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PRECAUTION

PRECAUTIONS

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

INFOID:0000000010503202

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 “SRS AIR BAG”.**
- **Never 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:

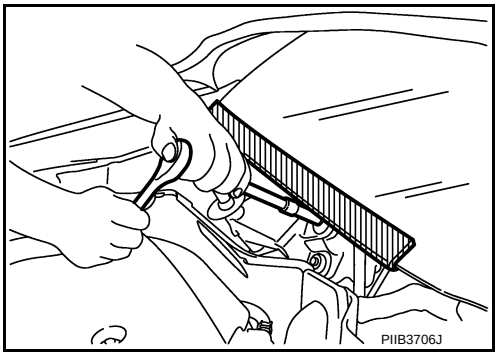
Always observe the following items for preventing accidental activation.

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never 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 Procedure without Cowl Top Cover

INFOID:0000000010430947

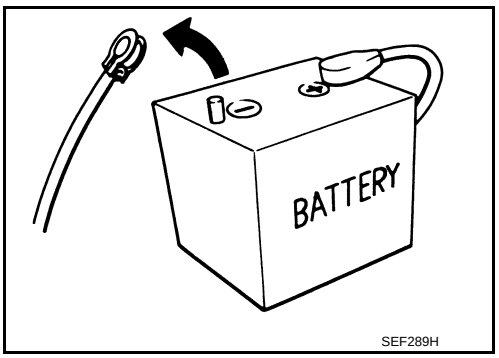
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precautions for Removing Battery Terminal

INFOID:0000000010503203

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.



- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing “How to disconnect 12V battery terminal” described below.
  NOTE:
  Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.
For vehicles parked by ignition switch OFF, refer to Instruction 2.

INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine	: 20 minutes
HRA2DDT	: 12 minutes
K9K engine	: 4 minutes
M9R engine	: 4 minutes
R9M engine	: 4 minutes
V9X engine	: 4 minutes

CAUTION:
While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.
   CAUTION:
   After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

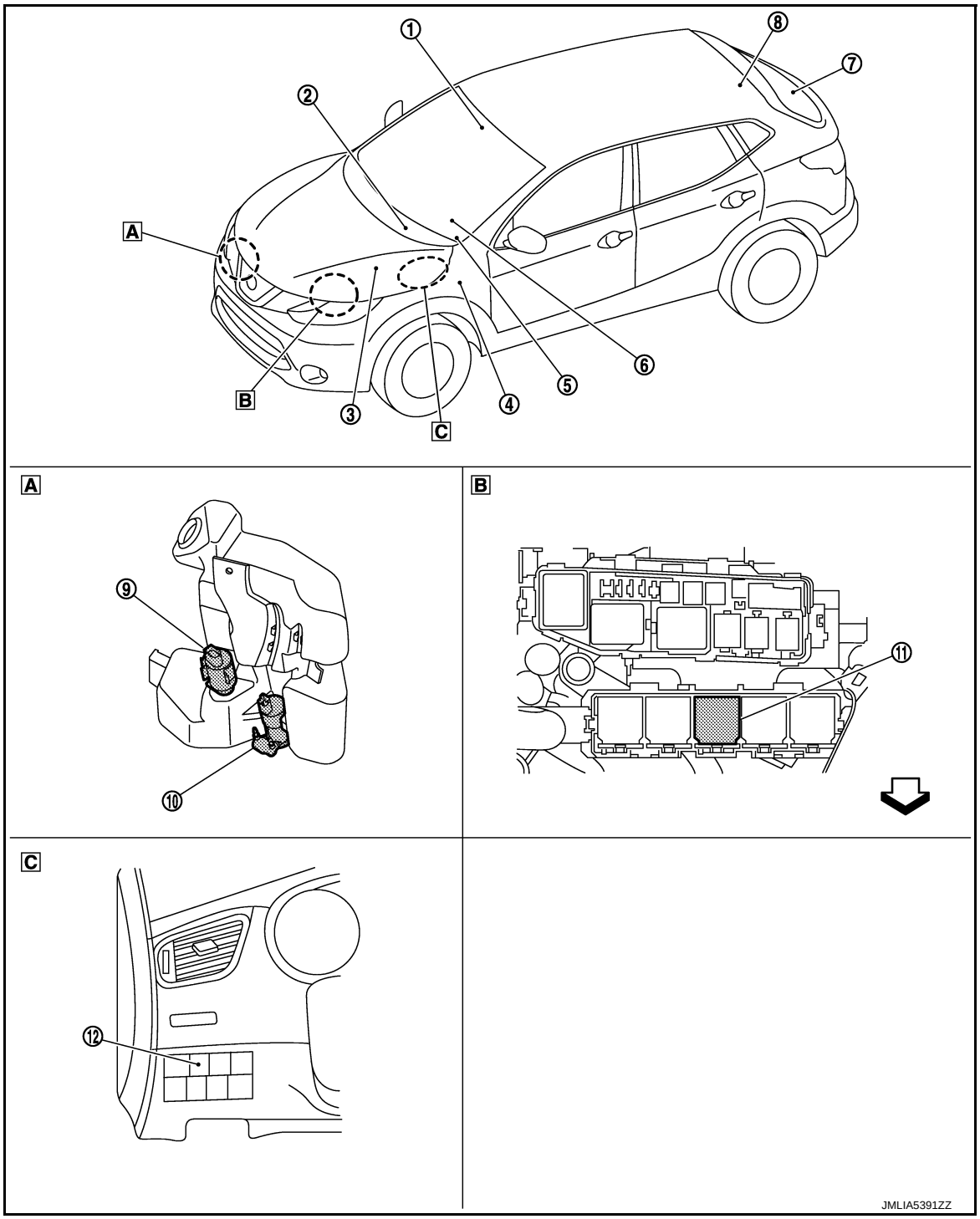
1. Unlock the door with intelligent key or remote keyless entry.
   NOTE:
   At this moment, ACC power is supplied.
2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.
   CAUTION:
   While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.
6. Remove 12V battery terminal.
   CAUTION:
   After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010430950



A Washer tank

B Front side of IPDM E/R

C Instrument lower panel LH

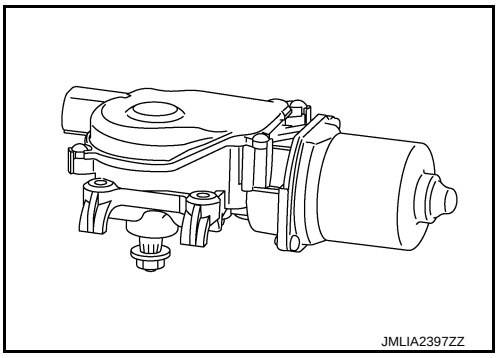
No.	Component	Function
①	Light & Rain sensor*1	Refer to WW-8, "Light & Rain Sensor".
②	Front wiper motor	Refer to WW-7, "Front Wiper Motor".
③	IPDM E/R	• Controls integrated relays according to the request (via CAN communication) from BCM. • Transmits reverse switch signal to BCM via CAN communication. Refer to PCS-5, "Component Parts Location" for detailed installation location.
④	BCM	• Judges each switch status by the combination switch reading function. • Requests (via CAN communication) the front wiper relay and the front wiper HI/LO relay ON to IPDM E/R. • Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
⑤	Combination meter	Transmits vehicle speed signal to BCM via CAN communication.
⑥	Combination switch (Wiper & washer switch)	• Combination switch: Transmits the status of the combination switch (wiper and washer) to BCM. • Wash switch: Refer to WW-8, "Headlamp Washer Switch".
⑦	Rear wiper motor	Refer to WW-8, "Rear Wiper Motor".
⑧	Pump control unit*2	Controls washer pump according to the request from combination switch. Refer to DAS-13, "Component Parts Location" for detailed installation location.
⑨	Headlamp washer pump*3	Refer to WW-7, "Headlamp Washer Pump".
⑩	Washer pump	Refer to WW-9, "Washer Pump".
⑪	Headlamp washer relay*3	Headlamp washer relay is controlled by IPDM E/R and supplies power to headlamp washer pump.
⑫	Headlamp washer switch*4	Refer to WW-8, "Headlamp Washer Switch".

*1: With light & rain sensor
*2: With around view monitor
*3: With headlamp washer
*4: For Russia

Front Wiper Motor

INFOID:0000000010430953

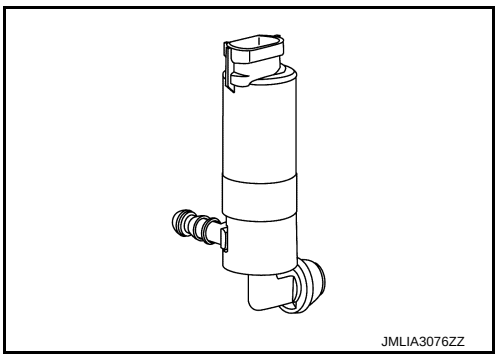
- Controls front wiper operation with IPDM E/R control.
- Transmits front wiper stop position signal to IPDM E/R.


JMLIA2397ZZ

Headlamp Washer Pump

INFOID:0000000010430955

Washer fluid is sprayed according to the power supply from headlamp washer relay.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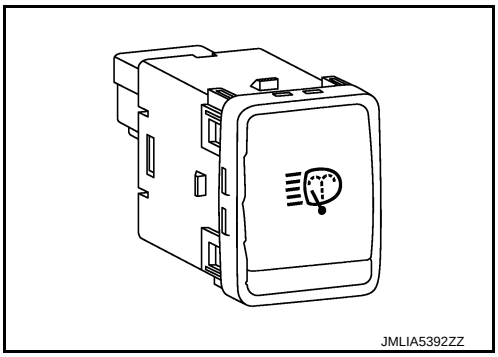
Headlamp Washer Switch

INFOID:0000000010430952

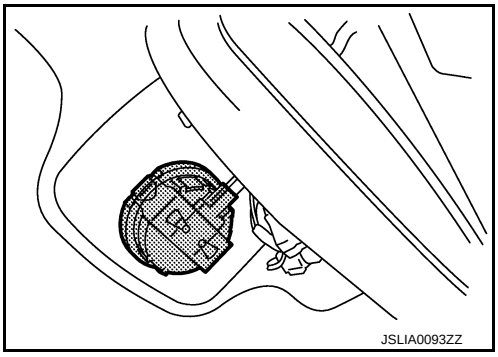
When headlamp washer switch is pressed, headlamp washer switch transmits the switch status to BCM.



Light & Rain Sensor

INFOID:0000000010430951

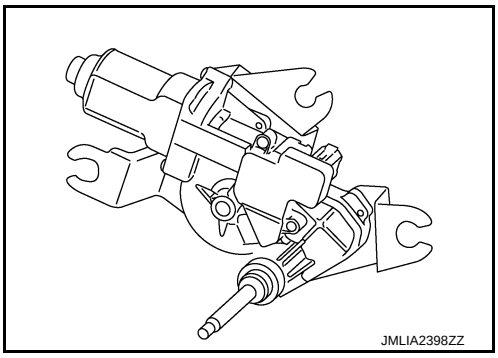
Detects water droplets on the windshield with infrared rays, and transmits the rain sensor signal to BCM via the rain sensor serial link.



Rear Wiper Motor

INFOID:0000000010503208

- Controls rear wiper operation with BCM control.
- Transmits rear wiper stop position signal to BCM.



Washer Switch

INFOID:0000000010721598

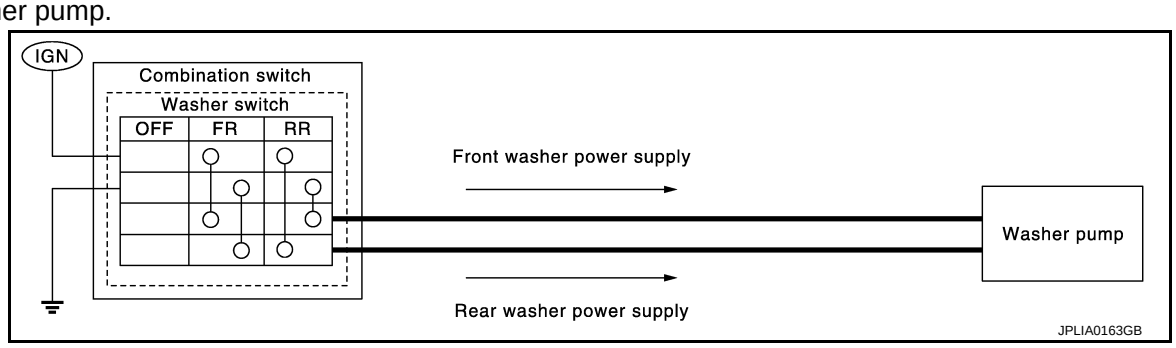
WITH AROUND VIEW MONITOR

- Washer switch is integrated with combination switch.
- When washer switch is pressed, combination switch transmits washer switch signal to pump control unit to control washer pump.

WITHOUT AROUND VIEW MONITOR

- Washer switch is integrated with combination switch.

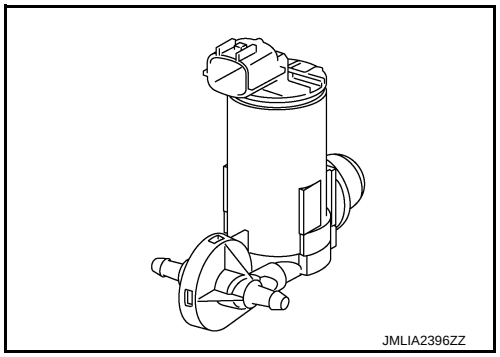
- Combination switch operates front washer or rear washer by changing voltage polarity to be supplied to washer pump.



Washer Pump

INFOID:0000000010430956

Washer fluid is sprayed according to washer switch states.



SYSTEM

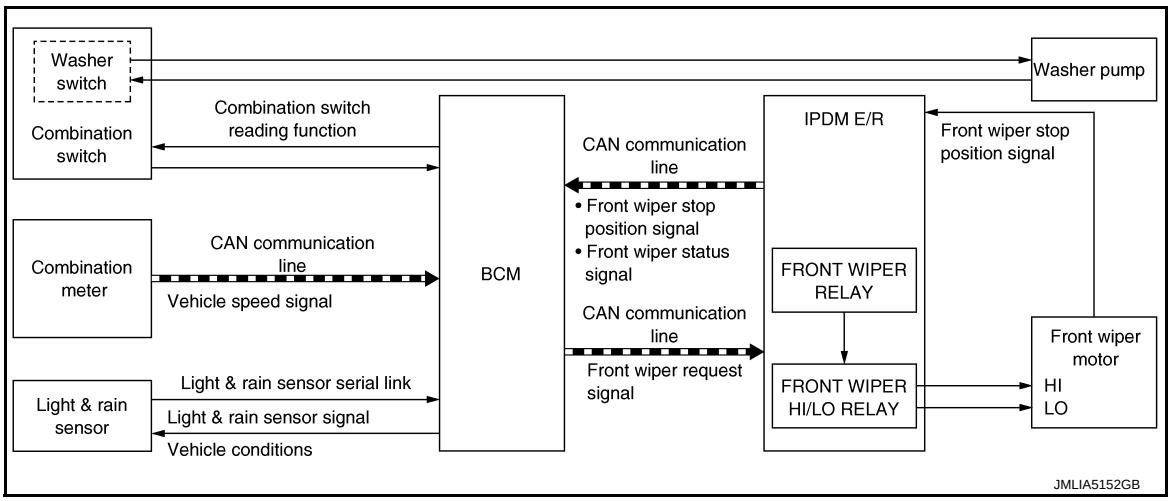
FRONT WIPER AND WASHER SYSTEM (WITH LIGHT & RAIN SENSOR)

FRONT WIPER AND WASHER SYSTEM (WITH LIGHT & RAIN SENSOR) : System Description

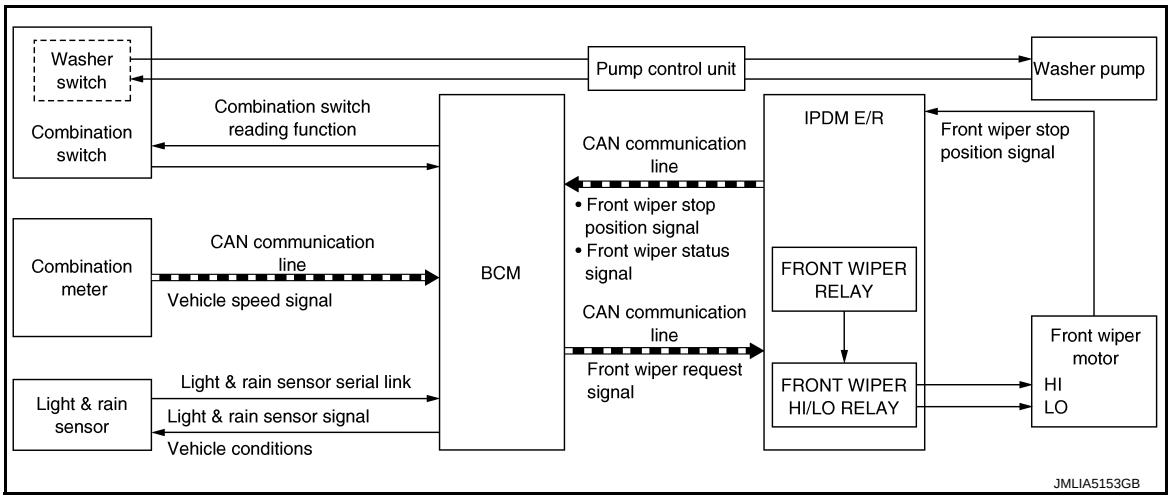
INFOID:0000000010430957

SYSTEM DIAGRAM

Without Around View Monitor



With Around View Monitor



OUTLINE

The front wiper is controlled by each function of BCM and IPDM E/R.

Control by BCM
- Combination switch reading function
- Front wiper control function

Control by IPDM E/R
- Front wiper control function
- Relay control function

FRONT WIPER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front wiper request signal to IPDM E/R via CAN communication depending on each operating condition of the front wiper.
- IPDM E/R turns ON/OFF the integrated front wiper relay and the front wiper HI/LO relay according to the front wiper request signal. IPDM E/R provides the power supply to operate the front wiper HI/LO operation.

FRONT WIPER LO OPERATION

- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication according to the front wiper LO operating condition.

Front wiper LO operating condition
- Ignition switch ON
- Front wiper switch LO or front wiper switch MIST (while pressing)

- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LOW).

FRONT WIPER HI OPERATION

- BCM transmits the front wiper request signal (HIGH) to IPDM E/R via CAN communication according to the front wiper HI operating condition.

Front wiper HI operating condition
- Ignition switch ON
- Front wiper switch HI

- IPDM E/R turns ON the integrated front wiper relay and the front wiper HI/LO relay according to the front wiper request signal (HIGH).

FRONT WIPER AUTO OPERATION

Rain Detection

Rain level and sensor conditions are detected by light & rain sensor.

- BCM transmits the vehicle conditions (vehicle speed, front wiper condition, light & rain sensor sensitivity setting, etc.) to the light & rain sensor via the light & rain sensor serial link.
- Light & rain sensor judges a wiping speed for front wiper by rain condition and the vehicle conditions. And it transmits the wiping speed request signal to the BCM via the light & rain sensor serial link.

Auto Wiping Operation

- BCM receives the wiping speed request signal from the light & rain sensor via the light & rain sensor serial link.
- BCM controls front wiper operation according to the wiping speed request signal. And it transmits the front wiper request signal (LOW or HIGH) to the IPDM E/R via CAN communication line.

Front wiper AUTO operating condition
- Ignition switch ON
- Front wiper switch AUTO

NOTE:
When the front wiper switch is turned to AUTO position, front wiper operates once regardless of rainy conditions.

Light & rain Sensor Sensitivity Setting

BCM determines light & rain sensor sensitivity according to wiper volume dial position.

Wiper volume dial position	Sensitivity
1	Low sensitivity
2	Low–medium sensitivity
3	Medium–high sensitivity
4	High sensitivity

NOTE:
Factory setting of the light & rain sensor operation is operation linked with light & rain sensor. Light & rain sensor operation can be set to operation linked or not linked with light & rain sensor using CONSULT. Refer to WW-23, "WIPER : CONSULT Function - WIPER".

NOTE:
When the wiper volume dial position is turned up by 1 level under front wiper AUTO operating condition, front wiper operates once.

Splash mode operation

Front wiper is operated at HI regardless of the wiper volume adjustment position, when water drops are instantaneously sprayed over the windshield glass due to water splash from oncoming vehicles or other causes. After that, AUTO operation is performed depending on the amount of water drops.

SPLASH MODE OPERATION CONDITIONS

- Front wiper switch AUTO
- Ignition switch ON

NOTE:
Splash mode is not operated and auto wiping operation is performed, while the vehicle is stopped.

FRONT WIPER AUTO STOP OPERATION

- BCM transmits the front wiper request signal (RETURN) to IPDM E/R via CAN communication when the front wiper switch is turned OFF.
- IPDM E/R detects the front wiper stop position signal from the front wiper motor to find out the front wiper motor position (stop position/except stop position).
- When IPDM E/R receives the front wiper request signal (RETURN) from BCM and the front wiper motor position is not in the stop position, IPDM E/R turns ON the front wiper relay until the front wiper motor returns to the stop position.
- When the front wiper motor returns to the stop position, IPDM E/R transmits front wiper status signal to BCM via CAN communication.
- When BCM receives front wiper status signal from IPDM, BCM transmits the front wiper request signal (STOP) to IPDM E/R via CAN communication.

FRONT WIPER OPERATION LINKED WITH WASHER

- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication according to the washer linked operating condition of the front wiper.
- BCM transmits the front wiper request signal (LOW) so that the front wiper operates approximately 2 times when the front washer switch OFF is detected.

Washer linked operating condition of front wiper

- Ignition switch ON
- Front washer switch ON (0.4 second or more)

- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LOW).
- For models without around view monitor: The washer pump is grounded through the combination switch with the front washer switch ON.
- For models with around view monitor: Pump control unit detects front window washer switch signal from combination switch and controls the washer pump.

FRONT WIPER DROP WIPE OPERATION

- BCM controls the front wiper to operate once according to the conditions of front wiper drop wipe operation.

Front wiper drop wipe operating condition

- Ignition switch ON
- Front wiper switch OFF
- Front washer switch OFF

- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication so that the front wiper operates once at 3 seconds after front wiper operation linked with washer.

NOTE:
Factory setting of the front wiper drop wipe operation is ON. Front wiper drop wipe operation can be set to ON or OFF using CONSULT. Refer to WW-23, "WIPER : CONSULT Function - WIPER".

FRONT WIPER SERVICE POSITION OPERATION

- Front wiper operates at LO and stops so that front wiper can be locked back without interfere the hood.
- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication for 0.6 seconds according to the conditions of front wiper service position operation.

Front wiper service position operation conditions (Within 1 minute after turning ignition switch Off)

- Front wiper switch is OFF
- Front wiper is in stop position
- Front wiper switch MIST is operated 2 times (Within 0.47 second)

Front wiper service position operation conditions (During ignition switch is On)

- Front wiper switch is OFF
- Front wiper is in stop position
- Vehicle speed is less than 4 km/h
- Front wiper switch MIST is operated 2 times (Within 0.47 second)

- After the front wiper LO operation, IPDM receives the front wiper request signal (STOP) from BCM and then stops the front wiper.

- Front wiper returns to stop position when front wiper switch is operated. (If 1 minute or more is passed after turning ignition switch OFF, front wiper returns to stop position when ignition switch is turned ON and front wiper switch is operated.)

FRONT WIPER AND WASHER SYSTEM (WITH LIGHT & RAIN SENSOR) : Fail-safe

INFOID:0000000010430959

IPDM E/R

If No CAN Communication Is Available With BCM

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

Control part	Fail-safe operation
Front wiper motor	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the AUTO mode and the front wiper motor is operating.

Front Wiper Protection Function

IPDM E/R detects front wiper stop position by front wiper stop position signal.

When front wiper stop position signal is in the condition listed below while the front wiper is operating, IPDM E/R activates the fail-safe.

Ignition switch	Front wiper switch	Front wiper stop position signal	Fail-safe
ON	OFF	The signal does not change from the battery voltage for 10 seconds.	Stops front wiper power supply for 20 seconds
	Except OFF	The signal does not change for 10 seconds.	

BCM

Fail-safe Control By Light & Rain Sensor Malfunction

BCM detects the light & rain sensor serial link error and the light & rain sensor malfunction.

BCM controls the following fail-safe when light & rain sensor has a malfunction.

