SECTION WW
WIPER & WASHER

CONTENTS

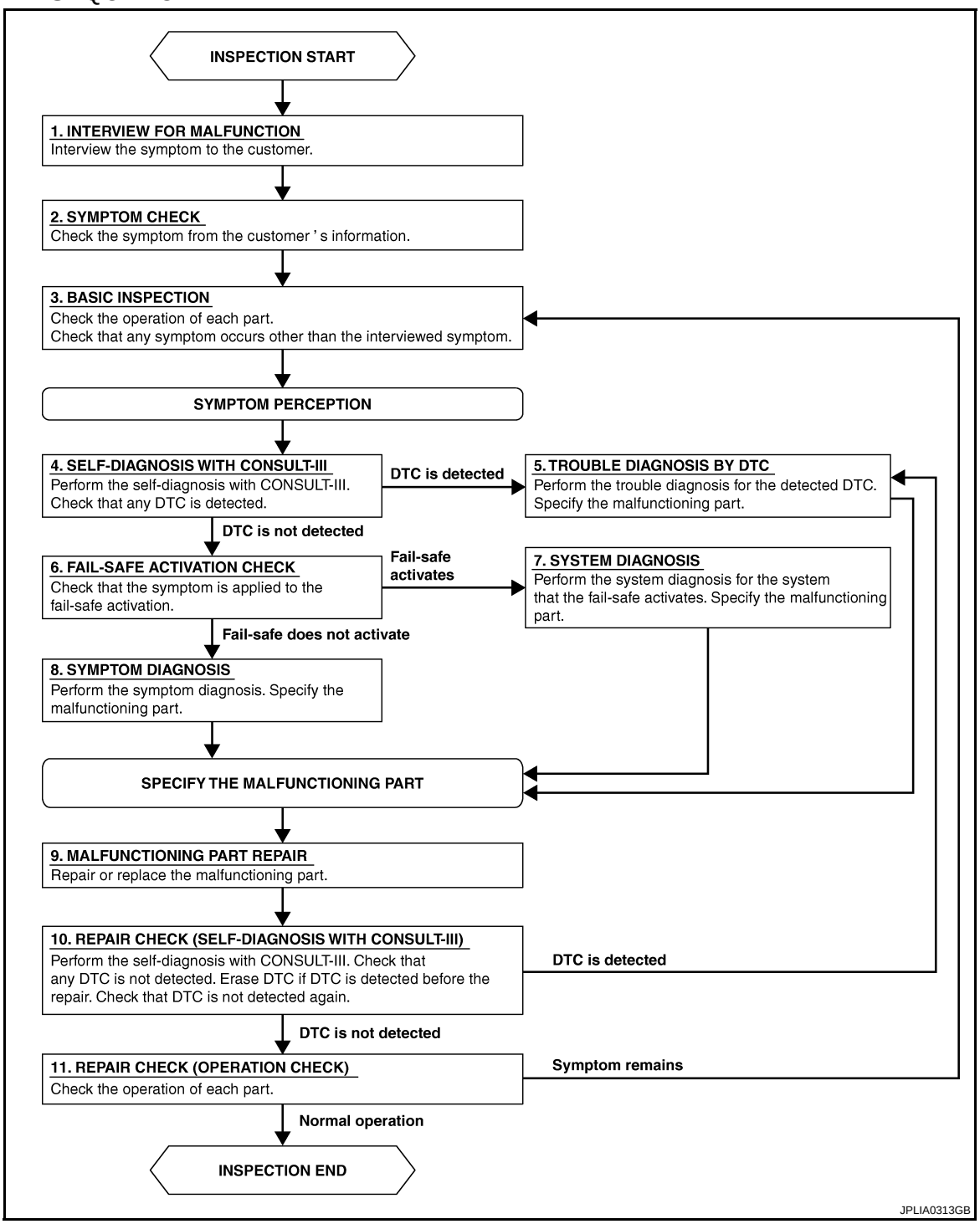
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000001188956

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

Interview the symptom to the customer.

>> GO TO 2.

2.SYMPTOM CHECK

Check the symptom from the customer's information.

>> GO TO 3.

3.BASIC INSPECTION

Check the operation of each part. Check that any symptom occurs other than the interviewed symptom.

>> GO TO 4.

4.SELF-DIAGNOSIS WITH CONSULT-III

Perform the self-diagnosis with CONSULT-III. Check that any DTC is detected.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.

>> GO TO 9.

6.FAIL-SAFE ACTIVATION CHECK

Check that the symptom is applied to the fail-safe activation.

Does the fail-safe activate?

YES >> GO TO 7.
NO >> GO TO 8.

7.SYSTEM DIAGNOSIS

Perform the system diagnosis for the system that the fail-safe activates. Specify the malfunctioning part.

>> GO TO 9.

8.SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 9.

9.MALFUNCTION PART REPAIR

Repair or replace the malfunctioning part.

>> GO TO 10.

10.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)

Perform the self-diagnosis with CONSULT-III. Check that any DTC is not detected. Erase DTC if DTC is detected before the repair. Check that DTC is not detected again.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 11.

11.REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

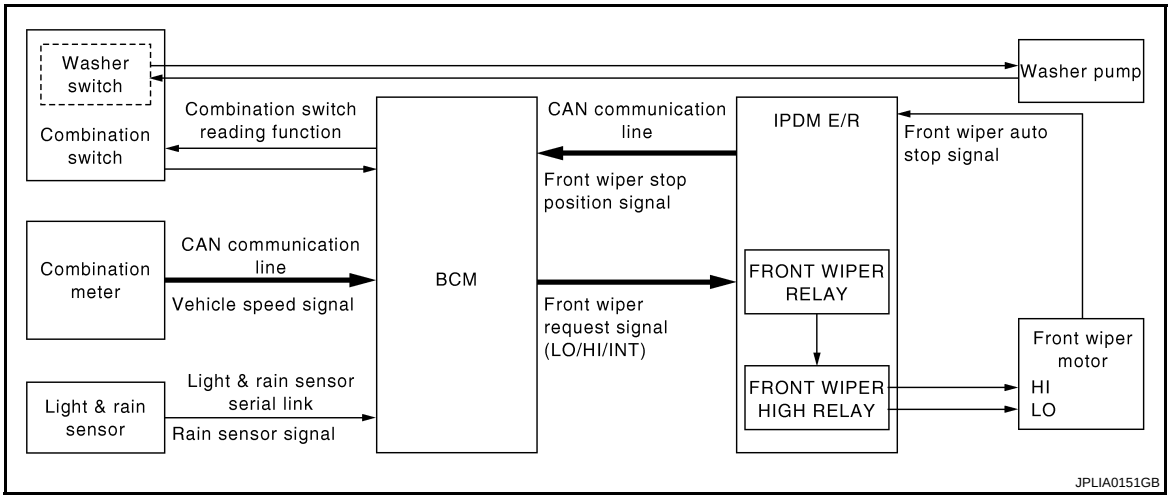
YES >> INSPECTION END
NO >> GO TO 3.

FUNCTION DIAGNOSIS

FRONT WIPER AND WASHER SYSTEM

System Diagram

INFOID:0000000001188957



System Description

INFOID:0000000001188958

OUTLINE

The front wiper is controlled by each function of BCM and IPDM E/R.

Control by BCM
- Combination switch reading function
- Front wiper control function

Control by IPDM E/R
- Front wiper control function
- Relay control function

FRONT WIPER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front wiper request signal to IPDM E/R with CAN communication depending on each operating condition of the front wiper.
- IPDM E/R turns ON/OFF the integrated front wiper relay and the front wiper high relay according to the front wiper request signal. IPDM E/R provides the power supply to operate the front wiper HI/LO operation.

FRONT WIPER LO OPERATION

- BCM transmits the front wiper request signal (LO) to IPDM E/R with CAN communication according to the front wiper LO operating condition.

Front wiper LO operating condition
- Ignition switch ON
- Front wiper switch LO or front wiper switch MIST (while pressing)
- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LO).

FRONT WIPER HI OPERATION

- BCM transmits the front wiper request signal (HI) to IPDM E/R with CAN communication according to the front wiper HI operating condition.

Front wiper HI operating condition
- Ignition switch ON
- Front wiper switch HI
- IPDM E/R turns ON the integrated front wiper relay and the front wiper high relay according to the front wiper request signal (HI).

FRONT WIPER INT OPERATION (LINKED WITH VEHICLE SPEED)

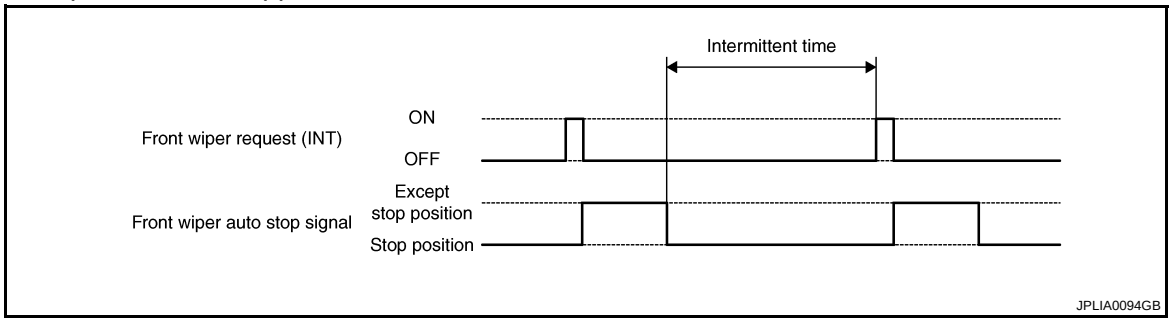
- BCM transmits the front wiper request signal (INT) to IPDM E/R with CAN communication according to the front wiper INT operation condition and the intermittent operation delay interval judged value.

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

Intermittent operation delay interval judgment
- BCM calculates the intermittent operation delay interval from the vehicle speed signal received from the wiper dial position and the combination meter with CAN communication.

Wiper intermittent dial position	Intermittent operation interval	Intermittent operation delay Interval (s)			
		Vehicle speed			
		Vehicle stopped or less than 5 km/h (3.1 MPH)	5 km/h (3.1 MPH) or more or less than 35 km/h (21.7 MPH)	35 km/h (21.7 MPH) or more or less than 65 km/h (40.4 MPH)	65 km/h (40.4 MPH) or more
1	Short ↑	0.8	0.6	0.4	0.24
2		4	3	2	1.2
3		10	7.5	5	3
4		16	12	8	4.8
5		24	18	12	7.2
6		32	24	16	9.6
7	↓ Long	42	31.5	21	12.6

- IPDM E/R turns the integrated front wiper relay ON so that the front wiper is operated only once according to the front wiper request signal (INT).
- BCM detects stop position/except stop position of the front wiper motor according to the front wiper stop position signal received from IPDM E/R with CAN communication.
- BCM transmits the front wiper request signal (INT) again after the intermittent operation delay interval after the front wiper motor is stopped.



FRONT WIPER AUTO OPERATION

- BCM receives the wiping speed request signal from the rain sensor with the light and rain sensor serial link.
- BCM judges the auto wiping condition depending on the wiping speed request signal and the rain sensor sensitivity setting under front wiper AUTO operating condition.
- BCM transmits the front wiper request signals (LO or HI) to the IPDM E/R through CAN communication line according to the auto wiping condition.

  NOTE:

  When the wiper volume is turned down at 1 level with front wiper AUTO operating condition, BCM transmits front wiper request signal (LO) to IPDM E/R with CAN communication.

Front wiper AUTO operating condition
- Ignition switch ON
- Front wiper switch AUTO

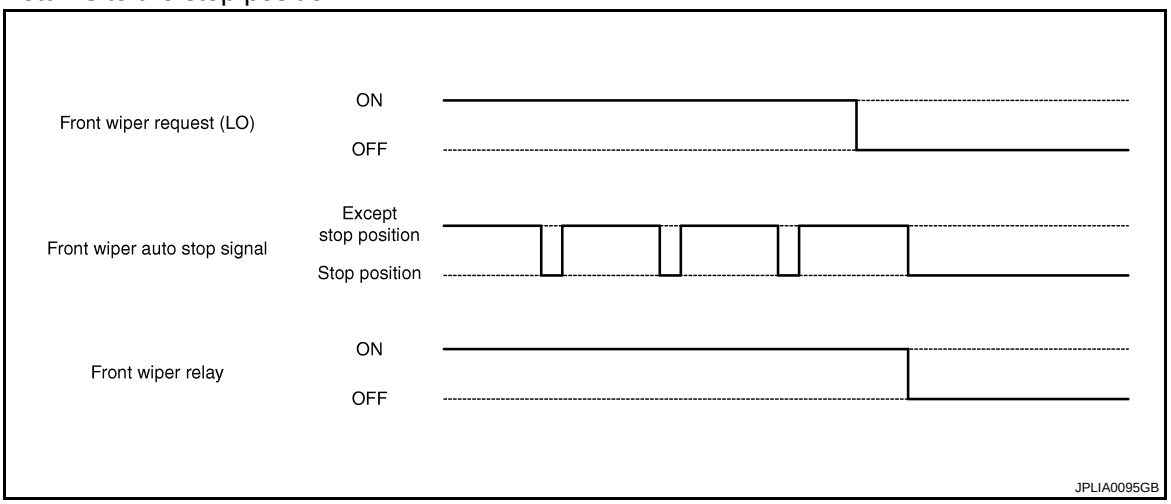
Rain sensor sensitivity setting
- BCM determines rain sensor sensitivity according to a wiper volume.

Wiper intermittent dial position	Sensitivity
1	High sensitivity
2	
3	Medium–high sensitivity
4	
5	Low–medium sensitivity
6	
7	Low sensitivity

- IPDM E/R turns ON the integrated front wiper relay and front wiper HI relay according to the front wiper request signal (LO or HI).
- Light and rain sensor transmits rain sensor signal to BCM for HI operation immediately after sensing the raindrops increase under the wiper motor LO operating with the front wiper switch AUTO.

FRONT WIPER AUTO STOP OPERATION

- BCM stops transmitting the front wiper request signal when the front wiper switch is turned OFF.
- IPDM E/R detects the front wiper auto stop signal from the front wiper motor and detects the front wiper motor position (stop position/except stop position).
- When the front wiper request signal is stopped, IPDM E/R turns ON the front wiper relay until the front wiper motor returns to the stop position.



NOTE:

- BCM stops the transmitting of the front wiper request signal when the ignition switch is OFF.
- IPDM E/R turns the front wiper relay OFF when the ignition switch is OFF.

FRONT WIPER OPERATION LINKED WITH WASHER

- BCM transmits the front wiper request signal (LO) to IPDM E/R with CAN communication according to the washer linked operating condition of the front wiper.
- BCM transmits the front wiper request signal (LO) so that the front wiper operates approximately 3 times when the front washer switch OFF is detected.

Washer linked operating condition of front wiper

- Ignition switch ON
- Front washer switch ON (0.4 second or more)

- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LO).
- The washer pump is grounded through the combination switch with the front washer switch ON.

FRONT WIPER DROP WIPE OPERATION

- BCM controls the front wiper to operate once according to the conditions of front wiper drop wipe operation.

Front wiper drop wipe operating condition

- Ignition switch ON
- Front wiper switch OFF
- Front washer switch OFF

- BCM transmits the front wiper request signal (LO) to IPDM E/R with CAN communication so that the front wiper operate once three seconds after front wiper operation linked with washer.
- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LO).

FRONT WIPER FAIL−SAFE OPERATION

- IPDM E/R performs the fail-safe function when the front wiper auto stop circuit is malfunctioning. Refer to PCS-29, "Fail Safe".
- BCM performs fail-safe operation when light and rain sensor or light and rain sensor-related systems are malfunctioning. Refer to BCS-60, "Fail Safe".

Component Parts Location

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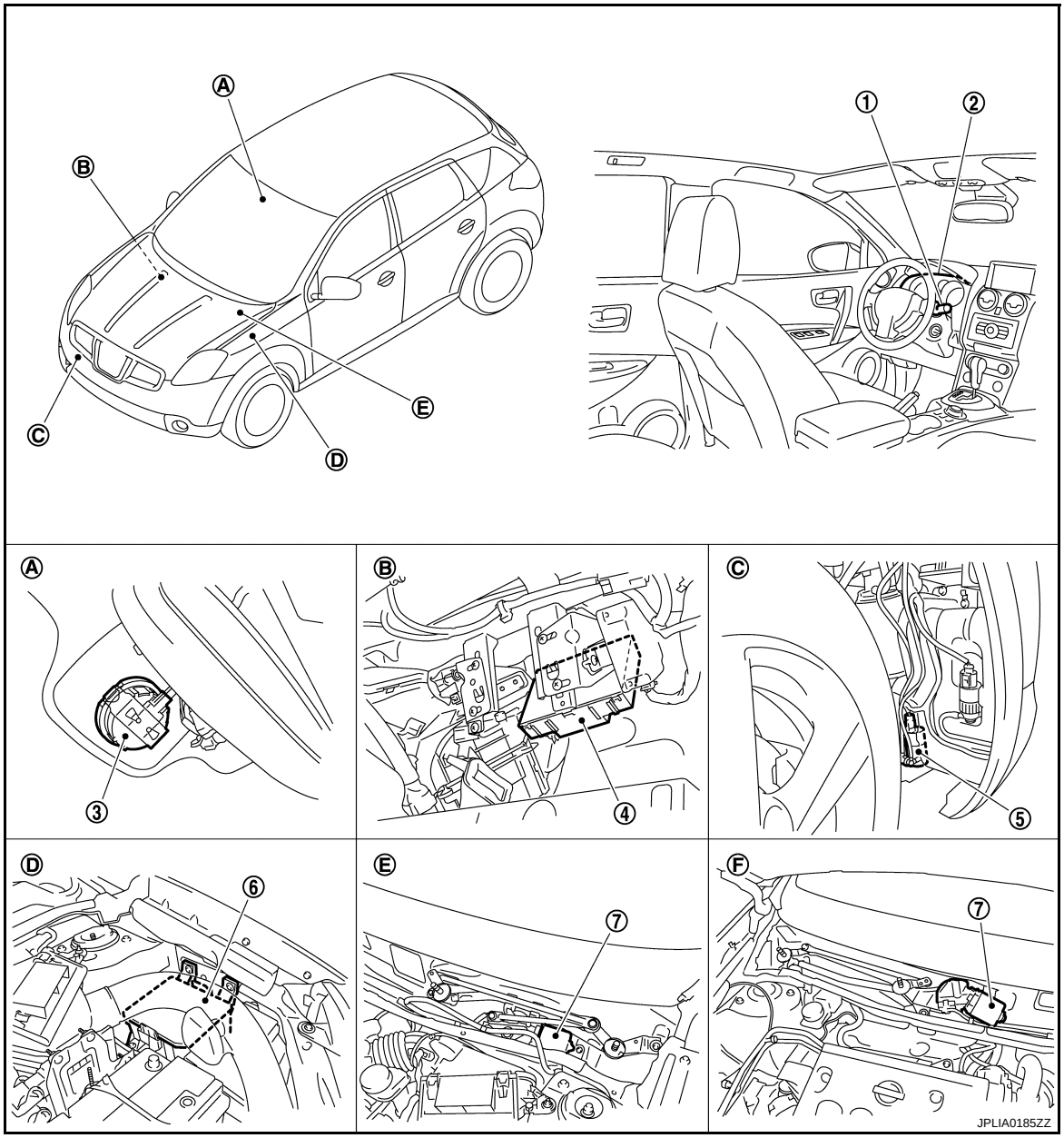


1. Combination switch
2. Combination meter
3. Light and rain sensor
4. BCM
5. Washer pump
6. IPDM E/R
7. Front wiper motor

A. Inside mirror cover inside
B. Over the glove box
C. Radiator core support (RH)
D. Engine room (left side)
E. Cowl top, left side of engine room
F. Cowl top, right side of engine room

Component Description

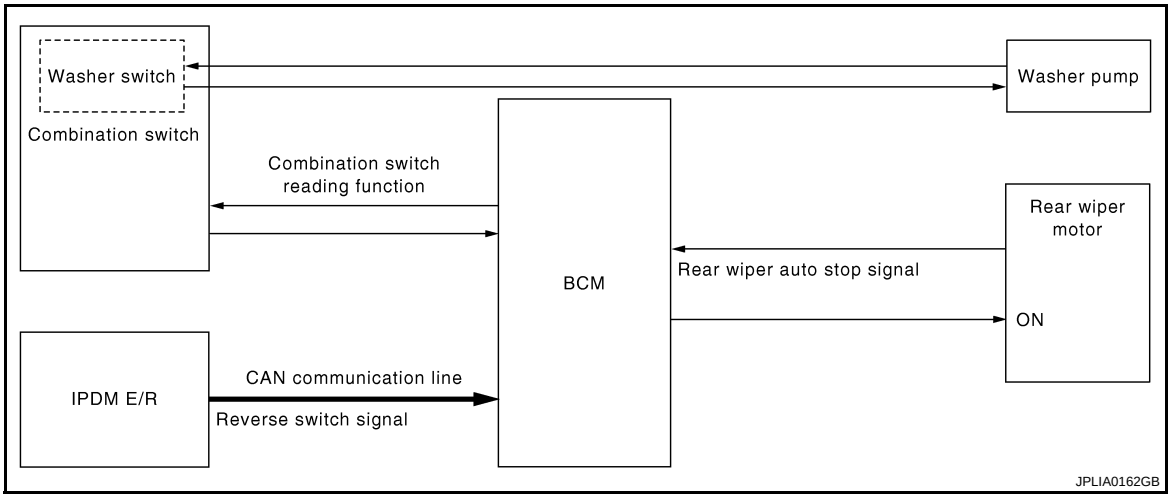
INFOID:0000000001188960

Part	Description
BCM	• Judges each switch status by the combination switch reading function. • Requests (with CAN communication) the front wiper relay and the front wiper high relay ON to IPDM E/R.
IPDM E/R	• Controls the integrated relay according to the request (with CAN communication) from BCM. • Performs the auto stop control of the front wiper.
Combination switch (Wiper & washer switch)	Refer to BCS-10, "System Diagram".
Combination meter	Transmits the vehicle speed signal to BCM with CAN communication.
Light and rain sensor	Detects water droplets on the windshield with infrared rays, and transmits the rain sensor signal to BCM through the light and rain sensor serial link.

REAR WIPER AND WASHER SYSTEM

System Diagram

INFOID:0000000001188961



System Description

INFOID:0000000001587039

OUTLINE

The rear wiper is controlled by each function of BCM and IPDM E/R.

Control by BCM
- Combination switch reading function
- Rear wiper control function

Control by IPDM E/R
- Reverse-linked rear wiper function

REAR WIPER BASIC OPERATION

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

REAR WIPER ON OPERATION

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

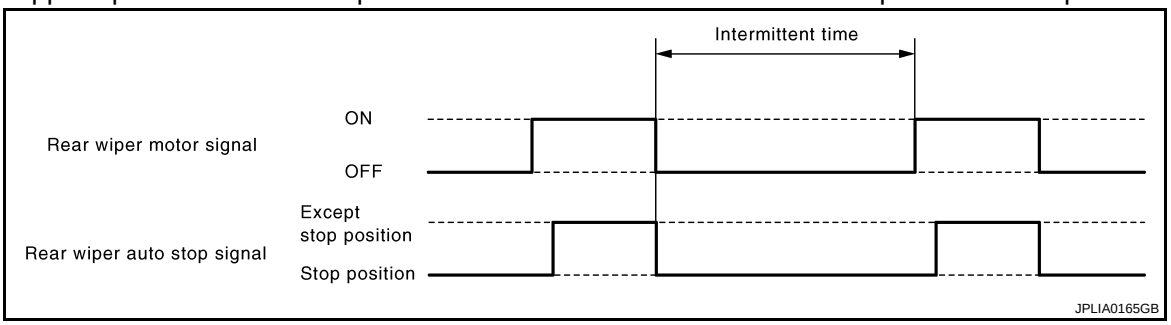
Rear wiper ON operating condition
- Ignition switch ON
- Rear wiper switch ON

REAR WIPER INT OPERATION LINKED WITH VEHICLE SPEED

Production before April 16th 2007
- BCM supplies power to the rear wiper motor according to the INT operating condition.

