SECTION DEF
DEFOGGER

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012215616

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. 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 SRS, 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.**

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

WARNING:

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

Precaution for Work

INFOID:0000000011932785

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:

- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.

- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.

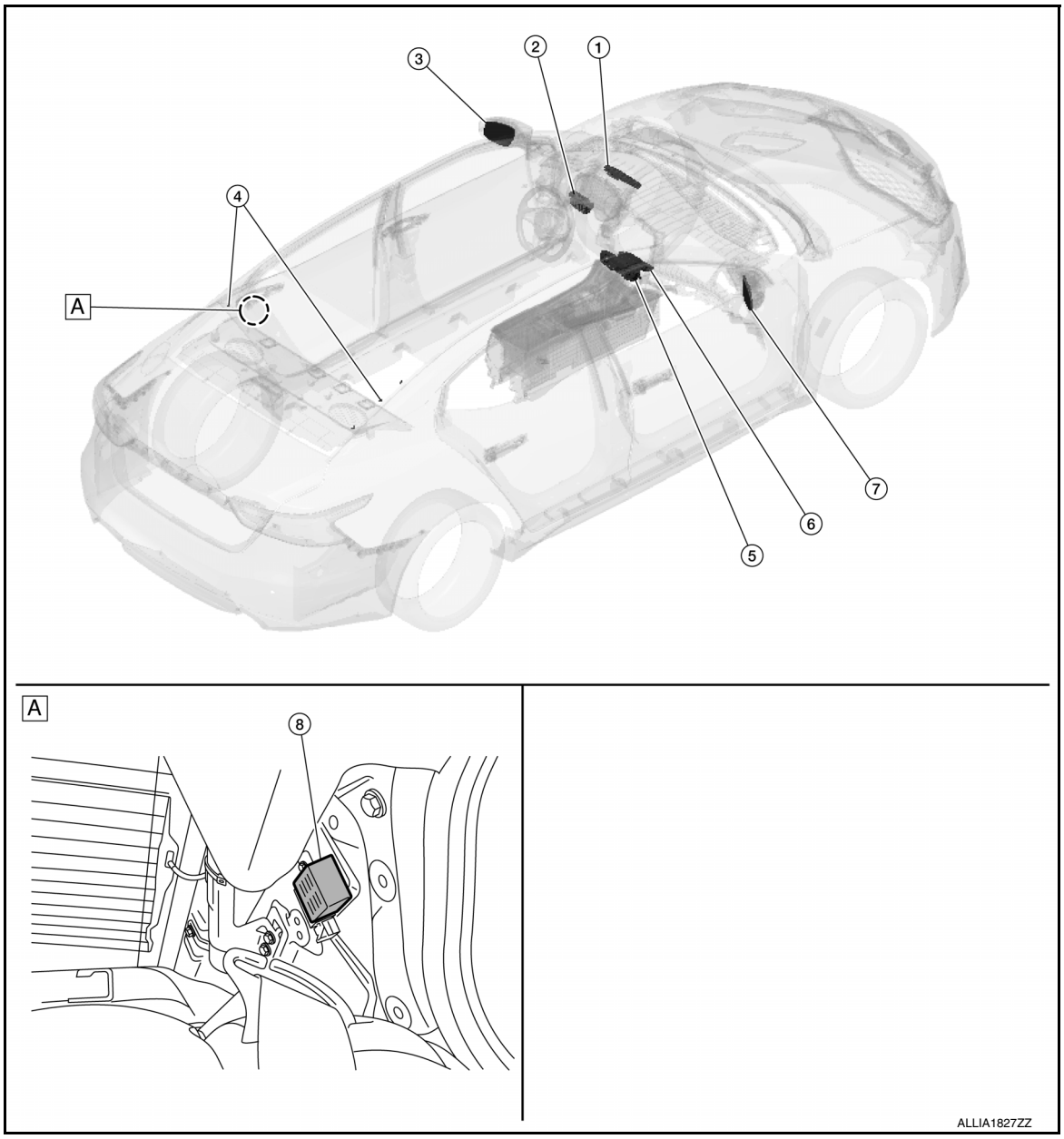
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012174511



A. Behind left rear pillar finisher

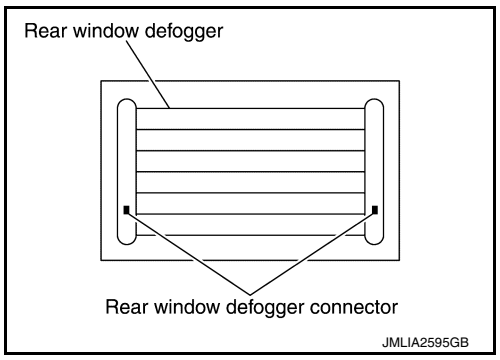
No.	Component	Function
1.	BCM	• Operates the rear window defogger with the operation of rear window defogger switch. • Performs the timer control for rear window defogger. Refer to BCS-5, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
2.	Fuse block (J/B) (Rear window defogger relay)	Operates the rear window defogger and the door mirror defogger with the control signal from BCM.
3.	Door mirror LH	Refer to DEF-5, "Door Mirror Defogger".

No.	Component	Function
4.	Rear window defogger	Refer to DEF-5, "Rear Window Defogger".
5.	A/C switch assembly (rear window defogger switch)	• Transmits rear window defogger switch ON signal. • Turns the indicator lamp ON when detecting the operation of rear window defogger. Refer to HAC-9, "Component Parts Location" for detailed installation location.
6.	A/C auto amp.	• Transmits rear window defogger switch ON signal to the BCM. • Transmits the indicator lamp ON signal when detecting the operation of rear window defogger. Refer to HAC-9, "Component Parts Location" for detailed installation location.
7.	Door mirror RH	Refer to DEF-5, "Door Mirror Defogger".
8.	Rear window defogger condenser	Removes the noise that is generated when the rear window defogger turns ON/OFF.

Rear Window Defogger

INFOID:0000000012174512

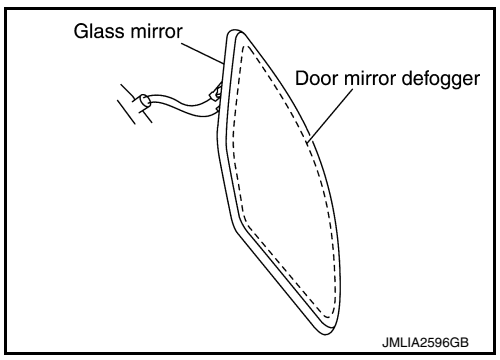
Heats the heating wire with the power supply from the rear window defogger relay to prevent the rear window from fogging up.



