

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

# WW

## SECTION

# WIPER, WASHER & HORN

### CONTENTS

<b>PRECAUTION</b> ..... 3	
Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... 3	
Wiring Diagrams and Trouble Diagnosis ..... 3	
<b>FRONT WIPER AND WASHER SYSTEM</b> ..... 4	
Components Parts and Harness Connector Location ..... 4	
System Description ..... 4	
LOW SPEED WIPER OPERATION ..... 5	
HI SPEED WIPER OPERATION ..... 5	
INTERMITTENT OPERATION ..... 6	
AUTO STOP OPERATION ..... 6	
WASHER OPERATION ..... 6	
MIST OPERATION ..... 7	
FAIL-SAFE FUNCTION ..... 7	
COMBINATION SWITCH READING FUNCTION... 7	
CAN Communication System Description ..... 10	
CAN Communication Unit ..... 10	
Schematic ..... 11	
Wiring Diagram — WIPER — ..... 12	
Terminals and Reference Values for BCM ..... 15	
Terminals and Reference Values for IPDM E/R .... 16	
How to Proceed With Trouble Diagnosis ..... 16	
Preliminary Check ..... 17	
CHECK POWER SUPPLY AND GROUND CIRCUIT ..... 17	
CONSULT-II Functions (BCM) ..... 18	
CONSULT-II OPERATION ..... 18	
DATA MONITOR ..... 19	
ACTIVE TEST ..... 20	
CONSULT-II Functions (IPDM E/R) ..... 20	
CONSULT-II OPERATION ..... 20	
SELF-DIAG RESULTS ..... 21	
DATA MONITOR ..... 21	
ACTIVE TEST ..... 22	
Front Wiper Does Not Operate ..... 22	Only Front Wiper HI Does Not Operate ..... 29
Front Wiper Does Not Return to Stop Position ..... 26	Only Front Wiper INT Does Not Operate ..... 30
Only Front Wiper LO Does Not Operate ..... 27	Front Wiper Interval Time Is Not Controlled by Vehicle Speed ..... 30
	Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted ..... 31
	Wipers Do Not Wipe When Front Washer Operates.. 31
	After Front Wipers Operate for 10 Seconds, They Stop for 20 Seconds, and After Repeating the Operations Five Times, They Become Inoperative ..... 32
	Front Wipers Do Not Stop ..... 33
	Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location ..... 34
	REMOVAL ..... 34
	INSTALLATION ..... 34
	ADJUSTMENT ..... 34
	Removal and Installation of Front Wiper Motor Assembly ..... 34
	REMOVAL ..... 34
	INSTALLATION ..... 35
	Disassembly and Assembly of Front Wiper Motor Assembly ..... 35
	DISASSEMBLY ..... 35
	ASSEMBLY ..... 35
	Washer Nozzle Adjustment ..... 36
	Washer Tube Layout ..... 37
	Removal and Installation of Front Washer Nozzle.. 37
	Removal and Installation of Front Washer Joint .... 37
	Inspection of CHECK VALVE ..... 37
	Removal and Installation of Front Wiper and Washer Switch ..... 37
	Removal and Installation of Washer Tank ..... 38
	REMOVAL ..... 38
	INSTALLATION ..... 38
	Removal and Installation of Washer Pump ..... 39
	REMOVAL ..... 39
	INSTALLATION ..... 39
	<b>CIGARETTE LIGHTER</b> ..... 40

---

Wiring Diagram — CIGAR — .....	40	INSTALLATION .....	43
Removal and Installation of Cigarette Lighter .....	41	Removal and Installation of Console Power Socket	
REMOVAL .....	41	(A/T) .....	43
INSTALLATION .....	41	REMOVAL .....	43
<b>POWER SOCKET .....</b>	<b>42</b>	INSTALLTION .....	43
Wiring Diagram — P/SCKT — .....	42	<b>HORN .....</b>	<b>44</b>
Removal and Installation of Instrument Power		Wiring Diagram — HORN — .....	44
Socket .....	43	Removal and Installation .....	45
REMOVAL .....	43	REMOVAL .....	45
		INSTALLATION .....	45

# PRECAUTION

## PRECAUTION

PPF:00011

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

AKS009J3

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.

### Wiring Diagrams and Trouble Diagnosis

AKS009J4

When you read Wiring diagrams, refer to the following:

- Refer to [GI-14, "How to Read Wiring Diagrams"](#) .
- Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#) for power distribution circuit.

When you perform trouble diagnosis, refer to the following:

- Refer to [GI-10, "How to Follow Trouble Diagnoses"](#) .
- Refer to [GI-26, "How to Perform Efficient Diagnosis for an Electrical Incident"](#) .

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

WW

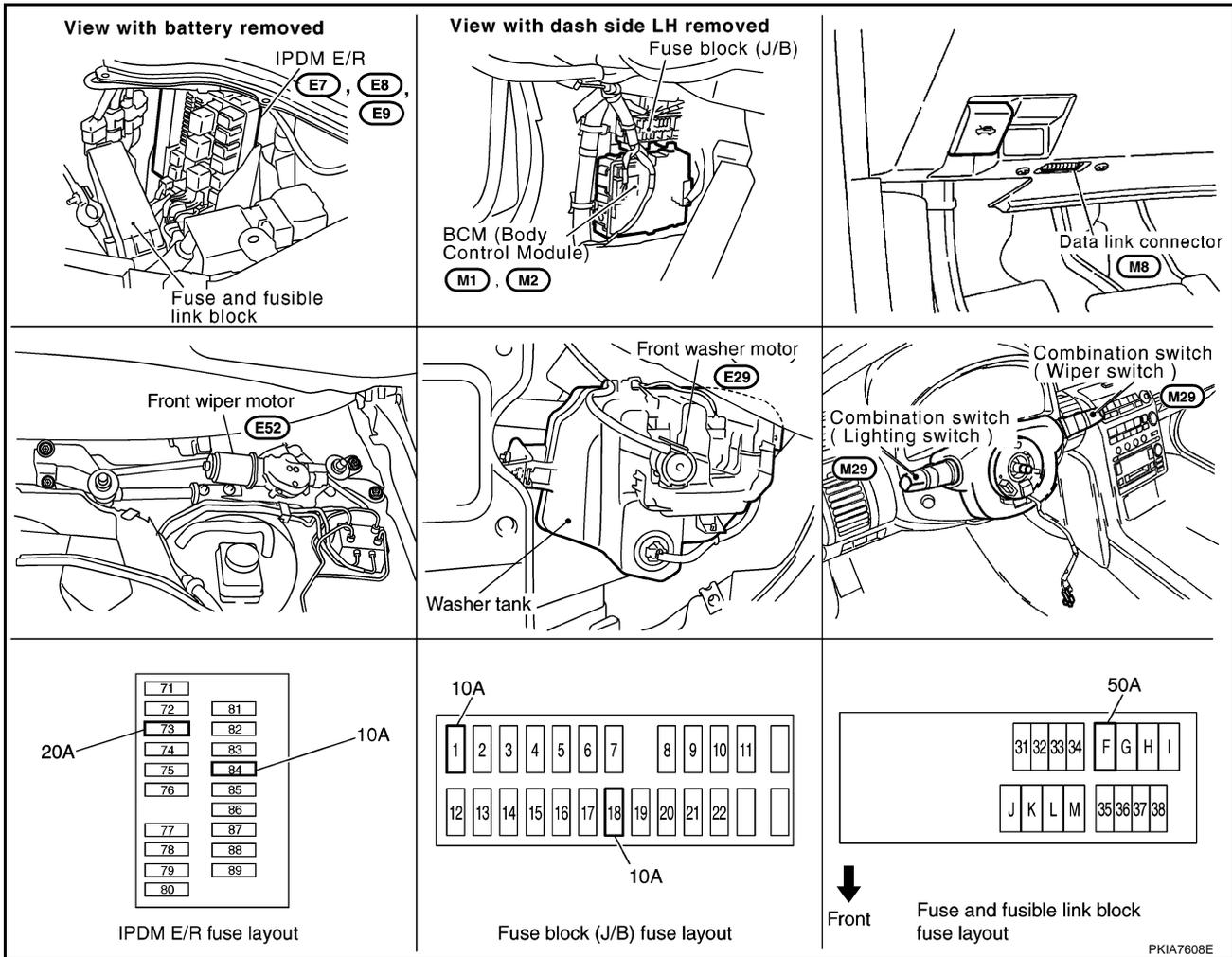
# FRONT WIPER AND WASHER SYSTEM

## FRONT WIPER AND WASHER SYSTEM

PFP:28810

### Components Parts and Harness Connector Location

AKS009J5



## System Description

AKS009J6

- 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 (body control module) controls front wiper LO, HI, and INT (intermittent) operation.
- IPDM E/R (intelligent power distribution module engine room) operates wiper motor according to CAN communication signals from BCM (body control module).

### Power is supplied at all times

- through 50 A fusible link (letter F, located in fusible link block)
- to BCM (body control module) terminal 55,
- through 10 A fuse [No. 18, located in fuse block (J/B)]
- to BCM (body control module) terminal 42,
- through 20 A fuse [No. 73, located in IPDM E/R (intelligent power distribution module engine room)]
- to front wiper relay [located in IPDM E/R (intelligent power distribution module engine room)] and
- to IPDM E/R (intelligent power distribution module engine room) terminal 19
- through 15 A fuse [No. 78, located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10 A fuse [No. 71, located in IPDM E/R (intelligent power distribution module engine room)]

# FRONT WIPER AND WASHER SYSTEM

- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)].

When ignition switch ON or START position, power is supplied

- through 10 A fuse [No. 1, located in fuse block (J/B)]
- to BCM (body control module) terminal 38.

When power is supplied to ignition relay coil, ignition relay is turned on and power is supplied

- to front wiper relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to front wiper high relay [located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) [located in IPDM E/R (intelligent power distribution module engine room)]
- through 10 A fuse [No. 84, located in IPDM E/R (intelligent power distribution module engine room)]
- through IPDM E/R (intelligent power distribution module engine room) terminal 44
- to front washer motor terminal 2.

Ground is supplied

- to BCM (body control module) terminal 52
- through grounds M30 and M66,
- to IPDM E/R (intelligent power distribution module engine room) terminals 38 and 60
- through grounds E17 and E43,
- to combination switch (wiper switch) terminal 12
- through grounds M30 and M66.

## LOW SPEED WIPER OPERATION

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

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

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

When IPDM E/R receives front wiper request signal (LO), it turns ON front wiper relay (located in IPDM E/R). Power is supplied

- to front wiper motor terminal 4
- through IPDM E/R terminal 19.

Ground is supplied

- to front wiper motor terminal 3
- through IPDM E/R terminal 21
- through front wiper high relay and front wiper relay
- to IPDM E/R terminal 38
- through body grounds E17 and E43.

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

## HI SPEED WIPER OPERATION

When wiper switch is in HI 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

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

When 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 4
- through IPDM E/R terminal 19 and front wiper relay and front wiper high relay.

Ground is supplied

- to front wiper motor terminal 2
- through IPDM E/R terminal 31

A

B

C

D

E

F

G

H

I

J

WW

L

M

# FRONT WIPER AND WASHER SYSTEM

- through front wiper high relay and front wiper relay
- to IPDM E/R terminal 38
- through grounds E17 and E43.

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

## INTERMITTENT OPERATION

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

During 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
Wiper dial position 1	Small	ON	ON	ON
Wiper dial position 2		ON	ON	OFF
Wiper dial position 3		ON	OFF	OFF
Wiper dial position 4	↓	OFF	OFF	OFF
Wiper dial position 5		OFF	OFF	ON
Wiper dial position 6		OFF	ON	ON
Wiper dial position 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 (Combination switch output 3 and input 1 are performing.)
- Intermittent operation dial position 2: ON (Combination switch output 5 and input 1 are performing.)
- Intermittent operation dial position 3: ON (Combination switch output 4 and output 2 are performing.)

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 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.

Ground is also supplied

- through IPDM E/R terminal 32
- to front wiper motor terminal 1
- through front wiper motor terminal 5
- through grounds E17 and E43.

When wiper arms reach base of windshield, front wiper terminals 1 and 4 are connected instead of terminals 1 and 5.

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

When 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 STOP position.

## WASHER OPERATION

When wiper switch is in front wiper washer position with ignition switch ON, BCM detects front wiper switch is on washer position by BCM wiper switch reading function (Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) ).

Combination switch (wiper switch) ground is supplied

# FRONT WIPER AND WASHER SYSTEM

- to front washer motor terminal 1
- through combination switch (wiper switch) terminal 11
- to combination switch (wiper switch) terminal 12
- through grounds M30 and M66.

With ground supplied, front washer motor is operated.

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

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

## MIST OPERATION

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

For additional information about wiper operation under this condition, Refer to [WW-5, "LOW SPEED WIPER OPERATION"](#).

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

## FAIL-SAFE FUNCTION

IPDM E/R includes a fail-safe function to prevent malfunction of electrical components controlled by CAN communications in CAN communications occurs.

When fail-safe status is initiated, IPDM E/R remains in steady unit signals are received.

## COMBINATION SWITCH READING FUNCTION

### Description

- BCM reads combination switch (wiper) status, and controls related systems such as head lamps and wipers, according to 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, 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.

