SECTION DEF
DEFOGGER

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000006484508

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 “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

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 “SRS AIR BAG”.**
- **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.**
- **The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.**

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, and wait at least 3 minutes before performing any service.**

Precaution Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:0000000006484509

NOTE:

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

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

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

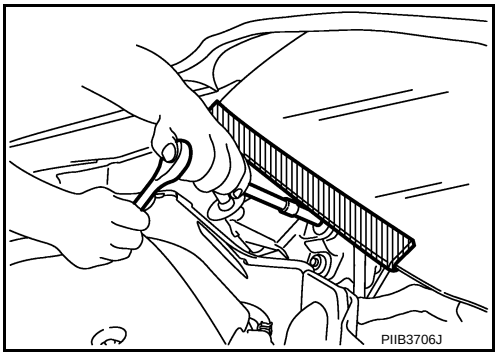
OPERATION PROCEDURE

1. Connect both battery cables.
   NOTE:
   Supply power using jumper cables if battery is discharged.
2. Turn the ignition switch to ACC position.
   (At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT-III.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000006484510

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



SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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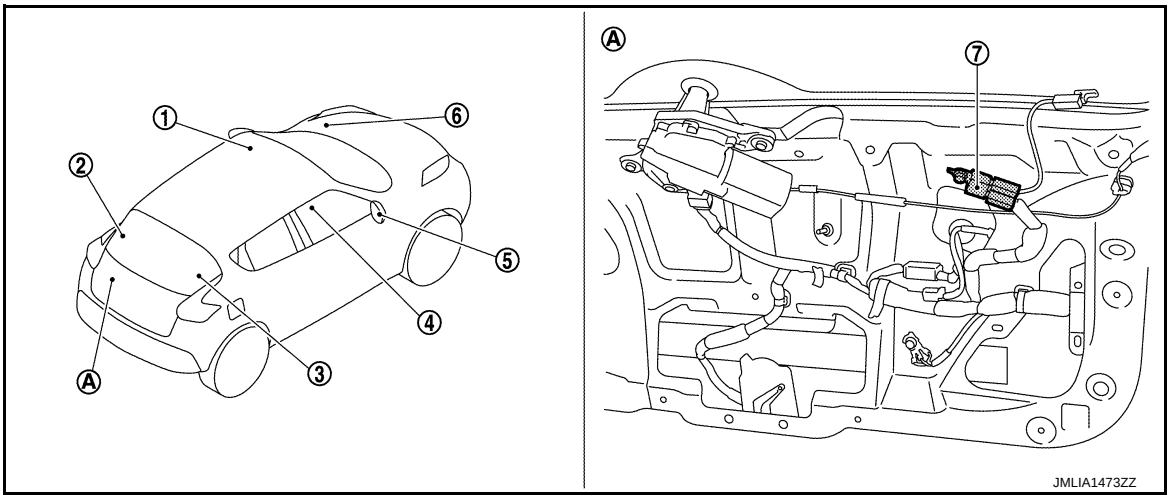


1. BCM
   Refer to BCS-6, "BODY CONTROL SYSTEM : Component Parts Location" (With Intelligent Key system) or BCS-96, "BODY CONTROL SYSTEM : Component Parts Location" (Without Intelligent Key system).
2. Rear window defogger connector
3. Rear window defogger connector
4. Multidisplay unit*1
   A/C control*2
   Heter control*3
   (Rear window defogger switch)
5. Door mirror defogger
6. IPDM E/R
   Refer to PCS-5, "Component Parts Location" (With Intelligent Key system) or PCS-37, "Component Parts Location" (Without Intelligent Key system).
7. Condenser

*1: With automatic A/C
*2: With manual A/C
*3: Without A/C

Component Description

INFOID:0000000006479499

BCM	• Rear window defogger switch operation is transmitted to IPDM E/R via CAN communication • Performs the timer control of rear window defogger
IPDM E/R	BCM controls rear window defogger relay via CAN communication, and then operates rear window defogger
• Multidisplay unit*1 • A/C control*2 • Heter control*3	• The rear window defogger switch is installed • Turns the indicator lamp ON when detecting the operation of rear window defogger
Rear window defogger switch	• The rear window defogger is operated by turning the rear window defogger switch ON. • The indicator lamp in the rear window defogger illuminates when the rear window defogger is operating.
Rear window defogger relay	Operates the rear window defogger with the control signal from IPDM E/R

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

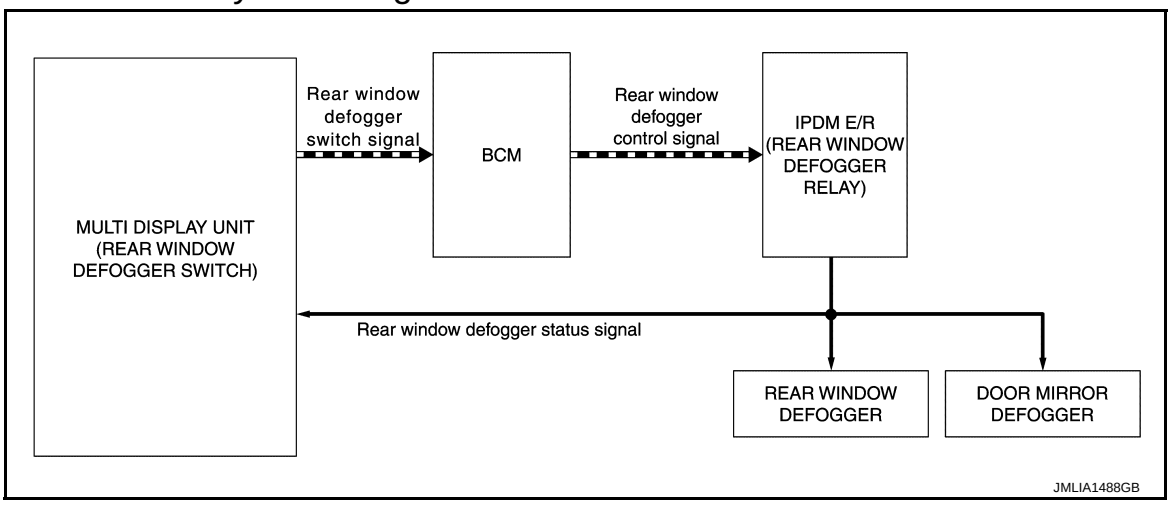
*1: With automatic A/C
*2: With manual A/C
*3: Without A/C

SYSTEM

WITH AUTO A/C

WITH AUTO A/C : System Diagram

INFOID:0000000006675854



WITH AUTO A/C : System Description

INFOID:0000000006675855

OPERATION DESCRIPTION

- BCM detects that the rear window defogger switch turns ON when the ignition switch is ON, and then transmits the rear window defogger switch signal to IPDM E/R via CAN communication for approximately 15 minutes.
- IPDM E/R turns rear window defogger relay ON when it receives the rear window defogger switch signal.
- The power is supplied to the rear window defogger and door mirror defogger when the rear window defogger relay turns ON.
- When rear window defogger is activated, indicator lamp on rear window defogger switch turns ON.

