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SECTION

WIPER, WASHER & HORN

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PRECAUTION

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SERVICE INFORMATION

PRECAUTION

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000003533550

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.

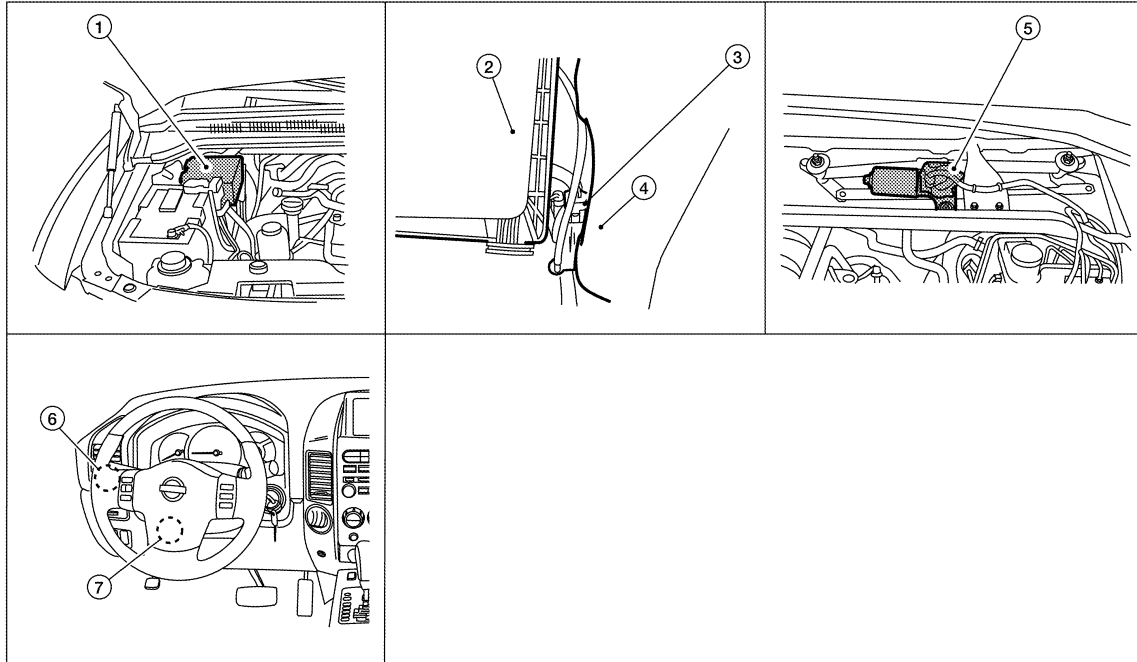
FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

FRONT WIPER AND WASHER SYSTEM

Component Parts and Harness Connector Location

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- | | | |
|---|-----------------------------|--|
| 1. IPDM E/R
E118, E119, E120, E121, E122, E123, E124 | 2. Air cleaner case | 3. Front and rear washer motor connector
E105 |
| 4. Washer fluid reservoir | 5. Front wiper motor
E23 | 6. Combination switch (wiper switch) M28 |
| 7. BCM M18, M20 | | |

System Description

INFOID:000000003533552

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

Power is supplied at all times

- through 50A fusible link (letter **f**, 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

- through 10A fuse (No. 9, located in the fuse block J/B)
- to combination switch terminal 14, and
- through 10A fuse (No. 59 located in the fuse and relay box)
- to BCM terminal 38.

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 59 and
- to front wiper motor terminal 1
- through grounds E9, E15, and E24.

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FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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 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 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 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 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.

- 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 6 and 1 are connected.

Ground is supplied

- to IPDM E/R terminal 43
- through front wiper motor terminal 6
- through front wiper motor terminal 1
- 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 WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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. 9, located in the fuse block J/B)
- through combination switch (wiper switch) terminal 14
- through combination switch (wiper switch) terminal 13
- to front and rear washer motor terminal 1, and
- through combination switch (wiper switch) terminal 11
- to front and rear washer motor terminal 2.

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 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 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 "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.

COMBINATION SWITCH READING FUNCTION

Refer to [BCS-3, "System Description"](#).

CAN Communication System Description

Refer to [LAN-4](#).

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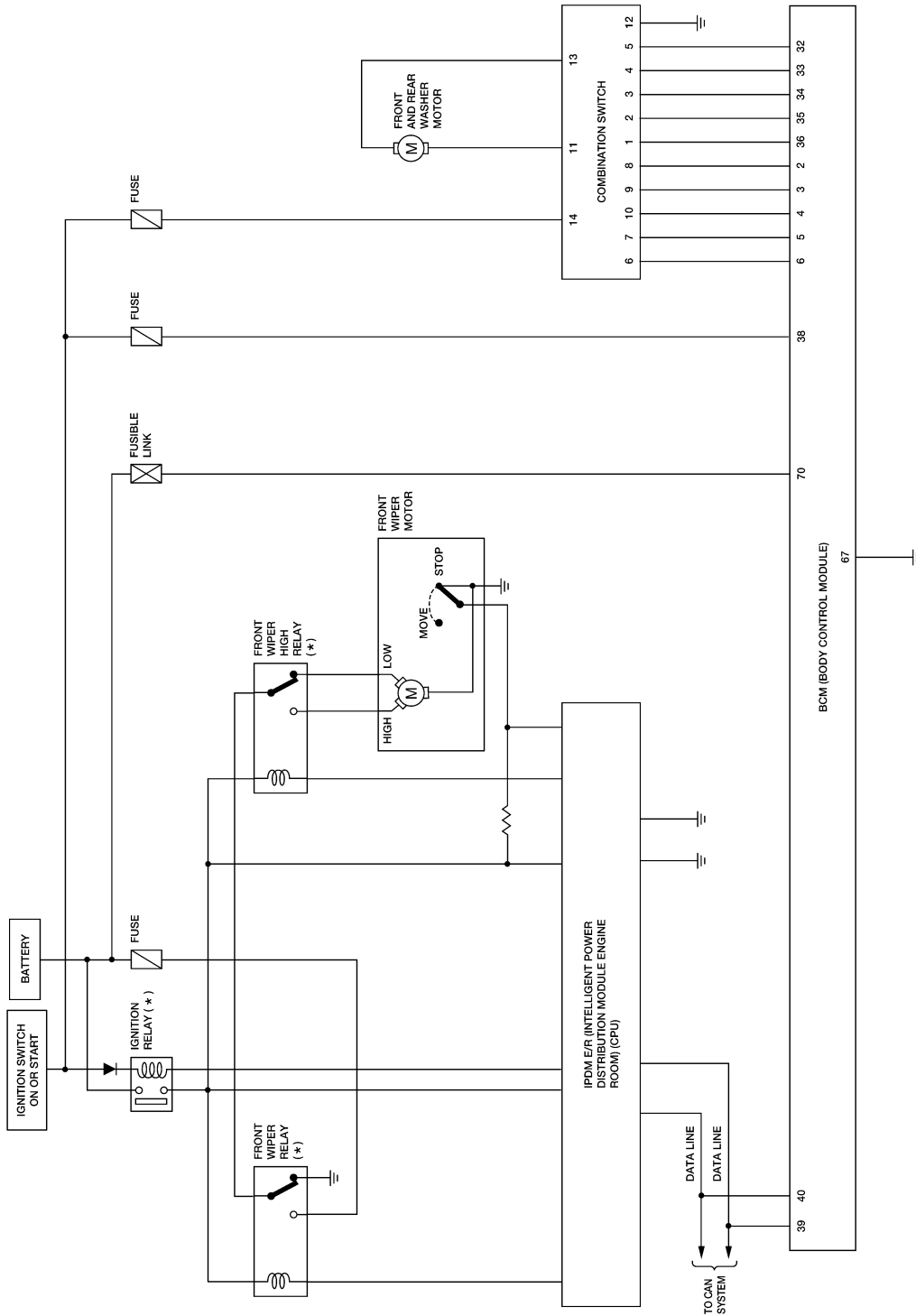
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FRONT WIPER AND WASHER SYSTEM

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Schematic

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

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FRONT WIPER AND WASHER SYSTEM

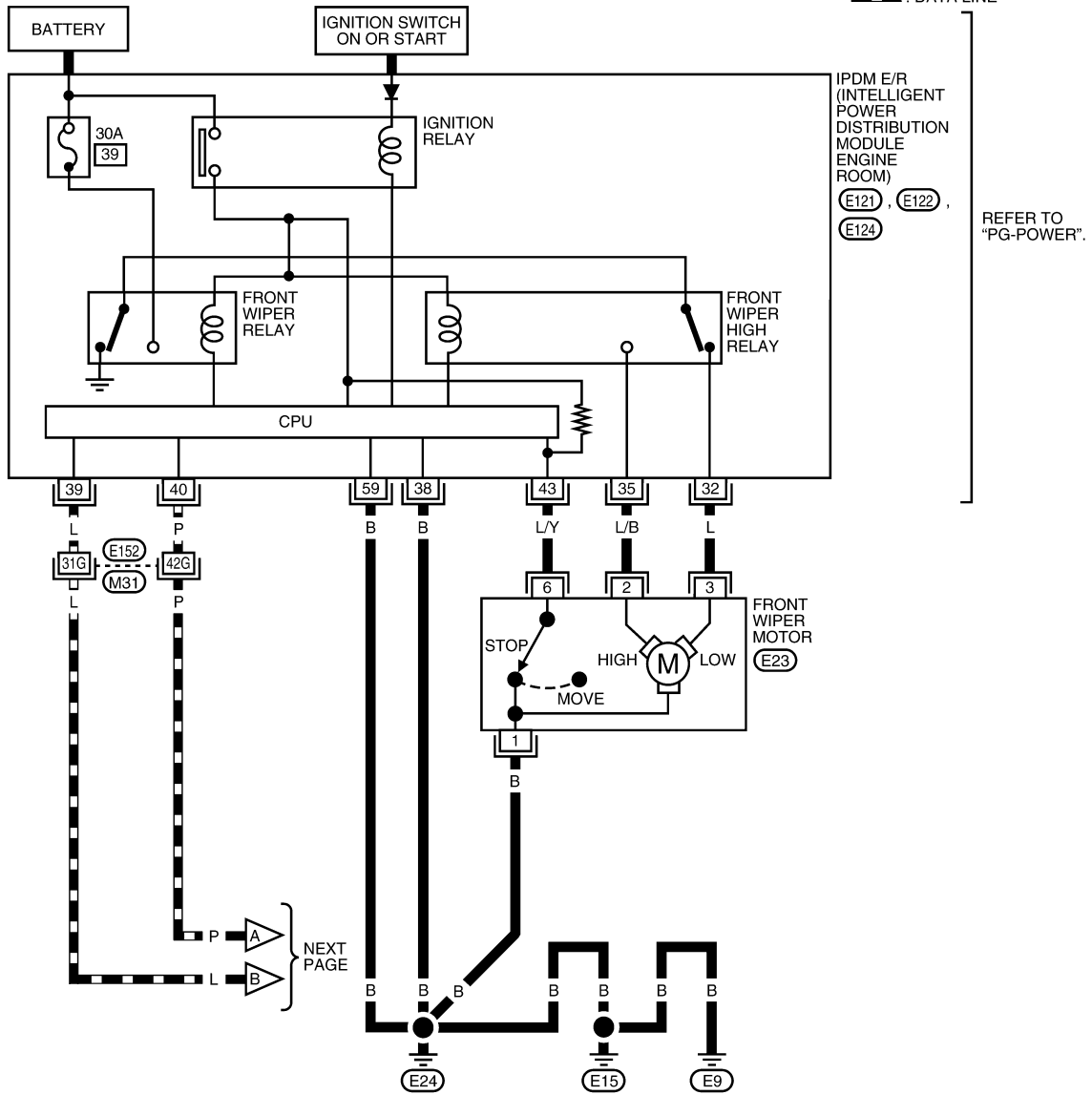
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Wiring Diagram - WIPER -

