

# SECTION **GW**

## GLASSES, WINDOW SYSTEM & MIRRORS

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# PRECAUTIONS

## PRECAUTIONS

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### Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

E/IS000S9

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 and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS 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 harness connectors.

### Handling for Adhesive and Primer

E/IS000SA

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

### Trouble Diagnosis Precaution

E/IS000SB

When you read wiring diagrams, refer to the following:

- [GI-12, "How to Read Wiring Diagrams"](#)
- [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#)

When you perform trouble diagnosis, refer to the following:

- [GI-10, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES"](#)
- [GI-25, "How to Perform Efficient Diagnosis for an Electrical Incident"](#)

Check for any service bulletins before servicing the vehicle.

# PREPARATION

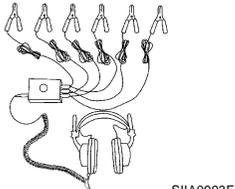
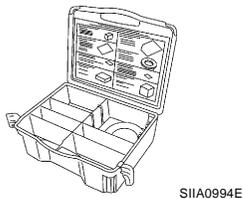
## PREPARATION

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### Special service tool

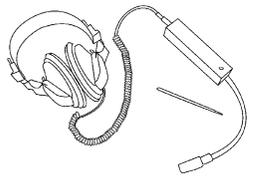
EIS000SC

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

| Tool number<br>(Kent-Moore No.)<br>Tool name | Description  |
|--|--|
| (J-39570)<br>Chasis ear                      | <div style="text-align: center;">  <p>SIA0993E</p> </div> <p style="text-align: center;">Locating the noise</p>           |
| (J-43980)<br>NISSAN Squeak and Rattle Kit    | <div style="text-align: center;">  <p>SIA0994E</p> </div> <p style="text-align: center;">Repairing the cause of noise</p> |

### Commercial Service Tool

EIS000SD

| Tool name  | Description  |
|------------|--|
| Engine ear | <div style="text-align: center;">  <p>SIA0995E</p> </div> <p style="text-align: center;">Locating the noise</p> |

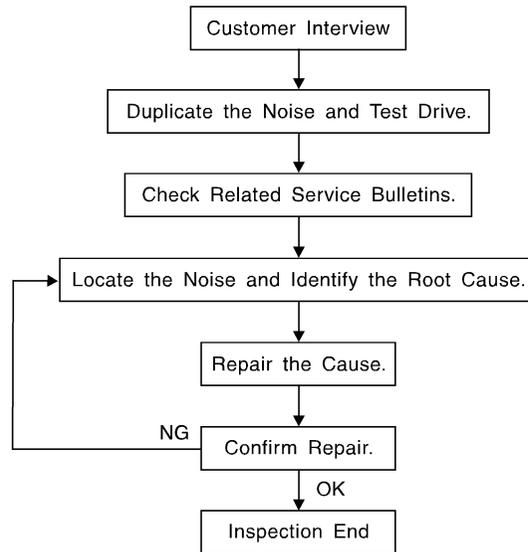
# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## SQUEAK AND RATTLE TROUBLE DIAGNOSES

PF0:0000

### Work Flow

EIS000SE



SBT842

### CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [GW-9, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)  
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces=higher pitch noise/softer surfaces=lower pitch noises/edge to surface=chirping
- Creak—(Like walking on an old wooden floor)  
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)  
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)  
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)  
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)  
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)  
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## DUPLICATE THE NOISE AND TEST DRIVE

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
  - 2) Tap or push/pull around the area where the noise appears to be coming from.
  - 3) Rev the engine.
  - 4) Use a floor jack to recreate vehicle "twist".
  - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on A/T model).
  - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
  - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

## CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

## LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
  - removing the components in the area that you suspect the noise is coming from. Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
  - tapping or pushing/pulling the component that you suspect is causing the noise. Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
  - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
  - placing a piece of paper between components that you suspect are causing the noise.
  - looking for loose components and contact marks.  
Refer to [GW-7, "Generic Squeak and Rattle Troubleshooting"](#) .

## REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
  - separate components by repositioning or loosening and retightening the component, if possible.
  - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-43980) is available through your authorized Nissan Parts Department.

### CAUTION:

**Do not use excessive force as many components are constructed of plastic and may be damaged.**

**Always check with the Parts Department for the latest parts information.**

**The following materials are contained in the NISSAN Squeak and Rattle Kit (J-43980). Each item can be ordered separately as needed.**

**URETHANE PADS [1.5 mm (0.059 in) thick]**

**Insulates connectors, harness, etc.**

**76268-9E005: 100×135 mm (3.94×5.31 in)/76884-71L01: 60×85 mm (2.36×3.35 in)/76884-71L02: 15×25 mm (0.59×0.98 in)**

**INSULATOR (Foam blocks)**

**Insulates components from contact. Can be used to fill space behind a panel.**

**73982-9E000: 45 mm (1.77 in) thick, 50×50 mm (1.97×1.97 in)/73982-50Y00: 10 mm (0.39 in) thick, 50×50 mm (1.97×1.97 in)**

**INSULATOR (Light foam block)**

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

**80845-71L00: 30 mm (1.18 in) thick, 30×50 mm (1.18×1.97 in)**

## FELT CLOTH TAPE

Used to insulate where movement does not occur. Ideal for instrument panel applications.

**68370-4B000: 15×25 mm (0.59×0.98 in) pad/68239-13E00: 5 mm (0.20 in) wide tape roll.** The following materials not found in the kit can also be used to repair squeaks and rattles.

## UHMW(TEFLON) TAPE

Insulates where slight movement is present. Ideal for instrument panel applications.

## SILICONE GREASE

Used instead of UHMW tape that will be visible or not fit.

**Note: Will only last a few months.**

## SILICONE SPRAY

Use when grease cannot be applied.

## DUCT TAPE

Use to eliminate movement.

## CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

## Generic Squeak and Rattle Troubleshooting

EIS000SF

Refer to Table of Contents for specific component removal and installation information.

## INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. The cluster lid A and instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar garnish
4. Instrument panel to windshield
5. Instrument panel mounting pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

### CAUTION:

**Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.**

## CENTER CONSOLE

Components to pay attention to include:

1. Shifter assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

## DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-43980) to repair the noise.

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

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## TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner. In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

## SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headliner and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

## SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

## UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component mounted to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator mounting pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine RPM or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## Diagnostic Worksheet

EIS000SG



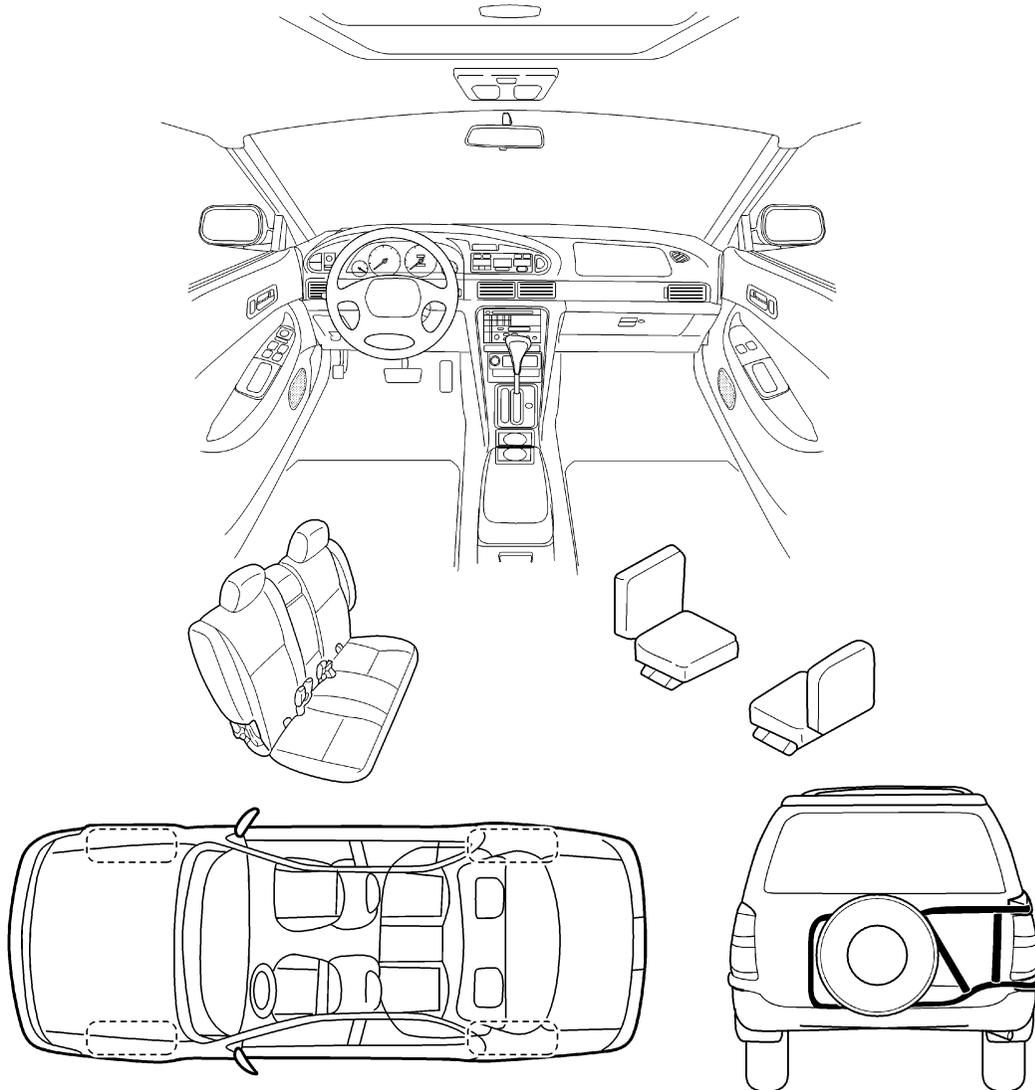
### SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

Dear Nissan Customer:

We are concerned about your satisfaction with your Nissan vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your Nissan right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

#### I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to the back of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

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# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## SQUEAK & RATTLE DIAGNOSTIC WORKSHEET- page 2

**Briefly describe the location where the noise occurs:**

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**II. WHEN DOES IT OCCUR? (check the boxes that apply)**

- |  |   |
|--|---|
| <input type="checkbox"/> anytime                             | <input type="checkbox"/> after sitting out in the sun |
| <input type="checkbox"/> 1 <sup>st</sup> time in the morning | <input type="checkbox"/> when it is raining or wet    |
| <input type="checkbox"/> only when it is cold outside        | <input type="checkbox"/> dry or dusty conditions      |
| <input type="checkbox"/> only when it is hot outside         | <input type="checkbox"/> other: _____                 |

**III. WHEN DRIVING:**

- through driveways
- over rough roads
- over speed bumps
- only at about \_\_\_\_ mph
- on acceleration
- coming to a stop
- on turns : left, right or either (circle)
- with passengers or cargo
- other: \_\_\_\_\_
- after driving \_\_\_\_ miles or \_\_\_\_ minutes

**IV. WHAT TYPE OF NOISE?**

- squeak (like tennis shoes on a clean floor)
- creak (like walking on an old wooden floor)
- rattle (like shaking a baby rattle)
- knock (like a knock on a door)
- tick (like a clock second hand)
- thump (heavy, muffled knock noise)
- buzz (like a bumble bee)

**TO BE COMPLETED BY DEALERSHIP PERSONNEL**

**Test Drive Notes:**

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|  | <u>YES</u>               | <u>NO</u>                | <u>Initials of person performing</u> |
|--|--------------------------|--------------------------|--------------------------------------|
| Vehicle test driven with customer                  | <input type="checkbox"/> | <input type="checkbox"/> | _____                                |
| - Noise verified on test drive                     | <input type="checkbox"/> | <input type="checkbox"/> | _____                                |
| - Noise source located and repaired                | <input type="checkbox"/> | <input type="checkbox"/> | _____                                |
| - Follow up test drive performed to confirm repair | <input type="checkbox"/> | <input type="checkbox"/> | _____                                |

VIN: \_\_\_\_\_ Customer Name: \_\_\_\_\_

W.O. #: \_\_\_\_\_ Date: \_\_\_\_\_

SBT844

**This form must be attached to Work Order**

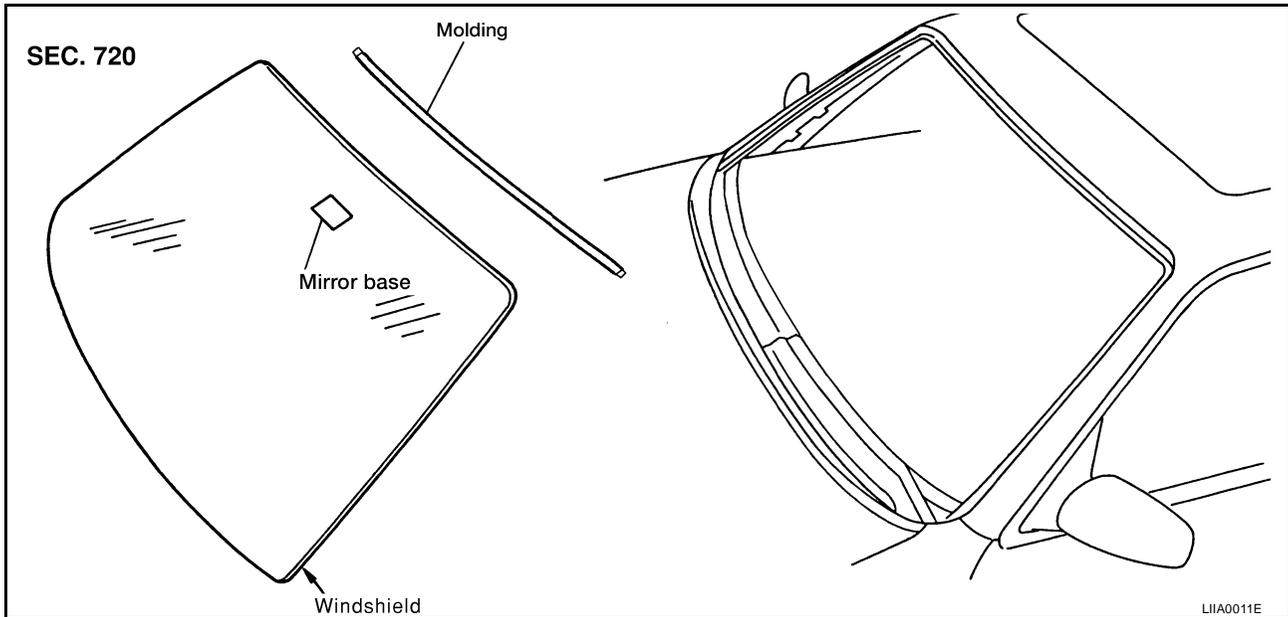
# WINDSHIELD GLASS

PFP:72712

## WINDSHIELD GLASS

### Removal and Installation

EIS000SH



### REMOVAL

1. Remove the front pillar garnish. Refer to [EI-29, "BODY SIDE TRIM"](#) .
  2. Partially remove the headlining (front edge). Refer to [EI-33, "HEADLINING"](#) .
  3. Remove the front wiper arms. Refer to [WW-24, "Removal and Installation for Front Wiper Arms, Adjustment for Wiper Arms Stop Location"](#) .
  4. Remove drip molding. Refer to [EI-23, "DRIP MOLDING"](#) .
  5. Apply a protective tape around the windshield glass to protect the painted surface from damage.
- After removing moldings, remove glass using piano wire or power cutting tool and an inflatable pump bag.

- If a windshield glass is to be reused, mark the body and the glass with mating marks.

### WARNING:

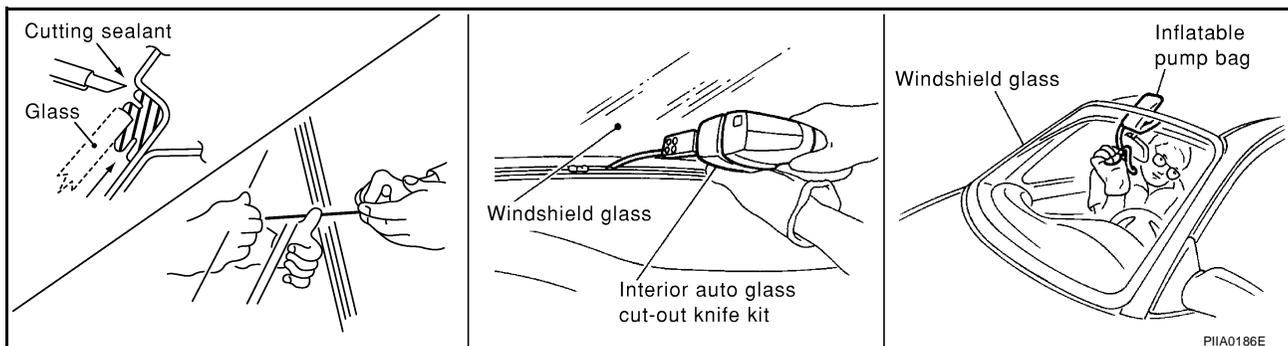
When cutting the glass from the vehicle, always wear safety glasses and heavy gloves to help prevent glass splinters from entering your eyes or cutting your hands.

### CAUTION:

When a windshield glass is to be reused, do not use a cutting knife or power cutting tool.

### NOTE:

- Be careful not to scratch the glass when removing.
- Do not set or stand the glass on its edge. Small chips may develop into cracks.



### INSTALLATION

- Use a genuine Nissan Urethane Adhesive Kit or equivalent and follow the instructions furnished with it.
- While the urethane adhesive is curing, open a door window. This will prevent the glass from being forced out by passenger compartment air pressure when a door is closed.
- The molding must be installed securely so that it is in position and leaves no gap.

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# WINDSHIELD GLASS

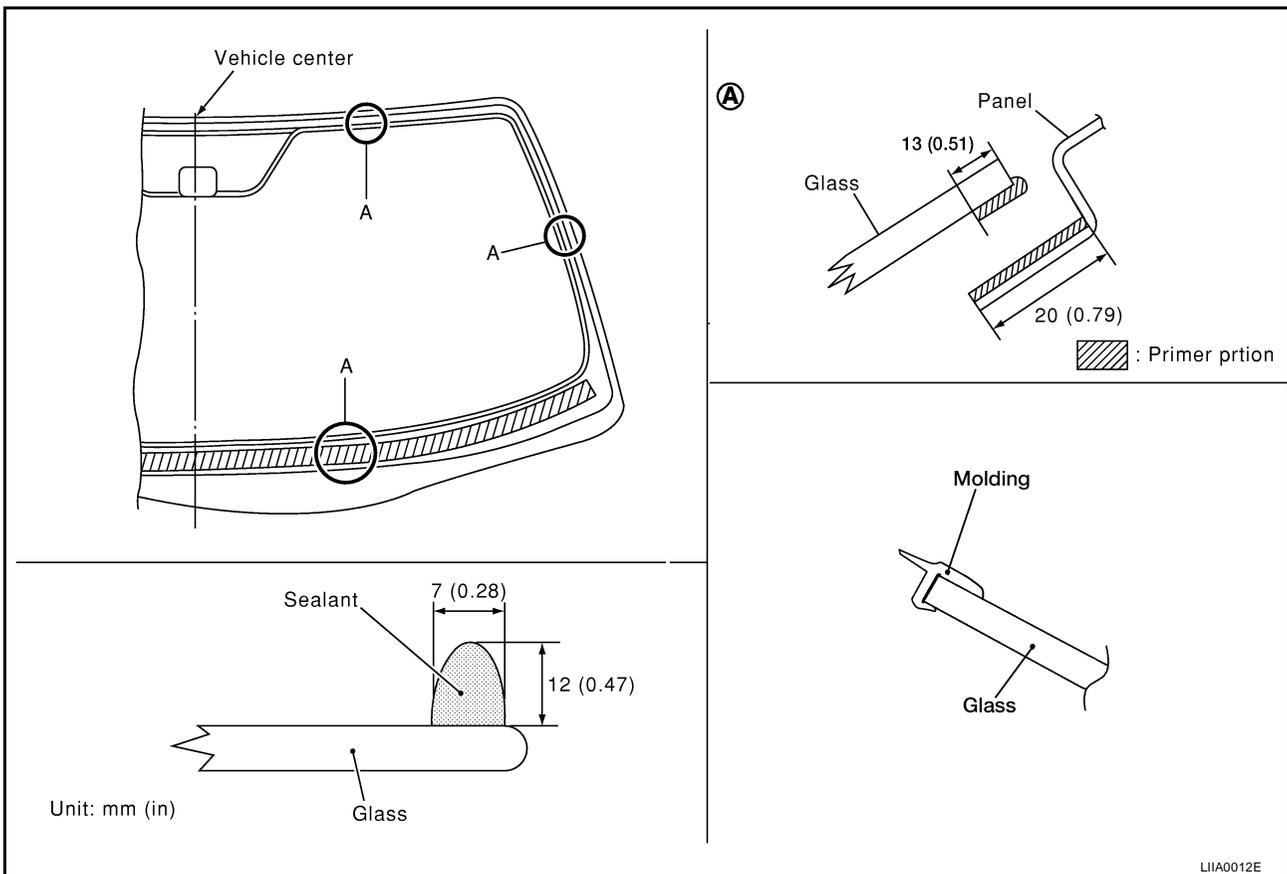
- Inform the customer that the vehicle should remain stationary until the urethane adhesive has completely cured (preferably 24 hours). Curing time varies with temperature and humidity.

## WARNING:

- Keep heat and open flames away as primers and adhesive are flammable.
- The materials contained in the kit are harmful if swallowed, and may irritate skin and eyes. Avoid contact with the skin and eyes.
- Use in an open, well ventilated location. Avoid breathing the vapors. They can be harmful if inhaled. If affected by vapor inhalation, immediately move to an area with fresh air.
- Driving the vehicle before the urethane adhesive has completely cured may affect the performance of the windshield in case of an accident.

## CAUTION:

- Do not use an adhesive which is past its usable term. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.
- Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.
- Do not leave primers or adhesive cartridge unattended with their caps open or off.
- The vehicle should not be driven for at least 24 hours or until the urethane adhesive has completely cured. Curing time varies depending on temperature and humidities. The curing time will increase under higher temperatures and lower humidities.



## Repairing Water Leaks for Windshield

Leaks can be repaired without removing and reinstalling glass.

If water is leaking between the urethane adhesive material and body or glass, determine the extent of leakage.

This can be done by applying water to the windshield area while pushing glass outward.

To stop the leak, apply primer (if necessary) and then urethane adhesive to the leak point.

