

SECTION **WW**

WIPER, WASHER & HORN

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PRECAUTION

PRECAUTION

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

EKS00DEF

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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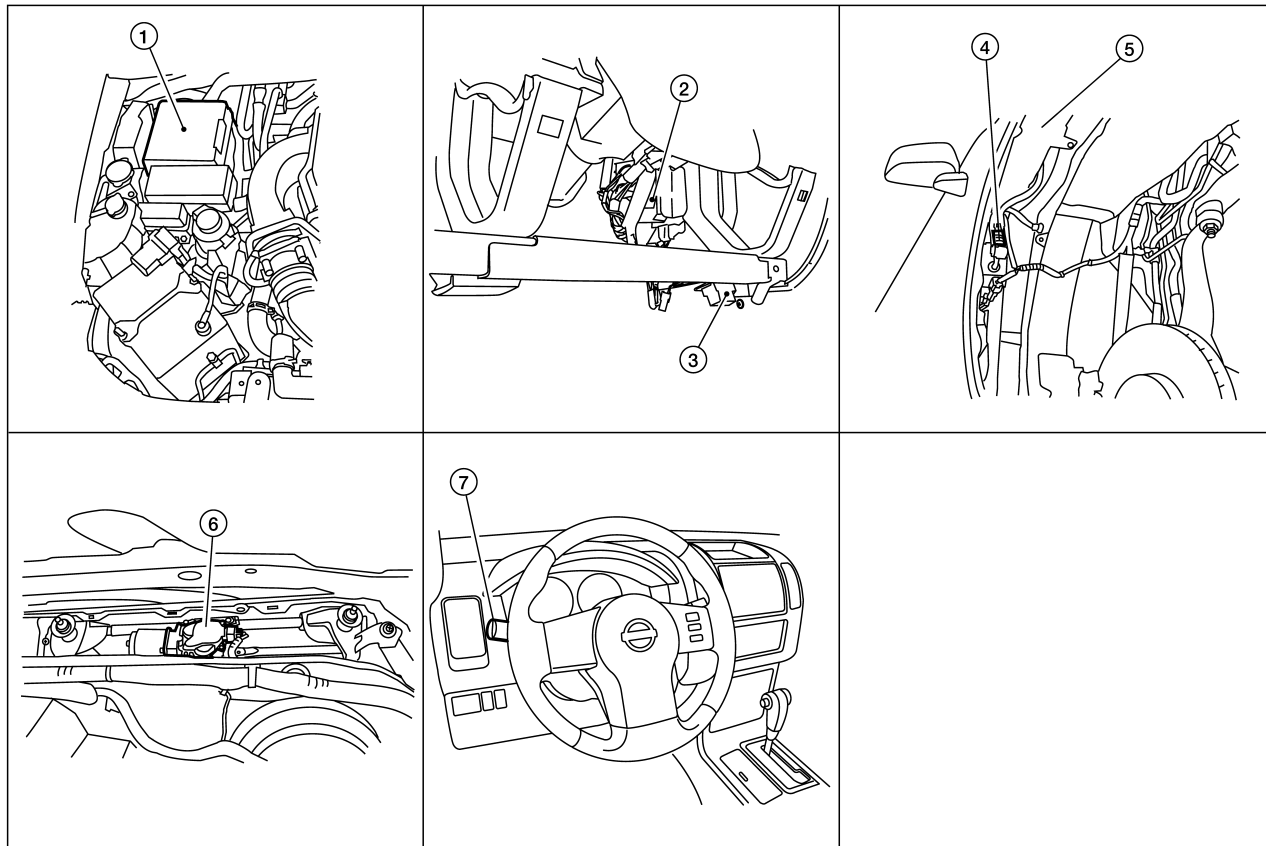
FRONT WIPER AND WASHER SYSTEM

FRONT WIPER AND WASHER SYSTEM

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Components Parts and Harness Connector Location

EKS00HMG



WKIA5015E

1. IPDM E/R
E121, E122, E124
2. BCM
M18, M20
(view with lower instrument panel LH removed)
3. Data Link connector
4. Front and rear washer motor connector
E105
(view with front fender protector RH removed)
5. Washer fluid reservoir
6. Front wiper motor
E23
7. Combination switch
M28

System Description

EKS00DEI

- Both front wiper relays are located in the IPDM E/R (intelligent power distribution module engine room).
- The wiper switch (combination switch) is composed of a combination of 5 output terminals and 5 input terminals. Terminal combination status is read by the 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.

Power is supplied at all times

- to ignition relay, located in the IPDM E/R, and
- through 50A fusible link (letter **g**, located in the fuse and fusible link box)
- to BCM terminal 70, 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, located in the IPDM E/R, and
- through 10A fuse [No. 15, located in the fuse block (J/B)]

FRONT WIPER AND WASHER SYSTEM

- to combination switch terminal 2, and
- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to BCM terminal 38.

Ground is supplied

- to BCM terminal 67 and
- to combination switch terminal 9
- through grounds M57, M61 and M79, and
- to IPDM E/R terminals 38 and 59 and
- to front wiper motor terminal 2
- 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 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 over CAN communication lines

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

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 32
- to front wiper motor terminal 1.

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 over CAN communication lines

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

When the IPDM E/R receives a 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 35
- to front wiper motor terminal 4.

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 the ON or START position, and the front wiper switch is turned to an intermittent position, the BCM detects a front wiper (intermittent) ON request through the combination switch (wiper switch) reading function.

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

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

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

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FRONT WIPER AND WASHER SYSTEM

- BCM detects ON/OFF status of intermittent wiper dial position.
- 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 the IPDM E/R receives a front wiper request signal (INT), it supplies ground to energize the front wiper relay. It then sends an auto stop signal to the 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 the windshield base. When the wiper arms reach the base of windshield, front wiper motor terminals 5 and 2 are connected.

Ground is supplied

- to IPDM E/R terminal 43
- through front wiper motor terminal 5
- through front wiper motor terminal 2
- through grounds E9, E15 and E24.

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

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 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 and rear washer switches are OFF, the front and rear washer motor is supplied power

- through 10A fuse [No. 15, located in the fuse block (J/B)]
- through combination switch (wiper switch) terminal 2
- through combination switch (wiper switch) terminal 4
- to front and rear 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 and rear washer motor terminal 2
- through combination switch (wiper switch) terminal 3
- through combination switch (wiper switch) terminal 9
- through grounds M57, M61 and M79.

With ground supplied, the front and rear 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-5, "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

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

CAN Communication System Description

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

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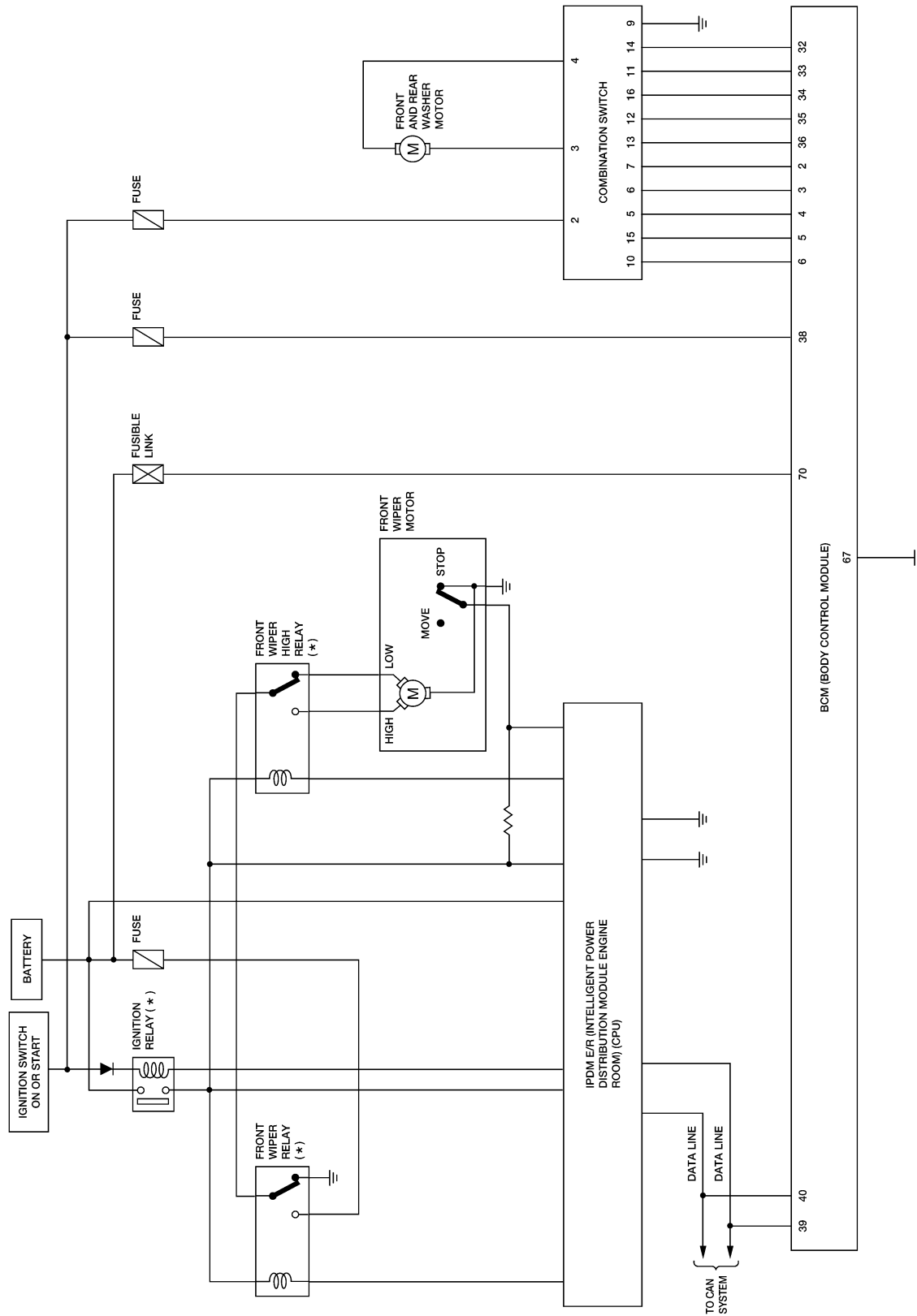
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FRONT WIPER AND WASHER SYSTEM

Schematic

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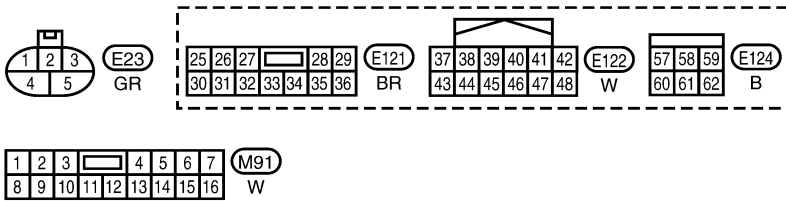
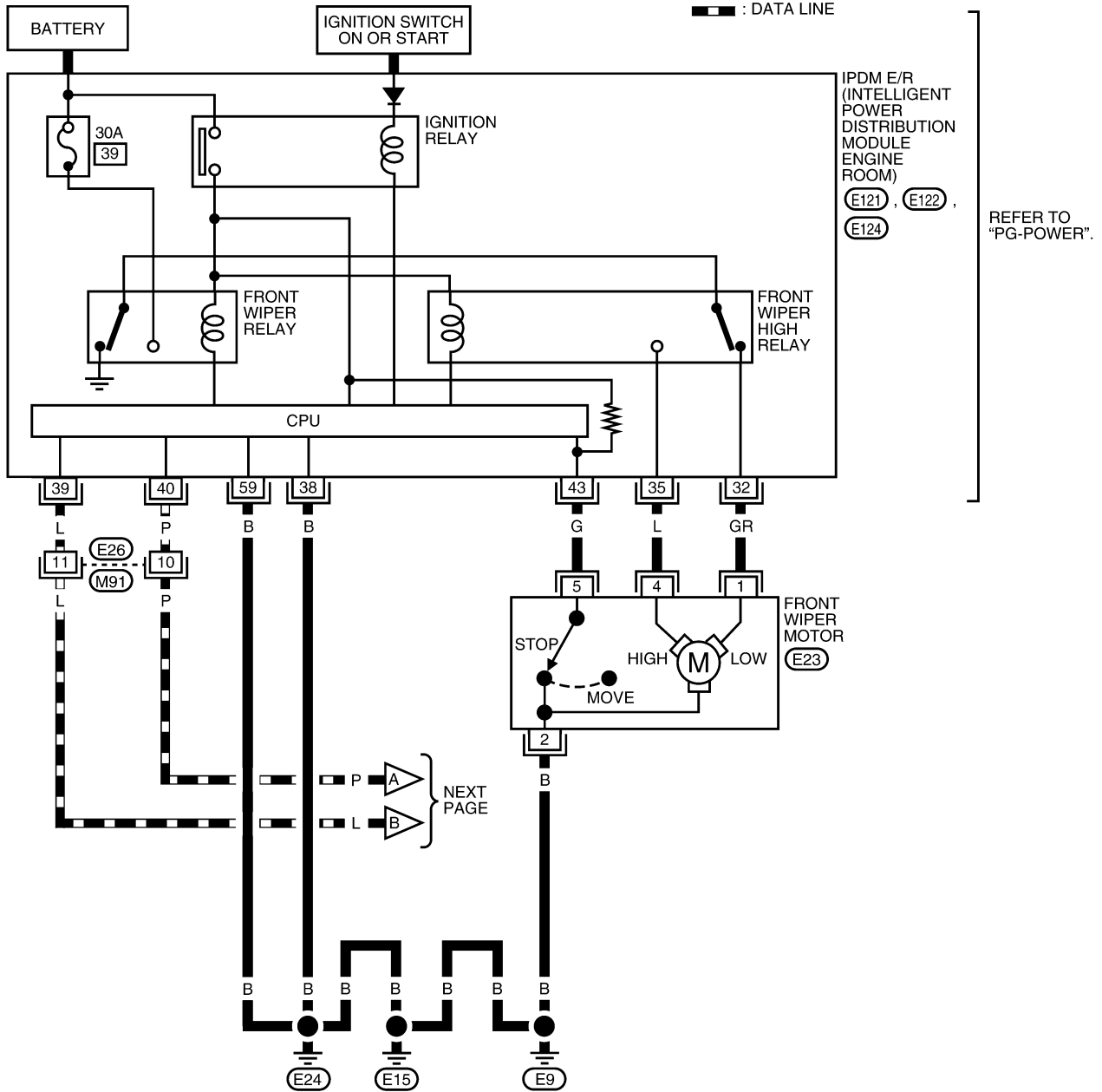
*: THIS RELAY IS BUILT INTO THE IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