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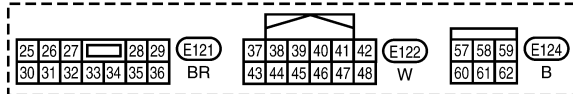
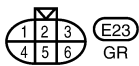
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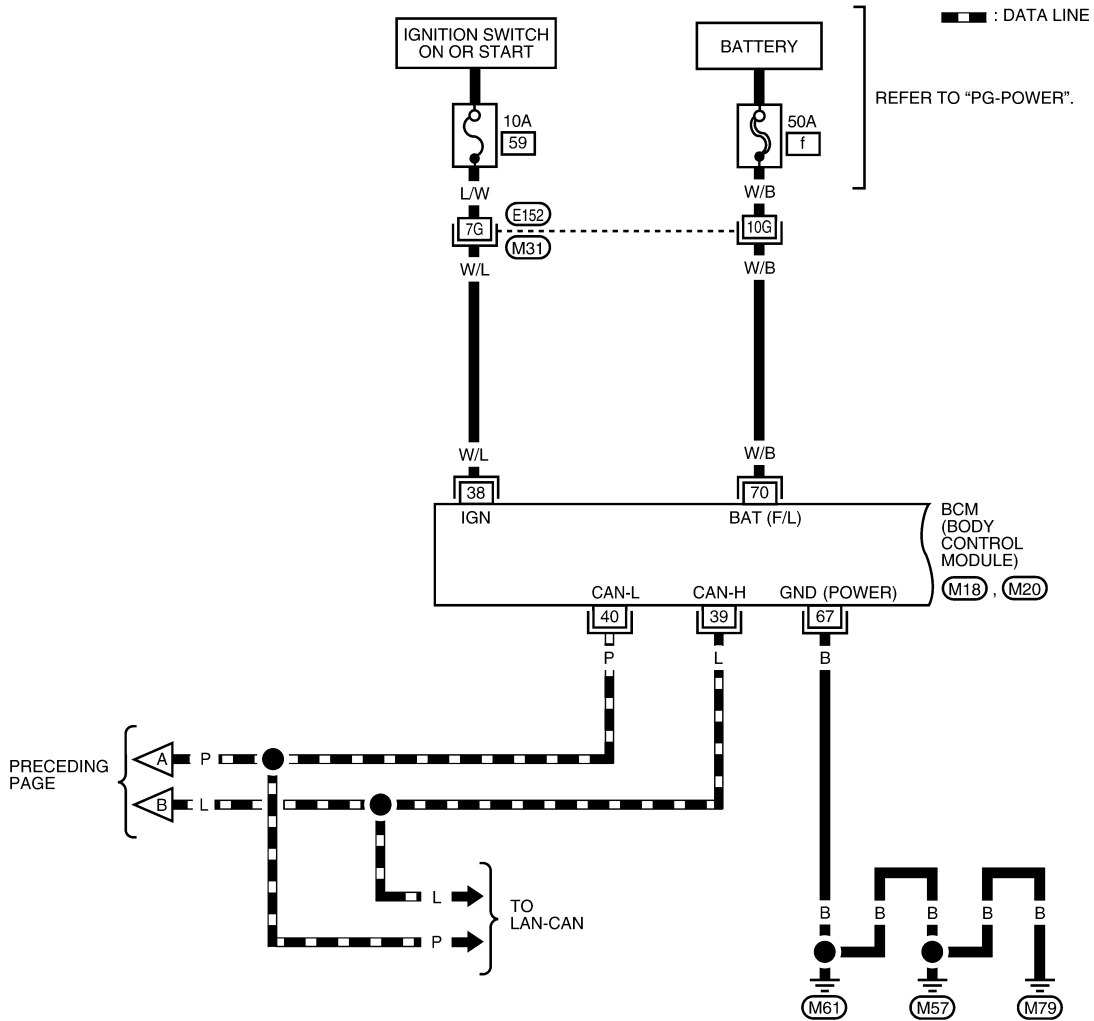
REFER TO THE FOLLOWING.
(M31) - SUPER MULTIPLE JUNCTION (SMJ)

WKWA3609E

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

WW-WIPER-02



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	M18 W	56	57	58	59	60	61	62	63	64	M20 B	H.S.
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		65	66	67	68	69	70					

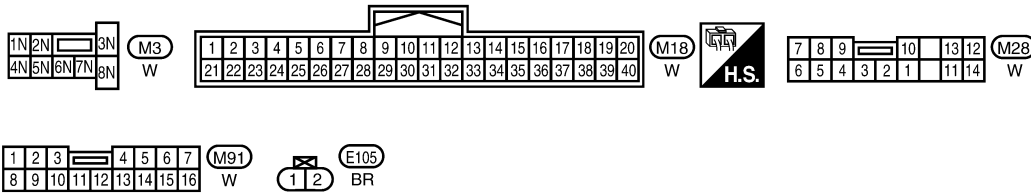
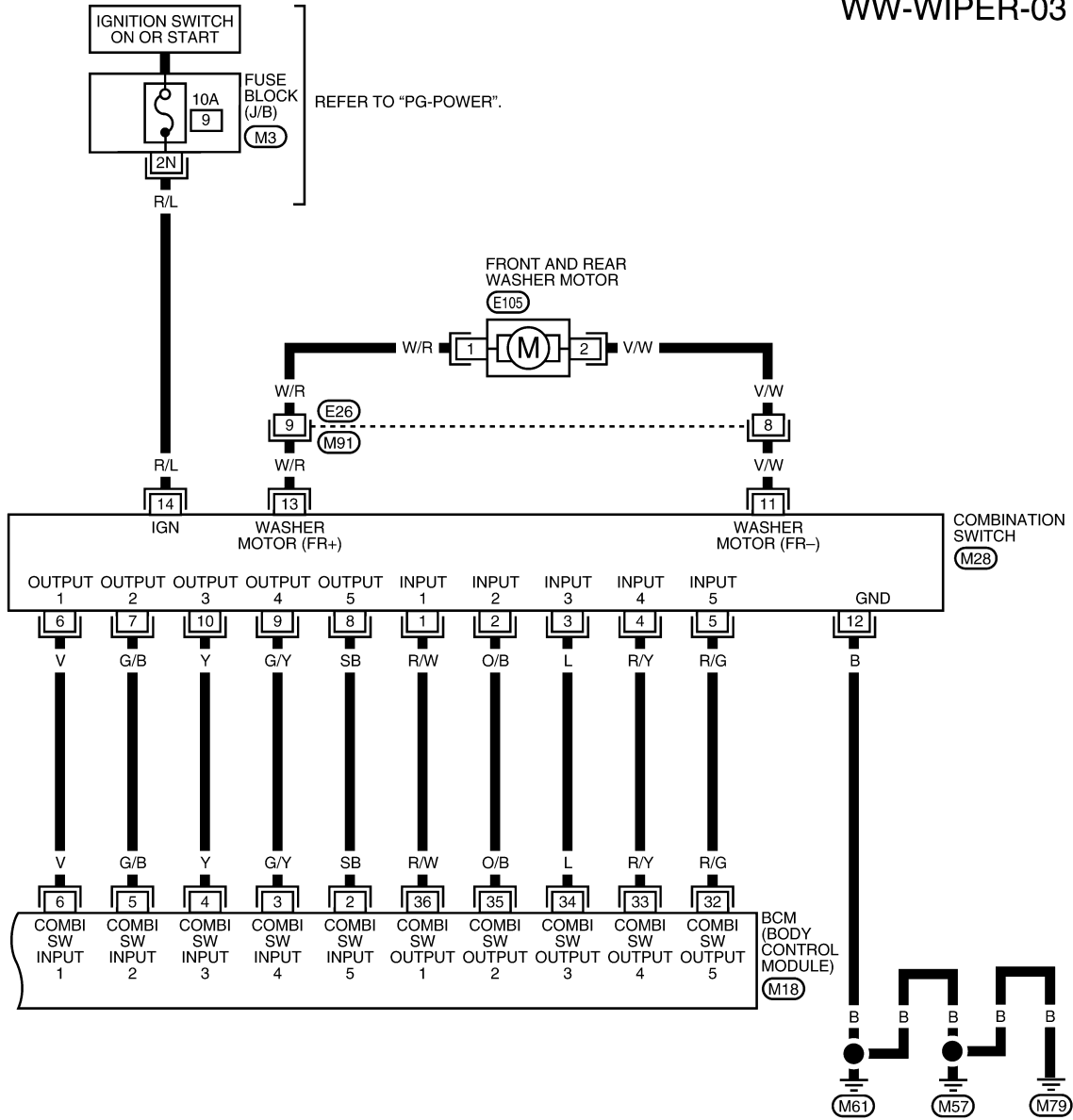
REFER TO THE FOLLOWING.
 M31 - SUPER MULTIPLE JUNCTION (SMJ)

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FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

WW-WIPER-03



Terminal and Reference Value for BCM

Refer to [BCS-11, "Terminal and Reference Value for BCM"](#).

Terminal and Reference Value for IPDM E/R

Refer to [PG-22, "Terminal and Reference Value for IPDM E/R"](#).

WKWA3611E

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FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

Work Flow

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1. Confirm the trouble symptom or customer complaint.
2. Understand the system description, refer to [WW-3, "System Description"](#).
3. Perform preliminary inspection, refer to [WW-10, "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

INFOID:000000003533559

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

Inspection procedure

1.CHECK FUSE

Check if wiper or washer fuse is blown.

Unit	Power source	Fuse No.
Front and rear washer motor	Ignition switch ON or START	9
Front wiper relay	Battery	39
BCM	Ignition switch ON or START	59
	Battery	f

OK or NG

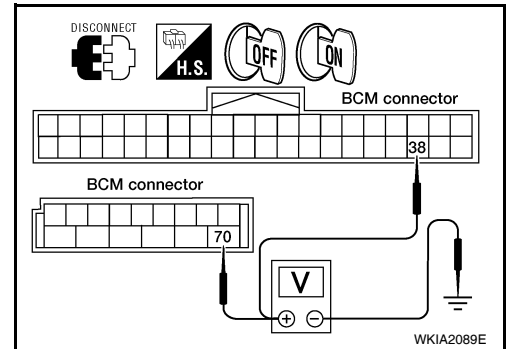
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of blown fuse before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connectors.
2. Check voltage between BCM harness connector terminals and ground.

Terminals		Ignition switch position	Voltage
(+)	(-)		
Connector	Terminal	OFF	ON
M18	38	0V	Battery voltage
M20	70	Battery voltage	



OK or NG

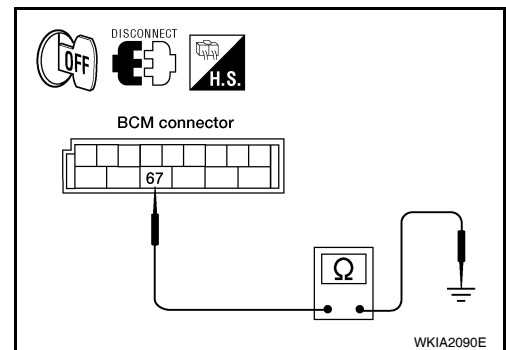
OK >> GO TO 3.

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

3.GROUND CIRCUIT INSPECTION (BCM)

Check for continuity between BCM terminal and ground.

Terminals		Ignition switch condition	Continuity
Connector	Terminal		
M20	67	OFF	Yes



OK or NG

OK >> Inspection End.

NG >> Repair/replace BCM ground circuit.

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

CONSULT-II Function (BCM)

INFOID:000000003533560

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-36, "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 COMPLETE" 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 (Not operated)	ON/OFF

DATA MONITOR

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

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.

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

Monitor item name "OPERATION OR UNIT"	Contents
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

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)

INFOID:00000000353561

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 START PROCEDURE

Refer to [GI-36, "CONSULT-II Start Procedure"](#).

DATA MONITOR

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

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 re-quest	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

Display Item List

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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

INFOID:000000003533562

CAUTION:

During IPDM E/R fail-safe control, front wipers may not operate. Refer to [PG-17, "System Description"](#) to make sure that it is not in fail-safe status.

Inspection Procedure

1. CHECK IPDM E/R TO FRONT WIPERS

Ⓜ With CONSULT-II

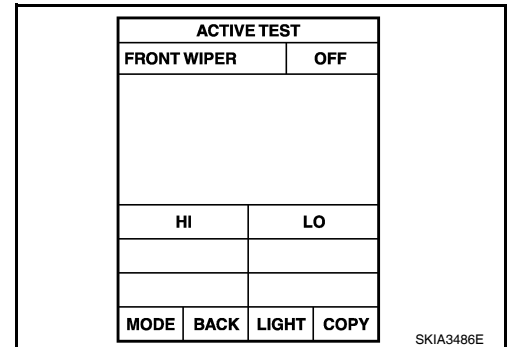
1. Select "IPDM E/R" with CONSULT-II, and select "ACTIVE TEST" on "SELECT DIAG MODE" screen.
2. Select "FRONT WIPER" on "SELECT TEST ITEM" screen.

ⓧ Without CONSULT-II

1. Turn on front wipers using auto active test. Refer to [PG-20, "Auto Active Test"](#).
2. Confirm front wiper operation.

OK or NG

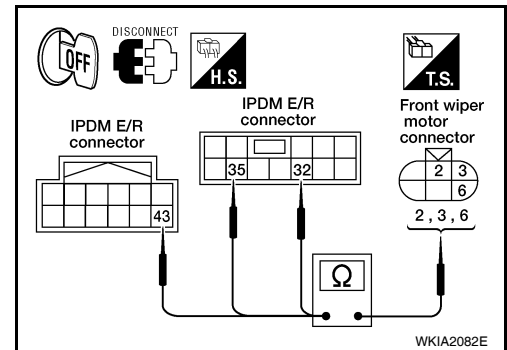
- OK >> GO TO 4.
- NG >> GO TO 2.



2. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

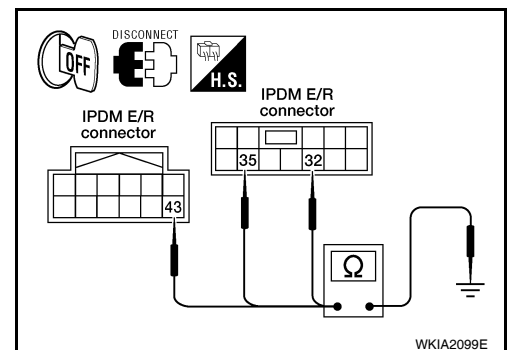
1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connectors and front wiper motor connector.
3. Check continuity between IPDM E/R harness connector terminals and front wiper motor harness connector terminals.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
E121	32	E23	3	Yes
	35		2	
E122	43		6	



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

Terminals				Continuity
Connector	Terminal			
E121	32	Ground		No
	35			
E122	43			

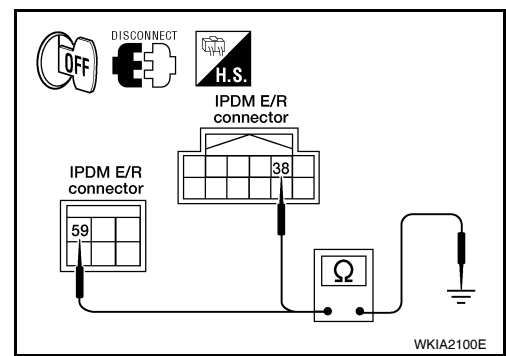


FRONT WIPER AND WASHER SYSTEM

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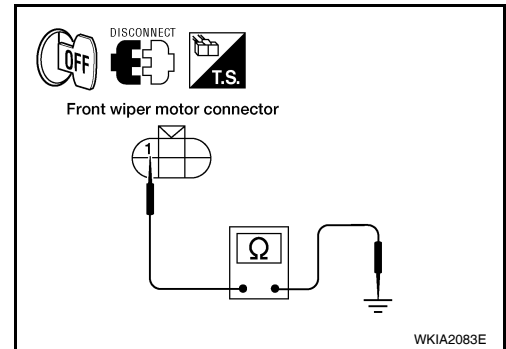
5. Check continuity between IPDM E/R harness connector terminal and ground.

