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HEATER & AIR CONDITIONING CONTROL SYSTEM

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PRECAUTION

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.

Precautions for Removing Battery Terminal

 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

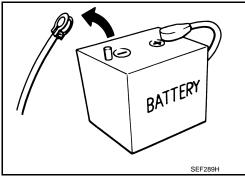
• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

detected.

• After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

The removal of 12V battery may cause a DTC detection error.



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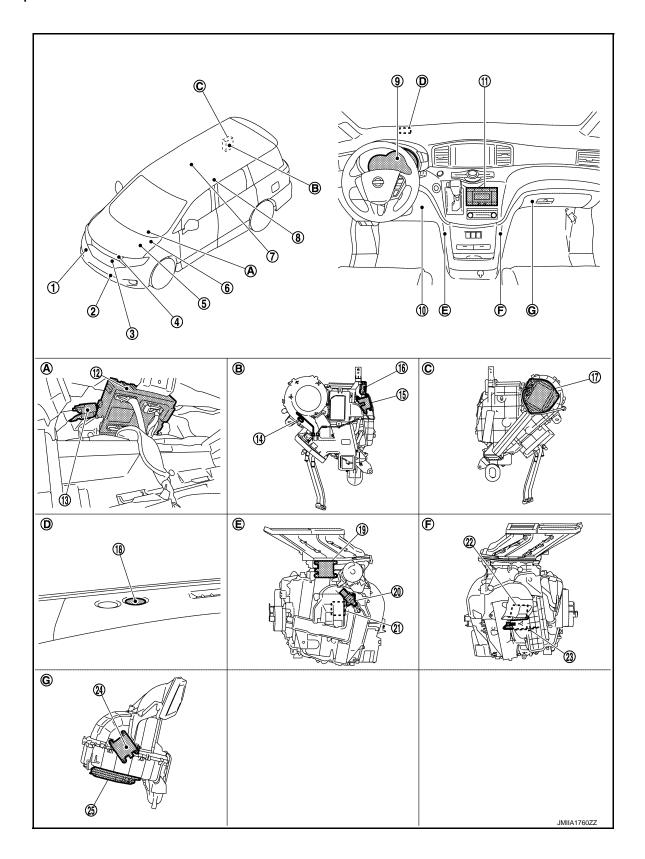
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

Magnet clutch

Ambient sensor

No.

1.

2.

[AUTOMATIC AIR CONDITIONING]

A. Combination meter is removed Left side of rear A/C unit assembly D. Left side of instrument upper garnish E. Left side of heater & cooling unit as- F.

HAC-14, "Magnet Clutch"

HAC-13, "Ambient Sensor"

G. Right side of blower unit assembly

Component

C. Right side of rear A/C unit assemblyF. Right side of heater & cooling unit assembly	А
	В
Function	
	С
dor Detecting Sensor"	D
ensor"	_
al and blower fan ON signal from BCM, trans- al to IPDM E/R via CAN communication ac- d refrigerant pressure.	E
nperature signal to combination meter via	F
ROL SYSTEM : Component Parts Location"	
R. IPDM E/R operates A/C relay when receival from ECM via CAN communication line. <u>oonent Parts Location</u> for detailed installation	G
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mits A/C compressor request signal to IPDM E/R via CAN communication cording to status of the engine and terigreature signal to combination meter via CAN communication line. Refer to EC-Fd. "ENGINE CONTROL SYSTEM: Component Parts Locatifor detailed installation location. A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when reing A/C compressor request signal from ECM via CAN communication line. Refer to EC-Fd. "ENGINE CONTROL SYSTEM: Component Parts Locatifor detailed installation location. A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when reing A/C compressor request signal from ECM via CAN communication line. Refer to PCS-4, "IPDM E/R: Component Parts Location" for detailed installation location. 7. Rear A/C control (with rear entertainment) 8. Rear A/C control (without rear entertainment) 9. Combination meter Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Front in-vehicle sensor HAC-13. "Front In-vehicle Sensor" 11. Front A/C control (A/C auto amp.) HAC-12. "Front A/C Control (A/C Auto Amp.)" 12. BCM BCM Transmits A/C ON signal and blower fan ON signal, received from A/C amp., to ECM via CAN communication line. 10. Indizer [with ACCS (Advanced Climate Control System]] 14. Rear in-vehicle sensor HAC-11. "REAR A/C UNIT ASSEMBLY: Rear In-vehicle Sensor" 15. Rear air mix door motor HAC-11. "REAR A/C UNIT ASSEMBLY: Rear Mode Door Motor" 16. Rear mode door motor HAC-12. "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" 17. Rear blower motor HAC-13. "Sunload Sensor" 18. Sunload sensor HAC-13. "Sunload Sensor" 19. Front mode door motor HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor" HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Mit (Driver side)" 20. Aspirator HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Mit (Driver side)" 21. Front air mix door motor (Driver side)	3.	Exhaust gas/outside odor detecting sensor [with ACCS (Advanced Climate Control System)]	HAC-14, "Exhaust Gas/Outside Odor Detecting Sensor"
mits A/C compressor request signal to IPDM E/R via CAN communication cording to status of the engine and refrigerant pressure. ECM transmits engine coolant temperature signal to combination meter via CAN communication line. Refer to EC-16, "ENGINE CONTROL SYSTEM: Component Parts Locatifor detailed installation location. A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when reing A/C compressor request signal from ECM via CAN communication line. Refer to PCS-4, "IPDM E/R: Component Parts Location" for detailed installation location. 7. (with rear entertainment) 8. Rear A/C control (without rear entertainment) 9. Combination meter Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Front in-vehicle sensor HAC-13, "Front In-vehicle Sensor" 11. Front A/C control (A/C auto amp.) HAC-12, "Front A/C control (A/C Auto Amp.)" 12. BCM BCM transmits A/C ON signal and blower fan ON signal, received from A/C amp., to ECM via CAN communication line. Ionizer [with ACCS (Advanced Climate Control System)] 14. Rear in-vehicle sensor HAC-11, "REAR A/C UNIT ASSEMBLY: Rear In-vehicle Sensor" 15. Rear air mix door motor HAC-11, "REAR A/C UNIT ASSEMBLY: Rear Air Mix Door Motor" 16. Rear mode door motor HAC-12, "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" 17. Rear blower motor HAC-11, "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" 18. Sunload sensor HAC-11, "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" 19. Front mode door motor HAC-11, "HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor (Driver side) 20. Aspirator HAC-11, "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Mix (Driver side) 21. Front air mix door motor (Passenger side)	4.	Refrigerant pressure sensor	HAC-13, "Refrigerant Pressure Sensor"
ing A/C compressor request signal from ECM via CAN communication line Refer to PCS-4, "IPDM E/R: Component Parts Location" for detailed installated in	5.	ECM	ECM transmits engine coolant temperature signal to combination meter via CAN communication line. Refer to EC-16, "ENGINE CONTROL SYSTEM: Component Parts Location"
7. (with rear entertainment) Rear A/C control (without rear entertainment) 9. Combination meter 10. Front in-vehicle sensor 11. Front A/C control (A/C auto amp.) 12. BCM 13. [with ACCS (Advanced Climate Control System)] 14. Rear in-vehicle sensor 15. Rear air mix door motor 16. Rear mode door motor 17. Rear blower motor 18. Sunload sensor 19. Front mode door motor 19. Front mix door motor (Driver side) 19. Front air mix door motor (Driver side) 10. Expression (Passenger side) 10. Front in-vehicle sensor 11. HAC-12. "Rear A/C control (A/C Auto Amp.)" 12. BCM 13. BCM 14. Rear in-vehicle sensor 15. Rear air mix door motor 16. Rear mode door motor 17. Rear blower motor 18. Sunload sensor 19. Front mode door motor 19. Front mix door motor 19. Front mix door motor (Driver side) 19. Front air mix door motor (Driver side) 19. Front air mix door motor (Driver side) 19. Front air mix door motor (Driver side) 10. Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Acc 13. "Front A/C Control In-vehicle Sensor" 11. HAC-12. "Fear A/C ON Signal and blower fan ON signal, received from A/C amp. 18. Sunload sensor 19. Front mode door motor 19. Front mode door motor 19. Front air mix door motor (Driver side) 19. Front air mix door motor (Driver side) 10. HAC-11. "HEATER & COOLING UNIT ASSEMBLY : Front Air Mix Door Motor (Driver side)	6.	IPDM E/R	A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when receiving A/C compressor request signal from ECM via CAN communication line. Refer to PCS-4, "IPDM E/R: Component Parts Location" for detailed installation location.
8. Rear A/C control (without rear entertainment) 9. Combination meter Combination meter transmits engine coolant temperature signal and vehic speed signal to A/C auto amp. 10. Front in-vehicle sensor HAC-13. "Front In-vehicle Sensor" 11. Front A/C control (A/C auto amp.) 12. BCM BCM transmits A/C ON signal and blower fan ON signal, received from A/C amp., to ECM via CAN communication line. 13. [with ACCS (Advanced Climate Control System)] 14. Rear in-vehicle sensor HAC-11. "REAR A/C UNIT ASSEMBLY: Rear In-vehicle Sensor" 15. Rear air mix door motor HAC-11. "REAR A/C UNIT ASSEMBLY: Rear Air Mix Door Motor" 16. Rear mode door motor HAC-12. "REAR A/C UNIT ASSEMBLY: Rear Mode Door Motor" 17. Rear blower motor HAC-12. "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" 18. Sunload sensor HAC-13. "Sunload Sensor" 19. Front mode door motor HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor Mac-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side) HAC-11. "HEATER	7.		HAC-12 "Rear A/C Control"
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11. Front A/C control (A/C auto amp.) HAC-12, "Front A/C Control (A/C Auto Amp.)" BCM transmits A/C ON signal and blower fan ON signal, received from A/C amp., to ECM via CAN communication line. Ionizer [with ACCS (Advanced Climate Control System)] HAC-15. "Ionizer" HAC-15. "Ionizer" HAC-11. "REAR A/C UNIT ASSEMBLY: Rear In-vehicle Sensor" HAC-11. "REAR A/C UNIT ASSEMBLY: Rear Air Mix Door Motor" Rear mode door motor HAC-12. "REAR A/C UNIT ASSEMBLY: Rear Mode Door Motor" Rear blower motor HAC-12. "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" HAC-13. "Sunload Sensor" HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor" Aspirator HAC-10. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor Mix Door Motor" HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side)" HAC-11. "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side)"	9.	Combination meter	Combination meter transmits engine coolant temperature signal and vehicle speed signal to A/C auto amp.
BCM transmits A/C ON signal and blower fan ON signal, received from A/C amp., to ECM via CAN communication line. 13. Ionizer [with ACCS (Advanced Climate Control System)] 14. Rear in-vehicle sensor HAC-11, "REAR A/C UNIT ASSEMBLY: Rear In-vehicle Sensor" 15. Rear air mix door motor HAC-11, "REAR A/C UNIT ASSEMBLY: Rear Air Mix Door Motor" 16. Rear mode door motor HAC-12, "REAR A/C UNIT ASSEMBLY: Rear Mode Door Motor" 17. Rear blower motor HAC-12, "REAR A/C UNIT ASSEMBLY: Rear Blower Motor" 18. Sunload sensor HAC-13, "Sunload Sensor" 19. Front mode door motor HAC-11, "HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor M	10.	Front in-vehicle sensor	HAC-13, "Front In-vehicle Sensor"
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// Front air mix door motor (Passenger side)	21.	Front air mix door motor (Driver side)	HAC-11, "HEATER & COOLING UNIT ASSEMBLY : Front Air Mix Door Motor (Driver side)"
(Passenger side)"	22.	Front air mix door motor (Passenger side)	HAC-11, "HEATER & COOLING UNIT ASSEMBLY : Front Air Mix Door Motor (Passenger side)"
23. Intake sensor <u>HAC-11, "HEATER & COOLING UNIT ASSEMBLY : Intake Sensor"</u>	23.	Intake sensor	HAC-11, "HEATER & COOLING UNIT ASSEMBLY : Intake Sensor"
24. Intake door motor <u>HAC-10, "BLOWER UNIT ASSEMBLY : Intake Door Motor"</u>	24.	Intake door motor	HAC-10, "BLOWER UNIT ASSEMBLY : Intake Door Motor"
25. Front blower motor <u>HAC-10, "BLOWER UNIT ASSEMBLY : Front Blower Motor"</u>	25.	Front blower motor	HAC-10, "BLOWER UNIT ASSEMBLY : Front Blower Motor"

BLOWER UNIT ASSEMBLY

BLOWER UNIT ASSEMBLY: Intake Door Motor

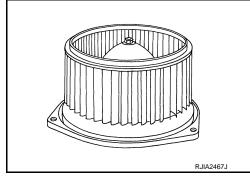
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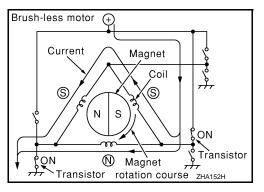
- Intake door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door
 position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C auto
 amp. Refer to HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to intake door, then air inlet is switched.

BLOWER UNIT ASSEMBLY: Front Blower Motor

INFOID:0000000011325688

- The front blower motor utilizes a brush-less motor with a rotating magnet. Quietness is improved over previous motors that rotates coil while brush functions as contact points.
- Rotation speed is changed according to front blower motor control signal (duty ratio) from A/C auto amp.

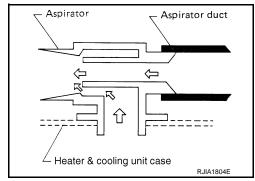




HEATER & COOLING UNIT ASSEMBLY HEATER & COOLING UNIT ASSEMBLY : Aspirator

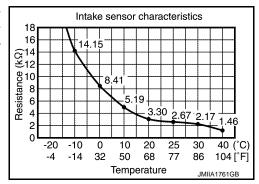
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The aspirator generates the vacuum by the air blown from the heater & cooling unit case and draws the air of the passenger room to the front in-vehicle sensor area via the aspirator duct.



HEATER & COOLING UNIT ASSEMBLY: Intake Sensor

Intake sensor measures front evaporator fin temperature. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Driver side)

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- Front air mix door motor (driver side) consists of motor that drives door, PBR (Potentio Balance Register)
 that detects door position and LCU (Local Control Unit) that performs multiplex communication control (LAN)
 with A/C auto amp. Refer to HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to front air mix door (driver side), then air flow temperature (driver side) is switched.

HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor (Passenger side)

INFOID:0000000011325692

- Front air mix door motor (passenger side) consists of motor that drives door, PBR (Potentio Balance Register) that detects door position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C auto amp. Refer to HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to front air mix door (passenger side), then air flow temperature (passenger side) is switched.

HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor

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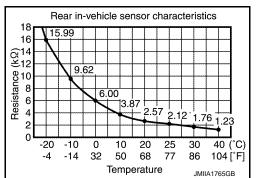
- Front mode door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door
 position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C auto
 amp. Refer to HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to front mode door (ventilator door, max. cool door, defroster door and foot door) by lever, link, and rod, then air outlet is switched.

REAR A/C UNIT ASSEMBLY

REAR A/C UNIT ASSEMBLY: Rear In-vehicle Sensor

INFOID:0000000011325694

Rear in-vehicle sensor measures temperature of intake air that flows through rear blower motor to passenger room. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



REAR A/C UNIT ASSEMBLY: Rear Air Mix Door Motor

INFOID:0000000011325695

- Rear air mix door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C auto amp. Refer to HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to rear air mix door by lever, then air flow temperature is switched.

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Revision: 2014 August HAC-11 2015 QUEST

REAR A/C UNIT ASSEMBLY: Rear Mode Door Motor

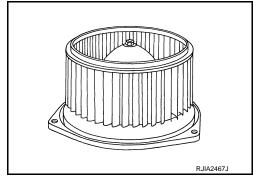
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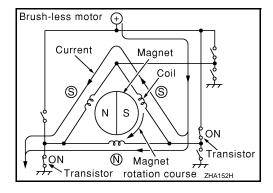
- Rear mode door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door
 position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C auto
 amp. Refer to HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to rear mode door by lever, then air outlet is switched.

REAR A/C UNIT ASSEMBLY: Rear Blower Motor

INFOID:0000000011325697

- The rear blower motor utilizes a brush-less motor with a rotating magnet. Quietness is improved over previous motors that rotates coil while brush functions as contact points.
- Rotation speed is changed according to rear blower motor control signal (duty ratio) from A/C auto amp.

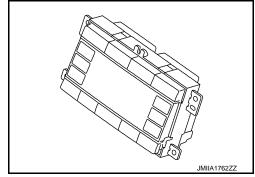




Front A/C Control (A/C Auto Amp.)

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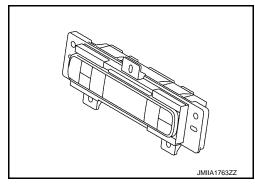
- Front A/C control has switches and display that can set and indicate the operation of front automatic air conditioning system, rear automatic air conditioning system, and ACCS (Advanced Climate Control System).
- Front A/C control integrates A/C auto amp. A/C auto amp. controls front automatic air conditioning system, rear automatic air conditioning system, and ACCS (Advanced Climate Control System), by receiving and calculating signal from each sensor and switch. A/C auto amp. has self-diagnosis function. Diagnosis of air conditioning system can be performed quickly.



Rear A/C Control

INFOID:0000000011325699

Rear A/C control has switches and display that can set and indicate the operation of rear automatic air conditioning system. Rear A/C control transmits setting status to A/C auto amp. via communication line. A/C auto amp. controls rear automatic air conditioning system.



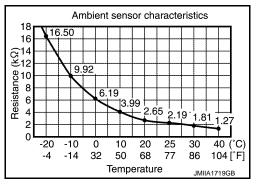
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Ambient Sensor

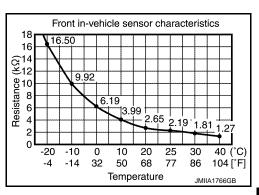
Ambient sensor measures ambient air temperature. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



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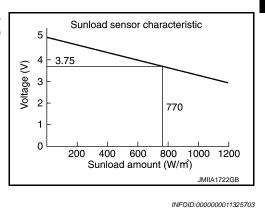
Front In-vehicle Sensor

Front in-vehicle sensor measures temperature of intake air that flows through aspirator to passenger room. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



Sunload Sensor

Sunload sensor measures sunload amount. This sensor converts sunload amount to voltage signal by photodiode and transmits it to A/C auto amp.

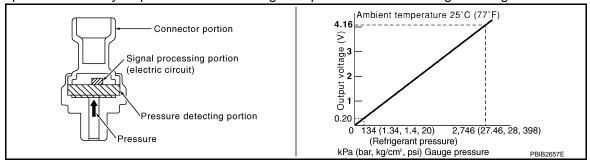


Refrigerant Pressure Sensor

DESCRIPTION

• The refrigerant pressure sensor converts high-pressure side refrigerant pressure into voltage and transmits it to ECM.

ECM operates cooler cycle protection and cooling fan speed control according to voltage value that is input.



STRUCTURE AND OPERATION

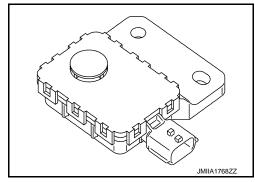
- The refrigerant pressure sensor is a capacitance type sensor. It consists of a pressure detection areas and a signal processing area.
- The pressure detection area, which is a variable capacity condenser, changes internal static capacitance according to pressure force.
- The signal processing area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

Exhaust Gas/Outside Odor Detecting Sensor

INFOID:0000000011325704

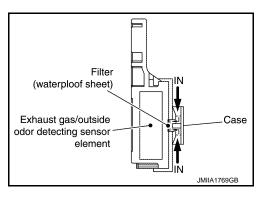
DESCRIPTION

Exhaust gas/outside odor detecting sensor detects ambient atmospheric CO, NO2 and unpleasant odor, and converts them to values of resistance. The values are converted to signals with the exhaust gas/outside odor detecting sensor internal circuit, then the A/C auto amp. inputs the signals.



STRUCTURE AND OPERATION

Exhaust gas/outside odor detecting sensor has a construction that detects CO, NO2 and unpleasant odor by exhaust gas/outside odor detecting sensor element from the air intake of the case through a filter (waterproof sheet). It sends output signals to the A/C auto amp. in response to a resistance value conversion by exhaust gas/outside odor detecting sensor elements. A/C auto amp. controls intake door motor to prevent a smell of exhaust gas and unpleasant ambient odor from getting into the vehicle by performing corrections according to various driving conditions.



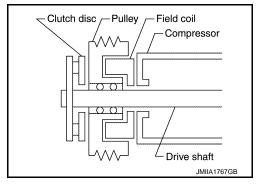
Magnet Clutch

DESCRIPTION

Compressor is driven by the magnet clutch which is magnetized by electric power supply.

STRUCTURE AND OPERATION

- Magnet clutch consists of pulley, clutch disc, and field coil.
- Pulley is connected with crankshaft pulley of engine via drive belt and is always rotated while engine is running.
- Clutch disc is connected with drive shaft of compressor.
- Field coil, which becomes a strong electric magnet when electricity is supplied, strongly pulls clutch disc and pressed it to pulley.
- When A/C relay integrated in IPDM E/R turns ON, electricity is supplied to field coil, clutch disc is pressed to pulley, and engine rotational movement is transmitted from crankshaft pulley ⇒ drive belt ⇒ pulley ⇒ clutch disc ⇒ drive shaft. Compressor is operated. When A/C relay turns OFF, electricity is not supplied to field coil, and clutch disc is released from pulley. Compressor is not operated.



COMPONENT PARTS

< SYSTEM DESCRIPTION >

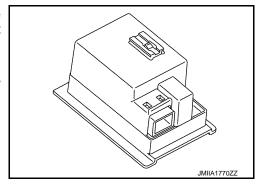
[AUTOMATIC AIR CONDITIONING]

InfolD:000000011325706

High density plasmacluster $^{\text{TM}}$ ion generator is adopted to increase the effect in maintaining skin moisture as well as the effect against mold, viruses, allergens, and odors.

NOTE:

- Plasmacluster[™] ion technology developed by Sharp Corporation is installed in this item.
- \bullet Plasmacluster $^{^{\text{TM}}}$ is a trademark of Sharp Corporation.



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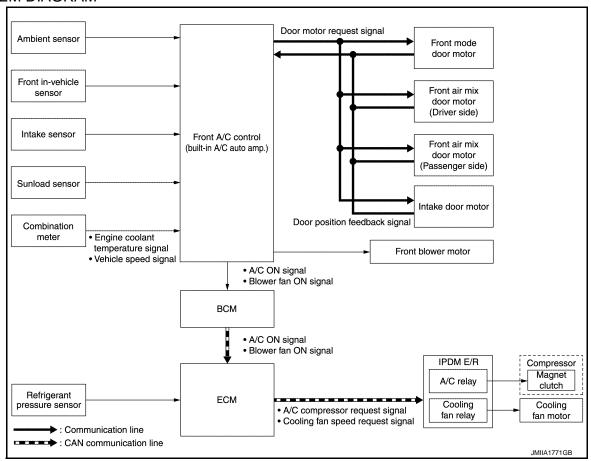
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SYSTEM

FRONT AUTOMATIC AIR CONDITIONING SYSTEM

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: System Description INFOID:000000011325707

SYSTEM DIAGRAM



DESCRIPTION

- Front automatic air conditioning system is controlled by each function of A/C auto amp., BCM, ECM and IPDM E/R.
- Each operation of front air conditioning system can be controlled by front A/C control (built-in A/C auto amp.).

CONTROL BY A/C AUTO AMP.

- HAC-17, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Temperature Control"
- HAC-18, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Outlet Control"
- HAC-18, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Flow Control"
- HAC-19, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Inlet Control"
- HAC-19, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Compressor Control"
- HAC-20, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control"
- · Correction for input value

Ambient temperature correction

- A/C auto amp. inputs the temperature detected by ambient sensor as the ambient temperature.
- A/C auto amp. performs the correction of the temperature detected by ambient sensor for front air conditioning control.
- A/C auto amp. selects and uses the initial value of ambient temperature data depending on the engine coolant temperature when turning the ignition switch from OFF to ON. The detection temperature of the ambient sensor is used when engine coolant temperature is low [less than approximately 56°C (133°F)]. The memory data (before the ignition switch is OFF) when the engine is warmed up [approximately 56°C (133°F) or more].

- The correction of the ambient temperature is not performed when the detection temperature of the ambient temperature is less than approximately –20°C (–4°F).

Front in-vehicle temperature correction

- A/C auto amp. inputs the temperature detected by front in-vehicle sensor as the front in-vehicle temperature.
- A/C auto amp. performs the correction of the temperature detected by front in-vehicle sensor for front air conditioning control.
- A/C auto amp. performs the correction so that the recognition passenger room temperature (front side) changes depending on the difference between the detected passenger room temperature (front side) and the recognition passenger room temperature (front side). If the difference is large, the changing is early. The changing becomes slow as the difference becomes small.

Intake temperature correction

- A/C auto amp. inputs the temperature detected by intake sensor as the intake temperature (front evaporator temperature).
- A/C auto amp. performs the correction of the temperature detected by intake sensor for front air conditioning control.
- A/C auto amp. performs the correction so that the recognition intake temperature changes depending on the
 difference between the detected intake temperature and the recognition intake temperature. If the difference
 is large, the changing is early. The changing becomes slow as the difference becomes small.

Sunload amount correction

- A/C auto amp. inputs the sunload amount detected by sunload sensor.
- A/C auto amp. performs the correction of the sunload amount detected by sunload sensor for front air conditioning control.
- When the sunload amount suddenly changes, for example when entering a tunnel, perform the correction so that the recognition sunload amount of the A/C auto amp. changes slowly.

Set temperature correction

A/C auto amp. performs the correction to the target temperature set by the temperature control switch so as
to match the temperature felt by the passengers depending on the ambient temperature detected by ambient sensor and controls it so that the in-vehicle temperature is always the most suitable.

CONTROL BY BCM

• HAC-19, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Compressor Control"

CONTROL BY ECM

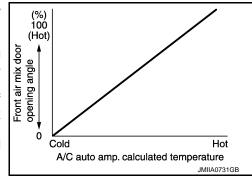
- HAC-19, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Compressor Control"
- Cooling fan control. Refer to EC-46, "COOLING FAN CONTROL: System Description".

CONTROL BY IPDM E/R

- HAC-19, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Compressor Control"
- Cooling fan control. Refer to PCS-5, "RELAY CONTROL SYSTEM: System Description".

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Temperature Control

- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of air conditioning system operational state.
- A/C auto amp. calculates the target front air mix door opening angle depending on set temperature, in-vehicle temperature, ambient temperature, and sunload.
- Front air mix door is controlled depending on the comparison of current front air mix door opening angle and target front air mix door opening angle.
- Regardless of in-vehicle temperature, ambient temperature, and sunload, front air mix door is fixed at the fully cold position when set temperature is 18°C (60°F), and at the fully hot position when set temperature is 32°C (90°F).



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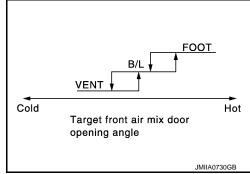
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Revision: 2014 August HAC-17 2015 QUEST

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Outlet Control

- While air outlet is in automatic control, A/C auto amp. selects the front mode door position depending on a target front air mix door angle and outlet air temperature calculated from sunload.
- If ambient temperature is excessively low, D/F is selected to prevent windshield fogging when air outlet is set to FOOT.



FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Flow Control

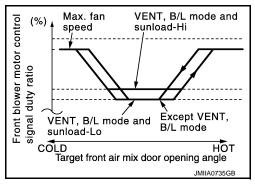
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DESCRIPTION

- A/C auto amp. changes duty ratio of front blower motor control signal to control air flow continuously. When air flow is increased, duty ratio of front blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control and automatic control, air flow control is compose of starting air flow control, low coolant temperature starting control, high in-vehicle temperature starting control, and fan speed control at door motor operation.

AUTOMATIC AIR FLOW CONTROL

- A/C auto amp. decides target air flow depending on target front air mix door opening angle.
- A/C auto amp. changes duty ratio of front blower motor control signal to control air flow continuously so that air flow matches to target air flow.
- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.

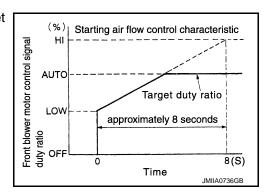


STARTING AIR FLOW CONTROL

When front blower motor is activated, A/C auto amp. gradually increases duty ratio of blower motor control signal to prevent a sudden increase in discharge air flow. It takes approximately 8 seconds for air flow to reach HI from LOW.

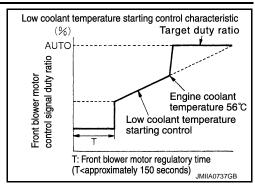
NOTE:

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



LOW COOLANT TEMPERATURE STARTING CONTROL

If the engine coolant temperature is 56°C (133°F) or less, to prevent a cold discharged air flow, A/C auto amp. suspends front blower motor activation for the maximum 150 seconds depending on target front air mix door opening angle. After this, front blower motor control signal is increased gradually, and front blower motor is activated.



FAN SPEED CONTROL AT DOOR MOTOR OPERATION

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

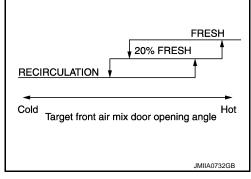
HIGH IN-VEHICLE TEMPERATURE STARTING CONTROL

When front evaporator fin temperature is high [intake air temperature sensor value is 35°C (95°F) or more], to prevent a hot discharged air flow, A/C auto amp. suspends front blower motor activation for approximately 3 seconds so that front evaporator is cooled by refrigerant.

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Inlet Control

 While air inlet is in automatic control, A/C auto amp. selects air inlet (fresh air intake, 20% fresh air intake, or recirculation) depending on set temperature, in-vehicle temperature, and ambient temperature.

- Air inlet is fixed to 80% FRE, only when the following conditions are satisfied:
- Air inlet is FOOT or D/F
- Ambient temperature is 2°C (36°F) or less
- Maximum fan speed



FRONT AUTOMATIC AIR CONDITIONING SYSTEM : Compressor Control

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DESCRIPTION

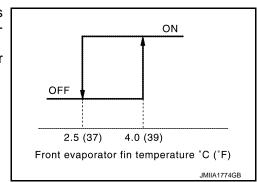
- When the compressor activation condition is satisfied while front blower motor is activated, A/C auto amp. transmits A/C ON signal and blower fan ON signal to BCM.
- BCM transmits the A/C ON signal and blower fan ON signal to ECM via CAN communication line. Refer to BCS-12, "SIGNAL BUFFER SYSTEM: System Description".
- ECM judges the conditions of each sensor (refrigerant pressure sensor signal, accelerator position signal, etc.), and transmits the A/C compressor request signal to IPDM E/R via CAN communication line.
- By receiving the A/C compressor request signal from ECM, IPDM E/R turns the A/C relay to ON, and activates the compressor. Refer to PCS-5, "RELAY CONTROL SYSTEM: System Description".

CONTROL BY A/C AUTO AMP.

Low Temperature Protection Control

When intake sensor detects that front evaporator fin temperature is 2.5°C (37°F) or less, A/C auto amp. requests ECM to turn the compressor OFF, and stops the compressor.

When the front evaporator fin temperature returns to 4.0°C (39°F) or more, the compressor is activated.



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Revision: 2014 August HAC-19 2015 QUEST

CONTROL BY ECM

Compressor Protection Control at Pressure Malfunction

When the high-pressure side value that is detected by refrigerant pressure sensor is as per the following state, ECM requests IPDM E/R to turn A/C relay OFF and stops the compressor.

- 3.12 MPa (31.8 kg/cm², 452 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.9 kg/cm², 397 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.4 kg/cm², 20 psi) or less

Compressor Oil Circulation Control

When the engine starts while the engine coolant temperature is 56°C (133°F) or less, ECM activates the compressor for approximately 6 seconds and circulates the compressor oil once.

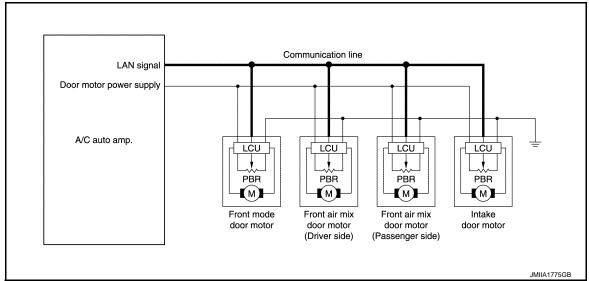
Air Conditioning Cut Control

When the engine condition is high load, ECM transmit A/C relay OFF request to IPDM E/R, and stops the compressor. Refer to EC-44, "AIR CONDITIONING CUT CONTROL: System Description".

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Door Control

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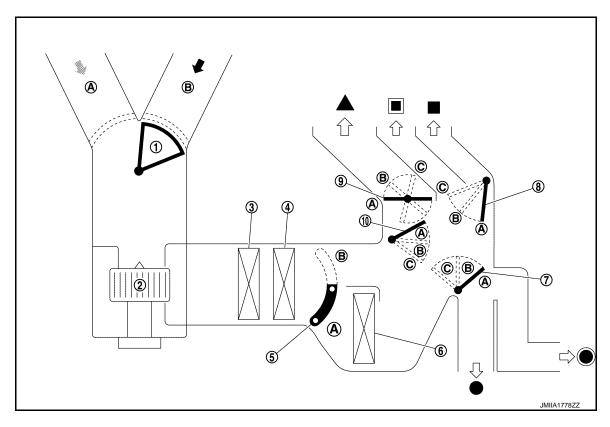
DOOR MOTOR CONTROL



- LCU (Local Control Unit) is built into each door motor. And detects door position by PBR (Potentio Balance Resistor).
- A/C auto amp. communicates with each LCU via communication line. And receives each door position feedback signal from each LCU.
- Each LCU controls each door to the appropriate position depending on the control signal from A/C auto amp.
- Each LCU transmits the signal of door movement completion to A/C auto amp., when the door movement is completed.

SWITCH AND THEIR CONTROL FUNCTION

With ACCS (Advanced Climate Control System)



- 1. Intake door
- 4. Front evaporator
- 7. Foot door
- 10. Max. cool door
- Fresh air
- ▲ Defroster
- Front foot

- 2. Front blower motor
- Front air mix door
- 8. Ventilator door
- Recirculation air
- Center ventilator
- Rear foot

- 3. In-cabin microfilter
- 6. Front heater core
- 9. Defroster door
- Side ventilator

	Door position							
Switch position AUTO switch			Front mode door				Front air mix door	
		Ventilator door	Max. cool door	Defroster door	Foot door	Intake door	(Driver side)	(Passenger side)
AUTO switch		AUTO						

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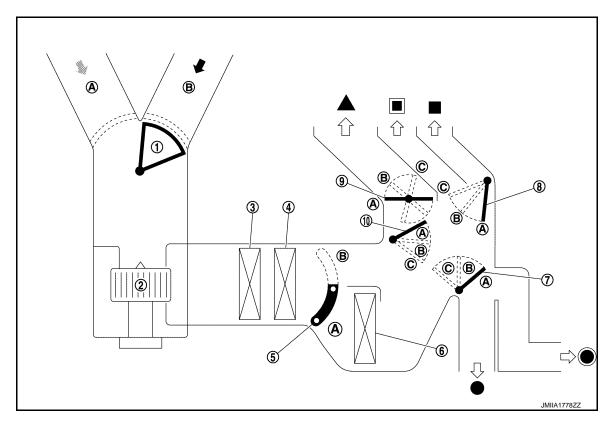
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[AUTOMATIC AIR CONDITIONING]

			Door position							
				Front mode door					Front air mix door	
Switch position		Ventilator door	Max. cool door	Defroster door	Foot door	Intake door	(Driver side)	(Passenger side)		
		•	' '	Α	Α	Α	Α			
MODE switch			"	В	В	Α	В			
WODE SWIGH		•	Ų,	С	С	В	В	_		
		3		С	В	В	В		_	_
DEF switch		₩		С	Α	С	С			
Intake switch*		<u>@</u>						Α		
make switch								В		
	DUAL		l cold (60°F)]						Α	
Temperature control switch (Driver side)	switch: OFF	18.5°C – 31.5°C (61°F – 89 °F) Full hot [32°C (90°F)]							AL	JTO
									В	
			l cold (60°F)]	_	_	_	_		А	
Temperature control switch (Driver side)			18.5°C – 31.5°C (61°F – 89 °F)					_	AUTO	_
	DUAL		ll hot (90°F)]						В	
switch: ON		l cold (60°F)]							А	
Temperature control switch (Passenger side)	ontrol nger		– 31.5°C – 89 °F)						_	AUTO
,			ll hot (90°F)]							В
ON-OFF switch		OFF		С	С	В	В	В		_

^{*:} Inlet status is displayed by indicator during activating automatic control

Without ACCS (Advanced Climate Control System)



- 1. Intake door
- 4. Front evaporator
- 7. Foot door
- 10. Max. cool door
- Fresh air
- ▲ Defroster
- Front foot

- 2. Front blower motor
- 5. Front air mix door
- 8. Ventilator door
- Recirculation air
- Center ventilator
- Rear foot

- 3. In-cabin microfilter
- 6. Front heater core
- 9. Defroster door
- Side ventilator

			Door position					
			Front mode door				Front air mix door	
Switch բ	Switch position		Max. cool door	Defroster door	Foot door	Intake door	(Driver side)	(Passenger side)
AUTO switch					AL	JTO	1	1

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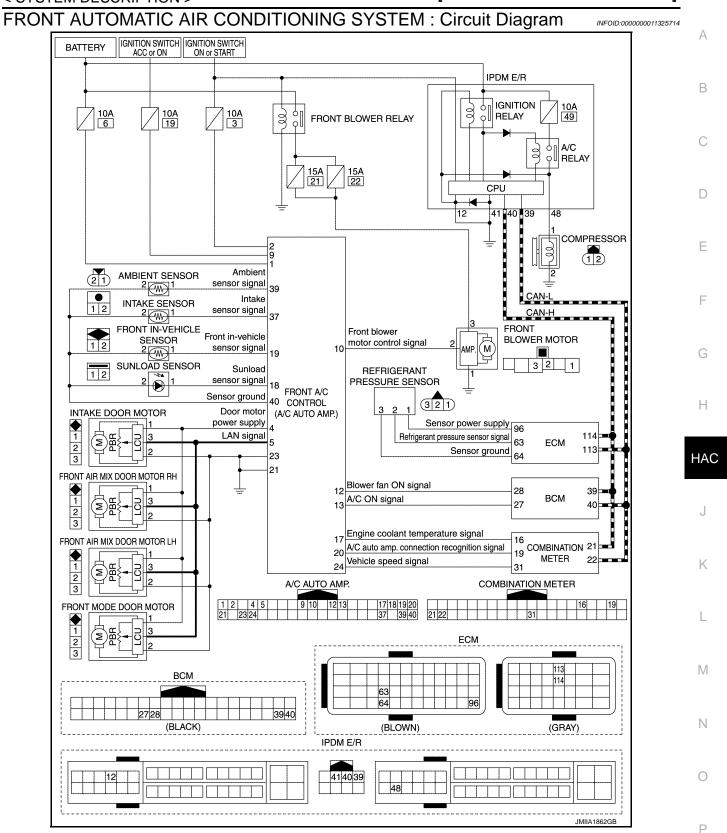
				Door position						
			Front mode door				Front air	mix door		
Switch position			Ventilator door	Max. cool door	Defroster door	Foot door	Intake door	(Driver side)	(Passenger side)	
			·;	Α	А	Α	Α			
MODE switch	witch 💝		В	В	Α	В	_			
WODE SWIGH	ڼ		С	С	В	В				
		M.		С	В	В	В		_	_
DEF switch		(4)		С	Α	С	С			
REC switch*		ڪ						Α		
FRE switch*		8						В		
	DUAL switch: OFF		cold (60°F)]						А	
Temperature control switch (Driver side)			– 31.5°C – 89 °F)						AUTO	
			l hot (90°F)]						В	
	DUAL switch: ON		cold (60°F)]	_	_	_			А	
Temperature control switch (Driver side)			18.5°C – 31.5°C (61°F – 89 °F)					— AUTO	_	
			l hot (90°F)]						В	
Temperature control switch (Passenger side)			cold (60°F)]							А
			– 31.5°C – 89 °F)							AUTO
			l hot (90°F)]							В
ON-OFF switch		OFF		С	С	В	В	В		

ON-OFF switch OFF C C B

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

AIR DISTRIBUTION

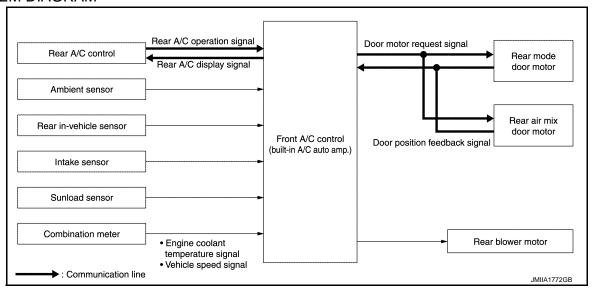
Discharge air flow							
MODE/DEF set position Cond		Air outlet/distribution					
	Condition	Ventilator		Foot		Defractor	
		Center	Side	Front	Rear	- Defroster	
~;		50%	50%	_		_	
Ÿ	DUAL switch: OFF	26%	30%	30%	14%	_	
· i		_	14%	40%	16.5%	29.5%	
M		_	14%	35%	16%	35%	
₩		_	12%	-		88%	



REAR AUTOMATIC AIR CONDITIONING SYSTEM

REAR AUTOMATIC AIR CONDITIONING SYSTEM: System Description INFOID:000000011325715

SYSTEM DIAGRAM



DESCRIPTION

- Rear automatic air conditioning system is controlled by each function of A/C auto amp.
- Each operation of rear automatic air conditioning system can be controlled by front A/C control (built-in A/C auto amp.) and rear A/C control.

CONTROL BY A/C AUTO AMP.

- HAC-27, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Temperature Control"
- HAC-27, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Air Outlet Control"
- HAC-27, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Air Flow Control"
- HAC-19, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Air Inlet Control"
- HAC-29, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Door Control"
- Correction for input value

Ambient temperature correction

- A/C auto amp. inputs the temperature detected by ambient sensor as the ambient temperature.
- A/C auto amp. performs the correction of the temperature detected by ambient sensor for rear air conditioning control.
- A/C auto amp. selects and uses the initial value of ambient temperature data depending on the engine coolant temperature when turning the ignition switch from OFF to ON. The detection temperature of the ambient sensor is used when engine coolant temperature is low [less than approximately 56°C (133°F)]. The memory data (before the ignition switch is OFF) when the engine is warmed up [approximately 56°C (133°F) or more].
- The correction of the ambient temperature is not performed when the detection temperature of the ambient temperature is less than approximately –20°C (–4°F).

Rear in-vehicle temperature correction

- A/C auto amp. inputs the temperature detected by rear in-vehicle sensor as the rear in-vehicle temperature.
- A/C auto amp. performs the correction of the temperature detected by rear in-vehicle sensor for rear air conditioning control.
- A/C auto amp. performs the correction so that the recognition passenger room temperature (rear side) changes depending on the difference between the detected passenger room temperature (rear side) and the recognition passenger room temperature (rear side). If the difference is large, the changing is early. The changing becomes slow as the difference becomes small.

Intake temperature correction

- A/C auto amp. inputs the temperature detected by intake sensor as the intake temperature (front evaporator temperature).
- A/C auto amp. performs the correction of the temperature detected by intake sensor for rear air conditioning control.

- A/C auto amp, performs the correction so that the recognition intake temperature changes depending on the difference between the detected intake temperature and the recognition intake temperature. If the difference is large, the changing is early. The changing becomes slow as the difference becomes small. NOTE:
 - A/C auto amp. calculates rear evaporator temperature according to front evaporator temperature (intake sensor detection temperature).

Sunload amount correction

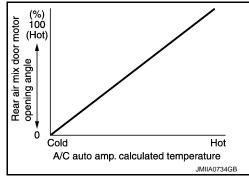
- A/C auto amp. inputs the sunload amount detected by sunload sensor.
- A/C auto amp. performs the correction of the sunload amount detected by sunload sensor for rear air conditioning control.
- When the sunload amount suddenly changes, for example when entering a tunnel, perform the correction so that the recognition sunload amount of the A/C auto amp. changes slowly.

Set temperature correction

- A/C auto amp. performs the correction to the target temperature set by the temperature control switch so as to match the temperature felt by the passengers depending on the ambient temperature detected by ambient sensor and controls it so that the in-vehicle temperature is always the most suitable.

REAR AUTOMATIC AIR CONDITIONING SYSTEM: Temperature Control INFOID:000000011325716

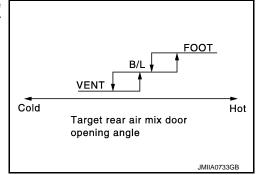
- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of rear air conditioning operational state.
- A/C auto amp. calculates the target rear air mix door opening angle depending on set temperature, rear in-vehicle temperature, ambient temperature, and sunload.
- Rear air mix door is controlled depending on the comparison of current rear air mix door opening angle and target rear air mix door opening angle.
- Regardless of rear in-vehicle temperature, ambient temperature, and sunload, rear air mix door is fixed at the fully cold position when set temperature is 18°C (60°F), and at the fully hot position when set temperature is 32°C (90°F).



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REAR AUTOMATIC AIR CONDITIONING SYSTEM: Air Outlet Control

While air outlet is in automatic control, A/C auto amp. selects the rear mode door position depending on a target rear air mix door opening angle and outlet air temperature calculated from sunload.



REAR AUTOMATIC AIR CONDITIONING SYSTEM: Air Flow Control

INFOID:0000000011325718

INFOID:0000000011325717

DESCRIPTION

- A/C auto amp. changes duty ratio of rear blower motor control signal to control air flow continuously. When air flow is increased, duty ratio of rear blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control and automatic control, air flow control is compose of starting air flow control, low coolant temperature starting control, high in-vehicle temperature starting control, and fan speed control at door motor operation.