FRONT WIPER AND WASHER SYSTEM

Wiring Diagram — WIPER —

EKS00DEL

WW-WIPER-01

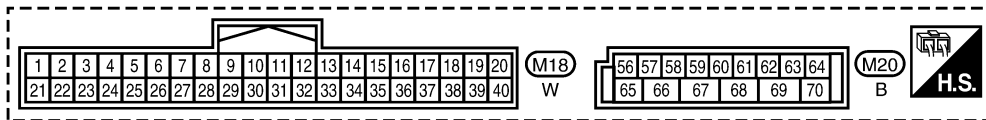
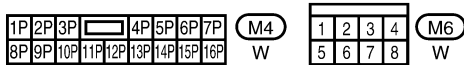
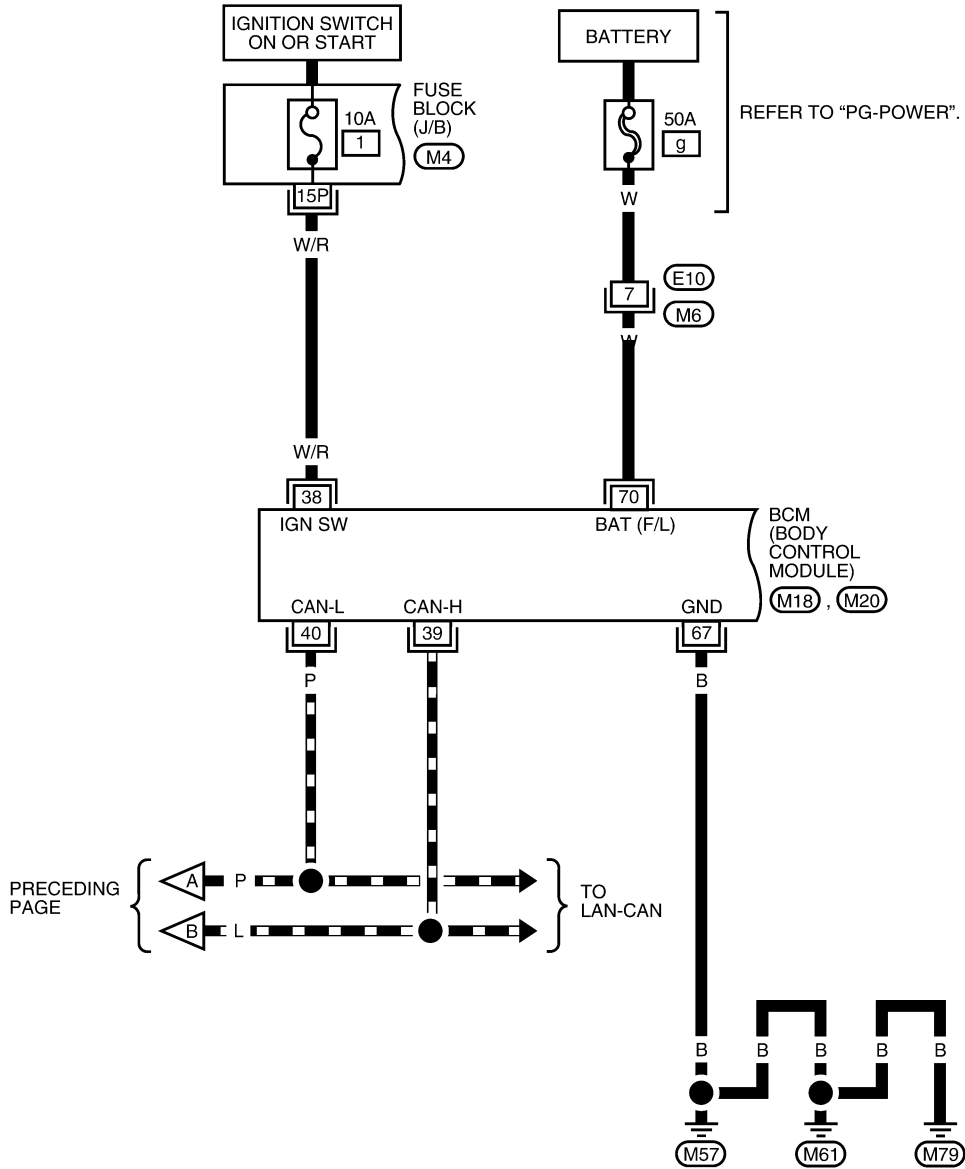


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FRONT WIPER AND WASHER SYSTEM

WW-WIPER-02

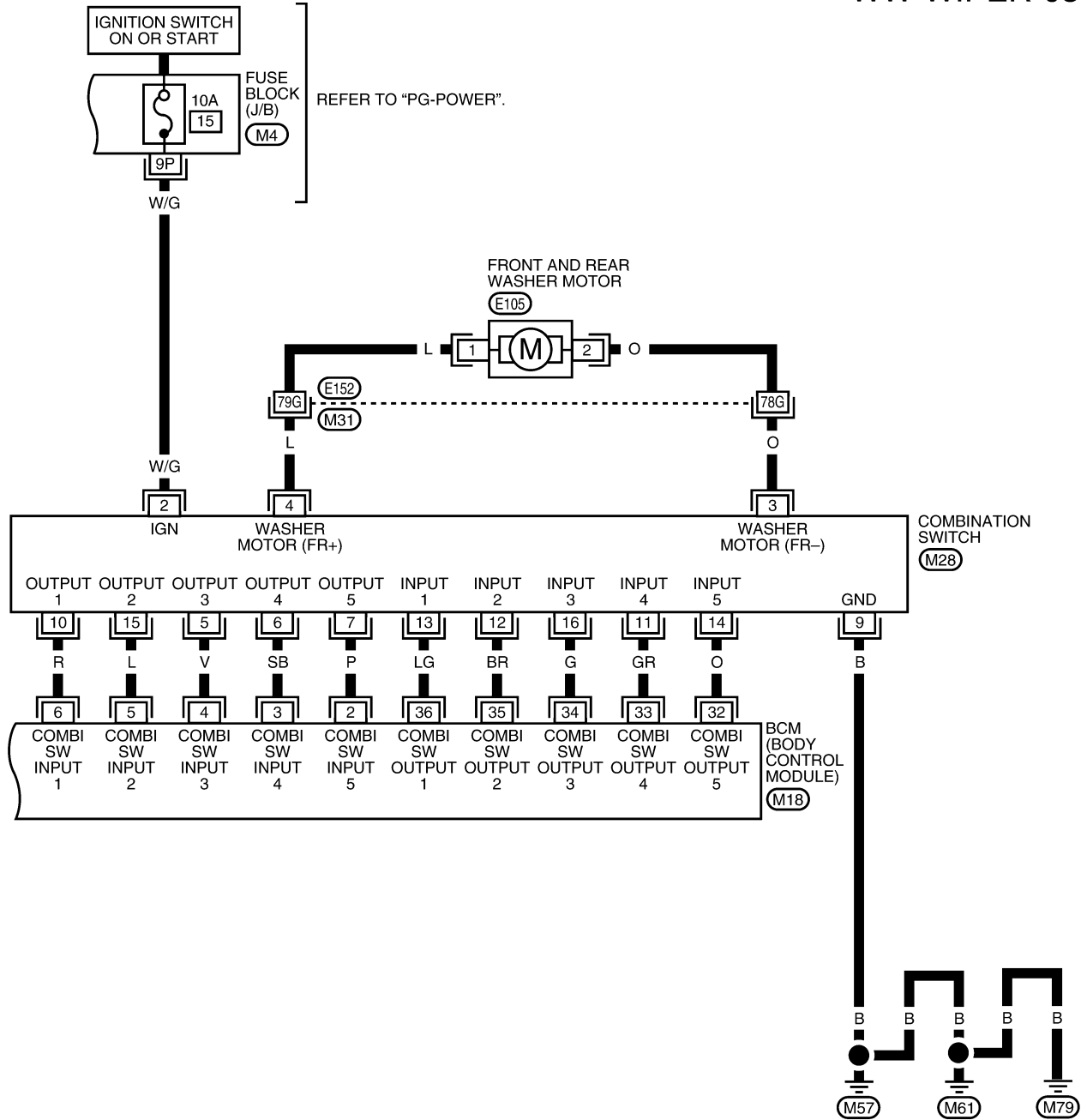
▬ : DATA LINE



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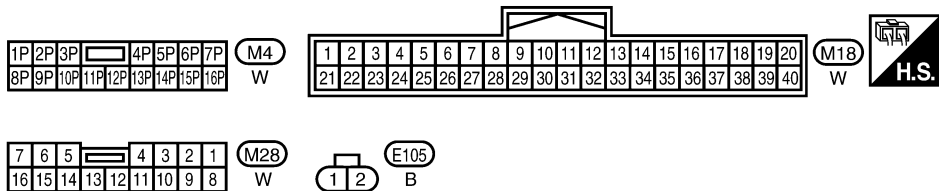
FRONT WIPER AND WASHER SYSTEM

WW-WIPER-03



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REFER TO THE FOLLOWING.
(M31) - SUPER MULTIPLE JUNCTION (SMJ)

WKWA4336E

FRONT WIPER AND WASHER SYSTEM

Terminals and Reference Values for BCM

EKS00HMH

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

Terminals and Reference Values for IPDM E/R

EKS00DEN

Refer to [PG-29, "Terminals and Reference Values for IPDM E/R"](#) .

Work Flow

EKS00DEO

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, "Preliminary 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.

Preliminary Check

EKS00DEP

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

Refer to [BCS-16, "BCM Power Supply and Ground Circuit Check"](#) and [PG-31, "IPDM E/R Power/Ground Circuit Inspection"](#) .

CONSULT-II Function (IPDM E/R)

EKS00DER

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

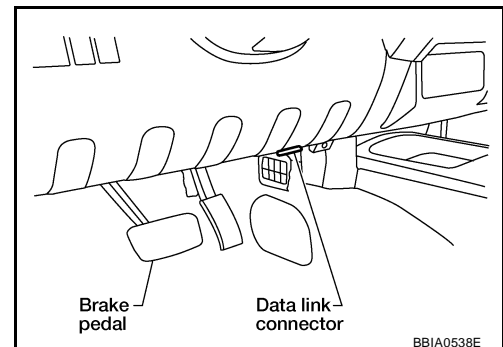
IPDM E/R diagnostic Mode	Description
SELF-DIAG RESULTS	Displays IPDM E/R self-diagnosis results.
DATA MONITOR	Displays IPDM E/R input/output data in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.

CONSULT-II OPERATION

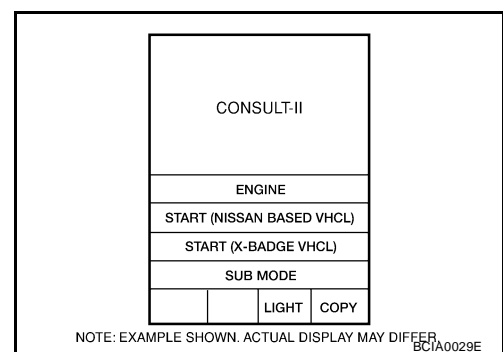
CAUTION:

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 the data link connector, then turn the ignition switch ON.

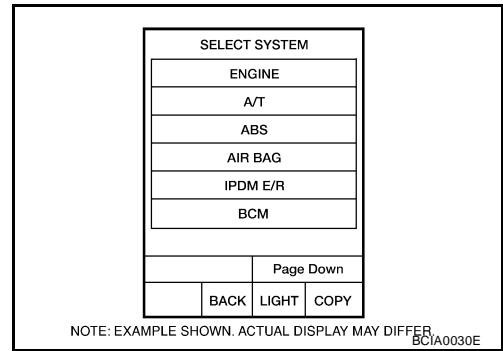


2. Touch "START (NISSAN BASED VHCL)".

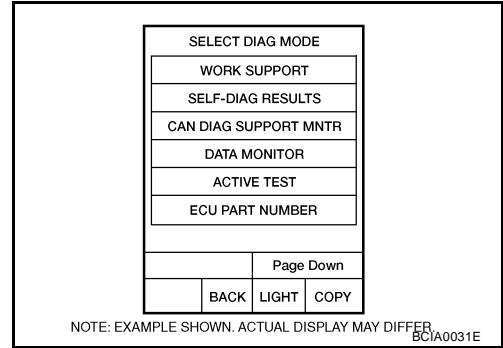


FRONT WIPER AND WASHER SYSTEM

- Touch "IPDM E/R" on "SELECT SYSTEM" screen.
If "IPDM E/R" is not displayed, go to [GI-41, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



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



DATA MONITOR

Operation Procedure

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

- Touch "START".
- 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.
- Touch "RECORD" while monitoring to record the status of the item being monitored. To stop recording, touch "STOP".

All Signals, Main Signals, Selection From Menu

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

- Touch "ACTIVE TEST" on the "SELECT DIAG MODE" screen.

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FRONT WIPER AND WASHER SYSTEM

2. Touch item(s) to be tested and check operation of the selected item(s).
3. 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.

CONSULT-II Function (BCM)

EKS00HMI

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

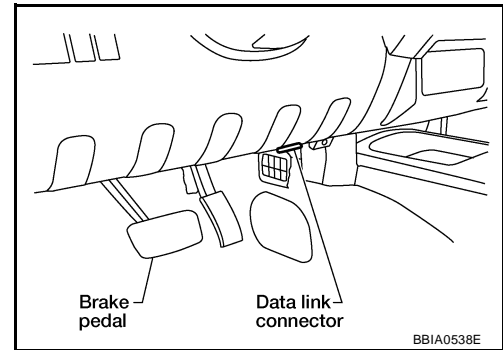
BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	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 OPERATION

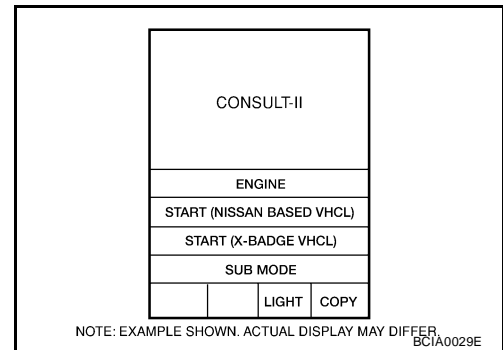
CAUTION:

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 the data link connector, then turn the ignition switch ON.



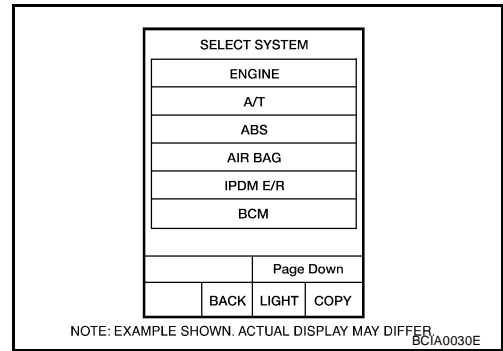
2. Touch "START (NISSAN BASED VHCL)".



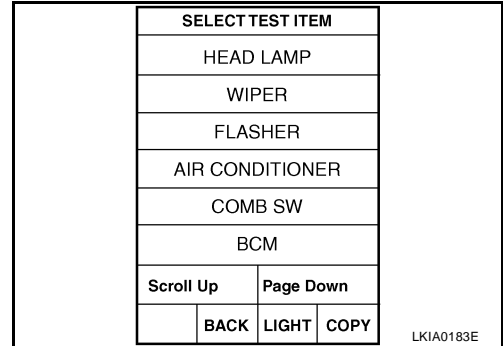
3. Touch "BCM" on the "SELECT SYSTEM" screen.

FRONT WIPER AND WASHER SYSTEM

If "BCM" is not indicated, go to [GI-41, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#) .



4. Select the desired part to be diagnosed on the "SELECT TEST ITEM" screen.



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 "CURRENT SETTING" 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

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.

FRONT WIPER AND WASHER SYSTEM

- 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

- Touch "WIPER" on the "SELECT TEST ITEM" screen.
- Touch "ACTIVE TEST" on the "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	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.

Trouble Diagnosis

FRONT WIPER DOES NOT OPERATE

EKS00DES

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.

Inspection Procedure

1. CHECK IPDM E/R TO FRONT WIPERS

☐ With CONSULT-II

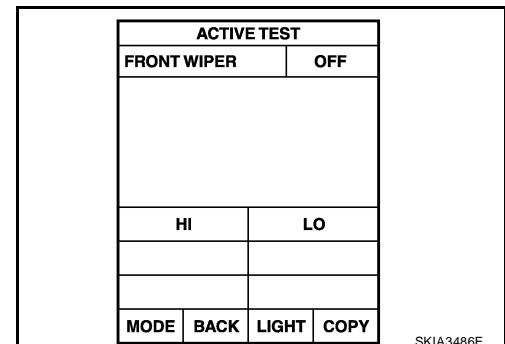
- Select "IPDM E/R" with CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
- Select "FRONT WIPER" on "SELECT TEST ITEM" screen.

☒ Without CONSULT-II

- Turn on front wipers using auto active test. Refer to [PG-24. "Auto Active Test"](#).
- Confirm front wiper operation.

