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# 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><b>FRONT WIPER AND WASHER SYSTEM</b> ..... 4</p> <p>Component Parts and Harness Connector Location... 4</p> <p>System Description ..... 4</p> <p>    LOW SPEED WIPER OPERATION ..... 4</p> <p>    HI SPEED WIPER OPERATION ..... 5</p> <p>    INTERMITTENT OPERATION ..... 5</p> <p>    AUTO STOP OPERATION ..... 5</p> <p>    FRONT WASHER OPERATION ..... 6</p> <p>    MIST OPERATION ..... 6</p> <p>    FAIL-SAFE FUNCTION ..... 6</p> <p>    COMBINATION SWITCH READING FUNCTION... 7</p> <p>CAN Communication System Description ..... 10</p> <p>Schematic ..... 11</p> <p>Wiring Diagram — WIPER — ..... 12</p> <p>Terminals and Reference Values for BCM ..... 15</p> <p>Terminals and Reference Values for IPDM E/R .... 15</p> <p>How to Proceed With Trouble Diagnosis ..... 16</p> <p>Preliminary Inspection ..... 16</p> <p>    INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT ..... 16</p> <p>CONSULT-II Function (BCM) ..... 17</p> <p>    CONSULT-II OPERATION ..... 17</p> <p>    WORK SUPPORT ..... 18</p> <p>    DATA MONITOR ..... 18</p> <p>    ACTIVE TEST ..... 19</p> <p>CONSULT-II Function (IPDM E/R) ..... 20</p> <p>    CONSULT-II OPERATION ..... 20</p> <p>    DATA MONITOR ..... 21</p> <p>    ACTIVE TEST ..... 21</p> <p>Front Wiper Does Not Operate ..... 22</p> <p>Front Wiper Does Not Return to Stop Position (After Front Wiper for 10 Seconds, They Stop for 20 seconds, and After Repeating the Operations Five Times, They Become Inoperative) ..... 25</p> <p>Only Front Wiper LO Does Not Operate ..... 26</p> <p>Only Front Wiper HI Does Not Operate ..... 28</p>	<p>Only Front Wiper INT Does Not Operate ..... 29</p> <p>Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted ..... 30</p> <p>Front Wiper Interval Time Is Not Controlled by Vehicle Speed ..... 30</p> <p>Wipers Do Not Wipe When Front Washer Operates.. 30</p> <p>Removal and Installation of Front Wiper Arms, Adjustment of Wiper Arms Stop Location ..... 31</p> <p>    REMOVAL ..... 31</p> <p>    INSTALLATION ..... 31</p> <p>Removal and Installation of Wiper Motor and Linkage ..... 32</p> <p>    REMOVAL ..... 32</p> <p>    INSTALLATION ..... 32</p> <p>Washer Nozzle Adjustment ..... 33</p> <p>Washer Tube Layout ..... 33</p> <p>Removal and Installation of Wiper and Washer Switch ..... 33</p> <p>    REMOVAL ..... 33</p> <p>    INSTALLATION ..... 33</p> <p>Removal and Installation of Front Washer Tank .... 34</p> <p>    REMOVAL ..... 34</p> <p>    INSTALLATION ..... 34</p> <p>Removal and Installation of Front Washer Motor ... 35</p> <p>    REMOVAL ..... 35</p> <p>    INSTALLATION ..... 35</p> <p>Removal and Installation of Washer Fluid Level Sensor ..... 35</p> <p>    REMOVAL ..... 35</p> <p>    INSTALLATION ..... 35</p> <p><b>CIGARETTE LIGHTER</b> ..... <b>36</b></p> <p>    Wiring Diagram — CIGAR — ..... 36</p> <p>    Removal and Installation of Cigarette Lighter ..... 37</p> <p>        REMOVAL ..... 37</p> <p>        INSTALLATION ..... 37</p> <p><b>POWER SOCKET</b> ..... <b>38</b></p> <p>    Wiring Diagram — P/SCKT — ..... 38</p> <p>    Removal and Installation of Front Power Socket ... 39</p> <p>        REMOVAL ..... 39</p>
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INSTALLATION .....	39	Wiring Diagram — HORN — .....	40
Removal and Installation of Console Power Socket..	39	Removal and Installation of Horn .....	41
REMOVAL .....	39	REMOVAL .....	41
INSTALLATION .....	39	INSTALLATION .....	41
<b>HORN .....</b>	<b>40</b>		

# PRECAUTION

## PRECAUTION

PF:00011

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

GKS0006N

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

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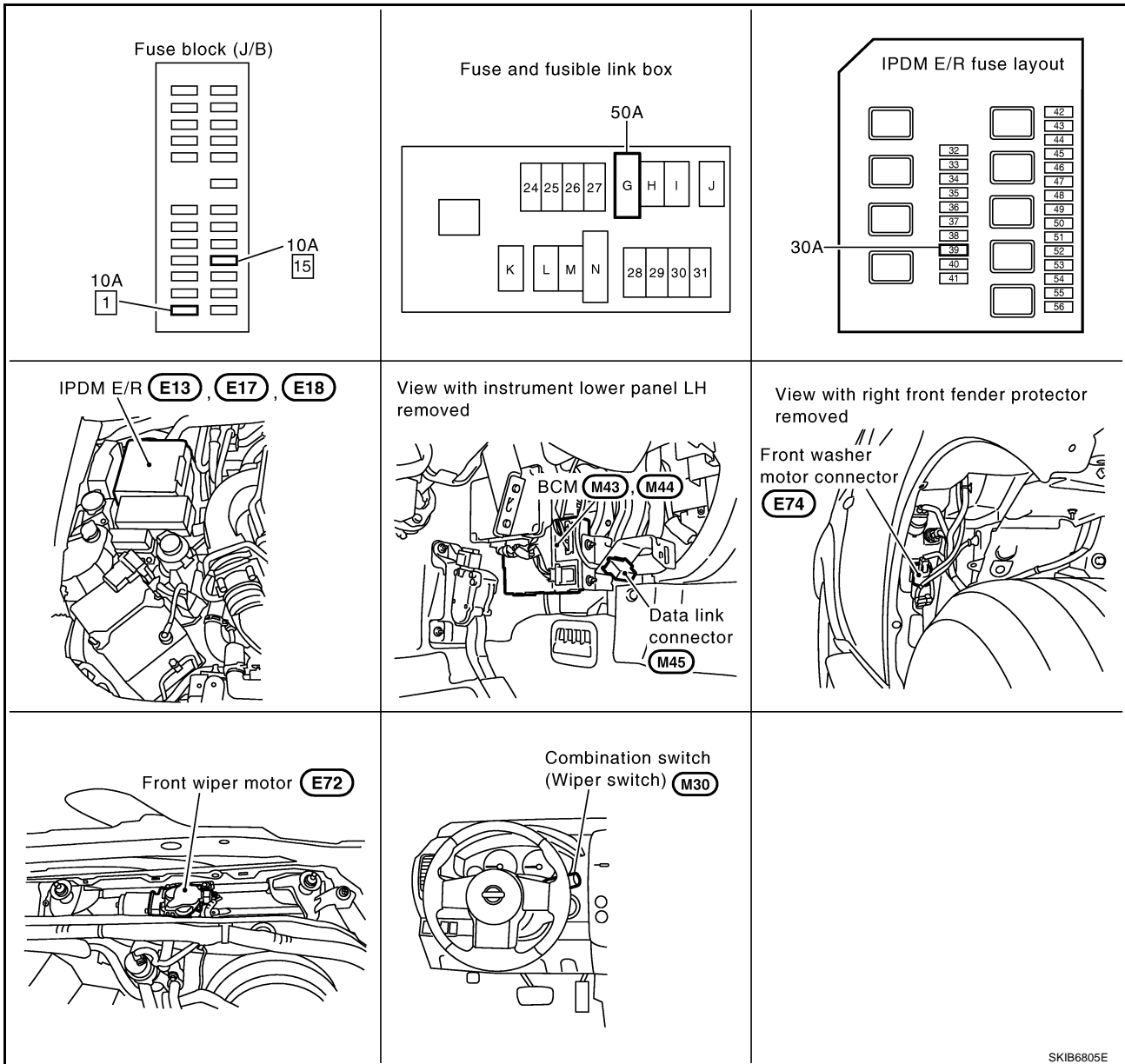
# FRONT WIPER AND WASHER SYSTEM

## FRONT WIPER AND WASHER SYSTEM

PFP:28810

### Component Parts and Harness Connector Location

GKS0006P



SKIB6805E

### System Description

GKS0006Q

- All front wiper relays (MAIN, LOW/HIGH) are located 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 the wiper switch is turned ON.
- BCM controls front wiper LO, HI, and INT (intermittent) operation.
- IPDM E/R operates the wiper motor according to CAN communication signals from the BCM.

### LOW SPEED WIPER OPERATION

When the ignition switch is in the ON or START position, and the front wiper switch is turned to the low position, the BCM detects a low speed wiper ON request through the combination switch (wiper switch) reading function.

The BCM then sends a front wiper (low) request signal with CAN communication.

- from BCM terminals 21 and 22
- to IPDM E/R terminals 39 and 40.

# FRONT WIPER AND WASHER SYSTEM

When IPDM E/R receives front wiper (low) request signal, it supplies ground to energize the front wiper main relay.

With the front wiper LOW/ HIGH relay energized, power is supplied

- through front wiper main relay
- through front wiper LOW/HIGH relay
- through IPDM E/R terminal 32
- to front wiper motor terminal 3.

Ground is supplied

- to front wiper motor terminal 2
- through grounds E21, E41 and E61.

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

## HI SPEED WIPER OPERATION

When the ignition switch is in the ON or START position, and the front wiper switch is turned to the high position, the BCM detects a high speed wiper ON request through the combination switch (wiper switch) reading function.

The BCM then sends a front wiper (high) request signal with CAN communication.

- from BCM terminals 21 and 22
- to IPDM E/R terminals 39 and 40.

When IPDM E/R receives front wiper (high) request signal, it supplies ground to energize the front wiper main relay and front wiper LOW/HIGH relay.

With the front wiper LOW/HIGH relays energized, power is supplied

- through front wiper main relay
- through front wiper LOW/HIGH relay
- through IPDM E/R terminal 35
- to front wiper motor terminal 5.

Ground is supplied

- to front wiper motor terminal 2
- through grounds E21, E41 and E61.

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

## INTERMITTENT OPERATION

When the ignition switch is in the ON or START position, and the front wiper switch is in INT position, the BCM detects a intermittent wiper ON request and ON/OFF status of the INT VOLUME 1, 2, and 3 through the combination switch (wiper switch) reading function. BCM judges the condition of wiper intermittent dial position by ON/OFF status of INT VOLUME 1, 2, and 3\* .

The BCM then sends a front wiper (low) request signal at certain intervals with CAN communication. The interval is calculated by wiper intermittent dial position and vehicle speed signal received from combination meter with CAN communication.

When IPDM E/R receives front wiper (low) request signal, it supplies ground to energize the front wiper main relay, and operates front wiper motor at low speed. Then, IPDM E/R sends auto stop signal to BCM, and conducts intermittent front wiper motor operation.

\*: Refer to [WW-8, "Front Wiper Intermittent Operation"](#) .

## AUTO STOP OPERATION

When the wiper arms are not located at the base of the windshield, and the wiper switch is turned OFF, the wiper motor will continue to operate until the wiper arms reach the windshield base. When the wiper arms reach the base of windshield, front wiper motor terminals 2 and 5 are connected.

Ground is supplied

- to IPDM E/R terminal 43
- through front wiper motor terminal 4
- through front wiper motor terminal 2
- through grounds E21, E41 and E61.

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

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# FRONT WIPER AND WASHER SYSTEM

When the BCM receives an auto stop operation signal, the BCM sends wiper stop signal to the IPDM E/R over CAN communication lines. The IPDM E/R then de-energizes the front wiper main relay. The wiper motor will then stop the wiper arms at the STOP position.

## FRONT WASHER OPERATION

When the ignition switch is in the ON or START position, and the front washer switches are OFF, the front washer motor is supplied power

- through 10A fuse [No. 15, located in fuse block (J/B)]
- through combination switch (wiper switch) terminal 11
- through combination switch (wiper switch) terminal 13
- to front washer motor terminal 1.

When the front wiper switch is in the front washer position, the BCM detects a front washer signal request through the combination switch (wiper switch) reading function.

Combination switch ground is supplied

- to front washer motor terminal 2
- through combination switch (wiper switch) terminal 14
- through combination switch (wiper switch) terminal 12
- through grounds M21, M80 and M83.

With ground supplied, the front washer motor is operated in the front direction.

When the BCM detects that front washer motor has operated for 0.4 seconds or longer, the BCM uses CAN communication and sends a wiper request signal to the IPDM E/R for low speed operation of wipers.

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

## MIST OPERATION

When the wiper switch is temporarily placed in the mist position, wiper low speed operation cycles once and then stops.

