

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

# WW

## SECTION

# WIPER, WASHER & HORN

### CONTENTS

<p><b>PRECAUTION</b> ..... 3</p> <p>  Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... 3</p> <p>  Precautions for Battery Service ..... 3</p> <p>  Wiring Diagrams and Trouble Diagnosis ..... 3</p> <p><b>FRONT WIPER AND WASHER SYSTEM</b> ..... 4</p> <p>  Components Parts and Harness Connector Location ..... 4</p> <p>  System Description ..... 4</p> <p>    LOW SPEED WIPER OPERATION ..... 5</p> <p>    HI SPEED WIPER OPERATION ..... 5</p> <p>    INTERMITTENT OPERATION ..... 5</p> <p>    AUTO STOP OPERATION ..... 6</p> <p>    WASHER OPERATION ..... 6</p> <p>    MIST OPERATION ..... 6</p> <p>    FAIL-SAFE FUNCTION ..... 6</p> <p>    BCM WIPER SWITCH READING FUNCTION ..... 7</p> <p>  CAN Communication System Description ..... 9</p> <p>  CAN Communication Unit ..... 9</p> <p>    TYPE 1 ..... 10</p> <p>    TYPE 2 ..... 11</p> <p>  Schematic ..... 13</p> <p>  Wiring Diagram — WIPER — ..... 14</p> <p>  Terminals and Reference Values for BCM ..... 17</p> <p>  Terminals and Reference Values for IPDM E/R ..... 17</p> <p>  How to Proceed With Trouble Diagnosis ..... 17</p> <p>  Preliminary Inspection ..... 18</p> <p>    CHECK POWER SUPPLY AND GROUND CIRCUIT ..... 18</p> <p>  CONSULT-II Functions ..... 19</p> <p>    CONSULT-II OPERATION ..... 19</p> <p>    DATA MONITOR ..... 20</p> <p>    ACTIVE TEST ..... 20</p> <p>  Front Wiper Does Not Operate ..... 20</p> <p>  Front Wiper Stop Position Is Incorrect ..... 22</p> <p>  Only Front Wiper Low Does Not Operate ..... 24</p> <p>  Only Front Wiper Hi Does Not Operate ..... 25</p> <p>  Only Front Wiper Intermittent Does Not Operate ... 27</p> <p>  Front Wiper Intermittent Operation Switch Position</p>	<p>    Cannot Be Adjusted ..... 27</p> <p>    Wipers Do Not Wipe When Front Washer Operates.. 27</p> <p>    Removal and Installation for Front Wiper Arms, Adjustment for Wiper Arms Stop Location ..... 28</p> <p>      REMOVAL ..... 28</p> <p>      INSTALLATION ..... 28</p> <p>      ADJUSTMENT ..... 28</p> <p>    Removal and Installation of Front Wiper Motor Assembly ..... 28</p> <p>      REMOVAL ..... 28</p> <p>      INSTALLATION ..... 29</p> <p>    Disassembly and Assembly Front Wiper Motor Assembly. .... 29</p> <p>      DISASSEMBLY ..... 29</p> <p>      ASSEMBLY ..... 29</p> <p>    Washer Nozzle Adjustment ..... 30</p> <p>    Washer Tube Layout ..... 31</p> <p>    Removal and Installation for Front Washer Nozzle.. 31</p> <p>    Removal and Installation for Front Washer Joint ... 31</p> <p>    Inspection for Washer Nozzle ..... 31</p> <p>      CHECK VALVE ..... 31</p> <p>    Removal and Installation for Front Wiper and Washer Switch ..... 31</p> <p>    Removal and Installation for Washer Tank ..... 32</p> <p>      REMOVAL ..... 32</p> <p>      INSTALLATION ..... 32</p> <p>    Removal and Installation for Washer Pump ..... 33</p> <p>      REMOVAL ..... 33</p> <p>      INSTALLATION ..... 33</p> <p>  <b>CIGARETTE LIGHTER</b> ..... <b>34</b></p> <p>    Wiring Diagram — CIGAR — ..... 34</p> <p>    Removal and Installation for Cigarette Lighter ..... 35</p> <p>      REMOVAL ..... 35</p> <p>      INSTALLATION ..... 35</p> <p>  <b>POWER SOCKET</b> ..... <b>36</b></p> <p>    Wiring Diagram — P/SCKT — ..... 36</p> <p>    Removal and Installation for Instrument Power Socket ..... 37</p> <p>      REMOVAL ..... 37</p>
---	--

---

INSTALLATION .....	37	<b>HORN .....</b>	<b>38</b>
Removal and Installation for Console Power Socket (A/T) .....	37	Wiring Diagram — HORN — .....	38
REMOVAL .....	37	Removal and Installation .....	39
INSTALLATION .....	37	REMOVAL .....	39
		INSTALLATION .....	39

# PRECAUTION

## PRECAUTION

PF0:00011

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

AKS004DF

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 Battery Service

AKS004DG

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.

### Wiring Diagrams and Trouble Diagnosis

AKS003DQ

When You Read Wiring Diagrams, Refer to the Following:

- Refer to [GI-15, "How to Read Wiring Diagrams"](#) .
- Refer to [PG-4, "POWER SUPPLY ROUTING CIRCUIT"](#) for power distribution circuit.

When You Perform Trouble Diagnosis, Refer to the Following:

- Refer to [GI-11, "How to Follow Trouble Diagnoses"](#) .
- Refer to [GI-27, "How to Perform Efficient Diagnosis for an Electrical Incident"](#) .

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

WW

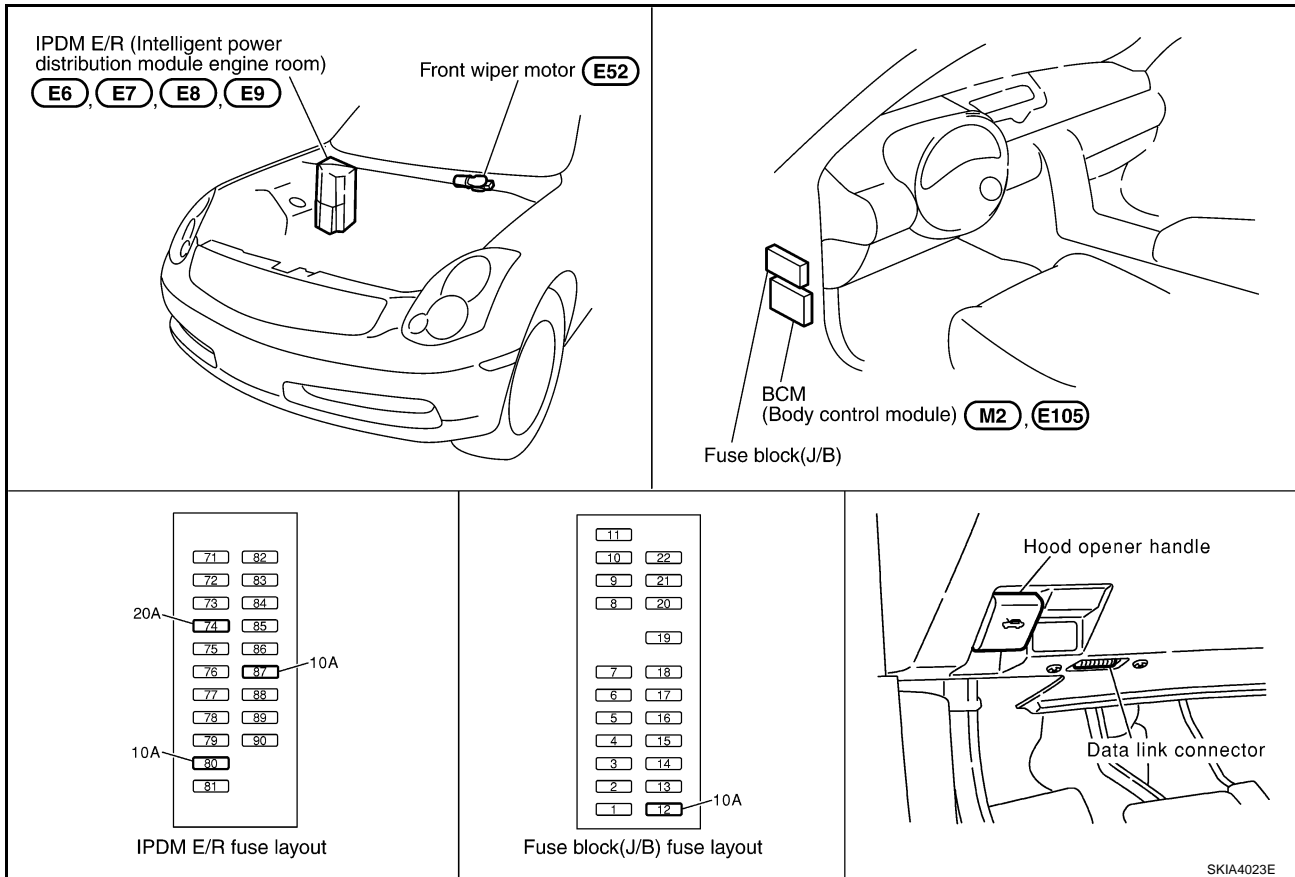
# FRONT WIPER AND WASHER SYSTEM

## FRONT WIPER AND WASHER SYSTEM

PFP:28810

### Components Parts and Harness Connector Location

AKS003DR



### System Description

AKS004BZ

- All front wiper relays (HI, LO) are included in IPDM E/R.
- 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 controls front wiper LO, HI, and INT (intermittent) operation.
- IPDM E/R operates wiper motor according to CAN communication signals from BCM.

Power is supplied at all times

- through 50 A fusible link (letter F, located in fusible link box.)
- to BCM (body control module) terminal 7,
- through 20 A fuse [No. 74 located in IPDM E/R (intelligent power distribution module engine room)]
- to front wiper relay [built in IPDM E/R (intelligent power distribution module engine room)]
- through 15 A fuse [No. 73 located in IPDM E/R (intelligent power distribution module engine room)]
- to CPU (central processing unit) in the IPDM E/R (intelligent power distribution module engine room).

When the 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 35 and,
- through 10 A fuse [No. 80, located in IPDM E/R (intelligent power distribution module engine room)]
- to front wiper relay [built in IPDM E/R (intelligent power distribution module engine room)] and
- to front wiper high relay [built in IPDM E/R (intelligent power distribution module engine room)]
- through 10 A fuse [No. 87 located in IPDM E/R (intelligent power distribution module engine room)]
- through IPDM E/R (intelligent power distribution module engine room) terminal 18
- to front washer motor terminal 2.

# FRONT WIPER AND WASHER SYSTEM

Ground is supplied

- to BCM (body control module) terminal 8
- through grounds E17 and E43
- to IPDM E/R (intelligent power distribution module engine room) terminals 14 and 45
- through grounds E17 and E43
- to combination switch (wiper switch) terminal 12
- through grounds M30 and M66.

## LOW SPEED WIPER OPERATION

When front wiper switch is in LO position, BCM detects the LO position of the front wiper switch by BCM wiper switch reading function.

BCM sent front wiper request signal (LO) to IPDM E/R by CAN communication line

- from BCM terminals 70 and 71
- to IPDM E/R terminals 48 and 49.

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

- to front wiper motor terminal 3
- through IPDM E/R terminal 31 and front wiper relay and front wiper high relay.

Ground is supplied

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

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

## HI SPEED WIPER OPERATION

When front wiper switch is in HI position, BCM detects the HI position of the front wiper switch by BCM wiper switch reading function.

BCM sent front wiper request signal (HI) to IPDM E/R by CAN communication line

- from BCM terminals 70 and 71
- to IPDM E/R terminals 48 and 49.

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

- to front wiper motor terminal 2
- through IPDM E/R terminal 30 and front wiper relay and front wiper high relay.

Ground is supplied

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

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

## INTERMITTENT OPERATION

The front wiper motor operates the wiper arms one time at low speed at a set interval of wiper volume switch and vehicle speeds, this feature is controlled by the BCM and IPDM E/R.

When front wiper switch is in INT position BCM detects INT position of the front wiper switch by BCM wiper switch reading function. BCM performs the following operations

- When BCM detects ON/OFF status of intermittent operation dial positions 1, 2, and 3 it determines wiper dial position status. Refer to [WW-9, "Wiper Dial Position Setting"](#).
- BCM calculates operation interval from wiper dial position and vehicle speed signal received from combination meter with CAN communications.
- BCM sends front wiper request signal (INT) to IPDM E/R at calculated operation interval.
- When IPDM E/R receives front wiper request signal (INT), it turns ON internal front wiper relay. It then sends auto stop signal to BCM, and conducts intermittent front wiper motor operation.

With power is and ground supplied circuit routed, front wiper operates at intermittent.

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

WW

# FRONT WIPER AND WASHER SYSTEM

---

## 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, power is provided

- from IPDM E/R terminal 31
- to front wiper motor terminal 3, in order to continue wiper motor operation at low speed.

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

- to IPDM E/R terminal 38
- through front wiper motor terminal 1
- through front wiper motor terminal 4
- through ground E17 and E43.

Then the 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 the STOP position.

