

SECTION **DEF**  
**DEFOGGER**

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# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

Repair Work Flow

INFOID:000000003243331

DETAILED FLOW

#### 1. LISTEN TO CUSTOMER COMPLAINT

Listen to customer complaint. Get detailed information about the conditions and environment when the symptom occurs.

>> GO TO 2

#### 2. VERIFY THE SYMPTOM WITH OPERATIONAL CHECK

Verify the symptom with operational check.

>> GO TO 3

#### 3. GO TO APPROPRIATE TROUBLE DIAGNOSIS

Go to appropriate trouble diagnosis.

>> GO TO 4

#### 4. REPAIR OR REPLACE

Repair or replace the specific parts.

>> GO TO 5

#### 5. FINAL CHECK

Final check.

Is inspection result normal?

YES >> Inspection End

NO >> Refer to [GI-51, "Intermittent Incident"](#).

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# REAR WINDOW DEFOGGER SYSTEM

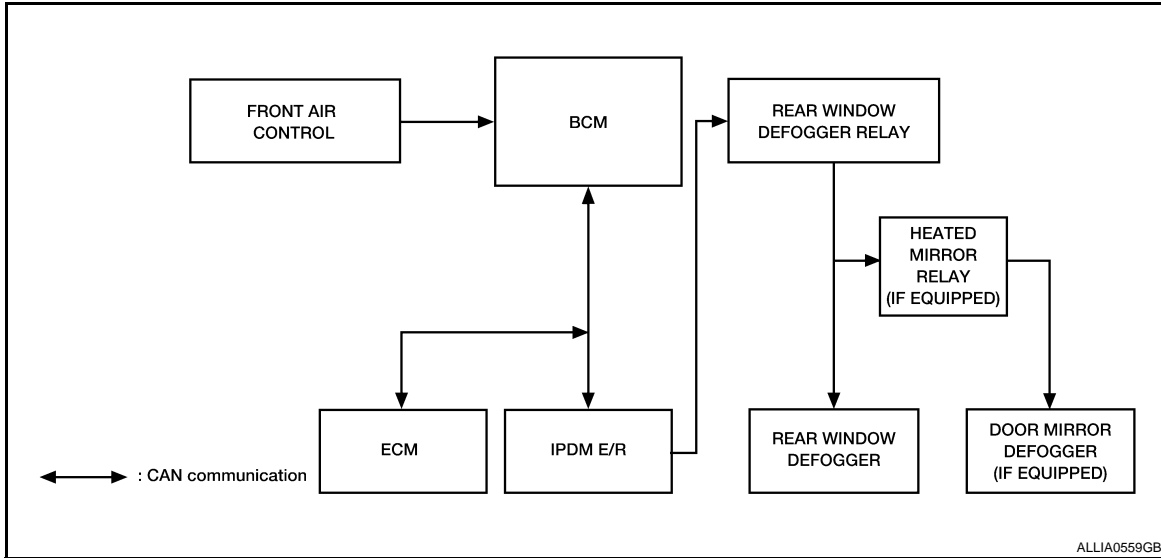
< FUNCTION DIAGNOSIS >

## FUNCTION DIAGNOSIS

### REAR WINDOW DEFOGGER SYSTEM

#### System Diagram

INFOID:000000003243332



ALLIA0559GB

#### System Description

INFOID:000000003243333

#### Operation Description

- Turn rear window defogger switch ON when the ignition switch is turned ON. Then rear window defogger switch transmits rear window defogger switch signal to BCM.
- BCM transmits rear window defogger control signal to IPDM E/R via CAN communication when rear window defogger operates.
- IPDM E/R turns rear window defogger relay and heated mirror relay (if equipped) ON when rear window defogger switch signal is received.
- Rear window defogger and door mirror defogger (if equipped) are supplied with power and operate when rear window defogger relay and heated mirror relay (if equipped) turn ON.
- Rear window defogger ON is displayed when signal is received.

#### Timer function

- BCM turns rear window defogger relay and heated mirror relay (if equipped) ON for approximately 15 minutes when rear window defogger switch is turned ON while ignition switch is ON. It makes rear window defogger and door mirror defogger (if equipped) operate.
- Timer is canceled after pressing rear window defogger switch again during timer operation. Then BCM turns rear window defogger relay and heated mirror relay (if equipped) OFF. The same reaction also occurs during timer operation, if the ignition switch is turned OFF.

#### INPUT/OUTPUT SIGNAL CHART

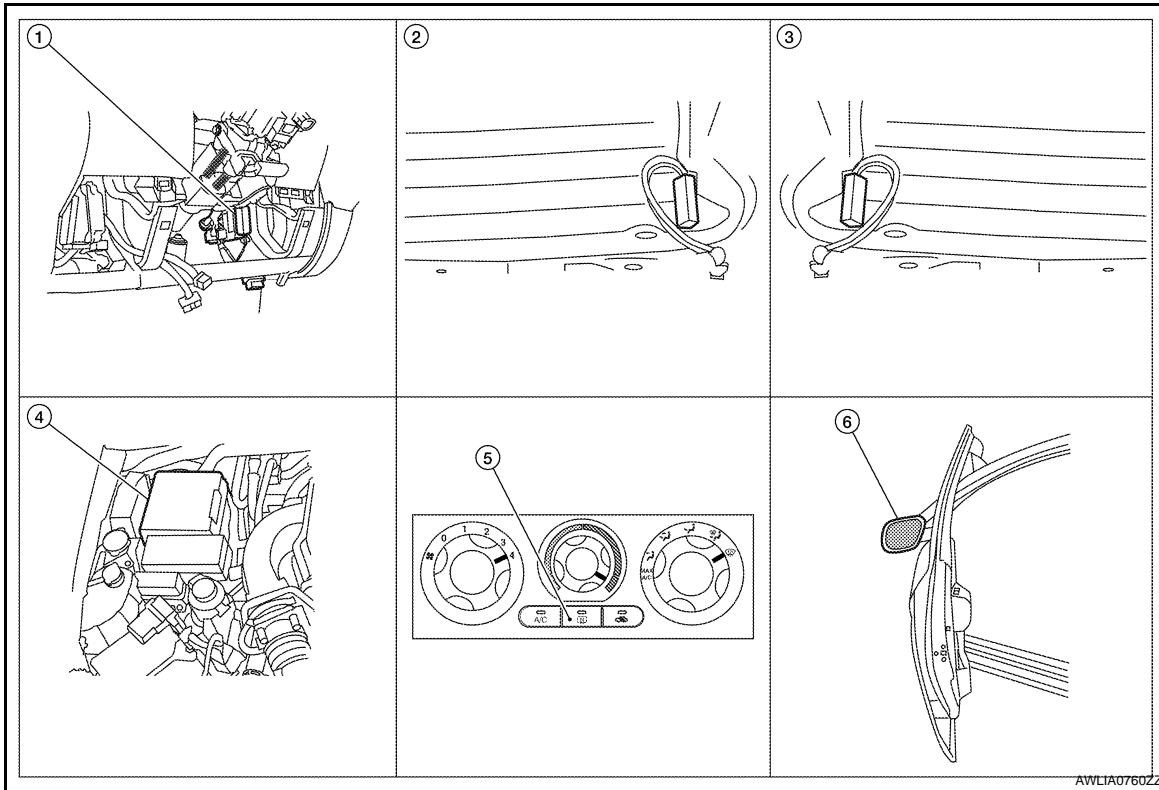
Switch	Input signal to BCM	BCM function	Acuator
Rear window defogger switch	Defogger switch signal	Rear window defogger & door mirror defogger (if equipped) control	Rear window defogger Door mirror defogger (if equipped)
Ignition switch	Ignition signal		

