SECTION HAC

HEATER & AIR CONDITIONING CONTROL SYSTEM

CONTENTS

AUTOMATIC AIR CONDITIONING

PRECAUTION 6

PRECAUTIONS 6
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" 6

SYSTEM DESCRIPTION 7

COMPONENT PARTS 7

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) 7
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Component Parts Location 7
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Component Description 9

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) 10
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Component Parts Location 10
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Component Description 12

FOREST AIR SYSTEM 13
FOREST AIR SYSTEM : Component Parts Location 14
FOREST AIR SYSTEM : Component Description.....15

BLOWER UNIT 16
BLOWER UNIT : Aroma Motor 16
BLOWER UNIT : Blower Motor 16
BLOWER UNIT : Intake Door Motor 16
BLOWER UNIT : Power Transistor 16

HEATER & COOLING UNIT ASSEMBLY 17
HEATER & COOLING UNIT ASSEMBLY : Air Mix Door Motor (Driver Side) 17
HEATER & COOLING UNIT ASSEMBLY : Air Mix Door Motor (Passenger Side) 17
HEATER & COOLING UNIT ASSEMBLY : Aspirator 17
HEATER & COOLING UNIT ASSEMBLY : Mode Door Motor (Driver Side) 17
HEATER & COOLING UNIT ASSEMBLY : Mode Door Motor (Passenger side) 17
HEATER & COOLING UNIT ASSEMBLY : Rear Mode Door Motor 18
HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor 18
HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor (Driver Side) 18
HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor (Passenger Side) 18
Refrigerant Pressure Sensor 18

SYSTEM 19

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) 19
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : System Diagram 19
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : System Description 19
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Flow Control 20
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Inlet Control 21
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Outlet Control 22
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Compressor Control 22
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Door Control 22
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Temperature Control 25

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Intelligent Key Interlock Function 25
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Fail-safe 26

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) 26
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : System Diagram 26
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : System Description ... 27
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Flow Control 28
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Inlet Control 29
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Outlet Control 29
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Compressor Control... 30
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Door Control 30
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Temperature Control.. 33
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Intelligent Key Interlock Function 33
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Fail-safe 34

FOREST AIR SYSTEM 34
FOREST AIR SYSTEM : System Diagram 35
FOREST AIR SYSTEM : System Description 35
FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism) 36
FOREST AIR SYSTEM : Aroma Diffuser Control... 36
FOREST AIR SYSTEM : Automatic Defogging Control 37
FOREST AIR SYSTEM : Automatic Intake Control (Exhaust Gas / Outside Odor Detecting Mechanism) 37
FOREST AIR SYSTEM : Breezy Air Control 37
FOREST AIR SYSTEM : Plasmacluster Control ... 38
FOREST AIR SYSTEM : Intelligent Key Interlock Function 38

OPERATION 39

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) 39
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Switch Name and Function ... 39
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Menu Displayed by Pressing Each Switch 41

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) 41
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Switch Name and Function 41
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Menu Displayed by Pressing Each Switch 44

FOREST AIR SYSTEM 45
FOREST AIR SYSTEM : Switch Name and Function 45
FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch 48

DIAGNOSIS SYSTEM (HVAC) 50
Description 50
CONSULT-III Function 50

ECU DIAGNOSIS INFORMATION 54

A/C AUTO AMP. 54
Reference Value 54
Fail-safe 62
DTC Index 62

ECM, IPDM E/R 64
List of ECU Reference 64

WIRING DIAGRAM 65

AUTOMATIC AIR CONDITIONING SYSTEM ... 65
Wiring Diagram 65

BASIC INSPECTION 80

DIAGNOSIS AND REPAIR WORK FLOW 80
Work Flow 80

OPERATION INSPECTION 82

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) 82
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Work Procedure 82

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) 84
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Work Procedure 84

FOREST AIR SYSTEM 86
FOREST AIR SYSTEM : Work Procedure 86

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (A/C AUTO AMP.) 89
Description 89
Work Procedure 89

CONFIGURATION (HVAC) 90
Description 90
Work Procedure 90

SYSTEM SETTING 91

AUTOMATIC AIR CONDITIONING SYSTEM 91
AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer 91
AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (REC) 91
AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (FRE) 92
AUTOMATIC AIR CONDITIONING SYSTEM : Foot Position Setting Trimmer 92

FOREST AIR SYSTEM 92
FOREST AIR SYSTEM : Aroma Fragrance Intensity Setting 92
FOREST AIR SYSTEM : Aroma Fragrance Type Setting 92
FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism) Setting 93
FOREST AIR SYSTEM : Aroma Diffuser Presence Setting 93

DTC/CIRCUIT DIAGNOSIS 94

U1000 CAN COMM CIRCUIT 94
Description 94
DTC Logic 94
Diagnosis Procedure 94

U1010 CONTROL UNIT (CAN) 95
Description 95
DTC Logic 95
Diagnosis Procedure 95

B2578, B2579 IN-VEHICLE SENSOR 96
DTC Logic 96
Diagnosis Procedure 96
Component Inspection 97

B257B, B257C AMBIENT SENSOR 99
DTC Logic 99
Diagnosis Procedure 99
Component Inspection 100

B2581, B2582 INTAKE SENSOR 102
DTC Logic 102
Diagnosis Procedure 102
Component Inspection 103

B262A, B262B, B2657, B2658 EXHAUST GAS/OUTSIDE ODOR DETECTING SENSOR 105
DTC Logic 105
Diagnosis Procedure 105

B2630, B2631 SUNLOAD SENSOR 109
DTC Logic 109
Diagnosis Procedure 109
Component Inspection 111

B2750, B2751, B2752 AIR MIX DOOR MOTOR (DRIVER SIDE) 112
DTC Logic 112
Diagnosis Procedure 112
Component Inspection (Motor) 115
Component Inspection (PBR) 116

B2753, B2754, B2755 AIR MIX DOOR MOTOR (PASSENGER SIDE) 117
DTC Logic 117
Diagnosis Procedure 117
Component Inspection (Motor) 120
Component Inspection (PBR) 121

B2756, B2757, B2758 MODE DOOR MOTOR (DRIVER SIDE) 122
DTC Logic 122
Diagnosis Procedure 122
Component Inspection (Motor) 125
Component Inspection (PBR) 126

B2759, B275A, B275B MODE DOOR MOTOR (PASSENGER SIDE) 127
DTC Logic 127
Diagnosis Procedure 127
Component Inspection (Motor) 131
Component Inspection (PBR) 131

B275C, B275D, B275E INTAKE DOOR MOTOR 132
DTC Logic 132
Diagnosis Procedure 132
Component Inspection (Motor) 136
Component Inspection (PBR) 136

B275F, B2760, B2761 UPPER VENTILATOR DOOR MOTOR 137
DTC Logic 137
Diagnosis Procedure 137
Component Inspection (Motor) 140
Component Inspection (PBR) 141

B275F, B2760, B2761 UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) 142
DTC Logic 142
Diagnosis Procedure 142
Component Inspection (Motor) 145
Component Inspection (PBR) 146

B2762, B2763, B2764 REAR MODE DOOR MOTOR 147
DTC Logic 147
Diagnosis Procedure 147
Component Inspection (Motor) 150
Component Inspection (PBR) 151

B2765, B2766, B2767 UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) 152
DTC Logic 152
Diagnosis Procedure 152
Component Inspection (Motor) 155
Component Inspection (PBR) 156

B2768, B2769, B276A AROMA MOTOR 157
DTC Logic 157
Diagnosis Procedure 157
Component Inspection (Motor) 160
Component Inspection (PBR) 161

B276B, B276C, B276D HUMIDITY SENSOR . 162
DTC Logic 162
Diagnosis Procedure 162
Component Inspection 165

POWER SUPPLY AND GROUND CIRCUIT .. 167

A/C AUTO AMP. 167
A/C AUTO AMP. : Diagnosis Procedure 167

DOOR MOTOR PBR (WITH FOREST AIR) 167
DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure 167

DOOR MOTOR PBR (WITHOUT FOREST AIR) 169
DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure 169

BLOWER MOTOR 172
Diagnosis Procedure 172
Component Inspection (Blower Motor) 176
Component Inspection (Blower Relay) 176

ECV (ELECTRICAL CONTROL VALVE) 177
Diagnosis Procedure 177
Component Inspection 178

INSIDE ODOR DETECTING SENSOR 179
Component Function Check 179
Diagnosis Procedure 179
Component Inspection 181

IONIZER 183
Component Function Check 183
Diagnosis Procedure 183

MAGNET CLUTCH 186
Component Function Check 186
Diagnosis Procedure 186

SYMPTOM DIAGNOSIS 187

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) 187
Symptom Table 187

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) 190
Symptom Table 190

FOREST AIR SYSTEM 192
Symptom Table 192

COMPRESSOR DOSE DOT OPERATE 194
Description 194
Diagnosis Procedure 194

INSUFFICIENT COOLING 196
Description 196
Diagnosis Procedure 196

INSUFFICIENT HEATING 197
Description 197
Diagnosis Procedure 197

INTELLIGENT KEY INTERLOCK FUNCTION DOES NOT OPERATE 198
Description 198
Diagnosis Procedure 198

NORMAL OPERATING CONDITION 199
Description 199

REMOVAL AND INSTALLATION 200

MULTIFUNCTION SWITCH 200
Removal and Installation 200

A/C AUTO AMP. 201
Exploded View 201
Removal and Installation 201

AMBIENT SENSOR 202
Removal and Installation 202

IN-VEHICLE SENSOR 203
Removal and Installation 203

SUNLOAD SENSOR 204
Removal and Installation 204

HUMIDITY SENSOR 205
Exploded View 205
Removal and Installation 205

INTAKE SENSOR 206
Exploded View 206
Removal and Installation 206

INSIDE ODOR DETECTING SENSOR 207
Exploded View 207
Removal and Installation 207

EXHAUST GAS/OUTSIDE ODOR SENSOR .. 208
Removal and Installation 208

DOOR MOTOR 209
Exploded View 209

MODE DOOR MOTOR 209
MODE DOOR MOTOR : Removal and Installation. 209

AIR MIX DOOR MOTOR 210
AIR MIX DOOR MOTOR : Removal and Installation 210

INTAKE DOOR MOTOR 210
INTAKE DOOR MOTOR : Removal and Installation 210

UPPER VENTILATOR DOOR MOTOR 211
UPPER VENTILATOR DOOR MOTOR : Removal and Installation 211

REAR MODE DOOR MOTOR 211
REAR MODE DOOR MOTOR : Removal and Installation 211

POWER TRANSISTOR 212
Exploded View 212
Removal and Installation 212

IONIZER 213
Exploded View 213
Removal and Installation 213

AROMA UNIT ASSY 214
Exploded View 214
Removal and Installation 214

PRECAUTION

PRECAUTIONS

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

INFOID:0000000005905830

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

WARNING:

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

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

WARNING:

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

SYSTEM DESCRIPTION

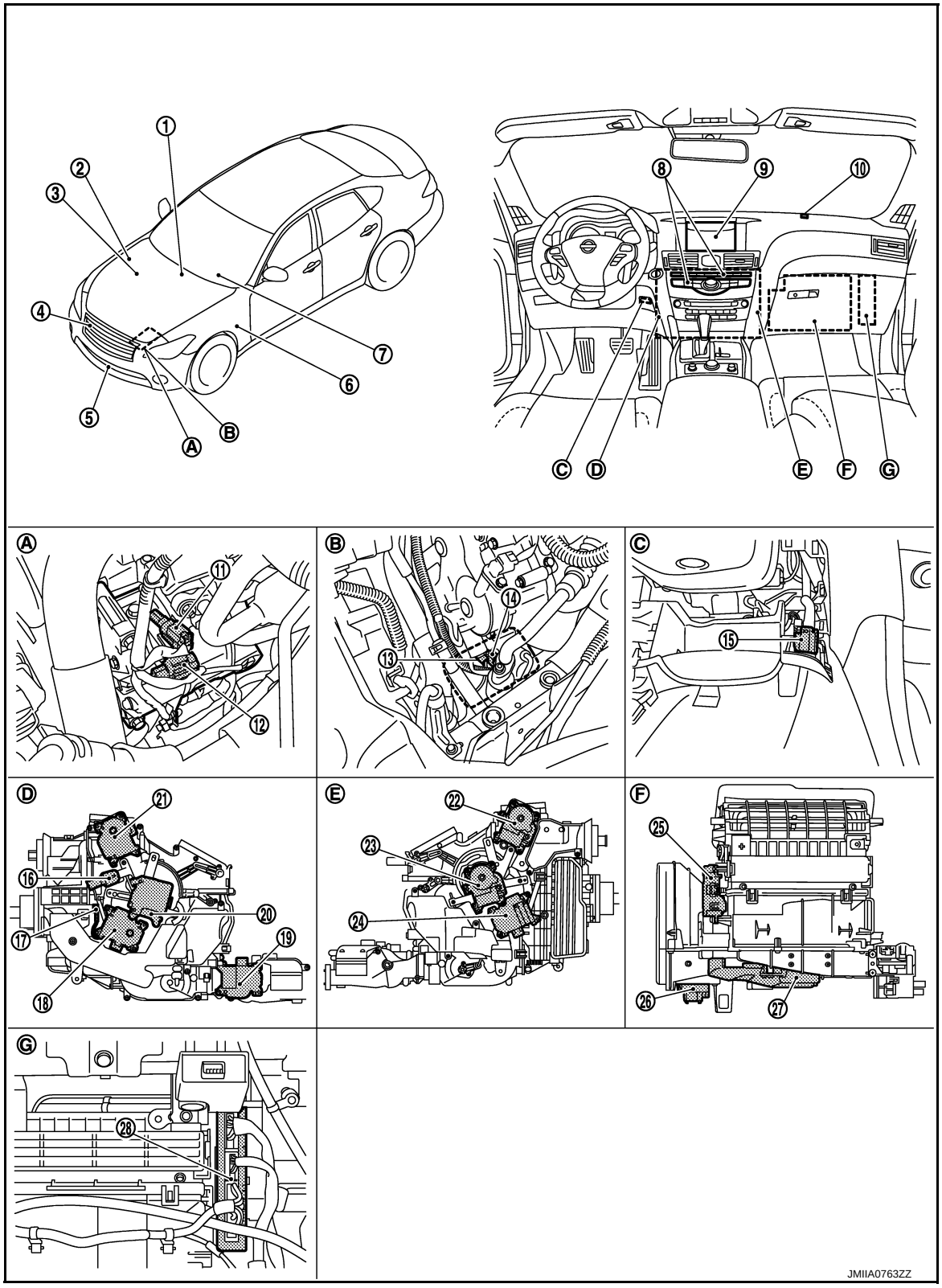
COMPONENT PARTS

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR)

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Component Parts

Location

INFOID:0000000005905635



1. AV control unit
Refer to AV-144, "Component Parts Location".
2. IPDM E/R
Refer to PCS-5, "IPDM E/R : Component Parts Location".
3. ECM
VQ37VHR: Refer to EC-24, "ENGINE CONTROL SYSTEM : Component Parts Location".
VK56VD: Refer to EC-548, "ENGINE CONTROL SYSTEM : Component Parts Location".
4. Refrigerant pressure sensor
5. Ambient sensor
6. BCM
BCS-4, "BODY CONTROL SYSTEM : Component Parts Location".
7. Combination meter
Refer to MWI-6, "METER SYSTEM : Component Parts Location".
8. Multifunction switch
9. Display
10. Sunload sensor
11. ECV (Electrical Control Valve)
12. Magnet clutch
13. Magnet clutch
14. ECV (Electrical Control Valve)
15. In-vehicle sensor
16. Aspirator
17. Intake sensor
18. Air mix door motor (Driver side)
19. Rear mode door motor
20. Mode door motor (Driver side)
21. Upper ventilator door motor (Driver side)
22. Upper ventilator door motor (Passenger side)
23. Mode door motor (Passenger side)
24. Air mix door motor (Passenger side)
25. Intake door motor
26. Power transistor
27. Blower motor
28. A/C auto amp.
A. Compressor (VQ37VHR)
B. Compressor (VK56VD)
C. Lower instrument panel LH is removed
D. Left side of heater & cooling unit assembly
E. Right side of heater & cooling unit assembly
F. Rear side of blower unit
G. Instrument lower panel RH is removed

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Component Description

INFOID:0000000005905636

Component parts		Description
Blower unit	Blower motor	Refer to HAC-16.
	Intake door motor	Refer to HAC-16.
	Power transistor	Refer to HAC-16.
Compressor	ECV (Electrical Control Valve)	ECV (electrical control valve) is installed on the compressor and controls it for emitting appropriate amount of refrigerant when necessary.
	Magnet clutch	• Magnet clutch is the device that drives the compressor with the signal from IPDM E/R. • Compressor is driven by the magnet clutch which is magnetized by electric power supply.

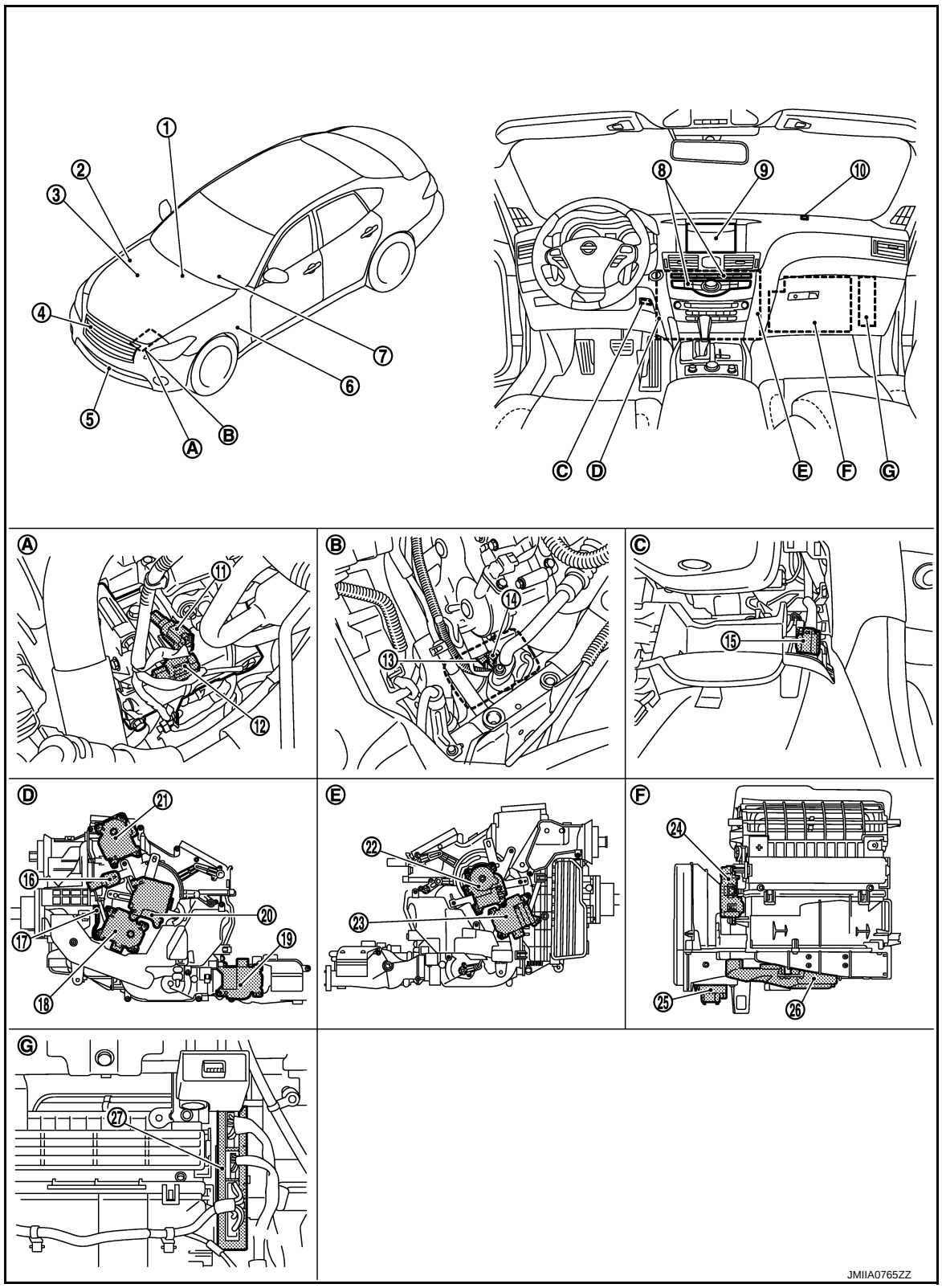
Component parts		Description
Heater & cooling unit assembly	Air mix door motor (Driver side)	Refer to HAC-17.
	Air mix door motor (Passenger side)	Refer to HAC-17.
	Aspirator	Refer to HAC-17.
	Intake sensor	Intake sensor measures evaporator fin temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
	Mode door motor (Driver side)	Refer to HAC-17.
	Mode door motor (Passenger side)	Refer to HAC-17.
	Rear mode door motor	Refer to HAC-18.
	Upper ventilator door motor (Driver side)	Refer to HAC-18.
	Upper ventilator door motor (Passenger side)	Refer to HAC-18.
Ambient sensor		Ambient sensor measures ambient air temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
AV control unit		AV control unit transmits A/C switch operation signal to A/C auto amp. via CAN communication line.
A/C auto amp.		A/C auto amp. controls air conditioning system by inputting and calculating signals from each sensor and each switch. A/C auto amp. has self-diagnosis function. Diagnosis of air conditioning system can be performed quickly.
BCM		BCM transmits key ID signal to A/C auto amp. via CAN communication line.
Display		Display indicates operation status of air conditioning system. Display has touch panel function that can be used to control air conditioning system.
ECM		ECM controls compressor according to status of engine and refrigerant.
Engine coolant temperature sensor		Engine coolant temperature sensor measures engine coolant temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
In-vehicle sensor		In-vehicle sensor measures temperature of intake air through aspirator to passenger room. This sensor uses thermistor that decreases electrical resistance as temperature increases.
IPDM E/R		A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when A/C compressor request signal is received from ECM via CAN communication line.
Multifunction switch		Multifunction switch integrates A/C controller and AV operation switch. A/C switch operation signal is transmitted from multifunction switch to AV control unit via communication line.
Refrigerant pressure sensor		Refer to HAC-18.
Sunload sensor		Sunload sensor measures sunload amount. This sensor is a dual system so that sunload for driver side and passenger side are measured separately. This sensor converts sunload amount to voltage signal by photodiode and transmits to A/C auto amp.

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR)

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Component

Parts Location

INFOID:0000000006106574



1. AV control unit
   Refer to AV-144, "Component Parts Location".
2. IPDM E/R
   Refer to PCS-5, "IPDM E/R : Component Parts Location".
3. ECM
   VQ37VHR: Refer to EC-24, "ENGINE CONTROL SYSTEM : Component Parts Location".
   VK56VD: Refer to EC-548, "ENGINE CONTROL SYSTEM : Component Parts Location".
4. Refrigerant pressure sensor
5. Ambient sensor
6. BCM
   BCS-4, "BODY CONTROL SYSTEM : Component Parts Location".
7. Combination meter
   Refer to MWI-6, "METER SYSTEM : Component Parts Location".
8. Multifunction switch
9. Display
10. Sunload sensor
11. ECV (Electrical Control Valve)
12. Magnet clutch
13. Magnet clutch
14. ECV (Electrical Control Valve)
15. In-vehicle sensor
16. Aspirator
17. Intake sensor
18. Air mix door motor (Driver side)
19. Rear mode door motor
20. Mode door motor (Driver side)
21. Upper ventilator door motor
22. Mode door motor (Passenger side)
23. Air mix door motor (Passenger side)
24. Intake door motor
25. Power transistor
26. Blower motor
27. A/C auto amp.

A. Compressor (VQ37VHR)
B. Compressor (VK56VD)
C. Lower instrument panel LH is removed
D. Left side of heater & cooling unit assembly
E. Right side of heater & cooling unit assembly
F. Rear side of blower unit
G. Instrument lower panel RH is removed

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Component Description

INFOID:0000000006106575

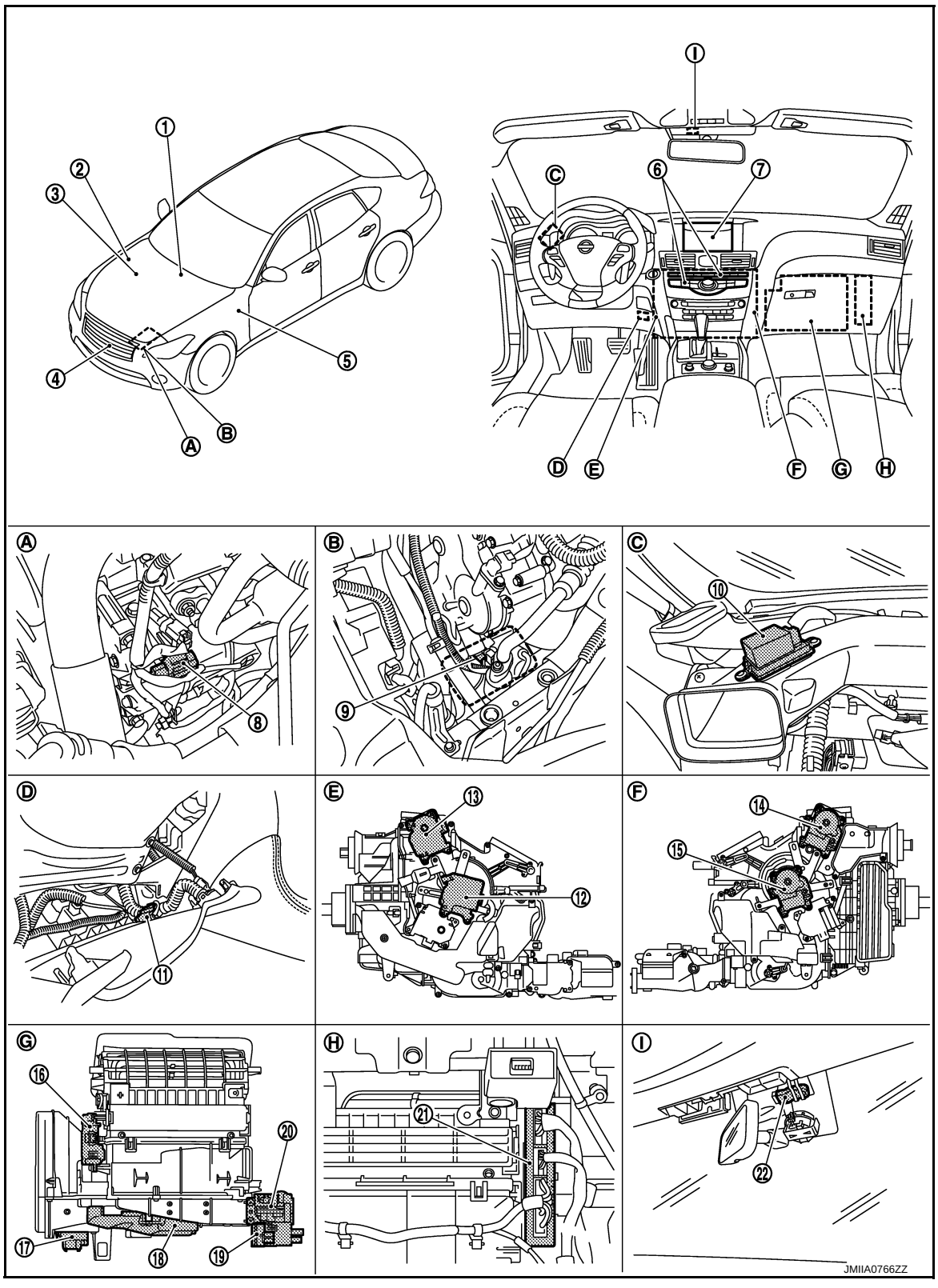
Component parts		Description
Blower unit	Blower motor	Refer to HAC-16.
	Intake door motor	Refer to HAC-16.
	Power transistor	Refer to HAC-16.
Compressor	ECV (Electrical Control Valve)	ECV (electrical control valve) is installed on the compressor and controls it for emitting appropriate amount of refrigerant when necessary.
	Magnet clutch	• Magnet clutch is the device that drives the compressor with the signal from IPDM E/R. • Compressor is driven by the magnet clutch which is magnetized by electric power supply.
Heater & cooling unit assembly	Air mix door motor (Driver side)	Refer to HAC-17.
	Air mix door motor (Passenger side)	Refer to HAC-17.
	Aspirator	Refer to HAC-17.
	Intake sensor	Intake sensor measures evaporator fin temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
	Mode door motor (Driver side)	Refer to HAC-17.
	Mode door motor (Passenger side)	Refer to HAC-17.
	Rear mode door motor	Refer to HAC-18.
	Upper ventilator door motor	Refer to HAC-18.
Ambient sensor		Ambient sensor measures ambient air temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
AV control unit		AV control unit transmits A/C switch operation signal to A/C auto amp. via CAN communication line.

Component parts	Description
A/C auto amp.	A/C auto amp. controls air conditioning system by inputting and calculating signals from each sensor and each switch. A/C auto amp. has self-diagnosis function. Diagnosis of air conditioning system can be performed quickly.
BCM	BCM transmits key ID signal to A/C auto amp. via CAN communication line.
Display	Display indicates operation status of air conditioning system. Display has touch panel function that can be used to control air conditioning system.
ECM	ECM controls compressor according to status of engine and refrigerant.
Engine coolant temperature sensor	Engine coolant temperature sensor measures engine coolant temperature. This sensor uses thermistor that decreases electrical resistance as temperature increases.
In-vehicle sensor	In-vehicle sensor measures temperature of intake air through aspirator to passenger room. This sensor uses thermistor that decreases electrical resistance as temperature increases.
IPDM E/R	A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when A/C compressor request signal is received from ECM via CAN communication line.
Multifunction switch	Multifunction switch integrates A/C controller and AV operation switch. A/C switch operation signal is transmitted from multifunction switch to AV control unit via communication line.
Refrigerant pressure sensor	Refer to HAC-18.
Sunload sensor	Sunload sensor measures sunload amount. This sensor is a dual system so that sunload for driver side and passenger side are measured separately. This sensor converts sunload amount to voltage signal by photodiode and transmits to A/C auto amp.

FOREST AIR SYSTEM

FOREST AIR SYSTEM : Component Parts Location

INFOID:0000000005905884



1. AV control unit Refer to AV-144, "Component Parts Location".	2. IPDM E/R Refer to PCS-5, "IPDM E/R : Component Parts Location".	3. ECM VQ37VHR: Refer to EC-24, "ENGINE CONTROL SYSTEM : Component Parts Location". VK56VD: Refer to EC-548, "ENGINE CONTROL SYSTEM : Component Parts Location".
4. Exhaust gas / outside odor detecting sensor	5. BCM BCS-4, "BODY CONTROL SYSTEM : Component Parts Location".	6. Multifunction switch
7. Display	8. Magnet clutch	9. Magnet clutch
10. Ionizer	11. Inside odor detecting sensor	12. Mode door motor (Driver side)
13. Upper ventilator door motor (Driver side)	14. Upper ventilator door motor (Passenger side)	15. Mode door motor (Passenger side)
16. Intake door motor	17. Power transistor	18. Blower motor
19. Aroma cartridge	20. Aroma motor	21. A/C auto amp.
22. Humidity sensor		
A. Compressor (VQ37VHR)	B. Compressor (VK56VD)	C. Instrument panel assembly is removed
D. Instrument lower panel LH is removed	E. Left side of heater & cooling unit assembly	F. Right side of heater & cooling unit assembly
G. Rear side of blower unit	H. Instrument lower panel RH is removed	I. Front camera finisher is removed

FOREST AIR SYSTEM : Component Description

INFOID:0000000005905638

Component parts		Description
Blower unit	Aroma cartridge	Aroma cartridge generates 2 kinds of aromas, leaf scent and fragrant wood, which have proven relaxing effects.
	Aroma motor	Refer to HAC-16.
	Blower motor	Refer to HAC-16.
	Intake door motor	Refer to HAC-16.
	Power transistor	Refer to HAC-16.
Compressor	Magnet clutch	• Magnet clutch is the device that drives the compressor with the signal from IPDM E/R. • Compressor is driven by the magnet clutch which is magnetized by electric power supply.
Heater & cooling unit assembly	Mode door motor (Driver side)	Refer to HAC-17.
	Mode door motor (Passenger side)	Refer to HAC-17.
	Upper ventilator door motor (Driver side)	Refer to HAC-18.
	Upper ventilator door motor (Passenger side)	Refer to HAC-18.
AV control unit		AV control unit transmits A/C switch operation signal to A/C auto amp. via CAN communication line.
A/C auto amp.		A/C auto amp. controls Forest Air system by inputting and calculating signals from each sensor and each switch. A/C auto amp. has self-diagnosis function. Diagnosis of Forest Air system can be performed quickly.
BCM		BCM transmits key ID signal to A/C auto amp. via CAN communication line.
Display		Display indicates operation status of Forest Air system. Display has touch panel function that can be used to control Forest Air system.
ECM		ECM controls compressor according to status of engine and refrigerant.

Component parts	Description
Exhaust gas/outside odor detecting sensor	Exhaust gas/outside odor detecting sensor measures unpleasant odor outside of passenger room. In addition to previous exhaust gas detection function, unpleasant odor in ambient atmosphere is measured.
Humidity sensor	Humidity sensor measures windshield temperature and passenger room humidity so that fogging on windshield is judged.
Inside odor detecting sensor	Inside odor detecting sensor measures odor of cigarettes, foods, and other objects in passenger room.
Ionizer	Ionizer generates an approximately equal proportional amount of positive and negative ions in the air.
IPDM E/R	A/C relay is integrated in IPDM E/R. IPDM E/R operates A/C relay when A/C compressor request signal is received from ECM via CAN communication line.
Multifunction switch (FOREST switch)	FOREST switch is located in multifunction switch. Forest Air system can be operated when FOREST switch is pressed.

BLOWER UNIT

BLOWER UNIT : Aroma Motor

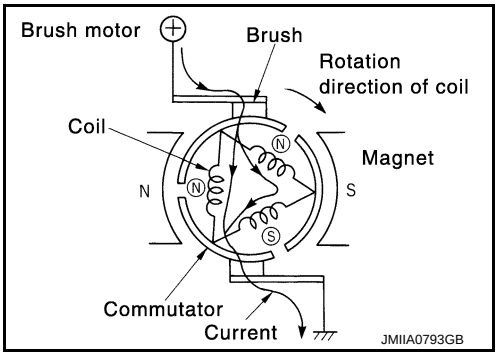
INFOID:0000000005905639

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

BLOWER UNIT : Blower Motor

INFOID:0000000005905640

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



BLOWER UNIT : Intake Door Motor

INFOID:0000000005905641

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

BLOWER UNIT : Power Transistor

INFOID:0000000005905642

- Power transistor, that uses MOS field effect transistor, is adopted for blower motor speed control.
  NOTE:
  MOS field effect transistor is a transistor for which the gate portion is composed of a metal electrode on an oxide layer of semiconductor. Field effect transistor is controlled by voltage, while ordinary transistor is controlled by current. Electrode of field effect transistor is called source, drain, or gate, while electrode of ordinary transistor is called emitter, collector, or base.
- Power transistor continuously controls voltage to blower motor (approximately 0 to 16 V), according to gate voltage from A/C auto amp.

- This power transistor does not require a HI relay even when the maximum voltage is applied to blower motor at HI status, because voltage drop is nominal.