Rear wiper INT operating condition
- Ignition switch ON
- Rear wiper switch INT
- BCM controls the rear wiper to operate once.
- BCM detects the rear wiper motor stopping position.

• BCM supplies power to the rear wiper motor after an intermittent from the stop of the rear wiper motor.



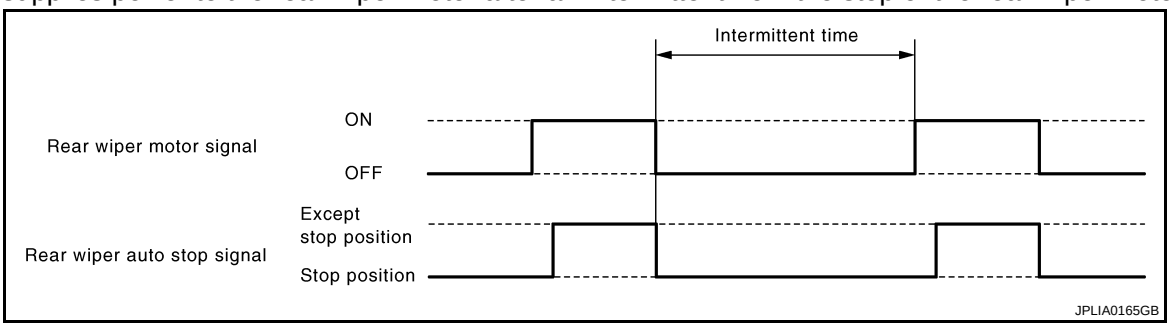
Production from April 16th 2007

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

Rear wiper INT operating condition

- Ignition switch ON
- Rear wiper switch INT

• BCM controls the rear wiper to operate once.
• BCM detects the rear wiper motor stopping position.
• BCM supplies power to the rear wiper motor after an intermittent from the stop of the rear wiper motor.



Rear wiper intermittent operation with vehicle speed

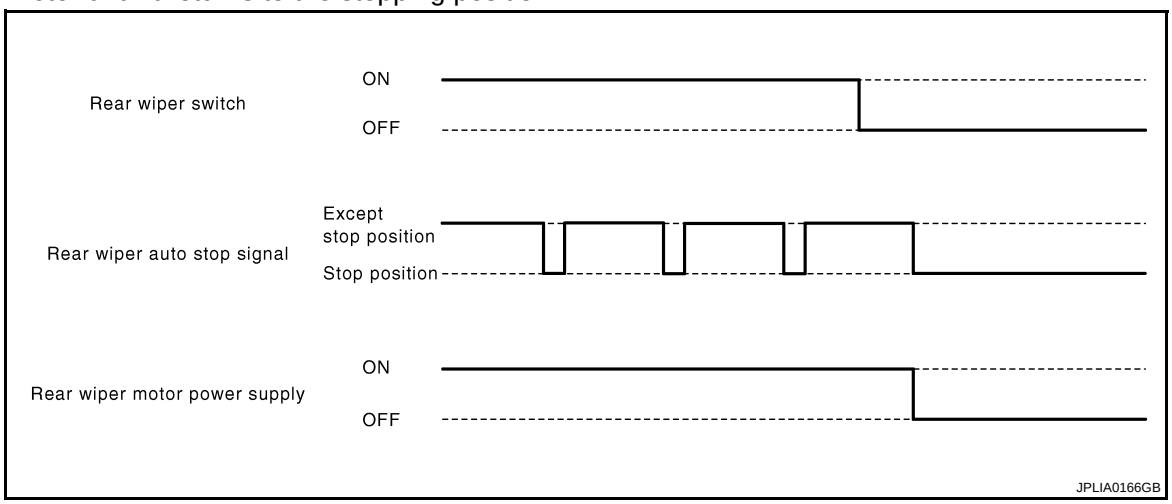
• BCM calculates the intermittent operation delay interval from the following
- Vehicle speed signal (received from the combination meter with CAN communication)

Intermittent operation delay Interval (s)			
Vehicle speed			
Less than 20 km/h (12.4 MPH)	More than 20 km/h (12.4 MPH), less than 80 km/h (49.7 MPH)	More than 80 km/h (49.7 MPH), less than 120 km/h (74.6 MPH)	More than 120 km/h (74.6 MPH)
7	10	8	6

REAR WIPER AUTO STOP OPERATION

• BCM stops supplying power to the rear wiper motor when the rear wiper switch is turned OFF.
• BCM reads an auto stop signal from the rear wiper motor to detect a rear wiper motor position.

- When the rear wiper motor is at other than the stopping position, BCM continues to supply power to the rear wiper motor until it returns to the stopping position.



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

REAR WIPER OPERATION LINKED WITH WASHER

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

Washer linked operating condition of rear wiper
- Ignition switch ON
- Rear washer switch ON (0.4 second or more)

- Washer pump becomes grounded through the combination switch when the rear washer switch is turned ON.

REAR WIPER OPERATION LINKED WITH REVERSE

- BCM controls rear wiper to operate once 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: LO, HI, AUTO*1, or INT*2
  NOTE:
  *1: With light and rain sensor
  *2: Without light and rain sensor
- Rear wiper switch OFF
- Selector lever “R”.

- IPDM E/R transmits a reverse switch signal to BCM through the CAN communication line when the selector lever is shifted to the “R”.
- BCM supplies power to the rear wiper motor when receiving the reverse switch signal.

REAR WIPER DROP WIPE OPERATION

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

Rear wiper drop wipe operating condition
- Ignition switch ON
- Rear wiper switch OFF
- Rear washer switch OFF

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

REAR WIPER FAIL–SAFE OPERATION

BCM performs the fail-safe function when the rear wiper auto stop circuit is malfunctioning. Refer to BCS-60, "Fail Safe".

Component Parts Location

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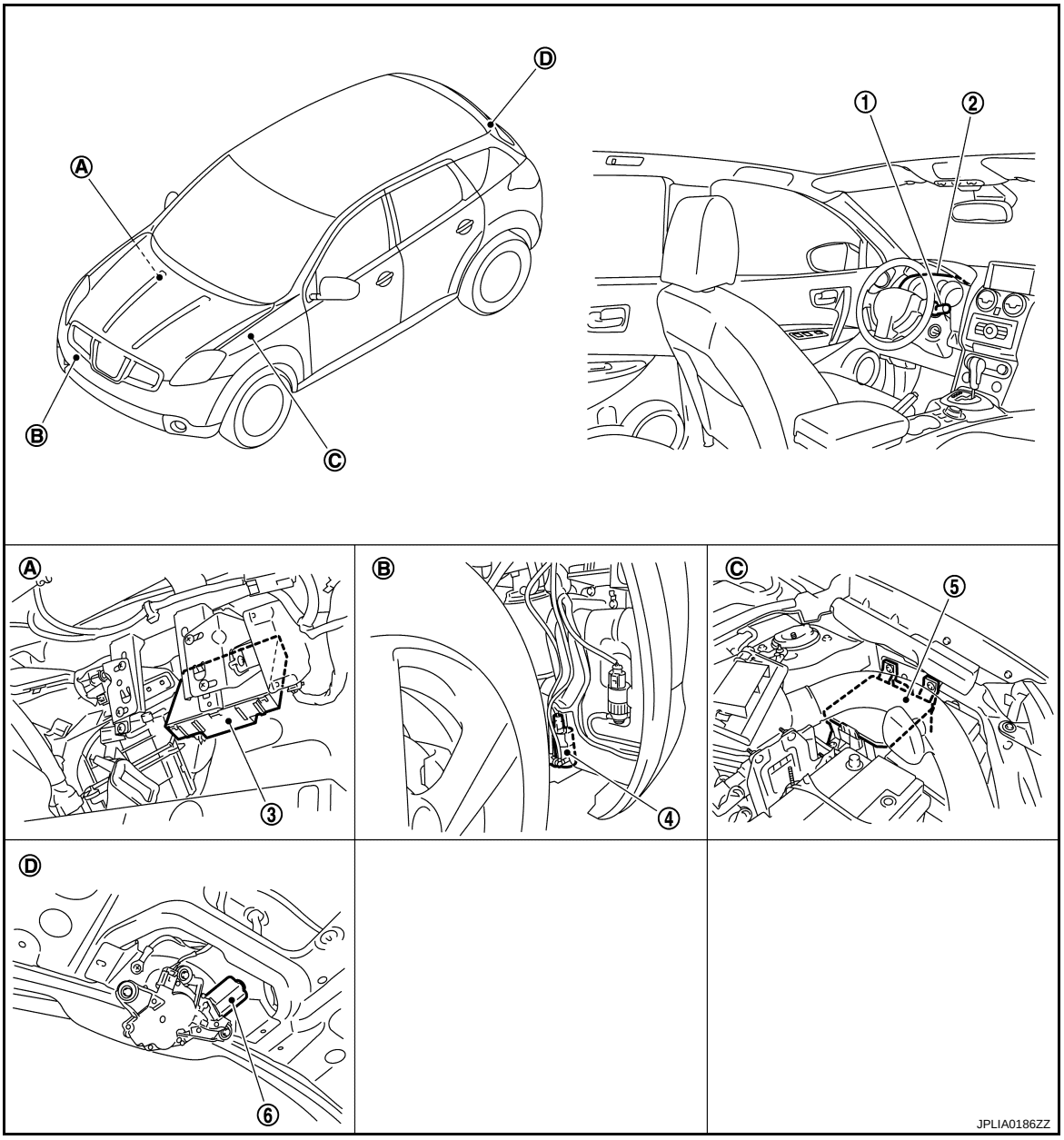


1. Combination switch
2. Combination meter
3. BCM
4. Washer pump
5. IPDM E/R
6. Rear wiper motor
A. Over the glove box
B. Radiator core support (RH)
C. Engine room (left side)
D. Back door trim finisher lower inside

Component Description

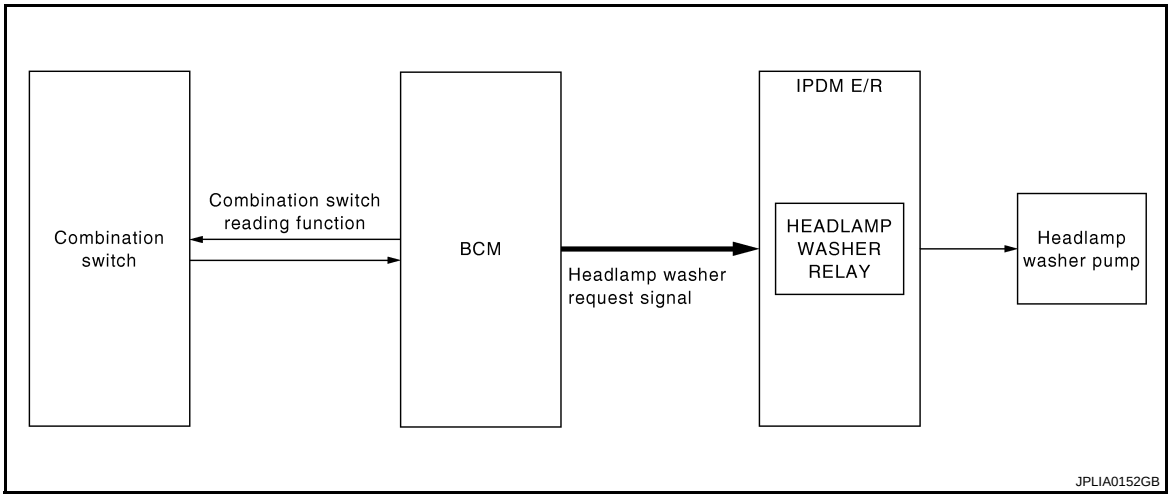
INFOID:0000000001188964

Part	Description
BCM	• Judges each switch status by the combination switch reading function. • Supplies power to the rear wiper motor. • Performs the auto stop control of the rear wiper.
IPDM E/R	Transmits the reverse switch signal to BCM with CAN communication.
Combination switch (Wiper & washer switch)	Refer to BCS-10, "System Diagram".

HEADLAMP WASHER SYSTEM

System Diagram

INFOID:0000000001188965



System Description

INFOID:0000000001188966

OUTLINE

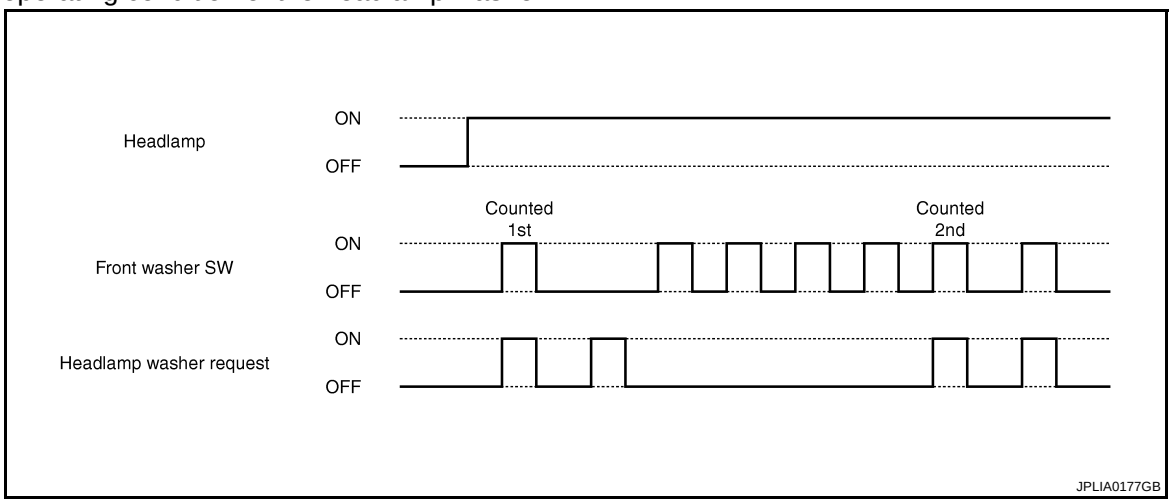
The headlamp washer is controlled by each function of BCM and IPDM E/R.

Control by BCM
- Combination switch reading function
- Headlamp washer control function

Control by IPDM E/R
- Relay control function

HEADLAMP WASHER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the headlamp washer request signal to IPDM E/R with CAN communication depending on each operating condition of the headlamp washer.



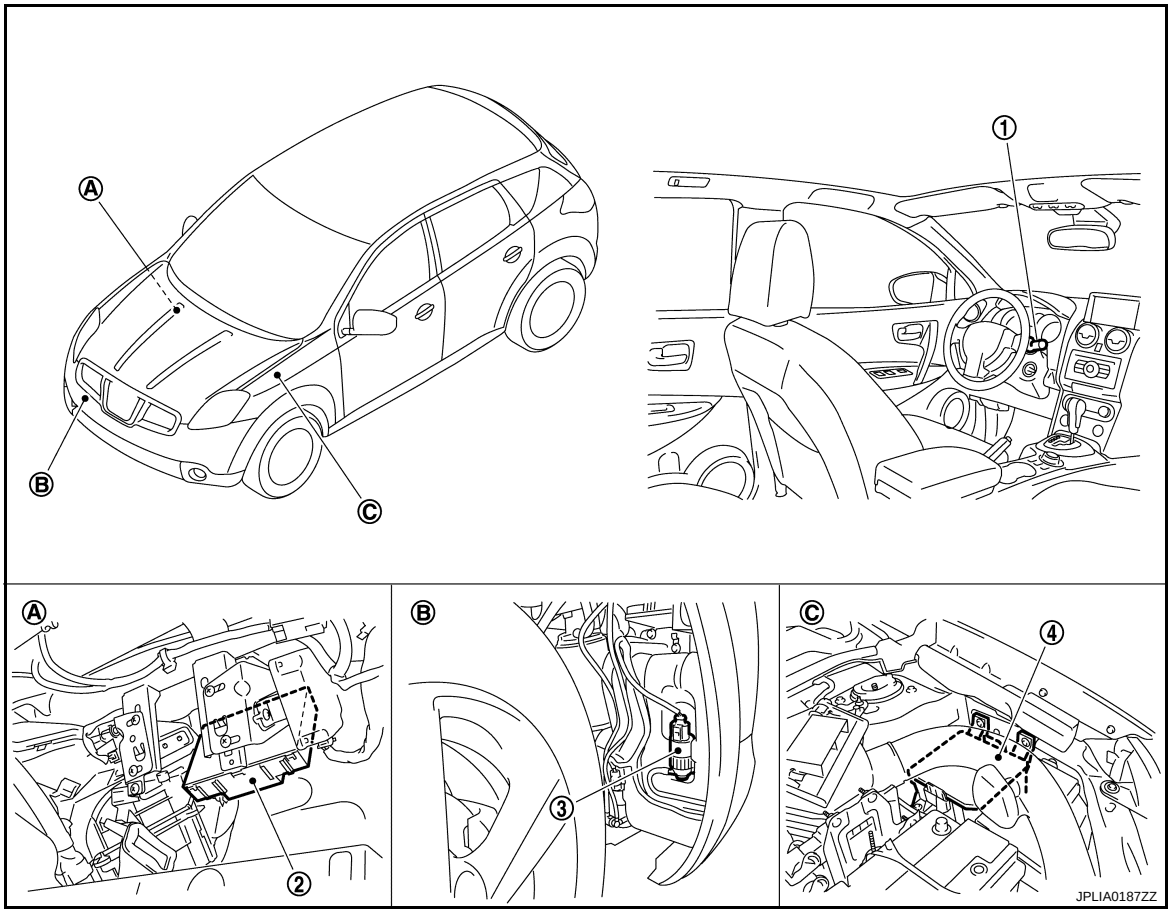
Operating conditions (The first time)
- Ignition switch ON
- Headlamps ON (PASS excluded)
- Front washer switch ON at first time.

Operating conditions (From the second time)
- Ignition switch ON
- Headlamps ON (PASS excluded)
- Front washer switch ON at fifth time after the first time.

- IPDM E/R turns ON/OFF the headlamp washer relay by receiving the headlamp washer request signal, and controls the headlamp washer twice.

Component Parts Location

INFOID:0000000001188967



1. Combination switch
2. BCM
3. Headlamp washer pump
4. IPDM E/R
A. Over the glove box
B. Radiator core support (RH)
C. Engine room (left side)

Component Description

INFOID:0000000001188968

Part	Description
BCM	• Judges each switch status by the combination switch reading function. • Requests (with CAN communication) the headlamp washer relay ON to IPDM E/R.
IPDM E/R	Controls the integrated relay according to the request (with CAN communication) from BCM.
Combination switch (Wiper & washer switch)	Refer to BCS-10, "System Diagram".

DIAGNOSIS SYSTEM (BCM)
COMMON ITEM
COMMON ITEM : CONSULT-III Function (BCM - COMMON ITEM)

INFOID:0000000001542471

APPLICATION ITEM
CONSULT-III performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description
Work Support	Changes the setting for each system function.
Self Diagnostic Result	Displays the diagnosis results judged by BCM. Refer to BCS-62, "DTC Index".
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.
Data Monitor	The BCM input/output signals are displayed.
Active Test	The signals used to activate each device are forcibly supplied from BCM.
Ecu Identification	The BCM part number is displayed.
Configuration	• Enables to read and save the vehicle specification. • Enables to write the vehicle specification when replacing BCM.

SYSTEM APPLICATION
BCM can perform the following functions for each system.
NOTE:
It can perform the diagnosis modes except the following for all sub system selection items.

×: Applicable item

System	Sub system selection item	Diagnosis mode		
		WORK SUPPORT	DATA MONITOR	ACTIVE TEST
—	BCM	×		
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER	×	×	×
Warning chime	BUZZER		×	×
Interior room lamp	INT LAMP	×	×	×
Remote keyless entry system	MULTI REMOTE ENT	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
Air conditioner	AIR CONDITONER		×	
Intelligent Key system	INTELLIGENT KEY		×	
Combination switch	COMB SW		×	
Immobilizer	IMMU		×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Back door open	TRUNK		×	×
Vehicle security system	THEFT ALM	×	×	×
Signal buffer system	SIGNAL BUFFER		×	×
PTC heater system	PTC HEATER		×	×

WIPER
WIPER : CONSULT-III Function (BCM - WIPER)

INFOID:0000000001188970

WORK SUPPORT

Service item	Setting item	Description
WIPER SPEED SETTING	On*	With vehicle speed (Front wiper intermittent time linked with the vehicle speed and wiper intermittent dial position)
	Off	Without vehicle speed (Front wiper intermittent time linked with the wiper intermittent dial position)

*:Factory setting

DATA MONITOR

Monitor Item [Unit]	Description
VEHICLE SPEED [km/h]	The value of the vehicle speed signal received from combination meter with CAN communication.
IGN ON SW [Off/On]	Ignition switch ON status judged from ignition power supply.
IGN SW CAN [Off/On]	Ignition switch ON status received from IPDM E/R with CAN communication.
FR WIPER HI [Off/On]	Each switch status that BCM judges from the combination switch reading function.
FR WIPER LOW [Off/On]	
FR WIPER INT [Off/On]	
FR WASHER SW [Off/On]	
INT VOLUME [1 – 7]	Each switch status that BCM judges from the combination switch reading function.
FR WIPER STOP [Off/On]	Front wiper motor (stop position) status received from IPDM E/R with CAN communication.
RR WIPER ON [Off/On]	Each switch status that BCM judges from the combination switch reading function.
RR WIPER INT [Off/On]	
RR WASHER SW [Off/On]	
RR WIPER STOP [Off/On]	Rear wiper motor (stop position) status input from the rear wiper motor.
REVERSE SW CAN [Off/On]	Reverse switch status received from IPDM E/R with CAN communication.
H/L WASH SW [Off/On]	**NOTE:** The item is indicated, but not monitored.

ACTIVE TEST

Test item	Operation	Description
FR WIPER	Hi	Transmits the front wiper request signal (HI) to IPDM E/R with CAN communication to operate the front wiper HI operation.
	Lo	Transmits the front wiper request signal (LO) to IPDM E/R with CAN communication to operate the front wiper LO operation.
	Int	Transmits the front wiper request signal (INT) to IPDM E/R with CAN communication to operate the front wiper INT operation.
	Off	Stops transmitting the front wiper request signal to stop the front wiper operation.

Test item	Operation	Description
RR WIPER	On	Outputs the voltage to operate the rear wiper motor.
	Off	Stops the voltage to stop.
HEADLAMP WASHER	On	Transmits the headlamp washer request signal to IPDM E/R with CAN communication to operate the headlamp washer operation.

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:0000000001188971

Auto active test

Description

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

- Oil pressure warning lamp
- Rear window defogger
- Front wiper (LO, HI)
- Parking lamps
- License plate lamps
- Tail lamps
- Front fog lamps
- Headlamps (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan (LO, HI)

Operation procedure

1. Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation)
   NOTE:
   When auto active test is performed with hood opened, sprinkle water on windshield beforehand.
2. Turn ignition switch OFF.
3. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.
   CAUTION:
   Close passenger door.
4. Turn the ignition switch ON within 10 seconds. Then the horn sounds once and the auto active test starts.
5. The oil pressure warning lamp starts blinking when the auto active test starts.
6. After a series of the following operations is repeated 3 times, auto active test is completed.

