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SECTION
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:000000013480839

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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.
- Improper repair, 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

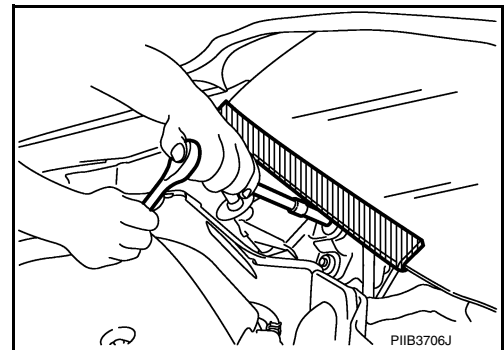
WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag 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 or batteries, and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:000000012782936

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



Precaution for Work

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- 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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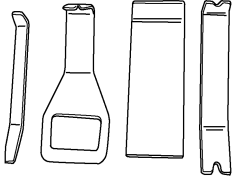
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PREPARATION

Special Service Tools

INFOID:0000000012782938

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

Tool number (TechMate No.) Tool name	Description
<p>— (J-46534) Trim Tool Set</p>  <p>AWJIA0483ZZ</p>	Removing trim components

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FRONT WIPER AND WASHER SYSTEM

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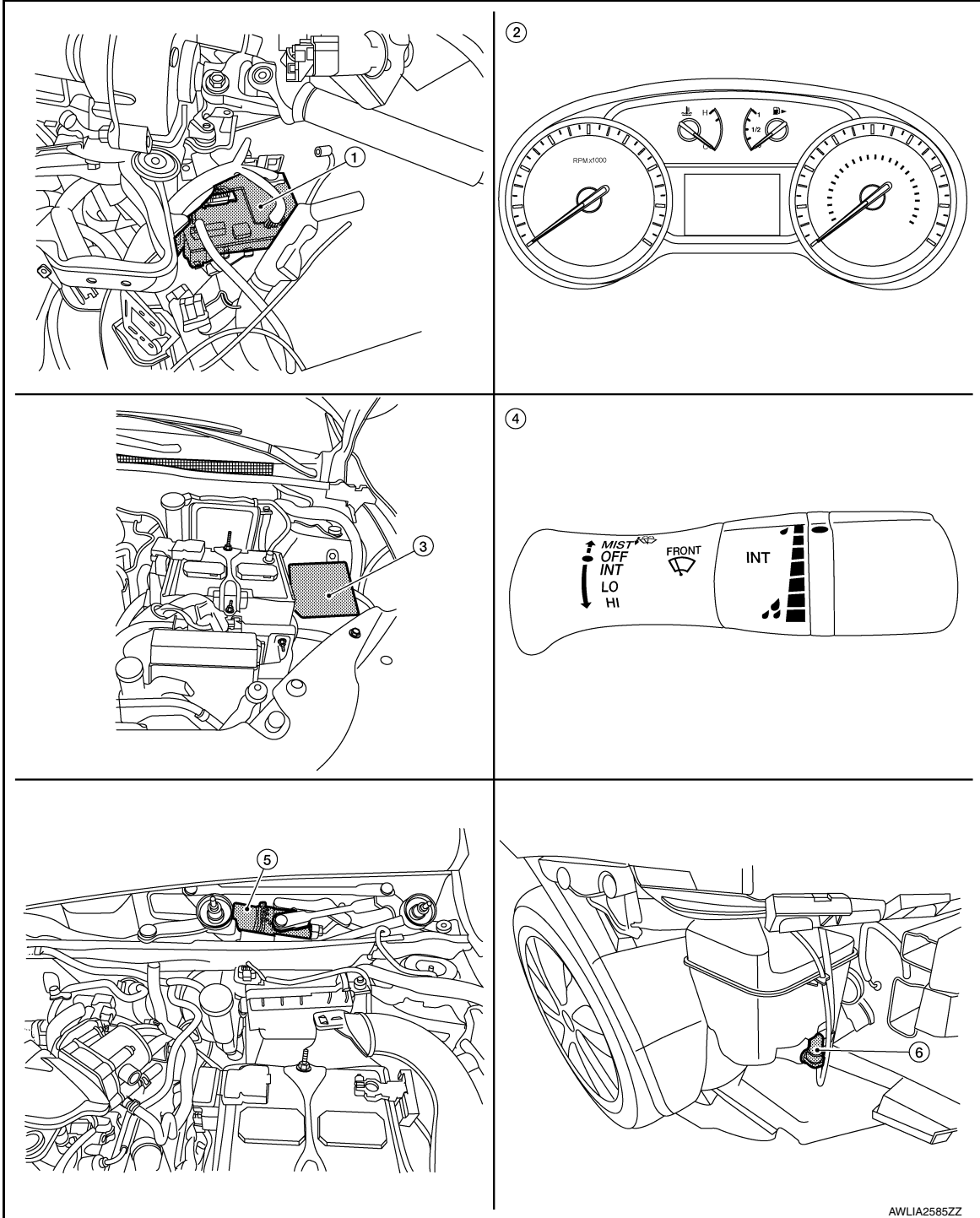
SYSTEM DESCRIPTION

FRONT WIPER AND WASHER SYSTEM

Component Parts Location

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FRONT WIPER AND WASHER SYSTEM



AWLIA2585ZZ

- | | | |
|--|--|---|
| 1. BCM (view under instrument panel, left side of vehicle) | 2. Combination meter | 3. IPDM E/R (view with air inlet duct removed) |
| 4. Combination switch (wiper and washer switch) | 5. Front wiper motor (with wiper cowl cover removed) | 6. Front washer motor (with front bumper removed) |

FRONT WIPER AND WASHER SYSTEM

< SYSTEM DESCRIPTION >

Component Description

INFOID:000000012782940

Part	Description
Combination meter	Transmits the vehicle speed signal to BCM with CAN communication.
BCM	<ul style="list-style-type: none"> Judges the switch status by the combination switch reading function. Requests (with CAN communication) the front wiper relay and the front wiper high relay ON to IPDM E/R.
IPDM E/R	<ul style="list-style-type: none"> Controls the integrated relay according to the request (with CAN communication) from BCM. Performs the auto stop control of the front wiper.
Combination switch (Wiper and washer switch)	<ul style="list-style-type: none"> Provides input for wiper and washer control to the BCM. Refer to BCS-9. "COMBINATION SWITCH READING SYSTEM : System Description" (with Intelligent Key system) or BCS-85. "COMBINATION SWITCH READING SYSTEM : System Description" (without Intelligent Key system).
Front washer motor	Washer fluid is sprayed according to combination switch signal.
Front wiper motor	<ul style="list-style-type: none"> IPDM E/R controls front wiper operation. Front wiper stop position is transmitted to IPDM E/R.

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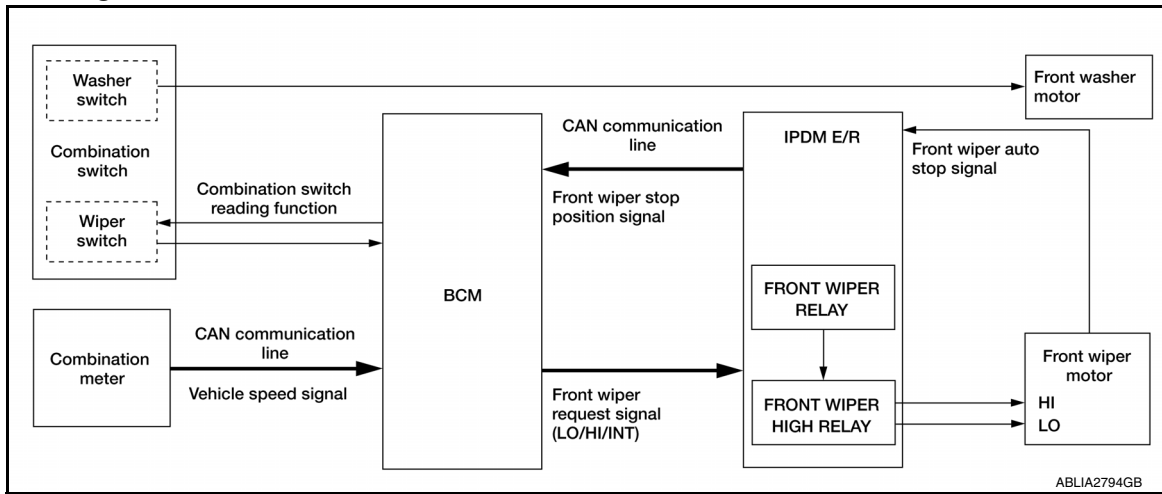
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SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM

System Diagram



System Description

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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

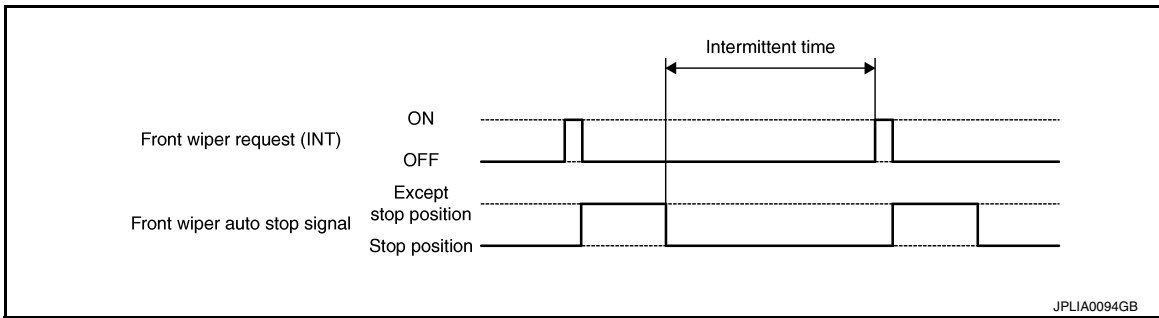
1. Ignition switch ON.
2. Front wiper switch in HI.
3. BCM reads the combination switch position and transmits the front wiper request signal (HI) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay and the front wiper high relay.

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

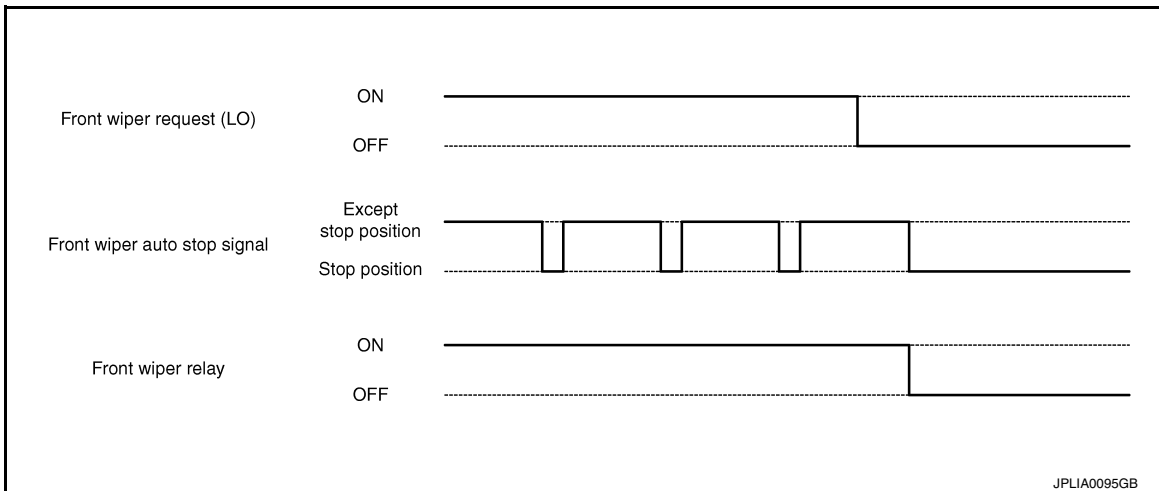
< SYSTEM DESCRIPTION >



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 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.

