROL INODE OUTPUT SIGNAL |
| 65 | O | ECV SIGNAL |
| 69 | L | A/C LANT SIGNAL |
| 70 | R | EACH DOOR MOTOR POWER SUPPLY |
| 71 | GR | GROUND |
| 72 | P | CAN-L |

JCIWA0383GB

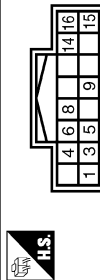
UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

AIR CONDITIONER CONTROL SYSTEM

| | |
|----------------|----------------------|
| Connector No. | M72 |
| Connector Name | MULTIFUNCTION SWITCH |
| Connector Type | TH16FW-NH |



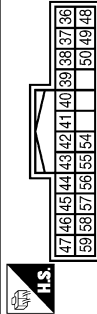
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 6 | G | AV COMM (H) |
| 8 | R | AV COMM (L) |

| | |
|----------------|---------------|
| Connector No. | M77 |
| Connector Name | INTAKE SENSOR |
| Connector Type | TKC6FW |



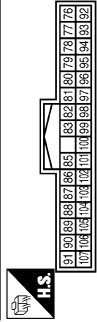
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | R | - |
| 2 | GR | - |

| | |
|----------------|--------------------------------|
| Connector No. | M83 |
| Connector Name | AV CONTROL UNIT (WITHOUT NAVI) |
| Connector Type | TH24FW-NH |



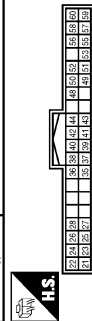
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 44 | L | COMM (DISP->CONT) |
| 55 | SHIELD | SHIELD |
| 56 | P | COMM (CONT->DISP) |

| | |
|----------------|--------------------------------|
| Connector No. | M85 |
| Connector Name | AV CONTROL UNIT (WITHOUT NAVI) |
| Connector Type | TH32FW-NH |



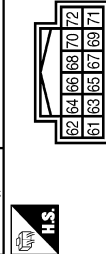
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------------|
| 86 | L | CAN-H |
| 87 | P | CAN-L |
| 88 | G | AV COMM (H) [With BOSE system] |
| 88 | L | AV COMM (H) [Without BOSE system] |
| 89 | R | AV COMM (L) [With BOSE system] |
| 89 | P | AV COMM (L) [Without BOSE system] |

| | |
|----------------|-----------------------------|
| Connector No. | M87 |
| Connector Name | AV CONTROL UNIT (WITH NAVI) |
| Connector Type | TH06FW-NH |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 50 | G | AV COMM (H) |
| 51 | R | AV COMM (L) |
| 52 | L | CAN-H |
| 53 | P | CAN-L |

| | |
|----------------|-----------------------------|
| Connector No. | M88 |
| Connector Name | AV CONTROL UNIT (WITH NAVI) |
| Connector Type | TH12FW-NH |



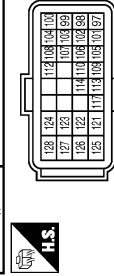
| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 70 | L | COMM (CONT->DISP) |
| 71 | P | COMM (DISP->CONT) |
| 72 | SHIELD | SHIELD |

| | |
|----------------|--------------|
| Connector No. | M81 |
| Connector Name | WIRE TO WIRE |
| Connector Type | AC3MW-P |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1 | R | - |
| 2 | B | - |
| 3 | L | - |

| | |
|----------------|--------------------|
| Connector No. | M107 |
| Connector Name | ECM |
| Connector Type | FR24FGY-R28-R-LH-Z |



| Terminal No. | Color of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 105 | L | PDPRESS |
| 107 | BR | AVCC-PDPRES |
| 112 | R | GND-A-PDPRES |
| 113 | P | VEHCAN-LI |
| 114 | L | VEHCAN-HI |

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UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

AIR CONDITIONER CONTROL SYSTEM

| | | | | | | | |
|----------------|--------------|----------------|--------------|----------------|-----------|----------------|-----------------------|
| Connector No. | M109 | Connector No. | M116 | Connector No. | M251 | Connector No. | M255 |
| Connector Name | BLOWER MOTOR | Connector Name | WIRE TO WIRE | Connector Name | IONIZER | Connector Name | AIR MIX DOOR MOTOR RH |
| Connector Type | NSD3FW-M3 | Connector Type | TKS3AW-NS10 | Connector Type | 1H04FW-NH | Connector Type | AG3FW |

| | | | |
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| Terminal No. | 1 | 2 | 3 |
| Color of Wire | L | P | B |
| Signal Name [Specification] | - | - | - |

| | | |
|-----------------------------|----|----|
| Terminal No. | 19 | 20 |
| Color of Wire | O | Y |
| Signal Name [Specification] | - | - |

| | | | |
|-----------------------------|---|---|---|
| Terminal No. | 1 | 2 | 3 |
| Color of Wire | L | B | L |
| Signal Name [Specification] | - | - | - |

| | | | |
|-----------------------------|---|---|---|
| Terminal No. | 1 | 2 | 3 |
| Color of Wire | L | B | L |
| Signal Name [Specification] | - | - | - |

| | | | |
|-----------------------------|---|---|---|
| Terminal No. | 1 | 2 | 3 |
| Color of Wire | L | B | L |
| Signal Name [Specification] | - | - | - |

| | | | |
|-----------------------------|---|---|---|
| Terminal No. | 1 | 2 | 3 |
| Color of Wire | L | B | L |
| Signal Name [Specification] | - | - | - |

| | | | |
|-----------------------------|-----|----------|------------|
| Terminal No. | 1 | 2 | 3 |
| Color of Wire | V | L | B |
| Signal Name [Specification] | IGN | ION MODE | ION ON/OFF |

| | | | |
|-----------------------------|---|---|---|
| Terminal No. | 1 | 2 | 3 |
| Color of Wire | L | B | L |
| Signal Name [Specification] | - | - | - |

Fail-safe

FAIL-SAFE FUNCTION

If a communication error exists between the unified meter and A/C amp., and the AV control unit and preset switch for 30 seconds or longer, air conditioner is controlled under the following conditions:

JCIWA0385GB

INFOID:000000004794386

UNIFIED METER AND A/C AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONER]

Compressor : ON
Air outlet : AUTO
Air inlet : FRE (Fresh)
Fan speed : AUTO
Set temperature : Setting before communication error occurs