TIMER FUNCTION

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

WITHOUT AUTO A/C

WITHOUT AUTO A/C : System Diagram

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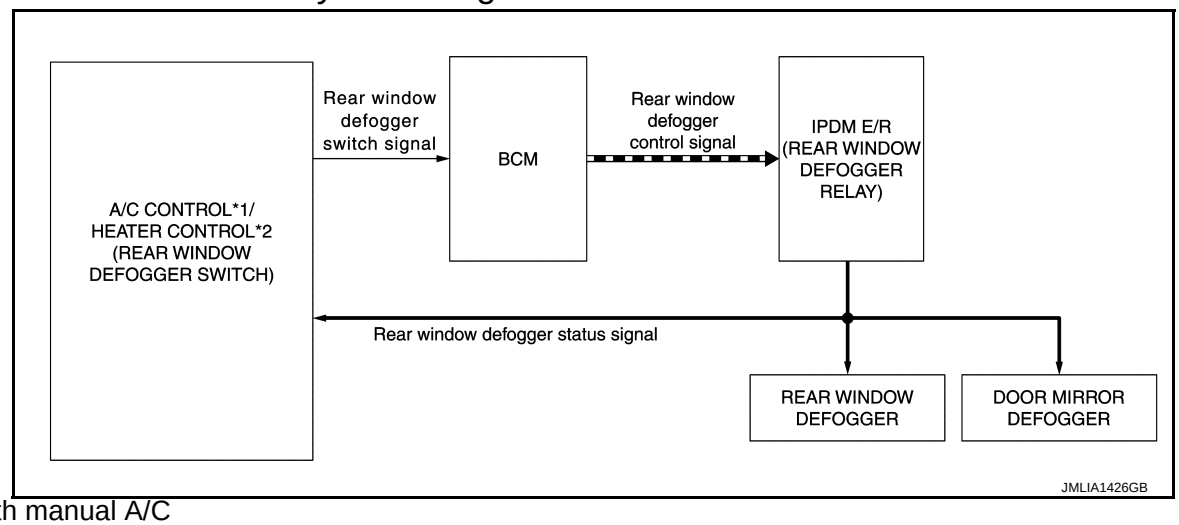


*1: With manual A/C
*2: Without A/C

WITHOUT AUTO A/C : System Description

INFOID:0000000006675084

OPERATION DESCRIPTION

- BCM detects that the rear window defogger switch turns ON when the ignition switch is ON, and then transmits the rear window defogger switch signal to IPDM E/R via CAN communication for approximately 15 minutes.
- IPDM E/R turns rear window defogger relay ON when it receives the rear window defogger switch signal.
- The power is supplied to the rear window defogger and door mirror defogger when the rear window defogger relay turns ON.
- When rear window defogger is activated, indicator lamp on rear window defogger switch turns ON.

TIMER FUNCTION

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

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

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

INFOID:0000000006706394

APPLICATION ITEM

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

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER	×	×	×
• Automatic A/C • Manual A/C	AIR CONDITONER		×	×*2
• Intelligent Key system • Engine start system	INTELLIGENT KEY	×	×	×
Combination switch	COMB SW		×	
Body control system	BCM	×		
NVIS - NATS	IMMU	×	×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door open	TRUNK		×	
Theft warning alarm	THEFT ALM	×	×	×
—	RETAINED PWR*1		×	
Signal buffer system	SIGNAL BUFFER		×	×

NOTE:

- *1: This item is displayed, but not used.
- *2: For models with automatic A/C, this diagnosis mode is not used.

FREEZE FRAME DATA (FFD)

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

CONSULT screen item	Indication/Unit	Description	
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected	
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected	
Vehicle Condition	SLEEP>LOCK	Power position status of the moment a particular DTC is detected	While turning BCM status from low power consumption mode to normal mode (Power supply position is “LOCK”)
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is “OFF”.)
	LOCK>ACC		While turning power supply position from “LOCK” to “ACC”
	ACC>ON		While turning power supply position from “ACC” to “IGN”
	RUN>ACC		While turning power supply position from “RUN” to “ACC” (Vehicle is stopping and selector lever is except P position.)
	CRANK>RUN		While turning power supply position from “CRANKING” to “RUN” (From cranking up the engine to run it)
	RUN>URGENT		While turning power supply position from “RUN“ to “ACC” (Emergency stop operation)
	ACC>OFF		While turning power supply position from “ACC” to “OFF”
	OFF>LOCK		While turning power supply position from “OFF” to “LOCK”
	OFF>ACC		While turning power supply position from “OFF” to “ACC”
	ON>CRANK		While turning power supply position from “IGN” to “CRANKING”
	OFF>SLEEP		While turning BCM status from normal mode (Power supply position is “OFF”.) to low power consumption mode
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply position is “LOCK”.) to low power consumption mode
	LOCK		Power supply position is “LOCK” (Ignition switch OFF with steering is locked.)
	OFF		Power supply position is “OFF” (Ignition switch OFF with steering is unlocked.)
	ACC		Power supply position is “ACC” (Ignition switch ACC)
	ON		Power supply position is “IGN” (Ignition switch ON with engine stopped)
	ENGINE RUN		Power supply position is “RUN” (Ignition switch ON with engine running)
	CRANKING		Power supply position is “CRANKING” (At engine cranking)
IGN Counter	0 - 39	The number of times that ignition switch is turned ON after DTC is detected • The number is 0 when a malfunction is detected now. • The number increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. • The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.	

REAR WINDOW DEFOGGER

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

INFOID:0000000006479503

Data monitor

Monitor Item	Description
REAR DEF SW	Displays “Press (ON)/other (OFF)” status determined with the rear window defogger switch.
PUSH SW	Indicates [ON/OFF] condition of push switch.

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	Give a drive signal to the rear window defogger relay to activate it.

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

COMMON ITEM

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

INFOID:0000000006706392

APPLICATION ITEM

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

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

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp control	INT LAMP	×	×	×
Remote keyless entry system	MULTI REMOTE ENT	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
• Automatic A/C • Manual A/C • Manual heater	AIR CONDITONER		×	×*2
Combination switch	COMB SW		×	
Body control system	BCM	×		
NATS	IMMU	×		×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door open	TRUNK		×	
Vehicle security system	THEFT ALM	×	×	×
—	RETAINED PWR*1		×	×
Signal buffer system	SIGNAL BUFFER		×	×
—	PANIC ALARM*1			×

- *1: This item is displayed, but is not used.
- *2: For models with automatic A/C, this mode is not used.

REAR WINDOW DEFOGGER

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

INFOID:0000000006706393

Data monitor

Monitor Item	Description
REAR DEF SW	Displays “Press (ON)/other (OFF)” status determined with the rear window defogger switch.
IGN ON SW	Indicates [ON/OFF] condition of ignition switch in ON position.
ACC ON SW	Indicates [ON/OFF] condition of ignition switch ACC position.

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	Give a drive signal to the rear window defogger relay to activate it.

DIAGNOSIS SYSTEM (IPDM E/R)
WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : Diagnosis Description

INFOID:0000000006706400

AUTO ACTIVE TEST

Description

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

- Oil pressure warning lamp (only for K9K engine models)
- Rear window defogger
- Front wiper motor
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

Operation Procedure

CAUTION:

Wiper arm interferes with food when wiper is operated while wiper arm is in the raised position. Always perform auto active test without setting wiper arm in the raised position. Always pour water on front windshield glass in advance to auto active test so that damage on front windshield glass surface is prevented.

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.
   CAUTION:
   Close passenger door.
3. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
   CAUTION:
   Engine starts when ignition switch is turned ON while brake pedal is depressed.
4. Oil pressure warning lamp starts blinking when the auto active test starts*. (only for K9K engine models)
   *: Except for K9K engine models, oil pressure warning lamp turn ON when auto active test start.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

- When auto active test mode 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-87, "Component Function Check" (with super lock) or DLK-258, "Component Function Check" (without super lock).

