

SECTION **DEF**
 DEFOGGER

A
B
C

CONTENTS

PRECAUTION	3	DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)	15	F
PRECAUTIONS	3	Diagnosis Description	15	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	CONSULT Function (IPDM E/R)	16	G
Precaution for Procedure without Cowl Top Cover.....	3	ECU DIAGNOSIS INFORMATION	19	
SYSTEM DESCRIPTION	4	BCM, IPDM E/R	19	H
COMPONENT PARTS	4	List of ECU Reference	19	
Component Parts Location	4	WIRING DIAGRAM	20	I
Component Description	5	REAR WINDOW DEFOGGER SYSTEM	20	
SYSTEM	6	Wiring Diagram	20	J
System Description	6	BASIC INSPECTION	27	
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	7	DIAGNOSIS AND REPAIR WORK FLOW	27	K
COMMON ITEM	7	Work Flow	27	
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	7	DTC/CIRCUIT DIAGNOSIS	30	
REAR DEFOGGER	8	REAR WINDOW DEFOGGER SWITCH	30	DEF
REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)	8	Description	30	
DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	9	Component Function Check	30	M
COMMON ITEM	9	Diagnosis Procedure	30	
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	9	REAR WINDOW DEFOGGER RELAY	32	
REAR DEFOGGER	10	Description	32	N
REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)	10	Component Function Check	32	
DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)	11	Diagnosis Procedure	32	
Diagnosis Description	11	REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT	33	O
CONSULT Function (IPDM E/R)	12	Description	33	
		Component Function Check	33	P
		Diagnosis Procedure	33	
		Component Inspection	34	
		DRIVER SIDE DOOR MIRROR DEFOGGER ...	35	
		Description	35	
		Component Function Check	35	
		Diagnosis Procedure	35	

Component Inspection	36	Diagnosis Procedure	42
PASSENGER SIDE DOOR MIRROR DEFOGGER	37	BOTH DOORS MIRROR DEFOGGER DON'T OPERATE BUT REAR WINDOW DEFOGGER OPERATES	43
Description	37	Diagnosis Procedure	43
Component Function Check	37	DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.	44
Diagnosis Procedure	37	Diagnosis Procedure	44
Component Inspection	38	PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.	45
REAR WINDOW DEFOGGER FEEDBACK SIGNAL	39	Diagnosis Procedure	45
Description	39	REAR WINDOW DEFOGGER SWITCH DOES NOT LIGHT, BUT REAR WINDOW DEFOGGER OPERATES	46
Component Function Check	39	Diagnosis Procedure	46
Diagnosis Procedure	39	REMOVAL AND INSTALLATION	47
SYMPTOM DIAGNOSIS	40	FILAMENT	47
DEFOGGER SYSTEM SYMPTOMS	40	Inspection and Repair	47
Symptom Table	40	CONDENSER	49
REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGERS DO NOT OPERATE ...	41	Removal and Installation	49
Diagnosis Procedure	41		
REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH DOOR MIRROR DEFOGERS OPERATE	42		

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000013467201

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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.
- Improper repair, 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

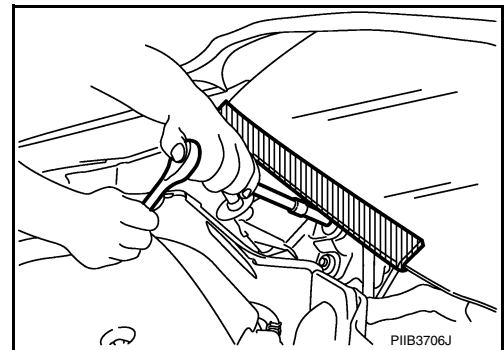
WARNING:

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

Precaution for Procedure without Cowl Top Cover

INFOID:000000012782989

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



COMPONENT PARTS

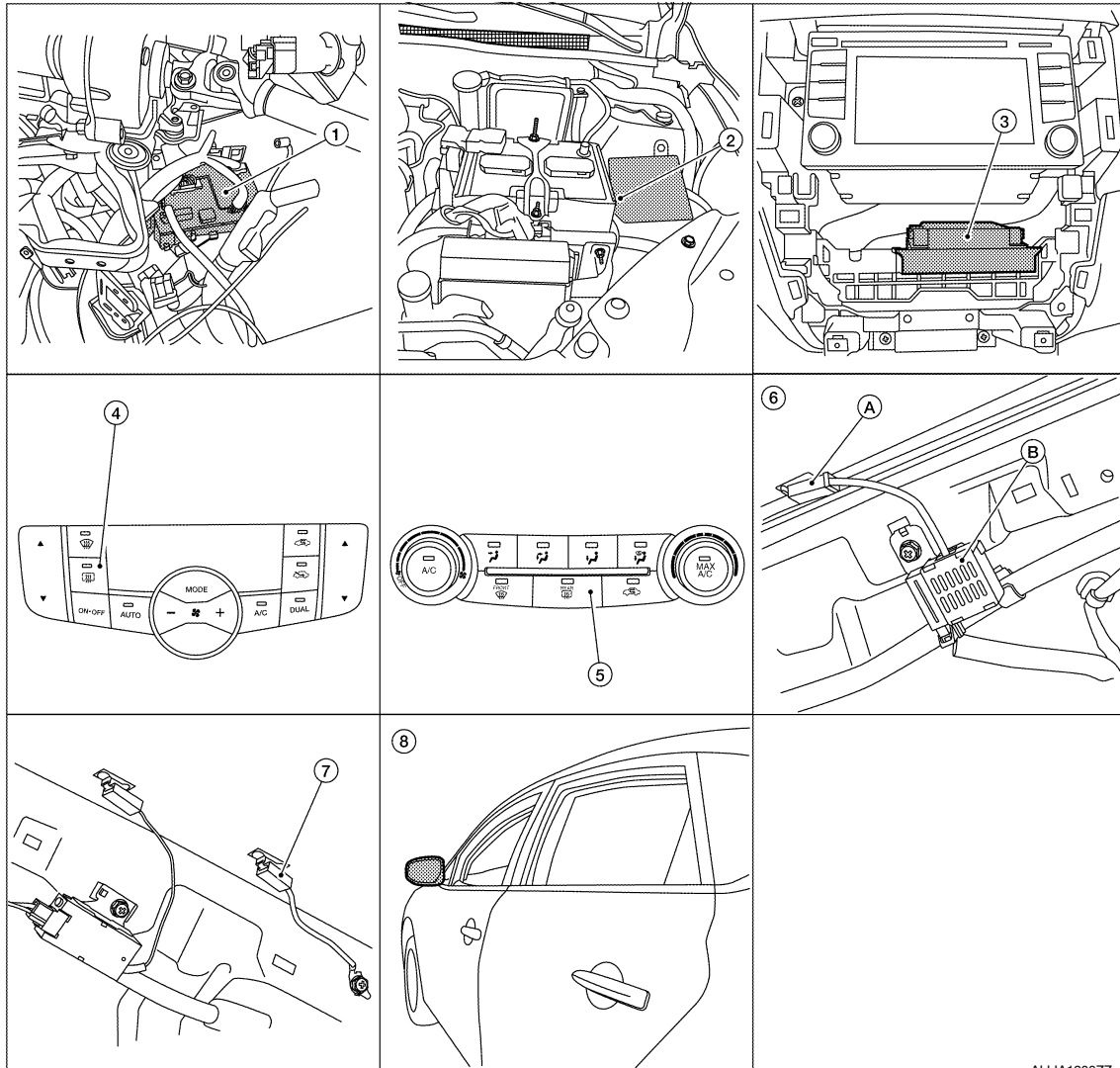
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000012782990



