# **SECTION HEATER & AIR CONDITIONING CONTROL SYSTEM**

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AROMA UNIT ASSY

# < PRECAUTION > PRECAUTION

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# PRECAUTIONS

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

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:

Always observe the following items for preventing accidental activation.

- 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 "SRS AIR BAG".
- Never 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:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never 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.

#### **High Voltage Precautions**

#### WARNING:

- Because hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.
- Be sure to remove the service plug in order to shut off the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.
- To prevent the removed service plug from being connected by mistake during the procedure, always
   N
   Carry it in your pocket or put it in the tool box.
- Be sure to wear insulating protective equipment consisting of glove, shoes, face shield, and glasses before beginning work on the high voltage system.
- Clearly identify the persons responsible for high voltage work and ensure that other persons do not touch the vehicle. When not working, cover high voltage parts with an insulating cover sheet or similar item to prevent other persons from contacting them.
   CAUTION:

There is the possibility of a malfunction occurring if the vehicle is changed to READY status while the service plug is removed. Therefore do not change the vehicle to READY status unless instructed to do so in the Service Manual.

#### HIGH VOLTAGE HARNESS AND EQUIPMENT IDENTIFICATION

The colors of the high voltage harnesses and connectors are all orange. Orange "High Voltage" labels are applied to the Li-ion battery and other high voltage devices. Do not carelessly touch these harnesses and parts.

HANDLING OF HIGH VOLTAGE HARNESS AND TERMINALS

Immediately insulate disconnected high voltage connectors and terminals with insulating tape.

REGULATIONS ON WORKERS WITH MEDICAL ELECTRONICS

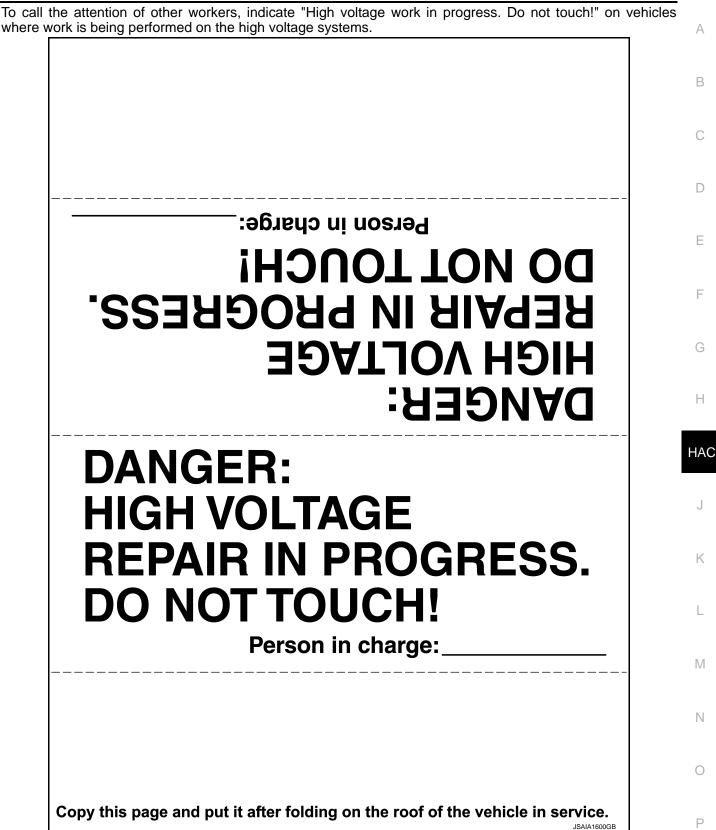
#### WARNING:

The vehicle contains parts that contain powerful magnets. If a person who is wearing a heart pacemaker or other medical device is close to these parts, the medical device may be affected by the magnets. Such persons must not perform work on the vehicle.

PROHIBITED ITEMS TO CARRY DURING THE WORK

Because this vehicle uses components that contain high voltage and powerful magnetism, due not carry any metal products which may cause short circuits, or any magnetic media (cash cards, prepaid cards, etc.) which may be damaged on your person when working.

POSTING A SIGN OF "DANGER! HIGH VOLTAGE AREA. KEEP OUT"



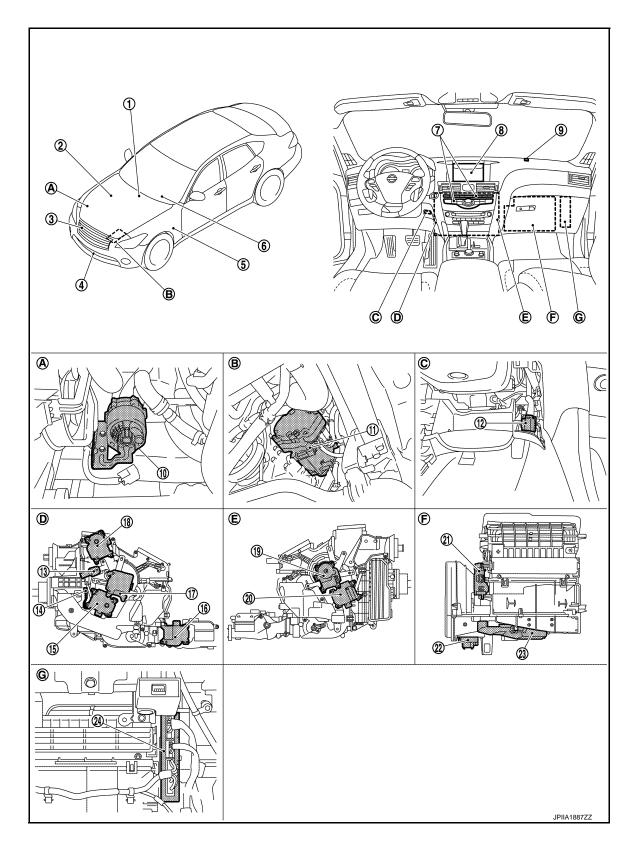
#### < SYSTEM DESCRIPTION >

# SYSTEM DESCRIPTION

COMPONENT PARTS

AUTOMATIC AIR CONDITIONING SYSTEM

AUTOMATIC AIR CONDITIONING SYSTEM : Component Parts Location INFOLD.00000008143805



#### < SYSTEM DESCRIPTION >

1.	AV control unit Refer to <u>AV-11, "Component Parts</u> <u>Location"</u> (Base audio without navi- gation) or <u>AV-128, "Component Parts</u> <u>Location"</u> (BOSE audio with naviga- tion).	2.	ECM Refer to <u>EC-15. "ENGINE CON-</u> <u>TROL SYSTEM : Component Parts</u> <u>Location"</u> .	3.	Refrigerant pressure sensor	A B
4.	Ambient sensor	5.	BCM BCS-4, "BODY CONTROL SYSTEM : Component Parts Location".	6.	Combination meter Refer to <u>MWI-6, "METER SYSTEM :</u> <u>Component Parts Location"</u> .	С
7.	Multifunction switch	8.	Display	9.	Sunload sensor	
10.	Heater pump	11.	Electric compressor	12.	In-vehicle sensor	D
13.	Aspirator	14.	Intake sensor	15.	Air mix door motor (Driver side)	D
16.	Rear mode door motor	17.	Mode door motor (Driver side)	18.	Upper ventilator door motor	
19.	Mode door motor (Passenger side)	20.	Air mix door motor (Passenger side)	21.	Intake door motor	E
22.	Power transistor	23.	Blower motor	24.	A/C auto amp.	
Α.	Engine room right side	В.	Engine left side	C.	Lower instrument panel LH is re- moved	_
D.	Left side of heater & cooling unit as- sembly	E.	Right side of heater & cooling unit as- sembly	F.	Rear side of blower unit	F
G.	Instrument lower panel RH is re- moved					G

# AUTOMATIC AIR CONDITIONING SYSTEM : Component Description

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Component parts		Description	
Blower motor		Refer to <u>HAC-13</u> .	HAC
Blower unit	Intake door motor	Refer to <u>HAC-13</u> .	
	Power transistor	Refer to <u>HAC-13</u> .	
Electric compressor		Performs the intake, compression, and discharge of refrigerant, and circulates the re- frigerant in the cooler cycle.	
	Air mix door motor (Driver side)	Refer to <u>HAC-13</u> .	K
	Air mix door motor (Passenger side)	Refer to <u>HAC-13</u> .	
	Aspirator	Refer to <u>HAC-14</u> .	L
Heater & cooling unit	Intake sensor	Intake sensor measures evaporator fin temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.	
assembly	Mode door motor (Driver side)	Refer to <u>HAC-14</u> .	M
	Mode door motor (Pas- senger side)	Refer to <u>HAC-14</u> .	Ν
	Rear mode door motor	Refer to <u>HAC-14</u> .	
	Upper ventilator door motor	Refer to <u>HAC-14</u> .	0
Ambient sensor AV control unit A/C auto amp.		Ambient sensor measures ambient air temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.	
		AV control unit transmits A/C switch operation signal to A/C auto amp. via CAN com- munication line.	Ρ
		A/C auto amp. controls air conditioning system by inputting and calculating signals from each sensor and each switch. A/C auto amp. has self-diagnosis function. Diagnosis of air conditioning system can be performed quickly.	
BCM		BCM transmits key ID signal to A/C auto amp. via CAN communication line.	
Display		Display indicates operation status of air conditioning system. Display has touch panel function that can be used to control air conditioning system.	

Revision: 2013 March

# **COMPONENT PARTS**

#### < SYSTEM DESCRIPTION >

#### [AUTOMATIC AIR CONDITIONING]

Component parts	Description
ECM	ECM controls compressor according to status of engine and refrigerant.
Engine coolant temperature sensor	Engine coolant temperature sensor measures engine coolant temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
In-vehicle sensor	In-vehicle sensor measures temperature of intake air through aspirator to passenger room. This sensor uses thermistor that decreases electrical resistance as temperature increases.
Multifunction switch	Multifunction switch integrates A/C controller and AV operation switch. A/C switch operation signal is transmitted from multifunction switch to AV control unit via communication line.
Refrigerant pressure sensor	Refer to <u>HAC-14</u> .
Sunload sensor	Sunload sensor measures sunload amount. This sensor is a dual system so that sun- load for driver side and passenger side are measured separately. This sensor con- verts sunload amount to voltage signal by photodiode and transmits to A/C auto amp.
Heater pump	Heater pump is used to circulate the water heated by the engine cooling system when engine is stoppiing.

# FOREST AIR SYSTEM

#### < SYSTEM DESCRIPTION >

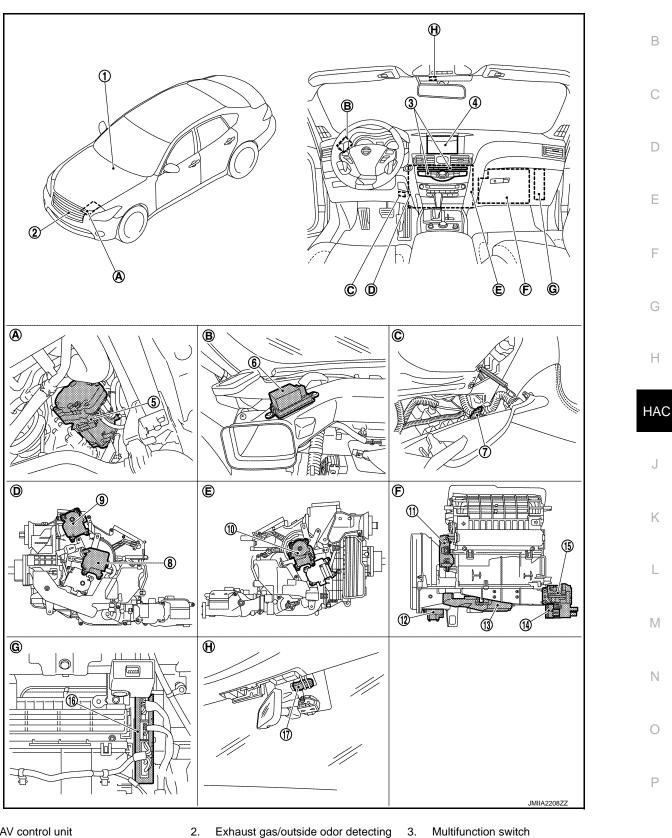
# **COMPONENT PARTS**

#### [AUTOMATIC AIR CONDITIONING]

# FOREST AIR SYSTEM : Component Parts Location

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А



- 1. AV control unit Refer to AV-128, "Component Parts Location" (BOSE AUDIO WITH NAV-IGATION).
- 4. Display

5. Electric compressor

sensor

Revision: 2013 March

- **HAC-11**
- 6. Ionizer

# **COMPONENT PARTS**

#### < SYSTEM DESCRIPTION >

#### [AUTOMATIC AIR CONDITIONING]

7.	Inside odor detecting sensor	8.	Mode door motor (Driver side)	9.	Upper ventilator door motor
10.	Mode door motor (Passenger side)	11.	Intake door motor	12.	Power transistor
13.	Blower motor	14.	Aroma cartridge	15.	Aroma motor
16.	A/C auto amp.	17.	Humidity sensor		
Α.	Engine left side	В.	Instrument panel assembly is re- moved	C.	Instrument lower panel LH is re- moved
D.	Left side of heater & cooling unit as- sembly	E.	Right side of heater & cooling unit as- sembly	F.	Rear side of blower unit

G. Instrument lower panel RH is removed

H. Front camera finisher is removed

# FOREST AIR SYSTEM : Component Description

INFOID:000000008143808

Component parts		Description			
	Aroma cartridge	Aroma cartridge generates 2 kinds of aromas, leaf scent and fragrant wood, which have proven relaxing effects.			
	Aroma motor	Refer to <u>HAC-12</u> .			
Blower unit	Blower motor	Refer to <u>HAC-13</u> .			
	Intake door motor	Refer to <u>HAC-13</u> .			
	Power transistor	Refer to <u>HAC-13</u> .			
Electric compressor		Performs the intake, compression, and discharge of refrigerant, and circulates the refrigerant in the cooler cycle.			
	Mode door motor (Driver side)	Refer to <u>HAC-14</u> .			
Heater & cooling unit as- sembly	Mode door motor (Passen- ger side)	Refer to <u>HAC-14</u> .			
	Upper ventilator door motor	Refer to <u>HAC-14</u> .			
AV control unit		AV control unit transmits A/C switch operation signal to A/C auto amp. via CAN communication line.			
A/C auto amp.		A/C auto amp. controls Forest Air system by inputting and calculating signals from each sensor and each switch. A/C auto amp. has self-diagnosis function. Diagnosis of Forest Air system can be performed quickly.			
Display		Display indicates operation status of Forest Air system. Display has touch panel function that can be used to control Forest Air system.			
Exhaust gas/outside odor detecting sensor		Exhaust gas/outside odor detecting sensor measures unpleasant odor out- side of passenger room. In addition to previous exhaust gas detection func- tion, unpleasant odor in ambient atmosphere is measured.			
Humidity sensor		Humidity sensor measures windshield temperature and passenger room hu- midity so that fogging on windshield is judged.			
Inside odor detecting sensor		Inside odor detecting sensor measures odor of cigarettes, foods, and other objects in passenger room.			
Ionizer		lonizer generates an approximately equal proportional amount of positive and negative ions in the air.			
Multifunction switch (FOREST switch)		FOREST switch is located in multifunction switch. Forest Air system can be operated when FOREST switch is pressed.			

# **BLOWER UNIT**

# **BLOWER UNIT: Aroma Motor**

INFOID:000000008143809

- · Aroma motor consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates aroma door according to control signal from A/C auto amp. ٠
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.

### **HAC-12**

#### **COMPONENT PARTS**

# [AUTOMATIC AIR CONDITIONING]

• According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

#### BLOWER UNIT : Blower Motor

< SYSTEM DESCRIPTION >

Brush motor, that rotates coil while brush functions as contact points, is adopted for blower motor. Rotation speed changes according to voltage from power transistor.

### BLOWER UNIT : Intake Door Motor

- Intake door motor consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates intake door according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

### **BLOWER UNIT : Power Transistor**

• Power transistor, that uses MOS field effect transistor, is adopted for blower motor speed control. **NOTE:** 

MOS field effect transistor is a transistor for which the gate portion is composed of a metal electrode on an oxide layer of semiconductor. Field effect transistor is controlled by voltage, while ordinary transistor is controlled by current. Electrode of field effect transistor is called source, drain, or gate, while electrode of ordinary transistor is called emitter, collector, or base.

- Power transistor continuously controls voltage to blower motor (approximately 0 to 16 V), according to gate voltage from A/C auto amp.
- This power transistor does not require a HI relay even when the maximum voltage is applied to blower motor at HI status, because voltage drop is nominal.

# HEATER & COOLING UNIT ASSEMBLY

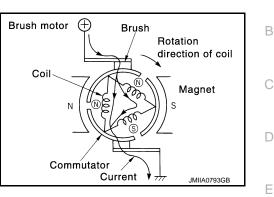
# HEATER & COOLING UNIT ASSEMBLY : Air Mix Door Motor (Driver Side)

- Air mix door motor (driver side) consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates air mix door (driver side) according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

# HEATER & COOLING UNIT ASSEMBLY : Air Mix Door Motor (Passenger Side)

- Air mix door motor (passenger side) consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates air mix door (passenger side) and rear air mix door according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

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INFOID:000000008143811

INFOID:000000008143812

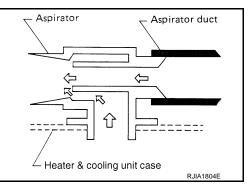
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#### < SYSTEM DESCRIPTION >

#### HEATER & COOLING UNIT ASSEMBLY : Aspirator

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The aspirator generates the vacuum by the air blown from the heater & cooling unit and draws the air of the passenger room to the in-vehicle sensor area via the aspirator duct.



[AUTOMATIC AIR CONDITIONING]

HEATER & COOLING UNIT ASSEMBLY : Mode Door Motor (Driver Side) INFOLD:00000008143816

- Mode door motor (driver side) consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates ventilator door (driver side), foot door (driver side) and defroster door according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

### HEATER & COOLING UNIT ASSEMBLY : Mode Door Motor (Passenger side)

INFOID:000000008143817

- Mode door motor (passenger side) consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates ventilator door (passenger side) and foot door (passenger side) according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

#### HEATER & COOLING UNIT ASSEMBLY : Rear Mode Door Motor

INFOID:000000008143818

- Rear mode door motor consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates rear mode door according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

### HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor

- INFOID:000000008143819
- Upper ventilator door motor consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates upper ventilator door according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback signal to A/C auto amp. according to motor position.
- According to PBR feedback signal, A/C auto amp. monitors that motor is in an appropriate door position.

#### Refrigerant Pressure Sensor

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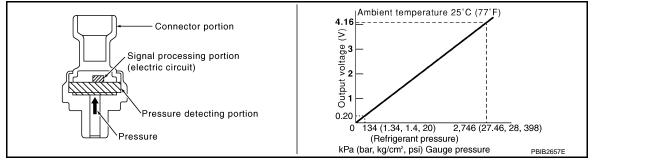
Description

# **COMPONENT PARTS**

#### < SYSTEM DESCRIPTION >

#### [AUTOMATIC AIR CONDITIONING]

Refrigerant pressure sensor is installed to upper portion of liquid tank. The refrigerant pressure sensor converts high-pressure side refrigerant pressure into voltage and outputs it to ECM. ECM operates cooling system protection and idle speed control according to voltage value that is input.



#### Structure and operation

The refrigerant pressure sensor is a capacitance type sensor. It consists of a pressure detection area and a signal processing area. The pressure detection area, which is a variable capacity condenser, changes internal static capacitance according to pressure force. The signal processing area detects the static capacitance of the pressure detection area, converts the static capacitance into a voltage value, and transmits the voltage value to ECM.

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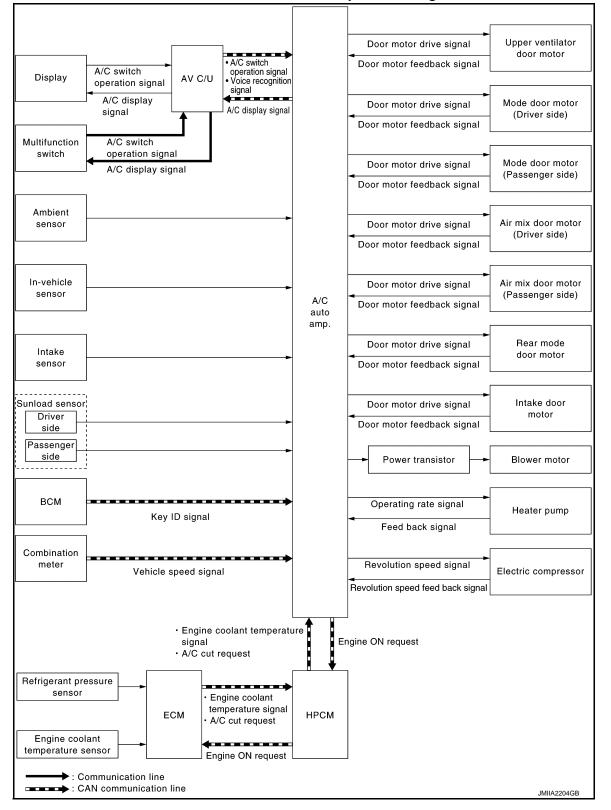
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#### < SYSTEM DESCRIPTION >

# SYSTEM AUTOMATIC AIR CONDITIONING SYSTEM

AUTOMATIC AIR CONDITIONING SYSTEM : System Diagram

INFOID:000000008143823



# AUTOMATIC AIR CONDITIONING SYSTEM : System Description

INFOID:000000008143824

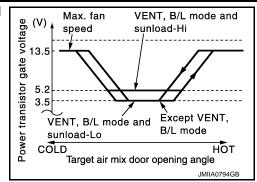
Automatic air conditioning system is controlled by each function of A/C auto amp., ECM and BCM.

#### < SYSTEM DESCRIPTION >

< SYSTEM DESCRIPTION >	[AUTOMATIC AIR CONDITIONING]
Control by A/C auto amp. - <u>HAC-17, "AUTOMATIC AIR CONDITIONING SYSTEM : /</u> - <u>HAC-18, "AUTOMATIC AIR CONDITIONING SYSTEM : /</u> - <u>HAC-18, "AUTOMATIC AIR CONDITIONING SYSTEM : /</u>	Air Inlet Control"
<ul> <li>HAC-18. "AUTOMATIC AIR CONDITIONING SYSTEM : 0</li> <li>HAC-19. "AUTOMATIC AIR CONDITIONING SYSTEM : 1</li> <li>HAC-23. "AUTOMATIC AIR CONDITIONING SYSTEM : 1</li> <li>HAC-23. "AUTOMATIC AIR CONDITIONING SYSTEM : 1</li> <li>Correction for input value of each sensor</li> </ul>	Door Control" B
<ul> <li>Ambient sensor (setting temperature correction)</li> <li>A/C auto amp. controls passenger room temperature so t ature level that passenger may feel. Correction is applied ature control dial, according to ambient temperature determined</li> </ul>	hat the optimum level always matches the temper- to the target temperature that is set using temper-
<ul> <li>In-vehicle sensor (setting temperature correction)</li> <li>Passenger room temperature from in-vehicle sensor is co and passenger side)</li> </ul>	rrected for each air conditioning control (driver side $\square$
<ul> <li>Intake sensor (intake temperature correction)</li> <li>A/C auto amp. performs correction to change recognition when difference is larger between recognition intake tem perature sensor. The correction is performed to change difference is smaller.</li> </ul>	perature and intake temperature from intake tem-
<ul> <li>Sunload sensor (sunload amount correction)</li> <li>Sunload amount from sunload sensor is corrected for ead ger side).</li> <li>A/C auto amp. performs correction to change recognitio sunload amount changes excessively, for example when a sunload amount changes excessively.</li> </ul>	n sunload amount of A/C auto amp. slowly when
Control by ECM	НА
<ul> <li>Cooling fan control Refer to <u>EC-36, "COOLING FAN CONTROL : System De</u></li> <li>Air conditioning cut control Refer to <u>EC-35, "AIR CONDITIONING CUT CONTROL :</u></li> </ul>	J
<ul> <li>Control by BCM</li> <li>Intelligent key interlock function.</li> <li>Refer to <u>DLK-13</u>, "INTELLIGENT KEY SYSTEM : System</li> <li>Various operations of air conditioning system are transn</li> </ul>	
control unit via communication line (except display) and fr munication. A/C auto amp. sends each indication informa control unit displays each type of indication information th	om AV control unit to A/C auto amp. via CAN com- tion to AV control unit via CAN communication. AV
AUTOMATIC AIR CONDITIONING SYSTEM :	Air Flow Control
<ul> <li>DESCRIPTION</li> <li>A/C auto amp. changes gate voltage to power transistor a flow. When air flow is to be increased, gate voltage to p excessive large amount of air flow.</li> <li>In addition to manual control and automatic control, air</li> </ul>	ower transistor increases gradually for preventing flow control is consist of low coolant temperature
<ul> <li>starting control, fan speed control at door motor operation</li> <li>AUTOMATIC AIR FLOW CONTROL</li> <li>A/C auto amp. decides target air flow depending on targe</li> <li>A/C auto amp. changes voltage to power transistor gate a flow is achieved.</li> </ul>	t air mix door opening angle.

#### < SYSTEM DESCRIPTION >

- [AUTOMATIC AIR CONDITIONING]
- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.



#### LOW COOLANT TEMPERATURE STARTING CONTROL

A/C auto amp. does not operate bower motor when engine coolant temperature is approximately 37°C (99°F) or less, for preventing a cold discharged air flow. After this, gate voltage applied to power transistor gradually, and blower motor operates.

#### FAN SPEED CONTROL AT DOOR MOTOR OPERATION

When mode door motor is activated while air flow is more than the specified value, A/C auto amp. reduces temporarily fan speed so that mode door moves smoothly.

#### FAN SPEED CONTROL AT VOICE RECOGNITION

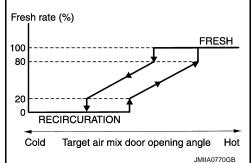
When the voice control (voice command) switch is operated during air flow automatic control, A/C auto amp. decreases the air flow of the blower motor once and controls the air flow so as not to disturb the voice recognition function. This control continues while voice recognition function is operating.

#### AUTOMATIC AIR CONDITIONING SYSTEM : Air Inlet Control

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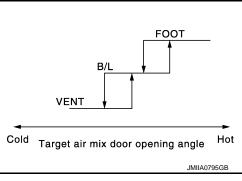
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Intake door automatic control selects FRE, 20 – 80% FRE, or REC depending on a target air mix door opening angle.



### AUTOMATIC AIR CONDITIONING SYSTEM : Air Outlet Control

While air outlet is in automatic control, A/C auto amp. selects the mode door position depending on a target air mix door angle.



# AUTOMATIC AIR CONDITIONING SYSTEM : Compressor Control

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#### DESCRIPTION

When the compressor activation condition is satisfied while blower motor is activated, A/C auto amp. transmits compressor operation signal to electric compressor via UART communication.

#### COMPRESSOR PROTECTION CONTROL AT PRESSURE MALFUNCTION

### HAC-18

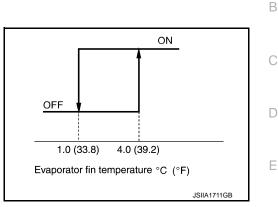
#### < SYSTEM DESCRIPTION >

When high-pressure side value that is detected by refrigerant pressure sensor is as per the following state, ECM requests A/C auto amp. to turn A/C cut request signal.

- 2.64 MPa (26.40 bar, 26.9 kg/cm<sup>2</sup>, 383 psi)
- 0.14 MPa (1.40 bar, 1.4 kg/cm<sup>2</sup>, 20 psi) or less

#### LOW TEMPERATURE PROTECTION CONTROL

- When intake sensor detects that evaporator fin temperature is 1°C (33.8°F) or less, A/C auto amp. requests electric compressor to turn compressor OFF, and stops the compressor.
- When the evaporator fin temperature returns to 4°C (39.2°F) or more, the compressor is activated.



[AUTOMATIC AIR CONDITIONING]

# AUTOMATIC AIR CONDITIONING SYSTEM : Door Control

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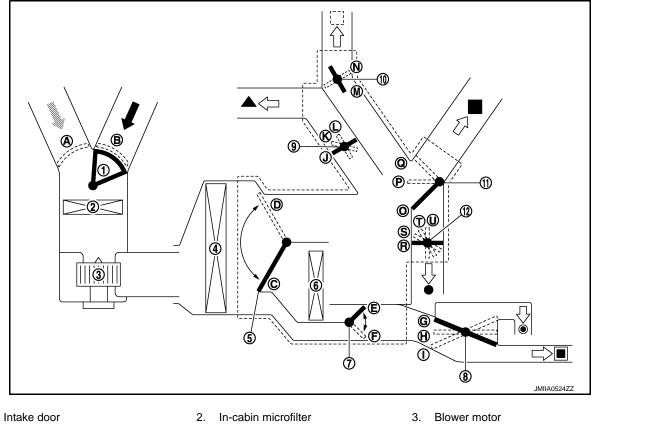
#### DOOR MOTOR CONTROL

- The A/C auto amp. receives data from each sensor.
- When control signal from A/C auto amp. is received, each door motor of intake, air mix (driver side and passenger side), mode (driver side and passenger side), upper ventilator (driver side and passenger side) and rear mode operates door to the optimum position based on PBR (Potentio Balance Resistor) door position detection signal.

# SWITCHES AND THEIR CONTROL FUNCTIONS

#### NOTE:

For LH/RH independent temperature and air outlet adjustment function, construction indicated by broken line as shown in the figure is divided to driver side and passenger side by divider plate.



4. Evaporator

1.

- 5.
  - Air mix door (driver side / passenger 6. Heater core side)

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#### < SYSTEM DESCRIPTION >

- [AUTOMATIC AIR CONDITIONING]
- 7. Rear air mix door 9. Defroster door 8. Rear mode door 11 Ventilator door (driver side / passen- 12 Foot door (driver side / passenger 10 Upper ventilator door ger side) side) Fresh air Recirculation air Defroster [ ] Upper ventilator Ventilator Foot Rear foot Rear ventilator
- With Forest Air

								Do	or posi	tion				
S	witch position			Vontilotor door		Eoot door	000 100	er door	de door	ilator door	door	Air mix door		nix door
				Driver side	Passenger side	Driver side	Passenger side	Defroster door	Rear mode door	Upper ventilator door	Intake door	Driver side	Passenger side	Rear air mix door
AUTO switch	ON	-	-		1	AL	ТО		1			AL	ЛО	1
		VENT	~;		0	l	R	J	G					
MODE switch (Driver	DUAL: OFF	B/L	Ÿ		Р		Т	J	н					
side)	DUAL. OFF	FOOT	ن.		Q	I	U	К	I					
		D/F	œ,		Q		Т	L	I					
		VENT	°;	0		R	—	J			-			
MODE switch (Driver	DUAL: ON	B/L	ÿ	Р		Т	—	J			-			
side)	DUAL. ON	FOOT	ن.	Q		U	_	К			-			
		D/F	®j		Q		Т	L			-			
		VENT	7		0	—	R	_	G					
MODE switch (Pas- senger side)	DUAL: ON	B/L	<i>V</i>		Р	_	Т	_	н					
		FOOT	ن.		Q	_	U	_	I					
DEF switch	ON	€			Q	I	R	L	I			_		
Upper Vent	ON	Uppe ¥	r Vent ON			-	_			М		-	_	
opper vent	OFF	Uppe o	r Vent ON			-	_			N		-		
	FRE	8					_			I.	В		_	
Intake switch	REC	¢	-				_				Α		_	
		18°C	(60°F)	-			S		-		1		С	E
Temperature control switch (Driver side)	DUAL: OFF		– 31.5°C – 89°F)				-	_					AUTC	)
		32°C	(90°F)				-						D	F

#### < SYSTEM DESCRIPTION >

#### [AUTOMATIC AIR CONDITIONING]

									Do	or posi	tion					-
	Switc	ch position				Ventilator door	-	F 001 0001	er door	de door	lator door	door		AIF MIX GOOF	nix door	B
					Driver side	Passenger side	Driver side	Passenger side	Defroster door	Rear mode door	Upper ventilator door	Intake door	Driver side	Passenger side	Rear air mix door	C
			18°C	C (60°F)			S						С	-		
Temperature con switch (Driver sid			18.5°C – 31.5°C (61°F – 89°F)		C			-					AUT O	-		E
	ſ	DUAL: ON	32°C	C (90°F)				-	_				D	-	_	
Town or other of the		DUAL. ON	18°C	C (60°F)				S						С	Е	F
Temperature con switch (Passenge side)				– 31.5°0 – 89°F)					—					AL	JTO	
			32°C	C (90°F)										D	F	G
OFF switch			OFF			Q		U	К	Ι						
*: Inlet status is Without Forest Air	s display	yed by ind	icator w	/hen ac	tivatir	ng auto	matic	contro	ol.							Н
								D	oor po	sition						
				door		or .	ŝ						door			HAC
s	Switch pos	sition		Ventilator door		Foot door		Defroster door	Rear mode door	Upper ventilator door	Intake door	000	Air mix door		Rear air mix door	J
				Driver side	Passenger side	Driver side	Passenger side	Defrost	Rear mo	Upper ven	Intake		Driver side	Passenger side	Rear air	K
AUTO switch	ON	-)	-			AU	то						AUT	0		
		VENT	7	C	)	F	२	J	G				—			- 1.7
MODE switch	DUAL:	B/L	<del>ت</del>	F	2	-	Г	J	Н				_			M

MODE switch	DUAL:	B/L	4		Р		Т	J	н	_	IVI
(Driver side)	OFF	FOOT	ن.		Q		U	К	I	_	
		D/F	®j		Q		Т	L	I	_	Ν
		VENT	7	0	—	R	—	J		—	
MODE switch	DUAL:	B/L	÷	Р	_	Т	_	J		_	0
(Driver side)	ON	FOOT	ن.	Q	—	U	—	К		_	
		D/F	®j		Q		Т	L		_	D
		VENT	7	_	0	—	R	_	G	—	Ρ
MODE switch (Passenger side)	DUAL: ON	B/L	÷	_	Р	_	Т	_	Н	—	
, , , , , , , , , , , , , , , , , , ,		FOOT	<b>ن</b> .	_	Q	—	U	_	I	_	
DEF switch	ON	€ €			Q		R	L	I	—	

Revision: 2013 March

#### < SYSTEM DESCRIPTION >

#### [AUTOMATIC AIR CONDITIONING]

								D	oor pos	ition				
S	witch posit	ion		Vontilator door				er door	de door	ilator door	door	Air mix door		mix door
				Driver side	Passenger side	Driver side	Passenger side	Defroster door	Rear mode door	Upper ventilator door	Intake door	Driver side	Passenger side	Rear air mix door
Upper Vent	ON	Uppe *	r Vent ON			-				М			_	
Opper vent	OFF	Uppe o	r Vent ON			-				N		_	_	
FRE switch*	ON	Ø					_				В			
REC switch <sup>*</sup>	ON	Ē					_				Α		_	
Tomporatura			(60°F)	-			S		-			C	;	E
Temperature control switch (Driver side)	DUAL: OFF	- 18.5°C - 61°F)	– 31.5°C – 89°F)				-						AUTO	
			(90°F)			1	-					C	)	F
Temperature		18°C		-	_	S						С	-	
control switch (Driver side)		- 18.5°C - 61°F)					-					AUTO	-	-
	DUAL:	32°C	(90°F)				-					D	-	
Temperature	ON	18°C			—		S			—			С	E
control switch (Passenger side)		- 18.5°C - 61°F)	– 31.5°C – 89°F)					—					AL	ITO
		32°C	(90°F)			i			i	i			D	F
OFF switch		OFF			Q		U	К	I			_		

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

#### AIR DISTRIBUTION

				Discharge a	ir flow							
							Air ou	tlet / distr	ibution			
Mode		C	ondition			VE	INT		FC	OT		
position			JIIIIIIIII		Fr	ont	Upper	Rear	Front	Rear	DEF	
					Center	Side	opper	Near	TION	Near		
			Temperature	18°C (60°F)	34.5%	34.5%	10.0%	13.0%	8.0%	_	_	
7		Upper	control switch (driver side)	Other than 18°C (60°F) <sup>*1</sup>	38.0%	38.0%	11.0%	13.0%	_	_	_	
t,	• DUAL: OFF	Vent: ON	-		24.0%	24.0%	10.0%	12.0%	19.0%	11.0%		
ų,	Rear venti- lator: Close		-	_		14.0%	14.0%	7.0%	24.0%	22.0%	19.0%	
<b>*</b>			-	_		11.0%	12.0%	5.0%	20.0%	22.0%	30.0%	
₩;			—		_	11.0%	—	_	_	_	89.0%	
₩ *2	1		_		_	9.0%	—	7.0%	—	20.0%	64.0%	

#### [AUTOMATIC AIR CONDITIONING]

- \*1: Air blow is also supplied to front foot until passenger room temperature stabilizes when temperature setting is other than 18°C (60°F). At that time, air blowing is the same as 18°C (60°F) setting. • \*2: During automatic defogging control (with Forest Air). Refer to HAC-27, "FOREST AIR SYSTEM : Auto-
- matic Defogging Control".

AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Control

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- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of air conditioning operational state.
- A/C auto amp. calculates the target air mix door opening angle depending on set temperature, in-vehicle temperature, ambient temperature and sunload.
- Air mix door is controlled depending on the comparison of current air mix door opening angle and target air mix door opening angle.
- Regardless of in-vehicle temperature, ambient temperature and sunload, air mix door is fixed at the fully cold position when set temperature is 18.0°C (60°F), and at the fully hot position when set temperature is 32.0°C (90°F).

AUTOMATIC AIR CONDITIONING SYSTEM : Intelligent Key Interlock Function

#### DESCRIPTION

< SYSTEM DESCRIPTION >

 Setting value of air conditioning system when ignition switch is previously OFF can be memorized for each Intelligent Key. Air conditioning system is automatically operated by the setting value. NOTE:

Setting value can be memorized for up to 3 Intelligent Keys.

Interlock items are as per the following table.

Operation	Conditions
	AUTO switch (ON / OFF)
	Setting temperature (Setting value)
Multifunction switch	Air flow (Setting value)
	Air inlet (FRE / REC)
	Air outlet (VENT / B/L / FOOT / D/F / DEF)
	"A/C" (ON / OFF)
"Climate" menu screen	"DUAL" (ON / OFF)
	"Upper Vent" (ON / OFF)
aration Description	

#### **Operation Description**

#### Memory

- 1. Unlock door using Intelligent Key or driver door request switch.
- BCM transmits Key ID signal to A/C auto amp. via CAN communication line. 2.
- When ignition switch turns OFF, A/C auto amp. memorizes setting information (setting temperature, air 3. inlet status, and others) of air conditioning system to memory for each Key ID.

#### Readout

- Unlock door using Intelligent Key or driver door request switch. 1.
- BCM transmits Key ID signal to A/C auto amp. via CAN communication line. 2.
- Ρ When ignition switch turns ON, A/C auto amp. operates automatically air conditioning system according to 3 setting information of Key ID that is received. NOTE:

When Intelligent Key interlock function operates, "Connection with the key has been done." is displayed.

AUTOMATIC AIR CONDITIONING SYSTEM : Fail-safe

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FAIL-SAFE FUNCTION

(%) ÌOÓ (Hot) Air mix door opening angle Ε 0 Cold Hot A/C auto amp. calculated temperature JPIIA0633GE



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#### < SYSTEM DESCRIPTION >

When a communication malfunction between A/C auto amp. and AV control unit and multifunction switch continued for approximately 30 seconds or more, control the air conditioning under the following conditions.

Compressor **Air outlet** Air inlet Fan speed

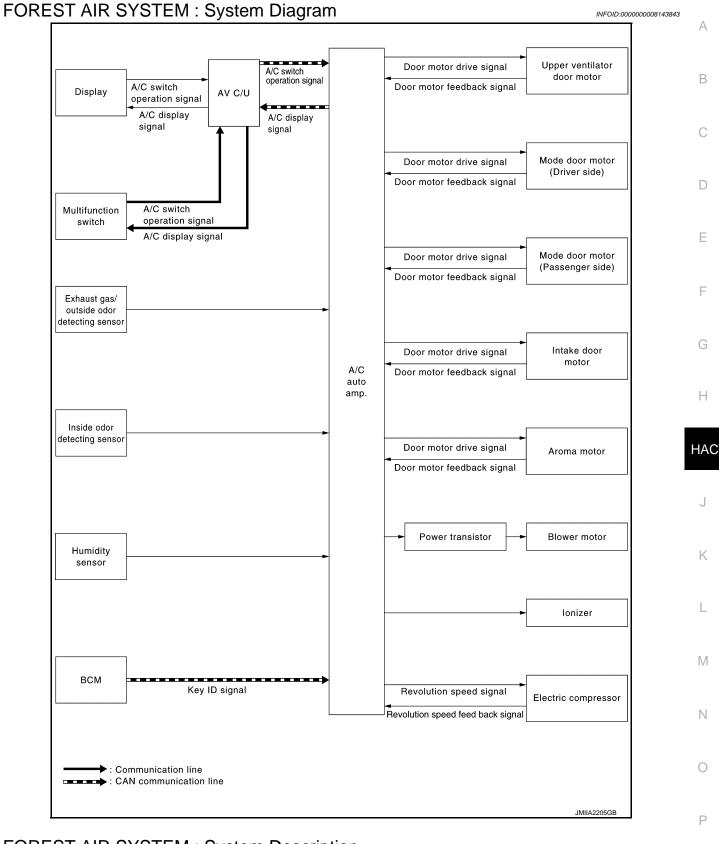
: AUTO

: **ON** 

- : FRE (Fresh air intake)
- : AUTO
- Set temperature
- : Setting before communication malfunction

FOREST AIR SYSTEM

#### [AUTOMATIC AIR CONDITIONING]



# FOREST AIR SYSTEM : System Description

INFOID:000000008143844

#### DESCRIPTION

< SYSTEM DESCRIPTION >

 Forest Air system controls passenger room air. It maintains the cleanliness of the passenger room air using a in-cabin microfilter and a combination of each of the following functions. Passenger room air is also con-

#### < SYSTEM DESCRIPTION >

trolled for dehumidification, air flow, fragrance, and others, for providing comfortable space in the passenger room.

#### NOTE:

- Plasmacluster<sup>™</sup> ion technology developed by Sharp Corporation is installed in this item.
- Plasmacluster<sup>™</sup> is a trademark of Sharp Corporation.
- HAC-26, "FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism)"
- HAC-26, "FOREST AIR SYSTEM : Aroma Diffuser Control"
- HAC-27, "FOREST AIR SYSTEM : Automatic Defogging Control"
- HAC-27, "FOREST AIR SYSTEM : Automatic Intake Control (Exhaust Gas / Outside Odor Detecting Mechanism)"
- HAC-27, "FOREST AIR SYSTEM : Breezy Air Control"
- HAC-28, "FOREST AIR SYSTEM : Plasmacluster Control"
- Setting of Forest Air system can be memorized for each Intelligent Key. Refer to <u>HAC-28</u>, "FOREST AIR <u>SYSTEM</u> : Intelligent Key Interlock Function".
- "Forest Air setting" menu is displayed on screen that can operate and adjust Forest Air system [aroma diffuser control, automatic defogging control, automatic intake control (exhaust gas/outside odor detecting mechanism) and breezy air].
- "Forest Air Info" menu is displayed on screen that can be used to check operation status of Forest Air system visually.
- Various operations of Forest Air system are transmitted from multifunction switch and display to AV control unit via communication line (except display) and from AV control unit to A/C auto amp. via CAN communication. A/C auto amp. sends each indication information to AV control unit via CAN communication. AV control unit displays each indication information that is received.

# FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism)

INFOID:000000008143845

#### DESCRIPTION

Inside odor detecting sensor detects passenger room odor (odor of cigarettes, foods, and other objects) in air flow through aspirator. Odor, when it is detected, is removed quickly by slightly increasing air flow and by facilitating supply amount of Plasmacluster<sup>™</sup> ions to passenger room and collection effect of in-cabin microfilter.

#### OPERATION DESCRIPTION

- Air flow control (inside odor detecting mechanism) operates when odor in passenger room is detected while FOREST switch is ON.
- Control status is displayed on "Forest Air Info" screen. Refer to <u>HAC-34</u>, "FOREST AIR SYSTEM : Switch <u>Name and Function"</u>.