Door Mirror Defogger

INFOID:0000000012174513

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

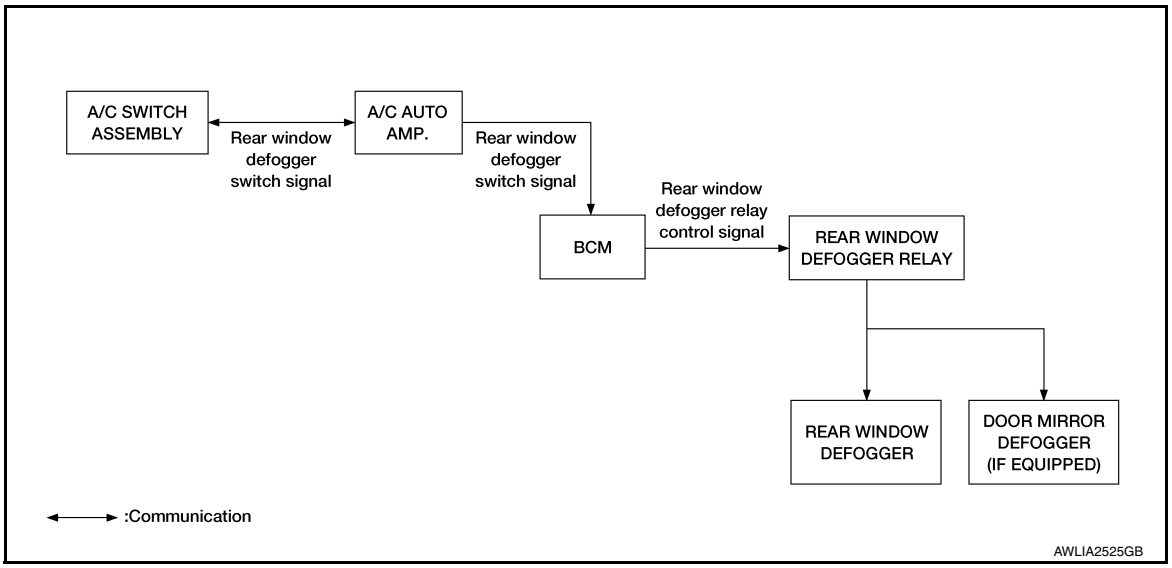


SYSTEM

System Description

INFOID:0000000012174514

SYSTEM DIAGRAM



OPERATION DESCRIPTION

- When rear window defogger switch is turned ON while ignition switch is ON, the rear window defogger switch signal is transmitted to the A/C auto amp.
- BCM turns rear window defogger relay ON when rear window defogger switch signal is received from A/C auto amp.
- Rear window defogger and door mirror defogger are supplied with power and operate when rear window defogger relay turns ON.
- BCM transmits rear window defogger feedback signal to A/C auto amp. then communicates the signal to the A/C switch assembly when rear window defogger operates.
- Rear window defogger ON is displayed when signal is received.

TIMER FUNCTION

- BCM turns rear window defogger relay ON for approximately 15 minutes when rear window defogger switch is turned ON and the 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 OFF. The same reaction also occurs during timer operation if the ignition switch is turned OFF.

DIAGNOSIS SYSTEM (BCM)
COMMON ITEM
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000012233911

APPLICATION ITEM
CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
ECU Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	• The vehicle specification can be read and saved. • The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION
BCM can perform the following functions:

System	Sub System	Direct Diagnostic Mode						
		ECU Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×	×		
Air conditioner	AIR CONDITIONER			×				
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Trunk	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×	×			
TPMS	AIR PRESSURE MONITOR		×	×	×			

FREEZE FRAME DATA (FFD)

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

CONSULT screen item	Indication/Unit	Description	
Vehicle Speed	km/h	Vehicle speed at the moment a particular DTC is detected	
Odo/Trip Meter	km	Total mileage (Odometer value) at the moment a particular DTC is detected	
Vehicle Condition	SLEEP>LOCK	Power position status at 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 stopped and selector lever is in 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” (Ignition switch OFF)*
	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 is switched OFF → ON. • The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.	

NOTE:

*: Power supply position shifts to “LOCK” from “OFF”, when ignition switch is in the OFF position, selector lever is in the P position, and any of the following conditions are met:

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

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

REAR DEFOGGER

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:0000000012233912

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push button ignition switch
REAR DEF SW [On/Off]	Indicates condition of rear window defogger switch

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	This test is able to check rear window defogger operation [Off/On].

WORK SUPPORT

Support Item	Setting	Description
SET R-DEF TIMER	MODE3	Rear defogger turns OFF after 1 minute.
	MODE2	Rear defogger remains ON until turned OFF.
	MODE1*	Rear defogger turns OFF after 15 minutes.

* : Initial setting

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000012174517

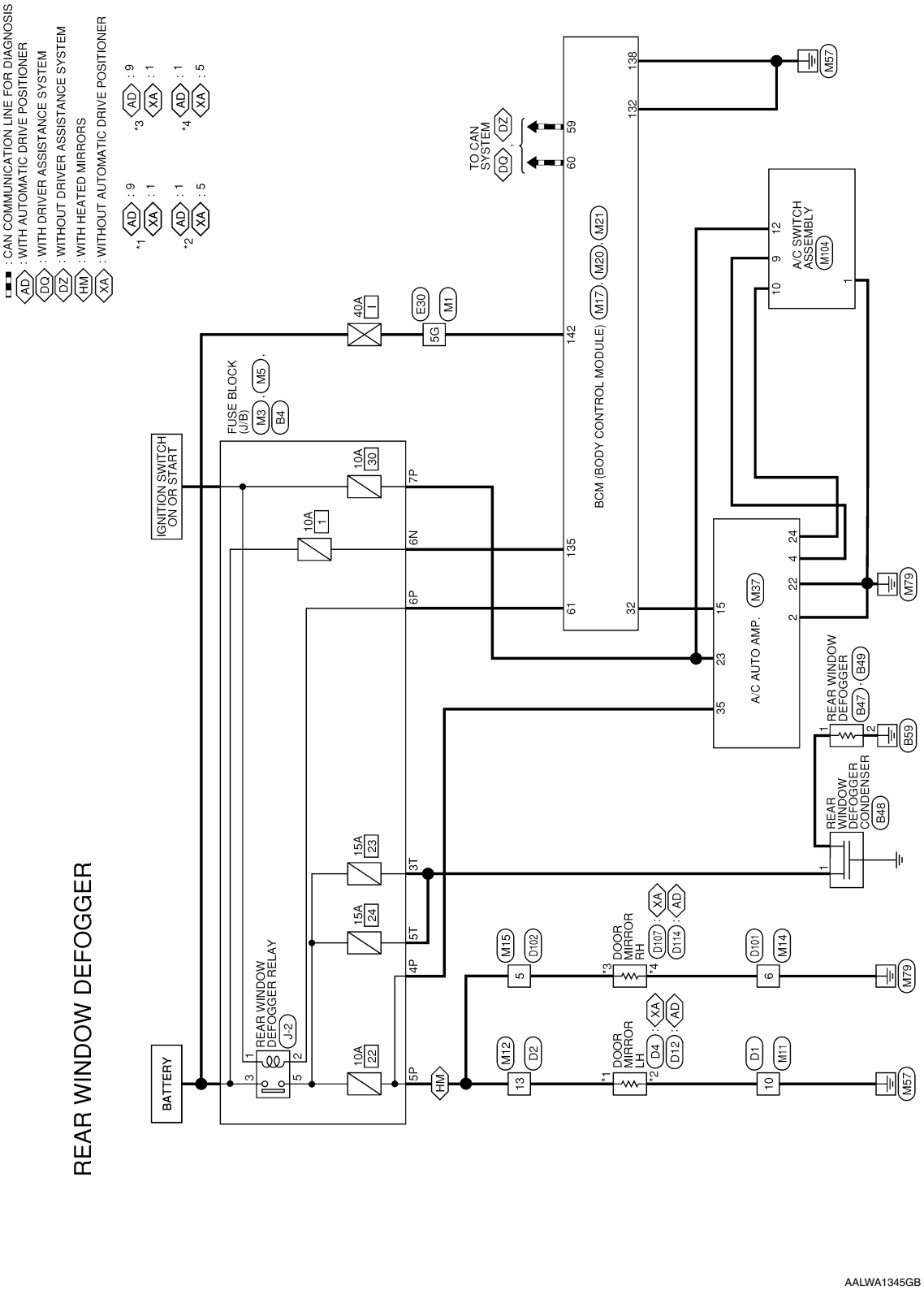
ECU	Reference
BCM	BCS-31, "Reference Value"
	BCS-51, "Fail Safe"
	BCS-52, "DTC Inspection Priority Chart"
	BCS-53, "DTC Index"