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AIR CONDITIONER CONTROL

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

SYMPTOM DIAGNOSIS

AIR CONDITIONER CONTROL

Diagnosis Chart By Symptom

INFOID:000000004983625

| Symptom | Reference | |
|--|--|--|
| A/C system does not activate. | Go to Trouble Diagnosis Procedure for A/C System. | HAC-50, "Diagnosis Procedure" |
| A/C system cannot be controlled. | Go to Preset Switch System. | <ul style="list-style-type: none"> • AV-146, "Symptom Table" (BASE AUDIO WITHOUT NAVIGATION) • AV-444, "Symptom Table" (BOSE AUDIO WITHOUT NAVIGATION) • AV-725, "Symptom Table" (BOSE AUDIO WITH NAVIGATION) |
| Air outlet does not change. | Go to Trouble Diagnosis Procedure for Mode Door Motor. (LAN) | HAC-51, "Diagnosis Procedure" |
| Mode door motor does not operate normally. | | |
| Discharge air temperature (driver side) does not change. | Go to Trouble Diagnosis Procedure for Air Mix Door Motor (driver side). (LAN) | HAC-53, "Diagnosis Procedure" |
| Air mix door motor (driver side) does not operate normally. | | |
| Discharge air temperature (passenger side) does not change. | Go to Trouble Diagnosis Procedure for Air Mix Door Motor (passenger side). (LAN) | HAC-55, "Diagnosis Procedure" |
| Air mix door motor (passenger side) does not operate normally. | | |
| Intake door does not change. | Go to Trouble Diagnosis Procedure for Intake Door Motor. (LAN) | HAC-57, "Diagnosis Procedure" |
| Intake door motor does not operate normally. | | |
| Blower motor operation is malfunctioning. | Go to Trouble Diagnosis Procedure for Blower Motor. | HAC-59, "Diagnosis Procedure" |
| Magnet clutch does not engage. | Go to Trouble Diagnosis Procedure for Magnet Clutch. | HAC-63, "Diagnosis Procedure" |
| Insufficient cooling | Go to Trouble Diagnosis Procedure for Insufficient Cooling. | HAC-119, "Inspection procedure" |
| No cool air comes out. (Air flow volume is normal.) | | |
| Insufficient heating | Go to Trouble Diagnosis Procedure for Insufficient Heating. | HAC-121, "Inspection procedure" |
| No warm air comes out. (Air flow volume is normal.) | | |
| Noise | Go to Trouble Diagnosis Procedure for Noise. | HAC-123, "Inspection procedure" |
| Noise is heard when the A/C system operates. | | |
| Self-diagnosis cannot be performed. | Go to Trouble Diagnosis Procedure for Self-diagnosis. | HAC-125, "Inspection procedure" |
| Memory function does not operate. | Go to Trouble Diagnosis Procedure for Memory Function. | HAC-126, "Inspection procedure" |
| The setting is not maintained. (It return to the initial condition.) | | |
| Plasmacluster system does not operate. | Go to Trouble Diagnosis Procedure for Plasmacluster system. | HAC-127, "Inspection procedure" |

INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

INSUFFICIENT COOLING

Description

INFOID:000000004943712

Symptom

- Insufficient cooling
- No cool air comes out. (Air flow volume is normal.)

Inspection procedure

INFOID:000000004943713

1. CHECK WITH A GAUGE OF RECOVERY/RECYCLING RECHARGING EQUIPMENT

Connect the recovery/recycling recharging equipment to the vehicle and perform the pressure inspection with the gauge.

Is there refrigerant?

YES >> GO TO 2.

NO-1 >> Check for refrigerant leakages with the refrigerant leakage detecting fluorescent leak detector. Refer to [HA-34, "Inspection"](#).

NO-2 >> GO TO 2 after repairing or replacing the parts according to the inspection results.

2. CHECK CHARGED REFRIGERANT AMOUNT

1. Connect recovery/recycling recharging equipment to the vehicle and discharge the refrigerant. Refer to [HA-25, "Collection and Charge"](#).

2. Recharge with the proper amount of refrigerant. Refer to [HA-25, "Collection and Charge"](#).

3. Perform the inspection with the refrigerant leakage detecting fluorescent leak detector. Refer to [HA-34, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Refill the refrigerant and repair or replace the parts according to the inspection results.

3. PERFORM THE PERFORMANCE TEST

Connect recovery/recycling recharging equipment to the vehicle and perform the performance test. Refer to [HA-32, "Performance Chart"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Perform the diagnosis with the gauge pressure. Refer to [HA-7, "Trouble Diagnosis For Unusual Pressure"](#).

4. CHECK SETTING OF TEMPERATURE SETTING TRIMMER

Check the setting of temperature setting trimmer. Refer to [HAC-9, "Temperature Setting Trimmer"](#).

1. Check that the temperature setting trimmer is set to "+ direction".

NOTE:

The control temperature can be set with the setting of temperature setting trimmer.

2. Set temperature control dial to "0".

Are the symptoms solved?

YES >> INSPECTION END

NO >> GO TO 5.

5. PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function. Refer to [HAC-44, "Diagnosis Description"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace parts according to the inspection results.

6. CHECK DRIVE BELT

Check tension of the drive belt. Refer to [EM-13, "Checking"](#).

Is the inspection result normal?

YES >> GO TO 7.

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INSUFFICIENT COOLING

[AUTOMATIC AIR CONDITIONER]

< SYMPTOM DIAGNOSIS >

NO >> Adjust or replace drive belt.

7.CHECK AIR LEAKAGE FROM DUCT

Check duct and nozzle, etc. of A/C system for air leakage.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace parts according to the inspection results.

8.CHECK ECV

Perform the ECV diagnosis procedure. Refer to [HAC-65. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the unified meter and A/C amp.

NO >> Replace the compressor.

INSUFFICIENT HEATING

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

INSUFFICIENT HEATING

Description

INFOID:000000004943714

Symptom

- Insufficient heating
- No warm air comes out. (Air flow volume is normal.)

Inspection procedure

INFOID:000000004943715

1.CHECK COOLING SYSTEM

1. Check engine coolant level and check for leakage. Refer to [CO-7, "Inspection"](#).
2. Check radiator cap. Refer to [CO-10, "RADIATOR CAP : Inspection"](#).
3. Check water flow sounds of engine coolant. Refer to [CO-8, "Refilling"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Refill the engine coolant and repair or replace the parts according to the inspection results.