#### NOTE:

- ON/OFF of air flow control (inside odor detecting mechanism) can be changed using "BLOWER MOTOR SETTING" in "WORK SUPPORT" mode of CONSULT. Refer to <u>HAC-39</u>, "CONSULT Function".
- Air flow control (inside odor detecting mechanism) does not operate when ambient temperature is -2°C (28°F) or less.

### FOREST AIR SYSTEM : Aroma Diffuser Control

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#### DESCRIPTION

2 kinds of aromas, leaf scent and fragrant wood, which have proven relaxing effects, are supplied alternately and intermittently to passenger room by outlet air flow of air conditioning system.

#### **OPERATION DESCRIPTION**

- Aroma diffuser control operates automatically when FOREST switch is ON and passenger room temperature is in stable status.
- For initial 15 minutes of operation, intermittent operation operates for aroma diffusing. For next 45 minutes, operation stops, preventing effect reduction caused by habituation of sense of smell. The 2 aromas switch alternately every 1 hour.
- Control status is displayed on "Forest Air Info" screen. Refer to <u>HAC-34, "FOREST AIR SYSTEM : Switch</u> <u>Name and Function"</u>.

#### NOTE:

• ON/OFF of aroma diffuser control can be changed by "Aroma" in "Forest Air Setting" menu. Refer to <u>HAC-</u> <u>37</u>, "FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch".  Details of aroma diffuser control can be changed using "AROMA SETTING" and "AROMA DIFFUSER SET-TING" in "WORK SUPPORT" mode of CONSULT. Refer to <u>HAC-39, "CONSULT Function"</u>.

# FOREST AIR SYSTEM : Automatic Defogging Control

#### DESCRIPTION

- A/C auto amp. detects fogging on windshield and front side window by calculating dew point temperature from glass temperature, passenger room temperature, and passenger room humidity that are detected by humidity sensor located on upper windshield.
- Fogging prevention mode (fresh air intake, compressor ON, and mode position DEF) automatically operates when fogging is detected.
- Previously, dehumidification control continuously operates for preventing fogging. Now, dehumidification control operates only when it is necessary. Excessive dehumidification in passenger room is prevented.

#### **OPERATION DESCRIPTION**

- This control operates when fogging is detected while AUTO switch is ON.
- Control status is displayed on "Forest Air Info" screen. Refer to <u>HAC-34</u>, "FOREST AIR SYSTEM : Switch <u>Name and Function"</u>.
- While automatic defogging function is activated, indicator lamp of DEF switch turns ON.
- When A/C auto amp. receives A/C operation signal (DEF switch ON) while automatic defogging function is activated, automatic defogging function stops, and does not activate for a specified period of time.
   NOTE:
- ON/OFF and ON/OFF timing of automatic defogging control can be changed by "Auto Defogging Sensitivity" in "Forest Air Setting" menu. Refer to <u>HAC-37, "FOREST AIR SYSTEM : Menu Displayed by Pressing Each</u> <u>Switch</u>".
- Automatic defogging control does not operate when ambient temperature is -2°C (28°F) or less.

#### FOREST AIR SYSTEM : Automatic Intake Control (Exhaust Gas / Outside Odor Detecting Mechanism)

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#### DESCRIPTION

In addition to air inlet automatic control of automatic air conditioning system, A/C auto amp. controls automatically air inlet according to signal from exhaust gas/outside odor detecting sensor, so that unpleasant outside odor does not enter in passenger room.

#### **OPERATION DESCRIPTION**

- Air inlet switches to recirculation when exhaust gas or outside odor is detected while FOREST switch is ON. After that, air inlet switches to fresh air intake when exhaust gas or outside odor becomes not detectable.
- Control status is displayed on "Forest Air Info" screen. Refer to <u>HAC-34, "FOREST AIR SYSTEM : Switch</u> <u>Name and Function"</u>.

#### NOTE:

- Sensitivity of exhaust gas/outside odor detecting sensor can be changed by "Outside/Inside Air Mix" in "Forest Air Setting" menu. Refer to <u>HAC-37</u>, "FOREST AIR SYSTEM : <u>Menu Displayed by Pressing Each</u> <u>Switch</u>".
- Automatic intake control (exhaust gas/outside odor detecting mechanism) does not operate when ambient temperature is -2°C (28°F) or less. In this case, control is only for control of automatic air inlet of automatic air conditioning system.

### FOREST AIR SYSTEM : Breezy Air Control

#### DESCRIPTION

Air conditioning air flow similar to the air flow of a natural breeze is achieved through the random control of air flow switching timing from the upper ventilator and center ventilator.

#### **OPERATION DESCRIPTION**

- This control automatically operates when FOREST switch is ON, air outlet mode is VENT or FOOT, and passenger room temperature is in stable status.
- Control status is displayed on "Forest Air Info" screen. Refer to <u>HAC-34</u>, "FOREST AIR SYSTEM : Switch <u>Name and Function"</u>.

#### NOTE:

#### HAC-27

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#### < SYSTEM DESCRIPTION >

#### [AUTOMATIC AIR CONDITIONING]

 ON/OFF of breezy air control can be changed by "Breeze Mode" in "Forest Air Setting" menu. Level of breezy air can be selected by "Fan Speed Variance" in "Forest Air Setting" menu. Refer to <u>HAC-37</u>, "FOR-<u>EST AIR SYSTEM : Menu Displayed by Pressing Each Switch</u>".

• Breezy air control does not operate when air outlet is B/L, D/F, or DEF mode.

#### FOREST AIR SYSTEM : Plasmacluster Control

DESCRIPTION

Plasmacluster<sup>™</sup> control eliminates microbes and reduces odor on interior surface by including high density Plasmacluster<sup>™</sup> ion in air conditioning outlet air flow.

#### **OPERATION DESCRIPTION**

- Plasmacluster<sup>™</sup> control operates by interlocking to blower motor. Plasmacluster<sup>™</sup> control operates when blower motor operates.
- Control status is displayed on air conditioning system display screen and "Forest Air Info" screen. Refer to <u>HAC-34. "FOREST AIR SYSTEM : Switch Name and Function"</u>.

NOTE:

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

#### FOREST AIR SYSTEM : Intelligent Key Interlock Function

INFOID:000000008143851

INFOID:000000008143850

#### DESCRIPTION

 Setting value of Forest Air system when ignition switch is previously OFF can be memorized for each Intelligent Key. Forest Air system is automatically operated by the setting value.
 NOTE:

Setting value can be memorized for up to 3 Intelligent Keys.

• Interlock items are as per the following table.

Operation	Conditions
Multifunction switch	FOREST switch (ON / OFF)
	"Breeze Mode" (ON / OFF)
	"Fan Speed Variance" (Low / High)
"Forest Air Setting" menu screen	"Outside/Inside Air Mix" (Setting value)
	"Auto Defogging Sensitivity" (Setting value)
	"Aroma" (ON / OFF)

#### **Operation Description**

Memory

- 1. Unlock door using Intelligent Key or driver door request switch.
- 2. BCM transmits Key ID signal to A/C auto amp. via CAN communication line.
- 3. When ignition switch turns OFF, A/C auto amp. memorizes setting information ("Breeze Mode" status, "Aroma" status, and others) of Forest Air system to memory for each Key ID.

#### Readout

- 1. Unlock door using Intelligent Key or driver door request switch.
- 2. BCM transmits Key ID signal to A/C auto amp. via CAN communication line.
- 3. When ignition switch turns ON, A/C auto amp. operates automatically Forest Air system according to setting information of Key ID that is received.

#### NOTE:

When Intelligent Key interlock function operates, "Connection with the key has been done." is displayed.

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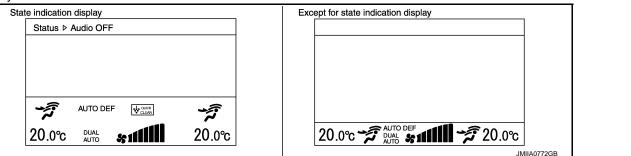
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# OPERATION AUTOMATIC AIR CONDITIONING SYSTEM

AUTOMATIC AIR CONDITIONING SYSTEM : Switch Name and Function INFOLD:00000008143852

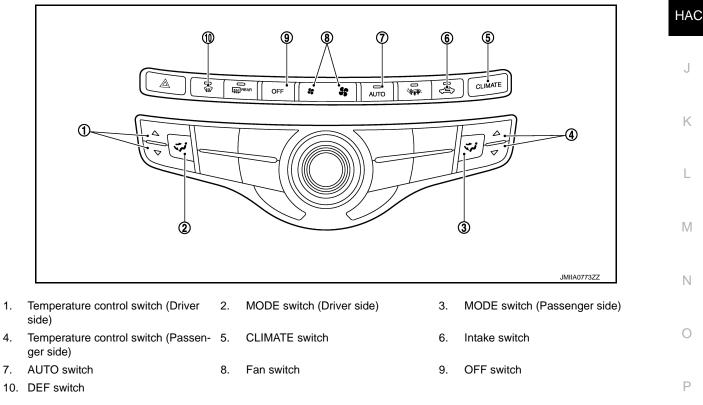
#### OPERATION AND DISPLAY (WITH FOREST AIR)

A/C Display



- Air conditioning system state is indicated on the display.
- When "Status" on multifunction switch is pressed while air conditioning system is in the ON position, the display changes to state indication display of air conditioning system. When air conditioning system is operated while navigation system or audio system is displayed, air conditioning system state is indicated in the lower portion of display for several seconds.
- When MODE switch is pressed while air conditioning system is in the OFF position, state indication display is indicated for several seconds.

A/C Controller (Multifunction switch)



Switch Operation

#### < SYSTEM DESCRIPTION >

Switch name	Function
AUTO switch	When this switch is pressed, switch indicator lamp and "AUTO" indicator on display", and then air con- ditioning system starts automatic control. <b>NOTE:</b> When air inlet is not selected manually, air inlet changes to automatic control.
CLIMATE switch	"Climate" menu is indicated on display when this switch is pressed.
DEF switch	<ul> <li>DEF mode (switch indicator lamp) changes between ON ⇔ OFF each time this switch is pressed. When DEF switch is pressed while air conditioning system is in the ON position</li> <li>When DEF mode turns ON, air conditioning system becomes the following status.</li> <li>Air flow: Automatic control (If fan speed other than "AUTO" is selected before pressing DEF switch, fan speed is manual control)</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF switch is pressed while air conditioning system is in the OFF position</li> <li>Air conditioning system turns ON and becomes the following status.</li> <li>Air conditioning system turns ON and becomes the following status.</li> <li>Air flow: Automatic control</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF switch is pressed while air conditioning system is in the OFF position</li> <li>Air conditioning system turns ON and becomes the following status.</li> <li>Air flow: Automatic control</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF mode turns OFF, entire air conditioning system is set to auto mode.</li> <li><b>NOTE:</b></li> <li>Automatic control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> </ul>
Fan switch	<ul> <li>Fan speed is selected within a range of 1st – 7th speed using this switch.</li> <li>NOTE:</li> <li>Air conditioning system turns ON when this switch is operated while air conditioning system is in OFF status.</li> <li>Automatic air flow control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> </ul>
Intake switch	<ul> <li>Air inlet changes between recirculation (REC) ⇔ fresh air intake (FRE) each time this switch is pressed.</li> <li>Intake switch indicator ON: Recirculation</li> <li>Intake switch indicator OFF: Fresh air intake</li> <li>Press and held for 2 seconds or more, intake switch indicator blinks 2 times and air inlet is set to automatic control. (Intake switch indicator indicates air inlet state during automatic control.)</li> <li>NOTE:</li> <li>Air inlet can be changed when air conditioning system is in the OFF position.</li> </ul>
MODE switch (Driver side)	<ul> <li>Air outlet can be changes from VENT ⇒ B/L ⇒ FOOT ⇒ D/F ⇒ VENT each time this switch is pressed.</li> <li>NOTE:</li> <li>Air outlet can be changed when air conditioning system is in the OFF position.</li> <li>Automatic air outlet control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> </ul>
MODE switch (Passenger side)	<ul> <li>The system is set to LH/RH independent status ("DUAL" displays) by operating this switch. Air outlet of passenger side can be changed without changing air outlet of driver side.</li> <li>Air outlet can be changes from VENT ⇒ B/L ⇒ FOOT ⇒ VENT each time this switch is pressed.</li> <li>NOTE:</li> <li>Air outlet can be changed when air conditioning system is in the OFF position.</li> <li>Automatic air outlet control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> <li>When DEF mode is ON, MODE switch (passenger side) is inoperative.</li> </ul>
OFF switch	<ul> <li>When this switch is pressed, air conditioning system turns OFF.</li> <li>When air conditioning system turns OFF, air inlet and air outlet become the following status.</li> <li>Air inlet: Automatic control</li> <li>Air outlet: FOOT</li> </ul>

#### < SYSTEM DESCRIPTION >

Switch name	Function	
	Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment.	
Temperature control	<ul> <li>A Press: Setting temperature increases</li> </ul>	
switch (Driver side)	<ul> <li>▼ Press: Setting temperature decreases</li> <li>NOTE:</li> </ul>	
	When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (driver side) is pressed] is indicated on display.	
	<ul> <li>The system is set to LH/RH independent status ("DUAL" displays) by operating this switch. Outlet air flow temperature of passenger side can be changed without changing outlet air flow temperature of driver side.</li> <li>Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment.</li> </ul>	
Temperature control	<ul> <li>A Press: Setting temperature increases</li> </ul>	
switch (Passenger side)	- ▼ Press: Setting temperature decreases NOTE:	
	When air conditioning system is OFF, setting temperature can be selected only while air condition- ing system status screen [only when MODE switch (passenger side) is pressed] is indicated on dis- play.	
	• When DEF mode is ON, temperature control switch (passenger side) is inoperative.	

#### OPERATION AND DISPLAY (WITH FOREST AIR)

#### A/C Display

ate indication display		Except for state indication display
Status ▷ Audio OFF		
	1	
	20.0℃	20.0°C * AUTO DEF
		JMIIA0772G

- Air conditioning system state is indicated on the display.
- When "Status" on multifunction switch is pressed while air conditioning system is in the ON position, the display changes to state indication display of air conditioning system. When air conditioning system is operated while navigation system or audio system is displayed, air conditioning system state is indicated in the lower portion of display for several seconds.
- When MODE switch is pressed while air conditioning system is in the OFF position, state indication display
  is indicated for several seconds.

A/C Controller (Multifunction switch)

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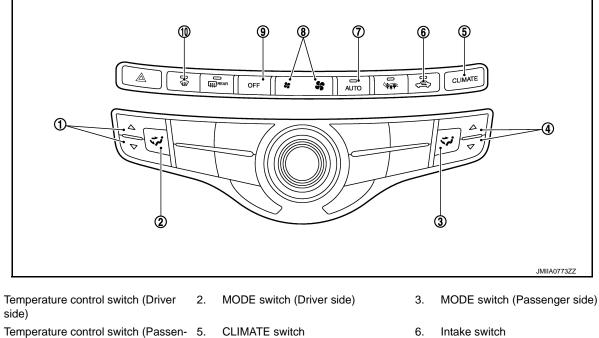
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OFF switch

9.



4. Temperature control switch (Passen ger side)

8.

Fan switch

- 7. AUTO switch
- 10. DEF switch

#### Switch Operation

1.

Switch name	Function
AUTO switch	When this switch is pressed, switch indicator lamp and "AUTO" indicator on display", and then air conditioning system starts automatic control.         NOTE:         When air inlet is not selected manually, air inlet changes to automatic control.
CLIMATE switch	"Climate" menu is indicated on display when this switch is pressed.
DEF switch	<ul> <li>DEF mode (switch indicator lamp) changes between ON ⇔ OFF each time this switch is pressed. When DEF switch is pressed while air conditioning system is in the ON position</li> <li>When DEF mode turns ON, air conditioning system becomes the following status.</li> <li>Air flow: Automatic control (If fan speed other than "AUTO" is selected before pressing DEF switch, fan speed is manual control)</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF mode turns OFF, air conditioning system status returns to the previous status before DEF mode is selected. When DEF switch is pressed while air conditioning system is in the OFF position</li> <li>Air flow: Automatic control</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF switch is pressed while air conditioning system is in the OFF position</li> <li>Air flow: Automatic control</li> <li>Air flow: Automatic control</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF switch is pressed while air conditioning system is in the OFF position</li> <li>Air conditioning system turns ON and becomes the following status.</li> <li>Air flow: Automatic control</li> <li>Air inlet: Fresh air intake</li> <li>Air outlet: DEF</li> <li>Compressor: ON</li> <li>When DEF mode turns OFF, entire air conditioning system is set to auto mode.</li> <li><b>NOTE:</b></li> <li>Automatic control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> </ul>
Fan switch	<ul> <li>Fan speed is selected within a range of 1st – 7th speed using this switch.</li> <li>NOTE:</li> <li>Air conditioning system turns ON when this switch is operated while air conditioning system is in OFF status.</li> <li>Automatic air flow control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> </ul>

#### < SYSTEM DESCRIPTION >

Switch name	Function
Intake switch	<ul> <li>Air inlet changes between recirculation (REC) ⇔ fresh air intake (FRE) each time this switch is pressed.</li> <li>Intake switch indicator ON: Recirculation</li> <li>Intake switch indicator OFF: Fresh air intake</li> <li>Press and held for 2 seconds or more, intake switch indicator blinks 2 times and air inlet is set to automatic control. (Intake switch indicator indicates air inlet state during automatic control.)</li> <li>NOTE:</li> <li>Air inlet can be changed when air conditioning system is in the OFF position.</li> </ul>
MODE switch (Driver side)	<ul> <li>Air outlet can be changes from VENT ⇒ B/L ⇒ FOOT ⇒ D/F ⇒ VENT each time this switch is pressed.</li> <li>NOTE:</li> <li>Air outlet can be changed when air conditioning system is in the OFF position.</li> <li>Automatic air outlet control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> </ul>
MODE switch (Passenger side)	<ul> <li>The system is set to LH/RH independent status ("DUAL" displays) by operating this switch. Air outlet of passenger side can be changed without changing air outlet of driver side.</li> <li>Air outlet can be changes from VENT ⇒ B/L ⇒ FOOT ⇒ VENT each time this switch is pressed.</li> <li>NOTE:</li> <li>Air outlet can be changed when air conditioning system is in the OFF position.</li> <li>Automatic air outlet control is released ("AUTO" is not displayed) when this switch is pressed while air conditioning system is in automatic control ("AUTO" is displayed).</li> <li>When DEF mode is ON, MODE switch (passenger side) is inoperative.</li> </ul>
OFF switch	<ul> <li>When this switch is pressed, air conditioning system turns OFF.</li> <li>When air conditioning system turns OFF, air inlet and air outlet become the following status.</li> <li>Air inlet: Automatic control</li> <li>Air outlet: FOOT</li> </ul>
Temperature control switch (Driver side)	<ul> <li>Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment.</li> <li>▲ Press: Setting temperature increases</li> <li>▼ Press: Setting temperature decreases</li> <li>NOTE:</li> <li>When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (driver side) is pressed] is indicated on display.</li> </ul>
Temperature control switch (Passenger side)	<ul> <li>The system is set to LH/RH independent status ("DUAL" displays) by operating this switch. Outlet air flow temperature of passenger side can be changed without changing outlet air flow temperature of driver side.</li> <li>Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment.</li> <li>▲ Press: Setting temperature increases</li> <li>▼ Press: Setting temperature decreases</li> <li>NOTE:</li> <li>When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (passenger side) is pressed] is indicated on display.</li> <li>When DEF mode is ON, temperature control switch (passenger side) is inoperative.</li> </ul>

#### AUTOMATIC AIR CONDITIONING SYSTEM : Menu Displayed by Pressing Each Switch

INFOID:000000008143853

"CLIMATE" MENU

"Climate" menu screen is displayed when CLIMATE switch of multifunction switch is pressed.

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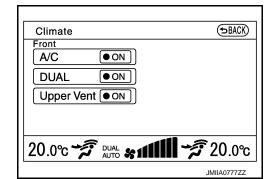
Ο

#### < SYSTEM DESCRIPTION >

• With Forest Air

#### [AUTOMATIC AIR CONDITIONING]

Climate			
Front	Forest		
A/C ON	Forest Air Setting		
DUAL ON	Forest Air Info		
Upper Vent • ON			
20.0°c 🕉 AUTO DEF 20.0°c			
	JMIIA0774ZZ		



• Without Forest Air and navigation

• Without Forest Air and with navigation

Г <u> </u>		
📰 Climate		
A/C	• ON •	
DUAL	• ON	
Upper Vent		
25.0°C 7 1 1 1 DUAL 7 25.0°C		
	JMIIA0779ZZ	

Menu	Function	
A/C	ON ⇔ OFF of compressor is selected. <b>NOTE:</b> Selection does not operate when blower motor is OFF.	
DUAL	<ul> <li>ON ⇔ OFF of LH/RH independent function (temperature and air outlet) is selected.</li> <li>NOTE:</li> <li>Setting temperature and outlet for passenger seat is the same as that for driver seat wher LH/RH independent function is OFF.</li> <li>Selection does not operate when blower motor is OFF.</li> </ul>	
Upper Vent	ON ⇔ OFF of air blowing from upper ventilator is selected. <b>NOTE:</b> Selection does not operate when blower motor is OFF and air outlet is DEF.	

# FOREST AIR SYSTEM

# FOREST AIR SYSTEM : Switch Name and Function

#### OPERATION AND DISPLAY

INFOID:000000008143856

#### < SYSTEM DESCRIPTION >

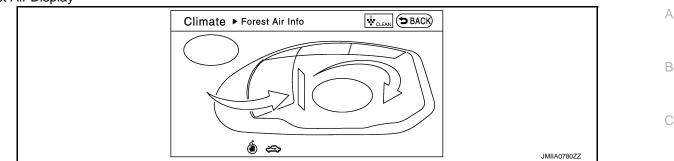
#### [AUTOMATIC AIR CONDITIONING]

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#### Forest Air Display



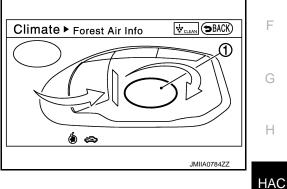
- Forest Air system state is indicated on the display.
- "Climate" menu is indicated on display when CLIMATE switch of multifunction switch is pressed while FOR-EST switch is ON. Operation status of Forest Air system is displayed when "Forest Air Info" is touched.

Air flow control (inside odor detecting mechanism)

- Display is switched as per the following description depending on interior air status
- Interior air status display (1) is blue, while interior air is in clean status.
- Interior air status display (1) is orange, while interior air is in dirty status.

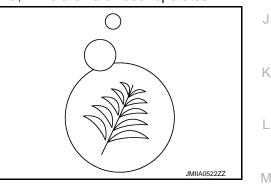
NOTE:

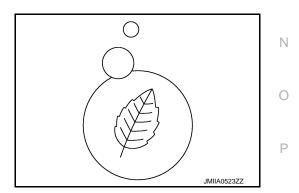
Interior air status display is not indicated, while air inlet is in manual control status.



Aroma diffuser control

- Display is switched as shown in the figure, depending on type of aroma, while aroma diffuser operates.
- Leaf scent



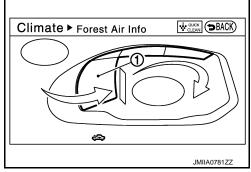


Fragrant wood

Automatic defogging control

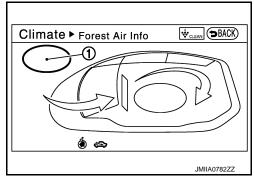
#### < SYSTEM DESCRIPTION >

Window portion (1) changes to white and automatic defogging operates, when windshield fogging is detected.



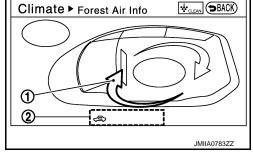
- Automatic intake control (exhaust gas/outside odor detecting mechanism) Display is switched as per the following description depending on ambient air status, air inlet status, and switching status of recirculation and fresh air intake.
- Ambient air status display (1) is blue, while ambient air is in clean status.
- Ambient air status display (1) is orange, while ambient air is in dirty status. NOTE:

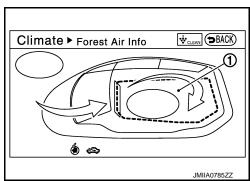
Ambient air status display is not indicated, while air inlet is in manual control status.



• Air inlet status is indicated by an arrow (1). Lower display (2) indicates air inlet status and control status (automatic control / manual control)

Air inlet status	Control status	Display
Recirculation	Automatic control	Ē
	Manual operation	Manual Mode
Fresh air intake	Automatic control	Ś
	Manual operation	Manual Mode





Breezy air control

- Animation that is imaged from breezy air (1) is displayed, while breezy air control is operated.

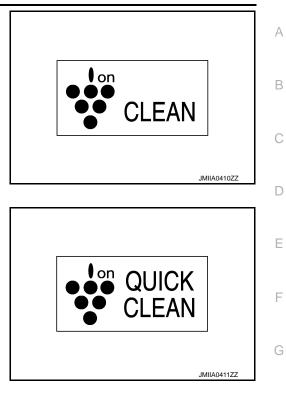
Plasmacluster<sup>™</sup> control

- Plasmacluster <sup>™</sup> ion display is switched as shown in the figure depending on air flow. NOTE:
  - Plasmacluster<sup>™</sup> ion technology developed by Sharp Corporation is installed in this item.
  - Plasmacluster<sup>™</sup> is a trademark of Sharp Corporation.

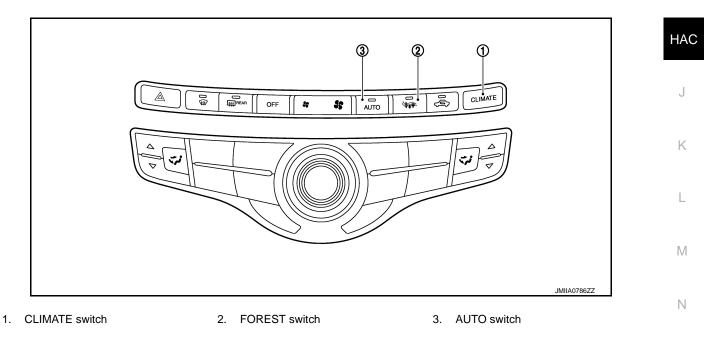
**HAC-36** 

• When air flow is small

• When air flow is large



Forest Air Controller (Multifunction switch)



Switch name	Function
AUTO switch	When this switch is pressed, AUTO switch indicator lamp, "AUTO", and "AUTO DEF" on display turn ON, and then automatic defogging control starts.
CLIMATE switch	"Climate" menu is indicated on display when this switch is pressed.
FOREST switch	When this switch is pressed, AUTO switch indicator lamp, FOREST switch indicator lamp, "AUTO", and "AUTO DEF" on display turn ON, and then Forest Air system starts automatic control.

# FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch

INFOID:000000008143857

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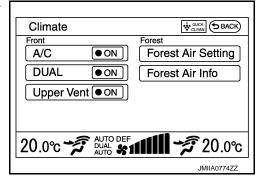
# "CLIMATE" MENU

Revision: 2013 March

#### **HAC-37**

#### 2013 M Hybrid

"Climate" menu screen is displayed when CLIMATE switch of multifunction switch is pressed.



N	lenu	Function
	Breeze Mode	ON ⇔ OFF of breezy air is selected. <b>NOTE:</b> Selection does not operate when FOREST switch is OFF.
	Fan Speed Vari- ance	Intensity of breezy air is selected. <b>NOTE:</b> Selection does not operate when FOREST switch is OFF or breezy air control is OFF.
Forest Air Set- ting	Outside/Inside Air Mix	Balance of automatic intake control (exhaust gas/outside odor detecting mechanism) (priority of fresh air intake or recirculation) is selected. <b>NOTE:</b> Selection does not operate when FOREST switch is OFF.
	Auto Defogging Sensitivity	Operation timing of automatic defogging control is adjusted or turned OFF. <b>NOTE:</b> Selection does not operate when AUTO switch is OFF.
	Aroma	ON ⇔ OFF of aroma diffuser is selected. <b>NOTE:</b> Selection does not operate when FOREST switch is OFF.
Forest Air Info		Operation status of Forest Air system is indicated. <b>NOTE:</b> Selection does not operate when FOREST switch is OFF.

# **DIAGNOSIS SYSTEM (HVAC)**

# Description

INFOID:000000008143858

Air conditioning system performs self-diagnosis, operation check, function diagnosis, and various settings B using diagnosis function of each control unit.

ECU		ostic item NSULT)	С	
		Self Diagnostic Result		
		Data Monitor	D	
A/C auto amp.	(I) HVAC	Active Test		
		Work support		
AV control unit	MULTI AV	Self Diagnostic Result	E	
	Multi AV system on board diagnosis function	on		
ECM		Self Diagnostic Result	F	
ECIM		Data Monitor		

# **CONSULT** Function

INFOID:000000008143859

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#### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with A/C auto amp.

Diagnostic mode	Description
Ecu Identification	Displays the part number of A/C auto amp.
Self Diagnostic Result	Displays the diagnosis results judged by A/C auto amp.
Data Monitor	Displays the input/output signal of A/C auto amp.
Active Test	The signals used to activate each device are forcibly supplied from A/C auto amp.
Work support	Changes the setting for each setting function.
Configuration	<ul> <li>The vehicle specification that is written in A/C auto amp. can be displayed or stored.</li> <li>The vehicle specification can be written when A/C auto amp. is replaced.</li> </ul>

#### NOTE:

Diagnosis should be performed with engine running. Door motor operation speeds become slower and No results may be returned even for normal operation if battery voltage drops below 12 V during self-diagnosis.

#### ECU IDENTIFICATION

Part number of A/C auto amp. can be checked.

#### NOTE:

When the vehicle specification is written to A/C auto amp. using control unit setting, part number of A/C auto amp. is updated to match the vehicle specification.

#### SELF DIAGNOSTIC RESULT

Diagnosis result that is judged by A/C auto amp. can be checked. Refer to HAC-51, "DTC Index".

#### DATA MONITOR

Input/output signal of A/C auto amp. can be checked.

Display item list

Monitor item [Unit	]	Description	F
COMP REQ SIG	[On/Off]	Displays A/C switch ON/OFF status transmitted to other units via CAN communication.	-
FAN REQ SIG	[On/Off]	Displays fan switch ON/OFF status transmitted to other units via CAN communication.	-
DR TARGET A/TEMP	[°C]	Target discharge air temperature (driver side) judged by A/C auto amp. depending on the temperature setting and the value from each sensor.	=
PA TARGET A/TEMP	[°C]	Target discharge air temperature (passenger side) judged by A/C auto amp. depending on the temperature setting and the value from each sensor.	-

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# **DIAGNOSIS SYSTEM (HVAC)**

#### < SYSTEM DESCRIPTION >

### [AÚTOMATIC AIR CONDITIONING]

Monitor item [Unit]		Description
AMB TEMP SEN	[°C]	Ambient temperature value converted from ambient sensor signal received from ambient sensor.
IN-VEH TEMP	[°C]	In-vehicle temperature value converted from in-vehicle sensor signal received from in-vehicle sensor.
INT TEMP SEN	[°C]	Evaporator fin temperature value converted from intake sensor signal received from in- take sensor.
AMB SEN CAL	[°C]	Ambient temperature value calculated by A/C auto amp.
IN-VEH CAL	[°C]	In-vehicle temperature value calculated by A/C auto amp.
INT TEMP CAL	[°C]	Evaporator fin temperature value calculated by A/C auto amp.
ENG COOL TEMP	[°C]	Engine coolant temperature signal value received from ECM via CAN communication.
DR SUNLOAD SEN	[w/m <sup>2</sup> ]	Sunload value (driver side) converted from sunload sensor signal (driver side) received from sunload sensor.
PASS SUNLOAD SEN	[w/m <sup>2</sup> ]	Sunload value (passenger side) converted from sunload sensor signal (passenger side) received from sunload sensor.
DR SUNL SEN CAL	[w/m <sup>2</sup> ]	Sunload value (driver side) calculated by A/C auto amp.
PASS SUNL SEN CAL	[w/m <sup>2</sup> ]	Sunload value (passenger side) calculated by A/C auto amp.
COMP ECV DUTY	[%]	Duty ratio of ECV (electrical control valve) judged by A/C auto amp.
BLOWER MOT VOLT	[V]	Gate voltage to power transistor that is judged by A/C auto amp.
VEHICLE SPEED	[Mph (km/h)]	Vehicle speed signal value received from combination meter via CAN communication.
RELATIVE HUMIDITY*	[%]	Relative humidity that is judged by A/C auto amp. according to value from humidity sensor.
AIR TEMP*	[°C]	Air temperature around humidity sensor that is judged by A/C auto amp. according to value from humidity sensor.
DEW POINT TEMP*	[°C]	Dew point temperature that is judged by A/C auto amp. according to value from humidity sensor.
GLASS TEMP*	[°C]	Glass temperature value that is converted from glass temperature sensor signal re- ceived from glass temperature sensor of humidity sensor portion.
GAS SEN LEVEL <sup>*</sup>		Contamination level of ambient air that is judged by A/C auto amp. according to value from exhaust gas/outside odor detecting sensor.
COMPR RPM	[rpm]	Rotation speed of electric compressor
COMPR INPUT POWER SIG	[W]	Power consumption value of electric compressor
COMPR INPUT VOLT SIG	[V]	Input voltage value of electric compressor
COMP USAGE APPROVE PWR	[W]	Allowable power value of electric compressor
ENGINE On REQ	[On/Off]	State of send signal from A/C auto amp to ECM.
A/C PD CUT	[On/Off]	State of send signal from ECM to A/C auto amp.

\*: With Forest Air

#### ACTIVE TEST

The signals used to activate each device forcibly supplied from A/C auto amp. operation check of air conditioning system can be performed.

Test item	Description
HVAC TEST	The operation check of air conditioner system can be performed by selecting the mode. Refer to the following table for the conditions of each mode.

Check each output device

With Forest Air

DIAGNOSIS SYSTEM (H)	/AC)
	<b>IAUTOMATIC AIR CONDI</b>

		Test item					
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door motor (driver side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF
Mode door motor (passenger side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF
Rear mode door motor position	VENT	VENT	B/L	B/L	FOOT	FOOT	DEF
Intake door motor position	REC	REC	20% FRE	20% FRE	FRE	FRE	FRE
Air mix door motor (driver side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Air mix door motor (passenger side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Power transistor gate voltage	4 V	4 V	7 V	7 V	11.5 V	11.5 V	4 V
A/C request signal	ON	ON	OFF	OFF	ON	OFF	OFF
Electric compressor (rpm)	2000	5400	0	0	1500	0	0
Heater pump	OFF	ON	OFF	ON	OFF	ON	OFF
Engine on request	OFF	OFF	OFF	ON	ON	OFF	OFF
Upper ventilator door motor position	OPEN	CLOSE	CLOSE	OPEN	CLOSE	CLOSE	CLOSE
Aroma motor position	Fragrant wood	Leaf scent	OFF	Fragrant wood	Leaf scent	OFF	OFF

Without Forest Air

	Test item							
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7	-
Mode door motor (driver side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF	HAC
Mode door motor (passenger side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF	
Rear mode door motor position	VENT	VENT	B/L	B/L	FOOT	FOOT	DEF	-
Intake door motor position	REC	REC	20% FRE	20% FRE	FRE	FRE	FRE	J
Air mix door motor (driver side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT	
Air mix door motor (passenger side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT	K
Power transistor gate voltage	4 V	4 V	7 V	7 V	11.5 V	11.5 V	4 V	
A/C request signal	ON	ON	OFF	OFF	ON	OFF	OFF	- L
Electric compressor (rpm)	2000	5400	0	0	1500	0	0	-
Heater pump	OFF	ON	OFF	ON	OFF	ON	OFF	M
Engine on request	OFF	OFF	OFF	ON	ON	OFF	OFF	-
Upper ventilator door motor position	OPEN	CLOSE	CLOSE	OPEN	CLOSE	CLOSE	CLOSE	-

#### NOTE:

Perform the inspection of each output device after start in the engine because the compressor is operated.

#### WORK SUPPORT

Setting change of each setting functions can be performed.

Work item	Description	Reference
TEMP SET CORRECT	If the temperature felt by the customer is different from the air flow temperature controlled by the temperature setting, the A/C auto amp. control temperature can be adjusted to compensate for the temperature setting.	HAC-69, "AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer"
REC MEMORY SET	Setting change of inlet port memory function (REC) can be per- formed.	HAC-69, "AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (REC)'

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# **DIAGNOSIS SYSTEM (HVAC)**

#### < SYSTEM DESCRIPTION >

## [AÚTOMATIC AIR CONDITIONING]

Work item	Description	Reference
FRE MEMORY SET	Setting change of inlet port memory function (FRE) can be per- formed.	HAC-70, "AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (FRE)"
BLOW SET	Setting change of foot position setting trimmer can be performed.	HAC-70, "AUTOMATIC AIR CONDITIONING SYSTEM : Foot Position Setting Trimmer"
AROMA SETTING*	Setting change of aroma fragrance intensity setting can be per- formed.	HAC-70, "FOREST AIR SYSTEM : Aroma Fra- grance Intensity Setting"
FRAGRANCE SETTING <sup>*</sup>	Setting change of aroma fragrance type setting can be performed.	HAC-70, "FOREST AIR SYSTEM : Aroma Fra- grance Type Setting"
BLOWER MOTOR SETTING*	Setting change of air flow control (inside odor detecting mechanism) setting can be performed.	HAC-71. "FOREST AIR SYSTEM : Air Flow Con- trol (Inside Odor Detect- ing Mechanism) Setting"
AROMA DIFFUSER SETTING*	Setting change of aroma diffuser presence setting can be per- formed.	HAC-71. "FOREST AIR SYSTEM : Aroma Diffus- er Presence Setting"

#### \*: With Forest Air

CONFIGURATION

The vehicle specification that is written in A/C auto amp. can be displayed or stored. The vehicle specification can be written when A/C auto amp. is replaced. Refer to <u>HAC-68</u>. "Description".

### [AUTOMATIC AIR CONDITIONING]

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# ECU DIAGNOSIS INFORMATION A/C AUTO AMP.

