SECTION WW
WIPER & WASHER

CONTENTS

PRECAUTION 3

PRECAUTIONS 3
Precautions for Removing Battery Terminal 3
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" 3
Precaution for Procedure without Cowl Top Cover.....4

PREPARATION 5

PREPARATION 5
Special Service Tools 5
Commercial Service Tool 5

SYSTEM DESCRIPTION 6

COMPONENT PARTS 6
Component Parts Location 6
Front Wiper Motor 7
Washer Level Switch 8
Washer Pump 8
Rear Wiper Motor 8
Light & Rain Sensor 8
Spray Nozzle Hose Heater 9

SYSTEM 10

FRONT WIPER AND WASHER SYSTEM 10
FRONT WIPER AND WASHER SYSTEM : System Description 10
FRONT WIPER AND WASHER SYSTEM : Circuit Diagram 13

REAR WIPER AND WASHER SYSTEM 13
REAR WIPER AND WASHER SYSTEM : System Description 14
REAR WIPER AND WASHER SYSTEM : Circuit Diagram 16

SPRAY NOZZLE HOSE HEATER SYSTEM 16
SPRAY NOZZLE HOSE HEATER SYSTEM : System Description 17
SPRAY NOZZLE HOSE HEATER SYSTEM : Circuit Diagram 18

INFORMATION DISPLAY (COMBINATION METER) 18
INFORMATION DISPLAY (COMBINATION METER) : Washer Fluid Warning 18
INFORMATION DISPLAY (COMBINATION METER) : Wiper Malfunctioning 19

DIAGNOSIS SYSTEM (LIGHT & RAIN SENSOR) 21
CONSULT Function 21

ECU DIAGNOSIS INFORMATION 22

BCM 22
List of ECU Reference 22

LIGHT & RAIN SENSOR 23
Reference Value 23

WIRING DIAGRAM 24

WIPER AND WASHER SYSTEM 24
Wiring Diagram 24

BASIC INSPECTION 32

ADDITIONAL SERVICE WHEN REPLACING (LIGHT & RAIN SENSOR) 32
Description 32
Work Procedure 32

CONFIGURATION (LIGHT & RAIN SENSOR)...33
Description 33
Work Procedure 33

DTC/CIRCUIT DIAGNOSIS 34

B1F4C FRONT WIPER RELAY 34
DTC Description 34
Diagnosis Procedure 34

B1F4D FRONT WIPER HI/LO RELAY 37
DTC Description 37
Diagnosis Procedure 37

B221D LIGHT & RAIN SENSOR 40
DTC Description 40
Diagnosis Procedure 41

B22E3 LIGHT & RAIN SENSOR 44
DTC Description 44
Diagnosis Procedure 44

B231A REAR WIPER RELAY 45
DTC Description 45
Diagnosis Procedure 45

B231E WASHER PUMP 48
DTC Description 48
Diagnosis Procedure 48

B2326 WASHER LEVEL SWITCH 51
DTC Description 51
Diagnosis Procedure 51

B235B SPRAY NOZZLE HOSE HEATER 53
DTC Description 53
Diagnosis Procedure 53

B2361 WASHER PUMP 56
DTC Description 56
Diagnosis Procedure 56

B2379 FRONT WIPER MOTOR 59
DTC Description 59
Diagnosis Procedure 59

B23A2 WASHER PUMP 61
DTC Description 61
Diagnosis Procedure 61

REMOVAL AND INSTALLATION 64

FRONT WIPER 64
Exploded View 64

WIPER ARM 64
WIPER ARM : Removal and Installation 64
WIPER ARM : Inspection and Adjustment 65

WIPER BLADE 66
WIPER BLADE : Removal and Installation 66
WIPER BLADE : Adjustment 66

WIPER DRIVE ASSEMBLY 67
WIPER DRIVE ASSEMBLY : Removal and Installation 67

REAR WIPER 69
Exploded View 69

WIPER ARM 69
WIPER ARM : Removal and Installation 69

WIPER BLADE 70
WIPER BLADE : Removal and Installation 70
WIPER BLADE : Adjustment 70

WIPER MOTOR 71
WIPER MOTOR : Removal and Installation 71

FRONT WASHER 73
Exploded View 73
Hydraulic Layout 74

WASHER NOZZLE & TUBE 74
WASHER NOZZLE & TUBE : Removal and Installation 74
WASHER NOZZLE & TUBE : Inspection and Adjustment 74

WASHER TANK 75
WASHER TANK : Removal and Installation 75

WASHER PUMP 75
WASHER PUMP : Removal and Installation 75

REAR WASHER 77
Exploded View 77
Hydraulic Layout 79

WASHER NOZZLE & TUBE 79
WASHER NOZZLE & TUBE : Removal and Installation 79
WASHER NOZZLE & TUBE : Inspection and Adjustment 80

LIGHT & RAIN SENSOR 81
Exploded View 81
Removal and Installation 81

WIPER AND WASHER SWITCH 83
Removal and Installation 83

PRECAUTION

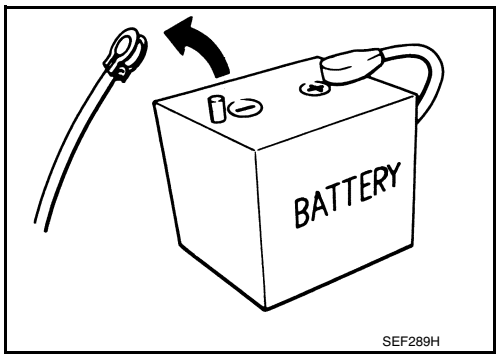
PRECAUTIONS

Precautions for Removing Battery Terminal

INFOID:0000000013637915

When disconnecting the battery terminal, pay attention to the following.
- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

BR08DE	: 4 minutes	YD25DDTi	: 2 minutes
D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		



SEF289H

NOTE:
ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:
- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

NOTE:
If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:
The removal of 12V battery may cause a DTC detection error.

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

INFOID:0000000013637916

Risk of injury

There is a risk of injury caused by parts becoming projectiles if uncontrolled deployment of air bag or seat belt pre-tensioner occurs, or by storing air bag with the deployment side facing downwards. When scrapping air bag or seat belt pre-tensioner by means of controlled deployment, there is also a danger present if a sufficiently safe distance is not maintained, or if opening using cutting torches or other cutting tools, or due to smelting or if parts that are not yet triggered are exposed to a blaze or a smoldering fire at landfills.

Safety instructions/precautions

- Removed air bag must always be stored with deployment side facing up.
- Acquisition, transportation, storage, testing and assembly work should only be performed or supervised by properly trained personnel.
- Install air bag or seat belt pre-tensioner immediately following retrieval from storage.
- Air bag and seat belt pre-tensioner must be protected from flying sparks, open fires and temperature exceeding 100°C (212°F).

- Never transport air bag and seat belt pre-tensioner in the passenger compartment. Store them securely in the luggage room of the vehicle in their original replacement part packaging and secure them so that they cannot slip around.
- Never allow air bag and seat belt pre-tensioner to come into contact with grease, oil, or cleaning agents.
- Perform system tests using approved testing equipment only, and only when the units are properly installed and the vehicle is unoccupied.
- Before the initial hookup of the battery or an external power supply, the ignition must be switched on and the vehicle unoccupied.
- Air bag and seat belt pre-tensioner that fall from a height of more than 0.5 m must be replaced.
- When scrapping by means of controlled deployment of air bag and seat belt pre-tensioner, a safe distance of at least 10 m must be maintained.
- Before starting work on air bag and seat belt pre-tensioner and work on components that are connected to air bag and seat belt pre-tensioner or require and intervention in their electric circuit (e.g. when removing the steering wheel):

- Disconnect any external power sources (e.g. charger).
- Disconnect and insulate ground line of battery

- Before starting bodywork in combination with welding or retrofitting, during which work is performed on uninsulated, current-carrying lines or require an intervention in their electric circuit (e.g. when removing the steering wheel):

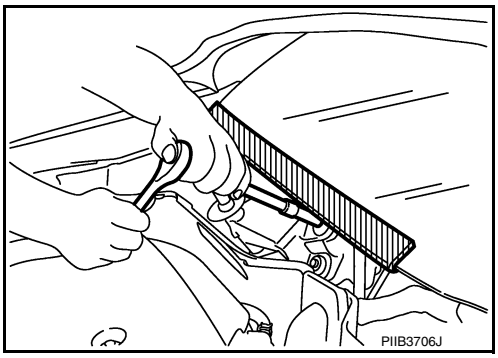
- Disconnect any external power sources (e.g. charger).
- Disconnect and insulate ground line of battery.
- During welding, disconnect plug connection and from control unit of air bag.

- When the air bag deploys, the pyrofuse activates and the power source from the battery is disconnected. This prevents possible fires caused by electric leakage after an accident occurs.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000013637917

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

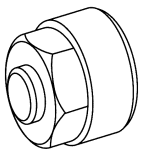
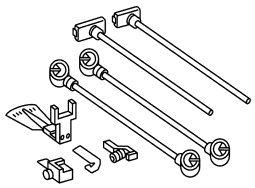
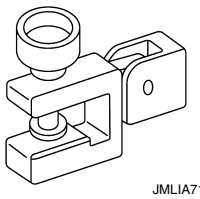


PREPARATION

PREPARATION

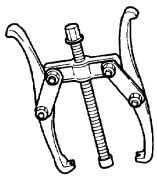
Special Service Tools

INFOID:0000000013637918

Tool number (DAIMLER tool No.) Tool name	Description
KV995H0220 (W210589046300) Thrust washer M10×1.5  JMLIA7172ZZ	Protect thread when removeing wiper arm.
KV995H0230 (W211589022100) Adjusting tool set  JMLIA7170ZZ	Inspction and adjustment of angle of incidence of wiper arm to windshield glass.
KV995H0240 (W211589052100) Adapter  JMLIA7171ZZ	Inspction and adjustment of angle of incidence of wiper arm to windshield glass.

Commercial Service Tool

INFOID:0000000013637919

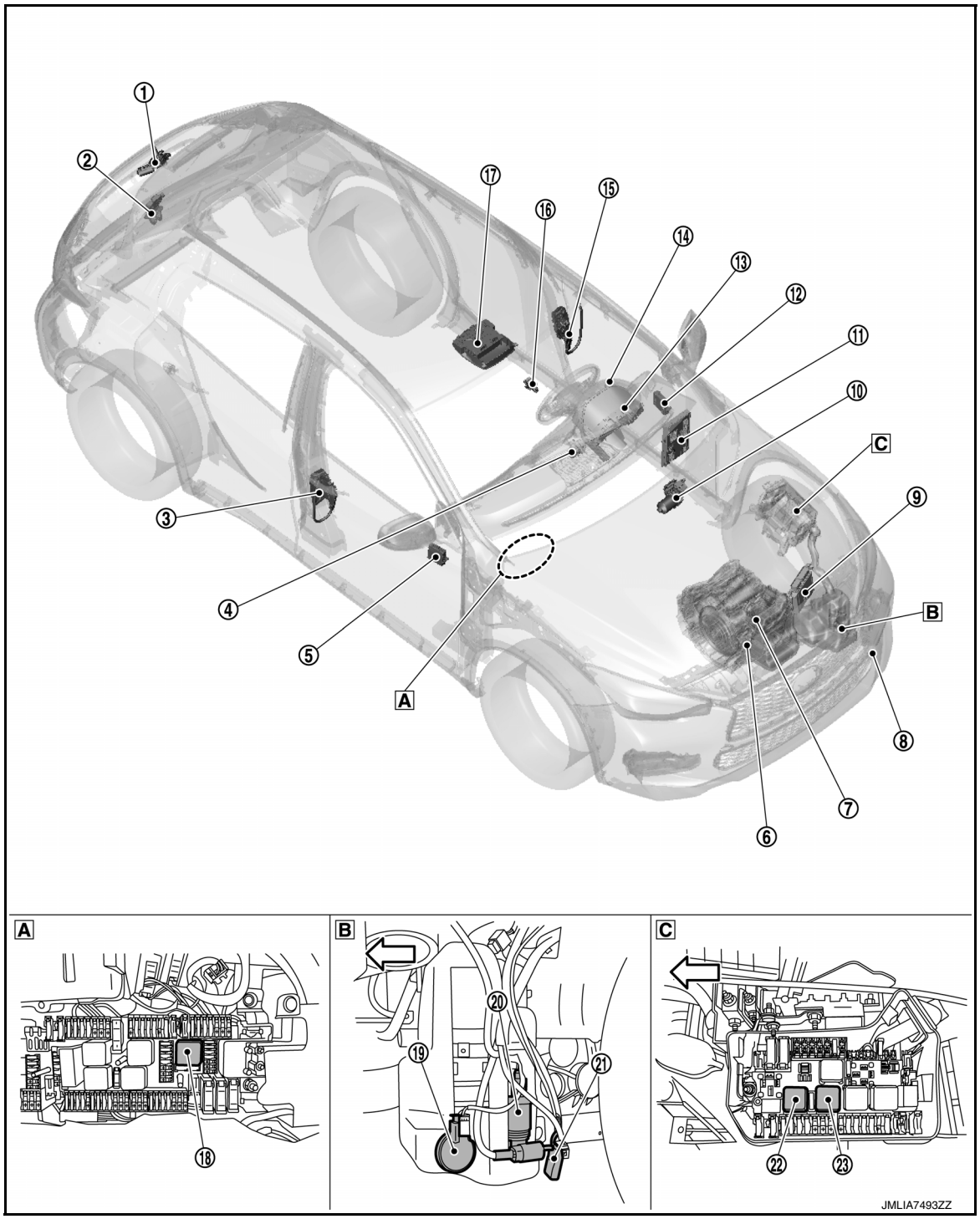
Tool name	Description
Puller  ZZA0119D	Removing wiper arm.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000013637920



A Behind of glove box

B Washer tank

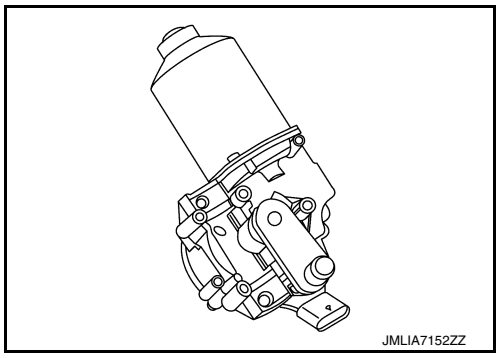
C Left side of engine room area

No.	Component	Function
①	Rear wiper motor	Refer to WW-8, "Rear Wiper Motor".
②	Back door lock assembly	Refer to DLK-10, "DOOR LOCK SYSTEM : Component Parts Location".
③	Front door lock assembly (passenger side)	Refer to DLK-10, "DOOR LOCK SYSTEM : Component Parts Location".
④	Electronic ignition switch control unit	Refer to PCS-5, "Component Parts Location".
⑤	Right front door control unit	Refer to DLK-10, "DOOR LOCK SYSTEM : Component Parts Location".
⑥	Hood switch	Refer to SEC-4, "Component Parts Location".
⑦	TCM	Refer to TM-17, "Component Parts Location".
⑧	Ambient sensor	Refer to HAC-6, "Component Parts Location".
⑨	ECM	Refer to EC-27, "Component Parts Location".
⑩	Front wiper motor	Refer to WW-7, "Front Wiper Motor".
⑪	BCM	Refer to BCS-8, "BODY CONTROL SYSTEM : Component Parts Location".
⑫	Left front door control unit	Refer to DLK-10, "DOOR LOCK SYSTEM : Component Parts Location".
⑬	Combination meter	Transmits vehicle speed signal to BCM via CAN communication.
⑭	Steering column control module	Refer to BCS-9, "STEERING COLUMN CONTROL SYSTEM : Component Parts Location".
⑮	Front door lock assembly (driver side)	Refer to DLK-10, "DOOR LOCK SYSTEM : Component Parts Location".
⑯	Light & rain sensor	Refer to WW-8, "Light & Rain Sensor".
⑰	Overhead control panel control unit	Overhead control panel control unit transmits light & rain sensor signal to BCM via LIN communication.
⑱	Rear wiper relay	Rear wiper relay is controlled by BCM.
⑲	Washer level switch	Refer to WW-8, "Washer Level Switch".
⑳	Washer pump	Refer to WW-8, "Washer Pump".
㉑	Spray nozzle hose heater	Refer to WW-9, "Spray Nozzle Hose Heater".
㉒	Front wiper HI/LO relay	Front wiper HI/LO relay is controlled by BCM.
㉓	Front wiper relay	Front wiper HI/LO relay is controlled by BCM.

Front Wiper Motor

INFOID:0000000013637921

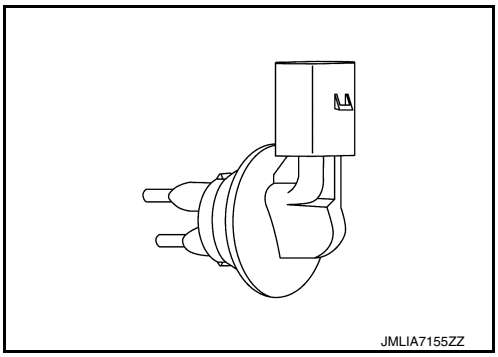
Controls front wiper operation with BCM control.



Washer Level Switch

INFOID:0000000013637922

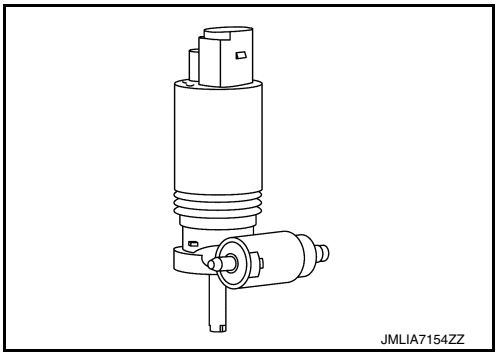
Detects that washer fluid level is low and transmits washer level switch signal to BCM.



Washer Pump

INFOID:0000000013637923

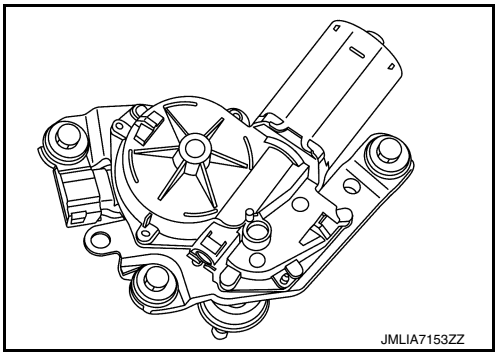
Washer fluid is sprayed according to washer switch states.



Rear Wiper Motor

INFOID:0000000013637924

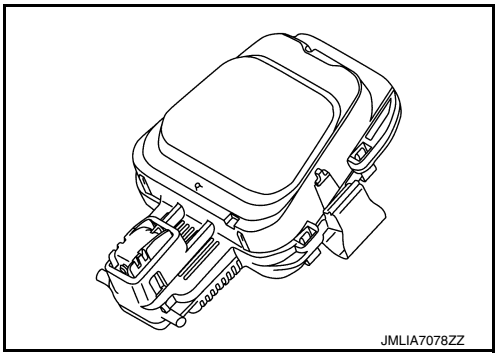
Controls rear wiper operation with BCM control.



Light & Rain Sensor

INFOID:0000000013637925

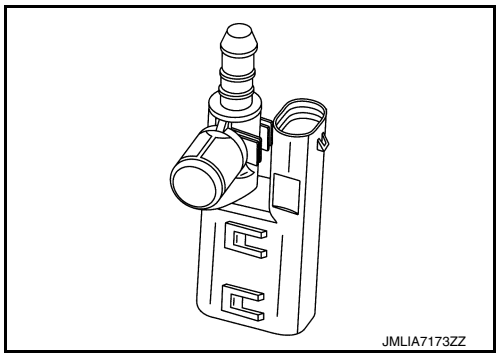
Detects water droplets on the windshield with infrared rays, and transmits the light & rain sensor signal to BCM via the rain sensor serial link.



Spray Nozzle Hose Heater

INFOID:0000000013637926

The spray nozzle and spray nozzle hose heater prevents the washer fluid in the spray nozzles and the spray nozzle hose from freezing.



