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SECTION **WW**

WIPER & WASHER

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PRECAUTIONS

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PRECAUTION

PRECAUTIONS

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

INFOID:000000012433192

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR 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 SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

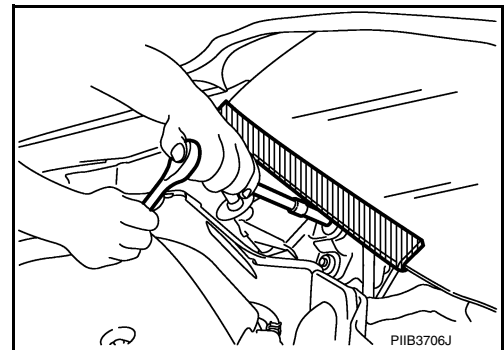
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Procedure without Cowl Top Cover

INFOID:000000012433193

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc. to prevent damage to the windshield.



Precaution for Work

INFOID:000000012433194

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:

PRECAUTIONS

< PRECAUTION >

- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

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PREPARATION

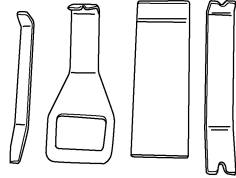
PREPARATION

Special Service Tools

INFOID:0000000012433195

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components

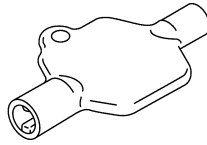


AWJIA0483ZZ

Commercial Service Tool

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Tool name	Description
Washer nozzle adjuster	Adjusting washer nozzle



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COMPONENT PARTS

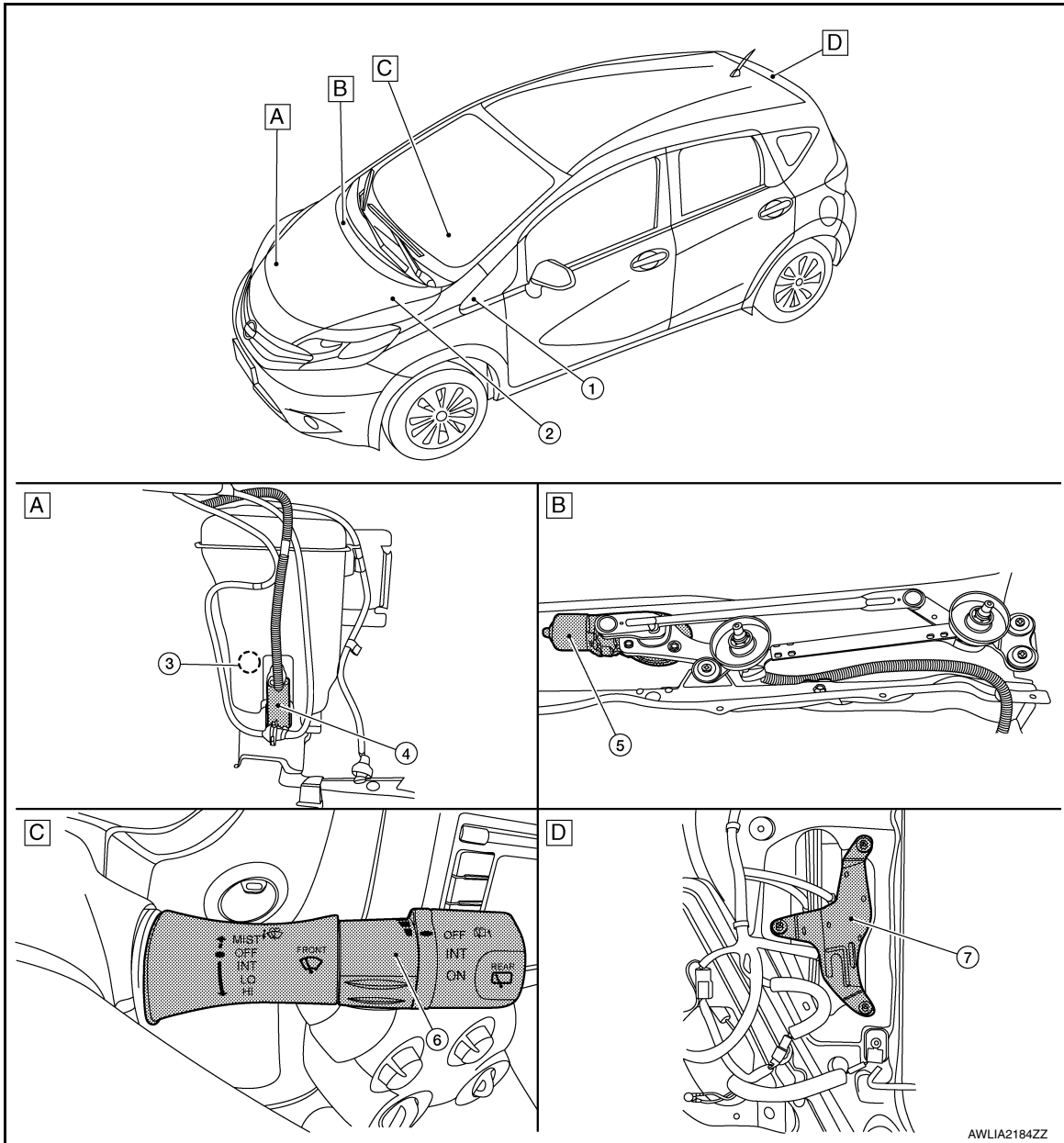
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000012433197



A. Right front engine compartment area

B. Cowl area

C. Steering column area

D. Back door area

Description

No.	Component	Function
1.	BCM	<ul style="list-style-type: none"> Monitors combination switch status by performing the combination switch reading function. Sends front wiper relay and front wiper high relay ON signals to IPDM E/R.
2.	IPDM E/R	<ul style="list-style-type: none"> Controls front wiper relay and front wiper high relay. Performs the auto stop control of the front wiper.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

No.	Component	Function
3.	Washer fluid level switch (for Canada)	Transmits the washer fluid level switch signal to the combination meter.
4.	Front and rear washer motor	<ul style="list-style-type: none"> Washer fluid is sprayed according to washer switch states. Combination switch operates front washer or rear washer by changing voltage polarity to be supplied to washer pump.
5.	Front wiper motor	<ul style="list-style-type: none"> Drives windshield wipers in HI or LO mode. Sends wiper stop signal to IPDM E/R.
6.	Combination switch (Wiper and washer switch)	<ul style="list-style-type: none"> Provides input for wiper and washer control to BCM. Refer to BCS-9, "COMBINATION SWITCH READING SYSTEM : System Description" (with Intelligent Key system) or BCS-79, "COMBINATION SWITCH READING SYSTEM : System Description" (without Intelligent Key system) for more information.
7.	Rear wiper motor	<ul style="list-style-type: none"> BCM controls rear wiper operation. Sends wiper stop signal to BCM.

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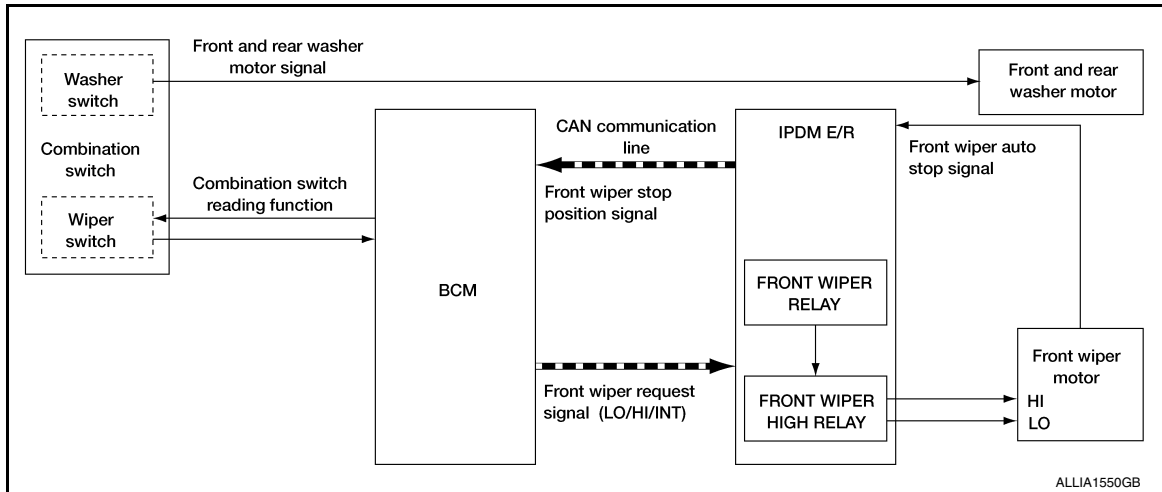
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SYSTEM

FRONT WIPER AND WASHER SYSTEM

FRONT WIPER AND WASHER SYSTEM : System Diagram

INFOID:000000012433198



FRONT WIPER AND WASHER SYSTEM : System Description

INFOID:000000012433199

OUTLINE

FRONT WIPER CONTROL (BASIC)

1. BCM detects the combination switch position by the combination switch reading function.
2. BCM transmits the front wiper request signal to the IPDM E/R using CAN communication.
3. IPDM E/R controls the integrated front wiper relay and front wiper high relay based on the status of the front wiper request signal.
4. IPDM E/R provides power to operate the front wiper motor.

LOW SPEED OPERATION

1. Ignition switch ON.
2. Front wiper switch in LO or MIST position.
3. BCM reads the combination switch position and transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay.

HIGH SPEED OPERATION

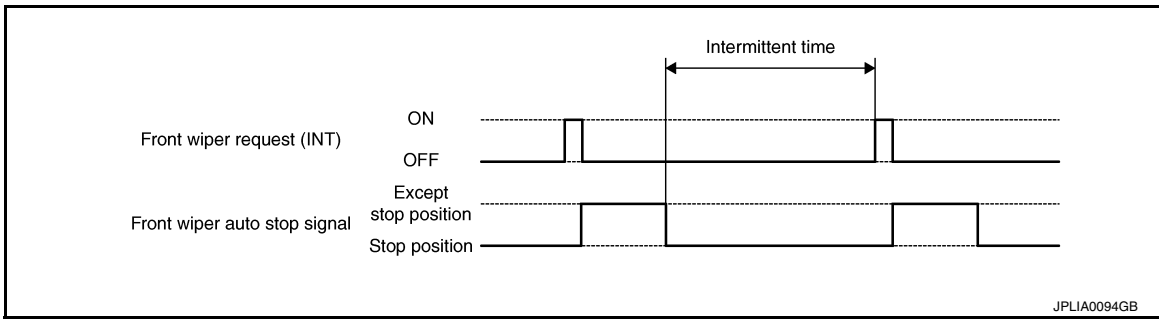
1. Ignition switch ON.
2. Front wiper switch in HI.
3. BCM reads the combination switch position and transmits the front wiper request signal (HI) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay and the front wiper high relay.

INTERMITTENT OPERATION

1. Ignition switch ON.
2. Front wiper switch INT.
3. BCM reads the combination switch position. BCM calculates the delay interval based on the table below and then transmits the front wiper request signal (INT) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay only once.
5. BCM detects stop position of the front wiper motor based on the front wiper stop position signal received from the IPDM E/R.
6. BCM transmits the front wiper request signal (INT) again after the delay interval.

SYSTEM

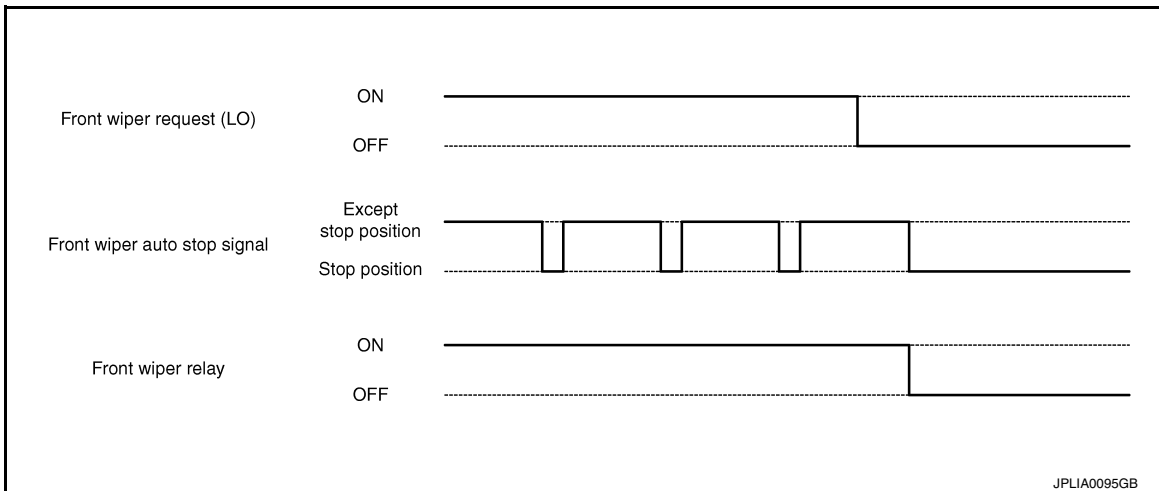
< SYSTEM DESCRIPTION >



Intermittent switch position	Length of delay	Delay interval (s)
7	Short ↑ ↓ Long	0.4
6		1
5		2
4		3
3		5
2		10
1		16

AUTO STOP OPERATION

1. Front wiper switch is turned OFF.
2. BCM monitors wiper switch position by combination switch reading position function.
3. BCM stops transmitting the front wiper request signal to the IPDM E/R.
4. IPDM E/R detects the front wiper auto stop signal from the position of the front wiper motor (stop position/ except stop position).
5. When the front wiper request signal is stopped, IPDM E/R turns ON the front wiper relay until the front wiper motor returns to the stop position.
6. IPDM E/R turns the front wiper relay OFF when the front wiper motor has reached the stop position.



MIST OPERATION

1. Ignition switch ON.
2. Front washer switch in OFF position.
3. Front wiper switch in MIST position.
4. BCM reads the combination switch position and transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
5. IPDM E/R turns ON the front wiper relay.
6. The front wiper operates once after the front washer operation.

WIPER/WASHER OPERATION

1. Ignition switch ON.

SYSTEM

< SYSTEM DESCRIPTION >

2. Front washer switch ON.
3. The front washer switch provides ground for the front and rear washer motor.
4. BCM reads the combination switch position and transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
5. BCM transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
6. IPDM E/R turns ON the front wiper relay.
7. The front wiper operates.

NOTE:

BCM transmits the front wiper request signal (LO) so that the front wiper operates approximately 3 times after front washer switch OFF is detected.

FRONT WIPER AND WASHER SYSTEM : Fail-Safe

INFOID:000000012433200

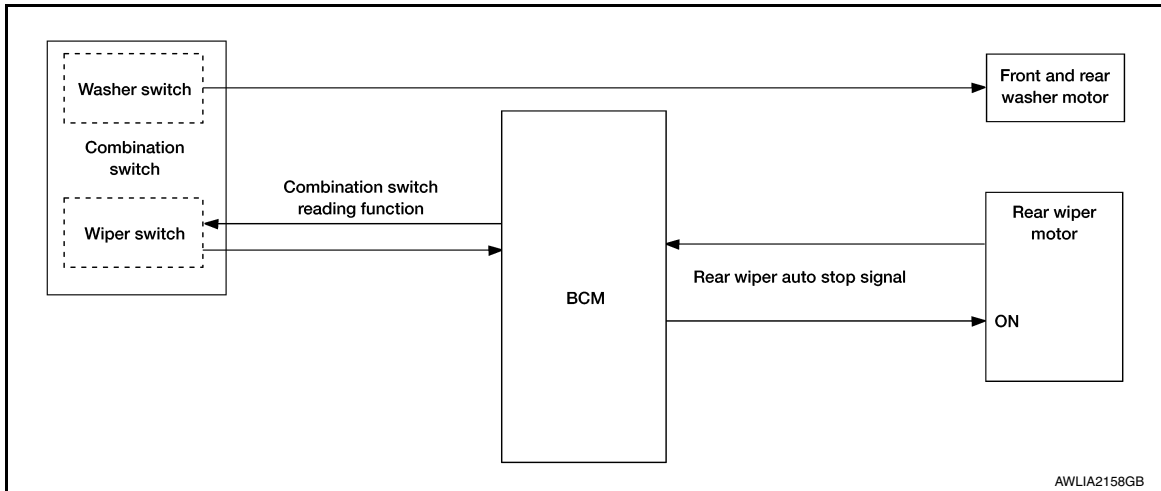
FAIL-SAFE OPERATION

IPDM E/R performs the fail-safe function when the front wiper auto stop circuit is malfunctioning. Refer to [PCS-19. "Fail-safe"](#).