## WASHER OPERATION

When wiper switch is in front wiper washer position, BCM detects front wiper washer signal by BCM wiper switch reading function (Refer to [WW-7, "BCM WIPER SWITCH READING FUNCTION"](#) ), combination switch (wiper switch) ground is supplied

- 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 is 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 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-5, "LOW SPEED WIPER OPERATION"](#) .

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

## FAIL-SAFE FUNCTION

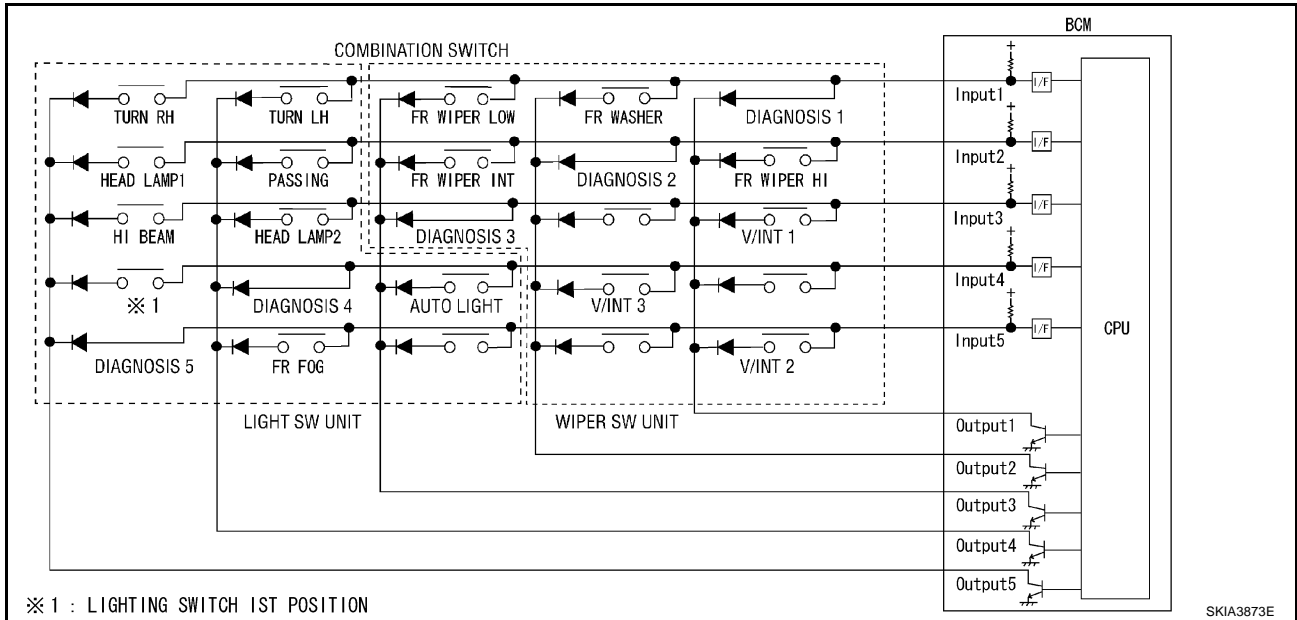
IPDM E/R includes a fail-safe function to prevent malfunction of electrical components controlled by CAN communications in CAN communications occurs.

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

# FRONT WIPER AND WASHER SYSTEM

## BCM WIPER SWITCH READING FUNCTION

BCM reads combination switch (wiper switch) status, and controls front wipers based on the results. BCM is a combination of 5 output terminals (OUTPUT 1 - 5) and 5 input terminals (INPUT 1 - 5). It reads 20 types of switch data and 5 types of diagnosis data.



## OPERATION DESCRIPTION

BCM continuously outputs power voltage from input terminals (INPUT 1 - 5). At this time, output terminals (OUTPUT 1 - 5) operate transistors in sequence and carry current. If any switch (or switches) becomes ON at this time, the input terminal corresponding to that switch detects current flowing, and BCM determines that the switch is ON.

## TABLE OF BCM - COMBINATION SWITCH OPERATIONS

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

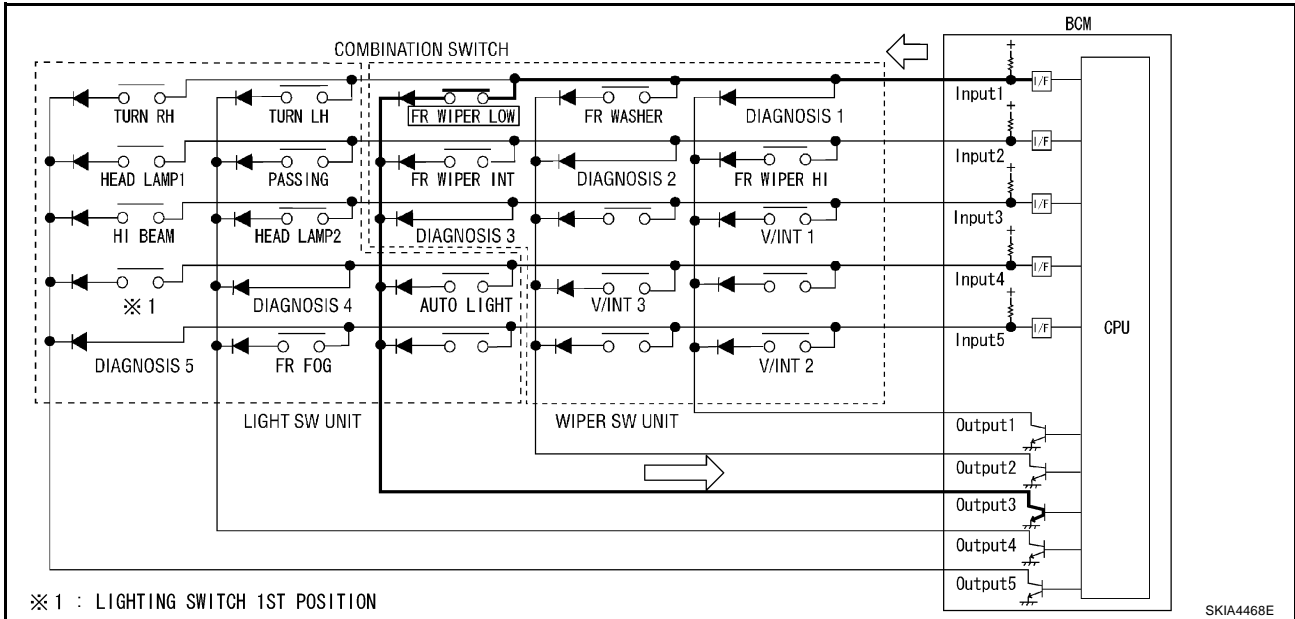
	COMB SW INPUT 1		COMB SW INPUT 2		COMB SW INPUT 3		COMB SW INPUT 4		COMB SW INPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
COMB SW OUTPUT 1	DIAGNOSIS 1 OK	DIAGNOSIS 1 NG	FR WIPER HI ON	FR WIPER HI OFF	V/INT 1 ON	V/INT 1 OFF	—	—	V/INT 2 ON	V/INT 2 OFF
COMB SW OUTPUT 2	FR WASHER ON	FR WASHER OFF	DIAGNOSIS 2 OK	DIAGNOSIS 2 NG	—	—	V/INT 3 ON	V/INT 3 OFF	—	—
COMB SW OUTPUT 3	FR WIPER LOW ON	FR WIPER LOW OFF	FR WIPER INT ON	FR WIPER INT OFF	DIAGNOSIS 3 OK	DIAGNOSIS 3 NG	AUTO LIGHT ON	AUTO LIGHT OFF	—	—
COMB SW OUTPUT 4	TURN LH ON	TURN LH OFF	PASSING ON	PASSING OFF	HEAD LAMP 2 ON	HEAD LAMP 2 OFF	DIAGNOSIS 4 OK	DIAGNOSIS 4 NG	FR FOG ON	FR FOG OFF
COMB SW OUTPUT 5	TURN RH ON	TURN RH OFF	HEAD LAMP ON	HEAD LAMP OFF	HI BEAM ON	HI BEAM OFF	LIGHTING SWITCH 1ST POSITION ON	LIGHTING SWITCH 1ST POSITION OFF	DIAGNOSIS 5 OK	DIAGNOSIS 5 NG

SKIA2101E

# FRONT WIPER AND WASHER SYSTEM

## SAMPLE OPERATION: (WIPER SWITCH TURNED TO LO POSITION)

- When wiper switch is turned to LO position, front wiper LO contact inside combination switch becomes ON. At this time, OUTPUT 3 transistor operates and BCM detects flow of current at INPUT 1.
- When OUTPUT 3 transistor is ON and BCM detects current flowing at INPUT 1, BCM determines that wiper switch is at LO. BCM uses CAN communication and sends front wiper signals to IPDM E/R.
- When OUTPUT 3 transistor operates again and BCM again detects current flowing at INPUT 1, it confirms that front wiper LO operation is continuing.



### NOTE:

Each OUTPUT terminal transistor operates at 10 ms intervals. Therefore, a delay occurs between the switch becoming ON and operation of the electric load. However, this delay is so small it is undetectable.

## OPERATING MODES

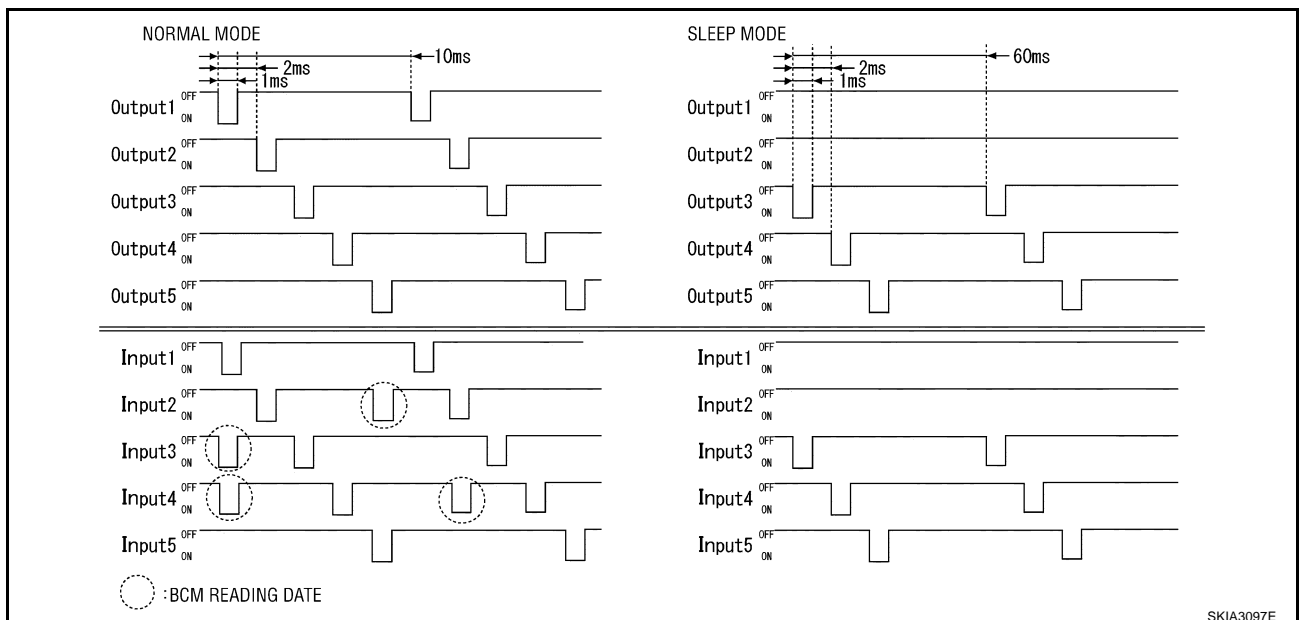
The following operation modes exist for combination switch reading function.

### Normal Status

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

### Sleep Status

When BCM is in sleep status, output from OUTPUT 1 and 2 transistors stops, with BCM entering a power-saving mode. OUTPUT (3 - 5) turns ON-OFF every 60 ms, and only input from lighting switch system is accepted.





# FRONT WIPER AND WASHER SYSTEM

## 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		Large	OFF	ON

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 (input 3 and output 1 are conducting.)
- Intermittent operation dial position 2: ON (input 5 and output 1 are conducting.)
- Intermittent operation dial position 3: ON (input 4 and output 2 are conducting.)

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.