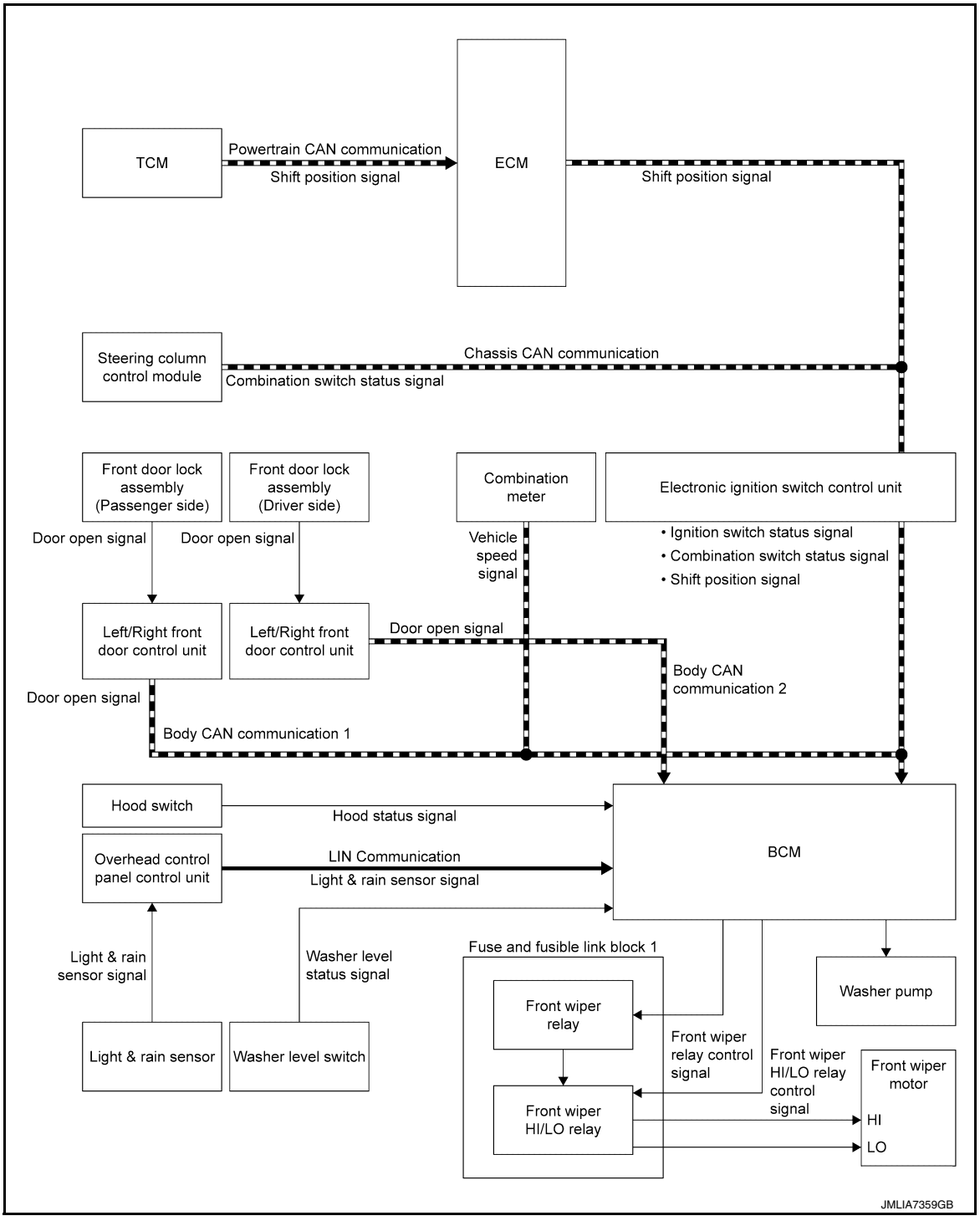
SYSTEM

FRONT WIPER AND WASHER SYSTEM

FRONT WIPER AND WASHER SYSTEM : System Description

INFOID:0000000013637927

SYSTEM DIAGRAM



OUTLINE

The front wiper is controlled by each function of BCM.

Control by BCM

- Combination switch reading function
- Front wiper control function

- Relay control function

FRONT WIPER BASIC OPERATION

- Steering column control module detects the combination switch condition by the combination switch reading function.
- Steering column control module transmits the front wiper request signal to BCM via CAN communication depending on each operating condition of the front wiper.
- BCM turns ON/OFF the front wiper relay and front wiper HI/LO relay.

FRONT WIPER LO OPERATION

- Steering column control module transmits the front wiper request signal (LO) to BCM via CAN communication according to the front wiper LO operating condition.

Front wiper LO operating condition

- Ignition switch ON
- Front wiper switch LO (intermittent wiper, low) or front wiper switch MIST (while pressing)

- BCM turns ON the front wiper relay.

FRONT WIPER HI OPERATION

- Steering column control module transmits the front wiper request signal (HI) to BCM via CAN communication according to the front wiper HI operating condition.

Front wiper HI operating condition

- Ignition switch ON
- Front wiper switch HI (intermittent wiper, high)

- BCM turns ON the front wiper relay and front wiper HI/LO relay.

FRONT WIPER AUTO OPERATION

Rain Detection

Rain level and sensor conditions are detected by light & rain sensor.

- BCM transmits the vehicle conditions (front wiper condition, light & rain sensor sensitivity setting, etc.) to the light & rain sensor via the light & rain sensor serial link.
- Light & rain sensor judges the wiping speed for front wiper by rain condition and the vehicle conditions. It also and it transmits the wiping speed request signal to the BCM via the light & rain sensor serial link.

Auto Wiping Operation

BCM receives the wiping speed request signal from the light & rain sensor via the light & rain sensor serial link.

Front wiper AUTO operating condition

- Ignition switch ON
- Front wiper switch AUTO (continuous wiper, slow or fast)

NOTE:

When the front wiper switch is turned to continuous slow or fast position, front wiper operates once regardless of rainy conditions.

Light & Rain Sensor Sensitivity Setting

BCM determines light & rain sensor sensitivity according to wipe switch position.

Wiper switch position	Sensitivity
1	Low sensitivity
2	High sensitivity

NOTE:

When the wiper switch position is turned up by one level under front wiper AUTO operating condition, front wiper operates once.

FRONT WIPER DROP WIPE OPERATION

- BCM controls the front wiper to operate according to the conditions of front wiper drop wipe operation.
- Steering column control module transmits the front wiper request signal to BCM via CAN communication so that the front wiper operates after front wiper operation with washer.

Front wiper drop wipe operating condition

- Ignition switch ON

- Front wiper switch OFF
- Front washer switch OFF

Number of after wiper cycles
- Actuation time is 200 ms or less: After wiping does not take place.
- Actuation time is 1 sec or less: After wiping takes place once.
- Actuation time is more than 1 sec: After wiping takes place three times.

WIPER START SUPPRESSION FUNCTION

The wiper startup suppression is for preventing people from being sprayed with water from the windshield, when getting in or out of the vehicle, as the result of an initiated wipe operation.

Wiper Start Suppression Operation
- If a door is opened during a wipe procedure, the BCM interrupts the actuation of the wiper motor.
- The opening of the left/right front door is recognized by the status of the left/right front door switch in the left/right front door lock assembly. The left/right front door control unit reads in the status of the left/right front door switch directly, and sends it to the BCM via body CAN communication 2.
- The BCM reads in all relevant information, evaluates it and interrupts actuation of the wiper motor. An already started wiping procedure is not interrupted immediately. The wipers continue to move to the stop position.

Wiper start suppression operating conditions
- Ignition switch ON
- Vehicle speed: 3 km/h or less
- Combination switch in position: Intermittent wiper, low or high
- Light & rain sensor detects moisture on the windshield (with light & rain sensor models)
- Driver or passenger door opened
- Selector lever in position “P”

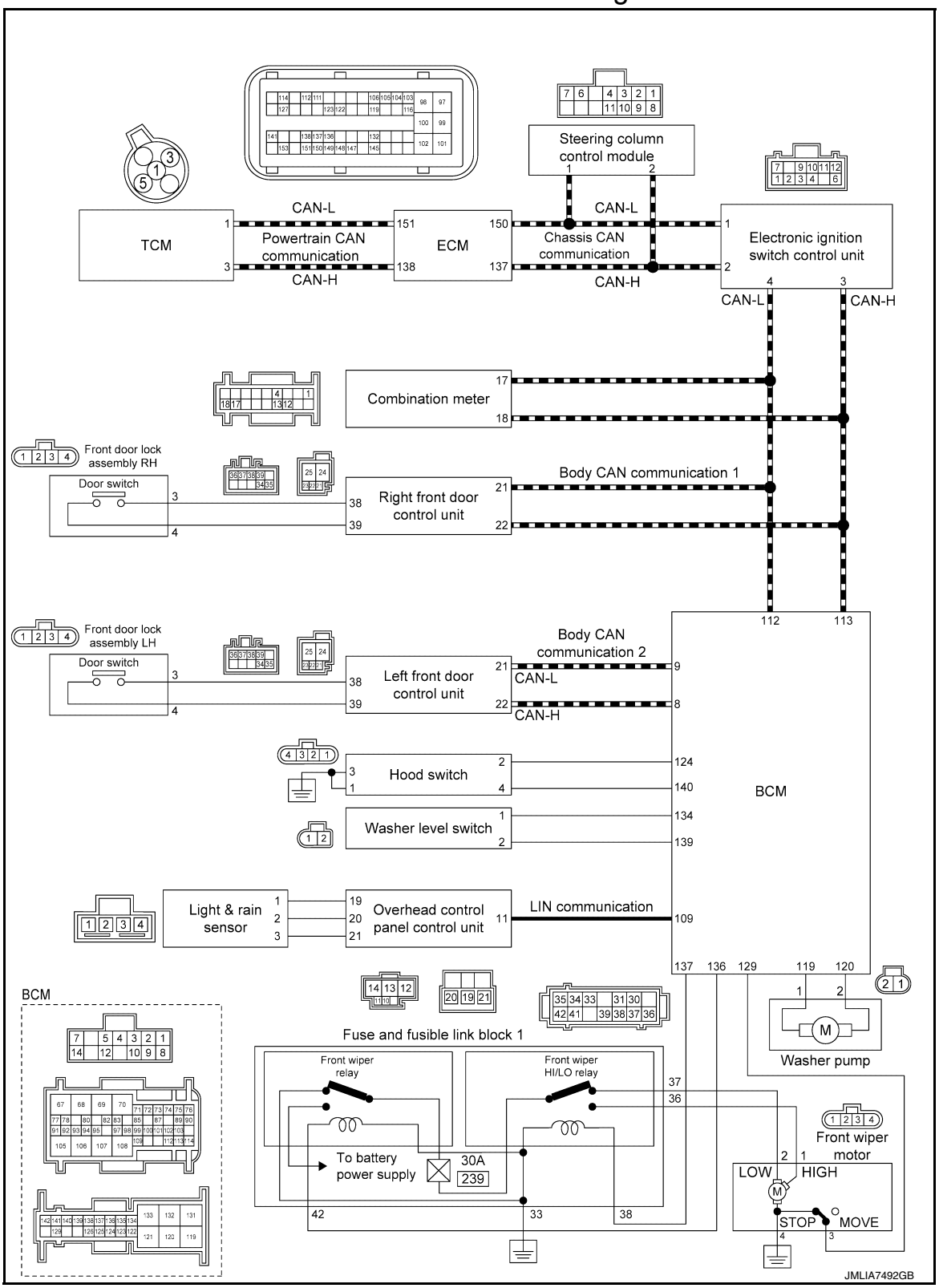
Wiper start suppression cancel conditions
- Ignition switch OFF or ACC
- Vehicle speed: More than 3 km/h
- Combination switch in position: Continuous wiper, slow or fast
- MIST or wash function activated
- Driver and passenger door closed
- Selector lever in position “D” or “R”

WIPER STOP FUNCTION

The wipe stop function prevents the wiper motor from being actuated by the BCM when the engine hood is open for preventing damage to the vehicle. If the engine hood is opened when vehicle speed is 3 km/h or less, the BCM immediately stops the wiper motor actuation. When vehicle speed is more than 6 km/h, the wiper stop function is deactivated, i.e. the wiper motor is actuated again from this speed onwards.

FRONT WIPER AND WASHER SYSTEM : Circuit Diagram

INFOID:0000000013637928

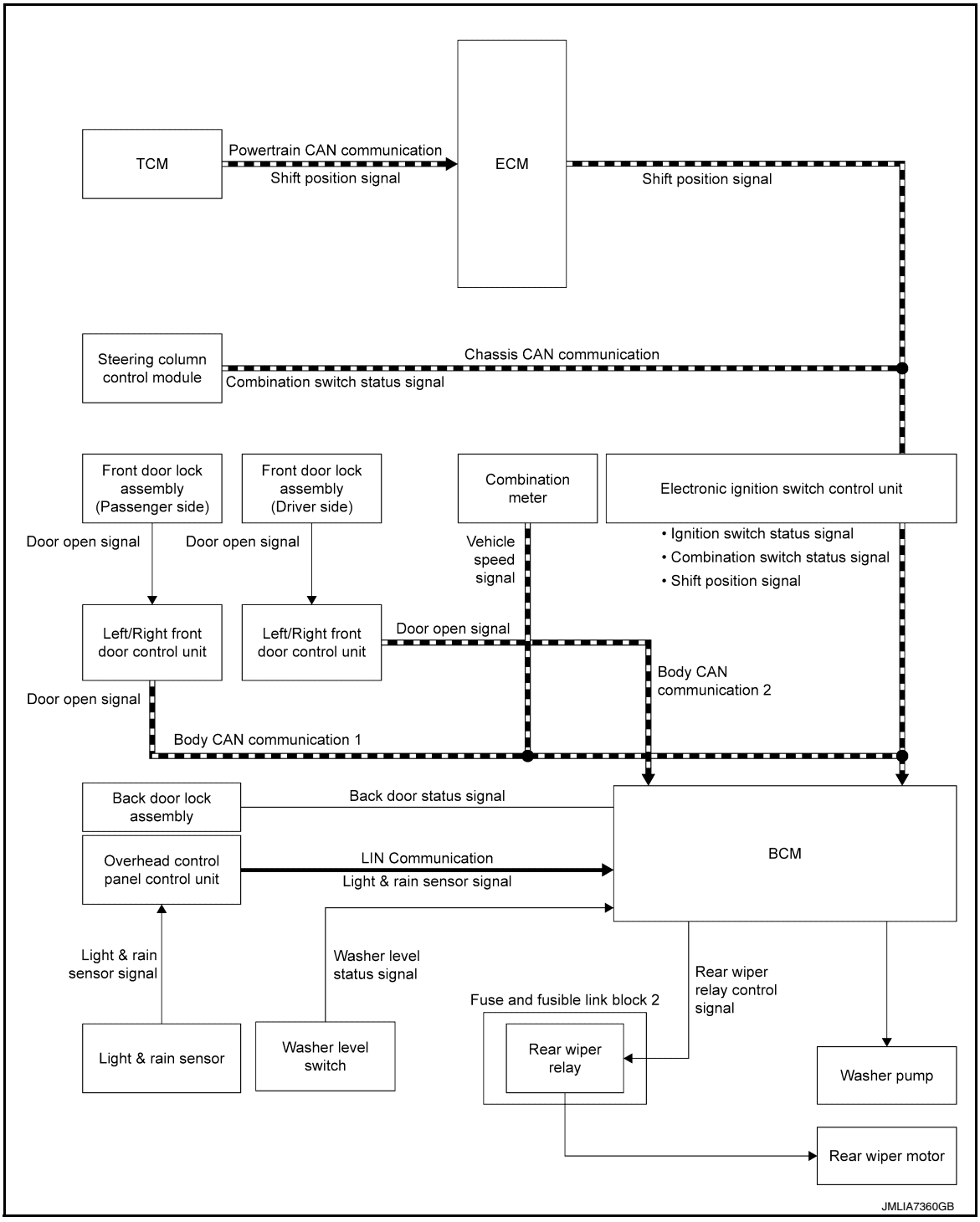


REAR WIPER AND WASHER SYSTEM

REAR WIPER AND WASHER SYSTEM : System Description

INFOID:0000000013637929

SYSTEM DIAGRAM



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

- Steering column control module 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 turns ON the rear wiper relay according to the rear wiper request signal.

Rear wiper ON operating condition
- Ignition switch ON
- Rear wiper switch ON

REAR WIPER INT OPERATION

• Steering column control module transmits the rear wiper request signal to BCM via CAN communication according to the rear wiper INT operating condition.
• BCM controls the rear wiper to operate once.
• BCM detects the rear wiper motor stop position.

Rear wiper INT operating condition
- Ignition switch ON
- Rear wiper switch INT

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

REAR WIPER OPERATION LINKED WITH REVERSE

BCM controls rear wiper to operate according to the conditions of rear wiper operation linked with reverse.

Condition of rear wiper operation linked with reverse
• Ignition switch ON
• Front wiper switch: INT or AUTO
• Rear wiper switch OFF
• Selector lever “R”
• When selector lever is shifted to “R”, BCM receives the shift position signal from electronic ignition switch control unit via CAN communication, and then operates rear wiper motor.

WIPER START SUPPRESSION FUNCTION

The wiper startup suppression is for preventing people from being sprayed with water from the windshield, when getting in or out of the vehicle, as the result of an initiated wipe operation.

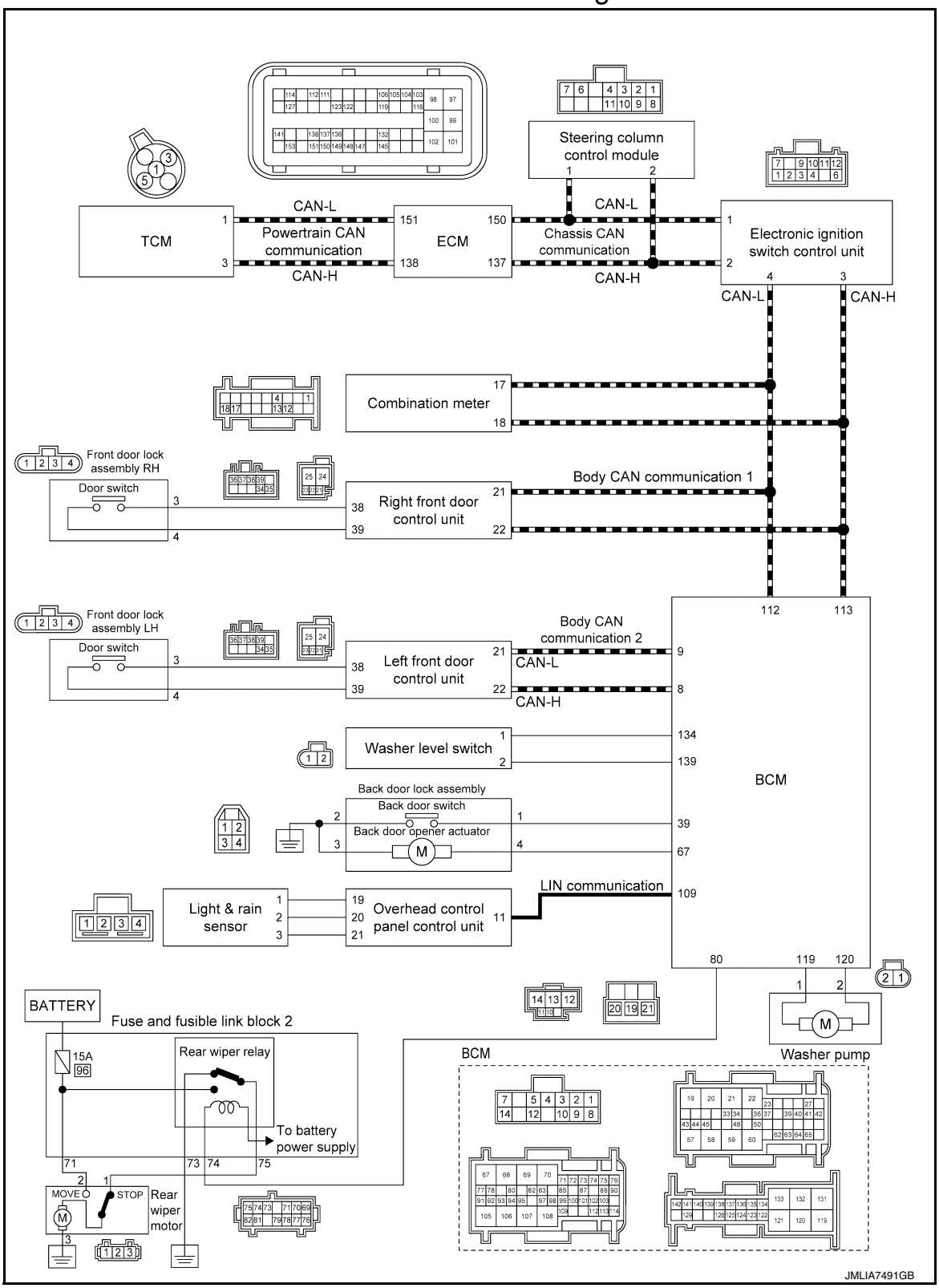
Wiper Start Suppression Operation
• If a door is opened during a wipe procedure, the BCM interrupts the actuation of the wiper motor.
• The opening of the left/right front door is recognized by the status of the left/right front door switch in the left/right front door lock assembly. The left/right front door control unit reads in the status of the left/right front door switch directly, and sends it to the BCM via interior CAN.
• The opening of the back door is recognized by the status of the back door switch in the back door lock assembly. The BCM reads in the status of the back door switch directly.
• The BCM reads in all relevant information, evaluates it and interrupts actuation of the wiper motor. An already started wiping procedure is not interrupted immediately. The wipers continue to move to the stop position.