A

B

C

D

E

F

G

H

I

J

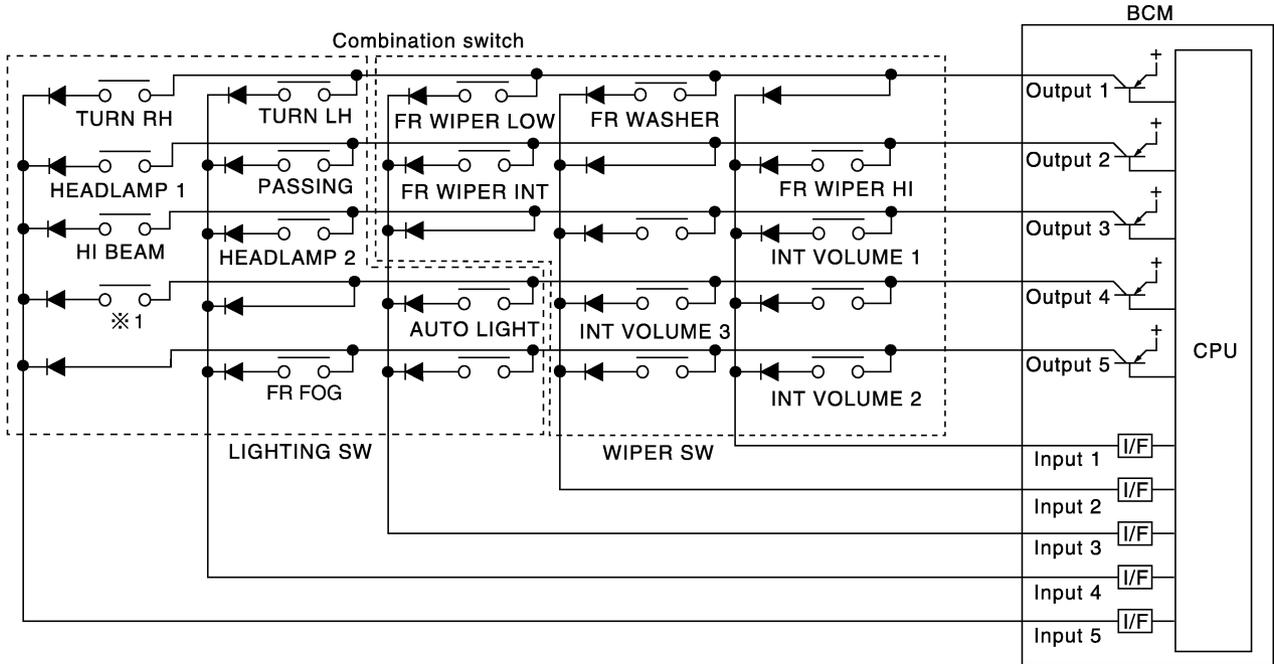
WW

L

M

# FRONT WIPER AND WASHER SYSTEM

- 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

SKIA8639E

## 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	—	—	INT VOLUME 2 ON	INT VOLUME 2 OFF
COMB SW INPUT 2	FR WASHER ON	FR WASHER OFF	—	—	—	—	INT VOLUME 3 ON	INT VOLUME 3 OFF	—	—
COMB SW INPUT 3	FR WIPER LOW ON	FR WIPER LOW OFF	FR WIPER INT ON	FR WIPER INT OFF	—	—	AUTO LIGHT ON	AUTO LIGHT OFF	—	—
COMB SW INPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEAD-LAMP 2 ON	HEAD-LAMP 2 OFF	—	—	FR FOG ON	FR FOG 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	—	—

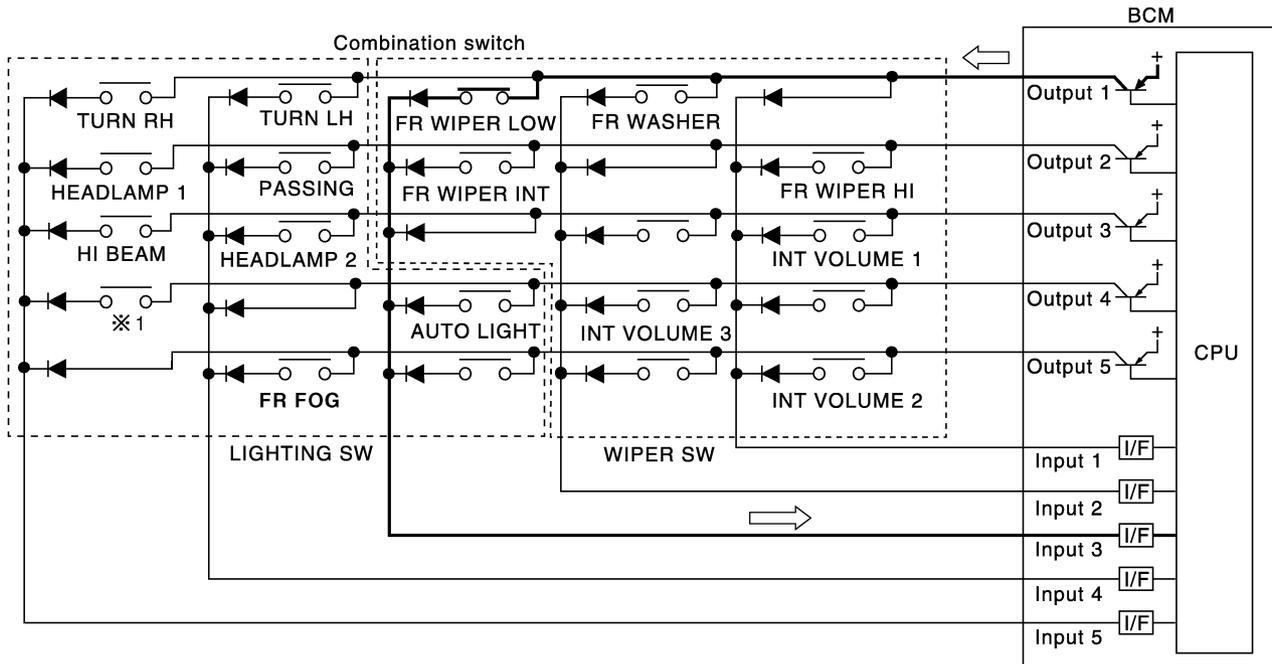
SKIA8640E

## Sample Operation: (When Wiper Switch Turned ON)

- When wiper switch is turned ON, contact in combination switch turns ON. At this time if OUTPUT 1 transistor is activated, BCM detects that voltage changes in INPUT 3.

# FRONT WIPER AND WASHER SYSTEM

- When OUTPUT 1 transistor is ON, BCM detects that voltage changes in INPUT 3, and judges that front wiper low is ON. Then BCM sends front wiper request signal (LO) to IPDM E/R using CAN communication.
- When OUTPUT 1 transistor is activated again, BCM detects that voltage changes in INPUT 3, and recognizes that wiper switch is continuously ON.



※ 1 : LIGHTING SWITCH 1ST POSITION

PKIA4848E

## 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.

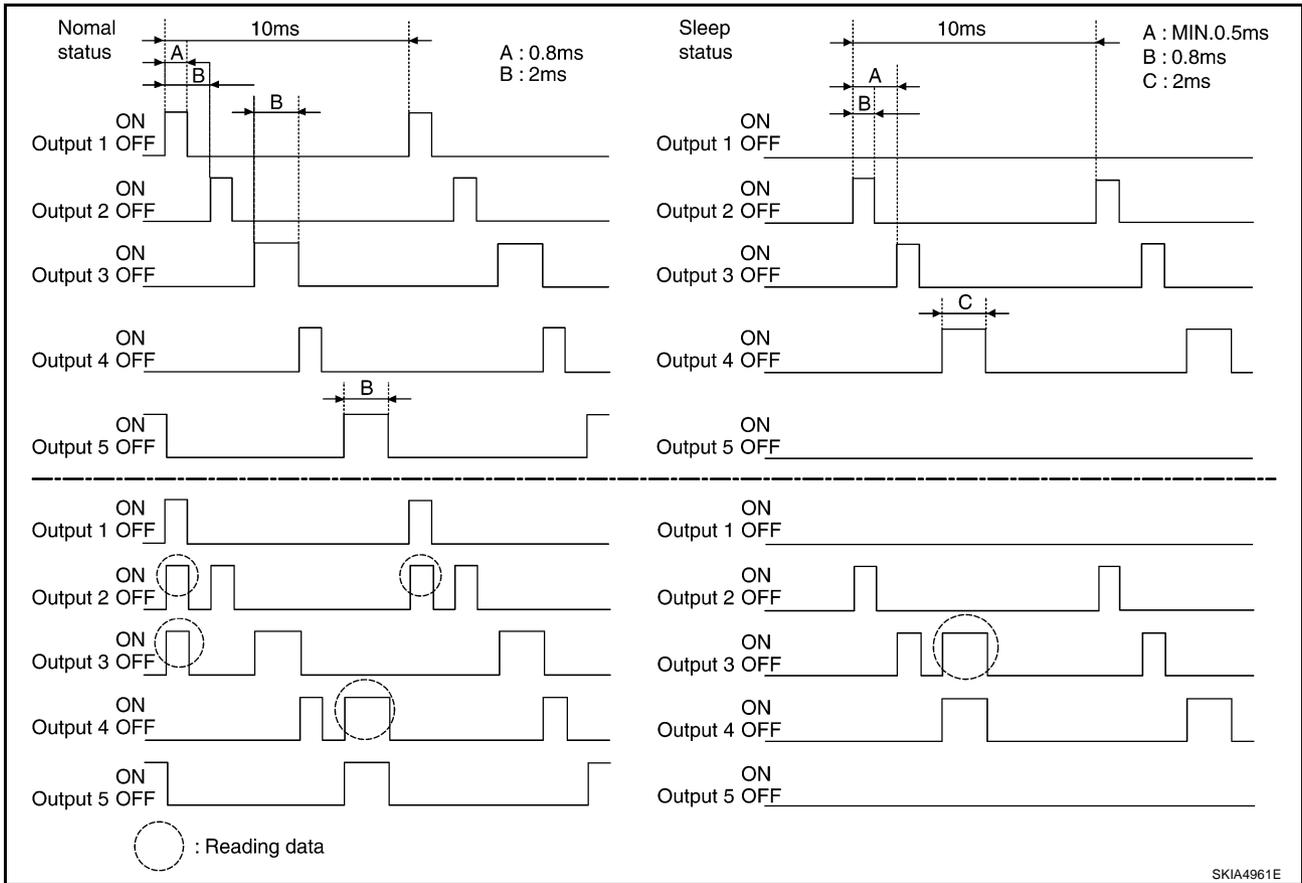
## Operation Mode

Combination switch reading function has operation modes shown below.

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

# FRONT WIPER AND WASHER SYSTEM

- When BCM is in sleep status, transistors of OUTPUT (1 and 5) stop the output, and BCM enters low current consumption mode. OUTPUT (2, 3, and 4) turn ON-OFF every 10 ms, and only input from light switch system is accepted.



## CAN Communication System Description

AKS009J7

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-board 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

AKS009J8

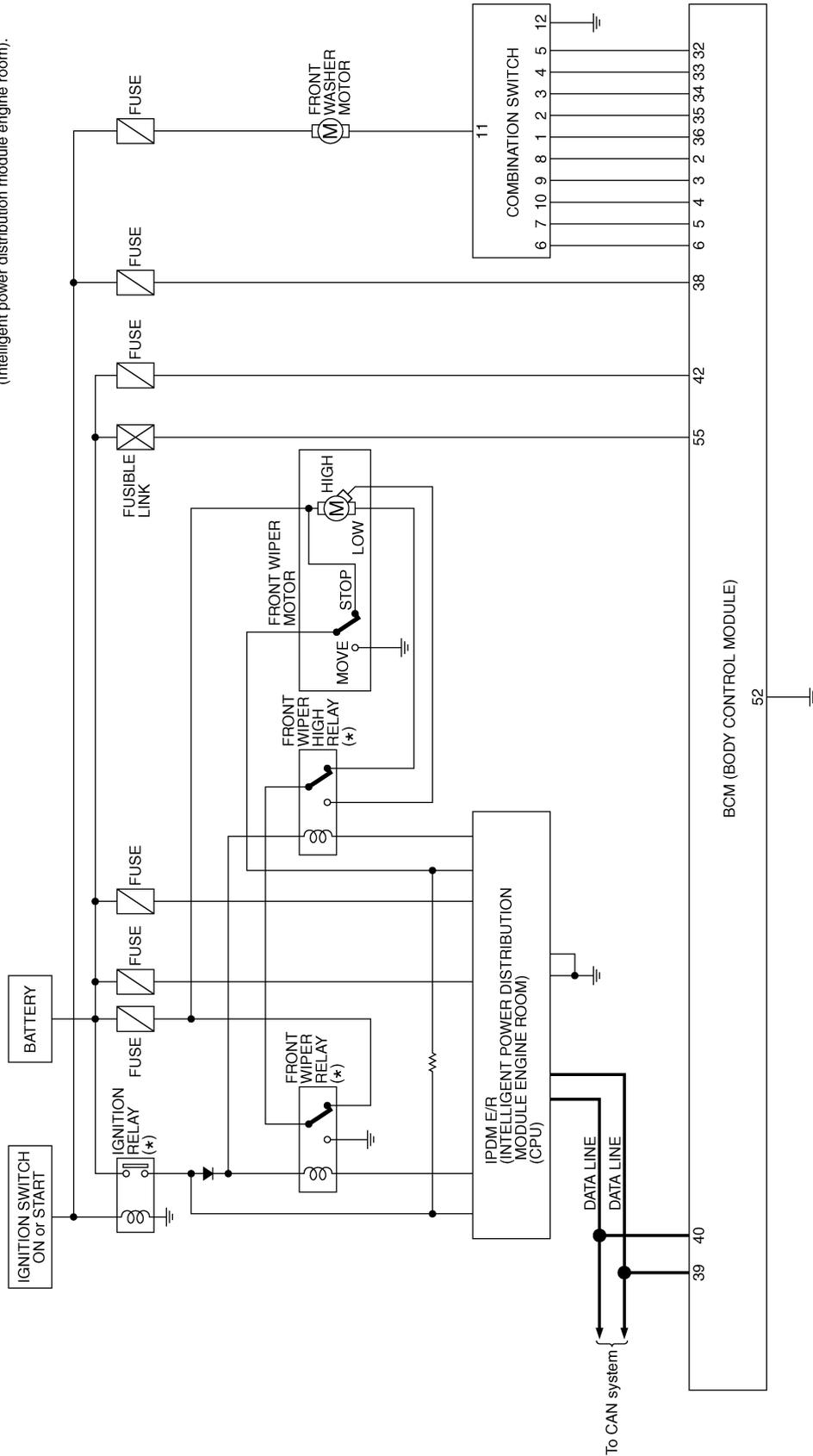
Refer to [LAN-5, "CAN Communication Unit"](#).

