

# SECTION **WW**

## WIPER, WASHER & HORN

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# PRECAUTION

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## SERVICE INFORMATION

### PRECAUTION

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

INFOID:000000004655952

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SUPPLEMENTAL RESTRAINT SYSTEM" and "SEAT BELTS" 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 "SUPPLEMENTAL RESTRAINT SYSTEM".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

#### **WARNING:**

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution for Battery Service

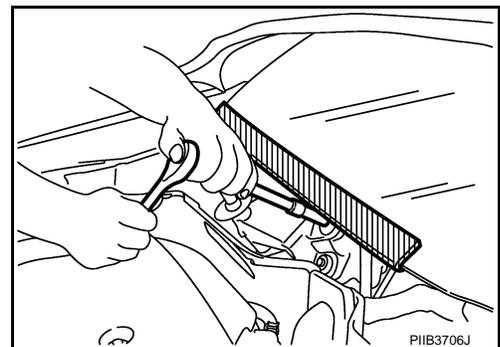
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Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

#### Precaution for Procedure without Cowl Top Cover

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



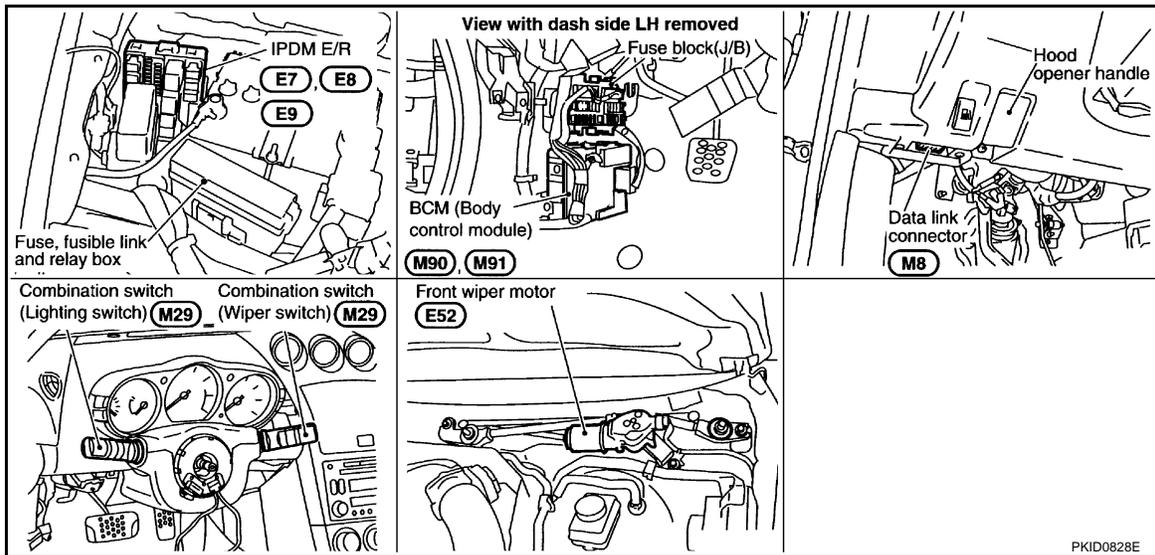
# FRONT WIPER AND WASHER SYSTEM

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## FRONT WIPER AND WASHER SYSTEM

### Component Parts and Harness Connector Location

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### System Description

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- All front wiper relays (HI, LO) are included in IPDM E/R (intelligent power distribution module engine room).
- Wiper switch (combination switch) is composed of a combination of 5 output terminals and 5 input terminals. Terminal combination status is read by BCM (body control module) when switch is turned ON.
- BCM controls front wiper LO, HI, and INT (intermittent) operation.
- IPDM E/R operates wiper motor according to CAN communication signals from BCM.

### OUT LINE

Power is supplied at all times

- to ignition relay, located in IPDM E/R, from battery direct
- through 40 A fusible link [letter F, located in fuse, fusible link and relay box]
- to BCM terminal 55,
- through 10 A fuse [No.18 located in fuse block (J/B)]
- to BCM terminal 42,
- through 30 A fuse [No.73 located in IPDM E/R]
- to front wiper relay, located in IPDM E/R,
- through 15 A fuse [No.78 located in IPDM E/R]
- to CPU (central processing unit) located in IPDM E/R,
- through 10 A fuse [No.71 located in IPDM E/R]
- to CPU located in IPDM E/R.

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

- to ignition relay, located in IPDM E/R,
- through 10 A fuse [No.1 located in fuse block (J/B)]
- to BCM terminal 38,
- through ignition relay, located in IPDM E/R
- to front wiper relay, located in IPDM E/R
- to front wiper high relay, located in IPDM E/R
- to CPU located in IPDM E/R,
- through 10 A fuse [No.84 located in IPDM E/R]
- through IPDM E/R terminal 44
- to front washer pump terminal 2.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17, E43 and B102 (with VDC system, navigation system or telephone),
- through grounds E17, E43 and F152 (without VDC system, navigation system and telephone),

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

- to combination switch terminal 12
- through grounds M30 and M66.

### LOW SPEED WIPER OPERATION

When the front wiper switch is in low position, BCM detects low speed wiper ON signal by BCM wiper switch reading function.

BCM sends front wiper request signal (LOW) with CAN communication line

- from BCM terminals 39 and 40
- to IPDM E/R terminals 48 and 49.

When the IPDM E/R receives front wiper request signal (LOW), it turns ON front wiper relay, located in the IPDM E/R, power is supplied

- to front wiper motor terminal 3
- through IPDM E/R terminal 21 and front wiper high relay and front wiper relay.

Ground is supplied

- to front wiper motor terminal 4
- through grounds E17, E43 and B102 (with VDC system, navigation system or telephone),
- through grounds E17, E43 and F152 (without VDC system, navigation system and telephone).

With power and ground is supplied, front wiper motor operates at low speed.

### HIGH SPEED WIPER OPERATION

When the front wiper switch is in high position, BCM detects high speed wiper ON signal by BCM wiper switch reading function.

BCM sends front wiper request signal (HI) with CAN communication line

- from BCM terminals 39 and 40
- to IPDM E/R terminals 48 and 49.

When the IPDM E/R receives front wiper request signal (HI), it turns ON front wiper relay, located in IPDM E/R, power is supplied

- to front wiper motor terminal 2
- through IPDM E/R terminal 31 and front wiper high relay and front wiper relay.

Ground is supplied

- to front wiper motor terminal 4
- through grounds E17, E43 and B102 (with VDC system, navigation system or telephone),
- through grounds E17, E43 and F152 (without VDC system, navigation system and telephone).

With power and ground is supplied, front wiper motor operates at high speed.

### INTERMITTENT OPERATION

Front wiper intermittent operation delay interval is determined from a combination of 3 switches (intermittent operation dial position 1, 2, and 3) and vehicle speed signal.

After each intermittent operation delay interval, BCM sends front wiper request signal to IPDM E/R.

#### Wiper Dial Position Setting

| Wiper dial position | Intermittent operation interval | Combination switch                     |  |  |
|---------------------|---------------------------------|--|--|--|
|                     |                                 | Intermittent operation dial position 1 | Intermittent operation dial position 2 | Intermittent operation dial position 3 |
| 1                   | Short<br>↑<br>↓<br>Long         | ON                                     | ON                                     | ON                                     |
| 2                   |                                 | ON                                     | ON                                     | OFF                                    |
| 3                   |                                 | ON                                     | OFF                                    | OFF                                    |
| 4                   |                                 | OFF                                    | OFF                                    | OFF                                    |
| 5                   |                                 | OFF                                    | OFF                                    | ON                                     |
| 6                   |                                 | OFF                                    | ON                                     | ON                                     |
| 7                   |                                 | OFF                                    | ON                                     | OFF                                    |

Example: For wiper dial position 1

Using combination switch reading function, BCM detects ON/OFF status of intermittent operation dial positions 1, 2, and 3.

When combination switch status is as listed below, BCM determines that it is wiper dial position 1.

- Intermittent operation dial position 1: ON (Continuity exists between combination switch output 3 and input 1.)

# FRONT WIPER AND WASHER SYSTEM

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- Intermittent operation dial position 2: ON (Continuity exists between combination switch output 5 and input 1.)
- Intermittent operation dial position 3: ON (Continuity exists between combination switch output 4 and input 2.)

BCM determines front wiper intermittent operation delay interval from wiper dial position 1 and vehicle speed, and sends wiper request signal (INT) to IPDM E/R.

### AUTO STOP OPERATION

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base.

When the wiper arms are not located at base of windshield with wiper switch OFF, ground is provided

- from IPDM E/R terminal 21
- to front wiper motor terminal 3, in order to continue wiper motor operation at low speed

When the wiper arms reach base of windshield, front wiper motor terminals 1 and 4 are connected, and ground is supplied

- to IPDM E/R terminal 32
- through front wiper motor terminals 1 and 4
- through grounds E17, E43 and B102 (with VDC system, navigation system or telephone),
- through grounds E17, E43 and F152 (without VDC system, navigation system and telephone).

Then the IPDM E/R sends auto stop operation signal to BCM with CAN communication.

When the BCM receives auto stop operation signal, BCM sends wiper stop signal to IPDM E/R with CAN communication line. IPDM E/R stops wiper motor. Wiper motor will then stop wiper arms at the STOP position.

### WASHER OPERATION

When the wiper switch is in front wiper washer position, BCM detect front wiper washer signal by BCM wiper switch reading function (Refer to "COMBINATION SWITCH READING FUNCTION").

Combination switch ground is supplied

- to front washer pump terminal 1
- through combination switch terminal 11
- to combination switch terminal 12
- through grounds M30 and M66.

With ground is supplied, front washer pump is operated.

When the BCM detects that front washer pump has operated for 0.4 seconds or longer, BCM operates front wiper motor for low speed.

When the BCM detects washer switch is OFF, low speed operation cycles approximately 2 times and stops.

### MIST OPERATION

When the wiper switch is turned to the mist position, wiper low speed operation cycles once and then stops.

For additional information about wiper operation under this condition, refer to "LOW SPEED WIPER OPERATION".

If switch is held in mist position, low speed operation continues.

### FAIL-SAFE FUNCTION

If an abnormality occurs in CAN communications, IPDM E/R holds the condition just before fail-safe status is initiated until ignition switch is turned off. (If wipers were operating in LO just before the initiation of fail-safe status, they continue to operate in LO until ignition switch is turned OFF)

### COMBINATION SWITCH READING FUNCTION

#### Description

- BCM reads combination switch (wiper) status, and controls related systems such as headlamps and wipers, according to the results.
- BCM reads information of a maximum of 20 switches by combining five output terminals (OUTPUT 1 - 5) and five input terminals (INPUT 1 - 5).

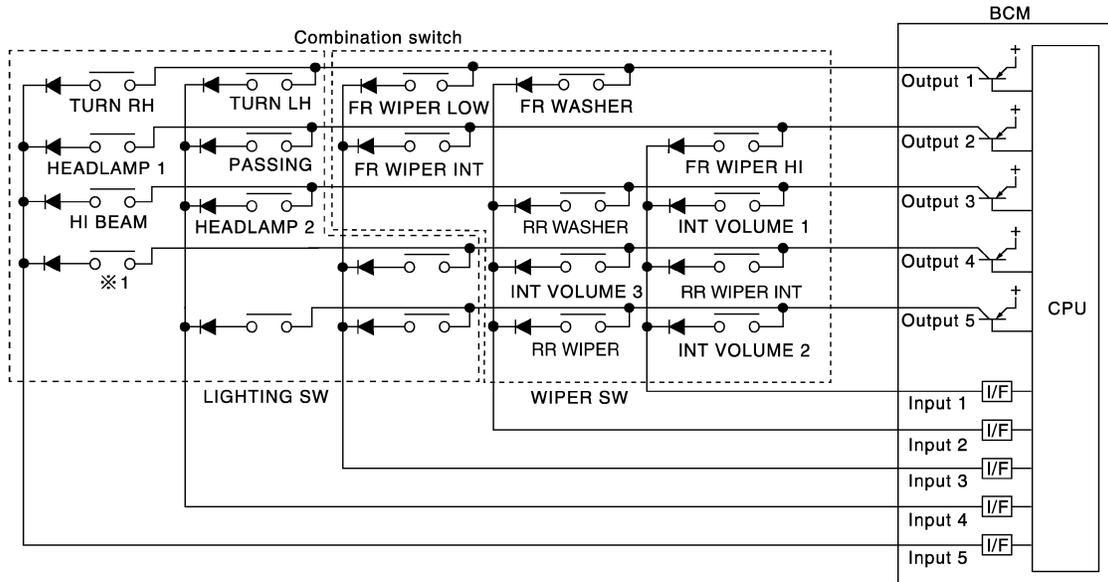
#### Operation Description

- BCM activates transistors of output terminals (OUTPUT 1 - 5) periodically, and allows current to flow in turn.
- If any (1 or more) switches are turned ON, circuit of output terminals (OUTPUT 1 - 5) and input terminals (INPUT 1 - 5) becomes active.

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

- At this time, transistors of output terminals (OUTPUT 1 - 5) are activated to allow current to flow. When voltage of input terminals (INPUT 1 - 5) corresponding to that switch changes, interface in BCM detects voltage change, and BCM determines that switch is ON.



※ 1 : LIGHTING SWITCH 1ST POSITION

PKIC4861E

### BCM - Operation Table of Combination Switches

BCM reads operation status of combination switch using combinations shown in table below.

|                 | COMB SW OUTPUT 1 |                  | COMB SW OUTPUT 2 |                  | COMB SW OUTPUT 3 |                  | COMB SW OUTPUT 4     |                       | COMB SW OUTPUT 5 |                  |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------|-----------------------|------------------|------------------|
|                 | ON               | OFF              | ON               | OFF              | ON               | OFF              | ON                   | OFF                   | ON               | OFF              |
| COMB SW INPUT 1 | —                | —                | FR WIPER HI ON   | FR WIPER HI OFF  | INT VOLUME 1 ON  | INT VOLUME 1 OFF | RR WIPER INT ON      | RR WIPER INT OFF      | INT VOLUME 2 ON  | INT VOLUME 2 OFF |
| COMB SW INPUT 2 | FR WASHER ON     | FR WASHER OFF    | —                | —                | RR WASHER ON     | RR WASHER OFF    | INT VOLUME 3 ON      | INT VOLUME 3 OFF      | RR WIPER ON      | RR WIPER OFF     |
| COMB SW INPUT 3 | FR WIPER LOW ON  | FR WIPER LOW OFF | FR WIPER INT ON  | FR WIPER INT OFF | —                | —                | —                    | —                     | —                | —                |
| COMB SW INPUT 4 | TURN LH ON       | TURN LH OFF      | PASSING ON       | PASSING OFF      | HEAD-LAMP 2 ON   | HEAD-LAMP 2 OFF  | —                    | —                     | —                | —                |
| COMB SW INPUT 5 | TURN RH ON       | TURN RH OFF      | HEAD-LAMP 1 ON   | HEAD-LAMP 1 OFF  | HI BEAM ON       | HI BEAM OFF      | LIGHTING SW (1st) ON | LIGHTING SW (1st) OFF | —                | —                |

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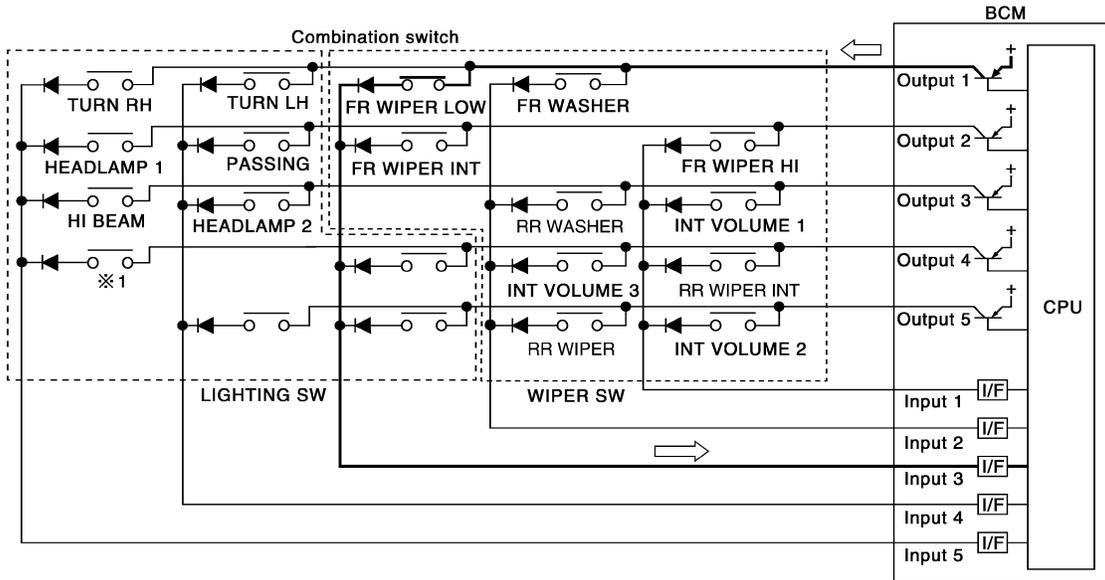
### Sample Operation: (When Wiper Switch Turned to LOW Position)

- When wiper switch is turned to LOW position, front wiper LOW contact in combination switch turns ON. At this time if OUTPUT 1 transistor is activated, BCM detects that voltage changes in INPUT 3.
- When BCM detects that voltage changes in INPUT 3 while OUTPUT 1 transistor is ON, it judges that front wiper switch is in LOW position. Then BCM sends front wiper request signal (LO) to IPDM E/R using CAN communication.

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

- If BCM detects that voltage changes in INPUT 3 when OUTPUT 1 transistor is activated again, it recognizes that wiper switch is still in LOW position.



※ 1 : LIGHTING SWITCH 1ST POSITION

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### NOTE:

Each OUTPUT terminal transistor is activated at 10 ms intervals. Therefore after switch is turned ON, electrical loads are activated with time delay. But this time delay is so short that it cannot be detected by human senses.