# REAR WINDOW DEFOGGER SYSTEM

< FUNCTION DIAGNOSIS >

## Component Parts Location

INFOID:000000003243334



- |                                                               |                                        |                                                      |
|---------------------------------------------------------------|----------------------------------------|------------------------------------------------------|
| 1. BCM M18, M20 (view with lower instrument panel LH removed) | 2. Rear window defogger connector B165 | 3. Rear window defogger ground connector B210        |
| 4. IPDM E/R E120, E122, E124                                  | 5. Rear window defogger switch         | 6. Door mirror (door mirror defogger) LH D4, RH D107 |

## Component Description

INFOID:000000003243335

BCM	<ul style="list-style-type: none"> <li>Operates the rear window defogger with the operation of rear window defogger switch.</li> <li>Performs the timer control of rear window defogger.</li> </ul>
Rear window defogger relay	<ul style="list-style-type: none"> <li>Operates the rear window defogger and the door mirror defogger (if equipped) with the control signal from BCM.</li> </ul>
Rear window defogger switch	<ul style="list-style-type: none"> <li>The rear window defogger switch is turned ON.</li> <li>Turns the indicator lamp ON when detecting the operation of rear window defogger.</li> </ul>
Rear window defogger	<ul style="list-style-type: none"> <li>Heats the heating wire with the power supply from the rear window defogger relay to prevent the rear window from fogging up.</li> </ul>
Door mirror defogger (if equipped)	<ul style="list-style-type: none"> <li>Heats the heating wire with the power supply from the heated mirror relay to prevent the door mirror from fogging up.</li> </ul>

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## DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

### DIAGNOSIS SYSTEM (BCM)

#### COMMON ITEM

#### COMMON ITEM : CONSULT-III Function (BCM - COMMON ITEM)

INFOID:000000003292616

#### APPLICATION ITEM

CONSULT-III performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF-DIAG RESULTS	Displays the diagnosis results judged by BCM. Refer to <a href="#">BCS-46. "DTC Index"</a> .
CAN DIAG SUPPORT MNTR	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	<ul style="list-style-type: none"> <li>• Enables to read and save the vehicle specification.</li> <li>• Enables to write the vehicle specification when replacing BCM.</li> </ul>

#### 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.

System	Sub system selection item	Diagnosis mode		
		WORK SUPPORT	DATA MONITOR	ACTIVE TEST
BCM	BCM	×		
Door lock	DOOR LOCK	×	×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
Remote keyless entry system	MULTI REMOTE ENT	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
Air conditioner	AIR CONDITONER		×	
Combination switch	COMB SW		×	
Immobilizer	IMMU		×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
RAP (retained accessory power)	RETAINED PWR	×	×	×
Signal buffer system	SIGNAL BUFFER		×	×
TPMS (tire pressure monitoring system)	AIR PRESSURE MONITOR	×	×	×
Vehicle security system	PANIC ALARM			×

### REAR WINDOW DEFOGGER

#### REAR WINDOW DEFOGGER : CONSULT-III Function (BCM - REAR DEFOGGER)

INFOID:000000003243337

Data monitor

# DIAGNOSIS SYSTEM (BCM)

## < FUNCTION DIAGNOSIS >

Monitor Item	Description
REAR DEF SW	Indicates [ON/OFF] condition of rear defogger switch.
IGN SW	Indicates [ON/OFF] condition of ignition switch.

## ACTIVE TEST

Test Item	Description
REAR DEFOGGER	This test is able to check rear window defogger operation. Rear window defogger operates when "ON" on CONSULT-III screen is touched.

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# REAR WINDOW DEFOGGER SWITCH

< COMPONENT DIAGNOSIS >

## COMPONENT DIAGNOSIS

### REAR WINDOW DEFOGGER SWITCH

#### Description

INFOID:000000003243339

- The rear window defogger is operated by turning the rear window defogger switch ON.
- Turns the indicator lamp in the rear window defogger switch ON when operating the rear window defogger.

#### Component Function Check

INFOID:000000003243340

#### 1. CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

Check that the indicator lamp of rear window defogger illuminates with rear window defogger switch ON.

Is the inspection result normal?

- YES >> Rear window defogger switch function is OK.  
NO >> Refer to [DEF-8, "Diagnosis Procedure Front Air Control"](#).

#### Diagnosis Procedure Front Air Control

INFOID:000000003243341

#### 1. CHECK FRONT AIR CONTROL (REAR WINDOW DEFOGGER SWITCH) CIRCUIT

Does rear window defogger switch operate normally?

Is the inspection result normal?

- YES >> Inspection End.  
NO >> GO TO 2

#### 2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and front air control.
3. Check continuity between BCM connector and front air control connector.

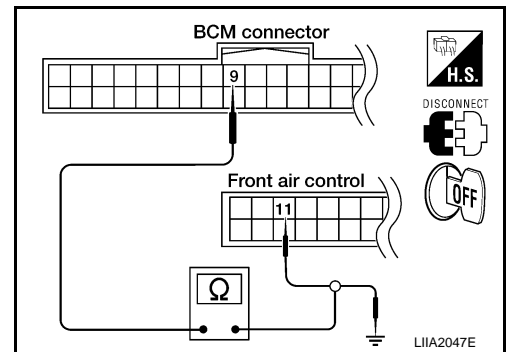
BCM connector	Terminal	Front air control connector	Terminal	Continuity
M18	9	M49	11	Yes

4. Check continuity between BCM connector and ground.

BCM connector	Terminal	Ground	Continuity
M18	9		No

Is the inspection result normal?

- YES >> Replace front air control. Refer to [VTL-7, "Removal and Installation"](#).  
NO >> Repair or replace harness.





# REAR WINDOW DEFOGGER RELAY

< COMPONENT DIAGNOSIS >

## REAR WINDOW DEFOGGER RELAY

### Description

INFOID:000000003243342

Power is supplied to the rear window defogger with BCM control.

### Component Function Check

INFOID:000000003243343

#### 1. CHECK REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT

Check that an operation noise of rear window defogger relay (located in IPDM E/R) can be heard when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Rear window defogger relay power supply circuit is OK.
- NO >> Refer to [DEF-9, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000003243344

#### 1. CHECK FUSES

Check if any of the following fuses in the IPDM E/R are blown.

COMPONENT PARTS	AMPERE	FUSE NO.
IPDM E/R	15A	46
IPDM E/R	15A	47

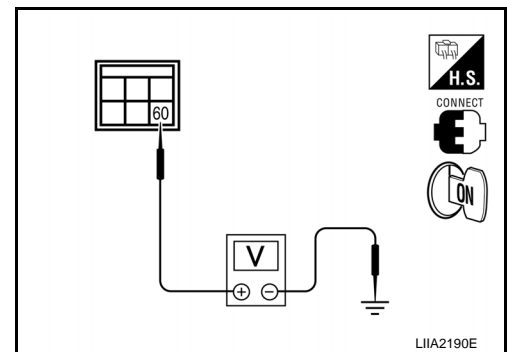
Is the inspection result normal?

- YES >> GO TO 2
- NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

#### 2. CHECK REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between IPDM E/R connector and ground.

Terminals		(-)	Condition of rear window defogger switch	Voltage (V) (Approx.)
(+)	Terminal			
IPDM E/R connector		Ground	ON	Battery voltage
E124	60		OFF	0



Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-34, "Removal and Installation of IPDM E/R"](#).
- NO >> GO TO 3

#### 3. CHECK INTERMITTENT INCIDENT

Check intermittent incident.  
Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Check the following.
  - Battery power supply circuit
  - IPDM E/R
- NO >> Repair or replace the malfunctioning parts.

# REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

## REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

### Description

INFOID:000000003243345

Heats the heating wire with the power supply from the rear window defogger relay to prevent the rear window from fogging up.

### Component Function Check

INFOID:000000003243346

### 1. CHECK REAR WINDOW DEFOGGER

Check that the heating wire of rear window defogger is heated when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Rear window defogger is OK.
- NO >> Refer to [DEF-10, "Diagnosis Procedure"](#).

