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# WW

## SECTION

# WIPER, WASHER & HORN

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# APPLICATION NOTICE

## APPLICATION NOTICE

PFP:00000

### How to Check Vehicle Type

NKS00508

Check the vehicle identification number (chassis number).

Identification number (chassis number)	Service information
<p>For serial</p> <ul style="list-style-type: none"><li>● JN1AZ34D300001 – JN1AZ34D330000</li><li>● JN1AZ34E350001 – JN1AZ34E380000</li><li>● JN1AZ36D400001 – JN1AZ36D430000</li><li>● JN1AZ36A450001 – JN1AZ36A480000</li></ul>	<p>Type 1</p>
<p>From serial</p> <ul style="list-style-type: none"><li>● JN1AZ34D330001 –</li><li>● JN1AZ34E380001 –</li><li>● JN1AZ36D430001 –</li><li>● JN1AZ36A480001 –</li></ul>	<p>Type 2</p>

**PRECAUTION**

PF0:00011

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

NKS0021A

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

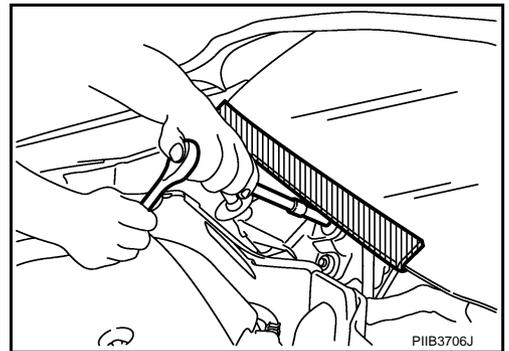
**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

**Precautions for Procedures without Cowl Top Cover**

NKS002KU

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



**Precautions for Battery Service**

NKS0021B

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

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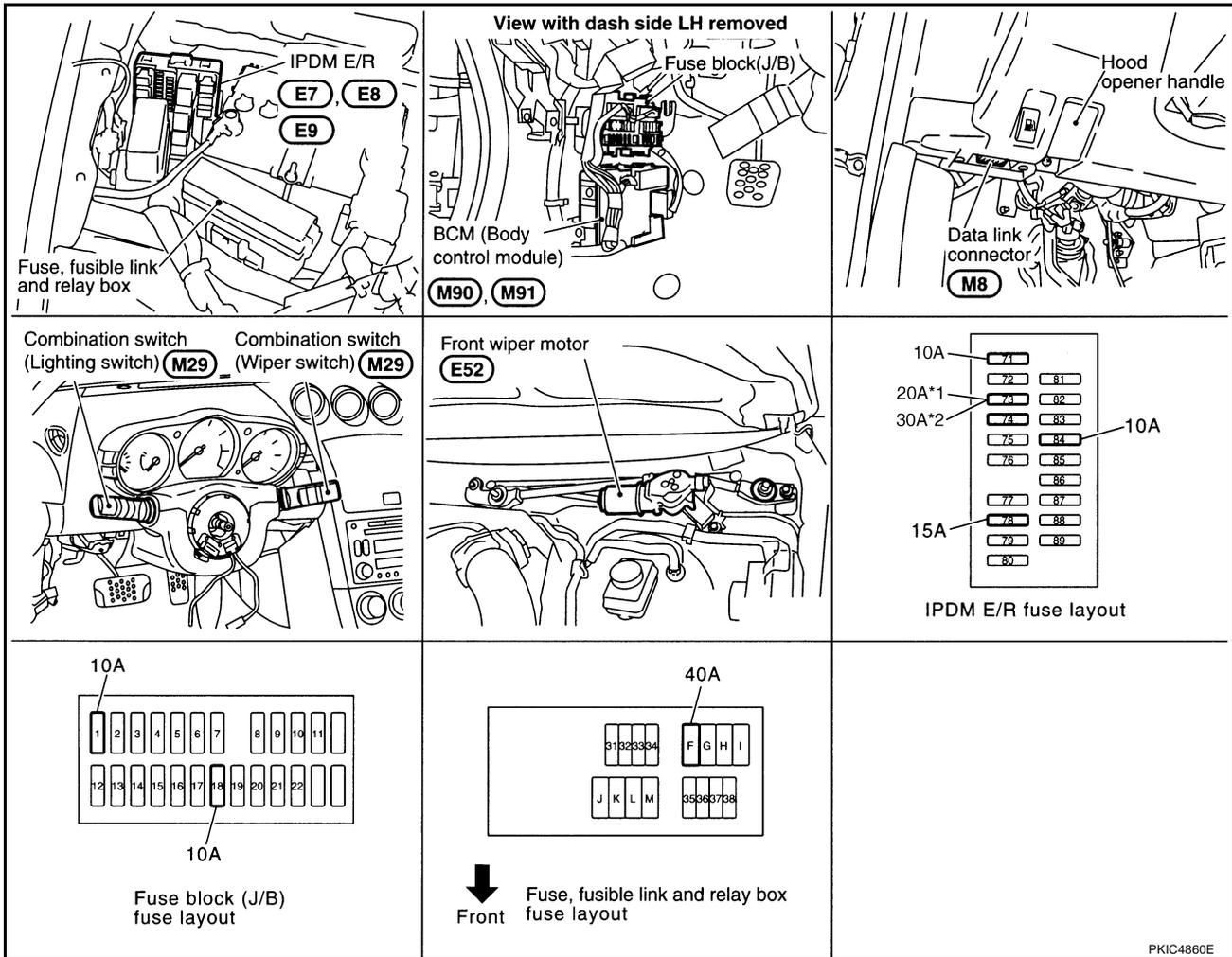
WW

## FRONT WIPER AND WASHER SYSTEM

PFP:28810

### Components Parts and Harness Connector Location

NKS0007Y



PKIC4860E

\*1: For USA \*2 : For Canada

### System Description

NKS0007Z

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

### OUT LINE

Power is supplied at all times

- to ignition relay, located in IPDM E/R, from battery direct,
- through 40 A fusible link [letter F, located in fuse, fusible link and relay box]
- to BCM terminal 55,
- through 10 A fuse [No.18 located in fuse block (J/B)]
- to BCM terminal 42,
- through 20 A fuse [No.73 located in IPDM E/R] (For USA)
- through 30 A fuse [No.73 located in IPDM E/R] (For Canada)
- to front wiper relay, located in IPDM E/R,
- through 15 A fuse [No.78 located in IPDM E/R]
- to CPU (central processing unit) located in IPDM E/R,

- through 10 A fuse [No.71 located in IPDM E/R]
- to CPU located in IPDM E/R.

A

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

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

B

C

D

- through IPDM E/R terminal 44
- to front washer pump terminal 2.

E

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17, E43 and F152,
- to combination switch terminal 12
- through grounds M30 and M66.

F

G

## LOW SPEED WIPER OPERATION

H

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

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

I

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

J

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

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

WW

Ground is supplied

- to front wiper motor terminal 4
- through grounds E17, E43 and F152.

L

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

## HIGH SPEED WIPER OPERATION

M

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

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

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

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

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

Ground is supplied

- to front wiper motor terminal 4
- through grounds E17, E43 and F152.

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

## INTERMITTENT OPERATION

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

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

### Wiper Dial Position Setting

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

Example: For wiper dial position 1

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

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

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

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

## AUTO STOP OPERATION

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

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

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

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

- to IPDM E/R terminal 32
- through front wiper motor terminals 1 and 4
- through grounds E17, E43 and F152.

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

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

## WASHER OPERATION

When the wiper switch is in front wiper washer position, BCM detect front wiper washer signal by BCM wiper switch reading function (Refer to [WW-9, "COMBINATION SWITCH READING FUNCTION"](#) ).

Combination switch ground is supplied

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

With ground is supplied, front washer pump is operated.

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

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

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

## MIST OPERATION

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

For additional information about wiper operation under this condition, refer to [WW-7, "LOW SPEED WIPER OPERATION"](#).

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

## FAIL-SAFE FUNCTION

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

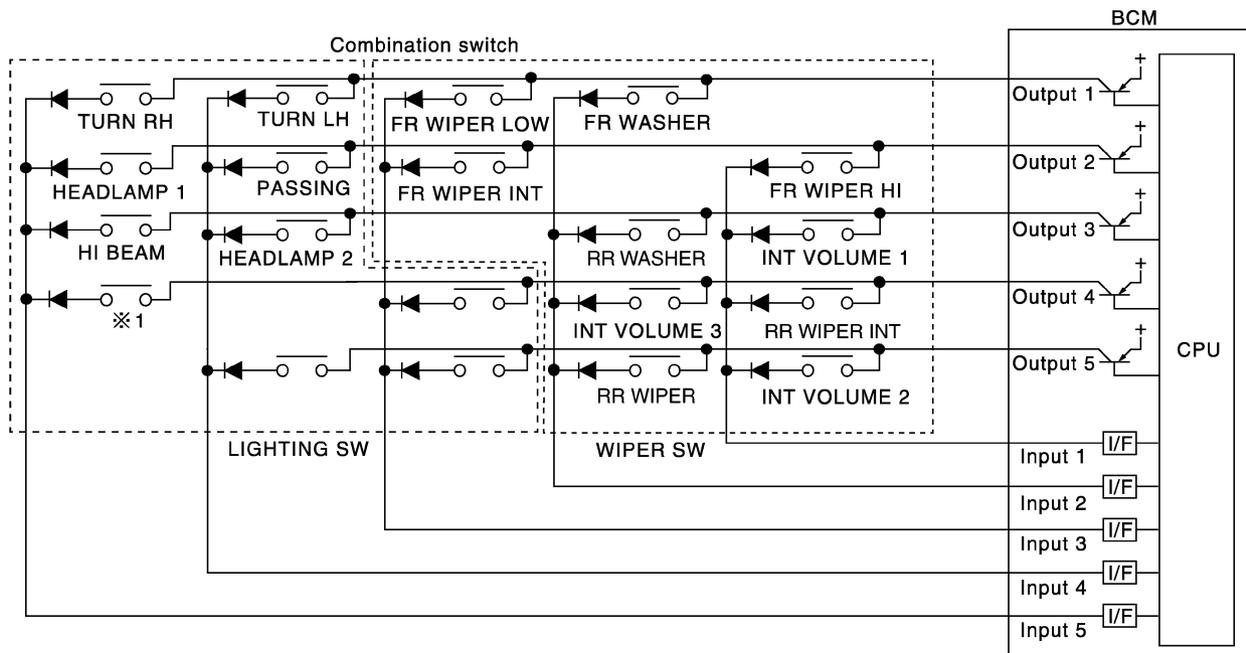
## COMBINATION SWITCH READING FUNCTION

### Description

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

### Operation Description

- BCM activates transistors of output terminals (OUTPUT 1 - 5) periodically, and allows current to flow in turn.
- If any (1 or more) switches are turned ON, circuit of output terminals (OUTPUT 1 - 5) and input terminals (INPUT 1 - 5) becomes active.
- At this time, transistors of output terminals (OUTPUT 1 - 5) are activated to allow current to flow. When voltage of input terminals (INPUT 1 - 5) corresponding to that switch changes, interface in BCM detects voltage change, and BCM determines that switch is ON.



※1 : LIGHTING SWITCH 1ST POSITION

PKIC4861E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

## BCM - Operation Table of Combination Switches

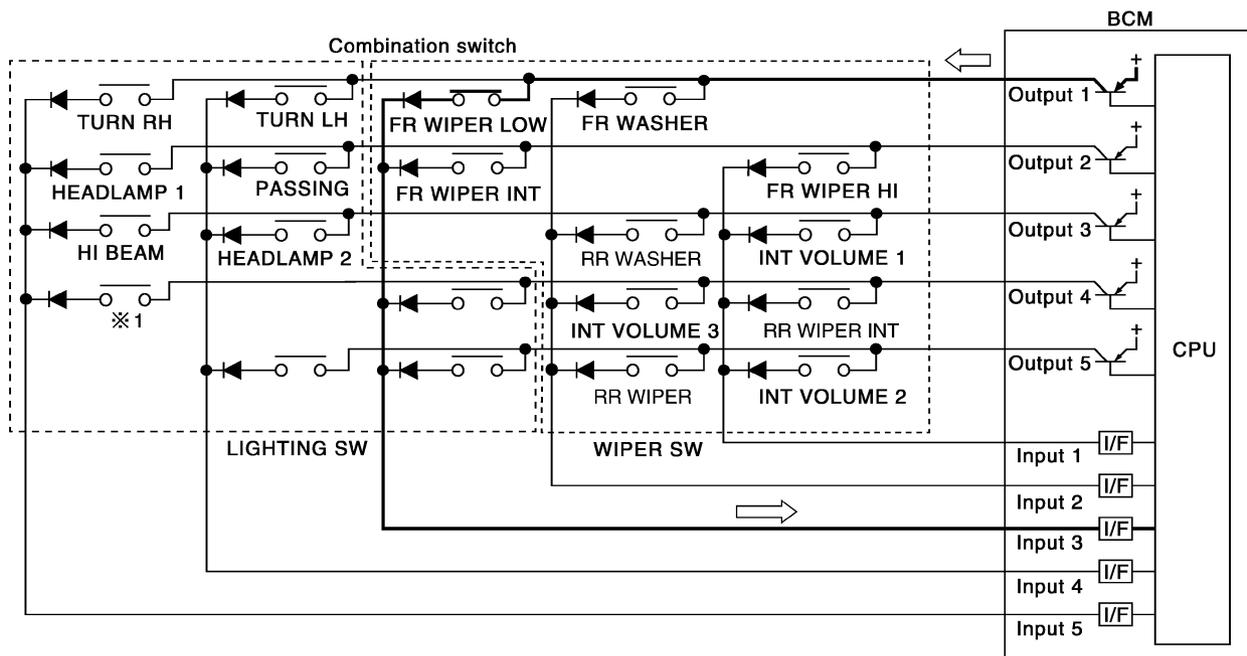
- BCM reads operation status of combination switch using combinations shown in table below.

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

PKIC4963E

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

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



※ 1 : LIGHTING SWITCH 1ST POSITION

PKIC4862E

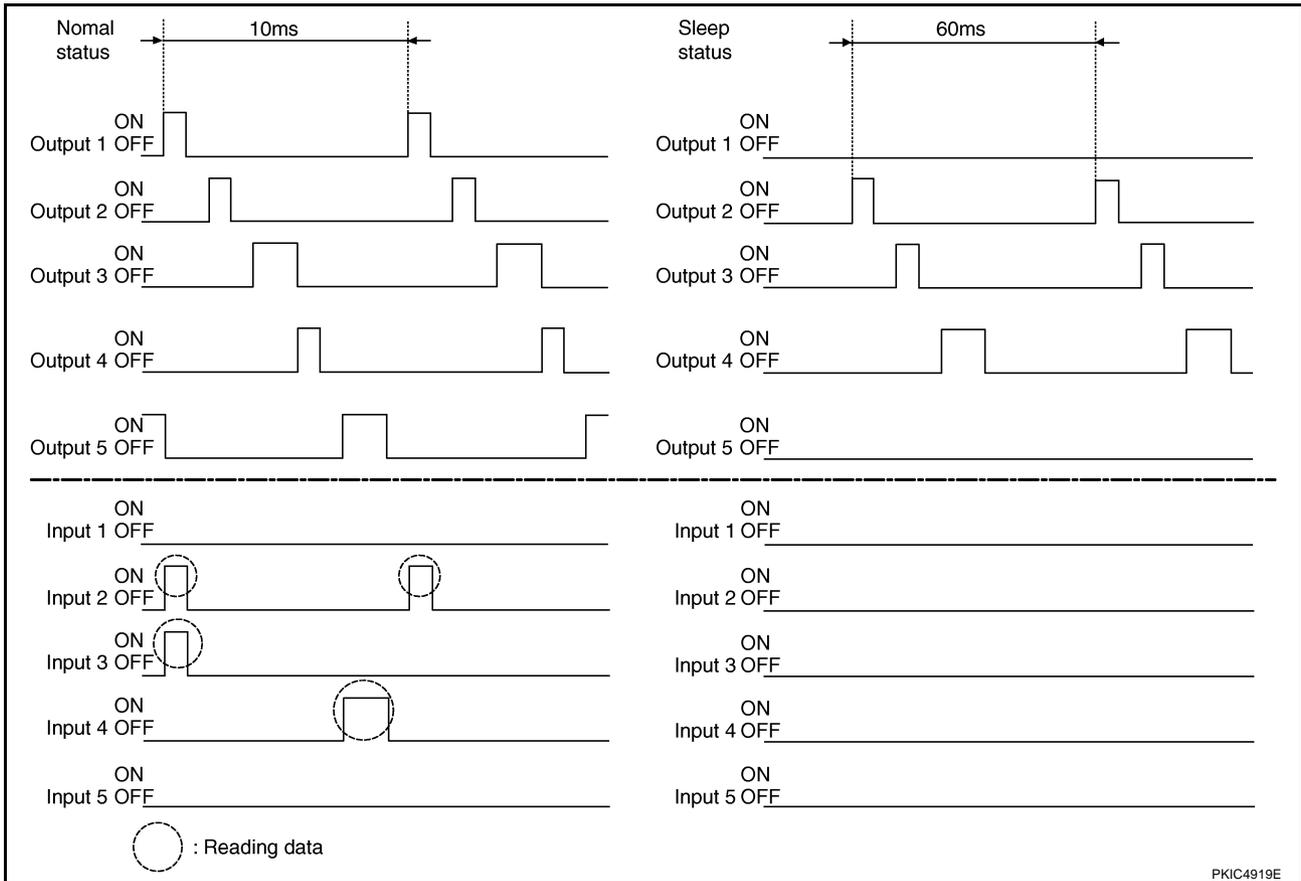
**NOTE:**

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

**Operation Mode**

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

1. Normal status
  - When BCM is not in sleep status, OUTPUT terminals (1 - 5) each turn ON-OFF every 10 ms.
2. Sleep status
  - When BCM is in sleep status BCM enters low power mode. OUTPUT (1 - 5) turn ON-OFF every 60 ms, and only input from light switch system is accepted.



**CAN Communication System Description**

NKS00080

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

**CAN Communication Unit**

NKS00081

Refer to [LAN-48, "CAN System Specification Chart"](#) .

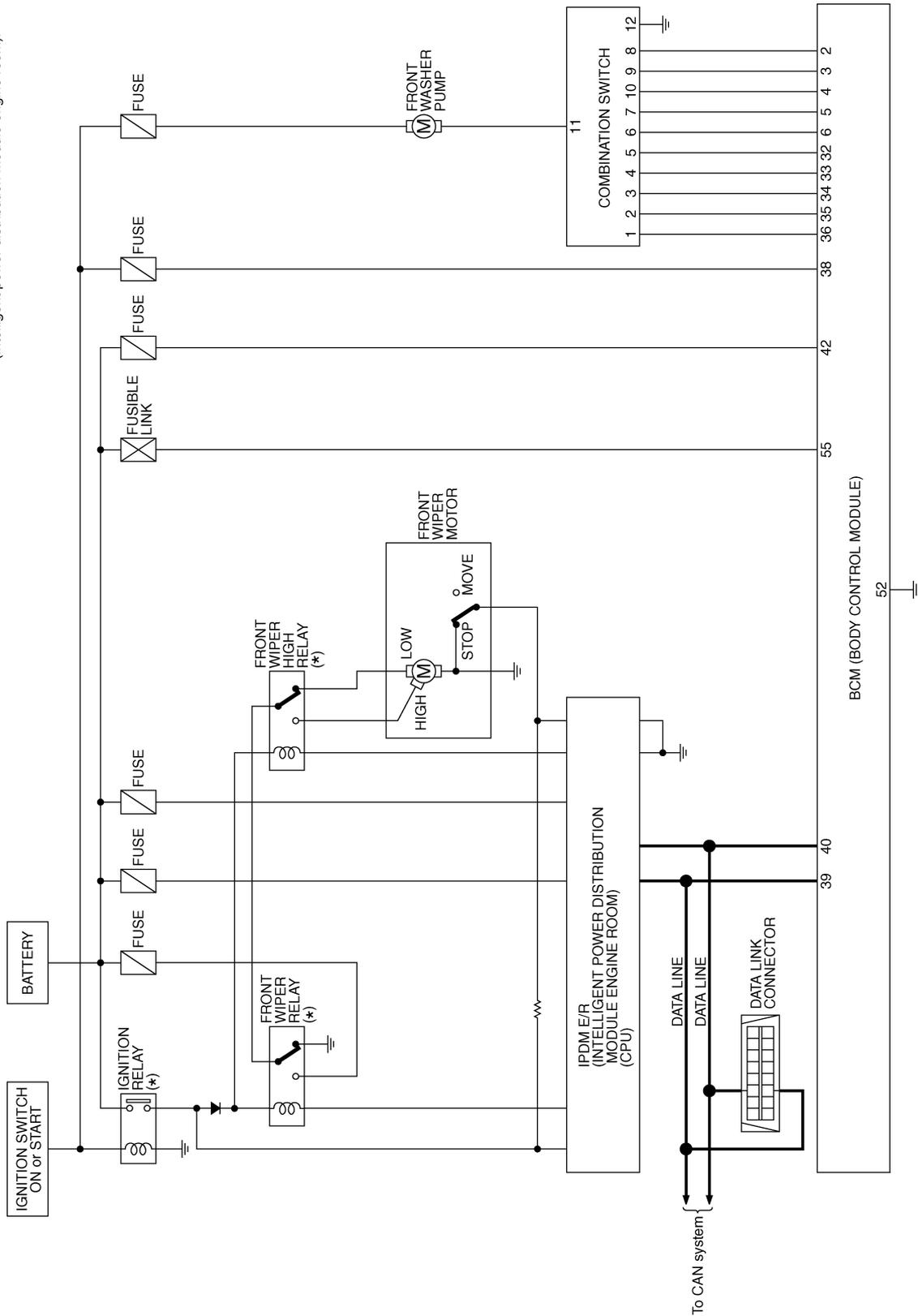
# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

## Schematic

NKS00082

\*: This relay is built into the IPDM E/R  
(Intelligent power distribution module engine room).



TKWT4003E

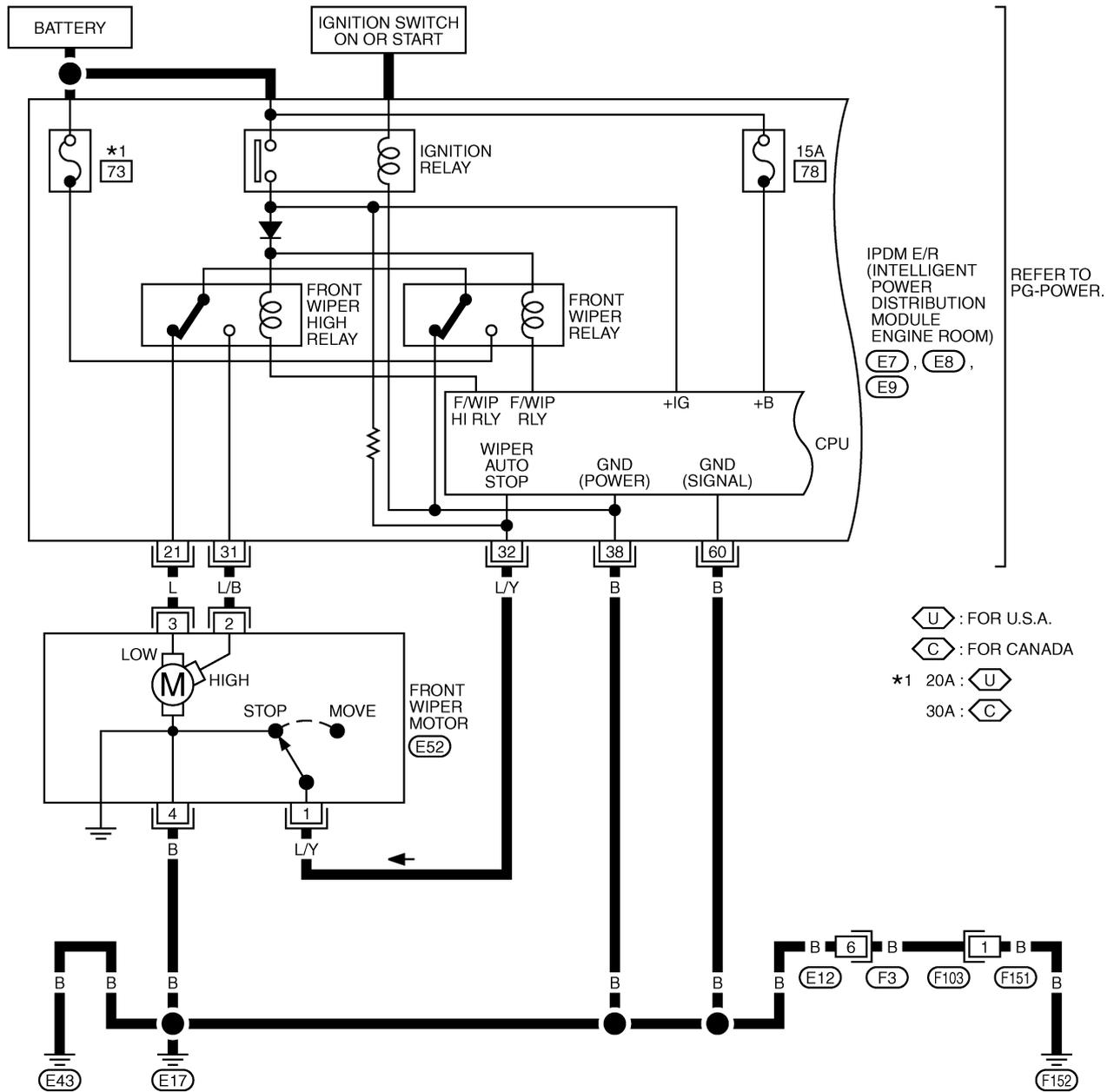
# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

NKS00083

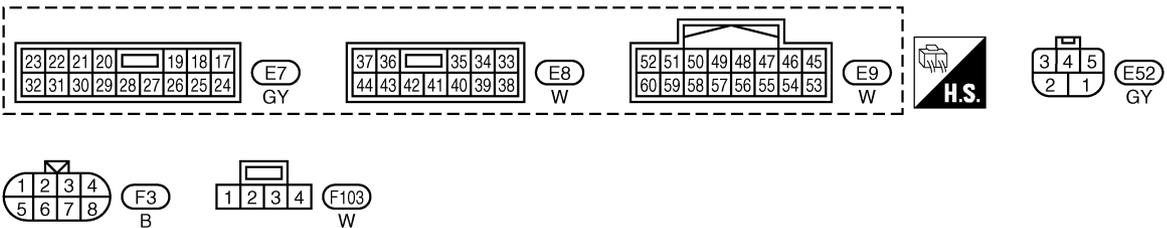
## Wiring Diagram — WIPER —

WW-WIPER-01



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WW



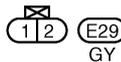
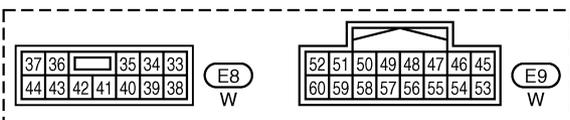
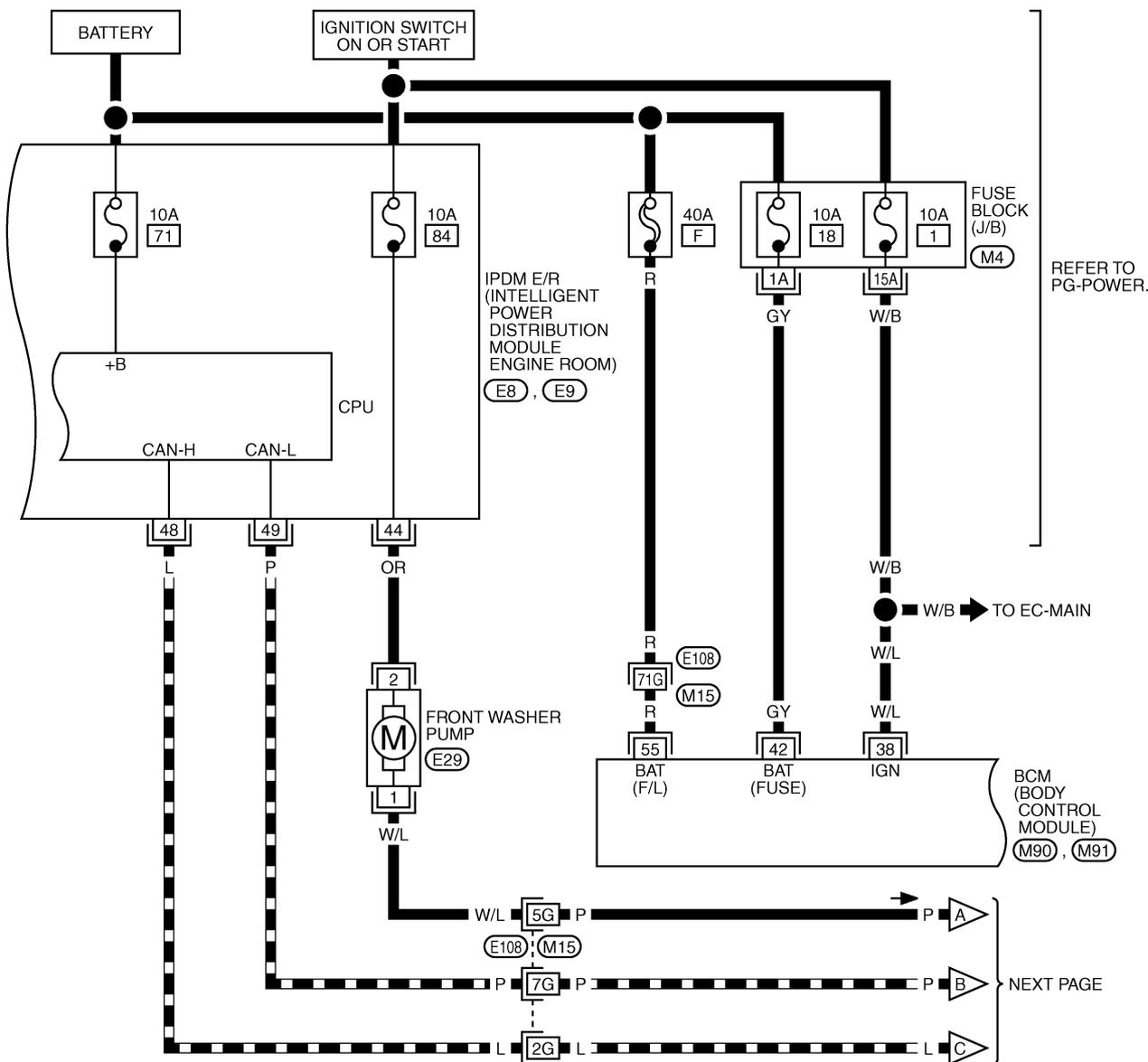
TKWT4004E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