ALLIA1206ZZ

1. BCM (view with instrument panel removed)
2. IPDM E/R (rear window defogger relay)
3. A/C auto amp. (view with A/C switch assembly removed)
4. A/C switch assembly (rear window defogger switch) (with auto A/C)
5. A/C switch assembly (rear window defogger switch) (without auto A/C)
6. A. Rear window defogger power connector
B. Condenser (view with rear pillar finisher LH removed)
7. Rear window defogger ground connector (view with rear pillar finisher RH removed)
8. Door mirror LH (door mirror defogger) (if equipped) (RH similar)

COMPONENT PARTS

< SYSTEM DESCRIPTION >

Component Description

INFOID:000000012782991

Component	Description
BCM	<ul style="list-style-type: none">Operates the rear window defogger with the operation of rear window defogger switch.Performs the timer control of rear window defogger.
Rear window defogger relay	<ul style="list-style-type: none">Operates the rear window defogger and the door mirror defogger¹ with the control signal from BCM.
A/C auto amp.	<ul style="list-style-type: none">Displays the rear window defogger ON to the display when detecting the operation of the rear window defogger.
A/C switch assembly (rear window defogger switch)	<ul style="list-style-type: none">The rear window defogger switch is turned ON.
Rear window defogger	<ul style="list-style-type: none">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 ¹	<ul style="list-style-type: none">Heats the heating wire with the power supply from the rear window defogger relay to prevent the door mirror from fogging up.

¹: With heated mirrors

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

SYSTEM

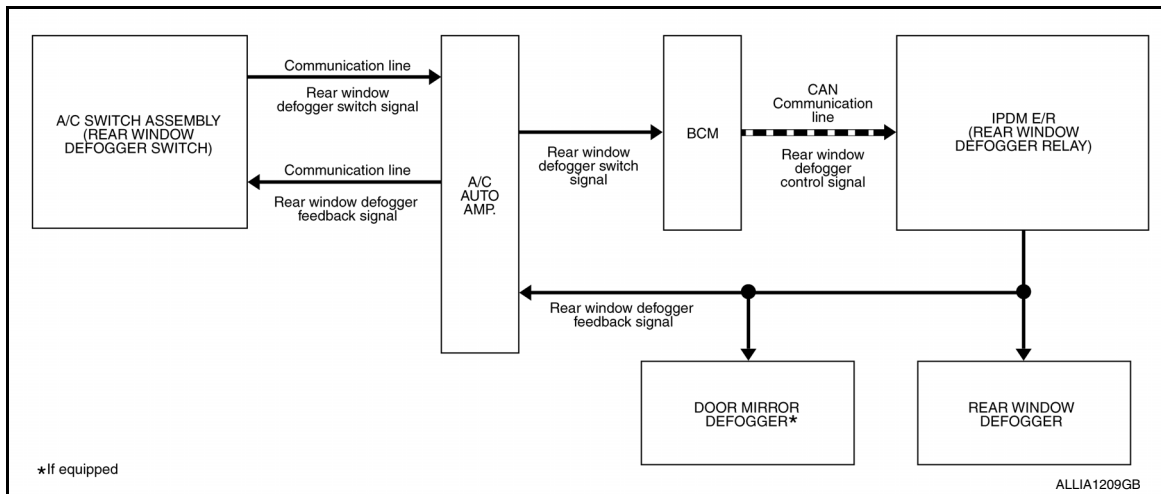
< SYSTEM DESCRIPTION >

SYSTEM

System Description

INFOID:000000012782992

SYSTEM DIAGRAM



OPERATION DESCRIPTION

- A/C control transmits rear window defogger switch signal to A/C auto amp. when rear window defogger switch turns ON while ignition switch is ON.
- A/C auto amp. transmits rear window defogger switch signal to BCM
- BCM transmits rear window defogger control signal to IPDM E/R via CAN communication.
- IPDM E/R turns rear window defogger relay ON when rear window defogger control signal is received.
- The power is supplied to rear window defogger and door mirror defogger* when rear window defogger relay is ON.
- When rear window defogger is activated, rear window defogger feedback signal is transmitted to A/C control via A/C auto amp. and the indicator lamp on rear window defogger switch turns on.

*: With door mirror defogger.

TIMER FUNCTION

- BCM transmits rear window defogger control signal to IPDM E/R for approximately 15 minutes when the rear window defogger switch turns ON while ignition switch is ON. Then, IPDM E/R activates rear window defogger and door mirror defogger*.
- The timer is cancelled if rear window defogger switch is pressed again during timer operation, and BCM stops the output of rear window defogger control signal. The same action occurs during timer operation if ignition switch is OFF.

*: With door mirror defogger.

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

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

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000013389861

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	<ul style="list-style-type: none"> 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			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x			
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Exterior lamp	HEAD LAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x	x		
Air conditioner	AIR CONDITIONER			x				
Intelligent Key system	INTELLIGENT KEY		x	x	x	x		
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x	x		x		
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Trunk open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
Signal buffer system	SIGNAL BUFFER				x			
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

REAR DEFOGGER

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:000000013389863

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].

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

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

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000013389869

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	<ul style="list-style-type: none"> 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			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x			
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT			x	x	x		
Exterior lamp	HEAD LAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Air conditioner	AIR CONDITIONER			x				
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x	x		
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Trunk open	TRUNK			x				
RAP system	RETAINED PWR			x		x		
Signal buffer system	SIGNAL BUFFER			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		
Panic alarm system	PANIC ALARM				x			

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

REAR DEFOGGER

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:000000013389873

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [On/Off]	Indicates condition of ignition switch ON position.
ACC ON SW [On/Off]	Indicates condition of ignition switch ACC position.
REAR DEF SW [On/Off]	Indicates condition of rear window defogger switch.
RR DEF TIME [On/Off]	Indicates condition of rear window defogger switch timer.