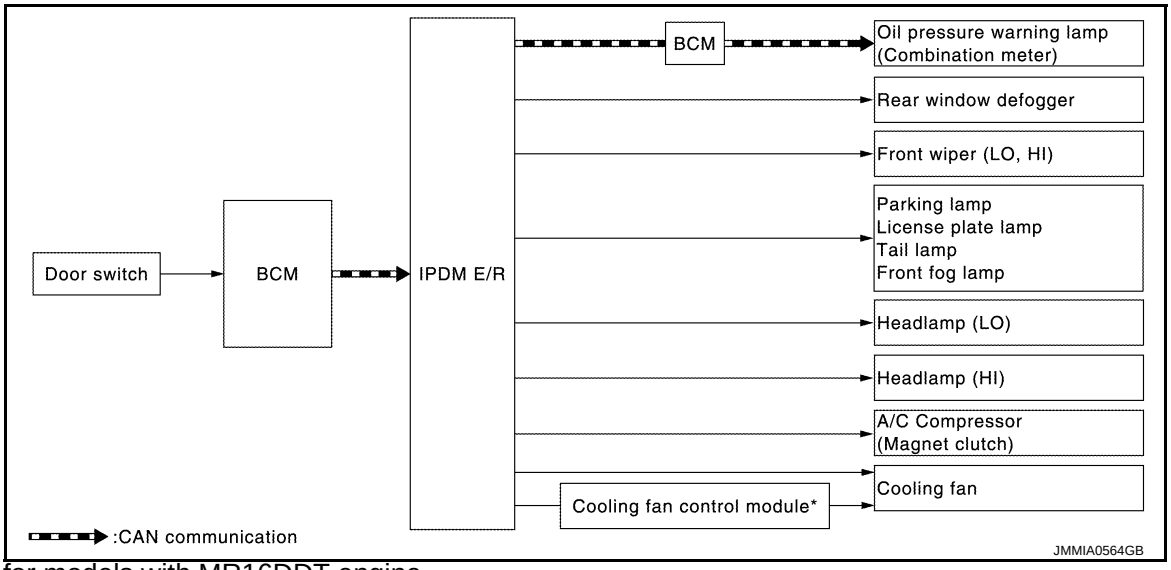
Inspection in Auto Active Test Mode

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

Operation sequence	Inspection location	Operation
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test **NOTE:** Except for K9K engine models, turn ON continuously during operation of auto active test.
2	Rear window defogger	10 seconds
3	Front wiper motor	LO for 5 seconds → HI for 5 seconds
4	• Parking lamp • License plate lamp • Tail lamp • Front fog lamp	10 seconds

Operation sequence	Inspection location	Operation
5	Headlamp	LO for 10 seconds →HI ON ⇔ OFF 5 times
6	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
7	Cooling fan	• LO for 5 seconds → HI for 5 seconds (Except for MR16DDT models) • 50% duty for 5 seconds → 100% duty for 5 seconds (For MR16DDT models)

Concept of auto active test



*: Only for models with MR16DDT engine

- 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 mode

Symptom	Inspection contents		Possible cause
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	YES	BCM signal input circuit
		NO	• Rear window defogger • Rear window defogger ground circuit • Harness or connector between IPDM E/R and rear window defogger • IPDM E/R
Any of the following components do not operate • Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper motor	Perform auto active test. Does the applicable system operate?	YES	BCM signal input circuit
		NO	• 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	• A/C amp. signal input circuit • CAN communication signal between A/C amp. and ECM • CAN communication signal between ECM and IPDM E/R
		NO	• Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R

Symptom	Inspection contents		Possible cause
Oil pressure warning lamp does not operate (only for K9K engine models)	Perform auto active test. Does the oil pressure warning lamp blink?	YES	• Harness or connector between IPDM E/R and oil pressure switch • Oil pressure switch • IPDM E/R
		NO	• CAN communication signal between IPDM E/R and BCM • CAN communication signal between BCM and combination meter • Combination meter
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES	• ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO	• Harness or connector between IPDM E/R and cooling fan motor • Harness or connector between IPDM E/R and cooling fan control module. (Only for models with MR16DDT engine) • Harness or connector between cooling fan control module and cooling fan motor (Only for models with MR16DDT engine) • Cooling fan motor • Cooling fan control module (Only for models with MR16DDT engine) • IPDM E/R

WITH INTELLIGENT KEY : CONSULT-III Function (IPDM E/R)

INFOID:0000000006706401

APPLICATION ITEM

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

Diagnosis mode	Description
Ecu Identification	Allows confirmation of IPDM E/R part number.
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

SELF DIAGNOSTIC RESULT

Refer to PCS-25, "DTC Index".

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
RAD FAN REQ [%]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication. **NOTE:** This item is displayed only for vehicle with MR16DDT engine.
MOTOR FAN REQ [1/2/3/4]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication. **NOTE:** This item is displayed only for vehicle without MR16DDT engine.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
IGN RLY1 -REQ [Off/On]		Displays the status of the ignition switch ON signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Off/On]		Displays the status of the push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the ignition power supply (M/T models) or shift position (CVT models) judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INHI RLY [Off/ ST ON/INHI ON/UNKWN]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the CVT shift selector (detention switch) judged by IPDM E/R.
S/L RLY -REQ [Off/On]		Displays the status of the steering lock relay signal received from BCM via CAN communication.
S/L STATE [LOCK/UNLK/UNKWN]		Displays the status of the steering lock judged by IPDM E/R.
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BCM via CAN communication.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R. **NOTE:** This item is monitored only K9K engine models.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R.

Monitor Item [Unit]	MAIN SIGNALS	Description
HL WASHER REQ [Off/On]		Displays the status of the headlamp washer request signal received from BCM via CAN communication.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		**NOTE:** The item is indicated, but not monitored.

ACTIVE TEST

Test item

Test item		Operation	Description
HORN		On	Operates horn relay for 20 ms.
REAR DEFOGGER		Off	OFF
		On	Operates the rear window defogger relay.
FRONT WIPER		Off	OFF
		Lo	Operates the front wiper relay.
		Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	For MR16DDT engine	1	OFF
		2	Transmits 50% pulse duty signal (PWM signal) to the cooling fan control module.
		3	Transmits 75% pulse duty signal (PWM signal) to the cooling fan control module.
		4	Transmits 100% pulse duty signal (PWM signal) to the cooling fan control module.
	Except for MR16DDT engine	1	OFF
		2	Operates the cooling fan relay (LO operation).
		3	Operates the cooling fan relay (HI operation).
		4	
HEAD LAMP WASHER		On	Operates the headlamp washer relay for 1 second.
EXTERNAL LAMPS		Off	OFF
		TAIL	Operates the tail lamp relay.
		Lo	Operates the headlamp low relay.
		Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
		Fog	Operates the front fog lamp relay.

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : Diagnosis Description

INFOID:0000000006706402

AUTO ACTIVE TEST

Description

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

- Oil pressure warning lamp (only for K9K engine models)
- Rear window defogger
- Front wiper motor
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp
- Headlamp (LO, HI)

- A/C compressor (magnet clutch)
- Cooling fan

Operation Procedure

CAUTION:

Wiper arm interferes with food when wiper is operated while wiper arm is in the raised position. Always perform auto active test without setting wiper arm in the raised position. Always pour water on front windshield glass in advance to auto active test so that damage on front windshield glass surface is prevented.