Terminals			Continuity
Connector	Terminal		
E122	38	Ground	Yes
E124	59		



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

Terminals			Continuity
Connector	Terminal		
E23	1	Ground	Yes



OK or NG

- OK >> Connect connectors. GO TO 3.
 NG >> Check for open circuit in harness between front wiper motor and ground.

3. IPDM E/R INSPECTION

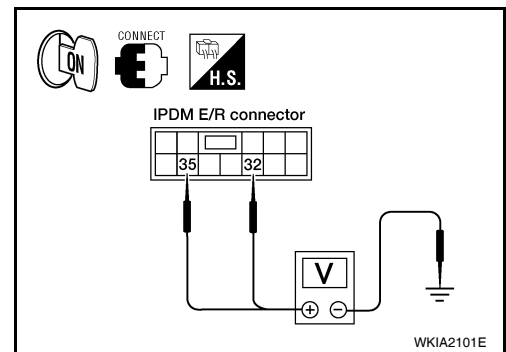
With CONSULT-II

- Turn ignition switch ON.
- Select "HI" on "ACTIVE TEST" screen.
- When front wiper relay and front wiper high relay are operating, check voltage between IPDM E/R terminals and ground.

Without CONSULT-II

- Turn on front wipers using the auto active test. Refer to [PG-20. "Auto Active Test"](#).
- When front wiper relay, and front wiper high relay are operating, check voltage between IPDM E/R terminals and ground.

Terminals				Voltage (Approx.)
Connector	(+)	(-)	Condition	
	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-22. "Wiper Motor and Linkage"](#).
 NG >> Replace IPDM E/R. Refer to [PG-28. "Removal and Installation of IPDM E/R"](#).

4. COMBINATION SWITCH TO BCM INSPECTION

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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, "System Description"](#).

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

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-24, "BCM"](#).
- CAN COMM CIRCUIT>> Check CAN communication line of BCM.
GO TO [BCS-18, "CAN Communication Inspection Using CONSULT-II \(Self-Diagnosis\)"](#).

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

SKIA1039E

Front Wiper Stop Position Is Incorrect

1. CHECK IPDM E/R TO FRONT WIPER MOTOR

☐ With CONSULT-II

Select "IPDM E/R" with CONSULT-II. With wiper "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-28, "Removal and Installation of IPDM E/R"](#).
- NG >> GO TO 2.

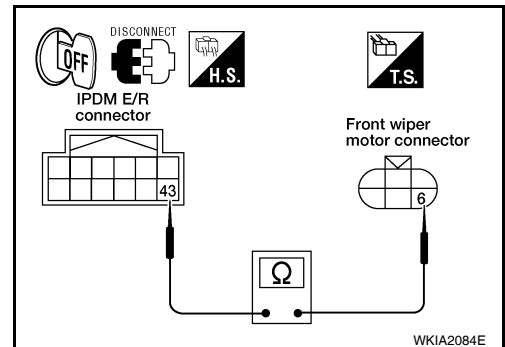
DATA MONITOR			
MONITOR			
MOTOR FAN REQ		1	
AC COMP REQ		OFF	
TAIL&CLR REQ		OFF	
HL LO REQ		OFF	
HL HI REQ		OFF	
FR FOG REQ		OFF	
FR WIP REQ		STOP	
WIP AUTO STOP		STOP P	
WIP PROT		OFF	
		Page DOWN	
		RECORD	
MODE	BACK	LIGHT	COPY

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.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
E122	43	E23	6	Yes

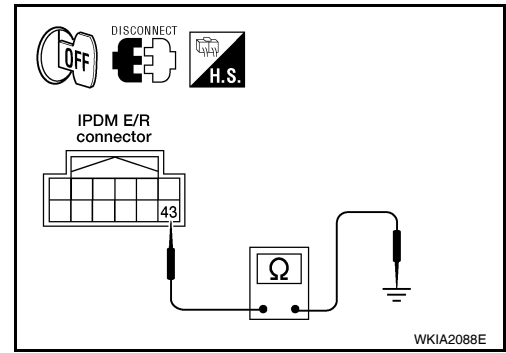


FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

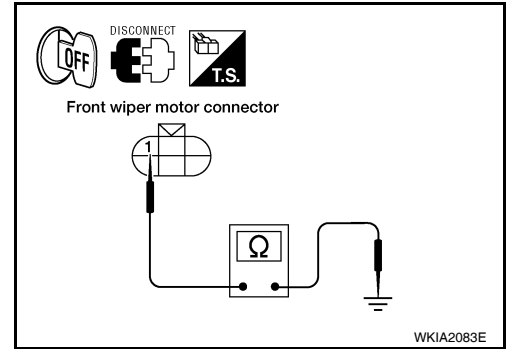
4. Check continuity between IPDM E/R harness connector terminal and ground.

Terminals			Continuity
Connector	Terminal		
E122	43	Ground	No



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

Terminals			Continuity
Connector	Terminal		
E23	1	Ground	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.

3. IPDM E/R INSPECTION

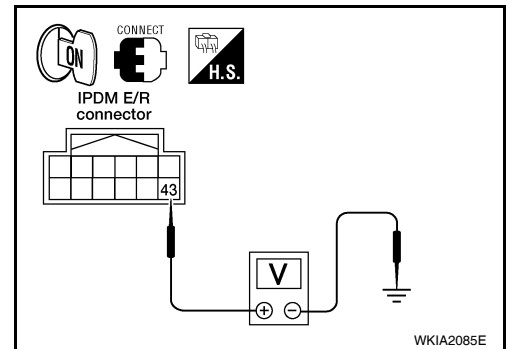
Ⓟ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn ignition switch ON.
3. Select "LO" on "ACTIVE TEST" screen.
4. When front wipers are operating and when stopped, measure voltage between IPDM E/R terminal 43 and ground.

ⓧ 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-20. "Auto Active Test"](#).
3. When front wipers are operating and when stopped, measure voltage between IPDM E/R terminal 43 and ground.

Terminals				Voltage (Approx.)
(+) Connector		(-) Terminal	Condition	
E122	43	Ground	Wiper operating	Battery voltage
			Wiper stopped	0



OK or NG

OK >> Replace IPDM E/R. Refer to [PG-28. "Removal and Installation of IPDM E/R"](#).

NG >> Replace front wiper motor. Refer to [WW-22. "Wiper Motor and Linkage"](#).

Only Front Wiper Low Does Not Operate

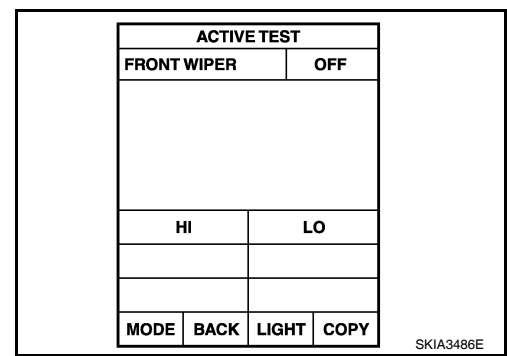
1. CHECK IPDM E/R TO FRONT WIPERS

Ⓟ With CONSULT-II

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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-20, "Auto Active Test"](#).
2. Confirm front wiper low operation.

OK or NG

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

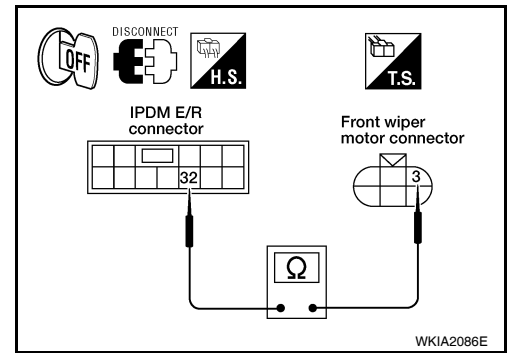
2. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

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.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
E121	32	E23	3	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.



3. IPDM E/R INSPECTION

Ⓜ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn ignition switch ON.
3. Select "LO" on "ACTIVE TEST" screen.
4. When front wiper relay is operating, check voltage between IPDM E/R terminals.

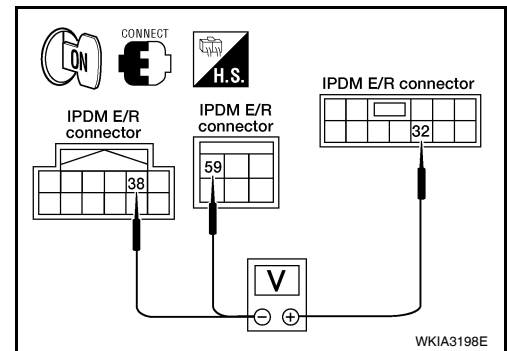
⊗ Without CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn on front wipers using the auto active test. Refer to [PG-20, "Auto Active Test"](#).
3. When front wiper relay is operating, check voltage between IPDM E/R terminals.

Terminals				Voltage (Approx.)
(-)		(+)		
Connector	Terminal	Connector	Terminal	
E122	38	E121	32	Battery voltage
E124	59			

OK or NG

- OK >> Replace the wiper motor. Refer to [WW-22, "Wiper Motor and Linkage"](#).
 NG >> Replace IPDM E/R. Refer to [PG-28, "Removal and Installation of IPDM E/R"](#).



4. COMBINATION SWITCH TO BCM INSPECTION

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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-24, "BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-23, "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

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-20, "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

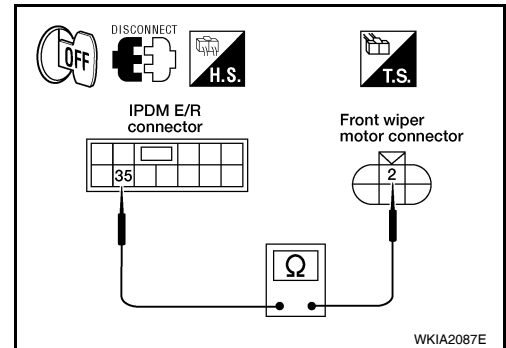
2. IPDM E/R TO FRONT WIPERS CIRCUIT INSPECTION

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.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
E121	35	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.



3. IPDM E/R INSPECTION

Ⓜ With CONSULT-II

1. Connect IPDM E/R connector and front wiper motor connector.
2. Turn ignition switch ON.
3. Select "HI" on "ACTIVE TEST" screen.
4. When front wiper high relay is operating, check voltage between IPDM E/R terminals.

ⓧ 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-20, "Auto Active Test"](#).

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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

Terminals				Voltage (Approx.)
(-)		(+)		
Connector	Terminal	Connector	Terminal	Battery voltage
E122	38	E121	35	
E124	59			

OK or NG

OK >> Replace the wiper motor. Refer to [WW-22, "Wiper Motor and Linkage"](#).

NG >> Replace IPDM E/R. Refer to [PG-28, "Removal and Installation of IPDM E/R"](#).

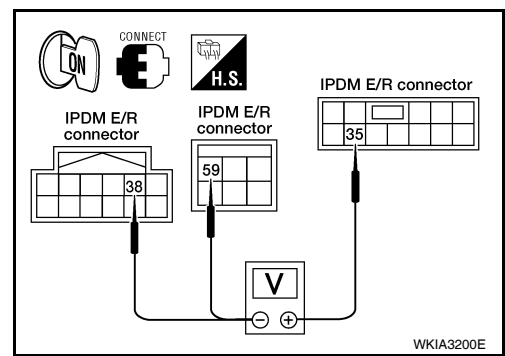
4.COMBINATION SWITCH TO BCM INSPECTION

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-24, "BCM"](#).

NG >> Replace wiper switch. Refer to [WW-23, "Wiper and Washer Switch"](#).



WKIA3200E

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 Intermittent Does Not Operate

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-24, "BCM"](#).

NG >> Replace wiper switch. Refer to [WW-23, "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

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-24, "BCM"](#).

NG >> Replace wiper switch. Refer to [WW-23, "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

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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-24. "BCM"](#).
- NG >> Replace wiper switch. Refer to [WW-23. "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".

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-28. "Removal and Installation of IPDM E/R"](#).
- NG >> GO TO 2.

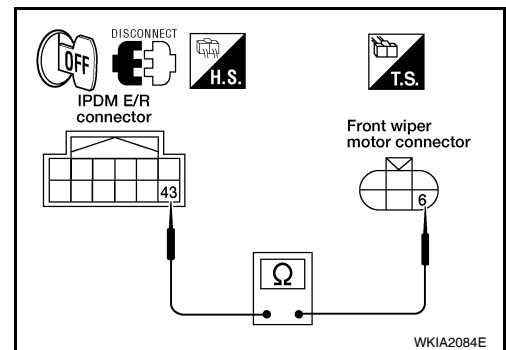
DATA MONITOR			
MONITOR			
MOTOR FAN REQ		1	
AC COMP REQ		OFF	
TAIL&CLR REQ		OFF	
HL LO REQ		OFF	
HL HI REQ		OFF	
FR FOG REQ		OFF	
FR WIP REQ		STOP	
WIP AUTO STOP		STOP P	
WIP PROT		OFF	
		Page DOWN	
		RECORD	
MODE	BACK	LIGHT	COPY

SKIA5301E

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

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.