# Reference Value(AUTOMATIC AIR CONDITIONING)

INFOID:000000008143860 B

# CONSULT DATA MONITOR REFERENCE VALUES

Monitor item		Condition	Value/Status
COMP REQ SIG	Engine: Run at idle after warming	"A/C": ON (Compressor operation status)	On
	up	"A/C": OFF	Off
	Engine: Run at	Blower motor: ON	On
FAN REQ SIG	idle after warming up	Blower motor: OFF	Off
DR TARGET A/TEMP	Ignition switch ON		Values depending on target air flow temperature (driver side)
PA TARGET A/TEMP	Ignition switch ON		Values depending on target air flow temperature (passenger side)
AMB TEMP SEN	Ignition switch ON		Equivalent to ambient temperature
IN-VEH TEMP	Ignition switch ON		Equivalent to in-vehicle temperature
INT TEMP SEN	Ignition switch ON		Values depending on evaporator fin temperature
AMB SEN CAL	Ignition switch ON		Equivalent to ambient temperature
IN-VEH CAL	Ignition switch ON		Equivalent to in-vehicle temperature
INT TEMP CAL	Ignition switch ON		Values depending on evaporator fin temperature
ENG COOL TEMP	Ignition switch ON		Values depending on engine coolant temperature
DR SUNLOAD SEN	Ignition switch ON		Values depending on sunload (driver side)
PASS SUNLOAD SEN	Ignition switch ON		Values depending on sunload (passenger side)
DR SUNL SEN CAL	Ignition switch ON		Values depending on sunload (driver side)
PASS SUNL SEN CAL	Ignition switch ON		Values depending on sunload (passenger side)
		Active test (HVAC test): MODE 1	4 V
		Active test (HVAC test): MODE 2	4 V
	Engine: Run at	Active test (HVAC test): MODE 3	7 V
BLOWER MOT VOLT	idle after warming	Active test (HVAC test): MODE 4	7 V
	up	Active test (HVAC test): MODE 5	11.5 V
		Active test (HVAC test): MODE 6	11.5 V
		Active test (HVAC test): MODE 7	4 V
VEHICLE SPEED	Turn drive wheels a the speedometer in	and compare CONSULT value with dication.	Equivalent to speedometer reading
RELATIVE HUMIDITY*	Ignition switch ON		Values depending on relative humidity
AIR TEMP <sup>*</sup>	Ignition switch ON		Equivalent to air temperature around humidity sensor
DEW POINT TEMP*	Ignition switch ON		Values depending on dew point temperature
GLASS TEMP*	Ignition switch ON		Equivalent to windshield glass temperature
GAS SEN LEVEL <sup>*</sup>	Ignition switch ON		Values depending on contamination of ambient air
COMP RPM	Ignition switch ON	A/C switch: ON (Compressor operation status)	Rotation speed of electric compressor
COMP INPUT POWER SIG	Ignition switch ON	A/C switch: ON (Compressor operation status)	Power consumption value of electric compressor

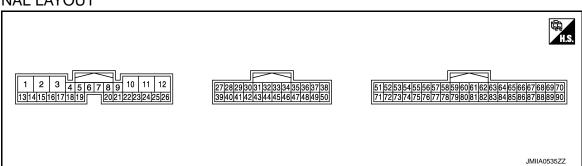
#### < ECU DIAGNOSIS INFORMATION >

### [AUTOMATIC AIR CONDITIONING]

Monitor item		Condition	Value/Status
COMP INPUT VOLT SIG	Ignition switch ON	A/C switch: ON (Compressor operation status)	Input voltage value of electric compressor
COMP USAGE AP- PROVE PWR	Ignition switch ON	A/C switch: ON (Compressor operation status)	5.1 kW
ENGINE On REQ	Ignition switch ON	A/C switch: ON (Compressor operation status)	Engine on request signal on: ON Engine on request signal off: OFF
A/C PD CUT	Ignition switch ON	A/C switch: ON (Compressor operation status)	Normal refrigerant pressure: OFF Malfunction of refrigerant pressure: OFF

\*: With Forest Air

#### **TERMINAL LAYOUT**



# PHYSICAL VALUES

Termin (Wire		Description			Condition	Reference value
+	_	Signal name	Input/ Output		Sonation	(Approx.)
1 (L)	Ground	Battery power supply	Input	Ignition swit	tch OFF	Battery voltage
2 (W)	Ground	Ignition power supply	Input	Ignition swit	tch ON	Battery voltage
					Fan speed: OFF	Battery voltage
				<ul> <li>Ignition switch ON</li> <li>Air inlet:</li> </ul>	Fan speed: 1st (manual)	10.0 V
					Fan speed: 2nd (manual)	8.3 V
6		Ground Blower motor feedback sig- nal	Input		Fan speed: 3rd (manual)	7.0 V
6 (R)	Ground				Fan speed: 4th (manual)	5.7V
				VENT	Fan speed: 5th (manual)	4.3 V
					Fan speed: 6th (manual)	3.0 V
					Fan speed: 7th (manual)	1.0 V

#### < ECU DIAGNOSIS INFORMATION >

Termin (Wire	al No. dolor)	Description		Condition		Reference value	
+	-	Signal name	Input/ Output		ondition	(Approx.)	
					Fan speed: OFF	0 V	-
					Fan speed: 1st (manual)	3.5 V	
					Fan speed: 2nd (manual)	5.2 V	- (
7		Power transistor control sig-		<ul> <li>Ignition switch</li> </ul>	Fan speed: 3rd (manual)	6.5 V	
7 (L)	Ground	nal	Output	ON <ul> <li>Air inlet:</li> <li>VENT</li> </ul>	Fan speed: 4th (manual)	7.8 V	-
				VENT	Fan speed: 5th (manual)	9.2 V	-
					Fan speed: 6th (manual)	10.5 V	=
					Fan speed: 7th (manual)	12.5 V	-
10 (B)	_	Ground	_		_	_	(
11 (P)	_	CAN-L	Input/ Output		_	_	_
12 (L)	_	CAN-H	Input/ Output		_	_	-
13 (V)	Ground	ACC power supply	Input	Ignition swit	ch ACC	Battery voltage	Η
17	Ground	Heater pump control signal	Output	<ul> <li>Ignition st</li> <li>Heater Ft</li> </ul>	witch ON JLL HOT operation	Battery voltage ov <u>75%</u> 25% 500 ms JSIIA1686GB	_
(R)	Giound		Output	<ul> <li>Ignition sv</li> <li>A/C system</li> </ul>		Battery voltage ov <u>10%</u> <u>90%</u> 500 ms JSIIA1687GB	-
20 <sup>*1</sup> (R)	Ground	Humidity sensor (SCK) sig- nal	Input/ Output	Ignition switch ON		(v) 15 10 5 0 	-

#### < ECU DIAGNOSIS INFORMATION >

Termir (Wire		Description		Condition	Reference value
+	_	Signal name	Input/ Output	Condition	(Approx.)
21 <sup>*1</sup> (Y)	Ground	Humidity sensor (DATA) sig- nal	Input/ Output	Ignition switch ON	(v) 10 5 0 
22 <sup>*1</sup> (B)	_	Humidity sensor ground	_	_	_
23 (W)	Ground	Drive mode select switch (SNOW) signal	Input	<ul> <li>Ignition switch ON</li> <li>Drive mode select switch position: SNOW</li> </ul>	0 V
				Other than the above	12 V
24 (L)	Ground	Drive mode select switch (ECO) signal	Input	<ul> <li>Ignition switch ON</li> <li>Drive mode select switch position: ECO</li> </ul>	0 V
				Other than the above	12 V
25 (G)	Ground	Drive mode select switch (STANDARD) signal	Input	<ul> <li>Ignition switch ON</li> <li>Drive mode select switch position: STANDARD</li> </ul>	0 V
				Other than the above	12 V
26 (Y)	Ground	Drive mode select switch (SPORT) signal	Input	<ul> <li>Ignition switch ON</li> <li>Drive mode select switch position: SPORT</li> </ul>	0 V
				Other than the above	12 V
27 (Y)	Ground	COMP_TX	Output	<ul> <li>Ignition switch ON</li> <li>FULL COLD</li> <li>Electric compressor operation</li> </ul>	(V) 5 4 3 2 1 0 • • • 25ms JSIIA1658ZZ
28 (G)	Ground	COMP_RX	Input	<ul> <li>Ignition switch ON</li> <li>FULL COLD</li> <li>Electric compressor operation</li> </ul>	(V) 6 4 0 • • • 10ms JSIIA1660ZZ
29 <sup>*2</sup> (G)	Ground	_		_	_
30 <sup>*1</sup> (L)	Ground	Exhaust gas/outside odor de- tecting sensor signal	Input	Ignition switch ON <b>NOTE:</b> The signal is depending on measurement environment of the vehicle	(V) 6 2 0 4 ms ZJIA1163J

#### < ECU DIAGNOSIS INFORMATION >

Termin (Wire	nal No. dolor)	Description			Condition	Reference value
+	-	Signal name	Input/ Output		onullion	(Approx.)
31 (BG)	Ground	Ambient sensor signal	Input	Ignition swit	ch ON	0 – 4.8 V Output voltage varies with ambient temperature
32 (LG)	Ground	In-vehicle sensor signal	Input	Ignition swit	ch ON	0 – 4.8 V Output voltage varies with in-vehi- cle temperature
33 <sup>*1</sup> (LG)	Ground	Humidity sensor (windshield glass temperature) signal	Input	Ignition swit	ch ON	0 – 4.8 V Output voltage varies with wind- shield glass temperature
35 (L)	Ground	Sunload sensor (driver side) signal	Input	Ignition swit	ch ON	0 – 4.8 V Output voltage varies with amount of sunload (driver side)
36 <sup>*1</sup> (V)	Ground	Inside odor detecting sensor signal	Input	Ignition swit	ch ON	0 – 4.8 V Output voltage varies with amount of passenger room odor level
39 (W)	Ground	Sensor power supply	Output	Ignition swit	ch ON	5 V
41 <sup>*3</sup> (L)	Ground	Heated steering wheel relay control signal	Output	Ignition switch ON	Within 30 sec- onds after turn- ing ON the heated steering switch.	0 V
					Other than the above	12 V
42 <sup>*1</sup>	Ground	Ionizer (ON/OFF) control sig-	Output	<ul><li> Ignition s</li><li>Blower m</li></ul>		0 V
(W)	Cround	nal	Output	<ul><li> Ignition sv</li><li>Blower m</li></ul>		12 V
44 (B)	_	Ground	_		_	_
45 <sup>*3</sup>	Ground	Heated steering wheel switch signal	Input	Ignition switch ON	Heated steering wheel switch: While pressing	0 V
(G)		จพาเปา อเมาสา		SWILLI UN	Other than the above	12 V
47 (P)	Ground	Sunload sensor (passenger side) signal	Input	Ignition swit	ch ON	0 – 4.8 V Output voltage varies with amount of sunload (passenger side)
51 (B)	Ground	Intake sensor signal	Input	Ignition switch ON		0 – 4.8 V Output voltage varies with amount of evaporator fin temperature
52 <sup>*1</sup>	Ground	Aroma motor PBR feedback	Input	<ul> <li>Ignition sv</li> <li>Aroma dif scent</li> </ul>	witch ON fuser control: Leaf	1.0 V
(W/R)	Ground	signal	mput	<ul> <li>Ignition sv</li> <li>Aroma dif</li> <li>grant wood</li> </ul>	fuser control: Fra-	4.0 V

# < ECU DIAGNOSIS INFORMATION >

Termir (Wire	nal No. dolor)	Description		Condition	Reference value			
+	_	Signal name	Input/ Output	Condition	(Approx.)			
53	Ground	Air mix door motor (driver	loout	<ul> <li>Ignition switch ON</li> <li>Set temperature: 18°C (60°F)</li> <li>"DUAL": OFF</li> </ul>	4.0 V			
(G)	Ground	side) PBR feedback signal	Input	<ul> <li>Ignition switch ON</li> <li>Set temperature: 32°C (90°F)</li> <li>"DUAL": OFF</li> </ul>	1.0 V			
54	Ground	Mode door motor (driver	Input	<ul><li> Ignition switch ON</li><li> Air outlet: VENT</li><li> "DUAL": OFF</li></ul>	4.0 V			
(P)	Cround	side) PBR feedback signal	mput	<ul><li> Ignition switch ON</li><li> Air outlet: DEF</li><li> "DUAL": OFF</li></ul>	1.0 V			
55	Ground	Intake door motor PBR feed-	Input	<ul><li>Ignition switch ON</li><li>Air inlet: REC</li></ul>	4.0 V			
(L/B)	Giouna	back signal	input	<ul><li>Ignition switch ON</li><li>Air inlet: FRE</li></ul>	1.0 V			
58	Ground	Rear mode door motor PBR	lasut	<ul><li> Ignition switch ON</li><li> Air outlet: VENT</li><li> "DUAL": OFF</li></ul>	4.0 V			
(P/B)	Ground	feedback signal	Input	<ul><li> Ignition switch ON</li><li> Air outlet: DEF</li><li> "DUAL": OFF</li></ul>	1.0 V			
61	Ground	Air mix door motor (driver	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 32°C (90°F)→18°C (60°F)</li> <li>"DUAL": OFF</li> </ul>	12 V			
(BR)	Ground	side) COOL drive signal	Output	Calpar	<ul> <li>Ignition switch ON</li> <li>Set temperature: 18°C (60°F)→32°C (90°F)</li> <li>"DUAL": OFF</li> </ul>	0 V		
62 <sup>*1</sup>	Ground	Aroma motor (Fragrant	Quitout	<ul> <li>Ignition switch ON</li> <li>Aroma diffuser control: Leaf scent→Fragrant wood</li> </ul>	12 V			
(G/R)	Ground	wood) drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Aroma diffuser control: Fra- grant wood→Leaf scent</li> </ul>	0 V			
63		Mode door motor (driver	0	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF→VENT</li> <li>"DUAL": OFF</li> </ul>	12 V			
(V)	Ground	side) VENT drive signal		side) VENT drive signal	side) VENT drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: VENT→DEF</li> <li>"DUAL": OFF</li> </ul>	0 V
64	0	Mode door motor (passenger	Outr	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF→VENT</li> <li>"DUAL": OFF</li> </ul>	12 V			
(R/B)	Ground	side) VENT drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: VENT→DEF</li> <li>"DUAL": OFF</li> </ul>	0 V			
65	Crownel	Intake door motor REC drive	0	<ul> <li>Ignition switch ON</li> <li>Air inlet: FRE→REC</li> </ul>	12 V			
(L/R)	Ground	signal	Output	<ul> <li>Ignition switch ON</li> <li>Air inlet: REC→FRE</li> </ul>	0 V			



# < ECU DIAGNOSIS INFORMATION >

Termin (Wire		Description			Reference value	
+	_	Signal name	Input/ Output	Condition	(Approx.)	
66	Ground	Upper ventilator door motor	Output	<ul> <li>Ignition switch ON</li> <li>"Upper Vent": ON→OFF</li> </ul>	12 V	
(BR/B)	Ciouna	CLOSE drive signal	Output	<ul> <li>Ignition switch ON</li> <li>"Upper Vent": OFF→ON</li> </ul>	0 V	(
67	Ground	Air mix door motor (passen-	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 18°C (60°F)→32°C (90°F)</li> <li>"DUAL": OFF</li> </ul>	12 V	
(LG)	Clound	ger side) HOT drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 32°C (90°F)→18°C (60°F)</li> <li>"DUAL": OFF</li> </ul>	0 V	
68	Orrent	Rear mode door motor VENT	Outrast	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF→VENT</li> <li>"DUAL": OFF</li> </ul>	12 V	
(R/W)	Ground	drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: VENT→DEF</li> <li>"DUAL": OFF</li> </ul>	0 V	
71 (R)	Ground	Each door motor PBR power supply	Output	Ignition switch ON	5 V	
73	Ground	Mode door motor (passenger	loout	<ul><li> Ignition switch ON</li><li> Air outlet: VENT</li><li> "DUAL": OFF</li></ul>	4.0 V	
(SB)	Cround	side) PBR feedback signal	Input	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF</li> <li>"DUAL": OFF</li> </ul>	1.0 V	
74	Orrent	Air mix door motor (driver	lanut	<ul> <li>Ignition switch ON</li> <li>Set temperature: 18°C (60°F)</li> <li>"DUAL": OFF</li> </ul>	4.0 V	
(L)	Ground	side) PBR feedback signal	Input	<ul> <li>Ignition switch ON</li> <li>Set temperature: 32°C (90°F)</li> <li>"DUAL": OFF</li> </ul>	1.0 V	
75	Ground	Upper ventilator door motor	Input	<ul><li> Ignition switch ON</li><li> "Upper Vent": ON</li></ul>	3.0 V	
(G/B)	Giodila	PBR feedback signal	input	<ul><li>Ignition switch ON</li><li>"Upper Vent": OFF</li></ul>	1.0 V	
79 (W)	_	Intake sensor ground / Each door motor PBR ground	_	_	_	
81	Ground	Air mix door motor (driver	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 18°C (60°F)→32°C (90°F)</li> <li>"DUAL": OFF</li> </ul>	12 V	
(Y)	Ground	side) HOT drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 32°C (90°F)→18°C (60°F)</li> <li>"DUAL": OFF</li> </ul>	0 V	
82	Ground	Aroma motor (Leaf scent)	Outout	<ul> <li>Ignition switch ON</li> <li>Aroma diffuser control: Fra- grant wood→Leaf scent</li> </ul>	12 V	
(LG/R)	Ground	drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Aroma diffuser control: Leaf scent→Fragrant wood</li> </ul>	0 V	

#### < ECU DIAGNOSIS INFORMATION >

#### [AUTOMATIC AIR CONDITIONING]

Termin (Wire		Description		Condition	Reference value		
+	_	Signal name	Input/ Output	Condition	(Approx.)		
83	Ground	Mode door motor (driver	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: VENT→DEF</li> <li>"DUAL": OFF</li> </ul>	12 V		
(B)	Ground	side) DEF drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF→VENT</li> <li>"DUAL": OFF</li> </ul>	0 V		
84	Ground	Mode door motor (passenger	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: VENT→DEF</li> <li>"DUAL": OFF</li> </ul>	12 V		
(W/B)	Ground	side) DEF drive signal			Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF→VENT</li> <li>"DUAL": OFF</li> </ul>	0 V
85	Oracia	Intake door motor FRE drive	Outrut	<ul> <li>Ignition switch ON</li> <li>Air inlet: REC→FRE</li> </ul>	12 V		
(LG/B)	Ground	signal	Output	<ul> <li>Ignition switch ON</li> <li>Air inlet: FRE→REC</li> </ul>	0 V		
86	Ground	Upper ventilator door motor	Output	<ul> <li>Ignition switch ON</li> <li>"Upper Vent": OFF→ON</li> </ul>	12 V		
(Y/B)	Ground	OPEN drive signal	Juiput	Carpor	<ul><li>Ignition switch ON</li><li>"Upper Vent": ON→OFF</li></ul>	0 V	
87	Ground	Air mix door motor (passen-	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 32°C (90°F)→18°C (60°F)</li> <li>"DUAL": OFF</li> </ul>	12 V		
(GR)	Cround	ger side) COOL drive signal	Output	<ul> <li>Ignition switch ON</li> <li>Set temperature: 18°C (60°F)→32°C (90°F)</li> <li>"DUAL": OFF</li> </ul>	0 V		
88	Ground	Rear mode door motor	Output	<ul> <li>Ignition switch ON</li> <li>Air outlet: VENT→DEF</li> <li>"DUAL": OFF</li> </ul>	12 V		
(B/W)	Ground	FOOT drive signal	Culput	<ul> <li>Ignition switch ON</li> <li>Air outlet: DEF→VENT</li> <li>"DUAL": OFF</li> </ul>	0 V		

\*1: With Forest Air

\*2: This harness is connected but not used.

\*3: With heated steering wheel

#### Fail-safe

INFOID:000000008143861

#### FAIL-SAFE FUNCTION

When a communication malfunction between A/C auto amp. and AV control unit and multifunction switch continued for approximately 30 seconds or more, control the air conditioning under the following conditions.

Compressor	: ON
Air outlet	: AUTO
Air inlet	: FRE (Fresh air intake)
Fan speed	: AUTO
Set temperature	: Setting before communication malfunction

# < ECU DIAGNOSIS INFORMATION >

# [AUTOMATIC AIR CONDITIONING]

# DTC Index

INFOID:000000008143862

А

DTC	Items (CONSULT screen terms)	Reference	E
U1000	CAN COMM CIRCUIT	HAC-72, "DTC Logic"	
U1010	CONTROL UNIT(CAN)	HAC-73, "DTC Logic"	
B2578	IN-VEHICLE SENSOR	HAC-74, "DTC Logic"	(
B2579	IN-VEHICLE SENSOR	HAC-74, "DTC Logic"	
B257B	AMBIENT SENSOR	HAC-77, "DTC Logic"	[
B257C	AMBIENT SENSOR	HAC-77, "DTC Logic"	
B2581	INTAKE SENSOR	HAC-80, "DTC Logic"	
B2582	INTAKE SENSOR	HAC-80, "DTC Logic"	E
B262A <sup>*1</sup>	GAS SENSOR <sup>*2</sup>	HAC-83, "DTC Logic"	
B262B <sup>*1</sup>	GAS SENSOR <sup>*2</sup>	HAC-83, "DTC Logic"	
B2630 <sup>*3</sup>	SUNLOAD SENSOR	HAC-85, "DTC Logic"	'
B2631 <sup>*3</sup>	SUNLOAD SENSOR	HAC-85, "DTC Logic"	
B2657 <sup>*1</sup>	GAS SENSOR CIRCUIT <sup>*2</sup>	HAC-83, "DTC Logic"	(
B2658 <sup>*1</sup>	GAS SENSOR CIRCUIT <sup>*2</sup>	HAC-83, "DTC Logic"	
B2750	DR AIR MIX DOOR MOT	HAC-88, "DTC Logic"	
B2751	DR AIR MIX DOOR MOT	HAC-88, "DTC Logic"	
B2752	DR AIR MIX DOOR MOT	HAC-88, "DTC Logic"	
B2753	PASS AIR MIX DOOR MOT	HAC-93, "DTC Logic"	H
B2754	PASS AIR MIX DOOR MOT	HAC-93, "DTC Logic"	
B2755	PASS AIR MIX DOOR MOT	HAC-93, "DTC Logic"	
B2756	DR MODE DOOR MOTOR	HAC-98, "DTC Logic"	
B2757	DR MODE DOOR MOTOR	HAC-98, "DTC Logic"	
B2758	DR MODE DOOR MOTOR	HAC-98, "DTC Logic"	
B2759	PASS MODE DOOR MOT	HAC-103, "DTC Logic"	
B275A	PASS MODE DOOR MOT	HAC-103, "DTC Logic"	
B275B	PASS MODE DOOR MOT	HAC-103, "DTC Logic"	
B275C	INTAKE DOOR MOTOR	HAC-108, "DTC Logic"	
B275D	INTAKE DOOR MOTOR	HAC-108, "DTC Logic"	[
B275E	INTAKE DOOR MOTOR	HAC-108, "DTC Logic"	
B275F	DR UP VENT DOOR MOT	HAC-113, "DTC Logic"	1
B2760	DR UP VENT DOOR MOT	HAC-113, "DTC Logic"	
B2761	DR UP VENT DOOR MOT	HAC-113, "DTC Logic"	
B2762	REAR MODE DOOR MOT	HAC-119, "DTC Logic"	(
B2763	REAR MODE DOOR MOT	HAC-119, "DTC Logic"	
B2764	REAR MODE DOOR MOT	HAC-119, "DTC Logic"	
B2768 <sup>*1</sup>	AROMA MOTOR	HAC-124, "DTC Logic"	
B2769 <sup>*1</sup>	AROMA MOTOR	HAC-124, "DTC Logic"	
B276A <sup>*1</sup>	AROMA MOTOR	HAC-124, "DTC Logic"	
B276B <sup>*1</sup>	HUMIDITY SENSOR	HAC-129, "DTC Logic"	
B276C <sup>*1</sup>	HUMIDITY SENSOR	HAC-129, "DTC Logic"	

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#### < ECU DIAGNOSIS INFORMATION >

#### [AUTOMATIC AIR CONDITIONING]

DTC	Items (CONSULT screen terms)	Reference
B276D <sup>*1</sup>	HUMIDITY SENSOR	HAC-129, "DTC Logic"
B2780	COMPRESSOR ROM,RAM,AD	HAC-134, "DTC Logic"
B2781	COMP IPM TEMP SENSOR	HAC-135, "DTC Logic"
B2782	COMP SHUNT SIGNAL OFFSET	HAC-136, "DTC Logic"
B2783	COMP DISCHARGE TEMP OVER HEAT	HAC-137, "DTC Logic"
B2784	COMP DISCHARGE TEMP LIMIT	HAC-137, "DTC Logic"
B2785	COMP IPM OVER HEAT	HAC-139, "DTC Logic"
B2786	COMP IPM DISCHARGE TEMP LIMIT	HAC-139, "DTC Logic"
B2787	COMP VOLTAGE SATURATION	HAC-141, "DTC Logic"
B2788	COMP OVER CURRENT	HAC-142, "DTC Logic"
B2789	COMP OVER LOADED	HAC-143, "DTC Logic"
B278A	COMP LOW VOLTAGE	HAC-144, "DTC Logic"
B278B	COMP HIGH VOLTAGE	HAC-144, "DTC Logic"
B278C	COMP COMM ERROR HVAC→COMP	HAC-147, "DTC Logic"
B278D	COMP COMM ERROR COMP → HVAC	HAC-147, "DTC Logic"
B2791	COMP LOW SPEED HIGH LOAD	HAC-151, "DTC Logic"

\*1: With Forest Air

\*2: This item indicates the exhaust gas/outside odor detecting sensor.

\*3: Perform self-diagnosis under sunshine. When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise self-diagnosis indicates even though the sunload sensor is functioning normally. **NOTE:** 

• If all of door motors DTC (B2750 – B276A) are detected, check door motor PBR circuit (With Forest Air). Refer to <u>HAC-153</u>, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".

• If all of door motors DTC (B2750 – B2764) are detected, check door motor PBR circuit (Without Forest Air). Refer to <u>HAC-153, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure"</u>.

# [AUTOMATIC AIR CONDITIONING]

# ECM

# List of ECU Reference

INFOID:000000008143863

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	ECU	Reference	
		EC-62, "Reference Value"	
FOM		EC-78, "Fail safe"	
ECM		EC-80, "DTC Inspection Priority Chart"	
		EC-81, "DTC Index"	

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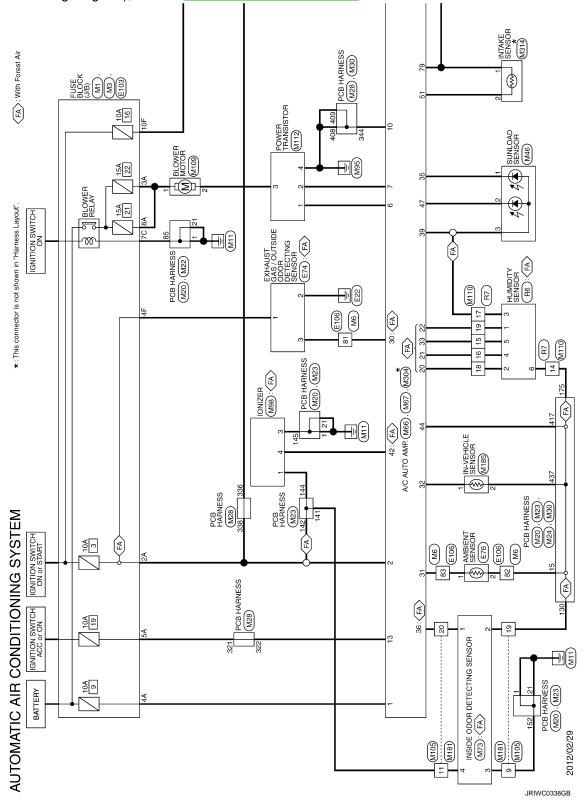
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# WIRING DIAGRAM AUTOMATIC AIR CONDITIONING SYSTEM

# Wiring Diagram

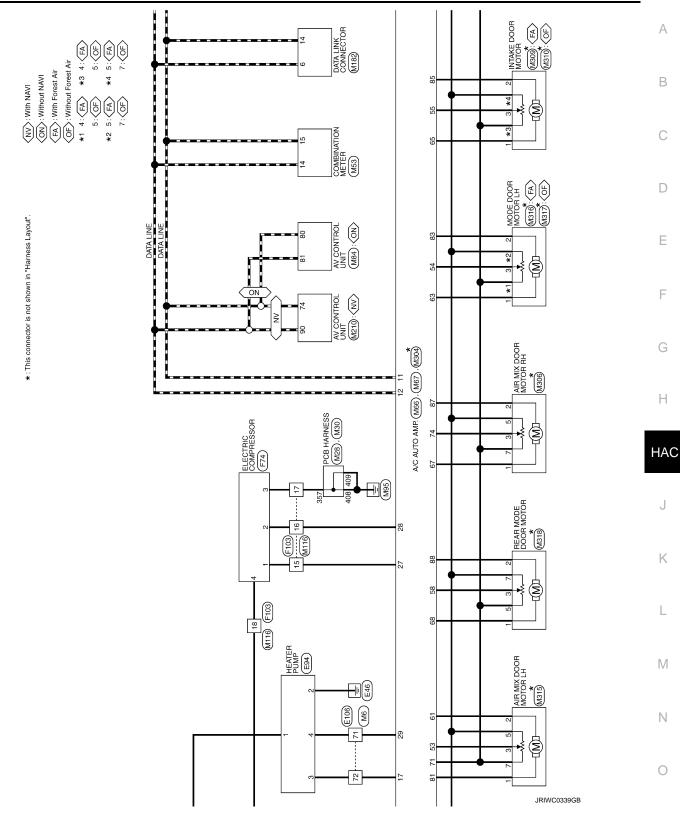
INFOID:000000008143864

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-49</u>, "Intermittent Incident".



### AUTOMATIC AIR CONDITIONING SYSTEM [AUTOMATIC AIR CONDITIONING]

< WIRING DIAGRAM >



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PCB HARNESS M26 . (M30) 409 29 \*7 5: FA 7: OF 5: OF 245 108 9 
 FA
 With Forest Air

 OF
 Without Forest Air

 \*5
 4: FA
 \*7
 5: F

 \*6
 5: OF
 \*8
 4: F

 7: OF
 58
 5: OF
 5: OF
 DRIVE MODE SELECT SWITCH (M203) SPORT [STANDARD]ECO] SNOW Ю M201 16 26 25 AROMA MOTOR 15 24 14 13 23 \*: This connector is not shown in "Harness Layout". (H Ş UPPER VENTILATOR DOOR MOTOR (1312) CF (1313) CF A/C AUTO AMP. (M66), (M67), (M304) To CAN system PCB HARNESS M28), M29), M30 [∄] [₽] REFRIGERANT PRESSURE SENSOR (E77) \*8 \$ ECM M107 E106 47 112 88 ģ 428 ę 332 501 430 350 6 5 375 MODE DOOR MOTOR RH M300 \* (A30) BCM (BODY CONTROL MODULE) M120 25 6 9**\*** ₿ റ്റ \*5 64 JRIWC0340GB

< WIRING DIAGRAM >

# [AUTOMATIC AIR CONDITIONING]

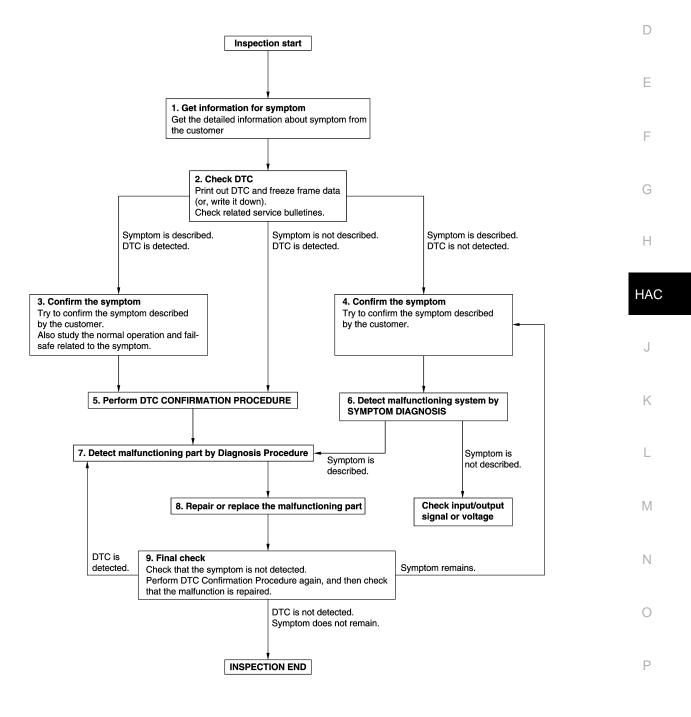
# BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000008143865

А

**OVERALL SEQUENCE** 



JMKIA8652GB

< BASIC INSPECTION >

# **1.**GET INFORMATION FOR SYMPTOM

- 1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
- 2. Check operation condition of the function that is malfunctioning.

#### >> GO TO 2.

# 2.CHECK DTC

- 1. Check DTC.
- 2. Perform the following procedure if DTC is detected.
- Record DTC and freeze frame data (Print them out using CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.
- 3. Check related service bulletins for information.

#### Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3. Symptom is described, DTC is not detected>>GO TO 4. Symptom is not described, DTC is detected>>GO TO 5.

#### **3.**CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Also study the normal operation and fail-safe related to the symptom. Verify relation between the symptom and the condition when the symptom is detected.

#### >> GO TO 5.

#### **4.**CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

#### >> GO TO 6.

#### **5.**PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time. If two or more DTCs are detected, refer to DTC INSPECTION PRIORITY CHART, and determine trouble diagnosis order.

#### NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIR-MATION PROCEDURE.

#### Is DTC detected?

YES >> GO TO 7.

NO >> Check according to <u>GI-49, "Intermittent Incident"</u>.

6. Detect malfunctioning system by symptom diagnosis

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

#### Is the symptom described?

- YES >> GO TO 7.
- NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT.
- **1.**DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >	[AUTOMATIC AIR CONDITIONING]
Inspect according to Diagnostic Procedure of the system.	
Is malfunctioning part detected?	
YES >> GO TO 8. NO >> Check according to <u>GI-49, "Intermittent Incident"</u> .	
8.REPAIR OR REPLACE THE MALFUNCTIONING PART	
<ol> <li>Repair or replace the malfunctioning part.</li> <li>Reconnect parts or connectors disconnected during Diagnostic ment.</li> <li>Check DTC. If DTC is detected, erase it.</li> </ol>	Procedure again after repair and replace-
>> GO TO 9. 9.FINAL CHECK	
When DTC is detected in step 2, perform DTC CONFIRMATION PRO malfunction is repaired securely.	OCEDURE again, and then check that the
When symptom is described by the customer, refer to confirmed sy symptom is not detected.	mptom in step 3 or 4, and check that the
Is DTC detected and does symptom remain?	
YES-1 >> DTC is detected: GO TO 7. YES-2 >> Symptom remains: GO TO 4. NO >> Before returning the vehicle to the customer, always era	ase DTC.

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# AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR)

# AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Work Procedure

INFOID:000000008143866

#### DESCRIPTION

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

#### **OPERATION INSPECTION**

**1.**CHECK BLOWER MOTOR

Operate the fan switch. Check that the fan speed changes. Check the operation for all fan speeds. Is the inspection result normal?

YES >> GO TO 2.

NO >> Blower motor system malfunction. Refer to <u>HAC-158. "Diagnosis Procedure"</u>.

2.CHECK LH/RH INDEPENDENT AIR OUTLET ADJUSTMENT FUNCTION

- Operate MODE switch (driver side) and the DEF switch. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets (driver side). Refer to <u>VTL-6</u>, "System <u>Description</u>".
- Operate MODE switch (passenger side) and the DEF switch. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets (passenger side). Refer to <u>VTL-6, "System Description"</u>.
- 3. Press CLIMATE switch. The "Climate" menu screen is indicated on display.
- 4. Touch "DUAL". Check that the air outlet setting (LH/RH) is unified to the driver side air outlet setting.

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Refer to <u>HAC-172, "Symptom Table"</u> and perform the appropriate diagnosis.

# **3.**CHECK DISCHARGE AIR ("UPPER VENT")

1. Press MODE switch to set the air outlet to other than D/F or DEF.

- 2. Touch "Upper Vent". Check that air flow blows from upper ventilator.
- 3. Touch "Upper Vent" again. Check that air flow from upper ventilator stops.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Refer to <u>HAC-172</u>, "Symptom Table" and perform the appropriate diagnosis.

**4.**CHECK INTAKE AIR

- 1. Press intake switch to set the air inlet to recirculation. The intake switch indicator turns ON.
- 2. Listen to intake sound and confirm air inlets change.
- 3. Press intake switch again to set the air inlet to fresh air intake. The intake switch indicator turns OFF.
- 4. Listen to intake sound and confirm air inlets change.

#### Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Intake door system malfunction. Refer to <u>HAC-108. "Diagnosis Procedure"</u>.
- **5.**CHECK COMPRESSOR
- 1. Touch "A/C". Check visually and by sound that the compressor operates.
- 2. Touch "A/C" again. Check that the compressor stops.

#### Is the inspection result normal?

YES >> GO TO 6.

NO >> Compressor does not operate. Refer to <u>HAC-179</u>, "Diagnosis Procedure".

**O**.CHECK LH/RH INDEPENDENT TEMPERATURE ADJUSTMENT FUNCTION

1. Operate the temperature control switch (driver side). Check that the discharge air temperature (driver side) changes.

< BASIC INSPECTION > [AUTOMATIC AIR CO	-
<ol><li>Operate the temperature control switch (passenger side). Check that the discharge air te senger side) changes.</li></ol>	mperature (pas-
<ol> <li>Touch "DUAL". Check that the air temperature setting (LH/RH) is unified to the driver s setting.</li> </ol>	de temperature
Is the inspection result normal?	
YES >> GO TO 7.	
NO >> Refer to <u>HAC-172. "Symptom Table"</u> and perform the appropriate diagnosis.	
CHECK WITH TEMPERATURE SETTING LOWERED	
<ol> <li>Operate the compressor.</li> <li>Operate the temperature control switch and lower the set temperature to 18.0°C (60°F).</li> <li>Check that the cool air blows from the outlets.</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 8. NO >> Insufficient cooling. Refer to HAC-176, "Diagnosis Procedure".	
NO >> Insufficient cooling. Refer to <u>HAC-176, "Diagnosis Procedure"</u> . 8.CHECK TEMPERATURE INCREASE	
<ol> <li>Turn temperature control switch to raise temperature setting at 32.0°C (90°F).</li> <li>Check that warm air blows from outlets.</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 9.	
NO >> Insufficient heating. Refer to <u>HAC-177, "Diagnosis Procedure"</u> .	
9. CHECK AUTO MODE	
<ol> <li>Press AUTO switch to confirm that "AUTO" is indicated on the display.</li> <li>Operate the temperature control switch to check that the fan speed or air outlet changes ( perature or fan speed varies depending on the ambient temperature, in-vehicle temperature perature).</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 10.	
NO >> Refer to <u>HAC-172, "Symptom Table"</u> and perform the appropriate diagnosis.	
10.CHECK MEMORY FUNCTION	
<ol> <li>Set temperature control switch to 32.0°C (90°F).</li> <li>Press the OFF switch.</li> </ol>	
<ol> <li>Press the OFF switch.</li> <li>Turn ignition switch OFF.</li> </ol>	
4. Turn ignition switch ON.	
<ol> <li>Press AUTO switch.</li> <li>Check that the set temperature is maintained.</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 11.	
NO >> Replace A/C auto amp. Refer to <u>HAC-183</u> , "Removal and Installation".	
11. CHECK INTELLIGENT KEY INTERLOCK FUNCTION	
1. Operate fan switch. Set fan speed to 1st speed.	
2. Turn ignition switch OFF.	
<ol> <li>Lock door using Intelligent Key or driver door request switch.</li> <li>Switch to another Intelligent Key and unlock door using Intelligent Key or driver door requ</li> </ol>	est switch.
5. Turn ignition switch ON.	
6. Operate fan switch. Set fan speed to 7th speed.	
7 Operate temporature control switch (driver side). Decrease acting temporature to 19,000	(60°E)
<ol> <li>Operate temperature control switch (driver side). Decrease setting temperature to 18.0°C</li> <li>Turn ignition switch OFF.</li> </ol>	(60°F).
<ol> <li>8. Turn ignition switch OFF.</li> <li>9. Lock door using Intelligent Key or driver door request switch.</li> </ol>	
<ol> <li>Turn ignition switch OFF.</li> <li>Lock door using Intelligent Key or driver door request switch.</li> <li>Switch to another Intelligent Key and unlock door using Intelligent Key or driver door requ</li> </ol>	
<ol> <li>Turn ignition switch OFF.</li> <li>Lock door using Intelligent Key or driver door request switch.</li> </ol>	est switch. onditioning sys-

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< BASIC INSPECTION >

YES >> INSPECTION END

NO >> Intelligent Key interlock function malfunctioning. Refer to <u>HAC-180, "Diagnosis Procedure"</u>. AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR)

# AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Work Procedure

#### DESCRIPTION

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

#### **OPERATION INSPECTION**

### **1.**CHECK BLOWER MOTOR

Operate the fan switch. Check that the fan speed changes. Check the operation for all fan speeds.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Blower motor system malfunction. Refer to <u>HAC-158, "Diagnosis Procedure"</u>.

2.CHECK LH/RH INDEPENDENT AIR OUTLET ADJUSTMENT FUNCTION

- Operate MODE switch (driver side) and the DEF switch. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets (driver side). Refer to <u>VTL-6. "System</u> <u>Description"</u>.
- Operate MODE switch (passenger side) and the DEF switch. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets (passenger side). Refer to <u>VTL-6, "System Description"</u>.
- 3. Press CLIMATE switch. The "Climate" menu screen is indicated on display.

4. Touch "DUAL". Check that the air outlet setting (LH/RH) is unified to the driver side air outlet setting.

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Refer to <u>HAC-172</u>, "Symptom Table" and perform the appropriate diagnosis.

**3.**CHECK DISCHARGE AIR ("UPPER VENT")

- 1. Press MODE switch to set the air outlet to other than D/F or DEF.
- 2. Touch "Upper Vent". Check that air flow blows from upper ventilator.
- 3. Touch "Upper Vent" again. Check that air flow from upper ventilator stops.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Upper ventilator system malfunction. Refer to <u>HAC-113</u>, "Diagnosis Procedure".

#### **4.**CHECK INTAKE AIR

- 1. Press REC switch to set the air inlet to recirculation. The REC switch indicator turns ON.
- 2. Listen to intake sound and confirm air inlets change.
- 3. Press FRE switch again to set the air inlet to fresh air intake. The FRE switch indicator turns ON.
- 4. Listen to intake sound and confirm air inlets change.

#### Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Intake door system malfunction. Refer to <u>HAC-108</u>, "Diagnosis Procedure".

# **5.**CHECK COMPRESSOR

- 1. Touch "A/C". Check visually and by sound that the compressor operates.
- 2. Touch "A/C" again. Check that the compressor stops.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Compressor does not operate. Refer to <u>HAC-179</u>, "Diagnosis Procedure".

**O**.CHECK LH/RH INDEPENDENT TEMPERATURE ADJUSTMENT FUNCTION

1. Operate the temperature control switch (driver side). Check that the discharge air temperature (driver side) changes.

< BASIC INSPECTION > [AUTOMATIC AIR CO	-
<ol><li>Operate the temperature control switch (passenger side). Check that the discharge air te senger side) changes.</li></ol>	mperature (pas-
<ol> <li>Touch "DUAL". Check that the air temperature setting (LH/RH) is unified to the driver s setting.</li> </ol>	de temperature
Is the inspection result normal?	
YES >> GO TO 7.	
NO >> Refer to <u>HAC-172. "Symptom Table"</u> and perform the appropriate diagnosis.	
CHECK WITH TEMPERATURE SETTING LOWERED	
<ol> <li>Operate the compressor.</li> <li>Operate the temperature control switch and lower the set temperature to 18.0°C (60°F).</li> <li>Check that the cool air blows from the outlets.</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 8. NO >> Insufficient cooling. Refer to HAC-176, "Diagnosis Procedure".	
NO >> Insufficient cooling. Refer to <u>HAC-176, "Diagnosis Procedure"</u> . 8.CHECK TEMPERATURE INCREASE	
<ol> <li>Turn temperature control switch to raise temperature setting at 32.0°C (90°F).</li> <li>Check that warm air blows from outlets.</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 9.	
NO >> Insufficient heating. Refer to <u>HAC-177, "Diagnosis Procedure"</u> .	
9. CHECK AUTO MODE	
<ol> <li>Press AUTO switch to confirm that "AUTO" is indicated on the display.</li> <li>Operate the temperature control switch to check that the fan speed or air outlet changes ( perature or fan speed varies depending on the ambient temperature, in-vehicle temperature perature).</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 10.	
NO >> Refer to <u>HAC-172, "Symptom Table"</u> and perform the appropriate diagnosis.	
10.CHECK MEMORY FUNCTION	
<ol> <li>Set temperature control switch to 32.0°C (90°F).</li> <li>Press the OFF switch.</li> </ol>	
<ol> <li>Press the OFF switch.</li> <li>Turn ignition switch OFF.</li> </ol>	
4. Turn ignition switch ON.	
<ol> <li>Press AUTO switch.</li> <li>Check that the set temperature is maintained.</li> </ol>	
Is the inspection result normal?	
YES >> GO TO 11.	
NO >> Replace A/C auto amp. Refer to <u>HAC-183</u> , "Removal and Installation".	
11. CHECK INTELLIGENT KEY INTERLOCK FUNCTION	
1. Operate fan switch. Set fan speed to 1st speed.	
2. Turn ignition switch OFF.	
<ol> <li>Lock door using Intelligent Key or driver door request switch.</li> <li>Switch to another Intelligent Key and unlock door using Intelligent Key or driver door requ</li> </ol>	est switch.
5. Turn ignition switch ON.	
6. Operate fan switch. Set fan speed to 7th speed.	
7 Operate temporature control switch (driver side). Decrease acting temporature to 19,000	(60°E)
<ol> <li>Operate temperature control switch (driver side). Decrease setting temperature to 18.0°C</li> <li>Turn ignition switch OFF.</li> </ol>	(60°F).
<ol> <li>8. Turn ignition switch OFF.</li> <li>9. Lock door using Intelligent Key or driver door request switch.</li> </ol>	
<ol> <li>Turn ignition switch OFF.</li> <li>Lock door using Intelligent Key or driver door request switch.</li> <li>Switch to another Intelligent Key and unlock door using Intelligent Key or driver door requ</li> </ol>	
<ol> <li>Turn ignition switch OFF.</li> <li>Lock door using Intelligent Key or driver door request switch.</li> </ol>	est switch. onditioning sys-

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< BASIC INSPECTION >

YES >> INSPECTION END NO >> Intelligent Key interlock function malfunctioning. Refer to <u>HAC-180, "Diagnosis Procedure"</u>. FOREST AIR SYSTEM

# FOREST AIR SYSTEM : Work Procedure

INFOID:000000008143868

DESCRIPTION

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

Check that automatic air conditioning system operates normally. Refer to <u>HAC-60, "AUTOMATIC AIR CONDI-</u> <u>TIONING SYSTEM (WITH FOREST AIR) : Work Procedure"</u>.

# Check condition : Turn FOREST switch ON and turn it OFF once. Turn FOREST switch ON again and wait for 5 minutes or more.

OPERATION INSPECTION

1.CHECK PLASMACLUSTER<sup>™</sup> CONTROL

Check the ionizer operation sound (whirring sound) in the duct by putting an ear to the side ventilator grille (driver side) outlet while pressing fan switch and OFF switch alternately. **NOTE:** 

• Plasmacluster<sup>™</sup> ion technology developed by Sharp Corporation is installed in this item.

Plasmacluster<sup>™</sup> is a trademark of Sharp Corporation.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Ionizer system malfunction. Refer to <u>HAC-166. "Diagnosis Procedure"</u>.

2. CHECK PLASMACLUSTER<sup>TM</sup> CONTROL OPERATION STATUS

Operate fan switch. Visually check that status indicator in display changes in accordance with the following table.

Fan speed	Display (ion indicator)
2nd	CLEAN
5th	QUICK CLEAN

#### NOTE:

• Plasmacluster<sup>™</sup> ion technology developed by Sharp Corporation is installed in this item.

Plasmacluster<sup>™</sup> is a trademark of Sharp Corporation.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

3.CHECK BREEZY AIR CONTROL

Place a hand to air outlet. Check that breezy air control operates when air outlet is VENT or FOOT mode and temperature in passenger room is stable (in the status that fan speed lowers to 3rd speed) **NOTE:** 

Breezy air control does not operate when air outlet is B/L.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".

**4.**CHECK BREEZY AIR CONTROL OPERATION STATUS

1. Press CLIMATE switch. The "Climate" menu screen is indicated on display.

- 2. Touch "Forest Air Info". The "Forest Air Info" screen is indicated on display.
- 3. Check that breezy air animation that is imaged from breezy air is indicated on display while breezy air control is operated.

Is the inspection result normal?

BASIC INSPECTION >	[AUTOMATIC AIR CONDITIONING]
YES >> GO TO 5.	
NO >> Replace A/C auto amp. Refer to <u>HAC-183</u> , " <u>Removal a</u>	
CHECK AUTOMATIC INTAKE CONTROL (EXHAUST GAS/OU	TSIDE ODOR DETECTING MECHANISM)
<ul> <li>Check that the operation is in fresh air intake mode.</li> <li>Apply cigarette smoke or similar substance to exhaust gas/outs</li> </ul>	side odor detecting sensor portion.
Listen to intake sound and confirm air inlets change.	
s the inspection result normal?	
YES >> GO TO 6.	It mation Defaute LLAC 02 "Discussion Dra
NO >> Exhaust gas/outside odor detecting sensor system mal cedure".	irunction. Refer to <u>HAC-83, Diagnosis Pro-</u>
CHECK AMBIENT AIR JUDGEMENT STATUS	
	· · · · · · · · · · · · · · · · · · ·
<ul> <li>Apply cigarette smoke or similar substance to exhaust gas/outs</li> <li>Visually check that indicator of ambient air status in display cha</li> </ul>	
s the inspection result normal?	anges to orange.
YES >> GO TO 7.	
NO >> Replace A/C auto amp. Refer to <u>HAC-183, "Removal a</u>	and Installation".
AIR FLOW CONTROL (INSIDE ODOR DETECTING MECHANI	
<ul> <li>Operate temperature control switch (driver side). Set temperature</li> <li>Apply cigarette smoke or similar substance to air inlet while far</li> <li>Place a hand to air outlet. Check that air flow increases.</li> </ul>	
s the inspection result normal?	
YES >> GO TO 8.	
NO >> Inside odor detecting sensor system malfunction. Refe	r to <u>HAC-163, "Diagnosis Procedure"</u> .
CHECK INTERIOR AIR JUDGEMENT STATUS	
. Apply cigarette smoke or similar substance to air inlet.	
<ul> <li>Visually check that indicator of interior air status in display chai</li> </ul>	nges to orange.
s the inspection result normal?	
YES >> GO TO 9.	
NO >> Replace A/C auto amp. Refer to <u>HAC-183</u> , "Removal a	and Installation".
CHECK AUTOMATIC DEFOGGING CONTROL	
. Apply vapor to humidity sensor portion.	
. Check that the operation is in accordance with the following sta	atus.
Air outlet: DEF	
Air inlet: Fresh air intake Compressor: ON	
s the inspection result normal?	
YES $>>$ GO TO 10.	
NO >> Humidity sensor system malfunction. Refer to <u>HAC-12</u>	9, "Diagnosis Procedure".
0.CHECK AUTOMATIC DEFOGGING CONTROL OPERATION	-
<ul> <li>Apply vapor to humidity sensor portion.</li> <li>Visually check that indicator of windshield in display is indicate</li> </ul>	d in white
s the inspection result normal?	
YES >> GO TO 11.	
NO >> Replace A/C auto amp. Refer to <u>HAC-183</u> , "Removal a	and Installation".
<b>1.</b> CHECK AROMA DIFFUSER CONTROL (AROMA MOTOR O	

2. Perform this operation for 2 sets. Check by operation sound that aroma motor operates. **NOTE:** 

< BASIC INSPECTION >

Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning it ON again after turning it OFF. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

- YES >> GO TO 12.
- NO >> Aroma motor system malfunction. Refer to <u>HAC-124</u>, "Diagnosis Procedure".