2.CHECK SETTING OF TEMPERATURE SETTING TRIMMER

1. Check the setting of temperature setting trimmer. Refer to [HAC-9, "Temperature Setting Trimmer"](#).
2. Check that the temperature setting trimmer is set to "– direction".

NOTE:

The control temperature can be set with the setting of temperature setting trimmer.

3. Set temperature control dial to "0".

Are the symptoms solved?

YES >> INSPECTION END

NO >> GO TO 3.

3.CHECK OPERATION

1. Turn temperature dial (driver side) and raise temperature setting to 32°C (90°F) after warming up the engine.
2. Check that warm air blows from outlets.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4.PERFORM SELF-DIAGNOSIS

Perform self-diagnosis function. Refer to [HAC-44, "Diagnosis Description"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace parts according to the inspection results.

5.CHECK AIR LEAKAGE FROM DUCT

Check duct and nozzle, etc. of A/C system for air leakage.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace parts according to the inspection results.

6.CHECK HEATER HOSE INSTALLATION CONDITION

Check the heater hose installation condition visually (for twist, crush, etc.).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace parts according to the inspection results.

7.CHECK TEMPERATURE OF HEATER HOSE

1. Check the temperature of inlet hose and outlet hose of heater core.

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INSUFFICIENT HEATING

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

-
2. Check that the inlet side of heater core is hot and the outlet side is slightly lower than/almost equal to the inlet side.

CAUTION:

The temperature inspection should be performed in a short time because the engine coolant temperature is too hot.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace the heater core after performing the procedures after the cooling system inspection again. GO TO 1.

8.REPLACE HEATER CORE

Replace the heater core. Refer to heater core. Refer to [HA-48. "Exploded View"](#).

Are the symptoms solved?

YES >> INSPECTION END

NO >> Perform the procedures after the cooling system inspection again. GO TO 1.

< SYMPTOM DIAGNOSIS >

NOISE**Description**

INFOID:000000004943716

Symptom

- Noise
- Noise is heard when the A/C system operates.

Inspection procedure

INFOID:000000004943717

1.CHECK OPERATION

1. Operate the A/C system and check the operation. Refer to [HAC-7, "Description & Inspection"](#).
2. Check the parts where noise is occurring.

Can the parts where noise is occurring be checked?

- YES-1 >> Noise from blower motor: GO TO 2.
 YES-2 >> Noise from compressor: GO TO 3.
 YES-3 >> Noise from expansion valve: GO TO 4.
 YES-4 >> Noise from A/C piping (pipe, flexible hose): GO TO 6.
 YES-5 >> Noise from drive belt: GO TO 7.
 NO >> INSPECTION END

2.CHECK THE BLOWER MOTOR

1. Remove the blower motor.
2. Remove in-cabin microfilter.
3. Remove foreign materials that are in the blower unit.
4. Check the noise from the blower motor again.

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace the blower motor.

3.REPLACE COMPRESSOR

1. Correct the refrigerant with recovery/recycling recharging equipment.
2. Recharge with the proper amount of the collected refrigerant after recycling or new refrigerant.
3. Check for the noise from compressor again.

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Replace compressor.

4.CHECK WITH GAUGE PRESSUREPerform the diagnosis with the gauge pressure. Refer to [HA-7, "Trouble Diagnosis For Unusual Pressure"](#).Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Repair or replace malfunctioning part.

5.REPLACE EXPANSION VALVE

1. Correct the refrigerant with recovery/recycling recharging equipment.
2. Recharge with the proper amount of the collected refrigerant after recycling or new refrigerant.
3. Check for the noise from expansion valve again.

Are the symptoms solved?

- YES >> INSPECTION END
 NO >> Replace expansion valve.

6.CHECK A/C PIPING (PIPE, FLEXIBLE HOSE)

1. Check A/C piping (pipe, flexible hose) (for deformation and damage, etc.).
2. Check the installation condition of clips and brackets, etc. of A/C piping (pipe, flexible hose).

Is the inspection result normal?

- YES >> Fix the line with rubber or some vibration absorbing material.

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NOISE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

NO >> Repair or replace parts according to the inspection results.

7.CHECK DRIVE BELT

Check tension of the drive belt. Refer to [EM-13, "Checking"](#).

Is the inspection result normal?

YES >> Check the noise from compressor: GO TO 3.

NO >> Adjust or replace drive belt according to the inspection results.

SELF-DIAGNOSIS CANNOT BE PERFORMED

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

SELF-DIAGNOSIS CANNOT BE PERFORMED

Description

INFOID:000000004943718

Symptom: Self-diagnosis function does not operate normally.

Inspection procedure

INFOID:000000004943719

1. CHECK SELF-DIAGNOSIS FUNCTION

1. Turn ignition switch ON.
2. Set in self-diagnosis mode as per the following. Within 10 seconds after starting engine (ignition switch is turned ON.), press OFF switch for at least 5 seconds.

NOTE:

- If battery voltage drops below 12 V during diagnosis STEP-3, door motor speed becomes slower and as a result, the system may generate an error even when operation is normal. Start engine before performing this diagnosis to avoid this.
- Former STEP-1 (indicators and display screen are checked) does not exist in this self-diagnosis function.
- OFF switch may not be recognized according to the timing of pressing it. Operate OFF switch after the intake switch indicators are turned ON.

Does self-diagnosis function operate?

YES >> INSPECTION END
NO >> GO TO 2.

2. CHECK POWER SUPPLY AND GROUND CIRCUIT OF UNIFIED METER AND A/C AMP.

Check power supply and ground circuit of unified meter and A/C amp. Refer to [HAC-49. "UNIFIED METER AND A/C AMP. : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace unified meter and A/C amp.
NO >> Repair or replace malfunctioning part.

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MEMORY FUNCTION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

MEMORY FUNCTION DOES NOT OPERATE

Description

INFOID:000000004943720

Symptom

- Memory function does not operate normally.
- The setting is not maintained. (It returns to the initial condition.)

Inspection procedure

INFOID:000000004943721

1. CHECK OPERATION

1. Set temperature control dial to 32°C (90°F).
2. Press OFF switch.
3. Turn ignition switch OFF.
4. Turn ignition switch ON.
5. Press AUTO switch.
6. Check that the set temperature is maintained.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> GO TO 2.