For additional information about wiper operation under this condition, refer to [WW-4, "LOW SPEED WIPER OPERATION"](#).

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

## FAIL-SAFE FUNCTION

The BCM includes fail-safe function to prevent malfunction of electrical components controlled by CAN communications if a malfunction in CAN communications occurs.

The BCM uses CAN communications to stop output of electrical components it controls.

Until the ignition switch is turned OFF, the front wiper system remains in same status as just before fail-safe control was initiated. (If wiper was in low speed operation just before fail-safe, it continues low speed operation until ignition switch is turned OFF.)

When fail-safe status is initiated, the BCM remains in standby until normal signals are received.

When normal signals are received, fail-safe status is canceled.

# FRONT WIPER AND WASHER SYSTEM

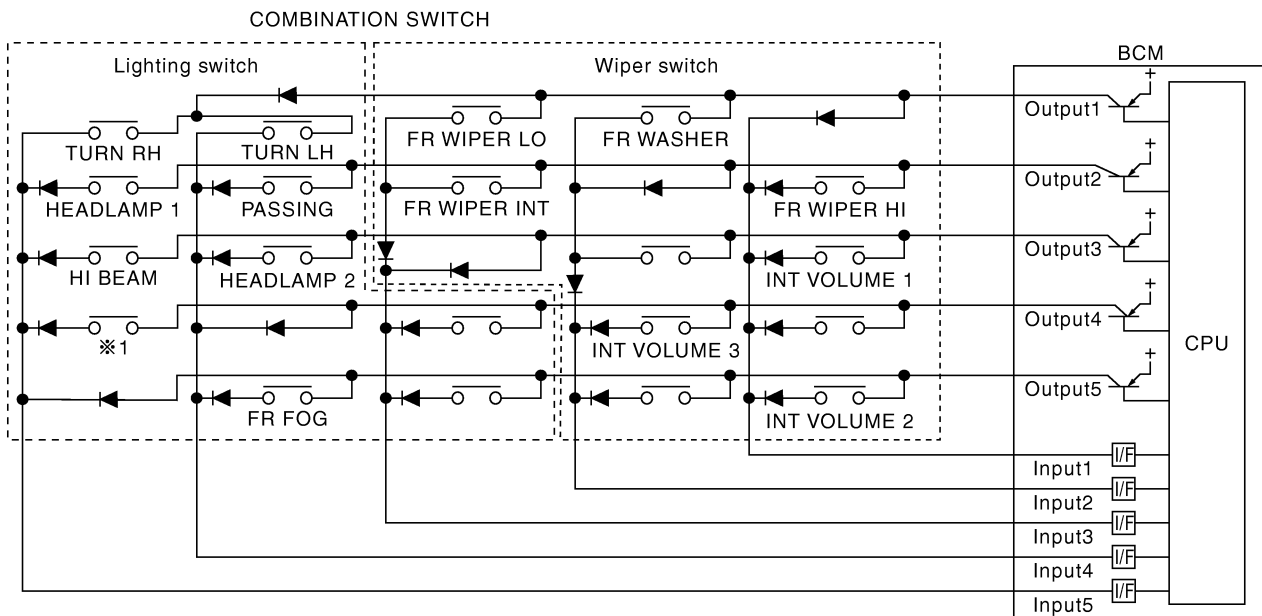
## COMBINATION SWITCH READING FUNCTION

### Description

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

### Operation Description

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



※1 : LIGHTING SWITCH 1ST POSITION

PKIC4231E

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# FRONT WIPER AND WASHER SYSTEM

## BCM - Operation Table of Combination Switches

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

	COMB SW OUTPUT 1		COMB SW OUTPUT 2		COMB SW OUTPUT 3		COMB SW OUTPUT 4		COMB SW OUTPUT 5	
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
COMB SW INPUT 1	—	—	FR WIPER HI ON	FR WIPER HI OFF	INT VOLUME 1 ON	INT VOLUME 1 OFF	RR WIPER INT ON	RR WIPER INT OFF	INT VOLUME 2 ON	INT VOLUME 2 OFF
COMB SW INPUT 2	FR WASHER ON	FR WASHER OFF	—	—	RR WASHER ON	RR WASHER OFF	INT VOLUME 3 ON	INT VOLUME 3 OFF	RR WIPER ON	RR WIPER OFF
COMB SW INPUT 3	FR WIPER LO ON	FR WIPER LO OFF	FR WIPER INT ON	FR WIPER INT OFF	—	—	AUTO LIGHT ON	AUTO LIGHT OFF	RR FOG ON	RR FOG 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	—	—

PKIC0420E

## Front Wiper Intermittent Operation

Front wiper intermittent operation is determined from a combination of 3 switches (INT VOLUME 1, 2, and 3) and vehicle speed signal.

## Wiper Intermittent Dial Position Setting

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

Example: For wiper intermittent dial position 1

Using combination switch reading function, BCM detects ON/OFF status of INT VOLUME 1, 2, and 3.

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

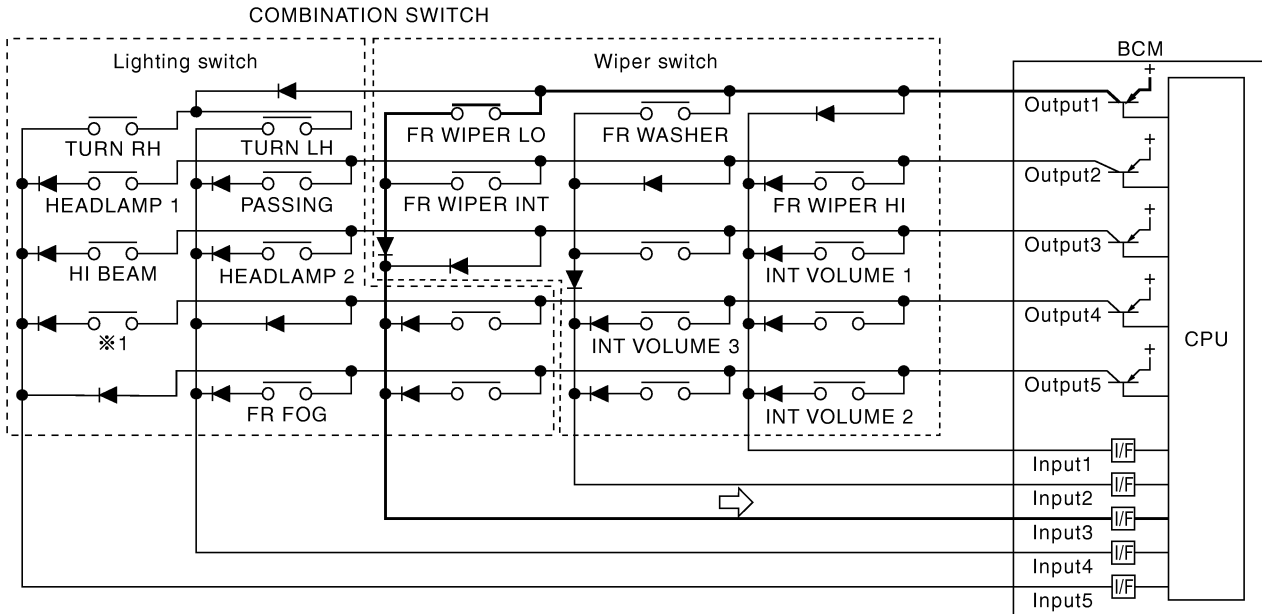
- INT VOLUME 1: ON (Continuity exists between combination switch output 3 and input 1.)
- INT VOLUME 2: ON (Continuity exists between combination switch output 5 and input 1.)
- INT VOLUME 3: ON (Continuity exists between combination switch output 4 and input 2.)



# FRONT WIPER AND WASHER SYSTEM

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

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



### NOTE:

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

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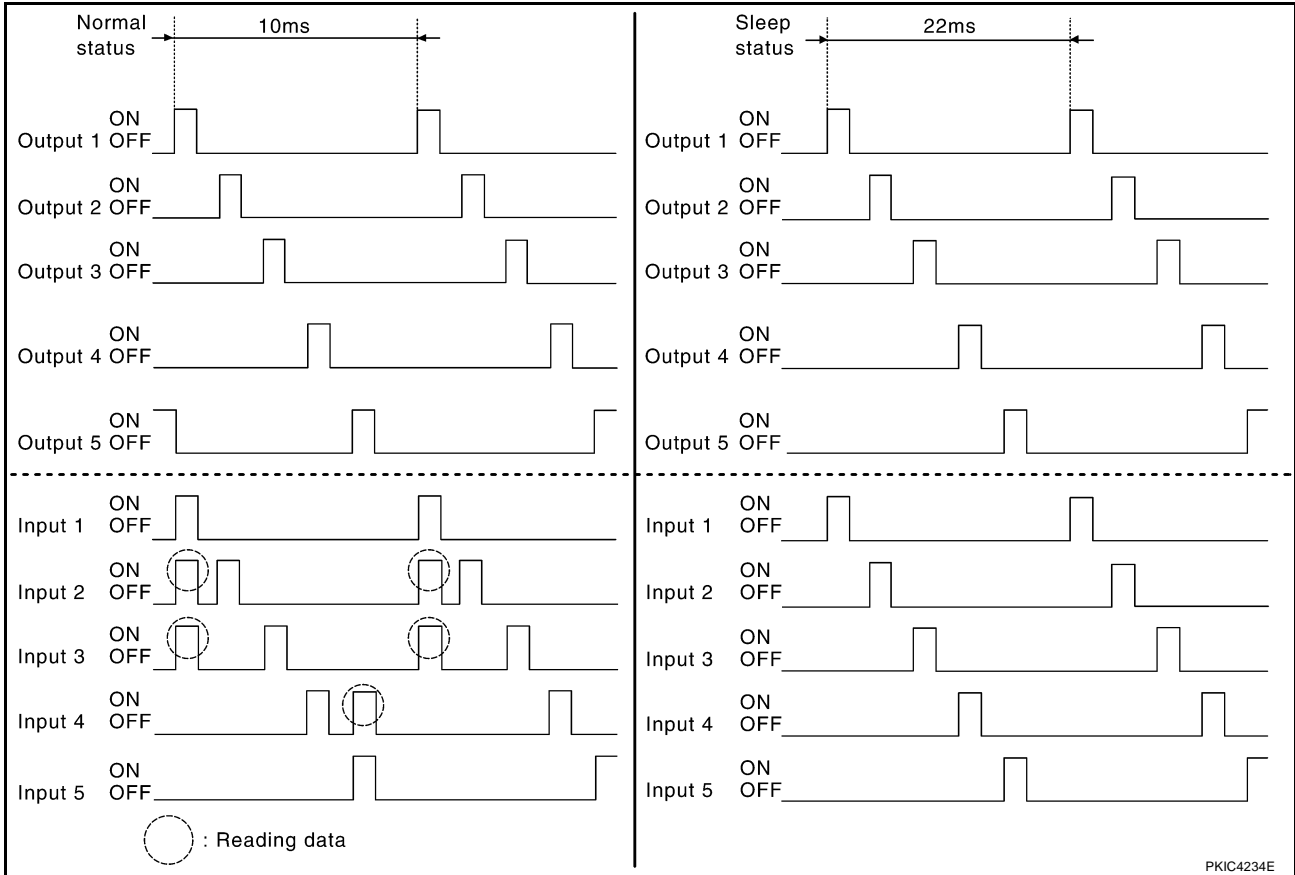
PKIC4232E

# FRONT WIPER AND WASHER SYSTEM

## Operation Mode

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

1. Normal status
  - When BCM is not in sleep status, OUTPUT terminals (1 - 5) each turn ON-OFF every 10 ms.
2. Sleep status
  - When BCM is in sleep status BCM enters low power mode. OUTPUT (1 - 5) turn ON-OFF every 22 ms, and only input from light switch system is accepted.