### Operation Mode

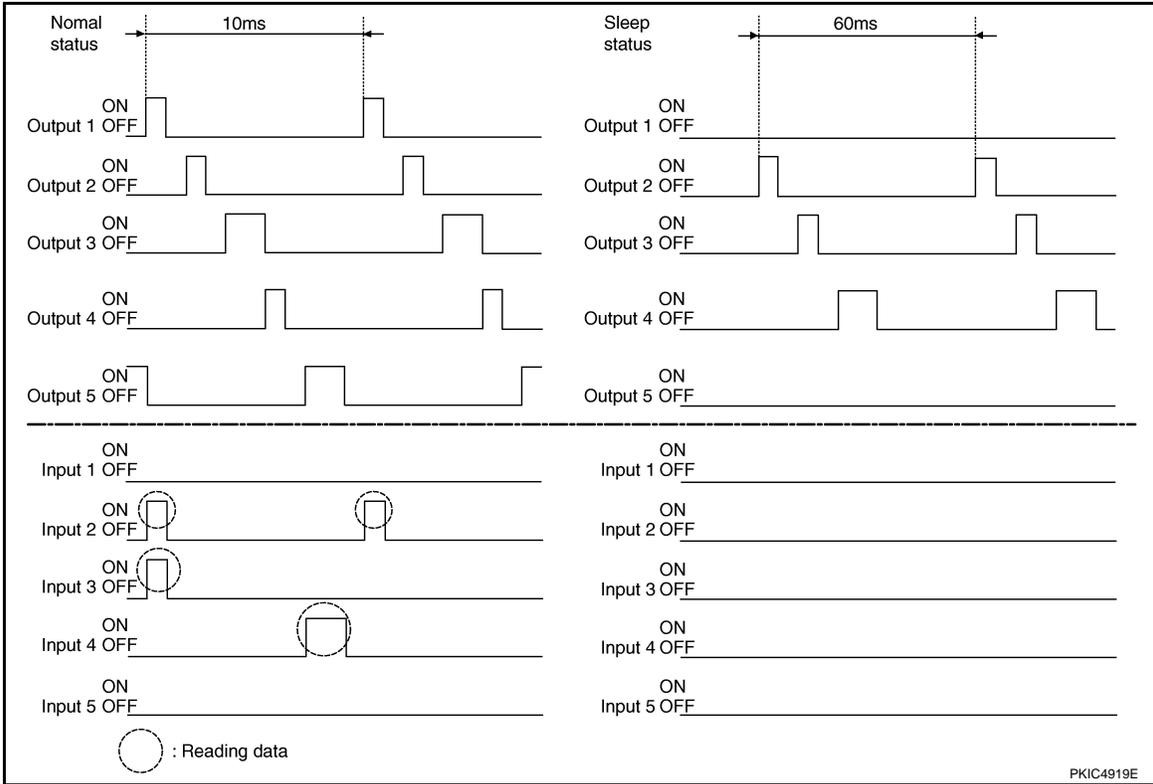
The combination switch reading function has the operation modes shown below.

1. Normal status
  - When BCM is not in sleep status, OUTPUT terminals (1 - 5) each turn ON-OFF every 10 ms.
2. Sleep status

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

- When BCM is in sleep status BCM enters low power mode. OUTPUT (1 - 5) turn ON-OFF every 60 ms, and only input from light switch system is accepted.



## CAN Communication System Description

INFOID:000000004655957

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.

## CAN Communication Unit

INFOID:000000004655958

Refer to [LAN-41. "CAN System Specification Chart"](#).

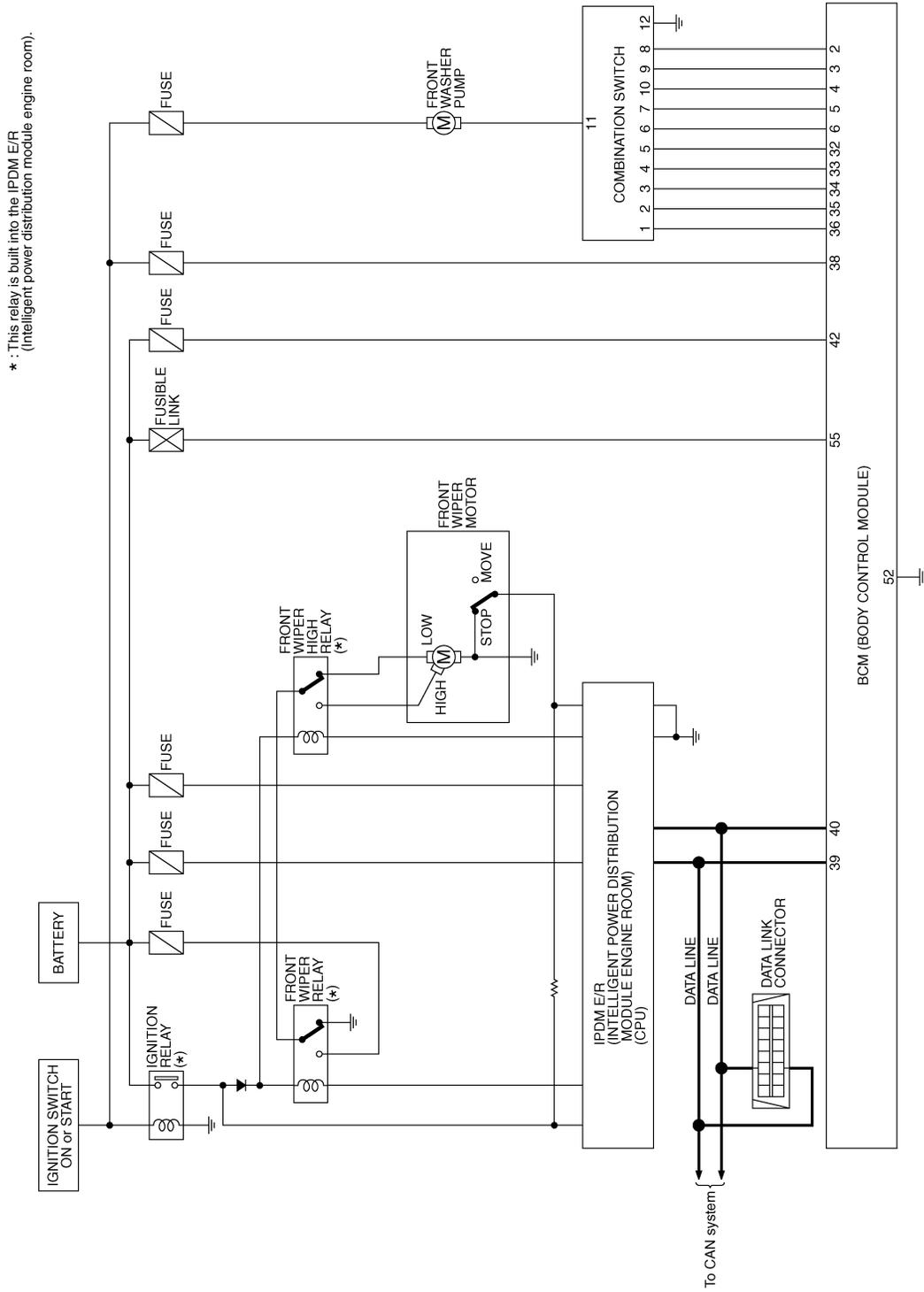
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# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Schematic

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TKWT4003E

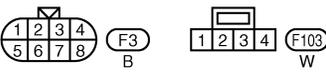
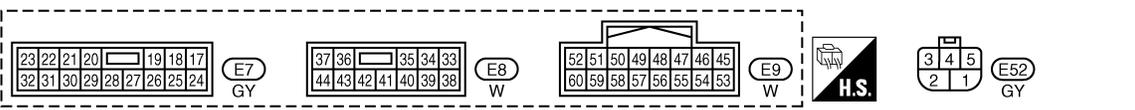
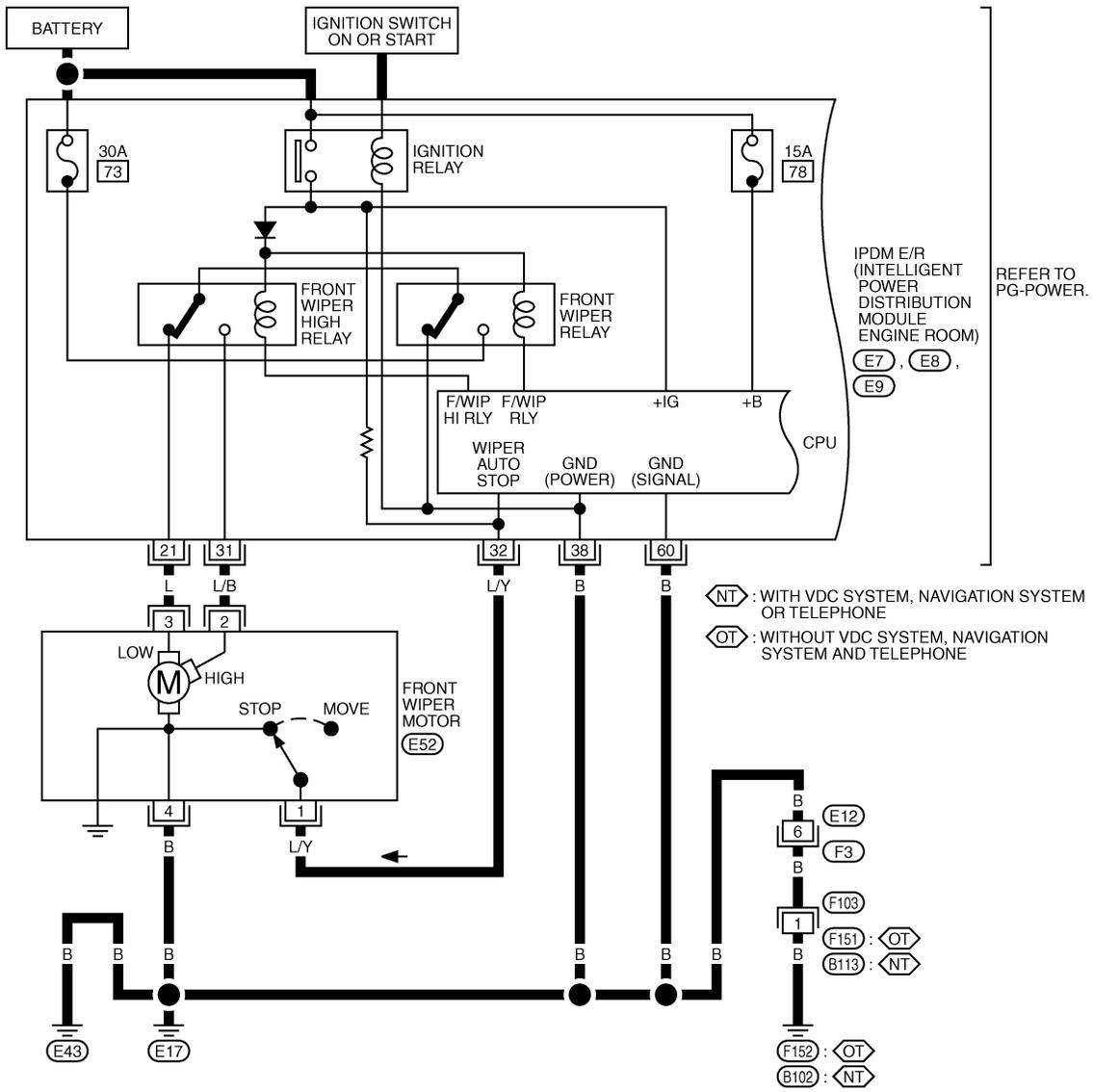
# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Wiring Diagram - WIPER -

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WW-WIPER-01



TKWT5737E

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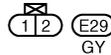
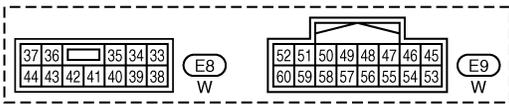
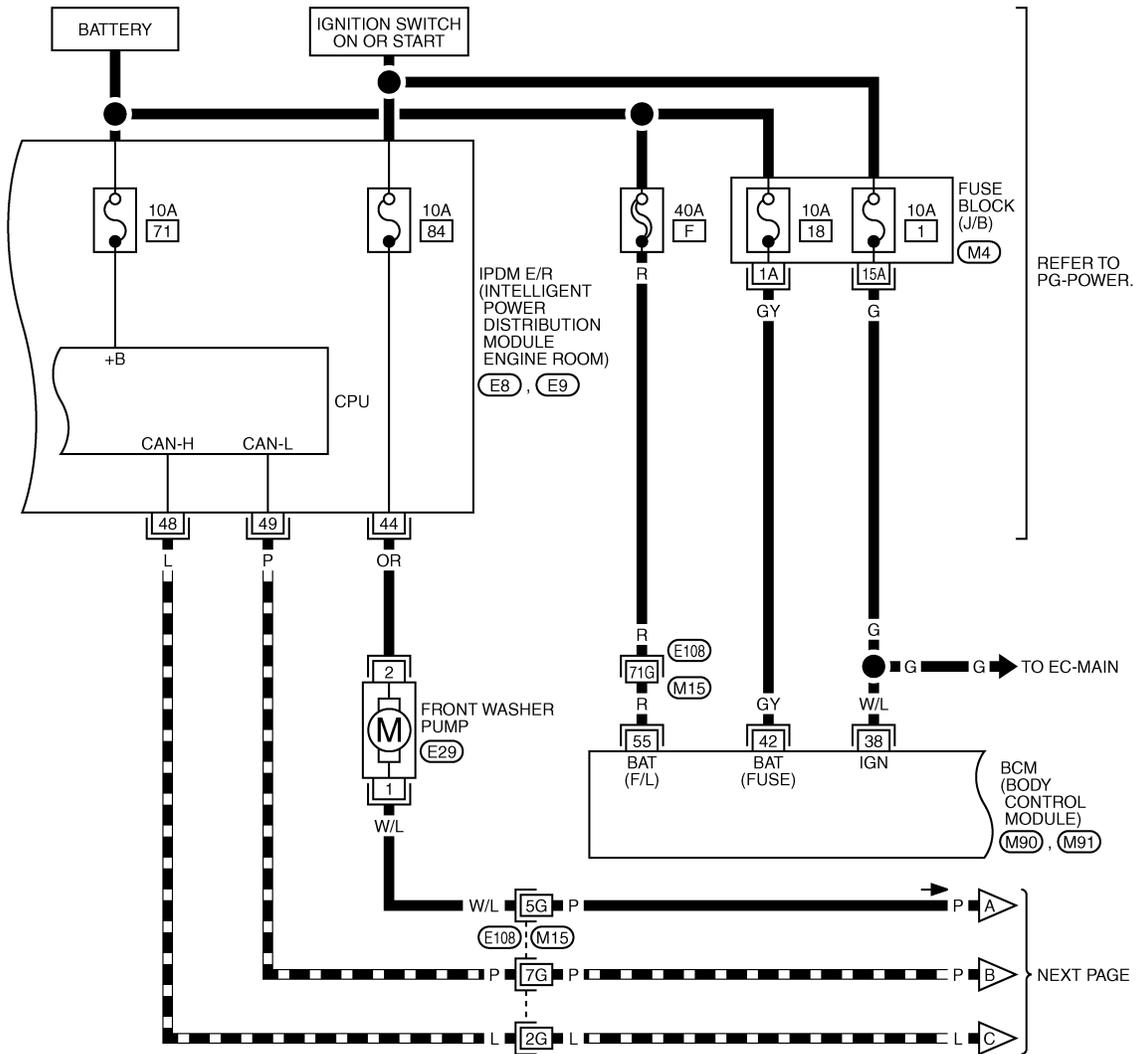
WW

# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

WW-WIPER-02

▬ : DATA LINE



REFER TO THE FOLLOWING.  
 (E108) -SUPER MULTIPLE JUNCTION (SMJ)  
 (M4) -FUSE BLOCK-JUNCTION BOX (J/B)  
 (M90), (M91) -ELECTRICAL UNITS

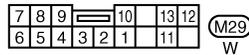
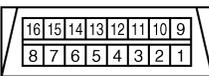
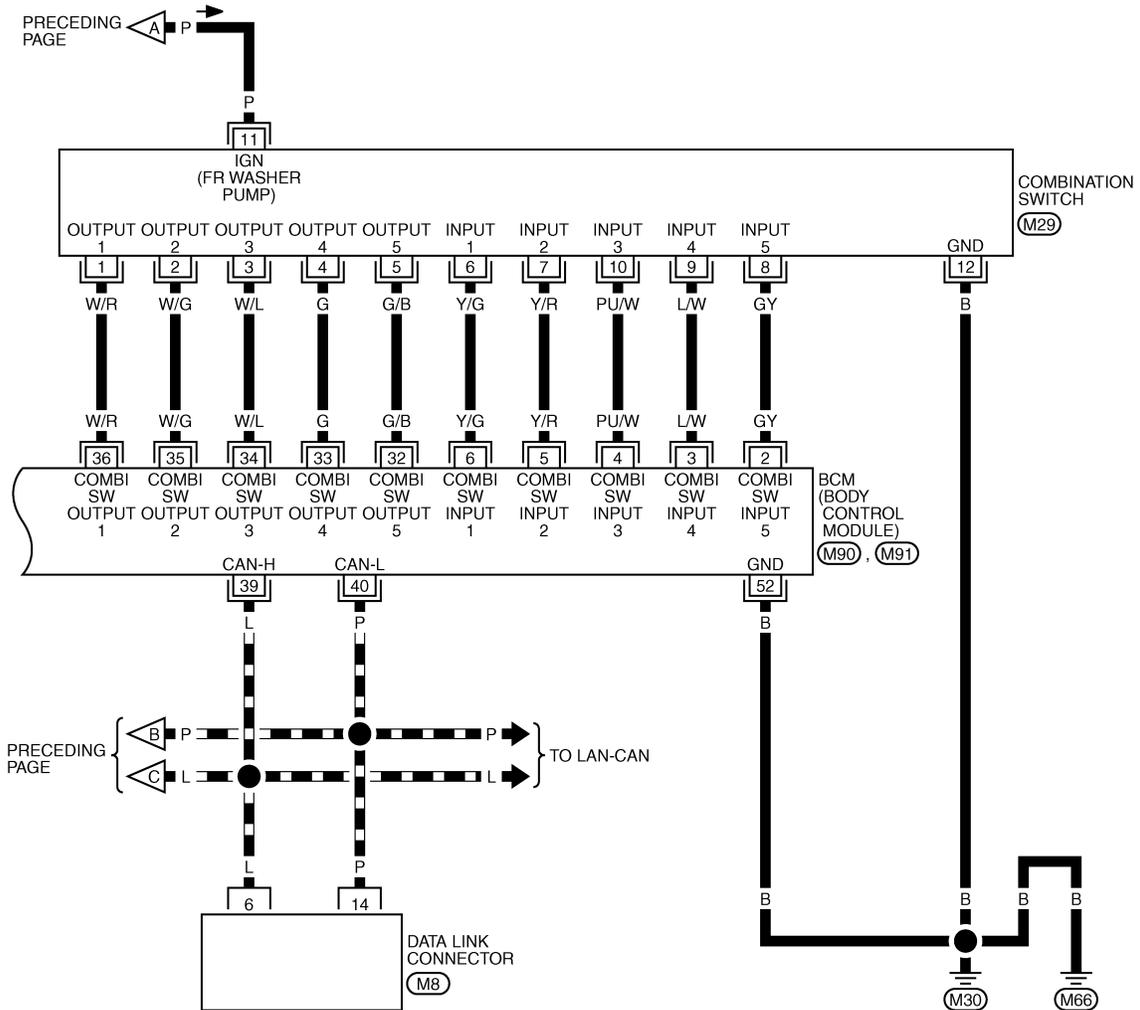
TKWT5738E

# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

WW-WIPER-03

▬ : DATA LINE



REFER TO THE FOLLOWING.  
(M90), (M91) -ELECTRICAL UNITS

## Terminal and Reference Value for BCM

### CAUTION:

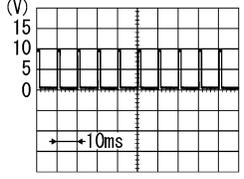
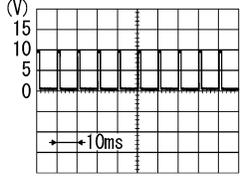
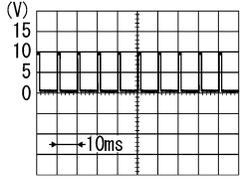
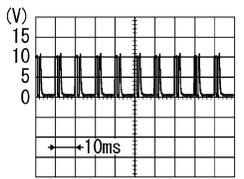
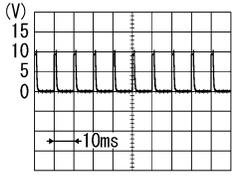
- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-III. Refer to [WW-18, "CONSULT-III Function \(BCM\)"](#).