OK or NG

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

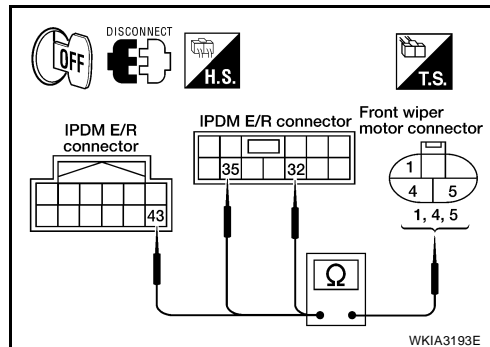


FRONT WIPER AND WASHER SYSTEM

2. IPDM E/R TO FRONT WIPERS CONTINUITY INSPECTION

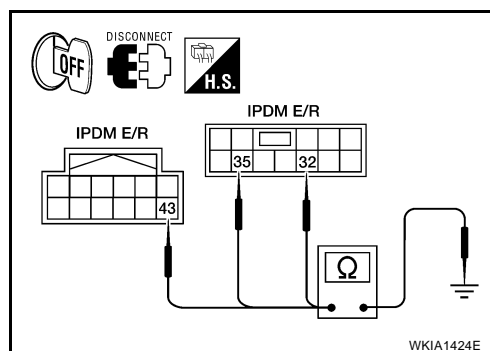
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connectors and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector terminals and front wiper motor harness connector terminals.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E121	32	E23	1	Yes
	35		4	
E122	43		5	



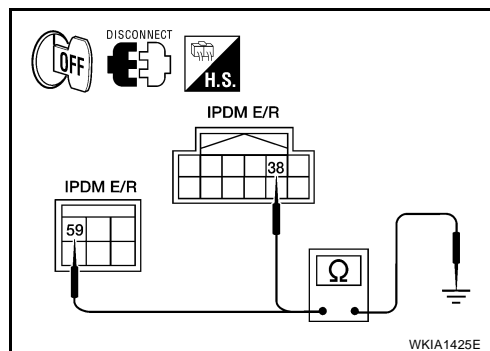
4. Check continuity between IPDM E/R harness connector terminals and ground.

IPDM E/R		Continuity	
Connector	Terminal		
E121	32	Ground	No
	35		
E122	43		



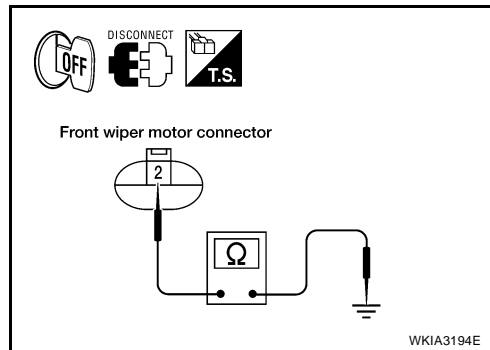
5. Check continuity between IPDM E/R harness connector terminal and ground.

IPDM E/R		Continuity	
Connector	Terminal		
E122	38	Ground	Yes
	59		



6. Check continuity between front wiper motor harness connector E23 terminal 2 and ground.

Front wiper motor		Continuity	
Connector	Terminal		
E23	2	Ground	Yes



OK or NG

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

FRONT WIPER AND WASHER SYSTEM

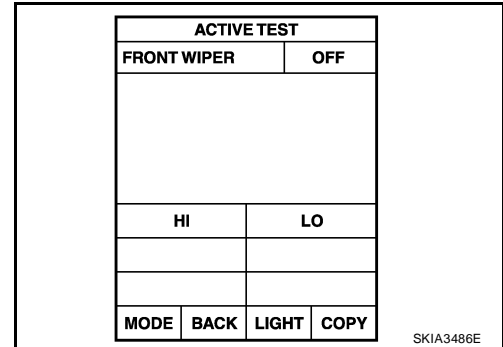
3. IPDM E/R INSPECTION

☑ 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.

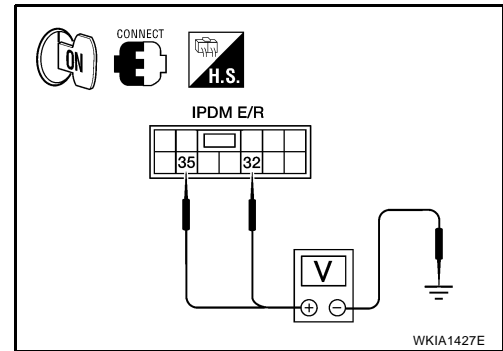
☒ Without CONSULT-II

1. Turn on front wipers using the auto active test. Refer to [PG-24, "Auto Active Test"](#).



When front wiper relay, and front wiper high relay are operating, check voltage between IPDM E/R harness connector E121 terminals 32, 35 and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
Connector	Terminal			
E121	32	Ground	Stopped	0
			LO operation	Battery voltage
	35		Stopped	0
			HI operation	Battery voltage



OK or NG

- OK >> Replace the front wiper motor. Refer to [WW-27, "WIPER MOTOR AND LINKAGE"](#).
- NG >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).

4. CHECK COMBINATION SWITCH TO BCM

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. COMBINATION SWITCH TO BCM CONTINUITY INSPECTION

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

Displayed self-diagnosis results

- NO DTC>> Replace the BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#).
- CAN COMM CIRCUIT>> Check CAN communication line of BCM. GO TO [BCS-19, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

FRONT WIPER AND WASHER SYSTEM

FRONT WIPER STOP POSITION IS INCORRECT

Inspection Procedure

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.

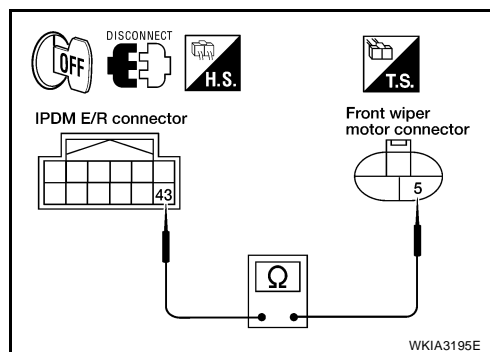
DATA MONITOR	
MONITOR	
MOTOR FAN REQ	1
AC COMP REQ	OFF
TAIL&CLR REQ	OFF
HL LO REQ	OFF
HL HI REQ	OFF
FR FOG REQ	OFF
FR WIP REQ	STOP
WIP AUTO STOP	STOP P
WIP PROT	OFF
Page DOWN	
RECORD	
MODE	BACK
LIGHT	COPY

SKIA5301E

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

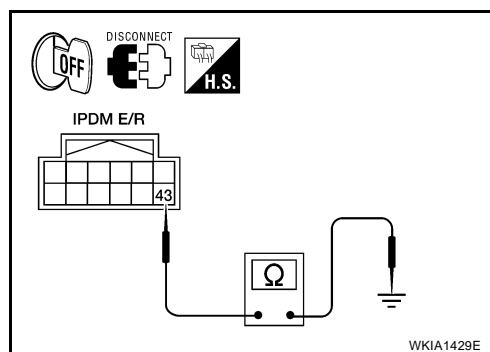
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector E122 terminal 43 and front wiper motor harness connector E23 terminal 5.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E122	43	E23	5	Yes



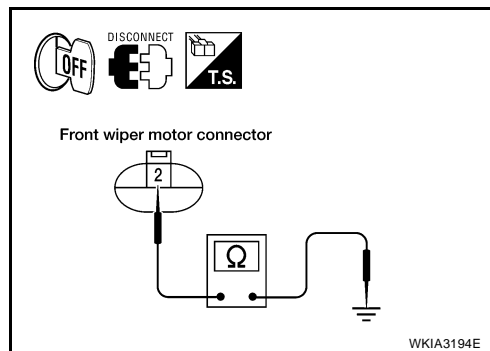
4. Check continuity between IPDM E/R harness connector E122 terminal 43 and ground.

IPDM E/R		Continuity
Connector	Terminal	
E122	43	No



5. Check continuity between front wiper motor harness connector E23 terminal 2 and ground.

Front wiper motor		Continuity
Connector	Terminal	
E23	2	Yes



OK or NG

OK >> 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.

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FRONT WIPER AND WASHER SYSTEM

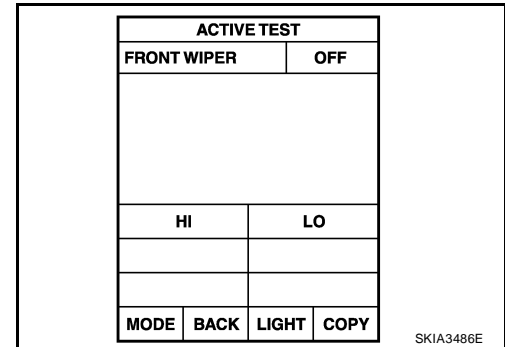
3. IPDM E/R INSPECTION

☑ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Select "LO" on "ACTIVE TEST" screen.

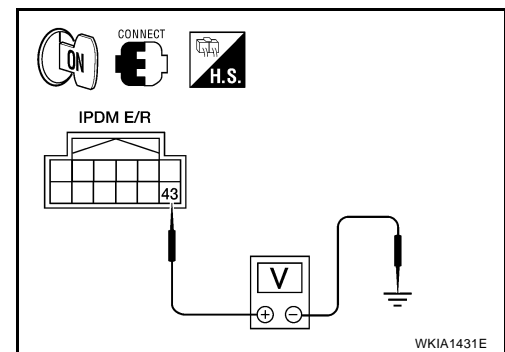
☒ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn on front wipers using the auto active test. Refer to [PG-24, "Auto Active Test"](#) .



When front wipers are operating and when stopped, measure voltage between IPDM E/R harness connector E122 terminal 43 and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
(+)				
Connector	Terminal			
E122	43	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-27, "WIPER MOTOR AND LINKAGE"](#) .

ONLY FRONT WIPER LOW DOES NOT OPERATE

Inspection Procedure

1. CHECK IPDM E/R TO FRONT WIPERS

☑ With CONSULT-II

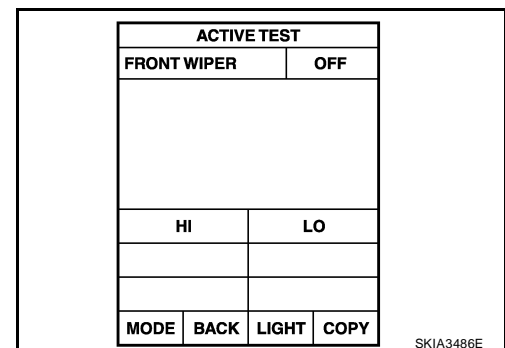
1. Select "IPDM E/R" with CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.
3. Select "LO" on "ACTIVE TEST" screen.
4. Confirm front wiper low operation.

☒ Without CONSULT-II

1. Turn on front wipers using auto active test. Refer to [PG-24, "Auto Active Test"](#) .
2. Confirm front wiper low operation.

OK or NG

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



FRONT WIPER AND WASHER SYSTEM

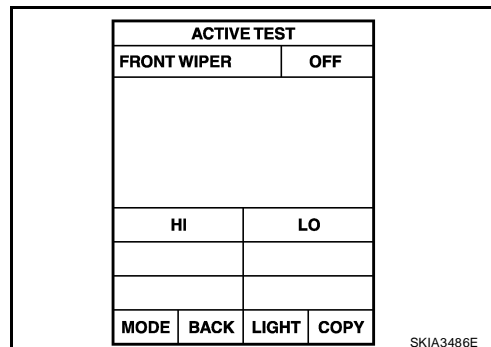
2. IPDM E/R INSPECTION

☑ With CONSULT-II

1. Select "LO" on "ACTIVE TEST" screen.

☒ Without CONSULT-II

1. Turn on front wipers using the auto active test. Refer to [PG-24, "Auto Active Test"](#).



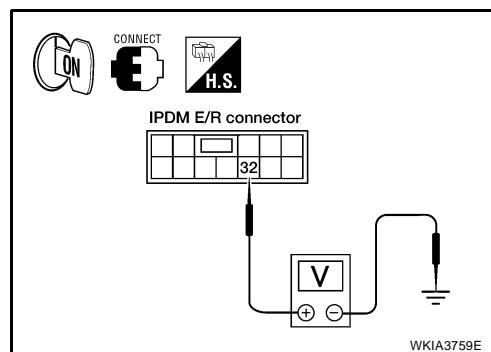
When front wiper relay is operating, check voltage between IPDM E/R terminal and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
(+)	Terminal			
Connector	Terminal	Ground	Wiper operating	Battery voltage
E121	32			

OK or NG

OK >> GO TO 3.

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



3. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

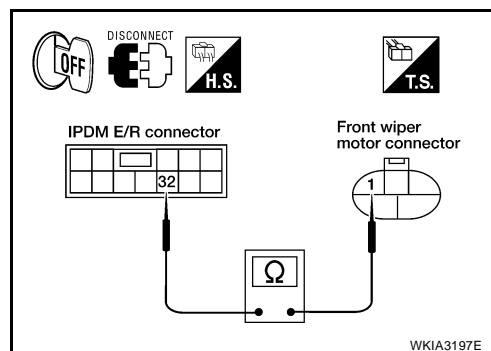
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector terminal and front wiper motor harness connector terminal.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E121	32	E23	1	Yes

OK or NG

OK >> Replace the wiper motor. Refer to [WW-27, "WIPER MOTOR AND LINKAGE"](#).

NG >> Repair harness or connector.



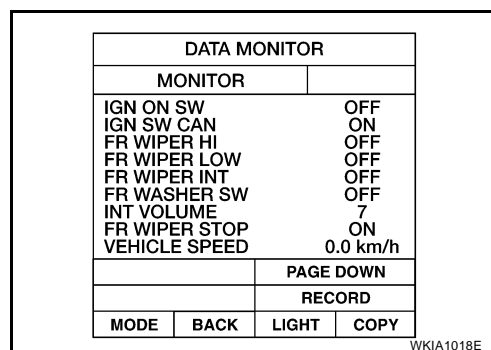
4. COMBINATION SWITCH TO BCM INSPECTION

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

OK or NG

OK >> Replace BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#).

NG >> Replace wiper switch. Refer to .



FRONT WIPER AND WASHER SYSTEM

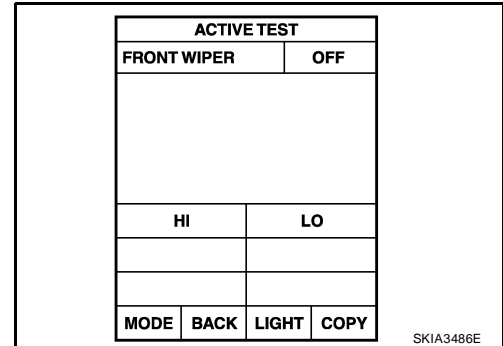
ONLY FRONT WIPER HI DOES NOT OPERATE

Inspection Procedure

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.
3. Select "HI" on "ACTIVE TEST" screen.
4. Confirm front wiper high operation.



ⓧ Without CONSULT-II

1. Turn on front wipers using auto active test. Refer to [PG-24, "Auto Active Test"](#).
2. Confirm front wiper operation.