12. CHECK AROMA DIFFUSER CONTROL (FRAGRANCE)

- 1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON and OFF.
- 2. Perform this operation for 2 sets. Check by fragrance that 2 kinds of aroma are diffused alternately. **NOTE:**

Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning it ON again after turning it OFF. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

YES >> GO TO 13.

NO >> Replace aroma cartridge. Refer to <u>HAC-183, "Removal and Installation"</u>.

**13.**CHECK AROMA DIFFUSER CONTROL OPERATION STATUS

- 1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON and OFF.
- Perform this operation for 2 sets. Visually check that indication of fragrance (Leaf scent ⇔ Fragrant wood) in display switches alternately.

NOTE:

Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning it ON again after turning it OFF. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace A/C auto amp. Refer to <u>HAC-183, "Removal and Installation"</u>.

### ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (A/C AUTO AMP.) < BASIC INSPECTION > [AUTOMATIC AIR CONDITIONING]

< BASIC INSPECTION > [//CFOM//TEC/INCO	
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (A/C AUTO AMP.)	А
Description	В
When replacing A/C auto amp., save or print current vehicle specification with CONSULT "Configuration" before replacement.	D
BEFORE REPLACEMENT	С
<b>NOTE:</b> If "READ CONFIGURATION" can not be used, use the "WRITE CONFIGURATION - Manual setting" after replacing A/C auto amp.	D
AFTER REPLACEMENT CAUTION:	
<ul> <li>When replacing A/C auto amp., you must perform "WRITE CONFIGURATION" with CONSULT.</li> <li>Never perform "WRITE CONFIGURATION" except for new A/C auto amp.</li> </ul>	Е
Work Procedure	F
1.SAVING VEHICLE SPECIFICATION	
CONSULT Configuration Perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to <u>HAC-68. "Descrip-</u> tion".	G
<b>NOTE:</b> If "READ CONFIGURATION" can not be used, use the "WRITE CONFIGURATION - Manual setting" after replacing A/C auto amp.	Η
>> GO TO 2.	HA
2. REPLACE A/C AUTO AMP.	
Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".	J
>> GO TO 3.	
3.WRITING VEHICLE SPECIFICATION	Κ
CONSULT Configuration Perform "WRITE CONFIGURATION - Config file" or "WRITE CONFIGURATION - Manual setting" to write vehicle specification. Refer to <u>HAC-68, "Work Procedure"</u> .	L
>> WORK END	M
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#### < BASIC INSPECTION >

# CONFIGURATION (HVAC)

# Description

INFOID:000000008143871

[AUTOMATIC AIR CONDITIONING]

Vehicle specification needs to be written with CONSULT because it is not written after replacing A/C auto amp. Configuration has three functions as follows

**CONFIGURATION (HVAC)** 

Function	Description
READ CONFIGURATION	<ul><li>Reads the vehicle configuration of current A/C auto amp.</li><li>Saves the read vehicle configuration.</li></ul>
WRITE CONFIGURATION - Manual setting	Writes the vehicle configuration with manual setting.
WRITE CONFIGURATION - Config file	Writes the vehicle configuration with saved data.

#### **CAUTION:**

- When replacing A/C auto amp., you must perform "WRITE CONFIGURATION" with CONSULT.
- Never perform "WRITE CONFIGURATION" except for new A/C auto amp.

#### Work Procedure

INFOID:000000008143872

**1.**WRITING MODE SELECTION

CONSULT Configuration Select "CONFIGURATION" of A/C auto amp.

When writing saved data>>GO TO 2. When writing manually>>GO TO 3.

**2.**PERFORM "WRITE CONFIGURATION - CONFIG FILE"

CONSULT Configuration Perform "WRITE CONFIGURATION - Config file".

>> WORK END

**3.** PERFORM "WRITE CONFIGURATION - MANUAL SETTING"

CONSULT Configuration

- 1. Select "WRITE CONFIGURATION Manual setting".
- 2. Select "SETTING".
- 3. Select "OK".
- 4. When "COMMAND FINISHED", select "END".

#### >> GO TO 4.

**4.**OPERATION CHECK

Confirm that each function controlled by A/C auto amp. operates normally.

>> WORK END

# SYSTEM SETTING AUTOMATIC AIR CONDITIONING SYSTEM

# AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer

INFOID:000000008143873 B

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#### DESCRIPTION

< BASIC INSPECTION >

If the temperature felt by the customer is different from the air flow temperature controlled by the temperature C setting, the A/C auto amp. control temperature can be adjusted to compensate for the temperature setting.

#### HOW TO SET

#### With CONSULT

Perform "TEMP SET CORRECT" of HVAC work support item.

Work support items	Display (°F)	Display (°C)	E
	6	3.0	
	5	2.5	
	4	2.0	— Г
	3	1.5	
	2	1.0	G
	1	0.5	
TEMP SET CORRECT	0 (initial status)	0 (initial status)	
	-1	-0.5	— Н
	-2	-1.0	
	-3	-1.5	HAC
	-4	-2.0	
	-5	-2.5	
	-6	-3.0	J

#### NOTE:

When  $-3.0^{\circ}C$  ( $-6^{\circ}F$ ) is corrected on the temperature setting set as  $25.0^{\circ}C$  ( $77^{\circ}F$ ), the temperature controlled by A/C auto amp. is  $25.0^{\circ}C$  ( $77^{\circ}F$ )  $-3.0^{\circ}C$  ( $-6^{\circ}F$ ) =  $22.0^{\circ}C$  ( $72^{\circ}F$ ) and the temperature becomes lower than the temperature setting.

# AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (REC)

INFOID:000000008143874

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#### DESCRIPTION

- If the ignition switch is turned to the OFF position while the REC indicator is set to ON (recirculation), "Perform the memory" or "Do not perform the memory" of REC indicator ON (recirculation) condition can be selected.
- If "Perform the memory" was set, the REC indicator will be ON (recirculation) when turning the ignition switch N to the ON position again.
- If "Do not perform the memory" was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.

#### HOW TO SET

#### ()With CONSULT

Perform the "REC MEMORY SET" of HVAC work support item.

Work support items	Display	Setting
REC MEMORY SET	WITHOUT (initial status)	Perform the memory of manual REC
	WITH	Do not perform the memory of manual REC (auto control)

# SYSTEM SETTING

#### < BASIC INSPECTION >

#### [AUTOMATIC AIR CONDITIONING]

# AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (FRE)

. INFOID:000000008143875

#### DESCRIPTION

- If the ignition switch is turned to the OFF position while the FRE indicator is set to ON (fresh air intake), "Perform the memory" or "Do not perform the memory" of FRE indicator ON (fresh air intake) condition can be selected.
- If "Perform the memory" was set, the FRE indicator will be ON (fresh air intake) when turning the ignition switch to the ON position again.
- If "Do not perform the memory" was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.

#### HOW TO SET

#### (P)With CONSULT

Perform the "FRE MEMORY SET" of HVAC work support item.

Work support items	Display	Setting
FRE MEMORY SET	WITHOUT	Perform the memory of manual FRE
	WITH (initial status)	Do not perform the memory of manual FRE (auto control)

### AUTOMATIC AIR CONDITIONING SYSTEM : Foot Position Setting Trimmer

INFOID:000000008143876

#### DESCRIPTION

In FOOT mode, the air blowing to DEF can change ON/OFF.

#### HOW TO SET

#### (I) With CONSULT

Perform the "BLOW SET" of HVAC work support item.

Work support itoms	Display	Defroster door position	
Work support items	Display	Auto control	Manual control
	Mode 1 (initial status)	OPEN	CLOSE
BLOW SET	Mode 2	OPEN	OPEN
BLOW SET	Mode 3	CLOSE	OPEN
	Mode 4	CLOSE	CLOSE

# FOREST AIR SYSTEM

FOREST AIR SYSTEM : Aroma Fragrance Intensity Setting

INFOID:000000008143877

#### DESCRIPTION

Amount of fragrance that is supplied to passenger room can be adjusted by aroma diffuser control.

#### HOW TO SET

#### (I) With CONSULT

Perform "AROMA SETTING" or HVAC work support item.

Work support items	Display	Setting	
AROMA SETTING	WEAK	Fragrance is decreased from the standard status.	
	STRONG	Fragrance is increased from the standard status.	
	NORMAL (initial sta- tus)	Standard status.	

# FOREST AIR SYSTEM : Aroma Fragrance Type Setting

INFOID:000000008143878

#### DESCRIPTION

Revision: 2013 March

#### HAC-70

2013 M Hybrid

# SYSTEM SETTING

#### < BASIC INSPECTION >

# Type of fragrance that is supplied to passenger room can be selected using aroma diffuser control. HOW TO SET

#### (P) With CONSULT

Perform "FRAGRANCE SETTING" or HVAC work support item.

Work support items	Display	Setting	
	A + B (initial status)	2 kinds of fragrance, fragrant wood and leaf scent, are used.	
FRAGRANCE SETTING	A	Only fragrant wood is used.	
	В	Only leaf scent is used.	

# FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism) Setting

INFOID:000000008143879

INFOID:000000008143880

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[AUTOMATIC AIR CONDITIONING]

#### DESCRIPTION

Setting change of air flow control can be changed by inside odor detecting mechanism.

#### HOW TO SET

(P) With CONSULT

Perform "BLOWER MOTOR SETTING" or HVAC work support item.

Work support items	Display	Setting	G
	NORMAL	Air flow is not slightly increased when odor in passenger room is detected.	
BLOWER MOTOR SETTING	INCREASE (initial status)	Air flow is slightly increased when odor in passenger room is detected.	Н

# FOREST AIR SYSTEM : Aroma Diffuser Presence Setting

#### DESCRIPTION

Setting change of aroma diffuser presence setting can be performed.

#### HOW TO SET

(I) With CONSULT

Perform "AROMA DIFFUSER SETTING" or HVAC work support item.

Work support items	Display	Setting	
AROMA DIFFUSER SETTING	WITHOUT	Without aroma diffuser.	L
	WITH	With aroma diffuser.	

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# DTC/CIRCUIT DIAGNOSIS U1000 CAN COMM CIRCUIT

# Description

INFOID:000000008143881

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-board multiplex communication line with high data communication speed and excellent error detection ability. A modern vehicle is equipped with many ECMs, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, 2 control units are connected with 2 communication lines (CAN-L line and CAN-H line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

Refer to <u>LAN-36</u>, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart" for details of the communication signal.

#### DTC Logic

INFOID:000000008143882

# DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1000	CAN COMM CIR- CUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system

### DTC CONFIRMATION PROCEDURE

# **1.**PERFORM DTC CONFIRMATION PROCEDURE

#### With CONSULT

- Turn ignition switch ON and wait at least 2 seconds or more.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

#### Is DTC detected?

- YES >> Refer to <u>HAC-72</u>, "Diagnosis Procedure".
- NO >> Refer to <u>GI-49. "Intermittent Incident"</u>.

# **Diagnosis Procedure**

INFOID:000000008143883

### 1. CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to LAN-19, "Trouble Diagnosis Flow Chart".

>> INSPECTION END

# U1010 CONTROL UNIT (CAN)

# < DTC/CIRCUIT DIAGNOSIS >

# U1010 CONTROL UNIT (CAN)

# Description

Initial diagnosis of A/C auto amp.

# DTC Logic

INFOID:000000008143885

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## DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	[
U1010	CONTROL UNIT(CAN)	When detecting error during the initial diagnosis of CAN controller of A/C auto amp.	A/C auto amp.	
	IFIRMATION PROCEDUF	RE		
<b>1.</b> PERFO	RM DTC CONFIRMATION	PROCEDURE		
2. Select	gnition switch ON. "Self Diagnostic Result" mo	de of "HVAC" using CONSULT.		ŀ
3. Check Is DTC det	-			(
YES >:	<ul> <li>Refer to <u>HAC-73, "Diagnor</u></li> <li>INSPECTION END</li> </ul>	sis Procedure".		
Diagnos	is Procedure		INFOID:00000008143886	_
<b>1.</b> REPLA	CE A/C AUTO AMP.			Н
Replace A	/C auto amp. Refer to <u>HAC-</u>	183, "Removal and Installation".		
>:	> INSPECTION END			

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### B2578, B2579 IN-VEHICLE SENSOR

### < DTC/CIRCUIT DIAGNOSIS >

# B2578, B2579 IN-VEHICLE SENSOR

# DTC Logic

## DTC DETECTION LOGIC

### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72. "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73,</u> <u>"DTC Logic"</u>.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2578		The in-vehicle sensor recognition temperature is too high.	<ul><li>In-vehicle sensor</li><li>A/C auto amp.</li></ul>
B2579	IN-VEHICLE SENSOR	The in-vehicle sensor recognition temperature is too low.	<ul> <li>Harness or connectors (The sensor circuit is open or short- ed.)</li> </ul>

### DTC CONFIRMATION PROCEDURE

### **1.**PERFORM DTC CONFIRMATION PROCEDURE

#### ()With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

### Is DTC detected?

- YES >> Refer to <u>HAC-74</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

### Diagnosis Procedure

# 1.CHECK IN-VEHICLE SENSOR POWER SUPPLY

- 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.

In-vehic	+ le sensor		Voltage (Approx.)	
Connector	Terminal	•	(, , , , , , , , , , , , , , , , , , ,	
M185	1	Ground	5 V	

Is the inspection result normal?

### 2. CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

In-vehic	In-vehicle sensor		to amp.	Continuity
Connector	Terminal	Connector Terminal		Continuity
M185	1	M67	32	Existed

Is the inspection result normal?

INFOID:000000008143887

INFOID:00000008143888

# B2578, B2579 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

heck continuit	ty between in-ve	ehicle sensor ha	rness connector a	nd ground.	
In-vehic	le sensor			Continuity	
Connector	Terminal		_	Continuity	
M185	1	Gro	und	Not existed	
YES >> GC NO >> Re 1.CHECK IN-\ Turn ignitio	on switch ON.	connector. SOR POWER SU	JPPLY CIRCUIT F	OR BATTERY SHORT	
	+				
	le sensor	_	-	Voltage	
Connector	Terminal			(Approx.)	
M185	1	Gro	und	0 V	
YES >> GC	n result normal? TO 7. pair harness or				
D.CHECK IN-\					
Turn ignitio     Disconnect	on switch OFF. t A/C auto amp.	connector.			
<ol> <li>Turn ignitio</li> <li>Disconnect</li> <li>Check cont</li> </ol>	on switch OFF. t A/C auto amp.	connector.	or harness connec	or and A/C auto amp. harness conne	ctor.
<ol> <li>Turn ignitio</li> <li>Disconnect</li> <li>Check cont</li> </ol>	on switch OFF. t A/C auto amp. tinuity between	connector. in-vehicle sensc	or harness connec	or and A/C auto amp. harness conne	ctor.
Turn ignitio     Disconnect     Check cont     In-vehic     Connector     M185	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal 2	connector. in-vehicle sensc A/C aut Connector M67	or harness connect		ctor.
1. Turn ignitio 2. Disconnect 3. Check cont In-vehic Connector M185 <u>s the inspectio</u> YES >> GC NO >> Re	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal	connector. in-vehicle senso A/C aut Connector M67 2 connector.	or harness connect to amp. Terminal	Continuity	ctor.
1. Turn ignitio 2. Disconnect 3. Check cont In-vehic Connector M185 Is the inspectio YES >> GC NO >> Re 6.CHECK IN-V Check in-vehicl Is the inspectio YES >> GC	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal 2 n result normal? D TO 6. pair harness or VEHICLE SENS le sensor. Refer n result normal? D TO 7.	connector. in-vehicle senso A/C aut Connector <u>M67</u> 2 connector. SOR to <u>HAC-75, "Co</u> 2	or harness connect to amp. Terminal 44	Continuity Existed	ctor.
I.Turn ignitio2.Disconnect2.Disconnect3.Check contIn-vehicIn-vehicConnectorM185S the inspectioYES >> GCNO >> ReCHECK IN-VCheck in-vehiclS the inspectioYES >> GCNO >> ReYES >> GCNO >> Re	on switch OFF. t A/C auto amp. tinuity between de sensor Terminal 2 n result normal 0 TO 6. pair harness or VEHICLE SENS le sensor. Refer n result normal 0 TO 7. place in-vehicle ERMITTENT IN	connector. in-vehicle senso A/C aut Connector M67 2 connector. SOR to <u>HAC-75. "Co</u> 2 sensor. Refer to ICIDENT	or harness connect to amp. Terminal 44	Continuity Existed	ctor.
I. Turn ignitio 2. Disconnect 3. Check cont In-vehic Connector M185 s the inspectio YES $>>$ GC NO $>>$ Re D.CHECK IN-V Check in-vehicl s the inspectio YES $>>$ GC NO $>>$ Re CHECK INT Refer to GI-49.	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal 2 n result normal? O TO 6. pair harness or VEHICLE SENS le sensor. Refer n result normal? O TO 7. place in-vehicle ERMITTENT IN	connector. in-vehicle senso A/C aut Connector M67 2 connector. SOR to <u>HAC-75, "Co</u> 2 sensor. Refer to ICIDENT cident".	or harness connect to amp. Terminal 44	Continuity Existed	ctor.
1. Turn ignitio 2. Disconnect 3. Check cont In-vehic Connector M185 <u>s the inspectio</u> YES $>>$ GC NO $>>$ Re <b>D</b> .CHECK IN-V Check in-vehicl <u>s the inspectio</u> YES $>>$ GC NO $>>$ Re <b>C</b> .CHECK INT Refer to <u>GI-49</u> , <u>s the inspectio</u> YES $>>$ Re	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal 2 n result normal? D TO 6. pair harness or VEHICLE SENS le sensor. Refer n result normal? D TO 7. place in-vehicle ERMITTENT IN "Intermittent Ino n result normal? place A/C auto	connector. in-vehicle senso A/C aut Connector M67 connector. COR to <u>HAC-75, "Co</u> sensor. Refer to ICIDENT cident". 2	or harness connect to amp. Terminal 44 omponent Inspection o HAC-185, "Removal AC-183, "Removal	Continuity Existed	ctor.
1. Turn ignitio 2. Disconnect 3. Check cont In-vehic Connector M185 Is the inspectio YES $>>$ GC NO $>>$ Re 6.CHECK IN-V Check in-vehicle Is the inspectio YES $>>$ GC NO $>>$ Re 7.CHECK INT Refer to GI-49. Is the inspectio YES $>>$ Re	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal 2 n result normal 0 TO 6. pair harness or VEHICLE SENS le sensor. Refer n result normal 0 TO 7. place in-vehicle ERMITTENT IN "Intermittent Ind n result normal place A/C auto pair or replace in	connector. in-vehicle senso A/C aut Connector M67 connector. SOR to <u>HAC-75, "Co</u> sensor. Refer to ICIDENT cident". 2 amp. Refer to <u>H</u>	or harness connect to amp. Terminal 44 omponent Inspection o HAC-185, "Removal AC-183, "Removal	Continuity Existed	ctor.
1. Turn ignitio 2. Disconnect 3. Check coni In-vehic Connector M185 Is the inspectio YES $>>$ GC NO $>>$ Re 6.CHECK IN-V Check in-vehicle Is the inspectio YES $>>$ GC NO $>>$ Re 7.CHECK INT Refer to GI-49, Is the inspectio YES $>>$ Re NO $>>$ Re COMPONENT	on switch OFF. t A/C auto amp. tinuity between le sensor Terminal 2 n result normal 0 TO 6. pair harness or VEHICLE SENS le sensor. Refer n result normal 0 TO 7. place in-vehicle ERMITTENT IN "Intermittent Ind n result normal place A/C auto pair or replace in	connector. in-vehicle senso A/C aut Connector M67 connector. COR to <u>HAC-75, "Co</u> sensor. Refer to ICIDENT cident". 2 amp. Refer to <u>H</u> malfunctioning p	or harness connect to amp. Terminal 44 omponent Inspection o HAC-185, "Removal AC-183, "Removal	Continuity Existed	

# B2578, B2579 IN-VEHICLE SENSOR

### < DTC/CIRCUIT DIAGNOSIS >

#### 3. Check resistance between in-vehicle sensor terminals.

Terminal	Condition	Resistance: $k\Omega$	
Terminar	Temperature: °C (°F)	Resistance. K22	
	-15 (5)	12.90	
	-10 (14)	9.68	
	-5 (23)	7.35	
	0 (32)	5.63	
	5 (41)	4.35	
	10 (50)	3.40	
1 2	15 (59)	2.68	
	20 (68)	2.12	
	25 (77)	1.70	
	30 (86)	1.37	
	35 (95)	1.11	
	40 (104)	0.91	
	45 (113)	0.75	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace in-vehicle sensor. Refer to <u>HAC-185, "Removal and Installation"</u>.

## B257B, B257C AMBIENT SENSOR

### < DTC/CIRCUIT DIAGNOSIS >

# B257B, B257C AMBIENT SENSOR

# DTC Logic

# DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> 72, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73.</u> "DTC Logic".

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	D
B257B		The ambient sensor recognition temperature is too high.	<ul><li> Ambient sensor</li><li> A/C auto amp.</li></ul>	Е
B257C	AMBIENT SENSOR	The ambient sensor recognition temperature is too low.	Harness or connectors     (The sensor circuit is open or short- ed.)	F

### DTC CONFIRMATION PROCEDURE

**1.**PERFORM DTC CONFIRMATION PROCEDURE

#### With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

### Is DTC detected?

- YES >> Refer to HAC-77, "Diagnosis Procedure".
- >> INSPECTION END NO

### Diagnosis Procedure

# 1.CHECK AMBIENT SENSOR POWER SUPPLY

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

Ambient sensor     –     Voltage (Approx.)       Connector     Terminal       E76     1       Ground     5 V				+ Ambient sensor	
Connector Terminal		Voltage (Approx.)	_		
E76 1 Ground 5 V	N	( ++ )		Terminal	Connector
		5 V	Ground	1	E76

#### Is the inspection result normal?

YES >> GO TO 5. NO

>> GO TO 2.

### 2.CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Ambien	Ambient sensor		to amp.	Continuity
Connector	Terminal	Connector Terminal		Continuity
E76	1	M67	31	Existed

Is the inspection result normal?

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INFOID:000000008143891

# **B257B, B257C AMBIENT SENSOR**

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 3.

NO >> Repair harness or connector.

 ${\it 3.}$  check ambient sensor power supply circuit for ground short

Check continuity between ambient sensor harness connector and ground.

Ambier	nt sensor		Continuity	
Connector	Terminal			
E76	1	Ground	Not existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### **4.**CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

1. Turn ignition switch ON.

2. Check voltage between ambient sensor harness connector and ground.

	+			
Ambier	it sensor	_	Voltage (Approx.)	
Connector	Terminal			
E76	1	Ground	0 V	

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

# 5. CHECK AMBIENT SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp.connector.

3. Check continuity between ambient sensor harness connector and A/C auto amp. harness connector.

Ambier	Ambient sensor		ito amp.	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
E76	2	M67	44	Existed	

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

### **6.**CHECK AMBIENT SENSOR

Check ambient sensor. Refer to <u>HAC-78, "Component Inspection"</u>.

#### Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace ambient sensor. Refer to <u>HAC-184. "Removal and Installation"</u>.

**7.**CHECK INTERMITTENT INCIDENT

#### Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".
- NO >> Repair or replace malfunctioning parts.

### **Component Inspection**

# **1.**CHECK AMBIENT SENSOR

1. Turn ignition switch OFF.

2. Disconnect ambient sensor connector.

INFOID:000000008143892

# B257B, B257C AMBIENT SENSOR

### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

#### 3. Check resistance between the ambient sensor terminals.

Terminal		Condition	Desistance: I:O
Iern	ninai	Temperature: °C (°F)	Resistance: $k\Omega$
		-15 (5)	12.73
		-10 (14)	9.92
		-5 (23)	7.80
	-	0 (32)	6.19
		5 (41)	4.95
	-	10 (50)	3.99
1	2	15 (59)	3.24
		20 (68)	2.65
		25 (77)	2.19
		30 (86)	1.81
	Ē	35 (95)	1.51
	-	40 (104)	1.27
	-	45 (113)	1.07

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ambient sensor. Refer to <u>HAC-184. "Removal and Installation"</u>.

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### B2581, B2582 INTAKE SENSOR

### < DTC/CIRCUIT DIAGNOSIS >

# B2581, B2582 INTAKE SENSOR

# DTC Logic

# DTC DETECTION LOGIC

### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72. "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73,</u> <u>"DTC Logic"</u>.

DT	C Items (CONSULT screen terms)	DTC detection condition	Possible cause
B25	-	The intake sensor recognition temperature is too high.	<ul><li>Intake sensor</li><li>A/C auto amp.</li></ul>
B25	INTAKE SENSOR 82	The intake sensor recognition temperature is too low.	Harness or connectors     (The sensor circuit is open or short- ed.)

### DTC CONFIRMATION PROCEDURE

### **1.**PERFORM DTC CONFIRMATION PROCEDURE

#### ()With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

#### Is DTC detected?

- YES >> Refer to <u>HAC-80</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

### Diagnosis Procedure

# 1.CHECK INTAKE SENSOR POWER SUPPLY

- 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.

+ Intake sensor			Voltage (Approx.)	
Connector	Terminal		(Appiox.)	
M314	2	Ground	5 V	

Is the inspection result normal?

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

NU >> GU IU 2

# **2.**CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake	sensor	A/C au	ito amp.	Continuity
Connector	Connector Terminal		Terminal	Continuity
M314	2	M304	51	Existed

Is the inspection result normal?

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INFOID:000000008143894

# B2581, B2582 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

· ·	air harness or			R GROUND SHORT	A			
Check continuity					В			
Intake s	ensor Terminal	-	_	Continuity				
	M314 2 Ground Not existed							
Is the inspection								
YES >> GO NO >> Repa	TO 4. air harness or	connector.		R BATTERY SHORT	D			
1. Turn ignition	switch ON.		ness connector a		E			
					F			
Intake s	ensor Terminal		-	Voltage (Approx.)	G			
M314	2	Gro	und	0 V				
5.CHECK INTA 1. Turn ignition 2. Disconnect	switch OFF. A/C auto amp.	GROUND CIRC		r and A/C auto amp. harness o	HA connector. J			
Intake s	ensor	A/C au	to amp.					
Connector	Terminal	Connector	Terminal	Continuity	K			
M314	1	M304	79	Existed				
Is the inspection YES >> GO NO >> Repa	TO 6. air harness or	-			L			
Check intake ser		HAC-81, "Comp	onent Inspection	ן".				
Is the inspection YES >> GO NO >> Repl 7.CHECK INTE	TO 7. lace intake sei	nsor. Refer to <u>H</u>	AC-188. "Remov	val and Installation".	Ν			
Refer to <u>GI-49</u> , "					0			
Is the inspection YES >> Repl	<u>result normal?</u> lace A/C auto	<u>)</u>		val and Installation".	Ρ			
Component I	nspection				INFOID:000000008143895			
<b>1.</b> CHECK INTA	KE SENSOR							
<ol> <li>Turn ignition</li> <li>Disconnect i</li> </ol>	switch OFF. ntake sensor o	connector.						

# B2581, B2582 INTAKE SENSOR

#### < DTC/CIRCUIT DIAGNOSIS >

#### 3. Check resistance between intake sensor terminals.

Terminal		Condition	Resistance: $k\Omega$
		Temperature: °C (°F)	IVESISIGITCE. N22
		-15 (5)	10.92
		-10 (14)	8.24
		-5 (23)	6.29
	2	0 (32)	4.85
1		5 (41)	3.77
		10 (50)	2.96
		15 (59)	2.34
		20 (68)	1.87
		25 (77)	1.50
		30 (86)	1.21
		35 (95)	0.99
		40 (104)	0.81
		45 (113)	0.67

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake sensor. Refer to <u>HAC-188, "Removal and Installation"</u>.

### B262A, B262B, B2657, B2658 EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B262A, B262B, B2657, B2658 EXHAUST GAS/OUTSIDE ODOR DETECT-ING SENSOR

**DTC Logic** 

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### DTC DETECTION LOGIC

### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u>
   <u>72, "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73.</u> <u>"DTC Logic"</u>.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	F
B262A	GAS SENSOR	Exhaust gas/outside odor detecting sensor duty ratio 15% or less.	Exhaust gas/outside odor detecting	
B262B	GAS SENSOR	Exhaust gas/outside odor detecting sensor duty ratio 85% or more.	<ul> <li>A/C auto amp.</li> </ul>	F
B2657	GAS SENSOR CIRCUIT	Exhaust gas/outside odor detecting sensor duty ratio 0%.	Harness or connectors     (The sensor circuit is open or short-	0
B2658	GAS SENSOR CIRCUIT	Exhaust gas/outside odor detecting sensor duty ratio 100%.	- ed.)	G

### DTC CONFIRMATION PROCEDURE

# **1.**PERFORM DTC CONFIRMATION PROCEDURE

<ul><li>With CONSULT</li><li>1. Turn ignition switch ON.</li></ul>		HAC
<ol> <li>Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.</li> <li>Check DTC.</li> </ol>		
Is DTC detected?		J
YES >> Refer to <u>HAC-83, "Diagnosis Procedure"</u> . NO >> INSPECTION END		K
Diagnosis Procedure	INFOID:00000008143897	IX.
1.CHECK FUSE		L
<ol> <li>Turn ignition switch OFF.</li> <li>Check 10A fuse [No. 3, located in fuse block (J/B)] NOTE: Refer to <u>PG-43, "Fuse and Fusible Link Arrangement"</u>.</li> </ol>		Μ
Is the inspection result normal?		
YES >> GO TO 2. NO >> Replace blown fuse after repairing the affected circuit if a fuse	e is blown.	Ν
2. CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR PC	WER SUPPLY	
<ol> <li>Disconnect exhaust gas/outside odor detecting sensor connector.</li> <li>Turn ignition switch ON.</li> <li>Check voltage between exhaust gas/outside odor detecting sensor has</li> </ol>	arness connector and ground.	O P
+	Voltage	

+ Exhaust gas/outside odor detecting sensor Connector Terminal E74 1		_	Voltage (Approx.)	
		Ground	Battery voltage	
			-	

Is the inspection result normal?

### B262A, B262B, B2657, B2658 EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> GO TO 3.

NO >> Repair harness or connector between exhaust gas/outside odor detecting sensor and fuse.

3.CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR GROUND CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Check continuity between exhaust gas/outside odor detecting sensor harness connector and ground.

Exhaust gas/outside	odor detecting sensor	_	Continuity
Connector	Terminal		
E74	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR SIGNAL CIRCUIT

1. Turn ignition switch ON.

2. Check voltage between exhaust gas/outside odor detecting sensor harness connector and ground.

	+		
Exhaust gas/outside	odor detecting sensor	-	Voltage (Approx.)
Connector Terminal			\ II - /
E74	3	Ground	5 V

Is the inspection result normal?

YES >> Replace exhaust gas/outside odor detecting sensor. Refer to <u>HAC-190, "Removal and Installa-</u> tion".

# 5. CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

- 2. Disconnect A/C auto amp.connector.
- 3. Check continuity between exhaust gas/outside odor detecting sensor harness connector and A/C auto amp. harness connector.

Exhaust gas/outside	odor detecting sensor	A/C au	Continuity	
Connector Terminal		Connector		Terminal
E74	3	M67	30	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR INPUT SIGNAL CIRCUIT FOR SHORT

Check continuity between exhaust gas/outside odor detecting sensor harness connector and ground.

Exhaust gas/outside odor detecting sensor			Continuity	
Connector	Terminal	_	Continuity	
E74	3	Ground	Not existed	

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

NO >> Repair harness or connector.

### B2630, B2631 SUNLOAD SENSOR

### < DTC/CIRCUIT DIAGNOSIS >

# B2630, B2631 SUNLOAD SENSOR

# **DTC** Logic

## DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> 72, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-73. "DTC Logic".
- Sunload sensor may register a malfunction when indoors, at dusk, or at other times when light is insufficient. When performing the diagnosis indoors, use a lamp (60 W or more) that is pointed at the sunload sensor.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	E
B2630	- SUNLOAD SENSOR	Detected calorie at sunload sensor 4793 W/m <sup>2</sup> (4121 kcal/m <sup>2</sup> ·h) or more.	<ul> <li>Sunload sensor</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>	
B2631	SUNLOAD SENSOR	Detected calorie at sunload sensor 75.6 W/m <sup>2</sup> (64.97 kcal/m <sup>2</sup> .h) or less.	(The sensor circuit is open or short- ed.)	F

## DTC CONFIRMATION PROCEDURE

# **1.**PERFORM DTC CONFIRMATION PROCEDURE

	n switch ON.				Η
3. Check DTC Is DTC detected YES >> Re	5. <u>d?</u>	ult" mode of "HVAC" using C <u>Diagnosis Procedure"</u> .	ONSULT.		HAC
Diagnosis P	rocedure			INFOID:000000008143899	J
1.CHECK SUP	NLOAD SENSOF	R POWER SUPPLY CIRCUI	Г		K
<ol> <li>Disconnect</li> <li>Turn ignitio</li> </ol>	n switch OFF. sunload sensor n switch ON. age between sur	connector. load sensor harness connec	tor and ground.		L
·	+			_	M
Sunload	d sensor	-	Voltage (Approx.)		
Connector	Terminal				N
M46	3	Ground	5 V		IN
Is the inspection	n result normal?				
YES >> GC NO >> GC	) TO 5. ) TO 2.				0
2.CHECK SUM	NLOAD SENSOF	R POWER SUPPLY CIRCUI	T FOR OPEN		
2. Disconnect	n switch OFF. A/C auto amp. o tinuity between s		ector and A/C auto amp. harr	ness connector.	Ρ

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M46	3	M67	39	Existed

#### Revision: 2013 March

## **HAC-85**

#### 2013 M Hybrid

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### B2630, B2631 SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

 $\mathbf{3}$ .check sunload sensor power supply circuit for ground short

Check continuity between sunload sensor harness connector and ground.

Sunload sensor			Continuity	
Connector	Terminal		Continuity	
M46	3	Ground	Existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### **4.**CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

1. Turn ignition switch ON.

2. Check voltage between sunload sensor harness connector and ground.

Sunloa	+ Sunload sensor –		Voltage (Approx.)
Connector	Terminal		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
M46	3	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

## **5.**CHECK SUNLOAD SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. connector.

3. Check continuity between sunload sensor harness connector and A/C auto amp. harness connector.

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector		
M46	1	M67	47	Existed
10140	2	WO7	35	LXISIEU

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

### **6.**CHECK SUNLOAD SENSOR

Check sunload sensor. Refer to HAC-87, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace sunload sensor. Refer to <u>HAC-186. "Removal and Installation"</u>.

**7.**CHECK INTERMITTENT INCIDENT

Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

### B2630, B2631 SUNLOAD SENSOR \_ [AUTOMATIC AIR CONDITIONING]

# < DTC/CIRCUIT DIAGNOSIS >

# Component Inspection

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# 1.CHECK SUNLOAD SENSOR

- 1. Turn ignition switch OFF.
- 2. Disconnect sunload sensor connector.
- 3. Check resistance between the sunload sensor terminals.

Terminal		Condition	Basistanasi kQ
reminal		Sunload amount: kW/m <sup>2</sup> kcal/m <sup>2</sup> ·h)	Resistance: $k\Omega$
		0	More than 17000
		0.233 (200)	59.9
		0.465 (400)	49.9
1 (Passenger side)	3	0.698 (600)	39.9
2 (Driver side)	3	0.770 (662)	36.8
		0.930 (800)	29.9
		1.163 (1,000)	19.9
		1.396 (1,200)	9.8

#### NOTE:

• When checking indoors, use a lamp of approximately 60 W. Move the lamp towards and away from the sensor to check.

The sunload amount produced by direct sunshine fair weather is equivalent to approximately 0.77 kW/m<sup>2</sup> (662 kcal/m<sup>2</sup>·h).

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace sunload sensor. Refer to HAC-186, "Removal and Installation".

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### B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE) RCUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE)

# DTC Logic

INFOID:000000008143901

### DTC DETECTION LOGIC

### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72, "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73.</u> <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153</u>, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-155</u>, "<u>DOOR MOTOR PBR (WITHOUT FOREST AIR)</u> : <u>Diagnosis Procedure</u>" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2750		Air mix door motor (driver side) PBR feedback signal voltage is too low.	<ul> <li>Air mix door motor (driver side)</li> <li>Air mix door motor (driver side) con-</li> </ul>
B2751	DR AIR MIX DOOR MOT	Air mix door motor (driver side) PBR feedback signal voltage is too high.	<ul> <li>trol linkage installation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>
B2752		Stop position of air mix door motor (driver side) is malfunctioning.	(The motor circuit is open or short- ed.)

### DTC CONFIRMATION PROCEDURE

## **1.**PERFORM DTC CONFIRMATION PROCEDURE

### (D) With CONSULT

- Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

### Is DTC detected?

### YES >> Refer to <u>HAC-88, "Diagnosis Procedure"</u>.

NO >> INSPECTION END

## **Diagnosis Procedure**

INFOID:000000008143902

## **1.**CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) OPERATION

- 1. Turn ignition switch ON.
- 2. Operate temperature control switch (driver side) and check by operation sound that air mix door motor (driver side) operates.

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 2.

# **2.**CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL

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

Air mix doo	+ r motor (LH)	_ Condition		Condition	
Connector	Terminal				(Approx.)
M315	1	Ground	Set temperature	$18^{\circ}C (60^{\circ}F) \rightarrow 32^{\circ}C (90^{\circ}F)$	12 V
101313	2	Ground	(driver side)	$32^{\circ}C (90^{\circ}F) \rightarrow 18^{\circ}C (60^{\circ}F)$	12 V

Is the inspection result normal?

# **HAC-88**

#### B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE) [AUTOMATIC AIR CONDITIONING] < DTC/CIRCUIT DIAGNOSIS > YES >> GO TO 6. >> GO TO 3.

 ${f 3.}$  check air mix door motor (driver side) drive signal circuit for open

1. Turn ignition switch OFF.

NO

Disconnect air mix door motor LH harness connector and A/C auto amp. harness connector. 2.

3. Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

Air mix do	or motor LH	A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M315	1	M304	81	Existed
101515	2	101504	61	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

 ${f 4}.$ CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between air mix door motor LH harness connector and ground.

Air mix door motor LH			Continuity
Connector	Terminal	Terminal	
M315	1	Ground	Not existed
Moro	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

# ${f 5.}$ CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

- 1. Turn ignition switch ON.
- Check voltage between air mix door motor LH harness connector and ground. 2.

	+		Voltaga
Air mix door motor LH		-	Voltage (Approx.)
Connector	Terminal		
M315	1	Ground	0 V
101010	2	Giouna	υv

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

**6.**CHECK AIR MIX DOOR MOTOR (DRIVER SIDE)

Check air mix door motor (driver side). Refer to HAC-91, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace air mix door motor (driver side). Refer to HAC-192, "AIR MIX DOOR MOTOR : Removal and Installation".

### **/**.CHECK INSTALLATION OF AIR MIX DOOR MOTOR (DRIVER SIDE) CONTROL LINKAGE

Check air mix door motor (driver side) control linkage is properly installed. Refer to HAC-191, "Exploded View".

#### Is the inspection result normal?

>> GO TO 15. YES

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# B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair or replace malfunctioning parts.

 $\mathbf{8}$ .CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL

Operate temperature control switch (driver side) and check by voltage between A/C auto amp. harness connector and ground.

A/C au	+ to amp.		Con	dition	Voltage (Approx.)
Connector	Terminal				( 11 - )
M304	53	Ground	Set temperature	18°C (60°F)	4 V
11/1304	55	Giouna	(driver side)	32°C (90°F)	1 V

Is the inspection result normal?

YES >> GO TO 15.

NO >> GO TO 9.

9.check air mix door motor (driver side) pbr feedback signal circuit for open

1. Turn ignition switch OFF.

2. Disconnect air mix door motor LH harness connector and A/C auto amp. harness connector.

Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

Air mix doo	Air mix door motor LH		A/C auto amp.	
Connector	Terminal	Connector	Terminal	Continuity
M315	3	M304	53	Existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

### **10.**CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor LH harness connector and ground.

Air mix doo	or motor LH		Continuity	
Connector	Terminal		Continuity	
M315	3	Ground	Not existed	

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair harness or connector.

**11.**CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) PBR POWER SUPPLY

1. Reconnect A/C auto amp. harness connector.

2. Turn ignition switch ON.

3. Check voltage between air mix door motor LH harness connector and ground.

+				
Air mix door motor LH		-	Voltage (Approx.)	
Connector	Connector Terminal			
M315	7	Ground	5 V	

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

12. CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) PBR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

## **HAC-90**

### B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE) CUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

### < DTC/CIRCUIT DIAGNOSIS >

- 2. Disconnect A/C auto amp. harness connector.
- 3. Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

	or motor LH	A/C aut	o amp.	Continuity		В
Connector	Terminal	Connector	Terminal	Continuity		
M315	7	M304	71	Existed		
s the inspectio	n result normal	<u>?</u>				С
	) TO 15. pair harness or	connector.				D
<b>3.</b> CHECK A	IR MIX DOOR	MOTOR (DRIVE	R SIDE) PBR	GROUND CIRC	UIT	D
2. Disconnect		harness connec air mix door mo		s connector and	A/C auto amp. harness connec-	E
Air mix doo	or motor LH	A/C aut	o amp.	Ocationity		Г
Connector	Terminal	Connector	Terminal	Continuity		
M315	5	M304	79	Existed		G
NO >> Re <b>14.</b> CHECK A		MOTOR (DRIVE		"Component la	expection (DPP)"	H
s the inspectio YES >> GC NO >> Re	n result normal <sup>(</sup> TO 15.	2		·	<u>ispection (PBR)"</u> .	HA
	in otomation i			D <u>HAC-192, "Alf</u>	MIX DOOR MOTOR : Removal	J
15.CHECK IN Refer to <u>GI-49,</u> s the inspectio	ITERMITTENT "Intermittent In n result normal	<u>cident"</u> . 2	AC 193 "Pom			
15.CHECK IN Refer to <u>GI-49,</u> s the inspectio YES >> Re NO >> Re	ITERMITTENT "Intermittent In- n result normal' place A/C auto pair or replace	<u>cident"</u> . <u>?</u> amp. Refer to <u>H</u> malfunctioning p				
<b>15.</b> CHECK IN Refer to <u>GI-49,</u> <u>s the inspectio</u> YES >> Re NO >> Re Component	ITERMITTENT "Intermittent In- n result normal" place A/C auto pair or replace Inspection (	<u>cident"</u> . <u>?</u> amp. Refer to <u>H</u> malfunctioning p	oarts.			K
15.CHECK IN Refer to <u>GI-49,</u> <u>s the inspectio</u> YES >> Re NO >> Re Component 1.CHECK AIR 1. Turn ignitio 2. Disconnect 3. Supply air	ITERMITTENT "Intermittent In- n result normal" place A/C auto pair or replace Inspection ( MIX DOOR MO n switch OFF. the air mix door mix door motor	<u>cident"</u> . 2 amp. Refer to <u>H</u> malfunctioning p Motor) DTOR (DRIVER or motor LH harr	SIDE) ness connector minals with bat	oval and Installa	<u>ition"</u> .	K
<ul> <li><b>15.</b>CHECK IN</li> <li>Refer to <u>GI-49</u>,</li> <li>s the inspectio</li> <li>YES &gt;&gt; Re</li> <li>NO &gt;&gt; Re</li> <li>Component</li> <li><b>1.</b>CHECK AIR</li> <li>1. Turn ignitio</li> <li>2. Disconnect</li> <li>3. Supply air sound that</li> </ul>	ITERMITTENT "Intermittent In- n result normal" place A/C auto pair or replace Inspection ( MIX DOOR MO n switch OFF. the air mix door mix door motor	<u>cident"</u> . 2 amp. Refer to <u>H</u> malfunctioning p <b>Motor)</b> DTOR (DRIVER or motor LH harr (driver side) terr otor (driver side)	SIDE) ness connector minals with bat	oval and Installa	<u>ttion"</u> . INFOID:00000008143903	J K M N
<ul> <li><b>15.</b>CHECK IN</li> <li>Refer to <u>GI-49</u>,</li> <li>s the inspectio</li> <li>YES &gt;&gt; Re</li> <li>NO &gt;&gt; Re</li> <li>Component</li> <li><b>1.</b>CHECK AIR</li> <li>1. Turn ignitio</li> <li>2. Disconnect</li> <li>3. Supply air sound that</li> </ul>	ITERMITTENT "Intermittent In- n result normal" place A/C auto pair or replace Inspection ( MIX DOOR MO n switch OFF. the air mix door mix door motor air mix door motor	<u>cident"</u> . 2 amp. Refer to <u>H</u> malfunctioning p Motor) DTOR (DRIVER or motor LH harr (driver side) ter	SIDE) ness connector minals with bat	oval and Installa	<u>ttion"</u> . INFOID:00000008143903	K L N

2 1 Full cold

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace air mix door motor (driver side). Refer to <u>HAC-192, "AIR MIX DOOR MOTOR : Removal</u> and Installation".