TKWT4006E

INFOID:000000004655961

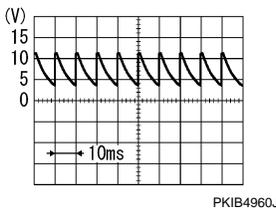
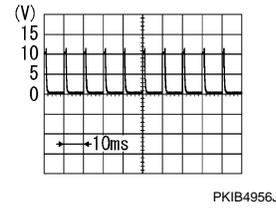
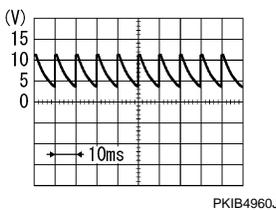
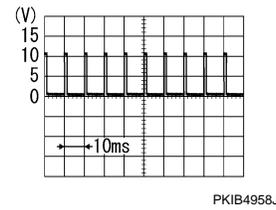
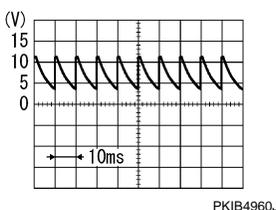
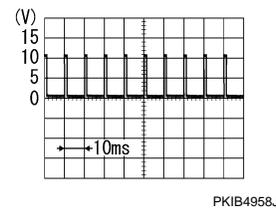
# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Terminal No. | Wire color | Signal name                | Measuring condition |   | Reference value   |   |
|--------------|------------|----------------------------|---------------------|---|---|---|
|              |            |                            | Ignition switch     | Operation or condition  |   |   |
| 4            | PU/W       | Combination switch input 3 | ON                  | Lighting, turn, wiper switch (Wiper intermittent dial position 4) | OFF   | Approx. 0 V   |
|              |            |                            |                     |   | Any of the conditions below <ul style="list-style-type: none"> <li>• Front wiper switch MIST</li> <li>• Front wiper switch INT</li> <li>• Front wiper switch LO</li> </ul>  |  <p style="text-align: right; font-size: small;">PKIB4959J</p> Approx. 1.0 V   |
| 5            | Y/R        | Combination switch input 2 | ON                  | Lighting, turn, wiper switch                                      | OFF (Wiper intermittent dial position 4)  | Approx. 0 V   |
|              |            |                            |                     |   | Any of the conditions below <ul style="list-style-type: none"> <li>• Front washer switch</li> <li>• Wiper intermittent dial position 1</li> <li>• Wiper intermittent dial position 5</li> <li>• Wiper intermittent dial position 6</li> </ul> |  <p style="text-align: right; font-size: small;">PKIB4959J</p> Approx. 1.0 V   |
| 6            | Y/G        | Combination switch input 1 | ON                  | Lighting, turn, wiper switch                                      | OFF (Wiper intermittent dial position 4)  | Approx. 0 V   |
|              |            |                            |                     |   | Any of the conditions below <ul style="list-style-type: none"> <li>• Front wiper switch HI</li> <li>• Wiper intermittent dial position 3</li> </ul>   |  <p style="text-align: right; font-size: small;">PKIB4959J</p> Approx. 1.0 V |
|              |            |                            |                     |   | Any of the conditions below <ul style="list-style-type: none"> <li>• Wiper intermittent dial position 1</li> <li>• Wiper intermittent dial position 2</li> </ul>  |  <p style="text-align: right; font-size: small;">PKIB4952J</p> Approx. 1.7 V |
|              |            |                            |                     |   | Any of the conditions below <ul style="list-style-type: none"> <li>• Wiper intermittent dial position 6</li> <li>• Wiper intermittent dial position 7</li> </ul>  |  <p style="text-align: right; font-size: small;">PKIB4955J</p> Approx. 0.8 V |

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

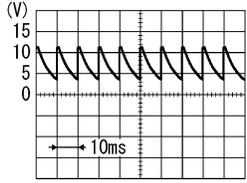
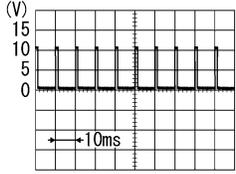
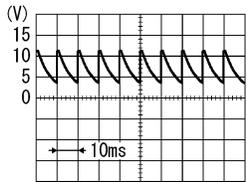
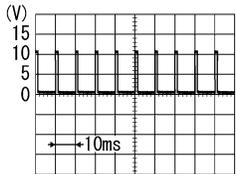
| Ter-<br>mi-<br>nal<br>No. | Wire<br>color | Signal name                    | Measuring condition |                                   | Reference value  |
|---------------------------|---------------|--------------------------------|---------------------|-----------------------------------|--|
|                           |               |                                | Ignition<br>switch  | Operation or condition            |  |
| 32                        | G/B           | Combination<br>switch output 5 | ON                  | Lighting, turn, wip-<br>er switch | <p>OFF<br/>(Wiper intermittent dial position 4)</p>  <p>Approx. 7.2 V</p>   |
|                           |               |                                |                     |                                   | <p>Any of the conditions below</p> <ul style="list-style-type: none"> <li>• Wiper intermittent dial position 1</li> <li>• Wiper intermittent dial position 2</li> <li>• Wiper intermittent dial position 6</li> <li>• Wiper intermittent dial position 7</li> </ul>  <p>Approx. 1.0 V</p> |
| 33                        | G             | Combination<br>switch output 4 | ON                  | Lighting, turn, wip-<br>er switch | <p>OFF<br/>(Wiper intermittent dial position 4)</p>  <p>Approx. 7.2 V</p>  |
|                           |               |                                |                     |                                   | <p>Any of the conditions below</p> <ul style="list-style-type: none"> <li>• Wiper intermittent dial position 1</li> <li>• Wiper intermittent dial position 5</li> <li>• Wiper intermittent dial position 6</li> </ul>  <p>Approx. 1.2 V</p>   |
| 34                        | W/L           | Combination<br>switch output 3 | ON                  | Lighting, turn, wip-<br>er switch | <p>OFF<br/>(Wiper intermittent dial position 4)</p>  <p>Approx. 7.2 V</p>   |
|                           |               |                                |                     |                                   | <p>Any of the conditions below</p> <ul style="list-style-type: none"> <li>• Wiper intermittent dial position 1</li> <li>• Wiper intermittent dial position 2</li> <li>• Wiper intermittent dial position 3</li> </ul>  <p>Approx. 1.2 V</p>   |

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# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Terminal No. | Wire color | Signal name                 | Measuring condition |   | Reference value  |
|--------------|------------|-----------------------------|---------------------|---|--|
|              |            |                             | Ignition switch     | Operation or condition  |  |
| 35           | W/G        | Combination switch output 2 | ON                  | Lighting, turn, wiper switch (Wiper intermittent dial position 4) |  <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>   |
|              |            |                             |                     | Any of the conditions below                                       |  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>   |
| 36           | W/R        | Combination switch output 1 | ON                  | Lighting, turn, wiper switch (Wiper intermittent dial position 4) |  <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>  |
|              |            |                             |                     | Any of the conditions below                                       |  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p> |
| 38           | W/L        | Ignition switch (ON)        | ON                  | —   | Battery voltage  |
| 39           | L          | CAN - H                     | —                   | —   | —  |
| 40           | P          | CAN - L                     | —                   | —   | —  |
| 42           | GY         | Battery power supply        | OFF                 | —   | Battery voltage  |
| 52           | B          | Ground                      | ON                  | —   | Approx. 0 V  |
| 55           | R          | Battery power supply        | OFF                 | —   | Battery voltage  |

### Terminal and Reference Value for IPDM E/R

INFOID:000000004655962

| Terminal No. | Wire color | Signal name      | Measuring condition |                        | Reference value |                 |
|--------------|------------|------------------|---------------------|------------------------|-----------------|-----------------|
|              |            |                  | Ignition switch     | Operation or condition |                 |                 |
| 21           | L          | Low speed signal | ON                  | Wiper switch           | OFF             | Approx. 0 V     |
|              |            |                  |                     |                        | LOW             | Battery voltage |

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Terminal No. | Wire color | Signal name              | Measuring condition |                        | Reference value |                 |
|--------------|------------|--------------------------|---------------------|------------------------|-----------------|-----------------|
|              |            |                          | Ignition switch     | Operation or condition |                 |                 |
| 31           | L/B        | High speed signal        | ON                  | Wiper switch           | OFF             | Approx. 0 V     |
|              |            |                          |                     |                        | HI              | Battery voltage |
| 32           | L/Y        | Wiper auto stop signal   | ON                  | Wiper operating        |                 | Battery voltage |
|              |            |                          |                     | Wiper stopped          |                 | Approx. 0 V     |
| 38           | B          | Ground                   | ON                  | —                      | Approx. 0 V     |                 |
| 44           | OR         | Washer pump power supply | ON                  | —                      | Battery voltage |                 |
| 48           | L          | CAN – H                  | —                   | —                      | —               |                 |
| 49           | P          | CAN – L                  | —                   | —                      | —               |                 |
| 60           | B          | Ground                   | ON                  | —                      | Approx. 0 V     |                 |

### How to Proceed with Trouble Diagnosis

INFOID:000000004655963

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-4, "System Description"](#).
3. Perform preliminary check. Refer to [WW-17, "Preliminary Check"](#).
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

### Preliminary Check

INFOID:000000004655964

#### CHECK POWER SUPPLY AND GROUND CIRCUIT

##### 1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

| Unit   | Power source                | Fuse and fusible link No. |
|--|-----------------------------|---------------------------|
| Front washer pump  | Ignition switch ON or START | 84                        |
| Front wiper motor, front wiper relay, front wiper HI relay | Battery                     | 73                        |
| BCM  | Battery                     | F                         |
|  |                             | 18                        |
|  | Ignition switch ON or START | 1                         |

Refer to [WW-11, "Wiring Diagram - WIPER -"](#).

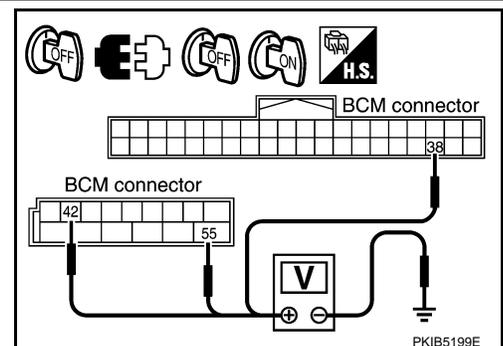
##### OK or NG

OK >> GO TO 2

NG >> If fuse is blown, be sure to eliminate the cause of malfunction before installing new fuse, Refer to [PG-4](#).

##### 2. CHECK POWER SUPPLY CIRCUIT

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



# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Terminals     |          | Ignition switch position |                 |                 |
|---------------|----------|--------------------------|-----------------|-----------------|
| (+)           |          | (-)                      | OFF             | ON              |
| BCM connector | Terminal |                          |                 |                 |
| M90           | 38       | Ground                   | Approx. 0 V     | Battery voltage |
| M91           | 42       |                          | Battery voltage | Battery voltage |
|               | 55       |                          | Battery voltage | Battery voltage |

**OK or NG**

- OK >> GO TO 3.
- NG >> Repair harness or connector.

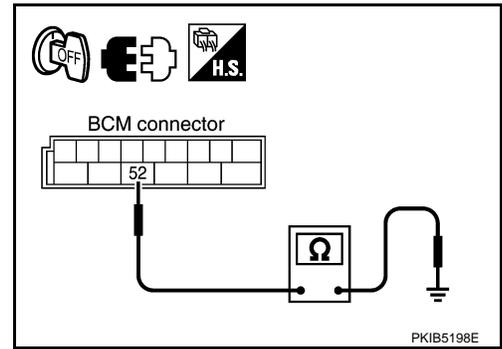
### 3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

| BCM connector | Terminal | Ground | Continuity |
|---------------|----------|--------|------------|
| M91           | 52       |        | Yes        |

**OK or NG**

- OK >> INSPECTION END
- NG >> Repair harness or connector.



INFOID:000000004655965

## CONSULT-III Function (BCM)

CONSULT-III can display each diagnostic item using the diagnostic test mode shown following.

| BCM diagnosis position | Diagnosis mode        | Description  |
|------------------------|-----------------------|--|
| WIPER                  | WORK SUPPORT          | Changes the setting for each function.                                     |
|                        | DATA MONITOR          | Displays BCM input data in real time.                                      |
|                        | ACTIVE TEST           | Device operation can be checked by applying a drive signal to device.      |
| BCM                    | SELF-DIAG RESULTS     | BCM performs self-diagnosis of CAN communication.                          |
|                        | CAN DIAG SUPPORT MNTR | The result of transmit/receive diagnosis of CAN communication can be read. |

## WORK SUPPORT

Display Item List

| Item                | Description  | CONSULT-III | Factory setting |
|---------------------|--|-------------|-----------------|
| WIPER SPEED SETTING | Vehicle speed sensing type wiper control mode can be changed in this mode. Vehicle speed sensing type wiper control mode between two ON/OFF. | ON          | —               |
|                     |  | OFF         | ×               |

**NOTE:**

Regarding wiper speed setting, if the BCM set value is initialized by the use of CONSULT-III work support, then set it individually to OFF after the initialization because it is automatically set to ON by initializing CONSULT-III.

## DATA MONITOR

Display Item List

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Monitor item                    |          | Contents  |
|---------------------------------|----------|---|
| IGN ON SW                       | "ON/OFF" | Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.   |
| IGN SW CAN                      | "ON/OFF" | Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN communication signal. |
| FR WIPER HI                     | "ON/OFF" | Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.                     |
| FR WIPER LOW                    | "ON/OFF" | Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.                    |
| FR WIPER INT                    | "ON/OFF" | Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.                    |
| FR WASHER SW                    | "ON/OFF" | Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.                |
| INT VOLUME                      | "1 - 7"  | Displays intermittent operation dial position setting (1 - 7) as judged from wiper switch signal.         |
| FR WIPER STOP                   | "ON/OFF" | Displays "Stopped (ON)/Operating (OFF)" status as judged from auto-stop signal.                           |
| VEHICLE SPEED                   | "km/h"   | Displays vehicle speed status as judged from vehicle speed signal.  |
| RR WIPER ON <sup>NOTE 1</sup>   | "ON/OFF" | Displays "Rear Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal.                      |
| RR WIPER INT <sup>NOTE 1</sup>  | "ON/OFF" | Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.                     |
| RR WASHER SW <sup>NOTE 1</sup>  | "ON/OFF" | Displays "Rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.                 |
| RR WIPER STOP <sup>NOTE 1</sup> | "ON/OFF" | Displays "Rear Wiper Stop (ON)/Other (OFF)" status, as judged from wiper switch signal.                   |
| RR WIPER STP2 <sup>NOTE 2</sup> | "OFF"    | —   |

### NOTE:

1. Coupe models
2. This item is displayed, but cannot be monitored.

## ACTIVE TEST

### Display Item List

| Test item                         | Display on CONSULT-III screen | Description   |
|-----------------------------------|-------------------------------|---|
| Front wiper output                | FR WIPER                      | With a certain operation (OFF, HI, LO, INT), front wiper can be operated. |
| Rear wiper output <sup>NOTE</sup> | RR WIPER                      | Rear wiper can be operated by ON-OFF operation.                           |

### NOTE:

Coupe models

## CONSULT-III Function (IPDM E/R)

INFOID:000000004655966

CONSULT-III can display each diagnostic item using the diagnostic test mode shown following.

| Diagnosis Mode        | Description  |
|-----------------------|--|
| SELF-DIAG RESULTS     | Refer to <a href="#">PG-17. "CONSULT-III Function (IPDM E/R)".</a>               |
| DATA MONITOR          | The input/output data of IPDM E/R is displayed in real time.                     |
| CAN DIAG SUPPORT MNTR | The result of transmit/receive diagnosis of CAN communication can be read.       |
| ACTIVE TEST           | IPDM E/R sends a drive signal to electronic components to check their operation. |

## DATA MONITOR

All Signals, Main Signals, Selection From Menu

| Item name        | CONSULT-III screen display | Display or unit | Monitor item selection |              |                     | Description                  |
|------------------|----------------------------|-----------------|------------------------|--------------|---------------------|------------------------------|
|                  |                            |                 | ALL SIGNALS            | MAIN SIGNALS | SELECTION FROM MENU |                              |
| FR wiper request | FR WIP REQ                 | STOP/LOW/HI     | ×                      | ×            | ×                   | Signal status input from BCM |

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Item name        | CONSULT-III screen display | Display or unit | Monitor item selection |              |                     | Description                |
|------------------|----------------------------|-----------------|------------------------|--------------|---------------------|----------------------------|
|                  |                            |                 | ALL SIGNALS            | MAIN SIGNALS | SELECTION FROM MENU |                            |
| Wiper auto stop  | WIP AUTO STOP              | ACT P/STOP P    | ×                      | ×            | ×                   | Output status of IPDM E/R  |
| Wiper protection | WIP PROT                   | OFF/Block       | ×                      | ×            | ×                   | Control status of IPDM E/R |

**NOTE:**

Perform monitoring of IPDM E/R data with ignition switch ON. When ignition switch is at ACC, the display may not be correct.

### ACTIVE TEST

Display Item List

| Test item                   | CONSULT-III screen display | Description  |
|-----------------------------|----------------------------|--|
| Front wiper (HI, LO) output | FR WIPER                   | With a certain operation (OFF, HI ON, LO ON), front wiper relay (and/or front wiper high relay) can be operated. |

## Front Wiper Does Not Operate

INFOID:000000004655967

**CAUTION:**

During IPDM E/R fail-safe control, front wipers may not operate. Refer to [PG-16. "System Description"](#) in "PG IPDM E/R" to make sure that it is not in fail-safe status.

### 1. ACTIVE TEST

ⓐ CONSULT-III ACTIVE TEST

- Select "FRONT WIPER" of IPDM E/R active test item.
- With operating the test item, check that front wiper LO and HI operation.