## WW-WIPER-02

▬ : DATA LINE



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

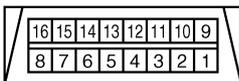
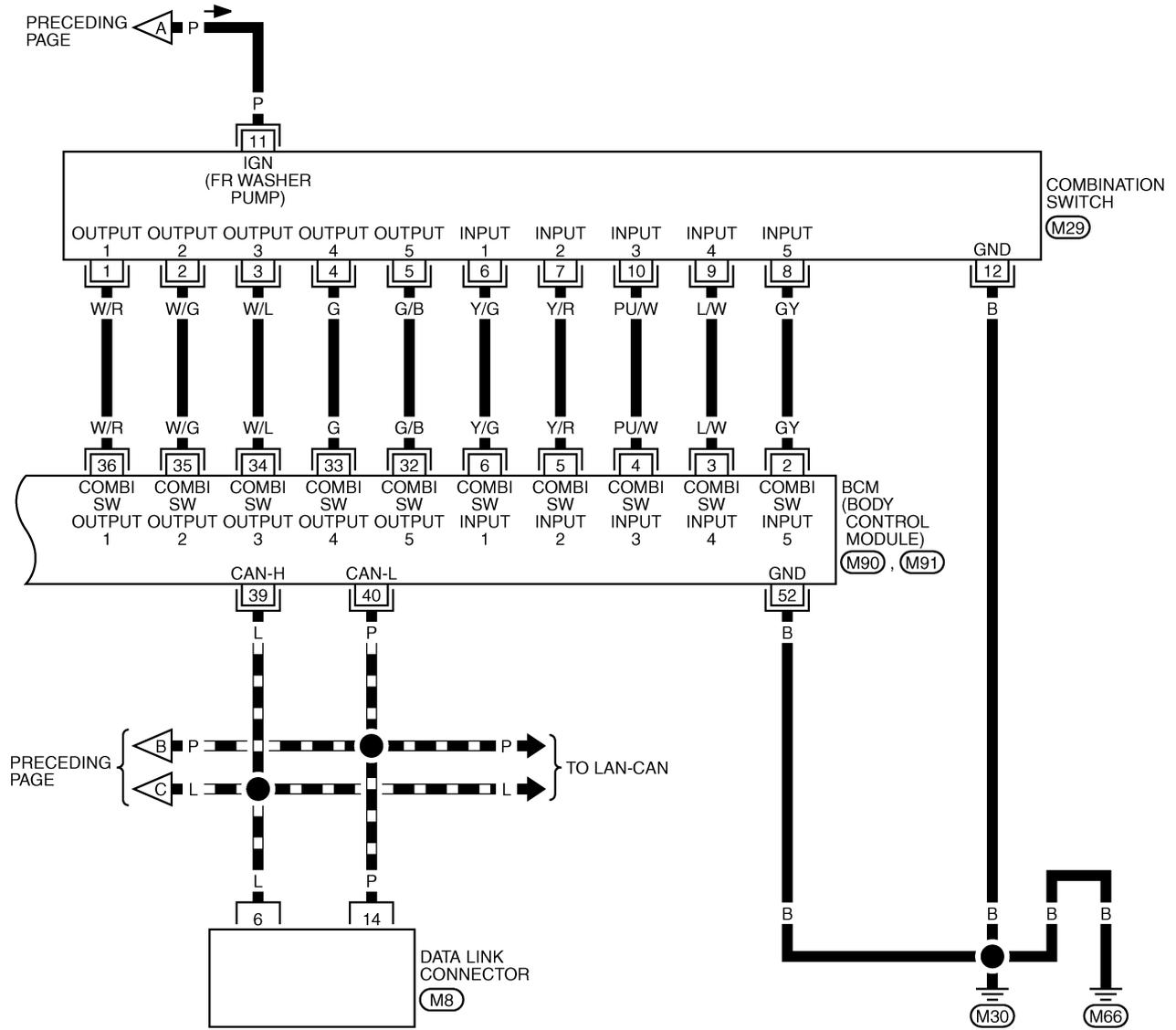
TKWT4005E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

WW-WIPER-03

▬▬▬▬ : DATA LINE



(M8)  
W



(M29)  
W

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

WW

# FRONT WIPER AND WASHER SYSTEM

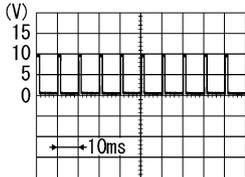
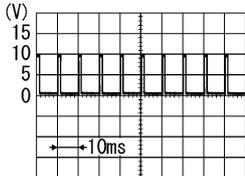
[TYPE 1]

## Terminals and Reference Values for BCM

NKS00084

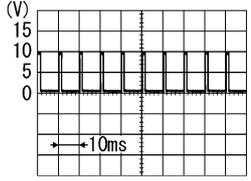
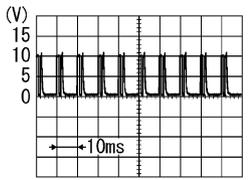
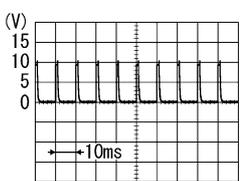
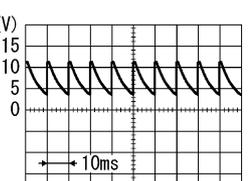
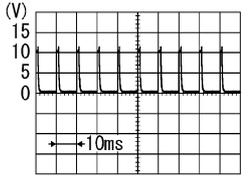
**CAUTION:**

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [WW-21, "DATA MONITOR"](#) .

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

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

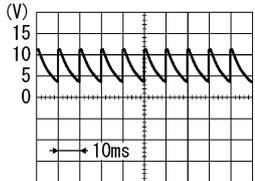
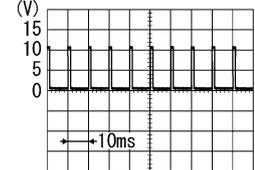
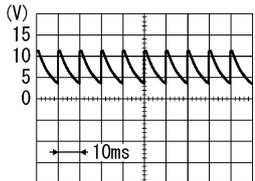
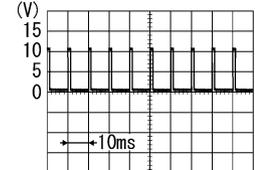
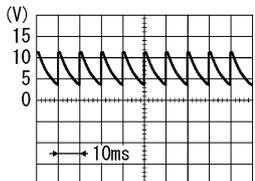
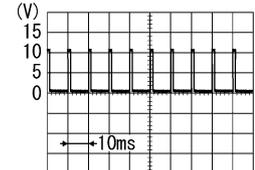
Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	Approx. 0 V
					Any of the conditions below <ul style="list-style-type: none"> <li>● Front wiper switch HI</li> <li>● Wiper intermittent dial position 3</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4959J</p> Approx. 1.0 V
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 2</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4952J</p> Approx. 1.7 V
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper switch	Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 6</li> <li>● Wiper intermittent dial position 7</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4955J</p> Approx. 0.8 V
					OFF (Wiper intermittent dial position 4)	 <p style="text-align: right; font-size: small;">PKIB4960J</p> Approx. 7.2 V
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper switch	Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 2</li> <li>● Wiper intermittent dial position 6</li> <li>● Wiper intermittent dial position 7</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4956J</p> Approx. 1.0 V

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

WW

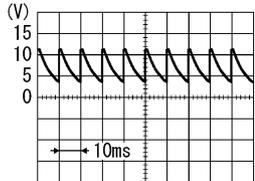
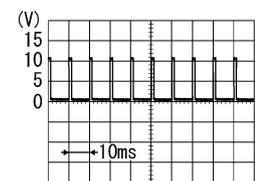
# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
33	G	Combination switch output 4	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)   <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 5</li> <li>● Wiper intermittent dial position 6</li> </ul>  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)   <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 2</li> <li>● Wiper intermittent dial position 3</li> </ul>  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
35	W/G	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF   <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>
					Any of the conditions below <ul style="list-style-type: none"> <li>● Front wiper switch INT</li> <li>● Front wiper switch HI</li> </ul>  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

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

## Terminals and Reference Values for IPDM E/R

NKS00085

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

## How to Proceed With Trouble Diagnosis

NKS00086

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-6, "System Description"](#) .
3. Perform preliminary check. Refer to [WW-20, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.

6. INSPECTION END

## Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

NKS00087

### 1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

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

Refer to [WW-13, "Wiring Diagram — WIPER —"](#) .

OK or NG

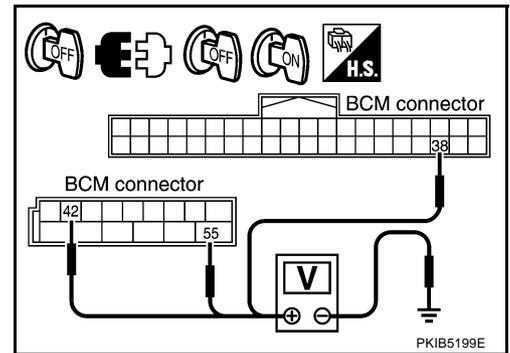
OK >> GO TO 2

NG >> If fuse is blown, be sure to eliminate the cause of malfunction before installing new fuse, Refer to [PG-5, "POWER SUPPLY ROUTING CIRCUIT"](#) .

### 2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

### 3. CHECK GROUND CIRCUIT

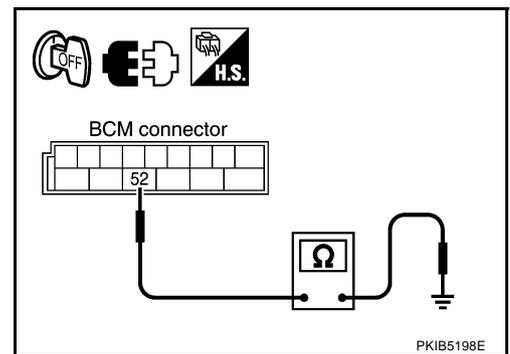
Check continuity between BCM harness connector and ground.

Terminal		Ground	Continuity
Connector	Terminal		Yes
M91	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



## CONSULT-II Functions (BCM)

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

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

## CONSULT-II BASIC OPERATION

Refer to [GI-36, "CONSULT-II Start Procedure"](#) .

### WORK SUPPORT

#### Operation Procedure

1. Touch "WIPER" on "SELECT TEST ITEM" screen.
2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
3. Touch "WIPER SPEED SETTING" on "SELECT WORK ITEM" screen.
4. Touch "START".
5. Touch "CHANGE SETT".
6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
7. Touch "END".

#### Display Item List

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

## DATA MONITOR

#### Operation Procedure

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

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
5. Touch "START".
6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

#### Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.
IGN SW CAN "ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN communication signal.
FR WIPER HI "ON/OFF"	Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER LOW "ON/OFF"	Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER INT "ON/OFF"	Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WASHER SW "ON/OFF"	Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

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

**NOTE:**

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

**ACTIVE TEST**

**Operation Procedure**

1. Touch "WIPER" on "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Touch item to be tested and check operation of the selected item.
4. During the operation check, touching "BACK" deactivates the operation.

**Display Item List**

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

**NOTE:**

Coupe models

## CONSULT-II Functions (IPDM E/R)

NKS00089

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

Diagnosis Mode	Description
SELF-DIAG RESULTS	Refer to <a href="#">PG-32. "SELF-DIAG RESULTS"</a> .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

### CONSULT-II BASIC OPERATION

Refer to [GI-36. "CONSULT-II Start Procedure"](#) .

#### DATA MONITOR

##### Operation Procedure

1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
2. Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all items.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
4. Touch "START".
5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

#### All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
FR wiper request	FR WIP REQ	STOP/LOW/HI	×	×	×	Signal status input from BCM
Wiper auto stop	WIP AUTO STOP	ACT P/STOP P	×	×	×	Output status of IPDM E/R
Wiper protection	WIP PROT	OFF/Block	×	×	×	Control status of IPDM E/R

#### NOTE:

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

#### ACTIVE TEST

##### Operation Procedure

1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Touch item to be tested, and check operation.
3. Touch "START".
4. Touch "STOP" while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Front wiper (HI, LO) output	FR WIPER	With a certain operation (OFF, HI ON, LO ON), front wiper relay (Lo, Hi) can be operated.

## Front Wiper Does Not Operate

### CAUTION:

During IPDM E/R fail-safe control, front wipers may not operate. Refer to [PG-30, "CAN COMMUNICATION LINE CONTROL"](#) in "PG IPDM E/R" to make sure that it is not in fail-safe status.

### 1. ACTIVE TEST

 With CONSULT-II

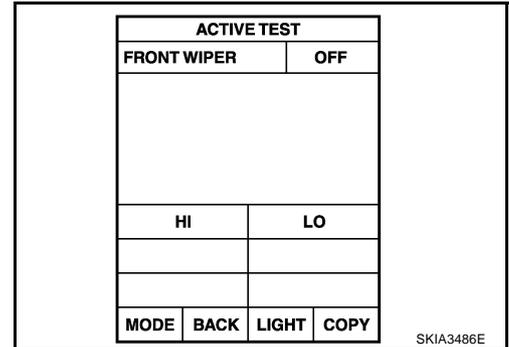
1. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "LO" or "HI" screen.

 Without CONSULT-II

Start up auto active test. Refer to [PG-35, "Auto Active Test"](#) .

Does front wiper operate normally?

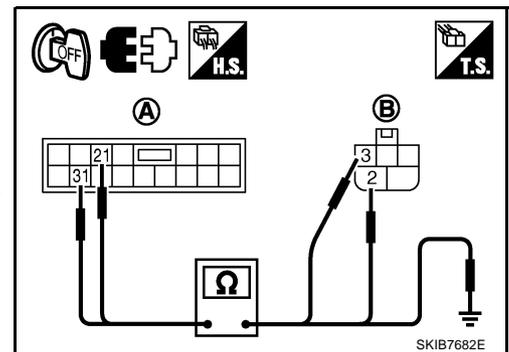
- YES >> GO TO 5.  
NO >> GO TO 2.



### 2. CHECK FRONT WIPER CIRCUIT

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

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



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

Terminal			Continuity
A		Ground	
Connector	Terminal		
E7	21		No
	31		

OK or NG

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

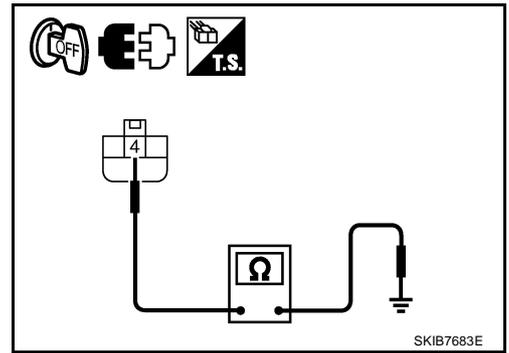
## 3. CHECK GROUND CIRCUIT

Check continuity between front wiper motor harness connector and ground.

Connector	Terminal	Ground	Continuity
E52	4		Yes

OK or NG

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

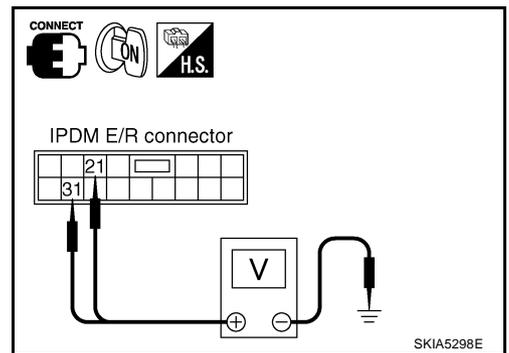


## 4. CHECK IPDM E/R

With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Touch "LO" or "HI" screen.
5. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

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



Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

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

OK or NG

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.

## 5. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

☑ With CONSULT-II

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

☒ Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#).

OK or NG

OK >> GO TO 6.

NG >> Check combination switch (wiper switch). Refer to [LT-99, "Combination Switch Inspection"](#).

DATA MONITOR			
MONITOR			
IGN ON SW		ON	
IGN SW CAN		ON	
FR WIPER HI		OFF	
FR WIPER LOW		OFF	
FR WIPER INT		OFF	
FR WASHER SW		OFF	
INT VOLUME		7	
FR WIPER STOP		ON	
VEHICLE SPEED		0.0 km/h	
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPE

PKIB0110E

## 6. CHECK CIRCUIT BETWEEN IPDM E/R AND BCM

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM".

Displayed self-diagnosis results

NO DTC>>Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).

CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to [BCS-18, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

NKIA7627E

## Front Wiper Does Not Return to Stop Position

### 1. CHECK FRONT WIPER STOP SIGNAL

☑ With CONSULT-II

Select "IPDM E/R" on CONSULT-II. With "DATA MONITOR", make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.

☒ Without CONSULT-II

GO TO 2.

OK or NG

OK >> Replace IPDM E/R.

NG >> GO TO 2.

DATA MONITOR			
MONITOR			
WIP AUTO STOP		STOP P	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7614E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

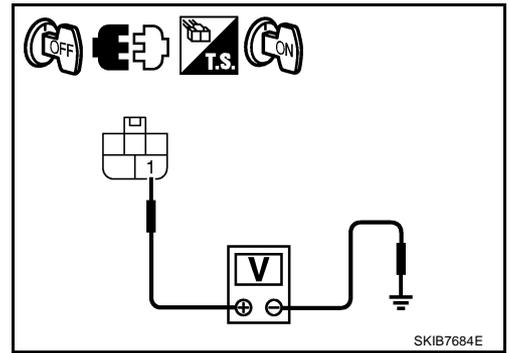
## 2. CHECK IPDM E/R

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

Connector	Terminal	Ground	Voltage
E52	1		Battery voltage

OK or NG

- OK >> GO TO 4.  
 NG >> GO TO 3.



## 3. CHECK FRONT WIPER AUTO STOP CIRCUIT

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

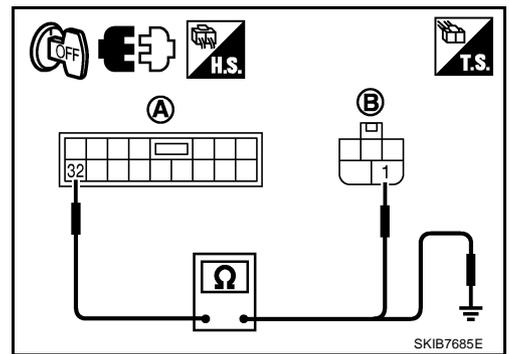
Terminal				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal	Connector	Terminal	
E7	32	E52	1	Yes

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

Connector	Terminal	Ground	Continuity
E7	32		No

OK or NG

- OK >> Replace IPDM E/R.  
 NG >> Repair harness or connector.



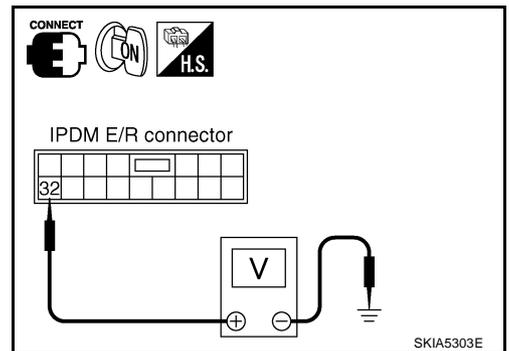
## 4. CHECK IPDM E/R

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

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

OK or NG

- OK >> Replace IPDM E/R.  
 NG >> Replace front wiper motor.



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

WW

## Only Front Wiper Low Does Not Operate

### 1. ACTIVE TEST

Ⓜ With CONSULT-II

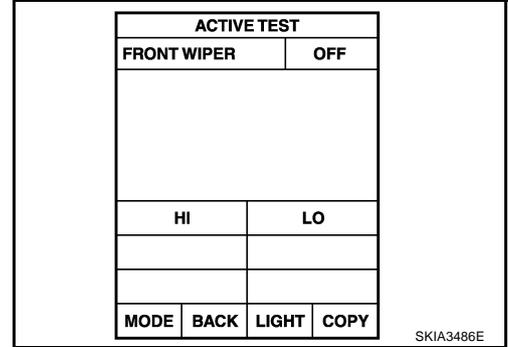
1. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "LO" screen.

ⓧ Without CONSULT-II

Start up auto active test. Refer to [PG-35, "Auto Active Test"](#)

Does front wiper operate normally?

- YES >> Refer to [LT-99, "Combination Switch Inspection"](#) .  
 NO >> GO TO 2.



### 2. CHECK FRONT WIPER MOTOR CIRCUIT

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

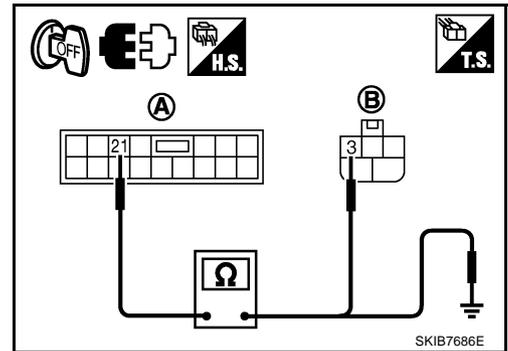
Terminal				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal	Connector	Terminal	
E7	21	E52	3	Yes

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

Connector	Terminal	Ground	Continuity
E7	21		

OK or NG

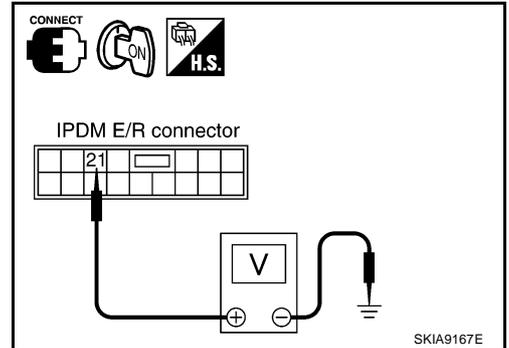
- OK >> GO TO 3.  
 NG >> Repair harness or connector.



3. CHECK IPDM E/R

☑ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Touch "LO" screen.
5. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.



Connector	Terminal	Ground	Voltage
E7	21		Battery voltage

☒ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

Connector	Terminal	Ground	Voltage
E7	21		Battery voltage

OK or NG

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.

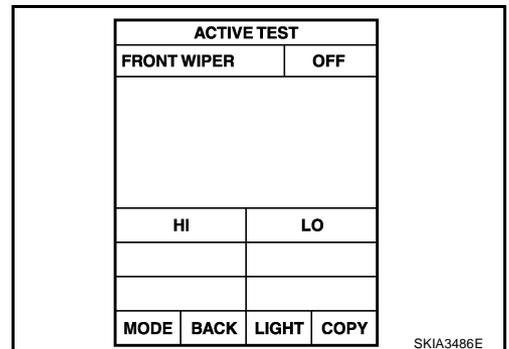
Only Front Wiper Hi Does Not Operate

NKS0008D

1. ACTIVE TEST

☑ With CONSULT-II

1. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "HI" screen.



☒ Without CONSULT-II

Start up auto active test. Refer to [PG-35, "Auto Active Test"](#)

Does front wiper operate normally?

- YES >> Refer to [LT-99, "Combination Switch Inspection"](#).
- NO >> GO TO 2.

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

WW

## 2. CHECK FRONT WIPER MOTOR CIRCUIT

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

Terminal				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal	Connector	Terminal	
E7	31	E52	2	Yes

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

Connector	Terminal	Ground	Continuity
E7	31		Ground

**OK or NG**

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

## 3. CHECK IPDM E/R

With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Touch "HI" screen.
5. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

Connector	Terminal	Ground	Voltage
E7	31		Ground

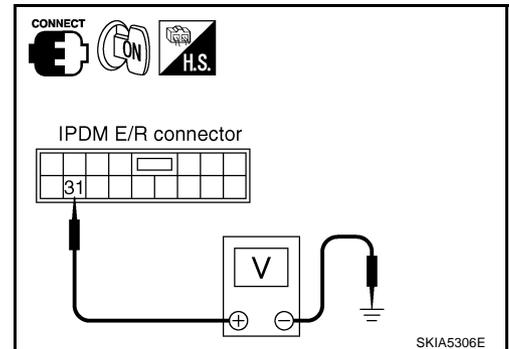
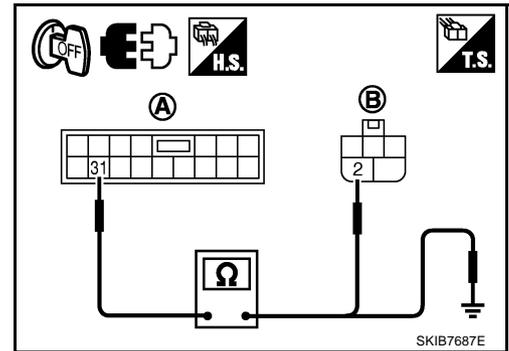
Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

Connector	Terminal	Ground	Voltage
E7	31		Ground

**OK or NG**

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.



## Only Front Wiper Intermittent Does Not Operate

NKS0008E

### 1. CHECK COMBINATION SWITCH

☑ With CONSULT-II

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

DATA MONITOR			
MONITOR			
IGN ON SW	ON		
IGN SW CAN	ON		
FR WIPER HI	OFF		
FR WIPER LOW	OFF		
FR WIPER INT	OFF		
FR WASHER SW	OFF		
INT VOLUME	7		
FR WIPER STOP	ON		
VEHICLE SPEED	0.0 km/h		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPE

PKIB0110E

☒ Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#) .

**OK or NG**

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .
- NG >> Check combination switch (wiper switch) Refer to [LT-99, "Combination Switch Inspection"](#) .

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

NKS0008F

### 1. CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does front wiper operate normally?

- YES >> GO TO 2.
- NO >> Combination meter vehicle speed system malfunction. Refer to [DI-23, "Vehicle Speed Signal Inspection"](#) .

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

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM".

Displayed self-diagnosis results

- NO DTC>>Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .
- CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to [BCS-18, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

## Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

NKS0008G

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

☑ With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "INT VOLUME", changes in order form 1 to 7 according to wiper switch operation.

DATA MONITOR			
MONITOR			
IGN ON SW	ON		
IGN SW CAN	ON		
FR WIPER HI	OFF		
FR WIPER LOW	OFF		
FR WIPER INT	OFF		
FR WASHER SW	OFF		
INT VOLUME	7		
FR WIPER STOP	ON		
VEHICLE SPEED	0.0 km/h		
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPE

PKIB0110E

☒ Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#) .

**OK or NG**

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .
- NG >> Check combination switch (wiper switch). Refer to [LT-99, "Combination Switch Inspection"](#) .

## Wiper Does Not Wipe When Front Washer Operates

NKS0008H

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

Ⓟ With CONSULT-II

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

DATA MONITOR			
MONITOR			
IGN ON SW		ON	
IGN SW CAN		ON	
FR WIPER HI		OFF	
FR WIPER LOW		OFF	
FR WIPER INT		OFF	
FR WASHER SW		OFF	
INT VOLUME		7	
FR WIPER STOP		ON	
VEHICLE SPEED		0.0 km/h	
		Page Down	
		RECORD	
MODE	BACK	LIGHT	COPE

PKIB0110E

ⓧ Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#) .

**OK or NG**

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .
- NG >> Check front wiper switch. Refer to [LT-99, "Combination Switch Inspection"](#) .

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

NKS0008I

**CAUTION:**

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

### 1. CHECK WIPER MOTOR SIGNAL

Ⓟ With CONSULT-II

Select "IPDM E/R" by CONSULT-II. With "DATA MONITOR", make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.

ⓧ Without CONSULT-II

GO TO 2.

**OK or NG**

- OK >> Replace IPDM E/R.
- NG >> GO TO 2.

DATA MONITOR			
MONITOR			
WIP AUTO STOP		STOP P	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7614E

## 2. CHECK WIPER AUTO STOP CIRCUIT

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

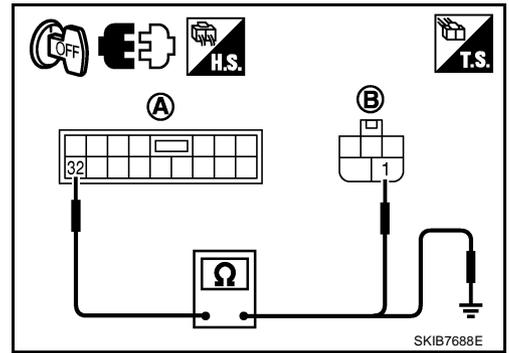
Terminal				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal	Connector	Terminal	
E7	32	E52	1	Yes

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

Connector	Terminal	Ground	Continuity
E7	32		No

**OK or NG**

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



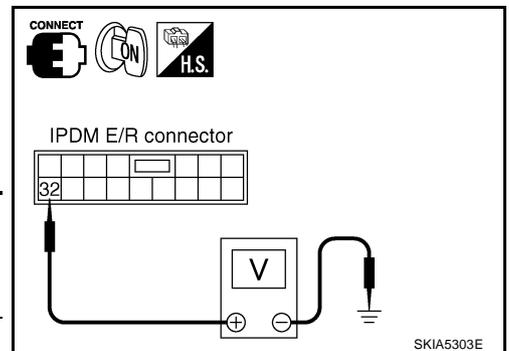
## 3. CHECK FRONT WIPER MOTOR

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

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

**OK or NG**

- OK >> Replace IPDM E/R.
- NG >> Replace front wiper motor.



## Front Wiper Does Not Stop

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

With CONSULT-II

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

Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#).

**OK or NG**

- OK >> Replace IPDM E/R.
- NG >> Check combination switch (wiper switch). Refer to [LT-99, "Combination Switch Inspection"](#).