Terminals				Continuity
Connector	Terminal	Connector	Terminal	
E122	43	E23	6	Yes



FRONT WIPER AND WASHER SYSTEM

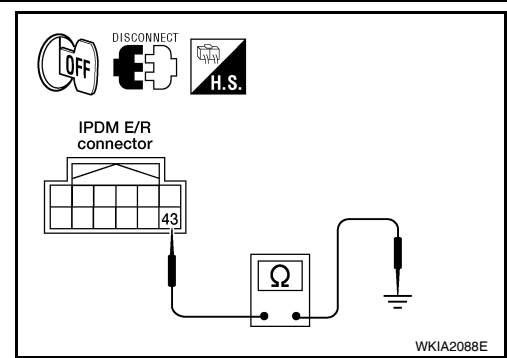
< SERVICE INFORMATION >

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

Terminals			Continuity
Connector	Terminal		
E122	43	Ground	No

OK or NG

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



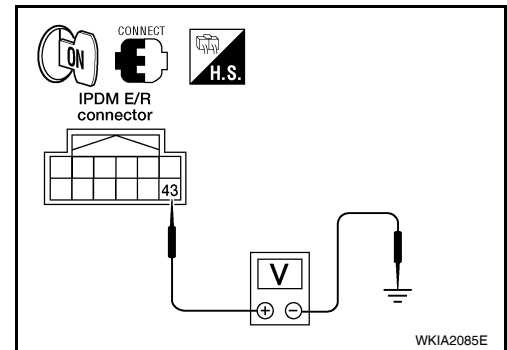
3. IPDM E/R TO FRONT WIPER MOTOR AUTO STOP CIRCUIT VOLTAGE

1. Turn ignition switch ON.
2. While front wiper motor is stopped and while operating, measure voltage between IPDM E/R 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-28. "Removal and Installation of IPDM E/R"](#).
- NG >> Replace front wiper motor. Refer to [WW-22. "Wiper Motor and Linkage"](#).



Front Wiper Arms

INFOID:000000003533563

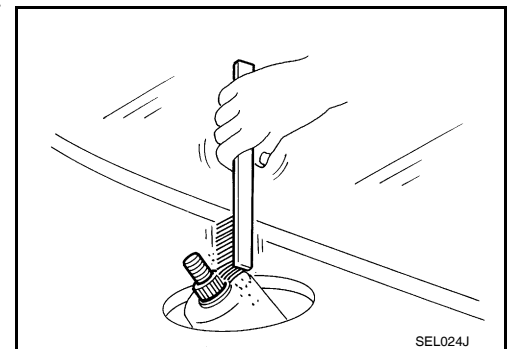
REMOVAL AND INSTALLATION

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. Tighten wiper arm nuts to specified torque, and install wiper arm covers. Refer to [WW-22. "Wiper Motor and Linkage"](#).
6. Ensure that wiper blades stop within proper clearance.

FRONT WIPER ARM ADJUSTMENT

A
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N
O
P

WW

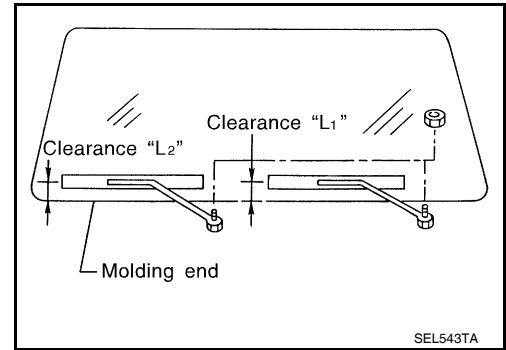
FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

1. Operate 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" : 41.5 - 56.5 mm (1.634 - 2.224 in)

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

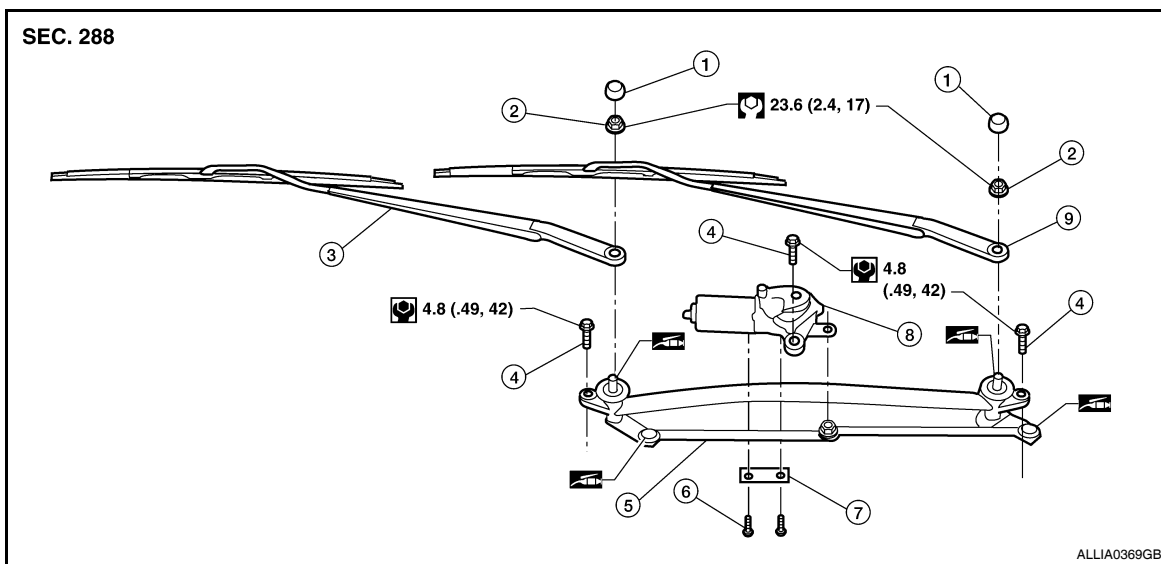


3. Remove wiper arm covers and wiper arm nuts.
4. Adjust front wiper arms on wiper motor pivot shafts to obtain above specified blade clearances.
5. Tighten wiper arm nuts to specified torque, and install wiper arm covers. Refer to [WW-22. "Wiper Motor and Linkage"](#).

Wiper Motor and Linkage

INFOID:000000003533564

REMOVAL AND INSTALLATION



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

Removal

1. Remove the cowl top. Refer to [EI-17](#).
2. Remove wiper frame bolts, 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.

FRONT WIPER AND WASHER SYSTEM

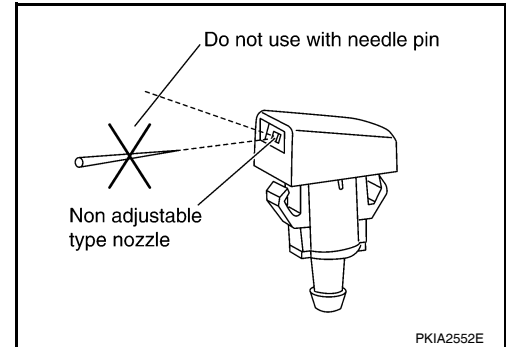
< SERVICE INFORMATION >

4. Install cowl top. Refer to [EI-17](#).
5. Ensure that wiper blades stop within proper clearance. Refer to [WW-21, "Front Wiper Arms"](#).

Washer Nozzle Adjustment

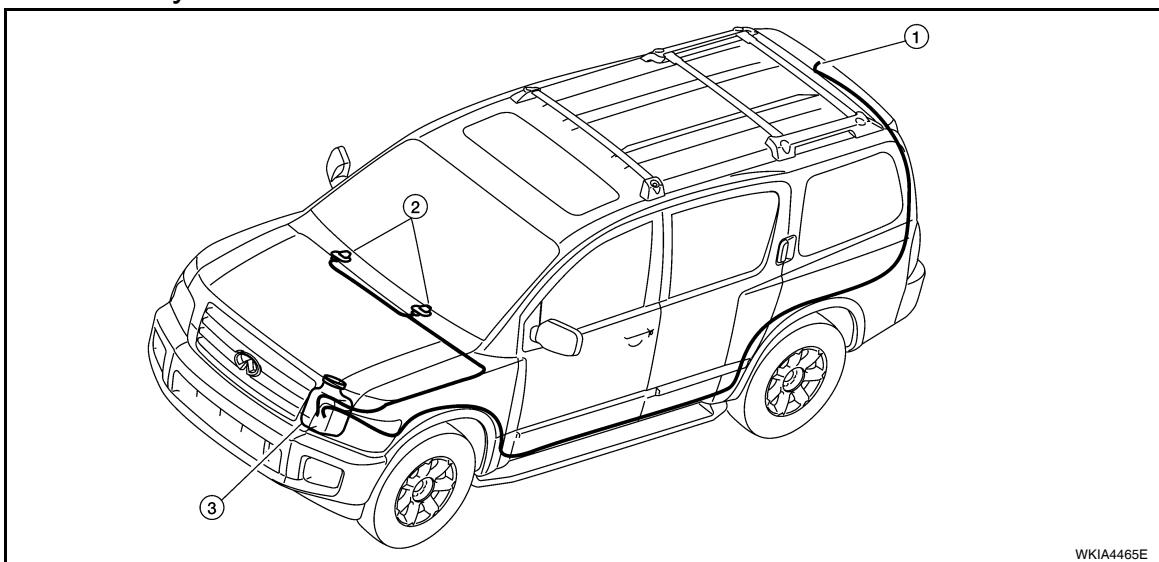
INFOID:000000003533565

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



Washer Tube Layout

INFOID:000000003533566



1. Rear washer nozzle

2. Washer nozzles

3. Washer fluid reservoir

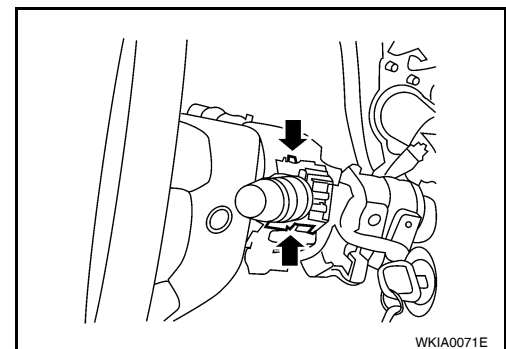
Wiper and Washer Switch

INFOID:000000003533567

REMOVAL AND INSTALLATION

Removal

1. Remove steering column covers.
2. Remove wiper washer switch connector.
3. Pinch tabs at wiper and washer switch base and slide switch away from steering column to remove.



Installation

Installation is in the reverse order of removal.

A
B
C
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O
P

WW

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

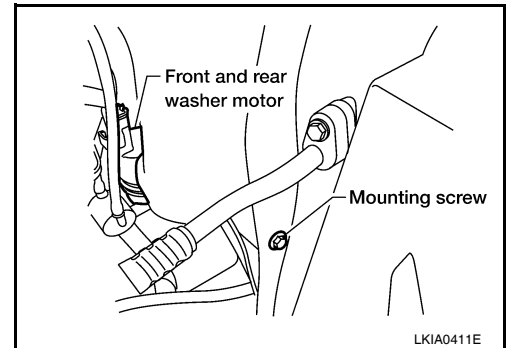
Washer Fluid Reservoir

INFOID:000000003533568

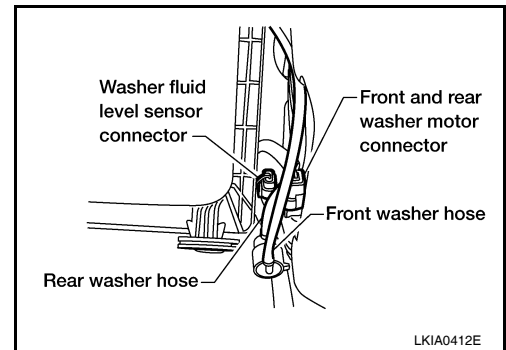
REMOVAL AND INSTALLATION

Removal

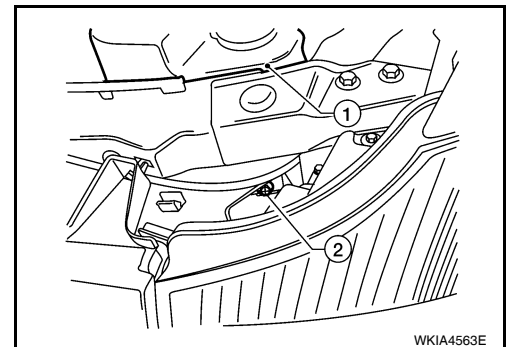
1. Remove side washer fluid reservoir screw.



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



5. Remove front washer fluid reservoir screw (2).
6. Remove washer fluid reservoir from the vehicle (1).



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.

