

SECTION **WW**

WIPER, WASHER & HORN

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

CONTENTS

<p>PRECAUTION 3</p> <p> Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER” 3</p> <p>FRONT WIPER AND WASHER SYSTEM 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> 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 7</p> <p> Schematic 8</p> <p> Wiring Diagram — WIPER — 9</p> <p> Terminals and Reference Values for BCM 12</p> <p> Terminals and Reference Values for IPDM E/R 12</p> <p> Work Flow 12</p> <p> BCM Power Supply and Ground Circuit Check 12</p> <p> CONSULT-II Function (BCM) 12</p> <p> CONSULT-II START PROCEDURE 12</p> <p> WORK SUPPORT 12</p> <p> DATA MONITOR 13</p> <p> ACTIVE TEST 13</p> <p> CONSULT-II Function (IPDM E/R) 13</p> <p> CONSULT-II START PROCEDURE 14</p> <p> DATA MONITOR 14</p> <p> ACTIVE TEST 14</p> <p> Front Wiper Does Not Operate 14</p> <p> Front Wiper Stop Position Is Incorrect 18</p> <p> Only Front Wiper Low Does Not Operate 19</p> <p> Only Front Wiper High Does Not Operate 19</p> <p> Only Front Wiper Intermittent Does Not Operate ... 21</p> <p> Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted 21</p> <p> Wipers Do Not Wipe When Front Washer Operates.. 21</p>	<p> Front Wipers Operate For 10 Seconds, Stop For 20 Seconds, And After Repeating This Operation Five Times, They Become Inoperative 21</p> <p> Front Wiper Arms 23</p> <p> REMOVAL 23</p> <p> INSTALLATION 23</p> <p> ADJUSTMENT AFTER INSTALLATION 23</p> <p> Wiper Motor and Linkage 24</p> <p> COMPONENTS 24</p> <p> REMOVAL 24</p> <p> INSTALLATION 24</p> <p> Washer Nozzle 25</p> <p> INSPECTION 25</p> <p> ADJUSTMENT 25</p> <p> Washer Tube Layout 27</p> <p> Wiper and Washer Switch 27</p> <p> REMOVAL 27</p> <p> INSTALLATION 27</p> <p> Washer Fluid Reservoir 27</p> <p> REMOVAL 27</p> <p> INSTALLATION 28</p> <p> Washer Motor 28</p> <p> REMOVAL 28</p> <p> INSTALLATION 28</p> <p>REAR WIPER AND WASHER SYSTEM 29</p> <p> Components Parts and Harness Connector Location 29</p> <p> System Description 29</p> <p> REAR WIPER OPERATION 30</p> <p> INTERMITTENT OPERATION 30</p> <p> AUTO STOP OPERATION 30</p> <p> REAR WASHER OPERATION 30</p> <p> BCM WIPER SWITCH READING FUNCTION ... 31</p> <p> Wiring Diagram — WIP/R — 32</p> <p> Terminals and Reference Values for BCM 34</p> <p> Terminals and Reference Values for IPDM E/R 34</p> <p> How to Proceed With Trouble Diagnosis 34</p> <p> Preliminary Check 34</p> <p> BCM POWER SUPPLY AND GROUND CICUIT.. 34</p> <p> CONSULT-II Function (BCM) 35</p>
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CONSULT-II START PROCEDURE	35	REMOVAL AND INSTALLATION	42
DATA MONITOR	35	Rear Wiper and Washer Switch	43
ACTIVE TEST	36	Washer Fluid Reservoir	43
Rear Wiper Does Not Operate	36	Washer Motor	43
Rear Wiper Stop Position Is Incorrect	38	POWER SOCKET	44
Only Rear Wiper Does Not Operate	39	Wiring Diagram — P/SCKT —	44
Only Rear Wiper Intermittent Does Not Operate ...	39	Front Power Socket- 1 (LH) and Rear Power Socket	
Wiper Does Not Wipe When Rear Washer Operates..	39	(Cargo)	45
Rear Wiper Arm	40	REMOVAL AND INSTALLATION	45
REMOVAL	40	Front Power Socket- 2 (RH) and Rear Power Socket	
INSTALLATION	40	(2nd Row)	45
Rear Wiper Motor	40	REMOVAL AND INSTALLATION	45
REMOVAL AND INSTALLATION	40	INSTALLATION	45
Rear Washer Nozzle Adjustment	41	HORN	46
Rear Washer Tube Layout	42	Wiring Diagram — HORN —	46
Rear Washer Nozzle	42	Horn	47
REMOVAL AND INSTALLATION	42	REMOVAL AND INSTALLATION	47
Check Valve	42	INSTALLATION	47

PRECAUTION

PRECAUTION

PFP:00011

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

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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.

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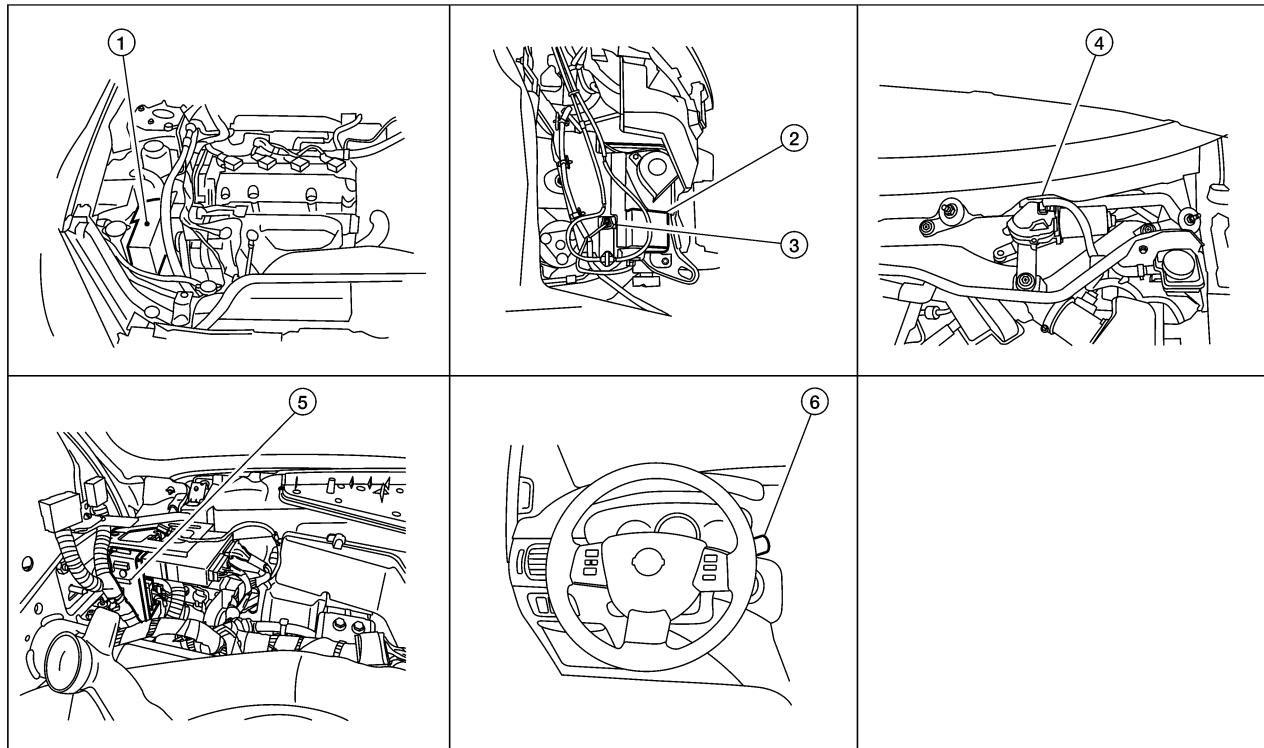
FRONT WIPER AND WASHER SYSTEM

FRONT WIPER AND WASHER SYSTEM

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Components Parts and Harness Connector Location

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WKIA5246E

*1 IPDM E/R E118, E119, E120, E121, E122, E123, and E124

*2 Washer fluid reservoir (view with right fender protector RH removed)

*3 Front and rear washer motor E105 (view with right fender protector RH removed)

*4 Front wiper motor E23 (view with cowl top cover removed)

*5 BCM M18, M19, and M20 (view with instrument panel removed)

*6 Combination switch (wiper switch) M28

System Description

EKS00FGI

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

Power is supplied at all times

- through 50A fusible link (letter j , located in the fuse and fusible link box)
- to BCM terminal 70, and
- to ignition relay, and
- through 15A fuse (No. 34, located in the IPDM E/R)
- to CPU (central processing unit) of IPDM E/R, and
- through 15A fuse (No. 41, located in the IPDM E/R)
- to CPU (central processing unit) of IPDM E/R, and
- through 30A fuse (No. 39, located in the IPDM E/R)
- to front wiper relay, located in the IPDM E/R.

With the ignition switch in ON or START position, power is supplied

- to ignition relay, and
- through 10A fuse [No. 16, located in the fuse block (J/B)]

FRONT WIPER AND WASHER SYSTEM

- to BCM terminal 38, and
- through 10A fuse (No. 47, located in the IPDM E/R)
- through IPDM E/R terminal 44
- to combination switch terminal 14.

Ground is supplied

- to BCM terminal 67 and
- to combination switch terminal 12
- through grounds M57, M61 and M79, and
- to IPDM E/R terminals 38 and 60 and
- to front wiper motor terminal 1
- through grounds E9, E15 and E24.

LOW SPEED WIPER OPERATION

When the ignition switch is in the ON or START position, and the front wiper switch is turned to low position, the BCM detects a low speed wiper ON signal by BCM wiper switch reading function.

BCM then sends front wiper (low) request signal over CAN communication lines

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

When IPDM E/R receives front wiper (low) request signal, it supplies ground to energize the front wiper relay. With the front wiper relay energized, power is supplied

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

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 high position, the BCM detects a high speed wiper ON signal by BCM wiper switch reading function.

BCM then sends front wiper (high) request signal over CAN communication lines

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

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

With the front wiper and the front wiper high relays energized, power is supplied

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

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

INTERMITTENT OPERATION

Wiper intermittent operation delay interval is determined from the combination of the intermittent wiper dial position inputs and vehicle speed. During each intermittent operation delay interval, the BCM sends a front wiper request signal to the IPDM E/R to operate the wipers.

When the ignition switch is in ON or START position, and the front wiper switch is turned to intermittent position, the BCM detects a front wiper (intermittent) ON signal by BCM wiper switch reading function.

BCM then sends front wiper (intermittent) request signal over CAN communication lines

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

When BCM determines that combination switch status is front wiper intermittent ON, it performs the following operations.

- BCM detects ON/OFF status of intermittent wiper dial position.

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FRONT WIPER AND WASHER SYSTEM

- BCM calculates operation interval from wiper dial position and vehicle speed signal received through 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 supplies ground to energize the front wiper relay. It then sends auto-stop signal to BCM, and conducts intermittent front wiper motor 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 windshield base. When wiper arms reach base of windshield, front wiper motor terminals 1 and 4 are connected.

Ground is supplied

- to IPDM E/R terminal 32
- through front wiper motor terminal 4
- through front wiper motor terminal 1
- through grounds E9, E15 and E24.

The IPDM E/R sends auto stop operation signal to BCM through CAN communication lines.

When BCM receives auto stop operation signal, BCM sends wiper stop signal to IPDM E/R with CAN communication lines. The IPDM E/R then de-energizes the front wiper relay.

Wiper motor will then stop wiper arms at the STOP position.

FRONT WASHER OPERATION

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

- through 10A fuse (No. 47, located in the IPDM E/R)
- through IPDM E/R terminal 44
- through combination switch (wiper switch) terminal 14
- through combination switch (wiper switch) terminal 13
- to front and rear washer motor terminal –.

When front wiper switch is in front washer position, BCM detects front washer signal by BCM wiper switch reading function. Combination switch ground is supplied

- to front and rear washer motor terminal +
- through combination switch (wiper switch) terminal 11
- through combination switch (wiper switch) terminal 12
- through grounds M57, M61 and M79.

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

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

When BCM detects that 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-5, "LOW SPEED WIPER OPERATION"](#).

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

FAIL-SAFE FUNCTION

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

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

Until ignition switch is turned off, front wiper 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, 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

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

CAN Communication System Description

Refer to [LAN-4, "SYSTEM DESCRIPTION"](#) .

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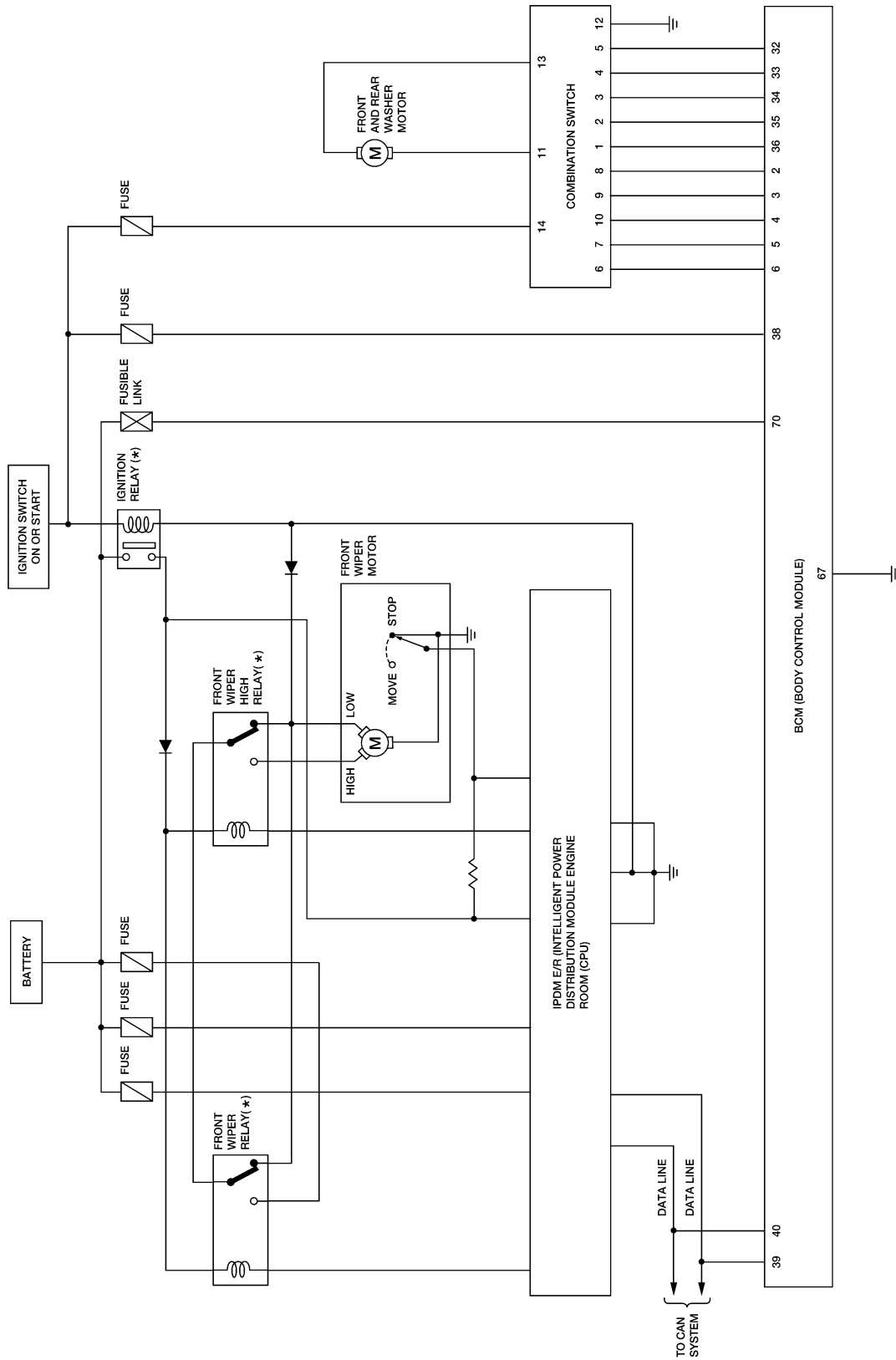
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FRONT WIPER AND WASHER SYSTEM

Schematic

EKS00FGK



*: THIS RELAY IS BUILT INTO THE IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM).