ⓧ IPDM E/R AUTO ACTIVE TEST

- Start up auto active test. Refer to [PG-19. "Auto Active Test"](#).
- With operating the test item, check that front wiper LO and HI operation.

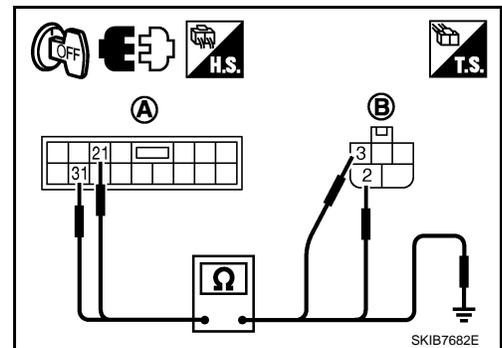
Does front wiper operate normally?

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

### 2. CHECK FRONT WIPER CIRCUIT

- Turn ignition switch OFF.
- Disconnect IPDM E/R connector and front wiper motor connector.
- Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E7        | 21       | E52       | 3        | Yes        |
|           | 31       |           | 2        |            |



- Check continuity between IPDM E/R harness connector (A) and Ground.

| A         |          | Ground | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E7        | 21       |        | No         |
|           | 31       |        |            |

**OK or NG**

- OK >> GO TO 3.  
NG >> Repair harness or connector.

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

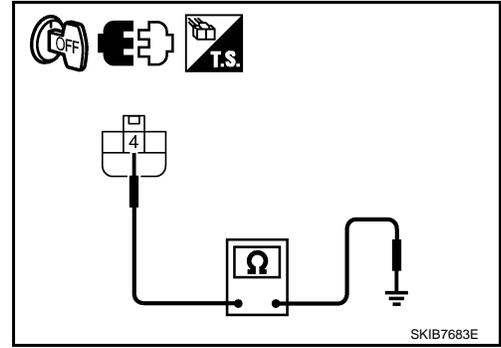
### 3. CHECK GROUND CIRCUIT

Check continuity between front wiper motor harness connector and ground.

| Front wiper motor connector | Terminal | Ground | Continuity |
|-----------------------------|----------|--------|------------|
| E52                         | 4        |        | Yes        |

#### OK or NG

- OK >> GO TO 4.
- NG >> Repair harness or connector.

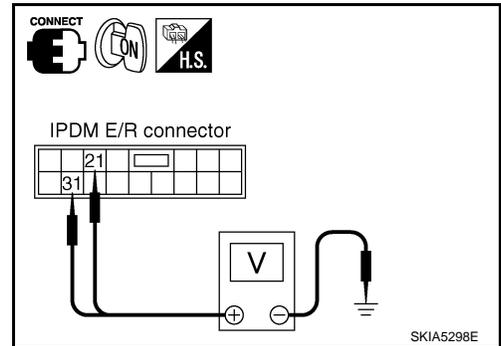


### 4. CHECK IPDM E/R

#### CONSULT-III ACTIVE TEST

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "FRONT WIPER" of IPDM E/R active test item.
3. With operating the test item, check voltage between IPDM E/R harness connector and ground.

| Terminals          |          | Condition    | Voltage (Approx.) |
|--------------------|----------|--------------|-------------------|
| (+)                | (-)      |              |                   |
| IPDM E/R connector | Terminal |              |                   |
| E7                 | 21       | Stopped      | 0 V               |
|                    |          | LO operation | Battery voltage   |
|                    | 31       | Stopped      | 0 V               |
|                    |          | HI operation | Battery voltage   |



#### IPDM E/R AUTO ACTIVE TEST

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-19. "Auto Active Test"](#).
3. With operating the test item, check voltage between IPDM E/R harness connector and ground.

| Terminals          |          | Condition    | Voltage (Approx.) |
|--------------------|----------|--------------|-------------------|
| (+)                | (-)      |              |                   |
| IPDM E/R connector | Terminal |              |                   |
| E7                 | 21       | Stopped      | 0 V               |
|                    |          | LO operation | Battery voltage   |
|                    | 31       | Stopped      | 0 V               |
|                    |          | HI operation | Battery voltage   |

#### OK or NG

- OK >> Replace front wiper motor. Refer to [WW-29. "Disassembly and Assembly Front Wiper Motor and Linkage"](#).
- NG >> Replace IPDM E/R. Refer to [PG-23. "Removal and Installation of IPDM E/R"](#).

### 5. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

#### CONSULT-III DATA MONITOR

1. Select "FR WIPER INT", "FR WIPER LOW", and "FR WIPER HI" of BCM data monitor item.
2. With operating the wiper switch, check the monitor status.

#### CHECK COMBINATION SWITCH

Refer to [LT-86. "Combination Switch Inspection"](#).

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# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

### OK or NG

OK >> GO TO 6.

NG >> Check combination switch (wiper switch). Refer to [LT-86. "Combination Switch Inspection"](#).

## 6. CHECKING CAN COMMUNICATIONS BETWEEN BCM AND IPDM E/R

Perform self-diagnosis for "BCM" with CONSULT-III.

### Display of self-diagnosis results

NO DTC>> Replace IPDM E/R. Refer to [PG-23. "Removal and Installation of IPDM E/R"](#).

CAN COMM CIRCUIT>> Refer to [BCS-15. "U1000 CAN Communication Circuit"](#).

## Front Wiper Does Not Return to Stop Position

INFOID:000000004655968

## 1. CHECK FRONT WIPER STOP SIGNAL

Ⓟ With CONSULT-III

1. Select "WIP AUTO STOP" of IPDM E/R data monitor item.

2. Make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.

ⓧ GO TO 2

### OK or NG

OK >> Replace IPDM E/R. Refer to [PG-23. "Removal and Installation of IPDM E/R"](#).

NG >> GO TO 2.

## 2. CHECK IPDM E/R

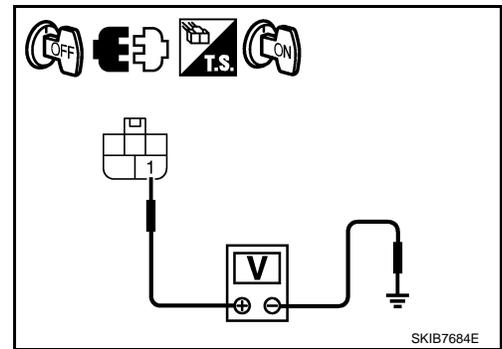
1. Turn ignition switch OFF.

2. Disconnect front wiper motor connector.

3. Turn ignition switch ON.

4. Check voltage between front wiper motor harness connector and ground.

| Terminals                   |          | Voltage<br>(Approx.) |
|-----------------------------|----------|----------------------|
| (+)                         | (-)      |                      |
| Front wiper motor connector | Terminal | Ground               |
| E52                         | 1        | Battery voltage      |



### OK or NG

OK >> GO TO 4.

NG >> GO TO 3.

## 3. CHECK FRONT WIPER AUTO STOP CIRCUIT

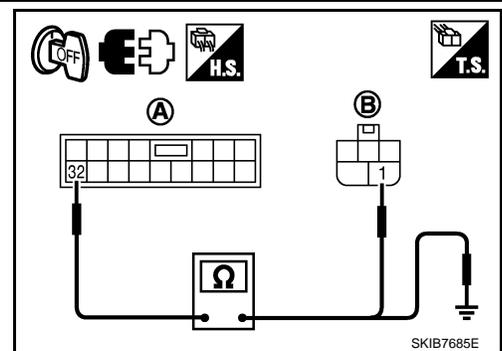
1. Turn ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E7        | 32       | E52       | 1        | Yes        |

4. Check continuity between IPDM E/R harness connector (A) and ground.



| A         |          | Ground | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E7        | 32       |        | Yes        |

### OK or NG

OK >> Replace IPDM E/R. Refer to [PG-23. "Removal and Installation of IPDM E/R"](#).

# FRONT WIPER AND WASHER SYSTEM

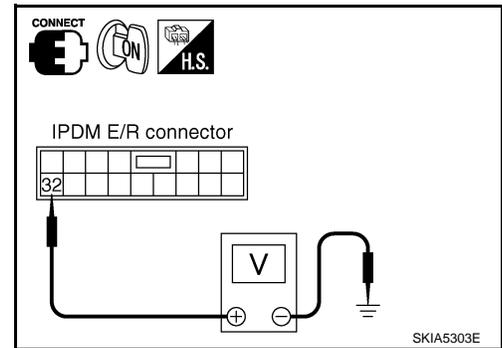
## < SERVICE INFORMATION >

NG >> Repair harness or connector.

### 4.CHECK IPDM E/R

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn ignition switch ON.
3. Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

| Terminal           |          | (-)    | Condition       | Voltage (Approx.) |
|--------------------|----------|--------|-----------------|-------------------|
| (+)                |          |        |                 |                   |
| IPDM E/R connector | Terminal |        |                 |                   |
| E7                 | 32       | Ground | Wiper stopped   | 0 V               |
|                    |          |        | Wiper operating | Battery voltage   |



#### OK or NG

OK >> Replace IPDM E/R. Refer to [PG-23, "Removal and Installation of IPDM E/R"](#).

NG >> Replace front wiper motor. Refer to [WW-29, "Disassembly and Assembly Front Wiper Motor and Linkage"](#).

## Only Front Wiper Low Does Not Operate

INFOID:000000004655969

### 1.ACTIVE TEST

#### CONSULT-III ACTIVE TEST

1. Select "FRONT WIPER" of IPDM E/R active test item.
2. With operating the test item, check that front wiper LO operation.

#### IPDM E/R AUTO ACTIVE TEST

1. Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).
2. With operating the test item, check that front wiper LO operation.

#### Does front wiper operate normally?

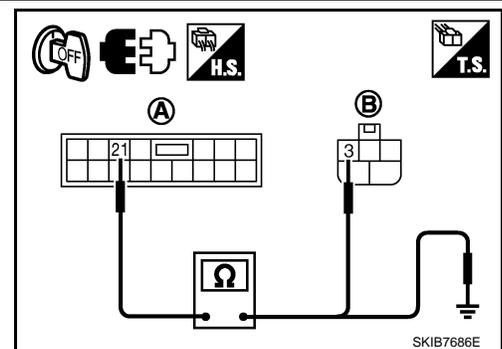
YES >> Refer to [LT-86, "Combination Switch Inspection"](#).

NO >> GO TO 2.

### 2.CHECK FRONT WIPER MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E7        | 21       | E52       | 3        | Yes        |



4. Check continuity between IPDM E/R harness connector (A) and ground.

| A         |          | Ground | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E7        | 21       |        | No         |

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

### 3.CHECK IPDM E/R

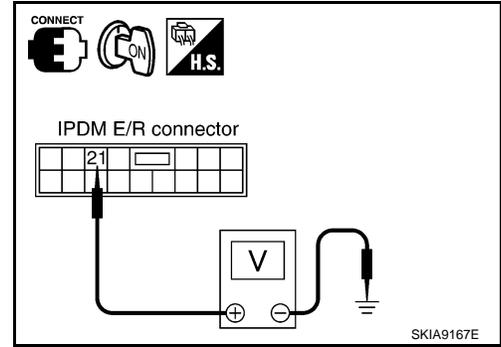
# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

### ⓅCONSULT-III ACTIVE TEST

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "FRONT WIPER" of IPDM E/R active test item.
3. With operating the test item, check that front wiper LO operation.

| Terminals          |          | Voltage<br>(Approx.) |
|--------------------|----------|----------------------|
| (+)                | (-)      |                      |
| IPDM E/R connector | Terminal | Ground               |
| E7                 | 21       |                      |
|                    |          | Battery voltage      |



### ⓧIPDM E/R AUTO ACTIVE TEST

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).
3. With operating the test item, check that front wiper LO operation.

| Terminals          |          | Voltage<br>(Approx.) |
|--------------------|----------|----------------------|
| (+)                | (-)      |                      |
| IPDM E/R connector | Terminal | Ground               |
| E7                 | 21       |                      |
|                    |          | Battery voltage      |

### OK or NG

- OK >> Replace front wiper motor. Refer to [WW-29, "Disassembly and Assembly Front Wiper Motor and Linkage"](#).
- NG >> Replace IPDM E/R. Refer to [PG-23, "Removal and Installation of IPDM E/R"](#).

## Only Front Wiper High Does Not Operate

INFOID:000000004655970

### 1.ACTIVE TEST

#### ⓅCONSULT-III ACTIVE TEST

1. Select "FRONT WIPER" of IPDM E/R active test item.
2. With operating the test item, check that front wiper HI operation.

#### ⓧIPDM E/R AUTO ACTIVE TEST

1. Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).
2. With operating the test item, check that front wiper HI operation.

#### Does front wiper operate normally?

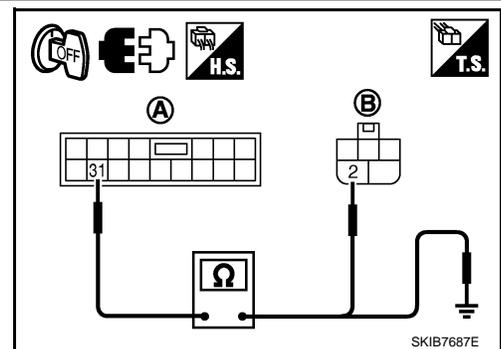
- YES >> Refer to [LT-86, "Combination Switch Inspection"](#).
- NO >> GO TO 2.

### 2.CHECK FRONT WIPER MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E7        | 31       | E52       | 2        | Yes        |

4. Check continuity between IPDM E/R harness connector (A) and ground.



# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| A         |          | Ground | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E7        | 31       |        | No         |

### OK or NG

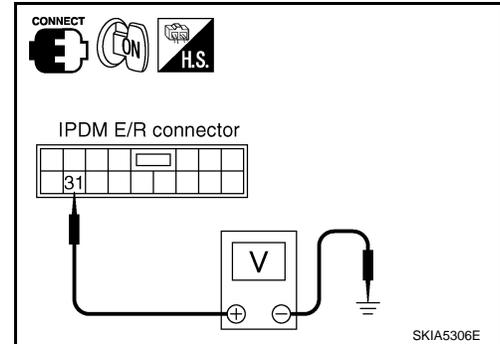
- OK >> GO TO 3.
- NG >> Repair harness or connector.

## 3.CHECK IPDM E/R

### CONSULT-III ACTIVE TEST

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "FRONT WIPER" of IPDM E/R active test item.
3. With operating the test item, check voltage between IPDM E/R harness connector and ground.

| Terminals          |          | Voltage (Approx.) |
|--------------------|----------|-------------------|
| (+)                | (-)      |                   |
| IPDM E/R connector | Terminal | Ground            |
| E7                 | 31       |                   |



### IPDM E/R AUTO ACTIVE TEST

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).
3. With operating the test item, check voltage between IPDM E/R harness connector and ground.

| Terminals          |          | Voltage (Approx.) |
|--------------------|----------|-------------------|
| (+)                | (-)      |                   |
| IPDM E/R connector | Terminal | Ground            |
| E7                 | 31       |                   |

### OK or NG

- OK >> Replace front wiper motor. Refer to [WW-29, "Disassembly and Assembly Front Wiper Motor and Linkage"](#).
- NG >> Replace IPDM E/R. Refer to [PG-23, "Removal and Installation of IPDM E/R"](#).

## Only Front Wiper Intermittent Does Not Operate

INFOID:000000004655971

## 1.CHECK COMBINATION SWITCH

### CONSULT-III DATA MONITOR

1. Select "FR WIPER INT" of BCM data monitor item.
2. With operating the wiper switch, check the monitor status.

### CHECK COMBINATION SWITCH

Refer to [LT-86, "Combination Switch Inspection"](#).

### OK or NG

- OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).
- NG >> Check combination switch (wiper switch) Refer to [LT-86, "Combination Switch Inspection"](#).

## Front Wiper Interval Time Is Not Controlled by Vehicle Speed

INFOID:000000004655972

## 1.CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does front wiper operate normally?

# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

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YES >> GO TO 2.

NO >> Combination meter vehicle speed system malfunction. Refer to [DI-17, "Vehicle Speed Signal Inspection"](#).

## 2.CHECK CAN COMMUNICATION BETWEEN BCM AND COMBINATION METER

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Perform self-diagnosis for "BCM" with CONSULT-III.

### Displayed self-diagnosis results

NO DTC>>Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

CAN COMM CIRCUIT>>Refer to [BCS-15, "U1000 CAN Communication Circuit"](#).

## Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

INFOID:000000004655973

## 1.CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

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### CONSULT-III DATA MONITOR

1. Select "INT VOLUME" of BCM data monitor item.

2. Make sure that "INT VOLUME", changes in order form 1 to 7 according to wiper switch operation.

### CHECK COMBINATION SWITCH

Refer to [LT-86, "Combination Switch Inspection"](#).

### OK or NG

OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

NG >> Check combination switch (wiper switch). Refer to [LT-86, "Combination Switch Inspection"](#).

## Wiper Does Not Wipe When Front Washer Operates

INFOID:000000004655974

## 1.CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

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### CONSULT-III DATA MONITOR

1. Select "FR WASHER SW" of BCM data monitor item.

2. Make sure that "FR WASHER SW" turn ON-OFF according to front wiper switch operation.

### CHECK COMBINATION SWITCH

Refer to [LT-86, "Combination Switch Inspection"](#).

### OK or NG

OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).

NG >> Check front wiper switch. Refer to [LT-86, "Combination Switch Inspection"](#).

## After Front Wiper Operate for 10 Seconds, They Stop for 20 Seconds, and After Repeating the Operation Five Times, They Become Inoperative

INFOID:000000004655975

### **CAUTION:**

- When auto-stop signal has not varied for 10 seconds or longer while IPDM E/R is operating front wipers, IPDM E/R considers that front wipers are locked, and stops wiper output. That causes this symptom.
- This status can be checked by "DATA MONITOR" of "IPDM E/R" on which "WIPER PROTECTION" item shows "BLOCK".

## 1.CHECK WIPER MOTOR SIGNAL

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### CONSULT-III DATA MONITOR

1. Select "WIP AUTO STOP" of BCM data monitor item.

2. make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.

### GO TO 2

### OK or NG

OK >> Replace IPDM E/R. Refer to [PG-23, "Removal and Installation of IPDM E/R"](#).

NG >> GO TO 2.

## 2.CHECK WIPER AUTO STOP CIRCUIT

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# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector (A) and front wiper motor harness connector (B).

| A         |          | B         |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E7        | 32       | E52       | 1        | Yes        |

4. Check continuity between IPDM E/R harness connector (A) and ground.

| A         |          | Ground | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| E7        | 32       |        | No         |

### OK or NG

- OK >> GO TO 3.  
 NG >> Repair harness or connector.