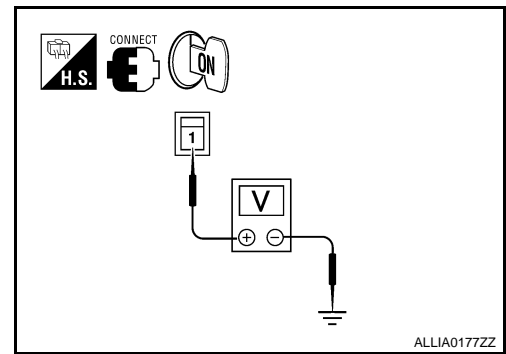
### Diagnosis Procedure

INFOID:000000003243347

#### 1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between rear window defogger connector and ground.

Terminals		(-)	Condition of rear window defogger switch	Voltage (V) (Approx.)
(+)				
Rear window defogger connector	Terminal			
B165	1	Ground	ON	Battery voltage
			OFF	0



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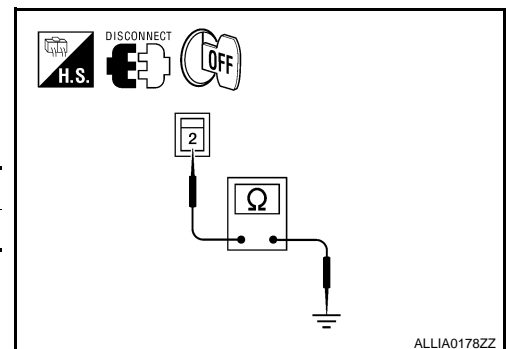
Is the inspection result normal?

- YES >> GO TO 2
- NO >> GO TO 3

#### 2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear window defogger.
3. Check continuity between rear window defogger connector and ground.

Rear window defogger connector	Terminal	Ground	Continuity
B210	2		Yes



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Is the inspection result normal?

- YES >> GO TO 4
- NO >> Repair or replace harness.

#### 3. CHECK HARNESS CONTINUITY

# REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

## < COMPONENT DIAGNOSIS >

1. Disconnect IPDM E/R.
2. Check continuity between rear window defogger connector (A) and IPDM E/R connector (B).

Rear window defogger connector	Terminal	IPDM E/R connector	Terminal	Continuity
B165 (A)	1	E124 (B)	60	Yes

3. Check continuity between rear window defogger connector (A) and ground.

Rear window defogger connector	Terminal	Ground	Continuity
B165 (A)	1		No

Is the inspection result normal?

- YES >> GO TO 5  
 NO >> Replace or repair harness.

## 4. CHECK FILAMENT

Check filament.

Refer to [DEF-11, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Refer to [GI-51, "Intermittent Incident"](#).  
 NO >> Repair filament. Refer to [DEF-39, "Filament Repair"](#).

## 5. CHECK INTERMITTENT INCIDENT

Check intermittent incident.

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Check the following.
- Battery power supply circuit
  - IPDM E/R
- NO >> Repair or replace the malfunctioning parts.

## Component Inspection

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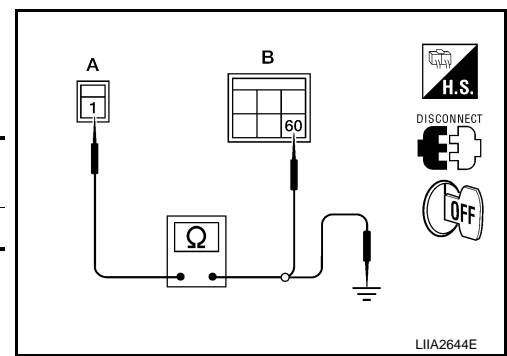
## 1. CHECK FILAMENT

Check the filament for damage or open circuits.

Refer to [DEF-39, "Filament Check"](#).

Is the inspection result normal?

- YES >> Inspection End.  
 NO >> Repair filament. Refer to [DEF-39, "Filament Repair"](#).



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# DOOR MIRROR DEFOGGER LH

< COMPONENT DIAGNOSIS >

## DOOR MIRROR DEFOGGER LH

### Description

INFOID:000000003243349

Heats the heating wire with the power supply from the rear window defogger relay to prevent the door mirror from fogging up.

### Component Function Check

INFOID:000000003243351

#### 1. CHECK DOOR MIRROR DEFOGGER LH

Check that heating wire of door mirror defogger LH is heated when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Door mirror defogger is OK.
- NO >> Refer to [DEF-12. "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000003243351

#### 1. CHECK POWER SUPPLY

Check if the following fuse in the IPDM E/R is blown.

COMPONENT PARTS	AMPERE	FUSE NO.
IPDM E/R	15A	43

Is the inspection result normal?

- YES >> GO TO 2
- NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

#### 2. CHECK DOOR MIRROR DEFOGGER POWER SUPPLY CIRCUIT

Check voltage between IPDM E/R connector and ground.

Connector	Terminal		Condition	Voltage (V) (Approx.)
	(+)	(-)		
E120	23	Ground	Rear window defogger switch ON	Battery voltage
			Rear window defogger switch OFF	0

Is the inspection result normal?

- YES >> GO TO 3
- NO >> Replace IPDM E/R. Refer to [PCS-34. "Removal and Installation of IPDM E/R"](#).

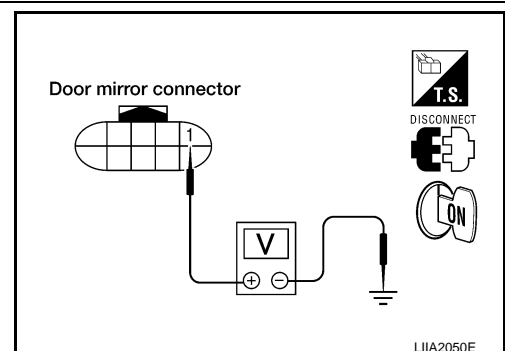
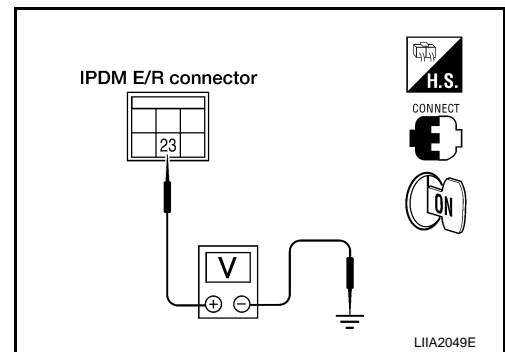
#### 3. CHECK DOOR MIRROR DEFOGGER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror LH.
3. Turn ignition switch ON.
4. Check voltage between door mirror LH connector and ground.

Connector	Terminal		Condition	Voltage (V) (Approx.)
	(+)	(-)		
D4	1	Ground	Rear window defogger switch ON	Battery voltage
			Rear window defogger switch OFF	0

Is the inspection result normal?

- YES >> GO TO 4



# DOOR MIRROR DEFOGGER LH

## < COMPONENT DIAGNOSIS >

NO >> Repair or replace harness.

### 4. CHECK DOOR MIRROR DEFOGGER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R.
3. Check continuity between IPDM E/R connector and door mirror LH or RH connector.

Connector	Terminal	Connector	Terminal	Continuity
A		B		
IPDM E/R: E120	23	Door mirror: D4	1	Yes

4. Check continuity between IPDM E/R and ground.

A		Ground	Continuity
Connector	Terminal		
IPDM E/R: E120	23		No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

### 5. CHECK DOOR MIRROR DEFOGGER GROUND CIRCUIT

Check continuity between door mirror LH connector D4 terminal 6 and ground.

**6 - Ground : Continuity should exist.**

Is the inspection result normal?

YES >> GO TO 6

NO >> Repair or replace harness.

### 6. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.

Refer to [DEF-13, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7

NO >> Replace door mirror. Refer to [MIR-12, "Door Mirror Assembly"](#).