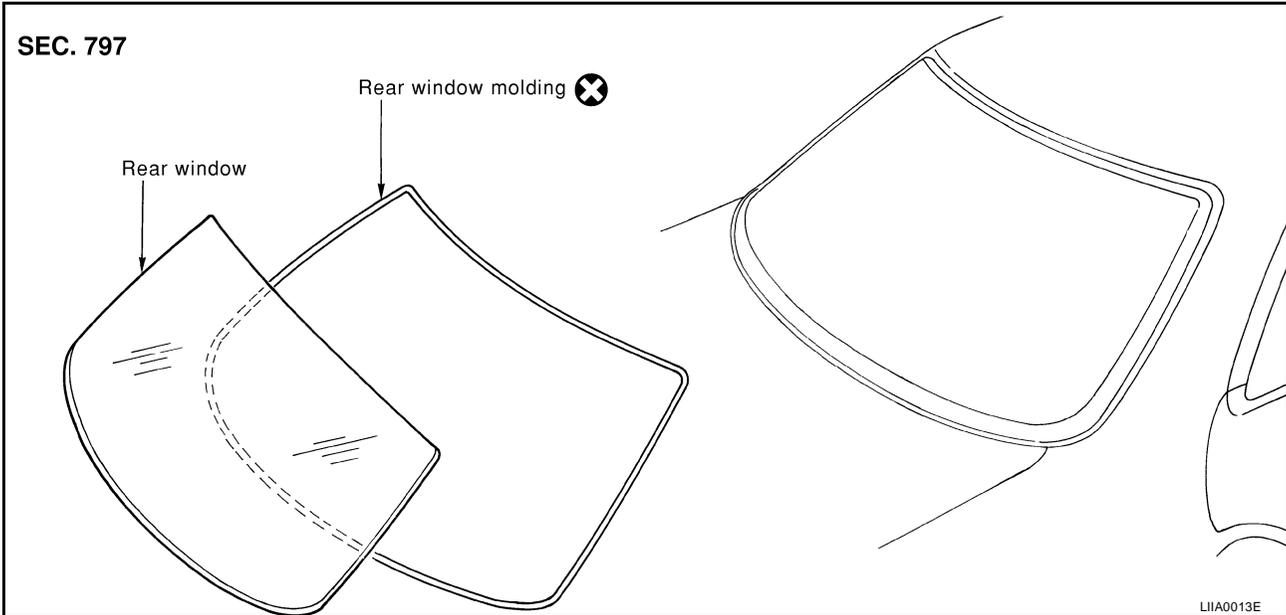
# REAR WINDOW GLASS AND MOLDING

PF:79712

## REAR WINDOW GLASS AND MOLDING

### Removal and Installation

EIS000SI



### REMOVAL

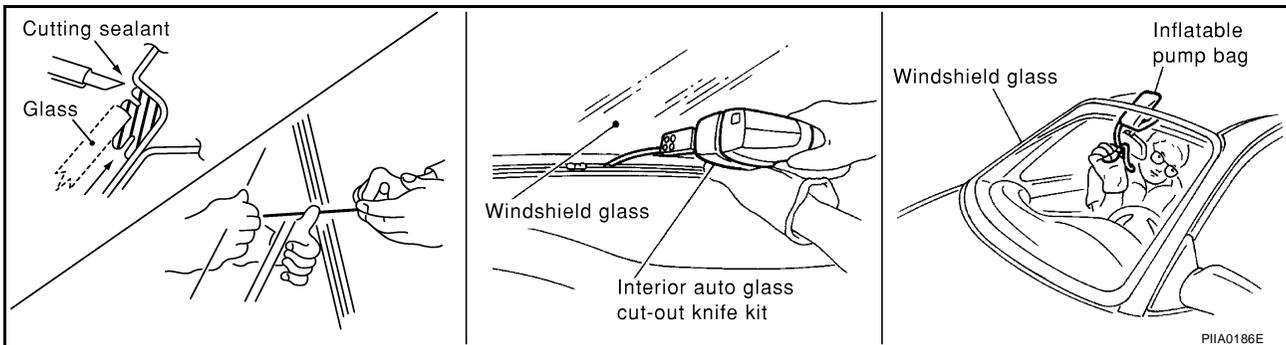
1. Remove the rear of the headliner. Refer to [EI-33, "HEADLINING"](#).
  2. Remove the rear pillar garnish. Refer to [EI-29, "BODY SIDE TRIM"](#).
  3. Remove the rear parcel shelf finisher. Refer to [EI-31, "REAR PARCEL SHELF FINISHER"](#).
  4. Remove the connectors and grounds for the rear window defogger and printed antenna.
- After removing moldings, remove glass using piano wire or power cutting tool and an inflatable pump bag.
  - If a windshield glass is to be reused, mark the body and the glass with mating marks.

### WARNING:

When cutting the glass from the vehicle, always wear safety glasses and heavy gloves to help prevent glass splinters from entering your eyes or cutting your hands.

### CAUTION:

- When a windshield glass is to be reused, do not use a cutting knife or power cutting tool.
- Be careful not to scratch the glass when removing.
- Do not set or stand the glass on its edge. Small chips may develop into cracks.



### INSTALLATION

- Use a genuine Nissan Urethane Adhesive Kit or equivalent and follow the instructions furnished with it.
- While the urethane adhesive is curing, open a door window. This will prevent the glass from being forced out by passenger compartment air pressure when a door is closed.
- The molding must be installed securely so that it is in position and leaves no gap.
- Inform the customer that the vehicle should remain stationary until the urethane adhesive has completely cured (preferably 24 hours). Curing time varies with temperature and humidity.

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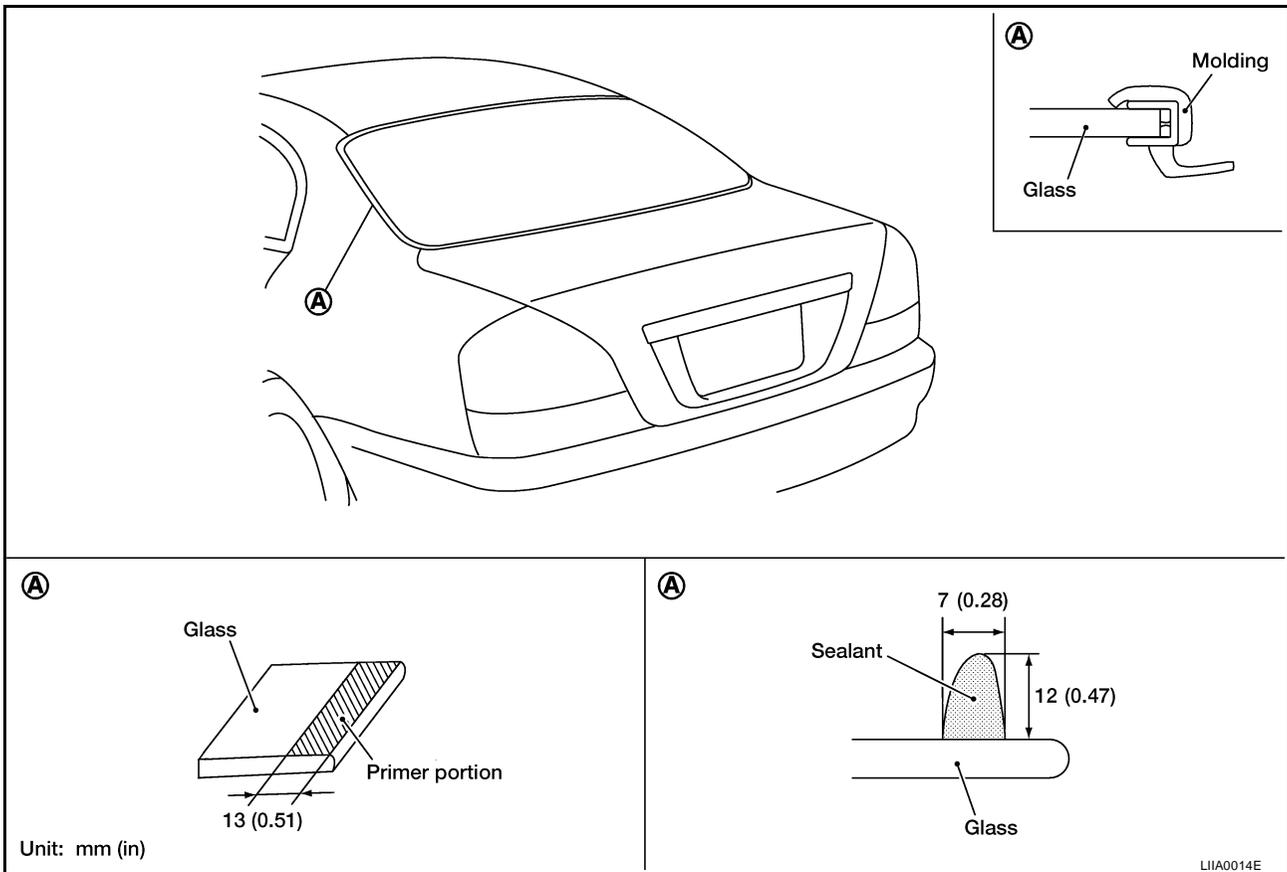
## REAR WINDOW GLASS AND MOLDING

### WARNING:

- Keep heat and open flames away as primers and adhesive are flammable.
- The materials contained in the kit are harmful if swallowed, and may irritate skin and eyes. Avoid contact with the skin and eyes.
- Use in an open, well ventilated location. Avoid breathing the vapors. They can be harmful if inhaled. If affected by vapor inhalation, immediately move to an area with fresh air.
- Driving the vehicle before the urethane adhesive has completely cured may affect the performance of the windshield in case of an accident.

### CAUTION:

- Do not use an adhesive which is past its usable term. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.
- Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.
- Do not leave primers or adhesive cartridge unattended with their caps open or off.
- The vehicle should not be driven for at least 24 hours or until the urethane adhesive has completely cured. Curing time varies depending on temperature and humidity. The curing time will increase under higher temperatures and lower humidities.



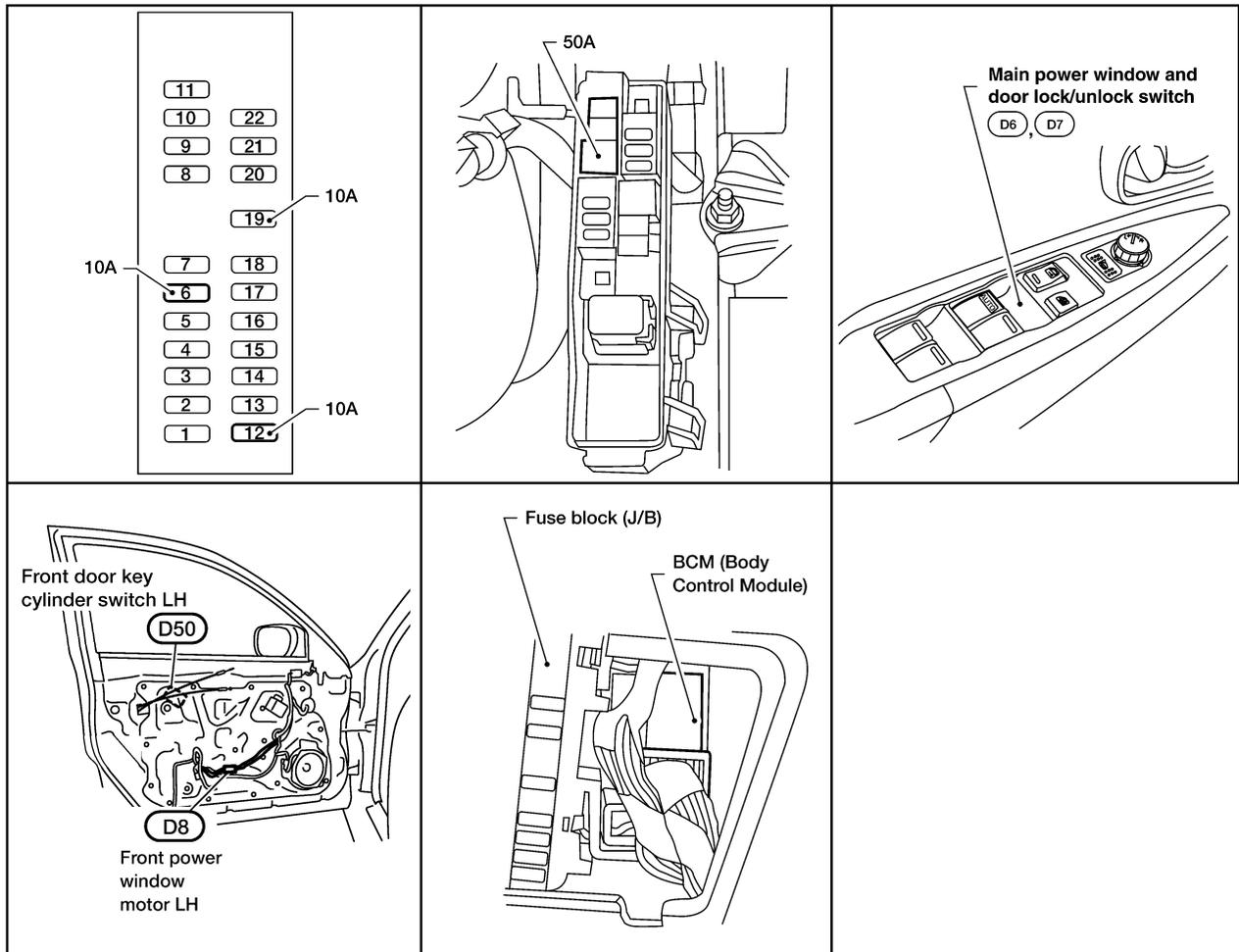
# POWER WINDOW SYSTEM

PFP:25401

## POWER WINDOW SYSTEM

### Component Parts and Harness Connector Location

EIS000SJ



LIIA0102E

EIS000SK

## System Description

Power is supplied at all times

- through BCM terminal 28
- to main power window and door lock/unlock switch terminal 5( 16).

With ignition switch in ON or START position, power is supplied

- through BCM terminal 29
- to main power window and door lock/unlock switch terminal 12 (17),
- to front power window switch RH terminal 5(13),
- to rear power window switch LH and RH terminal 5.

( ): with left and right front power window anti-pinch system.

## AUTO OPERATION

The power window AUTO feature enables the driver (driver and passenger) to open or close the window without holding the window switch in the down or up position.

( ): with left and right front power window anti-pinch system.

## POWER WINDOW LOCK

The power window lock is designed to lock operation of all windows except for driver's window.

When the lock switch is pressed to lock position, ground of the sub-switches in the power window main switch is disconnected. This prevents the power window motors from operating.

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# POWER WINDOW SYSTEM

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## **DELAYED POWER OPERATION**

When the ignition switch is turned to the OFF position, the power window will still operate for up to approximately 45 seconds unless the driver side or passenger side door is opened.

## **ANTI-PINCH DETECTION FUNCTION**

During raising operation of driver or passenger power window (if equipped), if door control module detects that foreign object is pinched, power window lowers approximately 150 mm (5.91 in).

### **NOTE:**

Depending on environment and driving conditions, if a similar impact or load is applied to power window, it may lower.

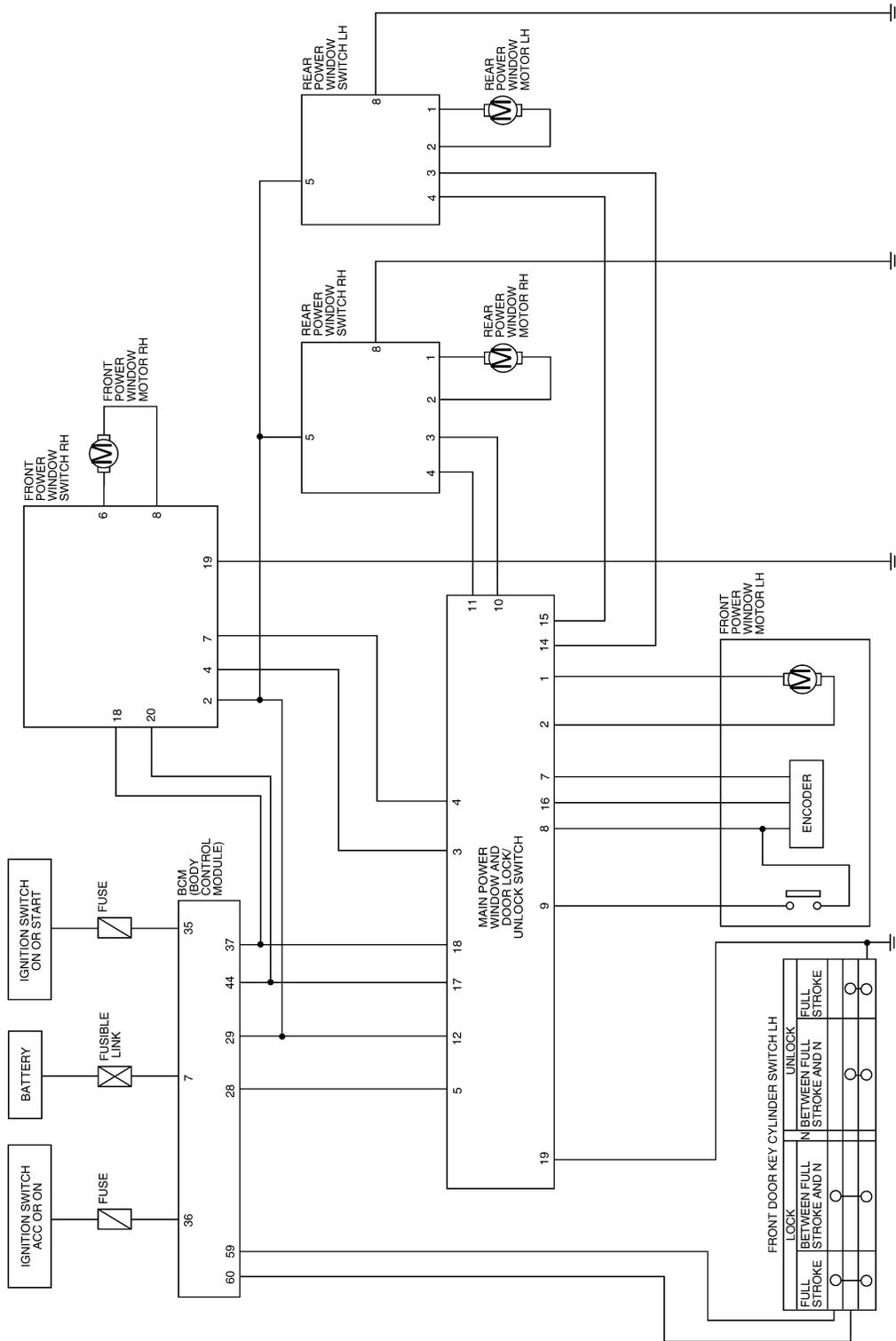
### **Operation Conditions**

- Driver and passenger door window is between fully-open and just before fully-closed position (when the limit switch is ON).
- During automatic operation when ignition switch is turned ON.
- During automatic or manual operation when ignition switch is other than ON position (when the timer operates).

# POWER WINDOW SYSTEM

## Schematic (With Left Front Only Power Window Anti-pinch System)

EIS000SL

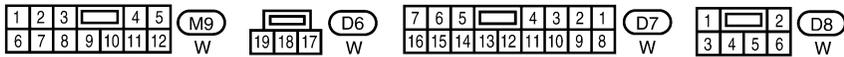
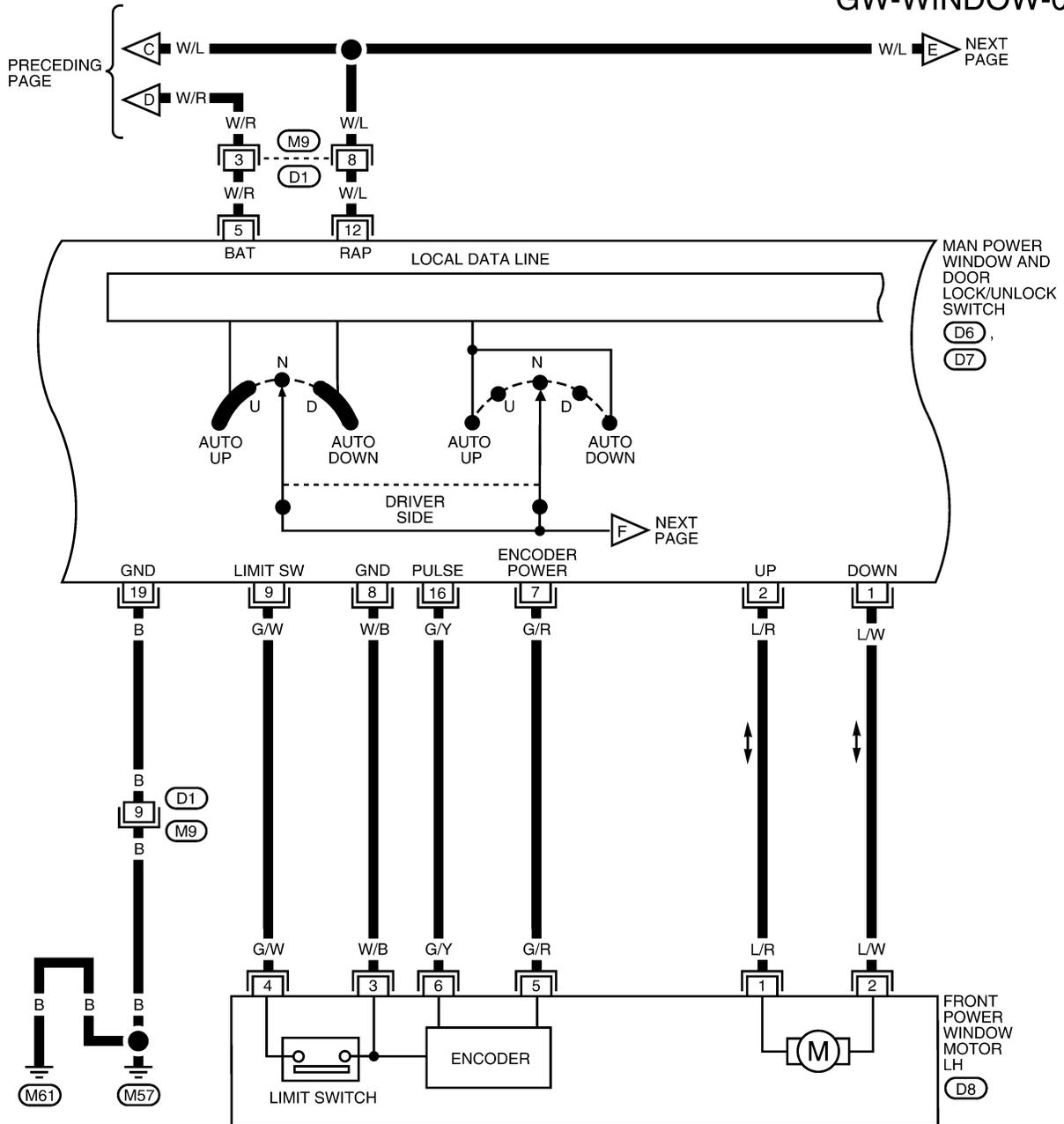