OK or NG

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

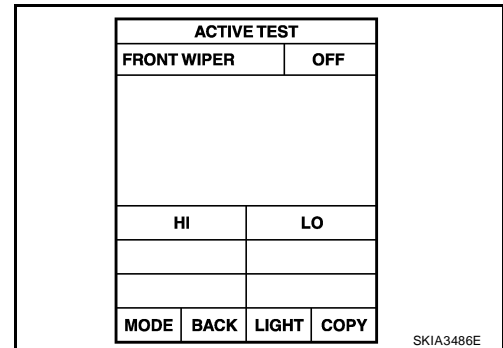
2. IPDM E/R INSPECTION

Ⓟ With CONSULT-II

1. Select "HI" on "ACTIVE TEST" screen.

ⓧ Without CONSULT-II

1. Turn on front wipers using the auto active test. Refer to [PG-24, "Auto Active Test"](#).

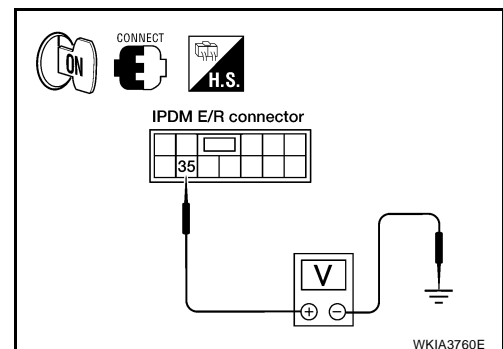


When front wiper relay high is operating, check voltage between IPDM E/R terminal and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
(+)				
Connector	Terminal			
E121	35	Ground	Wiper operating	Battery voltage

OK or NG

- OK >> GO TO 3.
 NG >> Replace IPDM E/R. Refer to [PG-33, "Removal and Installation of IPDM E/R"](#).



FRONT WIPER AND WASHER SYSTEM

3. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

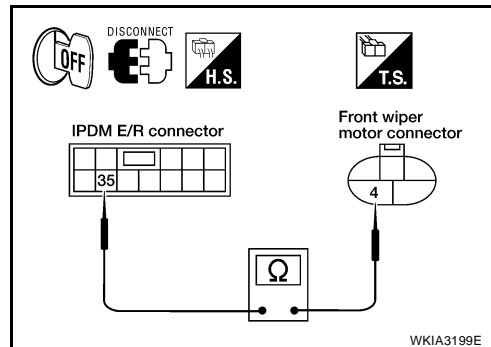
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector terminal and front wiper motor harness connector terminal.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E121	35	E23	4	Yes

OK or NG

OK >> Replace the wiper motor. Refer to [WW-27, "WIPER MOTOR AND LINKAGE"](#) .

NG >> Repair harness or connector.



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-26, "Removal and Installation of BCM"](#) .

NG >> Replace wiper switch. Refer to [WW-28, "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

ONLY FRONT WIPER INT DOES NOT OPERATE

Inspection Procedure

1. CHECK COMBINATION SWITCH TO BCM

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-26, "Removal and Installation of BCM"](#) .

NG >> Replace wiper switch. Refer to [WW-28, "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

FRONT WIPER AND WASHER SYSTEM

FRONT WIPER INTERMITTENT OPERATION SWITCH POSITION CANNOT BE ADJUSTED

Inspection Procedure

1. CHECK COMBINATION SWITCH TO BCM

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-26, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-28, "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

Inspection Procedure

1. CHECK COMBINATION SWITCH TO BCM

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-26, "Removal and Installation of BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-28, "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

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".

Inspection Procedure

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

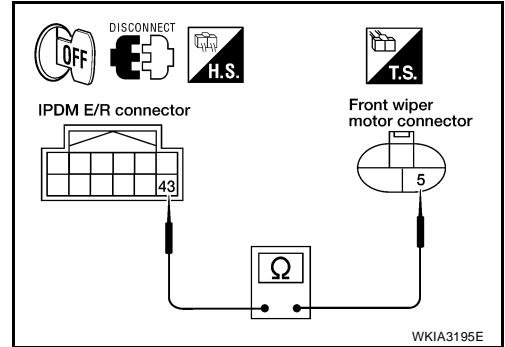
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FRONT WIPER AND WASHER SYSTEM

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

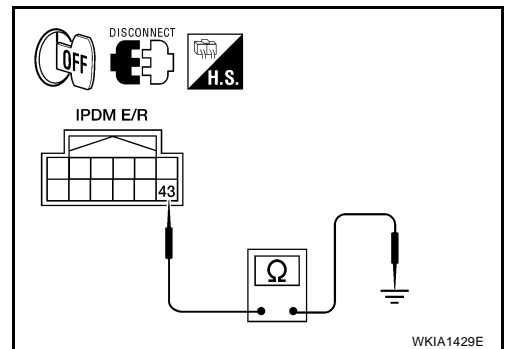
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector E122 terminal 43 and front wiper motor harness connector E23 terminal 5.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E122	43	E23	5	Yes



4. Check continuity between IPDM E/R harness connector E122 terminal 43 and ground.

IPDM E/R			Continuity
Connector	Terminal		
E122	43	Ground	No



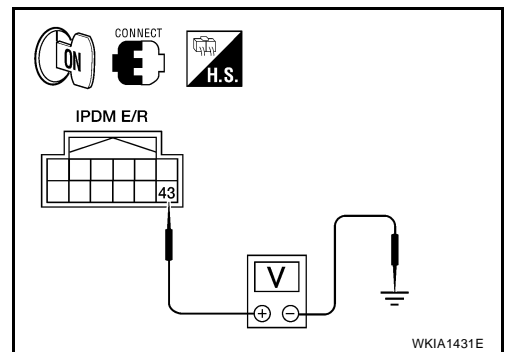
OK or NG

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

3. IPDM E/R TO FRONT WIPER MOTOR GROUND CONTINUITY INSPECTION

While front wiper motor is stopped and while operating, measure voltage between IPDM E/R harness connector E122 terminal 43 and ground.

IPDM E/R		(-)	Condition	Voltage (Approx.)
(+)				
Connector	Terminal			
E122	43	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-27, "WIPER MOTOR AND LINKAGE"](#).

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FRONT WIPER AND WASHER SYSTEM

EKS00DET

Removal and Installation

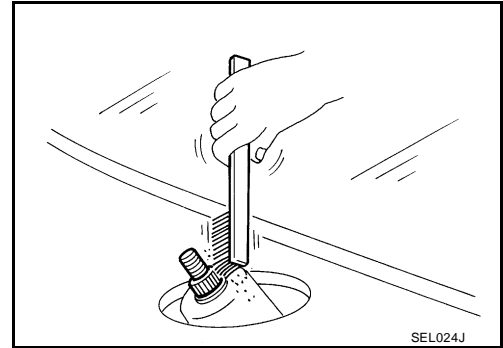
FRONT WIPER ARMS

Removal

1. Remove wiper arm covers and wiper arm nuts.
2. Remove front RH wiper arm and front LH wiper arm.
3. Remove front RH blade assembly and front LH blade assembly.

Installation

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



3. Install front RH blade assembly and front LH blade assembly.
4. Install front RH wiper arm and front LH wiper arm.
5. Ensure that wiper blades stop within proper clearance. Refer to [WW-26, "FRONT WIPER ARM ADJUSTMENT"](#).
6. Tighten wiper arm nuts to specified torque, and install wiper arm covers.

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

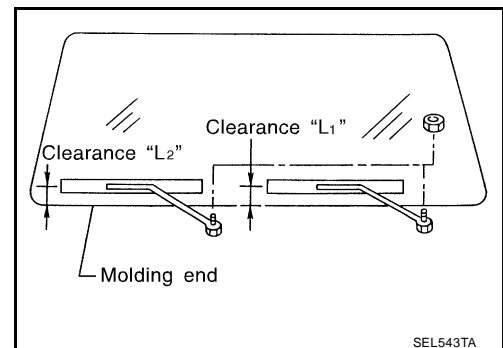
FRONT WIPER ARM ADJUSTMENT

1. Operate windshield washer and wiper motor one full cycle, then turn "OFF" (Auto Stop).
2. Lift the wiper blade up and then rest it onto glass surface, check the blade clearance "L1" and "L2".

Clearance "L1" : 24.5 - 39.5 mm (0.965 - 1.555 in)

Clearance "L2" : 23.5 - 38.5 mm (0.925 - 1.516 in)

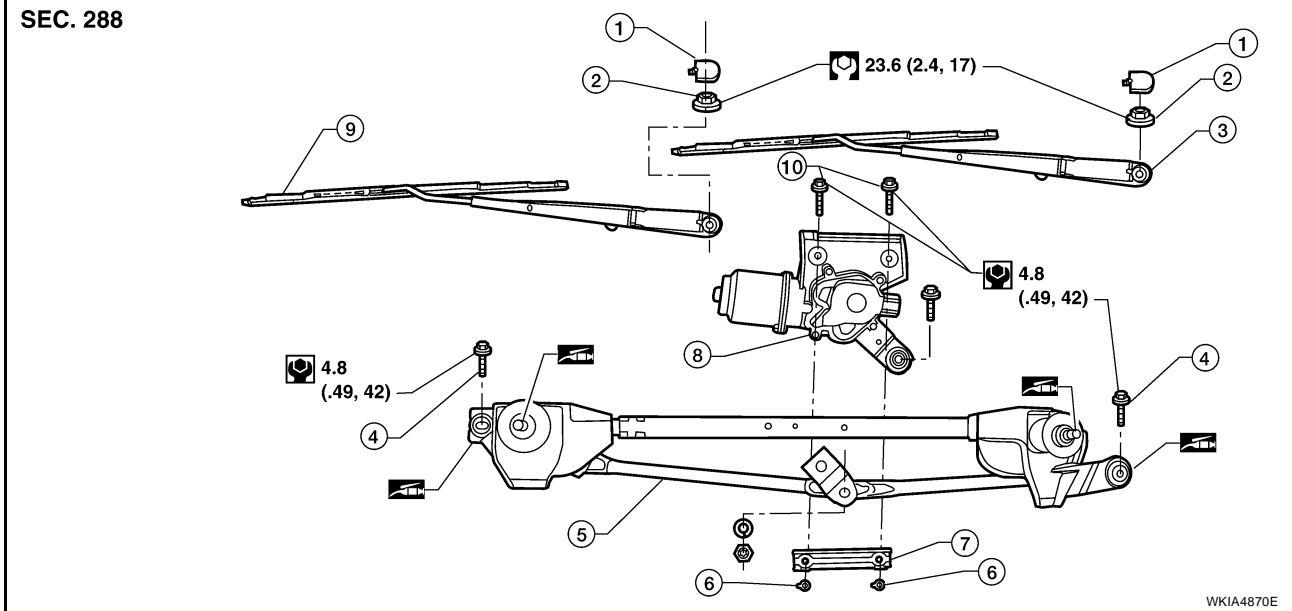
3. Remove wiper arm covers and wiper arm nuts.
4. Adjust front wiper arms on wiper motor pivot shafts to obtain above specified blade clearances.
5. Tighten wiper arm nuts to specified torque, and install wiper arm covers.



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

FRONT WIPER AND WASHER SYSTEM

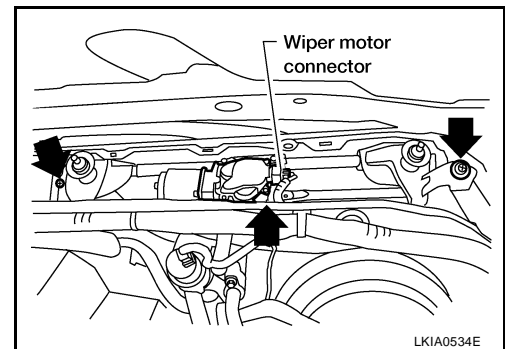
WIPER MOTOR AND LINKAGE



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

Removal

1. Remove the cowl top. Refer to [EI-17, "COWL TOP"](#).
2. Remove wiper frame bolts, disconnect wiper motor connector and remove wiper frame assembly.



3. Remove 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 wiper motor to connector. Turn the wiper switch ON to operate wiper motor, then turn the wiper switch OFF (auto stop).
 2. Disconnect wiper motor connector.
 3. Install wiper motor to wiper frame assembly, and install wiper frame assembly.
 4. Connect wiper motor electrical connector.
 5. Install cowl top. Refer to [EI-17, "COWL TOP"](#).
 6. Ensure that wiper blades stop within proper clearance. Refer to [WW-26, "FRONT WIPER ARM ADJUSTMENT"](#).

FRONT WIPER AND WASHER SYSTEM

WASHER NOZZLES

Removal

1. Remove the cowl top. Refer to [EI-17, "COWL TOP"](#) .
2. Remove washer nozzles.

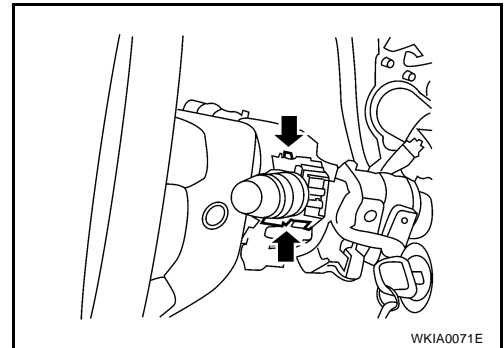
Installation

Installation is in the reverse order of removal.

WIPER AND WASHER SWITCH

Removal

1. Remove instrument lower cover LH. Refer to [IP-12, "LOWER INSTRUMENT PANEL LH"](#) .
2. Remove steering column cover lower and steering column cover upper. Refer to [IP-10, "INSTRUMENT PANEL ASSEMBLY"](#) .
3. Disconnect wiper washer switch connector.
4. Pinch tabs at wiper and washer switch base and slide switch away from steering column.



Installation

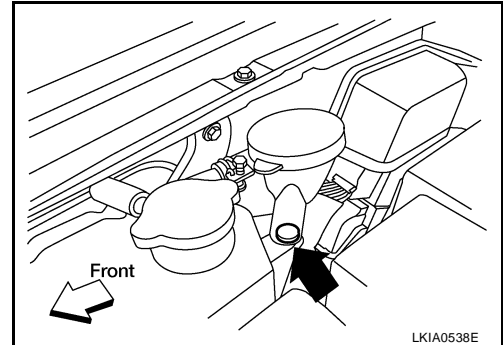
Installation is in the reverse order of removal.

FRONT WIPER AND WASHER SYSTEM

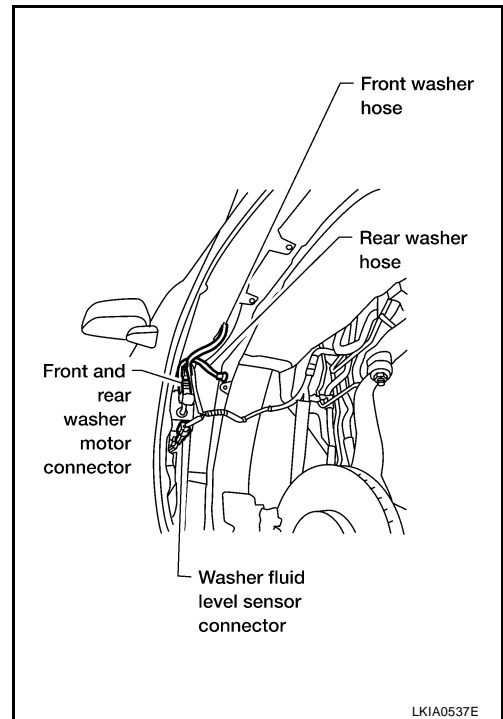
WASHER FLUID RESERVOIR

Removal

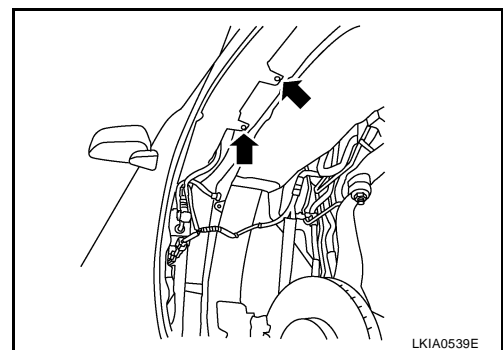
1. Remove passenger front fender protector. Refer to. [EI-19, "Front Fender Protector"](#) .
2. Remove clip, then remove washer fluid reservoir filler neck from washer fluid reservoir.



3. Disconnect front and rear washer hoses.
4. Disconnect front and rear washer motor connector.
5. Disconnect washer fluid level sensor connector.