REAR WIPER AND WASHER SYSTEM

REAR WIPER AND WASHER SYSTEM : System Diagram

INFOID:000000012433201



REAR WIPER AND WASHER SYSTEM : System Description

INFOID:000000012433202

OUTLINE

The rear wiper is controlled by each function of BCM.

Control by BCM

- Combination switch reading function
- Rear wiper control function

REAR WIPER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM controls the rear wiper to start or stop.

REAR WIPER ON OPERATION

- BCM supplies power to the rear wiper motor according to the rear wiper ON operating condition.

Rear wiper ON operating condition

- Ignition switch ON
- Rear wiper switch ON

REAR WIPER INT OPERATION

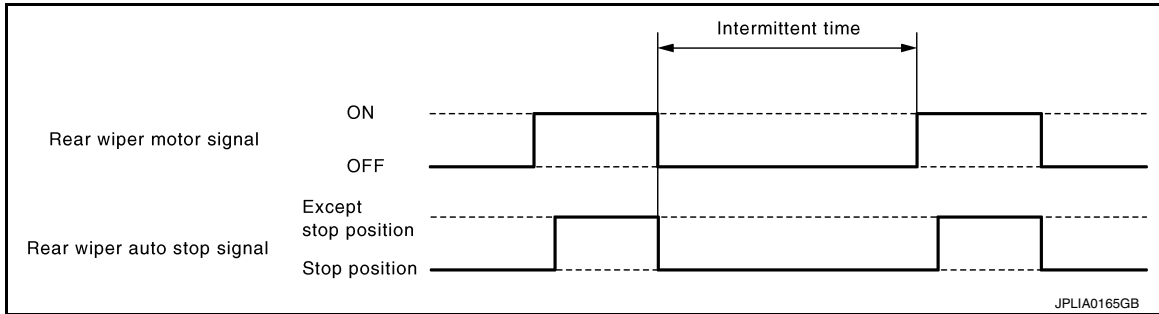
- BCM supplies power to the rear wiper motor according to the INT operating condition.

Rear wiper INT operating condition

SYSTEM

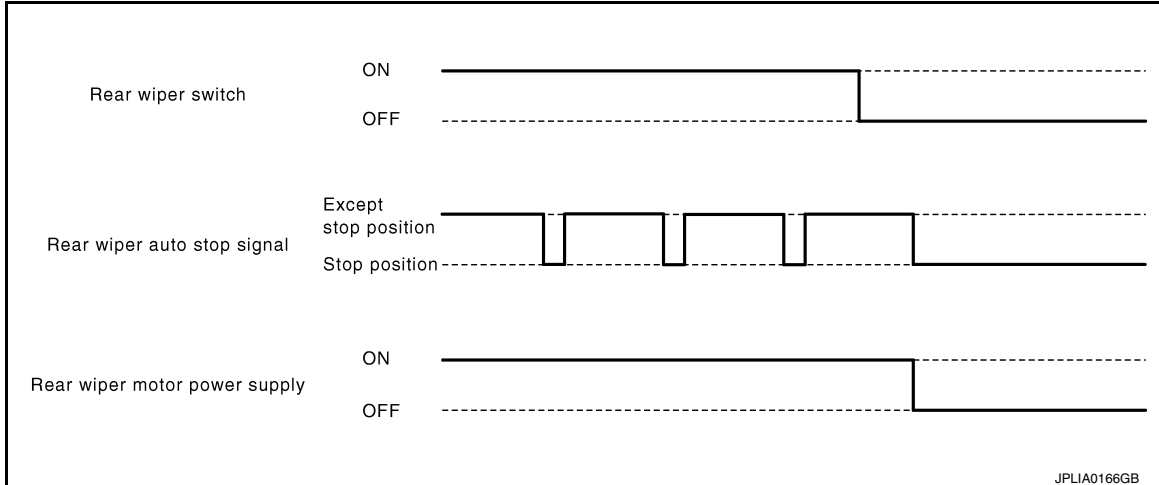
< SYSTEM DESCRIPTION >

- Ignition switch ON
- Rear wiper switch INT
- BCM controls the rear wiper to operate once.
- BCM detects the rear wiper motor stopping position.
- BCM supplies power to the rear wiper motor after an intermittent from the stop of the rear wiper motor.



REAR WIPER AUTO STOP OPERATION

- BCM stops supplying power to the rear wiper motor when the rear wiper switch is turned OFF.
- BCM reads an auto stop signal from the rear wiper motor to detect a rear wiper motor position.
- When the rear wiper motor is at other than the stopping position, BCM continues to supply power to the rear wiper motor until it returns to the stopping position.



NOTE:

BCM stops supplying power to the rear wiper motor when the ignition switch is turned OFF.

REAR WIPER OPERATION LINKED WITH WASHER

- BCM supplies power to the rear wiper motor according to the washer linked operating condition of rear wiper. When the rear washer switch is turned OFF, BCM controls rear wiper to operate approximately three times.

Washer linked operating condition of rear wiper

- Ignition switch ON
- Rear washer switch ON (0.4 second or more)
- Front and rear washer motor becomes grounded through the combination switch (wiper and washer switch) when the rear washer switch is turned ON.

REAR WIPER DROP WIPE OPERATION

- BCM controls the rear wiper to operate once according to the rear wiper drop wipe operating condition.

Rear wiper drop wipe operating condition

- Ignition switch ON
- Rear wiper switch OFF
- Rear washer switch OFF
- BCM controls the rear wiper so that it operates once time approximately three seconds later after the washer interlocking operation of the rear wiper.

REAR WIPER FAIL-SAFE OPERATION

SYSTEM

< SYSTEM DESCRIPTION >

BCM performs the fail-safe function when the rear wiper auto stop circuit is malfunctioning. Refer to [BCS-48](#), "[Fail-safe](#)" (with Intelligent Key system) or [BCS-115](#), "[Fail-safe](#)" (without Intelligent Key system).

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000012542535

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
ECU Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	<ul style="list-style-type: none"> The vehicle specification can be read and saved. The vehicle specification can be written when replacing BCM.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		ECU Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN DIAG SUPPORT MNTR
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x			
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Exterior lamp	HEAD LAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x	x		
Air conditioner	AIR CONDITIONER			x				
Intelligent Key system	INTELLIGENT KEY		x	x	x	x		
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x	x	x	x		
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Vehicle security system	THEFT ALM			x	x			
RAP system	RETAINED PWR			x				
Signal buffer system	SIGNAL BUFFER			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		
Panic alarm system	PANIC ALARM				x			

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000012542536

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
INT VOLUME [1 - 7]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
RR WIPER STOP [On/Off]	Indicates rear wiper motor auto stop input from rear wiper motor.

ACTIVE TEST

Test Item	Description
FR WIPER	This test is able to check front wiper operation [INT/Lo/Hi/Off].
RR WIPER	This test is able to check rear wiper operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
WIPER SPEED SETTING	On	Front wiper intermittent time linked with vehicle speed and wiper dial position.
	Off*	Front wiper intermittent time linked with wiper dial position.

* : Initial setting

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000012542537

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
ECU Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	<ul style="list-style-type: none"> The vehicle specification can be read and saved. The vehicle specification can be written when replacing BCM.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		ECU Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN DIAG SUPPORT MNTR
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x			
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT			x	x	x		
Exterior lamp	HEAD LAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Air conditioner	AIR CONDITIONER			x				
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x	x		
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Vehicle security system	THEFT ALM			x		x		
RAP system	RETAINED PWR			x		x		
Signal buffer system	SIGNAL BUFFER			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		
Panic alarm system	PANIC ALARM				x			

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:000000012542539

DATA MONITOR

Monitor Item [Unit]	Description
IGN ON SW [On/Off]	Indicates condition of ignition switch ON position.
IGN SW CAN [On/Off]	Indicates ignition switch ON signal received from IPDM E/R on CAN communication line.
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WIPER INT [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
INT VOLUME [1 - 7]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
RR WIPER STOP [On/Off]	Indicates rear wiper motor auto stop input from rear wiper motor.
REVERSE SW CAN [On/Off]	Indicates reverse switch signal received from TCM on CAN communication line.
VEHICLE SPEED [km/h/mph]	Indicates vehicle speed signal received from combination meter on CAN communication line.

ACTIVE TEST

Test Item	Description
FR WIPER	This test is able to check front wiper operation [INT/Lo/Hi/Off].
RR WIPER	This test is able to check rear wiper operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
WIPER SPEED SETTING	On	Front wiper intermittent time linked with vehicle speed and wiper dial position.
	Off*	Front wiper intermittent time linked with wiper dial position.

* : Initial setting

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000012542540

AUTO ACTIVE TEST

Description

In auto active test, the IPDM E/R sends a drive signal to the following systems to check their operation:

- Front wiper (LO, HI)
- Parking lamp
- Side marker lamp
- License plate lamp
- Tail lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

Operation Procedure

NOTE:

Never perform auto active test in the following conditions:

- Passenger door is open
- CONSULT is connected

1. Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation)

NOTE:

When auto active test is performed with hood opened, sprinkle water on windshield beforehand.

2. Turn the ignition switch OFF.
3. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.
4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-98. "Component Function Check"](#) (with Intelligent Key system) or [DLK-232. "Component Function Check"](#) (without Intelligent Key system).

Inspection in Auto Active Test

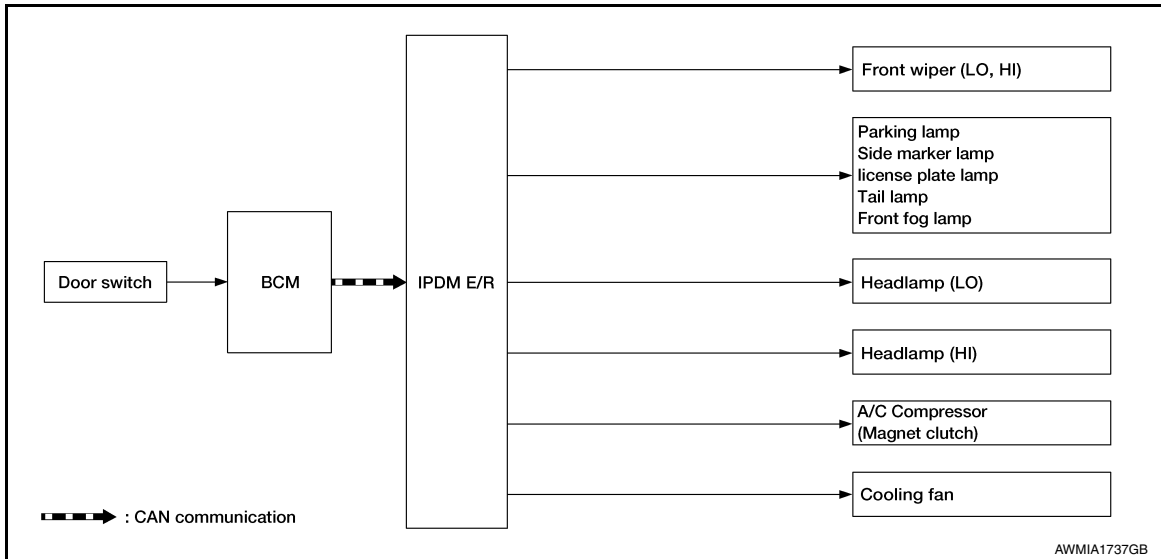
When auto active test is actuated, the following operation sequence is repeated 3 times.

Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	<ul style="list-style-type: none">• Parking lamp• Side marker lamp• License plate lamp• Tail lamp• Front fog lamp (if equipped)	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ↔ OFF 5 times
4	A/C compressor (magnet clutch)	ON ↔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Concept of Auto Active Test



- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis Chart in Auto Active Test

Symptom	Inspection contents	Possible cause
Any of the following components do not operate: • Parking lamp • Side marker lamp • License plate lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper (HI, LO)	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO • Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	YES • BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO • Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000012542541

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
ECU Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Direct Diagnostic Mode	Description
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [1/2/3/4]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INHI RLY [Off/ ST /INHI]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime running light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [On].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Test item	Description
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].

CAN DIAG SUPPORT MNTR

Refer to [LAN-13. "CAN Diagnostic Support Monitor"](#).

BCM, IPDM E/R

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000012433209

ECU	Reference
BCM (with Intelligent Key system)	BCS-30, "Reference Value"
	BCS-48, "Fail-safe"
	BCS-49, "DTC Inspection Priority Chart"
	BCS-50, "DTC Index"
BCM (without Intelligent Key system)	BCS-101, "Reference Value"
	BCS-115, "Fail-safe"
	BCS-115, "DTC Inspection Priority Chart"
	BCS-115, "DTC Index"
IPDM E/R	PCS-13, "Reference Value"
	PCS-19, "Fail-safe"
	PCS-20, "DTC Index"

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FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

FRONT WIPER AND WASHER SYSTEM CONNECTORS

Connector No.	M8
Connector Name	JOINT CONNECTOR-M02
Connector Color	GREEN



9	8	7	6	5	4	3	2	1		
20	19	18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
8	L	-
9	L	-
19	P	-
20	P	-

Connector No.	M10
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE



9	8	7	6	5	4	3	2	1		
20	19	18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
4	L	-
7	L	-
8	L	-
13	P	-
16	P	-
17	P	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



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

Terminal No.	Color of Wire	Signal Name
2	BR	COMBINATION SW INPUT 5
3	Y	COMBINATION SW INPUT 4
4	L	COMBINATION SW INPUT 3
5	G	COMBINATION SW INPUT 2

Terminal No.	Color of Wire	Signal Name
6	R	COMBINATION SW INPUT 1
32	P	COMBINATION SW OUTPUT 5
33	V	COMBINATION SW OUTPUT 4
34	W	COMBINATION SW OUTPUT 3
35	GR	COMBINATION SW OUTPUT 2
36	LG	COMBINATION SW OUTPUT 1
39	L	CAN-H
40	P	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



41	42	43	44	45	46	47	48	49
50	51	52	53	54	55			

Terminal No.	Color of Wire	Signal Name
42	Y	BATTERY (FUSE)
50	G	BATTERY (F/L)
55	B	GND

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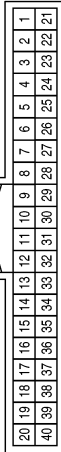
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FRONT WIPER AND WASHER SYSTEM

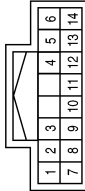
< WIRING DIAGRAM >

Connector No.	M24
Connector Name	COMBINATION METER (WITH TYPE B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
17	V	WASHER/STRG SW
21	B	GND (ILLUMINATION)
22	B	GND (POWER)
23	B	GND (CIRCUIT)
27	R/W	BAT
28	GR	IGN

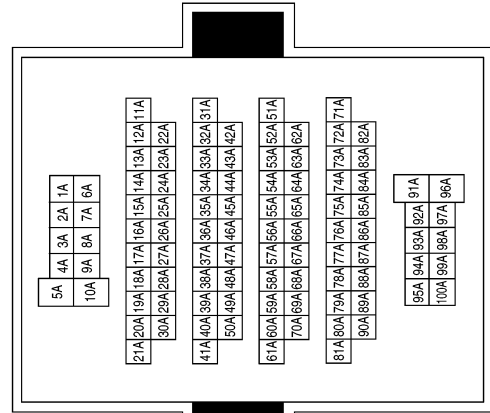
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	BG	-
2	Y	-
3	SB	-
4	W	-
5	L	-
6	B	-