- Front wiper switch AUTO and sensing rain drop: The condition just before the activation of fail-safe is maintained until the front wiper switch is turned OFF.
- Front wiper switch AUTO and not sensing rain drop: Front wiper is LO operation until the front wiper switch is turned off.

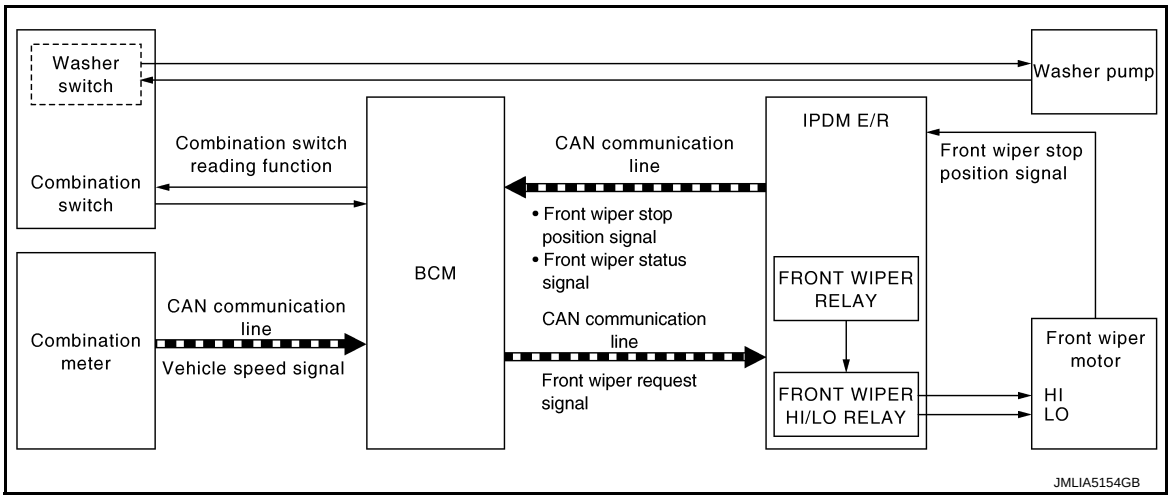
FRONT WIPER AND WASHER SYSTEM (WITHOUT LIGHT & RAIN SENSOR)

FRONT WIPER AND WASHER SYSTEM (WITHOUT LIGHT & RAIN SENSOR) : System Description

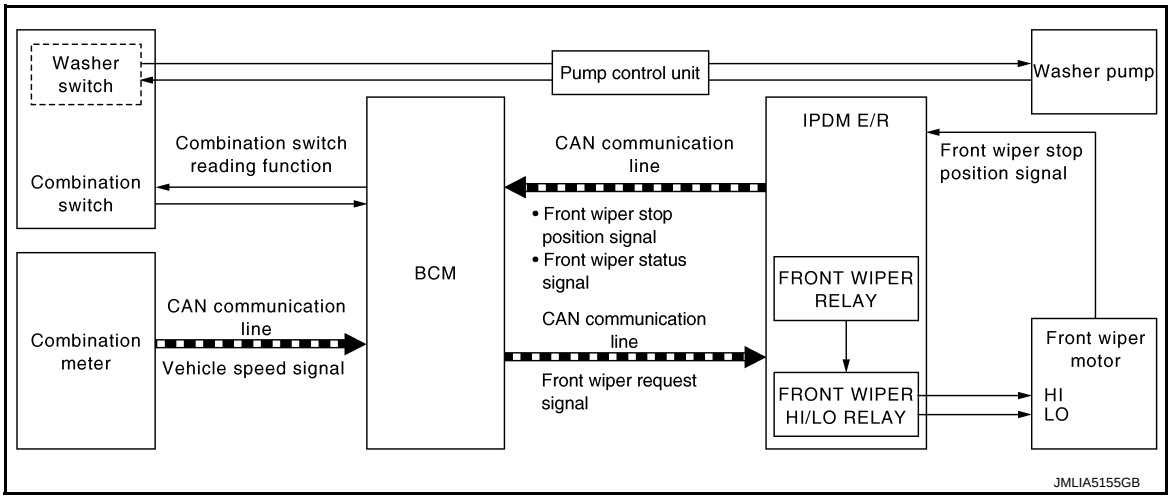
INFOID:0000000010430960

SYSTEM DIAGRAM

Without Around View Monitor



With Around View Monitor



OUTLINE

The front wiper is controlled by each function of BCM and IPDM E/R.

Control by BCM
- Combination switch reading function
- Front wiper control function

Control by IPDM E/R
- Front wiper control function
- Relay control function

FRONT WIPER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front wiper request signal to IPDM E/R via CAN communication depending on each operating condition of the front wiper.
- IPDM E/R turns ON/OFF the integrated front wiper relay and the front wiper HI/LO relay according to the front wiper request signal. IPDM E/R provides the power supply to operate the front wiper HI/LO operation.

FRONT WIPER LO OPERATION

- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication according to the front wiper LO operating condition.

Front wiper LO operating condition
- Ignition switch ON
- Front wiper switch LO or front wiper switch MIST (while pressing)
- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LOW).

FRONT WIPER HI OPERATION

- BCM transmits the front wiper request signal (HIGH) to IPDM E/R via CAN communication according to the front wiper HI operating condition.

Front wiper HI operating condition
- Ignition switch ON
- Front wiper switch HI

- IPDM E/R turns ON the integrated front wiper relay and the front wiper HI/LO relay according to the front wiper request signal (HIGH).

FRONT WIPER INT OPERATION

- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication depending on the front wiper INT operating condition and intermittent operation delay interval according to the wiper volume dial position.

Front wiper INT operating condition
- Ignition switch ON
- Front wiper switch INT

- IPDM E/R turns ON the integrated front wiper relay so that the front wiper is operated only once according to the front wiper request signal (LOW) and front wiper request signal (RETURN).
- BCM detects stop position/except stop position of the front wiper motor according to the front wiper stop position signal received from IPDM E/R via CAN communication.
- BCM transmits the front wiper request signal (LOW) again after the intermittent operation delay interval.

NOTE:
Front wiper INT operation can be set to operation linked or not linked with vehicle speed using CONSULT. Refer to WW-23, "WIPER : CONSULT Function - WIPER".

Front wiper intermittent operation with vehicle speed
- BCM calculates the intermittent operation delay interval from the following
- Vehicle speed signal
- Wiper volume dial position

Intermittent operation delay Interval

Unit: Second

Wiper volume dial position	Intermittent operation interval	Vehicle speed		
		0 – 5 km/h (0 – 3.1 MPH)	5 – 65 km/h (3.1 – 40.4 MPH)*	65 km/h (40.4 MPH) or more
1	Long ↑	62.5	25	15
2		31.25	12.5	7.5
3		18.75	7.5	4.5
4	↓	12.5	5	3
5	Short	6.25	2.5	1.5

*: When operation setting is not linked with vehicle speed.

FRONT WIPER AUTO STOP OPERATION

- BCM transmits the front wiper request signal (RETURN) to IPDM E/R via CAN communication when the front wiper switch is turned OFF.
- IPDM E/R detects the front wiper stop position signal from the front wiper motor to find out the front wiper motor position (stop position/except stop position).
- When IPDM E/R receives the front wiper request signal (RETURN) from BCM and the front wiper motor position is not in the stop position, IPDM E/R turns ON the front wiper relay until the front wiper motor returns to the stop position.
- When the front wiper motor returns to the stop position, IPDM E/R transmits front wiper status signal to BCM via CAN communication.
- When BCM receives front wiper status signal from IPDM, BCM transmits the front wiper request signal (STOP) to IPDM E/R via CAN communication.

FRONT WIPER OPERATION LINKED WITH WASHER

- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication according to the washer linked operating condition of the front wiper.
- BCM transmits the front wiper request signal (LOW) so that the front wiper operates approximately 2 times when the front washer switch OFF is detected.

Washer linked operating condition of front wiper
- Ignition switch ON
- Front washer switch ON (0.4 second or more)
- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LOW).
- For models without around view monitor: The washer pump is grounded through the combination switch with the front washer switch ON.
- For models with around view monitor: Pump control unit detects front window washer switch signal from combination switch and controls the washer pump.

FRONT WIPER DROP WIPE OPERATION

- BCM controls the front wiper to operate once according to the conditions of front wiper drop wipe operation.

Front wiper drop wipe operating condition
- Ignition switch ON
- Front wiper switch OFF
- Front washer switch OFF
- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication so that the front wiper operates once at 3 seconds after front wiper operation linked with washer.

NOTE:
Factory setting of the front wiper drop wipe operation is ON. Front wiper drop wipe operation can be set to ON or OFF using CONSULT. Refer to WW-23, "WIPER : CONSULT Function - WIPER".

FRONT WIPER SERVICE POSITION OPERATION

- Front wiper operates at LO and stops so that front wiper can be locked back without interfere the hood.
- BCM transmits the front wiper request signal (LOW) to IPDM E/R via CAN communication for 0.6 seconds according to the conditions of front wiper service position operation.

Front wiper service position operation conditions (Within 1 minute after turning ignition switch Off)
- Front wiper switch is OFF
- Front wiper is in stop position
- Front wiper switch MIST is operated 2 times (Within 0.47 second)

Front wiper service position operation conditions (During ignition switch is On)
- Front wiper switch is OFF
- Front wiper is in stop position
- Vehicle speed is less than 4 km/h
- Front wiper switch MIST is operated 2 times (Within 0.47 second)
- After the front wiper LO operation, IPDM receives the front wiper request signal (STOP) from BCM and then stops the front wiper.
- Front wiper returns to stop position when front wiper switch is operated. (If 1 minute or more is passed after turning ignition switch OFF, front wiper returns to stop position when ignition switch is turned ON and front wiper switch is operated.)

FRONT WIPER AND WASHER SYSTEM (WITHOUT LIGHT & RAIN SENSOR) : Fail-Safe

INFOID:0000000010430962

IPDM E/R

If No CAN Communication Is Available With BCM
When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

Control part	Fail-safe operation
Front wiper motor	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the AUTO mode and the front wiper motor is operating.

Front Wiper Protection Function
IPDM E/R detects front wiper stop position by front wiper stop position signal.
When front wiper stop position signal is in the condition listed below while the front wiper is operating, IPDM E/ activates the fail-safe.

Ignition switch	Front wiper switch	Front wiper stop position signal	Fail-safe
ON	OFF	The signal does not change from the battery voltage for 10 seconds.	Stops front wiper power supply for 20 seconds
	Except OFF	The signal does not change for 10 seconds.	

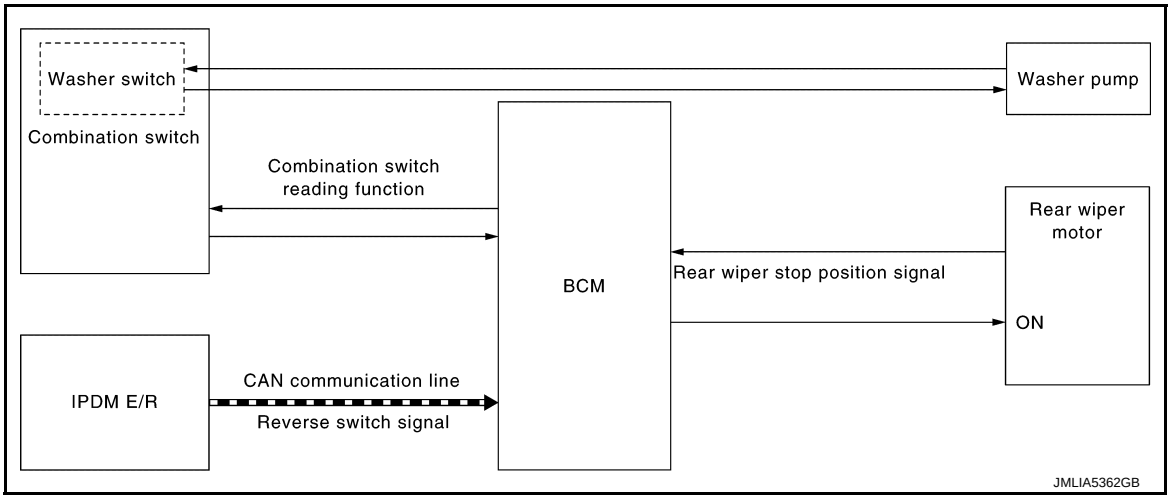
REAR WIPER AND WASHER SYSTEM

REAR WIPER AND WASHER SYSTEM : System Description

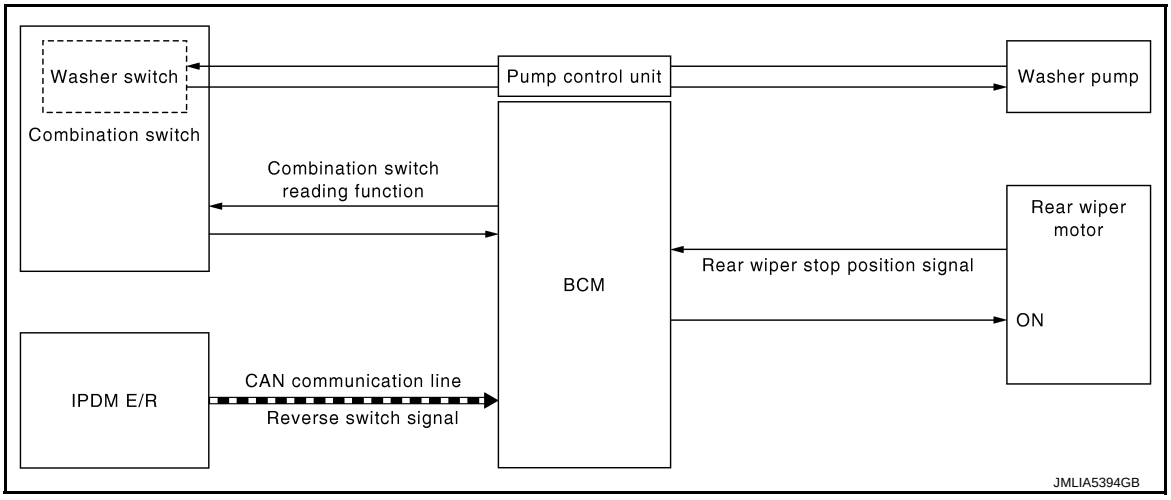
INFOID:0000000010430999

SYSTEM DIAGRAM

Without Around View Monitor



With Around View Monitor



OUTLINE

The rear wiper is controlled by each function of BCM.

Control by BCM
- Combination switch reading function
- Rear wiper control function

REAR WIPER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM controls the rear wiper to start or stop.

REAR WIPER ON OPERATION

- BCM supplies power to the rear wiper motor according to the rear wiper ON operating condition.

Rear wiper ON operating condition

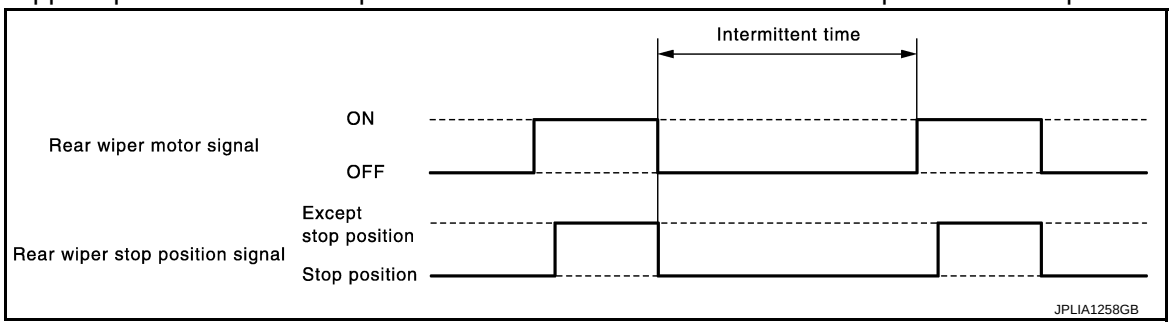
- Ignition switch ON
- Rear wiper switch ON

REAR WIPER INT OPERATION

• BCM supplies power to the rear wiper motor according to the INT operating condition.

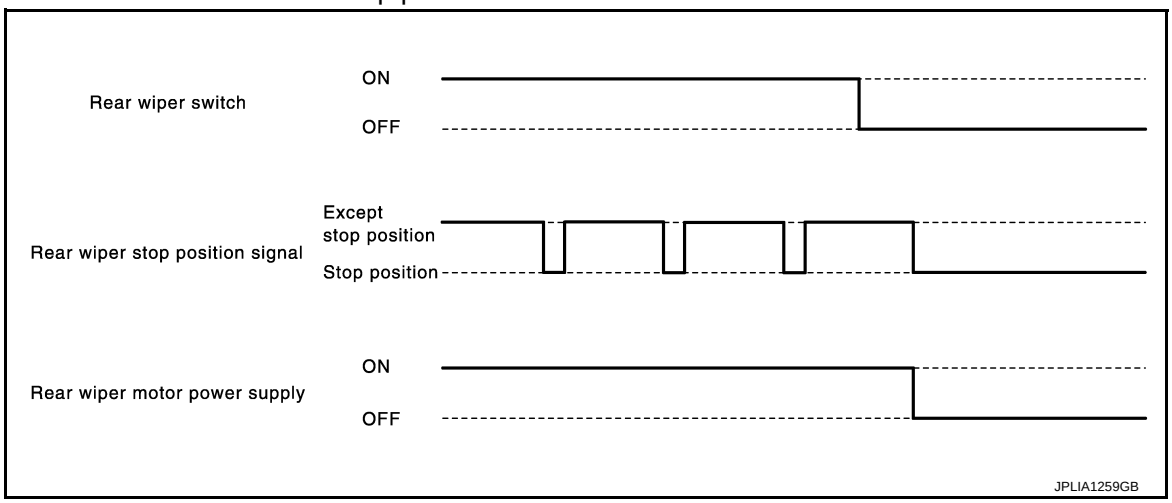
Rear wiper INT operating condition
- Ignition switch ON
- Rear wiper switch INT

• BCM controls the rear wiper to operate once.
• BCM detects the rear wiper motor stop position.
• BCM supplies power to the rear wiper motor after an intermittent from the stop of the rear wiper motor.



REAR WIPER AUTO STOP OPERATION

• BCM stops supplying power to the rear wiper motor when the rear wiper switch is turned OFF.
• BCM reads a rear wiper stop position signal from the rear wiper motor to detect a rear wiper motor position.
• When the rear wiper motor is at other than the stopping position, BCM continues to supply power to the rear wiper motor until it returns to the stop position.



NOTE:
BCM stops supplying power to the rear wiper motor when the ignition switch is turned OFF.

REAR WIPER OPERATION LINKED WITH WASHER

• BCM supplies power to the rear wiper motor according to the washer linked operating condition of rear wiper. When the rear washer switch is turned OFF, BCM controls rear wiper to operate approximately 3 times.

Washer linked operating condition of rear wiper
- Ignition switch ON
- Rear washer switch ON (0.4 second or more)

• For models without around view monitor: The washer pump is grounded through the combination switch with the rear washer switch ON.
• For models with around view monitor: Pump control unit detects rear window washer switch signal from combination switch and controls the washer pump.

REAR WIPER DROP WIPE OPERATION

• BCM controls the rear wiper to operate once according to the rear wiper drop wipe operating condition.

Rear wiper drop wipe operating condition
- Ignition switch ON
- Rear wiper switch OFF
- Rear washer switch OFF
- BCM controls the rear wiper so that it operates once time approximately 3 seconds later after the washer interlocking operation of the rear wiper.

NOTE:
Rear wiper drop wipe operation can be set to ON or OFF using CONSULT. Refer to WW-23, "WIPER : CONSULT Function - WIPER".

REAR WIPER OPERATION LINKED WITH REVERSE

- BCM controls rear wiper to operate once according to the conditions of rear wiper operation linked with reverse.

Condition of rear wiper operation linked with reverse
- Ignition switch ON
- Front wiper switch: LO, HI, INT or AUTO
- Rear wiper switch OFF
- Shift position: “R”
- When shift position is “R”, BCM receives reverse switch signal from IPDM E/R via CAN communication, and then operates rear wiper motor.

NOTE:
Rear wiper operation linked with reverse can be set to ON or OFF using CONSULT. Refer to WW-23, "WIPER : CONSULT Function - WIPER".

REAR WIPER AND WASHER SYSTEM : Fail-safe

INFOID:0000000010431001

REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper stop position signal.
When the rear wiper stop position signal does not change for more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation
1. More than 1 minute is passed after the rear wiper stop.
2. Turn rear wiper switch OFF.
3. Operate the rear wiper switch or rear washer switch.

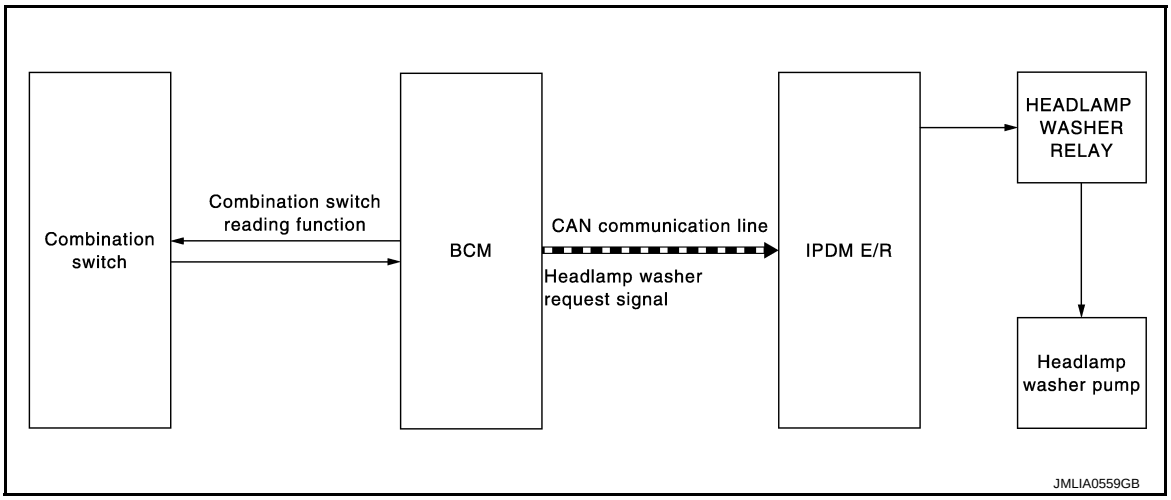
HEADLAMP WASHER SYSTEM

HEADLAMP WASHER SYSTEM : System Description

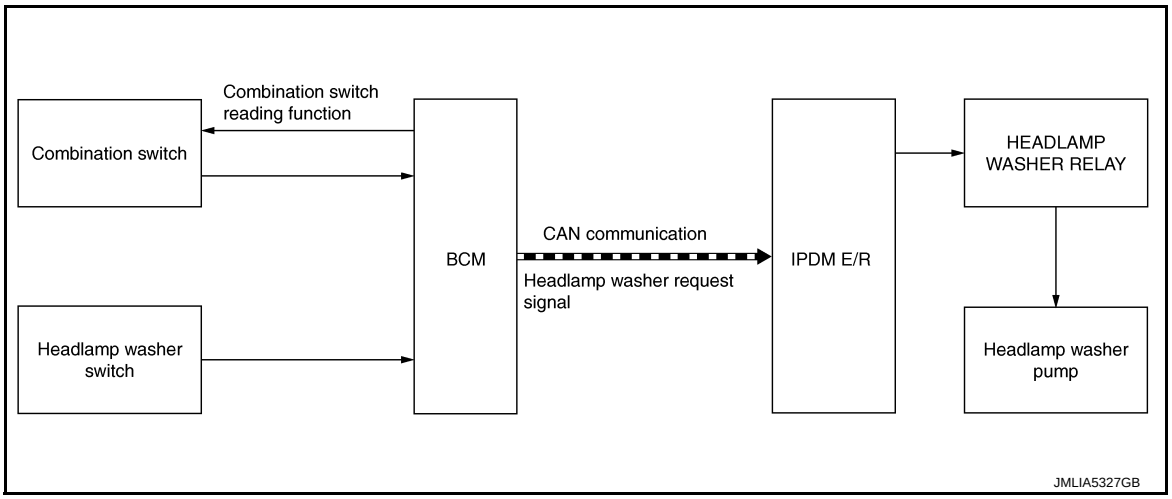
INFOID:0000000010430963

SYSTEM DIAGRAM

Except For Russia



For Russia



OUTLINE

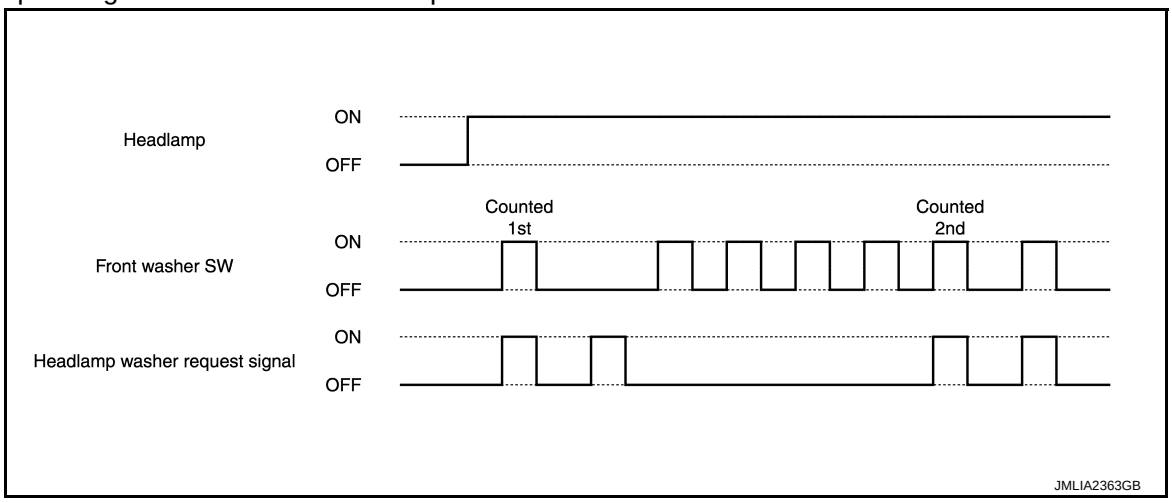
Headlamp washer is controlled by each function of BCM and IPDM E/R.