Fail-Safe

INFOID:000000012782943

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"](#) (with Intelligent Key system) or [PCS-47. "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:0000000013380038

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		
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Trunk open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
Signal buffer system	SIGNAL BUFFER				x			
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:000000013380046

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.

ACTIVE TEST

Test Item	Description
FR WIPER	This test is able to check front wiper operation [INT/Lo/Hi/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:000000013380052

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		
Trunk open	TRUNK			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:000000013380057

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]	
INT VOLUME [1 - 7]	Indicates condition of intermittent wiper operation of combination switch.
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
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].

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) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

Diagnosis Description

INFOID:000000013380062

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
- License plate lamp
- Tail lamp
- Front fog lamp (if equipped)
- 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-109, "Component Inspection"](#).

Inspection in Auto Active Test

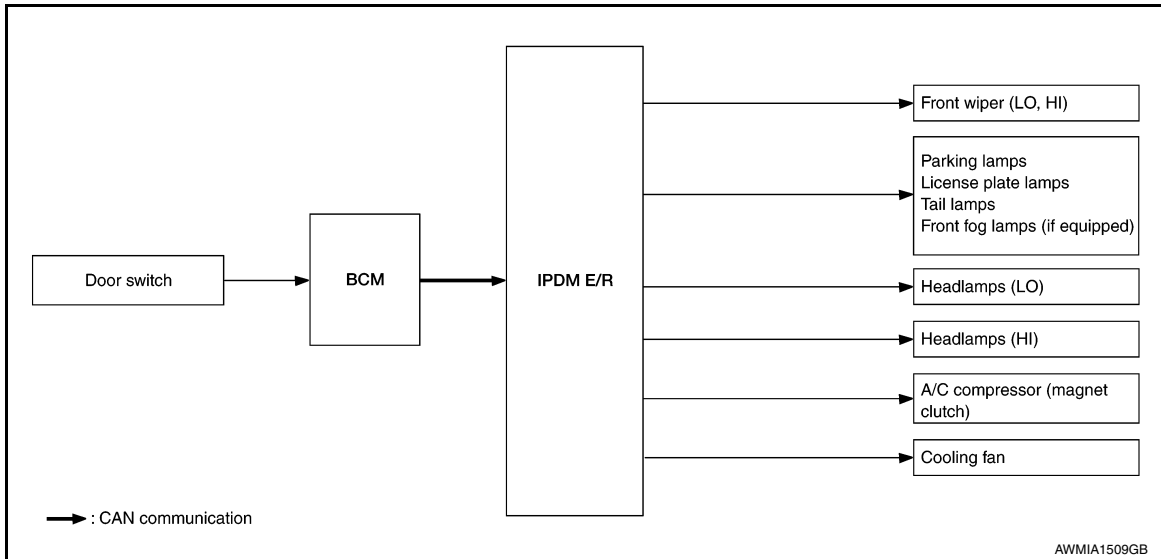
When auto active test is actuated, the following operation sequence is repeated 3 times.

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• 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) (WITH INTELLIGENT KEY SYSTEM)

< 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 <ul style="list-style-type: none"> • Parking lamp • License plate lamp • Tail lamp • Front fog lamp (if equipped) • Headlamp (HI, LO) • Front wiper (HI, LO) 	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000013380063

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.
Data Monitor	The IPDM E/R input/output data is displayed in real time.

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Direct Diagnostic Mode	Description
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 [%]	×	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/INH RLY [Off/ ST /INH]		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].
REAR DEFOGGER	This test is able to check rear window defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].

DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM)

< 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-14. "CAN Diagnostic Support Monitor"](#).

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

Diagnosis Description

INFOID:000000013380070

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
- License plate lamp
- Tail lamp
- Front fog lamp (if equipped)
- Headlamp (LO, HI)
- A/C compressor (magnet clutch) (if equipped)
- 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-248](#), "[Component Inspection](#)".

Inspection in Auto Active Test

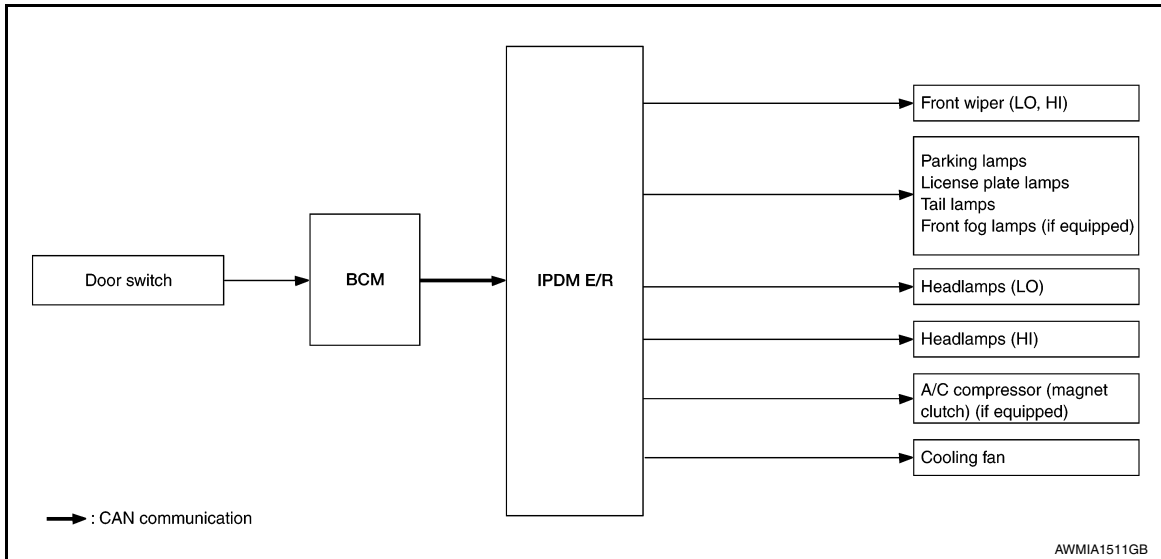
When auto active test is actuated, the following operation sequence is repeated 3 times.

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• 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) (if equipped)	ON ↔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< 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 <ul style="list-style-type: none"> • Parking lamp • License plate lamp • Tail lamp • Front fog lamp (if equipped) • Headlamp (HI, LO) • Front wiper (HI, LO) 	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • BCM signal input circuit • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000013380073

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.
Data Monitor	The IPDM E/R input/output data is displayed in real time.

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Direct Diagnostic Mode	Description
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-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [%]	×	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
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/INH RLY [Off/ ST /INH]		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].
REAR DEFOGGER	This test is able to check rear window defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].
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].

DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

CAN DIAG SUPPORT MNTR

Refer to [LAN-14. "CAN Diagnostic Support Monitor"](#).

BCM, IPDM E/R

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000012782952

WITH INTELLIGENT KEY SYSTEM

ECU	Reference
BCM	BCS-30. "Reference Value"
	BCS-48. "Fail-safe"
	BCS-49. "DTC Inspection Priority Chart"
	BCS-50. "DTC Index"
IPDM E/R	PCS-13. "Reference Value"
	PCS-19. "Fail-safe"
	PCS-20. "DTC Index"

WITHOUT INTELLIGENT KEY SYSTEM

ECU	Reference
BCM	BCS-103. "Reference Value"
	BCS-114. "Fail-safe"
	BCS-115. "DTC Inspection Priority Chart"
	BCS-115. "DTC Index"
IPDM E/R	PCS-42. "Reference Value"
	PCS-47. "Fail-Safe"
	PCS-48. "DTC Index"

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WW

WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

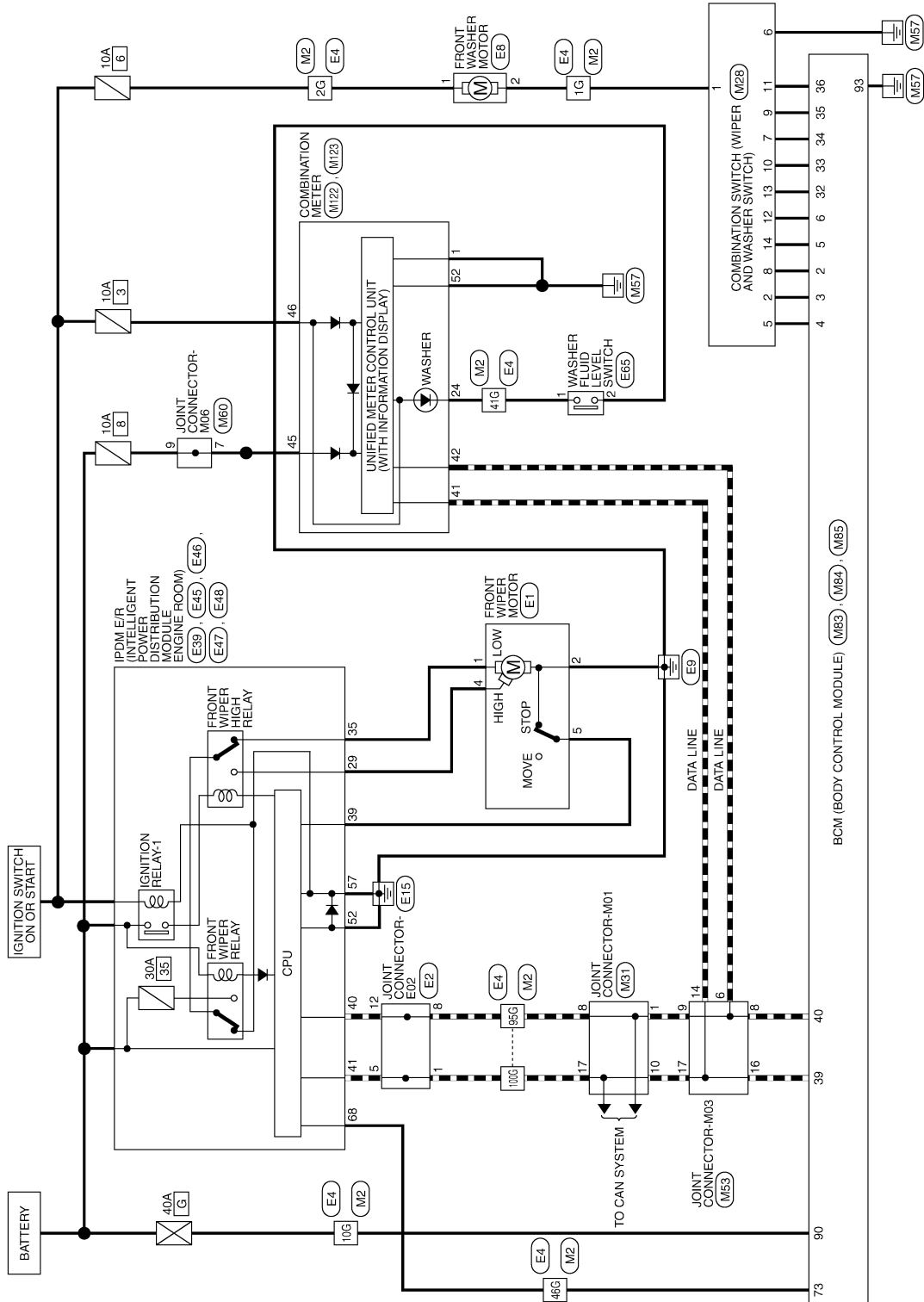
WIRING DIAGRAM

WIPER AND WASHER SYSTEM

Wiring Diagram - With Intelligent Key

INFOID:000000013380087

FRONT WIPER AND WASHER SYSTEM - WITH INTELLIGENT KEY SYSTEM



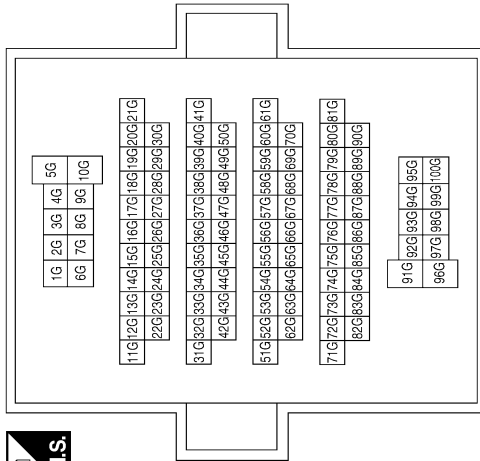
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WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