AUTOMATIC AIR FLOW CONTROL

A/C auto amp. decides target air flow depending on target air mix door opening angle.

HAC-27 Revision: 2014 August **2015 QUEST**

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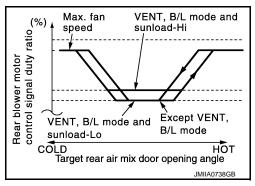
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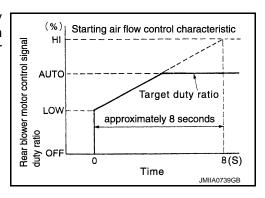
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- A/C auto amp. changes duty ratio of rear blower motor control signal to control air flow continuously so that air flow matches to target air flow.
- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.



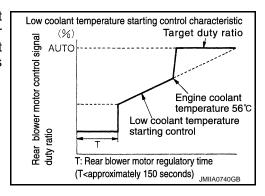
STARTING AIR FLOW CONTROL

When rear blower motor is activated, A/C auto amp. gradually increases duty ratio of blower fan control signal to prevent a sudden increase in discharge air flow. It takes approximately 8 seconds for air flow to reach HI from LOW.



LOW COOLANT TEMPERATURE STARTING CONTROL

If the engine coolant temperature is 56°C (133°F) or less, to prevent a cold discharged air flow, A/C auto amp. suspends rear blower motor activation for the maximum 150 seconds depending on target air mix door opening angle. After this, blower fan control signal is increased gradually, and rear blower motor is activated.



HIGH IN-VEHICLE TEMPERATURE STARTING CONTROL

When evaporator temperature is high [intake air temperature sensor value is 35°C (95°F) or more], to prevent a hot discharged air flow, A/C auto amp. suspends rear blower motor activation for approximately 3 seconds so that evaporator is cooled by refrigerant.

FAN SPEED CONTROL AT DOOR MOTOR OPERATION

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

REAR AUTOMATIC AIR CONDITIONING SYSTEM: Door Control

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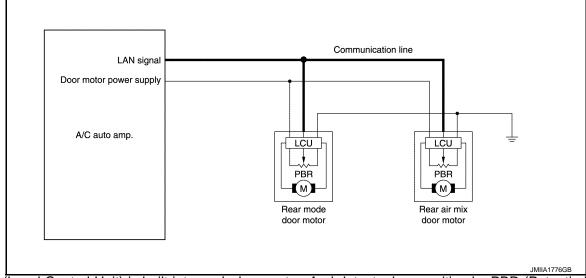
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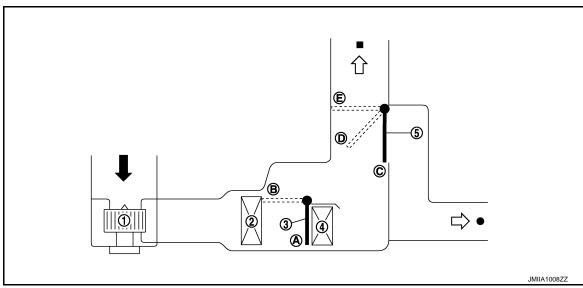
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DOOR MOTOR CONTROL



- LCU (Local Control Unit) is built into each door motor. And detects door position by PBR (Potentio Balance Resistor).
- A/C auto amp. communicates with each LCU via communication line. And receives each door position feedback signal from each LCU.
- Each LCU controls each door to the appropriate position depending on the control signal from A/C auto amp.
- Each LCU transmits the signal of door movement completion to A/C auto amp., when the door movement is completed.

SWITCHES AND THEIR CONTROL FUNCTION



- Rear blower motor
- Rear heater core
- Recirculation air
- Rear ventilator

- 2. Rear evaporator
- Rear mode door
- Discharge air
- Rear foot

Rear air mix door

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SYSTEM

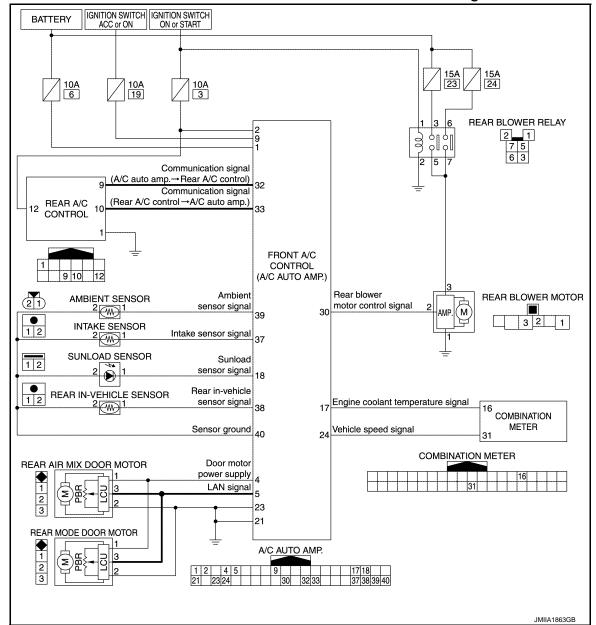
[AUTOMATIC AIR CONDITIONING]

Switch position			Door position		
			Rear mode door	Rear air mix door	
ALITOit-le	Front A/C control			AUTO	
AUTO switch	Rear A/C control	АИТО	,	AUTO	
	"		С		
MODE switch	ij		D	_	
	ڼ		E		
		Full cold 18.0°C (60°F)		А	
	switch (driver side) (front A/C control) control switch (rear A/C control)	18.5°C – 31.5°C (61°F – 89°F)	_	AUTO	
		Full hot 32.0°C (90°F)		В	
ON-OFF	switch (front A/C control)	OFF	E		
OFF sv	vitch (rear A/C control)	OFF	C	_	

AIR DISTRIBUTION

Discharge air flow				
Mode position	Air outlet/distribution			
Mode position	Rear ventilator	Rear foot		
ヴ	100%	_		
ij	62%	38%		
, i	_	100%		

REAR AUTOMATIC AIR CONDITIONING SYSTEM : Circuit Diagram



ACCS (ADVANCED CLIMATE CONTROL SYSTEM)

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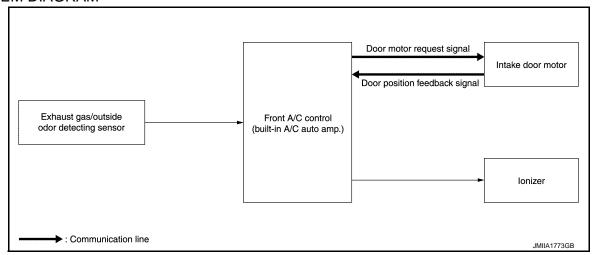
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ACCS (ADVANCED CLIMATE CONTROL SYSTEM): System Description INFOID:000000011325721

SYSTEM DIAGRAM



DESCRIPTION

ACCS (advanced climate control system) controls passenger room air. It maintains the cleanliness of the passenger room air using a high performance filter and a combination of each of the following functions.

- Automatic intake control (exhaust gas/outside odor detecting mechanism)
- Plasmacluster[™] ion

NOTE:

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

AUTOMATIC INTAKE CONTROL (EXHAUST GAS/OUTSIDE ODOR DETECTING MECHANISM)

Description

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

Operation Description

- When AUTO intake switch is pressed while front blower motor is activated, AUTO intake indicator and REC indicator turn ON. Air inlet is fixed to recirculation for approximately 5 minutes, and then is switched to automatic intake control (exhaust gas/outside odor detecting mechanism).
- Air inlet switches to recirculation when ambient atmospheric CO, NO2 and unpleasant odor is detected while automatic intake control (exhaust gas/outside odor detecting mechanism) is operated. After that, air inlet switches to fresh air intake when exhaust gas and unpleasant outside odor becomes not detectable.
- When the AUTO intake switch is turned ON, ambient atmosphere status is indicated on the display in the front A/C control according to the signal from the exhaust gas/outside odor detecting sensor. Refer to <u>HAC-44</u>. "ACCS (<u>ADVANCED CLIMATE CONTROL SYS-TEM</u>): Switch Name and Function".

Thick ← Density of CO,NO2 and → Thin unpleasant odor

NOTE:

- Sensitivity of exhaust gas/outside odor detecting sensor can be changed. Refer to HAC-85, "Exhaust Gas/Outside Odor Detecting Sensor Sensitivity Adjustment Function".
- Automatic intake control (exhaust gas/outside odor detecting mechanism) does not operate when air outlet is D/F, DEF mode or ambient temperature is 0°C (32°F) or less. In this case, control is only for control of automatic air inlet of automatic air conditioning system.

PLASMACLUSTER[™] ION

Description

[AUTOMATIC AIR CONDITIONING]

Plasmacluster[™] ion restrains microbes, reduces odor on interior surface, and maintains passenger's skin moisture^{*} by including high density Plasmacluster[™] ion in front air conditioning outlet air flow.

*: Effect depends on individual difference and operating conditions. Tasted by Soiken CO., Ltd. Ion density is 25,000 pcs/cm³. Skin moisture is measured at the temple of person being tested.

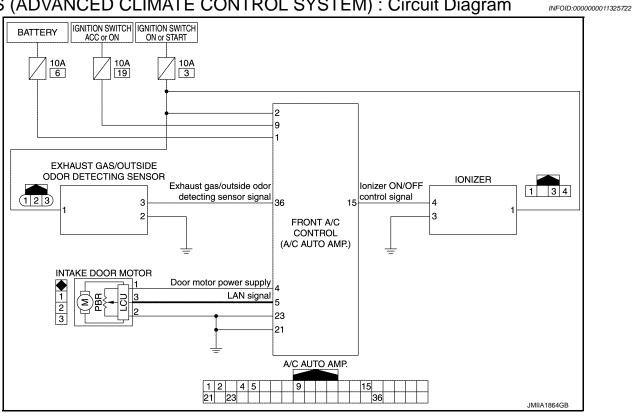
NOTE:

- Plasmacluster[™] ion technology developed by Sharp Corporation is installed in this item.
- Plasmacluster $^{\text{™}}$ is a trademark of Sharp Corporation.

Operation Description

- Plasmacluster[™] ion operates by interlocking to front blower motor. Plasmacluster[™] ion operates when front blower motor operates.
- Control status is displayed on front A/C control display screen. Refer to HAC-39, "REAR AUTOMATIC AIR **CONDITIONING SYSTEM: Switch Name and Function".**

ACCS (ADVANCED CLIMATE CONTROL SYSTEM): Circuit Diagram



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OPERATION

FRONT AUTOMATIC AIR CONDITIONING SYSTEM

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and Function

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OPERATION AND DISPLAY OF FRONT AUTOMATIC AIR CONDITIONING SYSTEM (WITH ACCS (ADVANCED CLIMATE CONTROL SYSTEM)]

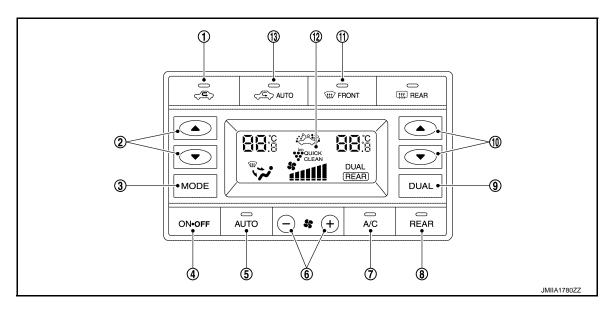
Display: Display in front A/C control

- Front air conditioning operation status is indicated on display in front A/C control.
- Front air conditioning status display screen is indicated when MODE switch is pressed while front air conditioning is OFF.

NOTE:

"REAR" is indicated on display while rear air conditioning operation screen is indicated.

Operation: Front A/C control



- Intake switch
- ON-OFF switch 4. A/C switch

7.

- 10. Temperature control switch (passen- 11. DEF switch ger side)
- 13. AUTO intake switch

- Temperature control switch (driver side)
- **AUTO** switch 5.
- 8. REAR switch

- MODE switch 3.
- 6. Fan switch
- **DUAL** switch 9.
- 12. Display

[AUTOMATIC AIR CONDITIONING]

Switch name	Function
Intake switch	 Air inlet changes between recirculation (REC) ⇔ fresh air intake (FRE) each time this switch is pressed. Switch indicator ON: Recirculation Switch indicator OFF: Fresh air intake NOTE: Air inlet can be changed when front air conditioning is in OFF status.
	 Air inlet can be changed when air conditioning is in OFF status. Air inlet cannot be changed when air outlet is D/F or DEF. A/C switch turns ON when air inlet is changed to recirculation while A/C switch is OFF.
	Setting temperature can be set according to switch operation within a range between 18°C (60°F) – 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment.
emperature control	 Press ▲: Setting temperature increases Press ▼: Setting temperature decreases
switch (driver side)	NOTE: When front air conditioning is OFF, setting temperature can be set only while front air conditioning status screen (only when MODE switch is pressed) is indicated.
	Air outlet changes from VENT \Rightarrow B/L \Rightarrow FOOT \Rightarrow D/F \Rightarrow VENT each time this switch is pressed. NOTE:
MODE switch	 Air outlet can be changed when front air conditioning is in OFF status. Automatic air outlet control is cancelled (AUTO switch indicator turns OFF), when MODE switch is pressed while AUTO switch indicator is ON.
ON-OFF switch	Front air conditioning turns ON ⇔ OFF each time this switch is pressed. • When this switch is pressed while front air conditioning is ON - Front air conditioning turns OFF and becomes the following status, when this switch is pressed. • Air outlet: FOOT
	 Air flow: OFF Air inlet: Fresh air intake A/C switch: OFF When this switch is pressed while front air conditioning is OFF Front air conditioning turns ON and operates according to the settings set before front air conditioning is turned OFF, when this switch is pressed.
AUTO switch	 AUTO switch indicator turns ON and front air conditioning becomes the following status, when this switch is pressed while front air conditioning is ON. Air outlet: Automatic control Air flow: Automatic control Air inlet: Automatic control A/C switch: ON Front air conditioning turns ON and operates according to the following status, when this switch is pressed while front air conditioning is OFF. (AUTO switch indicator turns ON) Air outlet: Automatic control Air flow: Automatic control Air inlet: Automatic control A/C switch: ON NOTE: When air outlet or air flow is manually operated while AUTO switch indicator is ON, AUTO switch indicator turns OFF. However, automatic control continues for other functions than air outlet or air flow.
an switch	 Air flow can be set within a range between 1st – 7th speed according to switch operation. Press \$\cdot\{\frac{2}{3}}\) +: Air flow increases Press \$\cdot\{\frac{2}{3}}\) -: Air flow decreases Front air conditioning turns ON and operates according to the following status, when this switch is pressed while front air conditioning is OFF. Air outlet: Automatic control Air flow: Automatic control Air inlet: Settings set before fan switch is pressed A/C switch: Settings set before front air conditioning is turned OFF NOTE:

[AUTOMATIC AIR CONDITIONING]

Switch name	Function
A/C switch	Compressor control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while front blower motor is operated. NOTE: • A/C switch cannot be turned ON when front blower motor is OFF. • A/C switch cannot be turned OFF when air outlet is D/F or DEF. • Air inlet changes to fresh air intake when A/C switch is turned OFF while air inlet is set to recirculation.
DUAL switch	 Left and right ventilation temperature separately control ("DUAL" on front A/C control display) changes between ON ⇔ OFF each time this switch is pressed while front blower motor is operated. NOTE: Setting temperature for passenger side is the same as that for driver side when left and right ventilation temperature separately control is OFF. DUAL switch operation is not accepted when DEF mode is ON.
Temperature control switch (passenger side)	 Left and right ventilation temperature separately control ("DUAL" on front A/C control display) turns ON according to switch operation. Air flow temperature of passenger side can be changed without changing air flow temperature of driver side. Setting temperature can be set according to switch operation within a range between 18°C (60°F) – 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment. Press ▲: Setting temperature increases Press ▼: Setting temperature decreases NOTE: When front air conditioning is OFF, setting temperature can be set only while front air conditioning status screen (only when MODE switch is pressed) is indicated. Temperature control switch (passenger side) operation is not accepted when DEF mode is ON.
DEF switch	DEF mode (switch indicator) changes between ON ⇔ OFF each time switch is pressed. • When this switch is pressed while front air conditioning is ON - Front air conditioning becomes the following status when DEF mode is turned ON. • Air outlet: DEF • Air flow: Settings set before DEF mode is turned ON • Air inlet: Fresh air intake • A/C switch: ON - Front air conditioning becomes the following status when DEF mode is turned OFF. • Air outlet: Settings set before DEF mode is turned ON • Air flow: Settings set before DEF mode is turned OFF • Air inlet: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch is pressed while front air conditioning is OFF - Front air conditioning turns ON and operates in the following status, when DEF mode is turned ON. • Air outlet: DEF • Air flow: Automatic control • Air inlet: Fresh air intake • A/C switch: ON - Front air conditioning becomes the following status when DEF mode is turned OFF. • Air outlet: Automatic control • Air flow: Settings set before DEF mode is turned OFF • Air inlet: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • A/C switch: Settings set Defore DEF mode is turned OFF • A/C switch: Settings set Defore DEF mode is turned OFF • A/C switch: Set

NOTE:

The following switches are not necessary for front air conditioning system operation.

REAR switch	Refer to HAC-39, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and Function".
AUTO intake switch	Refer to HAC-44, "ACCS (ADVANCED CLIMATE CONTROL SYSTEM) : Switch Name and Function".

OPERATION AND DISPLAY OF FRONT AUTOMATIC AIR CONDITIONING SYSTEM [WITHOUT ACCS (ADVANCED CLIMATE CONTROL SYSTEM)]

< SYSTEM DESCRIPTION >

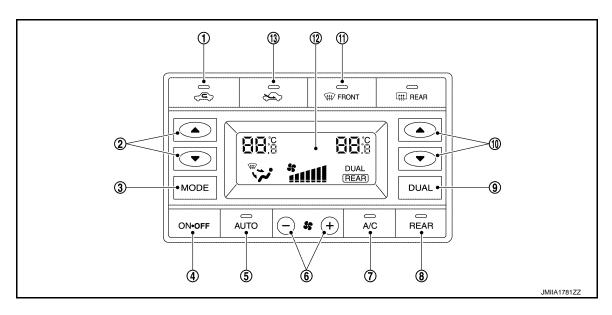
Display: Display in front A/C control

- Front air conditioning operation status is indicated on display in front A/C control.
- Front air conditioning status display screen is indicated when MODE switch is pressed while front air conditioning is OFF.

NOTE:

"REAR" is indicated on display while rear air conditioning operation screen is indicated.

Operation: Front A/C control



REC switch 1.

- Temperature control switch (driver side)
- MODE switch 3.

- 4. ON-OFF switch
- 5. AUTO switch

6. Fan switch

A/C switch 7.

8. **REAR** switch 9. DUAL switch

- 10. Temperature control switch (passen- 11. DEF switch ger side)

12. Display

13. FRE switch

Switch name	Function	
REC switch	Switch indicator turns ON and air inlet is set to recirculation (REC), when this switch is pressed. NOTE: Air inlet can be changed when front air conditioning is in OFF status. REC switch operation is not accepted when air outlet is D/F or DEF. A/C switch turns ON when REC switch is turned ON while A/C switch is OFF.	
Temperature control switch (driver side)	Setting temperature can be set according to switch operation within a range between 18°C (60°F) – 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment. • Press ▲: Setting temperature increases • Press ▼: Setting temperature decreases NOTE: When front air conditioning is OFF, setting temperature can be set only while front air conditioning status screen (only when MODE switch is pressed) is indicated.	
MODE switch	 Air outlet changes from VENT⇒ B/L ⇒ FOOT ⇒ D/F ⇒ VENT each time this switch is pressed. NOTE: Air outlet can be changed when front air conditioning is in OFF status. Automatic air outlet control is cancelled (AUTO switch indicator turns OFF), when MODE switch is pressed while AUTO switch indicator is ON. 	

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Switch name	Function
ON-OFF switch	Front air conditioning turns ON ⇔ OFF each time this switch is pressed. • When this switch is pressed while front air conditioning is ON - Front air conditioning turns OFF and becomes the following status, when this switch is pressed. • Air outlet: FOOT • Air flow: OFF • Air inlet: Fresh air intake • A/C switch: OFF • When this switch is pressed while front air conditioning is OFF - Front air conditioning turns ON and operates according to the settings set before front air conditioning is turned OFF, when this switch is pressed.
AUTO switch	 AUTO switch indicator turns ON and front air conditioning becomes the following status, when this switch is pressed while front air conditioning is ON. Air outlet: Automatic control Air flow: Automatic control Air inlet: Automatic control A/C switch: ON Front air conditioning turns ON and operates according to the following status, when this switch is pressed while front air conditioning is OFF. (AUTO switch indicator turns ON) Air outlet: Automatic control Air flow: Automatic control Air inlet: Automatic control A/C switch: ON NOTE: When air outlet or air flow is manually operated while AUTO switch indicator is ON, AUTO switch indicator turns OFF. However, automatic control continues for other functions than air outlet or air flow.
Fan switch	 Air flow can be set within a range between 1st – 7th speed according to switch operation. Press \$\cdot\{\frac{2}{3}}\) +: Air flow increases Press \$\cdot\{\frac{2}{3}}\) -: Air flow decreases Front air conditioning turns ON and operates according to the following status, when this switch is pressed while front air conditioning is OFF. Air outlet: Automatic control Air flow: Automatic control Air inlet: Settings set before fan switch is pressed A/C switch: Settings set before front air conditioning is turned OFF NOTE: Automatic air flow control is cancelled (AUTO switch indicator turns OFF), when fan switch is pressed while AUTO switch indicator is ON.
A/C switch	Compressor control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while front blower motor is operated. NOTE: • A/C switch cannot be turned ON when front blower motor is OFF. • A/C switch cannot be turned OFF when air outlet is D/F or DEF. • Air inlet changes to fresh air intake when A/C switch is turned OFF while air inlet is set to recirculation.
DUAL switch	 Left and right ventilation temperature separately control ("DUAL" on front A/C control display) changes between ON ⇔ OFF each time this switch is pressed while front blower motor is operated. NOTE: Setting temperature for passenger side is the same as that for driver side when left and right ventilation temperature separately control is OFF. DUAL switch operation is not accepted when DEF mode is ON.
Temperature control switch (passenger side)	 Left and right ventilation temperature separately control ("DUAL" on front A/C control display) turns ON according to switch operation. Air flow temperature of passenger side can be changed without changing air flow temperature of driver side. Setting temperature can be set according to switch operation within a range between 18°C (60°F) – 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment. Press ▲: Setting temperature increases Press ▼: Setting temperature decreases NOTE: When front air conditioning is OFF, setting temperature can be set only while front air conditioning status screen (only when MODE switch is pressed) is indicated. Temperature control switch (passenger side) operation is not accepted when DEF mode is ON.

Switch name	Function
DEF switch	DEF mode (switch indicator) changes between ON ⇔ OFF each time switch is pressed. When this switch is pressed while front air conditioning is ON Front air conditioning becomes the following status when DEF mode is turned ON. Air outlet: DEF Air flow: Settings set before DEF mode is turned ON Air inlet: Fresh air intake A/C switch: ON Front air conditioning becomes the following status when DEF mode is turned OFF. Air outlet: Settings set before DEF mode is turned ON Air flow: Settings set before DEF mode is turned OFF Air inlet: Settings set before DEF mode is turned OFF A/C switch: Settings set before DEF mode is turned OFF A/C switch: Settings set before DEF mode is turned OFF Front air conditioning turns ON and operates in the following status, when DEF mode is turned ON. Air outlet: DEF Air flow: Automatic control Air inlet: Fresh air intake A/C switch: ON Front air conditioning becomes the following status when DEF mode is turned OFF. Air outlet: Automatic control Air inlet: Settings set before DEF mode is turned OFF Air inlet: Settings set before DEF mode is turned OFF Air inlet: Settings set before DEF mode is turned OFF Air inlet: Settings set before DEF mode is turned OFF A/C switch: Settings set before DEF mode is turned OFF A/C switch: Settings set before DEF mode is turned OFF NOTE: When DEF mode is turned ON while AUTO switch indicator is turned ON, AUTO switch indicator turns OFF. However, automatic air flow control continues.
FRE switch	Switch indicator turns ON and air inlet is set to fresh air intake (FRE), when this switch is pressed. NOTE: Air inlet can be changed when front air conditioning is in OFF status.

REAR switch	Refer to HAC-39. "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and
	Function".

REAR AUTOMATIC AIR CONDITIONING SYSTEM

REAR AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and Function

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OPERATION AND DISPLAY OF REAR AUTOMATIC AIR CONDITIONING SYSTEM

- Rear air conditioning operation status is indicated on display in front A/C control and rear A/C control.
- Rear air conditioning can be operated from front seat (front A/C control) and rear seat (rear A/C control).
 NOTE:

Rear air conditioning is operative only when front air conditioning is ON.

FRONT A/C CONTROL OPERATION [WITH ACCS (ADVANCED CLIMATE CONTROL SYSTEM)]

Display: Display in front A/C control

- Rear air conditioning operation status is indicated on display in front A/C control.
- Front A/C control changes to rear air conditioning operation screen when REAR switch is pressed while front air conditioning is ON. "REAR" is indicated on display in front A/C control display. The status continues for 10 seconds, and during this period of time, rear air conditioning setting can be set using front A/C control.
- When 10 seconds are passed, front A/C control returns to front air conditioning operation screen and "REAR" on front A/C control display turns OFF. In this case, rear air conditioning setting can be set using rear A/C control.

Operation: Front A/C control

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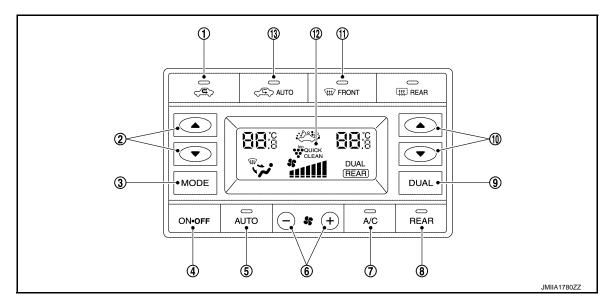
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Revision: 2014 August HAC-39 2015 QUEST



- Intake switch
- ON-OFF switch 4.
- 7. A/C switch
- 10. Temperature control switch (passen- 11. DEF switch ger side)
- 13. AUTO intake switch

- 2. Temperature control switch (driver side)
- AUTO switch 5.
- 8. **REAR** switch

- MODE switch 3.
- Fan switch 6.
- 9. DUAL switch
- 12. Display

Switch name	Function
Temperature control	Setting temperature can be set according to switch operation within a range between 18°C (60°F) – 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment.
switch (driver side)	Press ▲: Setting temperature increases
	Press ▼: Setting temperature decreases
MODE switch	Air outlet changes from VENT⇒ B/L ⇒ FOOT ⇒ VENT each time this switch is pressed. NOTE: Automatic air outlet control is cancelled (AUTO switch indicator turns OFF), when MODE switch is pressed while AUTO switch indicator is ON.
ON-OFF switch	 Front air conditioning operation screen ("REAR" is not indicated) Rear air conditioning turns OFF simultaneously with front air conditioning, and becomes the following status, when this switch is pressed while rear air conditioning is ON. Air outlet: FOOT Air flow: OFF Rear air conditioning turns ON simultaneously with front air conditioning, and operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed again. Rear air conditioning operation screen ("REAR" is indicated) Rear air conditioning turns OFF and becomes the following status, when this switch is pressed while rear air conditioning is ON. Air outlet: FOOT Air flow: OFF Rear air conditioning operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed again.
AUTO switch	Rear air conditioning turns ON simultaneously with compressor control (A/C switch indicator turns ON) and operates according to the following status, when this switch is pressed while rear air conditioning operation screen (REAR is indicated) is displayed. (AUTO switch indicator turns ON/ REAR switch indicator turns ON) • Air outlet: Automatic control • Air flow: Automatic control NOTE: When air outlet or air flow is manually operated while AUTO switch indicator is ON, AUTO switch indicator turns OFF. However, automatic control continues for other functions than air outlet or air flow.

Switch name	Function
Fan switch	Air flow can be set within a range between 1st – 7th speed according to switch operation. • Press \$\delta_+\$: Air flow increases • Press \$\delta\$: Air flow decreases NOTE: Automatic air flow control is cancelled (AUTO switch indicator turns OFF), when fan switch is pressed while AUTO switch indicator is ON.
A/C switch	 When this switch is pressed, rear air conditioning becomes the following status according to the setting status of air outlet. Rear air conditioning turns OFF simultaneously with compressor control (A/C switch indicator) and becomes the following status, when this switch is pressed while the setting of air outlet is other than FOOT (automatic control/manual control). Air outlet: FOOT Air flow: OFF Compressor control (A/C switch indicator) turns OFF but rear air conditioning remains ON and becomes the following status, when this switch is pressed while the setting of air outlet is FOOT (automatic control/manual control). Air outlet: FOOT [Automatic air outlet control is cancelled (AUTO switch indicator turns OFF) when this switch is pressed while automatic control is ON] Air flow: Previous status before switch is pressed.
REAR switch	 Front A/C control changes between front air conditioning operation screen ("REAR" is not indicated) ⇔ rear air conditioning operation screen ("REAR" is indicated), each time this switch is pressed while rear air conditioning is ON. Rear air conditioning turns ON simultaneously with compressor control (A/C switch indicator) and operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed while rear air conditioning is OFF. NOTE: Switch operation is not accepted when front air conditioning is OFF.
DEF switch	 Rear air conditioning turns ON simultaneously with front air conditioning and operates according to the settings set before rear air conditioning is turned OFF, when this switch is pressed after rear air conditioning is turns OFF simultaneously with front air conditioning by ON-OFF switch in previous operation. Rear air conditioning becomes the following status, when this switch is pressed again. Air outlet: FOOT Air flow: OFF

NOTE:

The following switches are not necessary for rear air conditioning system operation.

Intake switch	Refer to HAC-34, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and Function".	
Temperature control switch (passenger side)		
DUAL switch		
AUTO intake switch	Refer to HAC-44, "ACCS (ADVANCED CLIMATE CONTROL SYSTEM): Switch Name and Function".	

FRONT A/C CONTROL OPERATION [WITHOUT ACCS (ADVANCED CLIMATE CONTROL SYSTEM)]

Display: Display in front A/C control

- Rear air conditioning operation status is indicated on display in front A/C control.
- Front A/C control changes to rear air conditioning operation screen when REAR switch is pressed while front
 air conditioning is ON. "REAR" is indicated on display in front A/C control display. The status continues for 10
 seconds, and during this period of time, rear air conditioning setting can be set using front A/C control.
- When 10 seconds are passed, front A/C control returns to front air conditioning operation screen and "REAR" on front A/C control display turns OFF. In this case, rear air conditioning setting can be set using rear A/C control.

Operation: Front A/C control

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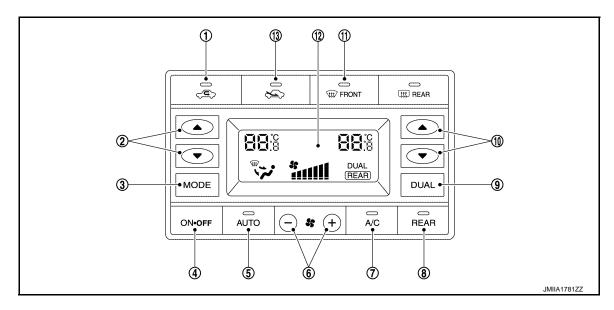
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- REC switch
- ON-OFF switch 4.
- 7. A/C switch
- 10. Temperature control switch (passen- 11. DEF switch ger side)
- 13. FRE switch

- Temperature control switch (driver side)
- AUTO switch 5.
- 8. **REAR** switch

- MODE switch 3.
- Fan switch 6.
- 9. DUAL switch
- 12. Display

Switch name	Function
Temperature control	Setting temperature can be set according to switch operation within a range between 18°C (60°F) – 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment.
switch (driver side)	Press ▲: Setting temperature increases
	Press ▼: Setting temperature decreases
MODE switch	Air outlet changes from VENT⇒ B/L ⇒ FOOT ⇒ VENT each time this switch is pressed. NOTE: Automatic air outlet control is cancelled (AUTO switch indicator turns OFF), when MODE switch is pressed while AUTO switch indicator is ON.
ON-OFF switch	 Front air conditioning operation screen ("REAR" is not indicated) Rear air conditioning turns OFF simultaneously with front air conditioning, and becomes the following status, when this switch is pressed while rear air conditioning is ON. Air outlet: FOOT Air flow: OFF Rear air conditioning turns ON simultaneously with front air conditioning, and operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed again. Rear air conditioning operation screen ("REAR" is indicated) Rear air conditioning turns OFF and becomes the following status, when this switch is pressed while rear air conditioning is ON. Air outlet: FOOT Air flow: OFF Rear air conditioning operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed again.
AUTO switch	Rear air conditioning turns ON simultaneously with compressor control (A/C switch indicator turns ON) and operates according to the following status, when this switch is pressed while rear air conditioning operation screen (REAR is indicated) is displayed. (AUTO switch indicator turns ON/ REAR switch indicator turns ON) • Air outlet: Automatic control • Air flow: Automatic control NOTE: When air outlet or air flow is manually operated while AUTO switch indicator is ON, AUTO switch indicator turns OFF. However, automatic control continues for other functions than air outlet or air flow.

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Switch name	Function
Fan switch	Air flow can be set within a range between 1st – 7th speed according to switch operation. • Press \$\$+: Air flow increases • Press \$\$-: Air flow decreases NOTE: Automatic air flow control is cancelled (AUTO switch indicator turns OFF), when fan switch is pressed while AUTO switch indicator is ON.
A/C switch	 When this switch is pressed, rear air conditioning becomes the following status according to the setting status of air outlet. Rear air conditioning turns OFF simultaneously with compressor control (A/C switch indicator) and becomes the following status, when this switch is pressed while the setting of air outlet is other than FOOT (automatic control/manual control). Air outlet: FOOT Air flow: OFF Compressor control (A/C switch indicator) turns OFF but rear air conditioning remains ON and becomes the following status, when this switch is pressed while the setting of air outlet is FOOT (automatic control/manual control). Air outlet: FOOT [Automatic air outlet control is cancelled (AUTO switch indicator turns OFF) when this switch is pressed while automatic control is ON] Air flow: Previous status before switch is pressed.
REAR switch	Front A/C control changes between front air conditioning operation screen ("REAR" is not indicated) ⇔ rear air conditioning operation screen ("REAR" is indicated), each time this switch is pressed. NOTE: Switch operation is not accepted when front air conditioning is OFF.
DEF switch	 Rear air conditioning turns ON simultaneously with front air conditioning and operates according to the settings set before rear air conditioning is turned OFF, when this switch is pressed after rear air conditioning is turns OFF simultaneously with front air conditioning by ON-OFF switch in previous operation. Rear air conditioning becomes the following status, when this switch is pressed again. Air outlet: FOOT Air flow: OFF

NOTE:

The following switches are not necessary for rear air conditioning system operation.

REC switch	
Temperature control switch (passenger side)	Refer to HAC-34, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and
DUAL switch	Function".
FRE intake switch	

REAR A/C CONTROL OPERATION

Display: Display in rear A/C control

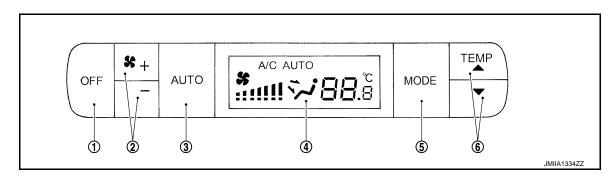
Rear air conditioning operation status is indicated on display in rear A/C control.

Operation: Rear A/C control

Rear air conditioning becomes the following setting can be operated by rear A/C control in the following status.

When front air conditioning is ON

• When front A/C control displays front air conditioning operation screen ("REAR" is not indicated)



- 1. OFF switch
- 4. Display

- 2. Fan switch
- 5. MODE switch

- 3. AUTO switch
- 6. Temperature control switch

Switch name	Function
OFF switch	Rear air conditioning turns OFF and becomes the following status, when this switch is pressed while rear air conditioning is ON. • Air outlet: FOOT • Air flow: OFF
Fan switch	Air flow can be set within a range between 1st – 7th speed according to switch operation. • Press \$\delta_+\$: Air flow increases • Press \$\delta\$: Air flow decreases NOTE: Automatic air flow control is cancelled ("AUTO" turns OFF), when fan switch is pressed while "AUTO" is indicated on display.
AUTO switch	Rear air conditioning turns ON simultaneously with compressor control ("A/C" is indicated) and operates according to the following status, when this switch is pressed. ("AUTO" is indicated) • Air outlet: Automatic control • Air flow: Automatic control NOTE: When air outlet or air flow is manually operated while "AUTO" is indicated on display, AUTO indication turns OFF. However, automatic control continues for other functions than air outlet or air flow.
MODE switch	Air outlet changes from VENT \Rightarrow B/L \Rightarrow FOOT \Rightarrow VENT each time this switch is pressed. NOTE: Automatic air outlet control is cancelled ("AUTO" turns OFF), when MODE switch is pressed while "AUTO" is indicated on display.
Temperature control switch	Setting temperature can be set according to switch operation within a range between 18°C (60°F) − 32°C (90°F) at a rate of 0.5°C (1°F) per adjustment. • Press ▲: Setting temperature increases • Press ▼: Setting temperature decreases

ACCS (ADVANCED CLIMATE CONTROL SYSTEM)

ACCS (ADVANCED CLIMATE CONTROL SYSTEM): Switch Name and Function

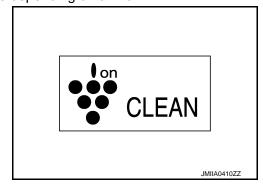
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OPERATION AND DISPLAY OF ACCS (ADVANCED CLIMATE CONTROL SYSTEM)

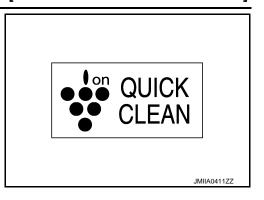
Display: Display in front A/C control

 $Plasmacluster^{TM}$ ion

- Plasmacluster[™] ion control state is indicated on display in front A/C control.
- Plasmacluster[™] ion control state is switched as shown in the figure depending on air flow.
- When air flow is small



- When air flow is large

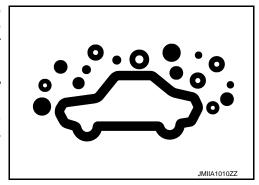


Automatic intake control (exhaust gas/outside odor detecting mechanism)

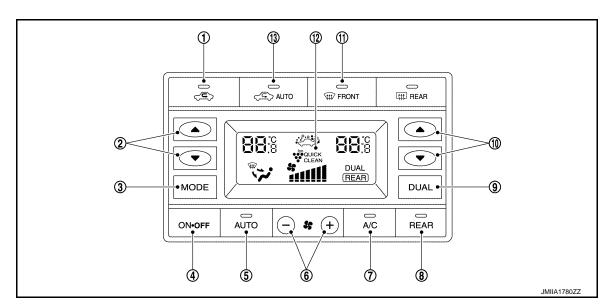
 When the AUTO intake switch is turned ON, ambient atmosphere status is indicated on the display in the front A/C control, while the exhaust gas/outside odor detecting sensor detects exhaust gas or unpleasant odor.

NOTE:

- After the ignition switch is turned ON, warm up the exhaust gas/ outside odor detecting sensor for approximately 40 seconds.
- · When the AUTO intake switch is turned ON, the ambient atmosphere status is displayed continuously until sensor warm up is completed.



Operation: Front A/C control



- Intake switch
- ON-OFF switch 4.
- A/C switch 7.
- 10. Temperature control switch (passen- 11. DEF switch ger side)
- 13. AUTO intake switch

- Temperature control switch (driver side)
- 5. AUTO switch
- **REAR** switch 8.

- 3. MODE switch
- 6. Fan switch
- 9. DUAL switch
- 12. Display

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Switch name	Function
AUTO intake switch	 Automatic intake control (exhaust gas/outside odor detecting mechanism) (switch indicator) changes between ON ⇔ OFF each time when AUTO intake switch is pressed while front blower motor is activated. Front air conditioning becomes the following status when AUTO intake switch is turned ON. Air inlet: Recirculation [After approximately 5 minutes, air inlet is switched to automatic intake control (exhaust gas/outside odor detecting mechanism).] A/C switch: ON Front air conditioning becomes the following status when AUTO intake switch is turned OFF. Air inlet: Fresh air intake A/C switch: Stays ON NOTE: Interlocking condition of A/C switch can be changed. Refer to HAC-85, "AUTO Intake Switch Interlocking Movement Change Function". AUTO intake switch operation is not accepted when the following status. Air outlet: D/F or DEF Ambient temperature: 0°C (32°F) or less

NOTE:

The following switches are not necessary for ACCS (Advanced Climate Control System) operation.

Intake switch			
Temperature control switch (driver side)			
MODE switch			
ON-OFF switch	Refer to HAC-34, "FRONT AUTOMATIC AIR		
AUTO switch			
Fan switch	CONDITIONING SYSTEM : Switch Name and Function".		
A/C switch	Function .		
DUAL switch	-		
Temperature control switch (passenger side)			
DEF switch			
REAR switch	Refer to HAC-39, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Switch Name and Function".		

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

Description INFOID:0000000011325726

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

ECU	С	Diagnostic item (CONSULT)
A/C auto amp.	On board diagnosis function	
BCM		Self Diagnostic Result
BCIVI	BCM-AIR CONDITIONER	Data Monitor
ECM		Self Diagnostic Result
ECIVI	■ ENGINE	Data Monitor
	@ippu.s/p	Self Diagnostic Result
IPDM E/R	PIPDM E/R	Data Monitor
	Auto active test	

On Board Diagnosis Function

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ON BOARD DIAGNOSIS ITEM

On board diagnosis function of A/C auto amp. consists of steps 1 to 8. Diagnosis for sensors, motors, and etc. can be performed by each step. System settings can be also changed by each step.

Diagnosis item	Diagnosis content	Diagnosis part
STEP 1: Indicator check	Switch indicator and display indication are checked.	Front A/C control (A/C auto amp.) Rear A/C control
STEP 2: Sensor / door motor diagnosis	The circuit diagnoses of each sensor and air mix door motor are performed. A/C auto amp. indicates the result on the display.	Ambient sensor Front in-vehicle sensor Rear in-vehicle sensor Intake sensor Intake sensor Sunload sensor Front air mix door motor (driver side) Front air mix door motor (passenger side) Rear air mix door motor Exhaust gas/outside odor detecting sensor Exhaust gas/outside odor detecting sensor harness
STEP 3: Door motor diagnosis	The circuit diagnoses of front mode door motor, rear mode door motor and intake door motor are performed. A/C auto amp. indicates the result on the display.	Front mode door motor Rear mode door motor Intake door motor
STEP 4: Operation check	Operational check of each part is performed.	 Front mode door motor Intake door motor Front air mix door motor (driver side) Front air mix door motor (passenger side) Front blower motor Compressor Rear mode door motor Rear air mix door motor Rear blower motor Ionizer Plasmacluster[™] ion operation status)
STEP 5-1: Each sensor recognition temperature check	Each sensor recognition temperature is indicated on the display.	Ambient sensor Front In-vehicle sensor Intake sensor Rear in-vehicle sensor

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< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Diagnosis item	Diagnosis content	Diagnosis part
STEP 5-2: EEPROM system diagnosis	A/C auto amp. EEPROM memory function error detected.	A/C auto amp.
STEP 6-1: Temperature setting trimmer (front/rear)	Setting change of temperature setting trimmer (front/rear) can be performed.	_
STEP 6-2: Foot position setting trimmer	Setting change of foot position setting trimmer can be performed.	_
STEP 6-3: Inlet port memory function	Setting change of inlet port memory function can be performed.	_
STEP 7: Exhaust gas/outside odor detecting sensor sensitivity adjustment function*	Setting change of exhaust gas/outside odor detecting sensor sensitivity adjustment function can be performed.	_
STEP 8: AUTO intake switch interlocking movement change function*	Setting change of AUTO intake switch interlocking movement change function can be performed.	_

^{*:} With ACCS (Advanced Climate Control System)

METHOD OF STARTING

Self-diagnosis Mode Entry

The self-diagnosis is started by pressing the ON-OFF switch for 5 seconds or more within 10 seconds after starting engine.

NOTE:

If battery voltage drops below 12 V during diagnosis STEP-3, door motor speed becomes slower and as a result, the system may generate an error even when operation is normal. Start engine before performing this diagnosis to avoid this.

Changes of Step up and Step down

- The changes of STEP 1 5 can be performed by pressing the temperature control switch (driver side) of front A/C control.
- The change of STEP 5 8 can be performed by pressing the fan switch of front A/C control during the condition of STEP 5.

Self-diagnosis Cancellation

By pressing AUTO switch of front A/C control or turning ignition switch OFF, the self-diagnosis is canceled.

STEP 1: INDICATOR CHECK

Description

Front A/C control (switch indicator and display) and rear A/C control (display) indication are checked.

Normal: All switch indicator and display indication are turned ON.

Malfunction: Malfunctioning part indicator is not turned ON.

STEP 2: SENSOR / DOOR MOTOR DIAGNOSIS

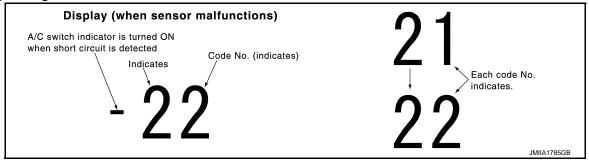
Description

When STEP 2 is selected, "2" is indicated on the display, and then self-diagnosis result is indicated.

Normal: "20" is displayed.