Control by BCM
- Combination switch reading function
- Headlamp washer control function

Control by IPDM E/R
- Headlamp washer relay control function

HEADLAMP WASHER OPERATION

Except For Russia
- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the headlamp washer request signal to IPDM E/R using CAN communication depending on each operating condition of the headlamp washer.



Operate by front washer switch at the first time
- Ignition switch ON
- Headlamps ON
- Front washer switch ON at first time

Operate by front washer switch from the second time
- Ignition switch ON
- Headlamps ON
- Front washer switch ON at fifth time after the first time
- IPDM E/R turns ON/OFF the headlamp washer relay by receiving the headlamp washer request signal, and controls the headlamp washer.

For Russia

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the headlamp washer request signal to IPDM E/R using CAN communication depending on each operating condition of the headlamp washer.

Operate by headlamp washer switch
- Ignition switch ON
- Headlamps ON
- Headlamp washer switch ON

- IPDM E/R turns ON/OFF the headlamp washer relay by receiving the headlamp washer request signal, and controls the headlamp washer.

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

INFOID:0000000010503209

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

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

SYSTEM APPLICATION
BCM can perform the following functions for each system.
NOTE:
It can perform the diagnosis modes except the following for all sub system selection items.

×: Applicable item

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

NOTE:
*: This item is displayed, but not used.

FREEZE FRAME DATA (FFD)
The BCM records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

CONSULT screen item	Indication/Unit	Description
BATTERY VOLTAGE	V	Battery voltage of the moment a particular DTC is detected.
VEHICLE SPEED	km/h	Vehicle speed of the moment a particular DTC is detected.
EXTERNAL TEMP	°C	External temperature of the moment a particular DTC is detected
VEHICLE COND	—	**NOTE:** This item is displayed, but cannot be use this item.
DOOR LOCK STATUS	—	**NOTE:** This item is displayed, but cannot be use this item.
POWER SUPPLY COUNTER	min	Displays the cumulative time from the time that the battery terminal is connected.

WIPER

WIPER : CONSULT Function - WIPER

INFOID:0000000010430967

WORK SUPPORT

Service item	Setting item	Description	
WIPER SPEED SETTING*1	On*3	Linked with vehicle speed (Front wiper intermittent time linked with the vehicle speed and wiper volume dial position.)	The setting of front wiper INT operation can be changed.
	Off*4	Not linked with vehicle speed (Front wiper intermittent time linked with the wiper volume dial position.)	
RAIN SENSOR*2	On*5	Linked with light & rain sensor (Front wiper intermittent time linked with the light & rain sensor, vehicle speed, and wiper volume dial position)	The setting of front wiper AUTO operation can be changed
	Off	Not linked with light & rain sensor (Front wiper intermittent time linked with the vehicle speed and wiper volume dial position)	
FR RR DRIP	On*5	Front wiper drop wipe and rear wiper drop wipe operation ON	The setting of drop wipe operation can be changed
	Off	Front wiper drop wipe and rear wiper drop wipe operation OFF	
REAR WIPER LINK WITH REVERSE SETTING	On	Rear wiper operation linked with reverse ON	The setting of rear wiper operation linked with reverse can be changed
	Off*5	Rear wiper operation linked with reverse OFF	

*1: For models without light & rain sensor
*2: For models with light & rain sensor
*3: Factory setting for Europe, Russia or South Africa
*4: Factory setting except for Europe, Russia or South Africa
*5: Factory setting for all destination

DATA MONITOR

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item [Unit]	Description
PUSH SW [Off/On]	The switch status input from push-button ignition switch.
VEH SPEED 1 [km/h]	Displays the value of the vehicle speed signal received from combination meter via CAN communication.

Monitor Item [Unit]	Description
FR WIPER HI [Off/On]	Status of each switch judged by BCM using the combination switch reading function.
FR WIPER LOW [Off/On]	
FR WASHER SW [Off/On]	
FR WIPER INT [Off/On]	
FR WIPER STOP [Off/On]	Displays the status of the front wiper stop position signal received from IPDM E/R via CAN communication.
INT VOLUME [1 – 7]	Status of each switch judged by BCM using the combination switch reading function.
RR WIPER ON [Off/On]	Status of each switch judged by BCM using the combination switch reading function.
RR WIPER INT [Off/On]	
RR WASHER SW [Off/On]	
RR WIPER STOP [Off/On]	Displays the status of the rear wiper stop position signal received from rear wiper motor.
H/L WSR SW* [Off/On]	Status of headlamp washer switch judged by BCM.
RAIN SENSOR [OFF/LOW/HIGH/SPLASH/NG]	Request signal from rain sensor detected by BCM is displayed.

*: For models without headlamp washer switch, this item is indicated but is not used.

ACTIVE TEST

Test item	Operation	Description
FR WIPER	Hi	Operates the front wiper HI operation.
	Lo	Operates the front wiper LO operation.
	INT	Operates the front wiper INT/AUTO operation.
	Off	Stops the front wiper operation.
RR WIPER	On	Operates the rear wiper operation.
	Off	Stops the rear wiper operation.
HEADLAMP WASHER*	On	Operates the headlamp washer operation.

*: For models without headlamp washer, this item is indicated but is not used.

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:0000000010503210

APPLICATION ITEM

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

Diagnosis mode	Description
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Work Support	Changes the setting for each system function.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
Ecu Identification	Allows confirmation of IPDM E/R part number.
Configuration	• Read and save the vehicle specification. • White the vehicle specification when replacing IPDM E/R.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

SELF DIAGNOSTIC RESULT

Refer to PCS-37, "DTC Index".

Freeze Frame Data (FFD)

The IPDM E/R records the vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Displays the status of the transmission range switch (CVT) or reverse/neutral position switch (M/T) judged by IPDM E/R.
IGN RELAY [Open/Close]	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Open/Close]	Displays the status of the push-button ignition switch judged by IPDM E/R.
NEUTRAL SW [Open/Close]	Displays the status of the reverse/neutral position switch (M/T) judged by IPDM E/R.
INTERLOCK/PNP SW [Open/Close]	Displays the status of the transmission range switch (CVT) judged by IPDM E/R.
OIL PRESSURE SW [Open/Close]	Displays the status of the oil pressure switch judged by IPDM E/R.
LED H/L RH STATUS [Open/Close]	Displays the LED headlamp (right) ON/OFF status judged by IPDM E/R. **NOTE:** This item is monitored only on the vehicle with LED headlamp.
LED H/L LH STATUS [Open/Close]	Displays the LED headlamp (left) ON/OFF status judged by IPDM E/R. **NOTE:** This item is monitored only on the vehicle with LED headlamp.
HOOD SW [Open/Close]	Displays the status of the hood switch judged by IPDM E/R.
COMPRESSOR [Off/On]	Displays the compressor drive status judged by IPDM E/R.
H/L WASHER PUMP [Off/On]	Displays the status of the headlamp washer pump judged by IPDM E/R.

Monitor Item [Unit]	Description
HORN RELAY [Off/On]	**NOTE:** The item is indicated, but not monitored.
COOLING FAN [Off/On]	**NOTE:** The item is indicated, but not monitored.
FRONT WIPER HI/LO RELAY [Off/On]	Displays the status of the front wiper HI/LO relay judged by IPDM E/R.
FRONT WIPER RELAY [Off/On]	Displays the status of the front wiper relay judged by IPDM E/R.
IGN RELAY OFF STATUS [Off/On]	Displays the status of the ignition relay OFF circuit judged by IPDM E/R.
IGN RELAY ON STATUS [Off/On]	Displays the status of the ignition relay ON circuit judged by IPDM E/R.
STEERING LOCK PWR SPLY [Off/On]	Displays the power supply status from IPDM E/R to the steering lock unit. **NOTE:** This item is monitored only on the vehicle with Intelligent Key system
HEIGHT SENSOR PWR SPLY [Off/On]	Displays the power supply status from IPDM E/R to the height sensor.
COOLING FAN RELAY 1 [Open/Close]	Displays the status of the cooling fan relay-1 judged by IPDM E/R.
STARTER RELAY [Off/On]	Displays the status of the starter control relay judged by IPDM E/R.
COMP ECV DUTY [%]	Displays the compressor control signal (PWM) status of IPDM E/R.
COOLING FAN RELAY 2 [%]	Displays the status of the cooling fan relay-2 judged by IPDM E/R.
FR FOG LAMP LH [%]	Displays the front fog lamp (left) output (PWM) status of IPDM E/R.
FR FOG LAMP RH [%]	Displays the front fog lamp (right) output (PWM) status of IPDM E/R.
LEVELIZER OUTPUT [%]	Displays the aiming motor drive signal (PWM) status of IPDM E/R.
PARKING LAMP [%]	Displays the parking lamp output (PWM) status of IPDM E/R.
TAIL LAMP LH [%]	Displays the tail lamp (left) output (PWM) status of IPDM E/R.
TAIL LAMP RH [%]	Displays the tail lamp (right) output (PWM) status of IPDM E/R.
DAYTIME RUNNING LIGHT LH [%]	Displays the daytime running light (left) output status of IPDM E/R.
DAYTIME RUNNING LIGHT RH [%]	Displays the daytime running light (right) output status of IPDM E/R.
HEADLAMP (HI) LH [%]	Displays the headlamp (HI) (left) output (PWM) status of IPDM E/R.
HEADLAMP (HI) RH [%]	Displays the headlamp (HI) (right) output (PWM) status of IPDM E/R.
HEADLAMP (LO) LH [%]	Displays the headlamp (LO) (left) output (PWM) status of IPDM E/R.
HEADLAMP (LO) RH [%]	Displays the headlamp (LO) (right) output (PWM) status of IPDM E/R.
A/C RELAY STUCK [OK/NG]	Displays the ON stuck status of the A/C relay judged by IPDM E/R.

Monitor Item [Unit]	Description
A/C RELAY [Off/On]	Displays the status of the A/C relay judged by IPDM E/R.
COMP ECV STATUS [OK/NG]	Displays the compressor malfunction diagnosis status judged by IPDM E/R.
VEHICLE SECURITY HORN [Off/On]	**NOTE:** The item is indicated, but not monitored.
BATTERY CURRENT SENSOR [OK/NG]	Displays the battery current sensor malfunction diagnosis status judged by IPDM E/R.
FRONT FOG LAMP [Off/On]	Displays the fog lamp illumination control status of IPDM E/R.
COMP ECV CURRENT [A]	Displays the electric current output to compressor judged by IPDM E/R.
BATTERY VOLTAGE [V]	Displays the status of the battery voltage judged by IPDM E/R.
COOLING FAN DUTY [%]	Displays the cooling fan output signal status of IPDM E/R.
HOOD SW (CAN) [Open/Close]	Displays the status of the hood switch judged by IPDM E/R.
FRONT WIPER [STOP/HI/LO/NG]	Displays the front wiper motor drive control status of IPDM E/R.
FR WIPER STOP POSITION [ACTIVE P/STOP P]	Displays the status of the front wiper position status judged by IPDM E/R.
HEADLAMP (HI) [Off/On]	Displays the headlamp (HI) illumination control status of IPDM E/R.
HEADLAMP (LO) [Off/On]	Displays the headlamp (LO) illumination control status of IPDM E/R.
IGN RELAY MONITOR [Off/On]	Displays the status of the ignition relay judged by IPDM E/R.
IGNITION POWER SUPPLY [Off/On]	Displays the status of the ignition power supply judged by IPDM E/R.
INTERLOCK/PNP SW (CAN) [Off/On]	Displays the status of the transmission range switch signal that IPDM transmits via CAN communication.
NEUTRAL SWITCH (CAN) [Off/On]	Displays the status of the reverse/neutral position switch (M/T) signal that IPDM transmits via CAN communication.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Displays the status of the ignition switch signal that IPDM transmits via CAN communication.
TAIL LAMP [Off/On]	Displays the tail lamp illumination control status of IPDM E/R.
REVERSE SIGNAL (CAN) [Off/On]	Displays the status of the steering lock relay signal received from BCM via CAN communication.
STARTER MOTOR STATUS [Off/On]	Displays the status of the starter motor judged by IPDM E/R.
STARTER RELAY (CAN) [LOW/HIGH]	Displays the status of the IPDM E/R transmits the starter control relay status signal via CAN communication.
IPDM NOT SLEEP [NO RDY/READY]	Displays the status of the IPDM E/R transmits the not sleep signal via CAN communication.
STOP/START STATUS [PRHBT/PERMIT]	Displays the status of the stop/starter system ready judged by IPDM E/R.
AFTER COOLING TIME [No request/0.5min/1.0min/1.5min/ 2.0min/2.5min/3.0min/3.5min/4min/5min/ 6min/8min/10min/12min/14min/16min]	**NOTE:** The item is indicated, but not monitored.

Monitor Item [Unit]	Description
AFTER COOLING SPEED [0%/25%/40%/55%/70%/78%/85%/100%]	**NOTE:** The item is indicated, but not monitored.
COOLING FAN TYPE [RENAULT/NISSAN]	**NOTE:** The item is indicated, but not monitored.
COMPRESSOR REQ 1 [Off/On]	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
VHCL SECRITY HORN REQ [Off/On]	**NOTE:** The item is indicated, but not monitored.
DTRL REQ [Off/On]	Displays the status of the daytime running light request signal received from BCM via CAN communication.
SLEEP/WAKE UP [SLEEP/WAKEUP]	**NOTE:** The item is indicated, but not monitored.
CLUTCH INTERLOCK SW [Off/On]	**NOTE:** The item is indicated, but not monitored.
CRANKING ENABLE-TCM [OK/NG]	Displays the status of the cranking enable signal received from TCM via CAN communication.
CRANKING ENABLE-ECM [OK/NG]	Displays the status of the cranking enable signal received from ECM via CAN communication.
CAN DIAGNOSIS [OK/NG]	Displays the status of the CAN diagnosis signal received from BCM via CAN communication.
FRONT FOG LAMP REQ [Off/On]	Displays the status of the front fog light request signal received from BCM via CAN communication.
H/L WASHER REQ [Off/On]	Displays the status of the headlamp washer request signal received from BCM via CAN communication.
PASSING REQ [Off/On]	**NOTE:** The item is indicated, but not monitored.
HIGH BEAM REQ [Off/On]	Displays the status of the high beam request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]	**NOTE:** The item is indicated, but not monitored.
COOLING FAN REQ [%]	Displays the status of the cooling fan speed request signal received from ECM via CAN communication.
ENGINE STATUS [STOP/IDLING/RUN]	Displays the status of the engine status signal received from ECM via CAN communication.
TURN SIGNAL REQ [Off/On]	Displays the status of the turn indicator signal received from BCM via CAN communication.
FR WIPER REQ [Off/On]	Displays the status of the front wiper request signal received from BCM via CAN communication.
SHIFT POSITION [OFF/P/R/N/D/S/L/B/1/2/3/4/5/6/7]	Displays the status of the shift position signal received from TCM via CAN communication.
LOW BEAM REQ [Off/On]	Displays the status of the low beam request signal received from BCM via CAN communication.
POSITION LIGHT REQ [Off/On]	Displays the status of the position light request signal received from BCM via CAN communication.
COMPRESSOR REQ 2 [Off/On]	Displays the status of the A/C ON signal received from A/C auto amp. via CAN communication.
IGNITION SW [Off/On/START]	Displays the status of the ignition switch ON signal and starter control relay request signal received from BCM via CAN communication.
VEHICLE SPEED (METER) [km/h]	Displays the status of the A/C ON signal received from A/C auto amp. via CAN communication.

Monitor Item [Unit]	Description
BAT DISCHAGE COUNT [—]	Monitor the cumulative discharge value of the battery. **NOTE:** When 65,000 or more is counted, replace the battery. (Only with stop/start system modls)
P LAMP CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the parking lamp circuit. **NOTE:** When the number of parking lamp circuit retries count is 20, this item counts 1.
NMB P LAMP CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the parking lamp circuit. **NOTE:** When the number of short circuits in the parking lamp circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB P LAMP CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the parking lamp circuit.
DTRL LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the daytime running light (left) circuit. **NOTE:** When the number of daytime running light (left) circuit retries count is 20, this item counts 1.
NMB DTRL LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the daytime running light (left) circuit. **NOTE:** When the number of short circuits in the daytime running light (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB DTRL LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the daytime running light (left) circuit.
DTRL RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the daytime running light (right) circuit. **NOTE:** When the number of daytime running light (right) circuit retries count is 20, this item counts 1.
NMB DTRL RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the daytime running light (right) circuit. **NOTE:** When the number of short circuits in the daytime running light (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB DTRL RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the daytime running light (right) circuit.
F FOG LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the front fog lamp (left) circuit. **NOTE:** When the number of front fog lamp (left) circuit retries count is 20, this item counts 1.
NMB F FOG LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the front fog lamp (left) circuit. **NOTE:** When the number of short circuits in the front fog lamp (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB F FOG LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the front fog lamp (left) circuit.
F FOG RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the front fog lamp (right) circuit. **NOTE:** When the number of front fog lamp (right) circuit retries count is 20, this item counts 1.

Monitor Item [Unit]	Description
NMB F FOG RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the front fog lamp (right) circuit. **NOTE:** When the number of short circuits in the front fog lamp (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB F FOG RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the front fog lamp (right) circuit.
HL (HI) LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (HI) (left) circuit. **NOTE:** When the number of headlamp (HI) (left) circuit retries count is 20, this item counts 1.
NMB HL (HI) LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (HI) (left) circuit. **NOTE:** When the number of short circuits in the headlamp (HI) (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (HI) LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (HI) (left) circuit.
HL (HI) RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (HI) (right) circuit. **NOTE:** When the number of headlamp (HI) (right) circuit retries count is 20, this item counts 1.
NMB HL (HI) RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (HI) (right) circuit. **NOTE:** When the number of short circuits in the headlamp (HI) (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (HI) RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (HI) (right) circuit.
S/L CIRC MALFUNCTION [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the steering lock circuit. **NOTE:** When the number of steering lock circuit retries count is 20, this item counts 1.
NMB S/L CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the steering lock circuit. **NOTE:** When the number of short circuits in the steering lock circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB S/L CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the steering lock circuit.
HL (LO) LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (LO) (left) circuit. **NOTE:** When the number of headlamp (LO) (left) circuit retries count is 20, this item counts 1.
NMB HL (LO) LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (LO) (left) circuit. **NOTE:** When the number of short circuits in the headlamp (LO) (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (LO) LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (LO) (left) circuit.
HL (LO) RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (LO) (right) circuit. **NOTE:** When the number of headlamp (LO) (right) circuit retries count is 20, this item counts 1.

Monitor Item [Unit]	Description
NMB HL (LO) RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (LO) (right) circuit. **NOTE:** When the number of short circuits in the headlamp (LO) (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (LO) RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (LO) (right) circuit.
T LAMP LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the tail lamp (left) circuit. **NOTE:** When the number of tail lamp (left) circuit retries count is 20, this item counts 1.
NMB T LAMP LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the tail lamp (left) circuit. **NOTE:** When the number of short circuits in the tail lamp (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB T LAMP LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the tail lamp (left) circuit.
T LAMP RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the tail lamp (right) circuit. **NOTE:** When the number of tail lamp (right) circuit retries count is 20, this item counts 1.
NMB T LAMP RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the tail lamp (right) circuit. **NOTE:** When the number of short circuits in the tail lamp (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB T LAMP RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the tail lamp (right) circuit.
BATTERY STATUS [OK/NG]	Monitor the battery status from the battery output.

ACTIVE TEST

Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
FRONT WIPER	Off	OFF
	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper HI/LO relay.
HEAD LAMP WASHER	On	Operates the headlamp washer relay for 1 second.
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
	Fog	Operates the front fog lamp relay.

WORK SUPPORT

Work item	Description
SENSOR INITILALIZE	Adjusts the height sensor signal output value in the unloaded vehicle condition.
CML B/DCHRG CRNT CLEAR	In this mode, cumulative battery discharge current is cleared.

