SECTION HAC

HEATER & AIR CONDITIONING CONTROL SYSTEM

CONTENTS

AUTOMATIC AIR CONDITIONING

MANUAL AIR CONDITIONING

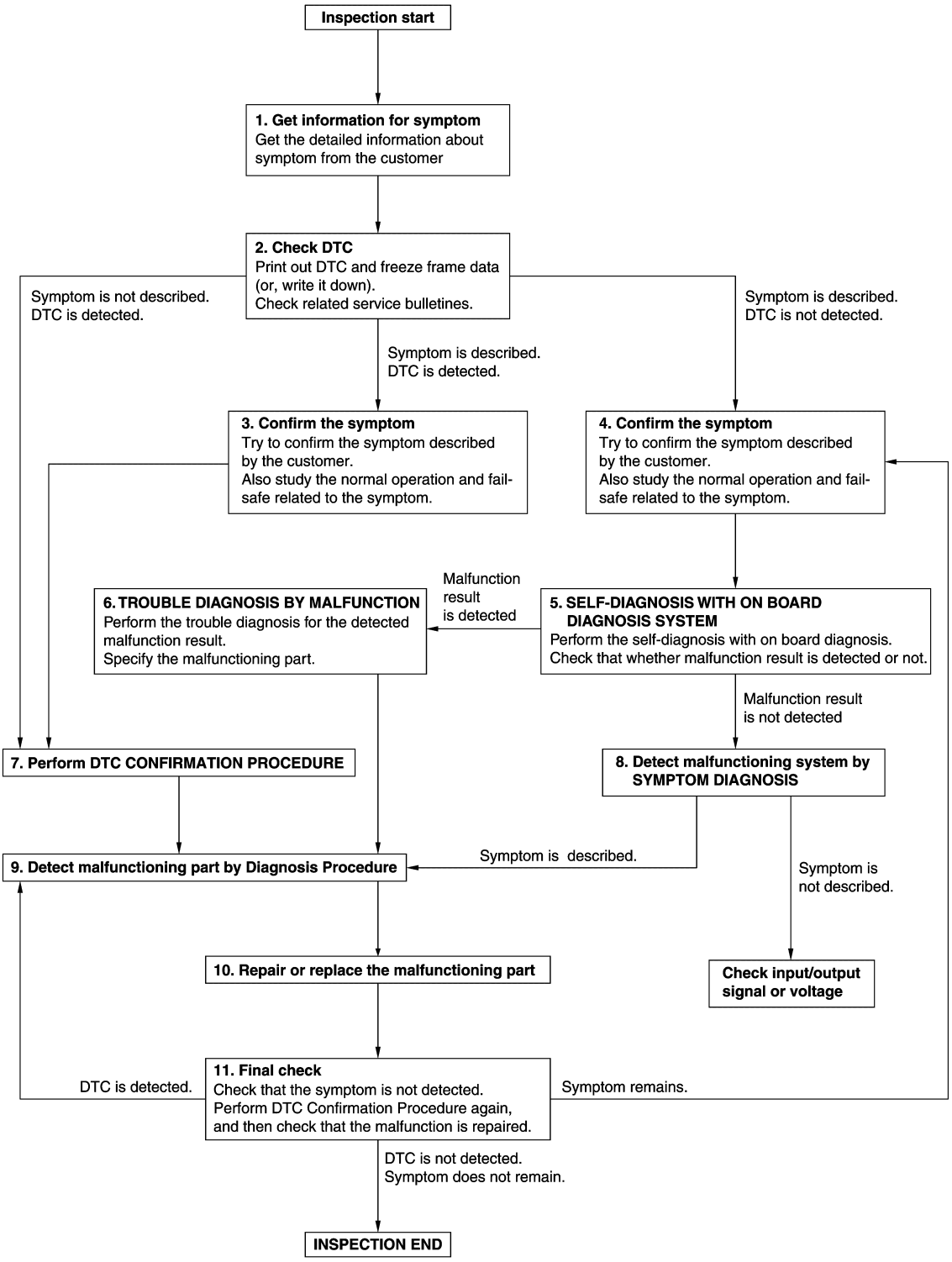
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000008454224

OVERALL SEQUENCE



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DETAILED FLOW

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.

Is malfunction result detected?

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 CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 9.
NO >> Check according to GI-41, "Intermittent Incident".

8. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

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

Is the symptom described?

YES >> GO TO 9.
NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

9. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 10.
NO >> Check according to GI-41, "Intermittent Incident".

10. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 11.

11. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 9.
YES-2 >> Symptom remains: GO TO 4.
NO >> Before returning the vehicle to the customer, always erase DTC.

INSPECTION

Description & Inspection

INFOID:0000000008454225

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.
2. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to VTL-2, "System Description".

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.
2. 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.
6. Listen to intake sound and confirm air inlets change.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Intake door system malfunction. Refer to HAC-50, "Diagnosis Procedure".

5.CHECK A/C SWITCH

1. Press the A/C switch.
2. 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.
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".

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 HAC-104, "Diagnosis Procedure".

8. CHECK TEMPERATURE INCREASE

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

Is the inspection result normal?

YES >> GO TO 9.
NO >> Insufficient heating. Refer to HAC-106, "Diagnosis Procedure".

9. CHECK AUTO MODE

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Refer to HAC-103, "Diagnosis Chart By Symptom" and perform the appropriate diagnosis.

AUXILIARY MECHANISM

Temperature Setting Trimmer

INFOID:0000000008454226

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".
2. 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.

USA models

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
▼ 3 time pressing	AUTO 3	–3

NOTE:

- 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.
- 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.

Inlet Port Memory Function

INFOID:0000000008454227

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

1. 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	
		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.

SYSTEM DESCRIPTION

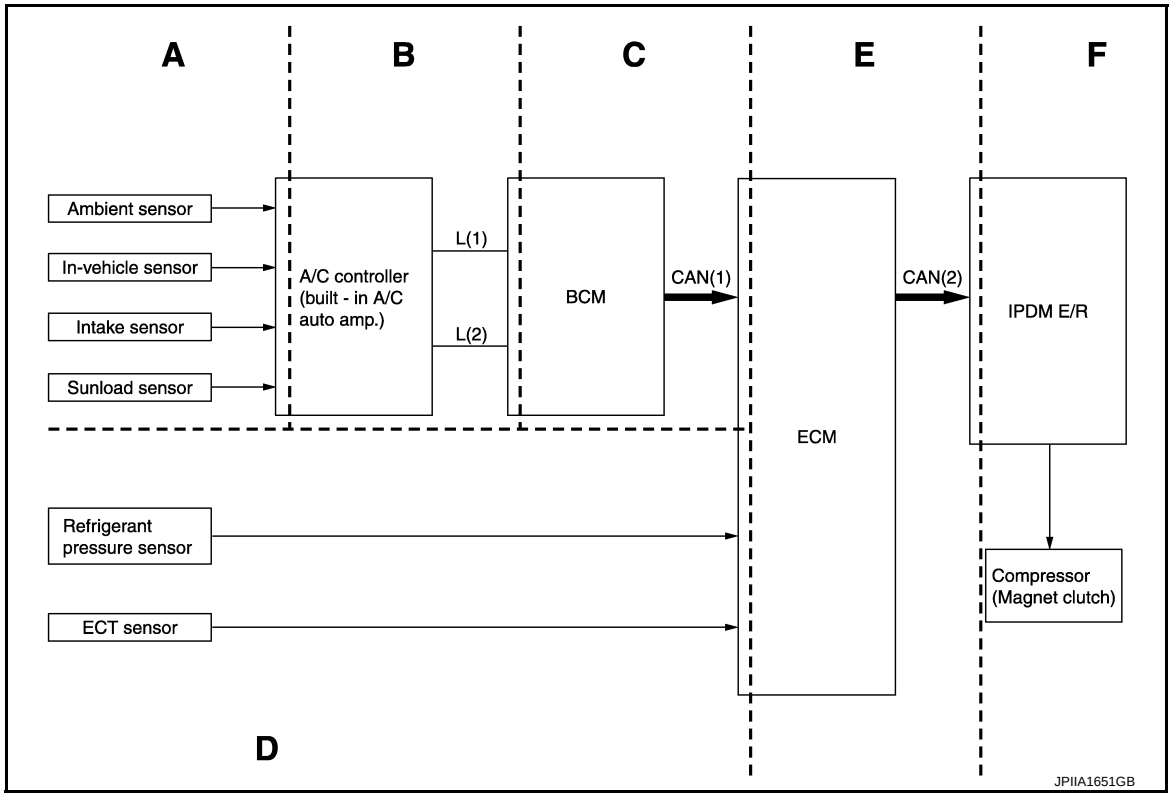
COMPRESSOR CONTROL FUNCTION

Description

INFOID:0000000008454228

PRINCIPLE OF OPERATION

Functional Circuit Diagram



L (1) : Fan ON signal

L (2) : A/C switch signal

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

CAN (2) : A/C compressor request signal

Functional Initial Inspection Chart

×: Applicable

Control unit	Diagnosis item		Location					
			A	B	C	D	E	F
A/C auto amp.	On board self-diagnosis		×	—	—	—	—	—
BCM	"BCM-AIR COND"	Self-diagnosis	—	—	×	—	—	—
		Data monitor	—	×	—	—	—	—
ECM	"ENGINE"	Self-diagnosis (CAN communication line)	—	—	—	—	×	—
		Data monitor	—	—	×	×	—	—
IPDM E/R	"IPDM E/R"	Self-diagnosis (CAN communication line)	—	—	—	—	—	×
		Data monitor	—	—	—	—	×	—
	Auto active test		—	—	—	—	—	×

Component Parts Location

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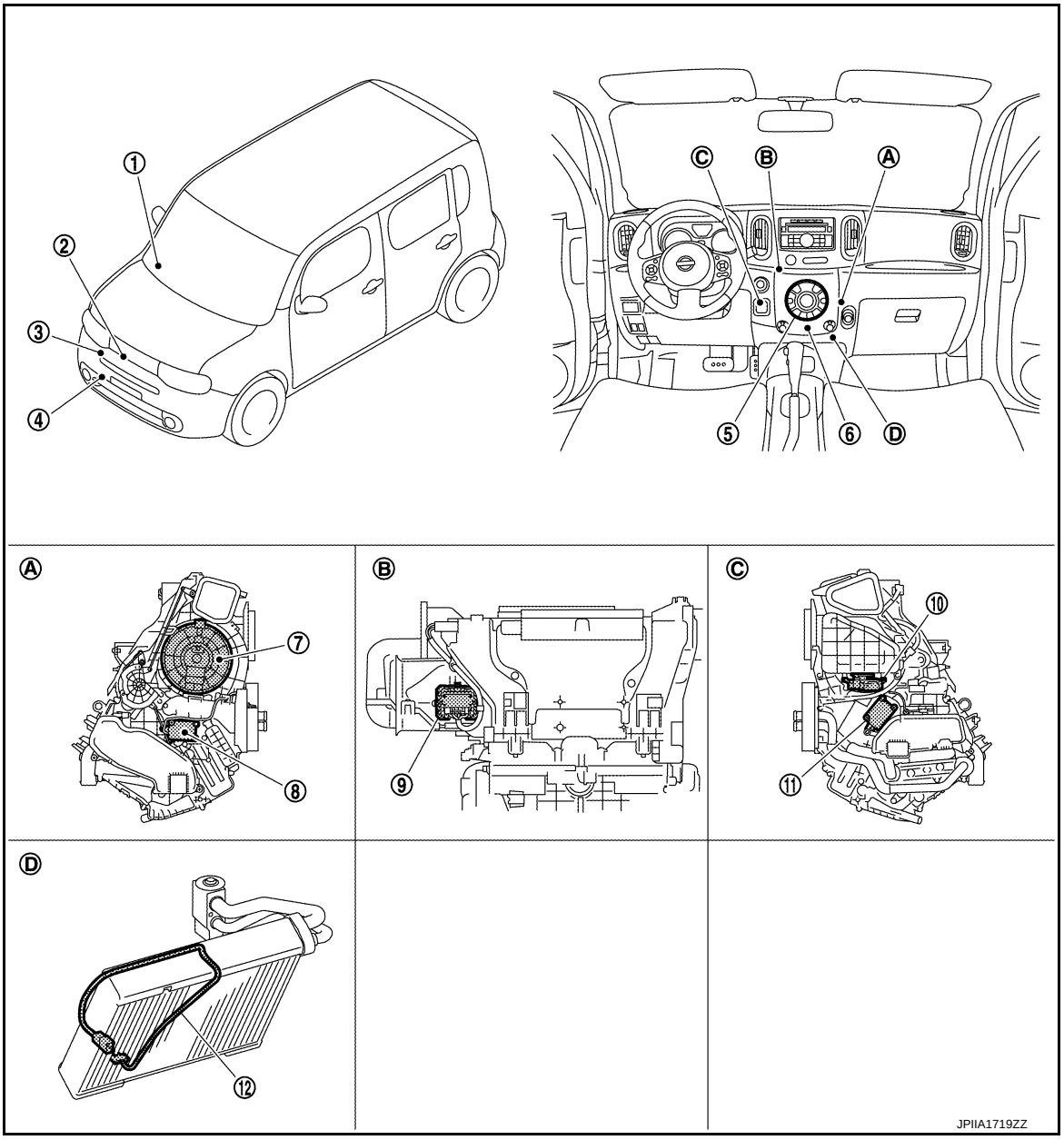

1. Sunload sensor
2. Ambient sensor
3. Magnet clutch
4. Refrigerant pressure sensor
5. A/C control (A/C auto amp.)
6. In-vehicle sensor
7. Blower motor
8. Mode door motor
9. Power transistor
10. Intake door motor
11. Air mix door motor
12. Intake sensor

A. Located in the right side of A/C unit assembly
B. Located in the back of A/C unit assembly
C. Located in left side of A/C unit assembly
D. Located on the evaporator

Component Description

INFOID:0000000008454230

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

Component	Description
Magnet clutch	HAC-59, "Description"
Refrigerant pressure sensor	EC-430, "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"

AUTOMATIC AIR CONDITIONING SYSTEM

System Diagram

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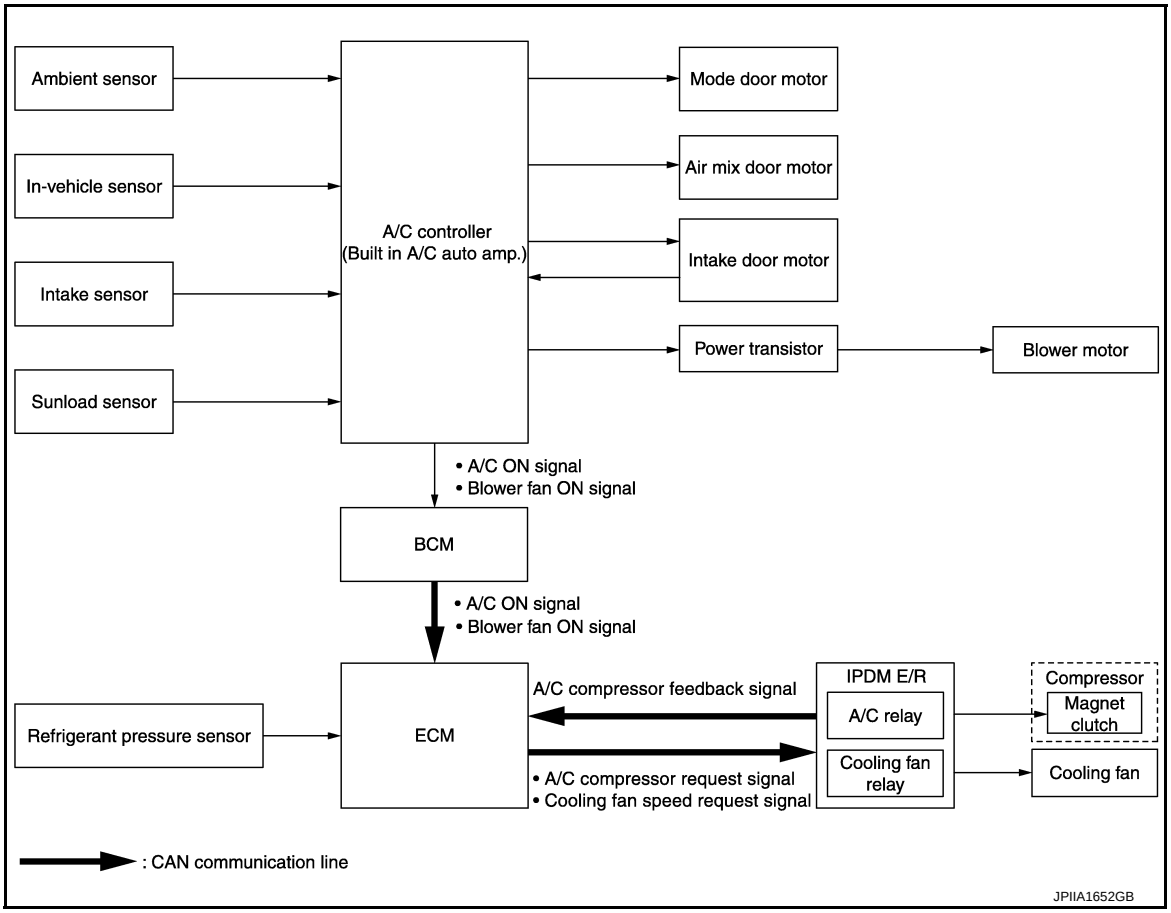


System Description

INFOID:0000000008454232

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 EC-79, "System Description".
- Air conditioning cut control. Refer to EC-63, "System Description".
- Compressor control

Control by IPDM E/R

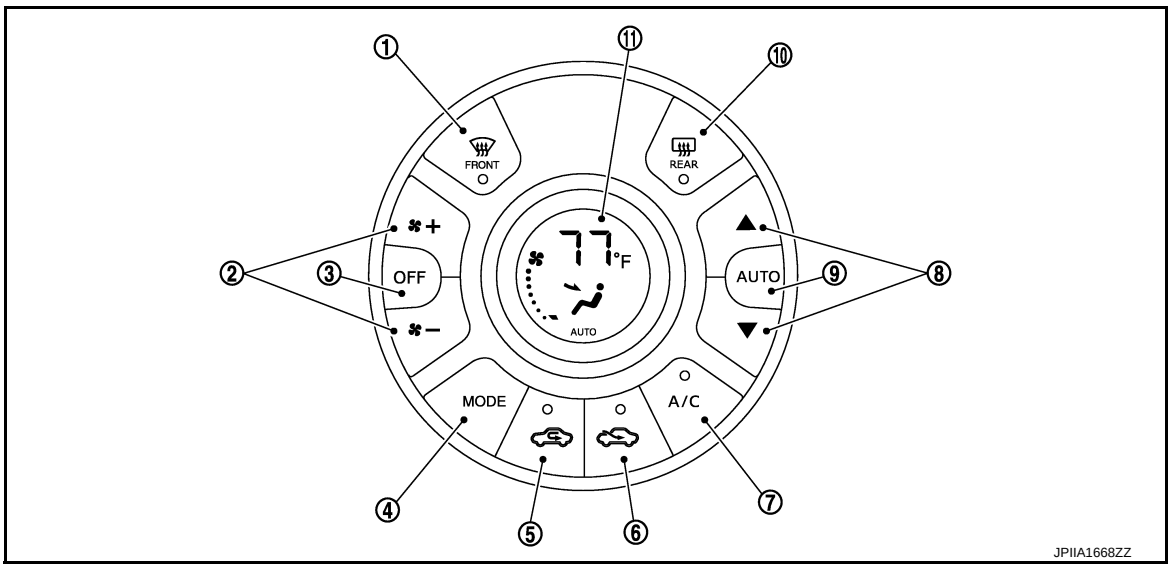
- Relay control. Refer to PCS-4, "System Description" (WITH I-KEY) or PCS-34, "System Description" (WITHOUT I-KEY).
- Cooling fan control. Refer to PCS-4, "System Description" (WITH I-KEY) or PCS-34, "System Description" (WITHOUT I-KEY).

- Each A/C system can be operated by A/C controller (built-in A/C auto amp.).

OPERATION

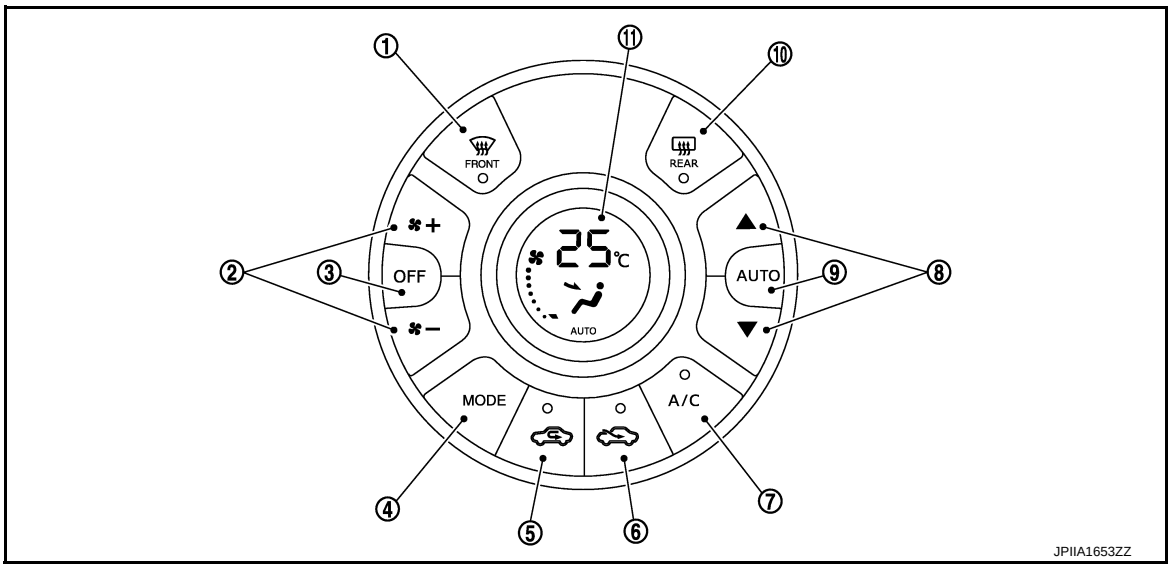
Controller (A/C Control)

For USA



1. DEF switch
2. Fan control switch
3. OFF switch
4. MODE switch
5. REC switch
6. FRE switch
7. A/C switch
8. Temperature control switch
9. AUTO switch
10. Rear window defogger switch
11. A/C display

For Canada



1. DEF switch
2. Fan control switch
3. OFF switch
4. MODE switch
5. REC switch
6. FRE switch
7. A/C switch
8. Temperature control switch
9. AUTO switch
10. Rear window defogger switch
11. A/C display

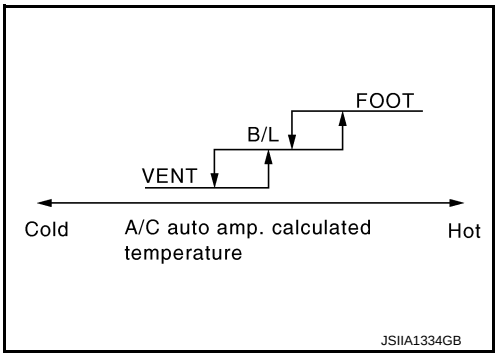
Switch Operation

DEF switch	• 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 becomes manual mode) - When DEF mode set to OFF, air conditioner system returns previous condition which is set to DEF mode. • 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 control switch	Fan speed is selected within a range between 1st – 7th speed by pressing this switch. **NOTE:** • 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".

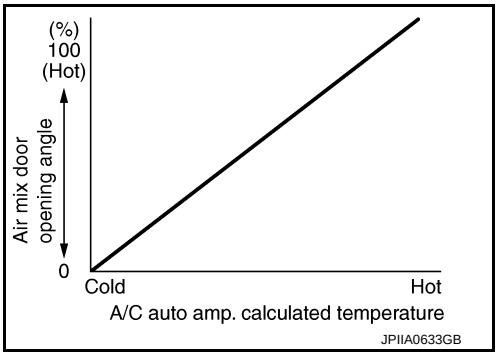
AIR OUTLET CONTROL

- 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

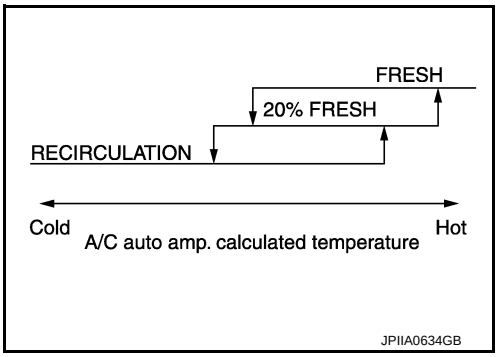
- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of air conditioner operational state.
- A/C auto amp. calculates the target air mix door opening angle depending on set temperature, in-vehicle temperature, ambient temperature, and sunload.
- 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

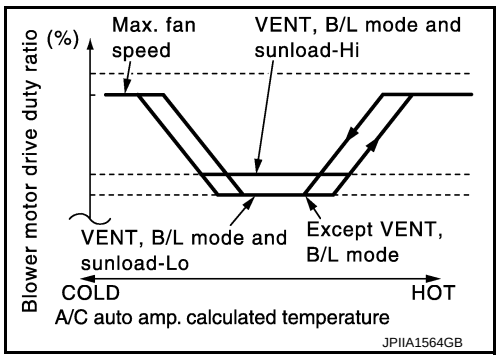
Description

- 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.

- 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.

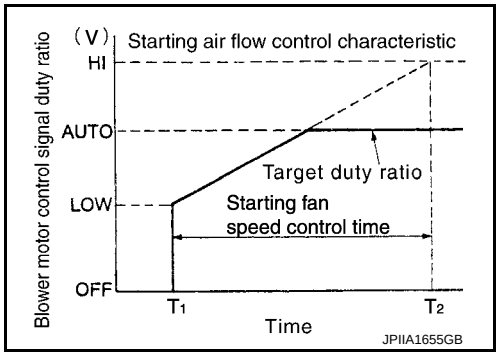


Starting Fan Speed Control

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)

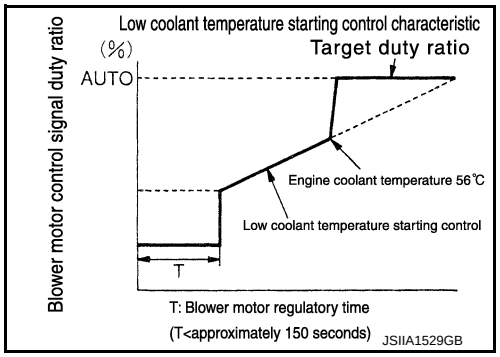
NOTE:

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.

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.

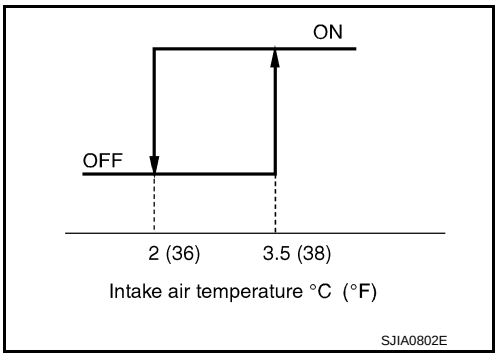
- 3.12 MPa (31.8 kg/cm^2, 452 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.9 kg/cm^2, 397 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.4 kg/cm^2, 20 psi) or less

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.

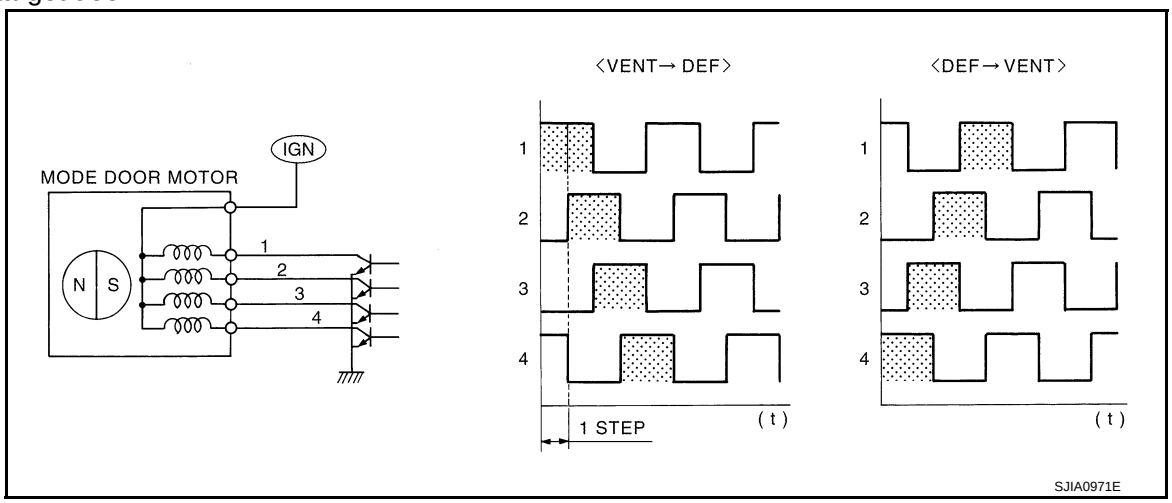
Air Conditioner Cut Control

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

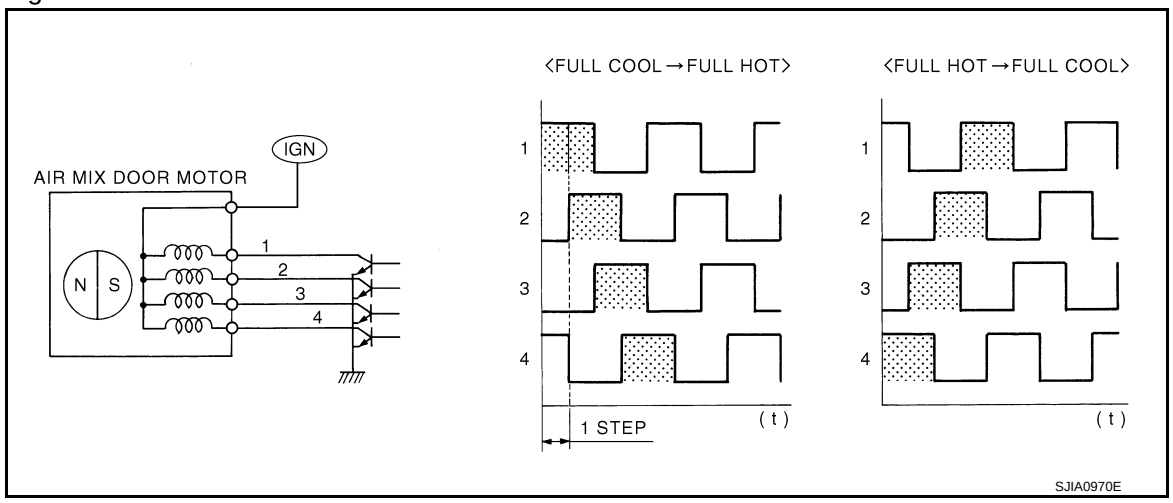
Mode Door Motor

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.



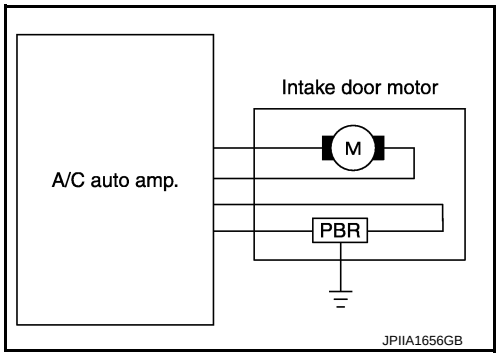
Air Mix Door Motor

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.

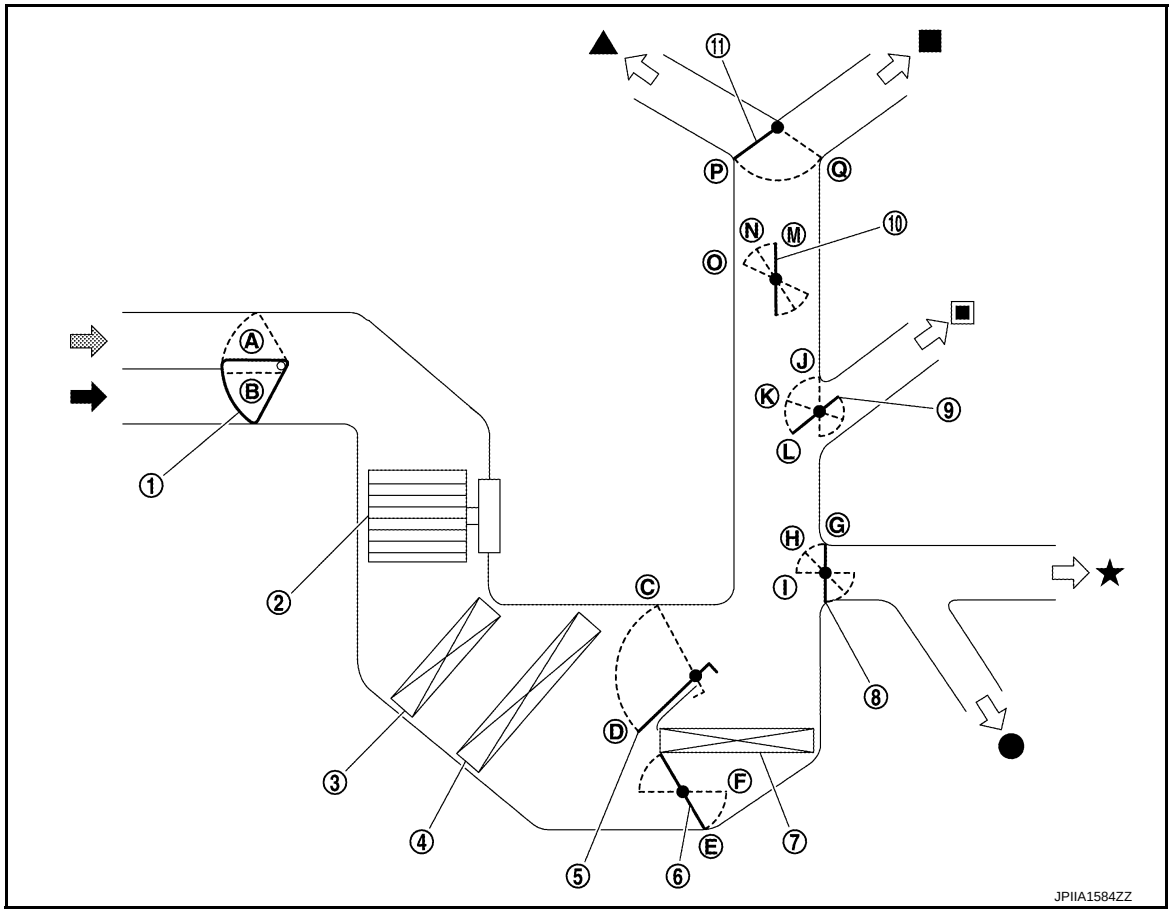


Intake Door Motor

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



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

Fresh air intake | Recirculation air | Defroster | Center ventilator | Side ventilator | Foot | Rear foot

Switch position		Door 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	AUTO						

Switch position		Door position						
		Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door	Intake door	Upper air mix door	Lower air mix door
MODE switch		P	M	L	G	—	—	—
				K	H			
		Q	O	J	I			
			N					
DEF switch	☀		M		G			
REC switch*	☀	—	—	—	—	A		
FRE switch*	☀					B		
Temperature control switch	Full cold 18°C (60°F)					—	D	E
	19°C – 31°C (61°F – 89°F)						AUTO	AUTO
	Full hot 32°C (90°F)						C	F
OFF switch	OFF	Q	O	J	G	B	—	—

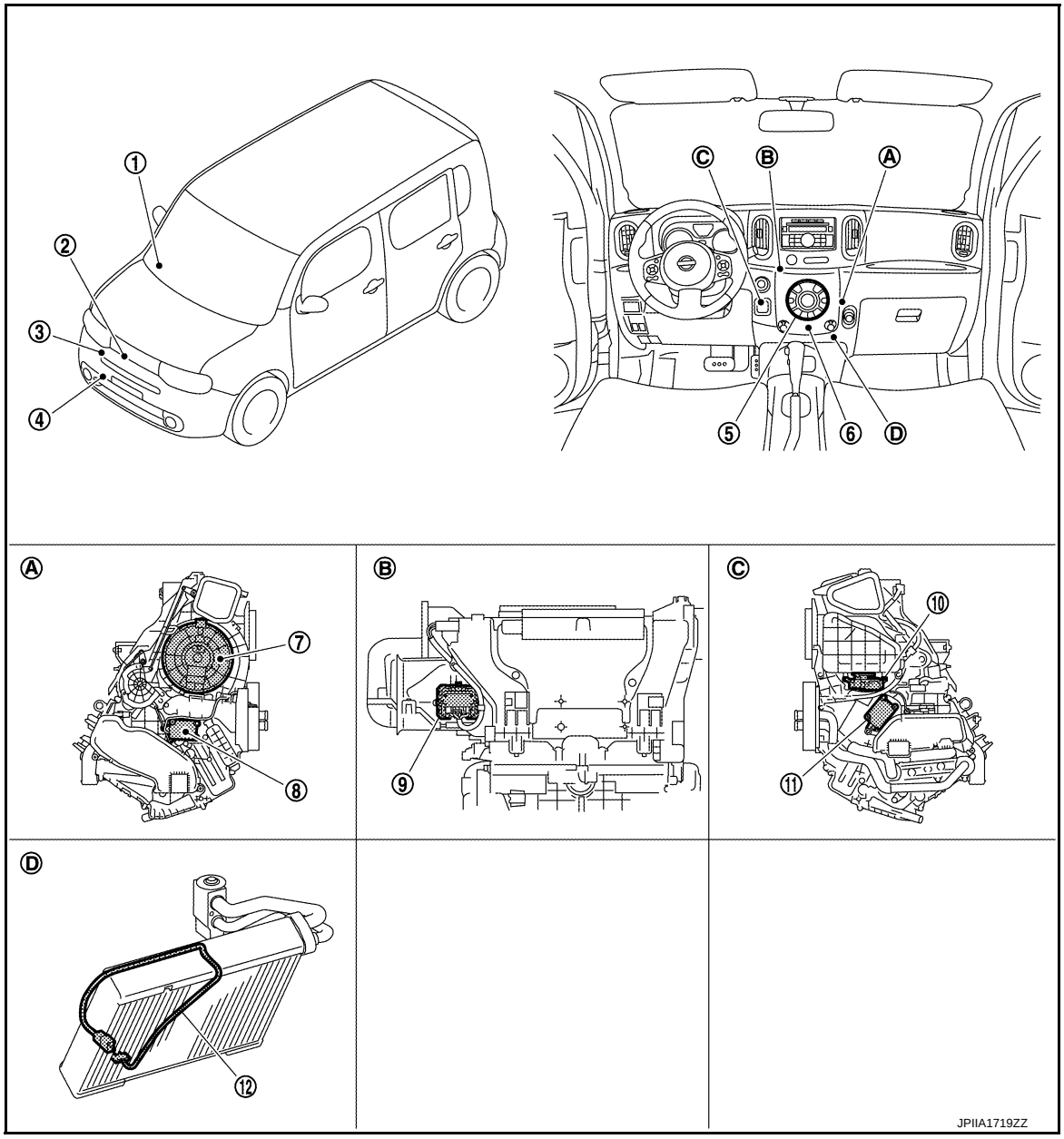
*: Inlet status is displayed by indicator during activating automatic control

AIR DISTRIBUTION

Mode position indication	Discharge air flow			
	Air outlet/distribution			
	Ventilator	Front foot	Rear foot	Defroster
	100%	—	—	—
	57%	29%	14%	—
	19%	44%	19%	18%
	17%	40%	17%	26%
	18%	—	—	82%

Component Parts Location

INFOID:0000000008454233



1. Sunload sensor
2. Ambient sensor
3. Magnet clutch
4. Refrigerant pressure sensor
5. A/C control (A/C auto amp.)
6. In-vehicle sensor
7. Blower motor
8. Mode door motor
9. Power transistor
10. Intake door motor
11. Air mix door motor
12. Intake sensor

A. Located in the right side of A/C unit assembly
B. Located in the back of A/C unit assembly
C. Located in left side of A/C unit assembly
D. Located on the evaporator

Component Description

INFOID:0000000008454234

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

Component	Description
Magnet clutch	HAC-59, "Description"
Refrigerant pressure sensor	EC-430, "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"

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

Diagnosis Description

INFOID:0000000008454235

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 sensor • In-vehicle sensor • Intake 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

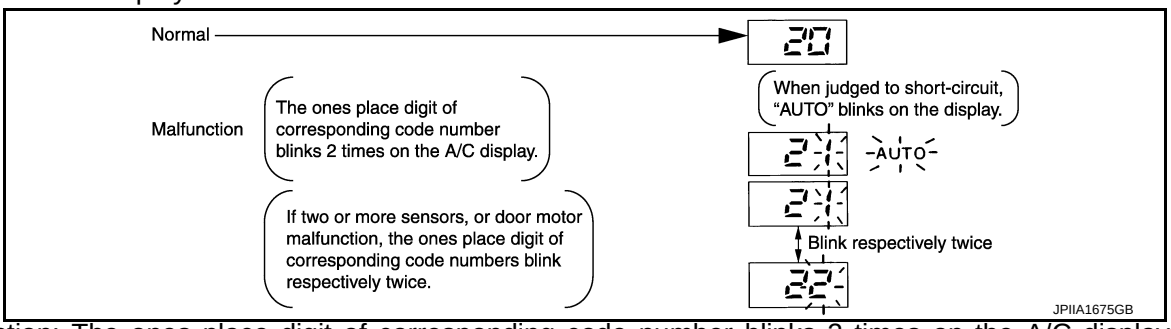
A/C switch indicator and A/C display indication are checked.
Normal: All switch indicator and display indication are turned ON.
Malfunction: Malfunctioning part indicator is not turned ON.