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.
   CAUTION:
   Close passenger door.
3. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
   CAUTION:
   Engine starts when ignition switch is turned ON while brake pedal is depressed.
4. Oil pressure warning lamp starts blinking when the auto active test starts*. (only for K9K engine models)
   *: Except for K9K engine models, oil pressure warning lamp turn ON when auto active test start.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

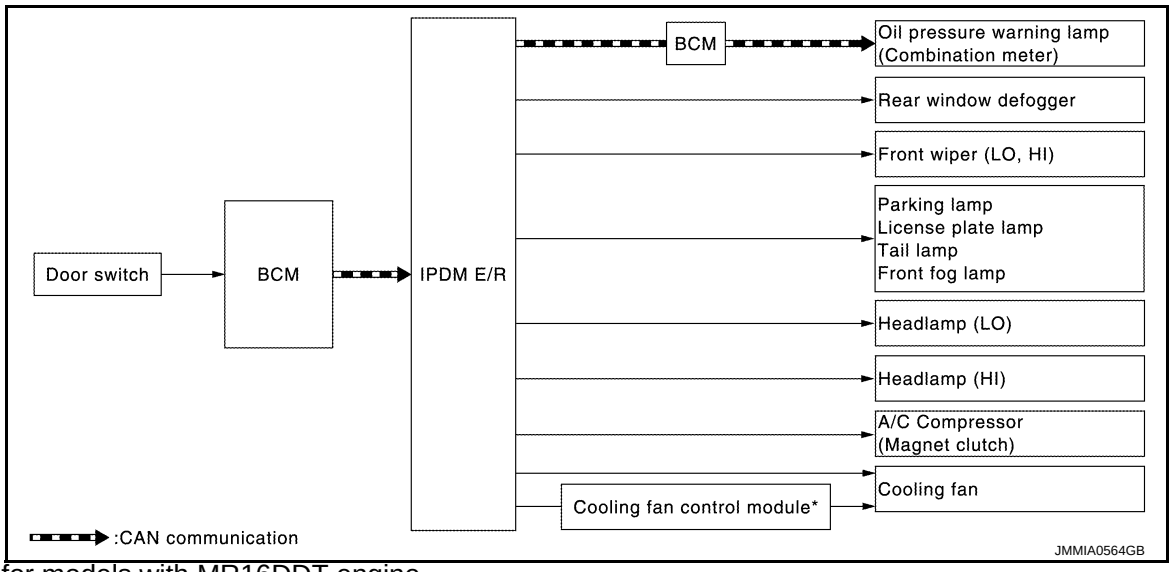
- When auto active test mode has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to DLK-397, "Component Function Check" (with super lock) or DLK-522, "Component Function Check" (without super lock).

Inspection in Auto Active Test Mode

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

Operation sequence	Inspection location	Operation
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test **NOTE:** Except for K9K engine models, turn ON continuously during operation of auto active test.
2	Rear window defogger	10 seconds
3	Front wiper motor	LO for 5 seconds → HI for 5 seconds
4	• Parking lamp • License plate lamp • Tail lamp • Front fog lamp	10 seconds
5	Headlamp	LO for 10 seconds →HI ON ⇔ OFF 5 times
6	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
7	Cooling fan	• LO for 5 seconds → HI for 5 seconds (Except for MR16DDT models) • 50% duty for 5 seconds → 100% duty for 5 seconds (For MR16DDT models)

Concept of auto active test



*: Only for models with MR16DDT engine

- 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 mode

Symptom	Inspection contents		Possible cause
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	YES	BCM signal input circuit
		NO	• Rear window defogger • Rear window defogger ground circuit • Harness or connector between IPDM E/R and rear window defogger • IPDM E/R
Any of the following components do not operate • Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper motor	Perform auto active test. Does the applicable system operate?	YES	BCM signal input circuit
		NO	• 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	• A/C amp. signal input circuit • CAN communication signal between A/C amp. and ECM • CAN communication signal between ECM and IPDM E/R
		NO	• Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R

Symptom	Inspection contents		Possible cause
Oil pressure warning lamp does not operate (only for K9K engine models)	Perform auto active test. Does the oil pressure warning lamp blink?	YES	• Harness or connector between IPDM E/R and oil pressure switch • Oil pressure switch • IPDM E/R
		NO	• CAN communication signal between IPDM E/R and BCM • CAN communication signal between BCM and combination meter • Combination meter
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES	• ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO	• Harness or connector between IPDM E/R and cooling fan motor • Harness or connector between IPDM E/R and cooling fan control module. (Only for model with MR16DDT engine) • Harness or connector between cooling fan control module and cooling fan motor (Only for model with MR16DDT engine) • Cooling fan motor • Cooling fan control module (Only for model with MR16DDT engine) • IPDM E/R

WITHOUT INTELLIGENT KEY : CONSULT-III Function (IPDM E/R)

INFOID:0000000006706403

APPLICATION ITEM

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

Diagnosis mode	Description
Ecu Identification	Allows confirmation of IPDM E/R part number.
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

SELF DIAGNOSTIC RESULT

Refer to PCS-55, "DTC Index".

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
RAD FAN REQ [%]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication. **NOTE:** This item is displayed only for vehicle with MR16DDT engine
MOTOR FAN REQ [1/2/3/4]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication. **NOTE:** This item is displayed only for vehicle without MR16DDT engine
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the shift position (CVT models) judged by IPDM E/R.
ST RLY REQ [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BCM via CAN communication.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R. **NOTE:** This item is monitored only K9K engine models.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R.
HL WASHER REQ [Off/On]		Displays the status of the headlamp washer request signal received from BCM via CAN communication.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		**NOTE:** This item is indicated, but not monitored.

ACTIVE TEST

Test item

Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
REAR DEFOGGER	Off	OFF
	On	Operates the rear window defogger relay.

Test item		Operation	Description
FRONT WIPER		Off	OFF
		Lo	Operates the front wiper relay.
		Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	For MR16DDT engine	1	OFF
		2	Transmits 50% pulse duty signal (PWM signal) to the cooling fan control module.
		3	Transmits 75% pulse duty signal (PWM signal) to the cooling fan control module.
		4	Transmits 100% pulse duty signal (PWM signal) to the cooling fan control module.
	Except for MR16DDT engine	1	OFF
		2	Operates the cooling fan relay (LO operation).
		3	Operates the cooling fan relay (HI operation).
		4	
HEAD LAMP WASHER		On	Operates the headlamp washer relay for 1 second.
EXTERNAL LAMPS		Off	OFF
		TAIL	Operates the tail lamp relay.
		Lo	Operates the headlamp low relay.
		Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
		Fog	Operates the front fog lamp relay.

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000006479506

ECU		Reference
BCM	(With Intelligent Key system)	BCS-41, "Reference Value"
		BCS-64, "Fail-safe"
		BCS-66, "DTC Inspection Priority Chart"
		BCS-67, "DTC Index"
	(Without Intelligent Key system)	BCS-125, "Reference Value"
		BCS-140, "Fail-safe"
		BCS-140, "DTC Inspection Priority Chart"
		BCS-141, "DTC Index"
IPDM E/R	(With Intelligent Key system)	PCS-17, "Reference Value"
		PCS-24, "Fail-Safe"
		PCS-25, "DTC Index"
	(Without Intelligent Key system)	PCS-48, "Reference Value"
		PCS-54, "Fail-Safe"
		PCS-55, "DTC Index"

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000006479508

DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings the vehicle in.