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# POWER WINDOW SYSTEM

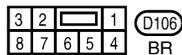
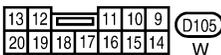
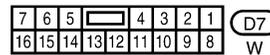
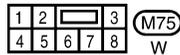
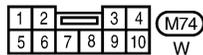
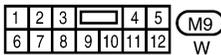
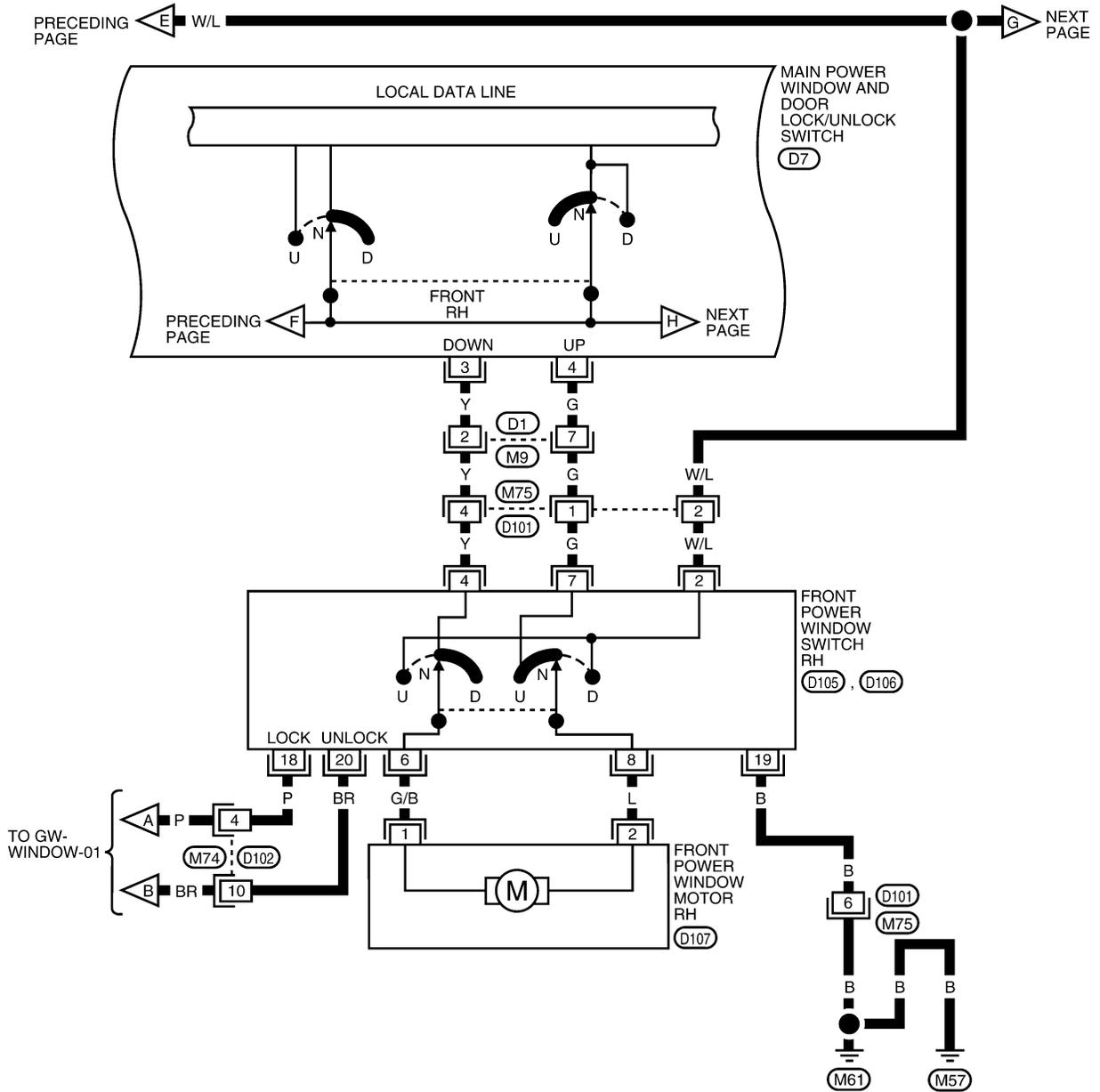
## GW-WINDOW-02



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# POWER WINDOW SYSTEM

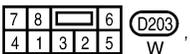
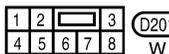
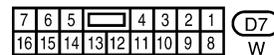
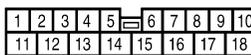
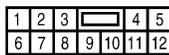
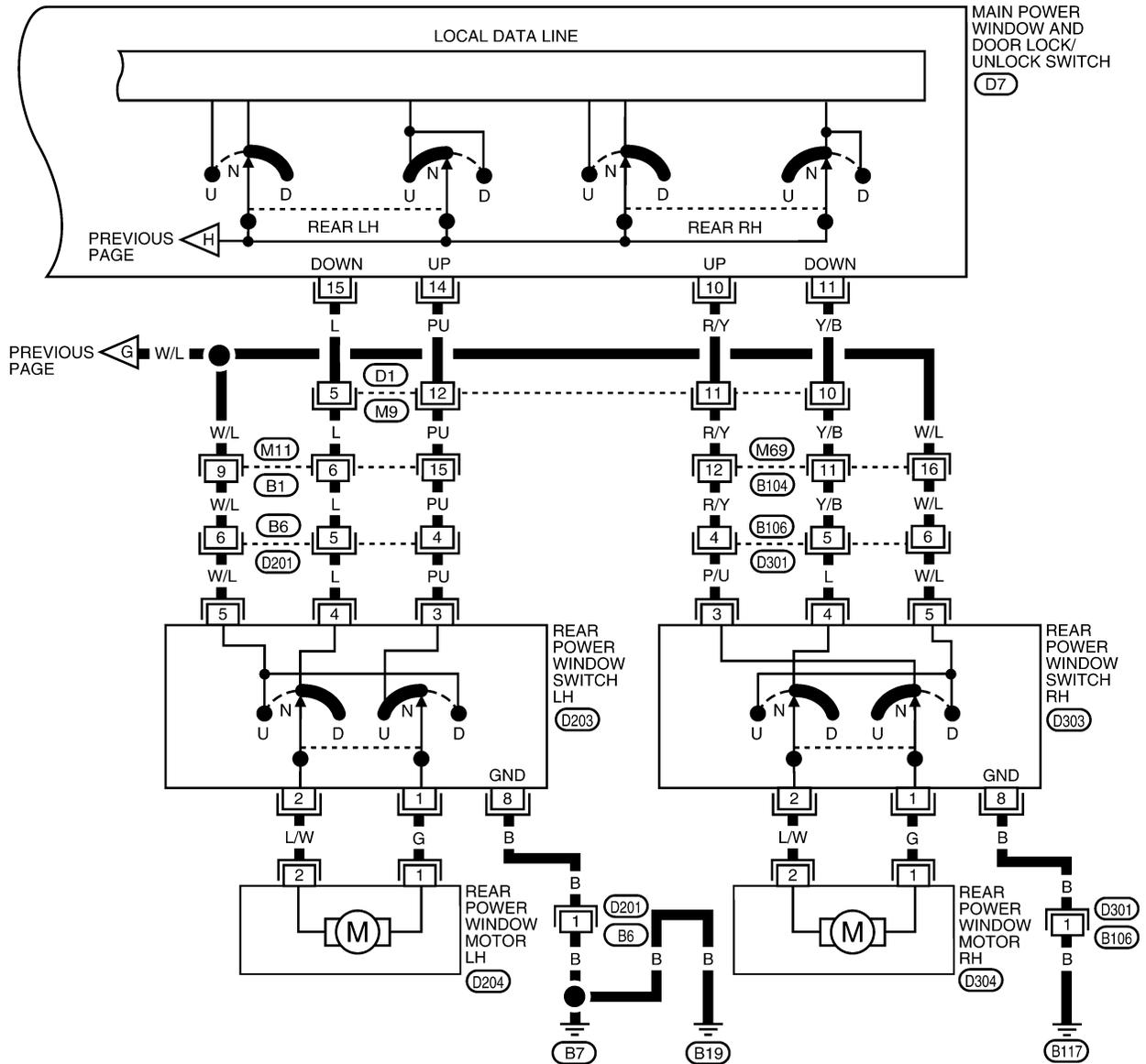
GW-WINDOW-03



LIWA0007E

# POWER WINDOW SYSTEM

GW-WINDOW-04



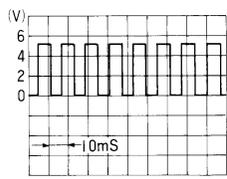
LIWA0008E

# POWER WINDOW SYSTEM

EIS000SN

## Terminal and Reference Value for Power Window Main Switch

With left front only power window anti-pinch system.

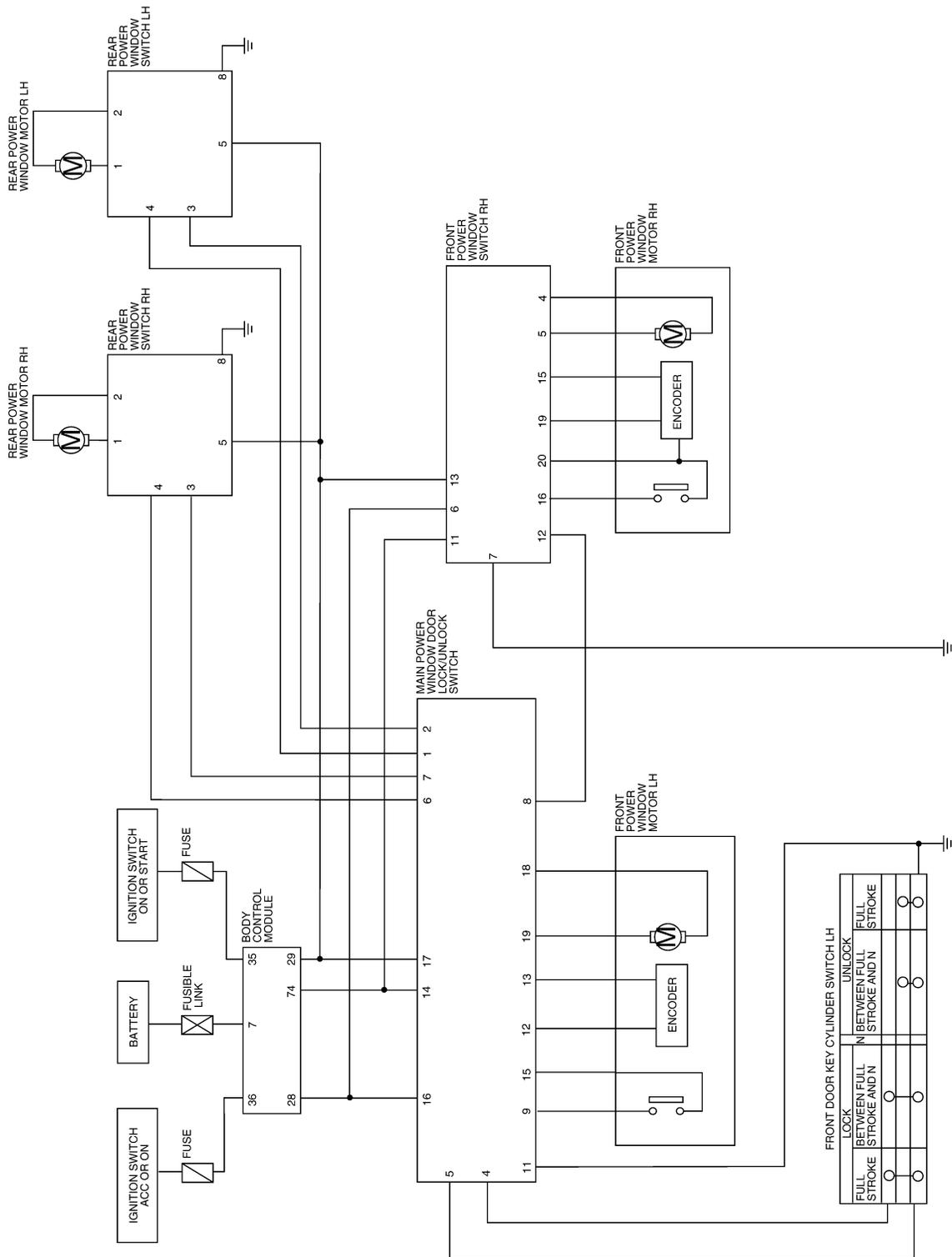
| TERMINAL | WIRE COLOR | ITEM                                  | CONDITION  | VOLTAGE (V)<br>(Approx.)  |
|----------|------------|---------------------------------------|--|---|
| 1        | L/W        | Driver power window motor DOWN signal | When DOWN operation.   | 0 → Battery voltage   |
| 2        | L/R        | Driver power window motor UP signal   | When UP operation.   | 0 → Battery voltage   |
| 3        | Y          | Passenger power window DOWN signal    | Main switch passenger switch DOWN operation.   | 0 → Battery voltage   |
| 4        | G          | Passenger power window UP signal      | Main switch passenger switch up operation.   | 0 → Battery voltage   |
| 5        | W/R        | BAT power supply                      | —  | Battery voltage   |
| 7        | G/R        | Encoder power supply                  | —  | 5 – Battery voltage   |
| 8        | W/B        | Limit switch encoder ground           | —  | 0   |
| 9        | G/W        | Limit switch signal                   | Driver door window is between fully-open and just before fully-closed position (ON).             | 0   |
|          |            |                                       | Driver door window is between just before fully-closed position and fully-closed position (OFF). | 5   |
| 10       | R/Y        | Rear RH power window UP signal        | Main switch rear RH switch UP operation.   | 0 → Battery voltage   |
| 11       | Y/B        | Rear RH power window DOWN signal      | Main switch rear RH switch DOWN operation.   | 0 → Battery voltage   |
| 12       | W/L        | Rap signal                            | —  | Battery voltage   |
| 14       | PU         | Rear LH power window UP signal        | Main switch rear LH switch UP operation.   | Battery voltage   |
| 15       | L          | Rear LH power window DOWN signal      | Main switch rear LH switch DOWN operation.   | Battery voltage   |
| 16       | G/Y        | Encoder pulse signal                  | When power window motor operates.  |  |
| 19       | B          | Ground                                | —  | Approx. 0   |

OCC3383D

# POWER WINDOW SYSTEM

## Schematic (With Left and Right Front Power Window Anti-pinch System)

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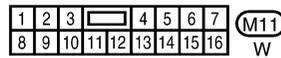
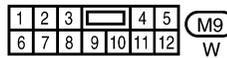
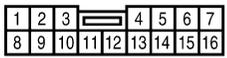
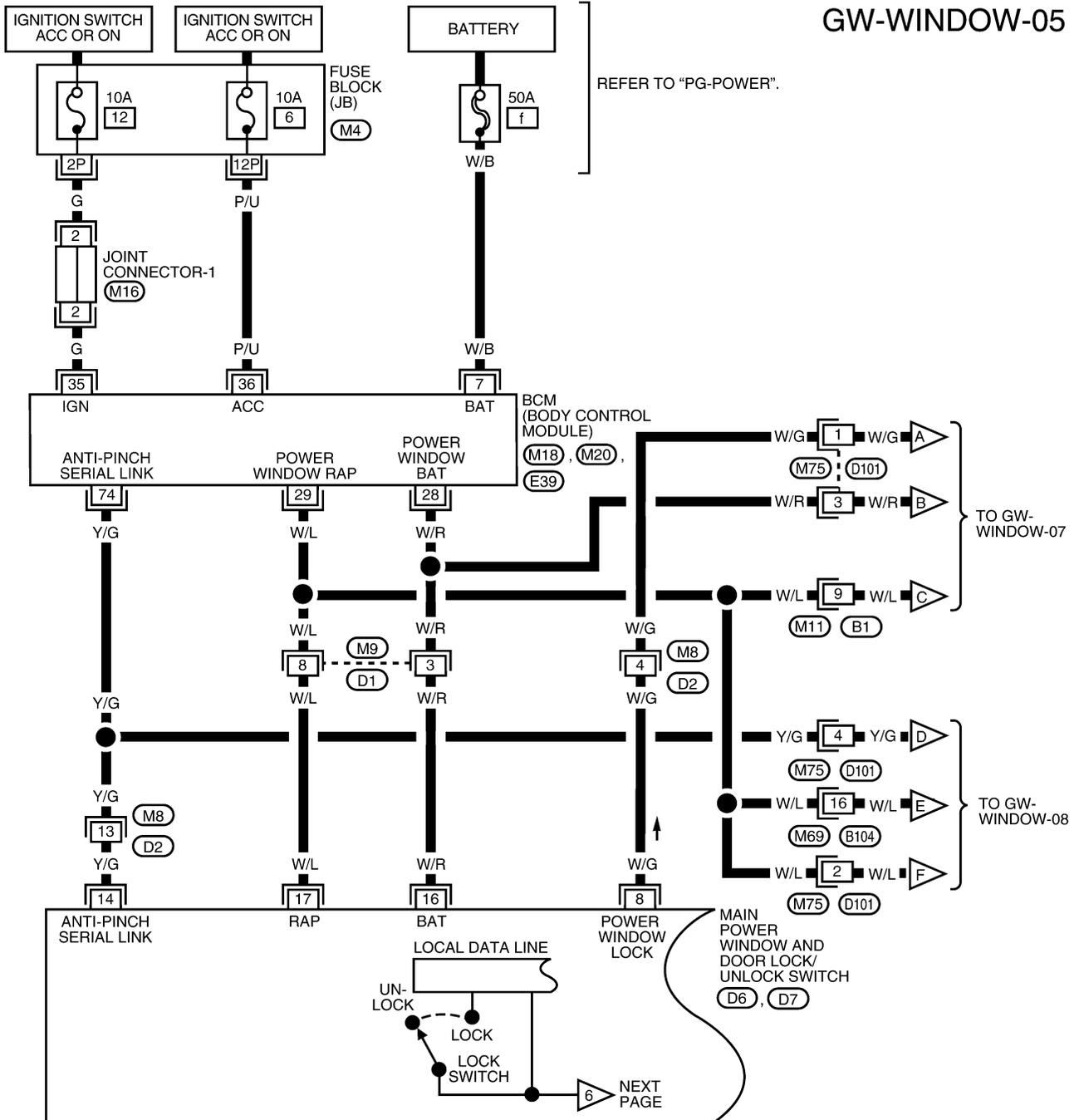
LIWA0014E

# POWER WINDOW SYSTEM

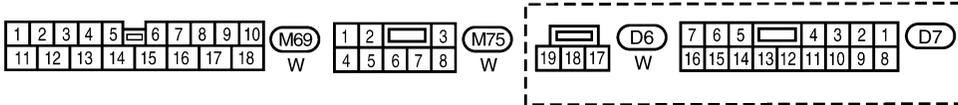
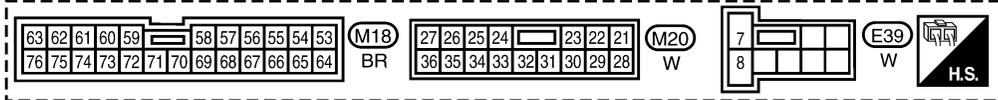
## Wiring Diagram – WINDOW – (With Left and Right Front Power Window Anti-pinch System)

EIS000SP

GW-WINDOW-05



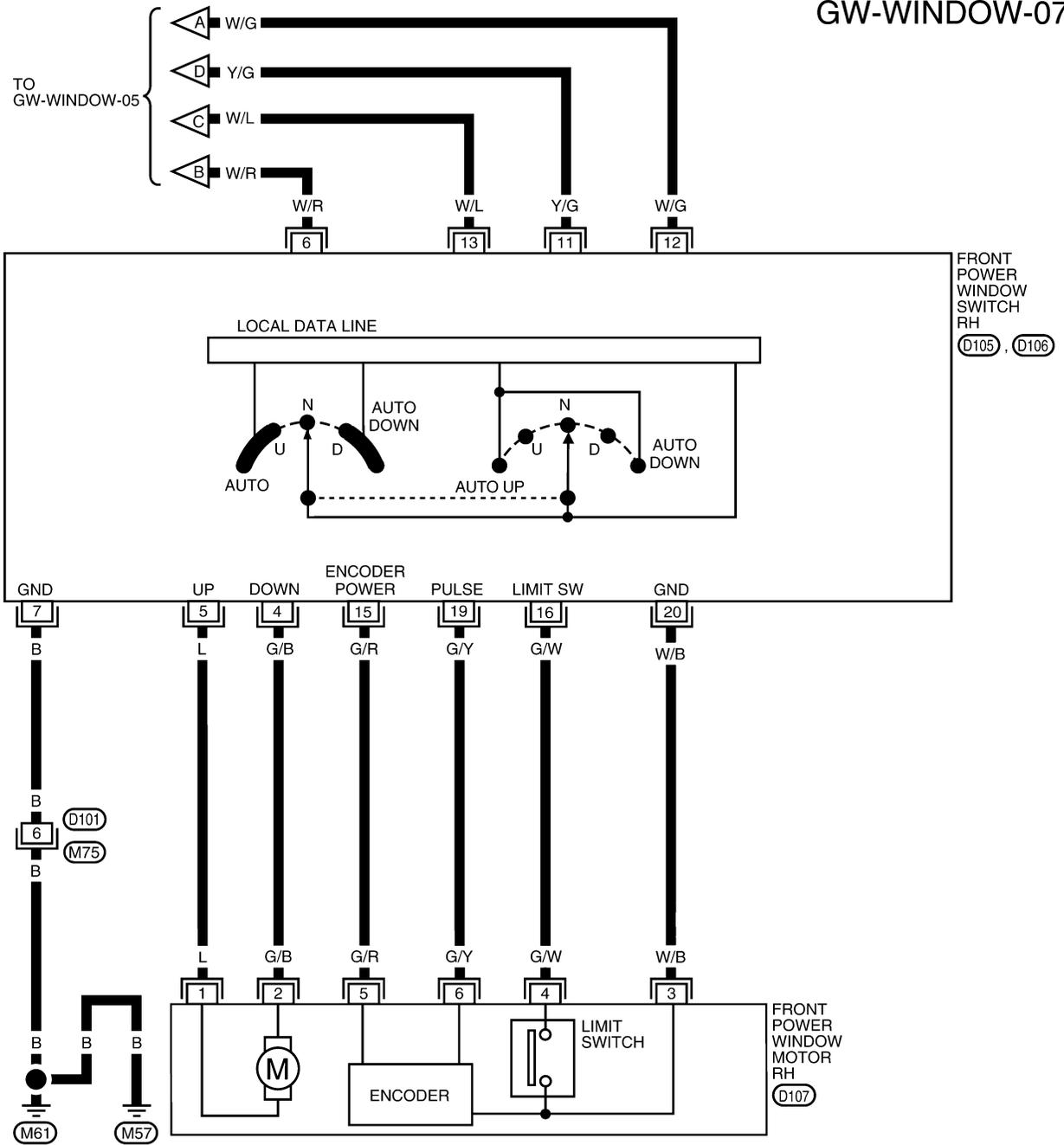
REFER TO THE FOLLOWING.  
M16 - JOINT CONNECTOR (J/C)