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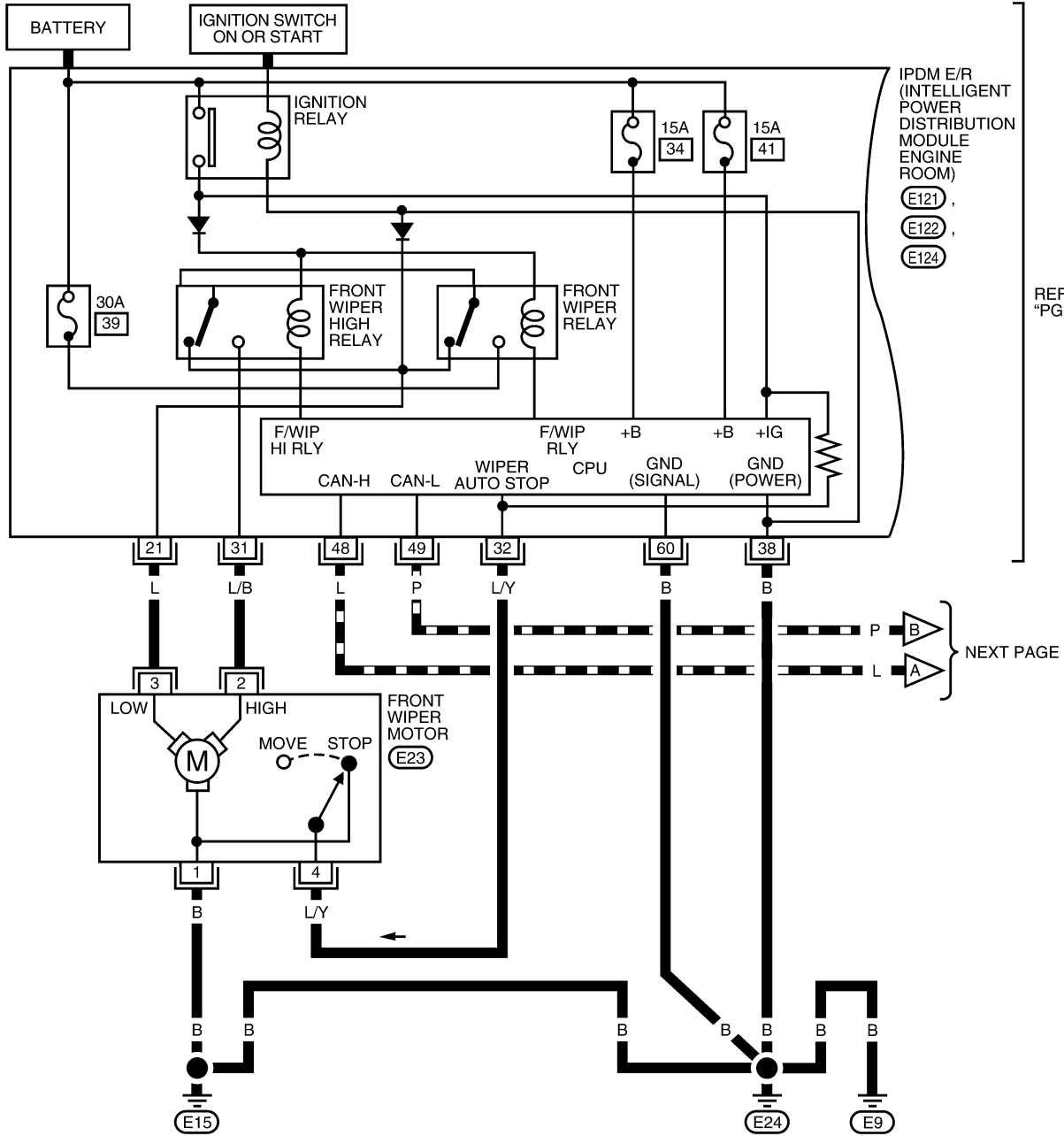
FRONT WIPER AND WASHER SYSTEM

Wiring Diagram — WIPER —

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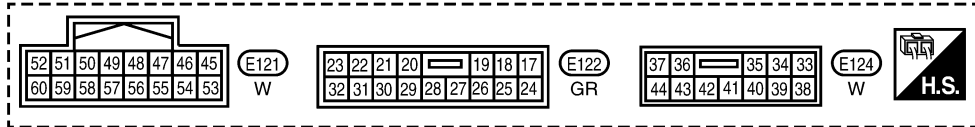
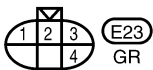
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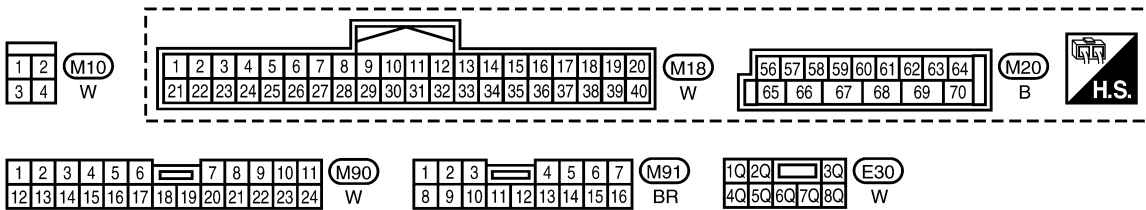
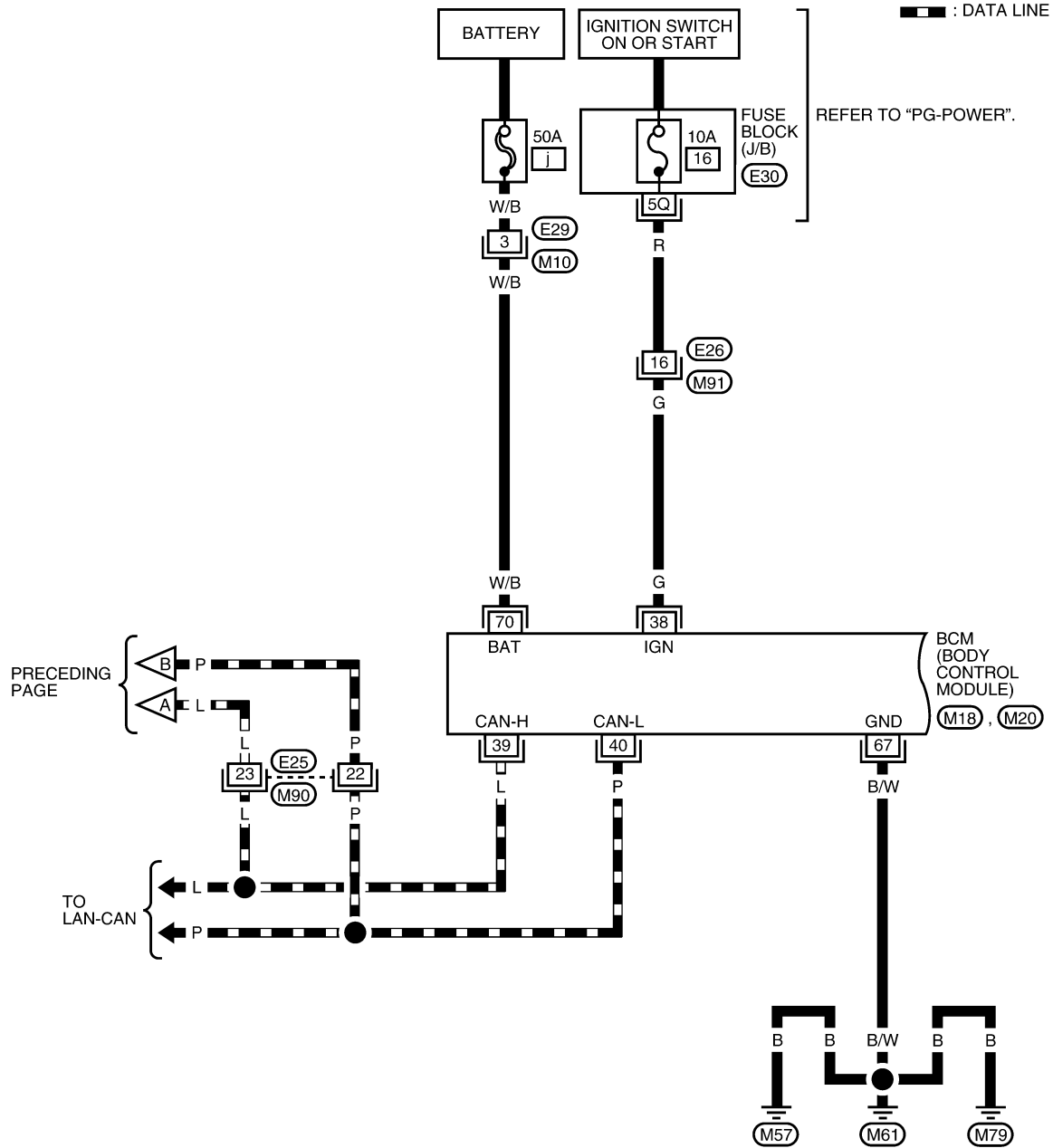
REFER TO "PG-POWER".

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FRONT WIPER AND WASHER SYSTEM

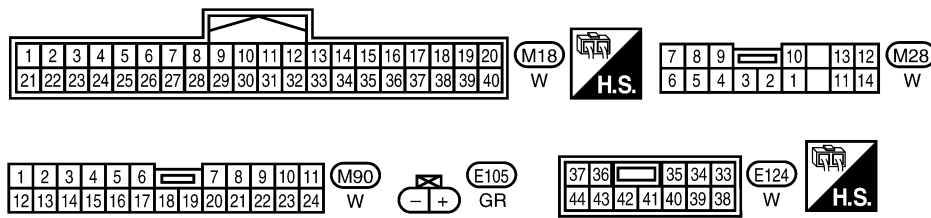
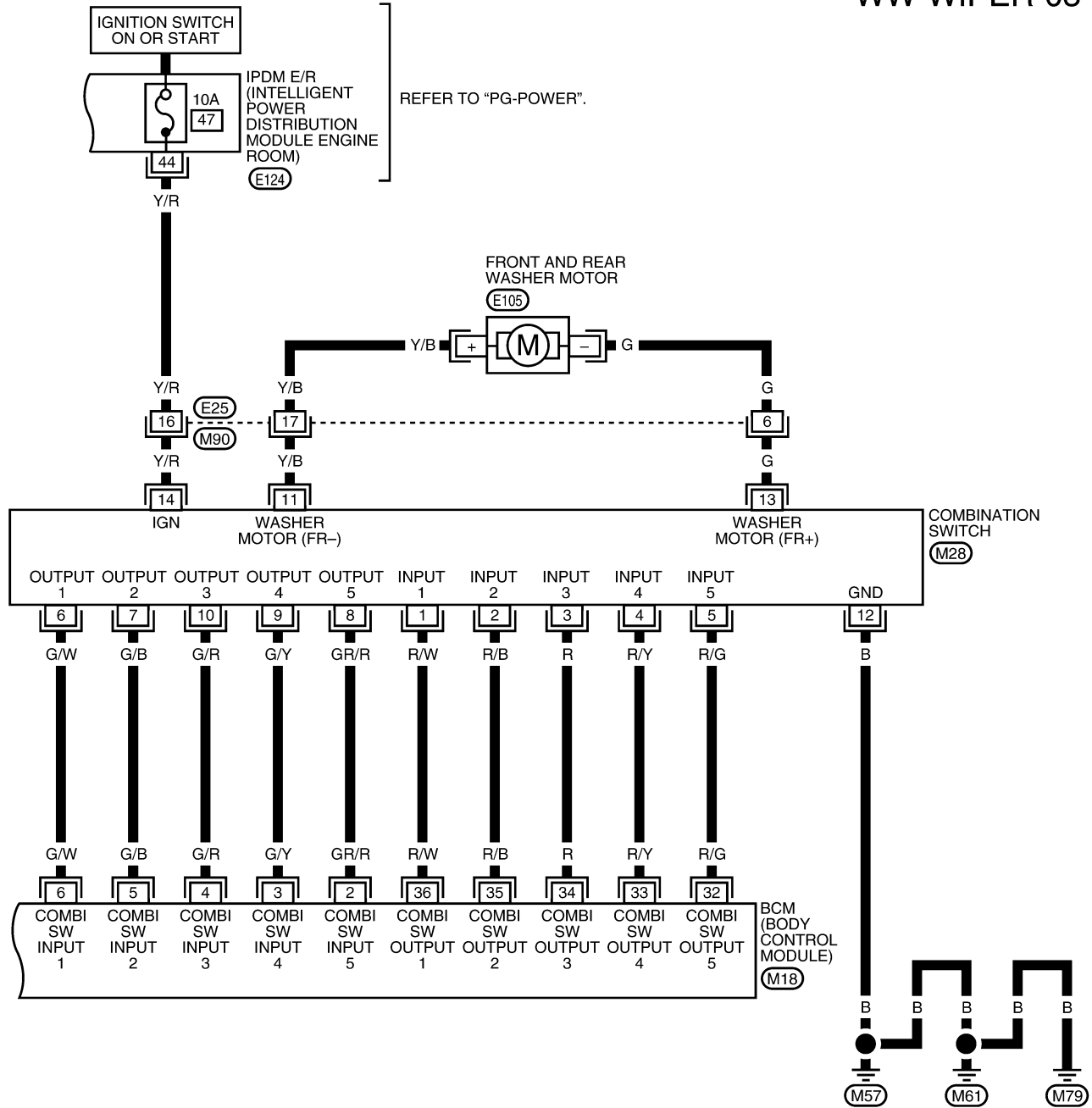
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FRONT WIPER AND WASHER SYSTEM

WW-WIPER-03



FRONT WIPER AND WASHER SYSTEM

Terminals and Reference Values for BCM

EKS00FGM

Refer to [BCS-12, "Terminals and Reference Values for BCM"](#) .

Terminals and Reference Values for IPDM E/R

EKS00FGN

Refer to [PG-27, "Terminals and Reference Values for IPDM E/R"](#) .

Work Flow

EKS00FGO

1. Confirm the symptom or customer complaint.
2. Understand the system description, refer to [WW-4, "System Description"](#) .
3. Perform preliminary inspection, refer to [WW-12, "BCM Power Supply and Ground Circuit Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does wiper function operate normally? If it operates normally, GO TO 6. If not, GO TO 4.
6. Inspection End.

BCM Power Supply and Ground Circuit Check

EKS00FGP

Refer to [BCS-15, "BCM Power Supply and Ground Circuit Check"](#) .

CONSULT-II Function (BCM)

EKS00FGQ

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

BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	Displays BCM input/output data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
	SELF-DIAG RESULTS	Displays BCM self-diagnosis results.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
	ECU PART NUMBER	BCM part number can be read.
	CONFIGURATION	Performs BCM configuration read/write functions.

CONSULT-II START PROCEDURE

Refer to [GI-37, "CONSULT-II Start Procedure"](#) .

WORK SUPPORT

Operation Procedure

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

Work Support Setting Item

Item	Description	CONSULT-II
WIPER SPEED SETTING	When wiper switch is at INTERMITTENT, front wiper intermittent time can be selected according to vehicle speed. ● ON (Operated)/OFF ^{NOTE} (Not operated)	ON/OFF

NOTE:

Factory setting

FRONT WIPER AND WASHER SYSTEM

DATA MONITOR

Operation Procedure

1. Touch "WIPER" on the "SELECT TEST ITEM" screen.
2. Touch "DATA MONITOR" on the "SELECT DIAG MODE" screen.
3. Touch either "ALL SIGNALS" or "SELECTION FROM MENU" on the "SELECT MONITOR ITEM" 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 to record the status of the item being monitored. 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.
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 CAN communication.

ACTIVE TEST

Operation Procedure

1. Touch "WIPER" on the "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on the "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 "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 (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.

CONSULT-II Function (IPDM E/R)

EKS00FGR

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

IPDM E/R diagnostic Mode	Description
SELF-DIAG RESULTS	Displays IPDM E/R self-diagnosis results.
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.