HEATER & COOLING UNIT ASSEMBLY

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

INFOID:0000000005905643

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

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

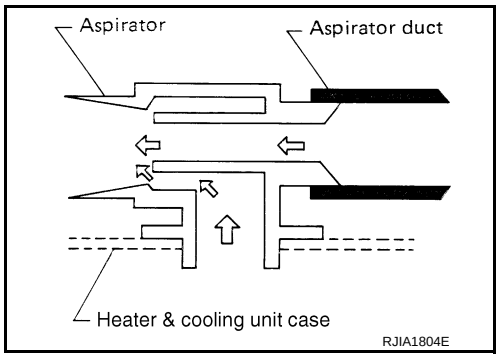
INFOID:0000000005905644

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

HEATER & COOLING UNIT ASSEMBLY : Aspirator

INFOID:0000000005905645

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



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

INFOID:0000000005905646

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

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

INFOID:0000000005905647

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

HEATER & COOLING UNIT ASSEMBLY : Rear Mode Door Motor

INFOID:0000000005905648

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

HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor

INFOID:0000000006107073

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

HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor (Driver Side)

INFOID:0000000005905649

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

HEATER & COOLING UNIT ASSEMBLY : Upper Ventilator Door Motor (Passenger Side)

INFOID:0000000005905650

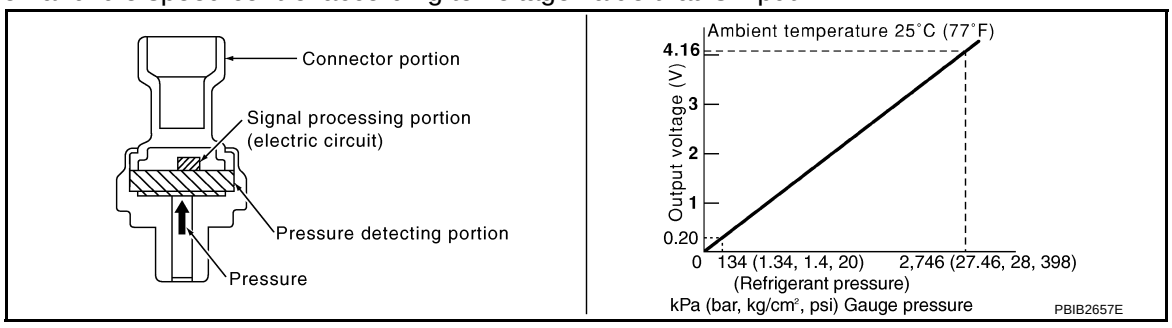
- Upper ventilator door motor (passenger side) consists of motor that drives door and PBR (Potentio Balance Register) that detects door position.
- Motor operates upper ventilator door (passenger side) according to control signal from A/C auto amp.
- PBR (Potentio Balance Register) transmits PBR feedback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

Refrigerant Pressure Sensor

INFOID:0000000006107072

Description

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



Structure and operation

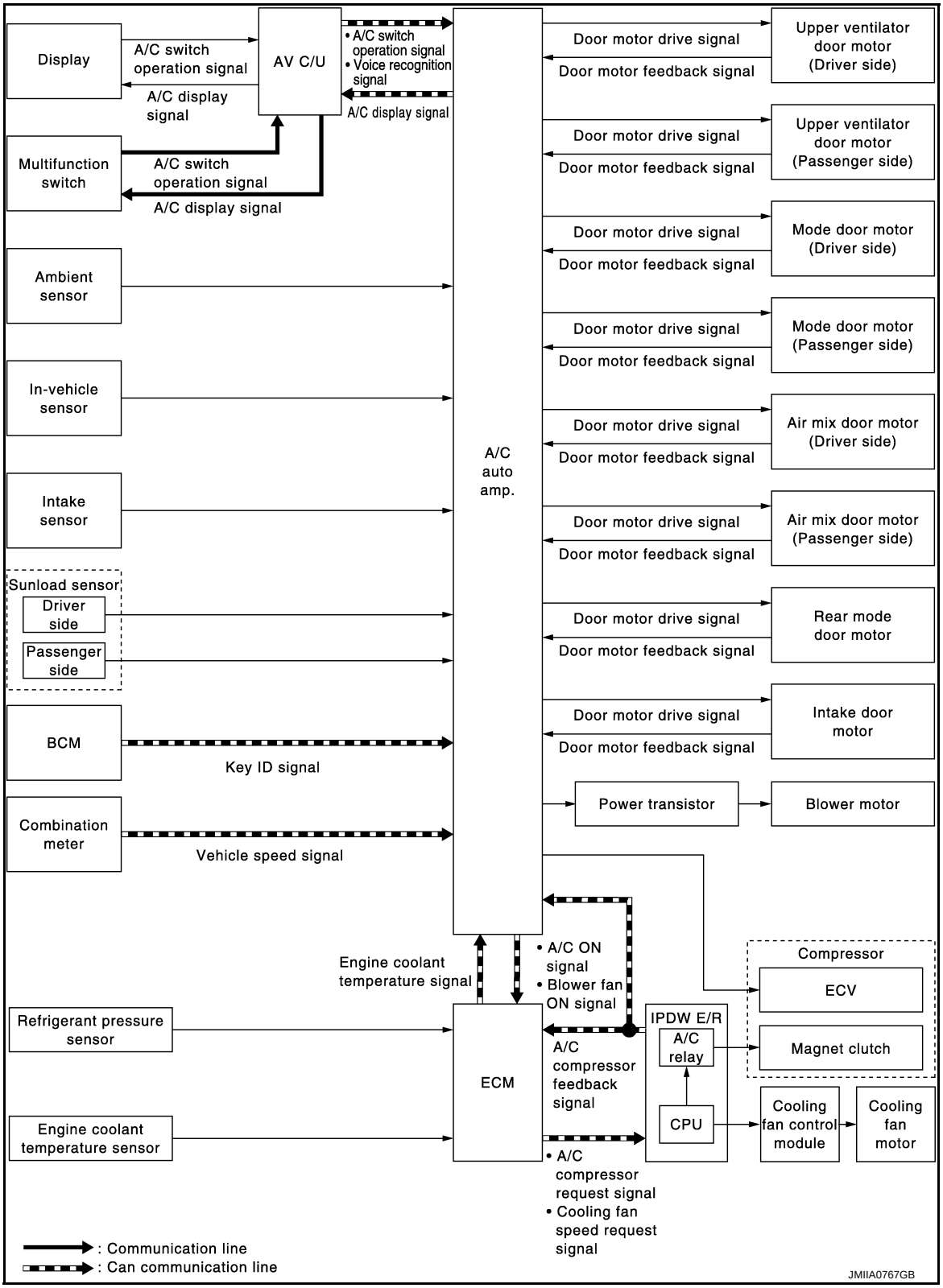
The refrigerant pressure sensor is a capacitance type sensor. It consists of a pressure detection area and a signal processing area. The pressure detection area, which is a variable capacity condenser, changes internal static capacitance according to pressure force. The signal processing area detects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

SYSTEM

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR)

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : System Diagram

INFOID:0000000005905652



AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : System Descrip-

tion

INFOID:0000000005905653

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

Control by A/C auto amp.
- HAC-20, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Flow Control"
- HAC-21, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Inlet Control"
- HAC-21, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Inlet Control"
- HAC-22, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Outlet Control"
- HAC-22, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Compressor Control"
- HAC-22, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Door Control"
- HAC-25, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Temperature Control"
- HAC-25, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Intelligent Key Interlock Function"
- Correction for input value of each sensor

Ambient sensor (setting temperature correction)
• A/C auto amp. controls passenger room temperature so that the optimum level always matches the temperature level that passenger may feel. Correction is applied to the target temperature that is set using temperature control dial, according to ambient temperature detected by ambient sensor.

In-vehicle sensor (setting temperature correction)
• Passenger room temperature from in-vehicle sensor is corrected for each air conditioning control (driver side and passenger side)

Intake sensor (intake temperature correction)
• A/C auto amp. performs correction to change recognition intake temperature of A/C auto amp. more quickly when difference is larger between recognition intake temperature and intake temperature from intake temperature sensor. The correction is performed to change recognition intake temperature more slowly when difference is smaller.

Sunload sensor (sunload amount correction)
• Sunload amount from sunload sensor is corrected for each air conditioning control (driver side and passenger side).
• A/C auto amp. performs correction to change recognition sunload amount of A/C auto amp. slowly when sunload amount changes excessively, for example when entering or exiting a tunnel.

Control by ECM
- Cooling fan control
  Refer to EC-50, "COOLING FAN CONTROL : System Description" (VQ37VHR) or EC-575, "COOLING FAN CONTROL : System Description" (VK56VD).
- Air conditioning cut control
  Refer to EC-48, "AIR CONDITIONING CUT CONTROL : System Description" (VQ37VHR) or EC-581, "AIR CONDITIONING CUT CONTROL : System Description" (VK56VD).

Control by IPDM E/R
- Relay control
  Refer to PCS-6, "RELAY CONTROL SYSTEM : System Description".
- Cooling fan control
  Refer to PCS-9, "POWER CONTROL SYSTEM : System Description".

Control by BCM
- Intelligent key interlock function.
  Refer to DLK-14, "INTELLIGENT KEY SYSTEM : System Description".
• Various operations of air conditioning system are transmitted from multifunction switch and display to AV control unit via communication line (except display) and from AV control unit to A/C auto amp. via CAN communication. A/C auto amp. sends each indication information to AV control unit via CAN communication. AV control unit displays each type of indication information that is received.

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Flow Control

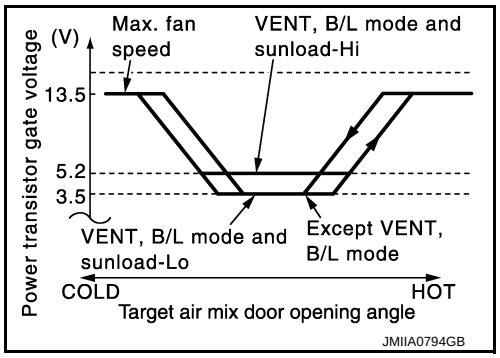
INFOID:0000000005905654

DESCRIPTION

- A/C auto amp. changes gate voltage to power transistor and controls air flow in 31 stages based on target air flow. When air flow is to be increased, gate voltage to power transistor increases gradually for preventing excessive large amount of air flow.
- In addition to manual control and automatic control, air flow control is consist of low coolant temperature starting control, fan speed control at door motor operation and fan speed control at voice recognition.

AUTOMATIC AIR FLOW CONTROL

- A/C auto amp. decides target air flow depending on target air mix door opening angle.
- A/C auto amp. changes voltage to power transistor gate and controls air flow in 31 stages, so that target air flow is achieved.
- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.



LOW COOLANT TEMPERATURE STARTING CONTROL

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

FAN SPEED CONTROL AT DOOR MOTOR OPERATION

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

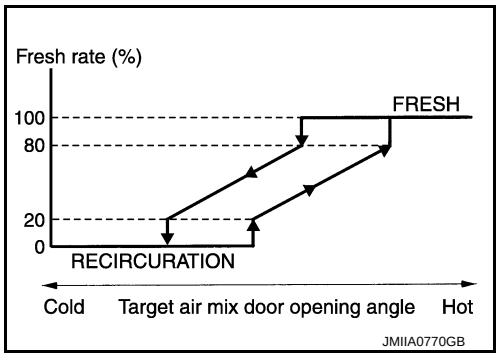
FAN SPEED CONTROL AT VOICE RECOGNITION

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

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Inlet Control

INFOID:0000000005905655

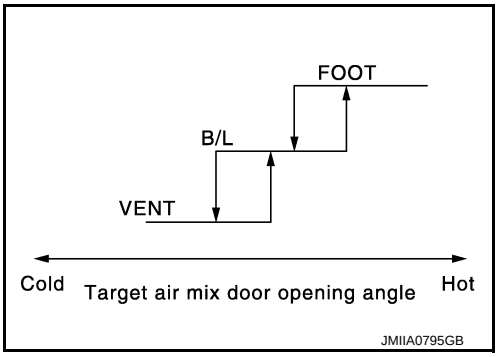
Intake door automatic control selects FRE, 20 – 80% FRE, or REC depending on a target air mix door opening angle.



AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Air Outlet Control

INFOID:0000000005905656

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



AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Compressor Control

INFOID:0000000005905657

DESCRIPTION

- When the compressor activation condition is satisfied while blower motor is activated, A/C auto amp. transmits A/C ON signal and blower fan ON signal to ECM via CAN communication.
- ECM judges that the compressor can be activated depending on each sensors state (refrigerant pressure sensor signal, throttle position sensor signal, and others). And transmits air conditioner relay control signal to IPDM E/R via CAN communication.
- IPDM E/R turns air conditioner relay ON and activates the compressor depending on request from ECM.

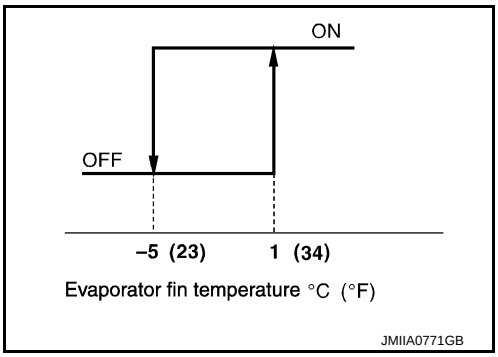
COMPRESSOR PROTECTION CONTROL AT PRESSURE MALFUNCTION

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

- 3.12 MPa (31.20 bar, 31.8 kg/cm^2, 452 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.40 bar, 27.9 kg/cm^2, 397 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.12 MPa (1.20 bar, 1.2 kg/cm^2, 17 psi) or less

LOW TEMPERATURE PROTECTION CONTROL

- When intake sensor detects that evaporator fin temperature is – 5°C (23°F) or less, A/C auto amp. requests ECM to turn compressor OFF, and stops the compressor.
- When the evaporator fin temperature returns to 1°C (34°F) or more, the compressor is activated.



OPERATING RATE CONTROL

When set temperature is other than fully cold or air outlet is “VENT”, “B/L” or “FOOT” A/C auto amp. controls the compressor activation depending on ambient temperature.

AIR CONDITIONING CUT CONTROL

When the engine is running in excessively high load condition, ECM requests IPDM E/R to turn air conditioner relay OFF, and stops the compressor. Refer to EC-48, "AIR CONDITIONING CUT CONTROL : System Description" (VQ37VHR) or EC-581, "AIR CONDITIONING CUT CONTROL : System Description" (VK56VD) for details.

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Door Control

INFOID:0000000005905658

DOOR MOTOR CONTROL

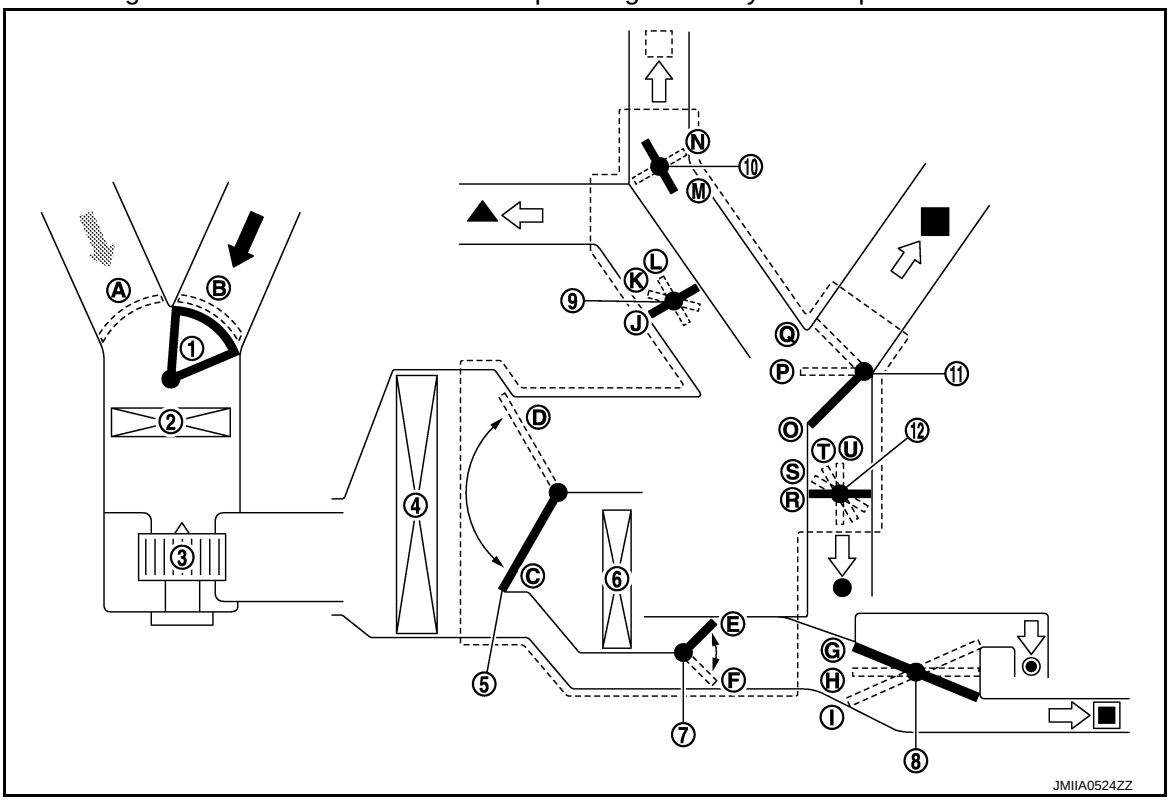
- The A/C auto amp. receives data from each sensor.

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

SWITCHES AND THEIR CONTROL FUNCTIONS

NOTE:

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



1.	Intake door	2.	In-cabin microfilter	3.	Blower motor
4.	Evaporator	5.	Air mix door (driver side / passenger side)	6.	Heater core
7.	Rear air mix door	8.	Rear mode door	9.	Defroster door
10.	Upper ventilator door (driver side / passenger side)	11.	Ventilator door (driver side / passenger side)	12.	Foot door (driver side / passenger side)
⇦	Fresh air	⬅	Recirculation air	▲	Defroster
⬚	Upper ventilator	■	Ventilator	●	Foot
◉	Rear foot	▣	Rear ventilator		

Switch position				Door position											
				Ventilator door		Foot door		Defroster door	Rear mode door	Upper ventilator door		Intake door	Air mix door		Rear air mix door
				Driver side	Passenger side	Driver side	Passenger side			Driver side	Passenger side		Driver side	Passenger side	
AUTO switch	ON			AUTO						—		AUTO			
MODE switch (Driver side)	DUAL: OFF	VENT		O		R		J	G	—					
		B/L		P		T		J	H	—					
		FOOT		Q		U		K	I	—					
		D/F		Q		T		L	I	—					
MODE switch (Driver side)	DUAL: ON	VENT		O	—	R	—	J		—					
		B/L		P	—	T	—	J		—					
		FOOT		Q	—	U	—	K		—					
		D/F		Q		T		L		—					
MODE switch (Passenger side)	DUAL: ON	VENT		—	O	—	R	—	G	—					
		B/L		—	P	—	T	—	H	—					
		FOOT		—	Q	—	U	—	I	—					
DEF switch	ON			Q		R		L	I	—					
	OFF			—											
Upper Vent	ON			—						M		—			
	OFF			—						N		—			
Intake switch*	FRE			—								B	—		
	REC			—								A	—		
Temperature control switch (Driver side)	DUAL: OFF	18°C (60°F)		—		S		—					C		E
		18.5°C – 31.5°C (61°F – 89°F)		—									AUTO		
		32°C (90°F)		—									D		F
Temperature control switch (Driver side)	DUAL: ON	18°C (60°F)		—		S		—					C		—
		18.5°C – 31.5°C (61°F – 89°F)		—									AUTO		—
		32°C (90°F)		—									D		—
Temperature control switch (Passenger side)		18°C (60°F)		—			S	—						C	E
		18.5°C – 31.5°C (61°F – 89°F)		—										AUTO	
		32°C (90°F)		—										D	F
OFF switch	OFF			Q		U		K	I	—					

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

AIR DISTRIBUTION

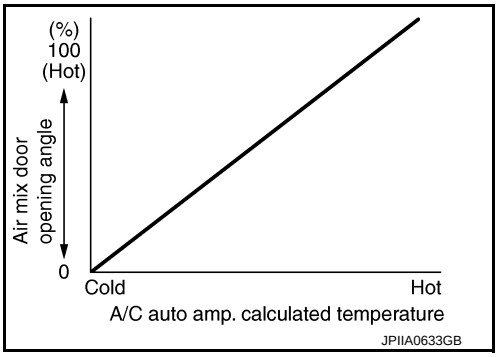
Discharge air flow												
Mode position	Condition				Air outlet / distribution							
					VENT				FOOT		DEF	
					Front		Upper	Rear	Front	Rear		
					Center	Side						
	• DUAL: OFF • Rear ventilator: Close	Upper Vent: ON	Temperature control switch (driver side)	18°C (60°F)	34.5%	34.5%	10.0%	13.0%	8.0%	—	—	
				Other than 18°C (60°F)*1	38.0%	38.0%	11.0%	13.0%	—	—	—	
			—		24.0%	24.0%	10.0%	12.0%	19.0%	11.0%	—	
			—		—	14.0%	14.0%	7.0%	24.0%	22.0%	19.0%	
			—		—	11.0%	12.0%	5.0%	20.0%	22.0%	30.0%	
		—			—	11.0%	—	—	—	—	89.0%	
*2		—			—	9.0%	—	7.0%	—	20.0%	64.0%	

- *1: Air blow is also supplied to front foot until passenger room temperature stabilizes when temperature setting is other than 18°C (60°F). At that time, air blowing is the same as 18°C (60°F) setting.
- *2: During automatic defogging control. Refer to HAC-37, "FOREST AIR SYSTEM : Automatic Defogging Control".

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Temperature Control

INFOID:0000000005905659

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



AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Intelligent Key Interlock Function

INFOID:0000000005905660

DESCRIPTION

- Setting value of air conditioning system when ignition switch is previously OFF can be memorized for each Intelligent Key. Air conditioning system is automatically operated by the setting value.
  NOTE:
  Setting value can be memorized for up to 3 Intelligent Keys.
- Interlock items are as per the following table.

Operation	Conditions
Multifunction switch	AUTO switch (ON / OFF)
	Setting temperature (Setting value)
	Air flow (Setting value)
	Air inlet (FRE / REC)
	Air outlet (VENT / B/L / FOOT / D/F / DEF)

Operation	Conditions
“Climate” menu screen	“A/C” (ON / OFF)
	“DUAL” (ON / OFF)
	“Upper Vent” (ON / OFF)

Operation Description

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

Readout
1. Unlock door using Intelligent Key or driver door request switch.
2. BCM transmits Key ID signal to A/C auto amp. via CAN communication line.
3. When ignition switch turns ON, A/C auto amp. operates automatically air conditioning system according to setting information of Key ID that is received.
   NOTE:
   When Intelligent Key interlock function operates, “Connection with the key has been done.” is displayed.

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Fail-safe

INFOID:0000000005905920

FAIL-SAFE FUNCTION

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

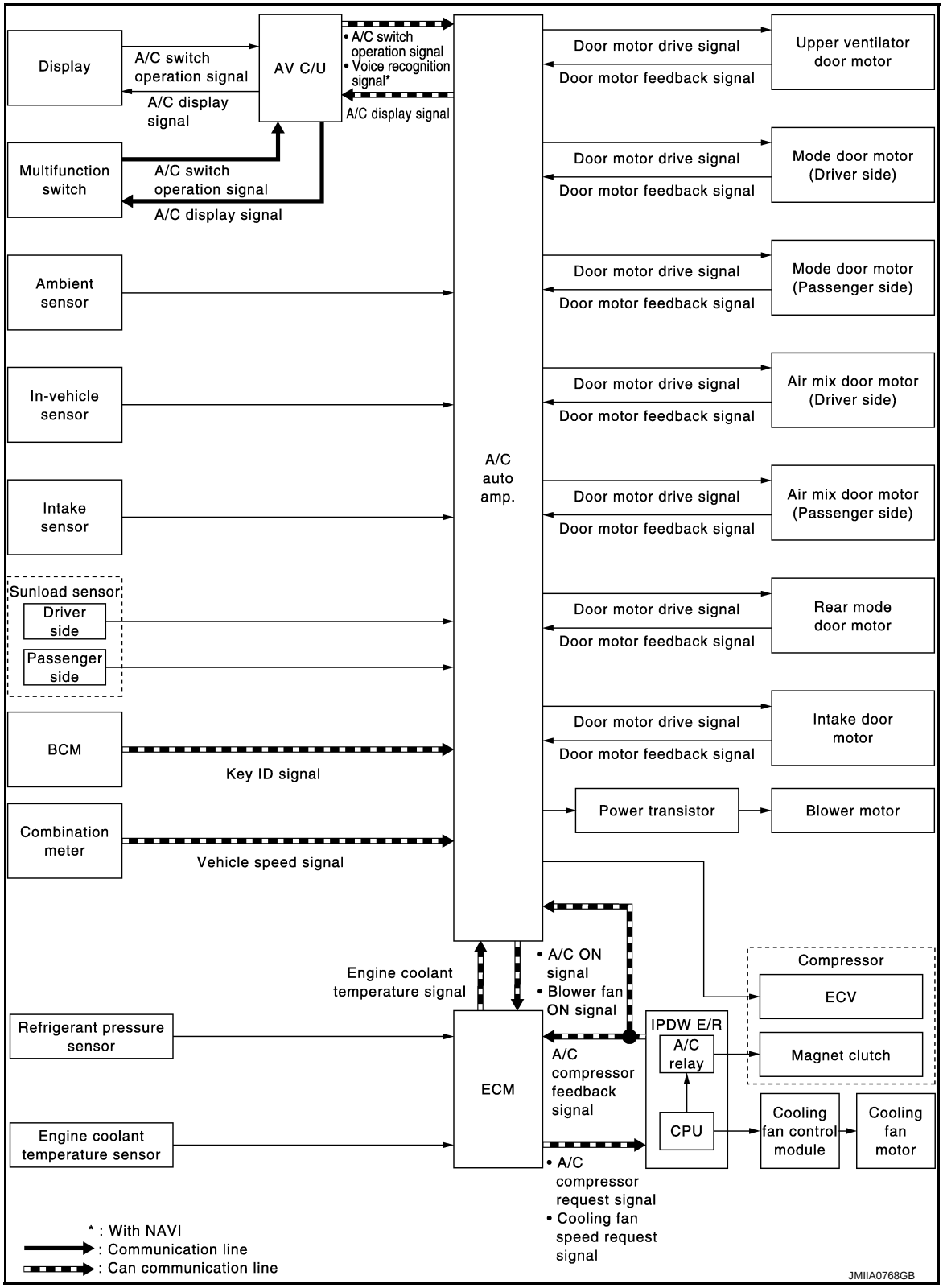
Compressor	**: ON**
Air outlet	**: AUTO**
Air inlet	**: FRE (Fresh air intake)**
Fan speed	**: AUTO**
Set temperature	**: Setting before communication malfunction**

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR)

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : System Dia-

gram

INFOID:0000000006113222



AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : System Description

INFOID:0000000006113223

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

Control by A/C auto amp.
- HAC-28, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Flow Control"
- HAC-29, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Inlet Control"
- HAC-29, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Inlet Control"
- HAC-29, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Outlet Control"
- HAC-30, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Compressor Control"
- HAC-30, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Door Control"
- HAC-33, "AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Temperature Control"
- HAC-38, "FOREST AIR SYSTEM : Intelligent Key Interlock Function"
- Correction for input value of each sensor

Ambient sensor (setting temperature correction)
- A/C auto amp. controls passenger room temperature so that the optimum level always matches the temperature level that passenger may feel. Correction is applied to the target temperature that is set using temperature control dial, according to ambient temperature detected by ambient sensor.

In-vehicle sensor (setting temperature correction)
- Passenger room temperature from in-vehicle sensor is corrected for each air conditioning control (driver side and passenger side)

Intake sensor (intake temperature correction)
- A/C auto amp. performs correction to change recognition intake temperature of A/C auto amp. more quickly when difference is larger between recognition intake temperature and intake temperature from intake temperature sensor. The correction is performed to change recognition intake temperature more slowly when difference is smaller.

Sunload sensor (sunload amount correction)
- Sunload amount from sunload sensor is corrected for each air conditioning control (driver side and passenger side).
- A/C auto amp. performs correction to change recognition sunload amount of A/C auto amp. slowly when sunload amount changes excessively, for example when entering or exiting a tunnel.

Control by ECM
- Cooling fan control
  Refer to EC-50, "COOLING FAN CONTROL : System Description" (VQ37VHR) or EC-575, "COOLING FAN CONTROL : System Description" (VK56VD).
- Air conditioning cut control
  Refer to EC-48, "AIR CONDITIONING CUT CONTROL : System Description" (VQ37VHR) or EC-581, "AIR CONDITIONING CUT CONTROL : System Description" (VK56VD).

Control by IPDM E/R
- Relay control
  Refer to PCS-6, "RELAY CONTROL SYSTEM : System Description".
- Cooling fan control
  Refer to PCS-9, "POWER CONTROL SYSTEM : System Description".

Control by BCM
- Intelligent key interlock function.
  Refer to DLK-14, "INTELLIGENT KEY SYSTEM : System Description".
- Various operations of air conditioning system are transmitted from multifunction switch and display to AV control unit via communication line (except display) and from AV control unit to A/C auto amp. via CAN communication. A/C auto amp. sends each indication information to AV control unit via CAN communication. AV control unit displays each type of indication information that is received.

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Flow Control

INFOID:0000000006113224

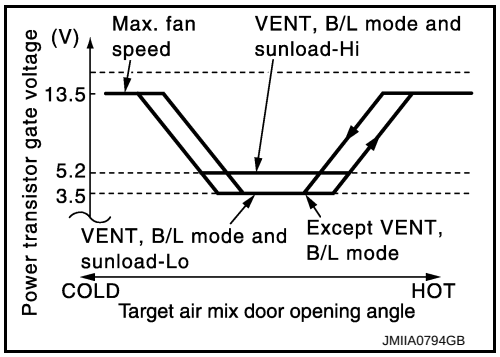
DESCRIPTION

- A/C auto amp. changes gate voltage to power transistor and controls air flow in 31 stages based on target air flow. When air flow is to be increased, gate voltage to power transistor increases gradually for preventing excessive large amount of air flow.

- In addition to manual control and automatic control, air flow control is consist of low coolant temperature starting control, fan speed control at door motor operation and fan speed control at voice recognition (with navi).

AUTOMATIC AIR FLOW CONTROL

- A/C auto amp. decides target air flow depending on target air mix door opening angle.
- A/C auto amp. changes voltage to power transistor gate and controls air flow in 31 stages, so that target air flow is achieved.
- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.



LOW COOLANT TEMPERATURE STARTING CONTROL

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

FAN SPEED CONTROL AT DOOR MOTOR OPERATION

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

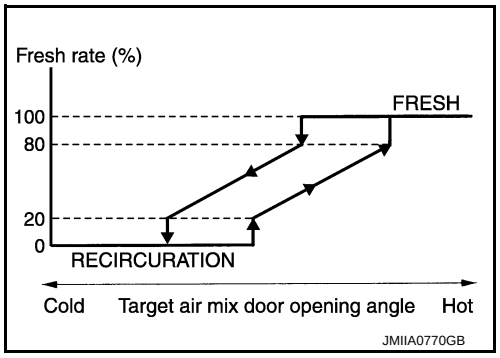
FAN SPEED CONTROL AT VOICE RECOGNITION (WITH NAVI)

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

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Inlet Control

INFOID:0000000006113225

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

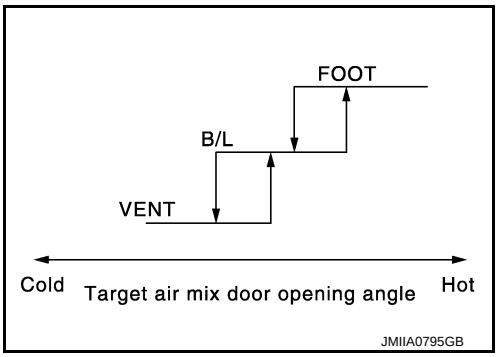


AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Air Outlet

Control

INFOID:0000000006113226

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



AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Compressor Control

INFOID:0000000006113227

DESCRIPTION

- When the compressor activation condition is satisfied while blower motor is activated, A/C auto amp. transmits A/C ON signal and blower fan ON signal to ECM via CAN communication.
- ECM judges that the compressor can be activated depending on each sensors state (refrigerant pressure sensor signal, throttle position sensor signal, and others). And transmits air conditioner relay control signal to IPDM E/R via CAN communication.
- IPDM E/R turns air conditioner relay ON and activates the compressor depending on request from ECM.

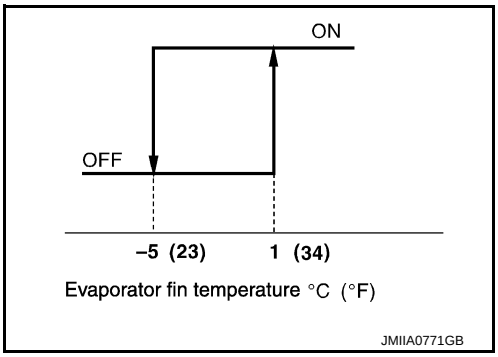
COMPRESSOR PROTECTION CONTROL AT PRESSURE MALFUNCTION

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

- 3.12 MPa (31.20 bar, 31.8 kg/cm^2, 452 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.40 bar, 27.9 kg/cm^2, 397 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.12 MPa (1.20 bar, 1.2 kg/cm^2, 17 psi) or less

LOW TEMPERATURE PROTECTION CONTROL

- When intake sensor detects that evaporator fin temperature is – 5°C (23°F) or less, A/C auto amp. requests ECM to turn compressor OFF, and stops the compressor.
- When the evaporator fin temperature returns to 1°C (34°F) or more, the compressor is activated.



OPERATING RATE CONTROL

When set temperature is other than fully cold or air outlet is “VENT”, “B/L” or “FOOT” A/C auto amp. controls the compressor activation depending on ambient temperature.

AIR CONDITIONING CUT CONTROL

When the engine is running in excessively high load condition, ECM requests IPDM E/R to turn air conditioner relay OFF, and stops the compressor. Refer to EC-48, "AIR CONDITIONING CUT CONTROL : System Description" (VQ37VHR) or EC-581, "AIR CONDITIONING CUT CONTROL : System Description" (VK56VD) for details.

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Door Control

INFOID:0000000006113228

DOOR MOTOR CONTROL

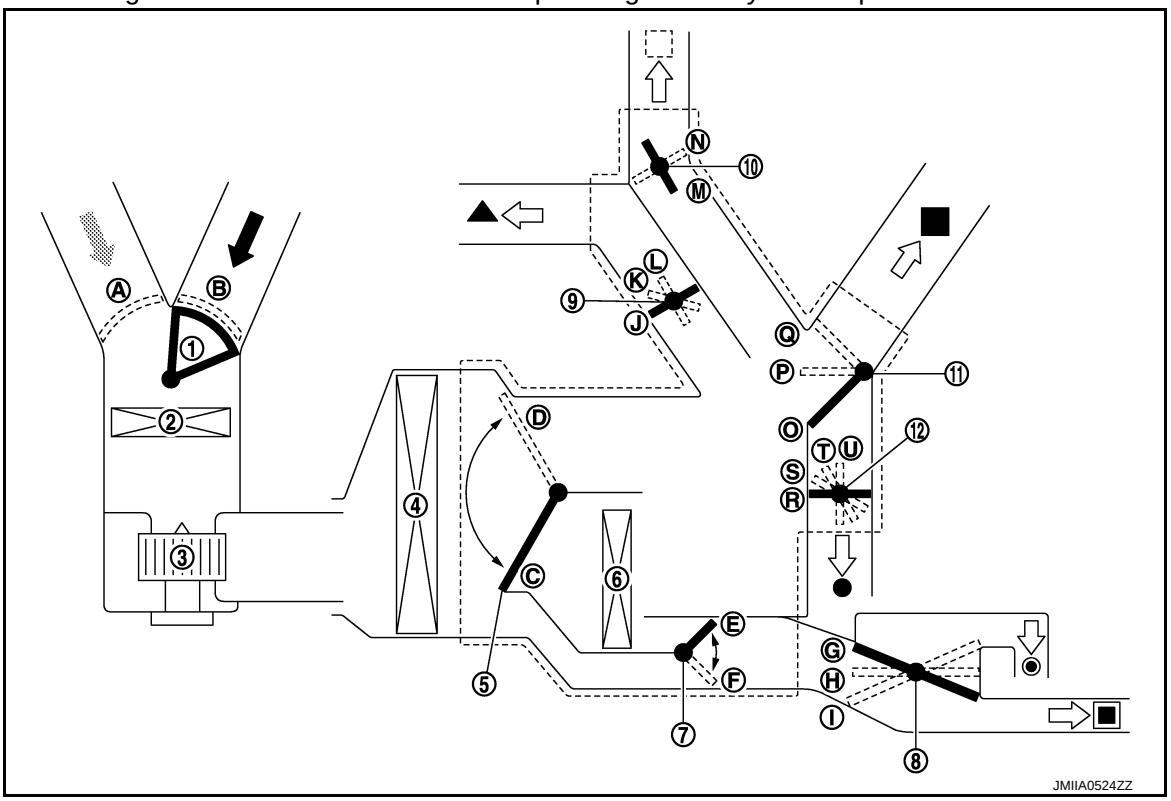
- The A/C auto amp. receives data from each sensor.

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

SWITCHES AND THEIR CONTROL FUNCTIONS

NOTE:

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



1. Intake door	2. In-cabin microfilter	3. Blower motor
4. Evaporator	5. Air mix door (driver side / passenger side)	6. Heater core
7. Rear air mix door	8. Rear mode door	9. Defroster door
10. Upper ventilator door	11. Ventilator door (driver side / passenger side)	12. Foot door (driver side / passenger side)
Fresh air	Recirculation air	Defroster
Upper ventilator	Ventilator	Foot
Rear foot	Rear ventilator	

Switch position			Door position											
			Ventilator door		Foot door		Defroster door	Rear mode door	Upper ventilator door	Intake door	Air mix door		Rear air mix door
			Driver side	Passenger side	Driver side	Passenger side					Driver side	Passenger side	
AUTO switch	ON		AUTO						—	AUTO			
MODE switch (Driver side)	DUAL: OFF	VENT	O		R		J	G	—				
		B/L	P		T		J	H	—				
		FOOT	Q		U		K	I	—				
		D/F	Q		T		L	I	—				
MODE switch (Driver side)	DUAL: ON	VENT	O	—	R	—	J	—					
		B/L	P	—	T	—	J	—					
		FOOT	Q	—	U	—	K	—					
		D/F	Q		T		L	—					
MODE switch (Passenger side)	DUAL: ON	VENT	—	O	—	R	—	G	—				
		B/L	—	P	—	T	—	H	—				
		FOOT	—	Q	—	U	—	I	—				
DEF switch	ON		Q		R		L	I	—				
	OFF		—										
Upper Vent	ON		—						M	—			
	OFF		—						N	—			
FRE switch*	ON		—							B	—		
REC switch*	ON		—							A	—		
Temperature control switch (Driver side)	DUAL: OFF	18°C (60°F)	—		S		—				C		E
		18.5°C – 31.5°C (61°F – 89°F)	—								AUTO		
		32°C (90°F)	—								D		F
Temperature control switch (Driver side)	DUAL: ON	18°C (60°F)	—		S		—				C		—
		18.5°C – 31.5°C (61°F – 89°F)	—								AUTO		—
		32°C (90°F)	—								D		—
Temperature control switch (Passenger side)		18°C (60°F)	—			S	—					C	E
		18.5°C – 31.5°C (61°F – 89°F)	—									AUTO	
		32°C (90°F)	—									D	F
OFF switch	OFF		Q		U		K	I	—	—			

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

AIR DISTRIBUTION

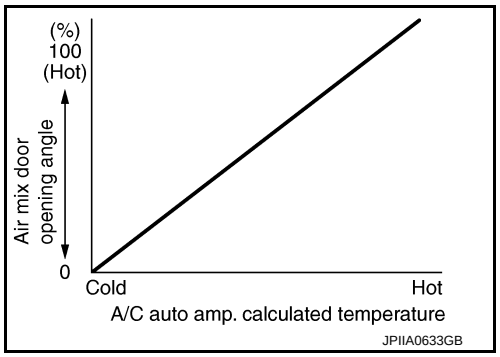
Discharge air flow												
Mode position	Condition				Air outlet / distribution							
					VENT				FOOT		DEF	
					Front		Upper	Rear	Front	Rear		
					Center	Side						
	• DUAL: OFF • Rear ventilator: Close	Upper Vent: ON	Temperature control switch (driver side)	18°C (60°F)	34.5%	34.5%	10.0%	13.0%	8.0%	—	—	
				Other than 18°C (60°F)*	38.0%	38.0%	11.0%	13.0%	—	—	—	
			—		24.0%	24.0%	10.0%	12.0%	19.0%	11.0%	—	
			—		—	14.0%	14.0%	7.0%	24.0%	22.0%	19.0%	
			—		—	11.0%	12.0%	5.0%	20.0%	22.0%	30.0%	
		—			—	11.0%	—	—	—	—	89.0%	

*: Air blow is also supplied to front foot until passenger room temperature stabilizes when temperature setting is other than 18°C (60°F). At that time, air blowing is the same as 18°C (60°F) setting.

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Temperature Control

INFOID:0000000006113229

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



AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Intelligent Key Interlock Function

INFOID:0000000006113230

DESCRIPTION

- Setting value of air conditioning system when ignition switch is previously OFF can be memorized for each Intelligent Key. Air conditioning system is automatically operated by the setting value.
  NOTE:
  Setting value can be memorized for up to 3 Intelligent Keys.
- Interlock items are as per the following table.