## CAN Communication System Description

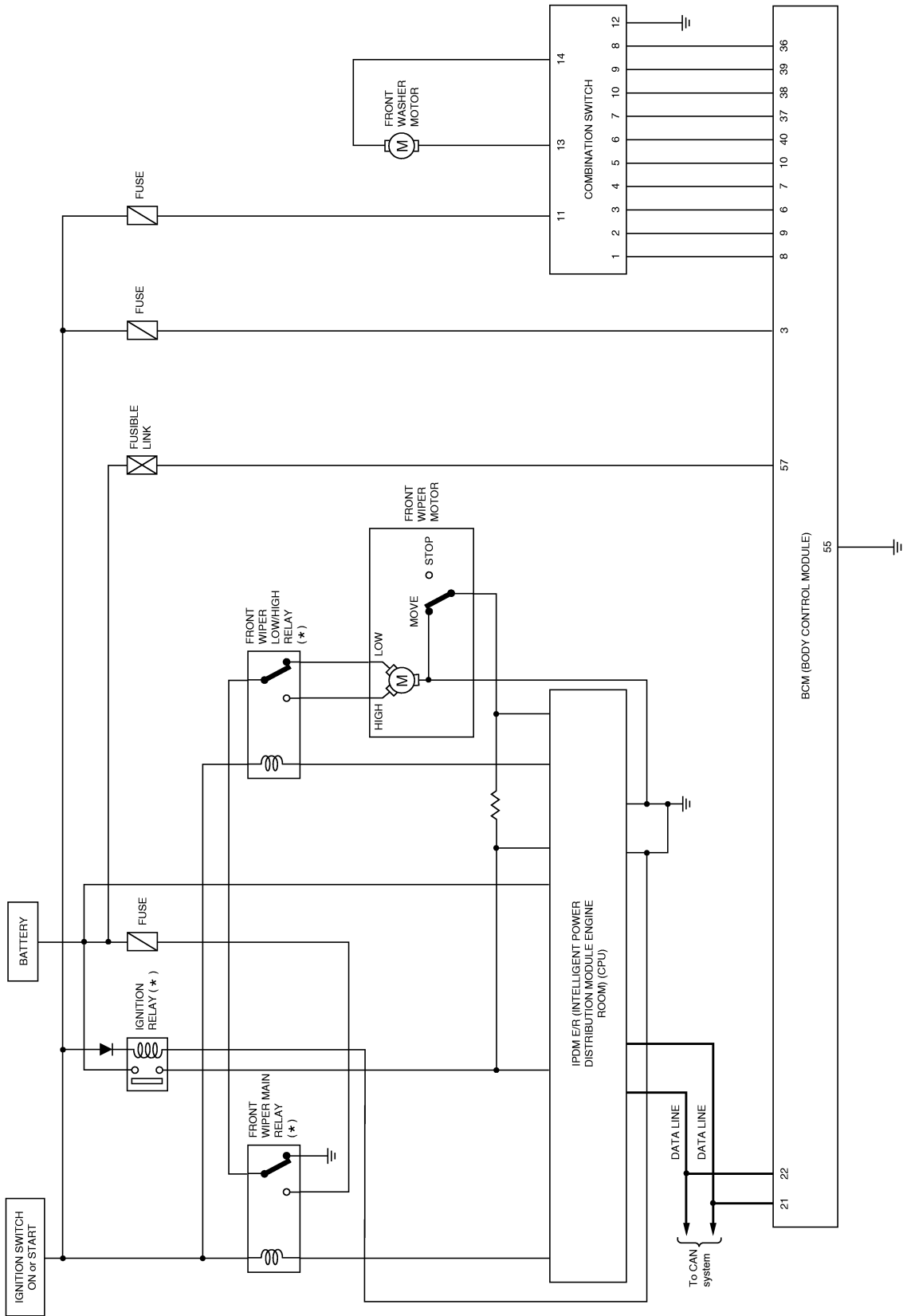
GKS0006R

Refer to [LAN-21, "CAN COMMUNICATION"](#) .

# FRONT WIPER AND WASHER SYSTEM

## Schematic

GKS0006S



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

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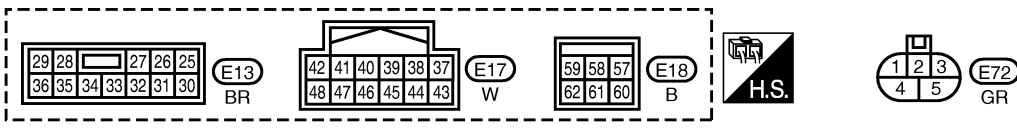
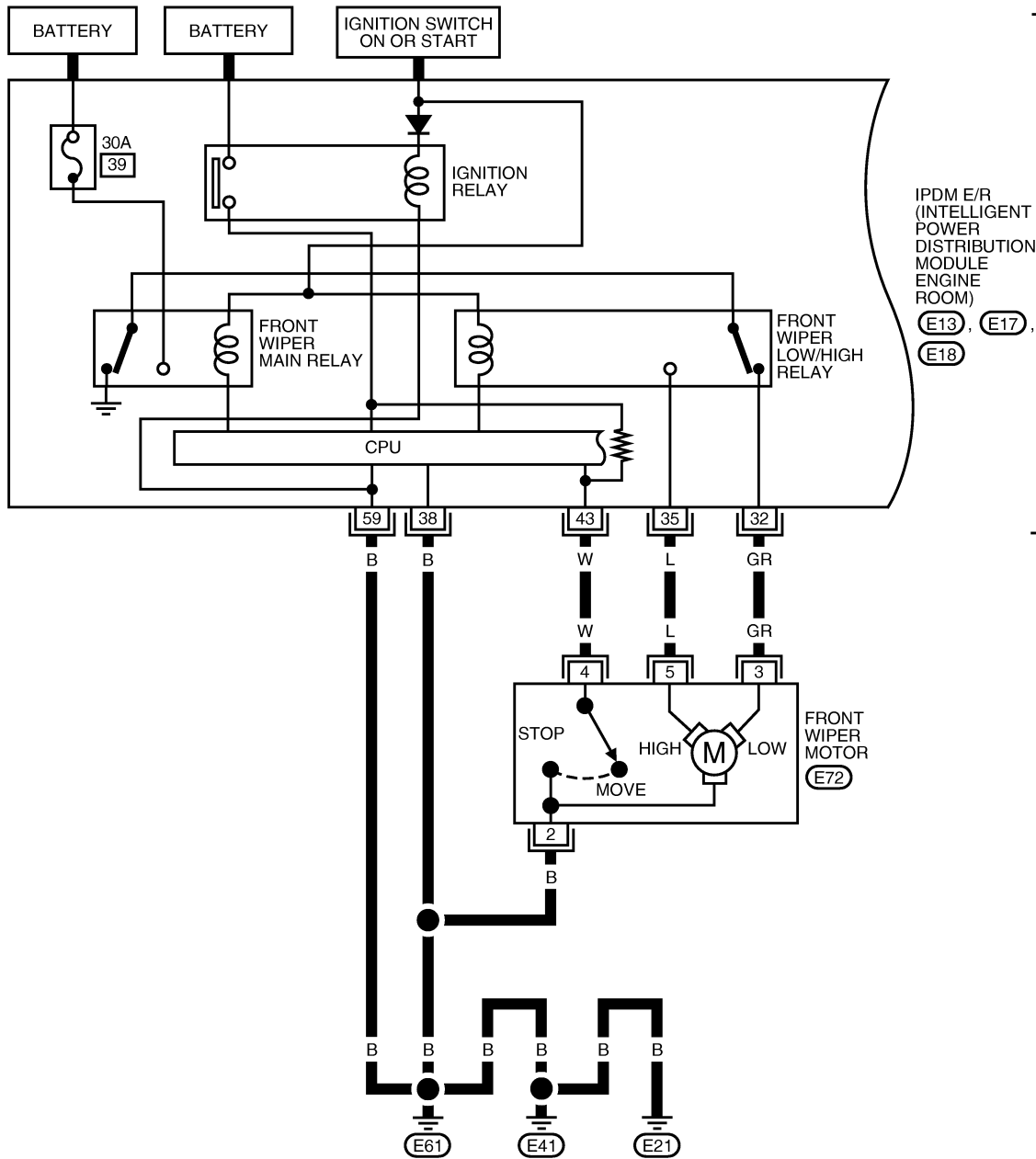


# FRONT WIPER AND WASHER SYSTEM

## Wiring Diagram — WIPER —

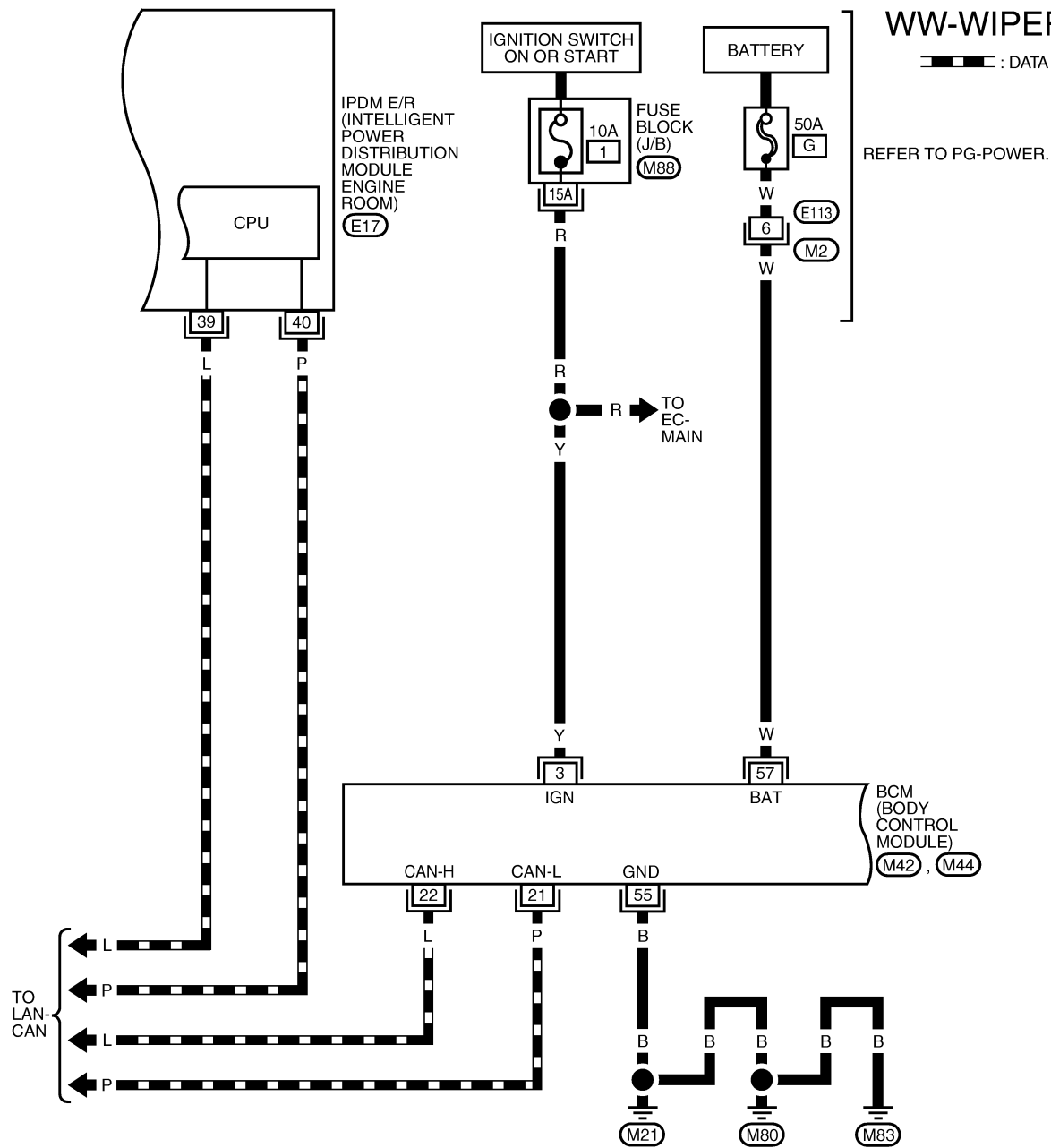
GKS0006T

### WW-WIPER-01



MKWA4071E

# FRONT WIPER AND WASHER SYSTEM



1	2	3
4	5	6

(M2)  
W

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

(M42)  
B

60	59	58	57	56	55	54	53
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(M44)



42	41	40	39	38	37
48	47	46	45	44	43

(E17)  
W



REFER TO THE FOLLOWING.