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000010430970

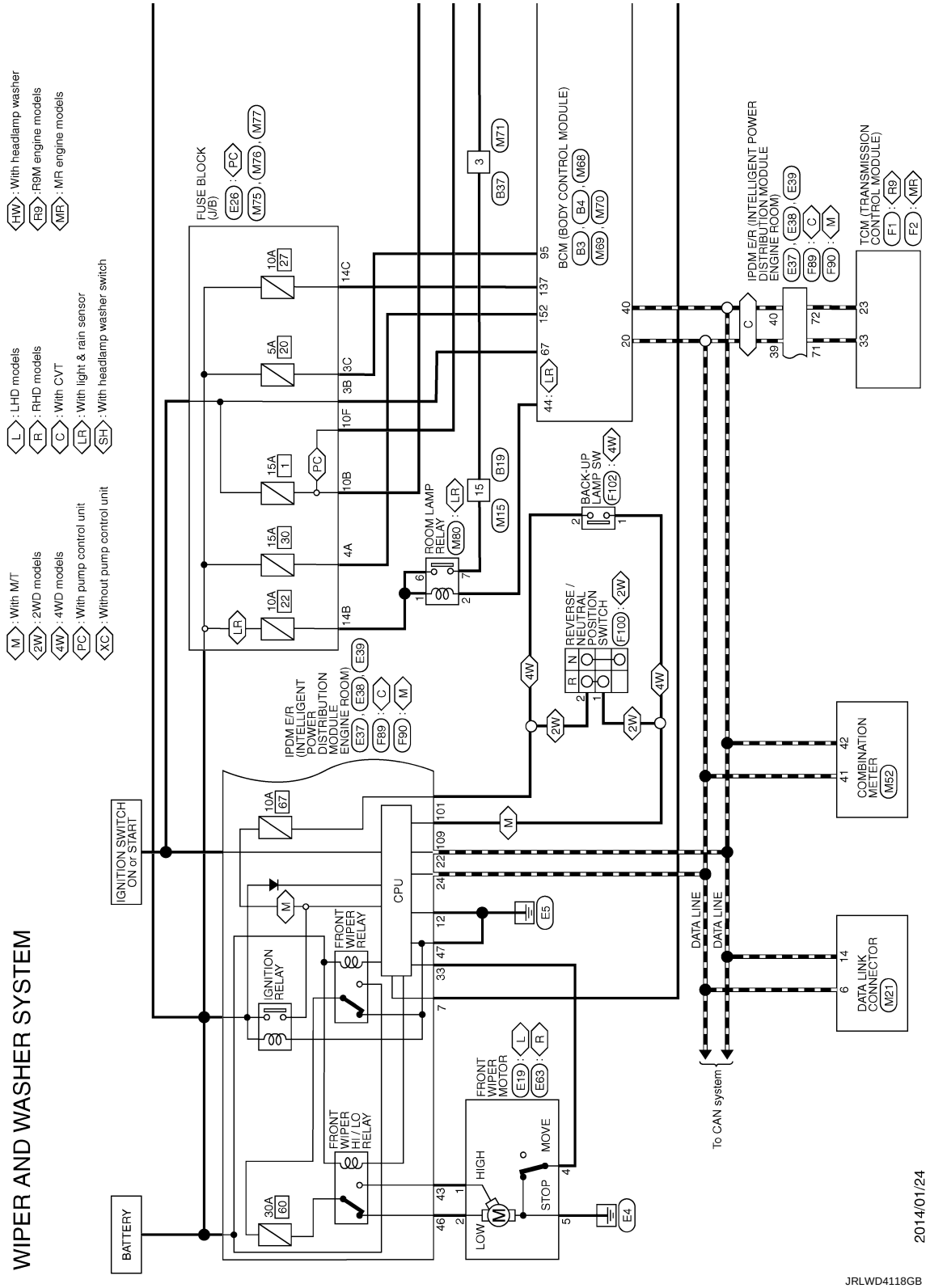
ECU	Reference
BCM	BCS-64, "Reference Value"
	BCS-88, "Fail-safe"
	BCS-89, "DTC Inspection Priority Chart"
	BCS-90, "DTC Index"
IPDM E/R	PCS-21, "Reference Value"
	PCS-33, "Fail-safe"
	PCS-36, "DTC Inspection Priority Chart"
	PCS-37, "DTC Index"

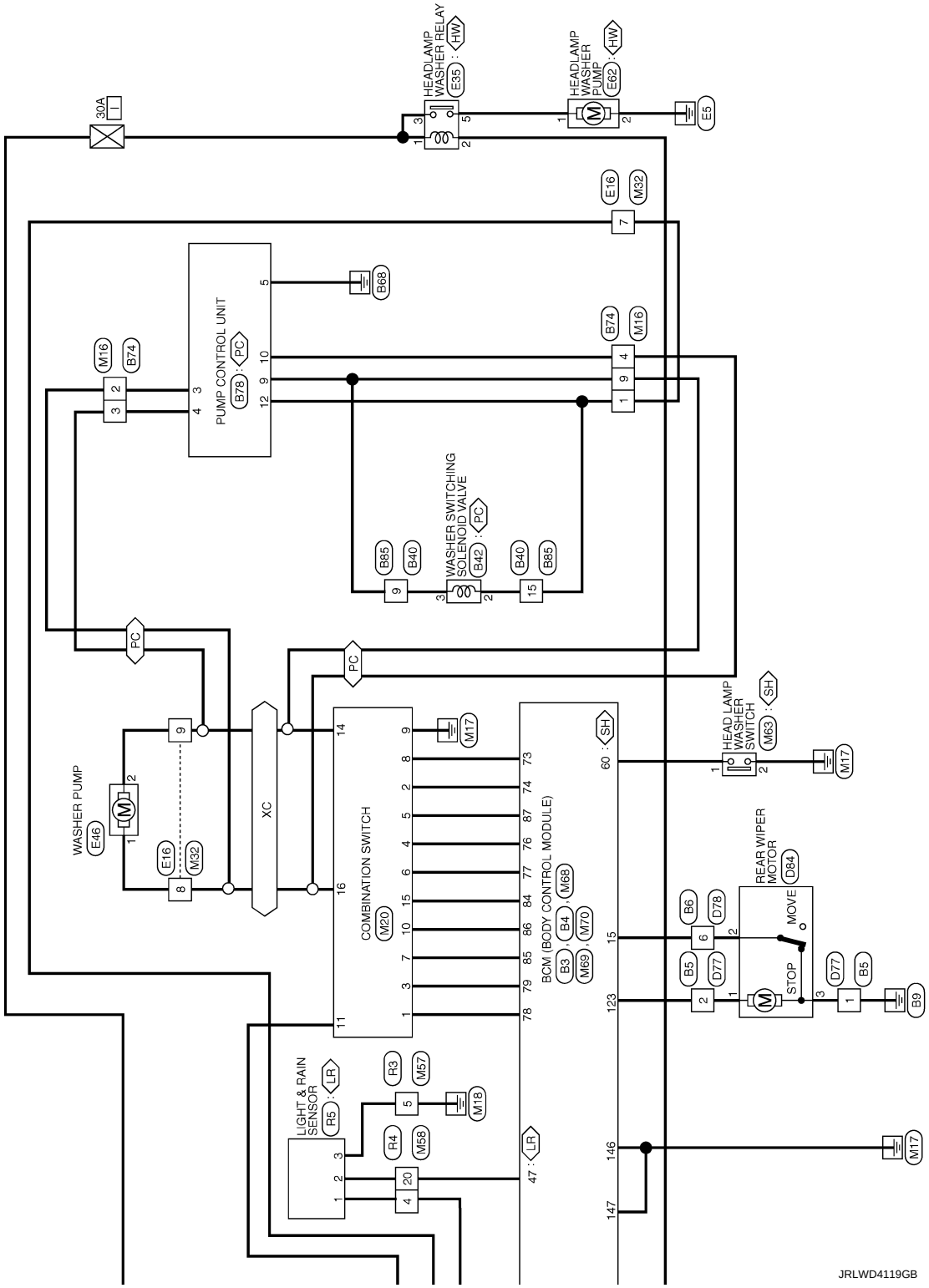
WIRING DIAGRAM

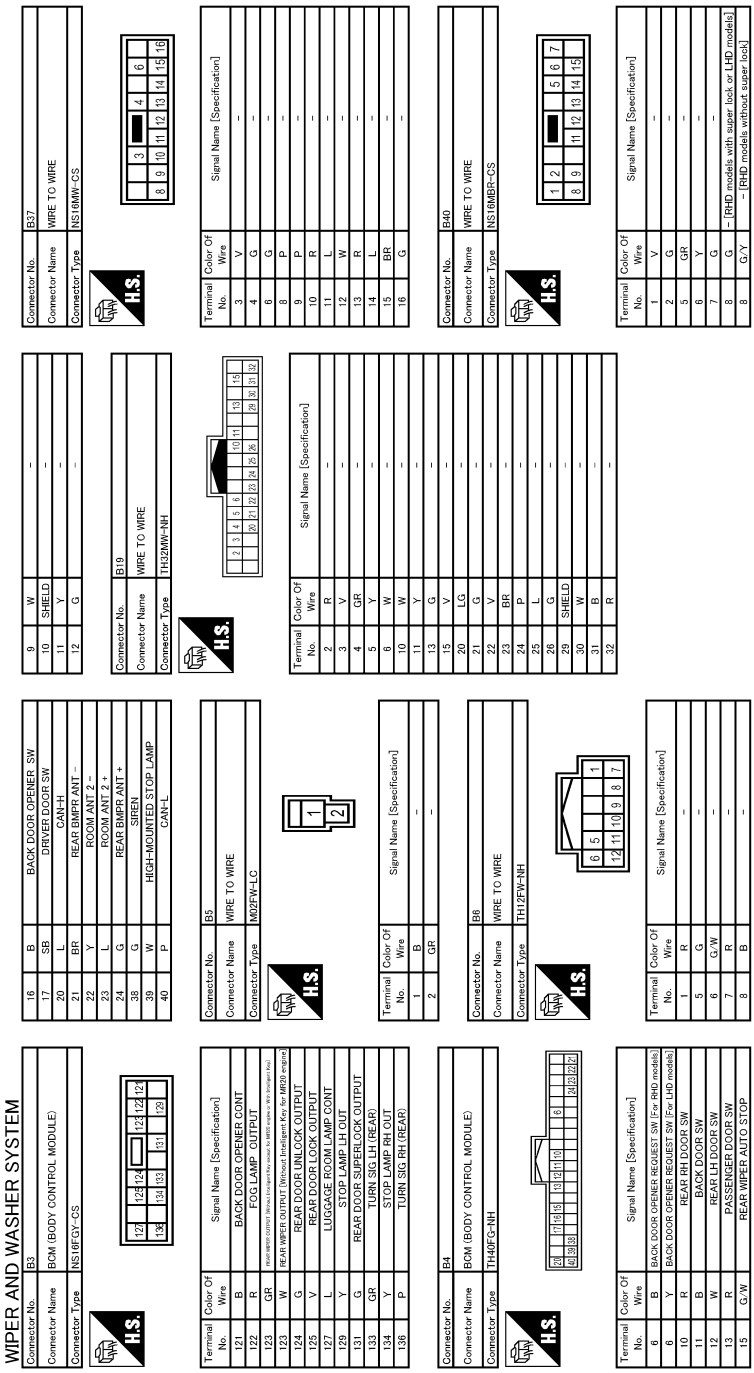
WIPER AND WASHER SYSTEM

Wiring Diagram

INFOID:0000000010430971




30A
HEADLAMP WASHER RELAY
HW
E35
HEADLAMP WASHER PUMP
E62
E5
E16
M32
B68
PUMP CONTROL UNIT
PC
B78
B74
M16
WASHER SWITCHING SOLENOID VALVE
B42
B40
B85
WASHER PUMP
E46
XC
COMBINATION SWITCH
M20
M17
BCM (BODY CONTROL MODULE)
B3
M69
B4
M70
M68
SH
HEAD LAMP WASHER SWITCH
M63
REAR WIPER MOTOR
D84
MOVE
STOP
B6
D78
B5
D77
B9
LIGHT & RAIN SENSOR
LR
R5
R3
R4
M57
M58
M18
JRLWD4119GB



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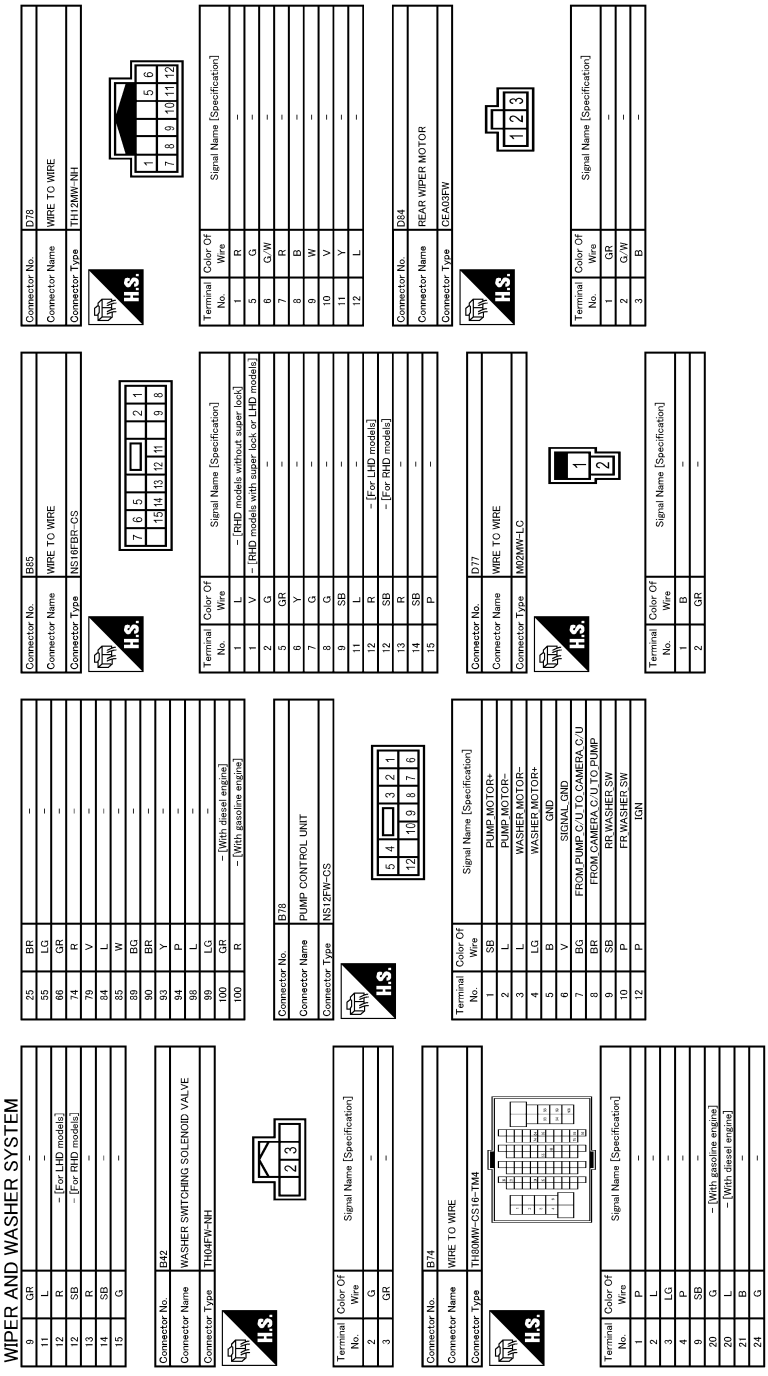
WIPER AND WASHER SYSTEM
Connector No. D78
Connector Name WIRE TO WIRE
Connector Type TH12MW-NH
Connector No. B85
Connector Name WIRE TO WIRE
Connector Type NS16FBR-CS
Connector No. D84
Connector Name REAR WIPER MOTOR
Connector Type CE4G3FW
Connector No. D77
Connector Name WIRE TO WIRE
Connector Type M02MW-LC
Connector No. B78
Connector Name PUMP CONTROL UNIT
Connector Type NS12FW-CS
Connector No. B42
Connector Name WASHER SWITCHING SOLENOID VALVE
Connector Type TH04FW-NH
Connector No. B74
Connector Name WIRE TO WIRE
Connector Type TH80MW-CS16-TM4
H.S.
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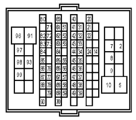
WIPER AND WASHER SYSTEM

Connector No.	E16
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	–
5	V	–
7	BG	–
8	L	–
9	LG	–
10	W	–
14	BG	–
20	L	–
21	P	–
22	SHIELD	–
24	W	–
31	V	–
32	W	–
33	SB	–
34	LG	–
35	BG	–
36	LG	–
37	V	–
38	G	–
39	BR	–
40	L	–
41	P	–
42	G	–
43	R	–
44	Y	–
45	BR	–
46	L	–
47	GR	–
48	Y	–
49	P	–
51	P	–
52	W	–
53	R	–
55	BR	–
56	P	–
57	B	–
58	L	–
59	Y	–
60	G	–
61	SB	–
62	V	–
63	BR	–
64	SB	–
65	LG	–
66	Y	–
67	BG	–
68	R	–
69	W	–
70	G	–
71	Y	–
72	L	–
73	R	–
76	L	–
77	V	–
78	LG	–
79	SHIELD	–
80	GR	–
82	Y	–
83	SB	–
84	L	–
85	G	–
86	Y	–
87	B	–
88	B	–
90	Y	–
91	R	–
93	Y	–
96	GR	–
97	W	–
98	V	–
99	GR	–

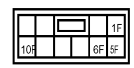
Connector No.	E19
Connector Name	FRONT WIPER MOTOR
Connector Type	HS05FGY

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	V	–
2	Y	–
4	BR	–
5	B	–

Connector No.	E26
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS

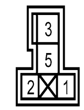
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
10F	BG	– [With stop/start system]
10F	L	– [Without stop/start system]
1F	W	–
5F	V	–
6F	GR	–

Connector No.	E35
Connector Name	HEADLAMP WASHER RELAY
Connector Type	MS02FL-M2-LC

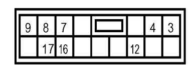
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	–
2	L	–
3	G	–
5	GR	–

Connector No.	E37
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FGY-CS

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
3	P	–
4	GR	–
7	L	–
8	L	– [For grille shutter]
8	W	– [Except for grille shutter]
9	GR	–
12	GR	–
16	G	–
17	G	– [With gasoline engine without stop/start system or with diesel engine with stop/start system]
17	W	– [With diesel engine without stop/start system or with gasoline engine with stop/start system]

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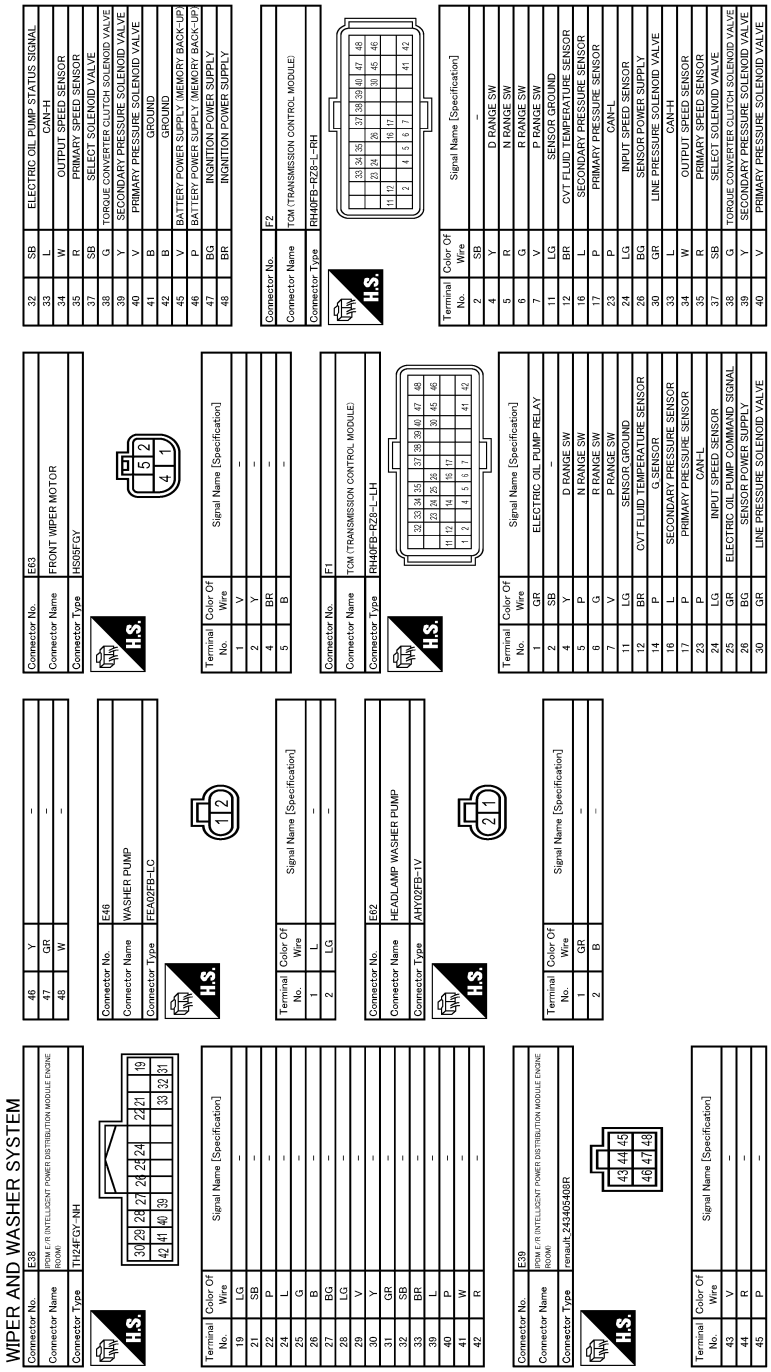

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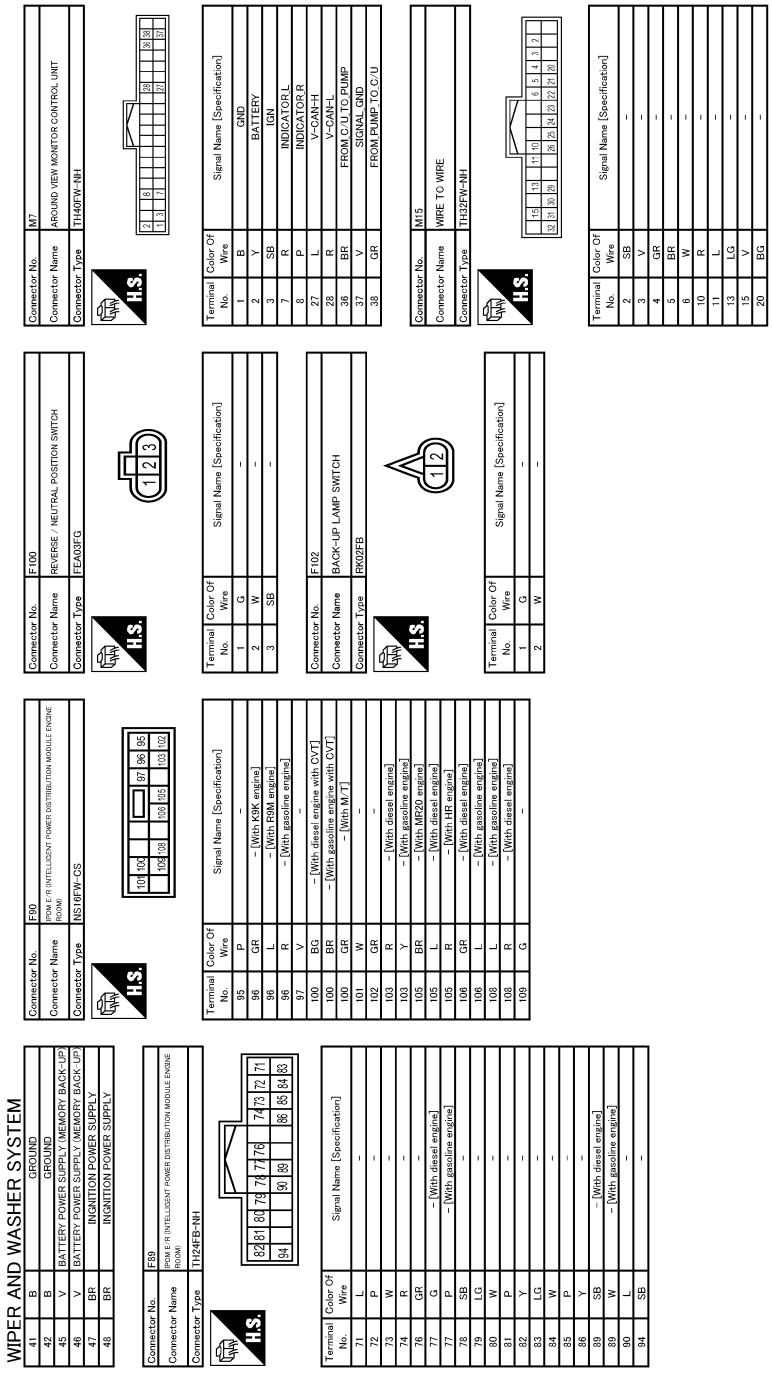
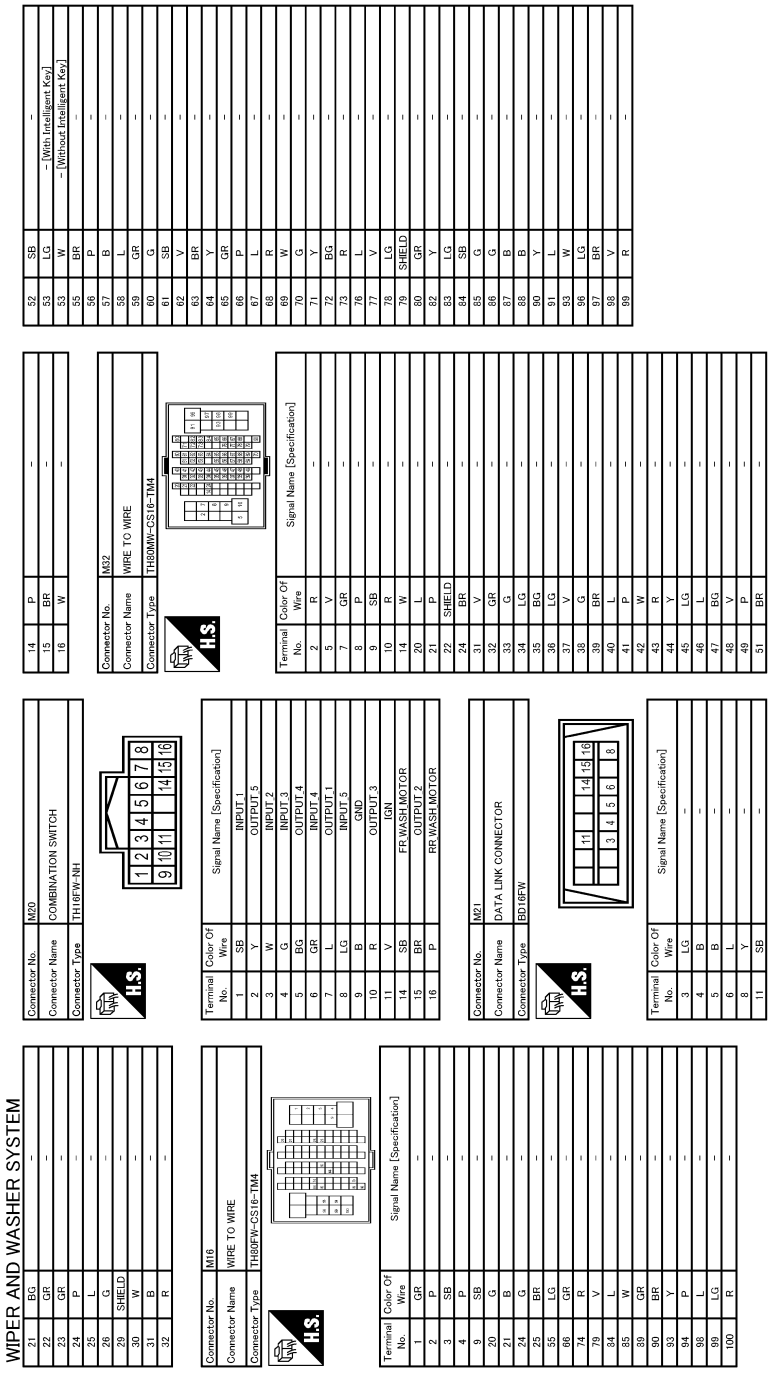