ACTIVE TEST

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

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

Diagnosis Description

INFOID:000000013389874

AUTO ACTIVE TEST

Description

In auto active test, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp (if equipped)
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

Operation Procedure

NOTE:

Never perform auto active test in the following conditions.

- Passenger door is open
- CONSULT is connected

1. Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation)

NOTE:

When auto active test is performed with hood opened, sprinkle water on windshield beforehand.

2. Turn the ignition switch OFF.
3. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.
4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-109, "Component Inspection"](#).

Inspection in Auto Active Test

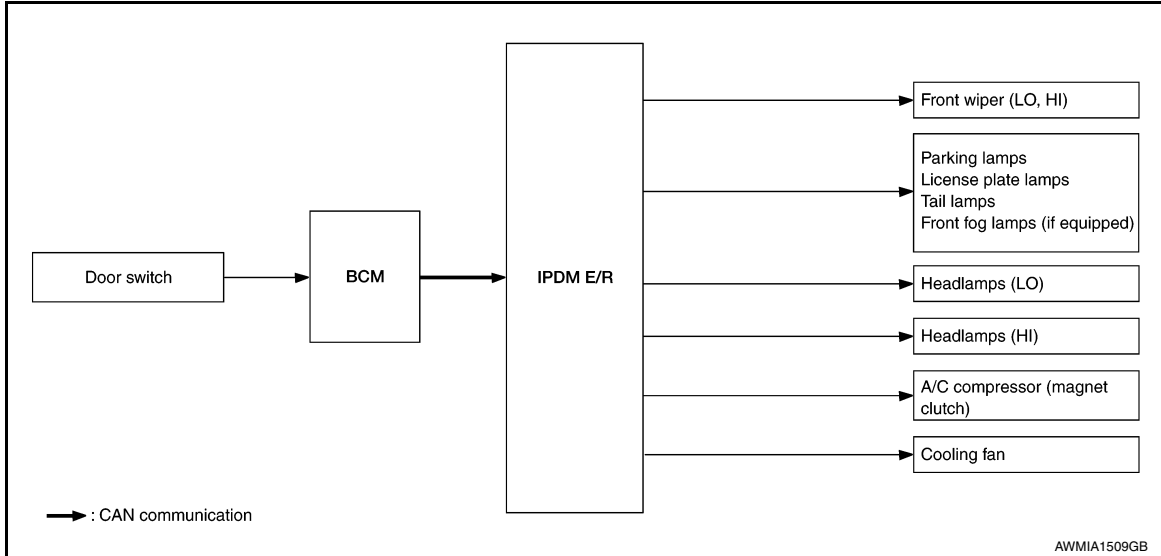
When auto active test is actuated, the following operation sequence is repeated 3 times.

Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	<ul style="list-style-type: none">• Parking lamp• License plate lamp• Tail lamp• Front fog lamp (if equipped)	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ↔ OFF 5 times
4	A/C compressor (magnet clutch)	ON ↔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Concept of Auto Active Test



- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis Chart in Auto Active Test

Symptom	Inspection contents	Possible cause
Any of the following components do not operate <ul style="list-style-type: none"> • Parking lamp • License plate lamp • Tail lamp • Front fog lamp (if equipped) • Headlamp (HI, LO) • Front wiper (HI, LO) 	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO <ul style="list-style-type: none"> • Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	YES <ul style="list-style-type: none"> • BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES <ul style="list-style-type: none"> • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000013389875

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
ECU Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Direct Diagnostic Mode	Description
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [%]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INH RLY [Off/ ST /INH]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime running light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [On].
REAR DEFOGGER	This test is able to check rear window defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Test item	Description
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14. "CAN Diagnostic Support Monitor"](#).

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

Diagnosis Description

INFOID:000000013389880

AUTO ACTIVE TEST

Description

In auto active test, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp (if equipped)
- Headlamp (LO, HI)
- A/C compressor (magnet clutch) (if equipped)
- Cooling fan

Operation Procedure

NOTE:

Never perform auto active test in the following conditions.

- Passenger door is open
- CONSULT is connected

1. Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation)

NOTE:

When auto active test is performed with hood opened, sprinkle water on windshield beforehand.

2. Turn the ignition switch OFF.
3. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.
4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-248](#), "[Component Inspection](#)".

Inspection in Auto Active Test

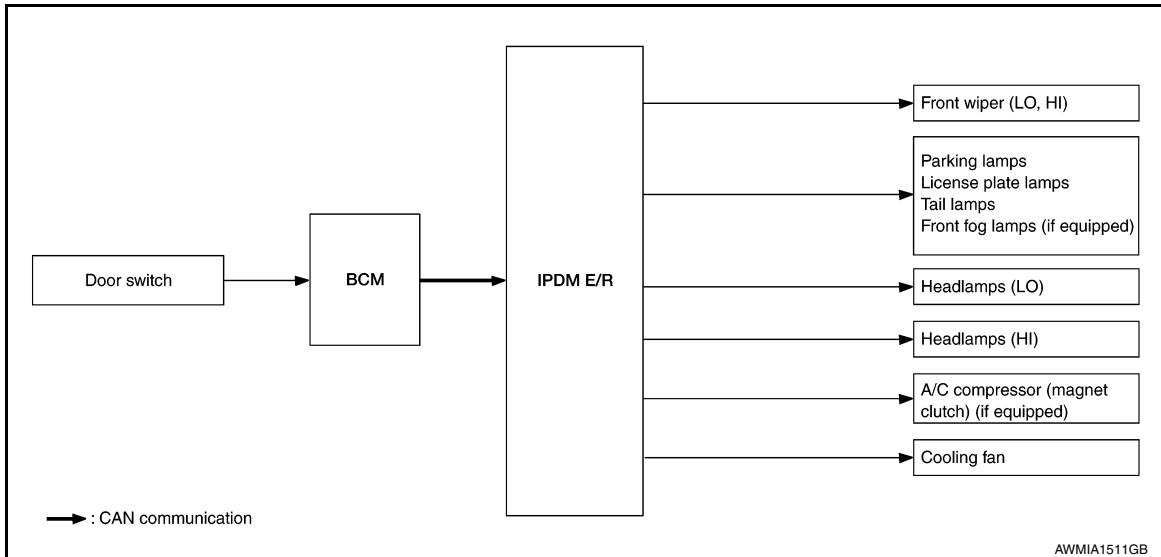
When auto active test is actuated, the following operation sequence is repeated 3 times.

Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	<ul style="list-style-type: none">• Parking lamp• License plate lamp• Tail lamp• Front fog lamp (if equipped)	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ↔ OFF 5 times
4	A/C compressor (magnet clutch) (if equipped)	ON ↔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Concept of Auto Active Test



- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis Chart in Auto Active Test

Symptom	Inspection contents	Possible cause
Any of the following components do not operate <ul style="list-style-type: none"> • Parking lamp • License plate lamp • Tail lamp • Front fog lamp (if equipped) • Headlamp (HI, LO) • Front wiper (HI, LO) 	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO <ul style="list-style-type: none"> • Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	YES <ul style="list-style-type: none"> • BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES <ul style="list-style-type: none"> • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000013389881

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
ECU Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Direct Diagnostic Mode	Description
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [%]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INH RLY [Off/ ST /INH]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime running light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [On].
REAR DEFOGGER	This test is able to check rear window defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

CAN DIAG SUPPORT MNTR

Refer to [LAN-14. "CAN Diagnostic Support Monitor"](#).

BCM, IPDM E/R

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000012783001

With Intelligent Key

ECU	Reference
BCM	BCS-30. "Reference Value"
	BCS-48. "Fail-safe"
	BCS-49. "DTC Inspection Priority Chart"
	BCS-50. "DTC Index"
IPDM E/R	PCS-13. "Reference Value"
	PCS-19. "Fail-safe"
	PCS-20. "DTC Index"

Without Intelligent Key

ECU	Reference
BCM	BCS-103. "Reference Value"
	BCS-114. "Fail-safe"
	BCS-115. "DTC Inspection Priority Chart"
	BCS-115. "DTC Index"
IPDM E/R	PCS-42. "Reference Value"
	PCS-47. "Fail-Safe"
	PCS-48. "DTC Index"

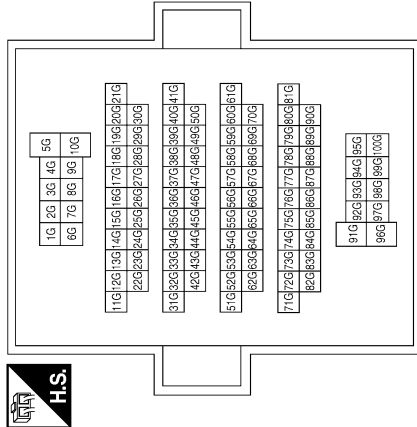
A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >

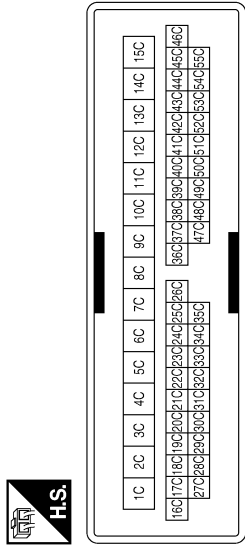
REAR WINDOW DEFOGGER CONNECTORS

Connector No.	M2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



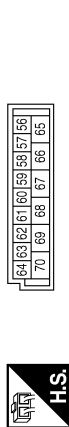
Terminal No.	Color of Wire	Signal Name
10G	Y	-
91G	R	-
95G	P	-
100G	L	-

Connector No.	M13
Connector Name	WIRE TO WIRE
Connector Color	WHITE



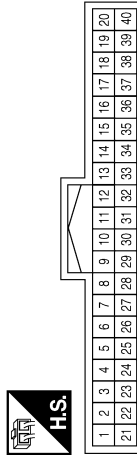
Terminal No.	Color of Wire	Signal Name
13C	B	-
43C	V	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



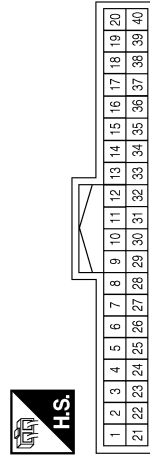
Terminal No.	Color of Wire	Signal Name
63	BG	BATTERY (FUSE)
65	B	GND
70	Y	BATTERY (F/L)

Connector No.	M21
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	W	REAR DEFOGGER SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M29
Connector Name	A/C AUTO AMP. (WITHOUT A/C)
Connector Color	WHITE



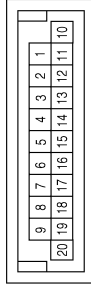
Terminal No.	Color of Wire	Signal Name
16	W	-
25	R	-
27	LG	-
28	BR	-
30	B	-

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SYSTEM

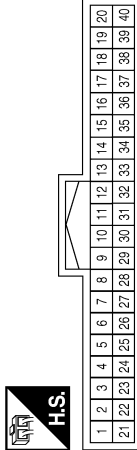
< WIRING DIAGRAM >

Connector No.	M31
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE



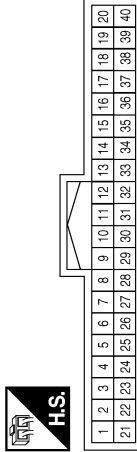
Terminal No.	Color of Wire	Signal Name
1	P	-
8	P	-
10	L	-
17	L	-
18	LG	-
20	LG	-

Connector No.	M33
Connector Name	A/C AUTO AMP. (WITH MANUAL A/C)
Connector Color	WHITE



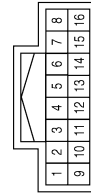
Terminal No.	Color of Wire	Signal Name
16	W	-
25	R	-
27	LG	-
28	BR	-
30	B	-

Connector No.	M34
Connector Name	A/C AUTO AMP. (WITH AUTO A/C)
Connector Color	WHITE



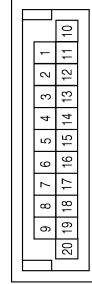
Terminal No.	Color of Wire	Signal Name
16	W	RR DEF SW O/P
25	R	RR DEF IND
27	LG	UART RX
28	BR	UART TX
30	B	GND

Connector No.	M51
Connector Name	A/C SWITCH ASSEMBLY (WITHOUT AUTO A/C)
Connector Color	WHITE



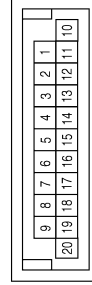
Terminal No.	Color of Wire	Signal Name
1	GR	-
5	LG	-
9	B	-
13	BR	-

Connector No.	M53
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
8	P	-
9	P	-
16	L	-
17	L	-

Connector No.	M54
Connector Name	JOINT CONNECTOR-M07
Connector Color	GREEN



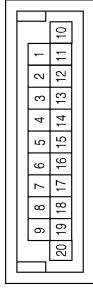
Terminal No.	Color of Wire	Signal Name
4	LG	-
5	Y	-
6	Y	-
7	R	-
17	R	-
19	GR	-