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

Operation Description

Memory

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

Readout

1. Unlock door using Intelligent Key or driver door request switch.
2. BCM transmits Key ID signal to A/C auto amp. via CAN communication line.
3. When ignition switch turns ON, A/C auto amp. operates automatically air conditioning system according to setting information of Key ID that is received.
   NOTE:
   When Intelligent Key interlock function operates, “Connection with the key has been done.” is displayed.

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Fail-safe

INFOID:0000000006113281

FAIL-SAFE FUNCTION

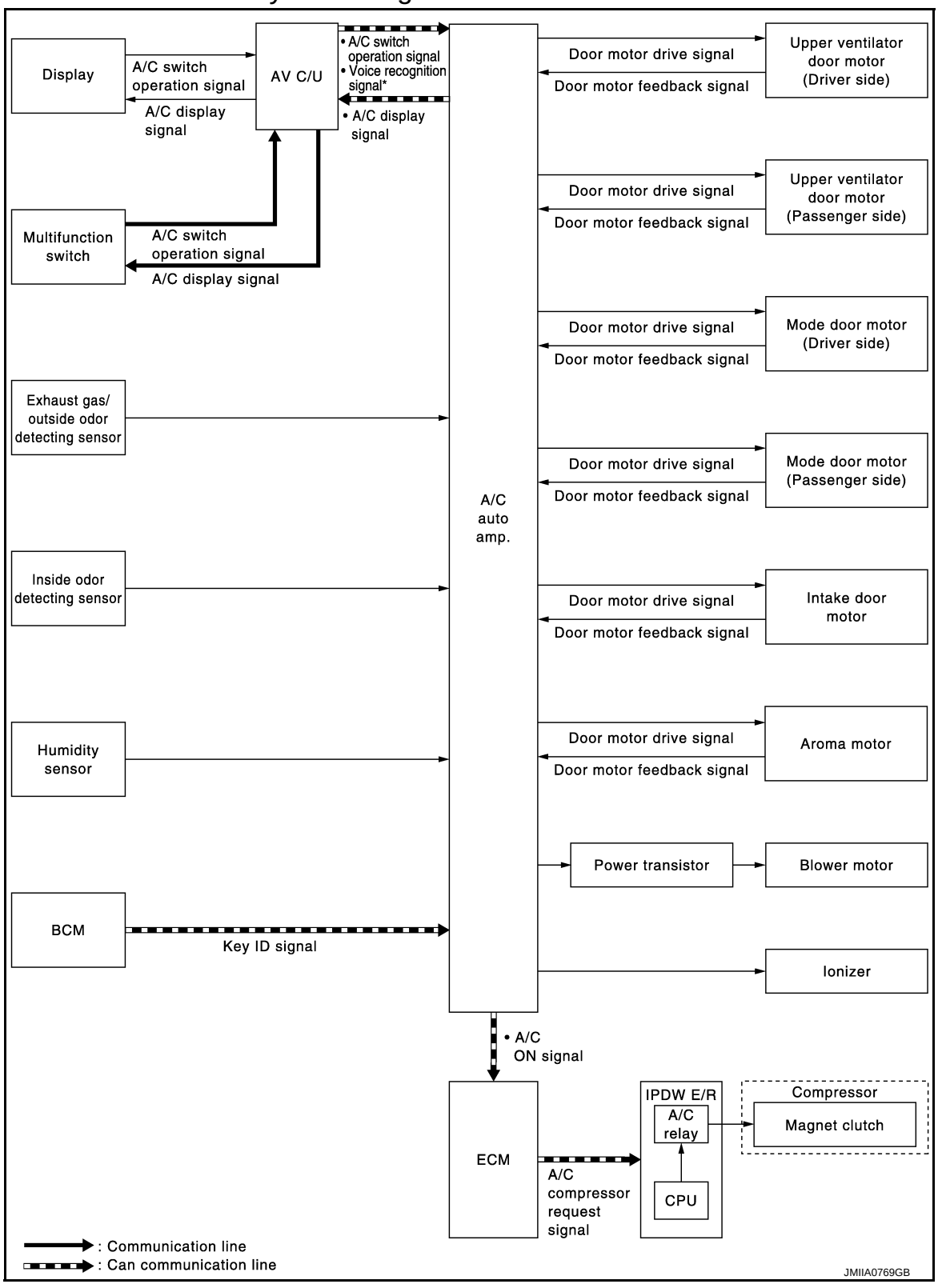
When a communication malfunction between A/C auto amp. and AV control unit and multifunction switch continued for approximately 30 seconds or more, control the air conditioning under the following conditions.

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

FOREST AIR SYSTEM

FOREST AIR SYSTEM : System Diagram

INFOID:0000000005905662



FOREST AIR SYSTEM : System Description

INFOID:0000000005905663

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

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

NOTE:

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

- HAC-36, "FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism)"
- HAC-36, "FOREST AIR SYSTEM : Aroma Diffuser Control"
- HAC-37, "FOREST AIR SYSTEM : Automatic Defogging Control"
- HAC-37, "FOREST AIR SYSTEM : Automatic Intake Control (Exhaust Gas / Outside Odor Detecting Mechanism)"
- HAC-37, "FOREST AIR SYSTEM : Breezy Air Control"
- HAC-38, "FOREST AIR SYSTEM : Plasmacluster Control"

- Setting of Forest Air system can be memorized for each Intelligent Key. Refer to HAC-38, "FOREST AIR SYSTEM : Intelligent Key Interlock Function".
- “Forest Air setting” menu is displayed on screen that can operate and adjust Forest Air system [aroma diffuser control, automatic defogging control, automatic intake control (exhaust gas / outside odor detecting mechanism) and breezy air].
- “Forest Air Info” menu is displayed on screen that can be used to check operation status of Forest Air system visually.
- Various operations of Forest Air system are transmitted from multifunction switch and display to AV control unit via communication line (except display) and from AV control unit to A/C auto amp. via CAN communication. A/C auto amp. sends each indication information to AV control unit via CAN communication. AV control unit displays each indication information that is received.

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

INFOID:0000000005905667

DESCRIPTION

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

OPERATION DESCRIPTION

- Air flow control (inside odor detecting mechanism) operates when odor in passenger room is detected while FOREST switch is ON.
- Control status is displayed on “Forest Air Info” screen. Refer to HAC-45, "FOREST AIR SYSTEM : Switch Name and Function".

NOTE:

- ON/OFF of air flow control (inside odor detecting mechanism) can be changed using “BLOWER MOTOR SETTING” in “WORK SUPPORT” mode of CONSULT-III. Refer to HAC-50, "CONSULT-III Function".
- Air flow control (inside odor detecting mechanism) does not operate when ambient temperature is –2°C (28°F) or less.

FOREST AIR SYSTEM : Aroma Diffuser Control

INFOID:0000000005905664

DESCRIPTION

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

OPERATION DESCRIPTION

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

NOTE:

- ON/OFF of aroma diffuser control can be changed by “Aroma” in “Forest Air Setting” menu. Refer to HAC-48, "FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch".

- Details of aroma diffuser control can be changed using “AROMA SETTING” and “AROMA DIFFUSER SETTING” in “WORK SUPPORT” mode of CONSULT-III. Refer to HAC-50, "CONSULT-III Function".
- Aroma diffuser control does not operate when ambient temperature is –2°C (28°F) or less.

FOREST AIR SYSTEM : Automatic Defogging Control

INFOID:0000000005905665

DESCRIPTION

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

OPERATION DESCRIPTION

- This control operates when fogging is detected while AUTO switch is ON.
- Control status is displayed on “Forest Air Info” screen. Refer to HAC-45, "FOREST AIR SYSTEM : Switch Name and Function".

NOTE:

- ON/OFF and ON/OFF timing of automatic defogging control can be changed by “Auto Defogging Sensitivity” in “Forest Air Setting” menu. Refer to HAC-48, "FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch".
- Automatic defogging control does not operate when ambient temperature is –2°C (28°F) or less.

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

INFOID:0000000005905666

DESCRIPTION

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

OPERATION DESCRIPTION

- Air inlet switches to recirculation when exhaust gas or outside odor is detected while FOREST switch is ON. After that, air inlet switches to fresh air intake when exhaust gas or outside odor becomes not detectable.
- Control status is displayed on “Forest Air Info” screen. Refer to HAC-45, "FOREST AIR SYSTEM : Switch Name and Function".

NOTE:

- Sensitivity of exhaust gas / outside odor detecting sensor can be changed by “Outside/Inside Air Mix” in “Forest Air Setting” menu. Refer to HAC-48, "FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch".
- Automatic intake control (exhaust gas / outside odor detecting mechanism) does not operate when ambient temperature is –2°C (28°F) or less. In this case, control is only for control of automatic air inlet of automatic air conditioning system.

FOREST AIR SYSTEM : Breezy Air Control

INFOID:0000000005905669

DESCRIPTION

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

OPERATION DESCRIPTION

- This control automatically operates when FOREST switch is ON, air outlet mode is VENT or FOOT, and passenger room temperature is in stable status.
- Control status is displayed on “Forest Air Info” screen. Refer to HAC-45, "FOREST AIR SYSTEM : Switch Name and Function".

NOTE:

- ON/OFF of breezy air control can be changed by “Breeze Mode” in “Forest Air Setting” menu. Level of breezy air can be selected by “Fan Speed Variance” in “Forest Air Setting” menu. Refer to HAC-48, "FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch".

- Breezy air control does not operate when air outlet is B/L, D/F, or DEF mode and ambient temperature is –2°C (28°F) or less.

FOREST AIR SYSTEM : Plasmacluster Control

INFOID:0000000005905668

DESCRIPTION

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

OPERATION DESCRIPTION

- Plasmacluster™ control operates by interlocking to blower motor. Plasmacluster™ control operates when blower motor operates.
- Control status is displayed on air conditioning system display screen and “Forest Air Info” screen. Refer to HAC-45, "FOREST AIR SYSTEM : Switch Name and Function".

NOTE:

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

FOREST AIR SYSTEM : Intelligent Key Interlock Function

INFOID:0000000006113233

DESCRIPTION

- Setting value of Forest Air system when ignition switch is previously OFF can be memorized for each Intelligent Key. Forest Air system is automatically operated by the setting value.
  NOTE:
  Setting value can be memorized for up to 3 Intelligent Keys.
- Interlock items are as per the following table.

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

Operation Description

Memory

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

Readout

1. Unlock door using Intelligent Key or driver door request switch.
2. BCM transmits Key ID signal to A/C auto amp. via CAN communication line.
3. When ignition switch turns ON, A/C auto amp. operates automatically Forest Air system according to setting information of Key ID that is received.
   NOTE:
   When Intelligent Key interlock function operates, “Connection with the key has been done.” is displayed.

OPERATION

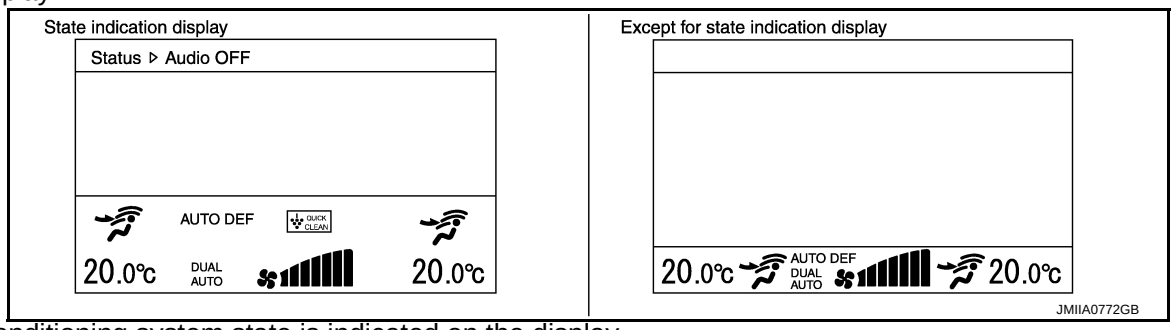
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR)

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Switch Name and Function

INFOID:0000000006114689

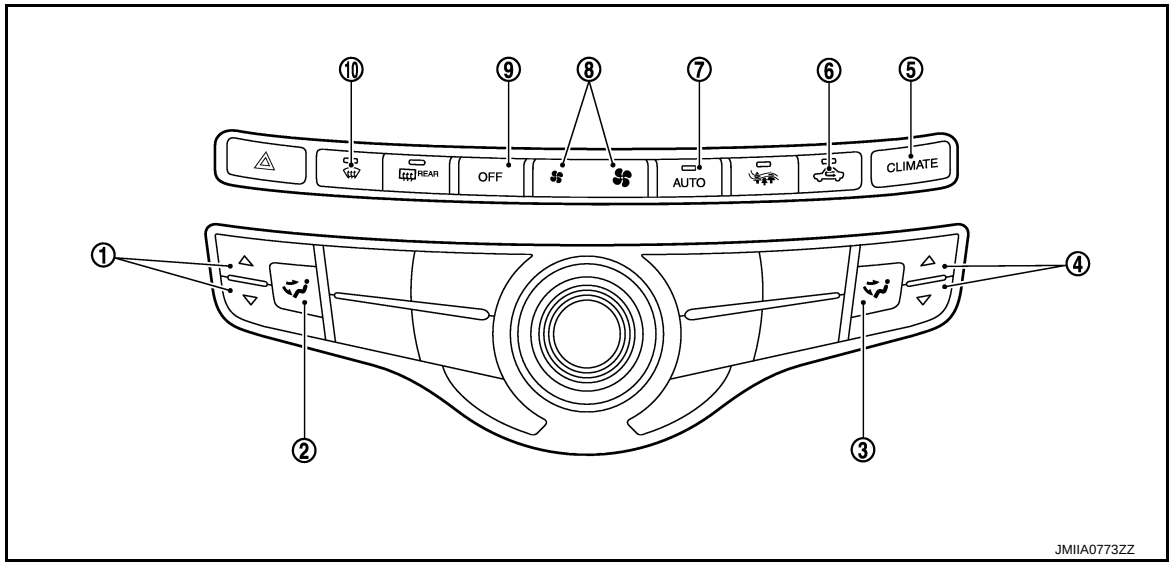
OPERATION AND DISPLAY

A/C Display



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

A/C Controller (Multifunction switch)



1. Temperature control switch (Driver side)
2. MODE switch (Driver side)
3. MODE switch (Passenger side)
4. Temperature control switch (Passenger side)
5. CLIMATE switch
6. Intake switch
7. AUTO switch
8. Fan switch
9. OFF switch
10. DEF switch

Switch Operation

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

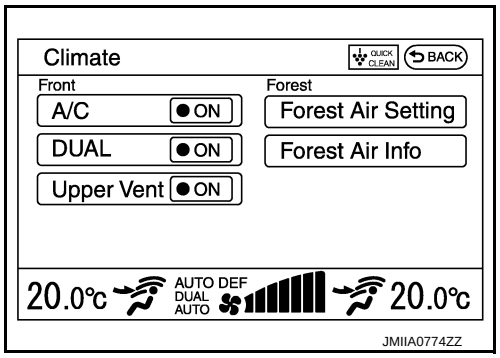
Switch name	Function
Temperature control switch (Driver side)	Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment. • ▲ Press: Setting temperature increases • ▼ Press: Setting temperature decreases **NOTE:** When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

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Menu Displayed by Pressing Each Switch

INFOID:0000000006114690

“CLIMATE” MENU

“Climate” menu screen is displayed when CLIMATE switch of multi-function switch is pressed.



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

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR)

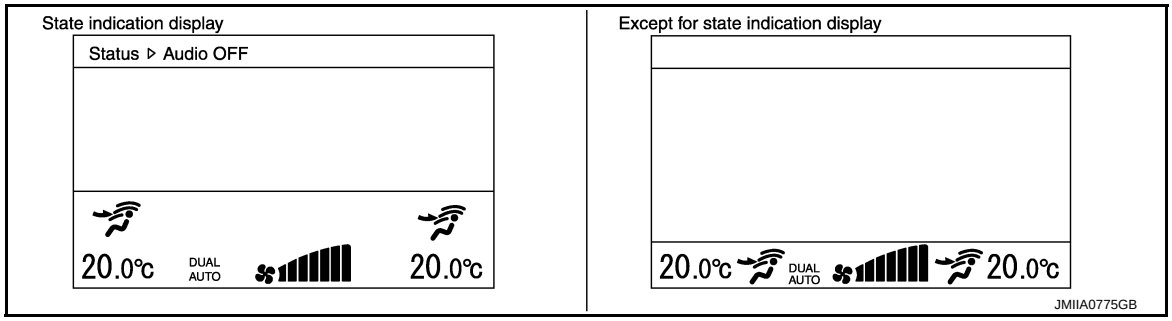
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Switch Name and Function

INFOID:0000000006114687

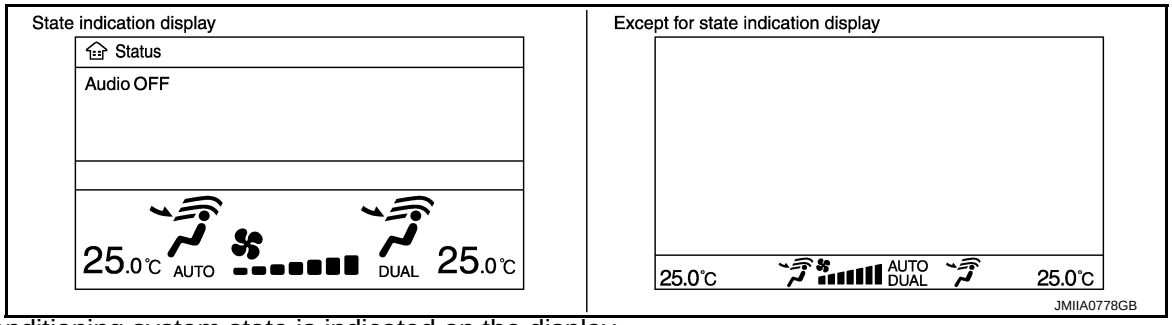
OPERATION AND DISPLAY

A/C Display

• With NAVI

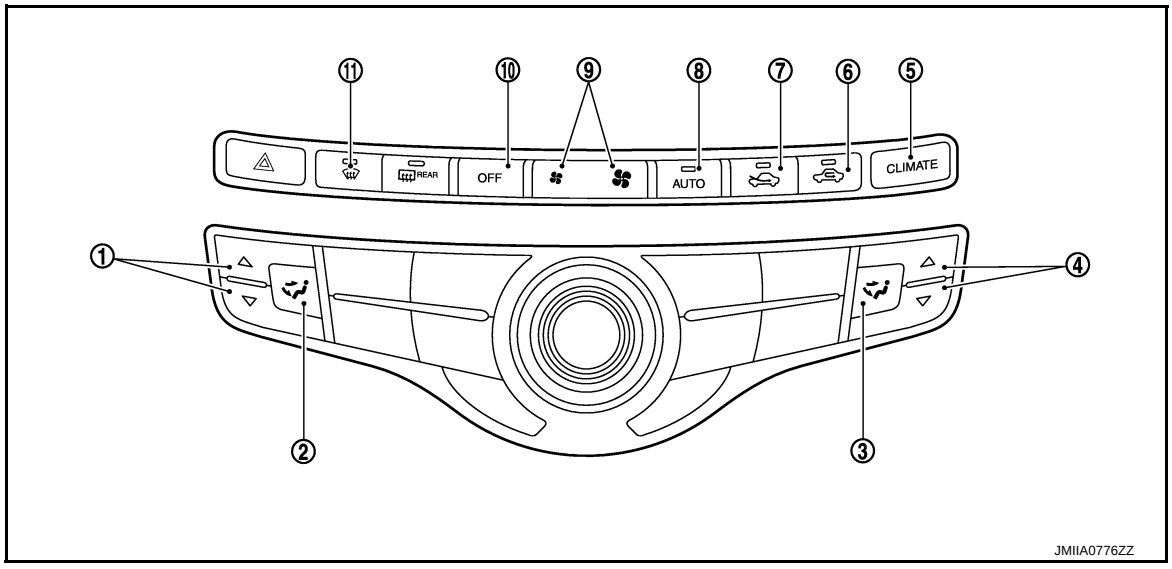


• Without NAVI



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

A/C Controller (Multifunction switch)



1. Temperature control switch (Driver side)
2. MODE switch (Driver side)
3. MODE switch (Passenger side)
4. Temperature control switch (Passenger side)
5. CLIMATE switch
6. REC switch
7. FRE switch
8. AUTO switch
9. Fan switch
10. OFF switch
11. DEF switch

Switch Operation

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

Switch name	Function
REC switch	• Switch indicator lamp turns ON and air inlet is set to recirculation (REC) when this switch is pressed. • Press and held for 2 seconds or more, intake switch indicator blinks 2 times and air inlet is set to automatic control. (Intake switch indicator indicates air inlet state during automatic control.) **NOTE:** Air inlet can be changed when air conditioning system is in the OFF position.
Temperature control switch (Driver side)	Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment. • ▲ Press: Setting temperature increases • ▼ Press: Setting temperature decreases **NOTE:** When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (driver side) is pressed] is indicated on display.
Temperature control switch (Passenger side)	• The system is set to LH/RH independent status (“DUAL” displays) by operating this switch. Outlet air flow temperature of passenger side can be changed without changing outlet air flow temperature of driver side. • Setting temperature is selected using this switch within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment. - ▲ Press: Setting temperature increases - ▼ Press: Setting temperature decreases **NOTE:** • When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (passenger side) is pressed] is indicated on display. • When DEF mode is ON, temperature control switch (passenger side) is inoperative.

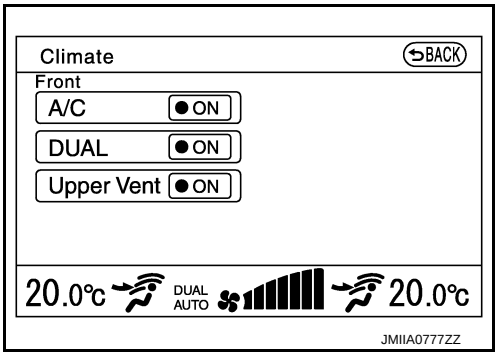
AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR) : Menu Displayed by Pressing Each Switch

INFOID:0000000006114688

“CLIMATE” MENU

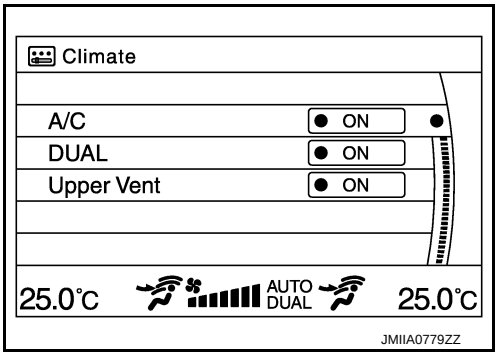
“Climate” menu screen is displayed when CLIMATE switch of multifunction switch is pressed.

• With NAVI



JMIIA0777ZZ

• Without NAVI



JMIIA0779ZZ

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

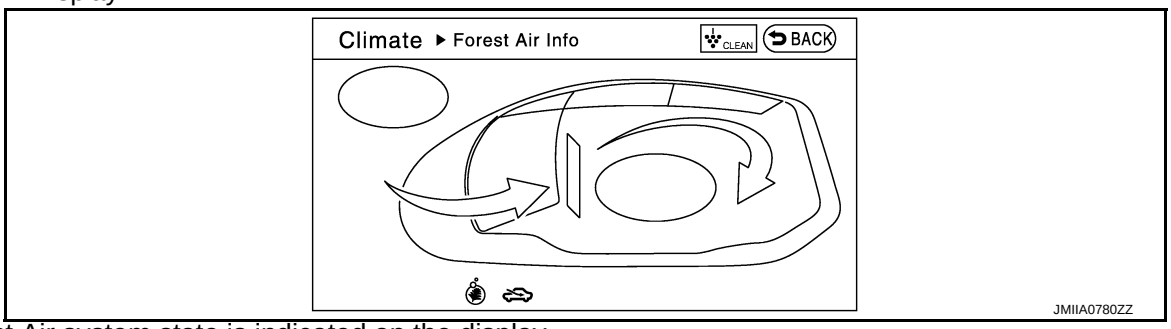
FOREST AIR SYSTEM

FOREST AIR SYSTEM : Switch Name and Function

INFOID:0000000005905672

OPERATION AND DISPLAY

Forest Air Display

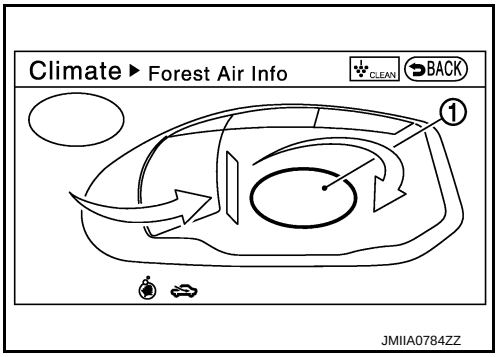


- Forest Air system state is indicated on the display.
- “Climate” menu is indicated on display when CLIMATE switch of multifunction switch is pressed while FOREST switch is ON. Operation status of Forest Air system is displayed when “Forest Air Info” is touched.

Air flow control (inside odor detecting mechanism)

- Display is switched as per the following description depending on interior air status

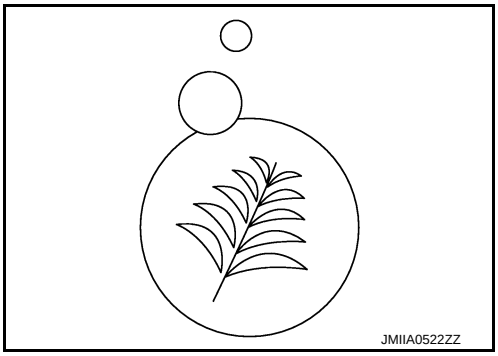
- Interior air status display (1) is blue, while interior air is in clean status.
- Interior air status display (1) is orange, while interior air is in dirty status.
  NOTE:
  Interior air status display is not indicated, while air inlet is in manual control status.



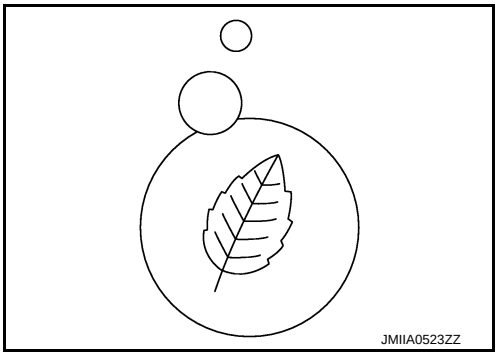
Aroma diffuser control

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

• Leaf scent

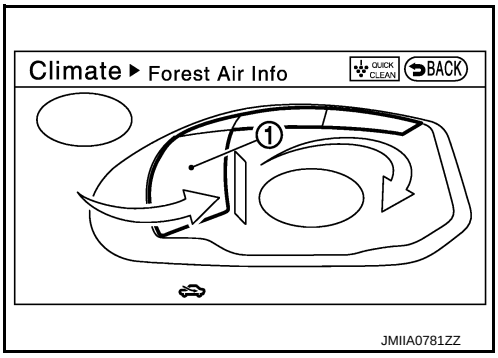


• Fragrant wood



Automatic defogging control

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

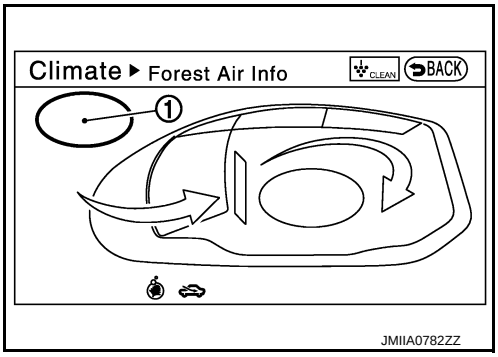


Automatic intake control (exhaust gas / outside odor detecting mechanism)

- Display is switched as per the following description depending on ambient air status, air inlet status, and switching status of recirculation and fresh air intake.

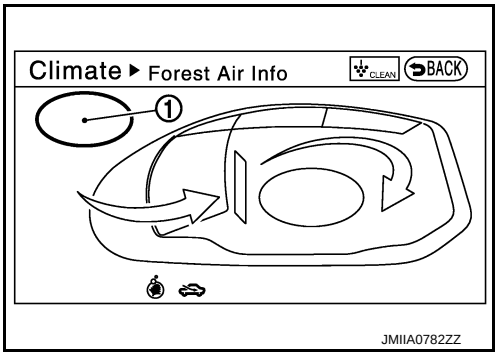
• Ambient air status display (1) is blue, while ambient air is in clean status.
• Ambient air status display (1) is orange, while ambient air is in dirty status.

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

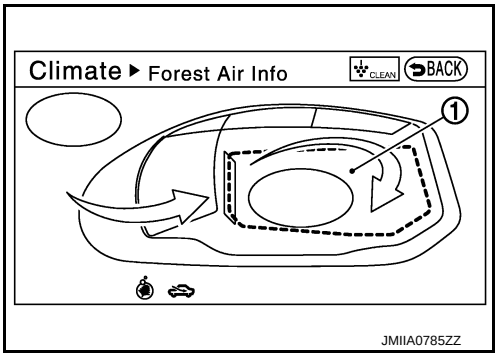


- Air inlet status is indicated by an arow (1). Lower display (2) indicates air inlet status and control status (automatic control / manual control)

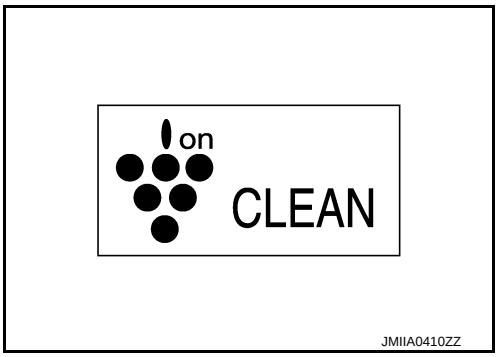
Air inlet status	Control status	Display
Recirculation	Automatic control	
	Manual operation	Manual Mode
Fresh air intake	Automatic control	
	Manual operation	Manual Mode



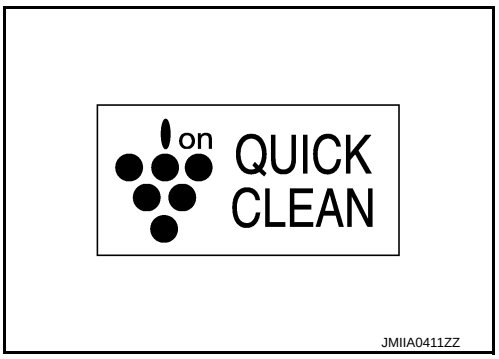
Breezy air control
- Animation that is imaged from breezy air (1) is displayed, while breezy air control is operated.



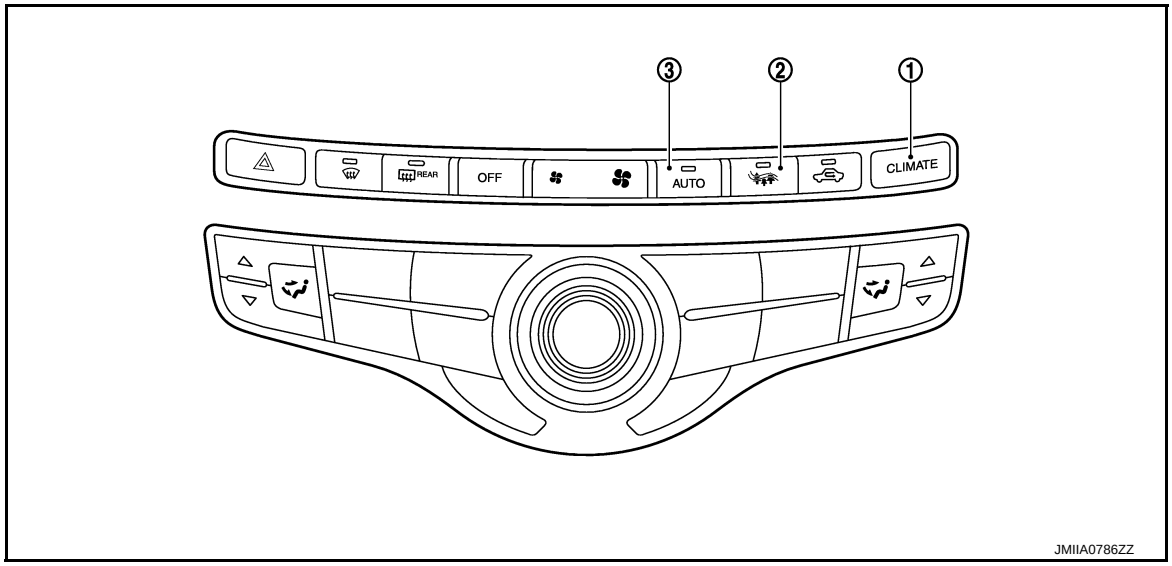
Plusmacluster™ control
- Plasmacluster ™ ion display is switched as shown in the figure depending on air flow.
  NOTE:
  - Plasmacluster™ ion technology developed by Sharp Corporation is installed in this item.
  - Plasmacluster™ is a trademark of Sharp Corporation.
- When air flow is small



- When air flow is large



Forest Air Controller (Multifunction switch)



1. CLIMATE switch 2. FOREST switch 3. AUTO switch

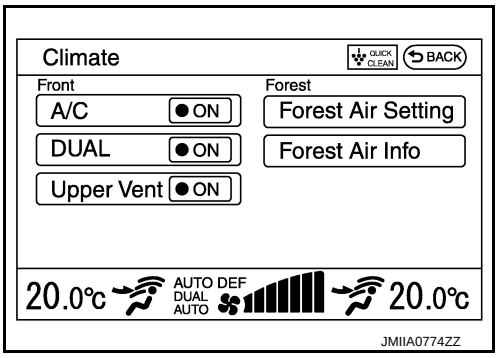
Switch name	Function
AUTO switch	When this switch is pressed, AUTO switch indicator lamp, “AUTO”, and “AUTO DEF” on display turn ON, and then automatic defogging control starts.
CLIMATE switch	“Climate” menu is indicated on display when this switch is pressed.
FOREST switch	When this switch is pressed,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

FOREST AIR SYSTEM : Menu Displayed by Pressing Each Switch

INFOID:0000000005905673

“CLIMATE” MENU

“Climate” menu screen is displayed when CLIMATE switch of multi-function switch is pressed.



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

DIAGNOSIS SYSTEM (HVAC)

Description

INFOID:0000000005905674

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

ECU	Diagnostic item (CONSULT-III)	
A/C auto amp.	HVAC	Self Diagnostic Result
		Data Monitor
		Active Test
		Work support
AV control unit	MULTI AV	Self Diagnostic Result
	Multi AV system on board diagnosis function	
ECM	ENGINE	Self Diagnostic Result
		Data Monitor
IPDM E/R	IPDM E/R	Self Diagnostic Result
		Data Monitor
	Auto active test	

CONSULT-III Function

INFOID:0000000005905675

APPLICATION ITEM

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

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

NOTE:

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

ECU IDENTIFICATION

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

NOTE:

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

SELF DIAGNOSTIC RESULT

Diagnosis result that is judged by A/C auto amp. can be checked. Refer to HAC-62, "DTC Index".

DATA MONITOR

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

Display item list

Monitor item [Unit]		Description
COMP REQ SIG	[On/Off]	Displays A/C switch ON/OFF status transmitted to other units via CAN communication.
FAN REQ SIG	[On/Off]	Displays fan switch ON/OFF status transmitted to other units via CAN communication.

Monitor item [Unit]		Description
DR TARGET A/TEMP	[°C]	Target discharge air temperature (driver side) judged by A/C auto amp. depending on the temperature setting and the value from each sensor.
PA TARGET A/TEMP	[°C]	Target discharge air temperature (passenger side) judged by A/C auto amp. depending on the temperature setting and the value from each sensor.
AMB TEMP SEN	[°C]	Ambient temperature value converted from ambient sensor signal received from ambient sensor.
IN-VEH TEMP	[°C]	In-vehicle temperature value converted from in-vehicle sensor signal received from in-vehicle sensor.
INT TEMP SEN	[°C]	Evaporator fin temperature value converted from intake sensor signal received from intake sensor.
AMB SEN CAL	[°C]	Ambient temperature value calculated by A/C auto amp..
IN-VEH CAL	[°C]	In-vehicle temperature value calculated by A/C auto amp..
INT TEMP CAL	[°C]	Evaporator fin temperature value calculated by A/C auto amp..
ENG COOL TEMP	[°C]	Engine coolant temperature signal value received from ECM via CAN communication.
DR SUNLOAD SEN	[w/m^2]	Sunload value (driver side) converted from sunload sensor signal (driver side) received from sunload sensor.
PASS SUNLOAD SEN	[w/m^2]	Sunload value (passenger side) converted from sunload sensor signal (passenger side) received from sunload sensor.
DR SUNL SEN CAL	[w/m^2]	Sunload value (driver side) calculated by A/C auto amp..
PASS SUNL SEN CAL	[w/m^2]	Sunload value (passenger side) calculated by A/C auto amp..
COMP ECV DUTY	[%]	Duty ratio of ECV (electrical control valve) judged by A/C auto amp..
BLOWER MOT VOLT	[V]	Gate voltage to power transistor that is judged by A/C auto amp..
VEHICLE SPEED	[Mph (km/h)]	Vehicle speed signal value received from combination meter via CAN communication.
RELATIVE HUMIDITY*	[%]	Relative humidity that is judged by A/C auto amp. according to value from humidity sensor.
AIR TEMP*	[°C]	Air temperature around humidity sensor that is judged by A/C auto amp. according to value from humidity sensor.
DEW POINT TEMP*	[°C]	Dew point temperature that is judged by A/C auto amp. according to value from humidity sensor.
GLASS TEMP*	[°C]	Glass temperature value that is converted from glass temperature sensor signal received from glass temperature sensor of humidity sensor portion.
GAS SEN LEVEL*		Contamination level of ambient air that is judged by A/C auto amp. according to value from exhaust gas / outside odor detecting sensor.