6. Remove washer fluid reservoir screws and remove washer fluid reservoir.



Installation

Installation is in the reverse order of removal.

CAUTION:

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

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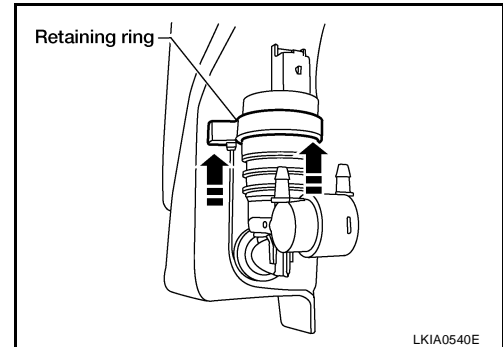
WW

FRONT WIPER AND WASHER SYSTEM

FRONT AND REAR WASHER MOTOR

Removal

1. Remove washer fluid reservoir. Refer to [WW-29, "WASHER FLUID RESERVOIR"](#).
2. Slide retaining ring upward to release front and rear washer motor.



3. Remove front and rear washer motor from washer fluid reservoir.

Installation

Installation is in the reverse order of removal.

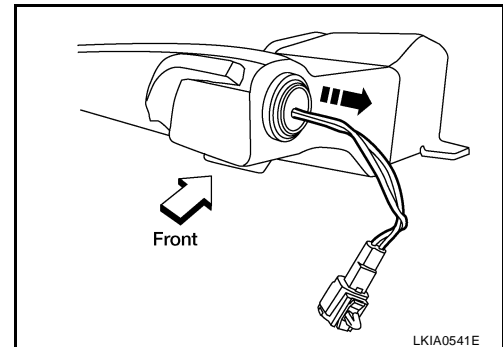
CAUTION:

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

WASHER FLUID LEVEL SENSOR

Removal

1. Remove washer fluid reservoir. Refer to [WW-29, "WASHER FLUID RESERVOIR"](#).
2. Lift level sensor out of washer fluid reservoir in the direction of the arrow as shown.



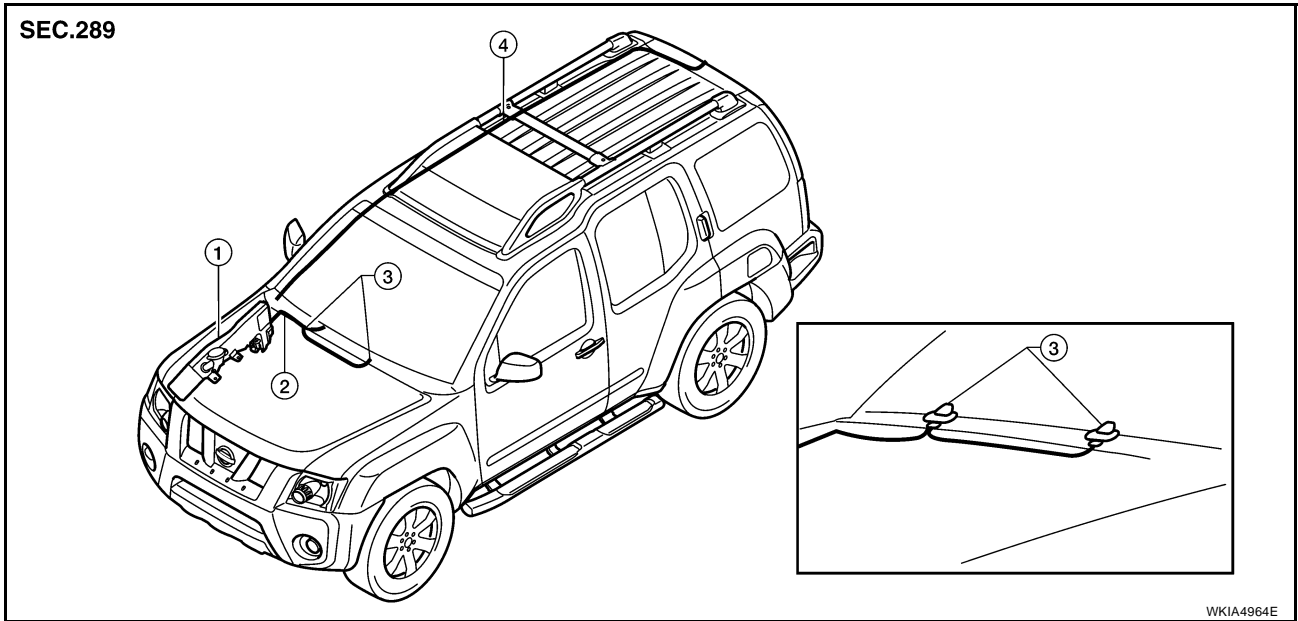
Installation

Installation is in the reverse order of removal.

FRONT WIPER AND WASHER SYSTEM

Washer Hose Layout

EKS00DEW



1. Washer fluid reservoir
2. Front washer hose
3. Washer nozzle
4. Rear washer hose

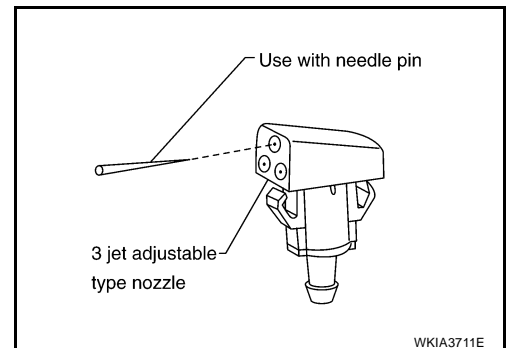
Washer Nozzle Adjustment

EKS00HMJ

NOTE:

This vehicle is equipped with adjustable washer nozzles.

1. If not satisfied with washer fluid spray coverage, confirm that the washer nozzle is installed correctly.
2. If the washer nozzle is installed correctly, and the washer fluid spray coverage is not satisfactory, re-aim washer nozzle.



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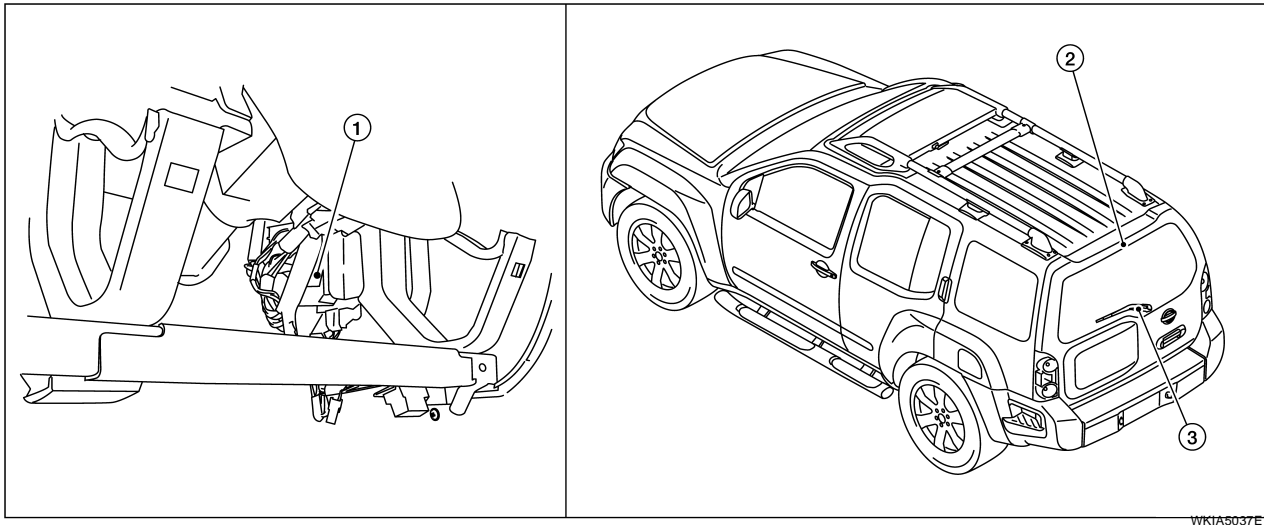
REAR WIPER AND WASHER SYSTEM

REAR WIPER AND WASHER SYSTEM

PF2:28710

Components Parts and Harness Connector Location

EKS00DF1



1. BCM
M18, M19, M20
(view with lower instrument panel LH removed)
2. Rear washer nozzle
3. Rear wiper motor
D509

System Description

EKS00DF2

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

Power is supplied at all times

- through 50A fusible link (letter **g** , 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. 15, located in the fuse block (J/B)]
- to combination switch terminal 2, and
- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to BCM terminal 38.

Ground is supplied

- to BCM terminal 67 and
- to combination switch terminal 9
- through grounds M57, M61 and M79.

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 request through the combination switch (wiper switch) reading function.

The BCM will control the rear wiper motor as follows.

Power is supplied

- through BCM terminal 55
- to rear wiper motor terminal 4.

Ground is supplied

- to rear wiper motor terminal 1
- through grounds D406 and D652.

With power and ground supplied, the rear wiper motor operates.

INTERMITTENT OPERATION

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

REAR WIPER AND WASHER SYSTEM

When the wiper switch is in the rear wiper INT position, the BCM detects a rear wiper INT request through the combination switch (wiper switch) reading function.

When BCM operates rear wiper motor, power is supplied

- through BCM terminal 55
- to rear wiper motor terminal 4.

Ground is supplied

- to rear wiper motor terminal 1
- through grounds D406 and D652.

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 2 and 1 are connected.

Ground is supplied

- to BCM terminal 44
- through rear wiper motor terminal 2
- through rear wiper motor terminal 1
- through grounds D406 and D652.

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. 15, located in the fuse block (J/B)]
- through combination switch (wiper switch) terminal 2
- through combination switch (wiper switch) terminal 3
- to front and rear washer motor terminal 2.

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 1
- through combination switch (wiper switch) terminal 4
- through combination switch (wiper switch) terminal 9
- 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.

If the rear washer is operated with the rear wiper switch in the INT position, normal rear wiper operation will take over. Once the rear washer switch is released the rear wiper will return to INT operation.

BCM WIPER SWITCH READING FUNCTION

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

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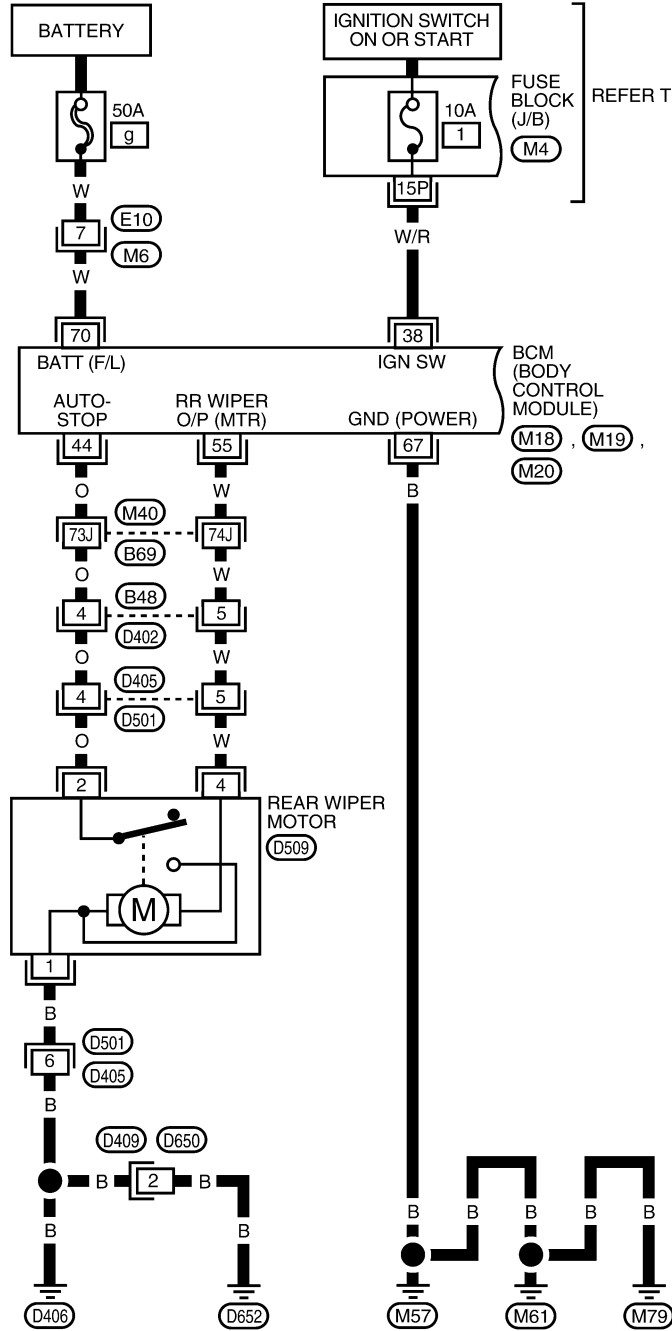
WW

REAR WIPER AND WASHER SYSTEM

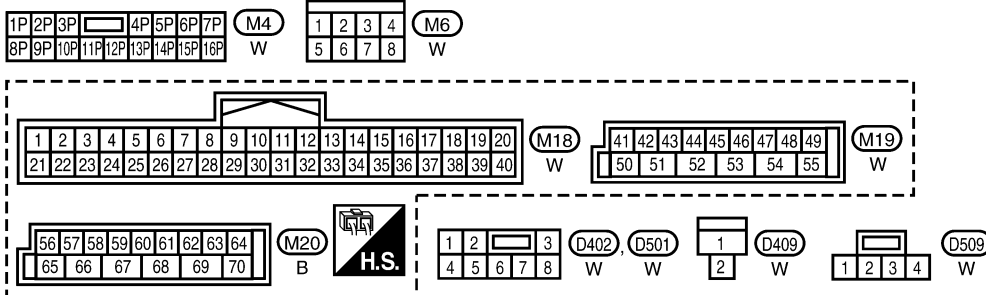
Wiring Diagram — WIP/R —

EKS00DF3

WW-WIP/R-01



REFER TO "PG-POWER".