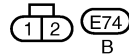
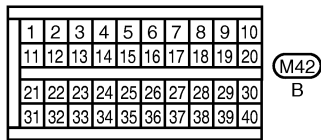
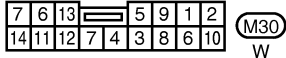
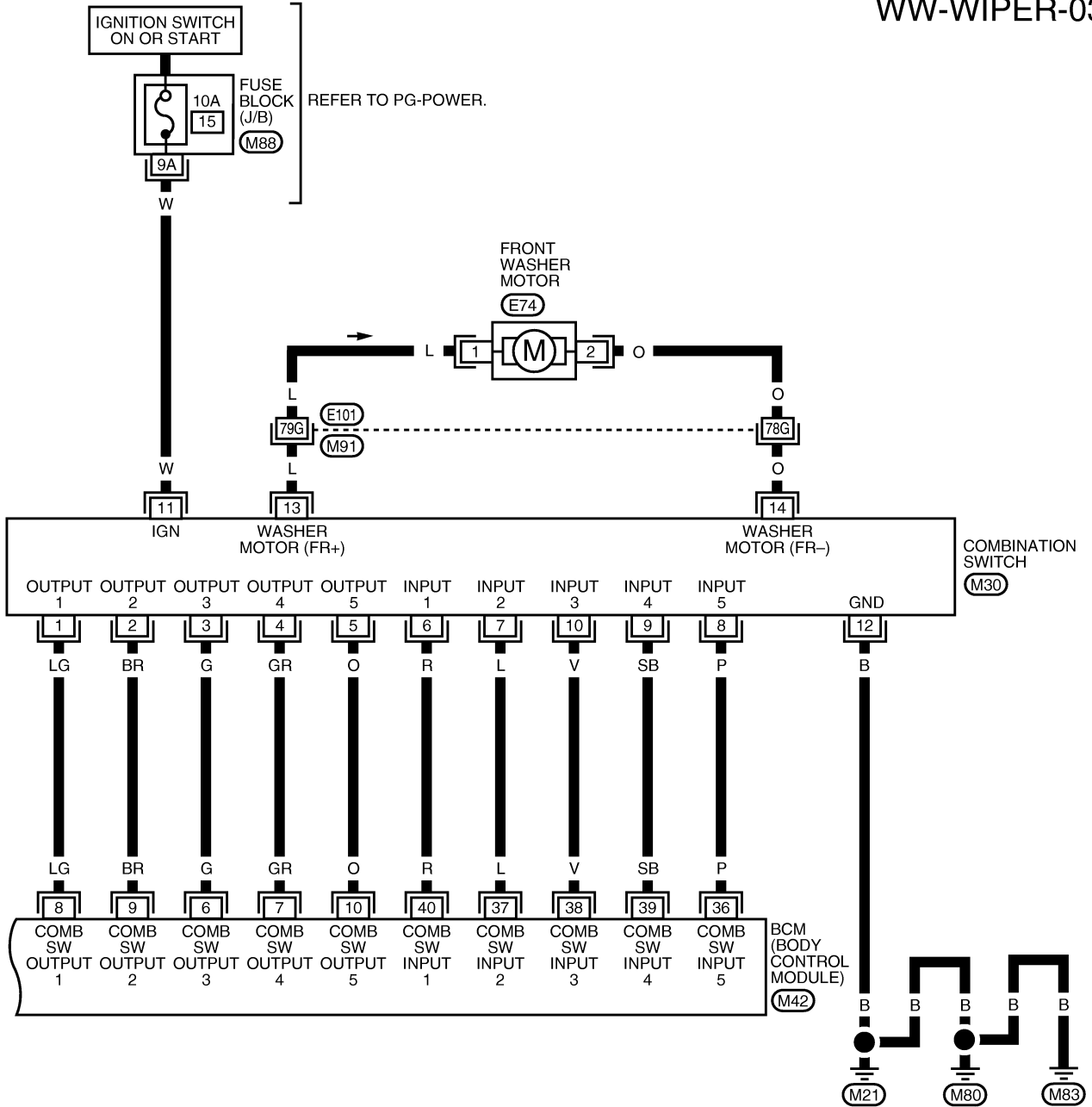
(M88) - FUSE BLOCK-JUNCTION BOX (J/B)

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# FRONT WIPER AND WASHER SYSTEM

WW-WIPER-03



REFER TO THE FOLLOWING.

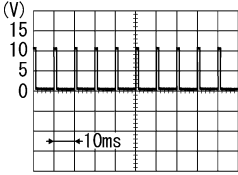
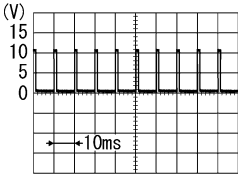
(M91) - SUPER MULTIPLE JUNCTION (SMJ)

(M88) - FUSE BLOCK - JUNCTION BOX (J/B)

# FRONT WIPER AND WASHER SYSTEM

## Terminals and Reference Values for BCM

GKS0006U

Terminal No.	Wire color	Signal name	Measuring condition		Reference value
			Ignition switch	Operation or condition	
3	Y	Ignition switch (ON)	ON	—	Battery voltage
6	G	Combination switch output 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right;">PKIB4958J</p>
7	GR	Combination switch output 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	
8	LG	Combination switch output 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	
9	BR	Combination switch output 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	
10	O	Combination switch output 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	
21	P	CAN- L	—	—	—
22	L	CAN- H	—	—	—
36	P	Combination switch input 5	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right;">PKIB4958J</p>
37	L	Combination switch input 2	ON	Lighting, turn, wiper OFF Wiper dial position 4	
38	V	Combination switch input 3	ON	Lighting, turn, wiper OFF Wiper dial position 4	
39	SB	Combination switch input 4	ON	Lighting, turn, wiper OFF Wiper dial position 4	
40	R	Combination switch input 1	ON	Lighting, turn, wiper OFF Wiper dial position 4	
55	B	Ground	ON	—	Approx. 0V
57	W	Battery power supply (fusible link)	OFF	—	Battery voltage

## Terminals and Reference Values for IPDM E/R

GKS0006V

Terminal No.	Wire color	Signal name	Measuring condition		Reference value	
			Ignition switch	Operation or condition		
32	GR	Low speed signal	ON	Wiper switch	OFF	Approx. 0V
					LO	Battery voltage
35	L	High speed signal	ON	Wiper switch	OFF	Approx. 0V
					HI	Battery voltage
38	B	Ground	ON	—	Approx. 0V	
39	L	CAN- H	—	—	—	
40	P	CAN- L	—	—	—	
43	W	Wiper auto stop signal	ON	Wiper operating	Battery voltage	
				Wiper stopped	Approx. 0V	
59	B	Ground	ON	—	Approx. 0V	

# FRONT WIPER AND WASHER SYSTEM

GKS0006W

## How to Proceed With Trouble Diagnosis

1. Confirm the trouble symptom or customer complaint.
2. Understand the operation description and function description. Refer to [WW-4, "System Description"](#) .
3. Perform preliminary inspection. Refer to [WW-16, "Preliminary Inspection"](#) .
4. According to the trouble diagnosis chart, repair or replace the cause of malfunction.
5. Does wiper function operate normally? If YES, GO TO 6. If NO, GO TO 4.
6. INSPECTION END

## Preliminary Inspection

GKS0006X

### INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

#### 1. CHECK FUSE OR FUSIBLE LINK

Check for blown fuses or fusible link.

Unit	Power source	Fuse and fusible link No.
Front washer motor	Ignition ON or START	15
Front wiper main relay	Battery	39
BCM	Ignition ON or START	1
	Battery	G

OK or NG

OK >> GO TO 2.

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

#### 2. CHECK POWER SUPPLY CIRCUIT

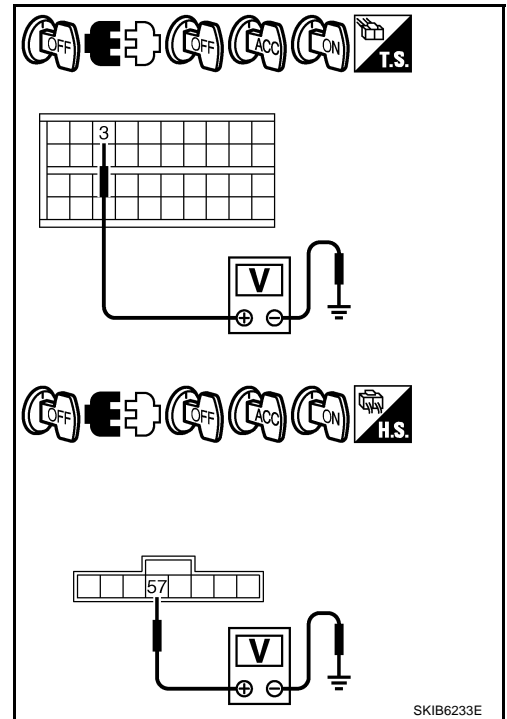
1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminal		(-)	Ignition switch position		
(+)			OFF	ACC	ON
BCM connector	Terminal	Ground	0V	0V	Battery voltage
M42	3		Battery voltage	Battery voltage	Battery voltage
M44	57				

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



SKIB6233E



# FRONT WIPER AND WASHER SYSTEM

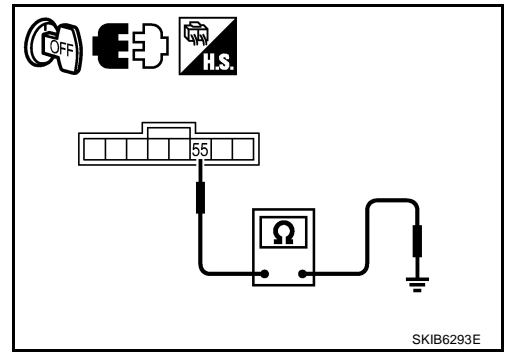
## 3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M44	55		Yes

OK or NG

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



SKIB6293E

GKS0006Y

## CONSULT-II Function (BCM)

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

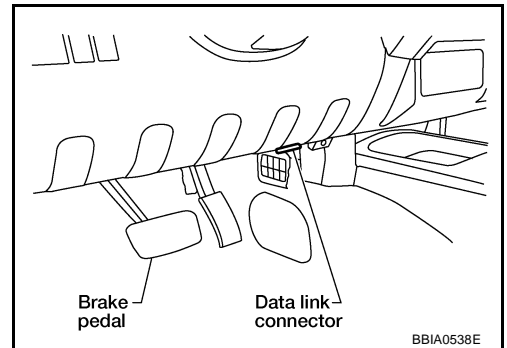
BCM diagnosis position	Diagnosis mode	Description
WIPER	WORK SUPPORT	Changes the setting for wiper speed at intermittent.
	DATA MONITOR	Displays BCM input data in real time.
	ACTIVE TEST	Device operation can be checked by applying a drive signal to device.
BCM	SELF-DIAG RESULTS	BCM performs self-diagnosis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

## CONSULT-II OPERATION

### CAUTION:

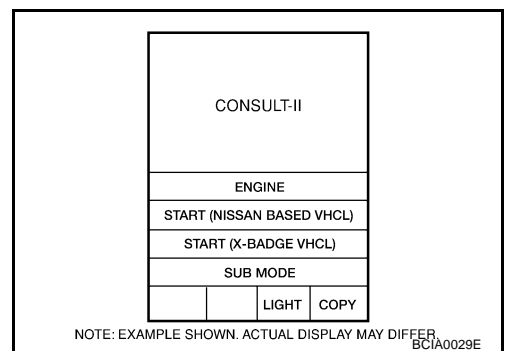
If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carries out CAN communication.

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



BBIA0538E

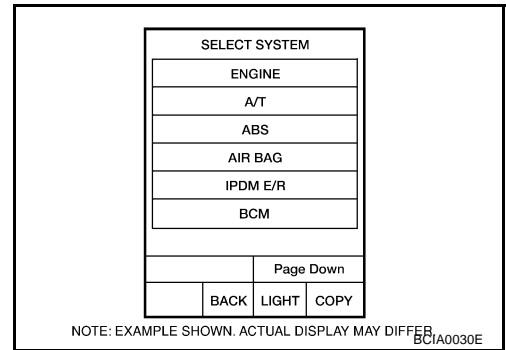
- Touch "START (NISSAN BASED VHCL)".



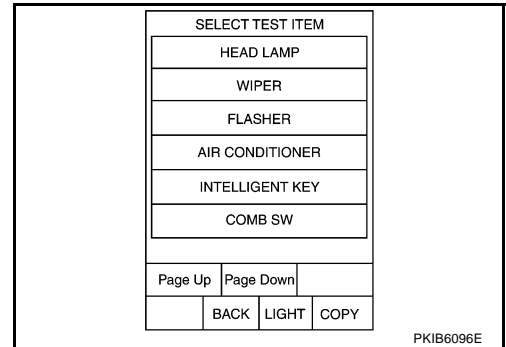
NOTE: EXAMPLE SHOWN. ACTUAL DISPLAY MAY DIFFER.  
BCIA0029E

# FRONT WIPER AND WASHER SYSTEM

3. Touch "BCM" on "SELECT SYSTEM" screen.  
If "BCM" is not indicated, refer to [GI-47, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



4. Touch "WIPER" on "SELECT TEST ITEM" screen.



## WORK SUPPORT

### Operation Procedure

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

### Display Item List

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

## DATA MONITOR

### Operation Procedure

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

ALL SIGNALS	Monitors all the items.
SELECTION FROM MENU	Selects and monitors the individual item selected.

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

# FRONT WIPER AND WASHER SYSTEM

## 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.
IGN SW CAN "ON/OFF"	Displays "IGN switch ON (ON)/Other OFF or ACC (OFF)" status as judged from CAN communications.
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 the auto stop signal.
VEHICLE SPEED "0.0 km/h"	Displays vehicle speed as received from vehicle speed signal.
RR WIPER ON "ON/OFF"	Displays "Rear Wiper ON (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER INT "ON/OFF"	Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WASHER SW "ON/OFF"	Displays "Rear Washer Switch (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER STOP "ON/OFF"	Displays "Rear Wiper Stop (ON)/Other (OFF)" status, as judged from wiper switch signal.