2. CHECK POWER SUPPLY AND GROUND CIRCUIT OF UNIFIED METER AND A/C AMP.

Check power supply and ground circuit of unified meter and A/C amp. Refer to [HAC-49. "UNIFIED METER AND A/C AMP. : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace unified meter and A/C amp.
NO >> Repair or replace malfunctioning part.

PLASMACLUSTER SYSTEM DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONER]

PLASMACLUSTER SYSTEM DOES NOT OPERATE

Description

INFOID:000000004943722

Symptom: Plasmacluster system does not operate.

Inspection procedure

INFOID:000000004943723

FUNCTION CONFIRMATION PROCEDURE

Check the plasmacluster operation in the function inspection.

1.CHECK PLASMACLUSTER ION CONTROL FUNCTION

1. Turn ignition switch OFF and restart the engine.
2. Ion indicator (blue) is shown on the display.
3. Press OFF switch.
4. Ion indicator is turned OFF.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 3.

2.CHECK ION CONTROL MODE

1. Turn ignition switch OFF and restart the engine.
2. Press AUTO switch. AUTO INTAKE indicator turns ON (auto intake mode).
3. Ion indicator (blue) is shown on the display.
4. Ion indicator (blue) changes to ion indicator (green) after approximately 30 minutes.
5. Ion indicator (green) changes to ion indicator (blue) after approximately 15 minutes.
6. Press intake switch. AUTO INTAKE indicator and REC indicator turns OFF (fixed FRE mode).
7. Ion indicator (green) changes to ion indicator (blue) after approximately 15 minutes.
8. Ion indicator (blue) changes to ion indicator (green) after approximately 15 minutes.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace unified meter and A/C amp.

3.PERFORM SELF-DIAGNOSIS STEP-4

Perform self-diagnosis STEP-4. Refer to [HAC-44. "Diagnosis Description"](#).

Does plasmacluster system change according to each code No.?

- YES >> INSPECTION END
NO-1 >> Ionizer operation is malfunctioning. Refer to [HAC-82. "Diagnosis Procedure"](#).
NO-2 >> Ion indicator does not change. Replace unified meter and A/C amp.
NO-3 >> Ion indicator does not illuminate. Refer to [AV-146. "Symptom Table"](#) (BASE AUDIO WITHOUT NAVIGATION), [AV-444. "Symptom Table"](#) (BOSE AUDIO WITHOUT NAVIGATION) or [AV-725. "Symptom Table"](#) (BOSE AUDIO WITH NAVIGATION).

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PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000005153388

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Service Procedure Precautions for Models with a Pop-up Roll Bar

INFOID:000000005153396

WARNING:

- Risk of passenger injury or death may increase if the pop-up roll bar does not deploy during a roll over collision. In order to reduce the chance of an incident where the pop-up roll bar is inoperative, all maintenance must be performed by a NISSAN or INFINITI dealer.
- Before removing and installing the pop-up roll bar component parts and harness, always turn the ignition switch OFF, disconnect the battery negative terminal, and wait for 3 minutes or more. (The purpose of this operation is to discharge electricity that is accumulated in the auxiliary power supply circuit in the air bag diagnosis sensor unit.)
- When repairing, removing, and installing a pop-up roll bar, always refer to SRS AIR BAG and SRS AIR BAG CONTROL warnings in the Service Manual.

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:000000005153394

NOTE:

- Before removing and installing any control units, first turn the push-button ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

PRECAUTIONS

< PRECAUTION >

[AUTOMATIC AIR CONDITIONER]

OPERATION PROCEDURE

1. Connect both battery cables. A
NOTE:
Supply power using jumper cables if battery is discharged.
2. Turn the push-button ignition switch to ACC position. B
(At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned. C
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.) D
6. Perform self-diagnosis check of all control units using CONSULT-III. E

Precaution for Battery Service

INFOID:000000005153395

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected. F

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PRESET SWITCH

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

REMOVAL AND INSTALLATION

PRESET SWITCH

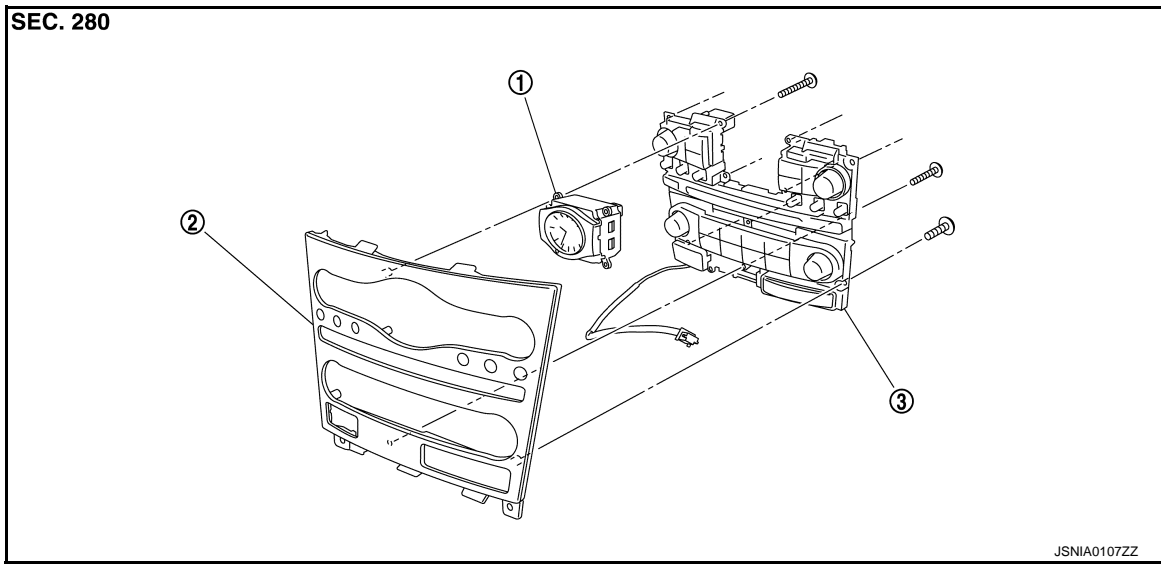
Exploded View

INFOID:000000004943782

REMOVAL

Refer to [IP-12, "Exploded View"](#).

DISASSEMBLY



1. Clock

2. Cluster lid C

3. Preset switch

Removal and Installation

INFOID:000000004787971

REMOVAL

Refer to the following.

