

D

Е

HEATER & AIR CONDITIONING CONTROL SYSTEM

CONTENTS

AUTOMATIC AIR CONDITIONING	AWIDIENT SENSOR		
DACIC INCRECTION	Description		
BASIC INSPECTION5	Diagnosis Procedure		
DIAGNOSIS AND REPAIR WORK FLOW 5	Component Inspection	34 (3
Work Flow5	IN-VEHICLE SENSOR	36	
	Description	36	
INSPECTION8	Diagnosis Procedure		Н
Description & Inspection8	Component Inspection		
AUXILIARY MECHANISM10	INTAKE SENSOR	20	
Temperature Setting Trimmer10			A
Inlet Port Memory Function11	Description Diagnosis Procedure		
·	Component Inspection		
SYSTEM DESCRIPTION12	Component inspection	40	J
COMPRESSOR CONTROL FUNCTION12	SUNLOAD SENSOR	41	
	Description	41	
Description	Diagnosis Procedure	41	K
Component Description13	Component Inspection	42	
	AIR MIX DOOR MOTOR	44	
AUTOMATIC AIR CONDITIONING SYSTEM15	Description		L
System Diagram15	Diagnosis Procedure		
System Description15	Component Inspection		
Component Parts Location24			VI
Component Description24	MODE DOOR MOTOR	47	
DIAGNOSIS SYSTEM (A/C AUTO AMP.)26	Description		
Diagnosis Description26	Diagnosis Procedure		V
Diagnosis Description20	Component Inspection	48	А
DIAGNOSIS SYSTEM (BCM) (WITH INTELLI-	INTAKE DOOR MOTOR	50	
GENT KEY SYSTEM)30	Description		0
COMMON ITEM30	Diagnosis Procedure		7
COMMON ITEM ::::::::::::::::::::::::::::::::::::	Component Inspection		
COMMON ITEM: CONSOLT Function (BCM - COMMON ITEM)	·		
COMMON 11 EM)30	BLOWER MOTOR	54	Ρ
AIR CONDITIONER31	Description		
AIR CONDITIONER: CONSULT Function (BCM -	Component Function Check		
AIR CONDITIONER) (Automatic A/C)31	Diagnosis Procedure		
DTO/OID OLUT DIA ONO OIO	Component Inspection	57	
DTC/CIRCUIT DIAGNOSIS33	MAGNET CLUTCH	50	

Description		107
Component Function Check		107
Diagnosis Procedure	Diagnosis Procedure	107
A/C ON SIGNALe	MEMORY FUNCTION DOES NOT OPERATE.	109
Component Function Check		
Diagnosis Procedure		
BLOWER FAN ON SIGNAL	PRECAUTION	110
Component Function Check	= • • •	110
Diagnosis Procedure		110
Diagnosis i locedule	Precaution for Supplemental Restraint System	
POWER SUPPLY AND GROUND CIRCUIT 6	(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-	
A/C AUTO AMP 6	SIONER"	110
A/C AUTO AMP. : Diagnosis Procedure	Procalitions Nacassary for Staaring Whaal Pota-	110
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	•	
LIGENT KEY SYSTEM)	REMOVAL AND INSTALLATION	112
BCM (BODY CONTROL SYSTEM) (WITH INTEL-		
LIGENT KEY SYSTEM) : Diagnosis Procedure 6	A/C CONTROL (A/C AUTO AMP.)	
LIGENT RET STSTEM). Diagnosis Flocedure	Exploded view	
A/C AUTO AMP6		112
Description		113
Component Function Check	67 Exploded View	
Diagnosis Procedure6	Removal and Installation	
ECU DIAGNOSIS INFORMATION	68 IN-VEHICLE SENSOR	114
4/0 4UTO 4UD	Fundadad Viene	
A/C AUTO AMP	Description of the College	
Reference Value	58 Removal and installation	117
Wiring Diagram - AUTOMATIC AIR CONDITION-	SUNLOAD SENSOR	115
ING SYSTEM	71 Exploded View	115
BCM (BODY CONTROL MODULE)	Democrat and Installation	
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	INTAKE SENSOR	116
LIGENT KEY SYSTEM)	Exploded View	116
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	Removal and Installation	
	7.4	
LIGENT KEY SYSTEM): Reference Value	REFRIGERANT PRESSURE SENSOR	117
, ,	Exploded View	
LIGENT KEY SYSTEM): Wiring Diagram - BCM 9	Removal and Installation	117
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	20 DOWED TO AMOUNT OF	
LIGENT KEY SYSTEM): Fail-safe		
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	Exploded View	
LIGENT KEY SYSTEM):	Removal and Installation	119
DTC Inspection Priority Chart	DOOR MOTOR	420
BCM (BODY CONTROL SYSTEM) (WITH INTEL-		
LIGENT KEY SYSTEM) : DTC Index10	DO Exploded View	120
SYMPTOM DIAGNOSIS10	INTAKE DOOR MOTOR INTAKE DOOR MOTOR : Removal and Installa-	121
AUTOMATIC AIR CONDITIONING SYSTEM . 10		121
Diagnosis Chart By Symptom10	03	
	MODE DOOR MOTOR	
INSUFFICIENT COOLING10		122
Description10		122
Diagnosis Procedure10	AIR MIX DOOR MOTOR : Removal and Installa-	
INSUFFICIENT HEATING10		122
Description10		
Diagnosis Procedure 10	ne	

BASIC INSPECTION123	THERMO CONTROL AMPLIFIER146	
DIAGNOSIS AND REPAIR WORKFLOW 123	Description	Α
Work Flow	Component Function Check146	
WOLK Flow123	Diagnosis Procedure146	
INSPECTION126	BLOWER MOTOR149	В
Description & Inspection126	Description149	
OVOTEM DECODIBIION	Diagnosis Procedure149	
SYSTEM DESCRIPTION128	Component Inspection151	С
COMPRESSOR CONTROL FUNCTION128	MAGNET CLUTCH153	
Description128		
Component Part Location129	Description	D
Component Description129	Component Function Check	
	Diagnosis Procedure153	
MANUAL AIR CONDITIONING SYSTEM131	A/C SWITCH154	Е
System Diagram131	Description154	
System Description131	Component Function Check154	
Component Part Location135	Diagnosis Procedure154	F
Component Description135		1
DIAGNOSIS SYSTEM (BCM) (WITH INTELLI-	DEFROSTER POSITION SIGNAL156	
GENT KEY SYSTEM)137	Description156	
GLIVI REI SISIEWI)137	Component Function Check156	G
COMMON ITEM137	Diagnosis Procedure156	
COMMON ITEM: CONSULT Function (BCM -	A/C INDICATOR158	
COMMON ITEM)137	Component Function Check	Н
AID CONDITIONED	Diagnosis Procedure	
AIR CONDITIONER	Diagnosio i roccaro	
AIR CONDITIONER: CONSULT Function (BCM -	BLOWER FAN ON SIGNAL160	HAC
AIR CONDITIONER) (Manual A/C)138	Component Function Check160	
DIAGNOSIS SYSTEM (BCM) (WITHOUT IN-	Diagnosis Procedure160	
TELLIGENT KEY SYSTEM)140	MANUAL AID CONDITIONING EVETEM 400	J
·	MANUAL AIR CONDITIONING SYSTEM 162	
COMMON ITEM140	Wiring Diagram — MANUAL AIR CONDITION-	
COMMON ITEM : CONSULT Function (BCM -	ING SYSTEM —162	K
COMMON ITEM)140	ECU DIAGNOSIS INFORMATION 163	1 (
AIR CONDITIONER140		
AIR CONDITIONER : CONSULT Function (BCM -	BCM (BODY CONTROL MODULE)163	1
AIR CONDITIONER) (Manual A/C)	DOM (DODY CONTROL CYCTEM) (MITH INTE	_
Ant Conditionally (Mandality C)	BCM (BODY CONTROL SYSTEM) (WITH INTEL-	
DTC/CIRCUIT DIAGNOSIS142	BCM (BODY CONTROL SYSTEM) (WITH INTEL-	B 4
DOWED CLIPPLY AND CROUND CIRCUIT	LIGENT KEY SYSTEM) : Reference Value163	M
POWER SUPPLY AND GROUND CIRCUIT142	BCM (BODY CONTROL SYSTEM) (WITH INTEL-	
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	LIGENT KEY SYSTEM): Wiring Diagram - BCM 183	
LIGENT KEY SYSTEM)142	BCM (BODY CONTROL SYSTEM) (WITH INTEL-	Ν
BCM (BODY CONTROL SYSTEM) (WITH INTEL-	LIGENT KEY SYSTEM) : Fail-safe187	
LIGENT KEY SYSTEM) : Diagnosis Procedure 142	BCM (BODY CONTROL SYSTEM) (WITH INTEL-	
, -	LIGENT KEY SYSTEM) :	0
BCM (BODY CONTROL SYSTEM) (WITHOUT IN-	DTC Inspection Priority Chart188	
TELLIGENT KEY SYSTEM)142	BCM (BODY CONTROL SYSTEM) (WITH INTEL-	
BCM (BODY CONTROL SYSTEM) (WITHOUT	LIGENT KEY SYSTEM) : DTC Index189	Р
INTELLIGENT KEY SYSTEM) : Diagnosis Proce-	·	
dure142	BCM (BODY CONTROL SYSTEM) (WITHOUT IN-	
INTAKE DOOR MOTOR144	TELLIGENT KEY SYSTEM)191	
Description	BCM (BODY CONTROL SYSTEM) (WITHOUT	
Diagnosis Procedure144	INTELLIGENT KEY SYSTEM) : Reference Value.191	
Component Inspection145		
Component mopoution		

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM): Wiring Diagram -	Precautions Necessary for Steering Wheel Rotation After Battery Disconnection216
BCM204 BCM (BODY CONTROL SYSTEM) (WITHOUT	REMOVAL AND INSTALLATION218
INTELLIGENT KEY SYSTEM) : Fail-safe207 BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : DTC Inspection Priority Chart208	A/C CONTROL 218 Exploded View 218 Removal and Installation 218
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : DTC Index208	THERMO CONTROL AMPLIFIER220 Exploded View220
SYMPTOM DIAGNOSIS210	Removal and Installation220
MANUAL AIR CONDITIONING SYSTEM 210 Diagnosis Chart By Symptom210	REFRIGERANT PRESSURE SENSOR221 Exploded View
INSUFFICIENT COOLING212Description212Diagnosis Procedure212	BLOWER FAN RESISTOR
INSUFFICIENT HEATING	INTAKE DOOR MOTOR224 Exploded View
COMPRESSOR DOSE DOT OPERATE 214 Description 214 Diagnosis Procedure 214	DOOR CABLE225 Exploded View225
PRECAUTION216	MODE DOOR CABLE226 MODE DOOR CABLE : Removal and Installation. 226
PRECAUTIONS	AIR MIX DOOR CABLE226 AIR MIX DOOR CABLE : Removal and Installation . 226

Α

D

Е

Н

Ν

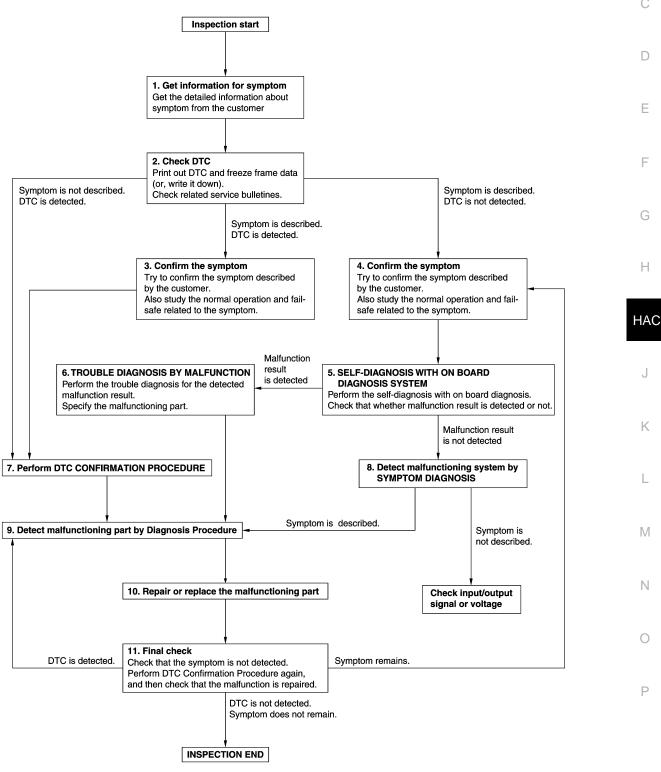
Р

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow INFOID:0000000007770959 В

OVERALL SEQUENCE



JMIIA2097GB

DIAGNOSIS AND REPAIR WORK FLOW

[AUTOMATIC AIR CONDITIONING]

< BASIC INSPECTION >

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2.CHECK DTC

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

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

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

Symptom is not described, DTC is detected>>GO TO 7.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 7.

4. CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

5. SELF-DIAGNOSIS WITH ON BOARD DIAGNOSIS SYSTEM

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

YES >> GO TO 6.

NO >> GO TO 8.

6.TROUBLE DIAGNOSIS BY MALFUNCTION

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

>> GO TO 9.

7.PERFORM DTC CONFIRMATION PROCEDURE

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

NOTE:

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

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

Is DTC detected?

DIAGNOSIS AND REPAIR WORK FLOW	
< BASIC INSPECTION > [AUTOMATIC AIR CONDITIONING]	
YES >> GO TO 9. NO >> Check according to GI-41, "Intermittent Incident".	Α
8. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS	/ \
Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.	В
Is the symptom described?	
YES >> GO TO 9. NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT.	С
9. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE	D
Inspect according to Diagnosis Procedure of the system.	
Is malfunctioning part detected?	
YES >> GO TO 10.	Е
NO >> Check according to GI-41, "Intermittent Incident".	
10. REPAIR OR REPLACE THE MALFUNCTIONING PART	F
 Repair or replace the malfunctioning part. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement. 	
3. Check DTC. If DTC is detected, erase it.	G
>> GO TO 11.	Н
11.FINAL CHECK	
When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely. When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.	НА
Is DTC detected and does symptom remain?	J
YES-1 >> DTC is detected: GO TO 9.	_
YES-2 >> Symptom remains: GO TO 4. NO >> Before returning the vehicle to the customer, always erase DTC.	K

HAC

L

 $|\!\!\! \backslash |\!\!\! |$

Ν

0

Ρ

INSPECTION

Description & Inspection

INFOID:0000000007770960

DESCRIPTION

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

Check condition : Engine running at normal operating temperature.

1. CHECK MEMORY FUNCTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Memory function malfunction. Refer to HAC-109, "Inspection Procedure".

2.CHECK BLOWER MOTOR

- 1. Start the engine.
- 2. Operate the fan control switch. Check that the fan speed changes. Check the operation for all fan speeds.
- 3. Leave blower on maximum speed.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Blower motor system malfunction. Refer to HAC-54, "Diagnosis Procedure".

3. CHECK DISCHARGE AIR

- 1. Operate MODE switch and DEF switch to each position.
- Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to <u>VTL-2</u>, "System <u>Description"</u>.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Mode door system malfunction. Refer to HAC-47, "Diagnosis Procedure".

4. CHECK INTAKE AIR

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

Is the inspection result normal?

YES >> GO TO 5.

NO >> Intake door system malfunction. Refer to <u>HAC-50</u>, "<u>Diagnosis Procedure</u>".

5. CHECK A/C SWITCH

- Press the A/C switch.
- Check that the indicator of the A/C switch turns ON. Check visually and by sound that the compressor operates.
- Press the A/C switch again.
- 4. Check that the indicator of the A/C switch turns OFF. Check that the compressor stops.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Magnet clutch system malfunction. Refer to HAC-59, "Diagnosis Procedure".

INSPECTION

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

6. CHECK DISCHARGE AIR TEMPERATURE

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

Is the inspection result normal?

YES >> GO TO 7.

NO >> Air mix door system malfunction. Refer to HAC-44, "Diagnosis Procedure".

7. CHECK TEMPERATURE DECREASE

- 1. Operate the compressor.
- 2. Operate the temperature control switch to lower temperature setting at 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 <u>HAC-104</u>, "<u>Diagnosis Procedure</u>".

8. CHECK TEMPERATURE INCREASE

- 1. Turn temperature control switch to raise temperature setting at 32°C (90°F) after warming up the engine.
- Check that warm air blows from outlets.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Insufficient heating. Refer to <u>HAC-106</u>, "<u>Diagnosis Procedure</u>".

9. CHECK AUTO MODE

- 1. Press AUTO switch to confirm that "AUTO" is indicated on the display.
- 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 >> INSPECTION END

NO >> Refer to <u>HAC-103</u>, "<u>Diagnosis Chart By Symptom</u>" and perform the appropriate diagnosis.

HAC

Α

В

D

Е

F

Κ

L

M

Ν

0

-3

AUXILIARY MECHANISM

Temperature Setting Trimmer

INFOID:0000000007770961

DESCRIPTION

If the temperature felt by the customer is different than 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.

OPERATING PROCEDURES

- 1. Begin self-diagnosis STEP 5 mode. Refer to HAC-26, "Diagnosis Description".
- Press fan control switch (up: +) to enter the set temperature setting trimmer mode from STEP 5, and then display shows "0°C (0°F)".
- 3. The indication temperature will be changed by 1°C (1°F) in range of -3°C (-6°F) to +3°C (+6°F) by pressing the temperature control switch each time.

	JSA	m	へん	\sim	_
ι	ハつハ	1110	.)(]	⊢ :	١.

Temperature control switch operation	Display	Correction (°F)
▲ 6 time pressing	6	+6
▲ 5 time pressing	5	+5
▲ 4 time pressing	4	+4
▲ 3 time pressing	3	+3
▲ 2 time pressing	2	+2
▲ 1 time pressing	1	+1
Initial status	0	0
▼ 1 time pressing	AUTO 1	-1
▼ 2 time pressing	AUTO 2	-2
▼ 3 time pressing	AUTO 3	-3
▼ 4 time pressing	AUTO 4	-4
▼ 5 time pressing	AUTO 5	-5
▼ 6 time pressing	AUTO 6	-6
Canada models		
Temperature control switch operation	Display	Correction (°C)
▲ 3 time pressing	3	+3
▲ 2 time pressing	2	+2
▲ 1 time pressing	1	+1
Initial status	0	0
▼ 1 time pressing	AUTO 1	-1
▼ 2 time pressing	AUTO 2	-2

NOTE:

▼ 3 time pressing

When -3°C (-6°F) is corrected on the temperature setting set as 25°C (75°F), the temperature controlled by A/C auto amp. is 25°C (75°F) - 3°C (6°F) = 22.0°C (69°F) and the temperature becomes lower than the temperature setting.

AUTO 3

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10
V or less, the setting of the difference between the set temperature and control temperature may be cancelled.

AUXILIARY MECHANISM

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

Inlet Port Memory Function

INFOID:0000000007770962

Α

В

C

D

Е

F

DESCRIPTION

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

OPERATING PROCEDURES

- Begin self-diagnosis STEP 5 mode. Refer to HAC-26, "Diagnosis Description".
- 2. Press fan control switch (up: +) two times to change the mode to the temperature setting trimmer from self-diagnosis STEP 5, and then the display shows "70".
- 3. The setting of inlet port memory function can be selected from "70" to "73" by pressing the FRE switch.

FRE switch operation	Display	Memory	/ function
TINE SWILCH OPERATION	Display	Manual REC	Manual FRE
_	70 [*]	Shall be memorized	Shall not be memorized
1 time pressing	71	Shall not be memorized	Shall not be memorized
2 time pressing	72	Shall be memorized	Shall be memorized
3 time pressing	73	Shall not be memorized	Shall be memorized

^{*:} Initial status

NOTE:

- When FRE switch is pressed four times, display shows "70" again.
- When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the setting of the inlet port memory function may be cancelled.

HAC

Н

K

L

N /I

Ν

0

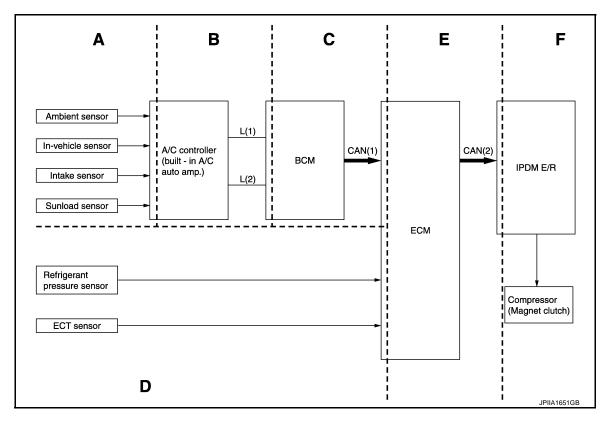
SYSTEM DESCRIPTION

COMPRESSOR CONTROL FUNCTION

Description INFOID:0000000007770963

PRINCIPLE OF OPERATION

Functional Circuit Diagram



L (1) : Fan ON signal CAN (1) : A/C ON switch signal : Blower fan ON signal

L (2) : A/C switch signal CAN (2) : A/C compressor request signal

Functional Initial Inspection Chart

x: Applicable

Control unit	Diag	unacia itam			Loc	ation		
Control unit	Diag	nosis item	Α	В	С	D	Е	F
A/C auto amp.	On board self-diagnosis	1	×	_	_	_	_	_
BCM	(Typon Alb Conb.)	Self-diagnosis	_		×	_	_	_
BCIVI	BCM-AIR COND"	Data monitor	_	×	_	_	_	_
ECM	(P) "ENGINE"	Self-diagnosis (CAN communication line)	_	_	_	_	×	_
		Data monitor	_	_	×	×	_	_
100115/0	(P) "IPDM E/R"	Self-diagnosis (CAN communication line)		_	_	_	_	×
IPDM E/R	Data monitor	_	_	_	_	×	_	
	Auto active test		_	_	_	_	_	×

Component Parts Location

INFOID:00000000007770964

Α

В

D

Е

Н

HAC

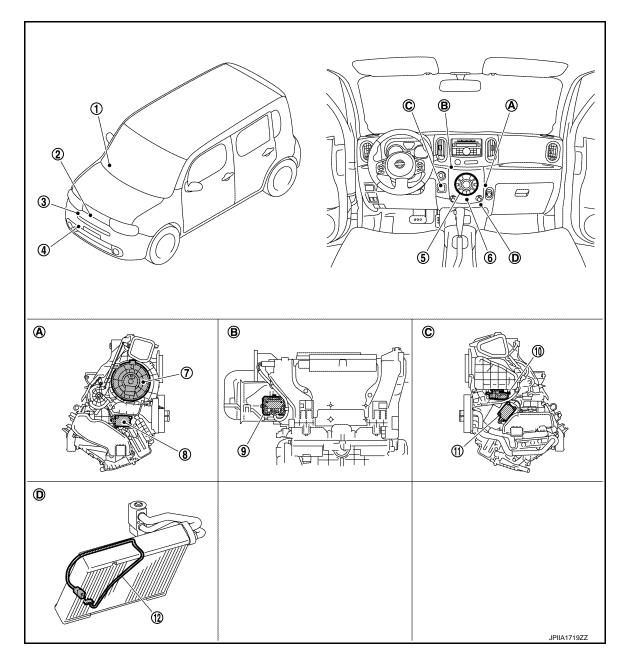
K

M

Ν

0

Ρ



- 1. Sunload sensor
- 4. Refrigerant pressure sensor
- Blower motor
- 10. Intake door motor
- A. Located in the right side of A/C unit assembly
- D. Located on the evaporator
- Ambient sensor
- 5. A/C control (A/C auto amp.)
- 8. Mode door motor
- 11. Air mix door motor
- Located in the back of A/C unit assembly
- Magnet clutch
- In-vehicle sensor
- Power transistor
- 12. Intake sensor
- Located in left side of A/C unit assembly

Component Description

INFOID:0000000007770965

Component	Description
Sunload sensor	HAC-41, "Description"
Ambient sensor	HAC-33, "Description"

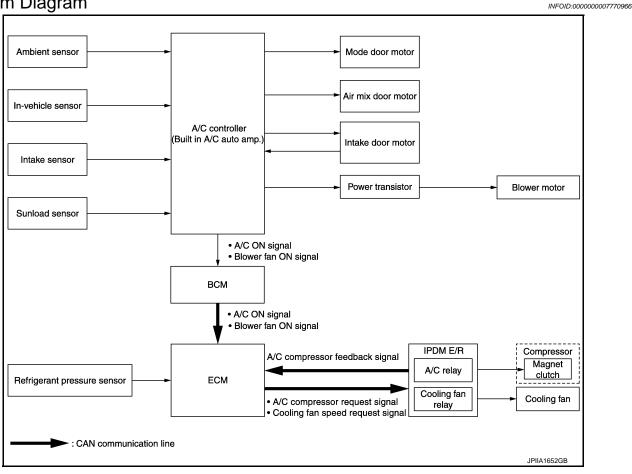
COMPRESSOR CONTROL FUNCTION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Component	Description
Magnet clutch	HAC-59, "Description"
Refrigerant pressure sensor	EC-443, "Description"
A/C control (A/C auto amp.)	HAC-67, "Description"
In-vehicle sensor	HAC-36, "Description"
Blower motor	HAC-54, "Description"
Air mix door motor	HAC-44, "Description"
Power transistor	HAC-54, "Description"
Intake sensor	HAC-39, "Description"
Mode door motor	HAC-47, "Description"
Intake door motor	HAC-50, "Description"

System Diagram



System Description

OUTLINE

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

Control by A/C auto amp.

- Air outlet control
- Temperature control
- Air inlet control
- Air flow control
- Compressor control
- Door motor control (LCU communication control)

Control by BCM

- Compressor control

Control by ECM

- Cooling fan control. Refer to <u>EC-79</u>, "System Description".
- Air conditioning cut control. Refer to EC-63, "System Description".
- Compressor control

Control by IPDM E/R

- Relay control. Refer to <u>PCS-4, "System Description"</u> (WITH I-KEY) or <u>PCS-34, "System Description"</u> (WITH-OUT I-KEY).
- Cooling fan control. Refer to <u>PCS-4, "System Description"</u> (WITH I-KEY) or <u>PCS-34, "System Description"</u> (WITHOUT I-KEY).
- Each A/C system can be operated by A/C controller (built-in A/C auto amp.).

HAC

Н

Α

В

D

Е

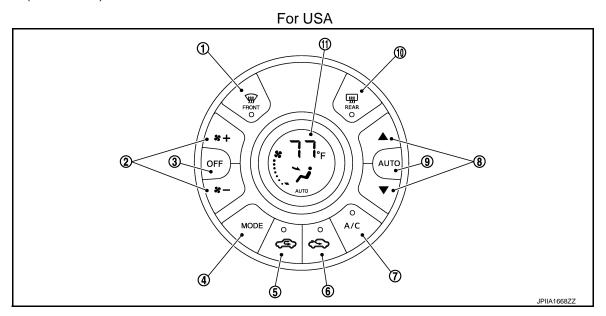
INFOID:0000000007770967

K

Ν

OPERATION

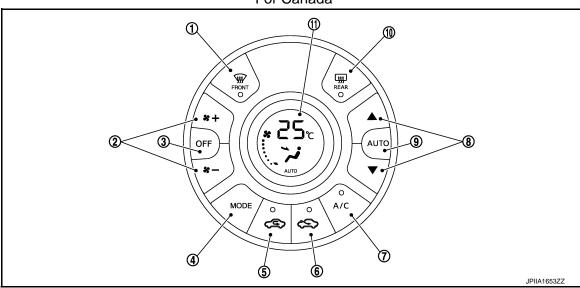
Controller (A/C Control)



- 1. DEF switch
- 4. MODE switch
- 7. A/C switch
- 10. Rear window defogger switch
- 2. Fan control switch
- 5. REC switch
- 8. Temperature control switch
- 11. A/C display

- 3. OFF switch
- 6. FRE switch
- 9. AUTO switch

For Canada



- 1. DEF switch
- 4. MODE switch
- 7. A/C switch
- 10. Rear window defogger switch
- 2. Fan control switch
- 5. REC switch
- 8. Temperature control switch
- 11. A/C display

- 3. OFF switch
- 6. FRE switch
- 9. AUTO switch

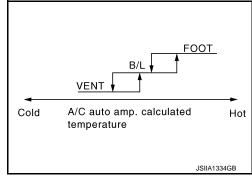
Switch Operation

	 DEF switch indicator is turned ON ⇔ OFF by pressing DEF switch each time. When DEF switch is operated while air conditioner system is activated, the system becomes the
	following states Compressor: ON
	 Air inlet: Fresh air intake Blower fan: Auto control (if blower fan is set to manual mode before pressing DEF switch, it be-
	comes manual mode) - When DEF mode set to OFF, air conditioner system returns previous condition which is set to DEF
DEF switch	 When DEF switch is operated while air conditioner system is inactivation, the system becomes the following states. Air conditioner system: ON Compressor: ON Air inlet: Fresh air intake Blower fan: Auto control
	 When DEF mode set to OFF, all air conditioner system is OFF. NOTE: When DEF mode is set to ON during auto control of air conditioner system, the system becomes manual control.
	Fan speed is selected within a range between 1st – 7th speed by pressing this switch. NOTE:
Fan control switch	 When air conditioner system is OFF, air conditioner system is set to ON by pressing this switch. When fan control switch is operated during auto control of air conditioner system, the system becomes manual mode.
OFF switch	 Air conditioner system is turned OFF by pressing this switch. When the air conditioner system becomes OFF, air inlet and outlet are set as follows: Air inlet: FRE (except REC is manually selected) Air outlet: FOOT
Mode switch	 Mode position is changed in order of VENT ⇒ B/L ⇒ FOOT ⇒ D/F ⇒ VENT by operating this switch each time. When D/F is selected while blower motor is activated, air conditioner system becomes the following states. Compressor: ON Air inlet: Fresh air intake NOTE: When MODE switch is operated during auto control of air conditioner system, the system becomes manual mode.
REC switch	Air inlet is selected to recirculation (REC) by pressing this switch. • REC indicator ON • FRE indicator OFF NOTE: • Even if the air conditioner system is OFF, air inlet can be selected. • When mode position is D/F or DEF, recirculation (REC) cannot be selected. • When REC switch is selected, the compressor is turned ON. • When REC indicator is ON, pressing the REC switch for approximately 1.5 seconds or more, and then the FRE and REC switch indicators blink twice and the system is switched to the automatic control.
FRE switch	Air inlet is selected to fresh air intake (FRE) by pressing this switch. • FRE indicator: ON • REC indicator: OFF NOTE: • Even if the air conditioner system is OFF, air inlet can be selected. • When mode position is D/F or DEF, air inlet is set to FRE forcibly. • When FRE indicator is ON, pressing the FRE switch for approximately 1.5 seconds or more, and then the FRE and REC switch indicators blink twice and the system is switched to the automatic control.
Temperature control switch	Setting temperature is selected within a range between 18°C (60°F) – 32°C (90°F) by pressing this switch. • ▲ : Increase • ▼ : Decrease NOTE: Even if air conditioner system is OFF, setting temperature can be selected by pressing these switch.

A/C switch	The compressor control (switch indicator) is turned between ON ⇔ OFF by pressing this switch each time only when blower fan is activated. NOTE: When blower fan is inactivation, compressor control can not be turned ON. When mode position is D/F or DEF, A/C switch is turned ON forcibly.
Rear window defogger switch	Rear window defogger (switch indicator) is turned between ON ⇔ OFF by pressing this switch each time. Rear window defogger system details. Refer to DEF-4, "System Description".

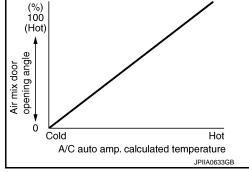
AIR OUTLET CONTROL

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



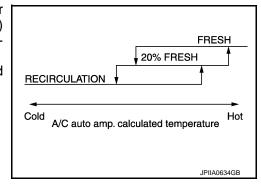
TEMPERATURE CONTROL

- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of air conditioner 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°C (60°F), and at the fully hot position when set temperature is 32°C (90°F).



AIR INLET FUNCTION

- While air inlet is in automatic control, A/C auto amp. selects air inlet (fresh air intake, 20% fresh air intake, or recirculation) depending on set temperature, in-vehicle temperature, and ambient temperature.
- Air inlet is fixed to 80% FRE, only when the conditions are satisfied as follows:
- Air inlet is FOOT or D/F
- Ambient temperature is 2°C (36°F) or less
- Maximum fan speed



AIR FLOW CONTROL

Description

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

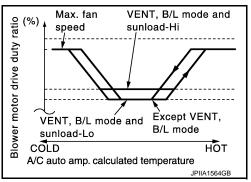
Automatic Air Flow Control

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

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

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

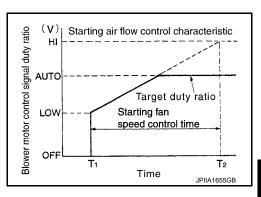


Starting Fan Speed Control

When blower motor is activated, A/C auto amp. gradually increases duty ratio of blower fan drive signal to prevent a sudden increase in discharge air flow. $(T_1 - T_2 = approximately 10 seconds)$

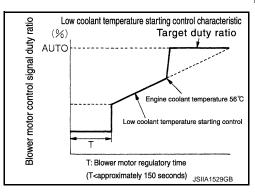
NOTE:

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



Low Coolant Temperature Starting Control

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



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.

High In-vehicle Temperature Starting Control

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

COMPRESSOR CONTROL

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 BCM.
- BCM 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 opening angle sensor signal, and others). And transmits A/C relay control signal to IPDM E/R via CAN communication.
- IPDM E/R turns A/C relay ON and activates the compressor depending on request from ECM.

HAC

M

Ν

Р

Н

Α

В

D

F

Revision: 2011 November HAC-19 2012 CUBE

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 A/C relay OFF and stops the compressor.

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

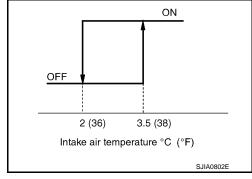
Compressor Oil Circulation Control

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

Low Temperature Protection Control

When intake sensor detects that evaporator surface temperature is 2°C (36°F) or less, A/C auto amp. requests ECM to turn the compressor OFF, and stops the compressor.

When the air temperature returns to 3.5°C (38°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.

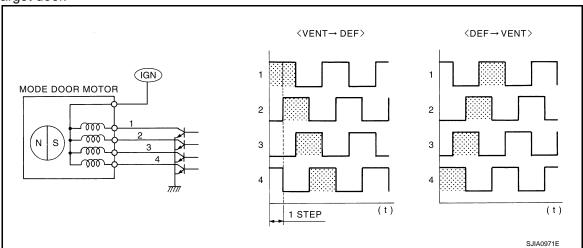
Air Conditioner Cut Control

When the engine is running in excessively high load condition, ECM requests IPDM E/R to turn A/C relay OFF, and stops the compressor. Refer to EC-63, "System Description" for details.

DOOR MOTOR CONTROL

Mode Door Motor

The A/C auto amp. receives data from each sensors. When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the position of target door.

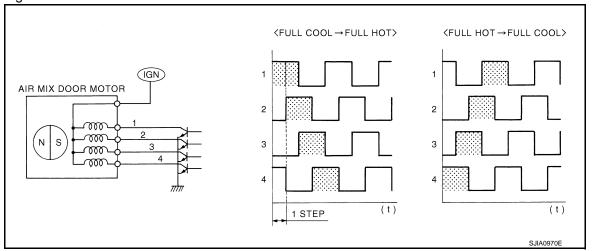


Air Mix Door Motor

< SYSTEM DESCRIPTION >

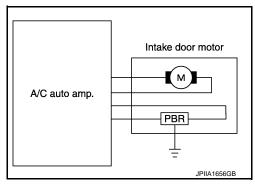
[AUTOMATIC AIR CONDITIONING]

The A/C auto amp. receives data from each sensors. When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the position of target door.



Intake Door Motor

The A/C auto amp. receives data from each sensor, and converts them to control signal. The A/C auto amp. sends the control signal to Intake door motor. When intake door motor receives the control signal, intake door is moved to appropriate position by PBR opening angle indication signal.