# POWER WINDOW SYSTEM

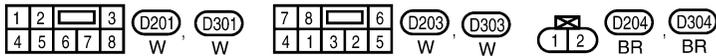
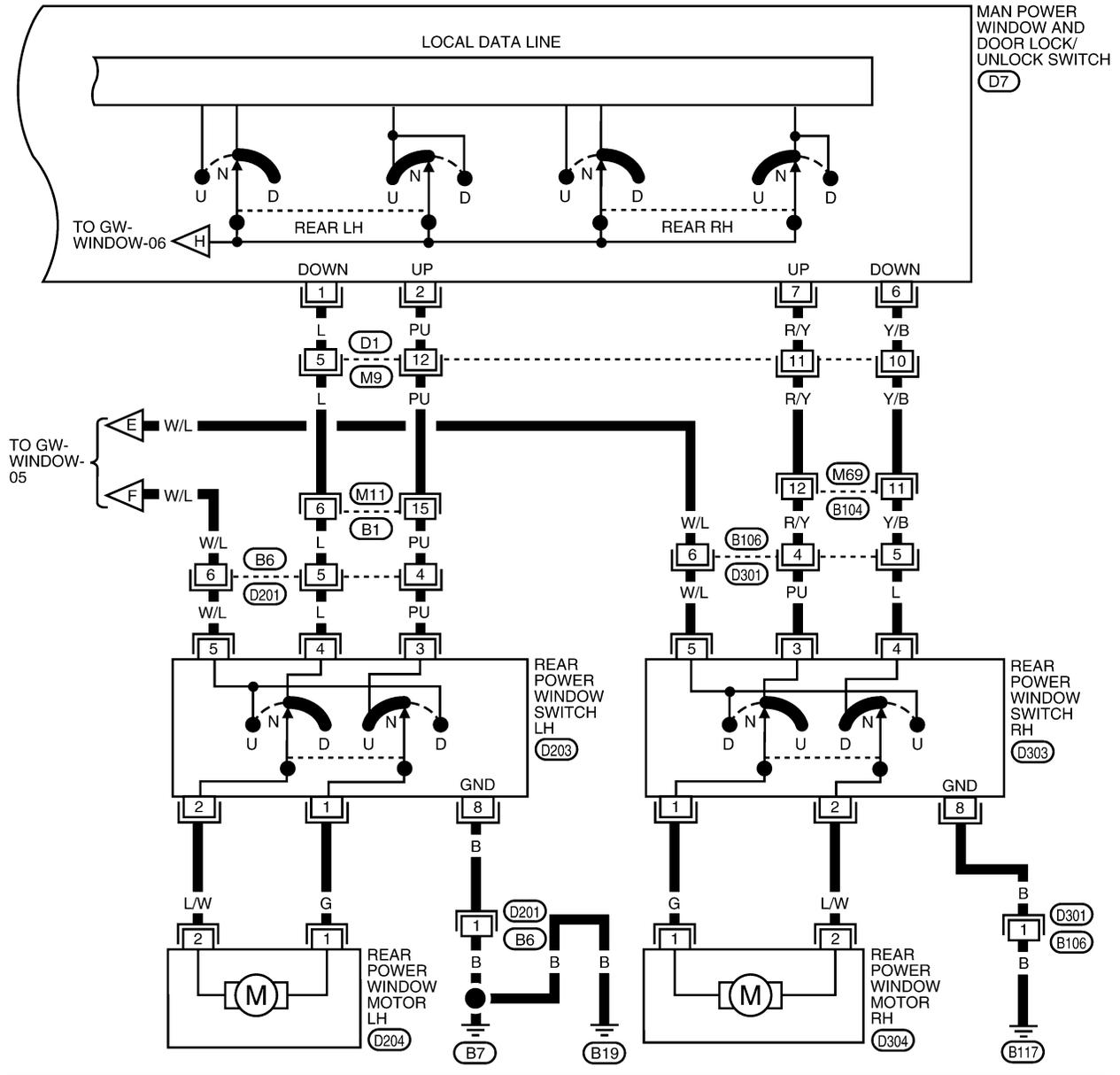
GW-WINDOW-07



LIWA0011E

# POWER WINDOW SYSTEM

GW-WINDOW-08



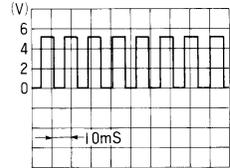
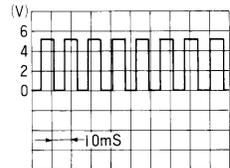
LIWA0012E

# POWER WINDOW SYSTEM

EIS000SQ

## Terminal and Reference Value for Power Window Main Switch

With left and right front power window anti-pinch system.

| TERMINAL | WIRE COLOR | ITEM                                  | CONDITION  | VOLTAGE (V)<br>(Approx.)   |
|----------|------------|---------------------------------------|--|--|
| 1        | L          | Rear LH power window DOWN signal      | Main switch rear LH switch DOWN operation.   | Battery voltage  |
| 2        | PU         | Rear LH power window UP signal        | Main switch rear LH switch UP operation.   | Battery voltage  |
| 4        | P/L        | Key cylinder switch lock signal       | Key position (Neutral → Locked)  | 5 → 0  |
| 5        | W/L        | Key cylinder switch unlock signal     | Key position (Neutral → Unlocked)  | 5 → 0  |
| 6        | Y/B        | Rear RH power window DOWN signal      | Main switch rear RH switch DOWN operation.   | 0 → Battery voltage  |
| 7        | R/Y        | Rear RH power window UP signal        | Main switch rear RH switch UP operation.   | 0 → Battery voltage  |
| 8        | W/G        | Power window lock                     | Power window lock switch operation (Unlocked → Locked)   | 0 → Battery voltage  |
| 9        | G/W        | Limit switch signal                   | Driver door window is between fully-open and just before fully-closed position (ON).             | 0  |
|          |            |                                       | Driver door window is between just before fully-closed position and fully-closed position (OFF). | 5  |
| 11       | B          | Ground                                | —  | 0  |
| 12       | G/Y        | Encoder pulse signal                  | When power window motor operates.  |  <p style="text-align: right;">OCC3383D</p> |
| 13       | G/R        | Encoder power supply                  | —  | 5 → Battery voltage  |
| 14       | Y/G        | Anti-pinch serial link                | —  |  <p style="text-align: right;">OCC3383D</p> |
| 15       | W/B        | Limit switch encoder ground           | —  | Approx. 0  |
| 16       | W/R        | BAT power supply                      | —  | Battery voltage  |
| 17       | W/L        | Rap signal                            | —  | Battery voltage  |
| 18       | L/W        | Driver power window motor DOWN signal | When DOWN operation.   | Approx. 0 → Battery voltage  |
| 19       | L/R        | Driver power window motor UP signal   | When UP operation.   | Approx. 0 → Battery voltage  |

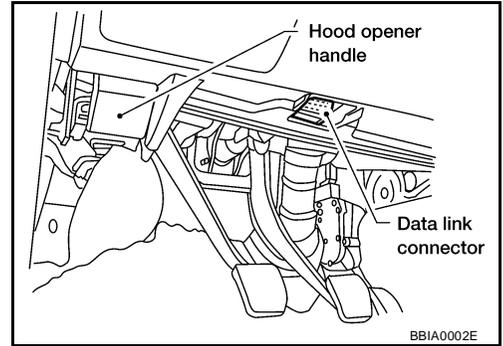
## CONSULT-II Inspection Procedure

EIS000SR

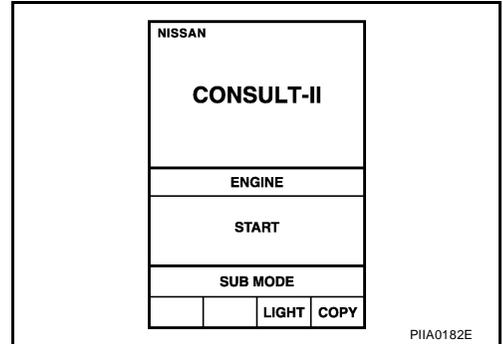
"RETAINED PWR"

# POWER WINDOW SYSTEM

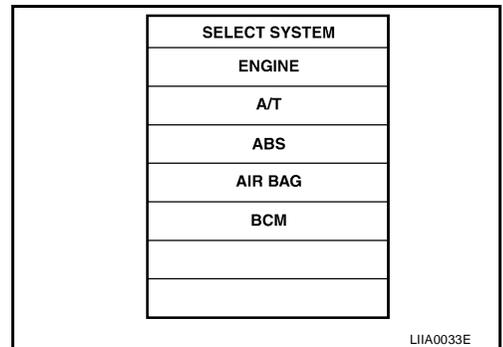
1. Turn ignition switch "ON".
2. Connect "CONSULT-II" to the data link connector.



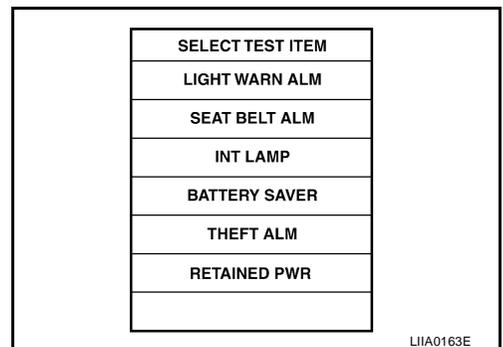
3. Turn ignition switch "ON".
4. Touch "START".



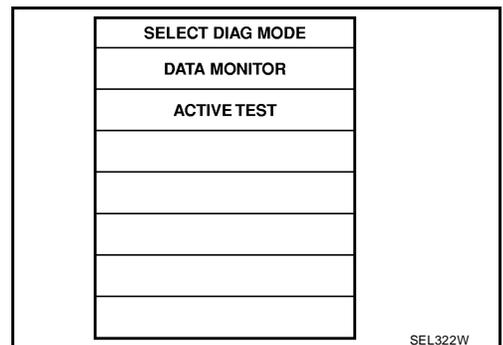
5. Touch "BCM".



6. Touch "RETAINED PWR".



7. Select diagnosis mode.  
"ACTIVE TEST" is available for the power window.



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# POWER WINDOW SYSTEM

## ACTIVE TEST

| Test Item    | Description   |
|--------------|---|
| RETAINED PWR | <p>This test is able to supply RAP signal (power) from BCM (body control module) to power window system and power sunroof system (if equipped). Those systems can be operated when turning on "RETAINED PWR" on CONSULT-II screen even if the ignition switch is turned OFF.</p> <p><b>NOTE:</b><br/>During this test, CONSULT-II can be operated with ignition switch in "OFF" position. "RETAINED PWR" should be turned "ON" or "OFF" on CONSULT-II screen when ignition switch is ON. Then turn ignition switch OFF to check retained power operation. CONSULT-II might be stuck if "RETAINED PWR" is turned "ON" or "OFF" on CONSULT-II screen when ignition switch is OFF.</p> |

## Trouble Diagnoses

E/S000SS

| Symptom  | Possible cause  | Repair order   |
|--|---|--|
| None of the power windows can be operated using any switch.  | 1. Power source BAT or RAP  | 1. Check the following <ul style="list-style-type: none"> <li>- Check harness between BCM and main power window and door lock/unlock switch for open or short.</li> <li>- Check harness between BCM and front power window switch RH and rear power window switch LH and RH for open or short.</li> </ul>  |
| Driver side power window cannot be operated but other windows can be operated.   | 1. Power source BAT or RAP<br>2. Front power window LH circuit<br>3. Front power window motor LH and regulator<br>4. Main power window and door lock/unlock switch          | 1. Check harness between BCM and main power window and door lock/unlock switch for open or short.<br>2. Check harness between main power window and door lock/unlock switch and front power window motor LH for open or short circuit.<br>3. Check front power window motor LH and regulator.<br>4. Check main power window and door lock/unlock switch.   |
| One or more power windows except driver's side window cannot be operated.  | 1. Power source RAP<br>2. Power window sub-switches<br>3. Power window motors and regulators<br>4. Main power window and door lock/unlock switch<br>5. Power window circuit | 1. Check harness between BCM and power window sub-switches for open or short circuit.<br>2. Check front power window switch RH and rear power window switch LH and RH.<br>3. Check power window motors and regulators.<br>4. Check main power window and door lock/unlock switch.<br>5. Check harnesses between front power window switch RH, rear power window switch LH and RH and power window motors for open/short circuit. |
| Power windows except driver's side window cannot be operated using main power window and door lock/unlock switch but can be operated by power window sub-switch. | 1. Main power window and door lock/unlock switch  | 1. Check main power window and door lock/unlock switch.  |
| Driver side power window automatic operation does not function properly.   | 1. Main power window and door lock/unlock switch<br>2. Encoder and limit switch   | 1. Check main power window and door lock/unlock switch.<br>2. Check encoder and limit switch. Refer to <a href="#">GW-31, "Encoder and Limit Switch Check (Driver side)"</a> .   |
| Passenger side power window automatic operation does not function properly.  | 1. Front power window switch RH<br>2. Encoder and limit switch  | 1. Check front power window switch RH.<br>2. Check encoder and limit switch. Refer to <a href="#">GW-32, "Encoder and Limit Switch Check (Passenger side)"</a> .   |

# POWER WINDOW SYSTEM

EIS000ST

## Encoder and Limit Switch Check (Driver side)

### 1. CHECK DOOR WINDOW SLIDE MECHANISM

Check the following.

- Obstacles in window, glass molding, etc.
- Worn or deformed glass molding.
- Door sash tilted too far inward or outward.
- Door window regulator.

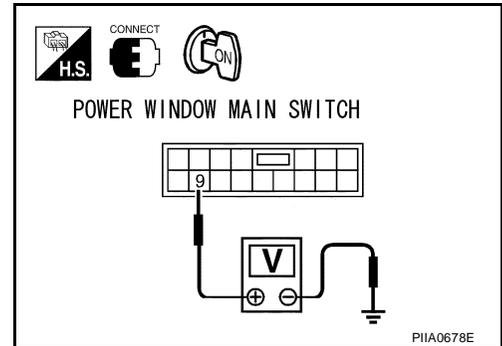
#### OK or NG

- OK >> GO TO 2.
- NG >> Remove obstacles or repair door window slide mechanism.

### 2. CHECK LIMIT SWITCH OPERATION

Check voltage between main power window and door lock/unlock switch connector D7 terminal 9 (G/OR) and ground.

| Terminals |          | (-)    | Condition   | Voltage (Approx.) |
|-----------|----------|--------|---|-------------------|
| (+)       |          |        |   |                   |
| Connector | Terminal |        |   |                   |
| D7        | 9 (G/OR) | Ground | Driver door window is between fully-open and just before fully-closed position (ON)             | 0V                |
|           |          |        | Driver door window is between just before fully-closed position and fully-closed position (OFF) | 5V                |



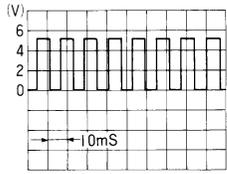
#### OK or NG

- OK >> GO TO 3.
- NG >> Check harness between main power window and door lock/unlock switch and front power window motor LH.
  - OK: Replace front power window motor LH.
  - NG: Replace or repair harness between main power window and door lock/unlock switch and front power window motor LH.

# POWER WINDOW SYSTEM

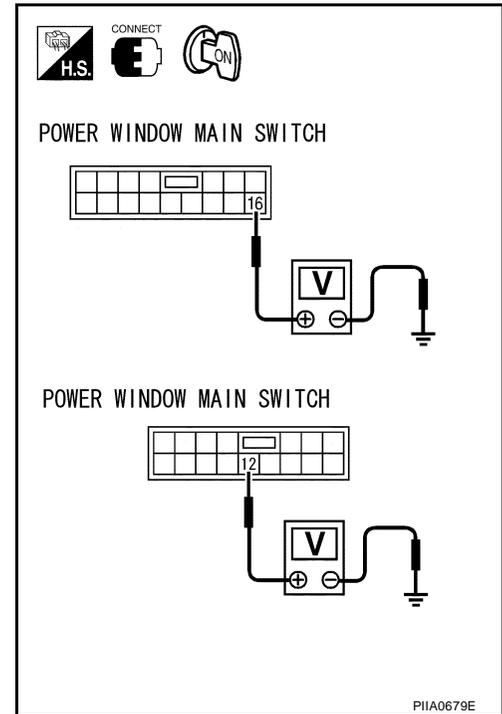
## 3. CHECK ENCODER

Measure voltage between main power window and door lock/unlock switch connector D7 terminal 16 (12) G/Y and ground with oscilloscope when power window is in automatic closing operation.

| Terminals |                       | Condition | Voltage   |
|-----------|-----------------------|-----------|---|
| (+)       | (-)                   |           |   |
| D7        | 16 (G/Y),<br>12 (G/Y) | Ground    |  <p>OCC3383D</p> |

**( ): with left and right front power window anti-pinch system**  
OK or NG

- OK >> Replace main power window and door lock/unlock switch.
- NG >> Replace front power window motor LH.



## Encoder and Limit Switch Check (Passenger side)

EIS000SU

### 1. CHECK DOOR WINDOW SLIDE MECHANISM

Check the following.

- Obstacles in window, glass molding, etc.
- Worn or deformed glass molding.
- Door sash tilted too far inward or outward.
- Door window regulator.

OK or NG

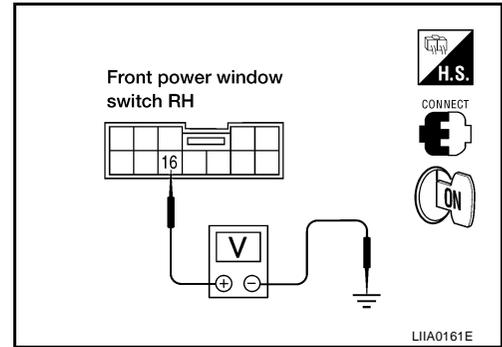
- OK >> GO TO 2.
- NG >> Remove obstacles or repair door window slide mechanism.

# POWER WINDOW SYSTEM

## 2. CHECK LIMIT SWITCH OPERATION

Check voltage between front power window switch RH connector D105 terminal 16 (G/W) and ground.

| Terminals |          | Condition  | Voltage (Approx.) |
|-----------|----------|--|-------------------|
| (+)       | (-)      |  |                   |
| Connector | Terminal |  |                   |
| D105      | 16 (G/W) | Passenger door window is between fully-open and just before fully-closed position (ON)             | 0V                |
|           |          | Passenger door window is between just before fully-closed position and fully-closed position (OFF) | 5V                |



OK or NG

OK >> GO TO 3.

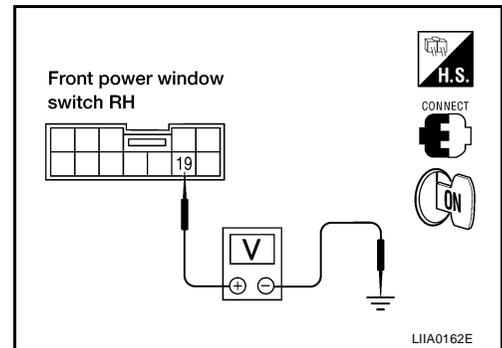
NG >> Check harness between main power window and door lock/unlock switch and front power window motor RH.

- OK: Replace power window regulator motor (front passenger side).
- NG: Replace or repair harness between power window main switch and window regulator motor (front passenger side).

## 3. CHECK ENCODER

Measure voltage between passenger power window switch terminal 19 (G/Y) and ground with oscilloscope when power window is in automatic closing operation.

| Terminals |          | Condition  | Voltage |
|-----------|----------|--|---------|
| (+)       | (-)      |  |         |
| Connector | Terminal |  |         |
| D         | 19 (G/Y) | When power window motor (passenger side) operates. |         |



OK or NG

OK >> Replace passenger power window switch.

NG >> Replace power window regulator motor (front passenger side).

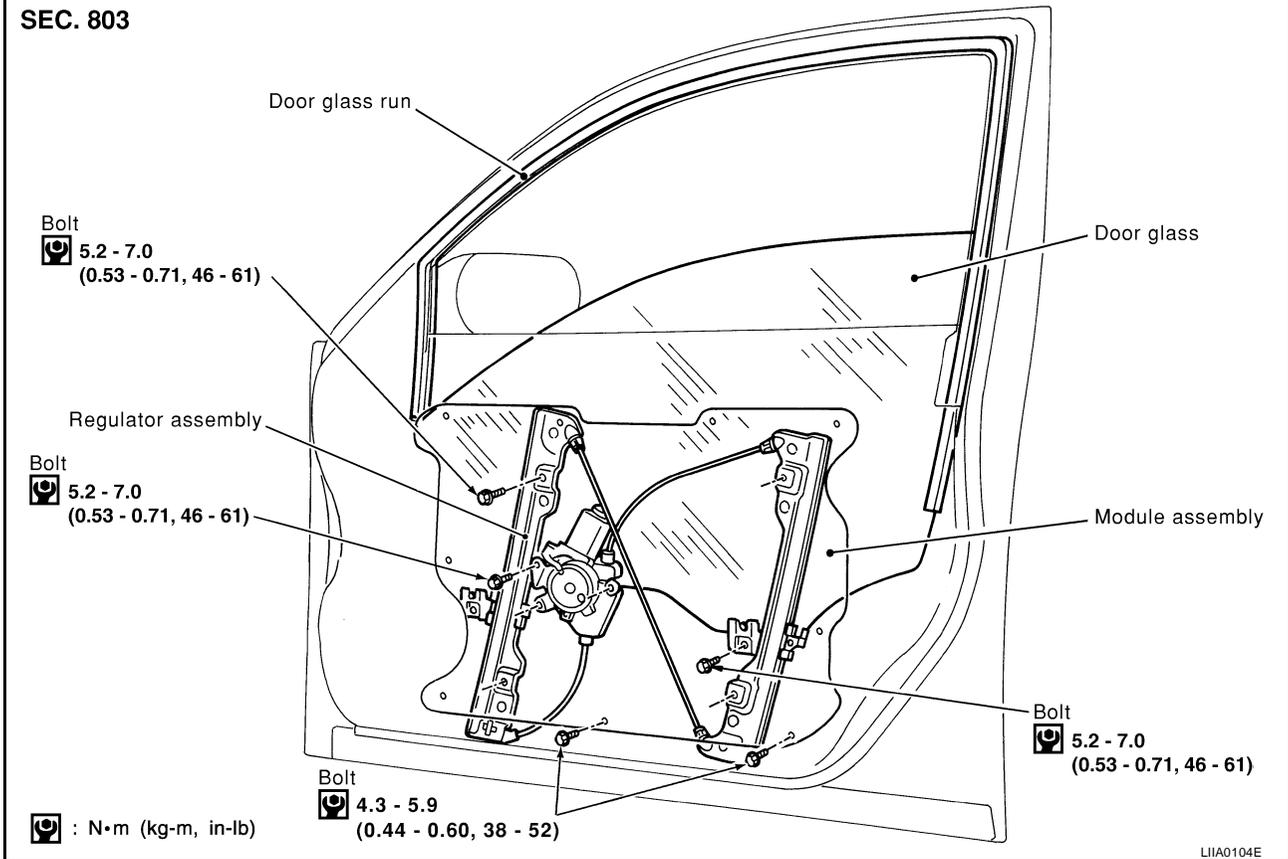
# FRONT DOOR GLASS AND REGULATOR

## FRONT DOOR GLASS AND REGULATOR

PFP:80300

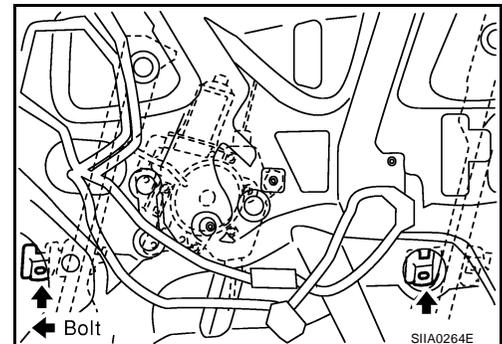
### Removal and Installation

EIS000SV

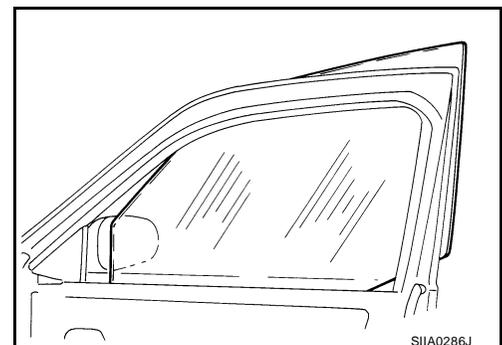


### REMOVAL

1. Remove the front door finisher. Refer to [EI-27, "Front Door"](#).
2. Remove the door speaker. Refer to [AV-22, "DOOR SPEAKER"](#).
3. Operate the power window main switch to raise/lower the door window until the glass mounting bolts can be seen.
4. Remove the glass mounting bolts.