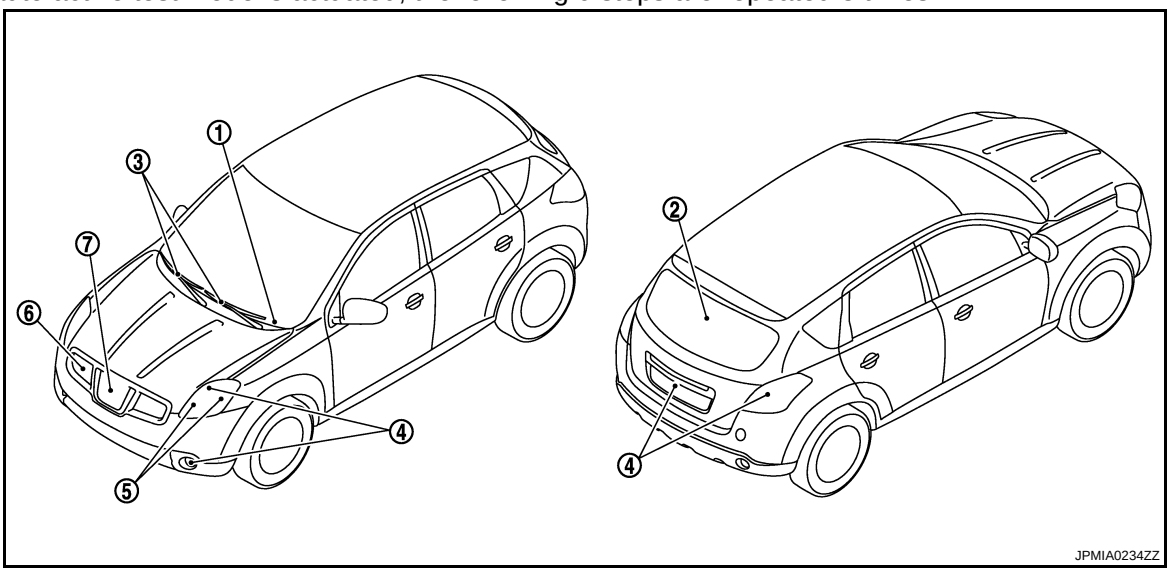
NOTE:
When auto active test mode has to be cancelled halfway through test, turn ignition switch OFF.

CAUTION:

- **If auto active test mode cannot be actuated, check door switch system.**
- **Never start the engine.**

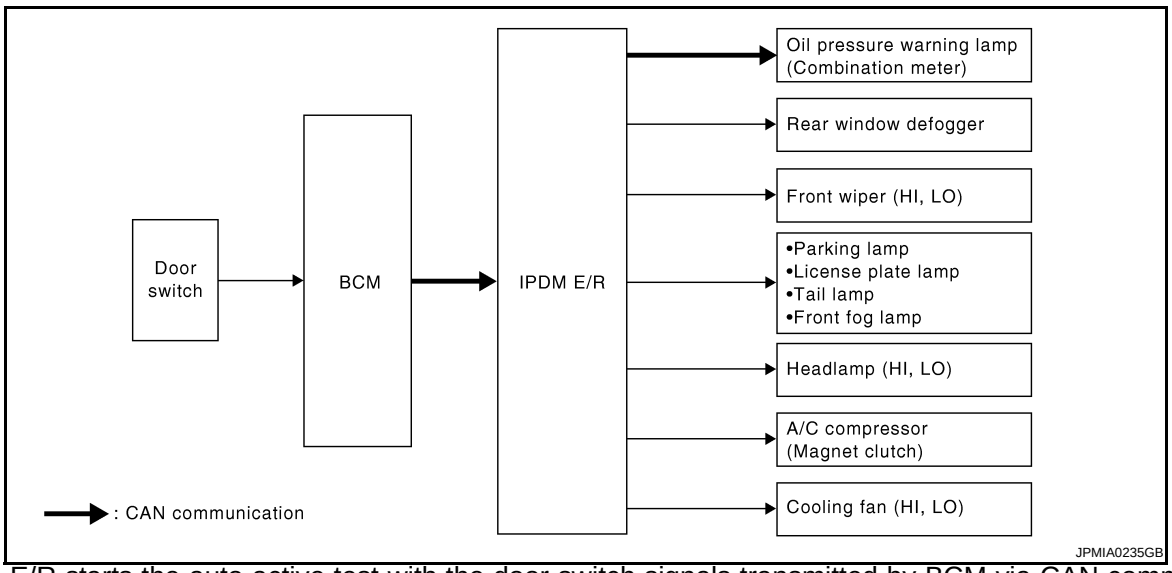
Inspection in auto active test mode

When auto active test mode is actuated, the following 6 steps are repeated 3 times.



Operation sequence	Inspection location	Operation
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test.
2	Rear window defogger	10 seconds
3	Front wiper	LO for 5 seconds → HI for 5 seconds
4	• Parking lamps • License plate lamps • Tail lamps • Front fog lamps	10 seconds
5	Headlamps	LO ⇔ HI 5 times
6	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
7	Cooling fan	LO for 5 seconds → HI for 5 seconds

Concept of auto active test



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

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	YES	BCM signal input circuit
		NO	• Rear window defogger • Rear window defogger ground circuit • Harness or connector between IPDM E/R and rear window defogger • IPDM E/R
Any of the following components do not operate • Parking lamps • License plate lamps • Tail lamps • Front fog lamps • Headlamp (HI, LO) • Front wiper (HI, LO)	Perform auto active test. Does the applicable system operate?	YES	BCM signal input circuit
		NO	• Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R

Symptom	Inspection contents		Possible cause
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	YES	• Communication signal between BCM and auto amp. (with auto A/C) • Communication signal between BCM and heater control panel (without auto A/C, with manual A/C) • BCM • CAN communication signal between BCM and ECM • CAN communication signal between ECM and IPDM E/R
		NO	• Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R
Oil pressure warning lamp does not operate	Perform auto active test. Does the oil pressure warning lamp blink?	YES	• Harness or connector between IPDM E/R and oil pressure switch • Oil pressure switch • IPDM E/R
		NO	• CAN communication signal between IPDM E/R and BCM • CAN communication signal between BCM and combination meter • Combination meter
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	YES	• ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO	• Cooling fan • Cooling fan ground circuit • Harness or connector between IPDM E/R and cooling fan • IPDM E/R • Cooling fan relay-3* • Harness or connector between IPDM E/R and cooling fan relay-3* • Harness or connector between cooling fan and cooling fan relay-3*

NOTE:

*: MR engine and K9K engine models

CONSULT - III Function (IPDM E/R)

INFOID:0000000001188972

APPLICATION ITEM

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

Diagnosis mode	Description
Ecu Identification	Allows confirmation of IPDM E/R part number.
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

SELF DIAGNOSTIC

Refer to PCS-31, "DTC Index".

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
MOTOR FAN REQ [1 - 4]	×	Displays the value of the cooling fan speed signal received from ECM via CAN communication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
HL WASHER REQ [Off/On]		Displays the status of the headlamp washer request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
ST RLY REQ [Off/On]		Displays the status of the ignition and starter request signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
RR DEF REQ [Off/On]	×	Displays the status of the rear defogger request signal received from BCM via CAN communication.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
REV SW [Off/On]		Displays the status of the reverse switch judged by IPDM E/R.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R. **NOTE:** This item is monitored only the vehicle with the Vehicle Security (Theft Warning) system.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication. **NOTE:** This item is monitored only the vehicle with the Vehicle Security (Theft Warning) system.
HORN CHIRP [Off/On]		**NOTE:** This item is indicated, but not monitored.
IGN ON SW [Off/On]		Displays the status of the ignition switch judged by IPDM E/R.

ACTIVE TEST

Test item

Test item	Operation	Description
REAR DEFOGGER	Off	OFF
	On	Operates the rear window defogger relay.
FRONT WIPER	Off	OFF
	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.

Test item	Operation	Description
MOTOR FAN	1	OFF
	2	Operates the cooling fan relay (low operation).
	3	Operates the cooling fan relay (high operation).
	4	
HEAD LAMP WASHER	On	Operates the headlamp washer relay for 1 second.
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
	Fog	Operates the front fog lamp relay.
HORN	On	Operates horn relay for 20 ms.

COMPONENT DIAGNOSIS

WIPER AND WASHER FUSE, FUSIBLE LINK

Description

INFOID:0000000001188973

Fuse, fusible link list

Unit	Location	No.	Capacity
Front wiper motor	IPDM E/R	#44	30 A
Washer pump	Fuse block	#3	20 A
Headlamp washer pump	Fuse and fusible link block	#G	30 A

Diagnosis Procedure

INFOID:0000000001188974

1.CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not fusing.

Unit	Location	No.	Capacity
Front wiper motor	IPDM E/R	#44	30 A
Washer pump	Fuse block	#3	20 A
Headlamp washer pump	Fuse and fusible link block	#G	30 A

Is the fuse or fusible link fusing?

YES >> Replace the fuse block or fusible link with a new one after repairing the applicable circuit.
NO >> The fuse or fusible link is normal.

FRONT WIPER MOTOR LO CIRCUIT

Component Function Check

INFOID:0000000001188975

1.CHECK FRONT WIPER LO OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
2. Check that the front wiper operates at the LO operation.

CONSULT-III ACTIVE TEST
1. Select “FRONT WIPER” of IPDM E/R active test item.
2. With operating the test item, check front wiper operation.

Lo : Front wiper (LO) operation
Off : Stop the front wiper.

Is front wiper (LO) operation normally?

YES >> Front wiper motor LO circuit is normal.
NO >> Refer to WW-25, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001188976

1.CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Front wiper motor	IPDM E/R	#44	30 A

Is the fuse fusing?

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

2.CHECK FRONT WIPER MOTOR (LO) SHORT CIRCUIT

1. Disconnect front wiper motor connector.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E10	7		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors. And then replace the fuse.
NO >> Replace the fuse. (Replace IPDM E/R if the fuse is fusing again.)

3.CHECK FRONT WIPER MOTOR (LO) OUTPUT VOLTAGE

CONSULT-III ACTIVE TEST
1. Connect IPDM E/R connector.
2. Turn the ignition switch ON.
3. Select “FRONT WIPER” of IPDM E/R active test item.
4. With operating the test item, check voltage between IPDM E/R harness connector and ground.

Terminals			Test item	Voltage (Approx.)
(+)		(-)		
IPDM E/R		Ground	FRONT WIPER	
Connector	Terminal			
E10	7		Lo	Battery voltage
			Off	0 V

Is the measurement value normal?

YES >> GO TO 4.
NO >> Replace IPDM E/R.

4. CHECK FRONT WIPER MOTOR (LO) OPEN CIRCUIT

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

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E10	7	E20	2	Existed

Does continuity exist?

YES >> Replace front wiper motor.
NO >> Repair the harnesses or connectors.

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:0000000001188977

1.CHECK FRONT WIPER HI OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
2. Check that the front wiper operates at the HI operation.

CONSULT-III ACTIVE TEST
1. Select “FRONT WIPER” of IPDM E/R active test item.
2. With operating the test item, check front wiper operation.

Hi : Front wiper (HI) operation
Off : Stop the front wiper.

Is front wiper (HI) operation normally?

YES >> Front wiper motor HI circuit is normal.
NO >> Refer to WW-27, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001188978

1.CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Front wiper motor	IPDM E/R	#44	30 A

Is the fuse fusing?

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

2.CHECK FRONT WIPER MOTOR (HI) SHORT CIRCUIT

1. Disconnect front wiper motor connector.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E10	8		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors. And then replace the fuse.
NO >> Replace the fuse. (Replace IPDM E/R if the fuse is fusing again.)

3.CHECK FRONT WIPER MOTOR (HI) OUTPUT VOLTAGE

CONSULT-III ACTIVE TEST
1. Connect IPDM E/R connector.
2. Turn the ignition switch ON.
3. Select “FRONT WIPER” of IPDM E/R active test item.
4. With operating the test item, check voltage between IPDM E/R harness connector and ground.

Terminals			Test item	Voltage (Approx.)
(+)		(-)		
IPDM E/R		Ground	FRONT WIPER	
Connector	Terminal			
E10	8		Hi	Battery voltage
			Off	0 V

Is the measurement value normal?

YES >> GO TO 4.
NO >> Replace IPDM E/R.

4. CHECK FRONT WIPER MOTOR (HI) OPEN CIRCUIT

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

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E10	8	E20	1	Existed

Does continuity exist?

YES >> Replace front wiper motor.
NO >> Repair the harnesses or connectors.

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:0000000001188979

1.CHECK FRONT WIPER (AUTO STOP) SIGNAL CHECK

CONSULT-III DATA MONITOR
1. Select “FRONT WIPER STOP” of IPDM E/R data monitor item.
2. Operate the front wiper.
3. Check that “FR WIPER STOP” changes to “STOP P” and “ACT P” linked with the wiper operation.

Monitor item	Condition		Monitor status
FR WIPER STOP	Front wiper motor	Stop position	STOP P
		Except stop position	ACT P

Is the status of item normal?

YES >> Front wiper auto stop signal circuit is normal.
NO >> Refer to WW-29, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001507231

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

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

Terminals			Voltage (Approx.)
(+)		(-)	
IPDM E/R		Ground	
Connector	Terminal		
E12	26		Battery voltage

Is the measurement value normal?

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

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

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E12	26		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> Replace IPDM E/R.

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

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

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E12	26	E20	4	Existed

Does continuity exist?

YES >> Replace front wiper motor.
NO >> Repair the harnesses or connectors.

FRONT WIPER MOTOR GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000001188981

1.CHECK FRONT WIPER MOTOR (GROUND) OPEN CIRCUIT

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

Front wiper motor		Ground	Continuity
Connector	Terminal		
E20	5		Existed

Does continuity exist?

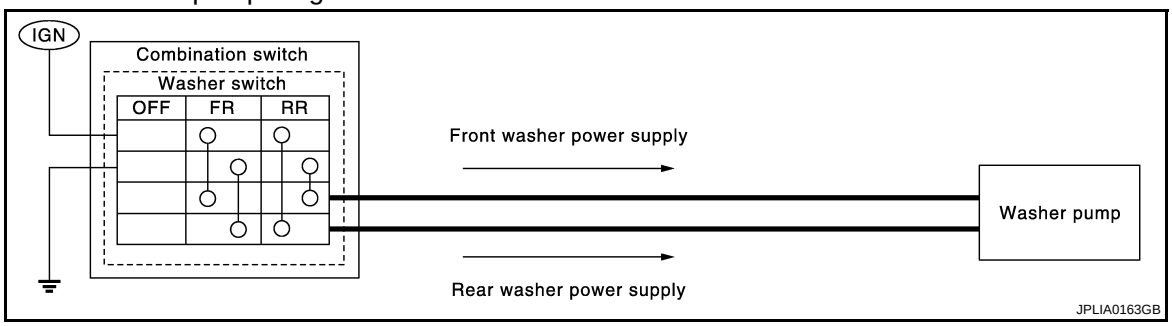
YES >> Front wiper motor ground circuit is normal.
NO >> Repair the harnesses or connectors.

WASHER SWITCH

Description

INFOID:0000000001188982

- Washer switch is integrated with combination switch.
- Combination switch switches polarity between front washer operating and rear washer operating to supply power to the washer pump on ground.



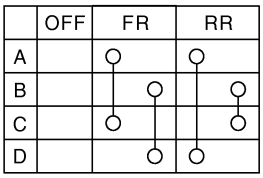
Component Inspection

INFOID:0000000001188983

1.CHECK WIPER SWITCH

1. Turn the ignition switch OFF.
2. Disconnect combination switch connector.
3. Check continuity between the combination switch terminals.

A : Terminal 14
B : Terminal 12
C : Terminal 13
D : Terminal 11



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Combination switch		Condition	Continuity
Terminal			
11	12	Front washer switch ON	Existed
13	14		
11	14	Rear washer switch ON	
12	13		

Does continuity exist?

YES >> Wiper and washer switch is normal.
NO >> Replace wiper and washer switch.

RAIN SENSOR

Description

INFOID:0000000001188984

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

Diagnosis Procedure

INFOID:0000000001188985

Refer to EXL-72, "Component Function Check".

REAR WIPER MOTOR CIRCUIT

Component Function Check

INFOID:0000000001188986

1.CHECK REAR WIPER ON OPERATION

CONSULT-III ACTIVE TEST
1. Select “RR WIPER” of BCM active test item.
2. With operating the test item, check rear wiper operation.

On : Rear wiper ON operation
Off : Stop the rear wiper.

Is rear wiper operation normally?

YES >> Rear wiper motor circuit is normal.
NO >> Refer to WW-34, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001480683

1.CHECK REAR WIPER MOTOR OUTPUT VOLTAGE

CONSULT-III ACTIVE TEST
1. Turn the ignition switch OFF.
2. Disconnect rear wiper motor connector.
3. Turn the ignition switch ON.
4. Select “RR WIPER” of BCM active test item.
5. With operating the test item, check voltage between BCM harness connector and ground.

Terminals			Test item	Voltage (Approx.)
(+)		(–)		
BCM		Ground	REAR WIPER	
Connector	Terminal			
M66	43		On	Battery voltage
			Off	0 V

Is the measurement value normal?

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

2.CHECK REAR WIPER MOTOR SHORT CIRCUIT

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

BCM		Ground	Continuity
Connector	Terminal		
M66	43		Not existed

Does continuity exist?

YES >> Repair the harness or connector.
NO >> Replace BCM. Refer to BCS-65, "Exploded View".

3.CHECK REAR WIPER MOTOR OPEN CIRCUIT

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

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M66	43	D156	3	Existed

Does continuity exist?

YES >> GO TO 4.
NO >> Repair the harness or connector.

4. CHECK REAR WIPER MOTOR GROUND OPEN CIRCUIT

Check continuity between rear wiper motor harness connector and ground.

Rear wiper motor		Ground	Continuity
Connector	Terminal		
D156	1		Existed

Does continuity exist?

YES >> Replace rear wiper motor.
NO >> Repair the harness or connector.

REAR WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:0000000001188988

1.CHECK REAR WIPER (AUTO STOP) OPERATION

CONSULT-III DATA MONITOR
1. Select “RR WIPER STOP” of BCM data monitor item.
2. Operate the rear wiper.
3. Check that “RR WIPER STOP” changes to “ON” and “OFF” linked with the wiper operation.

Monitor item	Condition		Monitor status
RR WIPER STOP	Rear wiper motor	Stop position	On
		Except stop position	Off

Is the status of item normal?

YES >> Rear wiper auto stop signal circuit is normal.
NO >> Refer to WW-36, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001188989

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

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

Terminals			Voltage (Approx.)
(+)		(–)	
BCM		Ground	
Connector	Terminal		
M66	44		Battery voltage

Is the measurement value normal?

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

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

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

BCM		Ground	Continuity
Connector	Terminal		
M66	44		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> Replace BCM. Refer to BCS-65, "Exploded View".

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

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

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
M66	44	D156	2	Existed

Does continuity exist?

YES >> Replace rear wiper motor.
NO >> Repair the harnesses or connectors.

HEADLAMP WASHER RELAY

Component Inspection

INFOID:0000000001188990

1.CHECK HEADLAMP WASHER RELAY

1. Turn the ignition switch OFF.
2. Disconnect headlamp washer relay.
3. Apply battery voltage to headlamp washer relay between terminals 3 and 4.
4. Check continuity of headlamp washer relay.

Headlamp washer relay		Condition	Continuity
Terminal		Voltage	
1	2	Apply	Existed
		Not Apply	Not existed

Does continuity exist?

YES >> Headlamp washer relay is normal.
NO >> Replace headlamp washer relay.

HEADLAMP WASHER CIRCUIT

Component Function Check

INFOID:0000000001188991

1.CHECK HEADLAMP WASHER OPERATION

CONSULT-III ACTIVE TEST
1. Select “HEADLAMP WASHER” of IPDM E/R active test item.
2. With operating the test item, check headlamp washer operation.

On	**: Headlamp washer ON operation**
Off	**: Stop the headlamp washer.**

Is the headlamp washer operation normally?

YES >> Headlamp washer circuit is normal.
NO >> Refer to WW-39, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001188992

1.CHECK HEADLAMP WASHER FUSIBLE LINK

1. Turn the ignition switch OFF.
2. Check that the headlamp washer 30A fusible link (#G) is not fusing.

Is the fusible link fusing?

YES >> Replace the fusible link after repairing the applicable circuit.
NO >> GO TO 2.

2.CHECK HEADLAMP WASHER RELAY POWER SUPPLY

1. Remove headlamp washer relay.
2. Turn the ignition switch ON.
3. Check voltage between headlamp washer harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Headlamp washer relay		Ground	
Connector	Terminal		
E32	2		Battery voltage
	3		

Is the measurement value normal?

YES >> GO TO 3.
NO >> Repair the harnesses or connectors.

3.CHECK HEADLAMP WASHER RELAY

1. Check headlamp washer relay. Refer to WW-38, "Component Inspection".

Is the headlamp washer relay normal?

YES >> GO TO 4.
NO >> Replace the headlamp washer relay.

4.CHECK HEADLAMP WASHER RELAY SIGNAL OUTPUT

CONSULT-III ACTIVE TEST
1. Turn the ignition switch OFF.
2. Install headlamp washer relay.
3. Turn the ignition switch ON.
4. Select “HEADLAMP WASHER” of IPDM E/R active test item.
5. With operating the test item, check voltage between IPDM E/R harness connector and ground.

Terminals			Test item	Voltage (Approx.)
(+)		(–)		
IPDM E/R		Ground	HEADLAMP WASHER	
Connector	Terminal			
E13	39		On	0 V
			Off	Battery voltage

Is the measurement value normal?

YES >> GO TO 7.
Fixed at 0 V >> GO TO 5.
Fixed at Battery voltage >> Replace IPDM E/R.

5.CHECK HEADLAMP WASHER RELAY CONTROL SIGNAL OPEN CIRCUIT

1. Remove headlamp washer relay.
2. Disconnect IPDM E/R harness connector.
3. Check continuity between IPDM E/R harness connector and headlamp washer relay harness connector.

IPDM E/R		Headlamp washer relay		Continuity
Connector	Terminal	Connector	Terminal	
E13	39	E32	4	Existed

Does continuity exist?

YES >> GO TO 6.
NO >> Repair the harnesses or connectors.

6.CHECK HEADLAMP WASHER RELAY CONTROL SIGNAL SHORT CIRCUIT

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E13	39		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> Replace IPDM E/R.

7.CHECK HEADLAMP WASHER PUMP OPEN CIRCUIT

1. Disconnect headlamp washer pump connector.
2. Remove headlamp washer relay.
3. Check continuity between headlamp washer relay harness connector and headlamp washer pump harness connector.

Headlamp washer relay		Headlamp washer pump		Continuity
Connector	Terminal	Connector	Terminal	
E32	1	E42	1	Existed

Does continuity exist?

YES >> GO TO 8.
NO >> Repair the harnesses or connectors.

8.CHECK HEADLAMP WASHER PUMP SHORT CIRCUIT

Check continuity between headlamp washer pump harness connector and ground.

Headlamp washer pump		Ground	Continuity
Connector	Terminal		
E42	1		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.
NO >> GO TO 9.