JRLWD2255GB



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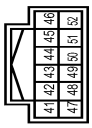
WIPER AND WASHER SYSTEM

Connector No.	M52
Connector Name	COMBINATION METER
Connector Type	TH12FW-NH

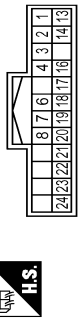


Terminal No.	Color Of Wire	Signal Name [Specification]
41	L	V-CAN H
42	P	V-CAN L
43	R	ILL CONT OUT(HI-SIDE)
44	B	FUEL SENSOR GND
45	W	BAT
46	BG	IGN
47	SB	M-CAN H
48	LG	M-CAN L
49	V	OIL LEVEL
50	P	OIL LEVEL GND
51	G	FUEL SENSOR
52	B	GND2

Connector No.	M57
Connector Name	WIRE TO WIRE
Connector Type	NS06FW-CS

Terminal No.	Color Of Wire	Signal Name [Specification]
2	B	-
5	B	-
6	P	-

Connector No.	M58
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH

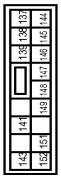


Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	B	-
3	R	-
4	V	-
6	SHIELD	-
7	W	-
8	O	-
13	L	-
14	R	-
16	L	-
17	R	-
18	SB	-
19	LG	-
20	BG	-
21	L	-
22	W	-
23	Y	-
24	B	-

Connector No.	M63
Connector Name	HEADLAMP WASHER SWITCH
Connector Type	TH08FW-NH

Terminal No.	Color Of Wire	Signal Name
1	G	-
2	B	-
3	R	-
4	B	-

Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	NS16FBR-CS



Terminal No.	Color Of Wire	Signal Name [Specification]
137	W	POWER SUPPLY (BCM)
138	R	INT ROOM LAMP CONT
139	Y	PASSENGER DOOR UNLOCK OUTPUT
141	GR	FRONT DOOR LOCK OUTPUT
143	V	POWER SUPPLY (FR DOOR LK ACT)
144	BG	POWER SUPPLY (TURN SIGNAL)
145	GR	POWER SUPPLY (STOP LAMP)
146	B	GROUND
147	B	GROUND
148	BR	DRIVER DOOR UNLOCK OUTPUT
149	W	FRONT DOOR SUPERLOCK OUTPUT
151	R	POWER SUPPLY (REAR DOOR LK ACT)
152	LG	POWER SUPPLY (REAR WIPER)

Connector No.	M69
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
81	L	KEY SWITCH
82	R	KEY SW (ST) [Without Intelligent key]
82	W	PASS DOOR REQ SW [With Intelligent key]
84	BR	COMBI SW OUTPUT 2
85	L	COMBI SW OUTPUT 1
86	R	COMBI SW OUTPUT 3
87	BG	COMBI SW OUTPUT 4
88	L	PUSH-BTN IGN SW ILL CONT
90	L	STEERING LOCK UNIT SENSOR LINE
94	BR	DHITENT KEY SW INPUT
95	V	EXTENDED STORAGE FUSE SW
99	R	STOP / START OFF SWITCH
100	V	DRIVER DOOR ANT +
101	R	PUSH SW
104	G	DR DOOR UNLK SENS
105	GR	KEY SW (IPDM E/R)
105	GR	DR DOOR REQ SW [With Intelligent key]
106	W	ACC OUTPUT
107	Y	ALARAM CANCEL SW
109	P	NATS ANTENNA AMP.
110	SB	DIMMER SIGNAL
111	R	DOOR LK STAT IND OUTPUT
112	SB	STOP / START OFF SWITCH IND OUTPUT
113	LG	NATS ANTENNA AMP.
114	Y	NATS ANTENNA AMP.
115	W	NATS ANTENNA AMP.
116	BG	ROOM ANT 1 –
117	GR	ROOM ANT 1 +
118	LG	PASSENGER DOOR ANT –
119	P	PASSENGER DOOR ANT +
120	BR	RRIVER DOOR ANT +

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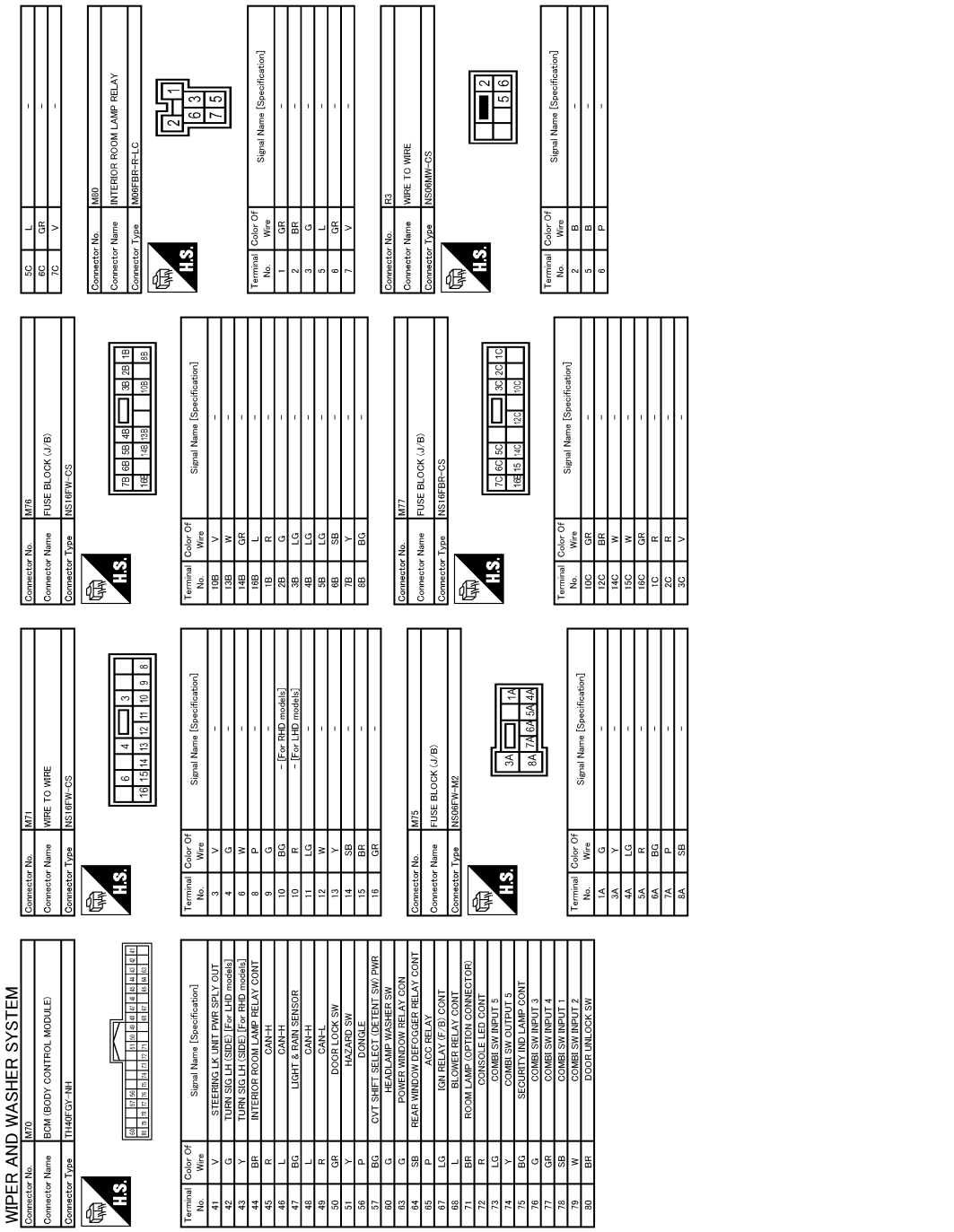
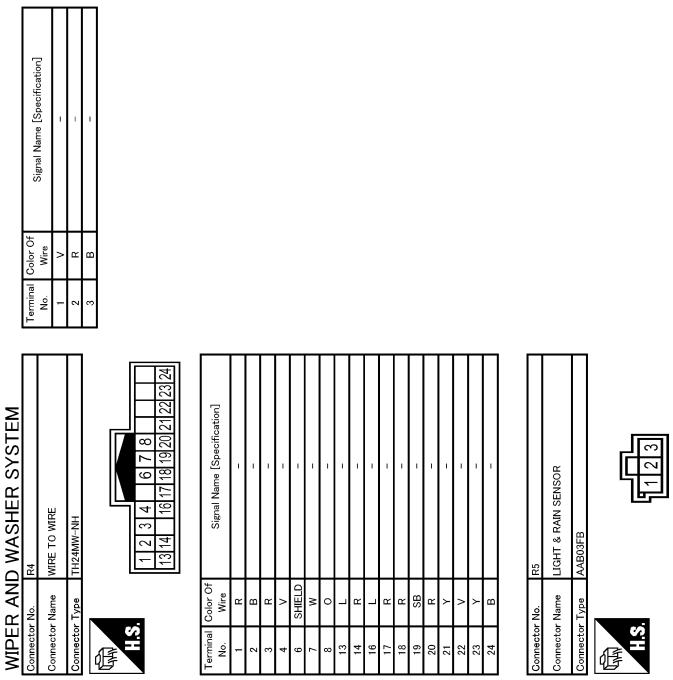


JRLWD2258GB



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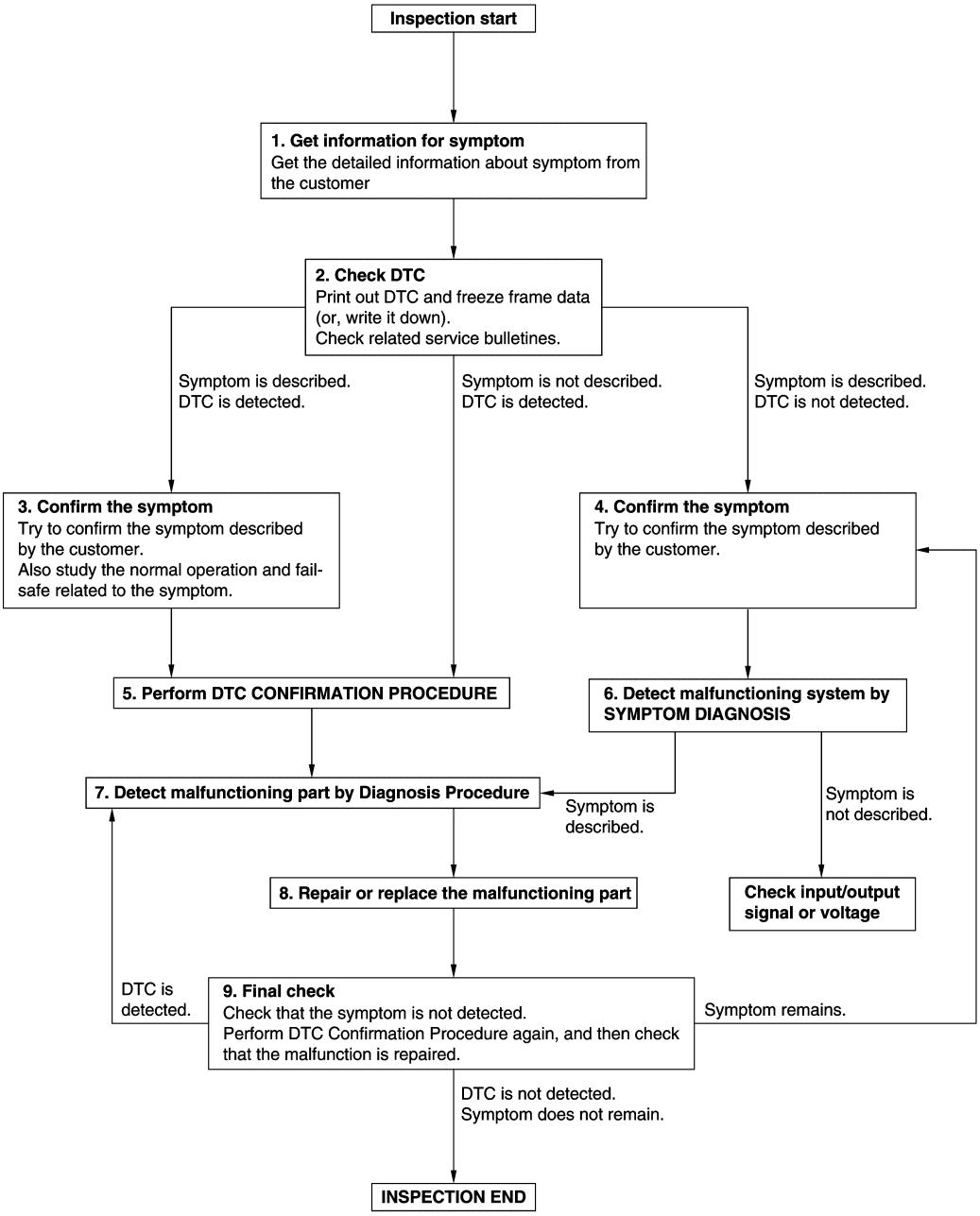
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010430973

OVERALL SEQUENCE



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DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.

- Record DTC and freeze frame data (Print them out using CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.

3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

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

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Also study the normal operation and fail-safe related to the symptom.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.
If two or more DTCs are detected, refer to DTC INSPECTION PRIORITY CHART, and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.
  If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.
NO >> Check according to GI-41, "Intermittent Incident".

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.
NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.
NO >> Check according to GI-41, "Intermittent Incident".

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.
YES-2 >> Symptom remains: GO TO 4.
NO >> Before returning the vehicle to the customer, always erase DTC.

DTC/CIRCUIT DIAGNOSIS

FRONT WIPER MOTOR LO CIRCUIT

Component Function Check

INFOID:0000000010430974

1.CHECK FRONT WIPER LO OPERATION

CONSULT ACTIVE TEST

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

Lo : Front wiper (LO) operation

Off : Stop the front wiper.

Is the inspection result normal?

YES >> Front wiper motor LO circuit is normal.

NO >> Refer to WW-47, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010430975

1.CHECK FRONT WIPER MOTOR (LO) OUTPUT VOLTAGE

1. Turn ignition switch OFF.
2. Disconnect front wiper motor connector.
3. Turn ignition switch ON.
4. Turn front wiper switch to LOW, and wait for 10 seconds.
5. Check voltage between front wiper motor harness connector and ground.

LHD

(+)		(–)	Voltage
Front wiper motor			
Connector	Terminal		
E19	2	Ground	9 – 16 V (10 seconds*)

RHD

(+)		(–)	Voltage
Front wiper motor			
Connector	Terminal		
E63	2	Ground	9 – 16 V (10 seconds*)

*: According to front wiper protection function, IPDM E/R supplies voltage for 10 seconds (9 – 16 V) and then stops for 20 seconds (0 – 1 V). This operation occurs repeatedly.

Is the inspection result normal?

YES >> Replace front wiper motor.

NO >> GO TO 2.

2.CHECK FRONT WIPER MOTOR (LO) CIRCUIT

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

LHD

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E39	46	E19	2	Existed

RHD

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E39	46	E63	2	Existed

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E39	46		Not existed

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-67, "Removal and Installation".
NO >> Repair or replace harness.

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:0000000010430976

1.CHECK FRONT WIPER HI OPERATION

CONSULT ACTIVE TEST
1. Select “FRONT WIPER” of IPDM E/R active test item.
2. With operating the test item, check front wiper operation.

Hi : Front wiper (HI) operation
Off : Stop the front wiper.

Is the inspection result normal?

YES >> Front wiper motor HI circuit is normal.
NO >> Refer to WW-49, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010430977

1.CHECK FRONT WIPER MOTOR (HI) OUTPUT VOLTAGE

CONSULT ACTIVE TEST
1. Turn ignition switch OFF.
2. Disconnect front wiper motor connector.
3. Turn ignition switch ON.
4. Select “FRONT WIPER” of IPDM E/R active test item.
5. With operating the test item, check voltage between front wiper motor harness connector and ground.

LHD

(+)		(–)	Condition		Voltage
Front wiper motor					
Connector	Terminal				
E19	1	Ground	FRONT WIPER	Hi	9 – 16 V (10 seconds*)

RHD

(+)		(–)	Condition		Voltage
Front wiper motor					
Connector	Terminal				
E63	1	Ground	FRONT WIPER	Hi	9 – 16 V (10 seconds*)

*: According to front wiper protection function, IPDM E/R supplies voltage for 10 seconds (9 – 16 V) and then stops for 20 seconds (0 – 1 V). This operation occurs repeatedly.

Is the inspection result normal?

YES >> Replace front wiper motor.
NO >> GO TO 2.

2.CHECK FRONT WIPER MOTOR (HI) CIRCUIT

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

LHD

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E39	43	E19	1	Existed

RHD

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E39	43	E63	1	Existed

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E39	43		Not existed

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-67, "Removal and Installation".
NO >> Repair or replace harness.

FRONT WIPER STOP POSITION SIGNAL CIRCUIT

Component Function Check

INFOID:0000000010430978

1.CHECK FRONT WIPER STOP POSITION SIGNAL

CONSULT DATA MONITOR
1. Select “FR WIPER STOP POSITION” of IPDM E/R data monitor item.
2. Operate the front wiper.
3. With the front wiper operation, check the monitor status.

Monitor item	Condition		Monitor status
FR WIPER STOP POSITION	Front wiper motor	Stop position	STOP P
		Except stop position	ACTIVE P

Is the inspection result normal?

YES >> Front wiper stop position signal circuit is normal.
NO >> Refer to WW-51, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010430979

1.CHECK IPDM E/R OUTPUT VOLTAGE

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.

LHD

(+)		(–)	Voltage
Front wiper motor			
Connector	Terminal		
E19	4	Ground	9 - 16 V

RHD

(+)		(–)	Voltage
Front wiper motor			
Connector	Terminal		
E63	4	Ground	9 - 16 V

Is the inspection result normal?

YES >> Replace front wiper motor.
NO >> GO TO 2.

2.CHECK FRONT WIPER MOTOR (AUTO STOP) CIRCUIT

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

LHD

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E38	33	E19	4	Existed

RHD

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E38	33	E63	4	Existed

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E38	33		Not existed

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-67, "Removal and Installation".
NO >> Repair or replace harness.

FRONT WIPER MOTOR GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010430980

1.CHECK FRONT WIPER MOTOR GROUND CIRCUIT

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

LHD

Front wiper motor		Ground	Continuity
Connector	Terminal		
E19	5		Existed

RHD

Front wiper motor		Ground	Continuity
Connector	Terminal		
E63	5		Existed

Is the inspection result normal?

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

LIGHT & RAIN SENSOR

Component Function Check

INFOID:0000000010430981

1.CHECK FRONT WIPER AUTO OPERATION

1. Clean rain sensor detection area of windshield fully.
2. When the front wiper switch is turned to AUTO position, front wiper operates once regardless of a rainy condition.

Is front wiper (AUTO) operation normally?

YES >> Rain sensor circuit is normal.
NO >> Refer to WW-54, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010430982

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check that the following fuse is not fusing.

Fuse No.	Capacity
22	10 A

Is the inspection result normal?

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

2.CHECK RAIN SENSOR POWER SUPPLY

1. Disconnect light & rain sensor connector.
2. Turn ignition switch ON.
3. Check voltage between rain sensor harness connector and ground.

(+)		(–)	Voltage (Approx.)
Light & rain sensor			
Connector	Terminal		
R5	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 3.

3.CHECK INTERIOR ROOM LAMP RELAY CIRCUIT 1

1. Turn ignition switch OFF.
2. Remove interior room lamp relay.
3. Check voltage between interior room lamp relay harness connector and ground.

(+)		(-)	Voltage
Interior room lamp relay			
Connector	Terminal		
M80	1	Ground	Battery voltage
	6		

Is the inspection result normal?

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

4.CHECK INTERIOR ROOM LAMP RELAY

Check interior room lamp relay.
Refer to WW-56, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair interior room lamp relay.

5. CHECK INTERIOR ROOM LAMP RELAY CIRCUIT 2

1. Disconnect light & rain connector.
2. Check continuity between interior room lamp relay harness connector and light & rain harness connector.

Interior room lamp relay		Light & rain		Continuity
Connector	Terminal	Connector	Terminal	
M80	7	R5	1	Existed

Is the inspection result normal?

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

6. CHECK INTERIOR ROOM LAMP RELAY CIRCUIT 3

1. Disconnect BCM connector.
2. Check continuity between interior room lamp relay harness connector and BCM harness connector.

Interior room lamp relay		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M80	2	M70	44	Existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-132, "Removal and Installation".
NO >> Repair or replace harnesses.

7. CHECK LIGHT & RAIN SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between rain sensor harness connector and ground.

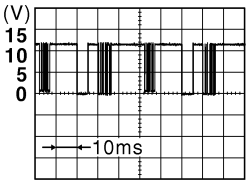
Light & rain sensor		—	Continuity
Connector	Terminal		
R5	3	Ground	Existed

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace harness.

8. CHECK LIGHT & RAIN SENSOR SIGNAL

1. Connect light & rain sensor connector.
2. Turn ignition switch ON.
3. Check voltage between BCM harness connector and ground using oscilloscope.

(+) BCM		(–)	Condition	Voltage
Connector	Terminal			
M70	47	Ground	Ignition switch ON	 Approx. 8.7V

Is the inspection result normal?

YES >> Replace light & rain sensor.
NO >> GO TO 9.

9.CHECK RAIN SENSOR SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and light & rain sensor connector.
3. Check continuity between BCM harness connector and light & rain sensor harness connector.

BCM		Light & rain sensor		Continuity
Connector	Terminal	Connector	Terminal	
M70	47	R5	2	Existed

4. Check continuity between BCM harness connector and ground.

BCM		—	Continuity
Connector	Terminal		
M70	47	Ground	Existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-132, "Removal and Installation".
NO >> Repair or replace harness.

Component Inspection

INFOID:0000000010503212

1.CHECK INTERIOR ROOM LAMP RELAY

1. Turn ignition switch OFF.
2. Remove interior room lamp relay.
3. Check continuity between interior room lamp relay terminals.

Interior room lamp relay		Condition	Continuity
Terminal			
6	7	12 V direct current supply between terminals 1 and 2.	Existed
		No current supply	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace interior room lamp relay.

WASHER SWITCH

Component Inspection

INFOID:0000000010430983

1.CHECK WASHER SWITCH

1. Turn ignition switch OFF.
2. Disconnect combination switch connector.
3. Check continuity between the combination switch terminals.

Combination switch		Condition	Continuity
Terminal			
11	16	Front washer switch ON	Existed
14	9		
11	14	Rear washer switch ON	
16	9		

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace combination switch.

REAR WIPER MOTOR CIRCUIT

Diagnosis Procedure

INFOID:0000000010431003

1.CHECK REAR WIPER MOTOR OUTPUT VOLTAGE

1. Turn rear wiper switch OFF, and wait for 1 minute or more.
2. Turn ignition switch OFF.
3. Disconnect rear wiper motor connector.
4. Turn ignition switch ON.
5. With operating rear wiper switch, check voltage between rear wiper motor harness connector and ground.