# FRONT WIPER AND WASHER SYSTEM

## Schematic

AKS009J9

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



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

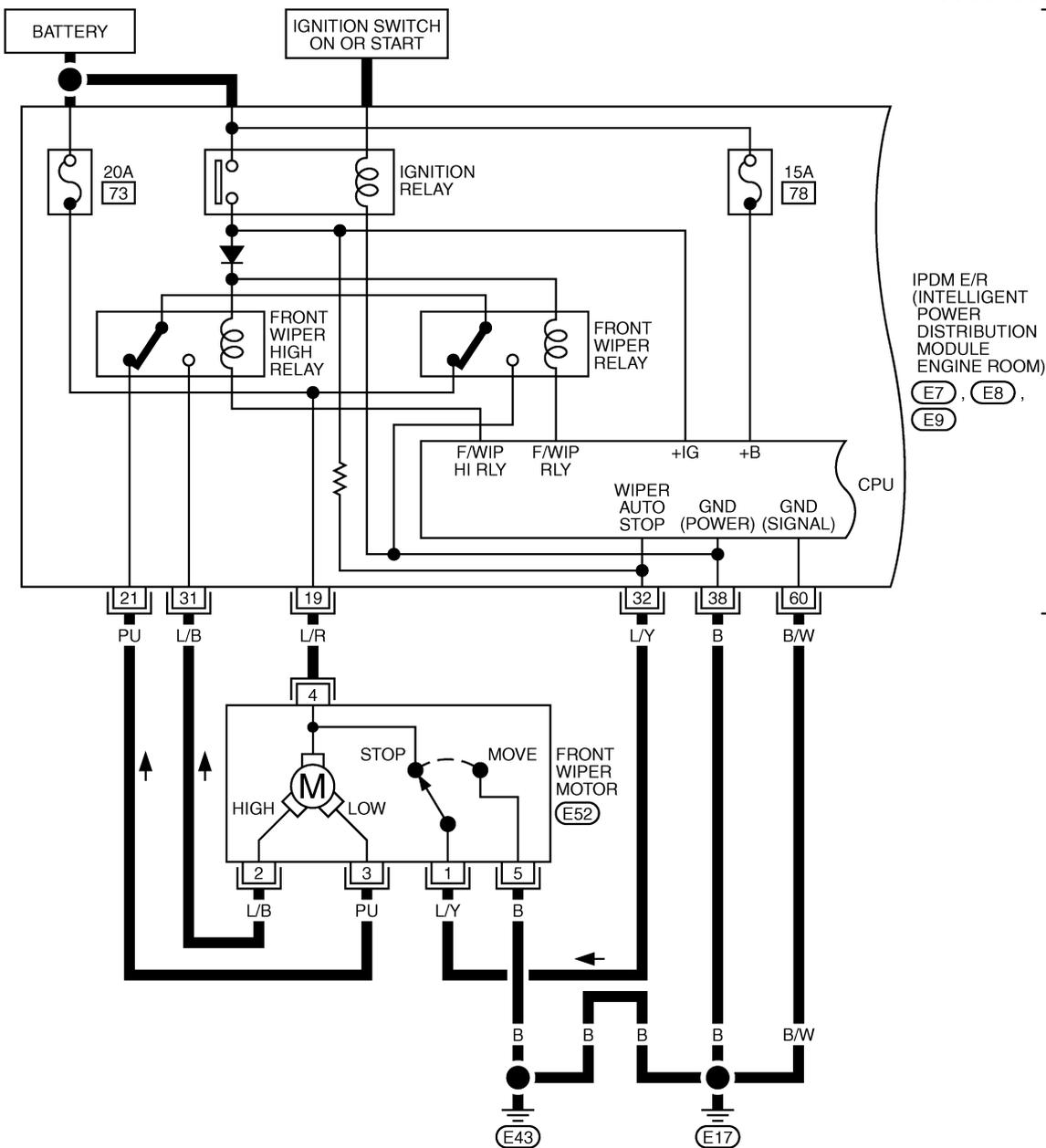
WW

# FRONT WIPER AND WASHER SYSTEM

## Wiring Diagram — WIPER —

AKS009JA

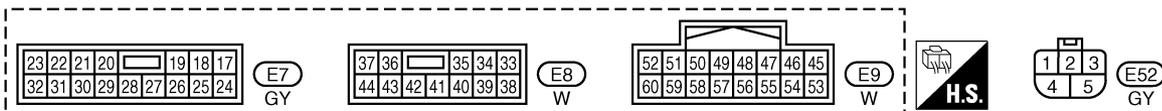
WW-WIPER-01



IPDM E/R  
(INTELLIGENT  
POWER  
DISTRIBUTION  
MODULE  
ENGINE ROOM)

REFER TO  
PG-POWER.

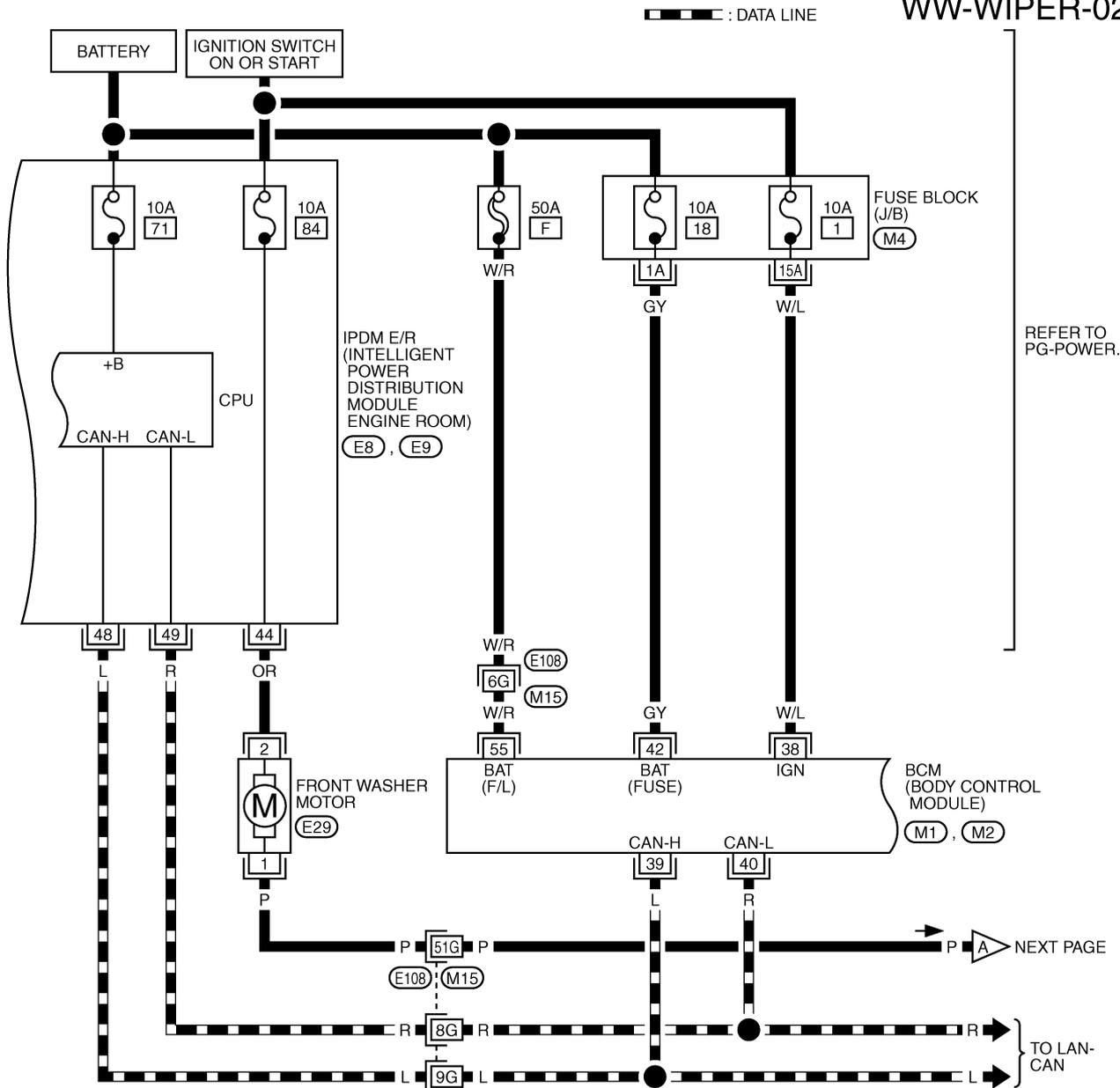
(E7), (E8),  
(E9)



TKWT1436E

# FRONT WIPER AND WASHER SYSTEM

WW-WIPER-02



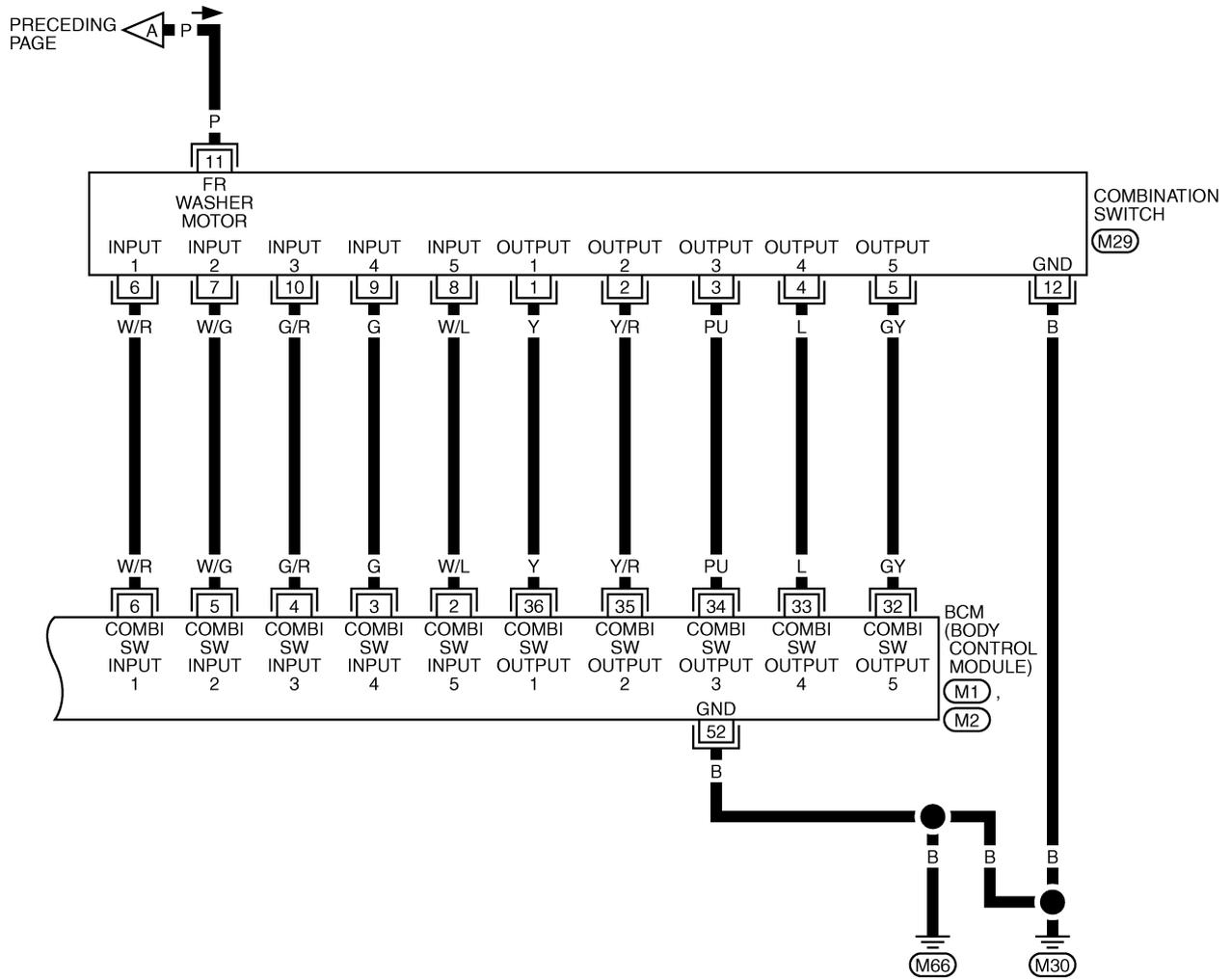
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
L  
M

WW

REFER TO THE FOLLOWING.