## CAN Communication System Description

AKS005PS

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

AKS005PT

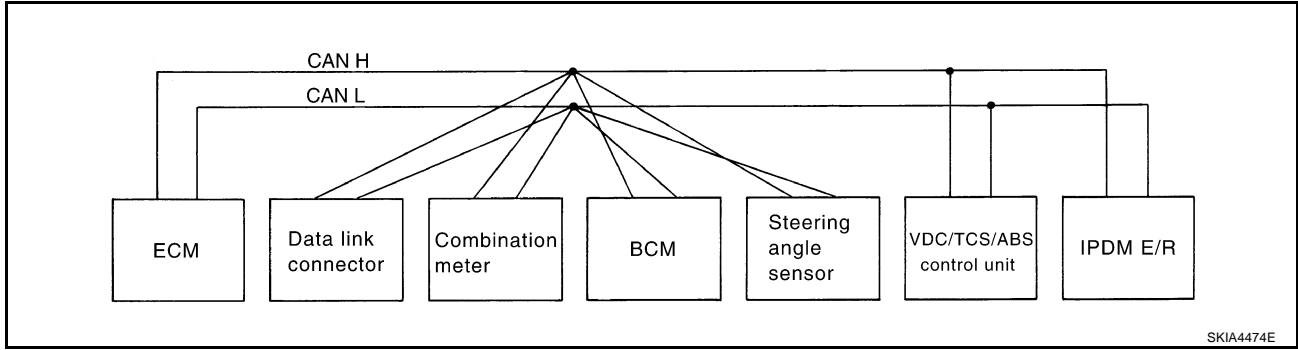
Body type	Coupe	
Axle	2WD	
Engine	VQ35DE	
Transmission	M/T	A/T
Brake control	VDC	
CAN communication unit		
ECM	×	×
TCM		×
Data link connector	×	×
Combination meter	×	×
BCM	×	×
Steering angle sensor	×	×
VDC/TCS/ABS control unit	×	×
IPDM E/R	×	×
CAN communication type	<a href="#">WW-10</a>	<a href="#">WW-11</a>

# FRONT WIPER AND WASHER SYSTEM

×: Applicable

## TYPE 1

### System diagram



SKIA4474E

### Input/output signal chart

T: Transmit R: Receive

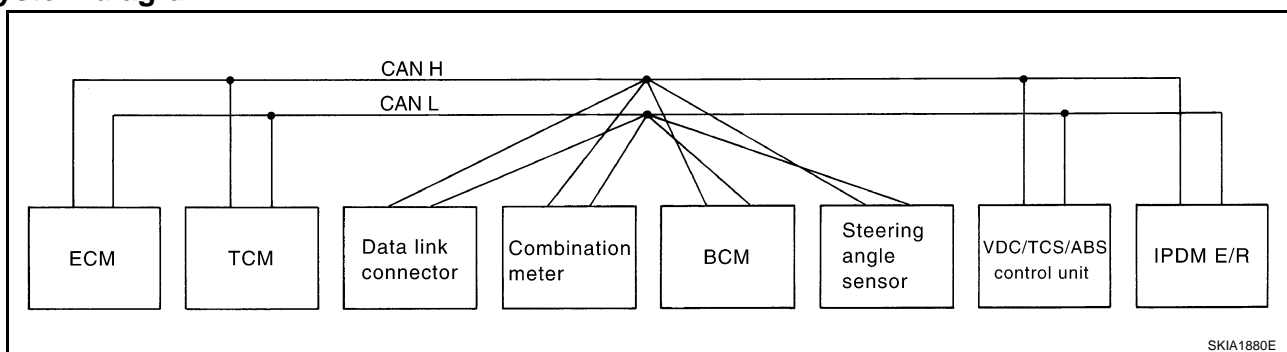
Signals	ECM	Combina- tion meter	BCM	Steering angle sen- sor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Engine speed signal	T	R			R	
Engine coolant temperature signal	T	R				
Accelerator pedal position signal	T				R	
Fuel consumption monitor signal	T	R				
Air conditioner switch signal	R		T			
A/C compressor request signal	T					R
A/C compressor feedback signal	T	R				
Blower fan motor switch signal	R		T			
Cooling fan motor operation signal	T					R
Position lights request signal		R	T			R
Low beam request signal			T			R
Low beam status signal	R		R			T
High beam request signal		R	T			R
High beam status signal	R		R			T
Front fog lights request signal			T			R
Vehicle speed signal		R			T	
	R	T	R			
Sleep request 1 signal		R	T			
Sleep request 2 signal			T			R
Wake up request 1 signal		R	T			
Wake up request 2 signal		R	T			
Door switch signal (without navigation system)		R	T			R
Door switch signal (with navigation system)		T	R			
Turn indicator signal		R	T			
Seat belt buckle switch signal		T	R			
Oil pressure switch signal		R				T
Buzzer output signal		R	T			
Trunk switch signal		R	T			
Malfunction indicator lamp signal	T	R				

# FRONT WIPER AND WASHER SYSTEM

Signals	ECM	Combina- tion meter	BCM	Steering angle sen- sor	VDC/TCS/ ABS con- trol unit	IPDM E/R
ASCD SET lamp signal	T	R				
ASCD CRUISE lamp signal	T	R				
Fuel level sensor signal	R	T				
Front wiper request signal			T			R
Front wiper stop position signal			R			T
Rear window defogger switch signal			T			R
Rear window defogger control signal	R		R			T
Hood switch signal			R			T
Theft warning horn request signal			T			R
Horn chirp signal			T			R
Steering angle sensor signal				T	R	

## TYPE 2

### System diagram



### Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	Combina- tion meter	BCM	Steering angle sensor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Engine speed signal	T	R	R			R	
Engine coolant temperature signal	T	R	R				
Accelerator pedal position signal	T	R				R	
Closed throttle position signal	T	R					
Wide open throttle position signal	T	R					
Battery voltage signal	T	R					
Stop lamp switch		R	T				
Fuel consumption monitor signal	T		R				
A/T self-diagnosis signal	R	T					
A/T CHECK indicator lamp signal		T	R				
A/T position indicator signal		T	R			R	
ABS operation signal		R				T	
A/T shift schedule change demand signal		R				T	
Air conditioner switch signal	R			T			
A/C compressor request signal	T						R
A/C compressor feedback signal	T		R				

## FRONT WIPER AND WASHER SYSTEM

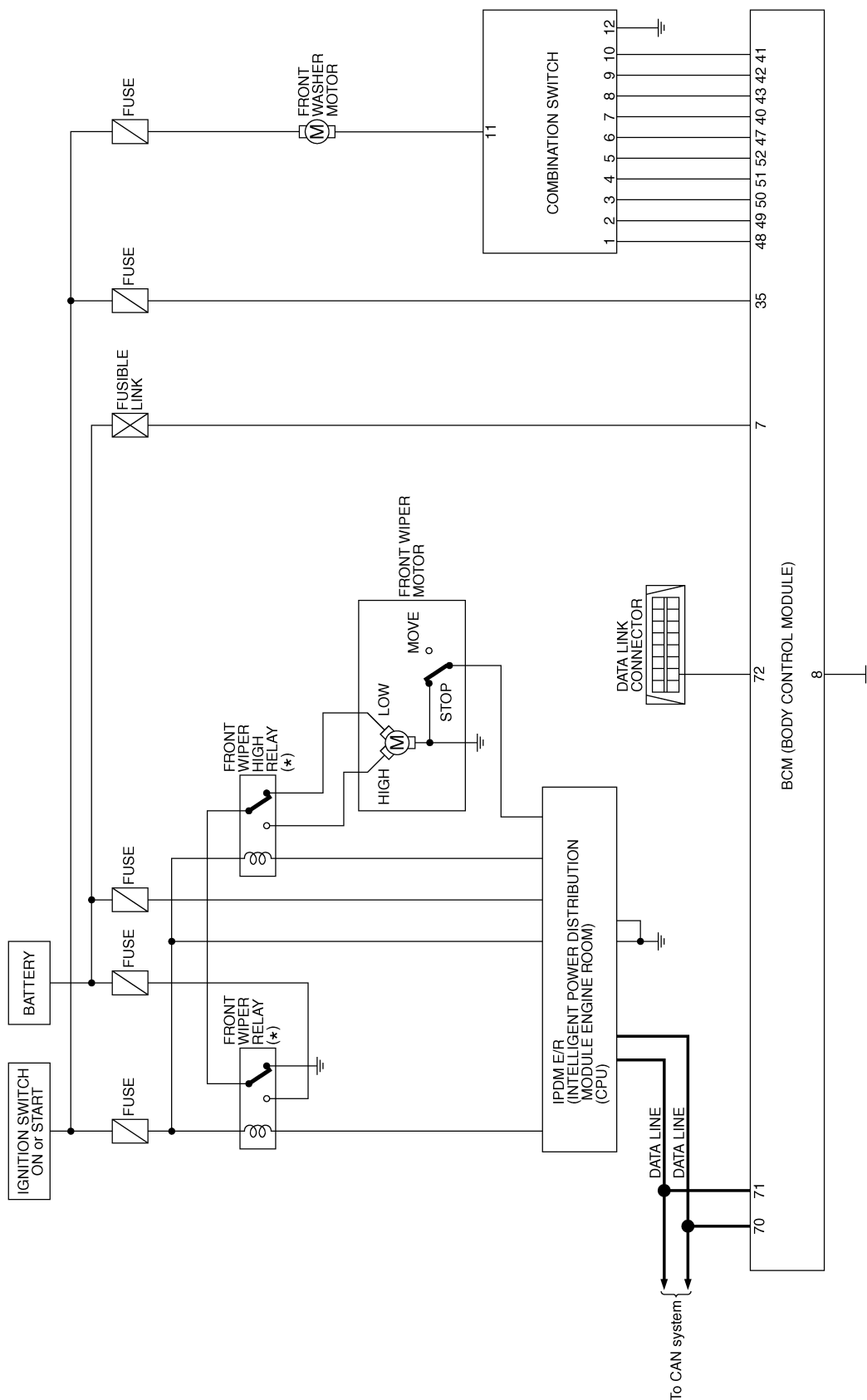
Signals	ECM	TCM	Combina- tion meter	BCM	Steering angle sensor	VDC/TCS/ ABS con- trol unit	IPDM E/R
Blower fan motor switch signal	R			T			
Cooling fan motor operation signal	T						R
Position lights request signal			R	T			R
Low beam request signal				T			R
Low beam status signal	R			R			T
High beam request signal			R	T			R
High beam status signal	R			R			T
Front fog lights request signal				T			R
Vehicle speed signal			R			T	
	R	R	T	R			
Sleep request 1 signal			R	T			
Sleep request 2 signal				T			R
Wake up request 1 signal			R	T			
Wake up request 2 signal			R	T			
Door switch signal (without naviga- tion system)			R	T			R
Door switch signal (with navigation system)			T	R			
Turn indicator signal			R	T			
Seat belt buckle switch signal			T	R			
Oil pressure switch signal			R				T
Buzzer output signal			R	T			
Trunk switch signal			R	T			
Malfunction indicator lamp signal	T		R				
ASCD SET lamp signal	T		R				
ASCD CRUISE lamp signal	T		R				
Fuel level sensor signal	R		T				
Output shaft revolution signal	R	T					
Turbine revolution signal	R	T					
Front wiper request signal				T			R
Front wiper stop position signal				R			T
Rear window defogger switch signal				T			R
Rear window defogger control sig- nal	R			R			T
Manual mode signal		R	T				
Not manual mode signal		R	T				
Manual mode shift up signal		R	T				
Manual mode shift down signal		R	T				
Manual mode indicator signal		T	R				
Hood switch signal				R			T
Theft warning horn request signal				T			R
Horn chirp signal				T			R
Steering angle sensor signal					T	R	