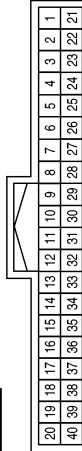
Terminal No.	Color of Wire	Signal Name
7	W	-
8	BR	-
9	GR	-
10	V	-
11	LG	-
12	R	-
13	P	-
14	G	-

Connector No.	M69
Connector Name	WIRES TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4A	SB	-
9A	BG	-
20A	P	-
21A	L	-
30A	V	-
91A	G	-
93A	BG	- (WITH INTELLIGENT KEY SYSTEM)

Connector No.	M82
Connector Name	COMBINATION METER (WITH TYPE A)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
17	V	WASHER/STRG SW
21	B	GND (ILLUMINATION)
22	B	GND (POWER)
23	B	GND (CIRCUIT)
27	R/W	BAT
28	GR	IGN

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FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

Connector No.	M98
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
98	BG	IGN RELAY OUTPUT 1 (USM)



71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110

Terminal No.	Color of Wire	Signal Name
4	L	COMBINATION SW INPUT 3
5	G	COMBINATION SW INPUT 2
6	R	COMBINATION SW INPUT 1
32	P	COMBINATION SW OUTPUT 5
33	V	COMBINATION SW OUTPUT 4
34	W	COMBINATION SW OUTPUT 3
35	GR	COMBINATION SW OUTPUT 2
36	LG	COMBINATION SW OUTPUT 1
39	L	CAN-H
40	P	CAN-L

Connector No.	M97
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
2	BR	COMBINATION SW INPUT 5
3	Y	COMBINATION SW INPUT 4



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

Connector No.	E2
Connector Name	FRONT AND REAR WASHER MOTOR
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
1	SB	-
2	Y	-



Connector No.	E1
Connector Name	FRONT WIPER MOTOR
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
2	B	-
3	LG	-
4	V	-
5	GR	-



Connector No.	M99
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
57	Y	BATTERY (FUSE)
67	B	GND
70	G	BATTERY (F/L)

56	57	58	59	60	61	62	63	64
65	66	67	68	69	70			



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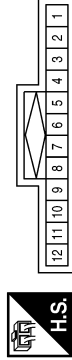
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FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

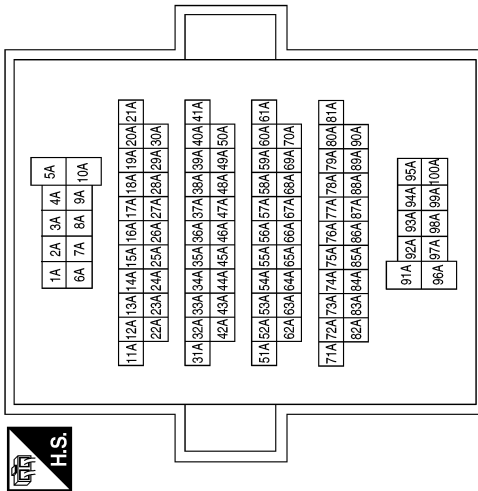
Connector No.	E14
Connector Name	JOINT CONNECTOR-E03
Connector Color	BLUE



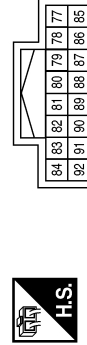
Terminal No.	Color of Wire	Signal Name
1	P	-
5	P	-
8	L	-
12	L	-

Terminal No.	Color of Wire	Signal Name
4A	SB	-
9A	Y	-
20A	P	-
21A	L	-
30A	R	-
91A	Y	-
93A	L	-

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Color	WHITE

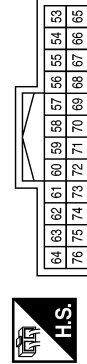


Connector No.	E47
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
90	L	IGN SIGNAL

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
60	B	S GND
61	P	CAN-L
62	L	CAN-H
74	V	WIPER AUTOSTOP

Connector No.	E45
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
17	LG	FR WIPER LO
18	GR	FR WIPER HI
19	B	P-GND

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FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

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Connector No.	E50
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-

WW

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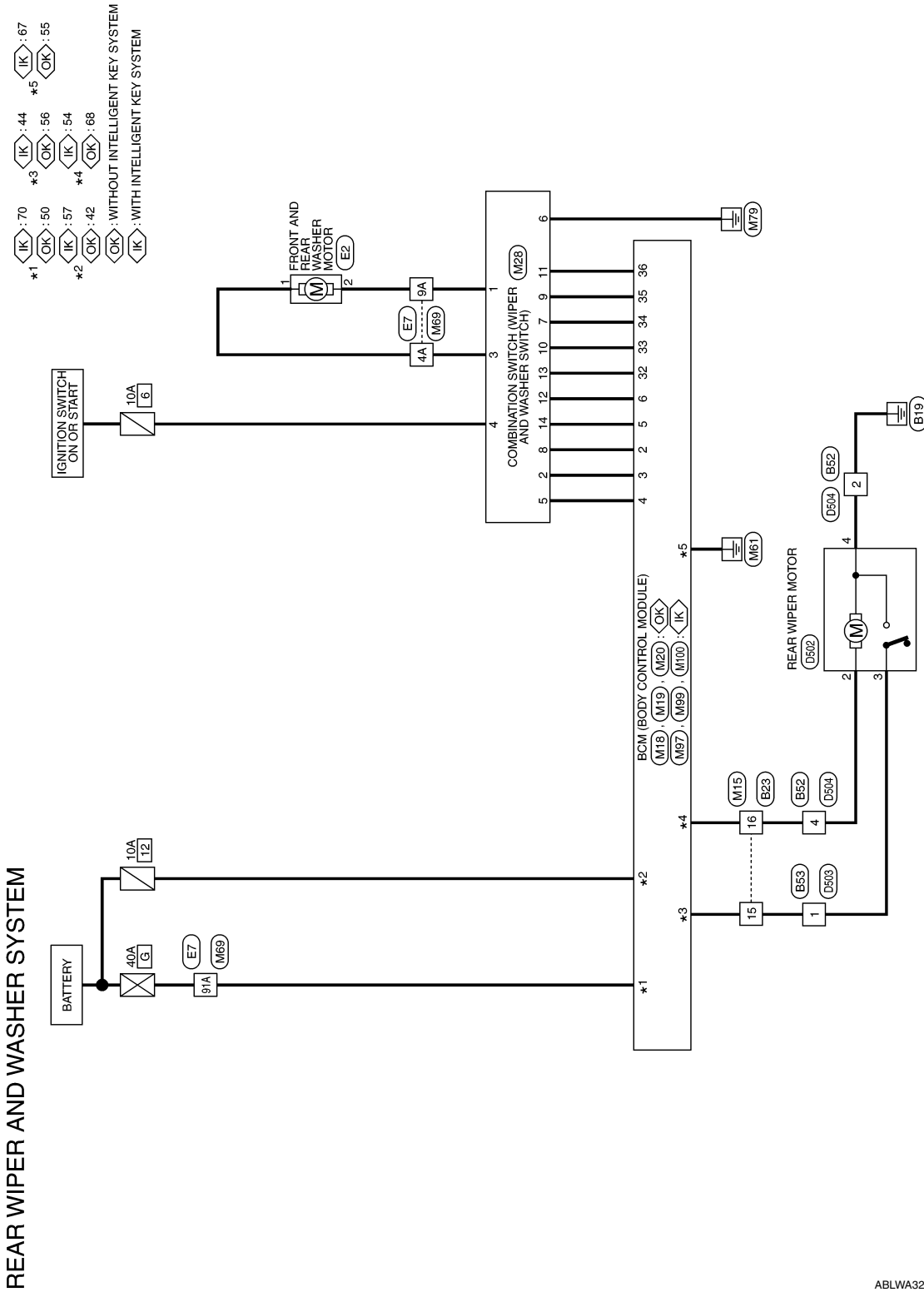
REAR WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

REAR WIPER AND WASHER SYSTEM

Wiring Diagram

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REAR WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

REAR WIPER AND WASHER SYSTEM CONNECTORS

Connector No.	M15
Connector Name	WIRE TO WIRE
Connector Color	WHITE

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



Terminal No.	Color of Wire	Signal Name
15	LG	-
16	R	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



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

Terminal No.	Color of Wire	Signal Name
2	BR	COMBINATION SW INPUT 5
3	Y	COMBINATION SW INPUT 4

Terminal No.	Color of Wire	Signal Name
4	L	COMBINATION SW INPUT 3
5	G	COMBINATION SW INPUT 2
6	R	COMBINATION SW INPUT 1
32	P	COMBINATION SW OUTPUT 5
33	V	COMBINATION SW OUTPUT 4
34	W	COMBINATION SW OUTPUT 3
35	GR	COMBINATION SW OUTPUT 2
36	LG	COMBINATION SW OUTPUT 1

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE

41	42	43	44	45	46	47	48	49
50	51	52	53	54	55			



Terminal No.	Color of Wire	Signal Name
42	Y	BATTERY (FUSE)
50	G	BATTERY (F/L)
55	B	GND

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	BLACK

56	57	58	59	60	61	62	63	64
65	66	67	68	69	70			



Terminal No.	Color of Wire	Signal Name
56	LG	REAR WIPER AUTO STOP SW
68	R	REAR WIPER MOTOR OUTPUT 1

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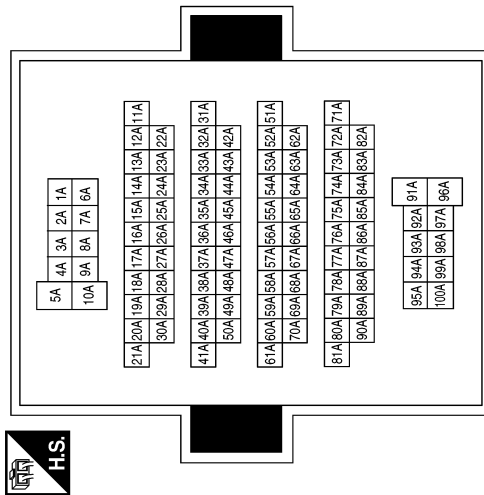
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REAR WIPER AND WASHER SYSTEM

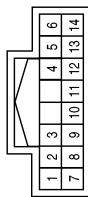
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Terminal No.	Color of Wire	Signal Name
4A	SB	-
9A	BG	-
91A	G	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

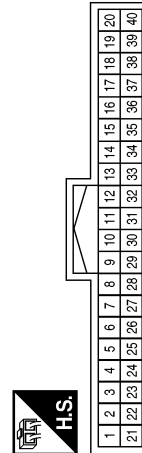


Terminal No.	Color of Wire	Signal Name
1	BG	-
2	Y	-
3	SB	-
4	W	-
5	L	-
6	B	-
7	W	-
8	BR	-
9	GR	-
10	V	-
11	LG	-
12	R	-
13	P	-
14	G	-

Terminal No.	Color of Wire	Signal Name
32	P	COMBINATION SW OUTPUT 5
33	V	COMBINATION SW OUTPUT 4
34	W	COMBINATION SW OUTPUT 3
35	GR	COMBINATION SW OUTPUT 2
36	LG	COMBINATION SW OUTPUT 1

Terminal No.	Color of Wire	Signal Name
2	BR	COMBINATION SW INPUT 5
3	Y	COMBINATION SW INPUT 4
4	L	COMBINATION SW INPUT 3
5	G	COMBINATION SW INPUT 2
6	R	COMBINATION SW INPUT 1

Connector No.	M97
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK



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REAR WIPER AND WASHER SYSTEM

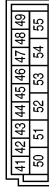
< WIRING DIAGRAM >

Connector No.	E2
Connector Name	FRONT AND REAR WASHER MOTOR
Connector Color	GRAY



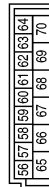
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	Y	-

Connector No.	M100
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK



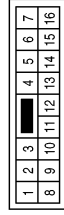
Terminal No.	Color of Wire	Signal Name
44	LG	REAR WIPER AUTO STOP SW
54	R	REAR WIPER MOTOR OUTPUT

Connector No.	M99
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
57	Y	BATTERY (FUSE)
67	B	GND
70	G	BATTERY (F/L)

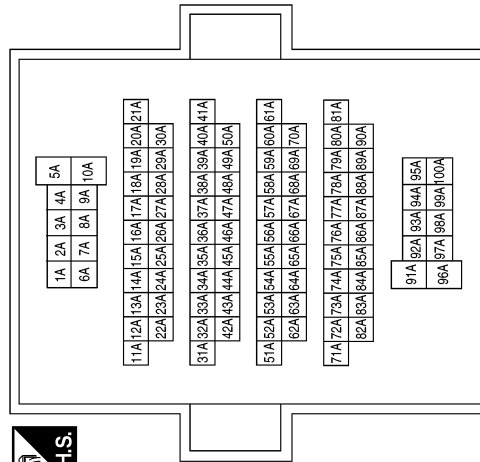
Connector No.	B23
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
15	LG	-
16	R	-

Terminal No.	Color of Wire	Signal Name
4A	SB	-
9A	Y	-
91A	Y	-

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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REAR WIPER AND WASHER SYSTEM

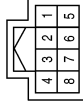
< WIRING DIAGRAM >

Connector No.	D502
Connector Name	REAR WIPER MOTOR
Connector Color	WHITE



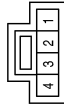
Terminal No.	Color of Wire	Signal Name
2	R	-
3	LG	-
4	B	-

Connector No.	B53
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-

Connector No.	B52
Connector Name	WIRE TO WIRE
Connector Color	WHITE



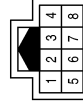
Terminal No.	Color of Wire	Signal Name
2	B	-
4	R	-

Connector No.	D504
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	B	-
4	R	-

Connector No.	D503
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

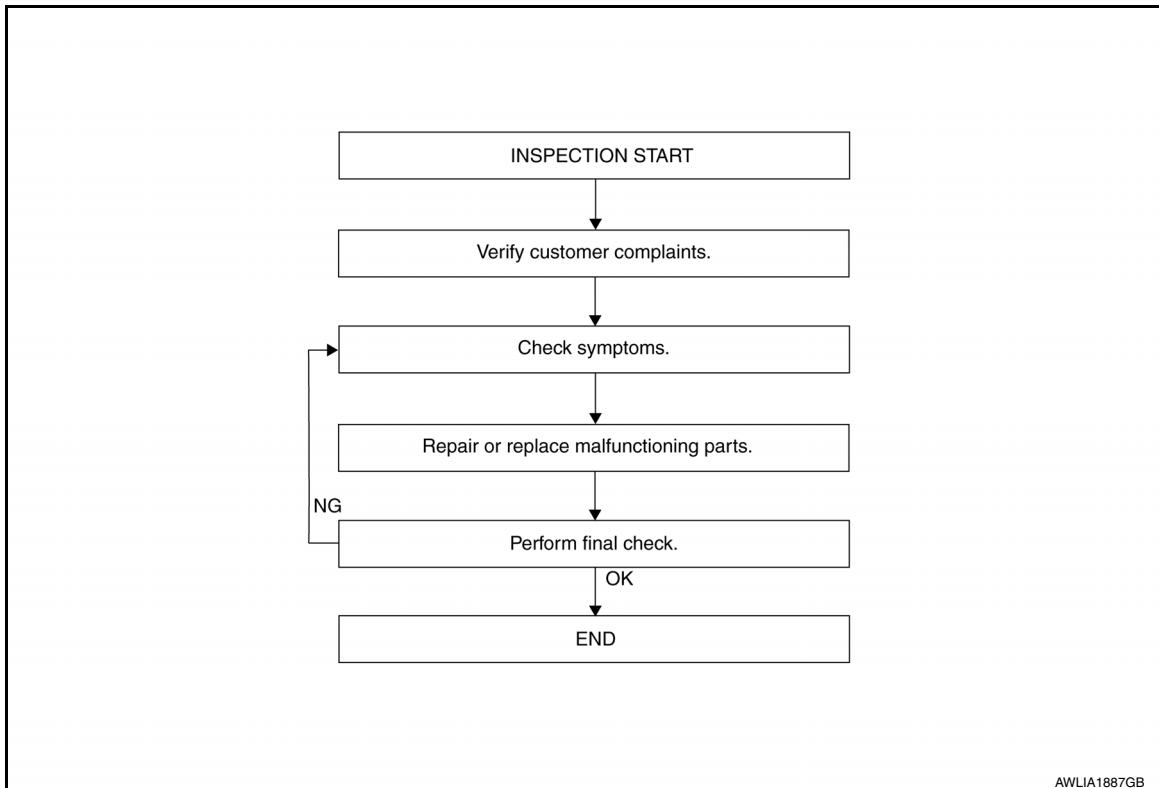
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000012433212

WORK FLOW



DETAILED FLOW

1. REVIEW CUSTOMER COMPLAINT

Review customer complaint. Try to obtain detailed information about the conditions when the symptom occurs.