# FRONT WIPER AND WASHER SYSTEM

WW-WIPER-03



7	8	9	10	13	12
6	5	4	3	2	1

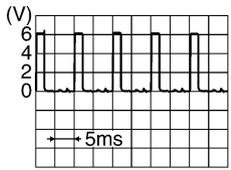
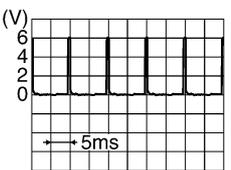
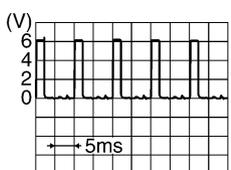
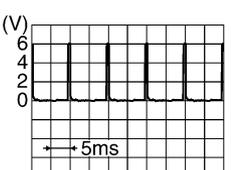
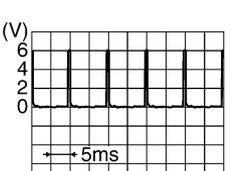
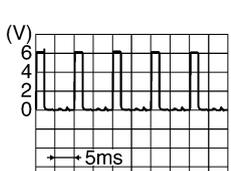
(M29)  
W

REFER TO THE FOLLOWING.  
(M1), (M2) - ELECTRICAL  
UNITS

# FRONT WIPER AND WASHER SYSTEM

## Terminals and Reference Values for BCM

AKS009JB

Terminal No. (Wire color)	Signal name	Measuring condition		Reference value
		Ignition switch	Operation or condition	
2 (W/L)	Combination switch input 5	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5291E</p>
3 (G)	Combination switch input 4	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5292E</p>
4 (G/R)	Combination switch input 3	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5291E</p>
5 (W/G)	Combination switch input 2	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5292E</p>
6 (W/R)	Combination switch input 1	ON		
32 (GY)	Combination switch output 5	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5291E</p>
33 (L)	Combination switch output 4	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5292E</p>
34 (PU)	Combination switch output 3	ON	<ul style="list-style-type: none"> <li>Lighting switch and wiper switch OFF</li> <li>Wiper dial position 4</li> </ul>	 <p style="text-align: right;">SKIA5291E</p>

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

WW

# FRONT WIPER AND WASHER SYSTEM

Terminal No. (Wire color)	Signal name	Measuring condition		Reference value
		Ignition switch	Operation or condition	
35 (Y/R)	Combination switch output 2	ON	<ul style="list-style-type: none"> <li>● Lighting switch and wiper switch OFF</li> <li>● Wiper dial position 4</li> </ul>	
36 (Y)	Combination switch output 1			
38 (W/L)	Ignition switch (ON)	ON	—	Battery voltage
39 (L)	CAN-H	—	—	—
40 (R)	CAN-L	—	—	—
42 (GY)	Battery power supply	OFF	—	Battery voltage
52 (B)	Ground	ON	—	Approx. 0V
55 (W/R)	Battery power supply	OFF	—	Battery voltage

## Terminals and Reference Values for IPDM E/R

AKS009JC

Terminal No. (Wire color)	Signal name	Measuring condition		Reference value	
		Ignition switch	Operation or condition		
19 (L/R)	Front wiper motor power supply	ON	—	Battery voltage	
21 (PU)	Low speed signal	ON	Wiper switch	OFF	Battery voltage
				LO	Approx. 0V
31 (L/B)	High speed signal	ON	Wiper switch	OFF	Battery voltage
				HI	Approx. 0V
32 (L/Y)	Wiper auto - stop signal	ON	Wiper operating		Approx. 0V
			Wiper stopped		Battery voltage
38 (B)	Ground	ON	—	Approx. 0V	
44 (OR)	Front washer motor power supply	ON	—	Battery voltage	
48 (L)	CAN-H	—	—	—	
49 (R)	CAN-L	—	—	—	
60 (B/W)	Ground	ON	—	Approx. 0V	

## How to Proceed With Trouble Diagnosis

AKS009JD

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

# FRONT WIPER AND WASHER SYSTEM

AKS009JE

## Preliminary Check CHECK POWER SUPPLY AND GROUND CIRCUIT

Inspection Procedure

### 1. CHECK FUSE

- Check if wiper and washer fuse is blown.

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

Refer to [WW-12. "Wiring Diagram — WIPER —"](#) .

OK or NG

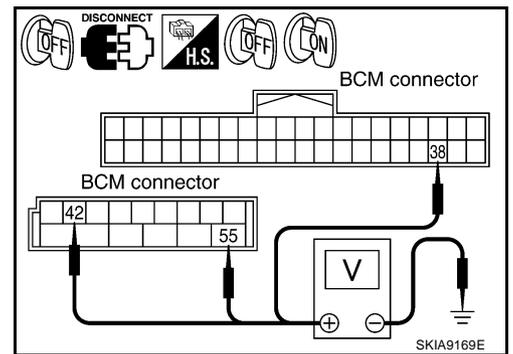
OK >> GO TO 2

NG >> If fuse is blown, be sure to eliminate malfunctioning fuse before installing new one. Refer to [PG-3. "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	
(+) Connector Terminal (Wire color)			OFF	ON
M1	38 (W/L)	Ground	0V	Battery voltage
M2	42 (GY)		Battery voltage	Battery voltage
M2	55 (W/R)		Battery voltage	Battery voltage



OK or NG

OK >> GO TO 3.

NG >> Check harness for open or short between fuse, fusible link and BCM.

### 3. CHECK GROUND CIRCUIT

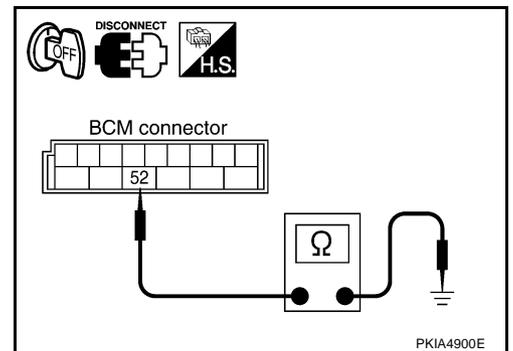
Check continuity between BCM harness connector M2 terminal 52 (B) and ground.

**52 (B) - Ground : Continuity should exist.**

OK or NG

OK >> INSPECTION END

NG >> Check ground circuit harness.



# FRONT WIPER AND WASHER SYSTEM

## CONSULT-II Functions (BCM)

AKS009JF

CONSULT-II performs the following functions communicating with BCM.

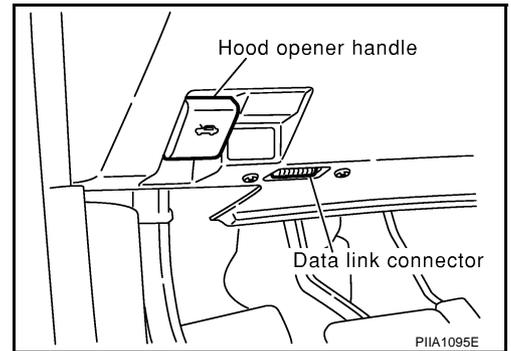
BCM diagnosis position	Check item, Diagnosis mode	Description
WIPER	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Device operation can be checked by applying a drive signal to device.
BCM	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

## CONSULT-II OPERATION

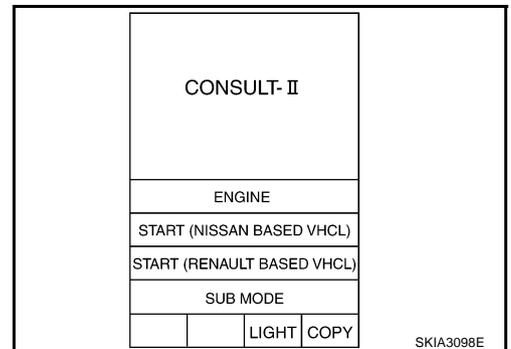
### CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

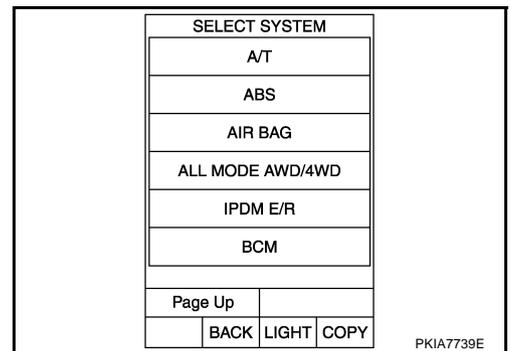
1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.



2. Touch "START (NISSAN BASED VHCL)".

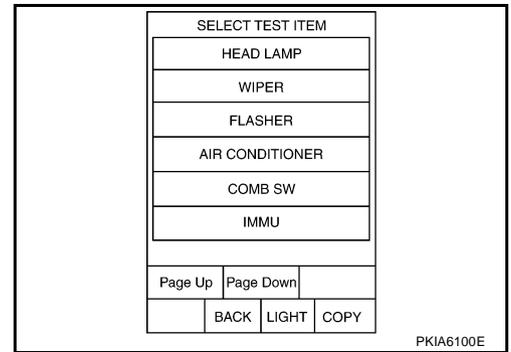


3. Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not indicated, refer to [GI-38, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



# FRONT WIPER AND WASHER SYSTEM

4. Touch "WIPER".



## 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 "DATA MONITOR" screen.

ALL SIGNALS	All items will be monitored.
SELECTION FROM MENU	Selects and monitors individual items.

4. Touch "START".
5. When "SELECTION FROM MENU" is selected, touched items to be monitored. If "ALL SIGNALS" is selected, all items will be monitored.
6. Touch "RECORDING START" while monitoring to record the status of the item being monitored. To stop recording, touch "RECORDING STOP".

### Display Item List

Monitor item [operation or unit]	Display content
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 STP2 <sup>NOTE</sup> [OFF]	—

#### NOTE:

This item is displayed, but cannot monitor it.

# FRONT WIPER AND WASHER SYSTEM

## ACTIVE TEST

### Operation Procedure

1. Touch "WIPER" on "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Touch items to be tested, and check operation.
4. During operation check, touching "STOP" deactivates operation.

### Display Item List

Test item	Indication on CONSULT-II display	Description
Front wiper output	FR WIPER	With a certain operation (OFF, HI, LO, INT), front wiper can be operated.

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

AKS009JG

CONSULT-II performs the following functions communicating with IPDM E/R.

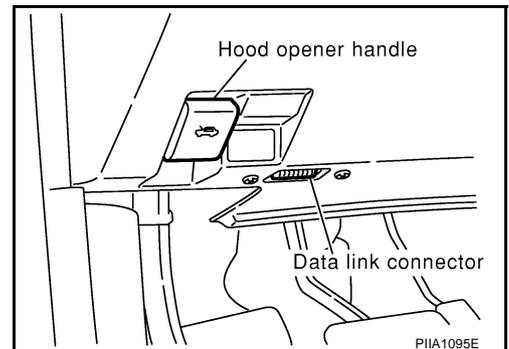
Inspection Item, Diagnosis Mode	Description
SELF-DIAG RESULTS	IPDM E/R performs diagnosis of CAN communication and self-diagnosis.
DATA MONITOR	The input/output data of IPDM E/R is displayed in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	IPDM E/R sends a drive signal to electronic components to check their operation.

## CONSULT-II OPERATION

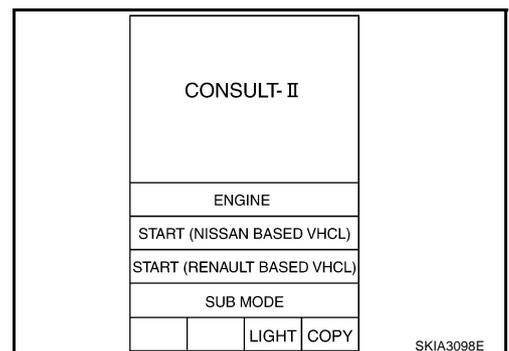
### CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

1. With ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, then turn ignition switch ON.

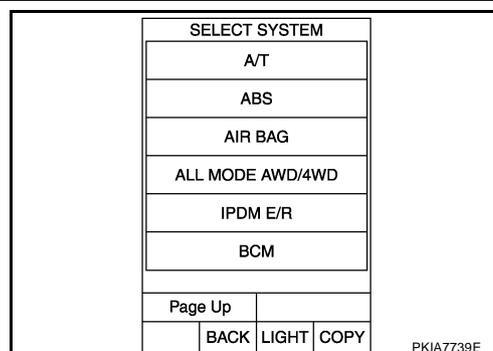


2. Touch "START (NISSAN BASED VHCL)".

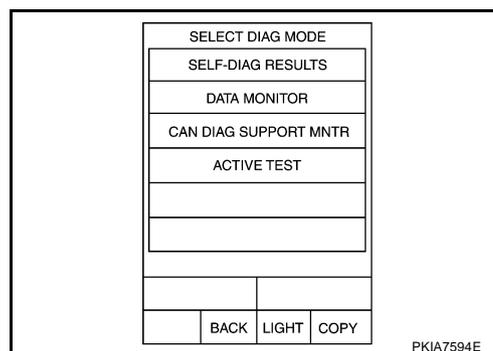


# FRONT WIPER AND WASHER SYSTEM

- Touch "IPDM E/R" on "SELECT SYSTEM" screen.  
If "IPDM E/R" is not displayed, print "SELECT SYSTEM" screen, then refer to [GI-38, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



- Select the desired part to be diagnosed on "SELECT DIAG MODE" screen.



## SELF-DIAGRESULTS

Refer to [PG-19, "SELF-DIAG RESULTS"](#)

## DATA MONITOR

### Operation Procedure

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

ALL SIGNALS	All items will be monitored.
MAIN SIGNALS	Monitor the predetermined item.
SELECTION FROM MENU	Select any item for monitoring.

- Touch "START".
- Touch required monitoring item on "SELECTION FROM MENU". In "ALL SIGNALS", all items are monitored. In "MAIN SIGNALS", predetermined items are monitored.
- 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/1/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, display may not be correct.

# FRONT WIPER AND WASHER SYSTEM

## 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	FRONT WIPER	With a certain operation (OFF, HI ON, LO ON), front wiper relay (Lo, Hi) can be operated.

## Front Wiper Does Not Operate

AKS009JH

### CAUTION:

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

## 1. CHECK IPDM E/R TO FRONT WIPER

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.

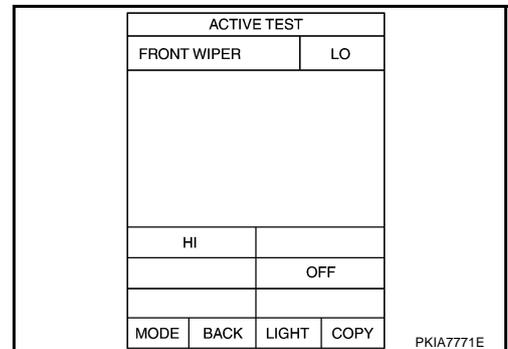
Without CONSULT-II

Start up auto active test. Refer to [PG-22, "Auto Active Test"](#)

Does front wiper operate normally?

YES >> GO TO 8.

NO >> GO TO 2.



## 2. CHECK FUSE

1. Turn ignition switch OFF.
2. Check fuse No.73 of IPDM E/R.

OK or NG

OK >> GO TO 3.

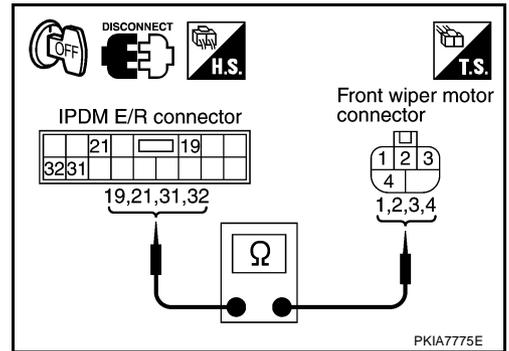
NG >> If fuse is blown, be sure to eliminate malfunctioning fuse before installing new one. Refer to [PG-3, "POWER SUPPLY ROUTING CIRCUIT"](#).