Malfunction: Corresponding code number displayed. (When short-circuit error, A/C switch indicator turns ON) **NOTE:**

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



Self-diagnosis Result

Code No.	Corresponding sensor or	Malfunctioning	g judgment condition	Reference
Code No.	door motor	Open	Short	reference
21 / - 💥 - 21	Ambient sensor	-44°C (-47°F) or less	100°C (212°F) or more	HAC-94, "Diagnosis Procedure"
22 / - 💥 - 22	Front in-vehicle sensor	-44°C (-47°F) or less	100°C (212°F) or more	HAC-96, "Diagnosis Procedure"
23 / - 💥 - 23	Rear in-vehicle sensor	-44°C (-47°F) or less	100°C (212°F) or more	HAC-102, "Diagnosis Procedure"
24 / - 💥 - 24	Intake sensor	-44°C (-47°F) or less	100°C (212°F) or more	HAC-98, "Diagnosis Procedure"
25 / -∰- 25	Sunload sensor*1	65 W/m ² or less	2832 W/m ² or more	HAC-100, "Diagnosis Procedure"
26 / - ☆ 26	Front air mix door motor (driver side)*2	PBR angle 5% or less	PBR angle 95% or more	HAC-106, "Diagnosis Procedure"
27 / 27	Front air mix door motor (passenger side)*2	PBR angle 5% or less	PBR angle 95% or more	HAC-108, "Diagnosis Procedure"
28 / - 28	Rear air mix door motor*2	PBR angle 5% or less	PBR angle 95% or more	HAC-114, "Diagnosis Procedure"
29 / - 29	Exhaust gas/outside odor detecting sensor*3	Duty ratio 90% or more	Duty ratio 10% or less	HAC-114, "Diagnosis Procedure"

[:] A/C switch indicator

"26" \rightarrow - $\stackrel{\leftarrow}{\longrightarrow}$ "26" \rightarrow Return to "26".

*3: With ACCS (Advanced Climate Control System)

NOTE:

- When ambient sensor has the malfunction of open circuit, the sensor judges that ambient temperature is extremely cold, and controls the in vehicle temperature to warmly.
- Inspect door motor circuit, when all door motor system malfunction are detected. Refer to <u>HAC-118</u>, "<u>Diagnosis Procedure</u>".

STEP 3: DOOR MOTOR DIAGNOSIS

Description

"3" is indicated on the display, and then self-diagnosis result is indicated.

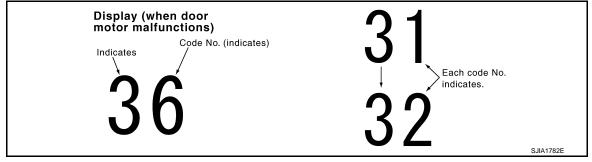
The check of door motor is performed by A/C auto amp. transmitting output signal to each door motor.

Normal: "30" is displayed.

Malfunction: Corresponding code number displayed.

NOTE:

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



Self-diagnosis Result

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^{*1:} Perform the self-diagnosis under sunshine. When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise code No. "25" indicates despite that sunload sensor is functioning normally.

^{*2:} The following display pattern will appear if front air mix door motor (driver side) harness connector is disconnected:

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Code No.	Corresponding door motor	Malfunctioning judgment condition	Reference
31		When the malfunctioning door position is detected at VENT position	
32	When the malfunctioning door position is detected at B/L position	HAC-110, "Diagnosis Procedure"	
33	Front mode door motor*1	When the malfunctioning door position is detected at FOOT position	TING-110, Diagnosis Flocedure
34		When the malfunctioning door position is detected at DEF position	
35	Dear made dear mater*2	When the malfunctioning door position is detected at VENT position	HAC-112, "Diagnosis Procedure"
36	Rear mode door motor ^{*2}	When the malfunctioning door position is detected at FOOT position	TIAC*112, Diagnosis Flocedure
37		When the malfunctioning door position is detected at FRE position	
38	Intake door motor*3	When the malfunctioning door position is detected at 20% FRE position	HAC-112, "Diagnosis Procedure"
39		When the malfunctioning door position is detected at REC position	

^{*1:} The following display pattern will appear if front mode door motor harness connector is disconnected:

NOTE:

Inspect door motor circuit, when all door motor system malfunction are detected. Refer to <u>HAC-118</u>, "<u>Diagnosis Procedure</u>".

STEP 4: OPERATION CHECK

Description

When STEP 4 is selected, each part operation is started with indicating "41" on the display.

Each time DEF switch is pressed, the display will change to "41" \rightarrow "42" \rightarrow "43" \rightarrow "44" \rightarrow "45" \rightarrow "46" \rightarrow "41".

Operation Contents

Checks must be visually, by listening the sound or by touching air outlets with hand, etc. for improper opera-

Front air conditioning

Code No.	Front mode door position	Intake door po- sition	Front air mix door (driver side/passenger side) position	Front blower motor control signal (duty ra- tio)	Magnet clutch	lonizer [*]	Display (Plas- macluster [™] ion operating state) [*]
41	VENT	REC	Full cold	35%	ON	ON	CLEAN
42	VENT	REC	Full cold	35%	ON	ON	CLEAN
43	B/L	20% FRE	Full cold	59%	ON	ON	QUICK CLEAN
44	FOOT	FRE	Full hot	89%	OFF	ON	QUICK CLEAN
45	D/F	FRE	Full hot	89%	OFF	ON	QUICK CLEAN
46	DEF	FRE	Full hot	35%	ON	OFF	OFF

^{*:} With ACCS (Advanced Climate Control System)

[&]quot;31" \rightarrow "32" \rightarrow "33" \rightarrow "34" \rightarrow Return to "31"

^{*2:} The following display pattern will appear if rear mode door motor harness connector is disconnected:

[&]quot;35" \rightarrow "36" \rightarrow Return to "35"

^{*3:} The following display pattern will appear if intake door motor harness connector is disconnected:

[&]quot;37" \rightarrow "38" \rightarrow "39" \rightarrow Return to "37"

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Rear air	conditioning		
Code No.	Rear mode door position	Rear air mix door position	Rear blower motor control signal (duty ratio)
41	VENT	Full cold	35%
42	VENT	Full cold	35%
43	B/L	Full cold	59%
44	FOOT	Full hot	89%
45	FOOT	Full hot	89%
46	FOOT	Full hot	35%

STEP 5-1: EACH SENSOR RECOGNITION CHECK

Description

When STEP 5 is selected, "51" is indicated on the display.

Each time DEF switch is pressed, each sensor recognition temperature is changed in order of the following: "51" \rightarrow Ambient sensor recognition temperature \rightarrow Front in-vehicle sensor recognition temperature \rightarrow Intake sensor recognition temperature \rightarrow Rear in-vehicle sensor recognition temperature \rightarrow "51".

NOTE

- When each sensor recognition temperature is negative temperature, A/C switch indicator turns ON.
- Each sensor recognition temperature is not displayed in less than -30°C (-22°F) or more than 55°C (131°F).

STEP 5-2: EEPROM SYSTEM DIAGNOSIS

Description

When STEP 5 is selected, "51" is indicated on the display.

When REC switch is pressed, "52" is indicated on the display.

Each time DEF switch is pressed, display is changed in order of the following:

"52" \rightarrow Self-diagnosis result \rightarrow "51".

Self-diagnosis Result

- · Normal: "0" is displayed.
- A malfunction is detected now: "40" is displayed.
- A malfunction was detected in the past: "1" "39" is displayed. The number increases like "1" → "2" → "3" …
 "39" after returning to the normal condition whenever IGN OFF → ON. It returns to "1" when a malfunction is detected again in the process.
- The number is fixed to "39" until the self-diagnosis result is erased if it is over "39".

How to Erase Self-diagnosis

- 1. Display the self-diagnosis result.
- Press A/C switch.

STEP 6-1: TEMPERATURE SETTING TRIMMER (FRONT/REAR)

Description

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

Setting Procedure

- Front air conditioning: Refer to HAC-82, "Temperature Setting Trimmer (Front)".
- Rear air conditioning: Refer to HAC-83, "Temperature Setting Trimmer (Rear)".

STEP 6-2: FOOT POSITION SETTING TRIMMER

Description

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

Setting Procedure

Refer to HAC-84, "Foot Position Setting Trimmer".

STEP 6-3: INLET PORT MEMORY FUNCTION

Description

Inlet port setting can be memorized when ignition switch is turned OFF.

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[AUTOMATIC AIR CONDITIONING]

• Inlet port setting can be selected from FRE (fresh air intake), REC (recirculation), or "Do not perform the memory" when ignition switch is turned ON.

Setting Procedure

Refer to HAC-84, "Inlet Port Memory Function".

STEP 7: EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR SENSITIVITY ADJUSTMENT FUNCTION

Description

According to customer's sense of smell, exhaust gas/outside odor detecting sensor sensitivity can be changed.

Setting Procedure

Refer to HAC-85, "Exhaust Gas/Outside Odor Detecting Sensor Sensitivity Adjustment Function".

STEP 8: AUTO INTAKE SWITCH INTERLOCKING MOVEMENT FUNCTION

Description

Condition for interlocking movement of AUTO intake switch and A/C switch can be changed. In addition operation of the AUTO intake switch, which activates the automatic intake control (exhaust gas/outside odor detecting mechanism), can be set to become available when the A/C switch is ON.

Setting Procedure

Refer to HAC-85, "AUTO Intake Switch Interlocking Movement Change Function".

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

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APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description	
Work Support	Changes the setting for each system function.	
Self Diagnostic Result	Displays the diagnosis results judged by BCM.	
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.	
Data Monitor	The BCM input/output signals are displayed.	
Active Test	The signals used to activate each device are forcibly supplied from BCM.	
Ecu Identification	The BCM part number is displayed.	
Configuration	Read and save the vehicle specification.Write the vehicle specification when replacing BCM.	

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

It can perform the diagnosis modes except the following for all sub system selection items.

x: Applicable item

System	Sub avetem adjection item		Diagnosis mode		
System	Sub system selection item	Work Support	Data Monitor	Active Test	
Door lock	DOOR LOCK	×	×	×	
Rear window defogger	REAR DEFOGGER		×	×	
Warning chime	BUZZER		×	×	
Interior room lamp control system	INT LAMP	×	×	×	
Exterior lamp	HEAD LAMP	×	×	×	
Wiper and washer	WIPER	×	×	×	
Turn signal and hazard warning lamps	FLASHER	×	×	×	
Air conditioning control system	AIR CONDITONER		×	×*	
Intelligent Key systemEngine start system	INTELLIGENT KEY	×	×	×	
Combination switch	COMB SW		×		
Body control system	ВСМ	×			
NVIS	IMMU	×	×	×	
Interior room lamp battery saver	BATTERY SAVER	×	×	×	
Back door open	TRUNK		×		
Vehicle security system	THEFT ALM	×	×	×	
RAP system	RETAINED PWR		×		
Signal buffer system	SIGNAL BUFFER		×	×	
TPMS	AIR PRESSURE MONITOR	×	×	×	

FREEZE FRAME DATA (FFD)

The BCM records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

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^{*:} For models with automatic air conditioning control system, this diagnosis mode is not used.

CONSULT screen item	Indication/Unit	Description		
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected		
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected		
	SLEEP>LOCK		While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (LOCK)]	
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (OFF)]	
	LOCK>ACC		While turning power supply position from OFF (LOCK) to ACC	
	ACC>ON		While turning power supply position from ACC to ON	
	RUN>ACC		While turning power supply position from RUN to ACC (Except emergency stop operation)	
	CRANK>RUN		While turning power supply position from CRANK to RUN	
	RUN>URGENT	Power position status of the moment a particular DTC is detected*	While turning power supply position from RUN to ACC (Emergency stop operation)	
	ACC>OFF		While turning power supply position from ACC to OFF (OFF)	
Vehicle Condition	OFF>LOCK		While turning power supply position from OFF (OFF) to OFF (LOCK)	
	OFF>ACC		While turning power supply position from OFF (OFF) to ACC	
	ON>CRANK		While turning power supply position from ON to CRANK	
	OFF>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (OFF)] to low power consumption mode	
	LOCK>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (LOCK)] to low power consumption mode	
	LOCK		Power supply position is OFF (LOCK)	
	OFF		Power supply position is OFF (OFF)	
	ACC		Power supply position is ACC	
	ON		Power supply position is ON	
	ENGINE RUN		Power supply position is RUN	
	CRANKING		Power supply position is CRANK	
IGN Counter	0 - 39	 The number of times that ignition switch is turned ON after DTC is detected The number is 0 when a malfunction is detected now. The number increases like 1 → 2 → 338 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The number is fixed to 39 until the self-diagnosis results are erased if it is over 39. 		

NOTE:

- *: Refer to the following for details of the power supply position.
- OFF (OFF, LOCK): Ignition switch OFF
- ACC: Ignition switch ACC
- IGN: Ignition switch ON with engine stopped
- RUN: Ignition switch ON with engine running
- CRANK: At engine cranking

Power supply position shifts to "OFF (LOCK)" from "OFF (OFF)", when ignition switch is in the OFF position, shift position is in the P position, and any of the following conditions are met.

- · Closing door
- · Opening door
- · Door is locked using door request switch
- · Door is locked using Intelligent Key

The power supply position shifts to "ACC" when the push-button ignition switch (push switch) is pushed at "OFF (LOCK)".

AIR CONDITIONER

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

AIR CONDITIONER: CONSULT Function (BCM - AIR CONDITIONER) (Auto A/C)

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DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Display Item List

Monitor Iten	Monitor Item [Unit] Contents		
FAN ON SIG	[On/Off]	Displays the status of blower fan ON signal received from A/C auto amp.	
AIR COND SW [On/Off] Displays the status of A/C ON signal received from A/C auto amp.		Displays the status of A/C ON signal received from A/C auto amp.	

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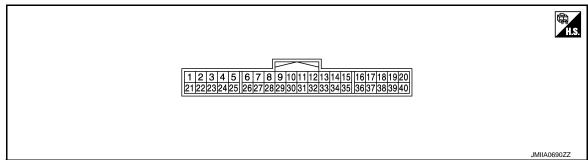
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ECU DIAGNOSIS INFORMATION

A/C AUTO AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Termin (Wire		Description		Condition	Value
+	_	Signal name	Input/ Output	Condition	value
1 (P)	Ground	Battery power supply	_	Ignition switch OFF	11 – 14 V
2 (G)	Ground	Ignition power supply	_	Ignition switch ON	11 – 14 V
4 (SB)	Ground	Door motor power supply	Output	Ignition switch ON	9.5 – 13.5 V
5 (BR)	Ground	LAN signal	Input/ Output	Ignition switch ON	(V) 15 10 5 0
9 (GR)	Ground	ACC power supply	_	Ignition switch ON	11 – 14 V
10 (W)	Ground	Front blower motor control signal	Output	Ignition switch ON Front fan speed: 1st speed (manual)	(V) 6 4 2 0
12	Ground	Blower fan ON signal	Output	Ignition switch ON Front blower motor: OFF	11 – 14 V
(BE)	Siound	Blower fair Orv signal	Output	Ignition switch ON Front blower motor: ON	0 – 0.5 V

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Termin (Wire		Description		Condition	Value
+	_	Signal name	Input/ Output	Condition	value
13 (G)	Ground	A/C ON signal	Output	Ignition switch ON A/C switch: OFF (A/C indicator: OFF)	(V) 15 10 5 0 + 10ms PKIB4960J
				Ignition switch ON A/C switch: ON (A/C indicator: ON)	0 – 0.5 V
15	Cround	Ionizer ON/OFF control sig-	Output	Ignition switch ONFront blower motor: OFF	9.5 – 13.5 V
(GR)	Ground	nal	Output	Ignition switch ON Front blower motor: ON	0 – 0.5 V
				 Ignition switch ON Engine idling Engine coolant temperature: Below 56°C (133°F) 	(V) 15 10 5 0 → + 100ms JMIIA1756JP
17 (G)	Ground	Engine coolant temperature signal	Input	 Ignition switch ON Engine idling Engine coolant temperature: Between 56 – 105°C (133 – 221°F) 	(V) 15 10 5 0 → ★ 100ms
				 Ignition switch ON Engine idling Engine coolant temperature: Above 105°C (221°F) 	(V) 15 10 5 0 → +100ms JMIIA1758JP
18 (W)	Ground	Sunload sensor signal	Input	Ignition switch ON	(V) 4.67 4.35 4.02 3.70 3.37 3.05 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

A/C AUTO AMP.

[AUTOMATIC AIR CONDITIONING]

	nal No. color)	Description		Condition	Value
+	_	Signal name	Input/ Output	Condition	Value
19 (P)	Ground	Front in-vehicle sensor signal	Input	Ignition switch ON	(V) 5.0 4.0 3.0 3.0 2.0 2.52 2.29 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 [°F] JSIIA1665ZZ
20 (R)	Ground	A/C auto amp. connection recognition signal	Output	Ignition switch ON	4.8 – 5.2 V
21 (B)	Ground	Ground	_	Ignition switch ON	0 – 0.1 V
23 (B)	Ground	Ground	_	Ignition switch ON	0 – 0.1 V
24 (BE)	Ground	Vehicle speed signal	Input	Vehicle speed: 40 km/h (25 MPH) NOTE: Waveform varies according to vehicle speed	0 JSNIA0012GB
30 (R)	Ground	Rear blower motor control signal	Output	Ignition switch ON Rear fan speed: 1st speed (manual)	(v)
32 (G)	Ground	Communication signal (A/C auto amp. → Rear A/C control)	Output	Ignition switch ON	(V) 6 4 2 0 ***1 ms
33 (W)	Ground	Communication signal (Rear A/C control → A/C auto amp.)	Input	Ignition switch ON	(V) 6 4 2 0 ***1 ms
36 (R)	Ground	Exhaust gas/outside odor detecting sensor signal	Input	Ignition switch ON NOTE: Waveform varies according to the measurement environment of the vehicle	(V) 15 10 5 0 10 ms

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Termin (Wire		Description		Condition	Value
+	_	Signal name	Input/ Output	Condition	value
37 (BE)	Ground	Intake sensor signal	Input	Ignition switch ON	(V) 5.0 4.0 4.0 3.0 2.0 1.0 2.77 2.51 2.77 2.51 2.02 2.77 2.51 2.02 2.00 2.01 0 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 (°F) JMIIA1786ZZ
38 (GR)	Ground	Rear in-vehicle sensor signal	Input	Ignition switch ON	(V) 5.0 4.0 4.0 4.0 3.0 2.0 2.0 2.48 2.25 1.82 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 [°F] JMIIA1787ZZ
39 (L)	Ground	Ambient sensor signal	Input	Ignition switch ON	(V) 5.0 4.0 4.0 2.0 2.76 2.52 2.29 1.85 1.85 1.85 1.85 1.85 1.86 1.86 1.87 1.87 1.88
40 (G)	Ground	Sensor ground	_	Ignition switch ON	0 – 0.1 V

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BCM, ECM, IPDM E/R

[AUTOMATIC AIR CONDITIONING]

BCM, ECM, IPDM E/R

List of ECU Reference

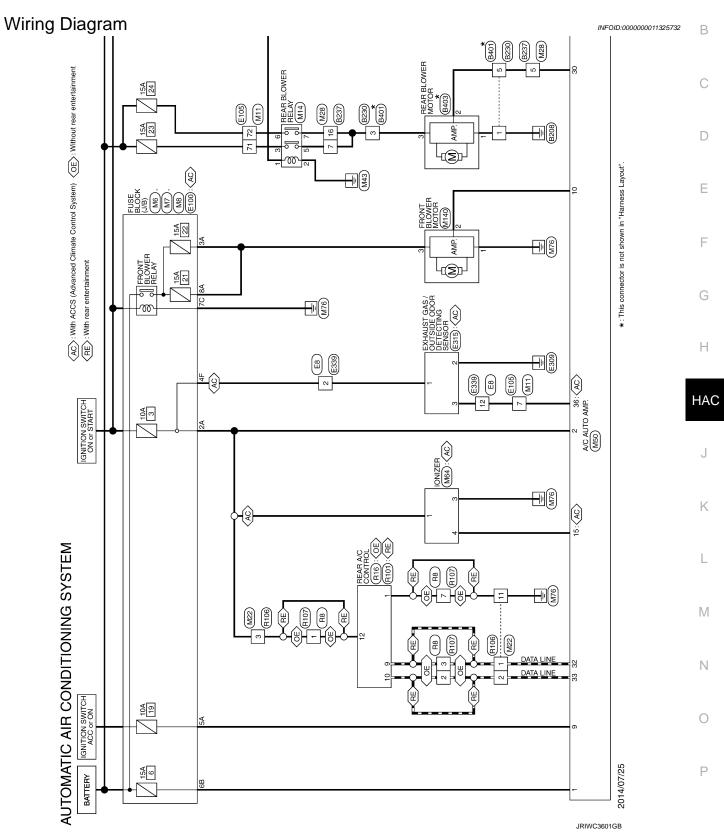
INFOID:0000000011325731

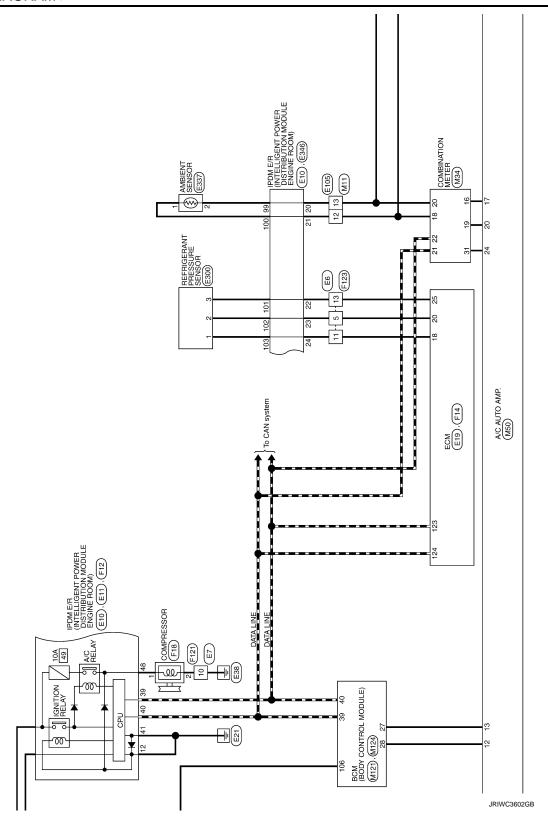
ECU	Reference
	BCS-40, "Reference Value"
BCM	BCS-62, "Fail-safe"
BCIVI	BCS-62, "DTC Inspection Priority Chart"
	BCS-63, "DTC Index"
	EC-83, "Reference Value"
ECM	EC-99, "Fail-safe"
ECIVI	EC-101, "DTC Inspection Priority Chart"
	EC-103, "DTC Index"
	PCS-16, "Reference Value"
IPDM E/R	PCS-23, "Fail-safe"
	PCS-24, "DTC Index"

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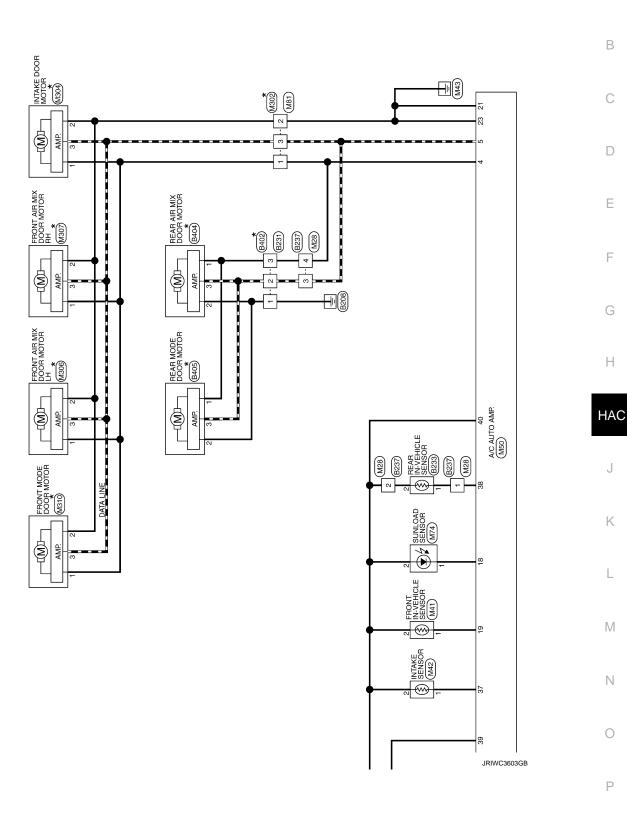
WIRING DIAGRAM

AUTOMATIC AIR CONDITIONING SYSTEM





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Revision: 2014 August HAC-63 2015 QUEST

AUTOMATIC AIR CONDITIONING SYSTEM	SYSTEM				
Connector No. B230	Conr	Connector No.	b. B233	Connector No. B401	Connector No. B403
Connector Name WIRE TO WIRE	Conr	Connector Name	me REAR IN-VEHICLE SENSOR	Connector Name WIRE TO WIRE	Connector Name REAR BLOWER MOTOER
Connector Type M06FW-LC	Conr	Connector Type	pe C02FW	Connector Type M06MW-LC	Connector Type NS03FW-M3
v <u>i</u>		H.S.	0	H.S.	H.S.
6 5 4			12	4 5 6	3 2 1
	[.]		1		
No. Wire Signal Name [Specification]	E Z	No. Wire	Wire Signal Name [Specification]	lerminal Color Of Signal Name [Specification] No. Wire	Ferminal Golor Of Signal Name [Specification] No. Wire
1 B				-	
O	<u>"</u> T	~		1 8	2 = =
5 LG - [With manual A/C]	T			1 10	3
+		Connector No	B937	Г	
	5		-	Connector No. B402	Connector No. B404
Connector No. B231	Con	Connector Name			
Connector Name WIRE TO WIRE	Conr	Connector Type	pe NS16MGY-CS	- 1	- 1
T. T	€			Connector Type TK03MW	Connector Type A03FW
1	多 <u>`</u>]	7		Œ	
E	1	ý	4		K
Ċ.			8 9 10 11 12 13 14 15 16		
321				1123	<u> </u>
	Termin	lar	Color Of Signal Name [Specification]	70 - 1 - 0 - 1 - 1 - 1 - 1 - 1	
	<u> </u>	$^{+}$	1	No. Wire Signal Name [Specification]	
No. Wire Signal Name [Specification]		۵	- M		-
GR		_	- 5	-	2
o o	<u>`</u>	4		3	
3 GR	7	- L	LG - [With manual A/C]		
	T				
	<u> </u>	. 8			
		6	- 88		
		10	- 0		
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AUTOMATIC AIR CONDITIONING SYSTEM

[AUTOMATIC AIR CONDITIONING]

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No. B405	Con	Connector No.	E7	Connector No.	E10	Connector No.	E11
Connector Name REAR MODE DOOR MOTOR	Con	Connector Name	WIRE TO WIRE	Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type A03FW	Conn	Connector Type	NS10MW-CS	Connector Type	TH20FW-CS12-M4-1V	Connector Type	TH08FW-NH
	Œ.	Ξ. S.	1 2 3 4 5 6 7 8 9 10	H.S.		EH.S.	42 81 40 33 42 81 40 33 46 45 44 43
Terminal Color Of Signal Name [Specification]	Tern	nal C	Of Signal Name [Specification]	la C	Of Signal Name [Specification]	la C	Of Signal Name [Specification]
Wire	No.	o. Wire		No. Wire		No. Wire	
1	1			·		╁	1
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	(4)	5 SB	1	7 BR		42 S	SB -
		9 9	-	10 P	1	Н	TO
Connector No. E6	, · ·	H	1	Н	1	44 W	-
Connector Name WIRE TO WIRE	~	+	-	13	1	+	1
Connector Type TK16MGY-1V		10 B		15 L		46	- 0
				ŀ			
	Conr	Connector No.	E8	╀	1	Connector No.	E19
	2	Connector Name	WIRE TO WIRE	20 W	-	Connector Name	MOH
1 2 3	5	iector regime		21 0	•	DODE NO	
10 13	Conr	Connector Type	NS12MBR-CS	Н	1	Connector Type	BH24FB-RZ8-L-LH
CI TI CI 71	Q			+	-	ą	
	手	Ţ		24 G		至	1001 301 1001 1001 1001
Terminal Color Of	7	H.S.	1 0 0 mm 1 E	+		H.S.	061 941 <u>071</u> <u>1821</u>
Wire Signal Name [Specification]	ļ	l	t 2	+	1		123 138 143 147 151
-			6 7 8 9 10 11 12	H	1		124 128 144 148 152
- '				H	1		
				+	-		
> 00	Termin	Ferminal Color Of No Wire	Of Signal Name [Specification]	98 88	1 1	Terminal Color Of No Wire	Signal Name [Specification]
-	L	t		1		t	LG EVAP CONTROL SYSTEM PRESSURE SENSOR
- 5	Ľ	×	1			123 P	Н
-	Ľ	3	1			124	CAN COMMUNICATION LINE (CAN-H)
1	₫	4 BR	1			125 W	
	-	2 FG	-			128	FUEL TANK TEMPERATURE SENSOR
- 5	Ľ	0 9	-			133 BR	
BR	Ľ	D 2	-			134	ASCD STEERING SWITCH
SB		. ∀	-			Н	R SENSOR GROUND
B	S	9 SB	-			Н	
	-	10 GR	-			140 BR	+
	-	11	1			141	EVAP CANISTER VENT CONTROL VALVE
		4	-	_		142 GR	\dashv

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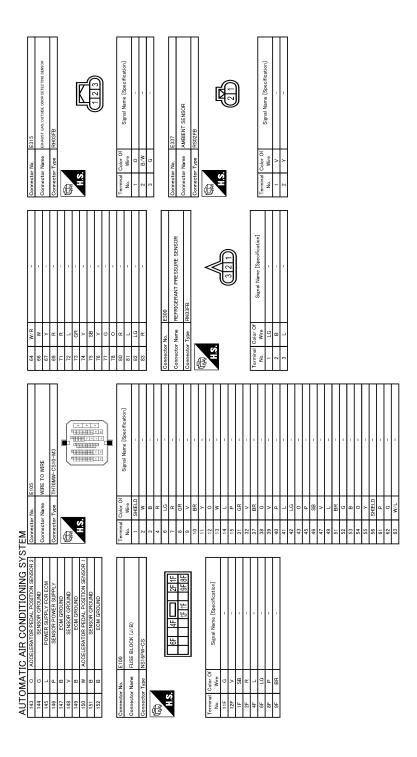
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AUTOMATIC AIR CONDITIONING SYSTEM

[AUTOMATIC AIR CONDITIONING]

i	1	ΒΛ	Commetor No. FTB Commetor Nume COMPRESSOR Connector Type RHIZEB	H.S.	Terminal Color Of Signal Name [Specification] No. Wire Signal Name [Specification]	2 B -	Connector No. F121	Connector Name WIRE TO WIRE	Connector Type NS10FW-CS		٥	4 3 6 7 2	0 0 1 0 8 01		Terminal Color Of		1 B/Y -	2 R/Y –	W/L	MAX O	0 0	o a	ł	1				
110	9	Connector Type MAB35FB-MEB20-LH	H.S.	No. Wire Signal Name (Specification) Wire THEOTILE CONTROL MOTOR (CLOSE) 2 G/W THEOTILE CONTROL MOTOR FOWER SUPPLY 3 L THEOTILE CONTROL MOTOR (OPEN) 4 GR SENSOR ROQUIND	5 B KNOCK SENSOR (BANK 1) 6 BR/Y A/F SENSOR 1 HEATER (BANK 1) 7 P/B HEATED OXYGEN SENSOR 2 HEATER (BANK 1)	O THROTTLE W	10 B ECM GROUND 11 L/W FUEL INJECTOR No. 5	12 LG/R FUEL INJECTOR No. 4 13 G ENGINE OII TEMPERATIBE SENSOR	, g	15 B SENSOR GROUND 16 R/W FIJEI INJECTOR No. 2	R/B	18 Y SENSOR POWER SUPPLY 19 B FUEL PUMP RELAY	R REFRI	21 P/B FUEL INJECTOR No. 6	. c	BR	× EP	M/L	34 L/Y INTAKE AIR TEMPERATURE SENSOR	W/P CHANKSHART D	1	5 0	- Consider you	9	M	ŀ	3 2	4
	103 BR	- L	Connector No. F12 Connector Name Space (a PATLL LIBRAT FORCE ESCRIBITION MODAL FURBER Connector Name Space (a PATLL LIBRAT FORCE ESCRIBITION MODAL FURBER Connector Type TP20FW-CS12-M4	SAME STATE (STREET) 100	Terminal Color Of Signal Name [Specification] No. Wire	49 R/B -	52 Y/G -	54 G/W -	Н	57 0 = =	- 8/M 69	70 0 = -	-	74 LG -	76 GR	H	- B 08			1	1	1						ı
AUTOMATIC AIR CONDITIONING SYSTEM		Connector Type NS12FBR-CS	H.S. 5 4 - 3 2 1 1 2 1 10 9 8 7 6	Terminal Color Of Signal Name [Specification] No. Wire Signal Name [Specification] 1	5 L 7 P - 7	Н	10 GR – [Without automatic drive positioner]	11 Y - [With automatic drive positioner]	1	Connector No. E346	١,	\neg	Ó		JĮ٤	94 93 92	105 104 103 102 101 100 99		- C	No Mina Signal Name [Specification]	91	T	╀	- 0 76	Ł	Ļ	- 0 101	4

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	5					5)	
	7.A	1	Connector Name	Name WIRE TO WIRE	O WIRE	69	* *	,
Connector Type TK16FGY-1V	8.A		Connector Type	Т	TH70FW-CS10-M3	63	œ	1
1		2		٦.	П	8 9	3	
		2	€			99	* *	
	Connector No	M7	主		сE	2 2	: 8	1
7 6 5 4		Т	S			69	۵	1
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Connec	Connector Name FUSE BLOCK (J/B)				-	. ac	1
10 10 14 13 17 11 10 3 8	Connec	Connector Type NS10FW-CS			व	72	_	1
		1			3	73	97	
	E					74	>-	-
Color Of	•		Terminal	Color Of	3	75	>-	-
ognal Name Lopecindation	į.	48	No.	Wire	ognal wame [opecinication]	9/	^	-
-		9R 8R 6R 5R	-	SHIELD	1	77	Д.	-
-			2	W	_	78	BR	-
G/R -			3	В	_	80	Υ	_
P/8			4	œ		18	>	
1	Terminal	Color Of	9	9	1	82	_	1
	No.	Wire Signal Name [Specification]	7	œ	1	83	œ	1
1	88	_ ^	æ	o	i			
	4B	- M	6	8	1			
W/R	28	BR	10	α	1	Connector No.	tor No.	M14
	9B		=	*	1			
BR/W -	88	B/L	12	J- 7	- [Without automatic drive positioner]	Connec	Connector Name	REAR BLOWER RELAY
1	88	- GR	12	- 97	- [With automatic drive positioner]	Connec	Connector Type	M06FBR-R-LC
-			13	G - [V	- [Without automatic drive positioner]	Ć	•	
-			13	- λ	 [With automatic drive positioner] 	B	_	[
1	Connector No.	or No. M8	14	٦	i	•	,	
-	Jones	Occupant Name (ILISE BLOCK (1/B)	15	Ь	_	2	5	
		П	31	ď	1			/ 2
	Connec	Connector Type NS12FW-CS	32		1			9
M6	Œ.		37	- N	- [With automatic drive positioner]			
FUSE BLOCK (J/B)	进步	1	900	ł	-	Tomina	JO volo	
Connector Type CS06FW-M2	H.S.		38		Without automatic drive positioner	Š		Signal Name [Specification]
1		T	39	ŀ	- [With automatic drive positioner]	-	g	1
		120,110,110,80,80,70,60	40	۵	1	2	8	1
			41	_	1	8	œ	1
3A 7 2A 1A		1	42	o	ī	S	o	i
	Terminal	Color Of	43	M	1	9	_	1
8A /A 6A 5A 4A	8	Wire Signal Name [Specification]	45	_	1	7	>	1
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Signal Name [Specification]	3 8	- 8	9	5 0				
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AUTOMATIC AIR CONDITIONING SYSTEM

[AUTOMATIC AIR CONDITIONING]

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Marke To Water To W	Mail	Fig. 12 Fig. 13 Fig. 14 Fig. 15 Fig. 14 Fig. 15 Fig.	or No. Mzz	`	9	-	7	4	CAN-H	Connector No.	M42
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1	1	14 RE		12	F	1	25	>	ALTERNATOR SIGNAL [Without automatic drive positioner]	Œ	
15 16 15 12 11 10 10 11 10 11 11	1 1 1 1 1 1 1 1 1 1	1		1 7	╀		96	8	DARKING BRAKE SMITCH SIGNAL	主	
1	Signal Name Second cattor) Connector Name Connect		 	,	$^{+}$		2	á		<u> </u>	[
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15 15 14 13 12 11 10	15 15 14 15 12 11 10 10	Connector Name Conn	4	16	>	_	27	Υ	BRAKE FLUID LEVEL SWITCH SIGNAL [With automatic drive positioner]		0 +
Sprink Nume Specification Connector Num Connector Num	Signal Name (Specification) Connector Name Connecto	Signal Name [Specification] Connector No. M34 Connector No. M34 Connector No. Co	13 12 11 10				28	>	SECURITY SIGNAL		7
Connector No. Connector No	Connector No. Connector No	Connector Nume Connector Nume COMBINATION NETER Signal Name Specification Connector Name COMBINATION NETER Connector Name COMBINATION NETER Connector Name	2				58	5	WASHER LEVEL SWITCH SIGNAL		
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Signal Name (Specification) Connector Yapan Connector Yapan	Signal Name (Specification) Corrector Type THEORY AND METER CONSISTANT CONTINUES CONSISTANT CONTINUES CONSISTANT CONTINUES CONSISTANT CONTINUES CO	Connector Name Conn					33	۵	OVERDRIVE CONTROL SWITCH SIGNAL		
Connector Type The Pick The	Connector Type TH40Pk-NH TH	Connector Type Conn	Signal Name	Conne	ctor Name	COMBINATION METER	34	. с	FIEL FVEL SENSOR STONAL		
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Connector No. Connector No		Triming Color Of No. Wire Supri Name [Specification] Supri Name [Speci	·		3	1 2 3 4 5 8 10 11 12 12 15 16 18 19 20				Connector No.	MSU
Transfer Councetor Name Councetor	Territorial Color Of Territorial Color Color Of Territorial Color Col	Terminal Color Of Signal Name (Specification)	BE -			9 20 20 20 20 20 20 20 20 20 20 20 20 20	Connect	or No.	M41	Connector Name	
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1 1 2 1 1 1 2 1 1 2 1 1	1 2 7 1 1 1 1 2 1 1 2 2 1 2 2	No.	B = -	-	۵	BATTERY POWER SUPPLY [Without automatic drive positioner]		•	K		21 22 24 27 38 10 10 13 10 10 10 10 10 10 10 10 10 10 10 10 10
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M28 Separate M28	MER TO WIRE TO WIRE Signal Name [Specification] Signal Name	MZ8		3	В	GROUND					
MVRETOWINE AVERAGE S B Introductive Control (Broad International Color) Average Av	MVSE VALUE VALUE	MX3		4	В	GROUND					
MST 67 WITHER TO WITHER TO WITHER SEARCH CANDIGOUS GROWN, Sins amounts that protection and the control of the	NS16FQ1-C35 S S P LUMBANTON CORTING, ERON, Files anomatic the particles NS16FQ1-C35 S S S The matter Lange anomatic the particles S C C C C C C C C C	WIRE TO WIRE S	l	LC)	œ	III I MENATION CONTROL SIGNAL (Without automotic ables need becard	Termina				Signal Name [Specification]
WIRE TO WIRE 8 G Transfer Strott Visional Landson Land	WIRE TO WIRE	NST 16 16 17 17 18 17 18 18 18 18		LC.	B/P	ILLIMBIATION CONTROL SIGNAL Mich automatic drive continuous	Š		Signal Name [Specification]	H	8+
NST GEO Color	NS16F01-C53 S S Transmission and protection	NST 6FCP-CS 8 5B 100	lame WIRE TO WIRE	0	3	TELEGRIPHICAL CONT. NOT. STATE LITTLE SECURISE COMP. CO. C.	-	٥			VIDELIS GENOTEMON
1 2 5 4	1 1 2 1 2 2 1 3 2 1 3 2 1 3 3 3 3 3 3 3 3 3	No 10+13-15 1	П	۰	+	HdP IdESE SWITCH SIGNAL (Without automatic drive positioner)	-	١,		2 .	JONITION POWER SUPPLI
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AUTOMATIC AIR CONDITIONING SYSTEM

[AUTOMATIC AIR CONDITIONING]

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AUTOMATIC AIR CONDITIONING SYSTEM	-	SHIELD -		ctor No. R107	Connector Name WIRE TO WIRE	Connector Type TH12MW-NH	1 2 3 4 5 6 7 8 9 10 11 12	tal Color Of Signal Name [Specification]	>	- BS		- ×	- 8	-	- SB	- d	- 91
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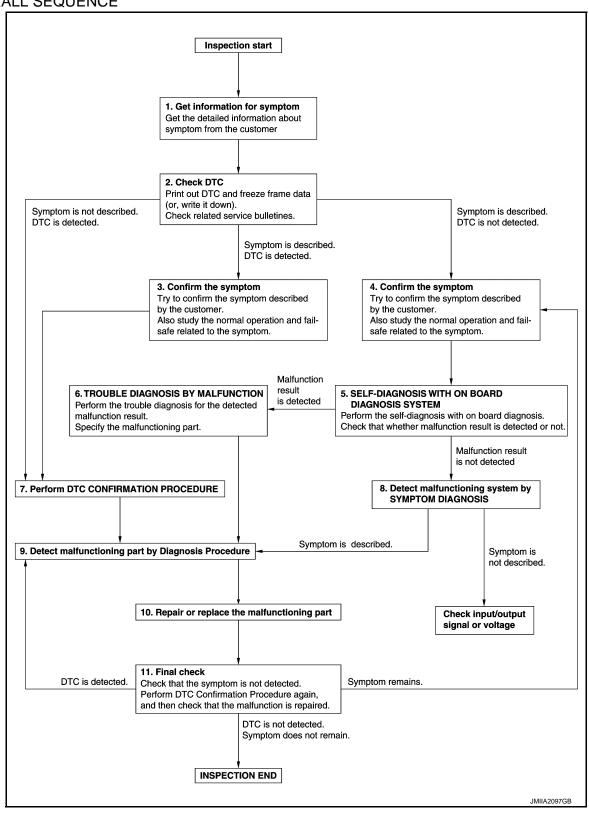
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow INFOID:000000011325733 B

OVERALL SEQUENCE



DETAILED FLOW

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

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 7.

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 7.

4. 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.

5. SELF-DIAGNOSIS WITH ON BOARD DIAGNOSIS SYSTEM

Perform the self-diagnosis with on board diagnosis. Check that whether malfunction result is detected or not. <u>Is malfunction result detected?</u>

YES >> GO TO 6.

NO >> GO TO 8.

6. TROUBLE DIAGNOSIS BY MALFUNCTION

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

>> GO TO 9.

7.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?

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

YES >> GO TO 9.

NO >> Check according to GI-42, "Intermittent Incident".

8.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 9.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT.

9. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 10.

NO >> Check according to GI-42, "Intermittent Incident".

10. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.

- Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
- 3. Check DTC. If DTC is detected, erase it.

>> GO TO 11.

11. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 9.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

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FRONT AUTOMATIC AIR CONDITIONING SYSTEM

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Work Procedure

INFOID:0000000011325734

DESCRIPTION

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

Check condition: Engine running at normal operating temperature.

OPERATION INSPECTION

1. CHECK MEMORY FUNCTION

- 1. Press AUTO switch to activate front A/C system.
- 2. Set temperature to 32.0°C by operating temperature control switch (driver side).
- 3. Press ON-OFF switch.
- 4. Turn ignition switch OFF.
- 5. Turn ignition switch ON.
- 6. Press AUTO switch.
- 7. Check that the set temperature (32.0°C) is maintained.

Is the inspection result normal?

YES >> GO TO 2. NO >> GO TO 11.

2.CHECK FRONT BLOWER MOTOR

- Start engine.
- 2. Operate fan switch and check that fan speed changes.
- 3. Check operation for all fan speeds.

Is the inspection result normal?

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

3.check discharge air (mode switch and def switch)

- 1. Operate fan switch to set the fan speed to maximum speed.
- 2. Operate MODE switch and DEF switch.
- Check that air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to <u>VTL-6</u>, "VENTILATION SYSTEM (FRONT AIR CONDITIONING): System Description".

Is the inspection result normal?

YES-1 >> With ACCS (Advanced Climate Control System): GO TO 4.

YES-2 >> Without ACCS (Advanced Climate Control System): GO TO 5.

NO >> GO TO 11.

4.CHECK INTAKE AIR [WITH ACCS (ADVANCED CLIMATE CONTROL SYSTEM)]

- 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 6. NO >> GO TO 11.

5.check intake air [without accs (advanced climate control system)]

- 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 OFF.
- 4. Listen to intake sound and confirm air inlets change.

Is the inspection result normal?