# HAC-91

### B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE) CUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection (PBR)

INFOID:000000008143904

# 1.CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) PBR

Check resistance between air mix door motor (driver side) PBR terminals.

Terminal		Resistance ( $\Omega$ )
5	3	Except 0 or ∞
5 7		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace air mix door motor (driver side). Refer to <u>HAC-192, "AIR MIX DOOR MOTOR : Removal</u> and Installation".

# B2753, B2754, B2755 AIR MIX DOOR MOTOR (PASSENGER SIDE) < DTC/CIRCUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

# B2753, B2754, B2755 AIR MIX DOOR MOTOR (PASSENGER SIDE)

# **DTC Logic**

INFOID:000000008143905

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# DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72. "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73</u>, <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153. "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure"</u> (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-155</u>, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	F
B2753		Air mix door motor (passenger side) PBR feed- back signal voltage is too low.	• Air mix door motor (passenger side)	0
B2754	PASS AIR MIX DOOR MOT	Air mix door motor (passenger side) PBR feed- back signal voltage is too high.	<ul> <li>control linkage installation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>	G
B2755		Stop position of air mix door motor (passenger side) is malfunctioning.	(The motor circuit is open or short- ed.)	Н

### DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE	HAC
<ul> <li>With CONSULT</li> <li>1. Turn ignition switch ON.</li> <li>2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.</li> <li>3. Check DTC.</li> </ul>	J
Is DTC detected?         YES       >> Refer to HAC-93, "Diagnosis Procedure".         NO       >> INSPECTION END	К
Diagnosis Procedure	L
<ul> <li>1. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) OPERATION</li> <li>1. Turn ignition switch ON.</li> <li>2. Operate temperature control switch (passenger side) and check by operation sound that air mix door</li> </ul>	Μ
<ul> <li>Dependent temperature control switch (passenger side) and check by operation sound that all mix door motor (passenger side) operates.</li> <li><u>Is the inspection result normal?</u></li> <li>YES &gt;&gt; GO TO 8.</li> <li>NO &gt;&gt; GO TO 2.</li> </ul>	Ν
2. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL	0
Check voltage between air mix door motor RH harness connector and ground.	Р

	+						
Air mix doo	or motor RH	_	Condition				Voltage (Approx.)
Connector	Terminal				(, , , , , , , , , , , , , , , , , , ,		
M306	1	Ground	Set temperature	$18^{\circ}C (60^{\circ}F) \rightarrow 32^{\circ}C (90^{\circ}F)$	12 V		
101500	2	Ground	(passenger side)	$32^{\circ}C (90^{\circ}F) \rightarrow 18^{\circ}C (60^{\circ}F)$	12 V		

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> GO TO 6. NO >> GO TO 3.

**3.**CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect air mix door motor RH harness connector and A/C auto amp. harness connector.

3. Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix do	or motor RH	A/C au	to amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M306	1	M304	67	Existed
101300	2	101504	87	LAISIEU

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

**4.**CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between air mix door motor RH harness connector and ground.

Air mix doo	or motor RH		Continuity	
Connector	Terminal			
M306	1	Ground	Not existed	
101300	2	Cround	NOT EXISTED	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

1. Turn ignition switch ON.

2. Check voltage between air mix door motor RH harness connector and ground.

Air mix doo	+ Air mix door motor RH		Voltage (Approx.)
Connector	Connector Terminal		(
M315	1 2	Ground	0 V

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

**6.**CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE)

Check air mix door motor (passenger side). Refer to HAC-96, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace air mix door motor (passenger side). Refer to <u>HAC-192, "AIR MIX DOOR MOTOR :</u> <u>Removal and Installation"</u>.

**/**.CHECK INSTALLATION OF AIR MIX DOOR MOTOR (PASSENGER SIDE) CONTROL LINKAGE

Check air mix door motor (passenger side) control linkage is properly installed. Refer to <u>HAC-191</u>, "Exploded <u>View"</u>.

Is the inspection result normal?

YES >> GO TO 15.

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace malfunctioning parts.

**8.**CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL

Operate temperature control switch (passenger side) and check by voltage between A/C auto amp. harness connector and ground.

	ground.					
	+				Voltage	
	ito amp.	_	– Condition	lition	(Approx.)	
Connector	Terminal					
M304	74	Ground	Set temperature (passenger side)	18°C (60°F) 32°C (90°F)	4 V 1 V	
the inspectio	n result normal?	?		02 0 (00 1)	1 V	
	) TO 15. ) TO 9.					
.CHECK AIR	MIX DOOR MO	OTOR (PASSEI	NGER SIDE) PBF	R FEEDBACK S	SIGNAL CIRCU	IT FOR OPEN
Disconnec			s connector and a otor RH harness o			
Air mix doo	or motor RH	A/C au	ito amp.			
				Continuity		
Connector	Terminal	Connector	Terminal	Continuity		
M306 the inspectio YES >> GC NO >> Re	3 n result normal ) TO 10. pair harness or	M304 ? connector.	74	Existed		
M306 the inspectio (ES >> GC NO >> Re <b>0.</b> CHECK A	3 n result normal? TO 10. pair harness or IR MIX DOOR N	M304 ? connector. //OTOR (PASSI		Existed BR FEEDBACK		JIT FOR SHORT
M306 the inspectio (ES >> GC NO >> Re <b>O.</b> CHECK A heck continuit	3 n result normal? TO 10. pair harness or IR MIX DOOR N	M304 ? connector. //OTOR (PASSI	74 ENGER SIDE) PB RH harness conn	Existed BR FEEDBACK		JIT FOR SHORT
M306 the inspectio YES >> GC NO >> Re <b>O.</b> CHECK A heck continuit	3 ) TO 10. pair harness or IR MIX DOOR N ty between air n	M304 ? connector. //OTOR (PASSI	74 ENGER SIDE) PB	Existed BR FEEDBACK		JIT FOR SHORT
M306 the inspectio YES >> GC NO >> Re <b>O.</b> CHECK A heck continuit Air mix doo Connector M306	3 n result normal D TO 10. pair harness or IR MIX DOOR N ty between air n or motor RH Terminal 3	M304 Connector. IOTOR (PASSE nix door motor b — Ground	74 ENGER SIDE) PB RH harness conn	Existed BR FEEDBACK		JIT FOR SHORT
M306 Sthe inspection YES >> GC NO >> Re O.CHECK A Scheck continuit Air mix door Connector M306 Sthe inspection YES >> GC NO >> Re	3 n result normal D TO 10. pair harness or IR MIX DOOR N ty between air n or motor RH Terminal 3 n result normal D TO 11. pair harness or	M304 Connector. AOTOR (PASSE nix door motor b Ground Connector.	74 ENGER SIDE) PB RH harness conn Continuity	Existed BR FEEDBACK nector and grour	nd.	JIT FOR SHORT
M306 the inspectio YES >> GC NO >> Re <b>0</b> .CHECK A heck continuit Air mix doo Connector M306 the inspectio YES >> GC NO >> Re <b>1</b> .CHECK A Reconnect Turn ignitic	3 n result normal D TO 10. pair harness or IR MIX DOOR N ty between air n or motor RH Terminal 3 n result normal D TO 11. pair harness or IR MIX DOOR N A/C auto amp. on switch ON.	M304 Connector. AOTOR (PASSE nix door motor l Ground Connector. MOTOR (PASS harness conne	74 ENGER SIDE) PB RH harness conn Continuity Not existed ENGER SIDE) PI	Existed BR FEEDBACK nector and grour	nd. JPPLY	JIT FOR SHORT
M306 the inspectio YES >> GC NO >> Re <b>0</b> .CHECK A heck continuit Air mix doo Connector M306 the inspectio YES >> GC NO >> Re <b>1</b> .CHECK A Reconnect Turn ignitic Check volta	3 n result normal D TO 10. pair harness or IR MIX DOOR N ty between air n or motor RH Terminal 3 n result normal D TO 11. pair harness or IR MIX DOOR N A/C auto amp. on switch ON.	M304 Connector. AOTOR (PASSE nix door motor l Ground Connector. MOTOR (PASS harness conne	74 ENGER SIDE) PB RH harness conn Continuity Not existed ENGER SIDE) PI ctor. or RH harness cor	Existed BR FEEDBACK nector and grour	nd. JPPLY	JIT FOR SHORT
$\begin{array}{r} \text{M306}\\ \hline \text{the inspectio}\\ \text{YES} >> \text{GC}\\ \text{NO} >> \text{Re}\\ \textbf{0}.\text{CHECK A}\\ \text{heck continuit}\\ \hline \text{Air mix doo}\\ \hline \text{Connector}\\ \hline \text{M306}\\ \hline \text{the inspectio}\\ \text{YES} >> \text{GC}\\ \text{NO} >> \text{Re}\\ \textbf{1}.\text{CHECK A}\\ \hline \text{Reconnect}\\ \text{Turn ignitic}\\ \hline \text{Check volta}\\ \end{array}$	3 n result normal D TO 10. pair harness or IR MIX DOOR M ty between air n or motor RH Terminal 3 n result normal D TO 11. pair harness or IR MIX DOOR M A/C auto amp. on switch ON. age between air	M304 Connector. AOTOR (PASSE nix door motor l Ground Connector. MOTOR (PASS harness conne	74 ENGER SIDE) PB RH harness conn Continuity Not existed ENGER SIDE) PI ctor.	Existed BR FEEDBACK nector and grour	nd. JPPLY	JIT FOR SHORT
$\begin{array}{r} \text{M306}\\\hline \\ \hline $	3 n result normal D TO 10. pair harness or IR MIX DOOR M ty between air n or motor RH Terminal 3 n result normal D TO 11. pair harness or IR MIX DOOR M A/C auto amp. n switch ON. age between air	M304 Connector. AOTOR (PASSE nix door motor l Ground Connector. MOTOR (PASS harness conne	74 ENGER SIDE) PB RH harness conn Continuity Not existed ENGER SIDE) PI ctor. or RH harness cor	Existed BR FEEDBACK nector and grour	nd. JPPLY	JIT FOR SHORT

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

 $12. {\sf check air mix door motor (passenger side) pbr power supply circuit for open}$ 

1. Turn ignition switch OFF.

# **HAC-95**

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[AUTOMATIC AIR CONDITIONING]

### < DTC/CIRCUIT DIAGNOSIS >

- 2. Disconnect A/C auto amp. harness connector.
- Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix doo	Air mix door motor RH		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M306	7	M304	M304 71	

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

# $13. {\sf check air mix door motor (passenger side) pbr ground circuit}$

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. harness connector.
- Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix doo	Air mix door motor RH		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M306	5	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair harness or connector.

14.CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) PBR

Check air mix door motor (passenger side) PBR. Refer to HAC-97. "Component Inspection (PBR)".

#### Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace air mix door motor (passenger side). Refer to <u>HAC-192, "AIR MIX DOOR MOTOR :</u> <u>Removal and Installation"</u>.

# 15. CHECK INTERMITTENT INCIDENT

#### Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

### **Component Inspection (Motor)**

INFOID:000000008143907

# 1.CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE)

- 1. Turn ignition switch OFF.
- 2. Disconnect air mix door motor RH harness connector.
- 3. Supply air mix door motor (passenger side) terminals with battery voltage and check by visually and operation sound that air mix door motor (passenger side) operates.

Terr	Operation direc-			
+	+ –			
1	2	Full hot		
2	1	Full cold		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace air mix door motor (passenger side). Refer to <u>HAC-192, "AIR MIX DOOR MOTOR :</u> <u>Removal and Installation"</u>.

## **HAC-96**

< DTC/CIRCU	IT DIAGNOSI	S >	[AUTOMATIC AIR CONDITIONING]	
Component	Inspection	(PBR)	INFOID:00000008143908	^
<b>1.</b> CHECK AIR		IOTOR (PASSENGER S	DE) PBR	4
Check resistand	ce between air	mix door motor (passen	er side) PBR terminals.	В
Terr	minal	Resistance (Ω)		
5	3	Except 0 or ∞		С
5	7			
Is the inspectio	n result norma			D

YES >> INSPECTION END

NO >> Replace air mix door motor (passenger side). Refer to HAC-192, "AIR MIX DOOR MOTOR : Removal and Installation".

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Revision: 2013 March

### B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE) [AUTOMATIC AIR CONDITIONING]

### < DTC/CIRCUIT DIAGNOSIS >

# B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE)

# DTC Logic

INFOID:000000008143909

### DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72, "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73.</u> <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153</u>, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-155</u>, "<u>DOOR MOTOR PBR (WITHOUT FOREST AIR)</u> : <u>Diagnosis Procedure</u>" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2756		Mode door motor (driver side) PBR feedback signal voltage is too low.	<ul> <li>Mode door motor (driver side)</li> <li>Mode door motor (driver side) con-</li> </ul>
B2757	DR MODE DOOR MOTOR	Mode door motor (driver side) PBR feedback signal voltage is too high.	<ul> <li>trol linkage installation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>
B2758		Stop position of mode door motor (driver side) is malfunctioning.	(The motor circuit is open or short- ed.)

### DTC CONFIRMATION PROCEDURE

## **1.**PERFORM DTC CONFIRMATION PROCEDURE

### (D) With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

### Is DTC detected?

### YES >> Refer to <u>HAC-98, "Diagnosis Procedure"</u>.

NO >> INSPECTION END

## **Diagnosis Procedure**

INFOID:000000008143910

### **1.**CHECK MODE DOOR MOTOR (DRIVER SIDE) OPERATION

- 1. Turn ignition switch ON.
- 2. Operate MODE switch (driver side) and check by operation sound that mode door motor (driver side) operates.

### Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 2.

# **2.**CHECK MODE DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL

### 1. Press MODE switch (driver side) and DEF switch.

2. Check voltage between mode door motor LH harness connector and ground.

+ Mode door motor LH		- Conc	dition	Voltage (Approx.)	
Connector	Terminal				
M316 (with Forest Air)	1	Ground	Air outlet $DEF \rightarrow VENT$		12 V
M317 (without Forest Air)	2	Giouna	An outlet	$VENT \to DEF$	12 V

# B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE) < DTC/CIRCUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING] Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 3.

**3.**CHECK MODE DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect mode door motor LH harness connector and A/C auto amp. harness connector.

3. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector.

Mode door m	Continuity			
Connector	Connector Terminal		Terminal	Continuity
M316 (with Forest Air)	1	M304	63	Existed
M317 (without Forest Air)	2	11/1304	83	LVISIGO

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### **4.**CHECK MODE DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between mode door motor LH harness connector and ground.

Mode door m	otor LH		Continuity	
Connector	Terminal		Continuity	
M316 (with Forest Air)	1	Ground	Not existed	
M317 (without Forest Air)	2	Ground	NOT EXISTED	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

# 5.CHECK MODE DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

- 1. Turn ignition switch ON.
- 2. Check voltage between mode door motor LH harness connector and ground.

+ Mode door m	otor I H		Voltage (Approx.)	
Connector	Terminal	_		
M316 (with Forest Air) 1				
M317 (without Forest Air) 2		Ground	0 V	

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

**6.**CHECK MODE DOOR MOTOR (DRIVER SIDE)

Check mode door motor (driver side). Refer to <u>HAC-101, "Component Inspection (Motor)"</u>. Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace mode door motor (driver side). Refer to <u>HAC-191, "MODE DOOR MOTOR : Removal</u> P and Installation".

# 7.CHECK INSTALLATION OF MODE DOOR MOTOR (DRIVER SIDE) CONTROL LINKAGE

Check mode door motor (driver side) control linkage is properly installed. Refer to <u>HAC-191, "Exploded View"</u>. Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair or replace malfunctioning parts.

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# B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE)

### < DTC/CIRCUIT DIAGNOSIS >

# [AUTOMATIC AIR CONDITIONING]

# 8. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL

- 1. Operate MODE switch (driver side) and DEF switch.
- 2. Check voltage between A/C auto amp. harness connector and ground.

+ A/C auto amp. –		_	Con	dition	Voltage (Approx.)
Connector	Terminal	•			
M304	54	Ground	Air outlet	VENT	4 V
101304	54	Giouna	An outlet	DEF	1 V

Is the inspection result normal?

YES >> GO TO 15.

NO >> GO TO 9.

# 9. Check mode door motor (driver side) PBR feedback signal circuit for open

1. Turn ignition switch OFF.

2. Disconnect mode door motor LH harness connector and A/C auto amp. harness connector.

3. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector.

Mode door mo	tor LH	A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M316 (with Forest Air) M317 (without Forest Air)	3	M304	54	Existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

# 10. Check mode door motor (driver side) pbr feedback signal circuit for short

Check continuity between mode door motor LH harness connector and ground.

Mode door mo	tor LH		Continuity	
Connector	Terminal		Continuity	
M316 (with Forest Air) M317 (without Forest Air)	3	Ground	Not existed	

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair harness or connector.

# 11. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR POWER SUPPLY

1. Reconnect A/C auto amp. harness connector.

2. Turn ignition switch ON.

3. Check voltage between mode door motor LH harness connector and ground.

+			Voltago	
Mode door motor LH		-	Voltage (Approx.)	
Connector	Terminal			
M316 (with Forest Air)	4	Ground	5 V	
M317 (without Forest Air)	5	Giodila	5 V	

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

12. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR POWER SUPPLY CIRCUIT FOR OPEN

### B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE) JIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

### < DTC/CIRCUIT DIAGNOSIS >

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. harness connector.
- 3. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector.

Mode door mo	tor LH	A/C au	to amp.	Continuity		В
Connector	Terminal	Connector	Terminal	- Continuity		
M316 (with Forest Air)	4					
M317 (without Forest Air)	5	M304	71	Existed		С
Is the inspection result	t normal?					D
•	rness or conne					
<b>13.</b> CHECK MODE D	OOR MOTOR	(DRIVER SIDE	) PBR GROUN	ND CIRCUIT		Е
<ol> <li>Turn ignition switc</li> <li>Disconnect A/C at</li> <li>Check continuity b</li> </ol>	uto amp. harne:		arness connec	ctor and A/C aut	o amp. harness connector.	F
Mode door mo	tor LH	A/C au	to amp.	Continuity		
Connector	Terminal	Connector	Terminal	Continuity		G
M316 (with Forest Air)	5					
M317 (without Forest Air)	7	M304	79	Existed		Н
s the inspection result						
YES >> GO TO 14 NO >> Repair ha	l. rness or conne	ctor				HA
14. CHECK MODE D						
Check mode door mot				nonent Inspect	ion (PRP)"	.1
Is the inspection result			<u>170-102, 001</u>	nponent inspect		0
YES >> GO TO 15						
		or (driver side).	Refer to HAC	-191, "MODE E	OOR MOTOR : Removal	K
and Instal 15.CHECK INTERM		ENT				
Refer to <u>GI-49, "Interm</u>	nittent Incident"					L
	t normal?					
Is the inspection result				المرجلة والمؤجر المراجع		
YES >> Replace A	VC auto amp. F		<u>is, "Removal a</u>	nd installation".		M
YES >> Replace A NO >> Repair or	replace malfun	ctioning parts.	<u>3, Removala</u>	nd installation".		N
YES >> Replace A NO >> Repair or	replace malfun	ctioning parts.	<u>3, Removal a</u>	<u>nd Installation"</u> .	INFOID:000000008143911	
YES >> Replace A NO >> Repair or Component Inspe	replace malfune ection (Moto	ctioning parts. r)	<u>sa, Removara</u>	<u>nd Installation"</u> .	INFOID:000000008143911	M
YES >> Replace A NO >> Repair or Component Inspe 1.CHECK MODE DO 1. Turn ignition switc	replace malfun ection (Moto OR MOTOR (E	ctioning parts. r) DRIVER SIDE)		<u>nd Installation"</u> .	INFOID:00000008143911	Ν
YES >> Replace A NO >> Repair or Component Inspe 1.CHECK MODE DO 1. Turn ignition switc 2. Disconnect the mo	replace malfun ection (Moto OR MOTOR (E h OFF. ode door motor	ctioning parts. r) DRIVER SIDE) LH harness cor	nnector.			
YES >> Replace A NO >> Repair or Component Inspe 1.CHECK MODE DO 1. Turn ignition switc 2. Disconnect the mo	replace malfun ection (Moto OR MOTOR (E h OFF. ode door motor r motor (driver	ctioning parts. r) DRIVER SIDE) LH harness cor side) terminals	nnector. with battery vo		INFOID:000000008143911	Ν
NO >> Repair or Component Inspe 1.CHECK MODE DO 1. Turn ignition switc 2. Disconnect the mo 3. Supply mode doo	replace malfun ection (Moto OR MOTOR (E h OFF. ode door motor r motor (driver	ctioning parts. r) DRIVER SIDE) LH harness cor side) terminals	nnector. with battery vo			Ν

Terr	ninal	Operation direc-
+	_	tion
1	2	VENT
2	1	DEF

Is the inspection result normal?

А

# B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

YES >> INSPECTION END

NO >> Replace mode door motor (driver side). Refer to <u>HAC-191, "MODE DOOR MOTOR : Removal</u> <u>and Installation"</u>.

Component Inspection (PBR)

INFOID:000000008143912

[AUTOMATIC AIR CONDITIONING]

# 1.CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR

Check resistance between mode door motor (driver side) PBR terminals.

		Resistance (Ω)	
Termina	Terminal		
5 (with Forest Air)	3		
	4	Except 0 or ∞	
7 (without Forest Air)	3		
7 (Without Polest All)	5		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace mode door motor (driver side). Refer to <u>HAC-192</u>, "<u>AIR MIX DOOR MOTOR : Removal</u> and Installation".

### B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE) < DTC/CIRCUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

# B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE)

# **DTC Logic**

INFOID:000000008143913

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## DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72. "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73.</u> <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153. "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure"</u> (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-155</u>, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	F
B2759		Mode door motor (passenger side) PBR feed- back signal voltage is too low.	<ul><li>Mode door motor (passenger side)</li><li>Mode door motor (passenger side)</li></ul>	0
B275A	PASS MODE DOOR MOT	Mode door motor (passenger side) PBR feed- back signal voltage is too high.	<ul> <li>control linkage installation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>	G
B275B		Stop position of mode door motor (passenger side) is malfunctioning.	(The motor circuit is open or short- ed.)	Н

### DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE	HAC
<ul> <li>With CONSULT</li> <li>1. Turn ignition switch ON.</li> <li>2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.</li> <li>3. Check DTC.</li> </ul>	J
Is DTC detected?         YES       >> Refer to HAC-103, "Diagnosis Procedure".         NO       >> INSPECTION END	К
Diagnosis Procedure	L
1. CHECK MODE DOOR MOTOR (PASSENGER SIDE) OPERATION	
<ol> <li>Turn ignition switch ON.</li> <li>Operate MODE switch (driver side) and DEF switch. NOTE: "DUAL": OFF</li> </ol>	Μ
"DUAL": OFF 3. Check operation sound that mode door motor (passenger side) operates.	Ν
Is the inspection result normal? YES >> GO TO 8. NO >> GO TO 2.	0
2. CHECK MODE DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL	
<ol> <li>Press MODE switch (driver side) and DEF switch.</li> <li>NOTE: "DUAL": OFF</li> </ol>	Ρ

2. Check voltage between mode door motor RH harness connector and ground.

# B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE)

### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

+					Voltage
Mode door motor RH		-	Condition		(Approx.)
Connector	Terminal				
M307 (with Forest Air)	1	Ground	Air outlet	$DEF \to VENT$	12 V
M308 (without Forest Air)	2	Ground	All Odliet	$VENT \to DEF$	

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 3.

# $\mathbf{3.}$ Check mode door motor (passenger side) drive signal circuit for open

- 1. Turn ignition switch OFF.
- 2. Disconnect mode door motor RH harness connector and A/C auto amp. harness connector.
- 3. Check continuity between mode door motor RH harness connector and A/C auto amp. harness connector.

Mode door m	otor RH	A/C auto amp.		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M307 (with Forest Air)	1	M304	64	Existed	
M308 (without Forest Air)	2	11/1304	84	LAISted	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK MODE DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between mode door motor RH harness connector and ground.

-	Mode door me	otor RH		Continuity	
-	Connector	Terminal			
-	M307 (with Forest Air)	1	Ground	Not existed	
_	M308 (without Forest Air)	2	Ground	NOTEXISTED	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

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5. Check mode door motor (passenger side) drive signal circuit for battery short
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1. Turn ignition switch ON.

2. Check voltage between mode door motor RH harness connector and ground.

+				
Mode door m	otor RH	-	Voltage (Approx.)	
Connector	Terminal		(* + + )	
M307 (with Forest Air)	1		<u></u>	
M308 (without Forest Air)	2	Ground	0 V	

### Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

**6.**CHECK MODE DOOR MOTOR (PASSENGER SIDE)

Check mode door motor (passenger side). Refer to <u>HAC-107, "Component Inspection (Motor)"</u>. Is the inspection result normal?

YES >> GO TO 7.

#### B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE) [AUTOMATIC AIR CONDITIONING] < DTC/CIRCUIT DIAGNOSIS > >> Replace mode door motor (passenger side). Refer to HAC-191, "MODE DOOR MOTOR :

Removal and Installation".

7.CHECK INSTALLATION OF MODE DOOR MOTOR (PASSENGER SIDE) CONTROL LINKAGE

Check mode door motor (passenger side) control linkage is properly installed. Refer to HAC-191, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.

NO

NO >> Repair or replace malfunctioning parts.

8.CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL

1. Operate MODE switch (driver side) and DEF switch. NOTE:

"DUAL": OFF

Check voltage between A/C auto amp. harness connector and ground.

A/C au	+auto amp. – Condition		Condition		Voltage (Approx.)
Connector	Terminal				(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
M304	73	Ground	Air outlet	VENT	4 V
1004	75	Ground	All Outlet	DEF	1 V

Is the inspection result normal?

>> GO TO 15. YES

NO >> GO TO 9.

9.check mode door motor (passenger side) pbr feedback signal circuit for open

1. Turn ignition switch OFF.

Disconnect mode door motor RH harness connector and A/C auto amp. harness connector. 2.

3. Check continuity between mode door motor RH harness connector and A/C auto amp. harness connector.

Mode door mo	Mode door motor RH		A/C auto amp.		
Connector	Terminal	Connector	Terminal	Continuity	
M307 (with Forest Air) M308 (without Forest Air)	3	M304	73	Existed	

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

10. Check mode door motor (passenger side) pbr feedback signal circuit for short

Check continuity between mode door motor RH harness connector and ground.

Mode door motor RH			Continuity
Connector	Terminal		Continuity
M307 (with Forest Air) M308 (without Forest Air)	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair harness or connector.

11.CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR POWER SUPPLY

Reconnect A/C auto amp. harness connector. 1.

Turn ignition switch ON. 2.

Check voltage between mode door motor RH harness connector and ground. 3.

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# B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE)

### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITI	ONING]

+		•	Voltage (Approx.)	
Mode door mo	tor RH	-		
Connector	Terminal			
M307 (with Forest Air)	4	Ground	5 V	
M308 (without Forest Air)	5	Giodila	5 V	

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

# 12.CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. harness connector.

3. Check continuity between mode door motor RH harness connector and A/C auto amp. harness connector.

Mode door mo	otor RH	A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M307 (with Forest Air)	4			
M308 (without Forest Air)	5	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

 $13. {\sf check \ mode \ door \ motor \ (passenger \ side) \ pbr \ ground \ circuit}$ 

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. harness connector.

3. Check continuity between mode door motor RH harness connector and A/C auto amp. harness connector.

Mode door mo	or motor RH A/C auto amp.		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M307 (with Forest Air)	5			
M308 (without Forest Air)	7	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair harness or connector.

14.CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR

Check mode door motor (passenger side) PBR. Refer to HAC-107. "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace mode door motor (passenger side). Refer to <u>HAC-191. "MODE DOOR MOTOR :</u> <u>Removal and Installation"</u>.

15. CHECK INTERMITTENT INCIDENT

Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

# B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection (Motor)

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INFOID:000000008143916

[AUTOMATIC AIR CONDITIONING]

1.CHECK MODE DOOR MOTOR (PASSENGER SIDE)

- 1. Turn ignition switch OFF.
- 2. Disconnect mode door motor RH harness connector.
- 3. Supply mode door motor (passenger side) terminals with battery voltage and check by visually and operation sound that mode door motor (passenger side) operates.

Terr	Operation direc-	
+	_	tion
1	2	VENT
2	1	DEF

Is the inspection result normal?

#### YES >> INSPECTION END

NO >> Replace mode door motor (passenger side). Refer to <u>HAC-191, "MODE DOOR MOTOR :</u> <u>Removal and Installation"</u>.

### Component Inspection (PBR)

# 1.CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR

Check resistance between mode door motor (passenger side) PBR terminals.

Termina	l	Resistance ( $\Omega$ )
5 (with Forest Air)	3	
5 (WITH FOLEST AIL)	4	Except 0 or $\infty$
7 (without Forest Air)	3	
(without i blest All)	5	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace mode door motor (passenger side). Refer to <u>HAC-192. "AIR MIX DOOR MOTOR :</u> <u>Removal and Installation"</u>.

### B275C, B275D, B275E INTAKE DOOR MOTOR

### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

INFOID:000000008143917

# B275C, B275D, B275E INTAKE DOOR MOTOR

## DTC Logic

DTC DETECTION LOGIC

### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72, "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73.</u> <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153</u>, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-155</u>, "<u>DOOR MOTOR PBR (WITHOUT FOREST AIR)</u> : <u>Diagnosis Procedure</u>" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B275C		Intake door motor PBR feedback signal voltage is too low.	<ul><li>Intake door motor</li><li>Intake door motor control linkage</li></ul>
B275D	INTAKE DOOR MOTOR	Intake door motor PBR feedback signal voltage is too high.	<ul> <li>installation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>
B275E		Stop position of intake door motor is malfunc- tioning.	(The motor circuit is open or short- ed.)

### DTC CONFIRMATION PROCEDURE

## **1.**PERFORM DTC CONFIRMATION PROCEDURE

### (D) With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

#### Is DTC detected?

YES >> Refer to <u>HAC-108</u>, "Diagnosis Procedure".

NO >> INSPECTION END

## Diagnosis Procedure

INFOID:000000008143918

### **1.**CHECK INTAKE DOOR MOTOR OPERATION

- 1. Turn ignition switch ON.
- 2. Operate FRE switch and REC switch (with Forest Air) or intake switch (without Forest Air).
- 3. Listen to intake sound and confirm air inlets change.

Does it operate normally?

YES >> GO TO 8. NO >> GO TO 2.

NO >> GO TO 2.

2. CHECK INTAKE DOOR MOTOR DRIVE SIGNAL

- 1. Operate FRE switch and REC switch (with Forest Air) or intake switch (without Forest Air).
- 2. Check voltage between intake door motor harness connector and ground.

### < DTC/CIRCUIT DIAGNOSIS >

+		_	0		Voltage
Intake door motor	Terminal	-		ondition	(Approx.)
Connector	1			$REC \to FRE$	
M310 (without Forest Air)	2	-		$FRE \rightarrow REC$	
	1	Ground	Inlet duct	$REC \to FRE$	12 V
M309 (with Forest Air)	2	-	_	$FRE\toREC$	
the inspection result normal?					
YES >> GO TO 6.					
NO >> GO TO 3.					
CHECK INTAKE DOOR MOTO	OR DRIVE SIG	NAL CIRCUIT I	FOR OPEN		
Disconnect A/C auto amp. co Disconnect intake door motor Check continuity between inta	connector.			C auto amp. ha	arness connecto
Intake door motor		A/C au	ito amp.	Continui	ty
Connector	Terminal	Connector	Termina		
M310 (without Forest Air)	1		85		
	2	M304	65	Existed	Ł
M309 (with Forest Air)	1	-	05		
M309 (with Forest Air)	1		85		
the inspection result normal?	2		65		
M309 (with Forest Air) the inspection result normal? YES >> GO TO 4. NO >> Repair harness or con CHECK INTAKE DOOR MOTO heck continuity between intake of Intake door motor	2 nnector. DR DRIVE SIG		FOR GROU and ground	ł	
the inspection result normal? YES >> GO TO 4. NO >> Repair harness or con CHECK INTAKE DOOR MOTO heck continuity between intake of	2 nnector. DR DRIVE SIG		65 FOR GROU	ł	
the inspection result normal? (ES >> GO TO 4. NO >> Repair harness or con- CHECK INTAKE DOOR MOTO heck continuity between intake of Intake door motor Connector	2 nnector. DR DRIVE SIG door motor harr Terminal 1		FOR GROU and ground	ł	
the inspection result normal? YES >> GO TO 4. NO >> Repair harness or con CHECK INTAKE DOOR MOTO heck continuity between intake of Intake door motor	2 nnector. DR DRIVE SIG door motor harr Terminal 1 2		FOR GROU and ground	1. y	
the inspection result normal? (ES >> GO TO 4. NO >> Repair harness or con CHECK INTAKE DOOR MOTO heck continuity between intake of Intake door motor Connector	2 nnector. DR DRIVE SIG door motor harr Terminal 1	ness connector	65 FOR GROU and ground Continuit	1. y	
the inspection result normal? (ES >> GO TO 4. NO >> Repair harness or con- CHECK INTAKE DOOR MOTO neck continuity between intake of Intake door motor Connector M310 (without Forest Air)	2 nnector. DR DRIVE SIG door motor harr Terminal 1 2	ness connector	65 FOR GROU and ground Continuit	1. y	

#### < DTC/CIRCUIT DIAGNOSIS >

+				
Intake door motor	-	Voltage (Approx.)		
Connector	Terminal		(	
M310 (without Forest Air)	1	Ground	0 V	
MSTO (WITHOUT TOTEST AIL)	2			
M200 (with Earoat Air)	1	Ground	0 v	
M309 (with Forest Air)	2	_		

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

## **6.**CHECK INTAKE DOOR MOTOR

Check intake door motor. Refer to HAC-112, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace intake door motor. Refer to <u>HAC-192</u>, "INTAKE DOOR MOTOR : Removal and Installation".

## **/**.CHECK INSTALLATION OF INTAKE DOOR MOTOR CONTROL LINKAGE

Check intake door motor control linkage is properly installed. Refer to HAC-191, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair or replace malfunctioning parts.

**8.**CHECK INTAKE DOOR MOTOR PBR FEEDBACK SIGNAL

1. Operate FRE switch and REC switch (with Forest Air) or intake switch (without Forest Air).

2. Check voltage between A/C auto amp. harness connector and ground.

A/C au	+ to amp.	_	Con	dition	Voltage (Approx.)
Connector	Terminal				(• + + • • • • • • • • • • • • • • • • •
M304	55	Ground	Inlet duct	REC	4 V
101304		Glound	inier duct	FRE	1 V

Is the inspection result normal?

YES >> GO TO 15.

NO >> GO TO 9.

9.CHECK INTAKE DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. connector.

3. Disconnect intake door motor connector.

4. Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

Intake door motor		A/C au	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M310 (without Forest Air)	2	M304	55	Existed
M309 (with Forest Air)	3	101304	55	Existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

#### < DTC/CIRCUIT DIAGNOSIS > 10. CHECK INTAKE DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT А Check continuity between intake door motor harness connector and ground. Intake door motor В Continuity Connector Terminal M310 (without Forest Air) 3 Ground Not existed M309 (with Forest Air) Is the inspection result normal? YES >> GO TO 11. D NO >> Repair harness or connector. 11.CHECK INTAKE DOOR MOTOR PBR POWER SUPPLY 1. Connect A/C auto amp. connector. Turn ignition switch ON. 2. Check voltage between intake door motor harness connector and ground. 3. + Voltage Intake door motor (Approx.) Connector Terminal M310 (without Forest Air) 5 Ground 5 V M309 (with Forest Air) 4 Н Is the inspection result normal? YES >> GO TO 13. NO >> GO TO 12. HAC 12.CHECK INTAKE DOOR MOTOR PBR FEEDBACK PBR POWER SUPPLY CIRCUIT FOR OPEN 1. Turn ignition switch OFF. 2. Disconnect A/C auto amp. connector. Check continuity between intake door motor harness connector and A/C auto amp. harness connector. 3. Κ A/C auto amp. Intake door motor Continuity Connector Terminal Connector Terminal M310 (without Forest Air) 5 M304 71 Existed M309 (with Forest Air) 4 Is the inspection result normal? M YES >> GO TO 15. NO >> Repair harness or connector. 13. CHECK INTAKE DOOR MOTOR PBR FEEDBACK PBR GROUND CIRCUIT Ν Turn ignition switch OFF. 1 2. Disconnect A/C auto amp. connector. Check continuity between intake door motor harness connector and A/C auto amp. harness connector. 3. Intake door motor A/C auto amp. Continuity Connector Terminal Connector Terminal Ρ M310 (without Forest Air) 7 M304 79 Existed M309 (with Forest Air) 5

Is the inspection result normal?

YES >> GO TO14.

NO >> Repair harness or connector.

#### < DTC/CIRCUIT DIAGNOSIS >

## [AUTOMATIC AIR CONDITIONING]

# 14. CHECK INTAKE DOOR MOTOR PBR

Check intake door motor PBR. Refer to HAC-112, "Component Inspection (PBR)".

Is the inspection result normal?

- YES >> GO TO 15.
- NO >> Replace intake door motor. Refer to <u>HAC-192</u>, "INTAKE DOOR MOTOR : Removal and Installation".

## 15. CHECK INTERMITTENT INCIDENT

Refer to GI-49, "Intermittent Incident".

#### Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".
- NO >> Repair or replace malfunctioning parts.

#### Component Inspection (Motor)

INFOID:000000008143919

# 1. CHECK INTAKE DOOR MOTOR

1. Turn ignition switch OFF.

- 2. Disconnect intake door motor connector.
- 3. Supply intake door motor terminals with battery voltage and check by visually and operation sound that intake door motor operates.

Terr	Operation direc-	
+	_	tion
1	2	FRE
2	1	REC

## Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake door motor. Refer to<u>HAC-192</u>, "INTAKE DOOR MOTOR : Removal and Installation".

## Component Inspection (PBR)

INFOID:000000008143920

## 1.CHECK INTAKE DOOR MOTOR PBR

Check resistance between intake door motor terminals.

Terminal	Terminal		
7 (without forest A/C)	3		
(without forest A/C)	5	Eveent 0 or	
$E$ (with forget $\Lambda/C$ )	3	Except 0 or ∞	
5 (with forest A/C)	4		

#### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake door motor. Refer to<u>HAC-192, "INTAKE DOOR MOTOR : Removal and Installa-</u> tion".

[AUTOMATIC AIR CONDITIONING]

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INFOID:000000008143921

< DTC/CIRCUIT DIAGNOSIS >

# B275F, B2760, B2761 UPPER VENTILATOR DOOR MOTOR

## **DTC Logic**

## DTC DETECTION LOGIC

### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> <u>72. "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73</u>, <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153</u>, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-155</u>, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	F
B275F		Upper ventilator door motor PBR feedback sig- nal voltage is too low.	<ul> <li>Upper ventilator door motor</li> <li>Upper ventilator door motor instal-</li> </ul>	0
B2760	DR UP VENT DOOR MOT	Upper ventilator door motor PBR feedback sig- nal voltage is too high.	<ul> <li>lation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors</li> </ul>	G
B2761		Stop position of upper ventilator door motor is malfunctioning.	(The motor circuit is open or short- ed.)	Н

### DTC CONFIRMATION PROCEDURE

DICCONTINUATION PROCEDURE	
1. PERFORM DTC CONFIRMATION PROCEDURE	HAC
<ul> <li>With CONSULT</li> <li>1. Turn ignition switch ON.</li> <li>2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.</li> <li>3. Check DTC.</li> </ul>	J
<u>Is DTC detected?</u> YES >> Refer to <u>HAC-113, "Diagnosis Procedure"</u> . NO >> INSPECTION END	K
Diagnosis Procedure	L
1. CHECK UPPER VENTILATOR DOOR MOTOR OPERATION	
<ol> <li>Turn ignition switch ON.</li> <li>Touch "Upper Vent" in "Climate" screen and check by operation sound that upper ventilator door motor operates.</li> </ol>	Μ
Does upper ventilator door motor operate? YES >> GO TO 8. NO >> GO TO 2.	Ν

## 2.CHECK UPPER VENTILATOR DOOR MOTOR DRIVE SIGNAL

Check voltage between upper ventilator door motor harness connector and ground when "Upper Vent" in "Climate" screen is touched.