# FRONT WIPER AND WASHER SYSTEM

## 3. CHECK FRONT WIPER CIRCUIT

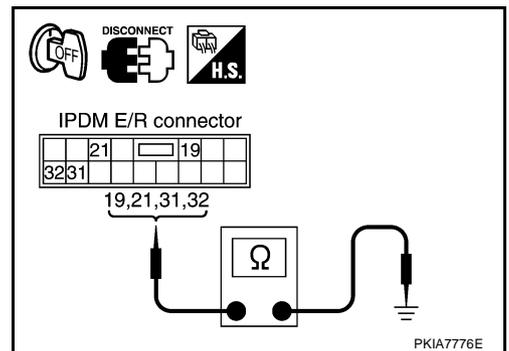
1. Disconnect IPDM E/R connector and front wiper motor connector.
2. Check continuity between IPDM E/R harness connector and front wiper motor harness connector terminal.

Terminals				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E7	19 (L/R)	E52	4 (L/R)	Yes
	21 (PU)		3 (PU)	
	31 (L/B)		2 (L/B)	
	32 (L/Y)		1 (L/Y)	



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

Terminals		Continuity	
IPDM E/R			
Connector	Terminal (Wire color)		
E7	19 (L/R)	Ground	No
	21 (PU)		
	31 (L/B)		
	32 (L/Y)		



OK or NG

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

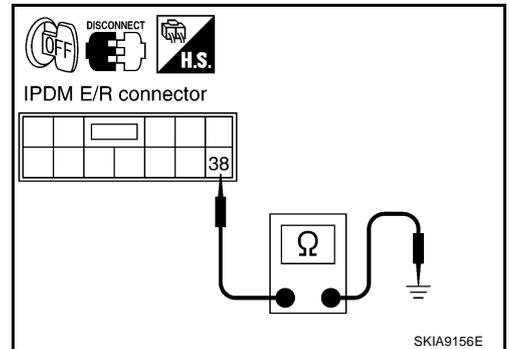
## 4. CHECK GROUND CIRCUIT

Check continuity between IPDM E/R harness connector E8 terminal 38 (B) and ground.

**38 (B) – Ground : Continuity should exist.**

OK or NG

- OK >> GO TO 5.
- NG >> Repair harness or connector.



# FRONT WIPER AND WASHER SYSTEM

## 5. CHECK POWER SUPPLY CIRCUIT

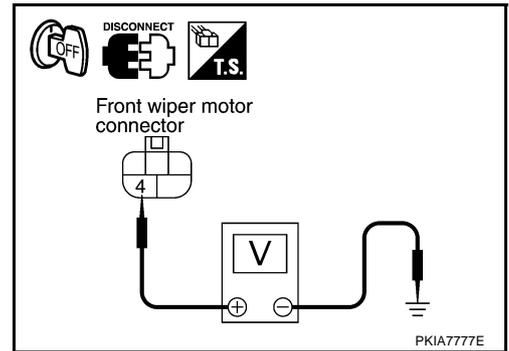
1. Connect IPDM E/R connector.
2. Check voltage between front wiper motor harness connector E52 terminal 4 (L/R) and ground.

**4 (L/R) – Ground : Battery voltage should exist.**

OK or NG

OK >> GO TO 6.

NG >> Replace IPDM E/R.



## 6. CHECK FRONT WIPER MOTOR

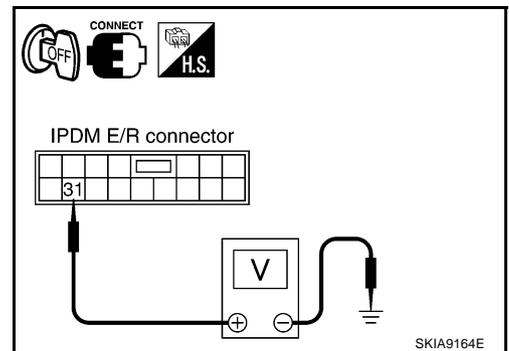
1. Connect front wiper motor connector.
2. Check voltage between IPDM E/R harness connector E7 terminal 31 (L/B) and ground.

**31 (L/B) – Ground : Battery voltage should exist.**

OK or NG

OK >> GO TO 7.

NG >> Replace front wiper motor.

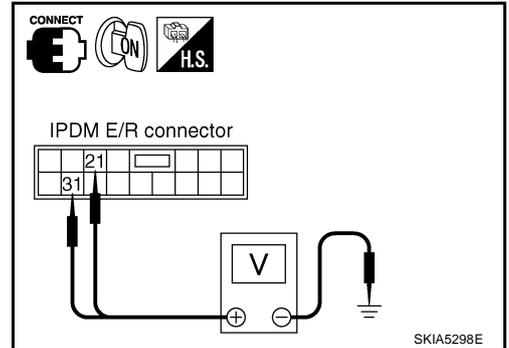


# FRONT WIPER AND WASHER SYSTEM

## 7. CHECK IPDM E/R

With CONSULT-II

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



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

Without CONSULT-II

1. Connect front wiper motor connector.
2. Start up auto active test. Refer to [PG-22, "Auto Active Test"](#), and check voltage between IPDM E/R harness connector terminal and ground while front wiper (HI, LO) is operating.

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

OK or NG

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

## 8. CHECK CIRCUIT BETWEEN COMBINATION SWITCH AND BCM

With CONSULT-II

Select "BCM" on CONSULT-II. With "WIPER" on "DATA MONITOR", confirm 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-128, "Combination Switch Inspection"](#).

OK or NG

- OK >> GO TO 9.  
 NG >> Check wiper Switch. Refer to [LT-128, "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 COPY

SKIA5300E

# FRONT WIPER AND WASHER SYSTEM

## 9. 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-15, "Removal and Installation of BCM"](#) .

CAN COMM CIRCUIT>>Check CAN communication line of BCM. GO TO [BCS-14, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#) .

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

SKIA1039E

## Front Wiper Does Not Return to Stop Position

### 1. CHECK CIRCUIT BETWEEN IPDM E/R AND WIPER MOTOR

Ⓚ With CONSULT-II

Select "IPDM E/R" on CONSULT-II. With data monitor, confirm 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.

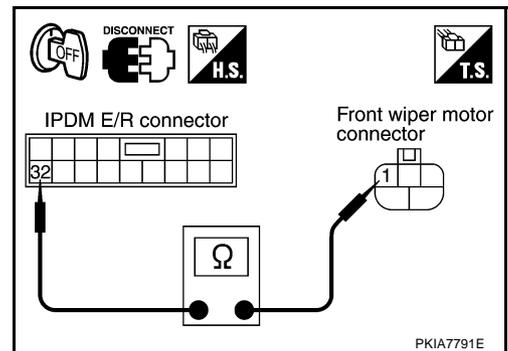
DATA MONITOR			
MONITOR			
WIP AUTO STOP		STOP P	
		RECORD	
MODE	BACK	LIGHT	COPY

PKIA7653E

### 2. CHECK WIPER AUTO STOP CIRCUIT

- Turn ignition switch OFF.
- Disconnect IPDM E/R connector and front wiper motor connector.
- Check continuity between IPDM E/R harness connector E7 terminal 32 (L/Y) and front wiper motor harness connector E52 terminal 1 (L/Y).

**32 (L/Y) - 1 (L/Y) : Continuity should exist.**



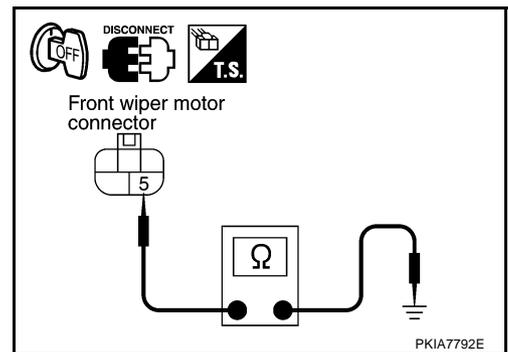
- Check continuity between front wiper motor harness connector E52 terminal 5 (B) and Ground.

**5 (B) - Ground : Continuity should exist.**

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.

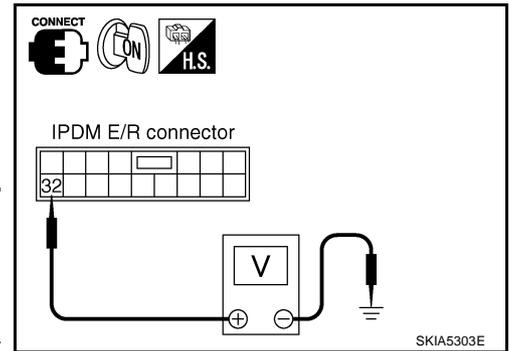


# FRONT WIPER AND WASHER SYSTEM

## 3. 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 E7 terminal 32 (L/Y) and ground while front wiper motor is stopped and while it is operating.

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



### OK or NG

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

## Only Front Wiper LO Does Not Operate

AKS009JJ

### 1. ACTIVE TEST

#### Ⓟ With CONSULT-II

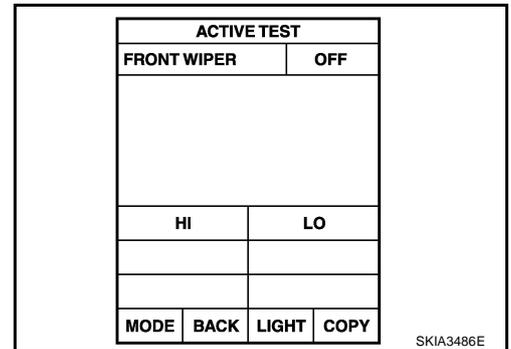
1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.

#### ⓧ Without CONSULT-II

Start up auto active test. Refer to [PG-22, "Auto Active Test"](#).

Does front wiper operate normally?

- YES >> GO TO [LT-128, "Combination Switch Inspection"](#).  
 NO >> GO TO 2.



SKIA3486E

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

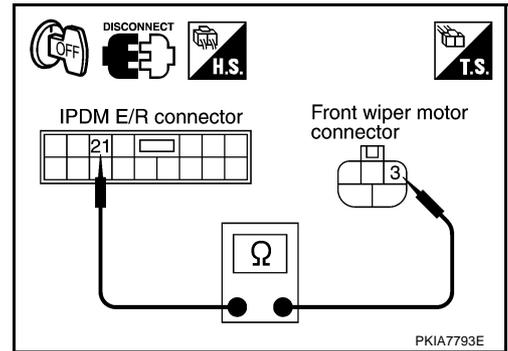
WW

# FRONT WIPER AND WASHER SYSTEM

## 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 E7 terminal 21 (PU) and front wiper motor harness E52 connector terminal 3 (PU).

**21 (PU) - 3 (PU) : Continuity should exist.**

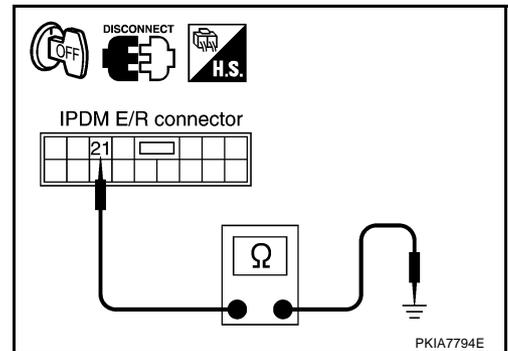


4. Check continuity between IPDM E/R harness connector E7 terminal 21(PU) and ground.

**21 (PU) - Ground : Continuity should not exist.**

OK or NG

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

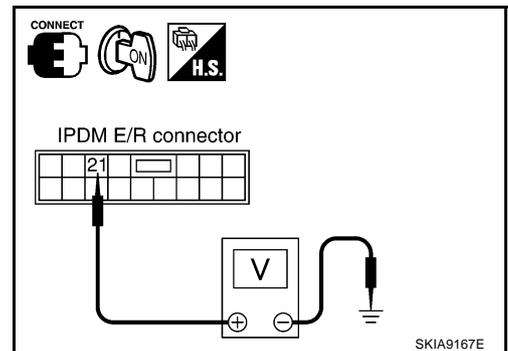


## 3. CHECK IPDM E/R

Ⓟ With CONSULT-II

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

Terminals		Condition	Voltage
IPDM E/R (+)			
Connector	Terminal (Wire color)	(-)	
E7	21 (PU)	Stopped	Battery voltage
		LO operation	Approx. 0V



ⓧ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-22, "Auto Active Test"](#), and check voltage between IPDM E/R harness connector E7 terminal 21(PU) and ground while front wiper LO is operating.

Terminals		Condition	Voltage
IPDM E/R (+)			
Connector	Terminal (Wire color)	(-)	
E7	21 (PU)	Stopped	Battery voltage
		LO operation	Approx. 0V

OK or NG

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

# FRONT WIPER AND WASHER SYSTEM

AKS009JK

## Only Front Wiper HI Does Not Operate

### 1. ACTIVE TEST

With CONSULT-II

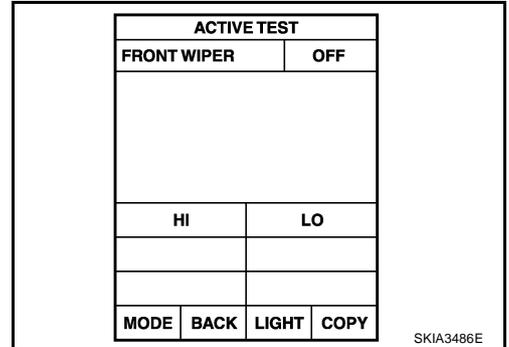
1. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.

Without CONSULT-II

Start up auto active test. Refer to [PG-22, "Auto Active Test"](#).

Does front wiper operate normally?

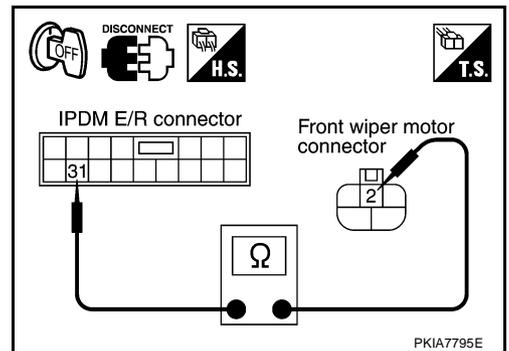
- YES >> GO TO [LT-128, "Combination Switch Inspection"](#).  
 NO >> GO TO 2.