>> GO TO 2.

2. VERIFY THE SYMPTOM

Verify the symptom by performing an operational check. Refer to [WW-8. "FRONT WIPER AND WASHER SYSTEM : System Description"](#).

>> GO TO 3.

3. PERFORM TROUBLE DIAGNOSIS BY SYMPTOM

Diagnose the vehicle by performing the appropriate trouble diagnosis. Refer to [WW-50. "Symptom Table"](#).

>> GO TO 4.

4. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the specific parts.

>> GO TO 5.

5. FINAL CHECK

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Perform a final inspection of the system.

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 3.

WIPER AND WASHER FUSE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

WIPER AND WASHER FUSE

Description

INFOID:0000000012433213

Component	Capacity	Fuse No.	Location
Front wiper motor	30A	39	IPDM E/R
Front and rear washer motor	10A	6	Fuse block (J/B)

Diagnosis Procedure

INFOID:0000000012433214

1. CHECK FUSES

Check that the following fuses are not blown.

Component	Capacity	Fuse No.	Location
Front wiper motor	30A	39	IPDM E/R
Front and rear washer motor	10A	6	Fuse block (J/B)

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
- NO >> Inspection End.

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FRONT WIPER MOTOR LO CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR LO CIRCUIT

Component Function Check

INFOID:000000012433215

1. CHECK FRONT WIPER LO OPERATION

⊗ IPDM E/R AUTO ACTIVE TEST

1. Start IPDM E/R auto active test. Refer to [PCS-9, "Diagnosis Description"](#).
2. Check that the front wiper operates on LO operation.

Ⓟ CONSULT ACTIVE TEST

1. Select FR WIPER of BCM (WIPER) active test item.
2. Check front wiper operation.

LO : Front wiper (LO) operation

OFF : Front wiper OFF

Is the inspection result normal?

- YES >> Front wiper motor LO circuit is normal.
NO >> Refer to [WW-36, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012433216

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not blown.

Component	Capacity	Fuse No.	Location
Front wiper motor	30A	39	IPDM E/R

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR (LO) OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. Select FR WIPER of BCM (WIPER) active test item.
3. While performing the active test, check voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal			
E45	17	LO	Battery voltage	
		OFF	0V	

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).

3. CHECK FRONT WIPER MOTOR (LO) OPEN CIRCUIT

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

FRONT WIPER MOTOR LO CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E45	17	E1	3	Yes

Is the inspection result normal?

- YES >> Replace front wiper motor. Refer to [WW-66, "Removal and Installation"](#).
- NO >> Repair or replace harness.

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FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:000000012433217

1. CHECK FRONT WIPER HI OPERATION

⊗ IPDM E/R AUTO ACTIVE TEST

1. Start IPDM E/R auto active test. Refer to [PCS-9, "Diagnosis Description"](#).
2. Check that the front wiper operates on HI operation.

Ⓟ CONSULT ACTIVE TEST

1. Select FR WIPER of BCM (WIPER) active test item.
2. Check front wiper operation.

HI : Front wiper (HI) operation

OFF : Front wiper OFF

Is the inspection result normal?

- YES >> Front wiper motor HI circuit is normal.
NO >> Refer to [WW-38, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012433218

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not blown.

Component	Capacity	Fuse No.	Location
Front wiper motor	30A	39	IPDM E/R

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR (HI) OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. Select FR WIPER of BCM (WIPER) active test item.
3. While performing the active test, check voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal			
E45	18	HI	Battery voltage	
		OFF	0V	

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).

3. CHECK FRONT WIPER MOTOR (HI) OPEN CIRCUIT

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

FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E45	18	E1	5	Yes

Is the inspection result normal?

- YES >> Replace front wiper motor. Refer to [WW-66, "Removal and Installation"](#).
- NO >> Repair or replace harness.

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FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:000000012433219

1. CHECK FRONT WIPER (AUTO STOP) SIGNAL

1. Select FR WIPER STOP of BCM (WIPER) data monitor item.
2. Operate the front wiper.
3. Check that FR WIPER STOP changes from ON to OFF according to the wiper position.

Data monitor	Condition		Status
FR WIPER STOP	Front wiper motor	Stop position	ON
		Except stop position	OFF

Is the inspection result normal?

- YES >> Front wiper auto stop signal circuit is normal.
NO >> Refer to [WW-40. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012433220

Regarding Wiring Diagram information, refer to [WW-22. "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR (AUTO STOP) OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. Check voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal		Except stop position	Battery voltage
E46	74		Stop position	0 V

Is the inspection result normal?

- YES >> Check for intermittent failure.
NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR (AUTO STOP) SHORT CIRCUIT

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

IPDM E/R		Ground	Continuity
Connector	Terminal		No
E46	74		No

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3. CHECK FRONT WIPER MOTOR (AUTO STOP) CIRCUIT CONTINUITY

Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E46	74	E1	4	Yes

Is the inspection result normal?

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

YES >> Replace front wiper motor. Refer to [WW-66. "Removal and Installation"](#).
NO >> Repair or replace harness.

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FRONT WIPER MOTOR GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000012433221

Regarding Wiring Diagram information, refer to [WW-22. "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR GROUND CIRCUIT

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

Front wiper motor		Ground	Continuity
Connector	Terminal		Yes
E1	2		

Is the inspection result normal?

- YES >> Front wiper motor ground circuit is normal.
NO >> Repair or replace harness.

WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER MOTOR CIRCUIT

Diagnosis Procedure

INFOID:000000012433222

Regarding Wiring Diagram information, refer to [WW-22. "Wiring Diagram"](#), [WW-28. "Wiring Diagram"](#).

1. CHECK FRONT AND REAR WASHER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not blown.

Component	Capacity	Fuse No.	Location
Front and rear washer motor	10A	6	Fuse block (J/B)

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK FRONT AND REAR WASHER MOTOR POWER SUPPLY

1. Disconnect front and rear washer motor.
2. Turn ignition switch ON.
3. Check voltage between front and rear washer motor harness connector and ground.

Front washer operation

Front and rear washer motor		Ground	Washer switch	Voltage (Approx.)
Connector	Terminal		OFF	0
E2	1		ON	Battery voltage

Rear washer operation

Front and rear washer motor		Ground	Washer switch	Voltage (Approx.)
Connector	Terminal		OFF	0
E2	2		ON	Battery voltage

Is the inspection result normal?

- YES >> Replace front and rear washer motor. Refer to [WW-58. "Removal and Installation"](#).
NO >> GO TO 3.

3. CHECK WASHER SWITCH

Check washer switch. Refer to [WW-44. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Repair harness between front and rear washer motor and washer switch.
NO >> Replace washer switch. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-138. "Removal and Installation"](#) (without Intelligent Key system).

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WASHER SWITCH

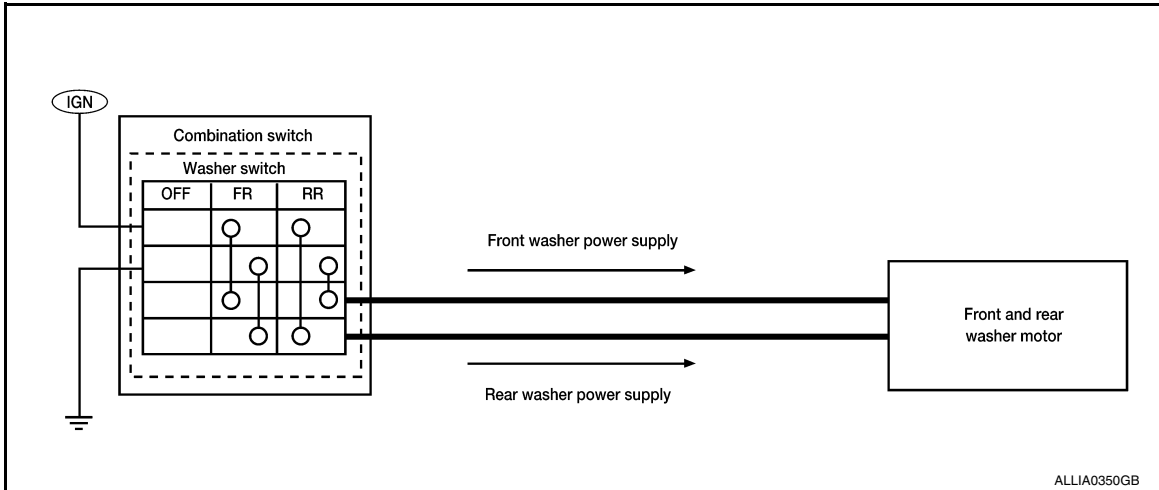
< DTC/CIRCUIT DIAGNOSIS >

WASHER SWITCH

Description

INFOID:000000012433223

- Washer switch is integrated with the combination switch.
- Combination switch (wiper and washer switch) switches polarity between front washer operating and rear washer operating to supply power and ground to the front and rear washer motor.



Component Inspection

INFOID:000000012433224

1. CHECK FRONT WASHER SWITCH

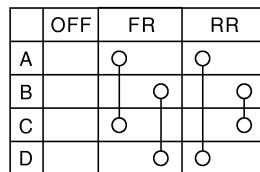
1. Turn the ignition switch OFF.
2. Disconnect combination switch (wiper and washer switch).
3. Check continuity between the combination switch (wiper and washer switch) terminals.

A: Terminal 4

B: Terminal 6

C: Terminal 3

D: Terminal 1



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Combination switch (wiper and washer switch)		Condition	Continuity
Terminal			
1	6	Front washer switch ON	Yes
3	4		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination switch (wiper and washer switch). Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-138, "Removal and Installation"](#) (without Intelligent Key system).

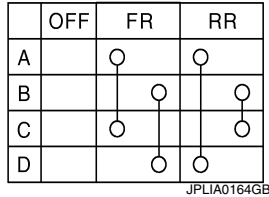
2. CHECK REAR WASHER SWITCH

1. Check continuity between the combination switch (wiper and washer switch) terminals.

WASHER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

- A: Terminal 4
- B: Terminal 6
- C: Terminal 3
- D: Terminal 1



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Combination switch (wiper and washer switch)		Condition	Continuity
Terminal			
1	4	Rear washer switch ON	Yes
6	3		

Is the inspection result normal?

- YES >> Wiper and washer switch is normal.
- NO >> Replace combination switch (wiper and washer switch). Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-138. "Removal and Installation"](#) (without Intelligent Key system).

WW

REAR WIPER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

REAR WIPER MOTOR CIRCUIT

Component Function Check

INFOID:000000012433225

1. CHECK REAR WIPER ON OPERATION

ⓅCONSULT ACTIVE TEST

1. Select "RR WIPER" of BCM active test item.
2. While operating the test item, check rear wiper operation.

ON : Rear wiper ON operation

OFF : Stop the rear wiper.

Is rear wiper operation normal?

- YES >> Rear wiper motor circuit is normal.
NO >> Refer to [WW-46, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012433226

Regarding Wiring Diagram information, refer to [WW-28, "Wiring Diagram"](#).

1. CHECK REAR WIPER MOTOR OUTPUT VOLTAGE

ⓅCONSULT ACTIVE TEST

1. Turn the ignition switch OFF.
2. Disconnect rear wiper motor.
3. Turn the ignition switch ON.
4. Select RR WIPER of BCM active test item.
5. While operating the test item, check voltage between BCM harness connector and ground.

With Intelligent Key system

BCM		Ground	Test item	Voltage (Approx.)
Connector	Terminal		REAR WIPER	
M100	54		ON	Battery voltage
			OFF	0V

Without Intelligent Key system

BCM		Ground	Test item	Voltage (Approx.)
Connector	Terminal		REAR WIPER	
M20	68		ON	Battery voltage
			OFF	0V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 3.

2. CHECK REAR WIPER MOTOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check continuity between rear wiper motor harness connector and ground.

Rear wiper motor		Ground	Continuity
Connector	Terminal		
D502	4		Yes

Is the inspection result normal?

- YES >> Replace rear wiper motor. Refer to [WW-72, "Removal and Installation"](#).
NO >> Repair or replace harness.

REAR WIPER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

3. CHECK REAR WIPER MOTOR OPEN CIRCUIT

Check continuity between BCM harness connector and rear wiper motor harness connector.

With Intelligent Key system

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M100	54	D502	2	Yes

Without Intelligent Key system

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M20	68	D502	2	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4. CHECK REAR WIPER MOTOR SHORT CIRCUIT

Check continuity between BCM harness connector and ground.

With Intelligent Key system

BCM		Ground	Continuity
Connector	Terminal		
M100	54		No

Without Intelligent Key system

BCM		Ground	Continuity
Connector	Terminal		
M20	68		No

Is the inspection result normal?

YES >> Repair or replace harness.

NO >> Replace BCM. Refer to [BCS-74. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-137. "Removal and Installation"](#) (without Intelligent Key system).

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REAR WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

REAR WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:000000012433227

1. CHECK REAR WIPER (AUTO STOP) OPERATION

Ⓢ CONSULT DATA MONITOR

1. Select WIPER of BCM data monitor item.
2. Operate the rear wiper.
3. Check that RR WIPER STOP changes to ON and OFF linked with the wiper operation.

Monitor item	Condition		Monitor status
RR WIPER STOP	Rear wiper motor	Stop position	ON
		Except stop position	OFF

Is the inspection result normal?

- YES >> Rear wiper auto stop signal circuit is normal.
 NO >> Refer to [WW-48, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012433228

Regarding Wiring Diagram information, refer to [WW-28, "Wiring Diagram"](#).

1. CHECK REAR WIPER MOTOR AUTO STOP CIRCUITS FOR OPEN

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

With Intelligent Key system

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M100	44	D502	3	Yes

Without Intelligent Key system

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M20	56	D502	3	Yes

Is inspection result normal?

- YES >> GO TO 2.
 NO >> Repair or replace harness.

2. CHECK AUTO STOP CIRCUITS FOR SHORT TO GROUND

Check continuity between BCM harness connector terminal and ground.

With Intelligent Key system

BCM		Ground	Continuity
Connector	Terminal		
M100	44		No

Without Intelligent Key system

BCM		Ground	Continuity
Connector	Terminal		
M20	56		No

REAR WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is inspection result normal?

- YES >> Replace BCM. Refer to [BCS-74, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-137, "Removal and Installation"](#) (with Intelligent Key system).
- NO >> Repair or replace harness.

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WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

WIPER AND WASHER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000012433229

CAUTION:

Perform the self-diagnosis with CONSULT before performing the diagnosis by symptom. Perform the diagnosis by DTC if DTC is detected.

Symptom		Possible malfunction	Reference
Front wiper does not operate in...	HI only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
		<ul style="list-style-type: none"> IPDM E/R Harness between IPDM E/R and front wiper motor Front wiper motor 	Front wiper motor (HI) circuit Refer to WW-38, "Component Function Check" .
		Front wiper request signal (IPDM E/R)	Check FR WIP REQ in DATA MONITOR of IPDM E/R. Refer to PCS-10, "CONSULT Function (IPDM E/R)" .
	LO and INT	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
		<ul style="list-style-type: none"> IPDM E/R Harness between IPDM E/R and front wiper motor Front wiper motor 	Front wiper motor (LO) circuit Refer to WW-36, "Component Function Check" .
		Front wiper request signal (IPDM E/R)	Check FR WIP REQ in DATA MONITOR of IPDM E/R. Refer to PCS-10, "CONSULT Function (IPDM E/R)" .
	INT only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
		Front wiper request signal (IPDM E/R)	Check FR WIP REQ in DATA MONITOR of IPDM E/R. Refer to PCS-10, "CONSULT Function (IPDM E/R)" .
	Any mode	—	Refer to WW-53, "Diagnosis Procedure" .