With Forest Air

Upper ventila	+ tor door motor	_	Condition		Voltage (Approx.)
Connector	Terminal				
M313	1	Ground	Upper Vent	$ON\toOFF$	12 V
101313	2	Giouna	Opper vent	$OFF\toON$	12 V

Ρ

## < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Without Forest Air

Without Forest All						
	+				Voltage	
Upper ventila	tor door motor	-	Con	Condition		
Connector	Terminal	1				
M312	1	Ground	Upper Vent	$ON \rightarrow OFF$ $OFF \rightarrow ON$	12 V	
Is the inspection		2				
YES >> GC NO >> GC	) TO 6. ) TO 3.		TOR DRIVE SI	GNAL CIRCUIT	FOR OPEN	
<ol> <li>Disconnect</li> <li>Disconnect</li> </ol>		or door motor co		rness connector	and A/C auto a	mp. harness con
With Forest Ai	r					
Upper ventila	tor door motor	A/C auto amp.				
Connector	Terminal	Connector	Terminal	Continuity		
M313	1	M304	66	Existed	-	
101515	2	101504	86	LAISted	_	
Without Forest	t Air				-	
Upper ventila	tor door motor	A/C au	A/C auto amp.		•	
Connector	Terminal	Connector	Terminal	Continuity		
M312	1 2	M304	66 86	Existed	-	
NO >> Re	) TO 4. pair harness or	connector.	TOR DRIVE SI	GNAL CIRCUIT	FOR GROUNI	D SHORT
Check continuit With Forest Air	y between upp	er ventilator doo	or motor harnes	s connector and	d ground.	
	tor door motor					

Upper ventila	tor door motor		Continuity	
Connector	Terminal			
M313	1	Ground	Not existed	
101515	2	Glound	NOT EXISTED	

Without Forest Air

Upper ventila	tor door motor		Continuity	
Connector	Terminal		Continuity	
M312	1	Ground	Not existed	
101312	2	Giouna	NOT EXISTED	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

# 5. Check upper ventilator door motor drive signal circuit for battery short

1. Turn ignition switch ON.

2. Check voltage between upper ventilator door motor harness connector and ground.

## HAC-114

## < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

With Forest Air	r					
-	+					A
Upper ventila	tor door motor	-		Voltage (Approx.)		
Connector	Terminal			(72	5107.)	В
M313	1	Gro	und	(	V	
Without Forest	Air	I				С
	+					
Upper ventila	tor door motor	-	-		ltage prox.)	D
Connector	Terminal			(~p	510X.)	D
M312	1	Gro	und	(	) V	
101512	2	Giù	unu	(		E
Is the inspectio	n result normal	<u>?</u>				
	) TO 15.					F
•	pair harness or					I
6.CHECK UP						
• •			<u>AC-117, "Compo</u>	nent Inspectio	<u>on (Motor)"</u> .	G
Is the inspectio		<u>?</u>				
	) TO 7. place upper vei	ntilator door mo	tor. Refer to HAC	-192. "UPPE	R VENTILATOR	DOOR MOTOR : H
	moval and Insta					
7.CHECK INS	TALLATION OF	F UPPER VENT	ILATOR DOOR	MOTOR		
Check upper ve	entilator door m	otor is properly	installed. Refer t	o <u>HAC-191,</u> "	Exploded View".	HA
Is the inspectio						
	) TO 15.					.I.
•	• •	malfunctioning				Ű
<b>8.</b> CHECK UPI	PER VENTILAT	OR DOOR MO	TOR PBR FEED	BACK SIGNA	L	
Check voltage is touched.	between A/C a	uto amp. harnes	s connector and	ground wher	i "Upper Vent" ir	n "Climate" screen K
	+	-	Cand	ition.	Voltage	L
Connector	to amp. Terminal	-	Cond	luon	(Approx.)	
Connector	Terminal			ON	4 V	- M
M304	75	Ground	Upper Vent	OFF	4 V 1 V	-
Is the inspectio	n result normal	2		011		- N
•	) TO 15.	<u>-</u>				
	D TO 9.					
9.CHECK UPI	PER VENTILAT	OR DOOR MO	TOR PBR FEED	BACK SIGNA	L CIRCUIT FOR	R OPEN O
	n switch OFF.					
2. Disconnect	t A/C auto amp.					Р
		or door motor co		less connecto	r and A/C auto a	amp. harness con-
nector.						inp. namess con-

### B275F, B2760, B2761 UPPER VENTILATOR DOOR MOTOR JIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

## < DTC/CIRCUIT DIAGNOSIS >

With Forest Air							
Upper ventila	tor door motor	A/C au	Continuity				
Connector	Terminal	Connector	Terminal	Continuity			
M313 3		M304	75	Existed			
Without Forest	Without Forest Air						
Upper ventilator door motor		A/C auto amp.		Continuity			
Connector	Terminal	Connector	Terminal	Continuity			
M312	3	M304	75	Existed			

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

# 10. CHECK UPPER VENTILATOR DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

#### Check continuity between upper ventilator door motor harness connector and ground.

#### With Forest Air

Upper ventila	tor door motor		Continuity	
Connector	Terminal		Continuity	
M313	3	Ground	Not existed	

#### Without Forest Air

Upper ventila	tor door motor		Continuity	
Connector Terminal			Continuity	
M312	3	Ground	Not existed	

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair harness or connector.

# 11. CHECK UPPER VENTILATOR DOOR MOTOR PBR POWER SUPPLY

- 1. Connect A/C auto amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between upper ventilator door motor harness connector and ground.

With Forest Air

	+		Voltage (Approx.)	
Upper ventila	tor door motor	_		
Connector	Terminal			
M313	5	Ground	5 V	
Without Forest	Air			

Upper ventila	+ tor door motor	_	Voltage (Approx.)	
Connector	Terminal	*		
M312	7	Ground	5 V	

#### Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

# 12. CHECK UPPER VENTILATOR DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- Check continuity between upper ventilator door motor harness connector and A/C auto amp. harness connector.

## HAC-116

## < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

010/01/00				-	-
With Forest A	ir				
Upper ventila	ator door motor	A/C au	to amp.	Continuity	
Connector	Terminal	Connector	Terminal		
M313	5	M304	71	Existed	
Without Fores	st Air				
Upper ventila	ator door motor	A/C au	to amp.	Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M312	7	M304	71	Existed	
ES >> G( O >> Re	on result normal O TO 15. epair harness or	connector.		ROUND CIRCUI	-
Turn ignitio	on switch OFF. tt A/C auto amp. ttinuity between	connector.			and A/C auto amp. harness con-
Upper ventila	ator door motor	A/C au	to amp.		
Connector	Terminal	Connector	Terminal	Continuity	
M313	4	M304	79	Existed	
Without Fores	st Air			<u> </u>	
Upper ventila	ator door motor	A/C au	to amp.		
Connector	Terminal	Connector	Terminal	Continuity	
M312	5	M304	79	Existed	
O >> Re 4.CHECK L eck upper v the inspectic ES >> GC O >> Re	on result normal O TO 15. eplace upper ver	ATOR DOOR M otor PBR. Refe ? ntilator door mo	r to <u>HAC-118, "</u>	Component Insp	<u>ection (PBR)"</u> . VENTILATOR DOOR MOTOR :
	emoval and Instant NTERMITTENT				
	, "Intermittent In				
	on result normal				
ES >> Re		amp. Refer to <u>I</u>		noval and Installa	<u>tion"</u> .
omponent	Inspection (	(Motor)			INFOID:00000008143923
•	PER VENTILAT	,	TOR		
Disconnec	on switch OFF. et upper ventilate per ventilator d			ery voltage and	check by visually and operation

3. Supply upper ventilator door motor terminals with battery voltage and check by visually and operation sound that upper ventilator door motor operates.

### < DTC/CIRCUIT DIAGNOSIS >

Terr	ninal	Operation direction	
+ –			
1	2	Close	
2	1	Open	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace upper ventilator door motor. Refer to <u>HAC-192, "UPPER VENTILATOR DOOR MOTOR :</u> <u>Removal and Installation"</u>.

## Component Inspection (PBR)

INFOID:000000008143924

## 1.CHECK UPPER VENTILATOR DOOR MOTOR PBR

Check resistance between upper ventilator door motor terminals.

With Forest Air

Terr	Resistance ( $\Omega$ )	
1	3	Other than 0 or ∞
4	5	

Without Forest Air

Terr	Resistance ( $\Omega$ )		
5	3	Other than 0 or ∞	
5	7		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace upper ventilator door motor. Refer to<u>HAC-192, "UPPER VENTILATOR DOOR MOTOR :</u> <u>Removal and Installation"</u>.

## B2762, B2763, B2764 REAR MODE DOOR MOTOR

#### < DTC/CIRCUIT DIAGNOSIS >

# B2762, B2763, B2764 REAR MODE DOOR MOTOR

## DTC Logic

## DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> 72, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-73. "DTC Logic".
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground D circuit. Refer to HAC-153, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If all of door motors DTC (B2750 B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-155, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause	F	
B2762	REAR MODE DOOR MOT	Rear mode door motor PBR feedback signal voltage is too low.	<ul> <li>Rear mode door motor</li> <li>Rear mode door motor installation condition</li> <li>A/C auto amp.</li> <li>Harness or connectors (The motor circuit is open or shorted.)</li> </ul>	Rear mode door motor installation	
B2763		Rear mode door motor PBR feedback signal voltage is too high.		G	
B2764		Stop position of rear mode door motor is mal- functioning.		Н	

#### DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE	HAC
<ul> <li>With CONSULT</li> <li>1. Turn ignition switch ON.</li> <li>2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.</li> <li>3. Check DTC.</li> </ul>	J
<u>Is DTC detected?</u> YES >> Refer to <u>HAC-119, "Diagnosis Procedure"</u> . NO >> INSPECTION END	Κ
Diagnosis Procedure	L
1. CHECK REAR MODE DOOR MOTOR OPERATION	
<ol> <li>Turn ignition switch ON.</li> <li>Operate MODE switch (driver side) and DEF switch and check by operation sound that rear mode door motor. NOTE: "DUAL": OFF</li> </ol>	M
Does rear mode door motor operate? YES >> GO TO 8. NO >> GO TO 2. 2.CHECK REAR MODE DOOR MOTOR DRIVE SIGNAL	0
Check voltage between rear mode door motor harness connector and ground, when MODE switch (driver side) and DEF switch are operated. NOTE:	Ρ

"DUAL": OFF

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[AUTOMATIC AIR CONDITIONING]

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## B2762, B2763, B2764 REAR MODE DOOR MOTOR

#### < DTC/CIRCUIT DIAGNOSIS >

Rear mode	+ e door motor	_	Condition		Voltage (Approx.)
Connector	Terminal				( ) ] )
M318	1	Ground	Ground Air outlet		12 V
	2	Ciouna		$VENT \to DEF$	12 V

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 3.

# 3. CHECK REAR MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. connector.

3. Disconnect rear mode door motor connector.

Check continuity between rear mode door motor harness connector and A/C auto amp. harness connector.

Rear mode	door motor	A/C au	to amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M318	1	M204	68	Existed
101316	2	M304	88	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

### **4.**CHECK REAR MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between rear mode door motor harness connector and ground.

Rear mode	door motor		Continuity
Connector	Terminal		Continuity
M318	1	Ground	Not existed
101310	2	Ground	NOT EXISTED

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

### 5.CHECK REAR MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

#### 1. Turn ignition switch ON.

2. rear mode door motor harness connector and ground.

+ Rear mode door motor		_	Voltage (Approx.)	
Connector	Terminal	Ť	(	
M318	1	Ground	0 V	
	2	Clound	0 V	

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

**6.**CHECK REAR MODE DOOR MOTOR

Check rear mode door motor. Refer to <u>HAC-122, "Component Inspection (Motor)"</u>. <u>Is the inspection result normal?</u>

# DOTED DOTED DOTE DEAD MODE DOOD MOTOD

BZ/62, BZ/63, BZ/64 REAR WOD		
< DTC/CIRCUIT DIAGNOSIS >	[AUTOMATIC AIR CONDITIONING]	
YES >> GO TO 7. NO >> Replace rear mode door motor. Refer to <u>HAC-192, "R</u> <u>Installation"</u> .	EAR MODE DOOR MOTOR : Removal and	1
<b>7.</b> CHECK INSTALLATION OF REAR MODE DOOR MOTOR		
Check rear mode door motor is properly installed. Refer to HAC-1	91, "Exploded View".	
Is the inspection result normal?		
YES >> GO TO 15.		(
NO >> Repair or replace malfunctioning parts.		
8. CHECK REAR MODE DOOR MOTOR PBR FEEDBACK SIGN	AL	

Check voltage between A/C auto amp. harness connector and ground when operate MODE switch (driver D side) and DEF switch.

NOTE:

"DUAL": OFF

Je	Voltage	dition	Con	_	- o amp.	+ A/C auto		
x.)	(Approx.)		(Approx.)		(Approx.)		Terminal	Connector
	4 V	VENT		Cround	50	M204		
	1 V	DEF	Air outlet	Ground	58	M304		

Is the inspection result normal?

YES >> GO TO 15.

NO >> GO TO 9.

9.check rear mode door motor PBR feedback signal circuit for open

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. connector.

3. Disconnect rear mode door motor connector.

Check continuity between rear mode door motor harness connector and A/C auto amp. harness connec-4. J tor.

Rear mode	door motor	A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M318	3	M304	58	Existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

10. CHECK REAR MODE DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

Check continuity between rear mode door motor harness connector and ground.

Rear mode	door motor		Continuity	
Connector	Terminal		Continuity	
M318	3	Ground	Not existed	

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair harness or connector.

**11.**CHECK REAR MODE DOOR MOTOR PBR POWER SUPPLY

1. Connect A/C auto amp. connector.

Turn ignition switch ON. 2.

3. Check voltage between rear mode door motor harness connector and ground.

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## B2762, B2763, B2764 REAR MODE DOOR MOTOR

#### < DTC/CIRCUIT DIAGNOSIS >

	+			
Rear mode	Rear mode door motor		Voltage (Approx.)	
Connector	Terminal	*		
M318	5	Ground	5 V	

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

# 12. CHECK REAR MODE DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- Check continuity between rear mode door motor harness connector and A/C auto amp. harness connector.

Rear mode	e door motor	A/C au	to amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M318	5	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

# $13. {\sf check \, Rear \, Mode \, door \, Motor \, PBR \, {\sf ground \, circuit}}$

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- Check continuity between rear mode door motor harness connector and A/C auto amp. harness connector.

Rear mode	door motor	A/C au	to amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M318	7	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair harness or connector.

# 14.CHECK REAR MODE DOOR MOTOR PBR

Check rear mode door motor PBR.Refer to HAC-123, "Component Inspection (PBR)".

#### Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace rear mode door motor. Refer to <u>HAC-192</u>, "<u>REAR MODE DOOR MOTOR</u> : <u>Removal and</u> <u>Installation</u>".

# 15. CHECK INTERMITTENT INCIDENT

#### Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to <u>HAC-183, "Removal and Installation"</u>.
- NO >> Repair or replace malfunction parts.

#### **Component Inspection (Motor)**

## **1.**CHECK REAR MODE DOOR MOTOR

1. Turn ignition switch OFF.

2. Disconnect rear mode door motor connector.

## B2762, B2763, B2764 REAR MODE DOOR MOTOR

[AUTOMATIC AIR CONDITIONING]

#### < DTC/CIRCUIT DIAGNOSIS >

3. Supply rear mode door motor terminals with battery voltage and check by visually and operation sound that rear mode door motor operates.

Terr	ninal	Operation direction
+	_	Operation direction
1	2	VENT
2	1	FOOT

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace rear mode door motor. Refer to<u>HAC-192, "UPPER VENTILATOR DOOR MOTOR :</u> D <u>Removal and Installation"</u>.

## Component Inspection (PBR)

# 1.CHECK REAR MODE DOOR MOTOR PBR

Check resistance between rear mode door motor terminals.

	Terr	ninal	Resistance	(Ω)
	7	3	Other than (	) or ∞
	•	5		
		n result normal		
YES NO	>> Re	SPECTION ENI	de door moto	or. Refe
	<u>Re</u>	moval and Insta	allation".	

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### < DTC/CIRCUIT DIAGNOSIS >

# B2768, B2769, B276A AROMA MOTOR

## DTC Logic

DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u><u>72, "DTC Logic"</u>.
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. <u>HAC-73</u>, <u>"DTC Logic"</u>.
- If all of door motors DTC (B2750 B276A) are detected, check door motor PBR power supply and ground circuit. Refer to <u>HAC-153</u>, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2768		Aroma motor PBR feedback signal voltage is too low.	<ul> <li>Aroma motor</li> <li>A/C auto amp.</li> </ul>
B2769	AROMA MOTOR	Aroma motor PBR feedback signal voltage is too high.	Harness or connectors     (The motor circuit is open or short-
B276A		Stop position of aroma motor is malfunctioning.	ed.)

## DTC CONFIRMATION PROCEDURE

## **1.**PERFORM DTC CONFIRMATION PROCEDURE

#### With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
- 3. Check DTC.

#### Is DTC detected?

- YES >> Refer to <u>HAC-124</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

## Diagnosis Procedure

**1.**CHECK AROMA MOTOR OPERATION

- 1. Turn ignition switch ON.
- 2. Operate temperature control switch and set the temperature setting to the same level as ambient temperature.
- 3. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON ⇔ OFF.
- 4. Perform this operation for 2 sets. Check by operation sound that aroma motor operates. **NOTE:**

Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning in ON again after turning it off. (Leaf scent  $\Leftrightarrow$  Fragrant wood)

#### Is the inspection result normal?

YES >> GO TO 7. NO >> GO TO 2.

2. CHECK AROMA MOTOR DRIVE SIGNAL

- Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON ⇔ OFF.
- 2. Check voltage between aroma motor harness connector and ground, when this operation is performed for 2 sets.

#### NOTE:

Operation of aroma diffuser control can be checked immediately after FOREST switch is turned off once, and then is turned ON again. Operation direction of motor is switched by turning in ON again after turning it off. (Leaf scent ⇔ Fragrant wood)

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#### < DTC/CIRCUIT DIAGNOSIS >

	+					
Aroma	Aroma motor		Co	ndition	Voltage (Approx.)	
Connector	Terminal				(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
M305	5	Ground	Aroma diffuser control	Fragrant wood Leaf scent	- 12 V	
the inspectio	n result normal?					
YES >> GC NO >> GC	) TO 6. ) TO 3.					
		RIVE SIGNAL	CIRCUIT FOR C	DPEN		
Disconnect Disconnect	n switch OFF. A/C auto amp. aroma motor c inuity between a	onnector.	arness connecto	r and A/C auto am	p. harness connector.	
Aroma	a motor	A/C au	to amp.			
Connector	Terminal	Connector	Terminal	Continuity		
14067	5		82	<b>–</b> •		
M305	6	M304	62	Existed		
the inspectio	n result normal?	)	ı			
•	) TO 4.	-				
	pair harness or	connector.				
CHECK AR	DMA MOTOR D	RIVE SIGNAL	CIRCUIT FOR G	ROUND SHORT		
			ss connector and			
	y between alon			giouna.		
Aroma	a motor					
Connector	Terminal	—	Continuity			
Connector						
	5					
M305	5	Ground	Not existed			
	6		Not existed			
the inspectio	6 n result normal?		Not existed			
the inspectio YES >> GC	6 n result normal? ) TO 5.	-	Not existed			
<u>the inspectio</u> YES >> GC NO >> Re	6 n result normal? ) TO 5. pair harness or	connector.				
<u>the inspectio</u> YES >> GC NO >> Re	6 n result normal? ) TO 5. pair harness or	connector.		BATTERY SHORT		
the inspectio YES >> GC NO >> Re .CHECK AR( Turn ignitio	6 n result normal? TO 5. pair harness or DMA MOTOR D n switch ON.	connector. RIVE SIGNAL	CIRCUIT FOR E			
the inspectio YES >> GC NO >> Re .CHECK AR( Turn ignitio	6 n result normal? TO 5. pair harness or DMA MOTOR D n switch ON.	connector. RIVE SIGNAL				
the inspectio YES >> GC NO >> Re .CHECK AR( Turn ignitio	6 n result normal? TO 5. pair harness or DMA MOTOR D n switch ON.	connector. RIVE SIGNAL	CIRCUIT FOR E			
the inspectio YES >> GC NO >> Re CHECK ARC Turn ignitio Check volta	6 n result normal? TO 5. pair harness or DMA MOTOR D n switch ON.	connector. RIVE SIGNAL	CIRCUIT FOR E	nd ground.		
the inspectio YES >> GC NO >> Re CHECK ARC Turn ignitio Check volta	6 n result normal? TO 5. pair harness or OMA MOTOR D n switch ON. age between arc	connector. RIVE SIGNAL	CIRCUIT FOR E			
the inspectio YES >> GC NO >> Re CHECK ARC Turn ignitio Check volta	6 n result normal? D TO 5. pair harness or DMA MOTOR D n switch ON. age between arc	connector. RIVE SIGNAL	CIRCUIT FOR E	nd ground. Voltage		
the inspectio YES >> GC NO >> Re CHECK AR( Turn ignitio Check volta Aroma	6 n result normal? ) TO 5. pair harness or DMA MOTOR D n switch ON. age between arc	connector. RIVE SIGNAL	CIRCUIT FOR E	nd ground. Voltage (Approx.)		
the inspectio YES >> GC NO >> Re CHECK ARC Turn ignitio Check volta	6 n result normal? D TO 5. pair harness or DMA MOTOR D n switch ON. age between arc + a motor Terminal	connector. RIVE SIGNAL	CIRCUIT FOR E	nd ground. Voltage		
the inspectio YES >> GC NO >> Re •CHECK ARC Turn ignitio Check volta Aroma Connector M305	6 n result normal? D TO 5. pair harness or DMA MOTOR D n switch ON. age between arc + a motor Terminal 5 6	connector. RIVE SIGNAL oma motor harr	CIRCUIT FOR E	nd ground. Voltage (Approx.)		
the inspectio YES >> GC NO >> Re •CHECK ARC Turn ignitio Check volta Aroma Connector M305 the inspectio	6 n result normal? ) TO 5. pair harness or DMA MOTOR D n switch ON. age between arc + a motor Terminal 5 6 n result normal?	connector. RIVE SIGNAL oma motor harr	CIRCUIT FOR E	nd ground. Voltage (Approx.)		
the inspectio YES >> GC NO >> Re •CHECK ARC Turn ignitio Check volta Aroma Connector M305 the inspectio YES >> GC	6 n result normal? D TO 5. pair harness or DMA MOTOR D n switch ON. age between arc + a motor Terminal 5 6	connector. RIVE SIGNAL oma motor harr Gro	CIRCUIT FOR E	nd ground. Voltage (Approx.)		
the inspectio YES >> GC NO >> Re .CHECK ARC Turn ignitio Check volta Aroma Connector M305 the inspectio YES >> GC NO >> Re	6 n result normal? D TO 5. pair harness or DMA MOTOR D n switch ON. age between arc + a motor Terminal 5 6 n result normal? D TO 14. pair harness or	connector. RIVE SIGNAL oma motor harr Gro	CIRCUIT FOR E	nd ground. Voltage (Approx.)		
the inspectio YES >> GC NO >> Re .CHECK ARC Turn ignitio Check volta Aroma Connector M305 the inspectio YES >> GC NO >> Re .CHECK ARC	6 n result normal? ) TO 5. pair harness or OMA MOTOR D n switch ON. age between arc + a motor Terminal 5 6 n result normal? ) TO 14. pair harness or OMA MOTOR	connector. RIVE SIGNAL oma motor harr Gro	CIRCUIT FOR E	nd ground. Voltage (Approx.) 0 V		

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 14.

NO >> Replace aroma motor. Refer to <u>HAC-195</u>, "Removal and Installation".

7. CHECK AROMA MOTOR PBR FEEDBACK SIGNAL

- Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON ⇔ OFF.
- 2. Check voltage between A/C auto amp. connector and ground, when this operation is performed for 2 sets. **NOTE:**

Operation of aroma diffuser control can be checked immediately after FOREST switch is turned off once, and then is turned ON again. Operation direction of motor is switched by turning in ON again after turning it off. (Leaf scent ⇔ Fragrant wood)

A/C au	+ to amp.	_	Condition		Voltage (Approx.)	
Connector	Terminal					
M304	52	Ground	Aroma diffuser	Fragrant wood	4 V	
101304	52	Ground	control	Leaf scent	1 V	

Is the inspection result normal?

YES >> GO TO 14. NO >> GO TO 8.

### 8.CHECK AROMA MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- 3. Disconnect aroma motor connector.
- 4. Check continuity between aroma motor harness connector and A/C auto amp. harness connector.

Aroma	a motor	A/C au	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M305	2	M304	52	Existed

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair harness or connector.

#### ${f 9.}$ CHECK AROMA MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

#### Check continuity between aroma motor harness connector and ground.

Aroma	a motor		Continuity
Connector	Terminal		Continuity
M305	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

# **10.**CHECK AROMA MOTOR PBR POWER SUPPLY

- 1. Connect A/C auto amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between aroma motor harness connector and Ground.

Aroma	+ a motor	_	Voltage (Approx.)
Connector	Connector Terminal		(Approx.)
M305	M305 3		5 V

s the inspection		2			
	TO 12.				
NO >> GO					
		PBR POWER S	SUPPLY CIRC	JIT FOR OPEN	N
	n switch OFF. A/C auto amp.	connector			
			rness connecto	or and A/C auto	amp. harness connector.
Aroma	motor	A/C aut	o amp.	Continuity	
Connector	Terminal	Connector	Terminal		_
M305	3	M304	71	Existed	
s the inspection		2			
YES >> GO	-				
· - '	air harness or				
Z.CHECK AF	ROMA MOTOR	PBR GROUND	CIRCUIT		
	n switch OFF.				
	A/C auto amp.				
<ol> <li>Check conti</li> </ol>	nuity between	aroma motor na	irness connecto	or and A/C auto	amp. harness connector.
Aroma	motor	A/C aut	o amp		-
Connector	Terminal	Connector	Terminal	Continuity	
M305	1	M304	79	Existed	-
s the inspection			10	Existed	-
YES >> GO		<u>.</u>			
	air harness or	connector.			
1 <b>3.</b> CHECK AF					
		er to <u>HAC-128,</u> "		Proction (DRD)	1
s the inspection			<u>Component ins</u>		-
YES >> GO					
		otor. Refer to <u>HA</u>	C-195, "Remo	val and Installa	tion".
NO >> Rep					
· · '					
14. CHECK IN		sidont"			
14.CHECK IN Refer to <u>GI-49.</u> '	Intermittent Inc				
14.CHECK IN Refer to <u>GI-49.</u> Is the inspection	Intermittent Inc	2	AC-183 "Pom	oval and Install	ation"
14.CHECK IN Refer to <u>GI-49.</u> <u>s the inspection</u> YES >> Rep	Intermittent Ind result normal?	2 amp. Refer to <u>H</u>		oval and Install	ation".
14.CHECK IN Refer to <u>GI-49.</u> Is the inspection YES >> Rep NO >> Rep	Intermittent Ind result normal? blace A/C auto a bair or replace r	2 amp. Refer to <u>H</u> malfunction parts		oval and Install	ation".
14.CHECK IN Refer to <u>GI-49.</u> Is the inspection YES >> Rep	Intermittent Ind result normal? blace A/C auto a bair or replace r	2 amp. Refer to <u>H</u> malfunction parts		oval and Install	ation". INFOID:00000000814393
14.CHECK IN Refer to <u>GI-49.</u> Is the inspection YES >> Rep NO >> Rep	Intermittent Ind result normal? blace A/C auto bair or replace r Inspection (	2 amp. Refer to <u>H</u> malfunction parts		oval and Install	
14.CHECK IN Refer to <u>GI-49.</u> Southe inspection YES >> Rep NO >> Rep Component I	Intermittent Ind result normal? blace A/C auto a bair or replace r Inspection (	2 amp. Refer to <u>H</u> malfunction parts		oval and Install	
14.CHECK IN Refer to <u>GI-49.</u> Southe inspection YES >> Rep NO >> Rep Component 1.CHECK ARC	Intermittent Ind result normal? blace A/C auto bair or replace r Inspection (	amp. Refer to <u>H</u> nalfunction parts Motor)		oval and Install	

3. Supply aroma motor terminals with battery voltage and check by visually and operation sound that aroma motor operates.

+-5665Leaf scent	Term	ninals	Operation direction
	+	_	Operation direction
6 5 Leaf scent	5	6	Fragrant wood
	6	5	Leaf scent

Is the inspection result normal?

Ρ

YES >> INSPECTION END

#### < DTC/CIRCUIT DIAGNOSIS >

### NO >> Replace aroma motor. Refer to <u>HAC-195, "Removal and Installation"</u>.

## Component Inspection (PBR)

1.CHECK AROMA MOTOR PBR

Check resistance between aroma motor terminals.

Term	Resistance ( $\Omega$ )	
1	2	Other than 0 or ∞
	3	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace aroma motor. Refer to <u>HAC-195. "Removal and Installation"</u>.

[AUTOMATIC AIR CONDITIONING]

INFOID:000000008143940

# B276B, B276C, B276D HUMIDITY SENSOR

# < DTC/CIRCUIT DIAGNOSIS >

# B276B, B276C, B276D HUMIDITY SENSOR

## **DTC** Logic

## DTC DETECTION LOGIC

#### NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to <u>HAC-</u> 72, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-73. "DTC Logic".

DTC	Items (CONSULT screen terms)		DTC detection condition	Possible cause			
B276B		(A)	The humidity sensor (glass temperature sensor) recognition temperature is too high.	<ul> <li>Humidity sensor</li> <li>A/C auto amp.</li> </ul>			
B276C	HUMIDITY SENSOR	The humidity sensor (glass temperature sen- sor) recognition temperature is too low. • Harness or connecto (The sensor circuit is					
B276D	276D (B) Communication malfunction of humidity sensor shorted.)						
DTC CO	NFIRMATION PROCEI	DUR	E				
<b>1.</b> PERF	ORM DTC CONFIRMATI	ON P	ROCEDURE				
2. Selec 3. Chec I <u>s DTC de</u> YES >	ignition switch ON. ct "Self Diagnostic Result' k DTC.		e of "HVAC" using CONSULT. sis Procedure".				
	sis Procedure			INFOID:00000008143942			
<b>1</b> .INSPE	CTION START						
Confirm c	letected malfunction (A or	r B). F	Refer to <u>HAC-129, "DTC Logic"</u> .				
	alfunction is detected?						
	>> GO TO 2. >> GO TO 8.						
-		GLAS	S TEMPERATURE SENSOR) POWER	R SUPPLY			
	ignition switch OFF.	-	,				
2. Disco	onnect humidity sensor co	nnec	tor.				
	ignition switch ON. k voltage between humid	ity se	nsor harness connector and ground.				
	+		Voltag	le			
	Humidity sensor – (Approx.)						
	Taxat I		1				
F Connec R6	ctor Terminal		Ground 5 V				

# $\textbf{3.} \textbf{CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR) POWER SUPPLY CIRCUIT FOR OPEN$

1. Turn ignition switch OFF.

- 2. Disconnect A/C auto amp. connector.
- 3. Check continuity between humidity sensor harness connector and A/C auto amp. harness connector.

## **HAC-129**

[AUTOMATIC AIR CONDITIONING]

INFOID:00000008143941

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## B276B, B276C, B276D HUMIDITY SENSOR

#### < DTC/CIRCUIT DIAGNOSIS >

Humidit	y sensor	A/C au	to amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
R6	5	M67	33	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

**4.**CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR) POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between humidity sensor harness connector and ground.

Humidit	y sensor		Continuity
Connector	Terminal		
R6	5	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

**5.**CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR) POWER SUPPLY CIRCUIT FOR BAT-TERY SHORT

- 1. Turn ignition switch ON.
- 2. Check voltage between humidity sensor harness connector and ground.

Humidit	+ y sensor	_	Voltage (Approx.)
Connector	Terminal	•	(. + F)
R6	5	Ground	0 V

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair harness or connector.

6.CHECK HUMIDITY SENSOR GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.

3. Check continuity between humidity sensor harness connector and A/C auto amp. harness connector.

Humidit	Humidity sensor		to amp.	Continuity
Connector	Terminal	Connector Terminal		Continuity
R6	6	M67	44	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

**1**.CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR)

Check humidity sensor. Refer to HAC-132, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace humidity sensor. Refer to <u>HAC-187, "Removal and Installation"</u>.

**8.**CHECK HUMIDITY SENSOR POWER SUPPLY

1. Turn ignition switch OFF.

2. Disconnect humidity sensor connector.

### B276B, B276C, B276D HUMIDITY SENSOR OSIS > [AUTOMATIC AIR CONDITIONING]

#### < DTC/CIRCUIT DIAGNOSIS >

#### 3. Turn ignition switch ON.

4. Check voltage between humidity sensor harness connector and ground.

+			Voltage
Humidity sensor Connector Termina	-	-	(Approx.)
R6 3		bund	5 V
s the inspection result nor		Junu	5 V
YES >> GO TO 12. NO >> GO TO 9. CHECK HUMIDITY SE		PPLY CIRCUIT FO	OR OPEN
. Turn ignition switch O 2. Disconnect A/C auto a 3. Check continuity betw	mp. connector.	r harness connect	tor and A/C auto amp. harness connector
Humidity sensor	A/C au	to amp.	Continuity
Connector Termina	I Connector	Terminal	Continuity
R6 3	M67	39	Existed
heck continuity between			FOR GROUND SHORT
Check continuity between Humidity sensor	humidity sensor har		
	humidity sensor har		nd ground.
Humidity sensor         Connector       Termina         R6       3         s the inspection result nor         YES       >> GO TO 11.         NO       >> Repair harnes <b>1.</b> CHECK HUMIDITY S         . Turn ignition switch O	humidity sensor har	UPPLY CIRCUIT	nd ground. Continuity Not existed FOR BATTERY SHORT
Humidity sensorConnectorTerminaR63s the inspection result norYES>> GO TO 11.NO>> Repair harnesI1.CHECK HUMIDITY S	humidity sensor har	UPPLY CIRCUIT	nd ground. Continuity Not existed FOR BATTERY SHORT and ground.
Humidity sensor         Connector       Termina         R6       3         s the inspection result nor         YES       >> GO TO 11.         NO       >> Repair harnes <b>1</b> .CHECK HUMIDITY S         Turn ignition switch Ol         Check voltage between         +         Humidity sensor	humidity sensor har	UPPLY CIRCUIT	nd ground. Continuity Not existed FOR BATTERY SHORT
Humidity sensor         Connector       Termina         R6       3         s the inspection result nor         YES       >> GO TO 11.         NO       >> Repair harnes <b>1</b> .CHECK HUMIDITY S         . Turn ignition switch Ol         . Turn ignition switch Ol         . Check voltage betwee         +         Humidity sensor         Connector       Termina	humidity sensor har	UPPLY CIRCUIT arness connector	rd ground. Continuity Not existed FOR BATTERY SHORT and ground. Voltage (Approx.)
Humidity sensor         Connector       Termina         R6       3         s the inspection result nor         YES       >> GO TO 11.         NO       >> Repair harnes <b>1.</b> CHECK HUMIDITY S         . Turn ignition switch Ol         . Check voltage betwee         +         Humidity sensor	humidity sensor har	UPPLY CIRCUIT	rod ground. Continuity Not existed FOR BATTERY SHORT and ground. Voltage

3. Check continuity between humidity sensor harness connector and A/C auto amp. harness connector.

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## B276B, B276C, B276D HUMIDITY SENSOR

#### < DTC/CIRCUIT DIAGNOSIS >

Humidit	Humidity sensor		r A/C auto amp.		
Connector	Terminal	Connector Terminal		Continuity	
R6	1	M66	22	Existed	

Is the inspection result normal?

YES >> GO TO 13.

NO >> Repair harness or connector.

# $13. {\sf check\ humidity\ sensor\ communication\ signal\ circuit\ for\ open}$

Check continuity between humidity sensor harness connector and A/C auto amp. harness connector.

Humidit	Humidity sensor A/C auto amp.		to amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
R6	2	M66	20	Existed
RO	4	NICO NICO	21	Existed

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair harness or connector.

**14.**REPLACE HUMIDITY SENSOR

Replace humidity sensor. Refer to HAC-187. "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 15.

15. CHECK INTERMITTENT INCIDENT

#### Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183, "Removal and Installation"</u>.

NO >> Repair or replace malfunctioning parts.

## **Component Inspection**

INFOID:000000008143943

## **1.**CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR)

1. Turn ignition switch OFF.

2. Disconnect humidity sensor connector.

3. Check resistance between humidity sensor terminals. Refer to applicable table for normal value.

# B276B, B276C, B276D HUMIDITY SENSOR

#### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Condition	Resistance: $k\Omega$
renni	nai	Temperature: °C (°F)	Resistance: K12
		–15	59.61
	-	-10	46.29
	-	-5	36.29
		0	28.70
		5	22.20
	-	10	18.41
5	6	15	14.92
		20	12.17
	-	25	10.00
	-	30	8.27
	-	35	6.88
		40	5.76
	-	45	4.85

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace humidity sensor. Refer to <u>HAC-187, "Removal and Installation"</u>.

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## **B2780 ELECTRIC COMPRESSOR**

#### < DTC/CIRCUIT DIAGNOSIS >

# B2780 ELECTRIC COMPRESSOR

## DTC Logic

INFOID:000000008143944

## DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2780	COMPRESSOR ROM,RAM,AD	<ul> <li>When an error is detected in the ROM and RAM area data</li> <li>When an error is detected in the AD value (circuit that converts the analog value to a digital value)</li> </ul>	Electric compressor

### DTC CONFIRMATION PROCEDURE

# **1.**PERFORM DTC CONFIRMATION PROCEDURE

#### (D) With CONSULT

- 1. Turn ignition switch OFF.
- 2. Set the vehicle to READY.
- 3. Operate the automatic air conditioning system.
- 4. Set the temperature to full cold and wait at least 2 seconds.
- 5. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.

#### Is DTC detected?

- YES >> Refer to <u>HAC-134</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

## **Diagnosis Procedure**

**1.**REPLACE ELECTRIC COMPRESSOR

Replace electric compressor. Refer to HA-30, "Removal and Installation".

>> INSPECTION END

INFOID:000000008143945

## **B2781 ELECTRIC COMPRESSOR**

### < DTC/CIRCUIT DIAGNOSIS >

# B2781 ELECTRIC COMPRESSOR

## **DTC Logic**

[AUTOMATIC AIR CONDITIONING]

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#### DTC DETECTION LOGIC В Items DTC DTC detection condition Possible cause (CONSULT screen terms) B2781 COMP IPM TEMP SENSOR IPM temp sensor is open or shorted. Electric compressor DTC CONFIRMATION PROCEDURE D 1.PERFORM DTC CONFIRMATION PROCEDURE (P)With CONSULT Ε Turn ignition switch OFF. 1. Set the vehicle to READY. 2. Operate the automatic air conditioning system. 3. Set the temperature to full cold and wait at least 2 seconds. 4. F Select "Self Diagnostic Result" mode of "HVAC" using CONSULT. 5. Is DTC detected? YES >> Refer to HAC-135, "Diagnosis Procedure". NO >> INSPECTION END **Diagnosis** Procedure INFOID:000000008143947 Н 1.REPLACE ELECTRIC COMPRESSOR Replace electric compressor. Refer to HA-30, "Removal and Installation". HAC >> INSPECTION END Κ

Revision: 2013 March

## **B2782 ELECTRIC COMPRESSOR**

#### < DTC/CIRCUIT DIAGNOSIS >

# B2782 ELECTRIC COMPRESSOR

## DTC Logic

INFOID:000000008143948

#### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2782	COMP SHUNT SIGNAL OFFSET	When an error is detected in the shunt signal (current value in the A/C inverter)	Electric compressor

## DTC CONFIRMATION PROCEDURE

# 1.PERFORM DTC CONFIRMATION PROCEDURE

#### ()With CONSULT

- 1. Turn ignition switch OFF.
- 2. Set the vehicle to READY.
- 3. Operate the automatic air conditioning system.
- 4. Set the temperature to full cold and wait at least 2 seconds.
- 5. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.

## Is DTC detected?

- YES >> Refer to <u>HAC-136</u>, "Diagnosis Procedure".
- NO >> INSPECTION END

## Diagnosis Procedure

## **1.**REPLACE ELECTRIC COMPRESSOR

Replace electric compressor. Refer to <u>HA-30, "Removal and Installation"</u>.

>> INSPECTION END

INFOID:000000008143949

## B2783, B2784 ELECTRIC COMPRESSOR

#### < DTC/CIRCUIT DIAGNOSIS >

# B2783, B2784 ELECTRIC COMPRESSOR

## **DTC Logic**

INFOID:000000008143950

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DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2783	COMP DISCHARGE TEMP OVER HEAT	When the estimated refrigerant temperature discharged from the electric compressor 130°C (266°F) or more	Electric compressor (Discharge pressure increase)     Cooling fon
B2784	COMP DISCHARGE TEMP LIMIT	When the estimated refrigerant temperature discharged from the electric compressor 110°C (230°F) or more	<ul><li>Cooling fan</li><li>Refrigerant leakage</li><li>Refrigerant insufficient</li></ul>
	NFIRMATION PROCED	URE	
1.PERFC	ORM DTC CONFIRMATIO	N PROCEDURE	
4. Set th 5. Select <u>s DTC de</u> YES >	t "Self Diagnostic Result" r <u>etected?</u> -> Refer to <u>HAC-137, "Diag</u>	and wait at least 2 seconds. node of "HVAC" using CONSULT.	
-	-> INSPECTION END		INFOID:0000000
Diagnos	Sis Procedure K REFRIGERANT FOR LE	AKAGES	INFOID:000000
Diagnos 1.CHECI	sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Refe	AKAGES er to <u>HA-20, "Check Refrigerant Leakage</u>	
Diagnos 1.CHECI Check ref	Sis Procedure K REFRIGERANT FOR LE rigerant for leakages. Refe pection result normal?		
Diagnos 1.CHECI Check ref s the insp YES >	sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Refe	er to <u>HA-20, "Check Refrigerant Leakage</u>	
Diagnos 1.CHECI Check ref s the insp YES NO >	Sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Refe pection result normal? >> GO TO 2.	er to <u>HA-20. "Check Refrigerant Leakage</u> nctioning parts.	
Diagnos 1.CHECI Check ref s the insp YES NO 2.CHECI 1. Set th 2. Opera	Sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Refe pection result normal? -> GO TO 2. -> Repair or replace malfue	er to <u>HA-20. "Check Refrigerant Leakage</u> nctioning parts. FION tioning system.	
Diagnos 1.CHECI Check ref <u>s the insp</u> YES = NO = 2.CHECI 1. Set th 2. Opera 3. Checi <u>s the insp</u>	Sis Procedure <a href="https://www.example.com">k REFRIGERANT FOR LE</a> rigerant for leakages. Reference <a href="https://www.example.com">k REFRIGERANT FOR LE</a> rigerant for leakages. Reference <a href="https://www.example.com">k REFRIGERANT FOR LE</a> <a href="https://www.example.com">k REFRIGERANT FOR LE</a> rigerant for leakages. Reference <a href="https://www.example.com">k REFRIGERANT FOR LE</a> <a href="https://www.example.com">k Reference</a> <a href="https://www.example.com">k Reference</a> <a href="https://www.example.com">k Reference</a> <a href="https://www.example.com">k Reference</a> <a href="https://www.example.com"></a> k COOLING FAN OPERAT <a href="https://www.example.com"></a> k that the cooling fan is operative.com <a href="https://www.example.com"></a> k that the cooling fan is operative.com"/>k that the cooling fan is operative.com	er to <u>HA-20. "Check Refrigerant Leakage</u> nctioning parts. FION tioning system.	
Diagnos 1.CHECI Check ref <u>s the insp</u> YES > 2.CHECI 1. Set th 2. Opera 3. Check <u>s the insp</u> YES > NO >	sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Reference >> GO TO 2. >> Repair or replace malfunce < COOLING FAN OPERATION The vehicle to READY. The vehicle to READY	er to <u>HA-20, "Check Refrigerant Leakage</u> Inctioning parts. FION tioning system. erating.	n
Diagnos 1.CHECI Check ref <u>s the insp</u> YES > 2.CHECI 1. Set th 2. Opera 3. Check <u>s the insp</u> YES > NO >	Sis Procedure CREFRIGERANT FOR LE rigerant for leakages. Reference Section result normal? Solution of the replace malfuncy COOLING FAN OPERATION Network the automatic air condition to the the automatic air condition to the the cooling fan is operation result normal? Solution of the cooling fan is operation o	er to <u>HA-20, "Check Refrigerant Leakage</u> Inctioning parts. FION tioning system. erating.	n
Diagnos 1.CHECI Check ref s the insp YES > 2.CHECI 1. Set th 2. Opera 3. Checi s the insp YES > NO > 3. Checi S the insp	Sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Reference >> GO TO 2. >> Repair or replace malfunce < COOLING FAN OPERAT He vehicle to READY. The vehicle to READY. The vehicle to READY. The automatic air condition (COOLING FAN OPERAT (COOLING FAN OPERAT) >> GO TO 3. >> GO TO 3. >> Check cooling fan. Reference < REFRIGERANT CYCLE rigerant cycle. Refer to HA	er to <u>HA-20, "Check Refrigerant Leakage</u> Inctioning parts. FION tioning system. erating.	n
Diagnos 1.CHECI Check ref s the insp YES $>$ NO $>$ 2.CHECI 1. Set th 2. Opera 3. Check s the insp YES $>$ NO $>$ 3. Check S the insp Check ref s the insp	sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Reference exection result normal? >> GO TO 2. >> Repair or replace malfunct < COOLING FAN OPERAT The vehicle to READY. The vehicle to READY.	er to <u>HA-20, "Check Refrigerant Leakage</u> Inctioning parts. FION tioning system. erating.	n
Diagnos 1.CHECI Check ref s the insp YES $>$ NO $>$ 2.CHECI 1. Set th 2. Opera 3. Check s the insp YES $>$ NO $>$ 3. CHECI Check ref s the insp YES $>$ 3. CHECI	Sis Procedure < REFRIGERANT FOR LE rigerant for leakages. Reference >> GO TO 2. >> Repair or replace malfunce < COOLING FAN OPERAT He vehicle to READY. The vehicle to READY. The vehicle to READY. The automatic air condition (COOLING FAN OPERAT (COOLING FAN OPERAT) >> GO TO 3. >> GO TO 3. >> Check cooling fan. Reference < REFRIGERANT CYCLE rigerant cycle. Refer to HA	er to <u>HA-20, "Check Refrigerant Leakage</u> Inctioning parts. FION tioning system. erating. er to <u>EC-406, "Component Function Chec</u> <u>-25, "Inspection"</u> .	n

 After operate air conditioning system 15 minutes or more, perform DTC confirmation procedure, and check that DTC [B2783] or DTC [B2784] is not detected.