>> GO TO 2.

2.CHECK FOR DTC

Perform self diagnosis with CONSULT-III

Is any DTC detected?

YES-1 >> BCM: Refer to BCS-67, "DTC Index" (With Intelligent Key system) or BCS-141, "DTC Index" (Without Intelligent Key system).
YES-2 >> IPDM E/R: Refer to PCS-25, "DTC Index" (With Intelligent Key system) or PCS-55, "DTC Index" (Without Intelligent Key system).
NO >> GO TO 3.

3.REPRODUCE THE MALFUNCTION INFORMATION

Check the malfunction on the vehicle that the customer describes.
Inspect the relation of the symptoms and the condition when the symptoms occur.

>> GO TO 4.

4.IDENTIFY THE MALFUNCTIONING SYSTEM WITH “SYMPTOM DIAGNOSIS”

Use “Symptom diagnosis” from the symptom inspection result in step 3. Then identify where to start performing the diagnosis based on possible causes and symptoms.

>> GO TO 5.

5.IDENTIFY MALFUNCTIONING PARTS WITH “COMPONENT DIAGNOSIS”

Perform the diagnosis with “Component diagnosis” of the applicable system.

>> GO TO 6.

6.REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>> GO TO 7.

7.FINAL CHECK

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 3.

Are all malfunctions corrected?

YES >> INSPECTION END
NO >> GO TO 4.

DTC/CIRCUIT DIAGNOSIS

REAR WINDOW DEFOGGER SWITCH
WITH AUTO A/C

WITH AUTO A/C : Description

INFOID:0000000006704489

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

WITH AUTO A/C : Component Function Check

INFOID:0000000006704490

1.CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

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

Is the inspection result normal?

YES >> Rear window defogger switch function is OK.
NO >> Refer to DEF-26, "WITH AUTO A/C : Diagnosis Procedure"

WITH AUTO A/C : Diagnosis Procedure

INFOID:0000000006704491

1.CHECK MULTI DISPLAY UNIT (REAR WINDOW DEFOGGER SWITCH)

Does multi display unit (rear window defogger switch) operate normally?
- Auto A/C (4WD models). Refer to HAC-29, "Description".
- Auto A/C (2WD models). Refer to HAC-121, "Description".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace multi display unit (rear window defogger switch).

WITHOUT AUTO A/C

WITHOUT AUTO A/C : Description

INFOID:0000000006484478

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

WITHOUT AUTO A/C : Component Function Check

INFOID:0000000006484479

1.CHECK FUNCTION

Check (REAR DEF SW) in BCM “DATA MONITOR”mode using CONSULT-III when rear window defogger switch is ON.

Is the inspection result normal?

YES >> Rear window defogger switch function is OK.
NO >> Refer to DEF-26, "WITHOUT AUTO A/C : Diagnosis Procedure"

WITHOUT AUTO A/C : Diagnosis Procedure

INFOID:0000000006484480

1.CHECK BCM OUTPUT SIGNAL

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

(+)		(–)	Voltage (V) (Approx.)
A/C control			
Connector	Terminal		
M53	3	Ground	12

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK REAR WINDOW DEFOGGER SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and A/C control harness connector.

BCM			A/C control		Continuity
Connector		Terminal	Connector	Terminal	
With Intelligent Key system	M65	10	M53	3	Existed
Without Intelligent Key system	M68	15			

3. Check continuity between BCM harness connector and ground.

BCM			Ground	Continuity
Connector		Terminal		
With Intelligent Key system	M65	10		Not existed
Without Intelligent Key system	M68	15		

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-93, "Removal and Installation" (With Intelligent Key system) or BCS-161, "Removal and Installation" (Without Intelligent Key system).
NO >> Repair or replace harness.

3.CHECK GROUND CIRCUIT

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

A/C control		Ground	Continuity
Connector	Terminal		
M53	8		Existed

Is the inspection result normal?

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

4.CHECK REAR WINDOW DEFOGGER SWITCH

Refer to DEF-27, "WITHOUT AUTO A/C : Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace A/C control. Refer to HAC-239, "Removal and Installation" (4WD models) or HAC-304, "Removal and Installation" (2WD models).

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

>> INSPECTION END

WITHOUT AUTO A/C : Component Inspection

INFOID:0000000006484481

1.CHECK REAR WINDOW DEFOGGER SWITCH

1. Turn ignition switch OFF.
2. Disconnect A/C control connector.
3. Check continuity between A/C control terminals.

A/C control		Condition		Continuity
Terminal				
3	8	Rear window defogger switch	Pressed	Existed
			Released	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace A/C control. Refer to HAC-239, "Removal and Installation" (4WD models) or HAC-304, "Removal and Installation" (2WD models).

WITHOUT A/C

WITHOUT A/C : Description

INFOID:0000000006702138

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

WITHOUT A/C : Component Function Check

INFOID:0000000006702139

1.CHECK FUNCTION

Check (REAR DEF SW) in BCM “DATA MONITOR”mode using CONSULT-III when rear window defogger switch is ON.

Is the inspection result normal?

YES >> Rear window defogger switch function is OK.
NO >> Refer to DEF-28, "WITHOUT A/C : Diagnosis Procedure"

WITHOUT A/C : Diagnosis Procedure

INFOID:0000000006702140

1.CHECK BCM OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect heater control connector.
3. Check voltage between heater control harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Heater control			
Connector	Terminal		
M47	9	Ground	12

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK REAR WINDOW DEFOGGER SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and heater control harness connector.

BCM		Heater control		Continuity
Connector	Terminal	Connector	Terminal	
M68	15	M47	9	Existed

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M68	15		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-161, "Removal and Installation".
NO >> Repair or replace harness.

3.CHECK GROUND CIRCUIT

Check continuity between heater control harness connector and ground.

Heater control		Ground	Continuity
Connector	Terminal		
M47	10		Existed

Is the inspection result normal?

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

4.CHECK REAR WINDOW DEFOGGER SWITCH

Refer to DEF-29, "WITHOUT A/C : Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace heater control. Refer to HAC-331, "Removal and Installation".

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

Is the inspection result normal?

>> INSPECTION END

WITHOUT A/C : Component Inspection

INFOID:0000000006702141

1.CHECK REAR WINDOW DEFOGGER SWITCH

1. Turn ignition switch OFF.
2. Disconnect heater control connector.
3. Check continuity between heater control terminals.

Heater control		Condition		Continuity
Terminal				
9	10	Rear window defogger switch	Pressed	Existed
			Released	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace heater control. Refer to HAC-331, "Removal and Installation".

REAR WINDOW DEFOGGER RELAY

Description

INFOID:0000000006484482

The rear window defogger is operated by turning the rear window defogger switch ON.

Component Function Check

INFOID:0000000006484483

1.CHECK FUNCTION

1. Perform IPDM E/R Active Test (“REAR DEFOGGER”) using CONSULT-III.
2. Touch “ON”.
3. Check that the rear window heating wire is getting warmer.

Is the inspection result normal?

YES >> Rear window defogger relay function is OK.
NO >> Refer to DEF-30, "Diagnosis Procedure"

Diagnosis Procedure

INFOID:0000000006484484

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check the 20A fuse (No. 41 located in IPDM E/R).

Is the inspection result normal?

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

2.CHECK IPDM E/R OUTPUT SIGNAL

1. Perform IPDM E/R Active Test (“REAR DEFOGGER”) using CONSULT-III.
2. Touch “ON”.
3. Check voltage between IPDM E/R harness connector and ground.