FRONT WIPER AND WASHER SYSTEM

CONSULT-II START PROCEDURE

Refer to [GI-37, "CONSULT-II Start Procedure"](#) .

DATA MONITOR

Operation Procedure

1. Touch "WIPER" on the "SELECT TEST ITEM" screen.
2. Touch "DATA MONITOR" on the "SELECT DIAG MODE" screen.
3. 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.

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. When "MAIN SIGNALS" is selected, predetermined items are monitored.
6. Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

All Items, Main Items, Select Item Menu

Item name	CONSULT-II screen display	Display or unit	Monitor item selection			Description
			ALL SIGNALS	MAIN SIGNALS	SELECTION FROM MENU	
Front 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.

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.

ACTIVE TEST

Operation Procedure

1. Touch "WIPER" on the "SELECT TEST ITEM" screen.
2. Touch "ACTIVE TEST" on the "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 "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 Does Not Operate

EKS00FGS

CAUTION:

During IPDM E/R fail-safe control, front wipers may not operate. Refer to [PG-18, "CAN COMMUNICATION LINE CONTROL"](#) to make sure that it is not in fail-safe status.

FRONT WIPER AND WASHER SYSTEM

1. CHECK IPDM E/R TO FRONT WIPERS

Ⓜ With CONSULT-II

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

ⓧ Without CONSULT-II

1. Turn on front wipers using auto active test. Refer to [PG-23](#), "[Auto Active Test](#)".
2. Confirm front wiper operation.

OK or NG

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

ACTIVE TEST			
FRONT WIPER		OFF	
HI		LO	
MODE	BACK	LIGHT	COPY

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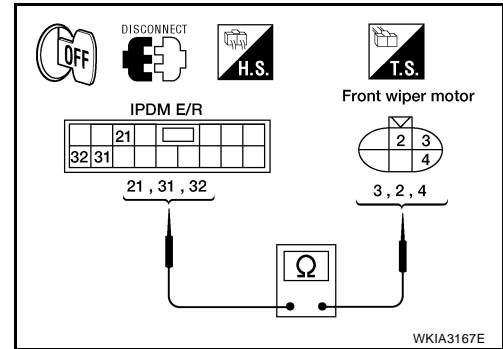
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FRONT WIPER AND WASHER SYSTEM

2. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

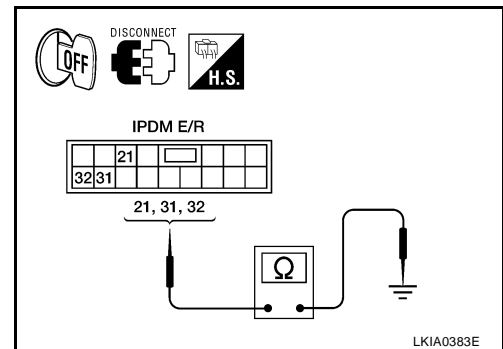
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connectors and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector terminals and front wiper motor harness connector terminals.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E122	31	E23	2	Yes
	21		3	
	32		4	



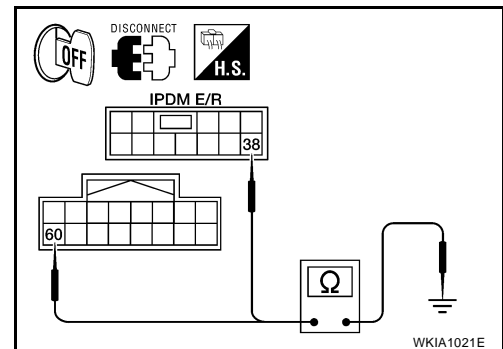
4. Check continuity between IPDM E/R harness connector terminals and ground.

IPDM E/R			Continuity
Connector	Terminal		
E122	31	Ground	No
	21		
	32		



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

IPDM E/R			Continuity
Connector	Terminal		
E121	60	Ground	Yes
E124	38		

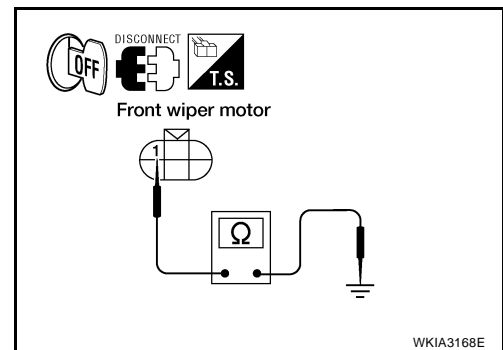


6. Check continuity between front wiper motor harness connector terminal 1 and ground.

Front wiper motor			Continuity
Connector	Terminal		
E23	1	Ground	Yes

OK or NG

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



FRONT WIPER AND WASHER SYSTEM

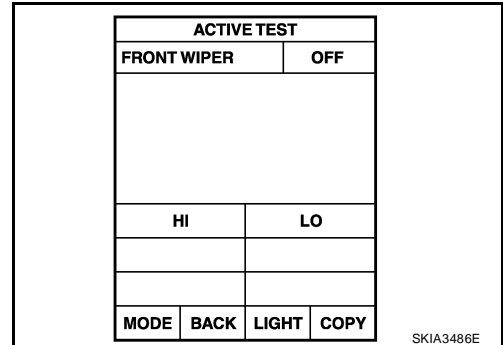
3. IPDM E/R INSPECTION

☑ With CONSULT-II

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

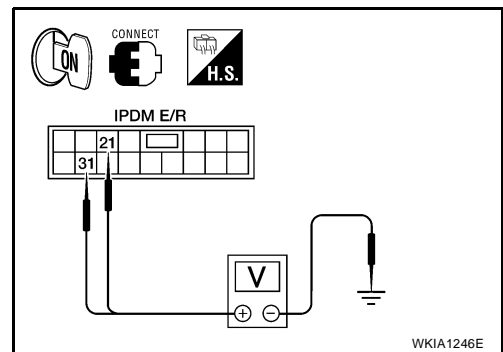
☒ Without CONSULT-II

1. Turn on front wipers using the auto active test. Refer to [PG-23, "Auto Active Test"](#).



When front wiper relay and front wiper high relay are operating, check voltage between IPDM E/R terminals and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
Connector	Terminal			
E122	21	Ground	Stopped	0V
			LO operation	Battery voltage
	31		Stopped	0V
			HI operation	Battery voltage



OK or NG

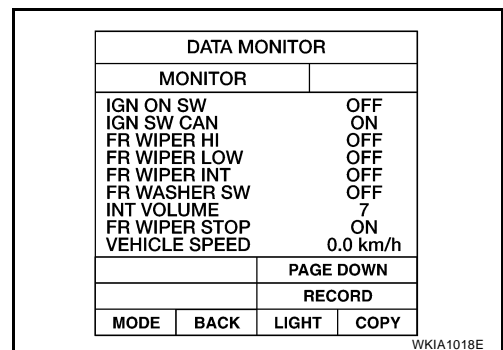
- OK >> Replace the front wiper motor. Refer to [WW-24, "Wiper Motor and Linkage"](#).
- NG >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).

4. COMBINATION SWITCH TO BCM INSPECTION

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

OK or NG

- OK >> GO TO 5.
- NG >> Check wiper switch. Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#).

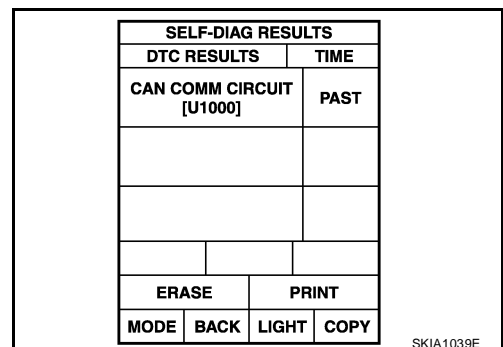


5. BCM INSPECTION

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

Displayed self-diagnosis results

- NO DTC >> Replace the BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- CAN COMM CIRCUIT >> Check CAN communication line of BCM. GO TO [BCS-18, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).



FRONT WIPER AND WASHER SYSTEM

EKS00G9T

Front Wiper Stop Position Is Incorrect

1. CHECK IPDM E/R TO FRONT WIPER MOTOR

Ⓜ With CONSULT-II

Select "IPDM E/R" with CONSULT-II. With "DATA MONITOR", confirm that "WIP AUTO STOP" changes from "ACT P" to "STOP P" according to wiper operation.

ⓧ Without CONSULT-II

GO TO 2.

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).

NG >> GO TO 2.

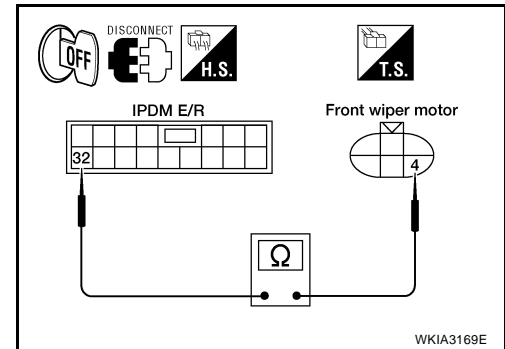
DATA MONITOR	
MONITOR	
MOTOR FAN REQ	1
AC COMP REQ	OFF
TAIL&CLR REQ	OFF
HL LO REQ	OFF
HL HI REQ	OFF
FR FOG REQ	OFF
FR WIP REQ	STOP
WIP AUTO STOP	STOP P
WIP PROT	OFF
Page DOWN	
RECORD	
MODE	BACK
LIGHT	COPY

SKIA5301E

2. IPDM E/R TO FRONT WIPER MOTOR CIRCUIT INSPECTION

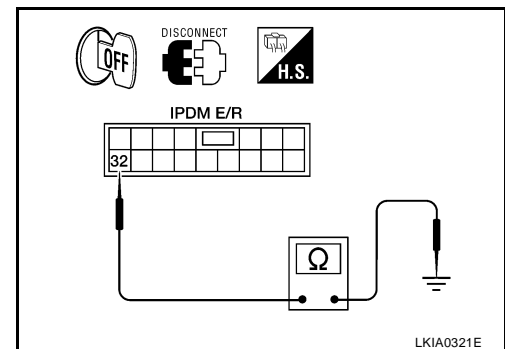
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E122	32	E23	4	Yes



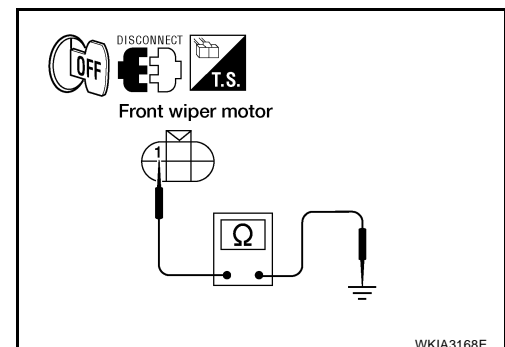
4. Check continuity between IPDM E/R harness connector terminal and ground.

IPDM E/R		Continuity
Connector	Terminal	
E122	32	No



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

Front wiper motor		Continuity
Connector	Terminal	
E23	1	Yes



OK or NG

OK >> Connect connectors. GO TO 3.

NG >> ● Check for short circuit or open circuit in harness between IPDM E/R and front wiper motor.

- Check for open circuit in harness between front wiper motor and ground.

FRONT WIPER AND WASHER SYSTEM

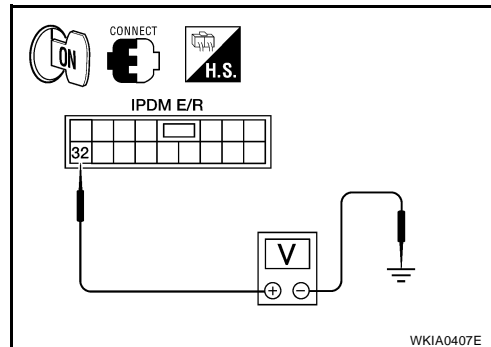
3. IPDM E/R TO FRONT WIPER MOTOR AUTO STOP CIRCUIT INSPECTION

1. Turn ignition switch ON.
2. While front wiper motor is stopped and while operating, measure voltage between IPDM E/R terminal 32 and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
(+) Connector Terminal				
E122	32	Ground	Wiper operating	Battery voltage
			Wiper stopped	0V

OK or NG

- OK >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#) .
- NG >> Replace front wiper motor. Refer to [WW-24, "Wiper Motor and Linkage"](#) .



Only Front Wiper Low Does Not Operate

EKS00G9U

Inspection Procedure

1. COMBINATION SWITCH TO BCM INSPECTION

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

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#) .
- NG >> Replace wiper switch. Refer to [WW-27, "Wiper and Washer Switch"](#) .

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

WKIA1018E

Only Front Wiper High Does Not Operate

EKS00G9U

1. CHECK IPDM E/R TO FRONT WIPERS

☑ With CONSULT-II

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

☒ Without CONSULT-II

1. Turn on front wipers using auto active test. Refer to [PG-23, "Auto Active Test"](#) .
2. Confirm front wiper operation.

OK or NG

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

ACTIVE TEST	
FRONT WIPER	OFF
HI	
LO	
MODE	BACK
LIGHT	COPY

SKIA3486E

FRONT WIPER AND WASHER SYSTEM

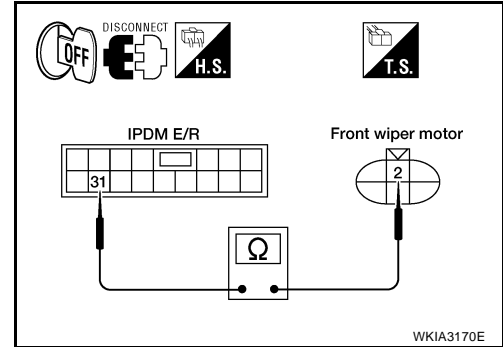
2. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

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 terminal and front wiper motor harness connector terminal.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E122	31	E23	2	Yes

OK or NG

- OK >> Connect connectors. GO TO 3.
 NG >> Check for short circuit or open circuit in harness between IPDM E/R and front wiper motor.



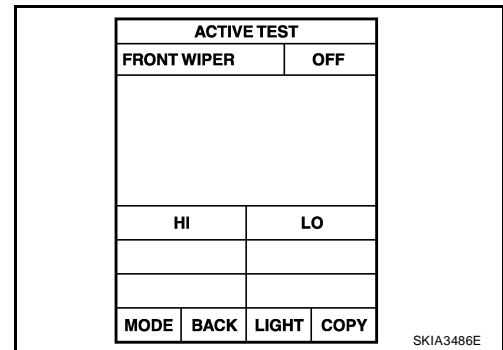
3. IPDM E/R INSPECTION

With CONSULT-II

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

Without CONSULT-II

1. Turn on front wipers using the auto active test. Refer to [PG-23, "Auto Active Test"](#).

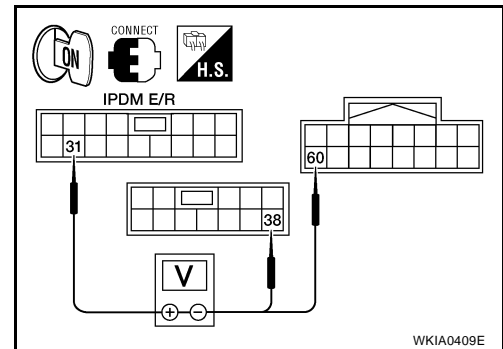


When front wiper high relay is operating, check voltage between IPDM E/R terminals.

IPDM E/R				Voltage (Approx.)
(+) Terminal		(-) Terminal		
Connector	Terminal	Connector	Terminal	
E122	31	E124	38	Battery voltage
		E121	60	

OK or NG

- OK >> Replace the wiper motor. Refer to [WW-24, "Wiper Motor and Linkage"](#).
 NG >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).

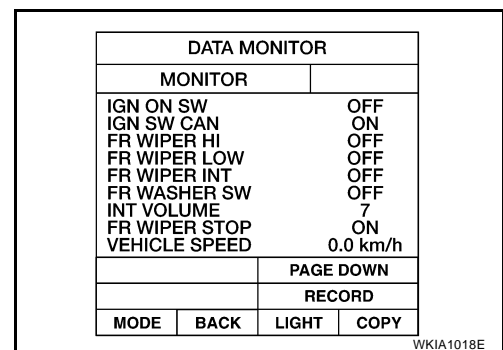


4. COMBINATION SWITCH TO BCM INSPECTION

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

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
 NG >> Replace wiper switch. Refer to [WW-27, "Wiper and Washer Switch"](#).