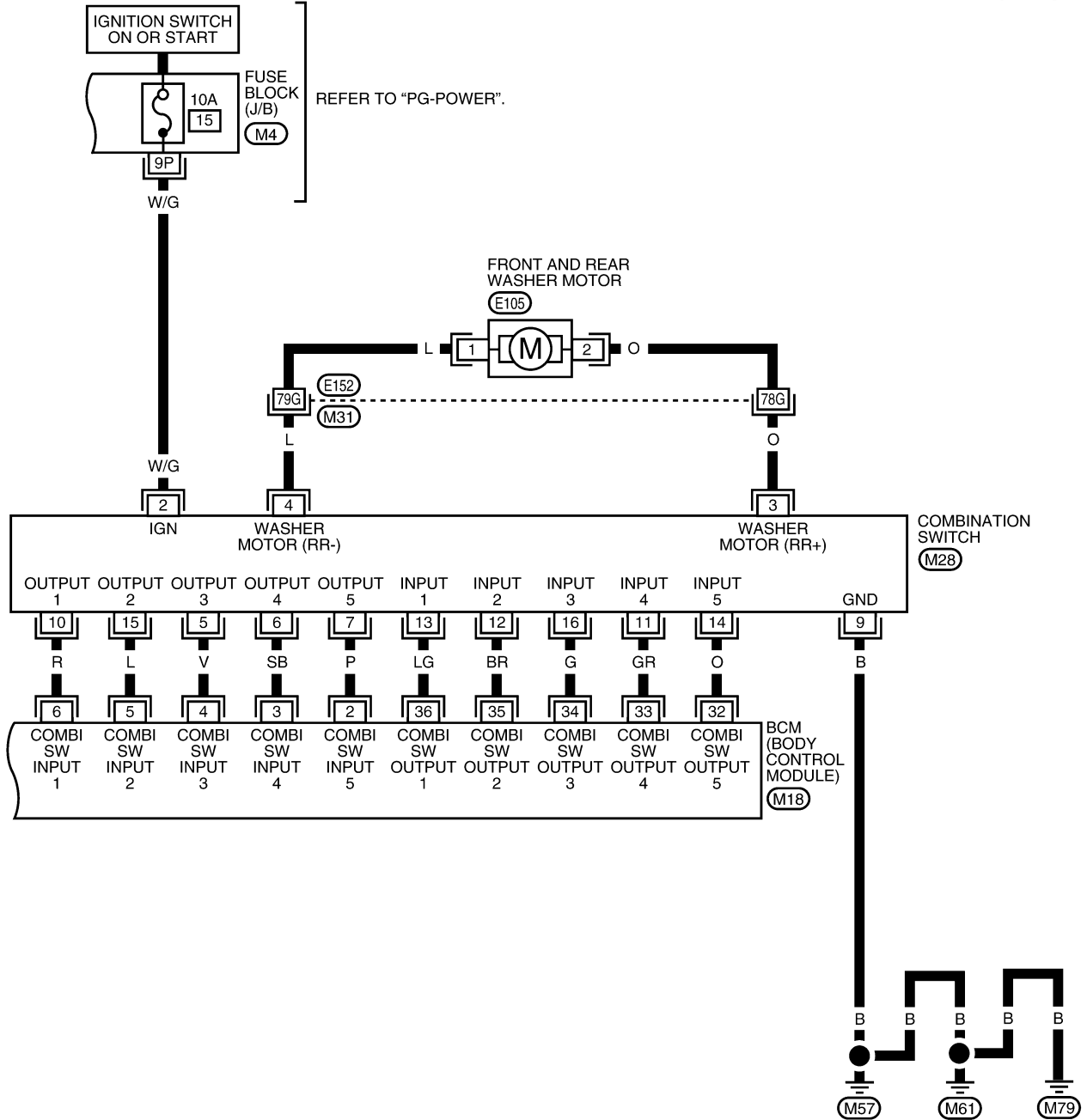


REFER TO THE FOLLOWING.
 (M40) - SUPER MULTIPLE JUNCTION (SMJ)

WKWA4337E

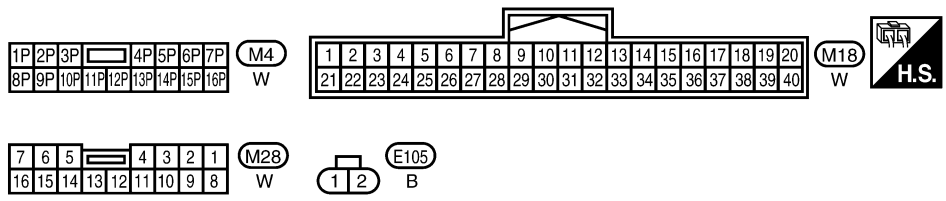
REAR WIPER AND WASHER SYSTEM

WW-WIP/R-02



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REFER TO THE FOLLOWING.
(M31) - SUPER MULTIPLE JUNCTION (SMJ)

WKWA4338E

REAR WIPER AND WASHER SYSTEM

Terminals and Reference Values for BCM

EKS00DF4

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

How to Proceed With Trouble Diagnosis

EKS00DF5

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-32, "System Description"](#) .
3. Perform the Preliminary Check. Refer to [WW-36, "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

EKS00DF6

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

Refer to [BCS-16, "BCM Power Supply and Ground Circuit Check"](#) .

CONSULT-II Function (BCM)

EKS00DF7

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

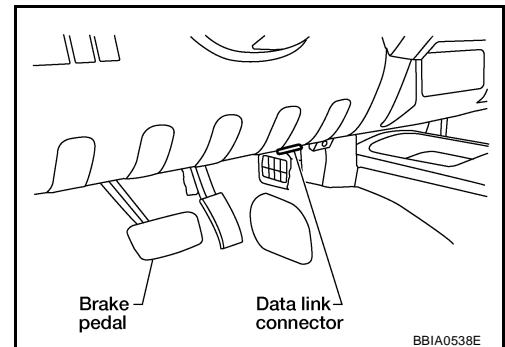
BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	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 OPERATION

CAUTION:

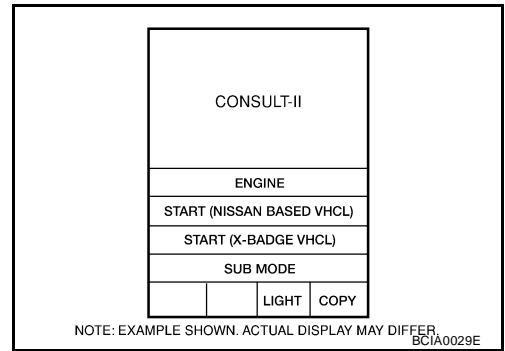
If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carries out CAN communication.

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

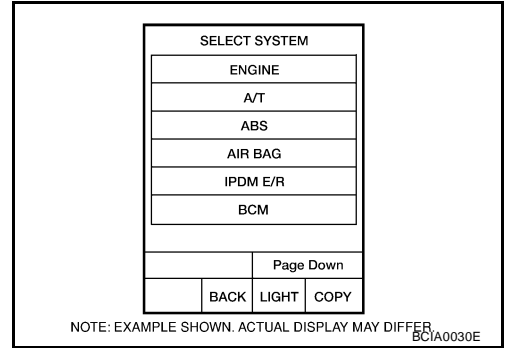


REAR WIPER AND WASHER SYSTEM

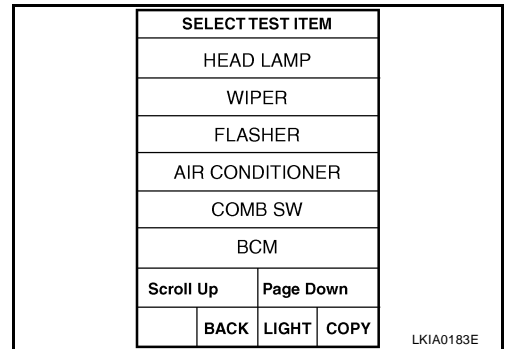
2. Touch "START (NISSAN BASED VHCL)".



3. Touch "BCM" on the "SELECT SYSTEM" screen.
If "BCM" is not indicated, go to [GI-41, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



4. Select the desired part to be diagnosed on the "SELECT TEST ITEM" screen.



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".

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REAR 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 Position (ON)/OFF, ACC Position (OFF)" status as judged from CAN communications.
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 switch 1.
RR AUTO STP 2 "ON/OFF"	Displays "Stopped (OFF)/Operating (ON)" status as judged from the auto stop switch 2.

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

EKS00DF8

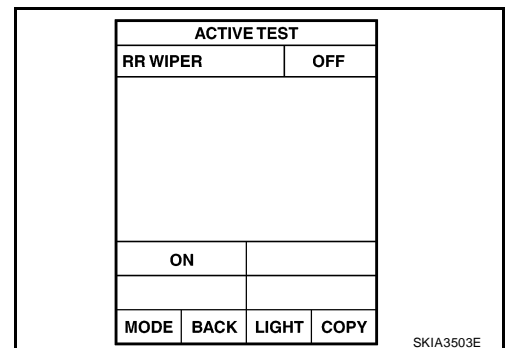
1. REAR WIPER ACTIVE TEST

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.



REAR WIPER AND WASHER SYSTEM

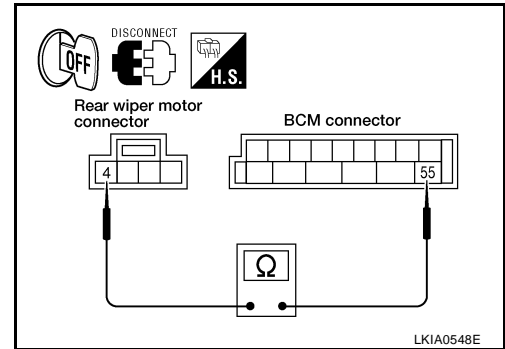
2. CHECK REAR WIPER MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector M19 terminal 55 and rear wiper motor harness connector D509 terminal 4.

55 - 4 : Continuity should exist.

OK or NO

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



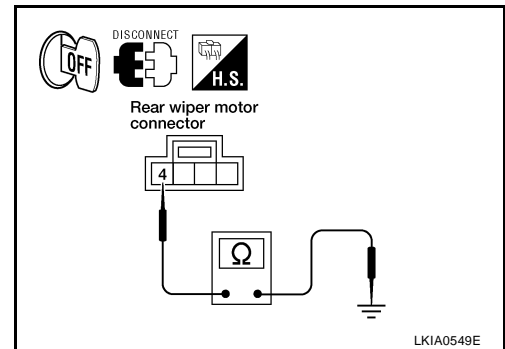
3. CHECK REAR WIPER MOTOR SHORT CIRCUIT

Check continuity between rear wiper motor harness connector D509 terminal 4 and ground.

4 - 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. After the battery cable is reconnected, the steering angle sensor neutral position must be reset on vehicles equipped with VDC. Refer to [BRC-57, "Adjustment of Steering Angle Sensor Neutral Position"](#) .



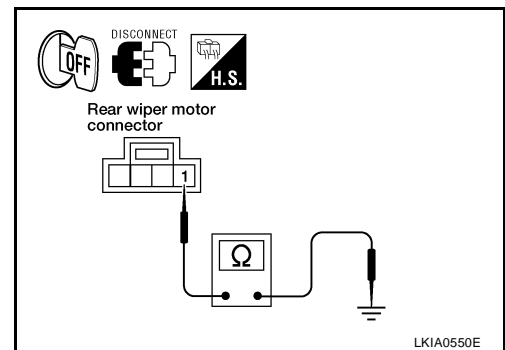
4. CHECK GROUND CIRCUIT

Check continuity between rear wiper motor harness connector D509 terminal 1 and ground.

1 - Ground : Continuity should exist.

OK or NG

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



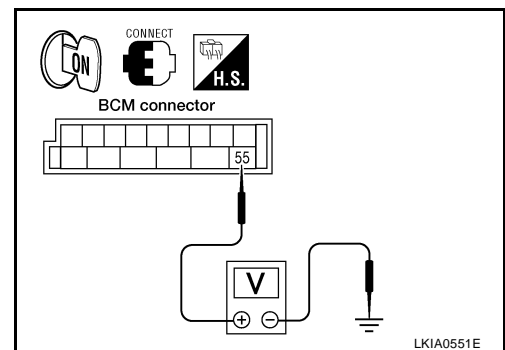
5. CHECK REAR WIPER OPERATING

1. Connect BCM connector and rear wiper motor connector.
2. Select "RR WIPER" during "ACTIVE TEST". Refer to [WW-38, "ACTIVE TEST"](#) . When rear wiper is operating, check voltage between BCM harness connector terminal and ground.

BCM		(-)	Condition	Voltage (Approx.)
Connector	Terminal			
M19	55	Ground	Stopped	0V
			ON operation	Battery voltage

OK or NG

- OK >> Replace rear wiper motor. Refer to [WW-44, "REAR WIPER MOTOR"](#) .
 NG >> Replace BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#) .



REAR WIPER AND WASHER SYSTEM

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 ON

OK or NG

OK >> Replace BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#).

NG >> Check the wiper switch. Refer to [WW-7, "COMBINATION SWITCH READING FUNCTION"](#).

DATA MONITOR	
MONITOR	
RR WIPER INT	ON
RR WIPER ON	ON

SKIA4243E

Rear Wiper Stop Position Is Incorrect

EKS00DF9

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-26, "Removal and Installation of BCM"](#).

NG >> GO TO 2.

DATA MONITOR	
MONITOR	
RR WIPER STOP	OFF

SKIA4244E

2. CHECK REAR WIPER MOTOR CIRCUIT

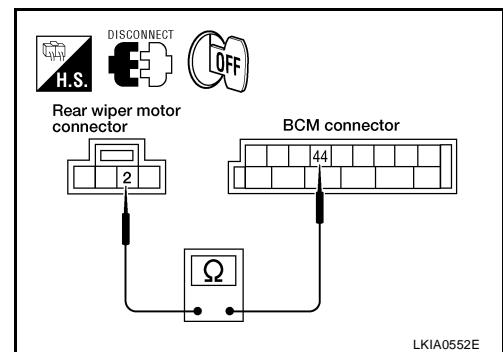
1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector M19 terminal 44 and rear wiper motor harness connector D509 terminal 2.

44 - 2 : Continuity should exist.

OK or NG

OK >> GO TO 3.

NG >> Repair harness or connector.



3. CHECK REAR WIPER MOTOR SHORT CIRCUIT

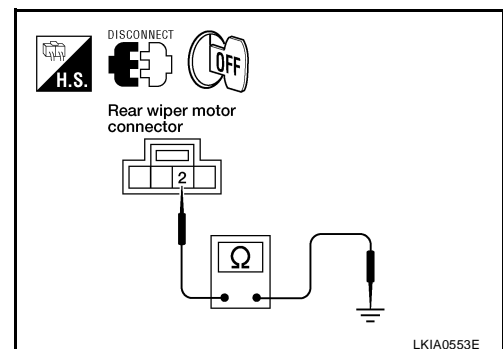
Check continuity between rear wiper motor harness connector D509 terminal 2 and ground.

2 - Ground : Continuity should not exist.

OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.



REAR WIPER AND WASHER SYSTEM

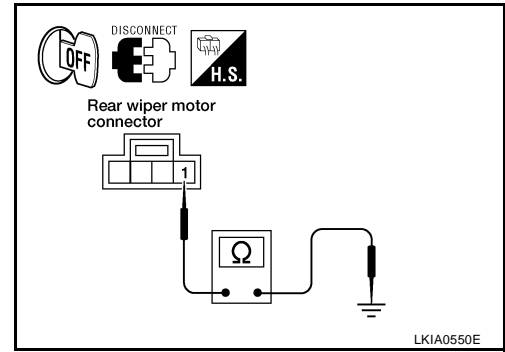
4. CHECK GROUND CIRCUIT

Check continuity between rear wiper motor harness connector D509 terminal 1 and ground.

1 - Ground : Continuity should exist.

OK or NG

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



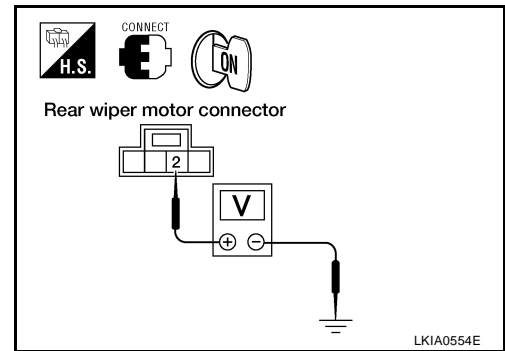
5. CHECK AUTO STOP SIGNAL

1. Connect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between rear wiper motor harness connector D509 terminal 2 and ground.

2 - Ground : Battery voltage should exist.

OK or NG

- OK >> Replace BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#).
- NG >> Replace rear wiper motor. Refer to [WW-44, "REAR WIPER MOTOR"](#).



Only Rear Wiper Does Not Operate

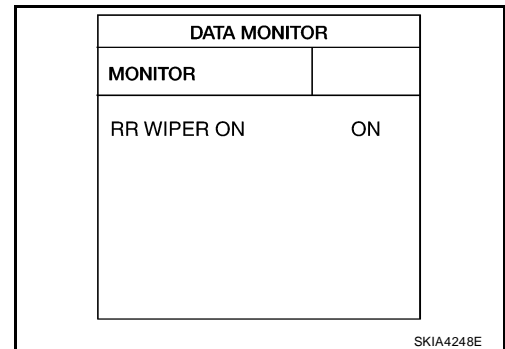
1. CHECK COMBINATION SWITCH INPUT SIGNAL

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 ON

OK or NG

- OK >> Replace BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [WW-7, "COMBINATION SWITCH READING FUNCTION"](#).