WIRING DIAGRAM

REAR WINDOW DEFOGGER SYSTEM

Wiring Diagram

INFOID:0000000012174518



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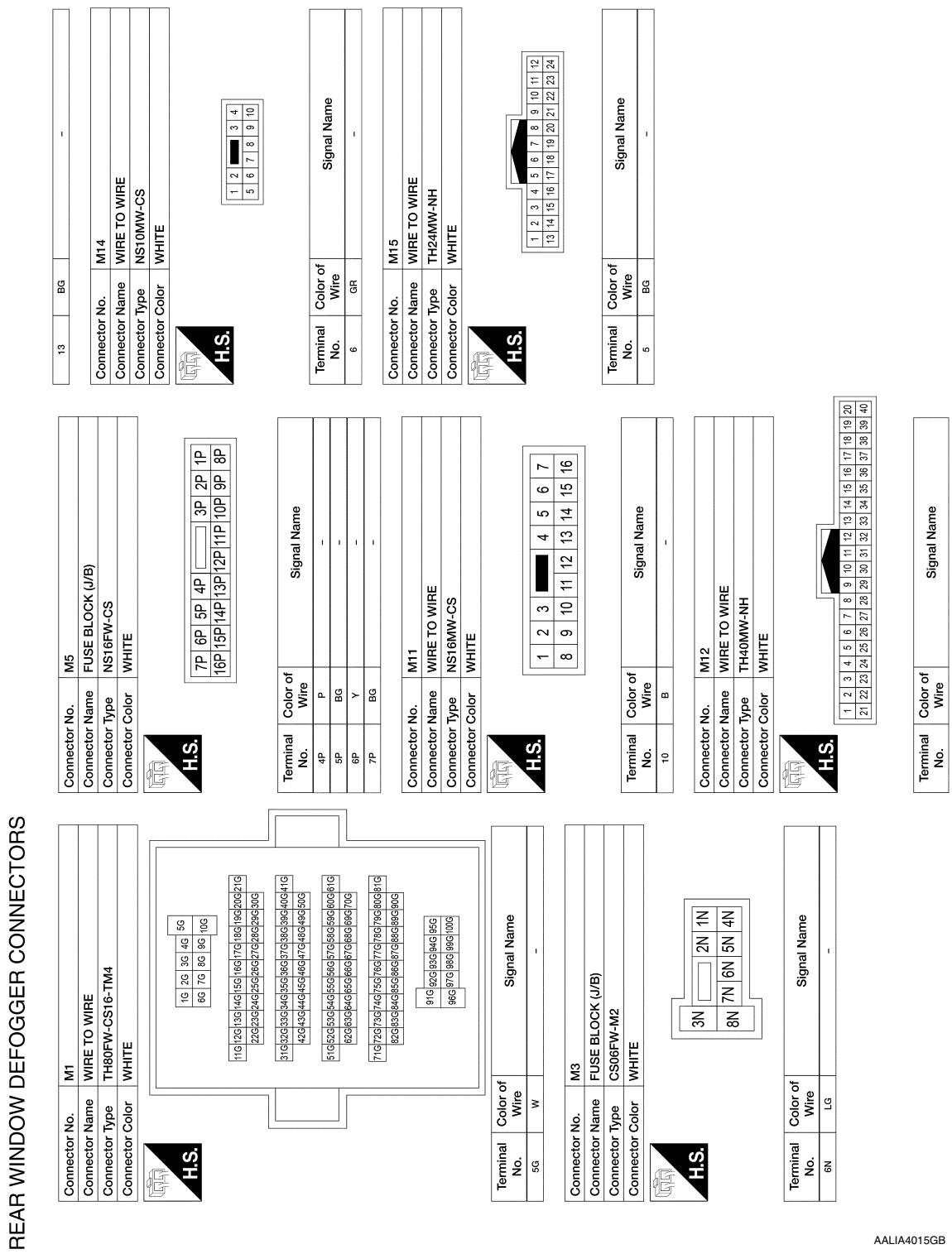
REAR WINDOW DEFOGGER CONNECTORS