BASIC INSPECTION >	[AUTOMATIC AIR CONDITIONING]
YES >> GO TO 6.	
NO >> GO TO 11.	
CHECK COMPRESSOR	
 Press A/C switch. The A/C switch in Check visually and by sound that the 	
. Press A/C switch again. The A/C sw	
. Check that compressor stops.	
s the inspection result normal?	
YES >> GO TO 7. NO >> GO TO 11.	
CHECK DISCHARGE AIR TEMPERA	TURE
. Operate temperature control switch	
 Check that discharge air temperature 	e (driver side) changes.
 Operate temperature control switch ON. 	(passenger side). "DUAL" indicator on front A/C control display turns
 Check that the discharge air tempera 	ature (passenger side) changes.
. Press DUAL switch. "DUAL" indicate	or turns OFF.
•	LH/RH) is unified to the driver side temperature setting.
s the inspection result normal? YES >> GO TO 8.	
NO >> GO TO 1.	
CHECK WITH TEMPERATURE SET	TING LOWERED
. Operate compressor.	
. Operate temperature control switch	(driver side) to lower the set temperature to 18°C.
. Check that cool air blows from the a	r outlets.
the inspection result normal? YES >> GO TO 9.	
NO >> GO TO 9.	
.CHECK TEMPERATURE INCREASE	
. Warm up engine to the normal opera	
. Operate temperature control switch	(driver side) to raise the set temperature to 32°C.
. Check that warm air blows from the	air outlets.
s the inspection result normal?	
YES >> GO TO 10. NO >> GO TO 11.	
O.CHECK AUTO MODE	
	AUTO" indicator on front A/C control display turns ON.
. Operate temperature control switch	(driver side) to check that fan speed or air outlet changes (the air out-
let or fan speed varies depending temperature, and etc.).	on the ambient temperature, in-vehicle temperature (front side), set
s the inspection result normal?	
YES >> INSPECTION END	
NO >> GO TO 11.	
1. CHECK SELF-DIAGNOSIS USING	ON BOARD DIAGNOSIS SYSTEM
Perform self-diagnosis using on boaCheck whether any malfunction is de	rd diagnosis.
s any malfunction detected?	steoted.
•	gnosis for the detected malfunction.
NO >> GO TO 12.	
2. CHECK SELF-DIAGNOSTIC RESU	JLT USING CONSULT

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< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

Check whether any DTC is detected.

Is any DTC detected?

YES >> Perform the appropriate diagnosis for the detected DTC.

NO >> Refer to <u>HAC-134</u>, "Symptom Table", and perform the appropriate diagnosis.

REAR AUTOMATIC AIR CONDITIONING SYSTEM

REAR AUTOMATIC AIR CONDITIONING SYSTEM: Work Procedure

INFOID:0000000011325735

DESCRIPTION

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

NOTE:

Check that front automatic air conditioning system operates normally. Refer to HAC-76, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Work Procedure".

Check condition

: Engine running at normal operating temperature.

: Front air conditioning system is in operation.

OPERATION INSPECTION

Front A/C control operation

1. CHECK REAR CONTROL MODE FUNCTION

- 1. Press REAR switch. The REAR switch indicator turns ON.
- 2. Check that front A/C control changes to the rear A/C control mode ("REAR" indicator on front A/C display turns ON) and that rear automatic air conditioning system starts.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 3. Press REAR switch again. The REAR switch indicator turns OFF.
- 4. Check that "REAR" indicator on front A/C display turns OFF and rear control mode released. (Rear automatic air conditioning system operates continuously)

Is the inspection result normal?

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

2.CHECK REAR BLOWER MOTOR

1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Operate fan switch to check that fan speed changes.
- 3. Check the operation for all fan speeds.

Is the inspection result normal?

YES >> GO TO 3. NO >> GO TO 8.

3.CHECK DISCHARGE AIR

1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Operate fan switch to set the fan speed to maximum speed.
- 3. Operate MODE switch.
- 4. Check that air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to VTL-7, "VENTILATION SYSTEM (REAR AIR CONDITIONING): System Description".

Is the inspection result normal?

YES >> GO TO 4. NO >> GO TO 8.

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[AUTOMATIC AIR CONDITIONING]

4. CHECK DISCHARGE AIR TEMPERATURE

Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- Operate temperature control switch (driver side).
- 3. Check that discharge air temperature changes.

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 8.

${f 5.}$ CHECK WITH TEMPERATURE SETTING LOWERED

Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- Operate temperature control switch (driver side) to lower the set temperature to 18°C.
- Check that cool air blows from the air outlets.

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 8.

6.CHECK TEMPERATURE INCREASE

Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- Operate temperature control switch (driver side) to raise the set temperature to 32°C.
- Check that warm air blows from the air outlets.

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 8.

7. CHECK AUTO MODE

Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Press AUTO switch and check that "AUTO" indicator on front A/C control display turns ON.
- 3. Operate temperature control switch (driver side) to check that fan speed or air outlet changes (the air outlet or fan speed varies depending on the ambient temperature, in-vehicle temperature (rear side), set temperature, and etc.).

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 8.

8.CHECK SELF-DIAGNOSIS USING ON BOARD DIAGNOSIS SYSTEM

- Perform self-diagnosis using on board diagnosis.
- Check whether any malfunction is detected.

Is any malfunction detected?

YES >> Perform the appropriate diagnosis for the detected malfunction.

>> Refer to HAC-136, "Symptom Table", and perform the appropriate diagnosis. NO

Rear A/C control operation

1. CHECK REAR BLOWER MOTOR

- 1. Press AUTO switch and check that "AUTO" indicator on rear A/C control display turns ON.
- Operate fan switch to check that fan speed changes.

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< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

Check operation for all fan speeds.

Is the inspection result normal?

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

2. CHECK DISCHARGE AIR

- 1. Operate fan switch to set the fan speed to maximum speed.
- 2. Operate MODE switch.
- Check that air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to VTL-7, "VENTILATION SYSTEM (REAR AIR CONDITIONING): System Description".

Is the inspection result normal?

YES >> GO TO 3. NO >> GO TO 7.

3.CHECK DISCHARGE AIR TEMPERATURE

- Operate temperature control switch.
- Check that discharge air temperature changes.

Is the inspection result normal?

YES >> GO TO 4. NO >> GO TO 7.

${f 4.}$ CHECK WITH TEMPERATURE SETTING LOWERED

- 1. Operate temperature control switch to lower the set temperature to 18°C.
- 2. Check that cool air blows from the air outlets.

Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 7.

5. CHECK TEMPERATURE INCREASE

- 1. Operate temperature control switch to raise the set temperature to 32°C.
- 2. Check that warm air blows from the air outlets.

Is the inspection result normal?

YES >> GO TO 6. NO >> GO TO 7.

6. CHECK AUTO MODE

- 1. Press AUTO switch and check that "AUTO" indicator on rear A/C control display turns ON.
- Operate temperature control switch to check that fan speed or air outlet changes (the air outlet or fan speed varies depending on the ambient temperature, in-vehicle temperature (rear side), set temperature, and etc.).

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 7.

7.CHECK SELF-DIAGNOSIS USING ON BOARD DIAGNOSIS SYSTEM

- 1. Perform self-diagnosis using on board diagnosis.
- 2. Check whether any malfunction is detected.

Is any malfunction detected?

YES >> Perform the appropriate diagnosis for the detected malfunction.

NO >> Refer to <u>HAC-136</u>, "Symptom Table", and perform the appropriate diagnosis.

ACCS (ADVANCED CLIMATE CONTROL SYSTEM)

ACCS (ADVANCED CLIMATE CONTROL SYSTEM): Work Procedure

INFOID:0000000011325736

DESCRIPTION

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

NOTE:

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

Check that front automatic air conditioning system operates normally. Refer to HAC-76, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Work Procedure".

Check condition : Engine running

OPERATION INSPECTION

1. CHECK PLASMACLUSTER[™] ION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

$\mathbf{2}.$ CHECK PLASMACLUSTER $^{\scriptscriptstyle{ exttt{ iny{M}}}}$ ION OPERATION STATUS

Operate fan switch and visually check that status indicator on front A/C control display changes in accordance with the following table.

Fan speed	Front A/C control display (ion indicator)
2nd	CLEAN
5th	QUICK CLEAN

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

3.check automatic intake control (exhaust gas/outside odor detecting mechanism)

- Press AUTO intake switch and check that AUTO intake switch indicator turns ON.
- 2. Listen to intake sound to check that the air inlet changes to recirculation.
- 3. Wait approximately for 5 minutes until air inlet switches to fresh air intake.
- 4. Apply cigarette smoke or similar substance to exhaust gas/outside odor detecting sensor portion.
- 5. Check that the status indicator on front A/C control display turns ON and listen to intake sound to check that air inlets change to recirculation.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4.CHECK SELF-DIAGNOSIS USING ON BOARD DIAGNOSIS SYSTEM

- Perform self-diagnosis using on board diagnosis.
- 2. Check whether any malfunction is detected.

Is any malfunction detected?

YES >> Perform the appropriate diagnosis for the detected malfunction.

NO >> Refer to HAC-137, "Symptom Table" and perform the appropriate diagnosis. HAC

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SYSTEM SETTING

Temperature Setting Trimmer (Front)

INFOID:0000000011325737

DESCRIPTION

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

HOW TO SET

- Starts on board self-diagnosis STEP 5 mode (Each sensor recognition temperature check; "51" or "52" is indicated on front A/C control display).
- 2. Press fan switch (up: \$\display.) and check that "61" is indicated on front A/C control display.
- 3. After approximately 3 seconds, the temperature setting trimmer (front) can be available.
- 4. The indication will be changed by "5" ("1") in range of -3.0°C (-6°F) to +3.0°C (6°F) by pressing the temperature control switch (driver side) each time. Press temperature control switch (driver side) (▲) to increase the set temperature, and press temperature control switch (driver side) (▼) to decrease the set temperature. When balance setting is minus, A/C switch indicator is turned ON.

Models for Canada	
Display	Correction (°C)
30	+3.0
25	+2.5
20	+2.0
15	+1.5
10	+1.0
5	+0.5
0	0 (Initial setting)
- ₩- 5	-0.5
- <u>>1/-</u> 10	-1.0
- ∺ - 15	-1.5
- 11/- 20	-2.0
- 11/- - 25	-2.5
- 11/- 30	-3.0
Models for USA	
Display	Correction (°F)
6	+6
5	+5
4	+4
3	+3
2	+2
1	+1
0	0 (Initial setting)
1 1	-1
- 2	-2
- 11 - 3	-3
- ∏ - 4	-4

SYSTEM SETTING

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

Display	Correction (°F)
- ₩- 5	-5
- \\\ - 6	-6

-∺- : A/C switch indicator

NOTE:

- When −3°C (−6°F) is selected on the temperature setting set as 25°C (75°F), the temperature controlled by A/C auto amp. is 25°C (75°F) − 3°C (6°F) = 22.0°C (69°F), and then the temperature becomes lower than the temperature setting.
- When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10
 V or less, the setting of the difference between the set temperature and control temperature may be cancelled.

Temperature Setting Trimmer (Rear)

4

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INFOID:0000000011325738

DESCRIPTION

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

HOW TO SET

- 1. Starts on board self-diagnosis STEP 5 mode (Each sensor recognition temperature check; "51" or "52" is indicated on front A/C control display).
- Press fan switch (up: \$+) and check that "61" is indicated on front A/C control display.
- 3. After approximately 3 seconds, the temperature setting trimmer (rear) can be available.
- 4. The indication will be changed by "5" ("1") in range of -3.0°C (-6°F) to +3.0°C (6°F) by pressing the temperature control switch (passenger side) each time. Press temperature control switch (passenger side) (▲) to increase the set temperature, and press temperature control switch (passenger side) (▼) to
 - (→) to increase the set temperature, and press temperature control switch (passenger side) (▼) to decrease the set temperature. When balance setting is minus, REAR switch indicator is turned ON.

Models	for	Canada
Models	101	Canada

Models for Canada	
Display	Correction (°C)
30	+3.0
25	+2.5
20	+2.0
15	+1.5
10	+1.0
5	+0.5
0	0 (Initial setting)
-₩- 5	-0.5
- <u>N17</u> - 10	-1.0
- \frac{\fin}}{\fint}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}{\fint}}}}}}}{\frac{\fir}}}}}}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fir}}}}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fin}}}}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frichta}}}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\f{	-1.5
- \frac{\fin}}}}{\fint}}}}}}}}}{\frac{\fir}{\frac{\fir}{\fin}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}	-2.0
- \(\frac{\cdot\}{\cdot\}\) 25	-2.5
- 212 - 30	-3.0
odels for USA	
Display	Correction (°F)
6	+6
5	+5
	+

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[AUTOMATIC AIR CONDITIONING]

Display	Correction (°F)
1	+1
0	0 (Initial setting)
二 1	-1
- ₩- 2	-2
-∺ - 3	-3
- \\\ - 4	-4
- ₩- 5	-5
- ₩- 6	-6

: REAR switch indicator

NOTE:

- When -3°C (-6°F) is selected on the temperature setting set as 25°C (75°F), the temperature controlled by A/C auto amp. is 25°C (75°F) 3°C (6°F) = 22.0°C (69°F), and then the temperature becomes lower than the temperature setting.
- When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10
 V or less, the setting of the difference between the set temperature and control temperature may be cancelled.

Foot Position Setting Trimmer

INFOID:0000000011325739

DESCRIPTION

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

HOW TO SET

- 1. Starts on board self-diagnosis STEP 5 mode (Each sensor recognition temperature check; "51" or "52" is indicated on front A/C control display).
- 2. Press fan switch (up: \$\delta+) and check that "61" is indicated on front A/C control display.
- 3. After approximately 3 seconds, the foot position setting trimmer can be available.
- 4. Press MODE switch to select FOOT mode type as shown below.

Type Display	Defroster door position		
туре	Display	Auto control	Manual control
Type-A		OPEN	CLOSE
Type-B (Initial setting)	Ø	OPEN	OPEN
Type-C	M	CLOSE	OPEN
Type-D	DETAIL]	CLOSE	CLOSE

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the setting of the foot position setting trimmer may be cancelled.

Inlet Port Memory Function

INFOID:0000000011325740

DESCRIPTION

- Air inlet is memorized when ignition switch is turned OFF, and the air inlet can be set either REC (recirculation), FRE (fresh air intake), or "Do not perform the memory" when ignition switch is turned ON again.
- When "Do not perform the memory" is set, the air inlet is controlled automatically when ignition switch is turned ON again.

HOW TO SET

- 1. Starts on board self-diagnosis STEP 5 mode (Each sensor recognition temperature check; "51" or "52" is indicated on front A/C control display).
- 2. Press fan switch (up: \$\display.) and check that "61" is indicated on front A/C control display.

- 3. After approximately 3 seconds, the inlet port memory function can be available.
- 4. Press AUTO intake switch or intake switch to set the inlet port memory function as per the following. [with ACCS (Advanced Climate Control System)]

Press FRE switch or REC switch to set the inlet port memory function as per the following. [without ACCS (Advanced Climate Control System)]

With ACCS (Advanced Climate Control System)

Switch	Switch indicator	Setting	
AUTO intake switch OFF ON		Do not perform the memory of manual FRE (Initial setting)	
		Perform the memory of manual FRE	
Intake switch	OFF	Do not perform the memory of manual REC	
ON		Perform the memory of manual REC (Initial setting)	
		·	

Without ACCS (Advanced Climate Control System)

Switch	Switch indicator	Setting
FRE switch OFF		Do not perform the memory of manual FRE (Initial setting)
FRE SWILLII	ON	Perform the memory of manual FRE
REC switch	OFF	Do not perform the memory of manual REC
INCO SWITCH	ON	Perform the memory of manual REC (Initial setting)

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the setting of the inlet port memory function may be cancelled.

Exhaust Gas/Outside Odor Detecting Sensor Sensitivity Adjustment Function

INFOID:0000000011325741

DESCRIPTION

Sensitivity of exhaust gas/outside odor detecting sensor is adjustable for 2 steps of high and low. This function is used when sensitivity of sensor is different from customer's sense of smell.

HOW TO SET

- Starts on board self-diagnosis STEP 5 mode (Each sensor recognition temperature check; "51" or "52" is indicated on front A/C control display).
- 2. Press fan switch (up: \$\delta+) twice and check that "7" is indicated on front A/C control display.
- After approximately 3 seconds, the exhaust gas/outside odor detecting sensor sensitivity adjustment function can be available.
- 4. Press temperature control switch (driver side) to select the setting as per the following.

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

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the setting of the exhaust gas/outside odor detecting sensor sensitivity adjustment function may be cancelled

AUTO Intake Switch Interlocking Movement Change Function

INFOID:0000000011325742

DESCRIPTION

Condition for interlocking movement of AUTO intake switch and A/C switch can be changed. It is possible to set the system not to receive switch operation of AUTO intake switch when A/C switch is OFF so that the

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SYSTEM SETTING

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

advanced climate control system is not activated. It is also possible to set the system not to turn A/C switch ON when AUTO intake switch is pressed.

HOW TO SET

- 1. Starts on board self-diagnosis STEP 5 mode (Each sensor recognition temperature check; "51" or "52" is indicated on front A/C control display).
- 2. Press fan switch (up: \$\display.) three times and check that "8" is indicated on front A/C control display.
- After approximately 3 seconds, the AUTO intake switch interlocking movement change function can be available.
- 4. Press A/C switch or AUTO intake switch to select the setting as per the following.

Switch	Switch in- dicator	Setting
A/C switch	ON	When AUTO intake switch is turned ON, A/C switch is also turned ON in synchronization with AUTO intake switch. (Initial setting) Control of the AUTO intake switch is functional even when the A/C switch is turned OFF.
A/C SWILCIT	OFF	When AUTO intake switch is turned ON, A/C switch is not turned ON in synchronization with AUTO intake switch. Control of the AUTO intake switch is functional even when A/C switch is turned OFF.
AUTO intake	ON	AUTO intake switch can be turned ON when A/C switch is OFF. When A/C switch is turned OFF while AUTO intake switch is ON, AUTO intake switch is not turned OFF in synchronization with A/C switch. (Initial setting)
switch	OFF	AUTO intake switch can not be turned ON when A/C switch is OFF. When A/C switch is turned OFF while AUTO intake switch is ON, AUTO intake switch is turned OFF in synchronization with A/C switch.

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the AUTO intake switch interlocking movement change function setting may be cancelled.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

A/C AUTO AMP.

A/C AUTO AMP. : Diagnosis Procedure

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1. CHECK SYMPTOM

Check symptom (A or B).

	Symptom				
А	 Front air conditioning does not activate. Front air conditioning cannot be controlled. Operation status of front air conditioning is not indicated on display. 				
В	Memory function does not operate normally.The setting is not maintained. (It returns to the initial condition)				

Which symptom is detected?

Α >> GO TO 2.

В >> GO TO 5.

2.check fuse

Turn ignition switch OFF.

2. Check 10A fuse (No. 3 and 19, located in fuse block (J/B)].

NOTE:

Refer to PG-93, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

3.CHECK A/C AUTO AMP. IGNITION POWER SUPPLY AND ACC POWER SUPPLY

Disconnect A/C auto amp. connector.

Turn ignition switch ON. 2.

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

	+		
A/C au	to amp.	_	Voltage
Connector	Terminal		
M50	2	Ground 11 – 1	11 – 14 V
WISO	9	Giodila	11 – 14 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector between A/C auto amp. and fuse.

f 4 .CHECK A/C AUTO AMP. GROUND CIRCUIT FOR OPEN

Turn ignition switch OFF.

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

A/C au	to amp.		Continuity
Connector	Terminal	_	
M50	21	Ground	Existed
WISO	23	Giodila	LAISIGU

Is the inspection result normal?

>> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

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POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair harness or connector.

5. CHECK FUSE

- 1. Turn ignition switch OFF.
- 2. Check 15A fuse (No. 6, located in fuse block (J/B)].

NOTE

Refer to PG-93, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

6.CHECK A/C AUTO AMP. BATTERY POWER SUPPLY

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

	+		
A/C au	to amp.	_	Voltage
Connector	Connector Terminal		
M50	1	Ground	11 – 14 V

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector between A/C auto amp. and fuse.

REAR A/C CONTROL

REAR A/C CONTROL : Diagnosis Procedure

INFOID:0000000011325744

1. CHECK REAR A/C CONTROL POWER SUPPLY

- Turn ignition switch OFF.
- 2. Disconnect rear A/C control connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between rear A/C control harness connector and ground.

	+		
Rear A/	C control	_	Voltage
Connector	Terminal		
R16 (without rear entertainment)	12	Ground	11 – 14 V
R101 (with rear entertainment)	12	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector between rear A/C control and fuse block (J/B).

2. CHECK REAR A/C CONTROL GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Check continuity between rear A/C control harness connector and ground.

Rear A/C control			Continuity
Connector	Terminal	_	Continuity
R16 (without rear entertainment)	1	Ground	Existed
R101 (with rear entertainment)	T T	Ground	LAISIGU

Is the inspection result normal?

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> Replace rear A/C control. Refer to <u>HAC-144</u>, "Removal and Installation".

NO >> Repair harness or connector.

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A/C AUTO AMP.

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

A/C AUTO AMP.

Component Function Check

INFOID:0000000011325745

1.PERFORM SELF-DIAGNOSIS FUNCTION STEP 5-2

- 1. Turn ignition switch ON.
- 2. Perform self-diagnosis function step 5-2. Erase self diagnosis result. Refer to <u>HAC-47</u>, "On <u>Board Diagnosis Function"</u>.
- 3. Turn ignition switch OFF.
- 4. Turn ignition switch ON.
- 5. Perform self-diagnosis function step 5-2 again. Refer to HAC-47, "On Board Diagnosis Function".
- 6. Check self-diagnosis result.

Is "40" displayed?

YES >> Refer to <u>HAC-90</u>, "<u>Diagnosis Procedure</u>".

NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000011325746

1. REPLACE FRONT A/C CONTROL (A/C AUTO AMP.)

Replace front A/C control (A/C auto amp.). Refer to HAC-143. "Removal and Installation".

>> INSPECTION END

REAR A/C CONTROL COMMUNICATION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

REAR A/C CONTROL COMMUNICATION SIGNAL

Diagnosis Procedure

INFOID:0000000011325747

1.CHECK SYMPTOM

Check symptom (A or B).

	Symptom				
Α	Rearairconditioning	Operation status of rear air conditioning is indicated on rear A/C control display.			
В	cannot be controlled by rear A/C control.	Operation status of rear air conditioning is not indicated on rear A/C control display.			

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Which symptom is detected?

>> GO TO 2. В >> GO TO 5. Е

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2.CHECK COMMUNICATION SIGNAL (REAR A/C CONTROL ightarrow A/C AUTO AMP.) CIRCUIT FOR OUTPUT SIGNAL

1.

Disconnect rear A/C control connector.

Turn ignition switch OFF.

3. Turn ignition switch ON.

2.

Check voltage between rear A/C control harness connector and ground.

	л	

+ Rear A/C control		_	Voltage (Approx.)
Connector	Terminal		(11 - 7
R16 (without rear entertainment)	10	Ground	5 V
R101 (with rear entertainment)	10	Giodila	5 V

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Is the inspection result normal?

YES >> Replace rear A/C control. Refer to HAC-144, "Removal and Installation".

NO >> GO TO 3.

3.check communication signal (rear a/c control ightarrow a/c auto amp.) circuit for open

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

Rear A/C control		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
R16 (without rear entertainment)	10	M50	33	Existed
R101 (with rear entertainment)	10	UCIVI	33	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

Р $oldsymbol{4}.$ CHECK COMMUNICATION SIGNAL (REAR A/C CONTROL ightarrow A/C AUTO AMP.) CIRCUIT FOR SHORT

Check continuity between rear A/C control harness connector and ground.

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REAR A/C CONTROL COMMUNICATION SIGNAL

[AUTOMATIC AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

Rear A/	C control	_	Continuity
Connector	Terminal		
R16 (without rear entertainment)	10	Ground	Not existed
R101 (with rear entertainment)	10	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

 $\textbf{5.} \textbf{CHECK COMMUNICATION SIGNAL (A/C AUTO AMP.} \rightarrow \textbf{REAR A/C CONTROL) CIRCUIT FOR OUTPUT SIGNAL}$

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between A/C auto amp. harness connector and ground.

+			Valtaria	
A/C au	A/C auto amp.		Voltage (Approx.)	
Connector	Terminal		, , , ,	
M50	32	Ground	5 V	

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> GO TO 6.

6.CHECK COMMUNICATION SIGNAL (A/C AUTO AMP. ightarrow REAR A/C CONTROL) CIRCUIT FOR OPEN

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

Rear A/	C control	A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
R16 (without rear entertainment)	9	M50	32	Existed
R101 (with rear entertainment)	9	IVISO	32	Lxisteu

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

/ .CHECK COMMUNICATION SIGNAL (A/C AUTO AMP. ightarrow REAR A/C CONTROL) CIRCUIT FOR SHORT

Check continuity between rear A/C control harness connector and ground.

Rear A/C control			Continuity
Connector	Terminal	_	Continuity
R16 (without rear entertainment)	9	Ground	Not existed
R101 (with rear entertainment)		Ground	IVOL GAISIGU

Is the inspection result normal?

YES >> Check rear A/C control power supply circuit. Refer to <u>HAC-88, "REAR A/C CONTROL : Diagnosis</u> Procedure".

REAR A/C CONTROL COMMUNICATION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING] NO

>> Repair harness or connector. Α

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AMBIENT SENSOR

Diagnosis Procedure

INFOID:0000000011325748

1. CHECK AMBIENT SENSOR SIGNAL

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

	to amp.	_	Voltage
Connector	Terminal		
M50	39	Ground	(V) 5.0 4.0 3.0 2.52 2.76 2.52 2.9 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 ["F] JSIIA1665ZZ

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2. CHECK AMBIENT SENSOR POWER SUPPLY

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

,	+		14.6
Ambient sensor		_	Voltage (Approx.)
Connector Terminal			(11 - 7
E337	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

${f 3.}$ CHECK AMBIENT SENSOR GROUND CIRCUIT FOR OPEN

- 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.

Ambient sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector Terminal		Continuity
E337	2	M50	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK AMBIENT SENSOR

Check ambient sensor. Refer to HAC-95, "Component Inspection".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Replace ambient sensor. Refer to <u>HAC-145</u>, "Removal and Installation".

AMBIENT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

5. CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR OPEN

- 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.

Ambien	Ambient sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
E337	1	M50	39	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6. CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between ambient sensor harness connector and ground.

Ambient sensor			Continuity
Connector	Terminal		Continuity
E337	1	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

7.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

Component Inspection

1. CHECK AMBIENT SENSOR

- Remove ambient sensor. Refer to <u>HAC-145</u>, "Removal and Installation".
- 2. Check resistance between ambient sensor terminals. Refer to applicable table for the normal value.

Torn	Terminal Condition		Resistance: kΩ		
1611	ııııaı	Temperature: °C (°F)	Resistance: K12		
		-20 (-4)	16.50		
	1 2	-10 (14)	9.92		
				0 (32)	6.19
1		10 (50)	3.99		
'	2	20 (68)	2.65		
		25 (77)	2.19		
		30 (86)	1.81		
		40 (104)	1.27		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ambient sensor. Refer to HAC-145, "Removal and Installation".

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FRONT IN-VEHICLE SENSOR

Diagnosis Procedure

INFOID:0000000011325750

1. CHECK FRONT IN-VEHICLE SENSOR SIGNAL

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

	+ ito amp.	_	Voltage
Connector	Terminal		
M50	19	Ground	(V) 5.0 4.0 4.0 3.0 2.0 2.52 2.9 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 [°F] JSIIA1665ZZ

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2.CHECK FRONT IN-VEHICLE SENSOR POWER SUPPLY

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

+			14.6
Front in-vehicle sensor		_	Voltage (Approx.)
Connector	Connector Terminal		(11 - 7
M41	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.check front in-vehicle sensor ground circuit for open

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

Front in-ve	hicle sensor	A/C auto amp.		Continuity
Connector	Terminal	Connector Terminal		Continuity
M41	2	M50	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK FRONT IN-VEHICLE SENSOR

Check front in-vehicle sensor. Refer to HAC-97, "Component Inspection".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

FRONT IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Replace front in-vehicle sensor. Refer to <u>HAC-146</u>, "Removal and Installation".

5.CHECK FRONT IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Front in-ve	Front in-vehicle sensor		ito amp.	Continuity
Connector	Terminal	Connector Terminal		Continuity
M41	1	M50	19	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK FRONT IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR SHORT

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

Front in-vehicle sensor			Continuity
Connector	Terminal		Continuity
M41	1	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143. "Removal and Installation".

NO >> Repair harness or connector.

7.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

Component Inspection

1. CHECK FRONT IN-VEHICLE SENSOR

- Remove front in-vehicle sensor. Refer to <u>HAC-146</u>, "Removal and Installation".
- 2. Check resistance between front in-vehicle sensor terminals. Refer to applicable table for the normal value.

Torr	minal	Condition	Resistance: kΩ	
1611	IIIIIai	Temperature: °C (°F)	Nesistance. K22	
		-20 (-4)	16.50	
	1 2	-10 (14)	9.92	
		0 (32)	6.19	
1		10 (50)	3.99	
'		20 (68)	2.65	
		25 (77)	2.19	
		30 (86)	1.81	
		40 (104)	1.27	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front in-vehicle sensor. Refer to HAC-146, "Removal and Installation".

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Revision: 2014 August HAC-97 2015 QUEST

INTAKE SENSOR

Diagnosis Procedure

INFOID:0000000011325752

1. CHECK INTAKE SENSOR SIGNAL

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

	+ A/C auto amp.		Voltage
Connector	Terminal		
M50	37	Ground	(V) 5.0 4.0 3.0 3.0 2.0 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 [°F] JMIIA1786ZZ

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2.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.

+			Mallona	
Intake sensor		_	Voltage (Approx.)	
Connector	Terminal		(11 - 7	
M42	1	Ground	5 V	

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.check intake sensor ground circuit for open

- 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	Intake sensor A/C auto amp.		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M42	2	M50	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK INTAKE SENSOR

Check intake sensor. Refer to HAC-99, "Component Inspection".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Replace intake sensor. Refer to <u>HAC-148</u>, "Removal and Installation".

INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

5. 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	Intake sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M42	1	M50	37	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between intake sensor harness connector and ground.

Intake sensor			Continuity	
Connector	Terminal		Continuity	
M42	1	Ground	Not existed	

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

7. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

Component Inspection

1. CHECK INTAKE SENSOR

Remove intake sensor. Refer to <u>HAC-148</u>, "Removal and Installation".

2. Check resistance between intake sensor terminals. Refer to applicable table for the normal value.

Torr	minal	Condition	Resistance: kΩ
1611	IIIIIai	Temperature: °C (°F)	Resistance, K12
		-20 (-4)	24.81
		-10 (14)	14.15
	1 2	0 (32)	8.41
1		10 (50)	5.19
'		20 (68)	3.30
		25 (77)	2.67
		30 (86)	2.17
		40 (104)	1.46

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake sensor. Refer to HAC-148, "Removal and Installation".

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SUNLOAD SENSOR

Diagnosis Procedure

INFOID:0000000011325754

1. CHECK SUNLOAD SENSOR SIGNAL

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

	+ A/C auto amp.		Voltage
Connector	Terminal		
M50	18	Ground	(V) 4.67 4.35 4.02 3.70 3.37 3.05 2 1 0 0 200 400 600 800 1000 1200(W/m²) JMIIA1755ZZ

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 in fair weather is equivalent to approximately 0.77 W/m².

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2.CHECK SUNLOAD SENSOR POWER SUPPLY

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

+ Sunload sensor		_	Voltage (Approx.)
Connector	Terminal		(Αρρίολ.)
M74	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.check sunload sensor ground circuit for open

- 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	d sensor	A/C auto amp.		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
M74	2	M50	40	Existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

4. REPLACE SUNLOAD SENSOR

- 1. Replace sunload sensor. Refer to HAC-147, "Removal and Installation".
- Perform self-diagnosis function step 2. Refer to HAC-47, "On Board Diagnosis Function".
- Check self-diagnosis result.

Is "25" or " * 25" displayed?

>> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation". YES

NO >> INSPECTION END

5.CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Sunload	Sunload sensor A		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M74	1	M50	18	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between sunload sensor harness connector and ground.

Sunload sensor			Continuity	
Connector	Terminal		Continuity	
M74	1	Ground	Not existed	

Is the inspection result normal?

>> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

7. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair or replace malfunctioning parts. HAC

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REAR IN-VEHICLE SENSOR

Diagnosis Procedure

INFOID:0000000011325755

1. CHECK REAR IN-VEHICLE SENSOR SIGNAL

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

	+ to amp.	_	Voltage
Connector	Terminal		
M50	38	Ground	(V) 5.0 4.0 3.0 3.0 2.72 2.0 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 [°F] JMIIA1787ZZ

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2.CHECK REAR IN-VEHICLE SENSOR POWER SUPPLY

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

+			Voltage (Approx.)
Rear in-vehicle sensor		_	
Connector	Terminal		(11 -)
B233	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.check rear in-vehicle sensor ground circuit for open

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

Rear in-ve	Rear in-vehicle sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
B233	2	M50	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK REAR IN-VEHICLE SENSOR

Check rear in-vehicle sensor. Refer to HAC-103, "Component Inspection".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Replace rear in-vehicle sensor. Refer to HAC-146, "Removal and Installation".

REAR IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

5.check rear in-vehicle sensor power supply circuit for open

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

Rear in-vel	hicle sensor	A/C auto amp.				Continuity
Connector	Terminal	Connector Terminal		Continuity		
B233	1	M50	38	Existed		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK REAR IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR SHORT

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

Rear in-vehicle sensor		_	Continuity
Connector	Terminal		Continuity
B233	1	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

7. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000011325756

1. CHECK REAR IN-VEHICLE SENSOR

- Remove rear in-vehicle sensor. Refer to <u>HAC-146</u>, "Removal and Installation".
- 2. Check resistance between rear in-vehicle sensor terminals. Refer to applicable table for the normal value.

Torr	minal	Condition	Resistance: kΩ	
1611	IIIIIai	Temperature: °C (°F)	resistance. N22	
		-20 (-4)	15.99	
		-10 (14)	9.62	
	1 2		0 (32)	6.00
1		10 (50)	3.87	
'		1 2	20 (68)	2.57
		25 (77)	2.12	
		30 (86)	1.76	
		40 (104)	1.23	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace rear in-vehicle sensor. Refer to <u>HAC-146</u>, "Removal and Installation".

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EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR

Diagnosis Procedure

INFOID:0000000011325757

1. CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR POWER SUPPLY

- 1. Turn ignition switch OFF.
- Disconnect exhaust gas/outside odor detecting sensor connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between exhaust gas/outside odor detecting sensor harness connector and ground.

	+		
Exhaust gas/outside	odor detecting sensor	_	Voltage
Connector Terminal			
E315	1	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 2.

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

2.check exhaust gas/outside odor detecting sensor ground circuit for open

- 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	Connector Terminal		Continuity
E315	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.check exhaust gas/outside odor detecting sensor signal circuit

- Turn ignition switch ON.
- 2. Check voltage between exhaust gas/outside odor detecting sensor harness connector and ground.

+			Milkery
Exhaust gas/outside odor detecting sensor		_	Voltage (Approx.)
Connector Terminal			
E315	3	Ground	12 V

Is the inspection result normal?

YES >> Replace exhaust gas/outside odor detecting sensor. Refer to HAC-149, "Removal and Installation".

NO >> GO TO 4.

4. 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 auto amp.		Continuity
Connector	Terminal	Connector Terminal		Continuity
E315	3	M50	36	Existed

Is the inspection result normal?

EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR 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	
E315	3	Ground	Not existed	

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

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FRONT AIR MIX DOOR MOTOR (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

FRONT AIR MIX DOOR MOTOR (DRIVER SIDE)

Diagnosis Procedure

INFOID:0000000011325758

1. CHECK FRONT AIR MIX DOOR MOTOR (DRIVER SIDE) POWER SUPPLY

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

+			
Front air mix	Front air mix door motor LH		Voltage
Connector	Terminal		
M306	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK FRONT AIR MIX DOOR MOTOR (DRIVER SIDE) GROUND CIRCUIT FOR OPEN

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

Front air mix door motor LH		_	Continuity
Connector	Terminal		Continuity
M306	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

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

- 1. Connect front air mix door motor LH and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- Confirm output waveform between front air mix door motor LH harness connector and ground using oscilloscope.

	+ Front air mix door motor LH Connector Terminal		Output waveform
Connector	Terriniai		
M306	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

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

Check front air mix door motor (driver side) is properly installed. Refer to <u>HAC-151, "Exploded View"</u>.

Is the inspection result normal?

YES >> Replace front air mix door motor (driver side). Refer to HAC-152, "FRONT AIR MIX DOOR MOTOR: Removal and Installation".

FRONT AIR MIX DOOR MOTOR (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

$5. {\sf CHECK}$ FRONT AIR MIX DOOR MOTOR (DRIVER SIDE) POWER SUPPLY CIRCUIT FOR OPEN

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

Front air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M306	1	M50	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

6.CHECK FRONT AIR MIX DOOR MOTOR (DRIVER SIDE) LAN SIGNAL CIRCUIT FOR OPEN

Turn ignition switch OFF.

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

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

Front air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M306	3	M50	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

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FRONT AIR MIX DOOR MOTOR (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

FRONT AIR MIX DOOR MOTOR (PASSENGER SIDE)

Diagnosis Procedure

INFOID:0000000011325759

1.CHECK FRONT AIR MIX DOOR MOTOR (PASSENGER SIDE) POWER SUPPLY

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

+			
Front air mix	Front air mix door motor RH		Voltage
Connector	Terminal		
M307	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.check front air mix door motor (passenger side) ground circuit for open

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

Front air mix door motor RH		_	Continuity
Connector	Terminal	_	Continuity
M307	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

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

- 1. Connect front air mix door motor RH and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- Confirm output waveform between front air mix door motor RH harness connector and ground using oscilloscope.

	+ Front air mix door motor RH Connector Terminal		Output waveform
Comicolor	romman		
M307	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

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

Check front air mix door motor (passenger side) is properly installed. Refer to <u>HAC-151, "Exploded View"</u>. <u>Is the inspection result normal?</u>

YES >> Replace front air mix door motor (passenger side). Refer to HAC-152, "FRONT AIR MIX DOOR MOTOR: Removal and Installation".

FRONT AIR MIX DOOR MOTOR (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

$5. \mathsf{CHECK}$ FRONT AIR MIX DOOR MOTOR (PASSENGER SIDE) POWER SUPPLY CIRCUIT FOR OPEN

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

Front air mix	Front air mix door motor RH		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M307	1	M50	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

6.CHECK FRONT AIR MIX DOOR MOTOR (PASSENGER SIDE) LAN SIGNAL CIRCUIT FOR OPEN

Turn ignition switch OFF.

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

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

Front air mix	Front air mix door motor RH		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M307	3	M50	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

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Revision: 2014 August HAC-109 2015 QUEST

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FRONT MODE DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325760

1. CHECK FRONT MODE DOOR MOTOR POWER SUPPLY

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

	+		
Front mode	Front mode door motor		Voltage
Connector	Connector Terminal		
M310	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK FRONT MODE DOOR MOTOR GROUND CIRCUIT FOR OPEN

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

Front mode	Front mode door motor		Continuity
Connector	Connector Terminal		Continuity
M310	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK FRONT MODE DOOR MOTOR LAN SIGNAL

- 1. Connect front mode door motor and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between front mode door motor harness connector and ground using oscilloscope.

+ Front mode door motor		_	Output waveform
Connector	Terminal		
M310	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4.CHECK INSTALLATION OF FRONT MODE DOOR MOTOR

Check front mode door motor is properly installed. Refer to HAC-151, "Exploded View".

Is the inspection result normal?

YES >> Replace front mode door motor. Refer to <u>HAC-151</u>, "FRONT MODE DOOR MOTOR : Removal and Installation".

FRONT MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

5.CHECK FRONT MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Front mode	Front mode door motor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M310	1	M50	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

6. CHECK FRONT MODE DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Front mode	Front mode door motor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M310	3	M50	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

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< DTC/CIRCUIT DIAGNOSIS >

INTAKE DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325761

1. CHECK INTAKE DOOR MOTOR POWER SUPPLY

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

	+		
Intake d	Intake door motor		Voltage
Connector	Connector Terminal		
M304	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK INTAKE DOOR MOTOR GROUND CIRCUIT FOR OPEN

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

Intake door motor			Continuity
Connector	Connector Terminal		Continuity
M304	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK INTAKE DOOR MOTOR LAN SIGNAL

- 1. Connect intake door motor and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between intake door motor harness connector and ground using oscilloscope.

	+ por motor	_	Output waveform
Connector	Terminal		
M304	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4.CHECK INSTALLATION OF INTAKE DOOR MOTOR

Check intake door motor is properly installed. Refer to HAC-151, "Exploded View".

Is the inspection result normal?

YES >> Replace intake door motor. Refer to HAC-153, "INTAKE DOOR MOTOR: Removal and Installation".

NO >> Repair or replace malfunctioning part.

INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

5. CHECK INTAKE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake de	Intake door motor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M304	1	M50	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

6.CHECK INTAKE DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Intake d	Intake door motor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M304	3	M50	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

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REAR AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

REAR AIR MIX DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325762

1. CHECK REAR AIR MIX DOOR MOTOR POWER SUPPLY

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

+			
Rear air mix door motor		_	Voltage
Connector	Terminal		
B404	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK REAR AIR MIX DOOR MOTOR GROUND CIRCUIT FOR OPEN

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

Rear air mi	Rear air mix door motor		Continuity
Connector	Terminal	_	Continuity
B404	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK REAR AIR MIX DOOR MOTOR LAN SIGNAL

- 1. Connect rear air mix door motor and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between rear air mix door motor harness connector and ground using oscilloscope.

	+		
Rear air mi	x door motor	_	Output waveform
Connector	Terminal		
B404	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4.CHECK INSTALLATION OF REAR AIR MIX DOOR MOTOR

Check rear air mix door motor is properly installed. Refer to HAC-151, "Exploded View".

Is the inspection result normal?

YES >> Replace rear air mix door motor. Refer to <u>HAC-153</u>, "<u>REAR AIR MIX DOOR MOTOR</u>: Removal and <u>Installation</u>".

REAR AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

5.CHECK REAR AIR MIX DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Rear air mi	Rear air mix door motor		A/C auto amp.	
Connector	Terminal	Connector	Terminal	Continuity
B404	1	M50	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

6. CHECK REAR AIR MIX DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Rear air mi	Rear air mix door motor		A/C auto amp.	
Connector	Terminal	Connector	Terminal	Continuity
B404	3	M50	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

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REAR MODE DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325763

1. CHECK REAR MODE DOOR MOTOR POWER SUPPLY

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

+			
Rear mode	Rear mode door motor		Voltage
Connector	Terminal		
B405	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK REAR MODE DOOR MOTOR GROUND CIRCUIT FOR OPEN

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

Rear mode door motor		_	Continuity
Connector	Terminal		Continuity
B405	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK REAR MODE DOOR MOTOR LAN SIGNAL

- 1. Connect rear mode door motor and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between rear mode door motor harness connector and ground using oscilloscope.

	+ e door motor	_	Output waveform
Connector	Terminal		
B405	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4.CHECK INSTALLATION OF REAR MODE DOOR MOTOR

Check rear mode door motor is properly installed. Refer to HAC-151, "Exploded View".

Is the inspection result normal?

YES >> Replace rear mode door motor. Refer to <u>HAC-153</u>, "REAR MODE DOOR MOTOR : Removal and <u>Installation"</u>.

REAR MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

5.check rear mode door motor power supply circuit for open

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

Rear mode	door motor	A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B405	1	M50	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> Repair harness or connector.

6.CHECK REAR MODE DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Rear mode door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B405	3	M50	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> Repair harness or connector.

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DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325764

NOTE:

Check this circuit when all door motor system malfunction are detected.

1. CHECK DOOR MOTOR POWER SUPPLY

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

+			
Intake door motor		_	Voltage
Connector	Terminal		
M304	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 7.

2.CHECK DOOR MOTOR GROUND CIRCUIT FOR OPEN

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

Intake de	Intake door motor		Continuity
Connector	Terminal	_	Continuity
M304	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK DOOR MOTOR LAN SIGNAL

- 1. Connect A/C auto amp. and intake door motor connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between A/C auto amp. harness connector and ground using oscilloscope.

+ A/C auto amp. Connector Terminal		_	Output waveform
M50	5	Ground	(v) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4. CHECK DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

[AUTOMATIC AIR CONDITIONING]

A/C aut	o amp.	Intake doo	or motor	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M50	5	M304	3	Existed
the inspection re	sult normal?			
YES >> GO TO				
NO >> Popoir	harnoss or conne	octor		

>> Repair harness or connector.

5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

6.CHECK DOOR MOTOR LAN SIGNAL CIRCUIT FOR SHORT

- Turn ignition switch OFF.
- Disconnect following connectors.
- A/C auto amp.
- Front air mix door motor LH
- Front air mix door motor RH
- Front mode door motor
- Intake door motor
- Rear air mix door motor
- Rear mode door motor
- 3. Check continuity between A/C auto amp. harness connector and ground.

A/C auto amp.		_	Continuity
Connector	Terminal		Continuity
M50	5	Ground	Not existed

Is the inspection result normal?

>> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation". YES

NO >> Repair harness or connector.

7.CHECK DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake de	Intake door motor		ito amp.	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M304	1	M50	4	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

8.CHECK DOOR MOTOR POWER SUPPLY CIRCUIT FOR SHORT

- Disconnect following connectors.
- A/C auto amp.
- Front air mix door motor LH
- Front air mix door motor RH
- Front mode door motor
- Rear air mix door motor
- Rear mode door motor
- Check continuity between A/C auto amp. harness connector and ground.

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DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

A/C auto amp.			Continuity
Connector	Terminal	_	Continuity
M50	4	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143. "Removal and Installation"</u>.

NO >> Repair harness or connector.

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INFOID:0000000011325765

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A/C ON SIGNAL

Component Function Check

1. CHECK A/C ON SIGNAL

(E)With CONSULT

- 1. Turn ignition switch ON.
- 2. Operate blower motor.
- 3. Select "AIR CONDITIONER" of "BCM" using CONSULT.
- 4. Select "AIR COND SW" in "DATA MONITOR" mode.
- 5. Check A/C ON signal when the A/C switch is operated.