# FRONT WIPER AND WASHER SYSTEM

## Schematic

AKS003DU

\* : 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

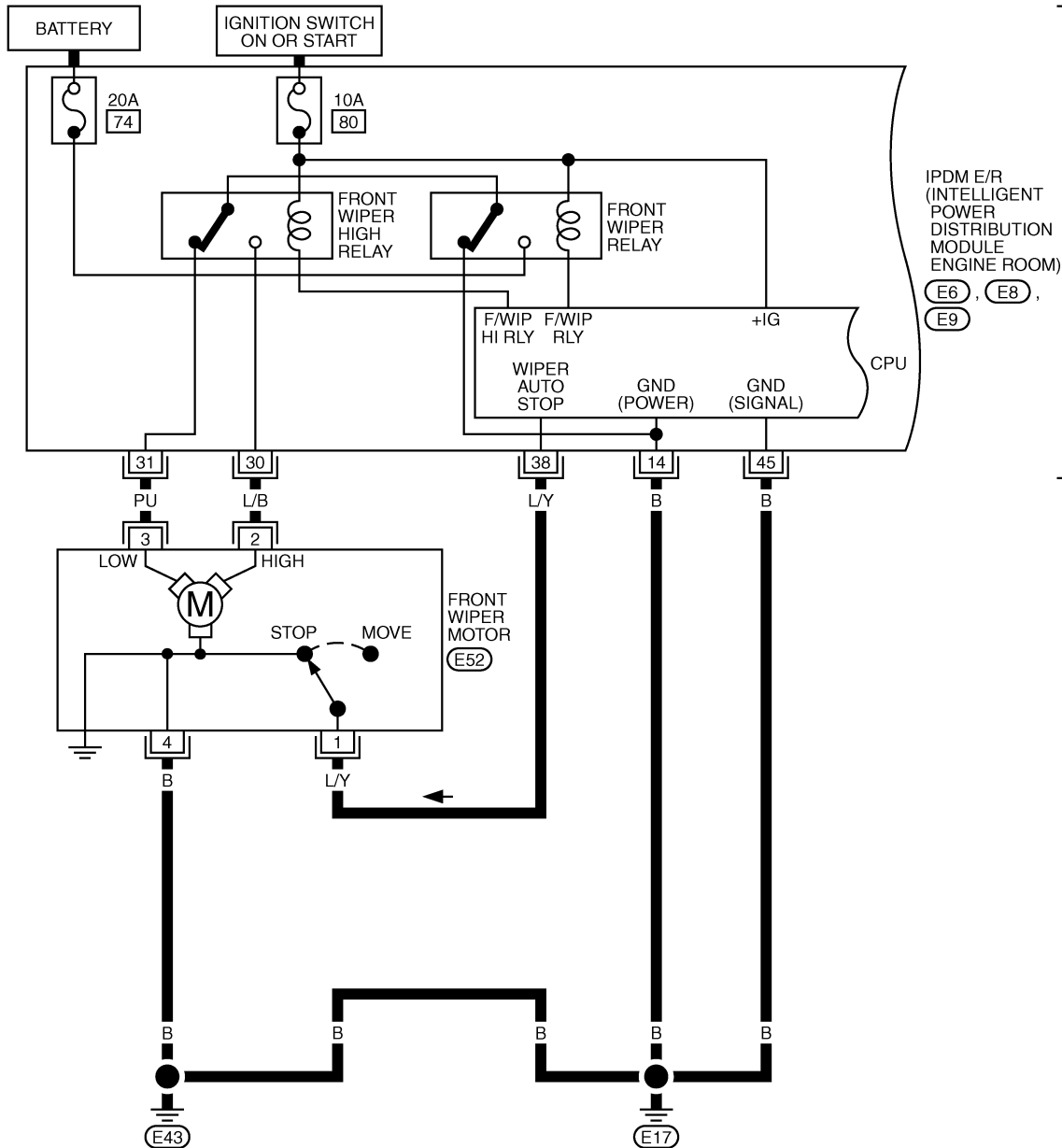
TKWT0396E

# FRONT WIPER AND WASHER SYSTEM

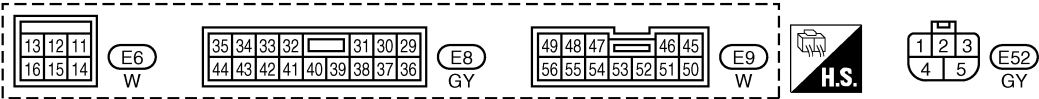
AKS003DV

## Wiring Diagram — WIPER —

WW-WIPER-01



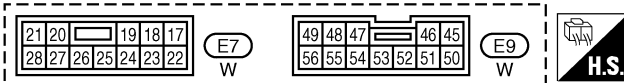
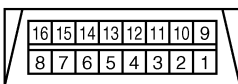
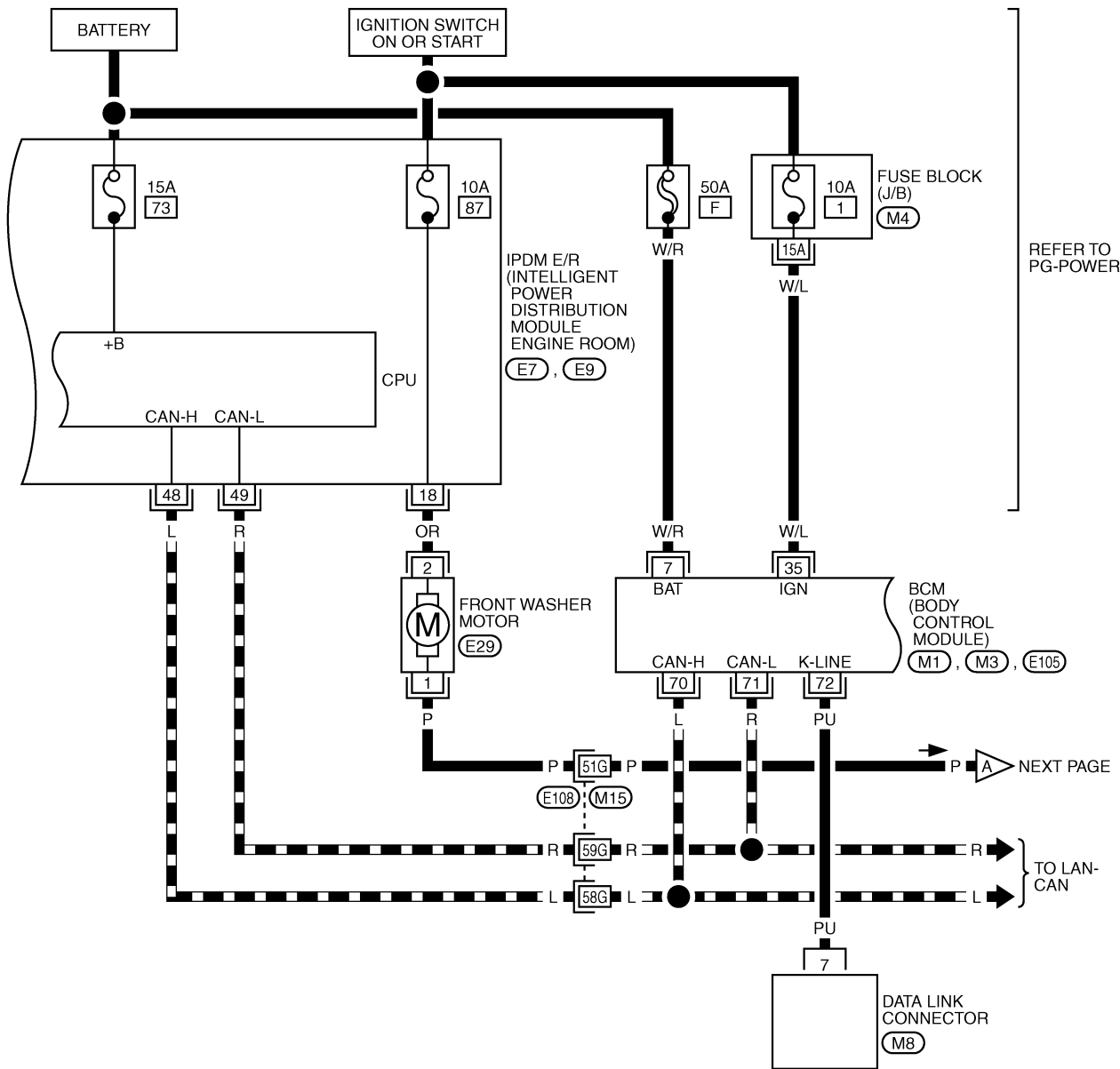
IPDM E/R  
(INTELLIGENT  
POWER  
DISTRIBUTION  
MODULE  
ENGINE ROOM)  
REFER TO  
PG-POWER.  
E6, E8,  
E9



# FRONT WIPER AND WASHER SYSTEM

WW-WIPER-02

DATA LINE



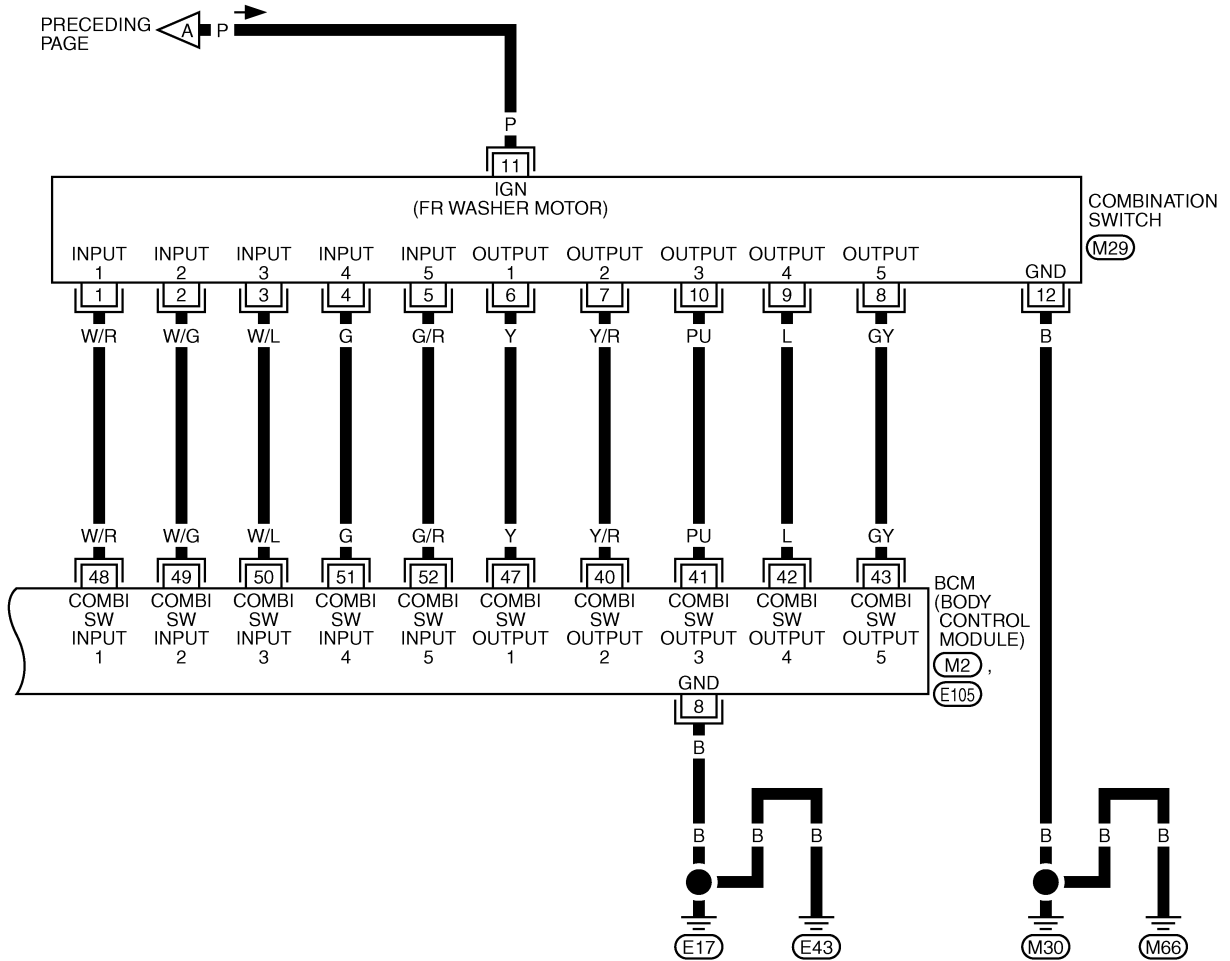
REFER TO THE FOLLOWING.

- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M3), (E105) -ELECTRICAL UNITS

TKWT0565E

# 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.  
 (M2), (E105) -ELECTRICAL  
 UNITS

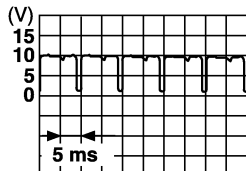
TKWT0566E



# FRONT WIPER AND WASHER SYSTEM

## Terminals and Reference Values for BCM

AKS004C0

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
7	W/R	Battery power supply	OFF	—	Battery voltage
8	B	Ground	ON	—	Approx. 0V
35	W/L	Ignition switch (ON)	ON	—	Battery voltage
40	Y/R	Combination switch output 2	ON	Lighting switch and wiper switch OFF	
41	PU	Combination switch output 3			
42	L	Combination switch output 4			
43	GY	Combination switch output 5			
47	Y	Combination switch output 1			
48	W/R	Combination switch input 1	ON	Lighting switch and wiper switch OFF	4.5V or more
49	W/G	Combination switch input 2	ON		
50	W/L	Combination switch input 3	ON		
51	G	Combination switch input 4	ON		
52	G/R	Combination switch input 5	ON		
70	L	CAN- H	—	—	—
71	R	CAN- L	—	—	—
72	PU	K-LINE	—	—	—

SKIA1119J

## Terminals and Reference Values for IPDM E/R

AKS004C1

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
14	B	Ground	ON	—	Approx. 0V	
18	OR	Washer motor power supply	ON	—	Battery voltage	
30	L/B	High speed signal	ON	Wiper switch	OFF	Approx. 0V
					HI	Battery voltage
31	PU	Low speed signal	ON	Wiper switch	OFF	Approx. 0V
						LO
38	L/Y	Wiper auto- stop signal	ON	Wiper operating		Battery voltage
				Wiper stopped		Approx. 0V
45	B	Ground	ON	—	Approx. 0V	
48	L	CAN- H	—	—	—	
49	R	CAN- L	—	—	—	

## How to Proceed With Trouble Diagnosis

AKS003DY

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-4, "System Description"](#) .
3. Carry out the Preliminary Check. Refer to [WW-18, "Preliminary Inspection"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the warning chime operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. Inspection end.

# FRONT WIPER AND WASHER SYSTEM

AKS003DZ

## Preliminary Inspection

### CHECK POWER SUPPLY AND GROUND CIRCUIT

Inspection Procedure

#### 1. CHECK FUSE

- Check if wiper and washer fuse is blown.