(+)		(–)	CONSULT-III Active Test condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal				
E11	14	Ground	REAR DEFOGGER	ON	9 – 16 V
				OFF	0

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation" (With Intelligent Key system) or PCS-63, "Removal and Installation" (Without Intelligent Key system).

REAR WINDOW DEFOGGER

Description

INFOID:0000000006484485

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:0000000006484486

1.CHECK FUNCTION

1. Perform IPDM E/R Active Test (“REAR DEFOGGER”) using CONSULT-III.
2. Touch “ON”.
3. Check that the rear window heating wire is getting warmer.

Is the inspection result normal?

YES >> Rear window defogger is OK.
NO >> Refer to DEF-30, "Diagnosis Procedure"

Diagnosis Procedure

INFOID:0000000006484487

1.CHECK REAR WINDOW DEFOGGER POWER SUPPLY CIRCUIT

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

(+)		(–)	Condition		Voltage (V) (Approx.)
Rear window defogger					
Connector	Terminal				
D202	1	Ground	Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

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

2.CHECK REAR WINDOW DEFOGGER GROUND CIRCUIT

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

Rear window defogger		Ground	Continuity
Connector	Terminal		
D203	2		Existed

Is the inspection result normal?

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

3.CHECK FILAMENT

Refer to DEF-46, "Inspection and Repair".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair filament.

4.CHECK REAR WINDOW DEFOGGER POWER SUPPLY CIRCUIT 1

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

Condenser		Rear window defogger		Continuity
Connector	Terminal	Connector	Terminal	
D201	2	D202	1	Existed

4. Check continuity between condenser connector and ground.

Condenser		Ground	Continuity
Connector	Terminal		
D201	2		Not existed

Is the inspection result normal?

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

5.CHECK REAR WINDOW DEFOGGER POWER SUPPLY CIRCUIT 2

1. Disconnect IPDM E/R connectors.
2. Check continuity between IPDM E/R harness connector and condenser harness connector.

IPDM E/R		Condenser		Continuity
Connector	Terminal	Connector	Terminal	
E11	14	D103	1	Existed

3. Check continuity between IPDM E/R connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E11	14		Not existed

Is the inspection result normal?

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

6.CHECK CONDENSER

Refer to DEF-32, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace condenser. Refer to DEF-48, "Removal and Installation".

7.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident"

Is the inspection result normal?

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

Component Inspection

INFOID:0000000006484488

1.CHECK CONDENSER

1. Turn ignition switch OFF.
2. Disconnect condenser connector.
3. Check continuity between condenser connector and ground part of condenser.

Condenser		Ground part of condenser	Continuity
Connector	Terminal		
D103	1		Not existed
D202	2		

4. Check continuity between condenser terminals.

Condenser				Continuity
Connector	Terminal	Connector	Terminal	
D103	1	D202	2	Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace condenser. Refer to DEF-48, "Removal and Installation".

DOOR MIRROR DEFOGGER

Description

INFOID:0000000006484489

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:0000000006484490

1.CHECK DOOR MIRROR DEFOGGER

1. Perform IPDM E/R Active Test (“REAR DEFOGGER”) using CONSULT-III.
2. Touch “ON”.
3. Check that both side door mirror glasses are getting warmer.

Is the inspection result normal?

YES >> Door mirror defogger is OK.
NO >> Refer to DEF-34, "Diagnosis Procedure"

Diagnosis Procedure

INFOID:0000000006484491

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10A fuse [No.22, located in fuse block (J/B)].

Is the inspection result normal?

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

2.CHECK DOOR MIRROR DEFOGGER CIRCUIT

1. Disconnect IPDM E/R connector and door mirror (both sides) connector.
2. Check continuity between IPDM E/R harness connector and door mirror (driver side) harness connector.

IPDM E/R		Door mirror (driver side)		Continuity
Connector	Terminal	Connector	Terminal	
E11	14	D29	3	Existed

3. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E11	14		Not existed

Is the inspection result normal?

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

3.CHECK INTERMITTENT INCIDENT

Check intermittent incident.
Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

DRIVER SIDE DOOR MIRROR DEFOGGER

Description

INFOID:0000000006484492

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:0000000006484493

1.CHECK DRIVER SIDE DOOR MIRROR DEFOGGER

1. Perform IPDM E/R Active Test (“REAR DEFOGGER”) using CONSULT-III.
2. Touch “ON”.
3. Check that the driver side door mirror glass is getting warmer.

Is the inspection result normal?

YES >> Driver side door mirror defogger is OK.
NO >> Refer to DEF-35, "Diagnosis Procedure"

Diagnosis Procedure

INFOID:0000000006484494

1.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror (driver side) connector.
3. Turn ignition switch ON.
4. Check voltage between door mirror (driver side) harness connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Door mirror (driver side)					
Connector	Terminal				
D29	3	Ground	Rear window defogger 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 (driver side) harness connector and ground.

Door mirror (driver side)		Ground	Continuity
Connector	Terminal		
D29	2		Existed

Is the inspection result normal?

YES >> Replace door mirror glass (driver side). Refer to MIR-44, "GLASS MIRROR : Removal and Installation"
NO >> Repair or replace harness.

PASSENGER SIDE DOOR MIRROR DEFOGGER

Description

INFOID:0000000006484495

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:0000000006484496

1.CHECK PASSENGER SIDE DOOR MIRROR DEFOGGER

1. Perform IPDM E/R Active Test (“REAR DEFOGGER”) using CONSULT-III.
2. Touch “ON”.
3. Check that the passenger side door mirror glass is getting warmer.

Is the inspection result normal?

YES >> Passenger side door mirror defogger is OK.
NO >> Refer to DEF-36, "Diagnosis Procedure"

Diagnosis Procedure

INFOID:0000000006484497

1.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror (passenger side) connector.
3. Turn ignition switch ON.
4. Check voltage between door mirror (passenger side) harness connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Door mirror (passenger side)					
Connector	Terminal				
D8	3	Ground	Rear window defogger 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 (passenger side) harness connector and ground.

Door mirror (passenger side)		Ground	Continuity
Connector	Terminal		
D8	2		Existed

Is the inspection result normal?

YES >> Replace door mirror glass (passenger side). Refer to MIR-44, "GLASS MIRROR : Removal and Installation"
NO >> Repair or replace harness.

REAR WINDOW DEFOGGER ON SIGNAL

WITH AUTO A/C

WITH AUTO A/C : Description

INFOID:0000000006484498

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

WITH AUTO A/C : Component Function Check

INFOID:0000000006484499

1.CHECK REAR WINDOW DEFOGGER ON 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 ON signal is OK.
NG >> Refer to DEF-37, "WITH AUTO A/C : Diagnosis Procedure".

WITH AUTO A/C : Diagnosis Procedure

INFOID:0000000006484500

1.CHECK REAR WINDOW DEFOGGER INDICATOR LAMP ON SIGNAL

1. Turn ignition switch OFF.
2. Disconnect multi display unit connector.
3. Turn ignition switch ON.
4. Check voltage between multi display unit harness connector ground.

Multi display unit		Ground	Condition		Voltage (V) (Approx.)
Connector	Terminal				
M51	27		Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> Replace multi display unit Refer to HAC-91, "Removal and Installation" (4WD models) or HAC-188, "Removal and Installation" (2WD models).
NO >> Repair or replace harness.