#### Is the inspection result normal?

YES >> Replace electric compressor. Refer to HA-30, "Removal and Installation".

## HAC-137

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace malfunctioning parts.

### < DTC/CIRCUIT DIAGNOSIS >

# B2785, B2786 ELECTRIC COMPRESSOR

## **DTC** Logic

INFOID:000000008143952

[AUTOMATIC AIR CONDITIONING]

#### DTC DETECTION LOGIC В Items DTC DTC detection condition Possible cause (CONSULT screen terms) When the IPM temperature 125°C (257°F) or more within 1 min after starting the electric Electric compressor compressor B2785 COMP IPM OVER HEAT D (Discharge pressure increase) When the IPM temperature 88°C (190°F) or Cooling fan more after 1 min or longer after starting the · Refrigerant leakage electric compressor · Refrigerant insufficient COMP IPM DISCHARGE When the IPM temperature 83°C (181°F) or B2786 TEMP LIMIT more DTC CONFIRMATION PROCEDURE F 1.PERFORM DTC CONFIRMATION PROCEDURE With CONSULT Turn ignition switch OFF. 1. Set the vehicle to READY. 2. 3. Operate the automatic air conditioning system. Set the temperature to full cold and wait at least 2 seconds. 4. Н Select "Self Diagnostic Result" mode of "HVAC" using CONSULT. 5. Is DTC detected? >> Refer to HAC-139, "Diagnosis Procedure". YES HAC NO >> INSPECTION END Diagnosis Procedure INFOID:00000008143953 1.CHECK REFRIGERANT FOR LEAKAGES Check refrigerant for leakages. Refer to HA-20, "Check Refrigerant Leakage". Κ Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace malfunctioning parts. 2.CHECK COOLING FAN OPERATION 1. Set the vehicle to READY. Operate the automatic air conditioning system. 2. M Check that the cooling fan is operating. 3. Is the inspection result normal? YES >> GO TO 3. Ν NO >> Check cooling fan. Refer to EC-406, "Component Function Check". 3.CHECK REFRIGERANT CYCLE Check refrigerant cycle. Refer to HA-25. "Inspection". Is the inspection result normal? YES >> GO TO 4. Ρ NO >> Repair or replace malfunctioning parts. ${f 4.}$ CHECK AIR CONDITIONING SYSTEM BY RE-FILLING REFRIGERANT 1. Collect refrigerant, and charge the air conditioning system from a new service can with the specified

amount refrigerant. After operate air conditio

 After operate air conditioning system 15 minutes or more, perform DTC confirmation procedure, and check that DTC [B2785] or DTC [B2786] is not detected.

Is the inspection result normal?

## HAC-139

B2785, B2786 ELECTRIC COMPRESSOR

#### < DTC/CIRCUIT DIAGNOSIS >

- >> Replace electric compressor. Refer to <u>HA-30, "Removal and Installation"</u>.
   >> Repair or replace malfunctioning parts. YES
- NO

# **B2787 ELECTRIC COMPRESSOR**

### < DTC/CIRCUIT DIAGNOSIS >

# **B2787 ELECTRIC COMPRESSOR**

# DTC Logic

INFOID:000000008143954

А

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2787	COMP VOLTAGE SATURA- TION	When the motor voltage 140% or more relative to the inverter output voltage	<ul> <li>Li-ion battery</li> <li>Electric compressor (Discharge pressure increase)</li> <li>Cooling fan</li> <li>Overfilled refrigerant</li> </ul>
	FIRMATION PROCED	URE	
<b>1.</b> PERFC	RM DTC CONFIRMATIO	N PROCEDURE	
With CO			
	gnition switch OFF. e vehicle to READY.		
3. Opera	te the automatic air condi	tioning system. and wait at least 2 seconds.	
		mode of "HVAC" using CONSULT.	
Is DTC de			
	> Refer to <u>HAC-141, "Diag</u> > INSPECTION END	gnosis Procedure".	
Diagnos	is Procedure		INFOID:00000008143
	( LI-ION BATTERY		
		A "Mork Flow"	
	n battery. Refer to <u>HBB-4</u> ection result normal?	4, <u>WOIK FIOW</u> .	
YES >	> GO TO 2.		
~	> Repair or replace malful KREFRIGERANT FOR LE	• •	
			и
	ection result normal?	er to <u>HA-20, "Check Refrigerant Leakage</u>	-
YES >	> GO TO 3.		
-	> Repair or replace malfu	• •	
	COOLING FAN OPERAT	ΠΟΝ	
	e vehicle to READY. te the automatic air condi <sup>:</sup>	tioning system.	
	that the cooling fan is op	erating.	
	ection result normal? > GO TO 4.		
-		r to EC-406, "Component Function Chec	<u>:k"</u> .
4.CHECK	REFRIGERANT CYCLE		
Check refi	igerant cycle. Refer to <u>HA</u>	-25, "Inspection".	
-	ection result normal?		
	> Replace electric compre > Repair or replace malful	essor. Refer to <u>HA-30, "Removal and Inst</u> notioning parts	allation".

YES NO >> Repair or replace malfunctioning parts.

### < DTC/CIRCUIT DIAGNOSIS >

# **B2788 ELECTRIC COMPRESSOR**

## DTC Logic

## DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2788	COMP OVER CURRENT	<ul> <li>When the electric compressor is not operated under the following conditions:</li> <li>Within 90 seconds after starting</li> <li>Motor current is 35.1 A or more</li> <li>3 times in a 5 second interval</li> </ul>	<ul> <li>Electric compressor (Discharge pressure increase) (Inverter internal short-circuit) (Stuck compressor)</li> <li>Cooling fan</li> </ul>

### DTC CONFIRMATION PROCEDURE

## 1.PERFORM DTC CONFIRMATION PROCEDURE

#### (P)With CONSULT

- Turn ignition switch OFF. 1.
- Set the vehicle to READY. 2.
- 3. Operate the automatic air conditioning system.
- Set the temperature to full cold and wait at least 2 seconds. 4.
- Select "Self Diagnostic Result" mode of "HVAC" using CONSULT. 5.

#### Is DTC detected?

- YES >> Refer to HAC-142, "Diagnosis Procedure".
- NO >> INSPECTION END

## Diagnosis Procedure

## 1.CHECK REFRIGERANT FOR LEAKAGES

Check refrigerant for leakages. Refer to HA-20, "Check Refrigerant Leakage".

#### Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Repair or replace malfunctioning parts.

## 2. CHECK COOLING FAN OPERATION

- Set the vehicle to READY. 1.
- Operate the automatic air conditioning system. 2.
- Check that the cooling fan is operating. 3.

#### Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Check cooling fan. Refer to EC-406, "Component Function Check".

## ${f 3.}$ CHECK ELECTRIC COMPRESSOR OPERATION

#### Check electric compressor operation.

#### Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace electric compressor. Refer to HA-30, "Removal and Installation".

#### **4.**CHECK REFRIGERANT CYCLE

#### Check refrigerant cycle. Refer to HA-25, "Inspection".

#### Is the inspection result normal?

>> Replace electric compressor. Refer to HA-30, "Removal and Installation". YES

NO >> Repair or replace malfunctioning parts. INFOID:000000008143957

INFOID:00000008143956

[AUTOMATIC AIR CONDITIONING]

## **B2789 ELECTRIC COMPRESSOR**

## < DTC/CIRCUIT DIAGNOSIS >

# B2789 ELECTRIC COMPRESSOR

# DTC Logic

[AUTOMATIC AIR CONDITIONING]

INFOID:000000008143958

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DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B2789	COMP OVER LOADED	When a current of 13.5 A or more is input to the electric compressor	<ul> <li>Electric compressor (Discharge pressure increase)</li> <li>Cooling fan</li> </ul>
IC COI	NFIRMATION PROCED	URE	
.PERFC	ORM DTC CONFIRMATIO	N PROCEDURE	
	ONSULT		
	gnition switch OFF. te vehicle to READY.		
Opera	ate the automatic air condi		
		and wait at least 2 seconds. node of "HVAC" using CONSULT.	
DTC de			
	Refer to <u>HAC-143, "Dia</u> >> INSPECTION END	<u>gnosis Procedure"</u> .	
-	sis Procedure		INFOID:0000000814398
-	K REFRIGERANT FOR LE		
			11
		er to <u>HA-20, "Check Refrigerant Leakage</u>	_•
the insp	ection result normal?		
YES >	vection result normal? > GO TO 2.		
YES > NO >	> GO TO 2. >> Repair or replace malfu	• ·	
YES > NO > .CHEC	> GO TO 2. > Repair or replace malfu < COOLING FAN OPERA	• ·	
YES > NO > .CHEC	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malfu</li> <li>&lt; COOLING FAN OPERATION OPERATION</li> <li>whicle to READY.</li> </ul>	ΓΙΟΝ	
YES > NO > .CHEC Set th Opera Chec	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malfu</li> <li>&lt; COOLING FAN OPERATION</li> <li>we vehicle to READY.</li> <li>ate the automatic air conding the the cooling fan is op</li> </ul>	TION	
YES > NO > CHEC Set th Opera Chec the insp	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malfu</li> <li>&lt; COOLING FAN OPERA</li> <li>we vehicle to READY.</li> <li>ate the automatic air condition of the cooling fan is op</li> <li>we to result normal?</li> </ul>	TION	
YES > NO > .CHECI Set th Opera Chec the insp YES >	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malfu</li> <li>&lt; COOLING FAN OPERATION</li> <li>&lt; vehicle to READY.</li> <li>ate the automatic air conditionation is optimized in the cooling fan is opti</li></ul>	TION	<u></u>
YES > NO > CHEC Set th Opera Chec the insp YES > NO >	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malfu</li> <li>&lt; COOLING FAN OPERATION</li> <li>&lt; vehicle to READY.</li> <li>ate the automatic air conditionation is optimized in the cooling fan is opti</li></ul>	TION tioning system. erating. er to <u>EC-406, "Component Function Che</u>	<u></u>
YES NO CHEC Set th Opera Chec the insp YES NO CHEC	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malfu</li> <li>&lt; COOLING FAN OPERATive vehicle to READY.</li> <li>ate the automatic air condition that the cooling fan is op pection result normal?</li> <li>&gt; GO TO 3.</li> <li>&gt; Check cooling fan. Reference</li> </ul>	TION tioning system. erating. er to <u>EC-406, "Component Function Chee</u>	<u>ck"</u> .
YES NO CHEC Set th Opera Chec the insp YES NO CHEC heck ref the insp	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malful</li> <li>&lt; COOLING FAN OPERATION OPERA</li></ul>	TION tioning system. erating. er to <u>EC-406, "Component Function Chec</u>	
YES > NO > CHECI Set th Opera Chec the insp YES > CHECI heck ref the insp YES >	<ul> <li>&gt; GO TO 2.</li> <li>&gt; Repair or replace malful</li> <li>&lt; COOLING FAN OPERATION OPERA</li></ul>	TION tioning system. erating. er to <u>EC-406, "Component Function Chee</u> <u>-25, "Inspection"</u> . essor. Refer to <u>HA-30, "Removal and Inst</u>	

## B278A, B278B ELECTRIC COMPRESSOR

### < DTC/CIRCUIT DIAGNOSIS >

# B278A, B278B ELECTRIC COMPRESSOR

## DTC Logic

INFOID:000000008143960

[AUTOMATIC AIR CONDITIONING]

### DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B278A	COMP LOW VOLTAGE	When the high voltage system input voltage is less than 230 V	<ul> <li>Electric compressor</li> <li>Li-ion battery</li> <li>Battery-J/B</li> <li>High voltage harness or connectors (Electric compressor high voltage circuit is open or shorted.)</li> </ul>
B278B	COMP HIGH VOLTAGE	When the high voltage system input voltage is more than 420 V	

### DTC CONFIRMATION PROCEDURE

## **1.**PERFORM DTC CONFIRMATION PROCEDURE

#### With CONSULT

- 1. Turn ignition switch OFF.
- 2. Set the vehicle to READY.
- 3. Operate the automatic air conditioning system.
- 4. Set the temperature to full cold and wait at least 2 seconds.
- 5. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.

#### Is DTC detected?

YES >> Refer to <u>HAC-144</u>, "Diagnosis Procedure".

NO >> INSPECTION END

#### Diagnosis Procedure

INFOID:000000008143961

#### WARNING:

- Because hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.
- Be sure to remove the service plug in order to shut off the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.
- Be sure to put the removed service plug in your pocket and carry it with you so that another person does not accidentally connect it while work is in progress.
- Be sure to wear insulating protective equipment consisting of glove, shoes and glasses/face shield before beginning work on the high voltage system.
- Clearly identify the persons responsible for high voltage work and ensure that other persons do not touch the vehicle. When not working, cover high voltage parts with an insulating cover sheet or similar item to prevent other persons from contacting them.
- Refer to <u>HAC-5, "High Voltage Precautions"</u>.

#### **CAUTION:**

There is the possibility of a malfunction occurring if the vehicle is changed to READY status while the service plug is removed. Therefore do not change the vehicle to READY status unless instructed to do so in the Service Manual.

#### DIAGNOSIS PROCEDURE

#### CAUTION:

#### Erase DTC after the work is completed.

**1.**PRECONDITIONING

#### WARNING:

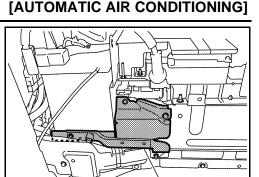
Shut off high voltage circuit. Refer to GI-30, "How to Cut Off High Voltage".

- Check voltage in high voltage circuit. (Check that condenser are discharged.)
- 1. Remove trunk finisher front. Refer to <u>INT-51, "Exploded View"</u>.

### < DTC/CIRCUIT DIAGNOSIS >

- 2. Remove harness cover (1).
  - DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.



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3. Measure voltage between high voltage harness terminals.

Standard

: 5 V or less

# DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.

**CAUTION:** For voltage measurements, use a tester which can measure to 500 V or higher.

### >> GO TO 2.

2. CHECK ELECTRIC COMPRESSOR HIGH VOLTAGE HARNESS POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect electric compressor and Li-ion battery connector.

 Check continuity between Electric compressor high voltage harness connector and Li-ion battery high voltage harness connector.

Electric c	ompressor	Li-ion	battery	Continuity
Connector	Terminal	Connector	Terminal	Continuity
C12	2	LB40	28	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace high voltage harness between electric compressor and Li-ion battery.

### ${ m 3.}$ CHECK ELECTRIC COMPRESSOR HIGH VOLTAGE HARNESS GROUND CIRCUIT

Check continuity between Electric compressor high voltage harness connector and Li-ion battery high voltage harness connector.

Electric compressor		Li-ion	battery	Continuity
Connector	Terminal	Connector Terminal		Continuity
C12	1	LB40	29	Existed

### Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace high voltage harness between electric compressor and Li-ion battery.

### **4.**CHECK LI-ION BATTERY

- 1. Connect 12V battery negative terminal.
- 2. Check li-ion battery. Refer to HBB-44, "Work Flow".

Is the inspection result normal?

# HAC-145



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< DTC/CIRCUIT DIAGNOSIS >

- >> Replace electric compressor. Refer to <u>HA-30, "Removal and Installation"</u>.
   >> Repair or replace malfunctioning parts. YES
- NO

### < DTC/CIRCUIT DIAGNOSIS >

# B278C, B278D ELECTRIC COMPRESSOR

# **DTC Logic**

INFOID:000000008143962

[AUTOMATIC AIR CONDITIONING]

### DTC DETECTION LOGIC

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INFOID:000000008143963

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DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B278C	COMP COMM ERROR HVAC→COMP	When the electric compressor cannot receive the signal sent from the A/C auto amp.	<ul><li>Electric compressor</li><li>A/C auto amp.</li></ul>
B278D	COMP COMM ERROR COMP→HVAC	When the A/C auto amp. cannot receive the sig- nal sent from the electric compressor	<ul> <li>Battery-J/B</li> <li>Harness or connectors (Electric compressor circuit is open or shorted.)</li> <li>High voltage harness or connectors (Electric compressor high voltage circuit is open or shorted.)</li> </ul>

### DTC CONFIRMATION PROCEDURE

**1.**PERFORM DTC CONFIRMATION PROCEDURE

#### (B)With CONSULT

- 1. Turn ignition switch OFF.
- 2. Set the vehicle to READY.
- 3. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.

#### Is DTC detected?

YES	>> Refer to <u>HAC-147</u> , "Diagnosis Procedure".
NO	>> INSPECTION END

### **Diagnosis** Procedure

### WARNING:

- Because hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.
- Be sure to remove the service plug in order to shut off the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.
- Be sure to put the removed service plug in your pocket and carry it with you so that another person does not accidentally connect it while work is in progress.
- Be sure to wear insulating protective equipment consisting of glove, shoes and glasses/face shield before beginning work on the high voltage system.
- Clearly identify the persons responsible for high voltage work and ensure that other persons do not touch the vehicle. When not working, cover high voltage parts with an insulating cover sheet or similar item to prevent other persons from contacting them.
- Refer to <u>HAC-5, "High Voltage Precautions"</u>.

### **CAUTION:**

There is the possibility of a malfunction occurring if the vehicle is changed to READY status while the service plug is removed. Therefore do not change the vehicle to READY status unless instructed to do so in the Service Manual.

### DIAGNOSIS PROCEDURE

### CAUTION:

Erase DTC after the work is completed.

**1.**PRECONDITIONING

### WARNING:

Shut off high voltage circuit. Refer to GI-30, "How to Cut Off High Voltage".

Check voltage in high voltage circuit. (Check that condenser are discharged.)

1. Remove trunk finisher front. Refer to <u>INT-51, "Exploded View"</u>.

# HAC-147

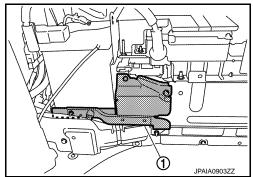
### < DTC/CIRCUIT DIAGNOSIS >

- 2. Remove harness cover (1).
  - DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.



# [AUTOMATIC AIR CONDITIONING]



3. Measure voltage between high voltage harness terminals.

#### Standard

: 5 V or less

# DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.

**CAUTION:** For voltage measurements, use a tester which can measure to 500 V or higher.

>> GO TO 2.

# 2.check electric compressor communication line for open

- 1. Turn ignition switch OFF.
- 2. Disconnect electric compressor and A/C auto amp. connector.
- 3. Check continuity between electric compressor harness connector and A/C auto amp. harness connector.

Electric c	Electric compressor Connector Terminal		A/C auto amp.		
Connector			Terminal	Continuity	
F74	1	M67	27	Existed	
	2	WO7	28	LAISted	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

 ${
m 3.}$  CHECK ELECTRIC COMPRESSOR COMMUNICATION LINE FOR SHORT

Check continuity between electric compressor harness connector and ground.

Electric c	ompressor		Continuity
Connector	Terminal	Ground	Continuity
F74	1	Ground	Not existed
174	2		NOT EXISTED

Is the inspection result normal?

YES >> GO TO 4.

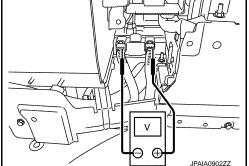
NO >> Repair harness or connector.

**4.**CHECK ELECTRIC COMPRESSOR POWER SUPPLY

1. Turn ignition switch ON.

2. Check voltage between electric compressor harness connector and ground.

# **HAC-148**



### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

					А
	+			Voltage	
Connector	ompressor Terminal		-	(Approx.)	
	4	Gro	ound	Battery voltage	В
Is the inspection	-			Datory Volago	
YES >> GC	) TO 5. pair harness or	connector.			С
1. Turn ignitio	n switch OFF.			onnector and ground.	D
Electric co	ompressor				Ε
Connector	Terminal	Gro	ound	Continuity	
F74	3			Existed	F
Is the inspection	n result normal	2			
NO >> Re	TO 6. pair harness or			RNESS POWER SUPPLY CIRCUIT FOR OPEN	G
<ol> <li>Disconnect</li> <li>Check cont</li> </ol>	Li-ion battery of Linuity between	connector.		ge harness connector and Li-ion battery high volt-	Н
age harnes	s connector.				
Electric co	ompressor	l i-ion	battery		HA
Connector	Terminal	Connector	Terminal	- Continuity	
C12	2	C7	28	Existed	J
Is the inspection	n result normal	?			
YES >> GC NO >> Re	) TO 7. place high volta	ge harness bet		ompressor and Li-ion battery. RNESS GROUND CIRCUIT	K
Check continuit harness connect		tric compresso	<sup>·</sup> high voltage h	narness connector and Li-ion battery high voltage	L
Electric co	ompressor	Li-ion	battery	Continuity	M
Connector	Terminal	Connector	Terminal	Continuity	
C12	1	C7	29	Existed	
	) TO 8. place high volta	ge harness bet		ompressor and Li-ion battery.	N O
1. Disconnect NOTE: Do not disc	battery-J/B cor connect LB31 at	nnector. nd LB32 connec	ctors.	tery-J/B terminal.	Ρ

### < DTC/CIRCUIT DIAGNOSIS >

Li-ion	Li-ion battery Battery-J/B		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
LB40	28	LB37	29	Existed
LD40	29	LB38	30	LAISIEU

Is the inspection result normal?

YES >> GO TO 10.

NO >> GO TO 9.

# 9.CHECK LI-ION BATTERY HIGH VOLTAGE HARNESS CIRCUIT FOR OPEN

1. Disconnect battery-J/B connector.

2. Check continuity between Li-ion battery terminal and battery-J/B high voltage harness connector.

Li-ion	battery	ery Battery-J/B Continuity		Battery-J/B	
Connector	Terminal	Connector	Terminal	Continuity	
LB40	28	LB32	26	Existed	
LD40	29	LB31	27	LAISIEU	

#### Is the inspection result normal?

YES >> Replace battery-J/B. Refer to <u>HBB-198</u>, "<u>BATTERY JUNCTION BOX</u> : <u>Disassembly and Assembly</u>".

NO >> Replace high voltage harness between Li-ion battery and battery-J/B.

### **10.**CHECK A/C AUTO AMP.

### (B) With CONSULT

- 1. Reconnect all harness connectors disconnected.
- 2. Turn ignition switch ON.
- 3. Using CONSULT, perform "MODE 1" of "HVAC TEST" on "ACTIVE TEST" of "HVAC". Refer to <u>HAC-39</u>. <u>"CONSULT Function"</u>.
- 4. Check that the electric compressor operates normally.

### Is the inspection result normal?

- YES >> GO TO 11.
- NO >> Replace A/C control (A/C auto amp.). (Refer to <u>HAC-183, "Removal and Installation"</u>). Then GO TO 11.

# 11.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC confirmation procedure. Refer to HAC-147, "DTC Logic".

#### Is DTC B278C or B278D detected?

- YES >> Replace electric compressor. Refer to <u>HA-30, "Removal and Installation"</u>.
- NO >> Perform intermittent incident. Refer to GI-49, "Intermittent Incident".

# **B2791 ELECTRIC COMPRESSOR**

When the driving load of the electric compres-

sor reaches a maximum value during slow rota-

### < DTC/CIRCUIT DIAGNOSIS >

DTC DETECTION LOGIC

LOAD

# **B2791 ELECTRIC COMPRESSOR**

Items

(CONSULT screen terms)

COMP LOW SPEED HIGH

tion.

# DTC Logic

DTC

B2791

INFOID:000000008143964 DTC detection condition Possible cause

			<ul> <li>Overfilled refrigerant</li> </ul>
DTC CON	FIRMATION PROCED	URE	
<b>1.</b> PERFO	RM DTC CONFIRMATIO	N PROCEDURE	
<ol> <li>Set the</li> <li>Opera</li> <li>Set the</li> <li>Set the</li> <li>Select</li> <li><u>Is DTC def</u></li> <li>YES &gt;:</li> </ol>	gnition switch OFF. e vehicle to READY. te the automatic air condit e temperature to full cold a "Self Diagnostic Result" r	and wait at least 2 seconds. node of "HVAC" using CONSULT.	
Diagnos	is Procedure		INFOID:00000008143965
1.снеск	REFRIGERANT FOR LE	AKAGES	
Is the inspect YES >: NO >:	igerant for leakages. Refe <u>ection result normal?</u> > GO TO 2. > Repair or replace malfu ( COOLING FAN OPERAT		<u>.</u>
2. Opera 3. Check Is the inspective YES >: NO >:	e vehicle to READY. te the automatic air condit that the cooling fan is op ection result normal? > GO TO 3. > Check cooling fan. Refe & REFRIGERANT CYCLE		<u>ck"</u> .
Is the insp YES >: NO >: 4.CHECK	igerant cycle. Refer to <u>HA</u> <u>ection result normal?</u> > GO TO 4. > Repair or replace malfu ( LI-ION BATTERY	nctioning parts.	
	n battery. Refer to <u>HBB-44</u>	4, "Work Flow".	

# Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

5.CHECK BATTERY-J/B

Check Battery-J/B. Refer to HBB-44, "Work Flow".

· Electric compressor

Cooling fan

· Li-ion battery

Battery-J/B

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< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Replace electric compressor. Refer to <u>HA-30, "Removal and Installation"</u>.
- NO >> Repair or replace malfunctioning parts.

< DTC/CIRCU	_		LY AND G			
POWER S				-		-
A/C AUTO						
A/C AUTO A	AMP. : Diagr	osis Procec	lure			INFOID:000000008143966
1.CHECK FUS	SE					
Check fuses [N	os. 3, 9 and 19	, located in the	fuse block (J/E	8)].		
NOTE: Refer to PG-42	. "Fuse. Conne	ctor and Termin	al Arrangemer	nt".		
Is the inspectio				<u> </u>		
	) TO 2.					
•	place the blowr		0 11	cable circuit.		
2.CHECK A/C			( CIRCUIT			
	n switch OFF.	mp connector				
	t the A/C auto a age between A/		rness connect	or and ground		
	0			0		
	+			Voltage		
A/C au	to amp.	-	lgı	nition switch posit	ion	
Connector	Terminal		OFF	ACC	ON	
	1		Battery voltage	Battery voltage	Battery voltage	
M66	2	Ground	Approx. 0 V	Approx. 0 V	Battery voltage	
	13		Approx. 0 V	Battery voltage	Battery voltage	
NO >> Re 3.CHECK A/C	) TO 3. pair harness or	connector.	JIT			
2. Check cont		A/C auto amp.	harness conne	ector and grou	nd.	
A/C au	to amp.		Conti	nuity		
Connector	Terminal		Cont	nuny		
M66	10	Ground	Exis	sted		
	SPECTION ENI pair harness or	D connector.	EST AIR)			
DOOR MOT	,		,	iagnosis Pr	ocedure	INFOID:000000008143967
NOTE: Check this circu		•	•	3276A) are de	tected.	
1.CHECK EAG	CH DOOR MOT	OR PBR POW	ER SUPPLY			
	n switch OFF. mode door mo	tor LH connect	or.			

- Disconnect mode door motor LH connector.
   Turn ignition switch ON.
   Check voltage between mode door motor LH harness connector and ground.

### < DTC/CIRCUIT DIAGNOSIS >

+			
Mode door motor	_	Voltage (Approx.)	
Connector	Terminal		( ) )
M316	4	Ground	5 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

# **2.**CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- 3. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector.

Mode door motor L	Mode door motor LH		A/C auto amp.		
Connector	Terminal	Connector	Terminal	Continuity	
M316	4	M304	71	Existed	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

 $\mathbf{3}$ .check each door motor PBR power supply circuit for ground short

- 1. Disconnect following connectors:
- Air mix door motor LH
- Air mix door motor RH
- Aroma motor
- Intake door motor
- Mode door motor RH
- Rear mode door motor
- Upper ventilator door motor
- 2. Check mode door motor LH harness connector and ground.

Mode door motor LH			Continuity	
Connector	Terminal		Continuity	
M316	4	Ground	Not existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

**4.**CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

- 1. Turn ignition switch ON.
- 2. Check voltage between mode door motor LH harness connector and ground.

+			
Mode door motor LH		_	Voltage (Approx.)
Connector	Terminal	=	( ++ · · · · )
M316	4	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

5.CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR GROUND CIRCUIT

1. Turn ignition switch OFF.

# **HAC-154**

#### < DTC/CIRCUIT DIAGNOSIS >

- 2. Disconnect A/C auto amp. connector. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector. 3. А Mode door motor LH A/C auto amp. Continuity В Connector Terminal Connector Terminal M316 5 M304 79 Existed Is the inspection result normal? YES >> GO TO 6. NO >> Repair harness or connector. **6.**CHECK COMPONENT PARTS D Check following parts: Air mix door motor (driver side): Refer to <u>HAC-92</u>, "Component Inspection (PBR)". Air mix door motor (passenger side): Refer to <u>HAC-97</u>, "Component Inspection (PBR)". Aroma motor: Refer to <u>HAC-128</u>, "Component Inspection (PBR)". Intake door motor: Refer to <u>HAC-112</u>, "Component Inspection (PBR)". Mode door motor (driver side): Refer to HAC-102, "Component Inspection (PBR)". Mode door motor (passenger side): Refer to HAC-107, "Component Inspection (PBR)". Rear mode door motor: Refer to <u>HAC-123</u>, "Component Inspection (PBR)". Upper ventilator door motor: Refer to <u>HAC-118</u>, "Component Inspection (PBR)". Is the inspection result normal? YES >> GO TO 7. NO >> Replace malfunctioning parts. Н I.CHECK INTERMITTENT INCIDENT Refer to GI-49, "Intermittent Incident". Is the inspection result normal? HAC YES >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation". NO >> Repair or replace malfunctioning parts. DOOR MOTOR PBR (WITHOUT FOREST AIR) DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure INFOID-000000008143968 Κ NOTE: Check this circuit when all DTCs of motor system (B2750 – B2764) are detected. 1.CHECK EACH DOOR MOTOR PBR POWER SUPPLY 1. Turn ignition switch OFF. 2. Disconnect mode door motor LH connector. 3. Turn ignition switch ON. M 4 Check voltage between mode door motor LH harness connector and ground. + Ν Voltage Mode door motor LH (Approx.) Connector Terminal M317 5 5 V Ground Is the inspection result normal? YES >> GO TO 5. NO >> GO TO 2. 2.check each door motor pbr power supply circuit for open 1. Turn ignition switch OFF.
- Disconnect A/C auto amp. connector.
- 3. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector.

# HAC-155

### < DTC/CIRCUIT DIAGNOSIS >

Mode door motor LH		A/C auto amp.		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M317	5	M304	71	Existed	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

# ${f 3.}$ check each door motor PBR power supply circuit for ground short

- 1. Disconnect following connectors:
- Air mix door motor LH
- Air mix door motor RH
- Intake door motor
- Mode door motor RH
- Rear mode door motor
- Upper ventilator door motor

2. Check mode door motor LH harness connector and ground.

Mode doo	Mode door motor LH		Continuity
Connector	Terminal		Continuity
M317	5	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

# **4.**CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

### 1. Turn ignition switch ON.

2. Check voltage between mode door motor LH harness connector and ground.

+				
Mode door motor LH		_	Voltage (Approx.)	
Connector	Terminal			
M317	5	Ground	0 V	

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

# ${f 5.}$ CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR GROUND CIRCUIT

### 1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. connector.

3. Check continuity between mode door motor LH harness connector and A/C auto amp. harness connector.

Mode doo	Mode door motor LH		A/C auto amp.		
Connector	Terminal	Connector	Terminal	Continuity	
M317	7	M304	79	Existed	

s the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

**6.**CHECK COMPONENT PARTS

#### Check following parts:

- Air mix door motor (driver side): Refer to HAC-92, "Component Inspection (PBR)".
- Air mix door motor (passenger side): Refer to <u>HAC-97, "Component Inspection (PBR)"</u>.
- Intake door motor: Refer to <u>HAC-112</u>, "Component Inspection (PBR)".

< DTC/CIRCUIT DIAGNOSIS >	[AUTOMATIC AIR CONDITIONING]
<ul> <li>Mode door motor (driver side): Refer to <u>HAC-102</u>, "Component I</li> <li>Mode door motor (passenger side): Refer to <u>HAC-107</u>, "Component Rear mode door motor: Refer to <u>HAC-123</u>, "Component Inspect</li> <li>Upper ventilator door motor: Refer to <u>HAC-118</u>, "Component Inspect</li> </ul>	nent Inspection (PBR)". A
Is the inspection result normal?	В
YES >> GO TO 7. NO >> Replace malfunctioning parts.	
I.CHECK INTERMITTENT INCIDENT	С
Refer to GI-49, "Intermittent Incident".Is the inspection result normal?YESYESNO>> Replace A/C auto amp. Refer to HAC-183, "Removal >> Repair or replace malfunctioning parts.	and Installation".
	E
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	G
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### < DTC/CIRCUIT DIAGNOSIS >

# BLOWER MOTOR

**Diagnosis Procedure** 

1.CHECK BLOWER MOTOR POWER SUPPLY

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

+			
Blower motor		_	Voltage
Connector	Terminal		
M109	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2.CHECK FUSE

- 1. Turn ignition switch OFF.
- Check 15 A fuses [Nos. 21 and 22, located in fuse block (J/B)]. NOTE:

Refer to PG-42, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.

NG >> Replace the fuse after repairing the applicable circuit.

 $\mathbf{3}.$ check blower motor power supply circuit for open

1. Disconnect fuse block (J/B) connector.

2. Check continuity between blower motor harness connector and fuse block (J/B) harness connector.

Blower motor		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M100	M109 1	1 M1	3A	Existed
101109		M1	8A	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

**4.**CHECK BLOWER MOTOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between blower motor harness connector and ground.

Blowe	Blower motor		Continuity
Connector	Terminal		Continuity
M109	1	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

**5.**CHECK BLOWER RELAY GROUND CIRCUIT

1. Disconnect fuse block (J/B) connector.

2. Check continuity between fuse block (J/B) harness connector and ground.

# HAC-158

INFOID:000000008143969

### < DTC/CIRCUIT DIAGNOSIS >

Connector	ock (J/B)		Continuit	by	
0.0000	Terminal	—	Continui	.y	
M3	7C	Ground	Existed		
the inspection	n result normal?	?			
(ES >> GO					
•	bair harness or	connector.			
.CHECK BLO					
	-		<u>oonent Inspection (</u>	<u>Blower Relay)"</u> .	
•	n result normal?				
ES >> Che //ES >> Che		ver supply circu	lit. Refer to $PG-30$ .	Wiring Diagram - IGNITIO	IN POWER SUP-
	blace blower re	lay.			
.CHECK POV	VER TRANSIS	TOR POWER S	SUPPLY		
Turn ignitior	n switch OFF.				
	ower motor con				
	power transiston switch ON.	or connector.			
		wer transistor l	narness connector	and ground.	
+	-				
Power tr	ansistor	-	Voltage		
Connector	Terminal				
M112	3	Ground	Battery voltage		
the inspectior	n result normal?	2			
/FO					
	TO 11.				
10 >> GO	TO 8.				
10 >> GO	TO 8.	TOR POWER S	SUPPLY CIRCUIT	FOR OPEN	
IO >> GO CHECK POV	TO 8. VER TRANSIS			FOR OPEN	
IO >> GO CHECK POV Turn ignition Disconnect	TO 8. VER TRANSIS n switch OFF. blower motor o	connector.			
IO >> GO CHECK POV Turn ignition Disconnect	TO 8. VER TRANSIS n switch OFF. blower motor o	connector.		FOR OPEN	s connector.
IO >> GO CHECK POV Turn ignitior Disconnect Check conti	TO 8. VER TRANSIS n switch OFF. blower motor c inuity between	connector. power transisto	or harness connecto		s connector.
IO >> GO CHECK POV Turn ignitior Disconnect Check conti	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor	connector. power transisto Blowe	or harness connecto		s connector.
O >> GO CHECK POV Turn ignitior Disconnect Check conti Power tr Connector	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal	connector. power transisto Blowe Connector	or harness connecto er motor Terminal	or and blower motor harness Continuity	s connector.
IO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3	connector. power transisto Blowe Connector M109	or harness connecto	or and blower motor harness	s connector.
IO >> GO CHECK POV Turn ignitior Disconnect Check conti Power tr Connector M112 the inspectior	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal?	connector. power transisto Blowe Connector M109	or harness connecto er motor Terminal	or and blower motor harness Continuity	s connector.
IO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection 'ES >> GO	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9.	connector. power transisto Blowe Connector M109	or harness connecto er motor Terminal	or and blower motor harness Continuity	s connector.
IO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection ES >> GO IO >> Rep	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9. pair harness or	connector. power transisto Blowe Connector M109 Connector.	or harness connector er motor Terminal 2	or and blower motor harness Continuity Existed	s connector.
O >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection ES >> GO O >> Rep CHECK POV	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9. pair harness or VER TRANSIS	connector. power transisto Blowe Connector M109 Connector. TOR POWER S	or harness connector r motor Terminal 2 SUPPLY CIRCUIT	or and blower motor harness Continuity Existed FOR SHORT	s connector.
IO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection (ES >> GO IO >> Rep CHECK POV	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9. pair harness or VER TRANSIS	connector. power transisto Blowe Connector M109 Connector. TOR POWER S	or harness connector er motor Terminal 2	or and blower motor harness Continuity Existed FOR SHORT	s connector.
NO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection (ES >> GO NO >> Rep CHECK POV	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9. pair harness or VER TRANSIS y between pow	connector. power transisto Blowe Connector M109 Connector. TOR POWER S	or harness connector r motor Terminal 2 SUPPLY CIRCUIT	or and blower motor harness Continuity Existed FOR SHORT	s connector.
NO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection (ES >> GO NO >> Rep .CHECK POV heck continuity Power tr	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9. pair harness or VER TRANSIS y between pow	connector. power transisto Blowe Connector M109 Connector. TOR POWER S	or harness connector r motor Terminal 2 SUPPLY CIRCUIT	FOR SHORT	s connector.
NO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection (ES >> GO NO >> Rep CHECK POV heck continuity Power tr Connector	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 n result normal? TO 9. pair harness or VER TRANSIS y between pow ansistor Terminal	connector. power transisto Blowe Connector M109 Connector. TOR POWER S er transistor ha	or harness connector r motor Terminal 2 SUPPLY CIRCUIT rness connector ar Continuir	FOR SHORT	s connector.
NO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection (ES >> GO NO >> Rep .CHECK POV heck continuity Power tr Connector M112	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 in result normal? TO 9. pair harness or VER TRANSIS y between pow ansistor Terminal 3	connector. power transisto Blowe Connector M109 Connector. TOR POWER S er transistor ha Ground	or harness connector r motor Terminal 2 SUPPLY CIRCUIT rness connector ar	FOR SHORT	s connector.
NO >> GO CHECK POV Turn ignition Disconnect Check contin Power tr Connector M112 the inspection (ES >> GO NO >> Rep CHECK POV heck continuity Power tr Connector M112 the inspection	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 in result normal? TO 9. pair harness or VER TRANSIS y between pow ansistor Terminal 3 in result normal?	connector. power transisto Blowe Connector M109 Connector. TOR POWER S er transistor ha Ground	or harness connector r motor Terminal 2 SUPPLY CIRCUIT rness connector ar Continuir	FOR SHORT	s connector.
IO >> GO CHECK POV Turn ignition Disconnect Check conti Power tr Connector M112 the inspection CHECK POV heck continuity Power tr Connector M112 the inspection KES >> GO	TO 8. VER TRANSIS In switch OFF. blower motor of inuity between ansistor Terminal 3 in result normal? TO 9. pair harness or VER TRANSIS y between pow ansistor Terminal 3 in result normal?	connector. power transisto Blowe Connector M109 Connector. TOR POWER S er transistor ha Ground	or harness connector r motor Terminal 2 SUPPLY CIRCUIT rness connector ar Continuir	FOR SHORT	s connector.

### < DTC/CIRCUIT DIAGNOSIS >

Replace blower motor. Refer to VTL-18, "BLOWER MOTOR : Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 19.

11.CHECK POWER TRANSISTOR GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Check continuity between power transistor harness connector and ground.

Power t	Power transistor		Continuity	
Connector	Terminal		Continuity	
M112	4	Ground	Existed	

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair harness or connector.

12. CHECK POWER TRANSISTOR CONTROL SIGNAL

1. Connect power transistor connector.

- 2. Turn ignition switch ON.
- 3. Operate mode switch to set VENT position.
- 4. Change fan speed from 1 to 7, and check voltage between power transistor harness connector and ground.

+ Power transistor			Condition	Voltage (Approx.)
		_	Fan speed (manual)	
Connector	Terminal		VENT mode	
	2		OFF	0 V
			1st	3.5 V
			2nd	5.2 V
M112		Ground	3rd	6.5 V
IVI I Z		Giouna	4th	7.8 V
			5th	9.2 V
			6th	10.5 V
			7th	12.5 V

Is the inspection result normal?

YES >> GO TO 15.

NO >> GO TO 13.

13. CHECK POWER TRANSISTOR CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect power transistor connector.

3. Connect A/C auto amp. connector.

4. Check continuity between power transistor harness connector and A/C auto amp. harness connector.

Power t	Power transistor		A/C auto amp.		
Connector	Terminal	Connector	Terminal	Continuity	
M112	2	M66	7	Existed	

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair harness or connector.

14. CHECK POWER TRANSISTOR CONTROL SIGNAL CIRCUIT FOR SHORT

### **HAC-160**

### < DTC/CIRCUIT DIAGNOSIS >

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Check continuity between power transistor harness connector and ground.

Power t	Power transistor		Continuity
Connector	Terminal		Continuity
M112	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 18.

NO >> Repair harness or connector.

15. CHECK BLOWER MOTOR FEEDBACK SIGNAL

Change fan speed from 1 to 7, and check voltage between power transistor harness connector and ground.

+			Condition		E		
A/C auto amp.		– Fan speed (manual)		al) Voltage (Approx.)	Fan speed (manual)		L
Connector	Terminal		VENT mode	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
			OFF	Battery voltage	F		
			1st	10.0 V			
			2nd	8.3 V	,		
	c	Ground	3rd	7.0 V	(		
M66	6	Ground	4th	5.7 V			
			5th	4.3 V	ŀ		
			6th	3.0 V			
			7th	1.0 V	H		

Is the inspection result normal?

YES >> GO TO 18.

NO >> GO TO 16.

# 16.CHECK BLOWER MOTOR FEEDBACK SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Disconnect power transistor connector.

3. Disconnect A/C auto amp. connector.

4. Check continuity between A/C auto amp. harness connector and power transistor harness connector.

A/C au	to amp.	Power t	ransistor	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M66	6	M112	1	Existed
Is the inspection	n result normal'	?		
	TO 17.			
	pair harness or			
17. СНЕСК В	LOWER MOTC	R FEEDBACK	SIGNAL CIRC	UIT FOR SHOP
Check continuit	y between A/C	auto amp. harn	ess connector	and ground.
A/C au	to amp.		Contir	nuity
Connector	Terminal		Contin	iony

Connector	Terminal		Continuity
M66	6	Ground	Not existed
	L. 14		

Is the inspection result normal?

YES >> GO TO 18.

NO >> Repair harness or connector.

**18.**REPLACE POWER TRANSISTOR

[AUTOMATIC AIR CONDITIONING]

Replace power transistor. Refer to HAC-193, "Removal and Installation".

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES >> INSPECTION END

NO >> GO TO 19.

19. CHECK INTERMITTENT INCIDENT

Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183, "Removal and Installation"</u>.

NO >> Repair or replace malfunctioning parts.

### Component Inspection (Blower Motor)

INFOID:000000008143970

### **1.**CHECK BLOWER MOTOR-I

- 1. Remove blower motor. Refer to VTL-18, "BLOWER MOTOR : Removal and Installation".
- 2. Check that there is not any mixing foreign materials in blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Remove foreign materials.

2.CHECK BLOWER MOTOR-II

Check that there is not breakage or damage in blower motor.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace blower motor. Refer to <u>VTL-18, "BLOWER MOTOR : Removal and Installation"</u>.

**3.**CHECK BLOWER MOTOR-III

Check that blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace blower motor. Refer to VTL-18, "BLOWER MOTOR : Removal and Installation".

# Component Inspection (Blower Relay)

INFOID:000000008143971

# **1.**CHECK BLOWER RELAY

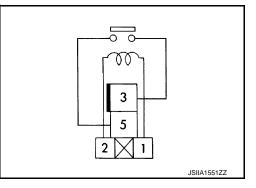
- 1. Remove blower relay.
- 2. Check continuity between blower relay terminals 3 and 5 when the voltage is supplied between terminals 1 and 2.