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Possible malfunction	Reference
Front wiper does not stop in...	Any mode	Front wiper auto stop signal (IPDM E/R)	Refer to WW-40, "Component Function Check" .
		<ul style="list-style-type: none"> Combination switch (wiper and washer switch) BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
Front wiper operates abnormally because...	Intermittent adjustments cannot be made.	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
	Wiper/washer will not operate together.	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
	Wipers will not return to stop position (repeatedly operates for 10 seconds and then stops for 20 seconds. Wipers then stop operating).	<ul style="list-style-type: none"> IPDM E/R Harness between IPDM E/R and front wiper motor Front wiper motor 	Front wiper auto stop signal circuit Refer to WW-40, "Component Function Check" .
Rear wiper does not operate.	ON only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
	INT only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
	ON and INT	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
		<ul style="list-style-type: none"> BCM Harness between rear wiper motor and BCM Harness between rear wiper motor and ground Rear wiper motor 	Rear wiper motor circuit Refer to WW-46, "Diagnosis Procedure" .

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WW

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Possible malfunction	Reference
Rear wiper does not stop.	ON only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) BCM 	Rear wiper motor circuit Refer to WW-46, "Diagnosis Procedure" .
	INT only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
Rear wiper does not operate normally.	Wiper is not linked to the washer operation.	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between rear wiper motor and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
		BCM	—
	Rear wiper does not return to the Stop position (Stops after a five-second operation).	<ul style="list-style-type: none"> BCM Harness between rear wiper motor and BCM Rear wiper motor 	Rear wiper auto stop signal circuit Refer to WW-48, "Diagnosis Procedure" .
Front and rear washer motor does not operate.	Front and rear washer motor does not operate when the washing windshield.	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-72, "Symptom Table" (with Intelligent Key system) or BCS-134, "Symptom Table" (without Intelligent Key system).
		<ul style="list-style-type: none"> Harness between rear combination switch (wiper and washer switch) and front and rear washer motor. Front and rear washer motor 	Front and rear washer motor circuit Refer to WW-43, "Diagnosis Procedure" .

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

FRONT WIPER DOES NOT OPERATE

Description

INFOID:000000012433230

The front wiper does not operate under any operation conditions.

Diagnosis Procedure

INFOID:000000012433231

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK WIPER RELAY OPERATION

⊗ IPDM E/R AUTO ACTIVE TEST

1. Start IPDM E/R auto active test. Refer to [PCS-9, "Diagnosis Description"](#).
2. Check that the front wiper operates on LO and HI operation.

Ⓜ CONSULT ACTIVE TEST

1. Select FR WIPER of BCM (WIPER) active test item.
2. Check front wiper operation.

- LO** : Front wiper LO operation
- HI** : Front wiper HI operation
- OFF** : Front wiper stop

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR FUSE

Refer to [WW-35, "Diagnosis Procedure"](#).

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
- NO >> GO TO 3.

3. CHECK FRONT WIPER MOTOR GROUND CIRCUIT

Refer to [WW-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair or replace harness.

4. CHECK FRONT WIPER MOTOR OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. With CONSULT, select FRONT WIPER of IPDM E/R ACTIVE TEST item.
3. Check voltage between IPDM E/R harness connector and ground while wipers are operating.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal			
E45	17		LO	Battery voltage
			OFF	0 V
	18		HI	Battery voltage
			OFF	0 V

Is the inspection result normal?

- YES >> Replace front wiper motor. Refer to [WW-66, "Removal and Installation"](#).
- NO >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).

5. CHECK FRONT WIPER REQUEST SIGNAL INPUT

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

1. With CONSULT, select FR WIP REQ in DATA MONITOR of IPDM E/R.
2. Switch the front wiper switch to HI and LO.
3. Check the status of FR WIP REQ while operating the switch.

Data monitor	Condition	Status
FR WIP REQ	Front wiper switch OFF	STOP
	Front wiper switch LO	LOW
	Front wiper switch HI	HI

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).
NO >> GO TO 6.

6. CHECK COMBINATION SWITCH (WIPER AND WASHER SWITCH)

Check combination switch (wiper and washer switch). Refer to [BCS-72, "Symptom Table"](#) (with Intelligent Key system) or [BCS-134, "Symptom Table"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-74, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-137, "Removal and Installation"](#) (without Intelligent Key system).
NO >> Repair or replace the applicable parts.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Description

INFOID:000000012433232

FRONT WIPER PROTECTION FUNCTION

IPDM E/R detects front wiper stop position by a front wiper stop position signal.

When a front wiper stop position signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop.

Ignition switch	Front wiper switch	Front wiper stop position signal
ON	OFF	The front wiper stop position signal (stop position) cannot be input for 10 seconds.
	ON	The front wiper stop position signal does not change for 10 seconds.

NOTE:

This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

REAR WIPER MOTOR PROTECTION FUNCTION

- BCM may stop rear wiper to protect the rear wiper motor when the rear wiper is stopped for 5 seconds or more due to a snowfall.
- Rear wiper operates normally one minute after the obstacles are removed with rear wiper OFF.

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WW

WASHER TANK

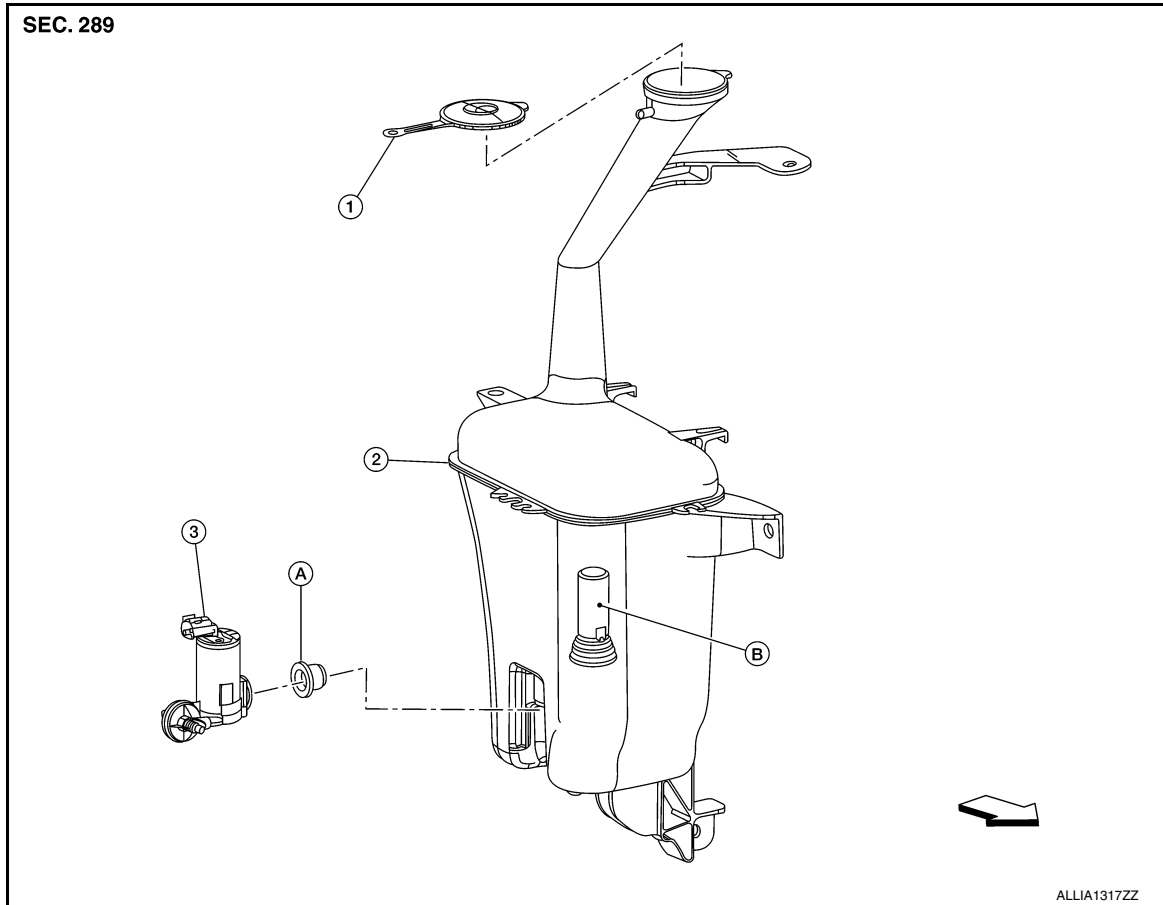
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

WASHER TANK

Exploded View

INFOID:000000012433233



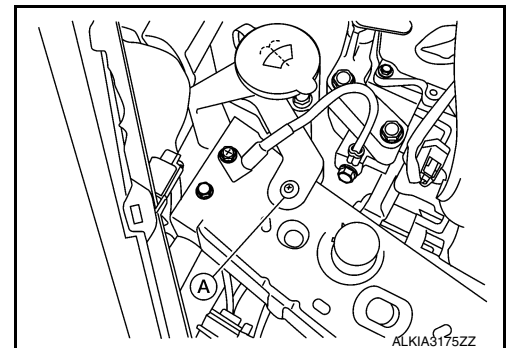
- | | | |
|----------------------------|--|-----------------------|
| 1. Washer tank cap | 2. Washer tank | 3. Front washer motor |
| A. Front washer motor seal | B. Washer fluid level switch (if equipped) | ⇐ Front |

Removal and Installation

INFOID:000000012433234

REMOVAL

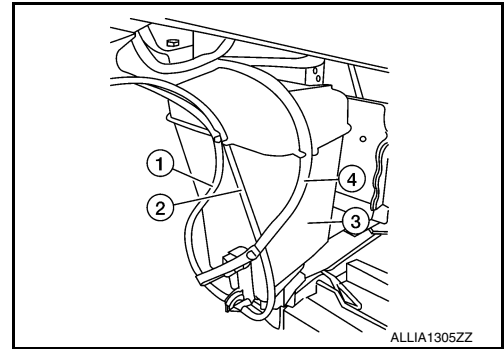
1. Remove front under cover. Refer to [EXT-39. "FRONT UNDER COVER : Removal and Installation"](#).
2. Remove fender protector (RH). Refer to [EXT-38. "Removal and Installation"](#).
3. Remove washer tank clip (A) using a suitable tool.



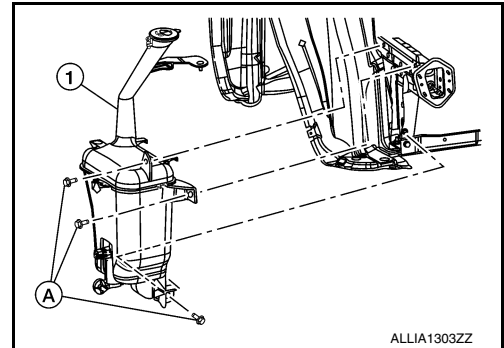
WASHER TANK

< REMOVAL AND INSTALLATION >

4. Release the front washer tube (2) and rear washer tube (1) from washer tank (3).
5. Release the harness (4) from the washer tank (3).



6. Disconnect the harness connector from the front washer motor.
7. Remove bolts (A) and washer tank (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation, add water to the top of the washer tank inlet to check that no leaks exist.
- Fill washer tank with specified amount of fluid. Refer to [WW-76, "Specifications"](#).

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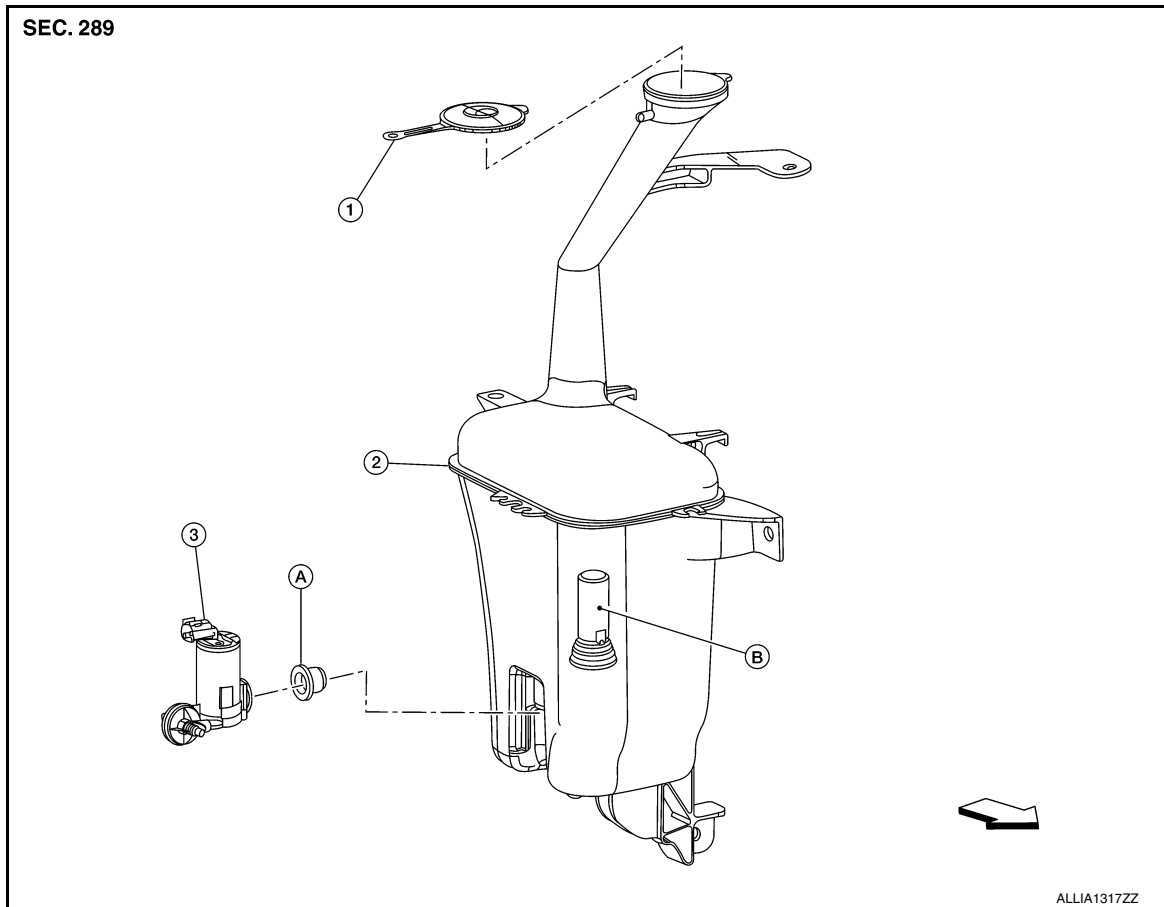
FRONT WASHER MOTOR

< REMOVAL AND INSTALLATION >

FRONT WASHER MOTOR

Exploded View

INFOID:000000012433235



- | | | |
|----------------------------|--|-----------------------|
| 1. Washer tank cap | 2. Washer tank | 3. Front washer motor |
| A. Front washer motor seal | B. Washer fluid level switch (if equipped) | ← Front |

Removal and Installation

INFOID:000000012433236

REMOVAL

1. Remove front under cover. Refer to [EXT-39, "FRONT UNDER COVER : Removal and Installation"](#).
2. Remove fender protector (RH). Refer to [EXT-38, "Removal and Installation"](#).
3. Disconnect the harness connector from the front washer motor.
4. Remove front washer tube and rear washer tube from front washer motor.
5. Remove front washer motor from washer tank.
6. Remove front washer motor seal from washer tank.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not rotate or damage the front washer motor seal when installing the front washer motor.