WITHOUT AUTO A/C

WITHOUT AUTO A/C : Description

INFOID:0000000006484501

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

WITHOUT AUTO A/C : Component Function Check

INFOID:0000000006484502

1.CHECK REAR WINDOW DEFOGGER ON 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 ON signal is OK.
NG >> Refer to DEF-37, "WITHOUT AUTO A/C : Diagnosis Procedure".

WITHOUT AUTO A/C : Diagnosis Procedure

INFOID:0000000006484503

1.CHECK REAR WINDOW DEFOGGER INDICATOR LAMP ON SIGNAL

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

A/C control		Ground	Condition		Voltage (V) (Approx.)
Connector	Terminal				
M53	4		Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> Replace A/C control. Refer to HAC-239, "Removal and Installation" (4WD models) or HAC-304, "Removal and Installation".
NO >> Repair or replace harness.

WITHOUT A/C

WITHOUT A/C : Description

INFOID:0000000006702995

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

WITHOUT A/C : Component Function Check

INFOID:0000000006702996

1.CHECK REAR WINDOW DEFOGGER ON 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 ON signal is OK.
NG >> Refer to DEF-38, "WITHOUT A/C : Diagnosis Procedure".

WITHOUT A/C : Diagnosis Procedure

INFOID:0000000006702997

1.CHECK REAR WINDOW DEFOGGER INDICATOR LAMP ON SIGNAL

1. Turn ignition switch OFF.
2. Disconnect heater control connector.
3. Turn ignition switch ON.
4. Check voltage between heater control harness connector ground.

Heater control		Ground	Condition		Voltage (V) (Approx.)
Connector	Terminal				
M47	8		Rear window defogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

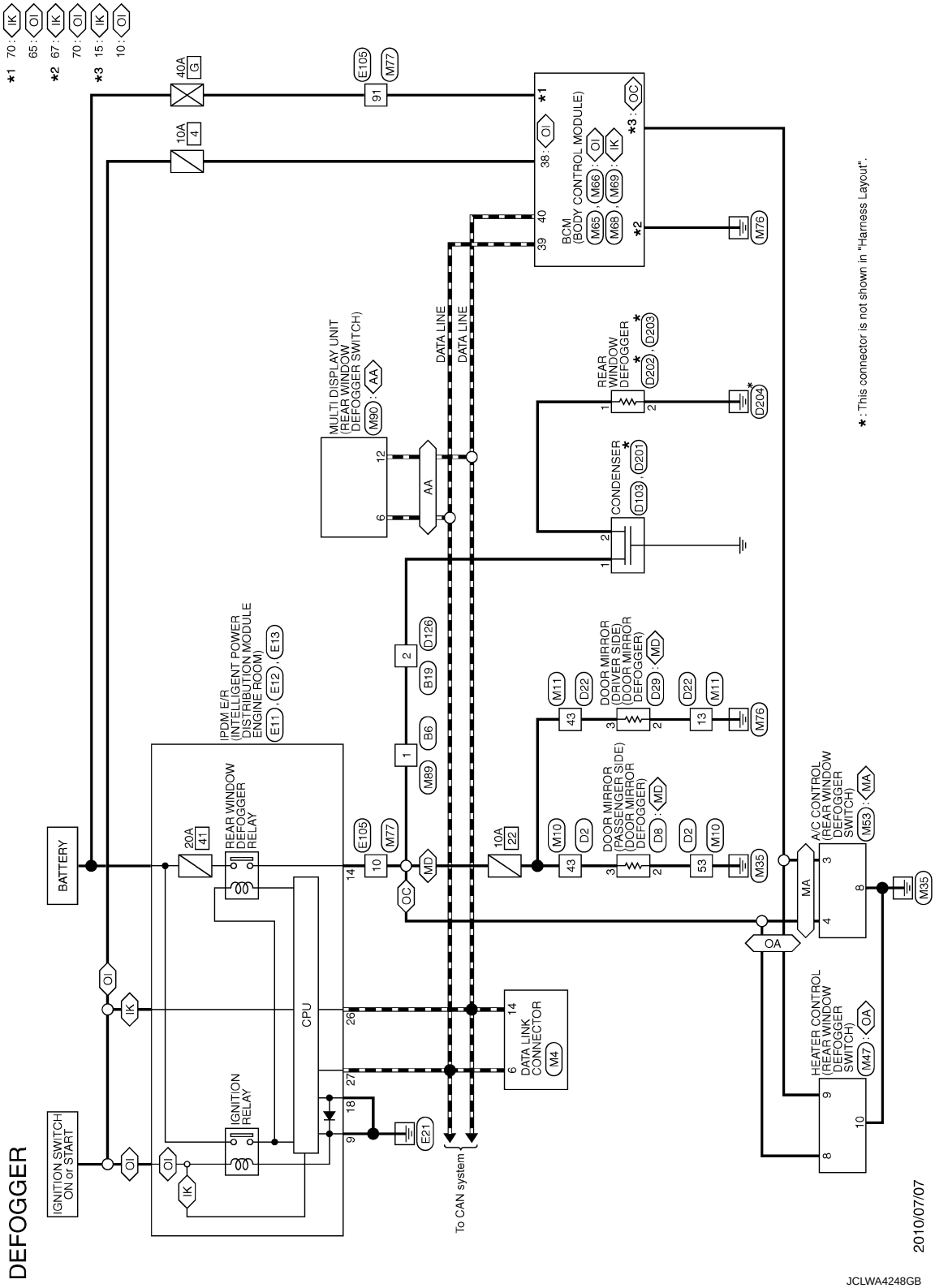
YES >> Replace heater control. Refer to HAC-331, "Removal and Installation".
NO >> Repair or replace harness.

REAR WINDOW DEFOGGER SYSTEM

Wiring Diagram - DEFOGGER CONTROL SYSTEM -

INFOID:0000000006484504

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



SYMPTOM DIAGNOSIS

ALL DEFOGGER SYSTEM DOSE NOT OPERATE

Description

INFOID:0000000006704079

Rear window defogger and door mirror defogger do not operate when rear window defogger switch operated.

Diagnosis Procedure

INFOID:0000000006704080

1.CHECK REAR WINDOW DEFOGGER SWITCH

Check rear window defogger switch.
Refer to DEF-26, "WITH AUTO A/C : Component Function Check" (With Auto A/C) or DEF-26, "WITHOUT AUTO A/C : Component Function Check" (Without Auto A/C) or DEF-28, "WITHOUT A/C : Component Function Check" (Without A/C).

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-30, "Component Function Check".

Is the inspection result normal?

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

3.CHECK REAR WINDOW DEFOGGER

Check rear window defogger.
Refer to DEF-31, "Component Function Check".

Is the inspection result normal?

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

4.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> GO TO 1.

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

Diagnosis Procedure

INFOID:0000000006704081

1.CHECK REAR WINDOW DEFOGGER

Check rear window defogger.
Refer to DEF-31, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> GO TO 1.

DOOR MIRROR DEFOGGER DOES NOT OPERATE

BOTH SIDES

BOTH SIDES : Description

INFOID:0000000006704082

Both door mirror defoggers do not operate.

BOTH SIDES : Diagnosis Procedure

INFOID:0000000006704083

1.CHECK REAR WINDOW DEFOGGER

Check rear window defogger.
Refer to DEF-31, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK DOOR MIRROR DEFOGGER

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

Is the inspection result normal?

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

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> GO TO 1.