## ACTIVE TEST

### Operation Procedure

1. Touch "WIPER" on "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Touch item(s) to be tested and check operation of the selected item(s).
4. During the operation check, touching "OFF" 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 (LO)	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 AND WASHER SYSTEM

GKS0006Z

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

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

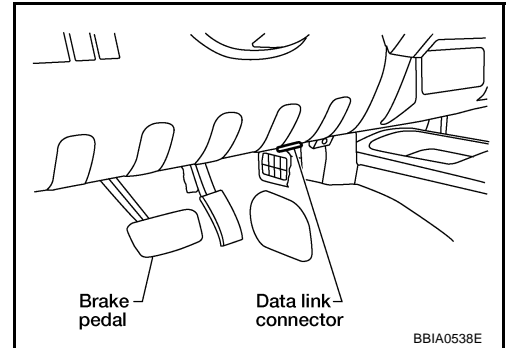
IPDM E/R diagnostic Mode	Description
SELF-DIAG RESULTS	Refer to <a href="#">PG-17. "SELF-DIAGNOSTIC RESULTS"</a> .
DATA MONITOR	Displays IPDM E/R input/output data in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.

## CONSULT-II OPERATION

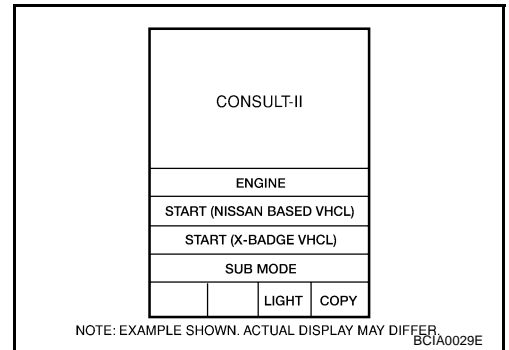
### CAUTION:

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

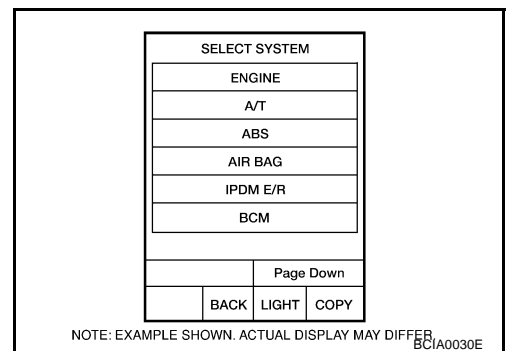
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to data link connector, and then turn ignition switch ON.



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

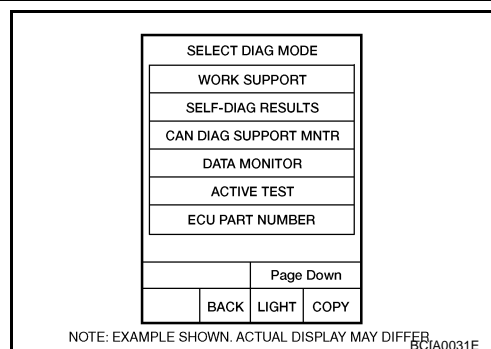


3. Touch "IPDM E/R" on "SELECT SYSTEM" screen. If "IPDM E/R" is not displayed, refer to [GI-47. "CONSULT-II Data Link Connector \(DLC\) Circuit"](#) .



# FRONT WIPER AND WASHER SYSTEM

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



A  
B  
C  
D

## DATA MONITOR

### Operation Procedure

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

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

- When "ALL SIGNALS" is selected, all the items will be monitored. When selecting "MAIN SIGNALS", predetermined items are monitored. When "SELECTION FROM MENU" is selected, touch items to be monitored.
- Touch "START".
- Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

E  
F  
G  
H  
I  
J

### All Items, Main Items, Selection Item 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/1LO/LO/HI	x	x	x	Signal status input from BCM.
Wiper auto stop	WIP AUTO STOP	ACT P/STOP P	x	x	x	Output status of IPDM E/R.
Wiper protection	WIP PROT	OFF/LS/HS/BLOCK	x	x	x	Control status of IPDM E/R.

WW

### NOTE:

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

L  
M

## ACTIVE TEST

### Operation Procedure

- Touch "WIPER" on "SELECT TEST ITEM" screen.
- Touch "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- Touch item(s) to be tested and check operation of the selected item(s).
- During the operation check, touching "BACK" deactivates the operation.

### Display Item List

Test item	CONSULT-II screen display	Description
Front wiper (HI, LO) output	FRONT WIPER	With a certain operation (OFF, HI, LO) front wiper relays can be operated.

# FRONT WIPER AND WASHER SYSTEM

GKS00071

## Front Wiper Does Not Operate

### CAUTION:

During IPDM E/R fail-safe control, front wipers may not operate. Refer to [PG-14, "CAN COMMUNICATION LINE CONTROL"](#) to make sure that it is not in fail-safe status.

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

With CONSULT-II

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

ACTIVE TEST			
FRONT WIPER		OFF	
HI		LO	
MODE	BACK	LIGHT	COPY

SKIA3486E

Without CONSULT-II

Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).

Does front wiper operate normally?

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

### 2. CHECK COMBINATION SWITCH TO BCM (1)

With CONSULT-II

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

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

PKIB0110E

Without CONSULT-II

Refer to [LT-71, "Combination Switch Inspection"](#).

OK or NG

- OK >> GO TO 3.  
NG >> Check combination switch (wiper switch). Refer to [LT-71, "Combination Switch Inspection"](#).

### 3. CHECK COMBINATION SWITCH TO BCM (2)

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. Refer to [BCS-14, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

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

PKIA7627E

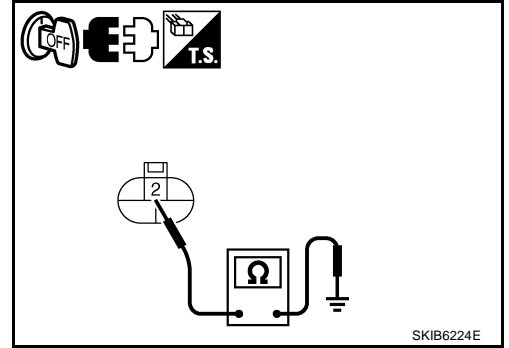
# FRONT WIPER AND WASHER SYSTEM

## 4. CHECK FRONT WIPER MOTOR GROUND CIRCUIT

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

Front wiper motor connector	Terminal	Ground	Continuity
E72	2		Yes

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



## 5. CHECK FRONT WIPER CIRCUIT

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

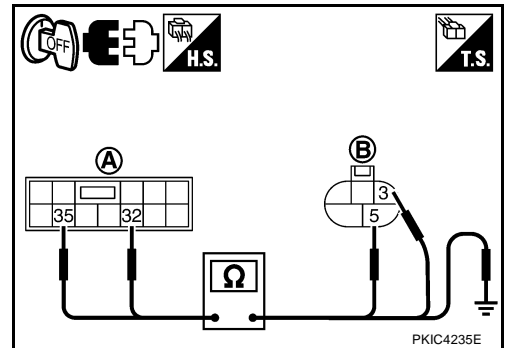
A		B		Continuity
Connector	Terminal	Connector	Terminal	
E13	32	E72	3	Yes
	35		5	

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

A		Ground	Continuity
Connector	Terminal		
E13	32	No	
	35		

OK or NG

OK >> GO TO 6.  
 NG >> Repair harness or connector.



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

WW

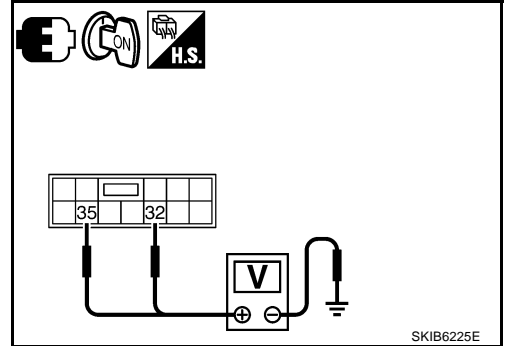
# FRONT WIPER AND WASHER SYSTEM

## 6. CHECK IPDM E/R

④ With CONSULT-II

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

Terminal		(-)	Condition	Voltage
(+)				
IPDM E/R connector	Terminal			
E13	32	Ground	Stopped	Approx. 0V
			LO operation	Battery voltage
	35		Stopped	Approx. 0V
			HI operation	Battery voltage



⊗ Without CONSULT-II

1. Connect IPDM E/R connector.
2. Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector and ground while front wiper (HI, LO) is operating.

Terminal		(-)	Condition	Voltage
(+)				
IPDM E/R connector	Terminal			
E13	32	Ground	Stopped	Approx. 0V
			LO operation	Battery voltage
	35		Stopped	Approx. 0V
			HI operation	Battery voltage

OK or NG

- OK >> Replace front wiper motor. Refer to [WW-32, "Removal and Installation of Wiper Motor and Linkage"](#).
- NG >> Replace IPDM E/R. Refer to [PG-26, "Removal and Installation of IPDM E/R"](#).



# FRONT WIPER AND WASHER SYSTEM

## Front Wiper Does Not Return to Stop Position (After Front Wiper for 10 Seconds, They Stop for 20 seconds, and After Repeating the Operations Five Times, They Become Inoperative)

GKS00072

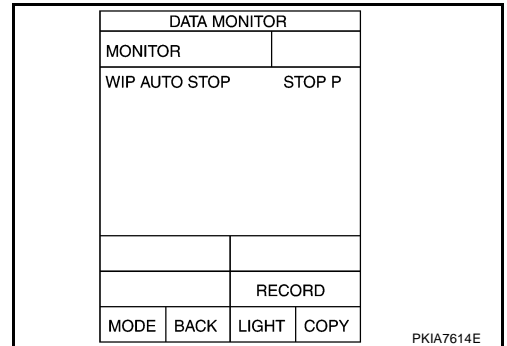
### CAUTION:

- When auto stop signal has not varied for 10 seconds or longer while IPDM E/R is operating front wipers, IPDM E/R considers 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" ITEMS SHOWS "BLOCK".

### 1. CHECK FRONT WIPER STOP SIGNAL

 With CONSULT-II

1. Select "BCM" on CONSULT-II. Select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "DATA MONITOR" on "SELECT DIAG MODE" screen. Make sure that "WIP AUTO STOP" turns "ACT P" - "STOP P" linked with wiper operation.



 Without CONSULT-II

GO TO 2.

Does the front wiper operate normally?

- YES >> Replace IPDM E/R. Refer to [PG-26, "Removal and Installation of IPDM E/R"](#).
- NO >> GO TO 2.

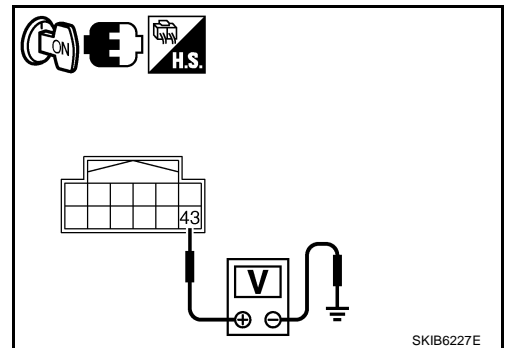
### 2. CHECK IPDM E/R

Check voltage between IPDM E/R harness connector and ground while front wiper motor is stopped and while it is operating.

Terminal (+)		Terminal (-)	Condition	Voltage
IPDM E/R connector	Terminal			
E17	43	Ground	Wiper stopped	Approx. 0V
			Wiper operating	Battery voltage

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-26, "Removal and Installation of IPDM E/R"](#).
- NG >> GO TO 3.



# FRONT WIPER AND WASHER SYSTEM

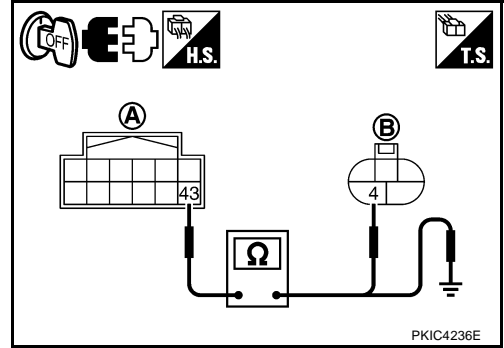
## 3. CHECK FRONT WIPER AUTO STOP CIRCUIT

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

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E17	43	E72	4	Yes

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

A		Ground	Continuity
Connector	Terminal		
E17	43		No



OK or NG

- OK >> Replace front wiper motor. Refer to [WW-32, "Removal and Installation of Wiper Motor and Linkage"](#).
- NG >> Repair harness or connector.

## Only Front Wiper LO Does Not Operate

GKS00073

### 1. ACTIVE TEST

With CONSULT-II

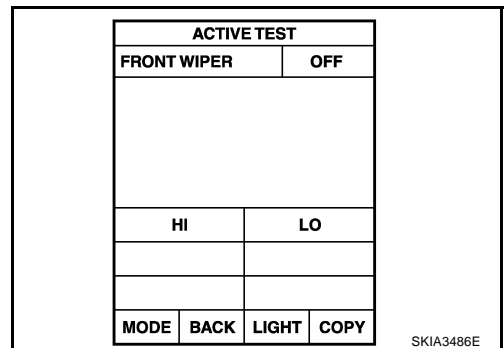
1. Select "IPDM E/R" on CONSULT-II. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Touch "LO" screen.