(+)		(–)	Condition		Voltage
Rear wiper motor					
Connector	Terminal				
D84	1	Ground	Rear wiper switch	ON	9 – 16 V (5 seconds*)

*: When rear wiper motor connector is disconnected and rear wiper switch is ON for more than 5 seconds, BCM stops the power supply according to rear wiper motor protection function. To perform the check again, turn rear wiper switch OFF, wait for 1 minute or more, and then perform the check.

Is the inspection result normal?

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

2.CHECK REAR WIPER MOTOR CIRCUIT

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

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
B3	123	D84	1	Existed

4. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B3	123		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-132, "Removal and Installation".
NO >> Repair or replace harness.

3.CHECK REAR WIPER MOTOR GROUND OPEN CIRCUIT

Check continuity between rear wiper motor harness connector and ground.

Rear wiper motor		Ground	Continuity
Connector	Terminal		
D84	3		Existed

Is the inspection result normal?

YES >> Replace rear wiper motor.
NO >> Repair or replace harness.

REAR WIPER STOP POSITION SIGNAL CIRCUIT

Component Function Check

INFOID:0000000010431004

1.CHECK REAR WIPER STOP POSITION SIGNAL

CONSULT DATA MONITOR
1. Select “WIPER” of BCM data monitor item.
2. Operate the rear wiper.
3. Check that “RR WIPER STOP” changes to “On” and “Off” linked with the wiper operation.

Monitor item	Condition		Monitor status
RR WIPER STOP	Rear wiper motor	Stop position	Off
		Except stop position	On

Is the inspection result normal?

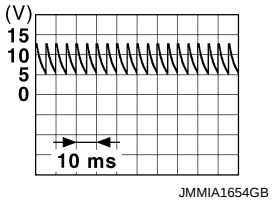
YES >> Rear wiper stop position signal circuit is normal.
NO >> Refer to WW-59, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010431005

1.CHECK REAR WIPER MOTOR (AUTO STOP) OUTPUT VOLTAGE

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

(+)		(–)	Voltage
Rear wiper motor			
Connector	Terminal		
D84	2	Ground	

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Is the inspection result normal?

YES >> Replace rear wiper motor.
NO >> GO TO 2.

2.CHECK REAR WIPER MOTOR (AUTO STOP) CIRCUIT

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

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
B4	15	D84	2	Existed

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

Rear wiper motor		Ground	Continuity
Connector	Terminal		
D84	2		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-132, "Removal and Installation".
NO >> Repair or replace harness.

HEADLAMP WASHER SWITCH

Component Function Check

INFOID:0000000010721596

1.CHECK HEADLAMP WASHER SWITCH SIGNAL

CONSULT DATA MONITOR
1. Turn ignition switch ON.
2. Select “H/L WSR SW” of BCM (WIPER) data monitor item.
3. With operating the headlamp washer switch, check the monitor status.

Monitor item	Condition		Monitor status
H/L WSR SW	Headlamp washer switch	While pressing	On
		While not pressing	Off

Is the item status normal?

YES >> Headlamp washer switch circuit is normal.
NO >> Refer to WW-61, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010721597

1.CHECK HEADLAMP WASHER SWITCH SIGNAL INPUT

1. Turn ignition switch OFF.
2. Disconnect headlamp washer switch connector.
3. Turn ignition switch ON.
4. Check voltage between headlamp washer switch harness connector and ground.

(+)		(–)	Voltage
Headlamp washer switch			
Connector	Terminal		
M63	1	Ground	9 – 16 V

Is the inspection result normal?

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

2.CHECK HEADLAMP WASHER SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between headlamp washer switch harness connector and ground.

Headlamp washer switch		—	Continuity
Connector	Terminal		
M63	2	Ground	Existed

Is the inspection result normal?

YES >> Replace headlamp washer switch.
NO >> Repair or replace harnesses.

3.CHECK HEADLAMP WASHER SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between headlamp washer switch harness connector and BCM harness connector.

Headlamp washer switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M63	1	M70	60	Existed

4. Check continuity between headlamp washer switch harness connector and ground.

Headlamp washer switch		—	Continuity
Connector	Terminal		
M63	1	Ground	Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-132, "Removal and Installation".
NO >> Repair or replace harnesses.

HEADLAMP WASHER CIRCUIT

Component Function Check

INFOID:0000000010430984

1.CHECK HEADLAMP WASHER OPERATION

CONSULT ACTIVE TEST
1. Select “HEADLAMP WASHER” of IPDM E/R active test item.
2. With operating the test item, check headlamp operation.

On :Headlamp washer ON operation
Off :Stop the headlamp washer.

Is the inspection result normal?

YES >> Headlamp washer circuit is normal.
NO >> Refer to WW-63, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010430985

1.CHECK HEADLAMP WASHER FUSIBLE LINK

1. Turn ignition switch OFF.
2. Check that the following fusible link is not fusing.

Unit	Fusible link No.	Capacity
Headlamp washer	I	30 A

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the fusible link after repairing the applicable circuit.

2.CHECK HEADLAMP WASHER RELAY POWER SUPPLY

1. Remove headlamp washer relay.
2. Check voltage between headlamp washer relay harness connector and ground.

(+)		(–)	Voltage (Approx.)
Headlamp washer relay			
Connector	Terminal		
E35	1	Ground	Battery voltage
	3		

Is the inspection result normal?

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

3.CHECK HEADLAMP WASHER RELAY

Check headlamp washer relay. Refer to WW-65, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace headlamp washer relay.

4.CHECK HEADLAMP WASHER RELAY CONTROL SIGNAL

CONSULT ACTIVE TEST
1. Install headlamp washer relay.
2. Turn ignition switch ON.
3. Select “HEADLAMP WASHER” of IPDM E/R active test item.
4. With operating the test item, check voltage between IPDM E/R harness connector and ground.

(+)		(–)	Condition		Voltage
IPDM E/R					
Connector	Terminal				
E37	7	Ground	HEAD LAMP WASHER	On	0 – 1 V
				Off	9 – 16 V

Is the inspection result normal?

YES >> GO TO 7.
NO-1 >> Fixed at 0 – 1 V and remains unchanged: GO TO 5.
NO-2 >> Fixed at 9 – 16 V and remains unchanged: Replace IPDM E/R. Refer to PCS-67, "Removal and Installation".

5. CHECK HEADLAMP WASHER RELAY CONTROL SIGNAL OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Remove headlamp washer relay.
3. Disconnect IPDM E/R harness connector.
4. Check continuity between IPDM E/R harness connector and headlamp washer relay harness connector.

IPDM E/R		Headlamp washer relay		Continuity
Connector	Terminal	Connector	Terminal	
E37	7	E35	2	Existed

Is the inspection result normal?

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

6. CHECK HEADLAMP WASHER RELAY CONTROL SIGNAL SHORT CIRCUIT

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E37	7		Not existed

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-67, "Removal and Installation".
NO >> Repair or replace harness.

7. CHECK HEADLAMP WASHER PUMP OPEN CIRCUIT

1. Turn ignition switch OFF.
2. Remove headlamp washer relay.
3. Disconnect headlamp washer pump connector.
4. Check continuity between headlamp washer relay harness connector and headlamp washer pump harness connector.

Headlamp washer relay		Headlamp washer pump		Continuity
Connector	Terminal	Connector	Terminal	
E35	5	E62	1	Existed

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace harness.

8. CHECK HEADLAMP WASHER PUMP (GND) OPEN CIRCUIT

Check continuity between headlamp washer pump harness connector and ground.

Headlamp washer pump		Ground	Continuity
Connector	Terminal		
E62	2		Existed

Is the inspection result normal?

YES >> Replace headlamp washer pump.
NO >> Repair or replace harness.

Component Inspection

INFOID:0000000010430986

1. CHECK HEADLAMP WASHER RELAY

1. Turn ignition switch OFF.
2. Remove headlamp washer relay.
3. Check continuity of headlamp washer relay.

Headlamp washer relay		Condition	Continuity
Terminal			
3	5	12 V direct current supply between terminals 1 and 2.	Existed
		Not Apply	Not existed

Is the inspection result normal?

YES >> Headlamp washer relay is normal.
NO >> Replace headlamp washer relay.

SYMPTOM DIAGNOSIS

WIPER AND WASHER SYSTEM SYMPTOMS WITH LIGHT & RAIN SENSOR

WITH LIGHT & RAIN SENSOR : Symptom Table

INFOID:0000000010430987

NOTE:
Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Probable malfunction location	Inspection item
Front wiper does not operate	HI only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper motor (HI) circuit Refer to WW-49, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
	LO only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper motor (LO) circuit Refer to WW-47, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
	AUTO only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• Light & rain sensor • Harness between light & rain sensor and BCM • BCM	Light & rain sensor Refer to WW-54, "Component Function Check".
	HI, LO and AUTO	SYMPTOM DIAGNOSIS “FRONT WIPER DOES NOT OPERATE” Refer to WW-73, "Diagnosis Procedure".	

Symptom		Probable malfunction location	Inspection item
Front wiper does not stop	HI only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
		IPDM E/R	—
	LO only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
		IPDM E/R	—
	AUTO only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• Light & rain sensor • Harness between light & rain sensor and BCM • BCM	Light & rain sensor Refer to WW-54, "Component Function Check".
Front wiper does not operate normally	Sensitivity adjustment cannot be performed.	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		BCM	—
	Auto wiping operation does not operate	Check that the wiper setting is auto wiping operation Refer to WW-23, "WIPER : CONSULT Function - WIPER".	
	Wiper is not linked to the washer operation.	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		BCM	—
	Does not return to stop position. [Repeatedly operates for 10 seconds and then stops for 20 seconds. (Fail-safe)]	• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper stop position signal circuit Refer to WW-51, "Component Function Check".
Rear wiper does not operate	ON only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
	INT only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
	ON and INT	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• BCM • Harness between rear wiper motor and BCM • Harness between rear wiper motor and ground • Rear wiper motor	Rear wiper motor circuit Refer to WW-58, "Diagnosis Procedure".
Rear wiper does not stop	ON only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
	INT only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".

Symptom		Probable malfunction location	Inspection item
Rear wiper does not operate normally	Wiper is not linked to the washer operation	• Combination switch • Harness between rear wiper motor and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		BCM	—
	Rear wiper does not return to the stop position. [Stops after a five-second operation. (Fail-safe)]	• BCM • Harness between rear wiper motor and BCM • Rear wiper motor	Rear wiper stop position signal circuit Refer to WW-59, "Component Function Check".
	Rear wiper does not operate even when shift position is “R”.	Reverse switch signal (CAN communication) • BCM • IPDM E/R	BCM DATA MONITOR “REVERSE SIGNAL - IPDM”
Headlamp washer does not operate.	Headlamp washer does not operate when headlamps are turned ON.	• Harness between headlamp washer switch and BCM • Harness between headlamp washer switch and ground • Headlamp washer switch • BCM	Headlamp washer switch Refer to WW-61, "Component Function Check".
		• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• Fusible link • Harness between fusible link and headlamp washer relay • Headlamp washer relay • Harness between headlamp washer relay and IPDM E/R • IPDM E/R • Harness between headlamp washer relay and headlamp washer pump • Harness between headlamp washer pump and ground • Headlamp washer pump	Headlamp washer circuit Refer to WW-63, "Component Function Check".
		BCM	—

WITHOUT LIGHT & RAIN SENSOR

WITHOUT LIGHT & RAIN SENSOR : Symptom Table

INFOID:0000000010430988

NOTE:
Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Probable malfunction location	Inspection item
Front wiper does not operate	HI only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper motor (HI) circuit Refer to WW-49, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor “FR WIP REQ”
	LO and INT	• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper motor (LO) circuit Refer to WW-47, "Component Function Check".
	LO only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor “FR WIP REQ”
	INT only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor “FR WIP REQ”
	HI, LO and INT	SYMPTOM DIAGNOSIS Refer to WW-73, "Diagnosis Procedure".	
Front wiper does not stop	HI only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor “FR WIP REQ”
		IPDM E/R	—
	LO only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor “FR WIP REQ”
		IPDM E/R	—
	INT only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor “FR WIP REQ”

Symptom		Probable malfunction location	Inspection item
Front wiper does not operate normally	Intermittent adjustment cannot be performed	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		BCM	—
	Intermittent control linked with vehicle speed cannot be performed	Check the wiper setting is linked with vehicle speed. Refer to WW-23, "WIPER : CONSULT Function - WIPER".	
	Wiper is not linked to the washer operation	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		BCM	—
	Does not return to stop position [Repeatedly operates for 10 seconds and then stops for 20 seconds. After that, it stops the operation. (Fail-safe)]	• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper stop position signal circuit Refer to WW-51, "Component Function Check".
Rear wiper does not operate	ON only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
	INT only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
	ON and INT	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• BCM • Harness between rear wiper motor and BCM • Harness between rear wiper motor and ground • Rear wiper motor	Rear wiper motor circuit Refer to WW-58, "Diagnosis Procedure".
Rear wiper does not stop	ON only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
	INT only	• Combination switch • BCM	Combination switch Refer to BCS-130, "Symptom Table".
Rear wiper does not operate normally	Wiper is not linked to the washer operation	• Combination switch • Harness between rear wiper motor and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		BCM	—
	Rear wiper does not return to the stop position. [Stops after a five-second operation. (Fail-safe)]	• BCM • Harness between rear wiper motor and BCM • Rear wiper motor	Rear wiper stop position signal circuit Refer to WW-59, "Component Function Check".
	Rear wiper does not operate even when shift position is “R”.	Reverse switch signal (CAN communication) • BCM • IPDM E/R	BCM DATA MONITOR “REVERSE SIGNAL - IPDM”

Symptom		Probable malfunction location	Inspection item
Headlamp washer does not operate.	Headlamp washer does not operate when headlamps are turned ON.	• Harness between headlamp washer switch and BCM • Harness between headlamp washer switch and ground • Headlamp washer switch • BCM	Headlamp washer switch Refer to WW-61, "Component Function Check".
		• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-130, "Symptom Table".
		• Fusible link • Harness between fusible link and headlamp washer relay • Headlamp washer relay • Harness between headlamp washer relay and IPDM E/R • IPDM E/R • Harness between headlamp washer relay and headlamp washer pump • Harness between headlamp washer pump and ground • Headlamp washer pump	Headlamp washer circuit Refer to WW-63, "Component Function Check".
		BCM	—

NORMAL OPERATING CONDITION

Description

INFOID:0000000010430989

FRONT WIPER MOTOR PROTECTION FUNCTION

- IPDM E/R may stop the front wiper to protect the front wiper motor if any obstruction (operation resistance) such as a large amount of snow is detected during the front wiper operation.
- At that time turn OFF the front wiper and remove the foreign object. Then reactivate the front wiper. The wiper will operate normally.

REAR WIPER MOTOR PROTECTION FUNCTION

- BCM may stop rear wiper to protect the rear wiper motor when the rear wiper is stopped for 5 seconds or more due to a snowfall.
- Rear wiper operates normally 1 minute after the obstacles are removed with rear wiper OFF.

FRONT WIPER DOES NOT OPERATE

Description

INFOID:0000000010430990

The front wiper does not operate under any operation conditions.

Diagnosis Procedure

INFOID:0000000010430991

1.CHECK WIPER RELAY OPERATION

CONSULT ACTIVE TEST

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

LOW : Front wiper LO operation
HIGH : Front wiper HI operation
OFF : Stop the front wiper.

Is front wiper operation normally?

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

2.CHECK FRONT WIPER MOTOR FUSE

1. Turn ignition switch OFF.
2. Check that the following fuse is not fusing.

Unit	Location	No.	Capacity
Front wiper motor	IPDM E/R	60	30 A

Is the inspection result normal?

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

3.CHECK FRONT WIPER MOTOR GROUND CIRCUIT

Check front wiper motor ground circuit. Refer to WW-53, "Diagnosis Procedure".

Is the inspection result normal?

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

4.CHECK FRONT WIPER REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select “FR WIP REQ” of IPDM E/R data monitor item.
2. Switch the front wiper switch to HI and LO.
3. With operating the front wiper switch, check the status of “FR WIP REQ”.

Monitor item	Condition		Monitor status
FR WIP REQ	Front wiper switch	HI	HIGH
		LO	LOW
		INT	
		OFF	STOP

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-67, "Removal and Installation".
NO >> GO TO 5.

5.CHECK COMBINATION SWITCH

Perform the inspection of the combination switch. Refer to BCS-130, "Symptom Table".

Is combination switch normal?

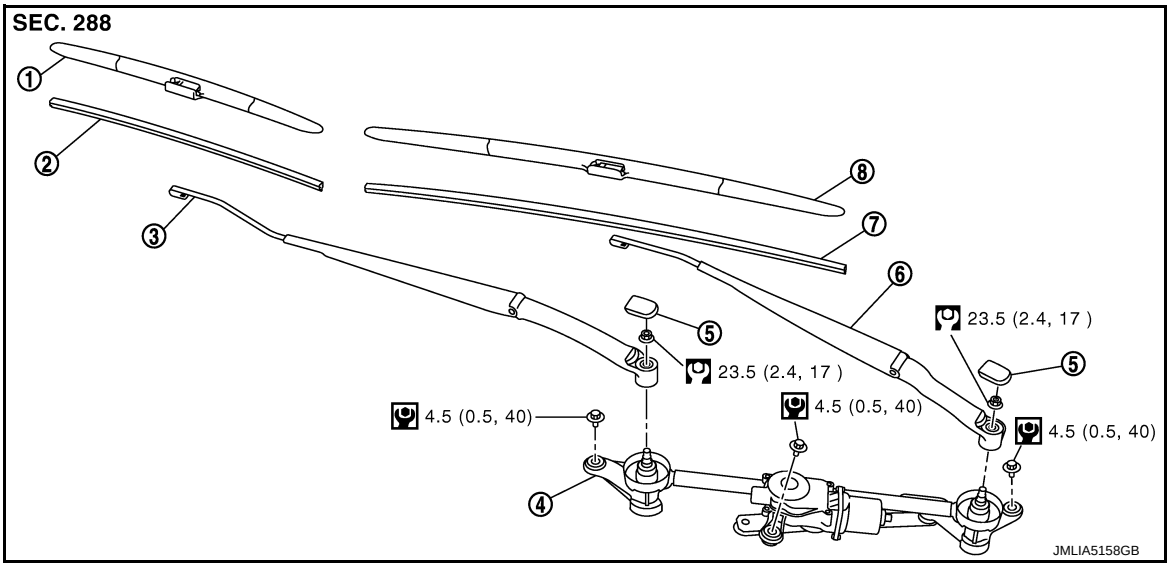
YES >> Replace BCM. Refer to BCS-132, "Removal and Installation".
NO >> Repair or replace the applicable parts.

REMOVAL AND INSTALLATION

FRONT WIPER

Exploded View

INFOID:0000000010479826



① Wiper blade RH	② Wiper refill RH	③ Wiper arm RH
④ Wiper motor assembly	⑤ Wiper arm cap	⑥ Wiper arm LH
⑦ Wiper refill LH	⑧ WIper blade LH	

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Nissan MP special grease No. 2

WIPER ARM

WIPER ARM : Removal and Installation

INFOID:0000000010479827

CAUTION:
Clean the windshield glass and wiper refill so that the windshield glass may not be damaged by dust, etc.

REMOVAL

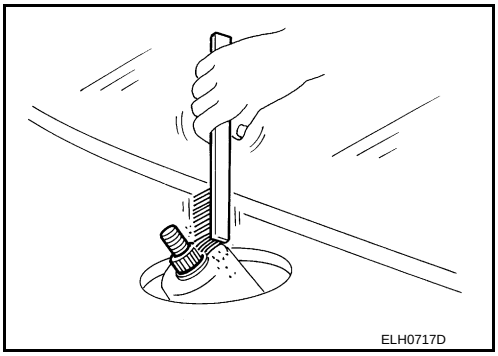
1. Full open hood assembly.
   CAUTION:
   Before opening hood assembly, check that wipers are in auto stop position.
2. Remove wiper arm cap.
3. Remove wiper arm fixing nut, and then remove wiper arm.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **Clean wiper arm installation location as shown in the figure, and then fully insert wiper arm to prevent nut from being loosened by shakiness.**



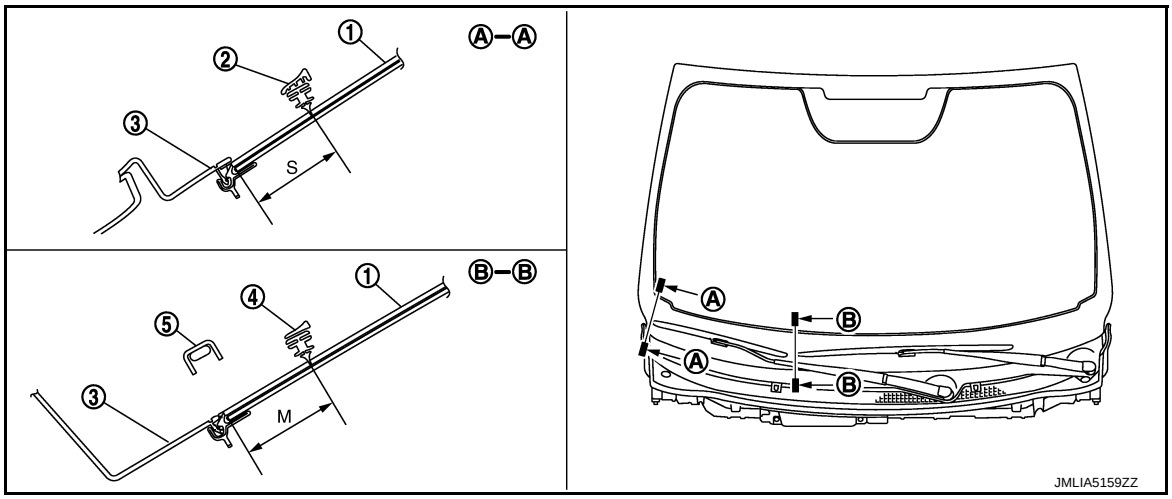
- **When installing the wiper arm, install so that it is within the standard. For the standard, refer to WW-76, "WIPER ARM : Adjustment".**
- **After installation, operate front wiper, and then check that the wiper blades stop at the specified position. Refer to WW-76, "WIPER ARM : Adjustment".**

WIPER ARM : Adjustment

INFOID:0000000010479828

WIPER BLADE POSITION ADJUSTMENT

Clearance between the end of cowl top cover / front fender cover and the top of wiper blade center.



① Windshield glass assembly ② Wiper blade RH ③ Cowl top cover
④ Wiper blade LH ⑤ Wiper arm RH

Standard clearance

S : 38.0 ± 7.5 mm (1.50 ± 0.30 in)

M : 40.7 ± 7.5 mm (1.60 ± 0.30 in)

WIPER BLADE

WIPER BLADE : Removal and Installation

INFOID:0000000010479829

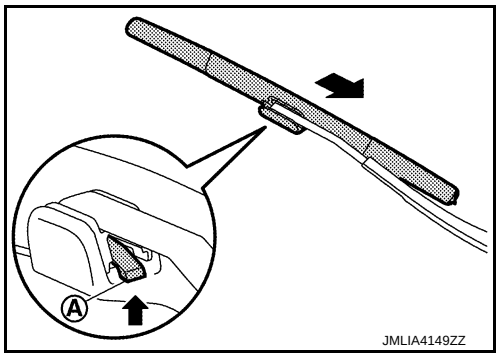
CAUTION:

Clean the windshield glass and wiper refill so that the windshield glass may not be damaged by dust, etc.

REMOVAL

1. Move the wiper arm by service position operation to lock back possibility position.
   - with light & rain sensor: Refer to WW-10, "FRONT WIPER AND WASHER SYSTEM (WITH LIGHT & RAIN SENSOR) : System Description".
   - without light & rain sensor: Refer to WW-13, "FRONT WIPER AND WASHER SYSTEM (WITHOUT LIGHT & RAIN SENSOR) : System Description".

2. Lift up wiper arm, and then lock back wiper arm.
3. Slide the wiper blade while pushing up lever Ⓐ, and then remove wiper blade.
   CAUTION:
   After the wiper blade is removed, wrap the wiper arm tip with a shop cloth and fold it down so that the wiper arm does not fall against and damage the windshield glass.



INSTALLATION

Install in the reverse order of removal.