FRONT WIPER AND WASHER SYSTEM

Only Front Wiper Intermittent Does Not Operate

EKS00G9W

1. COMBINATION SWITCH TO BCM INSPECTION

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

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-27, "Wiper and Washer Switch"](#).

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

WKIA1018E

Front Wiper Intermittent Operation Switch Position Cannot Be Adjusted

EKS00G9X

1. COMBINATION SWITCH TO BCM INSPECTION

Select "BCM" on CONSULT-II. With "WIPER" data monitor, 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-25, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-27, "Wiper and Washer Switch"](#).

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

WKIA1018E

Wipers Do Not Wipe When Front Washer Operates

EKS00G9Y

1. COMBINATION SWITCH TO BCM INSPECTION

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

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-27, "Wiper and Washer Switch"](#).

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

WKIA1018E

Front Wipers Operate For 10 Seconds, Stop For 20 Seconds, And After Repeating This Operation Five Times, They Become Inoperative

EKS00G9Z

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 locked and stops wiper output, which causes this symptom.
- This status can be checked by using IPDM E/R "DATA MONITOR". Under this condition, "WIP PROT" reads "BLOCK".

FRONT WIPER AND WASHER SYSTEM

1. CHECK IPDM E/R TO FRONT WIPER MOTOR

☑ With CONSULT-II

Select "IPDM E/R" with CONSULT-II. With "DATA MONITOR", confirm that "WIP AUTO STOP" changes from "ACT P" to "STOP P" according to wiper operation.

☒ Without CONSULT-II

GO TO 2.

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).

NG >> GO TO 2.

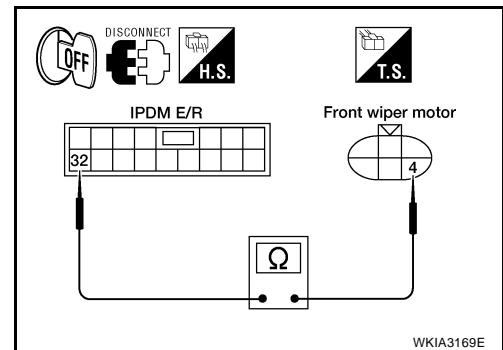
DATA MONITOR	
MONITOR	
MOTOR FAN REQ	1
AC COMP REQ	OFF
TAIL&CLR REQ	OFF
HL LO REQ	OFF
HL HI REQ	OFF
FR FOG REQ	OFF
FR WIP REQ	STOP
WIP AUTO STOP	STOP P
WIP PROT	OFF
Page DOWN	
RECORD	
MODE	BACK
LIGHT	COPY

SKIA5301E

2. IPDM E/R TO FRONT WIPER MOTOR AUTO STOP CIRCUIT INSPECTION

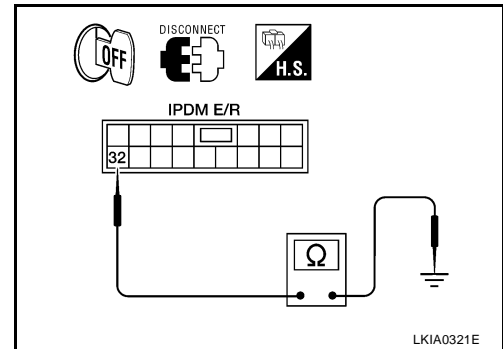
- Turn ignition switch OFF.
- Disconnect IPDM E/R connector and front wiper motor connector.
- Check continuity between IPDM E/R harness connector terminal and front wiper motor harness connector terminal.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E122	32	E23	4	Yes



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

IPDM E/R		Continuity
Connector	Terminal	
E122	32	No



OK or NG

OK >> Connect connectors. GO TO 3.

NG >> Repair harness or connector.

3. IPDM E/R TO FRONT WIPER MOTOR AUTO STOP CIRCUIT VOLTAGE

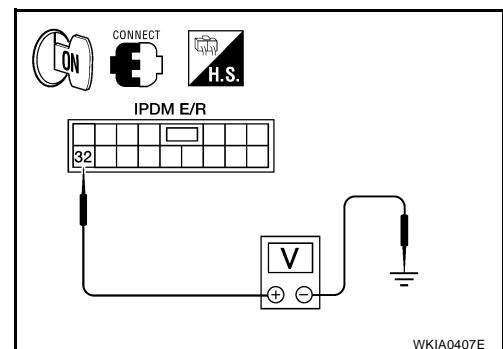
- Turn ignition switch ON.
- While front wiper motor is stopped and while operating, measure voltage between IPDM E/R terminal 32 and ground.

IPDM E/R		Condition	Voltage (Approx.)
(+)			
Connector	Terminal	(-)	
E122	32	Wiper operating	Battery voltage
		Wiper stopped	0V

OK or NG

OK >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).

NG >> Replace front wiper motor. Refer to [WW-24, "Wiper Motor and Linkage"](#).



FRONT WIPER AND WASHER SYSTEM

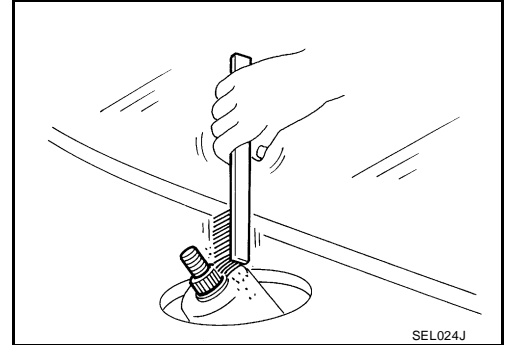
EKS00FGT

Front Wiper Arms REMOVAL

1. Remove front wiper arm covers and front wiper arm nuts.
2. Remove front wiper arms.
3. Remove front wiper blades.

INSTALLATION

1. Operate front wiper motor one full cycle, then turn OFF (auto stop).
2. Clean up pivot area as shown. This will reduce the possibility of wiper arm looseness.



3. Install front wiper blades.
4. Install front wiper arms and front wiper arm nuts and tighten to specified torque.

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

5. Install front wiper arm covers.
6. Adjust wiper arms. Refer to [WW-23, "ADJUSTMENT AFTER INSTALLATION"](#).

ADJUSTMENT AFTER INSTALLATION

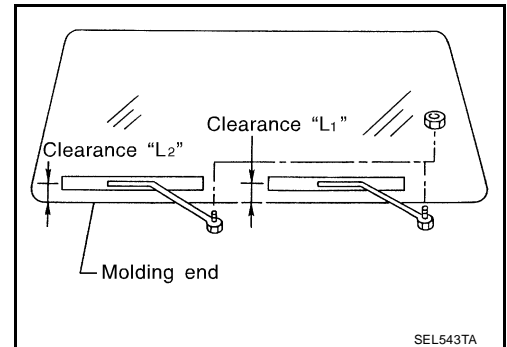
1. Operate front windshield washer and front wiper motor one full cycle, then turn OFF (auto stop).
2. Lift the wiper blade up, then rest it onto glass surface to set clearance "L1" and "L2" as shown.

Clearance "L1" : 41.5 - 56.5 mm (1.634 - 2.224 in)

Clearance "L2" : 52.5 - 67.5 mm (2.067 - 2.657 in)

3. Remove front wiper arm covers and front wiper arm nuts.
4. Adjust the front wiper arms on the motor pivot shafts to obtain specified blade clearances "L1" and "L2".
5. Tighten front wiper arm nuts to specified torque, and install front wiper arm covers.

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



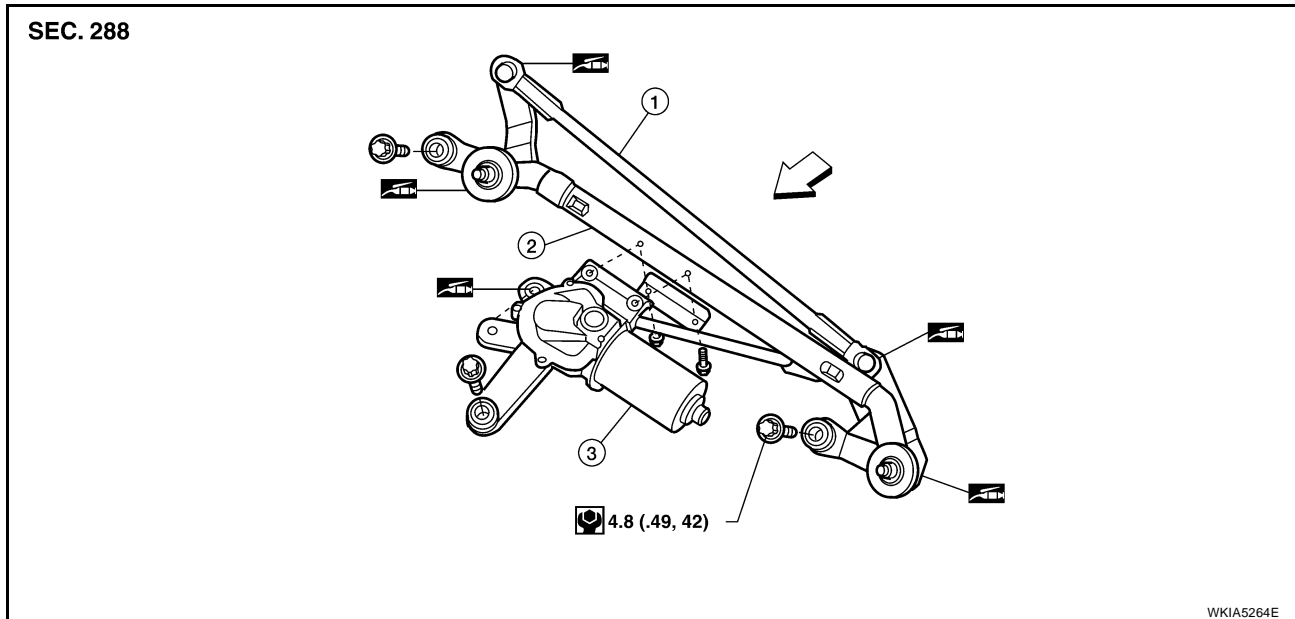
A
B
C
D
E
F
G
H
I
J
L
M

WW

FRONT WIPER AND WASHER SYSTEM

Wiper Motor and Linkage COMPONENTS

EKS00FGU



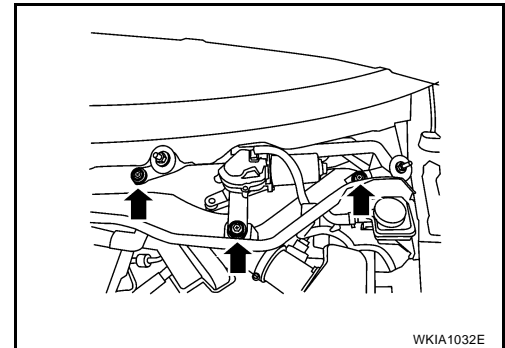
1. Wiper link
← Front

2. Wiper frame

3. Front wiper motor

REMOVAL

1. Operate the front wiper motor, and stop it at the OFF (auto stop) position.
2. Remove the cowl top extension. Refer to [EI-19, "Removal and Installation"](#).
3. Disconnect front wiper motor electrical connector.
4. Remove wiper frame assembly bolts, and remove wiper frame assembly.



5. Remove front wiper motor from wiper frame assembly.

INSTALLATION

CAUTION:

- Do not 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 front wiper motor to electrical connector. Turn the wiper switch ON to operate front wiper motor, then turn the wiper switch OFF (auto stop).
 2. Disconnect front wiper motor electrical connector.
 3. Install front wiper motor to wiper frame assembly, and install assembly into the vehicle.
 4. Connect front wiper motor electrical connector. Turn the wiper switch ON to operate the front wiper motor, then turn wiper switch OFF (auto stop).
 5. Install cowl top extension. Refer to [EI-19, "Removal and Installation"](#).
 6. Install wiper arms. Refer to [WW-23, "Front Wiper Arms"](#).

FRONT WIPER AND WASHER SYSTEM

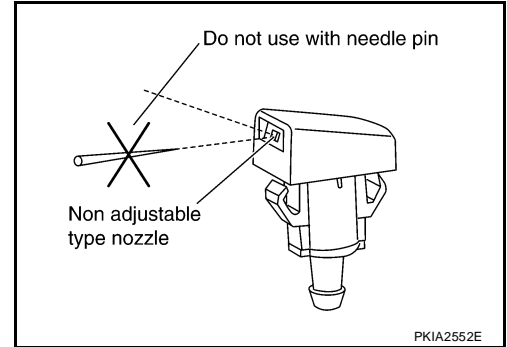
EKS00166

Washer Nozzle INSPECTION

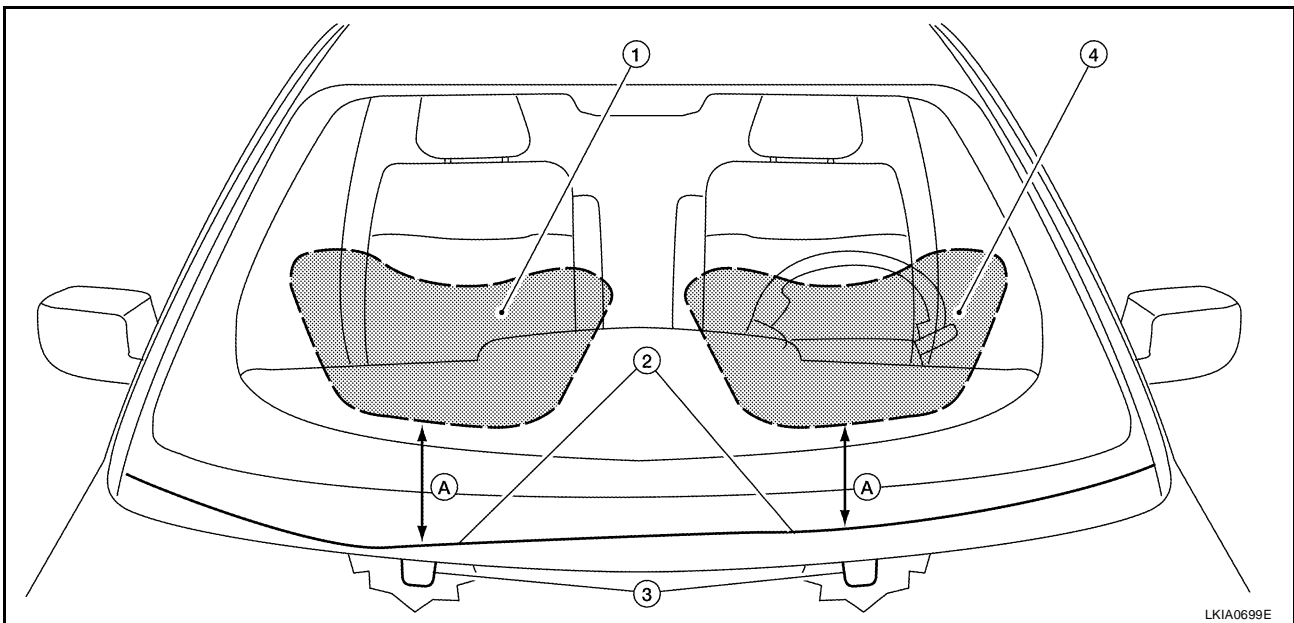
CAUTION:

Do not use needle pin to adjust washer nozzle.

- 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 adjust washer nozzles. Refer to [WW-25, "ADJUSTMENT"](#).



ADJUSTMENT



1. Passenger side washer fluid spray pattern
 2. Washer nozzles
 3. Rear edge of cowl
 4. Driver side washer fluid spray pattern
- A. Distance

1. Remove the front wiper arms. Refer to [WW-23, "Front Wiper Arms"](#).
2. Measure the distance from rear edge of cowl to lowest point of washer fluid spray coverage (distance A). Determine recommended washer nozzle shim (refer to chart).