WASHER FLUID LEVEL SWITCH

< REMOVAL AND INSTALLATION >

WASHER FLUID LEVEL SWITCH

Removal and Installation

INFOID:000000012433237

The washer fluid level switch is serviced as part of the washer tank. Refer to [WW-56. "Removal and Installation"](#).

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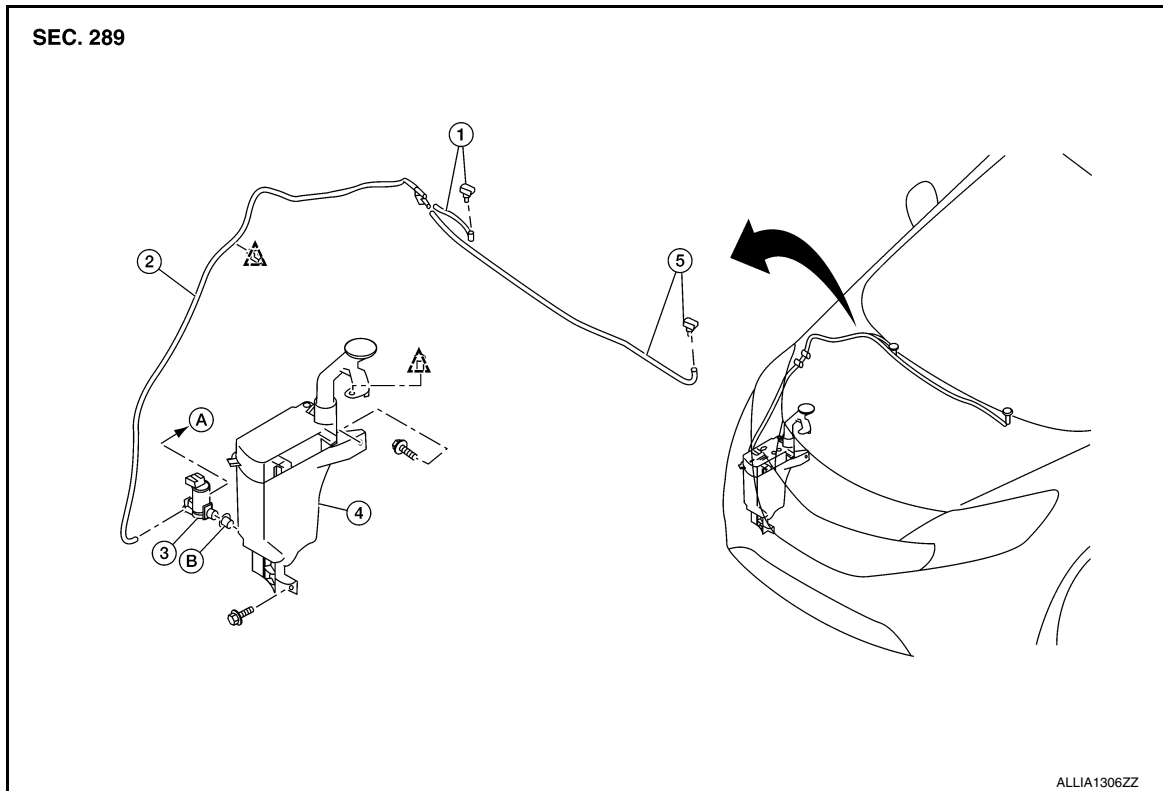
FRONT WASHER NOZZLE AND TUBE


< REMOVAL AND INSTALLATION >

FRONT WASHER NOZZLE AND TUBE

Exploded View

INFOID:000000012433238



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|-----------------------------|--|-----------------------|
| 1. Front washer nozzle (RH) | 2. Front washer tube | 3. Front washer motor |
| 4. Washer tank | 5. Front washer nozzle (LH) | A. To rear washer |
| B. Washer pump seal |  Clip | |

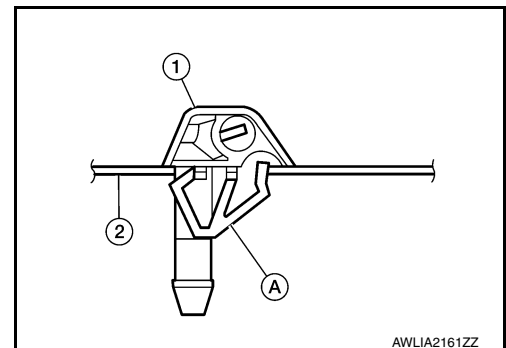
WASHER NOZZLE

WASHER NOZZLE : Removal and Installation

INFOID:000000012433239

REMOVAL

1. Remove cowl top cover. Refer to [EXT-37, "Removal and Installation"](#).
2. Disconnect front washer tube from front washer nozzle (1).
3. Place cowl top cover (2) up side down and release front washer nozzle pawl (A) using a suitable tool to remove.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

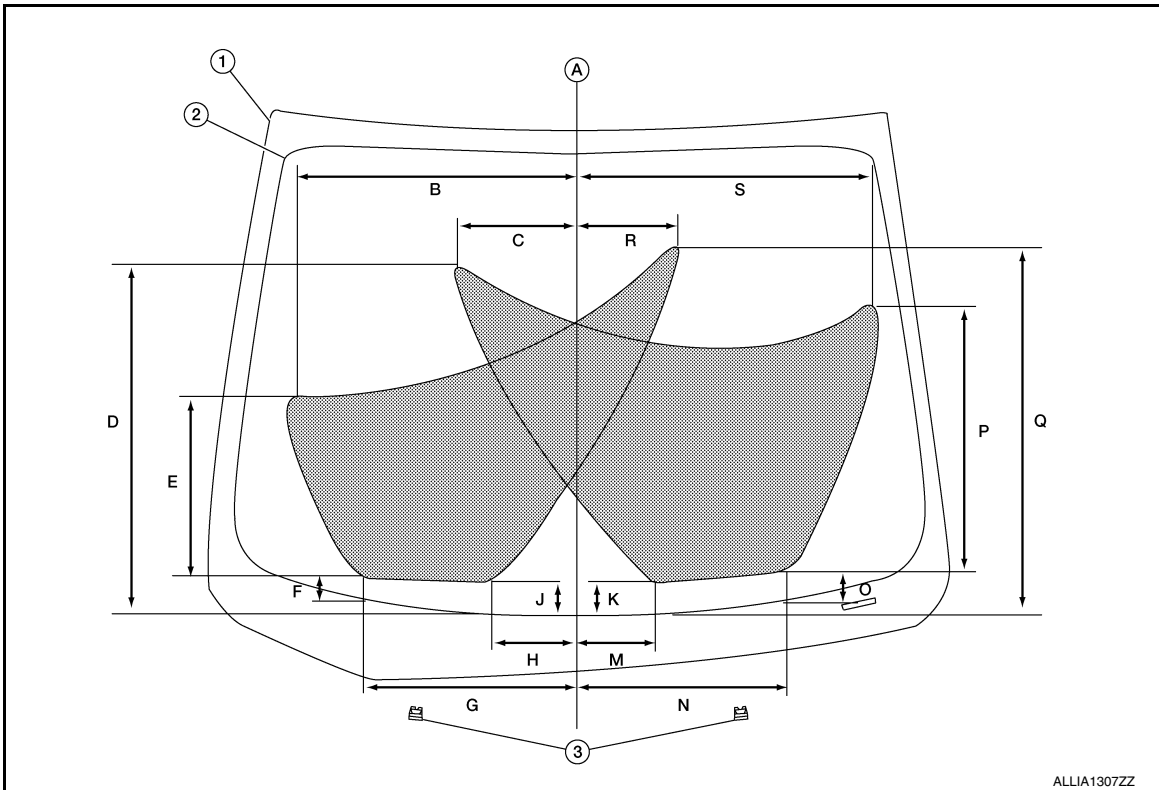
After installation, adjust the nozzle spray pattern. Refer to [WW-61, "WASHER NOZZLE : Adjustment"](#).

FRONT WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

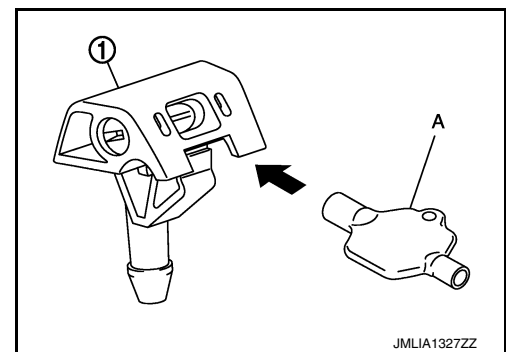
WASHER NOZZLE : Adjustment

INFOID:000000012433240



- | | | |
|------------------------|----------------------------|--------------------------------|
| 1. Windshield glass | 2. Black printed area line | 3. Front washer nozzle (LH/RH) |
| A. Center line | B. 509.7 mm (20.07 in) | C. 215.7 mm (8.49 in) |
| D. 614.5 mm (24.19 in) | E. 329.1 mm (12.96 in) | F. 41.0 mm (1.61 in) |
| G. 379.6 mm (14.94 in) | H. 161.1 mm (6.34 in) | J. 58.6 mm (2.31 in) |
| K. 58.0 mm (2.28 in) | M. 142.0 mm (5.59 in) | N. 365.9 mm (14.41 in) |
| O. 54.7 mm (2.15 in) | P. 492.5 mm (19.39 in) | Q. 652.2 mm (25.68 in) |
| R. 174.3 mm (6.86 in) | S. 520.7 mm (20.50 in) | |

If washer nozzle (1) spray pattern is not within specification, adjust using a suitable tool (A).



WASHER TUBE

WASHER TUBE : Removal and Installation

INFOID:000000012433241

REMOVAL

1. Remove fender protector (RH). Refer to [EXT-38, "Removal and Installation"](#).
2. Remove front washer tube from washer pump.
3. Remove cowl top cover. Refer to [EXT-37, "Removal and Installation"](#).
4. Release the clips that retain the front washer tube to the vehicle body using a suitable tool and remove.

FRONT WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

WASHER TUBE : Inspection

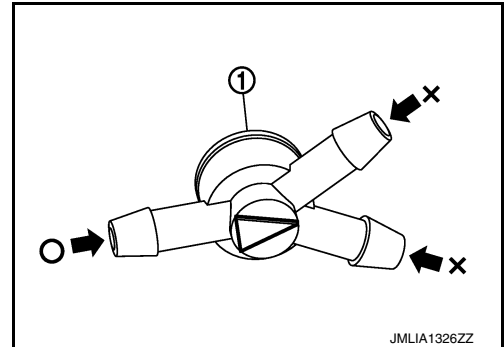
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INSPECTION

Check that air can pass through the nozzle (1) by blowing into the nozzle and that air cannot flow in the opposite direction.

O: Air can flow

X: Air cannot flow



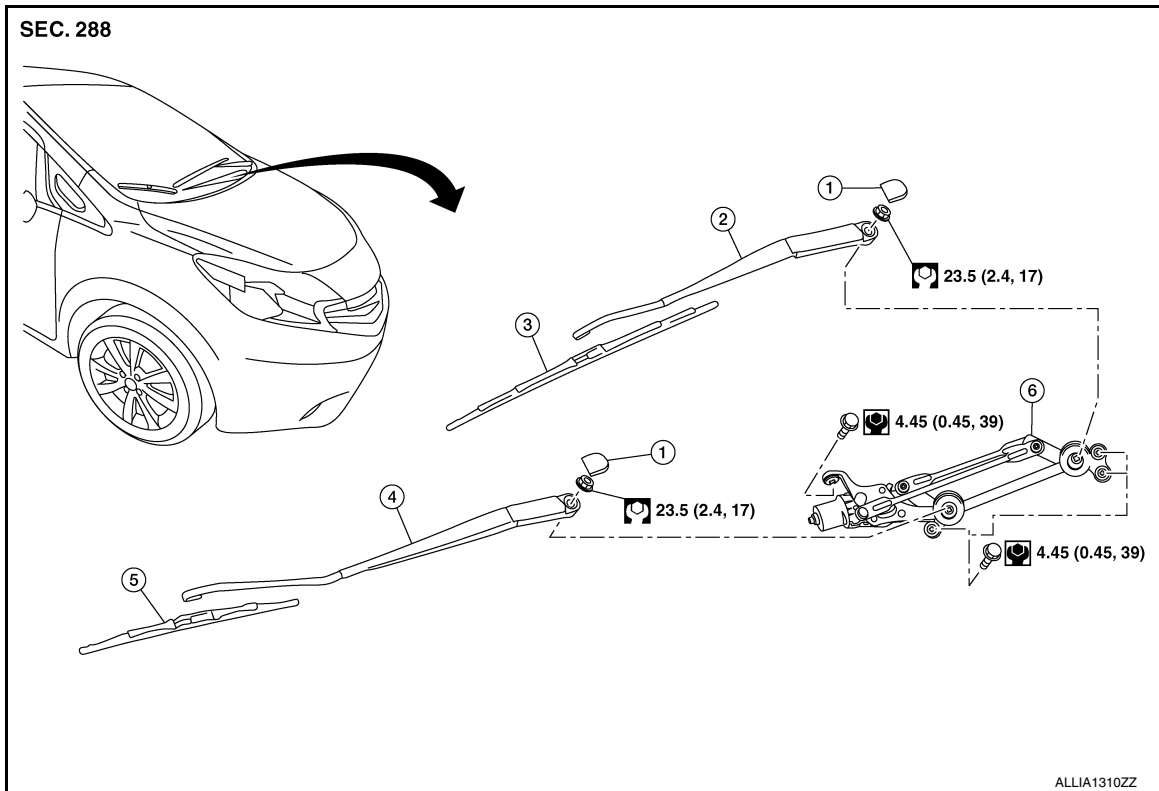
FRONT WIPER ARM

< REMOVAL AND INSTALLATION >

FRONT WIPER ARM

Exploded View

INFOID:000000012433243



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|--------------------------|---------------------|----------------------|
| 1. Wiper arm cap (LH/RH) | 2. Wiper arm (LH) | 3. Wiper blade (LH) |
| 4. Wiper arm (RH) | 5. Wiper blade (RH) | 6. Front wiper drive |

Removal and Installation

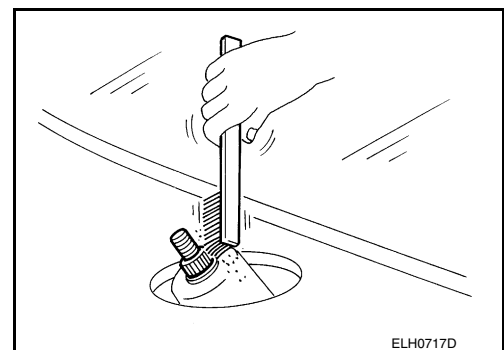
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REMOVAL

1. Open hood.
2. Operate wiper to move it to the auto stop position.
3. Remove wiper arm cap.
4. Remove wiper arm nut and wiper arm.

INSTALLATION

1. Clean wiper arm mount as shown. This will reduce the possibility of wiper arm looseness.



2. Operate wiper motor to move the wiper to the auto stop position.
3. Adjust the front wiper blade position. Refer to [WW-64, "Adjustment"](#).

FRONT WIPER ARM

< REMOVAL AND INSTALLATION >

4. Install front wiper arm and front wiper arm nut.

CAUTION:

Tighten front wiper arm nut to specification. Refer to [WW-63, "Exploded View"](#).