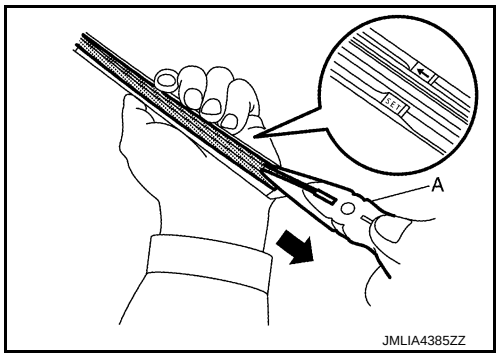
WIPER REFILL

WIPER REFILL : Removal and Installation

INFOID:0000000010479830

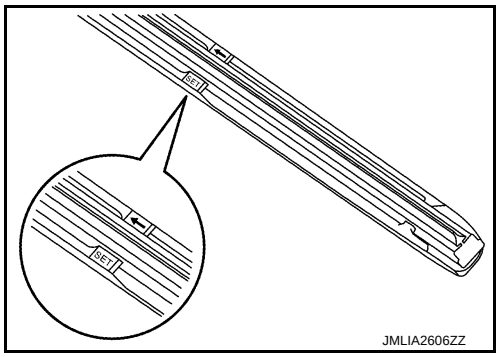
REMOVAL

1. Remove wiper blade. Refer to WW-76, "WIPER BLADE : Removal and Installation".
2. Pull out wiper refill using a long-nose pliers (A), and then remove wiper refill.

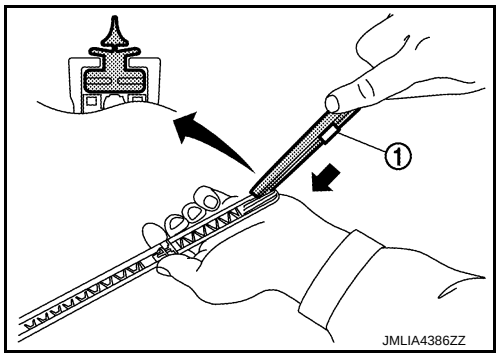


INSTALLATION

1. Check the wiper refill insertion direction by arrow mark on wiper blade.

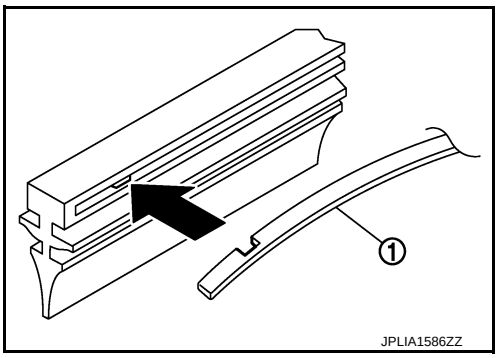


2. Pass through pawl of wiper blade in the groove of wiper refill.
   NOTE:
   Remove holder ①* at last procedure.
   *: Attached to service parts.



3. Engage wiper refill stopper hole, and wiper blade pawl with imprinted “SET” mark (“⬅” mark).
4. Check the following items after installing.
   - Wiper refill thoroughly fits in the pawl on wiper blade.
   - Wiper refill is not deformed (waving / tucking).

NOTE:
When the vertebra is detached
- Insert the vertebra ① into the wiper blade to the same bending direction.
- If a vertebra has a notch, fit it to a protrusion inside the wiper refill.



WIPER DRIVE ASSEMBLY

WIPER DRIVE ASSEMBLY : Removal and Installation

INFOID:0000000010479831

REMOVAL

1. Remove cowl top cover. Refer to EXT-29, "Removal and Installation".
2. Disconnect wiper motor harness connector, disengage wiper motor harness clip, remove wiper drive assembly fixing bolts, and then remove wiper drive assembly.

INSTALLATION

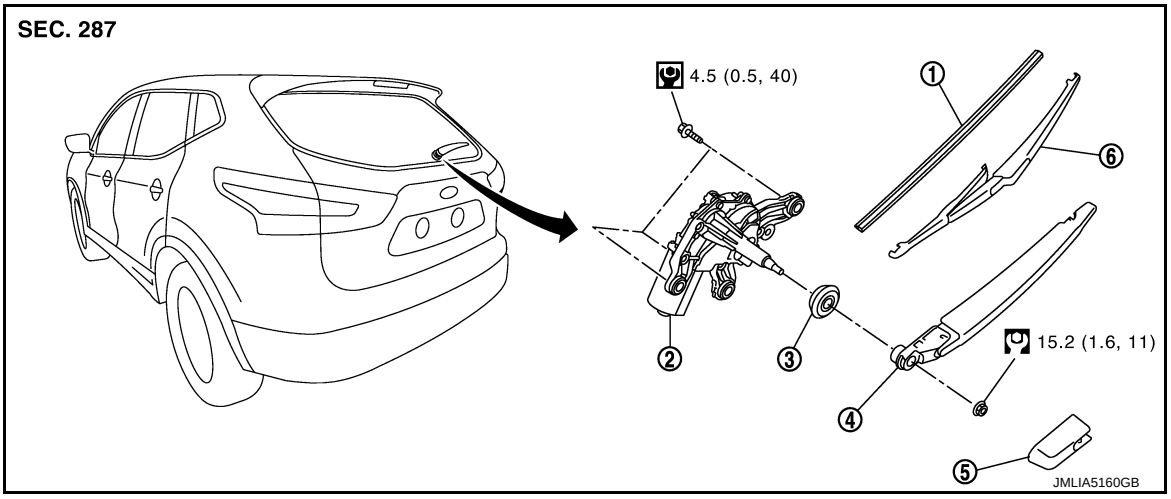
Note the following item, and then install in the reverse order of removal.

CAUTION:
When installing, temporarily tighten all fixing bolts, and then tighten bolts to specified torque.

REAR WIPER

Exploded View

INFOID:0000000010479850



① Rear wiper refill
② Rear wiper motor
③ Rear wiper pivot seal
④ Rear wiper arm
⑤ Rear wiper arm cover
⑥ Rear wiper blade

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

WIPER ARM

WIPER ARM : Removal and Installation

INFOID:0000000010491763

CAUTION:
Clean the rear windshield glass and rear wiper refill so that the rear windshield glass may not be damaged by dust, etc.

REMOVAL

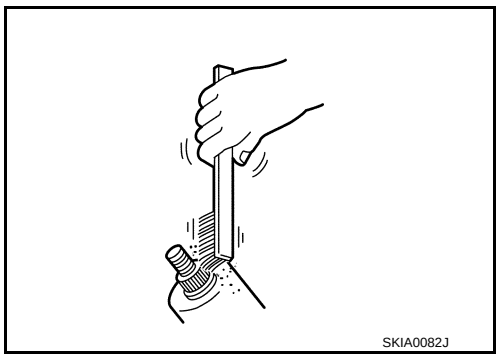
1. Operate rear wiper to the auto stop position.
2. Open rear wiper arm cover.
3. Remove rear wiper arm fixing nut.
4. Remove wiper arm from the vehicle.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **Clean wiper arm installation location as shown in the figure, and then fully insert wiper arm to prevent nut from being loosened by shakiness.**



- **When installing the wiper arm, install so that it is within the standard. For the standard, refer to WW-80, "WIPER ARM : Adjustment".**

- **After installation, operate front wiper, and then check that the wiper blades stop at the specified position. Refer to WW-80, "WIPER ARM : Adjustment".**

WIPER ARM : Adjustment

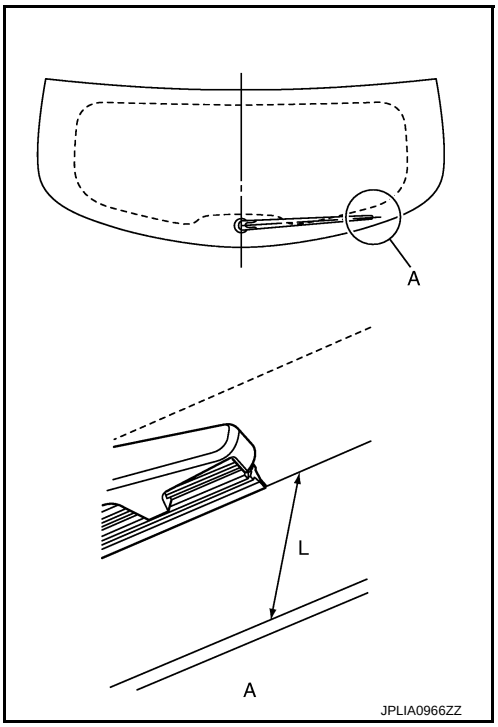
INFOID:0000000010491764

REAR WIPER BLADE POSITION ADJUSTMENT

Clearance between the end of back door glass and top of wiper blade center.

Standard clearance

L : 40.5 mm (1.59 in)



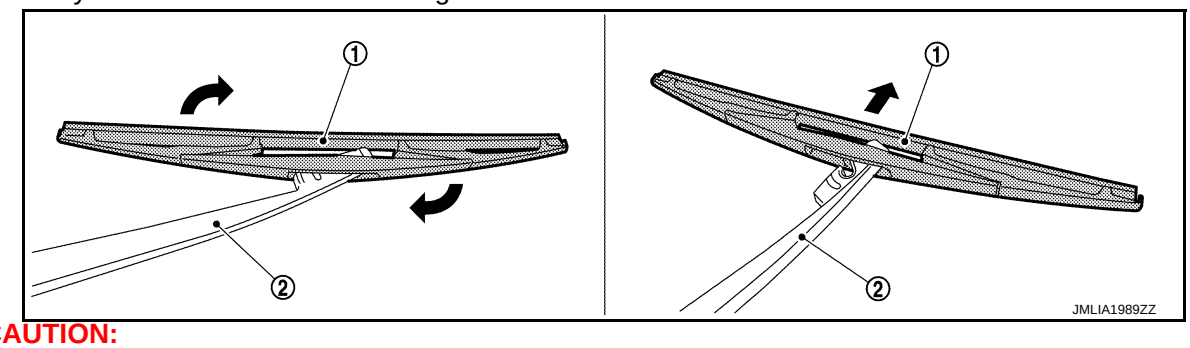
WIPER BLADE

WIPER BLADE : Removal and Installation

INFOID:0000000010479853

REMOVAL

1. Lift up and hold rear wiper arm.
2. Remove rear wiper blade ① from rear wiper arm ② while rotating rear wiper blade in the direction indicated by the arrow as shown in the figure.



CAUTION:

After the wiper blade is removed, wrap the wiper arm tip with a shop cloth and fold it down so that the wiper arm does not fall against and damage the windshield glass.

INSTALLATION

Install in the reverse order of removal.

WIPER MOTOR

WIPER MOTOR : Removal and Installation

INFOID:0000000010491661

REMOVAL

1. Remove the rear wiper arm. Refer to WW-79, "WIPER ARM : Removal and Installation".
2. Remove the back door lower finisher. Refer to INT-31, "Removal and Installation".
3. Disconnect the harness connector from the rear wiper motor.
4. Remove the rear wiper motor fixing bolts, and then remove rear wiper motor.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

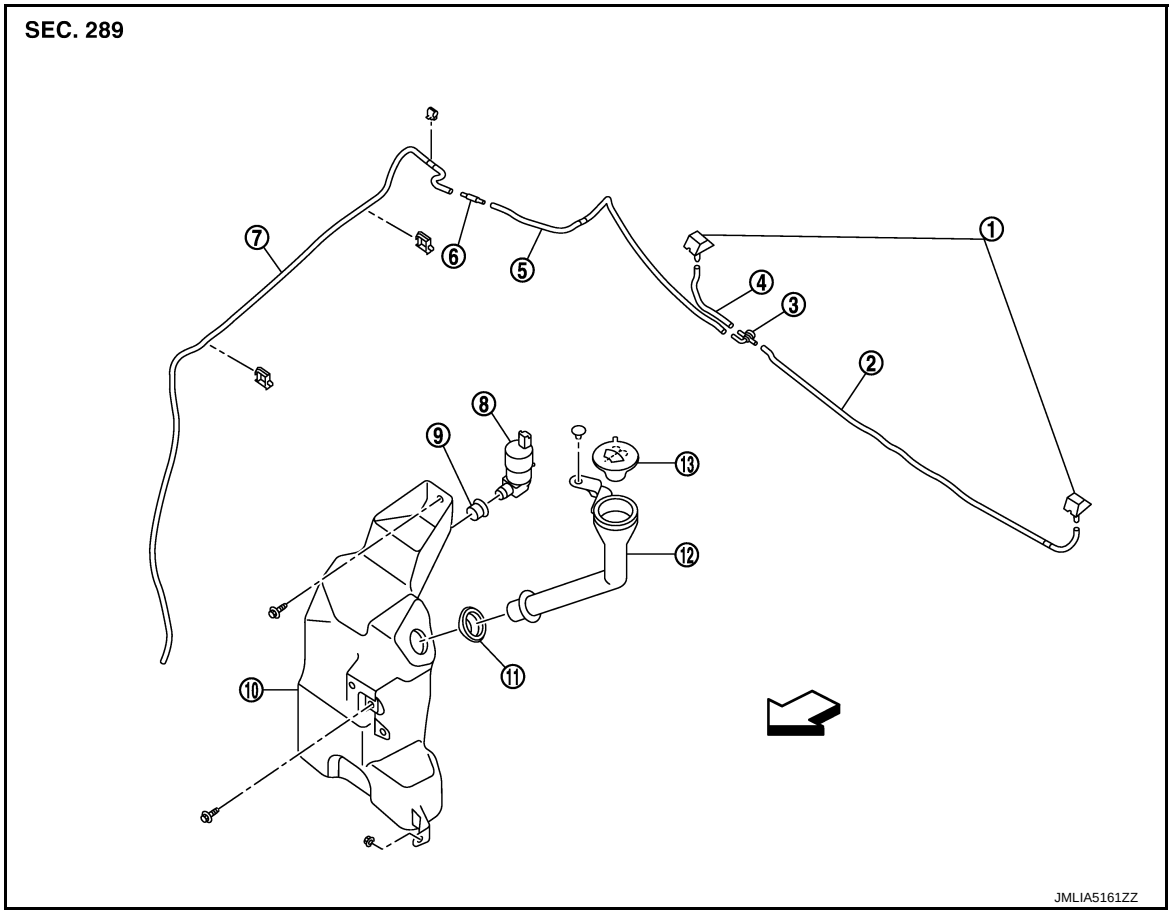
CAUTION:

When installing, temporarily tighten all fixing bolts, and then tighten bolts to specified torque.

FRONT WASHER

Exploded View

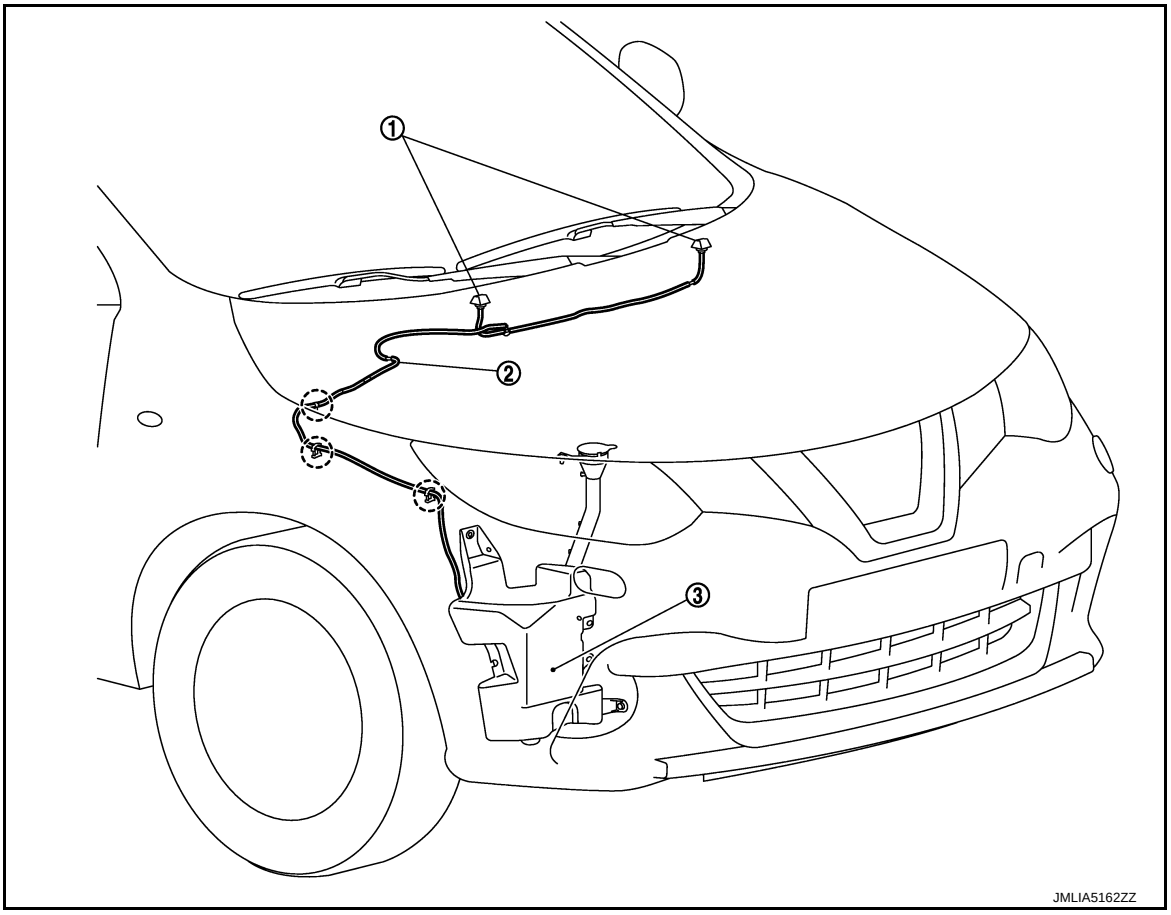
INFOID:0000000010479833



① Washer nozzle
② Washer tube
③ Check valve
④ Washer tube
⑤ Washer tube
⑥ Straight connector
⑦ Washer tube
⑧ Washer pump
⑨ Packing
⑩ Washer tank
⑪ Washer tank packing
⑫ Washer tank inlet
⑫ Washer tank cap
⇦ : Vehicle front

Hydraulic Layout

INFOID:0000000010479834



① Washer nozzle ② Washer tube ③ Washer tank

: Fixing point

WASHER NOZZLE

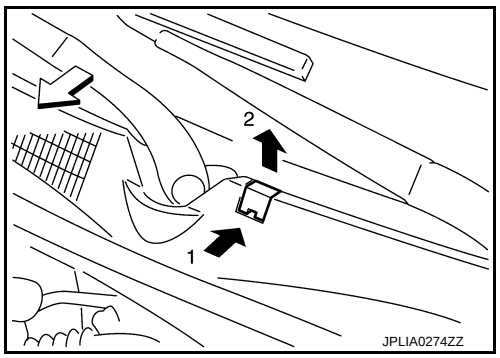
WASHER NOZZLE : Removal and Installation

INFOID:0000000010491780

REMOVAL

1. Open the hood.
2. Remove front washer nozzle with a small flat-bladed screwdriver in according to numerical order 1→2 indicated by arrows as shown in the figure.

: Vehicle front



3. Remove the front washer tube from the front washer nozzle.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **After installation, check that there is no leakage at operated washer.**
- **After installation, check that spray position. Refer to WW-84, "WASHER NOZZLE : Inspection".**

WASHER NOZZLE : Inspection

INFOID:0000000010491781

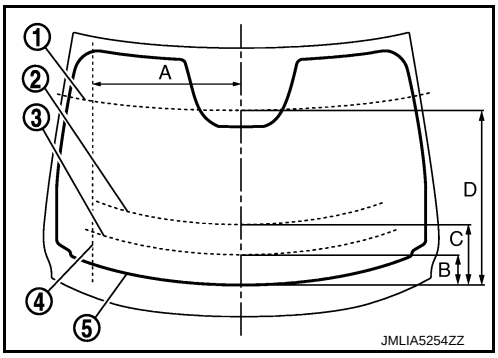
WASHER NOZZLE SPRAY POSITION INSPECTION

Check spray positions to match the positions shown in the figure.

CAUTION:

Can not adjust splay position.

Replace the washer nozzle, when the splay position is out of the figure.



- **① : Upper allowable limit of aiming.**
- **② : Aiming target.**
- **③ : Lower allowable limit of aiming.**
- **④ : Approx outer edge of fan.**
- **⑤ : Edge of black coating.**
- **A : 540 mm (21.3 in)**
- **B : 110 mm (4.33 in)**
- **C : 220 mm (8.66 in)**
- **D : 630 mm (24.8 in)**

WASHER TUBE

WASHER TUBE : Removal and Installation

INFOID:0000000010479864

CAUTION:

When the washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

REMOVAL

1. Remove cowl top cover. Refer to EXT-29, "Removal and Installation".
2. Remove front fender protector. Refer to EXT-32, "Removal and Installation".
3. Pull out washer tube from washer pump.
4. Disengage washer tube fixing clip, and then remove washer tube.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

CAUTION:

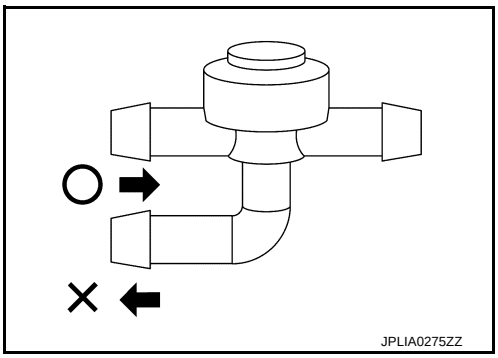
After installation, check that there is no leakage at operated washer.

WASHER TUBE : Inspection

INFOID:0000000010499382

CHECK VALVE INSPECTION

Check that air can pass through the hose by blowing forward [toward the nozzle, and check that air cannot pass through by sucking [toward the washer tank].