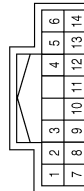
FRONT WIPER AND WASHER SYSTEM CONNECTORS - WITH INTELLIGENT KEY SYSTEM

Connector No.	M2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1G	G	-
2G	W	-
10G	Y	-
41G	BG	-
46G	V	-
95G	P	-
100G	L	-

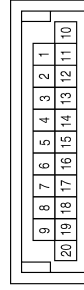
Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	G	-
2	GR	-
5	BR	-
6	B	-
7	V	-

Terminal No.	Color of Wire	Signal Name
8	L	-
9	R	-
10	Y	-
11	SB	-
12	W	-
13	LG	-
14	BG	-

Connector No.	M31
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	P	-
8	P	-
10	L	-
17	L	-

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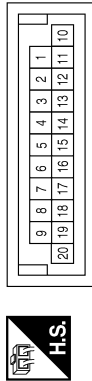
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WIPER AND WASHER SYSTEM

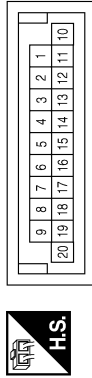
< WIRING DIAGRAM >

Connector No.	M53
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



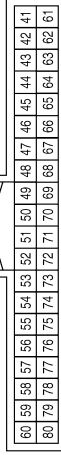
Terminal No.	Color of Wire	Signal Name
6	P	-
8	P	-
9	P	-
14	L	-
16	L	-
17	L	-

Connector No.	M60
Connector Name	JOINT CONNECTOR-M06
Connector Color	WHITE



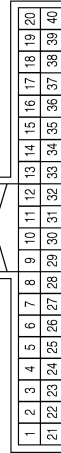
Terminal No.	Color of Wire	Signal Name
7	W	-
9	W	-

Connector No.	M83
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
73	V	IGN RELAY OUTPUT (USM)

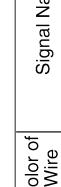
Connector No.	M84
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK



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

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

Connector No.	M85
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
90	Y	BATTERY (FL)
93	B	GND

WIPER AND WASHER SYSTEM

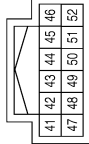
< WIRING DIAGRAM >

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



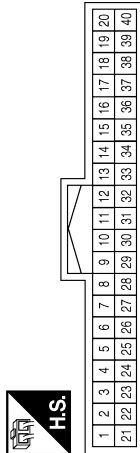
Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-
4	L	-
5	BR	-

Connector No.	M123
Connector Name	COMBINATION METER (WITH TYPE B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LG	BAT
46	GR	IGN
52	B	GND

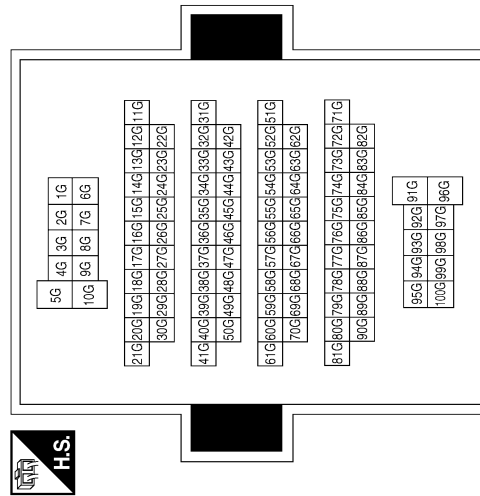
Connector No.	M122
Connector Name	COMBINATION METER (WITH TYPE B)
Connector Color	WHITE



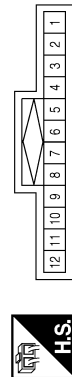
Terminal No.	Color of Wire	Signal Name
1	B	GND
24	BG	WASHER SW

Terminal No.	Color of Wire	Signal Name
1G	O	-
2G	V	-
10G	G	-
41G	L	-
46G	O	-
95G	P	-
100G	L	-

Connector No.	E4
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E2
Connector Name	JOINT CONNECTOR-E02
Connector Color	BLUE



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

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WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >


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



29	28	27	26	25
36	35	34	33	32
31	30			

Terminal No.	Color of Wire	Signal Name
29	L	FR WIPER HI
35	W	FR WIPER LO

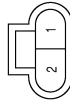
Connector No.	E39
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



67	66	65	64	63
72	71	70	69	68

Terminal No.	Color of Wire	Signal Name
68	O	IGN SIGNAL

Connector No.	E8
Connector Name	FRONT WASHER MOTOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	V	-
2	O	-


Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



59	58	57
62	61	60

Terminal No.	Color of Wire	Signal Name
57	B/Y	POWER GND


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



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
52	B/Y	SIGNAL GND

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



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

Terminal No.	Color of Wire	Signal Name
39	BR	AUTO STOP SW
40	P	CAN-L
41	L	CAN-H

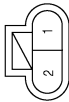
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WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

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Connector No.	E65
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	L	-
2	B/W	-

WW

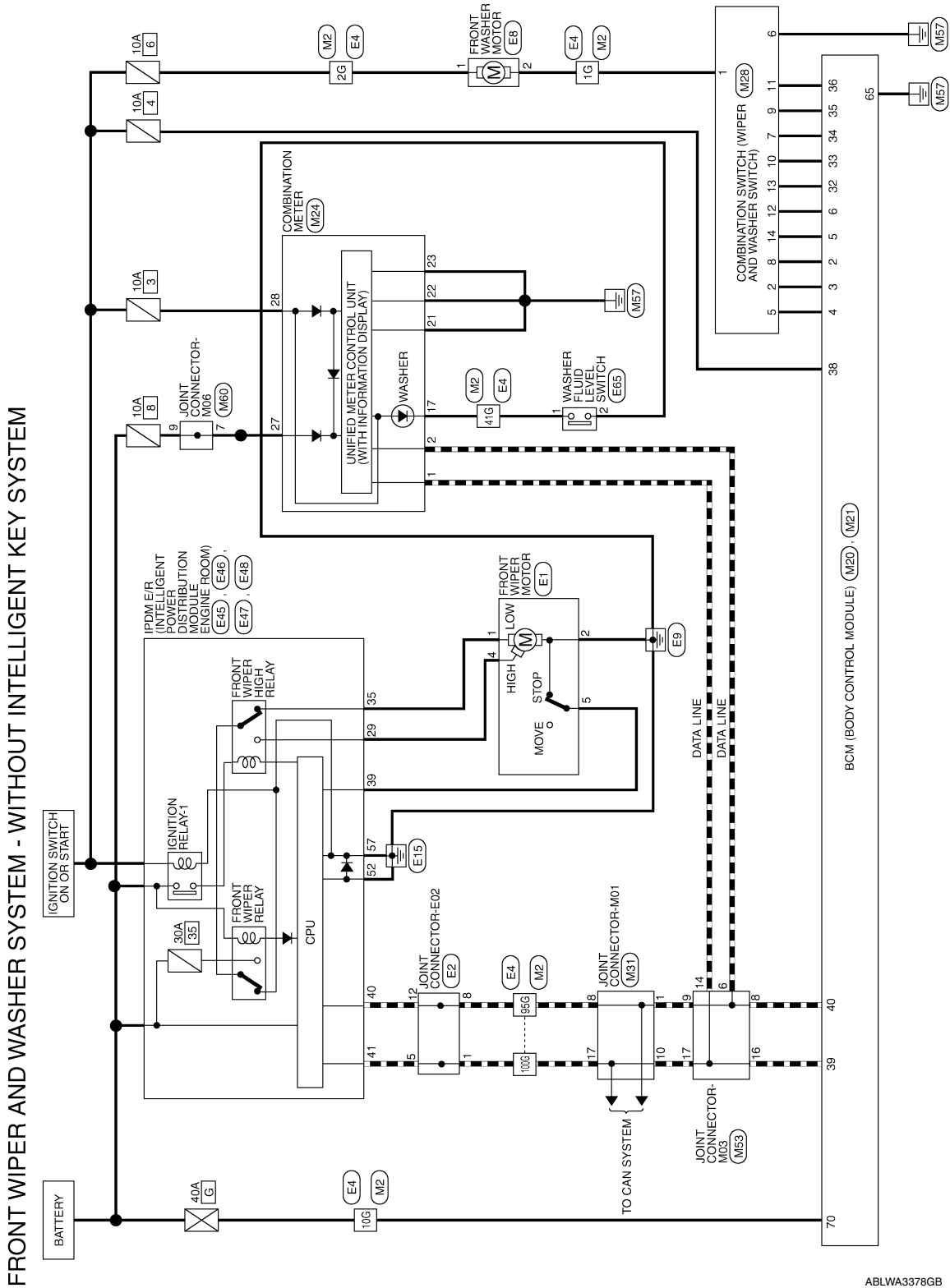
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WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

Wiring Diagram - Without Intelligent Key

INFOID:000000013380088



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WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

FRONT WIPER AND WASHER SYSTEM CONNECTORS - WITHOUT INTELLIGENT KEY SYSTEM

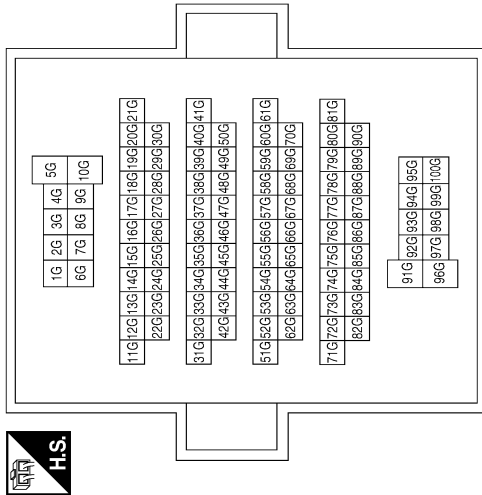
Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE

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



Terminal No.	Color of Wire	Signal Name
1G	G	-
2G	W	-
10G	Y	-
41G	BG	-
95G	P	-
100G	L	-

Connector No.	M2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

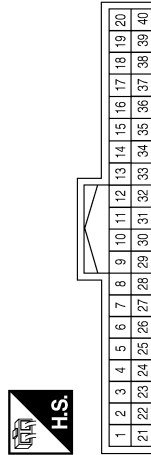


Terminal No.	Color of Wire	Signal Name
65	B	GND
70	Y	BATTERY (F/L)

Terminal No.	Color of Wire	Signal Name
33	Y	COMBINATION SW OUTPUT 4
34	V	COMBINATION SW OUTPUT 3
35	R	COMBINATION SW OUTPUT 2
36	SB	COMBINATION SW OUTPUT 1
38	R	IGN SW
39	L	CAN-H
40	P	CAN-L