- [AV-162, "Exploded View"](#) (BASE AUDIO WITHOUT NAVIGATION)
- [AV-467, "Exploded View"](#) (BOSE AUDIO WITHOUT NAVIGATION)
- [AV-750, "Exploded View"](#) (BOSE AUDIO WITH NAVIGATION)

INSTALLATION

Installation is basically the reverse order of removal.

NOTE:

When installing preset switch, do not allow the print wire that connects preset switch and multifunction switch to get caught in between AV control unit and preset switch.

UNIFIED METER AND A/C AMP.

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

UNIFIED METER AND A/C AMP.

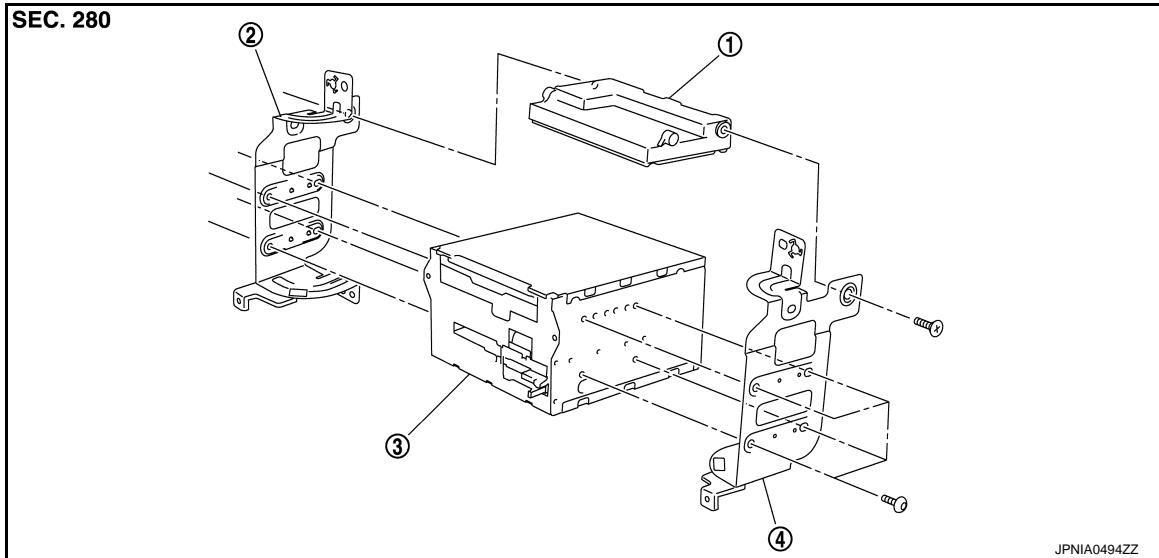
Exploded View

INFOID:000000004943787

REMOVAL

Refer to [IP-12, "Exploded View"](#).

DISASSEMBLY



1. Unified meter and A/C amp.
2. Bracket LH
3. AV control unit
4. Bracket RH

Removal and Installation

INFOID:000000004787973

REMOVAL

1. Remove AV control unit. Refer to the following.
 - [AV-154, "Exploded View"](#) (BASE AUDIO WITHOUT NAVIGATION)
 - [AV-454, "Exploded View"](#) (BOSE AUDIO WITHOUT NAVIGATION)
 - [AV-738, "Exploded View"](#) (BOSE AUDIO WITH NAVIGATION)
2. Remove unified meter and A/C amp.

INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

Since unified meter and A/C amp. connector and AV control unit connector have the same form, be careful not to insert them wrongly.

AMBIENT SENSOR

< REMOVAL AND INSTALLATION >

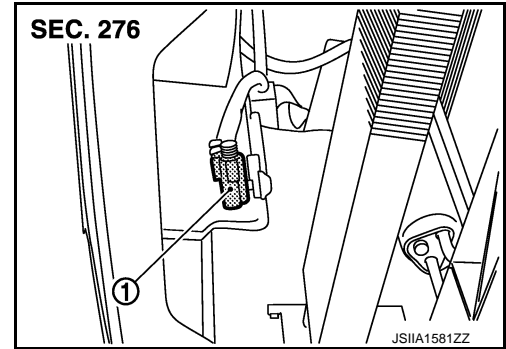
[AUTOMATIC AIR CONDITIONER]

AMBIENT SENSOR

Exploded View

INFOID:000000004787974

1. Ambient sensor



Removal and Installation

INFOID:000000004787975

REMOVAL

1. Remove front grille. Refer to [EXT-19, "Exploded View"](#).
2. Disconnect ambient sensor connector, and then remove ambient sensor.

INSTALLATION

Installation is basically the reverse order of removal.

IN-VEHICLE SENSOR

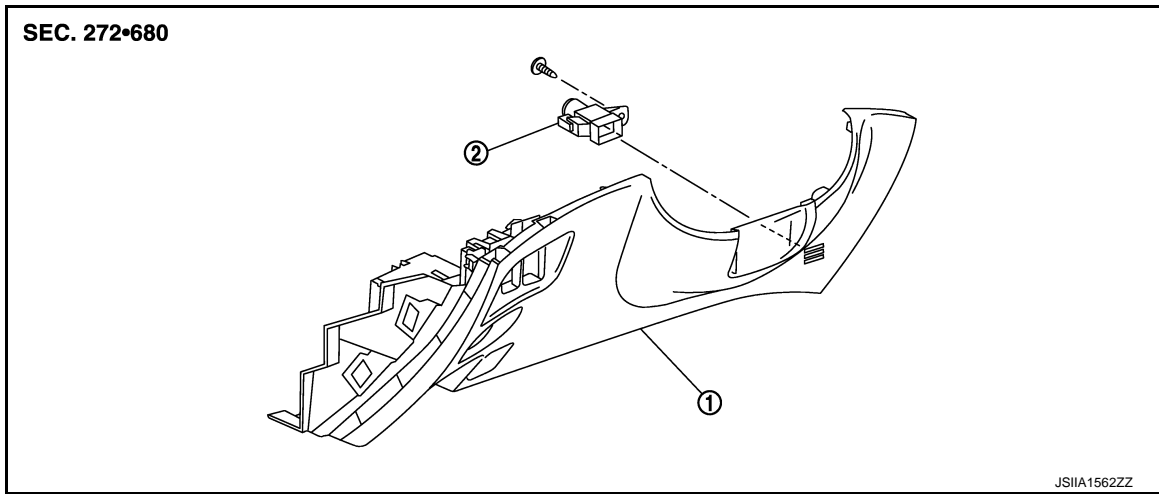
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

IN-VEHICLE SENSOR

Exploded View

INFOID:000000004787976



1. Instrument driver lower panel
2. In-vehicle sensor

Removal and Installation

INFOID:000000004787977

REMOVAL

1. Remove instrument driver lower panel. Refer to [IP-12, "Exploded View"](#).
2. Remove mounting screw, and then remove in-vehicle sensor.