Wiper start suppression operating conditions
• Ignition switch ON
• Vehicle speed: 3 km/h or less
• Rear wiper switch ON
• Driver door, passenger door, or back door opened
• Selector lever in position “P”

Wiper start suppression cancel conditions
• Ignition switch OFF or ACC
• Vehicle speed: More than 3 km/h
• Driver door, passenger door, and back door closed
• Selector lever in position “D” or “R”

REAR WIPER AND WASHER SYSTEM : Circuit Diagram

INFOID:0000000013637930

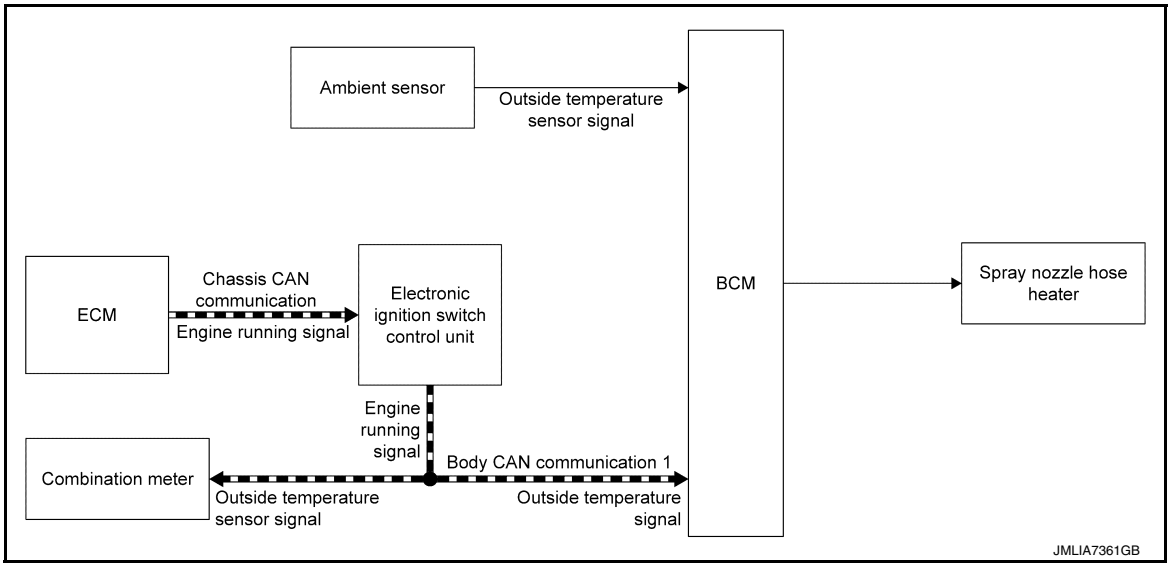


SPRAY NOZZLE HOSE HEATER SYSTEM

SPRAY NOZZLE HOSE HEATER SYSTEM : System Description

INFOID:0000000013637931

SYSTEM DIAGRAM



OUTLINE

The spray nozzle and spray nozzle hose heater prevents the washer fluid in the spray nozzles and the spray nozzle hose from freezing.

SPRAY NOZZLE HOSE HEATER OPERATION

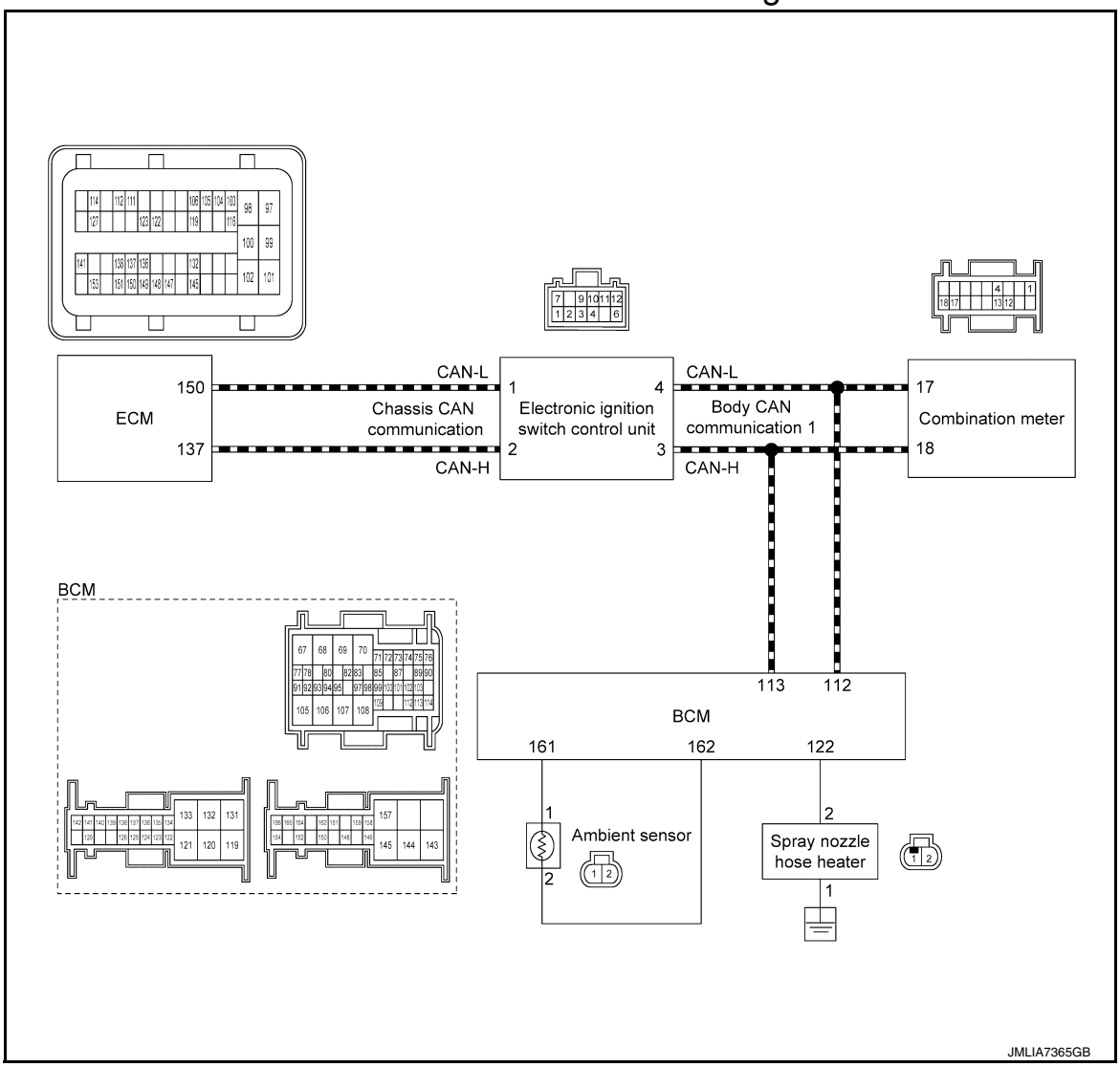
- ECM transmits the engine running signal to the BCM via the chassis CAN communication, the electronic ignition switch control unit, and the body CAN communication 1.
- The outside temperature is detected by the outside temperature sensor. The BCM directly reads in the signal of the outside temperature sensor, calculates the outside temperature, and sends it to the combination meter over the body CAN communication 1. The combination meter calculates the outside temperature to be displayed, taking the vehicle speed and the heat given off by the engine into consideration, and sends this to the BCM via body CAN communication 1. If the BCM cannot receive an outside temperature value from the instrument cluster, it calculates the outside temperature by itself.

Spray Nozzle Hose Heater Operating Condition

- Engine running
- Outside temperature is 5°C or less

SPRAY NOZZLE HOSE HEATER SYSTEM : Circuit Diagram

INFOID:0000000013637932



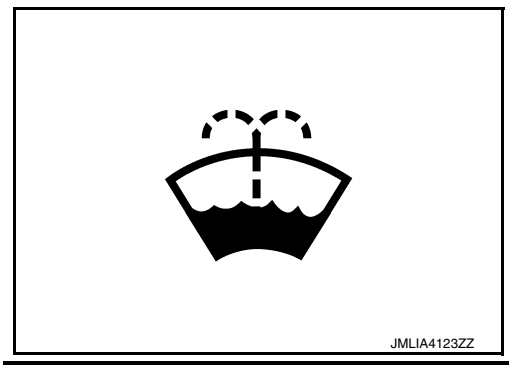
INFORMATION DISPLAY (COMBINATION METER)

INFORMATION DISPLAY (COMBINATION METER) : Washer Fluid Warning

INFOID:0000000013637933

DESIGN/PURPOSE

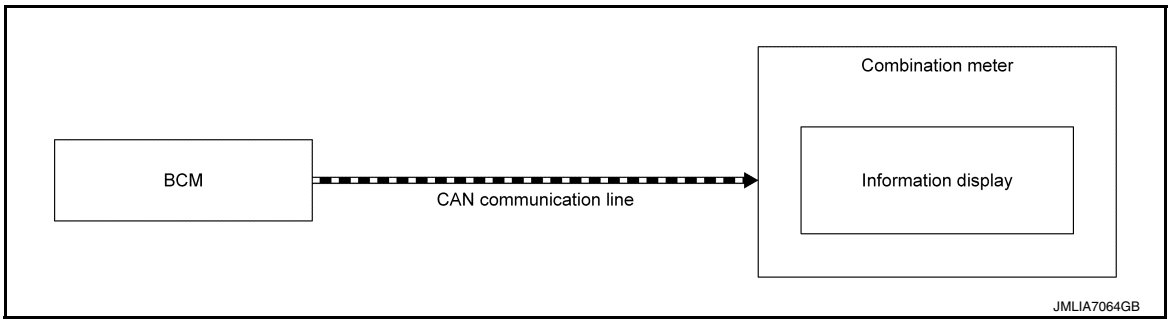
Washer fluid warning reminds driver the washer fluid is insufficient.

Symbol	Message
 JMLIA4123ZZ	Check Washer Fluid

SYNCHRONIZATION WITH MASTER WARNING LAMP

Not applicable

SYSTEM DIAGRAM



SIGNAL PATH

- When washer fluid level is low, BCM transmits washer level switch signal to combination meter.
- Combination meter displays the washer fluid warning according to washer level switch signal.

WARNING/INDICATOR OPERATING CONDITION

When all conditions listed below are satisfied:

- Ignition switch is ON.
- Washer fluid is insufficient.

WARNING/INDICATOR CANCEL CONDITION

When any of the condition listed below is satisfied:

- Ignition switch is OFF.
- After filling the washer fluid.

INFORMATION DISPLAY (COMBINATION METER) : Wiper Malfunctioning

INFOID:0000000013637934

DESIGN/PURPOSE

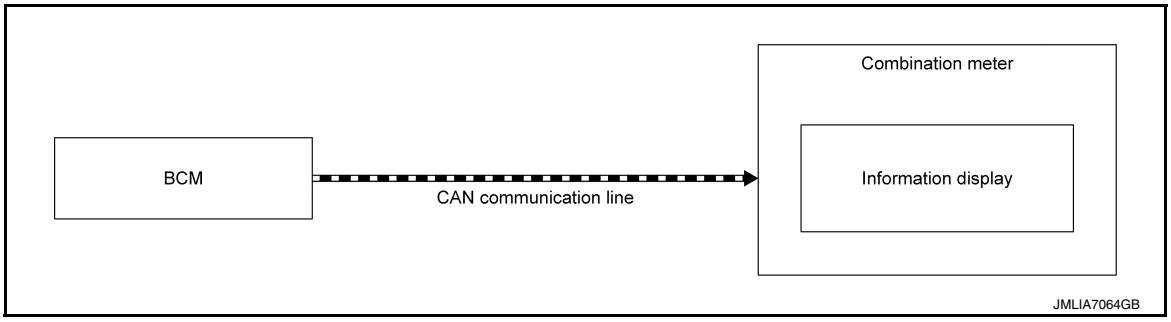
To warn the driver when wiper malfunctioning.

Symbol	Message
—	Wiper Malfunctioning

SYNCHRONIZATION WITH MASTER WARNING LAMP

Not applicable

SYSTEM DIAGRAM



SIGNAL PATH

- When a malfunction is detected, BCM transmits the malfunctioning signal to combination meter.
- Combination meter displays the wiper malfunction according to received signal.

WARNING/INDICATOR OPERATING CONDITION

When all of the conditions listed below are satisfied:

- Ignition switch is ON.
- Wiper system malfunctioning.

WARNING/INDICATOR CANCEL CONDITION

When any of the condition listed below is satisfied:

- Ignition switch is OFF.
- Wiper system normal.

DIAGNOSIS SYSTEM (LIGHT & RAIN SENSOR)

CONSULT Function

INFOID:0000000013637935

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with LIGHT & RAIN SENSOR.

Diagnosis mode	Description
Work Support	Changes the setting for each system function.
Data Monitor	The LIGHT & RAIN SENSOR input/output signals are displayed.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item [Unit]	Description
ADAPTION STATUS [Finished/Run (old)/FAILED/ LOW VOLTAGE/6-ff]	Displays the condition of light & rain sensor learning.
WINDSCREEN ADAPTATION [OK/NOT OK]	—
LAST ACTIVATION RAIN CLOS [No clos/Rain/Timeout/LOW VOLTAGE/HIGH VOLTAGE/Udr temp/Ovr temp/Inter Err/ECU clos/ECU rain/ECU time/ECU un v/ECU ov v/ECU un t/ECU ov t/ ECU int]	—

WORK SUPPORT

Test item	Description
Adaptation of component of rain sensor	Performs the calibration of light & rain sensor.

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000013637936

ECU	Reference
BCM	BCS-32, "Reference Value"
	BCS-50, "Fail-safe"
	BCS-51, "DTC Index"

LIGHT & RAIN SENSOR

Reference Value

INFOID:0000000013637937

VALUES ON THE DIAGNOSIS TOOL

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

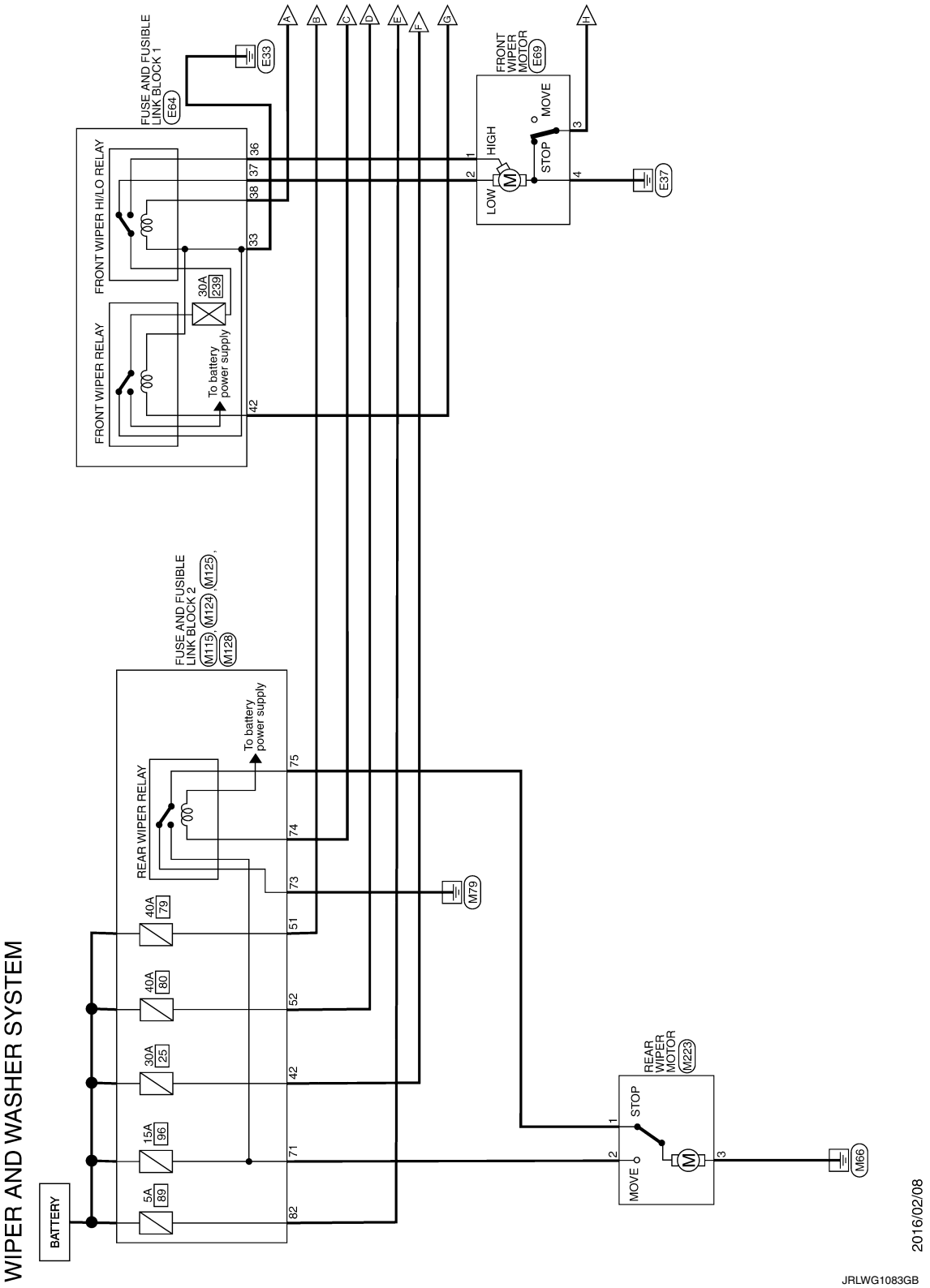
Monitor Item	Condition	Value/Status
ADAPTION STATUS	—	Finished
	—	Run (old)
	—	FAILED
	—	LOWVOLTAGE
	—	6-ff
WINDSCREEN ADAPTATION	—	OK
	—	NOT OK
LAST ACTIVATION RAIN CLOS	—	No clos
	—	Rain
	—	Timeout
	—	LOW VOLTAGE
	—	HIGH VOLTAGE
	—	Udr temp
	—	Ovr temp
	—	Inter Err
	—	ECU clos
	—	ECU rain
	—	ECU time
	—	ECU un v
	—	ECU ov v
	—	ECU un t
	—	ECU ov t
	—	ECU int