NOTE:

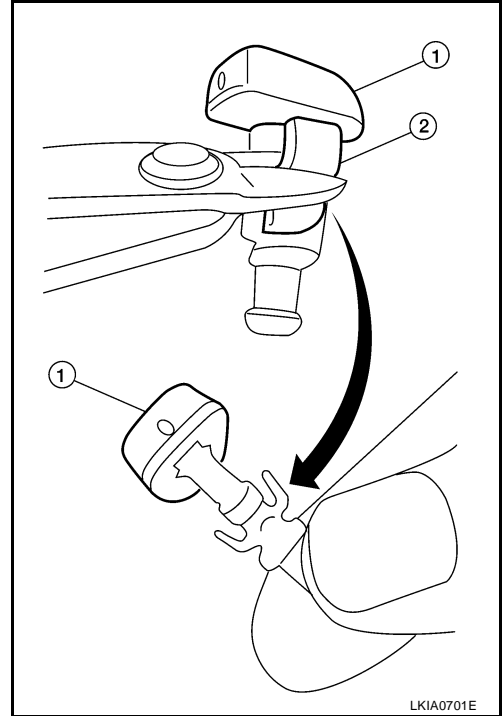
If distance A is in the middle range then no adjustment is required.

Washer spray coverage	Distance (A)	Recommended washer nozzle shim
High	300 mm (11.81 in) and higher	Down 1.25 mm
	250 - 300 mm (9.84 - 11.81 in)	Down 0.75 mm
Middle	210 - 250 mm (8.27 - 9.84 in)	No shim recommended
Low	170 - 210 mm (6.69 - 8.27 in)	Up 1.0 mm
	130 - 170 mm (5.12 - 6.69 in)	Up 2.25 mm
	90 - 130 mm (3.54 - 5.12 in)	Up 4.0 mm
	90 mm (3.54 in) and lower	Up 6.5 mm

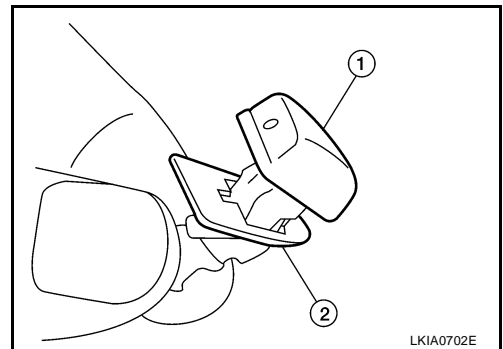
3. Remove cowl top. Refer to [EI-19, "COWL TOP"](#).

FRONT WIPER AND WASHER SYSTEM

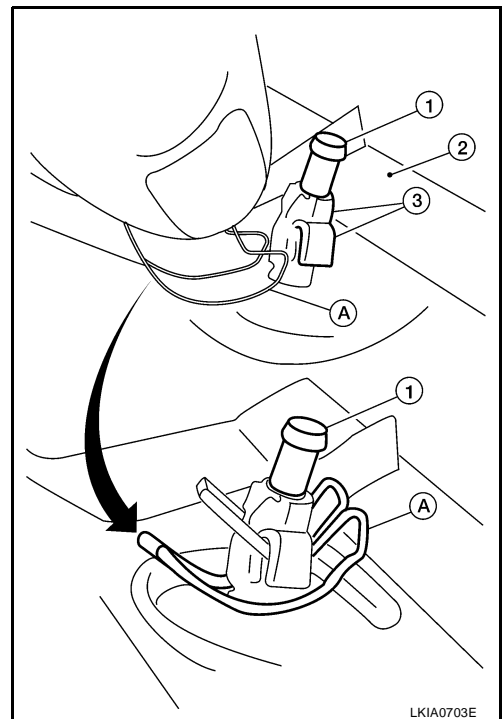
4. Disconnect washer tube from nozzle and remove washer nozzle from cowl top.
5. Cut off upper portion of spring legs (2) from washer nozzle (1) as shown.



6. Install the selected size washer nozzle shim (2) onto washer nozzle (1) as shown.



7. Install washer spray nozzle (1) into cowl top cover (2), then install spring clip (A) between spring legs (3) as shown.

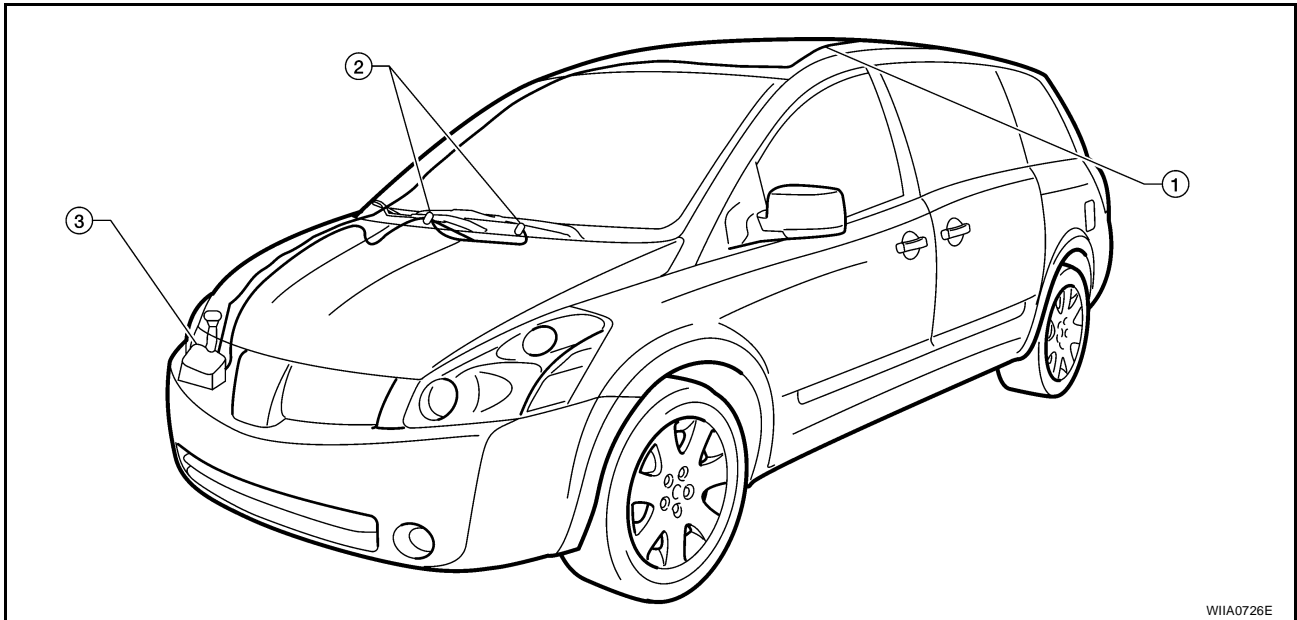


FRONT WIPER AND WASHER SYSTEM

8. Install cowl top. Refer to [EI-19, "COWL TOP"](#) .
9. Install wiper arms. Refer to [WW-23, "Front Wiper Arms"](#) .
10. Recheck washer nozzle spray for correct spray pattern.

Washer Tube Layout

EKS00FGW

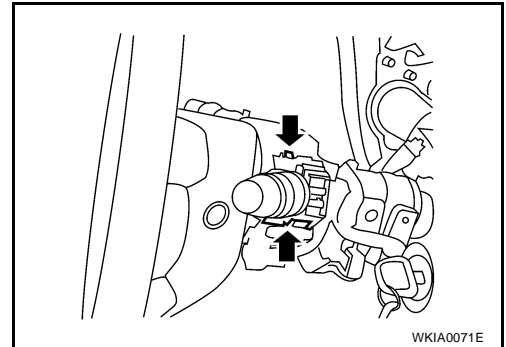


1. Washer fluid hose to back door
2. Washer nozzles
3. Washer fluid reservoir

Wiper and Washer Switch REMOVAL

EKS00FGX

1. Remove steering column covers. Refer to [IP-12, "Steering Column Cover"](#) .
2. Remove wiper washer switch electrical connector.
3. Pinch tabs at wiper and washer switch base and slide switch away from steering column to remove.



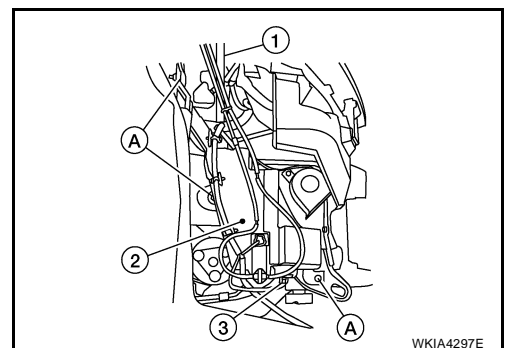
INSTALLATION

Installation is in the reverse order of removal.

Washer Fluid Reservoir REMOVAL

EKS00GAL

1. Remove fender protector. Refer to [EI-22, "Removal and Installation"](#) .
2. Remove the washer fluid reservoir (2) from the vehicle.
 - Twist and pull out washer fluid reservoir inlet (1).
 - Remove front and rear washer motor electrical connector (3) and washer fluid level sensor electrical connector.
 - Remove washer fluid reservoir screws (A).
 - Remove front and rear washer hoses.



FRONT WIPER AND WASHER SYSTEM

INSTALLATION

Installation is in the reverse order of removal.

Washer fluid reservoir screws 5.5 N-m (0.56 kg-m, 49 in-lb)

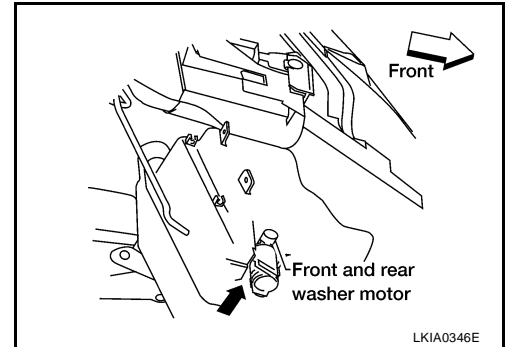
CAUTION:

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

Washer Motor REMOVAL

EKS00GAM

1. Remove fender protector. Refer to [EI-22, "Removal and Installation"](#) .
2. Remove front and rear washer motor electrical connector and front and rear washer hoses.
3. Pull out front and rear washer motor in the direction of the arrow as shown, and remove the front and rear washer motor from the washer fluid reservoir.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When installing front and rear washer motor, there should be no packing twists, etc.

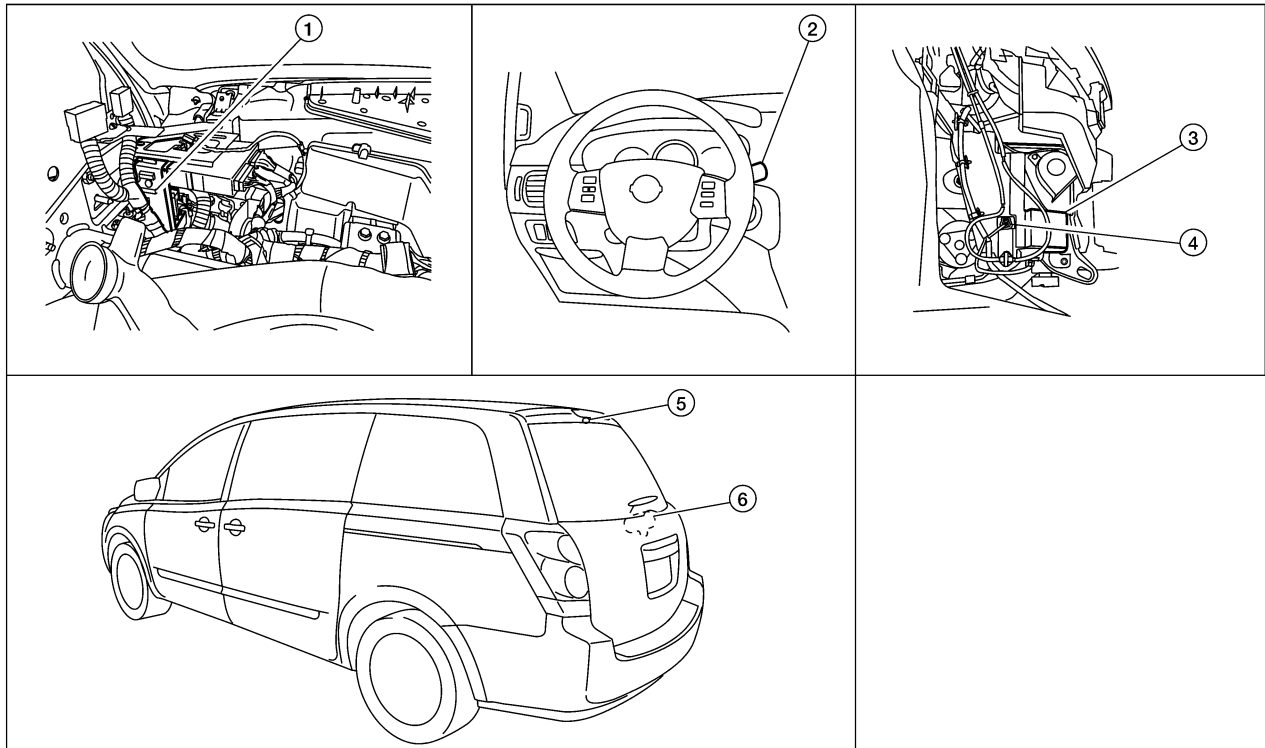
REAR WIPER AND WASHER SYSTEM

PF2:28710

EKS00FH0

REAR WIPER AND WASHER SYSTEM

Components Parts and Harness Connector Location



*1 BCM M18, M19, and M20 (view with instrument panel removed)

*2 Combination switch (wiper switch) M28

*3 Washer fluid reservoir (view with right fender protector RH removed)

*4 Front and rear washer motor E105 (view with right fender protector RH removed)

*5 Rear washer nozzle

*6 Rear wiper motor D507

WKIA5247E

System Description

EKS00FH1

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

- BCM controls rear wiper ON and INT (intermittent) operation.

Power is supplied at all times

- through 50A fusible link (letter j , located in fuse and fusible link box)
- to BCM terminal 70.

With the ignition switch in ON or START position, power is supplied

- through 10A fuse [No. 16, located in fuse block (J/B)]
- to BCM terminal 38, and
- through 10A fuse (No. 47, located in IPDM E/R)
- through IPDM E/R terminal 44
- to combination switch terminal 14.

Ground is supplied

- to BCM terminal 67 and
- to combination switch terminal 12
- through grounds M57, M61 and M79.

A
B
C
D
E
F
G
H
I

J

WW

L

M

REAR WIPER AND WASHER SYSTEM

REAR WIPER OPERATION

When the ignition switch is in the ON or START position, and the rear wiper switch is in the ON position, the BCM detects a rear wiper ON signal by BCM wiper switch reading function.

When the BCM operates the rear wiper motor, power is supplied

- through BCM terminal 55
- to rear wiper motor terminal B.

Ground is supplied

- to rear wiper motor terminals E and G
- through grounds D403 and D404.

With power and ground supplied, the rear wiper operates.

INTERMITTENT OPERATION

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

When the wiper switch is in the rear wiper INT position, the BCM detects a rear wiper INT signal by BCM wiper switch reading function.

When BCM operates rear wiper motor, power supplied

- through BCM terminal 55
- to rear wiper motor terminal B.

Ground is supplied

- to rear wiper motor terminals E and G
- through grounds D403 and D404.

With power and ground supplied, the rear wiper operates in intermittent mode.

AUTO STOP OPERATION

When the rear wiper arm is not located at the base of the rear window, and the rear wiper switch is turned OFF, the rear wiper motor will continue to operate until the rear wiper arm is at the base of the rear window.

When the rear wiper arm reaches the base, rear wiper motor terminals P and E are connected.

Ground is supplied

- to BCM terminal 44
- through rear wiper motor terminal P
- through rear wiper motor terminal E
- through grounds D403 and D404.

REAR WASHER OPERATION

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

- through 10A fuse (No. 47, located in the IPDM E/R)
- through IPDM E/R terminal 44
- through combination switch (wiper switch) terminal 14
- through combination switch (wiper switch) terminal 11
- to front and rear washer motor terminal +.