INSTALLATION

Installation is basically the reverse order of removal.

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SUNLOAD SENSOR

< REMOVAL AND INSTALLATION >

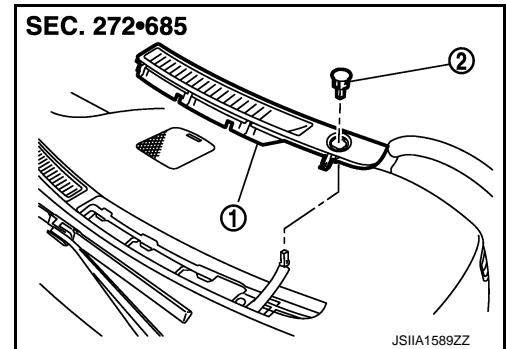
[AUTOMATIC AIR CONDITIONER]

SUNLOAD SENSOR

Exploded View

INFOID:000000004787978

1. Front defroster grille LH
2. Sunload sensor



Removal and Installation

INFOID:000000004787979

REMOVAL

1. Remove front defroster grille (left). Refer to [VTL-10, "Exploded View"](#).
2. Disconnect sunload sensor connector, and then remove sunload sensor.

INSTALLATION

Installation is basically the reverse order of removal.

INTAKE SENSOR

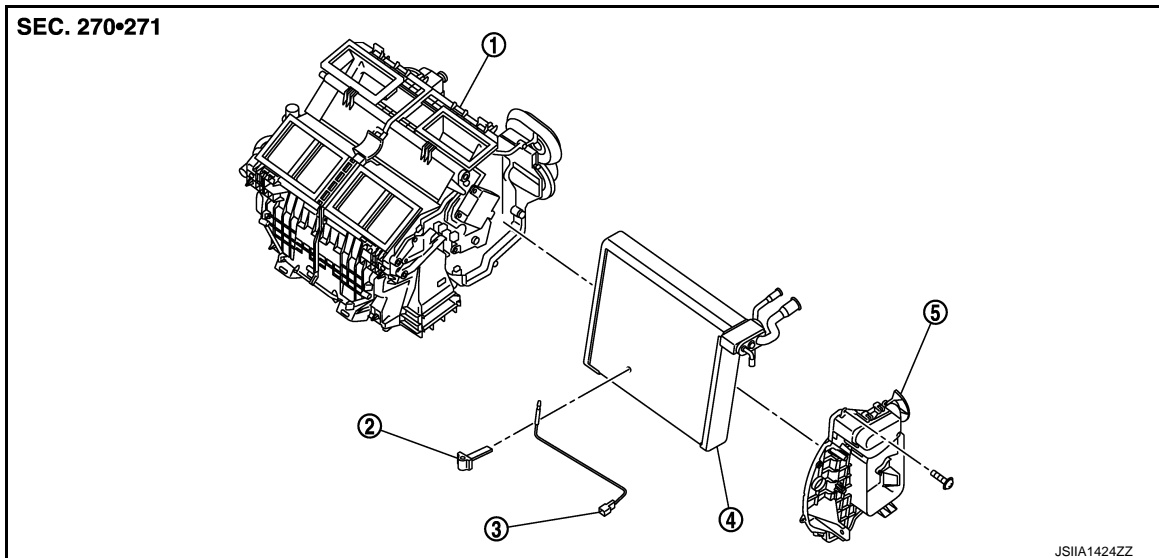
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

INTAKE SENSOR

Exploded View

INFOID:000000004787980



- | | | |
|-----------------------------------|--------------------------|------------------|
| 1. Heater & cooling unit assembly | 2. Intake sensor bracket | 3. Intake sensor |
| 4. Evaporator assembly | 5. Evaporator cover | |

Removal and Installation

INFOID:000000004787981

REMOVAL

1. Remove low-pressure pipe 1 and high-pressure pipe 2. Refer to [HA-41, "Exploded View"](#).
2. Slide evaporator to passenger side, and then remove intake sensor.
3. Disconnect intake sensor connector.

INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.
- Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.
- Insert piping securely until a click is heard.
- After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.
- Check for leakages when recharging refrigerant.

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GAS SENSOR

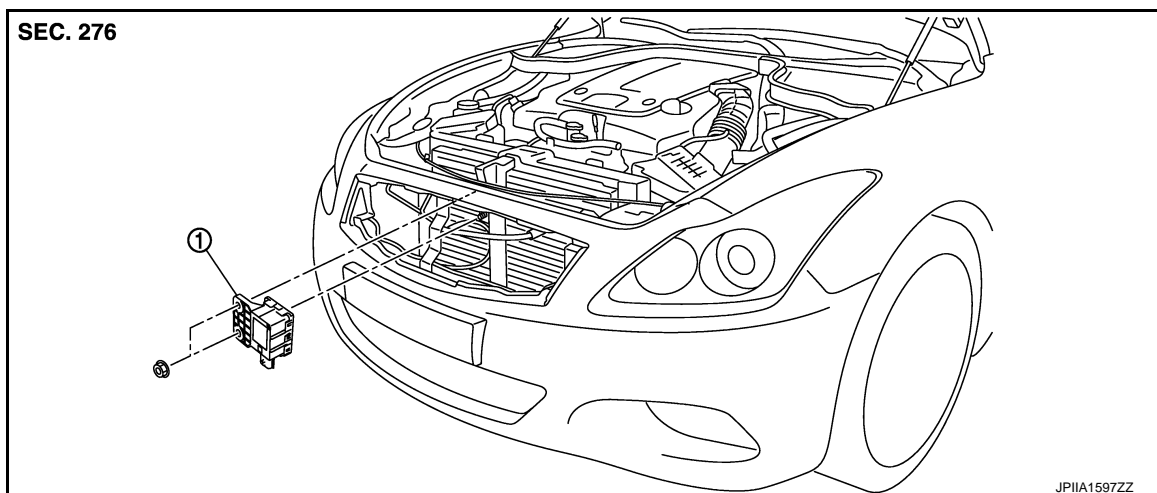
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

GAS SENSOR

Exploded View

INFOID:000000004787982



1. Gas sensor

Removal and Installation

INFOID:000000004787983

REMOVAL

1. Remove radiator core support ornament. Refer to [DLK-285, "Exploded View"](#).
2. Remove mounting nuts, and then remove gas sensor.
3. Disconnect gas sensor connector.