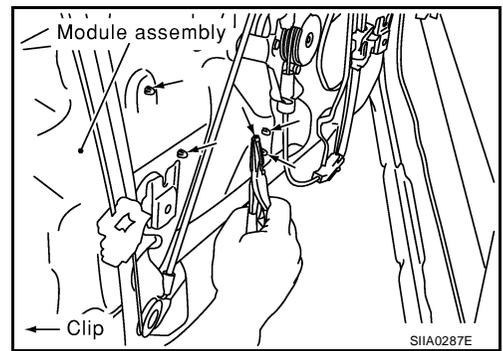


5. While holding the door window, raise it at the rear end to pull the glass out of the sash toward the outside of the door.



# FRONT DOOR GLASS AND REGULATOR

6. Remove the mounting bolts, and remove the module assembly.
7. Disconnect the harness connector for the module assembly, and unclip the harness from the back.



## INSTALLATION

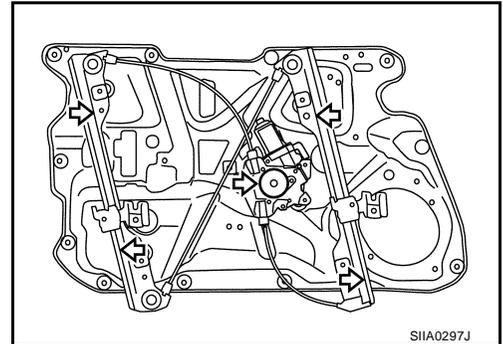
Install in the reverse order of removal.

## INSPECTION AFTER REMOVAL

Check the regulator assembly for the following items. If a malfunction is detected, replace or grease it.

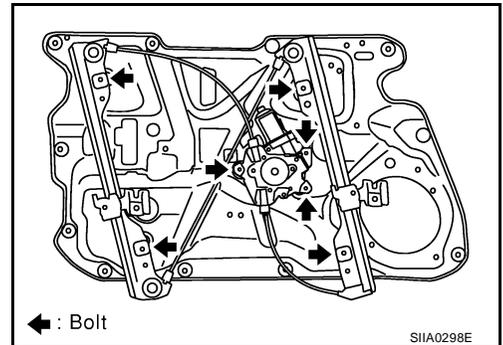
- Wire wear
- Regulator deformation
- Grease condition for each sliding part

The arrows in the figure show the application points of the body grease.



## DISASSEMBLY AND ASSEMBLY

Remove the regulator motor and guide rail from the module assembly.



## FITTING INSPECTION

- Check that the glass is securely fit into the glass run groove.
- Lower the glass slightly [approx. 10 to 20 mm (0.39 to 0.79 in)] and check that the clearance to the sash is parallel. If the clearance between the glass and sash is not parallel, loosen the regulator mounting bolts, guide rail mounting bolts, and glass and guide rail mounting bolts to correct the glass position.

## SETTING AFTER INSTALLATION

### Setting of Limit Switch

If any of the following work has been done, set the limit switch (integrated in the motor).

- Removal and installation of the regulator.
- Removal and installation of the motor from the regulator.
- Removal and installation of the glass.
- Removal and installation of the glass run.

### Resetting

After installing each component to the vehicle, perform the following procedure to reset the limit switch.

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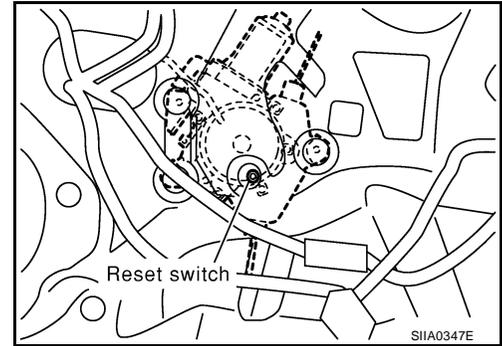
GW

## FRONT DOOR GLASS AND REGULATOR

1. Raise the glass to the top dead center position.
2. While pressing and holding the reset switch, lower the glass to the bottom dead center position.
3. Release the reset switch. Verify that the reset switch returns to the original position, and then raises the glass to the top dead center position.

**CAUTION:**

**Do not operate the glass automatically to raise the glass to the top dead center position.**



# REAR DOOR GLASS AND REGULATOR

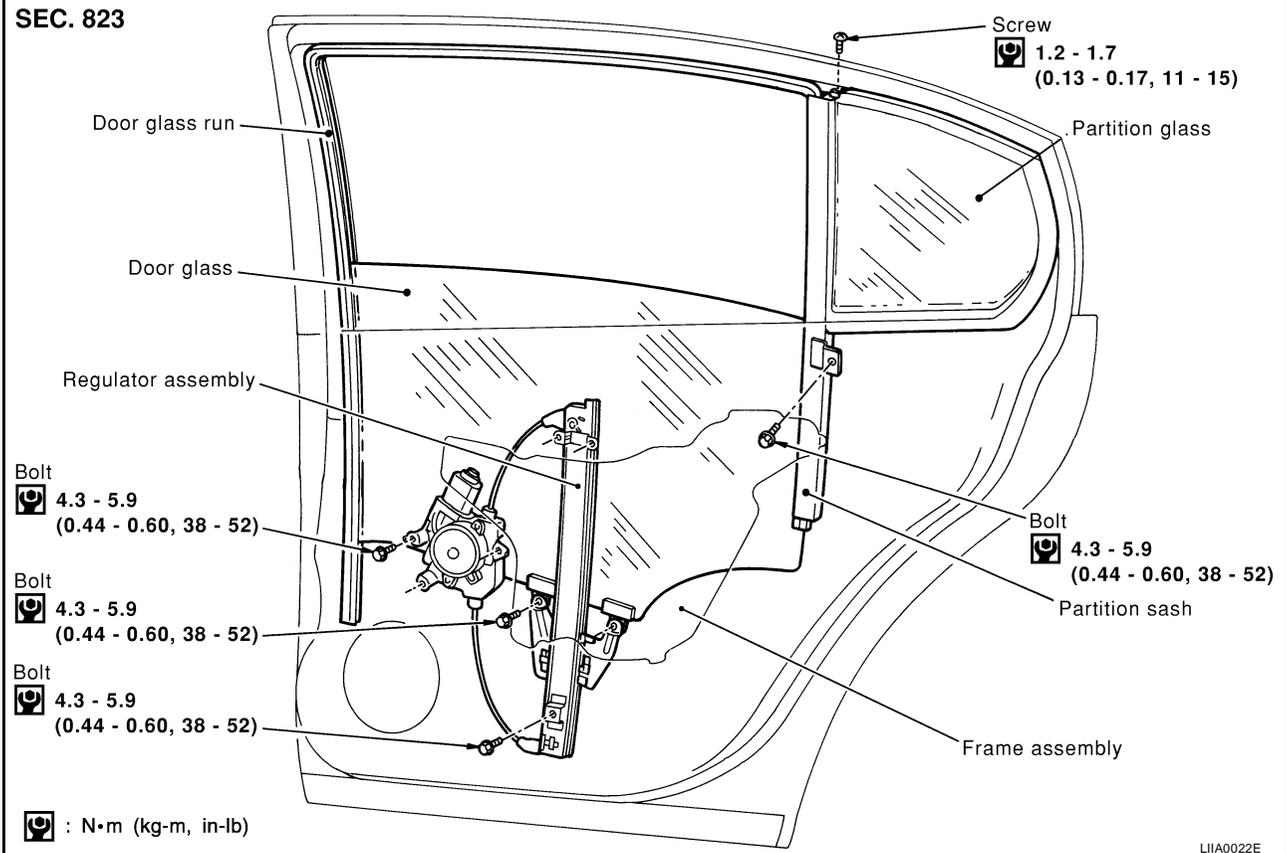
## REAR DOOR GLASS AND REGULATOR

PFP:82300

### Removal and Installation

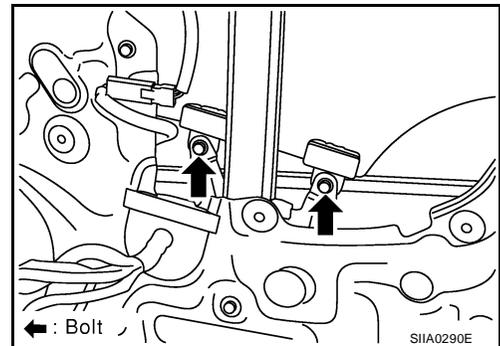
EIS000SW

SEC. 823

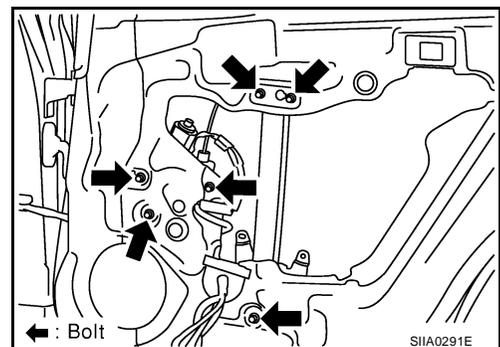


### REMOVAL

1. Remove the rear door finisher. Refer to [EI-28. "Rear Door"](#).
2. Remove the inside seal.
3. Operate the power window switch to raise/lower the door window until the glass mounting bolts can be seen.
4. Remove the glass mounting bolts, and place the glass on the inner bottom of the panel.



5. Remove the mounting bolts, and remove the regulator and guide channel from the panel.
6. Disconnect the connector for the regulator assembly.

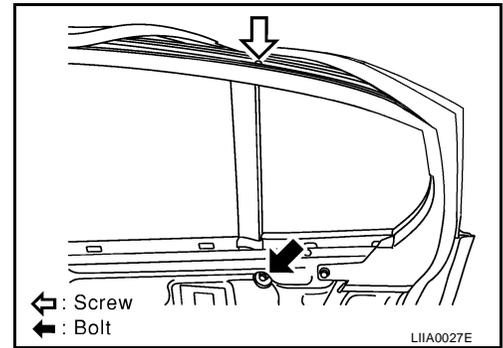


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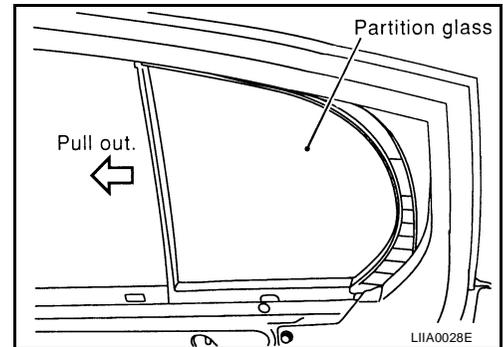
GW

## REAR DOOR GLASS AND REGULATOR

7. Remove the partition sash from the glass run.
8. Remove the partition sash mounting bolt (lower) and screw (upper) to remove the sash.
9. Remove the glass from the inside of the panel.



10. Remove the partition glass from the panel.



### INSTALLATION

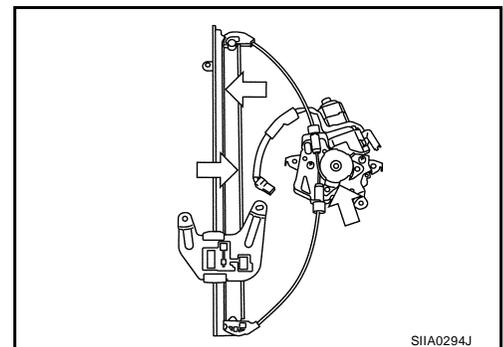
Install in the reverse order of removal.

### INSPECTION AFTER REMOVAL

Check the regulator assembly for the following items. If a malfunction is detected, replace or grease it.

- Gear wear
- Regulator deformation
- Spring damage
- Grease condition for each sliding part

The arrows in the figure show the application points of the grease "Dow Corning Moly Coat SK 623".



### FITTING INSPECTION

- Check that the glass is securely fit into the glass run groove.
- Lower the glass slightly [approx. 10 to 20 mm (0.39 to 0.79 in)], and check that the clearance to the sash is parallel. If the clearance between the glass and sash is not parallel, loosen the regulator mounting bolts, guide rail mounting bolts, and glass and carrier plate mounting bolts to correct the glass position.

# INSIDE MIRROR

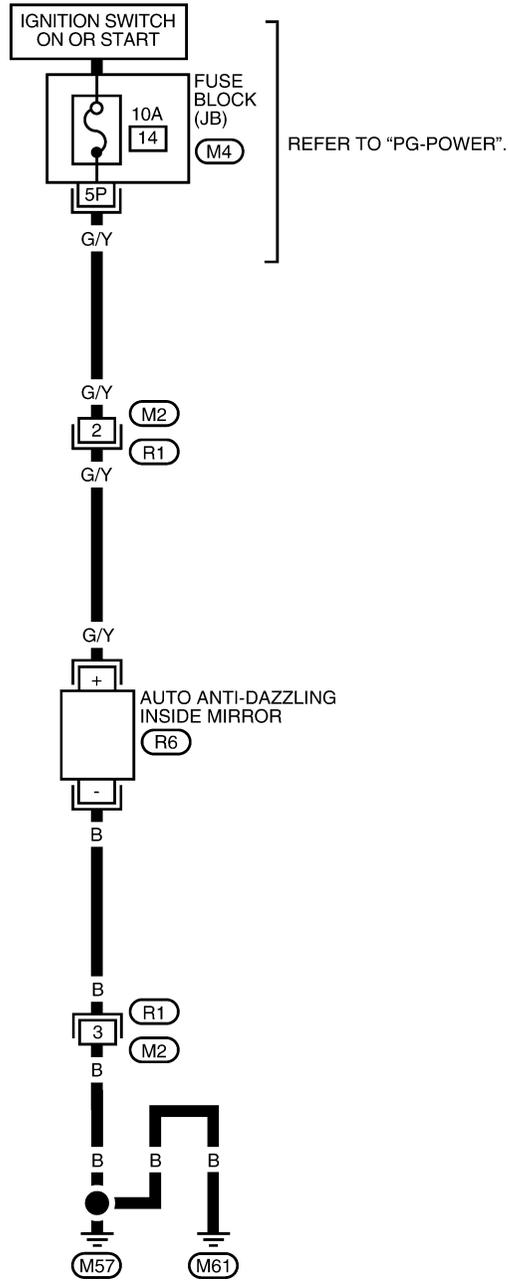
## INSIDE MIRROR

### Wiring Diagram -I/MIRR-

PPF:96321

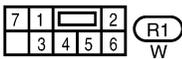
EIS000SX

## GW-I/MIRR-01



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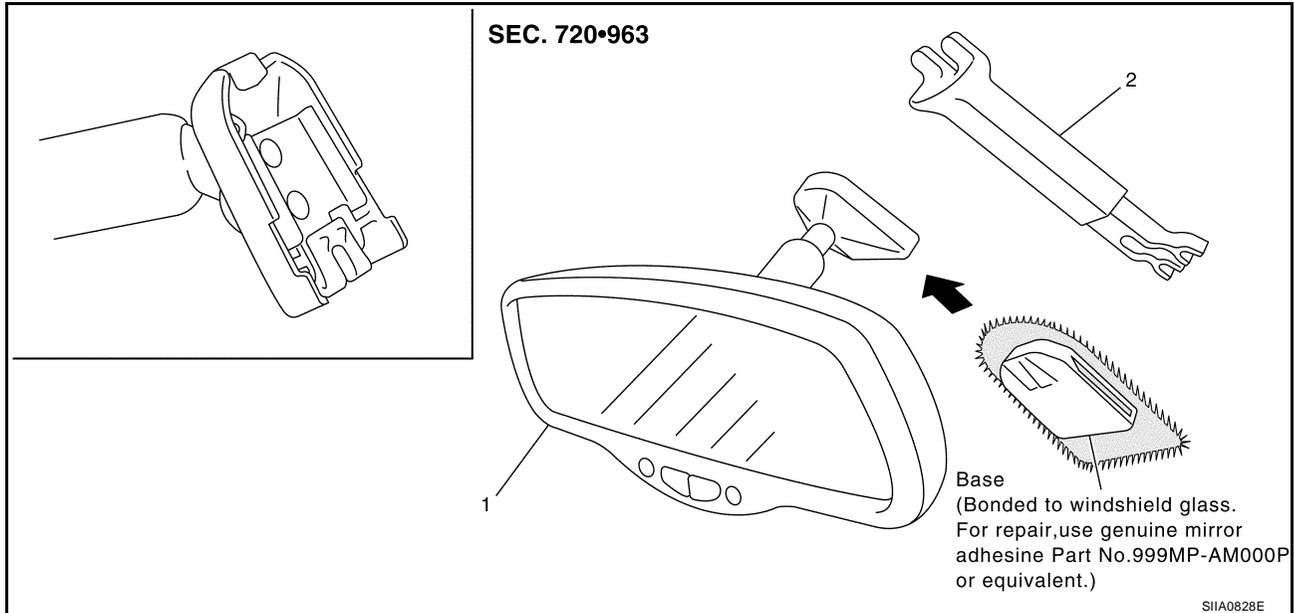
REFER TO THE FOLLOWING.  
 (M4) - FUSE BLOCK JUNCTION BOX (J/B)

# INSIDE MIRROR

EIS000SY

## Removal and Installation INSIDE MIRROR

1. Remove connector cover (if equipped).
2. Slide the mirror upward to remove.
3. Disconnect the connector (if equipped).



1. Inside mirror

2. Inside mirror finisher (if equipped)

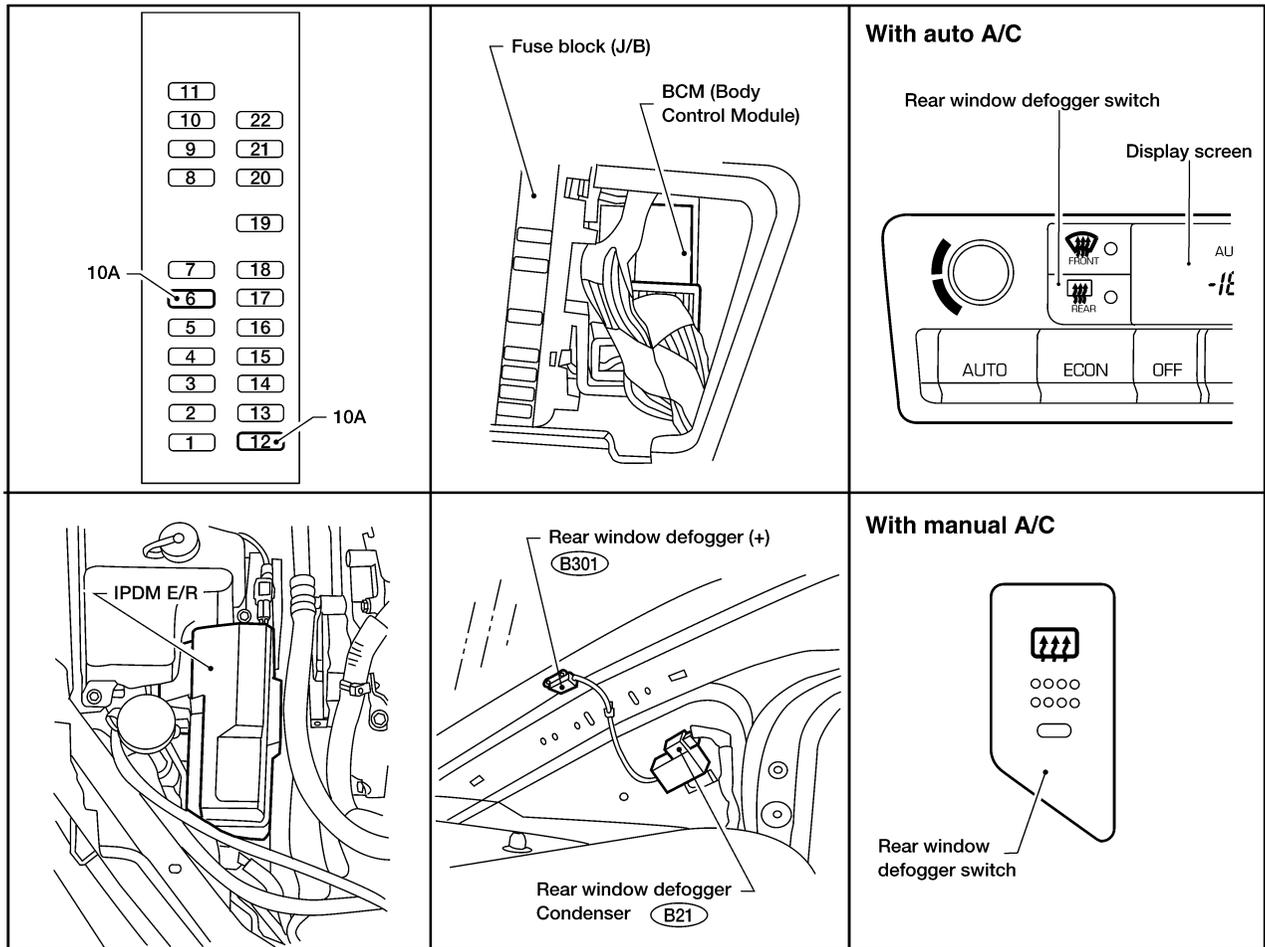
# REAR WINDOW DEFOGGER

PDF:25350

EIS000SZ

## REAR WINDOW DEFOGGER

### Component Parts and Harness Connector Location



LIA0103E

### System Description

EIS00070

The rear window defogger system is controlled by BCM (Body Control Module) and rear window defogger relay is controlled by IPDM E/R (Intelligent Power Distribution Module Engine Room). The rear window defogger operates only for approximately 15 minutes.