SWITCHES AND THEIR CONTROL FUNCTIONS

HAC

K

L

M

Ν

Р

Н

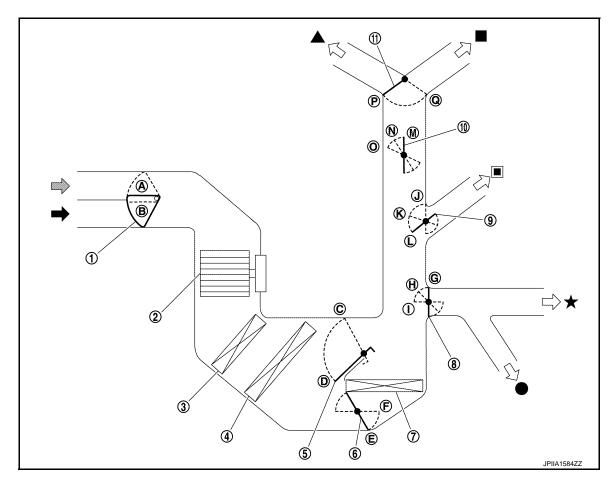
В

D

Е

F

Revision: 2011 November HAC-21 2012 CUBE



- 1. Intake door
- 4. Evaporator
- 7. Heater core
- 10. Sub defroster door
- Fresh air intake
- Center ventilator
- Rear foot

- 2. Blower motor
- 5. Upper air mix door
- 8. Foot door
- 11. Center ventilator and defroster door
- ← Recirculation air
- Side ventilator

- 3. In-cabin microfilter
- 6. Lower air mix door
- 9. Side ventilator door
- Defroster
- **★** Foot

		Door position						
Switch լ	position	Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door	Intake door	Upper air mix door	Lower air mix door
AUTO switch	AUTO		I		AUTO	I	I	I

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

						Door position	1		
Switch position		Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door	Intake door	Upper air mix door	Lower air mix door	
		j	Р	М	L	G			_
MODE switch	14	j	F	IVI	К	Н		_	
MODE SWITCH	•	j		0		1	_		
	S	Zj.	Q	N	J	'			
DEF switch	₩	*		М		G			
REC switch*	٩	*					А		
FRE switch*	8	*					В		
	Full 18°C	cold (60°F)	_	_	_	_		D	E
Temperature control switch	19°C - (61°F -	- 31°C - 89°F)					_	AUTO	AUTO
		hot (90°F)						С	F
OFF switch	OI	FF	Q	0	J	G	В	_	_

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

AIR DISTRIBUTION

		Discharge air flow		
Made position indication		Air outlet/o	distribution	
Mode position indication	Ventilator	Front foot	Rear foot	Defroster
~;	100%	_	_	_
Ÿ	57%	29%	14%	_
ų, i	19%	44%	19%	18%
W.	17%	40%	17%	26%
₩	18%	_	_	82%

Н

Α

В

D

Е

HAC

Κ

L

M

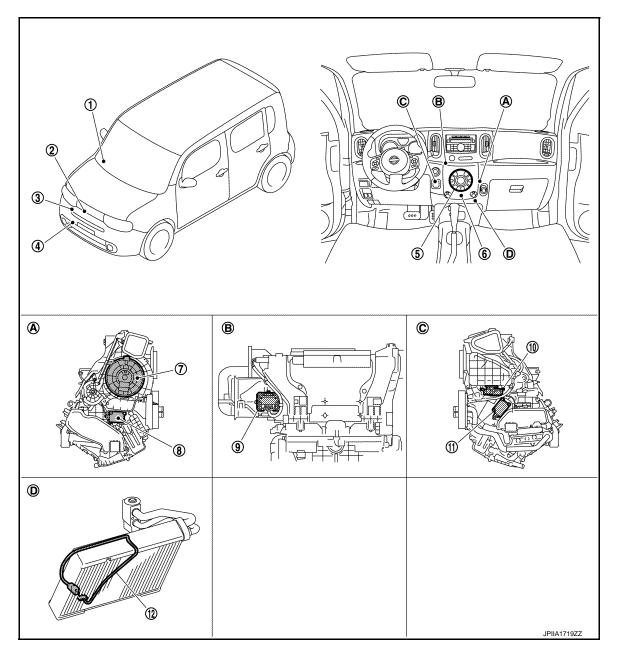
Ν

 \cap

P

Component Parts Location

INFOID:0000000007770968



- 1. Sunload sensor
- 4. Refrigerant pressure sensor
- 7. Blower motor
- 10. Intake door motor
- A. Located in the right side of A/C unit assembly
- D. Located on the evaporator
- Ambient sensor
- 5. A/C control (A/C auto amp.)
- 8. Mode door motor
- 11. Air mix door motor
- B. Located in the back of A/C unit assembly
- Magnet clutch
- 6. In-vehicle sensor
- 9. Power transistor
- 12. Intake sensor
- Located in left side of A/C unit assembly

Component Description

INFOID:0000000007770969

Component	Description		
Sunload sensor	HAC-41, "Description"		
Ambient sensor	HAC-33, "Description"		

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Component	Description
Magnet clutch	HAC-59, "Description"
Refrigerant pressure sensor	EC-443, "Description"
A/C control (A/C auto amp.)	HAC-67, "Description"
In-vehicle sensor	HAC-36, "Description"
Blower motor	HAC-54, "Description"
Air mix door motor	HAC-44, "Description"
Power transistor	HAC-54, "Description"
Intake sensor	HAC-39, "Description"
Mode door motor	HAC-47, "Description"
Intake door motor	HAC-50, "Description"

HAC

Α

В

С

D

Е

F

G

Н

Κ

L

 \mathbb{N}

Ν

0

Diagnosis Description

INFOID:0000000007770970

ON BOARD SELF-DIAGNOSIS SYSTEM

On board self-diagnosis system is built into A/C auto amp. to quickly locate the case of malfunctions. The self-diagnosis system diagnoses sensor, door motor, blower motor, etc. and also can make the setting of auxiliary mechanism.

Diagnosis item	Diagnosis content	Diagnosis part
STEP 1: Indicator check	Switch indicator and display indication are checked.	A/C control (A/C auto amp.)
STEP 2: Sensor diagnosis	The circuit diagnoses of each sensor and intake door motor are performed. A/C auto amp. indicates the result on the display.	 Ambient sensor In-vehicle sensor Intake sensor Sunload sensor Intake door motor (PBR)
STEP 3: Door motor diagnosis	The circuit diagnoses of mode door motor and air mix door motor are performed. A/C auto amp. indicates the result on the display.	Mode door motor Air mix door motor
STEP 4: Operation check	Operational check of each part is performed.	 Mode door motor Intake door motor Air mix door motor Blower motor Compressor Condenser fan
STEP 5: Each sensor recognition temperature check	Each sensor recognition temperature is indicated on the display.	Ambient sensorIn-vehicle sensorIntake sensor
STEP 6: Temperature setting trimmer	Temperature setting trimmer is performed.	_
STEP 7: Inlet port memory function	Inlet port memory function is performed.	_

SELF-DIAGNOSIS PROCEDURE

Self-diagnosis Mode Entry

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

NOTE:

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

Changes of Step up and Step down

- The changes of STEP 1 5 can be performed by pressing the temperature control switch.
- The change of STEP 6 7 can be performed by pressing the fan control switch during the condition of STEP-5.

Self-diagnosis Cancellation

By AUTO switch is pressed or ignition switch is turned OFF, the self-diagnosis is canceled.

STEP-1: INDICATOR CHECK

Description

A/C switch indicator and A/C display indication are checked.

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

Malfunction: Malfunctioning part indicator is not turned ON.

STEP-2: SENSOR DIAGNOSIS

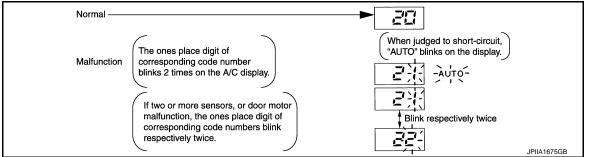
< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Description

When STEP-2 is selected, "2" is indicated on the display for 3 seconds, in this period, sensor diagnosis is started.

Normal: "20" is displayed.



Malfunction: The ones place digit of corresponding code number blinks 2 times on the A/C display. When short-circuit error, "AUTO" blinks on the display.

NOTE:

If two or more sensors, or door motor malfunction, the ones place digit of corresponding code numbers blink respectively twice.

Diagnosis Result

Code No.		Malfunctionin	Reference	
Code No.	or door motor	Open	Short	Reference
21 / AUTO 21	Ambient sensor	-42°C (-44°F) or less	100°C (212°F) or more	HAC-33, "Diagnosis Procedure"
22 / AUTO 22	In-vehicle sensor	-42°C (-44°F) or less	100°C (212°F) or more	HAC-36, "Diagnosis Procedure"
24 / AUTO 24	Intake sensor	-42°C (-44°F) or less	100°C (212°F) or more	HAC-39, "Diagnosis Procedure"
25 / AUTO 25	Sunload sensor*	33 W/m ² (28 kcal/m ² ·h)	1677 W/m ² (1442 kcal/m ² ·h)	HAC-41, "Diagnosis Procedure"
26 / AUTO 26	Intake door motor (PBR)	PBR angle 30% or less	PBR angle 50% or more	HAC-50, "Diagnosis Procedure"

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

NOTE:

- When ambient sensor has the malfunction of open-circuit, the sensor judges that ambient temperature is extremely cold, and controls the in vehicle temperature to warmly.
- When performing the diagnosis of intake door motor, the target angle of PBR is set at 40%.
- The error judgment status of intake door motor is not decided by open or short circuit, it is decided by the voltage value as follows:
- Short: 2.5 V or more
- Open: 1.5 V or less

STEP-3: DOOR MOTOR DIAGNOSIS

Description

When STEP-3 is selected, "3" is indicated on the display for 1 second, in this period, door motor diagnosis is started

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

HAC

Н

Α

В

D

F

K

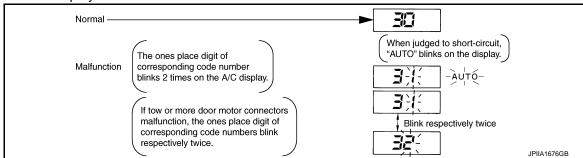
M

Ν

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Normal: "30" is displayed.



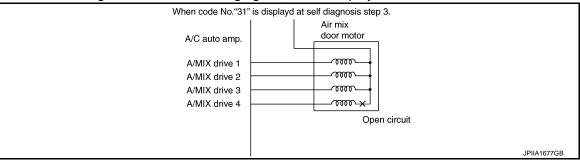
Malfunction: The ones place digit of corresponding code number blinks 2 times on the A/C display. When short-circuit error, "AUTO" blinks on the display.

NOTE:

If two or more door motor connectors malfunction, the ones place digit of corresponding code numbers blink respectively twice.

NOTE:

When the malfunctioning condition as following figure, "31" is displayed.



Diagnosis Result

Code No.	Corresponding door motor	Malfunctioning judgment condition	Reference
31 / AUTO 31		Short or open circuit of air mix door drive signal terminal 4	
32 / AUTO 32	Air miy door motor	Short or open circuit of air mix door drive signal terminal 1	HAC 44 "Diagnosis Procedure"
33 / AUTO 33	Air mix door motor	Short or open circuit of air mix door drive signal terminal 2	HAC-44, "Diagnosis Procedure"
34 / AUTO 34		Short or open circuit of air mix door drive signal terminal 3	
35 / AUTO 35		Short or open circuit of mode door drive signal terminal 4	
36 / AUTO 36	Mode door motor	Short or open circuit of mode door drive signal terminal 1	HAC-47, "Diagnosis Procedure"
37 / AUTO 37		Short or open circuit of mode door drive signal terminal 2	TINO-41, Diagnosis Plucedule
38 / AUTO 38		Short or open circuit of mode door drive signal terminal 3	

NOTE:

- If all four terminals of each door motor show an open circuit, there is probably a disconnected connector or an open circuit in door motor drive power supply harness.
- If a short circuit occurs in harness between terminals for each door motor drive signal, although it cannot be detected by self-diagnosis, door motor will vibrate when it operates.

Door Motor Starting Position Reset

 Pressing DEF switch during STEP-3 will send a reset signal to air mix door and mode door motor to reset them to starting position.

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

• During reset operation, DEF switch indicator and "30" blink for approximately 9 seconds.

STEP-4: OPERATION CHECK

Description

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

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

Operation Contents

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

Code No.	Mode door posi- tion	Intake door posi- tion	Air mix door posi- tion	Magnet clutch	Blower fan motor (voltage)	Condenser fan ON signal
41	VENT	REC	Full cold	ON	5 V	ON
42	B/L	REC	Full cold	ON	10.5 V	ON
43	B/L	20% FRE	Medium (50%)	ON	8.5 V	ON
44	FOOT	80% FRE	Medium (50%)	OFF	8.5 V	OFF
45	D/F	FRE	Full hot	OFF	8.5 V	OFF
46	DEF	FRE	Full hot	ON	Battery voltage	ON

STEP-5: EACH SENSOR RECOGNITION CHECK

Description

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

Each time DEF switch is pressed, each sensor recognition temperature is changed in order of the following: $5 \rightarrow \text{Ambient temperature} \rightarrow \text{In-vehicle temperature} \rightarrow \text{Intake temperature} \rightarrow 5$.

NOTE:

Each sensor recognition temperature is not displayed in less than –30°C (–22°F) or more than 55°C (131°F).

STEP-6: TEMPERATURE SETTING TRIMMER

Description

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

Setting Procedure

Refer to HAC-10, "Temperature Setting Trimmer".

STEP-7: INLET PORT MEMORY FUNCTION

Description

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

Setting Procedure

Refer to HAC-11, "Inlet Port Memory Function".

HAC

Н

Α

В

D

Е

F

K

L

M

Ν

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) [AUTOMATIC AIR CONDITIONING]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000007951191

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

x: Applicable item

Curatava	Cub quaters calcution items		Diagnosis mode	
System	Sub system selection item	Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER	×	×	×
Automatic air conditioner Manual air conditioner	AIR CONDITONER		×	×*
Intelligent Key system Engine start system	INTELLIGENT KEY	×	×	×
Combination switch	COMB SW		×	
Body control system	ВСМ	×		
NVIS - NATS	IMMU	×	×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door	TRUNK		×	
Vehicle security system	THEFT ALM	×	×	×
RAP system	RETAINED PWR		×	
Signal buffer system	SIGNAL BUFFER		×	×
TPMS	TPMS (AIR PRESSURE MONITOR)	×	×	×

^{*:} For models with automatic air conditioner, this model is not used.

FREEZE FRAME DATA (FFD)

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

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) [AUTOMATIC AIR CONDITIONING]

< SYSTEM DESCRIPTION >

CONSULT screen item	Indication/Unit	Description			
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected			
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected			
	SLEEP>LOCK		While turning BCM status from low power consumption mode to		
	OLLEI >LOOK		normal mode (Power supply position is "LOCK"*)		
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)		
	LOCK>ACC		While turning power supply position from "LOCK"* to "ACC"		
	ACC>ON		While turning power supply position from "ACC" to "IGN"		
	RUN>ACC		While turning power supply position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.)		
	CRANK>RUN		While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)		
	RUN>URGENT	Power position status of the moment a particular DTC is detected	While turning power supply position from "RUN" to "ACC" (Emergency stop operation)	mer-	
	ACC>OFF		While turning power supply position from "ACC" to "OFF"		
	OFF>LOCK		While turning power supply position from "OFF" to "LOCK"*		
Vehicle Condition	OFF>ACC		While turning power supply position from "OFF" to "ACC"	CC"	
	ON>CRANK		While turning power supply position from "IGN" to "CRANKING"		
	OFF>SLEEP		While turning BCM status from normal mode (Power supply position is "OFF".) to low power consumption mode		
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply position is "LOCK"*.) to low power consumption mode		
	LOCK		Power supply position is "LOCK"*	ŀ	
	OFF		Power supply position is "OFF" (Ignition switch OFF)		
	ACC		Power supply position is "ACC" (Ignition switch ACC)		
	ON		Power supply position is "IGN" (Ignition switch ON with engine stopped)		
	ENGINE RUN		Power supply position is "RUN" (Ignition switch ON with engine running)		
	CRANKING		Power supply position is "CRANKING" (At engine cranking)		
IGN Counter	0 - 39	 The number of times that ignition switch is turned ON after DTC is detected The number is 0 when a malfunction is detected now. The number increases like 1 → 2 → 338 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The number is fixed to 39 until the self-diagnosis results are erased if it is over 39. 			

NOTE:

- *: Power position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position (CVT models), and any of the following conditions are met.
- Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

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

AIR CONDITIONER

AIR CONDITIONER: CONSULT Function (BCM - AIR CONDITIONER) (Automatic A/ C) INFOID:0000000007770972

DATA MONITOR Display Item List

HAC-31 Revision: 2011 November 2012 CUBE

0

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) [AUTOMATIC AIR CONDITIONING]

< SYSTEM DESCRIPTION >

Monitor Item [Unit]		Contents
FAN ON SIG [On/Off] Displays the blower fan status as jugged from the A/C auto amp.		Displays the blower fan status as jugged from the A/C auto amp.
AIR COND SW [On/Off]		Displays [COMP (On)/COMP (Off)] status as judged from the A/C auto amp.

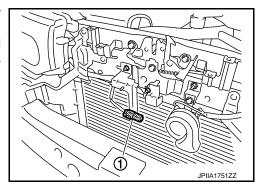
DTC/CIRCUIT DIAGNOSIS

AMBIENT SENSOR

Description INFOID:0000000007770975

COMPONENT DESCRIPTION

- The ambient sensor (1) is installed on the middle of radiator upper
- The ambient sensor converts the ambient temperature detected with thermistor into the voltage, and the A/C auto amp. inputs this voltage.



AMBIENT TEMPERATURE CORRECTION

- The A/C auto amp. inputs the temperature detected with the ambient sensor as the ambient temperature.
- Perform the correction of the temperature detected with the ambient sensor for air conditioner control and for ambient temperature display.
- Since the engine heat influences on the ambient sensor during idling condition, the A/C auto amp. retards the ambient temperature indication of the combination meter to avoid the effect of steep temperature
- Select and use the initial value of ambient temperature data depending on the coolant temperature when turning the ignition switch from OFF to ON. Use the detection temperature of the ambient sensor at low coolant temperature [less than approximately 56°C (133°F)]. Use the memory data (before the ignition switch is OFF) when the engine is warming up [approximately 56°C (133°F) or more].
- Do not perform the correction of the ambient temperature when the detection temperature of the ambient temperature is less than approximately -20°C (-4°F).

SET TEMPERATURE CORRECTION

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

Diagnosis Procedure

1. CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT

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

(-	+)	(–)	\
Ambien	t sensor	_	Voltage (Approx.)
Connector Terminal			(11 /
E53	1	Ground	5 V

Is the inspection result normal?

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

Revision: 2011 November

2.CHECK AMBIENT SENSOR GROUND CIRCUIT CONTINUITY

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

HAC

Α

D

Е

INFOID:0000000007770976

2012 CUBE

N

AMBIENT SENSOR

[AUTOMATIC AIR CONDITIONING]

Ambient sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
E53	2	M50	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK AMBIENT SENSOR

Check the ambient sensor components. Refer to HAC-34, "Component Inspection".

Is the inspection result normal?

YFS >> INSPECTION END

NO >> Replace the ambient sensor.

4. CHECK AMBIENT SENSOR OPEN CIRCUIT

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

Ambient sensor		A/C auto amp.		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
E53	1	M51	22	Existed	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

${f 5}.$ CHECK AMBIENT SENSOR SHORT CIRCUIT

Check continuity between ambient sensor harness connector and the ground.

Ambien	t sensor	_	Continuity	
Connector	Terminal		Continuity	
E53	1	Ground	Not existed	

Is the inspection result normal?

YES >> Replace the A/C auto amp.

>> Repair the harnesses or connectors. NO

Component Inspection

INFOID:0000000007770977

1. CHECK AMBIENT SENSOR

- Turn the ignition switch OFF.
- Remove the ambient sensor. Refer to HAC-113, "Exploded View".
- Check the resistance between the ambient sensor terminals. Refer to the applicable table for the normal value.

AMBIENT SENSOR

[AUTOMATIC AIR CONDITIONING]

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the ambient sensor.

Α

В

С

D

Е

F

G

Н

HAC

J

K

L

M

Ν

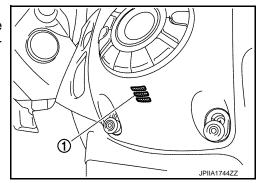
0

IN-VEHICLE SENSOR

Description INFOID.000000007770978

COMPONENT DESCRIPTION

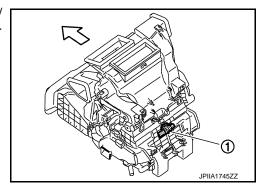
- The in-vehicle sensor (1) is installed to the finisher.
- The in-vehicle sensor converts the interior air temperature of the passenger room sucked by the aspirator detected with the thermistor into the voltage, and the A/C auto amp. inputs this voltage.

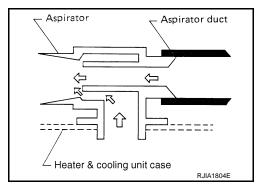


ASPIRATOR

The aspirator (1) generates the vacuum by the air blown from the A/C unit assembly and draws the air of the passenger room to the invehicle sensor area via the aspirator duct.







INTERIOR AIR TEMPERATURE CORRECTION

- The A/C auto amp. inputs the temperature detected with the in-vehicle sensor as the interior air temperature.
- Perform the correction of the temperature detected with the in-vehicle sensor for each air conditioner control.

Diagnosis Procedure

INFOID:0000000007770979

1. CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT

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

(-	+)	(-)	Maltana
In-vehic	e sensor		Voltage (Approx.)
Connector	Terminal		
M41	M41 1		5 V

IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.check in-vehicle sensor ground circuit continuity

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

In-vehic	In-vehicle sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M41	2	M50	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.check in-vehicle sensor

Check the in-vehicle sensor components. Refer to HAC-37, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the in-vehicle sensor.

4. CHECK IN-VEHICLE SENSOR OPEN CIRCUIT

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

In-vehic	le sensor	A/C auto amp.		Continuity
Connector	Terminal	Connector Terminal		Continuity
M41	1	M51	24	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

${f 5.}$ CHECK IN-VEHICLE SENSOR SHORT CIRCUIT

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

In-vehic	le sensor		Continuity	
Connector	Terminal		Continuity	
M41	1	Ground	Not existed	

Is the inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair the harnesses or connectors.

Component Inspection

1. CHECK IN-VEHICLE SENSOR

- Turn the ignition switch OFF.
- Remove the in-vehicle sensor. Refer to <u>HAC-114</u>, "Exploded View".
- 3. Check the resistance between the in-vehicle sensor terminals. Refer to the applicable table for the normal value.

HAC

Α

В

Е

Ν

C

INFOID:0000000007770980

Та и		Condition	Decistor es IrO					
ien	minal	Temperature: °C (°F)	Resistance: kΩ					
		-15 (5)	12.73					
		-10 (14)	9.92					
		-5 (23)	7.80					
		0 (32)	6.19					
	2	5 (41)	4.95					
		2	2	2	2	2	10 (50)	3.99
1							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 the in-vehicle sensor.

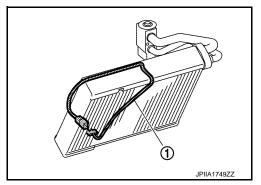
[AUTOMATIC AIR CONDITIONING]

INTAKE SENSOR

Description

COMPONENT DESCRIPTION

- Intake sensor (1) is located on the evaporator.
- The intake sensor converts the evaporator surface temperature detected with thermistor into the voltage, and the A/C auto amp. inputs this voltage.



INTAKE TEMPERATURE CORRECTION

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

Diagnosis Procedure

INFOID:0000000007770982

1. CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT

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

(+)		(–)	Maltana
Intake sensor		_	Voltage (Approx.)
Connector	Connector Terminal		() 1 - /
M42	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2. CHECK INTAKE SENSOR GROUND CIRCUIT CONTINUITY

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

Intake	Intake sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M42	2	M50	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK INTAKE SENSOR

Check the intake sensor components. Refer to HAC-40, "Component Inspection".

Is the inspection result normal?

HAC

Α

D

Е

J

M

N

0

P

< DTC/CIRCUIT DIAGNOSIS >

YES >> INSPECTION END

NO >> Replace the intake sensor.

4. CHECK INTAKE SENSOR OPEN CIRCUIT

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

Intake	Intake sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M42	1	M51	23	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5. CHECK INTAKE SENSOR SHORT CIRCUIT

Check continuity between intake sensor harness connector and the ground.

Intake	sensor	nsor — Continuity	
Connector	Terminal		Continuity
M42	1	Ground	Not existed.

Is the inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000007770983

1. CHECK INTAKE SENSOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the intake sensor connector.
- 3. Check the resistance between the intake sensor terminals. Refer to the applicable table for the normal value.

Torr	minal	Condition	Resistance: kΩ	
1611	IIIIai	Temperature: °C (°F)	Nesistance. K22	
		-15 (5)	12.34	
		-10 (14)	9.62	
		-5 (23)	7.56	
		0 (32)	6.00	
			5 (41)	4.80
		10 (50)	3.87	
1	2	15 (59)	3.15	
		20 (68)	2.57	
		25 (77)	2.12	
		30 (86)	1.76	
		35 (95)	1.47	
		40 (104)	1.23	
		45 (113)	1.04	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the intake sensor.

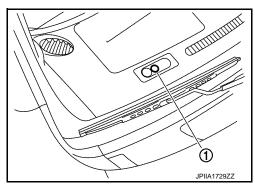
[AUTOMATIC AIR CONDITIONING]

SUNLOAD SENSOR

Description

COMPONENT DESCRIPTION

- The sunload sensor (1) is installed to the right side of instrument panel assembly.
- The sunload sensor converts the sunload amount (illuminance) into the current value with the photodiode. The A/C auto amp. calculates this current value to the voltage and inputs it.



SUNLOAD AMOUNT CORRECTION

- The A/C auto amp. inputs the sunload amount detected with the sunload sensor.
- Perform the correction of the sunload amount detected with the sunload sensor for each air conditioner control.
- When the sunload amount suddenly changes, for example when entering a tunnel, perform the correction so that the recognition sunload amount of the A/C auto amp. changes slowly.

Diagnosis Procedure

1. CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.check sunload sensor ground circuit continuity

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

Sunload	Sunload sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M74	2	M50	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3. CHECK SUNLOAD SENSOR

- 1. Connect the sunload sensor connector.
- 2. Connect the A/C auto amp. connector.
- Check the sunload sensor components. Refer to <u>HAC-42, "Component Inspection"</u>.

HAC

Н

Α

В

D

Е

F

INFOID:0000000007770985

<

. .

M

Ν

0

Р

Revision: 2011 November HAC-41 2012 CUBE

SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the sunload sensor.

4. CHECK SUNLOAD SENSOR OPEN CIRCUIT

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

Sunload	Sunload sensor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M74	1	M51	25	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5. CHECK SUNLOAD SENSOR SHORT CIRCUIT

Check continuity between sunload sensor harness connector and the ground.

Sunload	Sunload sensor		Continuity	
Connector	Terminal		Continuity	
M74	1	Ground	Not existed	

Is the inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair the harnesses or connectors.

Component Inspection

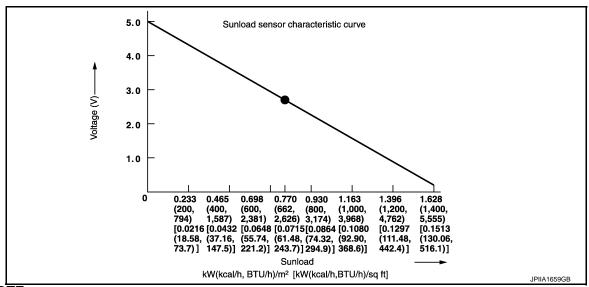
INFOID:0000000007770986

2012 CUBE

1. CHECK SUNLOAD SENSOR

- 1. Turn the ignition switch ON.
- 2. Check the input voltage from sunload sensor between A/C auto amp. harness connector and the ground. Refer to the applicable table for the normal value.

(-	(-)	
A/C au	_	
Connector	Connector Terminal	
M51	25	Ground



NOTE:

- When checking indoors, use a lamp of approximately 60 W. Move the lamp towards and away from the sensor to check.
- The sunload amount produced by direct sunshine in fair weather is equivalent to approximately 0.77 kW/m² (662 kcal/m²·h).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the sunload sensor.

HAC

Α

В

D

Е

G

Н

K

L

M

Ν

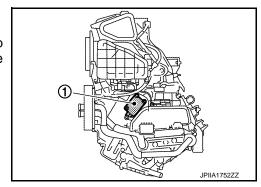
0

AIR MIX DOOR MOTOR

Description

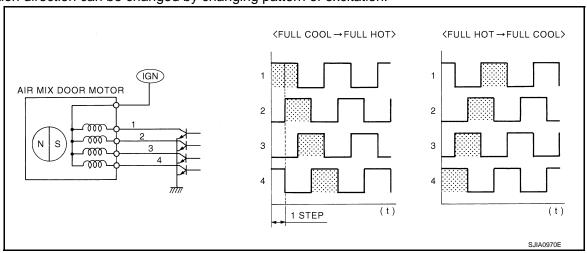
COMPONENT DESCRIPTION

- The air mix door motor (1) is installed to the A/C unit assembly.
- The step motor system is adopted for air mix door motor.
- When a drive signal is input from auto amp. to door motor, a step motor built into the door the door motor rotates according to the drive signal, and then stops at the position of target door.



DRIVE SYSTEM OF STEP MOTOR TYPE DOOR MOTOR

- Motor is actuated in sequence by energizing four drive coils.
- Rotation direction can be changed by changing pattern of excitation.



Diagnosis Procedure

INFOID:0000000007770988

1. CHECK FUSE

Check 10A fuse [No. 2, located in the fuse block (J/B)].

NOTE:

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace fuse after repairing the applicable circuit.

2.CHECK POWER SUPPLY OF AIR MIX DOOR MOTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the air mix door motor connector.
- 3. Turn the ignition switch ON.
- 4. Check voltage between air mix door motor harness connector and the ground.

(+)		(–)	V. K.
Air mix door motor			Voltage (Approx.)
Connector	Terminal	_	(11 -)
M55	2	Ground	Battery voltage

AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

$3. \mathrm{check}$ continuity between A/C auto amp. and air mix door motor

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

Air mix door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
	3	3 6 1 4	17	Existed
M55	6		18	
	1		19	Existed
	4		20	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

f 4.CHECK CONTINUITY BETWEEN A/C AUTO AMP. AND GROUND

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

A/C auto amp.			Continuity	
Connector	Terminal		Continuity	
M50	17		Not Existed	
	18	Ground		
	19	Glound		
	20			

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5. CHECK AIR MIX DOOR MOTOR

Perform the component inspection of air mix door motor. Refer to HAC-45, "Component Inspection".

Is the inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Replace the air mix door motor.

Component Inspection

1. CHECK AIR MIX DOOR MOTOR

- Turn the ignition switch OFF.
- Remove the air mix door motor. Refer to <u>HAC-120</u>, "Exploded View".
- 3. Check the resistance between air mix door motor terminals. Refer to the applicable table for the normal value.

Terminal		Resistance: Ω (Approx.)
	1	
2	3	90
	4	90
6		

HAC

Α

В

D

Е

F

Н

K

M

Ν

INFOID:0000000007770989

Р

Revision: 2011 November HAC-45 2012 CUBE

AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> INSPECTION END

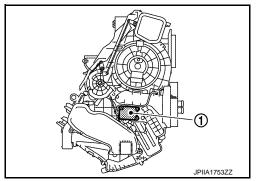
NO >> Replace the air mix door motor.

MODE DOOR MOTOR

Description INFOID:0000000007770990

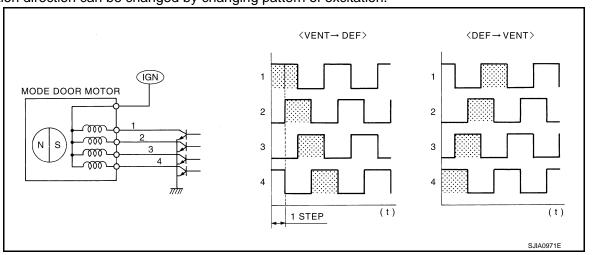
COMPONENT DESCRIPTION

- The mode door motor (1) is installed to the A/C unit assembly.
- Step motor system is adopted for the mode door motor.
- When a drive signal is input from auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the position of target door.



DRIVE SYSTEM OF STEP MOTOR TYPE DOOR MOTOR

- Motor is actuated in sequence by energizing four drive coils.
- Rotation direction can be changed by changing pattern of excitation.



Diagnosis Procedure

1. CHECK FUSE

Check 10A fuse [No. 2, located in the fuse block (J/B)].

NOTE:

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is inspection result normal?

YES >> GO TO 2.

NO >> Replace fuse after repairing the applicable circuit.

2.CHECK POWER SUPPLY OF MODE DOOR MOTOR

- 1. Turn the ignition switch OFF.
- Disconnect the mode door motor connector. 2.
- 3. Turn the ignition switch ON.
- Check voltage between mode door motor harness connector and the ground.

(+)		(-)	Maltana	
Mode door motor			Voltage (Approx.)	
Connector	Terminal	_	(11 -)	
M56	5	Ground	Battery voltage	

HAC-47 Revision: 2011 November 2012 CUBE

Α

В

D

Е

F

Н

HAC

K

INFOID:000000000777099

L

Ν

MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

INFOID:0000000007770992

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

$3. \mathrm{check}$ continuity between A/C auto AMP. And mode door motor

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

Mode do	Mode door motor A/C auto amp.		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
	1	M51	32	Existed
M56	2		31	
	3		30	
	4		29	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4. CHECK CONTINUITY BETWEEN A/C AUTO AMP. AND GROUND

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

A/C auto amp.			Continuity	
Connector	Terminal	_	Continuity	
M51	29		Not existed	
	30	Ground		
	31	Glound		
	32			

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5. CHECK MODE DOOR MOTOR

Perform the component inspection of mode door motor. Refer to HAC-48, "Component Inspection".

Is inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Replace the mode door motor.

Component Inspection

1. CHECK MODE DOOR MOTOR

- Turn the ignition switch OFF.
 Disconnect the mode door motor connector.
- Check the resistance between mode door motor terminals. Refer to the applicable table for the normal value.

Terminal		Resistance: Ω (Approx.)
	1	
5	2	90
	3	90
	4	

MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

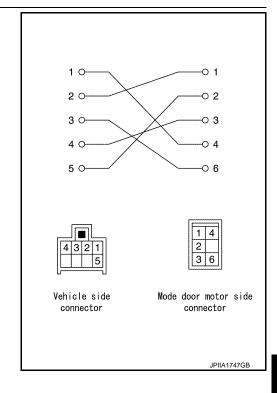
$2. {\sf CHECK} \ {\sf CONTINUITY} \ {\sf MODE} \ {\sf DOOR} \ {\sf MOTOR} \ {\sf SUB} \ {\sf HARNESS}$

Check the sub harness continuity with the following figure.

Is the inspection result normal?

YES >> Replace the mode door motor.

NO >> Repair the harnesses or connectors.



HAC

Н

Α

В

C

D

Е

F

J

Κ

L

M

Ν

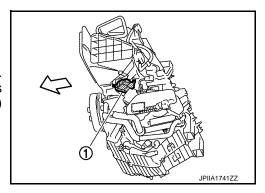
0

Description

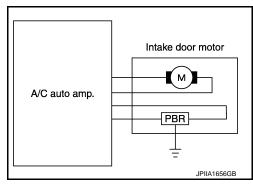
COMPONENT DESCRIPTION

The intake door motor (1) is installed to A/C unit assembly.

The A/C auto amp. sends the control signal to Intake door motor.
 When intake door motor receives the control signal, intake door is moved to appropriate position by PBR (Potentio Balance Resistor) opening angle indication signal.



Intake door motor circuit



Diagnosis Procedure

INFOID:0000000007770994

POWER SUPPLY CIRCUIT

1.check intake door motor drive signal

- 1. Turn the ignition switch ON.
- Check voltage between intake door motor harness connector and the ground when intake switch is operated.

((+)			Voltage (Approx.)
Intake door motor		_	Condition	
Connector	Terminal			,
M54	5	Ground	$FRE \to REC$	12 V
IVIO4	6 Ground		$REC \to FRE$	12 V

Is inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.CHECK CONTINUITY BETWEEN A/C AUTO AMP. AND INTAKE DOOR MOTOR

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

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector Terminal		Continuity
M54	5	M50	13	Existed
	6	IVIO	12	LXISIGU

В

Α

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.check continuity between intake door motor and ground

Check continuity between intake door motor harness connector and the ground.

Intake door motor		<u> </u>	Continuity
Connector	Terminal		Continuity
M54	5	Ground	Not existed
10134	6	Ground	Not existed

Е

Is inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair the harnesses or connectors.

4. CHECK INTAKE DOOR MOTOR

Perform the intake door motor component inspection. Refer to HAC-53, "Component Inspection".

Is inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Replace the intake door motor.

HAC

PBR CIRCUIT

1. CHECK POWER SUPPLY OF INTAKE DOOR MOTOR PBR

1. Turn the ignition switch ON.

Check voltage between intake door motor harness connector and the ground.

1/	

(+)		(–)	
Intake door motor		_	Voltage (Approx.)
Connector	Terminal		,
M54	1	Ground	5 V

Ν

Р

Is inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.CHECK CONTINUITY BETWEEN INTAKE DOOR MOTOR AND A/C AUTO AMP.-1

Turn the ignition switch OFF.

- 2. Disconnect the intake door motor connector.
- Disconnect the A/C auto amp. 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	Continuity
M54	1	M50	3	Existed

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

3. CHECK CONTINUITY INTAKE DOOR MOTOR AND GROUND-1

Check continuity between intake door motor and the ground.

Intake door motor			Continuity	
Connector	Terminal		Continuity	
M54	1	Ground	Not existed	

Is inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair the harnesses or connectors.

4.CHECK INTAKE DOOR MOTOR PBR GROUND

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

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M54	3	M50	6	Existed

Is inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5.CHECK INTAKE DOOR MOTOR PBR FEEDBACK SIGNAL

- 1. Connect the A/C auto amp. connector.
- 2. Connect the intake door motor connector.
- 3. Turn the ignition switch ON.
- 4. Check voltage between A/C auto amp. and the ground when intake switch is operated.

(+)		(-)			
A/C au	to amp.		Condition	Voltage (Approx.)	
Connector	Terminal	_		(11 -)	
M54	1	Ground	FRE	4.5 V	
IVIOT	'	Giodila	REC	0.5 V	

Is inspection result normal?

YES >> Replace the A/C auto amp.

NO >> GO TO 6.

6.CHECK CONTINUITY INTAKE DOOR MOTOR AND A/C AUTO AMP.-2

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

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M54	2	M51	26	Existed

Is inspection result normal?

YES >> GO TO 7.

NO >> Repair the harnesses or connectors.

CHECK CONTINUITY INTAKE DOOR MOTOR AND GROUND-2

Check continuity between intake door motor harness connector and the ground.

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Intake door motor			Continuity	
Connector	Terminal	_	Continuity	
M54	2	Ground	Not existed	

Is inspection result normal?

YES >> Replace the intake door motor.

NO >> Repair the harnesses or connectors.

Component Inspection

1. CHECK INTAKE DOOR MOTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the intake door motor connector.
- 3. Supply to the intake door motor terminal directly, confirm the motor operation by listening the sound or by visually.

Terr	Terminal	
(+)	(-)	Operation
5	6	To REC
6	5	To FRE

Is inspection result normal?

YES >> INSPECTION END

NO >> Replace the intake door motor.

HAC

Н

Α

В

D

Е

F

INFOID:0000000007770995

K

M

Ν

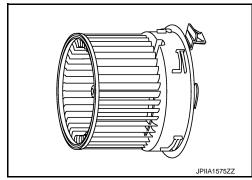
0

BLOWER MOTOR

Description INFOID:000000007770996

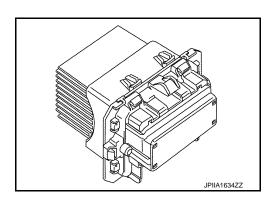
BLOWER MOTOR

- The blower motor is installed in the RH side of A/C unit assembly.
- The blower motor adopts the forcible air cooling system and onetouch installation system without any screws.

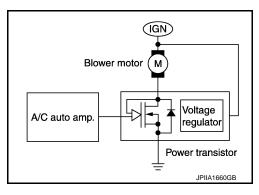


POWER TRANSISTOR

• The power transistor attached to A/C unit assembly.



- The power transistor controls the transmitting voltage to blower motor base on the gate voltage from A/C auto amp.
- The power transistor is set for low voltage drop, therefore it dose not require high relay while transmitting max voltage to blower motor.



Component Function Check

INFOID:0000000007770997

1. CHECK OPERATION

- 1. Warm up the engine.
- 2. Operate the fan control switch. Check that the fan speed and indicator unit are switched for all fan speeds.

Does it operate normally?

YES >> INSPECTION END

NO >> Perform the diagnosis for the blower motor. Refer to HAC-54, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000007770998

1. CHECK FUSE

Check 15A fuses [Nos. 15 and 17, located in the fuse block (J/B)].

NOTE

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is inspection result normal?

BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> GO TO 2.

NO >> Replace the corresponding fuse.