### 7. CHECK INTERMITTENT INCIDENT

Check intermittent incident.

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

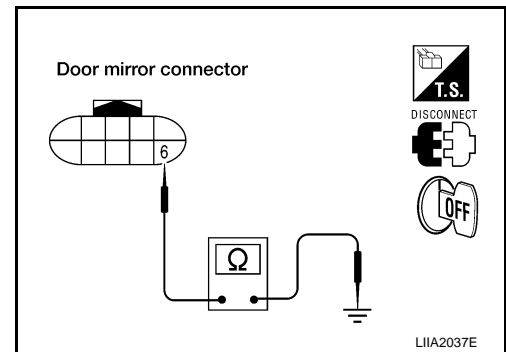
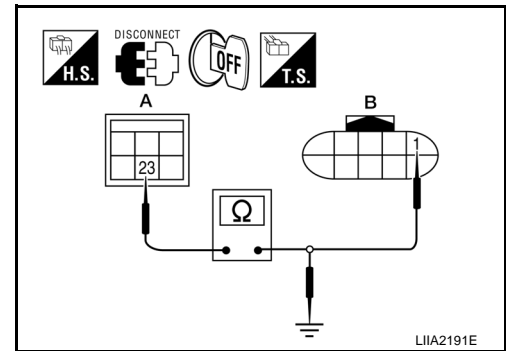
YES >> Check the following.

- Battery power supply circuit
- IPDM E/R

NO >> Repair or replace the malfunctioning parts.

## Component Inspection

### 1. CHECK DOOR MIRROR DEFOGGER



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## DOOR MIRROR DEFOGGER LH

### < COMPONENT DIAGNOSIS >

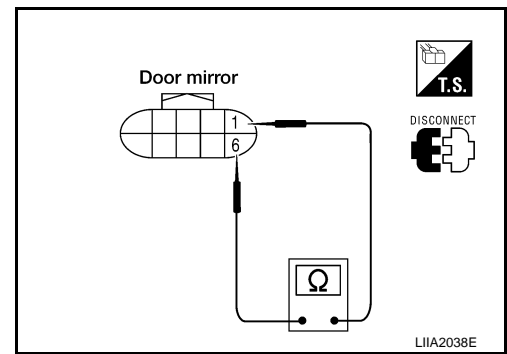
Check continuity between door mirror LH terminals 1 and 6.

**1 - 6**

**: Continuity should exist.**

Is the inspection result normal?

- YES >> Check the condition of the harness and the connector.
- NO >> Replace malfunctioning door mirror LH. Refer to [MIR-12. "Door Mirror Assembly"](#).



# DOOR MIRROR DEFOGGER RH

< COMPONENT DIAGNOSIS >

## DOOR MIRROR DEFOGGER RH

### Description

INFOID:000000003243353

Heats the heating wire with the power supply from the rear window defogger relay to prevent the door mirror from fogging up.

### Component Function Check

INFOID:000000003243354

#### 1. CHECK DOOR MIRROR DEFOGGER RH

Check that the heating wire of door mirror defogger RH is heated when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Door mirror defogger RH is OK.
- NO >> Refer to [DEF-15. "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000003243355

#### 1. CHECK POWER SUPPLY

Check if the following fuse in the IPDM E/R is blown.

COMPONENT PARTS	AMPERE	FUSE NO.
IPDM E/R	15A	43

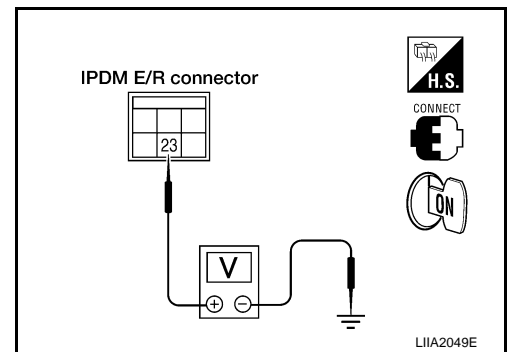
Is the inspection result normal?

- YES >> GO TO 2
- NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

#### 2. CHECK DOOR MIRROR DEFOGGER POWER SUPPLY CIRCUIT

Check voltage between IPDM E/R connector and ground.

Connector	Terminal		Condition	Voltage (V) (Approx.)
	(+)	(-)		
E120	23	Ground	Rear window defogger switch ON	Battery voltage
			Rear window defogger switch OFF	0



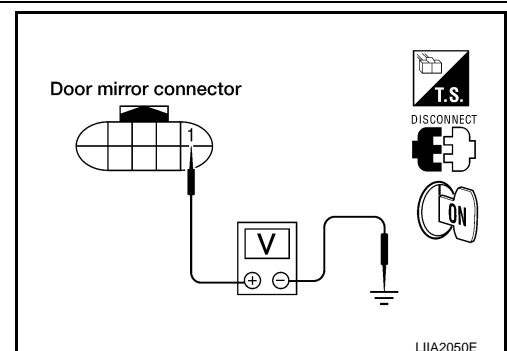
Is the inspection result normal?

- YES >> GO TO 3
- NO >> Replace IPDM E/R. Refer to [PCS-34. "Removal and Installation of IPDM E/R"](#).

#### 3. CHECK DOOR MIRROR DEFOGGER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror RH.
3. Turn ignition switch ON.
4. Check voltage between door mirror RH connector and ground.

Connector	Terminal		Condition	Voltage (V) (Approx.)
	(+)	(-)		
D107	1	Ground	Rear window defogger switch ON	Battery voltage
			Rear window defogger switch OFF	0



Is the inspection result normal?

- YES >> GO TO 4

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# DOOR MIRROR DEFOGGER RH

## < COMPONENT DIAGNOSIS >

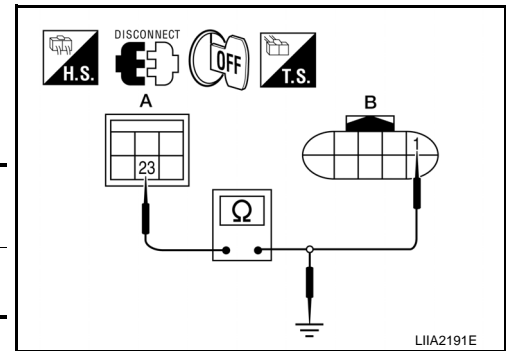
NO >> Repair or replace harness.

### 4. CHECK DOOR MIRROR DEFOGGER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R.
3. Check continuity between IPDM E/R connector and door mirror LH or RH connector.

Connector	Terminal	Connector	Terminal	Continuity
A		B		
IPDM E/R: E120	23	Door mirror: D107	1	Yes

4. Check continuity between IPDM E/R and ground.



A		Ground	Continuity
Connector	Terminal		
IPDM E/R: E120	23		No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

### 5. CHECK DOOR MIRROR DEFOGGER GROUND CIRCUIT

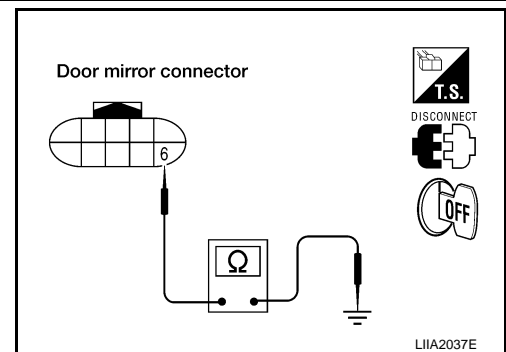
Check continuity between door mirror RH connector D107 terminal 6 and ground.

**6 - Ground : Continuity should exist.**

Is the inspection result normal?

YES >> GO TO 6

NO >> Repair or replace harness.



### 6. CHECK DOOR MIRROR DEFOGGER RH

Check door mirror defogger RH.