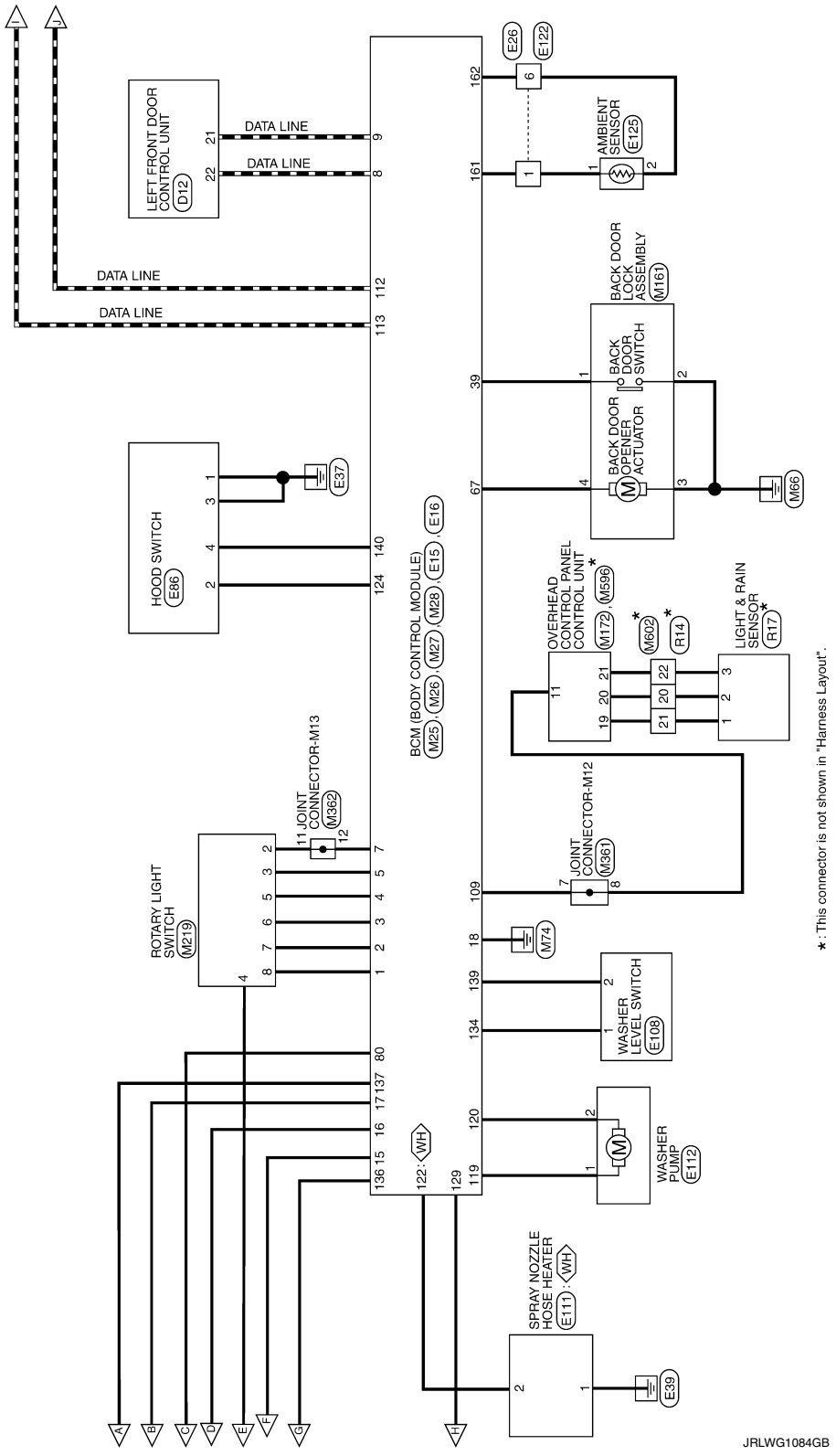
WIRING DIAGRAM

WIPER AND WASHER SYSTEM

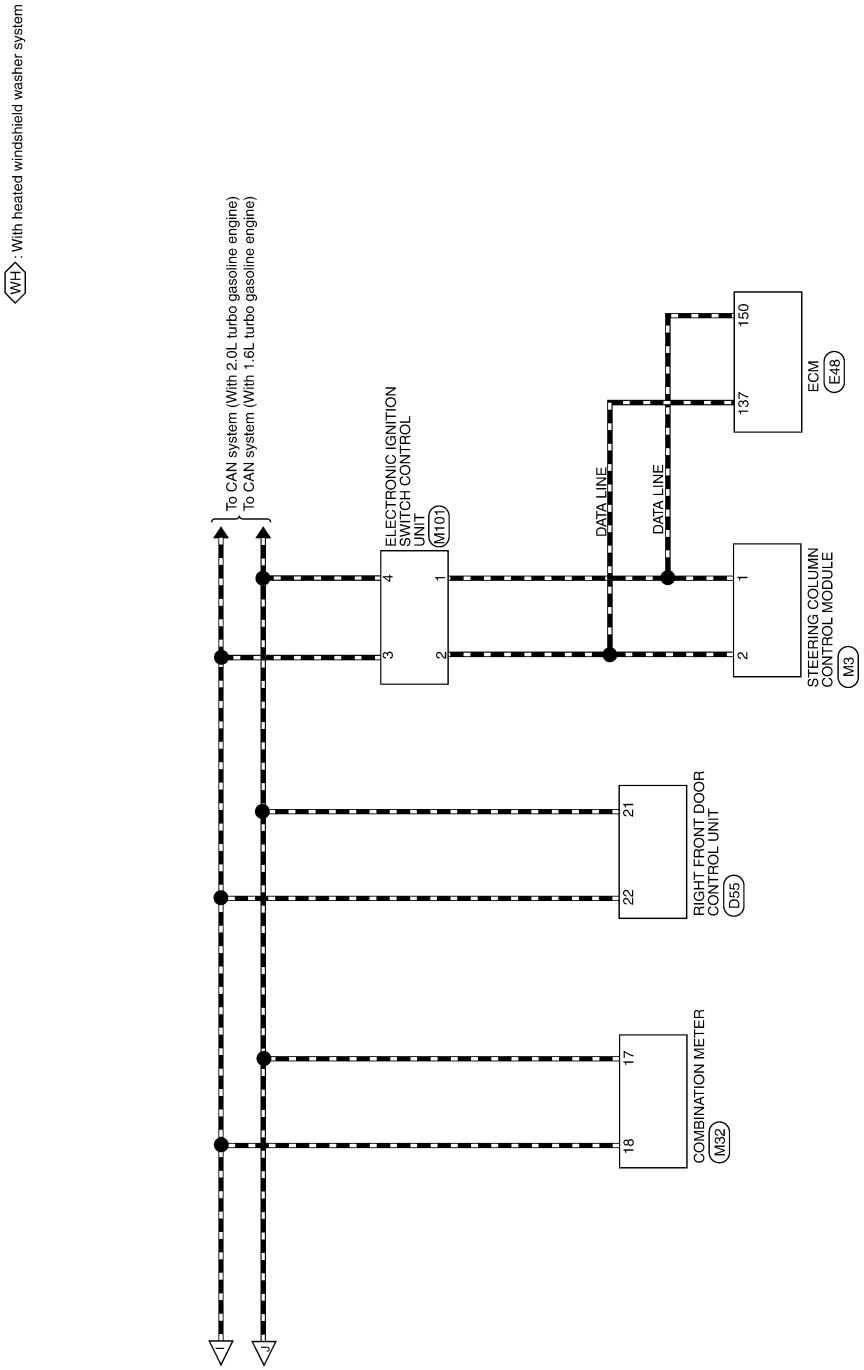
Wiring Diagram

INFOID:0000000013637938





*: This connector is not shown in "Harness Layout".


WH : With heated windshield washer system
To CAN system (With 2.0L turbo gasoline engine)
To CAN system (With 1.6L turbo gasoline engine)
ELECTRONIC IGNITION SWITCH CONTROL UNIT (M101)
4
3
1
2
DATA LINE
DATA LINE
ECM (E48)
150
137
STEERING COLUMN CONTROL MODULE (M3)
1
2
RIGHT FRONT DOOR CONTROL UNIT (D55)
21
22
COMBINATION METER (M32)
17
18
JRLWG1085GB

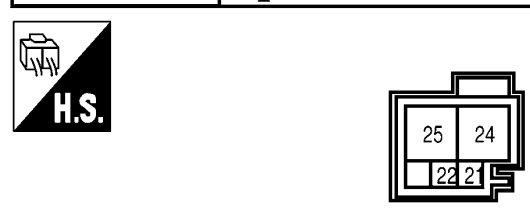
WIPER AND WASHER SYSTEM

Connector No.	D12
Connector Name	LEFT FRONT DOOR CONTROL UNIT
Connector Type	MB_A0025406281



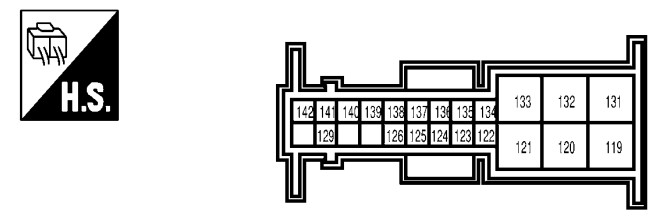
Terminal No.	Color Of Wire	Signal Name [Specification]
21	BR	BODY CAN 2-L
22	R	BODY CAN 2-H
23	L	ROTARY CATCH SIGNAL
24	BR	GROUND
25	R	BATTERY POWER SUPPLY

Connector No.	D55
Connector Name	RIGHT FRONT DOOR CONTROL UNIT
Connector Type	MB_A0025406281



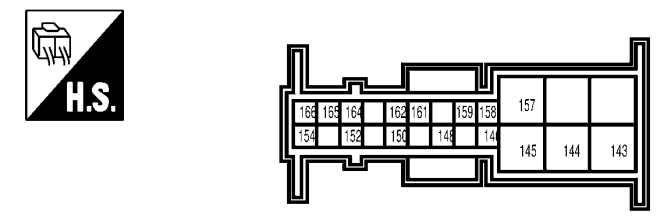
Terminal No.	Color Of Wire	Signal Name [Specification]
21	BR	BODY CAN 1-L
22	R	BODY CAN 1-H
24	BR	GROUND
25	R	BATTERY POWER SUPPLY

Connector No.	E15
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A1665400081



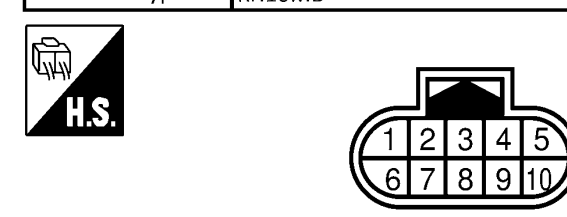
Terminal No.	Color Of Wire	Signal Name [Specification]
119	V	RR WASHER CONT
120	GR	FR WASHER CONT
121	W	BRAKE PEDAL
122	Y	SPARY NOZZLE HOSE HEATER POWER SUPPLY
123	G	INJECTION RELAY CONT
124	BR	HOOD SWITCH STATUS 1
125	B	Kl.15 MOTORST
126	GR	PARKING LAMP LH
129	G	FRONT WIPER STOP POSITION
131	Y	FRONT FOG LAMP LH
132	O	HIGH BEAM LH
133	L	LOW BEAM RH [With halogen lamp]
133	Y	LOW BEAM RH [With LED lamp]
134	BR	WASHER LEVEL SW GND
135	P	HORN CONT
136	R	FR WIPER RELAY CONT
137	V	FR WIPER HI/LO RELAY CONT
138	G	BRAKE FLUID LEVEL SW SIG
139	L	WASHER LEVEL SW SIG
140	Y	HOOD SWITCH STATUS 2
141	R	WARM START
142	V	FRONT TURN SIGNAL LH

Connector No.	E16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A1665400181



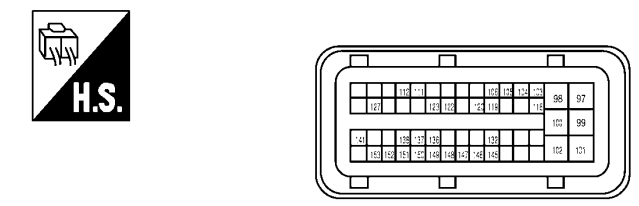
Terminal No.	Color Of Wire	Signal Name [Specification]
143	Y	FRONT FOG LAMP RH
144	W	HIGH BEAM RH
145	GR	LOW BEAM LH
146	P	FRONT TURN SIGNAL RH
148	V	FR BRAKE WEAR SENSOR RH
150	GR	PARKING LAMP RH
152	L	LIN (BAT SENSOR)
154	Y	HEADLAMP AIMING RH
157	O	SSK STAT
158	R	COOLANT LEVEL SW SIG
159	BR	COOLANT LEVEL SW GND
161	P	AMBIENT SENSOR GND
162	G	AMBIENT SENSOR SIG
164	O	BRAKE FLUID LEVEL SW GND
165	V	HEADLAMP AIMING LH
166	R	DECOUPLING RELAY CONT

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Type	RH10MB



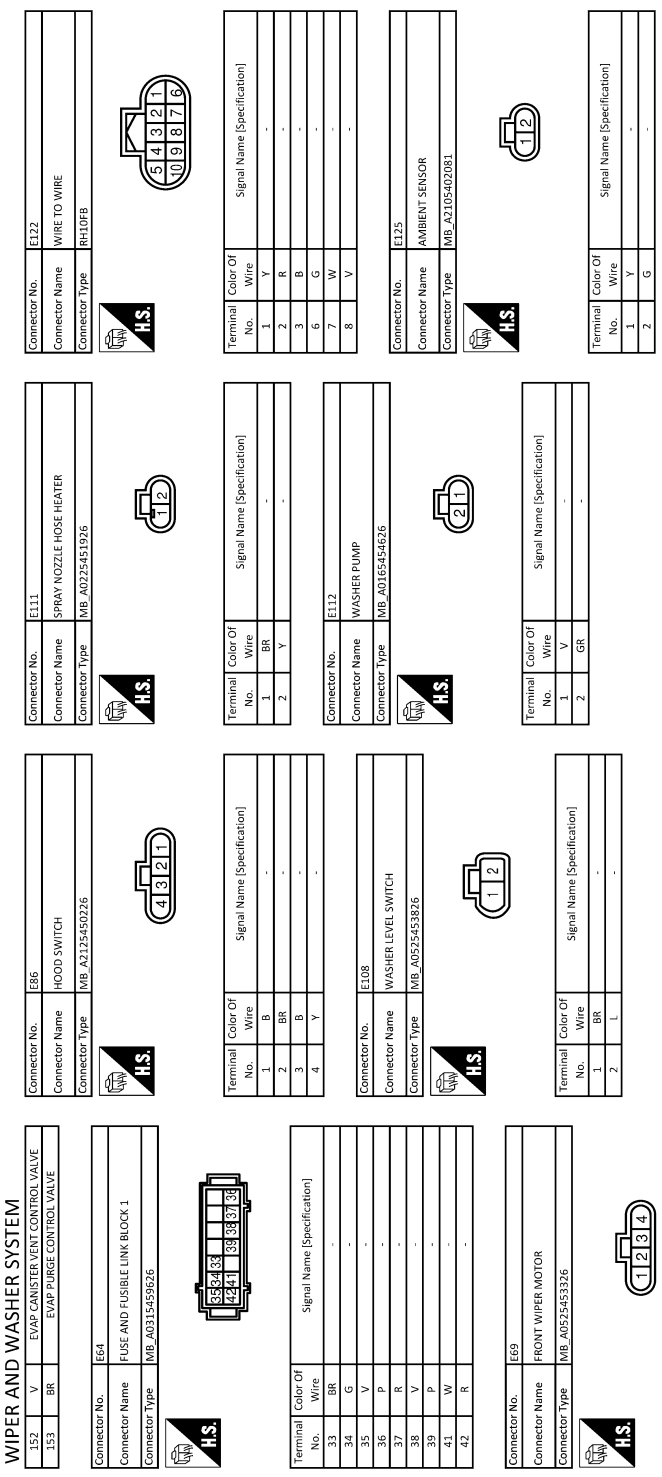
Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	-
2	R	-
3	B	-
6	G	-
7	W	-
8	V	-

Connector No.	E48
Connector Name	ECM
Connector Type	MB_A0075406981



Terminal No.	Color Of Wire	Signal Name [Specification]
97	R	POWER SUPPLY (ECM)
98	BR	ECM GROUND
99	V	POWER SUPPLY (ECM)
100	BR	ECM GROUND
101	R	POWER SUPPLY (ECM)
102	B	ECM GROUND
103	L	COOLING FAN CONTROL SIGNAL
104	R	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1)
105	G	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2)
106	BR	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR1)
111	B	IGNITION SIGNAL
112	Y	POWER SUPPLY (BATTERY)
116	W	STARTER RELAY-L
119	GR	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2)
120	O	SENSOR GROUND
122	R	HOT START SIGNAL
123	GR	MOTOR RELAY CONTROL SIGNAL
127	O	FUEL PUMP ON SIGNAL
132	G	ACCELERATOR PEDAL POSITION SENSOR 1
136	Y	POWERTRAIN SENSOR CAN-H
137	W	CAN-H
138	GR	POWERTRAIN CAN-H
141	B	WATER PUMP RELAY CONTROL SIGNAL
145	W	ACCELERATOR PEDAL POSITION SENSOR 2
146	G	FUEL TANK PRESSURE SENSOR
147	L	CRASH SIGNAL
148	W	STARTER RELAY-H
149	B	POWERTRAIN SENSOR CAN-L
150	G	CAN-L
151	L	POWERTRAIN CAN-L

JRLWG1086GB



JRLWG1087GB

WIPER AND WASHER SYSTEM

Connector No.	M3
Connector Name	STEERING COLUMN CONTROL MODULE
Connector Type	MB_A2045401281

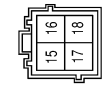


Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	CAN-L (CHASIS)
2	W	CAN-H (CHASIS)
3	BR	GND
4	R	KL30G
6	R	KL30
7	BR	GND
8	L	AB1+
9	Y	AB1-
10	V	AB2+
11	G	AB2-

Connector No.	M25
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A0075405081

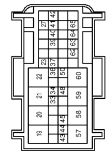
Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	ROTARY LIGHT SW GND
2	O	ROTARY LIGHT SW (PU,PR/TAL)
3	R	ROTARY LIGHT SW (AUTO/LOW)
4	G	ROTARY LIGHT SW (FR FOG)
5	Y	-
7	GR	SWITCH INDICATOR
8	R	CAN-H (BODY 2)
9	BR	CAN-L (BODY 2)
12	O	LIN (IBS)
14	G	FOOT LAMP

Connector No.	M26
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A0235459826



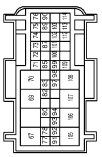
Terminal No.	Color Of Wire	Signal Name [Specification]
15	W	BAT (FUSE)
16	BR	BAT (FUSE)
17	R	BAT (FUSE)
18	B	GND

Connector No.	M27
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A1665400381



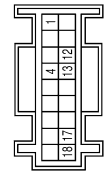
Terminal No.	Color Of Wire	Signal Name [Specification]
19	Y	RR POWER WINDOW MOTOR RH CONT (UP)
20	G	RR POWER WINDOW MOTOR RH CONT (DOWN)
21	B	RR POWER WINDOW MOTOR LH CONT (UP)
22	GR	RR POWER WINDOW MOTOR LH CONT (DOWN)
23	P	AIR BAG SIGNAL
27	GR	BACK DOOR OPENER SW
33	O	RR POWER WINDOW SW LH GND
34	BR	RR POWER WINDOW SW LH (DOWN)
36	O	RR POWER WINDOW SW LH (UP)
37	W	RR DOOR RH STATUS
39	Y	BACK DOOR STATUS
40	V	BACK DOOR LAMP
41	W	RR DOOR LH STATUS
42	V	LUGGAGE ROOM LAMP
43	GR	BACK-UP LAMP LH
44	W	HIGH-MOUNTED STOP LAMP
45	O	TAIL LAMP (BODY RH)
48	GR	TAIL LAMP (BK RH)
50	GR	-
57	Y	STOP LAMP (BODY LH)
58	B	REAR TURN SIGNAL RH
59	P	RR DOOR RH UNLOCK
60	G	RR DOOR RH LOCK
62	GR	LICENSE PLATE LAMP LH
63	W	HALL SENSOR LH SIGNAL
64	GR	HALL SENSOR LH GND
65	R	HALL SENSOR LH POWER SUPPLY

Connector No.	M28
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A1665400481



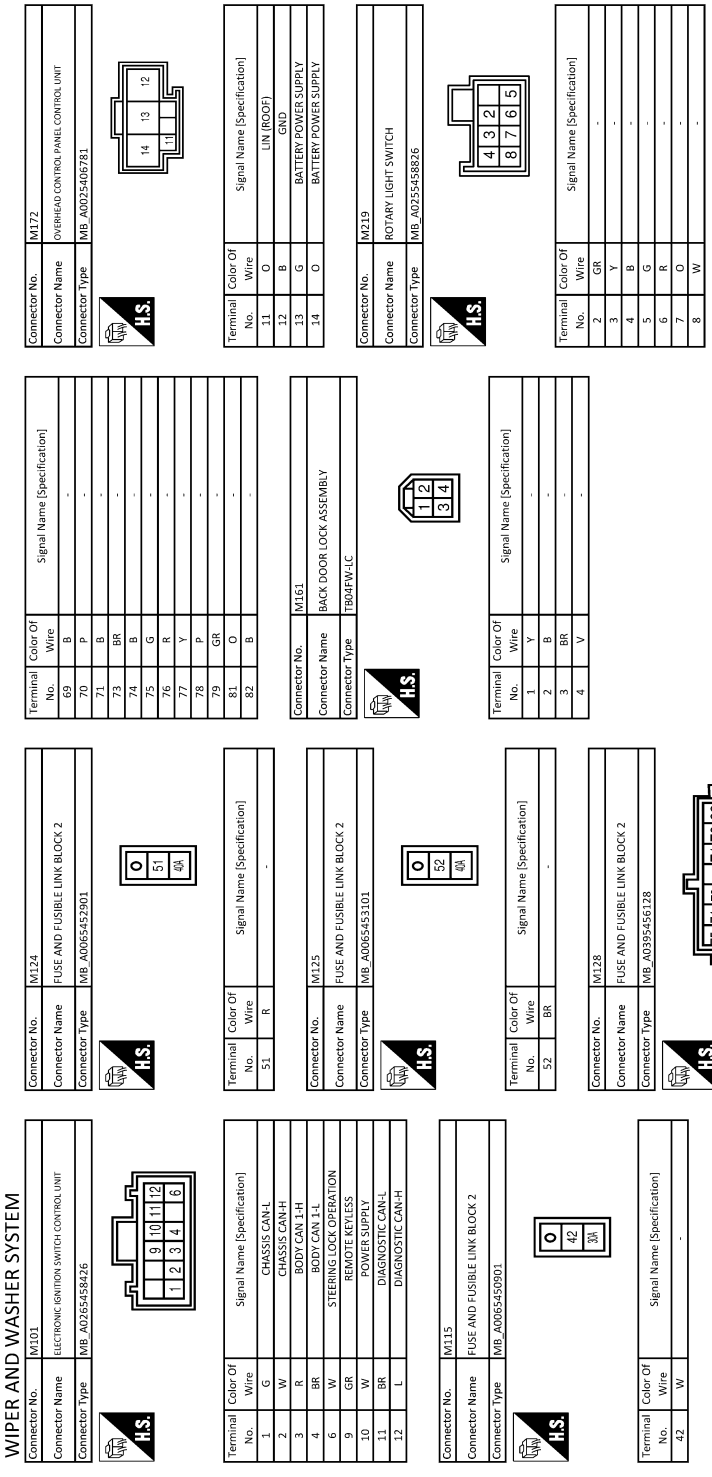
Terminal No.	Color Of Wire	Signal Name [Specification]
67	V	BACK DOOR UNLOCK
69	GR	STOP LAMP (BODY RH)
70	B	REAR TURN SIGNAL LH
71	GR	BACK-UP LAMP RH
72	Y	LICENSE PLATE LAMP RH
73	L	RR POWER WINDOW SW RH UP
74	B	RR POWER WINDOW SW RH DOWN
75	L	RR POWER WINDOW SW RH GND
76	GR	HALL SENSOR RH POWER SUPPLY
77	R	SUB BAT-
78	B	TERMINAL RELAY 15R1 CONT
80	B	REAR WIPER RELAY CONT
82	GR	TAIL LAMP (BODY LH)
83	P	TERMINAL RELAY 15R2 CONT
85	B	TAIL LAMP (BK LH)
87	R	BAT (VIA LATCHING TERMINAL RELAY 30G)
89	O	HALL SENSOR RH GND
90	V	HALL SENSOR RH SIGNAL
91	P	FUEL LEVEL SENSOR GND
92	L	FUEL LEVEL SENSOR
93	GR	FUEL LEVEL SENSOR
94	Y	FUEL FILLER LID STATUS
97	G	LATCHING TERMINAL RELAY 30G CONT 1
98	B	LATCHING TERMINAL RELAY 30G GND 1
99	W	LATCHING TERMINAL RELAY 30G GND 2
100	V	LATCHING TERMINAL RELAY 30G CONT 2
101	Y	REAR DOOR INSIDE HANDLE LAMP CONT
102	GR	AMBIENT LAMP CONT
103	V	SUB BAT RELAY CONT
105	G	RR DOOR LH UNLOCK
106	W	FUEL FILLER LID UNLOCK
107	L	RR DOOR LH LOCK
108	R	SUB BAT+
109	O	LIN (ROOF)
112	BR	CAN-L (BODY 1)
113	R	CAN-H (BODY 1)
114	B	INJECTION RELAY CONT