### 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 E7 terminal 31 (L/B) and front wiper motor harness E52 connector terminal 2 (L/B).

**31 (L/B) - 2 (L/B) : Continuity should exist.**

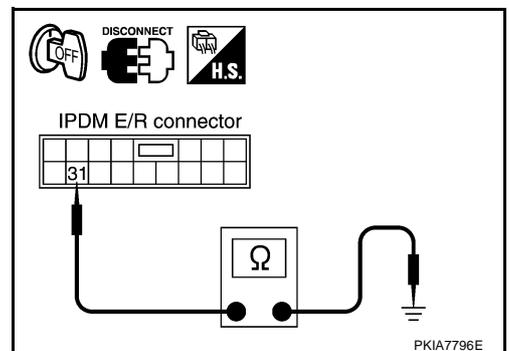


4. Check continuity between IPDM E/R harness connector E7 terminal 31(L/B) and ground.

**31 (L/B) - Ground : Continuity should not exist.**

OK or NG

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



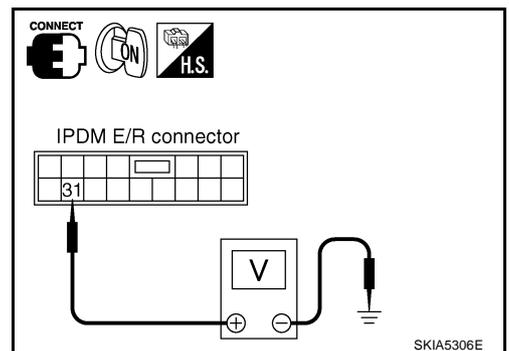
### 3. CHECK FRONT WIPER CIRCUIT

1. Connect front wiper motor connector.
2. Turn ignition switch ON.
3. Check voltage between IPDM E/R harness connector E7 terminal 31 (L/B) and ground.

**31 (L/B) - Ground : Battery voltage should exist.**

OK or NG

- OK >> GO TO 4.  
 NG >> Replace front wiper motor.

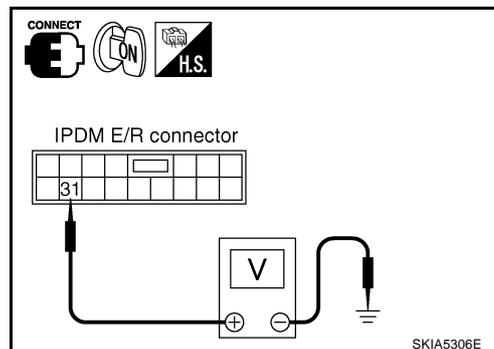


# FRONT WIPER AND WASHER SYSTEM

## 4. CHECK IPDM E/R

☑ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "IPDM E/R" on CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
4. Check voltage between IPDM E/R harness connector E7 terminal 31 (L/B) and ground while front wiper (HI) is operating.



Terminals		Condition	Voltage	
IPDM E/R (+)				
Connector	Terminal (Wire color)	(-)		
E7	31 (L/B)	Ground	Stopped	Battery voltage
			HI operation	Approx. 0V

☒ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Start up auto active test. Refer to [PG-22, "Auto Active Test"](#), and check voltage between IPDM E/R harness connector E7 terminal 31(L/B) and ground while front wiper HI is operating.

Terminals		Condition	Voltage	
IPDM E/R (+)				
Connector	Terminal (Wire color)	(-)		
E7	31 (L/B)	Ground	Stopped	Battery voltage
			HI operation	Approx. 0V

OK or NG

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

### Only Front Wiper INT Does Not Operate

AKS009JL

Refer to [LT-128, "Combination Switch Inspection"](#).

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

AKS009JM

#### 1. CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does front wiper operate normally?

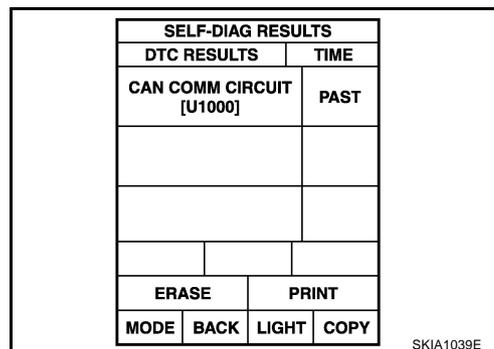
- YES >> GO TO 2.  
 NO >> Combination meter vehicle speed system malfunction. GO TO [DI-14, "Inspection/Vehicle Speed Signal"](#).

#### 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-15, "Removal and Installation of BCM"](#).  
 CAN COMM CIRCUIT>>Check CAN communication line of BCM. GO TO [BCS-14, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).



# FRONT WIPER AND WASHER SYSTEM

## Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

AKS009JN

### 1. CHECK COMBINATION SWITCH INPUT SIGNAL

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "INT VOLUME" changes in order from 1 to 7 according to operation of intermittent switch dial position.

#### OK or NG

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

DATA MONITOR			
MONITOR		NO DTC	
INT VOLUME		4	
RECORD			
MODE	BACK	LIGHT	COPY

PKIA7772E

## Wipers Do Not Wipe When Front Washer Operates

AKS009JO

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

Select "BCM" on CONSULT-II. With "WIPER" on "DATA MONITOR", make sure "FR WASHER SW" turns ON-OFF according to operation of front washer switch.

**When front wiper switch washer position : FR WASHER SW ON**

#### OK or NG

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

DATA MONITOR			
MONITOR			
FR WASHER SW		ON	
RECORD			
MODE	BACK	LIGHT	COPY

PKIA7613E

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

WW

# FRONT WIPER AND WASHER SYSTEM

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

AKS009JP

**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 CIRCUIT BETWEEN IPDM E/R AND WIPER MOTOR

① With CONSULT-II

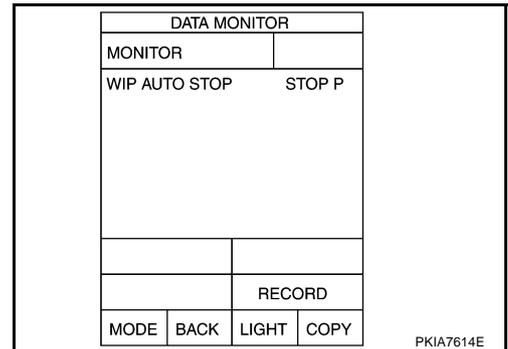
Select “IPDM E/R” by CONSULT-II. With “DATA MONITOR”, confirm that “WIP AUTO STOP” turns “ACT P” - “STOP P” linked with wiper operation.

② Without CONSULT-II

GO TO 2.

OK or NG

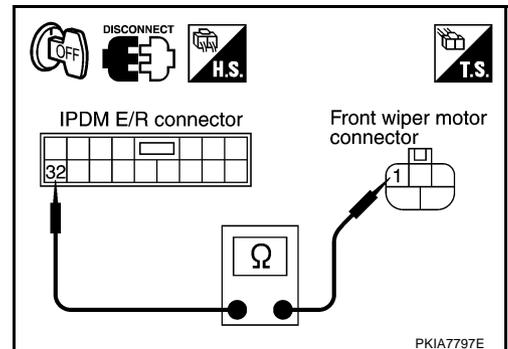
- OK >> Replace IPDM E/R.
- NG >> GO TO 2.



## 2. CHECK 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 E7 terminal 32 (L/Y) and front wiper motor harness connector E52 terminal 1(L/Y).

**32 (L/Y) - 1 (L/Y) : Continuity should exist.**

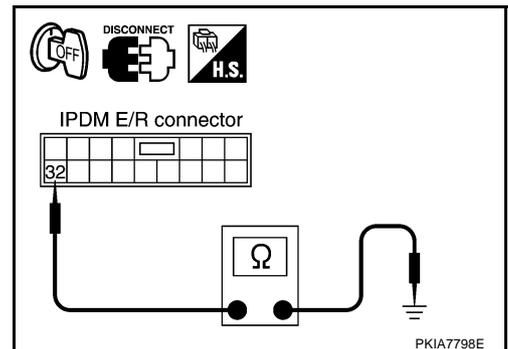


4. Check continuity between IPDM E/R harness connector E7 terminal 32 (L/Y) and ground.

**32 (L/Y) - Ground : Continuity should not exist.**

OK or NG

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

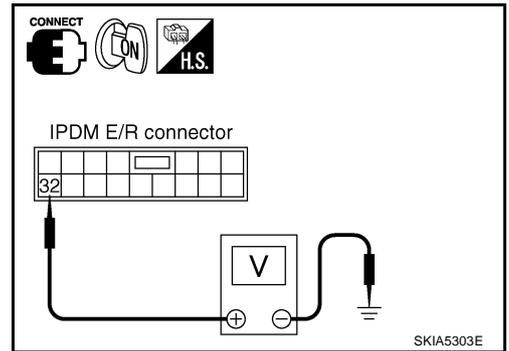


# FRONT WIPER AND WASHER SYSTEM

## 3. CHECK BETWEEN IPDM E/R AND WIPER MOTOR CIRCUIT

1. Connect IPDM E/R connector and front wiper connector.
2. Turn ignition switch ON.
3. Check voltage between IPDM E/R harness connector E7 terminal 32 (L/Y) and ground while front wiper motor is stopped and while it is operating.

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



### OK or NG

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

## Front Wipers Do Not Stop

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

Ⓜ With CONSULT-II

Select "BCM" on CONSULT-II. With "WIPER" on "DATA MONITOR", confirm that "FRONT WIPER INT", "FRONT WIPER LOW", "FRONT WIPER HI", and "FRONT WASHER SW" turn ON-OFF according to wiper switch operation.

ⓧ Without CONSULT-II

Refer to [LT-128, "Combination Switch Inspection"](#).

### OK or NG

- OK >> Replace IPDM E/R.  
 NG >> Check wiper Switch. Refer to [LT-128, "Combination Switch Inspection"](#).

DATA MONITOR	
MONITOR	NO DTC
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	0.0km/h
Page Down	
RECORD	
MODE	BACK
LIGHT	COPY

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

WW

# FRONT WIPER AND WASHER SYSTEM

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

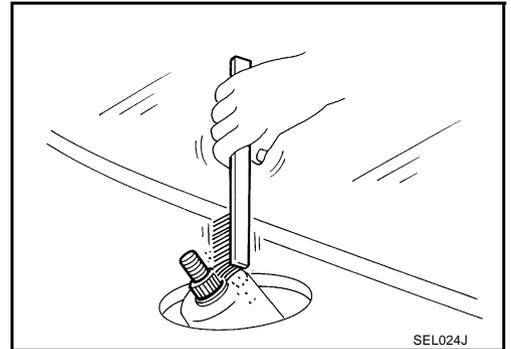
AKS009LR

### REMOVAL

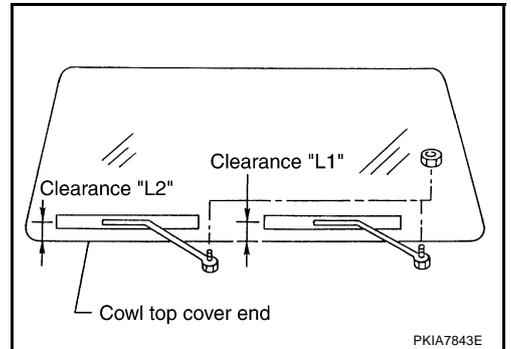
1. Operate wiper motor, and stop it at auto stop position.
2. Remove washer tube from washer tube joint.
3. Remove wiper arm mounting nuts and wiper arm from vehicle.

### INSTALLATION

1. Clean up the pivot area as illustrated. This will reduce possibility of wiper arm looseness.



2. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
3. Push wiper arm onto pivot shaft, paying attention to blind spline.
4. Attach washer tube to washer tube joint.
5. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L1" & "L2" immediately before tightening nut.
6. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
7. Ensure that wiper blades stop within clearance "L1" & "L2".



**Clearance "L1" : 47.1 - 62.1 mm (1.854 - 2.445 in)**

**Clearance "L2" : 32.1 - 47.1 mm (1.264 - 1.854 in)**

- Tighten wiper arm nuts to specified torque.

**Front wiper arm nuts  : 23.6 N·m (2.4 kg·m, 17 ft·lb)**

### CAUTION:

**Don't operate front wiper when engine hood is being open.**

### ADJUSTMENT

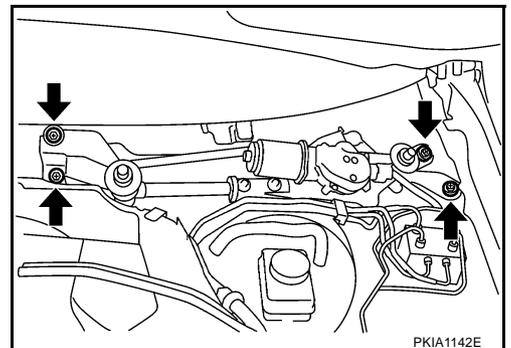
Refer to [WW-34, "INSTALLATION"](#)

## Removal and Installation of Front Wiper Motor Assembly

AKS009LS

### REMOVAL

1. Remove wiper arm. Refer to [WW-34, "REMOVAL"](#).
2. Remove cowl top cover. Refer to [EI-21, "COWL TOP"](#) in "EI" section.
3. Remove washer tube.
4. Disconnect wiper motor connector.
5. Remove wiper motor assembly screws, and remove wiper motor assembly.



# FRONT WIPER AND WASHER SYSTEM

## INSTALLATION

1. Install wiper motor assembly to the vehicle.
2. Connect wiper motor assembly to connector. Turn wiper switch ON to operate wiper motor, then turn wiper switch OFF (auto stop).
3. Attach washer tube to connector joint.
4. Install cowl top cover. Refer to [EI-21, "COWL TOP"](#) in "EI" section.
5. Install wiper arms. Refer to [WW-34, "Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location"](#).
6. Attach wiper arm washer tube.