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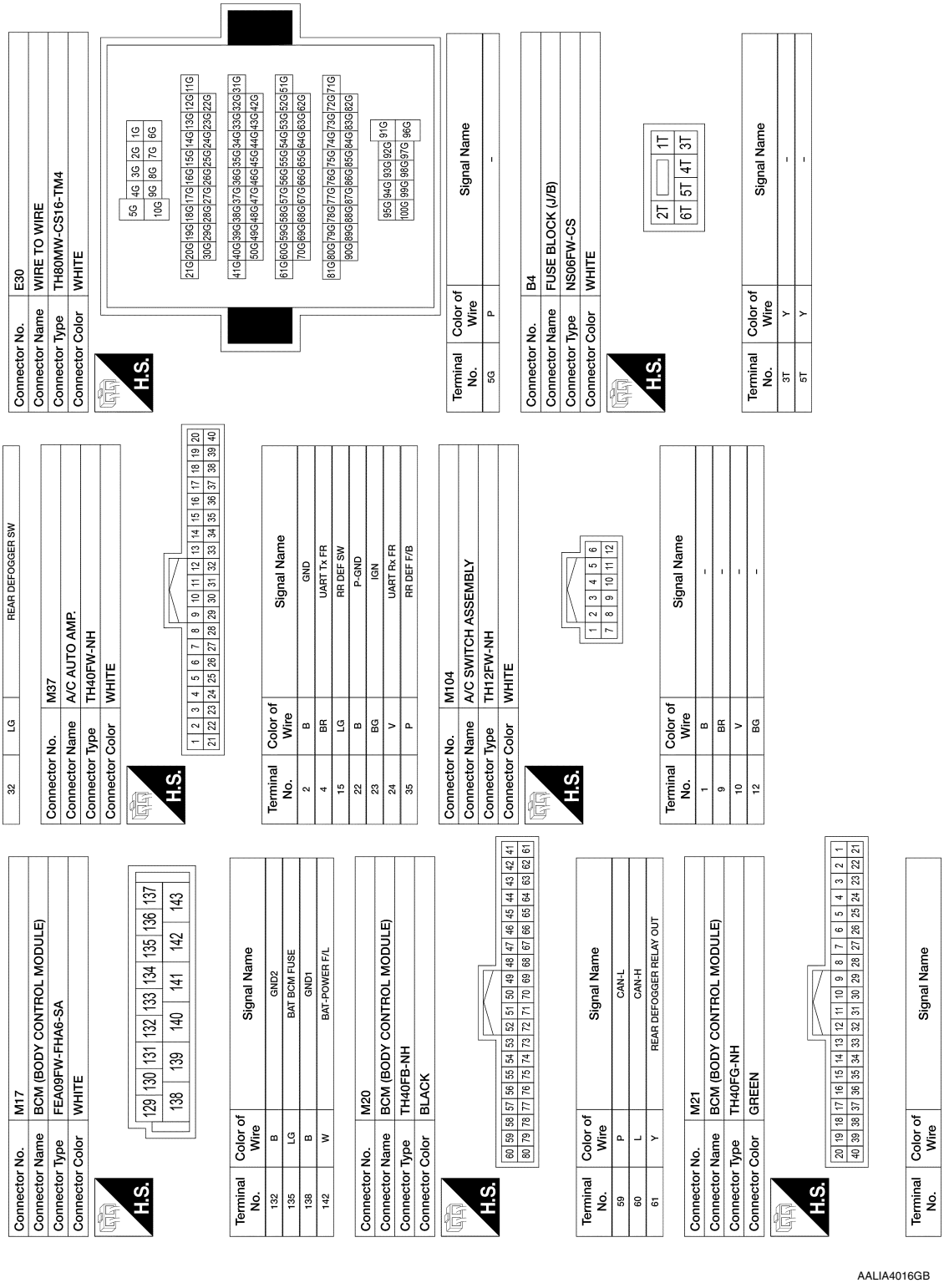

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Connector No.	B47
Connector Name	REAR WINDOW DEFOGGER
Connector Type	P01FB-A
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
2	B	–

Connector No.	B48
Connector Name	REAR WINDOW DEFOGGER CONDENSER
Connector Type	M01FW-LC
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	Y	–

Connector No.	B49
Connector Name	REAR WINDOW DEFOGGER
Connector Type	P01MB-X
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D1
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
10	B	–

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
13	BG	–

Connector No.	D4
Connector Name	DOOR MIRROR LH (WITHOUT AUTOMATIC DRIVE POSITIONER)
Connector Type	TH08MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	BG	–
5	B	–

Connector No.	D12
Connector Name	DOOR MIRROR LH (WITH AUTOMATIC DRIVE POSITIONER)
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
9	BG	–

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Type	NS10FW-CS
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
6	B	–

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

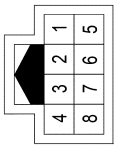
H.S.

Terminal No.	Color of Wire	Signal Name
5	BG	–

AALIA4017GB

Connector No.	D107
Connector Name	DOOR MIRROR RH (WITHOUT AUTOMATIC DRIVE POSITIONER)
Connector Type	TH08MW-NH
Connector Color	WHITE

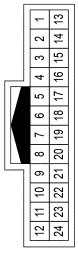
H.S.



Terminal No.	Color of Wire	Signal Name
1	BG	–
5	B	–

Connector No.	D114
Connector Name	DOOR MIRROR RH (WITH AUTOMATIC DRIVE POSITIONER)
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	B	–
9	BG	–

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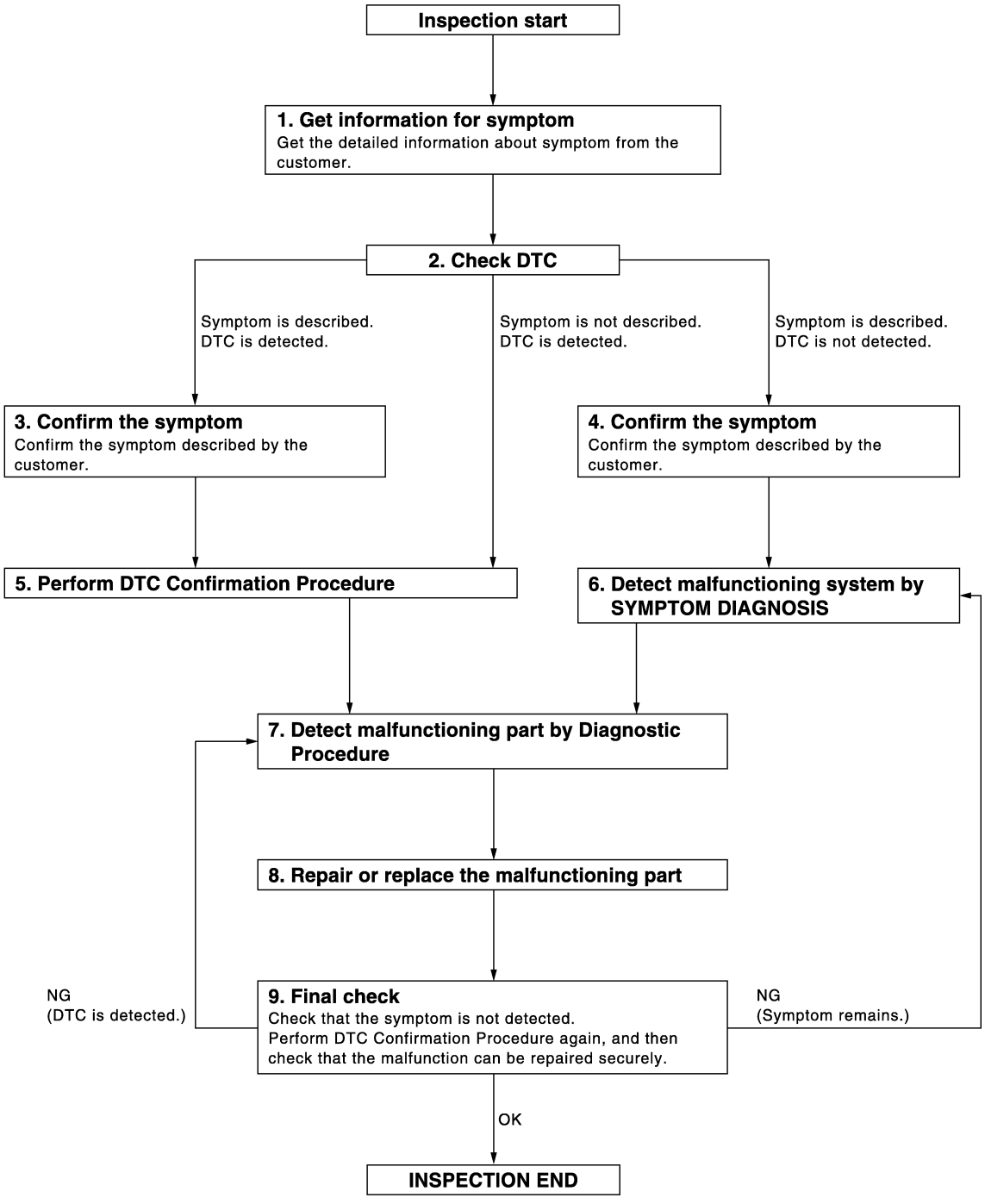
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012174519