DATA MONITOR	
MONITOR	
IGN ON SW	ON
IGN SW CAN	ON
FR WIPER HI	OFF
FR WIPER LOW	OFF
FR WIPER INT	OFF
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
Page Down	
RECORD	
MODE	BACK
LIGHT	COPE

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

### Location

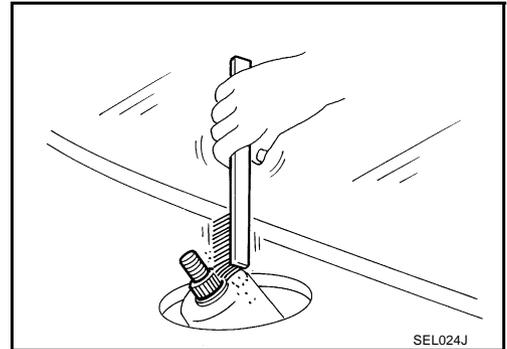
NKS0008K

### REMOVAL

1. Operate front wiper motor, and stop it at the auto stop position.
2. Remove washer tube from washer tube joint.
3. Remove front wiper arm mounting nuts and front wiper arm from vehicle.

### INSTALLATION

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



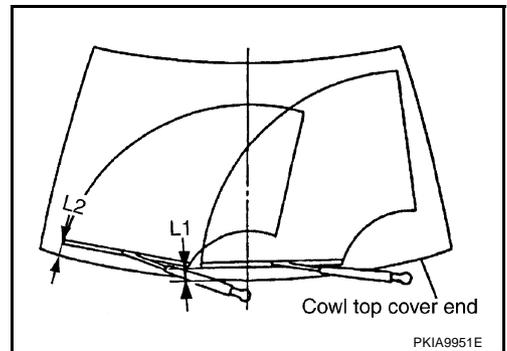
3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L1" & "L2" immediately.
4. Tighten front wiper arm nuts to specified torque.

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

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

**Clearance "L1"** : 56.4 – 71.4 mm (2.22 – 2.81 in)

**Clearance "L2"** : 25.5 – 38.5 mm (1.004 – 1.516 in)



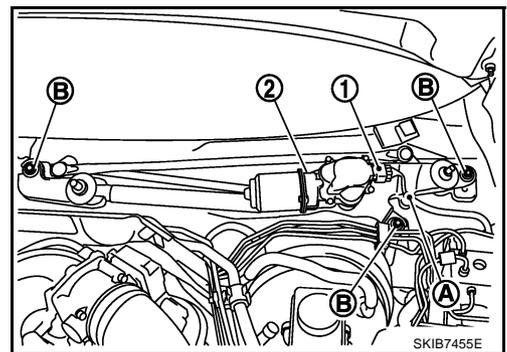
7. Install front wiper arm caps.

## Removal and Installation of Front Wiper Drive Assembly

NKS0008L

### REMOVAL

1. Remove front wiper arms. Refer to [WW-34, "REMOVAL"](#) .
2. Remove cowl top cover. Refer to [EI-20, "COWL TOP"](#) .
3. Disconnect wiper motor connector (1) and remove connector clip (A).
4. Remove front wiper drive assembly mounting bolts (B), and remove front wiper drive assembly (2) from the vehicle.



### INSTALLATION

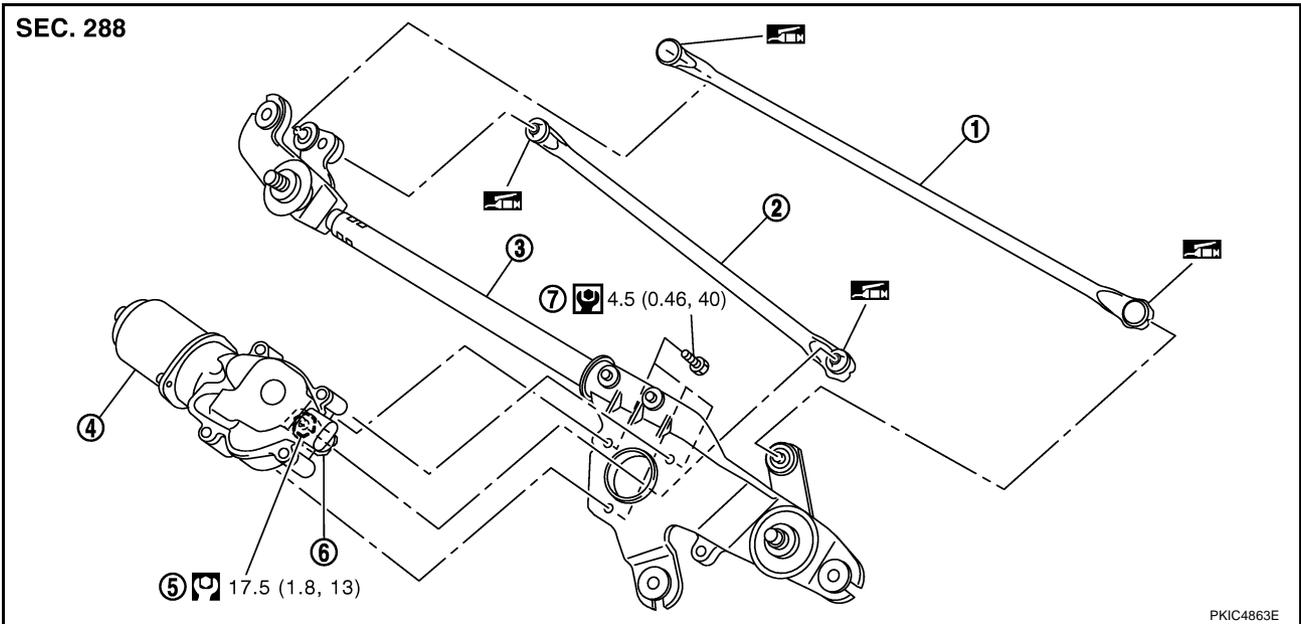
1. Install front wiper drive assembly to the vehicle.

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

2. Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
3. Install connector clips to the wiper frame, and install cowl top cover. Refer to [EI-20, "COWL TOP"](#) .
4. Install front wiper arms and arm caps. Refer to [WW-34, "INSTALLATION"](#) .

## Disassembly and Assembly Front Wiper Motor and Linkage

NKS0008M



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

:N·m (kg-m, in-lb)

:N·m (kg-m, ft-lb)

:Should be lubricated with grease

### DISASSEMBLY

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

### CAUTION:

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

### ASSEMBLY

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

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

### CAUTION:

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

# FRONT WIPER AND WASHER SYSTEM

[TYPE 1]

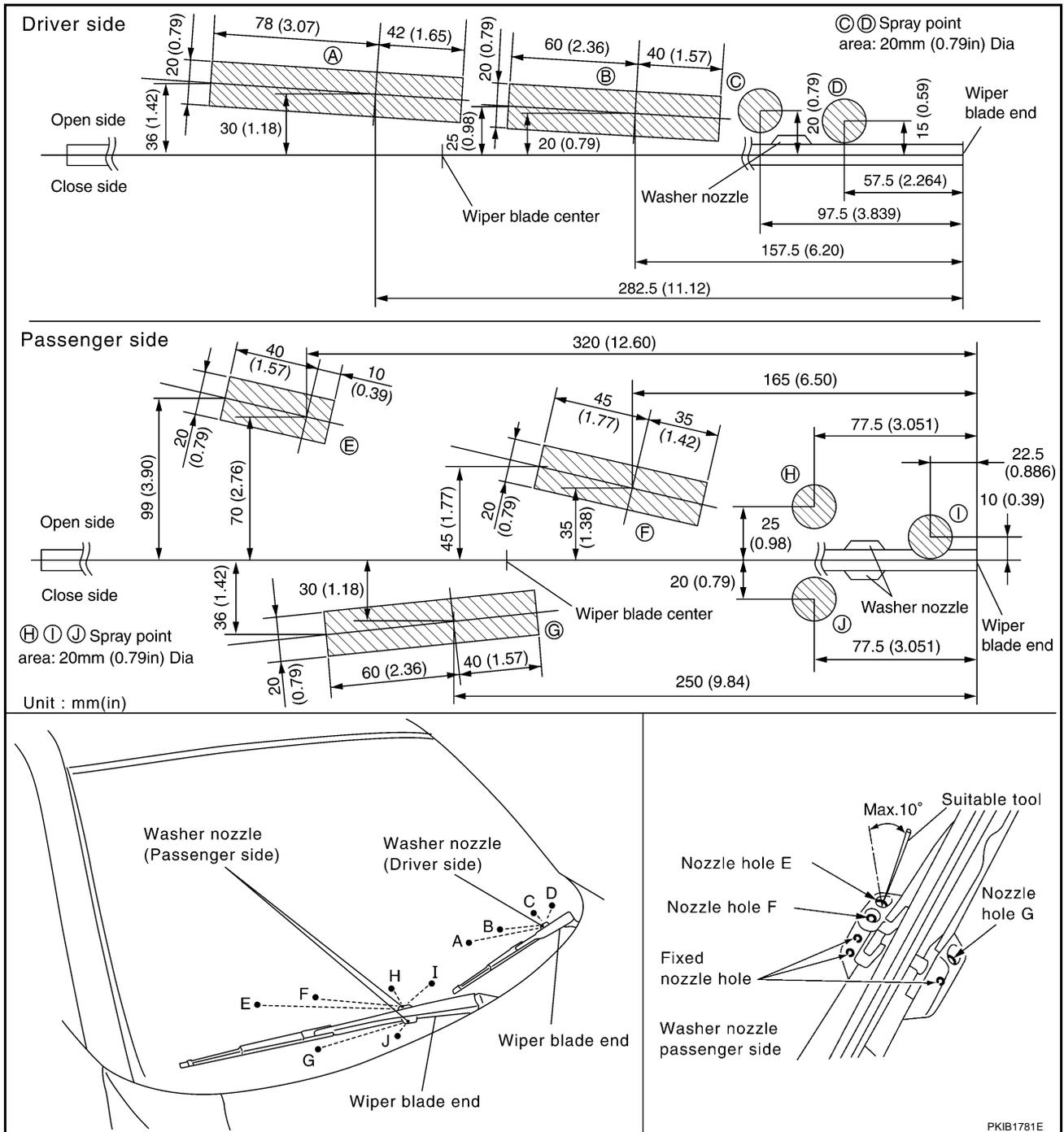
NKS0008N

## Washer Nozzle Adjustment

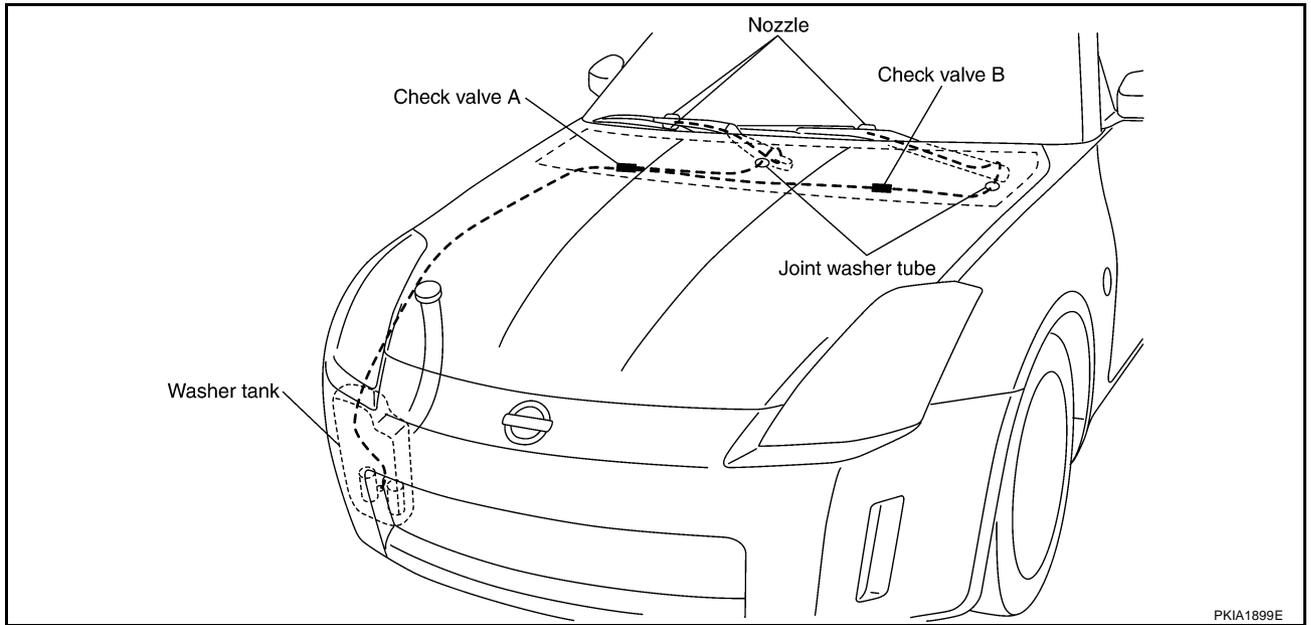
1. When wiper blade position is in auto stop condition, remove front wiper motor connector to ensure front wiper arms do not move.
2. Adjust each nozzle position (A, B, E, F, and G) so that spray positions are in the range of shaded parts.

### CAUTION:

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



## Washer Tube Layout



## Removal and Installation of Front Washer Nozzle

NKS0008P

Replace wiper arm assembly. Refer to [WW-34, "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location"](#).

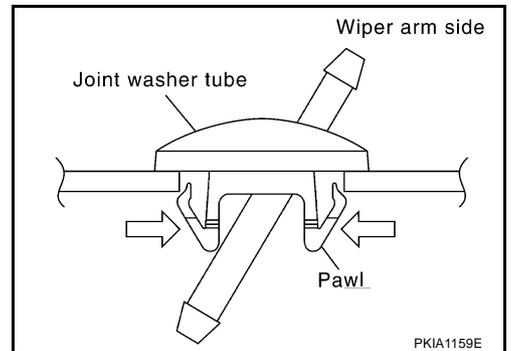
**CAUTION:**

Never remove/install washer nozzle from wiper arm assembly.

## Removal and Installation of Front Washer Tube Joint

NKS0008Q

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



## INSTALLATION

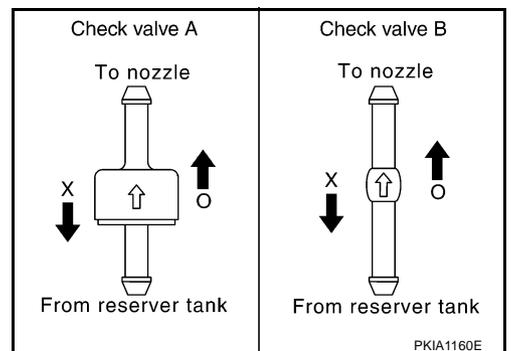
Installation is the reverse order of removal.

## Inspection for Washer Nozzle

### CHECK VALVE INSPECTION

NKS0008R

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



## Inspection of Front Wiper and Washer Switch Circuit

NKS002IK

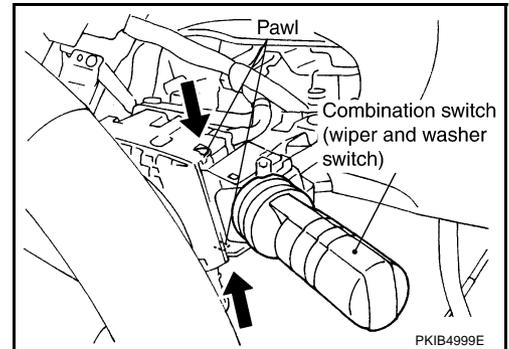
Refer to [LT-99, "Combination Switch Inspection"](#).

## Removal and Installation of Front Wiper and Washer Switch

NKS0008S

### REMOVAL

1. Remove steering column lower cover and combination meter. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. Disconnect wiper and washer switch connector.
3. Pull wiper and washer switch toward the passenger door while pressing pawls in direction shown by the arrow (←) in the figure, and remove it from the base.



### INSTALLATION

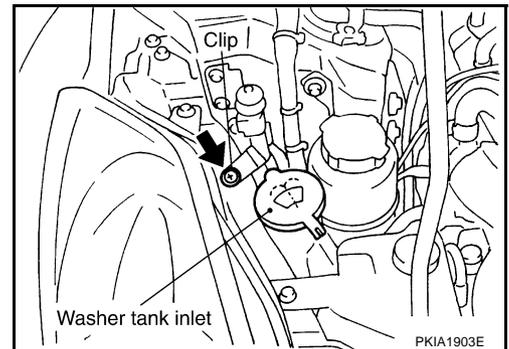
Installation is the reverse order of removal.

## Removal and Installation of Washer Tank

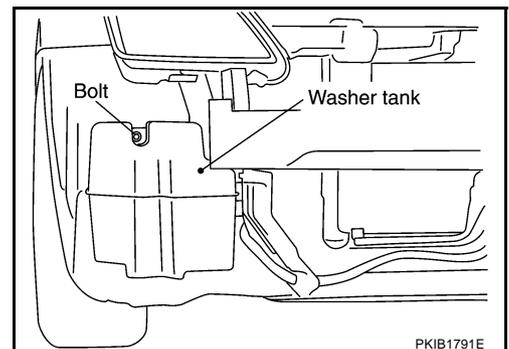
NKS0008T

### REMOVAL

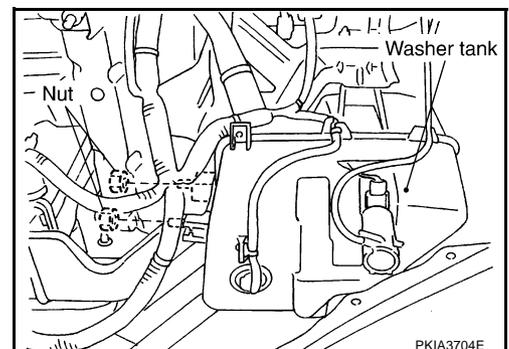
1. Remove clip and pull out washer tank inlet.



2. Remove under cover.
3. Remove fender protector. Refer to [EI-21, "FENDER PROTECTOR"](#).
4. Remove front bumper fascia. Refer to [EI-14, "FRONT BUMPER"](#).
5. Disconnect washer pump connector.
6. Remove washer tank mounting bolt and nuts.



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



**INSTALLATION**

Installation is the reverse order of removal.

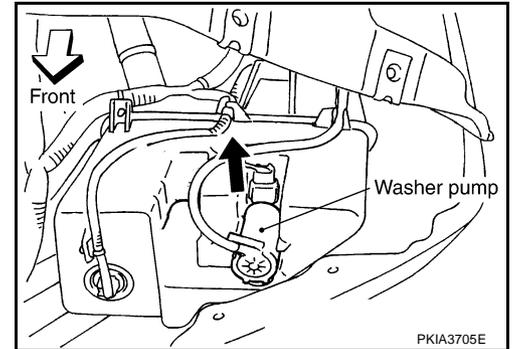
**CAUTION:**

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

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

**Removal and Installation of Washer Pump****REMOVAL**

1. Remove fender protector. Refer to [EI-21, "FENDER PROTECTOR"](#).
2. Disconnect washer pump connector and tube.
3. Pull out washer pump in direction shown by the arrow (←) in the figure. Remove washer pump from washer tank.

**INSTALLATION**

Installation is the reverse order of removal.

**CAUTION:**

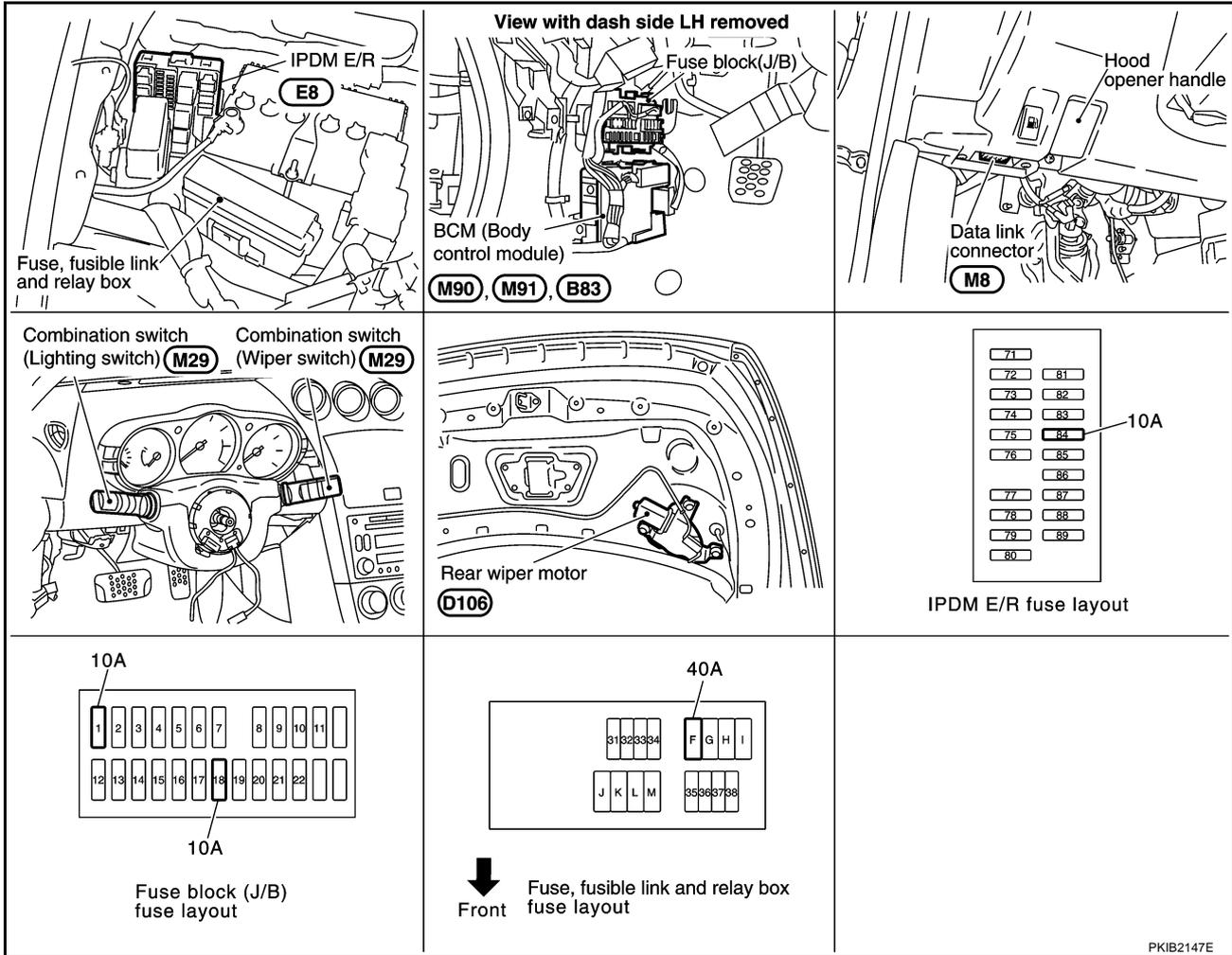
When installing washer pump, there should be no packing twists, etc.

## REAR WIPER AND WASHER SYSTEM

PFP:28710

### Components Parts and Harness Connector Location

NKS0008V



PKIB2147E

### System Description

NKS0008W

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

### OUT LINE

Power is supplied at all times

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

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

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

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,

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

A

## Rear Wiper Operation

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

B

BCM operate rear wiper motor, power is supplied

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

C

Ground is supplied

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

D

With power and ground is supplied, rear wiper operates.

E

## Intermittent Operation

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

When wiper switch is in rear wiper INT position, BCM detect rear wiper INT signal by BCM wiper switch reading function. (Refer to [WW-9, "COMBINATION SWITCH READING FUNCTION"](#) )

F

BCM operate rear wiper motor, power is supplied

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

G

Ground is supplied

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

H

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

I

## Auto Stop Operation

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

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

J

## Washer Operation

When wiper switch is in rear wiper washer position, BCM detect rear wiper washer signal by BCM wiper switch reading function (Refer to [WW-9, "COMBINATION SWITCH READING FUNCTION"](#) ), and combination switch (wiper switch) ground is supplied

WW

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

L

With ground is supplied, rear washer pump is operated.

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

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

M

## BCM WIPER SWITCH READING FUNCTION

Refer to [WW-9, "COMBINATION SWITCH READING FUNCTION"](#) .

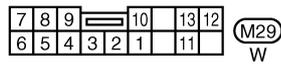
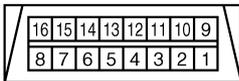
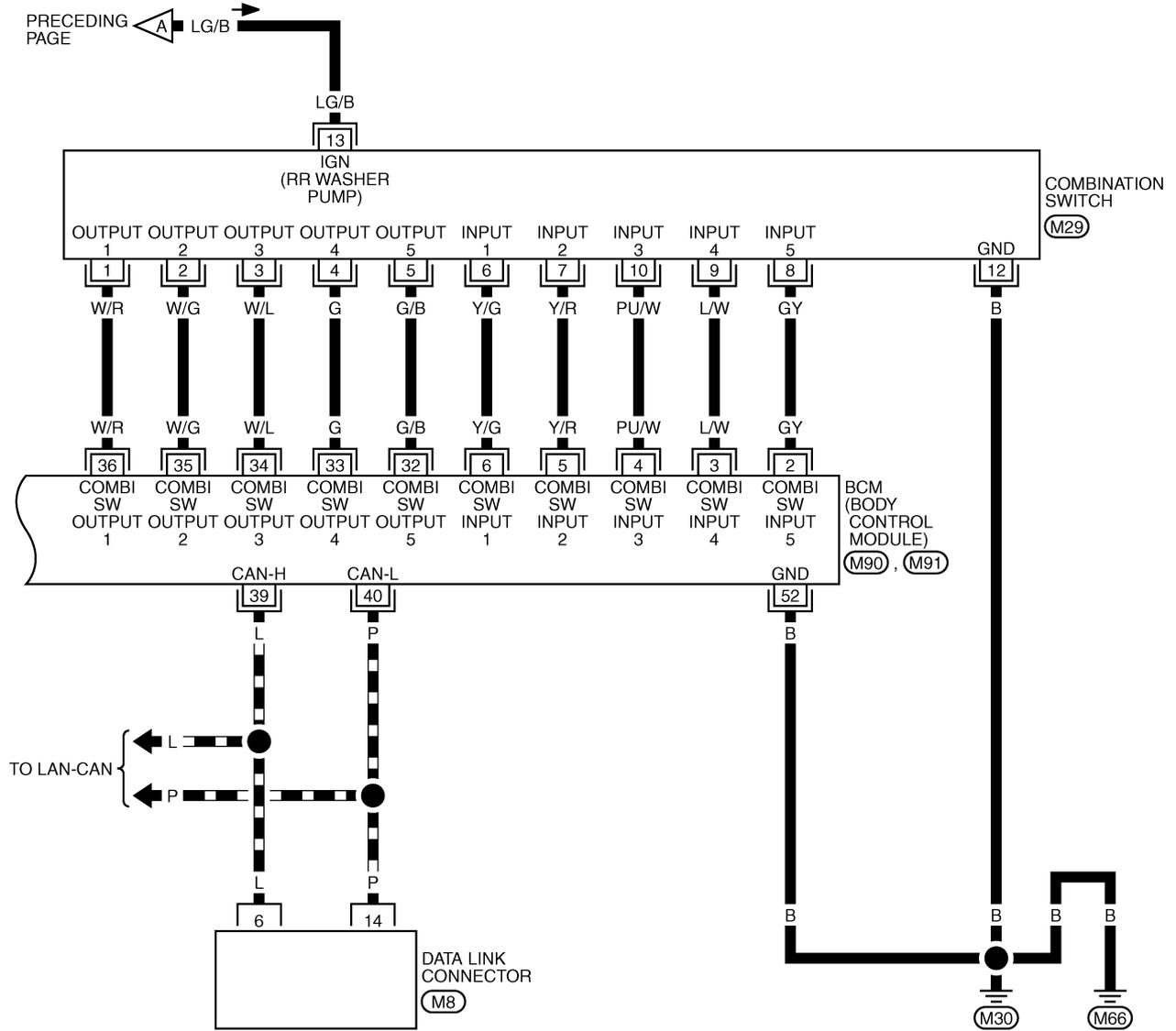


# REAR WIPER AND WASHER SYSTEM

[TYPE 1]

WW-WIP/R-02

▬ : DATA LINE



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

TKWT4008E

# REAR WIPER AND WASHER SYSTEM

[TYPE 1]

NKS0008Y

## Terminals and Reference Values for BCM

**CAUTION:**

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [WW-21, "DATA MONITOR"](#).

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
5	Y/R	Combination switch input 2	ON	OFF	Approx. 0 V
				Rear washer switch	<p style="text-align: right;">PKIB4959J</p>
				Rear wiper switch ON	<p style="text-align: right;">PKIB4955J</p>
6	Y/G	Combination switch input 1	ON	OFF	Approx. 0 V
				Rear wiper switch INT	<p style="text-align: right;">PKIB4959J</p>
33	G	Combination switch output 4	ON	OFF	<p style="text-align: right;">PKIB4960J</p>
				Rear wiper switch INT	<p style="text-align: right;">PKIB4958J</p>

# REAR WIPER AND WASHER SYSTEM

[TYPE 1]

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	<p>PKIB4960J</p>
				Rear washer switch	<p>PKIB4958J</p>
38	W/L	Ignition switch (ON)	ON	—	Battery voltage
39	L	CAN - H	—	—	—
40	P	CAN - L	—	—	—
42	GY	Battery power supply	OFF	—	Battery voltage
52	B	Ground	ON	—	Approx. 0 V
55	R	Battery power supply	OFF	—	Battery voltage
59	OR	Rear wiper auto stop signal	ON	Rear wiper operates	Approx. 0 V
				Rear wiper does not operate	Battery voltage
70	SB	Rear wiper motor output signal	ON	Rear wiper operates	Battery voltage
				Rear wiper does not operate	Approx. 0 V

## How to Proceed With Trouble Diagnosis

NKS0008Z

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-40, "System Description"](#).
3. Perform preliminary check. Refer to [WW-46, "Preliminary Check"](#).
4. Check symptom and repair or replace the cause of malfunction.
5. Does rear wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

## Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

### 1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
Rear washer pump	Ignition ON or START	84
BCM	Ignition ON or START	1
	Battery	F
		18

Refer to [WW-42, "Wiring Diagram — WIP/ R —"](#) .