9. CHECK HEADLAMP WASHER PUMP (GROUND) OPEN CIRCUIT

1. Check continuity between headlamp washer pump harness connector and ground.

Headlamp washer pump		Ground	Continuity
Connector	Terminal		
E42	2		Existed

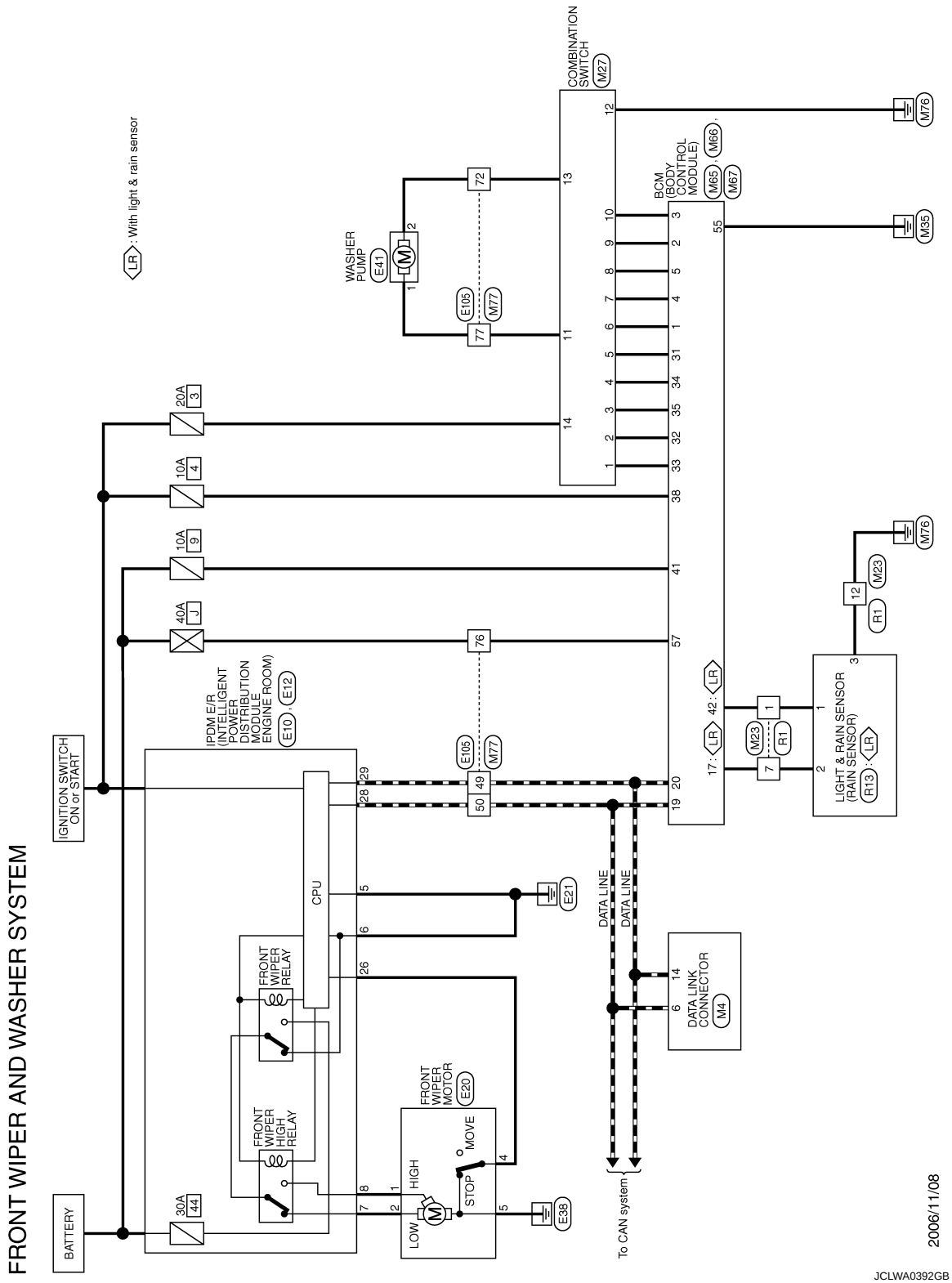
Does continuity exist?

YES >> Replace the headlamp washer pump.
NO >> Repair the harnesses or connectors.

FRONT WIPER AND WASHER SYSTEM

Wiring Diagram - FRONT WIPER AND WASHER SYSTEM -

INFOID:0000000001188993

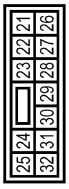


FRONT WIPER AND WASHER SYSTEM

Connector No.	E10
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	M06FB-LC

Terminal No.	Color of Wire	Signal Name [Specification]
5	B	–
6	B	–
7	Y	–
8	Y/R	–

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
26	O	–
28	L	–
29	P	–

Connector No.	E20
Connector Name	FRONT WIPER MOTOR
Connector Type	AMP 953600-1

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y/R	–
2	Y	–
4	O	–
5	B	–

Connector No.	E41
Connector Name	WASHER PUMP
Connector Type	FEA02FB

Terminal No.	Color of Wire	Signal Name [Specification]
1	O	–
2	SB	–

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-NS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
49	P	–
50	L	–
72	SB	–
76	Y	–
77	SB	–

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW

Terminal No.	Color of Wire	Signal Name [Specification]
6	L	–
14	P	–

Connector No.	M23
Connector Name	WIRE TO WIRE
Connector Type	TK10FW-NS8

Terminal No.	Color of Wire	Signal Name [Specification]
1	V	–
7	BR	–
12	B	–

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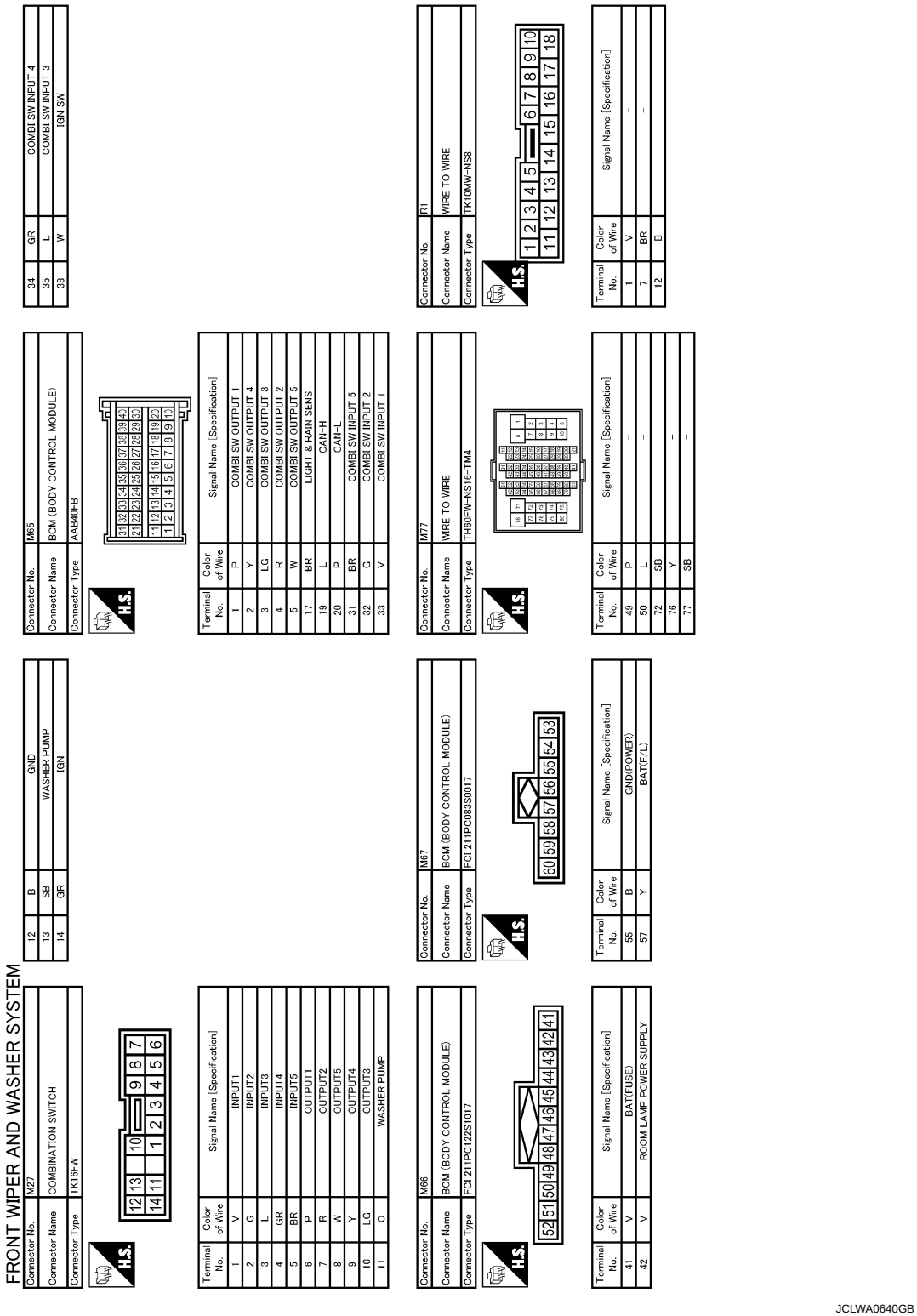

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FRONT WIPER AND WASHER SYSTEM

Connector No.	R13
Connector Name	LIGHT & RAIN SENSOR
Connector Type	AMP 968705-1

Terminal No.	Color of Wire	Signal Name [Specification]
1	V	+IG
2	BR	SIG
3	B	GND

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REAR WIPER AND WASHER SYSTEM

Wiring Diagram - REAR WIPER AND WASHER SYSTEM -

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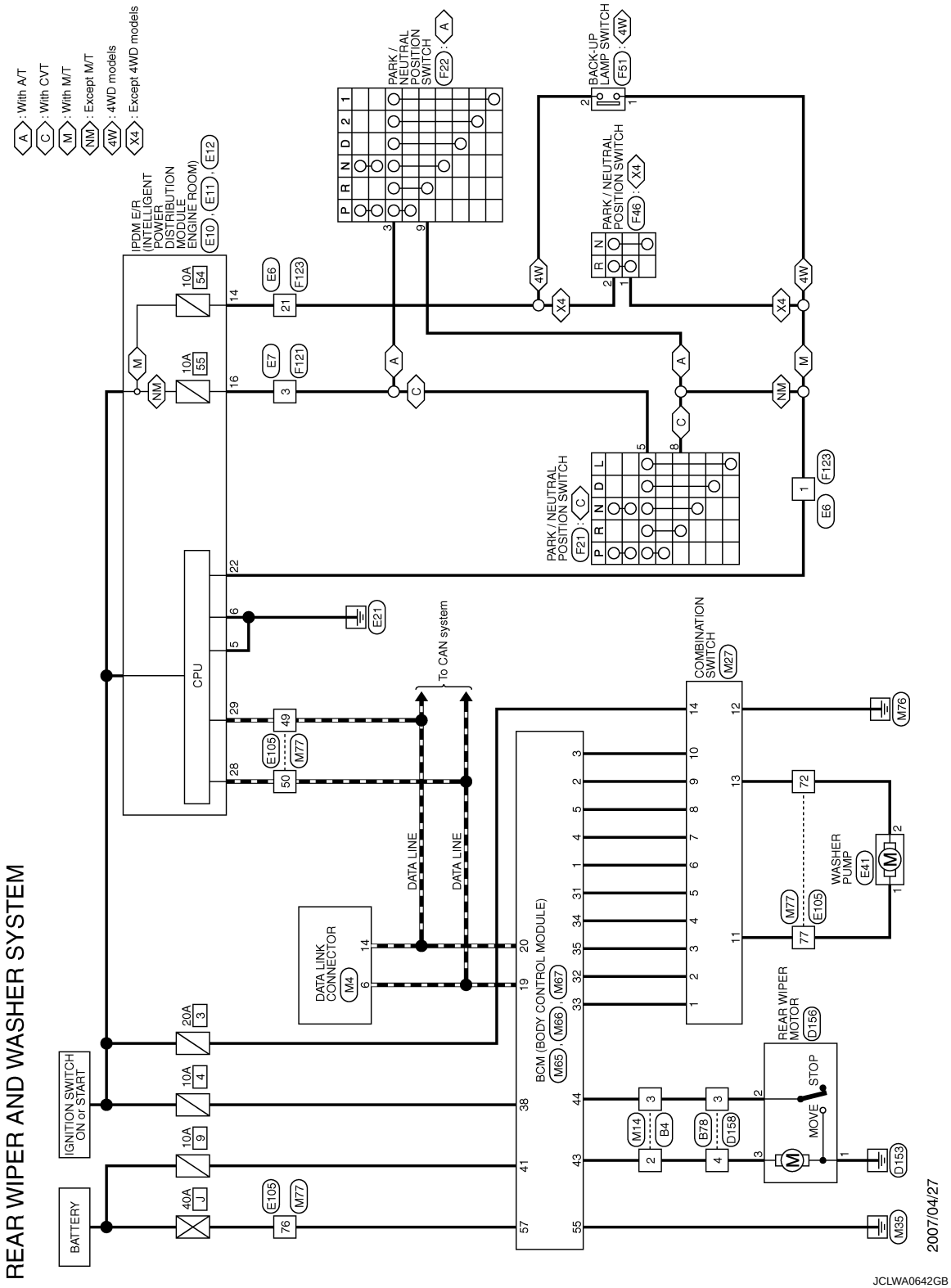

REAR WIPER AND WASHER SYSTEM

Connector No.	B4
Connector Name	WIRE TO WIRE
Connector Type	NS08MW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
2	L	–
3	L/W	–

Connector No.	B78
Connector Name	WIRE TO WIRE
Connector Type	NS04FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
3	L/W	–
4	L	–

Connector No.	D156
Connector Name	REAR WIPER MOTOR
Connector Type	CINCH 49609EV3M9

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	–
2	L/W	–
3	L	–

Connector No.	D158
Connector Name	WIRE TO WIRE
Connector Type	NS04MW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
3	L/W	–
4	L	–

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TK24MW-1V

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y/G	–
21	R/B	–

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
3	Y/R	–

Connector No.	E10
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	M06FB-LC

Terminal No.	Color of Wire	Signal Name [Specification]
5	B	–
6	B	–

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FBR-CS

Terminal No.	Color of Wire	Signal Name [Specification]
14	R/B	–
16	Y/R	–

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REAR WIPER AND WASHER SYSTEM

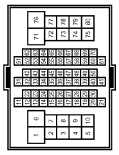
Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
22	Y/G	–
28	L	–
29	P	–

Connector No.	E41
Connector Name	WASHER PUMP
Connector Type	FEA02FB

Terminal No.	Color of Wire	Signal Name [Specification]
1	O	–
2	SB	–

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-NS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
49	P	–
50	L	–
72	SB	–
76	Y	–
77	SB	–

Connector No.	F21
Connector Name	PARK/NEUTRAL POSITION SWITCH
Connector Type	RK08FG

Terminal No.	Color of Wire	Signal Name [Specification]
5	Y/R	–
8	Y/G	–

Connector No.	F22
Connector Name	PARK/NEUTRAL POSITION SWITCH
Connector Type	YDX06FB-HS4

Terminal No.	Color of Wire	Signal Name [Specification]
3	Y/R	VIGN
9	Y/G	R RANGE SWITCH

Connector No.	F46
Connector Name	PARK/NEUTRAL POSITION SWITCH
Connector Type	FEA03FG

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y/G	–
2	R/B	–

Connector No.	F51
Connector Name	BACK-UP LAMP SWITCH
Connector Type	RK02FB

Terminal No.	Color of Wire	Signal Name [Specification]
1	Y/G	–
2	R/B	–

Connector No.	F121
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
3	Y/R	–

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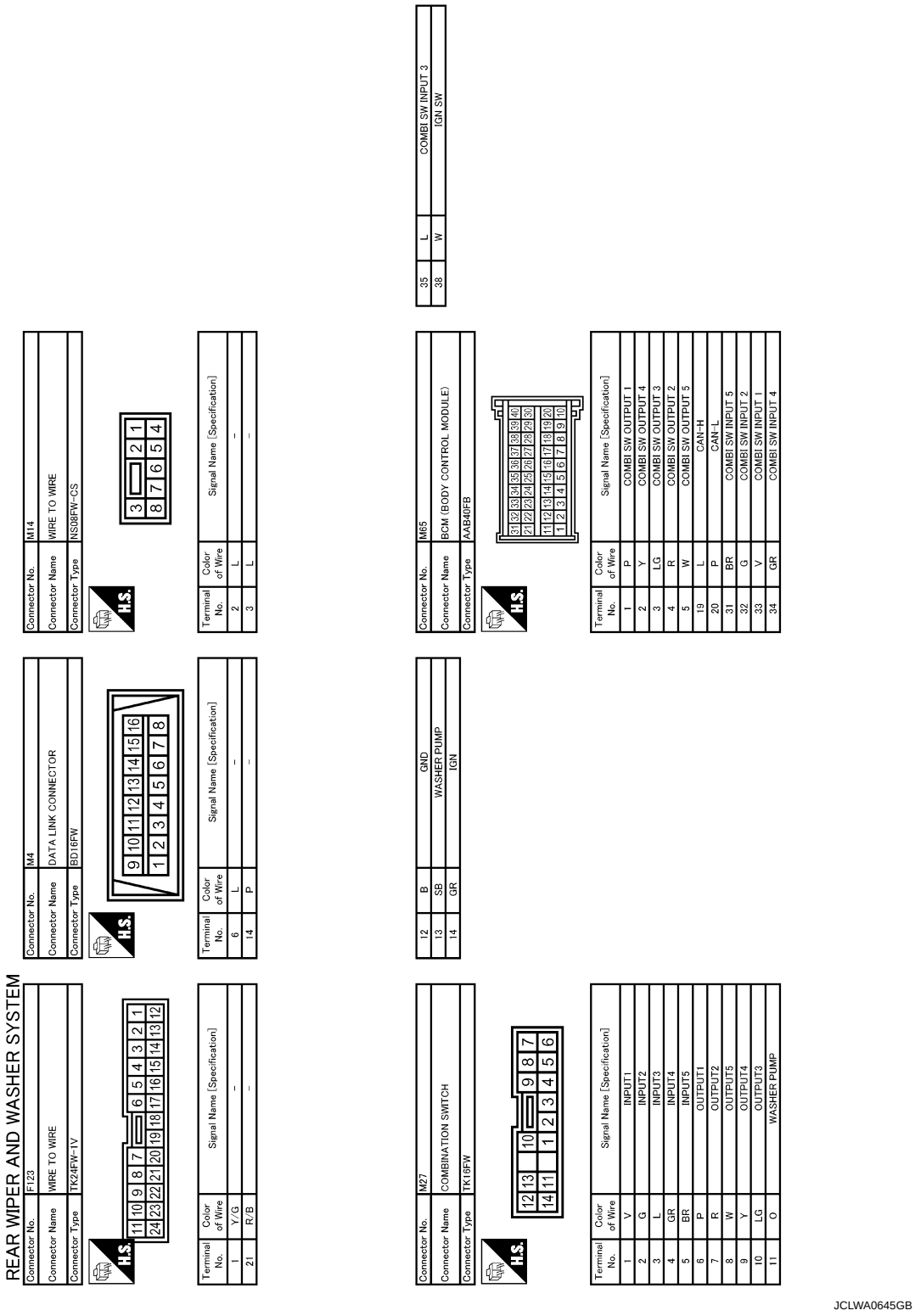

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REAR WIPER AND WASHER SYSTEM

Connector No.	M66
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC122S1017

H.S.

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

Terminal No.	Color of Wire	Signal Name [Specification]
41	V	BAT(FUSE)
43	L	REAR WIPER MOTOR OUTPUT
44	L/W	REAR WIPER AUTO STOP

Connector No.	M67
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC083S0017

H.S.

60 59 58 57 56 55 54 53

Terminal No.	Color of Wire	Signal Name [Specification]
55	B	GND(POWER)
57	Y	BAT(F/L)

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60FW-NS16-TM4

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
49	P	–
50	L	–
72	SB	–
76	Y	–
77	SB	–

JCLWA0646GB

HEADLAMP WASHER SYSTEM

Wiring Diagram - HEADLAMP WASHER SYSTEM -

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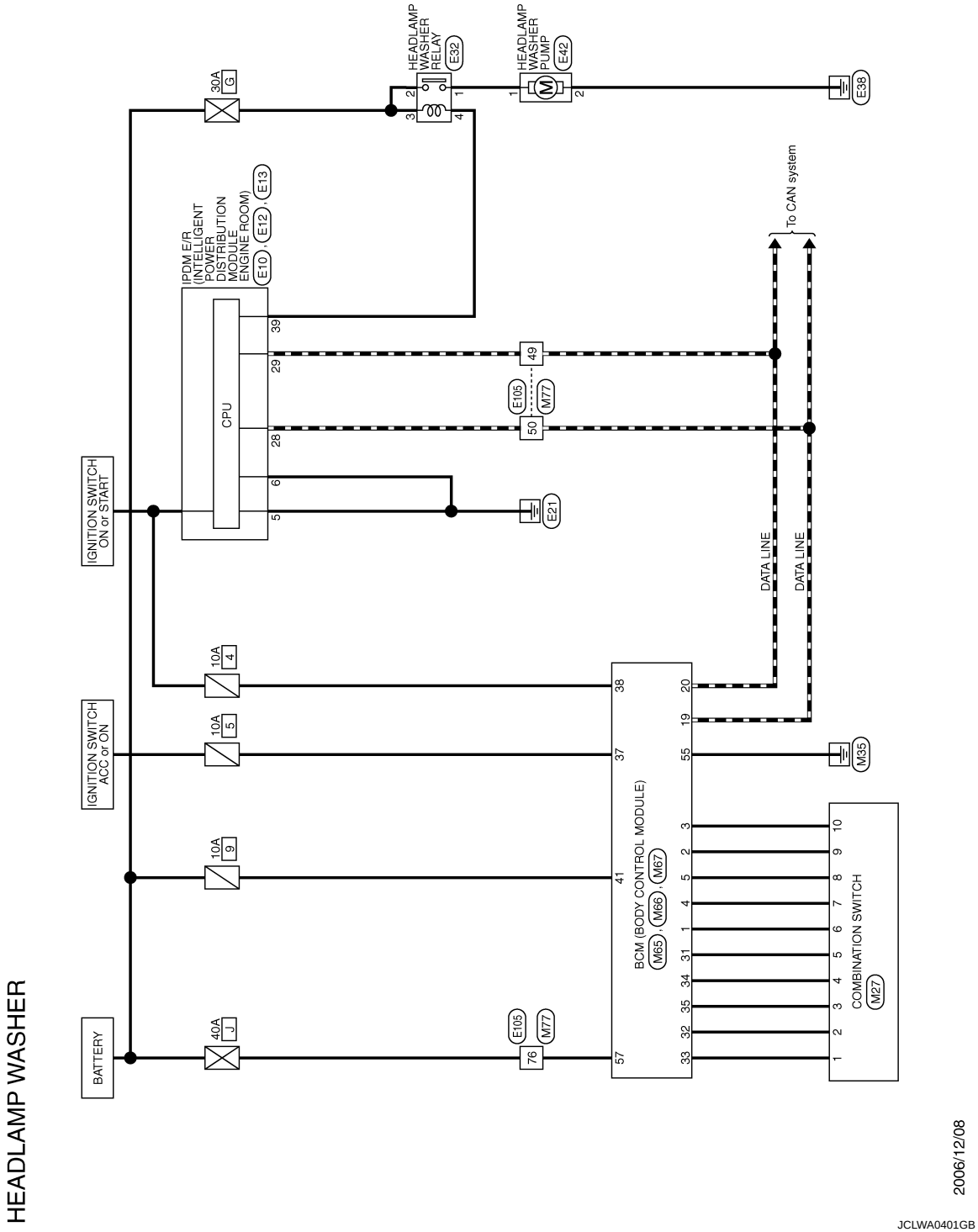