Power is supplied at all times

- to rear window defogger relay terminal 3 and 6
- through 20A fuse (No. 35 and 36, located in the IPDM E/R)
- to BCM terminal 7
- through 50A fusible link (letter f , located in the fuse and fusible link box).

With the ignition switch in the ACC or ON position, power is supplied

- to BCM terminal 36
- through 10A fuse [No. 6, located in the fuse block (J/B)].

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No.12, located in the fuse block (J/B)]
- to rear defogger relay terminal 1 and
- to BCM terminal 35.

Ground is supplied to terminal 2 of rear window defogger switch through body ground M57 and M61(with manual A/C) or terminal 8, 27 and 63 of BCM through body ground E15, E24, M57 and M61 (with auto A/C).

BCM is connected to IPDM E/R as DATA LINE (CAN H line and CAN L line).

When the rear window defogger switch is turned ON, ground is supplied

- through terminal 1 of the rear window defogger switch

A  
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**GW**

# REAR WINDOW DEFOGGER

- to BCM terminal 69 (with auto A/C)
- through terminal 1 of the rear window defogger switch
- to rear window defogger switch terminal 2 (with manual A/C).

BCM output to IPDM E/R for rear window defogger switch signal as DATA LINE (CAN H line and CAN L line). Terminal 2 of rear window defogger relay then supplies ground to IPDM E/R terminal 54.

With power and ground supplied, the rear window defogger relay is energized. Power is supplied

- through terminals 5 and 7 of the rear window defogger relay
- to the rear window defogger.

The rear window defogger has an independent ground.

With power and ground supplied, the rear window defogger filaments heat and defog the rear window.

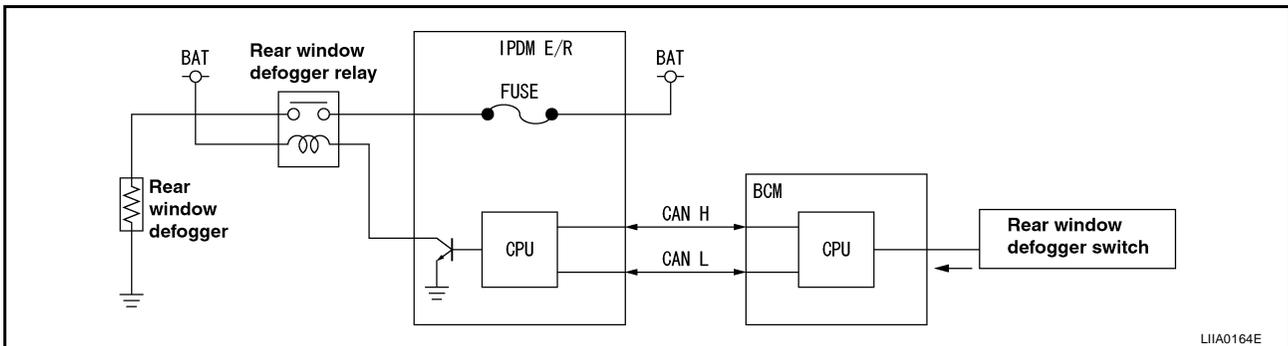
When the system is activated, the rear window defogger indicator illuminates in the rear window defogger switch.

Power is supplied

- to terminal 3 of the rear window defogger switch
- from terminal 5 and 7 of rear window defogger relay.

Terminal 3 of the rear window defogger switch is grounded through rear window defogger ground B202 (with auto A/C) or terminal 4 of the rear window defogger switch is grounded through body ground M57 and M61 (with manual A/C).

## SYSTEM DIAGRAM



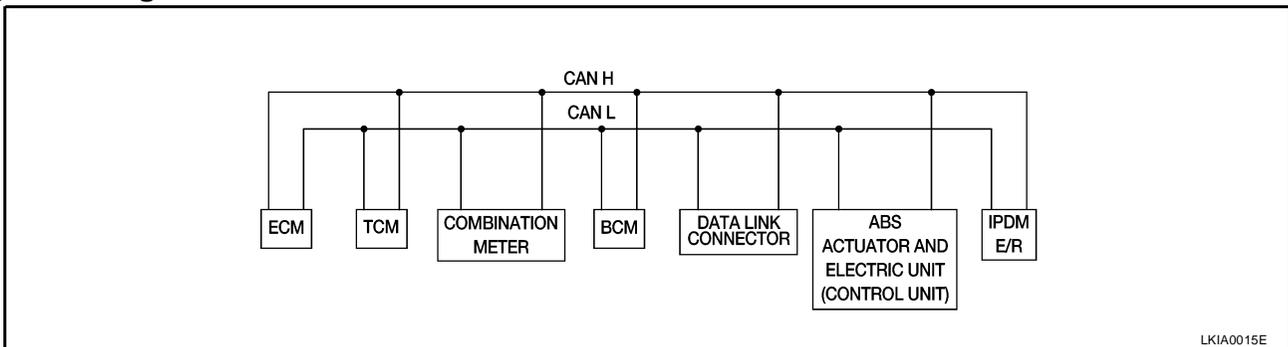
## CAN Communication System Description

E/IS000T1

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

## FOR TCS MODELS

### System Diagram



LKIA0015E

# REAR WINDOW DEFOGGER

## Input/Output Signal Chart

T: Transmit R: Receive

| Signals                            | ECM | TCM | COMBINATION METER | BCM             | ABS/TCS control unit | IPDM E/R |
|------------------------------------|-----|-----|-------------------|-----------------|----------------------|----------|
| Engine speed signal                | T   |     | R                 |                 | R                    |          |
| Engine coolant temperature signal  | T   |     | R                 |                 |                      |          |
| Accelerator pedal position signal  | T   |     |                   |                 |                      |          |
| Fuel consumption monitor signal    | T   |     | R                 |                 |                      |          |
| A/T warning lamp signal            |     | T   | R                 |                 |                      |          |
| A/T position indicator signal      | R   | T   | R                 | R(R range only) | R                    |          |
| ABS operation signal               | R   |     |                   |                 | T                    |          |
| TCS operation signal               | R   | R   |                   |                 | T                    |          |
| Air conditioner switch signal      | R   |     |                   | T               |                      |          |
| Air conditioner compressor signal  | R   |     |                   |                 |                      | T        |
| A/C compressor request signal      | T   |     |                   |                 |                      | R        |
| Cooling fan motor operation signal | R   |     |                   |                 |                      | T        |
| Cooling fan speed request signal   | T   |     |                   |                 |                      | R        |
| Position lights request            |     |     | R                 | T               |                      | R        |
| Position lights status             |     |     |                   | R               |                      | T        |
| Low beam request                   |     |     |                   | T               |                      | R        |
| Low beam status                    | R   |     |                   | R               |                      | T        |
| High beam request                  |     |     | R                 | T               |                      | R        |
| High beam status                   | R   |     |                   | R               |                      | T        |
| Front fog lights request           |     |     |                   | T               |                      | R        |
| Front fog light status             |     |     |                   | R               |                      | T        |
| OD cancel switch signal            |     | R   | T                 |                 |                      | R        |
| Brake switch signal                |     | R   | T                 |                 |                      |          |
| Vehicle speed signal               | R   |     | T                 |                 |                      |          |
|                                    | R   |     | T                 | R               |                      |          |
| Oil pressure switch                |     |     | R                 |                 |                      | T        |
| Sleep request1                     |     |     | R                 | T               |                      |          |
| Sleep request2                     |     |     |                   | T               |                      | R        |
| N range switch signal              |     | R   | T                 |                 |                      |          |
| P range switch signal              |     | R   | T                 |                 |                      |          |
| Seat belt buckle switch signal     |     |     | T                 | R               |                      |          |
| Door switch signal                 |     |     | R                 | T               |                      | R        |
| Tail lamp request                  |     |     | R                 | T               |                      | R        |
| Turn indicator signal              |     |     | R                 | T               |                      |          |
| Buzzer output signal               |     |     | R                 | T               |                      |          |
| Trunk switch signal                |     |     | R                 | T               |                      |          |
| ASCD main switch signal            | T   |     | R                 |                 |                      |          |
| ASCD cruise signal                 | T   |     | R                 |                 |                      |          |
| Wiper operation                    |     |     |                   | R               |                      | T        |
| Wiper stop position signal         |     |     |                   | R               |                      | T        |

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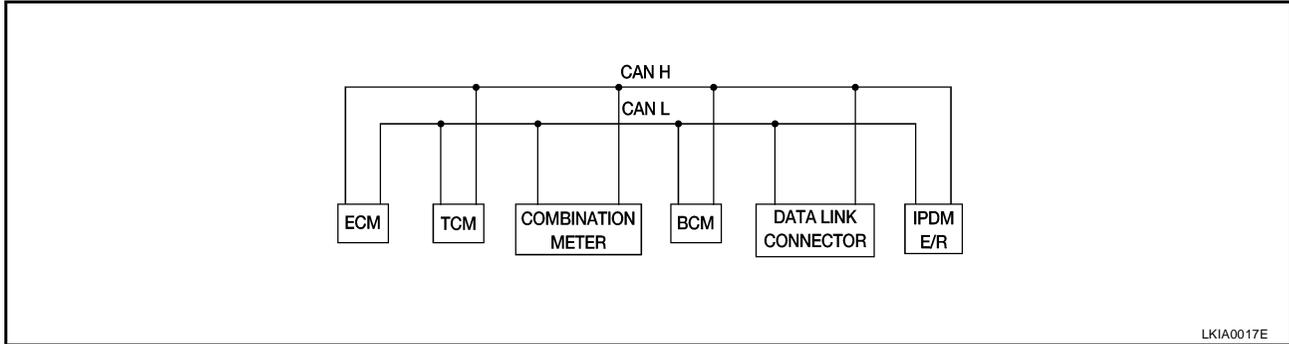
M

# REAR WINDOW DEFOGGER

| Signals                             | ECM | TCM | COMBINATION METER | BCM | ABS/TCS control unit | IPDM E/R |
|-------------------------------------|-----|-----|-------------------|-----|----------------------|----------|
| Rear window defogger switch signal  |     |     |                   | T   |                      | R        |
| Rear window defogger control signal | R   |     |                   | R   |                      | T        |

## FOR A/T MODELS

### System Diagram



### Input/Output Signal Chart

T: Transmit R: Receive

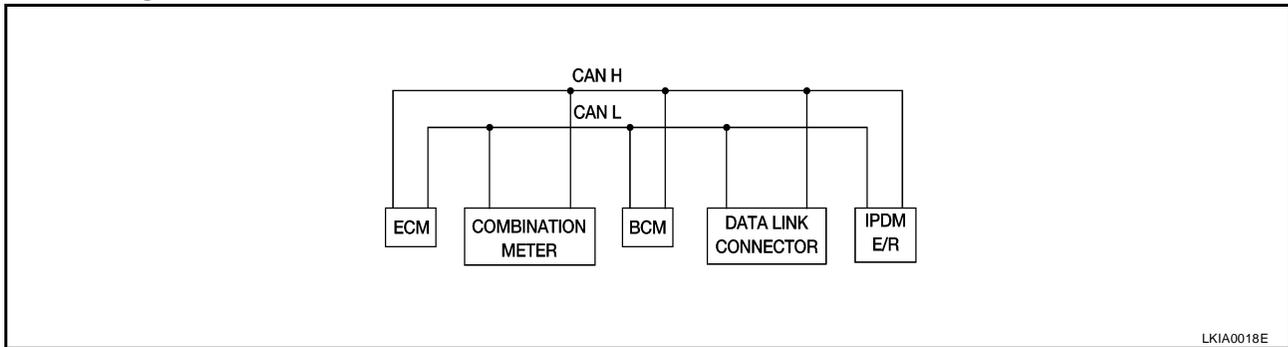
| Signals                            | ECM        | TCM | COMBINATION METER | BCM              | IPDM E/R |
|------------------------------------|------------|-----|-------------------|------------------|----------|
| Engine speed signal                | T          |     | R                 |                  |          |
| Engine coolant temperature signal  | T          |     | R                 |                  |          |
| Accelerator pedal position signal  | T          |     |                   |                  | R        |
| Fuel consumption monitor signal    | T          |     | R                 |                  |          |
| A/T warning lamp signal            |            | T   | R                 |                  |          |
| A/T position indicator signal      | R          | T   | R                 | R (R range only) |          |
| Air conditioner switch signal      | R          |     |                   | T                |          |
| Air conditioner compressor signal  | R          |     |                   |                  | T        |
| A/C compressor request signal      | T          |     |                   |                  | R        |
| Blower fan switch signal           | R (QR25DE) |     |                   | T                |          |
| Cooling fan motor operation signal | R          |     |                   | T                |          |
| Cooling fan speed request signal   | T          |     |                   |                  | R        |
| Position lights request            |            |     | R                 | T                | R        |
| Position lights status             |            |     |                   | R                | T        |
| Low beam request                   |            |     |                   | T                | R        |
| Low beam status                    | R          |     |                   | R                | T        |
| High beam request                  |            |     | R                 | T                | R        |
| High beam status                   | R          |     |                   | R                | T        |
| Front fog lights request           |            |     |                   | T                | R        |
| Front fog light status             |            |     |                   | R                | T        |
| OD cancel switch signal            |            | R   | T                 |                  | R        |
| Brake switch signal                |            | R   | T                 |                  |          |
| Vehicle speed signal               | R          |     | T                 |                  |          |
|                                    | R          |     | T                 | R                |          |
| Oil pressure switch                |            |     | R                 |                  | T        |
| Sleep request1                     |            |     | R                 | T                |          |

# REAR WINDOW DEFOGGER

| Signals                             | ECM | TCM | COMBINATION METER | BCM | IPDM E/R |
|-------------------------------------|-----|-----|-------------------|-----|----------|
| Sleep request2                      |     |     |                   | T   | R        |
| N range switch signal               |     | R   | T                 |     |          |
| P range switch signal               |     | R   | T                 |     |          |
| Seat belt buckle switch signal      |     |     | T                 | R   |          |
| Door switch signal                  |     |     | R                 | T   | R        |
| Tail lamp request                   |     |     | R                 | T   | R        |
| Turn indicator signal               |     |     | R                 | T   |          |
| Buzzer output signal                |     |     | R                 | T   |          |
| Trunk switch signal                 |     |     | R                 | T   |          |
| ASCD main switch signal             | T   |     | R                 |     |          |
| ASCD cruise signal                  | T   |     | R                 |     |          |
| Wiper operation                     |     |     |                   | R   | T        |
| Wiper stop position signal          |     |     |                   | R   | T        |
| Rear window defogger switch signal  |     |     |                   | T   | R        |
| Rear window defogger control signal | R   |     |                   | R   | T        |

## FOR M/T MODELS

### System Diagram



### Input/Output Signal Chart

T: Transmit R: Receive

| Signals                            | ECM                   | COMBINATION METER | BCM | IPDM E/R |
|------------------------------------|-----------------------|-------------------|-----|----------|
| Engine speed signal                | T                     |                   |     |          |
| Engine coolant temperature signal  | T                     |                   |     |          |
| Fuel consumption monitor signal    | T                     |                   |     |          |
| Air conditioner switch signal      | R                     |                   | T   |          |
| Air conditioner compressor signal  | R                     |                   |     | T        |
| A/C compressor request signal      | T                     |                   |     | R        |
| Blower fan switch signal           | R <sup>(QR25DE)</sup> |                   | T   |          |
| Cooling fan motor operation signal | R                     |                   |     | T        |
| Cooling fan speed request signal   | T                     |                   |     | R        |
| Position lights request            |                       | R                 | T   | R        |
| Position lights status             |                       |                   | R   | T        |
| Low beam request                   |                       |                   | T   | R        |
| Low beam status                    | R                     |                   | R   | T        |
| High beam request                  |                       | R                 | T   | R        |

## REAR WINDOW DEFOGGER

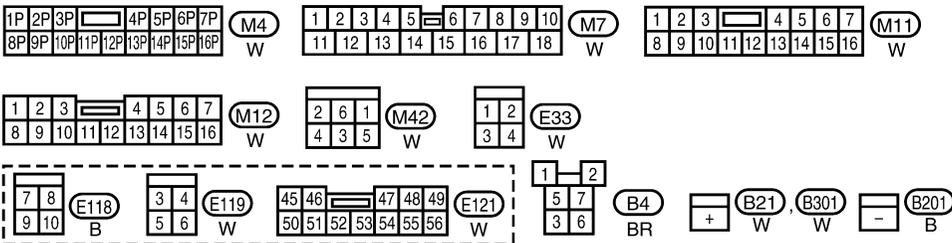
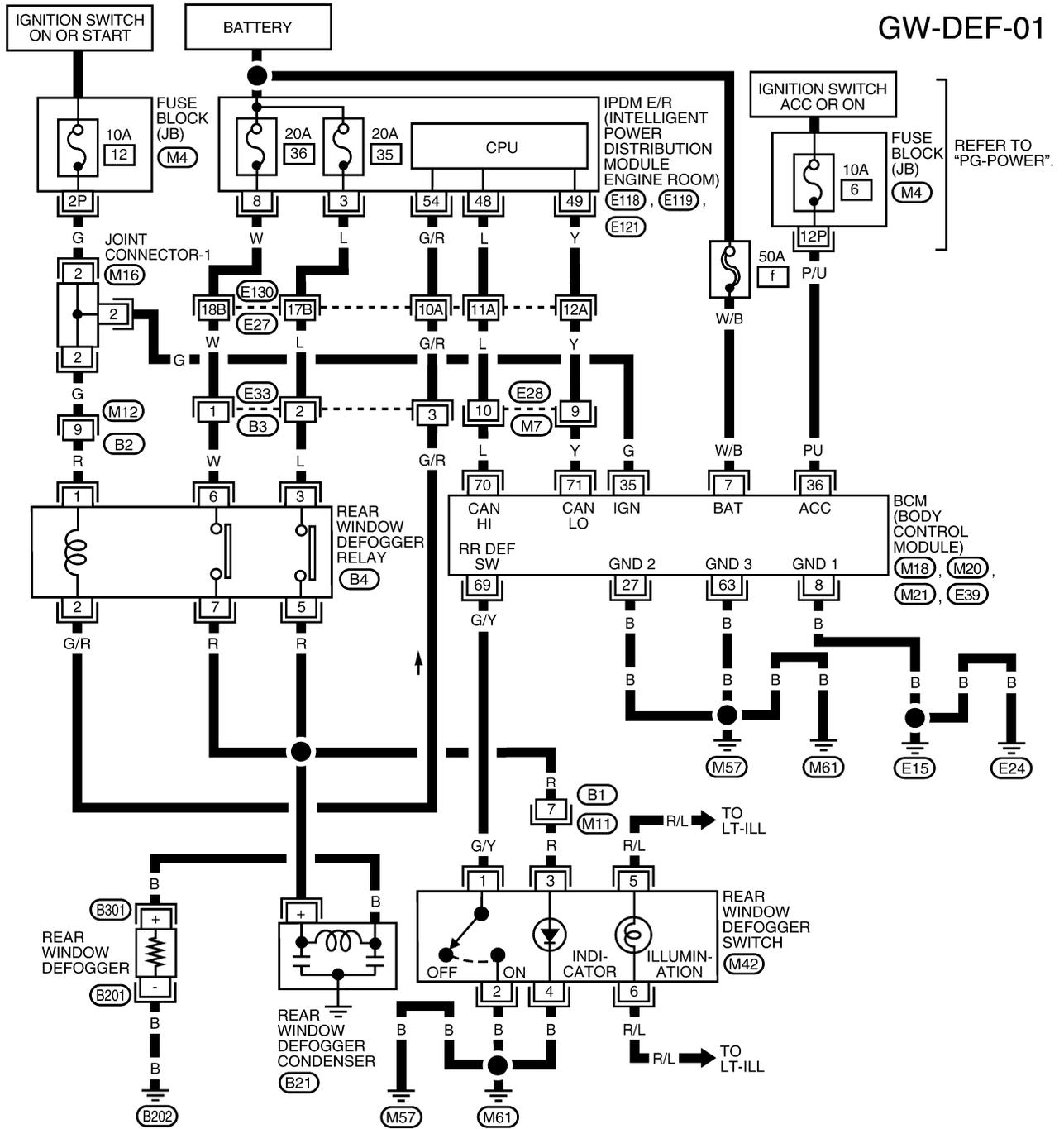
| Signals                             | ECM | COMBINATION<br>METER | BCM | IPDM E/R |
|-------------------------------------|-----|----------------------|-----|----------|
| High beam status                    | R   |                      | R   | T        |
| Front fog lights request            |     |                      | T   | R        |
| Front fog light status              |     |                      | R   | T        |
| Vehicle speed signal                | R   | T                    |     |          |
| Oil pressure switch                 |     | R                    |     | T        |
| Sleep request1                      |     | R                    | T   |          |
| Sleep request2                      |     |                      | T   | R        |
| Seat belt buckle switch signal      |     | T                    | R   |          |
| Door switch signal                  |     | R                    | T   | R        |
| Tail lamp request                   |     | R                    | T   | R        |
| Turn indicator signal               |     | R                    | T   |          |
| Buzzer output signal                |     | R                    | T   |          |
| Trunk switch signal                 |     | R                    | T   |          |
| ASCD main switch signal             | T   | R                    |     |          |
| ASCD cruise signal                  | T   | R                    |     |          |
| Wiper operation                     |     |                      | R   | T        |
| Wiper stop position signal          |     |                      | R   | T        |
| Rear window defogger switch signal  |     |                      | T   | R        |
| Rear window defogger control signal | R   |                      | R   | T        |

# REAR WINDOW DEFOGGER

## Wiring Diagram – DEF – WITH MANUAL A/C

EIS00072

GW-DEF-01



REFER TO THE FOLLOWING.  
 (E130) - SUPER MULTIPLE JUNCTION BOX (SMJ)  
 (M16) - JOINT CONNECTOR (J/C)  
 (M18) (M20) (M21) (E39) - ELECTRICAL UNITS