Terminal No.	Color of Wire	Signal Name
2	L	COMBINATION SW INPUT 5
3	GR	COMBINATION SW INPUT 4
4	BR	COMBINATION SW INPUT 3
5	BG	COMBINATION SW INPUT 2
6	W	COMBINATION SW INPUT 1
32	LG	COMBINATION SW OUTPUT 5

Connector No.	M21
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



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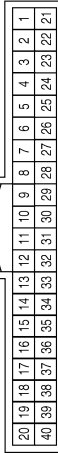
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WIPER AND WASHER SYSTEM

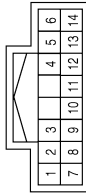
< WIRING DIAGRAM >

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



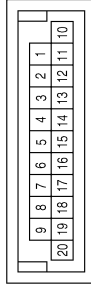
Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
17	BG	WASHER SW
21	B	GND (ILLUMINATION)
22	B	GND (POWER)
23	B	GND (CIRCUIT)
27	LG	BAT
28	GR	IGN

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



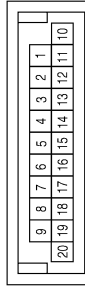
Terminal No.	Color of Wire	Signal Name
1	G	-
2	GR	-
5	BR	-
6	B	-
7	V	-
8	L	-
9	R	-
10	Y	-
11	SB	-
12	W	-
13	LG	-
14	BG	-

Connector No.	M31
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE



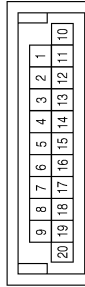
Terminal No.	Color of Wire	Signal Name
1	P	-
8	P	-
10	L	-
17	L	-

Connector No.	M53
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
6	P	-
8	P	-
9	P	-
14	L	-
16	L	-
17	L	-

Connector No.	M60
Connector Name	JOINT CONNECTOR-M06
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	-
9	W	-

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



Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-
4	L	-
5	BR	-

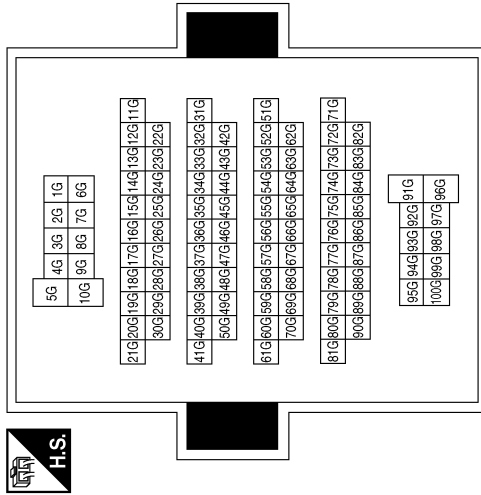
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WIPER AND WASHER SYSTEM

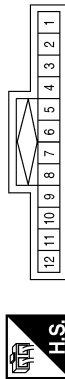
< WIRING DIAGRAM >

Terminal No.	Color of Wire	Signal Name
1G	O	-
2G	V	-
10G	G	-
41G	L	-
95G	P	-
100G	L	-

Connector No.	E4
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E2
Connector Name	JOINT CONNECTOR-E02
Connector Color	BLUE



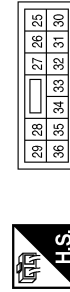
Terminal No.	Color of Wire	Signal Name
1	L	-
5	L	-
8	P	-
12	P	-

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



Terminal No.	Color of Wire	Signal Name
39	BR	AUTO STOP SW
40	P	CAN-L
41	L	CAN-H

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



Terminal No.	Color of Wire	Signal Name
29	L	FR WIPER HI
35	W	FR WIPER LO

Connector No.	E8
Connector Name	FRONT WASHER MOTOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	V	-
2	O	-

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WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

Connector No.	E65
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	BROWN



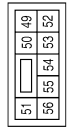
Terminal No.	Color of Wire	Signal Name
1	L	-
2	B/W	-

Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
57	B/Y	POWER GND

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



Terminal No.	Color of Wire	Signal Name
52	B/Y	SIGNAL GND

ABLIA8456GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

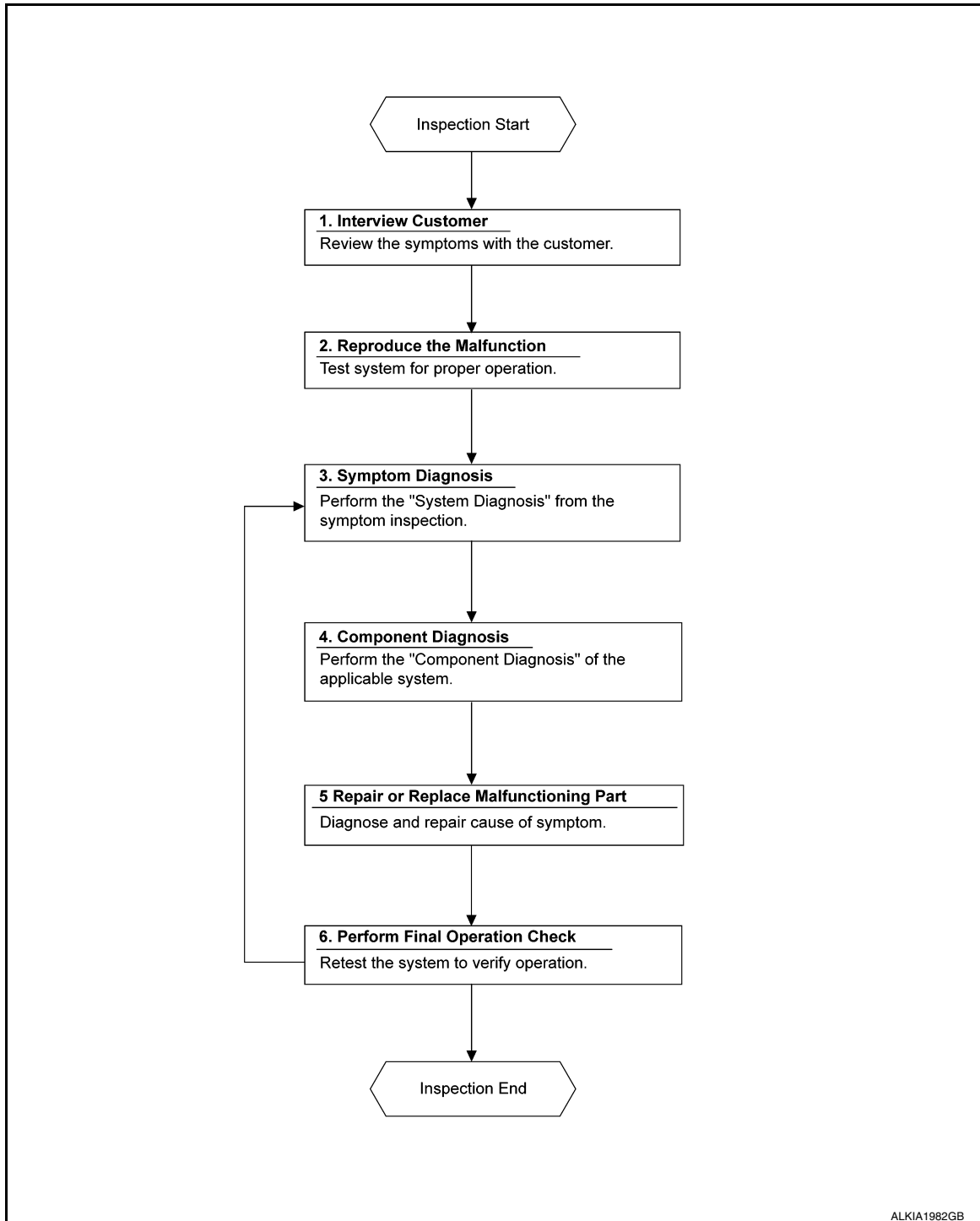
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000012782955

OVERALL SEQUENCE



DETAILED FLOW

1. OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 2.

2. CONFIRM THE SYMPTOM

Check the malfunction on the vehicle that the customer describes.
Inspect the relation of the symptoms and the condition when the symptoms occur.

>> GO TO 3.

3. IDENTIFY THE MALFUNCTIONING SYSTEM WITH SYMPTOM DIAGNOSIS

Use Symptom diagnosis from the symptom inspection result in step 2 and then identify where to start performing the diagnosis based on possible causes and symptoms. Refer to [WW-47, "Symptom Table"](#).

>> GO TO 4.

4. PERFORM THE COMPONENT DIAGNOSIS OF THE OF THE APPLICABLE SYSTEM

Perform the diagnosis with Component diagnosis of the applicable system.

>> GO TO 5.

5. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>> GO TO 6.

6. FINAL CHECK

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 2.

Are the malfunctions corrected?

YES >> Inspection End.

NO >> GO TO 3.

WIPER AND WASHER FUSE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

WIPER AND WASHER FUSE

Description

INFOID:0000000012782956

Fuse list

Unit	Location	Fuse No.	Capacity
Front wiper motor	IPDM E/R	35	30 A
Front washer motor	Fuse block (J/B)	6	10 A

Diagnosis Procedure

INFOID:0000000012782957

1. CHECK FUSES

Check that the following fuses are not blown.

Unit	Location	Fuse No.	Capacity
Front wiper motor	IPDM E/R	35	30 A
Front washer motor	Fuse block (J/B)	6	10 A

Is the fuse blown?

- YES >> Replace the blown 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:000000012782958

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"](#) (with Intelligent Key system) or [PCS-38, "Diagnosis Description"](#) (without Intelligent Key system).
2. Check that the front wiper operates at the LO operation.

Ⓟ CONSULT ACTIVE TEST

1. Select FRONT WIPER of IPDM E/R active test item.
2. While operating the test item, check that front wiper LO operation and OFF.

Lo : Front wiper LO operation

Off : Stop the front wiper.

Is the inspection result normal?

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

Diagnosis Procedure

INFOID:000000012782959

Regarding Wiring Diagram information, refer to [WW-24, "Wiring Diagram - With Intelligent Key"](#) or [WW-30, "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK FRONT WIPER MOTOR (LO) INPUT VOLTAGE

Ⓟ CONSULT ACTIVE TEST

1. Turn the ignition switch OFF.
2. Disconnect front wiper motor.
3. Turn the ignition switch ON.
4. Select FRONT WIPER of IPDM E/R active test item.
5. While operating the test item, check voltage between IPDM E/R harness connector E45 and ground.

Terminals		Test item	Voltage (Approx.)
(+)	(-)		
IPDM E/R		FRONT WIPER	Battery voltage
Connector	Terminal		
E45	35		
		Lo	Battery voltage
		Off	0V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#) (with Intelligent Key system) or [PCS-60, "Removal and Installation"](#) (without Intelligent Key system).

2. CHECK FRONT WIPER MOTOR (LO) OPEN CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R.
3. Check continuity between IPDM E/R harness connector E45 and front wiper motor harness connector E1.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E45	35	E1	1	Yes

Is the inspection result normal?

FRONT WIPER MOTOR LO CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

3. CHECK FRONT WIPER MOTOR (LO) SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E45 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E45	35		No

Is the inspection result normal?

- YES >> Repair or replace the harness or connectors.
- NO >> Replace front wiper motor. Refer to [WW-64, "Removal and Installation"](#).

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FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:000000012782960

1. CHECK FRONT WIPER HI OPERATION

⊗ IPDM E/R AUTO ACTIVE TEST

1. Start IPDM E/R auto active test. Refer to [WW-15, "Diagnosis Description"](#) (with Intelligent Key system) or [WW-19, "Diagnosis Description"](#) (without Intelligent Key system).
2. Check that the front wiper operates at the HI operation.