When the rear wiper switch is in rear washer position, the BCM detects a rear washer signal by BCM wiper switch reading function. Combination switch ground is supplied

- to front and rear washer motor terminal –
- through combination switch (wiper switch) terminal 13
- through combination switch (wiper switch) terminal 12
- through grounds M57, M61 and M79.

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

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

When the BCM detects that the rear washer switch is in OFF, the rear wiper motor cycles approximately 3 times and then stops.

REAR WIPER AND WASHER SYSTEM

BCM WIPER SWITCH READING FUNCTION

Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#) .

A

B

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WW

L

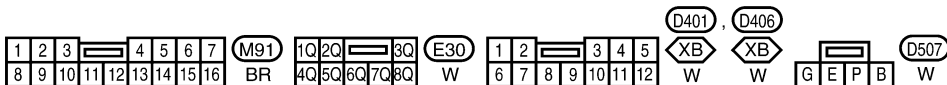
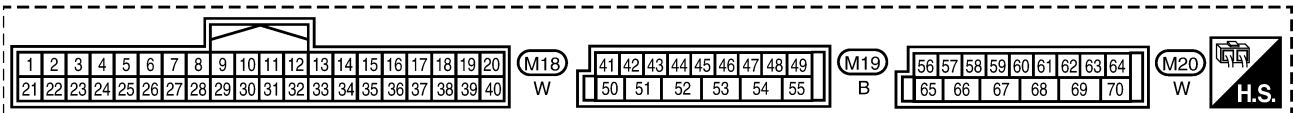
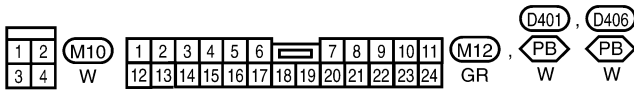
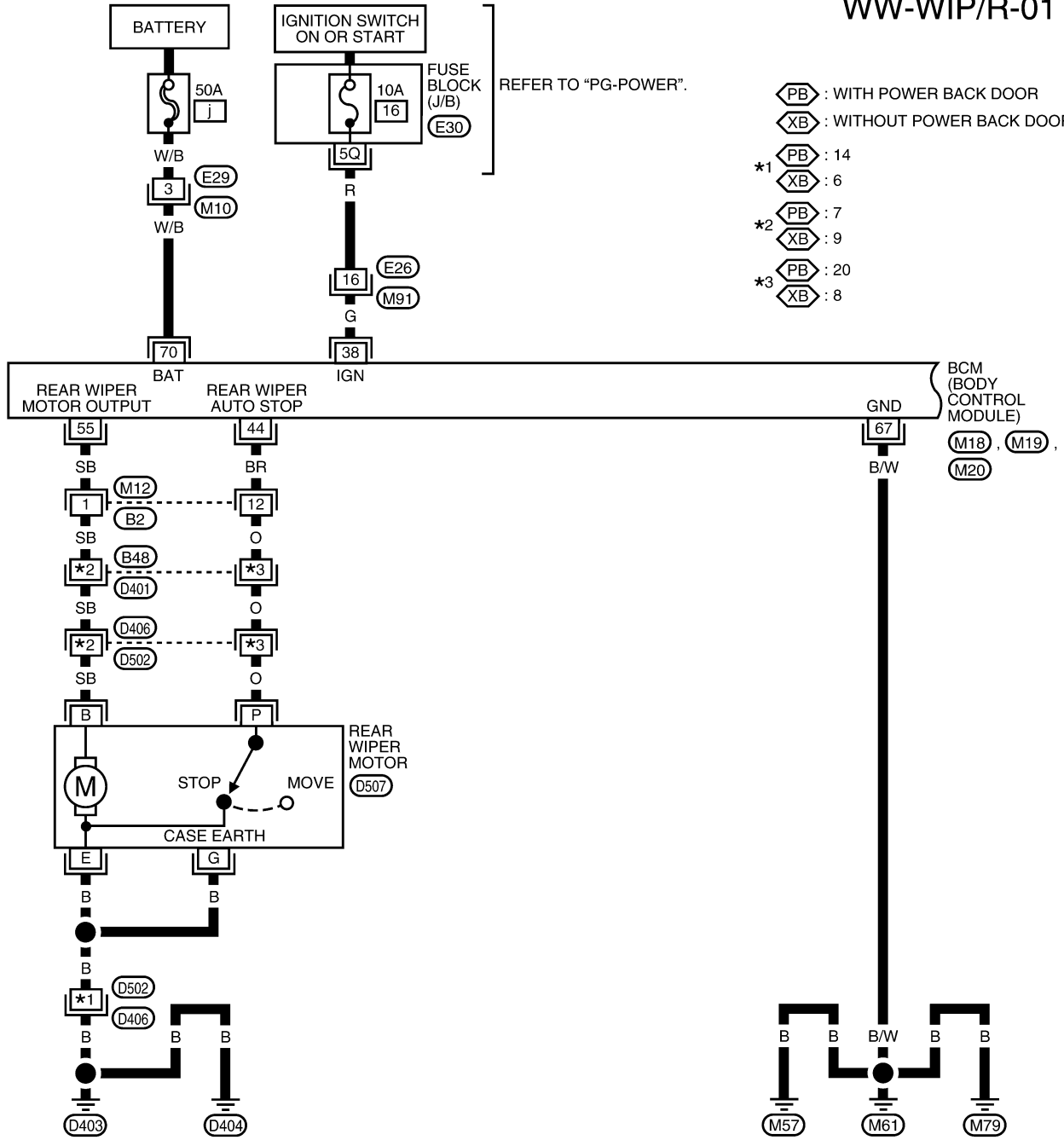
M

REAR WIPER AND WASHER SYSTEM

EKS00FH2

Wiring Diagram — WIP/R —

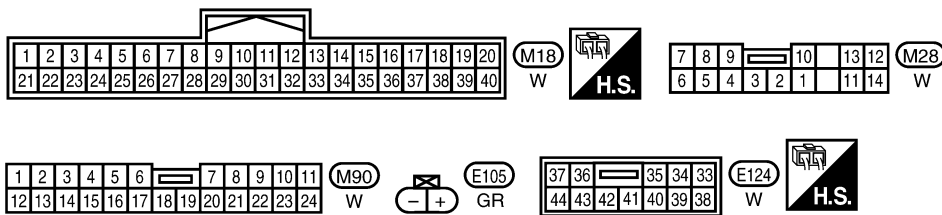
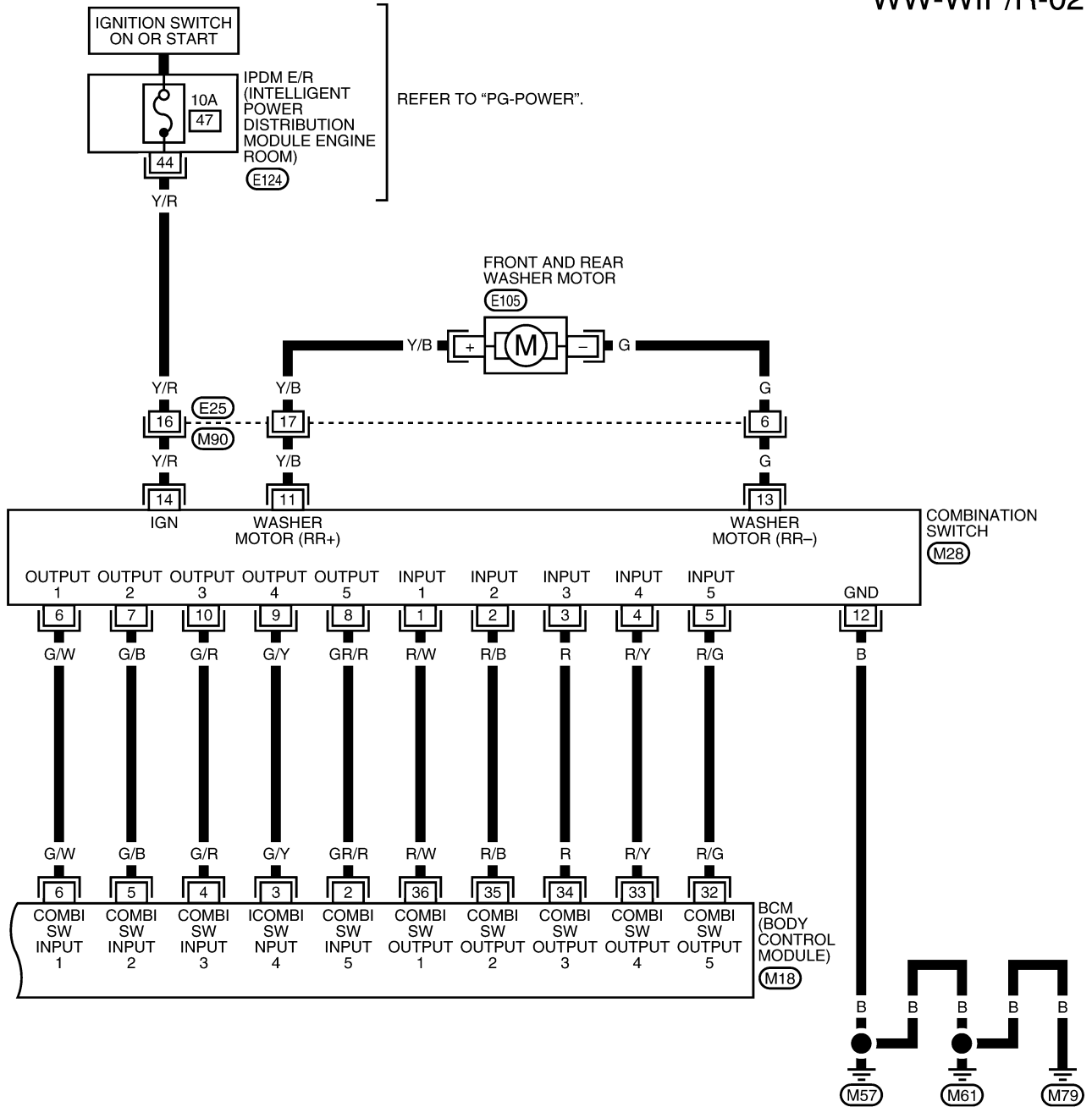
WW-WIP/R-01



WKWA4654E

REAR WIPER AND WASHER SYSTEM

WW-WIP/R-02



WKWA4655E

REAR WIPER AND WASHER SYSTEM

Terminals and Reference Values for BCM

EKS00FH3

Refer to [BCS-12, "Terminals and Reference Values for BCM"](#) .

Terminals and Reference Values for IPDM E/R

EKS00FH4

Refer to [PG-27, "Terminals and Reference Values for IPDM E/R"](#) .

How to Proceed With Trouble Diagnosis

EKS00FH5

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-29, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [WW-34, "Preliminary Check"](#) .
4. Check symptom and repair or replace the cause of malfunction.
5. Does the rear wiper operate normally? If YES: GO TO 6. If NO: GO TO 4.
6. Inspection End.

Preliminary Check

EKS00FH6

BCM POWER SUPPLY AND GROUND CIRCUIT

Refer to [BCS-15, "BCM Power Supply and Ground Circuit Check"](#)

REAR WIPER AND WASHER SYSTEM

CONSULT-II Function (BCM)

EKS00FH7

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

BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	Displays BCM input/output data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
	SELF-DIAG RESULTS	Displays BCM self-diagnosis results.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
	ECU PART NUMBER	BCM part number can be read.
	CONFIGURATION	Performs BCM configuration read/write functions.

CONSULT-II START PROCEDURE

Refer to [GI-37, "CONSULT-II Start Procedure"](#).

DATA MONITOR

Operation Procedure

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

ALL SIGNALS	Monitors all the 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.
IGN SW CAN "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.
VEHICLE SPEED "0.0 km/h"	Displays vehicle speed as received over CAN communication.
FR WIPER STOP "ON/OFF"	Displays "Stopped (ON)/Operating (OFF)" status as judged from the auto stop signal.
RR WIPER INT "ON/OFF"	Displays "Rear Wiper INT (ON)/Other (OFF)" status as judged from wiper switch signal.
RR WIPER ON "ON/OFF"	Displays "Rear Wiper (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 "Stopped (OFF)/Operating (ON)" status as judged from the auto stop signal.

REAR WIPER AND WASHER SYSTEM

ACTIVE TEST

Operation Procedure

1. Touch "WIPER" 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 (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.
Rear wiper output	RR WIPER	Rear wiper can be operated by any ON-OFF operation.

Rear Wiper Does Not Operate

EKS00FH8

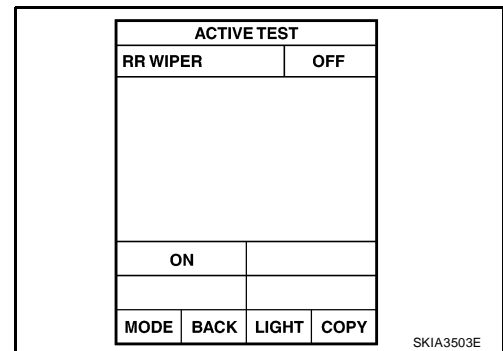
1. REAR WIPER ACTIVE TEST

1. Select "BCM" on CONSULT-II, and select "WIPER" on "SELECT TEST ITEM" screen.
2. Select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
3. Select "RR WIPER" on "SELECT TEST ITEM" screen.
4. Make sure rear wiper operates.

Wiper should operate.

OK or NG

- OK >> GO TO 6.
NG >> GO TO 2.



SKIA3503E

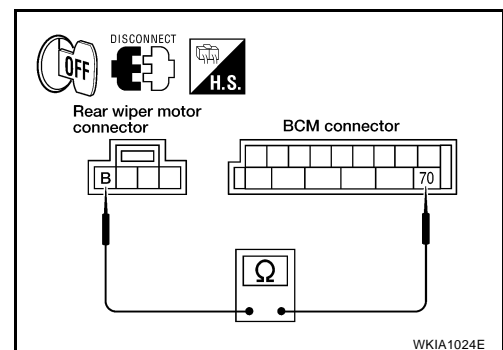
2. CHECK REAR WIPER MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector M20 terminal 70 and rear wiper motor harness connector D507 terminal B.

70 - B : Continuity should exist.

OK or NO

- OK >> GO TO 3.
NO >> Repair harness or connector.



WKIA1024E

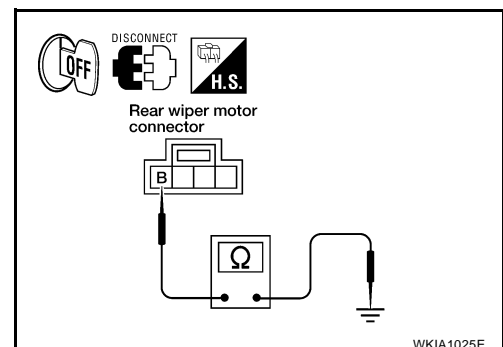
3. CHECK REAR WIPER MOTOR SHORT CIRCUIT

Check continuity between rear wiper motor harness connector D507 terminal B and ground.

B - Ground : Continuity should not exist.

OK or NG

- OK >> GO TO 4.
NG >> After repairing harness, be sure to disconnect battery negative cable, and then reconnect it.



WKIA1025E

REAR WIPER AND WASHER SYSTEM

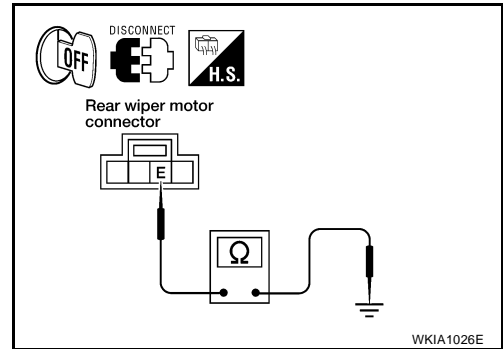
4. CHECK GROUND CIRCUIT

Check continuity between rear wiper motor harness connector D507 terminal E and ground.

E - Ground : Continuity should exist.