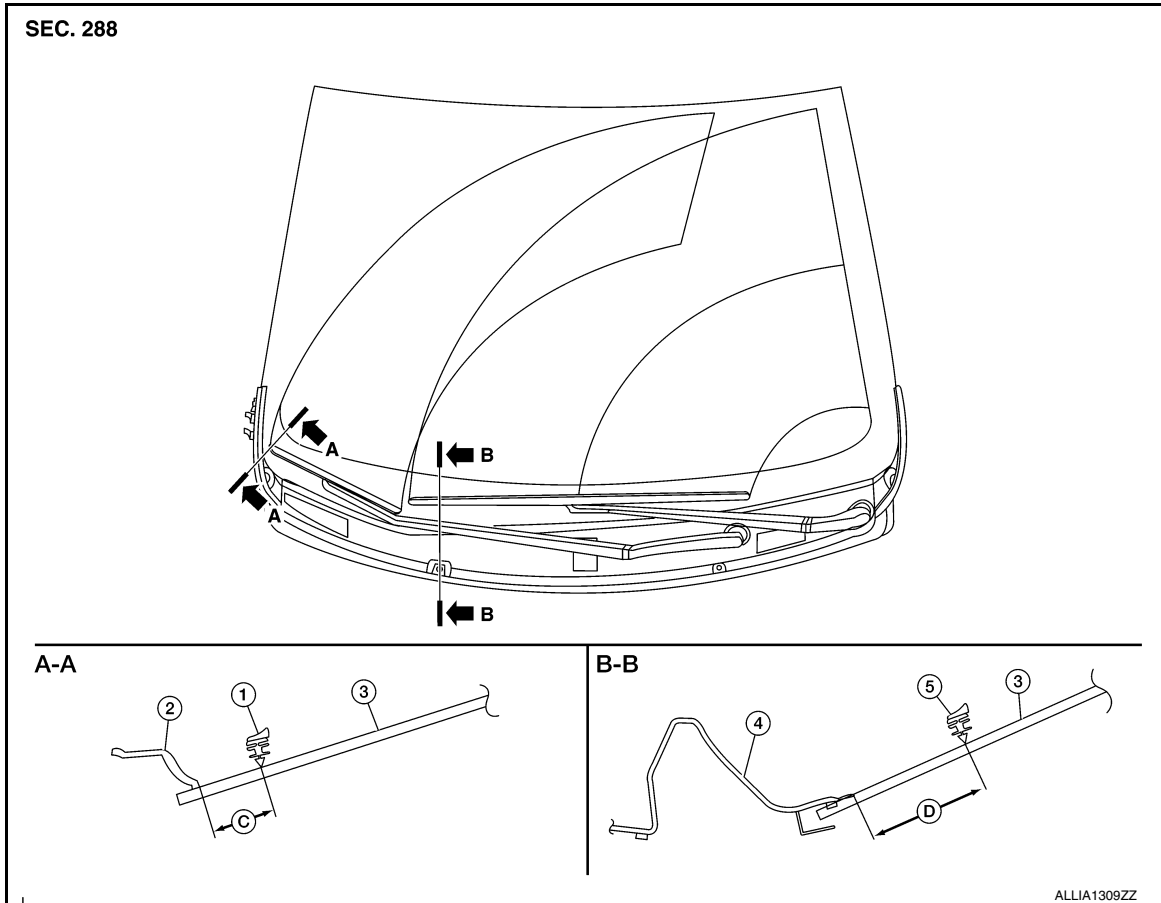
5. Install front wiper arm cap.

6. Check that wiper blades stop at the specified position. Refer to [WW-64, "Adjustment"](#).

Adjustment

INFOID:000000012433245

WIPER BLADE POSITION ADJUSTMENT



- | | | |
|---|----------------------|---|
| 1. Wiper blade (RH) | 2. Front fender (RH) | 3. Windshield glass |
| 4. Cowl top cover | 5. Wiper blade (LH) | C. 28.0 ± 7.5 mm (1.10 \pm 0.30 in) |
| D. 60.7 ± 7.5 mm (2.39 \pm 0.30 in) | | |

FRONT WIPER BLADE

< REMOVAL AND INSTALLATION >

FRONT WIPER BLADE

Removal and Installation

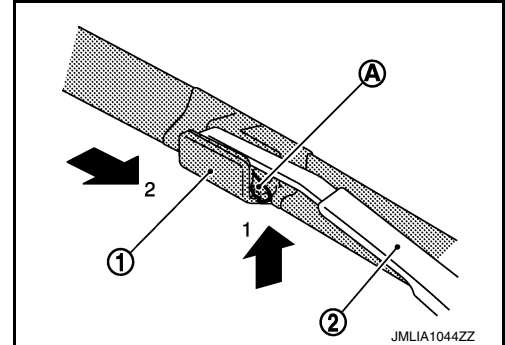
INFOID:000000012433246

REMOVAL

1. Lift up wiper arm and set to the position where wiper arm can be locked back.
2. Push the release tab (A) of the front wiper blade (1), then move the front wiper blade down the front wiper arm (2) to remove.

CAUTION:

Be careful not to drop the wiper arm onto the windshield glass.



INSTALLATION

Insert the front wiper blade onto the front wiper arm until it clicks into place.

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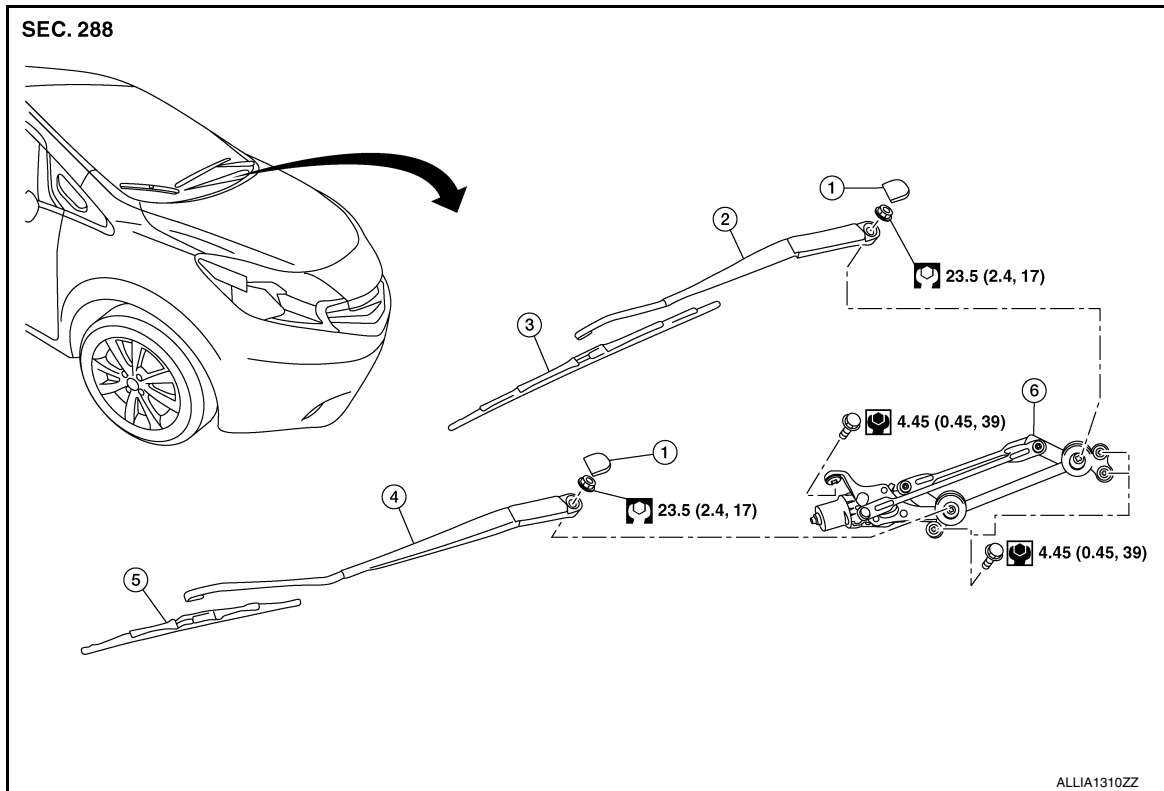
FRONT WIPER DRIVE ASSEMBLY

< REMOVAL AND INSTALLATION >

FRONT WIPER DRIVE ASSEMBLY

Exploded View

INFOID:000000012433247



- | | | |
|--------------------------|---------------------|-------------------------------|
| 1. Wiper arm cap (LH/RH) | 2. Wiper arm (LH) | 3. Wiper blade (LH) |
| 4. Wiper arm (RH) | 5. Wiper blade (RH) | 6. Front wiper drive assembly |

Removal and Installation

INFOID:000000012433248

REMOVAL

1. Remove cowl top cover. Refer to [EXT-37, "Removal and Installation"](#).
2. Disconnect the harness connector from front wiper motor.
3. Remove bolts and front wiper drive assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

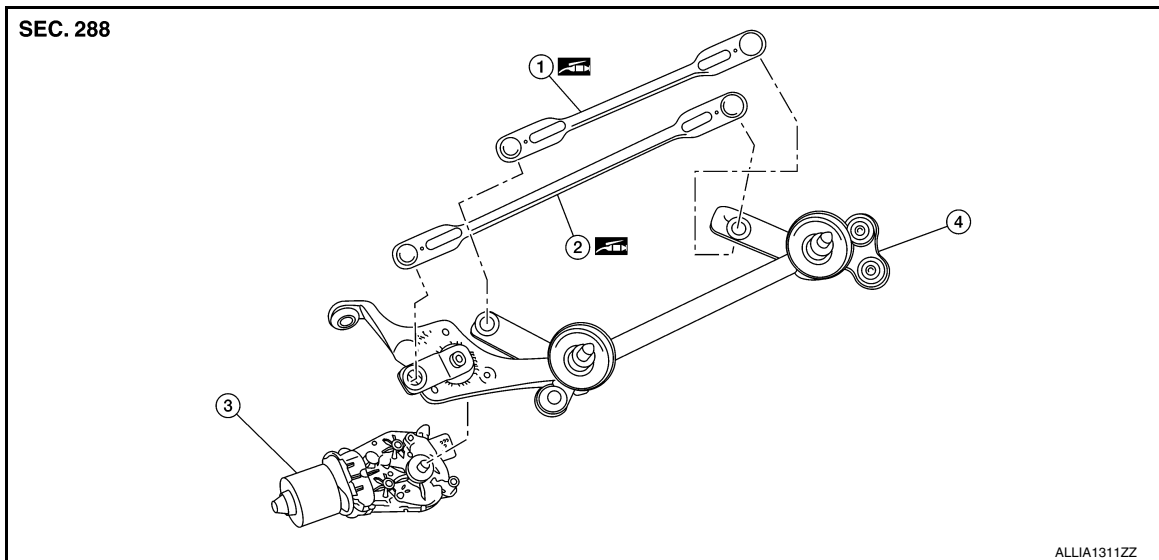
Tighten front wiper drive assembly bolts to specification. Refer to [WW-66, "Exploded View"](#).

FRONT WIPER DRIVE ASSEMBLY

< REMOVAL AND INSTALLATION >

Exploded View

INFOID:000000012433249



1. Wiper linkage 2
2. Wiper linkage 1
3. Front wiper motor
4. Front wiper drive

Disassembly and Assembly

INFOID:000000012433250

DISASSEMBLY

1. Remove front wiper drive assembly. Refer to [WW-66, "Removal and Installation"](#).
2. Remove wiper linkage 1 and 2 from the front wiper drive.
CAUTION:
Do not bend the linkage or damage the plastic part of the ball joint when removing the wiper linkage.
3. Remove screws and wiper motor from front wiper drive.

ASSEMBLY

1. Install wiper motor screws and wiper motor to front wiper drive.
2. Install wiper linkage 2 to the front wiper drive.
CAUTION:
 - Do not drop wiper motor or cause it to come into contact with other parts.
 - Be careful of the grease condition at the wiper motor and wiper linkage joint (retainer). Apply a suitable multi-purpose grease if necessary.
3. Install wiper linkage 1 to the wiper motor and the front wiper drive.
4. Install front wiper drive assembly. Refer to [WW-66, "Removal and Installation"](#).

WIPER AND WASHER SWITCH

< REMOVAL AND INSTALLATION >

WIPER AND WASHER SWITCH

Removal and Installation

INFOID:000000012433251

The wiper and washer switch is part of the combination switch. Refer to [EXL-107. "Removal and Installation"](#).

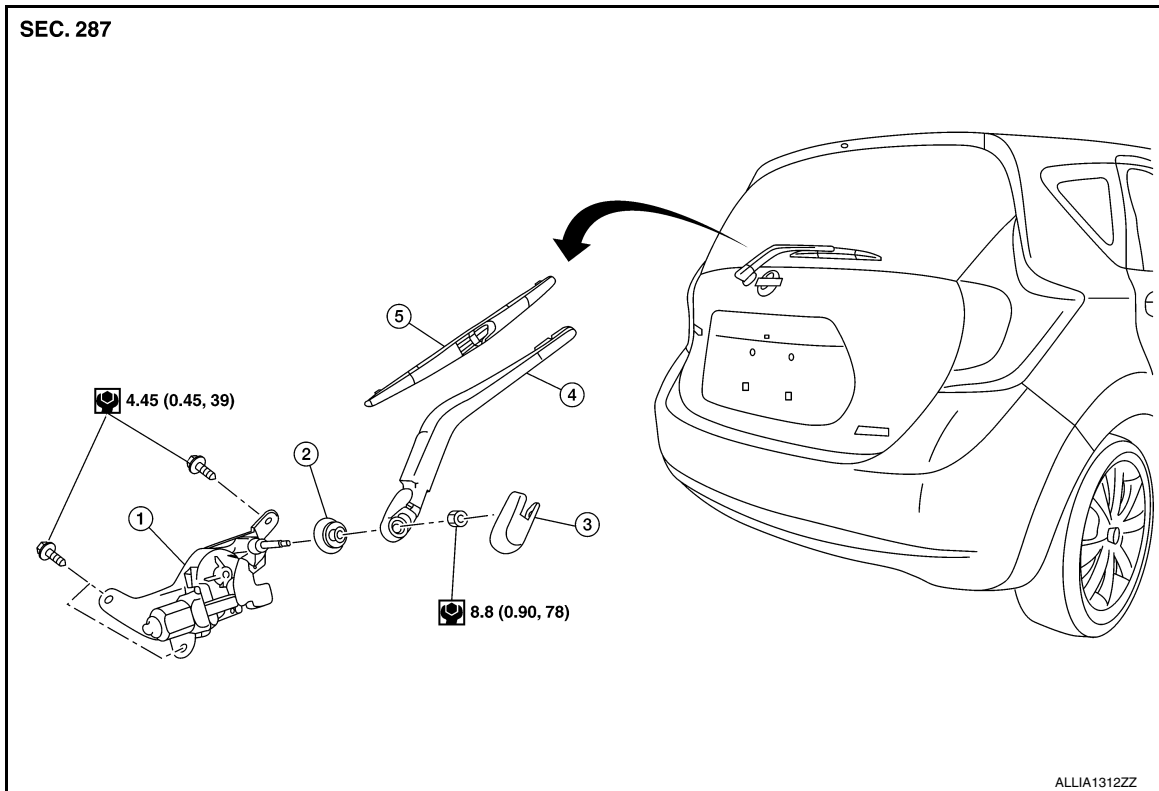
REAR WIPER ARM

< REMOVAL AND INSTALLATION >

REAR WIPER ARM

Exploded View

INFOID:000000012433252



- | | | |
|---------------------|------------------------|-------------------------|
| 1. Rear wiper motor | 2. Rear wiper arm seal | 3. Rear wiper arm cover |
| 4. Rear wiper arm | 5. Rear wiper blade | |

Removal and Installation

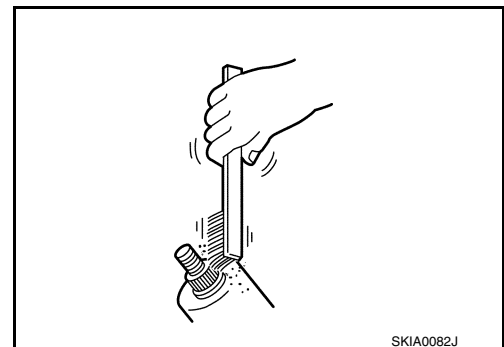
INFOID:000000012433253

REMOVAL

1. Operate the rear wiper to move it to the auto stop position.
2. Remove rear wiper arm cover.
3. Remove nut and rear wiper arm.

INSTALLATION

1. Clean the rear wiper arm as shown. This will reduce the possibility of wiper arm looseness.



2. Adjust the rear wiper blade position. Refer to [WW-70. "Adjustment"](#).
3. Install the rear wiper arm and nut.
4. Install the rear wiper arm cover.
5. Check that the rear wiper blade stops at the specified position. Refer to [WW-70. "Adjustment"](#).