## 3. CHECK FRONT WIPER MOTOR

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn ignition switch ON.
3. Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

| Terminal (+)       |          | Terminal (-) | Condition       | Voltage (Approx.) |
|--------------------|----------|--------------|-----------------|-------------------|
| IPDM E/R connector | Terminal |              |                 |                   |
| E7                 | 32       | Ground       | Wiper stopped   | 0 V               |
|                    |          |              | Wiper operating | Battery voltage   |

### OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-23, "Removal and Installation of IPDM E/R"](#).  
 NG >> Replace front wiper motor. Refer to [WW-29, "Disassembly and Assembly Front Wiper Motor and Linkage"](#).

## Front Wiper Does Not Stop

INFOID:000000004655976

### 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

#### CONSULT-III DATA MONITOR

1. Select "FR WIPER INT", "FR WIPER LOW", "FR WIPER HI", and "FR WASHER SW" of BCM data monitor item.
2. With operating the wiper switch, check the monitor status.

#### CHECK COMBINATION SWITCH

Refer to [LT-86, "Combination Switch Inspection"](#).

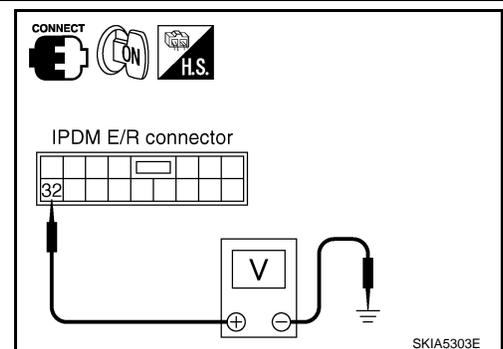
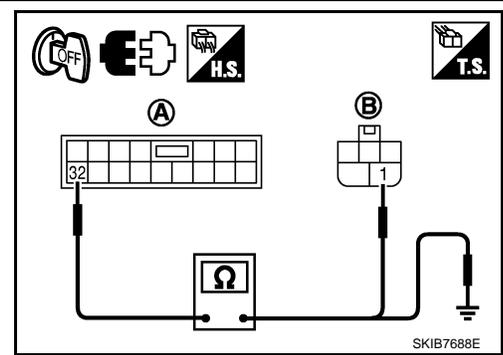
### OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-23, "Removal and Installation of IPDM E/R"](#).  
 NG >> Check combination switch (wiper switch). Refer to [LT-86, "Combination Switch Inspection"](#).

## Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location

INFOID:000000004655977

### REMOVAL



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

WW

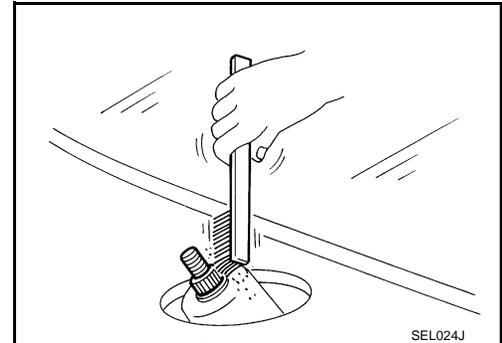
# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

1. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
2. Remove washer tube from washer tube joint.
3. Open hood, remove front wiper arm caps, and remove front wiper arm nuts.
4. Raise front wiper arms, and remove front wiper arms from vehicle.

## INSTALLATION

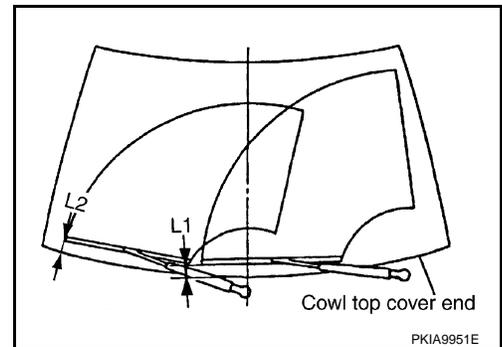
1. Clean up the pivot area as shown in the figure. This will reduce possibility of front wiper arm looseness.
2. Prior to front wiper arms installation, turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).



3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L1" & "L2" immediately.
4. Tighten front wiper arm nuts to specified torque.

**Front wiper arm nuts**  : 23.6 N-m (2.4 kg-m, 18 ft-lb)

5. Install washer tube from washer tube joint.
6. Spray washer fluid. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
7. Make sure that wiper blades stop within clearance "L1" & "L2".



**Clearance "L1"** : 63.9 ± 7.5 mm (2.516 ± 0.295 in)

**Clearance "L2"** : 32.0 ± 6.5 mm (1.260 ± 0.256 in)

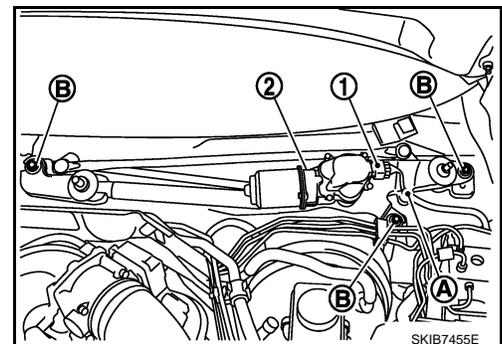
8. Install front wiper arm caps.

## Removal and Installation of Front Wiper Drive Assembly

INFOID:000000004655978

### REMOVAL

1. Remove front wiper arms. Refer to [WW-27. "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location"](#).
2. Remove cowl top cover. Refer to [EI-16](#).
3. Disconnect wiper motor connector (1) and remove connector clip (A).
4. Remove front wiper drive assembly mounting bolts (B), and remove front wiper drive assembly (2) from the vehicle.



### INSTALLATION

1. Install front wiper drive assembly to the vehicle.

**Front wiper drive assembly mounting bolts**  : 4.5 N-m (0.46 kg-m, 40 in-lb)

2. Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).

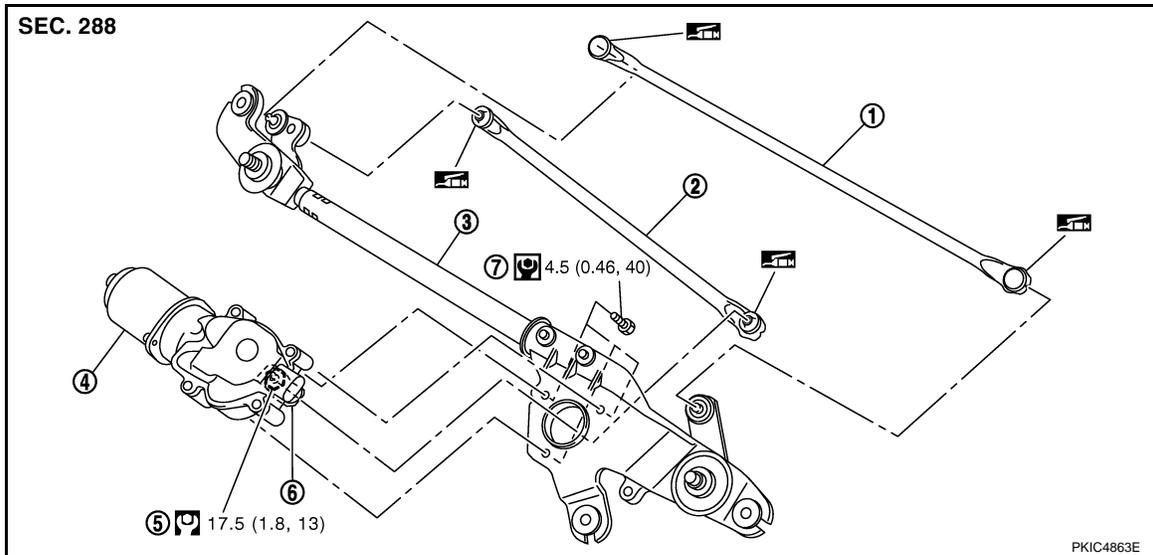
# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

3. Install connector clips to the wiper frame, and install cowl top cover. Refer to [EI-16](#).
4. Install front wiper arms and arm caps. Refer to [WW-27, "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location"](#).

## Disassembly and Assembly Front Wiper Motor and Linkage

INFOID:000000004655979



- |                              |                    |                |
|------------------------------|--------------------|----------------|
| 1. Wiper linkage 1           | 2. Wiper linkage 2 | 3. Motor frame |
| 4. Wiper motor               | 5. Motor arm nut   | 6. Motor arm   |
| 7. Wiper motor mounting bolt |                    |                |

:N-m (kg-m, in-lb)

:N-m (kg-m, ft-lb)

:Should be lubricated with grease

### DISASSEMBLY

1. Remove wiper linkages from wiper motor and motor frame.
2. Remove wiper motor mounting bolts, and remove wiper motor from wiper frame.

### CAUTION:

**Be careful not to bend wiper linkages nor to damage the resin part of ball joint when removing wiper linkages.**

### ASSEMBLY

1. Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
2. Disconnect wiper motor connector.
3. Install wiper motor to wiper frame.

**Wiper motor mounting bolts** : 4.5 N-m (0.46 kg-m, 40 in-lb)

4. Install wiper linkages to wiper frame and wiper motor.

### CAUTION:

- Never drop the wiper motor nor cause it to interfere with other parts.
- Check joint of motor arm and wiper linkages (at retainer) for grease conditions. Apply grease if necessary.

# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

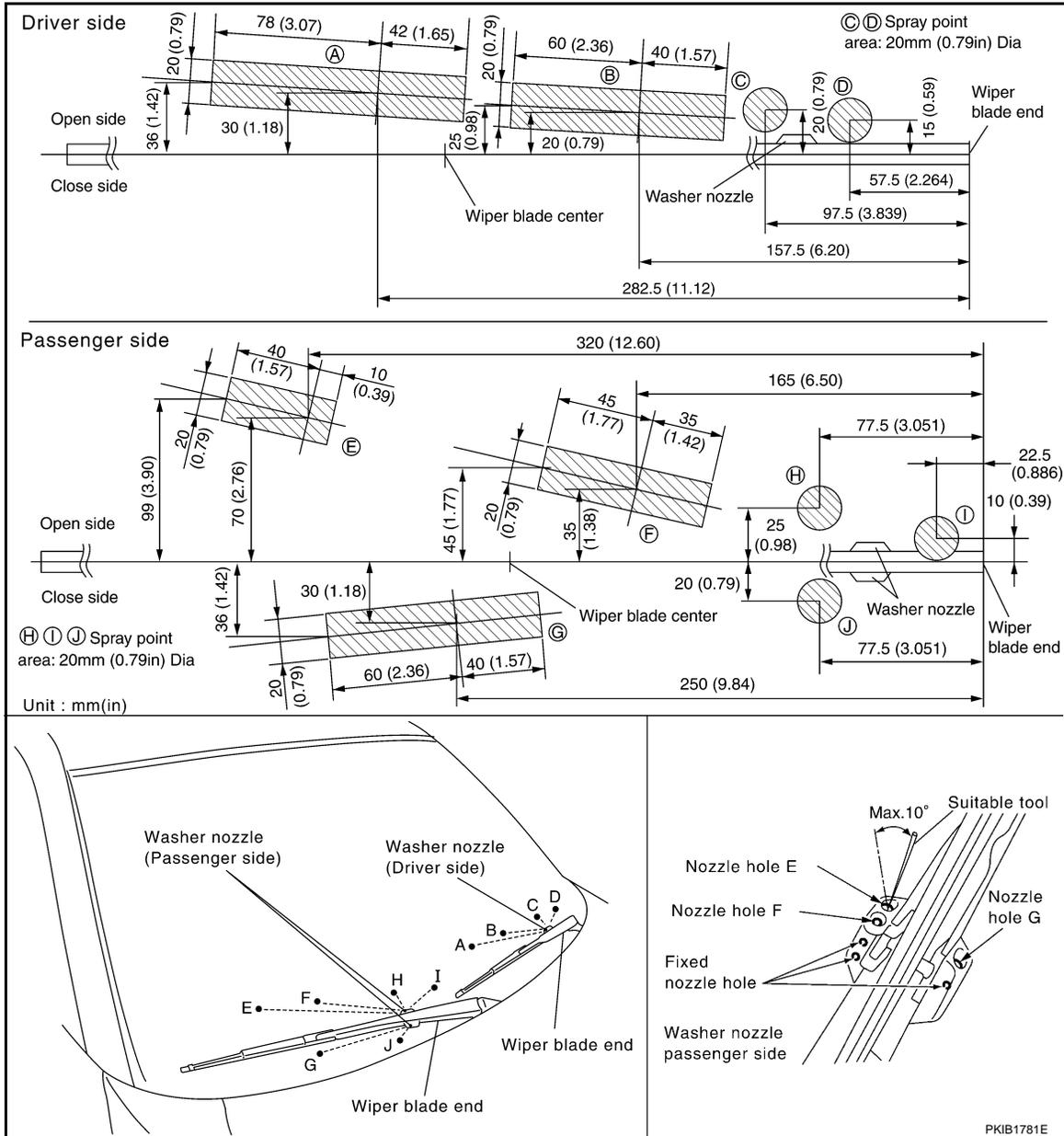
## Washer Nozzle Adjustment

INFOID:000000004655980

1. When wiper blade position is in auto stop condition, remove front wiper motor connector to ensure front wiper arms do not move.
2. Adjust each nozzle position (A, B, E, F, and G) so that spray positions are in the range of shaded parts.

**CAUTION:**

**Only washer nozzles (A, B, E, F, and G) can be adjusted. Washer nozzles (C, D, H, I, and J) cannot be adjusted because of fixed nozzles.**

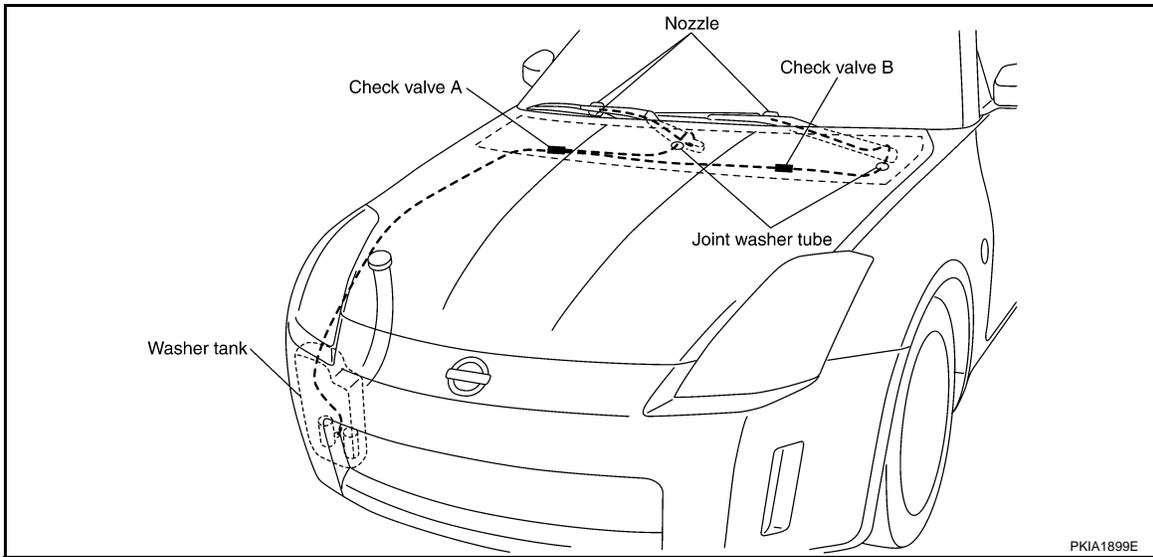


# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Washer Tube Layout

INFOID:000000004655981



## Removal and Installation of Front Washer Nozzle

INFOID:000000004655982

Replace wiper arm assembly. Refer to [WW-27, "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location"](#).

### CAUTION:

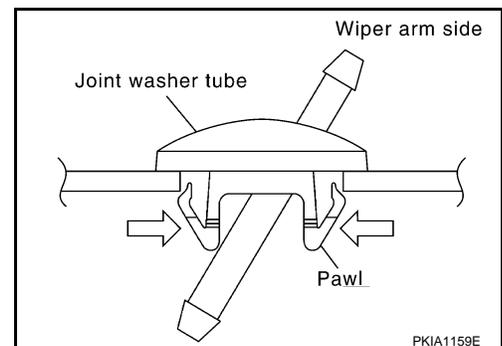
Never remove/install washer nozzle from wiper arm assembly.

## Removal and Installation of Front Washer Tube Joint

INFOID:000000004655983

### REMOVAL

1. Remove upwards while pressing pawls on reverse side.
2. Remove washer tube.



### INSTALLATION

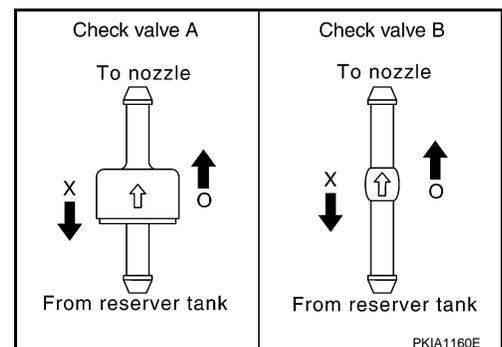
Installation is the reverse order of removal.

## Inspection for Washer Nozzle

INFOID:000000004655984

### CHECK VALVE INSPECTION

Blow air in the injection direction, and check that air flows only one way. Make sure that the reverse direction (inhale) is not possible.



# FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Inspection of Front Wiper and Washer Switch Circuit

INFOID:000000004655985

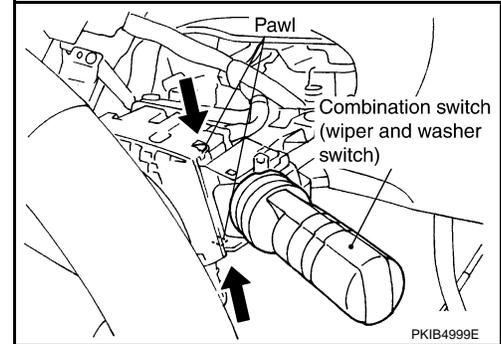
Refer to [LT-86, "Combination Switch Inspection"](#).

## Removal and Installation of Front Wiper and Washer Switch

INFOID:000000004655986

### REMOVAL

1. Remove steering column lower cover and combination meter. Refer to [IP-12](#).
2. Disconnect wiper and washer switch connector.
3. Pull wiper and washer switch toward the passenger door while pressing pawls in direction shown by the arrow (←) in the figure, and remove it from the base.



### INSTALLATION

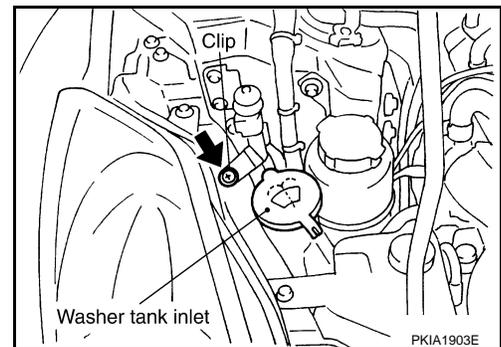
Installation is the reverse order of removal.