Monitor item	Condition		Status
AID COND SW	A/C quitob	ON (A/C indicator: ON)	On
AIR COIND SW	AIR COND SW A/C switch	OFF (A/C indicator: OFF)	Off

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-121</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

1. CHECK A/C ON SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. connector.
- 3. Turn ignition switch ON.
- 4. Check output waveform between A/C auto amp. harness connector and ground with using oscilloscope.

_	+ A/C auto amp.		Output waveform
Connector	Terminal		
M50	13	Ground	(V) 15 10 5 0 10 ms JPMIA0012GB

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> GO TO 2.

2.CHECK A/C ON SIGNAL CIRCUIT FOR OPEN

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

A/C auto amp.		В	CM	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M50	13	M121	27	Existed

Is the inspection result normal?

YES >> GO TO 3.

A/C ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

NO >> Repair harness or connector.

$3.\mathsf{CHECK}$ A/C ON SIGNAL CIRCUIT FOR SHORT

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

A/C auto amp.			Continuity
Connector	Terminal		Continuity
M50	13	Ground	Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-98. "Removal and Installation".

NO >> Repair harness or connector.

BLOWER FAN ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

BLOWER FAN ON SIGNAL

Component Function Check

INFOID:0000000011325767

1. CHECK BLOWER FAN ON SIGNAL

(E)With CONSULT

- Turn ignition switch ON.
- Select "AIR CONDITIONER" of "BCM" using CONSULT.
- 3. Select "FAN ON SIG" in "DATA MONITOR" mode.
- 4. Check blower fan ON signal when the fan switch is operated.

Monitor item	Con	Status	
FAN ON SIG Fan	Fan switch	OFF position	Off
TANONOIO	1 an switch	Except OFF position	On

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Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-123, "Diagnosis Procedure"</u>.

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Diagnosis Procedure

INFOID:0000000011325768

1. CHECK BLOWER FAN ON SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C auto amp. harness connector.
- 3. Turn ignition switch ON.
- 4. Check output waveform between A/C auto amp. and ground with using oscilloscope.

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+ A/C auto amp.		-	Output waveform
Connector	Terminal		
M50	12	Ground	(V) 15 10 5 0 + 10ms PKIB4960J

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143, "Removal and Installation"</u>.

NO >> GO TO 2.

2.CHECK BLOWER FAN ON SIGNAL CIRCUIT FOR OPEN

- Turn ignition switch OFF.
- 2. Disconnect BCM connector.
- Check continuity A/C auto amp. harness connector and BCM harness connector.

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A/C au	to amp.	BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M50	12	M121	28	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.check blower fan on signal circuit for short

BLOWER FAN ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

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

A/C au	to amp.		Continuity	
Connector	Terminal		Continuity	
M50	12	Ground	Not existed	

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-98, "Removal and Installation".

NO >> Repair harness or connector.

FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

FRONT BLOWER MOTOR

Diagnosis Procedure

INFOID:0000000011325769

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1. CHECK FUSE

- 1. Turn ignition switch OFF.
- 2. Check 15A fuse [No. 21 and 22, located in fuse block (J/B)].

NOTE:

Refer to PG-93, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK FRONT BLOWER MOTOR POWER SUPPLY

- 1. Disconnect front blower motor connector.
- 2. Turn ignition switch ON.
- Check voltage between front blower motor harness connector and ground.

+			
Front blower motor		_	Voltage
Connector	Terminal		
M140	3	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 6.

3.check front blower motor ground circuit for open

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- Turn ignition switch OFF.
- 2. Check continuity between front blower motor harness connector and ground.

Front blo	wer motor	_	Continuity	
Connector	Terminal	_	Continuity	
M140	1	Ground	Existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.check front blower motor control signal circuit for open

- Disconnect A/C auto amp. connector.
- 2. Check continuity between front blower motor harness connector and A/C auto amp. harness connector.

Front blo	wer motor	A/C auto amp.		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M140	2	M50	10	Existed	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

CHECK FRONT BLOWER MOTOR CONTROL SIGNAL

- 1. Reconnect front blower motor connector and A/C auto amp. connector.
- 2. Turn ignition switch ON.
- Operate MODE switch (front A/C control) to set air outlet of front air conditioning to VENT.
- Change front fan speed from Lo to Hi, and check duty ratios between front blower motor harness connector and ground by using an oscilloscope.

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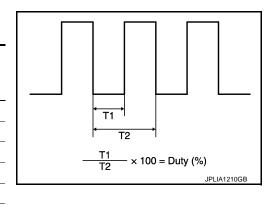
< DTC/CIRCUIT DIAGNOSIS >

NOTE:

Calculate drive signal duty ratio as shown in the figure.

T2 = Approx. 1.6 ms

Front blov	Front blower motor		Duty ratio
Connector	Terminal	Fan speed (manual) VENT mode	(Approx.)
	2	1st	25 %
		2nd	33 %
		3rd	41 %
M140		4th	51 %
		5th	61 %
		6th	69 %
		7th	81 %



Is the inspection result normal?

YES >> Replace front blower motor. Refer to <u>VTL-18</u>, "<u>FRONT BLOWER MOTOR</u>: Removal and Installation".

NO >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

6.CHECK FRONT BLOWER MOTOR POWER SUPPLY CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect fuse block (J/B) connector.
- 3. Check continuity between fuse block (J/B) harness connector and front blower motor harness connector.

Fuse bl	ock (J/B)	Front blower motor		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M1	3A	M140	2	Existed
IVI I	8A	101140	3	LXISIEU

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

7. CHECK FRONT BLOWER RELAY GROUND CIRCUIT FOR OPEN

Check continuity between fuse block (J/B) harness connector and ground.

Fuse block (J/B)			Continuity
Connector	Terminal	-	Continuity
M3	7C	Ground	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

8. CHECK FRONT BLOWER RELAY

Check front blower relay. Refer to HAC-127, "Component Inspection (Front Blower Relay)".

Is the inspection result normal?

YES >> Check front blower relay power supply circuit. Refer to <u>PG-12</u>, "Wiring <u>Diagram - BATTERY POWER SUPPLY -"</u> and <u>PG-56</u>, "Wiring <u>Diagram - IGNITION POWER SUPPLY -"</u>.

NO >> Replace front blower relay.

Component Inspection (Front Blower Motor)

INFOID:0000000011325770

1. CHECK FRONT BLOWER MOTOR-I

FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

- 1. Remove front blower motor. Refer to VTL-18, "FRONT BLOWER MOTOR: Removal and Installation".
- 2. Check that there is not any mixing foreign object in the front blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace front blower motor. Refer to <u>VTL-18</u>, <u>"FRONT BLOWER MOTOR : Removal and Installation"</u>.

2.CHECK FRONT BLOWER MOTOR-II

Check that there is not breakage or damage in the front blower motor.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace front blower motor. Refer to <u>VTL-18</u>, <u>"FRONT BLOWER MOTOR : Removal and Installation"</u>.

3. CHECK FRONT BLOWER MOTOR-III

Check that front blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front blower motor. Refer to <u>VTL-18</u>, "<u>FRONT BLOWER MOTOR</u>: Removal and Installation".

Component Inspection (Front Blower Relay)

1. CHECK FRONT BLOWER RELAY

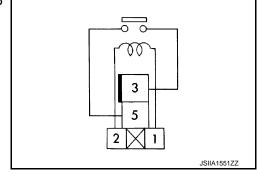
- 1. Remove front blower relay. Refer to PG-93, "Fuse, Connector and Terminal Arrangement".
- 2. Check continuity between front blower relay terminal 3 and 5 when voltage is supplied between terminal 1 and 2.

Terminal		Voltage	Continuity
2 5	ON	Existed	
	5	OFF	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front blower relay.



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REAR BLOWER MOTOR

Diagnosis Procedure

INFOID:0000000011325772

1. CHECK FUSE

- 1. Turn ignition switch OFF.
- 2. Check 15A fuse (No. 23 and 24).

NOTE:

Refer to PG-94, "Fuse and Fusible Link Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2. CHECK REAR BLOWER MOTOR POWER SUPPLY

- 1. Disconnect rear blower motor connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between rear blower motor harness connector and ground.

+			
Rear blower motor		_	Voltage
Connector	Terminal		
B403	3	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 6.

3.CHECK REAR BLOWER MOTOR GROUND CIRCUIT FOR OPEN

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

Rear blo	wer motor		Continuity	
Connector	Terminal	_	Continuity	
B403	1	Ground	Existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK REAR BLOWER MOTOR CONTROL SIGNAL CIRCUIT FOR OPEN

- 1. Disconnect A/C auto amp. connector.
- 2. Check continuity between rear blower motor harness connector and A/C auto amp. harness connector.

Rear blower motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B403	2	M50	30	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

CHECK REAR BLOWER MOTOR CONTROL SIGNAL

- 1. Reconnect rear blower motor connector and A/C auto amp. connector.
- Turn ignition switch ON.
- 3. Operate MODE switch (front A/C control) to set air outlet of rear air conditioning to VENT.
- Change rear fan speed from Lo to Hi, and check duty ratios between rear blower motor harness connector and ground by using an oscilloscope.

REAR BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

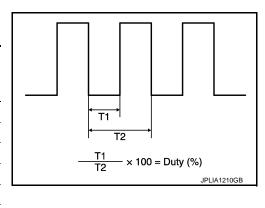
[AUTOMATIC AIR CONDITIONING]

NOTE:

Calculate drive signal duty ratio as shown in the figure.

T2 = Approx. 1.6 ms

Rear blov	vor motor	Condition	
Connector	Terminal	Fan speed (manual) VENT mode	Duty ratio (Approx.)
	1st	25 %	
		2nd	33 %
		3rd	41 %
B403	2	4th	51 %
		5th	61 %
		6th	69 %
		7th	81 %



Is the inspection result normal?

YES >> Replace rear blower motor. Refer to <u>VTL-18</u>, "<u>REAR BLOWER MOTOR</u>: Removal and <u>Installation</u>".

NO >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

6.CHECK REAR BLOWER MOTOR POWER SUPPLY CIRCUIT FOR OPEN

- Turn ignition switch OFF.
- 2. Disconnect rear blower relay connector.
- 3. Check continuity between rear blower relay harness connector and rear blower motor harness connector.

Rear blo	ower relay	Rear blower motor		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M14	5	B403	3	Existed	
10114	7	B403	B403	3	LAISIEU

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

7.CHECK REAR BLOWER RELAY GROUND CIRCUIT FOR OPEN

Check continuity between rear blower relay harness connector and ground.

Rear blower relay			Continuity
Connector	Terminal	_	Continuity
M14	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

8.CHECK REAR BLOWER RELAY

Check rear blower relay. Refer to HAC-130, "Component Inspection (Rear Blower Relay)".

Is the inspection result normal?

YES >> Check rear blower relay power supply circuit. Refer to <u>PG-12</u>, "Wiring <u>Diagram - BATTERY POWER SUPPLY -"</u> and <u>PG-56</u>, "Wiring <u>Diagram - IGNITION POWER SUPPLY -"</u>.

NO >> Replace rear blower relay.

Component Inspection (Rear Blower Motor)

1.CHECK REAR BLOWER MOTOR-I

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INFOID:0000000011325773

REAR BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

- Remove rear blower motor. Refer to VTL-18, "REAR BLOWER MOTOR: Removal and Installation".
- 2. Check that there is not any mixing foreign object in the rear blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace rear blower motor. Refer to <u>VTL-18, "REAR BLOWER MOTOR: Removal and Installation".</u>

2.CHECK REAR BLOWER MOTOR-II

Check that there is not breakage or damage in the rear blower motor.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace rear blower motor. Refer to <u>VTL-18, "REAR BLOWER MOTOR : Removal and Installation"</u>.

3.CHECK REAR BLOWER MOTOR-III

Check that rear blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace rear blower motor. Refer to <u>VTL-18, "REAR BLOWER MOTOR: Removal and Installation".</u>

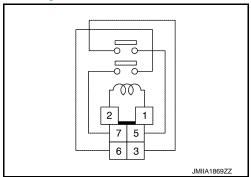
Component Inspection (Rear Blower Relay)

INFOID:0000000011325774

1. CHECK REAR BLOWER RELAY

- 1. Remove rear blower relay. Refer to PG-94, "Fuse and Fusible Link Arrangement".
- 2. Check continuity between rear blower relay terminal 3 and 5, then 6 and 7 when voltage is supplied between terminal 1 and 2.

Terminal		Voltage	Continuity
3	5	ON	Existed
3		OFF	Not existed
6	7	ON	Existed
0		OFF	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace rear blower relay.

[AUTOMATIC AIR CONDITIONING]

MAGNET CLUTCH

Component Function Check

INFOID:0000000011325775

1. CHECK MAGNET CLUTCH OPERATION

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Perform auto active test of IPDM E/R. Refer to PCS-11, "Diagnosis Description".

Does it operate normally?

YES >> INSPECTION END

NO >> Refer to <u>HAC-131</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000011325776

1. CHECK MAGNET CLUTCH

- Turn ignition switch OFF.
- Disconnect compressor connector.
- Directly apply battery voltage to the magnet clutch. Check for operation visually and by sound.

Does it operate normally?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK FUSE

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Check 10A fuse (No. 49, located in IPDM E/R).

NOTE:

Refer to PG-95, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

3.check magnet clutch power supply circuit for open

Disconnect IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and compressor harness connector.

IPDM E/R		Compressor		Continuity
Connector	Terminal	Connector	Terminal	Continuity
F12	48	F18	1	Existed

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-36, "Removal and Installation".

NO >> Repair harness or connector.

4. CHECK MAGNET CLUTCH GROUND CIRCUIT FOR OPEN

Check continuity between compressor harness connector and ground.

Compressor			Continuity
Connector	Terminal		Continuity
F18	2	Ground	Existed

Is the inspection result normal?

YES >> Replace magnet clutch. Refer to HA-32, "MAGNET CLUTCH: Removal and Installation of Compressor Clutch".

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>> Repair harness or connector.

Revision: 2014 August

IONIZER

Diagnosis Procedure

INFOID:0000000011325777

1. CHECK IONIZER POWER SUPPLY

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

	+		
lonizer		_	Voltage
Connector	Terminal		
M64	1	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector between ionizer and fuse block (J/B).

2. CHECK IONIZER GROUND CIRCUIT FOR OPEN

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

lonizer			Continuity
Connector Terminal			Continuity
M64	3	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.check ionizer (on/off) control signal

- 1. Connect ionizer connector.
- 2. Disconnect A/C auto amp. connector.
- Turn ignition switch ON.
- 4. Check voltage between A/C auto amp. harness connector and ground.

	+		
A/C auto amp.		_	Voltage
Connector	Terminal		
M50	15	Ground	9.5 – 13.5 V

Is the inspection result normal?

YES >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

NO >> GO TO 4.

4. CHECK IONIZER (ON/OFF) CONTROL SIGNAL CIRCUIT FOR OPEN

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

lon	lonizer		A/C auto amp.	
Connector	Terminal	Connector	Terminal	Continuity
M64	4	M50	15	Existed

Is the inspection result normal?

IONIZER

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK IONIZER (ON/OFF) CONTROL SIGNAL CIRCUIT FOR SHORT

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

Ionizer			Continuity
Connector	Terminal		Continuity
M64	4	Ground	Not existed

Is the inspection result normal?

YES >> Replace ionizer. Refer to <u>HAC-155</u>, "Removal and Installation".

NO >> Repair harness or connector.

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FRONT AUTOMATIC AIR CONDITIONING SYSTEM [AUTOMATIC AIR CONDITIONING]

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

FRONT AUTOMATIC AIR CONDITIONING SYSTEM

Symptom Table

NOTE:

Perform self-diagnoses with on board diagnosis and CONSULT before performing the symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

Symptom	Corresponding malfunction part	Check item/Reference
 Front air conditioning does not activate. Front air conditioning cannot be controlled. Operation status of air conditioning is not indicated on display. 	A/C auto amp. ignition power supply circuit Front A/C control (A/C auto amp.)	HAC-87, "A/C AUTO AMP. : Diagnosis Procedure"
 Memory function does not operate normally. The setting is not maintained. (It returns to initial condition) 	A/C auto amp. battery power supply circuit Front A/C control (A/C auto amp.)	HAC-87, "A/C AUTO AMP. : Diagnosis Procedure"
Discharge air temperature (driver side) does not change.	Front air mix door motor (driver side) system installation condition	Check front air mix door motor (driver side) system is properly installed. Refer to HAC-151. "Exploded View".
Discharge air temperature (passenger side) does not change.	Front air mix door motor (passenger side) system installation condition	Check front air mix door motor (passenger side) system is properly installed. Refer to HAC-151. "Exploded View".
Air outlet does not change.	Front mode door motor system instal- lation condition	Check front mode door motor system is properly installed. Refer to HAC-151, "Exploded View".
Air inlet does not change.	Intake door motor system installation condition	Check intake door motor system is properly installed. Refer to HAC-151, "Exploded View".
Front blower motor does not operate.	 Front blower motor power supply circuit. Front blower motor control signal circuit Front blower motor Front A/C control (A/C auto amp.) 	HAC-125, "Diagnosis Procedure"
Compressor does not operate.	Magnet clutch The circuit between magnet clutch and IPDM E/R IPDM E/R (A/C relay) The circuit between ECM and refrigerant pressure sensor Refrigerant pressure sensor CAN communication line A/C ON signal circuit Blower fan ON signal circuit Front A/C control (A/C auto amp.)	HAC-142, "Diagnosis Procedure"
 Insufficient cooling No cool air comes out. (Air flow volume is normal.) 	Magnet clutch control system Drive belt slipping Cooler cycle Air leakage from each duct A/C auto amp. connection recognition signal circuit Temperature setting trimmer (front)	HAC-138, "FRONT AUTOMAT-IC AIR CONDITIONING SYS-TEM: Diagnosis Procedure"

FRONT AUTOMATIC AIR CONDITIONING SYSTEM [AUTOMATIC AIR CONDITIONING]

Symptom		Corresponding malfunction part	Check item/Reference
 Insufficient heating No warm air comes out. (Air flow volume is normal.) 		 Engine cooling system Front heater hose Front heater core Air leakage from each duct Temperature setting trimmer (front) 	HAC-140, "FRONT AUTOMAT-IC AIR CONDITIONING SYSTEM: Diagnosis Procedure"
Noise is heard when the front air conditioning operates.	During compressor operation	Cooler cycle	HA-29, "Symptom Table"
	During front blower mo- tor operation	 Mixing any foreign object in front blower motor Front blower motor fan breakage Front blower motor rotation inferiority 	HAC-126, "Component Inspection (Front Blower Motor)"

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REAR AUTOMATIC AIR CONDITIONING SYSTEM

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

REAR AUTOMATIC AIR CONDITIONING SYSTEM

Symptom Table

NOTE:

• Perform self-diagnoses with on board diagnosis and CONSULT, before performing the symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

• The following table is based on the condition that front automatic air conditioning system operates normally.

Symptom		Corresponding malfunction part	Check item/Reference
 Rear air conditioning cannot be controlled by front A/C control. Operation status of rear air conditioning is not indicated on front A/C control display. 		Front A/C control (A/C auto amp.)	Replace front A/C control (A/C auto amp.). Refer to HAC-143. "Removal and Installation".
Rear air conditioning cannot be controlled by rear A/C control.	Operation status of rear air conditioning is indicated on rear A/C control display.	Communication signal (rear A/C control \rightarrow A/C auto amp.)	Refer to <u>HAC-91</u> , " <u>Diagnosis</u> <u>Procedure"</u> .
	Operation status of rear air conditioning is not in- dicated on rear A/C con-	Communication signal (A/C auto amp. → rear A/C control)	Refer to <u>HAC-91</u> , "Diagnosis <u>Procedure"</u> .
		Rear A/C control power supply circuit	Refer to <u>HAC-88</u> , "REAR A/C <u>CONTROL</u> : Diagnosis Procedure".
Discharge air temperature does not change.		Rear air mix door motor system instal- lation condition	Check rear air mix door motor system is properly installed. Refer to HAC-151, "Exploded View".
Air outlet does not change.		Rear mode door motor system installation condition	Check rear mode door motor system is properly installed. Refer to HAC-151, "Exploded View".
Rear blower motor does not operate.		 Rear blower motor power supply circuit. Rear blower motor control signal circuit Rear blower motor Front A/C control (A/C auto amp.) 	HAC-128, "Diagnosis Procedure"
 Insufficient cooling No cool air comes out. (Air flow volume is normal.) 		Cooler cycle Air leakage from each duct Temperature setting trimmer (rear)	HAC-139, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Diagnosis Procedure"
 Insufficient heating No warm air comes out. (Air flow volume is normal.) 		 Rear heater hose Rear heater core Air leakage from each duct Temperature setting trimmer (rear) 	HAC-141, "REAR AUTOMATIC AIR CONDITIONING SYSTEM: Diagnosis Procedure"
Noise is heard when the rear blower motor operates.		 Mixing any foreign object in rear blower motor Rear blower motor fan breakage Rear blower motor rotation inferiority 	HAC-129, "Component Inspection (Rear Blower Motor)"

ACCS (ADVANCED CLIMATE CONTROL SYSTEM)

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

ACCS (ADVANCED CLIMATE CONTROL SYSTEM)

Symptom Table

NOTE:

- Perform self-diagnoses with on board diagnosis and CONSULT, before performing the symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.
- The following table is based on the condition that front automatic air conditioning system operates normally.

Symptom	Corresponding malfunction part	Check item/Reference
 AUTO intake switch cannot be operated Automatic intake control (exhaust gas/outside odor detecting mechanism) does not operate normally Ambient air status indication on front A/C control display does not change 	Front A/C control (A/C auto amp.)	Replace front A/C control (A/C auto amp.). Refer to HAC-143. "Removal and Installation".
Plasmacluster [™] ion does not operate.	 Ionizer power supply circuit Ionizer ON/OFF control signal circuit Ionizer Front A/C control (A/C auto amp.) 	Refer to <u>HAC-132</u> , "Diagnosis <u>Procedure"</u> .
Operation status of Plasmacluster [™] ion does not switch according to air flow.	Front A/C control (A/C auto amp.)	Replace front A/C control (A/C auto amp.). Refer to <u>HAC-143.</u> "Removal and Installation".

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INSUFFICIENT COOLING

FRONT AUTOMATIC AIR CONDITIONING SYSTEM

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Description

INFOID:0000000011325781

Symptom

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

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Diagnosis Procedure

INFOID:0000000011325782

NOTE:

Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

1. CHECK MAGNET CLUTCH OPERATION

- 1. Turn ignition switch ON.
- 2. Operate fan switch.
- 3. Press A/C switch.
- 4. Check that A/C indicator turns ON. Check visually and by sound that compressor operates.
- 5. Press A/C switch again.
- 6. Check that A/C indicator turns OFF. Check that compressor stops.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform diagnosis of "COMPRESSOR DOES NOT OPERATE" in "SYMPTOM DIAGNOSIS". Refer to HAC-142, "Diagnosis Procedure".

2. CHECK DRIVE BELT

Check tension of drive belt. Refer to EM-15, "Checking".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Adjust or replace drive belt depending on the inspection results.

3.check refrigerant cycle pressure

Connect recovery/recycling recharging equipment to the vehicle and perform pressure inspection with gauge. Refer to HA-27, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace parts depending on the inspection results.

4.CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of the air conditioning system for leakage.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace parts depending on the inspection results.

5. CHECK AMBIENT TEMPERATURE DISPLAY

Check that there is not much difference between actual ambient temperature and indicated temperature on information display in combination meter.

NOTE:

Actual ambient temperature is sensor recognition temperature of on board self-diagnosis STEP 5-1.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Perform diagnosis for the A/C auto amp. connection recognition signal circuit. Refer to MWI-79, <a href=""mailto:"Diagnosis Procedure".

6.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (FRONT)

INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

1. Check setting value of temperature setting trimmer (front). Refer to <u>HAC-82, "Temperature Setting Trim-</u>	
 mer (Front)". Check that temperature setting trimmer is set to "+ direction". 	Α
NOTE: The control temperature can be set by setting of the temperature setting trimmer (front). 3. Set difference between the set temperature and control temperature to "0".	В
Is inspection result normal? YES >> INSPECTION END NO >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation". REAR AUTOMATIC AIR CONDITIONING SYSTEM	С
REAR AUTOMATIC AIR CONDITIONING SYSTEM : Description INFOID:000000011325783	D
Symptom Insufficient cooling No cool air comes out. (Air flow volume is normal.)	Е
REAR AUTOMATIC AIR CONDITIONING SYSTEM : Diagnosis Procedure INFOID.00000011325784	F
NOTE: Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis. 1.CHECK REFRIGERANT CYCLE PRESSURE	G
Connect recovery/recycling recharging equipment to the vehicle and perform pressure inspection with gauge.	Н
Refer to HA-27, "Symptom Table".	
Refer to HA-27, "Symptom Table". Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK AIR LEAKAGE FROM EACH DUCT	HAC
Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK AIR LEAKAGE FROM EACH DUCT Check duct and nozzle, etc. of the air conditioning system for leakage.	HAC
Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK AIR LEAKAGE FROM EACH DUCT Check duct and nozzle, etc. of the air conditioning system for leakage. Is the inspection result normal? YES >> GO TO 3. NO >> Repair or replace parts depending on the inspection results.	HAC J
Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK AIR LEAKAGE FROM EACH DUCT Check duct and nozzle, etc. of the air conditioning system for leakage. Is the inspection result normal? YES >> GO TO 3. NO >> Repair or replace parts depending on the inspection results. 3.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (REAR) 1. Check setting value of temperature setting trimmer (REAR). Refer to HAC-83, "Temperature Setting Trimmer (Rear)".	J
Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2. CHECK AIR LEAKAGE FROM EACH DUCT Check duct and nozzle, etc. of the air conditioning system for leakage. Is the inspection result normal? YES >> GO TO 3. NO >> Repair or replace parts depending on the inspection results. 3. CHECK SETTING OF TEMPERATURE SETTING TRIMMER (REAR) 1. Check setting value of temperature setting trimmer (REAR). Refer to HAC-83, "Temperature Setting Trim-	J
Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK AIR LEAKAGE FROM EACH DUCT Check duct and nozzle, etc. of the air conditioning system for leakage. Is the inspection result normal? YES >> GO TO 3. NO >> Repair or replace parts depending on the inspection results. 3.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (REAR) 1. Check setting value of temperature setting trimmer (REAR). Refer to HAC-83, "Temperature Setting Trimmer (Rear)". 2. Check that temperature setting trimmer is set to "+ direction". NOTE: The control temperature can be set by setting of the temperature setting trimmer (rear).	J K L
Is the inspection result normal? YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK AIR LEAKAGE FROM EACH DUCT Check duct and nozzle, etc. of the air conditioning system for leakage. Is the inspection result normal? YES >> GO TO 3. NO >> Repair or replace parts depending on the inspection results. 3.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (REAR) 1. Check setting value of temperature setting trimmer (REAR). Refer to HAC-83, "Temperature Setting Trimmer (Rear)". 2. Check that temperature setting trimmer is set to "+ direction". NOTE: The control temperature can be set by setting of the temperature setting trimmer (rear). 3. Set difference between the set temperature and control temperature to "0". Is inspection result normal? YES >> INSPECTION END	J K L

INSUFFICIENT HEATING

FRONT AUTOMATIC AIR CONDITIONING SYSTEM

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Description

INFOID:0000000011325785

Symptom

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

FRONT AUTOMATIC AIR CONDITIONING SYSTEM: Diagnosis Procedure

INFOID:0000000011325786

NOTE:

Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

1. CHECK COOLING SYSTEM

- Check engine coolant level and check for leakage. Refer to <u>CO-8. "Inspection"</u>.
- 2. Check radiator cap. Refer to the CO-12, "RADIATOR CAP: Inspection".
- 3. Check water flow sounds of the engine coolant. Refer to CO-9, "Refilling".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Refill engine coolant and repair or replace the parts depending on the inspection results.

2. CHECK FRONT HEATER HOSE

Check installation of front heater hose by visually or touching.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace parts depending on the inspection results.

3.CHECK FRONT HEATER CORE

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

CAUTION:

Always perform the temperature inspection in a short period of time because the engine coolant temperature is very hot.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace front heater core. Refer to <u>HA-53</u>, "<u>HEATER CORE</u>: Removal and Installation".

4.CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of the front air conditioning for air leakage.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace parts depending on the inspection results.

5.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (FRONT)

- 1. Check setting value of temperature setting trimmer (front). Refer to HAC-82, "Temperature Setting Trimmer (Front)".
- 2. Check that temperature setting trimmer is set to "- direction".

NOTE:

The control temperature can be set by the temperature setting trimmer (front).

3. Set difference between the set temperature and control temperature to "0".

Are the symptoms solved?

YES >> INSPECTION END

NO >> Replace front A/C control (A/C auto amp.). Refer to HAC-143. "Removal and Installation".

REAR AUTOMATIC AIR CONDITIONING SYSTEM

INSUFFICIENT HEATING

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

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REAR AUTOMATIC AIR CONDITIONING SYSTEM: Description INFOID:0000000011325787 Α Symptom Insufficient heating В No warm air comes out. (Air flow volume is normal.) REAR AUTOMATIC AIR CONDITIONING SYSTEM: Diagnosis Procedure INFOID:000000011325788 NOTE: Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis. D 1.CHECK REAR HEATER HOSE Check installation of rear heater hose by visually or touching. Is the inspection result normal? Е YES >> GO TO 2. NO >> Repair or replace parts depending on the inspection results. 2.CHECK REAR HEATER CORE F Check temperature of inlet hose and outlet hose of rear heater core. Check that inlet side of rear heater core is hot and the outlet side is slightly lower than/almost equal to the inlet side. **CAUTION:** Always perform the temperature inspection in a short period of time because the engine coolant temperature is very hot. Н Is the inspection result normal? YES >> GO TO 3. NO >> Replace rear heater core. Refer to HA-58, "HEATER CORE: Removal and Installation". HAC 3.check air leakage from each duct Check duct and nozzle, etc. of the rear air conditioning for air leakage. Is the inspection result normal? YES >> GO TO 4. NO >> Repair or replace parts depending on the inspection results. K f 4.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (REAR) Check setting value of temperature setting trimmer (rear). Refer to HAC-83, "Temperature Setting Trimmer (Rear)". Check that temperature setting trimmer is set to "- direction". NOTE: The control temperature can be set by the temperature setting trimmer (rear). Set difference between the set temperature and control temperature to "0". Are the symptoms solved? YES >> INSPECTION END N NO >> Replace front A/C control (A/C auto amp.). Refer to HAC-143, "Removal and Installation".

Revision: 2014 August HAC-141 2015 QUEST

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

COMPRESSOR DOES NOT OPERATE

Description INFOID:000000011325789

SYMPTOM

Compressor does not operate.

Diagnosis Procedure

INFOID:0000000011325790

NOTE:

- Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.
- Check that refrigerant is enclosed in cooler cycle normally. If refrigerant amount is shortage from proper amount, perform the inspection of refrigerant leakage.

1. CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to HAC-131, "Component Function Check".

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2.CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to EC-494, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK A/C ON SIGNAL

Check A/C ON signal. Refer to HAC-121, "Component Function Check".

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

f 4.CHECK BLOWER FAN ON SIGNAL

Check blower fan ON signal. Refer to HAC-123, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts

5.CHECK BCM OUTPUT SIGNAL

(P)With CONSULT

- 1. Select "DATA MONITOR" mode of "ECM" using CONSULT.
- 2. Select "AIR COND SIG" and "HEATER FAN SW", and check status under the following conditions.

Monitor item	Condition		Status
AIR COND SIG	A/C switch	OFF (A/C indicator: OFF)	Off
		ON (A/C indicator: ON)	On
HEATER FAN SW	Blower motor	OFF	Off
		ON	On

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-36, "Removal and Installation".

NO >> Replace BCM. Refer to BCS-98, "Removal and Installation".

FRONT A/C CONTROL

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

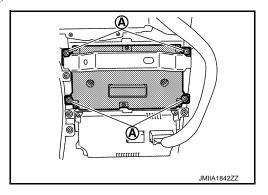
REMOVAL AND INSTALLATION

FRONT A/C CONTROL

Removal and Installation

REMOVAL

- 1. Remove cluster lid C. Refer to IP-28, "Removal and Installation".
- 2. Remove fixing screws (A), and then remove front A/C control.



INSTALLATION

Install in the reverse order of removal.

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REAR A/C CONTROL

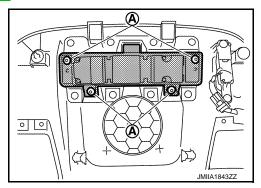
Removal and Installation

INFOID:0000000011325792

REMOVAL

With Rear Display

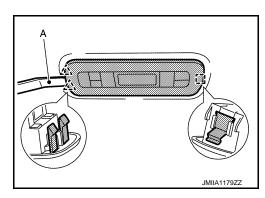
- 1. Remove roof console. Refer to INT-35, "Removal and Installation".
- 2. Remove fixing screws (A), and then remove rear A/C control.



Without Rear Display

1. Disengage fixing pawls and metal clip using a remover tool (A).





2. Disconnect harness connector, and then remove rear A/C control.

INSTALLATION

Install in the reverse order of removal.

AMBIENT SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

AMBIENT SENSOR

Removal and Installation

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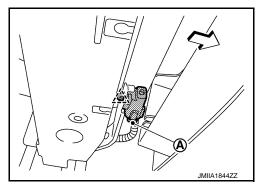
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REMOVAL

- 1. Remove engine under cover. Refer to EXT-23, "Removal and Installation".
- 2. Disconnect harness connector (A).
- 3. Disengage fixing pawl, and then remove ambient sensor.

/^\ : Pawl

 $\ \ \, \ \ \, \ \ \,$: Vehicle front



INSTALLATION

Install in the reverse order of removal.

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IN-VEHICLE SENSOR

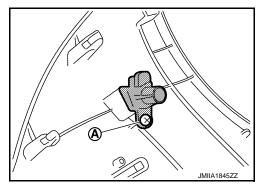
Removal and Installation

INFOID:0000000011325794

REMOVAL

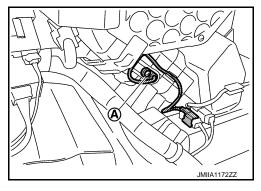
Front Side

- Remove instrument lower panel LH. Refer to <u>IP-14, "Removal and Installation"</u>.
- 2. Remove fixing screw (A), and then remove in-vehicle sensor.



Rear Side

- 1. Remove luggage side lower finisher RH. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER: Removal and Installation".
- 2. Remove fixing screw (A), and then disconnect harness connector.
- 3. Remove intake sensor from rear A/C unit assembly.



INSTALLATION

Install in the reverse order of removal.

SUNLOAD SENSOR

[AUTOMATIC AIR CONDITIONING]

SUNLOAD SENSOR

Removal and Installation

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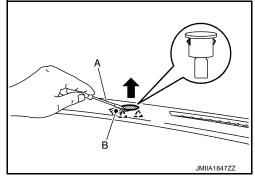
REMOVAL

1. Disengage fixing pawls using a remover tool (A) as shown in the figure.

CAUTION:

Apply protective tape (B) on the part to protect it from damage.





2. Disconnect sunload sensor harness connector, and then remove sunload sensor.

INSTALLATION

Install in the reverse order of removal.

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INTAKE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

INTAKE SENSOR

Removal and Installation

INFOID:0000000011325796

REMOVAL

- 1. Remove evaporator assembly. Refer to <u>HA-52</u>, "EVAPORATOR: Removal and Installation".
- 2. Remove intake sensor from evaporator assembly.

INSTALLATION

Note the following items, and install in the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply the compressor oil to them when installing.
- Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.
- Never rotate the bracket insertion part when removing and installing the intake sensor.
- Check for leakages when recharging refrigerant. Refer to HA-18, "Leak Test".

EXHAUST GAS/OUTSIDE ODOR SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

EXHAUST GAS/OUTSIDE ODOR SENSOR

Removal and Installation

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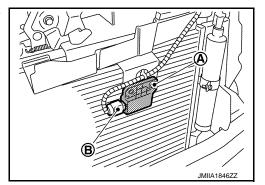
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REMOVAL

- Remove front grille. Refer to <u>EXT-18</u>, "Removal and Installation".
- 2. Remove mounting nut (A), and then remove exhaust gas/out-side odor sensor.
- 3. Disconnect exhaust gas/outside odor sensor connector (B).



INSTALLATION

Install in the reverse order of removal.

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REFRIGERANT PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

REFRIGERANT PRESSURE SENSOR

Exploded View

Refer to HA-43, "Exploded View".

Removal and Installation

REMOVAL

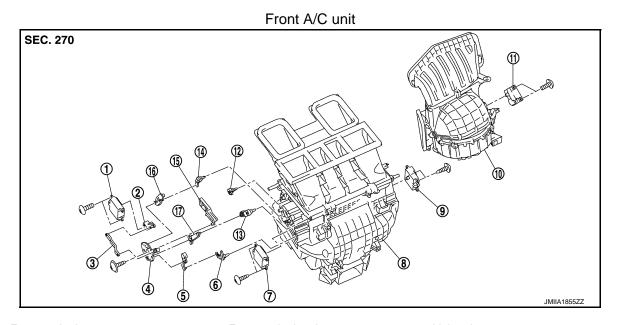
Refer to HA-45, "REFRIGERANT PRESSURE SENSOR: Removal and Installation".

INSTALLATION

Install in the reverse order of removal.

DOOR MOTOR

Exploded View INFOID:0000000011325800

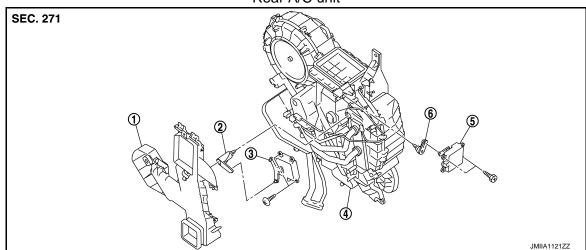


- Front mode door motor
- Main link
- Front air mix door motor (Driver side) 8. 7.
- Blower unit assembly
- Ventilator lever
- 16. Max. cool link

- 2. Front mode door lever
- 5. Foot link
- Heater & cooling unit assembly
- Intake door motor
- Max. cool lever
- 17. Ventilator link

- 3. Link rod
- Foot lever 6.
- 9. Front air mix door motor (Passenger side)
- 12. Defroster lever
- 15. Defroster link

Rear A/C unit



- Rear foot duct 2
- Rear A/C unit assembly
- Rear air mix door lever 2.
- Rear mode door motor
- 3. Rear air mix door motor
- Rear mode door lever

FRONT MODE DOOR MOTOR

FRONT MODE DOOR MOTOR: Removal and Installation

INFOID:0000000011325801

REMOVAL

Remove instrument lower panel LH. Refer to IP-14, "Removal and Installation".

HAC-151 Revision: 2014 August **2015 QUEST**

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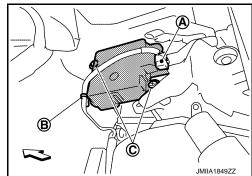
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- 2. Disconnect harness connector (A), and then remove harness fixing clip (B).
- Remove fixing screws (C), and then remove front mode door motor from heater & cooling unit assembly.



INSTALLATION

Install in the reverse order of removal.

FRONT AIR MIX DOOR MOTOR

FRONT AIR MIX DOOR MOTOR: Removal and Installation

INFOID:0000000011325802

REMOVAL

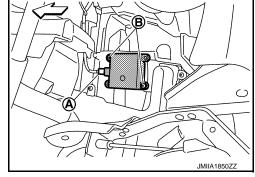
Driver Side

1. Set the temperature at 18°C (64°F).

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. Disconnect the battery cable from the negative terminal.
- 3. Remove instrument lower cover LH. Refer to IP-14, "Removal and Installation".
- 4. Disconnect harness connector (A), and then remove fixing screws (B).
- 5. Remove front air mix door motor from heater & cooling unit assembly.



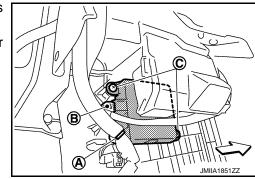
Passenger Side

1. Set the temperature at 18°C (64°F).

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. Disconnect the battery cable from the negative terminal.
- 3. Remove instrument lower cover RH. Refer to IP-14, "Removal and Installation".
- 4. Remove harness fixing clip (A), and then disconnect harness connector (B).
- 5. Remove fixing screws (C), and then remove front air mix door motor from heater & cooling unit assembly.



INSTALLATION

Install in the reverse order of removal.

INTAKE DOOR MOTOR

INTAKE DOOR MOTOR: Removal and Installation

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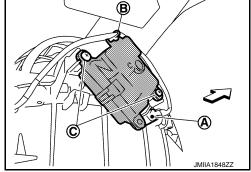
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REMOVAL

- 1. Remove instrument lower panel RH. Refer to IP-14, "Removal and Installation".
- 2. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 3. Remove fixing screws (C), and then remove intake door motor from blower unit assembly.

: Vehicle front



INSTALLATION

Install in the reverse order of removal.

REAR MODE DOOR MOTOR

REAR MODE DOOR MOTOR: Removal and Installation

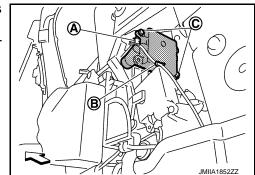
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REMOVAL

1. Remove luggage side lower finisher RH. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER Removal and Installation".

- 2. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 3. Remove fixing screws (C), and then remove rear mode door motor from rear A/C unit assembly.

: Vehicle front



INSTALLATION

Install in the reverse order of removal.

REAR AIR MIX DOOR MOTOR

REAR AIR MIX DOOR MOTOR: Removal and Installation

INFOID:0000000011325805

REMOVAL

1. Set the temperature at 18°C (64°F).

CAUTION:

The angle may be out, when installing the air mix door motor to the air mix door, unless the above procedure is performed.

- Disconnect the battery cable from the negative terminal.
- 3. Remove luggage side lower finisher RH. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER: Removal and Installation".

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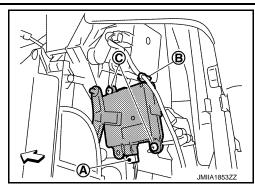
HAC-153 Revision: 2014 August **2015 QUEST**

DOOR MOTOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

- 4. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 5. Remove fixing screws (C), and then remove rear air mix door motor from rear A/C unit assembly.



INSTALLATION

Install in the reverse order of removal.

IONIZER

Exploded View

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Refer to VTL-8, "Exploded View".

Removal and Installation

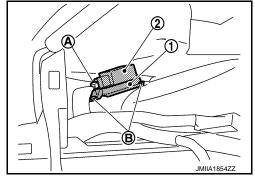
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Removal

- 1. Remove BCM. Refer to BCS-98, "Removal and Installation".
- 2. Disconnect harness connector (A).
- 3. Remove fixing clips (B), and then remove ionizer bracket (1) and ionizer (2) as a set.

CAUTION:

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



INSTALLATION

Note the following item, and then 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.

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PRECAUTION

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.

Precautions for Removing Battery Terminal

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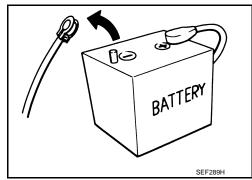
 When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
 NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.



After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
 NOTE:

The removal of 12V battery may cause a DTC detection error.

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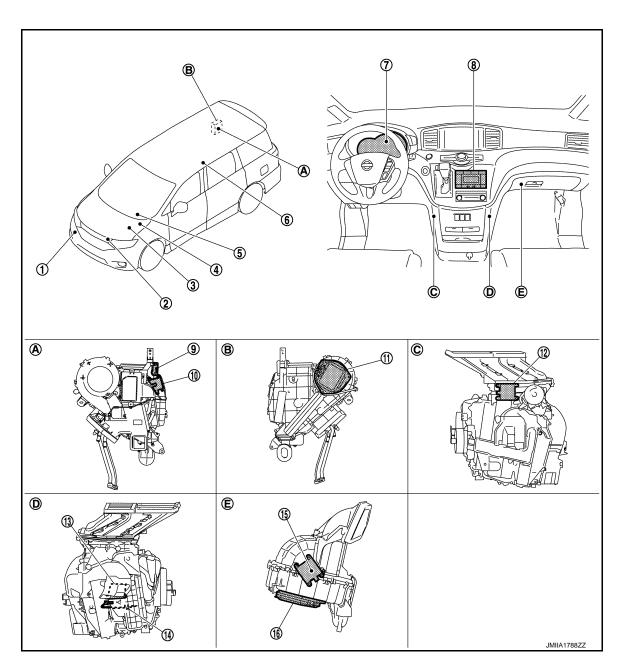
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INFOID:0000000011325810

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- A. Left side of rear A/C unit assembly
- B. Right side of rear A/C unit assembly C.
- Left side of heater & cooling unit assembly

- D. Right side of heater & cooling unit assembly
- E. Right side of blower unit assembly

No.	Component	Function
1.	Magnet clutch	HAC-161, "Magnet Clutch"
2.	Refrigerant pressure sensor	HAC-160, "Refrigerant Pressure Sensor"

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

No.	Component	Function
3.	ECM	ECM, when receiving A/C ON signal and blower fan ON signal from BCM, transmits A/C compressor request signal to IPDM E/R via CAN communication according to status of the engine and refrigerant pressure. ECM transmits engine coolant temperature signal to combination meter via CAN communication line. Refer to EC-16, "ENGINE CONTROL SYSTEM: Component Parts Location" for detailed installation location.
4.	IPDM E/R	A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when receiving A/C compressor request signal from ECM via CAN communication line. Refer to PCS-4, "IPDM E/R: Component Parts Location" for detailed installation location.
5.	ВСМ	BCM transmits A/C ON signal and blower fan ON signal, received from A/C amp., to ECM via CAN communication line. Refer to BCS-4, "BODY CONTROL SYSTEM: Component Parts Location" for detailed installation location.
6.	Rear A/C control	HAC-160, "Rear A/C Control"
7.	Combination meter	Combination meter transmits engine coolant temperature signal to A/C amp.
8.	Front A/C control (A/C amp.)	HAC-160, "Front A/C Control (A/C Amp.)"
9.	Rear mode door motor	HAC-159, "REAR A/C UNIT ASSEMBLY : Rear Mode Door Motor"
10.	Rear air mix door motor	HAC-159, "REAR A/C UNIT ASSEMBLY : Rear Air Mix Door Motor"
11.	Rear blower motor	HAC-160, "REAR A/C UNIT ASSEMBLY : Rear Blower Motor"
12.	Front mode door motor	HAC-159, "HEATER & COOLING UNIT ASSEMBLY : Front Mode Door Motor"
13.	Front air mix door motor	HAC-159, "HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor"
14.	Intake sensor	HAC-159, "HEATER & COOLING UNIT ASSEMBLY : Intake Sensor"
15.	Intake door motor	HAC-158, "BLOWER UNIT ASSEMBLY : Intake Door Motor"
16.	Front blower motor	HAC-158, "BLOWER UNIT ASSEMBLY : Front Blower Motor"

BLOWER UNIT ASSEMBLY

BLOWER UNIT ASSEMBLY: Intake Door Motor

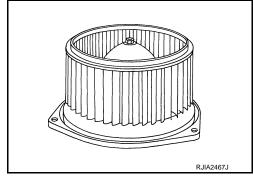
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- Intake door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door
 position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C amp.
 Refer to HAC-164, "FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to intake door, then air inlet is switched.