DRIVER SIDE

DRIVER SIDE : Description

INFOID:0000000006704084

Driver side door mirror defogger does not operate but passenger side door mirror defogger operates.

DRIVER SIDE : Diagnosis Procedure

INFOID:0000000006704085

1.CHECK DRIVER SIDE DOOR MIRROR DEFOGGER

Check driver side door mirror defogger.
Refer to DEF-35, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> GO TO 1.

PASSENGER SIDE

PASSENGER SIDE : Description

INFOID:0000000006704086

Passenger side door mirror defogger does not operate but driver side door mirror defogger operates.

PASSENGER SIDE : Diagnosis Procedure

INFOID:0000000006704087

1.CHECK PASSENGER SIDE DOOR MIRROR DEFOGGER.

Check passenger side door mirror defogger.
Refer to DEF-36, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> GO TO 1.

ON IS NOT DISPLAYED WHEN PRESSING REAR WINDOW DEFOGGER SWITCH BUT IT IS OPERATED

Diagnosis Procedure

INFOID:0000000006704089

1.CHECK MULTI DISPLAY UNIT FUNCTION

Check that the multi display unit is operating normally.
- Auto A/C (4WD models). Refer to HAC-44, "Work Flow".
- Auto A/C (2WD models). Refer to HAC-135, "Work Flow".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> GO TO 1.

REAR WINDOW DEFOGGER INDICATOR DOES NOT ILLUMINATE

Diagnosis Procedure

INFOID:0000000006704090

1.CHECK A/C CONTROL AND HETER CONTROL SWITCH (REAR WINDOW DEFOGGER SWITCH)

Check that rear window defogger operates.

Is the inspection result normal?

YES >> Replace A/C contorol(with Auto A/C) and heter control(without A/C) switch (rear window defogger switch).

NO >> Check rear window defogger system. Refer to DEF-25, "Work Flow"

REMOVAL AND INSTALLATION

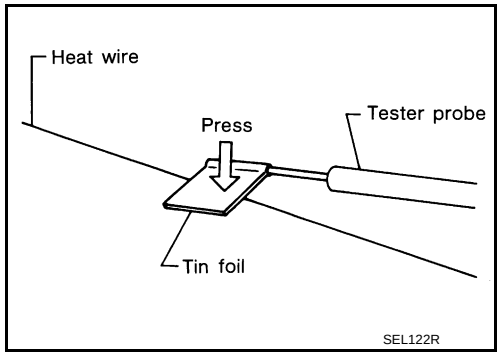
FILAMENT

Inspection and Repair

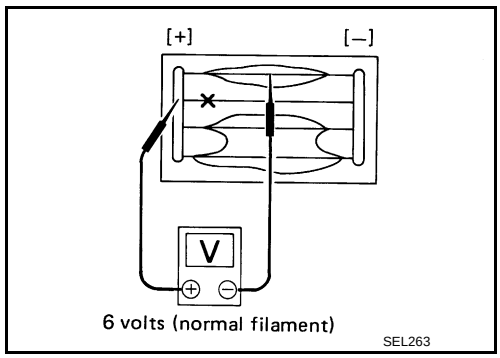
INFOID:0000000006484456

INSPECTION

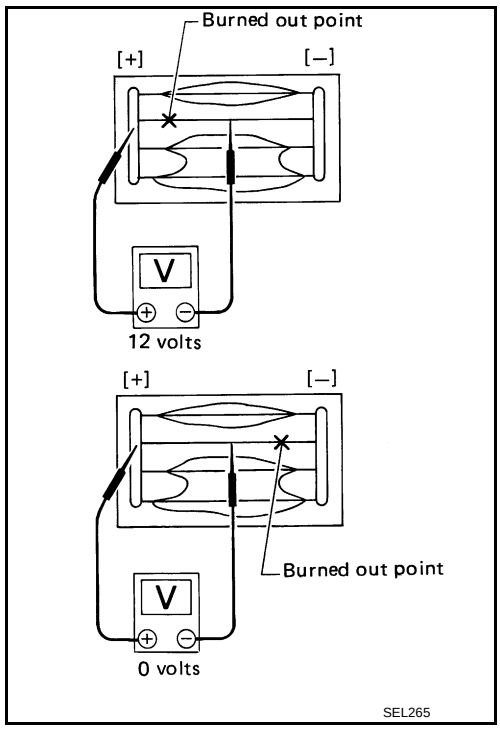
1. When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.



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

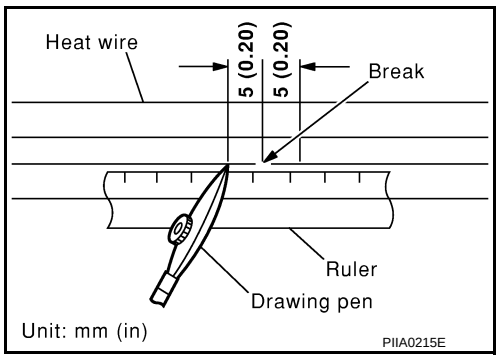
REPAIR EQUIPMENT

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

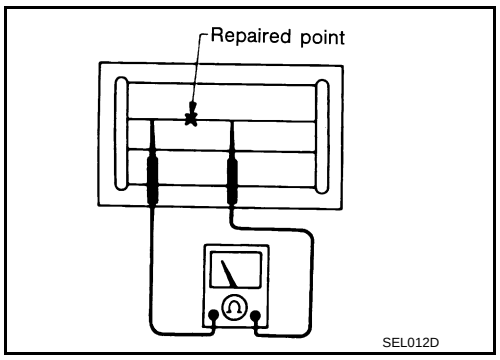
- Ruler 30 cm (11.8 in) long
- Drawing pen
- Heat gun
- Alcohol
- Cloth

REPAIRING PROCEDURE

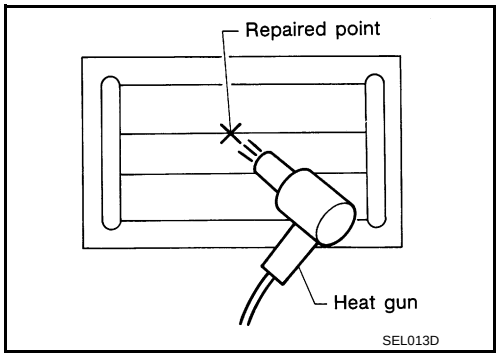
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.
   Shake silver composition container before use.
3. Place ruler on glass along broken line. Deposit conductive silver composition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



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



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



CONDENSER

Exploded View

INFOID:0000000006484457

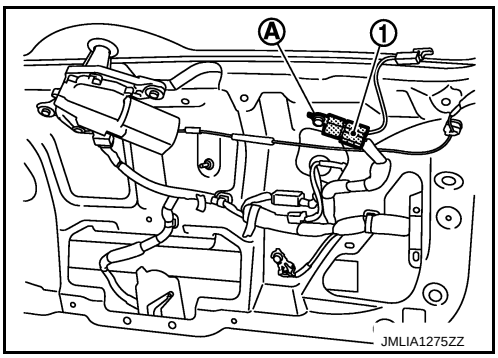
Refer toINT-34, "Exploded View"

Removal and Installation

INFOID:0000000006484458

REMOVAL

1. Remove the back door lower finisher.
   Refer to INT-35, "BACK DOOR LOWER FINISHER : Removal and Installation"
2. Remove bolt (A), and then remove condenser (1) from the vehicle body.



INSTALLATION

Install in the reverse order of removal.