*: With Forest Air

ACTIVE TEST

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

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

Check each output device

With Forest Air

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door motor (driver side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF
Mode door motor (passenger side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF
Rear mode door motor position	VENT	VENT	B/L	B/L	FOOT	FOOT	DEF

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Intake door motor position	REC	REC	20% FRE	20% FRE	FRE	FRE	FRE
Air mix door motor (driver side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Air mix door motor (passenger side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Power transistor gate voltage	4 V	4 V	7 V	7 V	11.5 V	11.5 V	4 V
Magnet clutch	ON	ON	ON	ON	OFF	OFF	ON
ECV control signal (duty ratio)	60%	60%	30%	30%	0%	0%	70%
Upper ventilator door motor (driver side) position	OPEN	CLOSE	CLOSE	OPEN	CLOSE	CLOSE	CLOSE
Upper ventilator door motor (passenger side) position	OPEN	CLOSE	CLOSE	OPEN	CLOSE	CLOSE	CLOSE
Aroma motor position	Fragrant wood	Leaf scent	OFF	Fragrant wood	Leaf scent	OFF	OFF

Without Forest Air

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door motor (driver side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF
Mode door motor (passenger side) position	VENT 1	VENT 2	B/L	B/L	FOOT	D/F	DEF
Rear mode door motor position	VENT	VENT	B/L	B/L	FOOT	FOOT	DEF
Intake door motor position	REC	REC	20% FRE	20% FRE	FRE	FRE	FRE
Air mix door motor (driver side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Air mix door motor (passenger side) position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Power transistor gate voltage	4 V	4 V	7 V	7 V	11.5 V	11.5 V	4 V
Magnet clutch	ON	ON	ON	ON	OFF	OFF	ON
ECV control signal (duty ratio)	60%	60%	30%	30%	0%	0%	70%
Upper ventilator door motor position	OPEN	CLOSE	CLOSE	OPEN	CLOSE	CLOSE	CLOSE

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

WORK SUPPORT

Setting change of each setting functions can be performed.

Work item	Description	Reference
TEMP SET CORRECT	If the temperature felt by the customer is different from the air flow temperature controlled by the temperature setting, the A/C auto amp. control temperature can be adjusted to compensate for the temperature setting.	HAC-91, "AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer"
REC MEMORY SET	Setting change of inlet port memory function (REC) can be performed.	HAC-91, "AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (REC)"
FRE MEMORY SET	Setting change of inlet port memory function (FRE) can be performed.	HAC-92, "AUTOMATIC AIR CONDITIONING SYSTEM : Inlet Port Memory Function (FRE)"
BLOW SET	Setting change of foot position setting trimmer can be performed.	HAC-92, "AUTOMATIC AIR CONDITIONING SYSTEM : Foot Position Setting Trimmer"

Work item	Description	Reference
AROMA SETTING*	Setting change of aroma fragrance intensity setting can be performed.	HAC-92, "FOREST AIR SYSTEM : Aroma Fragrance Intensity Setting"
FRAGRANCE SETTING*	Setting change of aroma fragrance type setting can be performed.	HAC-92, "FOREST AIR SYSTEM : Aroma Fragrance Type Setting"
BLOWER MOTOR SETTING*	Setting change of air flow control (inside odor detecting mechanism) setting can be performed.	HAC-93, "FOREST AIR SYSTEM : Air Flow Control (Inside Odor Detecting Mechanism) Setting"
AROMA DIFFUSER SETTING*	Setting change of aroma diffuser presence setting can be performed.	HAC-93, "FOREST AIR SYSTEM : Aroma Diffuser Presence Setting"

*: With Forest Air

CONFIGRATION

The vehicle specification that is written in A/C auto amp. can be displayed or stored.
The vehicle specification can be written when A/C auto amp. is replaced.
Refer to HAC-90, "Description".

ECU DIAGNOSIS INFORMATION

A/C AUTO AMP.

Reference Value(AUTOMATIC AIR CONDITIONING)

INFOID:0000000005905676

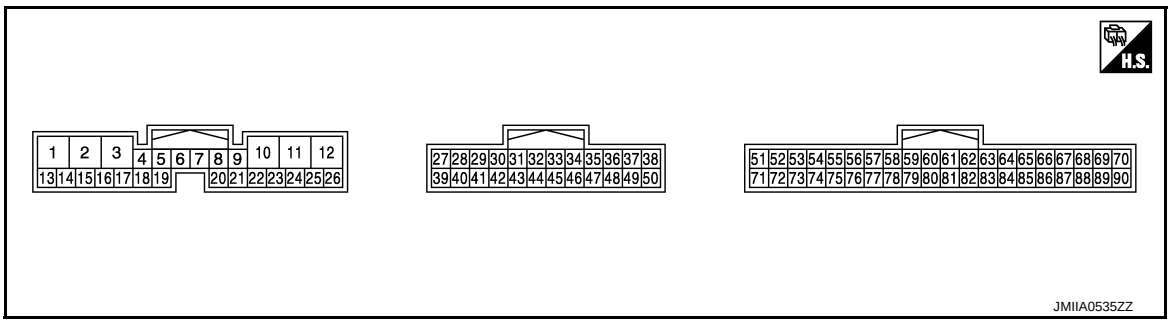
CONSULT-III DATA MONITOR REFERENCE VALUES

Monitor item	Condition		Value/Status
COMP REQ SIG	Engine: Run at idle after warming up	"A/C": ON (Compressor operation status)	On
		"A/C": OFF	Off
FAN REQ SIG	Engine: Run at idle after warming up	Blower motor: ON	On
		Blower motor: OFF	Off
DR TARGET A/TEMP	Ignition switch ON		Values depending on target air flow temperature (driver side)
PA TARGET A/TEMP	Ignition switch ON		Values depending on target air flow temperature (passenger side)
AMB TEMP SEN	Ignition switch ON		Equivalent to ambient temperature
IN-VEH TEMP	Ignition switch ON		Equivalent to in-vehicle temperature
INT TEMP SEN	Ignition switch ON		Values depending on evaporator fin temperature
AMB SEN CAL	Ignition switch ON		Equivalent to ambient temperature
IN-VEH CAL	Ignition switch ON		Equivalent to in-vehicle temperature
INT TEMP CAL	Ignition switch ON		Values depending on evaporator fin temperature
ENG COOL TEMP	Ignition switch ON		Values depending on engine coolant temperature
DR SUNLOAD SEN	Ignition switch ON		Values depending on sunload (driver side)
PASS SUNLOAD SEN	Ignition switch ON		Values depending on sunload (passenger side)
DR SUNL SEN CAL	Ignition switch ON		Values depending on sunload (driver side)
PASS SUNL SEN CAL	Ignition switch ON		Values depending on sunload (passenger side)
COMP ECV DUTY	Engine: Run at idle after warming up	Active test (HVAC test): MODE 1	60%
		Active test (HVAC test): MODE 2	60%
		Active test (HVAC test): MODE 3	30%
		Active test (HVAC test): MODE 4	30%
		Active test (HVAC test): MODE 5	0%
		Active test (HVAC test): MODE 6	0%
		Active test (HVAC test): MODE 7	70%

Monitor item	Condition		Value/Status
BLOWER MOT VOLT	Engine: Run at idle after warming up	Active test (HVAC test): MODE 1	4 V
		Active test (HVAC test): MODE 2	4 V
		Active test (HVAC test): MODE 3	7 V
		Active test (HVAC test): MODE 4	7 V
		Active test (HVAC test): MODE 5	11.5 V
		Active test (HVAC test): MODE 6	11.5 V
		Active test (HVAC test): MODE 7	4 V
VEHICLE SPEED	Turn drive wheels and compare CONSULT-III value with the speedometer indication.		Equivalent to speedometer reading
RELATIVE HUMIDITY*	Ignition switch ON		Values depending on relative humidity
AIR TEMP*	Ignition switch ON		Equivalent to air temperature around humidity sensor
DEW POINT TEMP*	Ignition switch ON		Values depending on dew point temperature
GLASS TEMP*	Ignition switch ON		Equivalent to windshield glass temperature
GAS SEN LEVEL*	Ignition switch ON		Values depending on contamination of ambient air

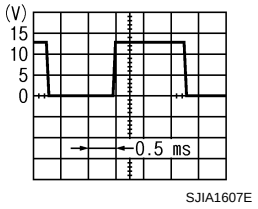
*: With Forest Air

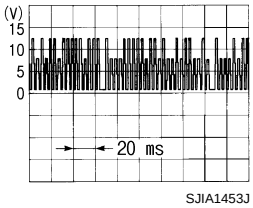
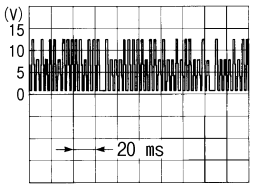
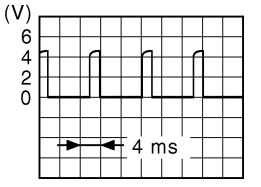
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire dolor)		Description		Condition	Reference value (Approx.)
+	–	Signal name	Input/ Output		
1 (L)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
2 (W)	Ground	Ignition power supply	Input	Ignition switch ON	Battery voltage

Terminal No. (Wire dolor)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
6 (R)	Ground	Blower motor feedback signal	Input	• Ignition switch ON • Air inlet: VENT	Fan speed: OFF	Battery voltage
					Fan speed: 1st (manual)	10.0 V
					Fan speed: 2nd (manual)	8.3 V
					Fan speed: 3rd (manual)	7.0 V
					Fan speed: 4th (manual)	5.7V
					Fan speed: 5th (manual)	4.3 V
					Fan speed: 6th (manual)	3.0 V
					Fan speed: 7th (manual)	1.0 V
7 (L)	Ground	Power transistor control signal	Output	• Ignition switch ON • Air inlet: VENT	Fan speed: OFF	0 V
					Fan speed: 1st (manual)	3.5 V
					Fan speed: 2nd (manual)	5.2 V
					Fan speed: 3rd (manual)	6.5 V
					Fan speed: 4th (manual)	7.8 V
					Fan speed: 5th (manual)	9.2 V
					Fan speed: 6th (manual)	10.5 V
					Fan speed: 7th (manual)	12.5 V
10 (B)	—	Ground	—	—		—
11 (P)	—	CAN-L	Input/ Output	—		—
12 (L)	—	CAN-H	Input/ Output	—		—
13 (V)	Ground	ACC power supply	Input	Ignition switch ACC		Battery voltage
17 (BG)	Ground	ECV (electrical control valve) control signal	Output	• Ignition switch ON • Active test (HVAC test): MODE 1		 SJIA1607E

Terminal No. (Wire dolor)		Description		Condition	Reference value (Approx.)
+	–	Signal name	Input/ Output		
20*1 (R)	Ground	Humidity sensor (SCK) signal	Input/ Output	Ignition switch ON	 SJIA1453J
21*1 (Y)	Ground	Humidity sensor (DATA) signal	Input/ Output	Ignition switch ON	 SJIA1453J
22*1 (B)	—	Humidity sensor ground	—	—	—
23 (W)	Ground	Drive mode select switch (SNOW) signal	Input	• Ignition switch ON • Drive mode select switch position: SNOW	0 V
				Other than the above	12 V
24 (L)	Ground	Drive mode select switch (ECO) signal	Input	• Ignition switch ON • Drive mode select switch position: ECO	0 V
				Other than the above	12 V
25 (G)	Ground	Drive mode select switch (STANDARD) signal	Input	• Ignition switch ON • Drive mode select switch position: STANDARD	0 V
				Other than the above	12 V
26 (Y)	Ground	Drive mode select switch (SPORT) signal	Input	• Ignition switch ON • Drive mode select switch position: SPORT	0 V
				Other than the above	12 V
30*1 (L)	Ground	Exhaust gas / outside odor detecting sensor signal	Input	Ignition switch ON **NOTE:** The signal is depending on measurement environment of the vehicle	 ZJIA1163J
31 (BG)	Ground	Ambient sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with ambient temperature
32 (LG)	Ground	In-vehicle sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with in-vehicle temperature
33*1 (LG)	Ground	Humidity sensor (windshield glass temperature) signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with windshield glass temperature

Terminal No. (Wire dolor)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output			
35 (L)	Ground	Sunload sensor (driver side) signal	Input	Ignition switch ON		0 – 4.8 V Output voltage varies with amount of sunload (driver side)
36*1 (V)	Ground	Inside odor detecting sensor signal	Input	Ignition switch ON		0 – 4.8 V Output voltage varies with amount of passenger room odor level
39 (W)	Ground	Sensor power supply	Output	Ignition switch ON		5 V
41*3 (L)	Ground	Heated steering wheel relay control signal	Output	Ignition switch ON	Within 30 seconds after turning ON the heated steering switch.	0 V
					Other than the above	12 V
42*1 (W)	Ground	Ionizer (ON/OFF) control signal	Output	• Ignition switch ON • Blower motor: ON		0 V
				• Ignition switch ON • Blower motor: OFF		12 V
44 (B)	—	Ground	—	—		—
45*3 (G)	Ground	Heated steering wheel switch signal	Input	Ignition switch ON	Heated steering wheel switch: While pressing	0 V
					Other than the above	12 V
47 (P)	Ground	Sunload sensor (passenger side) signal	Input	Ignition switch ON		0 – 4.8 V Output voltage varies with amount of sunload (passenger side)
51 (B)	Ground	Intake sensor signal	Input	Ignition switch ON		0 – 4.8 V Output voltage varies with amount of evaporator fin temperature
52*1 (W/R)	Ground	Aroma motor PBR feedback signal	Input	• Ignition switch ON • Aroma diffuser control: Leaf scent		1.0 V
				• Ignition switch ON • Aroma diffuser control: Fragrant wood		4.0 V
53 (G)	Ground	Air mix door motor (driver side) PBR feedback signal	Input	• Ignition switch ON • Set temperature: 18°C (60°F) • “DUAL”: OFF		4.0 V
				• Ignition switch ON • Set temperature: 32°C (90°F) • “DUAL”: OFF		1.0 V
54 (P)	Ground	Mode door motor (driver side) PBR feedback signal	Input	• Ignition switch ON • Air outlet: VENT • “DUAL”: OFF		4.0 V
				• Ignition switch ON • Air outlet: DEF • “DUAL”: OFF		1.0 V

Terminal No. (Wire dolor)		Description		Condition	Reference value (Approx.)
+	–	Signal name	Input/ Output		
55 (L/B)	Ground	Intake door motor PBR feedback signal	Input	• Ignition switch ON • Air inlet: REC	4.0 V
				• Ignition switch ON • Air inlet: FRE	1.0 V
56 (Y/W)	Ground	Upper ventilator door motor (passenger side) PBR feedback signal	Input	• Ignition switch ON • “Upper Vent”: ON	3.0 V
				• Ignition switch ON • “Upper Vent”: OFF	1.0 V
58 (P/B)	Ground	Rear mode door motor PBR feedback signal	Input	• Ignition switch ON • Air outlet: VENT • “DUAL”: OFF	4.0 V
				• Ignition switch ON • Air outlet: DEF • “DUAL”: OFF	1.0 V
60 (B/R)	Ground	Upper ventilator door motor (passenger side) CLOSE drive signal	Output	• Ignition switch ON • “Upper Vent”: ON→OFF	12 V
				• Ignition switch ON • “Upper Vent”: OFF→ON	0 V
61 (BR)	Ground	Air mix door motor (driver side) COOL drive signal	Output	• Ignition switch ON • Set temperature: 32°C (90°F)→18°C (60°F) • “DUAL”: OFF	12 V
				• Ignition switch ON • Set temperature: 18°C (60°F)→32°C (90°F) • “DUAL”: OFF	0 V
62*1 (G/R)	Ground	Aroma motor (Fragrant wood) drive signal	Output	• Ignition switch ON • Aroma diffuser control: Leaf scent→Fragrant wood	12 V
				• Ignition switch ON • Aroma diffuser control: Fragrant wood→Leaf scent	0 V
63 (V)	Ground	Mode door motor (driver side) VENT drive signal	Output	• Ignition switch ON • Air outlet: DEF→VENT • “DUAL”: OFF	12 V
				• Ignition switch ON • Air outlet: VENT→DEF • “DUAL”: OFF	0 V
64 (R/B)	Ground	Mode door motor (passenger side) VENT drive signal	Output	• Ignition switch ON • Air outlet: DEF→VENT • “DUAL”: OFF	12 V
				• Ignition switch ON • Air outlet: VENT→DEF • “DUAL”: OFF	0 V
65 (L/R)	Ground	Intake door motor REC drive signal	Output	• Ignition switch ON • Air inlet: FRE→REC	12 V
				• Ignition switch ON • Air inlet: REC→FRE	0 V
66*1 (BR/B)	Ground	Upper ventilator door motor (driver side) CLOSE drive signal	Output	• Ignition switch ON • “Upper Vent”: ON→OFF	12 V
				• Ignition switch ON • “Upper Vent”: OFF→ON	0 V

Terminal No. (Wire dolor)		Description		Condition	Reference value (Approx.)
+	–	Signal name	Input/ Output		
66*2 (BR/B)	Ground	Upper ventilator door motor CLOSE drive signal	Output	• Ignition switch ON • “Upper Vent”: ON→OFF	12 V
				• Ignition switch ON • “Upper Vent”: OFF→ON	0 V
67 (LG)	Ground	Air mix door motor (passenger side) HOT drive signal	Output	• Ignition switch ON • Set temperature: 18°C (60°F)→32°C (90°F) • “DUAL”: OFF	12 V
				• Ignition switch ON • Set temperature: 32°C (90°F)→18°C (60°F) • “DUAL”: OFF	0 V
68 (R/W)	Ground	Rear mode door motor VENT drive signal	Output	• Ignition switch ON • Air outlet: DEF→VENT • “DUAL”: OFF	12 V
				• Ignition switch ON • Air outlet: VENT→DEF • “DUAL”: OFF	0 V
71 (R)	Ground	Each door motor PBR power supply	Output	Ignition switch ON	5 V
73 (SB)	Ground	Mode door motor (passenger side) PBR feedback signal	Input	• Ignition switch ON • Air outlet: VENT • “DUAL”: OFF	4.0 V
				• Ignition switch ON • Air outlet: DEF • “DUAL”: OFF	1.0 V
74 (L)	Ground	Air mix door motor (driver side) PBR feedback signal	Input	• Ignition switch ON • Set temperature: 18°C (60°F) • “DUAL”: OFF	4.0 V
				• Ignition switch ON • Set temperature: 32°C (90°F) • “DUAL”: OFF	1.0 V
75*1 (GB)	Ground	Upper ventilator door motor (driver side) PBR feedback signal	Input	• Ignition switch ON • “Upper Vent”: ON	3.0 V
				• Ignition switch ON • “Upper Vent”: OFF	1.0 V
75*2 (GB)	Ground	Upper ventilator door motor PBR feedback signal	Input	• Ignition switch ON • “Upper Vent”: ON	3.0 V
				• Ignition switch ON • “Upper Vent”: OFF	1.0 V
79 (W)	—	Intake sensor ground / Each door motor PBR ground	—	—	—
80*1 (BR/W)	Ground	Upper ventilator door motor (passenger side) OPEN drive signal	Output	• Ignition switch ON • “Upper Vent”: OFF→ON	12 V
				• Ignition switch ON • “Upper Vent”: ON→OFF	0 V

Terminal No. (Wire dolor)		Description		Condition	Reference value (Approx.)
+	–	Signal name	Input/ Output		
81 (Y)	Ground	Air mix door motor (driver side) HOT drive signal	Output	• Ignition switch ON • Set temperature: 18°C (60°F)→32°C (90°F) • “DUAL”: OFF	12 V
				• Ignition switch ON • Set temperature: 32°C (90°F)→18°C (60°F) • “DUAL”: OFF	0 V
82 (LG/R)	Ground	Aroma motor (Leaf scent) drive signal	Output	• Ignition switch ON • Aroma diffuser control: Fragrant wood→Leaf scent	12 V
				• Ignition switch ON • Aroma diffuser control: Leaf scent→Fragrant wood	0 V
83 (B)	Ground	Mode door motor (driver side) DEF drive signal	Output	• Ignition switch ON • Air outlet: VENT→DEF • “DUAL”: OFF	12 V
				• Ignition switch ON • Air outlet: DEF→VENT • “DUAL”: OFF	0 V
84 (W/B)	Ground	Mode door motor (passenger side) DEF drive signal	Output	• Ignition switch ON • Air outlet: VENT→DEF • “DUAL”: OFF	12 V
				• Ignition switch ON • Air outlet: DEF→VENT • “DUAL”: OFF	0 V
85 (LG/B)	Ground	Intake door motor FRE drive signal	Output	• Ignition switch ON • Air inlet: REC→FRE	12 V
				• Ignition switch ON • Air inlet: FRE→REC	0 V
86*1 (Y/B)	Ground	Upper ventilator door motor (driver side) OPEN drive signal	Output	• Ignition switch ON • “Upper Vent”: OFF→ON	12 V
				• Ignition switch ON • “Upper Vent”: ON→OFF	0 V
86*2 (Y/B)	Ground	Upper ventilator door motor OPEN drive signal	Output	• Ignition switch ON • “Upper Vent”: OFF→ON	12 V
				• Ignition switch ON • “Upper Vent”: ON→OFF	0 V
87 (GR)	Ground	Air mix door motor (passenger side) COOL drive signal	Output	• Ignition switch ON • Set temperature: 32°C (90°F)→18°C (60°F) • “DUAL”: OFF	12 V
				• Ignition switch ON • Set temperature: 18°C (60°F)→32°C (90°F) • “DUAL”: OFF	0 V
88 (B/W)	Ground	Rear mode door motor FOOT drive signal	Output	• Ignition switch ON • Air outlet: VENT→DEF • “DUAL”: OFF	12 V
				• Ignition switch ON • Air outlet: DEF→VENT • “DUAL”: OFF	0 V

*1: With Forest Air

*2: Without Forest Air
*3: With heated steering wheel

Fail-safe

INFOID:0000000005905677

FAIL-SAFE FUNCTION

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

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

DTC Index

INFOID:0000000005905678

DTC	Items (CONSULT-III screen terms)	Reference
U1000	CAN COMM CIRCUIT	HAC-94, "DTC Logic"
U1010	CONTROL UNIT(CAN)	HAC-95, "DTC Logic"
B2578	IN-VEHICLE SENSOR	HAC-96, "DTC Logic"
B2579	IN-VEHICLE SENSOR	HAC-96, "DTC Logic"
B257B	AMBIENT SENSOR	HAC-99, "DTC Logic"
B257C	AMBIENT SENSOR	HAC-99, "DTC Logic"
B2581	INTAKE SENSOR	HAC-102, "DTC Logic"
B2582	INTAKE SENSOR	HAC-102, "DTC Logic"
B262A*1	GAS SENSOR*2	HAC-105, "DTC Logic"
B262B*1	GAS SENSOR*2	HAC-105, "DTC Logic"
B2630*4	SUNLOAD SENSOR	HAC-109, "DTC Logic"
B2631*4	SUNLOAD SENSOR	HAC-109, "DTC Logic"
B2657*1	GAS SENSOR CIRCUIT*2	HAC-105, "DTC Logic"
B2658*1	GAS SENSOR CIRCUIT*2	HAC-105, "DTC Logic"
B2750	DR AIR MIX DOOR MOT	HAC-112, "DTC Logic"
B2751	DR AIR MIX DOOR MOT	HAC-112, "DTC Logic"
B2752	DR AIR MIX DOOR MOT	HAC-112, "DTC Logic"
B2753	PASS AIR MIX DOOR MOT	HAC-117, "DTC Logic"
B2754	PASS AIR MIX DOOR MOT	HAC-117, "DTC Logic"
B2755	PASS AIR MIX DOOR MOT	HAC-117, "DTC Logic"
B2756	DR MODE DOOR MOTOR	HAC-122, "DTC Logic"
B2757	DR MODE DOOR MOTOR	HAC-122, "DTC Logic"
B2758	DR MODE DOOR MOTOR	HAC-122, "DTC Logic"
B2759	PASS MODE DOOR MOT	HAC-127, "DTC Logic"
B275A	PASS MODE DOOR MOT	HAC-127, "DTC Logic"
B275B	PASS MODE DOOR MOT	HAC-127, "DTC Logic"
B275C	INTAKE DOOR MOTOR	HAC-132, "DTC Logic"
B275D	INTAKE DOOR MOTOR	HAC-132, "DTC Logic"

DTC	Items (CONSULT-III screen terms)	Reference
B275E	INTAKE DOOR MOTOR	HAC-132, "DTC Logic"
B275F	DR UP VENT DOOR MOT*3	•HAC-137, "DTC Logic" (With Forest Air) •HAC-137, "DTC Logic" (Without Forest Air)
B2760	DR UP VENT DOOR MOT*3	•HAC-137, "DTC Logic" (With Forest Air) •HAC-137, "DTC Logic" (Without Forest Air)
B2761	DR UP VENT DOOR MOT*3	•HAC-137, "DTC Logic" (With Forest Air) •HAC-137, "DTC Logic" (Without Forest Air)
B2762	REAR MODE DOOR MOT	HAC-147, "DTC Logic"
B2763	REAR MODE DOOR MOT	HAC-147, "DTC Logic"
B2764	REAR MODE DOOR MOT	HAC-147, "DTC Logic"
B2765*1	PASS UP VEN DOOR MOT	HAC-152, "DTC Logic"
B2766*1	PASS UP VEN DOOR MOT	HAC-152, "DTC Logic"
B2767*1	PASS UP VEN DOOR MOT	HAC-152, "DTC Logic"
B2768*1	AROMA MOTOR	HAC-157, "DTC Logic"
B2769*1	AROMA MOTOR	HAC-157, "DTC Logic"
B276A*1	AROMA MOTOR	HAC-157, "DTC Logic"
B276B*1	HUMIDITY SENSOR	HAC-162, "DTC Logic"
B276C*1	HUMIDITY SENSOR	HAC-162, "DTC Logic"
B276D*1	HUMIDITY SENSOR	HAC-162, "DTC Logic"

*1: With Forest Air
*2: This item indicates the exhaust gas / outside odor detecting sensor.
*3: For models without Forest Air, upper ventilator door motor is indicates.
*4: Perform self-diagnosis under sunshine. When performing indoors, aim a light (more than 60 W) at sunload sensor. otherwise self-diagnosis indicates even though the sunload sensor is functioning normally.

NOTE:

- If all of door motors DTC (B2750 – B276A) are detected, check door motor PBR circuit (With Forest Air). Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".
- If all of door motors DTC (B2750 – B2764) are detected, check door motor PBR circuit (Without Forest Air). Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".

ECM, IPDM E/R

List of ECU Reference

INFOID:0000000005905679

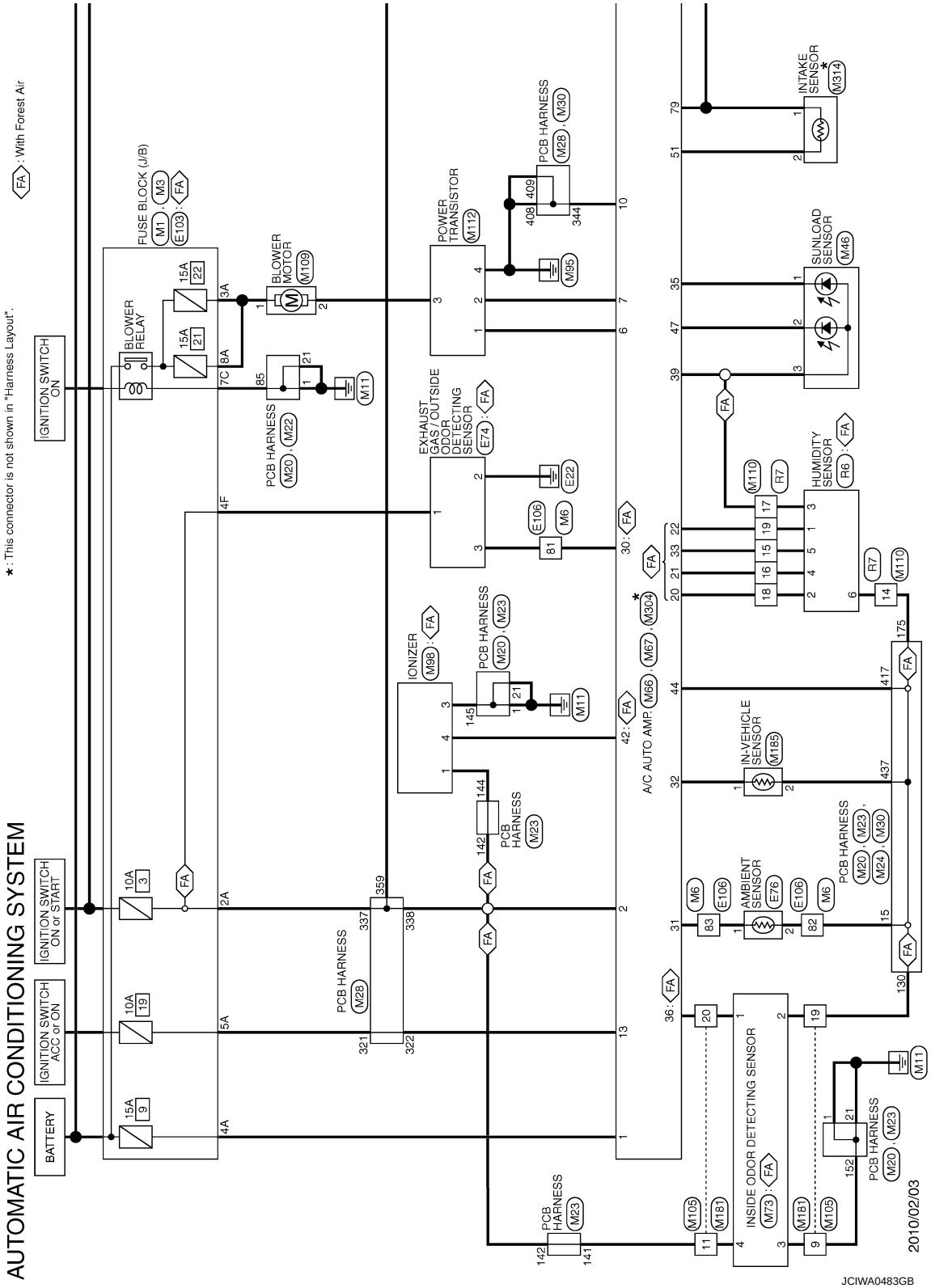
ECU		Reference
ECM	VQ37VHR	EC-83, "Reference Value"
		EC-99, "Fail safe"
		EC-101, "DTC Inspection Priority Chart"
		EC-102, "DTC Index"
	VK56VD	EC-611, "Reference Value"
		EC-634, "Fail-safe"
		EC-637, "DTC Inspection Priority Chart"
		EC-639, "DTC Index"
IPDM E/R		PCS-16, "Reference Value"
		PCS-23, "Fail-safe"
		PCS-24, "DTC Index"

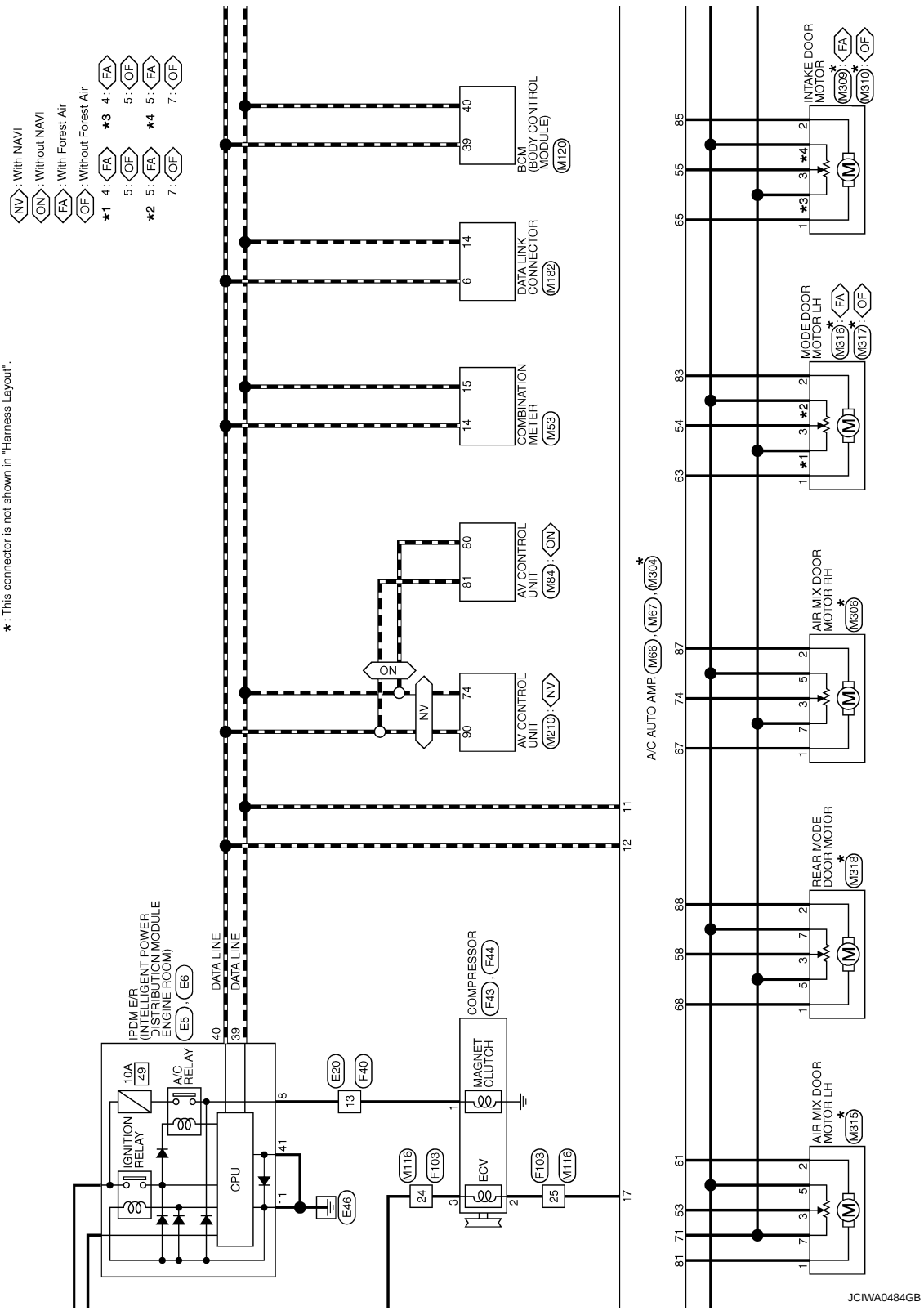
WIRING DIAGRAM

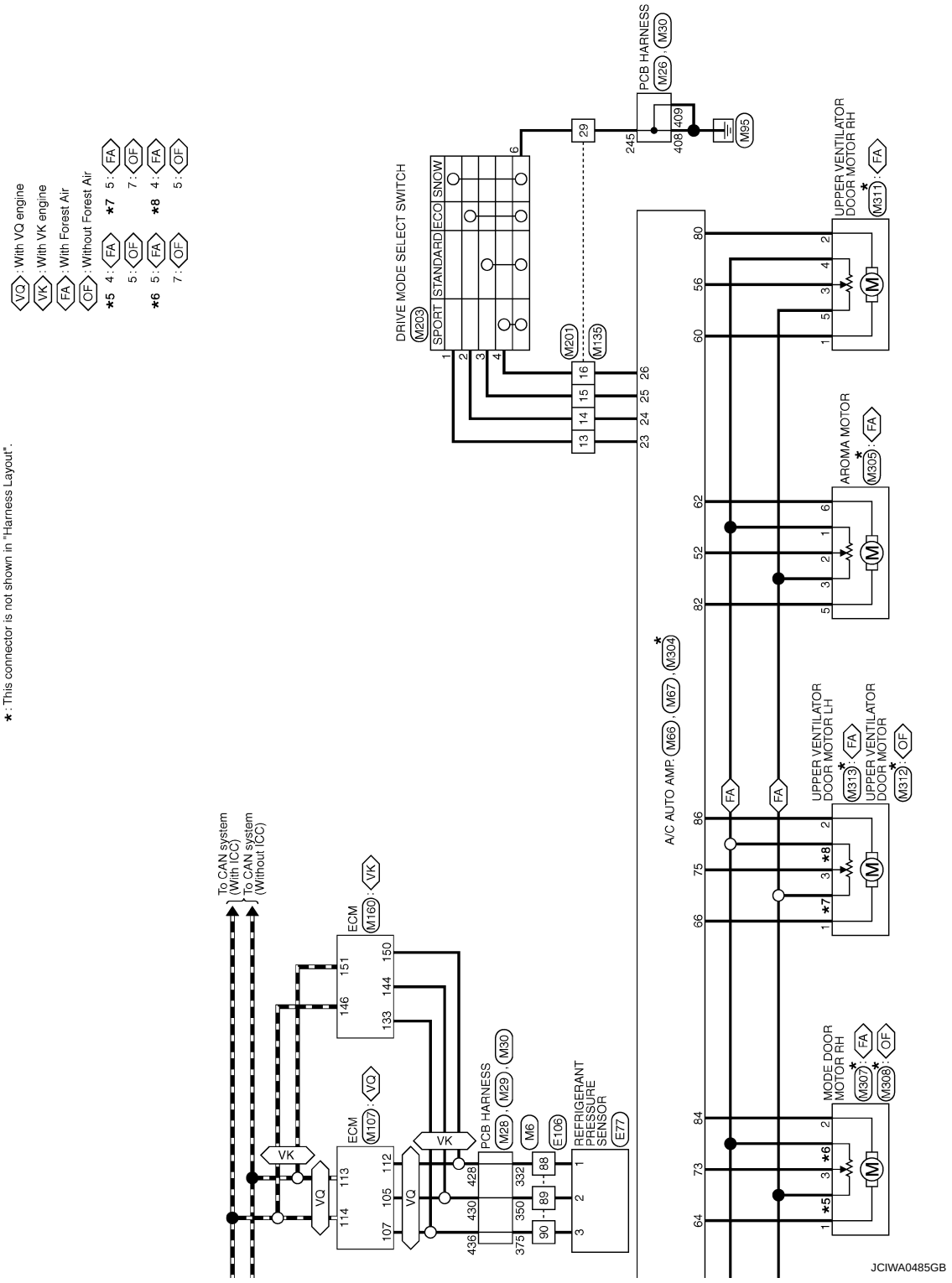
AUTOMATIC AIR CONDITIONING SYSTEM

Wiring Diagram

INFOID:0000000005905680




NV : With NAVI
ON : Without NAVI
FA : With Forest Air
OF : Without Forest Air
*1 4 : FA 5 : OF 7 : OF
*2 5 : FA 7 : OF
*3 4 : FA 5 : OF
*4 5 : FA 7 : OF
*: This connector is not shown in "Harness Layout".
BCM (BODY CONTROL MODULE) M120
DATA LINK CONNECTOR M182
COMBINATION METER M53
AV CONTROL UNIT M84 : ON
AV CONTROL UNIT M210 : NV
DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E5 E6
10A 49
A/C RELAY
IGNITION RELAY
CPU
COMPRESSOR F43 F44
MAGNET CLUTCH
ECV
E20 F40
E46
M116 F103
F103 M116
A/C AUTO AMP. M66 M67 M304*
INTAKE DOOR MOTOR M309* FA M310* OF
MODE DOOR MOTOR LH M316* FA M317* OF
AIR MIX DOOR MOTOR RH M306*
REAR MODE DOOR MOTOR M318*
AIR MIX DOOR MOTOR LH M315*
JCIWA0484GB


VQ : With VQ engine
VK : With VK engine
FA : With Forest Air
OF : Without Forest Air
*5 4 : FA 5 : OF
*6 5 : FA 7 : OF
*7 5 : FA 7 : OF
*8 4 : FA 5 : OF
* : This connector is not shown in "Harness Layout".
DRIVE MODE SELECT SWITCH
M203
SPORT
STANDARD
ECO
SNOW
M201
M135
PCB HARNESS
M26
M30
M95
UPPER VENTILATOR DOOR MOTOR RH
M311
AROMA MOTOR
M305
A/C AUTO AMP.
M66
M67
M304
UPPER VENTILATOR DOOR MOTOR LH
M313
UPPER VENTILATOR DOOR MOTOR
M312
MODE DOOR MOTOR RH
M307
M308
To CAN system (With ICC)
To CAN system (Without ICC)
ECM
M169
M107
PCB HARNESS
M28
M29
M30
M6
E106
REFRIGERANT PRESSURE SENSOR
E77
JCIWA0485GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	E5
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH20FW-CS12-M4-1V

H.S.