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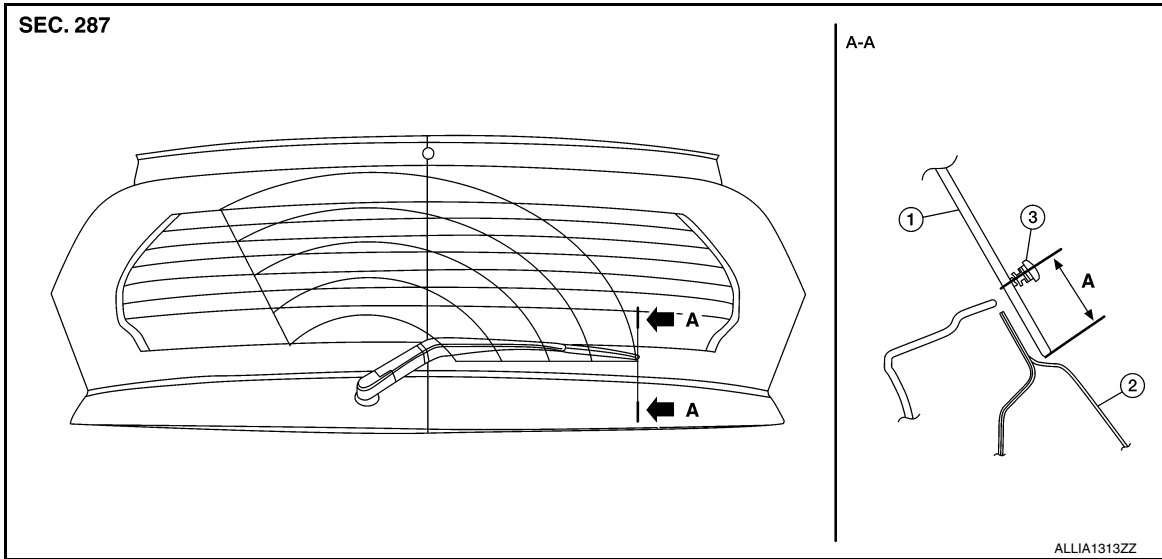
REAR WIPER ARM

< REMOVAL AND INSTALLATION >

Adjustment

INFOID:000000012433254

WIPER BLADE POSITION ADJUSTMENT



- 1. Back door window glass
- A. 30.7 ± 7.5 mm (1.21 ± 0.30 in)

- 2. Back door

- 3. Rear wiper blade

REAR WIPER BLADE

< REMOVAL AND INSTALLATION >

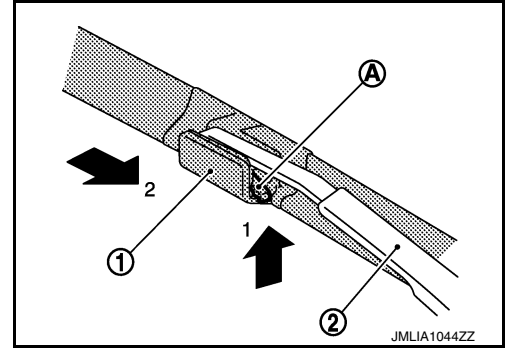
REAR WIPER BLADE

Removal and Installation

INFOID:000000012433255

REMOVAL

1. Lift the rear wiper arm and blade assembly away from the back window glass.
2. Push the release tab (A) of the rear wiper blade (1), then move the rear wiper blade down the rear wiper arm (2) to remove.



INSTALLATION

1. Insert the rear wiper blade onto the rear wiper arm until it clicks into place.

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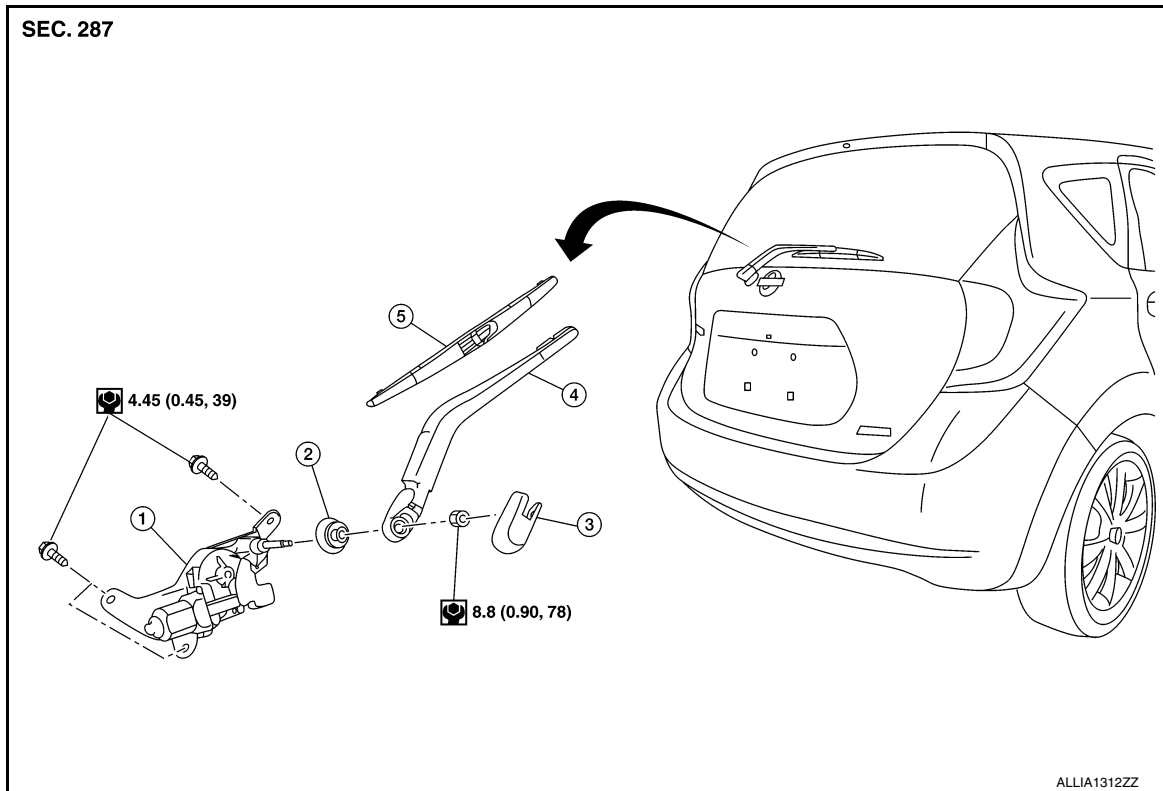
REAR WIPER MOTOR

< REMOVAL AND INSTALLATION >

REAR WIPER MOTOR

Exploded View

INFOID:000000012433256



- | | | |
|---------------------|------------------------|-------------------------|
| 1. Rear wiper motor | 2. Rear wiper arm seal | 3. Rear wiper arm cover |
| 4. Rear wiper arm | 5. Rear wiper blade | |

Removal and Installation

INFOID:000000012433257

REMOVAL

1. Remove rear wiper arm. Refer to [WW-69, "Removal and Installation"](#).
2. Remove back door inner finisher. Refer to [INT-36, "BACK DOOR INNER FINISHER : Removal and Installation"](#).
3. Disconnect the harness connector from the rear wiper motor.
4. Remove bolts and rear wiper motor.

INSTALLATION

Installation is in the reverse order of removal.

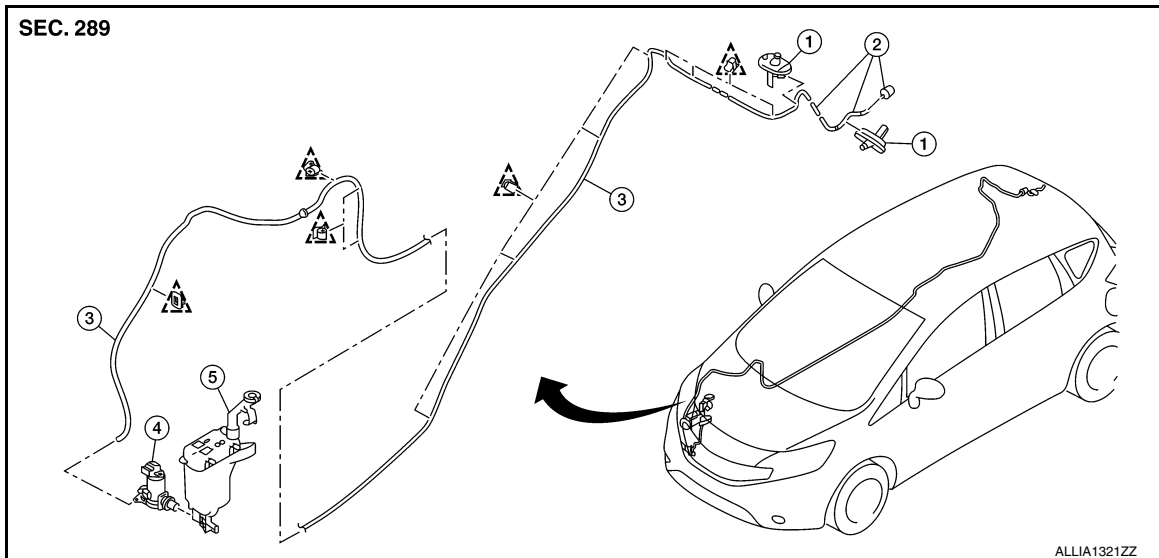
REAR WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

REAR WASHER NOZZLE AND TUBE

Component Parts Location

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- 1. Grommet
 - 2. Rear washer nozzle
 - 3. Rear washer tube
 - 4. Front washer motor
 - 5. Washer tank
- △ Clip

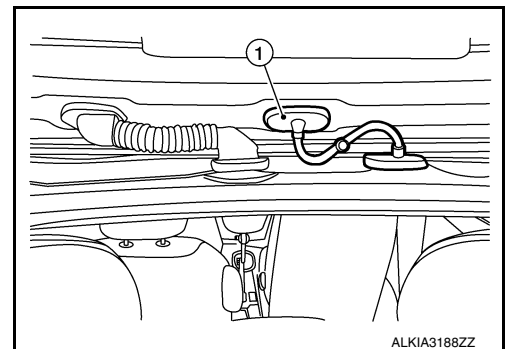
WASHER NOZZLE

WASHER NOZZLE : Removal and Installation

INFOID:000000012433259

REMOVAL

1. Disconnect the rear washer tube grommet (1) from the back door.



2. Disconnect the rear washer tube from the rear washer nozzle.
3. Remove the rear washer nozzle.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Adjust the rear washer nozzle spray pattern. Refer to [WW-73, "WASHER NOZZLE : Adjustment"](#).

WASHER NOZZLE : Adjustment

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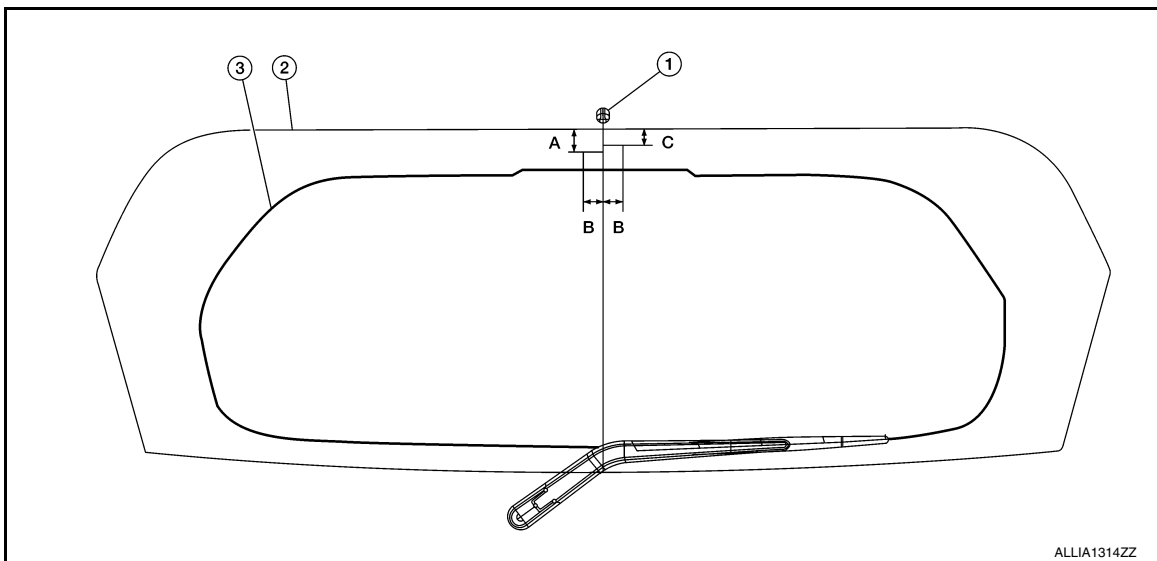
WASHER NOZZLE SPRAY PATTERN

A
B
C
D
E
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H
I
J
K
M
N
O
P

WW

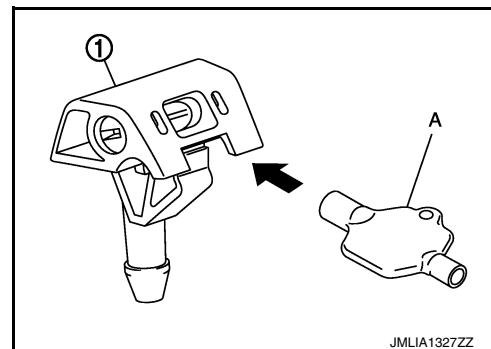
REAR WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >



- | | | |
|-----------------------|---------------------------|----------------------------|
| 1. Rear washer nozzle | 2. Back door window glass | 3. Black printed area line |
| A. 30.8 mm (1.21 in) | B. 23.6 mm (0.93 in) | C. 21.1 mm (0.83 in) |

If washer nozzle (1) spray pattern is not within specification, adjust using a suitable tool (A).



WASHER TUBE

WASHER TUBE : Removal and Installation

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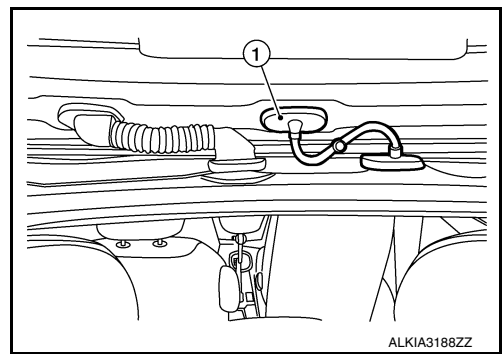
REMOVAL

1. Remove front under cover. Refer to [EXT-39, "FRONT UNDER COVER : Removal and Installation"](#).
2. Remove fender protector (RH). Refer to [EXT-38, "Removal and Installation"](#).
3. Disconnect the rear washer tube from the washer pump.
4. Remove dash side finisher (RH). Refer to [INT-24, "DASH SIDE FINISHER : Removal and Installation"](#).
5. Remove front and rear kicking plate (RH). Refer to [INT-22, "KICKING PLATE : Removal and Installation"](#).
6. Remove center pillar lower finisher (RH). Refer to [INT-25, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).
7. Remove rear seat back (RH). Refer to [SE-26, "SEATBACK : Removal and Installation"](#).
8. Remove luggage side upper finisher (RH). Refer to [INT-35, "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).

REAR WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

9. Disconnect the rear washer tube grommet (1) from the back door.



10. Disconnect the rear washer tube from the rear washer nozzle.
11. Release the clips using a suitable tool and remove the rear washer tube.

INSTALLATION

Installation is in the reverse order of removal.

A
B
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WW

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Specifications

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WINDSHIELD WASHER FLUID

Windshield washer fluid capacity	3.5 ℓ (3 3/4 US qt, 3 1/8 Imp qt)
Windshield washer fluid specification	Refer to MA-11. "Fluids and Lubricants" .