Without CONSULT-II

Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).

Does the front wiper operate normally?

- YES >> Refer to [LT-71, "Combination Switch Inspection"](#).
- NO >> GO TO 2.



# FRONT WIPER AND WASHER SYSTEM

## 2. CHECK FRONT WIPER MOTOR CIRCUIT

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

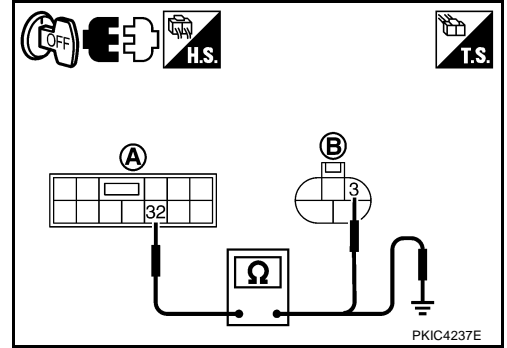
A		B		Continuity
Connector	Terminal	Connector	Terminal	
E13	32	E72	3	Yes

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

A		Ground	Continuity
Connector	Terminal		
E13	32		No

OK or NG

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



## 3. CHECK IPDM E/R

With CONSULT-II

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

Terminal (+)		Terminal (-)	Continuity
IPDM E/R connector	Terminal		
E13	32	Ground	Battery voltage

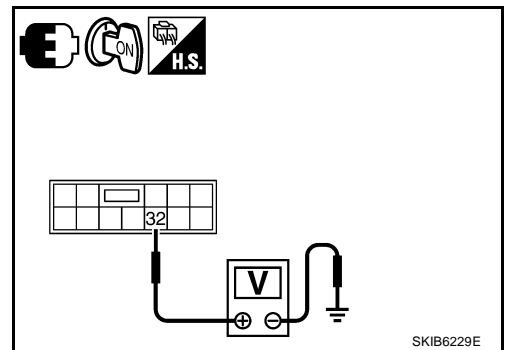
Without CONSULT-II

1. Connect IPDM E/R connector.
2. Start up auto active test. Refer to [PG-19, "Auto Active Test"](#).
3. Check voltage between IPDM E/R harness connector terminal and ground while front wiper LO is operating.

Terminal (+)		Terminal (-)	Continuity
IPDM E/R connector	Terminal		
E13	32	Ground	Battery voltage

OK or NG

- OK >> Replace front wiper motor. Refer to [WW-32, "Removal and Installation of Wiper Motor and Linkage"](#).  
 NG >> Replace IPDM E/R. Refer to [PG-26, "Removal and Installation of IPDM E/R"](#).



# FRONT WIPER AND WASHER SYSTEM

GKS00074

## Only Front Wiper HI Does Not Operate

### 1. ACTIVE TEST

 With CONSULT-II

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

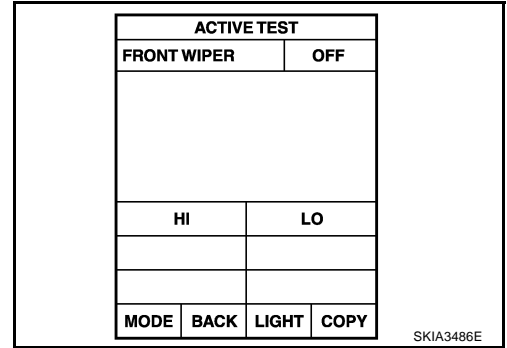
 Without CONSULT-II

Start up auto active test. Refer to [PG-19, "Auto Active Test"](#) .

Does front wiper operate normally?

YES >> Refer to [LT-71, "Combination Switch Inspection"](#) .

NO >> GO TO 2.



### 2. CHECK FRONT WIPER MOTOR CIRCUIT

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

A		B		Continuity
Connector	Terminal	Connector	Terminal	
E13	35	E72	5	Yes

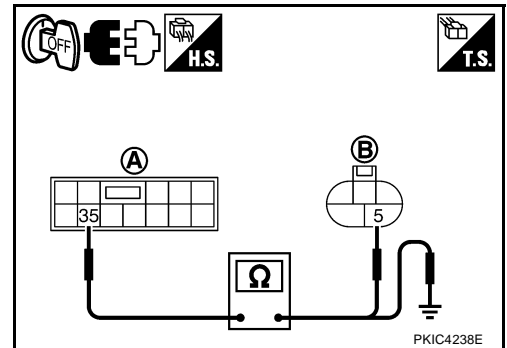
4. Check continuity between IPDM E/R harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
E13	35		No

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



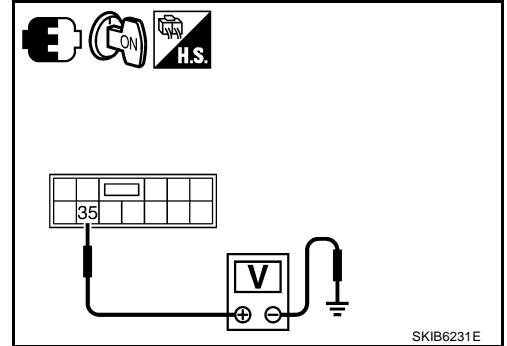
# FRONT WIPER AND WASHER SYSTEM

## 3. CHECK IPDM E/R

Ⓜ With CONSULT-II

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

Terminal		Continuity
(+)	(-)	
IPDM E/R connector	Terminal	
E13	35	Battery voltage



ⓧ Without CONSULT-II

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

Terminal		Continuity
(+)	(-)	
IPDM E/R connector	Terminal	
E13	35	Battery voltage

OK or NG

- OK >> Replace front wiper motor. Refer to [WW-32, "Removal and Installation of Wiper Motor and Linkage"](#).
- NG >> Replace IPDM E/R. Refer to [PG-26, "Removal and Installation of IPDM E/R"](#).

## Only Front Wiper INT Does Not Operate

GKS00075

WW

### 1. CHECK COMBINATION SWITCH TO BCM

1. Select "BCM" on CONSULT-II.
2. Select "WIPER" on "SELECT TEST ITEM" screen. Then select "DATA MONITOR" on "SELECT DIAG MODE" screen.
3. Check that "FR WIPER INT" turns ON-OFF according to operation of wiper switch.

OK or NG

- OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-33, "Removal and Installation of Wiper and Washer Switch"](#).

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

PKIB0110E

# FRONT WIPER AND WASHER SYSTEM

## Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

GKS00076

### 1. CHECK COMBINATION SWITCH TO BCM

1. Select "BCM" on CONSULT-II.
2. Select "WIPER" on "SELECT TEST ITEM" screen. Then select "DATA MONITOR" on "SELECT DIAG MODE" screen.
3. Check that "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-15, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-33, "Removal and Installation of Wiper and Washer Switch"](#).

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

PKIB0110E

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

GKS00077

### 1. CHECK FUNCTION OF COMBINATION METER

Confirm that speedometer operates normally.

Does the front wiper operate normally?

- YES >> GO TO 2.
- NO >> Combination meter vehicle speed system malfunction. Refer to [DI-21, "Vehicle Speed Signal Inspection \[Without ABS\]"](#), [DI-21, "Vehicle Speed Signal Inspection \[With ABS\]"](#).

### 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. Refer to [BCS-14, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

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

PKIA7627E

## Wipers Do Not Wipe When Front Washer Operates

GKS00078

### 1. CHECK COMBINATION SWITCH TO BCM

1. Select "BCM" on CONSULT-II.
2. Select "WIPER" on "SELECT TEST ITEM" screen. Then select "DATA MONITOR" on "SELECT DIAG MODE" screen.
3. Check that "FR WASHER SW" turns ON-OFF according to operation of front washer switch.

OK or NG

- OK >> Replace BCM. Refer to [BCS-15, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-33, "Removal and Installation of Wiper and Washer Switch"](#).

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

PKIB0110E

# FRONT WIPER AND WASHER SYSTEM

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

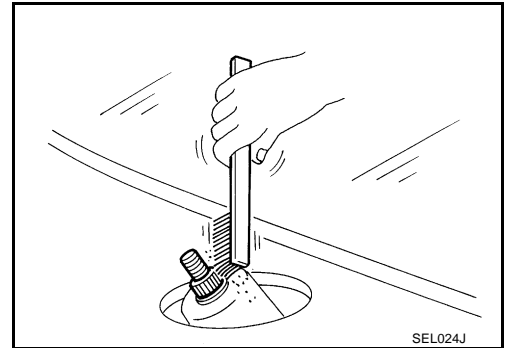
GKS00079

### REMOVAL

1. Operate wiper motor, and stop it at the auto stop position.
2. Remove wiper arm mounting nuts covers.
3. Remove wiper arm mounting nuts, then remove wiper arms.

### INSTALLATION

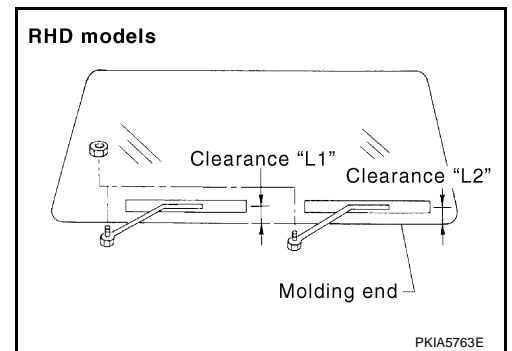
1. Before reinstalling wiper arm, clean up the pivot area as illustrated. This will reduce possibility of wiper arm looseness.



2. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (auto stop).
3. Lift the blade up and then set it down onto glass surface to set the blade center to clearance "L1" and "L2" immediately before tightening nut.
4. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
5. Ensure that wiper blades stop within clearance "L1" and "L2".

**Clearance "L1" :  $32 \pm 7.5$  mm (1.26  $\pm$  0.295 in)**

**Clearance "L2" :  $31 \pm 7.5$  mm (1.22  $\pm$  0.295 in)**



- Tighten wiper arm mounting nuts to specified torque.

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

A

B

C

D

E

F

G

H

I

J

WW

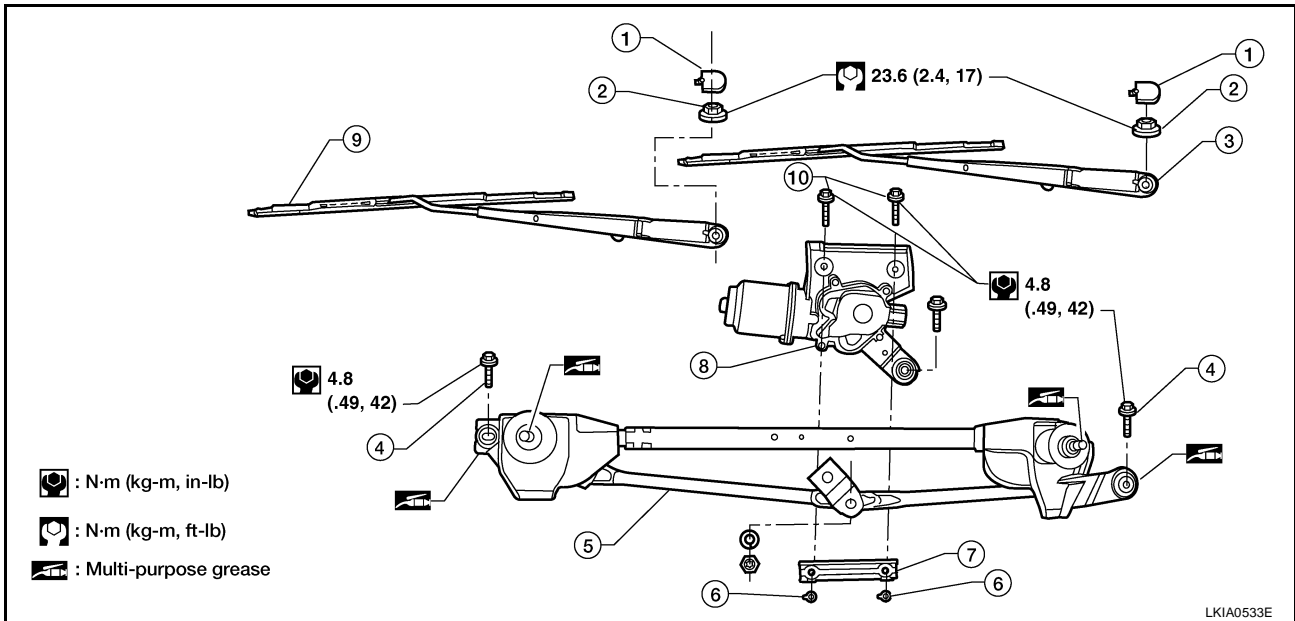
L

M

# FRONT WIPER AND WASHER SYSTEM

## Removal and Installation of Wiper Motor and Linkage

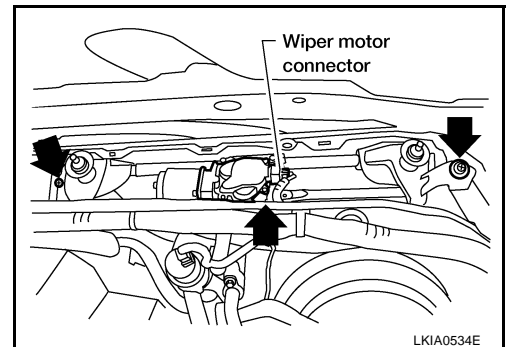
GKS0007A



- |   |                            |  |
|---|----------------------------|--|
| 1. Wiper arm mounting nut covers        | 2. Wiper arm mounting nuts | 3. Front LH wiper arm and blade assembly |
| 4. Wiper frame mounting bolts           | 5. Wiper frame assembly    | 6. Wiper motor to frame mounting nuts    |
| 7. Wiper motor mounting spacer          | 8. Wiper motor             | 9. Front RH wiper arm and blade assembly |
| 10. Wiper motor to frame mounting bolts |                            |  |

### REMOVAL

1. Turn wiper switch ON to operate wiper motor, then turn wiper switch OFF (auto stop).
2. Remove cowl top cover. Refer to [EI-20, "COWL TOP"](#).
3. Disconnect front wiper motor connector.
4. Remove wiper frame assembly mounting bolts, and remove wiper frame assembly.
5. Remove wiper motor to linkage nut and washer from wiper motor pivot.
6. Remove wiper motor from wiper frame assembly.