2.CHECK POWER SUPPLY OF BLOWER MOTOR

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

(+)		(-)	Maltana
Blower motor		_	Voltage (Approx.)
Connector	Terminal		(11 /
M39	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK BLOWER MOTOR RELAY

1. Turn the ignition switch OFF.

2. Check the blower motor relay. Refer to HAC-57, "Component Inspection".

Is inspection result normal?

YES >> Repair the harness or connector between blower motor and fuse.

NO >> Replace the blower motor relay.

4.CHECK VOLTAGE BETWEEN POWER TRANSISTOR AND GROUND

- 1. Connect the blower motor connector.
- 2. Disconnect the power transistor connector.
- Turn the ignition switch ON.
- 4. Check voltage between power transistor harness connector and the ground.

(+)		(-)	Maltana
Blower motor		_	Voltage (Approx.)
Connector	Terminal		, , ,
M82	1	Ground	Battery voltage

Is inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5. CHECK CONTINUITY BETWEEN BLOWER MOTOR AND POWER TRANSISTOR

- Turn the ignition switch OFF.
- 2. Disconnect the blower motor connector.
- 3. Check continuity between blower motor harness connector and power transistor harness connector.

Blowe	r motor	Power transistor		Continuity
Connector	Terminal	Connector Terminal		Continuity
M39	2	M82	1	Existed

Is the inspection result normal?

Revision: 2011 November

YES >> Replace the blower motor.

NO >> Repair the harnesses or connectors.

$oldsymbol{6}$.CHECK VOLTAGE BETWEEN POWER TRANSISTOR AND GROUND

Check voltage between power transistor harness connector and the ground.

HAC

Н

Α

В

D

Е

F

K

.

M

N

< DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	
Power transistor		_	Voltage (Approx.)
Connector	Connector Terminal		, , ,
M82	4	Ground	Battery voltage

Is inspection result normal?

YES >> GO TO 7.

NO >> Replace the harness or connector between power transistor and fuse.

7.CHECK CONTINUITY BETWEEN POWER TRANSISTOR AND GROUND

Check continuity between power transistor harness connector and the ground.

Blowe	r motor	_	Continuity
Connector	Connector Terminal		Continuity
M82	3	Ground	Existed

Is inspection result normal?

YES >> GO TO 8.

NO >> Repair the harnesses or connectors.

8.CHECK A/C AUTO AMP. OUTPUT SIGNAL

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

NOTE:

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

T2 = Approx. 1.6 ms

(+)		(-)	Condition			
Blowe	Blower motor		Condition		Output waveform	
Connector	Terminal	_	Fan speed (manual, VENT mode)		an speed (manual, (Approx.)	'
			1st	26%		
			2nd	34%	(V) 15	
			3rd	41%	10	
M82	2	Ground	4th 51%	0 11-		
			5th	62%	T2	
			6th	73%	T1/T2X100=Duty(%)	
-			7th	82%	JPIIA1646GB	

Is the inspection result normal?

YES >> GO TO 10. NO >> GO TO 9.

9.CHECK CONTINUITY BETWEEN POWER TRANSISTOR AND A/C AUTO AMP.

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

[AUTOMATIC AIR CONDITIONING]

Power t	Power transistor		A/C auto amp.	
Connector	Terminal	Connector Terminal		Continuity
M82	2	M51	36	Existed

Is the inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair the harnesses or connectors.

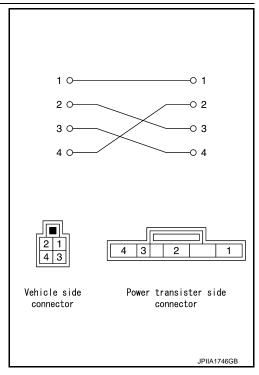
10. CHECK CONTINUITY POWER TRANSISTOR SUB HARNESS

Check the sub harness continuity with the following figure.

Is the inspection result normal?

YES >> Replace the power transistor.

NO >> Repair the harnesses or connectors.



Component Inspection

BLOWER MOTOR

1. CHECK BLOWER MOTOR

- 1. Remove the blower motor. Refer to VTL-13, "Exploded View".
- 2. Check that there is not any mixing foreign object in the blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blower motor.

2. CHECK BLOWER MOTOR

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blower motor.

3.CHECK BLOWER MOTOR

Check that the blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the blower motor.

BLOWER MOTOR RELAY

HAC

Н

Α

В

D

Е

INFOID:0000000007770999

M

N

0

1. CHECK BLOWER MOTOR

1. Remove the blower motor relay. Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

2. Check the continuity between the blower motor relay terminal 3 and 5 when the voltage is supplied between terminal 1 and 2.

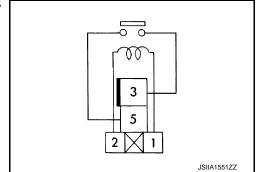
Blower motor relay Terminal		Voltage	Continuity
		Voltage	Continuity
3	5	ON	Existed
3	3 5	OFF	Not existed

ls the inspection result normal?

YES

NO >> Replace the blower motor relay.

>> INSPECTION END



[AUTOMATIC AIR CONDITIONING]

MAGNET CLUTCH

Description

- The 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 charged magnetic force by electrified.
- IPDM E/R controls magnet clutch by turning the built in A/C relay to ON

 ⇔ OFF according to ECM request.

Component Function Check

1. CHECK MAGNET CLUTCH OPERATION

Perform auto active test of IPDM E/R. Refer to PCS-41, "Diagnosis Description" (WITH I-KEY) or PCS-40, "Diagnosis Description" (WITHOUT I-KEY).

Does it operate normally?

YES >> INSPECTION END

NO >> Go to diagnosis procedure. Refer to HAC-59, "Diagnosis Procedure".

Diagnosis Procedure

1. CHECK MAGNET CLUTCH

- 1. Turn the ignition switch OFF.
- Disconnect the magnet clutch 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 <u>HA-32</u>, "MAGNET CLUTCH: Removal and Installation".

2.check magnet clutch circuit continuity

- Turn the ignition switch OFF.
- Disconnect the IPDM E/R connector.
- 3. Check continuity between magnet clutch harness connector and IPDM E/R harness connector.

IPDI	IPDM E/R		Magnet clutch	
Connector	Terminal	Connector Terminal		Continuity
E15	56	F17	1	Existed

Is the inspection result normal?

YES >> GO TO 3.

Revision: 2011 November

NO >> Repair the harnesses and connectors.

3.CHECK FUSE

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

NOTE:

Refer to PG-91, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> Replace the IPDM E/R.

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

HAC

Н

Α

В

D

Е

INFOID:0000000007771001

INFOID:0000000007771002

M

N

Р

HAC-59 2012 CUBE

A/C ON SIGNAL

Component Function Check

INFOID:0000000007771003

1. CHECK A/C ON SIGNAL

(II) With CONSULT

- 1. Turn the ignition switch ON.
- Select the "COMP REQ SIG" in "DATA MONITOR".
- 3. Check A/C ON signal when the A/C switch is operated.

Monitor item	Con	Status	
COMP REQ SIG	A/C control	A/C system ON (Indicator ON)	On
COMP REQ SIG	A/C CONTION	A/C system OFF (Indicator OFF)	Off

Is inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-60</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000007771004

1. CHECK A/C SWITCH SIGNAL

- Turn the ignition switch ON.
- 2. Check output waveform between A/C auto amp. harness connector and the ground with using oscilloscope.

(+)	(–)		
A/C auto amp.		Condition		Output waveform
Connector	Terminal			
M51	34	Ground	A/C switch ON	(V) 3 2 1 0

Is inspection result normal?

YES >> GO TO 2.

NO >> Replace the A/C auto amp.

2.CHECK CONTINUITY BETWEEN A/C AUTO AMP. AND BCM

- Turn the ignition switch OFF.
- Disconnect the A/C auto amp. connector.
- 3. Disconnect the BCM connector.
- 4. Check continuity between A/C auto amp. harness connector and BCM harness connector.

A/C au	to amp.	BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M51	34	M65 (WITHOUT I-KEY) M68 (WITH I-KEY)	27	Existed

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

A/C ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

${f 3.}$ CHECK THE CONTINUITY BETWEEN A/C AUTO AMP. AND GROUND

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

A/C auto amp. Connector Terminal		_	Continuity
			Continuity
M51	34	Ground	Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to <u>BCS-81, "Exploded View"</u> (WITH I-KEY) or <u>BCS-142, "Exploded View"</u> (WITHOUT I-KEY).

NO >> Repair the harnesses or connectors.

HAC

Α

В

C

D

Е

F

G

Н

Κ

L

M

Ν

0

BLOWER FAN ON SIGNAL

Component Function Check

INFOID:0000000007771005

1. CHECK BLOWER FAN ON SIGNAL

(E)With CONSULT

- 1. Turn the ignition switch ON.
- 2. Select the "FAN REQ SIG" in "DATA MONITOR"
- 3. Check the fan ON signal when the fan control switch is operated.

Monitor item	Con	Status	
FAN REQ SIG Fa	Fan control switch	OFF position	Off
TAN INLY SIG	Fan control switch	Except OFF position	On

Is inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-62</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000007771006

1. CHECK BLOWER FAN ON SIGNAL

- Turn the ignition switch ON.
- 2. Check output waveform between A/C auto amp. and ground with using the oscilloscope.

(+)		(–)			
A/C auto amp.			Condition	Output waveform	
Connector Terminal		_			
M51	35	Ground	Ignition switch ON Fan speed: Manual 1st	(V) 15 10 5 0 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	

Is inspection result normal?

YES >> GO TO 2.

NO >> Replace the A/C auto amp.

$2.\mathsf{CHECK}$ CONTINUITY BETWEEN A/C AUTO AMP. AND BCM

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

A/C au	ito amp.	ВСМ	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M51	35	M65 (WITHOUT I-KEY) M68 (WITH I-KEY)	28	Existed

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK CONTINUITY BETWEEN A/C AUTO AMP. AND GROUND

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

BLOWER FAN ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Connector Terminal Ground Not existed		A/C auto amp.			Continuity
M51 35 Ground Not existed	С	onnector	Terminal		Continuity
		M51	35	Ground	Not existed

<u>Is inspection result normal?</u>

YES >> Replace the BCM. Refer to <u>BCS-81, "Exploded View"</u> (WITH I-KEY) or <u>BCS-142, "Exploded View"</u> (WITHOUT I-KEY).

NO >> Repair the harnesses or connectors.

Α

В

D

С

Е

F

G

Н

HAC

J

K

L

M

Ν

0

POWER SUPPLY AND GROUND CIRCUIT

[AUTOMATIC AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT A/C AUTO AMP.

A/C AUTO AMP.: Diagnosis Procedure

INFOID:0000000007771007

1. CHECK FUSE

Check 10A fuses [Nos. 2, 13 and 16, located in the fuse block (J/B)].

NOTE:

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

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

2.CHECK A/C AUTO AMP. POWER SUPPLY CIRCUIT-1

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

(+)	(-)	Voltage		
A/C auto amp.			Ignition switch position		
Connector	Terminal	_	OFF	ACC	ON
M50	4	Ground	Battery voltage	Battery voltage	Battery voltage
IVIOU	5	Ground	Approx. 0 V	Approx. 0 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK A/C AUTO AMP. POWER SUPPLY CIRCUIT-2

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

(+)	(-)	Voltage		
A/C auto amp.			Ignition switch position		on
Connector	Terminal	_	OFF	ACC	ON
M50	9	Ground	Approx. 0 V	Approx. 0 V	Battery voltage

Is inspection result normal?

YES >> GO TO 4.

NO >> GO TO 5.

4. CHECK A/C AUTO AMP. CIRCUIT CONTINUITY

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

A/C au	to amp.	_	Continuity
Connector	Connector Terminal		Continuity
M50 16		Ground	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair the harnesses or connectors.

5. CHECK BLOWER MOTOR RELAY POWER SUPPLY

- 1. Turn the ignition switch OFF.
- Disconnect the blower motor relay from the fuse block (J/B). Refer to <u>PG-89</u>, "Fuse, Connector and Terminal Arrangement".

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

3. Turn the ignition switch ON.

4. Check voltage between the ground and the connector on the fuse block side where blower motor relay was installed. Refer to PG-87, "Description".

 (+)
 (-)
 Voltage (Approx.)

 Fuse block (J/B)
 —
 (Approx.)

 1
 Ground
 Battery voltage

Is inspection result normal?

YES >> GO TO 6.

NO >> Repair the power supply circuit. Refer to PG-6, "Wiring Diagram - BATTERY POWER SUPPLY -".

6. CHECK BLOWER MOTOR RELAY

Perform the blower motor component inspection. Refer to HAC-57, "Component Inspection".

Is inspection result normal?

YES >> Repair the harness or connector between blower motor relay and A/C auto amp.

NO >> Replace blower motor relay.

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): Diagnosis Procedure

1. CHECK FUSE AND FUSIBLE LINK

Check that the following fuse and fusible link are not blown.

Signal name	Fuse and fusible link No.
Rattony nawar supply	G
Battery power supply	8

Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect BCM connectors.
- Check voltage between BCM harness connector and ground.

(+)	(-)	Voltage (Approx.)	
В	СМ		(Approx.)	
Connector	Terminal	Ground		
M70	70	Glound	Battery voltage	
WI7 O	57		Dattery Voltage	

Is the measurement value normal?

YES >> GO TO 3.

Revision: 2011 November

NO >> Repair harness or connector.

3.CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

HAC

Н

Α

В

D

Е

F

Κ

L

Ν

0

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

В	CM		Continuity
Connector	Terminal	Ground	Continuity
M70	67		Existed

Does continuity exist?

YES >> INSPECTION END

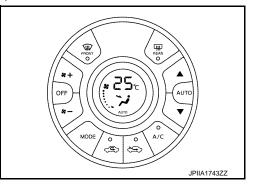
NO >> Repair harness or connector.

A/C AUTO AMP.

Description INFOID:0000000007771010

A/C AUTO AMP. (AIR CONDITIONER AUTOMATIC AMPLIFIER)

- The A/C auto amp. has a built-in microcomputer which processes information sent from various sensors needed for air conditioner operation.
- The air mix door motor, mode door motor, intake door motor, blower motor and the compressor are then controlled.
- The A/C auto amp. is unitized with control mechanism. Signal from various switches are directly entered into A/C auto amp.
- Self-diagnosis functions are also built into A/C auto amp. to provide quick check of malfunctions in the auto air conditioner system.



Component Function Check

1. CHECK OPERATION

- 1. Confirm that "AUTO" is indicated on the display by operating the AUTO switch.
- 2. Operate the temperature control switch. Check that the fan speed or discharge air changes (the discharge air temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and set temperature).

Does it operate normally?

YES >> INSPECTION END

NO >> Perform the diagnosis for the A/C auto amp. Refer to HAC-67, "Diagnosis Procedure".

Diagnosis Procedure

 ${f 1}$.CHECK A/C AUTO AMP. POWER SUPPLY CIRCUIT AND GROUND CIRCUIT

Check A/C auto amp. power supply circuit and ground circuit. Refer to HAC-64, "A/C AUTO AMP.: Diagnosis Procedure".

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace parts depending on the inspection results. INFOID:0000000007771011

INFOID:0000000007771012

HAC

Н

Α

В

D

Е

K

L

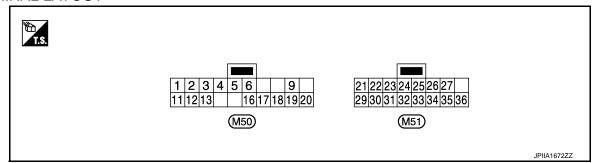
N

ECU DIAGNOSIS INFORMATION

A/C AUTO AMP.

Reference Value

TERMINAL LAYOUT



PHYSICAL VALUES

	Terminal No. (Wire color) Description			Condition	Value	
+	_	Signal name		Input/ Output	Condition	(Approx.)
2 (R)	Ground		amp. connecting on signal	Output	Ignition switch ON	5 V
3 (R)	Ground	Intake do	oor motor PBR pow-	Output	Ignition switch ON	5 V
4 (LG)	Ground	Battery p	power supply	_	Ignition switch OFF	Battery voltage
5 (O)	Ground	IGN pow	er supply	_	Ignition switch ON	Battery voltage
6 (R/W)	Ground	Sensor ground		_	Ignition switch ON	0 V
9 (Y)	Ground	IGN2 power supply		_	Ignition switch ON	Battery voltage
12	12 Ground FRE	Daniel EDE	Intake door motor drive signal		 Ignition switch ON Intake switch REC → FRE 	12 V
(L)		FRE		Output	 Ignition switch ON Intake switch FRE → REC 	0 V
13	Ground	Ground REC	Intake door motor		 Ignition switch ON Intake switch REC → FRE 	0 V
(G)	Ground		drive signal		 Ignition switch ON Intake switch FRE → REC 	12 V
16 (B)	Ground	Ground		_	Ignition switch ON	0 V
17 (BR)	Ground A/MIX drive 4 A/MIX drive 3 A/MIX drive 2 Air mix door motor drive signal Output			(V) 30		
18 (SB)		Air mix door motor	Output	 Ignition switch ON Right after the temperature	20	
19 (GR)		drive signal		control switch operation	0	
20 (P)		A/MIX drive 1				JPIIA1647GB

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Termin (Wire		Description			Condition	Value	А			
+	_	;	Signal name	Input/ Output	Condition	(Approx.)				
21 Ground		Engine coolant temperature		re Input	 Ignition switch ON Engine idling [Approximately 20°C (68°F)] 	(V) 6 4 2 0 200 ms PKID0590E	B C			
(BR)	Ground	signal		signal	• Ignition switch ON • Engine idling [Approximately 80°C (176°F)]	(V) 6 4 2 0 *** 200ms	E			
22 (V/W)	Ground	Ambient sensor signal		Input	_	0 – 4.8 V Output voltage varies with ambient temperature	G			
23 (O)	Ground	Intake sensor signal		Input	_	0 – 4.8 V Output voltage varies with intake temperature	Н			
24 (G)	Ground	In-vehicl	In-vehicle sensor signal		_	0 – 4.8 V Output voltage varies with in-vehi- cle temperature	HA			
25 (P)	Ground	Sunload	sensor signal	Input	_	0 – 4.8 V Output voltage varies with sun load	J			
26	Crownd	. Intake door motor PBR feed-	. Intake door motor PBR feed-	On Intake door motor PBR feed-	Cround Intake door motor PBR feed-	Intake door motor PBR feed-	lmmut	Ignition switch ON REC position	0.5 V	
(SB)	Ground	back sig	ick signal Input		Ignition switch ON FRE position	4.5 V	K			
29 (GR)		MODE drive 4				(M)	I			
30 (W)	0	round MODE drive 3 Mode door motor drive signal drive 2	Outerist	Ignition switch ON Right after MODE switch op-	(V) 30 20 10	L				
31 (Y)	Ground		drive signal	Output	eration	0 10 ms	M			
32 (V)		MODE drive 1				JPIIA1647GB	N			

0

A/C AUTO AMP.

[AUTOMATIC AIR CONDITIONING]

Termin (Wire		Description		Condition	Value
+	_	Signal name	Input/ Output	Condition	(Approx.)
34	Ground	A/C ON signal	Output	Ignition switch ONA/C switch: ON	(V) 3 2 1 0 1 1 1 2 JIA1036J
(Y/G)		7		Ignition switch ONA/C switch: OFF	(V) 15 10 5 0 4 ms SJIA1425J
35 (G/W)	Ground	Fan ON signal	Output	Ignition switch ON Fan speed: 1st speed (manual)	(V) 15 10 5 0 + 4 ms SJIA1425J
36 (GR/B)	Ground	Blower motor control signal	Output	Ignition switch ON Fan speed: 1st speed (manual)	(V) 15 10 5 0 200 μs ZJJA0863J

INFOID:0000000007771014

Α

В

C

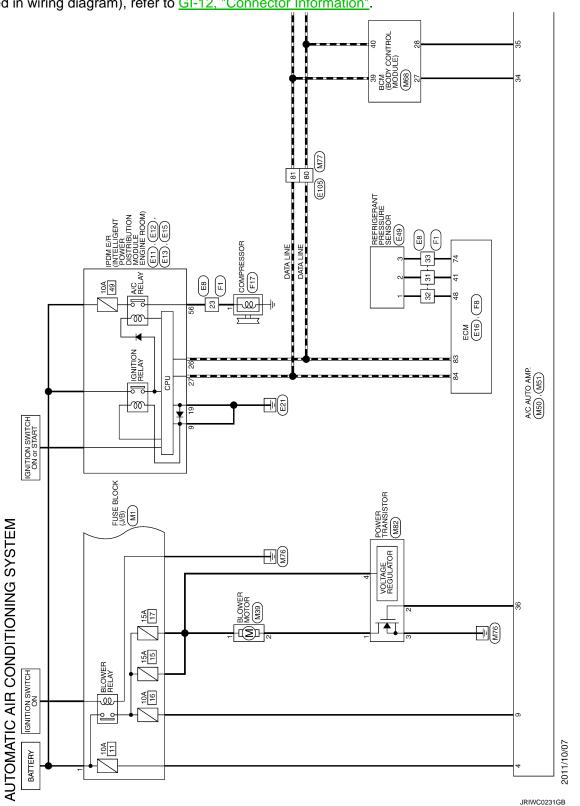
D

Е

F

Wiring Diagram - AUTOMATIC AIR CONDITIONING SYSTEM -

For connector terminal arrangements, harness layouts, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".



Н

J

K

L

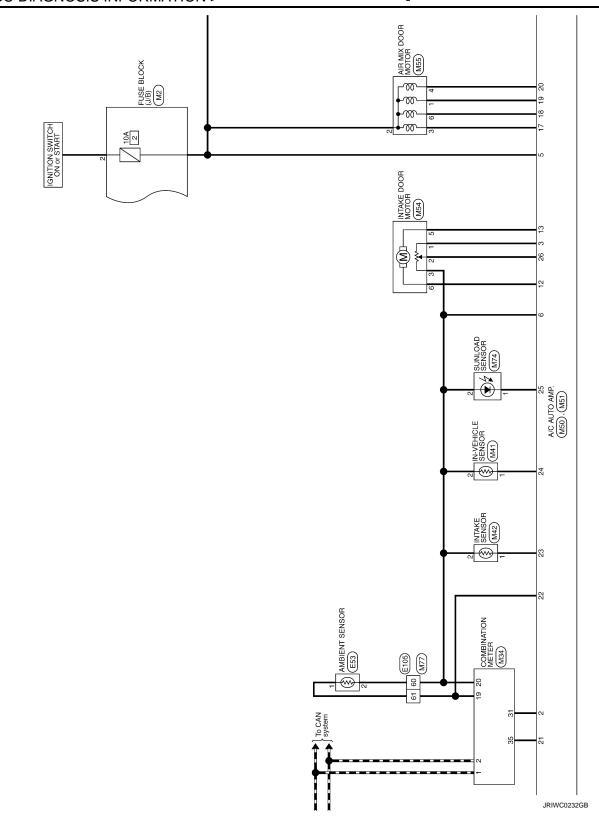
M

N

0

Р

2012 CUBE



[AUTOMATIC AIR CONDITIONING]

А

В

С

D

Е

F

G

Н

HAC

J

Κ

L

 $[\hspace{-0.05cm} \backslash \hspace{-0.05cm}]$

Ν

0

Р

[AUTOMATIC AIR CONDITIONING]

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Reference Value

VALUES ON THE DIAGNOSIS TOOL

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
FR WIPER HI	Other than front wiper switch HI	Off
I IX WIF LIX I II	Front wiper switch HI	On
FR WIPER LOW	Other than front wiper switch LO	Off
TR WII ER LOW	Front wiper switch LO	On
FR WASHER SW	Front washer switch OFF	Off
I IX WASHEK SW	Front washer switch ON	On
FR WIPER INT	Other than front wiper switch INT	Off
I IV VVII LIV IIVI	Front wiper switch INT	On
FR WIPER STOP	Front wiper is not in STOP position	Off
IN WIFER STOP	Front wiper is in STOP position	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	Wiper intermittent dial position
RR WIPER ON	Other than rear wiper switch ON	Off
KK WIFEK ON	Rear wiper switch ON	On
RR WIPER INT	Other than rear wiper switch INT	Off
NN WIFEN IIVI	Rear wiper switch INT	On
RR WASHER SW	Rear washer switch OFF	Off
KK WASHER SW	Rear washer switch ON	On
RR WIPER STOP	Rear wiper is in STOP position	Off
RR WIPER STOP	Rear wiper is not in STOP position	On
TURN SIGNAL R	Other than turn signal switch RH	Off
TORN SIGNAL K	Turn signal switch RH	On
TURN SIGNAL L	Other than turn signal switch LH	Off
TURN SIGNAL L	Turn signal switch LH	On
TAIL LAMD CW	Other than lighting switch 1ST and 2ND	Off
TAIL LAMP SW	Lighting switch 1ST or 2ND	On
HI BEAM SW	Other than lighting switch HI	Off
UI DEAIN 200	Lighting switch HI	On
HEAD LAMP SW 1	Other than lighting switch 2ND	Off
HEAD LAWP SW 1	Lighting switch 2ND	On
	Other than lighting switch 2ND	Off
HEAD LAMP SW 2	Lighting switch 2ND	On
DA CCINIC CIVI	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
ALITO LICUT CW	Other than lighting switch AUTO	Off
AUTO LIGHT SW	Lighting switch AUTO	On

< ECU DIAGNOSIS INFORMATION >

[AUTÓMATIC AIR CONDITIONING]

Monitor Item	Condition	Value/Status
FR FOG SW	Front fog lamp switch OFF	Off
1 K 1 OG 3W	Front fog lamp switch ON	On
DOOR SW-DR	Driver door closed	Off
DOOK SW-DK	Driver door opened	On
DOOR SW-AS	Passenger door closed	Off
DOOK SW-AS	Passenger door opened	On
DOOR SW-RR	Rear RH door closed	Off
DOOR SW-RR	Rear RH door opened	On
DOOD CW DI	Rear LH door closed	
DOOR SW-RL	Rear LH door opened	On
DOOD OW DV	Back door closed	Off
DOOR SW-BK	Back door opened	On
ODL LOOK OW	Other than power door lock switch LOCK	Off
CDL LOCK SW	Power door lock switch LOCK	On
	Other than power door lock switch UNLOCK	Off
CDL UNLOCK SW	Power door lock switch UNLOCK	On
(F) (O) (I I C) (I)	Other than driver door key cylinder LOCK position	Off
KEY CYL LK-SW	Driver door key cylinder LOCK position	On
(E) (O) (I III O) (I	Other than driver door key cylinder UNLOCK position	Off
KEY CYL UN-SW	Driver door key cylinder UNLOCK position	On
	Hazard switch is OFF	Off
HAZARD SW	Hazard switch is ON	On
	Rear window defogger switch OFF	Off
REAR DEF SW	Rear window defogger switch ON	On
TR/BD OPEN SW	NOTE: The item is indicated, but not monitored.	Off
TRNK/HAT MNTR	NOTE: The item is indicated, but not monitored.	Off
54N 0N 010	Blower fan OFF	Off
FAN ON SIG	Blower fan ON	On
	Air conditioner OFF (A/C switch indicator OFF)	Off
AIR COND SW	Air conditioner ON (A/C switch indicator ON)	On
DI/E I OOI/	LOCK button of the key is not pressed	Off
RKE-LOCK	LOCK button of the key is pressed	On
2/2 / 11/2 20/4	UNLOCK button of the key is not pressed	Off
RKE-UNLOCK	UNLOCK button of the key is pressed	On
DIVE TO (DD	BACK DOOR OPEN button of the key is not pressed	Off
RKE-TR/BD	BACK DOOR OPEN button of the key is pressed	On
DIVE BANKO	PANIC button of the key is not pressed	Off
RKE-PANIC	PANIC button of the key is pressed	On
OVE MODE OUG	LOCK/UNLOCK button of the key is not pressed and held simultaneously	Off
RKE-MODE CHG	LOCK/UNLOCK button of the key is pressed and held simultaneously	On
	Bright outside of the vehicle	Close to 5 V
OPTI SEN (DTCT)	Dark outside of the vehicle	Close to 0 V

Revision: 2011 November HAC-75 2012 CUBE

Α

В

D

С

Е

F

G

Н

HAC

K

L

M

Ν

0

Р

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
ODTI OEN /FILT)	Bright outside of the vehicle (Lighting switch AUTO)	Close to 5 V
OPTI SEN (FILT)	Dark outside of the vehicle (Lighting switch AUTO)	Close to 1.50 V
OPTICAL SENSOR	NOTE: The item is indicated, but not monitored.	Off
RAIN SENSOR	NOTE: The item is indicated, but not monitored.	Off
REQ SW -DR	Driver door request switch is not pressed	Off
KEQ SW -DK	Driver door request switch is pressed	On
REQ SW -AS	Passenger door request switch is not pressed	Off
NEQ 3W -A3	Passenger door request switch is pressed	On
REQ SW -RR	NOTE: The item is indicated, but not monitored.	Off
REQ SW -RL	NOTE: The item is indicated, but not monitored.	Off
DEO SW. BD/TD	Back door request switch is not pressed	Off
REQ SW -BD/TR	Back door request switch is pressed	On
DIJOH OW	Push-button ignition switch (push switch) is not pressed	Off
PUSH SW	Push-button ignition switch (push switch) is pressed	On
DI LICIT C/W	The clutch pedal is not depressed.	Off
CLUCH SW	The clutch pedal is depressed	On
DAKE CWA	The brake pedal is not depressed	Off
BRAKE SW 1	The brake pedal is depressed	On
	The brake pedal is depressed when No. 9 fuse is blown	Off
BRAKE SW 2	The brake pedal is not depressed when No. 9 fuse is blown, or No. 9 fuse is normal	On
DETE (CANCL OVA)	Selector lever in P position	Off
DETE/CANCL SW	Selector lever in any position other than P	On
DET DAI/ALOW	Selector lever in any position other than P and N	Off
SFT PN/N SW	Selector lever in P or N position	On
S/L -LOCK	NOTE: The item is indicated, but not monitored.	Off
S/L -UNLOCK	NOTE: The item is indicated, but not monitored.	Off
S/L RELAY-F/B	NOTE: The item is indicated, but not monitored.	Off
INILIZ OFN. DD	Driver door is locked	Off
JNLK SEN -DR	Driver door is unlocked	On
	Push-button ignition switch (push-switch) is not pressed	Off
PUSH SW -IPDM	Push-button ignition switch (push-switch) is pressed	On
ON DIV4 - E/D	Ignition switch in OFF or ACC position	Off
GN RLY1 -F/B	Ignition switch in ON position	On
NETE 014/ 12211	Selector lever in any position other than P	Off
DETE SW -IPDM	Selector lever in P position	On
	Selector lever in any position other than P and N	Off
SFT PN -IPDM	Selector lever in P or N position	On
	Selector lever in any position other than P	Off
SFT P -MET	Selector lever in P position	On

< ECU DIAGNOSIS INFORMATION >

[AUTÓMATIC AIR CONDITIONING]

Monitor Item	Condition	Value/Status
SFT N -MET	Selector lever in any position other than N	Off
SFI IN -IVIET	Selector lever in N position	On
	Engine stopped	Stop
ENGINE STATE	While the engine stalls	Stall
ENGINE STATE	At engine cranking	Crank
	Engine running	Run
S/L LOCK-IPDM	NOTE: The item is indicated, but not monitored.	Off
S/L UNLK-IPDM	NOTE: The item is indicated, but not monitored.	Off
S/L RELAY-REQ	NOTE: The item is indicated, but not monitored.	Off
VEH SPEED 1	While driving	Equivalent to speed- ometer reading
VEH SPEED 2	While driving	Equivalent to speed ometer reading
	Driver door is locked	LOCK
DOOR STAT-DR	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door is unlocked	UNLOCK
	Passenger door is locked	LOCK
DOOR STAT-AS	Wait with selective UNLOCK operation (5 seconds)	READY
	Passenger door is unlocked	UNLOCK
ID OK FLAG	Driver side door is open after ignition switch is turned OFF (Selector lever is in the P position except for M/T models)	Reset
	Ignition switch ON	Set
DDMT ENC OTDT	The engine start is prohibited	Reset
PRMT ENG STRT	The engine start is permitted	Set
PRMT RKE STRT	NOTE: The item is indicated, but not monitored.	Reset
RKE OPE COUN1	During the operation of the key	Operation frequency of the key
RKE OPE COUN2	NOTE: The item is indicated, but not monitored.	_
CONFRMIDALL	The key ID that the key slot receives is not recognized by any key ID registered to BCM.	Yet
CONFRM ID ALL	The key ID that the key slot receives is recognized by any key ID registered to BCM.	Done
CONFIDM ID4	The key ID that the key slot receives is not recognized by the fourth key ID registered to BCM.	Yet
CONFIRM ID4	The key ID that the key slot receives is recognized by the fourth key ID registered to BCM.	Done
	The key ID that the key slot receives is not recognized by the third key ID registered to BCM.	Yet
CONFIRM ID3	The key ID that the key slot receives is recognized by the third key ID registered to BCM.	Done
CONEIDM ID2	The key ID that the key slot receives is not recognized by the second key ID registered to BCM.	Yet
CONFIRM ID2	The key ID that the key slot receives is recognized by the second key ID registered to BCM.	Done

Revision: 2011 November HAC-77 2012 CUBE

Α

В

С

D

Е

F

G

Н

HAC

.