Connector No.	M32
Connector Name	COMBINATION METER
Connector Type	MB_A0525452726



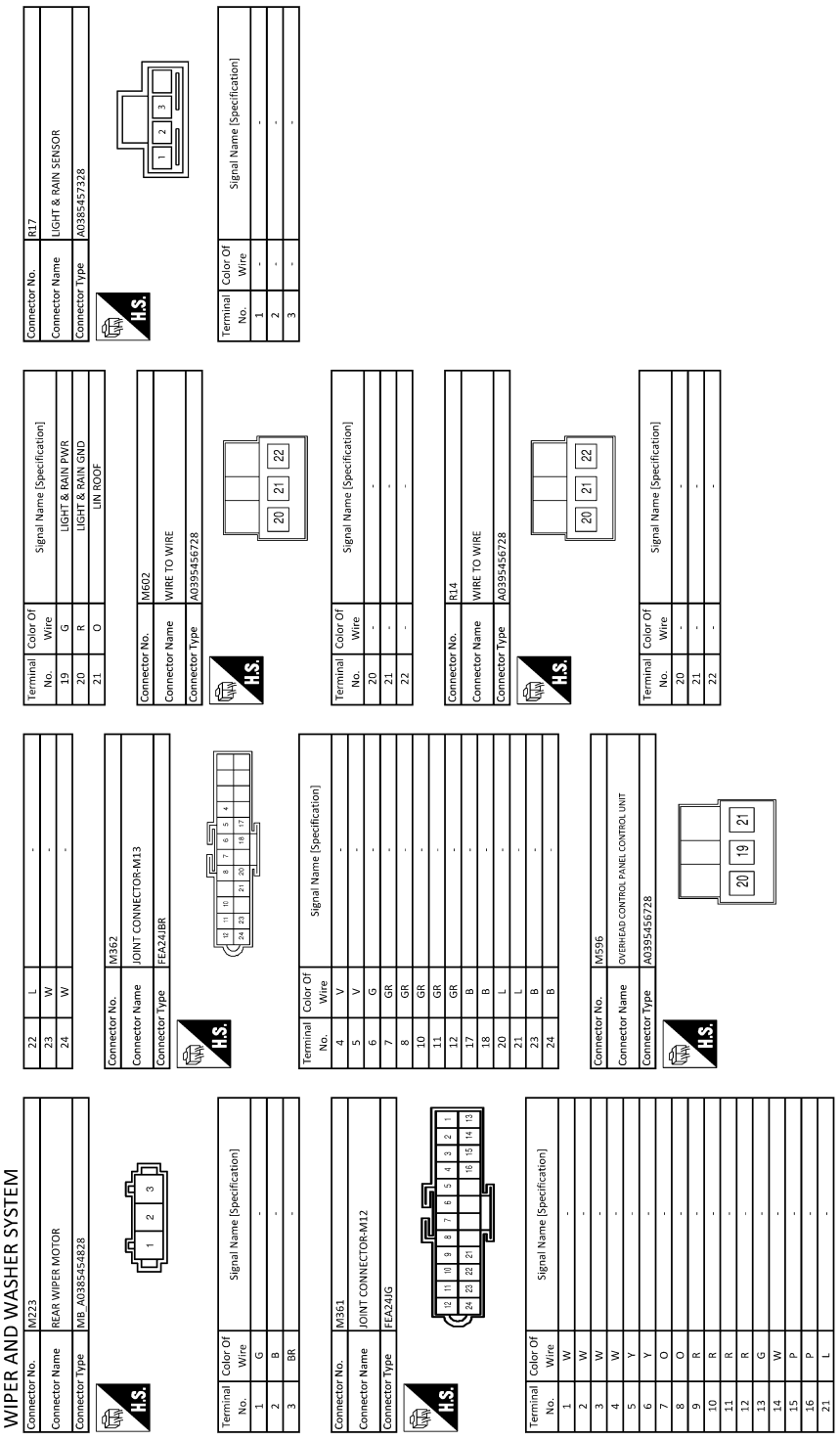
Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	GROUND
4	R	BATTERY POWER SUPPLY
12	GR	CAN-L
13	W	CAN-H
17	BR	CAN-L
18	R	CAN-H

JRLWG1088GB



JRLWG1089GB

WIPER AND WASHER SYSTEM



JRLWG1090GB

BASIC INSPECTION

ADDITIONAL SERVICE WHEN REPLACING (LIGHT & RAIN SENSOR)

Description

INFOID:0000000013637939

When replacing light & rain sensor, the procedures of AFTER REPLACEMENT must be performed. For work procedure, refer to WW-32, "Work Procedure".

AFTER REPLACEMENT

After replacing light & rain sensor, the following items must be performed:

- Configuration
- Calibration

Work Procedure

INFOID:0000000013637940

1.LIGHT & RAIN SENSOR CONFIGURATION

Perform the light & rain sensor configuration with CONSULT. Refer to WW-33, "Description".

NOTE:

Log in the network according to CONSULT screen.

>> GO TO 2

2.LIGHT & RAIN SENSOR CALIBRATION

With CONSULT

1. Turn ignition switch ON.
2. Select “Light & rain sensor” in “Work Support” mode of “Adaptation of component of rain sensor” using CONSULT.
3. Touch “Start”.
4. When “COMPLETE”, touch “End”.

Is the light & rain sensor calibration completed?

YES >> GO TO 3.
NO >> Perform the light & rain sensor calibration again.

3.SELF DIAGNOSTIC RESULT CHECK

With CONSULT

1. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
2. Check DTC.

Is DTC detected?

YES >> GO TO 2.
NO >> END

CONFIGURATION (LIGHT & RAIN SENSOR)

Description

INFOID:0000000013637941

Vehicle specification needs to be written with CONSULT because it is not written after replacing the light & rain sensor.
The configuration requires network connection. CONSULT connects to network and then it downloads the configuration data from the server. Then CONSULT writes the vehicle specification to the light & rain sensor.
Refer to WW-33, "Work Procedure".
NOTE:
For details the network connection and operation, refer to “CONSULT Operation Manual”.
The configuration no need to “save” configuration data from the light & rain sensor. The configuration data is always generated freshly at the server and then downloaded to the CONSULT.
CAUTION:
- **Complete the procedure of “Read / Write Configuration” in order.**
- **If incorrect “Read / Write Configuration”, incidents might occur.**
- **Never perform “Read / Write Configuration” except for new light & rain sensor.**

Work Procedure

INFOID:0000000013637942

1.WRITING VEHICLE SPECIFICATION

CONSULT Configuration
Perform “WRITE CONFIGURATION” for CONTROL UNIT according to “CONSULT Operation Manual”.
NOTE:
- Log in the network according to CONSULT screen.
- For details the network connection and operation, refer to “CONSULT Operation Manual”.

>> END

DTC/CIRCUIT DIAGNOSIS

B1F4C FRONT WIPER RELAY

DTC Description

INFOID:0000000013637943

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B1F4C	11	Front wiper relay (Front wiper relay)	[CIRC SHORT TO GRND]	Diagnosis condition	Front wiper: activate
				Signal (terminal)	Wiper ON/OFF relay control signal
				Threshold	Harness to front wiper relay is shorted to ground
				Diagnosis delay time	1.25 sec.
	15		[CIRC SHORT TO BATTERY OR OPEN]	Diagnosis condition	Front wiper: activate
				Signal (terminal)	Wiper ON/OFF relay control signal
				Threshold	Harness to the front wiper relay has a open circuit or shorted to battery
				Diagnosis delay time	3 sec.

POSSIBLE CAUSE (B1F4C-11)

- Short to ground between circuit of front wiper relay and BCM
- Front wiper relay
- Fuse and fusible link block 1
- BCM

POSSIBLE CAUSE (B1F4C-15)

- Disconnection between front wiper relay and BCM
- Short to battery between circuit of front wiper relay and BCM
- Front wiper relay
- Fuse and fusible link block 1
- BCM

FAIL-SAFE

Inhibit front wiper operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn front wiper switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-34, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637944

DTC “B1F4C-11”

1.CHECK FRONT WIPER RELAY INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse and fusible link block 1 connector.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	136		Not existed

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and fuse and fusible link block 1 connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-34, "DTC Description".

Is DTC “B1F4C-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE FRONT WIPER RELAY AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace front wiper relay.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-34, "DTC Description".

Is DTC “B1F4C-11” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE FUSE AND FUSIBLE LINK BLOCK 1 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 1.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-34, "DTC Description".

Is DTC “B1F4C-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B1F4C-15”

1.CHECK FRONT WIPER RELAY INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse and fusible link block 1 connector.
3. Check continuity between BCM harness connector and fuse and fusible link block 1 harness connector.

BCM		Fuse and fusible link block 1		Continuity
Connector	Terminal	Connector	Terminal	
E15	136	E64	42	Existed

4. Check voltage between BCM harness connector and ground.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
E15	136	Ground	0 V

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and fuse and fusible link block 1 connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-34, "DTC Description".

Is DTC “B1F4C-15” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE FRONT WIPER RELAY AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace front wiper relay.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-34, "DTC Description".

Is DTC “B1F4C-15” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE FUSE AND FUSIBLE LINK BLOCK 1 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 1.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-34, "DTC Description".

Is DTC “B1F4C-15” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B1F4D FRONT WIPER HI/LO RELAY

DTC Description

INFOID:0000000013637945

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B1F4D	11	Front wiper relay (Front wiper relay)	[CIRC SHORT TO GRND]	Diagnosis condition	Front wiper: activate
				Signal (terminal)	Wiper step relay control signal
				Threshold	Harness to front wiper HI/LO relay is shorted to ground
				Diagnosis delay time	1.25 sec.
	15		[CIRC SHORT TO BATTERY OR OPEN]	Diagnosis condition	Front wiper: activate
				Signal (terminal)	Wiper step relay control signal
				Threshold	Harness to the front wiper HI/LO relay has a open circuit or shorted to battery
				Diagnosis delay time	3 sec.

POSSIBLE CAUSE (B1F4D-11)

- Short to ground between circuit of front wiper HI/LO relay and BCM
- Front wiper HI/LO relay
- Fuse and fusible link block 1
- BCM

POSSIBLE CAUSE (B1F4D-15)

- Disconnection between front wiper HI/LO relay and BCM
- Short to battery between circuit of front wiper HI/LO relay and BCM
- Front wiper HI/LO relay
- Fuse and fusible link block 1
- BCM

FAIL-SAFE

Inhibit front wiper operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn wiper switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-37, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637946

DTC “B1F4D-11”

1.CHECK FRONT WIPER HI/LO RELAY OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and release front wiper HI/LO relay.

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	137		Not existed

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and front wiper HI/LO relay connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-37, "DTC Description".

Is DTC “B1F4D-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE FRONT WIPER RELAY AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace front wiper relay.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-37, "DTC Description".

Is DTC “B1F4D-11” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE FUSE AND FUSIBLE LINK BLOCK 1 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 1.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-37, "DTC Description".

Is DTC “B1F4D-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B1F4D-15”

1.CHECK FRONT WIPER HI/LO RELAY OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse and fusible link block 1 connector.
3. Check continuity between BCM harness connector and fuse and fusible link block 1 harness connector.

BCM		Fuse and fusible link block 1		Continuity
Connector	Terminal	Connector	Terminal	
E15	137	E64	38	Existed

4. Check voltage between BCM harness connector and ground.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
E15	137	Ground	0 V

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and fuse and fusible link block 1 connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-37, "DTC Description".

Is DTC “B1F4D-15” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE FRONT WIPER HI/LO RELAY AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace front wiper HI/LO relay.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-37, "DTC Description".

Is DTC “B1F4D-15” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE FUSE AND FUSIBLE LINK BLOCK 1 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 1.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-37, "DTC Description".

Is DTC “B1F4D-15” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B221D LIGHT & RAIN SENSOR

DTC Description

INFOID:0000000013637947

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B221D	17	Rain sensor (Rain sensor)	[CIRC VOLT ABOVE THRESHOLD]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	LIN (roof) signal
				Threshold	The power supply to light & rain sensor is outside the valid range. The limit value for electrical voltage has been exceeded.
				Diagnosis delay time	–
	49		[INTERNAL ELECTRONIC FAILURE]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	LIN (roof) signal
				Threshold	The light & rain sensor has a malfunction. There is an internal electrical error.
				Diagnosis delay time	–
	4B		[OVER TEMPERATURE]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	LIN (roof) signal
				Threshold	The light & rain sensor has a malfunction. There is a over temperature.
				Diagnosis delay time	–
	54		[MISSING CALIBRATION]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	LIN (roof) signal
				Threshold	The light & rain sensor calibration work is not completed
				Diagnosis delay time	–

POSSIBLE CAUSE (B221D-17)

- Harness or connector (light & rain sensor)
- Overhead control panel control unit
- BCM

POSSIBLE CAUSE (B221D-49)

Light & rain sensor

POSSIBLE CAUSE (B221D-4B)

- Light & rain sensor
- Overhead control panel control unit
- BCM

POSSIBLE CAUSE (B221D-54)

- Light & rain sensor calibration work
- Light & rain sensor
- Overhead control panel control unit
- BCM

FAIL-SAFE

Inhibit light & rain sensor operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-41, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637948

DTC “B221D-17”

1.CHECK SELF DIAGNOSTIC RESULT

Check DTC using CONSULT.

What is the display history of DTC “B221D-17”?

“PAST” >> GO TO 2.
“CRNT”>> GO TO 3.

2.ERASE DTC

1. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
2. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-17” detected?

YES >> GO TO 3.
NO >> Check intermittent incident. Refer to GI-56, "Intermittent Incident".

3.CHECK BATTERY VOLTAGE

1. Turn ignition switch OFF.
2. Measure the battery voltage.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Perform battery inspection. Refer to PG-102, "MAIN BATTERY : How to Handle Battery".

4.CHECK LIGHT & RAIN SENSOR POWER SUPPLY CIRCUIT

1. Disconnect overhead control panel control unit connector.
2. Check voltage between overhead control panel control unit harness connector and ground.

(+)		(–)	Voltage (Approx.)
Overhead control panel control unit			
Connector	Terminal		
M596	19	Ground	12 V

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> Repair or replace harness.

DTC “B221D-49”

1.REPLACE LIGHT & RAIN SENSOR

When DTC “B221D-49” is detected, replace light & rain sensor.

>> Replace light & rain sensor.

DTC “B221D-4B”

1.CHECK SELF DIAGNOSTIC RESULT

Check DTC using CONSULT.

What is the display history of DTC “B221D-4B”?

“PAST” >> GO TO 2.
“CRNT”>> GO TO 3.

2.ERASE DTC 1

1. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
2. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-4B” detected?

YES >> GO TO 4.
NO >> INSPECTION END

3.ERASE DTC 2

1. Wait 5 minutes or more.
2. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
3. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-4B” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE LIGHT & RAIN SENSOR AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace light & rain sensor.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-4B” detected?

YES >> GO TO 5.
NO >> INSPECTION END

5.REPLACE OVERHEAD CONTROL PANEL CONTROL UNIT AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace overhead control panel control unit.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-4B” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B221D-54”

1.CALIBRATION WORK OF LIGHT & RAIN SENSOR

1. Perform calibration work of light & rain sensor. Refer to WW-32, "Description".
2. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
3. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-54” detected?

YES >> GO TO 2.
NO >> INSPECTION END

2.REPLACE LIGHT & RAIN SENSOR AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace light & rain sensor.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-54” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3. REPLACE OVERHEAD CONTROL PANEL CONTROL UNIT AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace overhead control panel control unit.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-40, "DTC Description".

Is DTC “B221D-54” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B22E3 LIGHT & RAIN SENSOR

DTC Description

INFOID:0000000013637949

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B22E3	4A	Light and rain sensor (Light and rain sensor)	[INCRRCT COMPNT INSTALLED]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	LIN (roof) signal
				Threshold	The light & rain sensor has a malfunction. The wrong sensor is installed.
				Diagnosis delay time	_

POSSIBLE CAUSE

- Light & rain sensor
- BCM
- Overhead control panel control unit

FAIL-SAFE

Inhibit light & rain sensor operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-44, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637950

1.REPLACE LIGHT & RAIN SENSOR AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace light & rain sensor.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-44, "DTC Description".

Is DTC “B22E3-4A” detected?

YES >> GO TO 2.
NO >> INSPECTION END

2.REPLACE OVERHEAD CONTROL PANEL CONTROL UNIT AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace overhead control panel control unit.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-44, "DTC Description".

Is DTC “B22E3-4A” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B231A REAR WIPER RELAY

DTC Description

INFOID:0000000013637951

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B231A	11	Rear wiper relay (Rear wiper relay)	[CIRC SHORT TO GRND]	Diagnosis condition	Rear wiper: activate
				Signal (terminal)	Rear wiper relay control signal
				Threshold	Harness to rear wiper relay is shorted to ground
				Diagnosis delay time	1.25 sec.
	15		[CIRC SHORT TO BATTERY OR OPEN]	Diagnosis condition	Rear wiper: activate
				Signal (terminal)	Rear wiper relay control signal
				Threshold	Harness to the rear wiper relay has a open circuit or shorted to battery
				Diagnosis delay time	3 sec.

POSSIBLE CAUSE (B231A-11)

- Short to ground between circuit of rear wiper relay and BCM
- Rear wiper relay
- Fuse and fusible link block 2
- BCM

POSSIBLE CAUSE (B231A-15)

- Disconnection between rear wiper relay and BCM
- Short to battery between circuit of rear wiper relay and BCM
- Rear wiper relay
- Fuse and fusible link block 2
- BCM

FAIL-SAFE

Inhibit rear wiper operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn rear wiper switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-45, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637952

DTC “B231A-11”

1.CHECK REAR WIPER RELAY OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and release rear wiper relay.

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M28	80		Not existed

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM connector and rear wiper relay.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-45, "DTC Description".

Is DTC “B231A-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE REAR WIPER RELAY AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace rear wiper relay.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-45, "DTC Description".

Is DTC “B231A-11” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE FUSE AND FUSIBLE LINK BLOCK 2 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 2.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-45, "DTC Description".

Is DTC “B231A-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B231A-15”

1.CHECK REAR WIPER RELAY OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse and fusible link block 2 connector.
3. Check continuity between BCM harness connector and fuse and fusible link block 2 harness connector.

BCM		Fuse and fusible link block 2		Continuity
Connector	Terminal	Connector	Terminal	
M28	80	M128	74	Existed

4. Check voltage between BCM harness connector and ground.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
M28	80	Ground	0 V

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and fuse and fusible link block 2 connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-45, "DTC Description".

Is DTC “B231A-15” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE REAR WIPER RELAY AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace rear wiper relay.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-45, "DTC Description".

Is DTC “B231A-15” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4.REPLACE FUSE AND FUSIBLE LINK BLOCK 2 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 2.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-45, "DTC Description".

Is DTC “B231A-15” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B231E WASHER PUMP

DTC Description

INFOID:0000000013637953

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B231E	11	Wash pump output signal (Wash pump output signal)	[CIRC SHORT TO GRND]	Diagnosis condition	Front/rear washer: active
				Signal (terminal)	• Rear washer control signal • Front washer control signal
				Threshold	Harness to the wash pump is shorted to ground
				Diagnosis delay time	_
	13		[CIRC OPEN]	Diagnosis condition	Front/rear washer: active
				Signal (terminal)	• Rear washer control signal • Front washer control signal
				Threshold	Harness to the wash pump has a open circuit
				Diagnosis delay time	_

POSSIBLE CAUSE (B231E-11)

- Short to ground between circuit of wash pump and BCM
- Wash pump
- BCM

POSSIBLE CAUSE (B231E-13)

- Disconnection between wash pump and BCM
- Wash pump
- BCM

FAIL-SAFE

Inhibit washer pump operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn front/rear washer switch to ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-48, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637954

DTC “B231E-11”

1.CHECK WASHER PUMP CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and washer pump connector.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	119		Not existed
	120		

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and washer pump connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-48, "DTC Description".

Is DTC “B231E-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE WASHER PUMP AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace washer pump.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-48, "DTC Description".

Is DTC “B231E-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B231E-13”

1.CHECK WASHER PUMP CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and washer pump connector.
3. Check continuity between BCM harness connector and washer pump harness connector.

BCM		Washer pump		Continuity
Connector	Terminal	Connector	Terminal	
E15	119	E112	1	Existed
	120		2	

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and washer pump connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-48, "DTC Description".

Is DTC “B231E-13” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE WASHER PUMP AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace washer pump.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-48, "DTC Description".