STEP-2: SENSOR DIAGNOSIS

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.	Corresponding sensor or door motor	Malfunctioning judgment condition		Reference
		Open	Short	
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

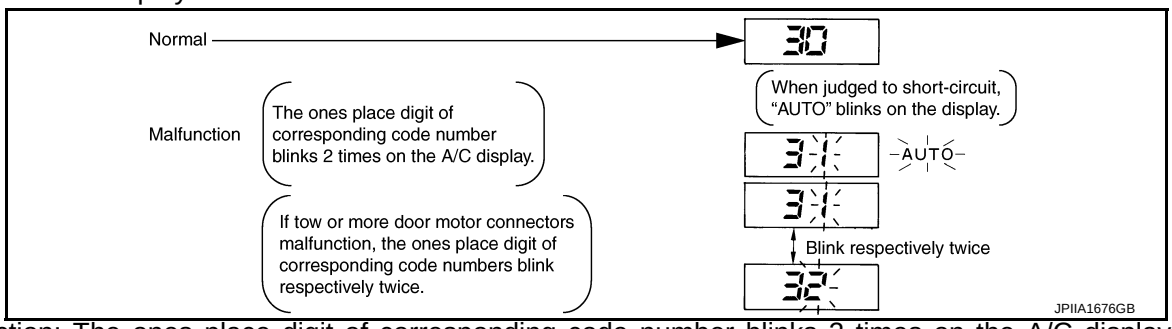
STEP-3: DOOR MOTOR DIAGNOSIS

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.

Normal: “30” is displayed.



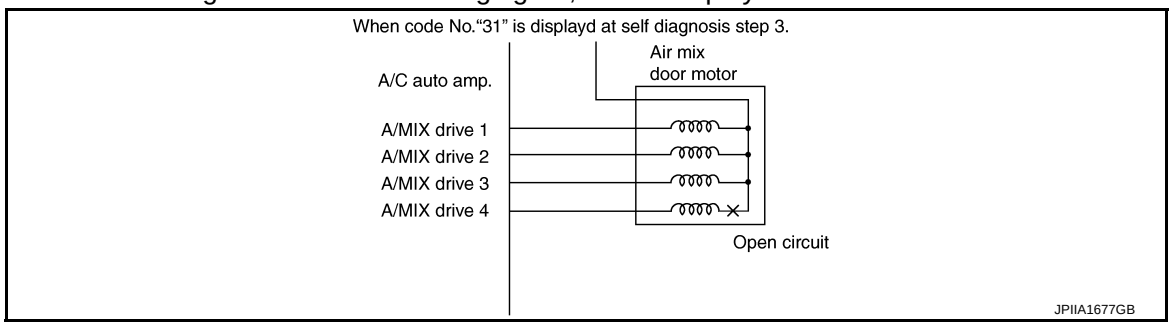
Malfunction: The ones place digit of corresponding code number blinks 2 times on the A/C display. When short-circuit error, “AUTO” blinks on the display.

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	Air mix door motor	Short or open circuit of air mix door drive signal terminal 4	HAC-44, "Diagnosis Procedure"
32 / AUTO 32		Short or open circuit of air mix door drive signal terminal 1	
33 / AUTO 33		Short or open circuit of air mix door drive signal terminal 2	
34 / AUTO 34		Short or open circuit of air mix door drive signal terminal 3	
35 / AUTO 35	Mode door motor	Short or open circuit of mode door drive signal terminal 4	HAC-47, "Diagnosis Procedure"
36 / AUTO 36		Short or open circuit of mode door drive signal terminal 1	
37 / AUTO 37		Short or open circuit of mode door drive signal terminal 2	
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.

- 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 → 42 → 43 → 44 → 45 → 46 → 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 position	Intake door position	Air mix door position	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 → Ambient temperature → In-vehicle temperature → Intake temperature → 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 ±3°C (±6°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".

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

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000008928095

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		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	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)	×	×	×

*: 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.

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	
Vehicle Condition	SLEEP>LOCK	Power position status of the moment a particular DTC is detected	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		While turning power supply position from “RUN“ to “ACC” (Emergency stop operation)
	ACC>OFF		While turning power supply position from “ACC” to “OFF”
	OFF>LOCK		While turning power supply position from “OFF” to “LOCK”*
	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 → 3...38 → 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:0000000008454237

DATA MONITOR

NOTE:

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

Display Item List

Monitor Item [Unit]		Contents
FAN ON SIG	[On/Off]	Displays the 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

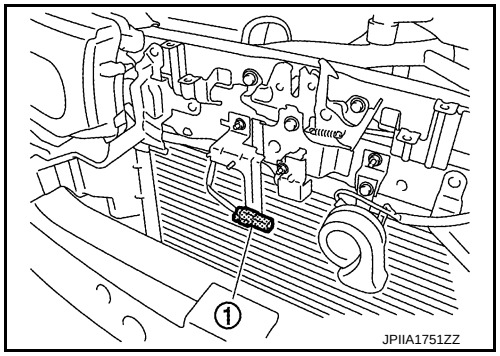
AMBIENT SENSOR

Description

INFOID:0000000008454238

COMPONENT DESCRIPTION

- The ambient sensor (1) is installed on the middle of radiator upper support.
- 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 change.
- 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

INFOID:0000000008454239

1.CHECK AMBIENT SENSOR POWER SUPPLY CIRCUIT

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

(+)		(–)	Voltage (Approx.)
Ambient sensor		—	
Connector	Terminal		
E53	1	Ground	5 V

Is the inspection result normal?

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

2.CHECK AMBIENT SENSOR GROUND CIRCUIT CONTINUITY

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

Ambient sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
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?

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

4.CHECK AMBIENT SENSOR OPEN CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the harnesses or connectors.

5.CHECK AMBIENT SENSOR SHORT CIRCUIT

Check continuity between ambient sensor harness connector and the ground.

Ambient sensor		—	Continuity
Connector	Terminal		
E53	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:0000000008454240

1.CHECK AMBIENT SENSOR

1. Turn the ignition switch OFF.
2. Remove the ambient sensor. Refer to HAC-112, "Exploded View".
3. Check the resistance between the ambient sensor terminals. Refer to the applicable table for the normal value.

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

Is the inspection result normal?

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

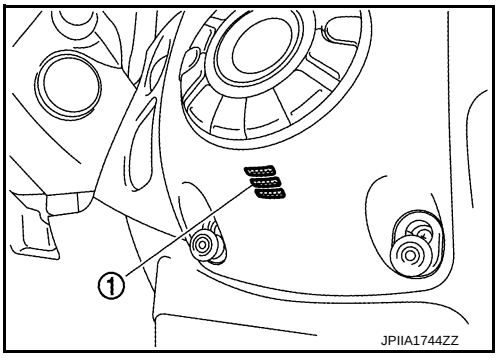
IN-VEHICLE SENSOR

Description

INFOID:0000000008454241

COMPONENT DESCRIPTION

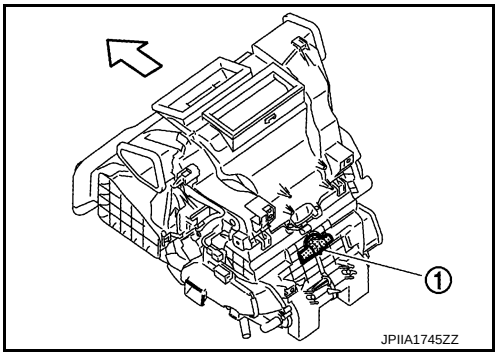
- The in-vehicle sensor (1) is installed to the finisher.
- The in-vehicle sensor converts the interior air temperature of the passenger room sucked by the aspirator detected with the thermistor into the voltage, and the A/C auto amp. inputs this voltage.

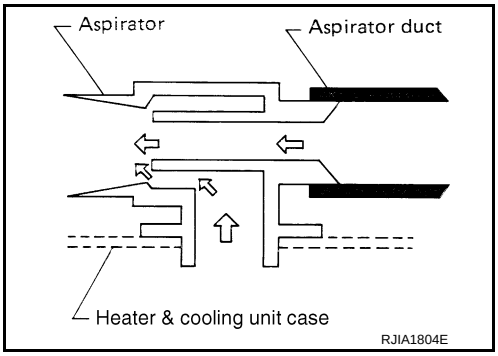


ASPIRATOR

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 in-vehicle sensor area via the aspirator duct.

⇦ : Vehicle front





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:0000000008454242

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.

(+)		(–)	Voltage (Approx.)
In-vehicle sensor		—	
Connector	Terminal		
M41	1	Ground	5 V

Is the inspection result normal?

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

2.CHECK IN-VEHICLE SENSOR GROUND CIRCUIT CONTINUITY

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

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
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

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

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

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the harnesses or connectors.

5.CHECK IN-VEHICLE SENSOR SHORT CIRCUIT

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

In-vehicle sensor		—	Continuity
Connector	Terminal		
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

INFOID:0000000008454243

1.CHECK IN-VEHICLE SENSOR

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

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

Is the inspection result normal?

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

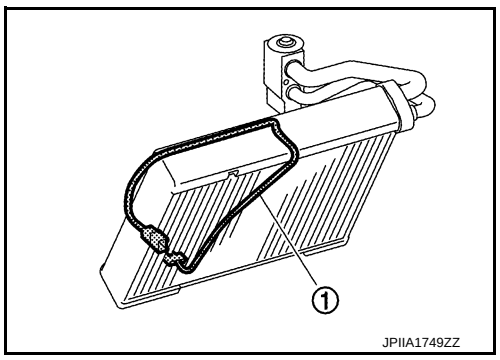
INTAKE SENSOR

Description

INFOID:0000000008454244

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:0000000008454245

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.

(+)		(–)	Voltage (Approx.)
Intake sensor		—	
Connector	Terminal		
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

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 sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
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?

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 sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
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		—	Continuity
Connector	Terminal		
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:0000000008454246

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.

Terminal		Condition	Resistance: kΩ
		Temperature: °C (°F)	
1	2	–15 (5)	12.34
		–10 (14)	9.62
		–5 (23)	7.56
		0 (32)	6.00
		5 (41)	4.80
		10 (50)	3.87
		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.

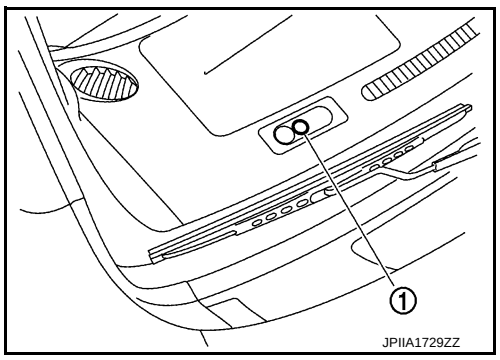
SUNLOAD SENSOR

Description

INFOID:0000000008454247

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

INFOID:0000000008454248

1.CHECK SUNLOAD SENSOR POWER SUPPLY CIRCUIT

1. 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.

(+)		(–)	Voltage (Approx.)
Sunload sensor		—	
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.
2. Disconnect the A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector and A/C auto amp. harness connector.

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
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.
3. Check the sunload sensor components. Refer to HAC-42, "Component Inspection".

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 sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
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 sensor		—	Continuity
Connector	Terminal		
M74	1	Ground	Not existed

Is the inspection result normal?

YES >> Replace the A/C auto amp.
NO >> Repair the harnesses or connectors.

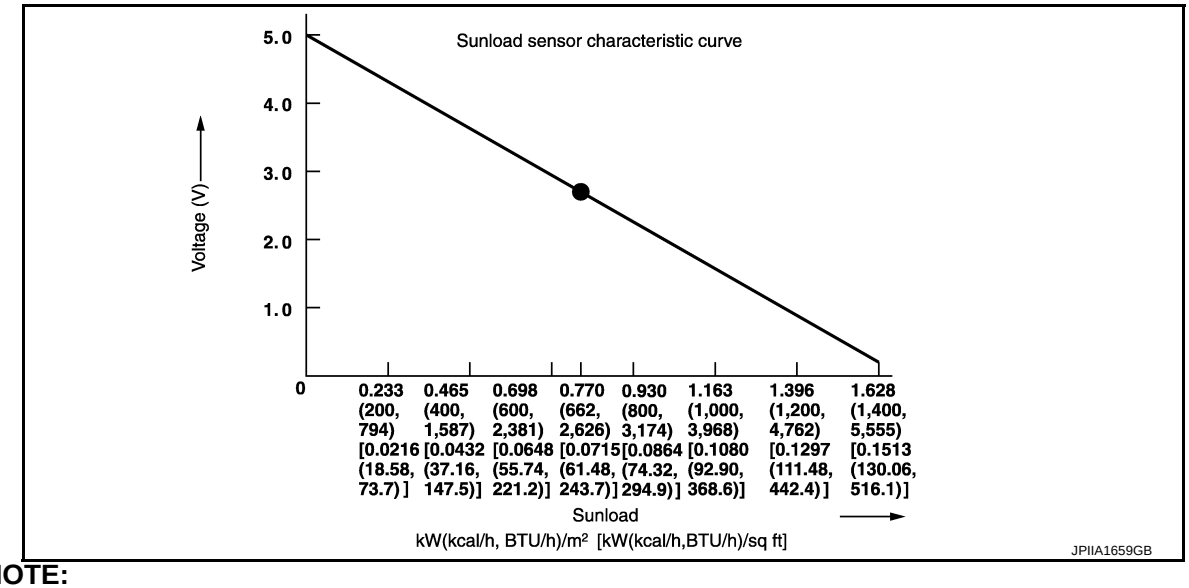
Component Inspection

INFOID:0000000008454249

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 auto amp.		—
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/m^2 (662 $kcal/m^2 \cdot h$).

Is the inspection result normal?

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

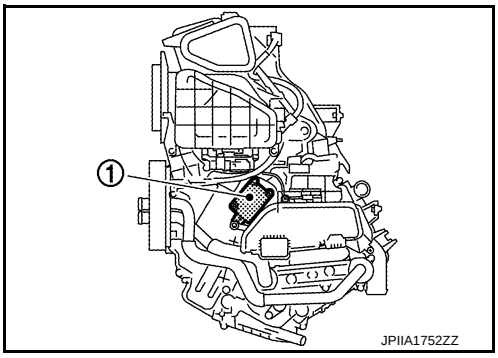
AIR MIX DOOR MOTOR

Description

INFOID:0000000008454250

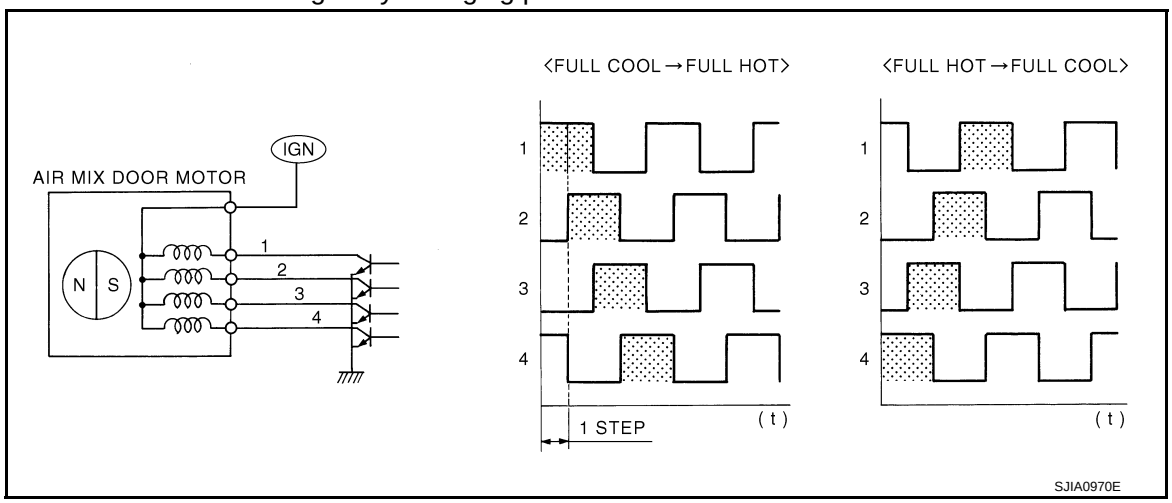
COMPONENT DESCRIPTION

- 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:0000000008454251

1.CHECK FUSE

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

NOTE:

Refer to PG-90, "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.

(+)		(–)	Voltage (Approx.)
Air mix door motor		—	
Connector	Terminal		
M55	2	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3. CHECK CONTINUITY BETWEEN A/C AUTO AMP. AND AIR MIX DOOR MOTOR

1. 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	
M55	3	M50	17	Existed
	6		18	
	1		19	
	4		20	

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		
M50	17	Ground	Not Existed
	18		
	19		
	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

INFOID:0000000008454252

1. CHECK AIR MIX DOOR MOTOR

1. Turn the ignition switch OFF.
2. Remove the air mix door motor. Refer to HAC-119, "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.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the air mix door motor.

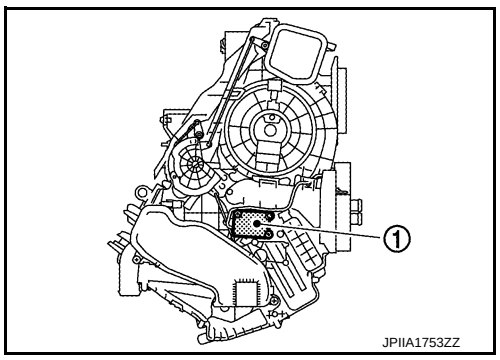
MODE DOOR MOTOR

Description

INFOID:0000000008454253

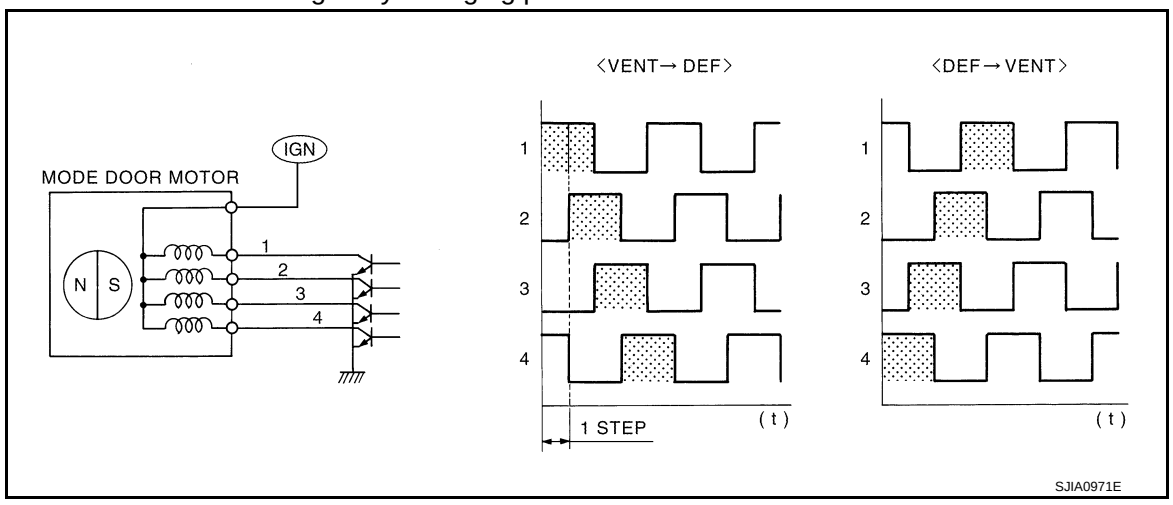
COMPONENT DESCRIPTION

- 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

INFOID:0000000008454254

1.CHECK FUSE

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

NOTE:

Refer to PG-90, "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.
2. Disconnect the mode door motor connector.
3. Turn the ignition switch ON.
4. Check voltage between mode door motor harness connector and the ground.

(+)		(–)	Voltage (Approx.)
Mode door motor		—	
Connector	Terminal		
M56	5	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.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 door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M56	1	M51	32	Existed
	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		
M51	29	Ground	Not existed
	30		
	31		
	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

INFOID:0000000008454255

1.CHECK MODE DOOR MOTOR

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

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

Is the inspection result normal?

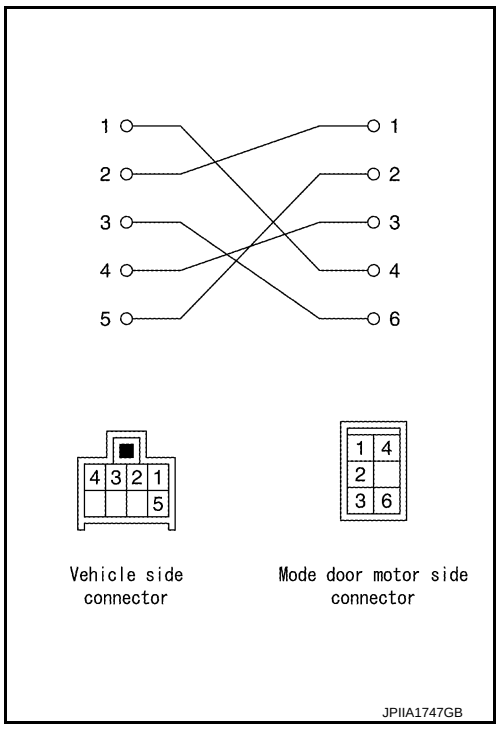
YES >> INSPECTION END
NO >> GO TO 2.

2. CHECK CONTINUITY MODE DOOR MOTOR SUB 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.



INTAKE DOOR MOTOR

Description

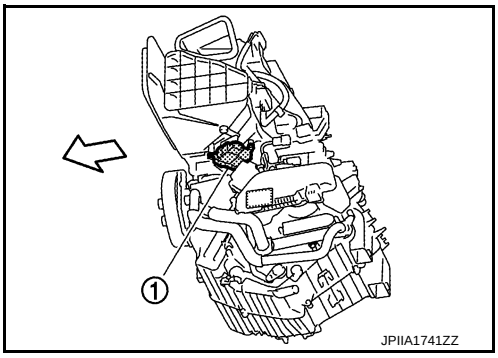
INFOID:0000000008454256

COMPONENT DESCRIPTION

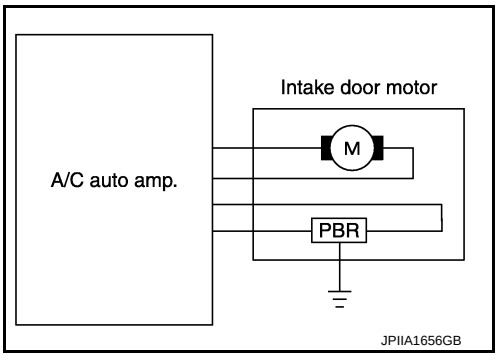
- The intake door motor (1) is installed to A/C unit assembly.

⇦ : Vehicle front

- 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:0000000008454257

POWER SUPPLY CIRCUIT

1.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL

1. Turn the ignition switch ON.
2. 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	5	Ground	FRE → REC	12 V
	6		REC → FRE	

Is inspection result normal?

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

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

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 A/C auto amp. harness connector and intake door motor harness connector.

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

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		—	Continuity
Connector	Terminal		
M54	5	Ground	Not existed
	6		

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.

PBR CIRCUIT

1.CHECK POWER SUPPLY OF INTAKE DOOR MOTOR PBR

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

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

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

1. Turn the ignition switch OFF.
2. Disconnect the intake door motor connector.
3. 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	
M54	1	M50	3	Existed

Is inspection result normal?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.CHECK CONTINUITY INTAKE DOOR MOTOR AND GROUND-1

Check continuity between intake door motor and the ground.

Intake door motor		—	Continuity
Connector	Terminal		
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	
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.

(+)		(–)	Condition	Voltage (Approx.)
A/C auto amp.		—		
Connector	Terminal			
M54	1	Ground	FRE	4.5 V
			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	
M54	2	M51	26	Existed

Is inspection result normal?

YES >> GO TO 7.
NO >> Repair the harnesses or connectors.

7.CHECK CONTINUITY INTAKE DOOR MOTOR AND GROUND-2

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

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

Is inspection result normal?

YES >> Replace the intake door motor.
NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000008454258

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.

Terminal		Operation
(+)	(–)	
5	6	To REC
6	5	To FRE

Is inspection result normal?

YES >> INSPECTION END
NO >> Replace the intake door motor.

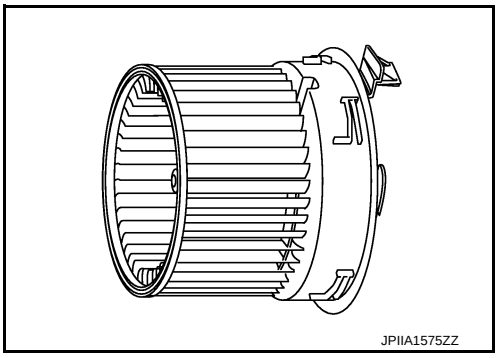
BLOWER MOTOR

Description

INFOID:0000000008454259

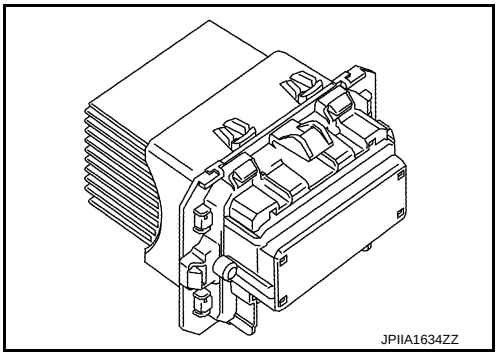
BLOWER MOTOR

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

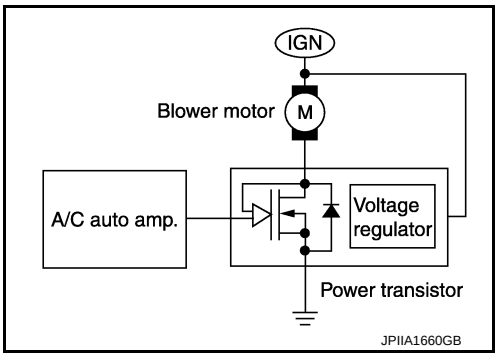


POWER TRANSISTOR

- 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:0000000008454260

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:0000000008454261

1.CHECK FUSE

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

NOTE:
Refer to PG-90, "Fuse, Connector and Terminal Arrangement".

Is inspection result normal?

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

(+)		(–)	Voltage (Approx.)
Blower motor		—	
Connector	Terminal		
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.
3. Turn the ignition switch ON.
4. Check voltage between power transistor harness connector and the ground.

(+)		(–)	Voltage (Approx.)
Blower motor		—	
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

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

Blower motor		Power transistor		Continuity
Connector	Terminal	Connector	Terminal	
M39	2	M82	1	Existed

Is the inspection result normal?

YES >> Replace the blower motor.
NO >> Repair the harnesses or connectors.

6. CHECK VOLTAGE BETWEEN POWER TRANSISTOR AND GROUND

Check voltage between power transistor harness connector and the ground.

(+)		(–)	Voltage (Approx.)
Power transistor		—	
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.

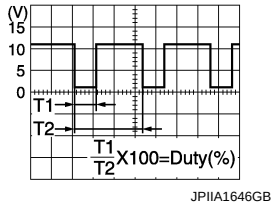
Blower motor		—	Continuity
Connector	Terminal		
M82	3	Ground	Existed

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	Duty ratio (Approx.)	Output waveform
Blower motor		—			
Connector	Terminal		Fan speed (manual, VENT mode)		
M82	2	Ground	1st	26%	
			2nd	34%	
			3rd	41%	
			4th	51%	
			5th	62%	
			6th	73%	
			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.

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

Is the inspection result normal?

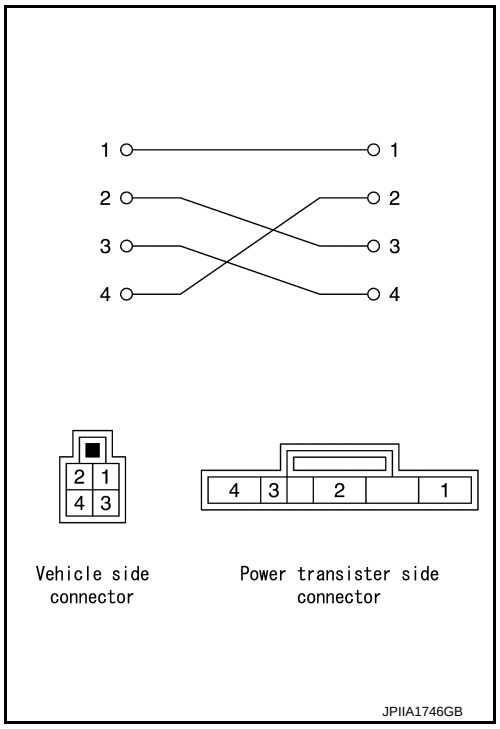
YES >> Replace the A/C auto amp.
NO >> Repair the harnesses or connectors.

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

INFOID:0000000008454262

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.

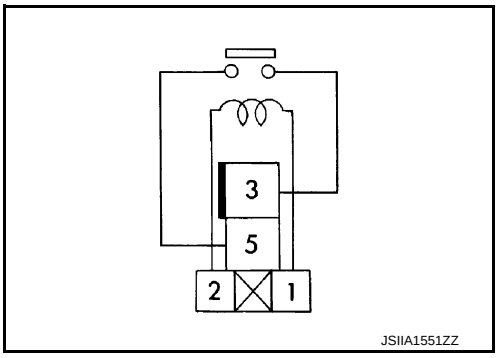
Is the inspection result normal?

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

BLOWER MOTOR RELAY

1.CHECK BLOWER MOTOR

1. Remove the blower motor relay. Refer to PG-90, "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		Voltage	Continuity
Terminal			
3	5	ON	Existed
		OFF	Not existed

Is the inspection result normal?

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

MAGNET CLUTCH

Description

INFOID:0000000008454263

- 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

INFOID:0000000008454264

1.CHECK MAGNET CLUTCH OPERATION

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

INFOID:0000000008454265

1.CHECK MAGNET CLUTCH

1. Turn the ignition switch OFF.
2. 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 HA-32, "MAGNET CLUTCH : Removal and Installation".

2.CHECK MAGNET CLUTCH CIRCUIT CONTINUITY

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

IPDM E/R		Magnet clutch		Continuity
Connector	Terminal	Connector	Terminal	
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-92, "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.

A/C ON SIGNAL

Component Function Check

INFOID:0000000008454266

1.CHECK A/C ON SIGNAL

With CONSULT
1. Turn the ignition switch ON.
2. Select the “COMP REQ SIG” in “DATA MONITOR”.
3. Check A/C ON signal when the A/C switch is operated.

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

Is inspection result normal?

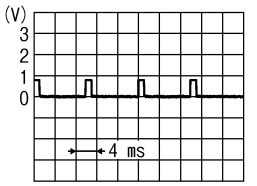
YES >> INSPECTION END
NO >> Refer to HAC-60, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454267

1.CHECK A/C SWITCH SIGNAL

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

(+)		(–)	Condition	Output waveform
A/C auto amp.		—		
Connector	Terminal			
M51	34	Ground	A/C switch ON	

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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

1. Turn the ignition switch OFF.
2. 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 auto amp.		BCM		Continuity
Connector	Terminal	Connector	Terminal	
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.

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.		—	Continuity
Connector	Terminal		
M51	34	Ground	Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-82, "Exploded View" (WITH I-KEY) or BCS-144, "Exploded View" (WITHOUT I-KEY).

NO >> Repair the harnesses or connectors.

BLOWER FAN ON SIGNAL

Component Function Check

INFOID:0000000008454268

1.CHECK BLOWER FAN ON SIGNAL

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	Condition		Status
FAN REQ SIG	Fan control switch	OFF position	Off
		Except OFF position	On

Is inspection result normal?

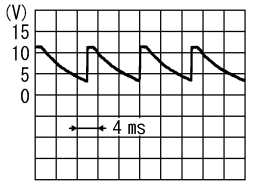
YES >> INSPECTION END
NO >> Refer to HAC-62, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454269

1.CHECK BLOWER FAN ON SIGNAL

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

(+)		(–)	Condition	Output waveform
A/C auto amp.		—		
Connector	Terminal			
M51	35	Ground	• Ignition switch ON • Fan speed: Manual 1st	 SJIA1425J

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

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 auto amp.		BCM		Continuity
Connector	Terminal	Connector	Terminal	
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.

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

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-82, "Exploded View" (WITH I-KEY) or BCS-144, "Exploded View" (WITHOUT I-KEY).

NO >> Repair the harnesses or connectors.

POWER SUPPLY AND GROUND CIRCUIT
A/C AUTO AMP.

A/C AUTO AMP. : Diagnosis Procedure

INFOID:0000000008454270

1.CHECK FUSE

Check 10A fuses [Nos. 2, 10 and 16, located in the fuse block (J/B)].
NOTE:
Refer to PG-90, "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.
3. 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
	5		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		
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 auto amp.		—	Continuity
Connector	Terminal		
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.
2. Disconnect the blower motor relay from the fuse block (J/B). Refer to PG-90, "Fuse, Connector and Terminal Arrangement".

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-88, "Description".

(+)	(–)	Voltage (Approx.)
Fuse block (J/B)	—	
1	Ground	Battery voltage
3		

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

INFOID:0000000008928102

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
	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.
3. Check voltage between BCM harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
BCM		Ground	
Connector	Terminal		
M70	70		Battery voltage
	57		

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.

BCM		Ground	Continuity
Connector	Terminal		
M70	67		Existed

Does continuity exist?

YES >> INSPECTION END
NO >> Repair harness or connector.

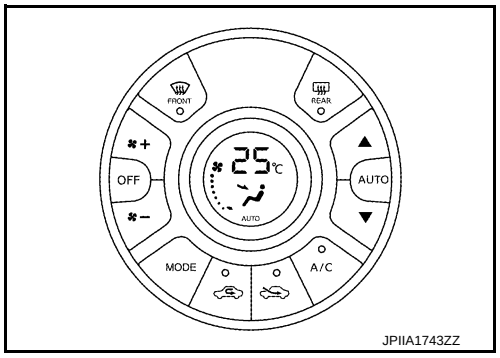
A/C AUTO AMP.

Description

INFOID:0000000008454272

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.



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Component Function Check

INFOID:0000000008454273

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

INFOID:0000000008454274

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.

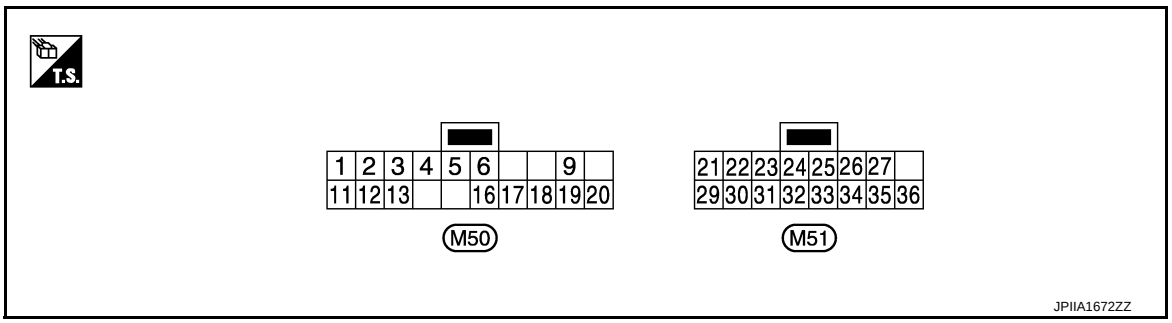
ECU DIAGNOSIS INFORMATION

A/C AUTO AMP.