BLOWER UNIT ASSEMBLY: Front Blower Motor

INFOID:0000000011325812

- The front blower motor utilizes a brush-less motor with a rotating magnet. Quietness is improved over previous motors that rotates coil while brush functions as contact points.
- Rotation speed is changed according to front blower motor control signal (duty ratio) from A/C amp.

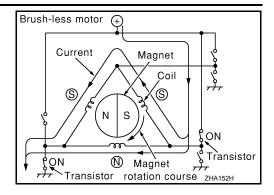


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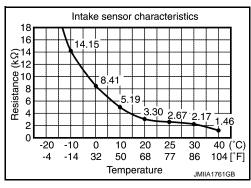
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HEATER & COOLING UNIT ASSEMBLY

HEATER & COOLING UNIT ASSEMBLY: Intake Sensor

Intake sensor measures front evaporator fin temperature. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



HEATER & COOLING UNIT ASSEMBLY: Front Air Mix Door Motor

INFOID:0000000011325814

INFOID:0000000011325815

INFOID:0000000011325813

- Front air mix door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C amp. Refer to HAC-164, "FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to front air mix door, then air flow temperature is switched.

HEATER & COOLING UNIT ASSEMBLY: Front Mode Door Motor

- Front mode door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door
 position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C amp.
 Refer to HAC-164, "FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to front mode door (ventilator door, max. cool door, defroster door and foot door) by lever, link, and rod, then air outlet is switched.

REAR A/C UNIT ASSEMBLY

REAR A/C UNIT ASSEMBLY: Rear Air Mix Door Motor

INFOID:0000000011325816

- Rear air mix door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects
 door position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C
 amp. Refer to HAC-164, "FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control".
- Rotation of motor is transmitted to rear air mix door by lever, then air flow temperature is switched.

REAR A/C UNIT ASSEMBLY: Rear Mode Door Motor

INFOID:0000000011325817

Rear mode door motor consists of motor that drives door, PBR (Potentio Balance Register) that detects door
position and LCU (Local Control Unit) that performs multiplex communication control (LAN) with A/C amp.
Refer to HAC-164, "FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control".

HAC-159

• Rotation of motor is transmitted to rear mode door by lever, then air outlet is switched.

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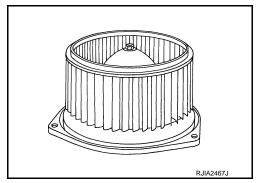
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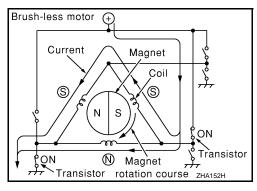
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REAR A/C UNIT ASSEMBLY: Rear Blower Motor

- The rear blower motor utilizes a brush-less motor with a rotating magnet. Quietness is improved over previous motors that rotates coil while brush functions as contact points.
- Rotation speed is changed according to rear blower motor control signal (duty ratio) from A/C amp.

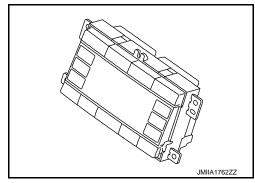




Front A/C Control (A/C Amp.)

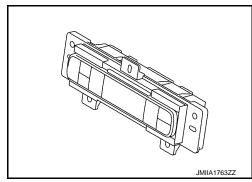
Front A/C control has switches and display that can set and indicate the operation of front manual air conditioning system.

 Front A/C control integrates A/C amp. A/C amp. controls front manual air conditioning system, by receiving and calculating signal from each sensor and switch. A/C amp. has self-diagnosis function. Diagnosis of air conditioning system can be performed quickly.



Rear A/C Control

Rear A/C control has switches and display that can set and indicate the operation of rear manual air conditioning system. Rear A/C control transmits setting status to A/C amp. via communication line. A/C amp. controls rear manual air conditioning system.

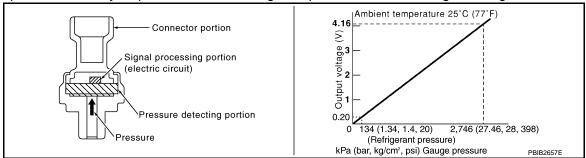


Refrigerant Pressure Sensor

INFOID:0000000011325821

DESCRIPTION

 The refrigerant pressure sensor converts high-pressure side refrigerant pressure into voltage and transmits it to ECM. • ECM operates cooler cycle protection and cooling fan 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 areas 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.

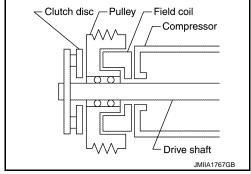
Magnet Clutch

Compressor is driven by the magnet clutch which is magnetized by electric power supply.

STRUCTURE AND OPERATION

DESCRIPTION

- · Magnet clutch consists of pulley, clutch disc, and field coil.
- Pulley is connected with crankshaft pulley of engine via drive belt and is always rotated while engine is running.
- Clutch disc is connected with drive shaft of compressor.
- Field coil, which becomes a strong electric magnet when electricity is supplied, strongly pulls clutch disc and pressed it to pulley.
- When A/C relay integrated in IPDM E/R turns ON, electricity is supplied to field coil, clutch disc is pressed to pulley, and engine rotational movement is transmitted from crankshaft pulley ⇒ drive belt ⇒ pulley ⇒ clutch disc ⇒ drive shaft. Compressor is operated. When A/C relay turns OFF, electricity is not supplied to field coil, and clutch disc is released from pulley. Compressor is not operated.



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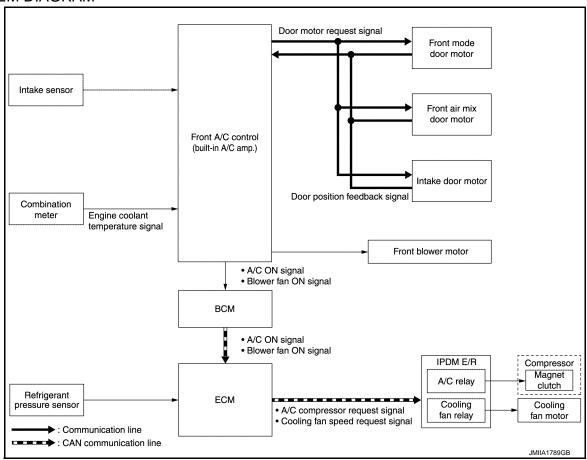
SYSTEM

FRONT MANUAL AIR CONDITIONING SYSTEM

FRONT MANUAL AIR CONDITIONING SYSTEM: System Description

INFOID:0000000011325823

SYSTEM DIAGRAM



DESCRIPTION

- Front manual air conditioning system is controlled by each function of A/C amp., BCM, ECM and IPDM E/R.
- Each operation of front air conditioning can be controlled by front A/C control (built-in A/C amp.).

CONTROL BY A/C AMP.

- HAC-163, "FRONT MANUAL AIR CONDITIONING SYSTEM: Air Flow Control"
- HAC-163, "FRONT MANUAL AIR CONDITIONING SYSTEM: Air Inlet Control"
- HAC-163, "FRONT MANUAL AIR CONDITIONING SYSTEM: Compressor Control"
- HAC-164, "FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control"
- · Correction for input value

Intake temperature correction

- A/C amp. inputs the temperature detected by intake sensor as the intake temperature (front evaporator temperature).
- A/C amp. performs the correction of the temperature detected by intake sensor for front air conditioning control.
- A/C amp. performs the correction so that the recognition intake temperature changes depending on the difference between the detected intake temperature and the recognition intake temperature. If the difference is large, the changing is early. The changing becomes slow as the difference becomes small.

CONTROL BY BCM

HAC-163, "FRONT MANUAL AIR CONDITIONING SYSTEM: Compressor Control"

CONTROL BY ECM

HAC-163, "FRONT MANUAL AIR CONDITIONING SYSTEM: Compressor Control"

< SYSTEM DESCRIPTION >

• Cooling fan control. Refer to EC-46, "COOLING FAN CONTROL: System Description".

CONTROL BY IPDM E/R

- HAC-163, "FRONT MANUAL AIR CONDITIONING SYSTEM: Compressor Control"
- Cooling fan control. Refer to PCS-5, "RELAY CONTROL SYSTEM: System Description".

FRONT MANUAL AIR CONDITIONING SYSTEM: Air Flow Control

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DESCRIPTION

- A/C amp. changes duty ratio of front blower motor control signal to control air flow continuously. When air flow is increased, duty ratio of front blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control, air flow control is compose of fan speed control at door motor operation.

FAN SPEED CONTROL AT DOOR MOTOR OPERATION

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

FRONT MANUAL AIR CONDITIONING SYSTEM: Air Inlet Control

INFOID:0000000011325825

A/C amp. controls air inlet to fresh air intake (FRE), when engine coolant temperature is 105°C (221°F) or more.

FRONT MANUAL AIR CONDITIONING SYSTEM: Compressor Control

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DESCRIPTION

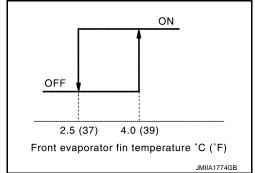
- When the compressor activation condition is satisfied while front blower motor is activated, A/C amp. transmits A/C ON signal and blower fan ON signal to BCM.
- BCM transmits the A/C ON signal and blower fan ON signal to ECM via CAN communication line. Refer to BCS-12, "SIGNAL BUFFER SYSTEM: System Description".
- ECM judges the conditions of each sensor (refrigerant pressure sensor signal, accelerator position signal, etc.), and transmits the A/C compressor request signal to IPDM E/R via CAN communication line.
- By receiving the A/C compressor request signal from ECM, IPDM E/R turns the A/C relay to ON, and activates the compressor. Refer to PCS-5, "RELAY CONTROL SYSTEM: System Description".

CONTROL BY A/C AMP.

Low Temperature Protection Control

When intake sensor detects that front evaporator fin temperature is 2.5°C (37°F) or less, A/C amp. requests ECM to turn the compressor OFF, and stops the compressor.

When the front evaporator fin temperature returns to 4.0°C (39°F) or more, the compressor is activated.



CONTROL BY ECM

Compressor Protection Control at Pressure Malfunction

When the high-pressure side value that is detected by refrigerant pressure sensor is as per the following state, ECM requests IPDM E/R to turn A/C relay OFF and stops the compressor.

- 3.12 MPa (31.8 kg/cm², 452 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.9 kg/cm², 397 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.4 kg/cm², 20 psi) or less

Compressor Oil Circulation Control

When the engine starts while the engine coolant temperature is 56°C (133°F) or less, ECM activates the compressor for approximately 6 seconds and circulates the compressor oil once.

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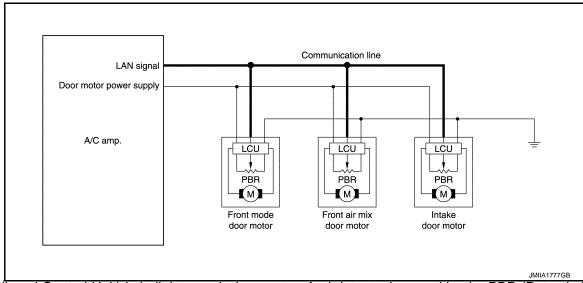
Air Conditioning Cut Control

When the engine condition is high load, ECM transmit A/C relay OFF request to IPDM E/R, and stops the compressor. Refer to EC-44, "AIR CONDITIONING CUT CONTROL: System Description".

FRONT MANUAL AIR CONDITIONING SYSTEM: Door Control

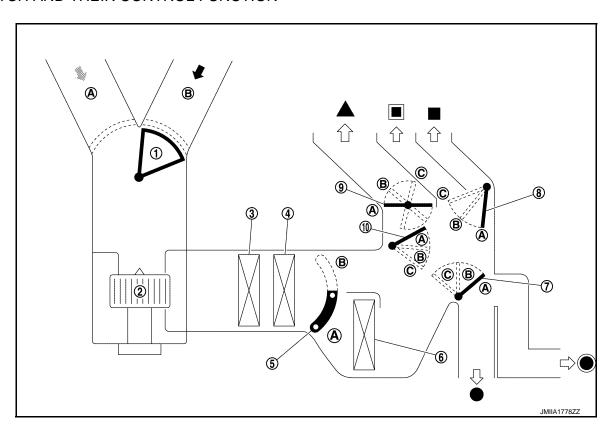
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DOOR MOTOR CONTROL



- LCU (Local Control Unit) is built into each door motor. And detects door position by PBR (Potentio Balance Resistor).
- A/C amp. communicates with each LCU via communication line. And receives each door position feedback signal from each LCU.
- Each LCU controls each door to the appropriate position depending on the control signal from A/C amp.
- Each LCU transmits the signal of door movement completion to A/C amp., when the door movement is completed.

SWITCH AND THEIR CONTROL FUNCTION



SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

- 1. Intake door
- Front evaporator 4.
- 7. Foot door
- 10. Max. cool door
- Fresh air
- Defroster
- Front foot

- 2. Front blower motor
- Front air mix door
- Ventilator door
- Recirculation air
- Center ventilator
- Rear foot

- 3. In-cabin microfilter
- 6. Front heater core
- Defroster door

Discharge air

Side ventilator

					Doc	r position		
Switch position			Front mode door					oor
			Ventilator door	Max. cool door	Defroster door	Foot door	Intake door	Front air mix door
	•	·;	Α	Α	Α	Α		
MODE switch	? ?		В	В	Α	В		
MODE SWIGH			С	С	В	В	_	
			С	В	В	В		_
DEF switch	W		С	Α	С	С		
REC switch	٩						А	
FRE switch	8		_	_	_	_	В	
Temperature control switch	Full cold							Α
remperature control switch	Full hot						_	В
ON-OFF switch	OFF		С	С	В	В		_

AIR DISTRIBUTION

	Discharge air flow					
MODE/DEF set po- sition	Ventilator		Foot		Defeates	
omor:	Center	Side	Front	Rear	Defroster	
7	50%	50%	_		_	
Ÿ	26%	30%	30%	14%	_	
· i	_	14%	40%	16.5%	29.5%	
₩):	_	14%	35%	16%	35%	
₩	_	12%	-	_	88%	

HAC-165 Revision: 2014 August **2015 QUEST**

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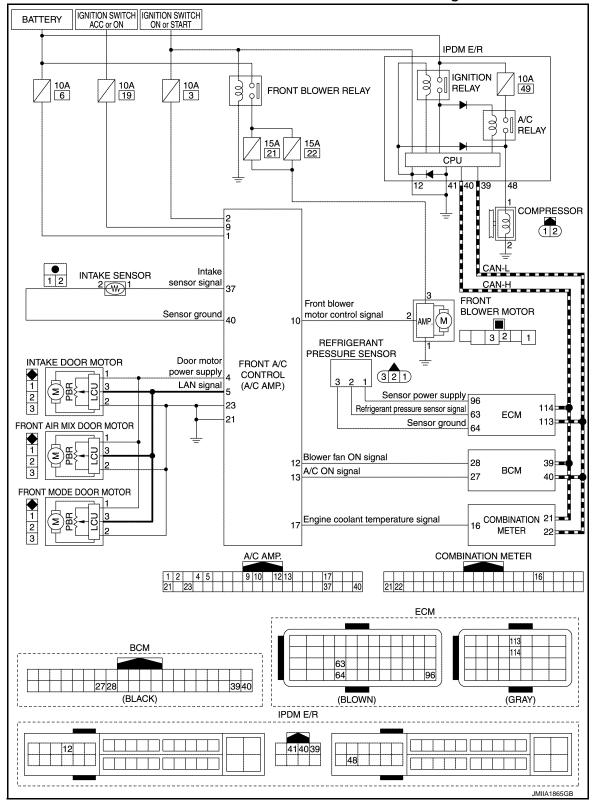
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FRONT MANUAL AIR CONDITIONING SYSTEM: Circuit Diagram

INFOID:0000000011325828



REAR MANUAL AIR CONDITIONING SYSTEM

REAR MANUAL AIR CONDITIONING SYSTEM: System Description

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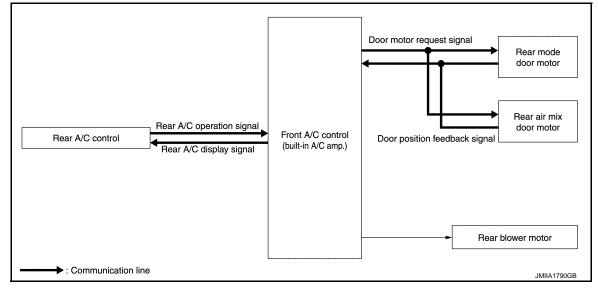
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SYSTEM DIAGRAM



DESCRIPTION

- Rear manual air conditioning system is controlled by each function of A/C amp.
- Each operation of rear manual air conditioning can be controlled by front A/C control (built-in A/C amp.) and rear A/C control.

CONTROL BY A/C AMP.

- HAC-167, "REAR MANUAL AIR CONDITIONING SYSTEM: Air Flow Control"
- HAC-168, "REAR MANUAL AIR CONDITIONING SYSTEM: Door Control"

REAR MANUAL AIR CONDITIONING SYSTEM: Air Flow Control

INFOID:0000000011325830

DESCRIPTION

- A/C amp. changes duty ratio of rear blower motor control signal to control air flow continuously. When air flow is increased, duty ratio of rear blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control, air flow control is compose of fan speed control at door motor operation.

FAN SPEED CONTROL AT DOOR MOTOR OPERATION

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

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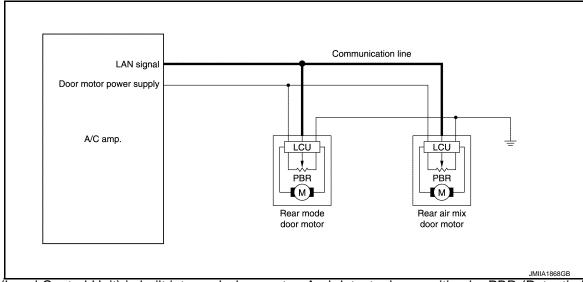
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REAR MANUAL AIR CONDITIONING SYSTEM: Door Control

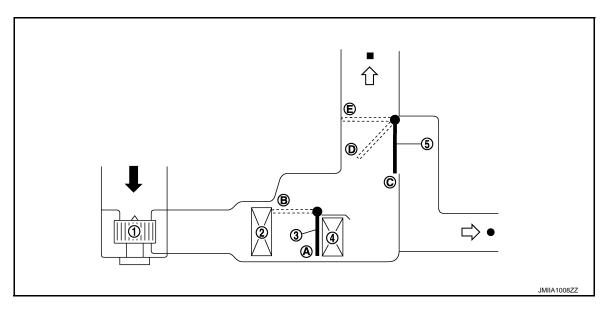
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DOOR MOTOR CONTROL



- LCU (Local Control Unit) is built into each door motor. And detects door position by PBR (Potentio Balance Resistor).
- A/C amp. communicates with each LCU via communication line. And receives each door position feedback signal from each LCU.
- Each LCU controls each door to the appropriate position depending on the control signal from A/C amp.
- Each LCU transmits the signal of door movement completion to A/C amp., when the door movement is completed.

SWITCHES AND THEIR CONTROL FUNCTION



- Rear blower motor
- Rear heater core
- Recirculation air
- Rear ventilator

- 2. Rear evaporator
- 5. Rear mode door
- Discharge air
- Rear foot

3. Rear air mix door

[MANUAL AIR CONDITIONING]

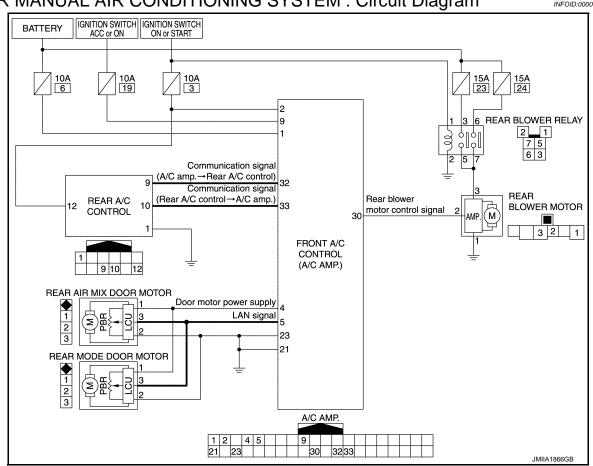
Switch position			Door position		
			Rear mode door	Rear air mix door	
	٦ ت ن		С		
MODE switch			D	_	
			E		
Temperature control switch (front A/C control) or temperature control switch (rear A/C control)		Full cold		A	
		Full hot	_	В	
ON-OFF switch (front A/C control)		OFF	E		
OFF switch (rear A/C control)		OFF		_	

AIR DISTRIBUTION

Discharge air flow			
Mode position	Air outlet/distribution		
wode position	Rear ventilator	Rear foot	
7	100%	_	
Ÿ	62%	38%	
ij	_	100%	

REAR MANUAL AIR CONDITIONING SYSTEM: Circuit Diagram

INFOID:0000000011325832



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OPERATION

FRONT MANUAL AIR CONDITIONING SYSTEM

FRONT MANUAL AIR CONDITIONING SYSTEM: Switch Name and Function

INFOID:0000000011325833

OPERATION AND DISPLAY OF FRONT MANUAL AIR CONDITIONING SYSTEM

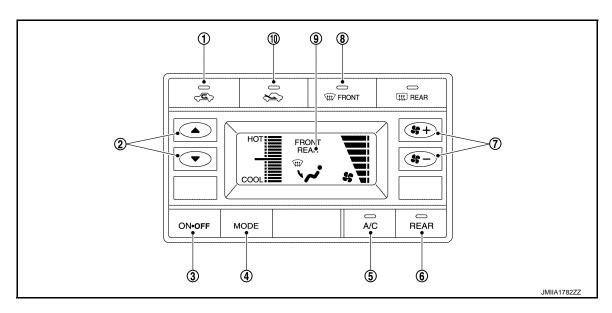
Display: Display in front A/C control

- Front air conditioning operation status is indicated on display in front A/C control.
- Front air conditioning status display screen is indicated when MODE switch is pressed while front air conditioning is OFF.

NOTE:

"REAR" is indicated on display while rear air conditioning operation screen is indicated.

Operation: Front A/C control



- 1. REC switch
- 4. MODE switch
- 7. Fan switch
- 10. FRE switch

- 2. Temperature control switch
- 5. A/C switch
- 8. DEF switch

- 3. ON-OFF switch
- 6. REAR switch
- 9. Display

Switch name	Function
REC switch	Switch indicator turns ON and air inlet is set to recirculation (REC), when this switch is pressed. NOTE: Air inlet can be changed when front air conditioning is in OFF status. REC switch operation is not accepted when air outlet is D/F or DEF. REC switch operation is not accepted when engine coolant temperature is 105°C (221°F) or more. A/C switch turns ON when REC switch is turned ON while A/C switch is OFF.
Temperature control switch	Air flow temperature can be adjusted according to switch operation. • Press ▲: Air flow temperature increases • Press ▼: Air flow temperature decreases NOTE: When front air conditioning is OFF, air flow temperature can be adjusted only while front air conditioning status screen (only when MODE switch is pressed) is indicated.
ON-OFF switch	 Front air conditioning turns ON ⇔ OFF each time this switch is pressed. Front air conditioning turns OFF, when this switch is pressed while front air conditioning is ON. Front air conditioning turns ON and operates according to the settings set before front air conditioning is turned OFF, when this switch is pressed while front air conditioning is OFF.

[MANUAL AIR CONDITIONING]

Switch name	Function			
MODE switch	Air outlet changes from VENT \Rightarrow B/L \Rightarrow FOOT \Rightarrow D/F \Rightarrow VENT each time this switch is pressed. NOTE: Air outlet can be changed when front air conditioning is in OFF status.			
A/C switch	Compressor control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while front blower motor is operated. NOTE: A/C switch cannot be turned ON when front blower motor is OFF. A/C switch cannot be turned OFF when air outlet is D/F or DEF. Air inlet changes to fresh air intake when A/C switch is turned OFF while air inlet is set to recirculation.			
Fan switch	 Air flow can be set within a range between 1st – 7th speed according to switch operation. Press \$+: Air flow increases Press \$-: Air flow decreases Front air conditioning turns ON and operates according to the following status, when this switch is pressed while front air conditioning is OFF. Air outlet: Settings set before fan switch is pressed Air flow: 1st Air inlet: Settings set before fan switch is pressed A/C switch: Settings set before front air conditioning is turned OFF 			
DEF switch	 DEF mode (switch indicator) changes between ON ⇔ OFF each time switch is pressed. When this switch is pressed while front air conditioning is ON Front air conditioning becomes the following status when DEF mode is turned ON. Air outlet: DEF Air flow: Settings set before DEF mode is turned ON Air inlet: Fresh air intake A/C switch: ON Only air outlet returns to the settings set before DEF mode is turned ON, when DEF mode is turned OFF. When this switch is pressed while front air conditioning is OFF Front air conditioning turns ON and operates in the following status, when DEF mode is turned ON. Air outlet: DEF Air flow: 7th Air inlet: Fresh air intake A/C switch: ON Only air outlet returns to the settings set before DEF mode is turned ON, when DEF mode is turned OFF. 			
FRE switch	Switch indicator turns ON and air inlet is set to fresh air intake (FRE), when this switch is pressed. NOTE: Air inlet can be changed when front air conditioning is in OFF status. FRE switch operation is not accepted when engine coolant temperature is 105°C (221°F) or more.			

NOTE:

The following switches are not necessary for front air conditioning system operation.

REAR switch	Refer to HAC-171, "REAR MANUAL AIR CONDITIONING SYSTEM: Switch Name and Function".
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REAR MANUAL AIR CONDITIONING SYSTEM

REAR MANUAL AIR CONDITIONING SYSTEM: Switch Name and Function

INFOID:0000000011325834

OPERATION AND DISPLAY OF REAR MANUAL AIR CONDITIONING SYSTEM

- Rear air conditioning operation status is indicated on display in front A/C control and rear A/C control.
- Rear air conditioning can be operated from front seat (front A/C control) and rear seat (rear A/C control).

Rear air conditioning is operative only when front air conditioning is ON.

FRONT A/C CONTROL OPERATION

Display: Display in front A/C control

Rear air conditioning operation status is indicated on display in front A/C control.

HAC-171 Revision: 2014 August **2015 QUEST**

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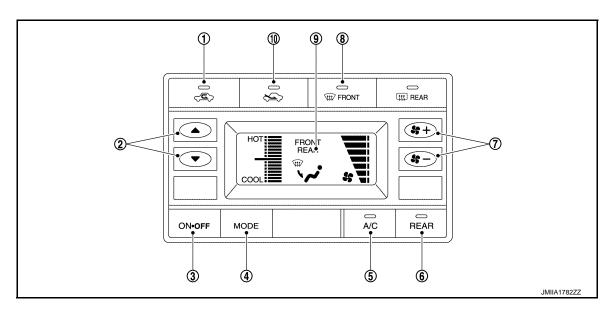
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- Front A/C control changes to rear air conditioning operation screen when REAR switch is pressed while front air conditioning is ON. "REAR" is indicated on display in front A/C control display. The status continues for 10 seconds, and during this period of time, rear air conditioning setting can be set using front A/C control.
- When 10 seconds are passed, front A/C control returns to front air conditioning operation screen and "REAR" on front A/C control display turns OFF and "FRONT" is indicated. In this case, rear air conditioning setting can be set using rear A/C control.

Operation: Front A/C control



- 1. REC switch
- 4. MODE switch
- 7. Fan switch
- 10. FRE switch

- 2. Temperature control switch
- 5. A/C switch
- 8. DEF switch

- . ON-OFF switch
- 6. REAR switch
- 9. Display

Switch name	Function
Temperature control switch	 Air flow temperature can be adjusted according to switch operation. Press ▲: Air flow temperature increases Press ▼: Air flow temperature decreases
ON-OFF switch	 Front air conditioning operation screen ("FRONT" is indicated) Rear air conditioning turns OFF simultaneously with front air conditioning, when this switch is pressed while rear air conditioning is ON. Rear air conditioning turns ON simultaneously with front air conditioning, and operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed again. Rear air conditioning operation screen ("REAR" is indicated) Rear air conditioning turns OFF and front A/C control returns to front air conditioning operation screen ("FRONT" is indicated) after 0.5 seconds, when this switch is pressed while rear air conditioning is ON. Rear air conditioning operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed again. A/C switch simultaneously turns ON when A/C switch is OFF.
MODE switch	Air outlet changes from VENT \Rightarrow B/L \Rightarrow FOOT \Rightarrow VENT each time this switch is pressed.
A/C switch	 When this switch is pressed, rear air conditioning becomes the following status according to the setting status of air outlet. Rear air conditioning turns OFF simultaneously with compressor control (A/C switch indicator), when this switch is pressed while the setting of air outlet is VENT or B/L. Compressor control (A/C switch indicator) turns OFF but rear air conditioning remains ON, when this switch is pressed while the setting of air outlet is FOOT.

[MANUAL AIR CONDITIONING]

Switch name	Function		
REAR switch	 Front A/C control changes between front air conditioning operation screen ("FRONT" is indicated) ⇔ rear air conditioning operation screen ("REAR" is indicated), each time this switch is pressed while rear air conditioning is ON. Rear air conditioning turns ON simultaneously with compressor control (A/C switch indicator) and operates according to the previous setting before rear air conditioning is turned OFF, when this switch is pressed while rear air conditioning is OFF. NOTE: Switch operation is not accepted when front air conditioning is OFF. 		
Fan switch	Air flow can be set within a range between 1st – 7th speed according to switch operation. • Press \$\frac{4}{3}\to : Air flow increases • Press \$\frac{4}{3}\to : Air flow decreases		
DEF switch	Rear air conditioning turns ON simultaneously with front air conditioning and operates according to the settings set before rear air conditioning is turned OFF, when this switch is pressed after rear air conditioning is turns OFF simultaneously with front air conditioning by ON-OFF switch in previous operation.		

NOTE:

The following switches are not necessary for rear air conditioning system operation.

REC switch	Refer to HAC-170, "FRONT MANUAL AIR CON-
FRE switch	DITIONING SYSTEM : Switch Name and Function".

REAR A/C CONTROL OPERATION

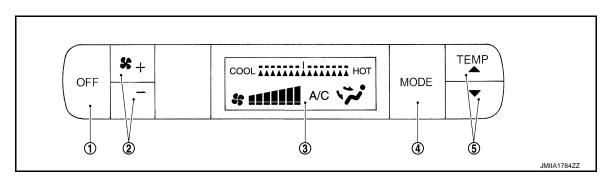
Display: Display in rear A/C control

Rear air conditioning operation status is indicated on display in rear A/C control.

Operation: Rear A/C control

Rear air conditioning becomes the following setting can be operated by rear A/C control in the following status.

- When front air conditioning is ON
- When front A/C control displays front air conditioning operation screen ("FRONT" is indicated)



1. OFF switch

2. Fan switch

Display

4. MODE switch

5. Temperature control switch

Switch name	Function				
OFF switch	Rear air conditioning turns OFF, when this switch is pressed.				
Fan switch	Air flow can be set within a range between 1st – 7th speed according to switch operation. • Press \$\displays +: Air flow increases • Press \$\displays -: Air flow decreases				
MODE switch Air outlet changes from VENT \Rightarrow B/L \Rightarrow FOOT \Rightarrow VENT each time this switch is pressured.					
Temperature control switch	 Air flow temperature can be adjusted according to switch operation. Press ▲: Air flow temperature increases Press ▼: Air flow temperature decreases 				

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DIAGNOSIS SYSTEM (A/C AMP.)

Description INFOID:000000011325835

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

ECU	Diagnostic item (CONSULT)		
A/C amp.	On board diagnosis function		
BCM	ROM AID CONDITIONED	Self Diagnostic Result	
BCIVI	BCM-AIR CONDITIONER	Data Monitor	
ECM	@ F. LOWE	Self Diagnostic Result	
ECIVI	ENGINE	Data Monitor	
	@IDDM 5 /D	Self Diagnostic Result	
IPDM E/R	PIPDM E/R	Data Monitor	
	Auto active test		

On Board Diagnosis Function

INFOID:0000000011325836

ON BOARD DIAGNOSIS ITEM

On board diagnosis function of A/C amp. consists of steps 1. Indicator check can be performed by step 1.

Diagnosis item	Diagnosis content	Diagnosis part	
STEP 1: Indicator check	Switch indicator and display indication are checked.	Front A/C control (A/C amp.) Rear A/C control	

METHOD OF STARTING

Self-diagnosis Mode Entry

The self-diagnosis is started by pressing the ON-OFF switch for 5 seconds or more within 10 seconds after starting engine.

Self-diagnosis Cancellation

By pressing DEF switch or turning ignition switch OFF, the self-diagnosis is canceled.

STEP 1: INDICATOR CHECK

Description

Front A/C control (switch indicator and display) and rear A/C control (display) indication are checked.

Normal: All switch indicator and display indication are turned ON.

Malfunction: Malfunctioning part indicator is not turned ON.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

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APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description	
Work Support	Changes the setting for each system function.	
Self Diagnostic Result	Displays the diagnosis results judged by BCM.	
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.	
Data Monitor	The BCM input/output signals are displayed.	
Active Test	The signals used to activate each device are forcibly supplied from BCM.	
Ecu Identification	The BCM part number is displayed.	
Configuration	 Read and save the vehicle specification. Write the vehicle specification when replacing BCM. 	

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

It can perform the diagnosis modes except the following for all sub system selection items.

×: Applicable item

System	Sub avetem colonian item	Diagnosis mode			
System	Sub system selection item	Work Support	Data Monitor	Active Test	
Door lock	DOOR LOCK	×	×		
Rear window defogger	REAR DEFOGGER		×	×	
Warning chime	BUZZER		×	×	
Interior room lamp control system	INT LAMP	×	×	×	
Exterior lamp	HEAD LAMP	×	×	×	
Wiper and washer	WIPER	×	×	×	
Turn signal and hazard warning lamps	FLASHER	×	×	×	
Air conditioning control system	AIR CONDITONER		×	×*	
Intelligent Key systemEngine start system	INTELLIGENT KEY	×	×	×	
Combination switch	COMB SW		×		
Body control system	BCM	×			
NVIS	IMMU	×	×	×	
Interior room lamp battery saver	BATTERY SAVER	×	×	×	
Back door open	TRUNK		×		
Vehicle security system	THEFT ALM	×	×	×	
RAP system	RETAINED PWR		×		
Signal buffer system	SIGNAL BUFFER		×	×	
TPMS	AIR PRESSURE MONITOR	×	×	X	

NOTE

FREEZE FRAME DATA (FFD)

The BCM records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

Revision: 2014 August HAC-175 2015 QUEST

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^{*:} For models with automatic air conditioning control system, this diagnosis mode is not used.

< SYSTEM DESCRIPTION >

CONSULT screen item	Indication/Unit	Description				
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected				
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected				
	SLEEP>LOCK		While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (LOCK)]			
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (OFF)]			
	LOCK>ACC		While turning power supply position from OFF (LOCK) to ACC			
	ACC>ON		While turning power supply position from ACC to ON			
	RUN>ACC		While turning power supply position from RUN to ACC (Except emergency stop operation)			
	CRANK>RUN		While turning power supply position from CRANK to RUN			
	RUN>URGENT	Power position status of the moment a particular DTC is detected*	While turning power supply position from RUN to ACC (Emergency stop operation)			
	ACC>OFF		While turning power supply position from ACC to OFF (OFF)			
Vehicle Condition	OFF>LOCK		While turning power supply position from OFF (OFF) to OFF (LOCK)			
	OFF>ACC		While turning power supply position from OFF (OFF) to ACC			
	ON>CRANK		While turning power supply position from ON to CRANK			
	OFF>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (OFF)] to low power consumption mode			
	LOCK>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (LOCK)] to low power consumption mode			
	LOCK		Power supply position is OFF (LOCK)			
	OFF		Power supply position is OFF (OFF)			
	ACC		Power supply position is ACC			
	ON		Power supply position is ON			
	ENGINE RUN		Power supply position is RUN			
	CRANKING		Power supply position is CRANK			
IGN Counter	0 - 39	 The number of times that ignition switch is turned ON after DTC is detected The number is 0 when a malfunction is detected now. The number increases like 1 → 2 → 338 → 39 after returning to the normal condit whenever ignition switch OFF → ON. The number is fixed to 39 until the self-diagnosis results are erased if it is over 39. 				

NOTE:

- *: Refer to the following for details of the power supply position.
- OFF (OFF, LOCK): Ignition switch OFF
- ACC: Ignition switch ACC
- IGN: Ignition switch ON with engine stopped
- RUN: Ignition switch ON with engine running
- CRANK: At engine cranking

Power supply position shifts to "OFF (LOCK)" from "OFF (OFF)", when ignition switch is in the OFF position, shift position is in the P position, and any of the following conditions are met.

- Closing door
- · Opening door
- · Door is locked using door request switch
- · Door is locked using Intelligent Key

The power supply position shifts to "ACC" when the push-button ignition switch (push switch) is pushed at "OFF (LOCK)".

AIR CONDITIONER

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

AIR CONDITIONER: CONSULT Function (BCM - AIR CONDITIONER) (Manual A/C)

INFOID:0000000011325838

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DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Display Item List

Monitor Item [Unit]		Contents
FAN ON SIG [On/Off]		Displays the status of blower fan ON signal received from A/C amp.
AIR COND SW [On/Off]		Displays the status of A/C ON signal received from A/C amp.

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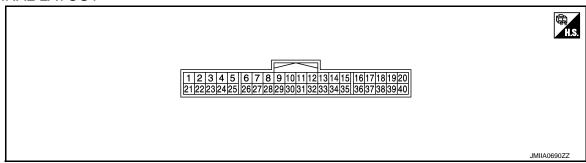
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ECU DIAGNOSIS INFORMATION

A/C AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Valua
+	_	Signal name	Input/ Output	Condition	Value
1 (P)	Ground	Battery power supply	_	Ignition switch OFF	11 – 14 V
2 (G)	Ground	Ignition power supply	_	Ignition switch ON	11 – 14 V
4 (SB)	Ground	Door motor power supply	Output	Ignition switch ON	9.5 – 13.5 V
5 (BR)	Ground	LAN signal	Input/ Output	Ignition switch ON	(V) 15 10 5 0
9 (GR)	Ground	ACC power supply	_	Ignition switch ON	11 – 14 V
10 (W)	Ground	Front blower motor control signal	Output	Ignition switch ON Front fan speed: 1st speed (manual)	(V) 6 4 2 0
12	Ground	Blower fan ON signal	Output	Ignition switch ON Front blower motor: OFF	11 – 14 V
(BE)		Signal Outp	2 3.4	 Ignition switch ON Front blower motor: ON	0 – 0.5 V

A/C AMP.

[MANUAL AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value	
+	_	Signal name	Input/ Output	Condition	value	
13 (G) Ground	ound A/C ON signal	I A/C ON signal Outp	Ignition switch ON A/C switch: OFF (A/C indicator: OFF) Output	(V) 15 10 5 0 + 10ms PKIB4960J		
				Ignition switch ON A/C switch: ON (A/C indicator: ON)	0 – 0.5 V	
				 Ignition switch ON Engine idling Engine coolant temperature: Below 56°C (133°F) 	(V) 15 10 5 0 	
17 (G) Ground	ound Engine coolant temperature signal		Input	 Ignition switch ON Engine idling Engine coolant temperature: Between 56 – 105°C (133 – 221°F) 	(V) 15 10 5 0 	
				 Ignition switch ON Engine idling Engine coolant temperature: Above 105°C (221°F) 	(V) 15 10 5 0 	
21 (B)	Ground	Ground	_	Ignition switch ON	0 – 0.1 V	
23 (B)	Ground	Ground	_	Ignition switch ON	0 – 0.1 V	
30 (R)	Ground	Rear blower motor control signal	Output	Ignition switch ON Rear fan speed: 1st speed (manual)	(V) 6 4 2 0	

A/C AMP.