OK or NG

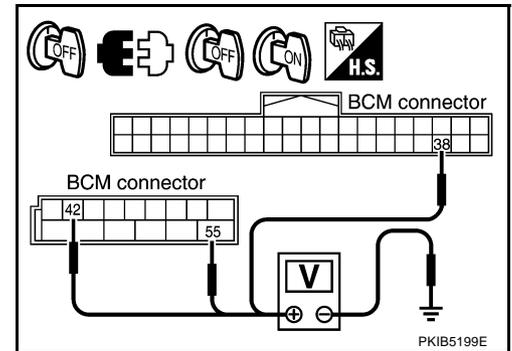
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to [PG-5, "POWER SUPPLY ROUTING CIRCUIT"](#) .

### 2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

### 3. CHECK GROUND CIRCUIT

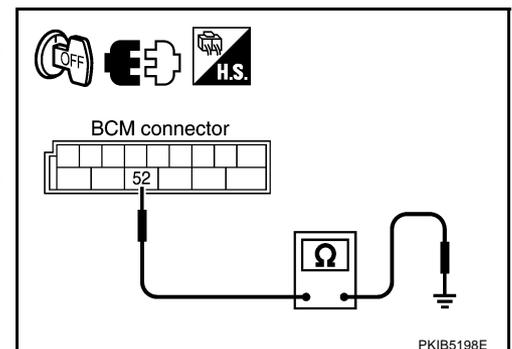
Check continuity between BCM and ground.

Terminal		Ground	Continuity
Connector	Terminal		
M91	52	Ground	Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



## CONSULT-II Functions (BCM)

NKS00091

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

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

### CONSULT-II BASIC OPERATION

Refer to [GI-36, "CONSULT-II Start Procedure"](#) .

#### DATA MONITOR

##### Operation Procedure

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

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
5. Touch "START".
6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

##### Display Item List

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

##### NOTE:

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

## ACTIVE TEST

### Operation Procedure

1. Touch "WIPERS" on "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Touch item to be tested and check operation of the selected item.
4. During the operation check, touching "BACK" deactivates the operation.

### Display Item List

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

**NOTE:**

Coupe models

## Rear Wiper Does Not Operate

NKS00092

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

With CONSULT-II

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

DATA MONITOR			
MONITOR			
FR WASHER SW	OFF		
INT VOLUME	7		
FR WIPER STOP	ON		
VEHICLE SPEED	0.0 km/h		
RR WIPER ON	OFF		
RR WIPER INT	OFF		
RR WASHER SW	OFF		
RR WIPER STOP	OFF		
RR WIPER STP2	OFF		
Page Up			
		RECORD	
MODE	BACK	LIGHT	COPY

PKIB1785E

Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#).

**OK or NG**

OK >> GO TO 2.

NG >> Check combination switch (wiper switch). Refer to [LT-99, "Combination Switch Inspection"](#).

### 2. ACTIVE TEST

With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT SYSTEM" screen.
2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "REAR WIPER" on "SELECT TEST ITEM" screen.
4. Confirm that rear wiper operates normally.

ACTIVE TEST			
RR WIPER		OFF	
ON			
MODE	BACK	LIGHT	COPY

SKIA3503E

Without CONSULT-II

GO TO 3.

Does rear wiper operate normally?

YES >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).

NO >> GO TO 3.

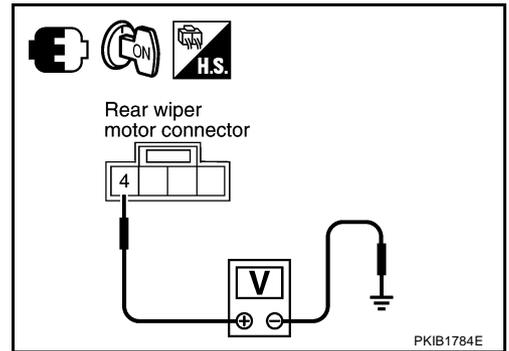
## 3. CHECK BCM

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

Connector	Terminal	Ground	Voltage
D106	4		Battery voltage

OK or NG

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



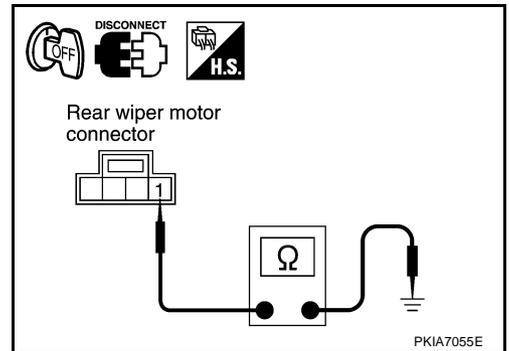
## 4. CHECK GROUND CIRCUIT

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

Connector	Terminal	Ground	Continuity
D106	1		Yes

OK or NG

- OK >> Replace rear wiper motor.
- NG >> Repair harness or connector.



## 5. CHECK REAR WIPER CIRCUIT

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

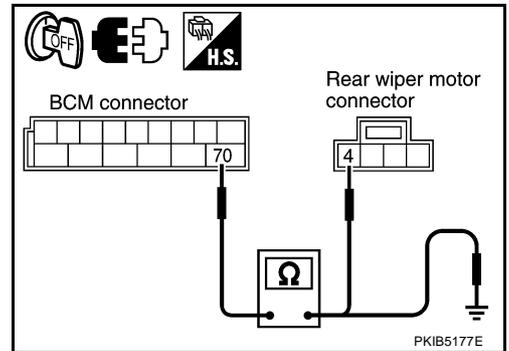
Terminal				Continuity
BCM		Rear wiper motor		
Connector	Terminal	Connector	Terminal	
B83	70	D106	4	Yes

4. Check continuity between BCM harness connector and ground.

Connector	Terminal	Ground	Continuity
B83	70		No

OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).
- NG >> Repair harness or connector.



A  
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C  
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I  
J  
L  
M

WW

## Rear Wiper Does Not Return to Stop Position

### 1. CHECK REAR WIPER MOTOR CIRCUIT

① With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER STOP", turn ON-OFF linked with rear wiper switch operation.

DATA MONITOR	
MONITOR	
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
RR WIPER ON	OFF
RR WIPER INT	OFF
RR WASHER SW	OFF
RR WIPER STOP	OFF
RR WIPER STP2	OFF
Page Up	
RECORD	
MODE	BACK
LIGHT	COPY

PKIB1785E

⊗ Without CONSULT-II

GO TO 2.

OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).
- NG >> GO TO 2.

### 2. CHECK REAR WIPER AUTO STOP CIRCUIT

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

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

4. Check continuity between BCM harness connector and ground.

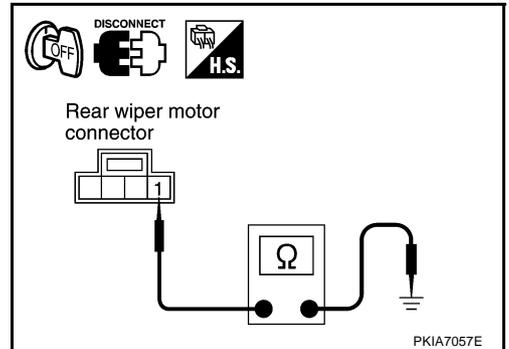
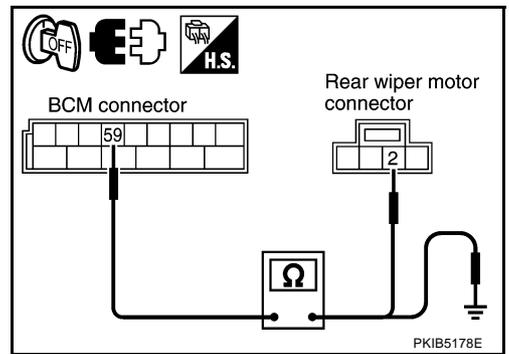
Connector	Terminal	Ground	Continuity
B83	59		No

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

Connector	Terminal	Ground	Continuity
D106	1		Yes

OK or NG

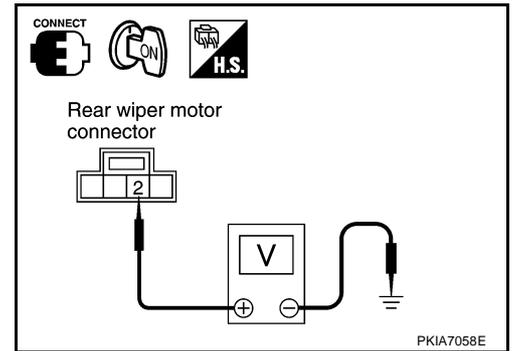
- OK >> GO TO 3.
- NG >> Repair harness or connector.



## 3. CHECK REAR WIPER MOTOR SIGNAL

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

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



OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).
- NG >> Replace rear wiper motor.

### Only Rear Wiper ON Does Not Operate

NKS00094

Refer to [LT-99, "Combination Switch Inspection"](#).

### Only Rear Wiper INT Does Not Operate

NKS00095

Refer to [LT-99, "Combination Switch Inspection"](#).

### Wiper Does Not Wipe When Rear Washer Operates

NKS00096

Refer to [LT-99, "Combination Switch Inspection"](#).

### Rear Wiper Does Not Stop

NKS00097

## 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

Ⓜ With CONSULT-II

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

DATA MONITOR	
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
RR WIPER ON	OFF
RR WIPER INT	OFF
RR WASHER SW	OFF
RR WIPER STOP	OFF
RR WIPER STP2	OFF
Page Up	
RECORD	
MODE	BACK
LIGHT	COPY

ⓧ Without CONSULT-II

Refer to [LT-99, "Combination Switch Inspection"](#).

OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).
- NG >> Check combination switch (wiper switch). Refer to [LT-99, "Combination Switch Inspection"](#).

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

### Location

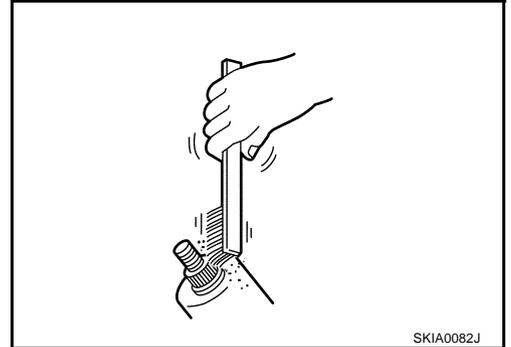
NKS00098

### REMOVAL

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

### INSTALLATION

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



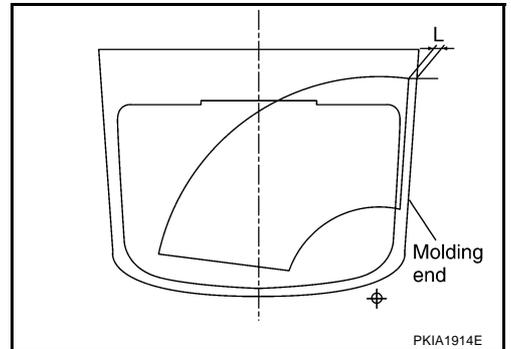
3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L" immediately.
4. Tighten wiper arm nuts to specified torque.

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

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

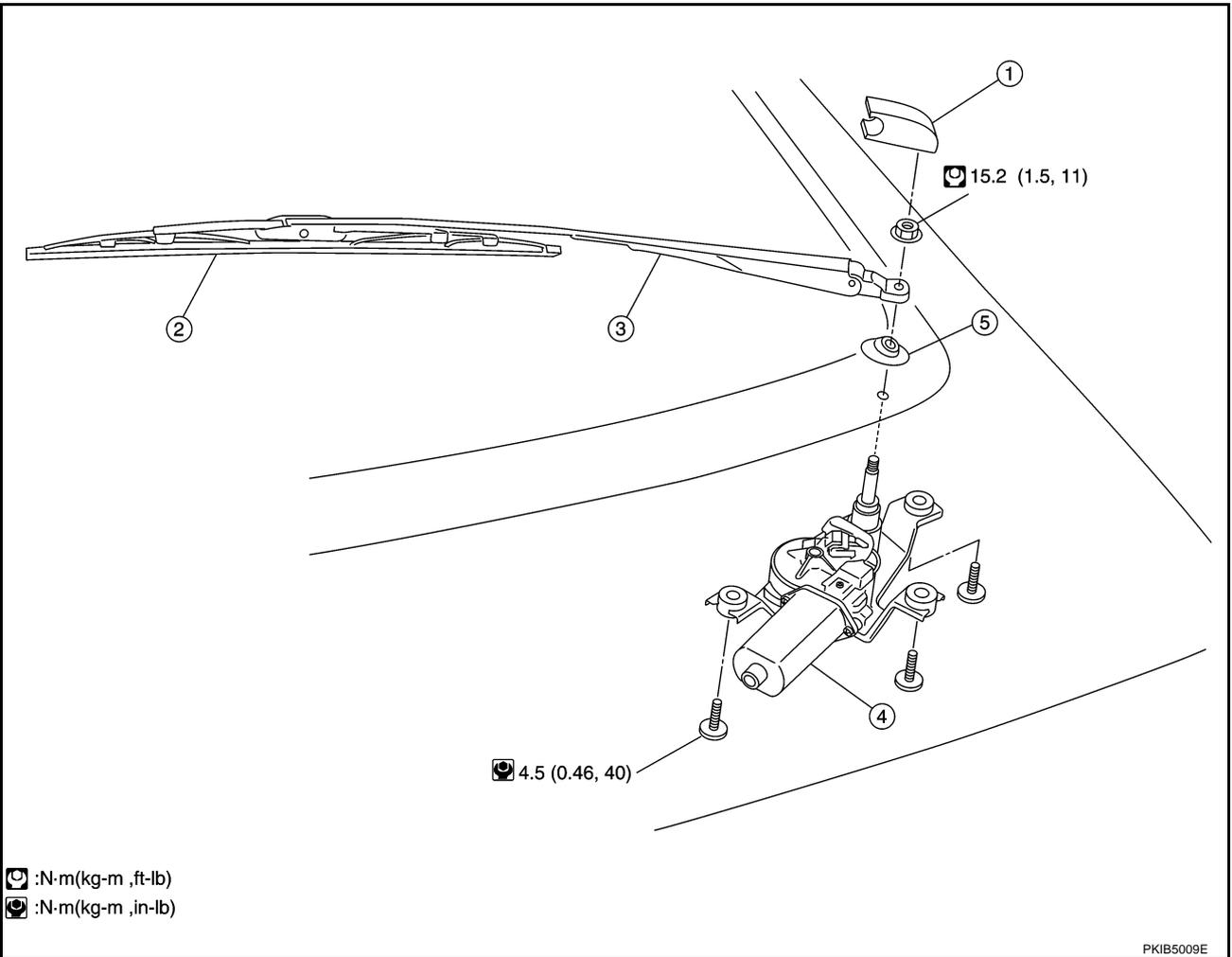
**Clearance "L"** : 22.5 - 37.5 mm (0.886 - 1.476 in)

7. Install rear wiper arm caps.



## Removal and Installation of Rear Wiper Motor

NKS00099



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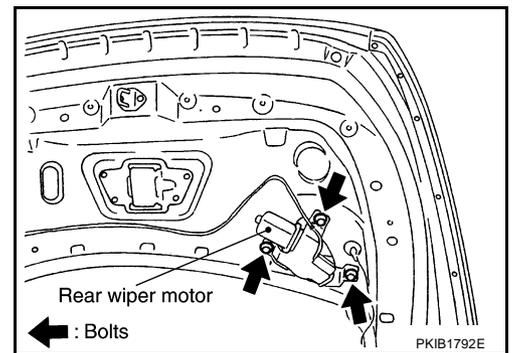
- |                     |                |              |
|---------------------|----------------|--------------|
| 1. Cover wiper arm  | 2. Wiper blade | 3. Wiper arm |
| 4. Rear wiper motor | 5. Pivot cap   |              |

PKIB5009E

WW

### REMOVAL

1. Remove rear wiper arm. Refer to [WW-52, "REMOVAL"](#).
2. Remove pivot cap.
3. Remove back door finisher lower. Refer to [EI-48, "BACK DOOR FINISHER"](#).
4. Disconnect rear wiper motor connector.
5. Remove rear wiper motor mounting bolts and remove rear wiper motor from the vehicle.



L  
M

### INSTALLATION

1. Install rear wiper motor to the vehicle.
  - Rear wiper motor mounting bolts** : 4.5 N-m (0.46 kg-m, 40 in-lb)
2. Install pivot cap.
3. Connect rear wiper motor connector. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
4. Install back door finisher lower. Refer to [EI-48, "BACK DOOR FINISHER"](#).
5. Install rear wiper arm and arm cap. Refer to [WW-52, "INSTALLATION"](#).

# REAR WIPER AND WASHER SYSTEM

[TYPE 1]

**CAUTION:**

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

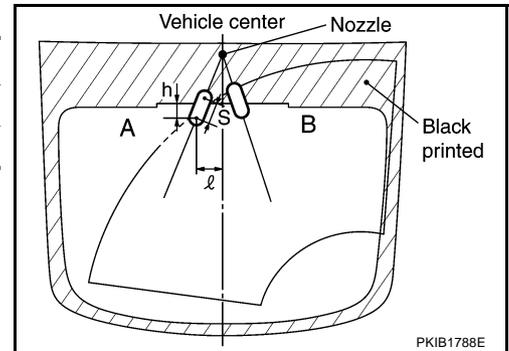
## Washer Nozzle Adjustment

NKS0009A

Adjust spray position as shown in the figure.

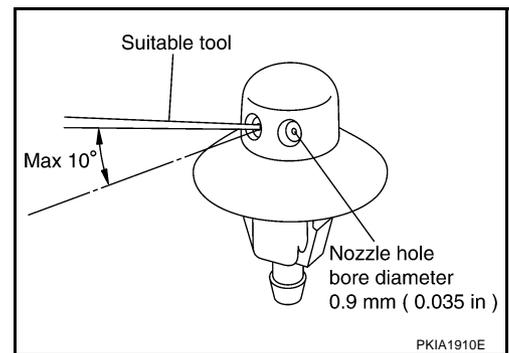
Unit: mm (in)

Spray position	h (height)	ℓ (width)	S	Spray position range
A	30 (1.18)	73 (2.87)	50 (1.97)	30
B	12 (0.47)	50 (1.97)	50 (1.97)	30



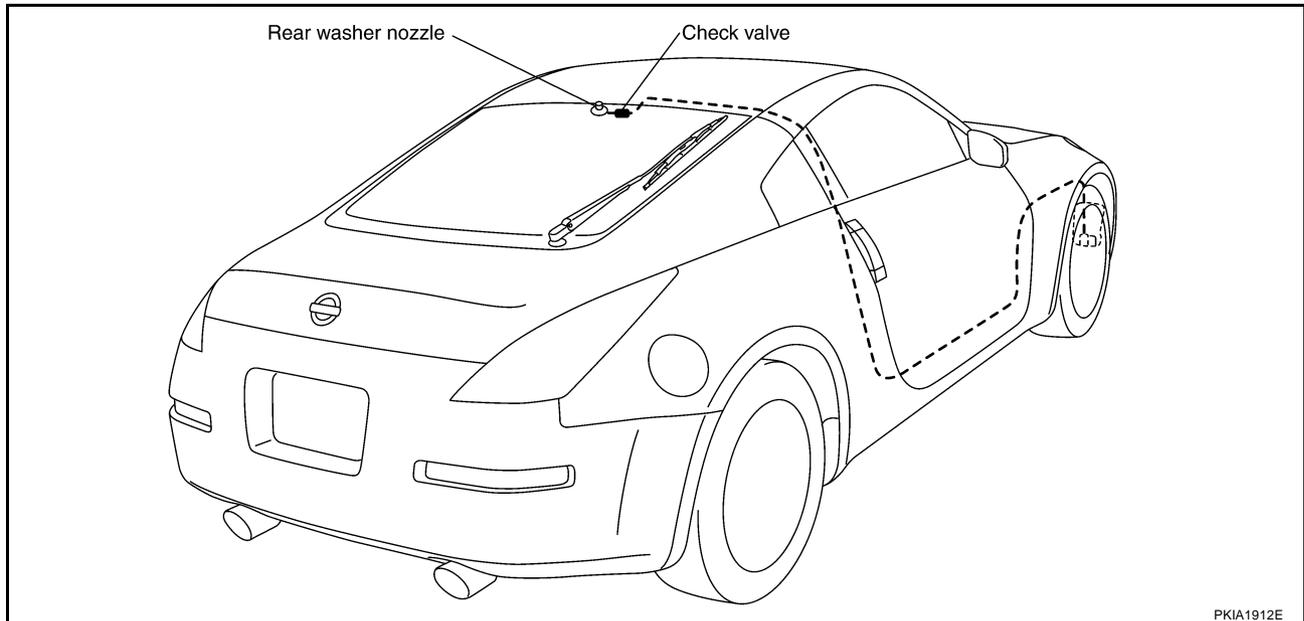
Adjust washer nozzle with suitable tool as shown in the figure.

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



## Washer Tube Layout

NKS0009B

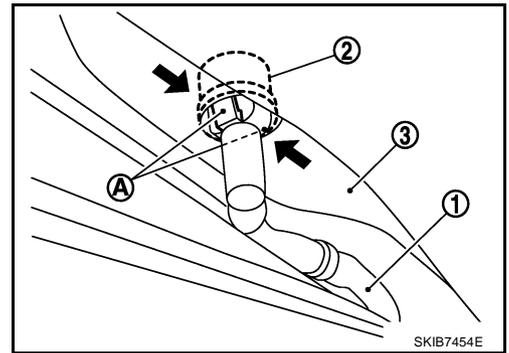


## Removal and Installation of Rear Washer Nozzle

NKS0021M

### REMOVAL

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



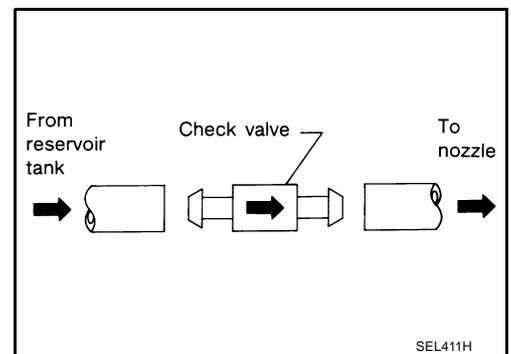
### INSTALLATION

Installation is the reverse order of removal. Adjust nozzle spray location. Refer to [WW-54, "Washer Nozzle Adjustment"](#).

## Inspection for Washer Nozzle CHECK VALVE INSPECTION

NKS0009C

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



## Inspection of Rear Wiper and Washer Switch Circuit

NKS0021N

Refer to [WW-38, "Removal and Installation of Front Wiper and Washer Switch"](#).

## Removal and Installation of Rear Wiper and Washer Switch

NKS0009D

Refer to [WW-38, "Removal and Installation of Front Wiper and Washer Switch"](#).

## Removal and Installation of Washer Tank

NKS0009E

Refer to [WW-38, "Removal and Installation of Washer Tank"](#).

## Removal and Installation of Washer Pump

NKS0009F

Refer to [WW-39, "Removal and Installation of Washer Pump"](#).

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# POWER SOCKET

[TYPE 1]

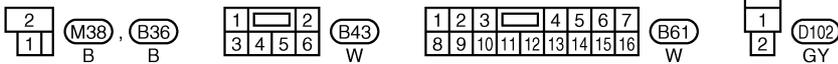
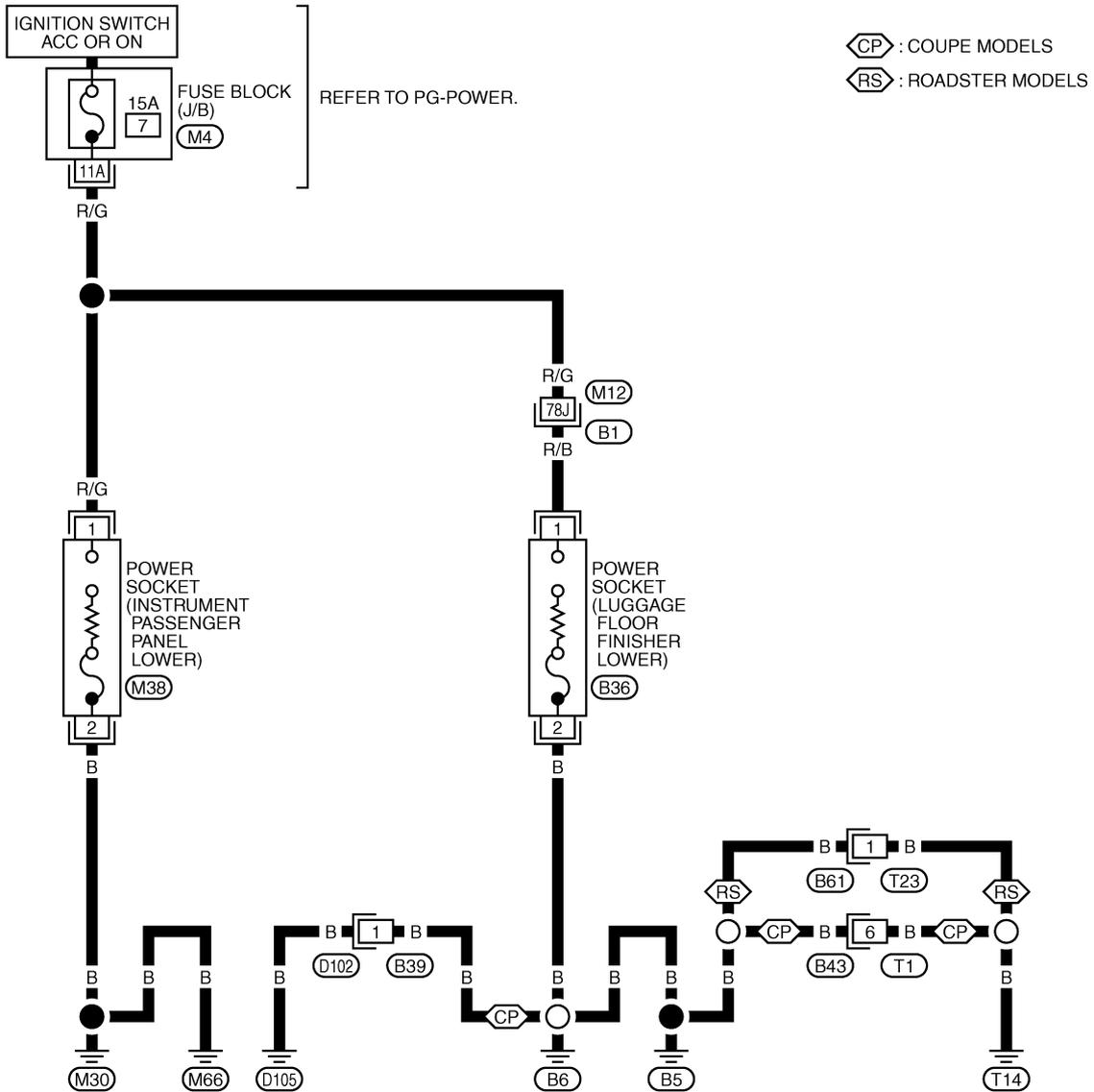
## POWER SOCKET

PFP:253A2

### Wiring Diagram — P/SCKT —

NKS0009G

### WW-P/SCKT-01



REFER TO THE FOLLOWING.

- (B1) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4) -FUSE BLOCK-JUNCTION BOX (J/B)

TKWT4009E

# POWER SOCKET

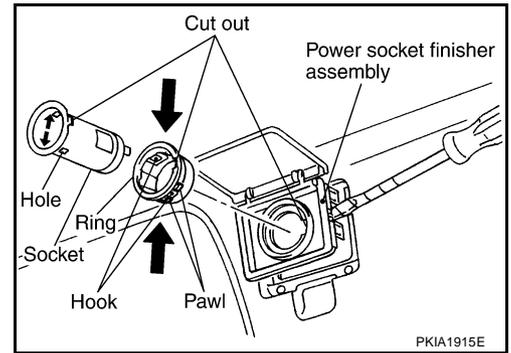
[TYPE 1]

## Removal and Installation (Luggage Floor Finisher Lower)

NKS0009H

### REMOVAL

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



### INSTALLATION

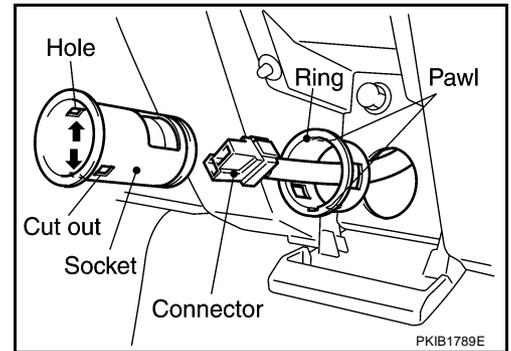
Installation is the reverse order of removal.

## Removal and Installation (Instrument Passenger Panel Lower)

NKS0009I

### REMOVAL

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



### INSTALLATION

Installation is the reverse order of removal.