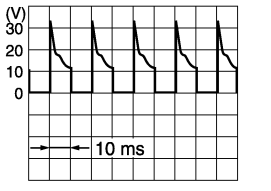
Reference Value

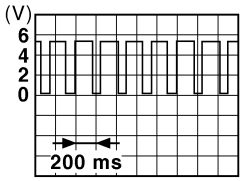
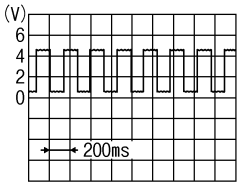
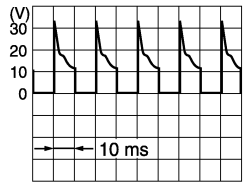
INFOID:0000000008454275

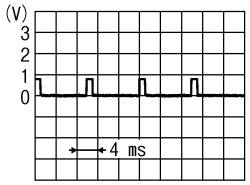
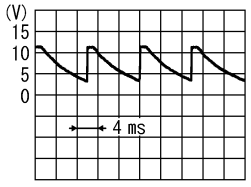
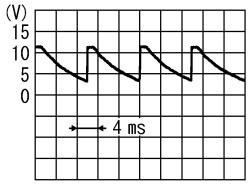
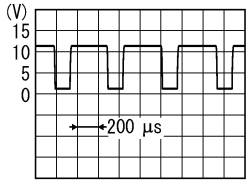
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description			Condition	Value (Approx.)
+	–	Signal name		Input/ Output		
2 (R)	Ground	A/C auto amp. connecting recognition signal		Output	Ignition switch ON	5 V
3 (R)	Ground	Intake door motor PBR power supply		Output	Ignition switch ON	5 V
4 (LG)	Ground	Battery power supply		—	Ignition switch OFF	Battery voltage
5 (O)	Ground	IGN power 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 (L)	Ground	FRE	Intake door motor drive signal	Output	• Ignition switch ON • Intake switch REC → FRE	12 V
					• Ignition switch ON • Intake switch FRE → REC	0 V
13 (G)	Ground	REC	Intake door motor drive signal		• Ignition switch ON • Intake switch REC → FRE	0 V
					• 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	Air mix door motor drive signal	Output	• Ignition switch ON • Right after the temperature control switch operation	 JPIIA1647GB
18 (SB)		A/MIX drive 3				
19 (GR)		A/MIX drive 2				
20 (P)		A/MIX drive 1				

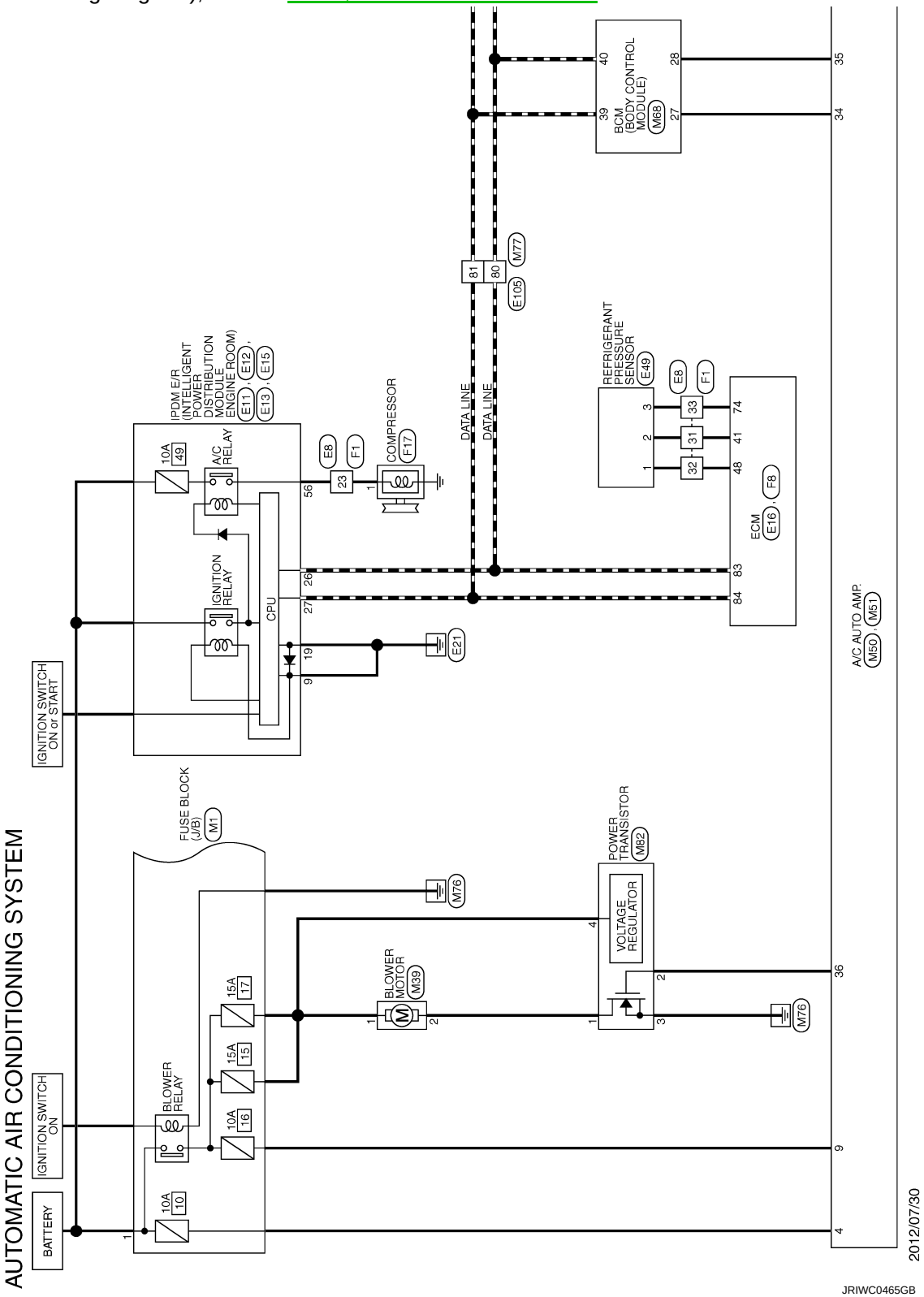
Terminal No. (Wire color)		Description			Condition	Value (Approx.)
+	–	Signal name		Input/ Output		
21 (BR)	Ground	Engine coolant temperature signal		Input	• Ignition switch ON • Engine idling [Approximately 20°C (68°F)]	 PKID0590E
					• Ignition switch ON • Engine idling [Approximately 80°C (176°F)]	 SKIB3651J
22 (PU/W)	Ground	Ambient sensor signal		Input	—	0 – 4.8 V Output voltage varies with ambient temperature
23 (O)	Ground	Intake sensor signal		Input	—	0 – 4.8 V Output voltage varies with intake temperature
24 (G)	Ground	In-vehicle sensor signal		Input	—	0 – 4.8 V Output voltage varies with in-vehicle temperature
25 (P)	Ground	Sunload sensor signal		Input	—	0 – 4.8 V Output voltage varies with sun load
26 (SB)	Ground	Intake door motor PBR feedback signal		Input	• Ignition switch ON • REC position	0.5 V
					• Ignition switch ON • FRE position	4.5 V
29 (GR)	Ground	MODE drive 4	Mode door motor drive signal	Output	• Ignition switch ON • Right after MODE switch operation	 JPIIA1647GB
30 (W)		MODE drive 3				
31 (Y)		MODE drive 2				
32 (V)		MODE drive 1				

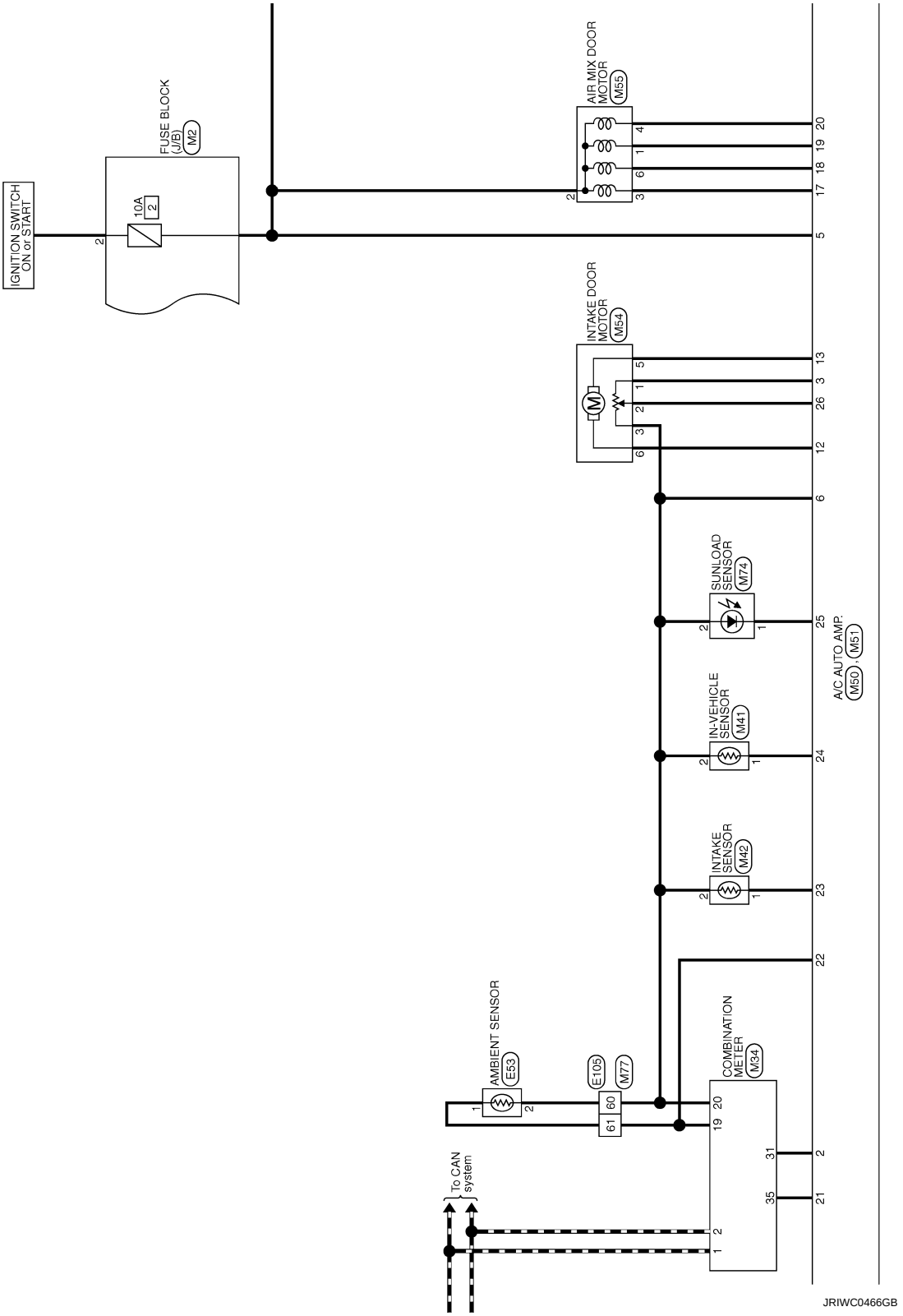
Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	–	Signal name	Input/ Output		
34 (Y/G)	Ground	A/C ON signal	Output	• Ignition switch ON • A/C switch: ON	 ZJIA1036J
				• Ignition switch ON • A/C switch: OFF	 SJIA1425J
35 (G/W)	Ground	Blower fan ON signal	Output	• Ignition switch ON • Fan speed: 1st speed (manual)	 SJIA1425J
36 (GR/R)	Ground	Power transistor control signal	Output	• Ignition switch ON • Fan speed: 1st speed (manual)	 ZJIA0863J

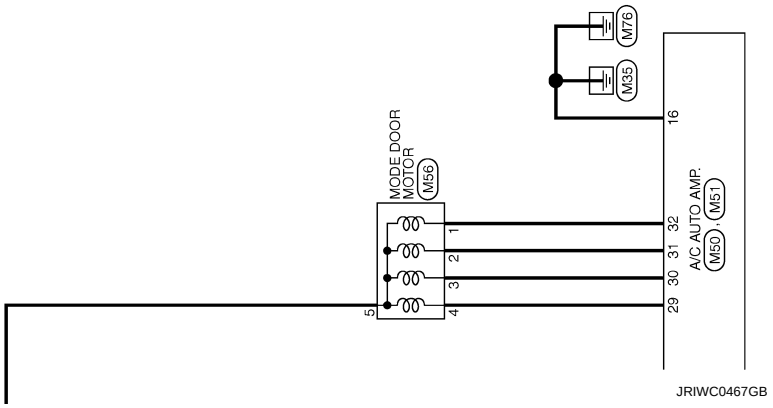
Wiring Diagram - AUTOMATIC AIR CONDITIONING SYSTEM -

INFOID:0000000008454276

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




IGNITION SWITCH ON or START
FUSE BLOCK (J/B) M2
10A 2
AIR MIX DOOR MOTOR M55
INTAKE DOOR MOTOR M54
SUNLOAD SENSOR M74
IN-VEHICLE SENSOR M41
INTAKE SENSOR M42
AMBIENT SENSOR E53
E105
M77
COMBINATION METER M34
To CAN system
A/C AUTO AMP. M50, M51
JRIWC0466GB


M76
M35
16
MODE DOOR MOTOR
M56
1
2
3
4
5
A/C AUTO AMP.
M50
M51
32
31
30
29
JRIWC0467GB

BCM (BODY CONTROL MODULE)

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

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

INFOID:0000000008928786

VALUES ON THE DIAGNOSIS TOOL

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

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
FR WIPER HI	Other than front wiper switch HI	Off
	Front wiper switch HI	On
FR WIPER LOW	Other than front wiper switch LO	Off
	Front wiper switch LO	On
FR WASHER SW	Front washer switch OFF	Off
	Front washer switch ON	On
FR WIPER INT	Other than front wiper switch INT	Off
	Front wiper switch INT	On
FR WIPER STOP	Front wiper is not in STOP position	Off
	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
	Rear wiper switch ON	On
RR WIPER INT	Other than rear wiper switch INT	Off
	Rear wiper switch INT	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER STOP	Rear wiper is in STOP position	Off
	Rear wiper is not in STOP position	On
TURN SIGNAL R	Other than turn signal switch RH	Off
	Turn signal switch RH	On
TURN SIGNAL L	Other than turn signal switch LH	Off
	Turn signal switch LH	On
TAIL LAMP SW	Other than lighting switch 1ST and 2ND	Off
	Lighting switch 1ST or 2ND	On
HI BEAM SW	Other than lighting switch HI	Off
	Lighting switch HI	On
HEAD LAMP SW 1	Other than lighting switch 2ND	Off
	Lighting switch 2ND	On
HEAD LAMP SW 2	Other than lighting switch 2ND	Off
	Lighting switch 2ND	On
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On

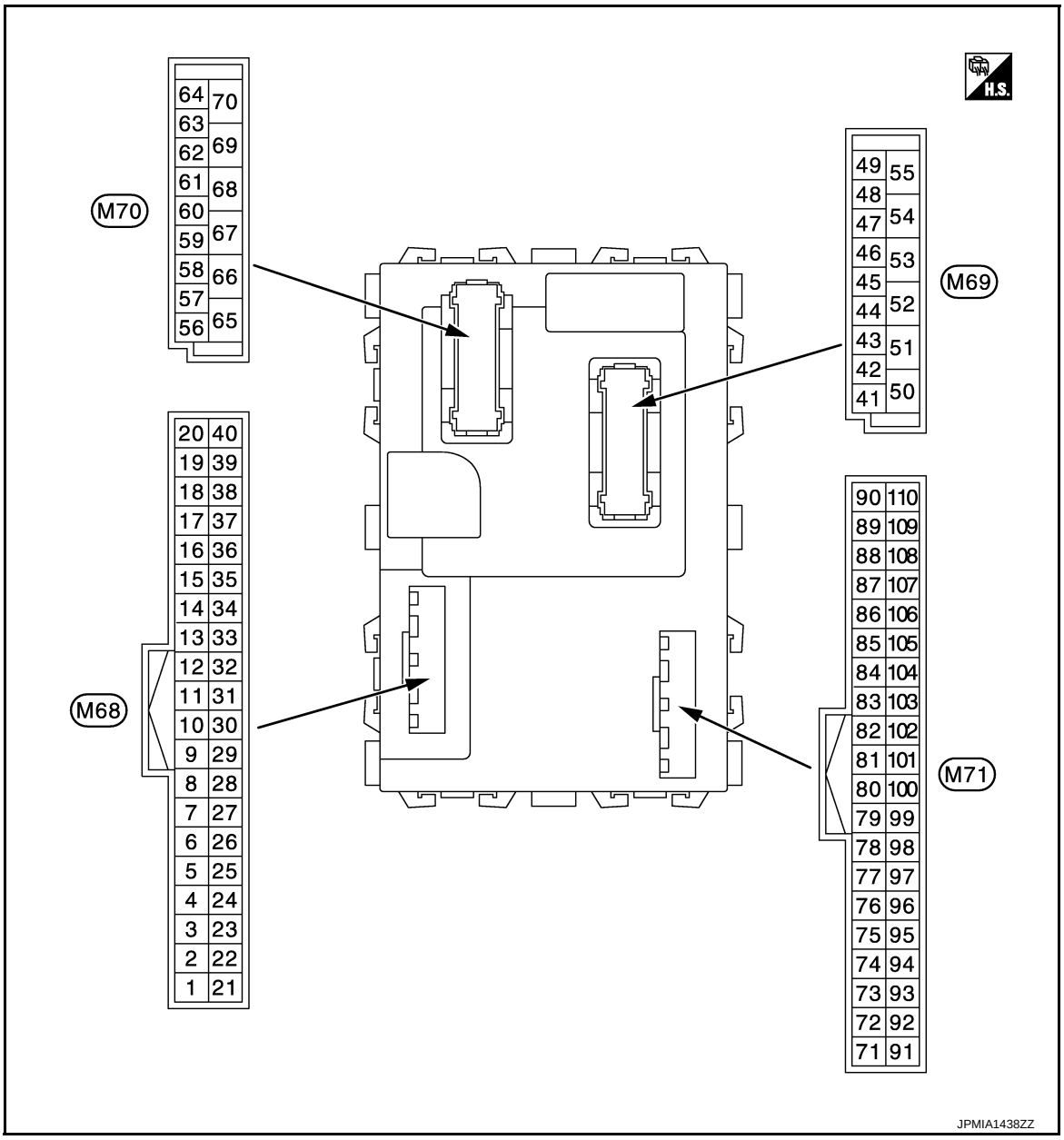
Monitor Item	Condition	Value/Status
AUTO LIGHT SW	Other than lighting switch AUTO	Off
	Lighting switch AUTO	On
FR FOG SW	Front fog lamp switch OFF	Off
	Front fog lamp switch ON	On
DOOR SW-DR	Driver door closed	Off
	Driver door opened	On
DOOR SW-AS	Passenger door closed	Off
	Passenger door opened	On
DOOR SW-RR	Rear RH door closed	Off
	Rear RH door opened	On
DOOR SW-RL	Rear LH door closed	Off
	Rear LH door opened	On
DOOR SW-BK	Back door closed	Off
	Back door opened	On
CDL LOCK SW	Other than power door lock switch LOCK	Off
	Power door lock switch LOCK	On
CDL UNLOCK SW	Other than power door lock switch UNLOCK	Off
	Power door lock switch UNLOCK	On
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	Off
	Driver door key cylinder LOCK position	On
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	Off
	Driver door key cylinder UNLOCK position	On
HAZARD SW	Hazard switch is OFF	Off
	Hazard switch is ON	On
REAR DEF SW	Rear window defogger switch OFF	Off
	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
FAN ON SIG	Blower fan OFF	Off
	Blower fan ON	On
AIR COND SW	Air conditioner OFF (A/C switch indicator OFF)	Off
	Air conditioner ON (A/C switch indicator ON)	On
RKE-LOCK	LOCK button of the key is not pressed	Off
	LOCK button of the key is pressed	On
RKE-UNLOCK	UNLOCK button of the key is not pressed	Off
	UNLOCK button of the key is pressed	On
RKE-TR/BD	BACK DOOR OPEN button of the key is not pressed	Off
	BACK DOOR OPEN button of the key is pressed	On
RKE-PANIC	PANIC button of the key is not pressed	Off
	PANIC button of the key is pressed	On
RKE-MODE CHG	LOCK/UNLOCK button of the key is not pressed and held simultaneously	Off
	LOCK/UNLOCK button of the key is pressed and held simultaneously	On

Monitor Item	Condition	Value/Status
OPTI SEN (DTCT)	Bright outside of the vehicle	Close to 5 V
	Dark outside of the vehicle	Close to 0 V
OPTI SEN (FILT)	Bright outside of the vehicle (Lighting switch AUTO)	Close to 5 V
	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
	Driver door request switch is pressed	On
REQ SW -AS	Passenger door request switch is not pressed	Off
	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
REQ SW -BD/TR	Back door request switch is not pressed	Off
	Back door request switch is pressed	On
PUSH SW	Push-button ignition switch (push switch) is not pressed	Off
	Push-button ignition switch (push switch) is pressed	On
CLUCH SW	The clutch pedal is not depressed.	Off
	The clutch pedal is depressed	On
BRAKE SW 1	The brake pedal is not depressed	Off
	The brake pedal is depressed	On
BRAKE SW 2	The brake pedal is depressed when No. 9 fuse is blown	Off
	The brake pedal is not depressed when No. 9 fuse is blown, or No. 9 fuse is normal	On
DETE/CANCL SW	Selector lever in P position	Off
	Selector lever in any position other than P	On
SFT PN/N SW	Selector lever in any position other than P and N	Off
	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
	Driver door is unlocked	On
PUSH SW -IPDM	Push-button ignition switch (push-switch) is not pressed	Off
	Push-button ignition switch (push-switch) is pressed	On
IGN RLY1 -F/B	Ignition switch in OFF or ACC position	Off
	Ignition switch in ON position	On
DETE SW -IPDM	Selector lever in any position other than P	Off
	Selector lever in P position	On
SFT PN -IPDM	Selector lever in any position other than P and N	Off
	Selector lever in P or N position	On

Monitor Item	Condition	Value/Status
SFT P -MET	Selector lever in any position other than P	Off
	Selector lever in P position	On
SFT N -MET	Selector lever in any position other than N	Off
	Selector lever in N position	On
ENGINE STATE	Engine stopped	Stop
	While the engine stalls	Stall
	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
DOOR STAT-DR	Driver door is locked	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door is unlocked	UNLOCK
DOOR STAT-AS	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
PRMT ENG STRT	The engine start is prohibited	Reset
	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.	—
CONFRM ID ALL	The key ID that the key slot receives is not recognized by any key ID registered to BCM.	Yet
	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
	The key ID that the key slot receives is recognized by the fourth key ID registered to BCM.	Done
CONFIRM ID3	The key ID that the key slot receives is not recognized by the third key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the third key ID registered to BCM.	Done

Monitor Item	Condition	Value/Status
CONFIRM ID2	The key ID that the key slot receives is not recognized by the second key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the second key ID registered to BCM.	Done
CONFIRM ID1	The key ID that the key slot receives is not recognized by the first key ID registered to BCM.	Yet
	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
	BCM detects non-registration key ID.	ID NG
TP 4	The ID of fourth key is not registered to BCM	Yet
	The ID of fourth key is registered to BCM	Done
TP 3	The ID of third key is not registered to BCM	Yet
	The ID of third key is registered to BCM	Done
TP 2	The ID of second key is not registered to BCM	Yet
	The ID of second key is registered to BCM	Done
TP 1	The ID of first key is not registered to BCM	Yet
	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 REGST FL1	ID of front LH tire transmitter is registered	Done
	ID of front LH tire transmitter is not registered	Yet
ID REGST FR1	ID of front RH tire transmitter is registered	Done
	ID of front RH tire transmitter is not registered	Yet
ID REGST RR1	ID of rear RH tire transmitter is registered	Done
	ID of rear RH tire transmitter is not registered	Yet
ID REGST RL1	ID of rear LH tire transmitter is registered	Done
	ID of rear LH tire transmitter is not registered	Yet
WARNING LAMP	Tire pressure indicator OFF	Off
	Tire pressure indicator ON	On
BUZZER	Tire pressure warning alarm is not sounding	Off
	Tire pressure warning alarm is sounding	On

TERMINAL LAYOUT

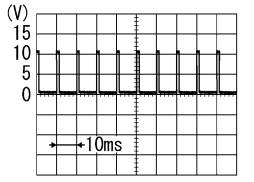
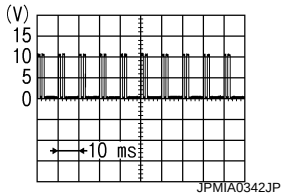
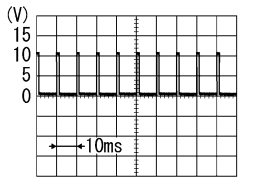
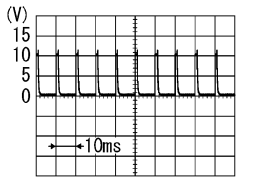
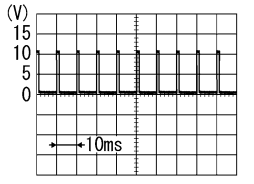


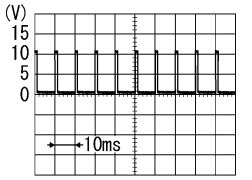
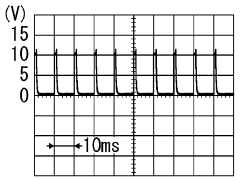
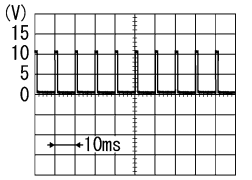
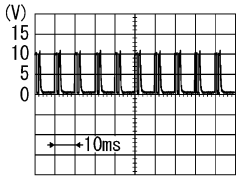
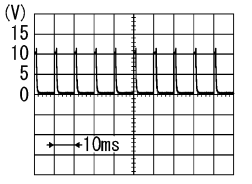
NOTE:

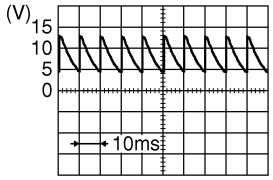
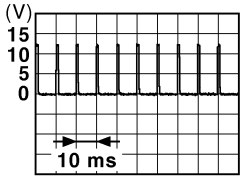
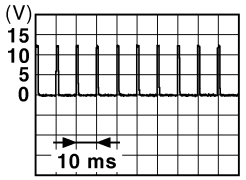
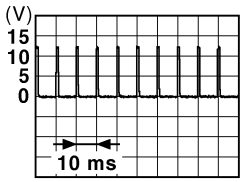
Connector color

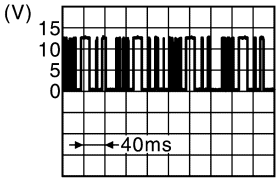
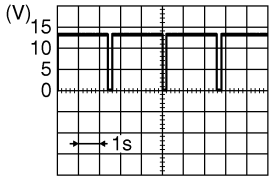
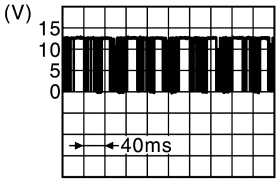
- M68, M70: Black
- M69, M71: White

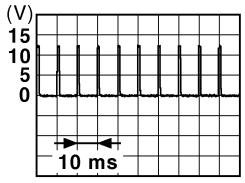
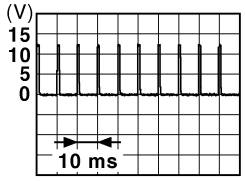
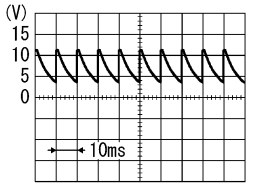
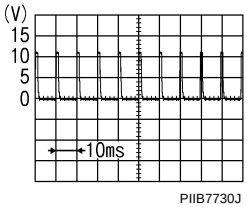
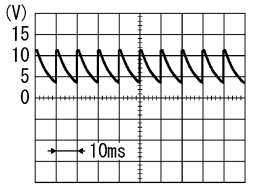
PHYSICAL VALUES

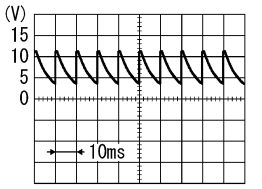
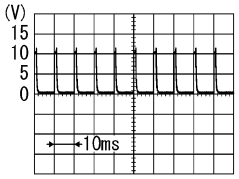
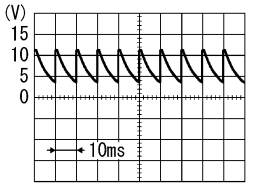
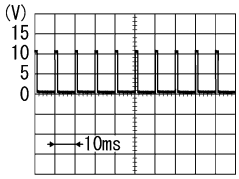
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
2 (BR/W)	Ground	Combination switch INPUT 5	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Turn signal switch RH Lighting switch HI Lighting switch 1ST	 PKIB4958J 1.0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

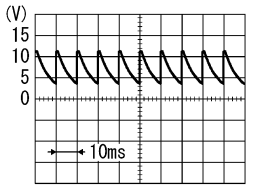
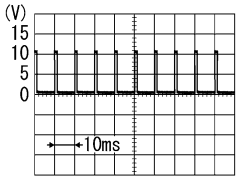
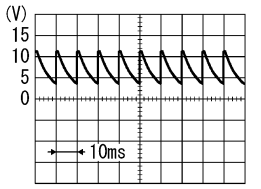
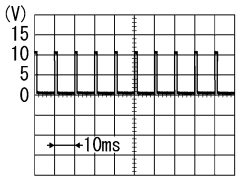
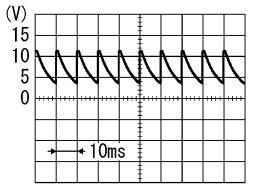
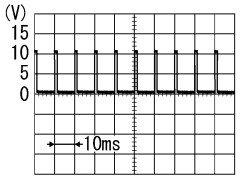
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch (Wiper intermittent dial 4)	 PKIB4958J 1.0 V
					Rear washer ON (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	
					Rear wiper switch ON (Wiper intermittent dial 4)	 PKIB4956J 0.8 V
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 PKIB4958J 1.0 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Wiper intermittent dial 3 (All switch OFF)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	 PKIB4952J 1.9 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	 PKIB4956J 0.8 V

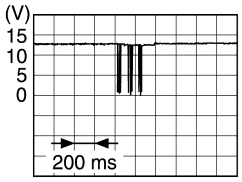
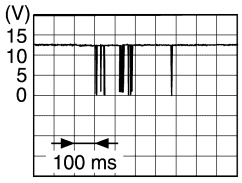
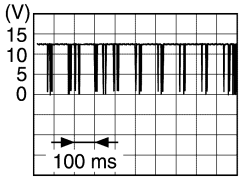
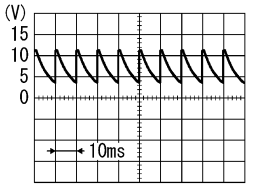
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylinder switch	NEUTRAL position	 JPMIA0587GB 8.0 - 8.5 V
					UNLOCK position	0 V
8 (W/B)	Ground	Door key cylinder switch LOCK	Input	Door key cylinder switch	NEUTRAL position	12 V
					LOCK position	0 V
9 (R)	Ground	Stop lamp switch 1	Input	Stop lamp switch	OFF (Brake pedal is not depressed)	0 V
					ON (Brake pedal is depressed)	Battery voltage
12 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	 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	 JPMIA0012GB 1.0 - 1.5 V
					UNLOCK position	0 V
14 (L/G)	Ground	Optical sensor	Input	Ignition switch ON	When bright outside of the vehicle	Close to 5 V
					When dark outside of the vehicle	Close to 0 V
15 (W/L)	Ground	Rear window defogger switch	Input	Rear window defogger switch	Not pressed	 JPMIA0012GB 1.0 - 1.5 V
					Pressed	0 V
17 (R/G)	Ground	Optical sensor power supply	Output	Ignition switch	OFF, ACC	0 V
					ON	5 V

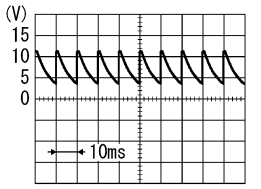
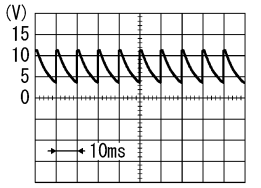
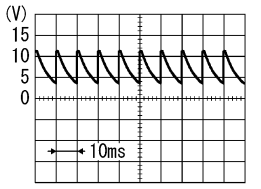
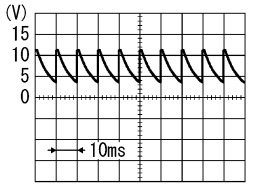
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
18 (V)	Ground	Sensor ground	Input	Ignition switch ON		0 V
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Intelligent Key: Intelligent Key battery is removed	Brake pedal: Depressed **NOTE:** Waveform varies each time when brake pedal is depressed	 JMKIA6232JP
					Brake pedal: Not depressed	12 V
23 (R/Y)	Ground	Security indicator lamp	Output	Security indicator	ON	0 V
					Blinking (Ignition switch OFF)	 JPMIA0590GB 12.0 V
					OFF	Battery voltage
24*1 (SB)	Ground	Dongle link	Input/ Output	Ignition switch OFF		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	 JMKIA6233JP
					Brake pedal: Not depressed	12 V
26*2 (GR)	Ground	Thermo control amp.	Input	Ignition switch ON		0 V
				Evaporator is extremely low temperature		12 V

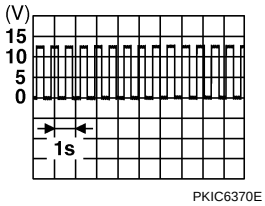
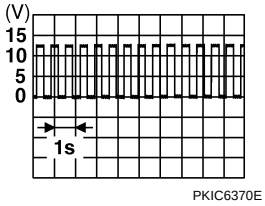
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
27 (O)	Ground	A/C ON (Automatic A/C)	Input	A/C	OFF (A/C switch indicator: OFF)	 JPMIA0012GB 1.0 - 1.5 V
					ON (A/C switch indicator: ON)	0 V
		A/C switch (Manual A/C)		A/C switch	OFF	 JPMIA0012GB 1.0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

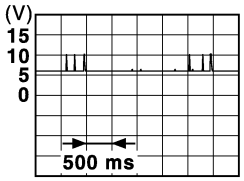
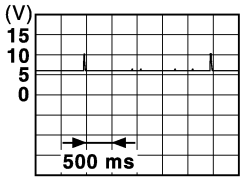
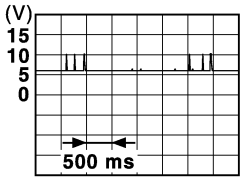
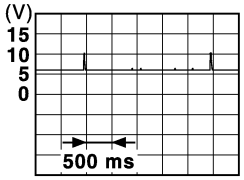
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
32 (LG)	Ground	Combination switch OUTPUT 5	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Front fog lamp switch ON (Wiper intermittent dial 4)	 PKIB4956J 1.0 V
					Rear wiper switch ON (Wiper intermittent dial 4)	
					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	
33 (Y/L)	Ground	Combination switch OUTPUT 4	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 1ST (Wiper intermittent dial 4)	 PKIB4958J 1.2 V
					Lighting switch AUTO (Wiper intermittent dial 4)	
					Rear wiper switch INT (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	

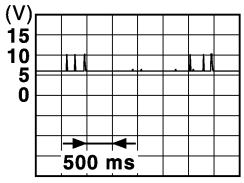
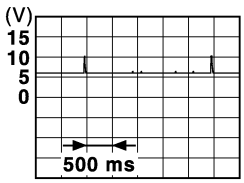
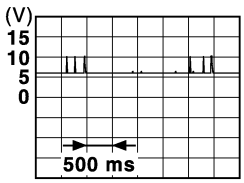
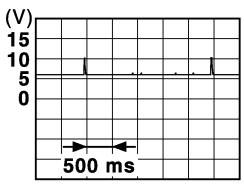
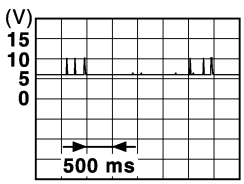
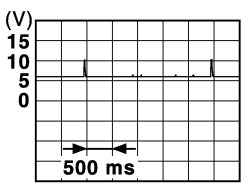
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 2ND (Wiper intermittent dial 4)	 PKIB4958J 1.2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

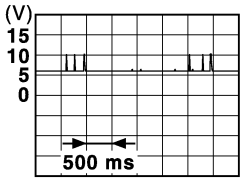
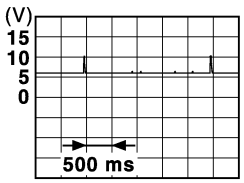
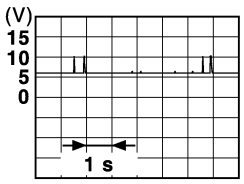
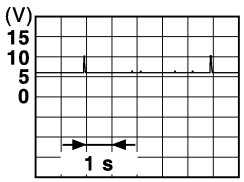
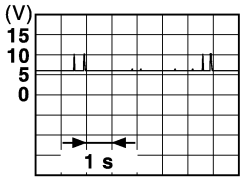
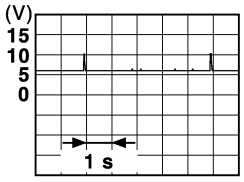
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
37 (G/O)	Ground	Selector lever P position switch	Input	Selector lever	P position	0 V
					Any position other than P	12 V
38 (G/Y)	Ground	Receiver communication	Input/ Output	Ignition switch OFF (Remote keyless entry communication)	Waiting	12 V
					When operating either button on Intelligent Key	 JMMIA0572GB
				Ignition switch ON (TPMS communication)	Waiting	 JMMIA0573GB
					When receiving signal from tire pressure sensor	 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)	 PKIB4960J 9.5 - 10.0 V
					ON (When back door opened)	0 V
44 (LG)	Ground	Rear wiper stop position	Input	Ignition switch ON	Rear wiper stop position	12 V
					Any position other than rear wiper stop position	0 V

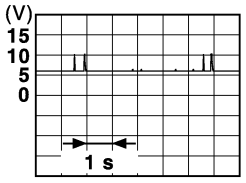
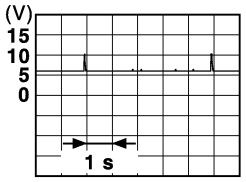
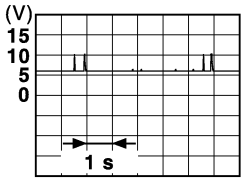
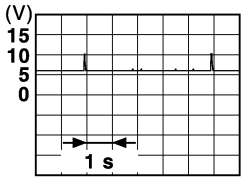
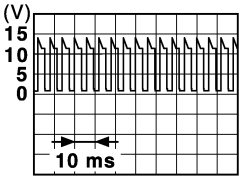
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
45 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 PKIB4960J 7.0 - 8.0 V
					ON (When passenger door opened)	0 V
46 (GR/L)	Ground	Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	 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)	 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)	 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)	0 V
					Other than LOCK (Actuator is not activated)	Battery voltage
51 (W)	Ground	Back door request switch	Input	Back door request switch	ON (Pressed)	0 V
					OFF (Not pressed)	12 V
54 (LG)	Ground	Rear wiper	Output	Rear wiper	OFF (Stopped)	0 V
					ON (Activated)	12 V

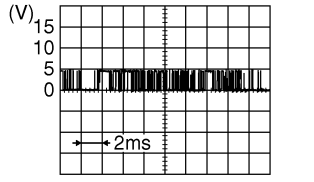
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
55 (G)	Ground	Rear door UNLOCK	Output	Rear door	UNLOCK (Actuator is activated)	12 V
					Other then UNLOCK (Actuator is not activated)	0 V
56 (L)	Ground	Interior room lamp power supply	Output	Interior room lamp battery saver is activated. (Cuts the interior room lamp power supply)		0 V
				Interior room lamp battery saver is not activated. (Outputs the interior room lamp power supply)		12 V
57 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
59 (G)	Ground	Passenger door UNLOCK	Output	Passenger door	UNLOCK (Actuator is activated)	12 V
					Other then UNLOCK (Actuator is not activated)	0 V
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch LH	 PKIC6370E 6.0 V
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch RH	 PKIC6370E 6.0 V
63 (BR)	Ground	Interior room lamp control signal	Output	Interior room lamp	OFF	12 V
					ON	0 V
65 (V)	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activated)	12 V
					Other then LOCK (Actuator is not activated)	0 V
66 (L/B)	Ground	Driver door UNLOCK	Output	Driver door	UNLOCK (Actuator is activated)	12 V
					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 ON		12 V
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		12 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
70 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
72*2 (SB)	Ground	A/C indicator	Output	A/C indicator	OFF	12 V
					ON	0 V
75 (SB)	Ground	Driver door request switch	Input	Driver door request switch	ON (Pressed)	0 V
					OFF (Not pressed)	12 V
76 (L/O)	Ground	Push-button ignition switch (push switch)	Input	Push-button ignition switch (push switch)	Pressed	0 V
					Not pressed	12 V
78 (LG)	Ground	Driver door antenna (+)	Output	When the driver 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
79 (V)	Ground	Driver door antenna (-)	Output	When the driver 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
80 (BR/Y)	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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
81 (L/Y)	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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
82 (W/B)	Ground	Back door antenna (+)	Output	When the back 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
83 (B/W)	Ground	Back door antenna (-)	Output	When the back 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
84 (Y/G)	Ground	Room antenna (+) (Instrument center)	Output	Ignition switch ON	When Intelligent Key is not in the antenna detection area	 JMKIA5951GB
					When Intelligent Key is in the antenna detection area	 JMKIA3839GB
85 (Y/L)	Ground	Room antenna (-) (Instrument center)	Output	Ignition switch ON	When Intelligent Key is not in the antenna detection area	 JMKIA5951GB
					When Intelligent Key is in the antenna detection area	 JMKIA3839GB

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

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
93 (GR/W)	Ground	Intelligent Key warning buzzer	Output	Intelligent Key warning buzzer	Sounding	0 V
					Not sounding	12 V
96 (BR/W)	Ground	ACC relay control	Output	Ignition switch	OFF	0 V
					ACC or ON	12 V
97 (L/R)	Ground	Starter relay control	Output	Ignition switch ON	When selector lever is in P or N position	Battery voltage
					When selector lever is not in P or N position	0 V
98 (BR)	Ground	Ignition relay (IPDM E/R) control	Output	Ignition switch	OFF or ACC	12 V
					ON	0 V
99 (W/R)	Ground	Ignition relay control	Output	Ignition switch	OFF or ACC	0 V
					ON	12 V
100 (G)	Ground	Passenger door request switch	Input	Passenger door request switch	ON (Pressed)	0 V
					OFF (Not pressed)	12 V
102 (G)	Ground	Selector lever P/N position	Input	Selector lever	P or N position	Battery voltage
					Except P and N positions	0 V
103*2 (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	A/C mode defroster ON position	0 V
					Other than A/C mode defroster ON position	 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 (Y/B)	Ground	Blower fan motor relay control	Output	Ignition switch	OFF or ACC	0 V
					ON	12 V