[MANUAL AIR CONDITIONING]

Termin (Wire		Description		Condition	Value
+	_	Signal name	Input/ Output	Condition	value
32 (G)	Ground	Communication signal (A/C amp. → Rear A/C control)	Output	Ignition switch ON	(V) 6 4 2 0 •••1 ms SJIA1521J
33 (W)	Ground	Communication signal (Rear A/C control → A/C amp.)	Input	Ignition switch ON	(V) 6 4 2 0 **1 ms SJIA1522J
37 (BE)	Ground	Intake sensor signal	Input	Ignition switch ON	(V) 5.0 4.0 4.0 3.0 2.0 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 (°F) JMIIA1786ZZ
40 (G)	Ground	Sensor ground	_	Ignition switch ON	0 – 0.1 V

BCM, ECM, IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

BCM, ECM, IPDM E/R

List of ECU Reference

INFOID:0000000011325840

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ECU	Reference	
	BCS-40. "Reference Value"	
BCM	BCS-62, "Fail-safe"	
DCIVI	BCS-62, "DTC Inspection Priority Chart"	
	BCS-63. "DTC Index"	
	EC-83, "Reference Value"	
ECM	EC-99, "Fail-safe"	
ECIM	EC-101, "DTC Inspection Priority Chart"	
	EC-103, "DTC Index"	
	PCS-16, "Reference Value"	
IPDM E/R	PCS-23. "Fail-safe"	
	PCS-24, "DTC Index"	

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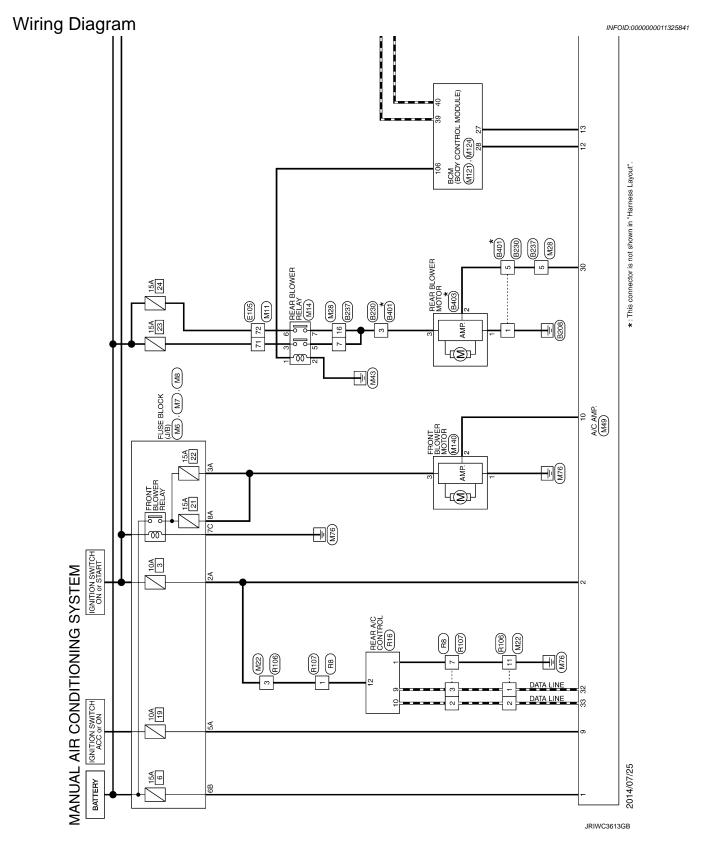
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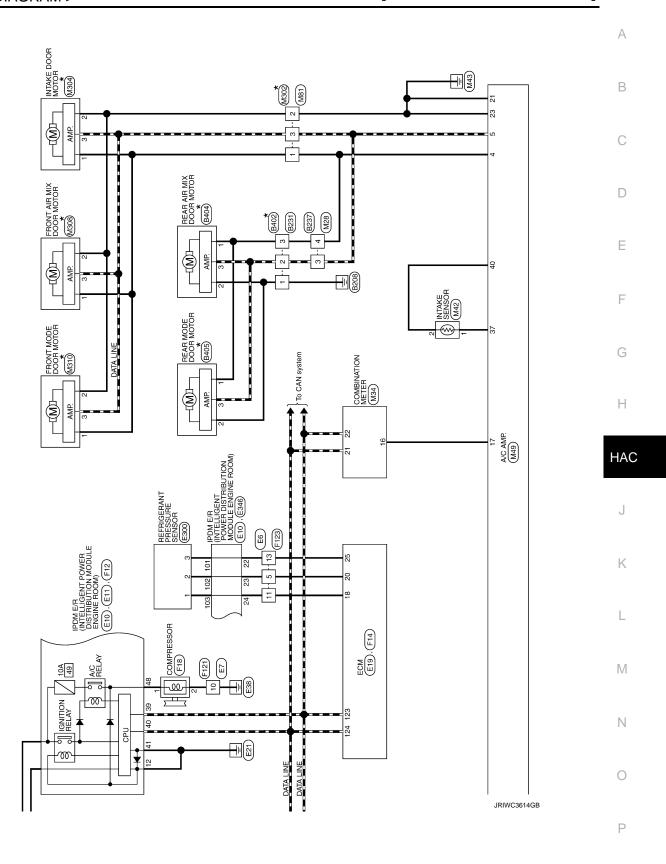
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WIRING DIAGRAM

MANUAL AIR CONDITIONING SYSTEM





MANUAL AIR CONDITIONING SYSTEM	Σ			
Connector No. B230	Connector No.	B237	Connector No. B402	Connector No. B404
Connector Name WIRE TO WIRE	Connector Name	ne WIRE TO WIRE	Connector Name WIRE TO WIRE	Connector Name REAR AIR MIX DOOR MOTOR
Connector Type M06FW-LC	Connector Type	e NS16MGY-CS	Connector Type TK03MW	Connector Type A03FW
曆	匮		歷	©
H.S. 021	H.S.	1 2 3 8 4 5 6 7 8 9 10 11 12 13 14 15 16	1123	H.S.
Terminal Color Of Signal Name [Specification]	Terminal Color Of No. Wire	r Of Signal Name [Specification]	Terminal Color Of Signal Name [Specification]	Terminal Color Of Signal Name [Specification]
1 B	- 0			1 1
LG - [With a	7 E			
- [v	4	GR -		
	2 2	LG - [With manual A/C] - [With auto A/C]	Connector No. B403	Connector No. B405
Connector No. B231	7 (October Name DEAD DI OMED MOTOED	OEAP MODE DOOR MOTOR
Connector Name WIRE TO WIRE	Н		\neg	
- 1	s ;		Connector Type NS03FW-M3	Connector Type A03FW
Connector Type TAUSEW	+		₫.	4
	12			C Artin
	H			1.5.
	H		3 2 1	~
3 2 1	16			m
]
	Connector No.	B401	Terminal Color Of	Terminal Color Of
Terminal Color Of Signal Name [Specification]	Connector Name	ne WIRE TO WIRE	No. Wire ogidal wante Lopeonication	No. Wire Olgital rente [Specification]
1 GR	Connector Type	e M06MW-LC	2 -	2
H	Q		3 –	3
2 6 6 7	第			
		4 5 6 8		
	Terminal Color Of No. Wire	olor Of Signal Name [Specification]		
	+			
	+	1		
	Ω	-		

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MANUAL AIR CONDITIONING SYSTEM

Connector No. E6	8 9	1	Connector No.	E11	143	O ACCEL	ACCELERATOR PEDAL POSITION SENSOR 2
OT JOHN OF JOHN	7 B	1	2	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODILE ENGINE	144	g	SENSOR GROUND
Name Wire 10 Wire	8 B		Connector Name	ROCM)	145	7	POWER SUPPLY FOR ECM
Connector Type TK16MGY-1V	10 B	,	Connector Type	TH08FW-NH	146	۵	SENSOR POWER SUPPLY
			֓֞֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜֜		147	В	ECM GROUND
			1		148	>	SENSOR GROUND
	Connector No.	E10	· ·	K	149	8	ECM GROUND
1 2 3 4 5 6 7	Nomes Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE	ė		150	W ACCEL	ACCELERATOR PEDAL POSITION SENSOR 1
9	Confidence INST			42 41 40 39	151	В	SENSOR GROUND
8 9 10 11 12 13 14 15 16	Connector Type	TH20FW-CS12-M4-1V		46 45 44 43	152	В	ECM GROUND
	1						
	事				٠	1000	
No Wire Signal Name [Specification]	H.S.	10 1213 28 2728 30 34 38	No Wire	Signal Name [Specification]	Connector No.	Т	
		4 5 6 7 1516 1819 20212323	t		Connector Name		WIRE TO WIRE
1			40 L	1	Connector Type	T	TH70MW-CS10-M3
· >-			41 B			1	0
>			42 SB		C C		þ,
	Terminal Color Of	L	43 LG	1	•		4
^	No. Wire	Signal Name [Specification]	44 W	-	? !		1122
	4 LG	1	45 Y	1			
-	2 ×	1	46 0	1			ii P ii
	9						
- M	7 BR	,					
- 5	10 P	-	Connector No.	E19	Terminal	Color Of	Simal Nama [Spacification]
BR -	12 B	-	Connector Name	MOH	No.	Wire	Organia regula Cobcomicación
SB	13 G	1	Ocimento Marie		-	SHIELD	1
- I	+	1	Connector Type	RH24FB-RZ8-L-LH	2	M	1
- ·	+	1	ą		ო .	8	
	+		李		4	nx	1
	+	1	S	22	9 1	D C	
Г	+			134 142 146	, (r (1
Connector No.	0 17	1)		123 139 139 143 147 151	xo c	5 >	1
Connector Name WIRE TO WIRE	+			[124128	» 5	> 0	1 1
SO MINISTONIA CO	$^{+}$				2 5	á >	1
	Ŧ		T		- 5	- 0	i ı
	$^{+}$			Signal Name [Specification]	13	0 3	1
	$^{+}$		t	GVAD CONTROL EVETEM DRESSHIPS SENSOR	2	-	
1 2 4	+		133	CAN COMMIND STORT THE COMMIND	4	1 0	1 1
) (+		+	CAN COMMUNICATION LINE (CAN-U)	2 5	L 0	1
5 6 7 8 9 10	+		+	CAN COMMONICATION LINE (CAN-FI)	2	<u>د</u>	i
11	+	-	125 W	SENSOR POWER SUPPLY	32	>	1
	36	-	+	FUEL TANK TEMPERATURE SENSOR	37	BR	1
	38 GR	-	133 BR	IGNITION SWITCH	38	ŋ	
Terminal Color Of Simal Nama [Spacification]			_	ASCD STEERING SWITCH	39	>	_
			135 BR	SENSOR GROUND	40	Ь	-
B			4	STOP LAMP SWITCH	41	٦	1
-			4	BRAKE PEDAL POSITION SWITCH	42	P	ı
1			141	EVAP CANISTER VENT CONTROL VALVE	43	0	
5							

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Revision: 2014 August HAC-185 2015 QUEST

MAN	NAL.	MANUAL AIR CONDITIONING SYSTEM	_				-	-	
46	SS	1	Connector No.		46	+	1	+	ENGINE COOLANT TEMPERATURE SENSOR
47	>	1	Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE	>		+	HEATED OXYGEN SENSOR 2 (BANK 2)
49	_	1		- 1	340)	70	1	34 L/Y	INTAKE AIR TEMPERATURE SENSOR
51	BR	1	Connector Type		TH16FW-NH	71 P		35 B	SENSOR GROUND
52	5	1				72 R/B		36 W/B	CRANKSHAFT POSITION SENSOR
53		1	1			74 LG	1	37 GR	EXHAUST VALVE TIMING CONTROL POSITION SENSOR (BANK 1)
24	٥	1	-		<u> </u>	L	1	38	MASS AIR FLOW SENSOR
22	≻	1	?		70 00 00 70	Ļ	-	39 FC	EXHAUST VALVE TIMING CONTROL POSITION SENSOR (BANK 2)
26	SHIELD				94 93 92 91	H	1	H	SENSOR GROUND
19	۵	1			105 104 103 102 101 100 99	80 B	1	41 W	HEATED OXYGEN SENSOR 2 (BANK 1)
62	9							46 SB	A/F SENSOR 1 HEATER (BANK 2)
63	N/L	1						47 R	HEATED OXYGEN SENSOR 2 HEATER (BANK 2)
94	W/R	1	Terminal	Color Of		Connector No.	F14	49 BR/W	I BLECTRONIC CONTROLLED ENGINE MOUNT CONTROL SOLENOID VALVE
99	Μ	1	Š	Wire	ognal Name [opecification]			21 F	SENSOR POWER SUPPLY
67	>	i	91	PC	i	Confidence Name		24 P/L	EVAP CANSTER PURGE VOLUME CONTROL SOLENOID VALVE
69	œ	1	92	۵	1	Connector Type	MAB35FB-MEB20-LH	55 B/Y	ECM GROUND
7.1	œ	_	93	W	_	4			
72	7		94	0	-	E			
73	GR	í	66	>	1	ŧ	1 8 111621 31364 48 51	Connector No.	F18
74	>	i	100	>	1	2	2 7 12(1722 13(3)) 47		GOSGIGGIGG
75	SB	ı	101	0	ı		3 8 13/18 238 33	Connector Name	
9/	>	1	102	σ	ı		4 9 12 13 34 38 54 54 55 55 55 55 55 55 55 55 55 55 55	Connector Type	RH02FB
17	g		103	BR				[
78	0	1	104	P				1	
80	α	1	105	œ	1	Terminal Color Of	Of Stand Name Consideration		Ē
-8	_	1				No. Wire		2 E	
82	ΓC	1				-	THROTTLE CONTROL MOTOR (CLOSE)		
83	œ	i	Connector No.	or No. F12	2	2 G/W	W THROTTLE CONTROL MOTOR POWER SUPPLY		
			Connector Name	1	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE	3 L	THROTTLE CONTROL MOTOR (OPEN))
					(MC	4 GR	SENSOR GROUND		
Connector No.	or No.	E300	Connector Type		TH20FW-CS12-M4	5 B		Terminal Color Of	PC Starred Name (Secretary)
		dogwoo rangorada Hawarolanna	[6 BR/Y	Н	No. Wire	
Connect	or Name	ACTRIGERAN PRESSURE SENSOR				7 P/B	Ή	1 W	1
Connector Type	or Type	RK03FB	•			8	-	2 B	1
9			į	<u>س ا</u>	35455555758 88707172 74787871	M 6			
	_				48 49 5152	10 B	ECM GROUND		
•		<		_		11 L/W	V FUEL INJECTOR No. 5		
Ź	<i>.</i>	«				12 LG/R	R FUEL INJECTOR No. 4		
						13 G	ENGINE OIL TEMPERATURE SENSOR		
		3/41	Terminal	Color Of	3	14 LG	ENGINE OIL PRESSURE SENSOR		
)	Š	Wire	Signal Name [Specification]	H	L		
			48	Μ	1	16 R/W	ш		
Terminal	Terminal Color Of		49	R/B	ı	17 R/B			
No.	Wire	Signal Name [Specification]	51	5 D		18	SENSOR POWER SUPPLY		
-	57	1	52	5/A	1	19 B	FUEL PUMP RELAY		
2	<u></u>	1	53	R/W	1	20 R	REFRIGERANT PRESSURE SENSOR		
e	7	1	54	M/S	1	21 P/B			
			22	T/M	ı	22 R/Y	Y FUEL INJECTOR No. 3		
			56	R/Y	1	25 G			
			57	0	1	28 BR	SENSOR POWER SUPPLY		

JRIWC3617GB

MANUAL AIR CONDITIONING SYSTEM

	Note To Wife Signal Name (Specification) 15	MANUAL AIR CONDITIONING SYSTEM Connector No. F121	13 G	1	Connector No.	No.		13	>	- [With automatic drive positioner]	
Signal Name Specification	NSIGNW-CS 15		H	1	Connector		SE BLOCK (J/B)	14	٦	ı	
1 1 2 2 1 1 1 1 1 1	15 R R	┪	+	1		Т		12	۵	1	
	1 1 1 1 1 1 1 1 1 1	┑	\dashv	-	Connector	┑	12FW-CS	31	<u>د</u> 9		
	10 8 7 6 5 1 1 1 1 1 1 1 1 1				ą.			32	5 6	C	
1 2 2 2 2 2 2 2 2 2	10 9 8 7 6 5		Γ		车			37	ž s	- [With automatic drive positioner]	
Connector Name MSE BLOOK (JP) Connector Name MSE TO MPE Connector Name	10 8 7 6 5	T 7	T		H.S.			38	e or	[Microsic automatic dive positioner]	
Connector Type Conn	Connector Type Conn	1 0		ISE BLOCK (J/B)			70 00 000	38	BE	- [Without automatic drive positioner]	
Signal Name (Specification) Fireman Character Name	Signal Name [Specification] H.S. Signal Name [Specification] Signal Name [Specificatio	0 / 0	т	:06FW-M2			11 11/13/C 00/10	39	>	- [With automatic drive positioner]	
Signal Name (Specification) Sign	Signal Name Specification Specification		[40	۵	1	
Signat Name (Specification) Name (Specification) Signat Name (Specification) Signation Name (Specification) Signat Name (Specification) Signat N	Signal Name (Specification)		E					41	٦	-	
Training Connector Name Specification Connector Name Specification Connector Name Specification Connector Name Connector Nam	Trick Tric	Color Of Simal Nama	ě	J	_	olor Of	Simal Nama [Snacification]	42	g	-	
Training Color Office Color Co	Treminal Color Of Signal Name [Specification] 100 t.0	Wire	2		-	Wire	ognal valle [openitoation]	43	W	-	
Terminal Connector Name Sagnal Name (Specification) Sagnal N	Treminal Color Of Terminal Color Of Term			74 64 54	10C	P	1	42	OL.	1	
Fig. 2 Fig. 3 F	Fig. 2 Fig. 3 F	R/Y		10000	110	>	1	46	>	1	
Fig. 10 Fig.	Fig. 12 Fig. 13 Fig. 12 Fig. 13 Fig. 12 Fig. 12 Fig. 13 Fig. 12 Fig. 12 Fig. 13 Fig. 14 Fig. 15 Fig.	W/L]	12C	>	1	47	œ	1	
Training Color of Signal Name (Specification) Training Trai	Terminal Color Of No. Signal Name (Specification) 170 GR 1	R/W			99	GR	-	49	9	-	
No. Wire Wir	No Wire Signal Name Specification Signal Name Specification Signal Name	8		Simal Nama [Spacification]	7C	GR	-	21	g	-	
1	12 2 4 7 14 4 6 7 15 15 15 15 15 15 1		-	Company of the compan	9C	ŋ	-	52	W	1	
F123 Sa	17.00 MIRE TO WIRE T	В	1A Y	-	90	,	-	53	В	-	
Fig. 2 A	F123 F124 F125	В		-				54	FC	-	
F123 SA CR Connector Name WIRE TO WIRE Connector Name Connec	FT23							22	7		
F123	F123 Share Promote		Н	1	Connector !		1	26	SHIELD		
Wife TO WIRE We have	Wife TO WIFE To Mife To Wife To Wi			1	100000		E TO MIDE	19	ď	-	
Trick Tric	Tricletor-Tryon Tricletor-		Н	-			ie io mine	62	W	-	
Trick Grove-1V Trick Grove-1 Trick Grove	Trick Growter No. Trick Growter Gr			-	Connector		70FW-CS10-M3	63	В	-	
Connector No. M. Connect	Connector No. M7 Connector No. M8 Connector No. Connector		8A L	-	9			64	W	-	
Connector No. My Connect	Commerciar No. M.Y				修			99	Μ	1	
Commetter Name Color of Commetter Name Color of	Connector No. MJ Connect				Ę			67	BR	-	
16 5 4	16 5 4				2			69	Ь	-	
[16/15/14/13/12/11/10 9] 8 Territorial Color Of Signal Name (Specification) Territorial Color Of Signa	[16 [15 [14 13 12 [11 10] 9] Commercer Types Nisting Particle Commercer Types Commerce	7654 = 3		SE BLOCK (I/B)				7.1	œ	1	
Signal Name [Specification] Alt Signal Name [Specification] Color Of	Connector Type NS IDPN-CS	12 11 10 9					Б Б	72	٦	ı	
Signal Name (Specification]	Signal Name (Specification) H.S.		Connector Type NS	10FW-CS				73	g.	1	
Signal Name (Specification] H.S.	Signal Name [Specification] 1,4,5 1,		ģ				1	74	>		
A Signal Name (Specification) A	Signal Name (Specification)		唐			iolor Of	Signal Name [Specification]	75	>	1	
Wine	Wife Wife Page Name Page Nam	Signal Name	Ę		1	Wire		76	>	I	
L	L	Wire	115	46 36	-	SHIELD	1	77	۵	ı	
Q.P. -	Q.R .			8 B	2	W	-	78	BR	-	
Q/R - P/G	Q/R - R			2	3	В	-	80	٨	-	
P/B - Ferminal Loler Of Manage (Spacification) Spacification) 6 C - RS L L/R -	P / B	G/R			4	œ	-	81	W	-	
L/R - Terminal Oper Of Mare Signal Name (Specification) 7 R - 63 C P - <t< td=""><td>R - Terminal Datio Of Man Signal Name (Specification) 7 R P - - - - 9 6 6 WR - - - - 10 R - 8 V/B - - - - - 11 W R/N -</td><td>B/B</td><td></td><td></td><td>9</td><td>g</td><td></td><td>82</td><td>7</td><td>-</td><td></td></t<>	R - Terminal Datio Of Man Signal Name (Specification) 7 R P - - - - 9 6 6 WR - - - - 10 R - 8 V/B - - - - - 11 W R/N -	B/B			9	g		82	7	-	
L/R No. W/re Signal Name Specimeatron I 8 G P 48 V	L/R	æ	Color	3	7	œ	1	83	œ	1	
P - - - 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 9 9 9 8 8 9	P - - - 9 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9	2		Signal Name [Specification]	89	5					
P - 48 W - 10 R WR - - 11 W YB - - 11 W BRW - - 12 LG BR - - - 12 LG BR - - - - -	P - - 48 W - - 11 R W/R - <td>۵</td> <td>H</td> <td>1</td> <td>6</td> <td>_ </td> <td>1</td> <td></td> <td></td> <td></td> <td></td>	۵	H	1	6	_ 	1				
W/R - 5B BR - 11 W BR/W - 6B 0 - 12 L BR - - 12 L L BR - - 12 L LG BR - - 13 G G	W/R - 58 BR - 11 W Y/B - 68 0 - 12 L BR/M - 88 N/L - 12 L BR - 98 GR - 13 G	۵	╀	1	10	œ	1				
W/B - 6B 0 - 12 L BRW - </td <td>V/B - 68 0 - 12 L BRW - 98 6R - 13 0 98 - 98 - 98 0 -</td> <td>W/R</td> <td>H</td> <td>1</td> <td>=</td> <td>W</td> <td>1</td> <td></td> <td></td> <td></td> <td></td>	V/B - 68 0 - 12 L BRW - 98 6R - 13 0 98 - 98 - 98 0 -	W/R	H	1	=	W	1				
BR.W - 8B R/L - 12 LG BR - 9B GR - 13 G	BR/W - 8B R/L - 12 LG BR - 9B GR - 13 G	X/B	H		12	_	- [Without automatic drive positioner]				
BR - 13 G	BR - 13 G - 13 G - 13 G - 14 G - 15 G	BR/W	╁	1	12	9	- [With automatic drive positioner]				
		BB	╀	1	13	ŀ	- [Without automatic drive positioner]				
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MANUAL AIR CONDITIONING SYSTEM		Į	-	F		
M14	16 W =	2 0	> !	IGNITION SIGNAL [With automatic drive positioner]	Connector No.	M42
Connector Name REAR BLOWER RELAY		.υ 4	0 0	GROUND	Connector Name	INTAKE SENSOR
Connector Type M06FBR-R-LC	Connector No. M28	3	H	ILLINGRATION CONTROL SIGNAL (Without automatic drive positioner)	Connector Type	C02FW
	Connector Name WIRE TO WIRE	50	-	\top	4	
<u> </u>	Connector Type NS16FGY-CS	0 00	Н	TRIP RESET SWITCH SIGNAL [With automatic drive positioner]	ター	
7 5 7		9 =	a. c	METER CONTROL SWITCH GROUND FNTER SWITCH SIGNAL		-
6 3	<u></u>	12	F	SELECT SWITCH SIGNAL [With automatic drive positioner]		[7]
	5 4 1 3 2	12	Н	SELECT SWITCH SIGNAL [Without automatic drive positioner]		
	16 15 14 13 12 11 10 9 8	13	>	ELLMBARTION CORTROL SHIfter Signal, (4) [Mitsout automatic thee positioned		
Terminal Color Of Signal Name [Specification]		13	+	TLUMMATTON CONTROL SMTCH SIGNAL (+) litth automatic drive peoblener)	Terminal Color Of	Of Signal Name [Specification]
		* :	3 3	LLUMBATTON CONTROL SHITCH SIQNAL [1] Mithout automatic dive predioned	+	
	Terminal Color Of	± 4	+	ALLIMINATION CONTROL SMITCH SIGNAL C. JWth automatic orbe persisoned AIR RAG SIGNAL	- 6	
1		19	ł	ENGINE COOLANT TEMPERATURE SIGNAL	,	
1	- GR	18	-	AMBIENT SENSOR SIGNAL [Without automatic drive positioner]		
1	2 G -	18	57	AMBIENT SENSOR SIGNAL [With automatic drive positioner]	Connector No.	M49
1	3 BR	19	œ	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL		0,4
	4 SB -	20	9	AMBIENT SENSOR GROUND [Without automatic drive positioner]	Confidence Name	
	1 C	20	Υ	AMBIENT SENSOR GROUND [With automatic drive positioner]	Connector Type	TH40FW-NH
M22	- 5 L	21	٦	CAN-H	þ	
Connector Name WIRE TO WIRE	8	22	۵	CAN-L	修	
	_	23	+	GROUND	Ě	
TH16FW-NH		24	+	FUEL LEVEL SENSOR GROUND		
	0:	25	+	ALTERNATOR SIGNAL [With automatic drive positioner]		21 22 4 5 7 28 9 10 12 13 17 40
	12 V =	07	s 0	ALTERNATOR SIGNAL [Mithout automatic drive positioner] DADKING DDAKE CARTTON CIGNAL		
Г	ł	27	ł	BRAKE FLUD LEVEL SWITCH SIGNAL Websut seconds drive contoner)		
S	┝	27	\vdash	BRAKE FLUID LEVEL SWITCH SIGNAL (With automatic drive positioner)	Terminal Color Of	
16 15 14 13 12 11 10 9		28	>	SECURITY SIGNAL	No. Wire	Signal Name [Specification]
	١	29	\dashv	WASHER LEVEL SWITCH SIGNAL	- -	BATTERY POWER SUPPLY
-	Connector No. M34	3	-	VEHICLE SPEED SIGNAL (8-PULSE)	2 G	
[Ferminal Color Of Signal Name [Specification]	Connector Name COMBINATION METER	32	+	OVERDRIVE CONTROL SWITCH SIGNAL	4 SB	DOOR M
	Connector Lone THADDALNIA	4, 45	2	FUEL LEVEL SENSOR SIGNAL	0 L	DEAD WINDOW DEFOCEED F/B STONAL
1	1	35	+	Control of the Contro		ILLUMINATION POWER SUPPLY
1		36	BR	PASSENGER SEAT BELT WARNING SIGNAL	9 GR	Н
1					10 W	FRONT BLOWER MOTOR CONTROL SIGNAL
-	61				12 BE	BLOWER FAN ON SIGNAL
1	1 2 3 4 5 8 10 11 12 13 14 15 16 18 19 20					A/C ON SIGNAL
1	21 22 23 24 25 28 27 28 29 31 32 34 35 36 1				\exists	ENGINE COOLANT TEMPERATURE SIGNAL
					Н	GROUND
-					23 B	GROUND
1	nal C				Н	REARV
1	No. Wire				-	H
ı	1 O BATTERY POWER SUPPLY [With automatic drive positioner]				\dashv	REAR BLOWER MOTOR CONTROL SIGNAL
1	╗				32 G	COMM (A/C AUTO AMP>RR A/C CONT)
SHIELD -	2 G IGNITION SIGNAL [Without automatic drive positioner]				33 W	COMM (RR A/C CONT>A/C AUTO AMP.)

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15 W REAR WINDOW DEF SW 87 BE ROOM ANT?- 16 Y DIMMER 88 GAR LAGGGE ROOM ANT+ 17 O SHS BHR SHY 89 R R 1 LAGGGGE ROOM ANT- 17 O SHS BHR SHY 89 R R 1 LAGGGGE ROOM ANT- 17 O SHS BHR SHY 89 R R 1 LAGGGG ROOM ANT- 18 CANNESTER SHY SHY SHIP SHY	WIRE TO WIRE	A03FW			-	2	8		3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Signal Name [Specification]	1	1	-		2003	1000	INTAKE DOOR MOTOR			7 -k	2	<u></u>		Signal Name [Specification]	i												
5 W REAR WINDOW DEF SW 87 BE ROOM ANT2- 6 Y DIMMER 88 GR LAGGAGE ROOM ANT4- 7 SFINS MESS PY 89 R LAGGAGE ROOM ANT4-		-			'n				Ferminal Color Of		-	2 -	3		N. C.		Connector Name	1	Œ	H.S.				Ferminal Color Of No. Wire	H	3											
15 W REAR WINDOW DEF SW 87 BE	ő	ē	<u>[</u>	建	7		Τ	Τ	Ter	_				 П	Š	5 .	5 8] [<u>優</u> 				L	<u>ئے۔</u> آ		<u> </u>	I П										
15 W REAR WINDOW DEF SW 87 16 Y DIMMER 88 88 17 O STNE PWR SQN Y 89 89 17 O STNE PWR SQN Y 89 89 89 89 89 89 89	LAGGAGE ROOM ANT+	LAGGAGE ROOM ANT- PUSH-BTN IGN SW ILL PWR SPLY	LOCK IND	PUSH-BTN IGN SW ILL GND I-KEY WARN BUZZER	ACC RELAY CONT OUTPUT	STARTER RELAY CONT	IGN RELAY (IPDM E/R) CON I	IGN RELAY (F/B) CONT OUTPUT PASS DOOR REG SW	IGN PWR SPLY 2	NOILLION POSITION	CVT SHIFT SELECT PWR SPLY	STOP LAMP SW 2	BLWR RELAY CONT OUTPUT	ACC IND		M140	FRONT BLOWER MOTOR	NS03FW-M3				3 2 1			Signal Name [Specification]	1 1	-										
15 W REAR WINDOW DEF SW 16 Y DIMMER 17 O SFINS PWR SB Y	GR 6	m a	Μ	a a	BE	Α (1	3 œ	۳	۵	٦	٣	0	۳			Connector Name	or Type						Color Of		s ه	W										
15 W 16 Y 17 O	88	68 06	91	92	96	97	86	100	101	102	104	105	106	109		Connector No.	Connect	Connector Type	1	事	Ź			Terminal	No.	- 2	3										
15	DIMMER	SENS PWR SPLY RECEIV/SENS GND	NATS ANT AMP.	SECURITY IND CONT DONGLE LINK	NATS ANT AMP.	A/C ON	BLOWER FAN ON	BK DOOR OPNR SW	DR DOOR UNLK SENS	COMBI SW OUTPUT 5	COMBI SW OUTPUT 4	COMBI SW OUTPUT 3	COMBI SW OUTPUT 2	COMBI SW OUTPUT 1	DETENT SW	CAN-H	CAN-L		M124	BCM (BODY CONTROL MODULE)	TH40FW-NH			7.3 7.5 7.6 7.9 7.9 80 81 82 83 84 85 85 87 88 89 90	97 PSZ 955 BS 98 PSZ 100 FSZ 1		Signal Name [Specification]	dni no	DR DOOR REQ SW	PUSH SW	DR DOOR ANT+	DR DOOR ANT-	PASS DOOR ANT+	PASS DOOR ANT-	REAR BMPR ANT-	ROOM ANT1+	ROOM ANT1-
Ш	> 4	0 &	GR	≥ ∞	۵	0	ž d	1 -	o	œ	٨	۵	GR	۵	o 1	7 _	۵		tor No.	Connector Name	Connector Type		v	9)	e o	o	>	В	>	g 1	# c	œ	GR	8
NING SYSTEN SIGNAL SOUND	16	18	21	24	25	27	87	82 S	33	32	33	34	32	36	37	98	40		Connector No.	Connec	Connec	Œ	Š				Terminal	No.	75	76	78	79	8 3	5 &	83	84	82
MANUAL AIR CONDITIONING SYSTEM	SENSOR GROUND			WIRE TO WIRE	A03MW	[•	-	2	1 ~	3		Sinnal Nama [Spacification]		1			M121	BCM (BODY CONTROL MODULE)					1 2 3 4 5 5 7 8 8 9 12 12 13 14 13 19 11 18 19 10 11 18 19 10 11 18 19 10 10 10 10 10 10 10 10 10 10 10 10 10		[ognal Ivalie [Specification]	REAR WINDOW DEF RELAY CONT COMBI SW INPUT 5	COMBI SW INPUT 4	COMBI SW INPUT 3	COMBI SW INPUT 2	COMBI SW INPUT 1	KEY CYL UNLOCK SW	KEY CYL LOCK SW [With manual A/C]	STOP LAMP SW 1	DOOR LK & UNLK SW LOCK	DOOR LK & UNLK SW UNLOCK
ANUAL,			M81	Connector Name WIR	A03								Terminal Color Of	Wire	+	┿	1	۴	Connector Name		1		ш	164		Terminal Color Of	\neg	+	т	Н	Н	+	+	+	t		•

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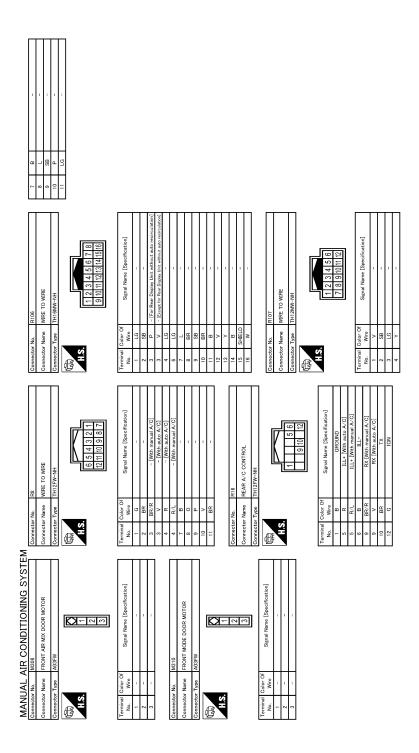
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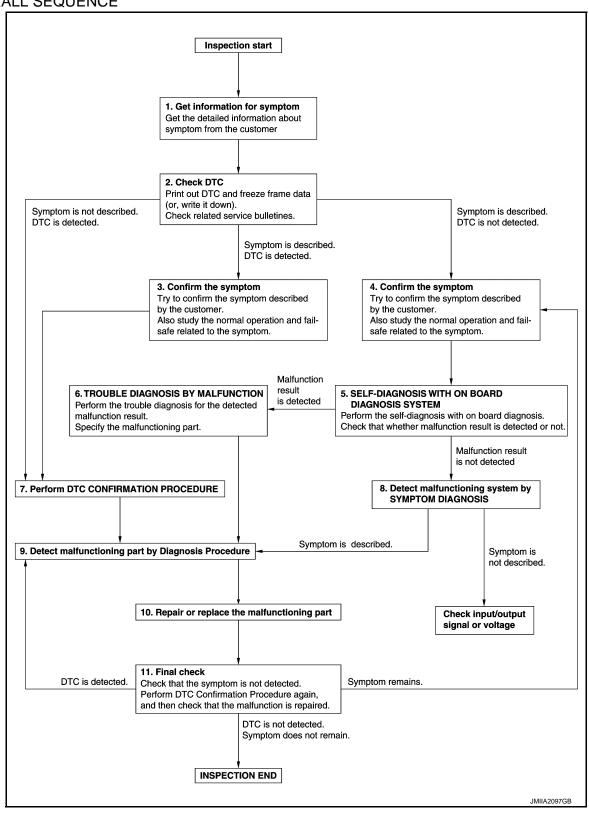
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow INFOID:000000011325842 B

OVERALL SEQUENCE



DETAILED FLOW

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

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 7.

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 7.

4. 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.

SELF-DIAGNOSIS WITH ON BOARD DIAGNOSIS SYSTEM

Perform the self-diagnosis with on board diagnosis. Check that whether malfunction result is detected or not. <u>Is malfunction result detected?</u>

YES >> GO TO 6.

NO >> GO TO 8.

6. TROUBLE DIAGNOSIS BY MALFUNCTION

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

>> GO TO 9.

7.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?

DIAGNOSIS AND REPAIR WORK FLOW [MANUAL AIR CONDITIONING] < BASIC INSPECTION > YES >> GO TO 9. NO >> Check according to GI-42, "Intermittent Incident". Α f 8.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step В 4, and determine the trouble diagnosis order based on possible causes and symptom. Is the symptom described? YES >> GO TO 9. NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT. 9. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE D Inspect according to Diagnosis Procedure of the system. Is malfunctioning part detected? Е YES >> GO TO 10. NO >> Check according to GI-42, "Intermittent Incident". 10. REPAIR OR REPLACE THE MALFUNCTIONING PART Repair or replace the malfunctioning part. 2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement. Check DTC. If DTC is detected, erase it. >> GO TO 11. Н 11. FINAL CHECK When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely. HAC When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected. Is DTC detected and does symptom remain? YES-1 >> DTC is detected: GO TO 9. YES-2 >> Symptom remains: GO TO 4. >> Before returning the vehicle to the customer, always erase DTC. NO K L

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FRONT MANUAL AIR CONDITIONING SYSTEM

FRONT MANUAL AIR CONDITIONING SYSTEM: Work Procedure

INFOID:0000000011325843

DESCRIPTION

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

Check condition: Engine running at normal operating temperature.

OPERATION INSPECTION

1. CHECK MEMORY FUNCTION

- 1. Press fan switch to activate front A/C system.
- 2. Operating temperature control switch to full hot position.
- 3. Press ON-OFF switch.
- 4. Turn ignition switch OFF.
- 5. Turn ignition switch ON.
- 6. Press fan switch.
- 7. Check that the air flow temperature position (full hot) is maintained.

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 9.

2.CHECK FRONT BLOWER MOTOR

- 1. Start engine.
- 2. Operate fan switch and check that fan speed changes.
- 3. Check operation for all fan speeds.

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 9.

3.check discharge air (mode switch and def switch)

- 1. Operate fan switch to set the fan speed to maximum speed.
- 2. Operate MODE switch and DEF switch.
- Check that air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to <u>VTL-6</u>, "<u>VENTILATION SYSTEM</u> (<u>FRONT AIR CONDITIONING</u>): <u>System Description</u>".

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 9.

4. CHECK INTAKE AIR

- 1. Press REC switch to set the air inlet to recirculation. The REC switch indicator turns ON.
- 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 OFF.
- Listen to intake sound and confirm air inlets change.

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 9.

5.CHECK COMPRESSOR

- Press A/C switch. The A/C switch indicator is turns ON.
- 2. Check visually and by sound that the compressor operates.
- 3. Press A/C switch again. The A/C switch indicator is turns OFF.
- Check that compressor stops.

Is the inspection result normal?

YES >> GO TO 6.

BASIC INSPECTION > [MANUAL AIR CONDITIONING	
NO >> GO TO 9.	-
CHECK DISCHARGE AIR TEMPERATURE	
. Operate temperature control switch. . Check that discharge air temperature changes.	_
s the inspection result normal?	
YES >> GO TO 7. NO >> GO TO 9.	
CHECK TEMPERATURE SETTING DECREASE	
. Operate compressor.	_
Operate temperature control switch to full cold position.Check that cool air blows from the air outlets.	
s the inspection result normal?	
YES >> GO TO 8. NO >> GO TO 9.	
CHECK TEMPERATURE INCREASE	
. Warm up engine to the normal operating temperature.	_
. Operate temperature control switch to full hot position.	
c. Check that warm air blows from the air outlets. s the inspection result normal?	
YES >> INSPECTION END	
NO >> GO TO 9.	
CHECK SELF-DIAGNOSIS USING ON BOARD DIAGNOSIS SYSTEM	
. Perform self-diagnosis using on board diagnosis.	_
. Check whether any malfunction is detected. s any malfunction detected?	
YES >> Perform the appropriate diagnosis for the detected malfunction.	
NO >> GO TO 10.	
O.CHECK SELF-DIAGNOSIS USING WITH CONSULT	
. Perform self-diagnosis with CONSULT. . Check that any DTC is detected.	
s any DTC detected?	
YES >> Perform trouble diagnosis for the detected DTC. NO >> Refer to <u>HAC-229</u> , "Symptom Table", and perform the appropriate diagnosis.	
REAR MANUAL AIR CONDITIONING SYSTEM	
REAR MANUAL AIR CONDITIONING SYSTEM: Work Procedure	14
DESCRIPTION	
he purpose of the operational check is to check that the individual system operates normally.	
IOTE: Check that front manual air conditioning system operates normally. Refer to <u>HAC-194, "FRONT MANUAL All</u>	2
CONDITIONING SYSTEM : Work Procedure".	_
Check condition : Engine running at normal operating temperature.	
: Front air conditioning system is in operation.	
PERATION INSPECTION	
ront A/C control operation	

Revision: 2014 August HAC-195 2015 QUEST

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

2. Check that front A/C control changes to the rear A/C control mode ("REAR" indicator on front A/C display turns ON) and that rear manual air conditioning system starts.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 3. Press REAR switch again. The REAR switch indicator turns OFF.
- 4. Check that "REAR" indicator on front A/C display turns OFF and rear control mode released. (Rear manual air conditioning system operates continuously)

Is the inspection result normal?

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

2. CHECK REAR BLOWER MOTOR

1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Operate fan switch to check that fan speed changes.
- 3. Check the operation for all fan speeds.

Is the inspection result normal?

YES >> GO TO 3. NO >> GO TO 7.

3.CHECK DISCHARGE AIR

1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Operate fan switch to set the fan speed to maximum speed.
- Operate MODE switch.
- Check that air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to <u>VTL-7</u>, "<u>VENTILATION SYSTEM (REAR AIR CONDITIONING)</u>: <u>System Description</u>".

Is the inspection result normal?

YES >> GO TO 4. NO >> GO TO 7.

4. CHECK DISCHARGE AIR TEMPERATURE

1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Operate temperature control switch.
- 3. Check that discharge air temperature changes.

Is the inspection result normal?

YES >> GO TO 5. NO >> GO TO 7.

CHECK TEMPERATURE DECREASE

1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON.

NOTE:

"REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds.

- 2. Operate temperature control switch to full cold position.
- 3. Check that cool air blows from the air outlets.

Is the inspection result normal?

YES >> GO TO 6. NO >> GO TO 7.

6.CHECK TEMPERATURE INCREASE

OPERATION INSPECTION < BASIC INSPECTION > [MANUAL AIR CONDITIONING]	
< BASIC INSPECTION > [MANUAL AIR CONDITIONING] 1. Press REAR switch and check that "REAR" indicator on front A/C display turns ON. NOTE:	А
 "REAR" indicator on front A/C control display turns OFF when any switch is not operated for approximately 10 seconds. Operate temperature control switch to full hot position. 	
3. Check that warm air blows from the air outlets. Is the inspection result normal?	В
YES >> INSPECTION END NO >> GO TO 7.	С
7.CHECK SELF-DIAGNOSIS USING ON BOARD DIAGNOSIS SYSTEM	
 Perform self-diagnosis using on board diagnosis. Check whether any malfunction is detected. Is any malfunction detected?	D
YES >> Perform the appropriate diagnosis for the detected malfunction. NO >> Refer to <u>HAC-231</u> , "Symptom Table", and perform the appropriate diagnosis.	Е
Rear A/C control operation 1.CHECK REAR BLOWER MOTOR	F
 Operate fan switch to check that fan speed changes. Check operation for all fan speeds. Is the inspection result normal? 	G
YES >> GO TO 2. NO >> GO TO 6. 2.check discharge air	Н
 Operate fan switch to set the fan speed to maximum speed. Operate MODE switch. Check that air outlets change according to each indicated air outlet by placing a hand in front of the out- 	HA
lets. Refer to VTL-7, "VENTILATION SYSTEM (REAR AIR CONDITIONING): System Description". Is the inspection result normal? YES >> GO TO 3. NO >> GO TO 6.	J
3. CHECK DISCHARGE AIR TEMPERATURE	K
Operate temperature control switch. Check that discharge air temperature changes.	L
Is the inspection result normal? YES >> GO TO 4.	
NO >> GO TO 6. $oldsymbol{4}$.CHECK TEMPERATURE DECREASE	M
 Operate temperature control switch to full cold position. Check that cool air blows from the air outlets. 	Ν
Is the inspection result normal? YES >> GO TO 5.	

NO >> GO TO 6.

5. CHECK TEMPERATURE INCREASE

- 1. Operate temperature control switch to full hot position.
- 2. Check that warm air blows from the air outlets.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

$6.\mathsf{CHECK}$ SELF-DIAGNOSIS USING ON BOARD DIAGNOSIS SYSTEM

Perform self-diagnosis using on board diagnosis.

HAC-197 Revision: 2014 August **2015 QUEST**

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

2. Check whether any malfunction is detected.

Is any malfunction detected?

- YES
- >> Perform the appropriate diagnosis for the detected malfunction.
 >> Refer to HAC-231, "Symptom Table", and perform the appropriate diagnosis. NO

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

A/C AMP.

A/C AMP. : Diagnosis Procedure

INFOID:0000000011325845

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1. CHECK SYMPTOM

Check symptom (A or B).

	Symptom
А	 Front air conditioning does not activate. Front air conditioning cannot be controlled. Operation status of front air conditioning is not indicated on display.
В	Memory function does not operate normally.

Which symptom is detected?

A >> GO TO 2.

B >> GO TO 5.

2.check fuse

Turn ignition switch OFF.

2. Check 10A fuse (No. 3 and 19, located in fuse block (J/B)].

NOIE

Refer to PG-93, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

3.CHECK A/C AMP. IGNITION POWER SUPPLY AND ACC POWER SUPPLY

- 1. Disconnect A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between A/C amp. harness connector and ground.

	+		
A/C	amp.	_	Voltage
Connector	Terminal		
M49	2	Ground	11 – 14 V
10149	9	Giouria	11 – 14 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector between A/C amp. and fuse.

4.CHECK A/C AMP. GROUND CIRCUIT FOR OPEN

- Turn ignition switch OFF.
- Check continuity between A/C amp. harness connector and ground.

A/C	amp.		Continuity
Connector	Terminal	_	Continuity
M49	21	Ground	Existed
	23	Giodila	LXISIGU

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

Revision: 2014 August HAC-199 2015 QUEST

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POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

5. CHECK FUSE

1. Turn ignition switch OFF.

2. Check 15A fuse (No. 6, located in fuse block (J/B)].

NOTE:

Refer to PG-93, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

6.CHECK A/C AMP. BATTERY POWER SUPPLY

- 1. Disconnect A/C amp. connector.
- 2. Check voltage between A/C amp. harness connector and ground.

	+		
A/C amp.		_	Voltage
Connector	Terminal		
M49	1	Ground	11 – 14 V

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector between A/C amp. and fuse.

REAR A/C CONTROL

REAR A/C CONTROL: Diagnosis Procedure

INFOID:0000000011325846

1. CHECK REAR A/C CONTROL POWER SUPPLY

- 1. Turn ignition switch OFF.
- Disconnect rear A/C control connector.
- 3. Turn ignition switch ON.
- 4. Check voltage between rear A/C control harness connector and ground.

	+			
Rear A/C control		_	Voltage	
Connector	Terminal			
R16	12	Ground	11 – 14 V	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector between rear A/C control and fuse block (J/B).

2.check rear a/c control ground circuit

- Turn ignition switch OFF.
- Check continuity between rear A/C control harness connector and ground.

Rear A/C control			Continuity
Connector	Terminal		Continuity
R16	1	Ground	Existed

Is the inspection result normal?

YES >> Replace rear A/C control. Refer to HAC-239, "Removal and Installation".

REAR A/C CONTROL COMMUNICATION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

REAR A/C CONTROL COMMUNICATION SIGNAL

Diagnosis Procedure

INFOID:0000000011325847

1. CHECK SYMPTOM

Check symptom (A or B).

	Symptom					
Α	Rearairconditioning	Operation status of rear air conditioning is indicated on rear A/C control display.				
В	cannot be controlled by rear A/C control.	Operation status of rear air conditioning is not indicated on rear A/C control display.				

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Which symptom is detected?

A >> GO TO 2. B >> GO TO 5. Е

$\textbf{2.} \textbf{CHECK COMMUNICATION SIGNAL (REAR A/C CONTROL } \rightarrow \textbf{A/C AMP.}) \textbf{ CIRCUIT FOR OUTPUT SIGNAL}$

1. Turn ignition switch OFF.

Disconnect rear A/C control connector.

3. Turn ignition switch ON.

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4. Check voltage between rear A/C control harness connector and ground.

+			Voltage (Approx.)	
Rear A/C control		_		
Connector	Terminal		() ()	
R16	10	Ground	5 V	

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Is the inspection result normal?

YES >> Replace rear A/C control. Refer to <u>HAC-239</u>. "Removal and Installation".

NO >> GO TO 3.

 $3. \text{check communication signal (rear a/c control \to a/c amp.) circuit for open}$

Turn ignition switch OFF.

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- Disconnect A/C amp, connector.
- 3. Check continuity between rear A/C control harness connector and A/C amp. harness connector.

Rear A/	Rear A/C control		A/C amp.	
Connector	Terminal	Connector	Terminal	Continuity
R16	10	M49	33	Existed

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Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK COMMUNICATION SIGNAL (REAR A/C CONTROL ightarrow A/C AMP.) CIRCUIT FOR SHORT

Check continuity between rear A/C control harness connector and ground.

Rear A/C control			Continuity
Connector	Terminal		Continuity
R16	10	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

 ${f 5.}$ CHECK COMMUNICATION SIGNAL (A/C AMP. ightarrow REAR A/C CONTROL) CIRCUIT FOR OUTPUT SIG-

REAR A/C CONTROL COMMUNICATION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

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

	+		Mallona	
A/C amp.		_	Voltage (Approx.)	
Connector Terminal			, , ,	
M49	32	Ground	5 V	

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> GO TO 6.