ABLIA8389GB

REAR WINDOW DEFOGGER SYSTEM

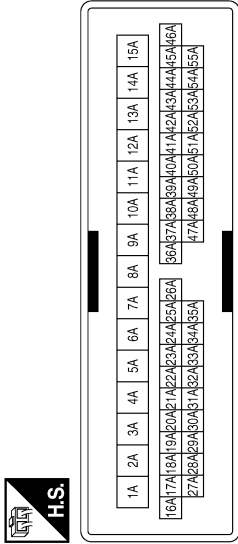
< WIRING DIAGRAM >

Connector No.	M78
Connector Name	JOINT CONNECTOR-M02
Connector Color	WHITE



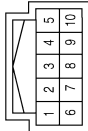
Terminal No.	Color of Wire	Signal Name
16	LG	-
20	LG	-

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
43A	V	-
53A	B	-

Connector No.	M59
Connector Name	A/C SWITCH ASSEMBLY (WITH AUTO A/C)
Connector Color	BLACK



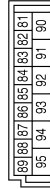
Terminal No.	Color of Wire	Signal Name
1	B	-
4	GR	-
8	LG	-
9	BR	-

Connector No.	M98
Connector Name	WIRE TO WIRE
Connector Color	WHITE



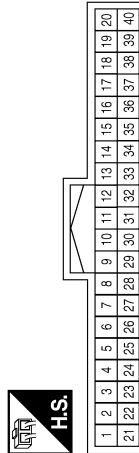
Terminal No.	Color of Wire	Signal Name
1	R	-

Connector No.	M85
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
88	BG	BATTERY (FUSE)
90	Y	BATTERY (F/L)
93	B	GND

Connector No.	M84
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
15	W	REAR DEFOGGER SW
39	L	CAN-H
40	P	CAN-L

ABLIA8390GB

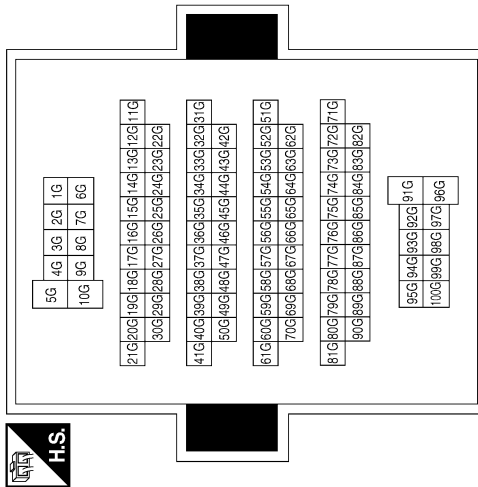
A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SYSTEM

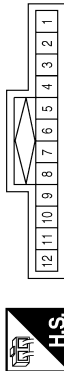
< WIRING DIAGRAM >

Terminal No.	Color of Wire	Signal Name
10G	G	-
91G	R	-
95G	P	-
100G	L	-

Connector No.	E4
Connector Name	WIRE TO WIRE
Connector Color	WHITE

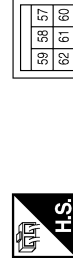


Connector No.	E2
Connector Name	JOINT CONNECTOR-E02
Connector Color	BLUE



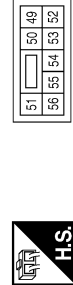
Terminal No.	Color of Wire	Signal Name
1	L	-
5	L	-
8	P	-
12	P	-

Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



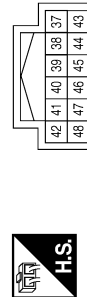
Terminal No.	Color of Wire	Signal Name
57	B/Y	POWER GND
62	R	RR DEF

Connector No.	E47
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
52	B/Y	SIGNAL GND

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
40	P	CAN-L
41	L	CAN-H

ABLI A8391GB

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >

Connector No.	B63
Connector Name	REAR WINDOW DEFOGGER
Connector Color	BLACK



Terminal No.	2	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	B62
Connector Name	REAR WINDOW DEFOGGER
Connector Color	BLACK



Terminal No.	1	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	B50
Connector Name	REAR WINDOW DEFOGGER CONDENSER
Connector Color	GRAY



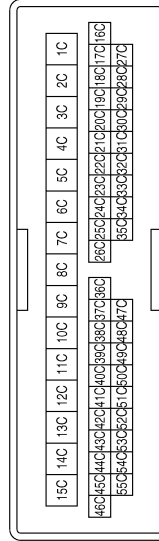
Terminal No.	1	Color of Wire	R	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	D7
Connector Name	DOOR MIRROR LH
Connector Color	WHITE



Terminal No.	3	Color of Wire	GR	Signal Name	—
	9		B		—

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



Terminal No.	13C	Color of Wire	B	Signal Name	—
	43C		GR		—

Connector No.	B68
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	1	Color of Wire	R	Signal Name	—
--------------	---	---------------	---	-------------	---

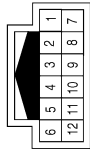
ABLIA8392GB

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SYSTEM

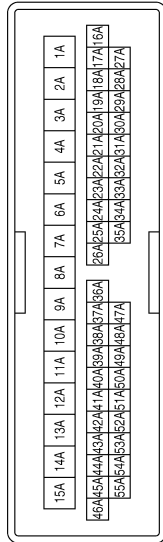
< WIRING DIAGRAM >

Connector No.	D106
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	GR	-
9	B	-