Unit	Power source	Fuse No.
Front washer motor	Ignition ON or START	87
Front wiper motor, front wiper relay, front wiper high relay	Battery	74
Front wiper relay, front wiper high relay	Ignition ON or START	80

Refer to [WW-14, "Wiring Diagram — WIPER —"](#)

OK or NG

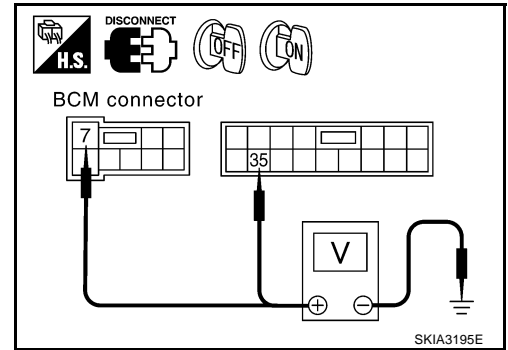
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to [PG-4, "POWER SUPPLY ROUTING CIRCUIT"](#).

#### 2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector.
2. Check voltage between BCM connector and ground.

Terminals		(-)	Ignition switch position	
(+) Connector			OFF	ON
E105	7 (W/R)	Ground	Battery voltage	Battery voltage
M1	35 (W/L)		0V	Battery voltage



OK or NG

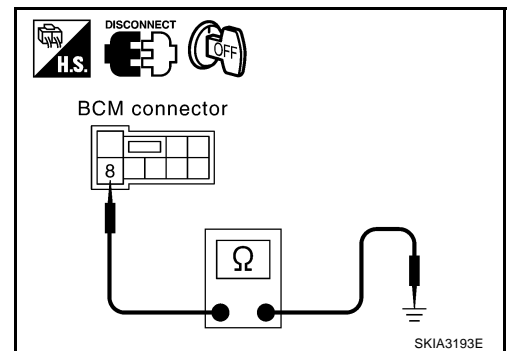
OK >> GO TO 3.

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

#### 3. CHECK GROUND CIRCUIT

Check continuity between BCM and ground.

Terminals		(-)	Continuity
(+) Connector			
E105	8 (B)	Ground	Yes



OK or NG

OK >> INSPECTION END

NG >> Check harness ground circuit.

# FRONT WIPER AND WASHER SYSTEM

## CONSULT-II Functions

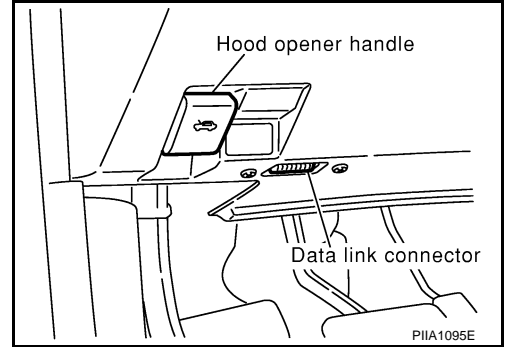
AKS003E0

CONSULT-II performs the following functions communicating with BCM.

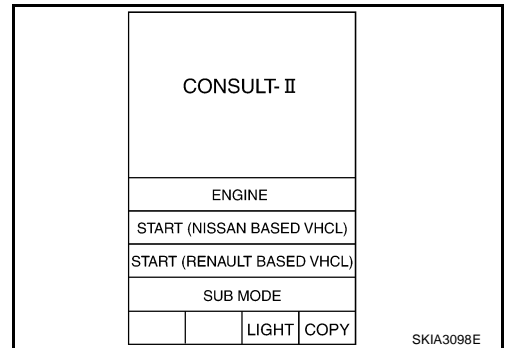
BCM diagnosis position	Check item, Diagnosis mode	Description
Wiper	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Device operation can be checked by applying a drive signal to device.
BCM C/U	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be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

## CONSULT-II OPERATION

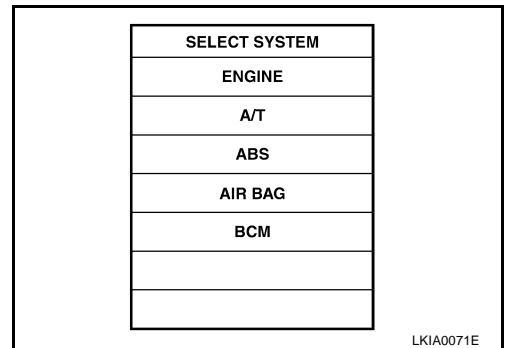
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



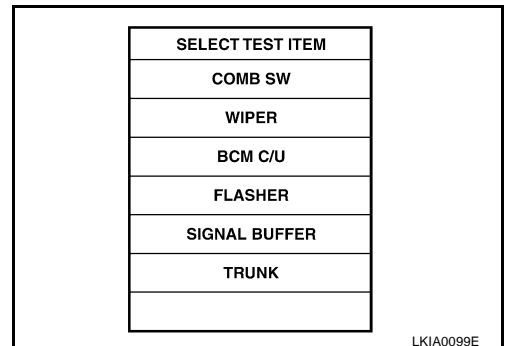
2. Touch "START (NISSAN BASED VHCL)".



3. Touch "BCM" on "SELECT SYSTEM" screen. If "BCM" is not indicated, go to [GI-39, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



4. Touch "WIPER".



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

# FRONT WIPER AND WASHER SYSTEM

## 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	Monitors all the items.
Selection from menu	Selects and monitors the individual item selected.

4. Touch "START".
5. When "SELECTION FROM MENU" is selected, touch items to be monitored. When "ALL SIGNALS" is selected, all the items will be monitored.
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 name "operation or unit"	Contents
IGN ON SW "ON/OFF"	Displays "IGN Position (ON)/OFF, ACC Position (OFF)" status as judged from ignition switch signal.
FR WIPER INT "ON/OFF"	Displays "Front Wiper INT (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 HI "ON/OFF"	Displays "Front Wiper HI (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.
VHCL SPEED SEN "ON/OFF"	Displays "Driving (ON)/Stopped (OFF)" status as judged from vehicle speed signal.
FR WIPER STOP "ON/OFF"	Displays "Stopped (ON)/Operating (OFF)" status as judged from the auto-stop signal.

## ACTIVE TEST

### Operation Procedure

1. Touch "WIPERS" on the "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on the "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 HI output	FR WIPER (HI)	Front wiper HI can be operated by any ON-OFF operation.
Front wiper LO output	FR WIPER (LOW)	Front wiper LO can be operated by any ON-OFF operation.
Front wiper INT output	FR WIPER (INT)	Front wiper INT can be operated by any ON-OFF operation.

## Front Wiper Does Not Operate

AKS003E1

### 1. INSPECTION: IPDM E/R AND FRONT WIPER MOTOR

1. Select "FR WIPER (HI)" or "FR WIPER (LOW)" during active test. Refer to [WW-20, "ACTIVE TEST"](#).
2. Make user front wiper operation.

#### OK or NG

- OK >> GO TO 5.  
NG >> GO TO 2.

# FRONT WIPER AND WASHER SYSTEM

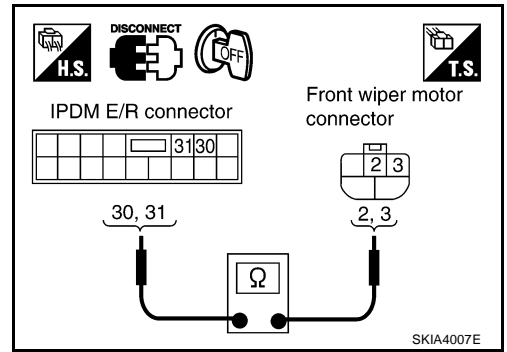
## 2. INSPECTION: IPDM E/R AND FRONT WIPER MOTOR

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

Terminals				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E8	30 (L/B)	E52	2 (L/B)	Yes
	31 (PU)		3 (PU)	

OK or NG

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



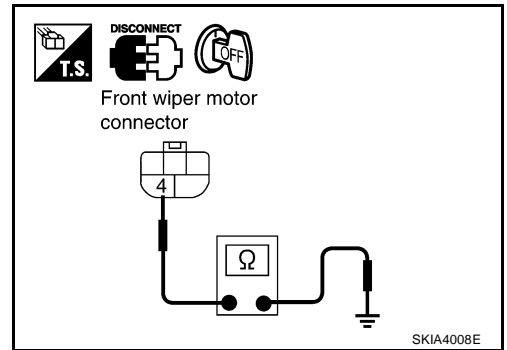
## 3. INSPECTION: FRONT WIPER MOTOR AND GROUND

1. Check continuity between harness connector of front wiper motor and ground.

Terminals			Continuity
Front wiper motor		Ground	
Connector	Terminal (Wire color)		
E52	4 (B)		Yes

OK or NG

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



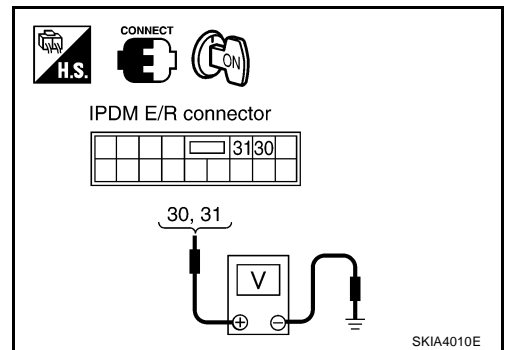
## 4. IPDM E/R INSPECTION

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "FR WIPER (HI)" or "FR WIPER (LOW)" during active test. Refer to [WW-20, "ACTIVE TEST"](#). When front wiper relay, and front wiper HI relay are operating, check voltage between harness connector of IPDM E/R and ground.

Terminals				Voltage
IPDM E/R		Condition	Ground	
Connector	Terminal (Wire color)			
E8	30 (L/B)	Stopped	Ground	Approx. 0V
		HI operation		Battery voltage
	31 (PU)	Stopped		Approx. 0V
		LO operation		Battery voltage

OK or NG

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



# FRONT WIPER AND WASHER SYSTEM

## 5. INSPECTION: COMBINATION SWITCH TO BCM (1)

Select "BCM" on CONSULT-II. Carry out self-diagnosis of "BCM C/U".

### Displayed self-diagnosis results

No malfunction detected>>GO TO 6.

CAN communications or CAN system>>Inspect the BCM CAN communications system. Refer to [BCS-17, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

OPEN DETECT 1 - 5>>Combination switch system malfunction. Refer to [LT-128, "Combination Switch Inspection According to Self-Diagnostic Results"](#).

SELF-DIAG RESULTS	
DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	

LKIA0073E

## 6. INSPECTION: COMBINATION SWITCH TO BCM (2)

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "FR WIPER (INT)", "FR WIPER (LOW)" and "FR WIPER (HI)" turn ON-OFF according to operation of wiper switch.

### OK or NG

OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).

NG >> Replace wiper switch.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

LKIA0102E

## Front Wiper Stop Position Is Incorrect

### 1. INSPECTION: IPDM E/R TO FRONT WIPER MOTOR

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "FR WIPER STOP" turns ON-OFF according to wiper operation.

### OK or NG

OK >> Replace IPDM E/R.

NG >> GO TO 2.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

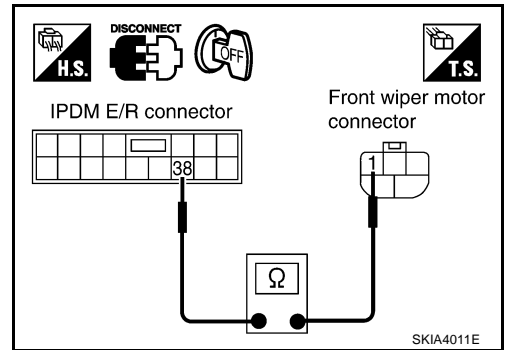
LKIA0102E

# FRONT WIPER AND WASHER SYSTEM

## 2. INSPECTION: IPDM E/R AND FRONT WIPER MOTOR

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

Terminals				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E8	38 (L/Y)	E52	1 (L/Y)	Yes



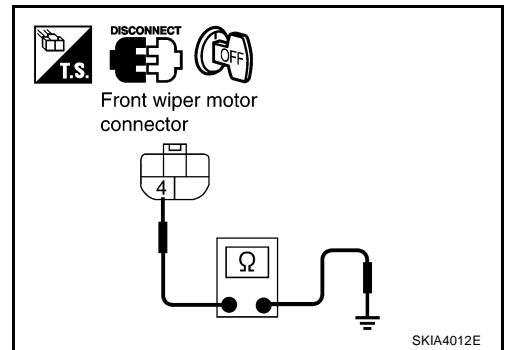
OK or NG

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

## 3. INSPECTION: FRONT WIPER MOTOR AND GROUND

Check continuity between harness connector of front wiper motor and ground.

Terminals			Continuity
Front wiper motor		Ground	
Connector	Terminal (Wire color)		
E52	4 (B)		Yes



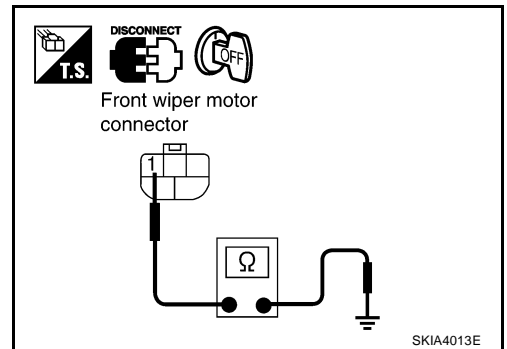
OK or NG

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

## 4. INSPECTION: FRONT WIPER MOTOR AND GROUND (SHORT CIRCUIT)

Check continuity between harness connector of front wiper motor and ground.