HEADLAMP WASHER

Connector No.	E10
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	M06FB-LC

Terminal No.	Color of Wire	Signal Name [Specification]
5	B	–
6	B	–

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
28	L	–
29	P	–

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
39	GR	–

Connector No.	E32
Connector Name	HEADLAMP WASHER RELAY
Connector Type	MS02FL-M2

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR/R	–
2	G	–
3	G	–
4	GR	–

Connector No.	E42
Connector Name	HEADLAMP WASHER PUMP
Connector Type	TYCO 493988-1

Terminal No.	Color of Wire	Signal Name [Specification]
1	GR/R	–
2	B	–

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-NS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
49	P	–
50	L	–
76	Y	–

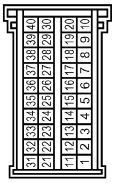
Connector No.	M27
Connector Name	COMBINATION SWITCH
Connector Type	TK16FW

Terminal No.	Color of Wire	Signal Name [Specification]
1	V	INPUT1
2	G	INPUT2
3	L	INPUT3
4	GR	INPUT4
5	BR	INPUT5
6	P	OUTPUT1
7	R	OUTPUT2
8	W	OUTPUT5
9	Y	OUTPUT4
10	LG	OUTPUT3

JCLWA0647GB

HEADLAMP WASHER

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAB40FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	COMBI SW OUTPUT 1
2	Y	COMBI SW OUTPUT 4
3	LG	COMBI SW OUTPUT 3
4	R	COMBI SW OUTPUT 2
5	W	COMBI SW OUTPUT 5
19	L	CAN-H
20	P	CAN-L
31	BR	COMBI SW INPUT 5
32	G	COMBI SW INPUT 2
33	V	COMBI SW INPUT 1
34	GR	COMBI SW INPUT 4

35	L	COMBI SW INPUT 3
37	R	ACC SW
38	W	IGN SW

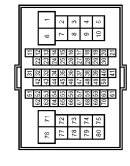
Connector No.	M66
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC122S1017

Terminal No.	Color of Wire	Signal Name [Specification]
41	V	BAT(FUSE)

Connector No.	M67
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC083S0017

Terminal No.	Color of Wire	Signal Name [Specification]
55	B	GND(POWER)
57	Y	BAT(F/L)

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60FW-NS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
49	P	–
50	L	–
76	Y	–

JCLWA0648GB

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000001542472

VALUES ON THE DIAGNOSIS TOOL

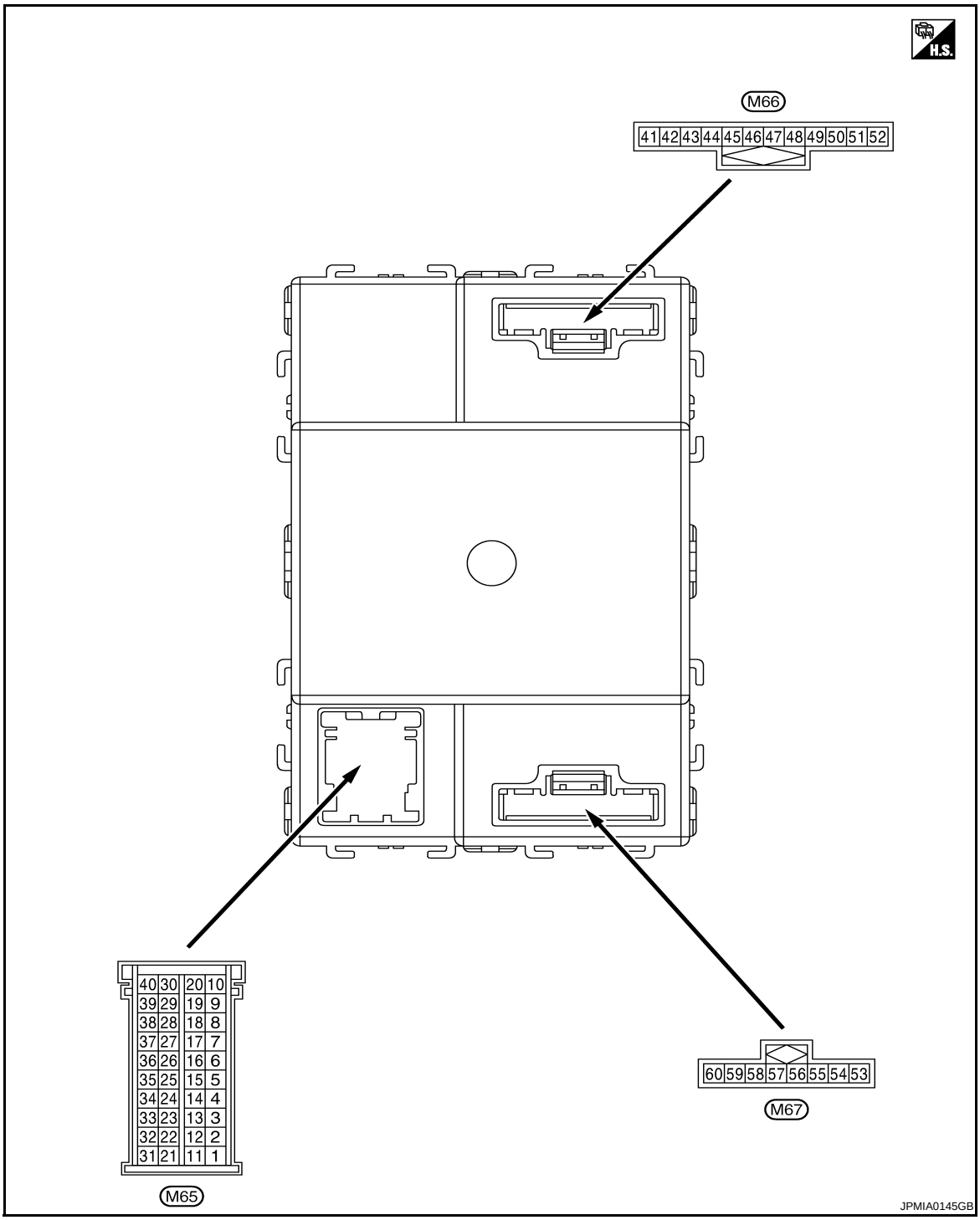
Monitor Item	Condition	Value/Status
ACC ON SW	Ignition switch OFF	Off
	Ignition switch ACC or ON	On
AIR COND SW	A/C switch OFF	Off
	A/C switch ON	On
AUT LIGHT SYS	Outside of the room is bright	Off
	Outside of the room is dark	On
AUTO LIGHT SW	Lighting switch OFF	Off
	Lighting switch AUTO	On
AUTO RELOCK	Auto lock function does not operate	Off
	Auto lock function is operating	On
BACK DOOR SW	Back door closed	Off
	Back door opened	On
BATTERY VOLT **NOTE:** Diesel engine models only	Ignition switch ON	Approximately the same as power supply voltage
BRAKE SW	Brake pedal is not depressed	Off
	Brake pedal is depressed	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the UNLOCK side	On
DOOR SW-AS	Passenger door closed	Off
	Passenger door opened	On
DOOR SW-DR	Driver door closed	Off
	Driver door opened	On
DOOR SW-RL	Rear LH door closed	Off
	Rear LH door opened	On
DOOR SW-RR	Rear RH door closed	Off
	Rear RH door opened	On

Monitor Item	Condition		Value/Status
ELEC PWR CUT **NOTE:** Diesel engine models only	Engine running	Fan switch ON (when engine coolant is cool) **NOTE:** Depending on the ambient temperature, battery voltage, etc.	Off
		The current status maintained with the signal from ECM received.	FREEZ
		• Fan switch OFF • Fan switch ON after engine warming UP **NOTE:** Depending on the engine coolant temperature, ambient temperature, battery voltage, etc.	INHBT
ENG COOLNT T **NOTE:** Diesel engine models only	Engine running		Approximately the same as water temperature gauge reading
ENGINE RPM **NOTE:** Diesel engine models only	Engine running		Approximately the same as tachometer reading
ENGINE RUN	Engine stopped		Off
	Engine running		On
ENGINE STATUS **NOTE:** Diesel engine models only	Engine stopped		STOP
	While the engine stalls		STALL
	Engine running		RUN
	At engine cranking		CRA
FAN ON SIG	Fan switch OFF		Off
	Fan switch ON		On
FR FOG SW	Front fog lamp switch OFF		Off
	Front fog lamp switch ON		On
FR WASHER SW	Front washer switch OFF		Off
	Front washer switch ON		On
FR WIPER LOW	Front wiper switch OFF		Off
	Front wiper switch LO		On
FR WIPER HI	Front wiper switch OFF		Off
	Front wiper switch HI		On
FR WIPER INT	Front wiper switch OFF		Off
	Front wiper switch INT		On
FR WIPER STOP	Any position other than front wiper stop position		Off
	Front wiper stop position		On
GLS BREAK SEN	The vehicle without glass break sensor		On
	The vehicle with glass break sensor		Off
HAZARD SW	When hazard switch is not pressed		Off
	When hazard switch is pressed		On
HD LIGHT TIME	—		Displays a setting time of the follow me home function set by the work support

Monitor Item	Condition	Value/Status
HEAD LAMP SW 1	Lighting switch OFF	Off
	Lighting switch 2ND	On
HEAD LAMP SW 2	Lighting switch OFF	Off
	Lighting switch 2ND	On
HI BEAM SW	Lighting switch OFF	Off
	Lighting switch HI	On
HOOD SW	Close the hood **NOTE:** Vehicles without theft warning system are OFF-fixed	Off
	Open the hood	On
H/L WASH SW	**NOTE:** The item is indicated, but not monitored	Off
IGN ON SW	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
IGN SW CAN	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
I-KEY LOCK	LOCK button of Intelligent Key is not pressed	Off
	LOCK button of Intelligent Key is pressed	On
I-KEY UNLOCK	UNLOCK button of Intelligent Key is not pressed	Off
	UNLOCK button of Intelligent Key is pressed	On
KEY ON SW	Mechanical key is removed from key cylinder	Off
	Mechanical key is inserted to key cylinder	On
KEYLESS LOCK	LOCK button of key fob is not pressed	Off
	LOCK button of key fob is pressed	On
KEY LESS PANIC	**NOTE:** The item is indicated, but not monitored	Off
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	Off
	UNLOCK button of key fob is pressed	On
LIT-SEN FAIL	Light & rain sensor is in normal condition	OK
	Light & rain sensor is with internal error	NOT OK
MEMORY 1	Key fob ID code is not registered in “Memory 1”	Off
	Key fob ID code is registered in “Memory 1”	On
MEMORY 2	Key fob ID code is not registered in “Memory 2”	Off
	Key fob ID code is registered in “Memory 2”	On
MEMORY 3	Key fob ID code is not registered in “Memory 3”	Off
	Key fob ID code is registered in “Memory 3”	On
MEMORY 4	Key fob ID code is not registered in “Memory 4”	Off
	Key fob ID code is registered in “Memory 4”	On
MEMORY 5	Key fob ID code is not registered in “Memory 5”	Off
	Key fob ID code is registered in “Memory 5”	On
OIL PRESS SW	• Ignition switch OFF or ACC • Engine running	Off
	Ignition switch ON	On
OUT SIDE TEMP **NOTE:** Diesel engine models	Ignition switch ON	Approximately the same as outside air temperature

Monitor Item	Condition	Value/Status
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
REVERSE SW CAN	Except selector lever R position	Off
	Selector lever R position	On
PUSH SW	Return to ignition switch to LOCK position	Off
	Press ignition switch	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
RR FOG SW	Rear fog lamp switch OFF	Off
	Rear fog lamp switch ON	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER INT	Rear wiper switch OFF	Off
	Rear wiper switch INT	On
RR WIPER ON	Rear wiper switch OFF	Off
	Rear wiper switch ON	On
RR WIPER STOP	Rear wiper stop position	Off
	Other than rear wiper stop position	On
SHOCK SENSOR	Ignition switch ON	NOMAL
	After the reception of air bag deployment signal from air bag diagnosis sensor unit	Off
	During the reception of air bag deployment signal from air bag diagnosis sensor unit	On
TAIL LAMP SW	Lighting switch OFF	Off
	Lighting switch 1ST	On
TRNK OPNR SW	When back door opener switch is not pressed	Off
	When back door opener switch is pressed	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
UNLOCK SHOCK	Other than the following	Off
	During the unlock operation interlocked with air bag	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading

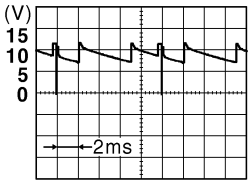
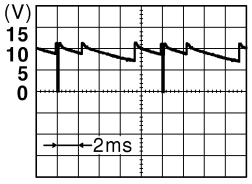
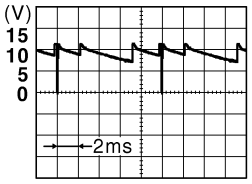
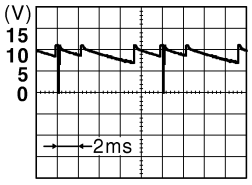
TERMINAL LAYOUT

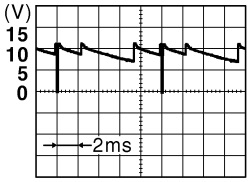
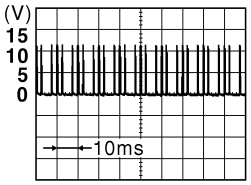
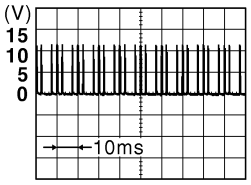
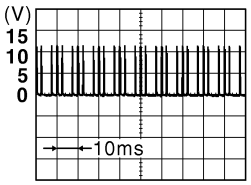
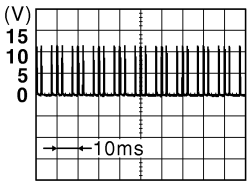


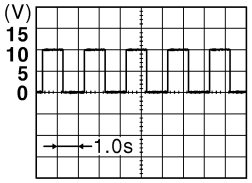
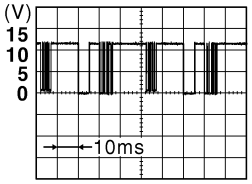
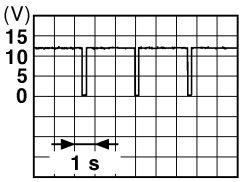
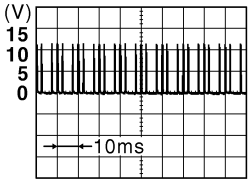
PHYSICAL VALUES

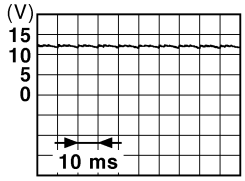
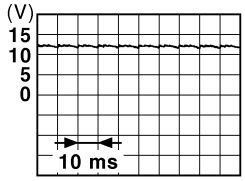
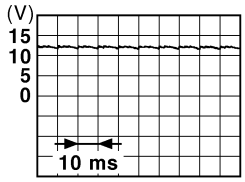
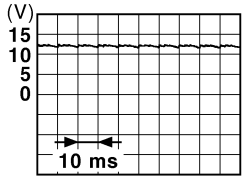
CAUTION:

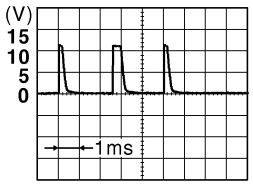
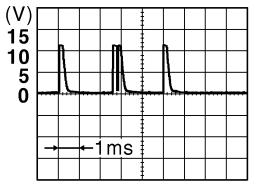
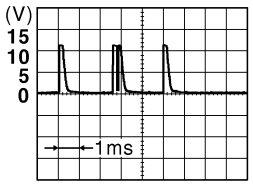
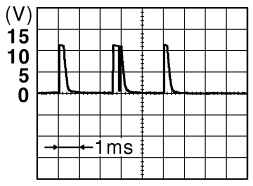
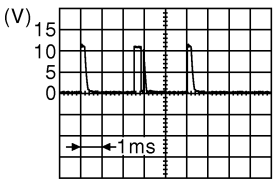
- **Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.**
- **Turn wiper intermittent dial position to 4 except when checking waveform or voltage of wiper intermittent dial position. Wiper intermittent dial position can be confirmed on CONSULT-III. Refer to BCS-27, "COMB SW : CONSULT-III Function (BCM - COMB SW)".**
- **BCM reads the status of the combination switch at 10 ms internal normally. Refer to BCS-10, "System Description".**

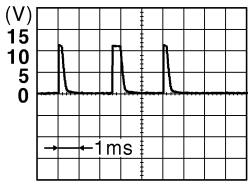
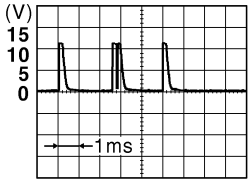
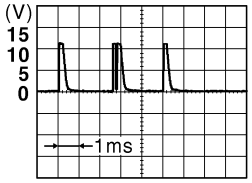
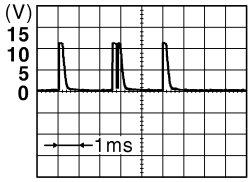
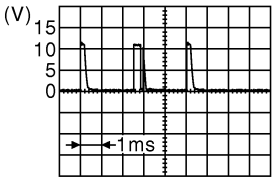
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (P)	Ground	Combination switch OUTPUT 1	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 JPMIA0160GB 9.1 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3 • Wiper intermittent dial 6 • Wiper intermittent dial 7	
2 (Y)	Ground	Combination switch OUTPUT 4	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch 2ND	 JPMIA0163GB 9.3 V
					Lighting switch PASS	
					Front fog lamp switch ON	
					Turn signal switch LH	
3 (LG)	Ground	Combination switch OUTPUT 3	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch AUTO	 JPMIA0162GB 9.3 V
					Rear fog lamp switch OFF	
					Front wiper switch MIST	
					Front wiper switch INT	
					Front wiper switch LO	
4 (R)	Ground	Combination switch OUTPUT 2	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch ON (Wiper intermittent dial 4)	 JPMIA0161GB 9.1 V
					Rear wiper switch ON (Wiper intermittent dial 4)	
					Rear washer switch ON (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	

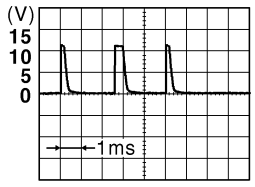
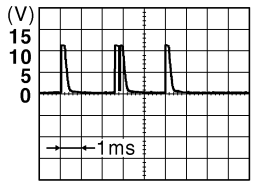
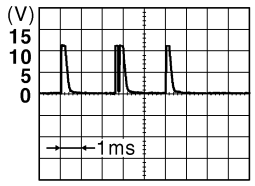
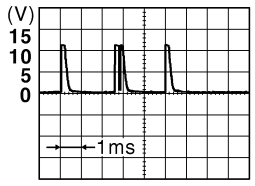
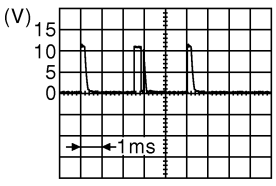
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
5 (W)	Ground	Combination switch OUTPUT 5	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch 1ST	 JPMIA0164GB 9.1 V
					Lighting switch 2ND	
					Lighting switch HI	
					Turn signal switch RH	
7 (P)	Ground	Door lock/unlock switch (Lock)	Input	Door lock/unlock switch	Not pressed	 JPMIA0154GB 1.2 V
					Pressed to the lock side	0 V
8 (LG)	Ground	Hazard switch	Input	Hazard switch	Not pressed	 JPMIA0154GB 1.3 V
					Pressed	0 V
9 (BR)	Ground	Door lock/unlock switch (Unlock)	Input	Door lock/unlock switch	Not pressed	 JPMIA0154GB 1.2 V
					Pressed to the unlock side	0 V
12 (P)	Ground	Back door opener switch	Input	Back door opener switch	Not pressed	 JPMIA0154GB 1.2 V
					Pressed	0 V

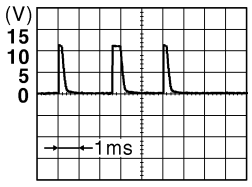
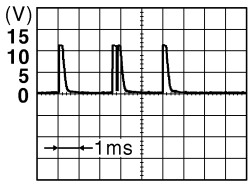
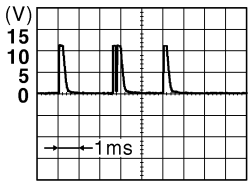
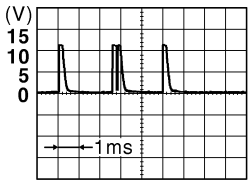
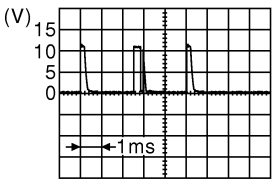
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
13 (R)	Ground	Shock detect sensor	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		 JPMIA0155GB 6.0 V
14 (L/R)	Ground	A/C switch	Input	A/C switch	Not pressed	Battery voltage
					Pressed	0 V
15 (LG/B)	Ground	Fan switch	Input	Fan switch	Not pressed	Battery voltage
					Pressed	0 V
16 (GR)	Ground	Alarm link	Output	—		—
17 (BR)	Ground	Light & rain sensor serial link	Input/ Output	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		 JPMIA0156GB 8.7 V
18 (SB)	Ground	Security indicator	Output	Security indicator	ON	0 V
					Blinking	 JPMIA0014GB 10.3 V
					OFF	Battery voltage
19 (L)	—	CAN-H	Input/ Output	—		—
20 (P)	—	CAN-L	Input/ Output	—		—
21 (SB)	Ground	Rear window defogger switch	Input	Rear window defogger switch	Not pressed	 JPMIA0154GB 1.1 V
					While pressing	0 V

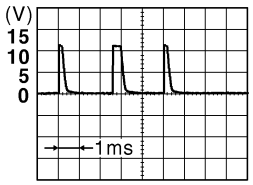
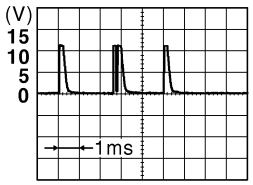
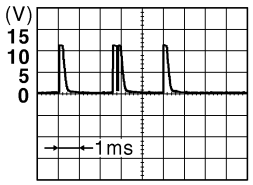
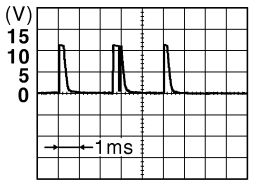
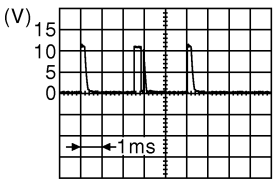
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
24 (GR)	Ground	Door lock status indicator	Output	Door lock status indicator	ON	Battery voltage
					OFF	0 V
25 (GR)	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	 PKID0924E 11.2 V
					ON (When rear door LH opened)	0 V
26 (R)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	 PKID0924E 11.2 V
					ON (When driver door opened)	0 V
27 (BR)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 PKID0924E 11.2 V
					ON (When passenger door opened)	0 V
28 (G)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	Battery voltage
					ON (When back door opened)	0 V
29 (LG)	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed)	 PKID0924E 11.2 V
					ON (When rear door RH opened)	0 V
30 (SB)	Ground	Audio link	Input/ Output	—	—	—