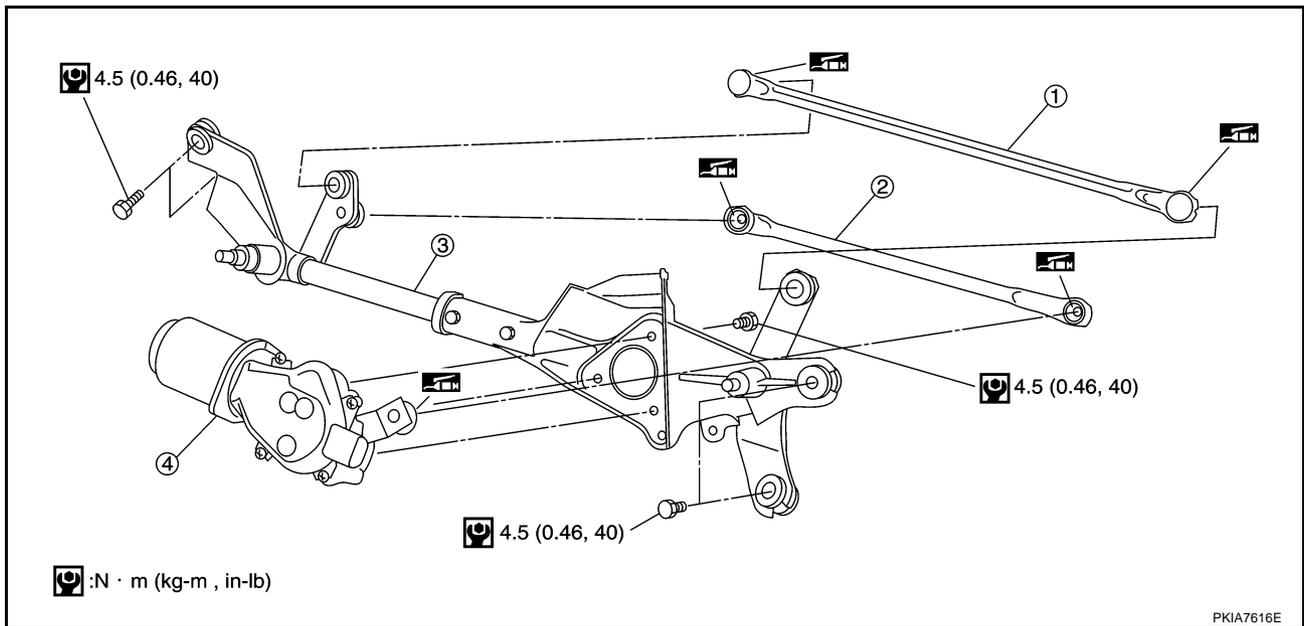
**Wiper motor assembly bolts**  : 4.5 N·m (0.46 kg-m, 40 in-lb)

### CAUTION:

- Do not drop wiper motor or cause it to contact other parts.
- Check grease conditions of motor arm and wiper link joint (at retainer). Apply grease if necessary.

## Disassembly and Assembly of Front Wiper Motor Assembly

AKS009LT



1. Wiper link
2. Wiper link
3. Wiper frame
4. Wiper motor

## DISASSEMBLY

1. Remove wiper link from wiper frame and motor arm.
2. Remove wiper motor bolts, and remove wiper motor from wiper frame.

## ASSEMBLY

Paying attention to work listed below, assemble in reverse order of disassembly.

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

# FRONT WIPER AND WASHER SYSTEM

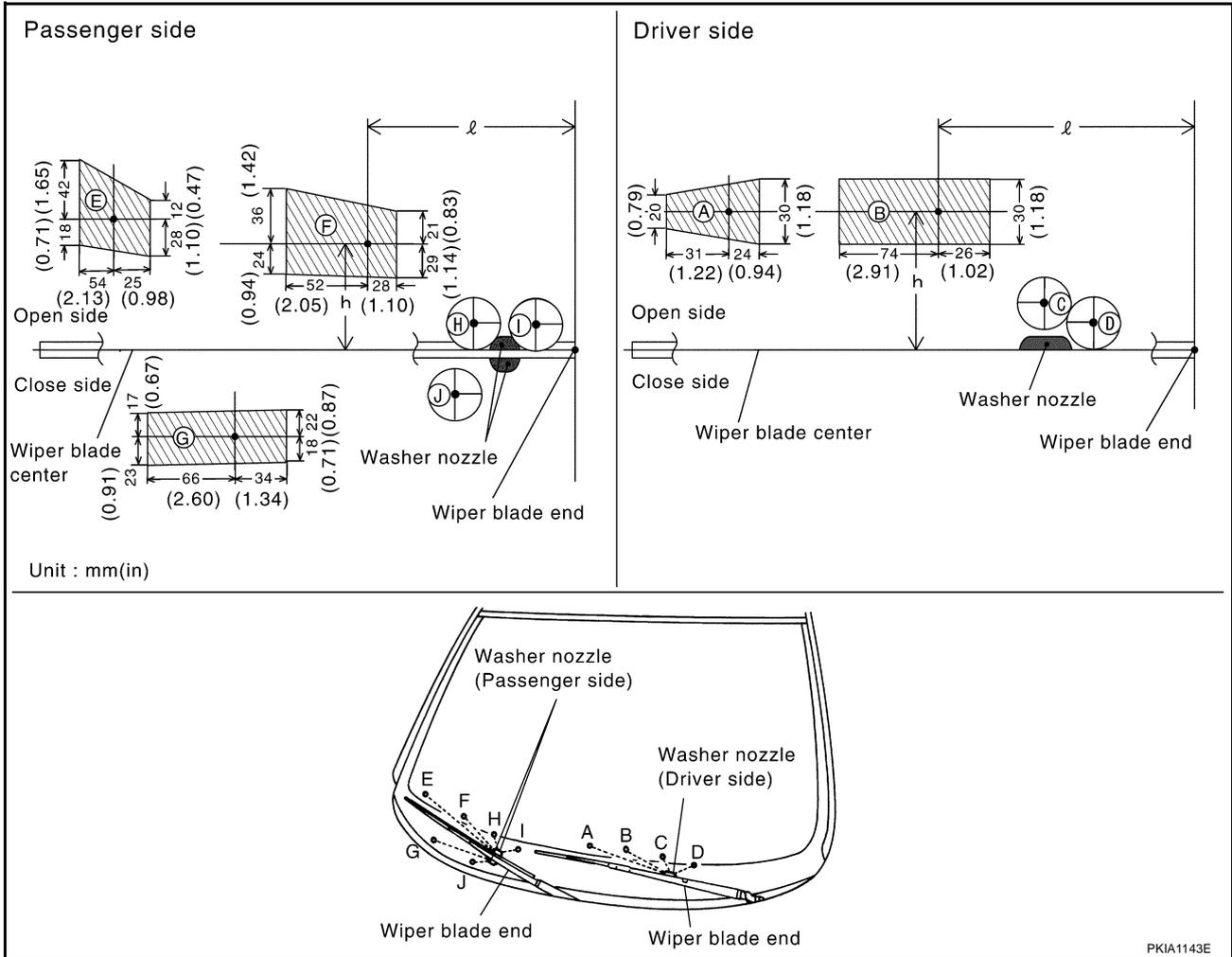
AKS009LU

## Washer Nozzle Adjustment

1. When wiper blade position is in auto stop condition, remove wiper motor connector to ensure 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:**

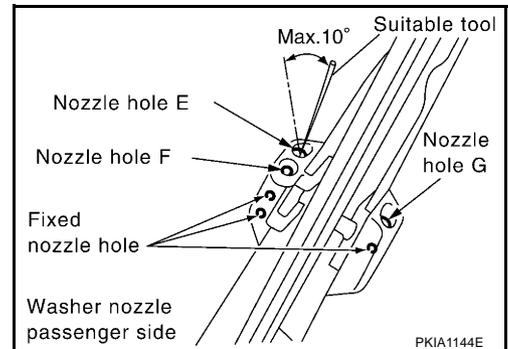
**Only washer nozzles (A, B, E, F, and G) can be adjusted. Washer nozzles (C, D, H, I, and J) cannot be adjusted because of fixed nozzles.**



PKIA1143E

Unit: mm (in)

Spray position	h (height)	l (width)
A	25 (0.98)	339 (13.35)
B	25 (0.98)	176 (6.93)
(C)	—	—
(D)	—	—
E	53 (2.09)	306 (12.05)
F	39 (1.54)	158 (6.22)
G	-32 (-1.26)	244 (9.61)
(H)	—	—
(I)	—	—
(J)	—	—

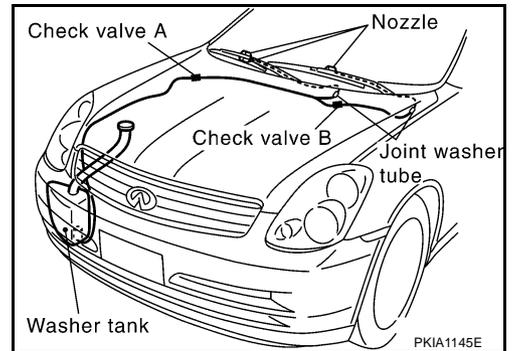


PKIA1144E

# FRONT WIPER AND WASHER SYSTEM

## Washer Tube Layout

AKS009LV



## Removal and Installation of Front Washer Nozzle

AKS009LW

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

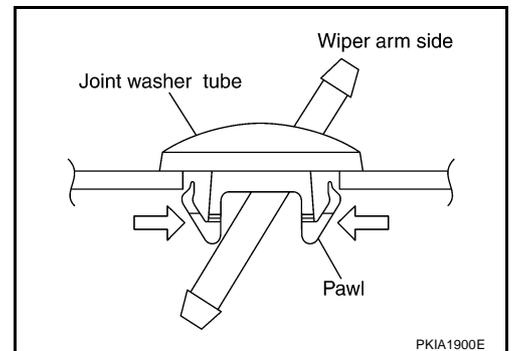
### CAUTION:

Removal/installation of washer nozzle as a unit must not be done.

## Removal and Installation of Front Washer Joint

AKS009LX

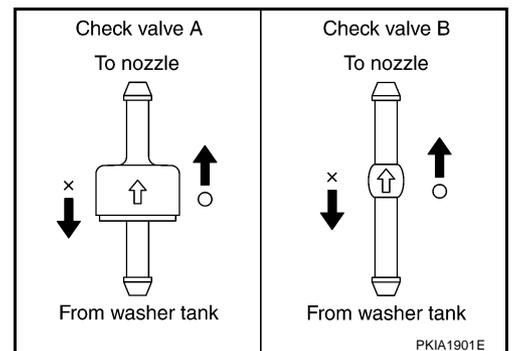
1. Remove upwards while pressing tab on reverse side.
2. Remove washer tube.



## Inspection of CHECK VALVE

AKS009LY

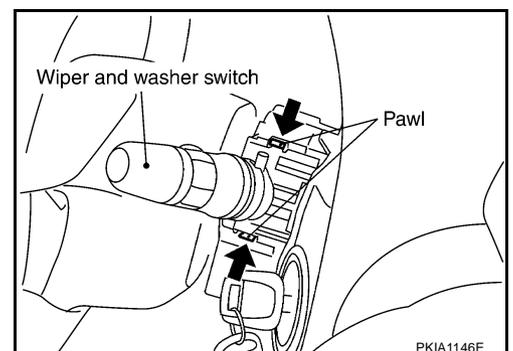
Blow air in the injection direction, and check that air flows only one way. Make sure that the reverse direction (inhale) is not possible.



## Removal and Installation of Front Wiper and Washer Switch

AKS009LZ

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

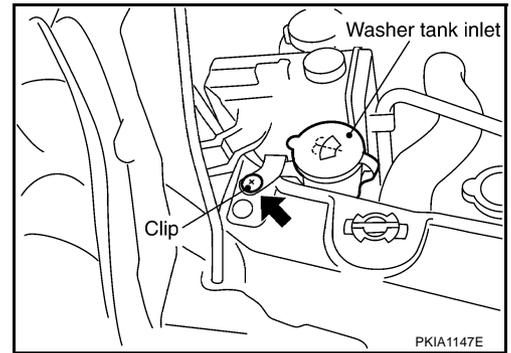


# FRONT WIPER AND WASHER SYSTEM

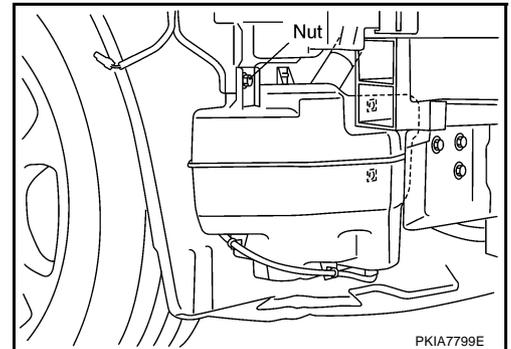
AKS009M0

## Removal and Installation of Washer Tank REMOVAL

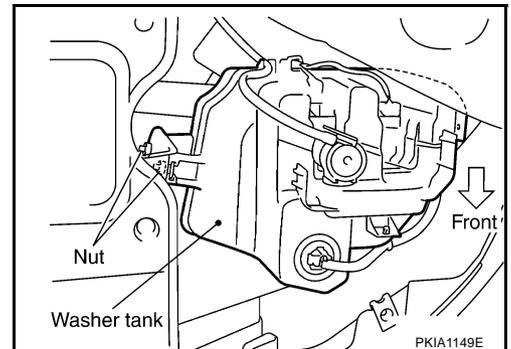
1. Pull out washer tank inlet.



2. Remove fender protector in the right side. Refer to [EI-22](#), "[FENDER PROTECTOR](#)" in "EI" section.
3. Remove right half of front bumper fascia. Refer to [EI-14](#), "[FRONT BUMPER](#)" in "EI" section.
4. Remove washer pump connector.
5. Remove washer tank installation nuts.