OK or NG

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



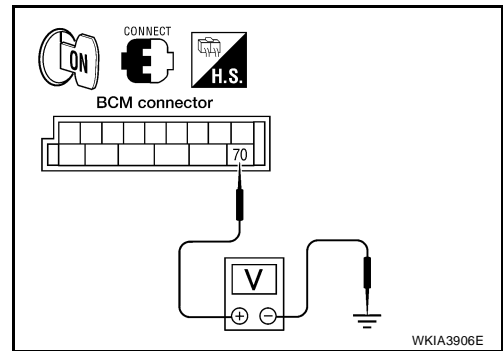
5. CHECK REAR WIPER OPERATING

1. Connect BCM connector and rear wiper motor connector.
2. Select "RR WIPER" during "ACTIVE TEST". Refer to [WW-36, "ACTIVE TEST"](#). When rear wiper is operating, check voltage between BCM harness connector terminal and ground.

BCM (+)		(-)	Condition	Voltage (Approx.)
Connector	Terminal			
M20	70	Ground	Stopped	0V
			ON operation	Battery voltage

OK or NG

- OK >> Replace rear wiper motor. Refer to [WW-40, "Rear Wiper Motor"](#).
- NG >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).



6. CHECK COMBINATION SWITCH INPUT SIGNAL

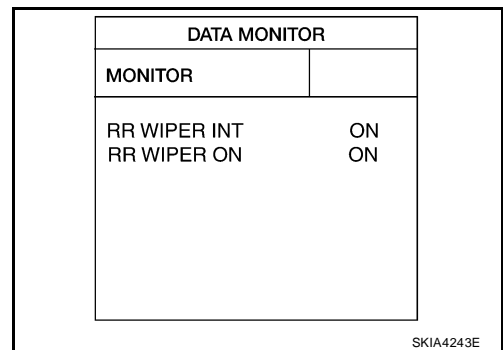
Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "RR WIPER INT", "RR WIPER ON" turn ON-OFF according to operation of wiper switch.

When wiper switch is in INT position : RR WIPER INT ON

When wiper switch is in ON position : RR WIPER ON

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#).



REAR WIPER AND WASHER SYSTEM

EKS00FH9

Rear Wiper Stop Position Is Incorrect

1. CHECK COMBINATION SWITCH INPUT SIGNAL

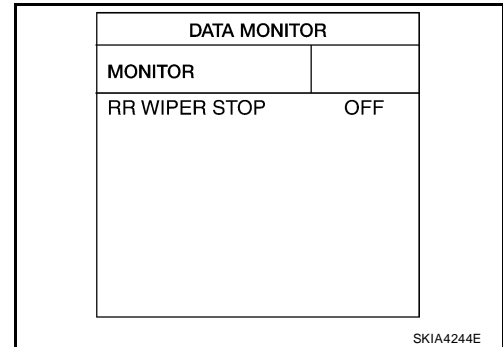
Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "RR WIPER STOP" turns ON-OFF according to wiper operation.

When wiper switch is in OFF position : RR WIPER STOP OFF

OK or NG

OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).

NG >> GO TO 2.



2. CHECK REAR WIPER MOTOR CIRCUIT

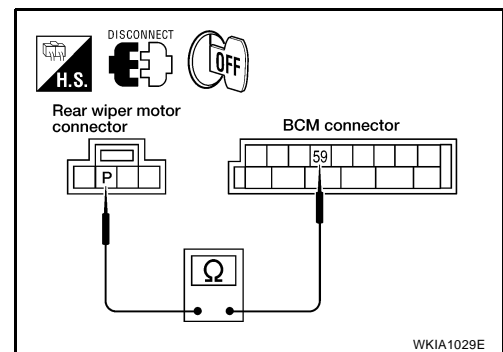
1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector M20 terminal 59 and rear wiper motor harness connector D507 terminal P.

59 - P : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



3. CHECK REAR WIPER MOTOR SHORT CIRCUIT

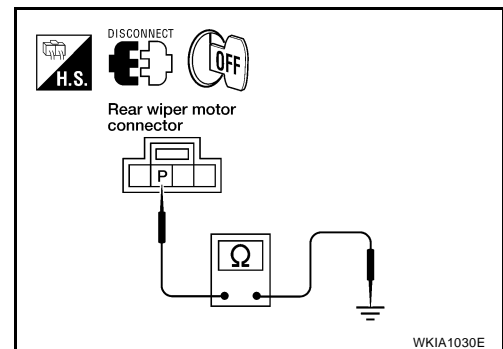
Check continuity between rear wiper motor harness connector D507 terminal P and ground.

P - Ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.



4. CHECK GROUND CIRCUIT

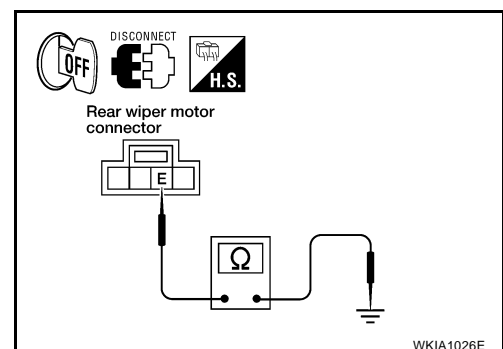
Check continuity between rear wiper motor harness connector D507 terminal E and ground.

E - Ground : Continuity should exist.

OK or NG

OK >> GO TO 5.

NG >> Repair harness or connector.



REAR WIPER AND WASHER SYSTEM

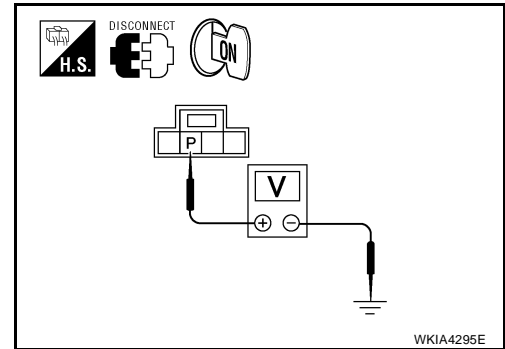
5. CHECK AUTO STOP SIGNAL

1. Connect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between rear wiper motor harness connector D507 terminal P and ground.

P - Ground : Battery voltage should exist.

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Replace rear wiper motor. Refer to [WW-40, "Rear Wiper Motor"](#).



EKS00FHA

Only Rear Wiper Does Not Operate

1. CHECK COMBINATION SWITCH INPUT SIGNAL

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

When rear wiper switch is in ON position : RR WIPER ON

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#).

DATA MONITOR	
MONITOR	
RR WIPER ON	ON

SKIA4248E

EKS00FHB

Only Rear Wiper Intermittent Does Not Operate

1. CHECK COMBINATION SWITCH INPUT SIGNAL

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

When rear wiper switch is in INT position : RR WIPER INT ON

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#).

DATA MONITOR	
MONITOR	
RR WIPER INT	ON

SKIA4249E

EKS00FHC

Wiper Does Not Wipe When Rear Washer Operates

1. CHECK COMBINATION SWITCH INPUT SIGNAL

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

When rear wiper switch is in WASHER position : RR WASHER SW ON

OK or NG

- OK >> Replace BCM. Refer to [BCS-25, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3, "COMBINATION SWITCH READING FUNCTION"](#).

DATA MONITOR	
MONITOR	
RR WASHER SW	ON

SKIA4250E

REAR WIPER AND WASHER SYSTEM

EKS00FHD

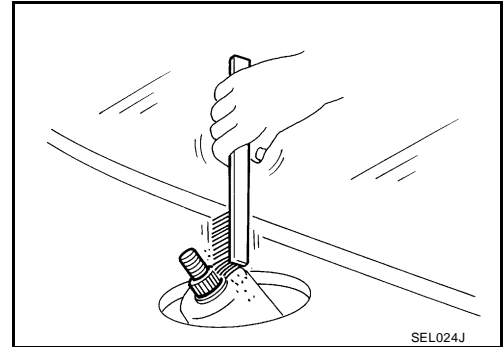
Rear Wiper Arm REMOVAL

1. Operate rear wiper motor one full cycle, then turn OFF (auto stop).
2. Remove wiper arm cover, remove wiper arm nut, then remove rear wiper arm.

INSTALLATION

1. Prior to rear wiper arm installation, operate wiper motor one full cycle then turn OFF (auto stop).
 - Operate wiper motor one full cycle, then turn OFF (auto stop).
 - Using a suitable brush, clean pivot area as shown. This will reduce the possibility of wiper arm looseness.
2. Install rear wiper arm onto pivot and ensure wiper blade is parallel to the ground.
3. Tighten wiper arm nut to specification, install wiper arm cover.

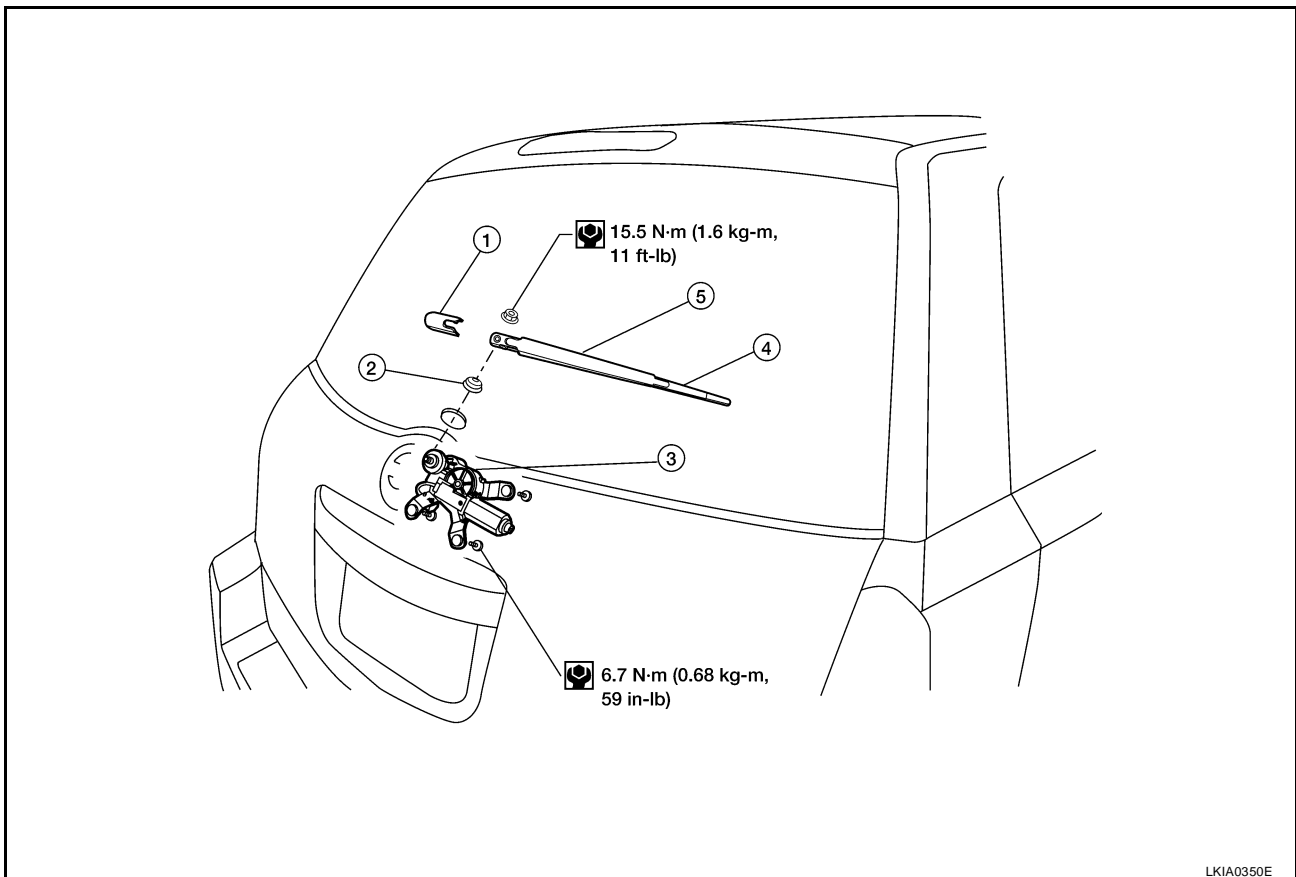
Wiper arm nut : 15.5 N·m (1.6 kg·m, 11 ft·lb)



SEL024J

Rear Wiper Motor REMOVAL AND INSTALLATION

EKS00FHE



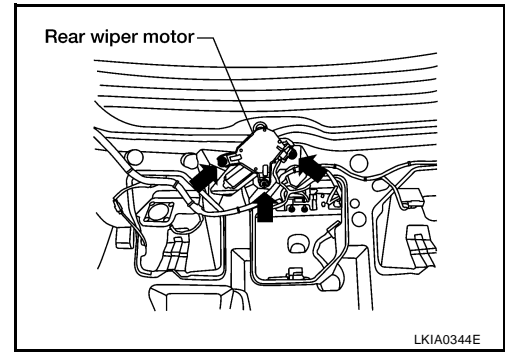
LKIA0350E

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

REAR WIPER AND WASHER SYSTEM

Removal

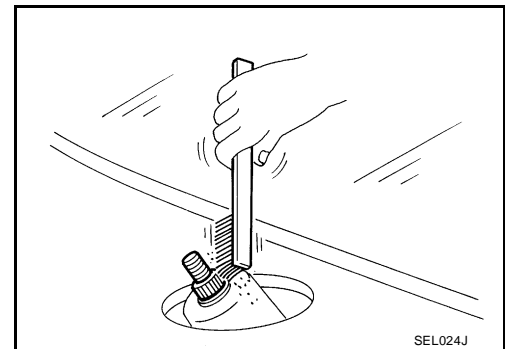
1. Remove rear wiper arm. Refer to [WW-40, "Rear Wiper Arm"](#) .
2. Remove pivot cap.
3. Remove back door lower finisher. Refer to [EI-37, "Removal"](#) .
4. Disconnect rear wiper motor electrical connector.
5. Remove rear wiper motor bolts, and remove rear wiper motor.



Installation

CAUTION:

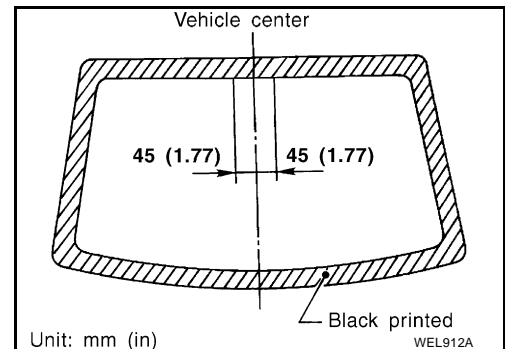
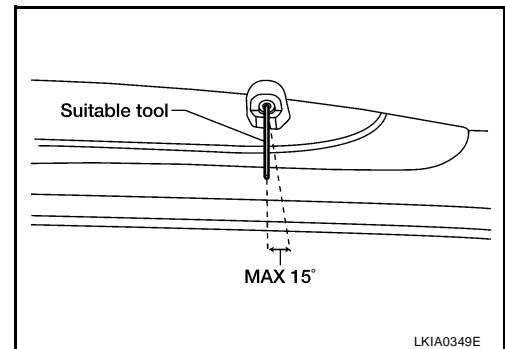
- Do not drop the wiper motor or cause it to contact other parts.
1. Clean up the pivot area as shown. This will reduce possibility of wiper arm looseness.
 2. Install rear wiper motor.
 3. Attach pivot cap.
 4. Connect rear wiper motor electrical connector.
 5. Install back door finisher lower. Refer to [EI-37, "Removal"](#) .
 6. Attach rear wiper arm. Refer to [WW-40, "Rear Wiper Arm"](#) .



Rear Washer Nozzle Adjustment

Adjust washer nozzle with suitable tool as shown.