Terminals			Continuity
IPDM E/R		Ground	
Connector	Terminal (Wire color)		
E52	1 (L/Y)		No



OK or NG

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

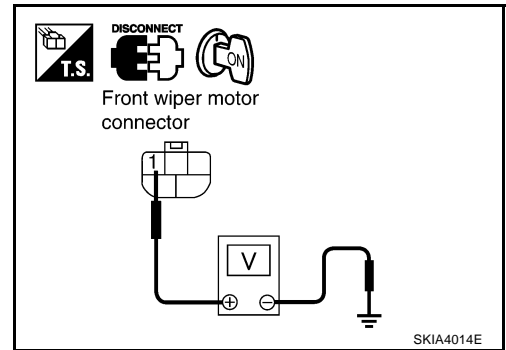
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
L  
M

WW

# FRONT WIPER AND WASHER SYSTEM

## 5. CHECK IPDM E/R

1. Connect IPDM E/R connector.
2. Turn ignition switch ON.
3. Check voltage between harness connector of front wiper motor and ground.



Terminals				Voltage
Front wiper motor		Ground		
Connector	Terminal (Wire color)			
E52	1 (L/Y)			Battery voltage

### OK or NG

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

## Only Front Wiper Low Does Not Operate

AKS004C2

### 1. INSPECTION: IPDM E/R TO FRONT WIPER MOTOR(1)

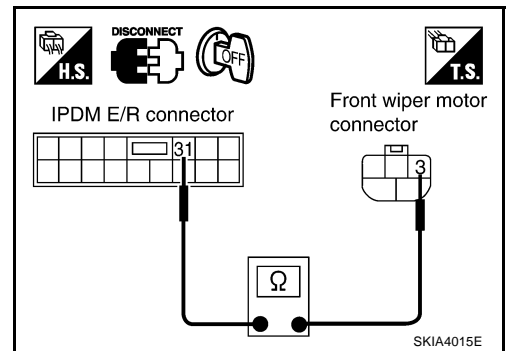
1. Select "FR WIPER (LOW)" during active test. Refer to [WW-20, "ACTIVE TEST"](#).
2. Make sure front wipers operate in LOW operation mode.

### OK or NG

- OK >> GO TO 4.  
 NG >> GO TO 2.

### 2. INSPECTION: IPDM E/R TO FRONT WIPER MOTOR (2)

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



Terminals				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E8	31 (PU)	E52	3 (PU)	Yes

### OK or NG

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



# FRONT WIPER AND WASHER SYSTEM

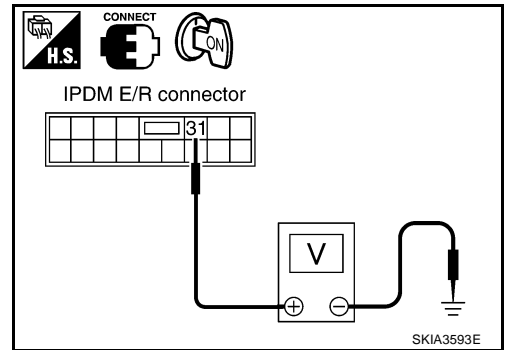
## 3. CHECK IPDM E/R

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "FR WIPER (LOW)" during active test. Refer to [WW-20, "ACTIVE TEST"](#). When front wiper relay are operating, check voltage between harness connector of IPDM E/R and ground.

Terminals			Condition	Voltage
IPDM E/R		Ground		
Connector	Terminal (Wire color)			
E8	31 (PU)		Stopped	Approx. 0V
			LOW operation	Battery voltage

OK or NG

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



## 4. INSPECTION: COMBINATION SWITCH TO BCM (1)

Select "BCM" on CONSULT-II. Carry out self-diagnosis of "BCM C/ U".

Displayed self-diagnosis results

- No malfunction detected>>GO TO 5.
- CAN communications or CAN system>>Inspect the BCM CAN communications system. Refer to [BCS-17, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).
- OPEN DETECT 1 - 5>>Combination switch system malfunction. Refer to [LT-128, "Combination Switch Inspection According to Self-Diagnostic Results"](#).

SELF-DIAG RESULTS	
DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	

## 5. INSPECTION: COMBINATION SWITCH TO BCM

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "FR WIPER (LOW)" turns ON-OFF according to operation of wiper switch.

OK or NG

- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

## Only Front Wiper Hi Does Not Operate

### 1. INSPECTION: IPDM E/R TO FRONT WIPERS (1)

1. Select "FR WIPER (HI)" during active test. Refer to [WW-20, "ACTIVE TEST"](#).
2. Make sure front wipers operate in HI operation mode.

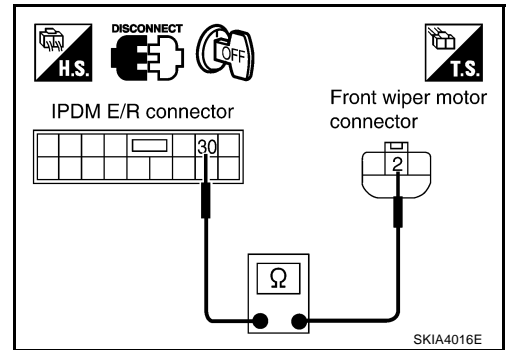
OK or NG

- OK >> GO TO 4.
- NG >> GO TO 2.

# FRONT WIPER AND WASHER SYSTEM

## 2. INSPECTION: IPDM E/R TO FRONT WIPERS (2)

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



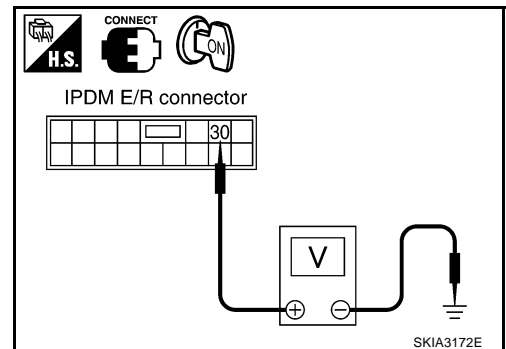
Terminals				Continuity
IPDM E/R		Front wiper motor		
Connector	Terminal (Wire color)	Connector	Terminal (Wire color)	
E8	30 (L/B)	E52	2 (L/B)	Yes

OK or NG

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

## 3. IPDM E/R INSPECTION

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "FR WIPER (HI)" during active test. Refer to [WW-20. "ACTIVE TEST"](#). When front wiper relay, and front wiper high relay are operating, check voltage between harness connector of IPDM E/R and ground.



Terminals				Voltage
IPDM E/R		Ground	Condition	
Connector	Terminal (Wire color)			
E8	30 (L/B)		Stopped	Approx. 0V
			HI operation	Battery voltage

OK or NG

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

## 4. INSPECTION: COMBINATION SWITCH TO BCM (1)

Select "BCM" on CONSULT-II. Carry out self-diagnosis of "BCM C/U".

Displayed self-diagnosis results

- No malfunction detected>>GO TO 5.  
 CAN communications or CAN system>>Inspect the BCM CAN communications system. Refer to [BCS-17. "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).  
 OPEN DETECT 1 - 5>>Combination switch system malfunction. Refer to [LT-128. "Combination Switch Inspection According to Self-Diagnostic Results"](#).

SELF-DIAG RESULTS	
DTC RESULTS	TIME
NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	

LKIA0073E

# FRONT WIPER AND WASHER SYSTEM

## 5. INSPECTION: COMBINATION SWITCH TO BCM

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "FR WIPER (HI)" turns ON-OFF according to operation of wiper switch.

### OK or NG

- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

LKIA0102E

## Only Front Wiper Intermittent Does Not Operate

### 1. INSPECTION: COMBINATION SWITCH TO BCM

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "FR WIPER (INT)" turns ON-OFF according to operation of wiper switch.

### OK or NG

- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

LKIA0102E

## Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

### 1. INSPECTION: COMBINATION SWITCH TO BCM

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

### OK or NG

- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

LKIA0102E

## Wipers Do Not Wipe When Front Washer Operates

### 1. INSPECTION: COMBINATION SWITCH TO BCM

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

### OK or NG

- OK >> Replace BCM. Refer to [BCS-20, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch.

DATA MONITOR	
MONITOR	
IGN ON SW	ON
FR WIPER INT	OFF
FR WIPER LOW	OFF
FR WIPER HI	OFF
FR WASHER SW	OFF
INT VOLUME	5
VHCL SPEED SEN	OFF
FR WIPER STOP	ON

LKIA0102E

# FRONT WIPER AND WASHER SYSTEM

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

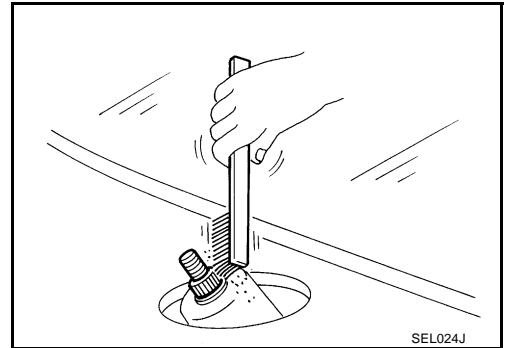
AKS005T2

### REMOVAL

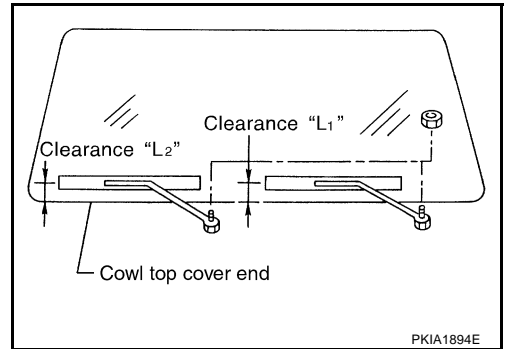
1. Operate wiper motor, and stop it at the auto stop position.
2. Remove washer tube from washer tube joint.
3. Remove wiper arm mounting nuts and wiper arm from vehicle.

### 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" : 56.5 - 71.5 mm (2.22 - 2.82 in)**

**Clearance "L2" : 25 - 38 mm (0.98 - 1.50 in)**

- Tighten wiper arm nuts to specified torque.

**Front wiper arm nuts**  : **20.6 - 26.5 N-m**  
(2.1 - 2.7 kg-m, 16 - 19 ft-lb)

### CAUTION:

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

### ADJUSTMENT

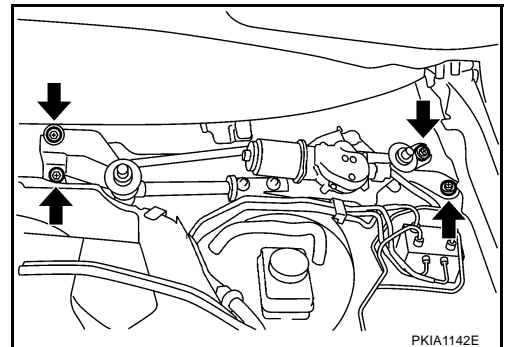
Refer to [WW-28, "INSTALLATION"](#)

## Removal and Installation of Front Wiper Motor Assembly

AKS003E9

### REMOVAL

1. Remove wiper arm. Refer to [WW-28, "REMOVAL"](#).
2. Remove cowl top cover. Refer to [EI-20, "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 the 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-20, "COWL TOP"](#) in "EI" section.
5. Install wiper arms. Refer to [WW-28, "Removal and Installation for Front Wiper Arms, Adjustment for Wiper Arms Stop Location"](#)
6. Attach wiper arm washer tube.