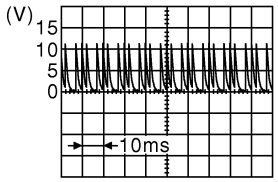
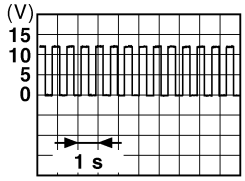
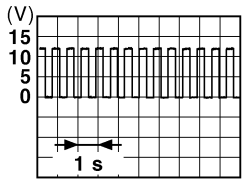
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
31 (BR)	Ground	Combination switch INPUT 5	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.3 V
					Front fog lamp switch ON (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Rear fog lamp switch ON (Wiper intermittent dial 4)	 JPMIA0168GB 1.3 V
					Rear wiper switch ON (Wiper intermittent dial 4)	 JPMIA0169GB 1.3 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	 JPMIA0196GB 1.3 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
32 (G)	Ground	Combination switch INPUT 2	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	 JPMIA0165GB 1.4 V
					Lighting switch PASS	 JPMIA0167GB 1.3 V
					Lighting switch 2ND	 JPMIA0166GB 1.3 V
					Front wiper switch INT	 JPMIA0168GB 1.3 V
					Front wiper switch HI	 JPMIA0196GB 1.3 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
33 (V)	Ground	Combination switch INPUT 1	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	 JPMIA0165GB 1.4 V
					Turn signal switch LH	 JPMIA0167GB 1.3 V
					Turn signal switch RH	 JPMIA0166GB 1.3 V
					Front wiper switch LO	 JPMIA0168GB 1.3 V
					Front washer switch ON	 JPMIA0196GB 1.3 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
34 (GR)	Ground	Combination switch INPUT 4	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.4 V
					Lighting switch AUTO (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Lighting switch 1ST (Wiper intermittent dial 4)	 JPMIA0166GB 1.3 V
					Rear wiper INT (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 6	 JPMIA0196GB 1.3 V

Terminal No. (Wire color) +	Terminal No. (Wire color) –	Description Signal name	Description Input/ Output	Condition		Value (Approx.)
35 (L)	Ground	Combination switch INPUT 3	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.4 V
					Lighting switch HI (Wiper intermittent dial 4)	 JPMIA0166GB 1.3 V
					Lighting switch 2ND (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Rear wiper switch ON	 JPMIA0169GB 1.3 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	 JPMIA0196GB 1.3 V
36 (V)	Ground	Key switch	Input	Insert mechanical key into ignition key cylinder		Battery voltage
				Remove mechanical key from ignition key cylinder		0 V
37 (R)	Ground	ACC power supply	Input	Ignition switch OFF		0 V
				Ignition switch ACC or ON		Battery voltage
38 (W)	Ground	Ignition power supply	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
39 (P)	Ground	NATS antenna amp.	Input/ Output	Insert mechanical key into ignition key cylinder		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
40 (LG)	Ground	NATS antenna amp.	Input/ Output	Insert mechanical key into ignition key cylinder		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
41 (V)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
42 (V)	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time		0 V
				Any other time after passing the interior room lamp battery saver operation time		Battery voltage
43 (L)	Ground	Rear wiper motor	Output	Rear wiper switch OFF		0 V
				Rear wiper switch ON		Battery voltage
44 (L/W)	Ground	Rear wiper auto stop	Input	Ignition switch ON	Rear wiper stop position	0 V
					Any position other than rear wiper stop position	 JPMIA0197GB
45 (GR)	Ground	Back door lock actuator	Output	Back door opener switch	Pressed	Battery voltage (300ms)
					Not pressed	0 V
47 (G/Y)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch LH	 PKID0926E 6.5 V
48 (G/B)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch RH	 PKID0926E 6.5 V
49 (Y)	Ground	Rear fog lamp	Output	Lighting switch 1ST and front fog lamp switch ON	Rear fog lamp switch OFF	0 V
					Rear fog lamp switch ON	Battery voltage
51 (R/W)*1 (R)*2	Ground	Stop lamp switch	Input	Depress the brake pedal		Battery voltage
				Release the brake pedal		0 V

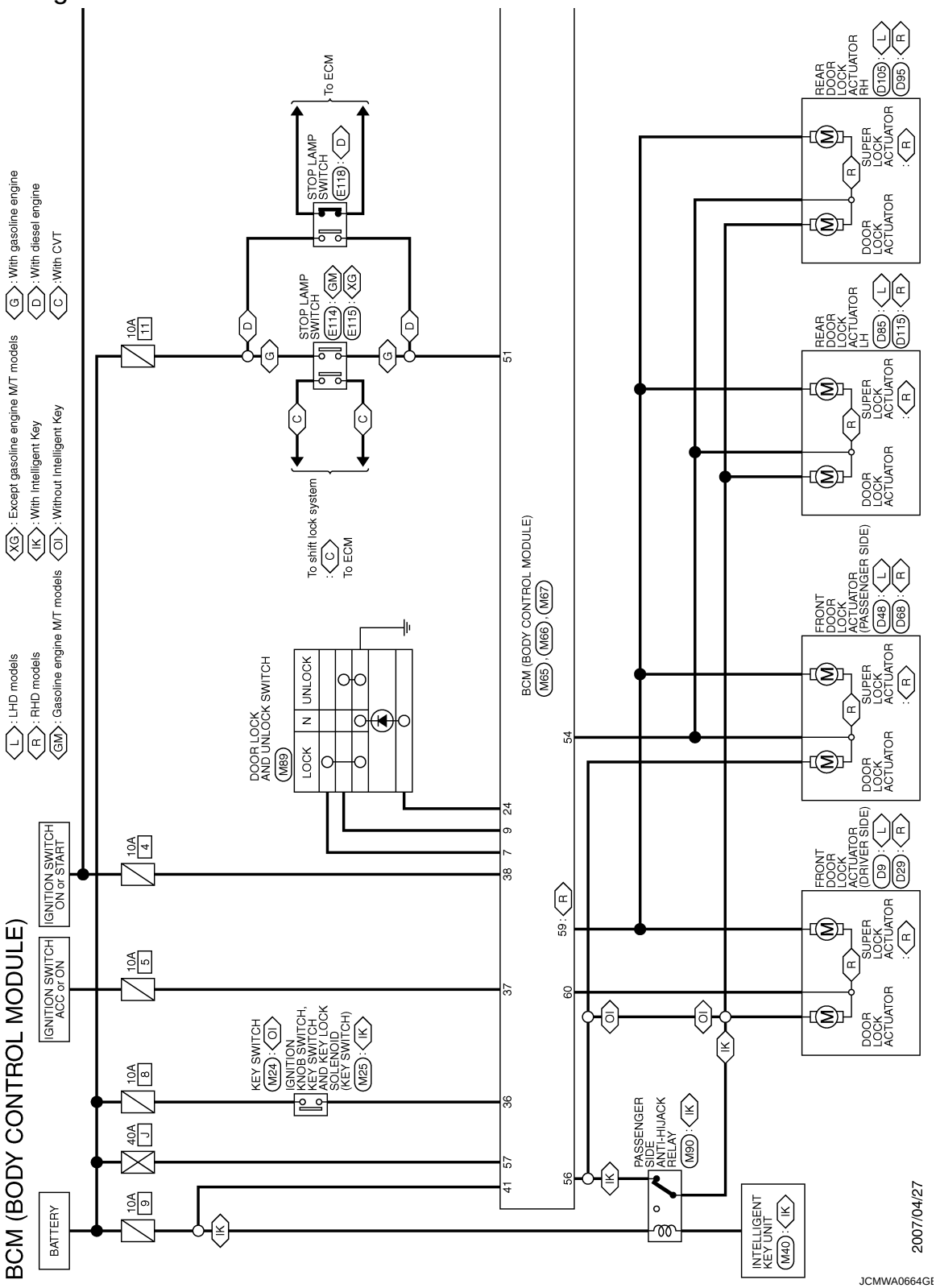
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
52 (R)	Ground	Room lamp timer control	Output	Interior room lamp	OFF	Battery voltage
					ON	0 V
53 (L)	Ground	Power window power supply	Output	Ignition switch	OFF or ACC	0 V
					ON	Battery voltage
54 (O)	Ground	Door unlock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V
55 (B)	Ground	Ground	—	Ignition switch ON		0 V
56 (Y)*1 (SB)*2	Ground	Door lock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	0 V
					Pressed to the lock side	Battery voltage
57 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
58 (P)	Ground	Power window power supply	Output	Ignition switch OFF		Battery voltage
59 (BR)	Ground	Super lock	Output	When lock button of key fob or Intelligent Key is not pressed		0 V
				When lock button of key fob or Intelligent Key is pressed		Battery voltage
60 (GR)	Ground	Driver door unlock	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V

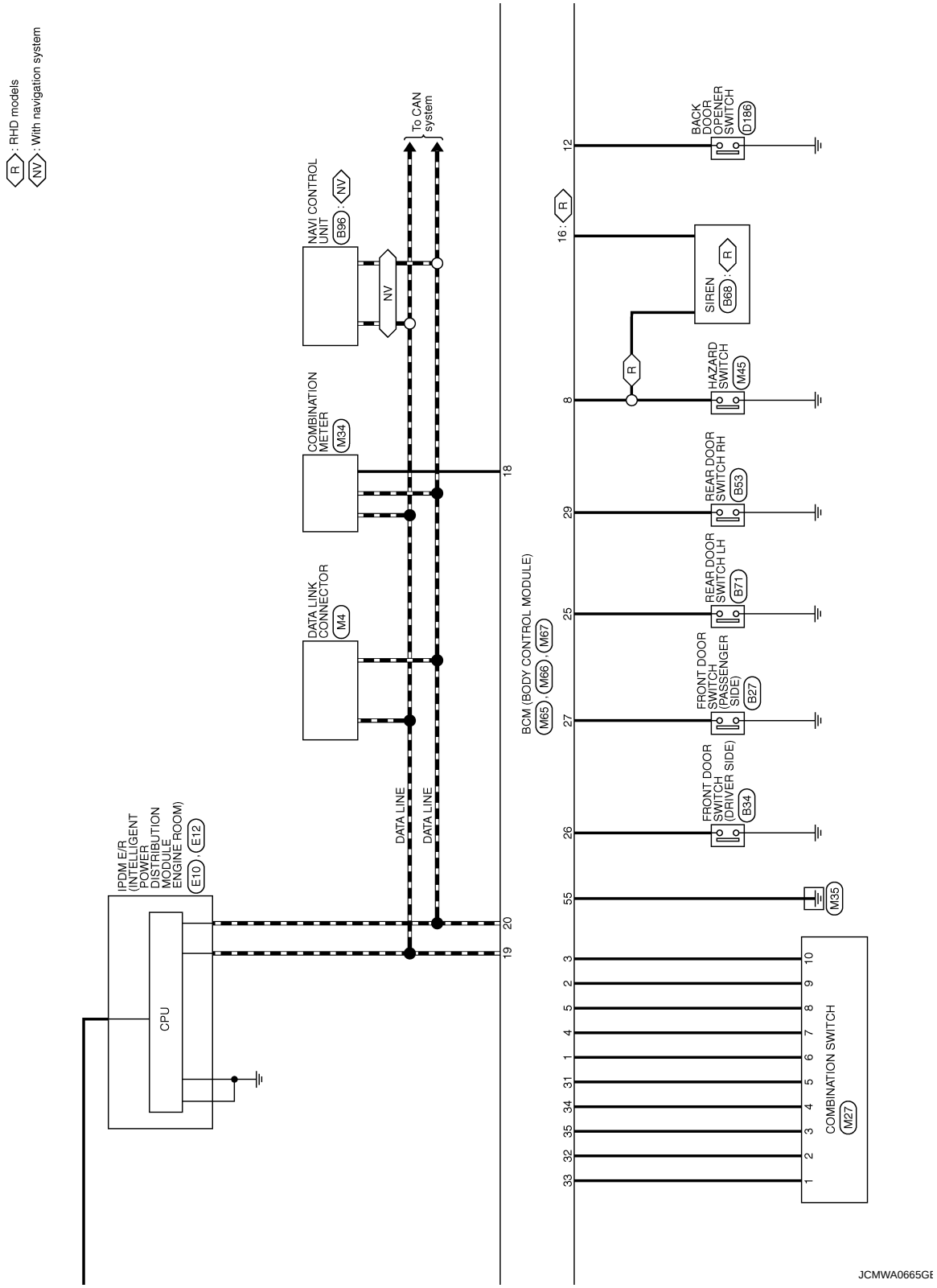
*1: With Intelligent Key system

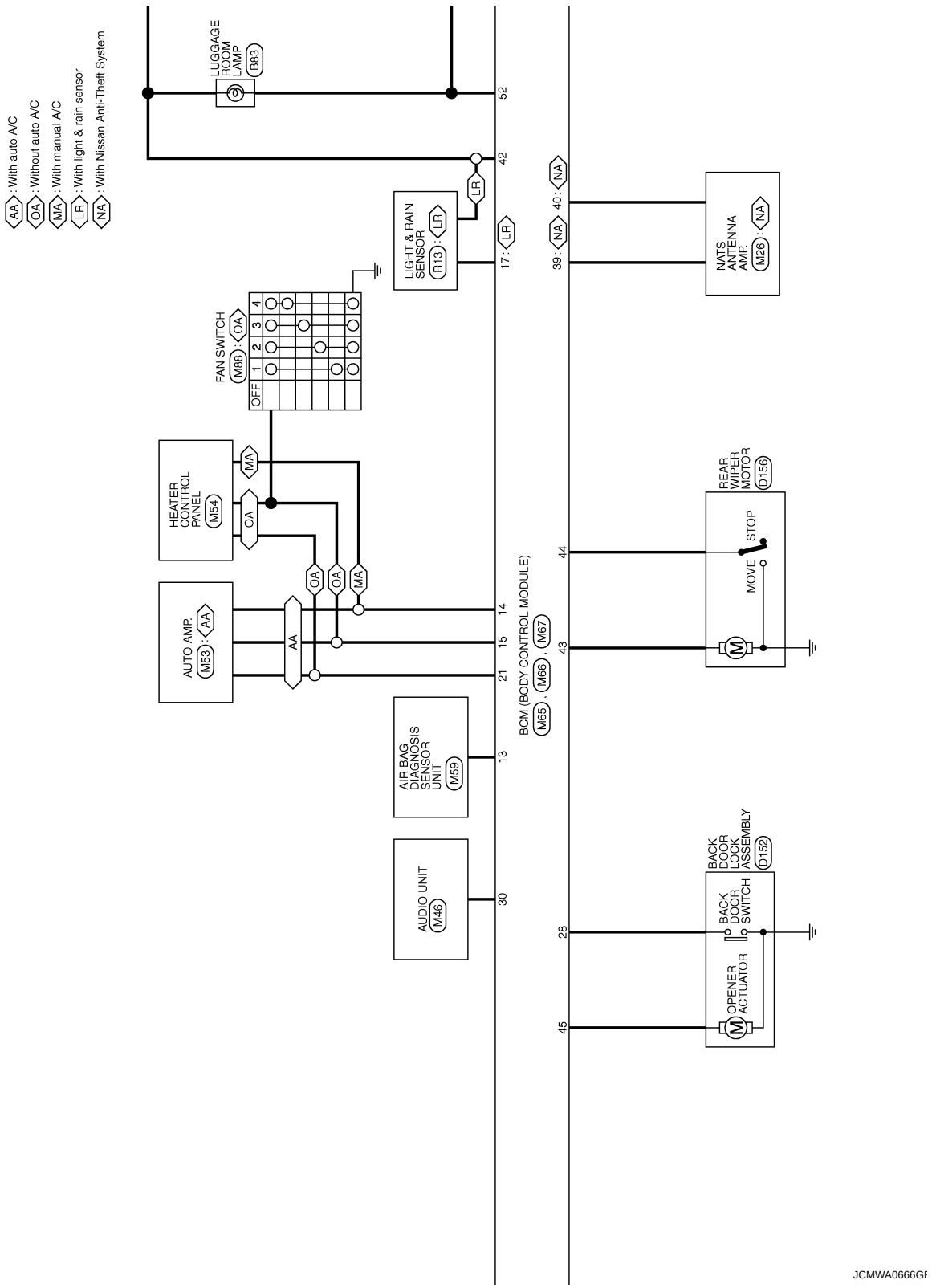
*2: Without Intelligent Key system

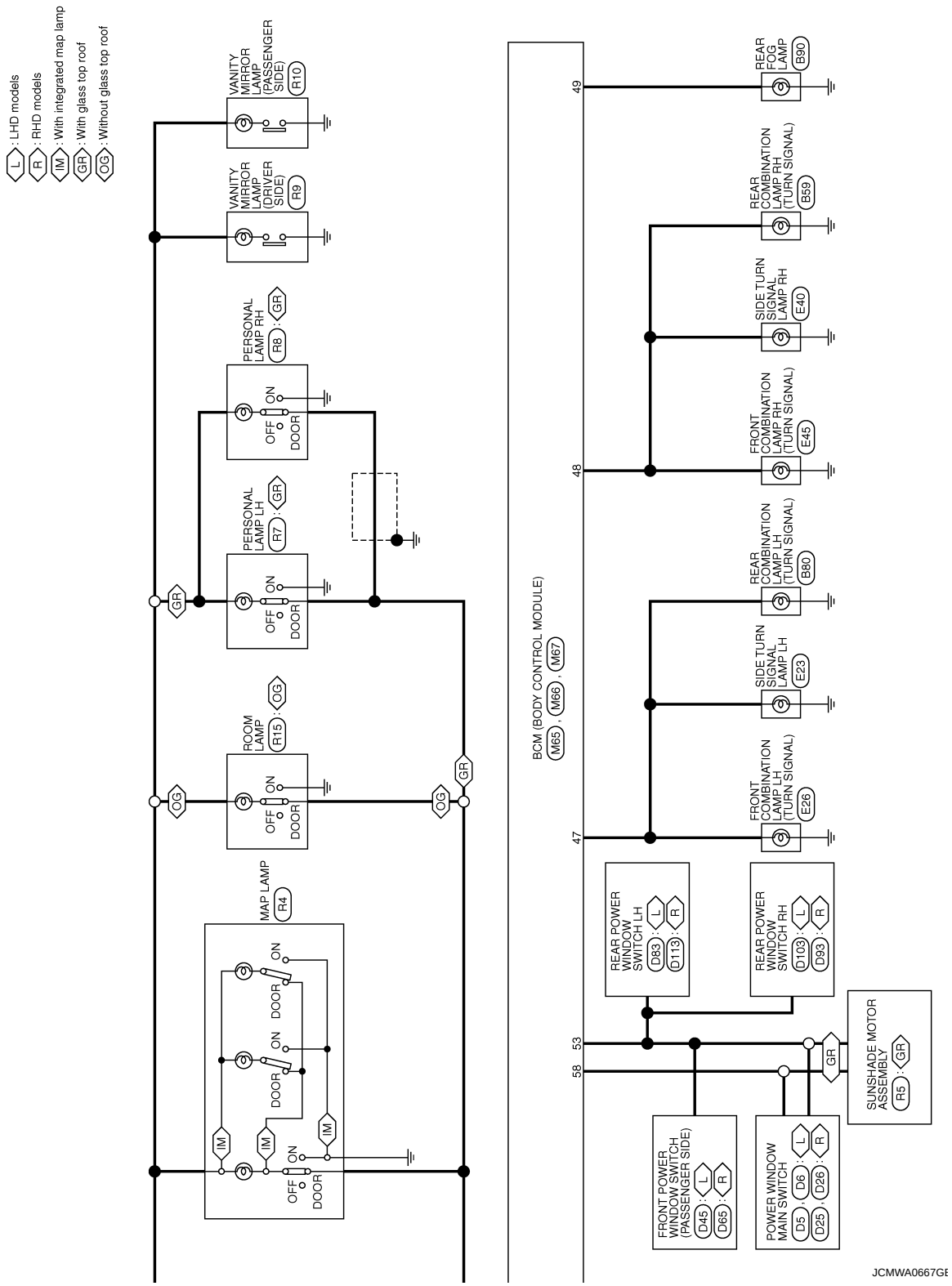
Wiring Diagram - BCM -

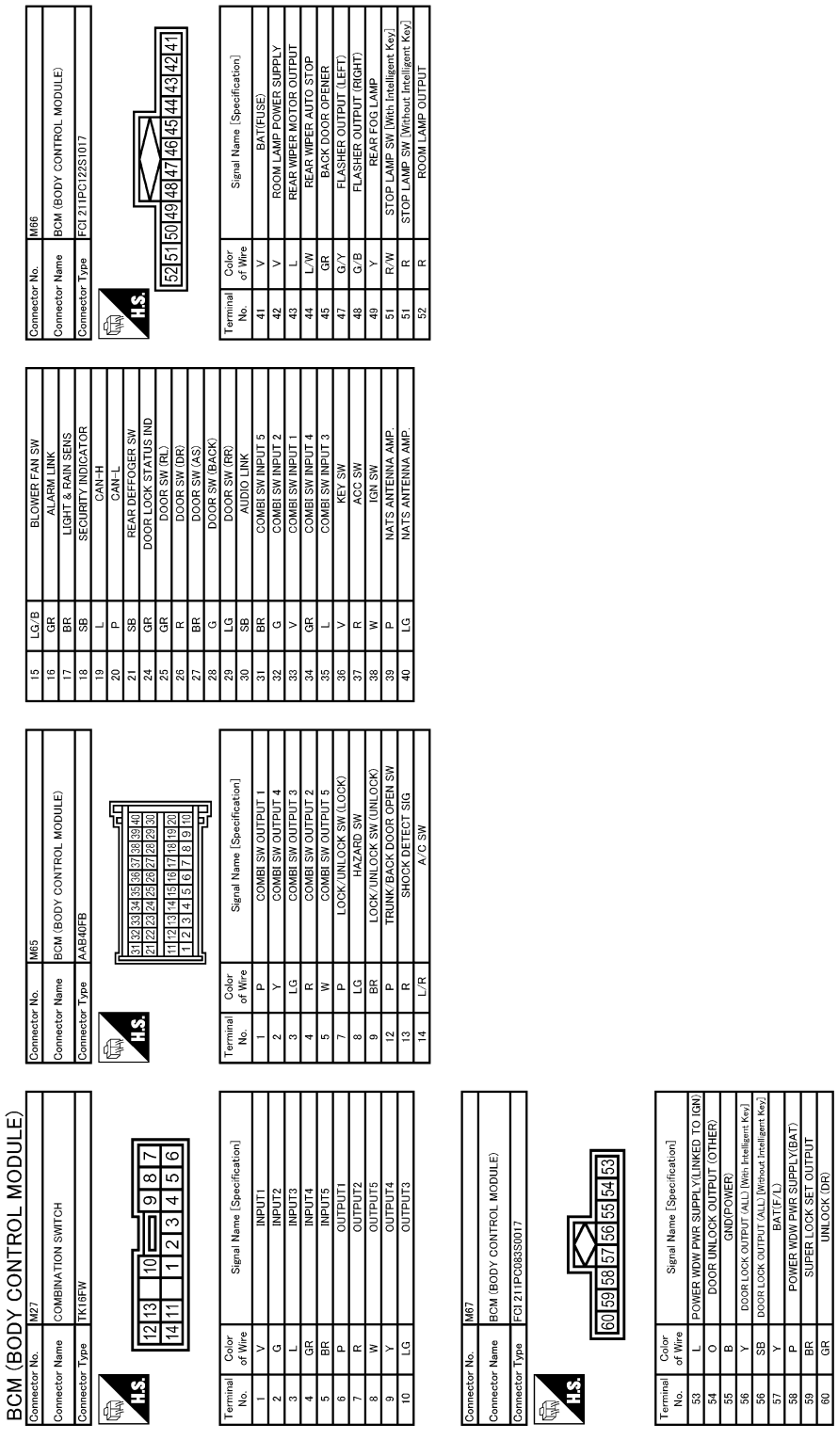
INFOID:0000000001542473




R : RHD models
NV : With navigation system
To CAN system
NAVI CONTROL UNIT B96 : NV
COMBINATION METER M34
DATA LINK CONNECTOR M4
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E10 : E12
CPU
DATA LINE
DATA LINE
18
20
19
BCM (BODY CONTROL MODULE) M65 : M66 : M67
BACK DOOR OPENER SWITCH D186
SIREN B68 : R
HAZARD SWITCH M45
REAR DOOR SWITCH RH B53
REAR DOOR SWITCH LH B71
FRONT DOOR SWITCH (PASSENGER SIDE) B27
FRONT DOOR SWITCH (DRIVER SIDE) B34
M35
COMBINATION SWITCH M27
JCMWA0665GE


AA : With auto A/C
OA : Without auto A/C
MA : With manual A/C
LR : With light & rain sensor
NA : With Nissan Anti-Theft System
LUGGAGE ROOM LAMP B83
52
42
LR
LIGHT & RAIN SENSOR R13 : LR
17 : LR
39 : NA
40 : NA
NATS ANTENNA AMP. M26 : NA
FAN SWITCH M88 : OA
OFF 1 2 3 4
HEATER CONTROL PANEL M54
MA
OA
AUTO AMP. M53 : AA
AA
OA OA MA
14
15
21
BCM (BODY CONTROL MODULE) M65 , M66 , M67
AIR BAG DIAGNOSIS SENSOR UNIT M59
13
AUDIO UNIT M46
30
44
43
REAR WIPER MOTOR D156
MOVE
STOP
28
45
BACK DOOR LOCK ASSEMBLY D152
BACK DOOR SWITCH
OPENER ACTUATOR
JCMWA0666GB


L : LHD models
R : RHD models
IM : With integrated map lamp
GR : With glass top roof
OG : Without glass top roof
VANITY MIRROR LAMP (PASSENGER SIDE) R10
VANITY MIRROR LAMP (DRIVER SIDE) R9
PERSONAL LAMP RH R8 : GR
PERSONAL LAMP LH R7 : GR
ROOM LAMP R15 : OG
MAP LAMP R4
ON
OFF
DOOR
BCM (BODY CONTROL MODULE)
M65 , M66 , M67
49
48
47
53
58
REAR FOG LAMP B90
REAR COMBINATION LAMP RH (TURN SIGNAL) B59
SIDE TURN SIGNAL LAMP RH E40
FRONT COMBINATION LAMP RH (TURN SIGNAL) E45
REAR COMBINATION LAMP LH (TURN SIGNAL) B80
SIDE TURN SIGNAL LAMP LH E23
FRONT COMBINATION LAMP LH (TURN SIGNAL) E26
REAR POWER WINDOW SWITCH LH D83 : L D113 : R
REAR POWER WINDOW SWITCH RH D103 : L D93 : R
SUNSHADE MOTOR ASSEMBLY R5 : GR
FRONT POWER WINDOW SWITCH (PASSENGER SIDE) D45 : L D65 : R
POWER WINDOW MAIN SWITCH D5 D6 : L D25 D26 : R
JCMWA0667GE



JCMWA0668GE

Fail Safe

INFOID:0000000001542474

Fail-safe index

BCM performs fail-safe control when any DTC listed below is detected.