### INSTALLATION

#### CAUTION:

- Never drop the wiper motor or cause it to contact other parts.
  - Check the grease conditions of the motor arm and wiper link joint(s). Apply grease if necessary.
1. Connect wiper motor to connector. Turn wiper switch ON to operate wiper motor, then turn wiper switch OFF (auto stop).
  2. Disconnect wiper motor connector.
  3. Install link to wiper motor pivot with nut and washer.
  4. Install wiper motor to wiper frame assembly, and install assembly into the vehicle.
  5. Connect wiper motor connector. Turn wiper switch ON to operate wiper motor, then turn wiper switch OFF (auto stop).
  6. Install cowl top cover. Refer to [EI-20, "COWL TOP"](#).

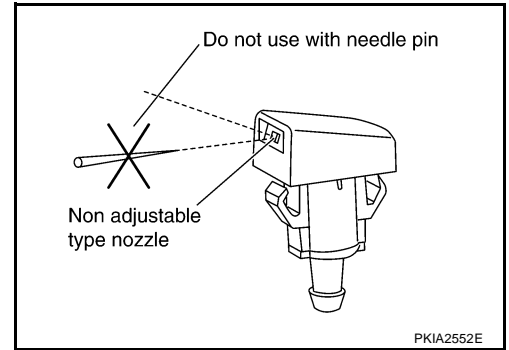


# FRONT WIPER AND WASHER SYSTEM

## Washer Nozzle Adjustment

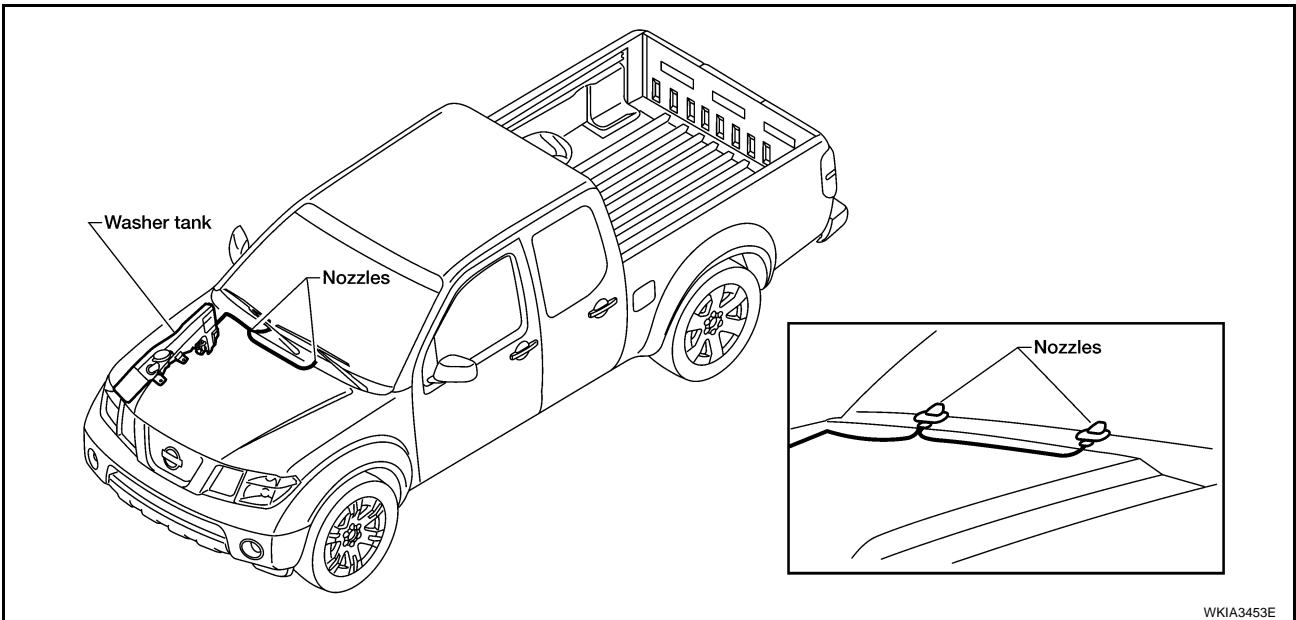
GKS0007B

- This vehicle is equipped with non-adjustable washer nozzles.
- If not satisfied with washer fluid spray coverage, confirm that the washer nozzle is installed correctly.
- If the washer nozzle is installed correctly, and the washer fluid spray coverage is not satisfactory, replace washer nozzle.



## Washer Tube Layout

GKS0007C

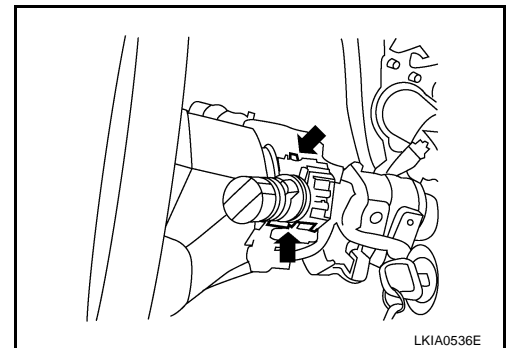


## Removal and Installation of Wiper and Washer Switch

GKS0007D

### REMOVAL

1. Remove steering column covers. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. Remove wiper washer switch connector.
3. Pinch tabs at wiper and washer switch base and slide switch away from steering column to remove.



### INSTALLATION

Installation is the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

WW

L  
M

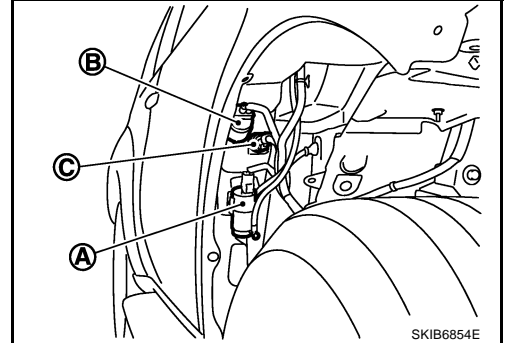
# FRONT WIPER AND WASHER SYSTEM

GKS0007E

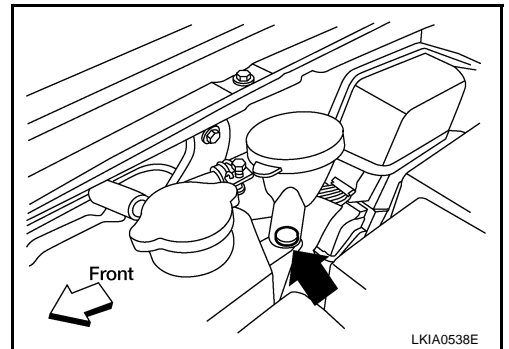
## Removal and Installation of Front Washer Tank

### REMOVAL

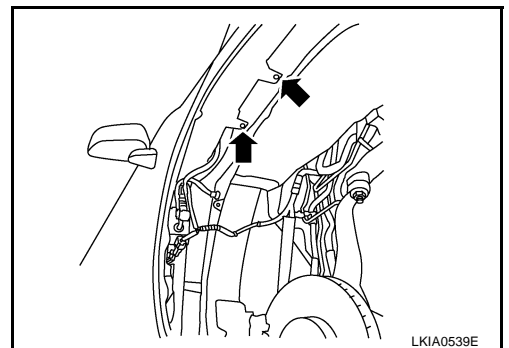
1. Remove front fender protector. Refer to [EI-22, "Removal and Installation of Front Fender Protector"](#) .
2. Remove front washer hoses from washer motor (A) and headlamp washer hose from headlamp washer motor (B); allow washer fluid to drain.
3. Disconnect front washer motor (A) connector, headlamp washer motor (B) connector and washer fluid level sensor (C) connector.



4. Remove clip, then remove washer tank filler neck from washer tank.



5. Remove washer tank screws and remove washer tank.



### INSTALLATION

#### CAUTION:

After installation, add water up to the upper level of the washer tank inlet, and check for water leaks. Installation is the reverse order of removal.

Washer tank mounting screws  : 5.5 N·m (0.56 kg-m, 49 in-lb)

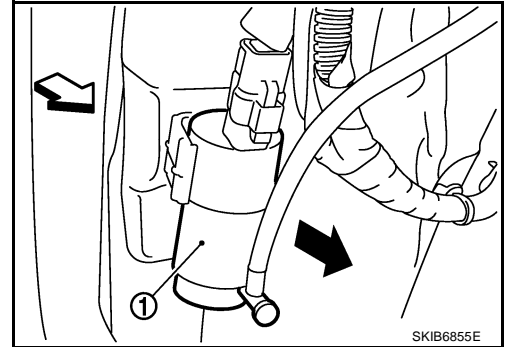
# FRONT WIPER AND WASHER SYSTEM

## Removal and Installation of Front Washer Motor REMOVAL

GKS0007F

↔: Vehicle front

1. Remove washer tank. Refer to [WW-34, "Removal and Installation of Front Washer Tank"](#) .
2. Pull out front washer motor (1) and remove from washer tank.



## INSTALLATION

Installation is the reverse order of removal.

### CAUTION:

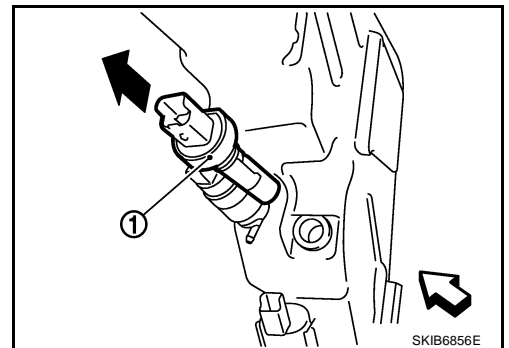
When installing front washer motor, there should be no packing twist, etc.

## Removal and Installation of Washer Fluid Level Sensor REMOVAL

GKS0007G

↔: Vehicle front

1. Remove washer tank. Refer to [WW-34, "Removal and Installation of Front Washer Tank"](#) .
2. Pull out washer fluid level sensor (1) and remove from washer tank in the direction of the arrow as shown.



## INSTALLATION

Installation is the reverse order of removal.

### CAUTION:

When installing washer fluid level sensor, there should be no packing twist, etc.