Washer Motor

INFOID:000000003533569

REMOVAL AND INSTALLATION

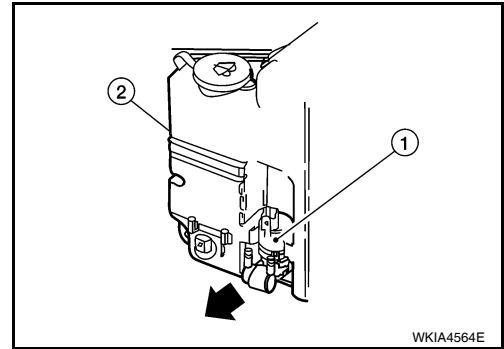
Removal

1. Remove washer fluid reservoir. Refer to [WW-24. "Washer Fluid Reservoir"](#).

FRONT WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

2. Remove washer motor (1) in the direction of the arrow as shown, and remove from washer fluid reservoir (2).



Installation

Installation is in the reverse order of removal.

CAUTION:

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

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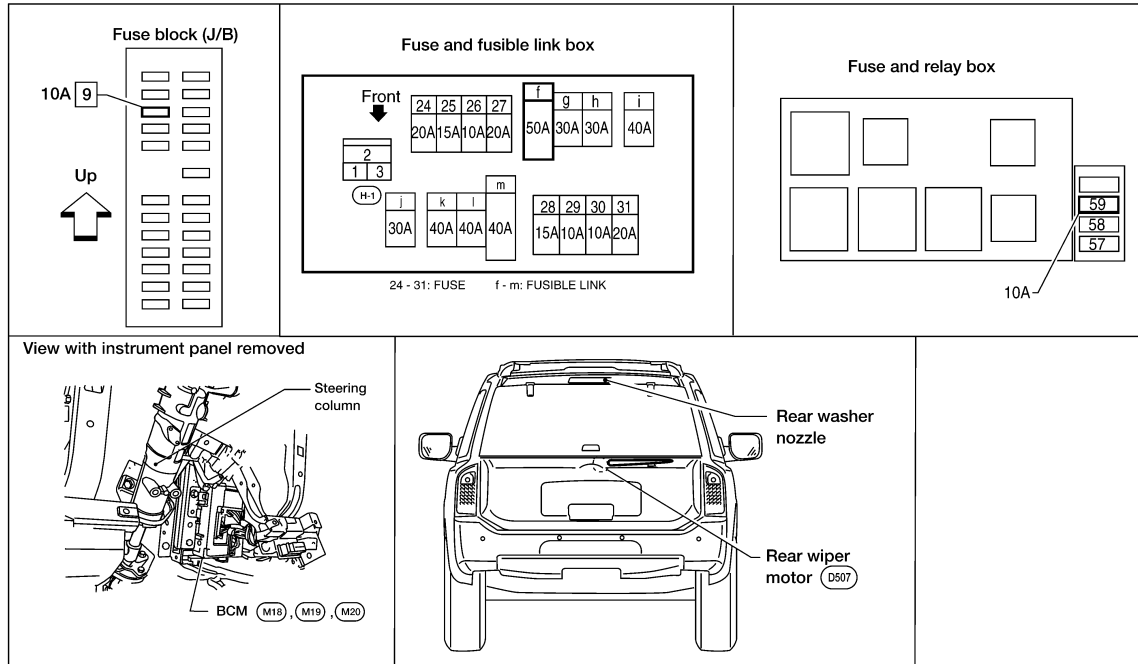
REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

REAR WIPER AND WASHER SYSTEM

Component Parts and Harness Connector Location

INFOID:000000003533570



WKIA3462E

System Description

INFOID:000000003533571

- 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 **f**, located in fusible link box)
- to BCM terminal 70.

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

- through 10A fuse [No. 9, located in fuse block (J/B)]
- to combination switch terminal 14, and
- through 10A fuse (No. 59, located in the fuse and relay box)
- to BCM terminal 38.

Ground is supplied

- to BCM terminal 67 and
- to combination switch terminal 12
- 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 first check the status of the glass hatch ajar switch before supplying power to the rear wiper motor. If the glass hatch ajar switch is closed (ground) the BCM will not turn on the rear wiper motor. If the glass hatch ajar switch is open (not grounded) the BCM will control the rear wiper motor as follows.

The BCM controls rear wiper motor operation by switching direction of current flow between the two rear wiper motor output circuits.

Power is supplied to output circuit 1 for forward operation (counterclockwise sweep),

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

Ground is supplied

- to rear wiper motor terminal 6

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

- through BCM terminal 54
- through BCM terminal 67
- through grounds M57, M61 and M79.

With output circuit 1 power and ground supplied, the rear wiper motor operates in a counterclockwise sweep direction until auto stop switch 1 closes (full sweep position). Auto stop switch 1 supplies ground

- to BCM terminal 44
- through rear wiper motor terminal 2
- through rear wiper motor terminal 5
- through grounds B117 and B132.

When the BCM receives this ground signal it turns off output circuit 1 and turns on output circuit 2.

Power is supplied to output circuit 2 for reverse operation (clockwise sweep),

- through BCM terminal 54
- to rear wiper motor terminal 6.

Ground is supplied

- to rear wiper motor terminal 4
- through BCM terminal 55
- through BCM terminal 67
- through grounds M57, M61 and M79.

With output circuit 2 power and ground supplied the rear wiper motor operates in a clockwise sweep direction until auto stop switch 2 closes (full sweep position). Auto stop switch 2 supplies ground

- to BCM terminal 26
- through rear wiper motor terminal 1
- through rear wiper motor terminal 3
- through grounds B117 and B132.

When the BCM receives this ground signal it turns off output circuit 2 and turns on output circuit 1. This process repeats until the rear wiper switch or ignition switch is turned off.

If the ignition switch is turned to OFF during operation, the rear wiper motor will immediately stop. If the ignition switch is turned ON after this condition, and the BCM does not receive a rear wiper switch ON or INT signal, the BCM will operate the rear wiper to the auto stop position.

If the BCM does not receive a change in status in either auto stop switch 1 or auto stop switch 2 within a 5 second period of output circuit 1 or output circuit 2 operation, the BCM will turn off output circuit 1 and output circuit 2.

If the BCM detects the rear door glass ajar signal during rear wiper motor operation, the BCM will operate the rear wiper motor to the auto stop position. Once the rear door glass ajar signal returns to open (not grounded) for 5 or more seconds, the BCM will resume rear wiper motor operation.

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

The BCM controls rear wiper motor operation by switching direction of current flow between the two rear wiper motor output circuits.

Power is supplied to output circuit 1 for forward operation (counterclockwise sweep),

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

Ground is supplied

- to rear wiper motor terminal 6
- through BCM terminal 54
- through BCM terminal 67
- through grounds M57, M61 and M79.

With output circuit 1 power and ground supplied, the rear wiper motor operates in a counterclockwise sweep direction until auto stop switch 1 closes (full sweep position). Auto stop switch 1 supplies ground

- to BCM terminal 44
- through rear wiper motor terminal 2
- through rear wiper motor terminal 5
- through grounds B117 and B132.

When the BCM receives this ground signal it turns off output circuit 1 and turns on output circuit 2.

Power is supplied to output circuit 2 for reverse operation (clockwise sweep),

- through BCM terminal 54
- to rear wiper motor terminal 6.

Ground is supplied

- to rear wiper motor terminal 4

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REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

- through BCM terminal 55
- through BCM terminal 67
- through grounds M57, M61 and M79.

With output circuit 2 power and ground supplied the rear wiper motor operates in a clockwise sweep direction until auto stop switch 2 closes (full sweep position). Auto stop switch 2 supplies ground

- to BCM terminal 26
- through rear wiper motor terminal 1
- through rear wiper motor terminal 3
- through grounds B117 and B132.

When the BCM receives this ground signal it turns off output circuit 2 and starts the timing function of 7 seconds. After approximately 7 seconds the BCM turns on output circuit 1. This process repeats until the rear wiper switch or ignition switch is turned off.

AUTO STOP OPERATION

When the rear wiper switch is turned off, the BCM will continue the cycle of output circuit 1 or output circuit 2 until auto stop switch 1 and auto stop switch 2 are both in the closed position. When the BCM receives ground signals from auto stop switch 1 and auto stop switch 2 simultaneously, output circuit 1 and output circuit 2 are both turned off.

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. 9, located in the fuse block J/B)
- through combination switch (wiper switch) terminal 14
- through combination switch (wiper switch) terminal 11
- to front and rear washer motor terminal 2, and
- through combination switch (wiper switch) terminal 13
- to front and rear washer motor terminal 1.

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 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.

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, "System Description"](#).

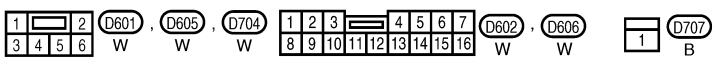
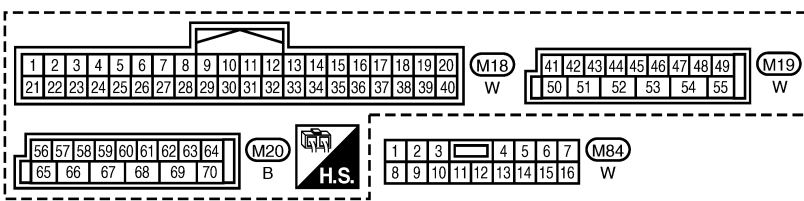
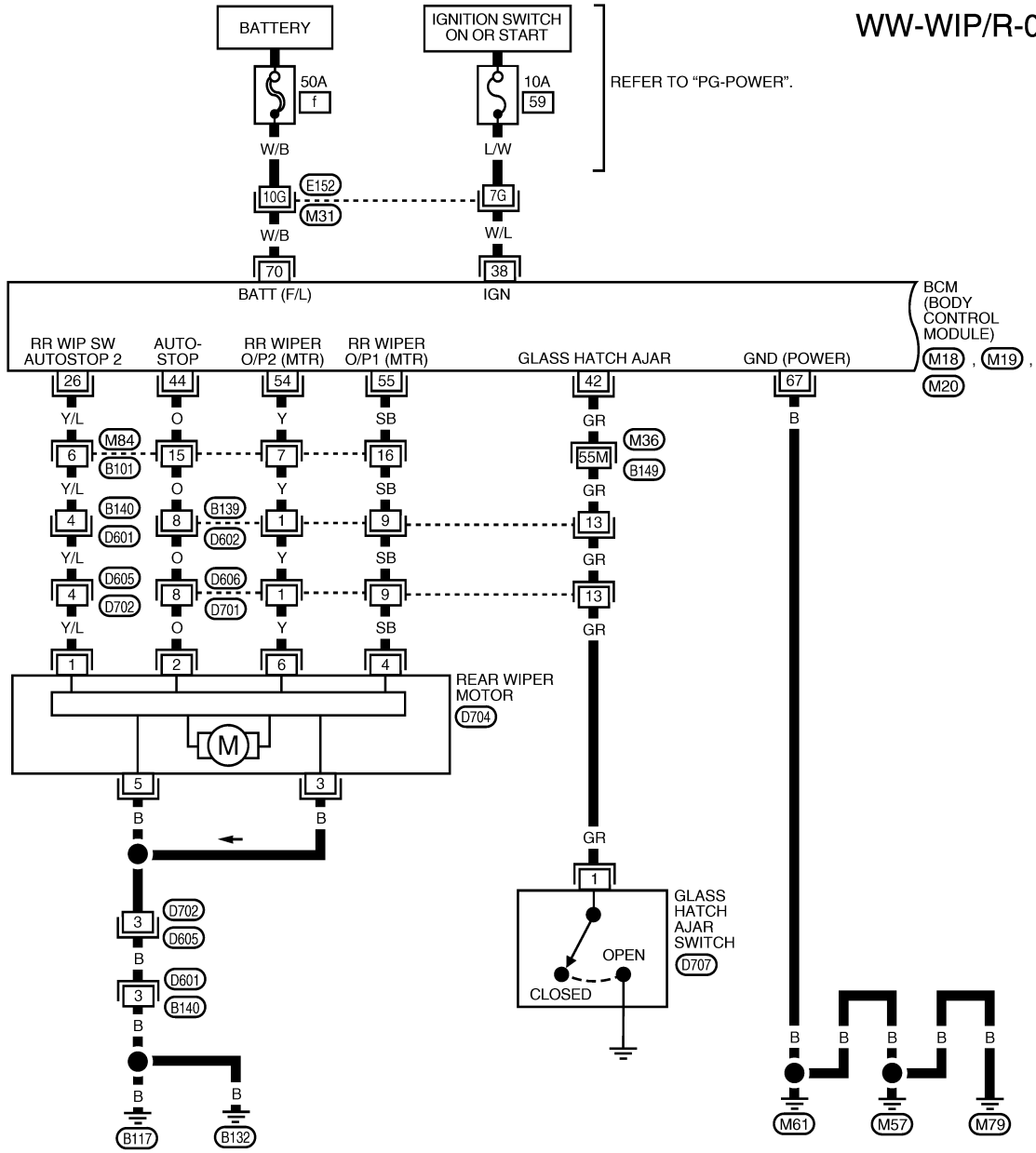
REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

Wiring Diagram - WIP/R -

INFOID:000000003533572

WW-WIP/R-01



REFER TO THE FOLLOWING.
 (M31), (M36) - SUPER
 MULTIPLE JUNCTION (SMJ)