Refer to [DEF-16, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7

NO >> Replace door mirror. Refer to [MIR-12, "Door Mirror Assembly"](#).

### 7. CHECK INTERMITTENT INCIDENT

Check intermittent incident.

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Check the following.

- Battery power supply circuit
- IPDM E/R

NO >> Repair or replace the malfunctioning parts.

## Component Inspection

### 1. CHECK DOOR MIRROR DEFOGGER

INFOID:000000003243356



## DOOR MIRROR DEFOGGER RH

### < COMPONENT DIAGNOSIS >

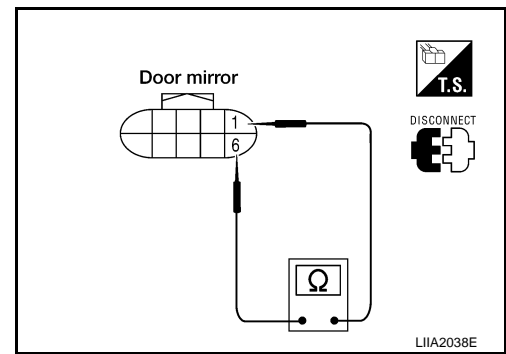
Check continuity between door mirror RH terminals 1 and 6.

**1 - 6**

**: Continuity should exist.**

Is the inspection result normal?

- YES >> Check the condition of the harness and the connector.  
NO >> Replace malfunctioning door mirror RH. Refer to [MIR-12. "Door Mirror Assembly"](#).



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# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

## ECU DIAGNOSIS

### BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000003292617

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
AIR COND SW	A/C switch OFF	OFF
	A/C switch ON	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-AS	Front door RH closed	OFF
	Front door RH opened	ON
DOOR SW-DR	Front door LH closed	OFF
	Front door LH opened	ON
DOOR SW-RL	Rear door LH closed	OFF
	Rear door LH opened	ON
DOOR SW-RR	Rear door RH closed	OFF
	Rear door RH opened	ON
ENGINE RUN	Engine stopped	OFF
	Engine running	ON
FR FOG SW	Front fog lamp switch OFF	OFF
	Front fog lamp switch ON	ON
FR WASHER SW	Front washer switch OFF	OFF
	Front washer switch ON	ON
FR WIPER LOW	Front wiper switch OFF	OFF
	Front wiper switch LO	ON
FR WIPER HI	Front wiper switch OFF	OFF
	Front wiper switch HI	ON
FR WIPER INT	Front wiper switch OFF	OFF
	Front wiper switch INT	ON
FR WIPER STOP	Any position other than front wiper stop position	OFF
	Front wiper stop position	ON
HAZARD SW	When hazard switch is not pressed	OFF
	When hazard switch is pressed	ON
LIGHT SW 1ST	Lighting switch OFF	OFF
	Lighting switch 1st	ON
HEADLAMP SW1	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HEADLAMP SW2	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HI BEAM SW	High beam switch OFF	OFF
	High beam switch HI	ON

## BCM (BODY CONTROL MODULE)

### < ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status	
H/L WASH SW	<b>NOTE:</b> The item is indicated, but not monitored	OFF	A
IGN ON SW	Ignition switch OFF or ACC	OFF	B
	Ignition switch ON	ON	
IGN SW CAN	Ignition switch OFF or ACC	OFF	C
	Ignition switch ON	ON	
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7	
KEY ON SW	Mechanical key is removed from key cylinder	OFF	D
	Mechanical key is inserted to key cylinder	ON	
KEYLESS LOCK	LOCK button of key fob is not pressed	OFF	E
	LOCK button of key fob is pressed	ON	
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	OFF	F
	UNLOCK button of key fob is pressed	ON	
OIL PRESS SW	<ul style="list-style-type: none"> <li>• Ignition switch OFF or ACC</li> <li>• Engine running</li> </ul>	OFF	G
	Ignition switch ON	ON	
PASSING SW	Other than lighting switch PASS	OFF	H
	Lighting switch PASS	ON	
RKE LOCK AND UN-LOCK	<b>NOTE:</b> The item is indicated, but not monitored	OFF	I
		ON	
TAIL LAMP SW	Lighting switch OFF	OFF	J
	Lighting switch 1ST	ON	
TURN SIGNAL L	Turn signal switch OFF	OFF	K
	Turn signal switch LH	ON	
TURN SIGNAL R	Turn signal switch OFF	OFF	K
	Turn signal switch RH	ON	
VEHICLE SPEED	While driving	Equivalent to speedometer reading	

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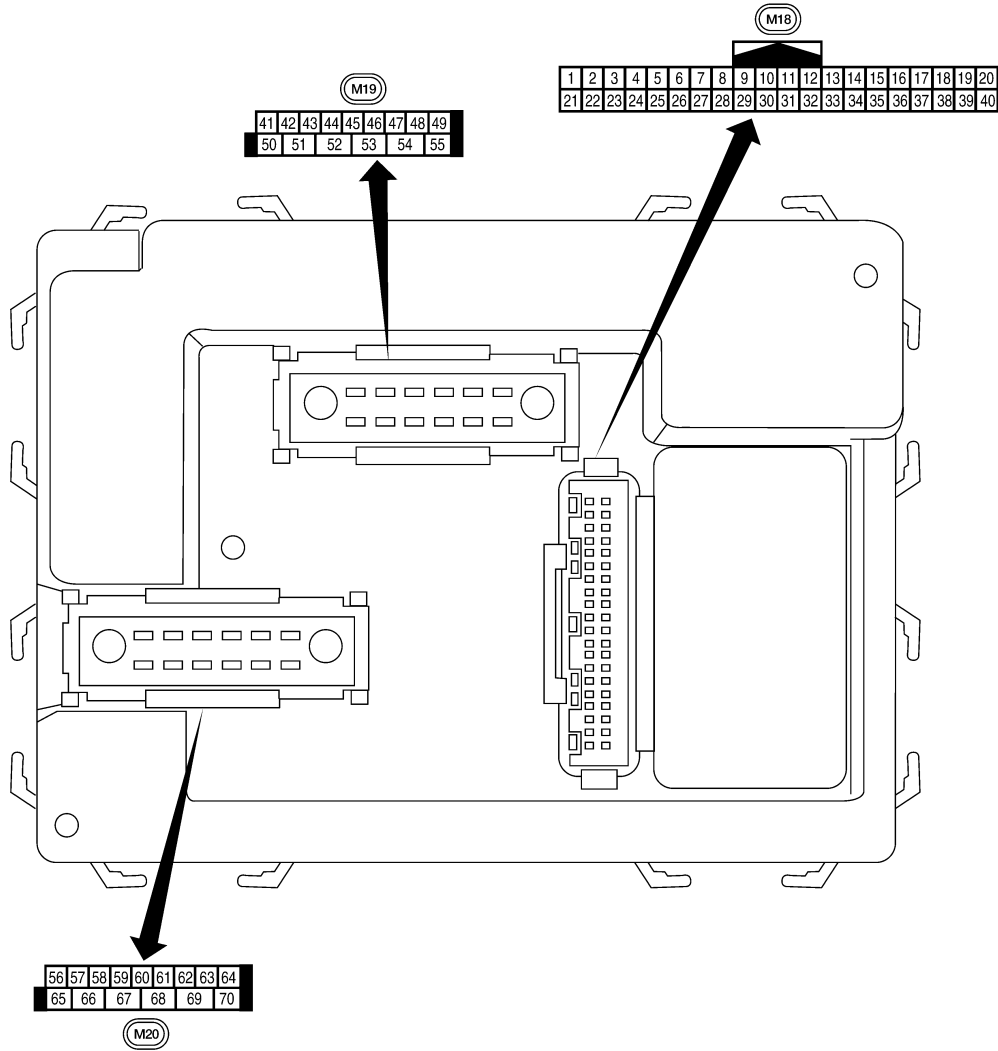
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# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