## Removal and Installation of Washer Tank

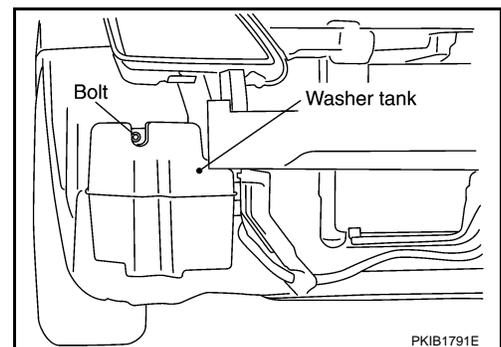
INFOID:000000004655987

### REMOVAL

1. Remove clip and pull out washer tank inlet.



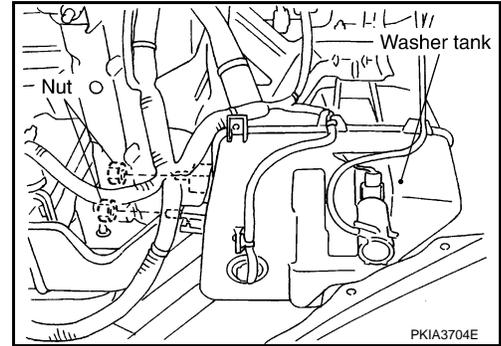
2. Remove under cover.
3. Remove fender protector. Refer to [EI-17](#).
4. Remove front bumper fascia. Refer to [EI-11](#).
5. Disconnect washer pump connector.
6. Remove washer tank mounting bolt and nuts.



# FRONT WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

7. Remove washer tube, and remove washer tank from the vehicle.



## INSTALLATION

Installation is the reverse order of removal.

### CAUTION:

After installation, add water up to the upper level of washer tank inlet, and check for water leaks.

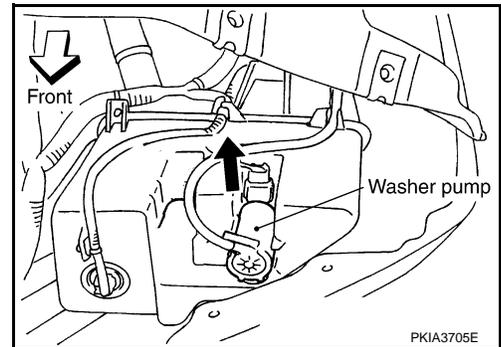
Washer tank mounting bolt and nuts  : 5.7 N·m (0.58 kg·m, 50 in·lb)

## Removal and Installation of Washer Pump

INFOID:000000004655988

## REMOVAL

1. Remove fender protector. Refer to [EI-17](#).
2. Disconnect washer pump connector and remove washer tube.
3. Pull out washer pump in direction shown by the arrow (←) in the figure. Remove washer pump from washer tank.



## INSTALLATION

Installation is the reverse order of removal.

### CAUTION:

When installing washer pump, there should be no packing twists, etc.

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L  
M  
N  
O  
P

WW

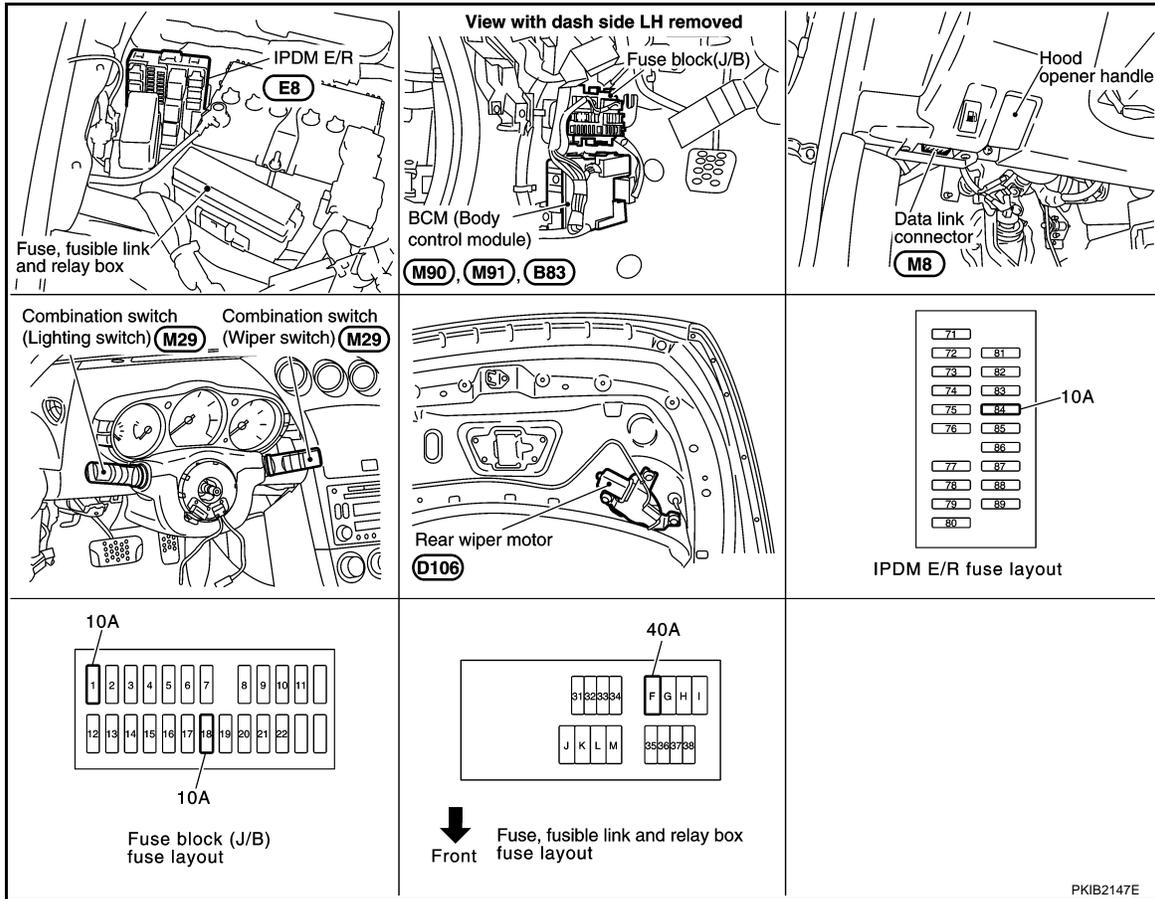
# REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## REAR WIPER AND WASHER SYSTEM

### Component Parts and Harness Connector Location

INFOID:000000004655989



PKIB2147E

### System Description

INFOID:000000004655990

- Wiper switch (combination switch) is composed of a combination of 5 output terminals and 5 input terminals. Terminal combination status is read by BCM when switch is turned ON.
- BCM (body control module) controls rear wiper ON and INT (intermittent) operation.

### OUT LINE

Power is supplied at all times

- through 40 A fusible link (letter F, located in fuse, fusible link and relay box)
- to BCM terminal 55,
- through 10 A fuse [No. 18, located in fuse block (J/B)]
- to BCM terminal 42.

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

- through 10 A fuse [No. 1, located in fuse block (J/B)]
- to BCM terminal 38,
- through 10 A fuse (No. 84, located in IPDM E/R)
- through IPDM E/R terminal 44
- to rear washer pump terminal 2.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to combination switch terminal 12
- through grounds M30 and M66.

### Rear Wiper Operation

When wiper switch is in rear wiper ON position, BCM detect rear wiper ON signal by BCM wiper switch reading function.

BCM operate rear wiper motor, power is supplied

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

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- through BCM terminal 70
- to rear wiper motor 4.

Ground is supplied

- to rear wiper motor terminal 1
- through grounds B5, B6, D105 and T14.

With power and ground is supplied, rear wiper operates.

### Intermittent Operation

The rear wiper motor operates wiper arms at low speed approximately every 7 seconds.

When wiper switch is in rear wiper INT position, BCM detect rear wiper INT signal by BCM wiper switch reading function. (Refer to [WW-4, "System Description"](#))

BCM operate rear wiper motor, power is supplied

- through BCM terminal 70
- to rear wiper motor 4.

Ground is supplied

- to rear wiper motor terminal 1
- through grounds B5, B6, D105 and T14.

With power and ground is supplied, rear wiper operates at intermittent.

### Auto Stop Operation

With rear wiper switch turned OFF, rear wiper motor will continue to operate until wiper arm reaches rear wiper stopper.

Then wiper motor turns the other way and wiper arm moves once until wiper arm reaches stopper.

### Washer Operation

When wiper switch is in rear wiper washer position, BCM detect rear wiper washer signal by BCM wiper switch reading function (Refer to [WW-4, "System Description"](#)), and combination switch (wiper switch) ground is supplied

- to rear washer pump terminal 1
- through combination switch terminal 13
- to combination switch terminal 12
- through grounds M30 and M66.

With ground is supplied, rear washer pump is operated.

When BCM detects that rear washer pump has operated for 0.4 seconds or longer, BCM operates rear wiper motor low speed.

When BCM detects washer switch is OFF, low speed operation cycles approximately 3 times and then stops.

### BCM WIPER SWITCH READING FUNCTION

Refer to [WW-4, "System Description"](#).

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

WW

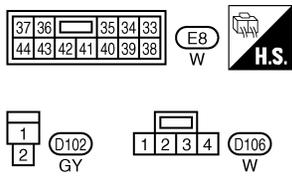
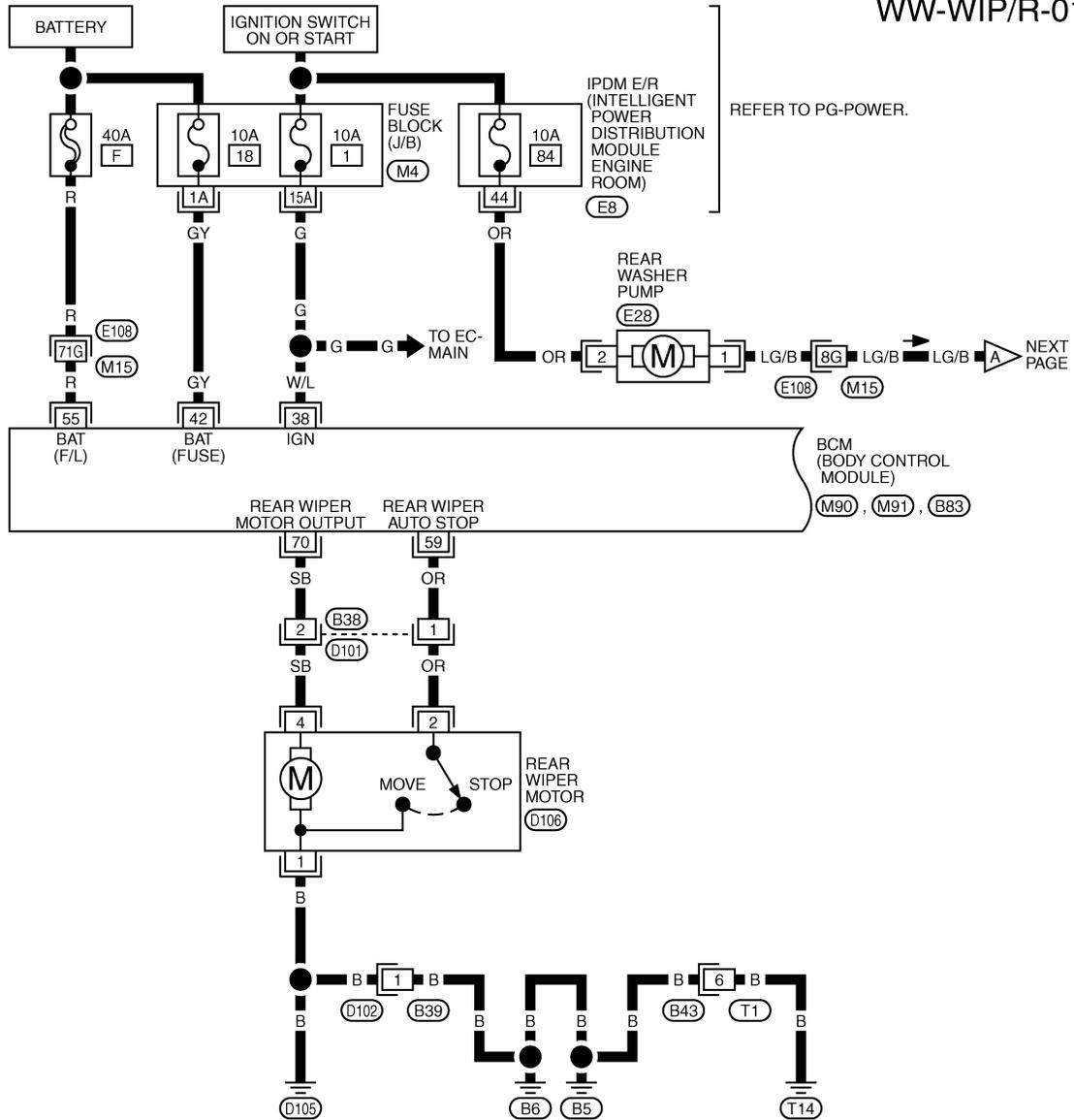
# REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Wiring Diagram - WIP/ R -

INFOID:000000004655991

WW-WIP/R-01



REFER TO THE FOLLOWING.

- E108** - SUPER MULTIPLE JUNCTION (SMJ)
- M4** - FUSE BLOCK-JUNCTION BOX (J/B)
- M90, M91, B83** - ELECTRICAL UNITS

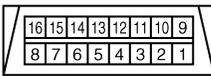
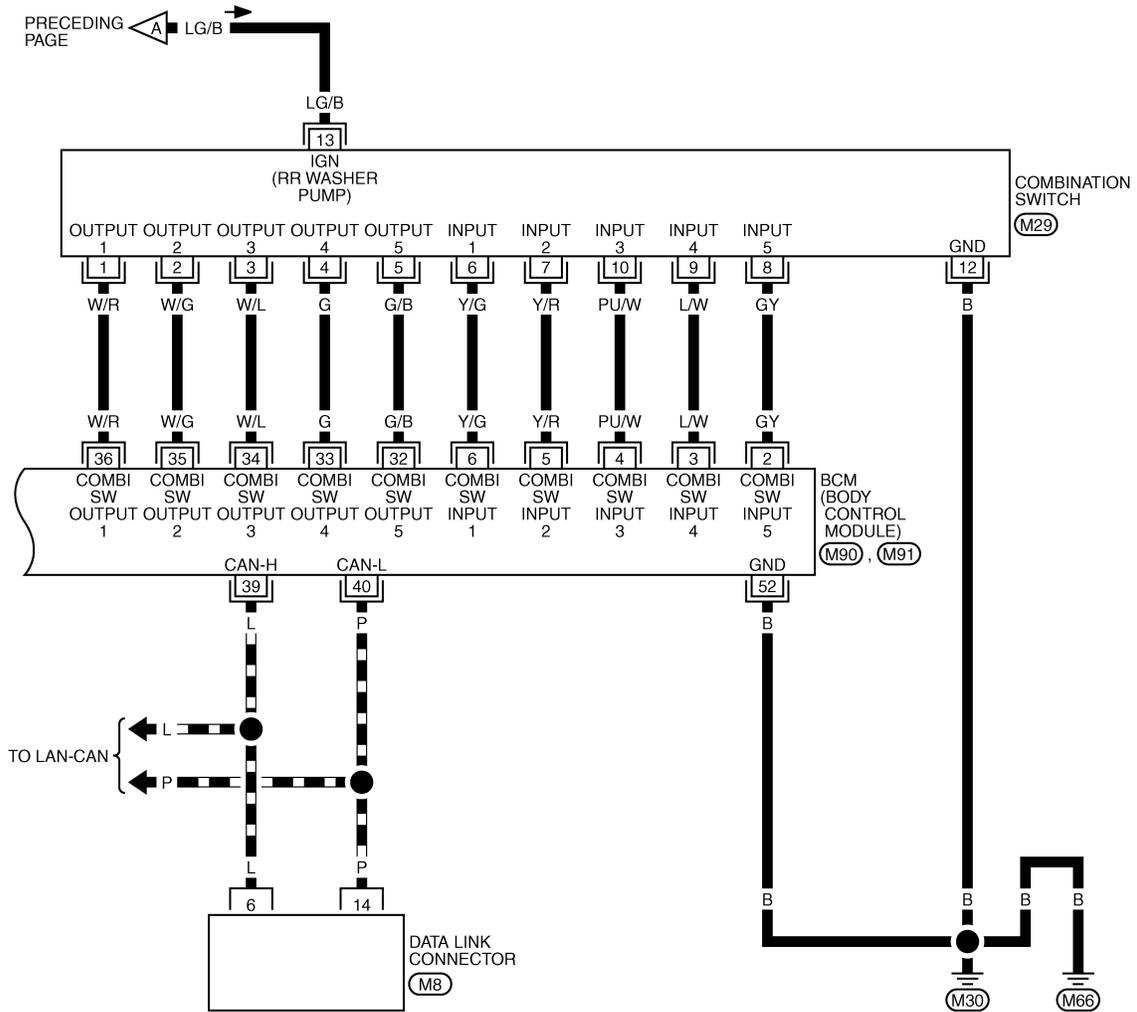
TKWT5739E

# REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

WW-WIP/R-02

▬ : DATA LINE



(M8)  
W



(M29)  
W

REFER TO THE FOLLOWING.  
(M90), (M91) -ELECTRICAL  
UNITS

## Terminal and Reference Value for BCM

### CAUTION:

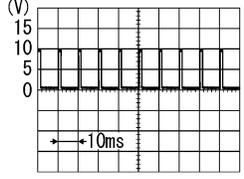
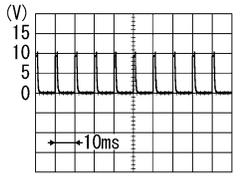
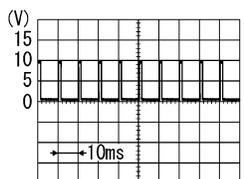
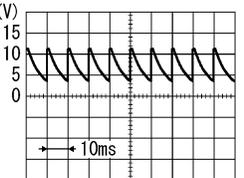
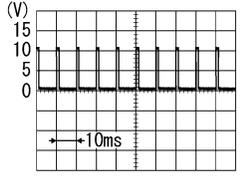
- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-III. Refer to [WW-40, "CONSULT-III Function \(BCM\)"](#).