WKWA2328E

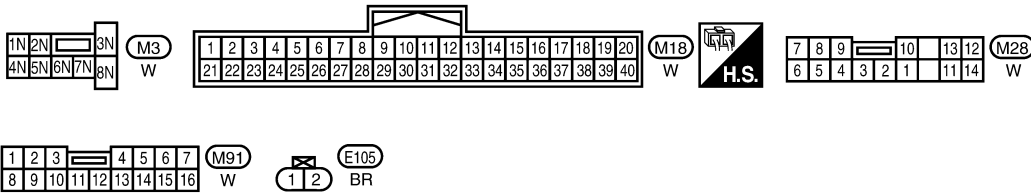
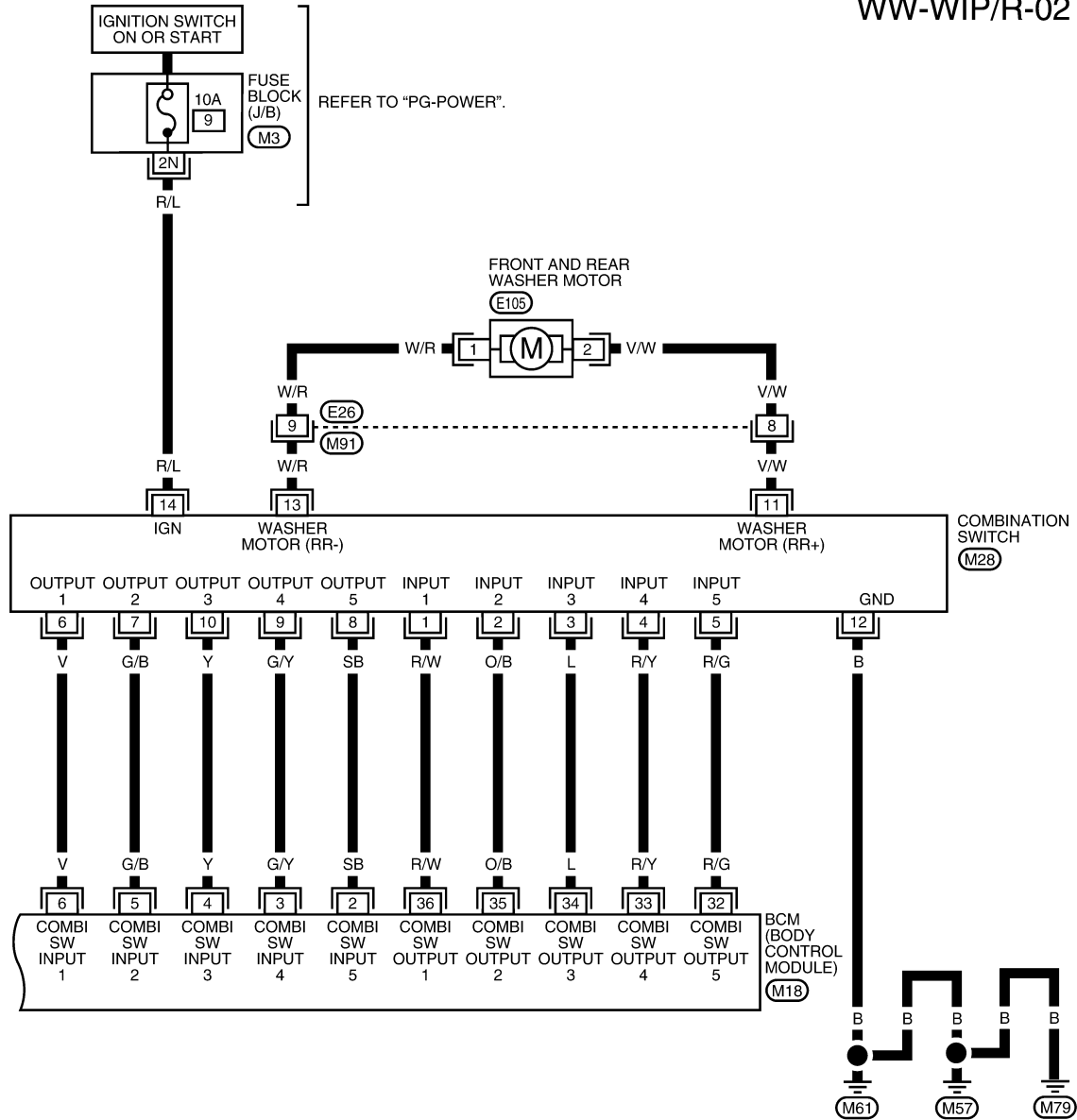
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REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

WW-WIP/R-02



WKWA3612E

Terminal and Reference Value for BCM

INFOID:000000003533573

Refer to [BCS-11. "Terminal and Reference Value for BCM"](#).

How to Proceed with Trouble Diagnosis

INFOID:000000003533574

1. Confirm the symptoms and customer complaint.
2. Understand operation description and function description. Refer to [WW-26. "System Description"](#).

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

3. Perform the Preliminary Check. Refer to [WW-31, "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

INFOID:000000003533575

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

Inspection procedure

1. CHECK FUSE

Check if wiper or washer fuse is blown.

Unit	Power source	Fuse No.
Front and rear washer motor	Ignition ON or START	9
BCM	Ignition ON or START	59
	Battery	f

OK or NG

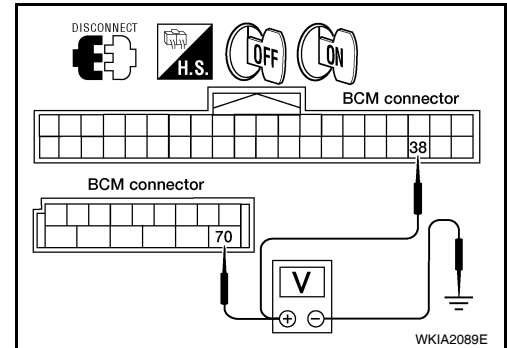
OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of blown fuse before installing new fuse.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connectors.
2. Check voltage between BCM harness connector terminals and ground.

Terminals		(-)	Ignition switch position	
(+)			OFF	ON
Connector	Terminal	Ground	0V	Battery voltage
M18	38		Battery voltage	Battery voltage
M20	70		Battery voltage	Battery voltage



OK or NG

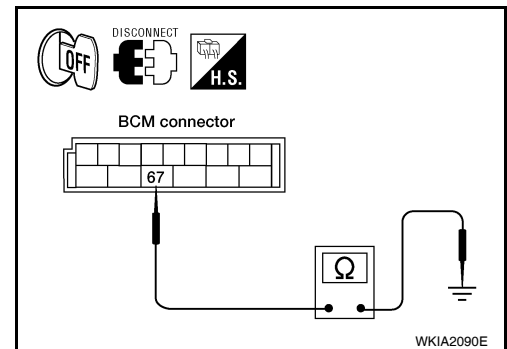
OK >> GO TO 3.

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

3. GROUND CIRCUIT INSPECTION (BCM)

Check for continuity between the BCM terminal and ground.

Terminals			Ignition switch condition	Continuity
Connector	Terminal			
M20	67	Ground	OFF	Yes



OK or NG

OK >> Inspection End.

NG >> Repair/replace BCM ground circuit.

CONSULT-II Function (BCM)

INFOID:000000003533576

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

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

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-36. "CONSULT-II Start Procedure"](#).

DATA MONITOR

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

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

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 AND WASHER SYSTEM

< SERVICE INFORMATION >

Rear Wiper Does Not Operate

INFOID:00000000353577

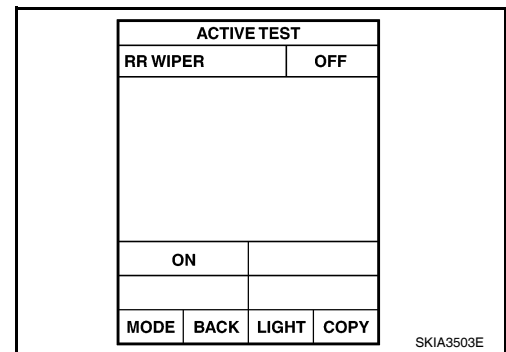
1. REAR WIPER ACTIVE TEST

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

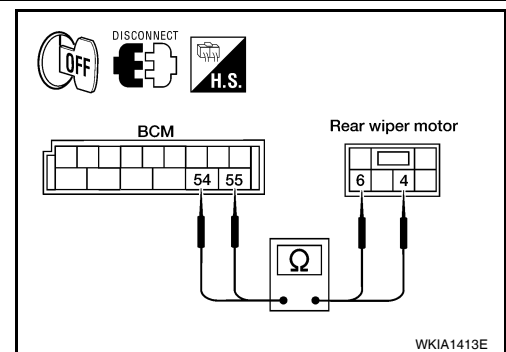
- OK >> GO TO 7.
 NG >> GO TO 2.



2. CHECK REAR WIPER MOTOR CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect BCM connector and rear wiper motor connector.
3. Check continuity between BCM harness connector terminals and rear wiper motor harness connector terminals.

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M19	55	D704	4	Yes
	54		6	



OK or NO

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

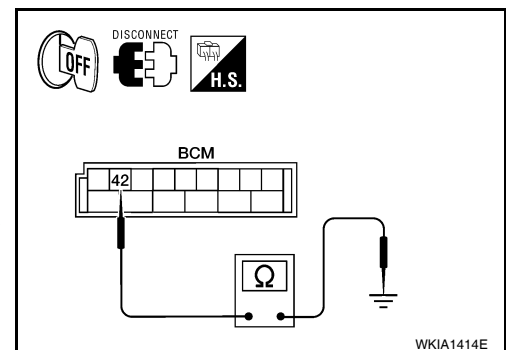
3. CHECK GLASS HATCH AJAR SWITCH

1. Make sure hatch glass is closed.
2. Check continuity between BCM connector M19 terminal 42 and ground.

42 - Ground : Continuity should not exist.

OK or NG

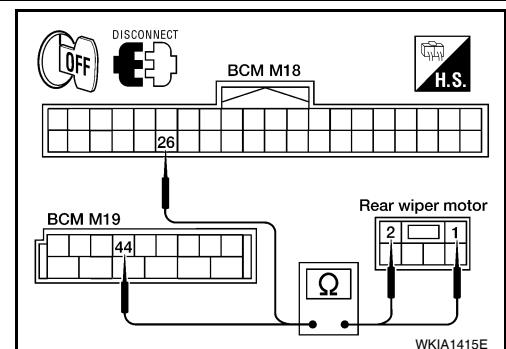
- OK >> GO TO 4.
 NG >> Repair harness if shorted. If not, refer to [BL-25. "Door Switch Check"](#) for further glass hatch ajar switch diagnosis.



4. CHECK REAR WIPER MOTOR AUTO STOP CIRCUITS

1. Disconnect BCM connector M18.
2. Check continuity between BCM harness connector terminals and rear wiper motor harness connector terminals.

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M18	26	D704	1	Yes
M19	44		2	



OK or NO

- OK >> GO TO 5.
 NO >> Repair harness or connector.

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REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

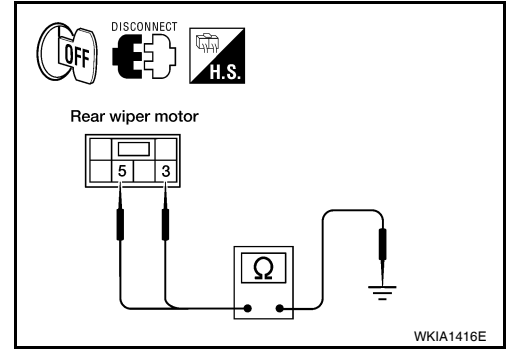
5. CHECK REAR WIPER MOTOR AUTO STOP SWITCH GROUNDS

Check continuity between rear wiper motor harness connector D704 terminals and ground.

Rear wiper motor			Continuity
Connector	Terminal		
D704	3	Ground	Yes
	5		

OK or NG

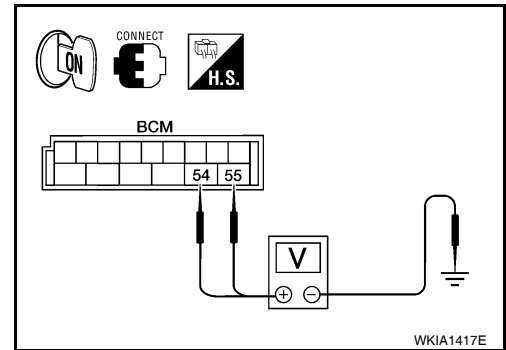
- OK >> GO TO 6.
- NG >> Repair harness or connector.



6. CHECK REAR WIPER OPERATING

1. Connect BCM connectors and rear wiper motor connector.
2. Turn ignition switch ON.
3. Select "RR WIPER" during "ACTIVE TEST". Refer to [WW-31, "CONSULT-II Function \(BCM\)"](#). When rear wiper is operating, check voltage between BCM connector terminals and ground.

BCM		(-)	Condition	Voltage (Approx.)
(+)				
Connector	Terminal			
M19	54	Ground	Operating	Fluctuating
	55		End of travel (stopped)	0V



OK or NG

- OK >> Replace rear wiper motor. Refer to [WW-37, "Rear Wiper Motor"](#).
- NG >> Replace BCM. Refer to [BCS-24, "BCM"](#).

7. CHECK COMBINATION SWITCH INPUT SIGNAL

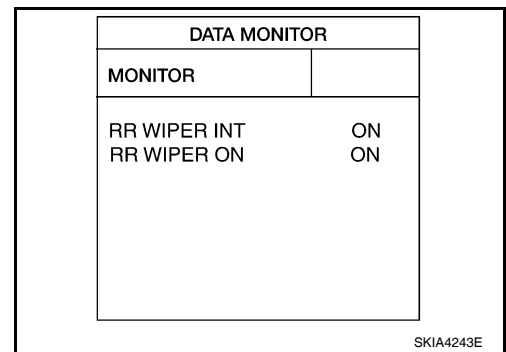
Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "RR WIPER INT", "RR WIPER ON" turn ON-OFF according to operation of wiper switch.

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-24, "BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3, "System Description"](#).