OVERALL SEQUENCE



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DETAILED FLOW

1. GET INFORMATION FOR SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2. CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is displayed.
- Record DTC and freeze frame data. (Print them out with 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.

Is any symptom described and any DTC detected?

Symptom is described, DTC is displayed>>GO TO 3.
Symptom is described, DTC is not displayed>>GO TO 4.
Symptom is not described, DTC is displayed>>GO TO 5.

3. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in “Data Monitor” mode and check real-time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in “Data Monitor” mode and check real-time diagnosis results.
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 displayed DTC, and then check that DTC is detected again.
At this time, always connect CONSULT to the vehicle, and check diagnostic results in real time.
If two or more DTCs are detected, refer to BCS-52, "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 in 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 >> Refer to GI-41, "Intermittent Incident".

6. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to DEF-6, "System Description" based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

>> GO TO 7.

7. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.
NOTE:

The Diagnostic Procedure described is based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

Is malfunctioning part detected?

YES >> GO TO 8.
NO >> Check voltage of related BCM terminals using CONSULT.

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction has been repaired.
When symptom was described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES (DTC is detected)>>GO TO 7.
YES (Symptom remains)>>GO TO 6.
NO >> Inspection End.

DTC/CIRCUIT DIAGNOSIS

REAR WINDOW DEFOGGER SWITCH

Component Function Check

INFOID:0000000012174520

1. CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

Check that the rear window defogger indicator lamp illuminates when the rear window defogger switch is ON.

Is the inspection result normal?

YES >> Rear window defogger switch function is OK.
NO >> Refer to DEF-19, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012174521

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK REAR WINDOW DEFOGGER RELAY OPERATION

1. Push the ignition switch to ON.
2. Check that an operation noise of rear window defogger relay [located in fuse block (J/B)] can be heard when pressing the rear window defogger switch ON and OFF.

Is the inspection result normal?

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

2. CHECK FUSE

Check if fuse 22 from the rear window defogger relay output is blown.

Is the fuse blown?

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

3. CHECK FOR VOLTAGE FROM THE REAR WINDOW DEFOGGER RELAY

1. Press rear window defogger switch.
2. Check for voltage between fuse block (J/B) connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Fuse block (J/B)					
Connector	Terminal				
M5	4P	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> GO TO 4.
NO >> Perform rear window defogger relay diagnosis. Refer to DEF-23, "Diagnosis Procedure".

4. CHECK REAR WINDOW DEFOGGER SWITCH INDICATOR CIRCUIT

1. Press rear window defogger switch.
2. Check for voltage between A/C auto amp. connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
A/C auto amp.					
Connector	Terminal				
M37	35	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-100, "Removal and Installation".
NO >> Repair or replace harness.

5. CHECK A/C AUTO AMP. (REAR WINDOW DEFOGGER SWITCH) FUNCTION

CONSULT
1. Select “REAR DEFOGGER” of “BCM”.
2. Select “REAR DEF SW” in “Data Monitor” mode.
3. Check that the function operates normally according to the following conditions:

Monitor Item	Condition		Status
REAR DEF SW	Rear window defogger switch	Pressed	On
		Released	Off

Is the inspection result normal?

YES >> GO TO 8.
NO >> GO TO 6.

6. CHECK REAR WINDOW DEFOGGER ON SIGNAL CIRCUIT

Check voltage between BCM connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
M21	32	Ground	Rear window defogger switch	ON	0
				OFF	5

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-82, "Removal and Installation".
NO >> GO TO 7.

7. CHECK HARNESS CONTINUITY

1. Push ignition switch to OFF.
2. Disconnect BCM and front air control.
3. Check continuity between BCM connector and A/C auto amp.

BCM		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M21	32	M37	15	Yes

4. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M21	32		No

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to HAC-100, "Removal and Installation".
NO >> Repair or replace harness.

8. CHECK REAR WINDOW DEFOGGER RELAY GROUND CIRCUIT

CONSULT
1. Select “REAR DEFOGGER” of “BCM”.
2. Select “REAR DEFOGGER” in “Active Test” mode.
3. Turn rear defogger active test ON and OFF.
4. Check voltage between fuse block (J/B) connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Fuse block (J/B)					
Connector	Terminal				
M5	6P	Ground	Rear window defogger active test	ON	0
				OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 11.
NO >> GO TO 9.

9. CHECK REAR WINDOW DEFOGGER RELAY CIRCUIT

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

(+)		(–)	Condition		Voltage (V) (Approx.)
Fuse block (J/B)					
Connector	Terminal				
M5	6P	Ground	Rear window defogger switch	ON	0
				OFF	Battery voltage

Is the inspection result normal?

YES >> Replace rear window defogger relay.
NO >> GO TO 10.

10. CHECK HARNESS CONTINUITY

1. Push ignition switch to OFF.
2. Disconnect BCM and fuse block (J/B).
3. Check continuity between BCM connector and fuse block (J/B) connector.

BCM		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M20	61	M5	6P	Yes

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

Fuse block (J/B)		Ground	Continuity
Connector	Terminal		
M5	6P		No

Is the inspection result normal?

YES >> Perform rear window defogger relay component inspection. Refer to DEF-23, "Component Inspection". If OK, replace BCM. Refer to BCS-82, "Removal and Installation".
NO >> Repair or replace harness.

11. CHECK REAR WINDOW DEFOGGER RELAY

Check rear window defogger relay. Refer to DEF-23, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 12.
NO >> Replace rear window defogger relay.

12. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-41, "Intermittent Incident".

Is the inspection result normal?