### Wiper motor assembly bolts

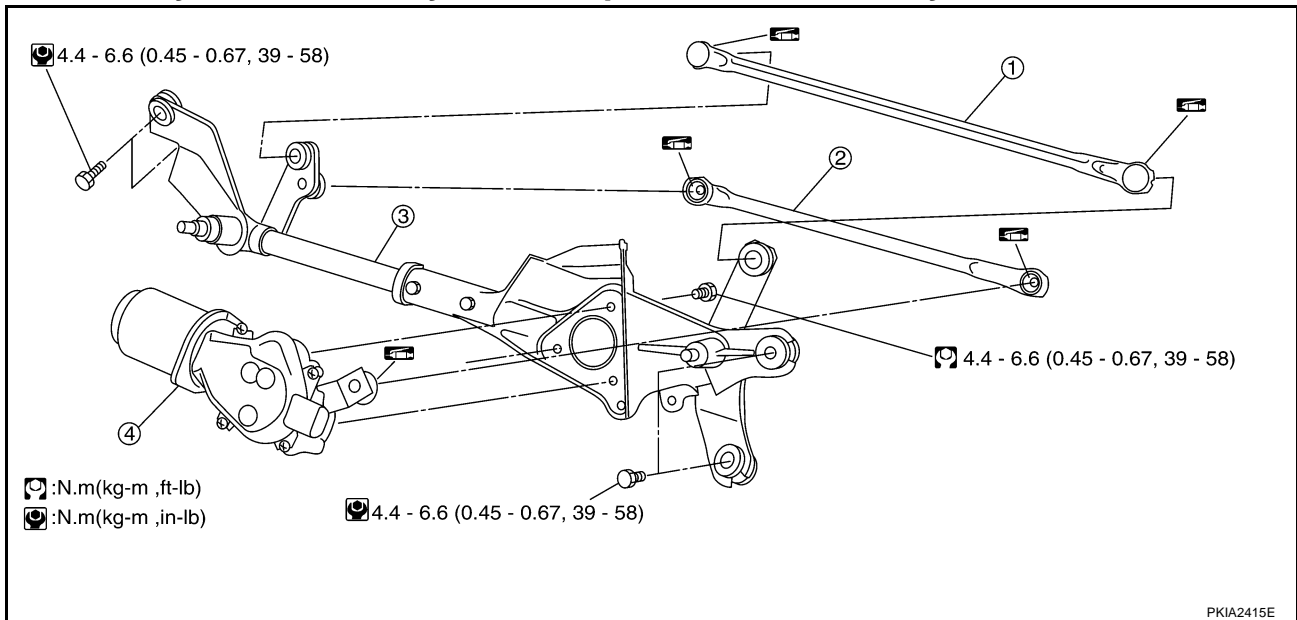
: 4.4 - 6.6 N·m (0.45 - 0.67 kg·m, 39 - 58 in·lb)

### CAUTION:

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

## Disassembly and Assembly Front Wiper Motor Assembly.

AKS003EA



1. Wiper link
4. Wiper motor

2. Wiper link

3. Wiper frame

## DISASSEMBLY

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

## ASSEMBLY

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

### Wiper motor bolts:

4.4 - 6.6 N·m (0.45 - 0.67 kg·m, 39 - 58 in·lb)

# FRONT WIPER AND WASHER SYSTEM

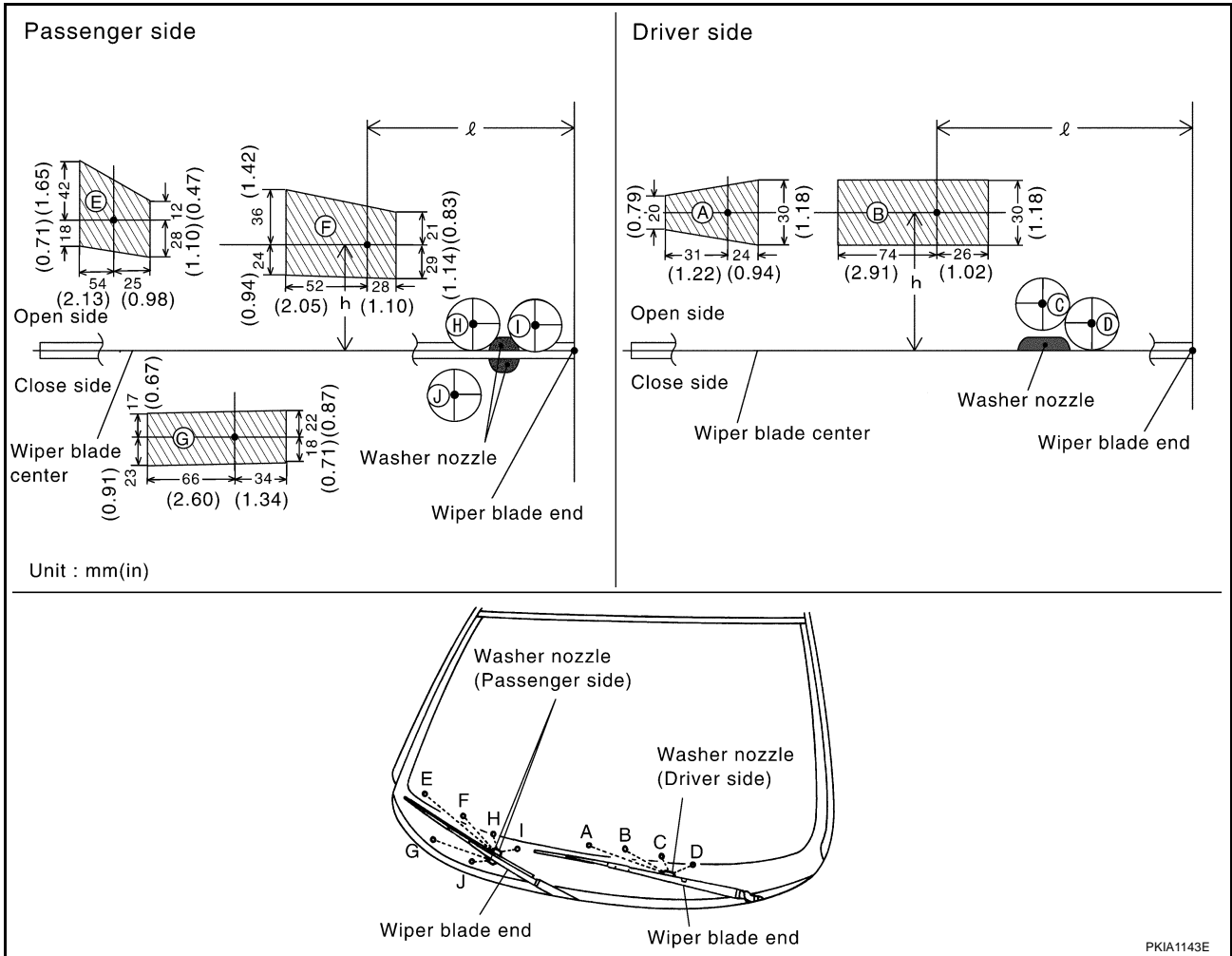
AKS003EB

## 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:**

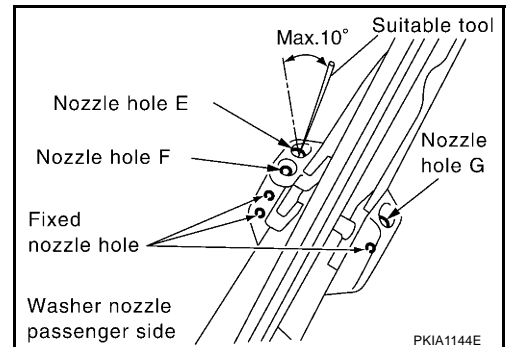
Only washer nozzles (A, B, E, F, and G) can be adjusted. Washer nozzles (C, D, H, I, and J) cannot be adjusted because of fixed nozzles.



PKIA1143E

Unit: mm (in)

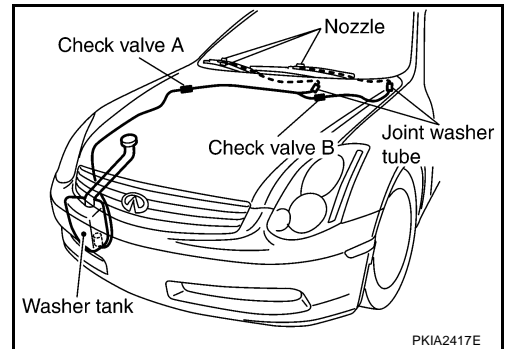
Spray position	h (height)	ℓ (width)
A	25 (0.98)	339 (13.35)
B	25 (0.98)	176 (6.93)
(C)	—	—
(D)	—	—
E	53 (2.09)	306 (12.05)
F	39 (1.54)	158 (6.22)
G	-32 (-1.26)	244 (9.61)
(H)	—	—
(I)	—	—
(J)	—	—



# FRONT WIPER AND WASHER SYSTEM

## Washer Tube Layout

AKS003EC



A  
B  
C  
D

## Removal and Installation for Front Washer Nozzle

AKS003ED

Remove wiper arm assembly. Refer to [WW-28, "Removal and Installation for Front Wiper Arms, Adjustment for Wiper Arms Stop Location"](#).

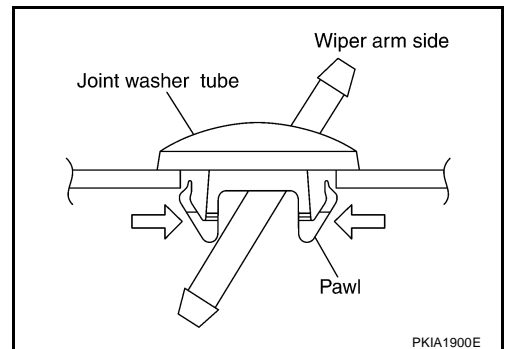
### CAUTION:

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

## Removal and Installation for Front Washer Joint

AKS003EE

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

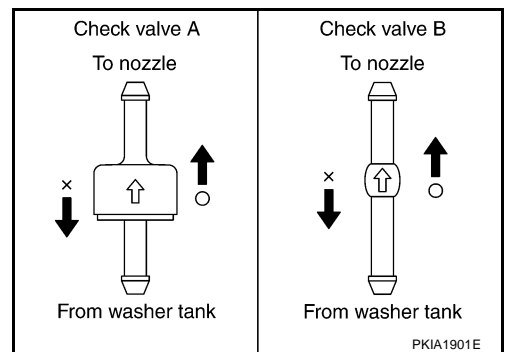


E  
F  
G  
H  
I  
J

## Inspection for Washer Nozzle CHECK VALVE

AKS003EF

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



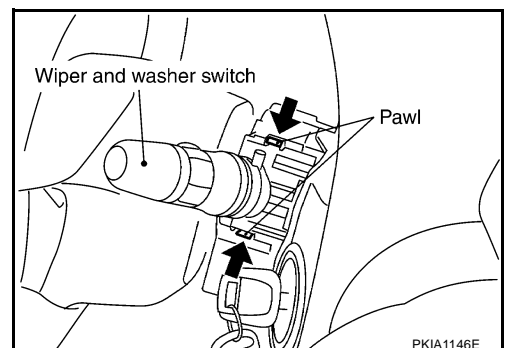
WW

L  
M

## Removal and Installation for Front Wiper and Washer Switch

AKS003EG

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 the 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.

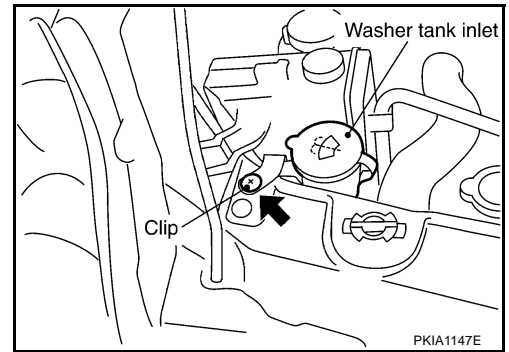


# FRONT WIPER AND WASHER SYSTEM

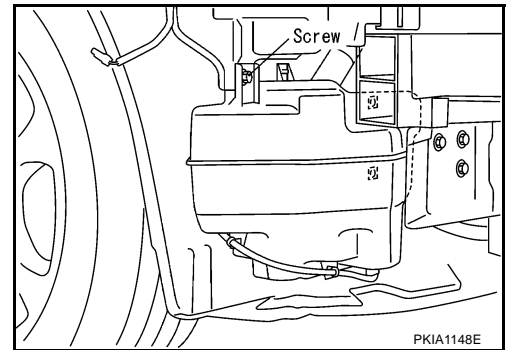
AKS003EH

## Removal and Installation for Washer Tank REMOVAL

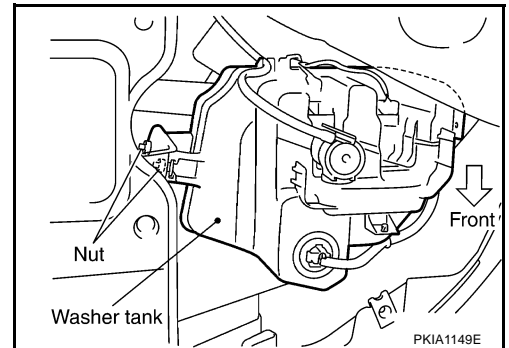
1. Pull out washer tank inlet.