Ⓟ CONSULT ACTIVE TEST

1. Select FRONT WIPER of IPDM E/R active test item.
2. While operating the test item, check that front wiper HI operation and OFF.

Hi : Front wiper HI operation

Off : Stop the front wiper.

Is the inspection result normal?

- YES >> The front wiper motor HI circuit is normal.
NO >> Refer to [WW-40, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012782961

Regarding Wiring Diagram information, refer to [WW-24, "Wiring Diagram - With Intelligent Key"](#) or [WW-30, "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK FRONT WIPER MOTOR (HI) INPUT VOLTAGE

Ⓟ CONSULT ACTIVE TEST

1. Turn the ignition switch OFF.
2. Disconnect front wiper motor.
3. Turn the ignition switch ON.
4. Select FRONT WIPER of IPDM E/R active test item.
5. While operating the test item, check voltage between IPDM E/R harness connector E45 and ground.

Terminals		Test item	Voltage (Approx.)
(+)	(-)		
IPDM E/R		FRONT WIPER	Battery voltage
Connector	Terminal		
E45	29	Hi	Battery voltage
		Off	0V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#) (with Intelligent Key system) or [PCS-60, "Removal and Installation"](#) (without Intelligent Key system).

2. CHECK FRONT WIPER MOTOR (HI) OPEN CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R.
3. Check continuity between IPDM E/R harness connector E45 and front wiper motor harness connector E1.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E45	29	E1	4	Yes

Is the inspection result normal?

FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

3. CHECK FRONT WIPER MOTOR (HI) SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E45 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E45	29		No

Is the inspection result normal?

- YES >> Repair or replace the harness or connectors.
- NO >> Replace front wiper motor. Refer to [WW-64, "Removal and Installation"](#).

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FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:000000012782962

1. CHECK FRONT WIPER (AUTO STOP) OPERATION

ⓐ CONSULT DATA MONITOR

1. Select "WIP AUTO STOP" of IPDM E/R DATA MONITOR item.
2. Operate the front wiper.
3. With the front wiper operation, check the monitor status.

Monitor item	Condition		Monitor status
WIP AUTO STOP	Front wiper motor	Stop position	STOP P
		Except	ACT P

Is the inspection result normal?

- YES >> Auto stop signal circuit is normal.
NO >> Refer to [WW-42, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000012782963

Regarding Wiring Diagram information, refer to [WW-24, "Wiring Diagram - With Intelligent Key"](#) or [WW-30, "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK IPDM E/R OUTPUT VOLTAGE

1. Turn the ignition switch OFF.
2. Disconnect front wiper motor.
3. Turn the ignition switch ON.
4. Check voltage between front wiper motor connector E1 and ground.

Front wiper motor		Ground	Voltage (Approx.)
Connector	Terminal		Battery voltage
E1	5		

Is the inspection result normal?

- YES >> Replace front wiper motor. Refer to [WW-64, "Removal and Installation"](#).
NO >> GO TO 2.

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

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector E46 and front wiper motor harness connector E1.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E46	39	E1	5	Yes

4. Check continuity between IPDM E/R harness connector E46 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		No
E46	39		

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#) (with Intelligent Key system) or [PCS-60, "Removal and Installation"](#) (without Intelligent Key system).
NO >> Repair or replace the harness or connectors.

FRONT WIPER MOTOR GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000012782964

Regarding Wiring Diagram information, refer to [WW-24. "Wiring Diagram - With Intelligent Key"](#) or [WW-30. "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK FRONT WIPER MOTOR (GND) OPEN CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect front wiper motor.
3. Check continuity between front wiper motor harness connector E1 and ground.

Front wiper motor		Ground	Continuity
Connector	Terminal		
E1	2		Yes

Is the inspection result normal?

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

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WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER MOTOR CIRCUIT

Diagnosis Procedure

INFOID:000000012782965

Regarding Wiring Diagram information, refer to [WW-24. "Wiring Diagram - With Intelligent Key"](#) or [WW-30. "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK FRONT WASHER MOTOR FUSE

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

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

Is the fuse blown?

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

2. CHECK FRONT WASHER MOTOR POWER SUPPLY

1. Disconnect front washer motor.
2. Turn ignition switch ON.
3. Check voltage between front washer motor harness connector E8 and ground.

Front washer motor		Ground	Voltage (Approx.)
Connector	Terminal		
E8	1		Battery voltage

Is the inspection result normal?

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

3. CHECK FRONT WASHER MOTOR CIRCUIT CONTINUITY

1. Turn the ignition switch OFF.
2. Disconnect combination switch (wiper and washer switch).
3. Check continuity between combination switch (wiper and washer switch) harness connector M28 and front washer motor E8.

Combination switch (wiper and washer switch)		Front washer motor		Continuity
Connector	Terminal	Connector	Terminal	
M28	1	E8	2	Yes

Is the inspection result normal?

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

4. CHECK WIPER AND WASHER SWITCH GROUND CIRCUIT

Check continuity between combination switch (wiper and washer switch) harness connector M28 and ground.

Combination switch (wiper and washer switch)		Ground	Continuity
Connector	Terminal		
M28	6		Yes

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace the harness or connectors.

WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

5. CHECK WIPER AND WASHER SWITCH

Check wiper and washer switch. Refer to [WW-46. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace front washer motor. Refer to [WW-54. "Removal and Installation"](#).

NO >> Replace wiper and washer switch. Refer to [WW-65. "Removal and Installation"](#).

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WASHER SWITCH

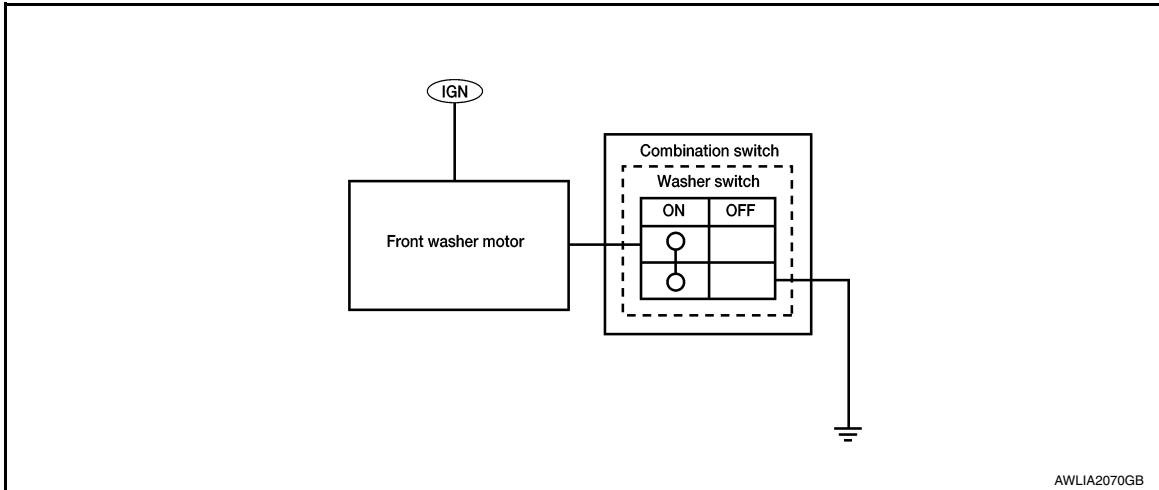
< DTC/CIRCUIT DIAGNOSIS >

WASHER SWITCH

Description

INFOID:000000012782966

- Washer switch is integrated with combination switch (wiper and washer switch).
- Combination switch (wiper and washer switch) supplies ground and fuse # 6 supplies power for the front washer motor to operate.



Component Inspection

INFOID:000000012782967

Regarding Wiring Diagram information, refer to [WW-24, "Wiring Diagram - With Intelligent Key"](#) or [WW-30, "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK WASHER SWITCH

1. Turn the ignition switch OFF.
2. Disconnect combination switch (wiper and washer switch) connector M28.
3. Check continuity between the combination switch (wiper and washer switch) terminals.

A: Terminal 1
B: Terminal 6

	OFF	ON
A		○
B		○

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Combination switch (wiper and washer switch)		Condition	Continuity
Terminal			
1	6	Washer switch ON	Yes

Is the inspection result normal?

YES >> Washer switch is normal.

NO >> Replace combination switch (wiper and washer switch). Refer to [WW-65, "Removal and Installation"](#).

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

WIPER AND WASHER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000012782968

CAUTION:

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

Symptom	Probable malfunction location	Inspection item	
Front wiper does not operate	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-76, "Symptom Table" (with Intelligent Key system) or BCS-133, "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-40, "Component Function Check" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	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-76, "Symptom Table" (with Intelligent Key system) or BCS-133, "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-38, "Component Function Check" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	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-76, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	HI, LO, and INT	SYMPTOM DIAGNOSIS Refer to WW-50, "Diagnosis Procedure" .	

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WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom	Probable malfunction location	Inspection item	
Front wiper does not stop	HI only	<ul style="list-style-type: none"> • Combination switch (wiper and washer switch) • BCM 	Combination switch (wiper and washer switch) Refer to BCS-76. "Symptom Table" (with Intelligent Key system) or BCS-133. "Symptom Table" (without Intelligent Key system).
		Front wiper request signal <ul style="list-style-type: none"> • BCM • IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
		IPDM E/R	—
	LO only	<ul style="list-style-type: none"> • Combination switch (wiper and washer switch) • BCM 	Combination switch (wiper and washer switch) Refer to BCS-76. "Symptom Table" (with Intelligent Key system) or BCS-133. "Symptom Table" (without Intelligent Key system).
		Front wiper request signal <ul style="list-style-type: none"> • BCM • IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
		IPDM E/R	—
	INT only	<ul style="list-style-type: none"> • Combination switch (wiper and washer switch) • BCM 	Combination switch (wiper and washer switch) Refer to BCS-76. "Symptom Table" (with Intelligent Key system) or BCS-133. "Symptom Table" (without Intelligent Key system).
		Front wiper request signal <ul style="list-style-type: none"> • BCM • IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	Front wiper does not operate normally	Intermittent adjustment cannot be performed.	<ul style="list-style-type: none"> • Combination switch (wiper and washer switch) • Harness between combination switch (wiper and washer switch) and BCM • BCM
BCM			—
Intermittent control linked with vehicle speed cannot be performed.		Check the vehicle speed detection wiper setting. Refer to WW-12. "WIPER : CONSULT Function (BCM - WIPER)" (with Intelligent Key system) or WW-14. "WIPER : CONSULT Function (BCM - WIPER)" (without Intelligent Key system).	
Wiper is not linked to the washer operation.		<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-76. "Symptom Table" (with Intelligent Key system) or BCS-133. "Symptom Table" (without Intelligent Key system).
		BCM	—
Does not return to stop position (Repeatedly operates for 10 seconds and then stops for 20 seconds. After that, it stops the operation.		<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-42. "Component Function Check" .

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Probable malfunction location	Inspection item
Front washer motor does not operate.	Front washer motor does not operate when washing the 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-76. "Symptom Table" (with Intelligent Key system) or BCS-133. "Symptom Table" (without Intelligent Key system).
		<ul style="list-style-type: none"> • Harness between combination switch (wiper and washer switch) and front washer motor • Front washer motor 	Front washer motor circuit Refer to WW-44. "Diagnosis Procedure" .

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WW

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

FRONT WIPER DOES NOT OPERATE

Description

INFOID:000000012782969

The front wiper does not operate under any operation conditions

Diagnosis Procedure

INFOID:000000012782970

Regarding Wiring Diagram information, refer to [WW-24, "Wiring Diagram - With Intelligent Key"](#) or [WW-30, "Wiring Diagram - Without Intelligent Key"](#).