YES >> Check the following:
- Battery power supply circuit
- Fuse block (J/B)

NO >> Repair or replace the malfunctioning parts.

REAR WINDOW DEFOGGER RELAY

Component Function Check

INFOID:0000000012174522

1. CHECK REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT

Check that an operation noise of rear window defogger relay [located in fuse block (J/B)] 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-23, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012174523

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK REAR WINDOW DEFOGGER RELAY GROUND CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between BCM connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
M20	61	Ground	Rear window defogger switch	ON	0
				OFF	Battery voltage

Is the inspection result normal?

YES >> Rear window defogger power supply circuit is OK.
NO >> GO TO 2.

2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse block (J/B).
3. Check continuity between BCM connector and fuse block (J/B) connector.

BCM		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M20	61	M5	6P	Yes

Is the inspection result normal?

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

3. CHECK REAR WINDOW DEFOGGER RELAY

Check rear window defogger relay. Refer to DEF-23, "Component Inspection".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Replace rear window defogger relay.

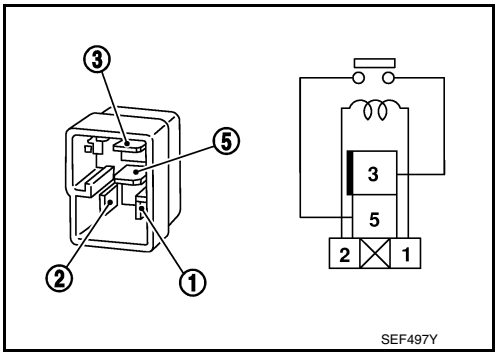
Component Inspection

INFOID:0000000012174524

1. CHECK REAR WINDOW DEFOGGER RELAY

Check rear window defogger relay.

Terminal		Condition	Continuity
Rear window defogger relay			
3	5	12 V direct current supply between terminals 1 and 2	Yes
		No current supply	No



Is the inspection result normal?

YES >> Inspection End.
NO >> Replace rear window defogger relay.

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Component Function Check

INFOID:0000000012174525

1. CHECK REAR WINDOW DEFOGGER

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

Is the inspection result normal?

YES >> Rear window defogger is OK.
NO >> Refer to DEF-25, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012174526

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK FUSES

Check if any of the following fuses in fuse block (J/B) are blown.

Component	Capacity	Fuse No.
Fuse block (J/B)	15 A	23
	15 A	24

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. CHECK POWER SUPPLY CIRCUIT

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

(+)		(–)	Condition		Voltage (V) (Approx.)
Rear window defogger					
Connector	Terminal				
B49	1	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

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

3. CHECK GROUND CIRCUIT

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

Rear window defogger		Ground	Continuity
Connector	Terminal		
B47	2		Yes

Is the inspection result normal?

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

4. CHECK POWER SUPPLY CIRCUIT

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

(+)		(–)	Condition		Voltage (V) (Approx.)
Rear window defogger condenser					
Connector	Terminal				
B48	1	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> Replace rear window defogger condenser. Refer to DEF-45, "Removal and Installation".
NO >> Repair or replace harness.

5. CHECK FILAMENT

Check filament. Refer to DEF-26, "Component Inspection".

Is the inspection result normal?

YES >> Refer to GI-41, "Intermittent Incident".
NO >> Repair filament. Refer to DEF-43, "Inspection and Repair".

Component Inspection

INFOID:0000000012174527

1. CHECK FILAMENT

Check the filament for damage or open circuits. Refer to DEF-43, "Inspection and Repair".

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair filament. Refer to DEF-43, "Inspection and Repair".

DOOR MIRROR DEFOGGER LH (WITHOUT AUTOMATIC DRIVE POSITIONER)

Component Function Check

INFOID:0000000012174528

1. CHECK DOOR MIRROR DEFOGGER LH

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

Is the inspection result normal?

YES >> Door mirror defogger is OK.
NO >> Refer to DEF-27, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012174529

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK POWER SUPPLY

Check if the following fuse in the fuse block (J/B) is blown.

Component	Capacity	Fuse No.
Fuse block (J/B)	10A	22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. 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.

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

Is the inspection result normal?

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

3. CHECK DOOR MIRROR DEFOGGER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror LH connector and ground.

Door mirror LH		Ground	Continuity
Connector	Terminal		
D4	5		Yes

Is the inspection result normal?

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

4. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH. Refer to DEF-28, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace door mirror. Refer to MIR-20, "Removal and Installation".

5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-41, "Intermittent Incident".

Is the inspection result normal?

YES >> Check the following:
- Battery power supply circuit
- Fuse block (J/B)

NO >> Repair or replace the malfunctioning parts.

Component Inspection

INFOID:0000000012174530

1. CHECK DOOR MIRROR DEFOGGER

1. Turn ignition switch OFF.
2. Disconnect door mirror LH.
3. Check continuity between door mirror terminals.

Terminal		Continuity
1	5	Yes

Is the inspection result normal?

YES >> Check the condition of the harness and the connector.
NO >> Replace malfunctioning door mirror LH. Refer to MIR-20, "Removal and Installation".

DOOR MIRROR DEFOGGER LH (WITH AUTOMATIC DRIVE POSITIONER)

Component Function Check

INFOID:0000000012193914

1. CHECK DOOR MIRROR DEFOGGER LH

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

Is the inspection result normal?

YES >> Door mirror defogger is OK.
NO >> Refer to DEF-29, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012193915

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK POWER SUPPLY

Check if the following fuse in the fuse block (J/B) is blown.

Component	Capacity	Fuse No.
Fuse block (J/B)	10 A	22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. 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.

(+)		(-)	Condition		Voltage (V) (Approx.)
Door mirror LH					
Connector	Terminal				
D12	9	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

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

3. CHECK DOOR MIRROR DEFOGGER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror LH connector and ground.

Door mirror LH		Ground	Continuity
Connector	Terminal		
D12	1		Yes

Is the inspection result normal?

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

4. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH. Refer to DEF-30, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace door mirror. Refer to MIR-20, "Removal and Installation".

5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-41, "Intermittent Incident".

Is the inspection result normal?

YES >> Check the following:
- Battery power supply circuit
- Fuse block (J/B)

NO >> Repair or replace the malfunctioning parts.

Component Inspection

INFOID:0000000012193916

1. CHECK DOOR MIRROR DEFOGGER

1. Turn ignition switch OFF.
2. Disconnect door mirror LH.
3. Check continuity between door mirror terminals.

Terminal		Continuity
1	9	Yes

Is the inspection result normal?

YES >> Check the condition of the harness and the connector.
NO >> Replace malfunctioning door mirror LH. Refer to MIR-20, "Removal and Installation".

DOOR MIRROR DEFOGGER RH (WITHOUT AUTOMATIC DRIVE POSITIONER)

Component Function Check

INFOID:0000000012174531

1. CHECK DOOR MIRROR DEFOGGER RH

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

Is the inspection result normal?