Term	Terminals		Continuity
2	5	ON	Existed
5	5	OFF	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace blower relay.



### INSIDE ODOR DETECTING SENSOR

### < DTC/CIRCUIT DIAGNOSIS > INSIDE ODOR DETECTING SENSOR

#### Component Function Check INFOID:00000008143972 1. CHECK INSIDE ODOR DETECTING SENSOR FUNCTION В 1. Operate fan switch. Set fan speed to 7th speed. Check that voltage between A/C auto amp. vehicle side harness connector and body ground changes 2. when cigarette smoke or similar substance is applied to air inlet. + Voltage D A/C auto amp. (Approx.) Connector Terminal 0-4.8 V M67 36 Ground Output voltage differs depending on measurement environment of the vehicle. Is the inspection result normal? YES >> INSPECTION END >> Refer to HAC-163, "Diagnosis Procedure". NO Diagnosis Procedure INFOID:000000008143973 1. CHECK INSIDE ODOR DETECTING SENSOR IGNITION POWER SUPPLY Turn ignition switch OFF. Н 1. 2. Disconnect inside odor detecting sensor connector. 3. Turn ignition switch ON. 4. Check voltage between inside odor detecting sensor harness connector and ground. HAC + Inside odor detecting sensor Voltage Connector Terminal M73 4 Ground Battery voltage Κ Is the inspection result normal? YES >> GO TO 2. NO >> Repair harness or connector between inside odor detecting sensor and fuse. 2.CHECK INSIDE ODOR DETECTING SENSOR GROUND CIRCUIT Turn ignition switch OFF. 1. Check continuity between inside odor detecting sensor harness connector and ground. 2. M Inside odor detecting sensor Continuity Ν Connector Terminal M73 3 Ground Existed Is the inspection result normal? YES >> GO TO 3. NO >> Repair harness or connector. ${ m 3.}$ CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY Ρ 1. Turn ignition switch ON.

2. Check voltage between inside odor detecting sensor harness connector and ground.

[AUTOMATIC AIR CONDITIONING]

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### **INSIDE ODOR DETECTING SENSOR**

### < DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

+ Inside odor detecting sensor		_	Voltage (Approx.)
Connector	Terminal		(Approx.)
M73	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

# **4.**CHECK INSIDE ODOR DETECTING SENSOR GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- 3. Check continuity between inside odor detecting sensor harness connector and A/C auto amp. harness connector.

_	Inside odor de	etecting sensor	A/C au	Continuity	
_	Connector	Terminal	Connector	Terminal	Continuity
_	M73	2	M67	44	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

**5.**CHECK INSIDE ODOR DETECTING SENSOR

Check inside odor detecting sensor. Refer to HAC-165. "Component Inspection".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".

NO >> Replace inside odor detecting sensor. Refer to <u>HAC-189</u>, "Removal and Installation".

### 6.CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY CIRCUIT FOR OPEN

### 1. Turn ignition switch OFF.

- 2. Disconnect A/C auto amp. connector.
- 3. Check continuity between inside odor detecting sensor harness connector and A/C auto amp. harness connector.

Inside odor detecting sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M73	1	M67	36	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

**1.**CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between inside odor detecting sensor harness connector and ground.

Inside odor de	etecting sensor		Continuity	
Connector	Terminal		Continuity	
M73	1	Ground	Not existed	

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

NO >> Repair harness or connector.

# INSIDE ODOR DETECTING SENSOR

# [AUTOMATIC AIR CONDITIONING]

Compo	onent Ins	spection		INFOID:000000008143974
<b>1.</b> CHEC	CK INSIDE	ODOR DETECTIN	G SENSOR-I	
<ol> <li>Disc</li> <li>Appl</li> </ol>	connect ins		detecting sensor terr	ninals 4 and 3, and wait for 3 minutes. terminals while applying voltage.
Ter	minal	Condition	Resistance ( $k\Omega$ )	
1	2	Air is clean	2 - 670	
Is the ins	istance va spection re >> GO TC	esult normal?		vironment of the vehicle. to <u>HAC-189, "Removal and Installation"</u> .
Blow ser	nsor portio	ODOR DETECTING n of inside odor deter ls decreases.		hat resistance value between inside odor detect-
Is the ins	spection re	esult normal? CTION END	tecting sensor. Refer	to <u>HAC-189, "Removal and Installation"</u> .

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< DTC/CIRCUIT DIAGNOSIS >

## < DTC/CIRCUIT DIAGNOSIS >

# IONIZER

# **Component Function Check**

1. CHECK IONIZER OPERATION SOUND

1. Turn ignition switch ON.

2. Check ionizer operation sound (whirring sound) in duct by putting an ear to the side ventilator grille (driver side) outlet while pressing fan switch and OFF switch alternately.

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Refer to <u>HAC-166</u>, "Diagnosis Procedure".

# **Diagnosis Procedure**

INFOID:000000008143976

INFOID:00000008143975

### **1.**CHECK IONIZER POWER SUPPLY

- 1. Turn ignition switch OFF.
- 2. Disconnect ionizer connector.

3. Turn ignition switch ON.

4. Check voltage between ionizer harness connector and ground.

lor	+ iizer		Voltage
Connector	Terminal		
M98	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector between ionizer and fuse.

# 2. CHECK IONIZER GROUND CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

2. Check continuity between ionizer harness connector and ground.

lor	nizer		Continuity
Connector	Terminal		Continuity
M98	3	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

 ${\it 3.}$ CHECK IONIZER (ON/OFF) CONTROL SIGNAL

1. Connect ionizer connector.

- 2. Disconnect A/C auto amp. connector.
- 3. Turn ignition switch ON.

4. Check voltage between A/C auto amp. harness connector and ground.

A/C au	+ ito amp.	_	Voltage (Approx.)
Connector	Terminal		
M67	42	Ground	12 V

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

NO >> GO TO 4.

# IONIZER

### < DTC/CIRCUIT DIAGNOSIS >

# [AUTOMATIC AIR CONDITIONING]

#### 4. CHECK IONIZER (ON/OFF) CONTROL SIGNAL CIRCUIT FOR OPEN А 1. Turn ignition switch OFF. 2. Disconnect ionizer connector. 3. Check continuity between A/C auto amp. harness connector and ionizer harness connector. В A/C auto amp. Ionizer Continuity Connector Terminal Connector Terminal 4 M67 42 M98 Existed Is the inspection result normal? D YES >> GO TO 5. NO >> Repair harness or connector. **5.**CHECK IONIZER (ON/OFF) CONTROL SIGNAL CIRCUIT FOR SHORT Ε Check continuity between A/C auto amp. harness connector and ground. A/C auto amp. F Continuity Connector Terminal M67 42 Ground Not existed Is the inspection result normal?

YES >> Replace ionizer. Refer to <u>HAC-194, "Removal and Installation"</u>.

NO >> Repair harness or connector.

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# < DTC/CIRCUIT DIAGNOSIS >

# HEATER PUMP

# Component Function Check

# **1.**CHECK HEATER PUMP OPERATING CONDITION

BWith CONSULT

- i. Select "ACTIVE TEST" mode of "HVAC" using CONSULT.
- 2. Confirm heater pump operation by the sound or hose pulsation.

### Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Refer to <u>HAC-168</u>, "Diagnosis Procedure".

# **Diagnosis Procedure**

# **1.**CHECK HEATER PUMP POWER SUPPLY-I

- 1. Turn ignition switch OFF.
- 2. Disconnect heater pump connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between heater pump harness connector and ground.

+ Heater pump			
		-	Voltage (Approx.)
Connector	Terminal		
E94	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

# 2.CHECK FUSE

1. Turn ignition switch OFF.

2. Check 10 A fuse [No.16, located in fuse block (J/B)].

### NOTE:

Refer to PG-42, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.

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

**3.**CHECK HEATER PUMP POWER SUPPLY-II

1. Turn ignition switch OFF.

- 2. Disconnect A/C auto amp. connector and fuse block (J/B) connector.
- 3. Check continuity between heater pump harness connector and fuse block (J/B) harness connector.

Heater pump		Fuse block (J/B)		Continuity
Connector	Terminal	Connector Terminal		Continuity
E94	3	M1	10F	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK HEATER PUMP GROUND CIRCUIT

Check continuity between heater pump harness connector and ground.

INFOID:000000008143977

INFOID:000000008143978

# **HEATER PUMP**

### < DTC/CIRCUIT DIAGNOSIS >

rieater	pump		Oction	
Connector	Terminal	—	Continu	uity
E94	3	Ground	Existe	ed
the inspection	result normal?			
	TO 5. air harness or conr TER PUMP CONT			
Connect hea Disconnect Turn ignitior	ater pump connecto heater A/C auto an h switch ON.	or. 1p. connector.	onnector and ground.	
A/C	auto amp.			
Connector	Terminal		Voltage (V)	
M66	17	Ground	Battery voltage	
	auto amp. Input	SIGNAL		
Connect hea		auto amp. connec	tor. nnector and ground with o	oscilloscope.
<ul> <li>Connect heat</li> <li>Turn ignition</li> <li>Check signal</li> </ul>	ater pump and A/C a switch ON.	auto amp. connec		oscilloscope.
<ul> <li>Connect heat</li> <li>Turn ignition</li> <li>Check signat</li> <li>A/C</li> </ul>	ater pump and A/C a switch ON. al between A/C auto	auto amp. connec		Condition
<ul> <li>Connect heat</li> <li>Turn ignition</li> <li>Check signal</li> </ul>	ater pump and A/C a switch ON. al between A/C auto auto amp.	auto amp. connec	nnector and ground with o	
<ul> <li>Connect heat</li> <li>Turn ignition</li> <li>Check signat</li> <li>A/C</li> </ul>	ater pump and A/C a switch ON. al between A/C auto auto amp. +	auto amp. connec	nnector and ground with o	Condition

Is the inspection result normal?

YES >> Replace heater pump.

NO >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".

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# ELECTRIC COMPRESSOR INSULATION RESISTANCE CHECK < DTC/CIRCUIT DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

# ELECTRIC COMPRESSOR INSULATION RESISTANCE CHECK

# Component Inspection

INFOID:000000008143979

#### WARNING:

- Because hybrid vehicles and electric vehicles contain a high voltage battery, there is the risk of electric shock, electric leakage, or similar accidents if the high voltage component and vehicle are handled incorrectly. Be sure to follow the correct work procedures when performing inspection and maintenance.
- Be sure to remove the service plug in order to shut off the high voltage circuits before performing inspection or maintenance of high voltage system harnesses and parts.
- Be sure to put the removed service plug in your pocket and carry it with you so that another person does not accidentally connect it while work is in progress.
- Be sure to wear insulating protective equipment consisting of glove, shoes and glasses/face shield before beginning work on the high voltage system.
- Clearly identify the persons responsible for high voltage work and ensure that other persons do not touch the vehicle. When not working, cover high voltage parts with an insulating cover sheet or similar item to prevent other persons from contacting them.
- Refer to HAC-5, "High Voltage Precautions".

#### CAUTION:

There is the possibility of a malfunction occurring if the vehicle is changed to READY status while the service plug is removed. Therefore do not change the vehicle to READY status unless instructed to do so in the Service Manual.

### **1.**PRECONDITIONING

#### WARNING:

Shut off high voltage circuit. Refer to GI-30, "How to Cut Off High Voltage".

- Check voltage in high voltage circuit. (Check that condenser are discharged.)
- . Disconnect high voltage connector from front side of Li-ion battery. Refer to <u>HBB-188</u>, "Removal and <u>Installation"</u>.

### DANGER:

Touching high voltage components without using the appropriate protective equipment will cause electrocution.

(In )

2. Measure voltage between high voltage harness terminals.

### **DANGER:**

Touching high voltage components without using the appropriate protective equipment will cause electrocution.

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### Standard

: 5 V or less

### CAUTION:

For voltage measurements, use a tester which can measure to 500V or higher.

### >> GO TO 2.

**2.**CHECK ELECTRIC COMPRESSOR INSULATION RESISTANCE

1. Disconnect high voltage harness connector from electric compressor.

# ELECTRIC COMPRESSOR INSULATION RESISTANCE CHECK

### < DTC/CIRCUIT DIAGNOSIS >

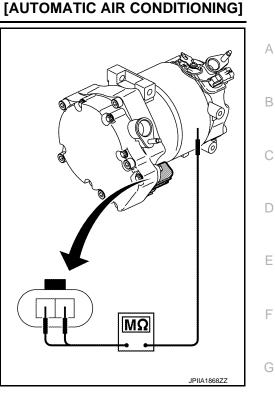
- Check the insulation resistance of the electric compressor with an insulation resistance tester.
   CAUTION:
  - Unlike the ordinary tester, the insulation resistance tester applies 500V when measuring. If used incorrectly, there is the danger of electric shock. If used in the vehicle 12V system, there is the danger of damage to electronic devices. Read the insulation resistance tester instruction manual carefully and be sure to work safely.
  - Use 500V range of insulation resistance tester to measure insulation resistance. Wait for 30 seconds until the value becomes stable.

+		
Electric compressor	_	Resistance
Terminal		
7	Aluminum part on side	1 MΩ or more
8	of electric compressor	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace electric compressor. Refer to <u>HA-30, "Removal</u> and Installation".



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# SYMPTOM DIAGNOSIS AUTOMATIC AIR CONDITIONING SYSTEM

# Symptom Table

INFOID:000000008143980

### NOTE:

Perform the self-diagnoses with CONSULT before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

Sympto	om	Corresponding malfunction part	Reference
A/C system does not activate	9.	<ul> <li>Power supply and ground circuit of A/C auto amp.</li> <li>A/C auto amp.</li> </ul>	HAC-153, "A/C AUTO AMP. : Di- agnosis Procedure"
<ul> <li>Air conditioning system does not activate.</li> <li>Air conditioning system cannot be controlled</li> </ul>	Fail-safe activates	Multi AV system	<ul> <li><u>AV-97, "Symptom Table"</u> (Base audio without navigation)</li> <li><u>AV-253, "Symptom Table"</u> (BOSE audio with navigation)</li> </ul>
<ul> <li>(Multifunction switch).</li> <li>Operation status of air conditioning system is not indicated on display.</li> </ul>	Fail-safe does not acti- vate	<ul> <li>Ignition power supply and ground circuit of A/C auto amp.</li> <li>A/C auto amp.</li> </ul>	HAC-153. "A/C AUTO AMP. : Di- agnosis Procedure"
Discharge air temperature of driver side does not change.		Air mix door motor (driver side) system in- stallation condition	Check air mix door motor (driver side) system is properly installed. Refer to <u>HAC-191, "Exploded</u> <u>View"</u> .
Discharge air temperature of passenger side does not change.		Air mix door motor (passenger side) sys- tem installation condition	Check air mix door motor (pas- senger side) system is properly installed. Refer to <u>HAC-191, "Ex- ploded View"</u> .
Air outlet of driver side does not change (Except upper ventilation).		Mode door motor (driver side) system in- stallation condition	Check mode door motor (driver side) system is properly installed. Refer to <u>HAC-191, "Exploded</u> <u>View"</u> .
Air outlet of passenger side outper ventilation).	loes not change (Except	Mode door motor (passenger side) system installation condition	Check mode door motor (passen- ger side) system is properly in- stalled. Refer to <u>HAC-191.</u> <u>"Exploded View"</u> .
Air outlet of rear side does n	ot change.	Rear mode door motor system installation condition	Check rear mode door motor sys- tem is properly installed. Refer to <u>HAC-191. "Exploded View"</u> .
Air outlet of upper ventilator change.	(driver side) does not	Upper ventilator door motor (driver side) system installation condition	Check upper ventilator door mo- tor (driver side) system is proper- ly installed. Refer to <u>HAC-191.</u> <u>"Exploded View"</u> .
Air outlet of upper ventilator (passenger side) does not change.		Upper ventilator door motor (passenger side) system installation condition	Check upper ventilator door mo- tor (passenger side) system is properly installed. Refer to <u>HAC-</u> <u>191, "Exploded View"</u> .
Air inlet does not change.		Intake door motor system installation con- dition	Check intake door motor system is properly installed. Refer to <u>HAC-191, "Exploded View"</u> .
Blower motor operation is malfunctioning.		<ul> <li>Power supply system of blower motor</li> <li>The circuit between blower motor and power transistor.</li> <li>The circuit between power transistor</li> <li>Blower motor</li> <li>Power transistor</li> <li>A/C auto amp.</li> </ul>	HAC-158, "Diagnosis Procedure"

# AUTOMATIC AIR CONDITIONING SYSTEM

### < SYMPTOM DIAGNOSIS >

# [AUTOMATIC AIR CONDITIONING]

Sympto	om	Corresponding malfunction part	Reference
Compressor does not operate.		<ul> <li>The circuit between ECM and refrigerant pressure sensor</li> <li>Refrigerant pressure sensor</li> <li>CAN communication circuit</li> <li>A/C auto amp.</li> </ul>	HAC-179, "Diagnosis Procedure"
<ul><li>Insufficient cooling.</li><li>No cool air comes out. (Air flow volume is normal.)</li></ul>		<ul> <li>Cooler cycle</li> <li>Electric compressor</li> <li>Air leakage from each duct</li> <li>Temperature setting trimmer</li> </ul>	HAC-176, "Diagnosis Procedure"
<ul><li>Insufficient heating.</li><li>No warm air comes out. (A</li></ul>	ir flow volume is normal.)	<ul> <li>Engine cooling system</li> <li>Heater hose</li> <li>Heater core</li> <li>Heater pump</li> <li>Air leakage from each duct</li> <li>Temperature setting trimmer</li> </ul>	HAC-177, "Diagnosis Procedure"
Noise is heard when the A/C	During compressor op- eration	Cooler cycle	HA-27, "Symptom Table"
system operates.	During blower motor operation	<ul> <li>Mixing any foreign object in blower motor</li> <li>Blower motor fan breakage</li> <li>Blower motor rotation inferiority</li> </ul>	HAC-162, "Component Inspec- tion (Blower Motor)"
<ul> <li>Memory function does not operate normally.</li> <li>The setting is not maintained. (It returns to the initial condition)</li> </ul>		<ul> <li>Battery power supply and ground circuit of A/C auto amp.</li> <li>A/C auto amp.</li> </ul>	HAC-153, "A/C AUTO AMP. : Di- agnosis Procedure"
Intelligent Key interlock funct	ion does not operate.	<ul> <li>Door lock system</li> <li>CAN communication circuit</li> <li>A/C auto amp.</li> </ul>	HAC-180, "Diagnosis Procedure"

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# FOREST AIR SYSTEM

# Symptom Table

INFOID:000000008143982

### NOTE:

- Perform the self-diagnoses with CONSULT before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.
- The following table is based on the condition that automatic air conditioning system operates normally.

Symptom	Corresponding malfunction part	Reference
Forest Air system cannot be controlled.	Multi AV system	AV-253, "Symptom Table"
<ul> <li>Plasmacluster<sup>™</sup> control does not operate.</li> <li>NOTE:</li> <li>Plasmacluster<sup>™</sup> ion technology developed by Sharp Corporation is installed in this item.</li> <li>Plasmacluster<sup>™</sup> is a trademark of Sharp Corporation.</li> </ul>	<ul> <li>Power supply system of ionizer</li> <li>The circuit between ionizer and A/C auto amp.</li> <li>Ionizer</li> <li>A/C auto amp.</li> </ul>	HAC-166, "Diagnosis Procedure"
<ul> <li>Operation status of Plasmacluster<sup>™</sup> control does not switch according to air flow.</li> <li>NOTE:</li> <li>Plasmacluster<sup>™</sup> ion technology developed by Sharp Corporation is installed in this item.</li> <li>Plasmacluster<sup>™</sup> is a trademark of Sharp Corporation.</li> </ul>	A/C auto amp.	Replace A/C auto amp. Refer to HAC-183, "Removal and Installa- tion".
Breezy air control does not operate normally. Operation status of breezy air control is not indicated	A/C auto amp.	Replace A/C auto amp. Refer to HAC-183, "Removal and Installa-
on display. (Breezy air control is normal)		tion".
Automatic intake control (exhaust gas/outside odor detecting mechanism) does not operate normally.	<ul> <li>Power supply system of exhaust gas/outside odor detecting sensor</li> <li>The circuit between exhaust gas/ outside odor detecting sensor and A/C auto amp.</li> <li>Exhaust gas/outside odor detecting sensor</li> <li>A/C auto amp.</li> </ul>	HAC-83, "Diagnosis Procedure"
Ambient air status indicator in display does not change from clean status or dirty status. (Exhaust gas/outside odor detecting sensor system is normal)	A/C auto amp.	Replace A/C auto amp. Refer to HAC-183, "Removal and Installa- tion".
Air flow control (inside odor detecting mechanism) does not operate normally.	<ul> <li>Power supply system of inside odor detecting sensor</li> <li>The circuit between inside odor de- tecting sensor and A/C auto amp.</li> <li>Inside odor detecting sensor</li> <li>A/C auto amp.</li> </ul>	HAC-163, "Diagnosis Procedure"
Interior air status indicator in display does not change from clean status or dirty status. (Inside odor detect- ing sensor system is normal)	A/C auto amp.	Replace A/C auto amp. Refer to HAC-183, "Removal and Installa- tion".
Automatic defogging control does not operate nor- mally.	<ul> <li>The circuit between humidity sensor and A/C auto amp.</li> <li>Humidity sensor</li> <li>A/C auto amp.</li> </ul>	HAC-129, "Diagnosis Procedure"
Operation status of automatic defogging control is not indicated on display. (Humidity sensor system is normal)	A/C auto amp.	Replace A/C auto amp. Refer to HAC-183, "Removal and Installa- tion".
Aroma diffuser control does not operate normally. (Aroma motor does not operate normally)	<ul> <li>The circuit between aroma motor and A/C auto amp.</li> <li>Aroma motor</li> <li>A/C auto amp.</li> </ul>	HAC-124, "Diagnosis Procedure"

# FOREST AIR SYSTEM

### < SYMPTOM DIAGNOSIS >

### [AUTOMATIC AIR CONDITIONING]

Symptom	Corresponding malfunction part	Reference	
Aroma diffuser control does not operate normally. (Aroma motor is normal, but fragrance is not dif- fused.)	Aroma cartridge	Replace aroma cartridge. Refer to HAC-195, "Removal and Installa- tion".	A
Operation status of aroma diffuser control is not indi- cated on display.	A/C auto amp.	Replace A/C auto amp. Refer to HAC-183, "Removal and Installa- tion".	
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Revision: 2013 March

# **INSUFFICIENT COOLING**

# Description

INFOID:000000008143983

[AUTOMATIC AIR CONDITIONING]

Symptom

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

### Diagnosis Procedure

INFOID:000000008143984

### NOTE:

Perform the self-diagnosis with CONSULT before performing the diagnosis by symptom. Perform the diagnosis by DTC if DTC is detected.

### **1.**CHECK ELECTRIC COMPRESSOR OPERATION

Check the electric compressor operation state while the air conditioner system is operated.

### Does electric compressor operate?

- YES >> GO TO 2.
- NO >> Perform diagnosis for "COMPRESSOR DOES NOT OPERATE" in the diagnosis by symptom. Refer to <u>HAC-179, "Diagnosis Procedure"</u>.

### 2. CHECK REFRIGERANT CYCLE

Connect recovery/recycling/recharging equipment (for HFC-134a) to the vehicle and perform the refrigerant system diagnosis. Refer to <u>HA-27</u>, "Symptom Table".

### Is the check result normal?

- YES >> GO TO 3.
- NO >> Repair or replace malfunctioning part according to diagnosis result.

# 3.CHECK FOR AIR LEAKAGE FROM DUCT

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

Is the check result normal?

YES >> GO TO 4.

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

**4.**CHECK SETTING OF DIFFERENCE BETWEEN SET TEMPERATURE AND CONTROL TEMPERATURE

### With CONSULT

- 1. Using CONSULT, check the setting of "TEMP SET CORRECT" on "WORK SUPPORT" of "HVAC". Refer to <u>HAC-69</u>, "<u>AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer"</u>.
- Check that the difference between set temperature and control temperature is set to "+ direction". NOTE:

The control temperature can be set with a setting difference between the set temperature and control temperature.

3. Change the set temperature correction value to "0".

### Are the symptoms solved?

- YES >> Perform the setting separately if necessary. Inspection End.
- NO >> Replace A/C auto amp. Refer to HAC-183, "Removal and Installation".

# **INSUFFICIENT HEATING**

# [AUTOMATIC AIR CONDITIONING]

INSUFFICIENT HEATING	
Description INFOID:00000008143985	А
Symptom <ul> <li>Insufficient heating</li> <li>No warm air comes out. (Air flow volume is normal.)</li> </ul>	В
Diagnosis Procedure	С
<b>NOTE:</b> Perform the self-diagnosis with CONSULT before performing the diagnosis by symptom. Perform the diagnosis by DTC if DTC is detected.	D
1.CHECK HEATING SYSTEM	F
<ol> <li>Check engine coolant level and check for leakage. Refer to <u>CO-7, "Inspection"</u>.</li> <li>Check the water flow sounds on coolant. Refer to <u>CO-8, "Refilling"</u>.</li> </ol>	
Is the check result normal?	F
YES >> GO TO 2. NO >> Refill the engine coolant and repair or replace the parts according to the inspection results.	
2. CHECK HEATER PUMP	G
Check the heater pump operation. Refer to HAC-168, "Component Function Check".	0
Is the check result normal?	Н
YES >> GO TO 3. NO >> Repair or replace malfunctioning part according to diagnosis result.	
3. CHECK HEATER HOSE INSTALLATION CONDITION	HAC
Check the heater hose installation condition visually (for twist, crush, etc.).	ΠAC
<u>Is the check result normal?</u> YES >> GO TO 4.	
YES >> GO TO 4. NO >> Repair or replace malfunctioning part according to diagnosis result.	J
4.CHECK HEATER CORE	
<ol> <li>Check the temperature of inlet hose and outlet hose of heater core.</li> <li>Check that the inlet side of heater core is hot and the outlet side is slightly lower than/almost equal to the inlet side.</li> </ol>	K
CAUTION:	L
The temperature inspection should be performed after a short time because the engine coolant temperature is too hot.	
Is the check result normal?	M
YES >> GO TO 5. NO >> Replace the heater core.	
<b>5.</b> CHECK FOR AIR LEAKAGE FROM DUCT	Ν
Check duct and nozzle, etc. of A/C system for air leakage.	14
Is the check result normal?	$\circ$
YES >> GO TO 6. NO >> Repair or replace malfunctioning part according to diagnosis result.	0
NO >> Repair or replace malfunctioning part according to diagnosis result. 6.CHECK SETTING OF DIFFERENCE BETWEEN SET TEMPERATURE AND CONTROL TEMPERATURE	_
(P)With CONSULT	Ρ
<ol> <li>Using CONSULT, check the setting of "TEMP SET CORRECT" on "WORK SUPPORT" of "HVAC". Refer to <u>HAC-69. "AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer"</u>.</li> <li>Check that the difference between set temperature and control temperature is set to "- direction".</li> </ol>	
<b>NOTE:</b> The control temperature can be set with a setting difference between the set temperature and control tem- perature.	

< SYMPTOM DIAGNOSIS >

# HAC-177

### < SYMPTOM DIAGNOSIS >

3. Change the set temperature correction value to "0".

#### Are the symptoms solved?

- YES
- >> Perform the setting separately if necessary. Inspection End.
   >> Replace A/C auto amp. Refer to <u>HAC-183. "Removal and Installation"</u>. NO

# **COMPRESSOR DOES NOT OPERATE**

### < SYMPTOM DIAGNOSIS >

# [AUTOMATIC AIR CONDITIONING]

not operate. edure			INFOID:00000008143987
euule			INFOID:00000008143988
noses with CONSULT onding diagnosis. erant is enclosed in co the inspection of refrige	ooler cycle erant leakag	normally. If refrig	diagnosis. If any DTC is detected, per-
		"Diagnosis Proce	edure".
<u>sult normal?</u> ) 2. or replace malfunctioni	ng parts.		
TO AMP. INPUT SIGN	AL		
			ions.
Conditio	on		Status
IODITIOD SWITCH UIN		com-	Normal condition: OFF Except above: ON
) 3. for the ECM. Refer to TO AMP. OUTPUT SIG	SNAL		
Condition		Statuo	_
"Climate" menu	ON OFF ON	On Off On	
Blower motor	OFF	Off	_
) 4. ce A/C auto amp. Refer TO AMP. OUTPUT SIG E TEST" mode of "HVA	SNAL C" using C	ONSULT. Refer to	
	erant is enclosed in co the inspection of refrige GERANT PRESSURE S pressure sensor. Refer t sult normal? 0.2. or replace malfunction iTO AMP. INPUT SIGN/ MONITOR" mode of "HV 0 CUT", and check statu Condition ignition switch ON A/C sv presso sult normal? 0.3. for the ECM. Refer to iTO AMP. OUTPUT SIG Q SIG" and "FAN REQ S Condition iClimate" menu Blower motor sult normal? 0.4. ce A/C auto amp. Refer iTO AMP. OUTPUT SIG A/C auto amp. Refer iTO AMP. OUTPUT SIG SIGT AMP. OUTPUT SIG Condition iClimate" menu	erant is enclosed in cooler cycle the inspection of refrigerant leakag GERANT PRESSURE SENSOR pressure sensor. Refer to EC-430, sult normal? ) 2. or replace malfunctioning parts. ITO AMP. INPUT SIGNAL MONITOR" mode of "HVAC" using D CUT", and check status under the Condition Ignition switch ON A/C switch ON (A/C pressor activate) sult normal? ) 3. for the ECM. Refer to EC-35, "A ITO AMP. OUTPUT SIGNAL Q SIG" and "FAN REQ SIG" in "DA Condition	Image: Present is enclosed in cooler cycle normally. If refrigure the inspection of refrigerant leakage.         GERANT PRESSURE SENSOR         Deressure sensor. Refer to EC-430. "Diagnosis Processult normal?         D.2.         or replace malfunctioning parts.         ITO AMP. INPUT SIGNAL         MONITOR" mode of "HVAC" using CONSULT.         D CUT", and check status under the following condition         Ignition switch ON         A/C switch ON (A/C compressor activate)         Sult normal?         D 3.         for the ECM. Refer to EC-35, "AIR CONDITIONII         ITO AMP. OUTPUT SIGNAL         Q SIG" and "FAN REQ SIG" in "DATA MONITOR" m         Condition         Status         ON       On         OFF       Off         ON       On         Blower motor       ON         OA       ON         OA       ON         OA       OF         OA       OF         ON       On         OFF       Off         DA       ON         ON       ON         ON       OF         OF       Off         OA       OF         OA       OF <t< td=""></t<>

# INTELLIGENT KEY INTERLOCK FUNCTION DOES NOT OPERATE < SYMPTOM DIAGNOSIS > [AUTOMATIC AIR CONDITIONING]

# INTELLIGENT KEY INTERLOCK FUNCTION DOES NOT OPERATE

# Description

Symptom: Intelligent Key interlock function does not operate.

### **Diagnosis Procedure**

1.CHECK DOOR LOCK SYSTEM

Check door lock system Refer to <u>DLK-44, "Work Flow"</u>.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2. CHECK INTERMITTENT INCIDENT

Refer to GI-49, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to <u>HAC-183</u>, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

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INFOID:000000008143990

# NORMAL OPERATING CONDITION

#### < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION

# Description

FOREST AIR SYSTEM

Each control of Forest Air system turns OFF automatically, when A/C auto amp. recognizes that ambient temperature is -2°C (28°F) or less.

Control	Symptom
Automatic intake control (exhaust gas/outside odor detecting mechanism)	<ul><li>When Forest Air system is ON</li><li>FOREST switch indicator lamp turns OFF and control turns OFF.</li></ul>
Air flow control (inside odor detecting mechanism)	<ul><li>When Forest Air system is OFF</li><li>Control does not turn ON when FOREST switch is pressed.</li></ul>
Automatic defeating control	<ul> <li>When Forest Air system is ON</li> <li>FOREST switch indicator lamp and "AUTO DEF" on display turn OFF and control turns OFF.</li> <li>NOTE:</li> <li>AUTO switch indicator lamp and "AUTO" on display do not turn OFF.</li> </ul>
Automatic defogging control	<ul> <li>When Forest Air system is OFF</li> <li>Control does not turn ON when FOREST switch or AUTO switch is pressed.</li> <li>NOTE:</li> </ul>
	AUTO indicator lamp and "AUTO" on display turn ON.

Each control of Forest Air system reactivates according to the following procedures, when A/C auto amp. recognizes that ambient temperature is 0°C (32°F) or more.

Control that reactivates automatically

Control	Reactivation procedure
Automatic defogging control	When ambient temperature is 0°C (32°F) or more, FOREST switch indicator lamp does not turn ON again, but AUTO DEF on display turns ON again auto- matically and control reactivates automatically.

Control that does not reactivate automatically

-		J
Control	Reactivation procedure	
Automatic intake control (exhaust gas/outside odor detecting mechanism)	When ambient temperature is 0°C (32°F) or more, FOREST switch indicator lamp does not turn ON again and control does not reactivate. It is necessary to	k
Air flow control (inside odor detecting mechanism)	turn FOREST switch ON again for reactivating control.	

#### NOTE:

Automatic control of conventional automatic air conditioning system has priority for preventing fogging of window, when ambient temperature is low.

**HAC-181** 

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# REMOVAL AND INSTALLATION MULTIFUNCTION SWITCH

Removal and Installation

INFOID:000000008143992

REMOVAL

Refer to <u>AV-104, "Removal and Installation"</u> (BASE AUDIO WITHOUT NAVIGATION) or <u>AV-264, "Removal and Installation"</u> (BOSE AUDIO WITH NAVIGATION)

INSTALLATION

Install in the reverse order of removal.

A/C AUTO AMP.	^
Exploded View	A
Refer to <u>VTL-16, "Exploded View"</u> .	В
Removal and Installation	
REMOVAL	С
<ul> <li>CAUTION:</li> <li>Before replacing A/C auto amp., perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to <u>HAC-67</u>, "<u>Description</u>".</li> <li>1. Remove glove box. Refer to <u>IP-13</u>, "<u>Removal and Installation</u>".</li> <li>2. Remove screws, and then remove A/C auto amp</li> </ul>	D
INSTALLATION	E
Note the following items, install in the reverse order of removal. CAUTION: Be sure to perform "WRITE CONFIGRATION" when replacing A/C auto amp Refer to <u>HAC-67, "Work</u> <u>Procedure"</u> .	F
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# AMBIENT SENSOR

# Removal and Installation

# REMOVAL

- 1. Remove air duct. Refer to EM-26, "Removal and Installation".
- 2. Disconnect harness connector, and then remove ambient sensor.

# INSTALLATION

Install in the reverse order of removal.

# IN-VEHICLE SENSOR Removal and Installation

Remove instrument lower panel LH. Refer to <u>IP-13, "Removal and Installation"</u>.
 Remove screws, and then remove in-vehicle sensor.

# INSTALLATION

Install in the reverse order of removal.

< REMOVAL AND INSTALLATION >

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Revision: 2013 March

# SUNLOAD SENSOR

# Removal and Installation

INFOID:000000008143997

# REMOVAL

- 1. Remove front defroster grille. Refer to <u>VTL-10, "FRONT DEFROSTER GRILLE : Removal and Installa-</u> tion".
- 2. Disconnect harness connector, and then remove sunload sensor.

#### INSTALLATION

Install in the reverse order of removal.

# HUMIDITY SENSOR

# < REMOVAL AND INSTALLATION > HUMIDITY SENSOR

# [AUTOMATIC AIR CONDITIONING]

# Exploded View

INFOID:000000008143998

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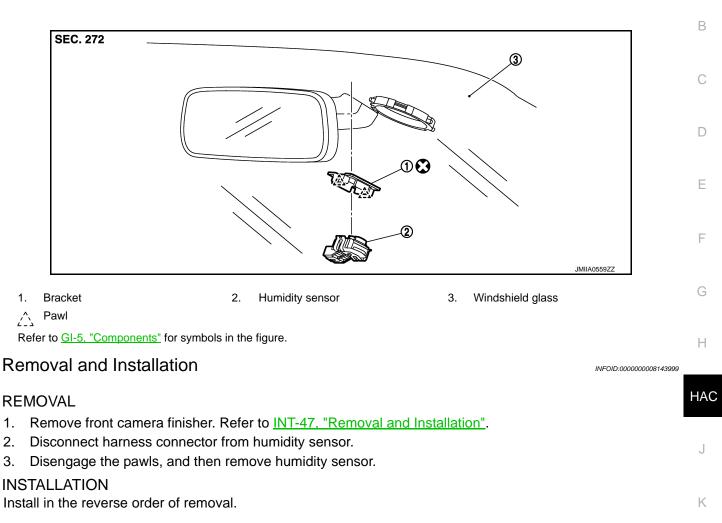
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# INTAKE SENSOR

**Exploded View** 

Refer to HA-42, "Exploded View".

# Removal and Installation

# REMOVAL

- 1. Remove evaporator assembly. Refer to <u>HA-44</u>, "<u>HEATER & COOLING UNIT ASSEMBLY</u> : <u>Removal and</u> <u>Installation</u>".
- 2. Remove intake sensor from evaporator assembly.

# INSTALLATION

Note the following items, install in the reverse order of removal.

CAUTION:

- Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.
- When removing or installing the intake sensor, be sure not to rotate the bracket insertion part. Failure to do this may cause damage to the evaporator.

INFOID:000000008144000

[AUTOMATIC AIR CONDITIONING]

# 

< REMOVAL AND INSTALLATION >	[AUTOMATIC AIR CONDITIONING]
INSIDE ODOR DETECTING SENSOR	
Exploded View	INFOID:00000008144002
Refer to <u>HA-42, "Exploded View"</u> .	E
Removal and Installation	INFOID:00000008144003
<ol> <li>REMOVAL</li> <li>Remove instrument lower panel LH. Refer to <u>IP-13, "Removal a</u></li> <li>Remove aspirator duct, and then disconnect harness connector</li> <li>Remove clip, and then remove inside odor detecting sensor.</li> </ol>	
INSTALLATION Install in the reverse order of removal.	E
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# EXHAUST GAS/OUTSIDE ODOR SENSOR

Removal and Installation

# REMOVAL

- 1. Remove air duct. Refer to EM-26, "Removal and Installation".
- 2. Remove nuts, and then remove exhaust gas/outside odor sensor.

# INSTALLATION

Install in the reverse order of removal.

# [AUTOMATIC AIR CONDITIONING]

# < REMOVAL AND INSTALLATION > DOOR MOTOR

**Exploded View** 

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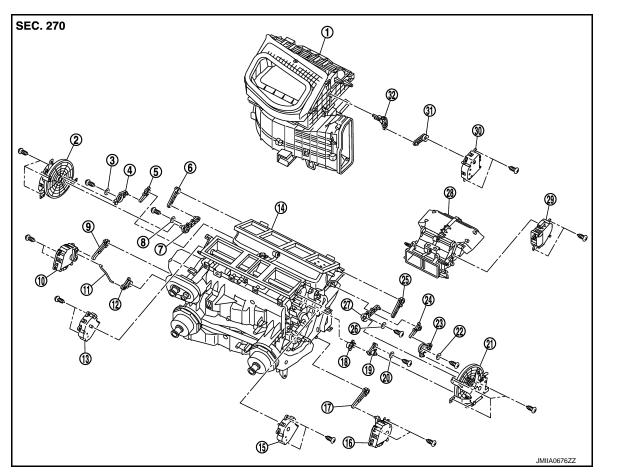
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- 1. Blower unit
- Mode door link RH 4.
- 7. Ventilator door link
- 10. Air mix door motor
- 13. Upper ventilator door motor RH
- 16. Air mix door motor LH
- 19. Defroster door link
- 22. Plate
- 25. Ventilator door lever LH
- 28. Rear mode door case assembly
- 31. Intake door lever

- 2. Mode door motor RH
- 5. Foot door lever RH
- 8. Plate
- Rod 11.
- Heater & cooling unit assembly 14.
- Heater door lever LH 17.
- 20. Plate
- 23. Mode door link LH
- Plate 26.
- 29. Rear mode door motor
- 32. Intake door link

- 3. Plate
  - 6. Ventilator door lever RH
  - 9. Heater door lever
  - 12. Air mix door lever
  - 15. Upper ventilator door motor LH
- 18. Defroster door lever
- 21. Mode door motor LH
- 24. Foot door lever LH
- 27. Ventilator door link LH
- 30. Intake door motor

MODE DOOR MOTOR

# MODE DOOR MOTOR : Removal and Installation

#### INFOID:000000008144006

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- REMOVAL
- 1. Remove heater & cooling unit assembly. Refer to HA-44, "HEATER & COOLING UNIT ASSEMBLY : Removal and Installation".
- 2. Remove mounting screws, and then remove mode door motor.
- Disconnect mode door motor connector. 3.

# INSTALLATION

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# < REMOVAL AND INSTALLATION > Install in the reverse order of removal.

AIR MIX DOOR MOTOR

# AIR MIX DOOR MOTOR : Removal and Installation

INFOID:000000008144007

# REMOVAL

1. Set the temperature 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 heater & cooling unit assembly. Refer to <u>HA-44</u>, "<u>HEATER & COOLING UNIT ASSEMBLY</u> : <u>Removal and Installation</u>".
- 3. Remove blower unit assembly from heater & cooling unit assembly. Refer to <u>VTL-17</u>, "BLOWER UNIT : <u>Removal and Installation</u>". (passenger side only)
- 4. Remove mounting screws, and then remove air mix door motor.
- 5. Disconnect air mix door motor connector.

INSTALLATION Install in the reverse order of removal. INTAKE DOOR MOTOR

# INTAKE DOOR MOTOR : Removal and Installation

# REMOVAL

- 1. Remove heater & cooling unit assembly. Refer to <u>HA-44</u>, "<u>HEATER & COOLING UNIT ASSEMBLY</u> : <u>Removal and Installation</u>".
- 2. Remove mounting screws, and then remove intake door motor.
- 3. Disconnect intake door motor connector.

#### INSTALLATION

Install in the reverse order of removal. UPPER VENTILATOR DOOR MOTOR

# UPPER VENTILATOR DOOR MOTOR : Removal and Installation

INFOID:000000008144009

INFOID:000000008144008

#### REMOVAL

- 1. Remove heater & cooling unit assembly. Refer to <u>HA-44, "HEATER & COOLING UNIT ASSEMBLY :</u> <u>Removal and Installation"</u>.
- 2. Remove mounting screws, and then remove upper ventilator door motor.
- 3. Disconnect upper ventilator door motor connector.

#### INSTALLATION

Install in the reverse order of removal. REAR MODE DOOR MOTOR

# REAR MODE DOOR MOTOR : Removal and Installation

# REMOVAL

- 1. Remove instrument panel assembly. Refer to IP-13, "Removal and Installation".
- 2. Remove mounting screws, and then remove rear mode door motor.
- 3. Disconnect rear mode door motor connector.

#### INSTALLATION

Install in the reverse order of removal.

POWER TRANSISTOR		Δ
Exploded View	INFOID:000000008144011	~
Refer to <u>VTL-16, "Exploded View"</u> . Removal and Installation	INFOID:000000008144012	В
REMOVAL		С
<ol> <li>Remove instrument lower cover. Refer to <u>IP-13, "Removal and Installation"</u>.</li> <li>Remove mounting screws, and then remove power transistor.</li> </ol>		
INSTALLATION Install in the reverse order of removal.		D

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**Exploded** View

Refer to VTL-8, "Exploded View".

Removal and Installation

Removal

1. Remove instrument panel assembly. Refer to IP-13, "Removal and Installation".

# Remove mounting screws, and then remove ionizer from ventilator duct LH. CAUTION: Never tough the surface (ceramic part) of the ionizer. It is the discharge electrode.

3. Disconnect ionizer harness connector.

# **INSTALLATION**

Note the following item, install in the reverse order of removal.

CAUTION:

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

INFOID:000000008144013

[AUTOMATIC AIR CONDITIONING]

AROMA UNIT ASSY	
Exploded View	O08144015
Refer to <u>VTL-16</u> , "Exploded View". Removal and Installation	008144016
REMOVAL	С
<ol> <li>Remove instrument lower panel RH. Refer to <u>IP-13, "Removal and Installation"</u>.</li> <li>Disconnect aroma tube and harness connector.</li> <li>Remove mounting screws, and then remove aroma unit.</li> </ol>	D
INSTALLATION Note the following items, Install in the reverse order of removal.	E
• Install aroma tube so that it is free of kinks.	
<ul> <li>Operate aroma unit after installation. Check that aroma is supplied from air outlet or passenger ventilator.</li> </ul>	side <sub>F</sub>
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