1. CHECK WIPER RELAY OPERATION

⊗ IPDM E/R AUTO ACTIVE TEST

1. Start IPDM E/R auto active test. Refer to [WW-15, "Diagnosis Description"](#) (with Intelligent Key system) or [WW-19, "Diagnosis Description"](#) (without Intelligent Key system).
2. Check that the front wiper operates at the LO/HI operation.

Ⓟ CONSULT ACTIVE TEST

1. Select FRONT WIPER of IPDM E/R active test item.
2. While operating the test item, check that front wiper LO/HI operation and OFF.

Lo : Front wiper LO operation

Hi : Front wiper HI operation

Off : Stop the front wiper.

is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the front wiper motor fuse 30A (No. 35, located in the IPDM E/R) is not blown.

Is the fuse blown?

YES >> Replace the fuse after repairing the affected circuit.

NO >> GO TO 3.

3. CHECK FRONT WIPER MOTOR (GND) OPEN CIRCUIT

1. Disconnect front wiper motor.
2. Check continuity between front wiper motor harness connector E1 and ground.

Front wiper motor		Ground	Continuity
Connector	Terminal		Yes
E1	2		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the harness or connectors.

4. CHECK FRONT WIPER MOTOR OUTPUT VOLTAGE

Ⓟ CONSULT ACTIVE TEST

1. Turn the ignition switch ON.
2. Select FRONT WIPER of IPDM E/R active test item.
3. With operating the test item, check voltage between IPDM E/R harness connector E45 and ground.

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

Terminals		Test item	Voltage (Approx.)		
(+)	(-)				
IPDM E/R		FRONT WIPER			
Connector	Terminal				
E45	35			Lo	Battery voltage
	29			Off	0 V
		Hi	Battery voltage		
		Off	0 V		

Is the inspection result normal?

YES LO circuit>>Refer to [WW-38, "Diagnosis Procedure"](#).

YES HI circuit>>Refer to [WW-40, "Diagnosis Procedure"](#).

NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#) (with Intelligent Key system) or [PCS-60, "Removal and Installation"](#) (without Intelligent Key system).

5. CHECK FRONT WIPER REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "FR WIP REQ" of IPDM E/R DATA MONITOR item.
2. Switch the front wiper switch to HI and LO.
3. With operating the front wiper switch, check the monitor status.

Monitor item	With operating the front wiper switch condition		Monitor status
FR WIP REQ	Front wiper switch HI	ON	Hi
		OFF	Stop
	Front wiper switch LO	ON	Low
		OFF	Stop

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#) (with Intelligent Key system) or [PCS-60, "Removal and Installation"](#) (without Intelligent Key system).

NO >> GO TO 6.

6. CHECK COMBINATION SWITCH (WIPER AND WASHER SWITCH)

1. Perform the inspection of the combination switch (wiper and washer switch). Refer to [BCS-76, "Symptom Table"](#) (with Intelligent Key system) or [BCS-133, "Symptom Table"](#) (without Intelligent Key system).

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-78, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace the malfunctioning parts.

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Description

INFOID:000000012782971

FRONT WIPER MOTOR PROTECTION FUNCTION

- IPDM E/R may stop the front wiper to protect the front wiper motor if any obstruction (operation resistance) such as a large amount of snow is detected during the front wiper operation.
- At that time turn OFF the front wiper and remove the foreign object. Then wait for approximately 20 seconds or more and reactivate the front wiper. The wiper will operate normally.

WASHER TANK

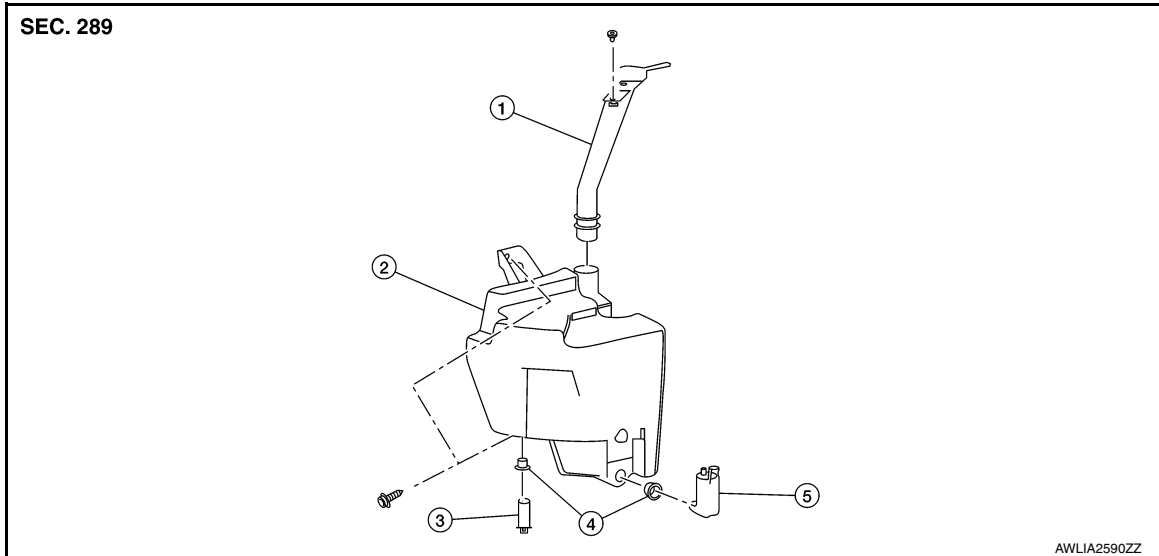
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

WASHER TANK

Exploded View

INFOID:000000012782972



- | | | |
|----------------------|----------------|------------------------|
| 1. Washer tank inlet | 2. Washer tank | 3. Washer level switch |
| 4. Washer tank seal | 5. Washer pump | |

Removal and Installation

INFOID:000000012782973

REMOVAL

1. Remove the washer tank inlet.
2. Remove the fender protector (RH). Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation - Front Fender Protector"](#).
3. Disconnect the harness connectors from the washer pump and washer level switch.
4. Disconnect the washer tube from the washer pump.
5. Remove the washer tank bolts and the washer tank.
6. Remove the washer pump, washer level switch, and washer tank seals from the washer tank (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

- 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-66, "Specifications"](#).

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WASHER PUMP

< REMOVAL AND INSTALLATION >

WASHER PUMP

Removal and Installation

INFOID:000000012782974

The washer pump is serviced as an assembly with the washer tank. Refer to [WW-53, "Removal and Installation"](#).

WASHER LEVEL SWITCH

< REMOVAL AND INSTALLATION >

WASHER LEVEL SWITCH

Removal and Installation

INFOID:000000012782975

The washer level switch is serviced as an assembly with the washer tank. Refer to [WW-53. "Removal and Installation"](#).

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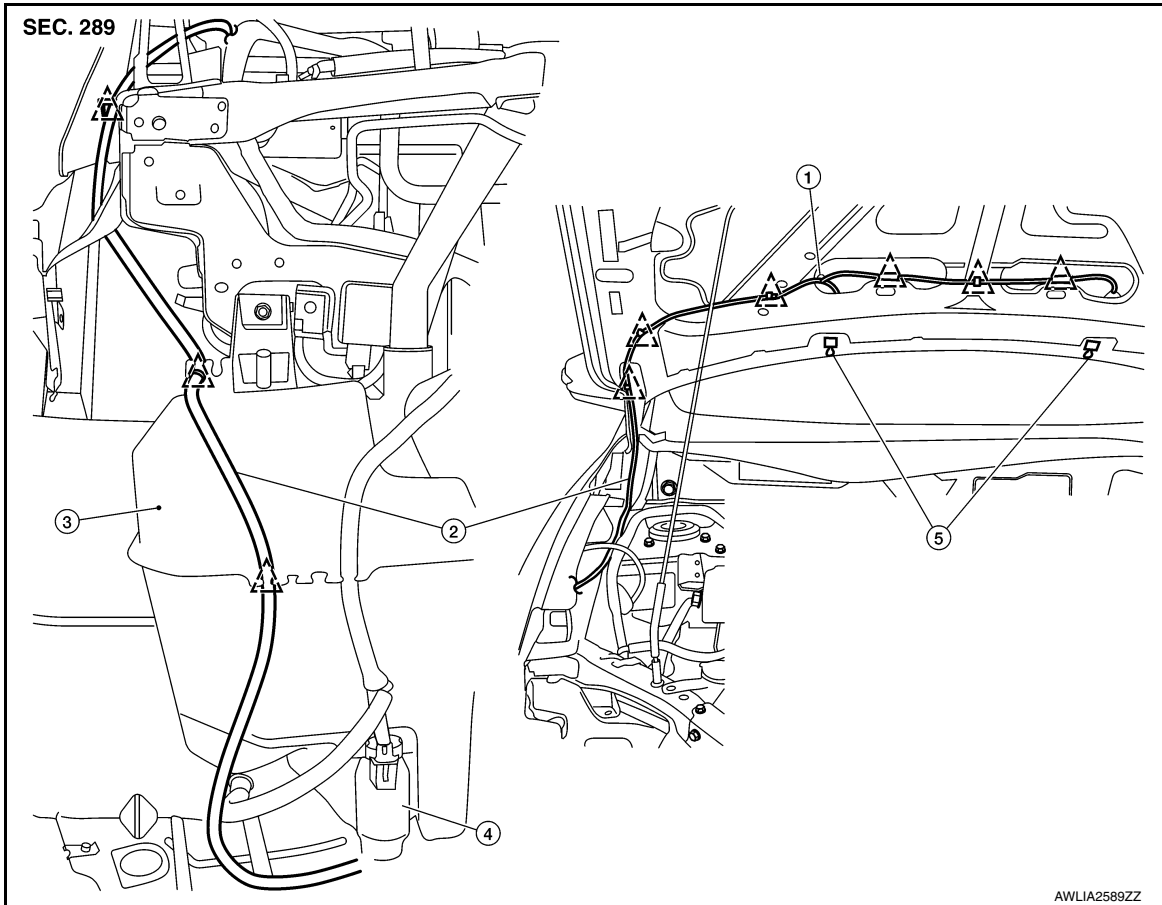
WASHER NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

WASHER NOZZLE & TUBE

Exploded View

INFOID:000000012782976



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| 1. Check valve | 2. Washer tube | 3. Washer tank |
| 4. Washer pump | 5. Washer nozzle | △ Clip |