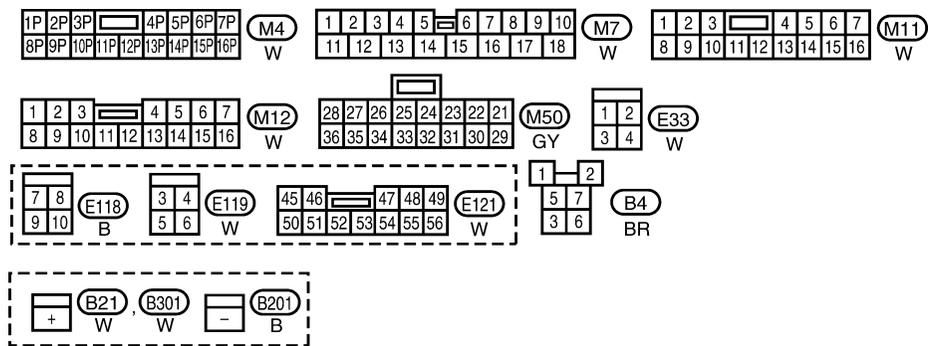
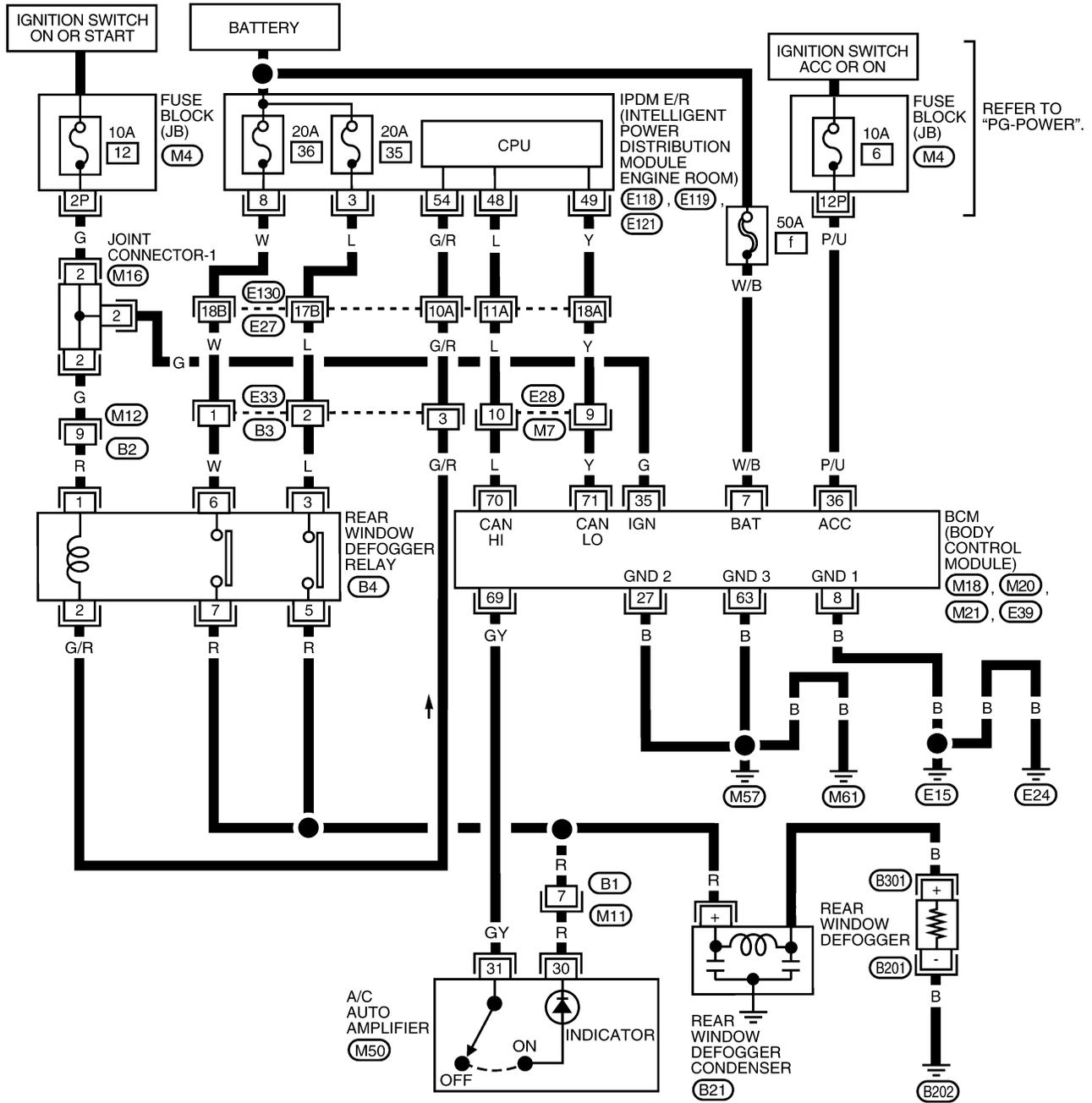
WIWA0141E

# REAR WINDOW DEFOGGER

## Wiring Diagram – DEF – WITH AUTO A/C

EIS000T3

GW-DEF-02



REFER TO THE FOLLOWING.  
 (E130) - SUPER MULTIPLE JUNCTION BOX (SMJ)  
 (M16) - JOINT CONNECTOR (J/C)  
 (E18), (M20), (M21), (E39) - ELECTRICAL UNITS

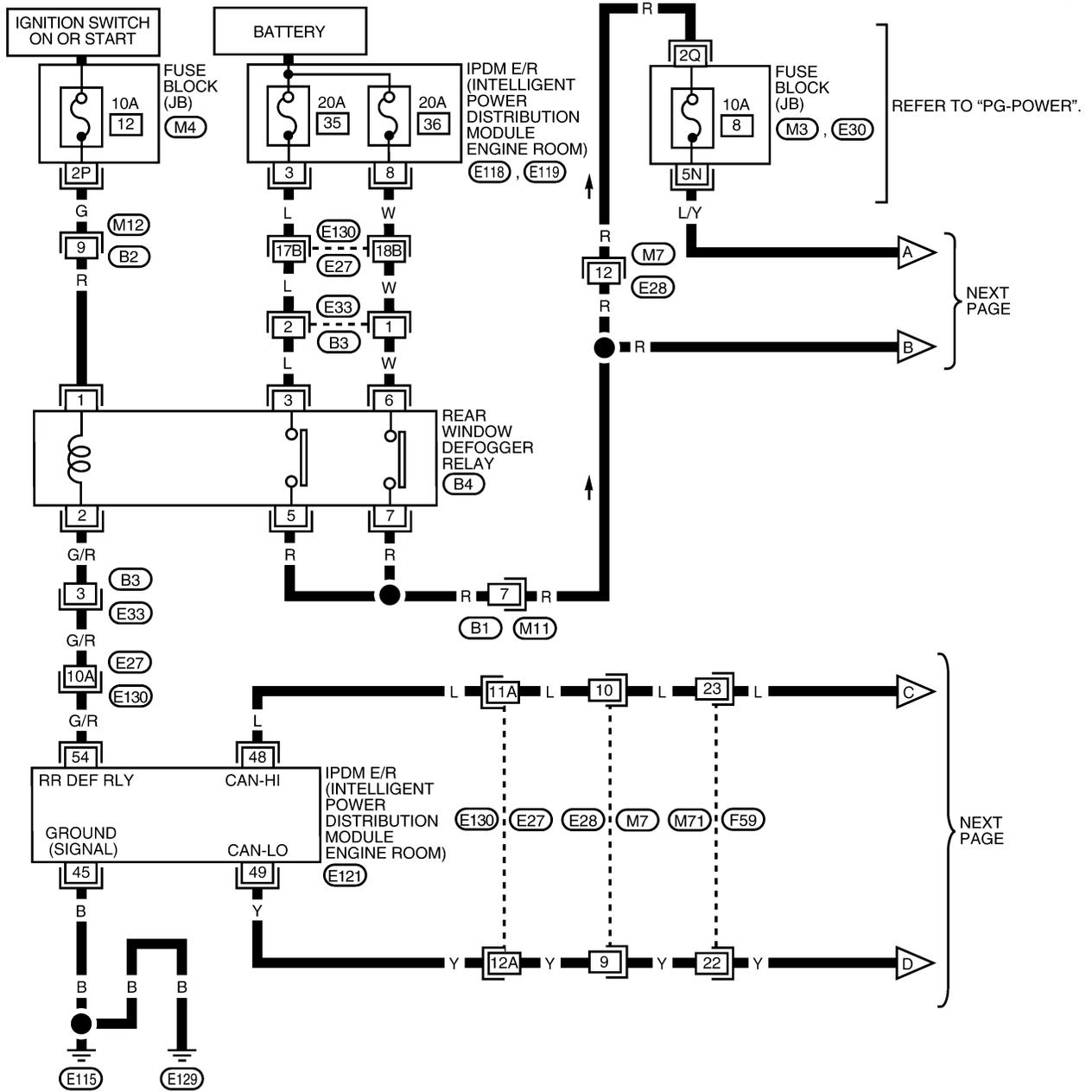
WIWA0145E

# REAR WINDOW DEFOGGER

## Wiring Diagram – H/MIRR –

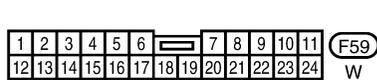
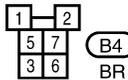
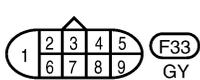
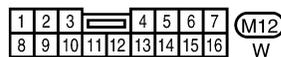
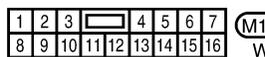
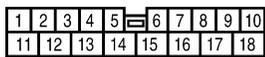
EIS00074

GW-H/MIRR-01



A  
B  
C  
D  
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F  
G  
H  
I  
J  
K  
L  
M

GW



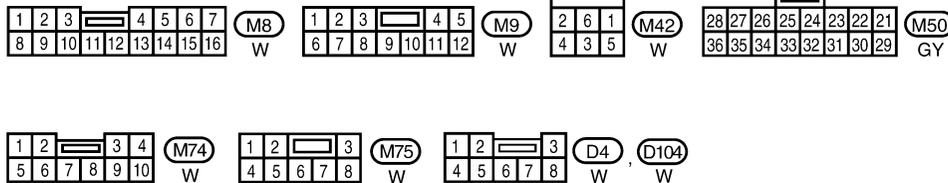
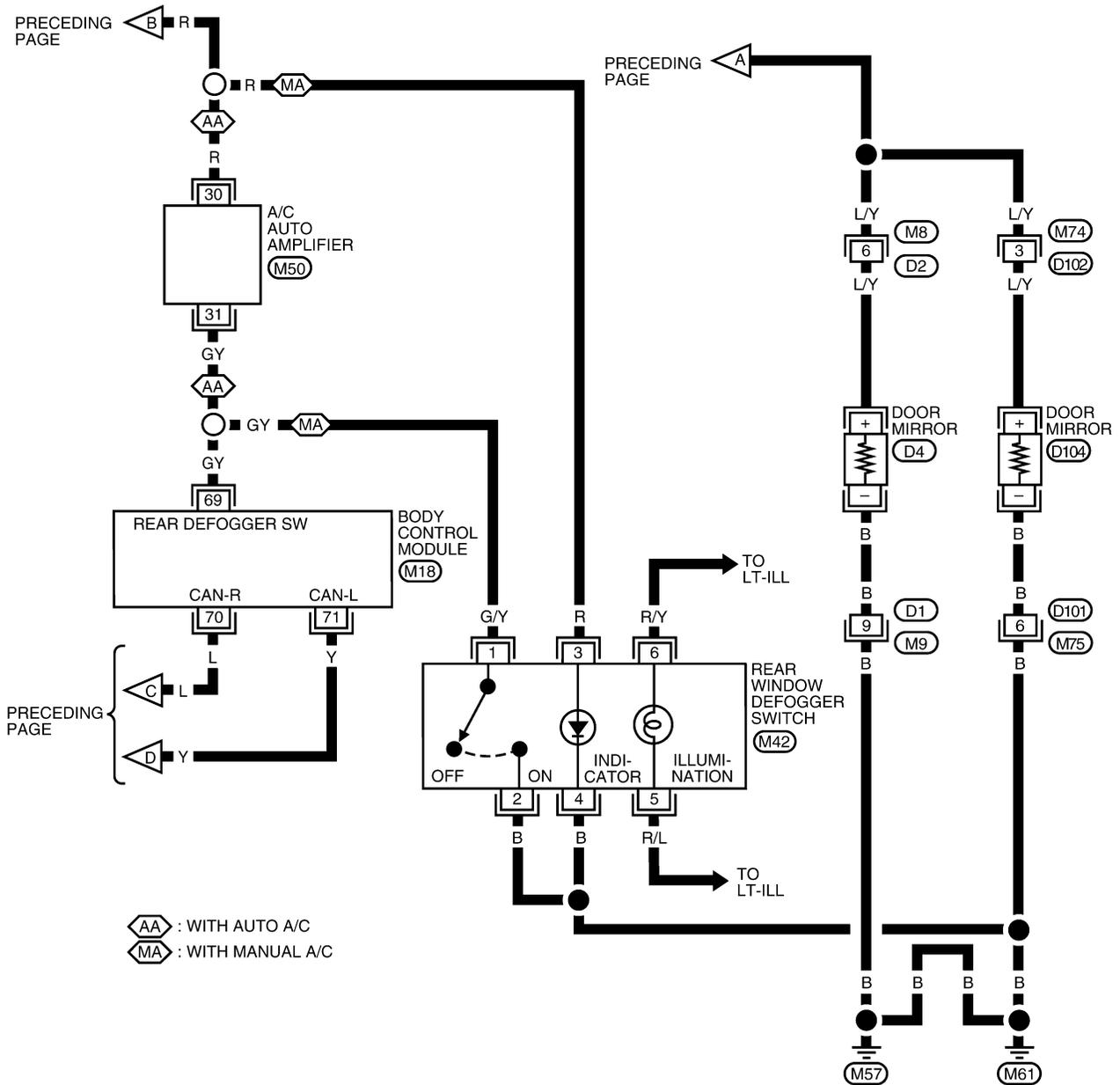
REFER TO THE FOLLOWING.

- (E130) - SUPER MULTIPLE JUNCTION BOX (SMJ)
- (M3), (M4), (E30) - FUSE BLOCK JUNCTION BOX (JB)
- (E118), (E119), (E39) - ELECTRICAL UNITS

W1WA0142E

# REAR WINDOW DEFOGGER

GW-H/MIRR-02



REFER TO THE FOLLOWING.  
 (M18) - ELECTRICAL UNITS

LIWA0017E

# REAR WINDOW DEFOGGER

## Terminal and Reference Value for BCM

EIS00075

| TERMINAL | WIRE COLOR | ITEM                               | CONDITION                                    | VOLTAGE (V)<br>(Approx.) |
|----------|------------|------------------------------------|--|--------------------------|
| 7        | W/B        | BAT power supply                   | —  | Battery voltage          |
| 8        | B          | Ground                             | —  | 0                        |
| 27       | B          | Ground                             | —  | 0                        |
| 35       | G          | IGN power supply                   | —  | Battery voltage          |
| 36       | P/U        | ACC power supply                   | —  | Battery voltage          |
| 63       | B          | Ground                             | —  | 0                        |
| 69       | GY         | Rear window defogger switch signal | When rear window defogger switch is pressed. | 0                        |
|          |            |                                    | When rear window defogger switch is OFF.     | 5                        |
| 70       | L          | DATA LINE (CAN HI)                 | —  | —                        |
| 71       | Y          | DATA LINE (CAN LO)                 | —  | —                        |

## Terminal and Reference Value for IPDM E/R

EIS00076

| TERMINAL | WIRE COLOR | ITEM                                      | CONDITION                                | VOLTAGE (V)<br>(Approx.) |
|----------|------------|---|--|--------------------------|
| 3        | L          | Rear window defogger power supply         | —  | Battery voltage          |
| 8        | W          | Rear window defogger power supply         | —  | Battery voltage          |
| 48       | L          | DATA LINE (CAN HI)                        | —  | —                        |
| 49       | Y          | DATA LINE (CAN LO)                        | —  | —                        |
| 54       | G/R        | Rear window defogger relay control signal | When rear window defogger switch is ON.  | 0                        |
|          |            |   | When rear window defogger switch is OFF. | Battery voltage          |

## Work Flow

EIS00077

1. Check the symptom and customer's requests.
2. Understand the outline of system. Refer to [GW-41, "System Description"](#).
3. The preliminary check. Refer to [GW-52, "Preliminary Check"](#).
4. According to the trouble diagnosis chart, repair or replace the cause of the malfunction. Refer to [GW-54, "Trouble Diagnosis"](#).
5. Does rear window defogger operate normally? OK: GO TO 6, NG: GO TO 4
6. INSPECTION END.

# REAR WINDOW DEFOGGER

EIS00078

## Preliminary Check FUSE CHECK

### 1. FUSE INSPECTION

- Check if any of the following fuses for BCM and IPDM E/R are blown.

| COMPONENT PARTS | TERMINAL NO. (SIGNAL) | AMPERE | FUSE NO. |
|-----------------|-----------------------|--------|----------|
| BCM             | 35 (IGN power supply) | 10A    | #12      |
|                 | 36 (ACC power supply) | 10A    | #6       |
| IPDM E/R        | 3 (BAT supply)        | 20A    | #35      |
|                 | 8 (BAT power supply)  | 20A    | #36      |

#### NOTE:

Refer to [GW-41, "Component Parts and Harness Connector Location"](#).

#### OK or NG

OK >> INSPECTION END.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse, refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#).

## CONSULT-II Function

EIS00079

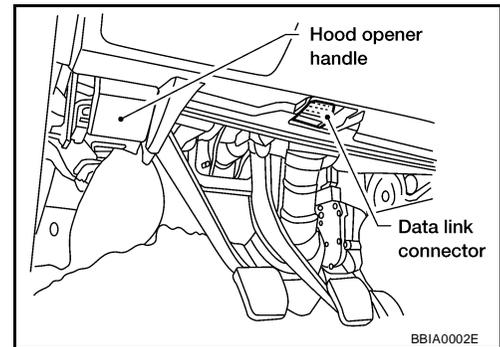
- The following functions are executed by combining data received and command transmitted via the communication line from the BCM.

| BCM diagnosis position | Inspection items and diagnosis mode |                       | Description   |
|------------------------|-------------------------------------|-----------------------|---|
| BCM C/U*               | SELF DIAG RESULTS                   |                       | Carries out the self-diagnosis.   |
|                        | DATA MONITOR                        | CAN DIAG SUPPORT MNTR | Displays CAN communication system diagnosis, disabled transmission status, and communication status of each unit communicated with BCM. |
|                        |                                     | SELECTION FROM MENU   | Displays the input data to BCM on real-time basis.  |
| REAR DEFOGGER          | DATA MONITOR                        |                       | Displays the input rear window defogger data to BCM on real-time basis.   |
|                        | ACTIVE TEST                         |                       | Gives a drive to a load to check the operation.   |

\*:Refer to [LAN-4, "CAN COMMUNICATION"](#).

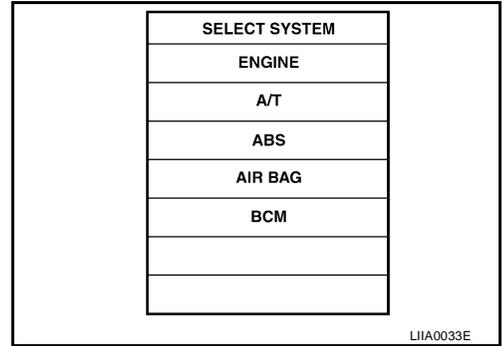
## CONSULT-II BASIC OPERATION PROCEDURE

- With ignition switch OFF, connect CONSULT-II to data link connector on vehicle, and turn ON ignition switch.
- Touch "START".

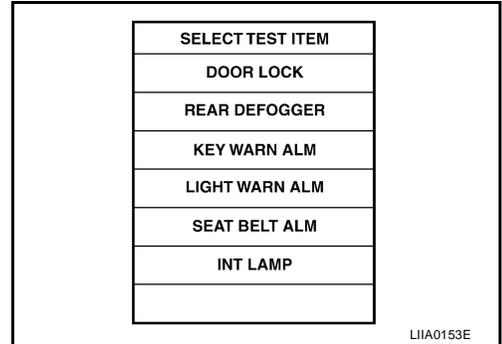


# REAR WINDOW DEFOGGER

3. Touch "BCM" on "SELECT SYSTEM" screen.



4. Select item to be diagnosed on "SELECT TEST ITEM" screen.



## DATA MONITOR

### Operation Procedure

1. Touch "REAR DEFOGGER" on the "SELECT TEST ITEM" screen.
2. Touch "DATA MONITOR" on the "SELECT DIAG MODE" screen.
3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on the "DATA MONITOR" screen.

|                     |                              |
|---------------------|------------------------------|
| ALL SIGNALS         | Monitor all items.           |
| SELECTION FROM MENU | Select and monitor the item. |

4. Touch "START".
5. If "SELECTION FROM MENU" is selected, touch the desired monitor item. If "ALL SIGNALS" is selected, all the items are monitored.
6. During monitoring, touching "COPY" can start recording the monitor item status.

### Display Item List

| Monitor item "OPERATION" |          | Content  |
|--------------------------|----------|--|
| REAR DEF SW              | "ON/OFF" | Displays "Press (ON)/others (OFF)" status determined with the rear window defogger switch. |
| IGN ON SW                | "ON/OFF" | Displays "IGN (ON)/OFF, ACC (OFF)" status determined with the ignition switch signal.      |

## ACTIVE TEST

### Operation Procedure

1. Touch "REAR DEFOGGER" on the "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on the "SELECT DIAG MODE" screen.
3. Touch the item to be tested, and check the operation.
4. During the operation check, touching "OFF" deactivates the operation.

### Display Item List

| Test item     | Content  |
|---------------|--|
| REAR DEFOGGER | Gives a drive signal to the rear window defogger to activate it. |

A  
B  
C  
D  
E  
F  
G  
H

GW

J  
K  
L  
M

# REAR WINDOW DEFOGGER

EIS0007A

## Trouble Diagnosis

Rear window defogger does not activate.

### 1. SELF-DIAGNOSTIC RESULT CHECK

④ With CONSULT-II

- Select "BCM" on "SELECT SYSTEM" screen.
- Select "BCM C/U" on "SELECT TEST ITEM" screen, and select "SELF-DIAG RESULTS".
- Check display content in self-diagnostic results.

| CONSULT-II display code | Diagnosis item |
|-------------------------|----------------|
| U1000                   | CAN COMM       |
|                         | CAN CIRC 1     |
|                         | CAN CIRC 2     |
|                         | CAN CIRC 3     |
|                         | CAN CIRC 4     |

Contents displayed

No malfunction>> GO TO 3.

Malfunction in CAN communication system>> GO TO 2.