Κ

L

M

Ν

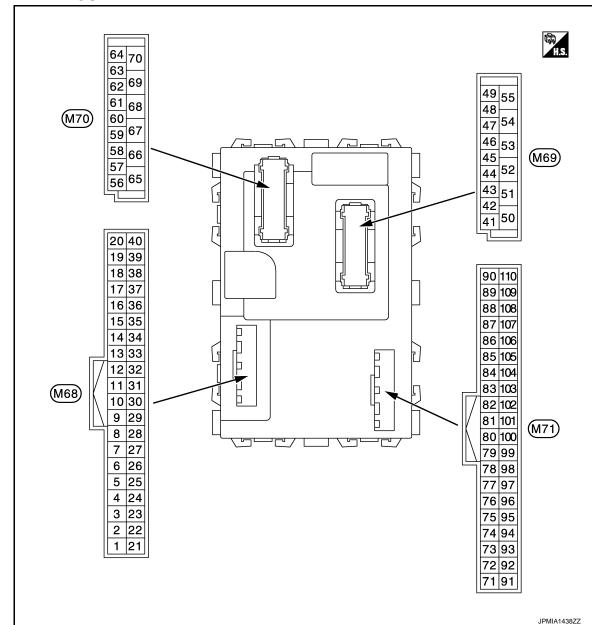
0

Р

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
CONFIRM ID1	The key ID that the key slot receives is not recognized by the first key ID registered to BCM.	Yet
CONFIRMIDI	The key ID that the key slot receives is recognized by the first key ID registered to BCM.	Done
NOT REGISTERED	BCM detects registered key ID, or BCM does not detect key ID.	ID OK
NOT REGISTERED	BCM detects non-registration key ID.	ID NG
TP 4	The ID of fourth key is not registered to BCM	Yet
1 4	The ID of fourth key is registered to BCM	Done
TP 3	The ID of third key is not registered to BCM	Yet
1173	The ID of third key is registered to BCM	Done
TD 0	The ID of second key is not registered to BCM	Yet
TP 2	The ID of second key is registered to BCM	Done
TD /	The ID of first key is not registered to BCM	Yet
TP 1	The ID of first key is registered to BCM	Done
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of from LH tire
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of from RH tire
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rea
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of real
ID DECOT EL 4	ID of front LH tire transmitter is registered	Done
ID REGST FL1	ID of front LH tire transmitter is not registered	Yet
ID DECOT ED4	ID of front RH tire transmitter is registered	Done
ID REGST FR1	ID of front RH tire transmitter is not registered	Yet
ID DECCT DD4	ID of rear RH tire transmitter is registered	Done
ID REGST RR1	ID of rear RH tire transmitter is not registered	Yet
ID DECCE DI 4	ID of rear LH tire transmitter is registered	Done
ID REGST RL1	ID of rear LH tire transmitter is not registered	Yet
MAADAIINIO LARAD	Tire pressure indicator OFF	Off
WARNING LAMP	Tire pressure indicator ON	On
DI 1775 D	Tire pressure warning alarm is not sounding	Off
BUZZER	Tire pressure warning alarm is sounding	On

TERMINAL LAYOUT



NOTE:

Connector color

M68, M70: Black

• M69, M71: White

PHYSICAL VALUES

В

Α

D

С

D

Е

F

G

Н

HAC

J

K

L

M

Ν

0

Р

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
					All switch OFF	0 V
					Turn signal switch RH	
					Lighting switch HI	(V) 15
2 (BR/W)	Ground	Combination switch INPUT 5	Input	Combination switch (Wiper intermit-	Lighting switch 1ST	10 5 0 •••10ms 1.0 V
				tent dial 4)	Lighting switch 2ND	(V) 15 10 5 0 ++10 ms JPMIA0342JP 2.0 V
					All switch OFF	0 V
					Turn signal switch LH	
			Input	Combination switch (Wiper intermit- tent dial 4)	Lighting switch PASS	(V) 15
3 (GR)	Ground	Combination switch INPUT 4			Lighting switch 2ND	PKIB4958J
, ,					Front fog lamp switch ON	(V) 15 10 5 0 ++10ms PKIB4956J
					All :: 1 055	0.8 V
					All switch OFF	0 V
					Front wiper switch LO	(V) 15 10 5
_				Combination	Front wiper switch MIST	
4 (L/Y)	Ground	Combination switch INPUT 3	Input	switch (Wiper intermit-	Front wiper switch INT	
(L/Y)		INPUT 3		tent dial 4)	Lighting switch AUTO	PKIB4958J

< ECU DIAGNOSIS INFORMATION >

Terminal No. Description (Wire color)			0		Value	
+ (vvire	- COIOF)	Signal name	Input/ Output		Condition	(Approx.)
					All switch OFF (Wiper intermittent dial 4) Front washer switch (Wiper intermittent dial 4) Rear washer ON	0 V
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	(Wiper intermittent dial 4) Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	10 5 0 PKIB4958J
(0)					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5 0 **10ms PKIB4956J 0.8 V
					All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4) Rear wiper switch INT (Wiper intermittent dial 4)	(V) 15 10 5 0
					Wiper intermittent dial 3 (All switch OFF)	→ +10ms PKIB4958J
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	(V) 15 10 5 0
					,	PKIB4952J 1.9 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	(V) 15 10 5 0
						PKIB4956J

	nal No.	Description	Description			Value
+ (Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylin- der switch	NEUTRAL position	(V) ₁₅ 10 5 0 + 10ms JPMIA0587GB 8.0 - 8.5 V
					UNLOCK position	0 V
8	Ground	Door key cylinder	Input	Door key cylin-	NEUTRAL position	12 V
(W/B)	Ground	switch LOCK	iliput	der switch	LOCK position	0 V
9	Ground	Stop lamp switch 1	Input	Stop lamp	OFF (Brake pedal is not depressed)	0 V
(R)	Ground	Stop lamp switch i	прис	switch	ON (Brake pedal is depressed)	Battery voltage
12 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms 10 ms 1.0 - 1.5 V
					LOCK position	0 V
13 (BR)	Ground	Door lock and unlock switch UNLOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms 10 ms JPMIA0012GB
					UNLOCK position	0 V
14	Ground	Optical sensor	Input	Ignition switch	When bright outside of the vehicle	Close to 5 V
(L/G)	Oround	Optical serisor	прис	ON	When dark outside of the vehicle	Close to 0 V
15 (W/L)	Ground	Rear window defog- ger switch	Input	Rear window defogger switch	Not pressed	(V) 15 10 5 0 10 ms 10 ms 1.0 - 1.5 V
					Pressed	0 V
17	Ground	Optical sensor pow-	Output	Ignition switch	OFF, ACC	0 V
(R/G)	Ciodila	er supply	Carpat	-gindon switch	ON	5 V

< ECU DIAGNOSIS INFORMATION >

[AUTÓMATIC AIR CONDITIONING]

	nal No.	Description				Value	A
+	color)	Signal name	Input/ Output	Condition		(Approx.)	^
18 (V)	Ground	Sensor ground	Input	Ignition switch O	N	0 V	В
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Intelligent Key: Intelligent Key battery is re- moved	Brake pedal: Depressed NOTE: Waveform varies each time when brake pedal is depressed	(V) 15 10 5 0 → +40ms JMKIA6232JP	C D
					Brake pedal: Not de- pressed	12 V	Е
					ON	0 V	-
23		Security indicator		Security indica-	Blinking (Ignition switch	(V) ₁₅ 10 5	F
(R/Y)	Ground	lamp	Output	tor	OFF)	→ 1s JPMIA0590GB 12.0 V	G H
					OFF	Battery voltage	
24* ¹ (SB)	Ground	Dongle link	Input/ Output	Ignition switch O	FF	5 V	HAC
					Brake pedal: Depressed NOTE: Waveform varies each	(V) 15 10 5	J
25 (LG)	Ground	NATS antenna amp.	Input/ Output	During waiting	time when brake pedal is depressed	→ 4-40ms JMKIA6233JP	K
					Brake pedal: Not depressed	12 V	L
26* ²	Ground	Thermo control amp.	Input	Ignition switch O	N	0 V	
(GR)	2.34.14	The control amp.	put	Evaporator is ex	tremely low temperature	12 V	M

Ν

0

Ρ

	nal No.	Description				Value			
+ (Wire	color)	Signal name	Input/ Output		Condition	(Approx.)			
		A/C ON (Automatic A/C)		A/C	OFF (A/C switch indicator: OFF)	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V			
27 (O)	Ground		Input		ON (A/C switch indicator: ON)	0 V			
(0)		A/C switch (Manual A/C)	при	A/C switch	OFF	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V			
					ON	0 V			
				Fan switch	Blower fan switch OFF	0 V			
		Blower fan switch (Automatic A/C)	- Input -		Blower fan switch ON	(V) 15 10 5 0 ++10ms PKIB4960J			
28 (G/W)	Ground	Blower fan switch (Manual A/C)		Input	Input	Input	Input -	Fan switch	Blower fan switch OFF Blower fan switch ON
29					OFF	12 V			
(L/W)	Ground	Hazard switch	Input	Hazard switch	ON	0 V			
31 (G/B)	Ground	Front door lock assembly driver side (Unlock sensor)	Input	Driver door	LOCK status (Unlock sensor switch OFF)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V			
					UNLOCK status (Unlock sensor switch ON)	0 V			

< ECU DIAGNOSIS INFORMATION >

[AUTÓMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description			0 - 197 -	Value	A
+	-	Signal name	Input/ Output	Condition		(Approx.)	7.
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	B C
32 (LG)	Ground	Combination switch OUTPUT 5	Output	Combination switch	Front fog lamp switch ON (Wiper intermittent dial 4)	(V) <u>*</u>	_
					Rear wiper switch ON (Wiper intermittent dial 4)	15 10 5	Е
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	0 → +10ms	F
					Wiper intermittent dial 6Wiper intermittent dial 7	PKIB4956J 1.0 V	G
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 → 10ms PKIB4960J	HAC
33 (Y/L)	Ground	Combination switch OUTPUT 4	Output	Combination switch	Lighting switch 1ST (Wiper intermittent dial 4)	7.0 - 8.0 V	J
(1/L)		0017014		SWILCIT	Lighting switch AUTO (Wiper intermittent dial 4)	(V) 15 10	K
					Rear wiper switch INT (Wiper intermittent dial 4)	0	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1	PKIB4958J	L
					Wiper intermittent dial 5Wiper intermittent dial 6	1.Z V	M

Ν

0

Р

	Terminal No. (Wire color)		Description			Value	
+ (Wire	color)	Signal name	Input/ Output		Condition	(Approx.)	
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4)		
					Lighting switch HI (Wiper intermittent dial 4)	(V) 15 10	
					Rear washer switch ON (Wiper intermittent dial 4)	5	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	PKIB4958J 1.2 V	
25		Combination switch OUTPUT 2	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	
35 (R/L)	Ground				Lighting switch 2ND	(V) 15	
					Lighting switch PASS		
					Front wiper switch INT	10 5 0	
					Front wiper switch HI	PKIB4958J	
36		Combination switch		Combination switch	All switch OFF	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	
(L/O)	Ground	OUTPUT 1	Output	(Wiper intermit- tent dial 4)	Turn signal switch RH	40	
				tent dial 4)	Turn signal switch LH	(V) 15 10	
					Front wiper switch LO (Front wiper switch MIST)	5 0	
					Front washer switch ON	+10ms PKIB4958J	
						1.2 V	

< ECU DIAGNOSIS INFORMATION >

[AUTÓMATIC AIR CONDITIONING]

	nal No. color)	Description				Value
+	-	Signal name	Input/ Output		Condition	(Approx.)
37 (G/O)	Ground	Selector lever P position switch	Input	Selector lever	P position Any position other than P	0 V 12 V
				Ignition switch OFF (Remote keyless entry communication)	Waiting When operating either button on Intelligent Key	12 V (V) 15 10 5 0 200 ms JMMIA0572GB
38 (G/Y)	Ground	Receiver communication	Input/ Output	Ignition switch ON (TPMS communication)	Waiting	(V) 15 10 5 0 100 ms JMMIA0573GB
						When receiving signal from tire pressure sensor
39 (L)	Ground	CAN-H	Input/ Output		_	_
40 (P)	Ground	CAN-L	Input/ Output		_	_
43 (W)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 9.5 - 10.0 V
					ON (When back door opened)	0 V
44		Rear wiper stop po-		Ignition switch	Rear wiper stop position	12 V
(LG)	Ground	sition	Input	ON	Any position other than rear wiper stop position	0 V

Revision: 2011 November HAC-87 2012 CUBE

P

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	Value (Approx.)
45 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed) ON (When passenger door opened)	(V) 15 10 5 0 10ms PKIB4960J 7.0 - 8.0 V
46 (GR/L)	Ground	Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
					ON (When rear RH door opened)	0 V
47 (BR/Y)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) 15 10 5 0 ** 10ms PKIB4960J 7.0 - 8.0 V
					ON (When driver door opened)	0 V
48 (W/G)	Ground	Rear LH door switch	Input	Rear LH door switch	OFF (When rear LH door closed)	(V) 15 10 5 0 → 10ms PKIB4960J 7.0 - 8.0 V
					ON (When rear door LH opened)	0 V
50 (R/W)	Ground	Back door lock actuator relay control	Output	Back door	LOCK (Actuator is activated) Other than LOCK (Actua-	0 V
					tor is not activated)	Battery voltage
51 (W)	Ground	Back door request switch	Input	Back door re- quest switch	ON (Pressed)	0 V
		OWILOIT		quost switch	OFF (Not pressed) OFF (Stopped)	12 V 0 V
54 (LG)	Ground	Rear wiper	Output	Rear wiper	OFF (Stopped) ON (Activated)	12 V

< ECU DIAGNOSIS INFORMATION >

Terminal No. Description (Wire color)			Condition		Value	
+ (VVire	- COIOF)	Signal name	Input/ Output		Condition	(Approx.)
55	Ground	Rear door UNLOCK	Output	Rear door	UNLOCK (Actuator is activated)	12 V
(G)	Siddild	Toda door official	Carpar		Other then UNLOCK (Actuator is not activated)	0 V
					p battery saver is activated. room lamp power supply)	0 V
56 (L)	Ground	Interior room lamp power supply	Output	vated.	p battery saver is not acti- rior room lamp power sup-	12 V
57 (Y)	Ground	Battery power sup- ply	Input	Ignition switch Ol	FF	Battery voltage
59	0	Passenger door UN-	0 1 1	D	UNLOCK (Actuator is activated)	12 V
(G)	Ground	LOCK	Output	Passenger door	Other then UNLOCK (Actuator is not activated)	0 V
					Turn signal switch OFF	0 V
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0 PKIC6370E 6.0 V
					Turn signal switch OFF	0 V
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch RH	(V) 15 10 5 0 1s PKIC6370E
63		Interior room lamp		Interior room	OFF	6.0 V
(BR)	Ground	control signal	Output	Interior room lamp	ON	0 V
65		All 1	•	All I	LOCK (Actuator is activated)	12 V
(V)	Ground	All doors LOCK	Output	All doors	Other then LOCK (Actuator is not activated)	0 V
66		Driver door UN-	0 1 1	Division	UNLOCK (Actuator is activated)	12 V
(L/B)	Ground	LOCK	Output	Other then UNLOCK (Actuator is not activated)		0 V
67 (B)	Ground	Ground	Output	Ignition switch Ol	N	0 V
68 (L)	Ground	P/W power supply (IGN)	Output	Ignition switch Ol	N	12 V
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch O	FF	12 V

< ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description			Condition	Value
+	-	Signal name	Input/ Output	Condition		(Approx.)
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch OFF		Battery voltage
72*2	Ground	A/C indicator	Output	A/C indicator	OFF	12 V
(SB)			•		ON	0 V
75 (CD)	Ground	Driver door request	Input	Driver door re-	ON (Pressed)	0 V
(SB)		switch	•	quest switch	OFF (Not pressed)	12 V
76	Ground	Push-button ignition	Input	Push-button ig- nition switch	Pressed	0 V
(L/O)	Orodria	switch (push switch)	input	(push switch)	Not pressed	12 V
78	Ground	Driver door antenna	Output	When the driver door request switch is operat- ed with ignition switch ON	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 JMKIA5954GB
(LG)		(+)			When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms
79	0	Driver door antenna	Outside	When the driver door request	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 500 ms JMKIA5954GB
(V)	Ground	(-)	Output	switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 JMKIA5955GI

< ECU DIAGNOSIS INFORMATION >

Terminal No. Description (Wire color)				Value	А																			
+ (vvire	- COIOF)	Signal name	Input/ Output		Condition	(Approx.)	A																	
80	0	Passenger door an-	0.4-4	When the passenger door re-	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 500 ms JMKIA5954GB	B C D																	
(BR/Y)	Ground	tenna (+)	Output	quest switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 500 ms JMKIA5955GB	E																	
81	Canada	Passenger door an-	Output	When the passenger door re-	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0	G H																	
(L/Y)	Ground	tenna (-)			Guipui	Output	Output	Cuput	Juput	Сири	Сагра				ut quest switch is operated with ignition switch ON	operated with ignition switch	operated with ignition switch	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 500 ms JMKIA5955GB	J K L				
82	Ground	Back door antenna	Output	When the back door request	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0	M																	
(W/B)	Giodrid	(+)	Output	switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 JMKIA5955GB	O P																	

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
83	Ground	Back door antenna (-	Output	When the back door request	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 JMKIA5954GB
(B/W)	Glound)	Guiput	switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB
84	Ground	Room antenna (+)	Outout	Output Ignition switch ON	When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 JMKIA5951GB
(Y/G)	Godie	(Instrument center)	Guput		When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 1 s JMKIA3839GB
85	Ground	Room antenna (-)	Output	Ignition switch	When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 JMKIA5951GB
(Y/L)	Siound	(Instrument center)	Cuput	ON	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 JMKIA3839GB

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description			Value		Value		Value		
(Wire	color)	Signal name	Input/ Output		Condition	value (Approx.)	А				
					When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 JMKIA5951GB	В				
86 (P)	Ground	Luggage room antenna (+)	Output	Ignition switch ON	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0	D E				
						JMKIA3839GB (V) 15	G				
87		Luggage room an-		Ignition switch	When Intelligent Key is not in the antenna detection area	15 10 5 0 1 s JMKIA5951GB	HAC				
(L)	Ground	tenna (-)	Output	ON When Intellige	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 JMKIA3839GB	J K				
				Push-button ig-	ON	12 V	_				
90 (W/L)	Ground	Push-button ignition switch illumination	Output	nition switch illu- mination	OFF	0 V	M				
91	Ground	ACC/ON indicator	Output	Ignition switch	OFF	Battery voltage					
(Y)		lamp			ACC or ON OFF	0.5 V 0 V	Ν				
92 (BR/R)	Ground	Push-button ignition switch illumination ground	Output	Tail lamp	ON	NOTE: When the illumination brightening/dimming level is in the neutral position (V) 15 10 5 0 JPMIA1554GB 6.0 - 7.0 V	O				

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

	nal No.	Description				Value
+	color)	Signal name	Input/ Output		Condition	(Approx.)
93	Ground	Intelligent Key warn-	Output	Intelligent Key	Sounding	0 V
(GR/W)	Ground	ing buzzer	Output	warning buzzer	Not sounding	12 V
96	Ground	ACC relay control	Output	Ignition switch	OFF	0 V
(BR/W)	Ground	ACC relay control	Output	ignition switch	ACC or ON	12 V
97	Ground	Starter relay control	Output	Ignition switch	When selector lever is in P or N position	Battery voltage
(L/R)	Ground	Starter relay control	Output	ON	When selector lever is not in P or N position	0 V
98	Ground	Ignition relay (IPDM	Output	Ignition switch	OFF or ACC	12 V
(BR)	Ground	E/R) control	Output	igilition switch	ON	0 V
99	Ground	Ignition relay control	Output	Ignition switch	OFF or ACC	0 V
(W/R)	Ground	ignition relay control	Output	ignition switch	ON	12 V
100	Ground	Passenger door re-	Input	Passenger door	ON (Pressed)	0 V
(G)	Ground	quest switch	iriput	request switch	OFF (Not pressed)	12 V
102	Ground	Selector lever P/N	Input	Selector lever	P or N position	Battery voltage
(G)	Orodria	position	mpat	ocicciói icvei	Except P and N positions	0 V
					A/C mode defroster ON position	0 V
103* ² (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	Other than A/C mode de- froster ON position	(V) 15 10 5 0 FINAL PRINCIPLE OF THE PRI
104 (Y/R)	Ground	CVT shift selector (detention switch) power supply	Output	Ignition switch ON		12 V
105 (B/O)	Ground	Stop lamp switch 2	Input	Ignition switch O	FF	Battery voltage
106	Ground	Blower fan motor re-	Output	Ignition switch	OFF or ACC	0 V
(Y/B)	Siodila	lay control	Jaipai	ig. adoir ownor	ON	12 V

^{*1:} For Canada

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): Wiring Di-

^{*2:} Manual air conditioner

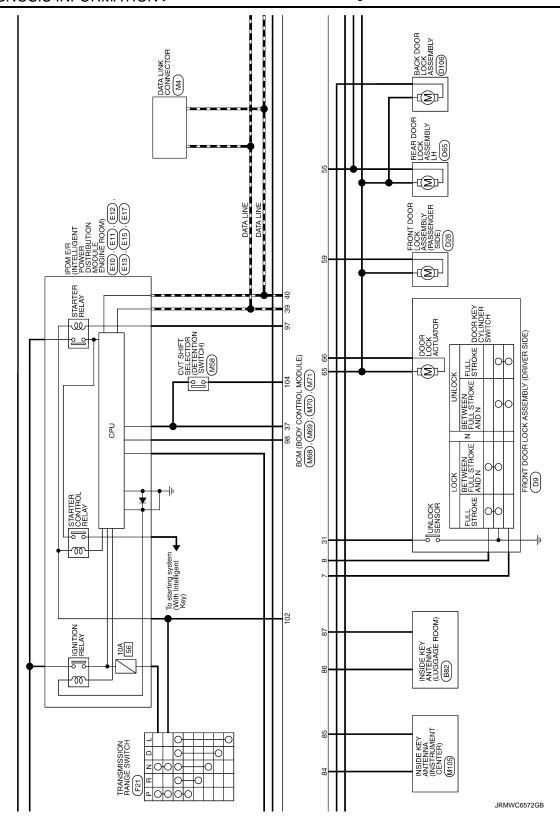
INFOID:0000000007951197

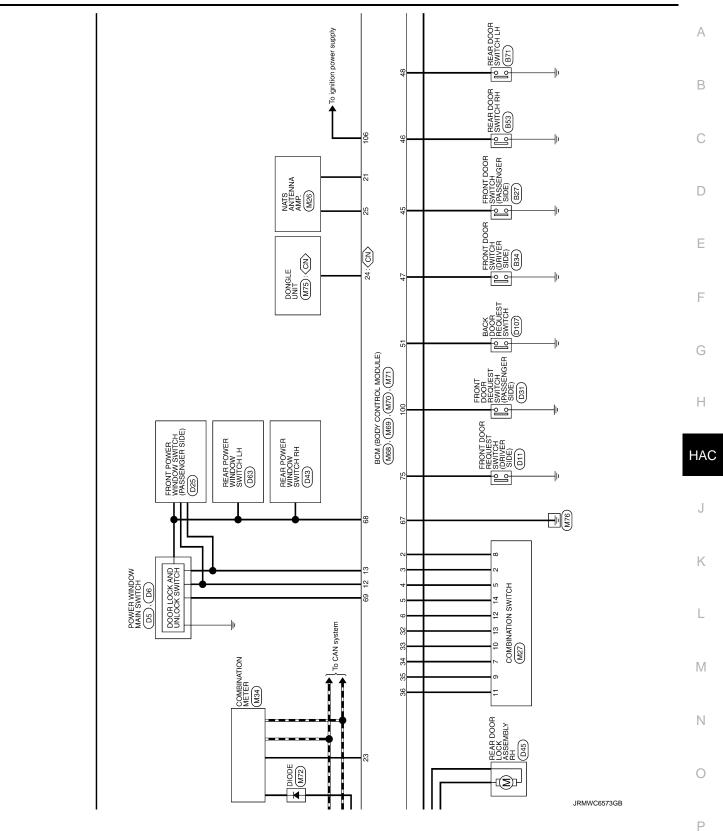
JRMWC6571GB

agram - BCM -

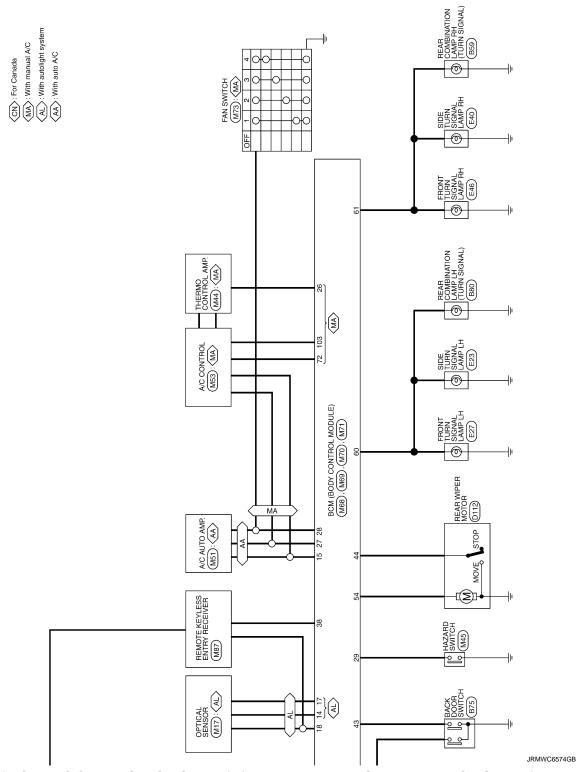
For connector terminal arrangements, harness layouts, and alphabets in a (option abbreviation; if not

Α described in wiring diagram), refer to GI-12, "Connector Information". В PUSH SWITCH OUTSIDE KEY ANTENNA (BACK DOOR) (D108) PUSH-BUTTON IGNITION SWITCH (M101) FUSE BLOCK (J/B) (M1) C ACC / ON 10A D Е \bigcirc F ACCESSORY RELAY OUTSIDE KEY ANTENNA (DRIVER SIDE) (D12) w BCM (BODY CONTROL MODULE) (M68), (M69), (M70), (M71) Н ₽ 10 ROOM LAMP HAC BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY) So-OFF DOOR J 10A 8 MAP LAMP [4] K 80 ŏ, To shift lock system M 40t ĕ. Ν 0 LUGGAGE ROOM LAMP (B11) 2011/10/07 40A G BATTERY ĕ, Р





INFOID:0000000007951198



BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): Fail-safe

FAIL-SAFE CONTROL BY DTC

BCM performs fail-safe control when any DTC are detected.

[AUTOMATIC AIR CONDITIONING]

Display contents of CONSULT	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI-SCANNING	Inhibit engine cranking	Ignition switch $ON \rightarrow OFF$
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC
B2198: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2608: STARTER RELAY	Inhibit engine cranking	 500 ms after the following signal communication status becomes consistent Starter relay control signal Starter relay status signal (CAN)
B260F: ENG STATE SIG LOST	Inhibit engine cranking	When any of the following conditions are fulfilled • Power position changes to ACC • Receives engine status signal (CAN)
B26F1: IGN RELAY OFF	Inhibit engine cranking	When the following conditions are fulfilled Ignition switch ON signal (CAN: Transmitted from BCM): ON Ignition switch ON signal (CAN: Transmitted from IPDM E/R): ON
B26F2: IGN RELAY ON	Inhibit engine cranking	When the following conditions are fulfilled Ignition switch ON signal (CAN: Transmitted from BCM): OFF Ignition switch ON signal (CAN: Transmitted from IPDM E/R): OFF
B26F3: START CONT RLY ON	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): OFF • Starter control relay signal (CAN: Transmitted from IPDM E/R): OFF
B26F4: START CONT RLY OFF	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): ON • Starter control relay signal (CAN: Transmitted from IPDM E/R): ON
B26F7: BCM	Inhibit engine cranking by Intelligent Key system	When room antenna and luggage room antenna functions normally

REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper stop position signal.

When the rear wiper stop position signal does not change for more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation

- More than 1 minute is passed after the rear wiper stop.
- Turn rear wiper switch OFF.
- Operate the rear wiper switch or rear washer switch.

FAIL-SAFE CONTROL OF COMBINATION SWITCH READING FUNCTION CAUSED BY LOW POWER SUPPLY VOLTAGE

If voltage of battery power supply lower, BCM maintains combination switch reading to the status when input voltage is less than approximately 9 V.

NOTE:

When voltage of battery power supply is approximately 9 V or more, combination switch reading function returns to normal operation.

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): DTC Inspection Priority Chart INFOID:0000000007951199

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	B2562: LOW VOLTAGE
2	U1000: CAN COMM CIRCUIT U1010: CONTROL UNIT (CAN)

HAC-99 Revision: 2011 November 2012 CUBE

HAC

Н

Α

В

D

Е

F

K

L

M

Ν

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Priority	DTC
3	 B2192: ID DISCORD BCM-ECM B2193: CHAIN OF BCM-ECM B2195: ANTI-SCANNING B2196: DONGLE NG B2198: NATS ANTENNA AMP
4	 B2555: STOP LAMP B2556: PUSH-BTN IGN SW B2557: VEHICLE SPEED B2601: SHIFT POSITION B2602: SHIFT POSITION B2603: SHIFT POSI STATUS B2604: PNP/CLUTCH SW B2605: PNP/CLUTCH SW B2605: PNP/CLUTCH SW B2606: STARTER RELAY B2606: STARTER SIG LOST B2614: BCM B2615: BCM B2616: BCM B2616: BCM B2611: IGN RELAY OFF B2667: IGN RELAY OFF B26673: START CONT RLY ON B26674: START CONT RLY OFF B26675: BCM B2677: BCM B2678: B
5	C1704: LOW PRESSURE FL C1705: LOW PRESSURE FR C1706: LOW PRESSURE RR C1707: LOW PRESSURE RL C1708: [NO DATA] FL C1709: [NO DATA] FR C1710: [NO DATA] RR C1711: [NO DATA] RR C1711: [NO DATA] RL C1716: [PRESSDATA ERR] FL C1717: [PRESSDATA ERR] FR C1718: [PRESSDATA ERR] RR C1719: [PRESSDATA ERR] RR
6	B2621: INSIDE ANTENNA B2622: INSIDE ANTENNA
7	 B2626: OUTSIDE ANTENNA B2627: OUTSIDE ANTENNA B2628: OUTSIDE ANTENNA

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): DTC Index

INFOID:0000000007951200

NOTE:

The details of time display are as follows.

- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.

IGN counter is displayed on Freeze Frame Data. For details of Freeze Frame Data, refer to <u>BCS-20, "COM-MON ITEM"</u>.

< ECU DIAGNOSIS INFORMATION >

[AUTÓMATIC AIR CONDITIONING]

CONSULT display	Fail-safe	Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condition	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	_	_	_	_	_
U1000: CAN COMM	_	_	_	_	BCS-40
U1010: CONTROL UNIT (CAN)	_	_	_	_	BCS-41
U0415: VEHICLE SPEED	_	_	×	_	BCS-42
B2192: ID DISCORD BCM-ECM	×	_	_	_	<u>SEC-38</u>
B2193: CHAIN OF BCM-ECM	×	_	_	_	SEC-40
B2195: ANTI-SCANNING	×	_	_	_	SEC-41
B2196: DONGLE NG	×	_	_	_	SEC-42
B2198: NATS ANTENNA AMP	×	_	_		SEC-44
B2555: STOP LAMP	_	×	×	_	SEC-48
B2556: PUSH-BTN IGN SW	_	×	×	_	SEC-50
B2557: VEHICLE SPEED		×	×		SEC-52
B2562: LOW VOLTAGE		×	_		BCS-43
B2601: SHIFT POSITION	_	×	×	_	SEC-53
B2602: SHIFT POSITION		×	×		SEC-56
B2603: SHIFT POSI STATUS	_	×	×	_	SEC-59
B2604: PNP/CLUTCH SW	_	×	×	_	SEC-64
B2605: PNP/CLUTCH SW	_	×	×	_	SEC-67
B2608: STARTER RELAY	×	×	×		SEC-69
B260F: ENG STATE SIG LOST	×	×	×		SEC-71
B2614: BCM		×	×		PCS-75
B2615: BCM	_	×	×	_	PCS-78
B2616: BCM	_	×	×	_	PCS-81
B2618: BCM	_	×	×	_	PCS-84
B261A: PUSH-BTN IGN SW	_	×	×	_	PCS-85
B2621: INSIDE ANTENNA	_	×	_	_	<u>DLK-44</u>
B2622: INSIDE ANTENNA	_	×	_	_	DLK-46
B2626: OUTSIDE ANTENNA	_	×	_	_	DLK-50
B2627: OUTSIDE ANTENNA	_	×	_	_	DLK-48
B2628: OUTSIDE ANTENNA	_	×	_	_	DLK-52
B26F1: IGN RELAY OFF	×	×	×		PCS-87
B26F2: IGN RELAY ON	×	×	×	_	PCS-89
B26F3: START CONT RLY ON	×	×	×	_	SEC-72
B26F4: START CONT RLY OFF	×	×	×	_	SEC-73
B26F6: BCM	_	×	×	_	PCS-91
B26F7: BCM	×	×	×	_	SEC-75
B26F8: BCM	_	×	×	_	SEC-76
B26FC: KEY REGISTRATION	_	×	×	_	SEC-77

Revision: 2011 November HAC-101 2012 CUBE

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condition	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page	
C1704: LOW PRESSURE FL	_	_	_	×		
C1705: LOW PRESSURE FR	_	_	_	×	WT-22	
C1706: LOW PRESSURE RR	_	_	_	×	<u> </u>	
C1707: LOW PRESSURE RL	_	_	_	×		
C1708: [NO DATA] FL	_	_	_	×		
C1709: [NO DATA] FR	_	_	_	×	WT-24	
C1710: [NO DATA] RR	_	_		×	<u>VV1-2-4</u>	
C1711: [NO DATA] RL	_	_	_	×		
C1716: [PRESSDATA ERR] FL	_	_	_	×		
C1717: [PRESSDATA ERR] FR	_	_	_	×	WT-27	
C1718: [PRESSDATA ERR] RR	_	_	_	×	<u>vv 1-27</u>	
C1719: [PRESSDATA ERR] RL	_	_	_	×	1	
C1729: VHCL SPEED SIG ERR	_	_	_	×	<u>WT-29</u>	

AUTOMATIC AIR CONDITIONING SYSTEM

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

SYMPTOM DIAGNOSIS

AUTOMATIC AIR CONDITIONING SYSTEM

Diagnosis Chart By Symptom

CAUTION:

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

Symptom		Corresponding malfunction part	Check item/Reference	
A/C system does not activate. A/C system cannot be controlled.		 Power supply circuit of A/C system A/C control (built-in A/C auto amp.) 	HAC-64, "A/C AUTO AMP. : Diagnosis Procedure"	
Blower motor operation is malfunctioning.		Blower motor Power supply system of blower motor The circuit between blower motor and A/C auto amp. A/C auto amp.	HAC-54, "Diagnosis Procedure"	
Magnet clutch does not operate.		Magnet clutch The circuit between magnet clutch and IPDM E/R IPDM E/R (A/C relay) The circuit between ECM and refrigerant pressure sensor Refrigerant pressure sensor CAN communication line A/C auto amp.	HAC-59, "Diagnosis Procedure"	
 Insufficient cooling No cool air comes out. (Air flow volume is normal.) 		 Magnet clutch control system Drive belt slipping Cooler cycle Air leakage from each duct Temperature setting trimmer 	HAC-104, "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-106, "Diagnosis Procedure"	
Noise is heard when the A/C system operates.	During compressor operation	Cooler cycle	HA-10, "Symptom Table"	
	During blower motor operation	Mixing any foreign object in blower motor Blower motor fan breakage Blower motor rotation inferiority	HAC-57, "Component Inspection"	
 Memory function dose not operates. Setting temperature dose not memorize. 		Power supply system of A/C auto amp.A/C auto amp.	HAC-109, "Inspection Procedure"	

0

Α

В

C

D

Е

F

Н

HAC

K

L

M

Ν

INFOID:0000000007771025

Ρ

INSUFFICIENT COOLING

Description INFOID:000000007771026

Symptom

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

Diagnosis Procedure

INFOID:0000000007771027

CAUTION:

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

1. CHECK MAGNET CLUTCH OPERATION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform the diagnosis of "COMPRESSOR DOSE NOT OPERATE" in "SYMPTOM DIAGNOSIS". Refer to HAC-107, "Diagnosis Procedure".

2.CHECK DRIVE BELT

Check tension of the drive belt. Refer to EM-13, "Checking".

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK REFRIGERANT CYCLE PRESSURE

Connect the recovery/recycling recharging equipment to the vehicle and perform the pressure inspection with the gauge. Refer to HA-8, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK AIR LEAKAGE FROM EACH DUCT

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

Is the inspection result normal?

YES >> GO TO 5.

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

${f 5.}$ CHECK AMBIENT TEMPERATURE DISPLAY

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

NOTE:

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

Is the inspection result normal?

YES >> GO TO 6.

NO >> Perform the diagnosis for the A/C auto amp. connection recognition signal. Refer to MWI-48, "Diagnosis Procedure".

6.CHECK SETTING OF TEMPERATURE SETTING TRIMMER

1. Check the setting value of temperature setting trimmer. Refer to HAC-10, "Temperature Setting Trimmer".

INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

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

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

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

Is inspection result normal?

YES >> INSPECTION END

NO >> Replace the A/C auto amp.

А

В

С

D

Е

F

G

Н

HAC

K

L

M

Ν

0

Р

INSUFFICIENT HEATING

Description INFOID:000000007771028

Symptom

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

Diagnosis Procedure

INFOID:0000000007771029

CAUTION:

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

1. CHECK COOLING SYSTEM

- 1. Check the engine coolant level and check for leakage. Refer to CO-9, "Inspection".
- 2. Check the radiator cap. Refer to CO-13, "RADIATOR CAP: Inspection".
- Check the water flow sounds of the engine coolant. Refer to <u>CO-10, "Refilling"</u>.

Is the inspection result normal?

YES >> GO TO 2.

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

2. CHECK HEATER HOSE

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

CAUTION:

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 the heater core. Refer to HA-41, "Exploded View (Automatic Air Conditioner)".

4.CHECK AIR LEAKAGE FROM EACH DUCT

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

Is the inspection result normal?

YES >> GO TO 5.

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

CHECK SETTING OF TEMPERATURE SETTING TRIMMER

- 1. Check the setting value of temperature setting trimmer. Refer to <u>HAC-10</u>, "Temperature Setting Trimmer".
- 2. Check that the temperature setting trimmer is set to "- direction".

NOTE:

The control temperature can be set by the temperature setting trimmer.

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

Are the symptoms solved?

YES >> INSPECTION END

NO >> Replace the A/C auto amp.

COMPRESSOR DOSE DOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

COMPRESSOR DOSE DOT OPERATE

Description

SYMPTOM

Compressor dose not operate.

Diagnosis Procedure

CAUTION:

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

CHECK MAGNET CLUTCH OPERATION

Check the magnet clutch. Refer to HAC-59, "Component Function Check".

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. CHECK REFRIGERANT PRESSURE SENSOR

Check the refrigerant pressure sensor. Refer to <a>EC-443, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK BCM INPUT SIGNAL

With CONSULT

Check the "COMP REQ SIG" or "FAN REQ SW" in "DATA MONITOR" of BCM.

Monitor item	Condition	Status
COMP REQ SIG	A/C switch: OFF	Off
COMP REQ 31G	A/C switch: ON	On
FAN REQ SW	Fan control switch: OFF	Off
TANKLQ SW	Fan control switch: ON	On

<u>Is the inspection result normal?</u>

YES >> GO TO 4.

NO >> GO TO 5.

4. CHECK BCM OUTPUT SIGNAL

(P)With CONSULT

Check the "A/C ON SIG" or "FAN ON SIG" in "A/C RELAY SIG" of ECM.

Monitor item	Condition	Status
COMP REQ SIG	A/C switch: OFF	Off
COMP NEW SIG	A/C switch: ON	On
FAN REQ SW	Fan control switch: OFF	Off
TAN ILQ SW	Fan control switch: ON	On

Is the inspection result normal?

YES >> Replace the IPDM E/R. Refer to <u>PCS-33, "Exploded View"</u> (WITH I-KEY) or <u>PCS-62, "Exploded View"</u> (WITHOUT I-KEY).

NO >> Replace the BCM. Refer to <u>BCS-81</u>, "<u>Exploded View</u>" (WITH I-KEY) or <u>BCS-142</u>, "<u>Exploded View</u>" (WITHOUT I-KEY).

HAC

Н

Α

В

D

Е

F

INFOID:0000000007771031

K

в. /

M

Ν

0

COMPRESSOR DOSE DOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

5. CHECK A/C ON SIGNAL

Check the A/C ON signal. Refer to HAC-60, "Component Function Check".

Is inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6. CHECK BLOWER FAN ON SIGNAL

Check the blower fan ON signal. Refer to HAC-62, "Component Function Check".

Is the inspection result normal?

YES >> Replace the A/C auto amp.

NO >> Repair or replace the malfunctioning parts

MEMORY FUNCTION DOES NOT OPERATE

[AUTOMATIC AIR CONDITIONING] < SYMPTOM DIAGNOSIS > MEMORY FUNCTION DOES NOT OPERATE Α Description INFOID:0000000007771032 SYMPTOM В · Memory function dose not operate normally. The setting is not maintained (It returns to initial condition). Inspection Procedure INFOID:0000000007771033 1. CHECK MEMORY FUNCTION D 1. Start the engine. 2. Set the temperature to 32°C (90°F) by operating the temperature control switch. 3. Press OFF switch. Е Turn the ignition switch OFF. 5. Turn the ignition switch ON. 6. Press AUTO switch. Check that the set temperature is maintained. F Is the inspection result normal? YES >> INSPECTION END NO >> GO TO 2. 2.CHECK POWER SUPPLY AND GROUND CIRCUIT OF A/C AUTO AMP. Check power supply and ground circuit of A/C auto amp. Refer to HAC-67, "Diagnosis Procedure". Н Is the inspection result normal? YES >> Replace the A/C auto amp. NO >> Repair or replace the malfunctioning parts. HAC K L

M

Ν

Р

Revision: 2011 November HAC-109 2012 CUBE

PRECAUTION

PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with
 a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing
 serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:0000000007771035

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

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

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

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

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

- Turn the ignition switch to ACC position. (At this time, the steering lock will be released.)
- Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.

PRECAUTIONS

< PRECAUTION >

[AUTOMATIC AIR CONDITIONING]

- 4. Perform the necessary repair operation.
- 5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- 6. Perform self-diagnosis check of all control units using CONSULT.

В

C

Α

D

Е

F

G

Н

HAC

J

K

L

M

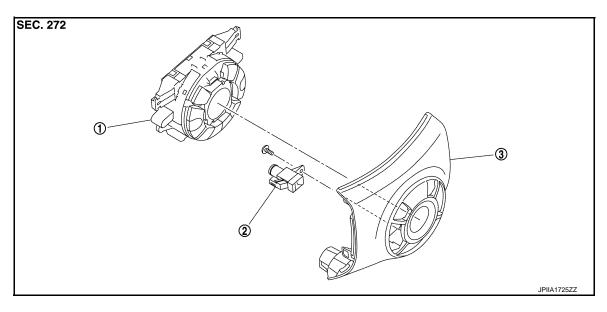
Ν

0

REMOVAL AND INSTALLATION

A/C CONTROL (A/C AUTO AMP.)

Exploded View



1. A/C control

2. In-vehicle sensor

3. A/C finisher

Removal and Installation

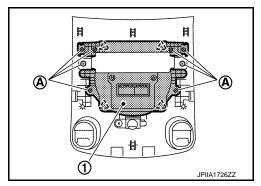
INFOID:0000000007771037

REMOVAL

- 1. Remove A/C finisher. Refer to IP-12, "Exploded View".
- 2. Remove mounting screws (A).

ېرې : Pawl

Disengage the pawls, and then remove A/C control (1) from A/C finisher.



INSTALLATION

Installation is basically the reverse order of removal.