9	10	11	12	13	14	37	38
3	4	5	6	7	8	35	36

Terminal No.	Color of Wire	Signal Name [Specification]
4	W	–
5	P	–
6	R	–
7	Y	–
8	L	–
10	V	–
11	B	–
12	G	–
13	GR	–
16	V	–
18	Y	–
22	BR	–
23	SB	–
24	O	–
25	LG	–
30	BR	–
31	W	–
32	L	–
34	P	–
36	GR	–
41	B	–
42	V	–
43	SB	–
44	GR	–
45	G	–
46	BR	–

Connector No.	E20
Connector Name	WIRE TO WIRE
Connector Type	SAA36MB-RS8-SHZ8

H.S.

1	2	9	10	11	12
3		13	14	15	16
4		17	18	19	20	21	22	23	24	25	26
		27	28	29	30	31	32	33	34		
5	6	35	36	37	38	39	40	41	42	43	
7	8	44	45	46	47	48	49	50	51	52	

Terminal No.	Color of Wire	Signal Name [Specification]
1	L/W	–
2	SHIELD	–
3	L/B	–
4	SHIELD	–
5	L/W	–
6	W	–
7	L/B	–
9	P	–
10	G	–
11	W	– [With VK engine]
11	Y	– [With VQ engine]
12	V	–
13	L	–
14	LG	– [With VK engine]
14	V	– [With VQ engine]
15	SB	–
16	GR	–
19	W	–
20	BR	–
21	G	–
22	O	–
23	L	–
24	GR	–
25	Y	–
28	V	–
29	Y	–
30	B	–
31	LG	–
32	W	–
33	BR	–
34	O	–
37	SHIELD	–
38	G	–
39	Y	–
40	R	–
41	W	–
42	L	–
43	B	–
46	SHIELD	–
47	R	–
48	L	–
49	G	–
50	B	–
51	Y	–
52	W	–

Connector No.	E74
Connector Name	EXHAUST GAS / OUTSIDE ODOR DETECTING SENSOR
Connector Type	RH03FB

H.S.

1	2	3

Terminal No.	Color of Wire	Signal Name [Specification]
1	G	AQS POWER
2	B/Y	AQS S GND
3	R	AQS S OUTPUT

Connector No.	E76
Connector Name	AMBIENT SENSOR
Connector Type	RS02FB

H.S.

2	1

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	–
2	SB	–

Connector No.	E6
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH08FW-NH

H.S.

42	41	40	39
46	45	44	43

Terminal No.	Color of Wire	Signal Name [Specification]
39	P	–
40	L	–

Connector No.	E77
Connector Name	REFRIGERANT PRESSURE SENSOR
Connector Type	RK03FB

H.S.

1	2	3

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	–
2	LG	–
3	W	–

Connector No.	E103
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS

H.S.

7F	6F	5F	4F		3F	2F	1F
16F	15F	14F	13F	12F	11F	10F	9F	8F

Terminal No.	Color of Wire	Signal Name [Specification]
1F	SB	–
2F	V	–
4F	G	–
6F	O	–
8F	W	–
9F	R	–
12F	Y	–

JCIWA0486GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	E106
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	–
2	W	–
3	SB	–
4	LG	–
5	O	–
7	GR	–
8	G	–
9	Y	–
10	BR	–
11	SB	–
12	V	–
13	GR	–
14	GR	–
15	V	–
16	Y	–
17	GR	–
18	V	–
20	BR	–
21	P	–
22	L	–
23	P	–
27	SHIELD	–
28	L/O	–
29	W/L	–
31	BR	–
32	G	–
33	O	–
34	Y	–
40	BR	–
41	BR	–
42	L	–
43	P	–
44	W	–
45	L	–
46	GR	–
47	V	–
48	G	–
49	O	–
50	LG	–
60	W	–
61	G	–
62	Y	–
63	BR	–
64	B	–
65	Y	–
66	R	–
67	SB	–
77	O	–
78	SB	–
80	G	–
81	R	–
82	SB	–
83	GR	–
84	Y	–
85	Y	–
86	L	–
87	V	–
88	BR	–
89	LG	–
90	W	–
91	W	–
92	P	–
93	LG	–
94	BR	–
95	W	–
96	R	–
97	R	–
98	Y	–
99	V	–
100	V	–

Connector No.	F40
Connector Name	WIRE TO WIRE
Connector Type	SAA36FB-RS8-SHZ8

Terminal No.	Color of Wire	Signal Name [Specification]
1	L/W	–
2	SHIELD	–
3	L/B	–
4	SHIELD	–
5	L/W	–
6	R	– [With VK engine]
6	W	– [With VQ engine]
7	L/B	–
9	W	–
10	G	–
11	G	– [With VK engine]
11	R	– [With VQ engine]
12	W	–
13	P	–
14	V	–
15	R	–
16	O	– [With VK engine]
16	Y	– [With VQ engine]
19	W	– [With VK engine]
19	L	– [With VQ engine]
20	W	–
21	G	–
22	W	–
23	L	–
24	Y	–
25	LG	–
28	R	–
29	W	–
30	B	–
31	W	–
32	LG	– [With VK engine]
32	GR	– [With VQ engine]
33	Y	– [With VK engine]
33	P	– [With VQ engine]
34	O	–
37	SHIELD	–
38	L/G	– [With VK engine]
38	G	– [With VQ engine]
39	L/Y	– [With VK engine]
39	P	– [With VQ engine]
40	W/L	– [With VK engine]
40	R	– [With VQ engine]
41	O/L	– [With VK engine]
41	W	– [With VQ engine]
42	O	– [With VK engine]
42	LG	– [With VQ engine]
43	W	– [With VK engine]
43	B	– [With VQ engine]
46	SHIELD	–
47	L/G	– [With VK engine]
47	W	– [With VQ engine]
48	L/Y	– [With VK engine]
48	BR	– [With VQ engine]
49	W/L	– [With VK engine]
49	O/L	– [With VQ engine]
50	O/L	– [With VK engine]
50	W/L	– [With VQ engine]
51	O	– [With VK engine]
51	SB	– [With VQ engine]
52	W	– [With VK engine]
52	O	– [With VQ engine]

Connector No.	F43
Connector Name	COMPRESSOR
Connector Type	RK02FGY

Terminal No.	Color of Wire	Signal Name [Specification]
2	O	–
3	BR	–

Connector No.	F44
Connector Name	COMPRESSOR
Connector Type	RS01FB

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	–

JCIWA0487GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	F103
Connector Name	WIRE TO WIRE
Connector Type	TK36FW-NS10

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
2	L	–
3	G	–
4	B	– [With VK engine]
4	R	– [With VQ engine]
5	GR	– [With VK engine]
5	B	– [With VQ engine]
7	LG	–
8	Y	–
9	W	– [With VK engine]
9	SB	– [With VQ engine]
10	BR	– [With VK engine]
10	V	– [With VQ engine]
11	L	–
12	P	–
13	V	–
14	SB	–
15	R	–
16	W	–
17	GR	–
18	LG	–
21	LG	–
22	B	–
23	G	–
24	BR	–
25	O	–

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

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
1A	R	–
2A	W	–
3A	Y	–
4A	W	–
5A	V	–
6A	Y	–
8A	Y	–

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

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
6C	R	–
7C	B	–
9C	L	–
10C	LG	–
11C	LG	–
12C	BG	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	–
2	W	–
3	SB	–
4	LG	–
5	W	–
7	BG	–
8	G	–
9	Y	–
10	W	–
11	R	–
12	V	–
13	LG	–
14	L	–
15	V	–
16	B	–
17	GR	–
18	V	–
20	SB	–
21	BR	–
22	L	–
23	P	–
27	SHIELD	–
28	V	–
29	SB	–
31	BG	–
32	P	–
33	R	–
34	BG	–
40	BR	–
41	BR	–
42	L	–
43	P	–
44	BR	–
45	Y	–
46	BG	–
47	V	–
48	G	–
49	BG	–
50	W	–
60	GR	–
61	B	–
62	LG	–
63	BR	–
64	L	–
65	R	–
66	P	–
67	L	–
77	B	–
78	V	–
80	G	–
81	L	–
82	B	–
83	BG	–
84	SB	–
85	Y	–
86	L	–
87	V	–
88	V	–
89	LG	–
90	BG	–
91	W	–
92	BG	–
93	G	–
94	Y	–
95	W	–
96	R	–
97	SB	–
98	R	–
99	W	–
100	L	–

JCIWA0488GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M20
Connector Name	PCB HARNESS
Connector Type	TH40FB-NH

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	–
11	BR	–
12	R	–
14	L	–
15	B	–
17	R	–
19	W	–
20	R	–
21	B	–
22	R	–
23	L	–
24	L	–
27	P	–
30	SHIELD	–
31	V	–
33	V	–
35	L	–
36	P	–
38	L	–
40	Y	–

Connector No.	M22
Connector Name	PCB HARNESS
Connector Type	TH40FB-NH

H.S.

100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name [Specification]
81	L	–
82	P	–

83	B	–
84	B	–
85	B	–
86	B	–
87	B	–
88	B	–
89	Y	–
91	V	–
92	V	–
93	B	–
94	B	–
95	LG	–
96	BR	–
97	G	–
98	G	–
99	G	–
100	G	–
101	L	–
102	P	–
103	B	–
104	BR	–
105	R	–
107	Y	–
108	Y	–
109	BR	–
110	Y	–
112	B	–
113	P	–
114	L	–
116	B	–
115		– [With VK engine]
117	B	– [With VQ engine]
117	BG	–
118	B	–
119	G	–
120	V	–

Connector No.	M23
Connector Name	PCB HARNESS
Connector Type	TH40FW-NH

H.S.

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name [Specification]
121	R	–

122	V	–
123	BG	–
124	BR	–
128	B	–
130	B	–
131	SB	–
132	LG	–
133	L	–
135	P	–
137	Y	–
138	L	–
139	P	–
140	L	–
141	W	–
142	W	–
144	P	–
145	R	–
146	LG	–
147	B	–
148	L	–
149	B	–
150	P	–
151	L	–
152	B	–
153	W	–
154	W	–
155	W	–
157	W	–
158	R	–
159	R	–

Connector No.	M24
Connector Name	PCB HARNESS
Connector Type	TH40FW-NH

H.S.

100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name [Specification]
161	BG	–
162	BG	–
163	G	–
164	V	–
165	V	–
166	R	–

167	LG	–
168	R	–
169	R	–
170	B	–
172	B	–
174	W	–
175	B	–
176	L	–
177	P	–
178	Y	–
179	L	–
180	LG	–
182	BR	–
183	G	–
184	V	–
185	P	– [With BOSE system]
185	V	– [Without BOSE system]
186	R	–
187	L	–
188	Y	–
189	B	–
190	V	–
191	G	–
192	B	–
193	SB	–
194	BR	–
198	R	–
199	B	–
200	SB	–

JCIWA0489GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M26
Connector Name	PCB HARNESS
Connector Type	TH40FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
241	L	–
243	R	–
244	L	–
245	B	–
246	B	–
247	LG	– [With Climate controlled seat]
247	B	– [With heated seat]
249	SHIELD	–
250	SHIELD	–
253	P	– [With Climate controlled seat]
253	B	– [With heated seat]
254	W	– [With Climate controlled seat]
254	B	– [With heated seat]
255	B	–
256	SHIELD	–
257	SHIELD	–
258	R	–
259	L	–
260	BG	–
261	P	–
269	GR	–
270	Y	–
271	BR	–
272	G	–
273	R	–
274	R	–
275	Y	–
276	B	–
277	G	–
278	R	–
279	SB	– [With Climate controlled seat]
279	R	– [With heated seat]
280	Y	–

Connector No.	M28
Connector Name	PCB HARNESS
Connector Type	TH40FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
321	V	–
322	V	–
324	B	–
325	L	–
326	L	–
327	P	–
328	P	–
330	B	–
331	V	–
332	V	–
335	B	–
337	W	–
338	W	–
343	L	–
344	B	–
345	Y	–
346	L	–
347	P	–
348	GR	–
349	V	–
350	LG	–
351	P	–
352	R	–
353	P	–
358	W	–
359	W	–
360	G	–

Connector No.	M29
Connector Name	PCB HARNESS
Connector Type	TH40FB-NH

Terminal No.	Color of Wire	Signal Name [Specification]
361	W	–
362	W	–
363	Y	–
366	B	–
367	B	–
368	G	–
373	BR	–
374	BG	–
375	BG	–
376	V	–
377	V	–
378	B	–
379	R	–
380	R	–
381	G	–
382	V	–
383	GR	–
384	GR	–
395	P	–
396	L	–
397	R	–
398	L	–
400	V	–

Terminal No.	Color of Wire	Signal Name [Specification]
402	R	–
403	R	–
407	V	–
408	B	–
409	B	–
410	B	–
411	B	–
413	Y	–
414	BR	–
416	LG	–
417	B	–
419	SB	–
420	SHIELD	–
422	V	–
427	P	–
428	V	–
429	P	–
430	LG	–
431	B	–
432	Y	–
435	V	–
436	BG	–
437	B	–
438	P	–
439	L	–

Connector No.	M46
Connector Name	SUNLOAD SENSOR
Connector Type	TC03FW

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	LH SIG
2	P	RH SIG
3	W	PWR

Connector No.	M30
Connector Name	PCB HARNESS
Connector Type	TH40FW-NH

JCIWA0490GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M53
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	BATTERY POWER SUPPLY
2	BG	IGNITION SIGNAL
3	GR	VEHICLE SPEED SIGNAL (2-PULSE)
4	R	VEHICLE SPEED SIGNAL (8-PULSE)
5	B	ILLUMINATION CONTROL SIGNAL
6	B	METER CONTROL SWITCH GROUND
7	SB	ENTER SWITCH SIGNAL
8	LG	SELECT SWITCH SIGNAL
9	G	ILLUMINATION CONTROL SWITCH SIGNAL (+)
10	GR	ILLUMINATION CONTROL SWITCH SIGNAL (-)
11	L	TRIP RESET SWITCH SIGNAL
12	B	GROUND
14	L	CAN-H
15	P	CAN-L
16	R	AIR BAG SIGNAL
23	B	GROUND
24	B	FUEL LEVEL SENSOR GROUND
25	W	ALTERNATOR SIGNAL
26	V	PARKING BRAKE SWITCH SIGNAL
27	V	BRAKE FLUID LEVEL SWITCH SIGNAL
28	G	SECURITY SIGNAL
29	L	WASHER LEVEL SWITCH SIGNAL
32	G	PADDLE SHIFTER SHIFT DOWN SIGNAL
33	BG	PADDLE SHIFTER SHIFT UP SIGNAL
34	G	FUEL LEVEL SENSOR SIGNAL
35	W	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)
36	G	PASSENGER SEAT BELT WARNING SIGNAL
37	G	NON-MANUAL MODE SIGNAL
38	V	MANUAL MODE SHIFT DOWN SIGNAL
39	L	MANUAL MODE SHIFT UP SIGNAL
40	W	MANUAL MODE SIGNAL

Connector No.	M66
Connector Name	A/C AUTO AMP.
Connector Type	TH20FW-TB6

H.S.

1	2	4	5	6	7	10	11	12
13			17	18		20	21	22	23	24	25	26

Terminal No.	Color of Wire	Signal Name [Specification]
1	L	BATTERY POWER SUPPLY
2	W	IGNITION POWER SUPPLY
6	R	BLOWER MOTOR F/B SIGNAL
7	L	POWER TRANSISTOR CONTROL SIGNAL
10	B	GROUND
11	P	CAN-L
12	L	CAN-H
13	V	ACC POWER SUPPLY
17	BG	EGV CONTROL SIGNAL
20	R	HUMIDITY SENSOR (SCK) SIGNAL
21	Y	HUMIDITY SENSOR (DATA) SIGNAL
22	B	HUMIDITY SENSOR GROUND
23	W	DRIVE MODE SELECT SW (SNOW)
24	L	DRIVE MODE SELECT SW (ECO)
25	G	DRIVE MODE SELECT SW (STANDARD)
26	Y	DRIVE MODE SELECT SW (SPORT)

Connector No.	M67
Connector Name	A/C AUTO AMP.
Connector Type	TH24FW-NH

H.S.

			30	31	32	33		35	36		
39		41	42		44	45		47			

Terminal No.	Color of Wire	Signal Name [Specification]
30	L	EXH GAS / OUTSIDE ODOR DETECTING SENSOR SIGNAL
31	BG	AMBIENT SENSOR SIGNAL
32	LG	IN-VEHICLE SENSOR SIGNAL
33	LG	HUMIDITY SENSOR (WINDOW TEMPERATURE) SIGNAL
35	L	SUNLOAD SENSOR (DR) SIGNAL
36	V	INSIDE ODOR DETECTING SENSOR SIGNAL

39	W	SENSOR POWER SUPPLY
41	L	HEATED STEERING WHEEL RELAY CONTROL SIGNAL
42	W	IONIZER CONTROL SIGNAL
44	B	GROUND
45	G	HEATED STEERING WHEEL SWITCH SIGNAL
47	P	SUNLOAD SENSOR (PASS) SIGNAL

Connector No.	M73
Connector Name	INSIDE ODOR DETECTING SENSOR
Connector Type	TH04FW-NH

H.S.

1	2	3	4

Terminal No.	Color of Wire	Signal Name [Specification]
1	V	SENS SIG
2	B	SENS GRD
3	B	GND
4	LG	IGN

Connector No.	M84
Connector Name	AV CONTROL UNIT
Connector Type	TH32FW-NH

H.S.

76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107

Terminal No.	Color of Wire	Signal Name [Specification]
76	LG	AV COMM (L)
77	SB	AV COMM (H)
78	SB	AV COMM (H)
79	LG	AV COMM (L)
80	P	CAN-L
81	L	CAN-H
82	BR	SW GND
86	SHIELD	SHIELD
87	P	TEL VOICE SIGNAL (+)
88	L	TEL VOICE SIGNAL (-)

92	R	VEHICLE SPEED (8-PULSE)
93	V	PARKING BRAKE
94	BG	REVERSE
95	W	IGNITION
96	SB	DISK EJECT SIGNAL

Connector No.	M88
Connector Name	IONIZER
Connector Type	TH04FW-NH

H.S.

1	3	4

Terminal No.	Color of Wire	Signal Name [Specification]
1	P	IGN
3	R	GND
4	W	ION ON / OFF

JCIWA0491GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M105
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-NH

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name [Specification]
2	R	-
3	B	-
5	LG	-
6	P	-
7	L	-
8	P	-
9	B	-
10	W	-
11	W	-
12	SB	-
14	SB	-
15	BR	-
16	V	-
18	G	-
19	B	-
20	V	-
22	BG	-
23	B	-
25	W	-
30	R	-
31	BR	-
32	L	-
33	P	-
34	LG	-
35	W	-
36	LG	-
37	L	-
38	R	-

Connector No.	M107
Connector Name	ECM
Connector Type	RH24FGY-RZ8-R-RH-Z

H.S.

128	124		116	112	108	104	100
127	123	119	115	111	107	103	99
126	122	118	114	110	106	102	98
125	121	117	113	109	105	103	97

Terminal No.	Color of Wire	Signal Name [Specification]
97	R	APS1
98	Y	APS2
99	G	AVCC1-APS1
100	W	GNDA-APS1
101	SB	ASCD SW
102	P	FTPRES
103	L	AVCC2-APS2
104	BR	GND-APS2 [With ICC]
104	B	GND-APS2 [Without ICC]
105	LG	PDPRES
106	P	TF
107	BG	AVCC2 PDPRES/FTPRES
108	Y	GND ASCD SW
109	BR	NEUT-H
110	V	TACHO
112	V	GNDA PDPRES/FTPRES
113	P	VEHCAN-LI
114	L	VEHCAN-HI
117	V	K-LINE
121	G	CDCV
122	P	BRAKE
123	B	GND
124	B	GND
125	SB	VBR
126	BR	BNC SW
127	B	GND
128	B	GND

Connector No.	M109
Connector Name	BLOWER MOTOR
Connector Type	SNA02FW

H.S.

1	2

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

Connector No.	M110
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH

H.S.

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

Terminal No.	Color of Wire	Signal Name [Specification]
1	G	-
2	Y	-
3	W	-
4	R	-
7	BR	-
8	R	-
9	B	-
13	L	-
14	B	-
15	LG	-
16	Y	-
17	W	-
18	R	-
19	B	-
20	V	-
21	R	-
22	G	-
23	L	-
24	LG	-

Connector No.	M112
Connector Name	POWER TRANSISTOR
Connector Type	SLB03FW-SMA2

H.S.

1	2
3	4

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	FAN F/B
2	L	FANOUT
3	R	SIG
4	B	GND

JCIWA0492GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M116
Connector Name	WIRE TO WIRE
Connector Type	TK36MW-NS10

Terminal No.	Color of Wire	Signal Name [Specification]
1	G	RR WINDOW DEFG RLY CONT
2	BG	COMBI SW INPUT 5
3	SB	COMBI SW INPUT 4
4	L	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	P	COMBI SW INPUT 1
8	V	POWER WINDOW SW COMM
9	P	STOP LAMP SW 1
11	R	RAIN SENSOR SERIAL LINK
14	W	OPTICAL SENSOR
16	SB	DIMMER SIGNAL
17	Y	SENSOR PWR SPLY
18	B	RECEIVER / SENSOR GND
19	R	RECEIVER PWR SPLY
20	BR	KYLS ENT RECEIVER COMM
21	P	NATS ANT AMP.
22	GR	KYLS ENT RECEIVER RSSI
23	G	SECURITY IND CONT
24	L	DONGLE LINK
25	G	NATS ANT AMP.
26	GR	I-KEY IDENTIFICATION
29	G	HAZARD SW
30	BG	TR LID OPNR SW
31	W	DR DOOR UNLOCK SENSOR
32	BR	COMBI SW OUTPUT 5
33	R	COMBI SW OUTPUT 4
34	V	COMBI SW OUTPUT 3
35	Y	COMBI SW OUTPUT 2
36	LG	COMBI SW OUTPUT 1
37	R	P POSITION
39	L	CAN-H
40	P	CAN-L

Connector No.	M135
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	–
2	BG	–

Connector No.	M160
Connector Name	ECM
Connector Type	MAB55FB-MEB10-LH

Terminal No.	Color of Wire	Signal Name [Specification]
111	W	FUEL INJECTOR DRIVER POWER SUPPLY
112	W	VINJ2A

Terminal No.	Color of Wire	Signal Name [Specification]
1	G	– [With Climate controlled seat]
2	BG	– [With heated seat]
3	SB	–
4	L	– [With Climate controlled seat]
5	G	– [With heated seat]
6	P	– [With Climate controlled seat]
8	V	– [With heated seat]
9	P	–
11	R	–
14	W	–
16	SB	–
17	Y	– [With Climate controlled seat]
18	B	– [With heated seat]
19	R	–
20	BR	– [With Climate controlled seat]
21	P	– [With heated seat]
22	GR	–
23	G	– [With Climate controlled seat]
24	L	– [With heated seat]
25	G	–
26	GR	– [With Climate controlled seat]
29	G	– [With heated seat]
30	BG	–
31	W	– [With Climate controlled seat]
32	BR	– [With heated seat]
33	R	–
34	V	– [With Climate controlled seat]
35	Y	– [With heated seat]
36	LG	–
37	R	–
39	L	–
40	P	–

Terminal No.	Color of Wire	Signal Name [Specification]
5	V	– [With Climate controlled seat]
5	L	– [With heated seat]
6	P	– [With Climate controlled seat]
6	GR	– [With heated seat]
7	SB	–
10	G	– [With Climate controlled seat]
10	GR	– [With heated seat]
11	L	– [With Climate controlled seat]
11	BG	– [With heated seat]
12	Y	–
13	W	–
14	L	–
15	G	–
16	Y	– [With Climate controlled seat]
17	W	– [With heated seat]
17	P	– [With Climate controlled seat]
18	BR	– [With heated seat]
19	GR	–
20	B	–
21	R	–
22	W	– [With Climate controlled seat]
22	B	– [With heated seat]
23	BG	–
24	V	–
25	LG	– [With Climate controlled seat]
25	B	– [With heated seat]
26	SB	– [With Climate controlled seat]
26	R	– [With heated seat]
27	P	– [With Climate controlled seat]
27	B	– [With heated seat]
28	B	–
29	B	–
30	Y	–
32	L	–

Terminal No.	Color of Wire	Signal Name [Specification]
114	B	ECM GROUND
115	B	ECM GROUND
120	G	EVAP CANISTER VENT CONTROL VALVE
122	V	FUEL ACTUATOR RELAY (FUEL PUMP CONTROL MODULE)
123	BG	THROTTLE CONTROL MOTOR RELAY
125	P	FUEL PUMP CONTROL MODULE (FPCM)
126	Y	ACCELERATOR PEDAL POSITION SENSOR 2
128	SB	ASCD STEERING SWITCH
128	SB	ICC STEERING SWITCH
129	BR	SENSOR GROUND [WITH ICC]
129	B	SENSOR GROUND [WITHOUT ICC]
130	Y	SENSOR GROUND
131	L	SENSOR POWER SUPPLY
133	BG	SENSOR POWER SUPPLY
134	P	FUEL TEMPERATURE SENSOR
136	R	ACCELERATOR PEDAL POSITION SENSOR 1
137	G	SENSOR POWER SUPPLY
138	P	BATTERY CURRENT SENSOR
139	BG	BATTERY TEMPERATURE SENSOR
140	W	SENSOR GROUND
141	G	IGNITION SWITCH
142	GR	FUEL PUMP CONTROL MODULE (FPCM) CHECK
143	P	FUEL TANK PRESSURE SENSOR
144	LG	REFRIGERANT PRESSURE SENSOR
146	L	CAN COMMUNICATION LINE
147	BR	ASCD BRAKE SWITCH [WITHOUT ICC]
147	BR	ICC BRAKE SWITCH [WITH ICC]
150	V	SENSOR GROUND
151	P	CAN COMMUNICATION LINE
156	W	POWER SUPPLY FOR ECM (BACK-UP)
158	P	STOP LAMP SWITCH
161	Y	ECM COMMUNICATION LINE
163	W	ECM RELAY (SELF SHUT-OFF)
166	BG	ECM COMMUNICATION LINE
169	V	ENGINE SPEED SIGNAL OUTPUT
171	SB	POWER SUPPLY FOR ECM
172	SB	POWER SUPPLY FOR ECM
173	R	THROTTLE CONTROL MOTOR POWER SUPPLY
174	B	ECM GROUND
175	B	ECM GROUND

Connector No.	M120
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	–
2	Y	–
3	B	– [With VK engine]
4	SB	– [With VQ engine]
5	B	–
7	W	–
8	Y	–
9	W	– [With VK engine]
9	SB	– [With VQ engine]
10	SB	–
11	L	–
12	P	–
13	V	–
14	R	–
15	Y	–
16	SB	–
17	BR	–
18	LG	–
21	LG	–
22	B	–
23	W	–
24	W	–
25	BG	–

JCIWA0493GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M181
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-NH

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38

Terminal No.	Color of Wire	Signal Name [Specification]
2	R	–
3	B	–
5	R	–
6	BR	–
7	L	–
8	P	–
9	B	–
10	W	–
11	LG	–
12	SB	–
14	SB	–
15	BR	–
16	V	–
18	G	–
19	B	–
20	V	–
22	BG	–
23	B	–
25	W	–
30	R	–
31	BR	–
32	L	–
33	P	–
34	LG	–
35	W	–
36	LG	–
37	L	–
38	R	–

Connector No.	M182
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW

H.S.

11	12	13	14	16
3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name [Specification]
3	LG	–
4	B	–
5	B	–
6	L	–
7	V	–
8	LG	–
11	SB	–
12	P	–
13	L	–
14	P	–
16	W	–

Connector No.	M185
Connector Name	IN-VEHICLE SENSOR
Connector Type	TK02FW-2V

H.S.

1	2

Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	–
2	B	–

Connector No.	M201
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	–
2	BG	–
5	V	–
6	P	–
7	SB	–
10	G	–
11	L	–
12	R	–
13	W	–
14	L	–
15	G	–
16	Y	–
17	W	–
18	BR	–
19	GR	–
20	B	–
21	R	–
22	B	–
23	BG	–
24	V	–
25	B	–
26	R	– [With Climate controlled seat]
27	B	– [With heated seat]
28	R	–
29	B	–
30	B	–
32	R	–

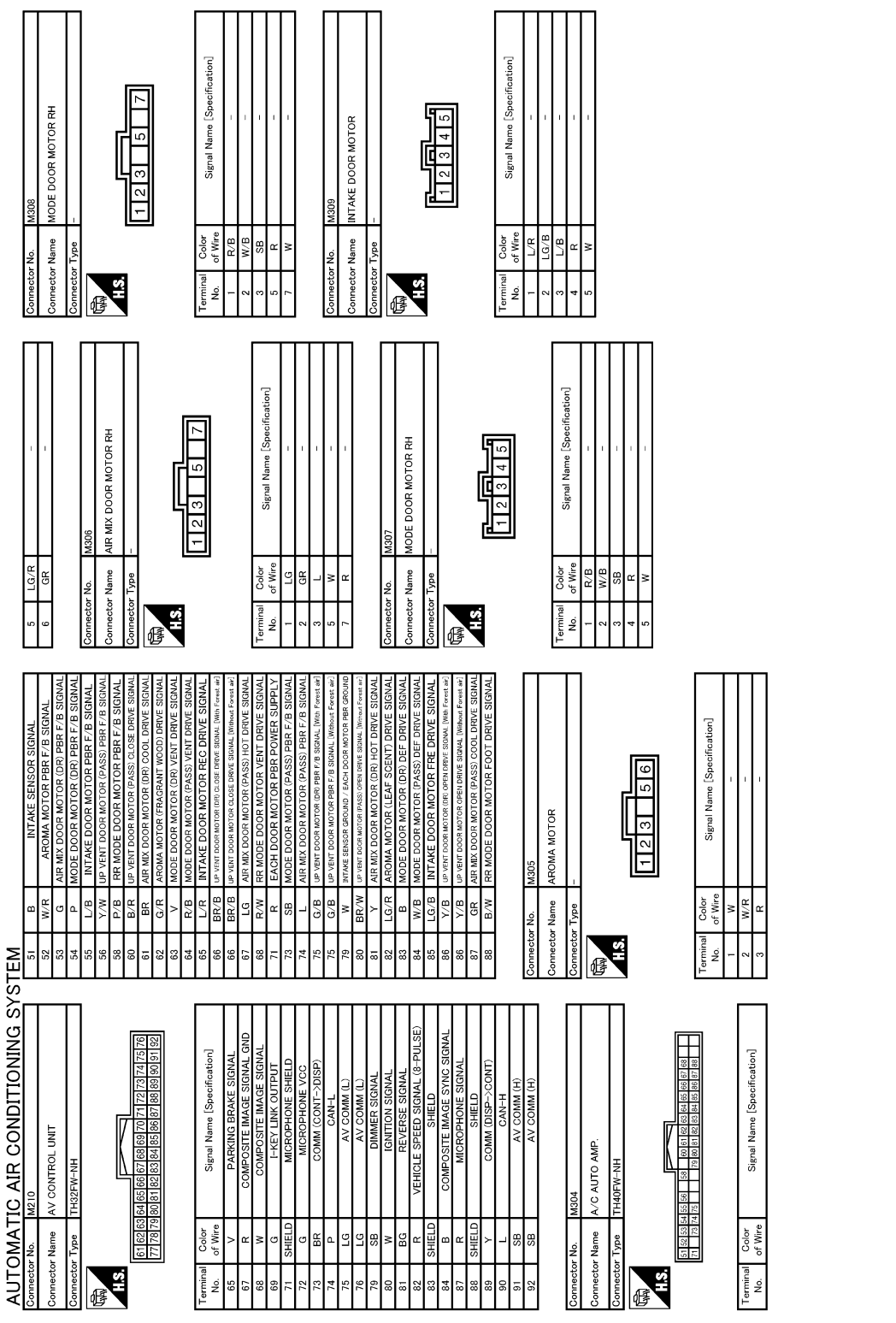
Connector No.	M203
Connector Name	DRIVE MODE SELECT SWITCH
Connector Type	TH10FB-NH

H.S.

1	2	3	4
6	7		9

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	–
2	L	–
3	G	–
4	Y	–
6	B	–
7	B	–
9	R	–

JCIWA0494GB



JCIWA0495GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	M310
Connector Name	INTAKE DOOR MOTOR
Connector Type	–

H.S.

1 2 3 5 7

Terminal No.	Color of Wire	Signal Name [Specification]
1	L/R	–
2	LG/B	–
3	L/B	–
5	R	–
7	W	–

Connector No.	M311
Connector Name	UPPER VENTILATOR DOOR MOTOR RH
Connector Type	–

H.S.

1 2 3 4 5

Terminal No.	Color of Wire	Signal Name [Specification]
1	B/R	–
2	BR/W	–
3	Y/W	–
4	W	–
5	R	–

Connector No.	M312
Connector Name	UPPER VENTILATOR DOOR MOTOR
Connector Type	–

H.S.

1 2 3 5 7

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR/B	–
2	Y/B	–
3	G/B	–
5	W	–
7	R	–

Connector No.	M313
Connector Name	UPPER VENTILATOR DOOR MOTOR LH
Connector Type	–

H.S.

1 2 3 4 5

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR/B	–
2	Y/B	–
3	G/B	–
4	W	–
5	R	–

Connector No.	M314
Connector Name	INTAKE SENSOR
Connector Type	–

H.S.

1 2

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	–
2	B	–

Connector No.	M315
Connector Name	AIR MIX DOOR MOTOR LH
Connector Type	–

H.S.

1 2 3 5 7

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	–
2	BR	–
3	G	–
5	W	–
7	R	–

Connector No.	M316
Connector Name	MODE DOOR MOTOR LH
Connector Type	–

H.S.

1 2 3 4 5

Terminal No.	Color of Wire	Signal Name [Specification]
1	V	–
2	B	–
3	P	–
4	R	–
5	W	–

Connector No.	M317
Connector Name	MODE DOOR MOTOR LH
Connector Type	–

H.S.

1 2 3 5 7

Terminal No.	Color of Wire	Signal Name [Specification]
1	V	–
2	B	–
3	P	–
5	R	–
7	W	–

Connector No.	M318
Connector Name	REAR MODE DOOR MOTOR
Connector Type	–

H.S.

1 2 3 5 7

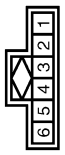
Terminal No.	Color of Wire	Signal Name [Specification]
1	R/W	–
2	B/W	–
3	P/B	–
5	R	–
7	W	–

JCIWA0496GB

AUTOMATIC AIR CONDITIONING SYSTEM

Connector No.	R6
Connector Name	HUMIDITY SENSOR
Connector Type	A06FW

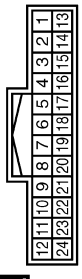
H.S.



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	–
2	R	–
3	W	–
4	Y	–
5	LG	–
6	L	–

Connector No.	R7
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH

H.S.



Terminal No.	Color of Wire	Signal Name [Specification]
1	G	–
2	Y	–
3	W	–
4	R	–
7	R	–
8	P	–
9	B	–
13	L	–
14	L	–
15	LG	–
16	Y	–
17	W	–
18	R	–
19	B	–
20	R	–
21	R	–
22	G	–
23	L	–
24	LG	–

JCIWA0497GB

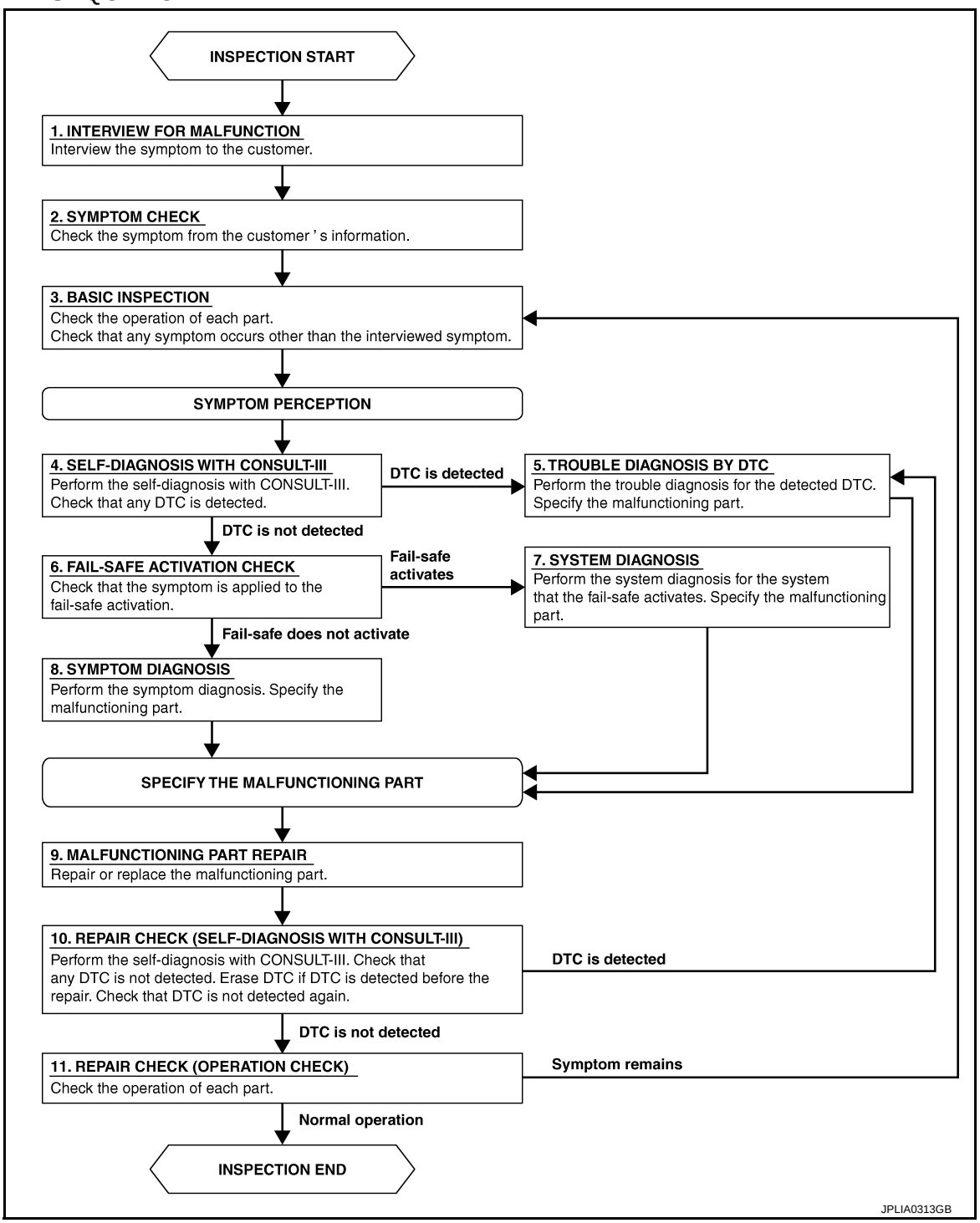
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000006134689

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Interview the symptom to the customer.