## Terminal Layout

INFOID:000000003292618




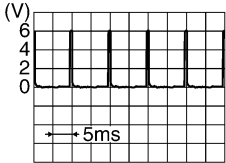

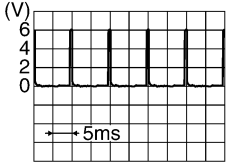
Physical Values

LIA2443E

INFOID:000000003292619

# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS >

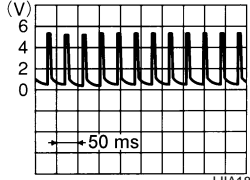
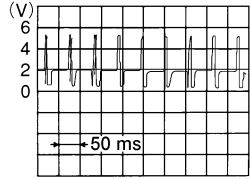
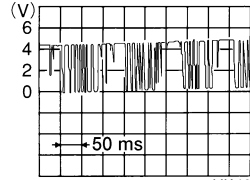
Terminal	Wire color	Item	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR	Ignition keyhole illumination	Output	OFF	Door is locked (SW OFF)	Battery voltage
					Door is unlocked (SW ON)	0V
2	P	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
3	SB	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
4	V	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
5	L	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
6	R	Combination switch input 1				
7	GR	Front door lock assembly LH (key cylinder switch) unlock	Input	OFF	ON (open, 2nd turn)	Momentary 1.5V
8	SB	Front door lock assembly LH (key cylinder switch) lock	Input		On (open)	Momentary 1.5V
				OFF (closed)	0V	
9	Y	Rear window defogger switch	Input	ON	Rear window defogger switch ON	0V
					Rear window defogger switch OFF	5V
11	G/B	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
12	LG	Front door switch RH (All)	Input	OFF	ON (open)	0V
		Rear door switch upper RH (King Cab)			OFF (closed)	Battery voltage
		Rear door switch lower RH (King Cab)				

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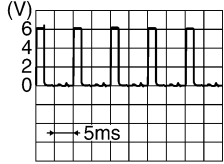

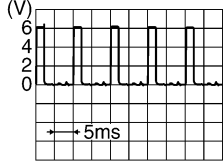
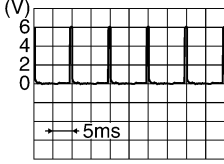
# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS >

Terminal	Wire color	Item	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
13	L	Rear door switch RH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	W	Tire pressure warning check connector	Input	OFF	—	5V
18	BR	Remote keyless entry receiver (Ground)	Output	OFF	—	0V
19	V	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 LIA1893E
20	G	Remote keyless entry receiver signal (Signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LIA1895E
21	GR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move.
23	G	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move.
27	W	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	G	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	GR	Cargo lamp switch	Input	OFF	ON	0V
					OFF	Battery voltage

# BCM (BODY CONTROL MODULE)

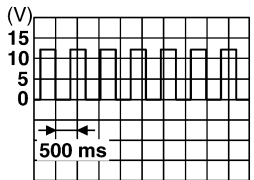
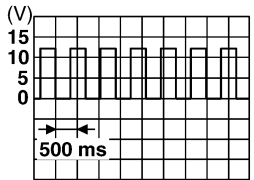
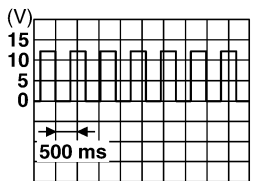
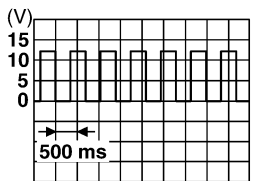
## < ECU DIAGNOSIS >

Terminal	Wire color	Item	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
32	O	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
33	GR	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
34	G	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
35	BR	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
36	LG	Combination switch output 1				
37	B	Key switch	Input	OFF	Key inserted	Battery voltage
					Key removed	0V
38	W/R	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
45	V	Lock switch	Input	OFF	ON (lock)	0V
					OFF	Battery voltage
46	LG	Unlock switch	Input	OFF	ON (unlock)	0V
					OFF	Battery voltage
47	GR	Front door switch LH (All)	Input	OFF	ON (open)	0V
		Rear door switch upper LH (King Cab)			OFF (closed)	Battery voltage
		Rear door switch lower LH (King Cab)				
48	P	Rear door switch LH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
50	P	Cargo lamp	Output	OFF	Any door open (ON)	0V
					All doors closed (OFF)	Battery voltage

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# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS >

Terminal	Wire color	Item	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
51	G	Trailer turn signal (right)	Output	ON	Turn right ON	 <small>SKIA3009J</small>
52	V	Trailer turn signal (left)	Output	ON	Turn left ON	 <small>SKIA3009J</small>
56	V	Battery saver output	Output	OFF	30 minutes after ignition switch is turned OFF	0V
				ON	—	Battery voltage
57	R/Y	Battery power supply	Input	—	—	Battery voltage
58	W	Optical sensor	Input	ON	When optical sensor is illuminated	3.1V or more
					When optical sensor is not illuminated	0.6V or less
59	GR	Front door lock assembly LH (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
60	LG	Turn signal (left)	Output	ON	Turn left ON	 <small>SKIA3009J</small>
61	G	Turn signal (right)	Output	ON	Turn right ON	 <small>SKIA3009J</small>
63	BR	Interior room/map lamp	Output	OFF	Any door switch	ON (open) 0V OFF (closed) Battery voltage
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral)	0V
					ON (lock)	Battery voltage
66	L	Front door lock actuator RH, rear door lock actuators LH/RH (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
67	B	Ground	Input	ON	—	0V



## BCM (BODY CONTROL MODULE)

### < ECU DIAGNOSIS >

Terminal	Wire color	Item	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
68	O	Power window power supply (RAP)	Output	—	Ignition switch ON	Battery voltage
					Within 45 seconds after ignition switch OFF	Battery voltage
					More than 45 seconds after ignition switch OFF	0V
					When front door LH or RH is open or power window timer operates	0V
69	P	Power window power supply (BAT)	Output	OFF	—	Battery voltage
70	W	Battery power supply	Input	OFF	—	Battery voltage