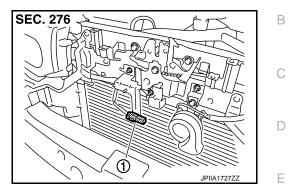
AMBIENT SENSOR

Exploded View

INFOID:0000000007771038

Α

1. Ambient sensor



Removal and Installation

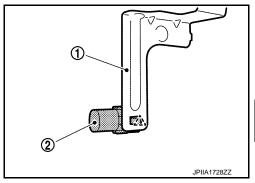
INFOID:0000000007771039

REMOVAL

- 1. Remove the bumper fascia. Refer to EXT-11, "Exploded View".
- 2. Disengage the pawl, and then remove ambient sensor (2) from bracket (1).



3. Disconnect ambient sensor connector, and then remove the ambient sensor.



INSTALLATION

Installation is basically the reverse order of removal.

HAC

Н

F

L

K

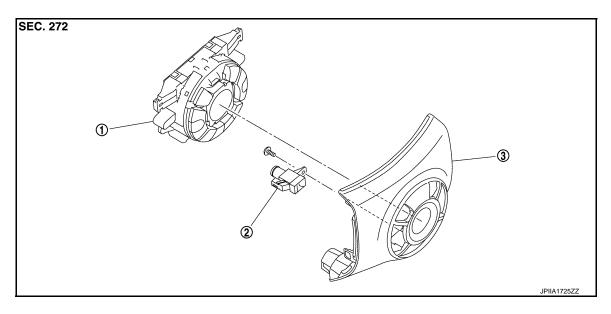
M

Ν

0

IN-VEHICLE SENSOR

Exploded View



1. A/C control 2. In-vehicle sensor 3. A/C finisher

Removal and Installation

INFOID:0000000007771041

REMOVAL

- 1. Remove A/C finisher. Refer to IP-12, "Exploded View".
- 2. Remove mounting screw, and then remove in-vehicle sensor from A/C finisher.

INSTALLATION

Installation is basically the reverse order of removal.

SUNLOAD SENSOR

[AUTOMATIC AIR CONDITIONING]

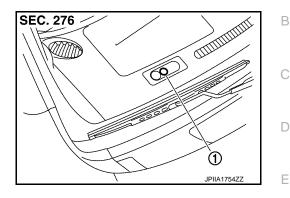
SUNLOAD SENSOR

Exploded View

INFOID:0000000007771042

Α

1. Sunload sensor



Removal and Installation

INFOID:0000000007771043

REMOVAL

1. Insert the appropriate tool into the clearance between supload sensor and instrument panel ass

- 1. Insert the appropriate tool into the clearance between sunload sensor and instrument panel assembly to pull out sunload sensor upward.
- Disconnect sunload sensor connector to remove sunload sensor.

INSTALLATION

Installation is basically the reverse order of removal.

HAC

F

G

Н

K

L

M

Ν

0

INTAKE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

INTAKE SENSOR

Exploded View

Refer to HA-41, "Exploded View (Automatic Air Conditioner)".

Removal and Installation

INFOID:0000000007771045

REMOVAL

- 1. Remove the evaporator assembly. Refer to HA-41, "Exploded View (Automatic Air Conditioner)".
- 2. Remove the intake sensor from evaporator.

INSTALLATION

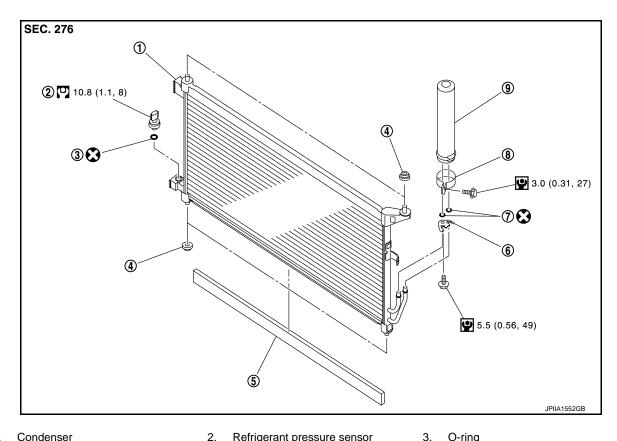
Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply the compressor oil to them when installing.
- Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.
- Never rotate the bracket insertion part when removing and installing the intake sensor.
- Check for leakages when recharging refrigerant. Refer to HA-22, "Leak Test".

REFRIGERANT PRESSURE SENSOR

Exploded View INFOID:0000000007771046



- Condenser
- 4. Grommet
- O-ring 7.

- Refrigerant pressure sensor 2.
- 5. Condenser seal
- Liquid tank bracket
- O-ring
- 6. **Bracket**
- Liquid tank

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

CAUTION:

Perform lubricant return operation before each refrigeration system disassembly. However, if a large amount of refrigerant or lubricant is detected, never perform lubricant return operation. Refer to HA-26, "Perform Lubricant Return Operation".

REMOVAL

- Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant. Refer to HA-24, "Recycle Refrigerant".
- 2. Clean refrigerant pressure sensor and its surrounding area, and then remove dust and rust from refrigerant pressure sensor.

CAUTION:

Be sure to clean carefully.

Disconnect refrigerant pressure sensor connector.

Α

В

D

Е

F

Н

HAC

K

INFOID:0000000007771047

M

Ν

REFRIGERANT PRESSURE SENSOR

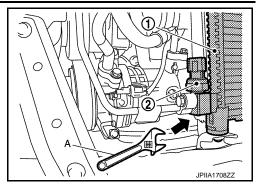
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

4. Use a adjustable wrench (A) or other tool to hold the refrigerant pressure sensor mounting block, and then remove the refrigerant pressure sensor (2) from the condenser (1).

CAUTION:

- Be careful not to damage liquid tank.
- Be careful not to damage core surface of condenser.
- Cap or wrap the joint of the condenser and liquid tank with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-ring with new one. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant. Refer to HA-22, "Leak Test".

Α

В

D

Е

F

Н

HAC

K

L

M

Ν

Ρ

INFOID:0000000007771049

POWER TRANSISTOR

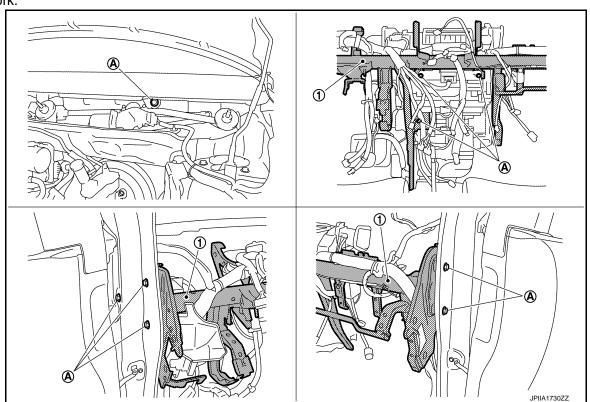
Exploded View

Refer to VTL-13, "Exploded View"

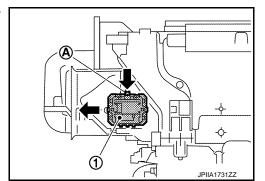
Removal and Installation

REMOVAL

- 1. Remove instrument panel assembly. Refer to IP-12, "Exploded View".
- 2. Remove cowl top extension. Refer to EXT-19, "Exploded View".
- 3. Remove instrument stay.
- 4. Remove mounting bolts (A), and then move steering member (1) to a position where it dose not inhibit work.



- Disconnect power transistor connector.
- 6. Press flange holding hook (A), and then slide heater core to leftward.
- 7. Remove power transistor (1) from the A/C unit assembly.



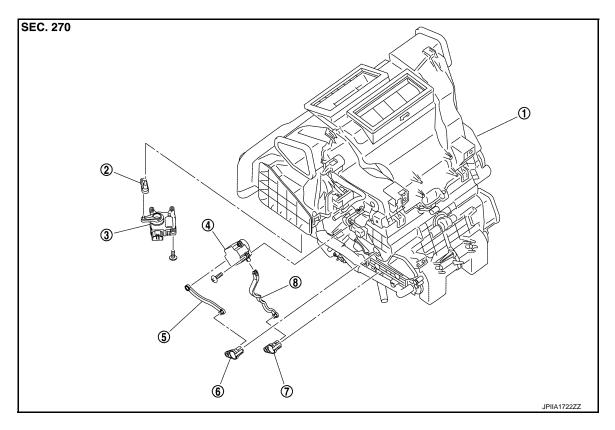
INSTALLATION

Installation is basically the reverse order of removal.

DOOR MOTOR

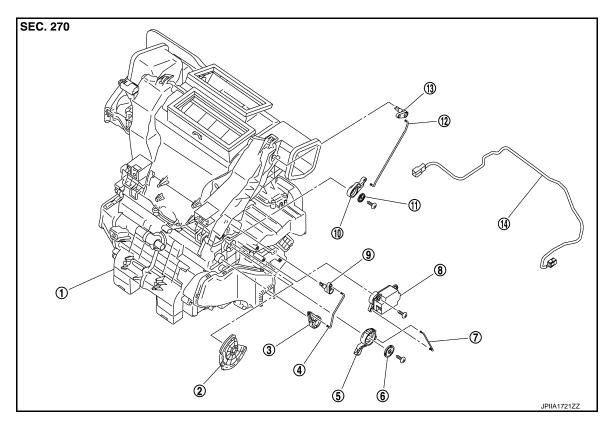
Exploded View

LEFT SIDE



- 1. A/C unit assembly
- 4. Air mix door motor
- 7. Lower air mix door lever
- 2. Intake door lever
- 5. Upper air mix door rod
- 8. Lower air mix door rod
- 3. Intake door motor
- 6. Upper air mix door lever

RIGHT SIDE



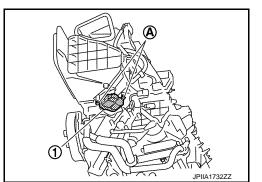
- A/C unit assembly
- Sub defroster door rod
- Mode link rod
- 10. Center ventilator and defroster door 11.
- 13. Center ventilator and defroster door 14. Sub harness (mode door motor)
- Main link
- 5. Mode link
- 8. Mode door motor
- Plate
- Sub defroster door link
- Sub defroster door lever
- 12. Center ventilator and defroster door

INTAKE DOOR MOTOR

INTAKE DOOR MOTOR: Removal and Installation

REMOVAL

- 1. Remove air mix door motor. Refer to HAC-120, "Exploded View".
- 2. Remove mounting screws (A), and then remove intake door motor (1).
- Disconnect intake door motor connector.



INSTALLATION

Installation is basically the reverse order of removal.

MODE DOOR MOTOR

HAC

Н

Α

В

D

Е

K

INFOID:0000000007771051

M

Ν

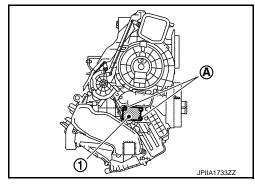
[AUTOMATIC AIR CONDITIONING]

MODE DOOR MOTOR: Removal and Installation

INFOID:0000000007771052

REMOVAL

- 1. Remove globe box assembly. Refer to IP-12, "Exploded View".
- 2. Remove mounting screws (A), and then remove mode door motor (1).
- 3. Disconnect mode door motor connector.



INSTALLATION

Installation is basically the reverse order of removal.

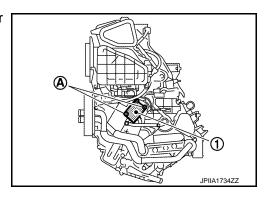
AIR MIX DOOR MOTOR

AIR MIX DOOR MOTOR: Removal and Installation

INFOID:0000000007771053

REMOVAL

- 1. Remove foot duct LH. Refer to VTL-7, "Exploded View".
- 2. Remove mounting screws (A), and then remove air mix door motor (1).
- 3. Disconnect air mix door motor connector.



INSTALLATION

Installation is basically the reverse order of removal.

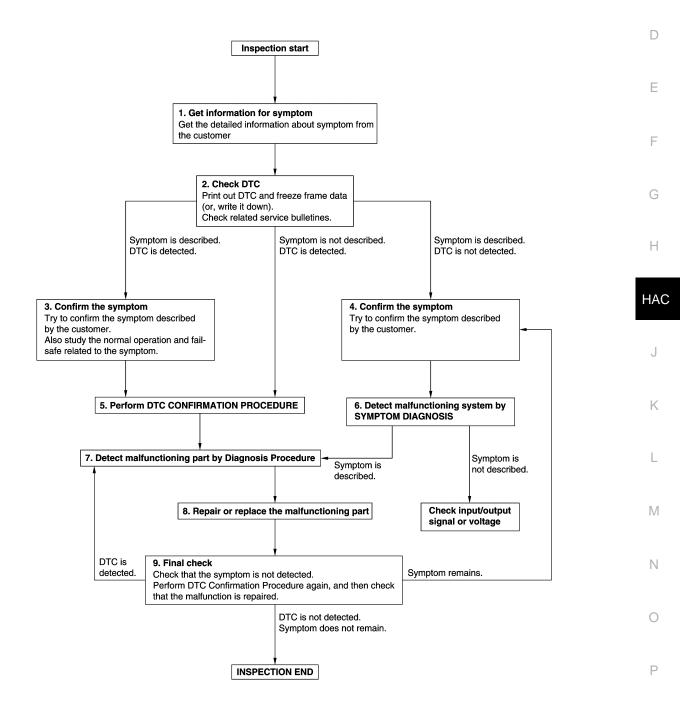
Α

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

OVERALL SEQUENCE



JMKIA8652GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2. CHECK DTC

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

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

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

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

3.confirm the symptom

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4. CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5. PERFORM DTC CONFIRMATION PROCEDURE

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

NOTE:

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

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

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to GI-41, "Intermittent Incident".

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

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

Is the symptom described?

YES >> GO TO 7.

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

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to GI-41, "Intermittent Incident".

8.repair or replace the malfunctioning part

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

>> GO TO 9.

9. FINAL CHECK

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

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

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

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

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

HAC

Н

Α

В

D

Е

F

K

L

M

Ν

O

INSPECTION

Description & Inspection

INFOID:0000000007771055

DESCRIPTION

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

Check condition: Engine running at normal operating temperature.

1. CHECK BLOWER MOTOR

- Start the engine.
- 2. Operate the fan control dial. Check that the fan speed changes. Check the operation for all fan speeds.
- Leave blower on maximum speed.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Blower motor system malfunction. Refer to <u>HAC-149</u>. "Diagnosis <u>Procedure"</u>.

2.CHECK DISCHARGE AIR

- 1. Operate MODE dial to each position.
- Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to <u>VTL-2</u>, "System <u>Description</u>".

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the mode door cable.

3. CHECK INTAKE AIR

- 1. Operate MODE control dial to VENT position.
- Press intake switch to set the air outlet to recirculation.
- The intake switch indicator turns ON.
- 4. Listen to intake sound and confirm air inlets change.
- 5. Press intake switch again to set the air outlet to fresh air intake.
- The intake switch indicator turns OFF.
- 7. Listen to intake sound and confirm air inlets change.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Intake door system malfunction. Refer to HAC-144, "Diagnosis Procedure".

4. CHECK A/C SWITCH

- Press the A/C switch.
- Check that the indicator of the A/C switch turns ON. Check visually and by sound that the compressor operates.
- 3. Press the A/C switch again.
- Check that the indicator of the A/C switch turns OFF. Check that the compressor stops.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Magnet clutch system malfunction. Refer to <u>HAC-153</u>, "<u>Diagnosis Procedure</u>".

${f 5.}$ CHECK TEMPERATURE DECREASE

- Operate the compressor.
- Turn the temperature control dial to full cold position.
- Check that the cool air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Insufficient cooling. Refer to HAC-212, "Diagnosis Procedure".

6.CHECK TEMPERATURE INCREASE

1. Turn temperature control dial to full hot position after warming up the engine.

INSPECTION

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

2. Check that warm air blows from outlets.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Insufficient heating. Refer to <u>HAC-213</u>, "<u>Diagnosis Procedure</u>".

Α

В

С

D

Е

F

G

Н

HAC

J

K

L

M

Ν

0

SYSTEM DESCRIPTION

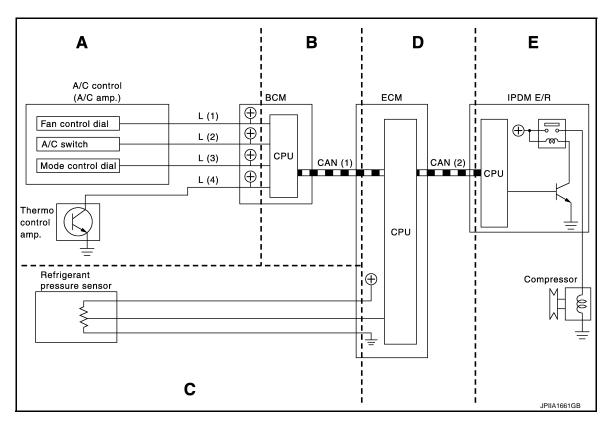
COMPRESSOR CONTROL FUNCTION

Description INFOID:000000007771056

PRINCIPLE OF OPERATION

Compressor is not activated.

Functional Circuit Diagram



L (1) : Fan ON signal CAN (1) : A/C ON signal

L (2) : A/C switch signal : Blower fan ON signal

L (3) : Defroster position switch 2 CAN (2) : A/C compressor request signal L (4) : Thermo control amp. ON signal : A/C compressor feedback signal

Functional Initial Inspection Chart

x: Applicable

Control unit	Diagnosis item		Location					
Control unit			Α	В	С	D	Е	
BCM (F)"BCM-AIR CONE	©"DOM AID COND"	Self-diagnosis	_	×	_	_	_	
	Data monitor	Data monitor	×	_	_	_	_	
ECM ("ENGINE	(E) "ENGINE"	Self-diagnosis (CAN communication line)	_	_	_	×	_	
		Data monitor	_	×	×	_	_	
IPDM E/R	(P) "IPDM E/R"	Self-diagnosis (CAN communication line)	_	_	_	_	×	
		Data monitor	_	_	_	×	_	
	Auto active test		_	_	_	_	×	

Component Part Location

INFOID:0000000007771057

Α

В

D

Е

Н

HAC

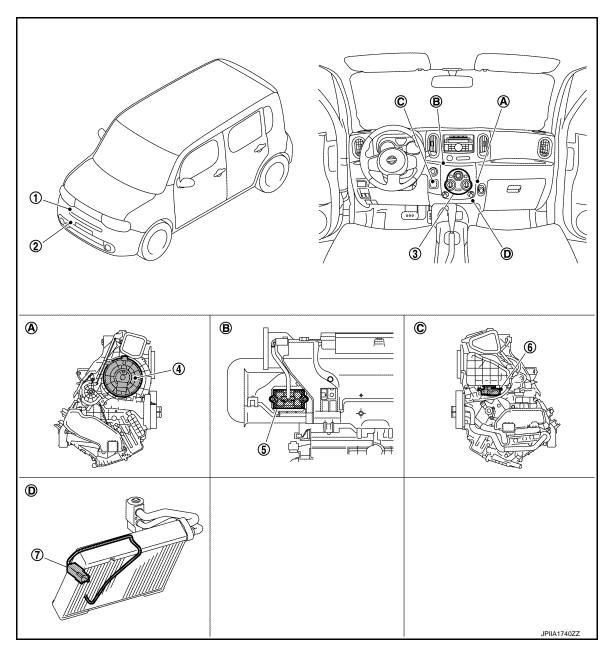
K

M

Ν

0

Р



- 1. Magnet clutch
- 4. Blower motor
- 7. Thermo control amp.
- A. Located in the right side of A/C unit B. assembly
- D. Located on evaporator

- 2. Refrigerant pressure sensor
- Blower fan resistor
 - Located in the back of A/C unit assembly
- A/C control
- 6. Intake door motor
- C. Located in the left side of A/C unit assembly

Component Description

INFOID:0000000007771058

Component	Reference/Function		
Magnet clutch	HAC-153, "Description"		
Refrigerant pressure sensor	EC-443, "Description"		
A/C control	Controls the air conditioner function.		

COMPRESSOR CONTROL FUNCTION

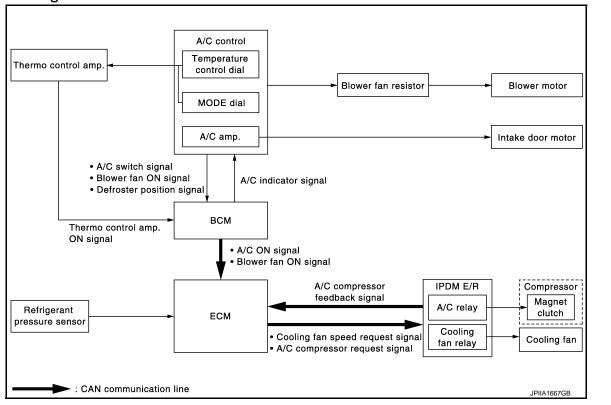
< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Component	Reference/Function
Blower motor	HAC-149, "Description"
Blower fan resistor	HAC-149, "Description"
Intake door motor	HAC-144, "Description"
Thermo control amp.	HAC-146, "Description"

MANUAL AIR CONDITIONING SYSTEM

System Diagram



System Description

SYSTEM DESCRIPTION

Manual air conditioner system is controlled by each function of BCM, ECM or IPDM E/R.

Control by BCM

Compressor control

Control by ECM

- Compressor control
- Cooling fan control. Refer to EC-79, "System Description".
- Air conditioner cut control. Refer to EC-63, "System Description".

Control by IPDM E/R

- Relay control. Refer to <u>PCS-34</u>, "System <u>Description"</u>.
- Cooling fan control. Refer to PCS-34, "System Description".
- Fan speed of blower fan motor is changed by the combination of fan switch operation and blower fan resistor control.

OPERATION

A/C Control

HAC

Ν

Р

INFOID:0000000007771060

Н

Α

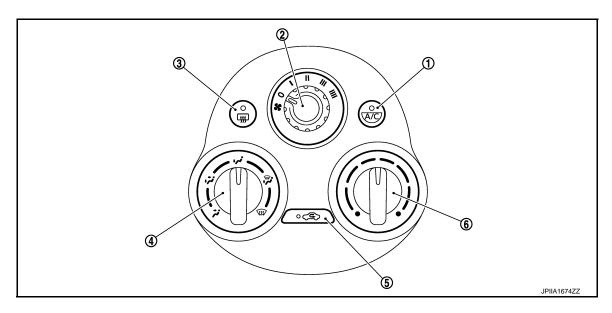
В

D

Е

INFOID:0000000007771059

Revision: 2011 November HAC-131 2012 CUBE



- A/C switch
- MODE dial

- 2. Fan control dial
- 5. Intake switch

- 3. Rear window defogger switch
- 6. Temperature control dial

A/C switch	The compressor control (switch indicator) is turned ON ⇔ OFF each time by pressing this switch while the blower motor is activated. NOTE: when mode position is D/F or DEF, A/C switch is turned ON forcibly.
Fan control dial	Fan speed can be adjusted within a range from 1st to 4th.
Rear window defogger switch	 Rear window defogger (switch indicator) is turned ON
MODE dial	 Mode position is selected to an optimal position by operating this dial. When DEF or D/F is selected while blower motor is activated, the air conditioner will automatically turn on and the air inlet becomes fresh air intake.
Intake switch	The air inlet changed ON ⇔ OFF each time by pressing this switch. Indicator ON: Recirculation Indicator OFF: Fresh air intake NOTE: when mode position is D/F or DEF, air inlet is set to FRE forcibly.
Temperature control dial	The setting temperature can be selected to an optimum temperature by operating this dial.

COMPRESSOR CONTROL

Description

• BCM transmits the A/C ON signal and blower fan ON signal to ECM via CAN communication line only when the compressor operational condition is satisfied, and A/C indicator is turned ON.

NOTE:

Compressor operational condition

- · Thermo control amp. signal ON
- Blower fan signal ON
- A/C switch signal ON
- ECM judges the conditions of each sensor (Refrigerant pressure sensor signal, accelerator position signal, etc.), and transmits the A/C compressor request signal to IPDM E/R via CAN communication line.
- By receiving the A/C compressor request signal from ECM, IPDM E/R turns the A/C relay to ON, and activates the compressor.

Compressor Protection Control at Pressure Malfunction

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

• 3.12 MPa (31.8 kg/cm², 452 psi) or more (When the engine speed is less than 1,500 rpm)

MANUAL AIR CONDITIONING SYSTEM

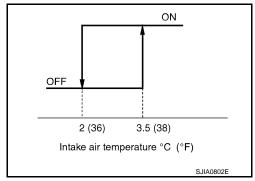
< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

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

Low Temperature Protection Control

- When the thermo control amp. detects that evaporator surface temperature is 2°C (36°F) or less, thermo control amp. signal becomes OFF, and stops the compressor.
- When the air temperature returns to 3.5°C (38°F) or more, the compressor is activated.



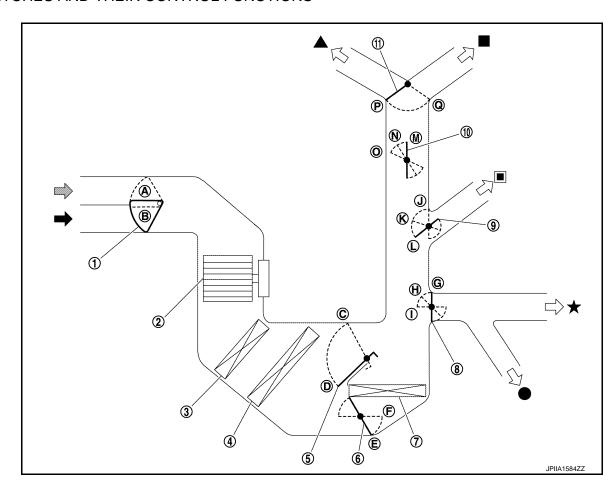
Operating Rate Control

- Thermo control amp. detects the positions of air temperature control dial and MODE dial.
- Thermo control amp. corrects the stopping temperature of A/C compressor depending on the condition of A/C operation, and prevents too much heating by turning thermo control amp. ON ⇔ OFF.

Air conditioner Cut Control

When the engine condition is high load, ECM makes the A/C relay to OFF, and stops the compressor. Refer to EC-63, "System Description".

SWITCHES AND THEIR CONTROL FUNCTIONS



- 1. Intake door
- Evaporator
- 7. Heater core
- 10. Sub defroster door
- 2. Blower motor
- 5. Upper air mix door
- Foot door
- 11. Center ventilator and defroster door
- 3. In-cabin microfilter
- Lower air mix door
- 9. Side ventilator door

HAC

Н

Α

D

r\

1 V I

Ν

0

Р

Revision: 2011 November HAC-133 2012 CUBE

MANUAL AIR CONDITIONING SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Fresh air intake

Recirculation air

Defroster

Center ventilator

Side ventilator

★ Foot

Rear foot*

*With rear foot duct

						Door position	1		
Switch/Dial position			Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door	Intake door	Upper air mix door	Lower air mix door
	3	j	Р	М	L	G			
	1	j	Г	IVI	К Н				
MODE dial	•	j	Q	0			_	_	_
	S	?i		N	J	'			
	¥	P		М		G			
Intoko owitah	4	*					А		
Intake switch	4	0	_	_	_	_	В]	
Temperature con-	Full	cold						D	Е
trol dial	Full	hot						С	F

AIR DISTRIBUTION

Without Rear Foot Duct

Discharge air flow				
Made position indication		Air outlet/distribution		
Mode position indication	Ventilator	Foot	Defroster	
77	100%	_	_	
Ÿ	63%	37%	_	
ڼ	16%	64%	20%	
(m)	14%	55%	31%	
₩	18%	_	82%	

With Rear Foot Duct

Discharge air flow								
Mode position indication		Air outlet/distribution						
wode position indication	Ventilator	Front foot	Rear foot	Defroster				
7	100%	_	_	_				
Ÿ	57%	29%	14%	_				
ų,	19%	44%	19%	18%				
	17%	40%	17%	26%				
₩	18%	_	_	82%				

Component Part Location

INFOID:0000000007771061

Α

В

D

Е

Н

HAC

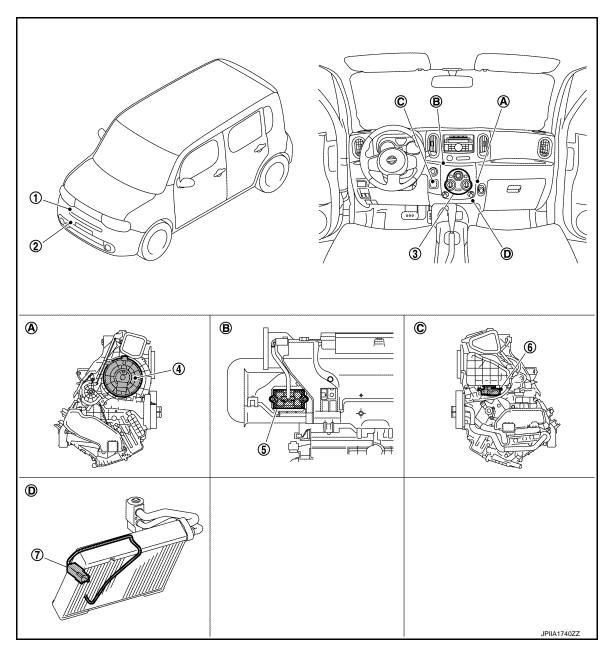
K

M

Ν

0

Р



- 1. Magnet clutch
- 4. Blower motor
- 7. Thermo control amp.
- A. Located in the right side of A/C unit B. assembly
- D. Located on evaporator

- 2. Refrigerant pressure sensor
- 5. Blower fan resistor
 - Located in the back of A/C unit assembly
- 3. A/C control
- 6. Intake door motor
- C. Located in the left side of A/C unit assembly

Component Description

INFOID:0000000007771062

Component	Reference/Function	
Magnet clutch	HAC-153, "Description"	
Refrigerant pressure sensor	EC-443, "Description"	
A/C control	Controls the air conditioner function.	

MANUAL AIR CONDITIONING SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Component	Reference/Function
Blower motor	HAC-149, "Description"
Blower fan resistor	HAC-149, "Description"
Intake door motor	HAC-144, "Description"
Thermo control amp.	HAC-146, "Description"

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) [MANUAL AIR CONDITIONING]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000007951206

Α

В

D

Е

F

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

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

x: Applicable item

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

^{*:} For models with automatic air conditioner, this model is not used.

FREEZE FRAME DATA (FFD)

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

HAC-137 Revision: 2011 November 2012 CUBE

HAC

K

L

Ν

Ρ

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) [MANUAL AIR CONDITIONING]

< SYSTEM DESCRIPTION >

CONSULT screen item	Indication/Unit		Description	
Vehicle Speed	km/h	Vehicle speed of the mo	ment a particular DTC is detected	
Odo/Trip Meter	km	Total mileage (Odomete	r value) of the moment a particular DTC is detected	
	SLEEP>LOCK		While turning BCM status from low power consumption mode to normal mode (Power supply position is "LOCK" [*])	
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)	
	LOCK>ACC		While turning power supply position from "LOCK" to "ACC"	
	ACC>ON		While turning power supply position from "ACC" to "IGN"	
	RUN>ACC		While turning power supply position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.)	
	CRANK>RUN		While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)	
	RUN>URGENT	Power position status of the moment a particular DTC is detected OFF>SLEEP LOCK>SLEEP	While turning power supply position from "RUN" to "ACC" (Emergency stop operation)	
	ACC>OFF		While turning power supply position from "ACC" to "OFF"	
V 1 : 1 O 15:	OFF>LOCK		While turning power supply position from "OFF" to "LOCK"*	
Vehicle Condition	OFF>ACC		While turning power supply position from "OFF" to "ACC"	
	ON>CRANK		While turning power supply position from "IGN" to "CRANKING"	
	OFF>SLEEP		While turning BCM status from normal mode (Power supply position is "OFF".) to low power consumption mode	
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply position is "LOCK"*.) to low power consumption mode	
	LOCK		Power supply position is "LOCK"*	
	OFF		Power supply position is "OFF" (Ignition switch OFF)	
	ACC		Power supply position is "ACC" (Ignition switch ACC)	
	ON		Power supply position is "IGN" (Ignition switch ON with engine stopped)	
	ENGINE RUN		Power supply position is "RUN" (Ignition switch ON with engine running)	
	CRANKING		Power supply position is "CRANKING" (At engine cranking)	
IGN Counter	0 - 39	 The number of times that ignition switch is turned ON after DTC is detected The number is 0 when a malfunction is detected now. The number increases like 1 → 2 → 338 → 39 after returning to the normal converse whenever ignition switch OFF → ON. The number is fixed to 39 until the self-diagnosis results are erased if it is over 3. 		

NOTE:

- *: Power position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position (CVT models), and any of the following conditions are met.
- · Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

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

AIR CONDITIONER

AIR CONDITIONER: CONSULT Function (BCM - AIR CONDITIONER) (Manual A/C) INFOID:0000000007922986

DATA MONITOR Display Item List

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) [MANUAL AIR CONDITIONING]

< SYSTEM DESCRIPTION >

Monitor Item [Unit]		Contents	
FAN ON SIG	[On/Off]	Displays the blower fan status as jugged from the fan switch signal.	
AIR COND SW [On/Off] Displays [COMP (On)/COMP (Off)] status as judged from the air condition		Displays [COMP (On)/COMP (Off)] status as judged from the air conditioner switch signal.	

ACTIVE TEST

Test item	Operation	Description		
A/C INDICATOR	On	A/C indicator is turned ON.		
	Off	A/C indicator is turned OFF.		

HAC

Α

В

С

D

Е

F

G

Н

K

J

L

M

Ν

0

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) [MANUAL AIR CONDITIONING]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000007951207

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

x: Applicable item

System	Sub system selection item	Diagnosis mode		
System	Sub system selection item	Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp control	INT LAMP	×	×	×
Remote keyless entry system	MULTI REMOTE ENT	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
Manual air conditioner	AIR CONDITONER		×	×
Combination switch	COMB SW		×	
Body control system	BCM	×		
NVIS - NATS	IMMU	×	×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door	TRUNK		×	
Vehicle security system	THEFT ALM	×	×	×
RAP system	RETAINED PWR		×	×
Signal buffer system	SIGNAL BUFFER		×	×
TPMS	TPMS (AIR PRESSURE MONITOR)	×	×	×
Panic alarm system	PANIC ALARM			×

AIR CONDITIONER

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

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) [MANUAL AIR CONDITIONING]

< SYSTEM DESCRIPTION >

Display Item List

Monitor Item [Unit]		Contents	
IGN SW	[On/Off]	Displays ignition switch position status as judged from ignition switch signal.	
FAN ON SIG	[On/Off]	Displays the blower fan status as judged from fan switch signal.	
AIR COND SW	[On/Off]	Displays [COMP (On)/COMP (Off)] status as judged from air conditioner switch signal	
THERMO AMP	[On/Off]	Displays the thermo control amp. status as judged from thermo control amp. signal.	
FR DEF SW	[On/Off]	Displays the DEF status as judged from defroster position switch (mode switch) sign	

ACTIVE TEST

Test item	Operation	Description	
A/C INDICATOR	On	A/C indicator is turned ON.	
	Off	A/C indicator is turned OFF.	

HAC

Α

В

С

D

Е

F

G

Н

J

K

L

M

Ν

0

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

1. CHECK FUSE AND FUSIBLE LINK

Check that the following fuse and fusible link are not blown.

Signal name	Fuse and fusible link No.	
Battery power supply	G	
battery power suppry	8	

Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connectors.
- Check voltage between BCM harness connector and ground.

(Voltage (Approx.)			
В	CM		(Approx.)	
Connector	Terminal	Ground		
M70	70	Glound	Battery voltage	
IVI7 O	57		Dattery Voltage	

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

В	CM		Continuity	
Connector	Connector Terminal		Continuity	
M70	M70 67		Existed	

Does continuity exist?

YES >> INSPECTION END

NO >> Repair harness or connector.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

1. CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not fusing.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Signal name	Fuses and fusible link No.
Detter request comply	8
Battery power supply	G
ACC power supply	20
Ignition power supply	2

Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect BCM connectors.
- 3. Check voltage between BCM harness connector and ground.

Terminals			Ignition switch position			
(+)			ignition switch position			
BCM		(–)	OFF	ACC	ON	
Connector	Terminal	OFF		ACC	ON	
M67	70		Battery	Battery	Battery	
	57		voltage	voltage	voltage	
M65	11	Ground	Approx. 0 V	Battery voltage	Battery voltage	
WOS	38		Approx. 0 V	Approx. 0 V	Battery voltage	

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

В	СМ		Continuity	
Connector Terminal		Ground	Continuity	
M67	67		Existed	

Does continuity exist?

YES >> INSPECTION END

NO >> Repair harness or connector.

HAC

Н

Α

В

D

Е

F

L

K

M

Ν

INTAKE DOOR MOTOR

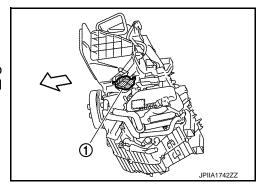
Description INFOID:000000007771066

INTAKE DOOR MOTOR

• The intake door motor (1) is installed to A/C unit assembly.

<□ : Vehicle front

 The A/C control (built in A/C amp.) sends the control signal to Intake door motor. When intake door motor receives the control signal, intake door is moved to appropriate position.



Diagnosis Procedure

INFOID:0000000007771067

POWER SUPPLY CIRCUIT

${f 1}$.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL

- 1. Turn the ignition switch ON.
- Check voltage between intake door motor harness connector and the ground when intake switch is operated.

(+)		(-)	Condition	Voltage (Approx.)
Intake door motor				
Connector	Terminal			
M54	2	Ground	$FRE \to REC$	12 V
	6		$REC \to FRE$	

Is inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.check continuity between A/C control and intake door motor

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

Intake door motor		A/C control		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M54	2	M53	8	Existed
	6		16	

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

${f 3.}$ CHECK CONTINUITY BETWEEN INTAKE DOOR MOTOR AND GROUND

Check continuity between intake door motor harness connector and the ground.

INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

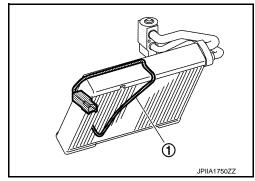
DIO/CINCOI	DIAGNOSIC				
Intake do	or motor		Continuity		1
Connector	Terminal	_	Continuity		
M54	2	Ground	Not existed		
IVIJ4	6	Glound	Not existed		,
IO >> Rep	lace the A/C c	ses or connecto	ors.		
			naction Pafar to	HAC-145, "Component Inspection".	-
inspection res		ontrol.	pection. Refer to	HAC-145, Component inspection.	
omponent l	Inspection			INFOID:0000000077710	68
•	•				
.CHECK INTA	NKE DOOR MC	OTOR			
					_
Disconnect	ition switch OF the intake door	r motor connect		the motor operation by listening the sound or b	
Disconnect Supply to th visually.	ition switch OF the intake door e intake door r	r motor connect		the motor operation by listening the sound or b	у
Disconnect Supply to th visually.	ition switch OF the intake door e intake door r	r motor connect		the motor operation by listening the sound or b	у
Disconnect Supply to th visually. Term (+)	ition switch OF the intake door e intake door r inal	r motor connect motor terminal of Operation		the motor operation by listening the sound or b	У
Disconnect Supply to the visually. Term (+) 2	ition switch OF the intake door e intake door r inal (-) 6	operation To REC		the motor operation by listening the sound or b	У
Disconnect Supply to the visually. Term (+) 2 6	ition switch OF the intake door the intake door r intake door r (-) 6 2	r motor connect motor terminal of Operation		the motor operation by listening the sound or b	y
Disconnect Supply to the visually. Term (+) 2 6 inspection reserves >> INS	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	У
Disconnect Supply to the visually. Term (+) 2 6 inspection resides >> INS	ition switch OF the intake door ie intake door inal (-) 6 2 sult normal?	Operation To REC To FRE		the motor operation by listening the sound or b	У
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved.	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved.	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved.	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved.	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved.	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	F
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved >> INS	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	F
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved.	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	F
Disconnect Supply to the visually. Term (+) 2 6 inspection reserved >> INS	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	У
Disconnect Supply to the visually. Term (+) 2 6 inspection reserves >> INS	ition switch OF the intake door ie intake door in inal (-) 6 2 sult normal? PECTION END	Operation To REC To FRE		the motor operation by listening the sound or b	F

THERMO CONTROL AMPLIFIER

Description INFOID:000000007771069

COMPONENT DESCRIPTION

- Thermo control amp. (1) is composed of thermistor and amplifier. Thermistor is installed on evaporator, and amplifier is attached to foot duct (left).
- When the thermistor detecting temperature which passing through evaporator is extremely low, thermo control amp. sends the thermo control amp. OFF signal to BCM, and stops the compressor.



OPERATING RATE CONTROL

- Thermo control amp. detects the positions of air temperature control dial and MODE dial.
- Thermo control amp. corrects the stopping temperature of A/C compressor depending on the condition of A/C operation, and prevents too much heating by turning thermo control amp. ON ⇔ OFF.

Component Function Check

INFOID:0000000007771070

1. CHECK THERMO CONTROL AMP. SIGNAL

(I) With CONSULT

- 1. Turn the ignition switch ON.
- 2. Select the "THERMO AMP" on "DATA MONITOR" in BCM.
- 3. Check the thermo control amp. signal when the ignition switch is operated.

Monitor item	Con	Status	
THERMO AMP Ignition switch	Ignition switch	ON	On
THERING AIVII	ignition switch	OFF	Off

Is inspection result normal?

YES >> INSPECTION END

NO >> Refer to HAC-146, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000007771071

1.CHECK FUSE

Check 10A fuse [NO. 16, located in the fuse block (J/B)].

NOTE:

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is inspection result normal?

YES >> GO TO 2.

NO >> Replace fuse after repairing the applicable circuit.

2.check thermo control amp. power supply circuit

- 1. Turn the ignition switch OFF.
- 2. Disconnect the thermo control amp. connector.
- Turn the ignition switch ON.
- 4. Check voltage between thermo control amp. harness connector and the ground.

THERMO CONTROL AMPLIFIER

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

(+)		(-)	Vale
Thermo control amp.			Voltage (Approx.)
Connector	Terminal		,
M44	1	Ground	Battery voltage

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harness or connector between thermo control amp. and fuse.

3.check continuity thermo control amp. ground circuit

- 1. Turn the ignition switch OFF.
- 2. Check continuity between thermo control amp. harness connector and the ground.

Thermo co	ontrol amp.		Continuity
Connector Terminal			Continuity
M44	3	Ground	Existed

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4.CHECK VOLTAGE BETWEEN THERMO CONTROL AMP. AND GROUND

- 1. Turn the ignition switch ON.
- 2. Check voltage between thermo control amp. harness connector and the ground.

(-	+)	(-)	
Thermo control amp.			Voltage (Approx.)
Connector	Connector Terminal		(11 -)
M44	2	Ground	12 V

Is inspection result normal?

YES >> Replace the thermo control amp.

NO >> GO TO 5.

5.CHECK CONTINUITY BETWEEN THERMO CONTROL AMP. AND BCM

- 1. Turn the ignition switch OFF.
- 2. Disconnect the BCM connector.
- Check continuity between thermo control amp. harness connector and BCM harness connector.

With Intelligent Key

Thermo co	ontrol amp.	BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M44	2	M68	26	Existed
Without Intellig	gent Key			_

Thermo c	ontrol amp.	BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M44	2	M65	26	Existed

Is inspection result normal?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

6. CHECK CONTINUITY BETWEEN THERMO CONTROL AMP. AND GROUND

Check continuity between thermo control amp. harness connector and the ground.

HAC

Н

Α

В

D

Е

[\

Ν

0

THERMO CONTROL AMPLIFIER

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Thermo co	ontrol amp.		Continuity
Connector	Connector Terminal		Continuity
M44	2	Ground	Not existed

Is inspection result normal?

YES >> Repair the harnesses or connectors.

NO >> INSPECTION END

[MANUAL AIR CONDITIONING]

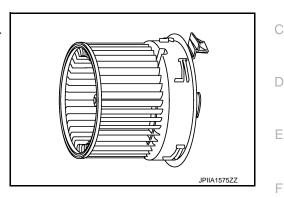
BLOWER MOTOR

Description INFOID:0000000007771072

COMPONENT DESCRIPTION

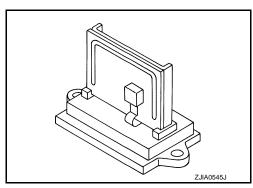
Blower Motor

- The blower motor is installed in the RH side of A/C unit assembly.
- The blower motor adopts the forcible air cooling system and onetouch installation system without any screws.



Blower Fan Resistor

- Compact and lightweight resistor is adopted with outstanding ventilation.
- Temperature fuse is installed to protects the blower motor circuit.



HAC

Н

Α

В

Diagnosis Procedure

1.CHECK FUSE

Check 15A fuses [Nos. 15 and 17, located in the fuse block (J/B)].

NOTE:

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace fuse after repairing the applicable circuit.

2. CHECK POWER SUPPLY FOR BLOWER MOTOR

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

(+)	(-)	V (16
Blower motor		_	Voltage (Approx.)
Connector	Terminal		,
M39	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

3. CHECK BLOWER RELAY

ZJIA0545J

INFOID:0000000007771073

M

Ν

Р

Revision: 2011 November HAC-149 2012 CUBE

BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

- 1. Turn the ignition switch OFF.
- Perform the component inspection of blower motor relay. Refer to HAC-151, "Component Inspection".

Is the inspection result normal?

YES >> Replace the harness or connector between blower motor and fuse.

NO >> Replace the blower relay.

4. CHECK FAN SWITCH GROUND CIRCUIT

- Turn the ignition switch OFF.
- Disconnect the fan switch connector.
- 3. Check continuity between fan switch harness connector and the ground.

Fan	switch		Continuity
Connector	Connector Terminal		Continuity
M73	3	Ground	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harness or connector.

${f 5.}$ CHECK CONTINUITY BETWEEN FAN SWITCH AND BLOWER MOTOR

Check continuity fan switch harness connector and blower motor harness connector.

Fan	switch	Blower motor		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M73	5	M39	2	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the harness or connector.

6.CHECK VOLTAGE BETWEEN BLOWER FAN RESISTOR AND GROUND

- Disconnect the blower fan resistor connector.
- 2. Turn the ignition switch ON.
- 3. Check voltage between blower fan resistor harness connector and the ground.

(-	+)	(-)	V. 1.
Blower fan resistor			Voltage (Approx.)
Connector	Connector Terminal		() 1 - 7
M306	3	Ground	12 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the harness or connector between blower fan resistor and blower motor.

.CHECK BLOWER FAN RESISTOR

- 1. Turn the ignition switch OFF.
- 2. Perform the component inspection of blower fan resistor. Refer to HAC-151, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace the blower fan resistor.

Ö.CHECK CIRCUIT CONTINUITY BETWEEN FAN SWITCH AND BLOWER FAN RESISTOR

Check continuity between fan switch harness connector and blower fan resistor.

switch	Blower fa	an resistor	Continuity
Terminal	Connector	Terminal	Continuity
4		4	
1	M306	1	Existed
2		2	
		Terminal Connector 4	Terminal Connector Terminal 4

disted

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair the harness or connector.

9. CHECK FAN SWITCH

Perform the component inspection of fan switch. Refer to HAC-151, "Component Inspection".

Is the inspection result normal?

YES >> Replace the blower motor.

NO >> Replace the fan switch (A/C control).

Component Inspection

BLOWER MOTOR

1. CHECK BLOWER MOTOR

1. Remove the blower motor. Refer to VTL-13, "Exploded View".

2. Check that there is not any mixing foreign object in the blower motor.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blower motor.

2. CHECK BLOWER MOTOR

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blower motor.

3.CHECK BLOWER MOTOR

Check that the blower motor turns smoothly.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the blower motor.

BLOWER MOTOR RELAY

1. CHECK BLOWER MOTOR

Remove the blower motor relay. Refer to <u>PG-89</u>, "Fuse, Connector and Terminal Arrangement".

2. Check the continuity between the blower motor relay terminal 3 and 5 when the voltage is supplied between terminal 1 and 2.

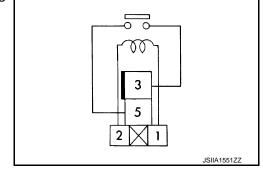
Blower m	otor relay	Voltage	Continuity
Terr	Terminal		Continuity
2	3 5	ON	Existed
3		OFF	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the blower motor relay.

BLOWER FAN RESISTOR



HAC

Н

Α

В

D

INFOID:0000000007771074

ı

K

N

Ν

< DTC/CIRCUIT DIAGNOSIS >

1. CHECK BLOWER MOTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the blower fan resistor connector.
- Check the resistance between blower fan resistor terminals. Refer to the applicable table for the normal value.

Blower fan resistor Terminal		Resistance: Ω
		(Approx.)
	4	0.43
3	1	1.03
	2	3

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the blower fan resistor.

FAN SWITCH

1. CHECK FAN SWITCH

- 1. Turn the ignition switch OFF.
- 2. Disconnect the fan switch connector.
- 3. Check the fan switch circuit continuity.

Fan switch		Condition	Continuity
Terminal		Dial position	Continuity
	2	1st	
3	1	2nd	Existed
	4	3rd	LXISIGU
	5	4th	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace the fan switch (A/C control).

MAGNET CLUTCH

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

MAGNET CLUTCH

Description INFOID:0000000007771075

- The 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 charged magnetic force by electrified.
- IPDM E/R controls magnet clutch by turning the built in A/C relay to ON

 ⇔ OFF according to ECM request.

Component Function Check

PERFORM AUTO ACTIVE TEST

Perform IPDM E/R auto active test. Refer to PCS-40, "Diagnosis Description".

Does the magnet clutch operate?

YFS >> INSPECTION END

NO >> Refer to HAC-153, "Diagnosis Procedure".

Diagnosis Procedure

1. CHECK MAGNET CLUTCH

- Turn the ignition switch OFF.
- 2. Disconnect the magnet clutch connector.
- 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-32, "MAGNET CLUTCH: Removal and Installation".

2.CHECK MAGNET CLUTCH CIRCUIT CONTINUITY

- Turn the ignition switch OFF.
- 2. Disconnect the IPDM E/R connector.
- Check continuity between magnet clutch harness connector and IPDM E/R harness connector.

IPDM E/R		Magnet clutch		Continuity
Connector	Terminal	Connector	Terminal	Continuity
E15	56	F17	1	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses and connectors.

3. CHECK FUSE

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

NOTE:

Refer to PG-91, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> Replace the IPDM E/R.

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

Н

Α

В

D

F

INFOID:0000000007771076

INFOID:0000000007771077

M

N

A/C SWITCH

Description INFOID:000000007771078

- Each signal is sent to BCM by pressing the A/C switch.
- BCM judges the recognition that A/C switch is ON or OFF according to input switch signal.

Component Function Check

INFOID:0000000007771079

1. CHECK A/C SWITCH SIGNAL

(I) With CONSULT

- Turn the ignition switch ON.
- Select the "AIR COND SW" on "DATA MONITOR" in BCM.
- 3. Check the A/C switch signal when A/C switch is operated.

Monitor item	Condition		Status
AIR COND SW	A/C switch	While pushing	On
AIR COND SW		While not pushing	Off

Is inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-154</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000007771080

1. CHECK A/C SWITCH SIGNAL OUTPUT

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

(-	+)	(-)		
A/C o	ontrol		Output waveform	
Connector	Terminal			
M53	12	Ground	(V) 15 10 5 0 10 ms JPMIA0012GB Approx. 1.0 ~ 1.5 V	

Is inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.CHECK CONTINUITY A/C CONTROL GROUND CIRCUIT

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

A/C control			Continuity
Connector	Terminal		Continuity
M53	15	Ground	Existed

Is inspection result normal?

A/C SWITCH

27

Existed

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

YES >> Replace the A/C switch (A/C control).

NO >> Repair the harness or connector.

${f 3.}$ CHECK CONTINUITY BETWEEN A/C CONTROL AND BCM

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

With Intelligent Key

Continuity	BCM		control	A/C c	
Continuity	Terminal	Connector	Terminal	Connector	
Existed	27	M68	12	M53	
			Without Intelligent Key		
Continuity	BCM		A/C control		
Continuity	Connector Terminal		Terminal	Connector	

M65

Is inspection result normal?

YES >> GO TO 4.

M53

NO >> Repair the harness or connector.

12

4. CHECK CONTINUITY BETWEEN A/C CONTROL AND GROUND

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

A/C control			Continuity
Connector	Terminal		Continuity
M53	12	Ground	Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-142, "Exploded View".

NO >> Repair the harness or connector.

HAC

Н

Α

В

D

Е

F

., (0

Κ

ı

M

Ν

0

DEFROSTER POSITION SIGNAL

Description INFOID:0000000007771081

Each signal is sent to BCM by setting the D/F or DEF position.

 BCM judges the change of the air inlet and recognition of A/C switch ON or OFF according to input switch signal.

Component Function Check

INFOID:0000000007771082

${f 1}$.CHECK DEFROSTER POSITION SIGNAL

(II) With CONSULT

- Turn the ignition switch ON.
- Select the "FR DEF SW" on "DATA MONITOR" in BCM.
- Check the A/C switch signal when A/C switch is operated.

Monitor item	Condition		Status
FR DEF SW	MODE position	D/F or DEF	On
TR DEL SW		VENT, B/L or FOOT	Off

Is inspection result normal?

YES >> INSPECTION END

>> Refer to HAC-156, "Diagnosis Procedure". NO

Diagnosis Procedure

INFOID:0000000007771083

1. CHECK VOLTAGE BETWEEN A/C CONTROL AND GROUND

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

(+)		(-)	Maltana
A/C control			Voltage (Approx.)
Connector	Terminal		(11 /
M53	6	Ground	12 V

Is inspection result normal?

YES >> Replace the A/C control.

NO >> GO TO 2.

2.check continuity between A/C control and bcm

- Turn the ignition switch OFF.
- Disconnect the BCM connector.
- Check continuity between A/C control harness connector and BCM harness connector.

With Intelligent Key

A/C o	control	всм		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	6	M71	103	Existed
Without Intelligent Key				

A/C o	A/C control		BCM	
Connector	Terminal	Connector	Terminal	Continuity
M53	6	M66	31	Existed

Is inspection result normal?

DEFROSTER POSITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

YES >> GO TO 3.

NO >> Repair the harness or connector.

3. Check continuity between A/C control and ground

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

A/C o	control	_	Continuity	
Connector	Terminal		Continuity	
M53	6	Ground	Not existed	

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-142, "Exploded View".

NO >> Repair the harness or connector.

D

Α

В

Е

F

G

Н

HAC

K

L

M

Ν

0

A/C INDICATOR

Component Function Check

INFOID:0000000007771084

1.PERFORM AUTO ACTIVE TEST OF A/C INDICATOR

(II) With CONSULT

- 1. Select the "AIR COND IND" on "ACTIVE TEST" in BCM.
- Check the A/C indicator status.

On : A/C indicator ON
Off : A/C indicator OFF

Is inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-158</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000007771085

1. DEFINE THE MALFUNCTION

Define the A/C indicator malfunction.

A/C indicator dose not turn ON>>GO TO 2.

A/C indicator dose not turn OFF>>GO TO 6.

2.CHECK FUSE

Check 10A fuse [No. 16, located in the fuse block (J/B)].

NOTE:

Refer to PG-89, "Fuse, Connector and Terminal Arrangement".

Is inspection result normal?

YES >> GO TO 3.

NO >> Replace fuse after repairing the applicable circuit.

3.CHECK VOLTAGE BETWEEN A/C CONTROL POWER SUPPLY

- 1. Turn the ignition switch ON.
- Check voltage between A/C control harness connector and the ground.

(+)		(-)	
A/C control			Voltage
Connector	Terminal		
M53	14	Ground	Battery voltage

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair the harness or connector between A/C control and fuse.

4. CHECK VOLTAGE BETWEEN A/C CONTROL AND GROUND

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

(+)		(-)	Maltana
A/C control			Voltage (Approx.)
Connector	Terminal	_	(11 - 7
M53	13	Ground	12 V

Is inspection result normal?

YES >> GO TO 5.

NO >> Replace the A/C control (A/C indicator).

A/C INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

5. CHECK CONTINUITY BETWEEN A/C CONTROL AND BCM

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

With Intelligent Key

A/C d	control	ВСМ		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	13	M71	72	Existed
Without Intellic	ent Kev			

A/C control		BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	13	M66	50	Existed

Is inspection result normal?

YES >> GO TO 6.

NO >> Repair the harness or connector.

6. CHECK CONTINUITY BETWEEN A/C CONTROL AND GROUND

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

A/C control			Continuity
Connector	Terminal		Continuity
M53	13	Ground	Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-142, "Exploded View".

NO >> Repair the harness or connector.

Н

Α

В

D

Е

F

HAC

K

L

Ν

BLOWER FAN ON SIGNAL

Component Function Check

INFOID:0000000007771086

1. CHECK BLOWER FAN ON SIGNAL

(P)With CONSULT

- Turn the ignition switch ON.
- 2. Select the "FAN ON SIG" on "DATA MONITOR" in BCM.
- 3. Check the fan ON signal when the fan control dial is operated.

Monitor item	Condition		Status	
FAN ON SIG	Fan control dial	OFF position	Off	
IANONOIG	Fan control dial	Except OFF position	On	

Is inspection result normal?

YES >> INSPECTION END

NO >> Refer to <u>HAC-160</u>, "<u>Diagnosis Procedure</u>".

Diagnosis Procedure

INFOID:0000000007771087

1. CHECK BLOWER FAN ON SIGNAL OUTPUT

- 1. Turn the ignition switch OFF.
- Disconnect the fan switch connector.
- 3. Turn the ignition switch ON.
- 4. Check output waveform between fan switch harness connector and the ground with using oscilloscope.

(+)	(-)	
Fan	switch		Output waveform
Connector	Terminal	_	
M73	6	Ground	(V) 15 10 5 0 → +10ms PIIB7730J Approx. 1.5 ~ 2.0 V

Is inspection result normal?

YES >> Replace the fan switch (A/C control).

NO >> GO TO 2.

2.check continuity between fan switch and bcm

- Turn the ignition switch OFF.
- 2. Disconnect the BCM connector.
- 3. Check continuity between fan switch harness connector and BCM harness connector.

With Intelligent Key

Fan	Fan switch		BCM	
Connector	Terminal	Connector	Terminal	Continuity
M73	6	M68	28	Existed

BLOWER FAN ON SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Without Intelligent Key

Fan switch		ВСМ		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M73	6	M65	28	Existed

Α

В

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair the harness or connector.

С

D

Е

3.check continuity between fan switch and ground

Check continuity between fan switch harness connector and the ground.

Fan	switch	_	Continuity
Connector	Connector Terminal		Continuity
M73	M73 6		Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-142, "Exploded View".

NO >> Repair the harness or connector.

F

Н

HAC

K

L

M

Ν

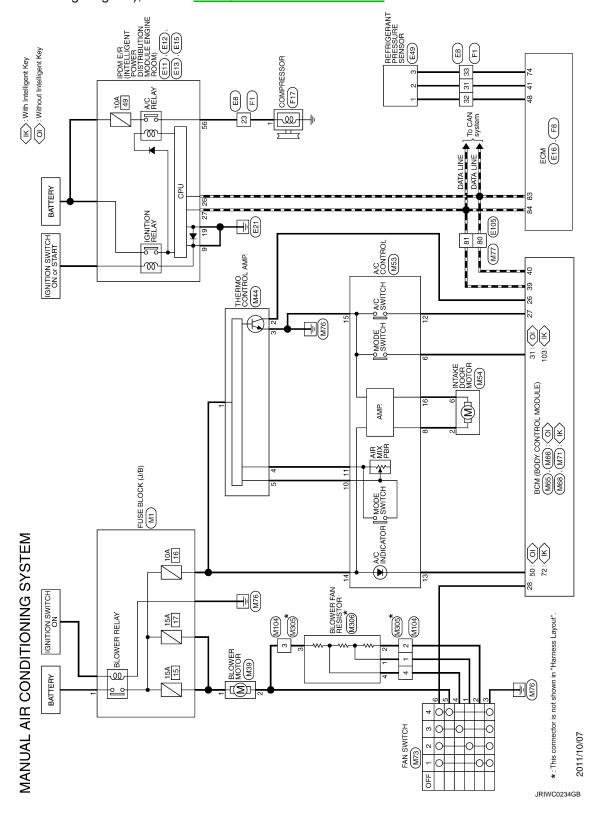
0

INFOID:0000000007771088

MANUAL AIR CONDITIONING SYSTEM

Wiring Diagram — MANUAL AIR CONDITIONING SYSTEM —

For connector terminal arrangements, harness layouts, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".



< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Reference Value

VALUES ON THE DIAGNOSIS TOOL

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
FR WIPER HI	Other than front wiper switch HI	Off
I I VVII LIVIII	Front wiper switch HI	On
FR WIPER LOW	Other than front wiper switch LO	Off
FR WIFER LOW	Front wiper switch LO	On
FR WASHER SW	Front washer switch OFF	Off
IN WASHER SW	Front washer switch ON	On
FR WIPER INT	Other than front wiper switch INT	Off
FR WIPER IINI	Front wiper switch INT	On
ED WIDED STOD	Front wiper is not in STOP position	Off
FR WIPER STOP	Front wiper is in STOP position	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	Wiper intermittent dia position
FR WIPER STOP NT VOLUME RR WIPER ON RR WIPER INT RR WASHER SW RR WIPER STOP TURN SIGNAL R	Other than rear wiper switch ON	Off
	Rear wiper switch ON	On
DD WIDED INT	Other than rear wiper switch INT	Off
RR WIPER IN I	Rear wiper switch INT	On
DD WACHED OW	Rear washer switch OFF	Off
RR WASHER SW	Rear washer switch ON	On
DD WIDED CTOD	Rear wiper is in STOP position	Off
RR WIPER STOP	Rear wiper is not in STOP position	On
TUDNI CIONAL D	Other than turn signal switch RH	Off
TURN SIGNAL R	Turn signal switch RH	On
TUDNI CICNIAL I	Other than turn signal switch LH	Off
TURN SIGNAL L	Turn signal switch LH	On
TAIL LAMP CW	Other than lighting switch 1ST and 2ND	Off
TAIL LAMP SW	Lighting switch 1ST or 2ND	On
HI BEAM SW	Other than lighting switch HI	Off
HI DEAIVI SVV	Lighting switch HI	On
LIEAD LAMD CW/4	Other than lighting switch 2ND	Off
HEAD LAMP SW 1	Lighting switch 2ND	On
JEAD LAMB SW 2	Other than lighting switch 2ND	Off
HEAD LAMP SW 2	Lighting switch 2ND	On
DA CCINIC CW	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
ALITO LICUT CVA	Other than lighting switch AUTO	Off
AUTO LIGHT SW	Lighting switch AUTO	On

Revision: 2011 November HAC-163 2012 CUBE

В

Α

٠

D

Е

F

G

Н

HAC

J

K

L

M

Ν

0

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
ED EOG SW	Front fog lamp switch OFF	Off
FR FOG SW	Front fog lamp switch ON	On
DOOD SW DD	Front fog lamp switch OFF Front fog lamp switch ON Driver door closed Driver door opened Passenger door closed Passenger door opened Rear RH door closed Rear RH door closed Rear LH door opened Back door opened Other than power door lock switch LOCK Power door lock switch LOCK Other than power door lock switch UNLOCK Power door lock switch UNLOCK Other than driver door key cylinder LOCK position Driver door key cylinder LOCK position Other than driver door key cylinder UNLOCK position Driver door key cylinder UNLOCK position Other than driver door key cylinder UNLOCK position Driver door key cylinder LOCK position Other than driver door key cylinder UNLOCK position Driver door key cylinder UNLOCK position Note: The zer window defogger switch OFF Rear window defogger switch ON NOTE: The item is indicated, but not monitored. NOTE: The item is indicated, but not monitored. Blower fan OFF Blower fan OFF Blower fan ON Air conditioner OFF (A/C switch indicator OFF) Air conditioner ON (A/C switch indicator ON) LOCK button of the key is pressed LOCK button of the key is pressed UNLOCK button of the key is not pressed BACK DOOR OPEN button of the key is not pressed BACK DOOR OPEN button of the key is pressed PANIC button of the key is not pressed LOCK/UNLOCK button of the key is not pressed PANIC button of the key is pressed LOCK/UNLOCK button of the key is pressed LOCK/UNLOCK button of the key is not pressed Bright outside of the vehicle	Off
DOOK SW-DK	Driver door opened	On
DOOD OW 40	Passenger door closed	Off
DOOR SW-AS	Passenger door opened	On
DOOD OW DD	Rear RH door closed	Off
DOOR SW-RR	Rear RH door opened	On
DOOD OW DI	Rear LH door closed	Off
DOOR SW-RL	Rear LH door opened	On
	Back door closed	Off
DOOR SW-BK	Back door opened	On
	Other than power door lock switch LOCK	Off
CDL LOCK SW	Power door lock switch LOCK	On
	Other than power door lock switch UNLOCK	Off
CDL UNLOCK SW	Power door lock switch UNLOCK	On
	Other than driver door key cylinder LOCK position	Off
KEY CYL LK-SW		On
		Off
KEY CYL UN-SW		On
	·	Off
HAZARD SW	Hazard switch is ON	On
	Rear window defogger switch OFF	Off
REAR DEF SW		On
IR/BD OPEN SW	The item is indicated, but not monitored.	Off
TRNK/HAT MNTR		Off
TANLONI SIC	Blower fan OFF	Off
-AIN OIN SIG	Blower fan ON	On
AID COND CW	Air conditioner OFF (A/C switch indicator OFF)	Off
Driver door closed Driver door closed Driver door closed Driver door opened Driver door closed Rear RH door closed Rear RH door opened Driver door locked Driver door locked Driver door lock switch LOCK Driver door lock switch UNLOCK Driver door lock by Opinder LOCK position Driver door lock by Opinder UNLOCK position Opinder UNLOCK button of the key is not pressed Driver door lock by Opinder UNLOCK button of the key is not pressed Driver door lock by Opinder UNLOCK button of the key is not pressed Driver door lock button of the lock is not pressed and held simultaneously Driver door lock button of the lock is not pressed and held simultaneo	On	
DVE LOOK	LOCK button of the key is not pressed	Off
RKE-LOCK	LOCK button of the key is pressed	On
21/2 1111 221/	UNLOCK button of the key is not pressed	Off
RKE-UNLOCK	UNLOCK button of the key is pressed	On
OVE TO OD	BACK DOOR OPEN button of the key is not pressed	Off
KKE-TR/BD	BACK DOOR OPEN button of the key is pressed	On
DIVE BANKS	PANIC button of the key is not pressed	Off
RKE-PANIC	PANIC button of the key is pressed	On
	LOCK/UNLOCK button of the key is not pressed and held simultaneously	Off
RKE-MODE CHG		On
		Close to 5 V
OPTI SEN (DTCT)	-	Close to 0 V

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Monitor Item	Condition	Value/Status	_
ODTI OENI (EUT)	Bright outside of the vehicle (Lighting switch AUTO)	Close to 5 V	- A
OPTI SEN (FILT)	Dark outside of the vehicle (Lighting switch AUTO)	Close to 1.50 V	_
OPTICAL SENSOR	NOTE: The item is indicated, but not monitored.	Off	В
RAIN SENSOR	NOTE: The item is indicated, but not monitored.	Off	
DEO CW DD	Driver door request switch is not pressed	Off	_ 0
REQ SW -DR	Driver door request switch is pressed	On	_
REQ SW -AS	Passenger door request switch is not pressed	Off	
REQ 5W -A5	Passenger door request switch is pressed	On	_
REQ SW -RR	NOTE: The item is indicated, but not monitored.	Off	E
REQ SW -RL	NOTE: The item is indicated, but not monitored.	Off	_
DEO CW. DD/TD	Back door request switch is not pressed	Off	F
REQ SW -BD/TR	Back door request switch is pressed	On	_
DUCULOW.	Push-button ignition switch (push switch) is not pressed	Off	
PUSH SW	Push-button ignition switch (push switch) is pressed	On	_
CLUCITOM	The clutch pedal is not depressed.	Off	 ,
CLUCH SW	The clutch pedal is depressed	On	-
DDAKE OM 4	The brake pedal is not depressed	Off	
BRAKE SW 1	The brake pedal is depressed	On	H
	The brake pedal is depressed when No. 9 fuse is blown	Off	_ 11/
BRAKE SW 2	The brake pedal is not depressed when No. 9 fuse is blown, or No. 9 fuse is normal	On	
DETE/CANCL CW/	Selector lever in P position	Off	_
DETE/CANCL SW	Selector lever in any position other than P	On	 ,
OFT DAYALOVA	Selector lever in any position other than P and N	Off	ŀ
SFT PN/N SW	Selector lever in P or N position	On	_
S/L -LOCK	NOTE: The item is indicated, but not monitored.	Off	_ [
S/L -UNLOCK	NOTE: The item is indicated, but not monitored.	Off	
S/L RELAY-F/B	NOTE: The item is indicated, but not monitored.	Off	_ /\
UNLK SEN -DR	Driver door is locked	Off	_
UNLK SEN -DK	Driver door is unlocked	On	- N
PUSH SW -IPDM	Push-button ignition switch (push-switch) is not pressed	Off	_
FUSH SW -IFDIVI	Push-button ignition switch (push-switch) is pressed	On	
GN RLY1 -F/B	Ignition switch in OFF or ACC position	Off	_
GN KLTT-F/B	Ignition switch in ON position	On	_
DETE SW. IDDM	Selector lever in any position other than P	Off	– F
DETE SW -IPDM	Selector lever in P position	On	_
CET DN IDDM	Selector lever in any position other than P and N	Off	_
SFT PN -IPDM	Selector lever in P or N position	On	_
OFT D. MET	Selector lever in any position other than P	Off	_
SFT P -MET	Selector lever in P position	On	=

HAC-165 Revision: 2011 November 2012 CUBE

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
CET NI MET	Selector lever in any position other than N	Off
SEL IN -INIET	Selector lever in N position	On
	Engine stopped	Stop
ENCINE STATE	While the engine stalls	Stall
SFT N -MET SINGINE STATE SIL LOCK-IPDM SIL UNLK-IPDM SIL RELAY-REQ IEH SPEED 1 IEH SPEED 2 DOOR STAT-DR DOOR STAT-AS DOK FLAG PRMT ENG STRT PRMT RKE STRT RKE OPE COUN1 RKE OPE COUN2	At engine cranking	Crank
	Engine running	Run
S/L LOCK-IPDM	NOTE: The item is indicated, but not monitored.	Off
S/L UNLK-IPDM	NOTE: The item is indicated, but not monitored.	Off
S/L RELAY-REQ	NOTE: The item is indicated, but not monitored.	Off
VEH SPEED 1	While driving	Equivalent to speed- ometer reading
VEH SPEED 2	While driving	Equivalent to speed- ometer reading
	Driver door is locked	LOCK
DOOR STAT-DR	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door is unlocked	UNLOCK
DOOR STAT-AS D OK FLAG	Passenger door is locked	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Passenger door is unlocked	UNLOCK
ID OK FLAG	Driver side door is open after ignition switch is turned OFF (Selector lever is in the P position except for M/T models)	Reset
	Ignition switch ON	Set
DDMT ENC CTDT	The engine start is prohibited	Reset
FRIMI ENG STRT	The engine start is permitted	Set
PRMT RKE STRT	NOTE: The item is indicated, but not monitored.	Reset
RKE OPE COUN1	During the operation of the key	Operation frequency of the key
RKE OPE COUN2	NOTE: The item is indicated, but not monitored.	_
CONFOMIDALI	The key ID that the key slot receives is not recognized by any key ID registered to BCM.	Yet
CONFRWID ALL	The key ID that the key slot receives is recognized by any key ID registered to BCM.	Done
CONFIRM ID4	The key ID that the key slot receives is not recognized by the fourth key ID registered to BCM.	Yet
CONFIRM ID4	The key ID that the key slot receives is recognized by the fourth key ID registered to BCM.	Done
CONFIRM ID2	The key ID that the key slot receives is not recognized by the third key ID registered to BCM.	Yet
CONFIRM ID3	The key ID that the key slot receives is recognized by the third key ID registered to BCM.	Done
CONFIDM ID2	The key ID that the key slot receives is not recognized by the second key ID registered to BCM.	Yet
CONFIRM ID2	The key ID that the key slot receives is recognized by the second key ID registered to BCM.	Done

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Monitor Item	Condition	Value/Status
CONFIRM ID1	The key ID that the key slot receives is not recognized by the first key ID registered to BCM.	Yet
CONFIRM IDI	The key ID that the key slot receives is recognized by the first key ID registered to BCM.	Done
NOT DECISTEDED	BCM detects registered key ID, or BCM does not detect key ID.	ID OK
NOT REGISTERED	BCM detects non-registration key ID.	ID NG
TP 4	The ID of fourth key is not registered to BCM	Yet
174	The ID of fourth key is registered to BCM	Done
TP 3	The ID of third key is not registered to BCM	Yet
IF 3	The ID of third key is registered to BCM	Done
The ID of second key is not registered to BCM The ID of second key is registered to BCM The ID of first key is not registered to BCM		Yet
IP 2	Done	
TD 4	The ID of first key is not registered to BCM	Yet
TP 1	The ID of first key is registered to BCM	Done
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front LH tire
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front RH tire
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear RH tire
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear LH tire
ID DECOT ELA	ID of front LH tire transmitter is registered	Done
ID REGST FL1	ID of front LH tire transmitter is not registered	Yet
ID DECOTED (ID of front RH tire transmitter is registered	Done
ID REGST FR1	ID of front RH tire transmitter is not registered	Yet
ID DECOT DD4	ID of rear RH tire transmitter is registered	Done
ID REGST RR1	ID of rear RH tire transmitter is not registered	Yet
ID DECCE DI 4	ID of rear LH tire transmitter is registered	Done
ID REGST RL1	ID of rear LH tire transmitter is not registered	Yet
NAVA DANIALO L'ANAD	Tire pressure indicator OFF	Off
WARNING LAMP	Tire pressure indicator ON	On
DUZZED	Tire pressure warning alarm is not sounding	Off
BUZZER	Tire pressure warning alarm is sounding	On

HAC

Α

В

С

D

Е

F

G

Н

Κ

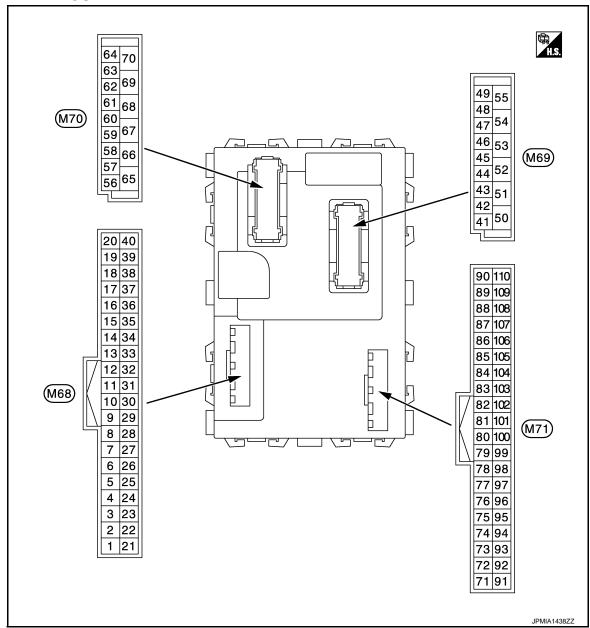
L

M

Ν

0

TERMINAL LAYOUT



NOTE:

Connector color

• M68, M70: Black

• M69, M71: White

PHYSICAL VALUES

	nal No.	Description				Value		
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)		
					All switch OFF	0 V		
					Turn signal switch RH			
					Lighting switch HI	(V) 15		
2 (BR/W)	Ground	Combination switch INPUT 5	Input	Combination switch (Wiper intermit-	Lighting switch 1ST	10 5 0 ++10ms PKIB4958J 1.0 V		
	DR/VV) INPUT 5	INFOT 5		tent dial 4)	Lighting switch 2ND	(V) 15 10 5 0 **10 msi JPMIA0342JP		
					All switch OFF	0 V		
				Turn signal switch LH	_			
					Lighting switch PASS	(V) 15		
3 (GR)	3 Ground Combination switch Input 4	Input	Combination switch (Wiper intermit-	Lighting switch 2ND	10 5 0 ++10ms PKIB4958J			
(3.4)			tent dial 4)	Front fog lamp switch ON	(V) 15 10 5 0 +-10ms PKIB4956J 0.8 V			
					All switch OFF	0 V		
				Front wiper switch LO				
				Combination	Front wiper switch MIST	(V) 15		
4	Ground	Combination switch	Innut	switch	Front wiper switch INT	10		
(L/Y)		Input (Wiper intermittent dial 4)	(Wiper intermit-	(Wiper intermit-	(Wiper intermit-	(Wiper intermit-	Lighting switch AUTO	0 ++10ms
						PKIB4958J 1.0 V		

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
+ (Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
					All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch (Wiper intermittent dial 4) Rear washer ON (Wiper intermittent dial 4)	(V) 15 10 5
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	PKIB4958J
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 10 10 10 10 10 10 10 10 10 10 10 10
					All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4) Rear wiper switch INT (Wiper intermittent dial 4)	(V) 15 10 5 0
					Wiper intermittent dial 3 (All switch OFF)	PKIB4958J
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	(V) 15 10 5 0 ++10ms PKIB4952J 1.9 V
				Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	(V) 15 10 10 10 10 10 10 10 10 10 10 10 10 10	

< ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description			O a selection	Value
+	-	Signal name	Input/ Output		Condition	(Approx.)
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylinder switch	NEUTRAL position	(V) 15 10 5 0 + 10ms JPMIA0587GB 8.0 - 8.5 V
					UNLOCK position	0 V
8 (W/B)	Ground	Door key cylinder switch LOCK	Input	Door key cylin- der switch	NEUTRAL position LOCK position	12 V 0 V
9				Stop lamp	OFF (Brake pedal is not depressed)	0 V
(R)	Ground	Stop lamp switch 1	Input	switch	ON (Brake pedal is depressed)	Battery voltage
12 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V
					LOCK position	0 V
13 (BR)	Ground	Door lock and unlock switch UNLOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V
					UNLOCK position	0 V
14	Ground	Optical sensor	Input	Ignition switch	When bright outside of the vehicle	Close to 5 V
(L/G)		, .		ON	When dark outside of the vehicle	Close to 0 V
15 (W/L)	Ground	Rear window defog- ger switch	Input	Rear window defogger switch	Not pressed	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V
					Pressed	0 V
17	Crave d	Optical sensor pow-	O 4 4	Ignition assistate	OFF, ACC	0 V
(R/G)	Ground	er supply	Output	Ignition switch	ON	5 V

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)
18 (V)	Ground	Sensor ground	Input	Ignition switch ON		0 V
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Intelligent Key: Intelligent Key battery is re- moved	Brake pedal: Depressed NOTE: Waveform varies each time when brake pedal is depressed	(V) 15 10 5 0
					Brake pedal: Not de- pressed	12 V
				ON		0 V
23 (R/Y)	Ground	Security indicator lamp	Output	Security indicator	Blinking (Ignition switch OFF)	(V) ₁₅ 10 5 0 ++1s JPMIA0590GB 12.0 V
					OFF	Battery voltage
24* ¹ (SB)	Ground	Dongle link	Input/ Output	Ignition switch O	FF	5 V
25 (LG)	Ground	NATS antenna amp.	Input/ Output	During waiting	Brake pedal: Depressed NOTE: Waveform varies each time when brake pedal is depressed Brake pedal: Not de-	(V) 15 10 5 0 → -40ms JMKIA6233JP
					pressed	12 V
26* ²	Ground	Thermo control amp.	Input	Ignition switch O	N	0 V
(GR)			L ***	Evaporator is ext	remely low temperature	12 V

< ECU DIAGNOSIS INFORMATION >

	Terminal No. Description (Wire color)				Value		
+ (Wire	e color)	Signal name	Input/ Output		Condition	(Approx.)	1
		A/C ON (Automatic A/C)		A/C	OFF (A/C switch indicator: OFF)	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V	(
27 (O)	Ground		Input	ON (A/C switch indicator: ON)	0 V		
(6)		A/C switch (Manual A/C)		A/C switch	OFF	(V) 15 10 5 10 ms JPMIA0012GB 1.0 - 1.5 V	F
					ON	0 V	
		Blower fan switch (Automatic A/C)			Blower fan switch OFF	0 V	ŀ
28				Fan switch	Blower fan switch ON	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	H
(G/W)	Ground	Blower fan switch (Manual A/C)	Input –	Fan switch	Blower fan switch OFF	(V) 15 10 5 0 ++10ms PIIB7730J 1.5 - 2.0 V	I
29 (L/W)	Ground	Hazard switch	Input	Hazard switch	Blower fan switch ON OFF ON	0 V 12 V 0 V	1
31 (G/B)	Ground	Front door lock assembly driver side (Unlock sensor)	Input	Driver door	LOCK status (Unlock sensor switch OFF)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	F
					UNLOCK status (Unlock sensor switch ON)	0 V	

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)
-					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 +-10ms PKIB4960J 7.0 - 8.0 V
32 (LG)	Ground	Combination switch OUTPUT 5	Output	Combination switch	Front fog lamp switch ON (Wiper intermittent dial 4)	(M)
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	0 +10ms PKIB4956J
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
33 (Y/L)	Ground	Ground Combination switch OUTPUT 4 Output	Output	Combination switch	Lighting switch 1ST (Wiper intermittent dial 4)	
					Lighting switch AUTO (Wiper intermittent dial 4)	(V) 15 10
					Rear wiper switch INT (Wiper intermittent dial 4)	5
				Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	PKIB4958J 1.2 V	

< ECU DIAGNOSIS INFORMATION >

Terminal No.		Description				.,.	
(Wire	e color)	Signal name	Input/ Output		Condition	Value (Approx.)	А
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 → 10ms PKIB4960J 7.0 - 8.0 V	B C
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4) Lighting switch HI	(V) :	Е
					(Wiper intermittent dial 4) Rear washer switch ON (Wiper intermittent dial 4) Any of the condition below	15 10 5 0	F
					with all switch OFF Wiper intermittent dial 1 Wiper intermittent dial 2 Wiper intermittent dial 3	PKIB4958J 1.2 V	G
35		Combination switch		Combination switch	All switch OFF	(V) 15 10 5 0 ***+10ms PKIB4960J 7.0 - 8.0 V	HAC
(R/L)	Ground	OUTPUT 2	Output	(Wiper intermittent dial 4)	Lighting switch 2ND Lighting switch PASS Front wiper switch INT	(V) 15 10 5	K
					Front wiper switch HI	0 → +10ms PKIB4958J	L
						1.2 V	M
					All switch OFF	15 10 5 0	Ν
36 (L/O)	Ground	Combination switch OUTPUT 1	Output	Combination switch (Wiper intermit- tent dial 4)	Turn signal switch RH Turn signal switch LH	7.0 - 8.0 V	O P
					Front wiper switch LO (Front wiper switch MIST) Front washer switch ON	PKIB4958J	
	1	I.	1	l.	1		

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)
37	Ground	Selector lever P po-	Input	Selector lever	P position	0 V
(G/O)	Cround	sition switch	mpat	Colodiol level	Any position other than P	12 V
				lawiting quitab	Waiting	12 V
		Receiver communication	Input/ Output	Ignition switch OFF (Remote keyless entry communication)	When operating either button on Intelligent Key	15 10 5 0 200 ms JMMIA0572GB
38 (G/Y)	Ground			Ignition switch ON (TPMS communication)	Waiting	(V) 15 10 5 0 100 ms JMMIA0573GB
					When receiving signal from tire pressure sensor	(V) 15 10 5 0 100 ms JMMIA0574GB
39 (L)	Ground	CAN-H	Input/ Output		_	_
40 (P)	Ground	CAN-L	Input/ Output		_	_
43 (W)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 9.5 - 10.0 V
					ON (When back door opened)	0 V
44		Rear wiper stop position	Input	Ignition switch ON	Rear wiper stop position	12 V
(LG)	Ground				Any position other than rear wiper stop position	0 V

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		O an alitica		Value	
+		Signal name	Input/ Output		Condition	(Approx.)	
45 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	(V) 15 10 5 0	
					ON (When passenger door opened)	7.0 - 8.0 V 0 V	
46 (GR/L) Ground	Ground	d Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	(V) 15 10 5 0 → • 10ms PKIB4960J	
					ON (When rear RH door opened)	7.0 - 8.0 V 0 V	
47 (BR/Y)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) 15 10 5 0 → • 10ms PKIB4960J 7.0 - 8.0 V	
					ON (When driver door opened)	0 V	
48 (W/G)	Ground	Rear LH door switch	Input	Rear LH door switch	OFF (When rear LH door closed)	(V) 15 10 5 0 + 10ms PKIB4960J	
					ON (When rear door LH opened)	7.0 - 8.0 V 0 V	
50 (R/W)	Ground	Back door lock actuator relay control	Output	Back door	LOCK (Actuator is activated) Other than LOCK (Actua-	0 V Battery voltage	
51	Ground	Back door request	Input	Back door re-	tor is not activated) ON (Pressed)	0 V	
(W) 54	Ground	switch Rear wiper	Output	quest switch Rear wiper	OFF (Not pressed) OFF (Stopped)	12 V 0 V	
(LG)	Ciouna ittoai wipei	Tour Mipor	Calput	. tour wipor	ON (Activated)	12 V	

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
55	Ground	Rear door UNLOCK	Output	Rear door	UNLOCK (Actuator is activated)	12 V
(G)	Orouna	real door on Eoon	Odiput		Other then UNLOCK (Actuator is not activated)	0 V
				Interior room lamp battery saver is activated. (Cuts the interior room lamp power supply)		0 V
56 (L)	Ground	power supply vated. (Outputs		vated.	rior room lamp power sup-	12 V
57 (Y)	Ground	Battery power sup- ply	Input	Ignition switch O	FF	Battery voltage
59	0	Passenger door UN-	0.1.1	D	UNLOCK (Actuator is activated)	12 V
(G)	Ground	LOCK	Output	Passenger door	Other then UNLOCK (Actuator is not activated)	0 V
					Turn signal switch OFF	0 V
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0
					Turn signal switch OFF	0 V
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch RH	(V) 15 10 5 0 1s PKIC6370E
					OFF	6.0 V 12 V
63 (BR)	Ground	Interior room lamp control signal	Output	Interior room lamp	ON	0 V
65		-	Output		LOCK (Actuator is activated)	12 V
(V)	Ground	All doors LOCK		All doors	Other then LOCK (Actuator is not activated)	0 V
66	Ground	Driver door UN-	Output	Driver door	UNLOCK (Actuator is activated)	12 V
(L/B)	Cround	LOCK	Julpul	2	Other then UNLOCK (Actuator is not activated)	0 V
67 (B)	Ground	Ground	Output	Ignition switch ON		0 V
68 (L)	Ground	P/W power supply (IGN)	Output	Ignition switch O	N	12 V
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		12 V

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Terminal No. (Wire color)		Description			Condition	Value
+	-	Signal name	Input/ Output		Condition	(Approx.)
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch O	FF	Battery voltage
72* ² (SB)	Ground	A/C indicator	Output	A/C indicator	OFF ON	12 V 0 V
					ON (Pressed)	0 V
75 (SB)	Ground	Driver door request switch	Input	Driver door re- quest switch	OFF (Not pressed)	12 V
				Push-button ig-	Pressed	0 V
76 (L/O)	Ground	Push-button ignition switch (push switch)	Input	nition switch (push switch)	Not pressed	12 V
78 (LO)	Ground	und Driver door antenna (+)	Output	When the driver door request switch is operat- ed with ignition switch ON	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 500 ms JMKIA5954GB
(LG)	Glodila				When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB
79	Ground	Driver door antenna	Output	When the driver door request	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 JMKIA5954GB
(V)	2.53.13	(-) Suipe	Сари	switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB

Revision: 2011 November HAC-179 2012 CUBE

Ρ

Terminal No. (Wire color)		Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
80	Ground	Passenger door antenna (+)	Output	When the passenger door request switch is operated with ignition switch ON	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 JMKIA5954GB
(BR/Y)					When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB
81	Ground	Passenger door antenna (-)	Output	When the passenger door request switch is operated with ignition switch ON	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 JMKIA5954GB
(L/Y)					When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB
82	Ground	Ground Back door antenna (+)	Output	When the back door request	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 JMKIA5954GB
(W/B)			switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 JMKIAS955GB	

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value	Α
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)	A
83		Back door antenna (-		When the back door request	When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 500 ms JMKIA5954GB	B C D
(B/W)	Ground		Output	switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 JMKIA5955GB	E
84	Ground	Room antenna (+)	Output	Ignition switch	When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 JMKIA5951GB	H HAC
(Y/G)	Clound	(Instrument center)	Culput	ON	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 JMKIA3839GB	J K L
85	Ground	Room antenna (-)	Output	Ignition switch	When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 JMKIA5951GB	M
(Y/L)	Sissifi	(Instrument center)	Suput	ON	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 JMKIA3839GB	Р

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
86	Ground	Luggage room an-	Output	Ignition switch	When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 1 1 1 1 1 1 1 1 1 1
(P)	Clound	tenna (+)	Jupat	ON	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 1 s JMKIA3839GB
87	Ground	Luggage room an-	Output	Ignition switch	When Intelligent Key is not in the antenna detection area	(V) 15 10 5 0 1 s JMKIA5951GB
(L)		tenna (-)		ON	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 1 s JMKIA3839GB
90 (W/L)	Ground	Push-button ignition switch illumination	Output	Push-button ig- nition switch illu- mination	ON OFF	12 V 0 V
91 (Y)	Ground	ACC/ON indicator lamp	Output	Ignition switch	OFF ACC or ON OFF	Battery voltage 0.5 V 0 V
92 (BR/R)	Ground	Push-button ignition switch illumination ground	Output	Tail lamp	ON	NOTE: When the illumination brightening/dimming level is in the neutral position (V) 15 10 5 0 JPMIA1554GB 6.0 - 7.0 V

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Α

В

D

Е

F

Н

HAC

M

Ν

0

Р

	nal No.	Description				Value
+	color)	Signal name	Input/ Output		Condition	(Approx.)
93	Ground	Intelligent Key warn-	Output	Intelligent Key	Sounding	0 V
(GR/W)	Giodila	ing buzzer	Output	warning buzzer	Not sounding	12 V
96	Ground	ACC relay control	Output	Ignition switch	OFF	0 V
(BR/W)	Ciodila	7.00 Telay control	Output	ignition switch	ACC or ON	12 V
97	Ground	Starter relay control	Output	Ignition switch	When selector lever is in P or N position	Battery voltage
(L/R)	Ground	Glarier relay control	Output	ON	When selector lever is not in P or N position	0 V
98	Ground	Ignition relay (IPDM	Output	Ignition switch	OFF or ACC	12 V
(BR)	Giodila	E/R) control	Output	ignition switch	ON	0 V
99	Ground	Ignition relay control	Output	Ignition switch	OFF or ACC	0 V
(W/R)	Ground	Igillion relay control	Output	ignition switch	ON	12 V
100	Ground	Passenger door re-	Input	Passenger door	ON (Pressed)	0 V
(G)	Giodila	quest switch	при	request switch	OFF (Not pressed)	12 V
102	Ground	Selector lever P/N	Input	Selector lever	P or N position	Battery voltage
(G)	Cround	position	mpat	Colodiol lovel	Except P and N positions	0 V
					A/C mode defroster ON position	0 V
103* ² (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	Other than A/C mode de- froster ON position	(V) 15 10 5 0 ***2ms JPMIA0589GB 8.0 - 9.0 V
104 (Y/R)	Ground	CVT shift selector (detention switch) power supply	Output	Ignition switch ON		12 V
105 (B/O)	Ground	Stop lamp switch 2	Input	Ignition switch OFF		Battery voltage
106	Ground	Blower fan motor re-	Output	Ignition switch	OFF or ACC	0 V
(Y/B)	Ground	lay control	Output	igilition switch	ON	12 V

^{*1:} For Canada

Revision: 2011 November

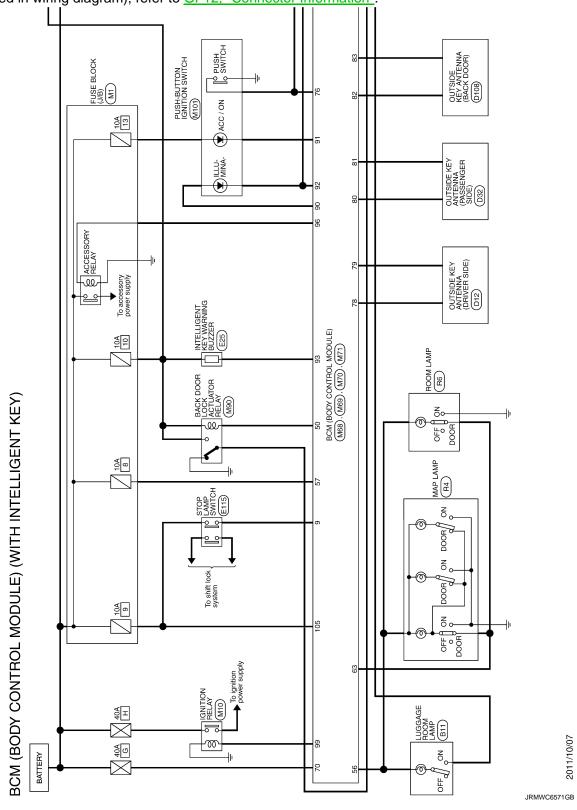
BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Wiring Di-

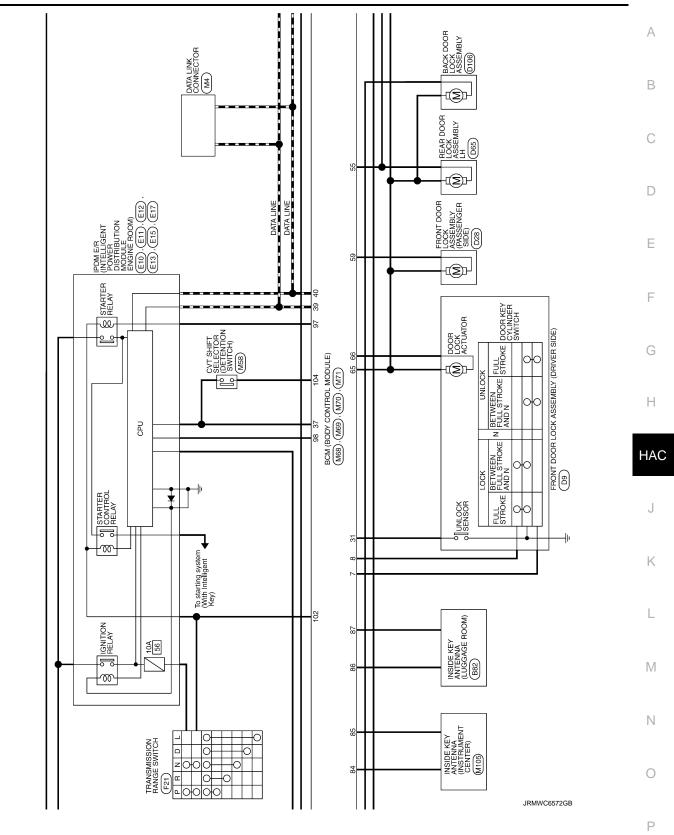
2012 CUBE

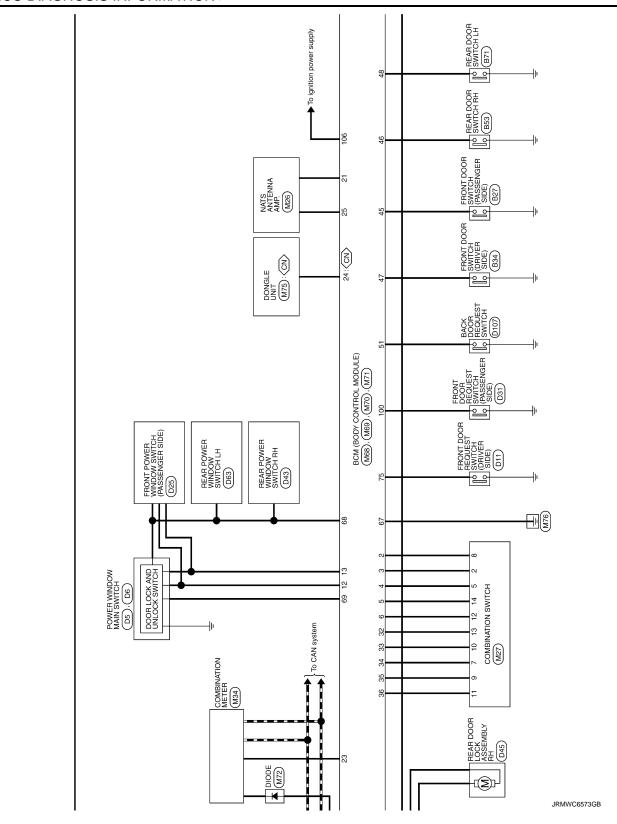
^{*2:} Manual air conditioner

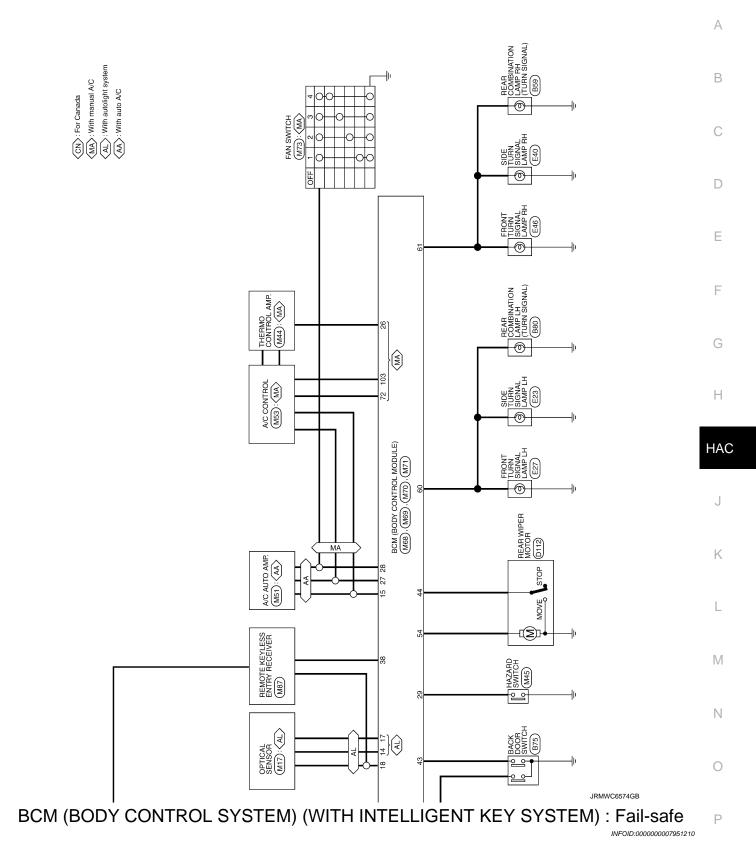
agram - BCM -

For connector terminal arrangements, harness layouts, and alphabets in a (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".









FAIL-SAFE CONTROL BY DTC

BCM performs fail-safe control when any DTC are detected.

Display contents of CONSULT	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI-SCANNING	Inhibit engine cranking	Ignition switch $ON \rightarrow OFF$
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC
B2198: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2608: STARTER RELAY	Inhibit engine cranking	 500 ms after the following signal communication status becomes consistent Starter relay control signal Starter relay status signal (CAN)
B260F: ENG STATE SIG LOST	Inhibit engine cranking	When any of the following conditions are fulfilled • Power position changes to ACC • Receives engine status signal (CAN)
B26F1: IGN RELAY OFF	Inhibit engine cranking	When the following conditions are fulfilled Ignition switch ON signal (CAN: Transmitted from BCM): ON Ignition switch ON signal (CAN: Transmitted from IPDM E/R): ON
B26F2: IGN RELAY ON	Inhibit engine cranking	When the following conditions are fulfilled Ignition switch ON signal (CAN: Transmitted from BCM): OFF Ignition switch ON signal (CAN: Transmitted from IPDM E/R): OFF
B26F3: START CONT RLY ON	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): OFF • Starter control relay signal (CAN: Transmitted from IPDM E/R): OFF
B26F4: START CONT RLY OFF	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): ON • Starter control relay signal (CAN: Transmitted from IPDM E/R): ON
B26F7: BCM	Inhibit engine cranking by Intelligent Key system	When room antenna and luggage room antenna functions normally

REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper stop position signal.

When the rear wiper stop position signal does not change for more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation

- 1. More than 1 minute is passed after the rear wiper stop.
- 2. Turn rear wiper switch OFF.
- Operate the rear wiper switch or rear washer switch.

FAIL-SAFE CONTROL OF COMBINATION SWITCH READING FUNCTION CAUSED BY LOW POWER SUPPLY VOLTAGE

If voltage of battery power supply lower, BCM maintains combination switch reading to the status when input voltage is less than approximately 9 V.

NOTE:

When voltage of battery power supply is approximately 9 V or more, combination switch reading function returns to normal operation.

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): DTC Inspection Priority Chart

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	B2562: LOW VOLTAGE
2	U1000: CAN COMM CIRCUIT U1010: CONTROL UNIT (CAN)

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Priority	DTC	
3	 B2192: ID DISCORD BCM-ECM B2193: CHAIN OF BCM-ECM B2195: ANTI-SCANNING B2196: DONGLE NG B2198: NATS ANTENNA AMP 	
	B2555: STOP LAMP B2556: PUSH-BTN IGN SW B2557: VEHICLE SPEED B2601: SHIFT POSITION B2602: SHIFT POSITION	
	B2603: SHIFT POSI STATUS B2604: PNP/CLUTCH SW B2605: PNP/CLUTCH SW B2608: STARTER RELAY	
4	B260F: ENG STATE SIG LOST B2614: BCM B2615: BCM B2616: BCM	
7	 B2618: BCM B261A: PUSH-BTN IGN SW B26F1: IGN RELAY OFF B26F2: IGN RELAY ON 	
	 B26F3: START CONT RLY ON B26F4: START CONT RLY OFF B26F6: BCM B26F7: BCM 	
	 B26F8: BCM B26FC: KEY REGISTRATION C1729: VHCL SPEED SIG ERR U0415: VEHICLE SPEED 	I
	C1704: LOW PRESSURE FL C1705: LOW PRESSURE FR C1706: LOW PRESSURE RR C1707: LOW PRESSURE RL C1708: [NO DATA] FL	
5	 C1709: [NO DATA] FR C1710: [NO DATA] RR C1711: [NO DATA] RL C1716: [PRESSDATA ERR] FL C1717: [PRESSDATA ERR] FR 	
6	C1718: [PRESSDATA ERR] RR C1719: [PRESSDATA ERR] RL B2621: INSIDE ANTENNA	
	B2622: INSIDE ANTENNA B2626: OUTSIDE ANTENNA	
7	B2627: OUTSIDE ANTENNA B2628: OUTSIDE ANTENNA	

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM): DTC Index

INFOID:0000000007951212

0

NOTE:

The details of time display are as follows.

- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.

IGN counter is displayed on Freeze Frame Data. For details of Freeze Frame Data, refer to <u>HAC-137, "COM-MON ITEM"</u>.

CONSULT display	Fail-safe	Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condition	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected.					
further testing may be required.	_	_	_	_	_
U1000: CAN COMM	_	_	_	_	BCS-40
U1010: CONTROL UNIT (CAN)	_	_	_	_	BCS-41
U0415: VEHICLE SPEED	_	_	×	_	BCS-42
B2192: ID DISCORD BCM-ECM	×	_	_	_	SEC-38
B2193: CHAIN OF BCM-ECM	×	_	_	_	SEC-40
B2195: ANTI-SCANNING	×	_	_	_	SEC-41
B2196: DONGLE NG	×	_	_	_	SEC-42
B2198: NATS ANTENNA AMP	×	_	_	_	SEC-44
B2555: STOP LAMP	_	×	×	_	SEC-48
B2556: PUSH-BTN IGN SW	_	×	×	_	SEC-50
B2557: VEHICLE SPEED	_	×	×	_	SEC-52
B2562: LOW VOLTAGE	_	×	_	_	BCS-43
B2601: SHIFT POSITION	_	×	×	_	<u>SEC-53</u>
B2602: SHIFT POSITION	_	×	×	_	<u>SEC-56</u>
B2603: SHIFT POSI STATUS	_	×	×	_	SEC-59
B2604: PNP/CLUTCH SW	_	×	×	_	SEC-64
B2605: PNP/CLUTCH SW	_	×	×	_	<u>SEC-67</u>
B2608: STARTER RELAY	×	×	×	_	<u>SEC-69</u>
B260F: ENG STATE SIG LOST	×	×	×	_	SEC-71
B2614: BCM	_	×	×	_	PCS-75
B2615: BCM	_	×	×	_	PCS-78
B2616: BCM	_	×	×	_	PCS-81
B2618: BCM	_	×	×	_	PCS-84
B261A: PUSH-BTN IGN SW	_	×	×	_	PCS-85
B2621: INSIDE ANTENNA	_	×	_	_	DLK-44
B2622: INSIDE ANTENNA	_	×	_	_	DLK-46
B2626: OUTSIDE ANTENNA	_	×	_	_	DLK-50
B2627: OUTSIDE ANTENNA	_	×	_	_	DLK-48
B2628: OUTSIDE ANTENNA	_	×	_	_	DLK-52
B26F1: IGN RELAY OFF	×	×	×	_	PCS-87
B26F2: IGN RELAY ON	×	×	×	_	PCS-89
B26F3: START CONT RLY ON	×	×	×	_	<u>SEC-72</u>
B26F4: START CONT RLY OFF	×	×	×	_	<u>SEC-73</u>
B26F6: BCM	_	×	×	_	PCS-91
B26F7: BCM	×	×	×	_	<u>SEC-75</u>
B26F8: BCM	_	×	×	_	<u>SEC-76</u>
B26FC: KEY REGISTRATION	_	×	×	_	SEC-77

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

CONSULT display	Fail-safe	Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condition	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
C1704: LOW PRESSURE FL	_	_	_	×	
C1705: LOW PRESSURE FR	_	_	_	×	<u>WT-22</u>
C1706: LOW PRESSURE RR	_	_	_	×	<u> </u>
C1707: LOW PRESSURE RL	_	_	_	×	
C1708: [NO DATA] FL	_	_	_	×	
C1709: [NO DATA] FR	_	_	_	×	WT-24
C1710: [NO DATA] RR	_	_	_	×	<u>VV1-24</u>
C1711: [NO DATA] RL	_	_	_	×	
C1716: [PRESSDATA ERR] FL	_	_	_	×	
C1717: [PRESSDATA ERR] FR	_	_	_	×	WT-27
C1718: [PRESSDATA ERR] RR	_	_	_	×	<u>vv 1-27</u>
C1719: [PRESSDATA ERR] RL	_	_	_	×	
C1729: VHCL SPEED SIG ERR	_	_	_	×	WT-29

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Reference Value

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
IONI ONI CIW	Ignition switch OFF or ACC	Off
IGN ON SW	Ignition switch ON	On
KEY ON SW	Mechanical key is removed from key cylinder	Off
KEY ON SW	Mechanical key is inserted to key cylinder	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the lock side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
CDL UNLOCK 5W	Press door lock/unlock switch to the unlock side	On
DOOR SW-DR	Driver's door closed	Off
DOOK SW-DK	Driver's door opened	On
DOOR SW-AS	Passenger door closed	Off
DOOK SW-AS	Passenger door opened	On
DOOR SW-RR	Rear RH door closed	Off
DOOK SW-KK	Rear RH door opened	On
DOOR SW-RL	Rear LH door closed	Off
DOOK SW-KL	Rear LH door opened	On
BACK DOOR SW	Back door closed	Off
BACK DOOK SW	Back door opened	On
LOCK STATUS	NOTE: The item is indicated, but not monitored.	Off

Revision: 2011 November HAC-191 2012 CUBE

HAC

Α

В

D

Е

F

K

J

L

 \mathbb{N}

Ν

0

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
ACC ON SW	Ignition switch OFF	Off
ACC ON SW	Ignition switch ACC or ON	On
NEAL ESS TOOK	"LOCK" button of key fob is not pressed	Off
KEYLESS LOCK	"LOCK" button of key fob is pressed	On
KEVI EQQ LINII QQK	"UNLOCK" button of key fob is not pressed	Off
KEYLESS UNLOCK	"UNLOCK" button of key fob is pressed	On
SHOCK SENSOR	NOTE: The item is indicated, but not monitored.	NORMAL
	Other than driver door key cylinder LOCK position	Off
KEY CYL LK-SW	Driver door key cylinder LOCK position	On
	Other than driver door key cylinder UNLOCK position	Off
KEY CYL UN-SW	Driver door key cylinder UNLOCK position	On
VEHICLE SPEED	While driving	Equivalent to speed- ometer reading
-	Rear window defogger switch OFF	Off
REAR DEF SW	Rear window defogger switch ON	On
	NOTE:	Off
REVERSE SW CAN	The item is indicated, but not used.	On
	Lighting switch OFF	Off
TAIL LAMP SW	Lighting switch 1ST	On
FR FOG SW	NOTE: The item is indicated, but not monitored.	Off
	The seat belt (driver side) is fastened. [Seat belt switch (driver side) OFF]	Off
BUCKLE SW	The seat belt (driver side) is unfastened. [Seat belt switch (driver side) ON]	On
TRNK/HAT MNTR	NOTE: The item is indicated, but not monitored.	Off
	Ignition switch OFF	Off
ACC SW	Ignition switch ACC or ON	On
KYLS TRNK/HAT	NOTE: The item is indicated, but not monitored.	Off
	PANIC button of key fob is not pressed	Off
KEYLESS PANIC	PANIC button of key fob is pressed	On
	Lighting switch OFF	Off
HI BEAM SW	Lighting switch HI	On
	Lighting switch OFF	Off
HEAD LAMP SW 1	Lighting switch 2ND	On
	Lighting switch OFF	Off
HEAD LAMP SW 2	Lighting switch 2ND	On
AUTO LIGHT SW	NOTE: The item is indicated, but not monitored.	Off
	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
RR FOG SW	NOTE: The item is indicated, but not monitored.	Off
	Turn signal switch OFF	Off
TURN SIGNAL R	Turn signal switch RH	On
	Turri Signal Switch INT	OII

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Monitor Item	Condition	Value/Status
TURN SIGNAL L	Turn signal switch OFF	Off
TURN SIGNAL L	Turn signal switch LH	On
PKB SW	Parking brake switch is OFF	Off
PKB 244	Parking brake switch is ON	On
ENGINE RUN	Engine stopped	Off
ENGINE RON	Engine running	On
OPTI SEN (DTCT)	NOTE: The item is indicated, but not monitored.	Close to 5 V
OPTI SEN (FILT)	NOTE: The item is indicated, but not monitored.	Close to 5 V
LIG SEN COND	NOTE: The item is indicated, but not monitored.	OFF
IGN SW CAN	Ignition switch OFF or ACC	Off
1014 074 07414	Ignition switch ON	On
FR WIPER HI	Front wiper switch OFF	Off
TIX WIII LIXTII	Front wiper switch HI	On
FR WIPER LOW	Front wiper switch OFF	Off
TR WIFER LOW	Front wiper switch LO	On
FR WIPER INT	Front wiper switch OFF	Off
FR WIPER INT	Front wiper switch INT	On
FR WASHER SW	Front washer switch OFF	Off
FR WASHER SW	Front washer switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
FR WIPER STOP	Any position other than front wiper stop position	Off
FR WIFER STOP	Front wiper stop position	On
RR WIPER ON	Rear wiper switch OFF	Off
KK WIPER ON	Rear wiper switch ON	On
DD WIDED INT	Rear wiper switch OFF	Off
RR WIPER INT	Rear wiper switch INT	On
DD MACHED OW	Rear washer switch OFF	Off
RR WASHER SW	Rear washer switch ON	On
DD WIDED CTOD	Rear wiper stop position	Off
RR WIPER STOP	Other than rear wiper stop position	On
RAIN SENSOR	NOTE: The item is indicated, but not monitored.	Off
LIAZADD CIAI	Hazard switch OFF	Off
HAZARD SW	Hazard switch ON	On
EANLON OIG	Blower control dial OFF	Off
FAN ON SIG	Other than blower control dial OFF	On
ALD COND OW	A/C switch OFF	Off
AIR COND SW	A/C switch ON	On
THERMO AND	Ignition switch ON	Off
THERMO AMP	Evaporator is extremely low temperature	On
	Other than A/C mode defroster ON position	Off
FR DEF SW	A/C mode defroster ON position	On

Revision: 2011 November HAC-193 2012 CUBE

В

Α

С

D

Е

F

Н

HAC

K

L

M

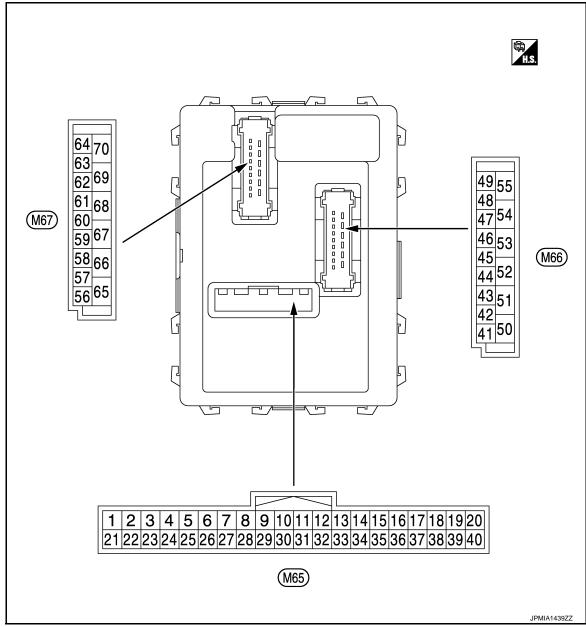
Ν

0

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
KEYLESS TRUNK	NOTE: The item is indicated, but not monitored.	Off
TRNK OPNR SW	NOTE: The item is indicated, but not monitored.	Off
TRNK OPN MNTR	NOTE: The item is indicated, but not monitored.	Off
HOOD SW	Close the hood	Off
HOOD 244	Open the hood	On
TRANSPONDER	Other than the ignition switch is ON by key registered to BCM.	Off
TRANSPONDER	The ignition switch is ON by key registered to BCM.	On
INTELLI KEY	NOTE: The item is indicated, but not used.	Off
AUTO RELOCK	NOTE: The item is indicated, but not monitored.	Off
OIL PRESS SW	Ignition switch OFF or ACC Engine running	Off
	Ignition switch ON	On
BRAKE SW	Brake pedal is not depressed	Off
DRANE OVV	Brake pedal is depressed	On

TERMINAL LAYOUT



NOTE:

M65, M66: WhiteM67: Black

PHYSICAL VALUES

HAC

Н

Α

В

C

D

Е

F

J

Κ

L

M

Ν

0

	nal No.	Description				Value
+ (vvire	color)	Signal name	Input/ Output	Condition		(Approx.)
					All switch OFF	0 V
					Turn signal switch RH	
					Lighting switch HI	(V) 15
2 (BR/W)	Ground	Combination switch INPUT 5		Combination switch (Wiper intermit-	Lighting switch 1ST	10 5 0 ++10ms PKIB4958J 1.0 V
	(BIVW)			tent dial 4)	Lighting switch 2ND	(V) 15 10 5 0 10 ms JPMIA0342JP 2.0 V
					All switch OFF	0 V
					Turn signal switch LH	
				Combination switch (Wiper intermittent dial 4)	Lighting switch PASS	(V) 15
3 (GR)	Ground	Combination switch INPUT 4	Input		Lighting switch 2ND	10 5 0 ++10ms PKIB4958J 1.0 V
					All switch OFF	0 V
					Front wiper switch LO	
				Combination	Front wiper switch MIST	(V) 15
4 (L/Y)	Ground	Ground Combination switch INPUT 3	Input	Combination switch (Wiper intermit- tent dial 4)	Front wiper switch INT	10 10 0