Rear Wiper Stop Position Is Incorrect

INFOID:000000003533578

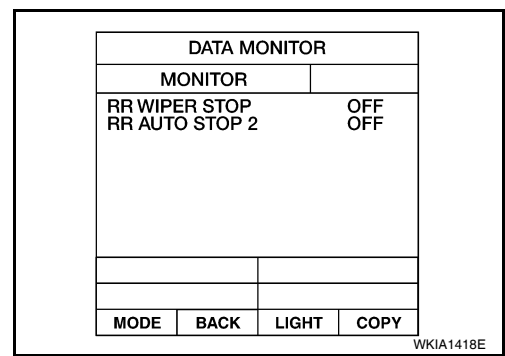
1. CHECK AUTO STOP SWITCH INPUT SIGNALS

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

Select "BCM" on CONSULT-II. With "WIPER" data monitor, make sure "RR WIPER STOP" and "RR AUTO STOP 2" turn ON-OFF according to wiper operation.

- When wiper switch is OFF and arm on stop** : RR WIPER STOP ON
: RR AUTO STOP 2 ON
- When wiper switch is ON and arm in position A** : RR WIPER STOP OFF
: RR AUTO STOP 2 ON
- When wiper switch is ON counterclockwise sweep** : RR WIPER STOP OFF
: RR AUTO STOP 2 OFF
- When wiper switch is ON and arm in position B** : RR WIPER STOP ON
: RR AUTO STOP 2 OFF
- When wiper switch is ON clockwise sweep** : RR WIPER STOP OFF
: RR AUTO STOP 2 OFF
- When wiper switch is ON and arm in position A** : RR WIPER STOP ON
: RR AUTO STOP 2 OFF



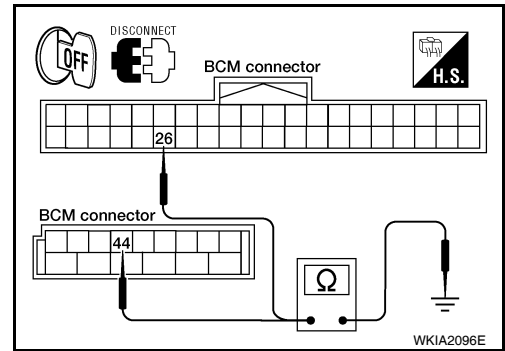
OK or NG

- OK >> Replace BCM. Refer to [BCS-24. "BCM"](#).
- NG >> GO TO 2.

2. CHECK AUTO STOP CIRCUITS FOR SHORT TO GROUND

- Turn ignition switch to OFF.
- Disconnect BCM and rear wiper motor connectors.
- Check continuity between BCM harness connector terminals and ground.

Terminals			Continuity
Connector	Terminal		
M18	26	Ground	No
M19	44		



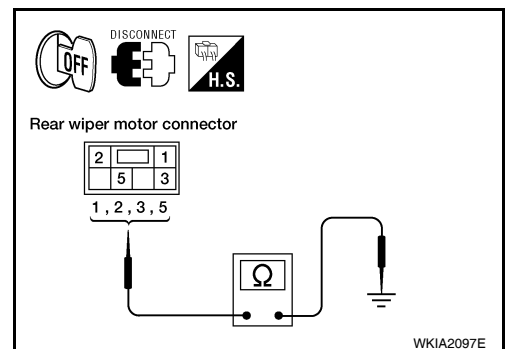
OK or NO

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

3. CHECK REAR WIPER MOTOR AUTO STOP SWITCH GROUNDS

Check continuity between rear wiper motor harness connector D704 terminals and ground.

Terminals			Continuity
Connector	Terminal		
D704	1	Ground	No
	2		
	3		Yes
	5		



OK or NG

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

4. CHECK REAR WIPER OPERATING

REAR WIPER AND WASHER SYSTEM

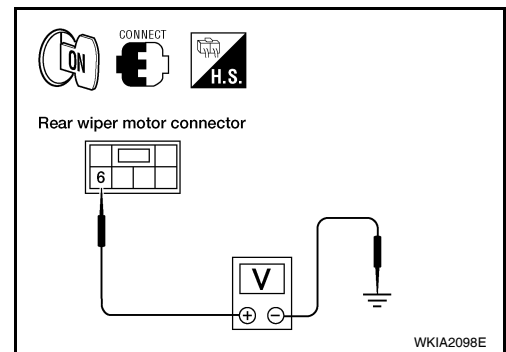
< SERVICE INFORMATION >

1. Connect BCM connectors and rear wiper motor connector.
2. Turn ignition switch ON.
3. Turn rear wiper switch ON, then to OFF when wiper arm reaches mid sweep.
4. Check voltage between rear wiper motor connector D704 terminal 6 and ground.

Battery voltage should exist on the reverse wipe until arm is seated in the stop.

OK or NG

- OK >> Replace rear wiper motor. Refer to [WW-37. "Rear Wiper Motor"](#).
- NG >> Replace BCM. Refer to [BCS-24. "BCM"](#).



WKIA2098E

Only Rear Wiper Does Not Operate

INFOID:00000000353579

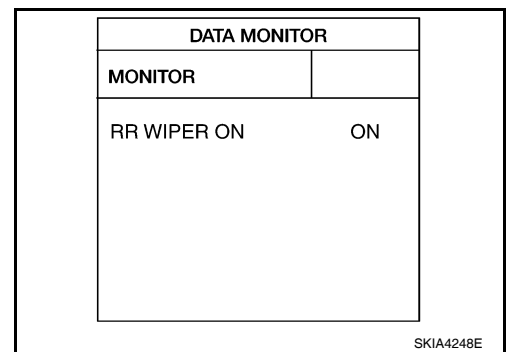
1. CHECK COMBINATION SWITCH INPUT SIGNAL

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-24. "BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3. "System Description"](#).



SKIA4248E

Only Rear Wiper Intermittent Does Not Operate

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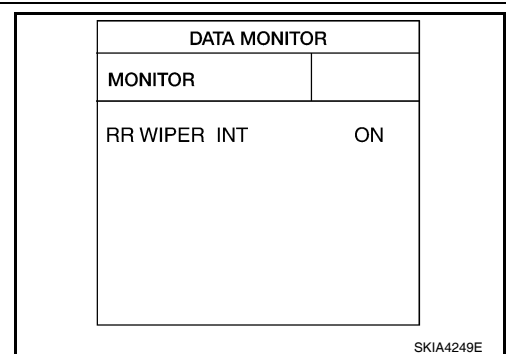
1. CHECK COMBINATION SWITCH INPUT SIGNAL

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-24. "BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3. "System Description"](#).



SKIA4249E

Wiper Does Not Wipe When Rear Washer Operates

INFOID:00000000353581

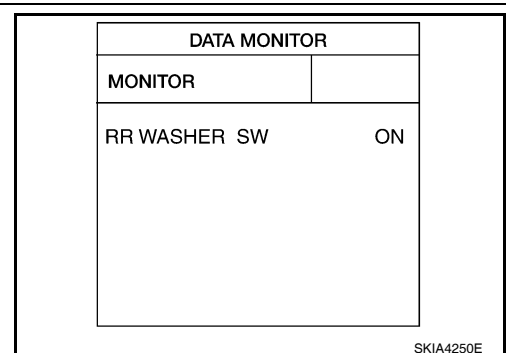
1. CHECK COMBINATION SWITCH INPUT SIGNAL

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-24. "BCM"](#).
- NG >> Check the wiper switch. Refer to [BCS-3. "System Description"](#).



SKIA4250E

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

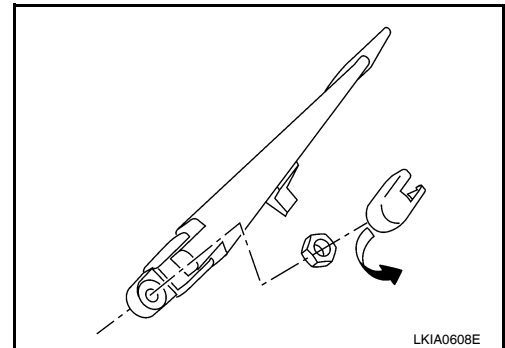
Rear Wiper Arm

INFOID:000000003533582

REMOVAL AND INSTALLATION

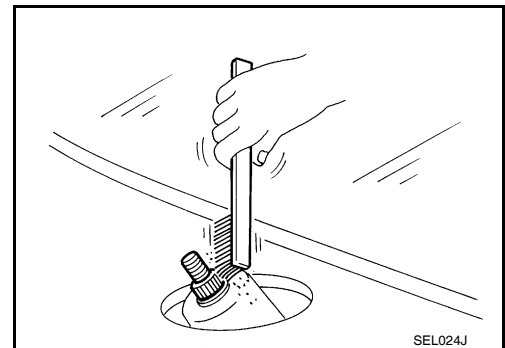
Removal

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



Installation

1. Operate rear wiper motor one full cycle, then turn "OFF" (Auto Stop).
2. Clean up the pivot area as illustrated. This will reduce the possibility of wiper arm looseness.
3. Install wiper blade.
4. Install rear wiper arm so that the arm rests in the stopper and tighten rear wiper arm nut to specification.



Rear wiper arm nut : 10.2 N·m (1.0 kg-m, 8 ft-lb)

5. Install wiper arm cover.

Rear Wiper Motor

INFOID:000000003533583

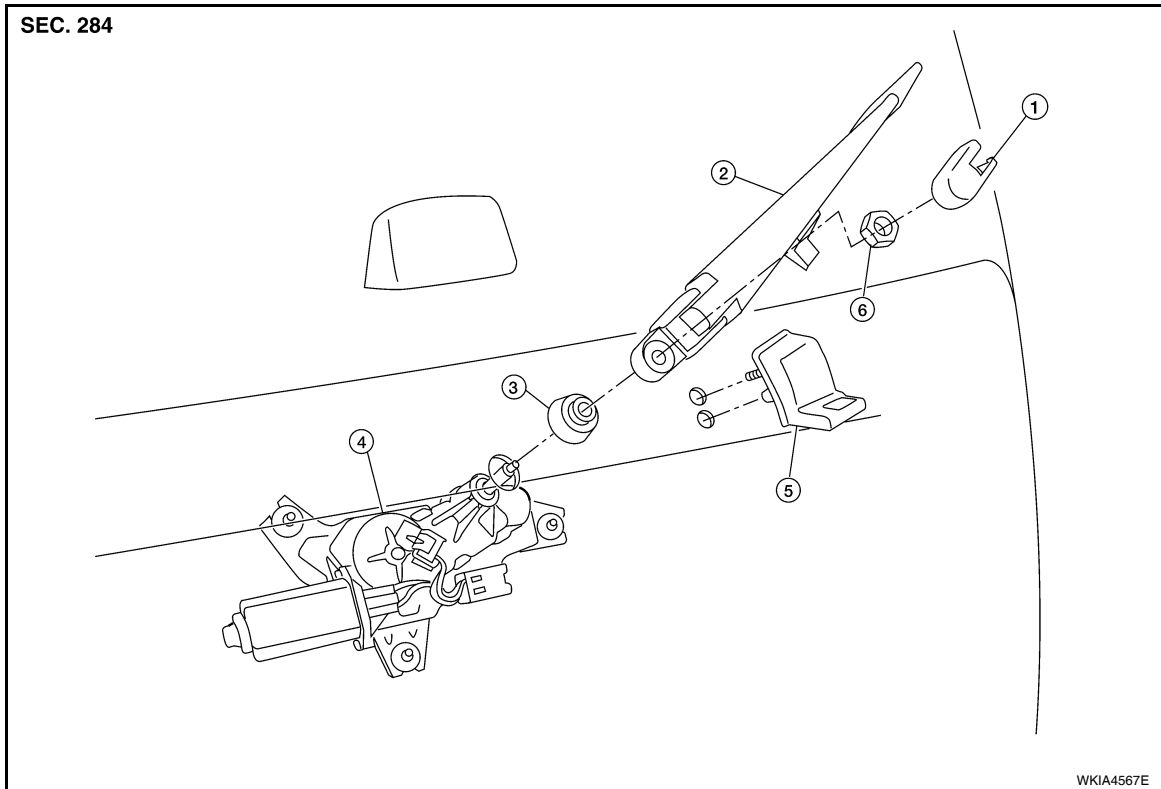
REMOVAL AND INSTALLATION

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WW

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >



- | | | |
|---------------------|------------------------|-----------------------|
| 1. Wiper arm cover | 2. Wiper arm and blade | 3. Pivot cap |
| 4. Rear wiper motor | 5. Wiper arm stop | 6. Rear wiper arm nut |

Removal

1. Remove wiper arm. Refer to [WW-37, "Rear Wiper Arm"](#).
2. Remove pivot cap.
3. Remove back door lock assembly. Refer to [BL-114](#).
4. Disconnect rear wiper motor 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. Install rear wiper motor to the vehicle.
2. Connect rear wiper motor connector.
3. Install back door lock assembly. Refer to [BL-114](#).
4. Install pivot cap.
5. Install wiper arm. Refer to [WW-37, "Rear Wiper Arm"](#).