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

WW

# CIGARETTE LIGHTER

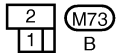
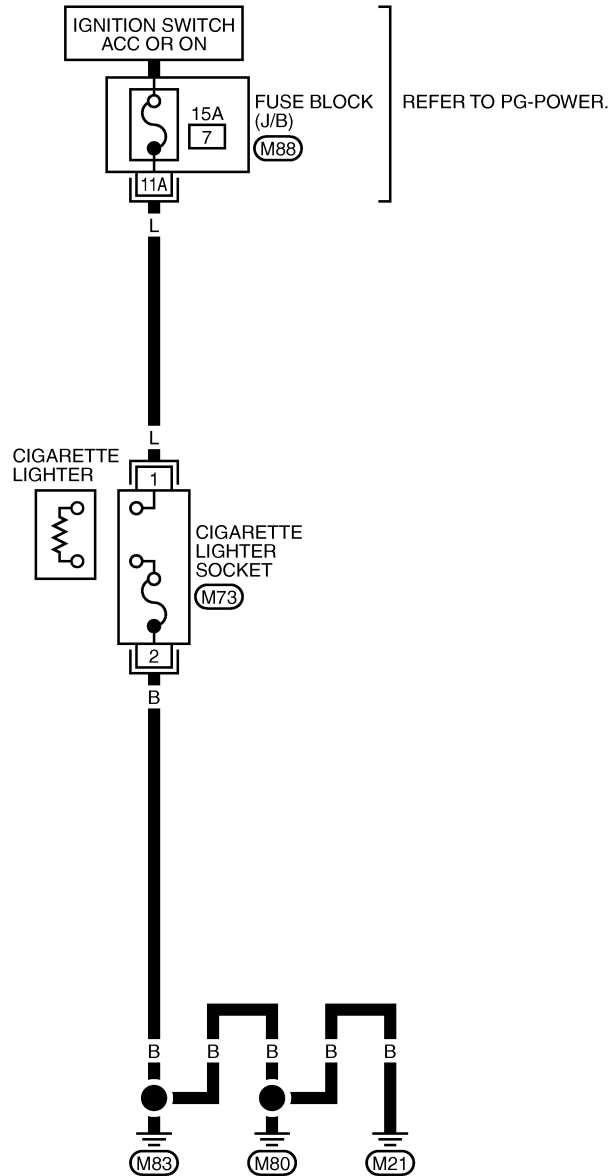
PFP:35330

## CIGARETTE LIGHTER

### Wiring Diagram — CIGAR —

GKS0007V

WW-CIGAR-01



REFER TO THE FOLLOWING.

(M88) - FUSE BLOCK -  
JUNCTION BOX (J/B)

MKWA2955E

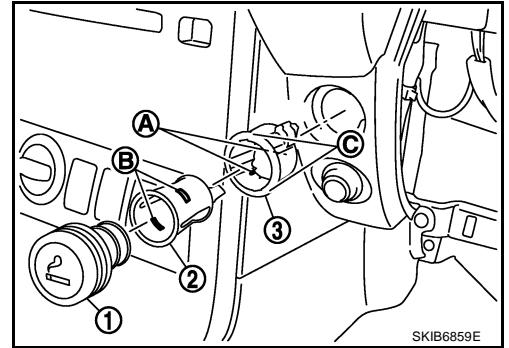
# CIGARETTE LIGHTER

## Removal and Installation of Cigarette Lighter

GKS0007W

### REMOVAL

1. Remove lower glove box assembly. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#).
2. Disconnect cigarette lighter connector.
3. Remove cigarette lighter (1).
4. Remove inner socket (2) from ring (3), while pressing hook (A) on ring (3) out from square hole (B).
5. Remove ring (3) from cluster lid D, while pressing pawls (C).



### INSTALLATION

Note the following, and installation is the reverse order of removal.

#### **CAUTION:**

**Align notches of ring and cluster lid D when installing.**

A

B

C

D

E

F

G

H

I

J

WW

L

M

# POWER SOCKET

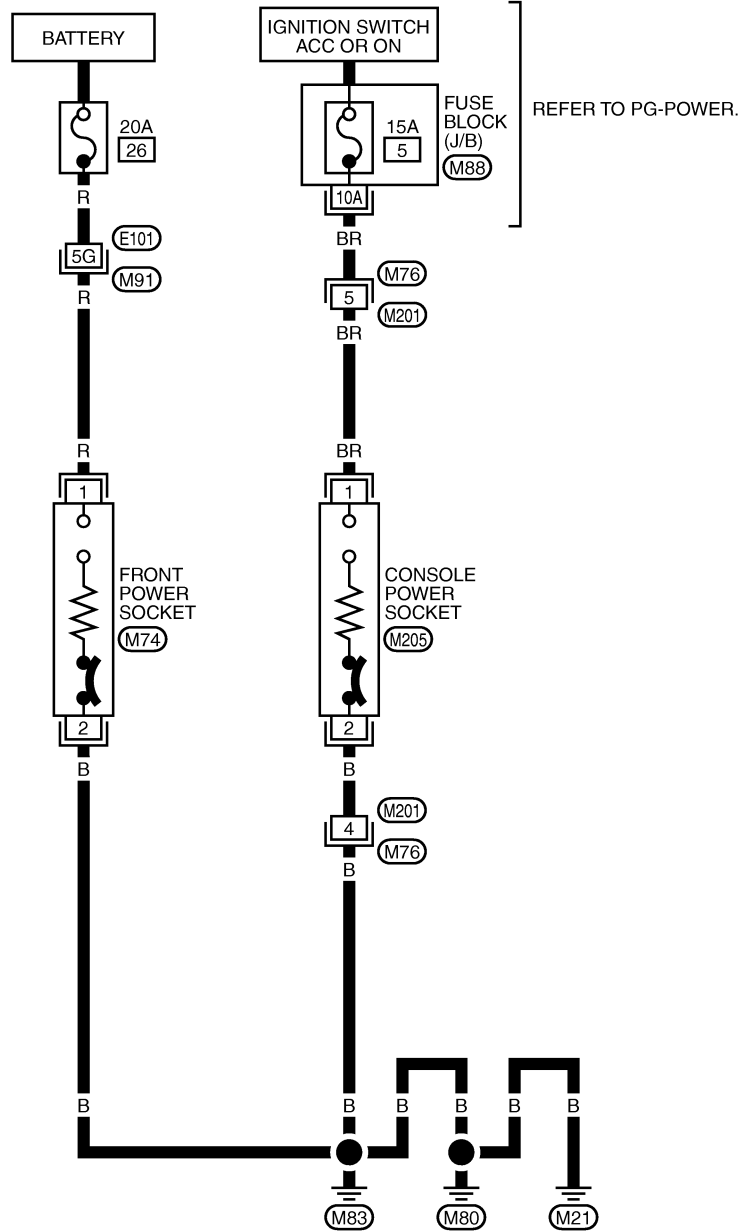
PFP:253A2

GKS007X

## POWER SOCKET

### Wiring Diagram — P/SCKT —

## WW-P/SCKT-01



(M76)  
W



(M74)  
B



(M205)

REFER TO THE FOLLOWING.

(M91) -SUPER MULTIPLE JUNCTION (SMJ)

(M88) -FUSE BLOCK-JUNCTION BOX (J/B)

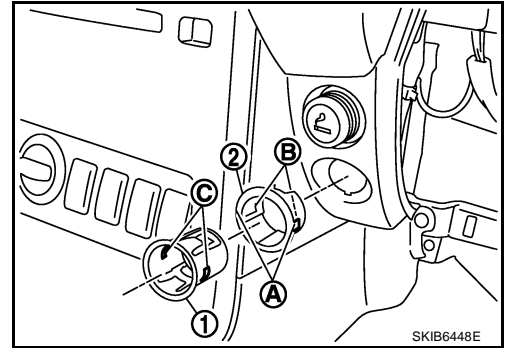
# POWER SOCKET

## Removal and Installation of Front Power Socket

GKS0007Y

### REMOVAL

1. Remove lower glove box assembly. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .
2. Disconnect power socket connector.
3. Remove inner socket (1) and ring (2) from cluster lid D, while pressing pawls (A).
4. Remove inner socket (1) from ring (2), while pressing the hook (B) on ring (2) out from square hole (C).



### INSTALLATION

Note the following, and installation is the reverse order of removal.

#### **CAUTION:**

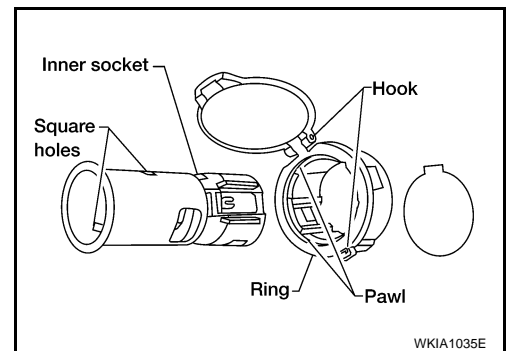
**Align notches of ring and cluster lid D when installing.**

## Removal and Installation of Console Power Socket

GKS0007Z

### REMOVAL

1. Remove inner socket from ring, while pressing the hook on ring out from square hole.
2. Disconnect power socket connector.
3. Remove ring from power socket finisher, while pressing pawls.



### INSTALLATION

Note the following, and installation is the reverse order of removal.

#### **CAUTION:**

**Align notches of ring and cluster lid D when installing.**

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

# HORN

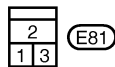
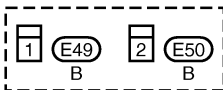
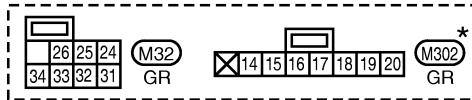
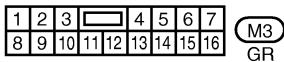
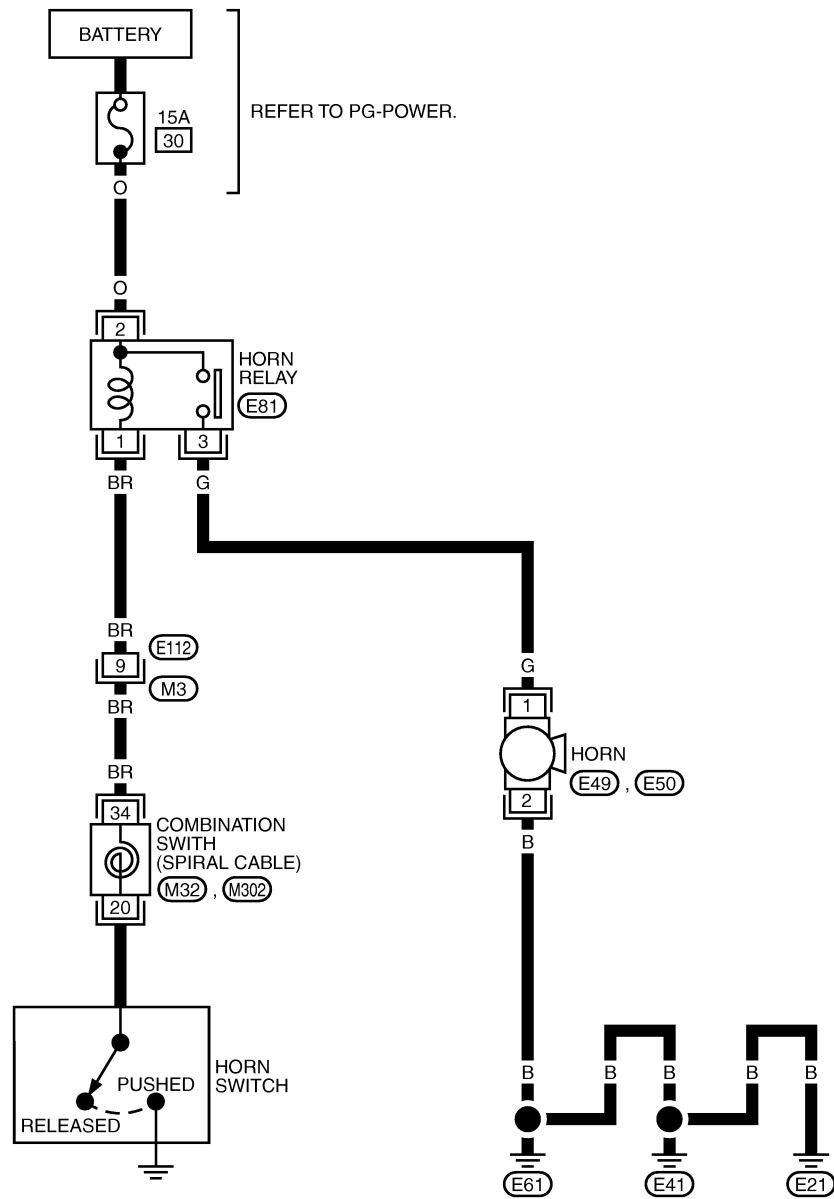
PFP:25610

GKS00080

WW-HORN-01

## HORN

### Wiring Diagram — HORN —



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

MKWA4074E



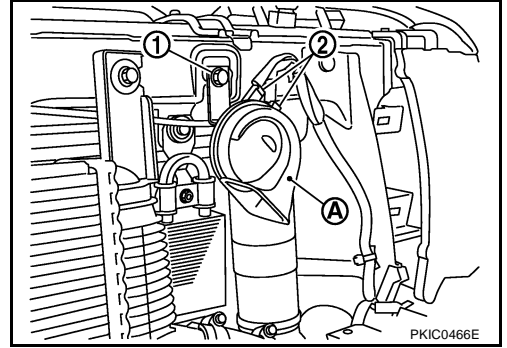
# HORN

GKS00081

## Removal and Installation of Horn

### REMOVAL

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



### INSTALLATION

Installation is the reverse order of removal.

**Horn mounting bolt**  : 17 N·m (1.7 kg-m, 13 ft-lb)

A

B

C

D

E

F

G

H

I

J

WW

L

M

**HORN**

---

**WW-42**