Only Rear Wiper Intermittent Does Not Operate

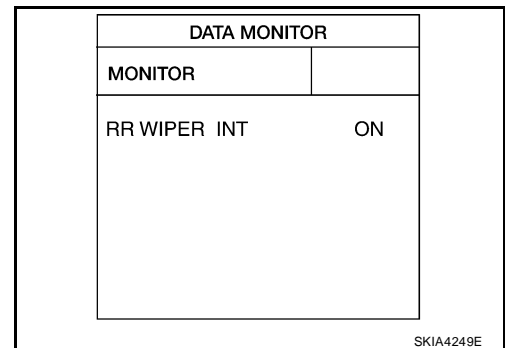
1. CHECK COMBINATION SWITCH INPUT SIGNAL

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-26, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [WW-7, "COMBINATION SWITCH READING FUNCTION"](#).



REAR WIPER AND WASHER SYSTEM

Wiper Does Not Wipe When Rear Washer Operates

EKS00DFC

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 : RR WASHER SW ON WASHER position

OK or NG

- OK >> Replace BCM. Refer to [BCS-26, "Removal and Installation of BCM"](#).
- NG >> Check the wiper switch. Refer to [WW-7, "COMBINATION SWITCH READING FUNCTION"](#).

DATA MONITOR	
MONITOR	
RR WASHER SW	ON

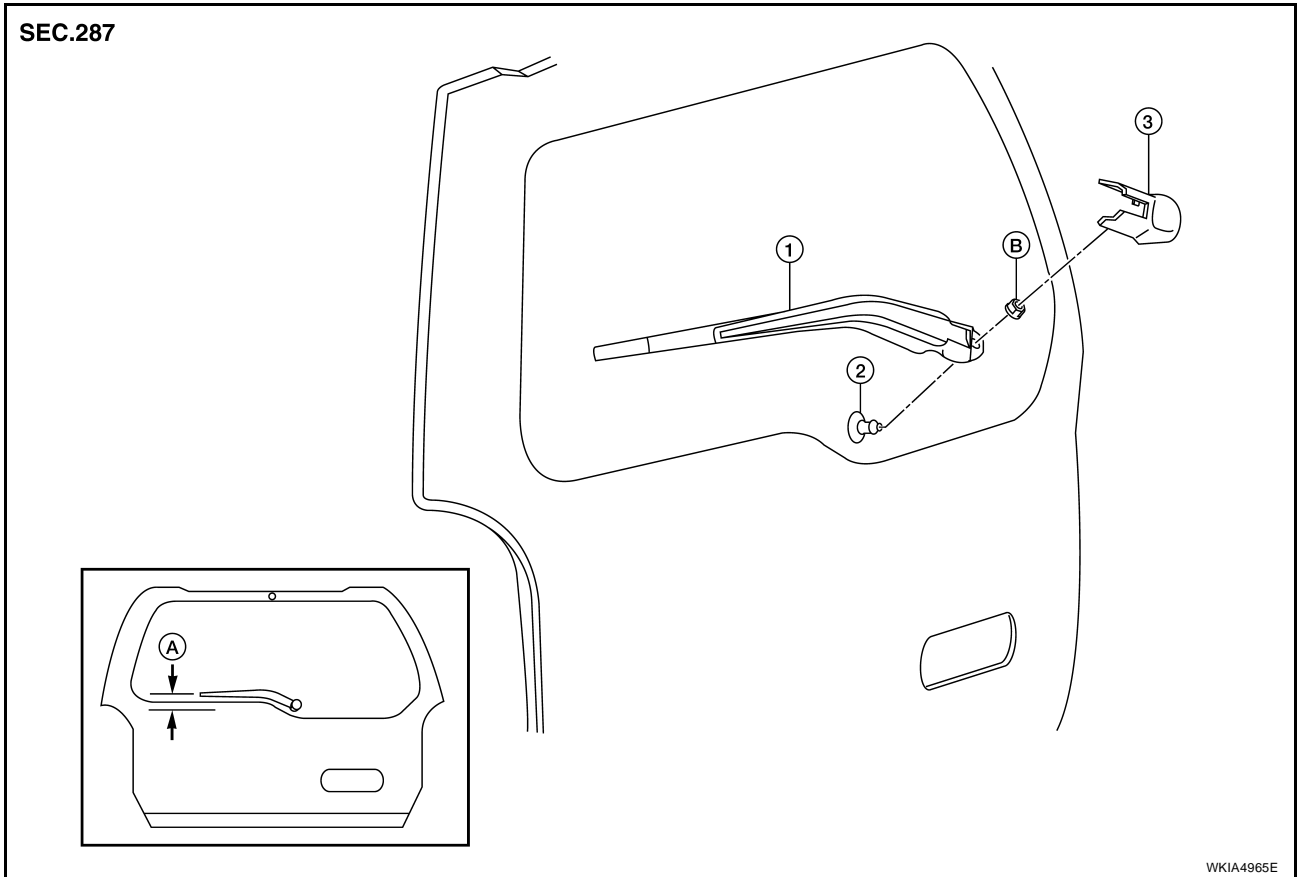
SKIA4250E

REAR WIPER AND WASHER SYSTEM

Removal and Installation

EKS00HMK

SEC.287



1. Rear wiper arm and blade 2. Rear wiper motor pivot seal 3. Rear wiper arm cover
A. Wiper arm parallel to back glass edge B. Rear wiper arm nut

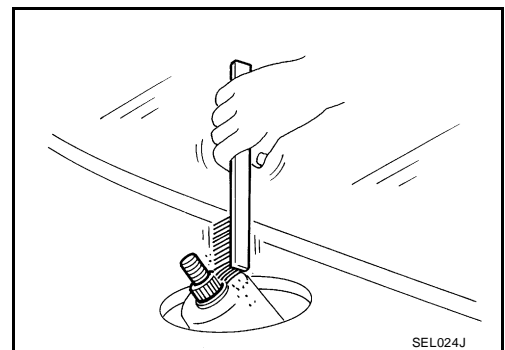
REAR WIPER ARM

Removal

1. Remove rear wiper arm cover, and remove rear wiper arm nut.
2. Remove rear wiper arm.
3. Remove wiper blade.

Installation

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



2. Install rear wiper blade.
3. Install rear wiper arm.
4. Ensure that rear wiper blade stops at proper position. Refer to [WW-43, "REAR WIPER ARM ADJUSTMENT"](#).

REAR WIPER ARM ADJUSTMENT

1. Operate rear wiper motor one full cycle, then turn "OFF" (Auto Stop).

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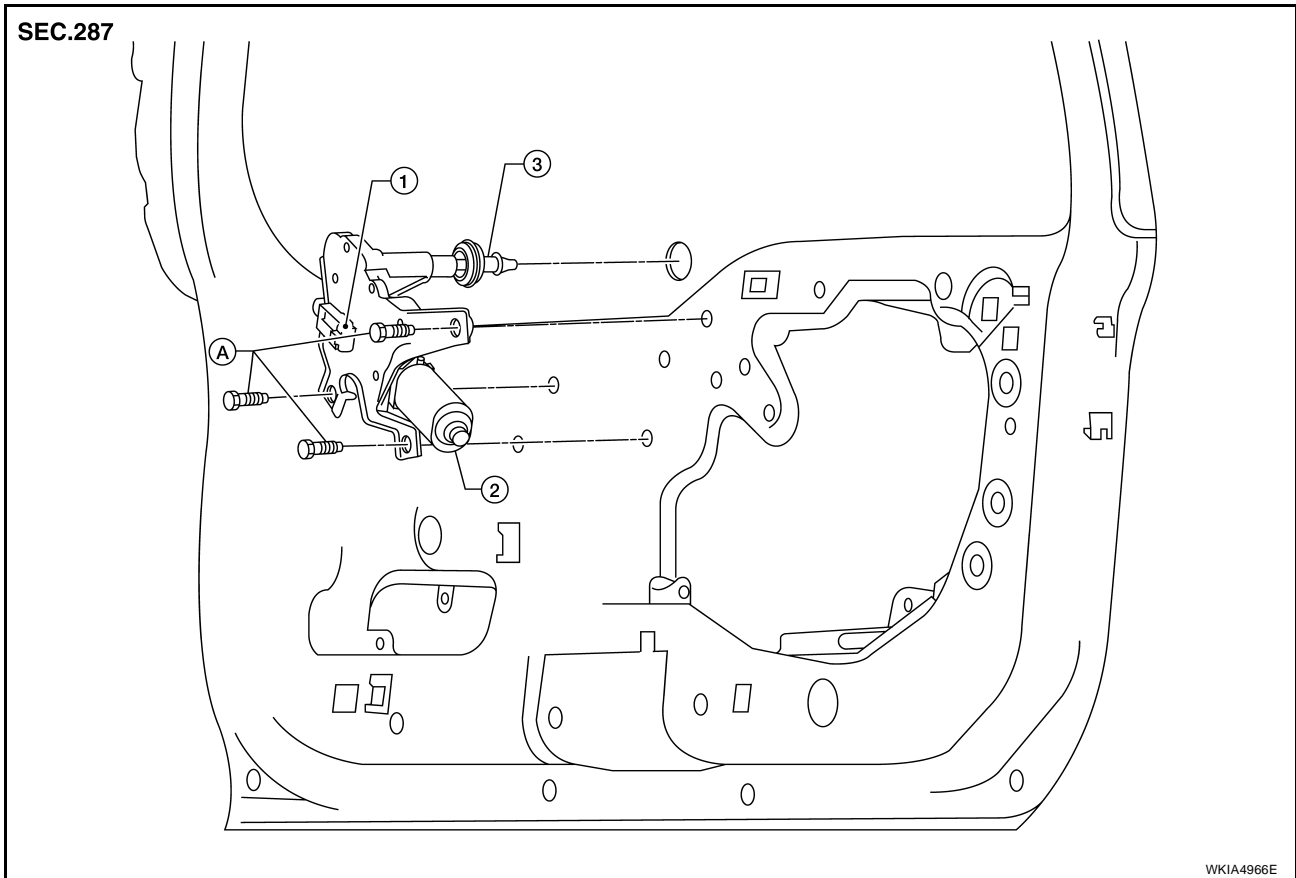
L
M

REAR WIPER AND WASHER SYSTEM

2. Adjust rear wiper arm so that wiper arm and blade is parallel with lower edge of back glass, as shown.
3. Install rear wiper arm nut and rear wiper arm cover.

REAR WIPER MOTOR

SEC.287



1. Rear wiper motor harness connector
 2. Rear wiper motor
 3. Rear motor pivot seal
- A. Rear wiper motor bolts

Removal

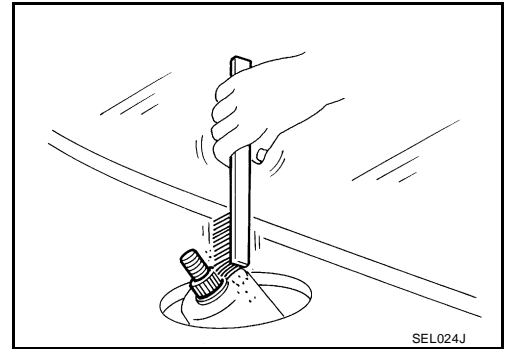
CAUTION:

- Do not drop rear wiper motor or cause it to contact other parts.
1. Remove rear wiper arm and blade. Refer to [WW-43, "REAR WIPER ARM"](#) .
 2. Remove back door lower finisher. Refer to [EI-35, "BACK DOOR TRIM"](#) .
 3. Remove rear wiper motor cover.
 4. Disconnect rear wiper motor harness connector.
 5. Remove rear wiper motor.
 6. Remove rear motor pivot seal.

Installation

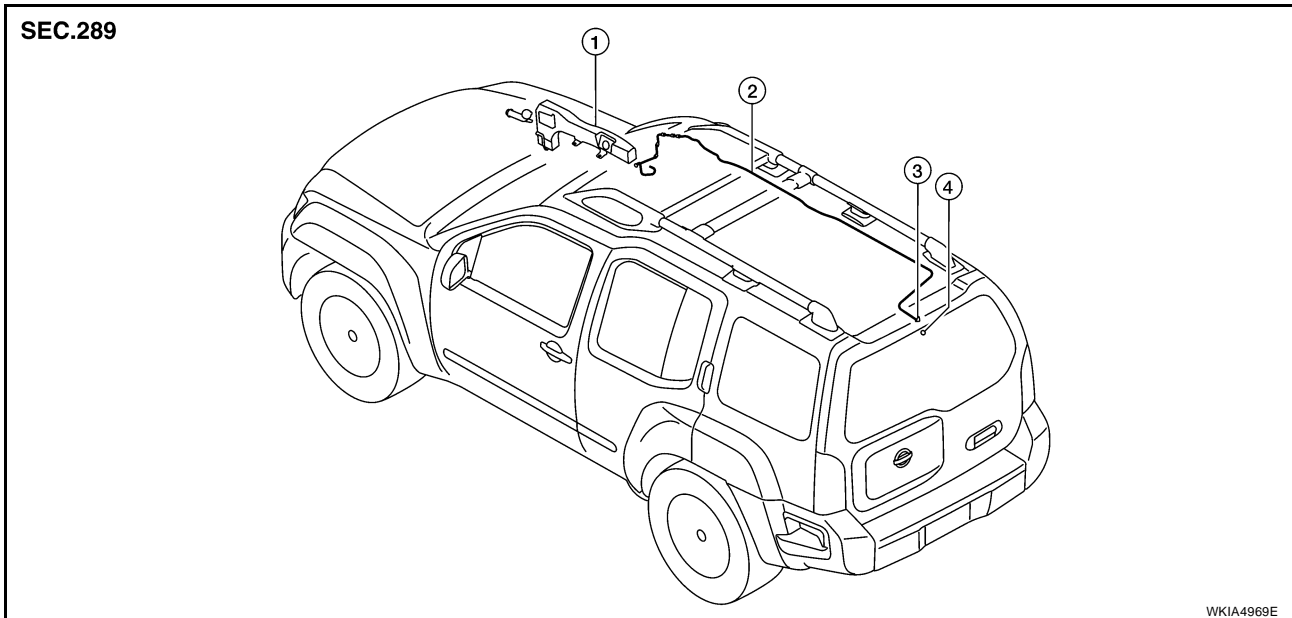
REAR WIPER AND WASHER SYSTEM

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



2. Install rear motor pivot seal.
3. Install rear wiper motor.
4. Connect rear wiper motor harness connector.
5. Install rear wiper motor cover.
6. Install back door lower finisher. Refer to [EI-35, "BACK DOOR TRIM"](#).
7. Ensure that rear wiper blade stops at proper position. Refer to [WW-43, "REAR WIPER ARM ADJUSTMENT"](#).

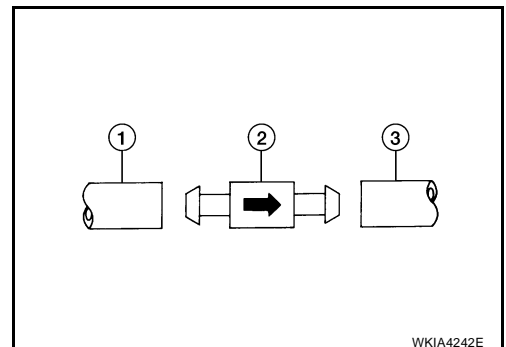
REAR WASHER HOSE LAYOUT



1. Washer fluid reservoir
2. Rear washer hose
3. Check valve
4. Rear washer nozzle

NOTE:

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).