### 2. SYMPTOM CHECK

④ With CONSULT-II

- Select "CAN DIAG SUPPORT MNTR" in "DATA MONITOR".
- Select "START" and check display content.

| Diagnosis item | Self-diagnostic result content |                      |
|----------------|--------------------------------|----------------------|
|                | Normal                         | Not normal (Example) |
| CAN COMM       | OK                             | NG                   |
| CAN CIRC 1     | OK                             | UNKWN                |
| CAN CIRC 2     | OK                             | UNKWN                |
| CAN CIRC 3     | OK                             | UNKWN                |
| CAN CIRC 4     | OK                             | UNKWN                |

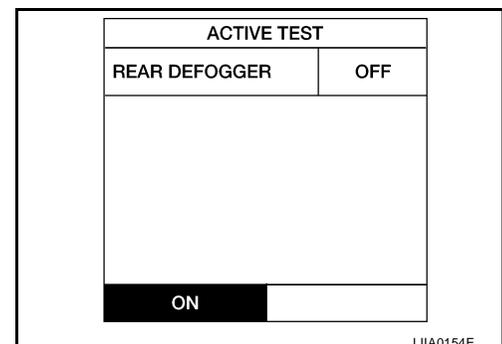
>> After printing the monitor items, go to "CAN System". Refer to [LAN-4, "CAN COMMUNICATION"](#).

### 3. REAR DEFOGGER OPERATES INSPECTION BY ACTIVE TEST

④ With CONSULT-II

- Using "REAR DEFOGGER" in the ACTIVE TEST. Refer to [GW-53, "ACTIVE TEST"](#).

Dose rear window defogger operate normally?



LIIA0154E

# REAR WINDOW DEFOGGER

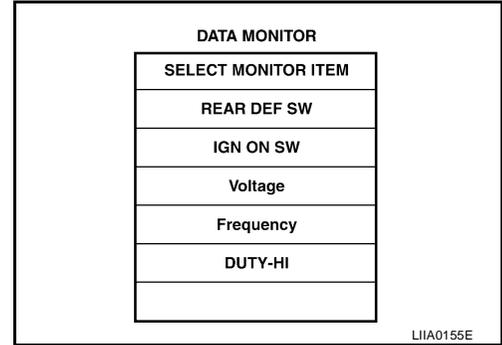
OK or NG

- OK >> GO TO 4.
- NG >> GO TO 6.

## 4. REAR WINDOW DEFOGGER SWITCH OPERATION INSPECTION BY DATA MONITOR

④ With CONSULT-II

- Using "REAR DEF SW" in the DATA MONITOR". Refer to [GW-53, "DATA MONITOR"](#) .  
Dose rear window defogger switch operate normally?



OK or NG

- OK >> Replace BCM.
- NG >> GO TO 5.

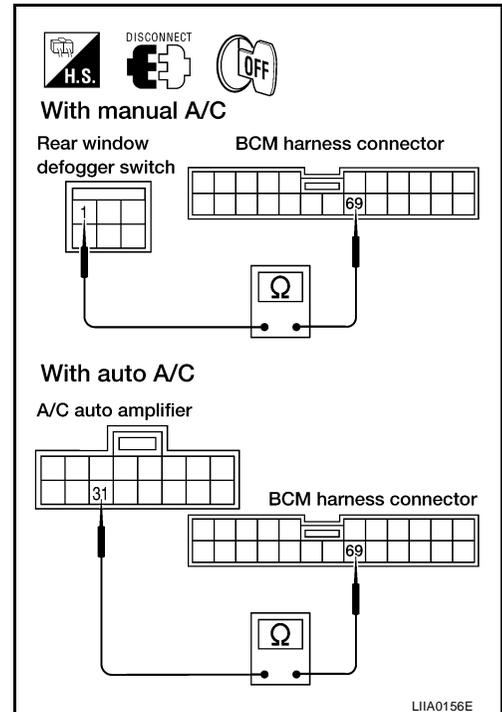
## 5. REAR WINDOW DEFOGGER SWITCH HARNESS CONTINUITY INSPECTION

Check continuity between BCM harness connector M18 terminal 69 (GY) and rear window defogger switch harness connector M50 (with auto A/C) terminal 31 (GY) or M42 (with manual A/C) terminal 1 (GY), and between BCM connector M18 terminal 69 (GY) and body ground.

| Terminals |          |                          |          | Continuity       |
|-----------|----------|--------------------------|----------|------------------|
| (+)       |          | (-)                      |          |                  |
| Connector | Terminal | Connector                | Terminal |                  |
| M18       | 69 (GY)  | M42<br>(with manual A/C) | 1 (GY)   | Should exist     |
|           | 69 (GY)  |                          | Ground   | Should not exist |
| M18       | 69 (GY)  | M50<br>(with auto A/C)   | 31 (GY)  | Should exist     |
|           | 69 (GY)  |                          | Ground   | Should not exist |

OK or NG

- OK >> Replace rear window defogger switch.
- NG >> Repair or replace harness.



# REAR WINDOW DEFOGGER

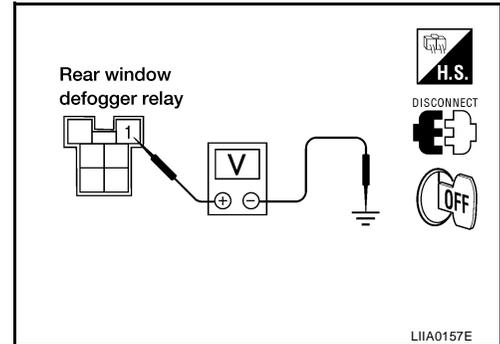
## 6. REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT INSPECTION

- Turn the ignition switch OFF.
- Check voltage between rear window defogger relay harness connector B4 terminal 1 (R) and body ground.

**1 (R) – Ground**                      **:Battery voltage**

OK or NG

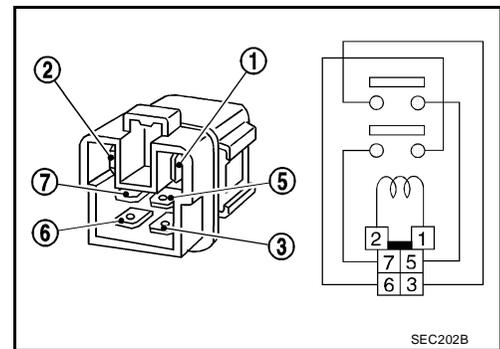
- OK    >> GO TO 7.
- NG    >> Repair or replace harness.



## 7. REAR WINDOW DEFOGGER RELAY INSPECTION

- Remove rear window defogger relay.
- Check continuity between terminals 3 and 5, 6 and 7.

| Terminal (+) | Terminal (-) | Condition  | Continuity |
|--------------|--------------|--|------------|
| Terminal     | Terminal     |  |            |
| 3            | 5            | 12V direct current supply between terminals 1 to 2 | YES        |
|              |              | No current supply                                  | NO         |
| 6            | 7            | 12V direct current supply between terminals 1 to 2 | YES        |
|              |              | No current supply                                  | NO         |



OK or NG

- OK    >> GO TO 8.
- NG    >> Replace rear window defogger relay.

## 8. REAR WINDOW DEFOGGER FILAMENT CHECK

Check rear window defogger filament. Refer to [GW-57, "Filament Check"](#) .

OK or NG

- OK    >> GO TO 9.
- NG    >> Repair rear window defogger filament. Refer to [GW-58, "Filament Repair"](#) .

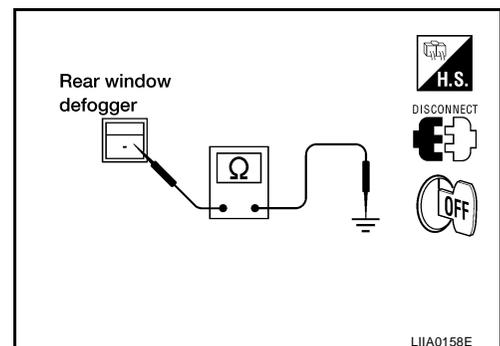
## 9. REAR WINDOW DEFOGGER GROUND HARNESS INSPECTION

Check continuity between rear window defogger connector B201 terminal (-) (B) and body harness.

**- (B) – Ground**                      **:Continuity should exist**

OK or NG

- OK    >> GO TO 10.
- NG    >> Repair or replace harness.



# REAR WINDOW DEFOGGER

## 10. REAR WINDOW DEFOGGER HARNESS INSPECTION

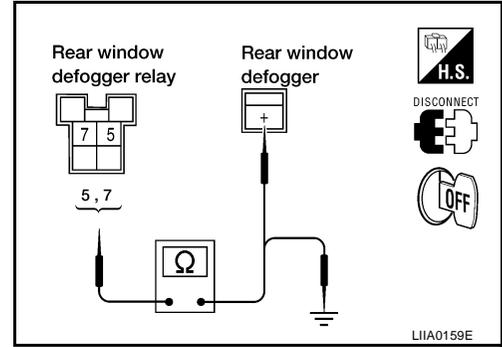
Check continuity between rear window defogger relay harness connector B4 terminal 5 (R) and 7 (R) and rear window defogger.

| Terminals |          |           |          | Continuity       |
|-----------|----------|-----------|----------|------------------|
| (+)       |          | (-)       |          |                  |
| Connector | Terminal | Connector | Terminal |                  |
| B4        | 5 (R)    | B21       | + (R)    | Should exist     |
|           | 5 (R)    | Ground    |          | Should not exist |

OK or NG

OK >> GO TO 11.

NG >> Repair or replace harness.



## 11. IPDM E/R HARNESS INSPECTION

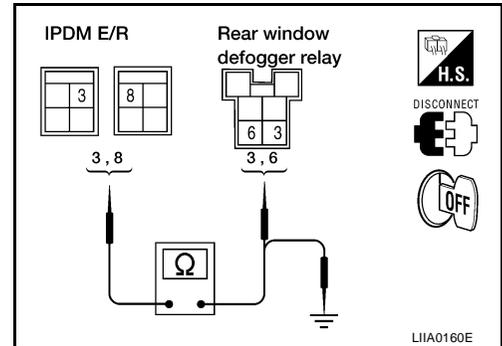
Check continuity between IPDM E/R harness connector E118 and E119 terminal 3 (L) and 8 (W) and rear window defogger relay connector B4 terminal 3 (L) and 6 (W), and IPDM E/R harness connector E118, E119 terminal 3 (L), 8 (W) and body ground.

| Terminals  |              |           |          | Continuity       |
|------------|--------------|-----------|----------|------------------|
| (+)        |              | (-)       |          |                  |
| Connector  | Terminal     | Connector | Terminal |                  |
| E119       | 3 (L)        | B4        | 3 (L)    | Should exist     |
| E118       | 8 (W)        |           | 6 (W)    | Should exist     |
| E118, E119 | 3 (L), 8 (W) | Ground    |          | Should not exist |

OK or NG

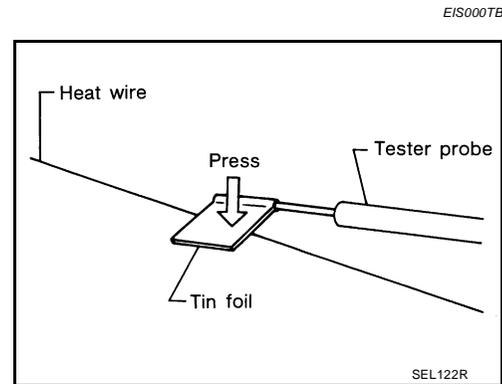
OK >> Replace IPDM E/R.

NG >> Repair or replace harness.

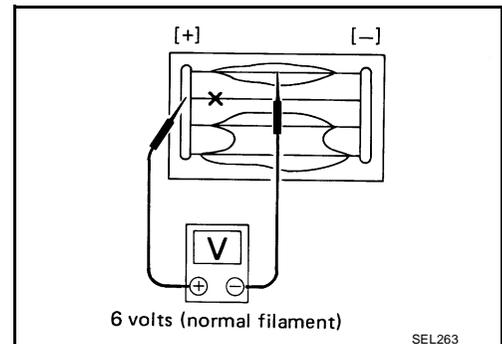


## Filament Check

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

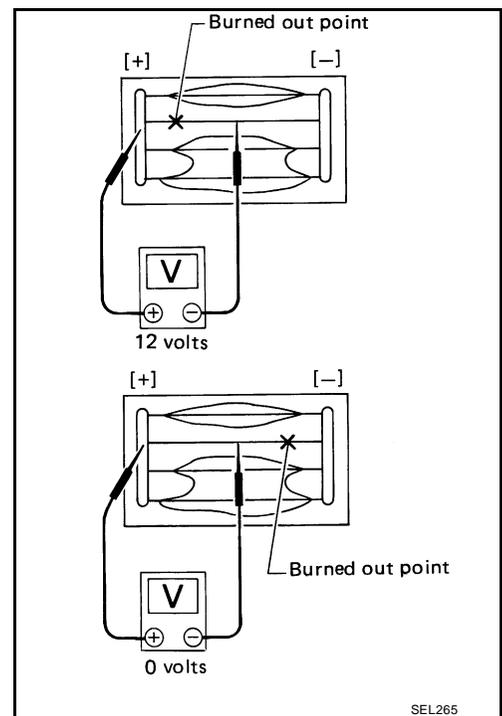


- Attach probe circuit tester (in Volt range) to middle portion of each filament.



# REAR WINDOW DEFOGGER

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.



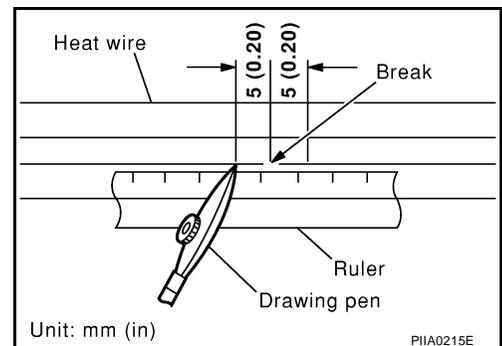
EIS0007C

## Filament Repair REPAIR EQUIPMENT

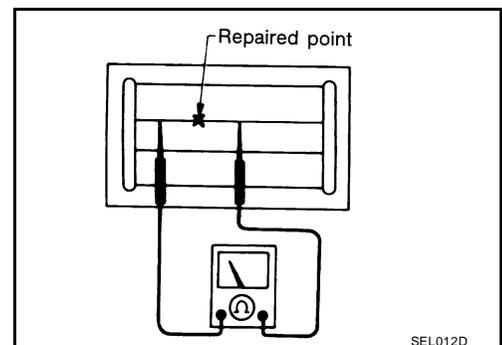
- Conductive silver composition (DuPont No. 4817 or equivalent)
- Ruler 30 cm (11.8 in) long
- Drawing pen
- Heat gun
- Alcohol
- Cloth

## 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.

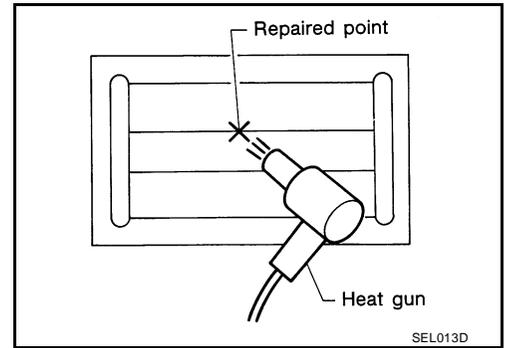


4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited. Do not touch repaired area while test is being conducted.



## REAR WINDOW DEFOGGER

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.



A  
B  
C  
D  
E  
F  
G  
H  
GW  
J  
K  
L  
M

# DOOR MIRROR

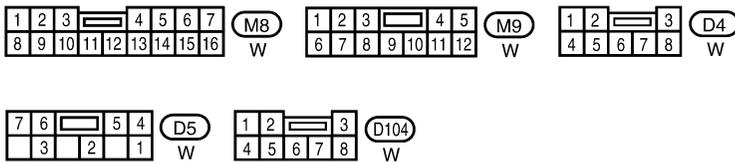
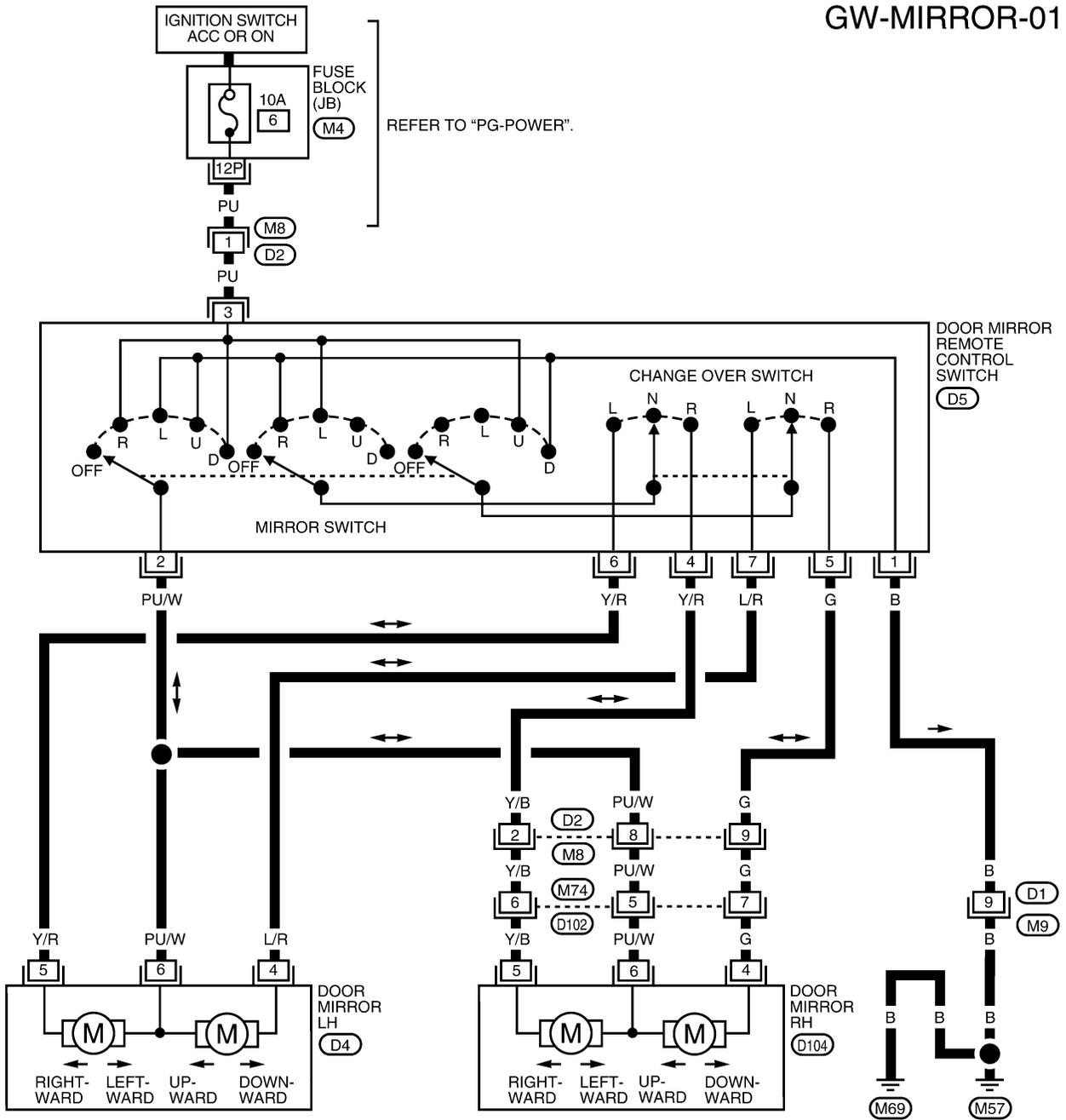
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EIS000TD

## DOOR MIRROR

### Wiring Diagram -MIRROR-

## GW-MIRROR-01



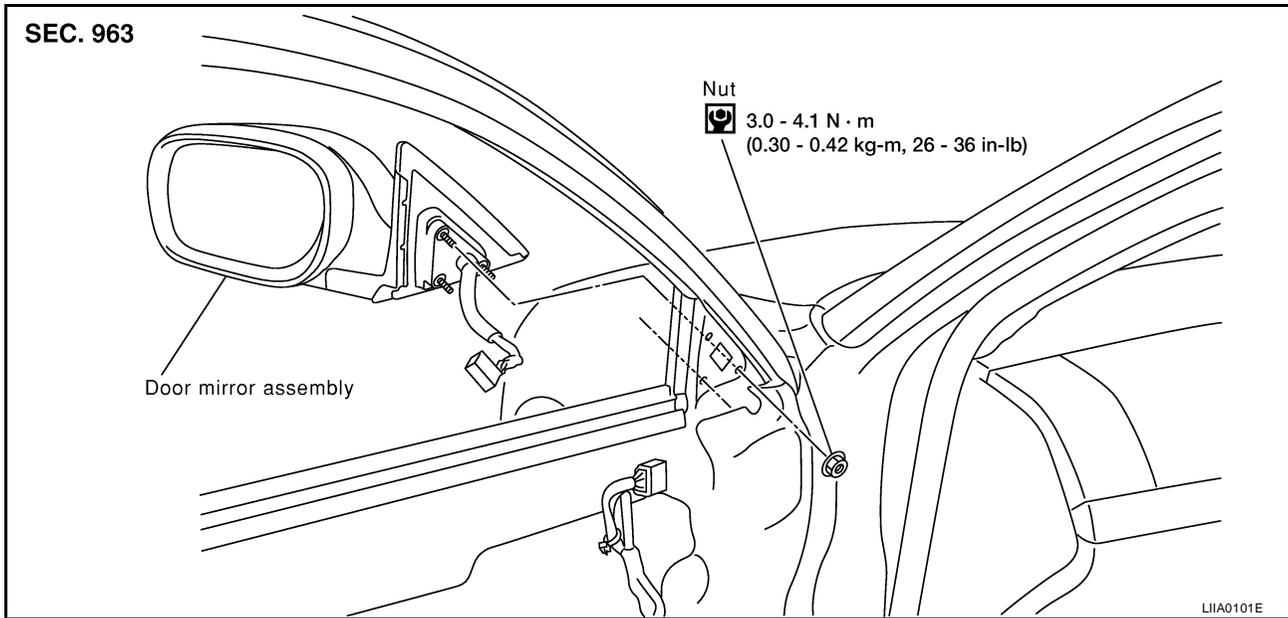
REFER TO THE FOLLOWING.

(M4) - FUSE BLOCK-JUNCTION BOX (J/B)

# DOOR MIRROR

## Removal and Installation

EIS0007E



### NOTE:

Be careful not to damage the mirror bodies.

1. Remove the front door sash cover. Refer to [EI-27, "Front Door"](#).
2. Remove the door mirror harness connector.
3. Remove the door mirror mounting nuts, and remove the door mirror assembly.

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
L  
M

GW

# DOOR MIRROR

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