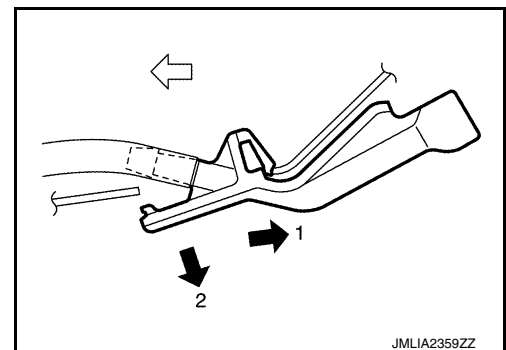
WASHER NOZZLE

WASHER NOZZLE : Removal and Installation

INFOID:000000012782977

REMOVAL

1. Disconnect the washer nozzle from the hood by pushing on the nozzle in the order and direction shown.



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

INSTALLATION

WASHER NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

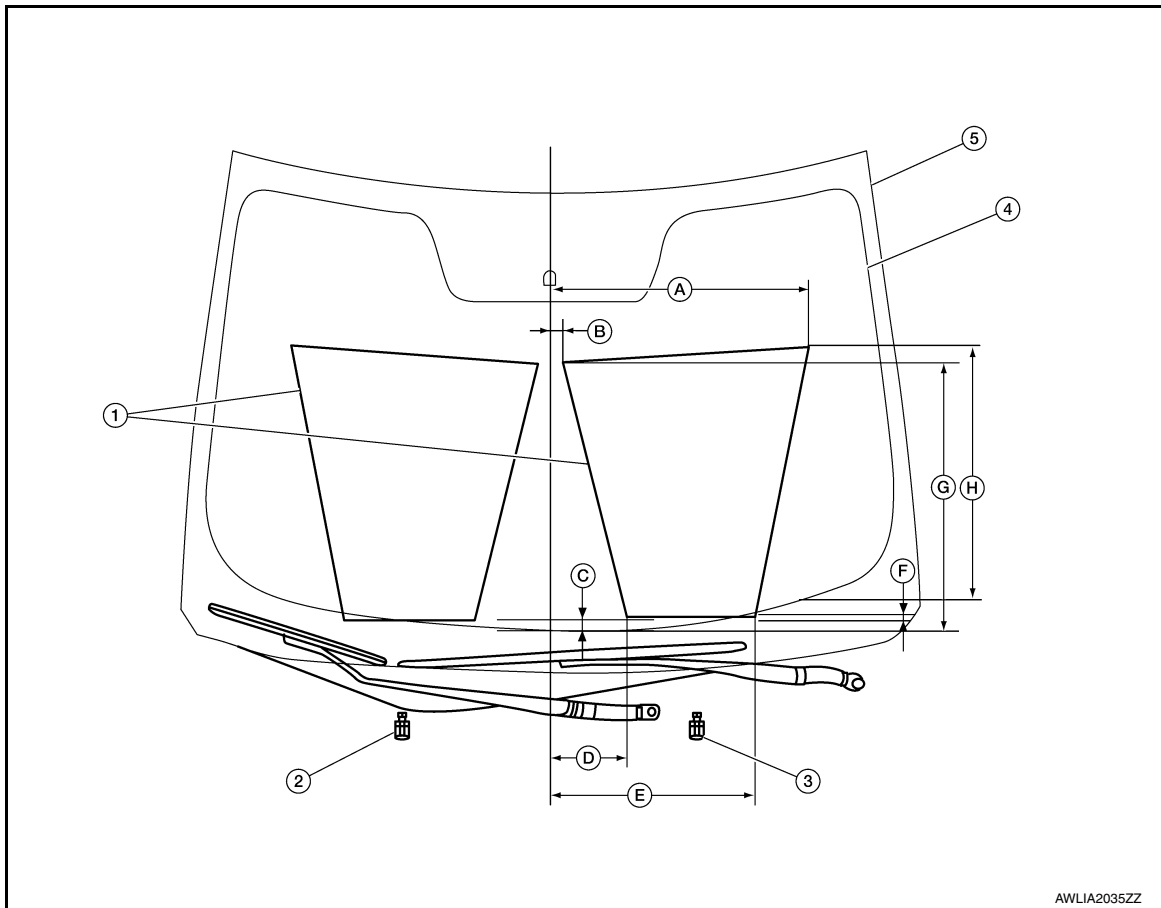
Installation is in the reverse order of removal.

CAUTION:

Adjust the nozzle spray pattern. Refer to [WW-57, "WASHER NOZZLE : Adjustment"](#).

WASHER NOZZLE : Adjustment

INFOID:000000012782978

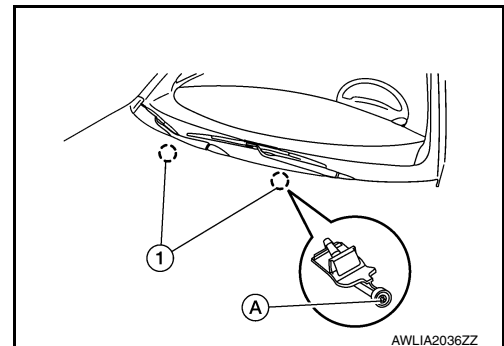


- | | | |
|-------------------------------|-----------------------|-----------------------|
| 1. Washer fluid spray pattern | 2. Washer nozzle (RH) | 3. Washer nozzle (LH) |
| 4. Black print | 5. Windshield glass | A. 487.0 mm (19.2 in) |
| B. 22.2 mm (0.9 in) | C. 15.3 mm (0.6 in) | D. 145.9 mm (5.7 in) |
| E. 384.9 mm (15.2 in) | F. 15.0 mm (0.6 in) | G. 499.7 mm (19.7 in) |
| H. 470.2 mm (18.5 in) | | |

NOTE:

Spray position for (LH) shown. (RH) is symmetrical.

Insert a suitable tool into the nozzle hole (A) and move up/down and left/right to adjust the spray position of each nozzle (1).



WASHER TUBE

WASHER NOZZLE & TUBE

< REMOVAL AND INSTALLATION >

WASHER TUBE : Removal and Installation

INFOID:000000012782979

REMOVAL

1. Remove the fender protector (RH). Refer to [EXT-28. "FENDER PROTECTOR : Removal and Installation - Front Fender Protector"](#).
2. Remove the hood insulator.
3. Remove the washer tube retainers.
4. Remove the washer spray pattern.
5. Disconnect the washer tube from the washer nozzles (LH/RH). Refer to [WW-56. "WASHER NOZZLE : Removal and Installation"](#).
6. Disconnect the washer tube from the washer pump.
7. Remove the washer tube from the clips and remove the washer tube.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Fill washer tank with specified amount of fluid. Refer to [WW-66. "Specifications"](#).

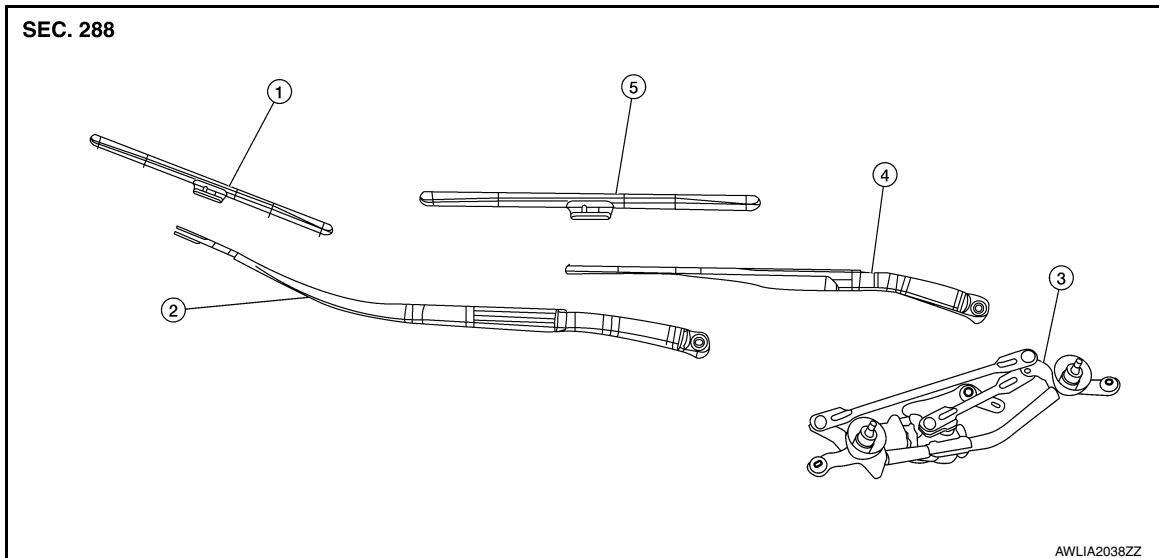
FRONT WIPER ARM

< REMOVAL AND INSTALLATION >

FRONT WIPER ARM

Exploded View

INFOID:000000012782980



1. Wiper blade (RH)

2. Wiper arm (RH)

3. Wiper drive assembly

4. Wiper arm (LH)

5. Wiper blade (LH)

Removal and Installation

INFOID:000000012782981

REMOVAL

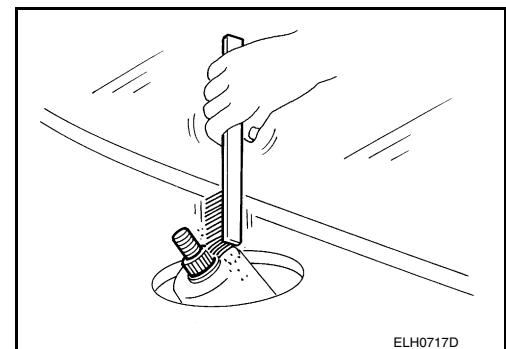
1. Remove the wiper arm cap.
2. Remove the wiper arm nut.
3. Raise the wiper arm, then remove the wiper arm.

INSTALLATION

1. Clean the wiper arm mount as shown.

NOTE:

This will reduce the possibility of wiper arm looseness.



2. Install the wiper arm.
3. Install the wiper arm nut.
4. Install the wiper arm cap.
5. Check that the wiper blades stop at the park position.

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WIPER BLADE

< REMOVAL AND INSTALLATION >

WIPER BLADE

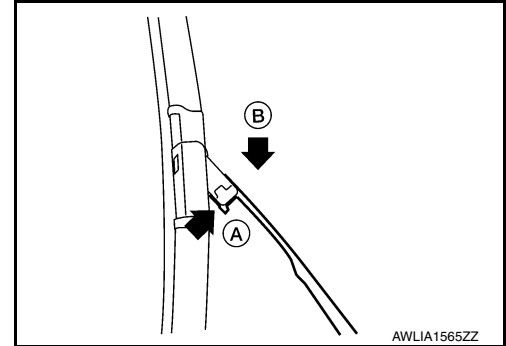
WIPER BLADE

WIPER BLADE : Removal and Installation

INFOID:000000012782982

REMOVAL

1. Put the wiper arms in the service position.
 - a. Turn the ignition switch ON and then OFF.
 - b. Within 1 minute, activate washer switch 2 times in less than 0.5 seconds to put the wiper arms in the service position.
2. Lift the wiper arm away from the windshield glass.
3. Rotate the wiper blade and push the release tab (A), then move the wiper blade down (B) the wiper arm.
4. Remove the wiper blade.



INSTALLATION

CAUTION:

Return the wiper arm to the service position on the windshield to prevent damage when the hood is opened.

1. Insert the wiper blade onto the wiper arm and slide it up until it clicks into place.
2. Rotate the wiper blade so the dimple is in the groove.
3. Lay the wiper arm back down in the service position on the windshield.
4. Turn the ignition ON and operate the windshield wipers to ensure the repair has been completed properly. Operating the windshield wipers will cancel service mode.
5. Check that the wiper blade contacts the windshield properly; otherwise the wiper arm may be damaged from wind pressure while driving.