Is DTC “B231E-13” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B2326 WASHER LEVEL SWITCH

DTC Description

INFOID:0000000013637955

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B2326	7B	Washer level sensor (Washer level sensor)	[LOW FLUID LEVEL]	Diagnosis condition	All times
				Signal (terminal)	Washer level switch signal
				Threshold	Washer level switch detected washer fluid level is low
				Diagnosis delay time	10 sec.

POSSIBLE CAUSE

- Washer fluid level is low
- Harness or connector (washer level sensor)
- Washer level sensor
- BCM

FAIL-SAFE

–

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-51, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637956

1.CHECK WASHER FLUID LEVEL

Check washer fluid level is normal.

Is the inspection result normal?

YES >> GO TO 2.
NO >> INSPECTION END

2.ERASE DTC

1. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
2. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-51, "DTC Description".

Is DTC “B2326-7B” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.CHECK WASHER LEVEL SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect washer level switch connector.
3. Check voltage between BCM harness connector and ground.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
E15	139	Ground	5 V

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK WASHER LEVEL SWITCH INPUT SIGNAL CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and washer level switch harness connector.

BCM		Washer level switch		Continuity
Connector	Terminal	Connector	Terminal	
E15	139	E108	2	Existed

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	139		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> Repair or replace harness.

5. CHECK WASHER LEVEL SWITCH GROUND CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and washer level switch harness connector.

BCM		Washer level switch		Continuity
Connector	Terminal	Connector	Terminal	
E15	134	E108	1	Existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace harness.

6. REPLACE WASHER LEVEL SWITCH AND ERASE DTC

1. Replace washer level switch.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-51, "DTC Description".

Is DTC “B2326-7B” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B235B SPRAY NOZZLE HOSE HEATER

DTC Description

INFOID:0000000013637957

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B235B	11	Washer tube heater (Washer tube heater)	[CIRC SHORT TO GRND]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	Spray nozzle hose heater power supply signal
				Threshold	Harness to spray nozzle hose heater is shorted to ground
				Diagnosis delay time	1.25 sec.
	15		[CIRC SHORT TO BATTERY OR OPEN]	Diagnosis condition	Turn ignition switch ON
				Signal (terminal)	Spray nozzle hose heater power supply signal
				Threshold	Harness to the spray nozzle hose heater has a open circuit or shorted to battery
				Diagnosis delay time	1.25 sec.

POSSIBLE CAUSE (B235B-11)

- Short to ground between circuit of spray nozzle hose heater and BCM
- Spray nozzle hose heater
- BCM

POSSIBLE CAUSE (B235B-15)

- Disconnection between spray nozzle hose heater and BCM
- Short to battery between circuit of spray nozzle hose heater and BCM
- Spray nozzle hose heater
- BCM

FAIL-SAFE

Inhibit spray nozzle hose heater system operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-53, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637958

DTC “B235B-11”

1.CHECK SPRAY NOZZLE HOSE HEATER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and spray nozzle hose heater connector.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	122		Not existed

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and spray nozzle hose heater connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-53, "DTC Description".

Is DTC “B235B-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE SPRAY NOZZLE HOSE HEATER AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace spray nozzle hose heater.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-53, "DTC Description".

Is DTC “B235B-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B235B-15”

1.CHECK SPRAY NOZZLE HOSE HEATER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and spray nozzle hose heater connector.
3. Check continuity between BCM harness connector and spray nozzle hose heater harness connector.

BCM		Spray nozzle hose heater		Continuity
Connector	Terminal	Connector	Terminal	
E15	122	E111	2	Existed

4. Check voltage between BCM harness connector and ground.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
E15	122	Ground	0 V

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and spray nozzle hose heater connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-53, "DTC Description".

Is DTC “B235B-15” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE SPRAY NOZZLE HOSE HEATER AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace spray nozzle hose heater.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-53, "DTC Description".

Is DTC “B235B-15” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B2361 WASHER PUMP

DTC Description

INFOID:0000000013637959

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B2361	11	Rear washer pump (Rear washer pump)	[CIRC SHORT TO GRND]	Diagnosis condition	Rear washer: active
				Signal (terminal)	Rear washer control signal
				Threshold	Harness to the wash pump is shorted to ground
				Diagnosis delay time	–
	15		[CIRC SHORT TO BATTERY OR OPEN]	Diagnosis condition	Rear washer: active
				Signal (terminal)	Rear washer control signal
				Threshold	Harness to the wash pump has a open circuit
				Diagnosis delay time	–

POSSIBLE CAUSE (B2361-11)

- Short to ground between circuit of wash pump and BCM
- Wash pump
- BCM

POSSIBLE CAUSE (B2361-15)

- Disconnection between wash pump and BCM
- Short to battery between circuit of wash pump and BCM
- Wash pump
- BCM

FAIL-SAFE

Inhibit washer pump operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn rear washer switch to ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-56, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637960

DTC “B2361-11”

1.CHECK WASHER PUMP CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and washer pump connector.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	119		Not existed
	120		

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and washer pump connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-56, "DTC Description".

Is DTC “B2361-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE WASHER PUMP AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace washer pump.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-56, "DTC Description".

Is DTC “B2361-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B2361-15”

1.CHECK WASHER PUMP CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and washer pump connector.
3. Check continuity between BCM harness connector and washer pump harness connector.

BCM		Washer pump		Continuity
Connector	Terminal	Connector	Terminal	
E15	119	E112	1	Existed
	120		2	

4. Check voltage between BCM harness connector and ground.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
E15	119	Ground	0 V
	120		

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and washer pump connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-56, "DTC Description".

Is DTC “B2361-15” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3. REPLACE WASHER PUMP AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace washer pump.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-56, "DTC Description".

Is DTC “B2361-15” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B2379 FRONT WIPER MOTOR

DTC Description

INFOID:0000000013637961

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B2379	71	Wiper motor (Wiper motor)	[ACTUATOR STUCK]	Diagnosis condition	Front wiper: active
				Signal (terminal)	• Wiper ON/OFF relay control signal • Front wiper stop position signal
				Threshold	The front wiper motor is blocked (front wiper relay ON stuck or front wiper motor ground circuit open)
				Diagnosis delay time	5 sec.

POSSIBLE CAUSE

- Short circuit to battery between front wiper relay and BCM
- Disconnection between front wiper motor and ground
- Front wiper motor
- Front wiper motor
- BCM

FAIL-SAFE

Inhibit front wiper operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn front wiper switch to ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-59, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637962

1.CHECK FRONT WIPER RELAY OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse and fusible link block 1 connector.
3. Check voltage between BCM and fuse and fusible link block 1 connector.

(+)		(–)	Voltage (Approx.)
BCM			
Connector	Terminal		
E15	136	Ground	0 V

Is the inspection result normal?

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

2.CHECK FRONT WIPER MOTOR GROUND CIRCUIT

1. Disconnect front wiper motor connector.

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

Front wiper motor		Ground	Continuity
Connector	Terminal		
E69	4		Existed

Is the inspection result normal?

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

3. ERASE DTC

1. Connect BCM, front wiper motor and fuse and fusible link block 1 connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-59, "DTC Description".

Is DTC “B2379-71” detected?

YES >> GO TO 4.
NO >> INSPECTION END

4. REPLACE FUSE AND FUSIBLE LINK BLOCK 1 AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace fuse and fusible link block 1.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-59, "DTC Description".

Is DTC “B2379-71” detected?

YES >> GO TO 5.
NO >> INSPECTION END

5. REPLACE FRONT WIPER MOTOR AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace front wiper motor.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-59, "DTC Description".

Is DTC “B2379-71” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

B23A2 WASHER PUMP

DTC Description

INFOID:0000000013637963

DTC DETECTION LOGIC

DTC		CONSULT screen items (Trouble diagnosis content)	CONSULT screen items [Malfunction type]	DTC detecting condition	
B23A2	11	Wash pump output signal 2 (Wash pump output signal 2)	[CIRC SHORT TO GRND]	Diagnosis condition	Front/rear washer: active
				Signal (terminal)	• Rear washer control signal • Front washer control signal
				Threshold	Harness to the wash pump is shorted to ground
				Diagnosis delay time	–
	13		[CIRC OPEN]	Diagnosis condition	Front/rear washer: active
				Signal (terminal)	• Rear washer control signal • Front washer control signal
				Threshold	Harness to the wash pump has a open circuit
				Diagnosis delay time	–

POSSIBLE CAUSE (B23A2-11)

- Short to ground between circuit of wash pump and BCM
- Wash pump
- BCM

POSSIBLE CAUSE (B23A2-13)

- Disconnection between wash pump and BCM
- Wash pump
- BCM

FAIL-SAFE

Inhibit washer pump operation

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn front/rear washer switch to ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

Is DTC detected?

YES >> Refer to WW-61, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013637964

DTC “B23A2-11”

1.CHECK WASHER PUMP CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and washer pump connector.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E15	119		Not existed
	120		

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and washer pump connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-61, "DTC Description".

Is DTC “B23A2-11” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE WASHER PUMP AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace washer pump.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-61, "DTC Description".

Is DTC “B23A2-11” detected?

YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

DTC “B23A2-13”

1.CHECK WASHER PUMP CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and washer pump connector.
3. Check continuity between BCM harness connector and washer pump harness connector.

BCM		Washer pump		Continuity
Connector	Terminal	Connector	Terminal	
E15	119	E112	1	Existed
	120		2	

Is the inspection result normal?

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

2.ERASE DTC

1. Connect BCM and washer pump connector.
2. Turn ignition switch ON.
3. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.
4. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-61, "DTC Description".

Is DTC “B23A2-13” detected?

YES >> GO TO 3.
NO >> INSPECTION END

3.REPLACE WASHER PUMP AND ERASE DTC

1. Turn ignition switch OFF.
2. Replace washer pump.
3. Turn ignition switch ON.
4. Select “Self Diagnostic Result” mode of “BCM” using CONSULT.

5. Erase DTC, and then repeat “DTC CONFIRMATION PROCEDURE”. Refer to WW-61, "DTC Description".

Is DTC “B23A2-13” detected?

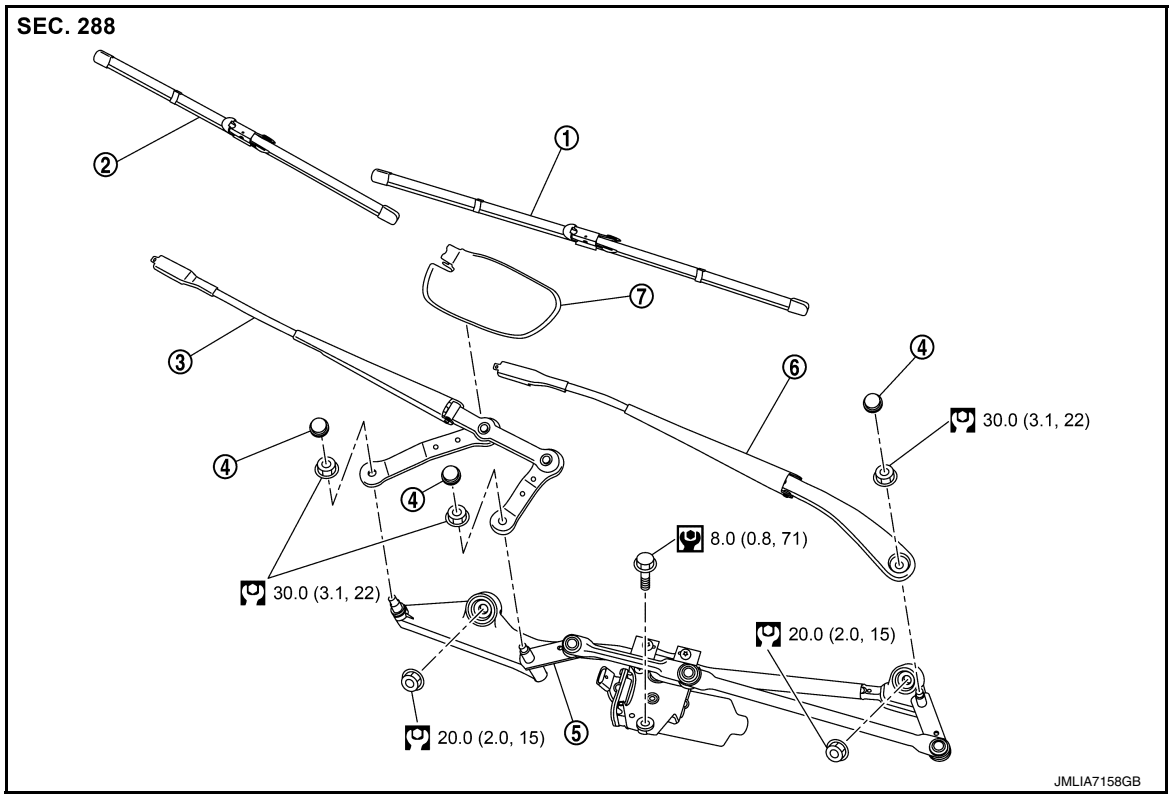
YES >> Replace BCM. Refer to BCS-248, "Removal and Installation".
NO >> INSPECTION END

REMOVAL AND INSTALLATION

FRONT WIPER

Exploded View

INFOID:0000000013637965



① Wiper blade LH	② Wiper blade RH	③ Wiper arm RH
④ Nut cap	⑤ Wiper drive assembly	⑥ Wiper arm LH
⑦ Wiper arm cover		

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

WIPER ARM

WIPER ARM : Removal and Installation

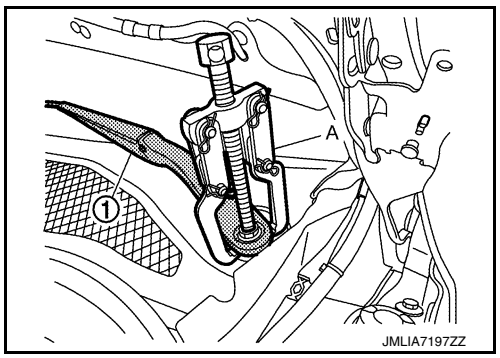
INFOID:0000000013637966

CAUTION:
Clean windshield glass and wiper blade so that windshield glass may not be damaged by dust, etc.

REMOVAL

1. Operate front wiper to move it to the auto stop position.
2. Full open hood assembly.
3. Remove nut caps and wiper arm fixing nuts.
4. Install thrust washer M10×1.5 [SST: KV995H0220 (W210589046300)] to wiper arm installation location.
   CAUTION:
   Use thrust washer M10×1.5 to protect thread of wiper arm installation location when removing wiper arm.

5. Remove wiper arm ① using a puller (A).

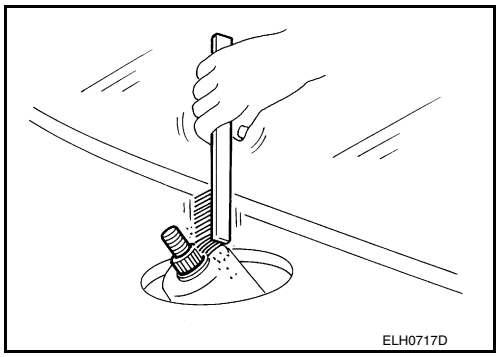


INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **Clean wiper arm installation location as shown in the figure, and then fully insert wiper arm to prevent nut from being loosened by shakiness.**



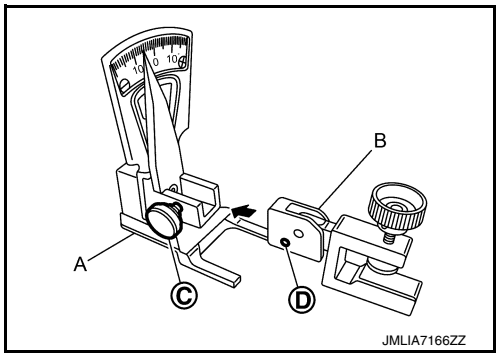
- **When installing wiper arm, install so that it is within the standard. For the standard, refer to WW-65, "WIPER ARM : Inspection and Adjustment".**
- **After installation, operate wiper, and then check that wiper blades stop at the specified position. Refer to WW-66, "WIPER BLADE : Adjustment".**

WIPER ARM : Inspection and Adjustment

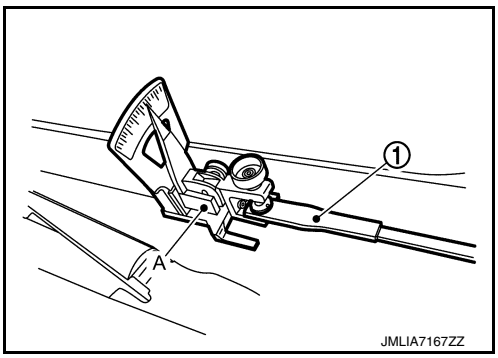
INFOID:0000000013637967

INSPECTION

1. Operate front wiper to move it to the auto stop position.
2. Remove wiper blade. Refer to WW-66, "WIPER BLADE : Removal and Installation".
3. Clean wiper blade installation location using shop cloth.
4. Set adapter [SST: KV995H0240 (W211589052100)] (B) to angle gauge (A) of adjusting tool set [SST: KV995H0230 (W211589022100)], and then tighten fixing screw Ⓒ by hand.
   NOTE:
   Be sure that tip of fixing screw fits into depression Ⓓ of adapter.



5. Install angle gauge (A) to wiper arm ① as shown in the figure.



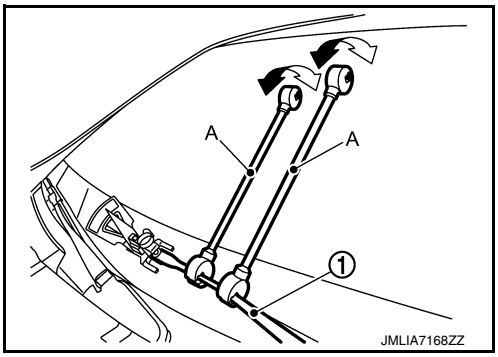
6. Read the scale of angle gauge and check angle of incidence of wiper arm to windshield glass.
If read value is not the specified value, perform adjustment.

Driver side (at auto stop position) : 4.0° - 5.0°
Passenger side (at auto stop position) : (-4.0°) - (-5.0°)

ADJUSTMENT

Set "Z4" side of adjustment levers (A) of adjusting tool set [SST: KV995H0230 (W211589022100)] to wiper arm ①, and then adjust angle of incidence of wiper arm to windshield glass by twist wiper arm with adjustment levers.

NOTE:
Position adjustment lever as far apart as possible on wiper arm.



WIPER BLADE

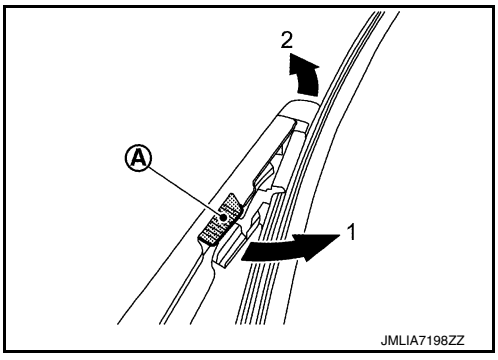
WIPER BLADE : Removal and Installation

INFOID:0000000013637968

REMOVAL

1. Lift up wiper arm, and then lock back wiper arm.
2. Remove wiper blade while pushing lever Ⓐ according to numerical order 1→2 indicated by arrows as shown in the figure.

CAUTION:
After wiper blade is removed, wrap wiper arm tip with a shop cloth and fold it down so that wiper arm does not fall against and damage windshield glass.



INSTALLATION

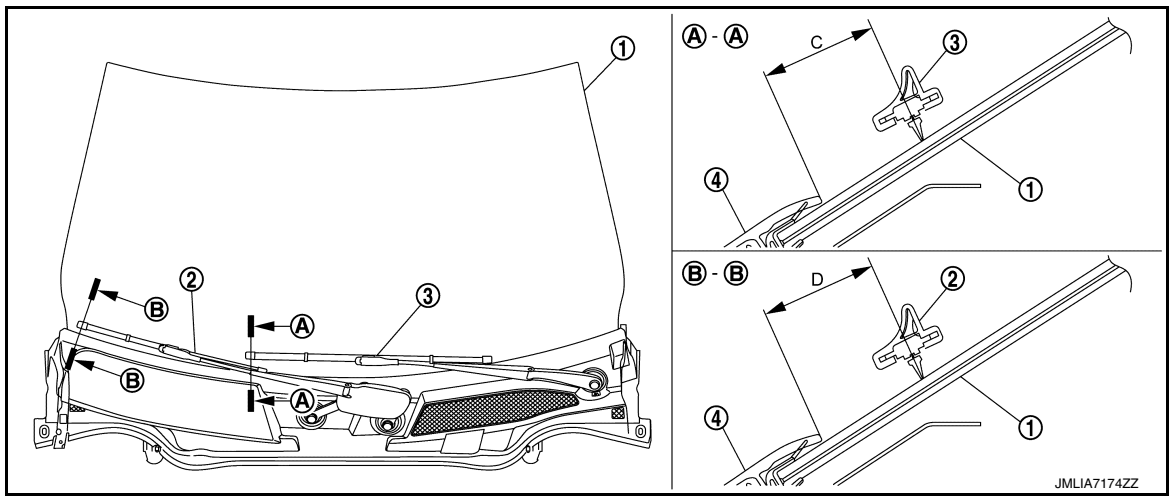
Install in the reverse order of removal.