 $6. \text{check communication signal (a/c amp.} \rightarrow \text{rear a/c control) circuit for open}$

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

Rear A/C control		A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
R16	9	M49	32	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

7. CHECK COMMUNICATION SIGNAL (A/C AMP. ightarrow REAR A/C CONTROL) CIRCUIT FOR SHORT

Check continuity between rear A/C control harness connector and ground.

Rear A/C control			Continuity	
Connector	Terminal	_	Continuity	
R16	9	Ground	Not existed	

Is the inspection result normal?

YES >> Check rear A/C control power supply circuit. Refer to <u>HAC-200, "REAR A/C CONTROL : Diagnosis Procedure"</u>.

[MANUAL AIR CONDITIONING]

INTAKE SENSOR

Diagnosis Procedure

INFOID:0000000011325848

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1. CHECK INTAKE SENSOR SIGNAL

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

+ A/C amp.		_	Voltage	
Connector	Terminal			
M49	37	Ground	(V) 5.0 4.0 3.0 2.0 1.0 -20 -10 0 10 20 25 30 40 (°C) -4 14 32 50 68 77 86 104 (°F) JMIIA1786ZZ	

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 2.

2.CHECK INTAKE SENSOR POWER SUPPLY

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

	+			
Intake sensor		_	Voltage (Approx.)	
Connector Terminal			(11 -)	
M42	1	Ground	5 V	

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.check intake sensor ground circuit for open

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

Intake	sensor	A/C amp.				Continuity
Connector	Terminal	Connector Terminal		Continuity		
M42	2	M49	40	Existed		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK INTAKE SENSOR

Check intake sensor. Refer to HAC-204, "Component Inspection".

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Replace intake sensor. Refer to HAC-240, "Removal and Installation".

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[MANUAL AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

5. CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake sensor		A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M42	1	M49	37	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between intake sensor harness connector and ground.

Intake	sensor	_	Continuity
Connector	Terminal		Continuity
M42	1	Ground	Not existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

7. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000011325849

1. CHECK INTAKE SENSOR

- 1. Remove intake sensor. Refer to HAC-240, "Removal and Installation".
- 2. Check resistance between intake sensor terminals. Refer to applicable table for the normal value.

Torr	minal	Condition	Resistance: kΩ		
1611	IIIIIai	Temperature: °C (°F)	ivesisiance. K22		
		-20 (-4)	24.81		
	1 2	1 2 -10 (14) 0 (32) 10 (50) 20 (68) 25 (77) 30 (86)	-10 (14)	14.15	
				0 (32)	8.41
1				10 (50)	5.19
'			20 (68)	3.30	
			25 (77)	2.67	
			30 (86)	2.17	
		40 (104)	1.46		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake sensor. Refer to HAC-240, "Removal and Installation".

FRONT AIR MIX DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325850

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1. CHECK FRONT AIR MIX DOOR MOTOR POWER SUPPLY

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

	+		
Front air mix door motor		_	Voltage
Connector	Terminal		
M308	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK FRONT AIR MIX DOOR MOTOR GROUND CIRCUIT FOR OPEN

Turn ignition switch OFF.

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

Front air mi	x door motor		Continuity
Connector	Terminal		Continuity
M308	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK FRONT AIR MIX DOOR MOTOR LAN SIGNAL

- 1. Connect front air mix door motor and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between front air mix door motor harness connector and ground using oscilloscope.

	+ x door motor	_	Output waveform
Connector	Terminal		
M308	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

Revision: 2014 August

4. CHECK INSTALLATION OF FRONT AIR MIX DOOR MOTOR

Check front air mix door motor is properly installed. Refer to HAC-242, "Exploded View".

Is the inspection result normal?

YES >> Replace front air mix door motor. Refer to <u>HAC-243, "FRONT AIR MIX DOOR MOTOR : Removal and Installation"</u>.

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FRONT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

5.CHECK FRONT AIR MIX DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Front air mix door motor		A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M308	1	M49	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238. "Removal and Installation".

NO >> Repair harness or connector.

6.CHECK FRONT AIR MIX DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Front air mix door motor		A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M308	3	M49	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238. "Removal and Installation".

FRONT MODE DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325851

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1. CHECK FRONT MODE DOOR MOTOR POWER SUPPLY

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

	+		
Front mode	Front mode door motor		Voltage
Connector	Terminal		
M310	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK FRONT MODE DOOR MOTOR GROUND CIRCUIT FOR OPEN

Turn ignition switch OFF.

- 2. Disconnect front mode door motor and A/C amp. connector.
- 3. Check continuity between front mode door motor harness connector and ground.

Front mode	door motor		Continuity
Connector	Terminal		Continuity
M310	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK FRONT MODE DOOR MOTOR LAN SIGNAL

- 1. Connect front mode door motor and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between front mode door motor harness connector and ground using oscilloscope.

	+ Front mode door motor		Output waveform
Connector	Terminal		
M310	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4. CHECK INSTALLATION OF FRONT MODE DOOR MOTOR

Check front mode door motor is properly installed. Refer to HAC-242. "Exploded View".

Is the inspection result normal?

YES >> Replace front mode door motor. Refer to <u>HAC-242, "FRONT MODE DOOR MOTOR : Removal and Installation"</u>.

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FRONT MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

5.CHECK FRONT MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Front mode	Front mode door motor		A/C amp.	
Connector	Terminal	Connector Terminal		Continuity
M310	1	M49	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

6.CHECK FRONT MODE DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Front mode	Front mode door motor		A/C amp.	
Connector	Terminal	Connector Terminal		Continuity
M310	3	M49	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

INTAKE DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325852

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1. CHECK INTAKE DOOR MOTOR POWER SUPPLY

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

Intake de	+ Intake door motor		Voltage	
Connector	Terminal		l	
M304	1	Ground	9.5 – 13.5 V	

Is the inspection result normal?

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

2.check intake door motor ground circuit for open

- Turn ignition switch OFF.
- Disconnect intake door motor and A/C amp. connector.
- Check continuity between intake door motor harness connector and ground.

Intake door motor			Continuity
Connector	Terminal		Continuity
M304	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.check intake door motor lan signal

- Connect intake door motor and A/C amp. connector.
- Turn ignition switch ON.
- Confirm output waveform between intake door motor harness connector and ground using oscilloscope.

	+ Intake door motor		Output waveform
Connector	Terminal		
M304	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4. CHECK INSTALLATION OF INTAKE DOOR MOTOR

Check intake door motor is properly installed. Refer to HAC-242, "Exploded View".

Is the inspection result normal?

YES >> Replace intake door motor. Refer to HAC-243, "INTAKE DOOR MOTOR: Removal and Installation".

NO >> Repair or replace malfunctioning part.

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INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

5. CHECK INTAKE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake d	Intake door motor		A/C amp.	
Connector	Terminal	Connector Terminal		Continuity
M304	1	M49	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

6.CHECK INTAKE DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Intake d	Intake door motor		A/C amp.	
Connector	Terminal	Connector Terminal		Continuity
M304	3	M49	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

REAR AIR MIX DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325853

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1. CHECK REAR AIR MIX DOOR MOTOR POWER SUPPLY

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

+ Rear air mix door motor		_	Voltage	
Connector	Terminal			
B404	1	Ground	9.5 – 13.5 V	

Is the inspection result normal?

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

2.CHECK REAR AIR MIX DOOR MOTOR GROUND CIRCUIT FOR OPEN

Turn ignition switch OFF.

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

Rear air mix door motor			Continuity
Connector	Terminal		Continuity
B404	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK REAR AIR MIX DOOR MOTOR LAN SIGNAL

- 1. Connect rear air mix door motor and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between rear air mix door motor harness connector and ground using oscilloscope.

	+ Rear air mix door motor		Output waveform
Connector	Terminal		
B404	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

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4. CHECK INSTALLATION OF REAR AIR MIX DOOR MOTOR

Check rear air mix door motor is properly installed. Refer to HAC-242. "Exploded View".

Is the inspection result normal?

YES >> Replace rear air mix door motor. Refer to <u>HAC-244, "REAR AIR MIX DOOR MOTOR : Removal and Installation"</u>.

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REAR AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

${f 5.}$ CHECK REAR AIR MIX DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Rear air mi	Rear air mix door motor		A/C amp.	
Connector	Terminal	Connector Terminal		Continuity
B404	1	M49	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

6.CHECK REAR AIR MIX DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Rear air mi	Rear air mix door motor		A/C amp.	
Connector	Terminal	Connector Terminal		Continuity
B404	3	M49	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to <u>HAC-238</u>, "Removal and Installation".

REAR MODE DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325854

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1. CHECK REAR MODE DOOR MOTOR POWER SUPPLY

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

+			
Rear mode	Rear mode door motor		Voltage
Connector	Terminal		
B405	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

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

2.CHECK REAR MODE DOOR MOTOR GROUND CIRCUIT FOR OPEN

Turn ignition switch OFF.

- 2. Disconnect rear mode door motor and A/C amp. connector.
- 3. Check continuity between rear mode door motor harness connector and ground.

Rear mode	Rear mode door motor		Continuity	
Connector	Terminal		Continuity	
B405	2	Ground	Existed	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.check rear mode door motor lan signal

- Connect rear mode door motor and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between rear mode door motor harness connector and ground using oscilloscope.

+ Rear mode door motor		_	Output waveform
Connector	Terminal		
B405	3	Ground	(V) 15 10 5 0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4. CHECK INSTALLATION OF REAR MODE DOOR MOTOR

Check rear mode door motor is properly installed. Refer to HAC-242. "Exploded View".

Is the inspection result normal?

YES >> Replace rear mode door motor. Refer to <u>HAC-244</u>, "<u>REAR MODE DOOR MOTOR</u>: <u>Removal and Installation</u>".

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REAR MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> Repair or replace malfunctioning part.

5.CHECK REAR MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Rear mode door motor		A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B405	1	M49	4	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238. "Removal and Installation".

NO >> Repair harness or connector.

6.CHECK REAR MODE DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

Rear mode door motor		A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
B405	3	M49	5	Existed

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to <u>HAC-238</u>, "Removal and Installation".

[MANUAL AIR CONDITIONING]

DOOR MOTOR

Diagnosis Procedure

INFOID:0000000011325855

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NOTE:

Check this circuit when all door motor system malfunction are detected.

1. CHECK DOOR MOTOR POWER SUPPLY

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

Intaka di	+ Intake door motor Connector Terminal		Voltage
M304	1	Ground	9.5 – 13.5 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 7.

2.CHECK DOOR MOTOR GROUND CIRCUIT FOR OPEN

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

Intake door motor			Continuity
Connector	Terminal		Continuity
M304	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK DOOR MOTOR LAN SIGNAL

- 1. Connect A/C amp. and intake door motor connector.
- 2. Turn ignition switch ON.
- 3. Confirm output waveform between A/C amp. harness connector and ground using oscilloscope.

+ A/C amp.				
		_	Output waveform	
Connector	Terminal			
M49	5	Ground	(V) 15 10 5 0	

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 6.

4. CHECK DOOR MOTOR LAN SIGNAL CIRCUIT FOR OPEN

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

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A/C amp.		Intake door motor		Continuity
Connector	Terminal	Connector Terminal		Continuity
M49	5	M304	3	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

6. CHECK DOOR MOTOR LAN SIGNAL CIRCUIT FOR SHORT

- 1. Turn ignition switch OFF.
- 2. Disconnect following connectors.
- A/C amp.
- Front air mix door motor
- Front mode door motor
- Intake door motor
- Rear air mix door motor
- Rear mode door motor
- 3. Check continuity between A/C amp. harness connector and ground.

A/C	A/C amp.		Continuity	
Connector	Terminal		Continuity	
M49	5	Ground	Not existed	

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> Repair harness or connector.

7.CHECK DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake d	Intake door motor		A/C amp.	
Connector	Terminal	Connector	Terminal	Continuity
M304	1	M49	4	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

8. CHECK DOOR MOTOR POWER SUPPLY CIRCUIT FOR SHORT

- 1. Disconnect following connectors.
- A/C amp.
- Front air mix door motor
- Front mode door motor
- Rear air mix door motor
- Rear mode door motor
- 2. Check continuity between A/C amp. harness connector and ground.

DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

A/C amp.			Continuity	
Connector	Terminal	_	Continuity	
M49	4	Ground	Not existed	

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to <u>HAC-238</u>. "Removal and Installation".

NO >> Repair harness or connector.

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A/C ON SIGNAL

Component Function Check

INFOID:0000000011325856

1. CHECK A/C ON SIGNAL

(E)With CONSULT

- Turn ignition switch ON.
- Operate blower motor.
- Select "AIR CONDITIONER" of "BCM" using CONSULT.
- Select "AIR COND SW" in "DATA MONITOR" mode.
- 5. Check A/C ON signal when the A/C switch is operated.

Monitor item	Condition		Status
AIR COND SW	A/C switch	ON (A/C indicator: ON)	On
AIR COIND SW	A/C SWIICH	OFF (A/C indicator: OFF)	Off

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-218</u>, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000011325857

1. CHECK A/C ON SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C amp. connector.
- 3. Turn ignition switch ON.
- 4. Check output waveform between A/C amp. harness connector and ground with using oscilloscope.

	+ A/C amp.		Output waveform
Connector	Terminal		
M49	13	Ground	(V) 15 10 5 0 10 ms JPMIA0012GB

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

NO >> GO TO 2.

2.CHECK A/C ON SIGNAL CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- Disconnect BCM connector.
- 3. Check continuity between A/C amp. harness connector and BCM harness connector.

A/C	A/C amp.		ВСМ	
Connector	Terminal	Connector	Terminal	Continuity
M49	13	M121	27	Existed

Is the inspection result normal?

YES >> GO TO 3.

A/C ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> Repair harness or connector.

3.CHECK A/C ON SIGNAL CIRCUIT FOR SHORT

Check continuity between A/C amp. harness connector and ground.

A/C amp.			Continuity	
Connector	Terminal		Continuity	
M49	13	Ground	Not existed	

Is the inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-98</u>. "Removal and Installation".

NO >> Repair harness or connector.

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BLOWER FAN ON SIGNAL

Component Function Check

INFOID:0000000011325858

1. CHECK BLOWER FAN ON SIGNAL

(P)With CONSULT

- 1. Turn ignition switch ON.
- 2. Select "AIR CONDITIONER" of "BCM" using CONSULT.
- 3. Select "FAN ON SIG" in "DATA MONITOR" mode.
- 4. Check blower fan ON signal when the fan switch is operated.

Monitor item	Condition		Status
FAN ON SIG Fan switch	Ean switch	OFF position	Off
	1 an switch	Except OFF position	On

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to HAC-220, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000011325859

1. CHECK BLOWER FAN ON SIGNAL

- 1. Turn ignition switch OFF.
- 2. Disconnect A/C amp. harness connector.
- 3. Turn ignition switch ON.
- 4. Check output waveform between A/C amp. and ground with using oscilloscope.

	+ amp.	– Output waveform	
Connector	Terminal		
M49	12	Ground	(V) 15 10 5 0 ++10ms PKIB4960J

Is the inspection result normal?

YES >> Replace front A/C control (A/C amp.). Refer to HAC-238. "Removal and Installation".

NO >> GO TO 2.

2.CHECK BLOWER FAN ON SIGNAL CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connector.
- Check continuity A/C amp. harness connector and BCM harness connector.

A/C	A/C amp.		ВСМ	
Connector	Terminal	Connector	Terminal	Continuity
M49	12	M121	28	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.check blower fan on signal circuit for short

BLOWER FAN ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Check continuity between A/C amp. harness connector and ground.

A/C amp.			Continuity
Connector	Terminal	_	Continuity
M49	12	Ground	Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-98. "Removal and Installation".

NO >> Repair harness or connector.

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FRONT BLOWER MOTOR

Diagnosis Procedure

INFOID:0000000011325860

1. CHECK FUSE

- 1. Turn ignition switch OFF.
- 2. Check 15A fuse [No. 21 and 22, located in fuse block (J/B)].

NOTE:

Refer to PG-93, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK FRONT BLOWER MOTOR POWER SUPPLY

- Disconnect front blower motor connector.
- 2. Turn ignition switch ON.
- Check voltage between front blower motor harness connector and ground.

+				
Front blower motor		_	Voltage	
Connector	Terminal			
M140	3	Ground	11 – 14 V	

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 6.

3.check front blower motor ground circuit for open

- 1. Turn ignition switch OFF.
- Check continuity between front blower motor harness connector and ground.

Front blo	wer motor		Continuity	
Connector	Terminal	_	Continuity	
M140	1	Ground	Existed	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.check front blower motor control signal circuit for open

- 1. Disconnect A/C amp. connector.
- 2. Check continuity between front blower motor harness connector and A/C amp. harness connector.

Front blo	Front blower motor		A/C amp.	
Connector	Terminal	Connector	Terminal	Continuity
M140	2	M49	10	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

${f 5.}$ CHECK FRONT BLOWER MOTOR CONTROL SIGNAL

- 1. Reconnect front blower motor connector and A/C amp. connector.
- Turn ignition switch ON.
- 3. Operate MODE switch (front A/C control) to set air outlet of front air conditioning to VENT.
- Change front fan speed from Lo to Hi, and check duty ratios between front blower motor harness connector and ground by using an oscilloscope.

FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

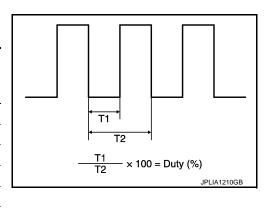
[MANUAL AIR CONDITIONING]

NOTE:

Calculate drive signal duty ratio as shown in the figure.

T2 = Approx. 1.6 ms

Front blower motor		Condition	Duty ratio
Connector	Terminal	Fan speed VENT mode	Duty ratio (Approx.)
	1st	25 %	
		2nd	33 %
		3rd	41 %
M140 2	2	4th	51 %
		5th	61 %
		6th	69 %
		7th	81 %



Is the inspection result normal?

YES >> Replace front blower motor. Refer to <u>VTL-18</u>, "FRONT BLOWER MOTOR: Removal and Installation".

NO >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

$oldsymbol{6}$.CHECK FRONT BLOWER MOTOR POWER SUPPLY CIRCUIT FOR OPEN

- Turn ignition switch OFF.
- 2. Disconnect fuse block (J/B) connector.
- 3. Check continuity between fuse block (J/B) harness connector and front blower motor harness connector.

Fuse bl	lock (J/B)	Front blower motor		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M1	3A	M140	2	Existed
IVI I	8A	101140	3	LXISTEG

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

7.CHECK FRONT BLOWER RELAY GROUND CIRCUIT FOR OPEN

Check continuity between fuse block (J/B) harness connector and ground.

Fuse block (J/B)			Continuity
Connector	Terminal	_	Continuity
M3	7C	Ground	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

8. CHECK FRONT BLOWER RELAY

Check front blower relay. Refer to HAC-224, "Component Inspection (Front Blower Relay)".

Is the inspection result normal?

YES >> Check front blower relay power supply circuit. Refer to <u>PG-12</u>, "Wiring <u>Diagram - BATTERY POWER SUPPLY -"</u> and <u>PG-56</u>, "Wiring <u>Diagram - IGNITION POWER SUPPLY -"</u>.

NO >> Replace front blower relay.

Component Inspection (Front Blower Motor)

1. CHECK FRONT BLOWER MOTOR-I

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FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

- Remove front blower motor. Refer to VTL-18, "FRONT BLOWER MOTOR: Removal and Installation".
- Check that there is not any mixing foreign object in the front blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace front blower motor. Refer to <u>VTL-18</u>, <u>"FRONT BLOWER MOTOR : Removal and Installation"</u>.

2.CHECK FRONT BLOWER MOTOR-II

Check that there is not breakage or damage in the front blower motor.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace front blower motor. Refer to <u>VTL-18</u>, "FRONT BLOWER MOTOR : Removal and Installation".

3.CHECK FRONT BLOWER MOTOR-III

Check that front blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front blower motor. Refer to <u>VTL-18</u>, "<u>FRONT BLOWER MOTOR</u>: Removal and Installation".

Component Inspection (Front Blower Relay)

INFOID:0000000011325862

1. CHECK FRONT BLOWER RELAY

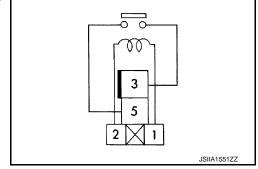
- 1. Remove front blower relay. Refer to PG-93, "Fuse, Connector and Terminal Arrangement".
- 2. Check continuity between front blower relay terminal 3 and 5 when voltage is supplied between terminal 1 and 2.

Terr	ninal	Voltage	Continuity
3	5	ON	Existed
3	5	OFF	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace front blower relay.



REAR BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

REAR BLOWER MOTOR

Diagnosis Procedure

INFOID:0000000011325863

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1. CHECK FUSE

- 1. Turn ignition switch OFF.
- 2. Check 15A fuse (No. 23 and 24).

NOTE:

Refer to PG-94, "Fuse and Fusible Link Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK REAR BLOWER MOTOR POWER SUPPLY

- 1. Disconnect rear blower motor connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between rear blower motor harness connector and ground.

+			
Rear blower motor		_	Voltage
Connector	Terminal		
B403	3	Ground	11 – 14 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 6.

3.CHECK REAR BLOWER MOTOR GROUND CIRCUIT FOR OPEN

Turn ignition switch OFF.

Check continuity between rear blower motor harness connector and ground.

Rear blower motor			Continuity
Connector	Terminal		Continuity
B403	1	Ground	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK REAR BLOWER MOTOR CONTROL SIGNAL CIRCUIT FOR OPEN

Disconnect A/C amp. connector.

Check continuity between rear blower motor harness connector and A/C amp. harness connector.

Rear blower motor		A/C amp.		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
B403	2	M49	30	Existed	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5. CHECK REAR BLOWER MOTOR CONTROL SIGNAL

- 1. Reconnect rear blower motor connector and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Operate MODE switch (front A/C control) to set air outlet of rear air conditioning to VENT.
- 4. Change rear fan speed from Lo to Hi, and check duty ratios between rear blower motor harness connector and ground by using an oscilloscope.

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and ground by using an oscilloscope.

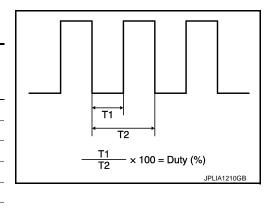
< DTC/CIRCUIT DIAGNOSIS >

NOTE:

Calculate drive signal duty ratio as shown in the figure.

T2 = Approx. 1.6 ms

Rear blower motor		Condition	Duty ratio
Connector	Terminal	Fan speed VENT mode	(Approx.)
	1st	25 %	
	B403 2	2nd	33 %
		3rd	41 %
B403		4th	51 %
		5th	61 %
		6th	69 %
		7th	81 %



Is the inspection result normal?

YES >> Replace rear blower motor. Refer to <u>VTL-18</u>, "REAR BLOWER MOTOR : Removal and Installation".

NO >> Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".

6.CHECK REAR BLOWER MOTOR POWER SUPPLY CIRCUIT FOR OPEN

- 1. Turn ignition switch OFF.
- 2. Disconnect rear blower relay connector.
- 3. Check continuity between rear blower relay harness connector and rear blower motor harness connector.

Rear blo	ower relay	Rear blower motor		Continuity
Connector	Terminal	Connector Terminal		Continuity
M14	5	B403	3	Existed
IVI 14	7	D403	3	LXISIEU

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair harness or connector.

7.CHECK REAR BLOWER RELAY GROUND CIRCUIT FOR OPEN

Check continuity between rear blower relay harness connector and ground.

Rear blower relay			Continuity
Connector	Connector Terminal		Continuity
M14	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

8. CHECK REAR BLOWER RELAY

Check rear blower relay. Refer to HAC-227, "Component Inspection (Rear Blower Relay)".

Is the inspection result normal?

YES >> Check rear blower relay power supply circuit. Refer to <u>PG-12</u>, "Wiring <u>Diagram - BATTERY POWER SUPPLY -"</u> and <u>PG-56</u>, "Wiring <u>Diagram - IGNITION POWER SUPPLY -"</u>.

NO >> Replace rear blower relay.

Component Inspection (Rear Blower Motor)

INFOID:0000000011325864

1. CHECK REAR BLOWER MOTOR-I

REAR BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

- Remove rear blower motor. Refer to VTL-18, "REAR BLOWER MOTOR: Removal and Installation".
- Check that there is not any mixing foreign object in the rear blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace rear blower motor. Refer to VTL-18, "REAR BLOWER MOTOR: Removal and Installation".

2.CHECK REAR BLOWER MOTOR-II

Check that there is not breakage or damage in the rear blower motor.

Is the inspection result normal?

YES >> GO TO 3.

>> Replace rear blower motor. Refer to VTL-18, "REAR BLOWER MOTOR: Removal and Installa-NO tion".

3.CHECK REAR BLOWER MOTOR-III

Check that rear blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

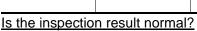
>> Replace rear blower motor. Refer to VTL-18, "REAR BLOWER MOTOR: Removal and Installa-NO tion".

Component Inspection (Rear Blower Relay)

1.CHECK REAR BLOWER RELAY

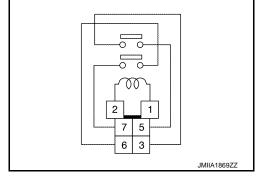
- Remove rear blower relay. Refer to PG-94, "Fuse and Fusible Link Arrangement"
- Check continuity between rear blower relay terminal 3 and 5, then 6 and 7 when voltage is supplied between terminal 1 and 2.

Terminal		Voltage	Continuity	
3	5	ON	Existed	
3	5	OFF	OFF	Not existed
6	7	ON	Existed	
		5 7	OFF	Not existed



YES

>> INSPECTION END NO >> Replace rear blower relay.



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MAGNET CLUTCH

Component Function Check

INFOID:0000000011325866

1. CHECK MAGNET CLUTCH OPERATION

Perform auto active test of IPDM E/R. Refer to PCS-11, "Diagnosis Description".

Does it operate normally?

YES >> INSPECTION END

NO >> Refer to <u>HAC-228</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000011325867

1. CHECK MAGNET CLUTCH

- 1. Turn ignition switch OFF.
- 2. Disconnect compressor connector.
- 3. Directly apply battery voltage to the magnet clutch. Check for operation visually and by sound.

Does it operate normally?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK FUSE

Check 10A fuse (No. 49, located in IPDM E/R).

NOTE:

Refer to PG-95, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

3.check magnet clutch power supply circuit for open

- 1. Disconnect IPDM E/R connector.
- 2. Check continuity between IPDM E/R harness connector and compressor harness connector.

IPDM E/R		Compressor		Continuity
Connector	Terminal	Connector Terminal		Continuity
F12	48	F18	1	Existed

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-36, "Removal and Installation".

NO >> Repair harness or connector.

f 4.CHECK MAGNET CLUTCH GROUND CIRCUIT FOR OPEN

Check continuity between compressor harness connector and ground.

Compressor			Continuity
Connector	Terminal	_	Continuity
F18	2	Ground	Existed

Is the inspection result normal?

YES >> Replace magnet clutch. Refer to <u>HA-32</u>, "<u>MAGNET CLUTCH</u>: Removal and Installation of Compressor Clutch".

NO >> Repair harness or connector.

FRONT MANUAL AIR CONDITIONING SYSTEM

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

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SYMPTOM DIAGNOSIS

FRONT MANUAL AIR CONDITIONING SYSTEM

Symptom Table

NOTE:

Perform self-diagnoses with on board diagnosis and CONSULT before performing the symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

Symptom	Corresponding malfunction part	Check item/Reference
 Front air conditioning does not activate. Front air conditioning cannot be controlled. Operation status of air conditioning is not indicated on display. 	A/C amp. ignition power supply circuit Front A/C control (A/C amp.)	HAC-199, "A/C AMP. : Diagnosis Procedure"
Memory function does not operate normally.	A/C amp. battery power supply circuit Front A/C control (A/C amp.)	HAC-199, "A/C AMP.: Diagnosis Procedure"
Discharge air temperature does not change.	 Front air mix door motor power supply circuit. Front air mix door motor LAN signal circuit. Front air mix door motor system installation condition Front air mix door motor Front A/C control (A/C amp.) 	HAC-205, "Diagnosis Procedure"
Air outlet does not change.	 Front mode door motor power supply circuit. Front mode door motor LAN signal circuit. Front mode door motor system installation condition Front mode door motor Front A/C control (A/C amp.) 	HAC-207, "Diagnosis Procedure"
Air inlet does not change.	Intake door motor power supply circuit. Intake door motor LAN signal circuit. Intake door motor system installation condition Intake door motor Front A/C control (A/C amp.)	HAC-209, "Diagnosis Procedure"
All door motor does not operate.	 Each door motor power supply circuit. Each door motor LAN signal circuit. Front A/C control (A/C amp.) 	HAC-215, "Diagnosis Procedure"
Front blower motor does not operate.	 Front blower motor power supply circuit. Front blower motor control signal circuit Front blower motor Front A/C control (A/C amp.) 	HAC-222, "Diagnosis Procedure"

Revision: 2014 August HAC-229 2015 QUEST

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FRONT MANUAL AIR CONDITIONING SYSTEM

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Symptom		Corresponding malfunction part	Check item/Reference
Compressor does not operate.		Magnet clutch The circuit between magnet clutch and IPDM E/R IPDM E/R (A/C relay) The circuit between ECM and refrigerant pressure sensor Refrigerant pressure sensor CAN communication line A/C ON signal circuit Blower fan ON signal circuit Intake sensor Front A/C control (A/C amp.)	HAC-236, "Diagnosis Procedure"
Insufficient coolingNo cool air comes out. (Air flow volume is normal.)		Magnet clutch control systemDrive belt slippingCooler cycleAir leakage from each duct	HAC-232, "FRONT MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure"
Insufficient heatingNo warm air comes out. (Air flow volume is normal.)		Engine cooling system Front heater hose Front heater core Air leakage from each duct	HAC-234. "FRONT MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure"
Noise is heard when the front air conditioning operates.	During compressor operation	Cooler cycle	HA-29. "Symptom Table"
	During front blower mo- tor operation	Mixing any foreign object in front blower motor Front blower motor fan breakage Front blower motor rotation inferiority	HAC-223, "Component Inspection (Front Blower Motor)"

REAR MANUAL AIR CONDITIONING SYSTEM

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

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REAR MANUAL AIR CONDITIONING SYSTEM

Symptom Table

NOTE:

- Perform self-diagnoses with on board diagnosis and CONSULT, before performing the symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.
- The following table is based on the condition that front manual air conditioning system operates normally.

Symptom		Corresponding malfunction part	Check item/Reference
 Rear air conditioning cannot be controlled by front A/C control. Operation status of rear air conditioning is not indicated on front A/C control display. 		Front A/C control (A/C amp.)	Replace front A/C control (A/C amp.). Refer to HAC-238, "Removal and Installation".
	Operation status of rear air conditioning is indicated on rear A/C control display.	Communication signal (rear A/C control \rightarrow A/C amp.)	Refer to <u>HAC-201</u> , " <u>Diagnosis</u> <u>Procedure</u> ".
Rear air conditioning cannot be controlled by rear A/C control.	Operation status of rear	Communication signal (A/C amp. → rear A/C control)	Refer to <u>HAC-201</u> , "Diagnosis <u>Procedure"</u> .
	air conditioning is not in- dicated on rear A/C con- trol display.	Rear A/C control power supply circuit	Refer to HAC-200, "REAR A/C CONTROL: Diagnosis Procedure".
Discharge air temperature does not change.		Rear air mix door motor power supply circuit. Rear air mix door motor LAN signal circuit. Rear air mix door motor system installation condition Rear air mix door motor Front A/C control (A/C amp.)	HAC-205, "Diagnosis Procedure"
Air outlet does not change.		Rear mode door motor power supply circuit. Rear mode door motor LAN signal circuit. Rear mode door motor system installation condition Rear mode door motor Front A/C control (A/C amp.)	HAC-213, "Diagnosis Procedure"
Rear blower motor does not operate.		Rear blower motor power supply circuit. Rear blower motor control signal circuit Rear blower motor Front A/C control (A/C amp.)	HAC-225, "Diagnosis Procedure"
 Insufficient cooling No cool air comes out. (Air flow volume is normal.) 		Cooler cycle Air leakage from each duct	HAC-232, "REAR MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure"
 Insufficient heating No warm air comes out. (Air flow volume is normal.) 		Rear heater hose Rear heater core Air leakage from each duct	HAC-234, "REAR MANUAL AIR CONDITIONING SYSTEM : Diagnosis Procedure"
Noise is heard when the rear blower motor operates.		Mixing any foreign object in rear blower motor Rear blower motor fan breakage Rear blower motor rotation inferiority	HAC-226, "Component Inspection (Rear Blower Motor)"

INSUFFICIENT COOLING

FRONT MANUAL AIR CONDITIONING SYSTEM

FRONT MANUAL AIR CONDITIONING SYSTEM: Description

INFOID:0000000011325870

Symptom

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

FRONT MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure

IFOID:0000000011325871

NOTE:

Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

1. CHECK MAGNET CLUTCH OPERATION

- Turn ignition switch ON.
- Operate fan switch.
- 3. Press A/C switch.
- 4. Check that A/C indicator turns ON. Check visually and by sound that compressor operates.
- 5. Press A/C switch again.
- 6. Check that A/C indicator turns OFF. Check that compressor stops.

Is the inspection result normal?

YES >> GO TO 2.

2. CHECK DRIVE BELT

Check tension of drive belt. Refer to EM-15, "Checking".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Adjust or replace drive belt depending on the inspection results.

3.check refrigerant cycle pressure

Connect recovery/recycling recharging equipment to the vehicle and perform pressure inspection with gauge. Refer to HA-27, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace parts depending on the inspection results.

f 4.CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of the air conditioning system for leakage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace parts depending on the inspection results.

REAR MANUAL AIR CONDITIONING SYSTEM

REAR MANUAL AIR CONDITIONING SYSTEM: Description

INFOID:0000000011325872

Symptom

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

REAR MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure

INFOID:0000000011325873

NOTE

Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

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1	CHECK	REFRIG	FRANT	CYCLE	PRESSURE

Connect recovery/recycling recharging equipment to the vehicle and perform pressure inspection with gauge. Refer to HA-27, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace parts depending on the inspection results.

2. CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of the air conditioning system for leakage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace parts depending on the inspection results.

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INSUFFICIENT HEATING

FRONT MANUAL AIR CONDITIONING SYSTEM

FRONT MANUAL AIR CONDITIONING SYSTEM: Description

INFOID:0000000011325874

Symptom

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

FRONT MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure

NFOID:0000000011325875

NOTE:

Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

1. CHECK COOLING SYSTEM

- 1. Check engine coolant level and check for leakage. Refer to CO-8, "Inspection".
- 2. Check radiator cap. Refer to the CO-12, "RADIATOR CAP: Inspection".
- 3. Check water flow sounds of the engine coolant. Refer to CO-9, "Refilling".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Refill engine coolant and repair or replace the parts depending on the inspection results.

2.check front heater hose

Check installation of front heater hose by visually or touching.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace parts depending on the inspection results.

3.CHECK FRONT HEATER CORE

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

CAUTION:

Always perform the temperature inspection in a short period of time because the engine coolant temperature is very hot.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace front heater core. Refer to HA-53, "HEATER CORE: Removal and Installation".

f 4.CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of the front air conditioning for air leakage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace parts depending on the inspection results.

REAR MANUAL AIR CONDITIONING SYSTEM

REAR MANUAL AIR CONDITIONING SYSTEM: Description

INFOID:0000000011325876

Symptom

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

REAR MANUAL AIR CONDITIONING SYSTEM: Diagnosis Procedure

INFOID:0000000011325877

NOTE

Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.

INSUFFICIENT HEATING

SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

< SYMPTOM DIAGNOSIS >	[MANUAL AIR CONDITIONING]
1. CHECK REAR HEATER HOSE	
Check installation of rear heater hose by visually or touching.	
Is the inspection result normal?	
YES >> GO TO 2.	
NO >> Repair or replace parts depending on the inspection results	i.
2.CHECK REAR HEATER CORE	
1. Check temperature of inlet hose and outlet hose of rear heater core	9.
2. Check that inlet side of rear heater core is hot and the outlet side is	slightly lower than/almost equal to the
inlet side. CAUTION:	
Always perform the temperature inspection in a short period	of time because the engine coolant
temperature is very hot.	or time because the origine coolain
Is the inspection result normal?	
YES >> GO TO 3.	
NO >> Replace rear heater core. Refer to <u>HA-58</u> . "HEATER CORE	: Removal and Installation".
3.CHECK AIR LEAKAGE FROM EACH DUCT	
Check duct and nozzle, etc. of the rear air conditioning for air leakage.	
Is the inspection result normal?	
YES >> INSPECTION END	
NO >> Repair or replace parts depending on the inspection results	s.

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COMPRESSOR DOES NOT OPERATE

Description INFOID:000000011325878

SYMPTOM

Compressor does not operate.

Diagnosis Procedure

INFOID:0000000011325879

NOTE:

- Perform self-diagnoses with on board diagnosis and CONSULT before performing symptom diagnosis. If any malfunction result or DTC is detected, perform the corresponding diagnosis.
- Check that refrigerant is enclosed in cooler cycle normally. If refrigerant amount is shortage from proper amount, perform the inspection of refrigerant leakage.

1. CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to HAC-228, "Component Function Check".

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2. CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to EC-494, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK A/C ON SIGNAL

Check A/C ON signal. Refer to HAC-218, "Component Function Check".

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

f 4.CHECK BLOWER FAN ON SIGNAL

Check blower fan ON signal. Refer to HAC-220, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts

${f 5.}$ CHECK INTAKE SENSOR CIRCUIT

Check intake sensor circuit. Refer to HAC-203, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace malfunctioning parts

6.CHECK BCM OUTPUT SIGNAL

With CONSULT

- 1. Select "DATA MONITOR" mode of "ECM" using CONSULT.
- 2. Select "AIR COND SIG" and "HEATER FAN SW", and check status under the following conditions.

Monitor item	Condition		Status
AIR COND SIG	A/C switch	OFF (A/C indicator: OFF)	Off
		ON (A/C indicator: ON)	On
HEATER FAN SW	Blower motor	OFF	Off
		ON	On

Is the inspection result normal?

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

YES >> Replace IPDM E/R. Refer to PCS-36. "Removal and Installation".

NO >> Replace BCM. Refer to <u>BCS-98, "Removal and Installation"</u>.

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FRONT A/C CONTROL

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

REMOVAL AND INSTALLATION

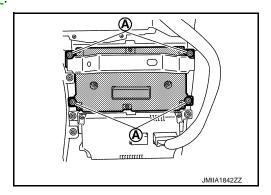
FRONT A/C CONTROL

Removal and Installation

INFOID:0000000011325880

REMOVAL

- 1. Remove cluster lid C. Refer to IP-28, "Removal and Installation".
- 2. Remove fixing screws (A), and then remove front A/C control.



INSTALLATION

Install in the reverse order of removal.

[MANUAL AIR CONDITIONING]

REAR A/C CONTROL

Removal and Installation

INFOID:0000000011325881

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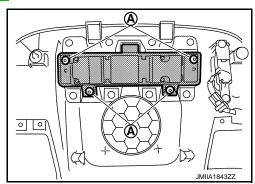
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REMOVAL

With Rear Display

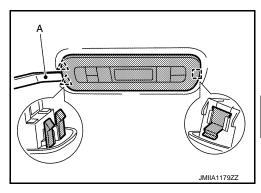
- 1. Remove roof console. Refer to INT-35, "Removal and Installation".
- 2. Remove fixing screws (A), and then remove rear A/C control.



Without Rear Display

1. Disengage fixing pawls and metal clip using a remover tool (A).





2. Disconnect harness connector, and then remove rear A/C control.

INSTALLATION

Install in the reverse order of removal.

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INTAKE SENSOR

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

INTAKE SENSOR

Removal and Installation

INFOID:0000000011325882

REMOVAL

- 1. Remove evaporator assembly. Refer to <u>HA-52</u>, "EVAPORATOR: Removal and Installation".
- 2. Remove intake sensor from evaporator assembly.

INSTALLATION

Note the following items, and install in the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply the compressor oil to them when installing.
- Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.
- Never rotate the bracket insertion part when removing and installing the intake sensor.
- Check for leakages when recharging refrigerant. Refer to HA-18, "Leak Test".

REFRIGERANT PRESSURE SENSOR

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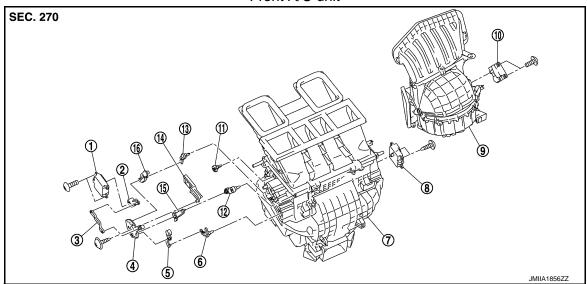
< REMOVAL AND INSTALLATION >	[MANUAL AIR CONDITIONING]
REFRIGERANT PRESSURE SENSOR	Α
Exploded View	INFOID:000000011325883
Refer to HA-43, "Exploded View". Removal and Installation	INFOID:000000011325884
REMOVAL Refer to HA-45, "REFRIGERANT PRESSURE SENSOR: Removal and	Installation".
INSTALLATION Install in the reverse order of removal.	D
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DOOR MOTOR

Exploded View

Front A/C unit

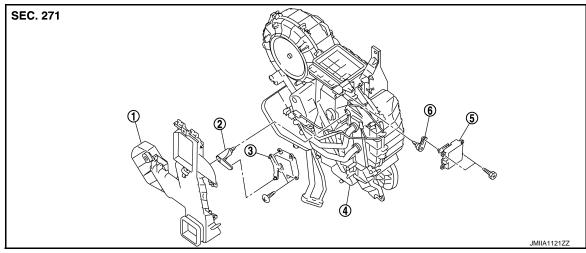


- 1. Front mode door motor
- 4. Main link
- 7. Heater & cooling unit assembly
- 10. Intake door motor
- 13. Max. cool lever
- 16. Max. cool link

- 2. Front mode door lever
- 5. Foot link
- 8. Air mix door motor
- 11. Defroster lever
- Defroster link

- 3. Link rod
- 6. Foot lever
- 9. Blower unit assembly
- 12. Ventilator lever
- 15. Ventilator link

Rear A/C unit



- 1. Rear foot duct
- 4. Rear A/C unit assembly
- 2. Rear air mix door lever
- 5. Rear mode door motor
- 3. Rear air mix door motor
- 6. Rear mode door lever

FRONT MODE DOOR MOTOR

FRONT MODE DOOR MOTOR: Removal and Installation

INFOID:0000000011325886

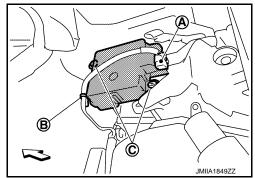
REMOVAL

Remove instrument lower panel LH. Refer to <u>IP-14, "Removal and Installation"</u>.

[MANUAL AIR CONDITIONING]

- 2. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 3. Remove fixing screws (C), and then remove front mode door motor from heater & cooling unit assembly.

: Vehicle front



INSTALLATION

Install in the reverse order of removal.

FRONT AIR MIX DOOR MOTOR

FRONT AIR MIX DOOR MOTOR: Removal and Installation

INFOID:0000000011325887

REMOVAL

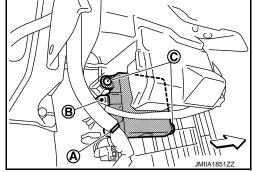
1. Set the temperature at 18°C (64°F).

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. Disconnect the battery cable from the negative terminal.
- 3. Remove instrument lower cover RH. Refer to IP-14, "Removal and Installation".
- 4. Remove harness fixing clip (A), and then disconnect harness connector (B).
- Remove fixing screws (C), and then remove front air mix door motor from heater & cooling unit assembly.

: Vehicle front



INSTALLATION

Install in the reverse order of removal.

INTAKE DOOR MOTOR

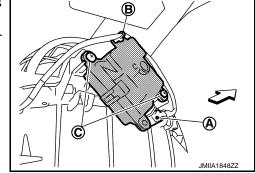
INTAKE DOOR MOTOR: Removal and Installation

INFOID:0000000011325888

REMOVAL

- Remove instrument lower panel RH. Refer to <u>IP-14</u>, "Removal and Installation".
- 2. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 3. Remove fixing screws (C), and then remove intake door motor from blower unit assembly.

: Vehicle front



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INSTALLATION

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< REMOVAL AND INSTALLATION >

Install in the reverse order of removal.

REAR MODE DOOR MOTOR

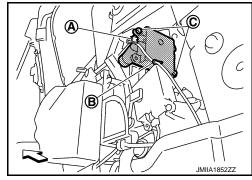
REAR MODE DOOR MOTOR: Removal and Installation

INFOID:0000000011325889

REMOVAL

- 1. Remove luggage side lower finisher RH. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER: Removal and Installation".
- 2. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 3. Remove fixing screws (C), and then remove rear mode door motor from rear A/C unit assembly.

< : Vehicle front



INSTALLATION

Install in the reverse order of removal.

REAR AIR MIX DOOR MOTOR

REAR AIR MIX DOOR MOTOR: Removal and Installation

INFOID:0000000011325890

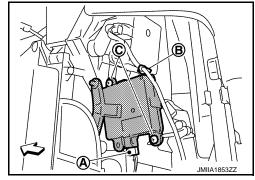
REMOVAL

1. Set the temperature at 18°C (64°F).

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. Disconnect the battery cable from the negative terminal.
- 3. Remove luggage side lower finisher RH. Refer to INT-43, "LUGGAGE SIDE LOWER FINISHER: Removal and Installation".
- 4. Disconnect harness connector (A), and then remove harness fixing clip (B).
- 5. Remove fixing screws (C), and then remove rear air mix door motor from rear A/C unit assembly.



INSTALLATION

Install in the reverse order of removal.