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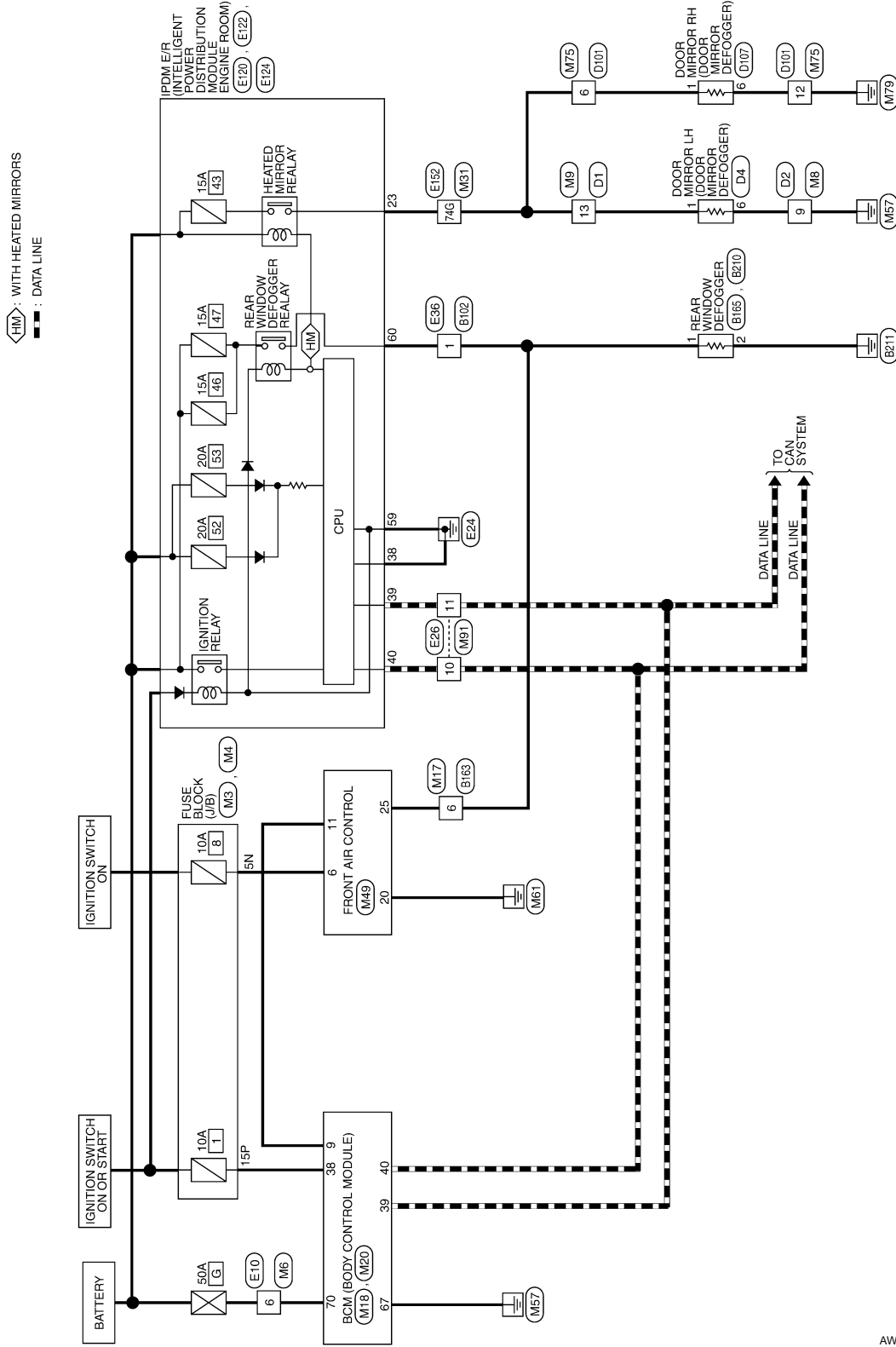
# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

## Wiring Diagram - Defogger Control System

INFOID:00000003243358

### REAR WINDOW DEFOGGER



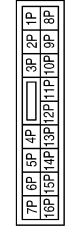
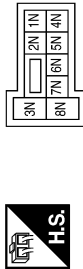
AWLWA0117GE

# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

## REAR WINDOW DEFOGGER CONNECTORS

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

Terminal No.	5N	Color of Wire	W/G	Signal Name	-
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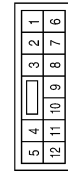
Terminal No.	15P	Color of Wire	W/R	Signal Name	-
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Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE



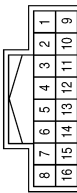
Terminal No.	6	Color of Wire	W	Signal Name	-
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Connector No.	M8
Connector Name	WIRE TO WIRE
Connector Color	BROWN



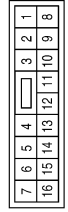
Terminal No.	9	Color of Wire	B	Signal Name	-
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Connector No.	M9
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	13	Color of Wire	LG	Signal Name	-
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Connector No.	M17
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	6	Color of Wire	R	Signal Name	-
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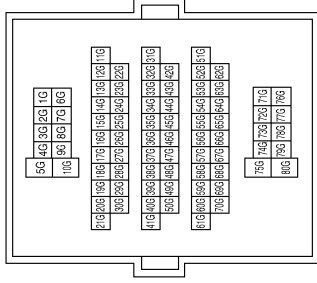
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# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



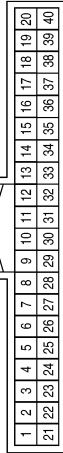
Terminal No.	Color of Wire	Signal Name
74G	LG	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



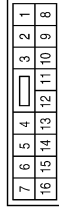
Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W	BAT (F/L)

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
9	Y	RR DEF SW
38	W/R	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



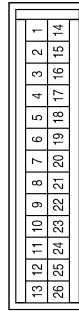
Terminal No.	Color of Wire	Signal Name
10	P	-
11	L	-

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	L	-
12	B	-

Connector No.	M49
Connector Name	FRONT AIR CONTROL (WITH MANUAL A/C)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
6	W/G	IGN
11	Y	REAR DEFROST REQUEST
20	B	GND
25	R	RR DEF STATUS

AWLIA0410GB

# BCM (BODY CONTROL MODULE)

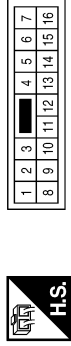
< ECU DIAGNOSIS >

Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	1	Color of Wire	GR	Signal Name	-
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Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	10	Color of Wire	P	Signal Name	-
	11	Color of Wire	L	Signal Name	-

Connector No.	E10
Connector Name	WIRE TO WIRE
Connector Color	WHITE



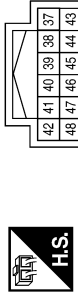
Terminal No.	6	Color of Wire	W	Signal Name	-
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Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	59	Color of Wire	B	Signal Name	GND (POWER)
	60	Color of Wire	GR	Signal Name	RR_DEF

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	38	Color of Wire	B	Signal Name	GND (SIGNAL)
	39	Color of Wire	L	Signal Name	CAN-H
	40	Color of Wire	P	Signal Name	CAN-L

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	23	Color of Wire	LG	Signal Name	HEATED MIRROR
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AWLIA0411GB

# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

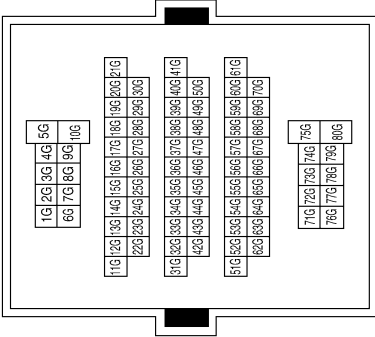
Connector No.	B102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Terminal No.	74	Color of Wire	LG	Signal Name	-
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Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B210
Connector Name	REAR WINDOW DEFOGGER
Connector Color	BLACK



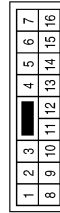
Terminal No.	2	Color of Wire	B	Signal Name	-
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Connector No.	B165
Connector Name	REAR WINDOW DEFOGGER
Connector Color	BLACK



Terminal No.	1	Color of Wire	B	Signal Name	-
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Connector No.	B163
Connector Name	WIRE TO WIRE
Connector Color	WHITE




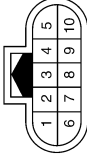
Terminal No.	6	Color of Wire	R	Signal Name	-
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AWLIA0412GB

# BCM (BODY CONTROL MODULE)


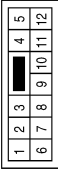
< ECU DIAGNOSIS >

Connector No.	D4
Connector Name	DOOR MIRROR LH (DOOR MIRROR DEFOGGER)
Connector Color	BLACK


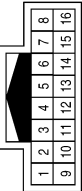
Terminal No.	Color of Wire	Signal Name
1	L/B	-
6	B	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	BROWN


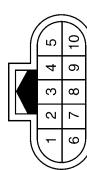
Terminal No.	Color of Wire	Signal Name
9	B	-

Connector No.	D1
Connector Name	WIRE TO WIRE
Connector Color	WHITE


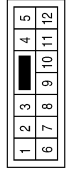
Terminal No.	Color of Wire	Signal Name
13	L/B	-

Connector No.	D107
Connector Name	DOOR MIRROR RH (DOOR MIRROR DEFOGGER)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	L/B	-
6	B	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
6	L/B	-
12	B	-

AWLIA0413GB

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# REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER DO NOT OPERATE.

< SYMPTOM DIAGNOSIS >

---

## SYMPTOM DIAGNOSIS

REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER DO NOT OPERATE.