INSTALLATION

Installation is basically the reverse order of removal.

REFRIGERANT PRESSURE SENSOR

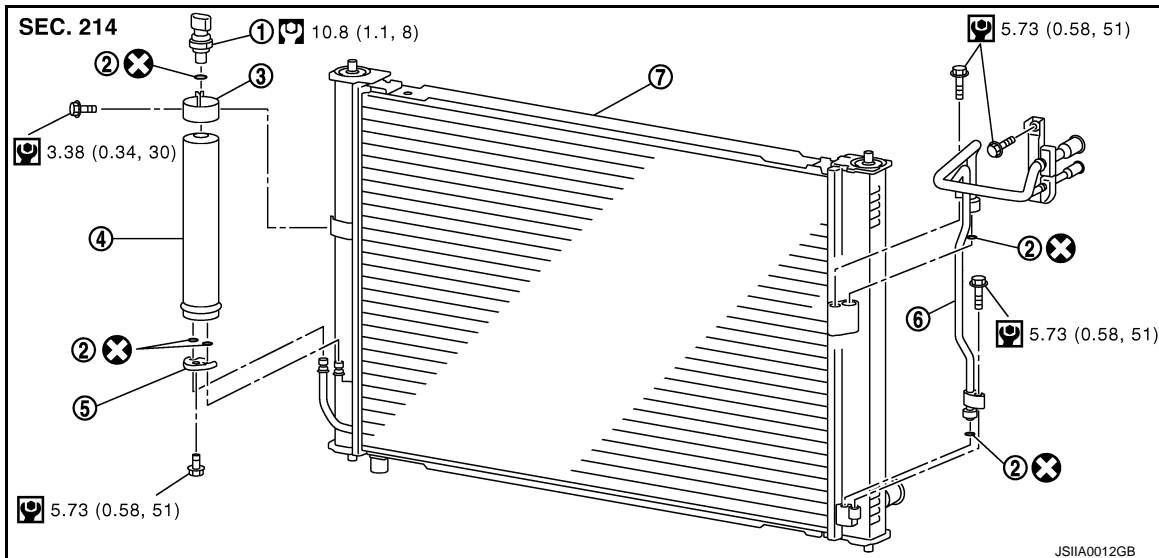
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

REFRIGERANT PRESSURE SENSOR

Exploded View

INFOID:000000004787986



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| 1. Refrigerant pressure sensor | 2. O-ring | 3. Liquid tank bracket |
| 4. Liquid tank | 5. Bracket | 6. Condenser pipe assembly |
| 7. Radiator & condenser assembly | | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

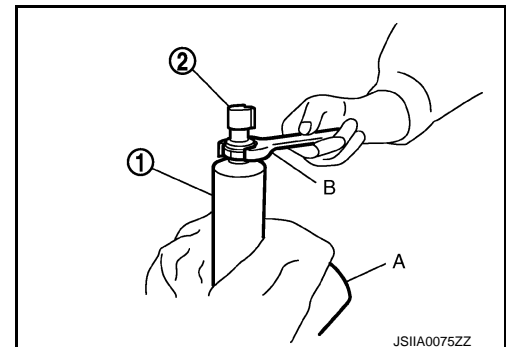
INFOID:000000004787987

REMOVAL

1. Remove liquid tank. Refer to [HA-45, "Exploded View"](#).
2. Fix the liquid tank (1) with a vise (A). Remove the refrigerant pressure sensor (2) with a wrench (B).

CAUTION:

Be careful not to damage liquid tank.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Apply compressor oil to O-ring of refrigerant pressure sensor when installing.
- Check for leakages when recharging refrigerant.

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DOOR MOTOR

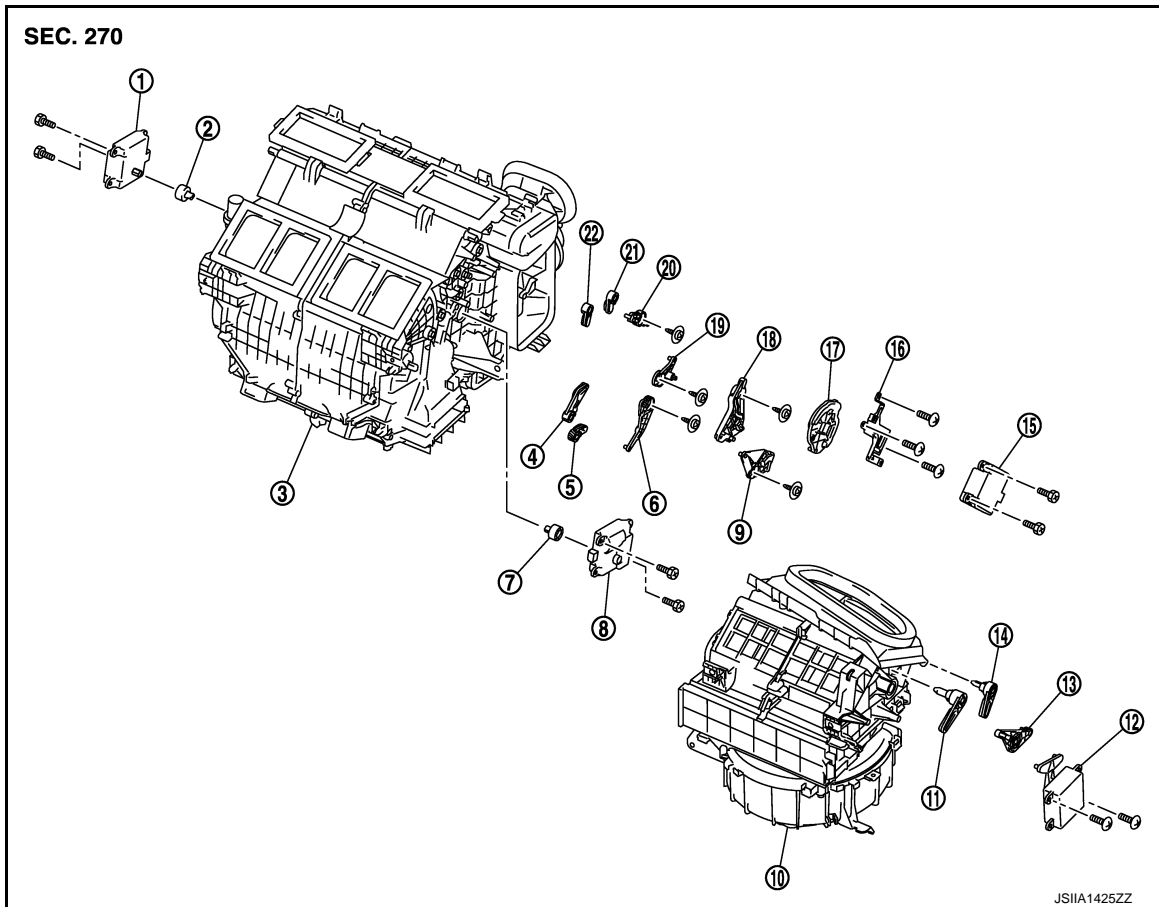
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