Rear Washer Nozzle Adjustment

INFOID:000000003533584

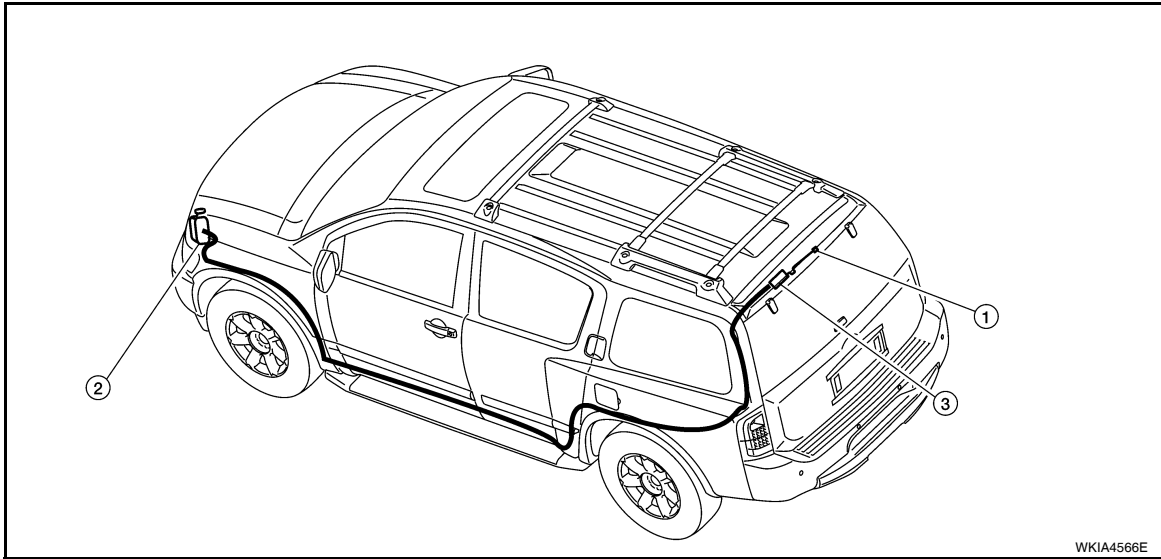
- This vehicle is equipped with a non-adjustable rear washer nozzle.
- If not satisfied with washer fluid spray coverage, confirm that the washer nozzle is installed correctly.
- If the washer nozzle is installed correctly, and the washer fluid spray coverage is not satisfactory, replace the washer nozzle.

REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

Rear Washer Tube Layout

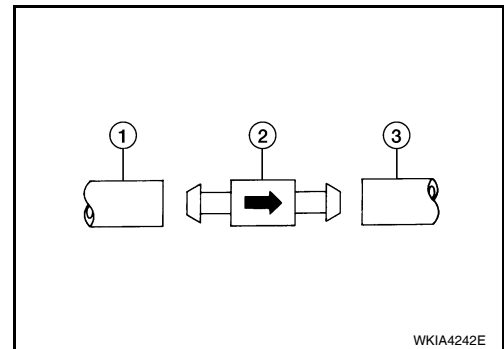
INFOID:000000003533585



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

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).



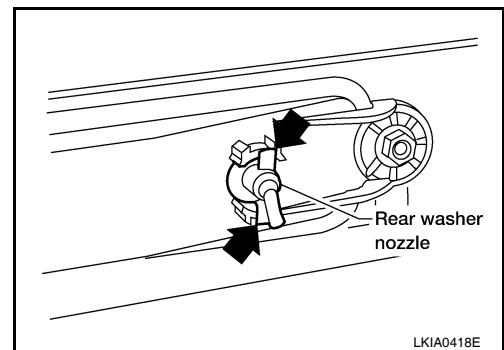
Rear Washer Nozzle

INFOID:000000003533586

REMOVAL AND INSTALLATION

Removal

1. Remove the rear spoiler. Refer to [EI-25](#).
2. Release retaining clips, and remove washer nozzle.



Installation

Installation is in the reverse order of removal.

Rear Wiper and Washer Switch

INFOID:000000003533587

REMOVAL AND INSTALLATION

Refer to [JP-10, "Removal and Installation"](#).

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REAR WIPER AND WASHER SYSTEM

< SERVICE INFORMATION >

Washer Fluid Reservoir

INFOID:000000003533588

REMOVAL AND INSTALLATION

Refer to [WW-24, "Washer Fluid Reservoir"](#).

Washer Motor

INFOID:000000003533589

REMOVAL AND INSTALLATION

Refer to [WW-24, "Washer Motor"](#).

POWER SOCKET

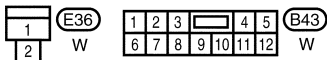
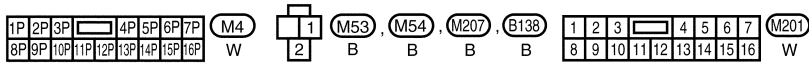
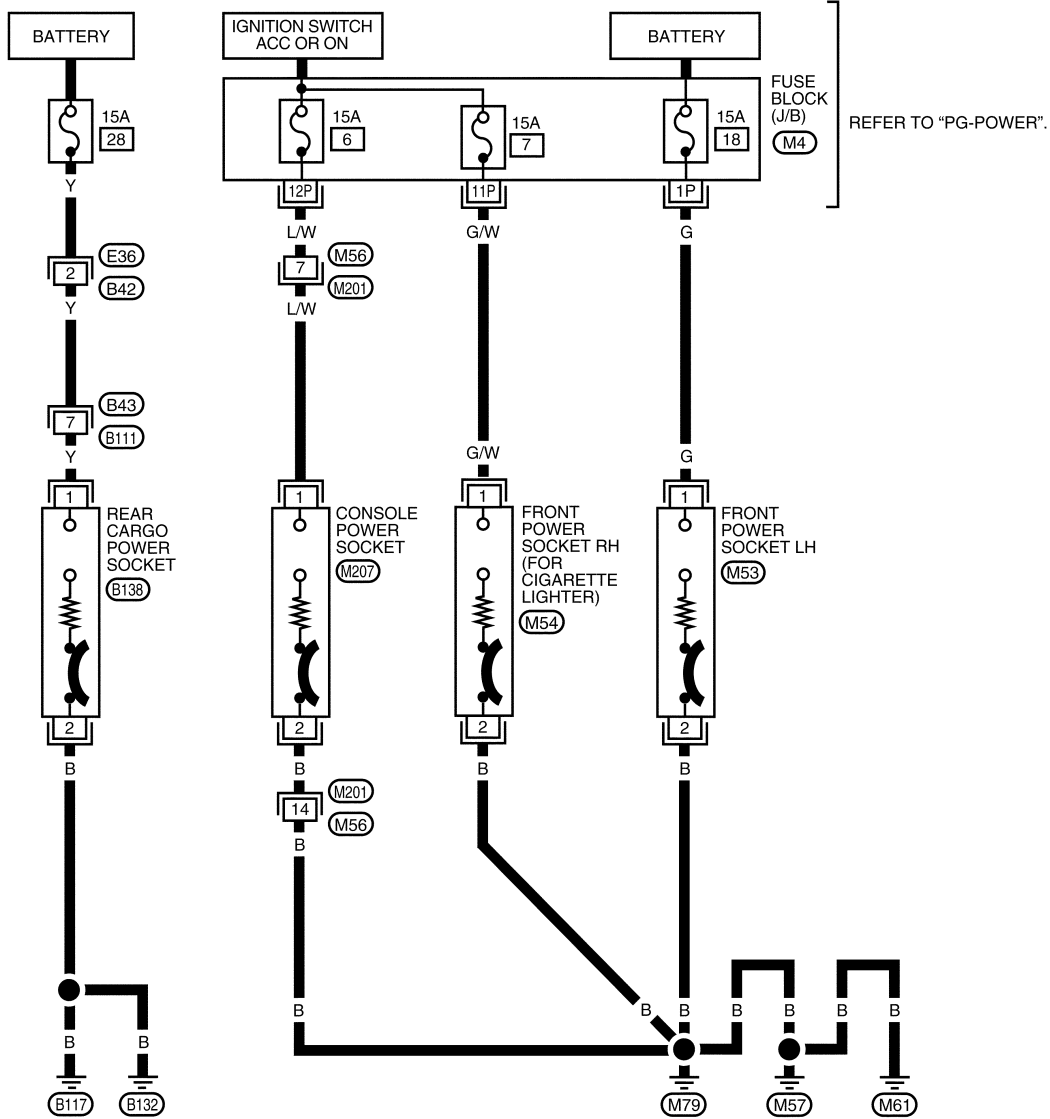
< SERVICE INFORMATION >

POWER SOCKET

Wiring Diagram - P/SCKT -

INFOID:000000003533590

WW-P/SCKT-01



WKWA3613E

Front Power Socket LH, Rear Cargo Power Socket

INFOID:000000003533591

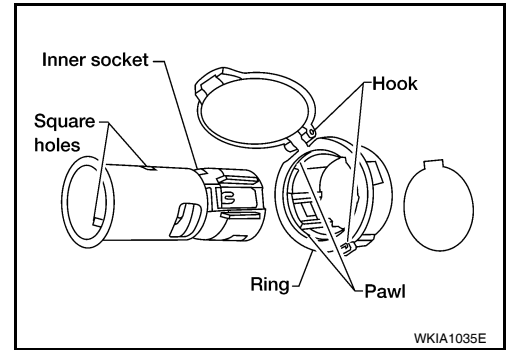
REMOVAL AND INSTALLATION

Removal

POWER SOCKET

< SERVICE INFORMATION >

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.

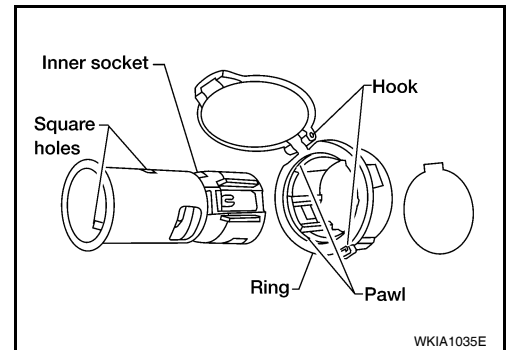
Front Power Socket RH (For Cigarette Lighter), Console Power Socket

INFOID:000000003533592

REMOVAL AND INSTALLATION

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.

HORN

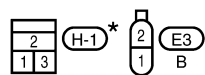
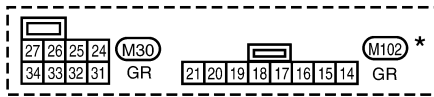
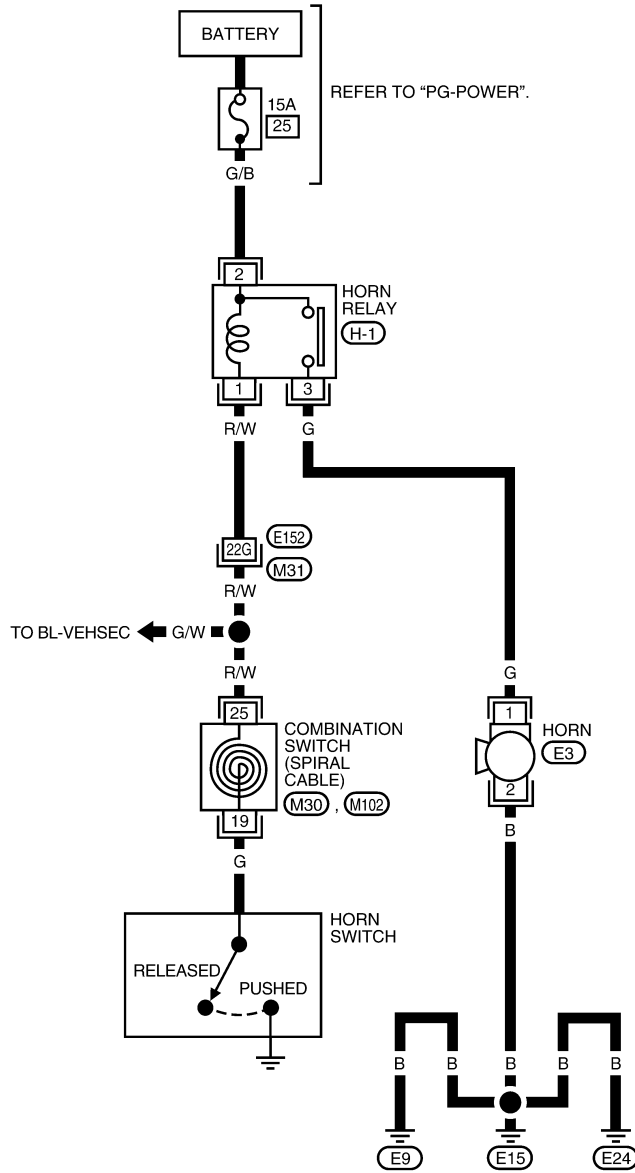
< SERVICE INFORMATION >

HORN

Wiring Diagram - HORN -

INFOID:000000003533593

WW-HORN-01



REFER TO THE FOLLOWING.

(M31) - SUPER MULTIPLE JUNCTION (SMJ)

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

WKWA3614E

Removal and Installation

INFOID:000000003533594

REMOVAL

1. Disconnect horn connector.

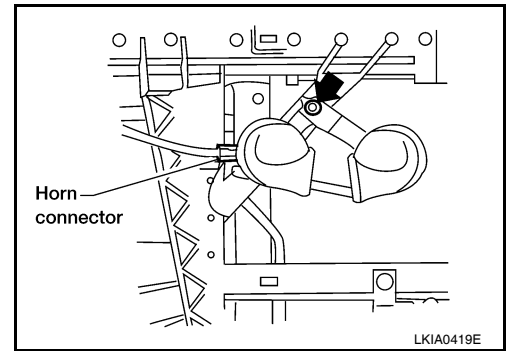
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HORN

< SERVICE INFORMATION >

2. Remove horn bolt and remove horn from vehicle.



INSTALLATION

Installation is in the reverse order of removal.