YES >> Door mirror defogger RH is OK.
NO >> Refer to DEF-31, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012174532

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK POWER SUPPLY

Check if the following fuse in the fuse block (J/B) is blown.

Component	Capacity	Fuse No.
Fuse block (J/B)	10 A	22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. 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.

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

Is the inspection result normal?

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

3. CHECK DOOR MIRROR DEFOGGER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror RH connector and ground.

Door mirror RH		Ground	Continuity
Connector	Terminal		
D107	5		Yes

Is the inspection result normal?

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

4. CHECK DOOR MIRROR DEFOGGER RH

Check door mirror defogger RH. Refer to DEF-32, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace door mirror. Refer to MIR-20, "Removal and Installation".

5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-41, "Intermittent Incident".

Is the inspection result normal?

YES >> Check the following:
- Battery power supply circuit
- Fuse block (J/B)

NO >> Repair or replace the malfunctioning parts.

Component Inspection

INFOID:0000000012174533

1. CHECK DOOR MIRROR DEFOGGER

1. Turn ignition switch OFF.
2. Disconnect door mirror RH.
3. Check continuity between door mirror terminals.

Terminal		Continuity
1	5	Yes

Is the inspection result normal?

YES >> Check the condition of the harness and the connector.
NO >> Replace malfunctioning door mirror RH. Refer to MIR-20, "Removal and Installation".

DOOR MIRROR DEFOGGER RH (WITH AUTOMATIC DRIVE POSITIONER)

Component Function Check

INFOID:0000000012193917

1. CHECK DOOR MIRROR DEFOGGER RH

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

Is the inspection result normal?

YES >> Door mirror defogger RH is OK.
NO >> Refer to DEF-33, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012193918

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK POWER SUPPLY

Check if the following fuse in the fuse block (J/B) is blown.

Component	Capacity	Fuse No.
Fuse block (J/B)	10 A	22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. 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.

(+)		(-)	Condition		Voltage (V) (Approx.)
Door mirror RH					
Connector	Terminal				
D114	9	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

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

3. CHECK DOOR MIRROR DEFOGGER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror RH connector and ground.

Door mirror RH		Ground	Continuity
Connector	Terminal		
D114	1		Yes

Is the inspection result normal?

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

4. CHECK DOOR MIRROR DEFOGGER RH

Check door mirror defogger RH. Refer to DEF-34, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace door mirror. Refer to MIR-20, "Removal and Installation".

5. CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-41, "Intermittent Incident".

Is the inspection result normal?

YES >> Check the following:
- Battery power supply circuit
- Fuse block (J/B)

NO >> Repair or replace the malfunctioning parts.

Component Inspection

INFOID:0000000012193919

1. CHECK DOOR MIRROR DEFOGGER

1. Turn ignition switch OFF.
2. Disconnect door mirror RH.
3. Check continuity between door mirror terminals.

Terminal		Continuity
1	9	Yes

Is the inspection result normal?

YES >> Check the condition of the harness and the connector.
NO >> Replace malfunctioning door mirror RH. Refer to MIR-20, "Removal and Installation".

SYMPTOM DIAGNOSIS

DEFOGGER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000012174534

Symptom	Reference page
Rear window defogger and door mirror defoggers do not operate.	Refer to DEF-36, "Diagnosis Procedure".
Rear window defogger does not operate but both of the door mirror defoggers operate.	Refer to DEF-37, "Diagnosis Procedure".
Both door mirror defoggers don’t operate but rear window defogger operates.	Refer to DEF-38, "Diagnosis Procedure".
Driver side door mirror defogger does not operate.	Refer to DEF-40, "Diagnosis Procedure".
Passenger side door mirror defogger does not operate.	Refer to DEF-41, "Diagnosis Procedure".
Rear window defogger switch does not light, but rear window defogger operates.	Refer to DEF-42, "Diagnosis Procedure".

REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGERS DO NOT OPERATE

Diagnosis Procedure

INFOID:0000000012174535

1. CHECK REAR WINDOW DEFOGGER SWITCH

Check rear window defogger switch.
Refer to DEF-19, "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-23, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3. CHECK REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Check rear window defogger power supply and ground circuit.
Refer to DEF-25, "Component Function Check".

Is the inspection result normal?

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

4. CHECK DOOR MIRROR DEFOGGER

Check door mirror defogger.
Refer to DEF-27, "Diagnosis Procedure" (LH without automatic drive positioner), DEF-29, "Diagnosis Procedure" (LH with automatic drive positioner), DEF-31, "Diagnosis Procedure" (RH without automatic drive positioner) or DEF-33, "Diagnosis Procedure" (RH with automatic drive positioner).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Repair or replace the malfunctioning parts.

REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH DOOR MIRROR DEFOGGERS OPERATE

Diagnosis Procedure

INFOID:0000000012174536

1. CHECK REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Check rear window defogger power supply and ground circuit.
Refer to DEF-25, "Component Function Check".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Repair or replace the malfunctioning parts.

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

Diagnosis Procedure

INFOID:0000000012174537

Regarding Wiring Diagram information, refer to DEF-11, "Wiring Diagram".

1. CHECK DOOR MIRROR DEFOGGER FUSE

Check if the following fuse in fuse block (J/B) is blown.

Component	Capacity	Fuse No.
Fuse block (J/B)	10A	22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. CHECK DOOR MIRROR DEFOGGER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the following harness connectors:
- Fuse block (J/B) connector M5
- Door mirror LH D4 (without automatic drive positioner), D12 (with automatic drive positioner)
- Door mirror RH D107 (without automatic drive positioner), D114 (with automatic drive positioner)
3. Check continuity between fuse block (J/B) harness connector and door mirror defogger harness connectors.

Fuse block (J/B) connector	Terminal	Door mirror connectors	Terminal	Continuity
M5	5P	D4 (LH without automatic drive positioner)	1	Yes
		D107 (RH without automatic drive positioner)		
		D12 (LH with automatic drive positioner)	9	
		D114 (RH with automatic drive positioner)		

4. Check continuity between fuse block (J/B) harness connector M5 terminal 5P and ground.

Fuse block (J/B) connector	Terminal	Ground	Continuity
M5	5P		No

Is the inspection result normal?

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

3. CHECK DOOR MIRROR DEFOGGER

Check door mirror LH.
Refer to DEF-27, "Component Function Check" (without automatic drive positioner) or DEF-29, "Component Function Check" (with automatic drive positioner).
Check door mirror RH.
Refer to DEF-31, "Component Function Check" (without automatic drive positioner) or DEF-33, "Component Function Check" (with automatic drive positioner).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Repair or replace the malfunctioning parts.

DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

Diagnosis Procedure

INFOID:0000000012174538

1. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.
Refer to DEF-27, "Component Function Check" (without automatic drive positioner) or DEF-29, "Component Function Check" (with automatic drive positioner).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Repair or replace the malfunctioning parts.

PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

Diagnosis Procedure

INFOID:0000000012174539

1. CHECK DOOR MIRROR DEFOGGER RH

Check door mirror defogger RH.
Refer to DEF-31, "Component Function Check" (without automatic drive positioner) or DEF-33, "Component Function Check" (with automatic drive positioner).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Repair or replace the malfunctioning parts.

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

Diagnosis Procedure

INFOID:0000000012174540

1. CHECK A/C SWITCH ASSEMBLY (REAR WINDOW DEFOGGER SWITCH)

Check that A/C switch assembly (rear window defogger switch) is operating normally.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-41, "Intermittent Incident".
NO >> Check rear window defogger switch. Refer to DEF-19, "Diagnosis Procedure".

REMOVAL AND INSTALLATION

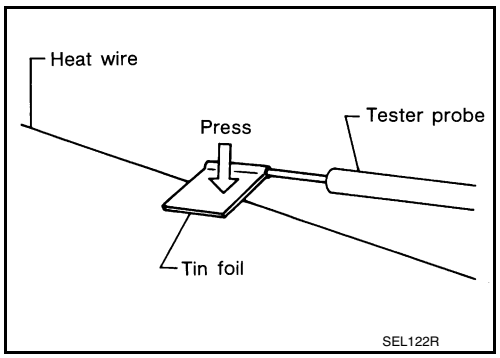
FILAMENT

Inspection and Repair

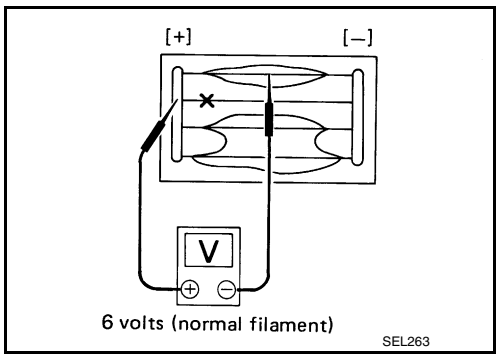
INFOID:0000000011932788

INSPECTION

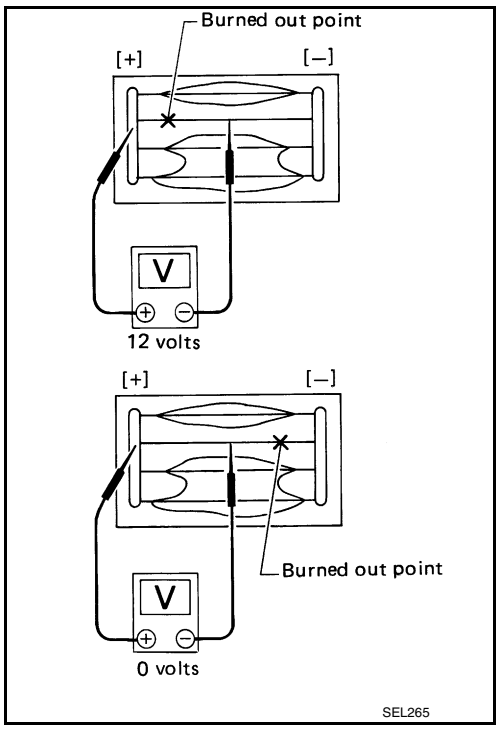
1. When measuring voltage, wrap tin foil around top of negative probe. Then press foil against wire with your finger.



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



3. If a filament is burned out, circuit tester registers zero 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.



REPAIR

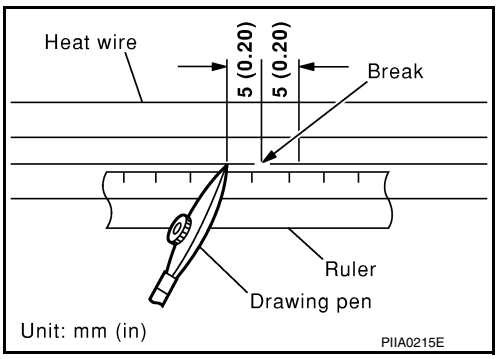
REPAIR EQUIPMENT

- Conductive silver composition (Dupont No. 4817 or equivalent)

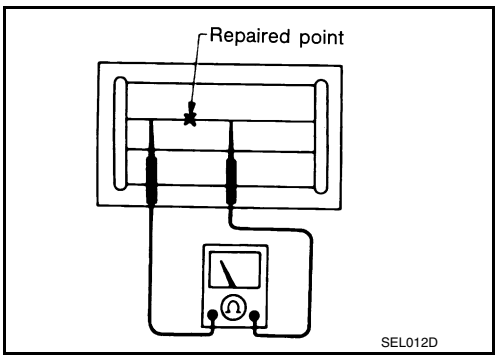
- Ruler 30 cm (11.8 in) long
- Drawing pen
- Heat gun
- Alcohol
- Cloth

REPAIRING PROCEDURE

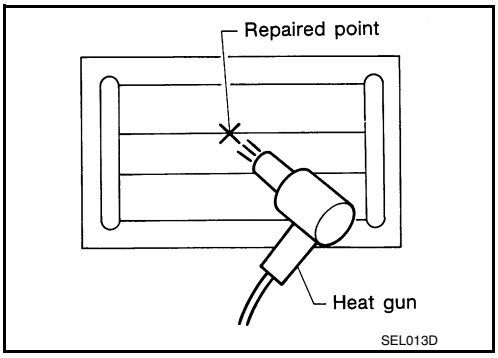
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.
   NOTE:
   Shake silver composition container before use.
3. Place ruler on glass along broken line. Deposit conductive silver composition 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.
   CAUTION:
   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.
   NOTE:
   If a heat gun is not available, let the repaired area dry for 24 hours.



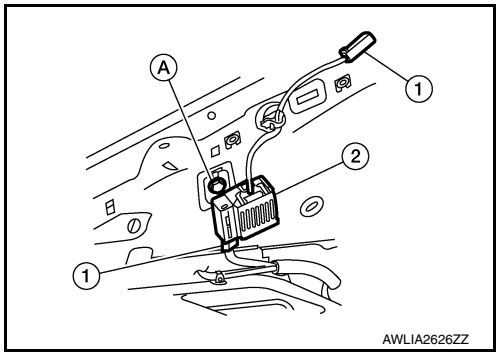
CONDENSER

Removal and Installation

INFOID:0000000011932789

REMOVAL

1. Remove the rear pillar finisher LH. Refer to INT-37, "REAR PILLAR FINISHER : Removal and Installation".
2. Remove the headlining. Refer to INT-48, "Removal and Installation".
3. Disconnect the harness connectors (1) from the rear window defogger condenser (2).
4. Remove bolt (A) and rear window defogger condenser.



INSTALLATION

Installation is in the reverse order of removal.