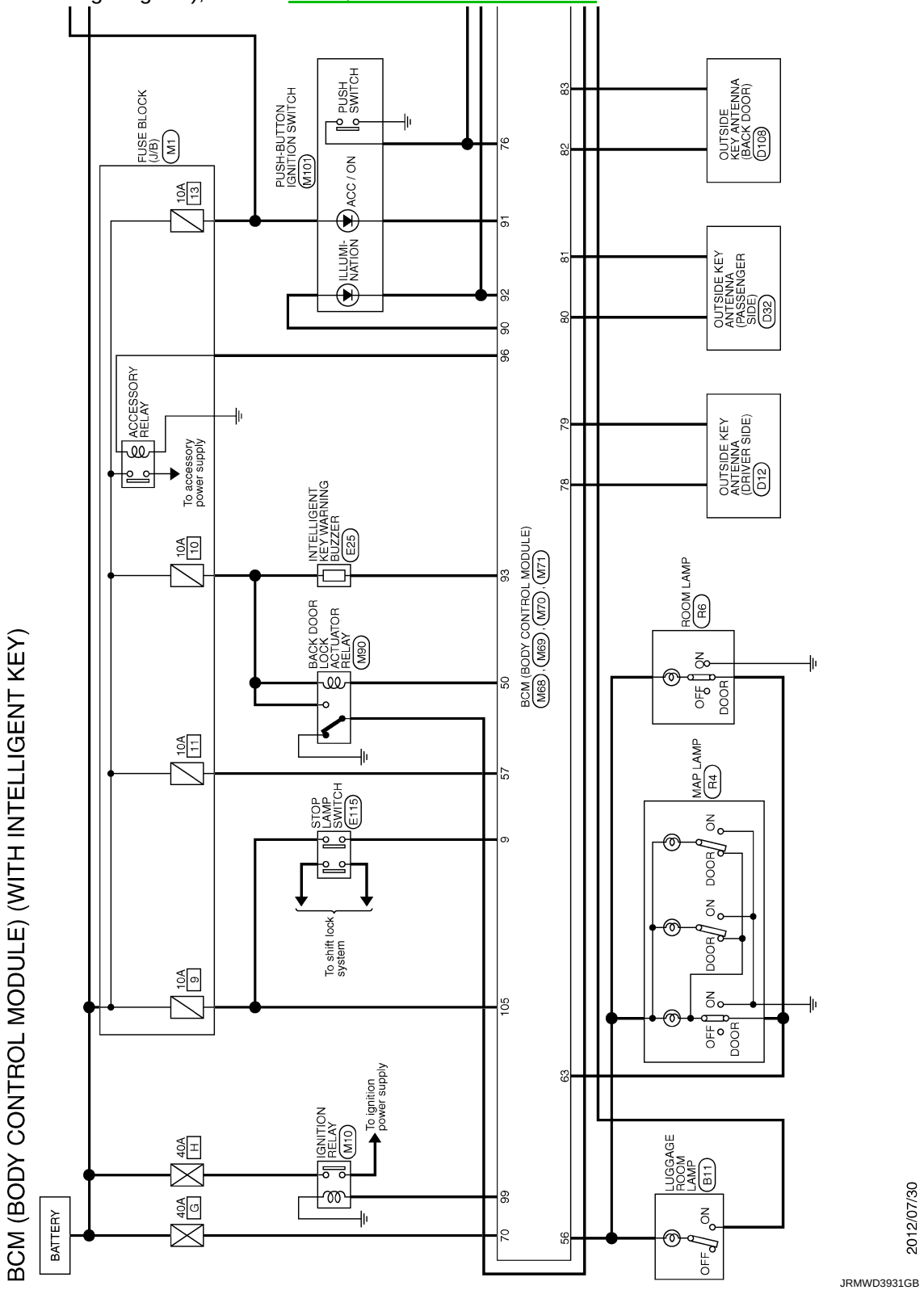
*1: For Canada
*2: Manual air conditioner

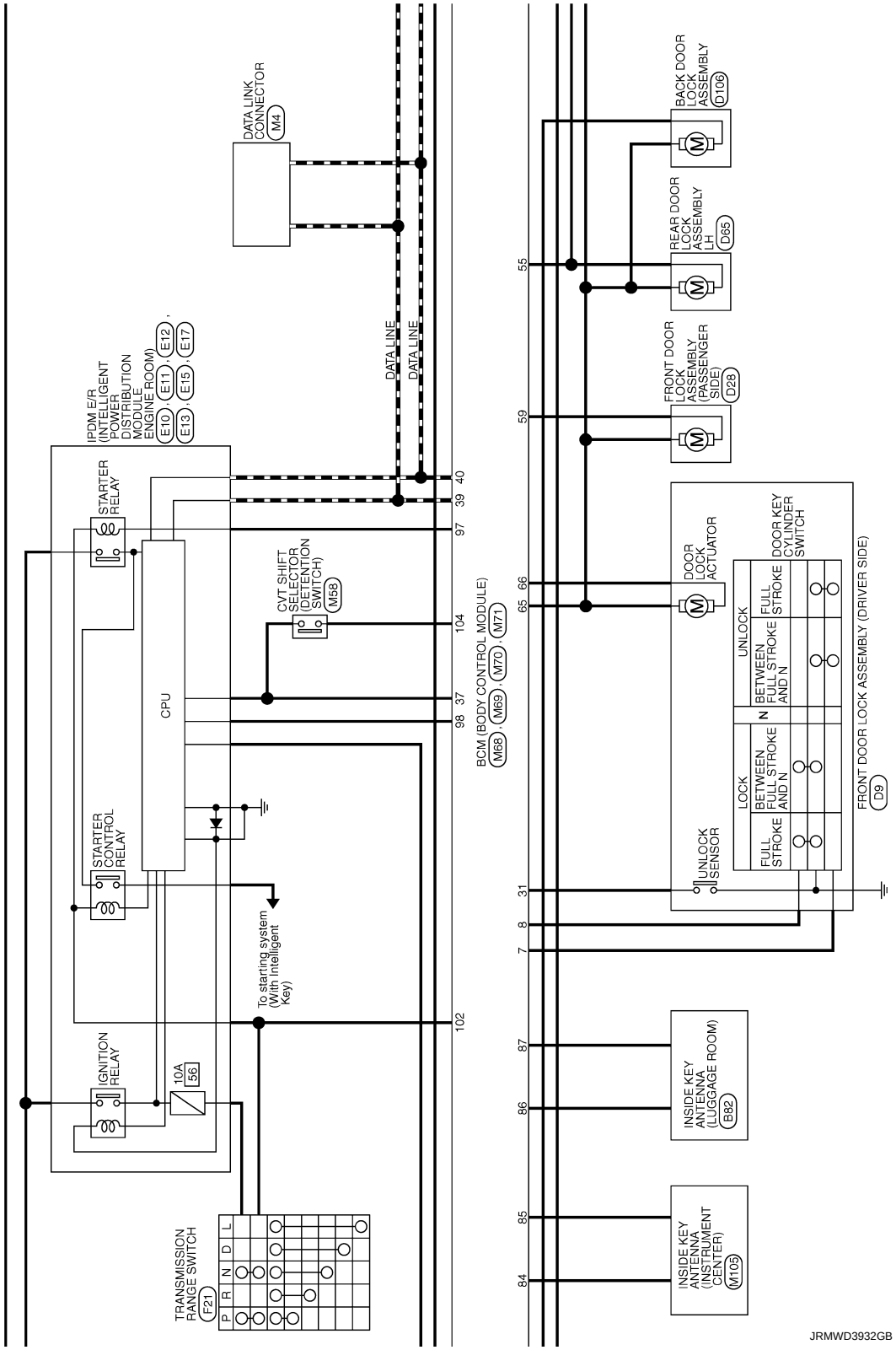
BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Wiring Di-

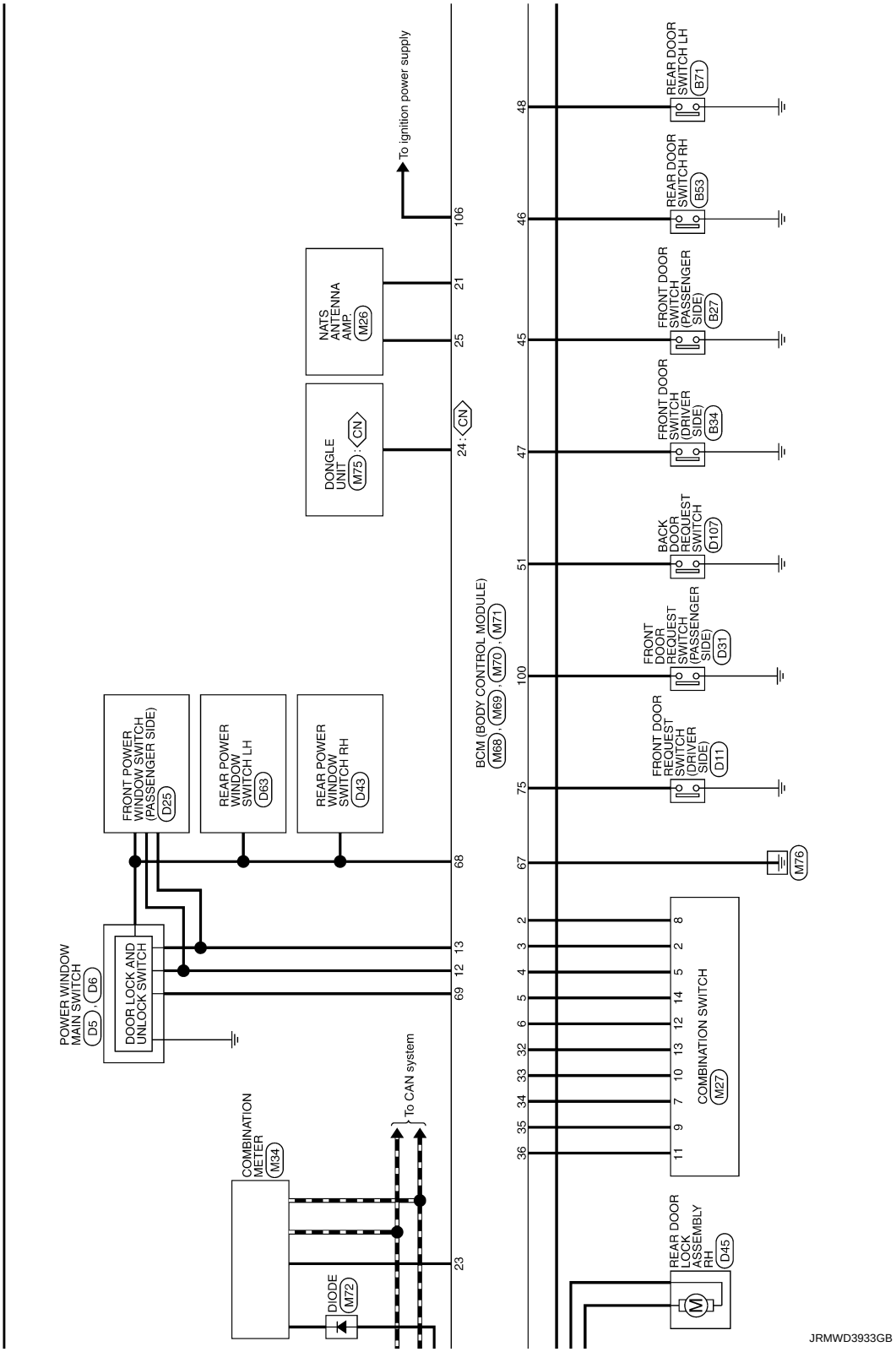
agram - BCM -

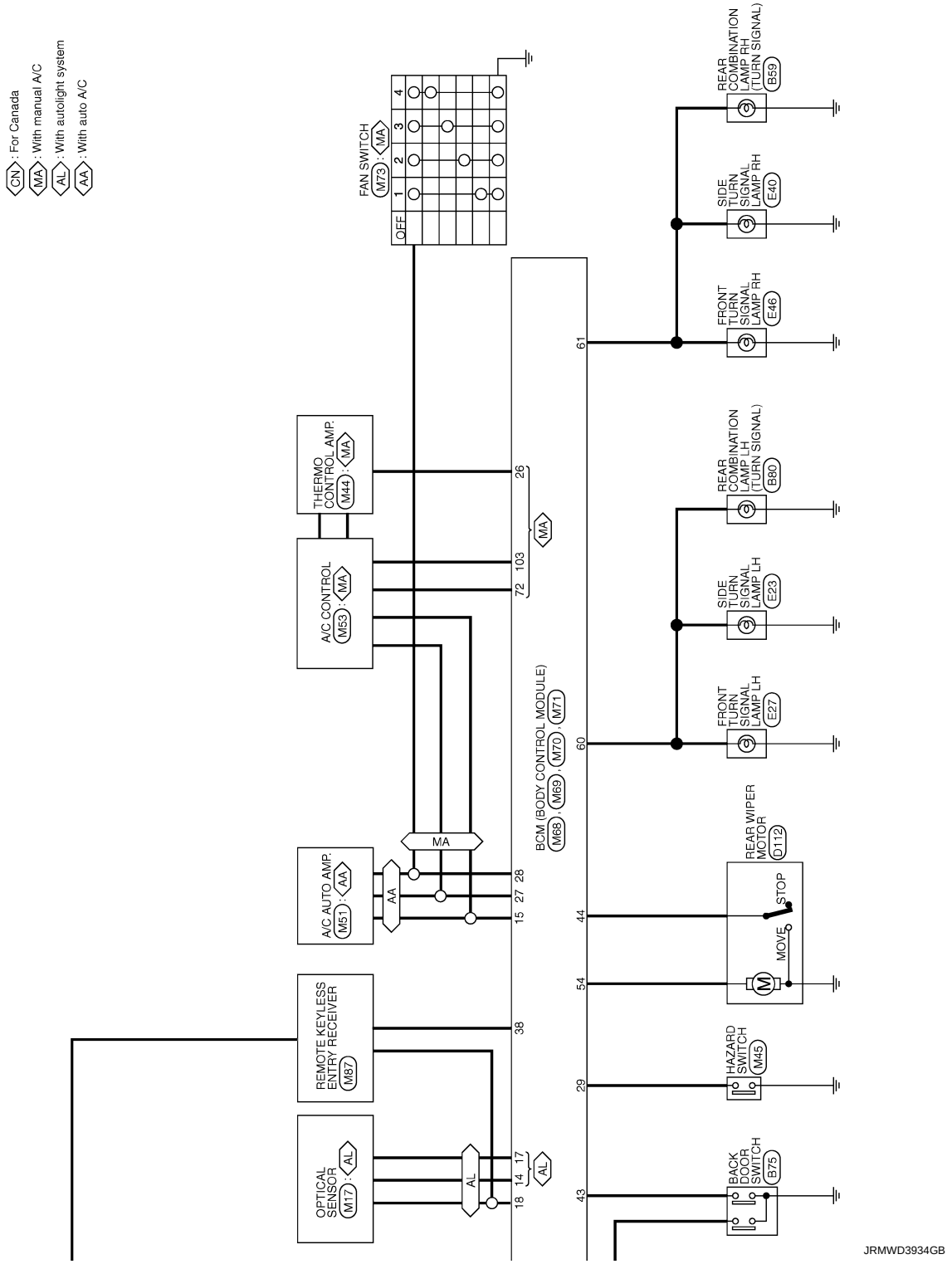
INFOID:0000000008928787

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




DATA LINK CONNECTOR M4
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E10, E11, E12, E13, E15, E17
DATA LINE
DATA LINE
STARTER RELAY
CPU
CVT SHIFT SELECTOR (DETENTION SWITCH) M58
STARTER CONTROL RELAY
IGNITION RELAY
10A 56
To starting system (With Intelligent Key)
TRANSMISSION RANGE SWITCH F21
P R N D L
BCM (BODY CONTROL MODULE) M68, M69, M70, M71
40 39 97 104 37 98 102
BACK DOOR LOCK ASSEMBLY D106
REAR DOOR LOCK ASSEMBLY LH D65
FRONT DOOR LOCK ASSEMBLY (PASSENGER SIDE) D28
DOOR LOCK ACTUATOR
UNLOCK SENSOR
DOOR KEY CYLINDER SWITCH
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
FRONT DOOR LOCK ASSEMBLY (DRIVER SIDE) D9
55 59 66 65 31 8 7
INSIDE KEY ANTENNA (LUGGAGE ROOM) B82
INSIDE KEY ANTENNA (INSTRUMENT CENTER) M105
87 86 85 84
JRMWD3932GB


To ignition power supply
106
NATS ANTENNA AMP. M26
21
25
DONGLE UNIT M75 : CN
24 : CN
FRONT POWER WINDOW SWITCH (PASSENGER SIDE) D25
REAR POWER WINDOW SWITCH LH D63
REAR POWER WINDOW SWITCH RH D43
68
POWER WINDOW MAIN SWITCH D5 : D6
DOOR LOCK AND UNLOCK SWITCH
13
12
69
COMBINATION METER M34
To CAN system
DIODE M72
23
BCM (BODY CONTROL MODULE) M68, M69, M70, M71
48
46
45
47
51
100
75
67
2
3
4
5
6
32
33
34
35
36
REAR DOOR SWITCH LH B71
REAR DOOR SWITCH RH B53
FRONT DOOR SWITCH (PASSENGER SIDE) B27
FRONT DOOR SWITCH (DRIVER SIDE) B34
BACK DOOR REQUEST SWITCH D107
FRONT DOOR REQUEST SWITCH (PASSENGER SIDE) D31
FRONT DOOR REQUEST SWITCH (DRIVER SIDE) D11
M76
8
2
5
14
12
13
10
7
9
11
COMBINATION SWITCH M27
REAR DOOR LOCK ASSEMBLY RH D45
JRMWD3933GB



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

INFOID:0000000008928788

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 → 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.
3. 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:0000000008928789

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)

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 • B2608: STARTER RELAY • B260F: ENG STATE SIG LOST • B2614: BCM • B2615: BCM • B2616: BCM • 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
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] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL
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:0000000008928790

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 BCS-20, "COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)".

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-41
U1010: CONTROL UNIT (CAN)	—	—	—	—	BCS-42
U0415: VEHICLE SPEED	—	—	×	—	BCS-43
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-44
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	—	×	—	—	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	×	×	×	—	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

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	—	—	—	×	WT-23
C1705: LOW PRESSURE FR	—	—	—	×	
C1706: LOW PRESSURE RR	—	—	—	×	
C1707: LOW PRESSURE RL	—	—	—	×	
C1708: [NO DATA] FL	—	—	—	×	WT-25
C1709: [NO DATA] FR	—	—	—	×	
C1710: [NO DATA] RR	—	—	—	×	
C1711: [NO DATA] RL	—	—	—	×	
C1716: [PRESSDATA ERR] FL	—	—	—	×	WT-28
C1717: [PRESSDATA ERR] FR	—	—	—	×	
C1718: [PRESSDATA ERR] RR	—	—	—	×	
C1719: [PRESSDATA ERR] RL	—	—	—	×	
C1729: VHCL SPEED SIG ERR	—	—	—	×	WT-30

SYMPTOM DIAGNOSIS

AUTOMATIC AIR CONDITIONING SYSTEM

Diagnosis Chart By Symptom

INFOID:0000000008454282

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"

INSUFFICIENT COOLING

Description

INFOID:0000000008454283

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

Diagnosis Procedure

INFOID:0000000008454284

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.
4. 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.

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".

2. 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.

INSUFFICIENT HEATING

Description

INFOID:0000000008454285

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

Diagnosis Procedure

INFOID:0000000008454286

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".
3. Check the water flow sounds of the engine coolant. Refer to CO-10, "Refilling".

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

5.CHECK SETTING OF TEMPERATURE SETTING TRIMMER

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

Description

INFOID:0000000008454287

SYMPTOM
Compressor dose not operate.

Diagnosis Procedure

INFOID:0000000008454288

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.**

1.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 EC-430, "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
	A/C switch: ON	On
FAN REQ SW	Fan control switch: OFF	Off
	Fan control switch: ON	On

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK BCM OUTPUT SIGNAL

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
	A/C switch: ON	On
FAN REQ SW	Fan control switch: OFF	Off
	Fan control switch: ON	On

Is the inspection result normal?

YES >> Replace the IPDM E/R. Refer to PCS-33, "Exploded View" (WITH I-KEY) or PCS-62, "Exploded View" (WITHOUT I-KEY).
NO >> Replace the BCM. Refer to BCS-82, "Exploded View" (WITH I-KEY) or BCS-144, "Exploded View" (WITHOUT I-KEY).

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

Description

INFOID:0000000008454289

SYMPTOM

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

Inspection Procedure

INFOID:0000000008454290

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 the ignition switch OFF.
5. Turn the ignition switch ON.
6. Press AUTO switch.
7. Check that the set temperature is maintained.

Is the inspection result normal?

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

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

Check power supply and ground circuit of A/C auto amp. Refer to HAC-67, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the A/C auto amp.
NO >> Repair or replace the malfunctioning parts.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000008454291

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.

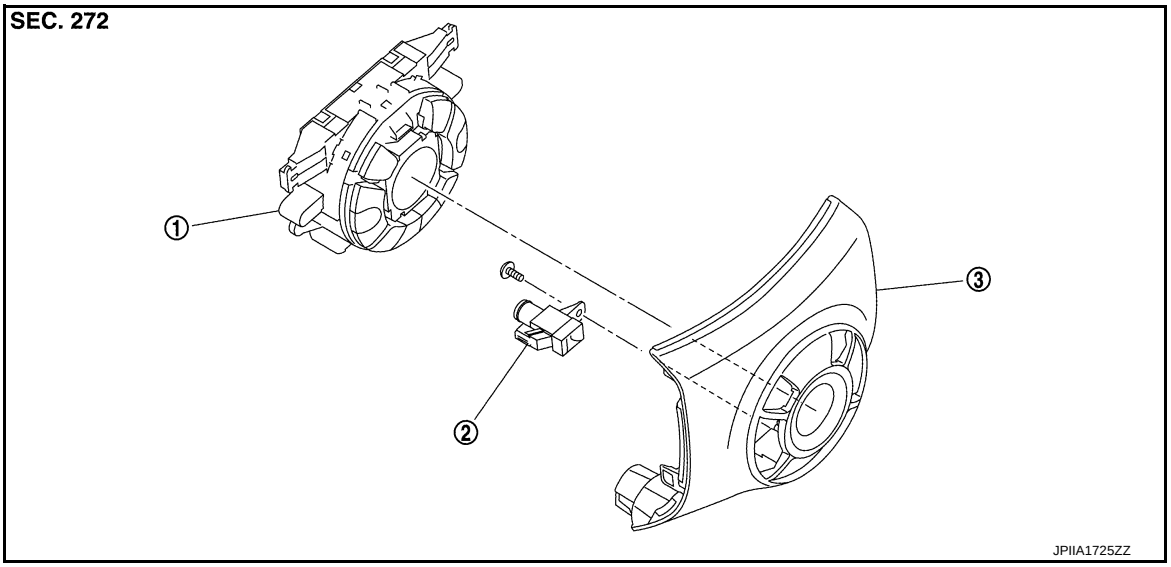
- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious 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.**

REMOVAL AND INSTALLATION

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

Exploded View

INFOID:0000000008454293



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

Removal and Installation

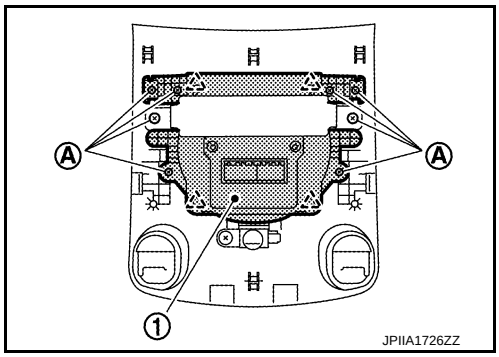
INFOID:0000000008454294

REMOVAL

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

△ : Pawl

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



INSTALLATION

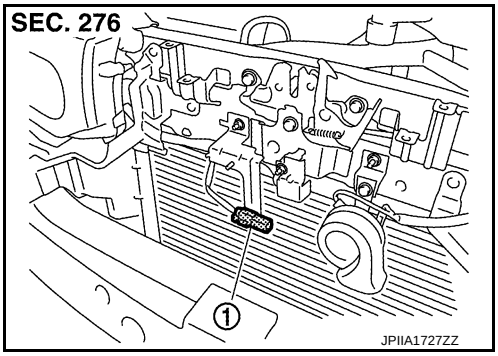
Installation is basically the reverse order of removal.

AMBIENT SENSOR

Exploded View

INFOID:0000000008454295

1. Ambient sensor



Removal and Installation

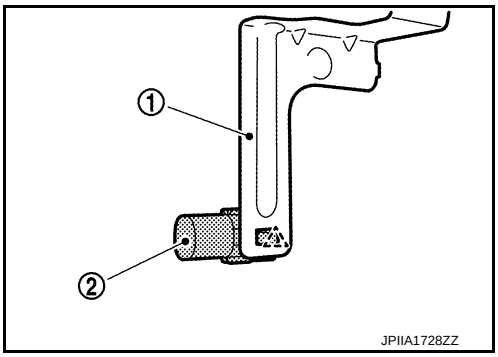
INFOID:0000000008454296

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).

: Pawl

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



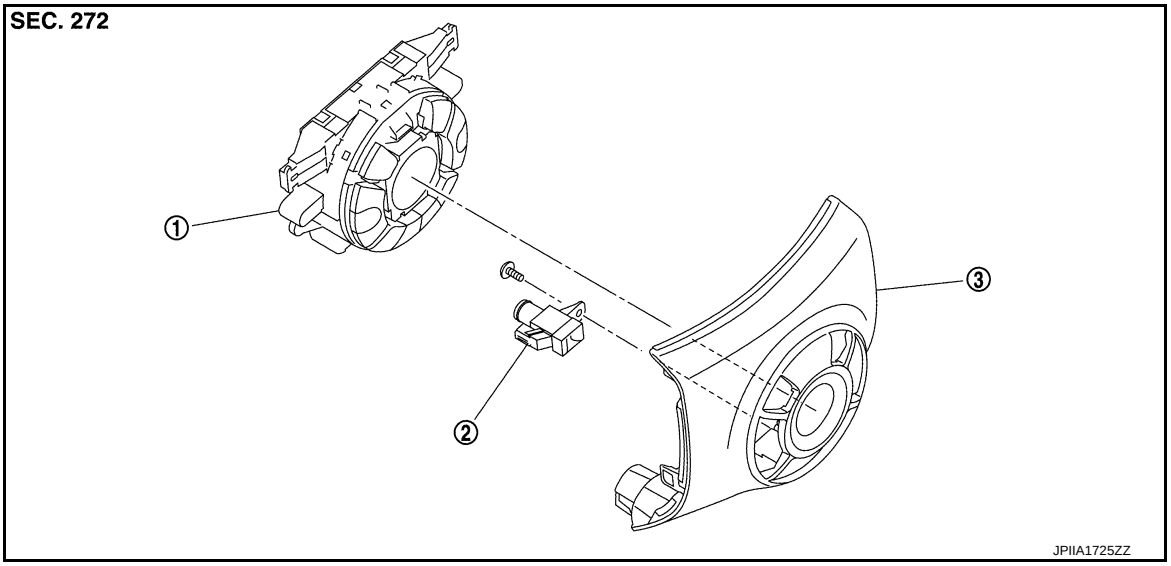
INSTALLATION

Installation is basically the reverse order of removal.

IN-VEHICLE SENSOR

Exploded View

INFOID:0000000008454297



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

Removal and Installation

INFOID:0000000008454298

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

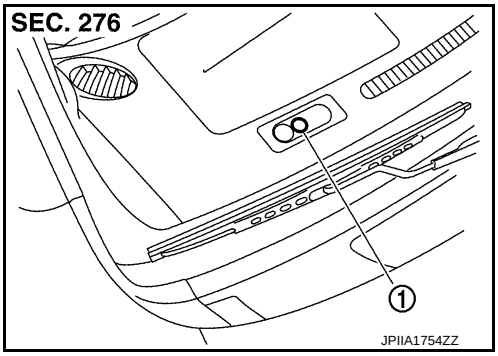
Installation is basically the reverse order of removal.

SUNLOAD SENSOR

Exploded View

INFOID:0000000008454299

1. Sunload sensor



Removal and Installation

INFOID:0000000008454300

REMOVAL

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

INSTALLATION

Installation is basically the reverse order of removal.

INTAKE SENSOR

Exploded View

INFOID:0000000008454301

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

Removal and Installation

INFOID:0000000008454302

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.

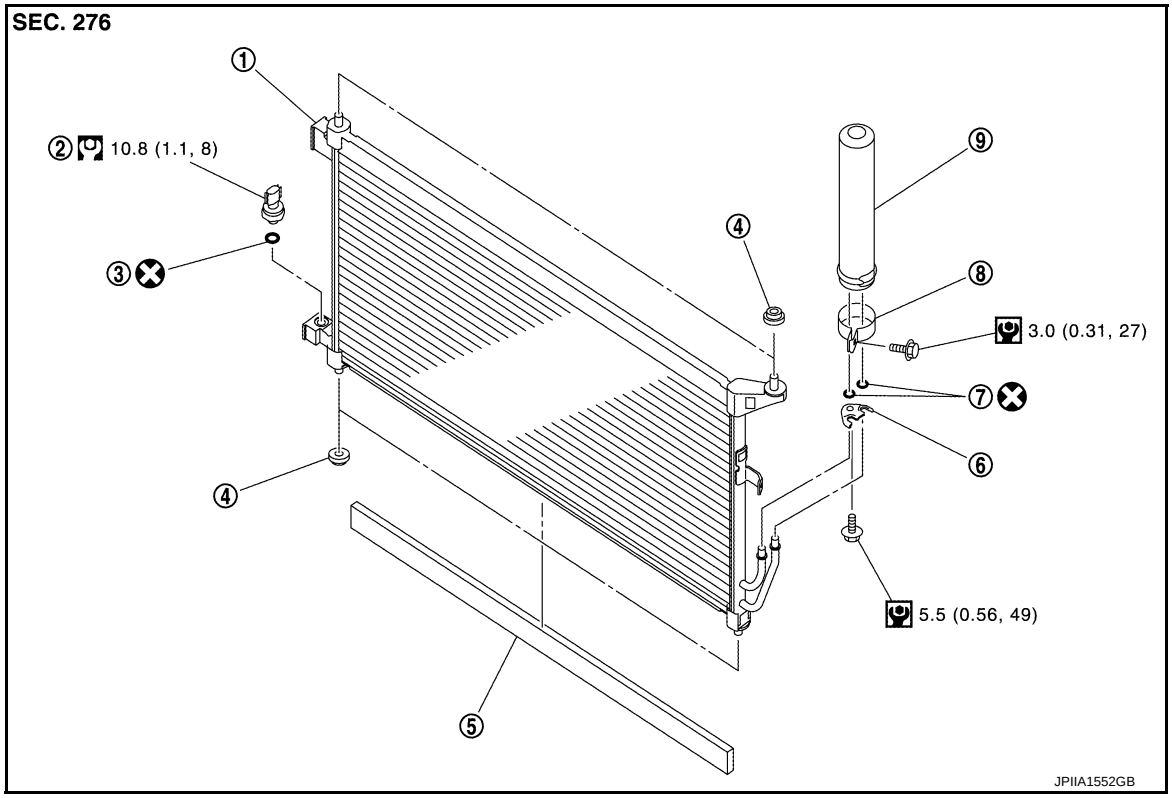
CAUTION:

- **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:0000000008454303



1. Condenser
2. Refrigerant pressure sensor
3. O-ring
4. Grommet
5. Condenser seal
6. Bracket
7. O-ring
8. Liquid tank bracket
9. Liquid tank

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

Removal and Installation

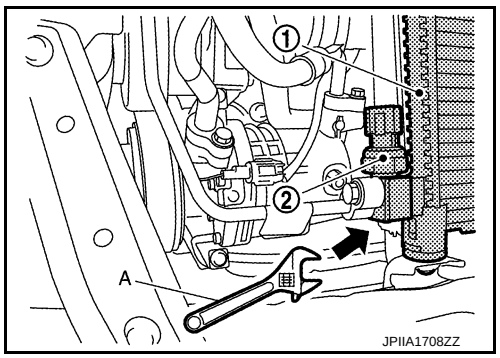
INFOID:0000000008454304

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

1. 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.
3. Disconnect refrigerant pressure sensor connector.

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".**

POWER TRANSISTOR

Exploded View

INFOID:0000000008454305

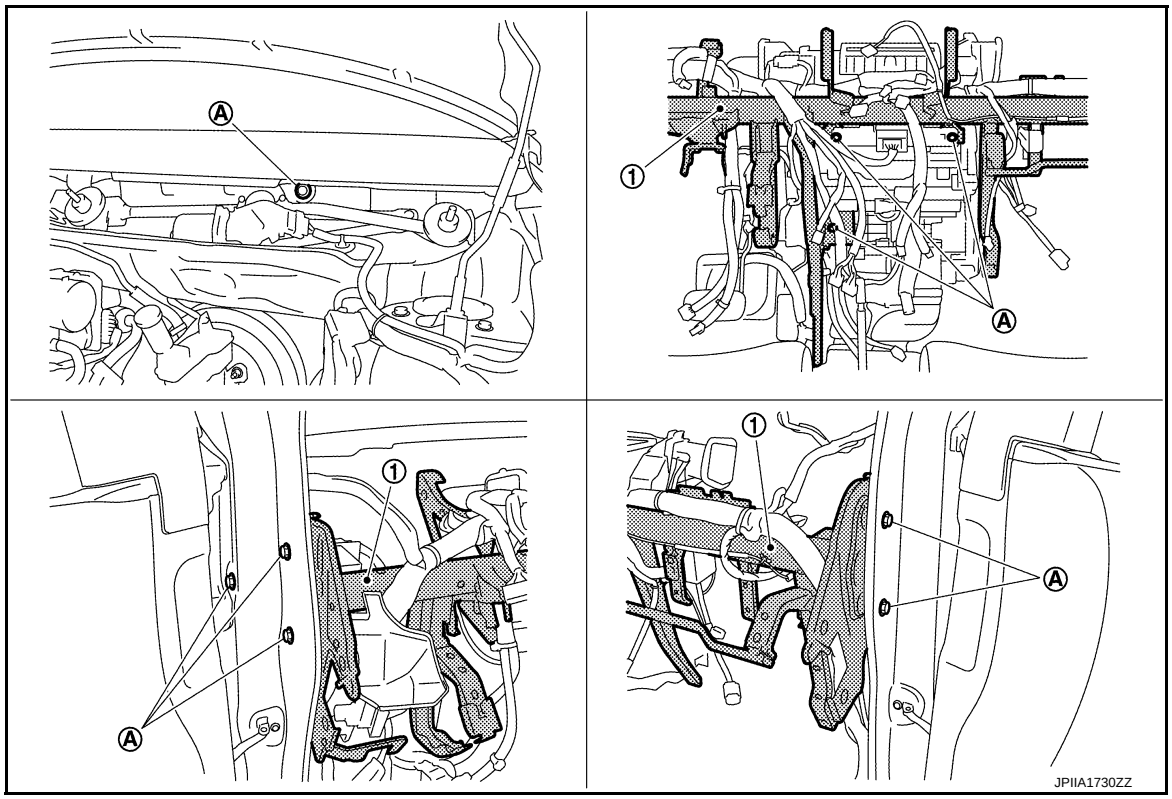
Refer to VTL-13, "Exploded View"

Removal and Installation

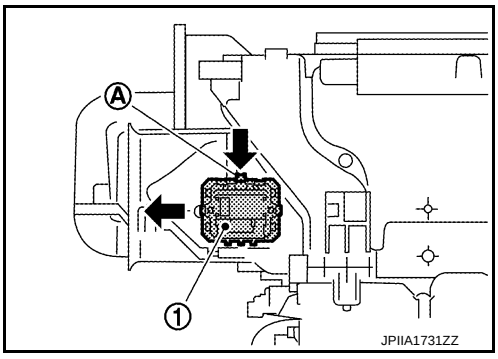
INFOID:0000000008454306

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.



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



INSTALLATION

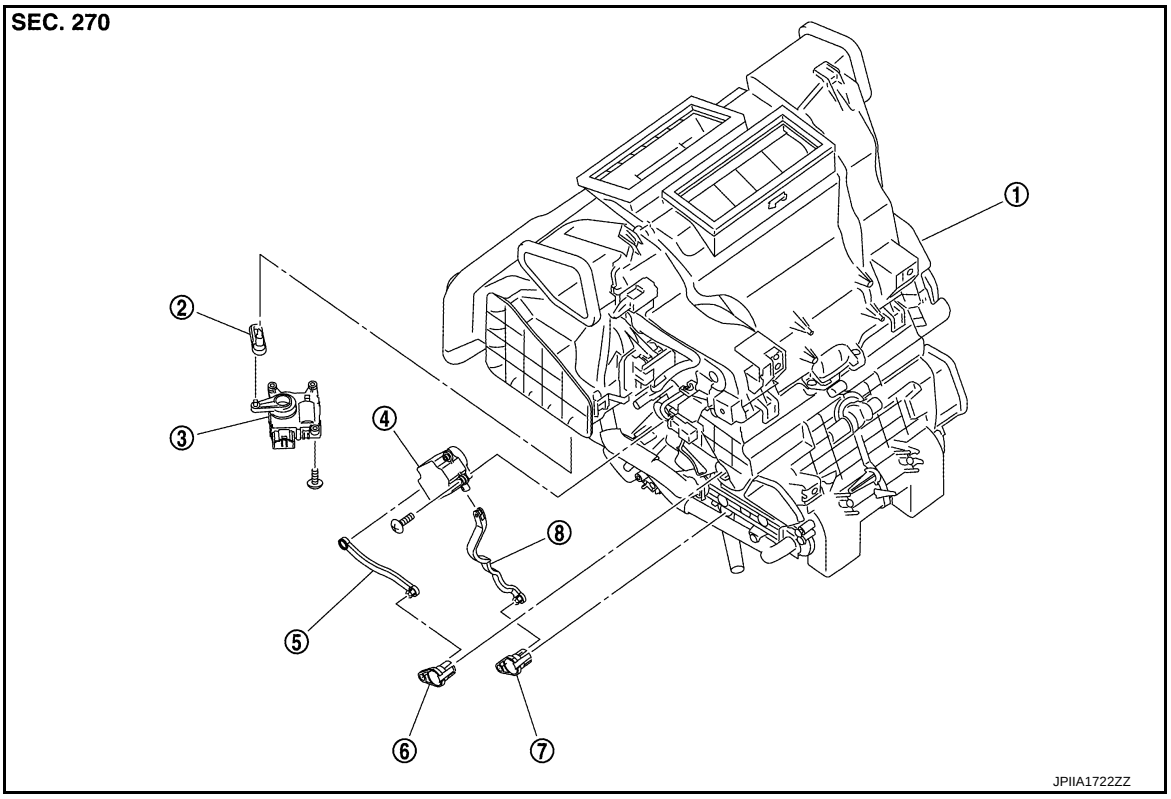
Installation is basically the reverse order of removal.