2. Remove fender protector (front) in the right side. Refer to [EI-21](#), "[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 screw and 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 the washer tank inlet, and check for water leaks.**

Washer tank installation screw

### **Tightening torque:**

**4.4 - 6.6 N·m (0.45 - 0.67 kg·m, 39 - 58 in·lb)**



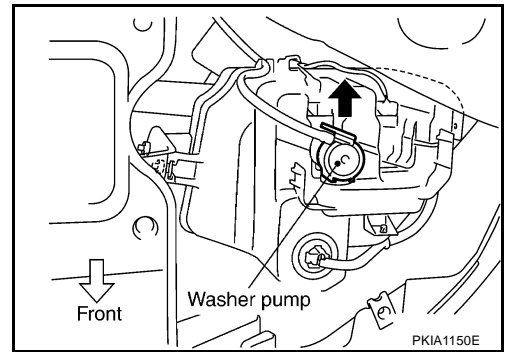
# FRONT WIPER AND WASHER SYSTEM

## Removal and Installation for Washer Pump

AKS003E1

### REMOVAL

1. Remove fender protector (front) in the right side. Refer to [EI-21](#), "[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

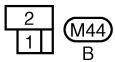
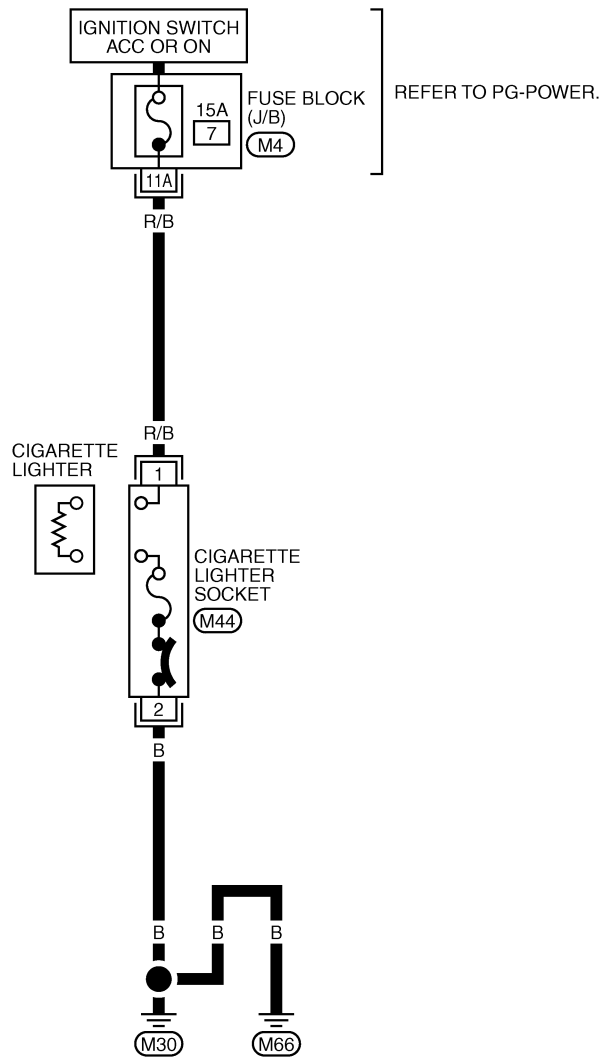
PDF:35330

## CIGARETTE LIGHTER

### Wiring Diagram — CIGAR —

AKS003EJ

WW-CIGAR-01



REFER TO THE FOLLOWING.

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

TKWT0567E

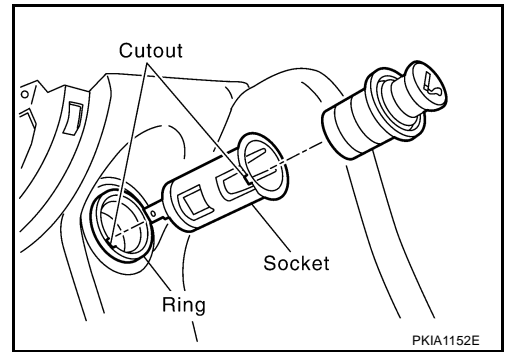
# CIGARETTE LIGHTER

## Removal and Installation for Cigarette Lighter

AKS003EK

### REMOVAL

1. Remove the instrument side panel. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) in "IP" section.
2. Pull out the 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  
L  
M

WW

# POWER SOCKET

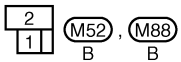
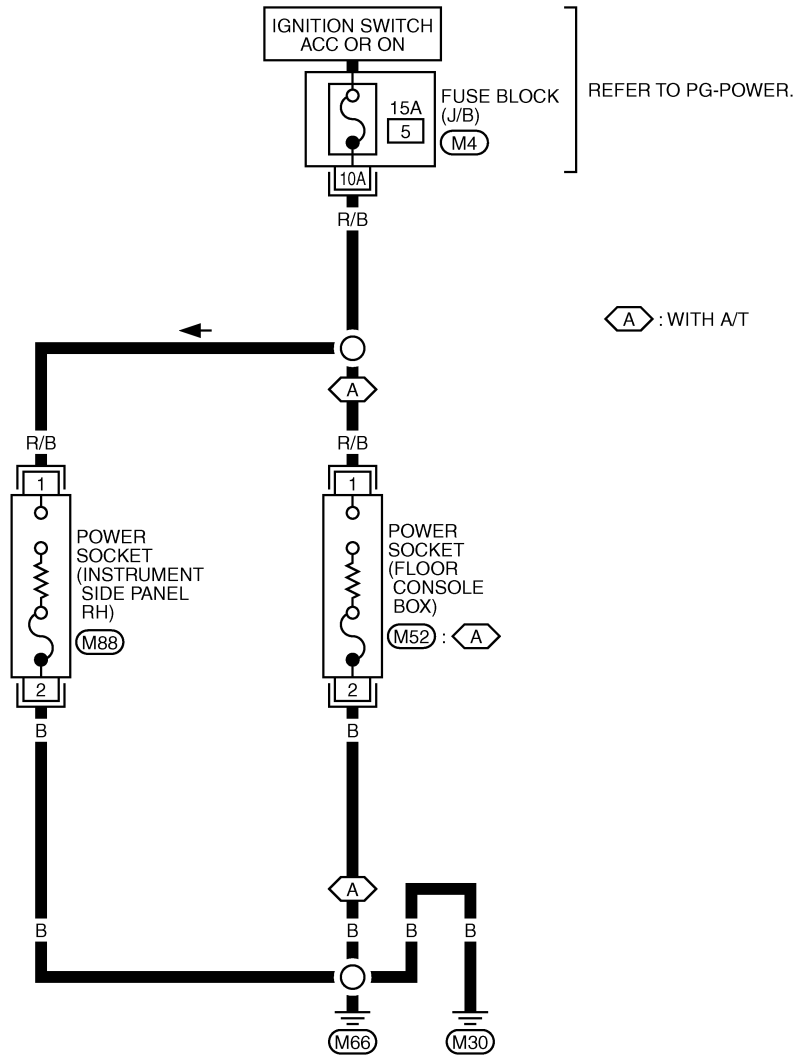
PF2:253A2

## POWER SOCKET

### Wiring Diagram — P/SCKT —

AKS004C5

## WW-P/SCKT-01



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

TKWT0568E

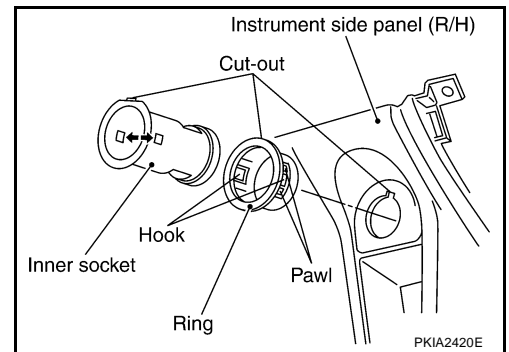
# POWER SOCKET

## Removal and Installation for Instrument Power Socket

AKS004C6

### REMOVAL

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



### INSTALLATION

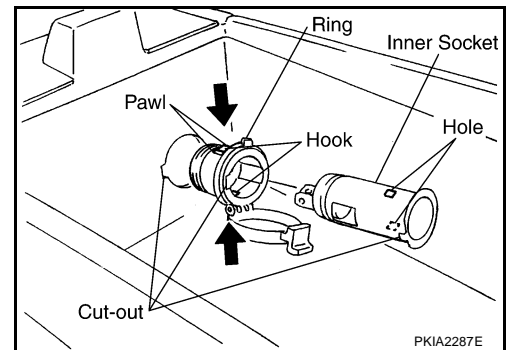
Install in reverse order of removal.

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

AKS005Q0

### REMOVAL

1. Remove the console box assembly. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) in "IP" section.
2. Disconnect power socket connector.
3. Remove inner socket from the ring, while pressing the hook on the ring out from square hole.
4. Remove ring from console box while pressing pawls.



### INSTALLATION

Install in the reverse order of removal.

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

WW

# HORN

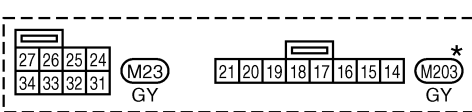
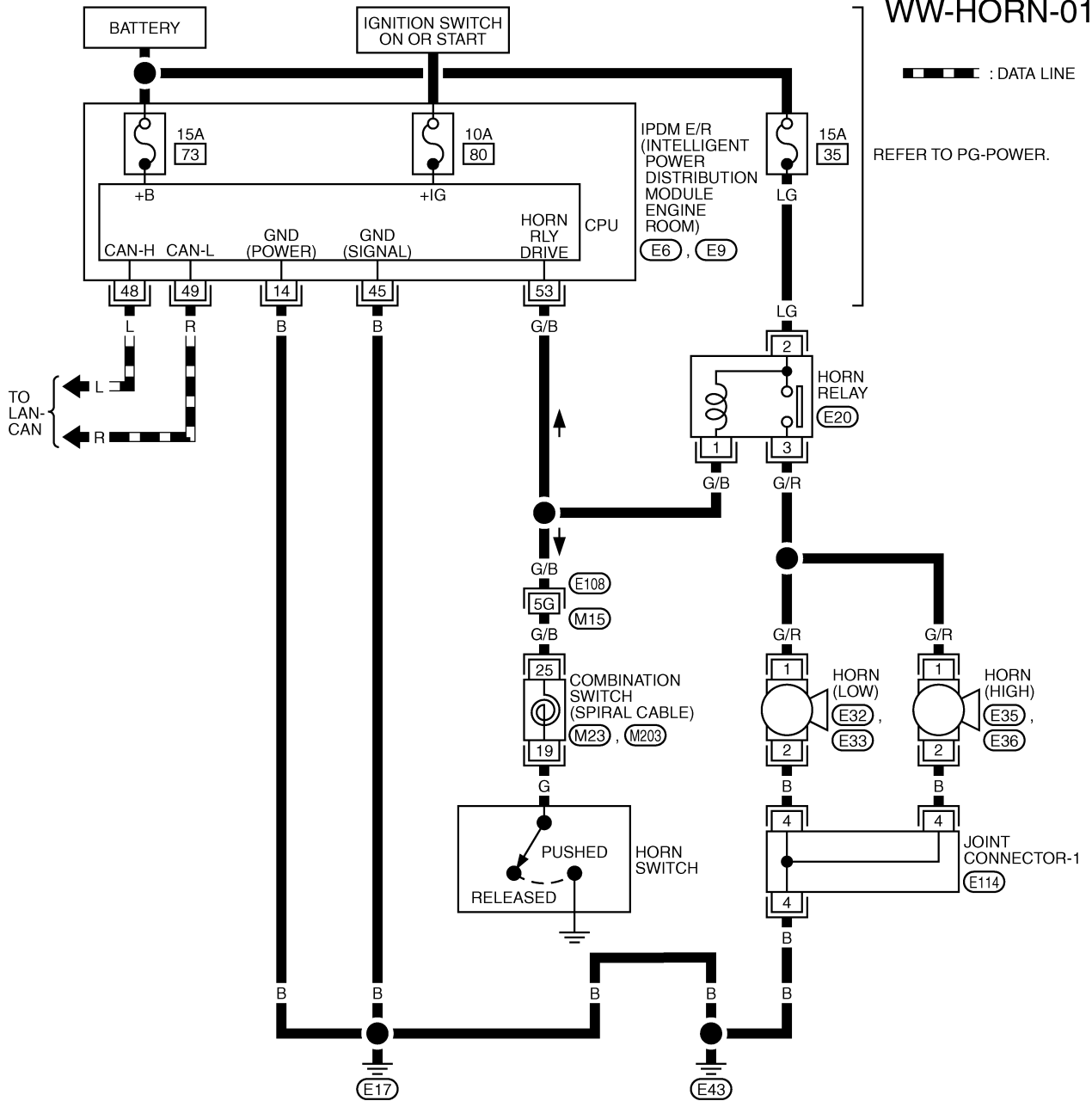
PFP:25610

## HORN

### Wiring Diagram — HORN —

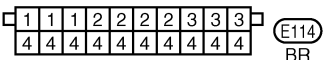
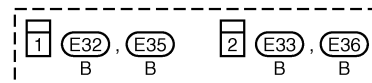
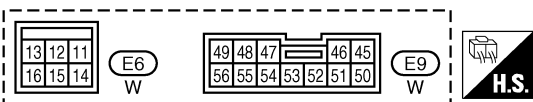
AKS003EL

#### WW-HORN-01



REFER TO THE FOLLOWING.

(E108) -SUPER MULTIPLE JUNCTION (SMJ)



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

TKWT0569E

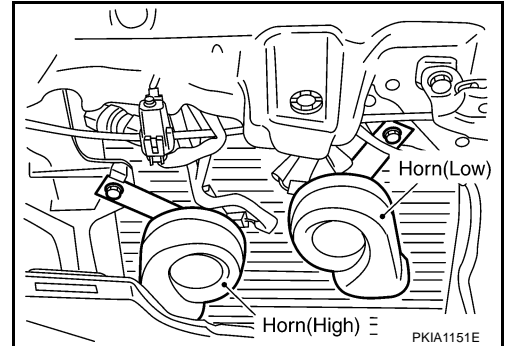
# HORN

AKS003EM

## Removal and Installation

### REMOVAL

1. Remove front grille. Refer to [EI-19, "FRONT GRILLE"](#) in "EI" section.
2. Disconnect all horn connectors.
3. Remove horn bolt and remove horn from vehicle.



### INSTALLATION

Tighten horn bolt to specified torque.

#### Horn bolt

: 4.4 - 6.6 N·m (0.45 - 0.67 kg·m, 39 - 58 ft·lb)

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

WW

L  
M

# HORN

---