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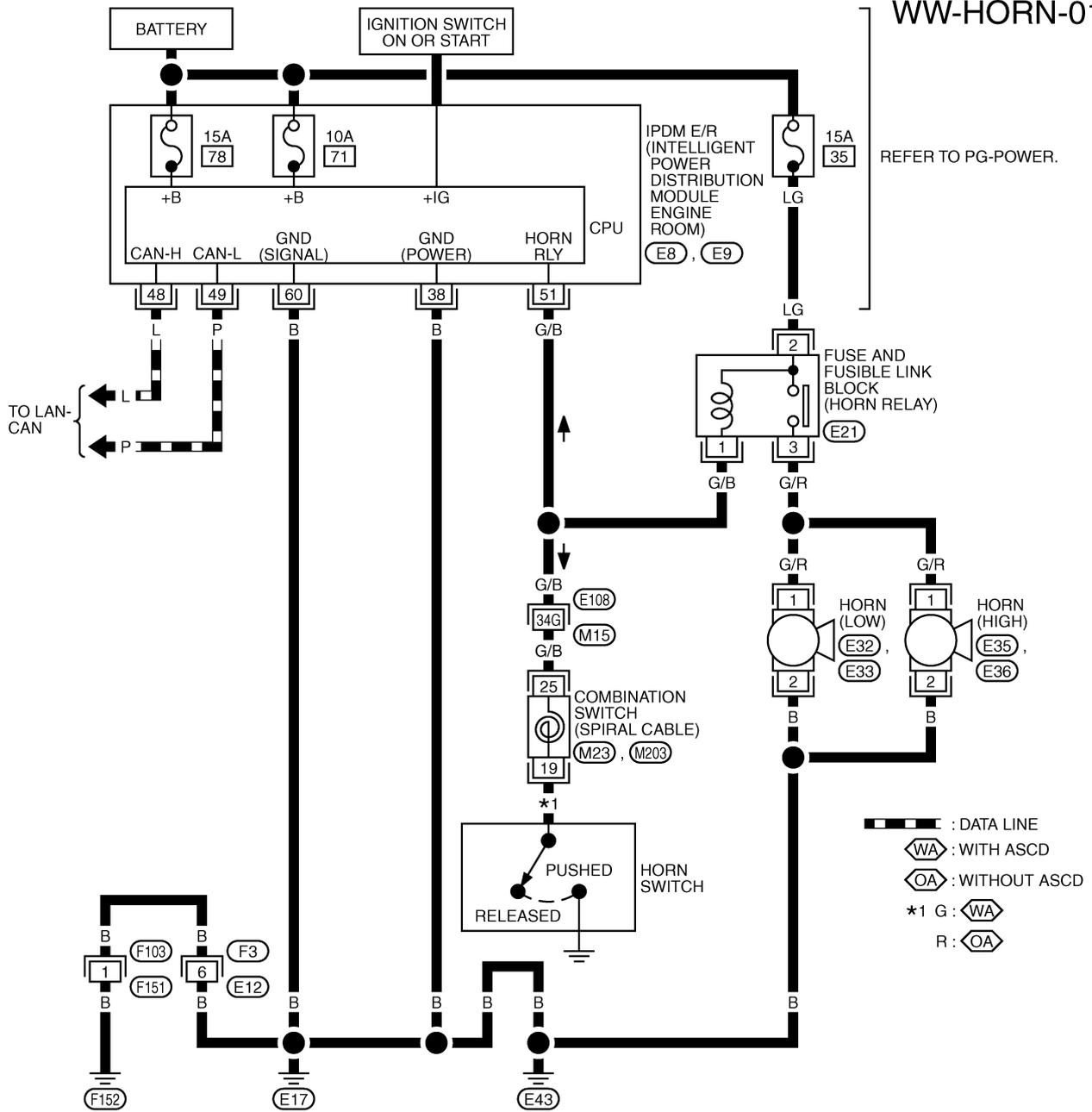
WW

HORN

FPF:25610

Wiring Diagram — HORN —

NKS0009J



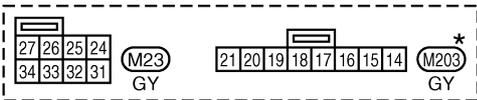
WW-HORN-01

REFER TO PG-POWER.

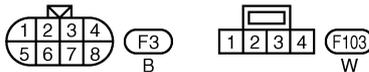
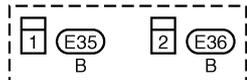
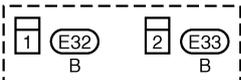
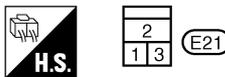
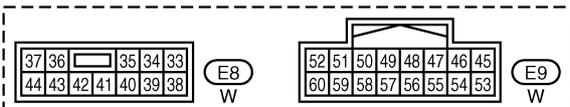
TO LAN-CAN

REFER TO THE FOLLOWING.

◊E108 -SUPER MULTIPLE JUNCTION (SMJ)



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



# HORN

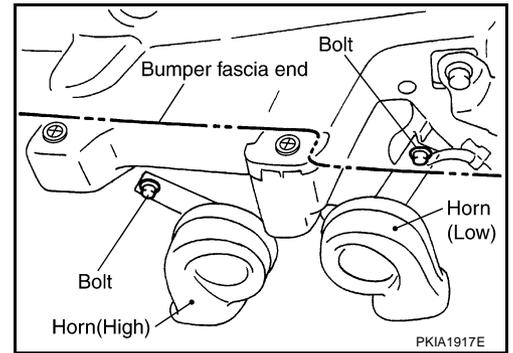
[TYPE 1]

NKS0009K

## Removal and Installation

### REMOVAL

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



### INSTALLATION

Tighten horn bolt to specified torque.

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

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WW

**PRECAUTION**

PFP:00011

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

NKS00544

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

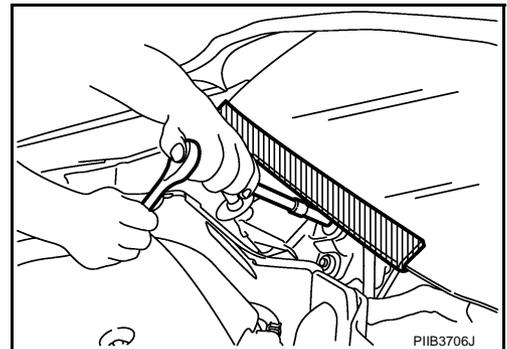
**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

**Precautions for Procedures without Cowl Top Cover**

NKS00545

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

**Precautions for Battery Service**

NKS00546

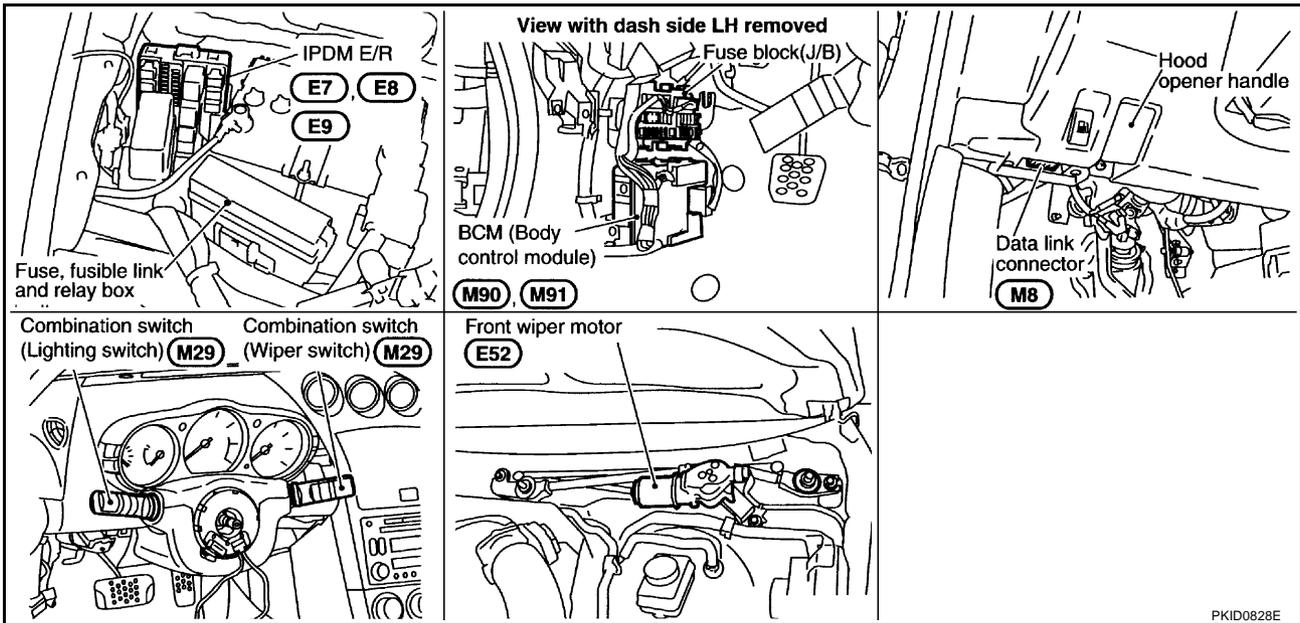
Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference.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

## FRONT WIPER AND WASHER SYSTEM

PFP:28810

### Components Parts and Harness Connector Location

NKS0051Z



### System Description

NKS00520

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

### OUT LINE

Power is supplied at all times

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

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

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

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- to front washer pump terminal 2.

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,
- to IPDM E/R terminals 38 and 60
- through grounds E17, E43 and B102 (with VDC system or navigation system),
- through grounds E17, E43 and F152 (without VDC system and navigation system),
- to combination switch terminal 12
- through grounds M30 and M66.

## LOW SPEED WIPER OPERATION

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

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

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

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

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

Ground is supplied

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

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

## HIGH SPEED WIPER OPERATION

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

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

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

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

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

Ground is supplied

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

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

## INTERMITTENT OPERATION

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

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

## Wiper Dial Position Setting

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

Example: For wiper dial position 1

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

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

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

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

### AUTO STOP OPERATION

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base. When the wiper arms are not located at base of windshield with wiper switch OFF, ground is provided

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

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

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

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

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

### WASHER OPERATION

When the wiper switch is in front wiper washer position, BCM detect front wiper washer signal by BCM wiper switch reading function (Refer to [WW-64, "COMBINATION SWITCH READING FUNCTION"](#) ).

Combination switch ground is supplied

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

With ground is supplied, front washer pump is operated.

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

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

## MIST OPERATION

When the wiper switch is turned to the mist position, wiper low speed operation cycles once and then stops. For additional information about wiper operation under this condition, refer to [WW-62, "LOW SPEED WIPER OPERATION"](#).

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

## FAIL-SAFE FUNCTION

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

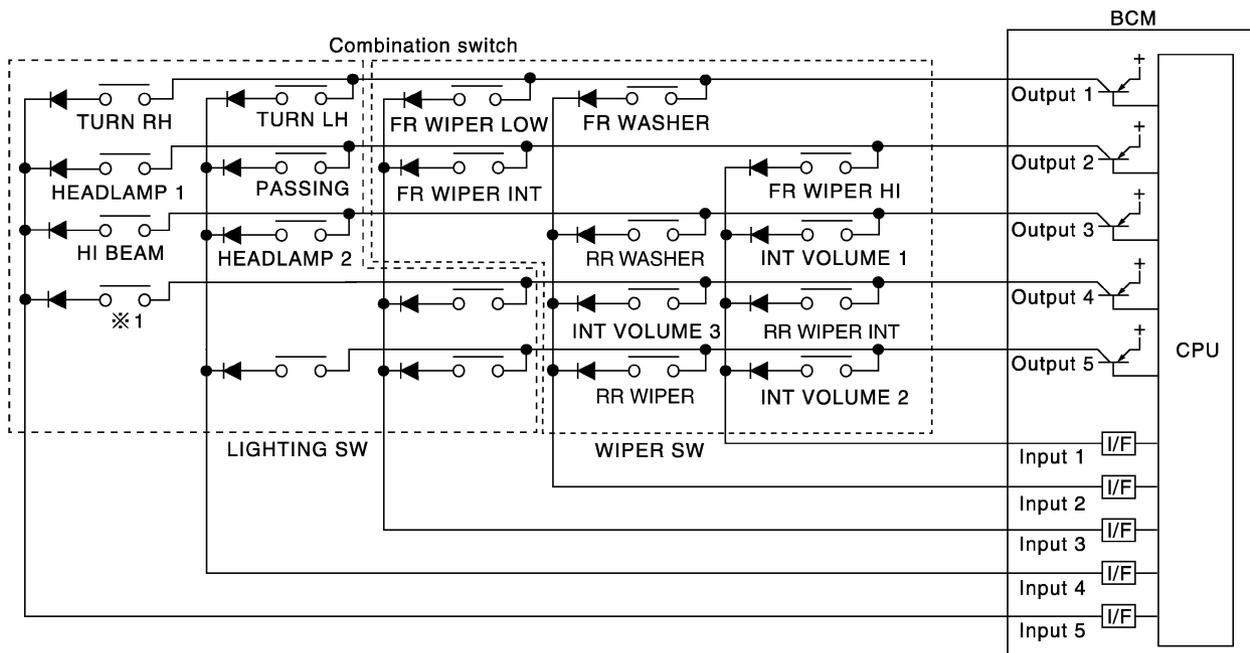
## COMBINATION SWITCH READING FUNCTION

### Description

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

### Operation Description

- BCM activates transistors of output terminals (OUTPUT 1 - 5) periodically, and allows current to flow in turn.
- If any (1 or more) switches are turned ON, circuit of output terminals (OUTPUT 1 - 5) and input terminals (INPUT 1 - 5) becomes active.
- At this time, transistors of output terminals (OUTPUT 1 - 5) are activated to allow current to flow. When voltage of input terminals (INPUT 1 - 5) corresponding to that switch changes, interface in BCM detects voltage change, and BCM determines that switch is ON.



※ 1 : LIGHTING SWITCH 1ST POSITION

PKIC4861E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

## BCM - Operation Table of Combination Switches

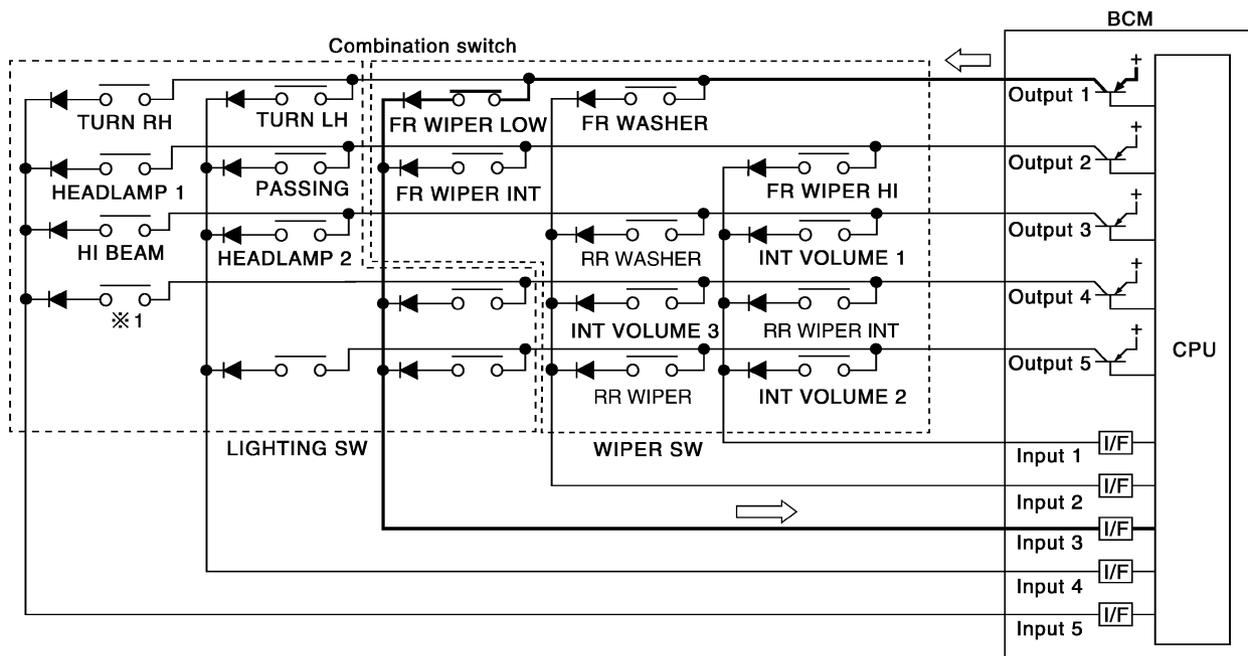
BCM reads operation status of combination switch using combinations shown in table below.

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

PKIC4963E

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

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



※ 1 : LIGHTING SWITCH 1ST POSITION

PKIC4862E

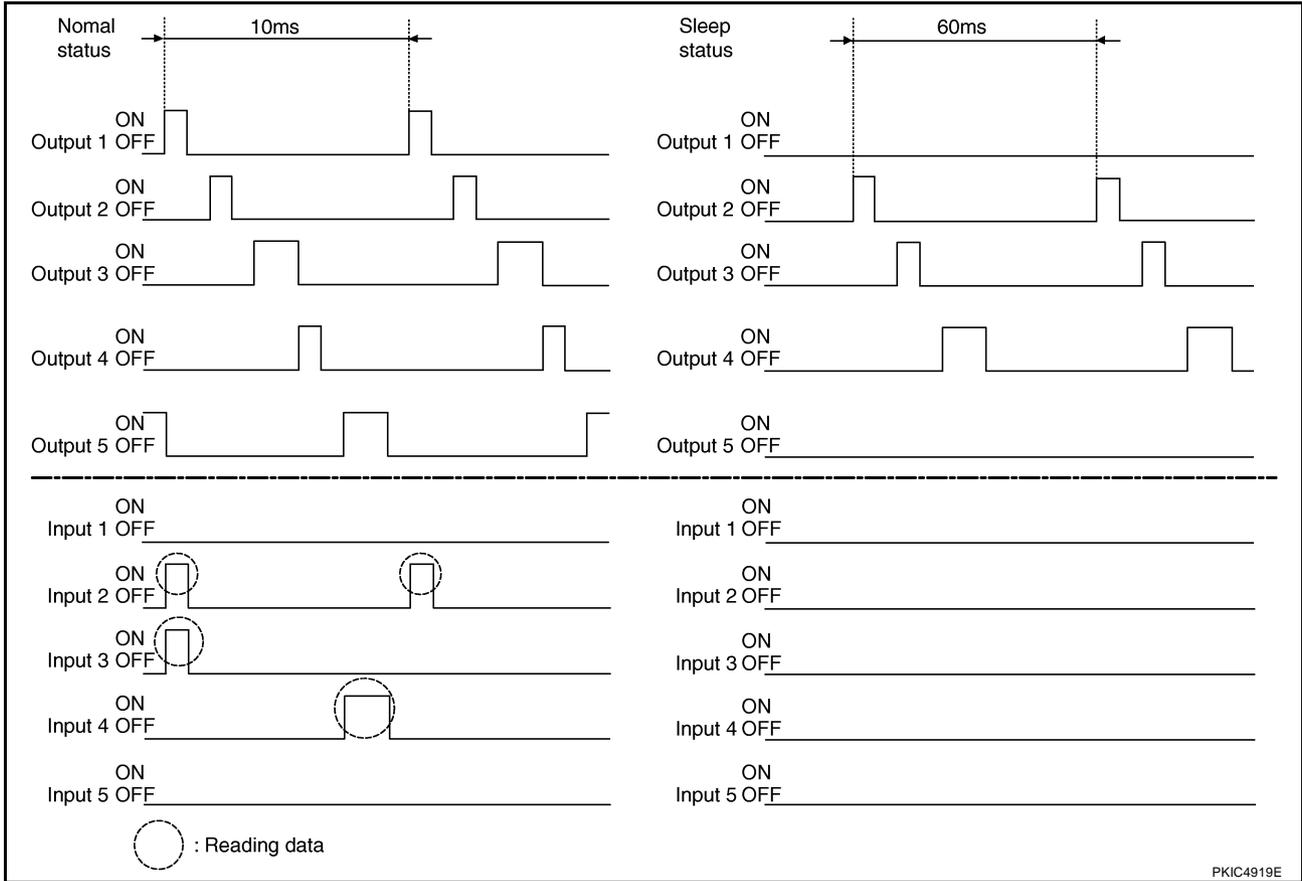
**NOTE:**

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

**Operation Mode**

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

1. Normal status
  - When BCM is not in sleep status, OUTPUT terminals (1 - 5) each turn ON-OFF every 10 ms.
2. Sleep status
  - When BCM is in sleep status BCM enters low power mode. OUTPUT (1 - 5) turn ON-OFF every 60 ms, and only input from light switch system is accepted.



**CAN Communication System Description**

NKS00521

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

**CAN Communication Unit**

NKS00522

Refer to [LAN-48, "CAN System Specification Chart"](#) .

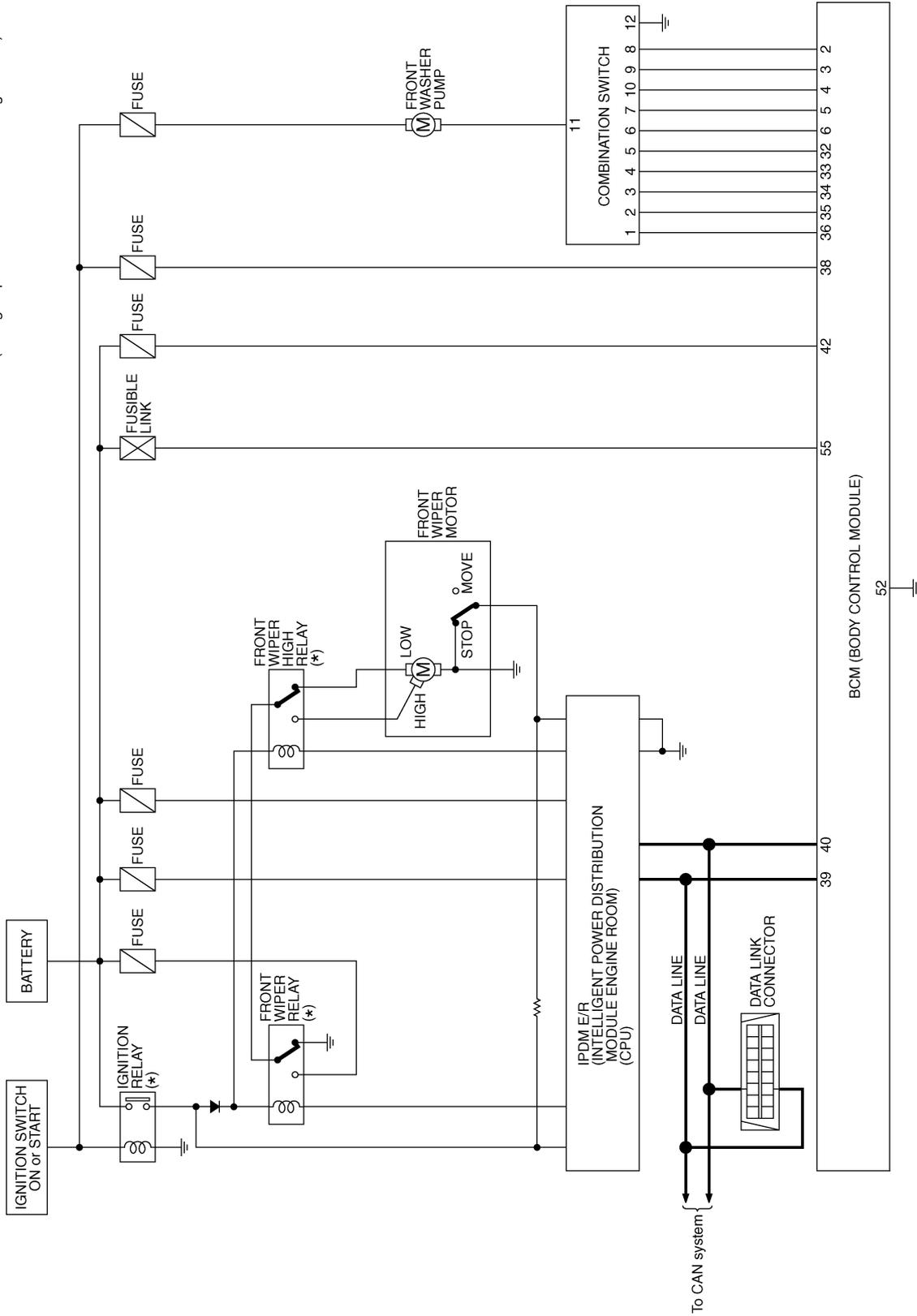
# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

## Schematic

NKS00523

\*: This relay is built into the IPDM E/R  
(Intelligent power distribution module engine room).



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TKWT4003E

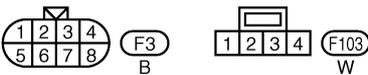
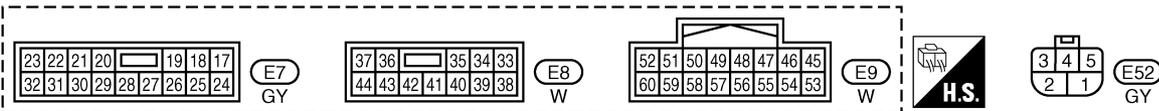
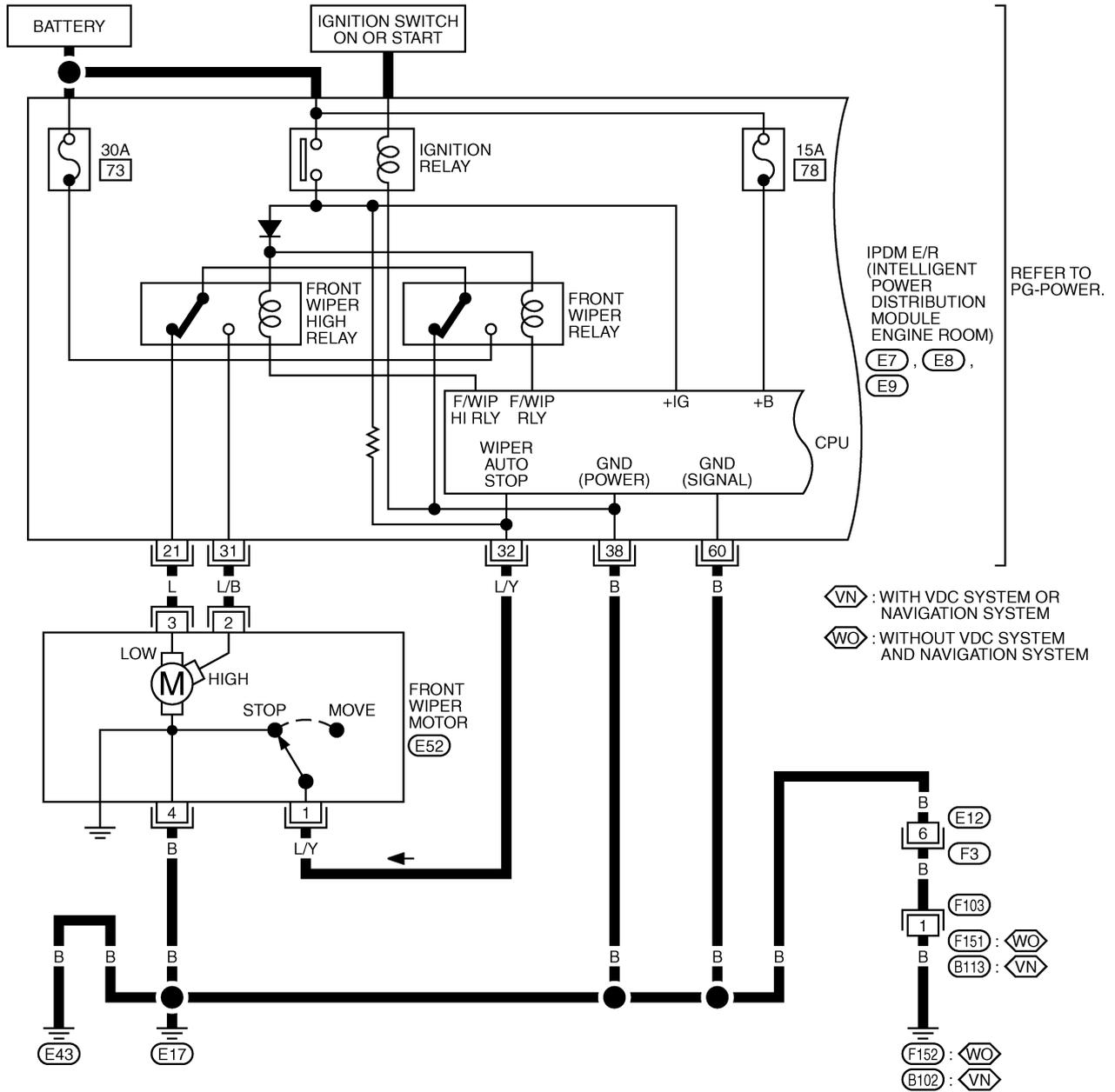
# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

NKS00524

## Wiring Diagram — WIPER —

WW-WIPER-01



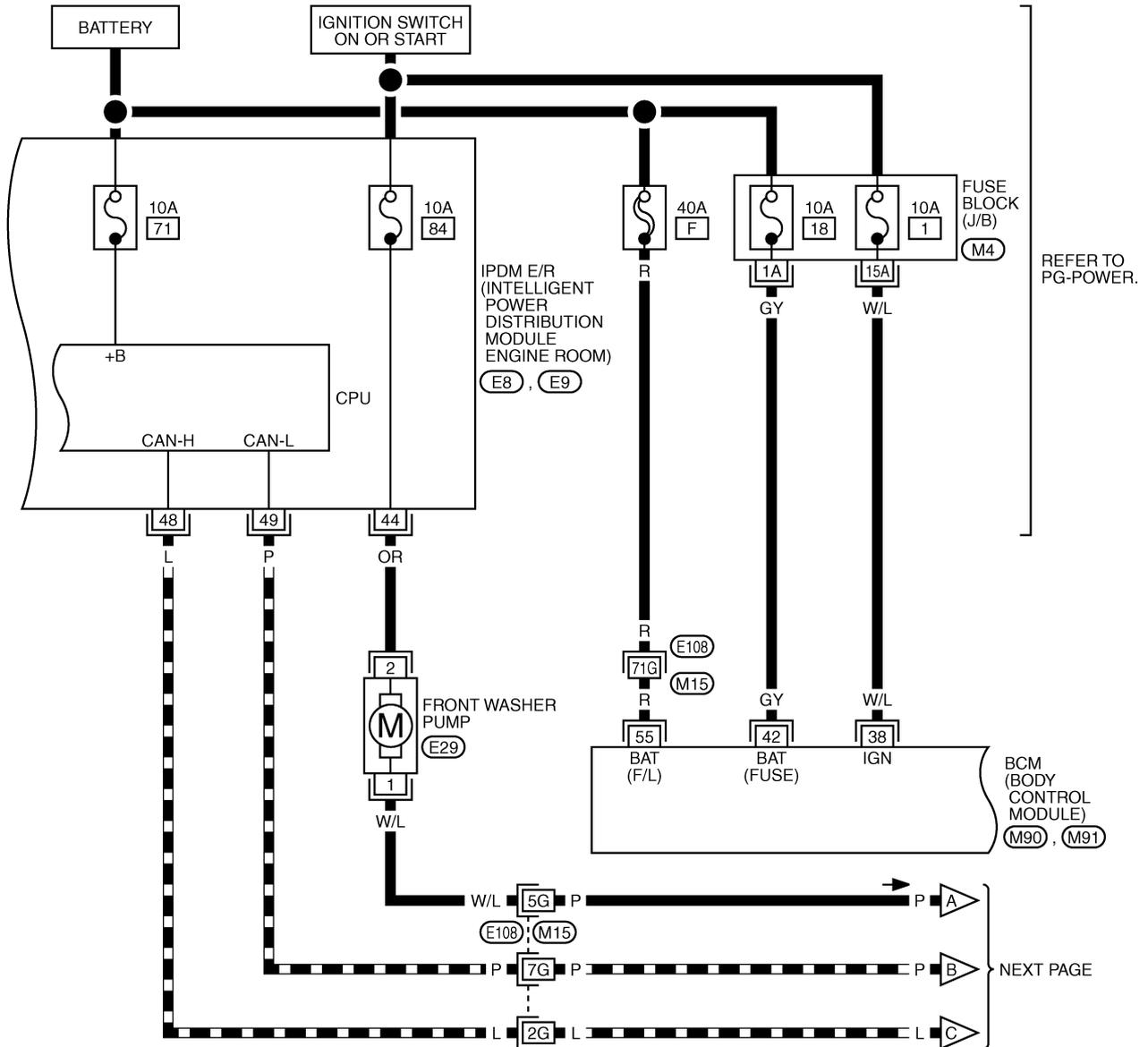
TKWT5616E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

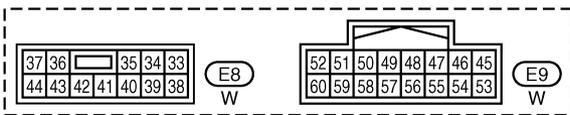
WW-WIPER-02

DATA LINE



A  
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WW



REFER TO THE FOLLOWING.