Diagnosis Procedure

INFOID:000000003243359

### 1. CHECK REAR WINDOW DEFOGGER SWITCH

---

Check rear window defogger switch.

Refer to [DEF-10, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair or replace the malfunctioning parts.

### 2. CHECK REAR WINDOW DEFOGGER RELAY

---

Check rear window defogger relay.

Refer to [DEF-9, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.



# REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH OF DOOR MIRROR DEFOGGER OPERATE.

< SYMPTOM DIAGNOSIS >

REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH OF DOOR MIRROR DEFOGGER OPERATE.

## Diagnosis Procedure

INFOID:000000003243360

### 1. CHECK REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Check rear window defogger power supply and ground circuit.

Refer to [DEF-10, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

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# BOTH DOORS MIRROR DEFOGGER DON'T OPERATE BUT REAR WINDOW DEFOGGER OPERATES

< SYMPTOM DIAGNOSIS >

---

BOTH DOORS MIRROR DEFOGGER DON'T OPERATE BUT REAR WINDOW DEFOGGER OPERATES

Diagnosis Procedure

INFOID:000000003243361

## 1. CHECK INTERMITTENT INCIDENT

---

Check intermittent incident.

Refer to [GI-51, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Check the following.
- Battery power supply circuit
  - IPDM E/R
- NO >> Repair or replace the malfunctioning parts.

# DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

< SYMPTOM DIAGNOSIS >

---

## DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

### Diagnosis Procedure

INFOID:000000003243362

---

#### 1. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.

Refer to [DEF-12, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

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DEF

## PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

< SYMPTOM DIAGNOSIS >

---

## PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

### Diagnosis Procedure

INFOID:000000003243363

#### 1. CHECK DOOR MIRROR DEFOGGER RH

---

Check door mirror defogger RH.

Refer to [DEF-15, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

# REAR WINDOW DEFOGGER SWITCH DOES NOT LIGHT, BUT REAR WINDOW DEFOGGER OPERATES

< SYMPTOM DIAGNOSIS >

## REAR WINDOW DEFOGGER SWITCH DOES NOT LIGHT, BUT REAR WINDOW DEFOGGER OPERATES

### Diagnosis Procedure

INFOID:000000003243364

#### 1. CHECK REAR WINDOW DEFOGGER SWITCH

Check that the rear window defogger switch is operating normally.

Is the inspection result normal?

YES >> Refer to [GI-51, "Intermittent Incident"](#).

NO >> Refer to [DEF-8, "Diagnosis Procedure Front Air Control"](#).

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# PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### PRECAUTIONS

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

INFOID:000000003243365

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 SR and SB section of this Service Manual.

#### **WARNING:**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 SR, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

#### Handling for Adhesive and Primer

INFOID:000000003243366

- Do not use an adhesive which is past its usable date. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.
- Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.
- Open the seal of the primer and adhesive just before application. Discard the remainder.
- Before application, be sure to shake the primer container to stir the contents. If any floating material is found, do not use it.
- If any primer or adhesive contacts the skin, wipe it off with gasoline or equivalent and wash the skin with soap.
- When using primer and adhesive, always observe the precautions in the instruction manual.

# FILAMENT

< ON-VEHICLE REPAIR >

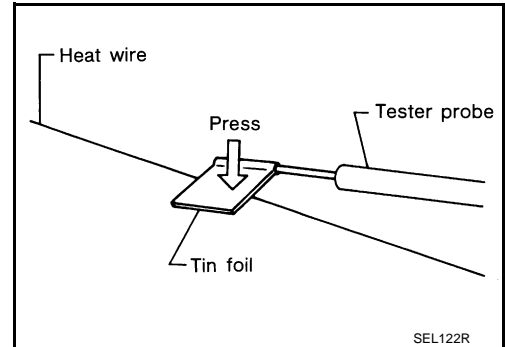
## ON-VEHICLE REPAIR

### FILAMENT

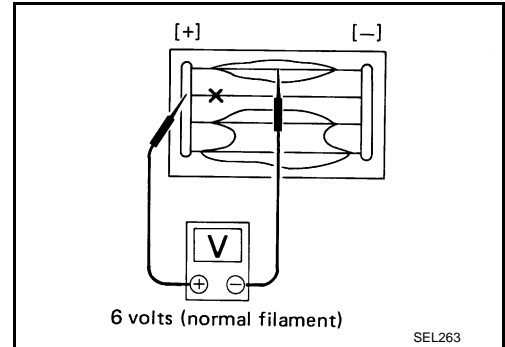
#### Filament Check

INFOID:000000003303230

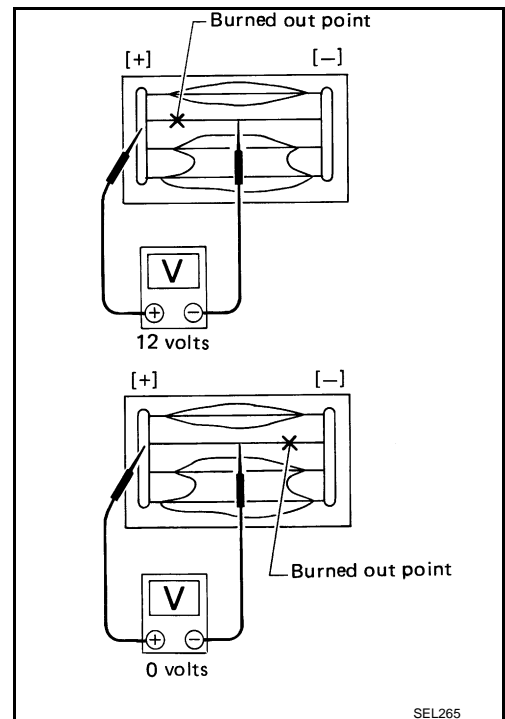
1. When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.



2. Attach probe circuit tester (in Volt range) to middle portion of each filament.



3. If a filament is burned out, circuit tester registers 0 or battery voltage.
4. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.



#### Filament Repair

INFOID:000000003303229

#### REPAIR EQUIPMENT

- Conductive silver composition (DuPont No. 4817 or equivalent)
- Ruler 30 cm (11.8 in) long

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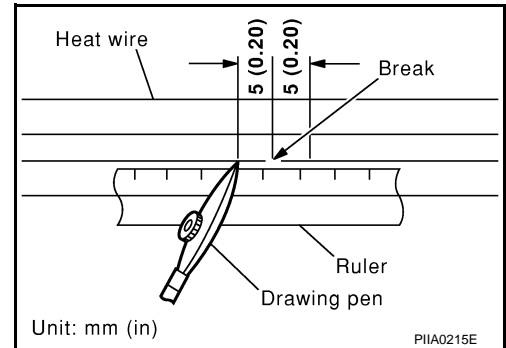
# FILAMENT

## < ON-VEHICLE REPAIR >

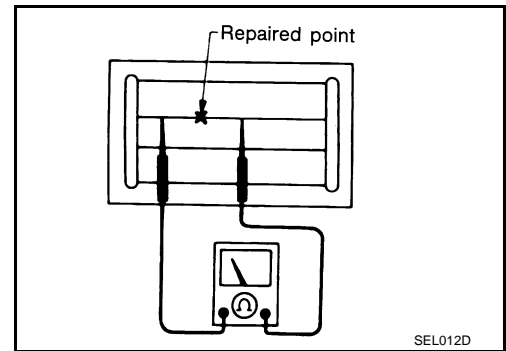
- Drawing pen
- Heat gun
- Alcohol
- Cloth

### REPAIRING PROCEDURE

1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen. Shake silver composition container before use.
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.



4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited. Do not touch repaired area while test is being conducted.



5. Apply a constant stream of hot air directly to the repaired area for approximately 20 minutes with a heat gun. A minimum distance of 3 cm (1.2 in) should be kept between repaired area and hot air outlet. If a heat gun is not available, let the repaired area dry for 24 hours.