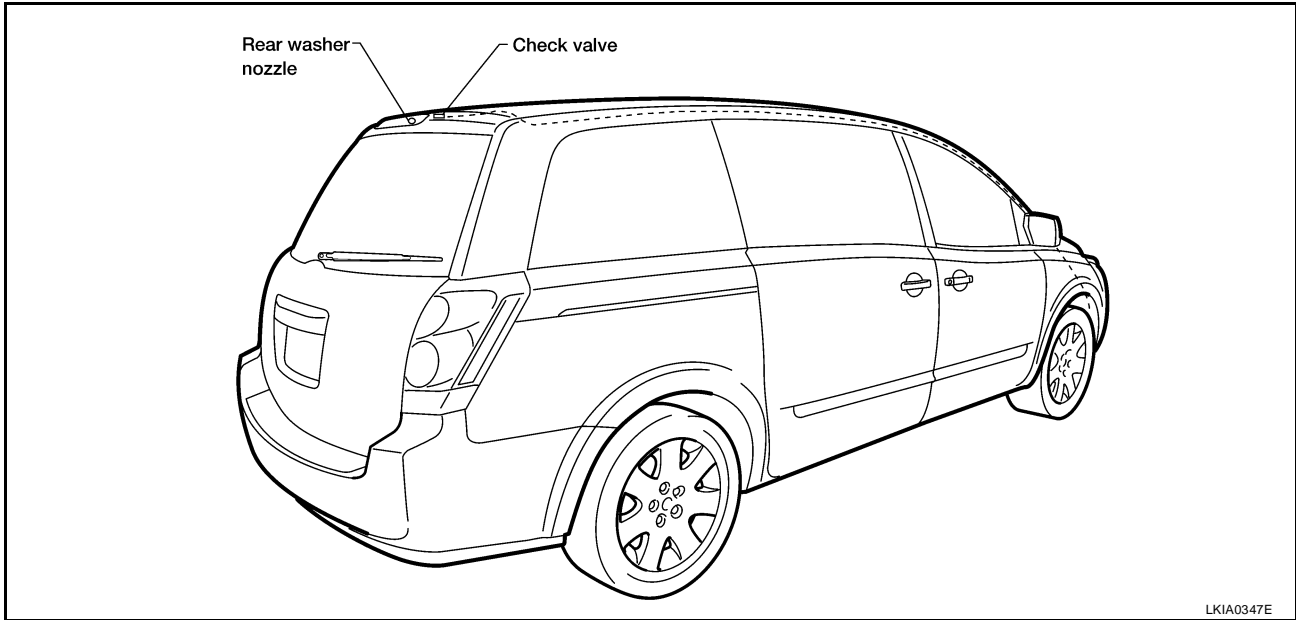
Adjustable range : $\pm 15^\circ$ (In any direction)



REAR WIPER AND WASHER SYSTEM

Rear Washer Tube Layout

EKS00FHG



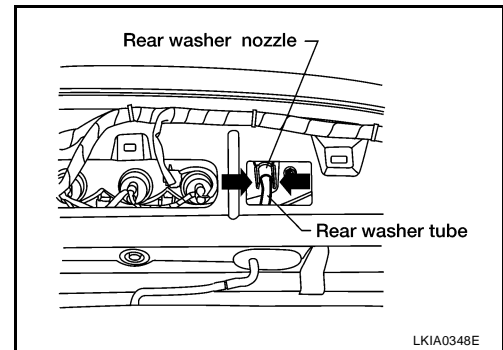
LKIA0347E

Rear Washer Nozzle REMOVAL AND INSTALLATION

EKS00FHH

Removal

1. Remove back door upper finisher. Refer to [EI-37, "Removal"](#).
2. Remove rear washer tube from rear washer nozzle.
3. Release retaining clips and remove rear washer nozzle.



LKIA0348E

Installation

Installation is in the reverse order of removal.

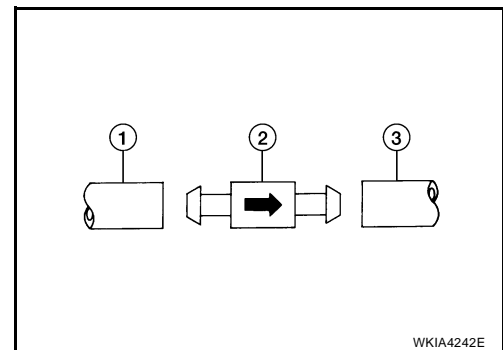
Check Valve REMOVAL AND INSTALLATION

EKS00FHI

Connect the check valve (2) to the washer fluid reservoir tube (1) so that the directional arrow on the check valve (2) points towards the washer nozzle tube (3).

CAUTION:

Directional arrow on the check valve (2) must point in the direction of the washer fluid flow.



WKIA4242E

REAR WIPER AND WASHER SYSTEM

Rear Wiper and Washer Switch

EKS00FHJ

Refer to [WW-27, "Wiper and Washer Switch"](#) .

A

Washer Fluid Reservoir

EKS00GAN

Refer to [WW-27, "Washer Fluid Reservoir"](#) .

B

Washer Motor

EKS00GAO

Refer to [WW-28, "Washer Motor"](#) .

C

D

E

F

G

H

I

J

WW

L

M

POWER SOCKET

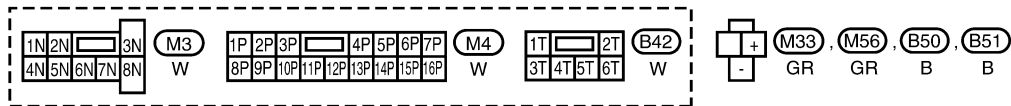
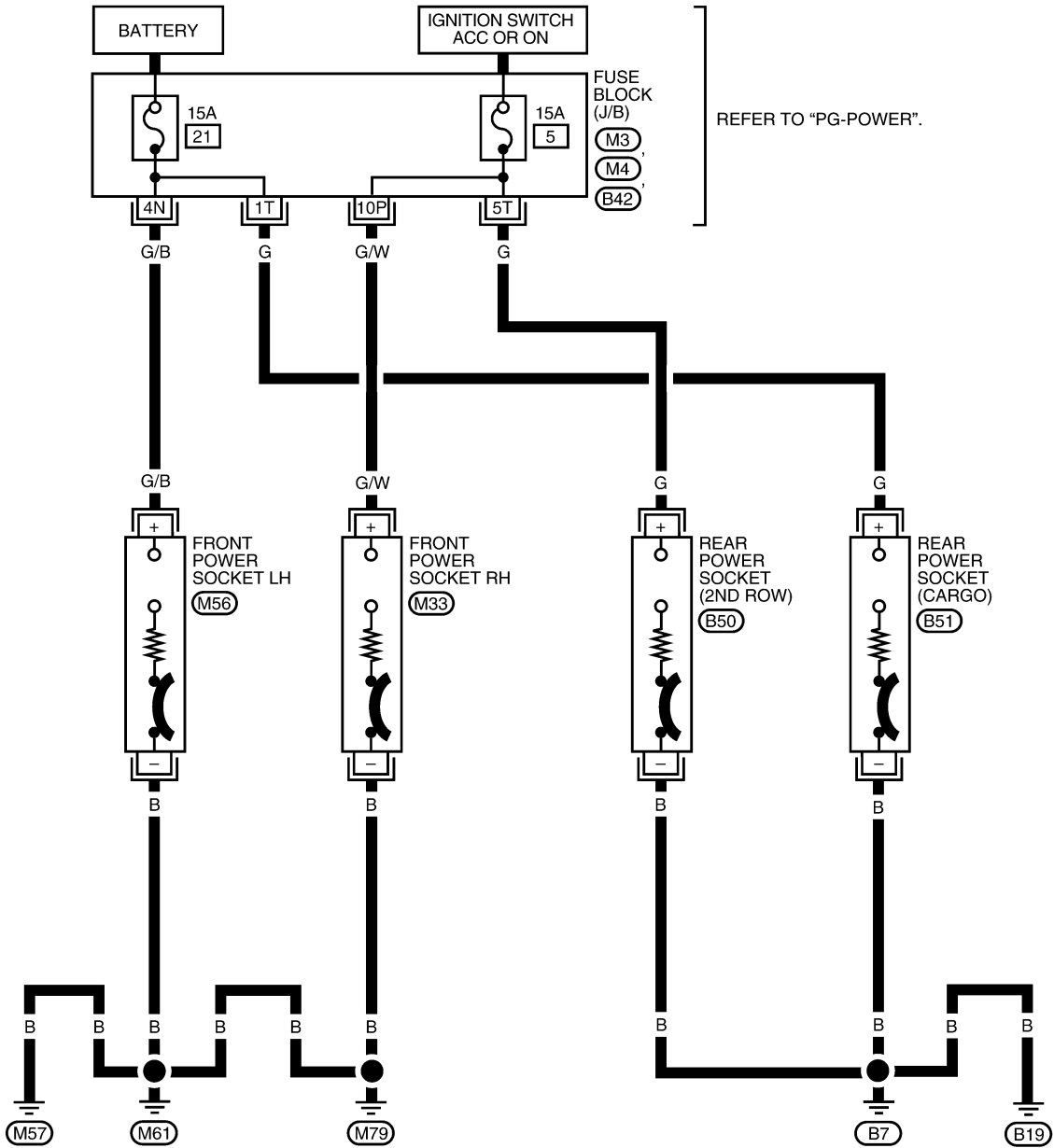
PPF:253A2

POWER SOCKET

Wiring Diagram — P/SCKT —

EKS00FHM

WW-P/SCKT-01



WKWA4656E

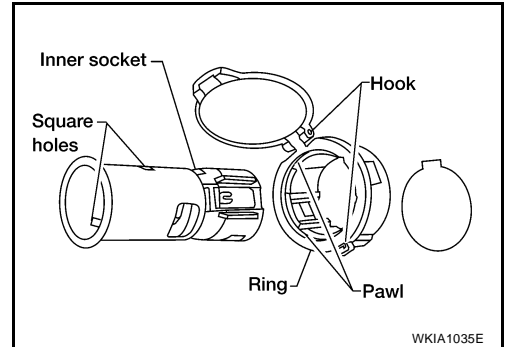
POWER SOCKET

Front Power Socket - 1 (LH) and Rear Power Socket (Cargo) REMOVAL AND INSTALLATION

EKS00FHN

Removal

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



Installation

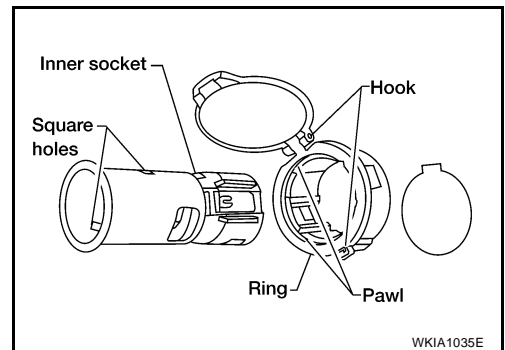
Installation is in the reverse order of removal.

Front Power Socket - 2 (RH) and Rear Power Socket (2nd Row) REMOVAL AND INSTALLATION

EKS00GAP

Removal

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



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
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WW

HORN

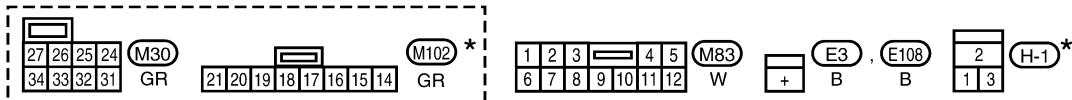
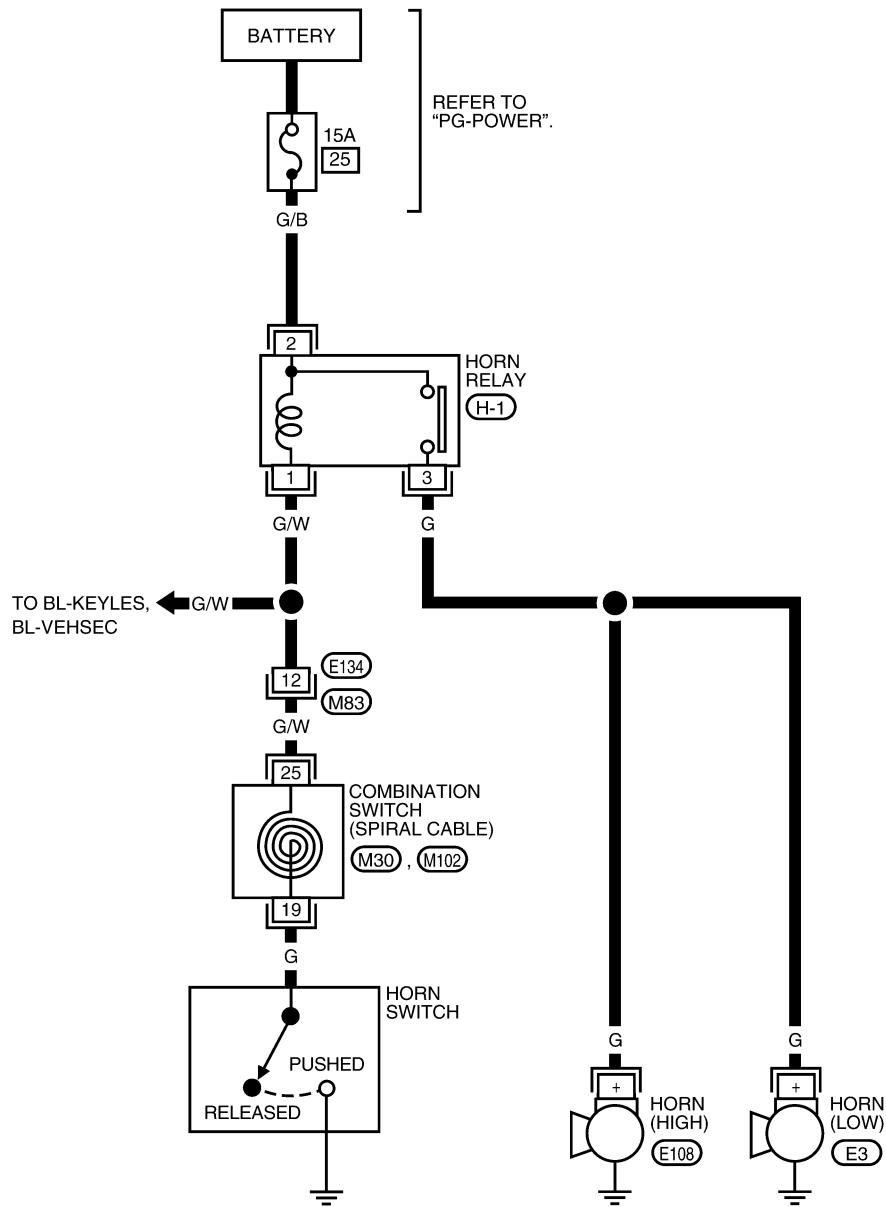
PF2:25610

HORN

Wiring Diagram — HORN —

EKS00FHO

WW-HORN-01



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

WKWA4953E

HORN

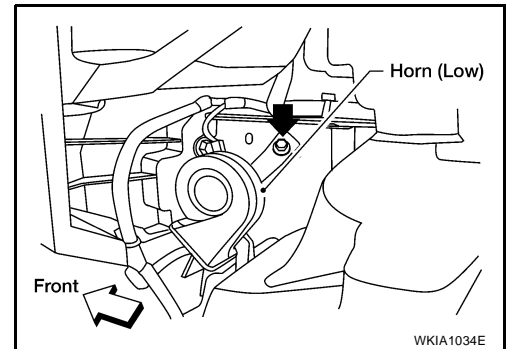
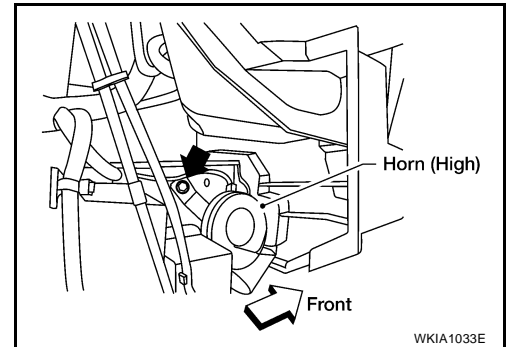
EKS00FHP

Horn

REMOVAL AND INSTALLATION

Removal

1. Remove the front bumper. Refer to [EI-14, "Removal and Installation"](#).
2. Disconnect horn electrical connector.
3. Remove horn bolt and remove horn from vehicle.



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
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J
L
M

WW

HORN