< ECU DIAGNOSIS INFORMATION >

Terminal No. Description (Wire color)				Value		
+ (Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
					All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch (Wiper intermittent dial 4)	(V) 15
					Rear washer switch ON (Wiper intermittent dial 4)	10
					Any of the condition below with all switch OFF	→ +10ms
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	Wiper intermittent dial 1Wiper intermittent dial 5Wiper intermittent dial 6	PKIB4958J
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5 0
				All switch OFF	PKIB4956J 0.8 V	
					(Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	(V) 15
					Rear wiper switch INT (Wiper intermittent dial 4)	10 5 0
					Wiper intermittent dial 3 (All switch OFF)	→ +10ms PKIB4958J
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	Any of the condition below with all switch OFF • Wiper intermittent dial 1	(V) 15 10 5 0
				Wiper intermittent dial 2	PKIB4952J	
						(V)
				Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	(V) 15 10 5 0	
						PKIB4956J

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylin- der switch	NEUTRAL position	(V) 15 10 5 0 +
					UNLOCK position	0 V
8	Ground	Door key cylinder	Input	Door key cylin-	NEUTRAL position	12 V
(W/B)	Giodila	switch LOCK	iliput	der switch	LOCK position	0 V
9	Cround	Stop Jamp quitab		Stop lamp	OFF (Brake pedal is not depressed)	0 V
(R)	Ground	Stop lamp switch	Input	switch	ON (Brake pedal is depressed)	Battery voltage
10	Cround	Rear window defog-	lnnut	Rear window	OFF (Not pressed)	12 V
(W/L)	Ground	ger switch	Input	defogger switch	ON (Pressed)	0 V
11	Ground	Ignition switch ACC	Input	Ignition switch OFF		0 V
(L/Y)	Giodila	Ignition switch ACC	Input	Ignition switch A	CC or ON	Battery voltage
12 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	(V) 15 10 5 0 → 10ms PKIB4960J 7.0 - 8.0 V
					ON (When passenger door opened)	0 V
13 (GR/L)	Ground	Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	(V) 15 10 5 0 → 10ms PKIB4960J 7.0 - 8.0 V
					ON (When rear RH door opened)	0 V
18 (V)	Ground	Receiver ground	Input	Ignition switch O	N	0 V

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value		
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)		
					Insert mechanical key into ignition key cylinder	0 V		
					Remove mechanical key from ignition key cylinder (Any door opened)	5 V		
19 (BR)	Ground	Remote keyless en- try receiver power supply	Input	Ignition switch OFF	Remove mechanical key from ignition key cylinder (Any door closed)	(V) 6 4 2 0 → +0.2 s JPMIA0338JP		
					Insert mechanical key into ignition key cylinder	0 V		
20 (G/Y)	Ground	Remote keyless entry receiver communication		Ignition switch OFF	Waiting	(V) 6 4 2 0 +-1.0ms		
						Signal receiving	(V) 6 4 2 0 ••1.0ms	ŀ
21	Cround	NATC enterns amp	Input/	Just after insertir	ng ignition key in key cylinder	Pointer of tester should move		
(P/L)	Ground	NATS antenna amp.	Output	Other than above	е	0 V		
23	Ground	Security indicator	Input	Security indica-	ON Blinking (Ignition switch	0 V		
(R/Y)	2,03,13	Table 1		tor	OFF	JPMIA0014GB 11.3 V 12 V		
24* (GR/B)	Ground	Dongle link	Input/ Output	Ignition switch O	FF	5 V		
25 (LG)	Ground	NATS antenna amp.	Input/ Output	Just after inserting	ng ignition key in key cylinder	Pointer of tester should move 0 V		
26	Ground	Thormo control cms		Ignition switch O		0 V		
(GR)	Ground	Thermo control amp.	Input	Evaporator is ex	tremely low temperature	12 V		

Terminal No. (Wire color)		Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
27 (Y/G)	Ground	A/C switch	Input	A/C switch	OFF	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V
					ON	·
28 (G/W)	Ground	Blower fan switch	Input	Fan switch	Blower fan switch OFF	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
					Blower fan switch ON	0 V
29	Ground	Hazard switch	Input	Hazard switch	OFF	Battery voltage
(L/W)					ON	0 V
					A/C mode defroster ON position	0 V
31 (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	Other than A/C mode de- froster ON position	(V) 15 10 5 0 ** 2ms JPMIA0589GB 8.0 - 9.0 V
32	Ground	Combination switch	Output	Combination	All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 ++10ms PKIB4960J 7.0 - 8.0 V
(LG)	2.ound	OUTPUT 5	Jaipai	switch	Rear wiper switch ON (Wiper intermittent dial 4)	(V)
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	15 10 5 0 •••10ms PKIB4956J 1.0 V

< ECU DIAGNOSIS INFORMATION >

	Terminal No. Description (Wire color)				Value	А		
+ (vvire	- COIOF)	Signal name	Input/ Output		Condition	(Approx.)	^	
22		Combination quitely		Combination	All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 ++10ms PKIB4960J 7.0 - 8.0 V	B C	
33 (Y/L)	Ground	Combination switch OUTPUT 4	Output	Combination switch	Lighting switch 1ST (Wiper intermittent dial 4) Rear wiper switch INT (Wiper intermittent dial 4)	(V) 15 10	Е	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	1.2 V	F	
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 → 10ms PKIB4960J 7.0 - 8.0 V	Н	
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4)		J	
(,						Lighting switch HI (Wiper intermittent dial 4)	(V) 15 10	1.7
					Rear washer switch ON (Wiper intermittent dial 4)	0	K	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	PKIB4958J 1.2 V	L	
35	Ground	Combination switch	Outout	Combination switch	All switch OFF	(V) 15 0 5 0 +-10ms PKIB4960J 7.0 - 8.0 V	M N	
(R/L)	Ground	OUTPUT 2	Output	(Wiper intermit- tent dial 4)	Lighting switch 2ND	(V) 15	Р	
				tont dial +/	Lighting switch PASS Front wiper switch INT	10		
					Front wiper switch HI	0 → +10ms ± PKIB4958J 1.2 V		

	nal No.	Description				Volue			
(Wire	color)	Signal name	Input/ Output		Condition	Value (Approx.)			
36	Ground	Combination switch	Output	Combination switch	All switch OFF	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V			
(L/O)	Giodila	OUTPUT 1	Output	Guipui	σιιραι	Output	(Wiper intermittent dial 4)	Turn signal switch RH Turn signal switch LH Front wiper switch LO (Front wiper switch MIST)	(V) 15 10 5 0
				Insert mechanica	Front washer switch ON al key into ignition key cylin-	1.2 V			
37 (R/W)	Ground	Key switch	Input	der Remove mechanical key from ignition key cylinder		Battery voltage 0 V			
38 (O)	Ground	Ignition switch ON	Input	Ignition switch OFF or ACC Ignition switch ON		0 V Battery voltage			
39 (L)	Ground	CAN-H	Input/ Output	Igrition Switch S	-	—			
40 (P)	Ground	CAN-L	Input/ Output		_	_			
43 (W)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V			
					ON (When back door opened)	0 V			
44 (LG)	Ground	Rear wiper stop position	Input	Ignition switch ON	Rear wiper stop position Any position other than rear wiper stop position	12 V 0 V			
45 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V			
					LOCK position	0 V			

< ECU DIAGNOSIS INFORMATION >

	nal No.	Description			_	Value
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)
46 (BR)	Ground	Door lock and unlock switch UNLOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms JPMIA0012GB 1.0 - 1.5 V
					UNLOCK position	0 V
47 (BR/Y)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) 15 10 5 0 *** 10ms
					ON (When driver door opened)	7.0 - 8.0 V 0 V
48 (W/G)	Ground	Rear LH door switch	Input	Rear LH door switch	OFF (When rear LH door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
					ON (When rear LH door opened)	0 V
50 (SB)	Ground	A/C indicator	Output	A/C indicator	OFF	12 V
					ON Rear wiper switch OFF	0 V 0 V
54 (LG)	Ground	Rear wiper	Output	Ignition switch ON	Rear wiper switch ON	12 V
. ,					np battery saver is activated.	0 V
56 (L)	Ground	Interior room lamp power supply	Output	vated.	np battery saver is not acti- erior room lamp power sup-	12 V
57 (Y)	Ground	Battery power sup-	Input	Ignition switch C	FF	Battery voltage
59		Driver door UN-			UNLOCK (Actuator is activated)	12 V
(L/B)	Ground	LOCK	Output	Driver door	Other then UNLOCK (Actuator is not activated)	0 V

	nal No.	Description				Value
+ (vvire	color)	Signal name	Input/ Output		Condition	(Approx.)
					Turn signal switch OFF	0 V
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0 1s 1s PKIC6370E
					Turn signal switch OFF	0 V
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch RH	(V) 15 10 5 0 1s 1s PKIC6370E 6.0 V
63		Interior room lamp		Interior room	OFF	12 V
(BR)	Ground	control signal	Output	lamp	ON	0 V
65	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activated)	12 V
(V)	Ground	All doors LOCK	Output	All doors	Other then LOCK (Actuator is not activated)	0 V
66	Ground	Passenger door and	Output	Passenger door	UNLOCK (Actuator is activated)	12 V
(G)	Ground	rear door UNLOCK	Output	and rear door	Other then UNLOCK (Actuator is not activated)	0 V
67 (B)	Ground	Ground	Output	Ignition switch O	N	0 V
68 (L)	Ground	P/W power supply (IGN)	Output	Ignition switch ON		12 V
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch O	FF	12 V
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch O	FF	Battery voltage

^{*:} For Canada

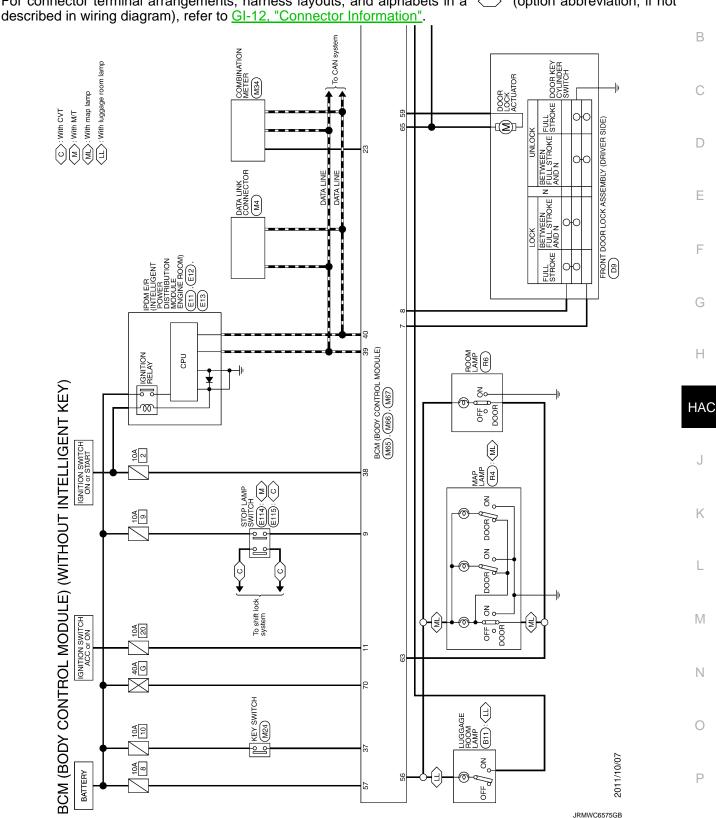
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM): Wiring

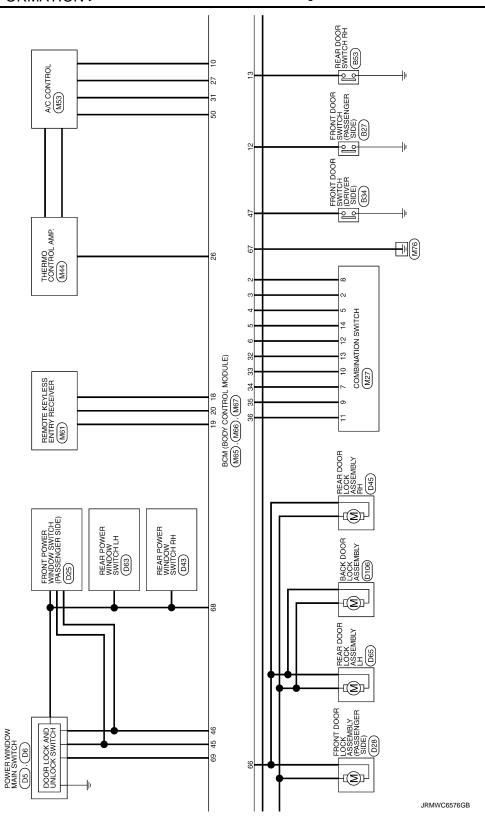
INFOID:0000000007951214

Α

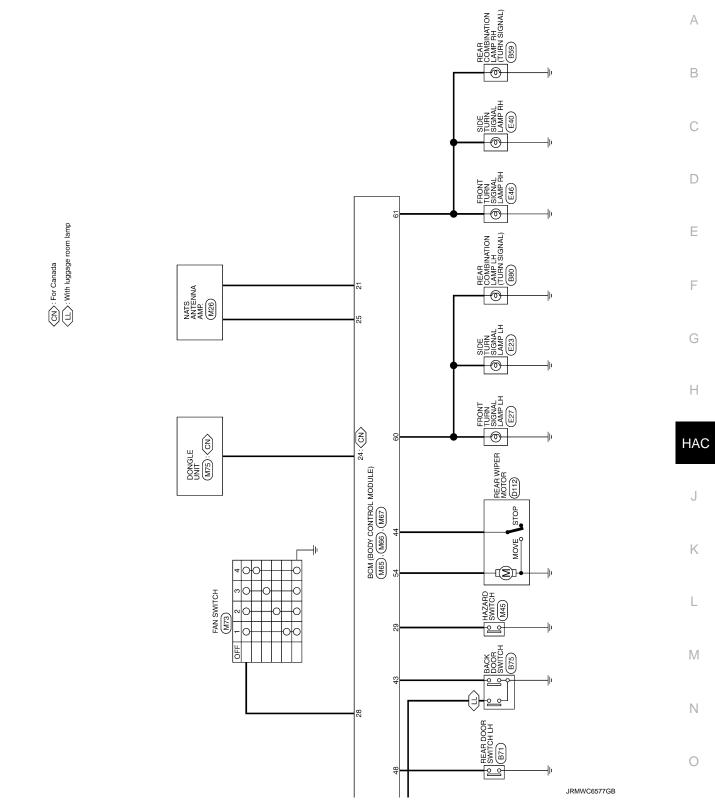
Diagram - BCM -

For connector terminal arrangements, harness layouts, and alphabets in a (option abbreviation; if not





Р



BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Fail-safe

FAIL-SAFE CONTROL BY DTC

BCM performs fail-safe control when any DTC are detected.

Display contents of CONSULT	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2191: DIFFERENCE OF KEY	Inhibit engine cranking	Erase DTC
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI SCANNING	Inhibit engine cranking	Ignition switch $ON \to OFF$
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC

REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper auto stop signal.

When the rear wiper auto stop signal does not change more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation

- 1. Pass more than 1 minute after the rear wiper stop.
- 2. Turn rear wiper switch OFF.
- 3. Operate the rear wiper switch or rear washer switch.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM): DTC Inspection Priority Chart

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	U1000: CAN COMM U1010: CONTROL UNIT (CAN)
2	B2190: NATS ANTENNA AMP B2191: DIFFERENCE OF KEY B2192: ID DISCORD BCM-ECM B2193: CHAIN OF BCM-ECM B2195: ANTI SCANNING B2196: DONGLE NG
3	C1735: IGN CIRCUIT OPEN
4	 C1704: LOW PRESSURE FL C1705: LOW PRESSURE FR C1706: LOW PRESSURE RR C1707: LOW PRESSURE RL C1708: [NO DATA] FL C1709: [NO DATA] FR C1710: [NO DATA] RR C1711: [NO DATA] RL C1716: [PRESSDATA ERR] FL C1717: [PRESSDATA ERR] FR C1718: [PRESSDATA ERR] RR C1719: [PRESSDATA ERR] RR C1719: [PRESSDATA ERR] RL C1729: VHCL SPEED SIG ERR

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM): DTC Index

NOTE:

Details of time display

- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1
 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF \rightarrow ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Fail-safe	Tire pressure monitor warn- ing lamp ON	Reference
U1000: CAN COMM	_	_	BCS-113
U1010: CONTROL UNIT (CAN)	_	_	BCS-114
B2190: NATS ANTENNA AMP	×	_	SEC-173
B2191: DIFFERENCE OF KEY	×	_	SEC-176
B2192: ID DISCORD BCM-ECM	×	_	SEC-177
B2193: CHAIN OF BCM-ECM	×	_	SEC-178
B2195: ANTI SCANNING	×	_	SEC-179
B2196: DONGLE NG	×	_	SEC-180
C1704: LOW PRESSURE FL	_	×	WT-22
C1705: LOW PRESSURE FR	_	×	
C1706: LOW PRESSURE RR	_	×	
C1707: LOW PRESSURE RL	_	×	
C1708: [NO DATA] FL	_	×	
C1709: [NO DATA] FR	_	×	<u>WT-24</u>
C1710: [NO DATA] RR	_	×	
C1711: [NO DATA] RL	_	×	
C1716: [PRESS DATA ERR] FL	_	×	
C1717: [PRESS DATA ERR] FR	_	×	<u>WT-27</u>
C1718: [PRESS DATA ERR] RR	_	×	
C1719: [PRESS DATA ERR] RL	_	×	
C1729: VHCL SPEED SIG ERR	_	×	<u>WT-29</u>
C1735: IGN CIRCUIT OPEN	_	_	BCS-115

HAC

Α

В

D

Е

F

G

Н

Κ

L

M

Ν

0

SYMPTOM DIAGNOSIS

MANUAL AIR CONDITIONING SYSTEM

Diagnosis Chart By Symptom

INFOID:0000000007771094

CAUTION:

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

Sympto	om	Corresponding malfunction part	Check item/Reference
Blower motor operation is malfunctioning.		 Blower motor Power supply system of blower motor The circuit between blower motor and fan switch. The circuit between blower motor and blower fan resistor. Blower fan resistor. Fan switch (A/C control). 	HAC-149, "Diagnosis Procedure"
A/C indicator dose not indicate (Compressor is normal)		A/C indicator (A/C control) The circuit between A/C control and BCM BCM	HAC-158, "Diagnosis Procedure"
Magnet clutch does not operate (Compressor is normal)	Э.	Magnet clutch The circuit between magnet clutch and IPDM E/R IPDM E/R (A/C relay) The circuit between ECM and refrigerant pressure sensor Refrigerant pressure sensor CAN communication line A/C switch Blower fan ON signal Thermo control amp.	HAC-214, "Diagnosis Procedure"
Insufficient cooling No cool air comes out. (Air fle	ow volume is normal.)	 Magnet clutch control system Drive belt slipping Cooler cycle Air leakage from each duct 	HAC-212, "Diagnosis Procedure"
Insufficient heating No warm air comes out. (Air	flow volume is normal.)	Engine cooling systemHeater hoseHeater coreAir leakage from each duct	HAC-213, "Diagnosis Procedure"
	During compressor operation	Cooler cycle	HA-10, "Symptom Table"
Noise is heard when the A/C system operates.	During blower motor operation	 Mixing any foreign object in blower motor Blower motor fan breakage Blower motor rotation inferiority 	HAC-151, "Component Inspection"
Air inlet dose not change.		A/C control Intake door motor Intake door	HAC-144, "Diagnosis Procedure"
Discharge air temperature dose	e not change.	A/C control Air mix door cable Air mix door	Check the air mix door installation and door operation

MANUAL AIR CONDITIONING SYSTEM

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Symptom	Corresponding malfunction part	Check item/Reference
Air outlet dose not change.	A/C control Mode door cable Mode door	Check the mode door installation and door operation
When the MODE dial is set to D/F or DEF, there is the malfunctions as follows: • The A/C switch indicator dose not turn ON. • Air inlet does not becomes REC to FRE.	A/C control BCM	HAC-160, "Diagnosis Procedure"

D

Α

В

С

Е

F

G

Н

HAC

J

K

L

 \mathbb{N}

Ν

0

INSUFFICIENT COOLING

Description INFOID:000000007771095

Symptom

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

Diagnosis Procedure

INFOID:0000000007771096

CAUTION:

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

1. CHECK MAGNET CLUTCH OPERATION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform the diagnosis of "COMPRESSOR DOSE NOT OPERATE" in "SYMPTOM DIAGNOSIS". Refer to HAC-214, "Diagnosis Procedure".

2.CHECK DRIVE BELT

Check tension of the drive belt. Refer to EM-13, "Checking".

Is the inspection result normal?

YES >> GO TO 3.

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

3.check refrigerant cycle pressure

Connect the recovery/recycling recharging equipment to the vehicle and perform the pressure inspection with the gauge. Refer to HA-8, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK AIR LEAKAGE FROM EACH DUCT

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

Is the inspection result normal?

YES >> Check the air mix door cable installation and air mix door operation.

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

INSUFFICIENT HEATING

< SYMPTOM DIAGNOSIS >

2 STWFTOW DIAGNOSIS >	
INSUFFICIENT HEATING	
Description	A 07771097
·	
Symptom	В
 Insufficient heating No warm air comes out. (Air flow volume is normal.) 	
Diagnosis Procedure	O77771098
CAUTION:	
Perform the self-diagnosis with CONSULT before performing symptom diagnosis. If any malfund result or DTC is detected, perform the corresponding diagnosis.	tion D
1.CHECK COOLING SYSTEM	_
1. Check the engine coolant level and check for leakage. Refer to CO-9, "Inspection".	—— E
 Check the radiator cap. Refer to <u>CO-13, "RADIATOR CAP: Inspection"</u>. Check the water flow sounds of the engine coolant. Refer to <u>CO-10, "Refilling"</u>. 	
Is the inspection result normal?	F
YES >> GO TO 2.	
NO >> Refill the engine coolant and repair or replace the parts depending on the inspection results. 2.CHECK HEATER HOSE	G
Check the installation of heater hose by visually or touching.	
Is the inspection result normal?	Н
YES >> GO TO 3.	
NO >> Repair or replace parts depending on the inspection results.	HAC
3.CHECK HEATER CORE	—
 Check the temperature of inlet hose and outlet hose of heater core. Check that the inlet side of heater core is hot and the outlet side is slightly lower than/almost equal to) the
inlet side.	J
CAUTION: Always perform the temperature inspection in a short period of time because the engine coo	lant
temperature is very hot.	K
Is the inspection result normal? YES >> GO TO 4.	
YES >> GO TO 4. NO >> Replace the heater core. Refer to <u>HA-43, "Exploded View (Manual Air Conditioner)"</u> .	L
4.CHECK AIR LEAKAGE FROM EACH DUCT	
Check duct and nozzle, etc. of the air conditioner system for air leakage.	
Is the inspection result normal?	101
YES >> Check the air mix door cable installation and air mix door operation. NO >> Repair or replace parts depending on the inspection results.	
15 Topan of replace parts deportaing on the ineposition results.	N
	0

COMPRESSOR DOSE DOT OPERATE

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

COMPRESSOR DOSE DOT OPERATE

Description INFOID:000000007771099

SYMPTOM

Compressor dose not operate.

Diagnosis Procedure

INFOID:0000000007771100

CAUTION:

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

1. CHECK A/C INDICATOR

- 1. Turn the ignition switch ON.
- 2. Operate the blower motor.
- 3. Check that A/C indicator is turned ON when pressing the A/C switch.
- 4. Check that A/C indicator is turned OFF when pressing the A/C switch again.

Is inspection result normal?

YES >> GO TO 2.

NO >> GO TO 5.

2. CHECK MAGNET CLUTCH OPERATION

Check the magnet clutch. Refer to HAC-153, "Component Function Check".

Does it operate normally?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.check refrigerant pressure sensor

Check the refrigerant pressure sensor. Refer to EC-443, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4. CHECK BCM OUTPUT SIGNAL

(P)With CONSULT

Check the "A/C ON SIG" or "FAN ON SIG" or "A/C RELAY SIG" in ECM.

Monitor item	Condition	Status
COMP REQ SIG	A/C switch: OFF	Off
	A/C switch: ON	On
FAN REQ SW	Fan control dial: OFF	Off
	Fan control dial: ON	On

Is the inspection result normal?

YES >> Replace the IPDM E/R. Refer to PCS-62, "Exploded View".

NO >> Replace the BCM. Refer to BCS-142, "Exploded View".

5. CHECK A/C SWITCH

Check the A/C switch. Refer to HAC-154, "Diagnosis Procedure".

Is inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK BLOWER FAN ON SIGNAL

< SYMPTOM DIAGNOSIS > [MANU] Check the blower fan ON signal. Refer to HAC-160 , "Diagnosis Procedure".	IAL AIR CONDITIONING]
Is the inspection result normal?	
YES >> GO TO 7. NO >> Repair or replace the malfunctioning parts	
CHECK THERMO CONTROL AMP.	
Check the thermo control amp. Refer to HAC-146 , "Diagnosis Procedure". Is the inspection result normal? YES >> Replace the BCM. Refer to BCS-142 , "Exploded View". NO >> Repair or replace the malfunctioning parts	
	_

K

L

M

Ν

0

PRECAUTION

PRECAUTIONS

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

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

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the
 ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with
 a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing
 serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precautions Necessary for Steering Wheel Rotation After Battery Disconnection

INFOID:0000000007771102

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

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

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

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

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

- 2. Turn the ignition switch to ACC position. (At this time, the steering lock will be released.)
- Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.

PRECAUTIONS

< PRECAUTION >

[MANUAL AIR CONDITIONING]

- 4. Perform the necessary repair operation.
- 5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- 6. Perform self-diagnosis check of all control units using CONSULT.

В

C

Α

D

Е

F

G

Н

HAC

J

K

L

M

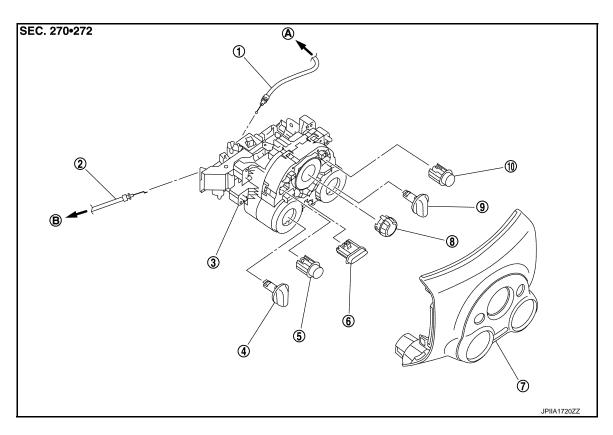
Ν

0

REMOVAL AND INSTALLATION

A/C CONTROL

Exploded View



- Mode door cable
- Mode dial
- 7. A/C finisher
- 10. A/C switch
- A. To mode door link

- 2. Air mix door cable
- 5. Rear window defogger switch
- 8. Fan control dial
- B. To air mix door link

- 3. A/C control
- 6. Intake switch
- Temperature dial

INFOID:0000000007771104

Removal and Installation

REMOVAL

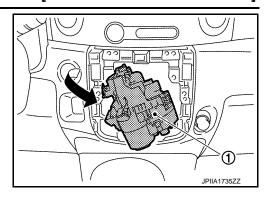
- 1. Remove A/C finisher. Refer to IP-12, "Exploded View".
- 2. Remove the A/C control mounting screws.
- 3. Remove the air mix door cable from the A/C unit assembly. Refer to HAC-226, "AIR MIX DOOR CABLE: Removal and Installation".
- 4. Remove the mode door cable from the A/C unit assembly. Refer to HAC-226, "MODE DOOR CABLE : Removal and Installation".
- 5. Disconnect harness connector.

A/C CONTROL

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

- 6. Turn the A/C control (1) as the following figure.
- 7. Remove the A/C control.



INSTALLATION

Installation is basically the reverse order of removal.

F

Е

Α

В

С

D

G

Н

HAC

K

J

L

M

Ν

0

THERMO CONTROL AMPLIFIER

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

THERMO CONTROL AMPLIFIER

Exploded View

Refer to HA-43, "Exploded View (Manual Air Conditioner)".

Removal and Installation

REMOVAL

- 1. Remove the evaporator. Refer to HA-43, "Exploded View (Manual Air Conditioner)".
- 2. Remove the thermo control amp. from the evaporator.

INSTALLATION

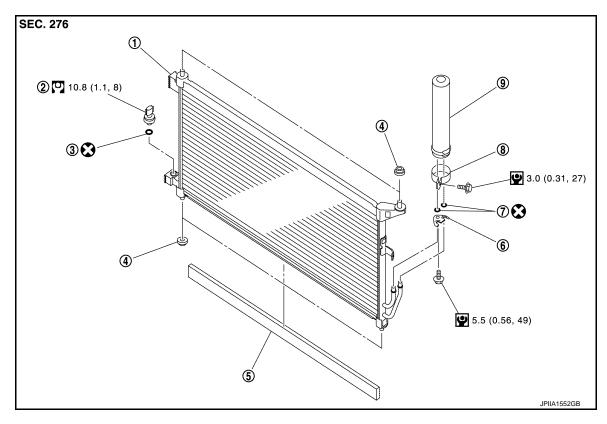
Installation is basically the reverse order of removal.

CAUTION:

- Replace O-ring with new one. Then apply compressor oil to them when installing.
- When install the thermo control amp., set the same position before replacement.
- When remove the thermo control amp., never turn the bracket which is equipped the top of the thermo control amp.
- Check for the leakages when recharging refrigerant. Refer to HA-22, "Leak Test".

REFRIGERANT PRESSURE SENSOR

Exploded View



- Condenser
- 4. Grommet
- 7. O-ring

- 2. Refrigerant pressure sensor
- 5. Condenser seal
- 8. Liquid tank bracket
- 3. O-ring
- 6. Bracket
- 9. Liquid tank

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

CAUTION:

Perform lubricant return operation before each refrigeration system disassembly. However, if a large amount of refrigerant or lubricant is detected, never perform lubricant return operation. Refer to <u>HA-26</u>, "Perform Lubricant Return Operation".

REMOVAL

- 1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant. Refer to HA-24, "Recycle Refrigerant".
- Clean refrigerant pressure sensor and its surrounding area, and then remove dust and rust from refrigerant pressure sensor.

CAUTION:

Be sure to clean carefully.

3. Disconnect refrigerant pressure sensor connector.

Α

В

D

Е

F

Н

HAC

INFOID:0000000007771108

M

K

Ν

0

REFRIGERANT PRESSURE SENSOR

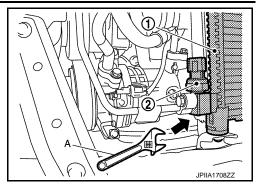
< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

4. Use a adjustable wrench (A) or other tool to hold the refrigerant pressure sensor mounting block, and then remove the refrigerant pressure sensor (2) from the condenser (1).

CAUTION:

- Be careful not to damage liquid tank.
- Be careful not to damage core surface of condenser.
- Cap or wrap the joint of the condenser and liquid tank with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-ring with new one. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant. Refer to HA-22, "Leak Test".

Α

В

D

Е

F

Н

HAC

K

L

M

Ν

Р

INFOID:0000000007771110

BLOWER FAN RESISTOR

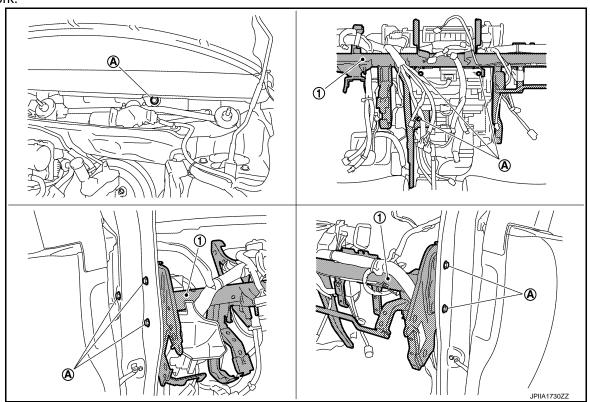
Exploded View

Refer to VTL-13, "Exploded View"

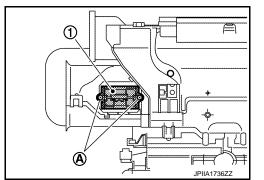
Removal and Installation

REMOVAL

- 1. Remove instrument panel assembly. Refer to IP-12, "Exploded View".
- 2. Remove cowl top extension. Refer to EXT-19, "Exploded View".
- 3. Remove instrument stay.
- 4. Remove mounting bolts (A), and then move steering member (1) to a position where it dose not inhibit work.



- Disconnect blower fan resistor connector.
- 6. Remove mounting screws (A), and then remove blower fan resistor (1).

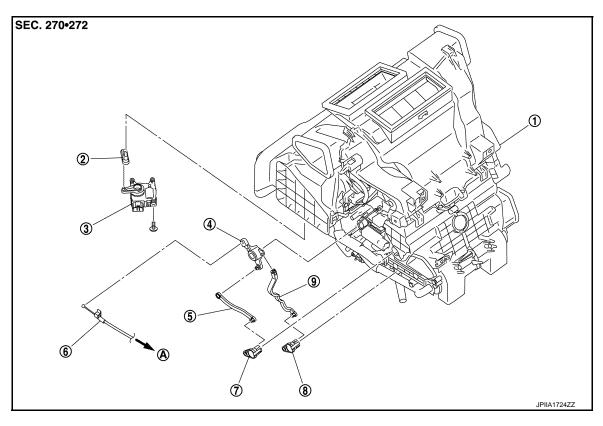


INSTALLATION

Installation is basically the reverse order of removal.

INTAKE DOOR MOTOR

Exploded View



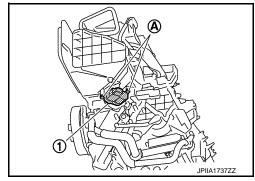
- A/C unit assembly
- 4. Air mix door link
- 7. Upper air mix door lever
- A. To A/C control

- 2. Intake door lever
- 5. Upper air mix door rod
- 8. Lower air mix door lever
- 3. Intake door motor
- 6. Air mix door cable
- 9. Lower air mix door rod

Removal and Installation

REMOVAL

- 1. Remove foot duct LH. Refer to VTL-7, "Exploded View".
- 2. Remove mounting screws (A), and then remove intake door motor (1).
- 3. Disconnect intake door motor connector.



INFOID:0000000007771112

INSTALLATION

Installation is basically the reverse order of removal.

[MANUAL AIR CONDITIONING]

DOOR CABLE

Exploded View

INFOID:0000000007771113

Α

В

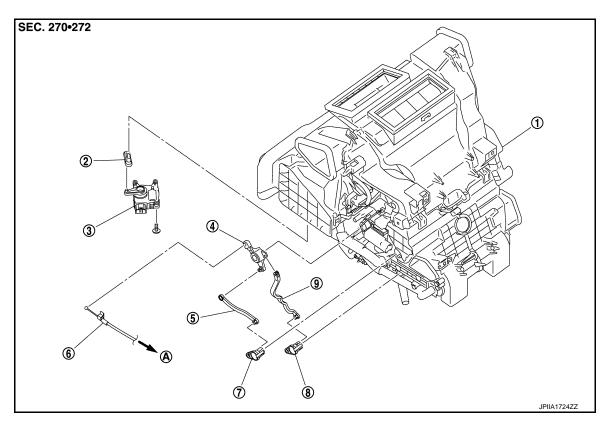
D

Е

Н

HAC

LEFT SIDE



- 1. A/C unit assembly
- 4. Air mix door link
- 7. Upper air mix door lever
- A. To A/C control

- 2. Intake door lever
- 5. Upper air mix door rod
- 8. Lower air mix door lever
- 3. Intake door motor
- 6. Air mix door cable
- 9. Lower air mix door rod

RIGHT SIDE

M

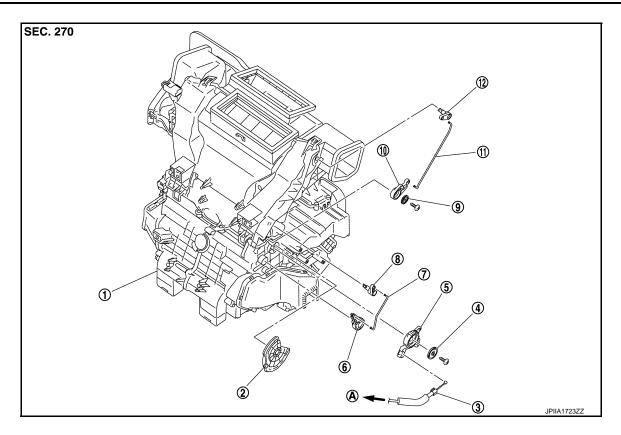
L

K

Ν

0

Ρ



- A/C unit assembly
- Sub defroster door rod
- A. To A/C control

- Main link
- Mode door link 5.
- Sub defroster door lever
- Mode door cable
- Sub defroster door link
- Plate
- 10. Center ventilator and defroster door 11. Center ventilator and defroster door 12. Center ventilator and defroster door

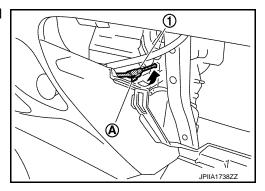
INFOID:0000000007771114

INFOID:0000000007771115

MODE DOOR CABLE

MODE DOOR CABLE: Removal and Installation

- 1. Disconnect mode door cable from A/C control. Refer to HAC-218, "Exploded View".
- 2. Remove glove box assembly. Refer to IP-12, "Exploded View".
- Remove the clamp (A) in the direction shown by the arrow, and the remove mode door cable (1) from the A/C unit assembly.



INSTALLATION

Installation is basically the reverse order of removal.

AIR MIX DOOR CABLE

AIR MIX DOOR CABLE: Removal and Installation

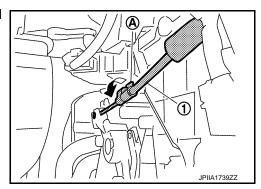
Disconnect air mix door cable from A/C control. Refer to HAC-218, "Exploded View".

DOOR CABLE

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

- 2. Remove foot duct LH. Refer to VTL-7, "Exploded View".
- 3. Remove the clamp (A) in the direction shown by the arrow, and then remove air mix door cable (1) from the A/C unit assembly.



INSTALLATION

Installation is basically the reverse order of removal.

HAC

Α

В

D

Е

F

G

Н

J

Κ

L

M

Ν

0