Display contents of CONSULT	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2191: DIFFERENCE OF KEY	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2192: ID DISCORD BCM-ECM	Fuel cut (ECM)	Erase DTC
B2193: CHAIN OF BCM-ECM	Fuel cut (ECM)	Erase DTC
B2194: DISCORD BCM-I-KEY	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2195: ANTI SCANNING	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2196: DONGLE NG	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC

REAR WIPER CONTROL

BCM detects a rear wiper stopping position according to a rear wiper auto stop signal.
When a rear wiper auto stop signal is in the condition listed below, BCM stops power supply to rear wiper after rear wiper is activated for five seconds.

Ignition switch	Rear wiper switch	Rear wiper auto stop signal
ON	OFF	The rear wiper auto stop signal (stop position) cannot be input for 5 seconds.
	ON	The rear wiper auto stop signal does not change for 5 seconds.

NOTE:
The above operation is repeated when operating the rear wiper switch one minute after the stop of the rear wiper caused by Fail-safe.

TURN SIGNAL LAMP CONTROL

BCM detects the turn signal lamp circuit status from the terminal voltage.
BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

NOTE:
The blinking speed is normal while activating the hazard warning lamp.

LIGHT & RAIN SENSOR MALFUNCTION DETECTION FUNCTION

BCM controls the following items when LIGHT & RAIN sensor has a malfunction.

Auto Light Control
Headlamp is turned ON.

Front Wiper Control
The condition just before the activation of Fail-safe is maintained until the front wiper switch is turned OFF.

DTC Inspection Priority Chart

INFOID:0000000001542475

Priority	DTC
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• B2190: NATS ANTENNA AMP • B2191: DIFFERNCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM • B2194: DISCORD BCM-I-KEY • B2195: ANTI SCANNING • B2196: DONGLE NG

DTC Index

INFOID:0000000001542476

NOTE:

Details of time display

- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- PAST: Displays when there is a malfunction that is detected in the past and stored.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	TIME		Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	0	1 - 39	—	BCS-33
U1010: CONTROL UNIT (CAN)	0	1 - 39	—	BCS-34
B2190: NATS ANTENNA AMP	CRNT	PAST	×	• With Intelligent Key system SEC-45 • Without Intelligent Key system SEC-194
B2191: DIFFERENCE OF KEY	CRNT	PAST	×	• With Intelligent Key system SEC-47 • Without Intelligent Key system SEC-196
B2192: ID DISCORD BCM-ECM	CRNT	PAST	×	• With Intelligent Key system SEC-48 • Without Intelligent Key system SEC-197
B2193: CHAIN OF BCM-ECM	CRNT	PAST	×	• With Intelligent Key system SEC-50 • Without Intelligent Key system SEC-199
B2194: DISCORD BCM-I-KEY	CRNT	PAST	×	SEC-51
B2195: ANTI SCANNING	CRNT	PAST	×	• With Intelligent Key system SEC-52 • Without Intelligent Key system SEC-200
B2196: DONGLE NG	CRNT	PAST	×	• With Intelligent Key system SEC-53 • Without Intelligent Key system SEC-201

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Reference Value

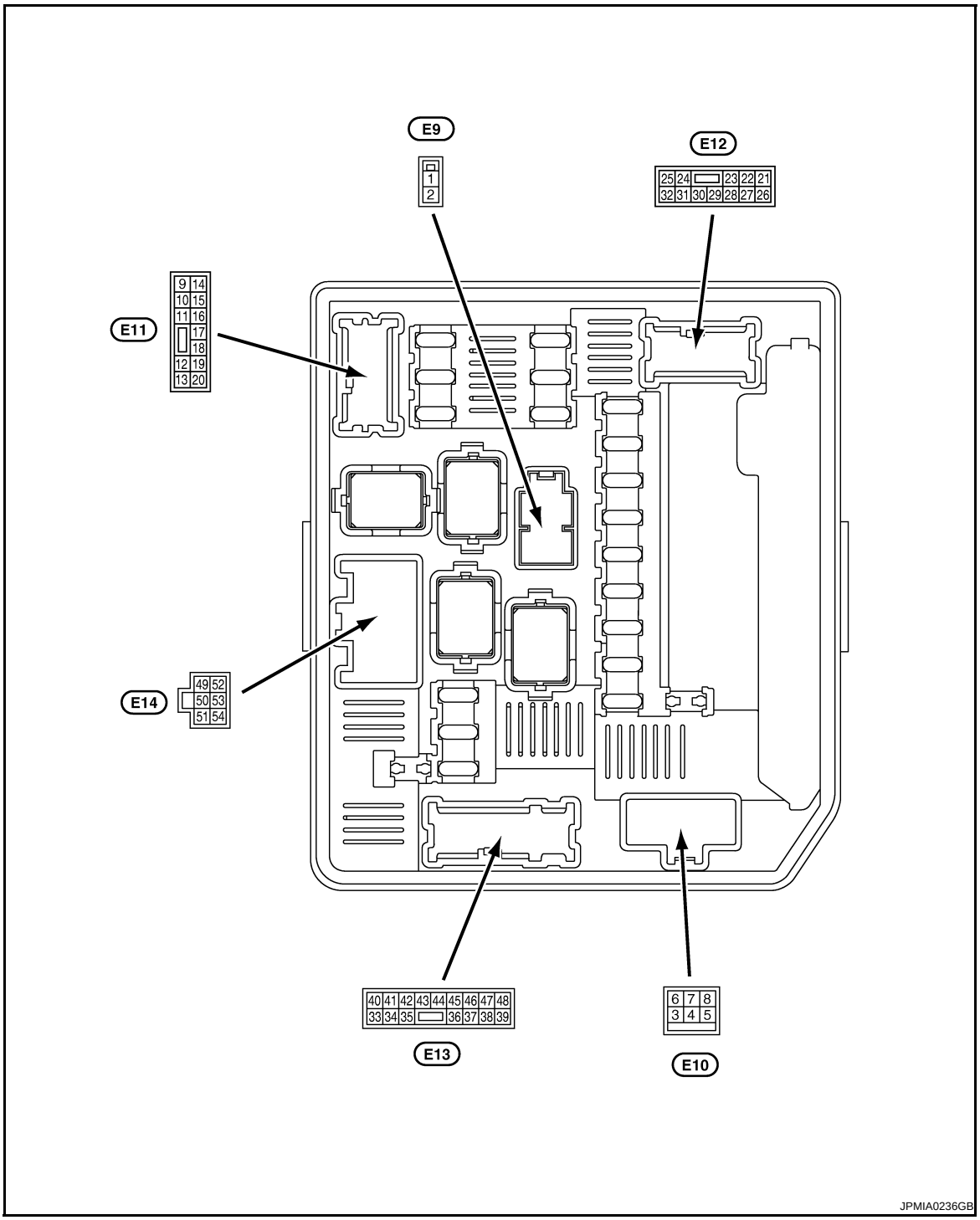
INFOID:0000000001189001

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	1 - 3
AC COMP REQ	Engine running	A/C switch OFF	Off
		A/C switch ON (Compressor is operating)	On
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST, 2ND or AUTO (Light is illuminated)		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND or AUTO (Light is illuminated)		On
HL HI REQ	Lighting switch OFF		Off
	Lighting switch HI (Light is illuminated)		On
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	Off
		Front fog lamp switch ON	On
HL WASHER REQ	Ignition switch ON, and low beam headlamp is ON	Front washer switch OFF	Off
		Front washer switch ON (When headlamp washer is operating)	On
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	STOP
		Front wiper switch INT	1LOW
		Front wiper switch LO	Low
		Front wiper switch HI	Hi
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	Off
		Front wiper stops due to fail-safe operation (cut-out operation)	BLOCK
ST RLY REQ **NOTE:** Vehicle without Intelligent Key system indicates only “ON”, and it does not change.	When Intelligent Key is outside the vehicle, and the push switch is pushed		Off
	When Intelligent Key is inside the vehicle, and the push switch is pushed		On
IGN RLY	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
RR DEF REQ	Ignition switch ON	Rear window defogger switch OFF	Off
		Rear window defogger switch ON (Rear window defogger is operating)	On
OIL P SW	Ignition switch OFF, ACC or engine running		Open
	Ignition switch ON		Close

Monitor Item	Condition	Value/Status
REV SW	Except selector lever R position	Off
	Selector lever R position	On
HOOD SW **NOTE:** This item is monitored only on the vehicle with the Vehicle Security (Theft Warning) system.	Close the hood	Off
	Open the hood	On
THFT HRN REQ **NOTE:** This item is monitored only on the vehicle with the Vehicle Security (Theft Warning) system.	Not operation	Off
	Horn is activated with Vehicle Security (Theft Warning) system.	On
HORN CHIRP	**NOTE:** This item is indicated, but not monitored.	Off
IGN ON SW	Ignition switch OFF or ACC	Off
	Ignition switch ON	On

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
		Signal name	Input/ Output		
+	–				
1 (G)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
2 (R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
5 (B)	Ground	Ground	—	Ignition switch ON	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
6 (B)	Ground	Ground	—	Ignition switch ON		0 V
7 (Y)	Ground	Front wiper LO	Output	Ignition switch ON	Front wiper switch OFF	0 V
					Front wiper switch LO	Battery voltage
8 (Y/R)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch OFF	0 V
					Front wiper switch HI	Battery voltage
9 (G)	Ground	ECM relay power supply	Output	Ignition switch ON		Battery voltage
10*1 (L/R)	Ground	ECM relay power supply	Output	Ignition switch ON		Battery voltage
11*2 (O)	Ground	PTC heater 1 relay control	Output	PTC heater OFF		Battery voltage
				PTC heater ON		0 V
12*2 (G/Y)	Ground	PTC heater 2 relay control	Output	PTC heater OFF		Battery voltage
				PTC heater ON		0 V
14 (R/B)	Ground	Ignition power supply	Output	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage
15 (Y/L)*1 (B/R)*2	Ground	ECM relay control	Input	• Engine running • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		0 - 1.0 V*1
						0.6 V*2
				Ignition switch OFF or ACC (More than a few seconds after turning ignition switch OFF)		Battery voltage
16*3 (Y/R)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage
				Ignition switch OFF or ACC		0 V
19*1 (R/O)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage
				Ignition switch OFF or ACC		0 V
21*4 (GR)	Ground	Hood switch	Input	Close the hood		0 V → Battery voltage → 0 V
				Open the hood		0 V
22 (Y/G)	Ground	Reverse switch	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON	• Selector lever “R” (Except M/T models) • M/T control lever “R” (M/T models)	Battery voltage
					• Selector lever in any position other than “R” (Except M/T models) • M/T control lever in any position other than “R” (M/T models)	0 V
23 (Y/B)	Ground	A/C relay power supply	Output	Engine stopped		0 V
				Engine running	A/C switch OFF	0 V
					A/C switch ON (A/C compressor is operating)	Battery voltage
24 (R/Y)	Ground	Headlamp LO (RH)	Output	Lighting switch OFF		0 V
				Lighting switch 2ND		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
25*1 (G/L)	Ground	ETC relay control	Input	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		0 - 1.0 V
26 (O)	Ground	Front wiper auto stop	Input	Ignition switch ON	Front wiper stop position	0 V
					Any position other than front wiper stop position	Battery voltage
27 (W)	Ground	Oil pressure switch	Input	Engine stopped		0 V
				Engine running		Battery voltage
28 (L)	—	CAN-H	Input/ Output	—		—
29 (P)	—	CAN-L	Input/ Output	—		—
30*4 (L)	Ground	Horn relay control	Output	The horn is not activated		Battery voltage
				The horn is activated		0 V
31 (R)	Ground	Headlamp LO (sensor)	Output	Lighting switch OFF		0 V
				Lighting switch 2ND		Battery voltage
32*1 (R/Y)	Ground	ETC relay power supply	Output	Ignition switch ON		Battery voltage
33*1 (B/O)	Ground	Fuel pump relay control	Input	• Engine running • Ignition switch ON (For 1 second after turning ignition switch ON)		0 - 1.0 V
				Ignition switch ON (More than 1 second after turning ignition switch ON)		Battery voltage
34 (R/B)	Ground	Starter relay power supply	Input	Ignition switch ON (Except M/T models)	Selector lever “P” or “N”	Battery voltage
					Selector lever in any position other than “P” or “N”	0 V
				Ignition switch ON (M/T models)		Battery voltage
35 (W/L)	Ground	Ignition switch ON	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage
36 (W)	Ground	Front fog lamp (RH)	Output	Lighting switch 1ST	Front fog lamp switch ON	Battery voltage
					Front fog lamp switch OFF	0 V
37 (R/W)	Ground	Parking lamp (RH)	Output	Lighting switch 1ST		Battery voltage
				Lighting switch OFF		0 V
38 (R/L)	Ground	Tail, license plate lamps and illuminations	Output	Lighting switch 1ST		Battery voltage
				Lighting switch OFF		0 V
39 (GR)	Ground	Headlamp washer relay control	Output	Ignition switch ON	When headlamp washer is operating	0 V
					When headlamp washer is not operating	Battery voltage
40*1 (BR/Y)*5 (SB)*6	Ground	Ignition relay power supply	Output	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage
41 (P)	Ground	Ignition relay power supply	Output	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
42*1 (B/Y)	Ground	Fuel pump relay power supply	Output	• Ignition switch OFF or ACC • Approximately 1 second or more after turning the ignition switch ON		0 V
				• Approximately 1 second after turning the ignition switch ON • Engine running		Battery voltage
43 (W/B)	Ground	Front fog lamp (LH)	Output	Lighting switch 1ST	Front fog lamp switch ON	Battery voltage
					Front fog lamp switch OFF	0 V
44 (L)	Ground	Headlamp LO (LH)	Output	Lighting switch OFF		0 V
				Lighting switch 2ND		Battery voltage
45 (L/W)	Ground	Headlamp HI (RH)	Output	• Lighting switch 2ND and HI • lighting switch PASS		Battery voltage
				Lighting switch OFF		0 V
46 (G)	Ground	Headlamp HI (LH)	Output	• Lighting switch 2ND and HI • Lighting switch PASS		Battery voltage
				Lighting switch OFF		0 V
47 (R/L)	Ground	Parking lamp (LH)	Output	Lighting switch 1ST		Battery voltage
				Lighting switch OFF		0 V
48*7 (Y)	Ground	Cooling fan relay-3 control	Output	When cooling fan does HI operation		0 V
				When cooling fan does OFF or LO operation		Battery voltage
49 (B)	Ground	Rear window defogger relay power supply	Output	Ignition switch ON	Rear window defogger switch ON	Battery voltage
					Rear window defogger switch OFF	0 V
50 (B/R)	Ground	Starter relay power supply	Output	When engine is cranking		Battery voltage
				When engine is not cranking		0 V
51 (P)	Ground	Ignition switch START	Input	Ignition switch START		Battery voltage
				Ignition switch OFF, ACC or ON		0 V
52 (W)	Ground	Cooling fan relay-1 power supply	Output	When cooling fan does LO or HI operation		Battery voltage
				When cooling fan does OFF operation		0 V
53 (W/B)	Ground	Battery power supply (Cooling fan relay)	Input	Ignition switch OFF		Battery voltage
54*5 (R)	Ground	Cooling fan relay-2 power supply	Input	When cooling fan does HI operation		Battery voltage
				When cooling fan does OFF or LO operation		0 V