>> GO TO 2.

2.SYMPTOM CHECK

Check the symptom from the customer's information.

>> GO TO 3.

3.BASIC INSPECTION

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

>> GO TO 4.

4.SELF-DIAGNOSIS WITH CONSULT-III

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

Is any DTC detected?

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

5.TROUBLE DIAGNOSIS BY DTC

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

>> GO TO 9.

6.FAIL-SAFE ACTIVATION CHECK

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

Does the fail-safe activate?

YES >> GO TO 7.
NO >> GO TO 8.

7.SYSTEM DIAGNOSIS

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

>> GO TO 9.

8.SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 9.

9.MALFUNCTION PART REPAIR

Repair or replace the malfunctioning part.

>> GO TO 10.

10.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)

Perform the self-diagnosis with CONSULT-III. Check that any DTC is not detected. Erase DTC if DTC is detected before the repair. Check that DTC is not detected again.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 11.

11.REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

YES >> INSPECTION END
NO >> GO TO 3.

OPERATION INSPECTION
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR)
AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Work Procedure

INFOID:0000000005905682

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

Check condition : Engine running at normal operating temperature.

OPERATION INSPECTION
1.CHECK BLOWER MOTOR
Operate the fan switch. Check that the fan speed changes. check the operation for all fan speeds.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Blower motor system malfunction. Refer to HAC-172, "Diagnosis Procedure".

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

3.CHECK DISCHRGE AIR (“UPPER VENT”)
1. Press MODE switch to set the air outlet to other than D/F or DEF.
2. Touch “Upper Vent”. Check that air flow blows from upper ventilator.
3. Touch “Upper Vent” again. Check that air flow from upper ventilator stops.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

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

Is the inspection result normal?

YES >> GO TO 5.
NO >> Intake door system malfunction. Refer to HAC-132, "Diagnosis Procedure".

5.CHECK COMPRESSOR
1. Touch “A/C”. Check visually and by sound that the compressor operates.
2. Touch “A/C” again. Check that the compressor stops.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Compressor does not operate. Refer to HAC-194, "Diagnosis Procedure".

6.CHECK LH/RH INDEPENDENT TEMERATURE ADJUSTMENT FUNCTION

1. Operate the temperature control switch (driver side). Check that the discharge air temperature (driver side) changes.
2. Operate the temperature control switch (passenger side). Check that the discharge air temperature (passenger side) changes.
3. Touch “DUAL”. Check that the air temperature setting (LH/RH) is unified to the driver side temperature setting.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

7. CHECK WITH TEMPERATURE SETTING LOWERED

1. Operate the compressor.
2. Operate the temperature control switch and lower the set temperature to 18°C (60°F).
3. Check that the cool air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Insufficient cooling. Refer to HAC-196, "Diagnosis Procedure".

8. CHECK TEMPERATURE INCREASE

1. Turn temperature control switch to raise temperature setting at 32°C (90°F).
2. Check that warm air blows from outlets.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Insufficient heating. Refer to HAC-197, "Diagnosis Procedure".

9. CHECK AUTO MODE

1. Press AUTO switch to confirm that “AUTO” is indicated on the display.
2. Operate the temperature control switch to check that the fan speed or air outlet changes (the air flow temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and set temperature).

Is the inspection result normal?

YES >> GO TO 10.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

10. CHECK MEMORY FUNCTION

1. Set temperature control switch to 32.0°C (90°F).
2. Press the OFF switch.
3. Turn ignition switch OFF.
4. Turn ignition switch ON.
5. Press AUTO switch.
6. Check that the set temperature is maintained.

Is the inspection result normal?

YES >> GO TO 11.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

11. CHECK INTELLIGENT KEY INTERLOCK FUNCTION

1. Operate fan switch. Set fan speed to 1st speed.
2. Turn ignition switch OFF.
3. Lock door using Intelligent Key or driver door request switch.
4. Switch to another Intelligent Key and unlock door using Intelligent Key or driver door request switch.
5. Turn ignition switch ON.
6. Operate fan switch. Set fan speed to 7th speed.
7. Operate temperature control switch (driver side). Decrease setting temperature to 18.0°C (60°F).
8. Turn ignition switch OFF.
9. Lock door using Intelligent Key or driver door request switch.
10. Switch to another Intelligent Key and unlock door using Intelligent Key or driver door request switch.
11. Turn ignition switch ON.
12. Check that “Connection with the key has been done.” is indicated on display and that air conditioning system starts to operate automatically by setting temperature to 32.0°C (90°F) and fan speed to 1st.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Intelligent Key interlock function malfunctioning. Refer to HAC-198, "Diagnosis Procedure".

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR)

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

INFOID:0000000006134340

DESCRIPTION

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

Check condition : Engine running at normal operating temperature.

OPERATION INSPECTION

1. CHECK BLOWER MOTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Blower motor system malfunction. Refer to HAC-172, "Diagnosis Procedure".

2. CHECK LH/RH INDEPENDENT AIR OUTLET ADJUSTMENT FUNCTION

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

3. CHECK DISCHRGE AIR (“UPPER VENT”)

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

Is the inspection result normal?

YES >> GO TO 4.
NO >> Upper ventilator system malfunction. Refer to HAC-137, "Diagnosis Procedure".

4. CHECK INTAKE AIR

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

Is the inspection result normal?

YES >> GO TO 5.
NO >> Intake door system malfunction. Refer to HAC-132, "Diagnosis Procedure".

5. CHECK COMPRESSOR

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

Is the inspection result normal?

YES >> GO TO 6.
NO >> Compressor does not operate. Refer to HAC-194, "Diagnosis Procedure".

6. CHECK LH/RH INDEPENDENT TEMERATURE ADJUSTMENT FUNCTION

1. Operate the temperature control switch (driver side). Check that the discharge air temperature (driver side) changes.
2. Operate the temperature control switch (passenger side). Check that the discharge air temperature (passenger side) changes.
3. Touch “DUAL”. Check that the air temperature setting (LH/RH) is unified to the driver side temperature setting.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

7. CHECK WITH TEMPERATURE SETTING LOWERED

1. Operate the compressor.
2. Operate the temperature control switch and lower the set temperature to 18°C (60°F).
3. Check that the cool air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Insufficient cooling. Refer to HAC-196, "Diagnosis Procedure".

8. CHECK TEMPERATURE INCREASE

1. Turn temperature control switch to raise temperature setting at 32°C (90°F).
2. Check that warm air blows from outlets.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Insufficient heating. Refer to HAC-197, "Diagnosis Procedure".

9. CHECK AUTO MODE

1. Press AUTO switch to confirm that “AUTO” is indicated on the display.
2. Operate the temperature control switch to check that the fan speed or air outlet changes (the air flow temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and set temperature).

Is the inspection result normal?

YES >> GO TO 10.
NO >> Refer to HAC-187, "Symptom Table" and perform the appropriate diagnosis.

10. CHECK MEMORY FUNCTION

1. Set temperature control switch to 32.0°C (90°F).
2. Press the OFF switch.
3. Turn ignition switch OFF.
4. Turn ignition switch ON.
5. Press AUTO switch.
6. Check that the set temperature is maintained.

Is the inspection result normal?

YES >> GO TO 11.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

11. CHECK INTELLIGENT KEY INTERLOCK FUNCTION

1. Operate fan switch. Set fan speed to 1st speed.
2. Turn ignition switch OFF.
3. Lock door using Intelligent Key or driver door request switch.
4. Switch to another Intelligent Key and unlock door using Intelligent Key or driver door request switch.
5. Turn ignition switch ON.
6. Operate fan switch. Set fan speed to 7th speed.
7. Operate temperature control switch (driver side). Decrease setting temperature to 18.0°C (60°F).
8. Turn ignition switch OFF.
9. Lock door using Intelligent Key or driver door request switch.
10. Switch to another Intelligent Key and unlock door using Intelligent Key or driver door request switch.
11. Turn ignition switch ON.

12. Check that “Connection with the key has been done.” is indicated on display and that air conditioning system starts to operate automatically by setting temperature to 32.0°C (90°F) and fan speed to 1st.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Intelligent Key interlock function malfunctioning. Refer to HAC-198, "Diagnosis Procedure".

FOREST AIR SYSTEM

FOREST AIR SYSTEM : Work Procedure

INFOID:0000000005905683

DESCRIPTION

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

NOTE:

Check that automatic air conditioning system operates normally. Refer to HAC-82, "AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR) : Work Procedure".

Check condition : Engine running at normal operating temperature
: Turn FOREST switch ON and turn it OFF once. Turn FOREST switch ON again and wait for 5 minutes or more.

OPERATION INSPECTION

1. CHECK PLASMACLUSTER™ CONTROL

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

NOTE:

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Ionizer system malfunction. Refer to HAC-183, "Diagnosis Procedure".

2. CHECK PLASMACLUSTER™ CONTROL OPERATION STATUS

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

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

NOTE:

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

3. CHECK BREEZY AIR CONTROL

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

NOTE:

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

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

4. CHECK BREEZY AIR CONTROL OPERATION STATUS

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

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

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

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

1. Check that the operation is in fresh air intake mode.
2. Apply cigarette smoke or similar substance to exhaust gas / outside odor detecting sensor portion.
3. Listen to intake sound and confirm air inlets change.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Exhaust gas / outside odor detecting sensor system malfunction. Refer to HAC-105, "Diagnosis Procedure".

6. CHECK AMBIENT AIR JUDGEMENT STATUS

1. Apply cigarette smoke or similar substance to exhaust gas / outside odor detecting sensor portion.
2. Visually check that indicator of ambient air status in display changes to orange.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

7. AIR FLOW CONTROL (INSIDE ODOR DETECTING MECHANISM)

1. Operate temperature control switch (driver side). Set temperature to 20°C (68°F).
2. Apply cigarette smoke or similar substance to air inlet while fan speed is in 5th or 6th speed status.
3. Place a hand to air outlet. Check that air flow increases.

Is the inspection result normal?

YES >> GO TO 8.
NO >> Inside odor detecting sensor system malfunction. Refer to HAC-179, "Diagnosis Procedure".

8. CHECK INTERIOR AIR JUDGEMENT STATUS

1. Apply cigarette smoke or similar substance to air inlet.
2. Visually check that indicator of interior air status in display changes to orange.

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

9. CHECK AUTOMATIC DEFOGGING CONTROL

1. Apply vapor to humidity sensor portion.
2. Check that the operation is in accordance with the following status.

- Air outlet: DEF
- Air inlet: Fresh air intake
- Compressor: ON

Is the inspection result normal?

YES >> GO TO 10.
NO >> Humidity sensor system malfunction. Refer to HAC-162, "Diagnosis Procedure".

10. CHECK AUTOMATIC DEFOGGING CONTROL OPERATION STATUS

1. Apply vapor to humidity sensor portion.
2. Visually check that indicator of windshield in display is indicated in white.

Is the inspection result normal?

YES >> GO TO 11.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

11. CHECK AROMA DIFFUSER CONTROL (AROMA MOTOR OPERATION)

1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON and OFF.

2. Perform this operation for 2 sets. Check by operation sound that aroma motor operates.
   NOTE:
   Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning it ON again after turning it OFF. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

YES >> GO TO 12.
NO >> Aroma motor system malfunction. Refer to HAC-157, "Diagnosis Procedure".

12. CHECK AROMA DIFFUSER CONTROL (FRAGRANCE)

1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON and OFF.
2. Perform this operation for 2 sets. Check by fragrance that 2 kinds of aroma are diffused alternately.
   NOTE:
   Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning it ON again after turning it OFF. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

YES >> GO TO 13.
NO >> Replace aroma cartridge. Refer to HAC-201, "Removal and Installation".

13. CHECK AROMA DIFFUSER CONTROL OPERATION STATUS

1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON and OFF.
2. Perform this operation for 2 sets. Visually check that indication of fragrance (Leaf scent ⇔ Fragrant wood) in display switches alternately.
   NOTE:
   Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning it ON again after turning it OFF. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (A/C AUTO AMP.)

Description

INFOID:0000000006115318

When replacing A/C auto amp., save or print current vehicle specification with CONSULT-III “Configuration” before replacement.

BEFORE REPLACEMENT

NOTE:
If “READ CONFIGURATION” can not be used, use the “WRITE CONFIGURATION - Manual setting” after replacing A/C auto amp..

AFTER REPLACEMENT

CAUTION:
- **When replacing A/C auto amp., you must perform “WRITE CONFIGURATION” with CONSULT-III.**
- **Never perform “WRITE CONFIGURATION” except for new A/C auto amp..**

Work Procedure

INFOID:0000000006115319

1.SAVING VEHICLE SPECIFICATION

CONSULT-III Configuration
Perform “READ CONFIGURATION” to save or print current vehicle specification. Refer to HAC-90, "Description".

NOTE:
If “READ CONFIGURATION” can not be used, use the “WRITE CONFIGURATION - Manual setting” after replacing A/C auto amp..

>> GO TO 2.

2.REPLACE A/C AUTO AMP.

Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

CONSULT-III Configuration
Perform “WRITE CONFIGURATION - Config file” or “WRITE CONFIGURATION - Manual setting” to write vehicle specification. Refer to HAC-90, "Work Procedure".

>> WORK END

CONFIGURATION (HVAC)

Description

INFOID:0000000006115320

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

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

CAUTION:
- **When replacing A/C auto amp., you must perform “WRITE CONFIGURATION” with CONSULT-III.**
- **Never perform “WRITE CONFIGURATION” except for new A/C auto amp..**

Work Procedure

INFOID:0000000006115321

1.WRITING MODE SELECTION

CONSULT-III Configuration
Select “CONFIGURATION” of A/C auto amp..

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

2.PERFORM “WRITE CONFIGURATION - CONFIG FILE”

CONSULT-III Configuration
Perform “WRITE CONFIGURATION - Config file”.

>> WORK END

3.PERFORM “WRITE CONFIGURATION - MANUAL SETTING”

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

>> GO TO 4.

4.OPERATION CHECK

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

>> WORK END

SYSTEM SETTING

AUTOMATIC AIR CONDITIONING SYSTEM

AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer

INFOID:0000000006115686

DESCRIPTION

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

HOW TO SET

With CONSULT-III

Perform “TEMP SET CORRECT” of HVAC work support item.

Work support items	Display (°F)	Display (°C)
TEMP SET CORRECT	6	3.0
	5	2.5
	4	2.0
	3	1.5
	2	1.0
	1	0.5
	0 (initial status)	0 (initial status)
	–1	–0.5
	–2	–1.0
	–3	–1.5
	–4	–2.0
	–5	–2.5
	–6	–3.0

NOTE:

When –3.0°C (–6°F) is corrected on the temperature setting set as 25.0°C (77°F), the temperature controlled by A/C auto amp. is 25.0°C (77°F) – 3.0°C (–6°F) = 22.0°C (72°F) and the temperature becomes lower than the temperature setting.

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

INFOID:0000000006115689

DESCRIPTION

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

HOW TO SET

With CONSULT-III

Perform the “REC MEMORY SET” of HVAC work support item.

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

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

INFOID:0000000006115688

DESCRIPTION

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

HOW TO SET

With CONSULT-III

Perform the “FRE MEMORY SET” of HVAC work support item.

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

AUTOMATIC AIR CONDITIONING SYSTEM : Foot Position Setting Trimmer

INFOID:0000000006115687

DESCRIPTION

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

HOW TO SET

With CONSULT-III

Perform the “BLOW SET” of HVAC work support item.

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

FOREST AIR SYSTEM

FOREST AIR SYSTEM : Aroma Fragrance Intensity Setting

INFOID:0000000005905693

DESCRIPTION

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

HOW TO SET

With CONSULT-III

Perform “AROMA SETTING” or HVAC work support item.

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

FOREST AIR SYSTEM : Aroma Fragrance Type Setting

INFOID:0000000005905694

DESCRIPTION

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

HOW TO SET

With CONSULT-III
Perform “FRAGRANCE SETTING” or HVAC work support item.

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

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

INFOID:0000000005905695

DESCRIPTION

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

HOW TO SET

With CONSULT-III
Perform “BLOWER MOTOR SETTING” or HVAC work support item.

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

FOREST AIR SYSTEM : Aroma Diffuser Presence Setting

INFOID:0000000005905945

DESCRIPTION

Setting change of aroma diffuser presence setting can be performed.

HOW TO SET

With CONSULT-III
Perform “AROMA DIFFUSER SETTING” or HVAC work support item.

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

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000005905696

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-board multiplex communication line with high data communication speed and excellent error detection ability. A modern vehicle is equipped with many ECMs, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, 2 control units are connected with 2 communication lines (CAN-L line and CAN-H line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
Refer to LAN-35, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart" for details of the communication signal.

DTC Logic

INFOID:0000000005905697

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to HAC-94, "Diagnosis Procedure".
NO >> Refer to GI-38, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000006138411

1.CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to LAN-25, "Trouble Diagnosis Flow Chart".

>> INSPECTION END

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000005905698

Initial diagnosis of A/C auto amp.

DTC Logic

INFOID:0000000005905699

DTC DETECTION LOGIC

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
U1010	CONTROL UNIT(CAN)	When detecting error during the initial diagnosis of CAN controller of A/C auto amp.	A/C auto amp.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to HAC-95, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000006138412

1.REPLACE A/C AUTO AMP.

Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

>> INSPECTION END

B2578, B2579 IN-VEHICLE SENSOR

DTC Logic

INFOID:0000000005905700

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".

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

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-96, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905701

1. CHECK IN-VEHICLE SENSOR POWER SUPPLY

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

+		–	Voltage (Approx.)
In-vehicle sensor			
Connector	Terminal		
M185	1	Ground	5 V

Is the inspection result normal?

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

2. CHECK IN-VEHCLE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M185	1	M67	32	Existed

Is the inspection result normal?

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

3. CHECK IN-VEHCLE SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

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

In-vehicle sensor		—	Continuity
Connector	Terminal		
M185	1	Ground	Not existed

Is the inspection result normal?

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

4. CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
In-vehicle sensor			
Connector	Terminal		
M185	1	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

5. CHECK IN-VEHCLE SENSOR GROUND CIRCUIT

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

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M185	2	M67	44	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK IN-VEHICLE SENSOR

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

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace in-vehicle sensor. Refer to HAC-203, "Removal and Installation".

7. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905702

1. CHECK IN-VEHICLE SENSOR

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector.

3. Check resistance between in-vehicle sensor terminals.

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace in-vehicle sensor. Refer to HAC-203, "Removal and Installation".

B257B, B257C AMBIENT SENSOR

DTC Logic

INFOID:0000000005905703

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B257B	AMBIENT SENSOR	The ambient sensor recognition temperature is too high.	• Ambient sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
B257C		The ambient sensor recognition temperature is too low.	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-99, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905704

1.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.

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

Is the inspection result normal?

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

2.CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp.connector.
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	
E76	1	M67	31	Existed

Is the inspection result normal?

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

3.CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between ambient sensor harness connector and ground.

Ambient sensor		—	Continuity
Connector	Terminal		
E76	1	Ground	Not existed

Is the inspection result normal?

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

4.CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Ambient sensor			
Connector	Terminal		
E76	1	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

5.CHECK AMBIENT SENSOR GROUND CIRCUIT

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

Ambient sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
E76	2	M67	44	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6.CHECK AMBIENT SENSOR

Check ambient sensor. Refer to HAC-100, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace ambient sensor. Refer to HAC-202, "Removal and Installation".

7.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905705

1.CHECK AMBIENT SENSOR

1. Turn ignition switch OFF.
2. Disconnect ambient sensor connector.

3. Check resistance between the ambient sensor terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ambient sensor. Refer to HAC-202, "Removal and Installation".

B2581, B2582 INTAKE SENSOR

DTC Logic

INFOID:0000000005905706

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B2581	INTAKE SENSOR	The intake sensor recognition temperature is too high.	• Intake sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
B2582		The intake sensor recognition temperature is too low.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-102, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905707

1. CHECK INTAKE SENSOR POWER SUPPLY

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

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

Is the inspection result normal?

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

2. CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

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

Is the inspection result normal?

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

3. CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between intake sensor harness connector and ground.

Intake sensor		—	Continuity
Connector	Terminal		
M314	2	Ground	Not existed

Is the inspection result normal?

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

4. CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M314	2	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

5. CHECK INTAKE SENSOR GROUND CIRCUIT

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

Intake sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M314	1	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK INTAKE SENSOR

Check intake sensor. Refer to HAC-103, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace intake sensor. Refer to HAC-206, "Removal and Installation".

7. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905708

1. CHECK INTAKE SENSOR

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.

3. Check resistance between intake sensor terminals.

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace intake sensor. Refer to HAC-206, "Removal and Installation".

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

DTC Logic

INFOID:0000000005905709

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B262A	GAS SENSOR	Exhaust gas / outside odor detecting sensor duty ratio 15% or less.	• Exhaust gas / outside odor detecting sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
B262B		Exhaust gas / outside odor detecting sensor duty ratio 85% or more.	
B2657	CAS SENSOR CIRCUIT	Exhaust gas / outside odor detecting sensor duty ratio 0%.	
B2658		Exhaust gas / outside odor detecting sensor duty ratio 100%.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-105, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905710

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

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

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

Is the inspection result normal?

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

2. CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10A fuse [No3, located in fuse block (J/B)]

NOTE:
Refer to PG-132, "Fuse and Fusible Link Arrangement".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace blown fuse after repairing the affected circuit if a fuse is blown.

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

1. Disconnect fuse block (J/B) connector.
2. Check continuity between exhaust gas / outside odor detecting sensor harness connector and fuse block (J/B) connector.

Exhaust gas / outside odor detecting sensor		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
E74	1	E103	4F	Existed

Is the inspection result normal?

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

4.CHECK EXHAUST GAS / OUTSIDE ODOR DETECTING SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

1. Disconnect exhaust gas / outside odor detecting sensor connector, ionizer connector, ECV connector and A/C auto amp.connector.
2. Check continuity between exhaust gas / outside odor detecting sensor harness connector and ground.

Exhaust gas / outside odor detecting sensor		—	Continuity
Connector	Terminal		
E74	1	Ground	Not existed

Is the inspection result normal?

YES >> Check ignition power supply circuit. Refer to PG-84, "Wiring Diagram - IGNITION POWER SUPPLY -".
NO >> Repair harness or connector.

5.CHECK EXHAUST GAS / OUTSIDE ODOR DETECTING SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between exhaust gas / outside odor detecting sensor harness connector and ground.

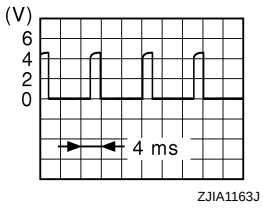
Exhaust gas / outside odor detecting sensor		—	Continuity
Connector	Terminal		
E74	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

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

1. Connect exhaust gas / outside odor detecting sensor connector.
2. Turn ignition switch ON.
3. Check signal between exhaust gas / outside odor detecting sensor harness connector and ground with oscilloscope.

+		–	Signal (Reference value)
Exhaust gas / outside odor detecting sensor			
Connector	Terminal		
E74	3	Ground	

NOTE:
Signal differs depending on measurement environment of the vehicle.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace exhaust gas / outside odor detecting sensor. Refer to HAC-208, "Removal and Installation".

7. CHECK EXHAUST GAS / OUTSIDE ODOR DETECTING SENSOR INPUT SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect exhaust gas / outside odor detecting sensor connector and A/C auto amp.connector.
3. Check continuity between exhaust gas / outside odor detecting sensor harness connector and A/C auto amp. connector.

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

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair harness or connector.

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

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

+		–	Voltage (Approx.)
Exhaust gas / outside odor detecting sensor			
Connector	Terminal		
E74	3	Ground	0 V

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

B2630, B2631 SUNLOAD SENSOR

DTC Logic

INFOID:0000000005905711

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- Sunload sensor may register a malfunction when indoors, at dusk, or at other times when light is insufficient. When performing the diagnosis indoors, use a lamp (60 W or more) that is pointed at the sunload sensor.

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B2630	SUNLOAD SENSOR	Detected calorie at sunload sensor 4793 W/m^2 (4121 kcal/m^2·h) or more.	• Sunload sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
B2631		Detected calorie at sunload sensor 75.6 W/m^2 (64.97 kcal/m^2·h) or less.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-109, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905712

1. CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT

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

+		–	Voltage (Approx.)
Sunload sensor			
Connector	Terminal		
M46	3	Ground	5 V

Is the inspection result normal?

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

2. CHECK SUNLOAD SENSOR POWER SUPPLY 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 sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M46	3	M67	39	Existed

Is the inspection result normal?

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

3. CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between sunload sensor harness connector and ground.

Sunload sensor		—	Continuity
Connector	Terminal		
M46	3	Ground	Existed

Is the inspection result normal?

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

4. CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

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

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

5. CHECK SUNLOAD SENSOR GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK SUNLOAD SENSOR

Check sunload sensor. Refer to HAC-111, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace sunload sensor. Refer to HAC-204, "Removal and Installation".

7. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905713

1. CHECK SUNLOAD SENSOR

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

Terminal		Condition	Resistance: kΩ
		Sunload amount: kW/m^2 kcal/m^2·h)	
1 (Passenger side) 2 (Driver side)	3	0	More than 17000
		0.233 (200)	59.9
		0.465 (400)	49.9
		0.698 (600)	39.9
		0.770 (662)	36.8
		0.930 (800)	29.9
		1.163 (1,000)	19.9
		1.396 (1,200)	9.8

NOTE:

- When checking indoors, use a lamp of approximately 60 W. Move the lamp towards and away from the sensor to check.
- The sunload amount produced by direct sunshine fair weather is equivalent to approximately 0.77 kW/m^2 (662 kcal/m^2·h).

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace sunload sensor. Refer to HAC-204, "Removal and Installation".

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

DTC Logic

INFOID:0000000005905714

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-112, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905715

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

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

Is the inspection result normal?

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

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

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

+		–	Condition		Voltage (Approx.)
Air mix door motor (LH)					
Connector	Terminal				
M315	1	Ground	Set temperature (driver side)	18°C (60°F) → 32°C (90°F)	12 V
	2			32°C (90°F) → 18°C (60°F)	

Is the inspection result normal?

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

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

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

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

Is the inspection result normal?

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

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

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

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

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK AIR MIX DOOR MOTOR (DRIVER SIDE)

Check air mix door motor (driver side). Refer to HAC-115, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace air mix door motor (driver side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

7. CHECK INSTALLATION OF AIR MIX DOOR MOTOR (DRIVER SIDE) CONTROL LINKAGE

Check air mix door motor (driver side) control linkage is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair or replace malfunctioning parts.

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

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

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	53	Ground	Set temperature (driver side)	18°C (60°F)	4 V
				32°C (90°F)	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK AIR MIX DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

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

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

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

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

Air mix door motor LH		—	Continuity
Connector	Terminal		
M315	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

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

1. Reconnect A/C auto amp. harness connector.
2. Turn ignition switch ON.
3. Check voltage between air mix door motor LH harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

1. Turn ignition switch OFF.

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

Air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M315	7	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

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

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

Air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M315	5	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

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

Check air mix door motor (driver side) PBR. Refer to HAC-116, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace air mix door motor (driver side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection (Motor)

INFOID:0000000005905716

1. CHECK AIR MIX DOOR MOTOR (DRIVER SIDE)

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

Terminal		Operation direction
+	–	
1	2	Full hot
2	1	Full cold

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace air mix door motor (driver side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905717

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

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

Terminal		Resistance (Ω)
5	3	Except 0 or ∞
	7	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace air mix door motor (driver side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

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

DTC Logic

INFOID:0000000005905718

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B2753	PASS AIR MIX DOOR MOT	Air mix door motor (passenger side) PBR feedback signal voltage is too low.	• Air mix door motor (passenger side) • Air mix door motor (passenger side) control linkage installation condition • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)
B2754		Air mix door motor (passenger side) PBR feedback signal voltage is too high.	
B2755		Stop position of air mix door motor (passenger side) is malfunctioning.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-117, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905719

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

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

Is the inspection result normal?

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

2. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL

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

+		–	Condition		Voltage (Approx.)
Air mix door motor RH					
Connector	Terminal				
M306	1	Ground	Set temperature (passenger side)	18°C (60°F) → 32°C (90°F)	12 V
	2			32°C (90°F) → 18°C (60°F)	

Is the inspection result normal?

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

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

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

Air mix door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M306	1	M304	67	Existed
	2		87	

Is the inspection result normal?

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

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

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

Air mix door motor RH		—	Continuity
Connector	Terminal		
M306	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE)

Check air mix door motor (passenger side). Refer to HAC-120, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace air mix door motor (passenger side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

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

Check air mix door motor (passenger side) control linkage is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.

NO >> Repair or replace malfunctioning parts.

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

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

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	74	Ground	Set temperature (passenger side)	18°C (60°F)	4 V
				32°C (90°F)	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

Air mix door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M306	3	M304	74	Existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

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

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

Air mix door motor RH		—	Continuity
Connector	Terminal		
M306	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

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

1. Reconnect A/C auto amp. harness connector.
2. Turn ignition switch ON.
3. Check voltage between air mix door motor RH harness connector and ground.

+		–	Voltage (Approx.)
Air mix door motor RH			
Connector	Terminal		
M306	7	Ground	5 V

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

1. Turn ignition switch OFF.

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

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

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

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

Check air mix door motor (passenger side) PBR. Refer to HAC-121, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace air mix door motor (passenger side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection (Motor)

INFOID:0000000005905720

1. CHECK AIR MIX DOOR MOTOR (PASSENGER SIDE)

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

Terminal		Operation direction
+	–	
1	2	Full hot
2	1	Full cold

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace air mix door motor (passenger side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905721

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

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

Terminal		Resistance (Ω)
5	3	Except 0 or ∞
	7	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace air mix door motor (passenger side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

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

DTC Logic

INFOID:0000000005905722

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-122, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905723

1.CHECK MODE DOOR MOTOR (DRIVER SIDE) OPERATION

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

Is the inspection result normal?

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

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

1. Press MODE switch (driver side) and DEF switch.
2. Check voltage between mode door motor LH harness connector and ground.

+		–	Condition		Voltage (Approx.)
Mode door motor LH					
Connector	Terminal				
M316 (with Forest Air) M317 (without Forest Air)	1	Ground	Air outlet	DEF → VENT	12 V
	2			VENT → DEF	

Is the inspection result normal?

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

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

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M316 (with Forest Air) M317 (without Forest Air)	1	M304	63	Existed
	2		83	

Is the inspection result normal?

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

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

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

Mode door motor LH		—	Continuity
Connector	Terminal		
M316 (with Forest Air) M317 (without Forest Air)	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

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

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

+		–	Voltage (Approx.)
Mode door motor LH			
Connector	Terminal		
M316 (with Forest Air) M317 (without Forest Air)	1	Ground	0 V
	2		

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK MODE DOOR MOTOR (DRIVER SIDE)

Check mode door motor (driver side). Refer to HAC-125, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace mode door motor (driver side). Refer to HAC-209, "MODE DOOR MOTOR : Removal and Installation".

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

Check mode door motor (driver side) control linkage is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

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

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

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	54	Ground	Air outlet	VENT	4 V
				DEF	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

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

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

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

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

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

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

1. Reconnect A/C auto amp. harness connector.
2. Turn ignition switch ON.
3. Check voltage between mode door motor LH harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M316 (with Forest Air)	4	M304	71	Existed
M317 (without Forest Air)	5			

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR GROUND CIRCUIT

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M316 (with Forest Air)	5	M304	79	Existed
M317 (without Forest Air)	7			

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR

Check mode door motor (driver side) PBR. Refer to HAC-126, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace mode door motor (driver side). Refer to HAC-209, "MODE DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection (Motor)

INFOID:0000000005905724

1. CHECK MODE DOOR MOTOR (DRIVER SIDE)

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

Terminal		Operation direction
+	–	
1	2	VENT
2	1	DEF

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace mode door motor (driver side). Refer to HAC-209, "MODE DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905725

1. CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace mode door motor (driver side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

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

DTC Logic

INFOID:0000000005905726

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B2759	PASS MODE DOOR MOT	Mode door motor (passenger side) PBR feedback signal voltage is too low.	• Mode door motor (passenger side) • Mode door motor (passenger side) control linkage installation condition • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)
B275A		Mode door motor (passenger side) PBR feedback signal voltage is too high.	
B275B		Stop position of mode door motor (passenger side) is malfunctioning.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-127, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905727

1. CHECK MODE DOOR MOTOR (PASSENGER SIDE) OPERATION

1. Turn ignition switch ON.
2. Operate MODE switch (driver side) and DEF switch.
   NOTE:
   “DUAL”: OFF
3. Check operation sound that mode door motor (passenger side) operates.

Is the inspection result normal?

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

2. CHECK MODE DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL

1. Press MODE switch (driver side) and DEF switch.
   NOTE:
   “DUAL”: OFF
2. Check voltage between mode door motor RH harness connector and ground.

+		–	Condition		Voltage (Approx.)
Mode door motor RH					
Connector	Terminal				
M307 (with Forest Air) M308 (without Forest Air)	1	Ground	Air outlet	DEF → VENT	12 V
	2			VENT → DEF	

Is the inspection result normal?

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

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

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

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

Is the inspection result normal?

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

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

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

Mode door motor RH		—	Continuity
Connector	Terminal		
M307 (with Forest Air) M308 (without Forest Air)	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

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

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

+		–	Voltage (Approx.)
Mode door motor RH			
Connector	Terminal		
M307 (with Forest Air) M308 (without Forest Air)	1	Ground	0 V
	2		

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6.CHECK MODE DOOR MOTOR (PASSENGER SIDE)

Check mode door motor (passenger side). Refer to HAC-131, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace mode door motor (passenger side). Refer to HAC-209, "MODE DOOR MOTOR : Removal and Installation".

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

Check mode door motor (passenger side) control linkage is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

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

1. Operate MODE switch (driver side) and DEF switch.
   NOTE:
   "DUAL": OFF
2. Check voltage between A/C auto amp. harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

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

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

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

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

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

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

1. Reconnect A/C auto amp. harness connector.
2. Turn ignition switch ON.
3. Check voltage between mode door motor RH harness connector and ground.

+		–	Voltage (Approx.)
Mode door motor RH			
Connector	Terminal		
M307 (with Forest Air)	4	Ground	5 V
M308 (without Forest Air)	5		

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

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

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

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR

Check mode door motor (passenger side) PBR. Refer to HAC-131, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace mode door motor (passenger side). Refer to HAC-209, "MODE DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection (Motor)

INFOID:0000000005905728

1. CHECK MODE DOOR MOTOR (PASSENGER SIDE)

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

Terminal		Operation direction
+	–	
1	2	VENT
2	1	DEF

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace mode door motor (passenger side). Refer to HAC-209, "MODE DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905729

1. CHECK MODE DOOR MOTOR (PASSENGER SIDE) PBR

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

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace mode door motor (passenger side). Refer to HAC-210, "AIR MIX DOOR MOTOR : Removal and Installation".

B275C, B275D, B275E INTAKE DOOR MOTOR

DTC Logic

INFOID:0000000005905730

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-132, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905731

1.CHECK INTAKE DOOR MOTOR OPERATION

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

Does it operate normally?

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

2.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL

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

+		–	Condition		Voltage (Approx.)
Intake door motor					
Connector	Terminal				
M310 (without Forest Air)	1	Ground	Inlet duct	REC → FRE	12 V
	2			FRE → REC	
M309 (with Forest Air)	1			REC → FRE	
	2			FRE → REC	

Is the inspection result normal?

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

3.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

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

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M310 (without Forest Air)	1	M304	85	Existed
	2		65	
M309 (with Forest Air)	1		85	
	2		65	

Is the inspection result normal?

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

4.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between intake door motor harness connector and ground.

Intake door motor		—	Continuity
Connector	Terminal		
M310 (without Forest Air)	1	Ground	Not existed
	2		
M309 (with Forest Air)	1		
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Intake door motor			
Connector	Terminal		
M310 (without Forest Air)	1	Ground	0 V
	2		
M309 (with Forest Air)	1		
	2		

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6.CHECK INTAKE DOOR MOTOR

Check intake door motor. Refer to HAC-136, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace intake door motor. Refer to HAC-210, "INTAKE DOOR MOTOR : Removal and Installation".

7.CHECK INSTALLATION OF INTAKE DOOR MOTOR CONTROL LINKAGE

Check intake door motor control linkage is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

8.CHECK INTAKE DOOR MOTOR PBR FEEDBACK SIGNAL

1. Operate FRE switch and REC switch (with Forest Air) or intake switch (without Forest Air).
2. Check voltage between A/C auto amp. harness connector and ground.

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	55	Ground	Inlet duct	REC	4 V
				FRE	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

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

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

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M310 (without Forest Air)	3	M304	55	Existed
M309 (with Forest Air)				

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK INTAKE DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

Check continuity between intake door motor harness connector and ground.

Intake door motor		—	Continuity
Connector	Terminal		
M310 (without Forest Air)	3	Ground	Not existed
M309 (with Forest Air)			

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

11. CHECK INTAKE DOOR MOTOR PBR POWER SUPPLY

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

+		–	Voltage (Approx.)
Intake door motor			
Connector	Terminal		
M310 (without Forest Air)	5	Ground	5 V
M309 (with Forest Air)	4		

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

12. CHECK INTAKE DOOR MOTOR PBR FEEDBACK PBR POWER SUPPLY CIRCUIT FOR OPEN

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

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M310 (without Forest Air)	5	M304	71	Existed
M309 (with Forest Air)	4			

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. CHECK INTAKE DOOR MOTOR PBR FEEDBACK PBR GROUND CIRCUIT

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

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M310 (without Forest Air)	7	M304	79	Existed
M309 (with Forest Air)	5			

Is the inspection result normal?