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

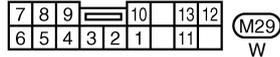
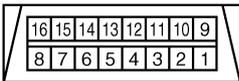
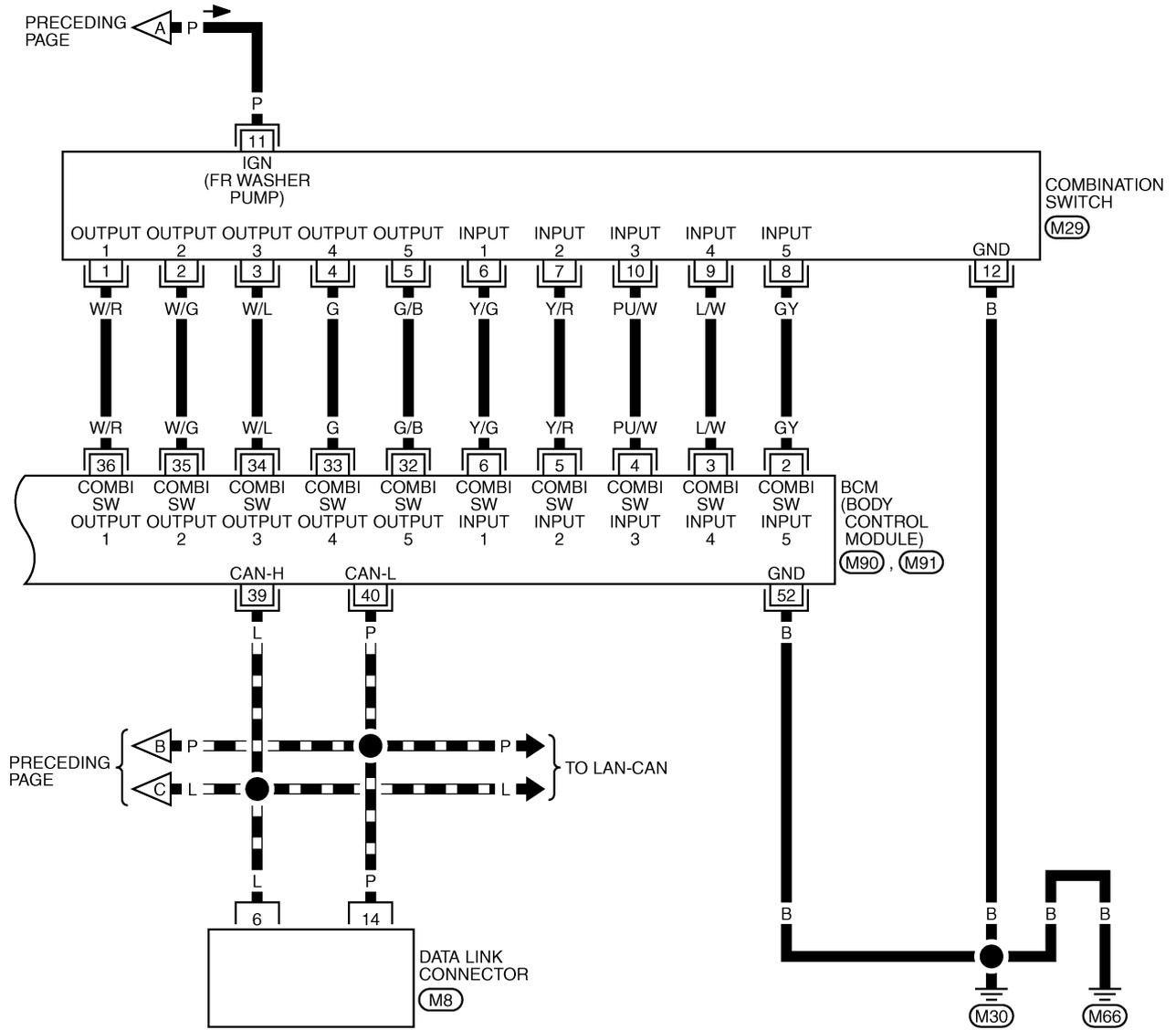
TKWT5617E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

## WW-WIPER-03

▬ : DATA LINE



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

TKWT4006E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

NKS00525

## Terminals and Reference Values for BCM

**CAUTION:**

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [WW-76, "DATA MONITOR"](#).

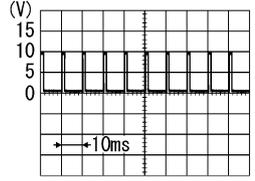
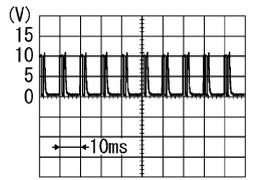
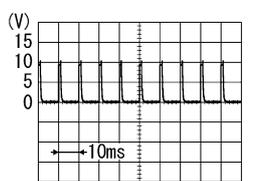
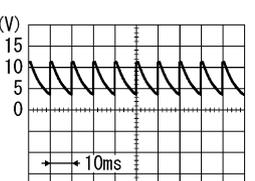
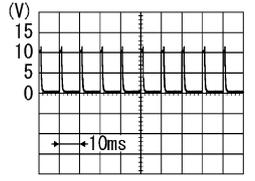
Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
4	PU/W	Combination switch input 3	ON	OFF	Approx. 0 V
				Lighting, turn, wiper switch (Wiper intermittent dial position 4)	Any of the conditions below <ul style="list-style-type: none"> <li>● Front wiper switch MIST</li> <li>● Front wiper switch INT</li> <li>● Front wiper switch LO</li> </ul>
5	Y/R	Combination switch input 2	ON	OFF (Wiper intermittent dial position 4)	Approx. 0 V
				Lighting, turn, wiper switch	Any of the conditions below <ul style="list-style-type: none"> <li>● Front washer switch</li> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 5</li> <li>● Wiper intermittent dial position 6</li> </ul>

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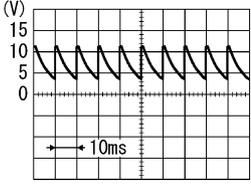
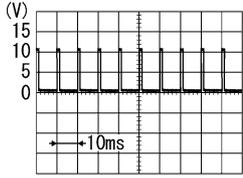
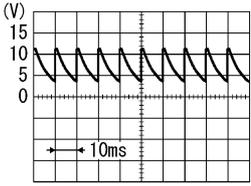
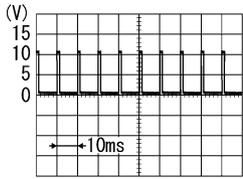
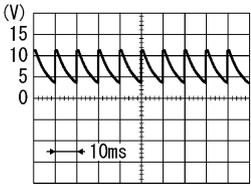
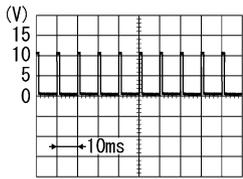
# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
6	Y/G	Combination switch input 1	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)	Approx. 0 V
					Any of the conditions below <ul style="list-style-type: none"> <li>● Front wiper switch HI</li> <li>● Wiper intermittent dial position 3</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4959J</p> Approx. 1.0 V
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 2</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4952J</p> Approx. 1.7 V
32	G/B	Combination switch output 5	ON	Lighting, turn, wiper switch	Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 6</li> <li>● Wiper intermittent dial position 7</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4955J</p> Approx. 0.8 V
					OFF (Wiper intermittent dial position 4)	 <p style="text-align: right; font-size: small;">PKIB4960J</p> Approx. 7.2 V
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 2</li> <li>● Wiper intermittent dial position 6</li> <li>● Wiper intermittent dial position 7</li> </ul>	 <p style="text-align: right; font-size: small;">PKIB4956J</p> Approx. 1.0 V

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

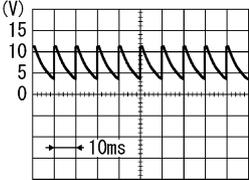
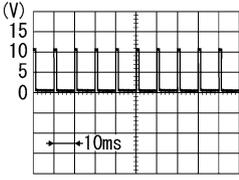
Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
33	G	Combination switch output 4	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)   <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 5</li> <li>● Wiper intermittent dial position 6</li> </ul>  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
34	W/L	Combination switch output 3	ON	Lighting, turn, wiper switch	OFF (Wiper intermittent dial position 4)   <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>
					Any of the conditions below <ul style="list-style-type: none"> <li>● Wiper intermittent dial position 1</li> <li>● Wiper intermittent dial position 2</li> <li>● Wiper intermittent dial position 3</li> </ul>  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>
35	W/G	Combination switch output 2	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF   <p style="text-align: right; font-size: small;">PKIB4960J</p> <p style="text-align: center;">Approx. 7.2 V</p>
					Any of the conditions below <ul style="list-style-type: none"> <li>● Front wiper switch INT</li> <li>● Front wiper switch HI</li> </ul>  <p style="text-align: right; font-size: small;">PKIB4958J</p> <p style="text-align: center;">Approx. 1.2 V</p>

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# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
36	W/R	Combination switch output 1	ON	Lighting, turn, wiper switch (Wiper intermittent dial position 4)	OFF	 <p>Approx. 7.2 V</p>
					Any of the conditions below	 <p>Approx. 1.2 V</p>
38	W/L	Ignition switch (ON)	ON	—	Battery voltage	
39	L	CAN - H	—	—	—	
40	P	CAN - L	—	—	—	
42	GY	Battery power supply	OFF	—	Battery voltage	
52	B	Ground	ON	—	Approx. 0 V	
55	R	Battery power supply	OFF	—	Battery voltage	

## Terminals and Reference Values for IPDM E/R

NKS00526

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

## How to Proceed With Trouble Diagnosis

NKS00527

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-61, "System Description"](#) .
3. Perform preliminary check. Refer to [WW-75, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the front wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.

6. INSPECTION END

## Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

NKS00528

### 1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

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

Refer to [WW-68, "Wiring Diagram — WIPER —"](#) .

OK or NG

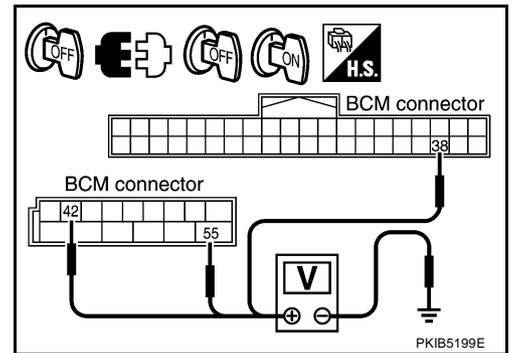
OK >> GO TO 2

NG >> If fuse is blown, be sure to eliminate the cause of malfunction before installing new fuse, Refer to [PG-5, "POWER SUPPLY ROUTING CIRCUIT"](#) .

### 2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

### 3. CHECK GROUND CIRCUIT

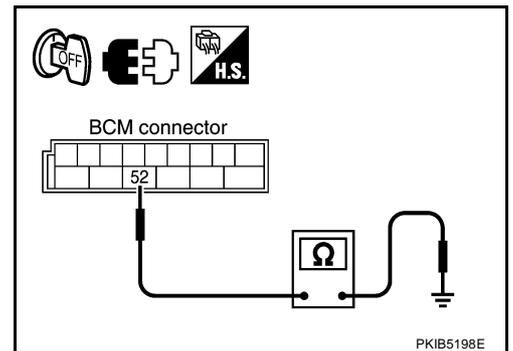
Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M91	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



## CONSULT-II Functions (BCM)

NKS00529

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

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

## CONSULT-II BASIC OPERATION

Refer to [GI-36, "CONSULT-II Start Procedure"](#) .

### WORK SUPPORT

#### Operation Procedure

1. Touch "WIPER" on "SELECT TEST ITEM" screen.
2. Touch "WORK SUPPORT" on "SELECT DIAG MODE" screen.
3. Touch "WIPER SPEED SETTING" on "SELECT WORK ITEM" screen.
4. Touch "START".
5. Touch "CHANGE SETT".
6. The setting will be changed and "CUSTOMIZING COMPLETED" will be displayed.
7. Touch "END".

#### Display Item List

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

### DATA MONITOR

#### Operation Procedure

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

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
5. Touch "START".
6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

#### Display Item List

Monitor item	Contents
IGN ON SW "ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from ignition switch signal.
IGN SW CAN "ON/OFF"	Displays "ignition switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN communication signal.
FR WIPER HI "ON/OFF"	Displays "FRONT WIPER HI (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER LOW "ON/OFF"	Displays "FRONT WIPER LOW (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WIPER INT "ON/OFF"	Displays "FRONT WIPER INT (ON)/Other (OFF)" status as judged from wiper switch signal.
FR WASHER SW "ON/OFF"	Displays "FRONT WASHER Switch (ON)/Other (OFF)" status as judged from wiper switch signal.

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

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

**NOTE:**

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

**ACTIVE TEST**

**Operation Procedure**

1. Touch "WIPER" on "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Touch item to be tested and check operation of the selected item.
4. During the operation check, touching "BACK" deactivates the operation.

**Display Item List**

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

**NOTE:**

Coupe models

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## CONSULT-II Functions (IPDM E/R)

NKS0052A

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

Diagnosis Mode	Description
SELF-DIAG RESULTS	Refer to <a href="#">PG-32. "SELF-DIAG RESULTS"</a> .
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

### CONSULT-II BASIC OPERATION

Refer to [GI-36. "CONSULT-II Start Procedure"](#) .

#### DATA MONITOR

##### Operation Procedure

1. Touch "DATA MONITOR" on "SELECT DIAG MODE " screen.
2. Touch "ALL SIGNALS", "MAIN SIGNALS" or "SELECTION FROM MENU" on "SELECT MONITOR ITEM" screen.

ALL SIGNALS	Monitors all items.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Selects items and monitors them.

3. Touch the required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
4. Touch "START".
5. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

#### All Signals, Main Signals, Selection From Menu

Item name	CONSULT-II screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
FR wiper request	FR WIP REQ	STOP/LOW/HI	×	×	×	Signal status input from BCM
Wiper auto stop	WIP AUTO STOP	ACT P/STOP P	×	×	×	Output status of IPDM E/R
Wiper protection	WIP PROT	OFF/Block	×	×	×	Control status of IPDM E/R

#### NOTE:

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

#### ACTIVE TEST

##### Operation Procedure

1. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Touch item to be tested, and check operation.
3. Touch "START".
4. Touch "STOP" while testing to stop the operation.

Test item	CONSULT-II screen display	Description
Front wiper (HI, LO) output	FR WIPER	With a certain operation (OFF, HI ON, LO ON), front wiper relay (Lo, Hi) can be operated.

## Front Wiper Does Not Operate

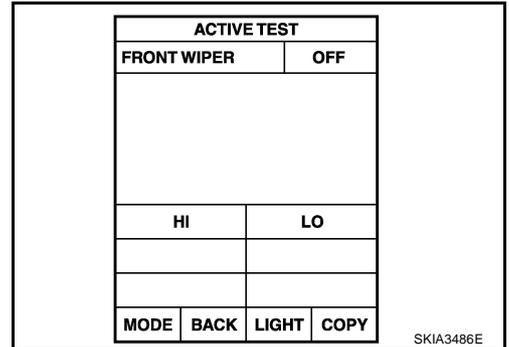
**CAUTION:**

During IPDM E/R fail-safe control, front wipers may not operate. Refer to [PG-30, "CAN COMMUNICATION LINE CONTROL"](#) in "PG IPDM E/R" to make sure that it is not in fail-safe status.

### 1. ACTIVE TEST

☑ With CONSULT-II

1. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "LO" or "HI" screen.



☒ Without CONSULT-II

Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).

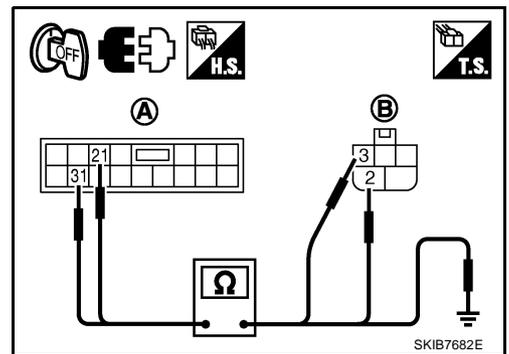
Does front wiper operate normally?

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

### 2. CHECK FRONT WIPER CIRCUIT

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

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



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

A		Ground	Continuity
Connector	Terminal		
E7	21		No
	31		

OK or NG

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

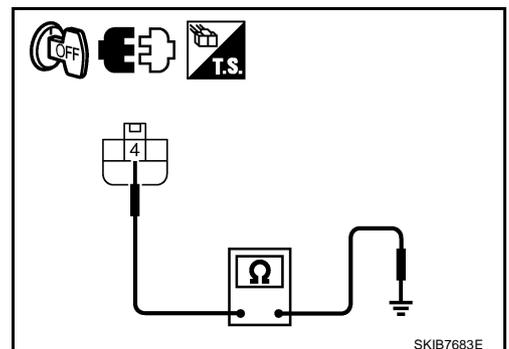
### 3. CHECK GROUND CIRCUIT

Check continuity between front wiper motor harness connector and ground.

Front wiper motor connector	Terminal	Ground	Continuity
E52	4		

OK or NG

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



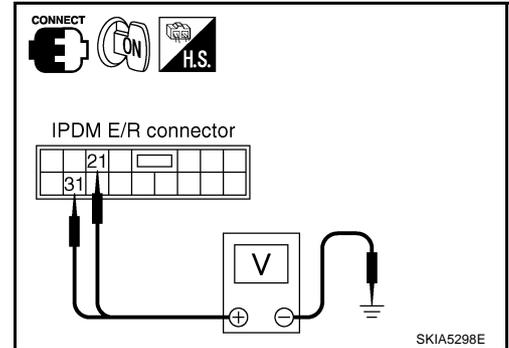
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## 4. CHECK IPDM E/R

④ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Touch "LO" or "HI" screen.
5. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.



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

⊗ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

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

OK or NG

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.

## 5. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

④ With CONSULT-II

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

⊗ Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#).

OK or NG

- OK >> GO TO 6.
- NG >> Check combination switch (wiper switch). Refer to [LT-282, "Combination Switch Inspection"](#).

DATA MONITOR	
MONITOR	
IGN ON SW	ON
IGN SW CAN	ON
FR WIPER HI	OFF
FR WIPER LOW	OFF
FR WIPER INT	OFF
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
	Page Down
	RECORD
MODE	BACK
LIGHT	COPE

PKIB0110E

## 6. CHECK CIRCUIT BETWEEN IPDM E/R AND BCM

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM".

### Displayed self-diagnosis results

NO DTC>>Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .

CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to [BCS-18, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

## Front Wiper Does Not Return to Stop Position

### 1. CHECK FRONT WIPER STOP SIGNAL

Ⓟ With CONSULT-II

Select "IPDM E/R" on CONSULT-II. With "DATA MONITOR", make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.

ⓧ Without CONSULT-II

GO TO 2.

OK or NG

OK >> Replace IPDM E/R.

NG >> GO TO 2.

DATA MONITOR			
MONITOR			
WIP AUTO STOP	STOP P		
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7614E

### 2. CHECK IPDM E/R

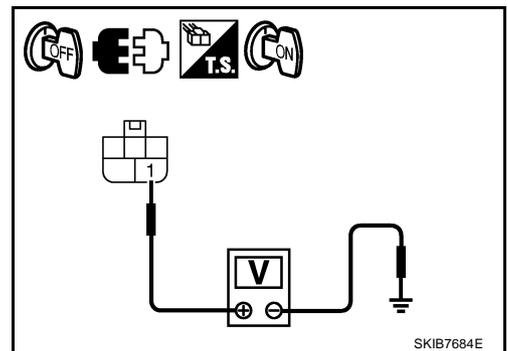
1. Turn ignition switch OFF.
2. Disconnect front wiper motor connector.
3. Turn ignition switch ON.
4. Check voltage between front wiper motor harness connector and Ground.

Front wiper motor connector	Terminal	Ground	Voltage (Approx.)
E52	1		Battery voltage

OK or NG

OK >> GO TO 4.

NG >> GO TO 3.



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## 3. CHECK FRONT WIPER AUTO STOP CIRCUIT

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

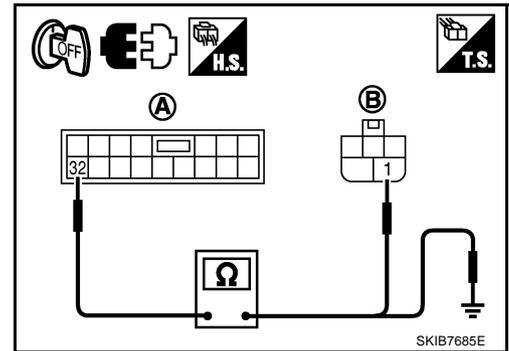
A		B		Continuity
Connector	Terminal	Connector	Terminal	
E7	32	E52	1	Yes

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

A		Ground	Continuity
Connector	Terminal		
E7	32		Yes

**OK or NG**

- OK >> Replace IPDM E/R.
- NG >> Repair harness or connector.



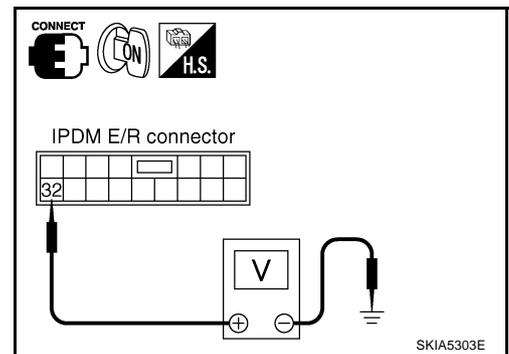
## 4. CHECK IPDM E/R

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

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

**OK or NG**

- OK >> Replace IPDM E/R.
- NG >> Replace front wiper motor.



## Only Front Wiper Low Does Not Operate

NKS0052D

### 1. ACTIVE TEST

With CONSULT-II

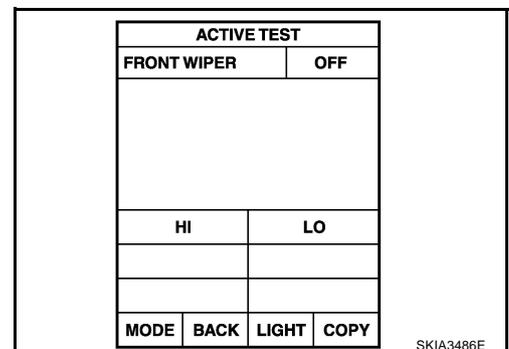
1. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "LO" screen.

Without CONSULT-II

Start up auto active test. Refer to [PG-35, "Auto Active Test"](#)

Does front wiper operate normally?

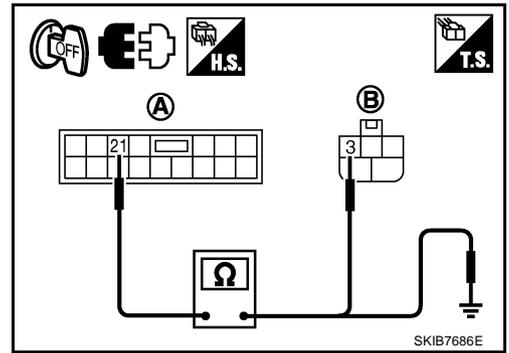
- YES >> Refer to [LT-282, "Combination Switch Inspection"](#).
- NO >> GO TO 2.



## 2. CHECK FRONT WIPER MOTOR CIRCUIT

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

Terminals				Continuity
A		B		
Connector	Terminal	Connector	Terminal	
E7	21	E52	3	Yes



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

A		Ground	Continuity
Connector	Terminal		
E7	21		No

**OK or NG**

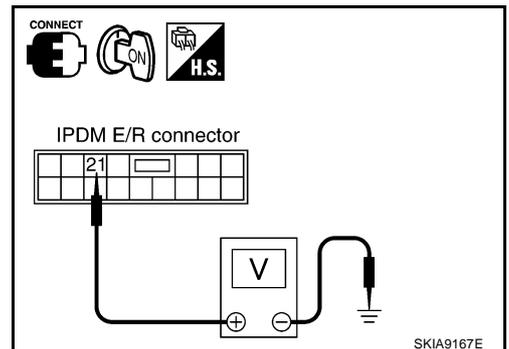
- OK >> GO TO 3.
- NG >> Repair harness or connector.

## 3. CHECK IPDM E/R

**Ⓚ With CONSULT-II**

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Touch "LO" screen.
5. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	21		Battery voltage



**Ⓧ Without CONSULT-II**

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper LO is operating.

IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	21		Battery voltage

**OK or NG**

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.

## Only Front Wiper Hi Does Not Operate

### 1. ACTIVE TEST

 With CONSULT-II

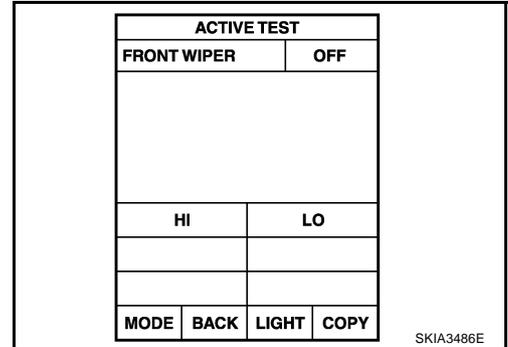
1. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "HI" screen.

 Without CONSULT-II

Start up auto active test. Refer to [PG-35, "Auto Active Test"](#)

Does front wiper operate normally?

- YES >> Refer to [LT-282, "Combination Switch Inspection"](#) .  
 NO >> GO TO 2.



### 2. CHECK FRONT WIPER MOTOR CIRCUIT

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

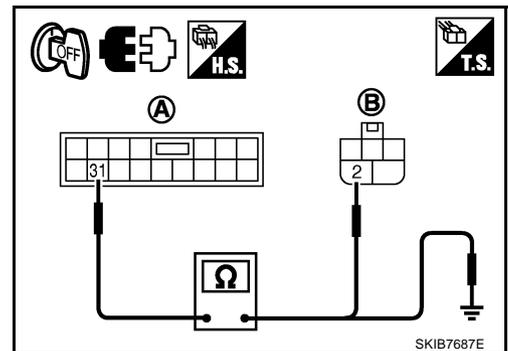
Terminals				Continuity
A		B		
Connector	Terminal	Connector	Terminal	
E7	31	E52	2	Yes

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

A		Ground	Continuity
Connector	Terminal		
E7	31		No

OK or NG

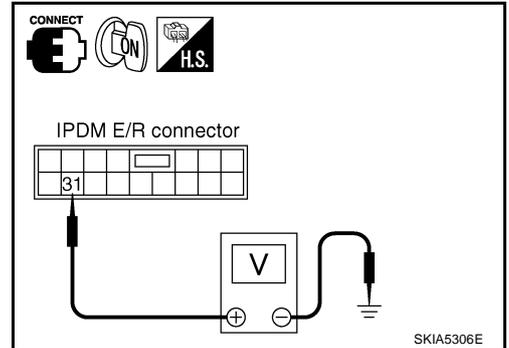
- OK >> GO TO 3.  
 NG >> Repair harness or connector.



## 3. CHECK IPDM E/R

Ⓟ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" by CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Touch "HI" screen.
5. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.



IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	31		Battery voltage

ⓧ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-35, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper HI is operating.

IPDM E/R connector	Terminal	Ground	Voltage (Approx.)
E7	31		Battery voltage

OK or NG

- OK >> Replace front wiper motor.
- NG >> Replace IPDM E/R.

## Only Front Wiper Intermittent Does Not Operate

NKS0052F

### 1. CHECK COMBINATION SWITCH

Ⓟ With CONSULT-II

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

DATA MONITOR	
MONITOR	
IGN ON SW	ON
IGN SW CAN	ON
FR WIPER HI	OFF
FR WIPER LOW	OFF
FR WIPER INT	OFF
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
	Page Down
	RECORD
MODE	BACK
LIGHT	COPE

ⓧ Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#).

OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).
- NG >> Check combination switch (wiper switch) Refer to [LT-282, "Combination Switch Inspection"](#).

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

WW

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

NKS0052G

### 1. CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does front wiper operate normally?

YES >> GO TO 2.

NO >> Combination meter vehicle speed system malfunction. Refer to [DI-23, "Vehicle Speed Signal Inspection"](#) .

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

Select "BCM" on CONSULT-II, and perform self-diagnosis for "BCM".

Displayed self-diagnosis results

NO DTC>>Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .

CAN COMM CIRCUIT>>Check CAN communication line of BCM. Refer to [BCS-18, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

SELF-DIAG RESULTS			
DTC RESULTS		TIME	
CAN COMM CIRCUIT [U1000]			
ERASE		PRINT	
MODE	BACK	LIGHT	COPY

PKIA7627E

## Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

NKS0052H

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

With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "INT VOLUME", changes in order form 1 to 7 according to wiper switch operation.

Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#) .

OK or NG

OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .

NG >> Check combination switch (wiper switch). Refer to [LT-282, "Combination Switch Inspection"](#) .

DATA MONITOR	
MONITOR	
IGN ON SW	ON
IGN SW CAN	ON
FR WIPER HI	OFF
FR WIPER LOW	OFF
FR WIPER INT	OFF
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
Page Down	
RECORD	
MODE	BACK
LIGHT	COPE

PKIB0110E

## Wiper Does Not Wipe When Front Washer Operates

NKS0052I

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

With CONSULT-II

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

Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#) .

OK or NG

OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .

NG >> Check front wiper switch. Refer to [LT-282, "Combination Switch Inspection"](#) .

DATA MONITOR	
MONITOR	
IGN ON SW	ON
IGN SW CAN	ON
FR WIPER HI	OFF
FR WIPER LOW	OFF
FR WIPER INT	OFF
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
Page Down	
RECORD	
MODE	BACK
LIGHT	COPE

PKIB0110E

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

NKS0052J

**CAUTION:**

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

**1. CHECK WIPER MOTOR SIGNAL**

☑ With CONSULT-II

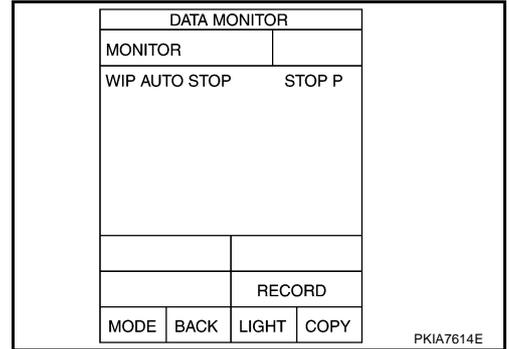
Select “IPDM E/R” by CONSULT-II. With “DATA MONITOR”, make sure that “WIP AUTO STOP” turns “ACT P” - “STOP P” linked with wiper operation.

☒ Without CONSULT-II

GO TO 2.

OK or NG

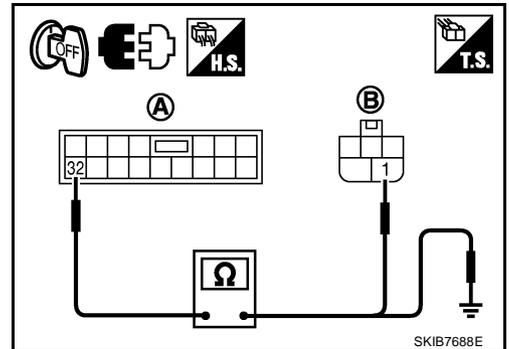
- OK >> Replace IPDM E/R.
- NG >> GO TO 2.



**2. CHECK WIPER AUTO STOP CIRCUIT**

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

Terminals				Continuity
A		B		
Connector	Terminal	Connector	Terminal	
E7	32	E52	1	Yes



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

A		Ground	Continuity
Connector	Terminal		
E7	32		No

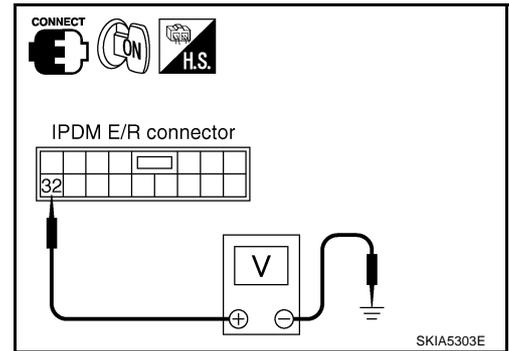
OK or NG

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

## 3. CHECK FRONT WIPER MOTOR

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

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



### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Replace front wiper motor.

## Front Wiper Does Not Stop

NKS0052K

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

#### ☐ With CONSULT-II

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

#### ☒ Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#) .

### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Check combination switch (wiper switch). Refer to [LT-282, "Combination Switch Inspection"](#) .

DATA MONITOR	
MONITOR	
IGN ON SW	ON
IGN SW CAN	ON
FR WIPER HI	OFF
FR WIPER LOW	OFF
FR WIPER INT	OFF
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
Page Down	
RECORD	
MODE	BACK
LIGHT	COPE

PKIB0110E

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

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

### Location

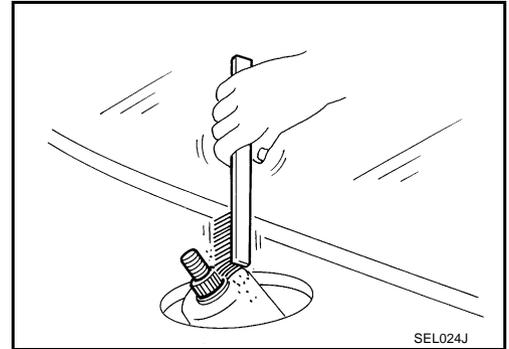
NKS0052L

### REMOVAL

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

### INSTALLATION

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



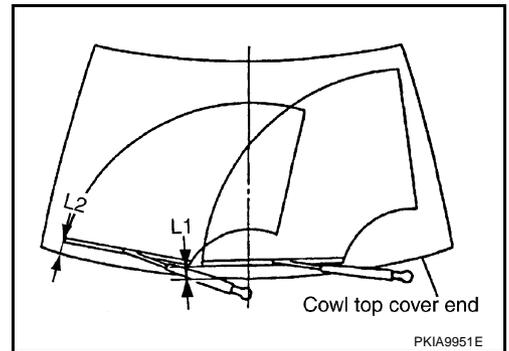
3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L1" & "L2" immediately.
4. Tighten front wiper arm nuts to specified torque.

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

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

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

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

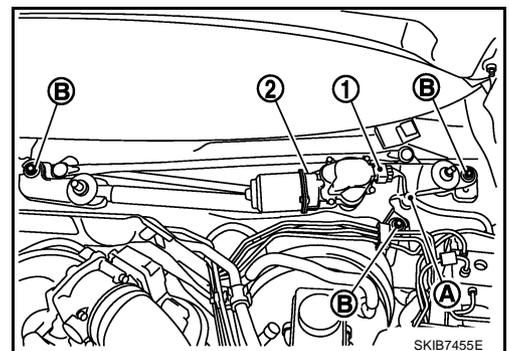


8. Install front wiper arm caps.

## Removal and Installation of Front Wiper Drive Assembly

### REMOVAL

1. Remove front wiper arms. Refer to [WW-89, "REMOVAL"](#).
2. Remove cowl top cover. Refer to [EI-20, "COWL TOP"](#).
3. Disconnect wiper motor connector (1) and remove connector clip (A).
4. Remove front wiper drive assembly mounting bolts (B), and remove front wiper drive assembly (2) from the vehicle.



### INSTALLATION

1. Install front wiper drive assembly to the vehicle.

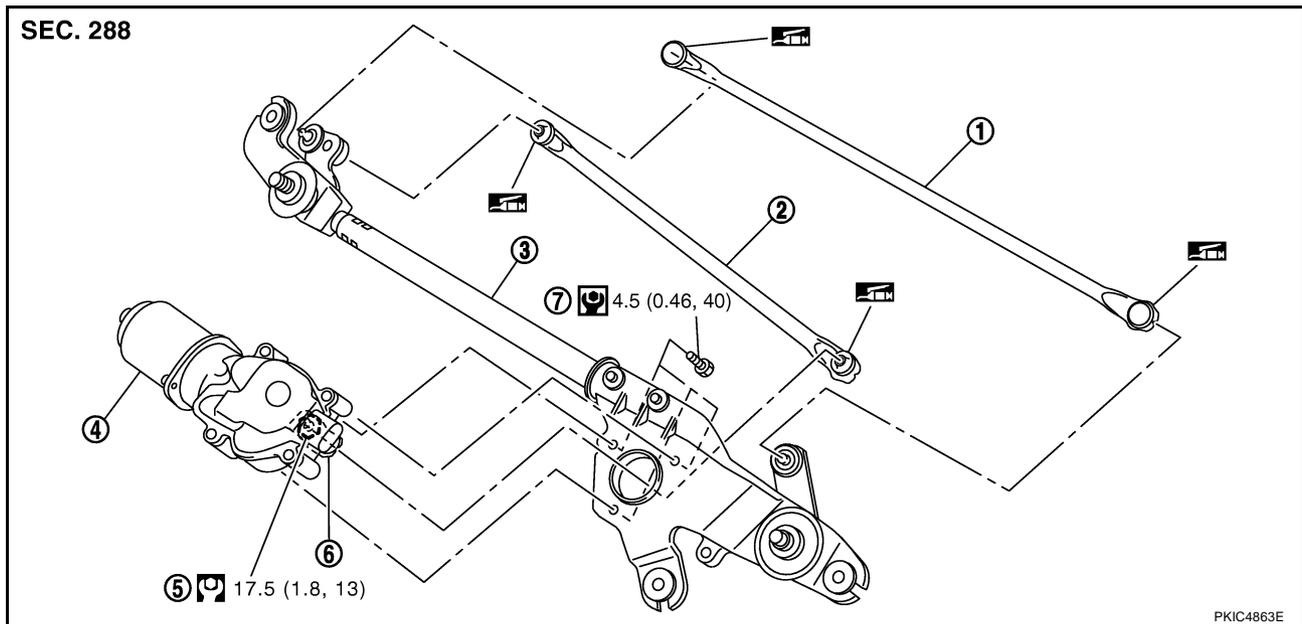
**Front wiper drive assembly mounting bolts**  : 4.5 N-m (0.46 kg-m, 40 in-lb)

2. Connect wiper motor connector. Turn front wiper switch ON to operate wiper motor, and then turn front wiper switch OFF (auto stop).
3. Install connector clips to the wiper frame, and install cowl top cover. Refer to [EI-20, "COWL TOP"](#).

4. Install front wiper arms and arm caps. Refer to [WW-89. "INSTALLATION"](#).

## Disassembly and Assembly Front Wiper Motor and Linkage

NKS0052N



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

:N·m (kg·m, in·lb)

:N·m (kg·m, ft·lb)

:Should be lubricated with grease

### DISASSEMBLY

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

### CAUTION:

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

### ASSEMBLY

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

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

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

### CAUTION:

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

# FRONT WIPER AND WASHER SYSTEM

[TYPE 2]

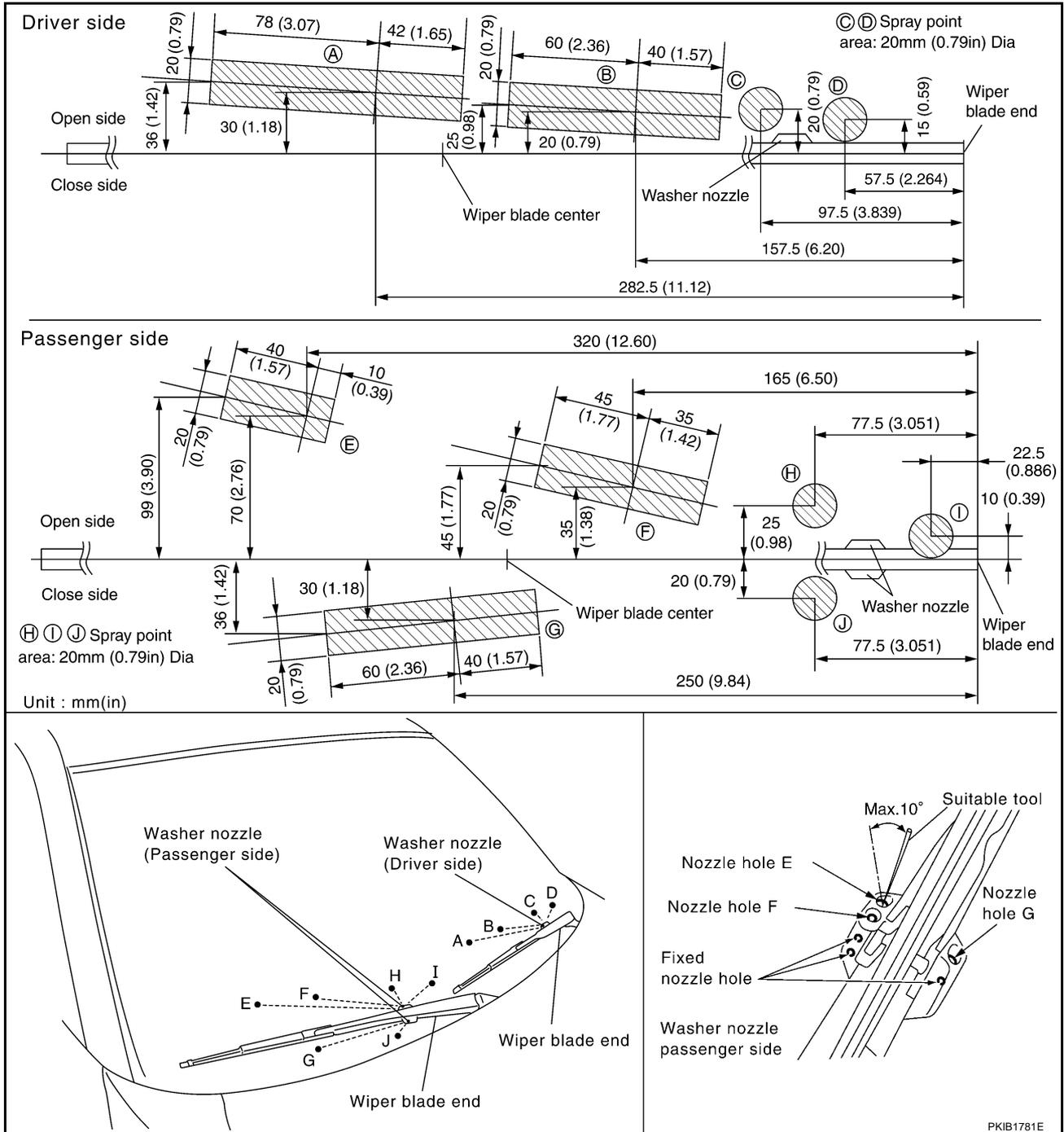
NKS00520

## Washer Nozzle Adjustment

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

**CAUTION:**

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

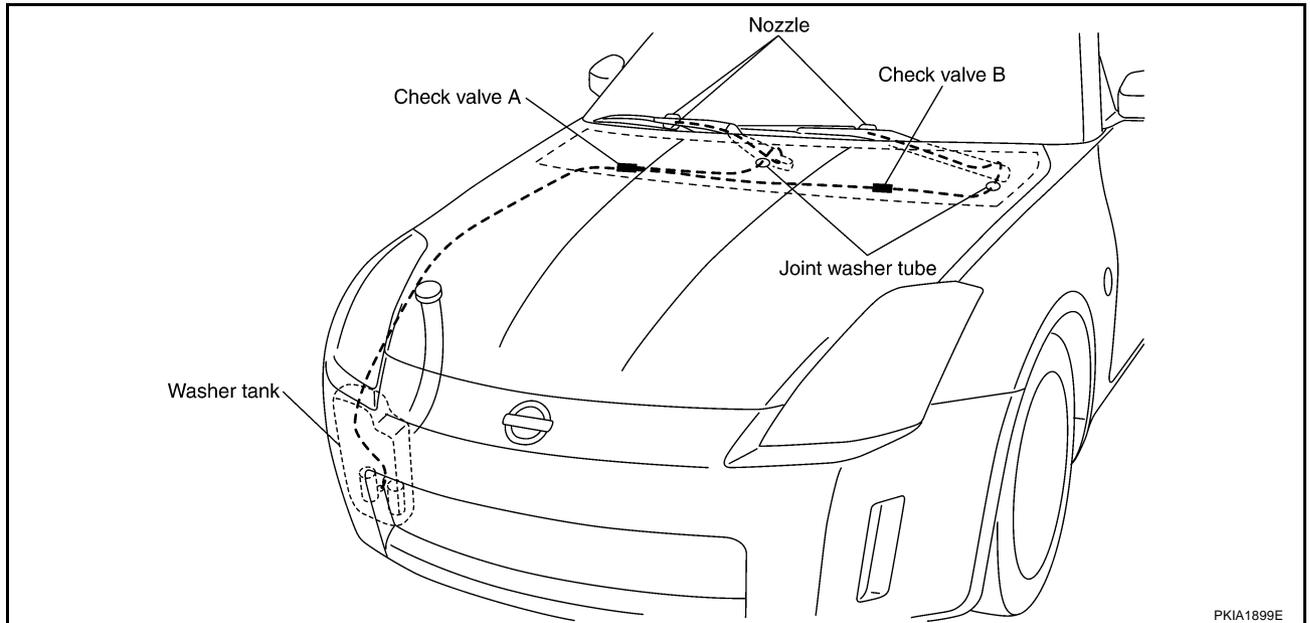


A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
L  
M



## Washer Tube Layout

NKS0052P



PKIA1899E

## Removal and Installation of Front Washer Nozzle

NKS0052Q

Replace wiper arm assembly. Refer to [WW-89, "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location"](#) .

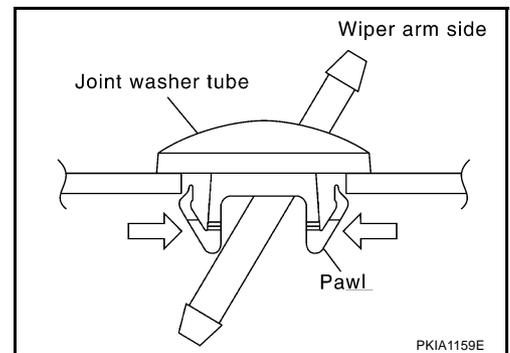
**CAUTION:**

Never remove/install washer nozzle from wiper arm assembly.

## Removal and Installation of Front Washer Tube Joint REMOVAL

NKS0052R

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



PKIA1159E

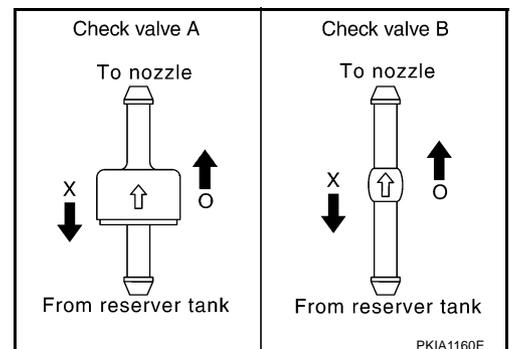
## INSTALLATION

Installation is the reverse order of removal.

## Inspection for Washer Nozzle CHECK VALVE INSPECTION

NKS0052S

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



PKIA1160E

## Inspection of Front Wiper and Washer Switch Circuit

NKS0052T

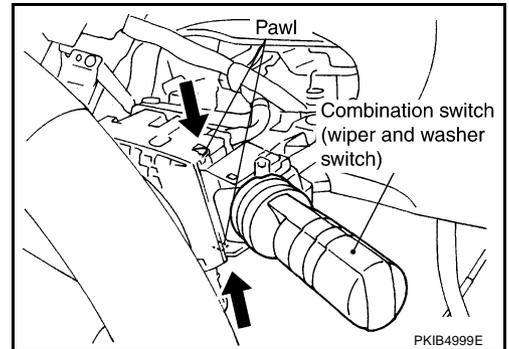
Refer to [LT-282, "Combination Switch Inspection"](#).

## Removal and Installation of Front Wiper and Washer Switch

NKS0052U

### REMOVAL

1. Remove steering column lower cover and combination meter. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. Disconnect wiper and washer switch connector.
3. Pull wiper and washer switch toward the passenger door while pressing pawls in direction shown by the arrow (←) in the figure, and remove it from the base.



### INSTALLATION

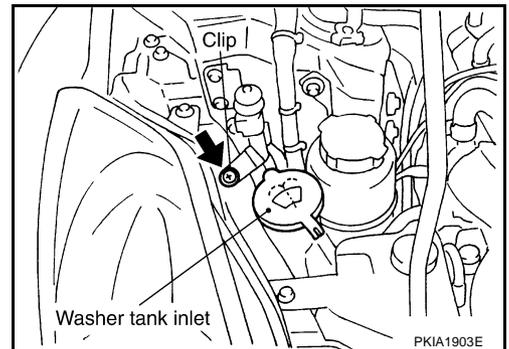
Installation is the reverse order of removal.

## Removal and Installation of Washer Tank

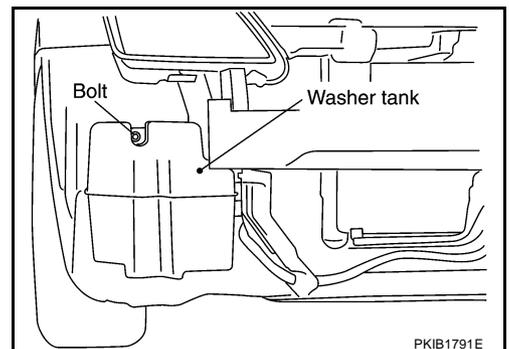
NKS0052V

### REMOVAL

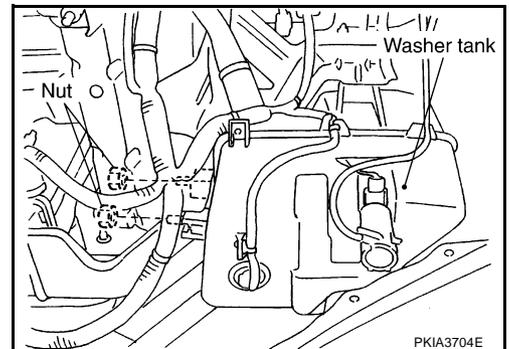
1. Remove clip and pull out washer tank inlet.



2. Remove under cover.
3. Remove fender protector. Refer to [EI-21, "FENDER PROTECTOR"](#).
4. Remove front bumper fascia. Refer to [EI-14, "FRONT BUMPER"](#).
5. Disconnect washer pump connector.
6. Remove washer tank mounting bolt and nuts.



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



## INSTALLATION

Installation is the reverse order of removal.

### CAUTION:

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

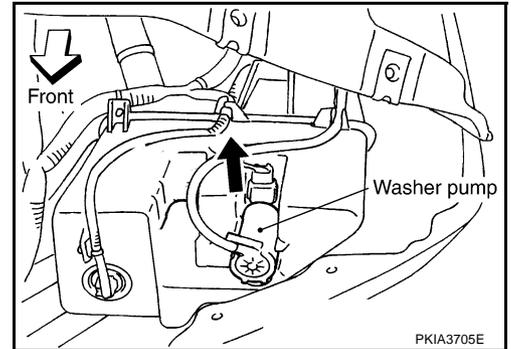
Washer tank mounting bolt and nuts  : 5.7 N-m (0.58 kg-m, 50 in-lb)

## Removal and Installation of Washer Pump

NKS0052W

### REMOVAL

1. Remove fender protector. Refer to [EI-21, "FENDER PROTECTOR"](#).
2. Disconnect washer pump connector and remove washer tube.
3. Pull out washer pump in direction shown by the arrow (←) in the figure. Remove washer pump from washer tank.



## INSTALLATION

Installation is the reverse order of removal.

### CAUTION:

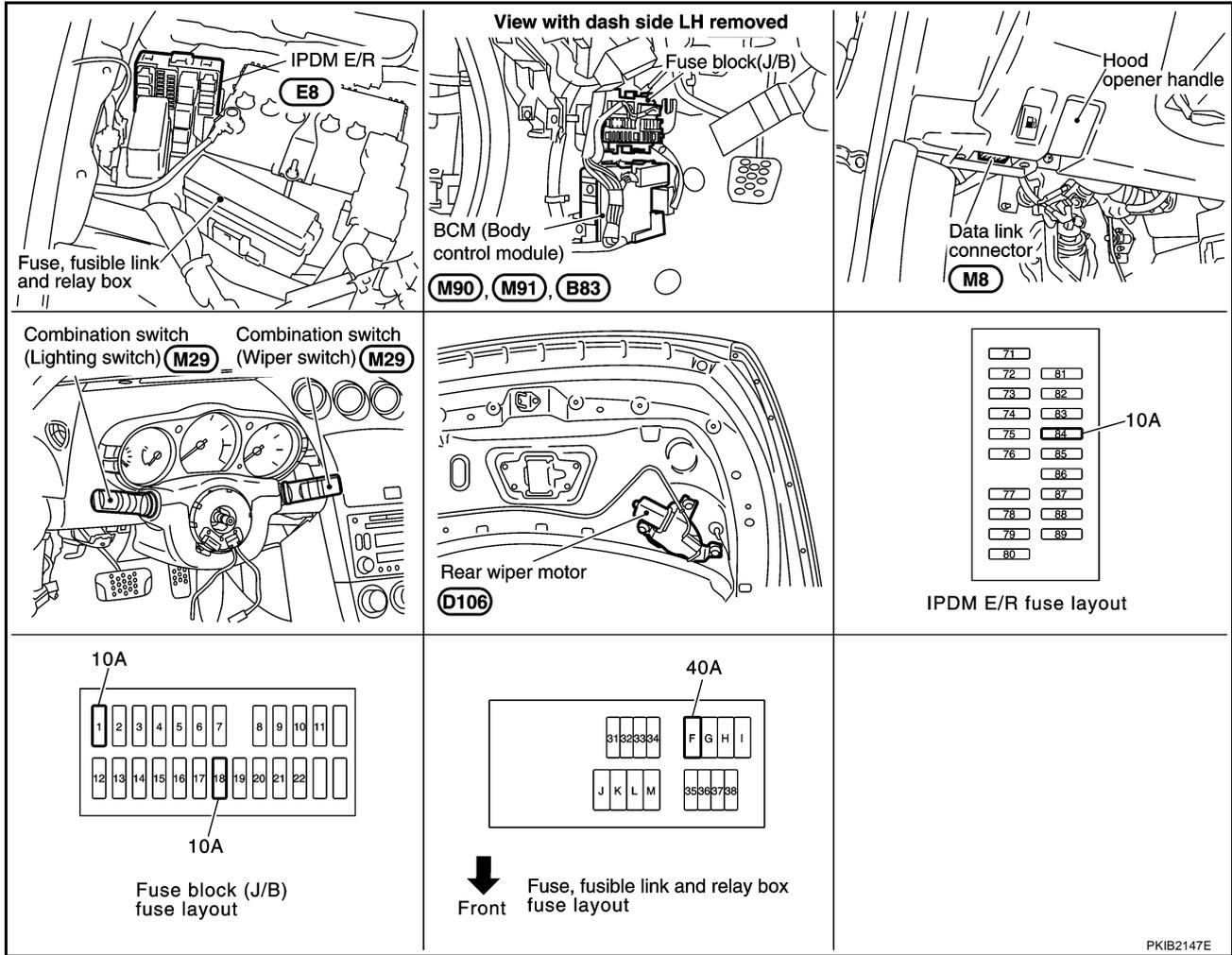
When installing washer pump, there should be no packing twists, etc.

## REAR WIPER AND WASHER SYSTEM

PFP:28710

### Components Parts and Harness Connector Location

NKS0052X



PKIB2147E

### System Description

NKS0052Y

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

### OUT LINE

Power is supplied at all times

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

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

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

Ground is supplied

- to BCM terminal 52
- through grounds M30 and M66,

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



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

## Rear Wiper Operation

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

BCM operate rear wiper motor, power is supplied

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

Ground is supplied

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

With power and ground is supplied, rear wiper operates.

## Intermittent Operation

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

When wiper switch is in rear wiper INT position, BCM detect rear wiper INT signal by BCM wiper switch reading function. (Refer to [WW-64, "COMBINATION SWITCH READING FUNCTION"](#) )

BCM operate rear wiper motor, power is supplied

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

Ground is supplied

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

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

## Auto Stop Operation

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

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

## Washer Operation

When wiper switch is in rear wiper washer position, BCM detect rear wiper washer signal by BCM wiper switch reading function (Refer to [WW-64, "COMBINATION SWITCH READING FUNCTION"](#) ), and combination switch (wiper switch) ground is supplied

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

With ground is supplied, rear washer pump is operated.

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

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

## BCM WIPER SWITCH READING FUNCTION

Refer to [WW-64, "COMBINATION SWITCH READING FUNCTION"](#) .