DOOR MOTOR

Exploded View

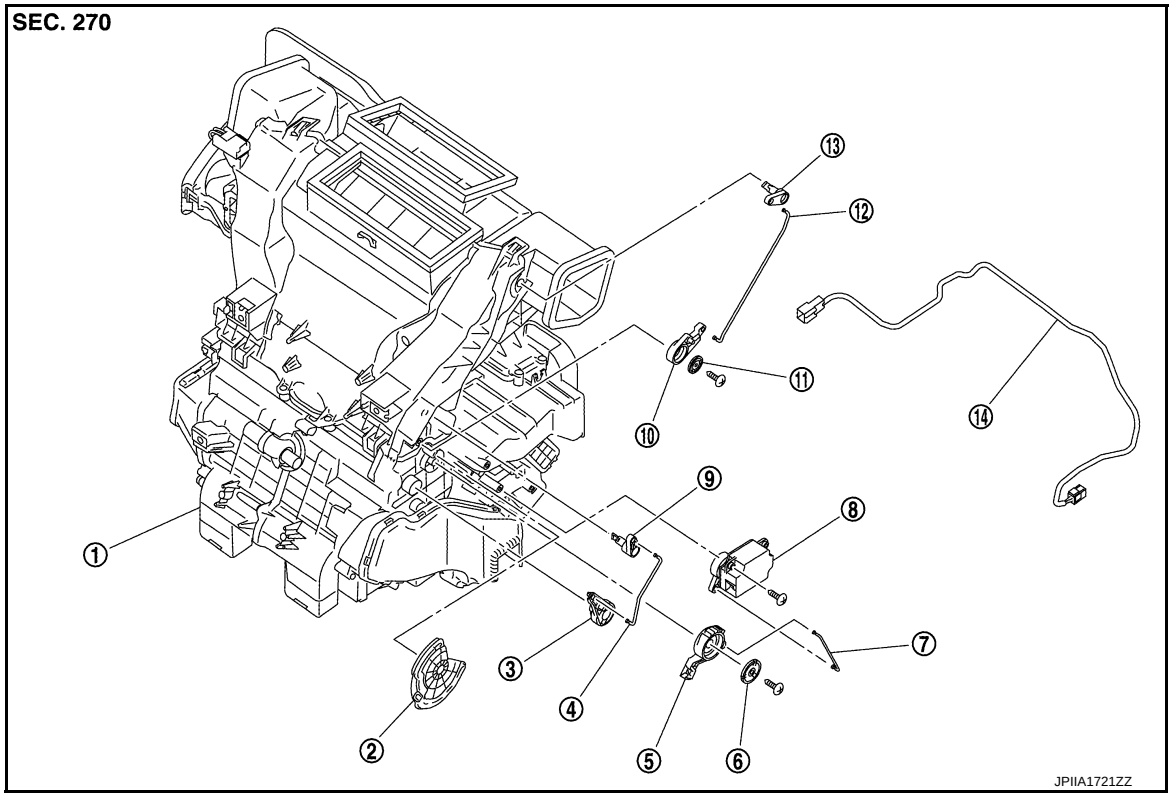
INFOID:0000000008454307

LEFT SIDE



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

RIGHT SIDE



1. A/C unit assembly
2. Main link
3. Sub defroster door link
4. Sub defroster door rod
5. Mode link
6. Plate
7. Mode link rod
8. Mode door motor
9. Sub defroster door lever
10. Center ventilator and defroster door link
11. Plate
12. Center ventilator and defroster door rod
13. Center ventilator and defroster door lever
14. Sub harness (mode door motor)

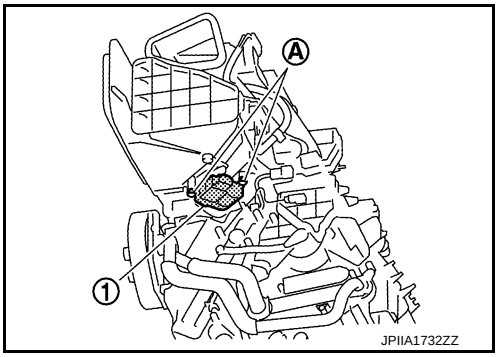
INTAKE DOOR MOTOR

INTAKE DOOR MOTOR : Removal and Installation

INFOID:0000000008454308

REMOVAL

1. Remove air mix door motor. Refer to HAC-119, "Exploded View".
2. Remove mounting screws (A), and then remove intake door motor (1).
3. Disconnect intake door motor connector.



INSTALLATION

Installation is basically the reverse order of removal.

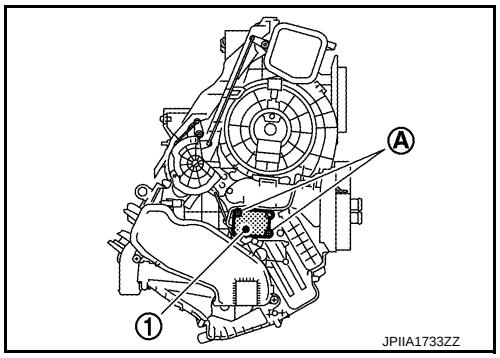
MODE DOOR MOTOR

MODE DOOR MOTOR : Removal and Installation

INFOID:0000000008454309

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.

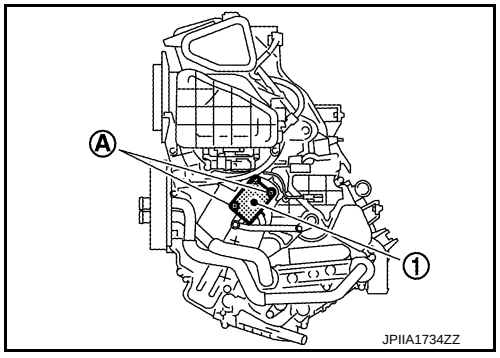
AIR MIX DOOR MOTOR

AIR MIX DOOR MOTOR : Removal and Installation

INFOID:0000000008454310

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.

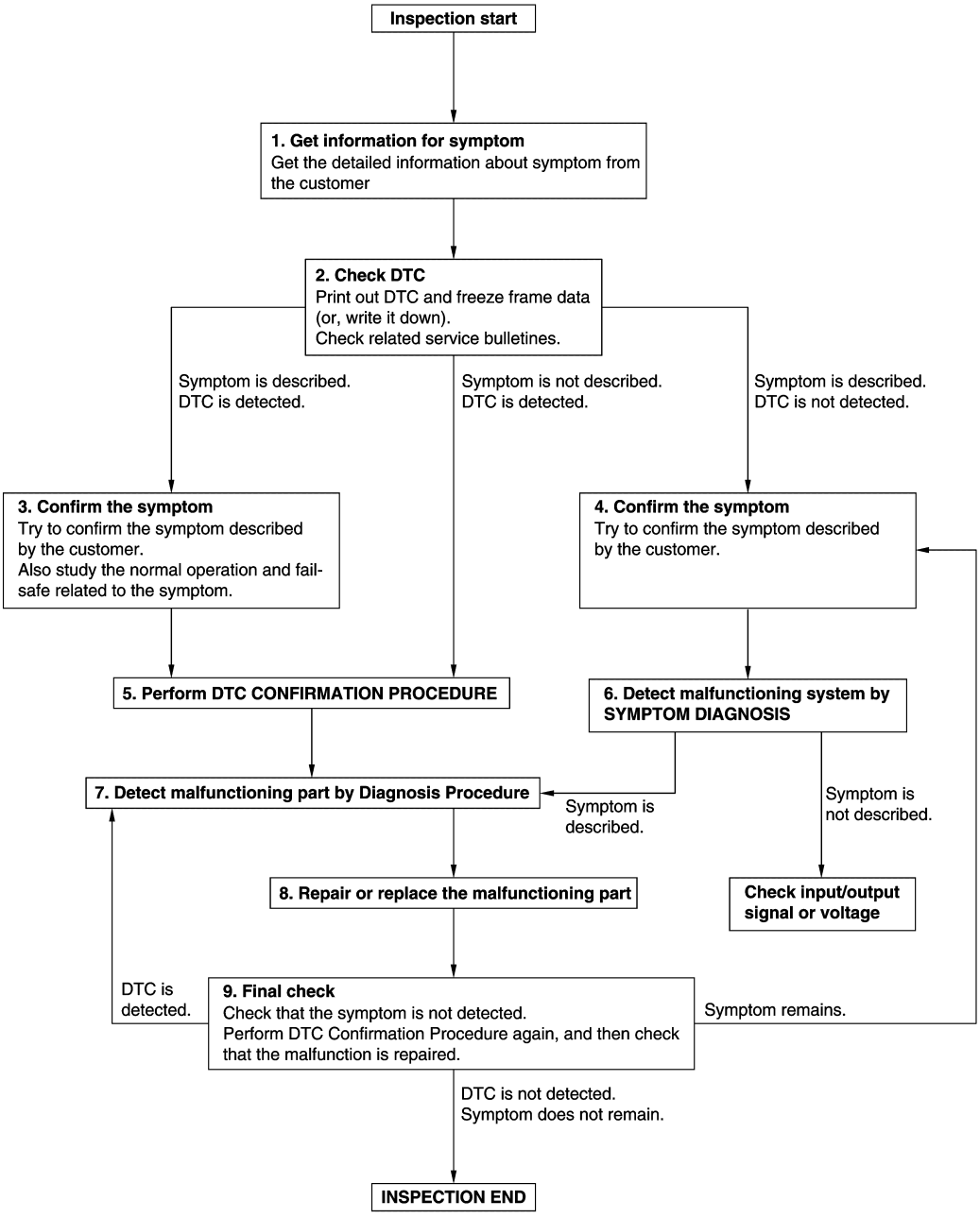
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000008454311

OVERALL SEQUENCE



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DETAILED FLOW

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 CONFIRMATION 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 CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

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.
2. 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.

INSPECTION

Description & Inspection

INFOID:0000000008454312

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

1. Start the engine.
2. Operate the fan control dial. 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 2.
NO >> Blower motor system malfunction. Refer to HAC-148, "Diagnosis Procedure".

2.CHECK DISCHARGE AIR

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

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.
2. Press intake switch to set the air outlet to recirculation.
3. 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.
6. 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-143, "Diagnosis Procedure".

4.CHECK A/C SWITCH

1. Press the A/C switch.
2. 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.
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 5.
NO >> Magnet clutch system malfunction. Refer to HAC-152, "Diagnosis Procedure".

5.CHECK TEMPERATURE DECREASE

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

Is the inspection result normal?

YES >> GO TO 6.
NO >> Insufficient cooling. Refer to HAC-211, "Diagnosis Procedure".

6.CHECK TEMPERATURE INCREASE

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

2. Check that warm air blows from outlets.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Insufficient heating. Refer to HAC-212, "Diagnosis Procedure".

SYSTEM DESCRIPTION

COMPRESSOR CONTROL FUNCTION

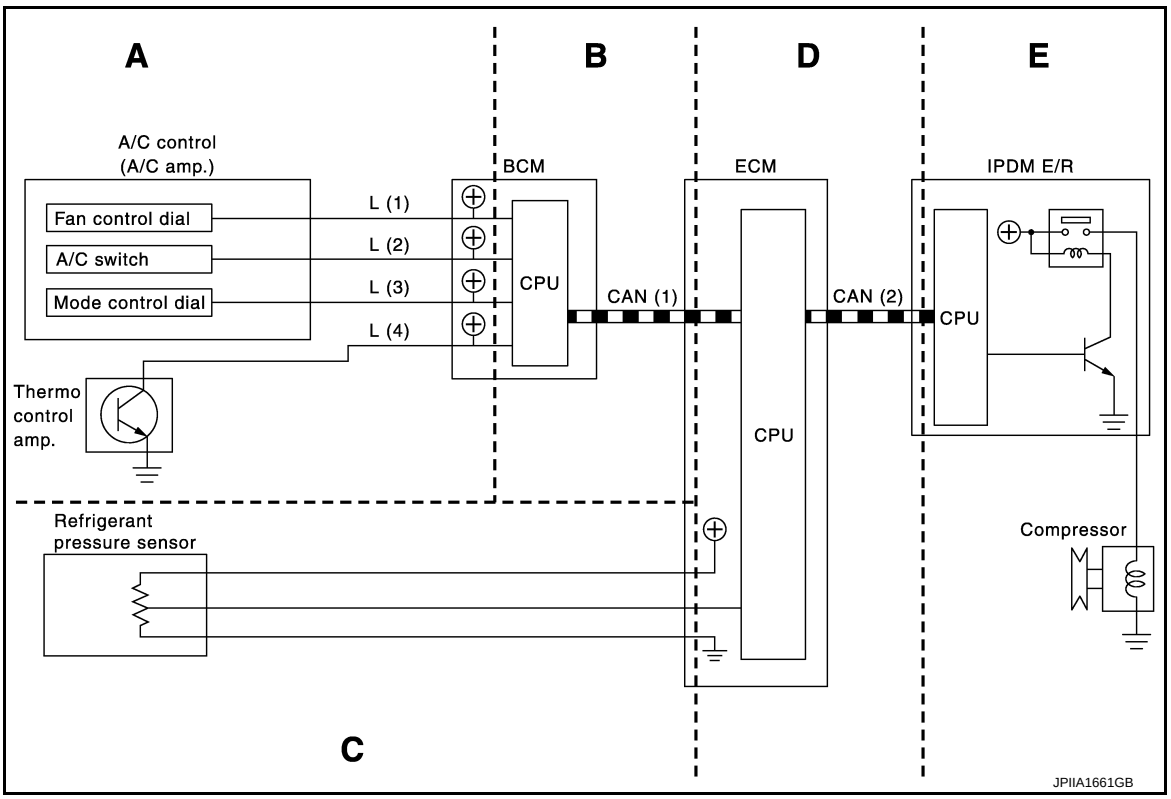
Description

INFOID:0000000008454313

PRINCIPLE OF OPERATION

Compressor is not activated.

Functional Circuit Diagram



L (1) : Fan ON signal
L (2) : A/C switch signal
L (3) : Defroster position switch 2
L (4) : Thermo control amp. ON signal

CAN (1) : A/C ON signal
: Blower fan ON signal
CAN (2) : A/C compressor request signal
: A/C compressor feedback signal

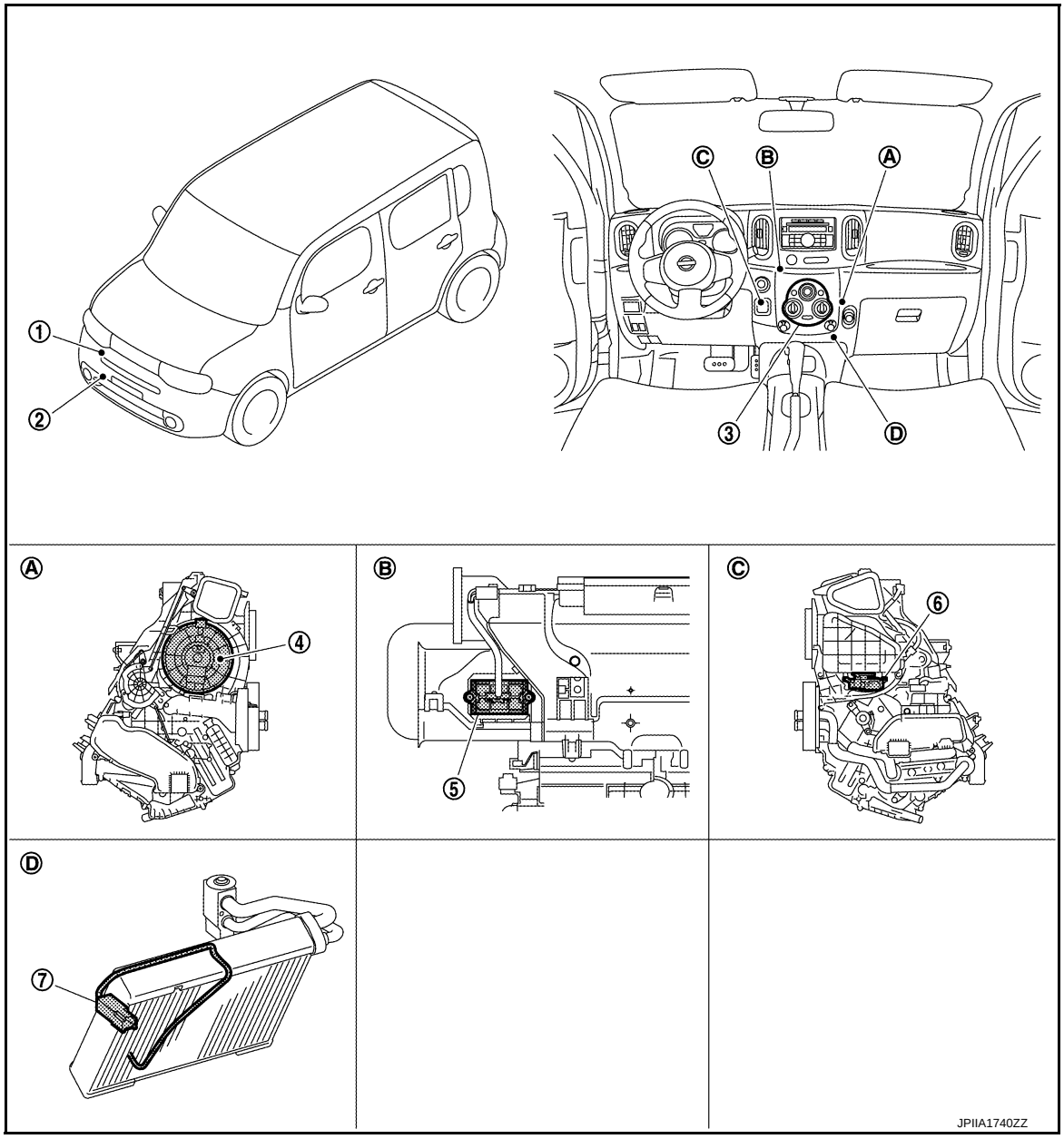
Functional Initial Inspection Chart

×: Applicable

Control unit	Diagnosis item		Location				
			A	B	C	D	E
BCM	"BCM-AIR COND"	Self-diagnosis	—	×	—	—	—
		Data monitor	×	—	—	—	—
ECM	"ENGINE"	Self-diagnosis (CAN communication line)	—	—	—	×	—
		Data monitor	—	×	×	—	—
IPDM E/R	"IPDM E/R"	Self-diagnosis (CAN communication line)	—	—	—	—	×
		Data monitor	—	—	—	×	—
	Auto active test		—	—	—	—	×

Component Part Location

INFOID:0000000008454314



1. Magnet clutch
2. Refrigerant pressure sensor
3. A/C control
4. Blower motor
5. Blower fan resistor
6. Intake door motor
7. Thermo control amp.

A. Located in the right side of A/C unit assembly
B. Located in the back of A/C unit assembly
C. Located in the left side of A/C unit assembly
D. Located on evaporator

Component Description

INFOID:0000000008454315

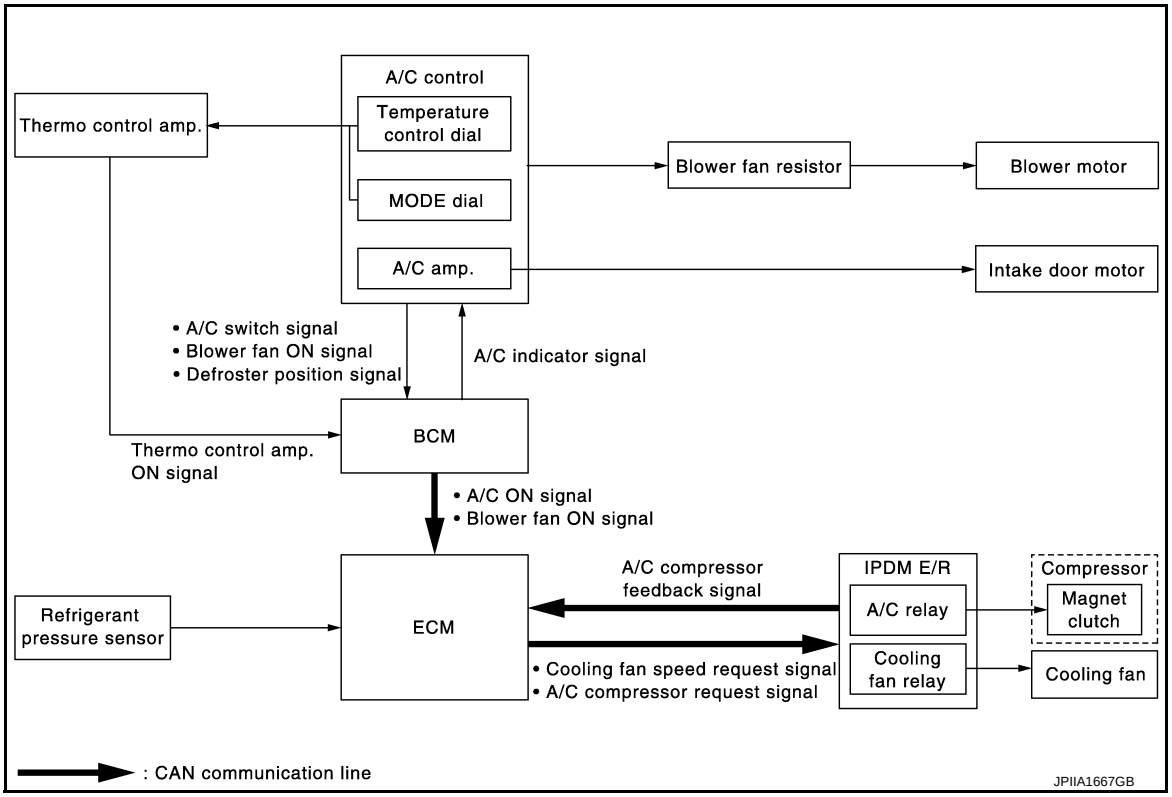
Component	Reference/Function
Magnet clutch	HAC-152, "Description"
Refrigerant pressure sensor	EC-430, "Description"
A/C control	Controls the air conditioner function.

Component	Reference/Function
Blower motor	HAC-148, "Description"
Blower fan resistor	HAC-148, "Description"
Intake door motor	HAC-143, "Description"
Thermo control amp.	HAC-145, "Description"

MANUAL AIR CONDITIONING SYSTEM

System Diagram

INFOID:0000000008454316



System Description

INFOID:0000000008454317

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".

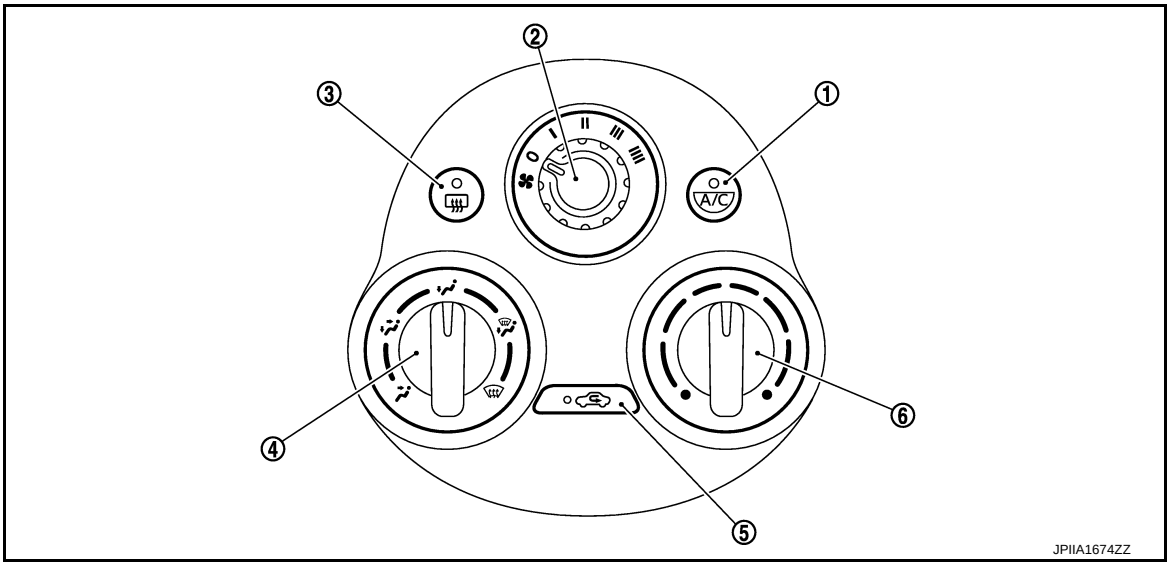
Control by IPDM E/R

- Relay control. Refer to PCS-34, "System Description".
- 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



1. A/C switch
2. Fan control dial
3. Rear window defogger switch
4. MODE dial
5. Intake 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 ⇔ OFF each time by pressing this switch. • Rear window defogger system details, Refer to DEF-4, "System Description".
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

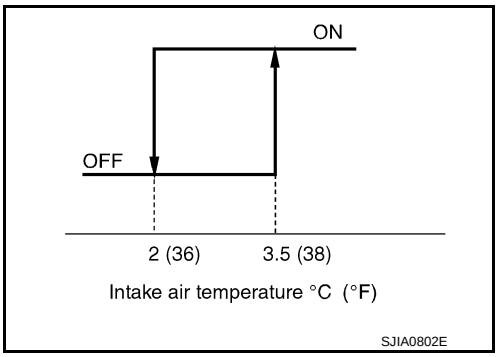
The high-pressure side value that is detected by refrigerant pressure sensor is as per the following state, ECM requests IPDM E/R to turn A/C relay OFF and stop the compressor.

- 3.12 MPa (31.8 kg/cm^2, 452 psi) or more (When the engine speed is less than 1,500 rpm)

- 2.74 MPa (27.9 kg/cm^2, 397 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.4 kg/cm^2, 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.



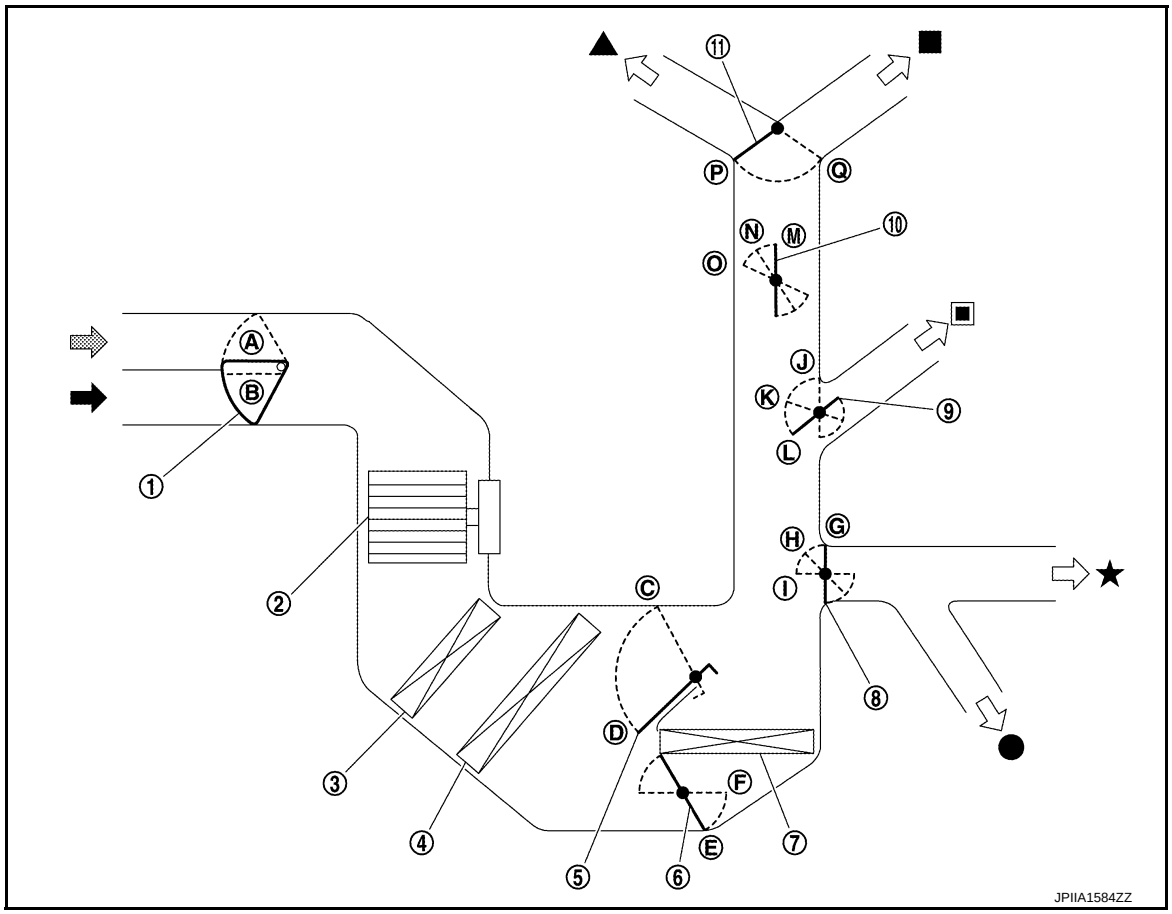
Operating Rate Control

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

Fresh air intake
Recirculation air
Defroster
Center ventilator
Side ventilator
Foot
Rear foot*

*With rear foot duct

Switch/Dial position			Door position						
			Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door	Intake door	Upper air mix door	Lower air mix door
MODE dial			P	M	L	G	—	—	—
					K	H			
			Q	O	J	I			
				N					
				M		G			
Intake switch		☀	—	—	—	—	A		
		○					B		
Temperature control dial	Full cold						—	D	E
	Full hot							C	F

AIR DISTRIBUTION

Without Rear Foot Duct

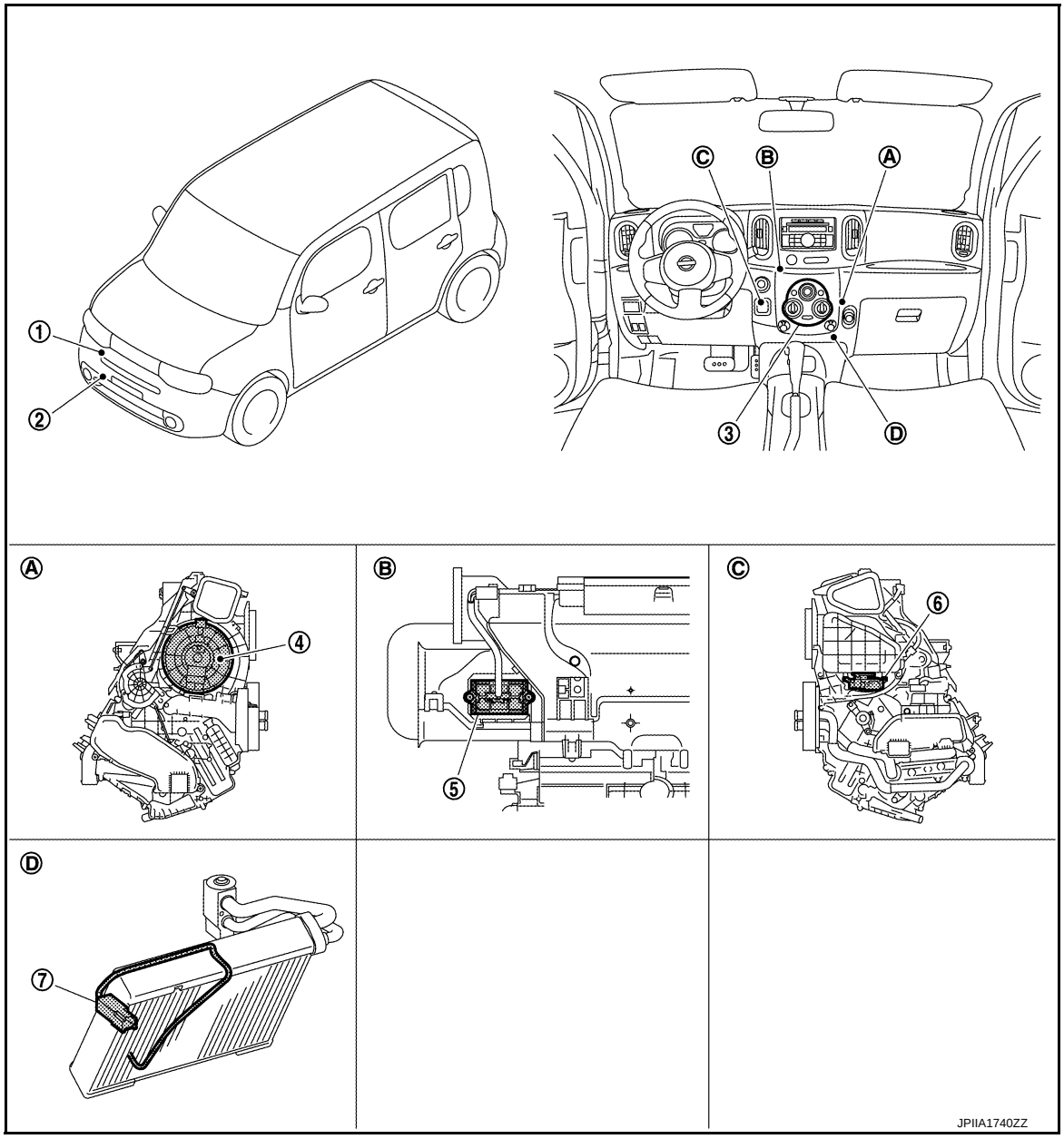
Discharge air flow			
Mode position indication	Air outlet/distribution		
	Ventilator	Foot	Defroster
	100%	—	—
	63%	37%	—
	16%	64%	20%
	14%	55%	31%
	18%	—	82%

With Rear Foot Duct

Discharge air flow				
Mode position indication	Air outlet/distribution			
	Ventilator	Front foot	Rear foot	Defroster
	100%	—	—	—
	57%	29%	14%	—
	19%	44%	19%	18%
	17%	40%	17%	26%
	18%	—	—	82%

Component Part Location

INFOID:0000000008454318



1. Magnet clutch
2. Refrigerant pressure sensor
3. A/C control
4. Blower motor
5. Blower fan resistor
6. Intake door motor
7. Thermo control amp.

A. Located in the right side of A/C unit assembly
B. Located in the back of A/C unit assembly
C. Located in the left side of A/C unit assembly
D. Located on evaporator

Component Description

INFOID:0000000008454319

Component	Reference/Function
Magnet clutch	HAC-152, "Description"
Refrigerant pressure sensor	EC-430, "Description"
A/C control	Controls the air conditioner function.

Component	Reference/Function
Blower motor	HAC-148, "Description"
Blower fan resistor	HAC-148, "Description"
Intake door motor	HAC-143, "Description"
Thermo control amp.	HAC-145, "Description"

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

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000008928100

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		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	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)	×	×	×

*: 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.

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	
Vehicle Condition	SLEEP>LOCK	Power position status of the moment a particular DTC is detected	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		While turning power supply position from “RUN“ to “ACC” (Emergency stop operation)
	ACC>OFF		While turning power supply position from “ACC” to “OFF”
	OFF>LOCK		While turning power supply position from “OFF” to “LOCK”*
	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 → 3...38 → 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) (Manual A/C)

INFOID:0000000008454321

DATA MONITOR
NOTE:

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

Monitor Item [Unit]		Contents
FAN ON SIG	[On/Off]	Displays the 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 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.

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000008928101

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		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)

INFOID:0000000008454323

DATA MONITOR

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.
Display Item List

Monitor Item [Unit]		Contents
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) signal.

ACTIVE TEST

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

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

INFOID:0000000008928103

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
	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.
3. Check voltage between BCM harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
BCM		Ground	
Connector	Terminal		
M70	70		Battery voltage
	57		

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.

BCM		Ground	Continuity
Connector	Terminal		
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

INFOID:0000000008928104

1. CHECK FUSES AND FUSIBLE LINK

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

Signal name	Fuses and fusible link No.
Battery power supply	8
	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		
(+)		(–)			
BCM			OFF	ACC	ON
Connector	Terminal				
M67	70	Ground	Battery voltage	Battery voltage	Battery voltage
	57				
M65	11		Approx. 0 V	Battery voltage	Battery voltage
	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.

BCM		Ground	Continuity
Connector	Terminal		
M67	67		Existed

Does continuity exist?

YES >> INSPECTION END
NO >> Repair harness or connector.

INTAKE DOOR MOTOR

Description

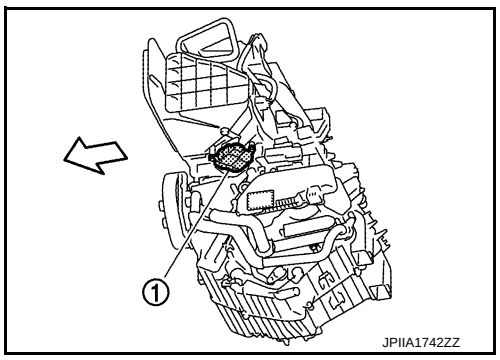
INFOID:0000000008454326

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:0000000008454327

POWER SUPPLY CIRCUIT

1.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL

1. Turn the ignition switch ON.
2. 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 → REC	12 V
	6		REC → FRE	

Is inspection result normal?

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

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

1. 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	
M54	2	M53	8	Existed
	6		16	

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		—	Continuity
Connector	Terminal		
M54	2	Ground	Not existed
	6		

Is inspection result normal?

YES >> Replace the A/C control.
NO >> Repair the harnesses or connectors.

4.CHECK INTAKE DOOR MOTOR

Perform the intake door motor component inspection. Refer to HAC-144, "Component Inspection".

Is inspection result normal?

YES >> Replace the A/C control.
NO >> Replace the intake door motor.

Component Inspection

INFOID:0000000008454328

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.

Terminal		Operation
(+)	(–)	
2	6	To REC
6	2	To FRE

Is inspection result normal?

YES >> INSPECTION END
NO >> Replace the intake door motor.

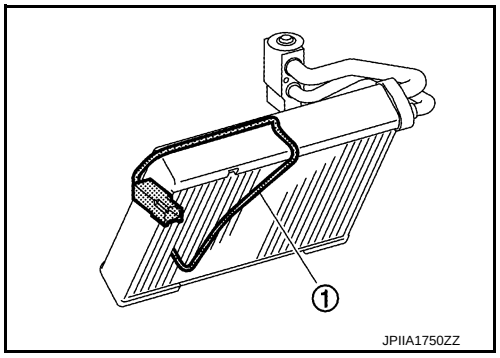
THERMO CONTROL AMPLIFIER

Description

INFOID:0000000008454329

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:0000000008454330

1. CHECK THERMO CONTROL AMP. SIGNAL

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	Condition		Status
THERMO AMP	Ignition switch	ON	On
		OFF	Off

Is inspection result normal?

YES >> INSPECTION END
NO >> Refer to HAC-145, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454331

1. CHECK FUSE

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

NOTE:

Refer to PG-90, "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.
3. Turn the ignition switch ON.
4. Check voltage between thermo control amp. harness connector and the ground.

(+)		(–)	Voltage (Approx.)
Thermo control amp.		—	
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 control amp.		—	Continuity
Connector	Terminal		
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.

(+)		(–)	Voltage (Approx.)
Thermo control amp.		—	
Connector	Terminal		
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.
3. Check continuity between thermo control amp. harness connector and BCM harness connector.

With Intelligent Key

Thermo control amp.		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M44	2	M68	26	Existed

Without Intelligent Key

Thermo control amp.		BCM		Continuity
Connector	Terminal	Connector	Terminal	
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.

Thermo control amp.		—	Continuity
Connector	Terminal		
M44	2	Ground	Not existed

Is inspection result normal?

YES >> Repair the harnesses or connectors.
NO >> INSPECTION END

BLOWER MOTOR

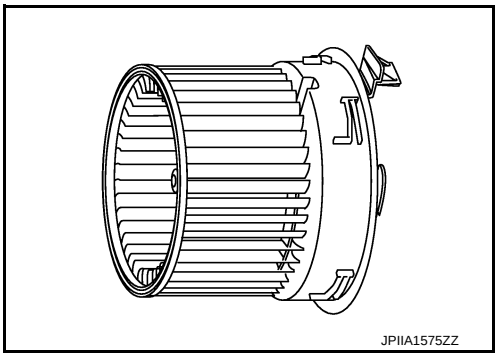
Description

INFOID:0000000008454332

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 one-touch installation system without any screws.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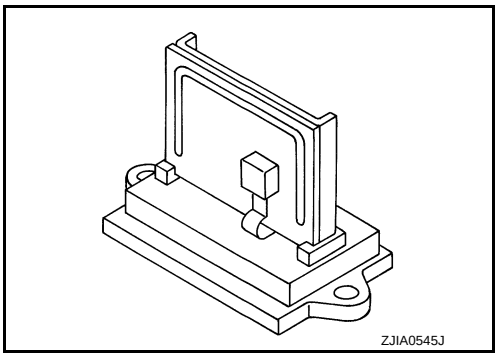
Blower Fan Resistor

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

INFOID:0000000008454333

1.CHECK FUSE

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

NOTE:

Refer to PG-90, "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.

(+)		(–)	Voltage (Approx.)
Blower motor		—	
Connector	Terminal		
M39	1	Ground	Battery voltage

Is the inspection result normal?