YES >> GO TO14.
NO >> Repair harness or connector.

14. CHECK INTAKE DOOR MOTOR PBR

Check intake door motor PBR. Refer to HAC-136, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace intake door motor. Refer to HAC-210, "INTAKE DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection (Motor)

INFOID:0000000005905732

1. CHECK INTAKE DOOR MOTOR

1. Turn ignition switch OFF.
2. Disconnect intake door motor connector.
3. Supply intake door motor terminals with battery voltage and check by visually and operation sound that intake door motor operates.

Terminal		Operation direction
+	–	
1	2	FRE
2	1	REC

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace intake door motor. Refer to HAC-210, "INTAKE DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905733

1. CHECK INTAKE DOOR MOTOR PBR

Check resistance between intake door motor terminals.

Terminal		Resistance (Approx.)
7 (without forest A/C)	3	Except 0 or ∞
	5	
5 (with forest A/C)	3	
	4	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace intake door motor. Refer to HAC-210, "INTAKE DOOR MOTOR : Removal and Installation".

B275F, B2760, B2761 UPPER VENTILATOR DOOR MOTOR

DTC Logic

INFOID:0000000005905734

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure".

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B275F	DR UP VENT DOOR MOT	Upper ventilator door motor PBR feedback signal voltage is too low.	• Upper ventilator door motor • Upper ventilator door motor installation condition • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)
B2760		Upper ventilator door motor PBR feedback signal voltage is too high.	
B2761		Stop position of upper ventilator door motor is malfunctioning.	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-137, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905735

1.CHECK UPPER VENTILATOR DOOR MOTOR OPERATION

1. Turn ignition switch ON.
2. Touch “Upper Vent” in “Climate” screen and check by operation sound that upper ventilator door motor operates.

Does upper ventilator door motor operate?

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

2.CHECK UPPER VENTILATOR DOOR MOTOR DRIVE SIGNAL

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

+		–	Condition		Voltage (Approx.)
Upper ventilator door motor					
Connector	Terminal				
M312	1	Ground	Upper Vent	ON → OFF	12 V
	2			OFF → ON	

Is the inspection result normal?

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

3. CHECK UPPER VENTILATOR DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

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

Upper ventilator door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M312	1	M304	66	Existed
	2		86	

Is the inspection result normal?

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

4. CHECK UPPER VENTILATOR DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

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

Upper ventilator door motor		—	Continuity
Connector	Terminal		
M312	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5. CHECK UPPER VENTILATOR DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Upper ventilator door motor			
Connector	Terminal		
M312	1	Ground	0 V
	2		

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK UPPER VENTILATOR DOOR MOTOR

Check upper ventilator door motor. Refer to HAC-140, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace upper ventilator door motor. Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

7. CHECK INSTALLATION OF UPPER VENTILATOR DOOR MOTOR

Check upper ventilator door motor is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

8. CHECK UPPER VENTILATOR DOOR MOTOR PBR FEEDBACK SIGNAL

Check voltage between A/C auto amp. harness connector and ground when “Upper Vent” in “Climate” screen is touched.

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	75	Ground	Upper Vent	ON	4 V
				OFF	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK UPPER VENTILATOR DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

Upper ventilator door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M312	3	M304	75	Existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

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

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

Upper ventilator door motor		—	Continuity
Connector	Terminal		
M312	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

11. CHECK UPPER VENTILATOR DOOR MOTOR PBR POWER SUPPLY

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

+		–	Voltage (Approx.)
Upper ventilator door motor			
Connector	Terminal		
M312	7	Ground	5 V

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

1. Turn ignition switch OFF.

2. Disconnect A/C auto amp. connector.
3. Check continuity between upper ventilator door motor harness connector and A/C auto amp. harness connector.

Upper ventilator door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M312	7	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. CHECK UPPER VENTILATOR DOOR MOTOR PBR GROUND CIRCUIT

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

Upper ventilator door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M312	5	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK UPPER VENTILATOR DOOR MOTOR PBR

Check upper ventilator door motor PBR. Refer to HAC-141, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace upper ventilator door motor. Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunction parts.

Component Inspection (Motor)

INFOID:0000000005905736

1. CHECK UPPER VENTILATOR DOOR MOTOR

1. Turn ignition switch OFF.
2. Disconnect upper ventilator door motor connector.
3. Supply upper ventilator door motor terminals with battery voltage and check by visually and operation sound that upper ventilator door motor operates.

Terminal		Operation direction
+	–	
1	2	Close
2	1	Open

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace upper ventilator door motor. Refer toHAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905737

1. CHECK UPPER VENTILATOR DOOR MOTOR PBR

Check resistance between upper ventilator door motor terminals.

Terminal		Resistance (Ω)
5	3	Other than 0 or ∞
	7	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace upper ventilator door motor. Refer toHAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

B275F, B2760, B2761 UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE)

DTC Logic

INFOID:0000000006115313

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B275F	DR UP VENT DOOR MOT	Upper ventilator door motor (driver side) PBR feedback signal voltage is too low.	• Upper ventilator door motor (driver side) • Upper ventilator door motor (driver side) installation condition • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)
B2760		Upper ventilator door motor (driver side) PBR feedback signal voltage is too high.	
B2761		Stop position of upper ventilator door motor (driver side) is malfunctioning.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:0000000006115314

1. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) OPERATION

1. Turn ignition switch ON.
2. Touch “Upper Vent” in “Climate” screen and check by operation sound that upper ventilator door motor (driver side) operates.

Does upper ventilator door motor (driver side) operate?

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

2. UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL

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

+		–	Condition		Voltage (Approx.)
Upper ventilator door motor LH					
Connector	Terminal				
M313	1	Ground	Upper Vent	ON → OFF	12 V
	2			OFF → ON	

Is the inspection result normal?

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

3. CHECK UPPER VENTILATOR DOOR MOTOR LH DRIVE SIGNAL CIRCUIT FOR OPEN

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

Upper ventilator door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M313	1	M304	66	Existed
	2		86	

Is the inspection result normal?

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

4. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

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

Upper ventilator door motor LH		—	Continuity
Connector	Terminal		
M313	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Upper ventilator door motor LH			
Connector	Terminal		
M313	1	Ground	0 V
	2		

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE)

Check upper ventilator door motor (driver side). Refer to HAC-145, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace upper ventilator door motor (driver side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

7. CHECK INSTALLATION OF UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE)

Check upper ventilator door motor (driver side) is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

8. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL

Check voltage between A/C auto amp. harness connector and ground when “Upper Vent” in “Climate” screen is touched.

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	75	Ground	Upper Vent	ON	4 V
				OFF	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

Upper ventilator door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M313	3	M304	75	Existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

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

Upper ventilator door motor LH		—	Continuity
Connector	Terminal		
M313	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

11. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR POWER SUPPLY

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

+		–	Voltage (Approx.)
Upper ventilator door motor LH			
Connector	Terminal		
M313	5	Ground	5 V

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

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

Upper ventilator door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M313	5	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR GROUND CIRCUIT

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

Upper ventilator door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M313	4	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR

Check upper ventilator door motor (driver side) PBR. Refer to HAC-146, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace upper ventilator door motor (driver side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunction parts.

Component Inspection (Motor)

INFOID:0000000006115315

1. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE)

1. Turn ignition switch OFF.
2. Disconnect upper ventilator door motor LH. connector.
3. Supply upper ventilator door motor (driver side) terminals with battery voltage and check by visually and operation sound that upper ventilator door motor (driver side) operates.

Terminal		Operation direction
+	–	
1	2	Close
2	1	Open

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace upper ventilator door motor (driver side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000006115316

1. CHECK UPPER VENTILATOR DOOR MOTOR (DRIVER SIDE) PBR

Check resistance between upper ventilator door motor (driver side) terminals.

Terminal		Resistance (Ω)
4	3	Other than 0 or ∞
	5	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace upper ventilator door motor (driver side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

B2762, B2763, B2764 REAR MODE DOOR MOTOR

DTC Logic

INFOID:0000000005905738

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure" (With Forest Air).
- If All of door motors DTC (B2750 – B2764) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-169, "DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure" (Without Forest Air).

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-147, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905739

1.CHECK REAR MODE DOOR MOTOR OPERATION

1. Turn ignition switch ON.
2. Operate MODE switch (driver side) and DEF switch and check by operation sound that rear mode door motor.
   NOTE:
   “DUAL”: OFF

Does rear mode door motor operate?

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

2.CHECK REAR MODE DOOR MOTOR DRIVE SIGNAL

Check voltage between rear mode door motor harness connector and ground, when MODE switch (driver side) and DEF switch are operated.

NOTE:
“DUAL”: OFF

+		–	Condition		Voltage (Approx.)
Rear mode door motor					
Connector	Terminal				
M318	1	Ground	Air outlet	DEF → VENT	12 V
	2			VENT → DEF	

Is the inspection result normal?

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

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

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Disconnect rear mode door motor connector.
4. 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	
M318	1	M304	68	Existed
	2		88	

Is the inspection result normal?

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

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

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

Rear mode door motor		—	Continuity
Connector	Terminal		
M318	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

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

1. Turn ignition switch ON.
2. rear mode door motor harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6.CHECK REAR MODE DOOR MOTOR

Check rear mode door motor. Refer to HAC-150, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace rear mode door motor. Refer to HAC-211, "REAR MODE DOOR MOTOR : Removal and Installation".

7. CHECK INSTALLATION OF REAR MODE DOOR MOTOR

Check rear mode door motor is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

8. CHECK REAR MODE DOOR MOTOR PBR FEEDBACK SIGNAL

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

NOTE:
"DUAL": OFF

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	58	Ground	Air outlet	VENT	4 V
				DEF	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK REAR MODE DOOR MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Disconnect rear mode door motor connector.
4. 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	
M318	3	M304	58	Existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

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

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

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

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

11. CHECK REAR MODE DOOR MOTOR PBR POWER SUPPLY

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

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

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

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

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
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	
M318	5	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. CHECK REAR MODE DOOR MOTOR PBR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect 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	
M318	7	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK REAR MODE DOOR MOTOR PBR

Check rear mode door motor PBR.Refer to HAC-151, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace rear mode door motor. Refer to HAC-211, "REAR MODE DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunction parts.

Component Inspection (Motor)

INFOID:0000000005905740

1. CHECK REAR MODE DOOR MOTOR

1. Turn ignition switch OFF.
2. Disconnect rear mode door motor connector.

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

Terminal		Operation direction
+	–	
1	2	VENT
2	1	FOOT

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace rear mode door motor. Refer toHAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905741

1.CHECK REAR MODE DOOR MOTOR PBR

Check resistance between rear mode door motor terminals.

Terminal		Resistance (Ω)
7	3	Other than 0 or ∞
	5	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace rear mode door motor. Refer toHAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

B2765, B2766, B2767 UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE)

DTC Logic

INFOID:0000000005905742

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".

DTC	Items (CONSULT-III screen terms)	DTC detection condition	Possible cause
B2765	PASS UP VEN DOOR MOT	Upper ventilator door motor (passenger side) PBR feedback signal voltage is too low.	• Upper ventilator door motor (passenger side) • Upper ventilator door motor (passenger side) installation condition • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)
B2766		Upper ventilator door motor (passenger side) PBR feedback signal voltage is too high.	
B2767		Stop position of upper ventilator door motor (passenger side) is malfunctioning.	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-152, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000006107069

1. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) OPERATION

1. Turn ignition switch ON.
2. Touch “Upper Vent” in “Climate” screen and check by operation sound that upper ventilator door motor (passenger side) operates.

Does upper ventilator door motor (passenger side) operate?

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

2. UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL

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

+		–	Condition		Voltage (Approx.)
Upper ventilator door motor RH					
Connector	Terminal				
M311	1	Ground	Upper Vent	ON → OFF	12 V
	2			OFF → ON	

Is the inspection result normal?

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

3. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL CIRCUIT FOR OPEN

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

Upper ventilator door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M311	1	M304	60	Existed
	2		80	

Is the inspection result normal?

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

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

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

Upper ventilator door motor RH		—	Continuity
Connector	Terminal		
M311	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

1. Turn ignition switch ON.
2. Check voltage between upper ventilator door motor RH harness connector and ground.

+		–	Voltage (Approx.)
Upper ventilator door motor RH			
Connector	Terminal		
M311	1	Ground	0 V
	2		

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE)

Check upper ventilator door motor (passenger side). Refer to HAC-155, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace upper ventilator door motor (passenger side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

7. CHECK INSTALLATION OF UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE)

Check upper ventilator door motor (passenger side) is properly installed. Refer to HAC-209, "Exploded View".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair or replace malfunctioning parts.

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

Check voltage between A/C auto amp. harness connector and ground when “Upper Vent” in “Climate” screen is touched.

+		–	Condition		Voltage (Approx.)
A/C auto amp.					
Connector	Terminal				
M304	56	Ground	Upper Vent	ON	4 V
				OFF	1 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 9.

9. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

Upper ventilator door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M311	3	M304	56	Existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

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

Upper ventilator door motor RH		—	Continuity
Connector	Terminal		
M311	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

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

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

+		–	Voltage (Approx.)
Upper ventilator door motor RH			
Connector	Terminal		
M311	5	Ground	5 V

Is the inspection result normal?

YES >> GO TO 13.
NO >> GO TO 12.

12. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) PBR POWER SUPPLY CIRCUIT FOR OPEN

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

Upper ventilator door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M311	5	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

13. UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) PBR GROUND CIRCUIT

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

Upper ventilator door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M311	4	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) PBR

Check upper ventilator door motor (passenger side) PBR. Refer to HAC-156, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace upper ventilator door motor (passenger side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunction parts.

Component Inspection (Motor)

INFOID:0000000006107070

1. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE)

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

Terminals		Operation direction
+	–	
1	2	Close
2	1	Open

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace upper ventilator door motor (passenger side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

Component Inspection (PBR)

INFOID:0000000006107071

1. CHECK UPPER VENTILATOR DOOR MOTOR (PASSENGER SIDE) PBR

Check resistance between upper ventilator door motor (passenger side) terminals.

Terminals		Resistance (Ω)
4	3	Other than 0 or ∞
	5	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace upper ventilator door motor (passenger side). Refer to HAC-211, "UPPER VENTILATOR DOOR MOTOR : Removal and Installation".

B2768, B2769, B276A AROMA MOTOR

DTC Logic

INFOID:0000000005905746

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".
- If All of door motors DTC (B2750 – B276A) are detected, check door motor PBR power supply and ground circuit. Refer to HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure".

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-157, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905747

1.CHECK AROMA MOTOR OPERATION

1. Turn ignition switch ON.
2. Operate temperature control switch and set the temperature setting to the same level as ambient temperature.
3. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON ⇔ OFF.
4. Perform this operation for 2 sets. Check by operation sound that aroma motor operates.
   NOTE:
   Operation of aroma diffuser control can be checked immediately after FOREST switch is turned OFF once, and then is turned ON again. Operation direction of motor is switched by turning in ON again after turning it off. (Leaf scent ⇔ Fragrant wood)

Is the inspection result normal?

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

2.CHECK AROMA MOTOR DRIVE SIGNAL

1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON ⇔ OFF.
2. Check voltage between aroma motor harness connector and ground, when this operation is performed for 2 sets.
   NOTE:
   Operation of aroma diffuser control can be checked immediately after FOREST switch is turned off once, and then is turned ON again. Operation direction of motor is switched by turning in ON again after turning it off. (Leaf scent ⇔ Fragrant wood)

+		–	Condition		Voltage (Approx.)
Aroma motor					
Connector	Terminal				
M305	5	Ground	Aroma diffuser control	Fragrant wood	12 V
	6			Leaf scent	

Is the inspection result normal?

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

3.CHECK AROMA MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

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

Aroma motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M305	5	M304	82	Existed
	6		62	

Is the inspection result normal?

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

4.CHECK AROMA MOTOR DRIVE SIGNAL CIRCUIT FOR GROUND SHORT

Check continuity between aroma motor harness connector and ground.

Aroma motor		—	Continuity
Connector	Terminal		
M305	5	Ground	Not existed
	6		

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK AROMA MOTOR DRIVE SIGNAL CIRCUIT FOR BATTERY SHORT

1. Turn ignition switch ON.
2. Check voltage between aroma motor harness connector and ground.

+		–	Voltage (Approx.)
Aroma motor			
Connector	Terminal		
M305	5	Ground	0 V
	6		

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

6.CHECK AROMA MOTOR

Check aroma motor. Refer to HAC-160, "Component Inspection (Motor)".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace aroma motor. Refer to HAC-214, "Removal and Installation".

7. CHECK AROMA MOTOR PBR FEEDBACK SIGNAL

1. Operate FOREST switch and OFF switch alternately so that aroma diffuser control switches between ON ⇔ OFF.
2. Check voltage between A/C auto amp. connector and ground, when this operation is performed for 2 sets.
NOTE:
Operation of aroma diffuser control can be checked immediately after FOREST switch is turned off once, and then is turned ON again. Operation direction of motor is switched by turning in ON again after turning it off. (Leaf scent ⇔ Fragrant wood)

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

Is the inspection result normal?

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

8. CHECK AROMA MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

Aroma motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M305	2	M304	52	Existed

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair harness or connector.

9. CHECK AROMA MOTOR PBR FEEDBACK SIGNAL CIRCUIT FOR SHORT

Check continuity between aroma motor harness connector and ground.

Aroma motor		—	Continuity
Connector	Terminal		
M305	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK AROMA MOTOR PBR POWER SUPPLY

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

+		–	Voltage (Approx.)
Aroma motor			
Connector	Terminal		
M305	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 12.
NO >> GO TO 11.

11. CHECK AROMA MOTORPBR POWER SUPPLY CIRCUIT FOR OPEN

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

Aroma motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M305	3	M304	71	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

12. CHECK AROMA MOTOR PBR GROUND CIRCUIT

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

Aroma motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M305	1	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair harness or connector.

13. CHECK AROMA MOTOR PBR

Check aroma motor PBR. Refer to HAC-161, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 14.
NO >> Replace aroma motor. Refer to HAC-214, "Removal and Installation".

14. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunction parts.

Component Inspection (Motor)

INFOID:0000000005905748

1. CHECK AROMA MOTOR

1. Turn ignition switch OFF.
2. Disconnect aroma motor connector.
3. Supply aroma motor terminals with battery voltage and check by visually and operation sound that aroma motor operates.

Terminals		Operation direction
+	–	
5	6	Fragrant wood
6	5	Leaf scent

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace aroma motor. Refer to HAC-214, "Removal and Installation".

Component Inspection (PBR)

INFOID:0000000005905749

1. CHECK AROMA MOTOR PBR

Check resistance between aroma motor terminals.

Terminals		Resistance (Ω)
1	2	Other than 0 or ∞
	3	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace aroma motor. Refer to HAC-214, "Removal and Installation".

B276B, B276C, B276D HUMIDITY SENSOR

DTC Logic

INFOID:0000000005905750

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to HAC-94, "DTC Logic".
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. HAC-95, "DTC Logic".

DTC	Items (CONSULT-III screen terms)	DTC detection condition		Possible cause
B276B	HUMIDITY SENSOR	(A)	The humidity sensor (glass temperature sensor) recognition temperature is too high.	• Humidity sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
B276C			The humidity sensor (glass temperature sensor) recognition temperature is too low.	
B276D		(B)	Communication malfunction of humidity sensor	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT-III

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

Is DTC detected?

YES >> Refer to HAC-162, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000005905751

1.INSPECTION START

Confirm detected malfunction (A or B). Refer to HAC-162, "DTC Logic".

Which malfunction is detected?

A >> GO TO 2.
B >> GO TO 8.

2.CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR) POWER SUPPLY

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

+		–	Voltage (Approx.)
Humidity sensor			
Connector	Terminal		
R6	5	Ground	5 V

Is the inspection result normal?

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

3.CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR) POWER SUPPLY CIRCUIT FOR OPEN

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

Humidity sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
R6	5	M67	33	Existed

Is the inspection result normal?

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

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

Check continuity between humidity sensor harness connector and ground.

Humidity sensor		—	Continuity
Connector	Terminal		
R6	5	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5. CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR) POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Humidity sensor			
Connector	Terminal		
R6	5	Ground	0 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

6. CHECK HUMIDITY SENSOR GROUND CIRCUIT

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

Humidity sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
R6	6	M67	44	Existed

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

7. CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR)

Check humidity sensor. Refer to HAC-165, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 15.
NO >> Replace humidity sensor. Refer to HAC-205, "Removal and Installation".

8. CHECK HUMIDITY SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect humidity sensor connector.

3. Turn ignition switch ON.
4. Check voltage between humidity sensor harness connector and ground.

+		–	Voltage (Approx.)
Humidity sensor			
Connector	Terminal		
R6	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 12.
NO >> GO TO 9.

9. CHECK HUMIDITY SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Humidity sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
R6	3	M67	39	Existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. CHECK HUMIDITY SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between humidity sensor harness connector and ground.

Humidity sensor		—	Continuity
Connector	Terminal		
R6	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

11. CHECK HUMIDITY SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Approx.)
Humidity sensor			
Connector	Terminal		
R6	3	Ground	0 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> Repair harness or connector.

12. CHECK HUMIDITY SENSOR GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 13.
NO >> Repair harness or connector.

13. CHECK HUMIDITY SENSOR COMMUNICATION SIGNAL CIRCUIT FOR OPEN

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

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

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. REPLACE HUMIDITY SENSOR

Replace humidity sensor. Refer to HAC-205, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 15.

15. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905752

1. CHECK HUMIDITY SENSOR (GLASS TEMPERATURE SENSOR)

1. Turn ignition switch OFF.
2. Disconnect humidity sensor connector.
3. Check resistance between humidity sensor terminals. Refer to applicable table for normal value.

Terminal		Condition	Resistance: kΩ
		Temperature: °C (°F)	
5	6	–15	59.61
		–10	46.29
		–5	36.29
		0	28.70
		5	22.20
		10	18.41
		15	14.92
		20	12.17
		25	10.00
		30	8.27
		35	6.88
		40	5.76
		45	4.85

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace humidity sensor. Refer to HAC-205, "Removal and Installation".

POWER SUPPLY AND GROUND CIRCUIT

A/C AUTO AMP.

A/C AUTO AMP. : Diagnosis Procedure

INFOID:0000000005905753

1.CHECK FUSE

Check fuses [Nos. 3, 9 and 19, located in the fuse block (J/B)].

NOTE:

Refer to PG-131, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after replacing the applicable circuit.

2.CHECK A/C AUTO AMP. POWER SUPPLY CIRCUIT

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

+		–	Voltage		
A/C auto amp.			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M66	1	Ground	Battery voltage	Battery voltage	Battery voltage
	2		Approx. 0 V	Approx. 0 V	Battery voltage
	13		Approx. 0 V	Battery voltage	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK A/C AUTO AMP. GROUND CIRCUIT

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

A/C auto amp.		—	Continuity
Connector	Terminal		
M66	10	Ground	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

DOOR MOTOR PBR (WITH FOREST AIR)

DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure

INFOID:0000000005905754

NOTE:

Check this circuit when all DTCs of motor system (B2750 – B276A) are detected.

1.CHECK EACH DOOR MOTOR PBR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mode door motor LH connector.
3. Turn ignition switch ON.
4. Check voltage between mode door motor LH harness connector and ground.

+		–	Voltage (Applox.)
Mode door motor LH			
Connector	Terminal		
M316	4	Ground	5 V

Is the inspection result normal?

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

2.CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR OPEN

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M316	4	M304	71	Existed

Is the inspection result normal?

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

3.CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR GROUND SHORT

1. Disconnect following connectors:
- Air mix door motor LH
- Air mix door motor RH
- Aroma motor
- Intake door motor
- Mode door motor RH
- Rear mode door motor
- Upper ventilator door motor LH
- Upper ventilator door motor RH

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

Mode door motor LH		—	Continuity
Connector	Terminal		
M316	4	Ground	Not existed

Is the inspection result normal?

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

4.CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Applox.)
Mode door motor LH			
Connector	Terminal		
M316	4	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

5.CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR GROUND CIRCUIT

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M316	5	M304	79	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6.CHECK COMPONENT PARTS

Check following parts:
- Air mix door motor (driver side): Refer to HAC-116, "Component Inspection (PBR)".
- Air mix door motor (passenger side): Refer to HAC-121, "Component Inspection (PBR)".
- Aroma motor: Refer to HAC-161, "Component Inspection (PBR)".
- Intake door motor: Refer to HAC-136, "Component Inspection (PBR)".
- Mode door motor (driver side): Refer to HAC-126, "Component Inspection (PBR)".
- Mode door motor (passenger side): Refer to HAC-131, "Component Inspection (PBR)".
- Rear mode door motor: Refer to HAC-151, "Component Inspection (PBR)".
- Upper ventilator door motor (driver side): Refer to HAC-146, "Component Inspection (PBR)".
- Upper ventilator door motor (passenger side): Refer to HAC-156, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace malfunctioning parts.

7.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

DOOR MOTOR PBR (WITHOUT FOREST AIR)

DOOR MOTOR PBR (WITHOUT FOREST AIR) : Diagnosis Procedure

INFOID:0000000006115317

NOTE:
Check this circuit when all DTCs of motor system (B2750 – B2764) are detected.

1.CHECK EACH DOOR MOTOR PBR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mode door motor LH connector.
3. Turn ignition switch ON.
4. Check voltage between mode door motor LH harness connector and ground.

+		–	Voltage (Applox.)
Mode door motor LH			
Connector	Terminal		
M317	5	Ground	5 V

Is the inspection result normal?

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

2.CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR OPEN

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M317	5	M304	71	Existed

Is the inspection result normal?

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

3.CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR GROUND SHORT

1. Disconnect following connectors:
- Air mix door motor LH
- Air mix door motor RH
- Intake door motor
- Mode door motor RH
- Rear mode door motor
- Upper ventilator door motor
2. Check mode door motor LH harness connector and ground.

Mode door motor LH		—	Continuity
Connector	Terminal		
M317	5	Ground	Not existed

Is the inspection result normal?

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

4.CHECK EACH DOOR MOTOR PBR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

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

+		–	Voltage (Applox.)
Mode door motor LH			
Connector	Terminal		
M317	5	Ground	0 V

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

5.CHECK MODE DOOR MOTOR (DRIVER SIDE) PBR GROUND CIRCUIT

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

Mode door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M317	7	M304	79	Existed

s the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6.CHECK COMPONENT PARTS

Check following parts:
- Air mix door motor (driver side): Refer to HAC-116, "Component Inspection (PBR)".
- Air mix door motor (passenger side): Refer to HAC-121, "Component Inspection (PBR)".
- Intake door motor: Refer to HAC-136, "Component Inspection (PBR)".

- Mode door motor (driver side): Refer to HAC-126, "Component Inspection (PBR)".
- Mode door motor (passenger side): Refer to HAC-131, "Component Inspection (PBR)".
- Rear mode door motor: Refer to HAC-151, "Component Inspection (PBR)".
- Upper ventilator door motor: Refer to HAC-141, "Component Inspection (PBR)".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace malfunctioning parts.

7. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

BLOWER MOTOR

Diagnosis Procedure

INFOID:0000000005905756

1.CHECK BLOWER MOTOR POWER SUPPLY

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

+		−	Voltage
Blower motor			
Connector	Terminal		
M109	1	Ground	Battery voltage

Is the inspection result normal?

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

2.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 15 A fuses [Nos. 21 and 22, located in fuse block (J/B)].
   NOTE:
   Refer to PG-131, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.
NG >> Replace the fuse after repairing the applicable circuit.

3.CHECK BLOWER MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect fuse block (J/B) connector.
2. Check continuity between blower motor harness connector and fuse block (J/B) harness connector.

Blower motor		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M109	1	M1	3A	Existed
			8A	

Is the inspection result normal?

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

4.CHECK BLOWER MOTOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between blower motor harness connector and ground.

Blower motor		—	Continuity
Connector	Terminal		
M109	1	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK BLOWER RELAY GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK BLOWER RELAY

Check blower relay. Refer to HAC-176, "Component Inspection (Blower Relay)".

Is the inspection result normal?

YES >> Check ignition power supply circuit. Refer to PG-84, "Wiring Diagram - IGNITION POWER SUPPLY -".
NO >> Replace blower relay.

7. CHECK POWER TRANSISTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Connect blower motor connector.
3. Disconnect power transistor connector.
4. Turn ignition switch ON.
5. Check voltage between power transistor harness connector and ground.

+		–	Voltage
Power transistor			
Connector	Terminal		
M112	3	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 8.

8. CHECK POWER TRANSISTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect blower motor connector.
3. Check continuity between power transistor harness connector and blower motor harness connector.

Power transistor		Blower motor		Continuity
Connector	Terminal	Connector	Terminal	
M112	3	M109	2	Existed

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair harness or connector.

9. CHECK POWER TRANSISTOR POWER SUPPLY CIRCUIT FOR SHORT

Check continuity between power transistor harness connector and ground.

Power transistor		—	Continuity
Connector	Terminal		
M112	3	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 10.
NO >> Repair harness or connector.

10. REPLACE BLOWER MOTOR

Replace blower motor. Refer to VTL-18, "BLOWER MOTOR : Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 19.

11. CHECK POWER TRANSISTOR GROUND CIRCUIT

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

Power transistor		—	Continuity
Connector	Terminal		
M112	4	Ground	Existed

Is the inspection result normal?

YES >> GO TO 12.
NO >> Repair harness or connector.

12. CHECK POWER TRANSISTOR CONTROL SIGNAL

1. Connect power transistor connector.
2. Turn ignition switch ON.
3. Operate mode switch to set VENT position.
4. Change fan speed from 1 to 7, and check voltage between power transistor harness connector and ground.

+		−	Condition	Voltage (Approx.)
Power transistor			Fan speed (manual) VENT mode	
Connector	Terminal			
M112	2	Ground	OFF	0 V
			1st	3.5 V
			2nd	5.2 V
			3rd	6.5 V
			4th	7.8 V
			5th	9.2 V
			6th	10.5 V
			7th	12.5 V

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 13.

13. CHECK POWER TRANSISTOR CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect power transistor connector.
3. Connect A/C auto amp. connector.
4. Check continuity between power transistor harness connector and A/C auto amp. harness connector.

Power transistor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M112	2	M66	7	Existed

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair harness or connector.

14. CHECK POWER TRANSISTOR CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between power transistor harness connector and ground.

Power transistor		—	Continuity
Connector	Terminal		
M112	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 18.
NO >> Repair harness or connector.

15. CHECK BLOWER MOTOR FEEDBACK SIGNAL

Change fan speed from 1 to 7, and check voltage between power transistor harness connector and ground.

+		–	Condition	Voltage (Approx.)
A/C auto amp.			Fan speed (manual) VENT mode	
Connector	Terminal			
M66	6	Ground	OFF	Battery voltage
			1st	10.0 V
			2nd	8.3 V
			3rd	7.0 V
			4th	5.7 V
			5th	4.3 V
			6th	3.0 V
			7th	1.0 V

Is the inspection result normal?

YES >> GO TO 18.
NO >> GO TO 16.

16. CHECK BLOWER MOTOR FEEDBACK SIGNAL CIRCUIT FOR OPEN

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

A/C auto amp.		Power transistor		Continuity
Connector	Terminal	Connector	Terminal	
M66	6	M112	1	Existed

Is the inspection result normal?

YES >> GO TO 17.
NO >> Repair harness or connector.

17. CHECK BLOWER MOTOR FEEDBACK SIGNAL CIRCUIT FOR SHORT

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

A/C auto amp.		—	Continuity
Connector	Terminal		
M66	6	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 18.
NO >> Repair harness or connector.

18. REPLACE POWER TRANSISTOR

Replace power transistor. Refer to HAC-212, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 19.

19. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection (Blower Motor)

INFOID:0000000005905757

1. CHECK BLOWER MOTOR-I

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Remove foreign materials.

2. CHECK BLOWER MOTOR-II

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace blower motor. Refer to VTL-18, "BLOWER MOTOR : Removal and Installation".

3. CHECK BLOWER MOTOR-III

Check that blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace blower motor. Refer to VTL-18, "BLOWER MOTOR : Removal and Installation".

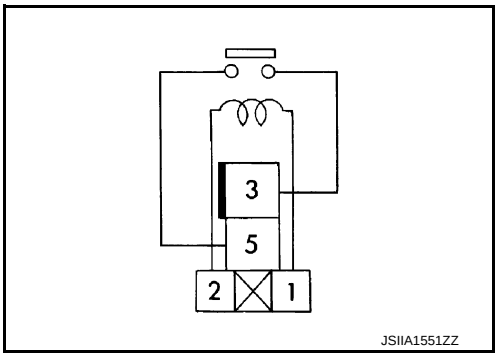
Component Inspection (Blower Relay)

INFOID:0000000005905758

1. CHECK BLOWER RELAY

1. Remove blower relay.
2. Check continuity between blower relay terminals 3 and 5 when the voltage is supplied between terminals 1 and 2.

Terminals		Voltage	Continuity
3	5	ON	Existed
		OFF	Not existed



Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace blower relay.

ECV (ELECTRICAL CONTROL VALVE)

Diagnosis Procedure

INFOID:0000000005905760

1.CHECK ECV (ELECTRICAL CONTROL VALVE) POWER SUPPLY

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

+		–	Voltage
Compressor			
Connector	Terminal		
F43	3	Ground	Battery voltage

Is the inspection result normal?

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

2.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10 A fuse [No. 3, located in fuse block (J/B)].

NOTE:
Refer to PG-131, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse after repairing the applicable circuit.

3.CHECK ECV POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect fuse block (J/B) connector.
2. Check continuity between compressor harness connector and fuse block (J/B) harness connector.

Compressor		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
F43	3	M1	2A	Existed

Is the inspection result normal?

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

4.CHECK ECV POWER SUPPLY CIRCUIT FOR SHORT

1. Disconnect A/C auto amp. connector, ionizer connector (with Forest Air) and inside odor detecting sensor connector (with Forest Air).
2. Check continuity between compressor harness connector and ground.

Compressor		—	Continuity
Connector	Terminal		
F43	3	Ground	Not existed

Is the inspection result normal?

YES >> Check ignition power supply circuit. Refer to PG-84, "Wiring Diagram - IGNITION POWER SUPPLY -".
NO >> Repair harness or connector.

5.CHECK ECV CONTROL SIGNAL CIRCUIT FOR OPEN

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

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

Compressor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
F43	2	M66	17	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK ECV CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between compressor harness connector and ground.

Compressor		—	Continuity
Connector	Terminal		
F43	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair harness or connector.

7. CHECK ECV

Check ECV. Refer to HAC-178, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 8.
NO >> Replace compressor. Refer to HA-32, "COMPRESSOR : Removal and Installation".

8. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905761

1. CHECK ECV (ELECTRICAL CONTROL VALVE)

1. Turn ignition switch OFF.
2. Disconnect compressor connector.
3. Check continuity between compressor connector terminals.

Terminals		Condition	Resistance (kΩ)
		Temperature: °C (°F)	
2	3	20 (68)	10.1 – 11.1

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace compressor. Refer to HA-32, "COMPRESSOR : Removal and Installation".

INSIDE ODOR DETECTING SENSOR

Component Function Check

INFOID:0000000005905762

1.CHECK INSIDE ODOR DETECTING SENSOR FUNCTION

1. Operate fan switch. Set fan speed to 7th speed.
2. Check that voltage between A/C auto amp. vehicle side harness connector and body ground changes when cigarette smoke or similar substance is applied to air inlet.

+		–	Voltage (Approx.)
A/C auto amp.			
Connector	Terminal		
M67	36	Ground	0 – 4.8 V Output voltage differs depending on measurement environment of the vehicle.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Refer to HAC-179, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000005905763

1.CHECK INSIDE ODOR DETECTING SENSOR IGNITION POWER SUPPLY

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

+		–	Voltage
Inside odor detecting sensor			
Connector	Terminal		
M73	4	Ground	Battery voltage

Is the inspection result normal?

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

2.CHECK FUSE

1. Turn ignition switch OFF.
2. 10 A fuse [No. 3, located in fuse block (J/B)].

NOTE:
Refer to PG-131, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse after replacing the applicable circuit.

3.CHECK INSIDE ODOR DETECTING SENSOR IGNITION POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect fuse block (J/B) connector.
2. Check continuity between inside odor detecting sensor harness connector and fuse block (J/B) harness connector.

Inside odor detecting sensor		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M73	4	M1	2A	Existed

Is the inspection result normal?

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

4. CHECK INSIDE ODOR DETECTING SENSOR IGNITION POWER SUPPLY CIRCUIT FOR SHORT

1. Disconnect compressor connector, A/C auto amp. connector and ionizer connector.
2. Check continuity between inside odor detecting sensor harness connector and ground.

Inside odor detecting sensor		—	Continuity
Connector	Terminal		
M73	4	Ground	Not existed

Is the inspection result normal?

YES >> Check ignition power supply circuit. Refer to PG-84, "Wiring Diagram - IGNITION POWER SUPPLY -".
NO >> Repair harness or connector.

5. CHECK INSIDE ODOR DETECTING SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between inside odor detecting sensor harness connector and ground.

Inside odor detecting sensor		—	Continuity
Connector	Terminal		
M73	3	Ground	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6. CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY

1. Turn ignition switch ON.
2. Check voltage between inside odor detecting sensor harness connector and ground.

+		–	Voltage (Approx.)
Inside odor detecting sensor			
Connector	Terminal		
E73	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 10.
NO >> GO TO 7.

7. CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY CIRCUIT FOR OPEN

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

Inside odor detecting sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
E73	1	M67	36	Existed

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair harness or connector.

8. CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between inside odor detecting sensor harness connector and ground.

Inside odor detecting sensor		—	Continuity
Connector	Terminal		
E73	1	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair harness or connector.

9. CHECK INSIDE ODOR DETECTING SENSOR POWER SUPPLY CIRCUIT FOR BATTERY SHORT

1. Turn ignition switch ON.
2. Check voltage between inside odor detecting sensor harness connector and ground.

+		–	Voltage (Approx.)
Inside odor detecting sensor			
Connector	Terminal		
E73	1	Ground	0 V

Is the inspection result normal?

YES >> GO TO 12.
NO >> Repair harness or connector.

10. CHECK INSIDE ODOR DETECTING SENSOR GROUND CIRCUIT

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

Inside odor detecting sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
E73	2	M67	44	Existed

Is the inspection result normal?