DOOR MOTOR

Exploded View

INFOID:000000004787991



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| 1. Air mix door motor (driver side) | 2. Air mix door motor adapter | 3. Heater & cooling unit assembly |
| 4. Ventilator door lever | 5. Foot door lever | 6. Foot door link |
| 7. Air mix door motor adapter | 8. Air mix door motor (passenger side) | 9. Ventilator door link |
| 10. Blower unit | 11. Intake door lever 2 | 12. Intake door motor |
| 13. Intake door link | 14. Intake door lever 1 | 15. Mode door motor |
| 16. Mode door motor bracket | 17. Main link | 18. Main link sub |
| 19. Max.cool door link | 20. Defroster door link | 21. Max.cool door lever |
| 22. Defroster door lever | | |

MODE DOOR MOTOR

MODE DOOR MOTOR : Removal and Installation

INFOID:000000004787988

REMOVAL

1. Remove blower unit. Refer to [VTL-16. "Exploded View"](#).
2. Remove mounting screws, and then remove mode door motor.
3. Disconnect mode door motor connector.

INSTALLATION

installation is basically the reverse order of removal.

AIR MIX DOOR MOTOR

DOOR MOTOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

AIR MIX DOOR MOTOR : Removal and Installation

INFOID:000000004787989

REMOVAL

Driver Side

1. Set the temperature (driver side) at 18°C (60°F). Then disconnect the battery cable from the negative terminal.
CAUTION:
The angle may be out, when installing the air mix door motor to the air mix door, unless the above procedure is performed.
2. Remove instrument driver lower panel. Refer to [IP-12. "Exploded View"](#).
3. Remove accelerator pedal bracket and lever assembly. Refer to [ACC-3. "Exploded View"](#).
4. Remove mounting screws, and then remove air mix door motor.
5. Disconnect air mix door motor connector.

Passenger Side

1. Set the temperature (passenger side) at 18°C (60°F). Then disconnect the battery cable from the negative terminal.
CAUTION:
The angle may be out, when installing the air mix door motor to the air mix door, unless the above procedure is performed.
2. Remove blower unit. Refer to [VTL-16. "Exploded View"](#).
3. Remove mounting screws, and then remove air mix door motor.
4. Disconnect air mix door motor connector.

INSTALLATION

Installation is basically the reverse order of removal.

INTAKE DOOR MOTOR

INTAKE DOOR MOTOR : Removal and Installation

INFOID:000000004787990

REMOVAL

1. Remove ECM and power steering control unit with bracket attached. Refer to [VTL-17. "BLOWER UNIT : Removal and Installation"](#).
2. Remove mounting screws, and then remove intake door motor.
3. Disconnect intake door motor connector.

INSTALLATION

Installation is basically the reverse order of removal.

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IONIZER

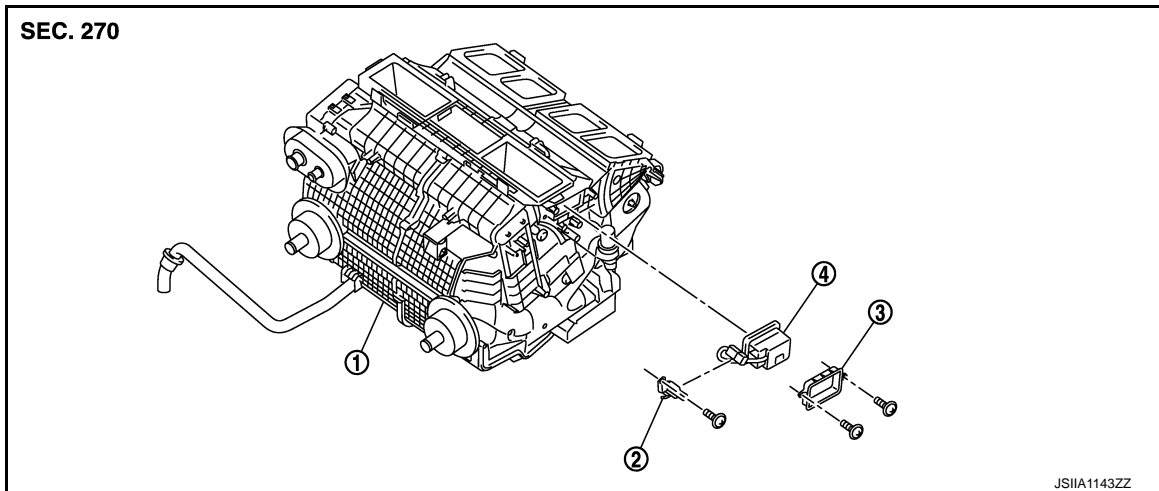
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONER]

IONIZER

Exploded View

INFOID:000000004787984



1. Heater & cooling unit assembly
2. Ionizer harness bracket
3. Ionizer bracket
4. Ionizer

Removal and Installation

INFOID:000000004787985

REMOVAL

1. Remove instrument panel assembly. Refer to [IP-12. "Exploded View"](#).
2. Remove mounting screw, and then remove ionizer harness bracket from heater & cooling unit assembly.
3. Remove mounting screws, and then remove ionizer.

CAUTION:

Never touch the surface (ceramic part) of the ionizer. It is the discharge electrode.

INSTALLATION

installation is basically the reverse order of removal.

CAUTION:

If there is dirt, use a clean cloth and clean the discharge electrode (ceramic part) of the ionizer.