TKWT4008E

INFOID:000000004655992

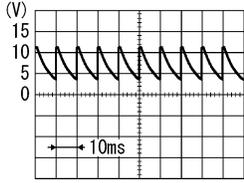
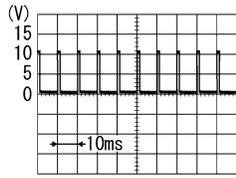
# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Ter-<br>mi-<br>nal<br>No. | Wire<br>color | Signal name                    | Measuring condition |  | Reference value       |   |
|---------------------------|---------------|--------------------------------|---------------------|--|-----------------------|---|
|                           |               |                                | Ignition<br>switch  | Operation or condition   |                       |   |
| 5                         | Y/R           | Combination<br>switch input 2  | ON                  | Lighting, turn, wip-<br>er switch<br>(Wiper intermittent<br>dial position 4) | OFF                   | Approx. 0 V   |
|                           |               |                                |                     |  | Rear washer switch    |  <p style="text-align: right;">PKIB4959J</p>   |
|                           |               |                                |                     |  | Rear wiper switch ON  |  <p style="text-align: right;">PKIB4955J</p>   |
| 6                         | Y/G           | Combination<br>switch input 1  | ON                  | Lighting, turn, wip-<br>er switch<br>(Wiper intermittent<br>dial position 4) | OFF                   | Approx. 0 V   |
|                           |               |                                |                     |  | Rear wiper switch INT |  <p style="text-align: right;">PKIB4959J</p>  |
| 33                        | G             | Combination<br>switch output 4 | ON                  | Lighting, turn, wip-<br>er switch<br>(Wiper intermittent<br>dial position 4) | OFF                   |  <p style="text-align: right;">PKIB4960J</p> |
|                           |               |                                |                     |  | Rear wiper switch INT |  <p style="text-align: right;">PKIB4958J</p> |

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Terminal No. | Wire color | Signal name                    | Measuring condition |   | Reference value  |
|--------------|------------|--------------------------------|---------------------|---|--|
|              |            |                                | Ignition switch     | Operation or condition  |  |
| 34           | W/L        | Combination switch output 3    | ON                  | Lighting, turn, wiper switch (Wiper intermittent dial position 4) |  <p>Approx. 7.2 V</p> |
|              |            |                                |                     | Rear washer switch  |  <p>Approx. 1.2 V</p> |
| 38           | W/L        | Ignition switch (ON)           | ON                  | —   | Battery voltage  |
| 39           | L          | CAN – H                        | —                   | —   | —  |
| 40           | P          | CAN – L                        | —                   | —   | —  |
| 42           | GY         | Battery power supply           | OFF                 | —   | Battery voltage  |
| 52           | B          | Ground                         | ON                  | —   | Approx. 0 V  |
| 55           | R          | Battery power supply           | OFF                 | —   | Battery voltage  |
| 59           | OR         | Rear wiper auto stop signal    | ON                  | Rear wiper operates   | Approx. 0 V  |
|              |            |                                |                     | Rear wiper does not operate                                       | Battery voltage  |
| 70           | SB         | Rear wiper motor output signal | ON                  | Rear wiper operates   | Battery voltage  |
|              |            |                                |                     | Rear wiper does not operate                                       | Approx. 0 V  |

## How to Proceed with Trouble Diagnosis

INFOID:000000004655993

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-34. "System Description"](#).
3. Perform preliminary check. Refer to [WW-39. "Preliminary Check"](#).
4. Check symptom and repair or replace the cause of malfunction.
5. Does rear wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

## Preliminary Check

INFOID:000000004655994

### CHECK POWER SUPPLY AND GROUND CIRCUIT

#### 1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

| Unit             | Power source         | Fuse and fusible link No. |
|------------------|----------------------|---------------------------|
| Rear washer pump | Ignition ON or START | 84                        |

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Unit | Power source         | Fuse and fusible link No. |
|------|----------------------|---------------------------|
| BCM  | Ignition ON or START | 1                         |
|      | Battery              | F                         |
|      |                      | 18                        |

Refer to [WW-36. "Wiring Diagram - WIP/R -"](#).

### OK or NG

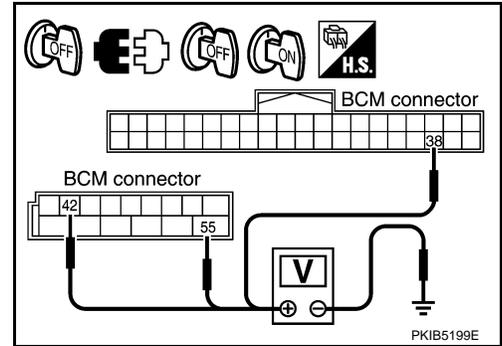
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to [PG-4](#).

## 2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM connector and ground.

| Terminals     |          | (-)             | Ignition switch position |                 |
|---------------|----------|-----------------|--------------------------|-----------------|
| (+)           | Terminal |                 | OFF                      | ON              |
| BCM connector |          | Ground          |                          |                 |
| M90           | 38       |                 | Approx. 0 V              | Battery voltage |
| M91           | 42       |                 | Battery voltage          | Battery voltage |
|               | 55       | Battery voltage | Battery voltage          |                 |



### OK or NG

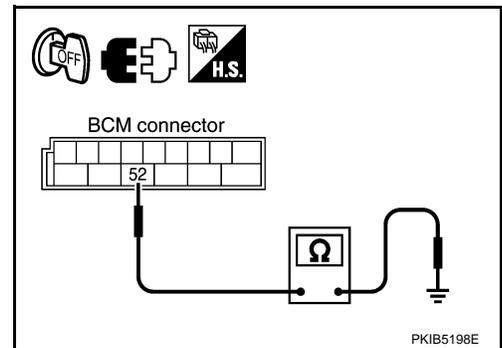
OK >> GO TO 3.

NG >> Repair harness or connector.

## 3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

| BCM connector | Terminal | Ground | Continuity |
|---------------|----------|--------|------------|
| M91           | 52       |        | Yes        |



### OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.

## CONSULT-III Function (BCM)

INFOID:000000004655995

CONSULT-III can display each diagnostic item using the diagnostic test mode shown following.

| BCM diagnosis position | Diagnosis mode | Description   |
|------------------------|----------------|---|
| WIPER                  | DATA MONITOR   | Displays BCM input data in real time.                                 |
|                        | ACTIVE TEST    | Device operation can be checked by applying a drive signal to device. |

## DATA MONITOR

### Display Item List

| Monitor item | Contents   |
|--------------|--|
| IGN ON SW    | "ON/OFF" Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.   |
| IGN SW CAN   | "ON/OFF" Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN communication signal. |

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

| Monitor item                    |          | Contents  |
|---------------------------------|----------|---|
| FR WIPER HI                     | "ON/OFF" | Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.             |
| FR WIPER LOW                    | "ON/OFF" | Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.            |
| FR WIPER INT                    | "ON/OFF" | Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.            |
| FR WASHER SW                    | "ON/OFF" | Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.        |
| INT VOLUME                      | "1 - 7"  | Displays intermittent operation dial position setting (1 - 7) as judged from wiper switch signal. |
| FR WIPER STOP                   | "ON/OFF" | Displays "Stopped (ON)/Operating (OFF)" status as judged from auto-stop signal.                   |
| VEHICLE SPEED                   | "km/h"   | Displays vehicle speed status as judged from vehicle speed signal.                                |
| RR WIPER ON <sup>NOTE 1</sup>   | "ON/OFF" | Displays "Rear Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal.              |
| RR WIPER INT <sup>NOTE 1</sup>  | "ON/OFF" | Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.             |
| RR WASHER SW <sup>NOTE 1</sup>  | "ON/OFF" | Displays "Rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.         |
| RR WIPER STOP <sup>NOTE 1</sup> | "ON/OFF" | Displays "Rear Wiper Stop (ON)/Other (OFF)" status, as judged from wiper switch signal.           |
| RR WIPER STP2 <sup>NOTE 2</sup> | "OFF"    | —   |

### NOTE:

1. Coupe models
2. This item is displayed, but cannot be monitored.

## ACTIVE TEST

### Display Item List

| Test item                         | Display on CONSULTIII screen | Description   |
|-----------------------------------|------------------------------|---|
| Front wiper output                | FR WIPER                     | With a certain operation (OFF, HI, LO, INT), front wiper can be operated. |
| Rear wiper output <sup>NOTE</sup> | RR WIPER                     | Rear wiper can be operated by any ON-OFF operation                        |

### NOTE:

Coupe models

## Rear Wiper Does Not Operate

INFOID:000000004655996

### 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

#### CONSULT-III DATA MONITOR

1. Select "RR WIPER ON" of BCM data monitor item.
2. With operating the wiper switch, check the monitor status.

#### CHECK COMBINATION SWITCH

Refer to [LT-86. "Combination Switch Inspection"](#).

#### OK or NG

OK >> GO TO 2.

NG >> Check combination switch (wiper switch). Refer to [LT-86. "Combination Switch Inspection"](#).

### 2. ACTIVE TEST

#### CONSULT-III ACTIVE TEST

1. Select "REAR WIPER" of BCM active test item.
2. With operating the test item, check that rear wiper operation.

#### GO TO 3

#### Does rear wiper operate normally?

YES >> Replace BCM. Refer to [BCS-15. "Removal and Installation of BCM"](#).

NO >> GO TO 3.

### 3. CHECK BCM

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

With rear wiper switch ON, check voltage between rear wiper motor harness connector and ground.

| Terminals                  |          | Voltage (Approx.) |
|----------------------------|----------|-------------------|
| (+)                        | (-)      |                   |
| Rear wiper motor connector | Terminal | Ground            |
| D106                       | 4        |                   |

### OK or NG

- OK >> GO TO 4.
- NG >> GO TO 5.

## 4. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear wiper motor connector.
3. Check continuity between rear wiper motor harness connector and ground.

| Rear wiper motor connector | Terminal | Ground | Continuity |
|----------------------------|----------|--------|------------|
| D106                       | 1        |        | Yes        |

### OK or NG

- OK >> Replace rear wiper motor. Refer to [WW-45. "Removal and Installation of Rear Wiper Motor"](#).
- NG >> Repair harness or connector.

## 5. CHECK REAR WIPER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector and rear wiper motor harness connector.

| BCM       |          | Rear wiper motor |          | Continuity |
|-----------|----------|------------------|----------|------------|
| Connector | Terminal | Connector        | Terminal |            |
| B83       | 70       | D106             | 4        | Yes        |

4. Check continuity between BCM harness connector and ground.

| BCM connector | Terminal | Ground | Continuity |
|---------------|----------|--------|------------|
| B83           | 70       |        | No         |

### OK or NG

- OK >> Replace BCM. Refer to [BCS-15. "Removal and Installation of BCM"](#).
- NG >> Repair harness or connector.

## Rear Wiper Does Not Return to Stop Position

INFOID:000000004655997

## 1. CHECK REAR WIPER MOTOR CIRCUIT

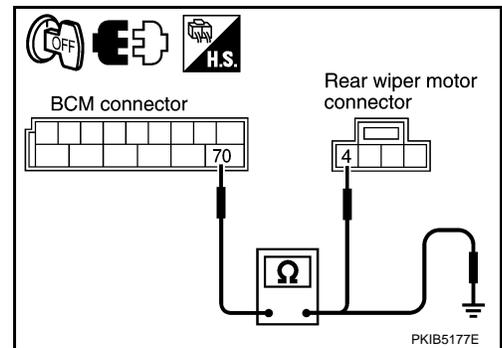
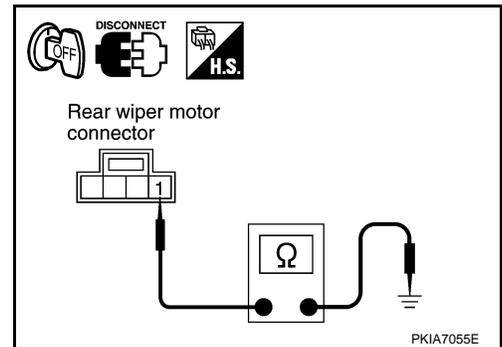
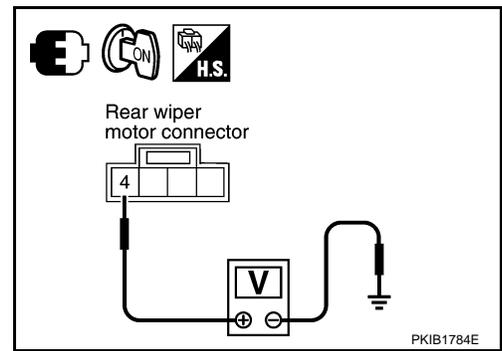
④ With CONSULT-III

1. Select "RR WIPER STOP" of BCM data monitor item.
2. Make sure that "RR WIPER STOP", turn ON-OFF linked with rear wiper switch operation.

⊗ GO TO 2

### OK or NG

- OK >> Replace BCM. Refer to [BCS-15. "Removal and Installation of BCM"](#).
- NG >> GO TO 2.



# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

### 2. CHECK REAR WIPER AUTO STOP CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector and rear wiper motor harness connector.

| BCM       |          | Rear wiper motor |          | Continuity |
|-----------|----------|------------------|----------|------------|
| Connector | Terminal | Connector        | Terminal |            |
| B83       | 59       | D106             | 2        | Yes        |

4. Check continuity between BCM harness connector and ground.

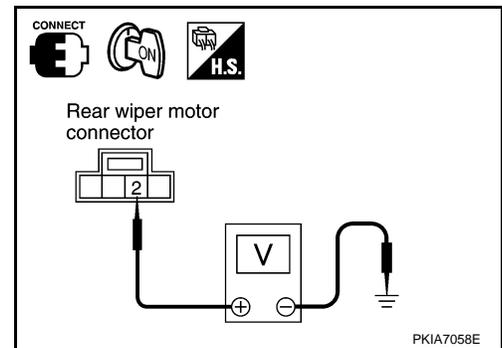
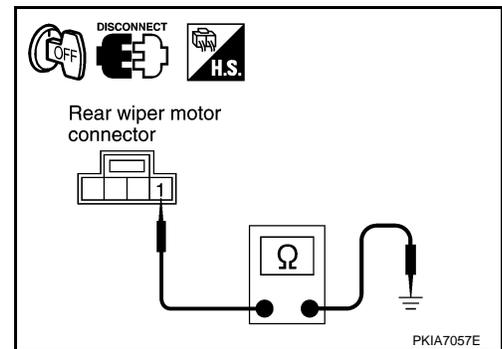
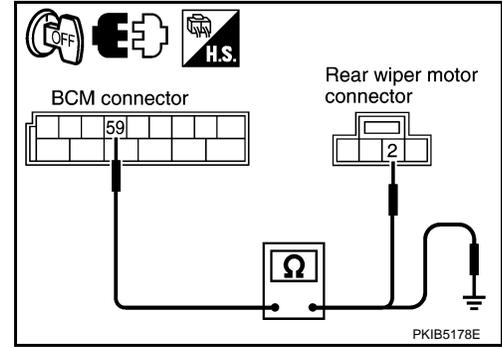
| BCM connector | Terminal | Ground | Continuity |
|---------------|----------|--------|------------|
| B83           | 59       |        | No         |

5. Check continuity between rear wiper motor harness connector and ground.

| Rear wiper motor connector | Terminal | Ground | Continuity |
|----------------------------|----------|--------|------------|
| D106                       | 1        |        | Yes        |

#### OK or NG

- OK >> GO TO 3.  
 NG >> Repair harness or connector.



### 3. CHECK REAR WIPER MOTOR SIGNAL

1. Connect BCM connector and rear wiper motor connector.
2. Turn ignition switch ON.
3. Check voltage between rear wiper motor harness connector terminal and ground while rear wiper motor is stopped and while it is operating.

| Terminals                  |          | Condition       | Voltage (Approx.) |
|----------------------------|----------|-----------------|-------------------|
| (+)                        | (-)      |                 |                   |
| Rear wiper motor connector | Terminal |                 |                   |
| D106                       | 2        | Wiper stopped   | Battery voltage   |
|                            |          | Wiper operating | 0 V               |

#### OK or NG

- OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).  
 NG >> Replace rear wiper motor. Refer to [BCS-15, "Removal and Installation of BCM"](#).

#### Only Rear Wiper ON Does Not Operate

INFOID:000000004655998

Refer to [LT-86, "Combination Switch Inspection"](#).

#### Only Rear Wiper INT Does Not Operate

INFOID:000000004655999

Refer to [LT-86, "Combination Switch Inspection"](#).

#### Wiper Does Not Wipe When Rear Washer Operates

INFOID:000000004656000

Refer to [LT-86, "Combination Switch Inspection"](#).

# REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Rear Wiper Does Not Stop

INFOID:000000004656001

### 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

③ With CONSULT-III

1. Select "BCM" on CONSULT-III, and select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER INT", "RR WIPER ON", and "RR WASHER SW" turn ON-OFF according to wiper switch operation.

⊗ Without CONSULT-III

Refer to [LT-86. "Combination Switch Inspection"](#).

**OK or NG**

- OK >> Replace BCM. Refer to [BCS-15. "Removal and Installation of BCM"](#).  
NG >> Check combination switch (wiper switch). Refer to [LT-86. "Combination Switch Inspection"](#).

## Removal and Installation of Rear Wiper Arm, Adjustment of Wiper Arms Stop Location

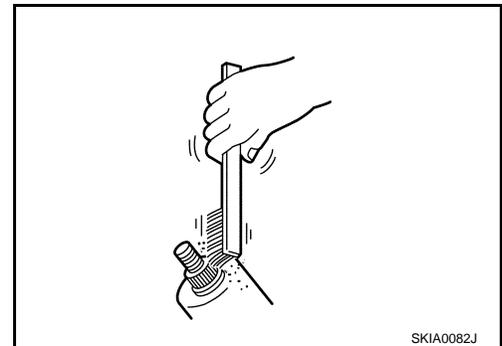
INFOID:000000004656002

### REMOVAL

1. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
2. Remove rear wiper arm cap, and remove rear wiper arm nut.
3. Raise rear wiper arm, and remove rear wiper arm from the vehicle.

### INSTALLATION

1. Clean up the pivot area as shown in the figure. This will reduce possibility of rear wiper arm nut looseness.
2. Prior to rear wiper arm installation, turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).



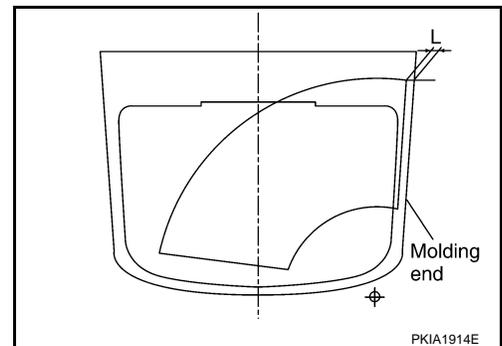
3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L" immediately.
4. Tighten wiper arm nuts to specified torque.

**Rear wiper arm nut**  : 15.2 N·m (1.6 kg·m, 11 ft·lb)

5. Spray washer fluid. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
6. Make sure that wiper blade stop within clearance "L".