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



Terminal No.	Color of Wire	Signal Name
43A	GR	-
53A	B	-

ABLIA8399GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

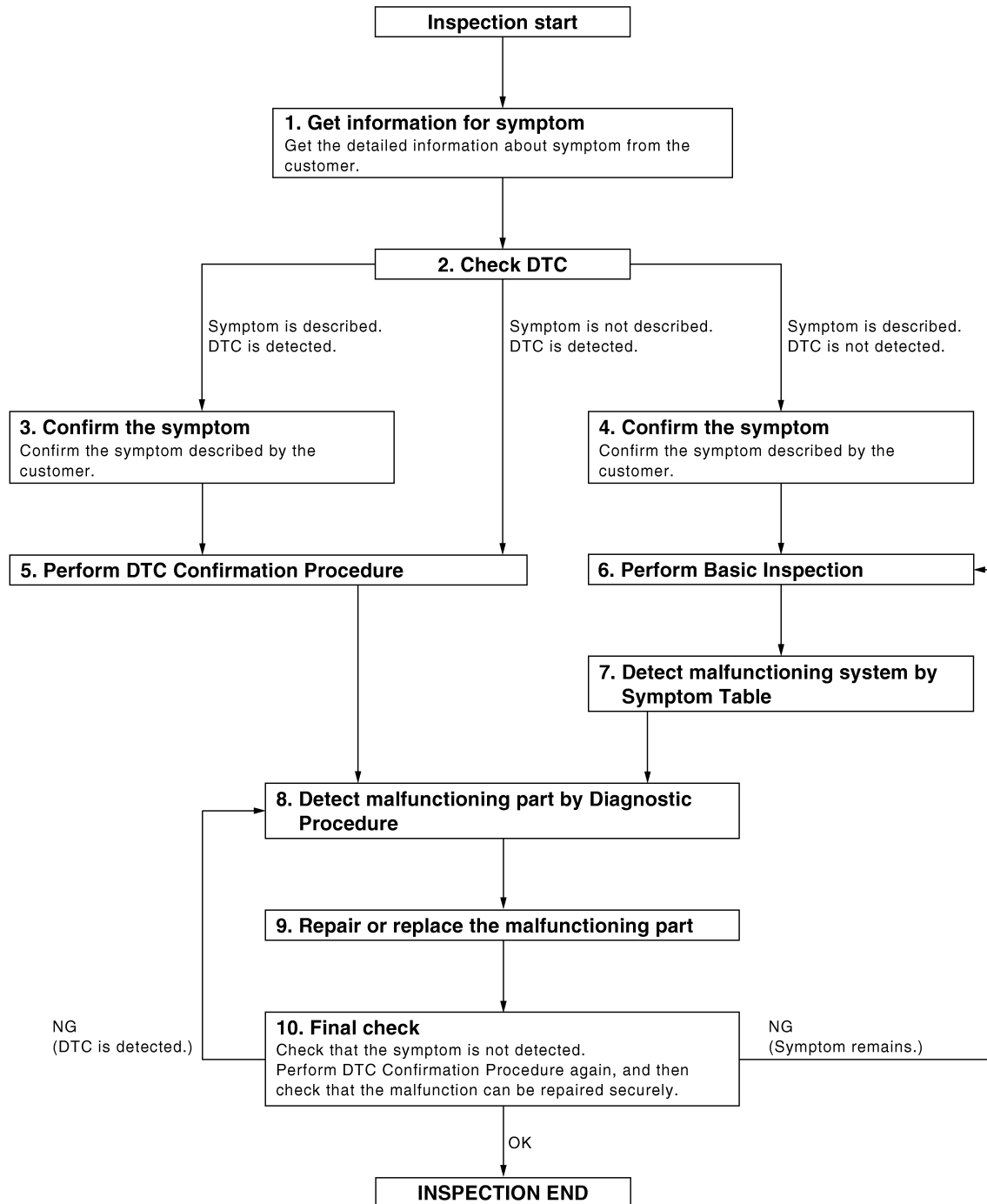
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012783003

OVERALL SEQUENCE



DETAILED FLOW

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

1. GET INFORMATION FOR SYMPTOM

Get the 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-49, "DTC Inspection Priority Chart"](#) or [BCS-115, "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 8.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

6. PERFORM BASIC INSPECTION

Perform [DEF-27, "Work Flow"](#).

>> GO TO 7

7. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

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 8.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

8. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure described 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 9.

NO >> Check voltage of related BCM terminals using CONSULT.

9. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 10.

10. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction have been repaired securely.

When symptom was described from 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 8.

YES (Symptom remains)>>GO TO 6.

NO >> Inspection End.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

REAR WINDOW DEFOGGER SWITCH

Description

INFOID:0000000012783004

- The rear window defogger is operated by pressing the rear window defogger switch ON.
- The indicator lamp in the rear window defogger switch illuminates while the rear window defogger is ON.

Component Function Check

INFOID:0000000012783005

1. CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

1. Check ("REAR DEF SW") in BCM - REAR DEFOGGER "DATA MONITOR" mode by using CONSULT.
2. Operate rear window defogger switch and check the status on CONSULT screen.

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

Is the inspection result normal?

- YES >> Rear window defogger switch function is OK.
 NO >> Refer to [DEF-30, "Diagnosis Procedure"](#).

Diagnosis Procedure

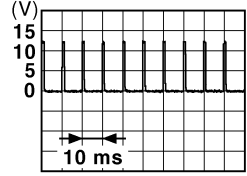
INFOID:0000000012783006

Regarding Wiring Diagram information, refer to [DEF-20, "Wiring Diagram"](#).

1. CHECK REAR WINDOW DEFOGGER ON SIGNAL CIRCUIT

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

With Intelligent Key

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
M84	15	Ground	Rear window defogger switch	Released	 <p>JPMIA0012GB 1.0 - 1.5 V</p>
				Depressed	0 V

Without Intelligent Key

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
M21	10	Ground	Rear window defogger switch	ON	0
				OFF	Battery voltage

Is the inspection result normal?

REAR WINDOW DEFOGGER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Replace BCM. Refer to [BCS-78. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key system).
- NO >> GO TO 2.

2. CHECK HARNESS CONTINUITY

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

BCM		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M21 (without Intelligent Key)	10	M29 (without A/C)	16	Yes
		M33 (with manual A/C)		
M84 (with Intelligent Key)	15	M33 (with manual A/C)		
		M34 (with auto A/C)		

4. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M21 (without Intelligent Key)	10		No
M84 (with Intelligent Key)	15		

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-105. "Removal and Installation"](#) (with auto A/C) or [HAC-190. "Removal and Installation"](#) (without auto A/C).
- NO >> Repair or replace harness.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

DEF

REAR WINDOW DEFOGGER RELAY

< DTC/CIRCUIT DIAGNOSIS >

REAR WINDOW DEFOGGER RELAY

Description

INFOID:000000012783007

Power is supplied to the rear window defogger with IPDM E/R control.

Component Function Check

INFOID:000000012783008

1. CHECK REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. 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-32, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012783009

Regarding Wiring Diagram information, refer to [DEF-20, "Wiring Diagram"](#).

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	31
		32

Is the inspection result normal?

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

2. CHECK REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between IPDM E/R connector E48 terminal 62 and ground.

Terminals		Condition of rear window defogger switch	Voltage (V) (Approx.)
(+)	(-)		
IPDM E/R connector	Terminal		
E48	62	Ground	Battery voltage
			0V

Is the inspection result normal?

- YES >> GO TO 3
NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#) (with Intelligent Key system) or [PCS-60, "Removal and Installation"](#) (without Intelligent Key system).

3. 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.
 - IPDM E/R.
- NO >> Repair or replace the malfunctioning parts.

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Description

INFOID:000000012783010

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:000000012783011

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-33, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012783012

Regarding Wiring Diagram information, refer to [DEF-20, "Wiring Diagram"](#).

1. CHECK FUSES

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

COMPONENT PARTS	AMPERE	FUSE NO.
IPDM E/R	15A	31
		32

Is the inspection result normal?