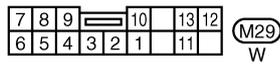
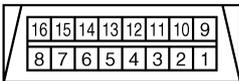
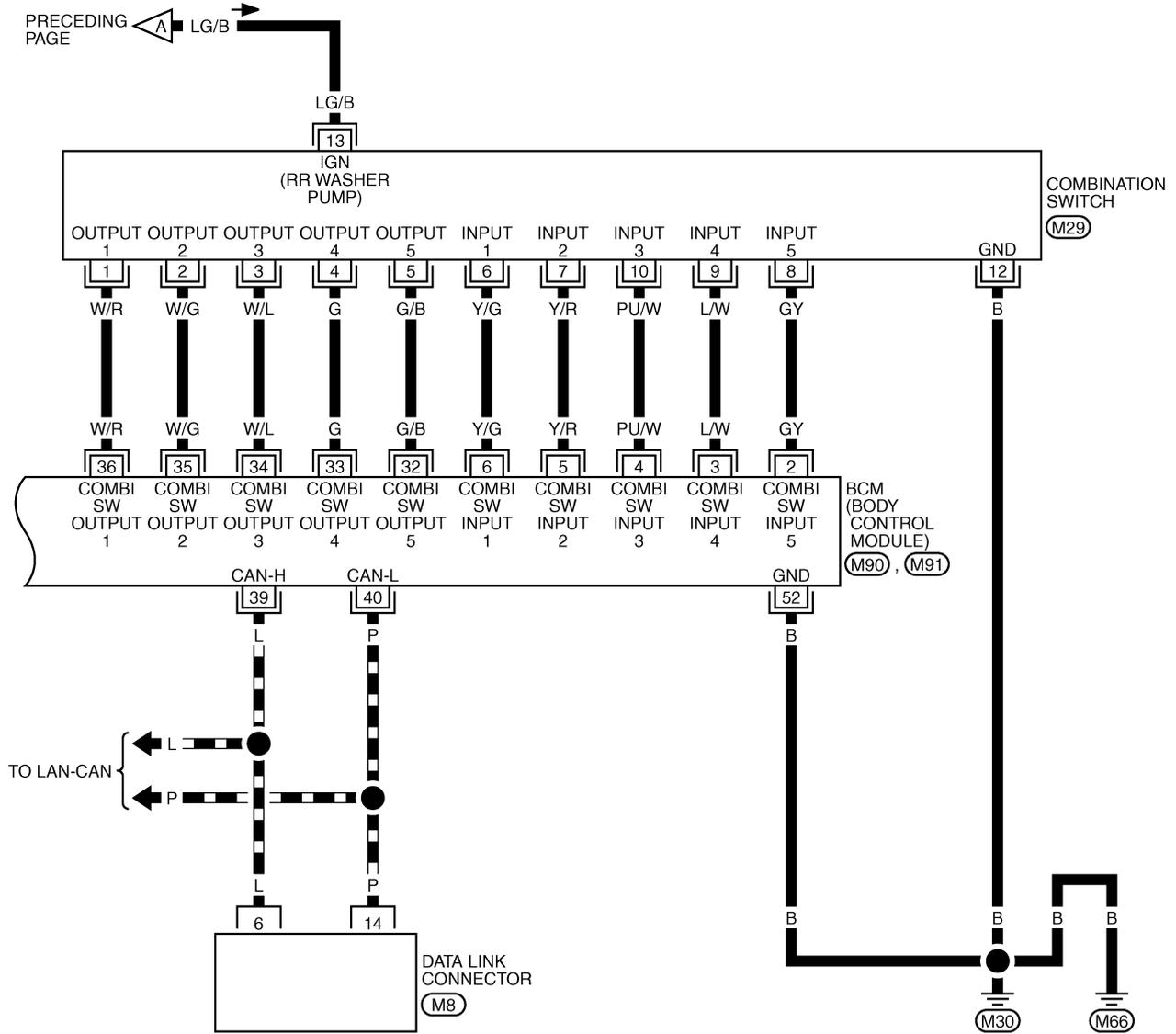


# REAR WIPER AND WASHER SYSTEM

[TYPE 2]

WW-WIP/R-02

▬ : DATA LINE



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

TKWT4008E

# REAR WIPER AND WASHER SYSTEM

[TYPE 2]

NKS00530

## Terminals and Reference Values for BCM

**CAUTION:**

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF not to be fluctuated by overloaded.
- Turn wiper dial position to 4 except when checking waveform or voltage of wiper dial position. Wiper dial position can be confirmed on CONSULT-II. Refer to [WW-102. "DATA MONITOR"](#).

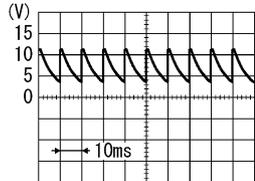
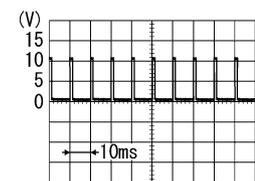
Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
5	Y/R	Combination switch input 2	ON	OFF	Approx. 0 V
				Rear washer switch	<p>PKIB4959J</p>
				Rear wiper switch ON	<p>PKIB4955J</p>
6	Y/G	Combination switch input 1	ON	OFF	Approx. 0 V
				Rear wiper switch INT	<p>PKIB4959J</p>
33	G	Combination switch output 4	ON	OFF	<p>PKIB4960J</p>
				Rear wiper switch INT	<p>PKIB4958J</p>

A  
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J  
L  
M

WW

# REAR WIPER AND WASHER SYSTEM

[TYPE 2]

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

## How to Proceed With Trouble Diagnosis

NKS00531

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-95, "System Description"](#) .
3. Perform preliminary check. Refer to [WW-101, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does rear wiper and washer operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

# REAR WIPER AND WASHER SYSTEM

[TYPE 2]

NKS00532

## Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

### 1. CHECK FUSES AND FUSIBLE LINK

Check for blown fuses and fusible link.

Unit	Power source	Fuse and fusible link No.
Rear washer pump	Ignition ON or START	84
BCM	Ignition ON or START	1
	Battery	F 18

Refer to [WW-97, "Wiring Diagram — WIP/ R —"](#) .

OK or NG

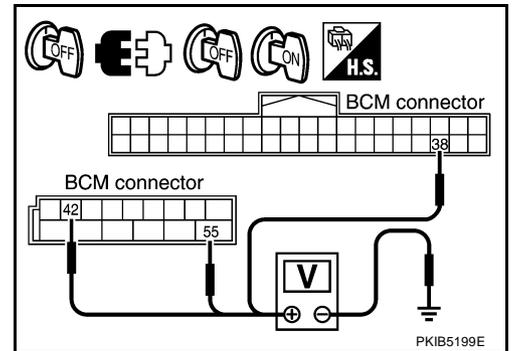
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to [PG-5, "POWER SUPPLY ROUTING CIRCUIT"](#) .

### 2. CHECK POWER SUPPLY CIRCUIT

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

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



OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

### 3. CHECK GROUND CIRCUIT

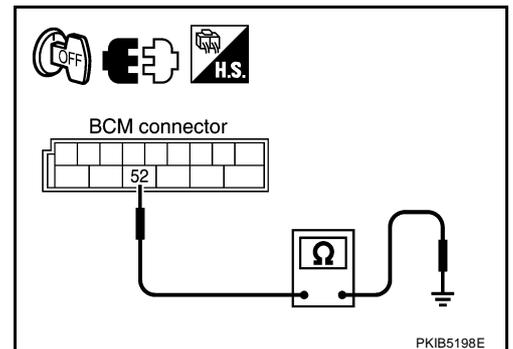
Check continuity between BCM and ground.

BCM connector	Terminal	Ground	Continuity
M91	52		Yes

OK or NG

OK >> INSPECTION END

NG >> Repair harness or connector.



## CONSULT-II Functions (BCM)

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

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

### CONSULT-II BASIC OPERATION

Refer to [GI-36, "CONSULT-II Start Procedure"](#) .

#### DATA MONITOR

##### Operation Procedure

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

ALL SIGNALS	Monitors all the signals.
SELECTION FROM MENU	Selects items and monitor them.

4. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
5. Touch "START".
6. Touch "RECORD" while monitoring, then the status of the monitored item can be recorded. To stop recording, touch "STOP".

#### Display Item List

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

#### NOTE:

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

## ACTIVE TEST

### Operation Procedure

1. Touch "WIPERS" on "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Touch item to be tested and check operation of the selected item.
4. During the operation check, touching "BACK" deactivates the operation.

### Display Item List

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

**NOTE:**

Coupe models

## Rear Wiper Does Not Operate

NKS00534

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

With CONSULT-II

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

DATA MONITOR			
MONITOR			
FR WASHER SW	OFF		
INT VOLUME	7		
FR WIPER STOP	ON		
VEHICLE SPEED	0.0 km/h		
RR WIPER ON	OFF		
RR WIPER INT	OFF		
RR WASHER SW	OFF		
RR WIPER STOP	OFF		
RR WIPER STP2	OFF		
Page Up			
		RECORD	
MODE	BACK	LIGHT	COPY

PKIB1785E

Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#) .

**OK or NG**

OK >> GO TO 2.

NG >> Check combination switch (wiper switch). Refer to [LT-282, "Combination Switch Inspection"](#) .

## 2. ACTIVE TEST

With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT SYSTEM" screen.
2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "REAR WIPER" on "SELECT TEST ITEM" screen.
4. Confirm that rear wiper operates normally.

ACTIVE TEST			
RR WIPER	OFF		
ON			
MODE	BACK	LIGHT	COPY

SKIA3503E

Without CONSULT-II

GO TO 3.

Does rear wiper operate normally?

YES >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .

NO >> GO TO 3.

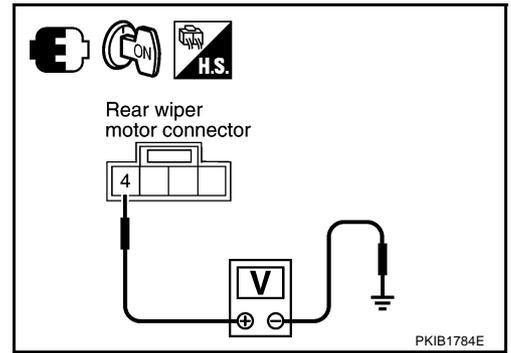
## 3. CHECK BCM

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

Rear wiper motor connector	Terminal	Ground	Voltage (Approx.)
D106	4		Battery voltage

**OK or NG**

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



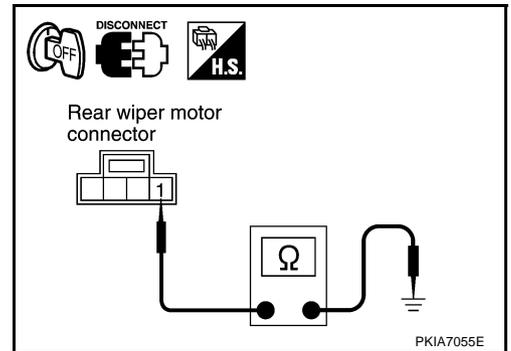
## 4. CHECK GROUND CIRCUIT

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

Rear wiper motor connector	Terminal	Ground	Continuity
D106	1		Yes

**OK or NG**

- OK >> Replace rear wiper motor.
- NG >> Repair harness or connector.



## 5. CHECK REAR WIPER CIRCUIT

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

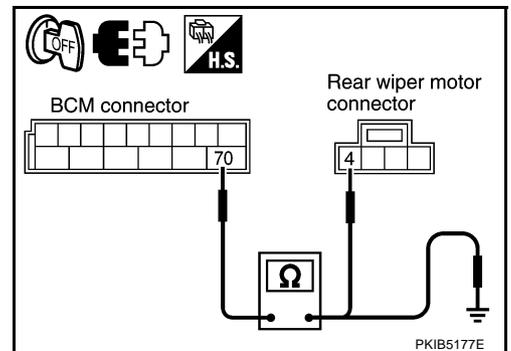
Terminals				Continuity
BCM		Rear wiper motor		
Connector	Terminal	Connector	Terminal	
B83	70	D106	4	Yes

- Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
B83	70		No

**OK or NG**

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .
- NG >> Repair harness or connector.



# REAR WIPER AND WASHER SYSTEM

[TYPE 2]

NKS00535

## Rear Wiper Does Not Return to Stop Position

### 1. CHECK REAR WIPER MOTOR CIRCUIT

① With CONSULT-II

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "RR WIPER STOP", turn ON-OFF linked with rear wiper switch operation.

⊗ Without CONSULT-II

GO TO 2.

OK or NG

- OK >> Replace BCM. Refer to [BCS-19. "Removal and Installation of BCM"](#).
- NG >> GO TO 2.

DATA MONITOR			
MONITOR			
FR WASHER SW	OFF		
INT VOLUME	7		
FR WIPER STOP	ON		
VEHICLE SPEED	0.0 km/h		
RR WIPER ON	OFF		
RR WIPER INT	OFF		
RR WASHER SW	OFF		
RR WIPER STOP	OFF		
RR WIPER STP2	OFF		
Page Up			
		RECORD	
MODE	BACK	LIGHT	COPY

PKIB1785E

### 2. CHECK REAR WIPER AUTO STOP CIRCUIT

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

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

4. Check continuity between BCM harness connector and ground.

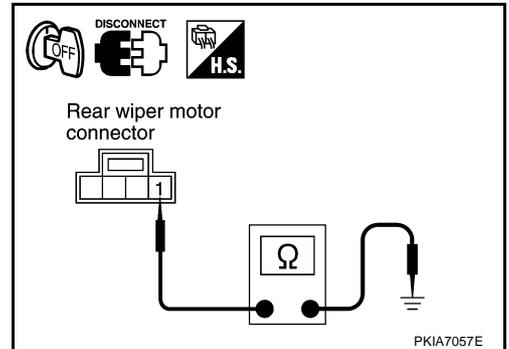
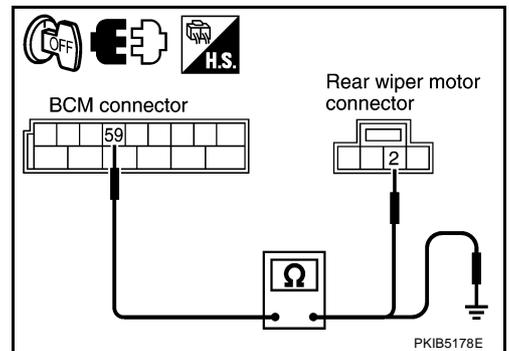
BCM connector	Terminal	Ground	Continuity
B83	59		No

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

Rear wiper motor connector	Terminal	Ground	Continuity
D106	1		Yes

OK or NG

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



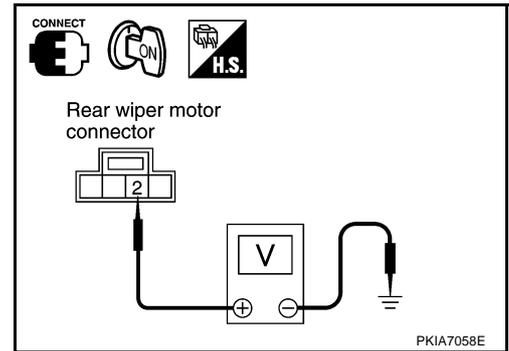
A  
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WW

## 3. CHECK REAR WIPER MOTOR SIGNAL

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

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



### OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .  
 NG >> Replace rear wiper motor.

### Only Rear Wiper ON Does Not Operate

NKS00536

Refer to [LT-282, "Combination Switch Inspection"](#) .

### Only Rear Wiper INT Does Not Operate

NKS00537

Refer to [LT-282, "Combination Switch Inspection"](#) .

### Wiper Does Not Wipe When Rear Washer Operates

NKS00538

Refer to [LT-282, "Combination Switch Inspection"](#) .

### Rear Wiper Does Not Stop

NKS00539

## 1. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

### ☑ With CONSULT-II

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

DATA MONITOR	
MONITOR	
FR WASHER SW	OFF
INT VOLUME	7
FR WIPER STOP	ON
VEHICLE SPEED	0.0 km/h
RR WIPER ON	OFF
RR WIPER INT	OFF
RR WASHER SW	OFF
RR WIPER STOP	OFF
RR WIPER STP2	OFF
Page Up	
RECORD	
MODE	BACK LIGHT COPY

PKIB1785E

### ☒ Without CONSULT-II

Refer to [LT-282, "Combination Switch Inspection"](#) .

### OK or NG

- OK >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#) .  
 NG >> Check combination switch (wiper switch). Refer to [LT-282, "Combination Switch Inspection"](#) .

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

### Location

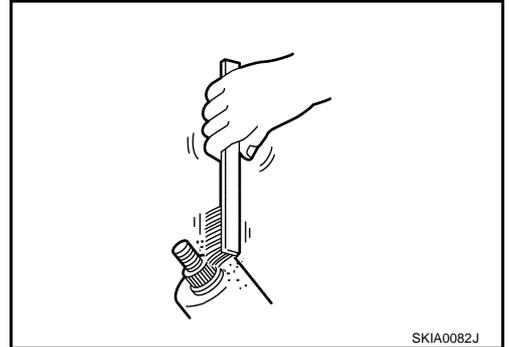
NKS0053A

### REMOVAL

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

### INSTALLATION

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



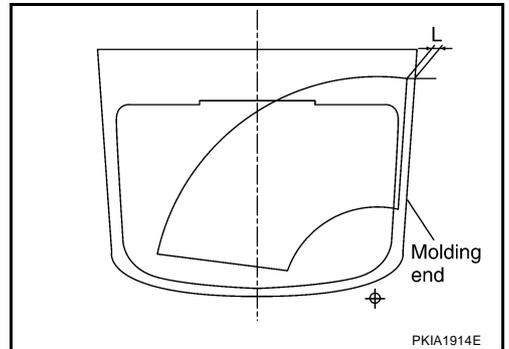
3. Lift the blade up and then set it down onto windshield glass surface to set the blade center to clearance "L" immediately.
4. Tighten wiper arm nuts to specified torque.

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

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

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

7. Install rear wiper arm caps.



A

B

C

D

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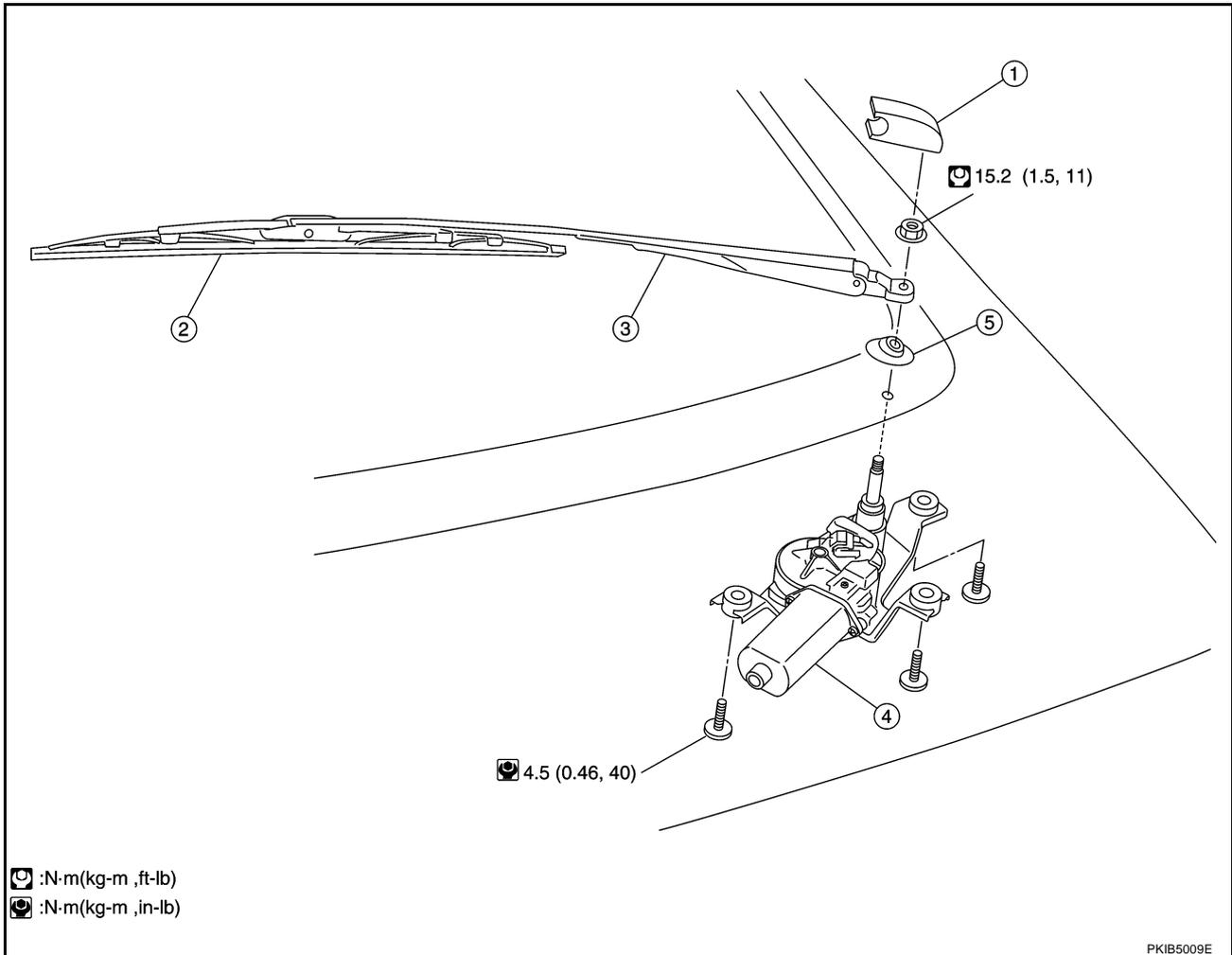
WW

L

M

## Removal and Installation of Rear Wiper Motor

NKS0053B

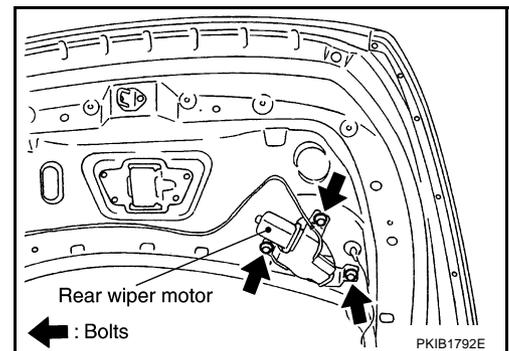


PKIB5009E

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

### REMOVAL

1. Remove rear wiper arm. Refer to [WW-107, "REMOVAL"](#).
2. Remove pivot cap.
3. Remove back door finisher lower. Refer to [EI-48, "BACK DOOR FINISHER"](#).
4. Disconnect rear wiper motor connector.
5. Remove rear wiper motor mounting bolts and remove rear wiper motor from the vehicle.



PKIB1792E

### INSTALLATION

1. Install rear wiper motor to the vehicle.  
**Rear wiper motor mounting bolts** : 4.5 N-m (0.46 kg-m, 40 in-lb)
2. Install pivot cap.
3. Connect rear wiper motor connector. Turn rear wiper switch ON to operate wiper motor, and then turn rear wiper switch OFF (auto stop).
4. Install back door finisher lower. Refer to [EI-48, "BACK DOOR FINISHER"](#).
5. Install rear wiper arm and arm cap. Refer to [WW-107, "INSTALLATION"](#).

# REAR WIPER AND WASHER SYSTEM

[TYPE 2]

**CAUTION:**

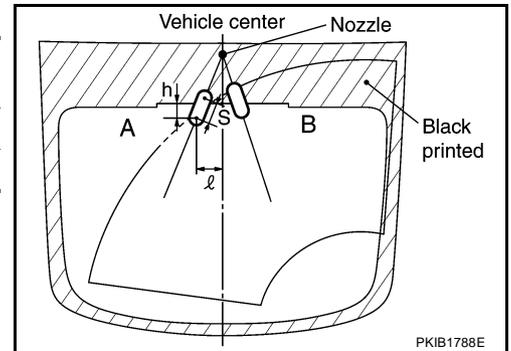
Never drop the rear wiper motor nor cause it to interfere with other parts.

## Washer Nozzle Adjustment

Adjust spray position as shown in the figure.

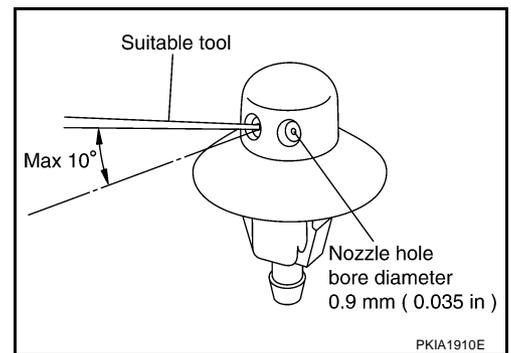
Unit: mm (in)

Spray position	h (height)	ℓ (width)	S	Diameter (spray position range)
A	30 (1.18)	73 (2.87)	50 (1.97)	30
B	12 (0.47)	50 (1.97)	50 (1.97)	30

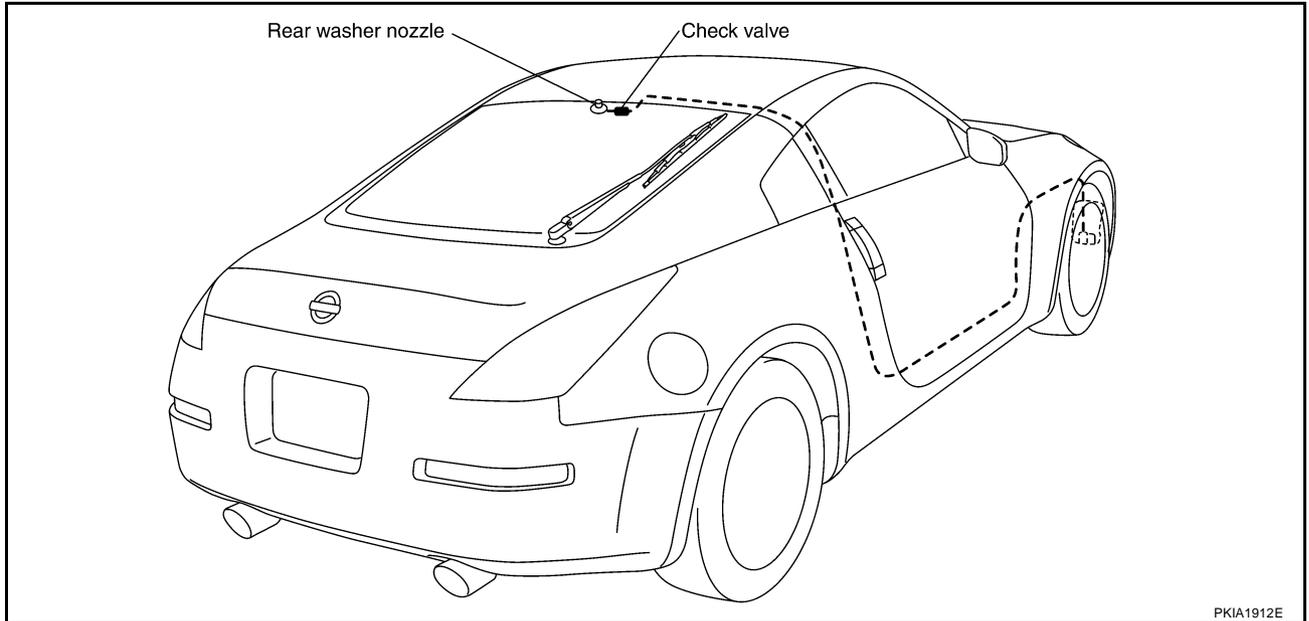


Adjust washer nozzle with suitable tool as shown in the figure.

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



## Washer Tube Layout



A  
B  
C  
D  
E  
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G  
H  
I  
J  
L  
M

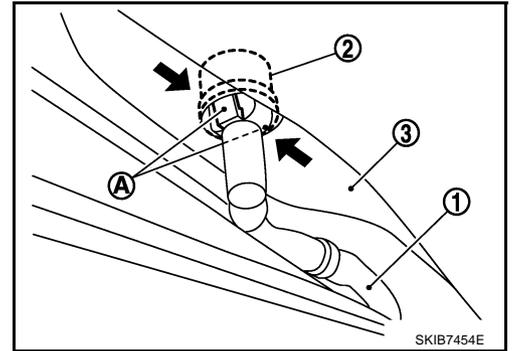
WW

## Removal and Installation of Rear Washer Nozzle

NKS0053E

### REMOVAL

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



### INSTALLATION

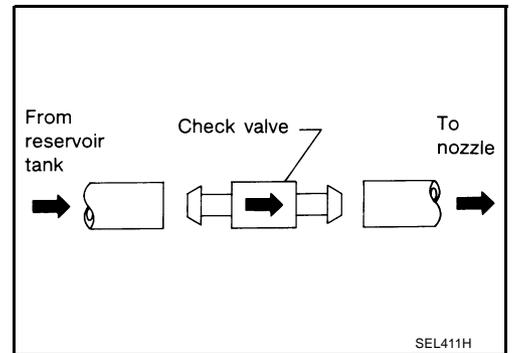
Installation is the reverse order of removal. Adjust nozzle spray location. Refer to [WW-109, "Washer Nozzle Adjustment"](#).

## Inspection for Washer Nozzle

### CHECK VALVE INSPECTION

NKS0053F

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



## Inspection of Rear Wiper and Washer Switch Circuit

NKS0053G

Refer to [WW-93, "Removal and Installation of Front Wiper and Washer Switch"](#).

## Removal and Installation of Rear Wiper and Washer Switch

NKS0053H

Refer to [WW-93, "Removal and Installation of Front Wiper and Washer Switch"](#).

## Removal and Installation of Washer Tank

NKS0053I

Refer to [WW-93, "Removal and Installation of Washer Tank"](#).

## Removal and Installation of Washer Pump

NKS0053J

Refer to [WW-94, "Removal and Installation of Washer Pump"](#).



# POWER SOCKET

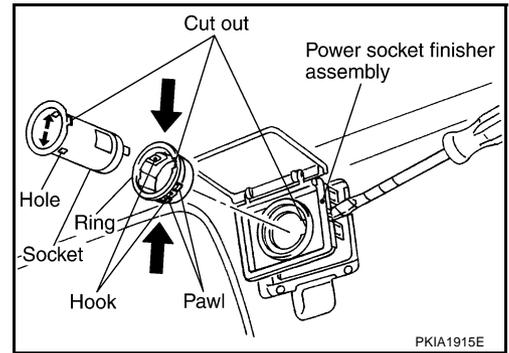
[TYPE 2]

## Removal and Installation (Luggage Floor Finisher Lower)

NKS0053L

### REMOVAL

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



### INSTALLATION

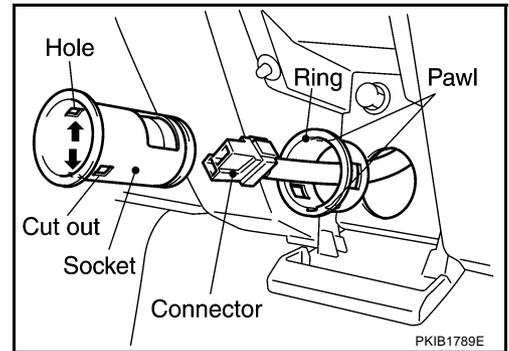
Installation is the reverse order of removal.

## Removal and Installation (Instrument Passenger Panel Lower)

NKS0053M

### REMOVAL

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



### INSTALLATION

Installation is the reverse order of removal.



# HORN

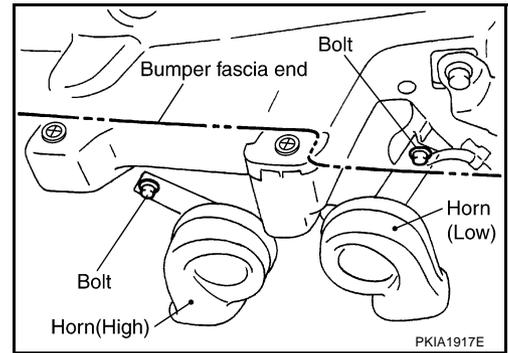
[TYPE 2]

NKS00530

## Removal and Installation

### REMOVAL

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



### INSTALLATION

Tighten horn bolt to specified torque.

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