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

3.CHECK BLOWER RELAY

1. Turn the ignition switch OFF.
2. Perform the component inspection of blower motor relay. Refer to HAC-150, "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

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

Fan switch		—	Continuity
Connector	Terminal		
M73	3	Ground	Existed

Is the inspection result normal?

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

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	
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

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

(+)		(–)	Voltage (Approx.)
Blower fan resistor		—	
Connector	Terminal		
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.

7. CHECK BLOWER FAN RESISTOR

1. Turn the ignition switch OFF.
2. Perform the component inspection of blower fan resistor. Refer to HAC-150, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 8.
NO >> Replace the blower fan resistor.

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

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

Fan switch		Blower fan resistor		Continuity
Connector	Terminal	Connector	Terminal	
M73	4	M306	4	Existed
	1		1	
	2		2	

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-150, "Component Inspection".

Is the inspection result normal?

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

Component Inspection

INFOID:0000000008454334

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.

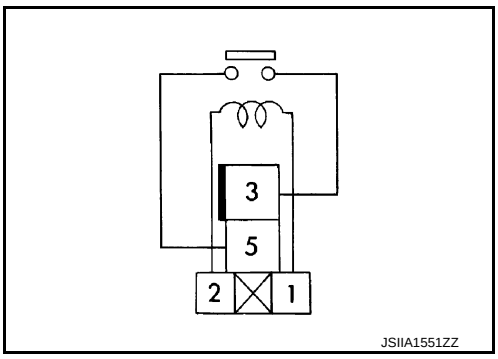
Is the inspection result normal?

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

BLOWER MOTOR RELAY

1.CHECK BLOWER MOTOR

1. Remove the blower motor relay. Refer to PG-90, "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.



JSIIA1551ZZ

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

Is the inspection result normal?

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

BLOWER FAN RESISTOR

1.CHECK BLOWER MOTOR

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

Blower fan resistor		Resistance: Ω (Approx.)
Terminal		
3	4	0.43
	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	
3	2	1st	Existed
	1	2nd	
	4	3rd	
	5	4th	

Is the inspection result normal?

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

MAGNET CLUTCH

Description

INFOID:0000000008454335

- 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

INFOID:0000000008454336

1.PERFORM AUTO ACTIVE TEST

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

Does the magnet clutch operate?

YES >> INSPECTION END
NO >> Refer to HAC-152, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454337

1.CHECK MAGNET CLUTCH

1. Turn the ignition switch OFF.
2. 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 HA-32, "MAGNET CLUTCH : Removal and Installation".

2.CHECK MAGNET CLUTCH CIRCUIT CONTINUITY

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

IPDM E/R		Magnet clutch		Continuity
Connector	Terminal	Connector	Terminal	
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-92, "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.

A/C SWITCH

Description

INFOID:0000000008454338

- 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:0000000008454339

1.CHECK A/C SWITCH SIGNAL

With CONSULT

1. Turn the ignition switch ON.
2. 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
		While not pushing	Off

Is inspection result normal?

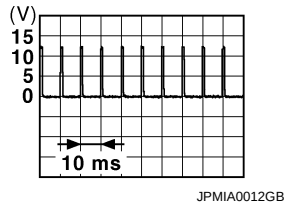
YES >> INSPECTION END
NO >> Refer to HAC-153, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454340

1.CHECK A/C SWITCH SIGNAL OUTPUT

1. Turn the ignition switch OFF.
2. 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.

(+)		(–)	Output waveform
A/C control		—	
Connector	Terminal		
M53	12	Ground	

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

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

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

Is inspection result normal?

YES >> Replace the A/C switch (A/C control).
NO >> Repair the harness or connector.

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

A/C control		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M53	12	M68	27	Existed

Without Intelligent Key

A/C control		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M53	12	M65	27	Existed

Is inspection result normal?

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

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		
M53	12	Ground	Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-144, "Exploded View".
NO >> Repair the harness or connector.

DEFROSTER POSITION SIGNAL

Description

INFOID:0000000008454341

- 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:0000000008454342

1.CHECK DEFROSTER POSITION SIGNAL

With CONSULT

1. Turn the ignition switch ON.
2. Select the “FR DEF SW” on “DATA MONITOR” in BCM.
3. 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
		VENT, B/L or FOOT	Off

Is inspection result normal?

YES >> INSPECTION END
NO >> Refer to HAC-155, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454343

1.CHECK VOLTAGE BETWEEN A/C CONTROL AND GROUND

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

(+)		(–)	Voltage (Approx.)
A/C control		—	
Connector	Terminal		
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

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

A/C control		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M53	6	M71	103	Existed

Without Intelligent Key

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

Is inspection result normal?

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 control		—	Continuity
Connector	Terminal		
M53	6	Ground	Not existed

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-144, "Exploded View".
NO >> Repair the harness or connector.

A/C INDICATOR

Component Function Check

INFOID:0000000008454344

1.PERFORM AUTO ACTIVE TEST OF A/C INDICATOR

With CONSULT
1. Select the “AIR COND IND” on “ACTIVE TEST” in BCM.
2. 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 HAC-157, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454345

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-90, "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.
2. Check voltage between A/C control harness connector and the ground.

(+)		(–)	Voltage
A/C control		—	
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.

(+)		(–)	Voltage (Approx.)
A/C control		—	
Connector	Terminal		
M53	13	Ground	12 V

Is inspection result normal?

YES >> GO TO 5.
NO >> Replace the A/C control (A/C indicator).

5. CHECK CONTINUITY BETWEEN A/C CONTROL AND BCM

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

With Intelligent Key

A/C control		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M53	13	M71	72	Existed

Without Intelligent Key

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

Is inspection result normal?

YES >> Replace the BCM. Refer to BCS-144, "Exploded View".
NO >> Repair the harness or connector.

BLOWER FAN ON SIGNAL

Component Function Check

INFOID:0000000008454346

1.CHECK BLOWER FAN ON SIGNAL

With CONSULT
1. 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
		Except OFF position	On

Is inspection result normal?

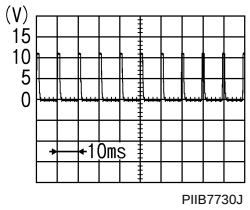
YES >> INSPECTION END
NO >> Refer to HAC-159, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008454347

1.CHECK BLOWER FAN ON SIGNAL OUTPUT

1. Turn the ignition switch OFF.
2. 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.

(+)		(–)	Output waveform
Fan switch		—	
Connector	Terminal		
M73	6	Ground	

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

1. 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 switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M73	6	M68	28	Existed

Without Intelligent Key

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

Is inspection result normal?

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

3. CHECK CONTINUITY BETWEEN FAN SWITCH AND GROUND

Check continuity between fan switch harness connector and the ground.

Fan switch		—	Continuity
Connector	Terminal		
M73	6	Ground	Not existed

Is inspection result normal?

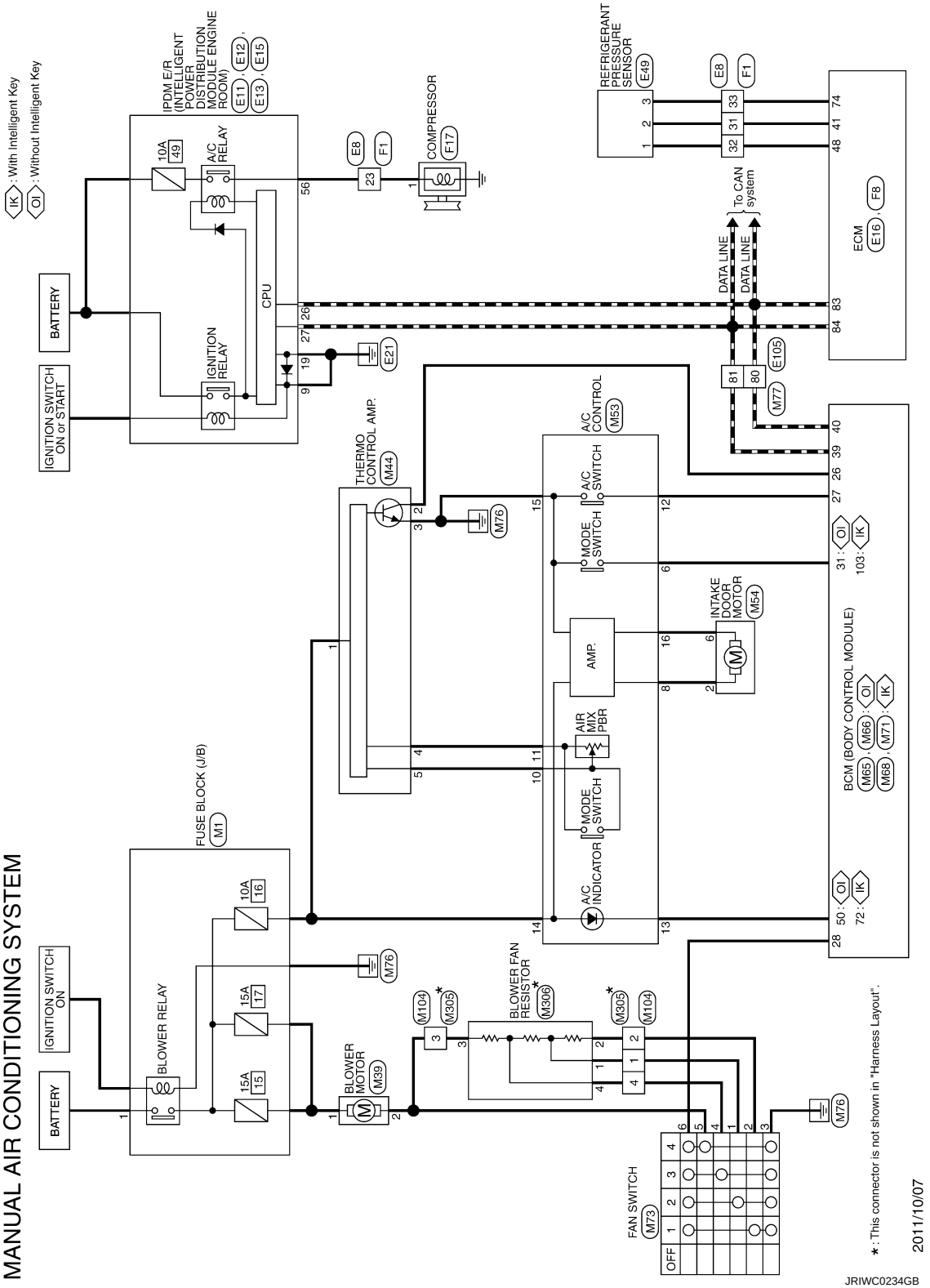
YES >> Replace the BCM. Refer to BCS-144, "Exploded View".
NO >> Repair the harness or connector.

MANUAL AIR CONDITIONING SYSTEM

Wiring Diagram — MANUAL AIR CONDITIONING SYSTEM —

INFOID:0000000008454348

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

BCM (BODY CONTROL MODULE)

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

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

INFOID:0000000008928791

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
FR WIPER HI	Other than front wiper switch HI	Off
	Front wiper switch HI	On
FR WIPER LOW	Other than front wiper switch LO	Off
	Front wiper switch LO	On
FR WASHER SW	Front washer switch OFF	Off
	Front washer switch ON	On
FR WIPER INT	Other than front wiper switch INT	Off
	Front wiper switch INT	On
FR WIPER STOP	Front wiper is not in STOP position	Off
	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
	Rear wiper switch ON	On
RR WIPER INT	Other than rear wiper switch INT	Off
	Rear wiper switch INT	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER STOP	Rear wiper is in STOP position	Off
	Rear wiper is not in STOP position	On
TURN SIGNAL R	Other than turn signal switch RH	Off
	Turn signal switch RH	On
TURN SIGNAL L	Other than turn signal switch LH	Off
	Turn signal switch LH	On
TAIL LAMP SW	Other than lighting switch 1ST and 2ND	Off
	Lighting switch 1ST or 2ND	On
HI BEAM SW	Other than lighting switch HI	Off
	Lighting switch HI	On
HEAD LAMP SW 1	Other than lighting switch 2ND	Off
	Lighting switch 2ND	On
HEAD LAMP SW 2	Other than lighting switch 2ND	Off
	Lighting switch 2ND	On
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On

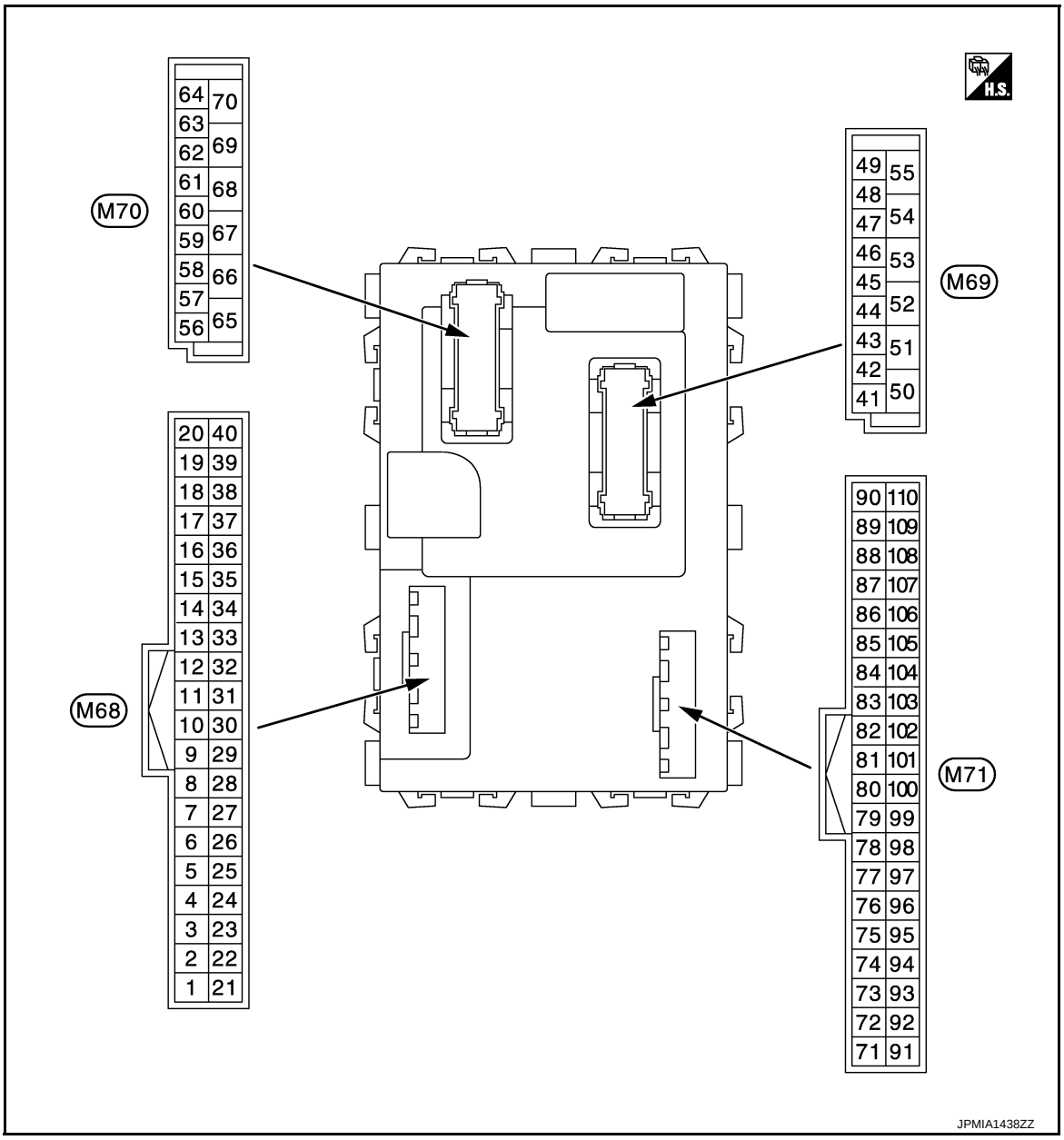
Monitor Item	Condition	Value/Status
AUTO LIGHT SW	Other than lighting switch AUTO	Off
	Lighting switch AUTO	On
FR FOG SW	Front fog lamp switch OFF	Off
	Front fog lamp switch ON	On
DOOR SW-DR	Driver door closed	Off
	Driver door opened	On
DOOR SW-AS	Passenger door closed	Off
	Passenger door opened	On
DOOR SW-RR	Rear RH door closed	Off
	Rear RH door opened	On
DOOR SW-RL	Rear LH door closed	Off
	Rear LH door opened	On
DOOR SW-BK	Back door closed	Off
	Back door opened	On
CDL LOCK SW	Other than power door lock switch LOCK	Off
	Power door lock switch LOCK	On
CDL UNLOCK SW	Other than power door lock switch UNLOCK	Off
	Power door lock switch UNLOCK	On
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	Off
	Driver door key cylinder LOCK position	On
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	Off
	Driver door key cylinder UNLOCK position	On
HAZARD SW	Hazard switch is OFF	Off
	Hazard switch is ON	On
REAR DEF SW	Rear window defogger switch OFF	Off
	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
FAN ON SIG	Blower fan OFF	Off
	Blower fan ON	On
AIR COND SW	Air conditioner OFF (A/C switch indicator OFF)	Off
	Air conditioner ON (A/C switch indicator ON)	On
RKE-LOCK	LOCK button of the key is not pressed	Off
	LOCK button of the key is pressed	On
RKE-UNLOCK	UNLOCK button of the key is not pressed	Off
	UNLOCK button of the key is pressed	On
RKE-TR/BD	BACK DOOR OPEN button of the key is not pressed	Off
	BACK DOOR OPEN button of the key is pressed	On
RKE-PANIC	PANIC button of the key is not pressed	Off
	PANIC button of the key is pressed	On
RKE-MODE CHG	LOCK/UNLOCK button of the key is not pressed and held simultaneously	Off
	LOCK/UNLOCK button of the key is pressed and held simultaneously	On

Monitor Item	Condition	Value/Status
OPTI SEN (DTCT)	Bright outside of the vehicle	Close to 5 V
	Dark outside of the vehicle	Close to 0 V
OPTI SEN (FILT)	Bright outside of the vehicle (Lighting switch AUTO)	Close to 5 V
	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
	Driver door request switch is pressed	On
REQ SW -AS	Passenger door request switch is not pressed	Off
	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
REQ SW -BD/TR	Back door request switch is not pressed	Off
	Back door request switch is pressed	On
PUSH SW	Push-button ignition switch (push switch) is not pressed	Off
	Push-button ignition switch (push switch) is pressed	On
CLUCH SW	The clutch pedal is not depressed.	Off
	The clutch pedal is depressed	On
BRAKE SW 1	The brake pedal is not depressed	Off
	The brake pedal is depressed	On
BRAKE SW 2	The brake pedal is depressed when No. 9 fuse is blown	Off
	The brake pedal is not depressed when No. 9 fuse is blown, or No. 9 fuse is normal	On
DETE/CANCL SW	Selector lever in P position	Off
	Selector lever in any position other than P	On
SFT PN/N SW	Selector lever in any position other than P and N	Off
	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
	Driver door is unlocked	On
PUSH SW -IPDM	Push-button ignition switch (push-switch) is not pressed	Off
	Push-button ignition switch (push-switch) is pressed	On
IGN RLY1 -F/B	Ignition switch in OFF or ACC position	Off
	Ignition switch in ON position	On
DETE SW -IPDM	Selector lever in any position other than P	Off
	Selector lever in P position	On
SFT PN -IPDM	Selector lever in any position other than P and N	Off
	Selector lever in P or N position	On

Monitor Item	Condition	Value/Status
SFT P -MET	Selector lever in any position other than P	Off
	Selector lever in P position	On
SFT N -MET	Selector lever in any position other than N	Off
	Selector lever in N position	On
ENGINE STATE	Engine stopped	Stop
	While the engine stalls	Stall
	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
DOOR STAT-DR	Driver door is locked	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door is unlocked	UNLOCK
DOOR STAT-AS	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
PRMT ENG STRT	The engine start is prohibited	Reset
	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.	—
CONFRM ID ALL	The key ID that the key slot receives is not recognized by any key ID registered to BCM.	Yet
	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
	The key ID that the key slot receives is recognized by the fourth key ID registered to BCM.	Done
CONFIRM ID3	The key ID that the key slot receives is not recognized by the third key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the third key ID registered to BCM.	Done

Monitor Item	Condition	Value/Status
CONFIRM ID2	The key ID that the key slot receives is not recognized by the second key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the second key ID registered to BCM.	Done
CONFIRM ID1	The key ID that the key slot receives is not recognized by the first key ID registered to BCM.	Yet
	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
	BCM detects non-registration key ID.	ID NG
TP 4	The ID of fourth key is not registered to BCM	Yet
	The ID of fourth key is registered to BCM	Done
TP 3	The ID of third key is not registered to BCM	Yet
	The ID of third key is registered to BCM	Done
TP 2	The ID of second key is not registered to BCM	Yet
	The ID of second key is registered to BCM	Done
TP 1	The ID of first key is not registered to BCM	Yet
	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 REGST FL1	ID of front LH tire transmitter is registered	Done
	ID of front LH tire transmitter is not registered	Yet
ID REGST FR1	ID of front RH tire transmitter is registered	Done
	ID of front RH tire transmitter is not registered	Yet
ID REGST RR1	ID of rear RH tire transmitter is registered	Done
	ID of rear RH tire transmitter is not registered	Yet
ID REGST RL1	ID of rear LH tire transmitter is registered	Done
	ID of rear LH tire transmitter is not registered	Yet
WARNING LAMP	Tire pressure indicator OFF	Off
	Tire pressure indicator ON	On
BUZZER	Tire pressure warning alarm is not sounding	Off
	Tire pressure warning alarm is sounding	On

TERMINAL LAYOUT

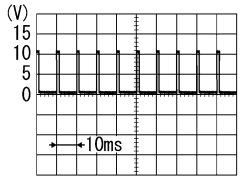
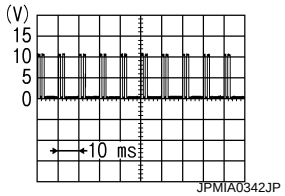
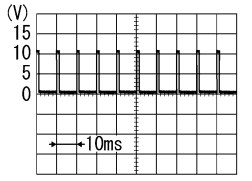
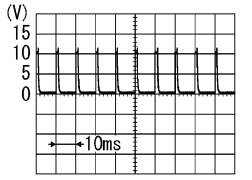
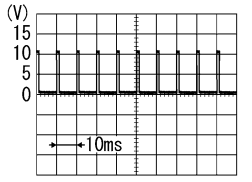


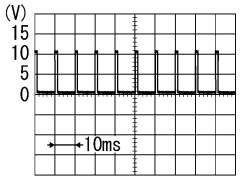
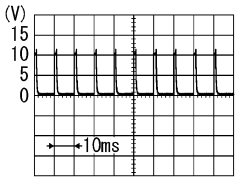
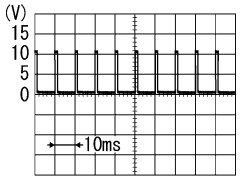
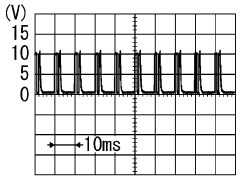
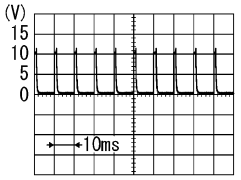
NOTE:

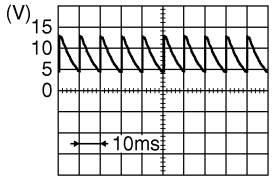
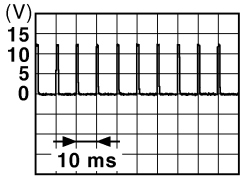
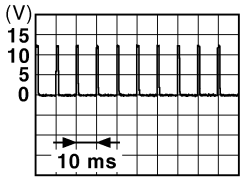
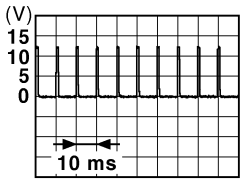
Connector color

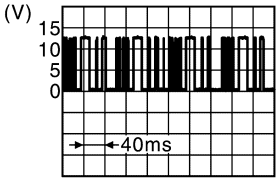
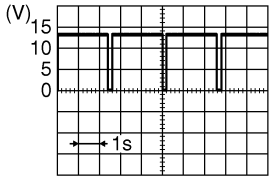
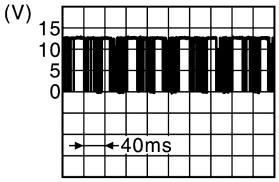
- M68, M70: Black
- M69, M71: White

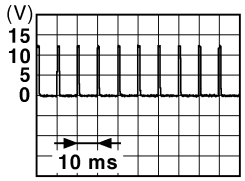
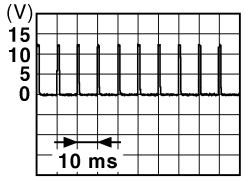
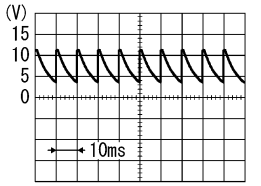
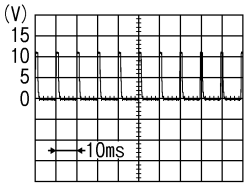
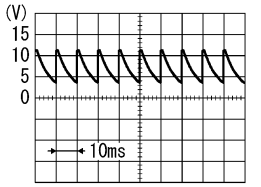
PHYSICAL VALUES

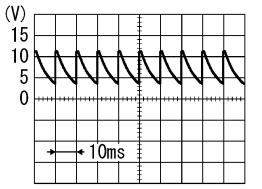
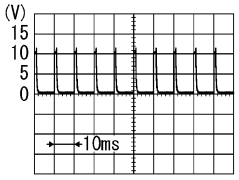
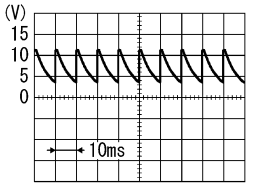
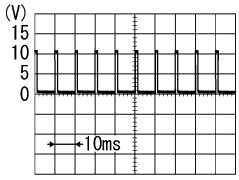
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
2 (BR/W)	Ground	Combination switch INPUT 5	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Turn signal switch RH Lighting switch HI Lighting switch 1ST	 PKIB4958J 1.0 V
		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

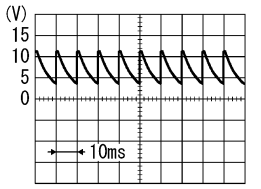
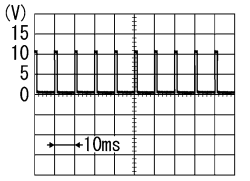
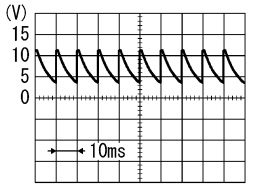
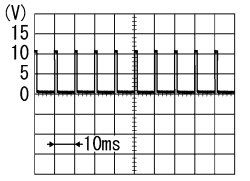
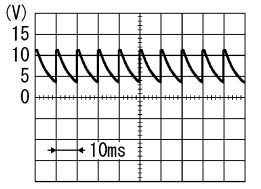
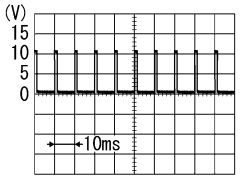
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch (Wiper intermittent dial 4)	 PKIB4958J 1.0 V
					Rear washer ON (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	
					Rear wiper switch ON (Wiper intermittent dial 4)	 PKIB4956J 0.8 V
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 PKIB4958J 1.0 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Wiper intermittent dial 3 (All switch OFF)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	 PKIB4952J 1.9 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	 PKIB4956J 0.8 V

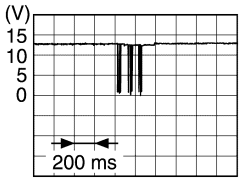
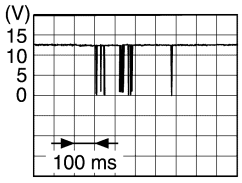
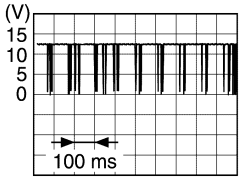
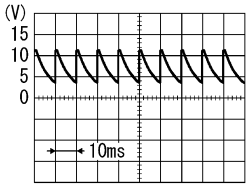
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylinder switch	NEUTRAL position	 JPMIA0587GB 8.0 - 8.5 V
					UNLOCK position	0 V
8 (W/B)	Ground	Door key cylinder switch LOCK	Input	Door key cylinder switch	NEUTRAL position	12 V
					LOCK position	0 V
9 (R)	Ground	Stop lamp switch 1	Input	Stop lamp switch	OFF (Brake pedal is not depressed)	0 V
					ON (Brake pedal is depressed)	Battery voltage
12 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	 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	 JPMIA0012GB 1.0 - 1.5 V
					UNLOCK position	0 V
14 (L/G)	Ground	Optical sensor	Input	Ignition switch ON	When bright outside of the vehicle	Close to 5 V
					When dark outside of the vehicle	Close to 0 V
15 (W/L)	Ground	Rear window defogger switch	Input	Rear window defogger switch	Not pressed	 JPMIA0012GB 1.0 - 1.5 V
					Pressed	0 V
17 (R/G)	Ground	Optical sensor power supply	Output	Ignition switch	OFF, ACC	0 V
					ON	5 V

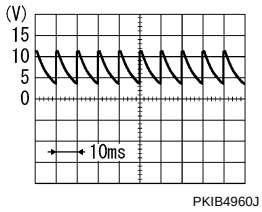
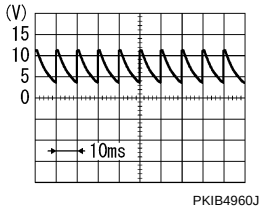
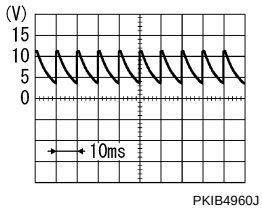
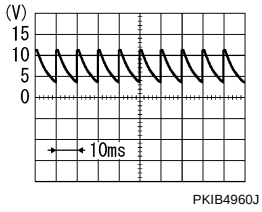
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
18 (V)	Ground	Sensor ground	Input	Ignition switch ON		0 V
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Intelligent Key: Intelligent Key battery is removed	Brake pedal: Depressed **NOTE:** Waveform varies each time when brake pedal is depressed	 JMKIA6232JP
					Brake pedal: Not depressed	12 V
23 (R/Y)	Ground	Security indicator lamp	Output	Security indicator	ON	0 V
					Blinking (Ignition switch OFF)	 JPMIA0590GB 12.0 V
					OFF	Battery voltage
24*1 (SB)	Ground	Dongle link	Input/ Output	Ignition switch OFF		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	 JMKIA6233JP
					Brake pedal: Not depressed	12 V
26*2 (GR)	Ground	Thermo control amp.	Input	Ignition switch ON		0 V
				Evaporator is extremely low temperature		12 V

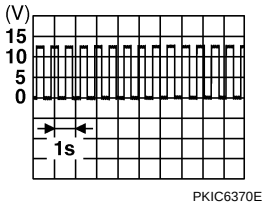
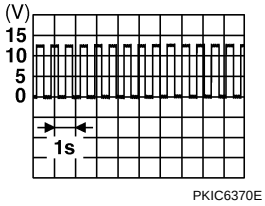
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
27 (O)	Ground	A/C ON (Automatic A/C)	Input	A/C	OFF (A/C switch indicator: OFF)	 JPMIA0012GB 1.0 - 1.5 V
					ON (A/C switch indicator: ON)	0 V
		A/C switch (Manual A/C)		A/C switch	OFF	 JPMIA0012GB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

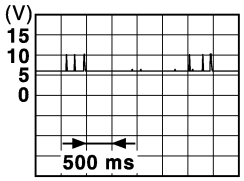
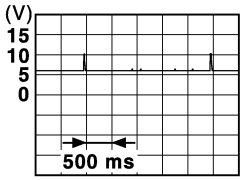
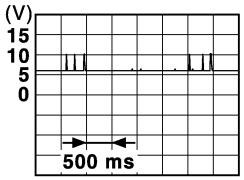
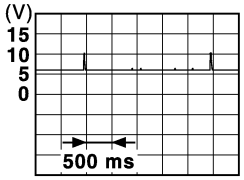
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
32 (LG)	Ground	Combination switch OUTPUT 5	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Front fog lamp switch ON (Wiper intermittent dial 4) Rear wiper switch ON (Wiper intermittent dial 4) 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	 PKIB4956J 1.0 V
33 (Y/L)	Ground	Combination switch OUTPUT 4	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 1ST (Wiper intermittent dial 4) Lighting switch AUTO (Wiper intermittent dial 4) Rear wiper switch INT (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	 PKIB4958J 1.2 V

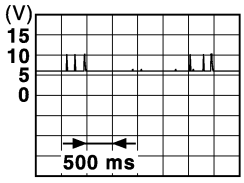
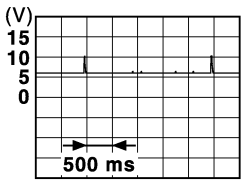
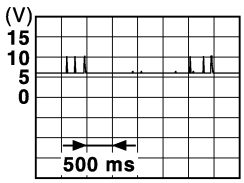
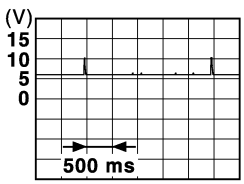
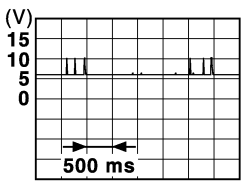
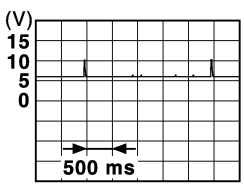
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 2ND (Wiper intermittent dial 4) Lighting switch HI (Wiper intermittent dial 4) Rear washer switch ON (Wiper intermittent dial 4) 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
35 (R/L)	Ground	Combination switch OUTPUT 2	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 2ND Lighting switch PASS Front wiper switch INT Front wiper switch HI	 PKIB4958J 1.2 V
36 (L/O)	Ground	Combination switch OUTPUT 1	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	 PKIB4960J 7.0 - 8.0 V
					Turn signal switch RH Turn signal switch LH Front wiper switch LO (Front wiper switch MIST) Front washer switch ON	 PKIB4958J 1.2 V

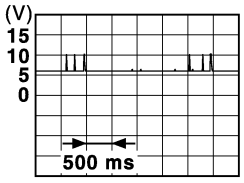
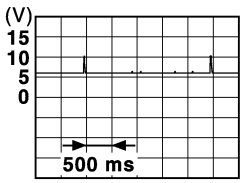
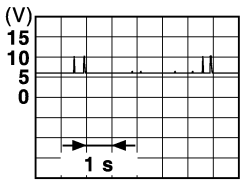
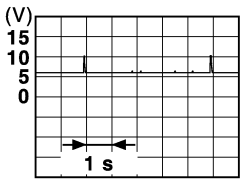
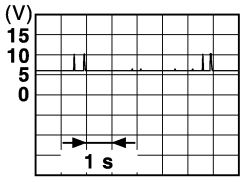
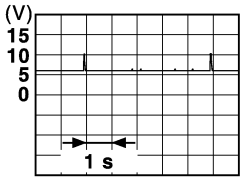
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
37 (G/O)	Ground	Selector lever P position switch	Input	Selector lever	P position	0 V
					Any position other than P	12 V
38 (G/Y)	Ground	Receiver communication	Input/ Output	Ignition switch OFF (Remote keyless entry communication)	Waiting	12 V
					When operating either button on Intelligent Key	 JMMIA0572GB
				Ignition switch ON (TPMS communication)	Waiting	 JMMIA0573GB
					When receiving signal from tire pressure sensor	 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)	 PKIB4960J 9.5 - 10.0 V
					ON (When back door opened)	0 V
44 (LG)	Ground	Rear wiper stop position	Input	Ignition switch ON	Rear wiper stop position	12 V
					Any position other than rear wiper stop position	0 V

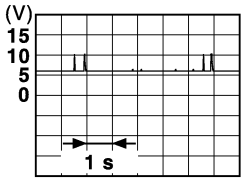
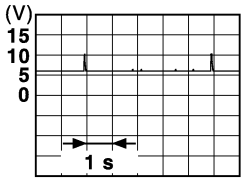
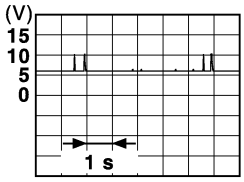
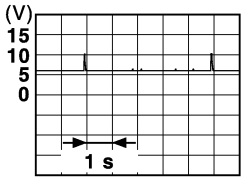
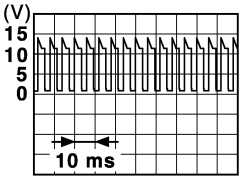
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
45 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 PKIB4960J 7.0 - 8.0 V
					ON (When passenger door opened)	0 V
46 (GR/L)	Ground	Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	 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)	 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)	 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)	0 V
					Other than LOCK (Actuator is not activated)	Battery voltage
51 (W)	Ground	Back door request switch	Input	Back door request switch	ON (Pressed)	0 V
					OFF (Not pressed)	12 V
54 (LG)	Ground	Rear wiper	Output	Rear wiper	OFF (Stopped)	0 V
					ON (Activated)	12 V

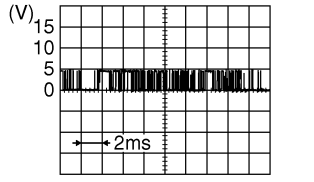
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
55 (G)	Ground	Rear door UNLOCK	Output	Rear door	UNLOCK (Actuator is activated)	12 V
					Other then UNLOCK (Actuator is not activated)	0 V
56 (L)	Ground	Interior room lamp power supply	Output	Interior room lamp battery saver is activated. (Cuts the interior room lamp power supply)		0 V
				Interior room lamp battery saver is not activated. (Outputs the interior room lamp power supply)		12 V
57 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
59 (G)	Ground	Passenger door UNLOCK	Output	Passenger door	UNLOCK (Actuator is activated)	12 V
					Other then UNLOCK (Actuator is not activated)	0 V
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch LH	 PKIC6370E 6.0 V
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch RH	 PKIC6370E 6.0 V
63 (BR)	Ground	Interior room lamp control signal	Output	Interior room lamp	OFF	12 V
					ON	0 V
65 (V)	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activated)	12 V
					Other then LOCK (Actuator is not activated)	0 V
66 (L/B)	Ground	Driver door UNLOCK	Output	Driver door	UNLOCK (Actuator is activated)	12 V
					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 ON		12 V
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		12 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
70 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
72*2 (SB)	Ground	A/C indicator	Output	A/C indicator	OFF	12 V
					ON	0 V
75 (SB)	Ground	Driver door request switch	Input	Driver door request switch	ON (Pressed)	0 V
					OFF (Not pressed)	12 V
76 (L/O)	Ground	Push-button ignition switch (push switch)	Input	Push-button ignition switch (push switch)	Pressed	0 V
					Not pressed	12 V
78 (LG)	Ground	Driver door antenna (+)	Output	When the driver 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
79 (V)	Ground	Driver door antenna (-)	Output	When the driver 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
80 (BR/Y)	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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
81 (L/Y)	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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
82 (W/B)	Ground	Back door antenna (+)	Output	When the back 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
83 (B/W)	Ground	Back door antenna (-)	Output	When the back 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)	 JMKIA5954GB
					When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
84 (Y/G)	Ground	Room antenna (+) (Instrument center)	Output	Ignition switch ON	When Intelligent Key is not in the antenna detection area	 JMKIA5951GB
					When Intelligent Key is in the antenna detection area	 JMKIA3839GB
85 (Y/L)	Ground	Room antenna (-) (Instrument center)	Output	Ignition switch ON	When Intelligent Key is not in the antenna detection area	 JMKIA5951GB
					When Intelligent Key is in the antenna detection area	 JMKIA3839GB