**Clearance "L"** : 30 ± 7.5 mm (1.181 ± 0.295 in)

7. Install rear wiper arm caps.

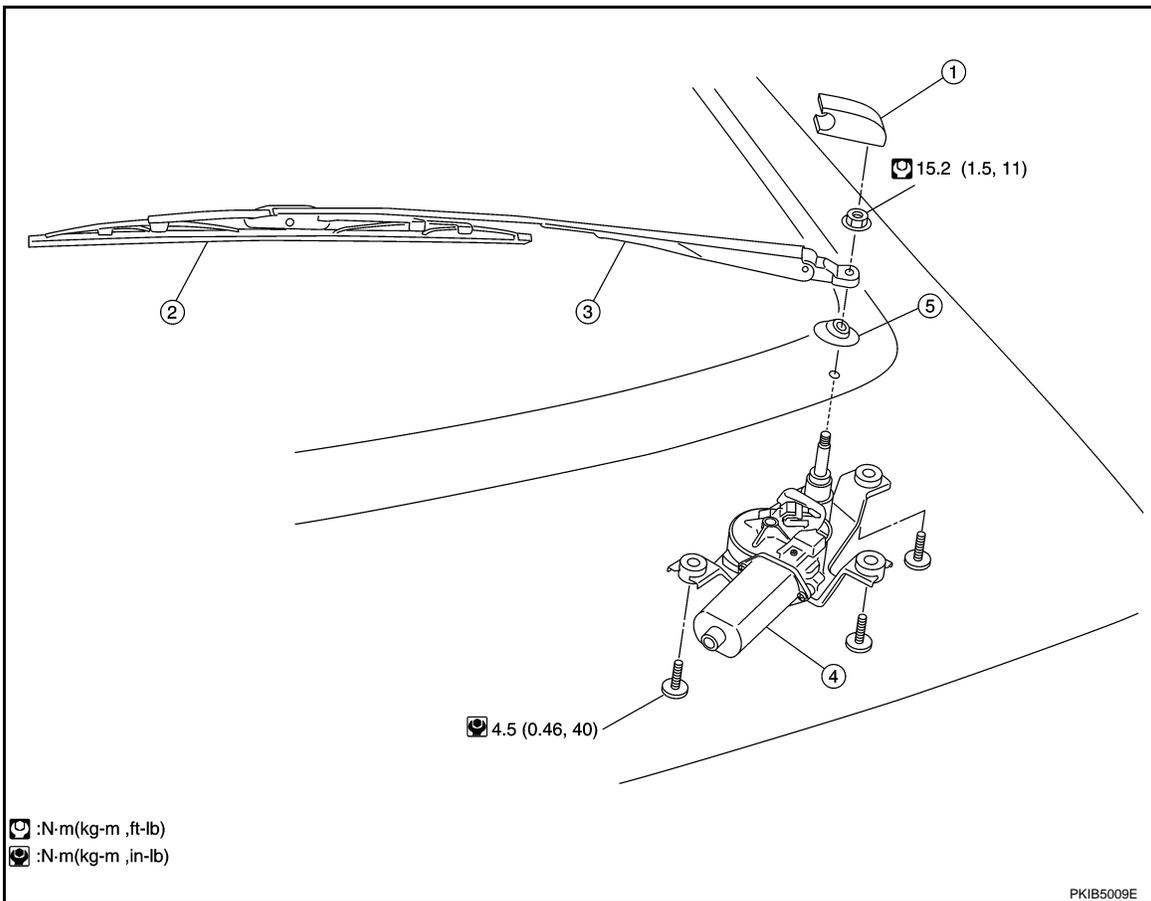


# REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

## Removal and Installation of Rear Wiper Motor

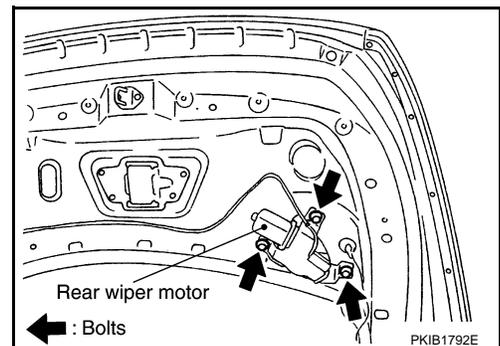
INFOID:000000004656003



- |                     |                |              |
|---------------------|----------------|--------------|
| 1. Cover wiper arm  | 2. Wiper blade | 3. Wiper arm |
| 4. Rear wiper motor | 5. Pivot cap   |              |

### REMOVAL

1. Remove rear wiper arm. Refer to [WW-44, "Removal and Installation of Rear Wiper Arm. Adjustment of Wiper Arms Stop Location"](#).
2. Remove pivot cap.
3. Remove back door finisher lower. Refer to [EI-42, "Removal and Installation \(for Coupe Models\)"](#).
4. Disconnect rear wiper motor connector.
5. Remove rear wiper motor mounting bolts and remove rear wiper motor from the vehicle.



### INSTALLATION

1. Install rear wiper motor to the vehicle.

**Rear wiper motor mounting bolts**  : 4.5 N-m (0.46 kg-m, 40 in-lb)

2. Install pivot cap.
3. Connect rear wiper motor connector. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
4. Install back door finisher lower. Refer to [EI-42, "Removal and Installation \(for Coupe Models\)"](#).

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

5. Install rear wiper arm and arm cap. Refer to [WW-44, "Removal and Installation of Rear Wiper Arm, Adjustment of Wiper Arms Stop Location"](#).

### CAUTION:

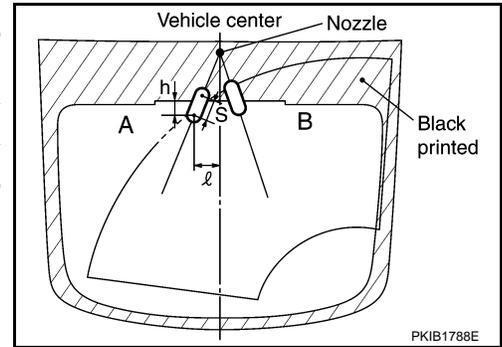
Never drop the rear wiper motor nor cause it to interfere with other parts.

## Washer Nozzle Adjustment

INFOID:000000004656004

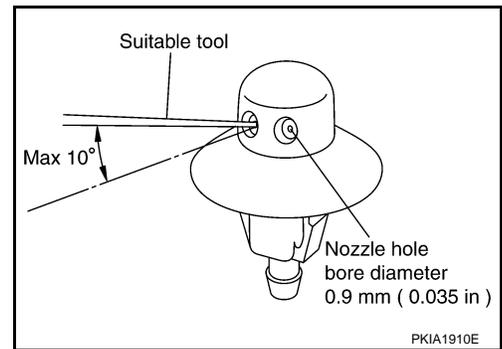
Adjust spray position as shown in the figure.

| Unit: mm (in)  |            |           |           |                                 |
|----------------|------------|-----------|-----------|---------------------------------|
| Spray position | h (height) | ℓ (width) | S         | Diameter (spray position range) |
| A              | 30 (1.18)  | 73 (2.87) | 50 (1.97) | 30                              |
| B              | 12 (0.47)  | 50 (1.97) | 50 (1.97) | 30                              |



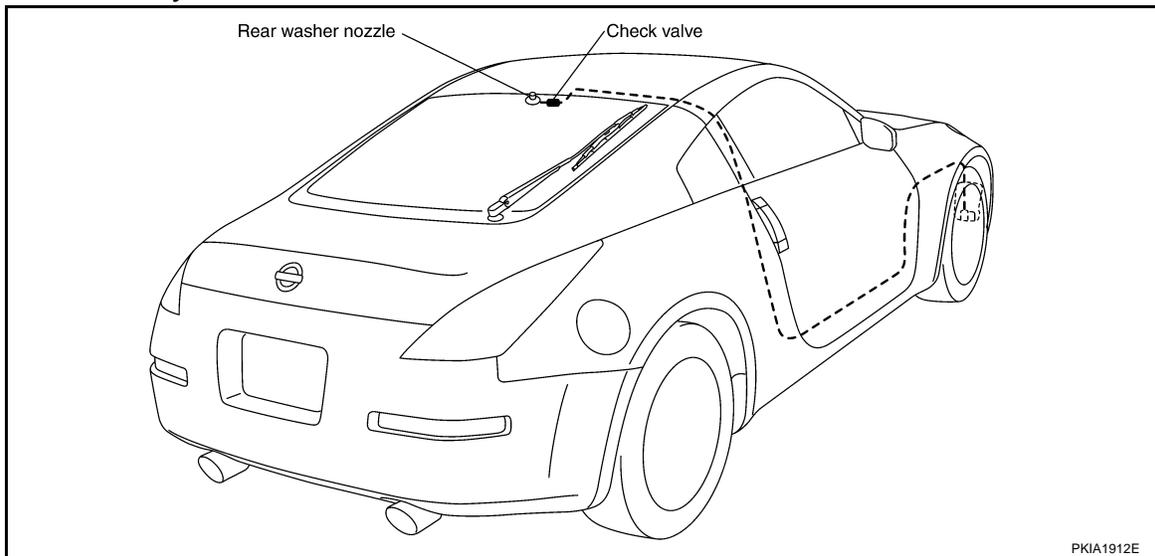
Adjust washer nozzle with suitable tool as shown in the figure.

**Adjustable range : ±10° (In any direction)**



## Washer Tube Layout

INFOID:000000004656005



## Removal and Installation of Rear Washer Nozzle

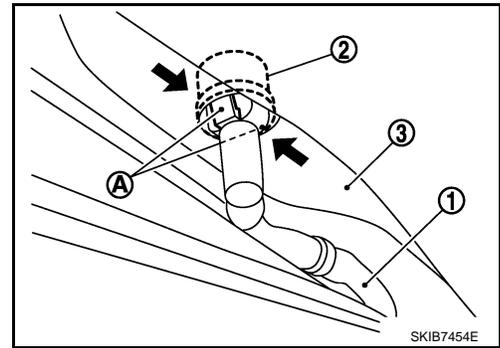
INFOID:000000004656006

### REMOVAL

# REAR WIPER AND WASHER SYSTEM

## < SERVICE INFORMATION >

1. Remove washer tube(1).
2. While pressing pawl (A) on the reverse side of rear washer nozzle (2), remove rear washer nozzle (2) from back door (3).



## INSTALLATION

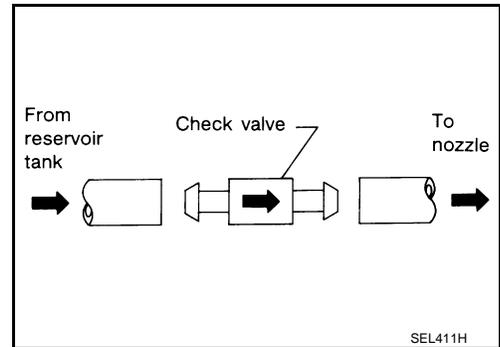
Installation is the reverse order of removal. Adjust nozzle spray location. Refer to [WW-46, "Washer Nozzle Adjustment"](#).

## Inspection for Washer Nozzle

INFOID:000000004656007

## CHECK VALVE INSPECTION

A check valve is provided in washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.



## Inspection of Rear Wiper and Washer Switch Circuit

INFOID:000000004656008

Refer to [WW-32, "Removal and Installation of Front Wiper and Washer Switch"](#).

## Removal and Installation of Rear Wiper and Washer Switch

INFOID:000000004656009

Refer to [WW-32, "Removal and Installation of Front Wiper and Washer Switch"](#).

## Removal and Installation of Washer Tank

INFOID:000000004656010

Refer to [WW-32, "Removal and Installation of Washer Tank"](#).

## Removal and Installation of Washer Pump

INFOID:000000004656011

Refer to [WW-33, "Removal and Installation of Washer Pump"](#).

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

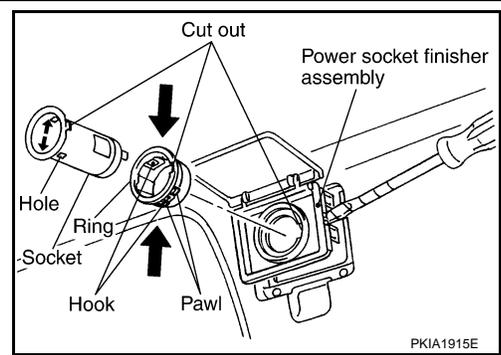
WW



# POWER SOCKET

## < SERVICE INFORMATION >

1. Remove power socket finisher assembly using a clip driver or a suitable tool.
2. Disconnect power socket connector.
3. Remove inner socket from ring. While pressing hook on ring out from square hole.
4. Remove ring from power socket finisher while pressing pawls.



## INSTALLATION

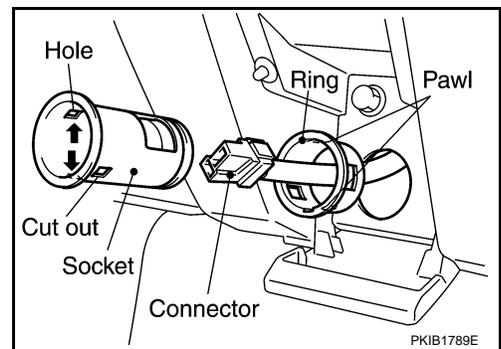
Installation is the reverse order of removal.

## Removal and Installation (Instrument Passenger Panel Lower)

INFOID:000000004656014

## REMOVAL

1. Remove socket using a clip driver or a suitable tool that pressing pawls in socket hole.
2. Disconnect power socket connector.
3. Remove ring from instrument passenger panel lower.



## INSTALLATION

Installation is the reverse order of removal.

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

WW

# HORN

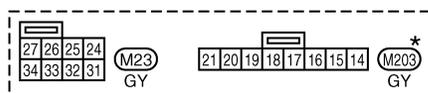
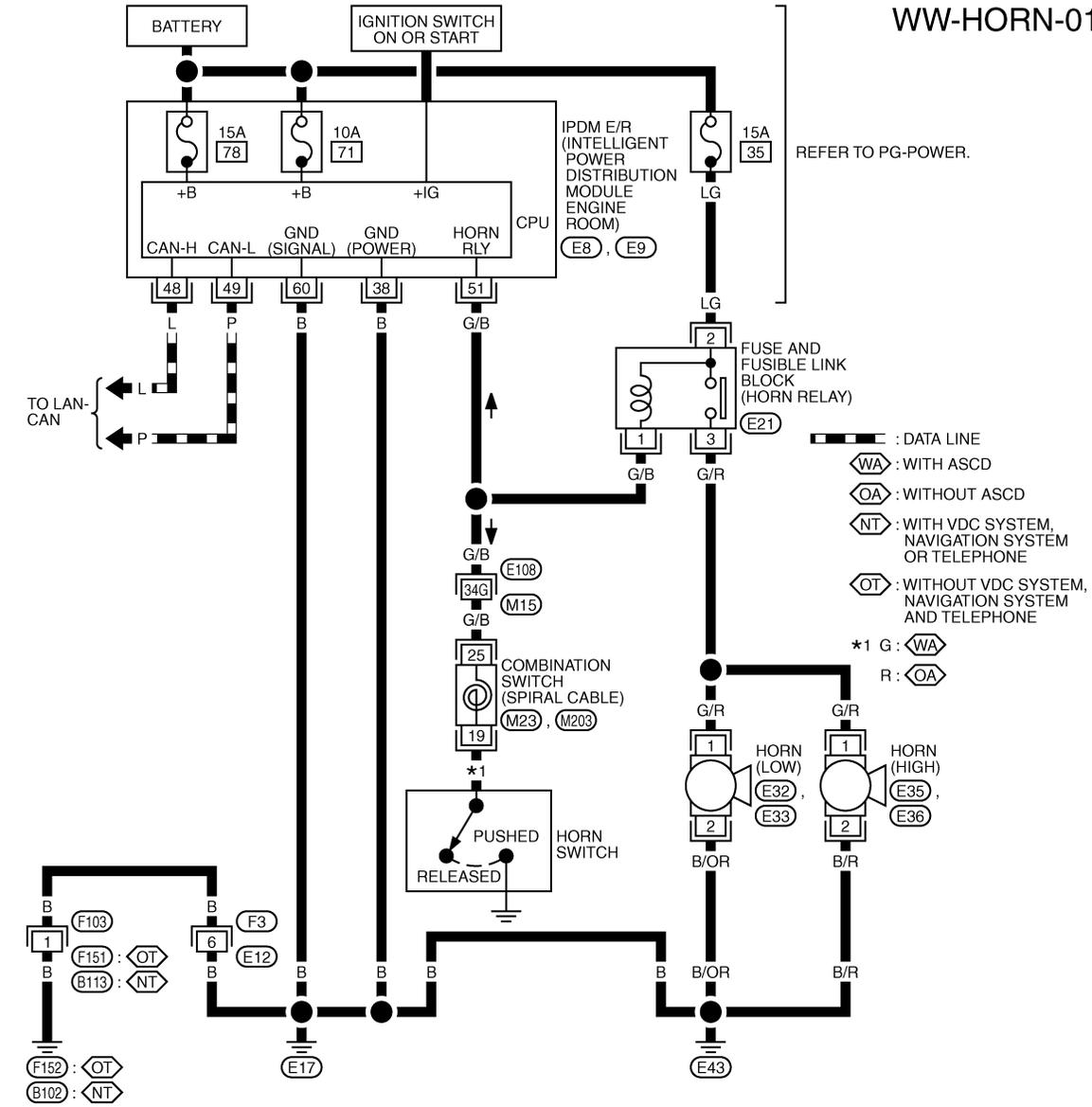
< SERVICE INFORMATION >

## HORN

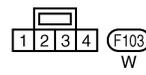
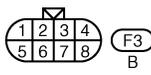
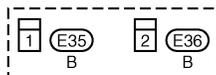
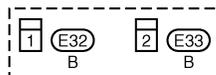
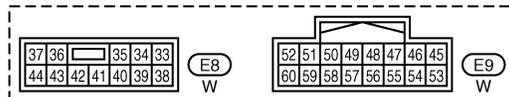
### Wiring Diagram - HORN -

INFOID:000000004656015

WW-HORN-01



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT", PG SECTION.



REFER TO THE FOLLOWING.

(E108) -SUPER MULTIPLE JUNCTION (SMJ)

TKWT5741E

## Removal and Installation

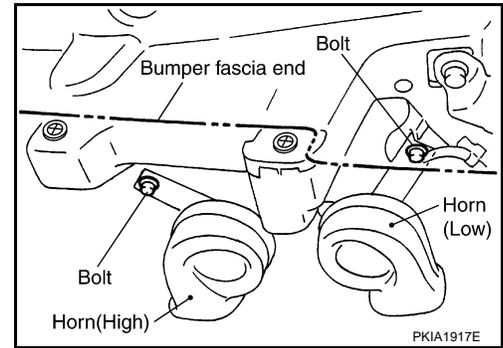
### REMOVAL

INFOID:000000004656016

# HORN

## < SERVICE INFORMATION >

1. Disconnect all horn connectors.
2. Remove horn mounting bolt and remove horn from vehicle.



## INSTALLATION

Tighten horn bolt to specified torque.

**Horn mounting bolt**  : 5.7 N·m (0.58 kg-m, 50 in-lb)

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

WW