YES >> GO TO 11.
NO >> Repair harness or connector.

11. CHECK INSIDE ODOR DETECTING SENSOR

Check inside odor detecting sensor. Refer to HAC-181, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 12.
NO >> Replace inside odor detecting sensor. Refer to HAC-207, "Removal and Installation".

12. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000005905764

1. CHECK INSIDE ODOR DETECTING SENSOR-I

1. Turn ignition switch OFF.
2. Disconnect inside odor detecting sensor connector.
3. Apply voltage between inside odor detecting sensor terminals 4 and 3, and wait for 3 minutes.
4. Check resistance between inside odor detecting sensor terminals while applying voltage.

Terminal		Condition	Resistance (kΩ)
1	2	Air is clean	2 – 670

NOTE:
Resistance value differs depending on measurement environment of the vehicle.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the inside odor detecting sensor. Refer to HAC-207, "Removal and Installation".

2. CHECK INSIDE ODOR DETECTING SENSOR-II

Blow sensor portion of inside odor detecting sensor. Check that resistance value between inside odor detecting sensor terminals decreases.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the inside odor detecting sensor. Refer to HAC-207, "Removal and Installation".

IONIZER

Component Function Check

INFOID:0000000005905765

1.CHECK IONIZER OPERATION SOUND

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Refer to HAC-183, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000005905766

1.CHECK IONIZER POWER SUPPLY

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

+		–	Voltage
Ionizer			
Connector	Terminal		
M98	1	Ground	Battery voltage

Is the inspection result normal?

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

2.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10 A fuse [No.3, located in fuse block (J/B)].

NOTE:
Refer to PG-131, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse after repairing the applicable circuit.

3.CHECK IONIZER POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect fuse block (J/B) connector.
2. Check continuity between ionizer harness connector and fuse block (J/B) harness connector.

Ionizer		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M98	1	M1	2A	Existed

Is the inspection result normal?

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

4.CHECK IONIZER POWER SUPPLY CIRCUIT FOR SHORT

1. Disconnect A/C auto amp. connector, compressor connector and inside odor detecting sensor connector.
2. Check continuity between ionizer harness connector and ground.

Ionizer		—	Continuity
Connector	Terminal		
M98	1	Ground	Not existed

Is the inspection result normal?

YES >> Check ignition power supply circuit. Refer to PG-84, "Wiring Diagram - IGNITION POWER SUPPLY -".
NO >> Repair harness or connector.

5.CHECK IONIZER GROUND CIRCUIT

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

Ionizer		—	Continuity
Connector	Terminal		
M98	3	Ground	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair harness or connector.

6.CHECK IONIZER (ON/OFF) CONTROL SIGNAL

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

+		–	Voltage
A/C auto amp.			
Connector	Terminal		
M67	42	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 10.
NO >> GO TO 7.

7.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.

A/C auto amp.		Ionizer		Continuity
Connector	Terminal	Connector	Terminal	
M67	42	M98	4	Existed

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair harness or connector.

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

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

A/C auto amp.		—	Continuity
Connector	Terminal		
M67	42	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair harness or connector.

9. REPLACE IONIZER

Replace ionizer. Refer to HAC-213, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 10.

10. CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

MAGNET CLUTCH

Component Function Check

INFOID:0000000005905767

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 HAC-186, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000005905768

1.CHECK MAGNET CLUTCH

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

Does it operate normally?

YES >> GO TO 2.
NO >> Replace magnet clutch. Refer to HA-33, "MAGNET CLUTCH : Removal and Installation of Compressor Clutch".

2.CHECK MAGNET CLUTCH POWER SUPPLY CIRCUIT FOR OPEN

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

Compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F44	1	E5	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair harness and connector.

3.CHECK MAGNET CLUTCH POWER SIPPLY CIRCUIT FOR SHORT

Check continuity between compressor harness connector and ground

Compressor		Ground	Continuity
Connector	Terminal		
F44	1		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair harness and connector.

4.CHECK FUSE

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

NOTE:
Refer to PG-133, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-33, "Removal and Installation".
NO >> Replace the fuse after repairing the applicable circuit.

SYMPTOM DIAGNOSIS

AUTOMATIC AIR CONDITIONING SYSTEM (WITH FOREST AIR)

Symptom Table

INFOID:0000000005905769

NOTE:
Perform the self-diagnoses with CONSULT-III before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

Symptom	Corresponding malfunction part	Reference
A/C system does not activate.	• Power supply and ground circuit of A/C auto amp. • A/C auto amp.	HAC-167, "A/C AUTO AMP. : Diagnosis Procedure"
• A/C system cannot be controlled. • Operation status of air conditioning system is not indicated on display.	• The circuit between multifunction switch and AV control unit • The circuit between display and AV control unit • Multifunction switch • Display • AV control unit • CAN communication circuit • A/C auto amp.	AV-288, "Symptom Table"
• Air outlet of driver side does not change (Except upper ventilation). • The mode door motor (driver side) does not operate normally.	• The circuit between mode door motor (driver side) and A/C auto amp. • Mode door motor (driver side) control linkage • Mode door motor (driver side) • A/C auto amp.	HAC-122, "Diagnosis Procedure"
• Air outlet of passenger side does not change (Except upper ventilation). • The mode door motor (passenger side) does not operate normally.	• The circuit between mode door motor (passenger side) and A/C auto amp. • Mode door motor (passenger side) control linkage • Mode door motor (passenger side) • A/C auto amp.	HAC-127, "Diagnosis Procedure"
• Air outlet of rear side does not change. • The rear mode door motor does not operate normally.	• The circuit between rear mode door motor and A/C auto amp. • Rear mode door motor installation condition • Rear mode door motor • A/C auto amp.	HAC-147, "Diagnosis Procedure"
• Upper ventilator door (driver side) does not change. • The upper ventilator door motor (driver side) does not operate normally.	• The circuit between upper ventilator door motor (driver side) and A/C auto amp. • Upper ventilator door motor (driver side) installation condition • Upper ventilator door motor (driver side) • A/C auto amp.	HAC-142, "Diagnosis Procedure"
• Upper ventilator door (passenger side) does not change. • The upper ventilator door motor (passenger side) does not operate normally.	• The circuit between upper ventilator door motor (passenger side) and A/C auto amp. • Upper ventilator door motor (passenger side) installation condition • Upper ventilator door motor (passenger side) • A/C auto amp.	HAC-152, "Diagnosis Procedure"

Symptom		Corresponding malfunction part	Reference
• Discharge air temperature of driver side does not change. • The air mix door motor (driver side) does not operate normally.		• The circuit between air mix door motor (driver side) and A/C auto amp. • Air mix door motor (driver side) control linkage • Air mix door motor (driver side) • A/C auto amp.	HAC-112, "Diagnosis Procedure"
• Discharge air temperature of passenger side does not change. • The air mix door motor (passenger side) does not operate normally.		• The circuit between air mix door motor (driver side) and A/C auto amp. • Air mix door motor (passenger side) control linkage • Air mix door motor (passenger side) • A/C auto amp.	HAC-117, "Diagnosis Procedure"
• Intake door does not change. • The intake door motor does not operate normally.		• The circuit between intake door motor and A/C auto amp. • Intake door motor control linkage • Intake door motor • A/C auto amp.	HAC-132, "Diagnosis Procedure"
All door motors do not operate normally.		• Power supply and ground circuit of door motor PBR (potentio balance resistor) • A/C auto amp.	HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure"
Blower motor operation is malfunctioning.		• Power supply system of blower motor • The circuit between blower motor and power transistor. • The circuit between power transistor • Blower motor • Power transistor • A/C auto amp.	HAC-172, "Diagnosis Procedure"
Compressor does not operate.		• The circuit between magnet clutch and IPDM E/R • Magnet clutch • IPDM E/R (A/C relay) • The circuit between ECM and refrigerant pressure sensor • Refrigerant pressure sensor • CAN communication circuit • A/C auto amp.	HAC-194, "Diagnosis Procedure"
• Insufficient cooling. • No cool air comes out. (Air flow volume is normal.)		• Magnet clutch control system • Drive belt slipping • Cooler cycle • ECV (electrical control valve) • Air leakage from each duct • Temperature setting trimmer	HAC-196, "Diagnosis Procedure"
• Insufficient heating. • No warm air comes out. (Air flow volume is normal.)		• Engine cooling system • Heater hose • Heater core • Air leakage from each duct • Temperature setting trimmer	HAC-197, "Diagnosis Procedure"
Noise is heard when the A/C system operates.	During compressor operation	Cooler cycle	HA-30, "Symptom Table"
	During blower motor operation	• Mixing any foreign object in blower motor • Blower motor fan breakage • Blower motor rotation inferiority	HAC-176, "Component Inspection (Blower Motor)"

Symptom	Corresponding malfunction part	Reference
• Memory function does not operate. • Setting temperature is not memorized.	A/C auto amp.	Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
Intelligent Key interlock function does not operate.	• Door lock system • CAN communication circuit • A/C auto amp.	HAC-198, "Diagnosis Procedure"

AUTOMATIC AIR CONDITIONING SYSTEM (WITHOUT FOREST AIR)

Symptom Table

INFOID:0000000006115696

NOTE:
Perform the self-diagnoses with CONSULT-III before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

Symptom	Corresponding malfunction part	Reference
A/C system does not activate.	• Power supply and ground circuit of A/C auto amp. • A/C auto amp.	HAC-167, "A/C AUTO AMP. : Diagnosis Procedure"
• A/C system cannot be controlled. • Operation status of air conditioning system is not indicated on display.	• The circuit between multifunction switch and AV control unit • The circuit between display and AV control unit • Multifunction switch • Display • AV control unit • CAN communication circuit • A/C auto amp.	AV-114, "Symptom Table" (without NAVI) or AV-288, "Symptom Table" (with NAVI)
• Air outlet of driver side does not change (Except upper ventilation). • The mode door motor (driver side) does not operate normally.	• The circuit between mode door motor (driver side) and A/C auto amp. • Mode door motor (driver side) control linkage • Mode door motor (driver side) • A/C auto amp.	HAC-122, "Diagnosis Procedure"
• Air outlet of passenger side does not change (Except upper ventilation). • The mode door motor (passenger side) does not operate normally.	• The circuit between mode door motor (passenger side) and A/C auto amp. • Mode door motor (passenger side) control linkage • Mode door motor (passenger side) • A/C auto amp.	HAC-127, "Diagnosis Procedure"
• Air outlet of rear side does not change. • The rear mode door motor does not operate normally.	• The circuit between rear mode door motor and A/C auto amp. • Rear mode door motor installation condition • Rear mode door motor • A/C auto amp.	HAC-147, "Diagnosis Procedure"
• Upper ventilator door does not change. • The air mix door motor (driver side) does not operate normally.	• The circuit between upper ventilator door motor and A/C auto amp. • Upper ventilator door motor installation condition • Upper ventilator door motor • A/C auto amp.	HAC-137, "Diagnosis Procedure"
• Discharge air temperature of driver side does not change. • The air mix door motor (driver side) does not operate normally.	• The circuit between air mix door motor (driver side) and A/C auto amp. • Air mix door motor (driver side) control linkage • Air mix door motor (driver side) • A/C auto amp.	HAC-112, "Diagnosis Procedure"
• Discharge air temperature of passenger side does not change. • The air mix door motor (passenger side) does not operate normally.	• The circuit between air mix door motor (driver side) and A/C auto amp. • Air mix door motor (passenger side) control linkage • Air mix door motor (passenger side) • A/C auto amp.	HAC-117, "Diagnosis Procedure"

Symptom		Corresponding malfunction part	Reference
• Intake door does not change. • The intake door motor does not operate normally.		• The circuit between intake door motor and A/C auto amp. • Intake door motor control linkage • Intake door motor • A/C auto amp.	HAC-132, "Diagnosis Procedure"
All door motors do not operate normally.		• Power supply and ground circuit of door motor PBR (potentio balance resistor) • A/C auto amp.	HAC-167, "DOOR MOTOR PBR (WITH FOREST AIR) : Diagnosis Procedure"
Blower motor operation is malfunctioning.		• Power supply system of blower motor • The circuit between blower motor and power transistor. • The circuit between power transistor • Blower motor • Power transistor • A/C auto amp.	HAC-172, "Diagnosis Procedure"
Compressor does not operate.		• The circuit between magnet clutch and IPDM E/R • Magnet clutch • IPDM E/R (A/C relay) • The circuit between ECM and refrigerant pressure sensor • Refrigerant pressure sensor • CAN communication circuit • A/C auto amp.	HAC-194, "Diagnosis Procedure"
• Insufficient cooling. • No cool air comes out. (Air flow volume is normal.)		• Magnet clutch control system • Drive belt slipping • Cooler cycle • ECV (electrical control valve) • Air leakage from each duct • Temperature setting trimmer	HAC-196, "Diagnosis Procedure"
• Insufficient heating. • No warm air comes out. (Air flow volume is normal.)		• Engine cooling system • Heater hose • Heater core • Air leakage from each duct • Temperature setting trimmer	HAC-197, "Diagnosis Procedure"
Noise is heard when the A/C system operates.	During compressor operation	Cooler cycle	HA-30, "Symptom Table"
	During blower motor operation	• Mixing any foreign object in blower motor • Blower motor fan breakage • Blower motor rotation inferiority	HAC-176, "Component Inspection (Blower Motor)"
• Memory function does not operate. • Setting temperature is not memorized.		A/C auto amp.	Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
Intelligent Key interlock function does not operate.		• Door lock system • CAN communication circuit • A/C auto amp.	HAC-198, "Diagnosis Procedure"

FOREST AIR SYSTEM

Symptom Table

INFOID:0000000005905770

NOTE:
- Perform the self-diagnoses with CONSULT-III before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.
- The following table is based on the condition that automatic air conditioning system operates normally.

Symptom	Corresponding malfunction part	Reference
Forest Air system cannot be controlled.	• The circuit between multifunction switch and AV control unit • The circuit between display and AV control unit • Multifunction switch • Display • AV control unit • CAN communication circuit • A/C auto amp.	AV-288, "Symptom Table"
Plasmacluster™ control does not operate. **NOTE:** • Plasmacluster™ ion technology developed by Sharp Corporation is installed in this item. • Plasmacluster™ is a trademark of Sharp Corporation.	• Power supply system of ionizer • The circuit between ionizer and A/C auto amp. • Ionizer • A/C auto amp.	HAC-183, "Diagnosis Procedure"
Operation status of Plasmacluster™ control does not switch according to air flow. **NOTE:** • Plasmacluster™ ion technology developed by Sharp Corporation is installed in this item. • Plasmacluster™ is a trademark of Sharp Corporation.	A/C auto amp.	Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".
Breezy air control does not operate normally.	A/C auto amp.	Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".
Operation status of breezy air control is not indicated on display. (Breezy air control is normal)		
Automatic intake control (exhaust gas / outside odor detecting mechanism) does not operate normally.	• Power supply system of exhaust gas / outside odor detecting sensor • The circuit between exhaust gas / outside odor detecting sensor and A/C auto amp. • Exhaust gas / outside odor detecting sensor • A/C auto amp.	HAC-105, "Diagnosis Procedure"
Ambient air status indicator in display does not change from clean status or dirty status. (Exhaust gas / outside odor detecting sensor system is normal)	A/C auto amp.	Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".
Air flow control (inside odor detecting mechanism) does not operate normally.	• Power supply system of inside odor detecting sensor • The circuit between inside odor detecting sensor and A/C auto amp. • Inside odor detecting sensor • A/C auto amp.	HAC-179, "Diagnosis Procedure"
Interior air status indicator in display does not change from clean status or dirty status. (Inside odor detecting sensor system is normal)	A/C auto amp.	Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".
Automatic defogging control does not operate normally.	• The circuit between humidity sensor and A/C auto amp. • Humidity sensor • A/C auto amp.	HAC-162, "Diagnosis Procedure"

Symptom	Corresponding malfunction part	Reference
Operation status of automatic defogging control is not indicated on display. (Humidity sensor system is normal)	A/C auto amp.	Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".
Aroma diffuser control does not operate normally. (Aroma motor does not operate normally)	• The circuit between aroma motor and A/C auto amp. • Aroma motor • A/C auto amp.	HAC-157, "Diagnosis Procedure"
Aroma diffuser control does not operate normally. (Aroma motor is normal, but fragrance is not diffused.)	Aroma cartridge	Replace aroma cartridge. Refer to HAC-214, "Removal and Installation".
Operation status of aroma diffuser control is not indicated on display.	A/C auto amp.	Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

COMPRESSOR DOSE DOT OPERATE

Description

INFOID:0000000006115697

Symptom: Compressor dose not operate.

Diagnosis Procedure

INFOID:0000000006115698

NOTE:
- Perform self-diagnoses with CONSULT-III before performing symptom diagnosis. If 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 inspection of refrigerant leakage.

1.CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to HAC-186, "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-522, "Component Function Check" (VQ37VHR) or EC-1089, "Component Function Check" (VK56VD).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3.CHECK A/C AUTO AMP. OUTPUT SIGNAL

With CONSULT-III
Check “COMP REQ SIG” and “FAN REQ SIG” in “DATA MONITOR” mode of “HVAC” using CONSULT-III.

Monitor item	Condition		Status
COMP REQ SIG	“Climate” menu	ON	On
		OFF	Off
FAN REQ SIG	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

4.CHECK ECM INPUT SIGNAL

With CONSULT-III
Check “AIR COND SIG” and “HEATER FAN SW” in “DATA MONITOR” mode of “ECM” using CONSULT-III.

Monitor item	Condition		Status
COMP REQ SIG	“Climate” menu	ON	On
		OFF	Off
HEATER FAN SW	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check CAN communication system. Refer to LAN-25, "Trouble Diagnosis Flow Chart".

5.CHECK IPDM E/R INPUT SIGNAL

With CONSULT-III

1. Start engine.
2. Check “AC COMP REQ” in “DATA MONITOR” mode of “IPDM E/R” using CONSULT-III.

Monitor item	Condition		Status
AC COMP REQ	“Climate” menu	ON	On
		OFF	Off

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check CAN communication system. Refer to LAN-25, "Trouble Diagnosis Flow Chart".

INSUFFICIENT COOLING

Description

INFOID:0000000006115692

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

Diagnosis Procedure

INFOID:0000000006115693

NOTE:
Perform self-diagnoses with CONSULT-III before performing symptom diagnosis. If any DTC is detected, perform the corresponding diagnosis.

1.CHECK MAGNET CLUTCH OPERATION

1. Turn ignition switch ON.
2. Operate fan switch.
3. Touch “A/C”.
4. Check that “A/C” indicator turns ON. Check visually and by sound that compressor operates.
5. Touch “A/C” 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 DOSE NOT OPERATE” in “SYMPTOM DIAGNOSIS”. Refer to HAC-194, "Diagnosis Procedure".

2.CHECK DRIVE BELT

Check tension of drive belt. Refer to EM-22, "Checking" (VQ37VHR) or EM-175, "Checking" (VK56VD).

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-28, "Trouble Diagnosis For Unusual Pressure".

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 SETTING OF TEMPERATURE SETTING TRIMMER

1. Check setting value of temperature setting trimmer. Refer to HAC-91, "AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer".
2. Check that temperature setting trimmer is set to “+ direction”.
   NOTE:
   The control temperature can be set with the setting of the temperature setting trimmer.
3. Set difference between set temperature and control temperature to “0”.

Is inspection result normal?

YES >> INSPECTION END
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

INSUFFICIENT HEATING

Description

INFOID:0000000006115694

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

Diagnosis Procedure

INFOID:0000000006115695

NOTE:
Perform self-diagnoses with on board diagnosis and CONSULT-III before performing symptom diagnosis. If 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" (VQ37VHR) or CO-33, "Inspection" (VK56VD).
2. Check reservoir tank cap. Refer to CO-8, "Inspection" (VQ37VHR) or CO-33, "Inspection" (VK56VD).
3. Check water flow sounds of the engine coolant. Refer to CO-9, "Refilling" (VQ37VHR) or CO-34, "Refilling" (VK56VD).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Refill engine coolant and repair or replace parts depending on the inspection results.

2.CHECK HEATER HOSE

Check installation of 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 HEATER CORE

1. Check temperature of inlet hose and outlet hose of heater core.
2. Check that inlet side of 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 heater core. Refer to HA-46, "HEATER CORE : Removal and Installation".

4.CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of air conditioning system 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

1. Check setting value of temperature setting trimmer. Refer to HAC-91, "AUTOMATIC AIR CONDITIONING SYSTEM : Temperature Setting Trimmer".
2. Check that temperature setting trimmer is set to “– direction”.

   NOTE:
   The control temperature can be set by the temperature setting trimmer.
3. Set difference between the set temperature and control temperature to “0”.

Are the symptoms solved?

YES >> INSPECTION END
NO >> Replace A/C auto amp.. Refer to HAC-201, "Removal and Installation".

INTELLIGENT KEY INTERLOCK FUNCTION DOES NOT OPERATE

Description

INFOID:0000000006135082

Symptom: Intelligent Key interlock function does not operate.

Diagnosis Procedure

INFOID:0000000005905777

1.CHECK DOOR LOCK SYSTEM

Check door lock system Refer to DLK-56, "Work Flow".

Is the inspection result normal?

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

2.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-201, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

NORMAL OPERATING CONDITION

Description

INFOID:0000000006134213

FOREST AIR SYSTEM

Each control of Forest Air system turns OFF automatically, when A/C auto amp. recognizes that ambient temperature is –2°C (28°F) or less.

Control	Symptom
Breezy air control	When Forest Air system is ON • FOREST switch indicator lamp turns OFF and control turns OFF. When Forest Air system is OFF • Control does not turn ON when FOREST switch is pressed.
Aroma diffuser control	
Automatic intake control (exhaust gas / outside odor detecting mechanism)	
Air flow control (inside odor detecting mechanism)	
Automatic defogging control	When Forest Air system is ON • FOREST switch indicator lamp and “AUTO DEF” on display turn OFF and control turns OFF. **NOTE:** AUTO switch indicator lamp and “AUTO” on display do not turn OFF. When Forest Air system is OFF • Control does not turn ON when FOREST switch or AUTO switch is pressed. **NOTE:** AUTO indicator lamp and “AUTO” on display turn ON.

Each control of Forest Air system reactivates according to the following procedures, when A/C auto amp. recognizes that ambient temperature is 0°C (32°F) or more.

Control that reactivates automatically

Control	Reactivation procedure
Automatic defogging control	When ambient temperature is 0°C (32°F) or more, FOREST switch indicator lamp does not turn ON again, but AUTO DEF on display turns ON again automatically and control reactivates automatically.

Control that does not reactivate automatically

Control	Reactivation procedure
Breezy air control	When ambient temperature is 0°C (32°F) or more, FOREST switch indicator lamp does not turn ON again and control does not reactivate. It is necessary to turn FOREST switch ON again for reactivating control.
Aroma diffuser control	
Automatic intake control (exhaust gas / outside odor detecting mechanism)	
Air flow control (inside odor detecting mechanism)	

NOTE:
Automatic control of conventional automatic air conditioning system has priority for preventing fogging of window, when ambient temperature is low.

REMOVAL AND INSTALLATION

MULTIFUNCTION SWITCH

Removal and Installation

INFOID:0000000005905780

REMOVAL

Refer to AV-131, "Removal and Installation" (BASE AUDIO WITHOUT NAVIGATION) or AV-313, "Removal and Installation" (BOSE AUDIO WITH NAVIGATION)

INSTALLATION

Install in the reverse order of removal.

A/C AUTO AMP.

Exploded View

INFOID:0000000005905782

Refer to VTL-16, "Exploded View".

Removal and Installation

INFOID:0000000005905783

REMOVAL

CAUTION:

Before replacing A/C auto amp., perform “READ CONFIGURATION” to save or print current vehicle specification. Refer to HAC-89, "Description".

1. Remove glove box. Refer to IP-13, "Removal and Installation".
2. Remove screws, and then remove A/C auto amp..

INSTALLATION

Install in the reverse order of removal.

CAUTION:

Be sure to perform “WRITE CONFIGRATION” when replacing A/C auto amp.. Refer to HAC-89, "Work Procedure".

AMBIENT SENSOR

Removal and Installation

INFOID:0000000005905784

REMOVAL

1. Remove air duct. Refer to EM-29, "Removal and Installation" (VQ37VHR) or EM-184, "Removal and Installation" (VK50VD).
2. Disconnect harness connector, and then remove ambient sensor.

INSTALLATION

Install in the reverse order of removal.

IN-VEHICLE SENSOR

Removal and Installation

INFOID:0000000005905785

REMOVAL

1. Remove instrument lower panel LH. Refer to IP-13, "Removal and Installation".
2. Remove screws, and then remove in-vehicle sensor.

INSTALLATION

Install in the reverse order of removal.

SUNLOAD SENSOR

Removal and Installation

INFOID:0000000005905786

REMOVAL

1. Remove front defroster grille. Refer to VTL-10, "FRONT DEFROSTER GRILLE : Removal and Installation".
2. Disconnect harness connector, and then remove sunload sensor.

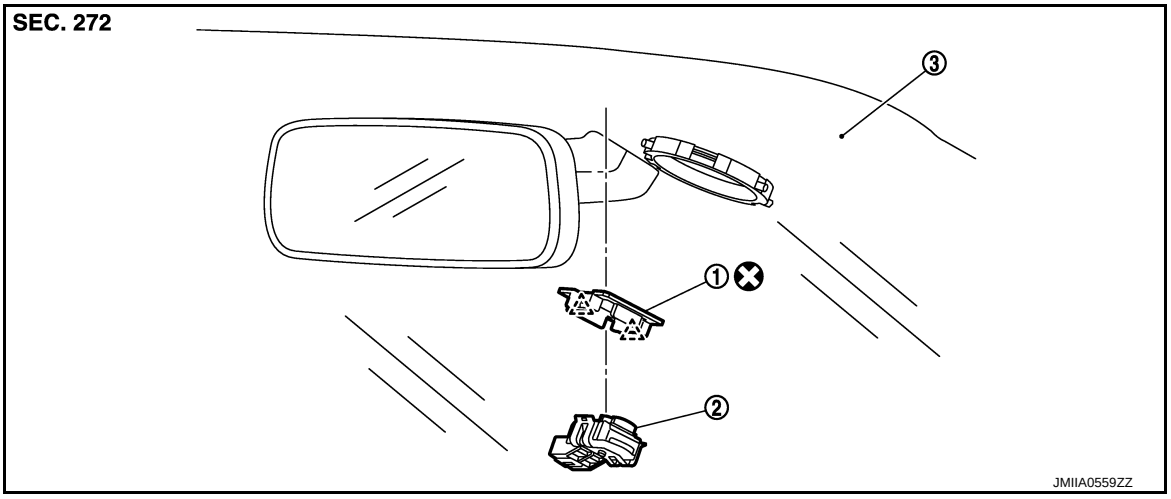
INSTALLATION

Install in the reverse order of removal.

HUMIDITY SENSOR

Exploded View

INFOID:0000000005905787



1. Bracket
2. Humidity sensor
3. Windshield glass

Pawl

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000005905788

REMOVAL

1. Remove front camera finisher. Refer to INT-49, "Removal and Installation".
2. Disconnect harness connector from humidity sensor.
3. Disengage the pawls, and then remove humidity sensor.

INSTALLATION

Install in the reverse order of removal.

INTAKE SENSOR

Exploded View

INFOID:0000000005905789

Refer to HA-43, "Exploded View".

Removal and Installation

INFOID:0000000005905790

REMOVAL

1. Remove evaporator assembly. Refer to HA-45, "HEATER & COOLING UNIT ASSEMBLY : Removal and Installation".
2. Remove intake sensor from evaporator assembly.

INSTALLATION

Note the following items, install in the reverse order of removal.

CAUTION:

- **Replace O-ring with new ones. Then apply compressor oil to them when installing.**
- **Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.**
- **Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.**
- **Insert piping securely until a clicks is heard.**
- **After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.**
- **Check for leakages when recharging refrigerant. Refer to HA-19, "Leak Test".**

INSIDE ODOR DETECTING SENSOR

Exploded View

INFOID:0000000005905791

Refer to HA-43, "Exploded View".

Removal and Installation

INFOID:0000000005905792

REMOVAL

1. Remove instrument lower panel LH. Refer to IP-13, "Removal and Installation".
2. Remove aspirator duct, and then disconnect harness connector from inside odor detecting sensor.
3. Remove clip, and then remove inside odor detecting sensor.

INSTALLATION

Install in the reverse order of removal.

EXHAUST GAS/OUTSIDE ODOR SENSOR

Removal and Installation

INFOID:0000000005905793

REMOVAL

1. Remove air duct. Refer to EM-29, "Removal and Installation" (VQ37VHR) or EM-184, "Removal and Installation" (VK56VD).
2. Remove nuts, and then remove exhaust gas/outside odor sensor.

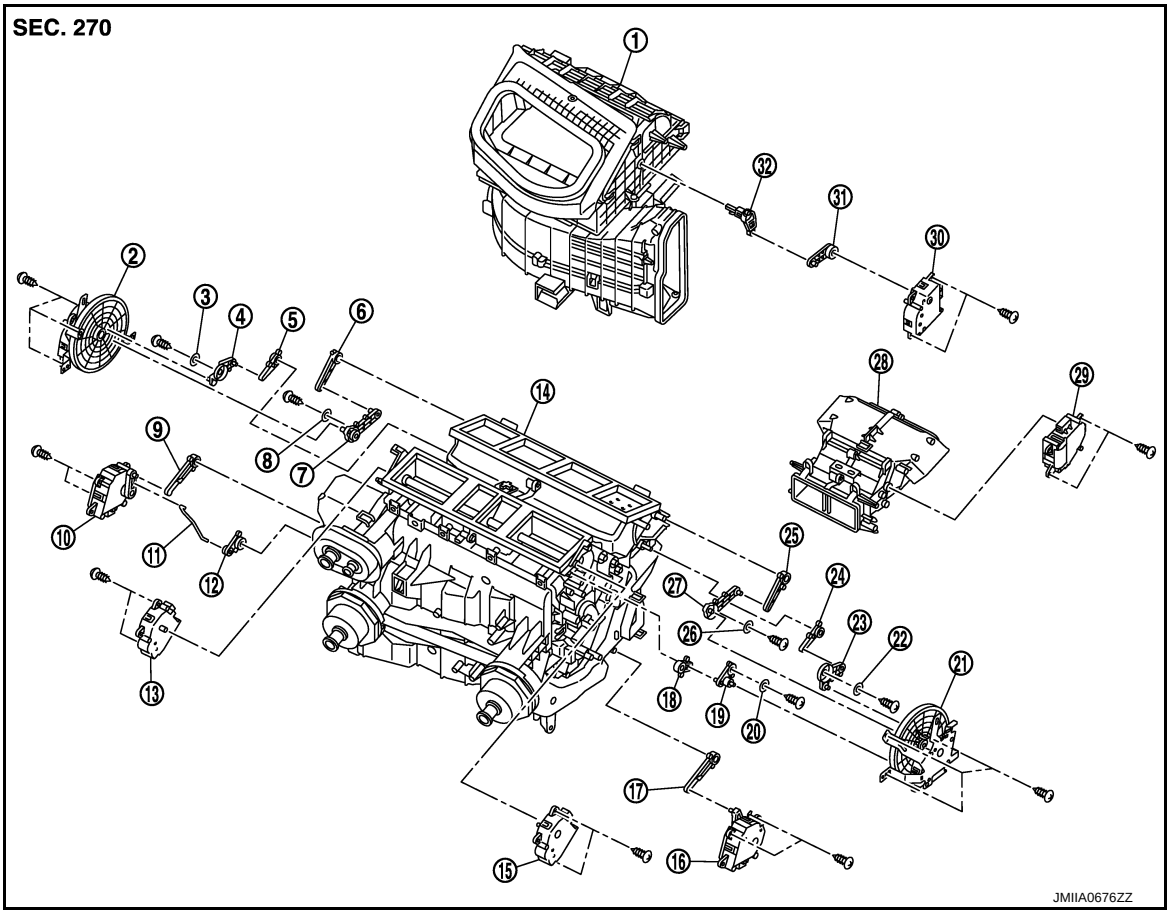
INSTALLATION

Install in the reverse order of removal.

DOOR MOTOR

Exploded View

INFOID:0000000005905794



1. Blower unit
2. Mode door motor RH
3. Plate
4. Mode door link RH
5. Foot door lever RH
6. Ventilator door lever RH
7. Ventilator door link
8. Plate
9. Heater door lever
10. Air mix door motor
11. Rod
12. Air mix door lever
13. Upper ventilator door motor RH
14. Heater & cooling unit assembly
15. Upper ventilator door motor LH
16. Air mix door motor LH
17. Heater door lever LH
18. Defroster door lever
19. Defroster door link
20. Plate
21. Mode door motor LH
22. Plate
23. Mode door link LH
24. Foot door lever LH
25. Ventilator door lever LH
26. Plate
27. Ventilator door link LH
28. Rear mode door case assembly
29. Rear mode door motor
30. Intake door motor
31. Intake door lever
32. Intake door link

MODE DOOR MOTOR

MODE DOOR MOTOR : Removal and Installation

INFOID:0000000005905795

REMOVAL

1. Remove heater & cooling unit assembly. Refer to HA-45, "HEATER & COOLING UNIT ASSEMBLY : Removal and Installation".
2. Remove mounting screws, and then remove mode door motor.
3. Disconnect mode door motor connector.

INSTALLATION

Note the following items, install in the reverse order of removal.

CAUTION:

- **Replace O-ring with new ones. Then apply compressor oil to them when installing.**
- **Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.**
- **Insert piping securely until a clicks is heard.**
- **After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.**
- **Check for leakages when recharging refrigerant. Refer to HA-19, "Leak Test".**

NOTE:

Refer to CO-9, "Refilling" (VQ37VHR) or CO-34, "Refilling" (VK56VD) when filling radiator with engine coolant.

AIR MIX DOOR MOTOR

AIR MIX DOOR MOTOR : Removal and Installation

INFOID:0000000005905796

REMOVAL

1. Set the temperature at 18°C (60°F). Then disconnect the battery cable from the negative terminal.
   CAUTION:
   The angle may be out, when installing the air mix door motor to the air mix door, unless the above procedure is performed.
2. Remove heater & cooling unit assembly. Refer to HA-45, "HEATER & COOLING UNIT ASSEMBLY : Removal and Installation".
3. Remove blower unit assembly from heater & cooling unit assembly. Refer to VTL-17, "BLOWER UNIT : Removal and Installation". (passenger side only)
4. Remove mounting screws, and then remove air mix door motor.
5. Disconnect air mix door motor connector.

INSTALLATION

Note the following items, install in the reverse order of removal.

CAUTION:

- **Replace O-ring with new ones. Then apply compressor oil to them when installing.**
- **Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.**
- **Insert piping securely until a clicks is heard.**
- **After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.**
- **Check for leakages when recharging refrigerant. Refer to HA-19, "Leak Test".**

NOTE:

Refer to CO-9, "Refilling" (VQ37VHR) or CO-34, "Refilling" (VK56VD) when filling radiator with engine coolant.

INTAKE DOOR MOTOR

INTAKE DOOR MOTOR : Removal and Installation

INFOID:0000000005905797

REMOVAL

1. Remove heater & cooling unit assembly. Refer to HA-45, "HEATER & COOLING UNIT ASSEMBLY : Removal and Installation".
2. Remove mounting screws, and then remove intake door motor.
3. Disconnect intake door motor connector.

INSTALLATION

Note the following items, Install in the reverse order of removal.

CAUTION:

- **Replace O-ring with new ones. Then apply compressor oil to them when installing.**
- **Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.**
- **Insert piping securely until a clicks is heard.**
- **After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.**
- **Check for leakages when recharging refrigerant. Refer to HA-19, "Leak Test".**

NOTE:
Refer to CO-9, "Refilling" (VQ37VHR) or CO-34, "Refilling" (VK56VD) when filling radiator with engine coolant.

UPPER VENTILATOR DOOR MOTOR

UPPER VENTILATOR DOOR MOTOR : Removal and Installation

INFOID:0000000005905798

REMOVAL

1. Remove heater & cooling unit assembly. Refer to HA-45, "HEATER & COOLING UNIT ASSEMBLY : Removal and Installation".
2. Remove mounting screws, and then remove upper ventilator door motor.
3. Disconnect upper ventilator door motor connector.

INSTALLATION

Note the following items, install in the reverse order of removal.

CAUTION:

- **Replace O-ring with new ones. Then apply compressor oil to them when installing.**
- **Female-side piping connection is thin and easy to deform. Slowly insert the male-side piping straight in axial direction.**
- **Insert piping securely until a clicks is heard.**
- **After piping connection is completed, pull male-side piping by hand to make sure that connection does not come loose.**
- **Check for leakages when recharging refrigerant. Refer to HA-19, "Leak Test".**

NOTE:
Refer to CO-9, "Refilling" (VQ37VHR) or CO-34, "Refilling" (VK56VD) when filling radiator with engine coolant.

REAR MODE DOOR MOTOR

REAR MODE DOOR MOTOR : Removal and Installation

INFOID:0000000005905799

REMOVAL

1. Remove instrument panel assembly. Refer to IP-13, "Removal and Installation".
2. Remove mounting screws, and then remove rear mode door motor.
3. Disconnect rear mode door motor connector.

INSTALLATION

Install in the reverse order of removal.

POWER TRANSISTOR

Exploded View

INFOID:0000000005905800

Refer to VTL-16, "Exploded View".

Removal and Installation

INFOID:0000000005905801

REMOVAL

1. Remove instrument lower cover. Refer to IP-13, "Removal and Installation".
2. Remove mounting screws, and then remove power transistor.

INSTALLATION

Install in the reverse order of removal.

IONIZER

Exploded View

INFOID:0000000005905802

Refer to VTL-8, "Exploded View".

Removal and Installation

INFOID:0000000005905803

Removal

1. Remove instrument panel assembly. Refer to IP-13, "Removal and Installation".
2. Remove mounting screws, and then remove ionizer from ventilator duct LH.
   CAUTION:
   Never tough the surface (ceramic part) of the ionizer. It is the discharge electrode.
3. Disconnect ionizer harness connector.

INSTALLATION

Note the following item, install in the reverse order of removal.

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

AROMA UNIT ASSY

Exploded View

INFOID:0000000005905804

Refer to VTL-16, "Exploded View".

Removal and Installation

INFOID:0000000005905805

REMOVAL

1. Remove instrument lower panel RH. Refer to IP-13, "Removal and Installation".
2. Disconnect aroma tube and harness connector.
3. Remove mounting screws, and then remove aroma unit.

INSTALLATION

Note the following items, Install in the reverse order of removal.

CAUTION:

- **Install aroma tube so that it is free of kinks.**
- **Operate aroma unit after installation. Check that aroma is supplied from air outlet or passenger side ventilator.**