WIPER BLADE : Adjustment

INFOID:0000000013637969

WIPER BLADE POSITION ADJUSTMENT

Clearance between the end of cowl top cover and the top of wiper blade center.



① Windshield glass assembly ② Wiper blade RH ③ Wiper blade LH
④ Cowl top cover

Standard clearance

C : 52.6 ± 7.5 mm (2.07 ± 0.30 in)

D : 29.7 ± 7.5 mm (1.17 ± 0.30 in)

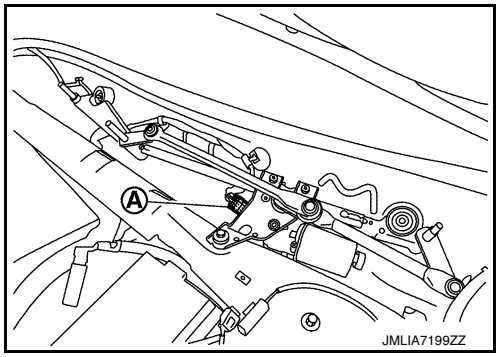
WIPER DRIVE ASSEMBLY

WIPER DRIVE ASSEMBLY : Removal and Installation

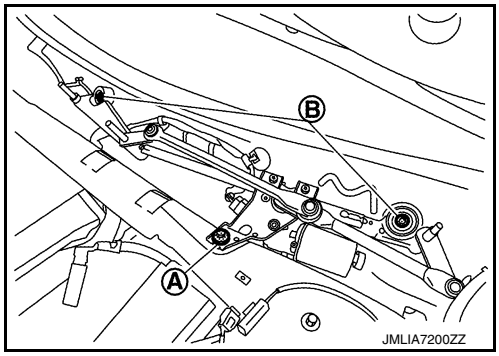
INFOID:0000000013637970

REMOVAL

1. Remove cowl top cover. Refer to EXT-35, "Removal and Installation".
2. Cover the lower end of windshield glass with urethane, etc. to prevent damage of windshield glass.
3. Disconnect wiper drive assembly harness connector Ⓐ.



4. Remove wiper drive assembly mounting bolt Ⓐ and nuts Ⓑ, and then remove wiper drive assembly.



INSTALLATION

Note the following item, and then install in the reverse order of removal.

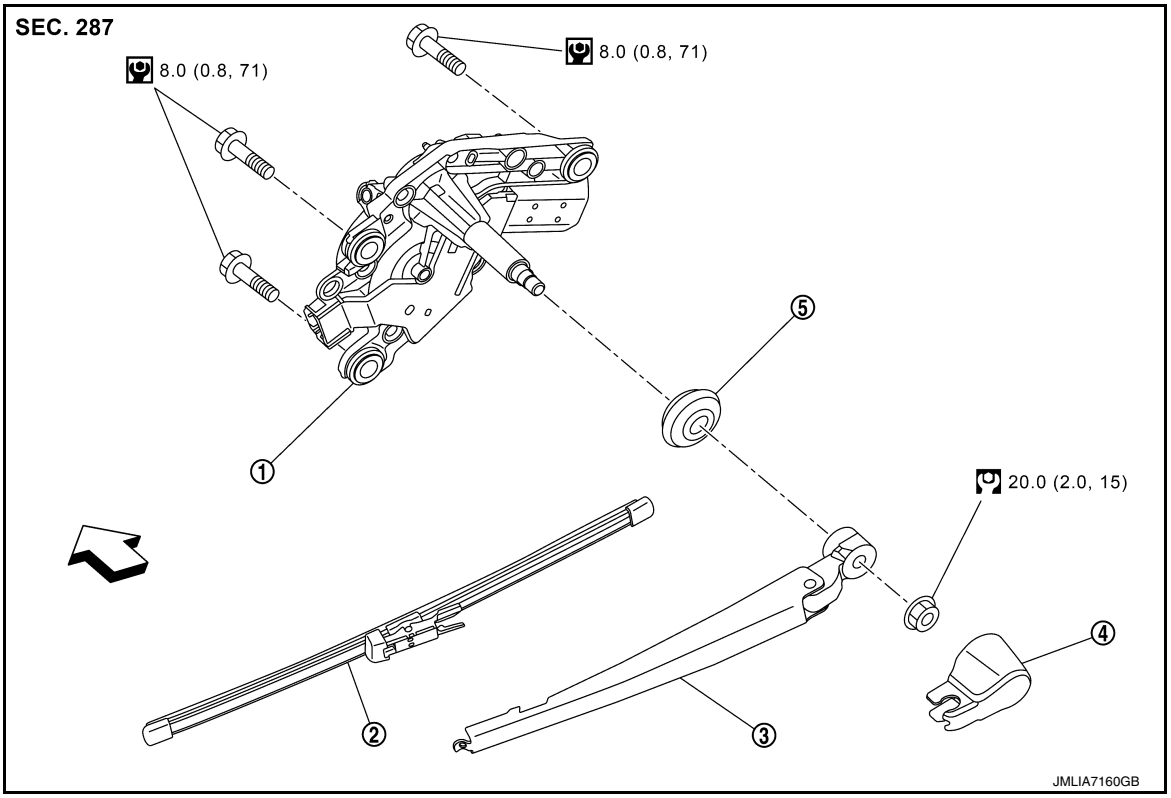
CAUTION:

When installing, temporarily tighten all mounting bolt and nuts, and then tighten bolt and nuts to the specified torque.

REAR WIPER

Exploded View

INFOID:0000000013637971



① Wiper motor	② Wiper blade	③ Wiper arm
④ Wiper arm cover	⑤ Pivot seal	
⇦ : Vehicle front		
: N·m (kg-m, in-lb)		
: N·m (kg-m, ft-lb)		

WIPER ARM

WIPER ARM : Removal and Installation

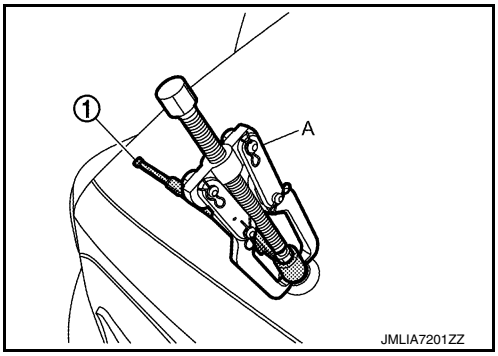
INFOID:0000000013637972

CAUTION:
Clean back door window glass and wiper blade so that back door window glass may not be damaged by dust, etc.

REMOVAL

1. Remove wiper arm cover and wiper arm fixing nut.
2. Install thrust washer M10×1.5 [SST: KV995H0220 (W210589046300)] to wiper arm installation location.
   CAUTION:
   Use thrust washer M10×1.5 to protect thread of wiper arm installation location when removing wiper arm.

3. Remove wiper arm ① using a puller (A).

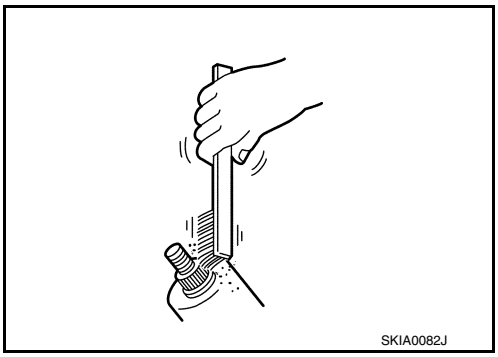


INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **Clean wiper arm installation location as shown in the figure, and then fully insert wiper arm to prevent the nut from being loosened by shakiness.**



- **After installation, operate wiper, and then check that wiper blades stop at the specified position. Refer to WW-70, "WIPER BLADE : Adjustment".**

WIPER BLADE

WIPER BLADE : Removal and Installation

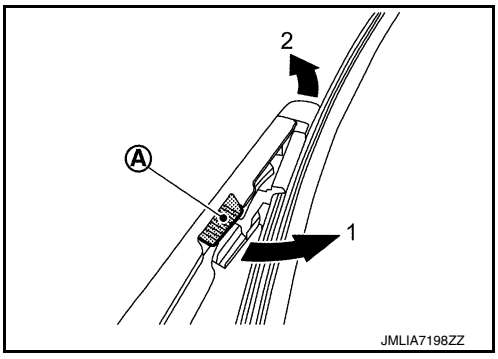
INFOID:0000000013637973

REMOVAL

1. Lift up wiper arm, and then lock back wiper arm.
2. Remove wiper blade while pushing lever Ⓐ according to numerical order 1→2 indicated by arrows as shown in the figure.

   CAUTION:

   After wiper blade is removed, wrap wiper arm tip with a shop cloth and fold it down so that wiper arm does not fall against and damage windshield glass.



INSTALLATION

Install in the reverse order of removal.

WIPER BLADE : Adjustment

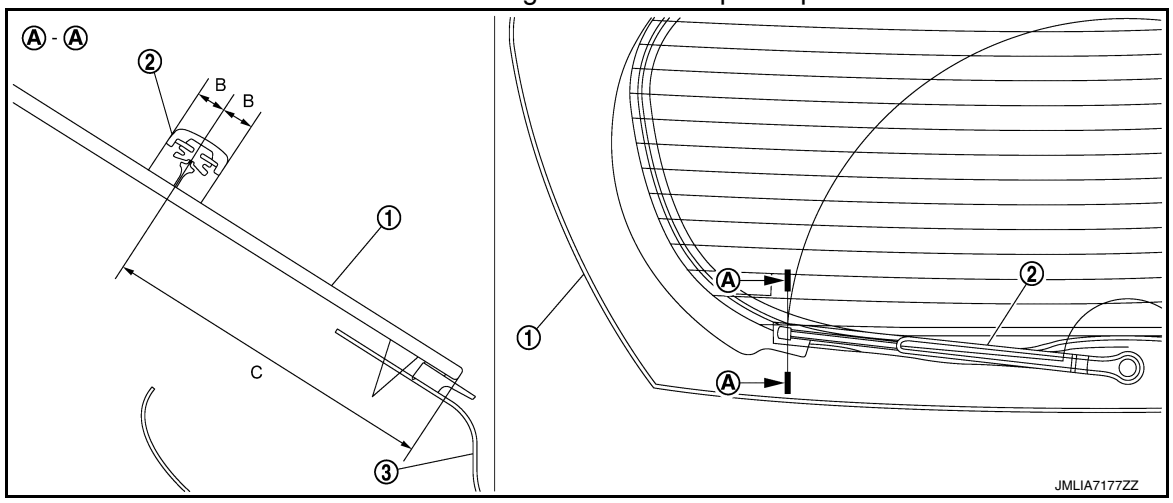
INFOID:0000000013637974

CAUTION:

Clean the back door window glass and the wiper refill so that the back door window glass may not be damaged by dust, etc.

REAR WIPER BLADE POSITION ADJUSTMENT

Clearance between the end of back door window glass and the top of wiper blade center.



① Back door window glass ② Rear wiper blade ③ Back door panel

Standard clearance

B : ±7.5 mm (±0.30 in)

C : 72.0 mm (2.84 in)

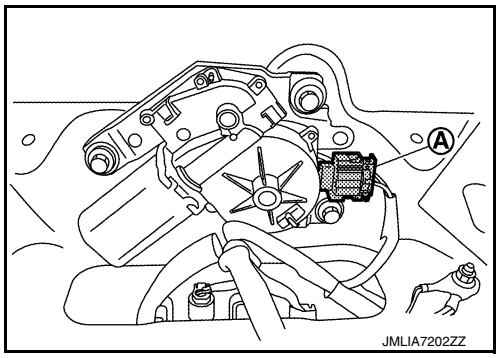
WIPER MOTOR

WIPER MOTOR : Removal and Installation

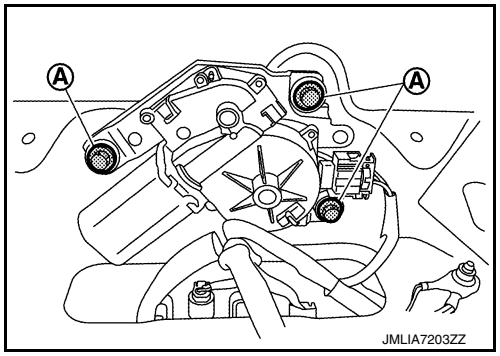
INFOID:0000000013637975

REMOVAL

1. Remove wiper arm. Refer to WW-69, "WIPER ARM : Removal and Installation".
2. Remove back door inner finisher. Refer to INT-43, "Removal and Installation".
3. Disconnect wiper motor harness connector Ⓐ.



4. Remove wiper motor mounting bolts Ⓐ.



5. Remove wiper motor from pivot seal.
6. Remove pivot seal from back door window glass.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

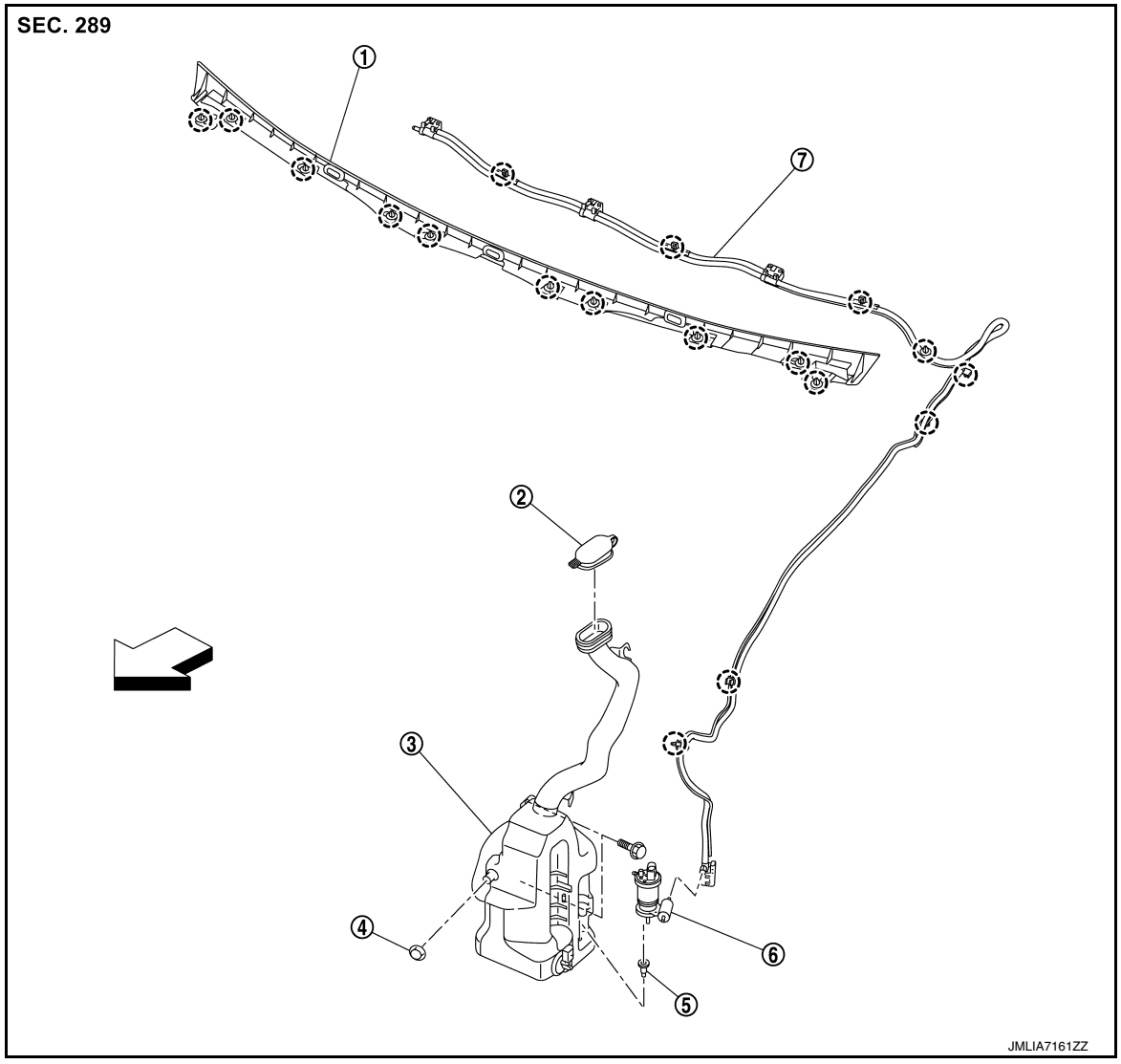
CAUTION:

- **Before installing pivot seal, check pivot seal for deformations, crack, damage or corrosion. Replace it with a new one if necessary.**
- **When installing wiper motor, temporarily tighten all fixing bolts, and then tighten bolts to the specified torque.**
- **When installing pivot seal, check that pivot seal is securely installed to vehicle body.**

FRONT WASHER

Exploded View

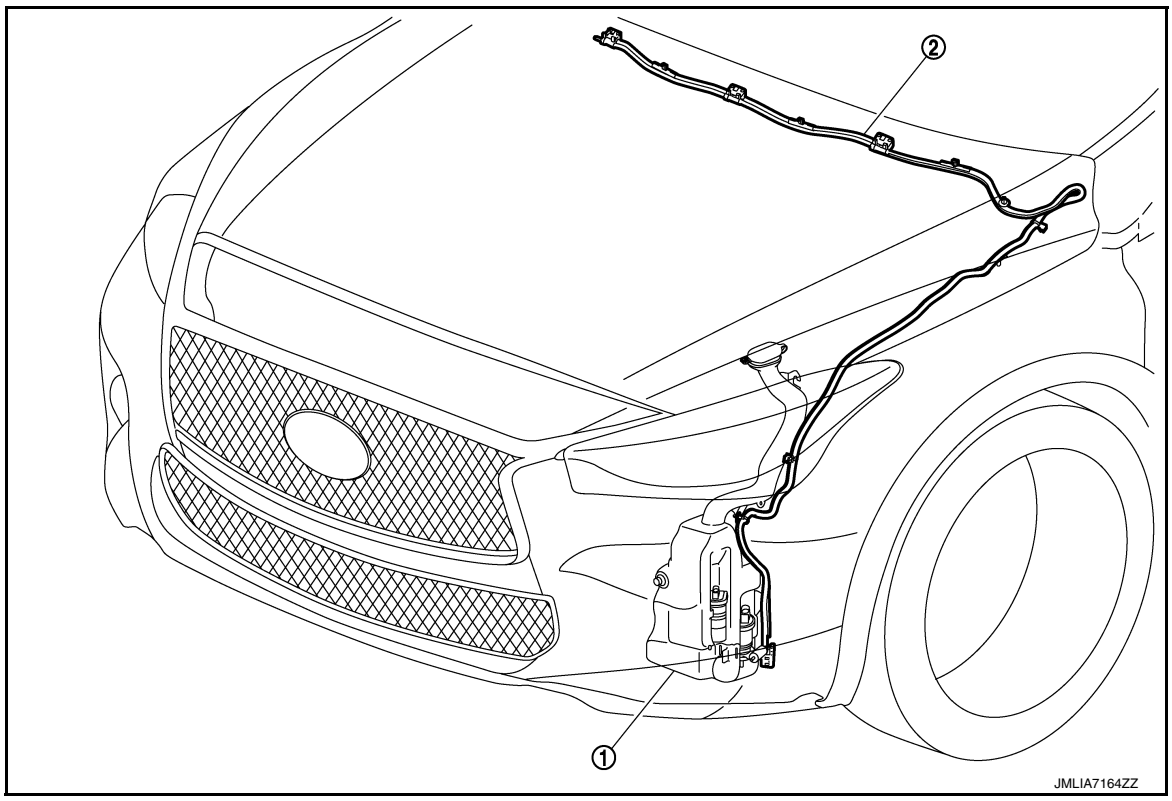
INFOID:0000000013637976



① Washer tube cover
② Washer tank cap
③ Washer tank
④ Grommet
⑤ packing
⑥ Washer pump
⑦ Front washer tube & nozzle
◌ : Fixing point
⇦ : Vehicle front

Hydraulic Layout

INFOID:0000000013637977



① Washer tank ② Front washer tube & nozzle

WASHER NOZZLE & TUBE

WASHER NOZZLE & TUBE : Removal and Installation

INFOID:0000000013637978

REMOVAL

CAUTION:

When the washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Remove fender protector LH. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
2. Disconnect front washer tube & nozzle from washer pump.
3. Disengage harness clips and fixing pawls.
4. Remove front washer tube & nozzle.
5. Remove washer tube bracket fixing clips, and then remove washer tube bracket.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

CAUTION:

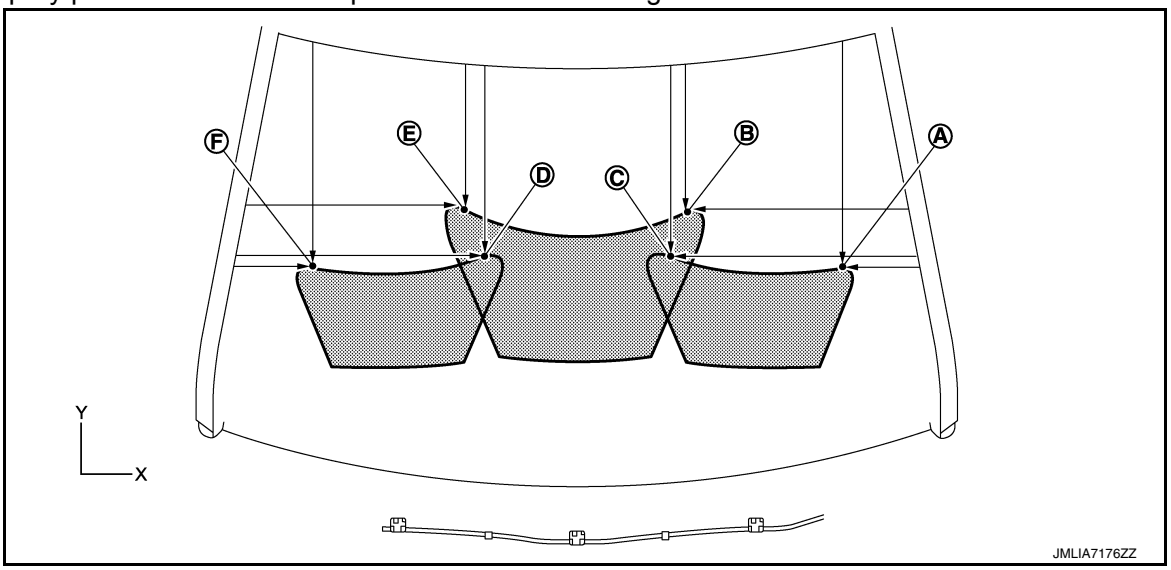
Adjust the washer nozzle spray position. Refer to WW-74, "WASHER NOZZLE & TUBE : Inspection and Adjustment".