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

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
93 (GR/W)	Ground	Intelligent Key warning buzzer	Output	Intelligent Key warning buzzer	Sounding	0 V
					Not sounding	12 V
96 (BR/W)	Ground	ACC relay control	Output	Ignition switch	OFF	0 V
					ACC or ON	12 V
97 (L/R)	Ground	Starter relay control	Output	Ignition switch ON	When selector lever is in P or N position	Battery voltage
					When selector lever is not in P or N position	0 V
98 (BR)	Ground	Ignition relay (IPDM E/R) control	Output	Ignition switch	OFF or ACC	12 V
					ON	0 V
99 (W/R)	Ground	Ignition relay control	Output	Ignition switch	OFF or ACC	0 V
					ON	12 V
100 (G)	Ground	Passenger door request switch	Input	Passenger door request switch	ON (Pressed)	0 V
					OFF (Not pressed)	12 V
102 (G)	Ground	Selector lever P/N position	Input	Selector lever	P or N position	Battery voltage
					Except P and N positions	0 V
103*2 (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	A/C mode defroster ON position	0 V
					Other than A/C mode defroster ON position	 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 (Y/B)	Ground	Blower fan motor relay control	Output	Ignition switch	OFF or ACC	0 V
					ON	12 V

*1: For Canada
*2: Manual air conditioner

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

agram - BCM -

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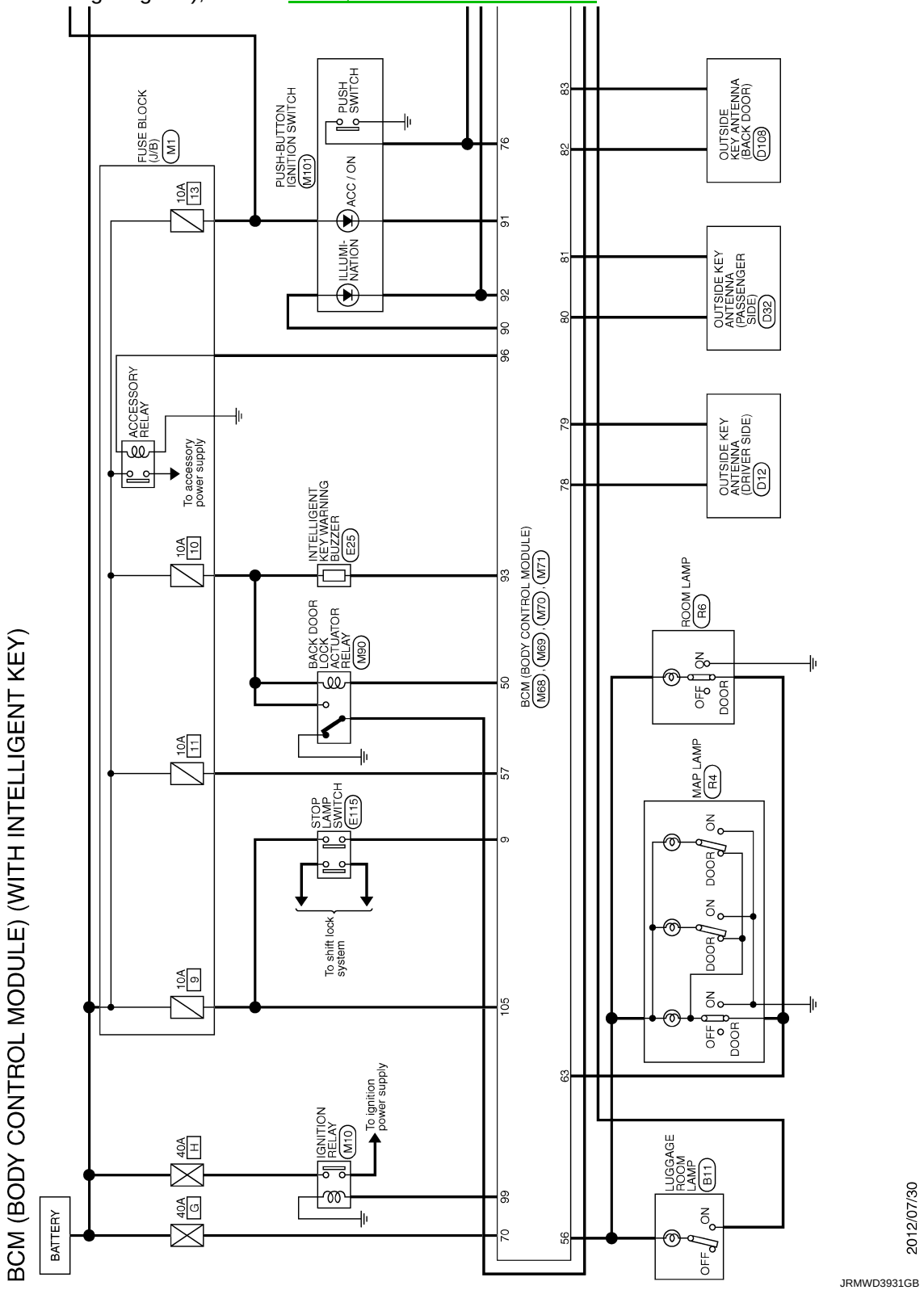
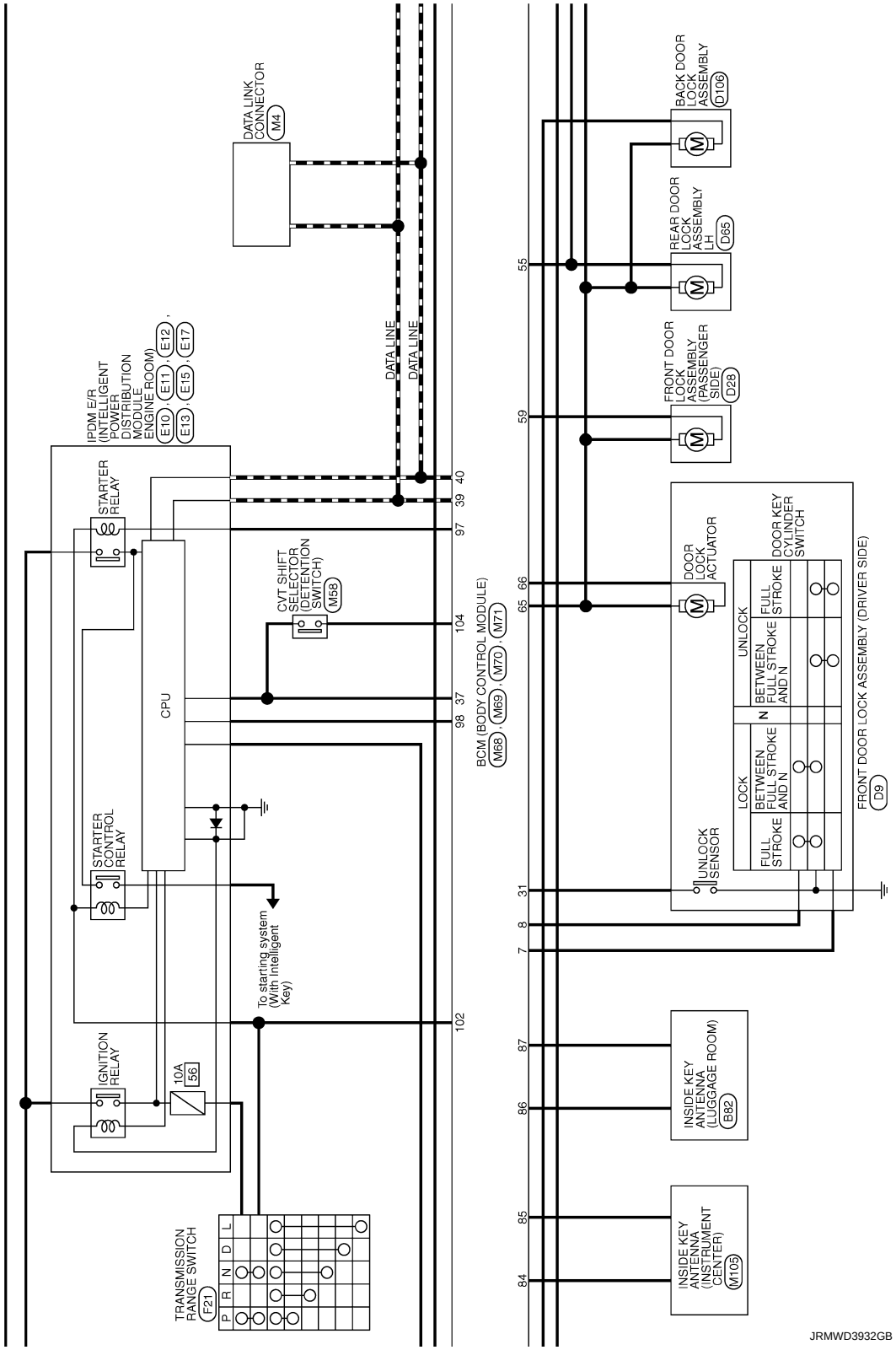
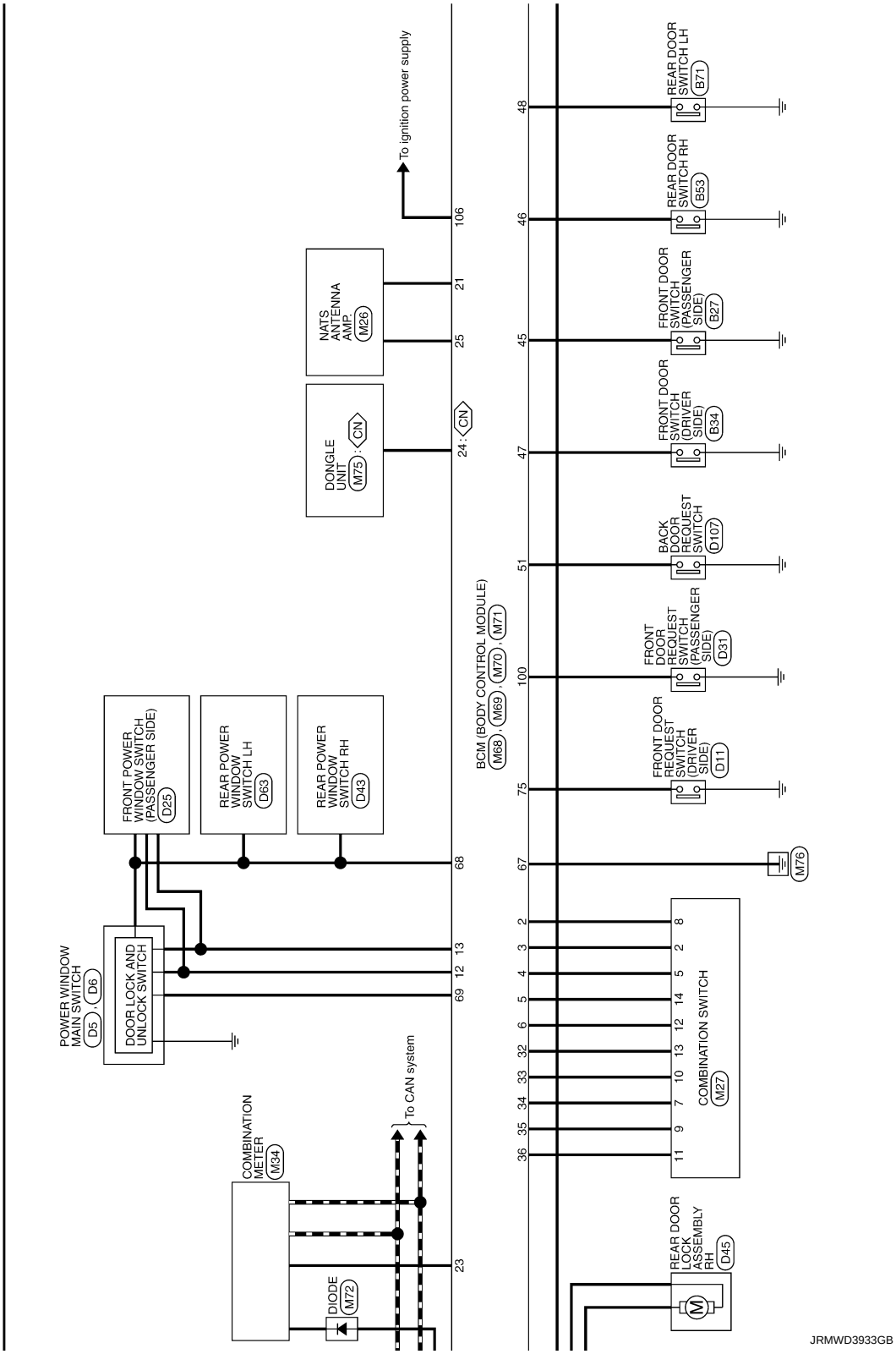
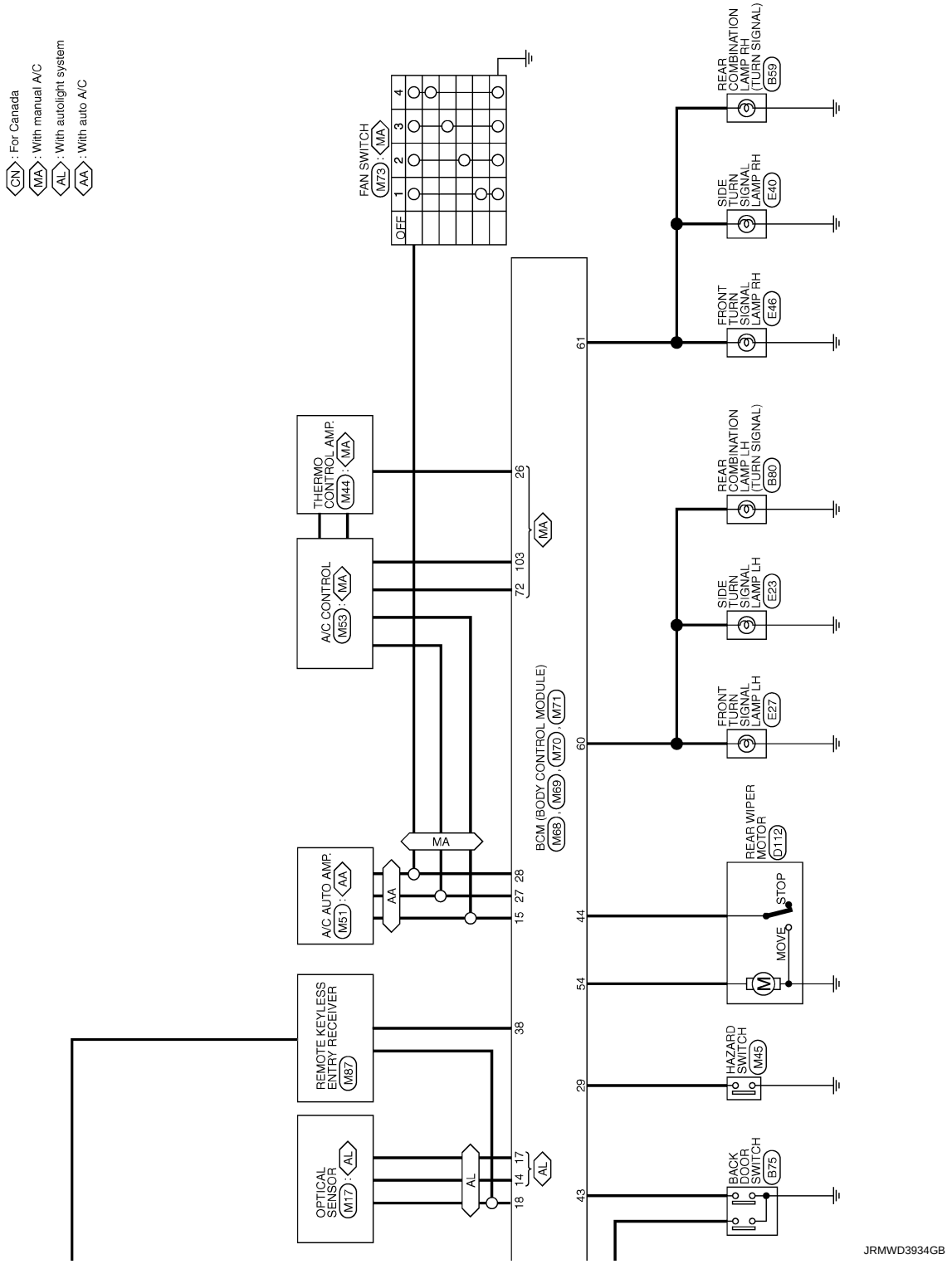
For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".




DATA LINK CONNECTOR M4
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E10, E11, E12, E13, E15, E17
STARTER RELAY
CPU
STARTER CONTROL RELAY
IGNITION RELAY
10A 56
To starting system (With Intelligent Key)
CVT SHIFT SELECTOR (DETENTION SWITCH) M58
TRANSMISSION RANGE SWITCH F21
P R N D L
DATA LINE
DATA LINE
BCM (BODY CONTROL MODULE) M68, M69, M70, M71
40 39 97 104 37 98 102
BACK DOOR LOCK ASSEMBLY D106
REAR DOOR LOCK ASSEMBLY LH D65
FRONT DOOR LOCK ASSEMBLY (PASSENGER SIDE) D28
DOOR LOCK ACTUATOR
UNLOCK SENSOR
DOOR KEY CYLINDER SWITCH
LOCK
UNLOCK
FULL STROKE
BETWEEN FULL STROKE AND N
N
FRONT DOOR LOCK ASSEMBLY (DRIVER SIDE) D9
55 59 66 65 31 8 7
INSIDE KEY ANTENNA (LUGGAGE ROOM) B82
INSIDE KEY ANTENNA (INSTRUMENT CENTER) M105
87 86 85 84
JRMWD3932GB


To ignition power supply
106
NATS ANTENNA AMP. (M26)
21
25
DONGLE UNIT (M75) : CN
24 : CN
FRONT POWER WINDOW SWITCH (PASSENGER SIDE) (D25)
REAR POWER WINDOW SWITCH LH (D63)
REAR POWER WINDOW SWITCH RH (D43)
68
POWER WINDOW MAIN SWITCH (D5) : (D6)
DOOR LOCK AND UNLOCK SWITCH
13
12
69
COMBINATION METER (M34)
To CAN system
DIODE (M72)
23
BCM (BODY CONTROL MODULE) (M68), (M69), (M70), (M71)
48
46
45
47
51
100
75
67
2
3
4
5
6
32
33
34
35
36
REAR DOOR SWITCH LH (B71)
REAR DOOR SWITCH RH (B53)
FRONT DOOR SWITCH (PASSENGER SIDE) (B27)
FRONT DOOR SWITCH (DRIVER SIDE) (B34)
BACK DOOR REQUEST SWITCH (D107)
FRONT DOOR REQUEST SWITCH (PASSENGER SIDE) (D31)
FRONT DOOR REQUEST SWITCH (DRIVER SIDE) (D11)
(M76)
COMBINATION SWITCH (M27)
8
2
5
14
12
13
10
7
9
11
REAR DOOR LOCK ASSEMBLY RH (D45)
JRMWD3933GB



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

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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 → 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.
3. 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:0000000008928794

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)

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 • B2608: STARTER RELAY • B260F: ENG STATE SIG LOST • B2614: BCM • B2615: BCM • B2616: BCM • 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
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] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL
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:0000000008928795

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 BCS-20, "COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)".

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-41
U1010: CONTROL UNIT (CAN)	—	—	—	—	BCS-42
U0415: VEHICLE SPEED	—	—	×	—	BCS-43
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-44
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	—	×	—	—	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	×	×	×	—	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

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	—	—	—	×	WT-23
C1705: LOW PRESSURE FR	—	—	—	×	
C1706: LOW PRESSURE RR	—	—	—	×	
C1707: LOW PRESSURE RL	—	—	—	×	
C1708: [NO DATA] FL	—	—	—	×	WT-25
C1709: [NO DATA] FR	—	—	—	×	
C1710: [NO DATA] RR	—	—	—	×	
C1711: [NO DATA] RL	—	—	—	×	
C1716: [PRESSDATA ERR] FL	—	—	—	×	WT-28
C1717: [PRESSDATA ERR] FR	—	—	—	×	
C1718: [PRESSDATA ERR] RR	—	—	—	×	
C1719: [PRESSDATA ERR] RL	—	—	—	×	
C1729: VHCL SPEED SIG ERR	—	—	—	×	WT-30

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

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

INFOID:0000000008928796

VALUES ON THE DIAGNOSIS TOOL

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

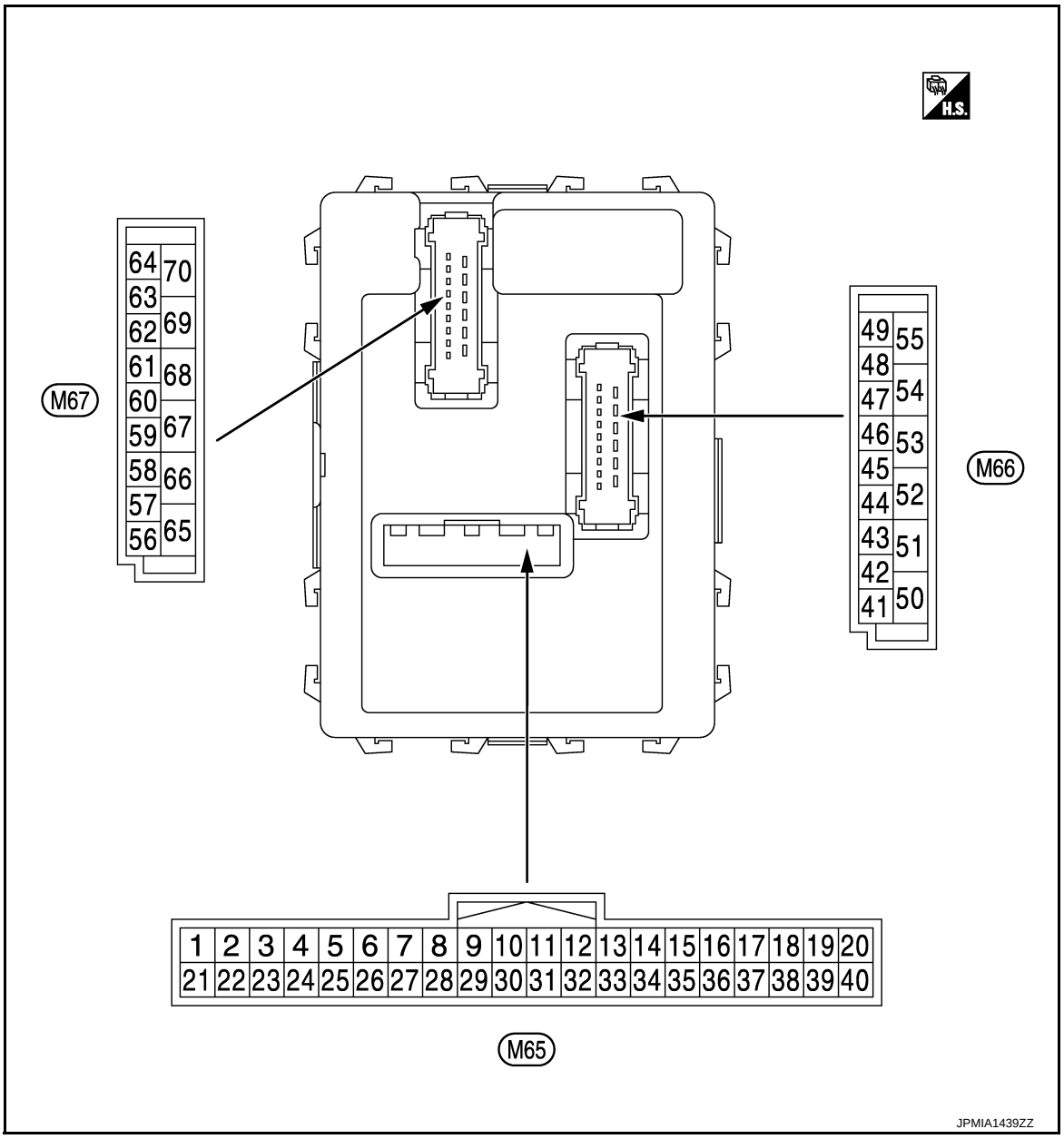
Monitor Item	Condition	Value/Status
IGN ON SW	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
KEY ON SW	Mechanical key is removed from key cylinder	Off
	Mechanical key is inserted to key cylinder	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the lock side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the unlock side	On
DOOR SW-DR	Driver's door closed	Off
	Driver's door opened	On
DOOR SW-AS	Passenger door closed	Off
	Passenger door opened	On
DOOR SW-RR	Rear RH door closed	Off
	Rear RH door opened	On
DOOR SW-RL	Rear LH door closed	Off
	Rear LH door opened	On
BACK DOOR SW	Back door closed	Off
	Back door opened	On

Monitor Item	Condition	Value/Status
LOCK STATUS	**NOTE:** The item is indicated, but not monitored.	Off
ACC ON SW	Ignition switch OFF	Off
	Ignition switch ACC or ON	On
KEYLESS LOCK	“LOCK” button of key fob is not pressed	Off
	“LOCK” button of key fob is pressed	On
KEYLESS UNLOCK	“UNLOCK” button of key fob is not pressed	Off
	“UNLOCK” button of key fob is pressed	On
SHOCK SENSOR	**NOTE:** The item is indicated, but not monitored.	NORMAL
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	Off
	Driver door key cylinder LOCK position	On
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	Off
	Driver door key cylinder UNLOCK position	On
VEHICLE SPEED	While driving	Equivalent to speed-ometer reading
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
REVERSE SW CAN	**NOTE:** The item is indicated, but not used.	Off
		On
TAIL LAMP SW	Lighting switch OFF	Off
	Lighting switch 1ST	On
FR FOG SW	**NOTE:** The item is indicated, but not monitored.	Off
BUCKLE SW	The seat belt (driver side) is fastened. [Seat belt switch (driver side) OFF]	Off
	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
ACC SW	Ignition switch OFF	Off
	Ignition switch ACC or ON	On
KYLS TRNK/HAT	**NOTE:** The item is indicated, but not monitored.	Off
KEYLESS PANIC	PANIC button of key fob is not pressed	Off
	PANIC button of key fob is pressed	On
HI BEAM SW	Lighting switch OFF	Off
	Lighting switch HI	On
HEAD LAMP SW 1	Lighting switch OFF	Off
	Lighting switch 2ND	On
HEAD LAMP SW 2	Lighting switch OFF	Off
	Lighting switch 2ND	On
AUTO LIGHT SW	**NOTE:** The item is indicated, but not monitored.	Off
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
RR FOG SW	**NOTE:** The item is indicated, but not monitored.	Off

Monitor Item	Condition	Value/Status
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
PKB SW	Parking brake switch is OFF	Off
	Parking brake switch is ON	On
ENGINE RUN	Engine stopped	Off
	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
	Ignition switch ON	On
FR WIPER HI	Front wiper switch OFF	Off
	Front wiper switch HI	On
FR WIPER LOW	Front wiper switch OFF	Off
	Front wiper switch LO	On
FR WIPER INT	Front wiper switch OFF	Off
	Front wiper switch INT	On
FR WASHER SW	Front washer switch OFF	Off
	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
	Front wiper stop position	On
RR WIPER ON	Rear wiper switch OFF	Off
	Rear wiper switch ON	On
RR WIPER INT	Rear wiper switch OFF	Off
	Rear wiper switch INT	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER STOP	Rear wiper stop position	Off
	Other than rear wiper stop position	On
RAIN SENSOR	**NOTE:** The item is indicated, but not monitored.	Off
HAZARD SW	Hazard switch OFF	Off
	Hazard switch ON	On
FAN ON SIG	Blower control dial OFF	Off
	Other than blower control dial OFF	On
AIR COND SW	A/C switch OFF	Off
	A/C switch ON	On
THERMO AMP	Ignition switch ON	Off
	Evaporator is extremely low temperature	On

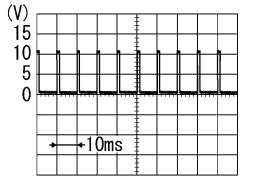
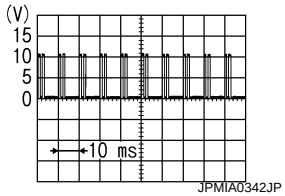
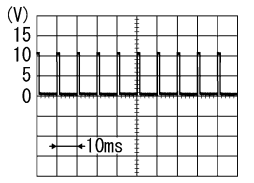
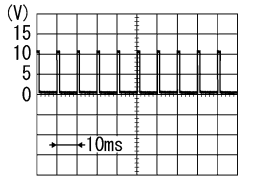
Monitor Item	Condition	Value/Status
FR DEF SW	Other than A/C mode defroster ON position	Off
	A/C mode defroster ON position	On
KEYLESS TRUNK	**NOTE:** The item is indicated, but not monitored.	Off
TRNK OPNR SW	**NOTE:** The item is indicated, but not monitored.	Off
TRNK OPN MNTR	**NOTE:** The item is indicated, but not monitored.	Off
HOOD SW	Close the hood	Off
	Open the hood	On
TRANSPONDER	Other than the ignition switch is ON by key registered to BCM.	Off
	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
	Brake pedal is depressed	On

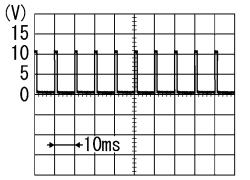
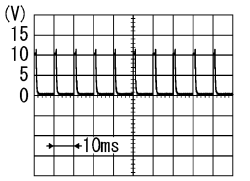
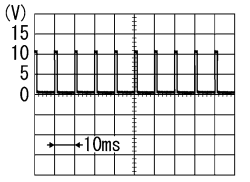
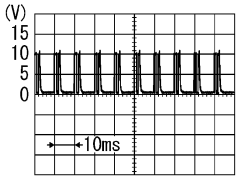
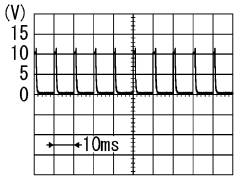
TERMINAL LAYOUT

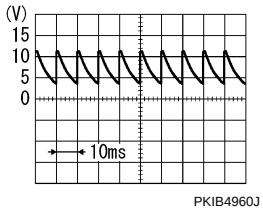
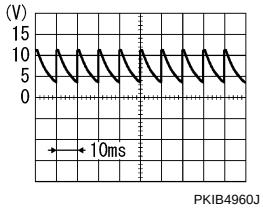
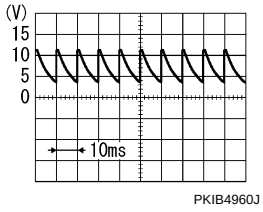


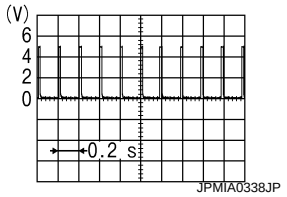
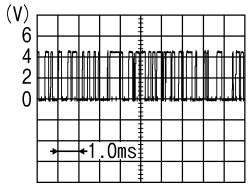
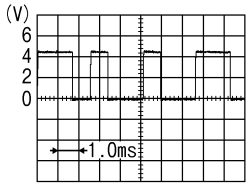
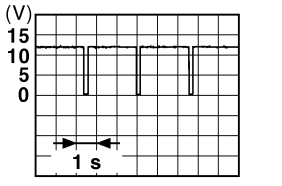
NOTE:
- M65, M66: White
- M67: Black

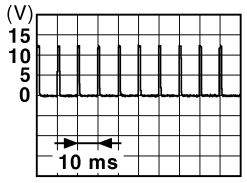
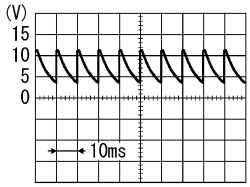
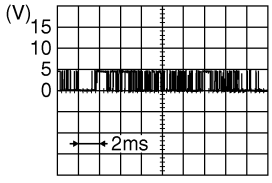
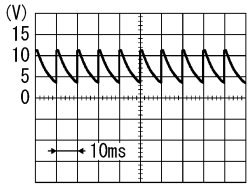
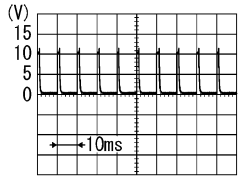
PHYSICAL VALUES

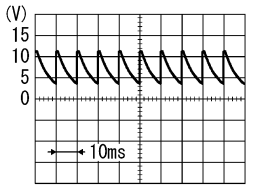
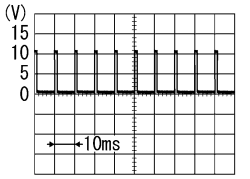
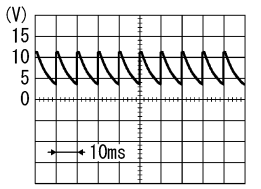
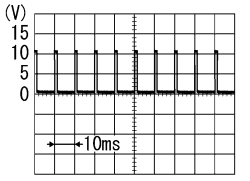
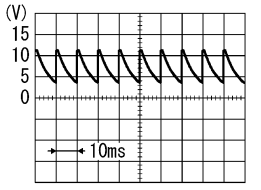
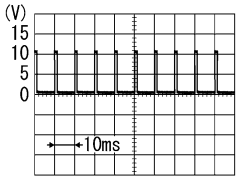
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
2 (BR/W)	Ground	Combination switch INPUT 5	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Turn signal switch RH Lighting switch HI Lighting switch 1ST	 PKIB4958J 1.0 V
		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

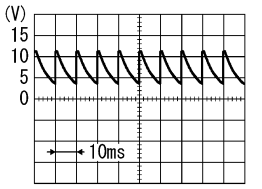
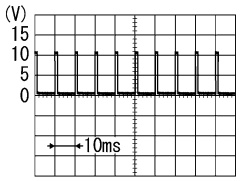
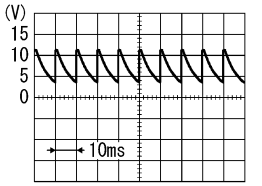
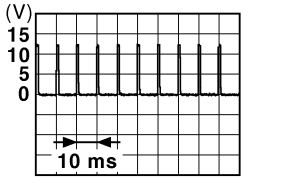
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch (Wiper intermittent dial 4)	 PKIB4958J 1.0 V
					Rear washer switch ON (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	
					Rear wiper switch ON (Wiper intermittent dial 4)	 PKIB4956J 0.8 V
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 PKIB4958J 1.0 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Wiper intermittent dial 3 (All switch OFF)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	 PKIB4952J 1.9 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	 PKIB4956J 0.8 V

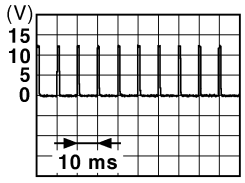
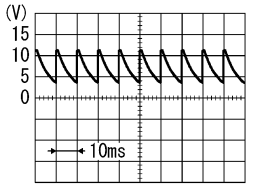
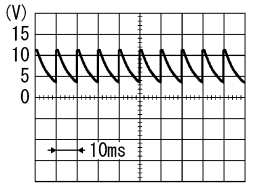
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylinder switch	NEUTRAL position	 PKIB4960J 7.0 - 8.0 V
					UNLOCK position	0 V
8 (W/B)	Ground	Door key cylinder switch LOCK	Input	Door key cylinder switch	NEUTRAL position	12 V
					LOCK position	0 V
9 (R)	Ground	Stop lamp switch	Input	Stop lamp switch	OFF (Brake pedal is not depressed)	0 V
					ON (Brake pedal is depressed)	Battery voltage
10 (W/L)	Ground	Rear window defogger switch	Input	Rear window defogger switch	OFF (Not pressed)	12 V
					ON (Pressed)	0 V
11 (L/Y)	Ground	Ignition switch ACC	Input	Ignition switch OFF		0 V
				Ignition switch ACC or ON		Battery voltage
12 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 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)	 PKIB4960J 7.0 - 8.0 V
					ON (When rear RH door opened)	0 V
18 (V)	Ground	Receiver ground	Input	Ignition switch ON		0 V

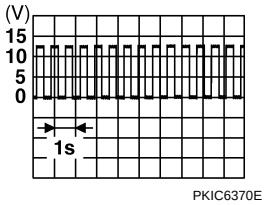
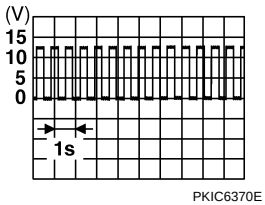
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
19 (BR)	Ground	Remote keyless entry receiver power supply	Input	Ignition switch OFF	Insert mechanical key into ignition key cylinder	0 V
					Remove mechanical key from ignition key cylinder (Any door opened)	5 V
					Remove mechanical key from ignition key cylinder (Any door closed)	 JPMIA0338JP
20 (G/Y)	Ground	Remote keyless entry receiver communication	Input	Ignition switch OFF	Insert mechanical key into ignition key cylinder	0 V
					Waiting	 PIIB7728J
					Signal receiving	 PIIB7729J
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Just after inserting ignition key in key cylinder		Pointer of tester should move
				Other than above		0 V
23 (R/Y)	Ground	Security indicator	Input	Security indicator	ON	0 V
					Blinking (Ignition switch OFF)	 JPMIA0014GB 11.3 V
					OFF	12 V
24* (GR/B)	Ground	Dongle link	Input/ Output	Ignition switch OFF		5 V
25 (LG)	Ground	NATS antenna amp.	Input/ Output	Just after inserting ignition key in key cylinder		Pointer of tester should move
				Other than above		0 V
26 (GR)	Ground	Thermo control amp.	Input	Ignition switch ON		0 V
				Evaporator is extremely low temperature		12 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
27 (Y/G)	Ground	A/C switch	Input	A/C switch	OFF	 JPMIA0012GB 1.0 - 1.5 V
					ON	0 V
28 (G/W)	Ground	Blower fan switch	Input	Fan switch	Blower fan switch OFF	 PKIB4960J 7.0 - 8.0 V
					Blower fan switch ON	0 V
29 (L/W)	Ground	Hazard switch	Input	Hazard switch	OFF	Battery voltage
					ON	0 V
31 (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	A/C mode defroster ON position	0 V
					Other than A/C mode defroster ON position	 JPMIA0589GB 8.0 - 9.0 V
32 (LG)	Ground	Combination switch OUTPUT 5	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Rear wiper switch ON (Wiper intermittent dial 4)	 PKIB4956J 1.0 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	

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
33 (Y/L)	Ground	Combination switch OUTPUT 4	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 1ST (Wiper intermittent dial 4)	 PKIB4958J 1.2 V
					Rear wiper switch INT (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	
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 2ND (Wiper intermittent dial 4)	 PKIB4958J 1.2 V
					Lighting switch HI (Wiper intermittent dial 4)	
					Rear washer switch ON (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	
35 (R/L)	Ground	Combination switch OUTPUT 2	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	 PKIB4960J 7.0 - 8.0 V
					Lighting switch 2ND	 PKIB4958J 1.2 V
					Lighting switch PASS	
					Front wiper switch INT	
					Front wiper switch HI	

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
36 (L/O)	Ground	Combination switch OUTPUT 1	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	 PKIB4960J 7.0 - 8.0 V
					Turn signal switch RH	 PKIB4958J 1.2 V
					Turn signal switch LH	
					Front wiper switch LO (Front wiper switch MIST)	
					Front washer switch ON	
37 (R/W)	Ground	Key switch	Input	Insert mechanical key into ignition key cylinder		Battery voltage
				Remove mechanical key from ignition key cylinder		0 V
38 (O)	Ground	Ignition switch ON	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage
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)	 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	12 V
					Any position other than rear wiper stop position	0 V
45 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	 JPMIA0012GB 1.0 - 1.5 V
					LOCK position	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
46 (BR)	Ground	Door lock and unlock switch UNLOCK	Input	Door lock and unlock switch	NEUTRAL position	 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)	 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)	 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	0 V
54 (LG)	Ground	Rear wiper	Output	Ignition switch ON	Rear wiper switch OFF	0 V
					Rear wiper switch ON	12 V
56 (L)	Ground	Interior room lamp power supply	Output	Interior room lamp battery saver is activated. (Cuts the interior room lamp power supply)		0 V
				Interior room lamp battery saver is not activated. (Outputs the interior room lamp power supply)		12 V
57 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
59 (L/B)	Ground	Driver door UNLOCK	Output	Driver door	UNLOCK (Actuator is activated)	12 V
					Other then UNLOCK (Actuator is not activated)	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch LH	 PKIC6370E 6.0 V
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch RH	 PKIC6370E 6.0 V
63 (BR)	Ground	Interior room lamp control signal	Output	Interior room lamp	OFF	12 V
					ON	0 V
65 (V)	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activated)	12 V
					Other then LOCK (Actuator is not activated)	0 V
66 (G)	Ground	Passenger door and rear door UNLOCK	Output	Passenger door and rear door	UNLOCK (Actuator is activated)	12 V
					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 ON		12 V
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		12 V
70 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage

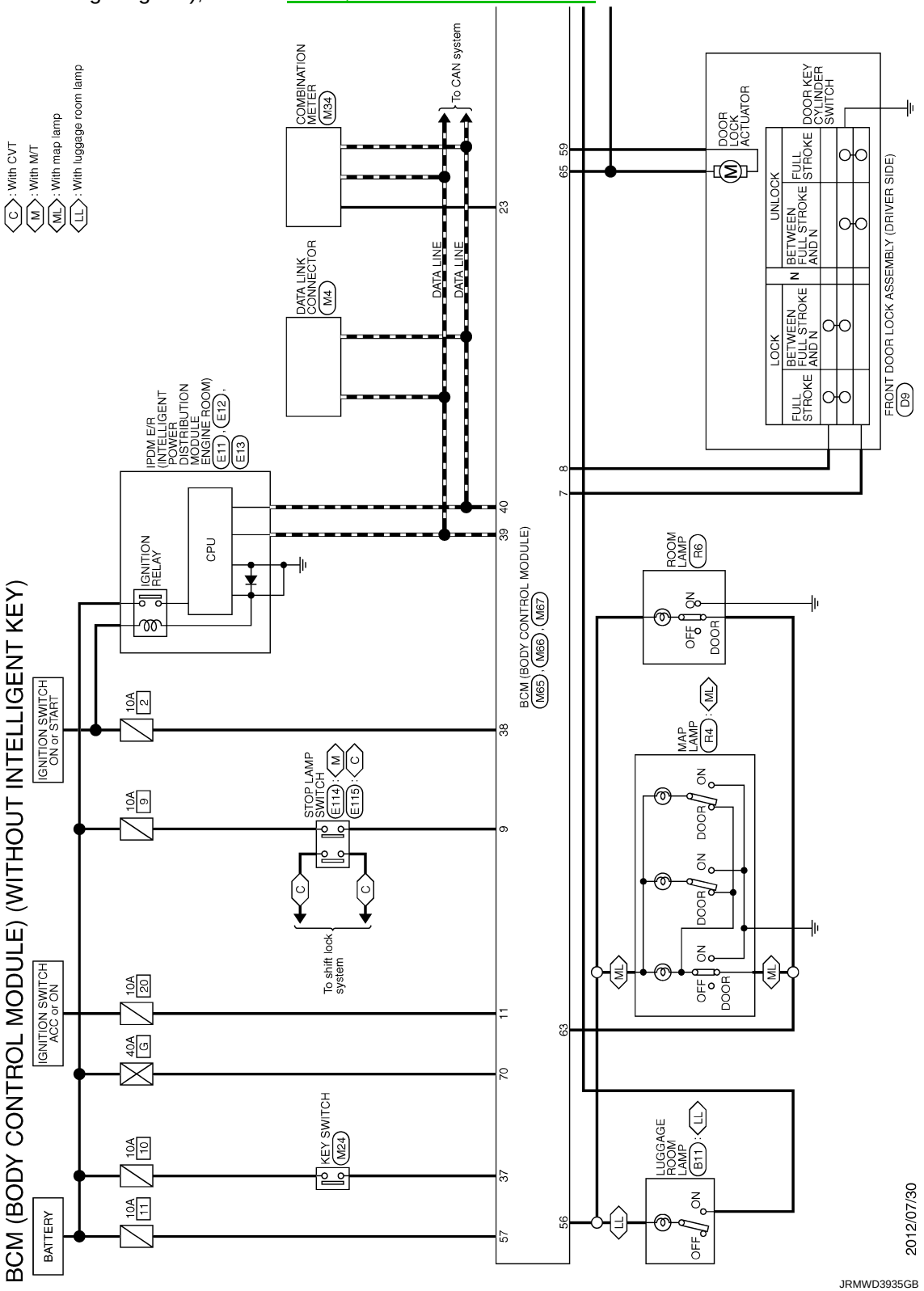
*: For Canada

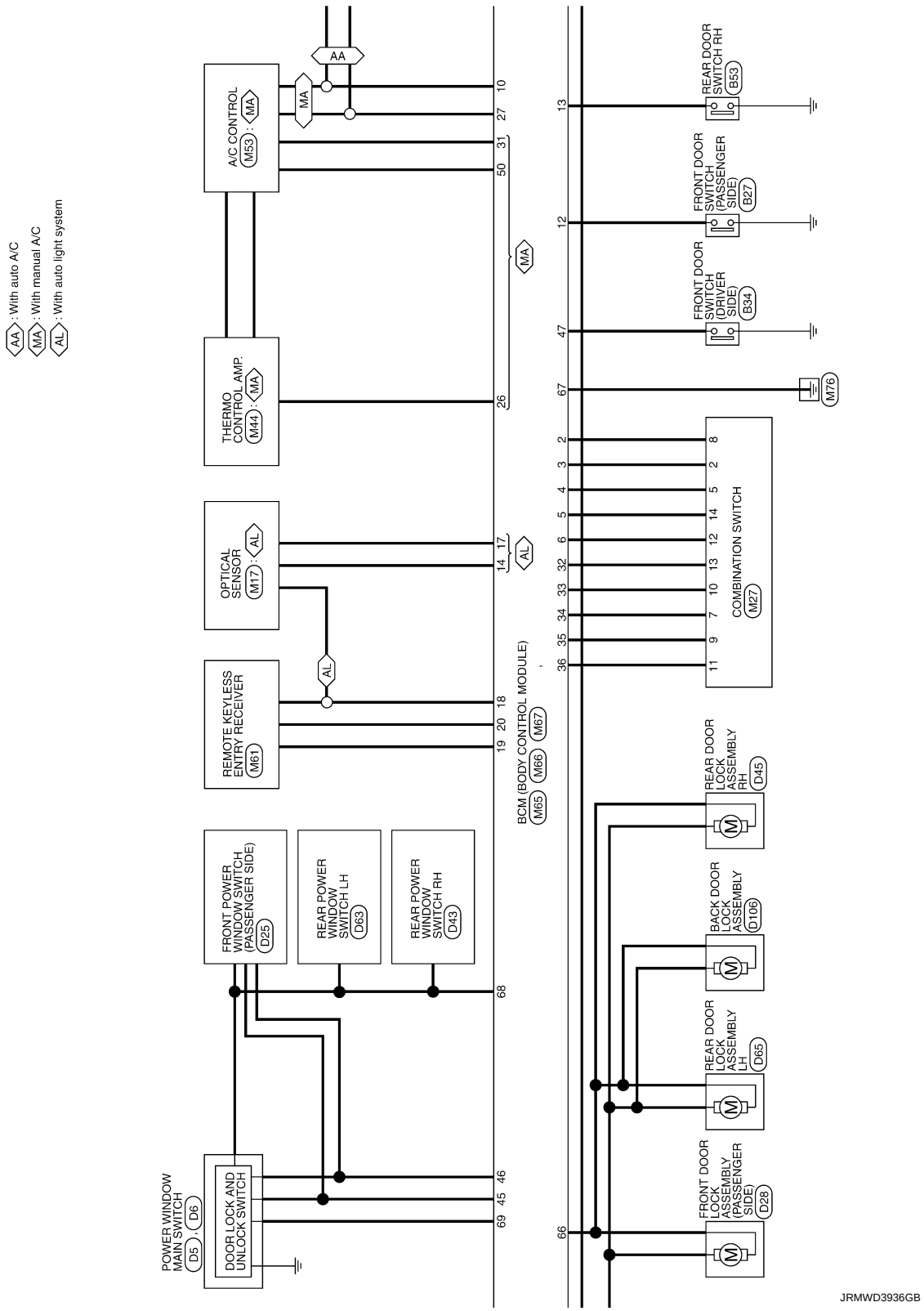
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Wiring

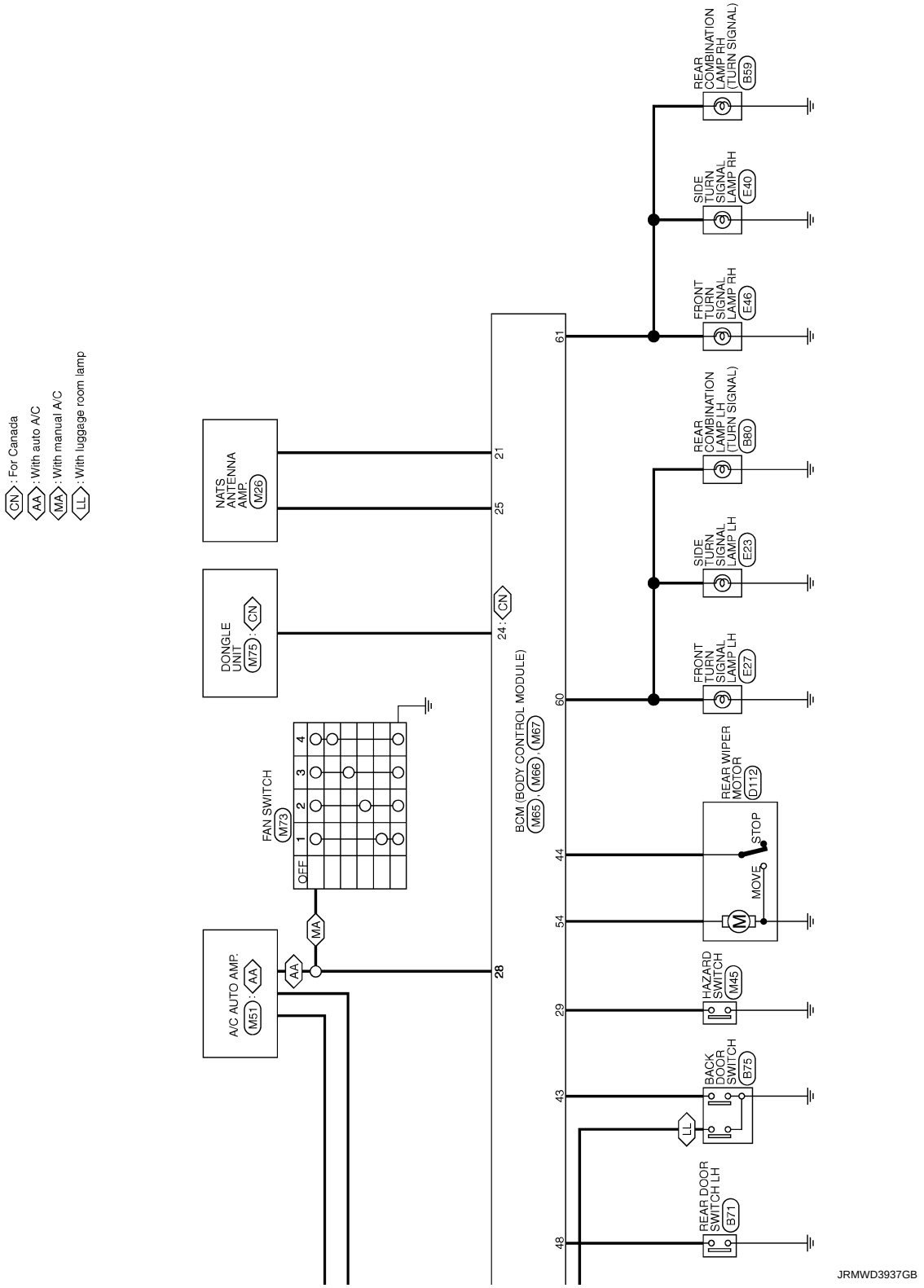
Diagram - BCM -

INFOID:0000000008928797

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




AA : With auto A/C
MA : With manual A/C
AL : With auto light system
A/C CONTROL (M53) : MA
THERMO CONTROL AMP. (M44) : MA
OPTICAL SENSOR (M17) : AL
REMOTE KEYLESS ENTRY RECEIVER (M61)
BCM (BODY CONTROL MODULE) (M65) (M66) (M67)
FRONT POWER WINDOW SWITCH (PASSENGER SIDE) (D25)
REAR POWER WINDOW SWITCH LH (D63)
REAR POWER WINDOW SWITCH RH (D43)
POWER WINDOW MAIN SWITCH (D5) : (D6)
DOOR LOCK AND UNLOCK SWITCH
REAR DOOR SWITCH RH (B53)
FRONT DOOR SWITCH (PASSENGER SIDE) (B27)
FRONT DOOR SWITCH (DRIVER SIDE) (B34)
(M76)
COMBINATION SWITCH (M27)
REAR DOOR LOCK ASSEMBLY RH (D45)
BACK DOOR LOCK ASSEMBLY (D106)
REAR DOOR LOCK ASSEMBLY LH (D65)
FRONT DOOR LOCK ASSEMBLY (PASSENGER SIDE) (D28)
JRMWD3936GB



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

INFOID:0000000008928798

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 → 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

INFOID:0000000008928799

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] RL • C1729: VHCL SPEED SIG ERR

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

INFOID:0000000008928800

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

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

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference
U1000: CAN COMM	—	—	BCS-115
U1010: CONTROL UNIT (CAN)	—	—	BCS-116
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-23
C1705: LOW PRESSURE FR	—	×	
C1706: LOW PRESSURE RR	—	×	
C1707: LOW PRESSURE RL	—	×	
C1708: [NO DATA] FL	—	×	WT-25
C1709: [NO DATA] FR	—	×	
C1710: [NO DATA] RR	—	×	
C1711: [NO DATA] RL	—	×	
C1716: [PRESS DATA ERR] FL	—	×	WT-28
C1717: [PRESS DATA ERR] FR	—	×	
C1718: [PRESS DATA ERR] RR	—	×	
C1719: [PRESS DATA ERR] RL	—	×	
C1729: VHCL SPEED SIG ERR	—	×	WT-30
C1735: IGN CIRCUIT OPEN	—	—	BCS-117

SYMPTOM DIAGNOSIS

MANUAL AIR CONDITIONING SYSTEM

Diagnosis Chart By Symptom

INFOID:0000000008454359

CAUTION:

Perform the self-diagnosis with 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
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-148, "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-157, "Diagnosis Procedure"
Magnet clutch does not operate. (Compressor is normal)		• 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. • BCM	HAC-213, "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	HAC-211, "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	HAC-212, "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-150, "Component Inspection"
Air inlet dose not change.		• A/C control • Intake door motor • Intake door	HAC-143, "Diagnosis Procedure"
Discharge air temperature dose not change.		• A/C control • Air mix door cable • Air mix door	Check the air mix door installation and door operation

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-159, "Diagnosis Procedure"

INSUFFICIENT COOLING

Description

INFOID:0000000008454360

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

Diagnosis Procedure

INFOID:0000000008454361

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

1. Turn the ignition switch ON.
2. Turn the fan control dial ON.
3. Press the A/C switch.
4. 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-213, "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

Description

INFOID:0000000008454362

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

Diagnosis Procedure

INFOID:0000000008454363

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 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".
3. Check the water flow sounds of the engine coolant. Refer to CO-10, "Refilling".

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.
2. Check that the inlet side of heater core is hot and the outlet side is slightly lower than/almost equal to the inlet side.
   CAUTION:
   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-43, "Exploded View (Manual 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 >> Check the air mix door cable installation and air mix door operation.
NO >> Repair or replace parts depending on the inspection results.

COMPRESSOR DOSE DOT OPERATE

Description

INFOID:0000000008454364

SYMPTOM

Compressor dose not operate.

Diagnosis Procedure

INFOID:0000000008454365

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-152, "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-430, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace the malfunctioning parts.

4.CHECK BCM OUTPUT SIGNAL

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-144, "Exploded View".

5.CHECK A/C SWITCH

Check the A/C switch. Refer to HAC-153, "Diagnosis Procedure".

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-159, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace the malfunctioning parts

7. CHECK THERMO CONTROL AMP.

Check the thermo control amp. Refer to HAC-145, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the BCM. Refer to BCS-144, "Exploded View".
NO >> Repair or replace the malfunctioning parts

PRECAUTION

PRECAUTIONS

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

INFOID:0000000008454366

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.

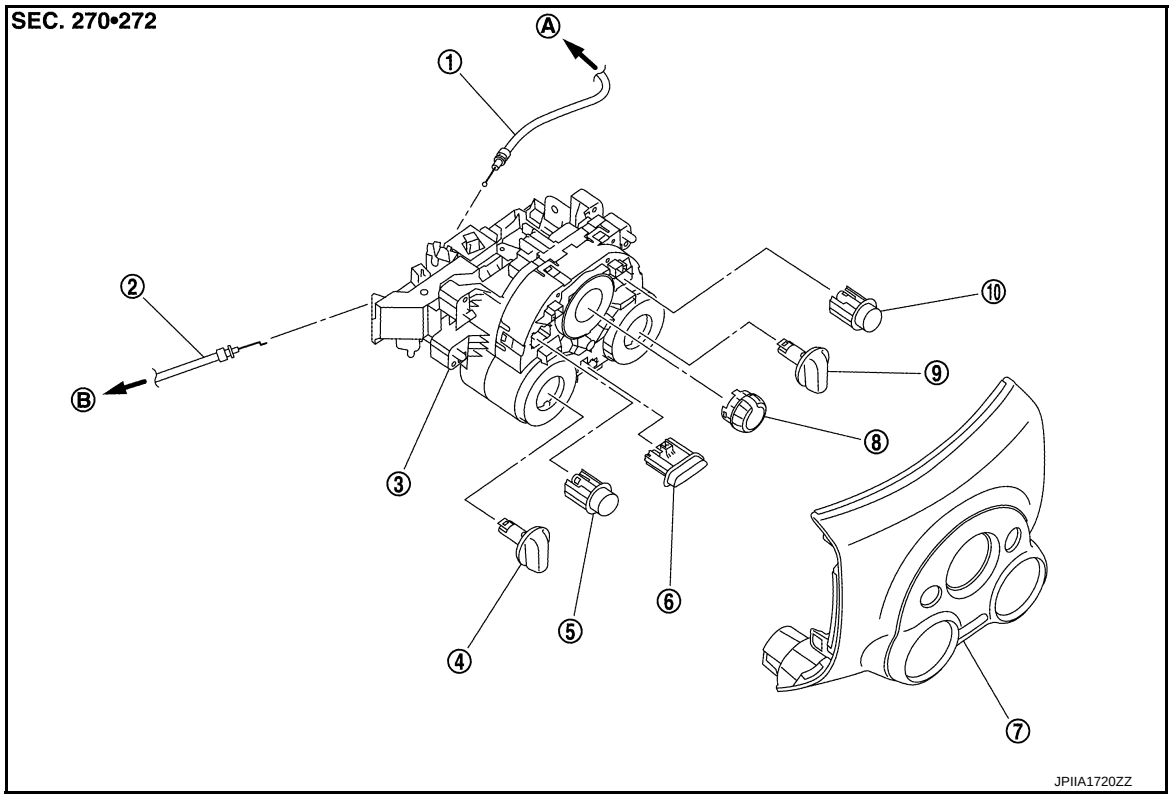
- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious 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.**

REMOVAL AND INSTALLATION

A/C CONTROL

Exploded View

INFOID:0000000008454368



1. Mode door cable
2. Air mix door cable
3. A/C control
4. Mode dial
5. Rear window defogger switch
6. Intake switch
7. A/C finisher
8. Fan control dial
9. Temperature dial
10. A/C switch
A. To mode door link
B. To air mix door link

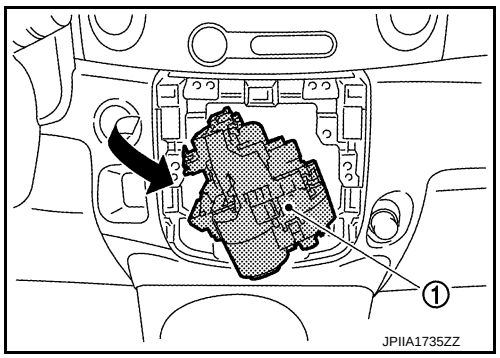
Removal and Installation

INFOID:0000000008454369

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-224, "AIR MIX DOOR CABLE : Removal and Installation".
4. Remove the mode door cable from the A/C unit assembly. Refer to HAC-224, "MODE DOOR CABLE : Removal and Installation".
5. Disconnect harness connector.

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.

THERMO CONTROL AMPLIFIER

Exploded View

INFOID:0000000008454370

Refer to HA-43, "Exploded View (Manual Air Conditioner)".

Removal and Installation

INFOID:0000000008454371

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.

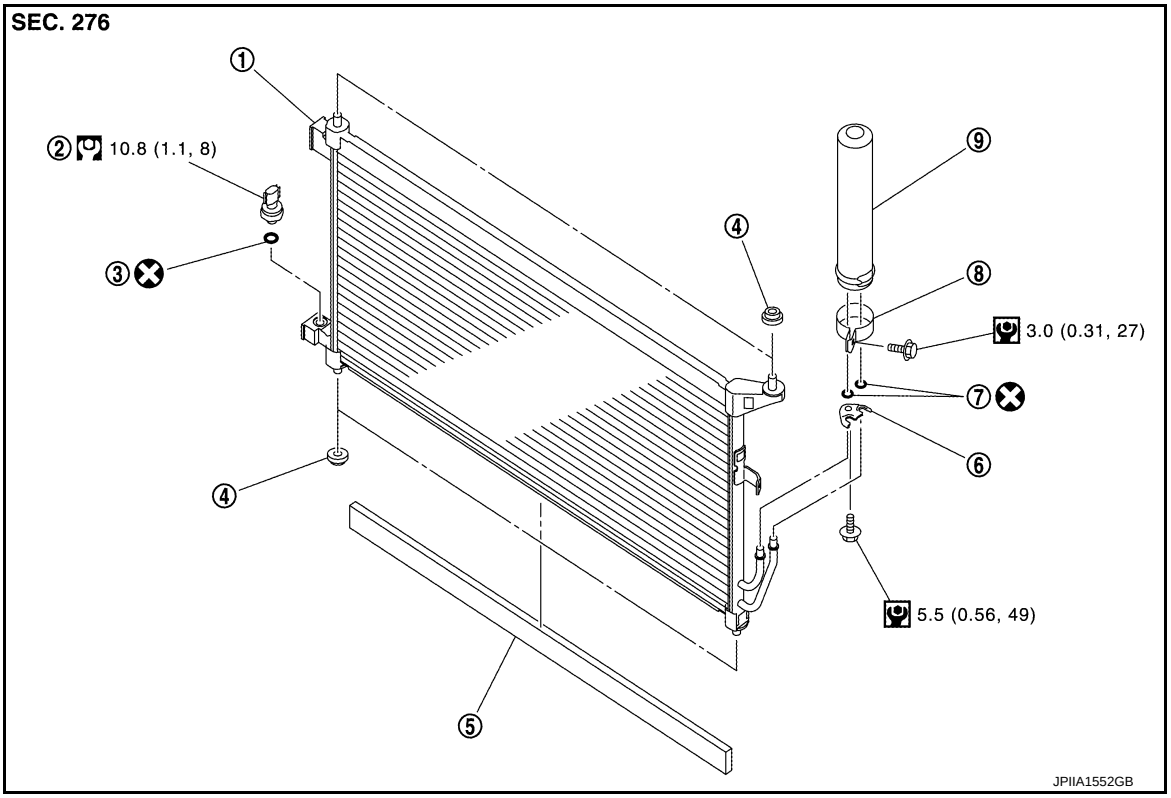
CAUTION:

- **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

INFOID:0000000008454372



1. Condenser
2. Refrigerant pressure sensor
3. O-ring
4. Grommet
5. Condenser seal
6. Bracket
7. O-ring
8. Liquid tank bracket
9. Liquid tank

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

Removal and Installation

INFOID:0000000008454373

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".

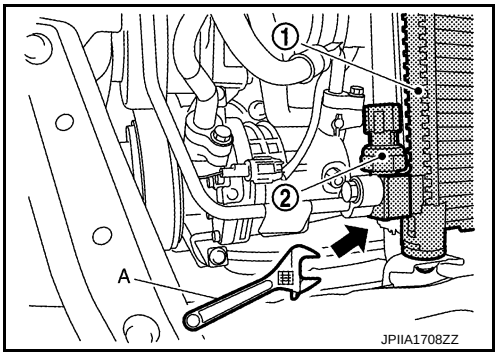
REMOVAL

1. 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.
3. Disconnect refrigerant pressure sensor connector.

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".**

BLOWER FAN RESISTOR

Exploded View

INFOID:0000000008454374

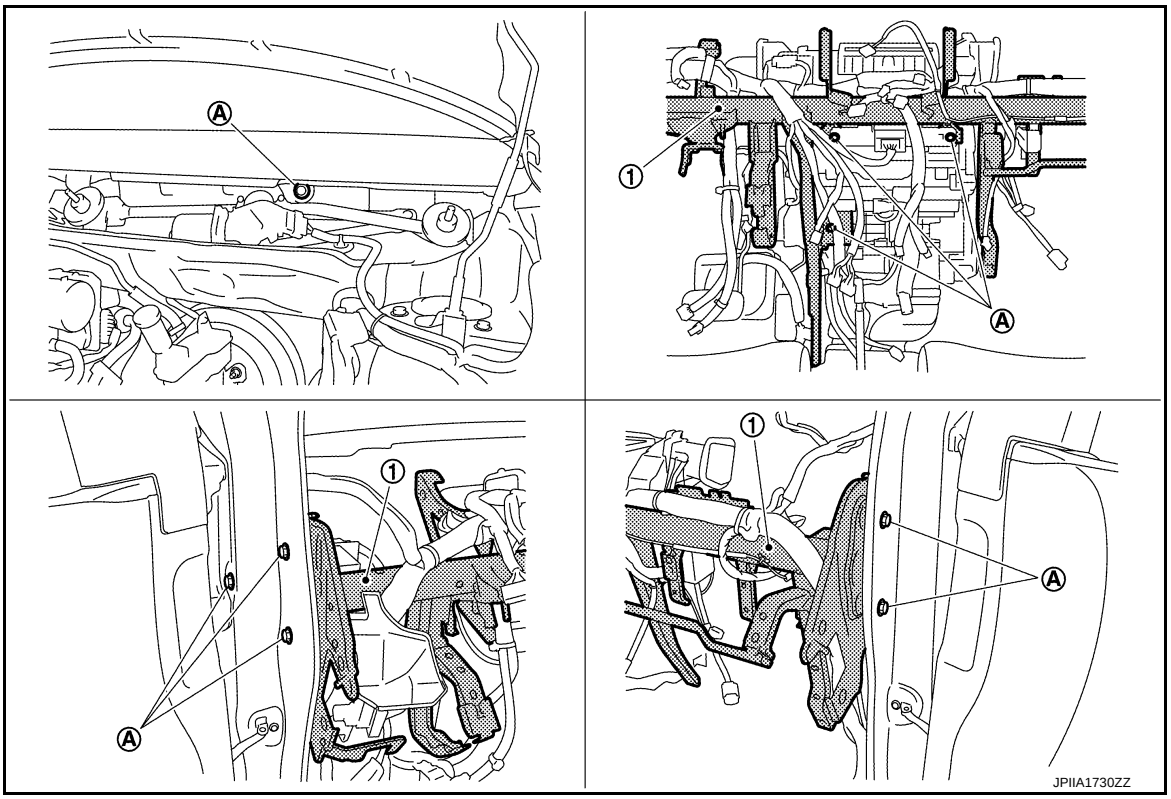
Refer to VTL-13, "Exploded View"

Removal and Installation

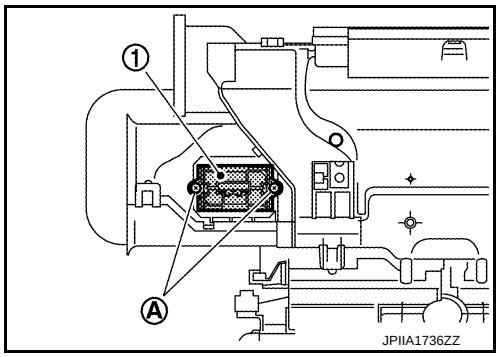
INFOID:0000000008454375

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.



5. Disconnect blower fan resistor connector.
6. Remove mounting screws (A), and then remove blower fan resistor (1).



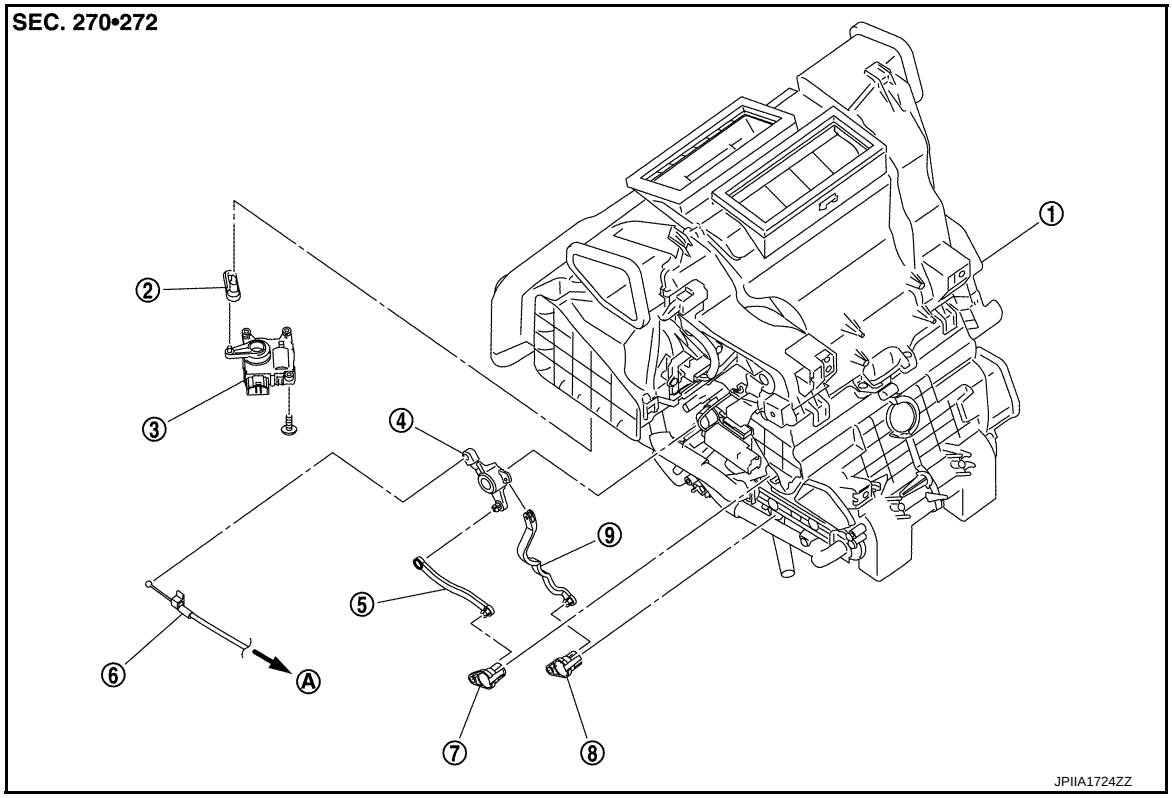
INSTALLATION

Installation is basically the reverse order of removal.

INTAKE DOOR MOTOR

Exploded View

INFOID:0000000008454376



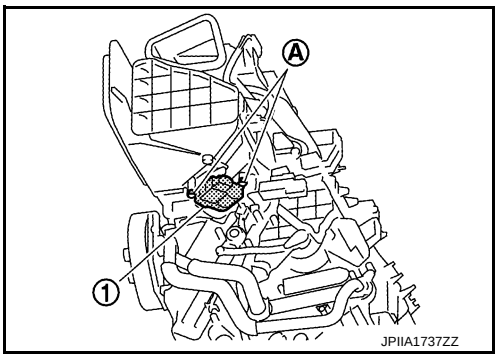
1. A/C unit assembly
2. Intake door lever
3. Intake door motor
4. Air mix door link
5. Upper air mix door rod
6. Air mix door cable
7. Upper air mix door lever
8. Lower air mix door lever
9. Lower air mix door rod
A. To A/C control

Removal and Installation

INFOID:0000000008454377

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.



INSTALLATION

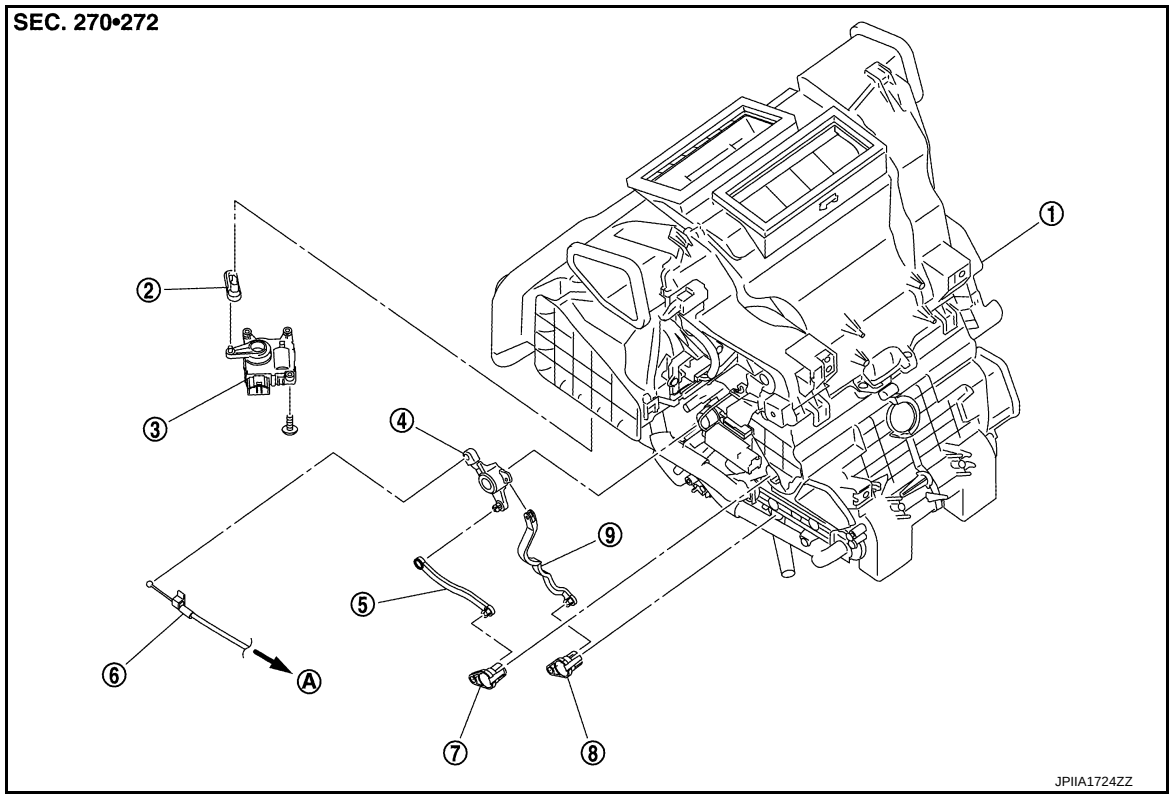
Installation is basically the reverse order of removal.

DOOR CABLE

Exploded View

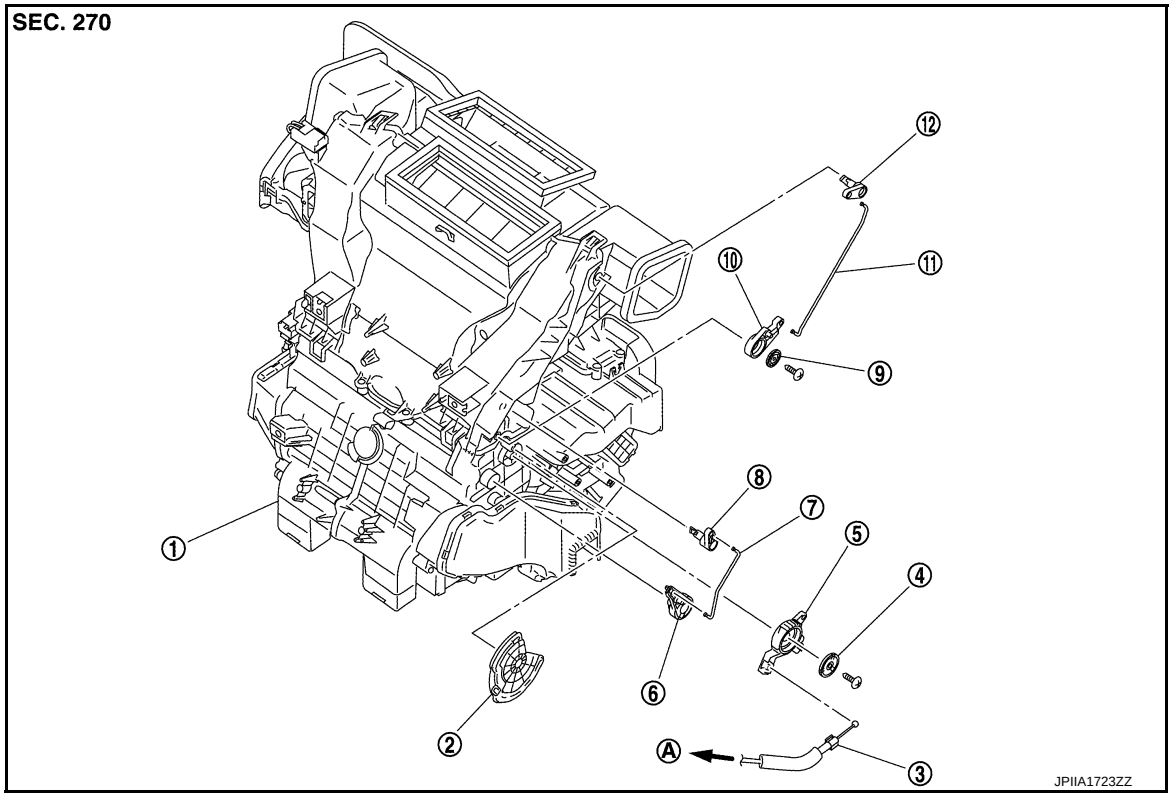
INFOID:0000000008454378

LEFT SIDE



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

RIGHT SIDE



1. A/C unit assembly
2. Main link
3. Mode door cable
4. Plate
5. Mode door link
6. Sub defroster door link
7. Sub defroster door rod
8. Sub defroster door lever
9. Plate
10. Center ventilator and defroster door link
11. Center ventilator and defroster door rod
12. Center ventilator and defroster door lever

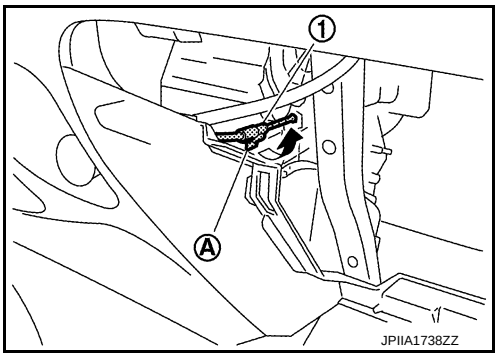
A. To A/C control

MODE DOOR CABLE

MODE DOOR CABLE : Removal and Installation

INFOID:0000000008454379

1. Disconnect mode door cable from A/C control. Refer to HAC-216, "Exploded View".
2. Remove glove box assembly. Refer to IP-12, "Exploded View".
3. 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.

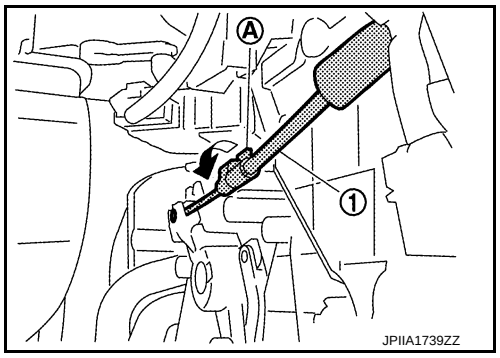
AIR MIX DOOR CABLE

AIR MIX DOOR CABLE : Removal and Installation

INFOID:0000000008454380

1. Disconnect air mix door cable from A/C control. Refer to HAC-216, "Exploded View".

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.