WIPER BLADE REFILL

WIPER BLADE REFILL : Removal and Installation

INFOID:000000012782983

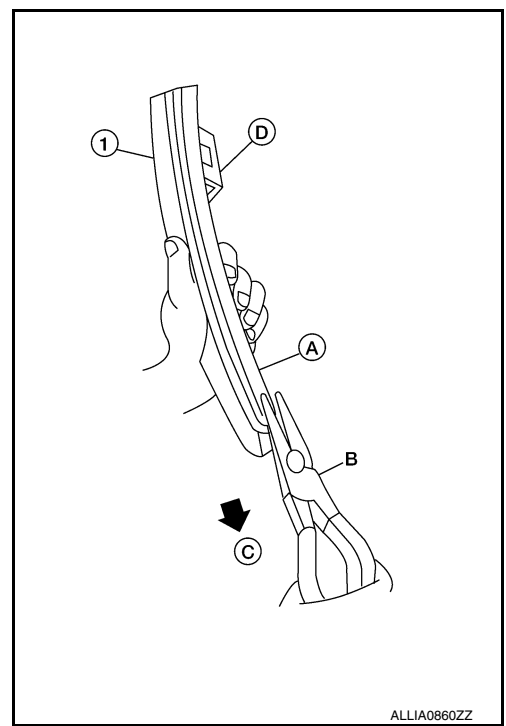
REMOVAL

1. Remove the wiper blade. Refer to [WW-60, "WIPER BLADE : Removal and Installation"](#).

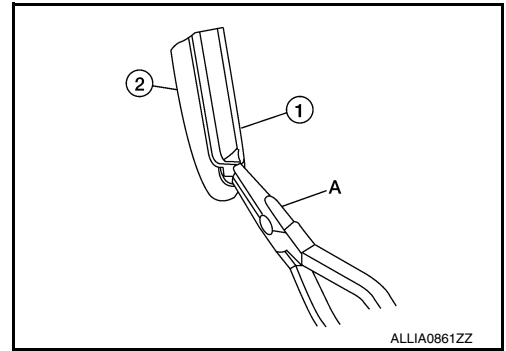
WIPER BLADE

< REMOVAL AND INSTALLATION >

2. Hold the wiper blade refill lip at the end (A) of the wiper blade (1) with a suitable tool (B) as shown and pull it firmly in the direction (C).
(D): U clip (part of wiper blade)

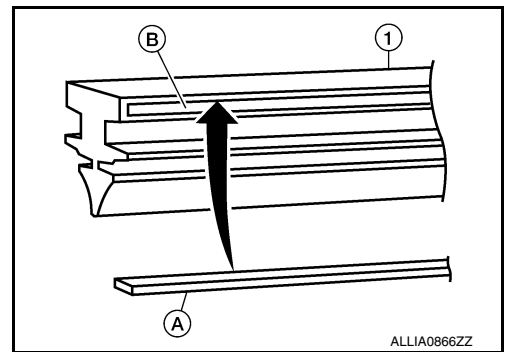


- If the wiper blade refill lip is torn due to wear, insert a suitable tool (A) into the space between the end of the wiper blade refill (1) and the wiper blade (2) and pull the wiper blade refill (1) out as shown.



INSTALLATION

1. If the rib (A) has become detached from the wiper blade refill (1), check that the curve of the rib (A) is in the same direction as the curve of the wiper blade refill (1) and insert the rib (A) into the slit (B) in the wiper blade refill (1) as shown.



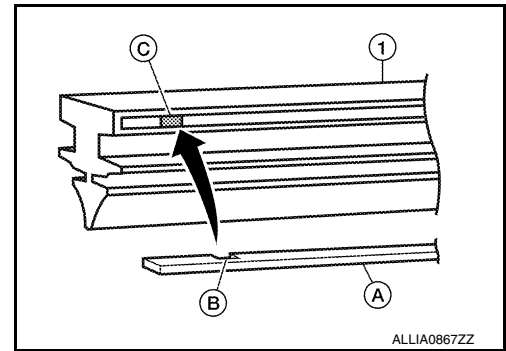
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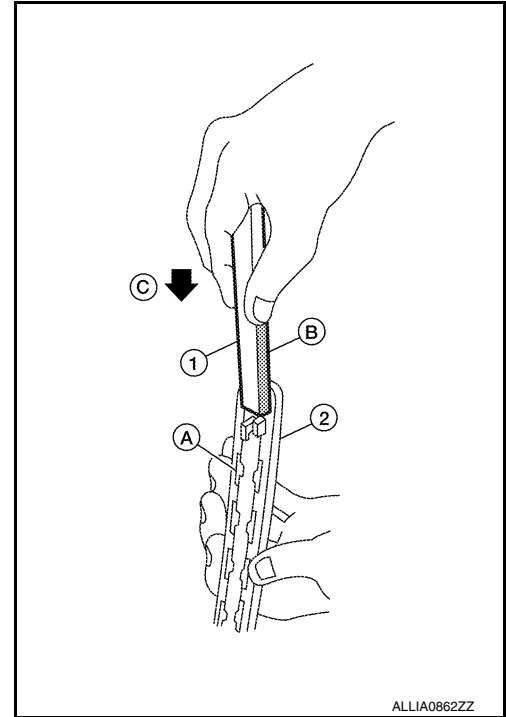
WIPER BLADE

< REMOVAL AND INSTALLATION >

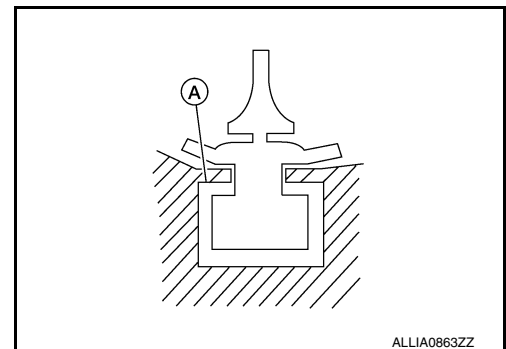
- If the rib (A) has a notch (B), insert the rib (A) into the wiper blade refill (1) so the notch (B) fits over the protrusion (C) in the wiper blade refill (1) as shown.



2. Insert the wiper blade refill (1) tip into the end of the wiper blade (2) in the direction (C). Push the wiper blade refill (1) in while pressing it into the end of the wiper blade (2) as shown. After the wiper blade refill is fully inserted, remove the holder (B). (A): Tab (part of wiper blade) (2)



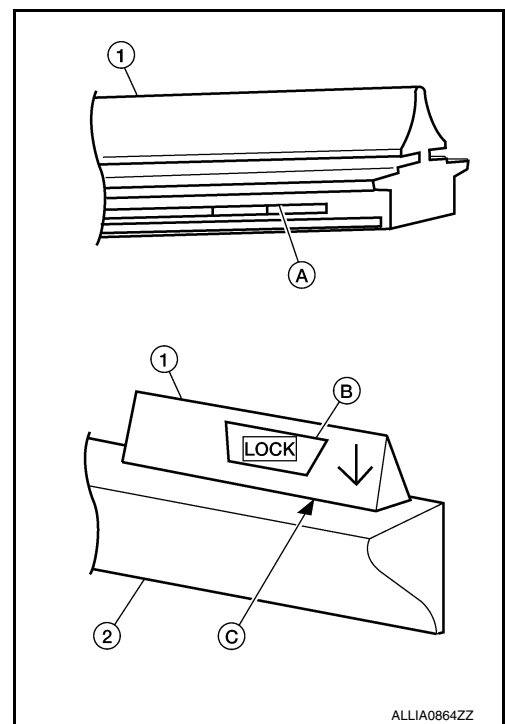
- Make sure to slide the refill into the wiper blade so that the wiper blade refill is held by the tabs (A) on the wiper blade as shown.



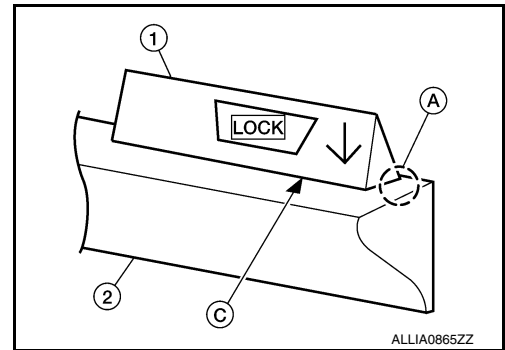
WIPER BLADE

< REMOVAL AND INSTALLATION >

3. Push the wiper blade refill (1) until the tabs on the wiper blade (2) fit into the stoppers (A) in the end of the wiper blade refill (1). Make sure the LOCK mark (B) on the wiper blade refill (1) is aligned with the lock point symbol (C) on the wiper blade (2) as shown.



4. Before installing the wiper blade, make sure that the wiper blade refill (1) end is fully covered by the wiper blade (2) in area (A) as shown.



5. Install the wiper blade. Refer to [WW-60. "WIPER BLADE : Removal and Installation"](#).

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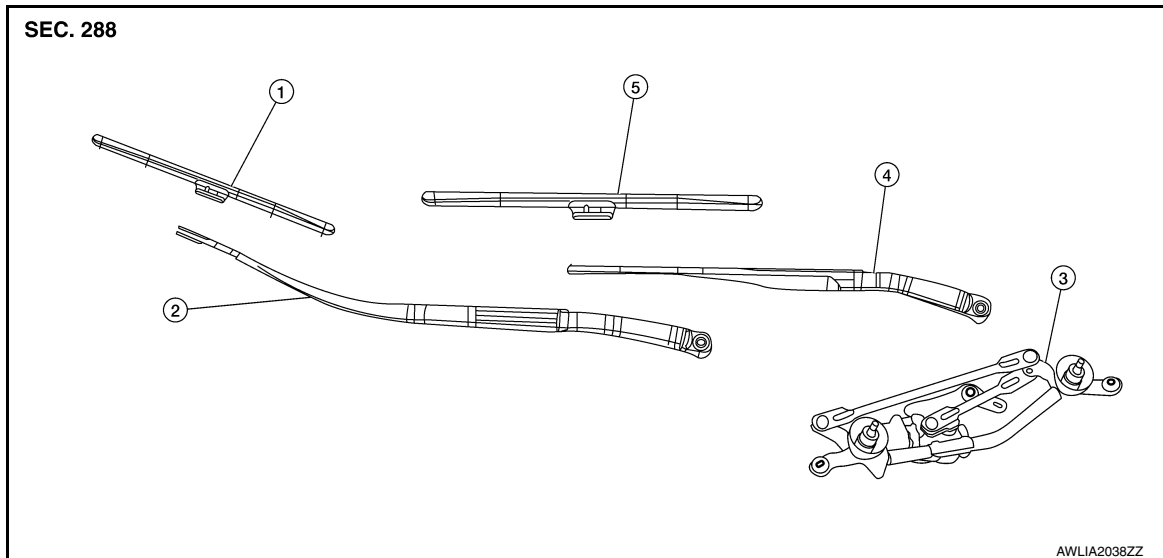
FRONT WIPER DRIVE ASSEMBLY

< REMOVAL AND INSTALLATION >

FRONT WIPER DRIVE ASSEMBLY

Exploded View

INFOID:000000012782984



- | | | |
|---------------------|---------------------|-------------------------|
| 1. Wiper blade (RH) | 2. Wiper arm (RH) | 3. Wiper drive assembly |
| 4. Wiper arm (LH) | 5. Wiper blade (LH) | |

Removal and Installation

INFOID:000000012782985

REMOVAL

1. Remove the cowl top. Refer to [EXT-26, "Removal and Installation"](#).
2. Disconnect the harness connector from the wiper drive assembly.
3. Remove the wiper drive assembly bolts.
4. Remove the wiper drive assembly.

INSTALLATION

1. Install the wiper drive assembly.
2. Install the wiper drive assembly bolts.
3. Connect the harness connector to the wiper drive assembly.
4. Install the cowl top. Refer to [EXT-26, "Removal and Installation"](#).
5. Check the operation of the wiper blades and that they stop at the normal position.

WIPER AND WASHER SWITCH

< REMOVAL AND INSTALLATION >

WIPER AND WASHER SWITCH

Removal and Installation

INFOID:000000012782986

The wiper and washer switch is serviced as an assembly with the combination switch. Refer to [EXL-137](#), "[Removal and Installation](#)".

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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Specifications

INFOID:0000000012782987

WINDSHIELD WASHER FLUID

Windshield washer fluid capacity	4.8 ℓ (5 1/8 US qt, 4 1/4 Imp qt)
Windshield washer fluid specification	Refer to MA-12. "Fluids and Lubricants" .