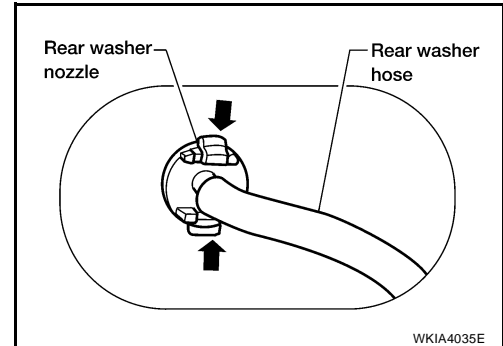


REAR WIPER AND WASHER SYSTEM

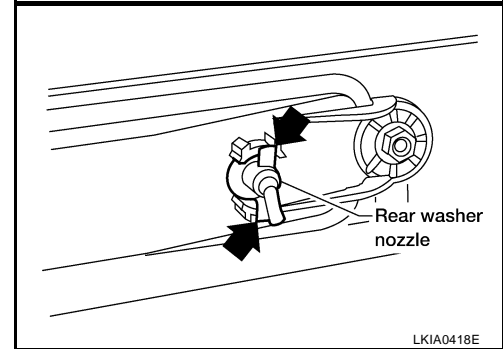
REAR WASHER NOZZLE

Removal

1. Remove back door upper finisher. Refer to [EI-35, "BACK DOOR TRIM"](#).
2. Disconnect rear washer hose from rear washer nozzle.

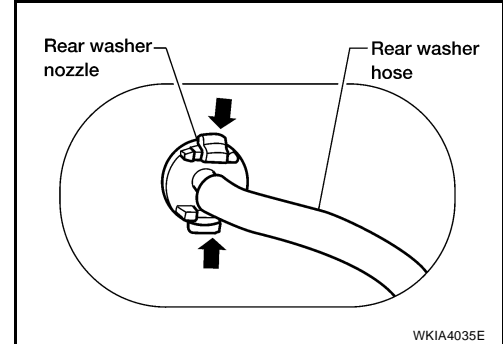


3. Release retaining clips, and remove rear washer nozzle.



Installation

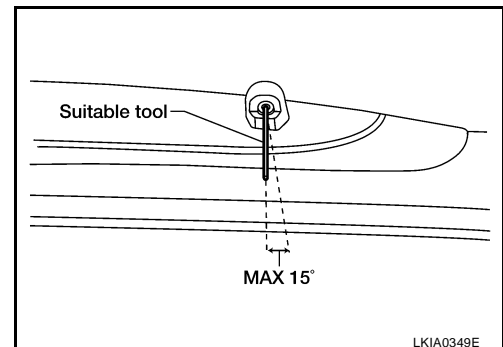
1. Install rear washer nozzle.
2. Connect rear washer hose.
3. Install back door upper finisher. Refer to [EI-35, "BACK DOOR TRIM"](#).



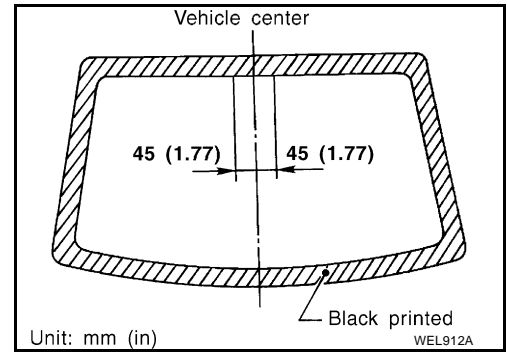
REAR WASHER NOZZLE ADJUSTMENT

- Adjust washer nozzle with suitable tool as shown.

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



REAR WIPER AND WASHER SYSTEM



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FRONT AND REAR WASHER MOTOR

Refer to [WW-30, "FRONT AND REAR WASHER MOTOR"](#) .

WIPER AND WASHER SWITCH

Refer to [WW-28, "WIPER AND WASHER SWITCH"](#) .

WASHER FLUID RESERVOIR

Refer to [WW-29, "WASHER FLUID RESERVOIR"](#) .

WW

POWER SOCKET

PPF:253A2

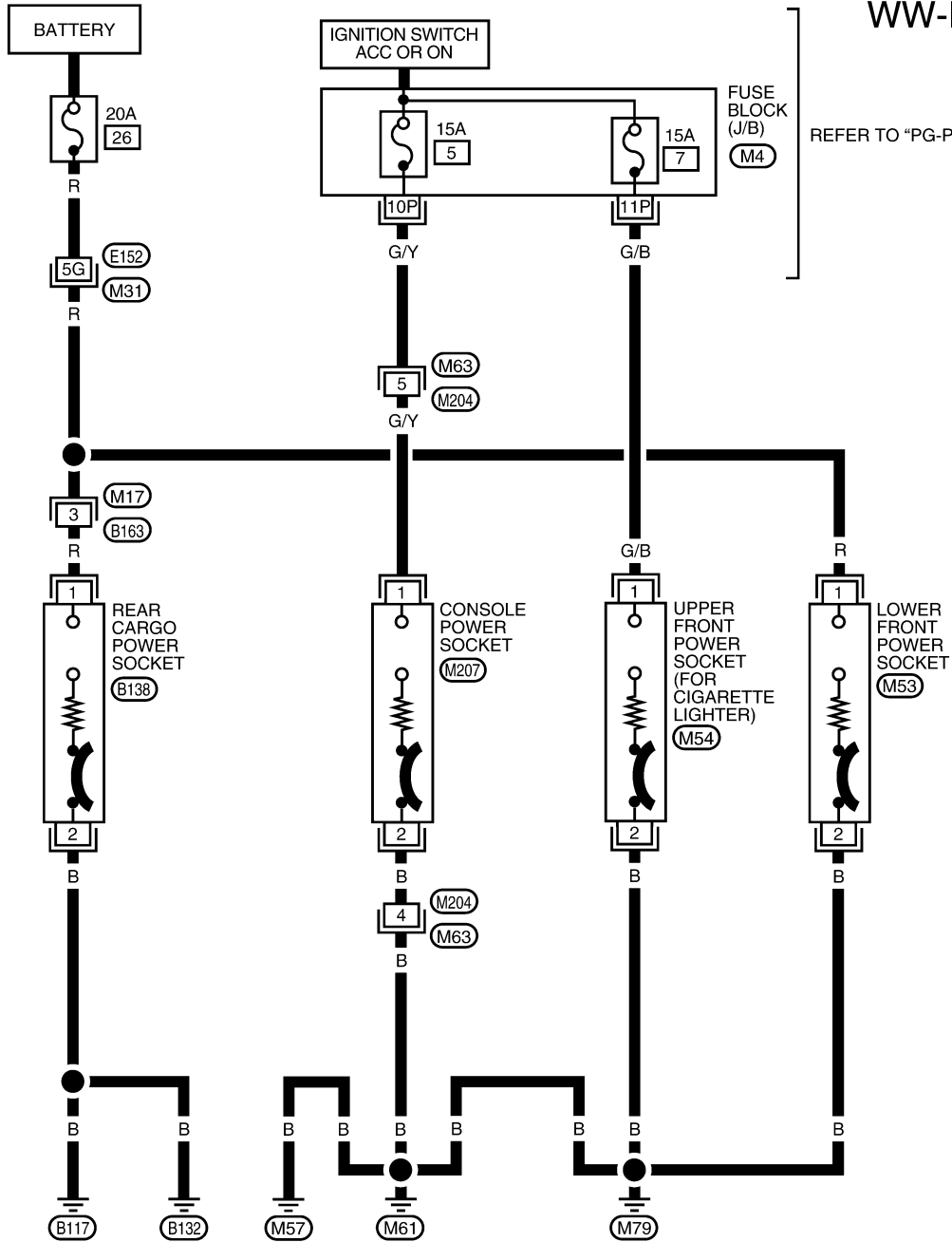
POWER SOCKET

Wiring Diagram — P/SCKT —

EKS00DFM

WW-P/SCKT-01

REFER TO "PG-POWER".



1P	2P	3P	4P	5P	6P	7P	M4		
8P	9P	10P	11P	12P	13P	14P	15P	16P	W

1	2	3	4	5	6	7	M17		
8	9	10	11	12	13	14	15	16	W



M53	M54	M207	B138
B	GR	B	B

1	2	3	M63
4	5	6	W

REFER TO THE FOLLOWING.

(M31) - SUPER MULTIPLE JUNCTION (SMJ)

WKWA4339E

POWER SOCKET

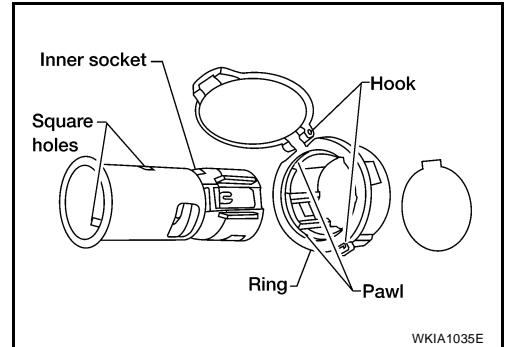
Removal and Installation

LOWER FRONT POWER SOCKET AND REAR CARGO POWER SOCKET

EKS00H0N

Removal

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



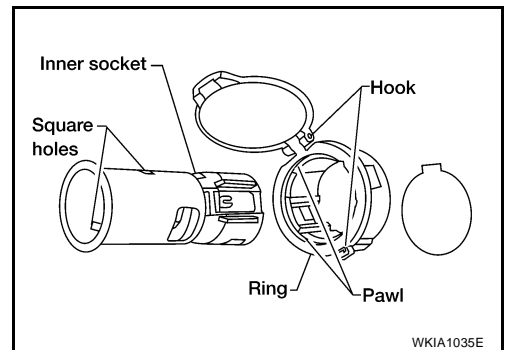
Installation

Installation is in the reverse order of removal.

UPPER FRONT POWER SOCKET (FOR CIGARETTE LIGHTER) AND CONSOLE POWER SOCKET

Removal

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



Installation

Installation is in the reverse order of removal.

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WW

HORN

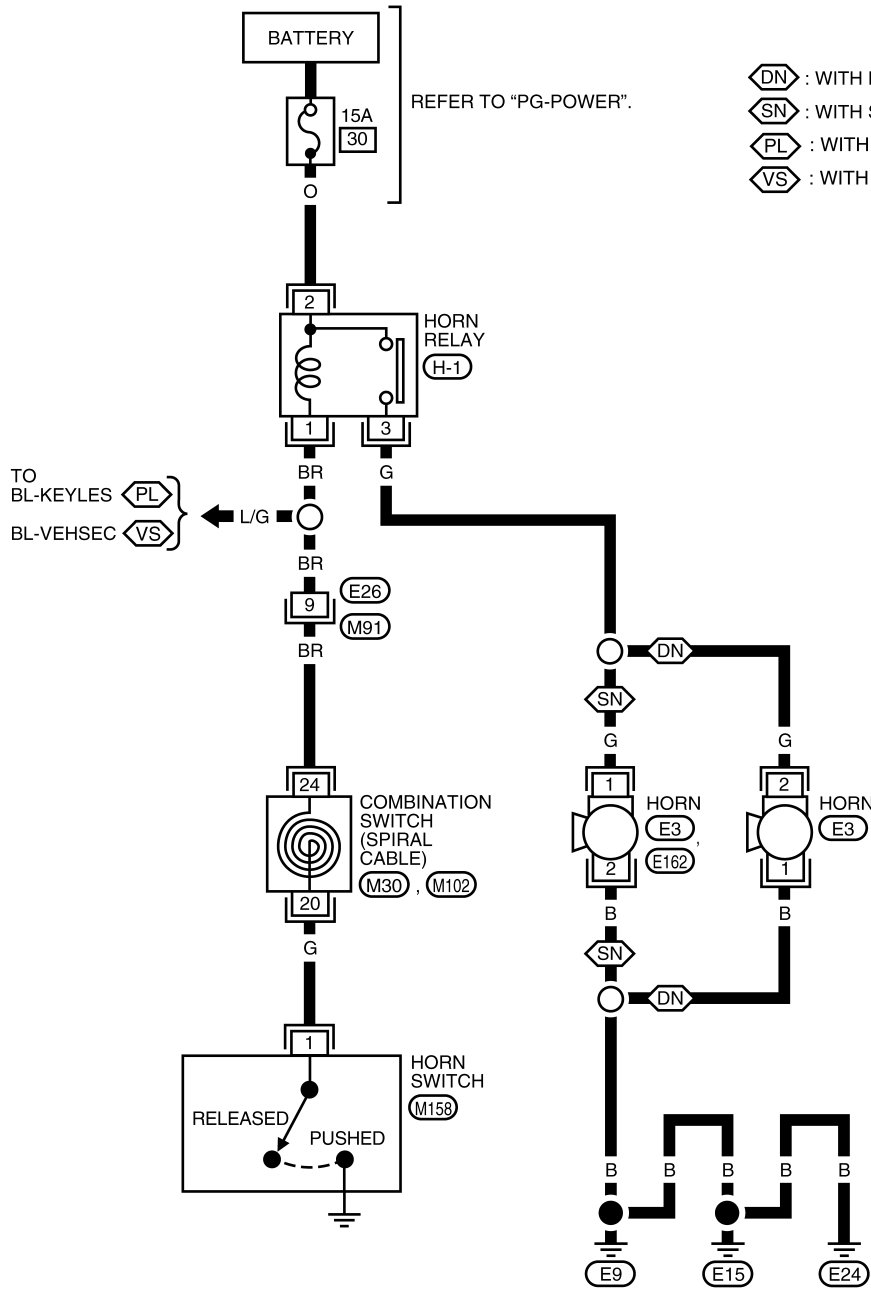
PFP:25610

HORN

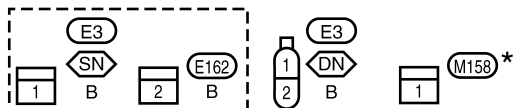
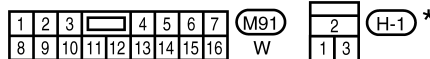
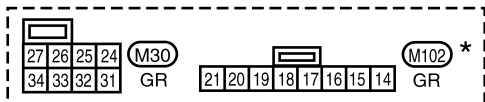
Wiring Diagram — HORN —

EKS00DFO

WW-HORN-01



- ⬡ DN : WITH DUAL NOTE HORN
- ⬡ SN : WITH SINGLE NOTE HORN
- ⬡ PL : WITH POWER DOOR LOCKS
- ⬡ VS : WITH VEHICLE SECURITY SYSTEM



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

WKWA4295E

HORN

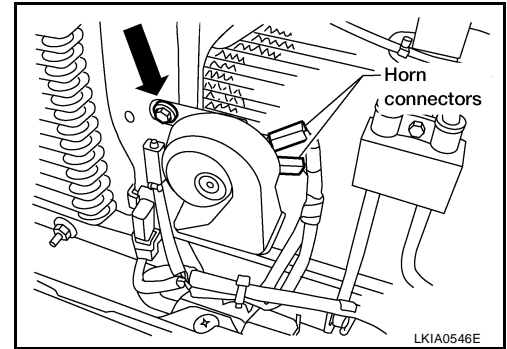
Removal and Installation

HORN (SINGLE)

EKS00HOE

Removal

1. Remove front grille. Refer to [EI-16, "FRONT GRILLE"](#).
2. Disconnect horn (single) connectors.
3. Remove horn (single) bolt and remove horn (single) from vehicle.



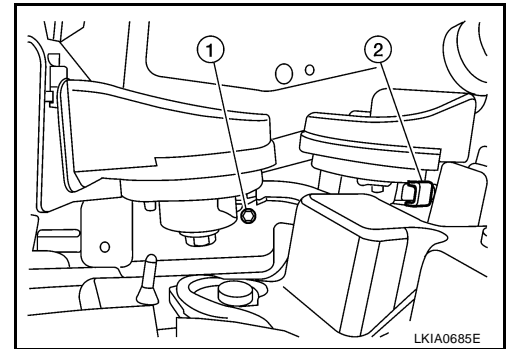
Installation

Installation is in the reverse order of removal.

HORN (DUAL)

Removal

1. Disconnect horn (dual) connector (2).
2. Remove horn (dual) bolt (1).
3. Remove horn (dual).



Installation

Installation is in the reverse order of removal.

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WW

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HORN