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

2. CHECK REAR WINDOW DEFOGGER POWER SUPPLY CIRCUIT

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

(+) IPDM E/R		(-)	Condition	Voltage (V) (Approx.)
Connector	Terminal			
E48	62	Ground	Rear window de-fogger switch	ON Battery voltage
			OFF 0	

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Perform rear window defogger relay diagnosis. Refer to [DEF-32, "Diagnosis Procedure"](#).

3. CHECK POWER SUPPLY CIRCUIT

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

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Condition	Voltage (V) (Approx.)
Connector	Terminal			
B62	1	Ground	Rear window de-fogger switch	ON OFF
			Battery voltage 0	

Is the inspection result normal?

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

4. 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		Ground	Continuity
Connector	Terminal		
B63	2		Yes

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair or replace harness.

5. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and condenser connector.
3. Check continuity between IPDM E/R connector and condenser connector.

IPDM E/R		Condenser		Continuity
Connector	Terminal	Connector	Terminal	
E48	62	B50	1	Yes

Is the inspection result normal?

- YES >> Replace condenser. Refer to [DEF-49, "Removal and Installation"](#).
NO >> Replace or repair harness.

6. CHECK FILAMENT

Check filament.

Refer to [DEF-34, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Repair filament. Refer to [DEF-47, "Inspection and Repair"](#).

Component Inspection

INFOID:000000012783013

1. CHECK FILAMENT

Check the filament for damage or open circuits.

Refer to [DEF-47, "Inspection and Repair"](#).

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair filament. Refer to [DEF-47, "Inspection and Repair"](#).

DRIVER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

DRIVER SIDE DOOR MIRROR DEFOGGER

Description

INFOID:000000012783014

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:000000012783015

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-35, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012783016

Regarding Wiring Diagram information, refer to [DEF-20, "Wiring Diagram"](#).

1. CHECK 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.)	
Connector	Terminal				
D7	3	Ground	Rear window de-fogger switch	ON	Battery voltage
			OFF	0	

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Repair or replace harness.

2. CHECK GROUND CIRCUIT

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

Door mirror LH		Ground	Continuity
Connector	Terminal		
D7	9		Yes

Is the inspection result normal?

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

3. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.
Refer to [DEF-36, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace door mirror. Refer to [MIR-19, "DOOR MIRROR ASSEMBLY : Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

DEF

DRIVER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

4. 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:000000012783017

1. CHECK DOOR MIRROR DEFOGGER LH

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

Terminal		Continuity
3	9	Yes

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace door mirror LH. Refer to [MIR-19, "DOOR MIRROR ASSEMBLY : Removal and Installation"](#).

PASSENGER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

PASSENGER SIDE DOOR MIRROR DEFOGGER

Description

INFOID:000000012783018

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:000000012783019

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-37, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012783020

Regarding Wiring Diagram information, refer to [DEF-20, "Wiring Diagram"](#).

1. CHECK 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.)
Connector	Terminal			
D106	3	Ground	Rear window de-fogger switch	ON
				OFF
				Battery voltage
				0

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Repair or replace harness.

2. CHECK GROUND CIRCUIT

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

Door mirror RH		Ground	Continuity
Connector	Terminal		
D106	9		Yes

Is the inspection result normal?

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

3. CHECK PASSENGER SIDE DOOR MIRROR DEFOGGER

Check door mirror defogger RH.
Refer to [DEF-38, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

DEF

PASSENGER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace door mirror RH. Refer to [MIR-19, "DOOR MIRROR ASSEMBLY : Removal and Installation"](#).

4. 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:000000012783021

1. CHECK DOOR MIRROR DEFOGGER RH

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

Terminal		Continuity
3	9	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace door mirror RH. Refer to [MIR-19, "DOOR MIRROR ASSEMBLY : Removal and Installation"](#).

REAR WINDOW DEFOGGER FEEDBACK SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

REAR WINDOW DEFOGGER FEEDBACK SIGNAL

Description

INFOID:000000012783022

Turns the indicator lamp in the rear window defogger switch ON when operating the rear window defogger.

Component Function Check

INFOID:000000012783023

1. CHECK REAR WINDOW DEFOGGER FEEDBACK SIGNAL

Check that the indicator lamp of rear window defogger switch is illuminated when turning the rear window defogger switch ON.

Is the inspection result normal?

- OK >> Rear window defogger feedback signal is OK.
- NG >> Refer to [DEF-39, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012783024

Regarding Wiring Diagram information, refer to [DEF-20, "Wiring Diagram"](#).

1. CHECK REAR WINDOW DEFOGGER FEEDBACK SIGNAL

1. Turn ignition switch ON.
2. Turn rear window defogger switch ON.
3. Check voltage between A/C auto amp. harness connector and ground.

A/C auto amp.		Ground	Condition		Voltage (V) (Approx.)
Connector	Terminal		Rear window defogger switch		
M29 (without A/C)	25	Ground		ON	Battery voltage
M33 (with manual A/C)			OFF	0	
M34 (with auto A/C)					

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-105, "Removal and Installation"](#) (with auto A/C) or [HAC-190, "Removal and Installation"](#) (without auto A/C).
- NO >> Repair or replace harness.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

DEF

DEFOGGER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

DEFOGGER SYSTEM SYMPTOMS

Symptom Table

INFOID:000000012783025

Symptom	Reference page
Rear window defogger and door mirror defoggers* do not operate.	Refer to DEF-41, "Diagnosis Procedure" .
Rear window defogger does not operate but both door mirror defoggers* operate.	Refer to DEF-42, "Diagnosis Procedure" .
Both door mirror defoggers* don't operate but rear window defogger operates.	Refer to DEF-43, "Diagnosis Procedure" .
Driver side door mirror defogger* does not operate.	Refer to DEF-44, "Diagnosis Procedure" .
Passenger side door mirror defogger* does not operate.	Refer to DEF-45, "Diagnosis Procedure" .
Rear window defogger switch does not light, but rear window defogger operates.	Refer to DEF-46, "Diagnosis Procedure" .

*: if equipped

REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGERS DO NOT OPERATE

< SYMPTOM DIAGNOSIS >

REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGERS DO NOT OPERATE

Diagnosis Procedure

INFOID:000000012783026

1. CHECK REAR WINDOW DEFOGGER SWITCH

Check rear window defogger switch.

Refer to [DEF-30. "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-32. "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-33. "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.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

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

< SYMPTOM DIAGNOSIS >

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

Diagnosis Procedure

INFOID:000000012783027

1. CHECK REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Check rear window defogger power supply and ground circuit.

Refer to [DEF-33, "Component Function Check"](#).

Is the inspection result normal?

YES >> 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

< SYMPTOM DIAGNOSIS >

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

Diagnosis Procedure

INFOID:000000012783028

1. CHECK DOOR MIRROR DEFOGGER FUSE

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

COMPONENT PARTS	AMPERE	FUSE NO.
Fuse block (J/B)	10A	1

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

Check door mirror defogger power supply and ground circuit.