WASHER NOZZLE & TUBE : Inspection and Adjustment

INFOID:0000000013637979

WASHER NOZZLE SPRAY POSITION ADJUSTMENT

Adjust spray positions to match the positions shown in the figure.



: Spray area

Unit: mm (in)

	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ
X	180 (7.09)	480 (18.90)	500 (19.69)	500 (19.69)	480 (18.90)	170 (6.69)
Y	390 (15.35)	340 (13.39)	320 (12.60)	300 (11.81)	340 (13.39)	390 (15.35)

WASHER TANK

WASHER TANK : Removal and Installation

INFOID:0000000013637980

REMOVAL

CAUTION:

When the washer tank inlet and the washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Remove fender protector LH. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
2. Pull out washer pump from washer tank.
3. Remove washer tank mounting bolts, and then remove washer tank.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

CAUTION:

Add washer fluid up to the top of the washer tank inlet after installing. Check that there is no leakage.

WASHER PUMP

WASHER PUMP : Removal and Installation

INFOID:0000000013637981

REMOVAL

CAUTION:

When the washer tube and washer pump is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

1. Remove front fender protector LH. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
2. Pull out front washer tube&nozzle and disconnect washer pump harness connector.
3. Pull out washer pump from washer tank.
4. Remove packing.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

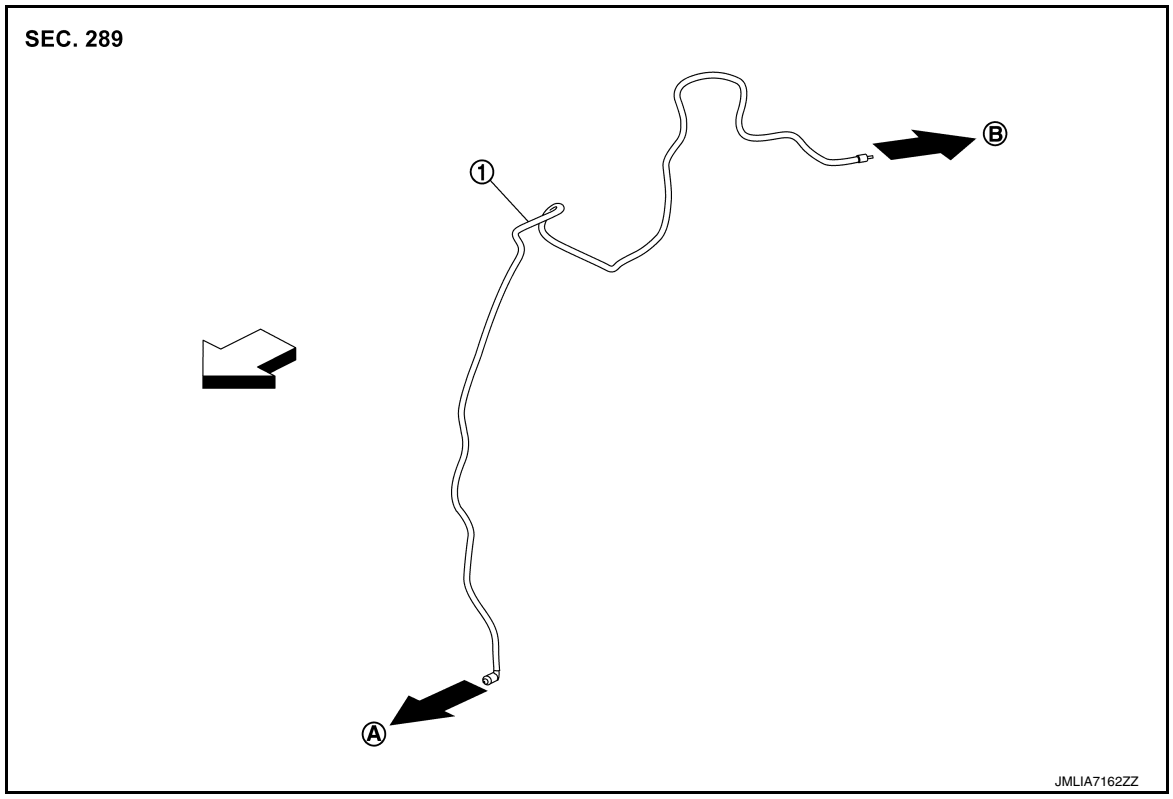
- **Check that the packing is inserted fully. (This may be the cause of washer fluid leakage and washer pump looseness.)**
- **Add washer fluid up to the top of the washer tank inlet after installing. Check that there is no leakage.**

REAR WASHER

Exploded View

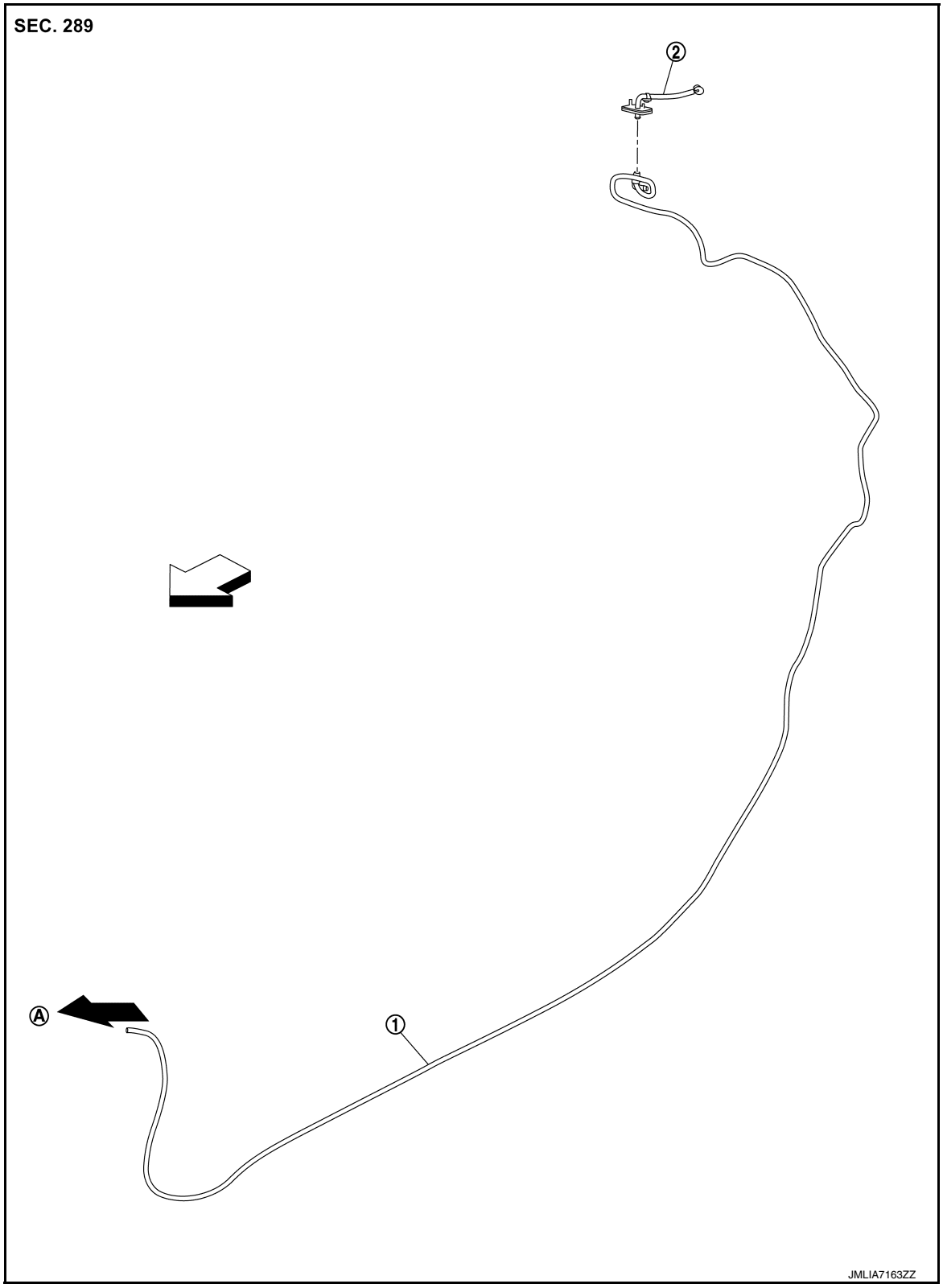
INFOID:0000000013637982

REAR WASHER TUBE A



1. Rear washer tube A
Ⓐ To washer tank
Ⓑ To rear washer tube B
⇦ : Vehicle front

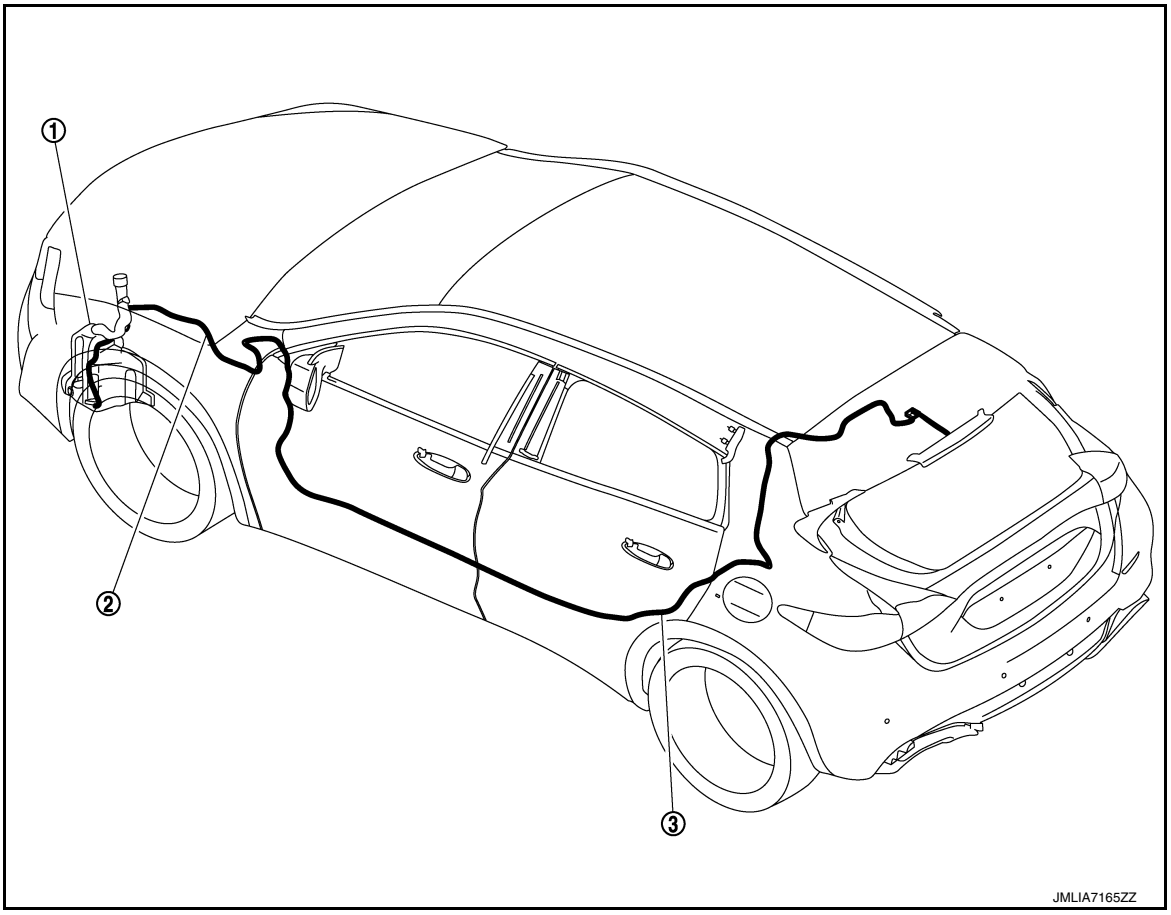
REAR WASHER TUBE B



① Rear washer tube B
② Rear washer nozzle assembly
Ⓐ To rear washer tube A
⇦ : Vehicle front

Hydraulic Layout

INFOID:0000000013637983



① Washer tank ② Rear washer tube A ③ Rear washer tube B & Rear washer nozzle assembly

WASHER NOZZLE & TUBE

WASHER NOZZLE & TUBE : Removal and Installation

INFOID:0000000013637984

REMOVAL

CAUTION:

When the washer tube is removed, washer fluid may come out so prepare a container to receive the fluid and never allow fluid to be sprinkled.

Rear Washer Tube A and B

1. Remove fender protector LH. Refer to EXT-41, "FENDER PROTECTOR : Removal and Installation".
2. Disconnect rear washer tube A from washer tank.
3. Remove back door upper garnish. Refer to INT-43, "Removal and Installation".
4. Disconnect rear washer tube B from rear washer nozzle assembly.
5. Remove luggage side lower finisher. Refer to INT-40, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation".
6. Remove center pillar lower garnish. Refer to INT-26, "CENTER PILLAR LOWER GARNISH : Removal and Installation".
7. Remove instrument panel assembly. Refer to IP-13, "Removal and Installation".
8. Remove rear washer tube A and B from main harness.

Rear Washer Nozzle Assembly

1. Remove high-mounted stop lamp. Refer to EXL-308, "Removal and Installation".

2. Remove rear washer nozzle assembly.

INSTALLATION

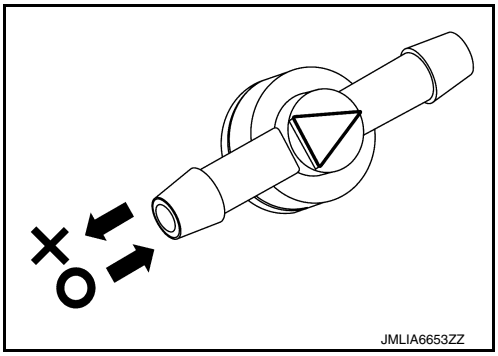
Install in the reverse order of removal.

WASHER NOZZLE & TUBE : Inspection and Adjustment

INFOID:0000000013637985

CHECK VALVE INSPECTION

Check that air can pass through by blowing forward direction [toward the washer nozzle], and check that air cannot pass through by sucking reverse direction [toward washer tank].



WASHER NOZZLE INSPECTION AND ADJUSTMENT

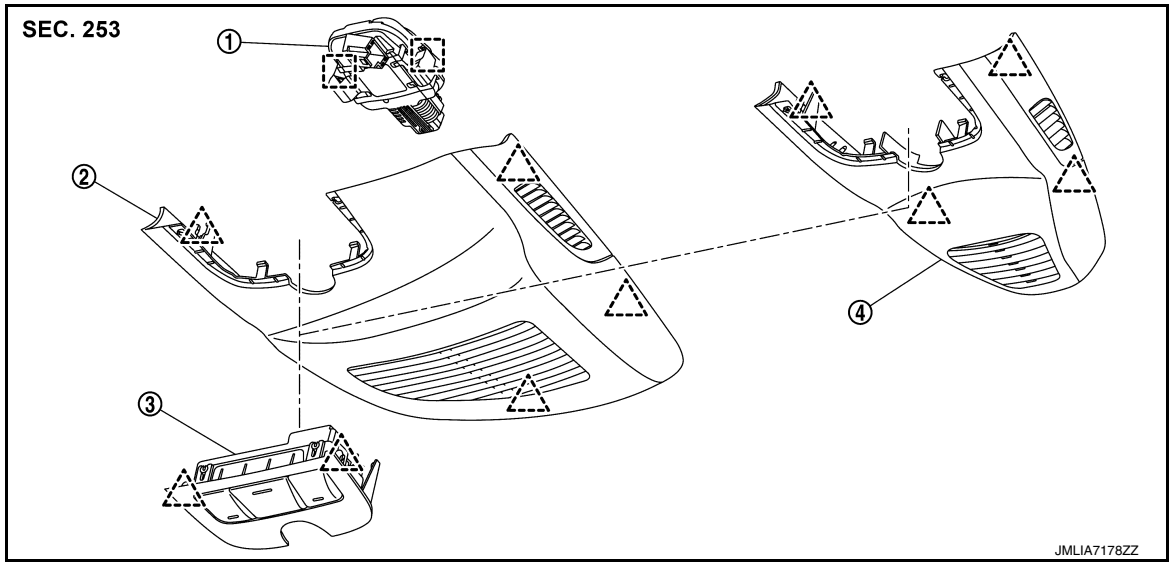
CAUTION:

Never inspection and adjustment rear washer nozzle.

LIGHT & RAIN SENSOR

Exploded View

INFOID:0000000013637986



① Light & rain sensor
② Light & rain sensor cover A (With Front camera unit)
③ Anti-theft alarm system/emergency call system button group (light & rain sensor cover B)
④ Light & rain sensor cover A (Without Front camera unit)
△ : Pawl
⬚ : Metal clip

Removal and Installation

INFOID:0000000013637987

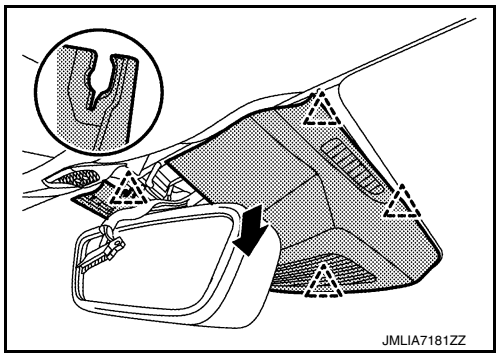
REMOVAL

CAUTION:

Before replacing light & rain sensor, perform “READ CONFIGURATION” to save or print current vehicle specification. Refer to WW-33, "Description".

1. Disengage fixing pawls, and then remove light & rain sensor cover B.
2. Disengage light & rain sensor cover A fixing pawls, and then remove light & rain sensor cover A.

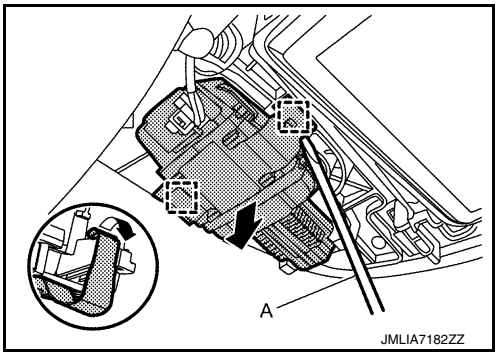
△ : Pawl



3. Disconnect light & rain sensor harness connector.

4. Disengage light & rain sensor fixing metal clips using a remover tool (A), and then remove light & rain sensor.

: Metal clip

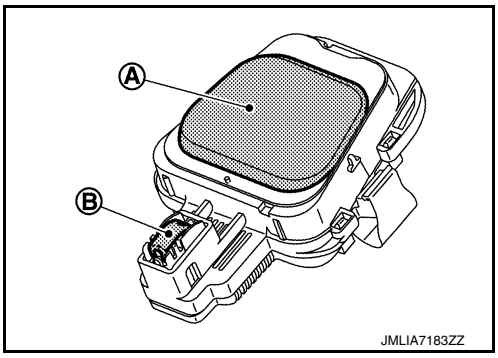


INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- **Clean the sensor installation portion of the windshield.**
- **Never touch the surfaces Ⓐ and Ⓑ of light & rain sensor. Otherwise, soiling may cause light & rain sensor to malfunction.**



- **Be sure to perform "SENSOR CALIBRATION" when removing light & rain sensor. Refer to WW-32, "Description".**
- **Be sure to perform "WRITE CONFIGURATION" when replacing light & rain sensor. Or not doing so, light & rain sensor does not operate normally. Refer to WW-33, "Description".**

WIPER AND WASHER SWITCH

Removal and Installation

INFOID:0000000013637988

Wiper and washer switch is integrated in the steering column control module. Refer to BCS-250, "Removal and Installation".