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



## INSTALLATION

Note the following, and install in 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 installation screw

**Tightening torque**  : 5.7 N·m (0.58 kg-m, 50 in-lb)

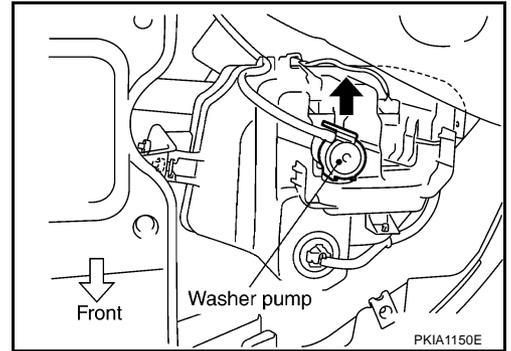
# FRONT WIPER AND WASHER SYSTEM

## Removal and Installation of Washer Pump

AKS009M1

### REMOVAL

1. Remove fender protector in the right side. Refer to [EI-22](#), "[FENDER PROTECTOR](#)" in "EI" section.
2. Remove 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

Paying attention to the following, install in reverse order of removal.

#### **CAUTION:**

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

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

WW

# CIGARETTE LIGHTER

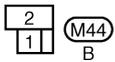
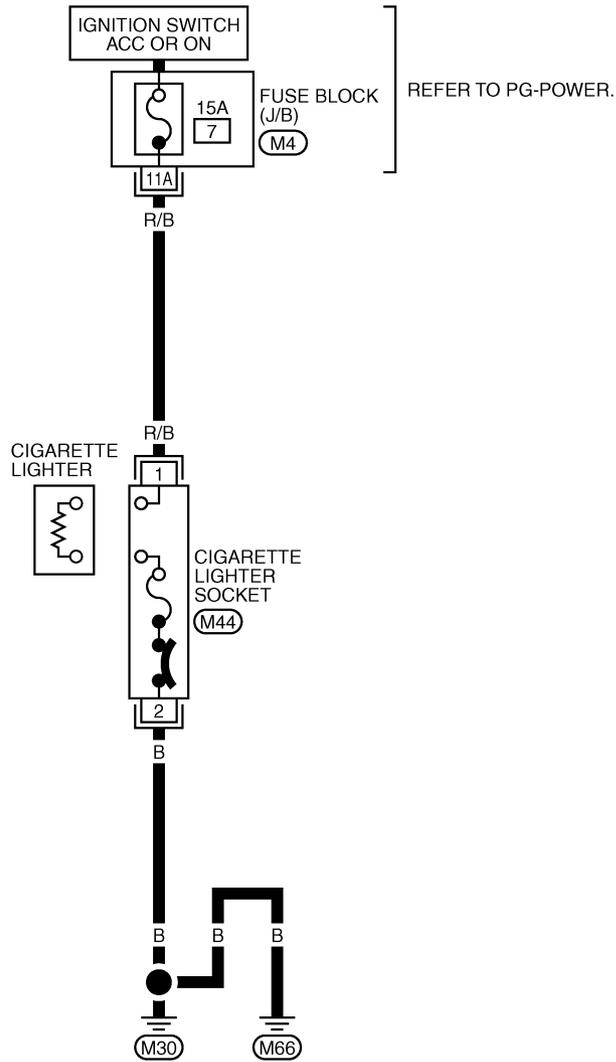
PFP:35330

## CIGARETTE LIGHTER

### Wiring Diagram — CIGAR —

AKS00A07

## WW-CIGAR-01



REFER TO THE FOLLOWING.

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

TKWT0726E

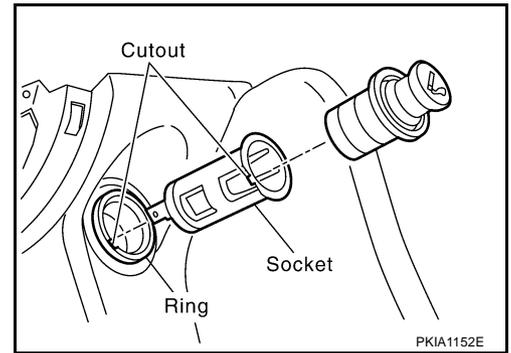
# CIGARETTE LIGHTER

## Removal and Installation of Cigarette Lighter

AKS00A08

### REMOVAL

1. Remove instrument side panel. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) "IP" section.
2. Pull out cigarette lighter.
3. Remove socket.
4. Press out ring from the back of instrument side panel.



### INSTALLATION

Install in the reverse order of removal.

A

B

C

D

E

F

G

H

I

J

WW

L

M

# POWER SOCKET

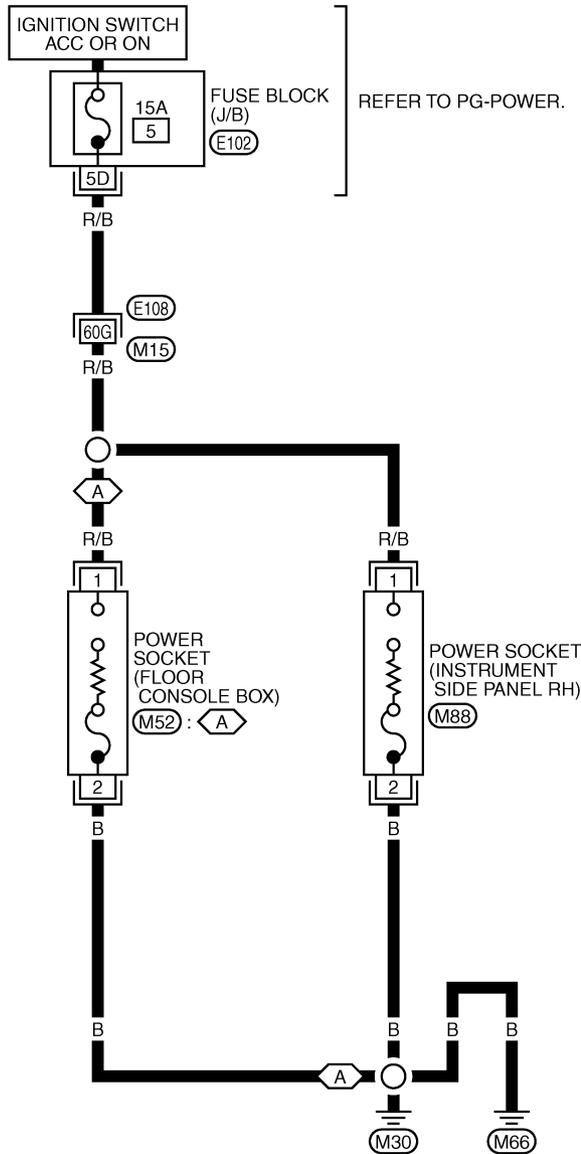
PFP:253A2

## POWER SOCKET

### Wiring Diagram — P/SCKT —

AKS00A09

## WW-P/SCKT-01



REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE  
JUNCTION (SMJ)

E102 -FUSE BLOCK-JUNCTION  
BOX (J/B)

TKWT1439E

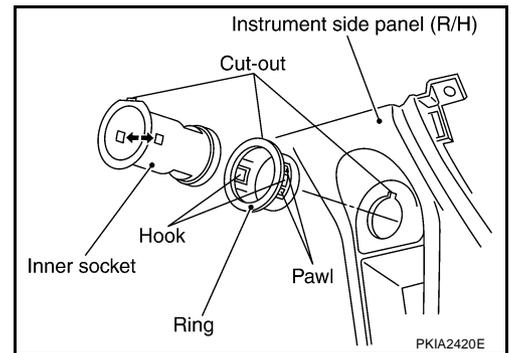
# POWER SOCKET

## Removal and Installation of Instrument Power Socket

AKS00AW9

### REMOVAL

1. Remove instrument side panel (RH). Refer to [IP-10. "INSTRUMENT PANEL ASSEMBLY"](#) in "IP" section.
2. Disconnect power socket connector.
3. While pressing hooks on ring through the holes of inner socket, remove socket from ring.
4. Remove ring from the instrument side panel while pressing pawls.



### INSTALLATION

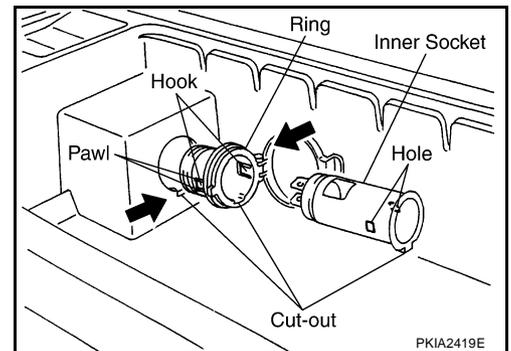
Install in reverse order of removal.

## Removal and Installation of Console Power Socket (A/T)

AKS00AWA

### REMOVAL

1. Remove the console box assembly. Refer to [IP-10. "INSTRUMENT PANEL ASSEMBLY"](#) in "IP" section.
2. Disconnect power socket connector.
3. While pressing hooks on ring through the holes of inner socket, remove socket from ring.
4. Remove ring from console box while pressing pawls.



### INSTALLTION

Install in the reverse order of removal.

A

B

C

D

E

F

G

H

I

J

WW

L

M

# HORN

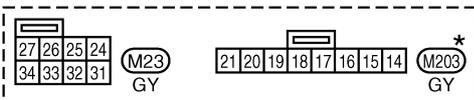
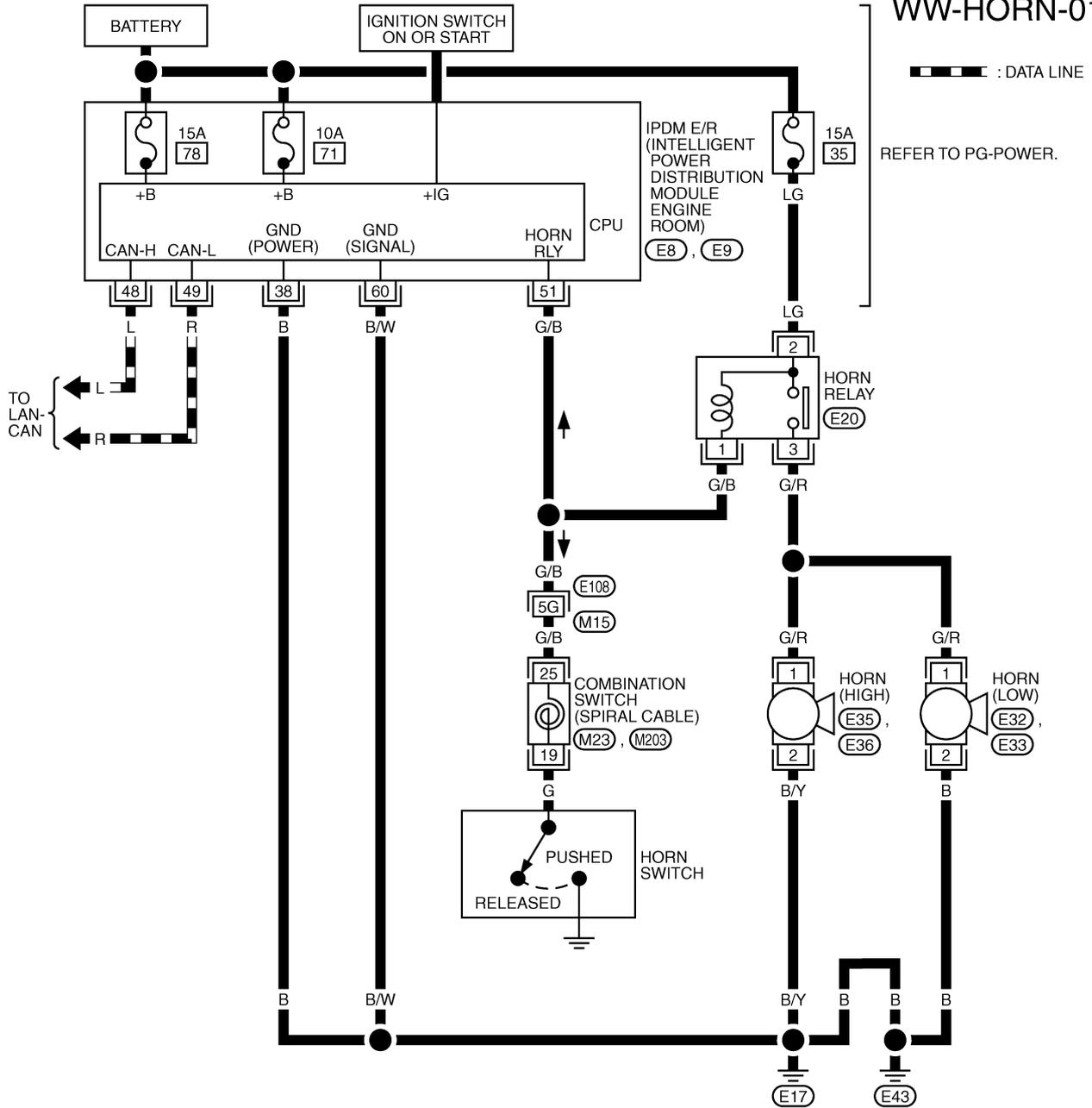
## HORN

PF2:25610

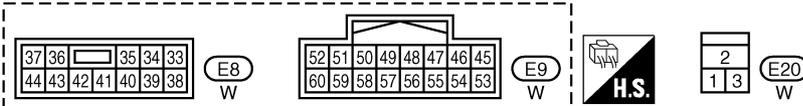
### Wiring Diagram — HORN —

AKS00A0D

## WW-HORN-01



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



REFER TO THE FOLLOWING.

E108 -SUPER MULTIPLE JUNCTION (SMJ)

TKWT1440E

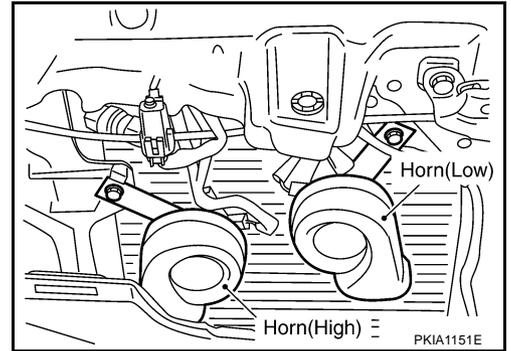
# HORN

AKS00A0E

## Removal and Installation

### REMOVAL

1. Remove front grille. Refer to [EI-20, "Removal and Installation"](#) in "EI" section.
2. Disconnect all horn connectors.
3. Remove horn mounting bolt and remove horn from vehicle.



### INSTALLATION

Tighten horn bolt to specified torque.

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

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

WW

**HORN**

---

**WW-46**