WASHER TANK

WASHER TANK : Removal and Installation

INFOID:0000000010479837

REMOVAL

CAUTION:

When the washer tank inlet and washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Remove front bumper fascia assembly. Refer to EXT-19, "Removal and Installation".
2. Remove front fender protector. Refer to EXT-32, "Removal and Installation".
3. Remove washer tank inlet.
   a. Remove washer tank inlet fixing clip.
   b. Pull out washer tank inlet from washer tank.
4. Pull out washer tube from washer pump.
5. Disconnect washer pump harness connector.
6. Disengage harness clips, and then remove harness form washer tank.
7. Remove washer tank fixing bolts and nut, and then remove washer tank.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **Add washer liquid up to the top of the washer tank inlet after installing. Check that there is no leakage.**
- **After installation, check that there is no leakage at operated washer.**

WASHER PUMP

WASHER PUMP : Removal and Installation

INFOID:0000000010479838

REMOVAL

CAUTION:

When the washer tube and washer pump is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Remove front fender protector. Refer to EXT-32, "Removal and Installation".
2. Pull out washer tube from washer pump.
3. Disconnect washer pump harness connector, pull out washer pump, and then remove washer pump.
4. Remove packing.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

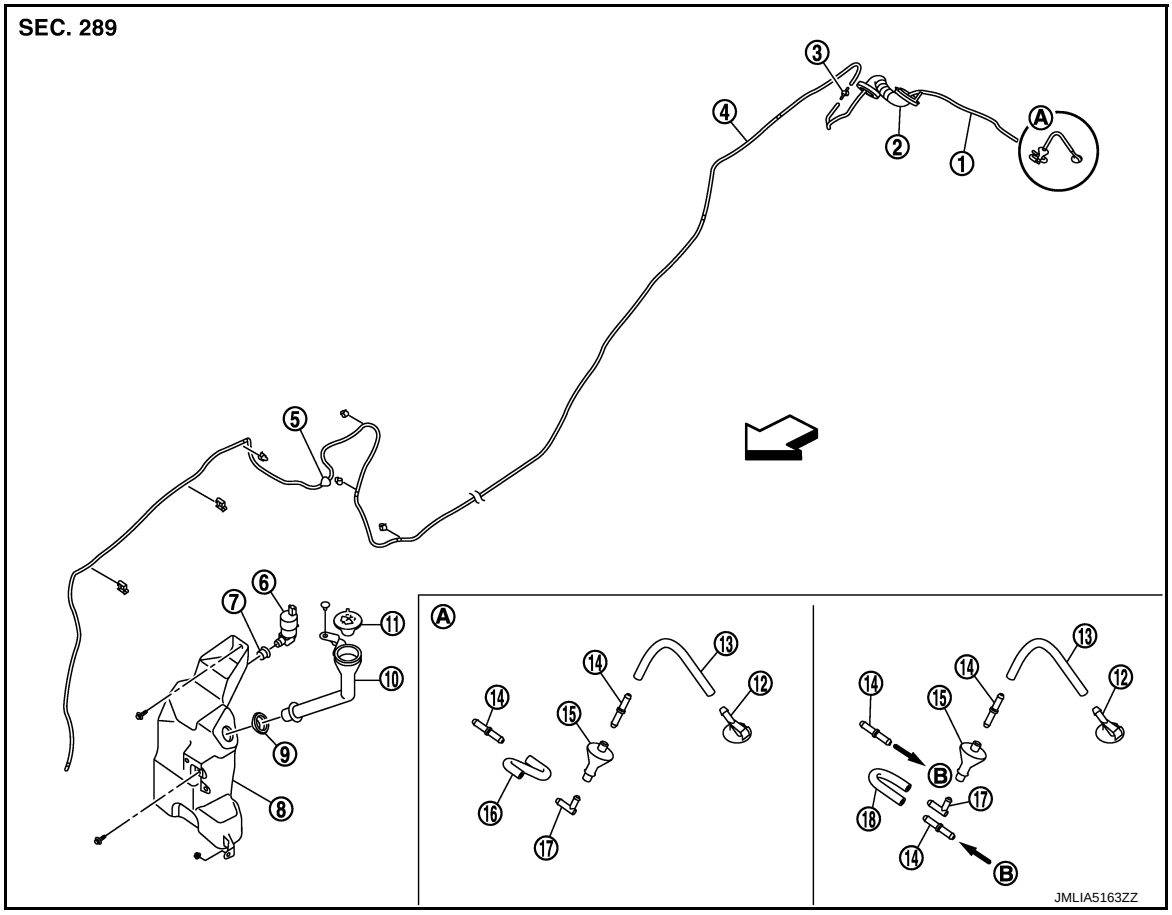
CAUTION:

- **Check that packing is inserted fully. (This may be the cause of washer fluid leakage and washer pump looseness.)**
- **Add washer liquid up to the top of the washer tank inlet after installing. Check that there is no leakage.**
- **After installation, check that there is no leakage at operated washer.**

REAR WASHER

Exploded View

INFOID:0000000010479856



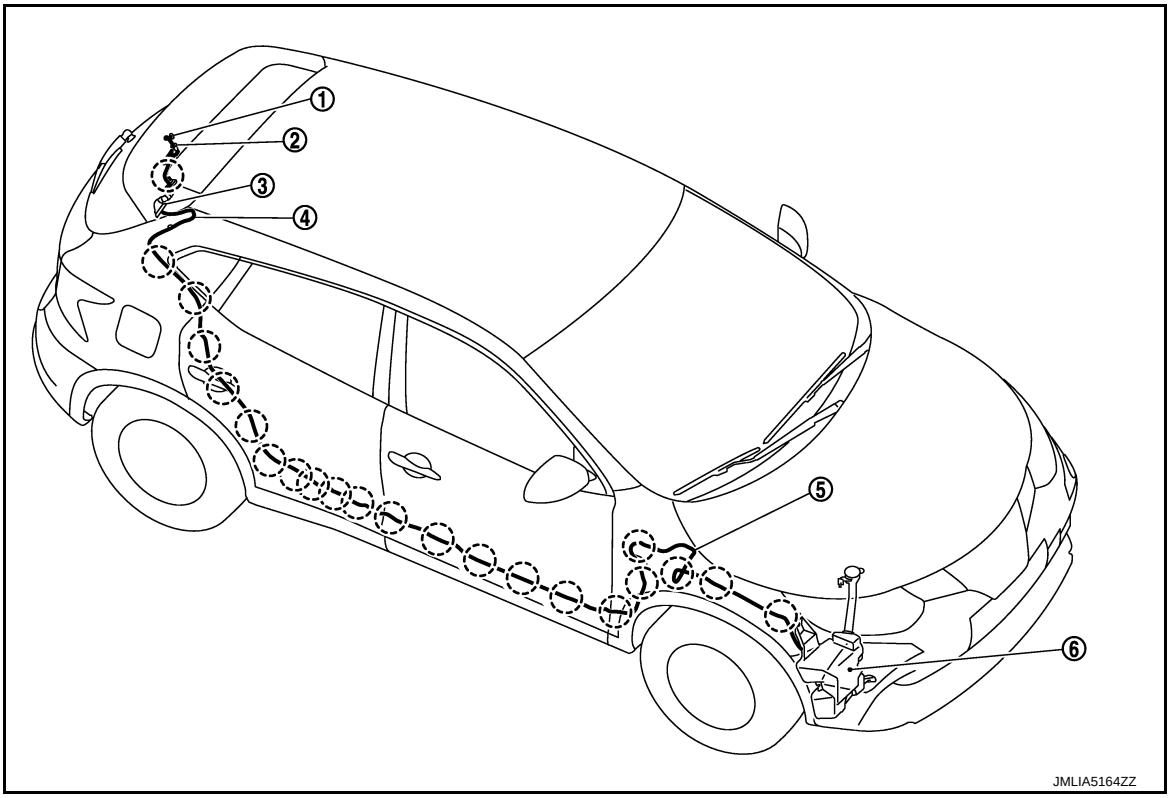
① Washer tube	② Grommet	③ Check valve
④ Washer tube	⑤ Grommet	⑥ Washer pump
⑦ Packing	⑧ Washer tank	⑨ Washer tank packing
⑩ Washer tank inlet	⑪ Washer tank cap	⑫ Rear washer nozzle
⑬ Washer tube	⑭ Tube connector	⑮ Grommet
⑯ Washer tube	⑰ Tube connector	⑱ Washer tube

Ⓑ : To solenoid valve

⇦ : Vehicle front

Hydraulic Layout

INFOID:0000000010479857



① Rear washer nozzle	② Grommet	③ Grommet
④ Washer tube	⑤ Grommet	⑥ Washer tank
: Fixing point		

WASHER NOZZLE

WASHER NOZZLE : Removal and Installation

INFOID:0000000010479858

REMOVAL

CAUTION:

When the washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Disengage rear washer nozzle fixing pawl, using a remover tool to notch of rear washer nozzle.
2. Pull out washer tube form rear washer nozzle, and then remove rear washer nozzle.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

CAUTION:

- **Can not adjust splay position.**
- **After installation, check that there is no leakage at operated washer.**

WASHER TUBE

WASHER TUBE : Removal and Installation

INFOID:0000000010479863

CAUTION:

When the washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

REMOVAL

1. Remove instrument panel, and then remove insulator. Refer to IP-13, "Removal and Installation".

2. Remove dash side finisher and center pillar lower garnish. Refer to INT-18, "Removal and Installation".
3. Remove luggage side lower finisher (front). Refer to INT-29, "Luggage side trim".
4. Remove head lining. Refer to INT-25, "Removal and Installation".
5. Remove back door trim finisher upper. Refer to INT-31, "Removal and Installation".
6. Remove front fender protector. Refer to EXT-32, "Removal and Installation".
7. Remove rear washer nozzle. Refer to WW-87, "WASHER NOZZLE : Removal and Installation".
8. Pull out washer tube from washer pump.
9. Disengage washer tube fixing clips, and then remove washer tube.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

CAUTION:

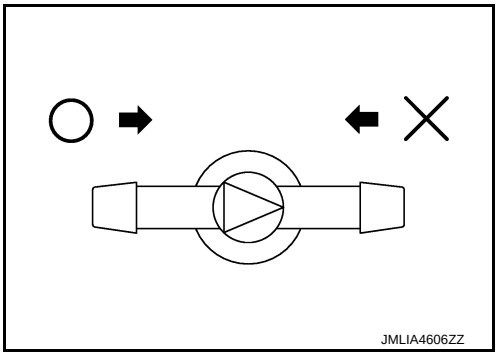
After installation, check that there is no leakage at operated washer.

WASHER TUBE : Inspection

INFOID:0000000010499372

CHECK VALVE INSPECTION

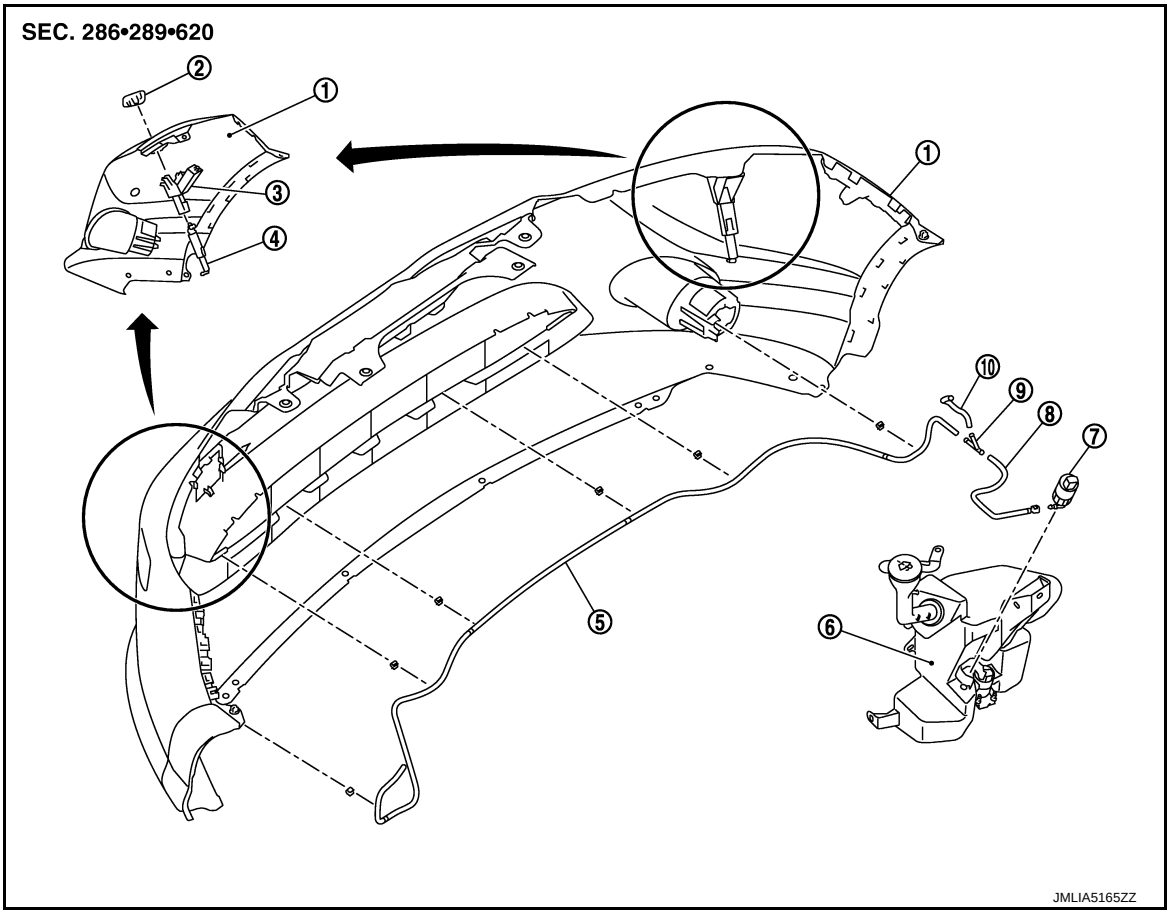
Check that air can pass through by blowing forward direction [toward the washer nozzle], and check that air cannot pass through by sucking reverse direction [toward washer tank].



HEADLAMP WASHER

Exploded View

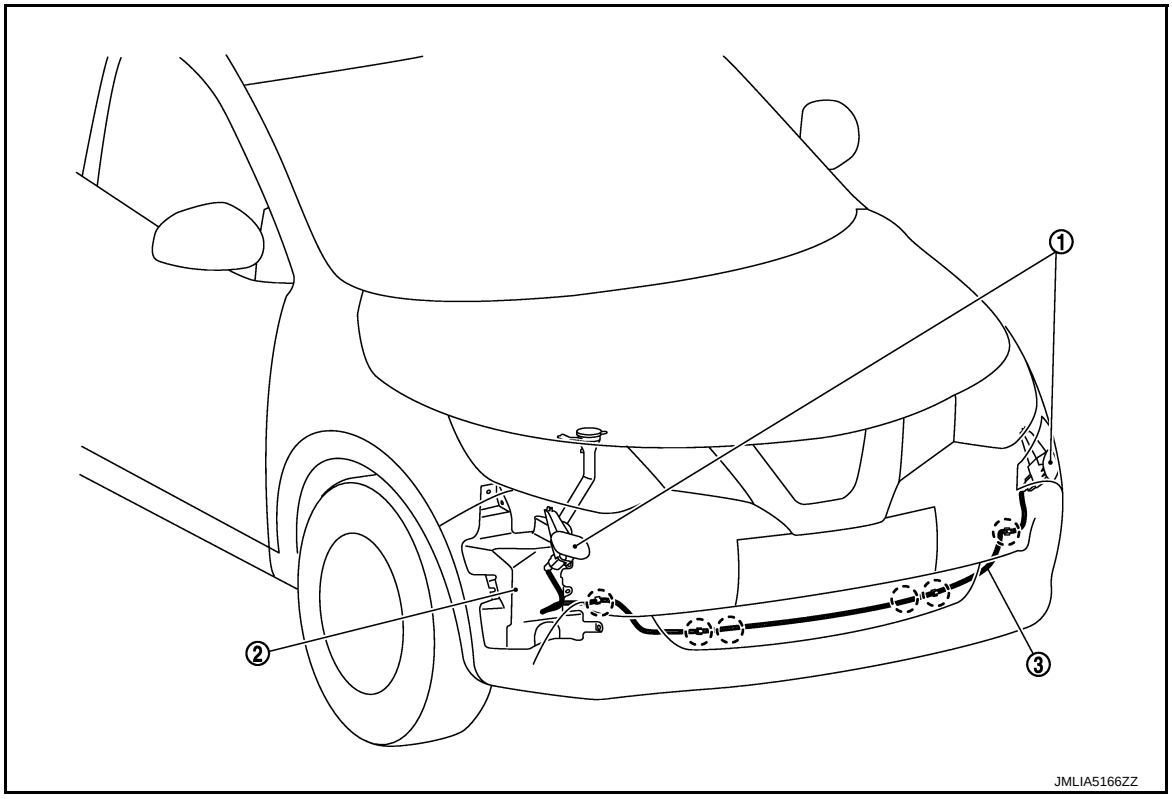
INFOID:0000000010479840



① Front bumper fascia assembly
② Headlamp washer cover
③ Headlamp washer bracket
④ Headlamp washer nozzle
⑤ Headlamp washer tube
⑥ Washer tank
⑦ Headlamp washer pump
⑧ Headlamp washer tube
⑨ Connector
⑩ Headlamp washer tube

Hydraulic Layout

INFOID:0000000010479841



① Headlamp washer nozzle ② Washer tank ③ Washer tank

: Fixing portion

WASHER NOZZLE

WASHER NOZZLE : Removal and Installation

INFOID:0000000010479842

REMOVAL

1. Remove front bumper fascia assembly. Refer to EXT-19, "Removal and Installation".
2. Disengage headlamp washer cover fixing pawls while pull out headlamp washer nozzle from front bumper fascia assembly, and then remove headlamp washer cover.
3. Remove headlamp washer nozzle.

a. Pull out washer tube from washer nozzle.

b. Disengage headlamp washer bracket fixing pawl, and then remove headlamp washer bracket from front bumper fascia assembly.

c. Separate headlamp washer bracket and headlamp washer nozzle.

INSTALLATION

Note the following items, and install in the reverse order of removal.

CAUTION:

- **After installation, check that there is no leakage at operated washer.**
- **After installation, check spray position. Refer to WW-90, "WASHER NOZZLE : Inspection".**

WASHER NOZZLE : Inspection

INFOID:0000000010479843

HEADLAMP WASHER NOZZLE SPRAY POSITION INSPECTION

Check that washer fluid is sprayed on the luminescent surface of lamp.

CAUTION:

Replace headlamp washer nozzle assembly with a new part if headlamp washer jet position is outside the headlamp illumination area.

WASHER TUBE

WASHER TUBE : Removal and Installation

INFOID:0000000010479844

REMOVAL

1. Remove front bumper fascia assembly. Refer to EXT-19, "Removal and Installation".
2. Pull out washer tube from headlamp washer nozzle.
3. Disengage headlamp washer tube fixing portion, and then remove headlamp washer tube.

INSTALLATION

Note the following item, and then Install in the reverse order of removal.

CAUTION:

After installation, check that there is no leakage at operated washer.

WASHER PUMP

WASHER PUMP : Removal and Installation

INFOID:0000000010479845

REMOVAL

CAUTION:

When the washer tube and washer pump is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Remove front fender protector. Refer to EXT-32, "Removal and Installation".
2. Pull out washer tube from washer pump.
3. Disconnect washer pump harness connector, pull out washer pump, and then remove washer pump.
4. Remove packing.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

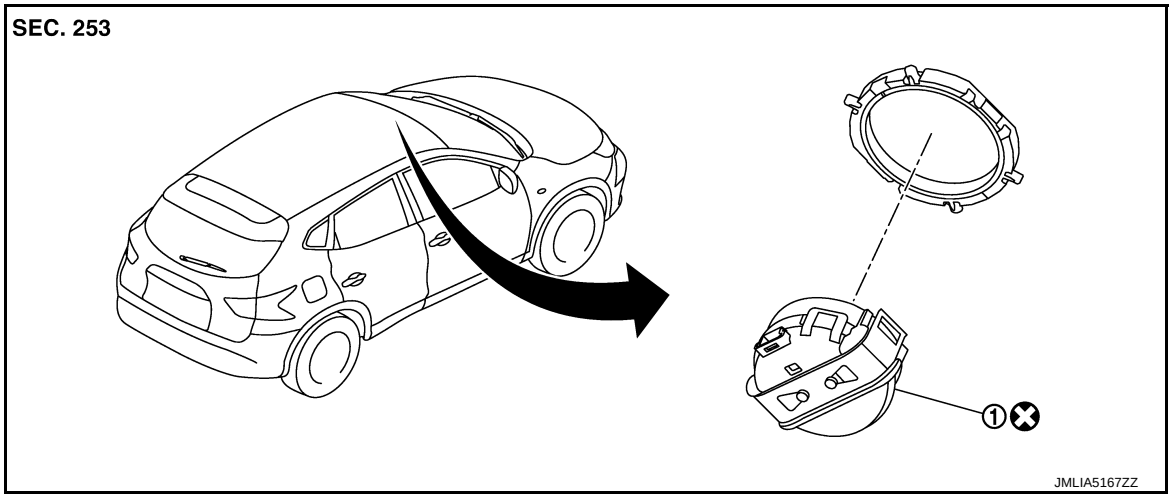
CAUTION:

- **Check that packing is inserted fully. (This may be the cause of washer fluid leakage and washer pump looseness.)**
- **Add washer liquid up to the top of the washer tank inlet after installing. Check that there is no leakage.**
- **After installation, check that there is no leakage at operated washer.**

RAIN SENSOR

Exploded View

INFOID:0000000010479846



① Rain sensor

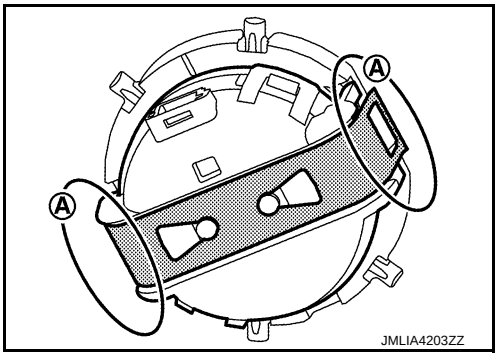
: Always replace after every disassembly.

Removal and Installation

INFOID:0000000010479847

REMOVAL

1. Remove inside mirror cover. Refer to MIR-29, "Exploded View".
2. Disconnect rain sensor harness connector.
3. Disengage rain sensor fixing lock spring portion Ⓐ, and then Peel off rain sensor.



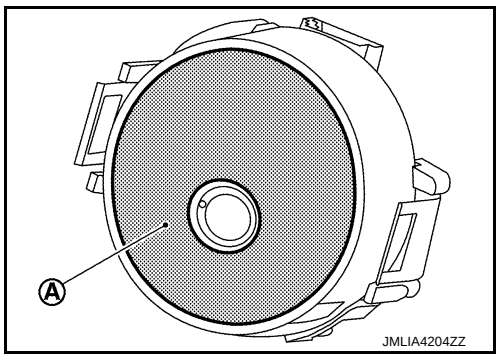
INSTALLATION

Note the following items, and then install in the reverse order of removal.

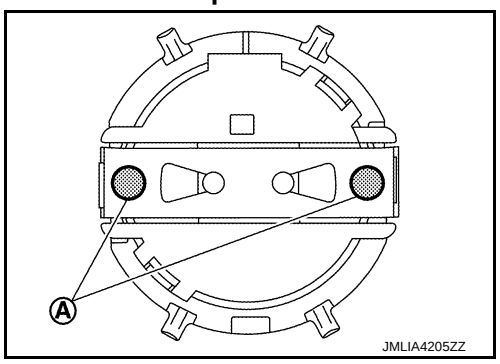
CAUTION:

- **Replace rain sensor with a new part after removal. Never reuse rain sensor.**
- **Clean the sensor installation portion of the windshield.**
- **When the sensor is removed, wipe off the silicon pad remaining on the windshield surface.**

- **Remove the sensor protective cover just before installation. Never touch the silicon pad Ⓐ after removal of sensor protective cover.**



- **Install the rain sensor so that the connector faces vehicle upward.**
- **When installing, never allow silicon pad to touch the sensor bracket and other parts.**
- **Compress the lock spring portion Ⓐ vertically to the glass surface and fully engage both ends of lock spring.**



- **Never use a sensor that is dropped.**
- **Perform check after replacement. Refer to WW-93, "Inspection".**

Inspection

INFOID:0000000010479848

CAUTION:
Clean the windshield glass and wiper refill so that the windshield glass may not be damaged by dust, etc.

1. Push the ignition switch to the ON position, and set the combination switch to AUTO.
2. Spray water mist toward the sensor.
3. Check that wiper operates.
   - If the wiper does not operate, check the connection of the connector. Refer to WW-54, "Component Function Check".
   - If there is no malfunction in the connection, replace the sensor.

WIPER AND WASHER SWITCH

Removal and Installation

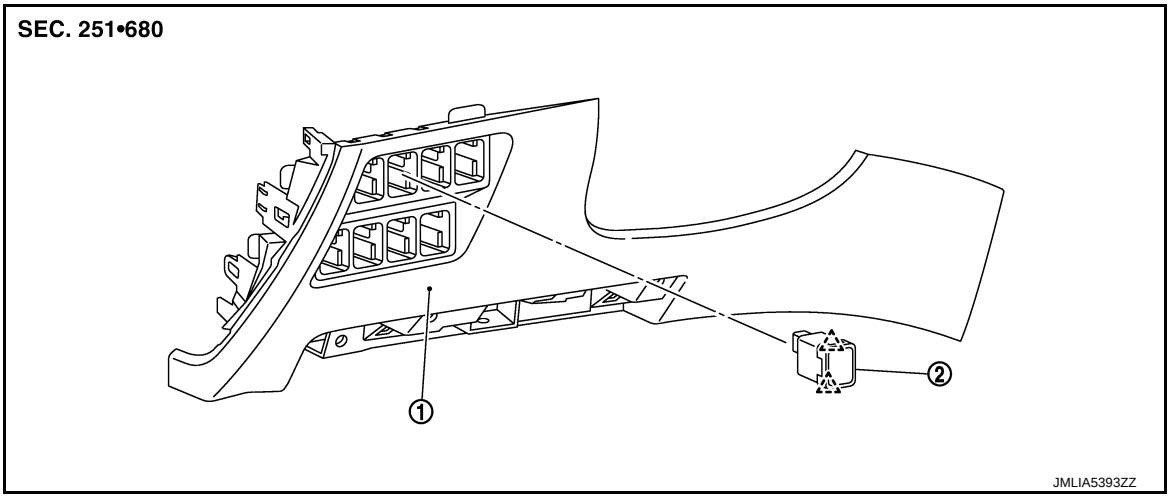
INFOID:0000000010479849

Wiper and washer switch is integrated in the combination switch. Refer to BCS-133, "Removal and Installation".

HEADLAMP WASHER SWITCH

Exploded View

INFOID:0000000010721630



① Instrument lower panel ② Headlamp washer switch

△ : Pawl

Removal and Installation

INFOID:0000000010721631

REMOVAL

1. Remove instrument lower panel. Refer to IP-13, "Removal and Installation".
2. Disengage headlamp washer switch fixing pawls, and then remove headlamp washer switch.

INSTALLATION

Install in the reverse order of removal.