Refer to [DEF-35. "Component Function Check"](#) (driver side) or [DEF-37. "Component Function Check"](#) (passenger side).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CHECK BOTH DOOR MIRROR DEFOGGER

1. Check door mirror LH. Refer to [DEF-36. "Component Inspection"](#).

2. Check door mirror RH. Refer to [DEF-38. "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

< SYMPTOM DIAGNOSIS >

DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

Diagnosis Procedure

INFOID:000000012783029

1. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.

Refer to [DEF-35, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

< SYMPTOM DIAGNOSIS >

PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

Diagnosis Procedure

INFOID:000000012783030

1. CHECK DOOR MIRROR DEFOGGER RH

Check door mirror defogger RH.

Refer to [DEF-37, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

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:000000012783031

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-41, "Intermittent Incident"](#).
- NO >> Refer to [DEF-39, "Diagnosis Procedure"](#).

FILAMENT

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

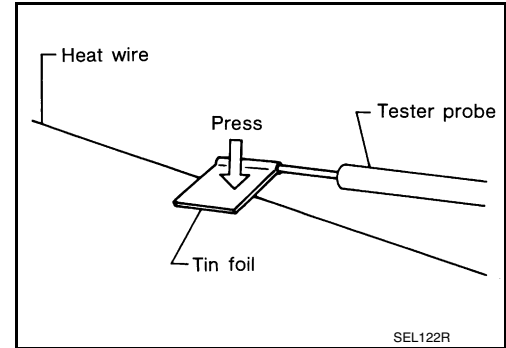
FILAMENT

Inspection and Repair

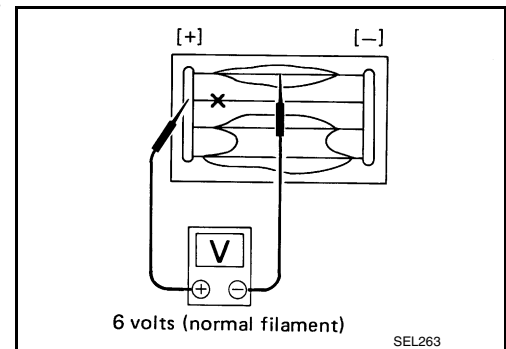
INFOID:0000000012783032

INSPECTION

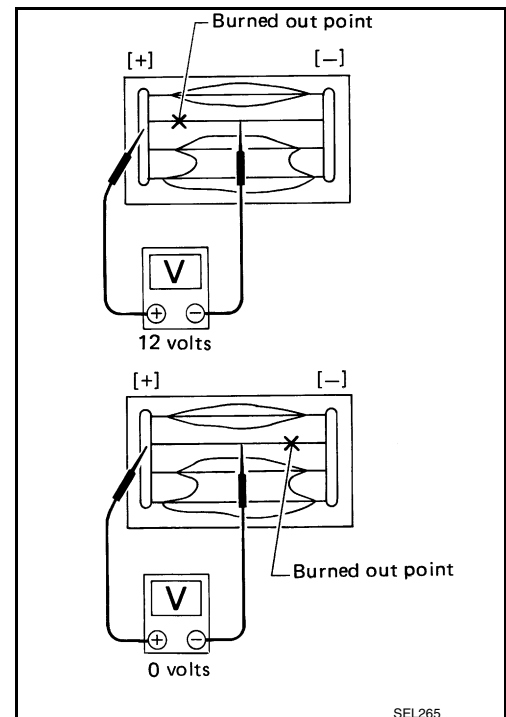
1. When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.



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.



REPAIR

REPAIR EQUIPMENT

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

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

FILAMENT

< REMOVAL AND INSTALLATION >

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

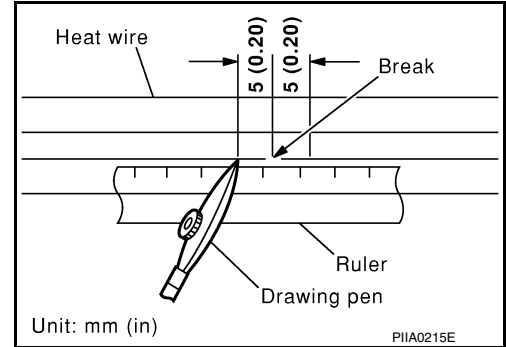
REPAIRING PROCEDURE

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.

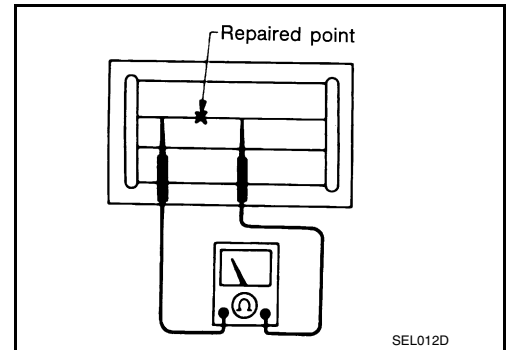
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.



4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.

CAUTION:

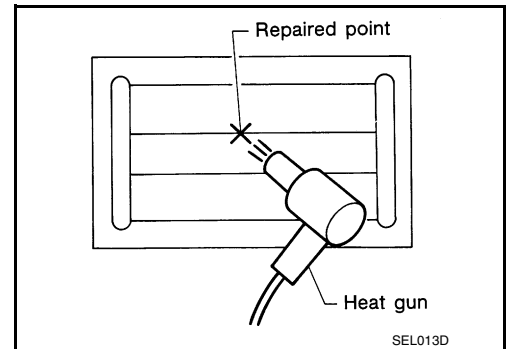
Do not touch repaired area while test is being conducted.



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 >

CONDENSER

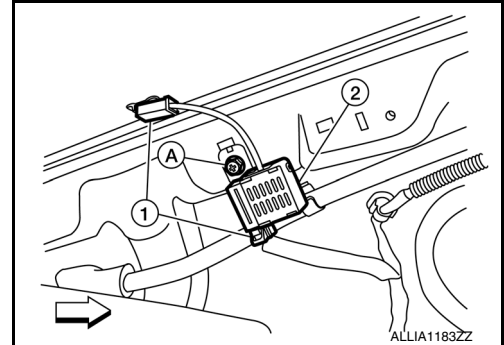
Removal and Installation

INFOID:000000012783033

REMOVAL

1. Remove the rear pillar finisher. Refer to [INT-29, "REAR PILLAR FINISHER : Removal and Installation"](#).
2. Disconnect the harness connectors (1), remove the condenser bolt (A) and the condenser (2).

⇐: Front



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P