*1: HR engine and MR engine models

*2: K9K engine and M9R engine models

*3: Except M/T models only

*4: With vehicle security (theft warning) system

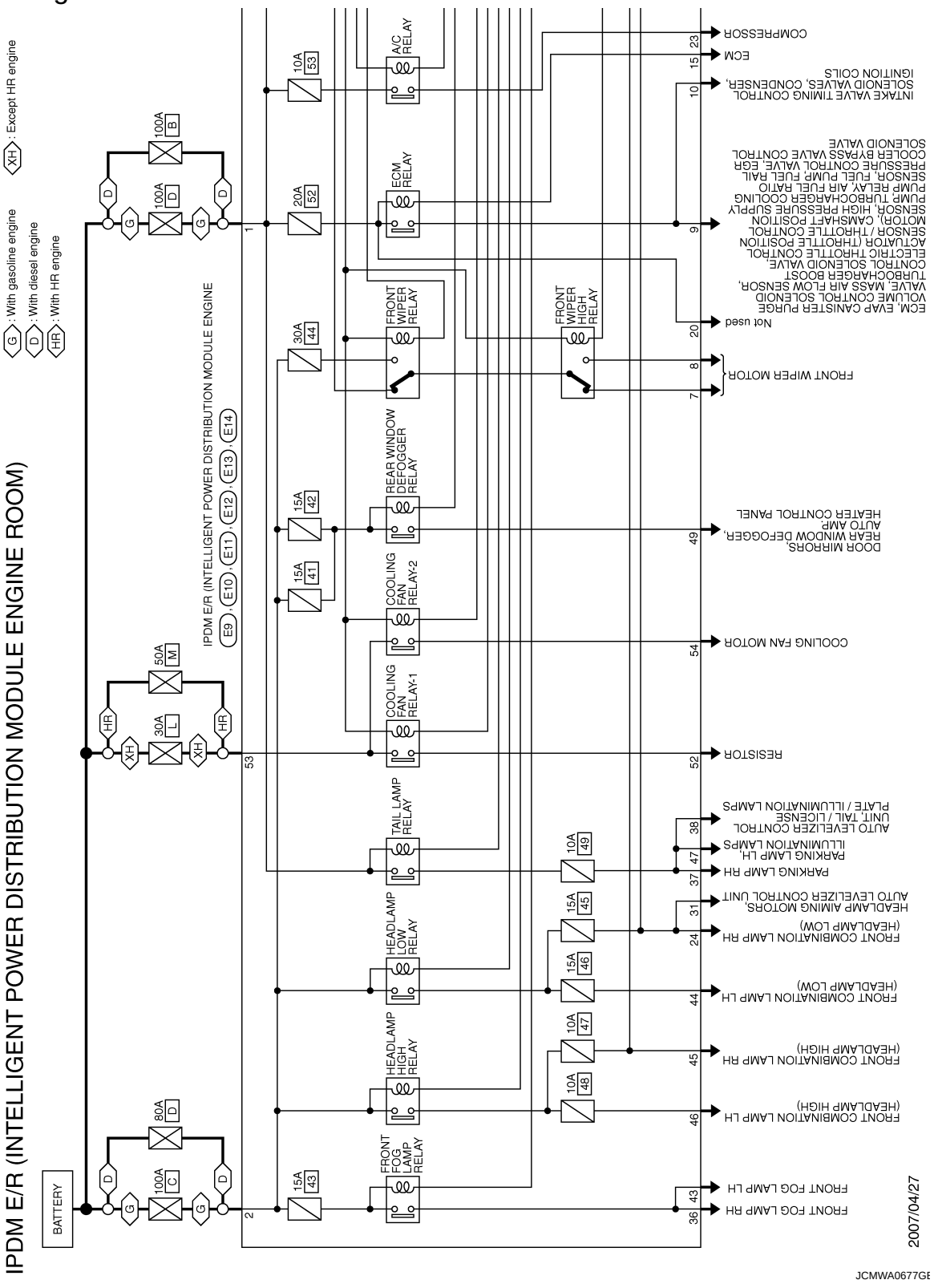
*5: HR engine models

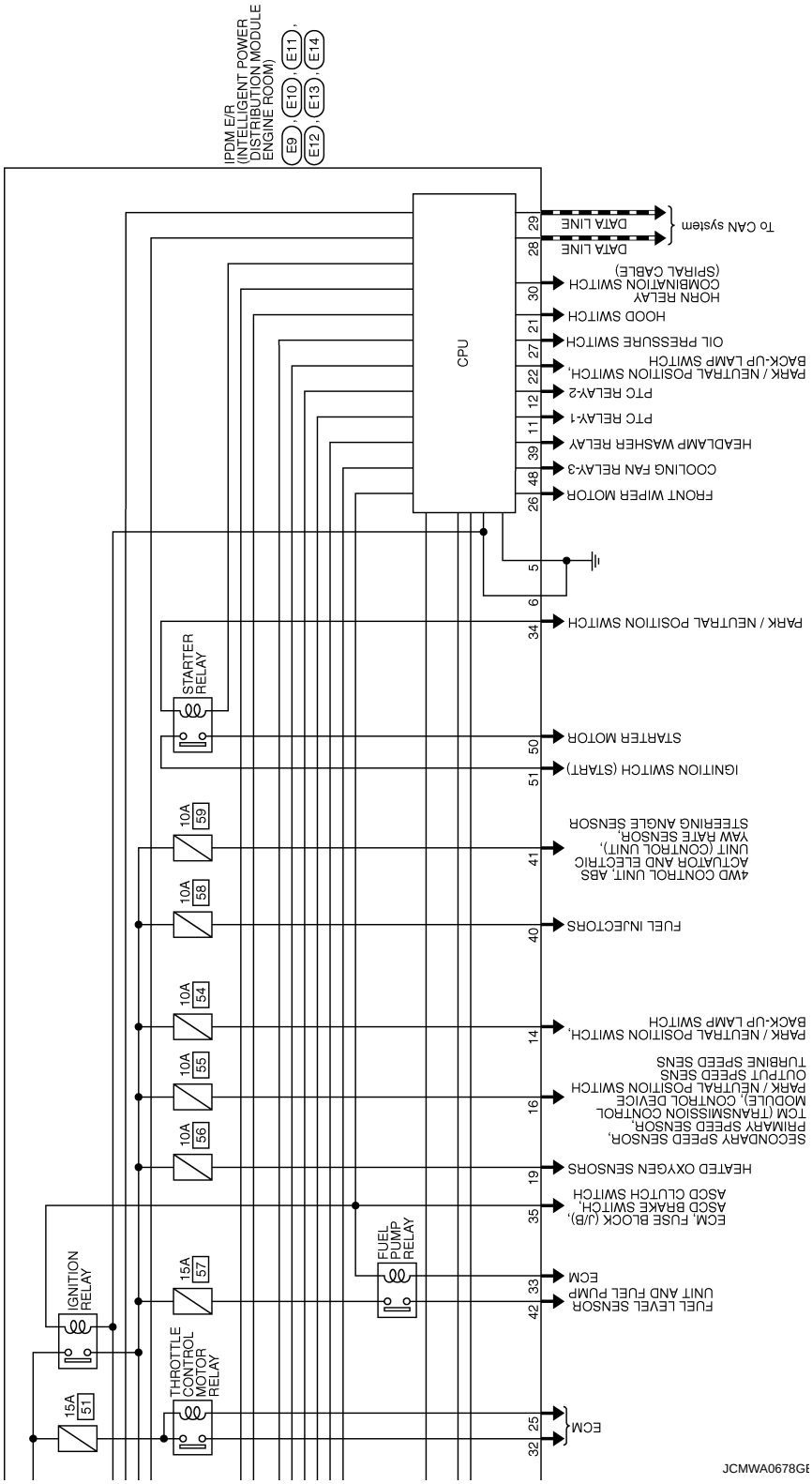
*6: MR engine models

*7: MR engine, K9K engine and M9R engine models

Wiring Diagram - IPDM E/R -

INFOID:0000000001189002



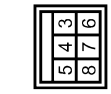

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E10, E11, E12, E13, E14
CPU
To CAN system
DATA LINE
DATA LINE
HORN RELAY CONTROL SWITCH (SPIRAL CABLE)
HOOD SWITCH
OIL PRESSURE SWITCH
PARK / NEUTRAL POSITION SWITCH, BACK-UP LAMP SWITCH
PTC RELAY-2
PTC RELAY-1
HEADLAMP WASHER RELAY
COOLING FAN RELAY-3
FRONT WIPER MOTOR
PARK / NEUTRAL POSITION SWITCH
STARTER MOTOR
IGNITION SWITCH (START)
4WD CONTROL UNIT, ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT), YAW RATE SENSOR, STEERING ANGLE SENSOR
FUEL INJECTORS
PARK / NEUTRAL POSITION SWITCH, BACK-UP LAMP SWITCH
SECONDARY SPEED SENSOR, PRIMARY SPEED SENSOR, TCM (TRANSMISSION CONTROL MODULE), CONTROL DEVICE OUTPUT SPEED SENS PARK / NEUTRAL POSITION SWITCH TURBINE SPEED SENS
HEATED OXYGEN SENSORS
ECM, FUSE BLOCK (J/B), ASCD BRAKE SWITCH, ASCD CLUTCH SWITCH
FUEL LEVEL SENSOR UNIT AND FUEL PUMP
ECM
ECM
STARTER RELAY
IGNITION RELAY
THROTTLE CONTROL MOTOR RELAY
FUEL PUMP RELAY
10A 59
10A 58
10A 54
10A 55
10A 56
15A 57
15A 51
JCMWA0678GB

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Connector No.	E9
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	L02FB-MC

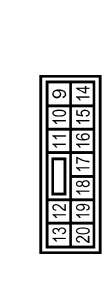
Terminal No.	Color of Wire	Signal Name [Specification]
1	G	–
2	R	–

Connector No.	E10
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	M06FB-1C



Terminal No.	Color of Wire	Signal Name [Specification]
5	B	–
6	B	–
7	Y	–
8	Y/R	–

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FBR-CS



Terminal No.	Color of Wire	Signal Name [Specification]
9	G	–
10	L/R	–
11	O	–
12	G/Y	–
14	R/B	–
15	Y/L	–[With gasoline engine]
15	B/R	–[With diesel engine]
16	Y/R	–
19	R/O	–
20	–	–

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
21	GR	–
22	Y/G	–
23	Y/B	–
24	R/Y	–
25	G/L	–
26	O	–
27	W	–
28	L	–
29	P	–
30	L	–
31	R	–

Terminal No.	Color of Wire	Signal Name [Specification]
32	R/Y	–

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
33	B/O	–
34	W/B	–[With A/T]
34	R/B	–[Except A/T]
35	W/L	–
36	W	–
37	R/W	–
38	R/L	–
39	GR	–
40	SB	–[With MR engine]
40	BR/Y	–[With HR engine]
41	P	–
42	B/Y	–
43	W/B	–
44	L	–
45	L/W	–
46	G	–
47	R/L	–
48	Y	–[Except M9R engine]
48	W	–[With M9R engine]

JCMWA0679GE

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Connector No.	E14
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	YZK 7283-5591-40-F

Terminal No.	Color of Wire	Signal Name [Specification]
49	B	– [Except M9R engine]
49	G	– [With M9R engine]
50	B/R	–
51	P	–
52	W	–
53	W/B	–
54	R	–

JCMWA0680GE

Fail Safe

INFOID:0000000001189003

CAN communication control

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with ECM

Control part	Fail-safe in operation
Cooling fan	• The cooling fan relay-2*1 or the cooling fan relay-3*2 turns ON when the ignition switch is turned ON • Turns off the fan motor low relay when the ignition switch is turned OFF
A/C compressor	A/C relay OFF

*1: HR engine models

*2: MR engine, K9K engine and M9R engine models

If no CAN communication is available with BCM

Control part	Fail-safe in operation
Headlamp	• The headlamp low relay turns ON when the ignition switch is turned ON • The headlamp low relay turns OFF when the ignition switch is turned OFF • Headlamp high relay OFF
• Parking lamps • License plate lamps • Tail lamps • Illuminations	• The tail lamp relay turns ON when the ignition switch is turned ON • The tail lamp relay turns OFF when the ignition switch is turned OFF
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The front wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.
Front fog lamps	Front fog lamp relay OFF
Starter motor	Starter relay OFF
Rear window defogger	Rear window defogger relay OFF
Headlamp washer	Headlamp washer relay OFF
PTC heater	PTC heater relay OFF

Ignition relay malfunction detection function

- The CPU integrated IPDM E/R monitors the voltage at the contact circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the ignition relay condition is different from the ignition switch ON signal.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

DTC	Ignition switch	Ignition relay	Tail lamp relay
—	ON	ON	—
—	OFF	OFF	—
—	OFF	ON	ON (10 minutes)
B2099: IGN RLY OFF	ON	OFF	—

NOTE:

The tail lamp relay is turned OFF when the ignition switch is turned ON.

Front wiper control

IPDM E/R detects the front wiper stop position with the front wiper auto stop signal.
When the front wiper auto stop signal is in the conditions listed below, IPDM E/R repeats a front wiper 10 seconds operation and 20 seconds stop until ignition switch is turned OFF.

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

NOTE:

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

DTC Index

INFOID:0000000001189004

CONSULT display	Fail-safe	Timing[NOTE]		Reference page
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	PAST	PCS-14
B2099: IGN RELAY OFF	—	CRNT	PAST	PCS-15
B209A: RAM ERROR	—	CRNT	PAST	PCS-16
B209B: ROM ERROR	—	CRNT	PAST	PCS-17
B2100: EEPROM	—	CRNT	PAST	PCS-18

NOTE:

The details of time display are as follows.

- CRNT: The malfunctions that are detected now.
- PAST: The number is indicated when it is normal at present and a malfunction was detected in the past.

SYMPTOM DIAGNOSIS

WIPER AND WASHER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000001189005

CAUTION:

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

Symptom		Probable malfunction location	Inspection item
Front wiper does not operate.	HI only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper motor (HI) circuit Refer to WW-27, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
	LO and INT	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper motor (LO) circuit Refer to WW-25, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
	INT only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
	HI, LO, and INT	SYMPTOM DIAGNOSIS “FRONT WIPER DOES NOT OPERATE” Refer to WW-93, "Diagnosis Procedure".	

Symptom		Probable malfunction location	Inspection item
Front wiper does not stop.	HI only	• Combination switch • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
		IPDM E/R	—
	LO only	• Combination switch • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
		IPDM E/R	—
	INT only	• Combination switch • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R DATA MONITOR “FR WIP REQ”
Front wiper does not operate normally.	Intermittent adjustment cannot be performed.	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		BCM	—
	Intermittent control linked with vehicle speed cannot be performed.	Check the vehicle speed detection wiper setting. Refer to WW-16, "WIPER : CONSULT-III Function (BCM - WIPER)".	
	Wiper is not linked to the washer operation.	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		BCM	—
	Does not return to stop position (Repeatedly operates for 10 seconds and then stops for 20 seconds. After that, it stops the operation).	• IPDM E/R • Harness between IPDM E/R and front wiper motor • Front wiper motor	Front wiper auto stop signal circuit Refer to WW-29, "Component Function Check".
Rear wiper does not operate.	ON only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
	INT only	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
	ON and INT	• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		• BCM • Harness between rear wiper motor and BCM • Harness between rear wiper motor and ground • Rear wiper motor	Combination switch Refer to WW-34, "Component Function Check".

Symptom		Probable malfunction location	Inspection item
Rear wiper does not stop.	ON only	• Combination switch • BCM	Rear wiper motor circuit Refer to WW-34, "Component Function Check".
	INT only	• Combination switch • BCM	Combination switch Refer to BCS-64, "Symptom Table".
Rear wiper does not operate normally.	Wiper is not linked to the washer operation.	• Combination switch • Harness between rear wiper motor and BCM • BCM	Combination switch Refer to BCS-64, "Symptom Table".
		BCM	—
	Rear wiper does not return to the Stop position (Stops after a five-second operation).	• BCM • Harness between rear wiper motor and BCM • Rear wiper motor	Rear wiper auto stop signal circuit Refer to WW-36, "Component Function Check".
	Rear wiper stops after operating for five seconds when ignition switch is turned ON.		
	Rear wiper does not operate even when selector lever is shifted to the “R”.	Reverse switch signal (CAN communication) • BCM • IPDM E/R	IPDM E/R DATA MONITOR “REV SW”
Headlamp washer does not operate.	Headlamp washer does not operate with the front washer when headlamps are turned ON.	• Combination switch • Harness between combination switch and BCM • BCM • Headlamp washer pump	Combination switch Refer to BCS-64, "Symptom Table".
		• Fusible link • Harness between fusible link and headlamp washer relay • Headlamp washer relay • Harness between headlamp washer relay and IPDM E/R • IPDM E/R • Harness between headlamp washer relay and headlamp washer pump • Harness between headlamp washer pump and ground • Headlamp washer pump	Headlamp washer circuit Refer to WW-39, "Component Function Check".
		BCM	—

NORMAL OPERATING CONDITION

Description

INFOID:0000000001189006

FRONT WIPER MOTOR PROTECTION FUNCTION

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

REAR WIPER MOTOR PROTECTION FUNCTION

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

FRONT WIPER DOES NOT OPERATE

Description

INFOID:0000000001189007

The front wiper does not operate under any operation conditions.

Diagnosis Procedure

INFOID:0000000001189008

1.CHECK WIPER RELAY OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
2. Check that the front wiper operates at the LO/HI operation.

CONSULT-III ACTIVE TEST
1. Select “FRONT WIPER” of IPDM E/R active test item.
2. With operating the test item, check front wiper operation.

Lo : Front wiper LO operation
Hi : Front wiper HI operation
Off : Stop the front wiper.

Is front wiper operation normally?

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

2.CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the front wiper motor 30A fuse (#44) is not fusing.

Is the fuse fusing?

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

3.CHECK FRONT WIPER MOTOR GROUND OPEN 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		
E20	5		Existed

Does continuity exist?

YES >> GO TO 4.
NO >> Repair the harnesses or connectors.

4.CHECK FRONT WIPER MOTOR OUTPUT VOLTAGE

CONSULT-III ACTIVE TEST
1. Disconnect front wiper motor connector.
2. Turn the ignition switch ON.
3. Select “FRONT WIPER” of IPDM E/R active test item.
4. With operating the test item, check voltage between IPDM E/R harness connector and ground.

Terminals			Test item	Voltage (Approx.)
(+)		(–)		
IPDM E/R		Ground	FRONT WIPER	
Connector	Terminal			
E10	7		Lo	Battery voltage
			Off	0 V
	8		Hi	Battery voltage
			Off	0 V

Is the measurement value normal?

YES >> Replace front wiper motor.
NO >> Replace IPDM E/R.

5.CHECK FRONT WIPER REQUEST SIGNAL INPUT

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

Monitor item	Condition		Monitor status
FR WIP REQ	Front wiper switch HI	ON	Hi
		OFF	Stop
	Front wiper switch LO	ON	Low
		OFF	Stop

Is the status of item normal?

YES >> Replace IPDM E/R.
NO >> GO TO 6.

6.CHECK COMBINATION SWITCH

1. Perform the inspection of the combination switch. Refer to BCS-64, "Symptom Table".

Is combination switch normal?

YES >> Replace BCM. Refer to BCS-65, "Exploded View".
NO >> Repair or replace the applicable parts.

HEADLAMP WASHER DOES NOT OPERATE

Description

INFOID:0000000001189009

Headlamp washer does not operate linked to front washer operation.

Diagnosis Procedure

INFOID:0000000001189010

1.CHECK IPDM E/R

CONSULT-III DATA MONITOR
1. Turn the lighting switch 2ND.
2. Select “HL WASHER REQ” of IPDM E/R data monitor item.
3. Operate the headlamp washer.
4. Check the status of “HL WASHER REQ”.

Monitor item	Condition		Monitor status
HL WASHER REQ	Headlamp washer	Operating	On
		Stopped	Off

Is the status of item normal?

YES >> Refer to WW-39, "Component Function Check".
NO >> GO TO 2.

2.CHECK COMBINATION SWITCH

1. Perform the inspection of the combination switch. Refer to BCS-64, "Symptom Table".

Is combination switch normal?

YES >> Replace BCM. Refer to BCS-65, "Exploded View".
NO >> Repair or replace the applicable parts.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000001189011

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.
Information necessary to service the system safely is included in the “SRS AIRBAG” and “SEAT BELT” of this Service Manual.

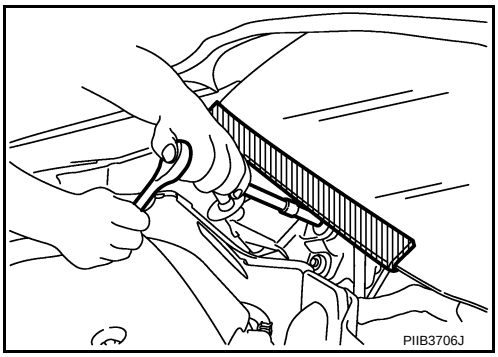
WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the “SRS AIRBAG”.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

Precaution for Procedure without Cowl Top Cover

INFOID:0000000001189012

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

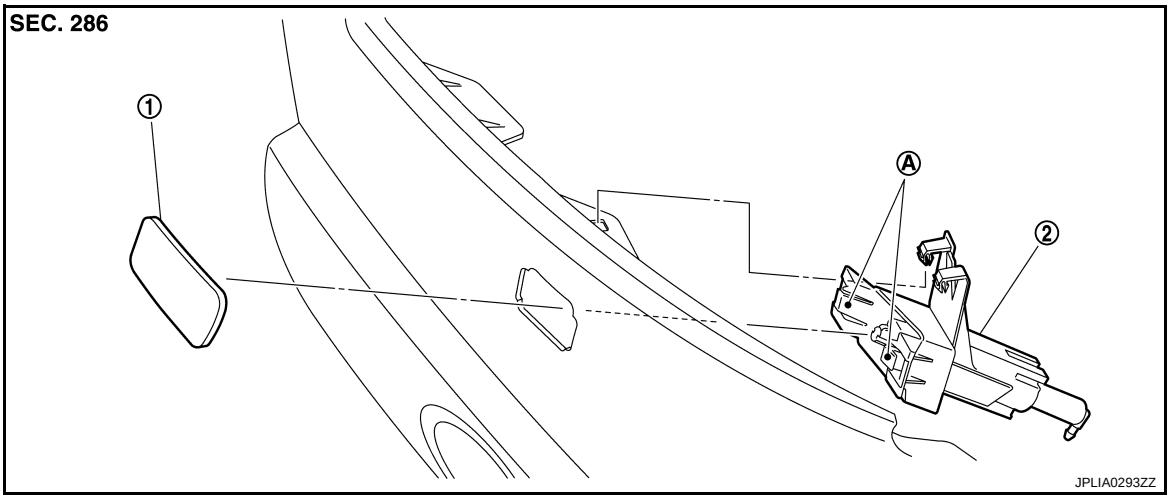


ON-VEHICLE REPAIR

HEADLAMP WASHER NOZZLE AND TUBE

Exploded View

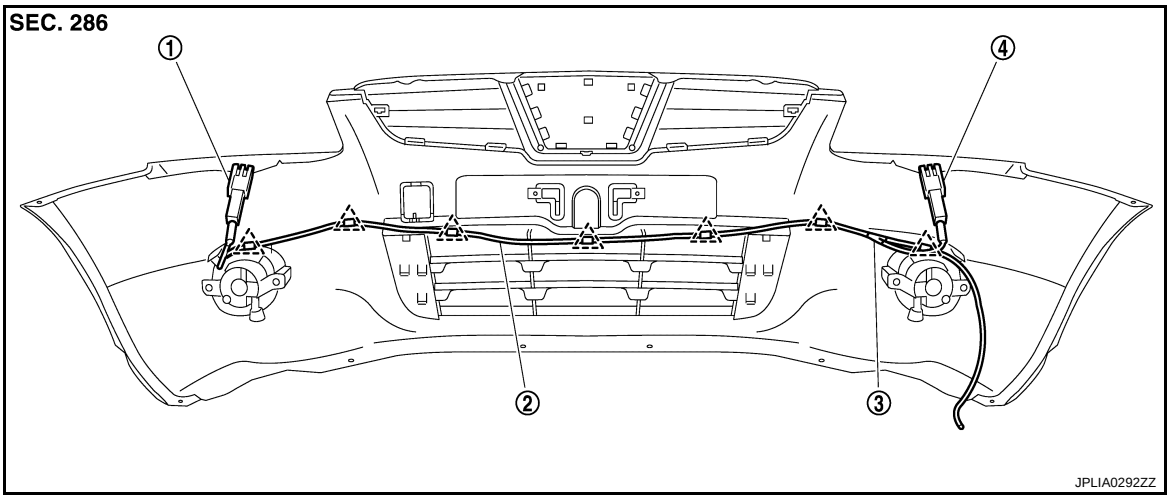
INFOID:0000000001189013



1. Headlamp washer nozzle cover
2. Headlamp washer nozzle assembly
A. Pawl

Hydraulic Layout

INFOID:0000000001189014



1. Headlamp washer nozzle assembly (LH)
2. Headlamp washer tube
3. Headlamp washer tube joint
4. Headlamp washer nozzle assembly (RH)

△ : Clip

Removal and Installation

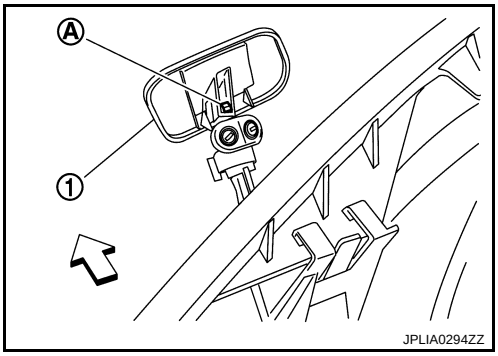
INFOID:0000000001189015

REMOVAL

1. Remove the front bumper fascia. Refer to EXT-11, "Exploded View".
2. Remove headlamp washer tube from headlamp washer nozzle assembly.

3. Push pawl (A), and remove headlamp washer nozzle cover (1).

⇦ : Vehicle front



4. Push pawl, and remove headlamp washer nozzle assembly from the front bumper fascia.

INSTALLATION

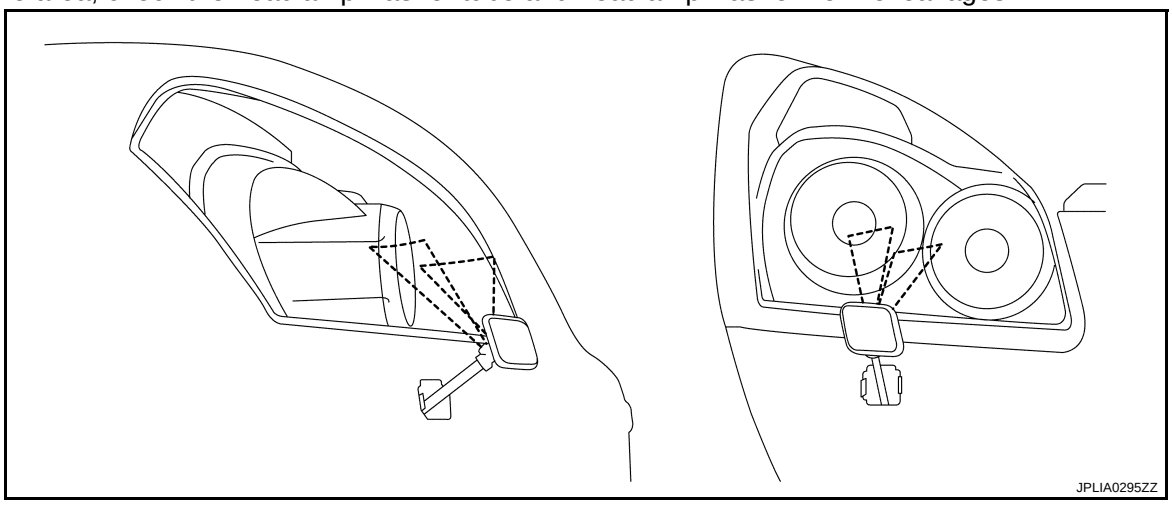
Note the following, and install in the reverse order of removal.

Inspection

INFOID:0000000001189016

HEADLAMP WASHER NOZZLE SPLAY POSITION INSPECTION

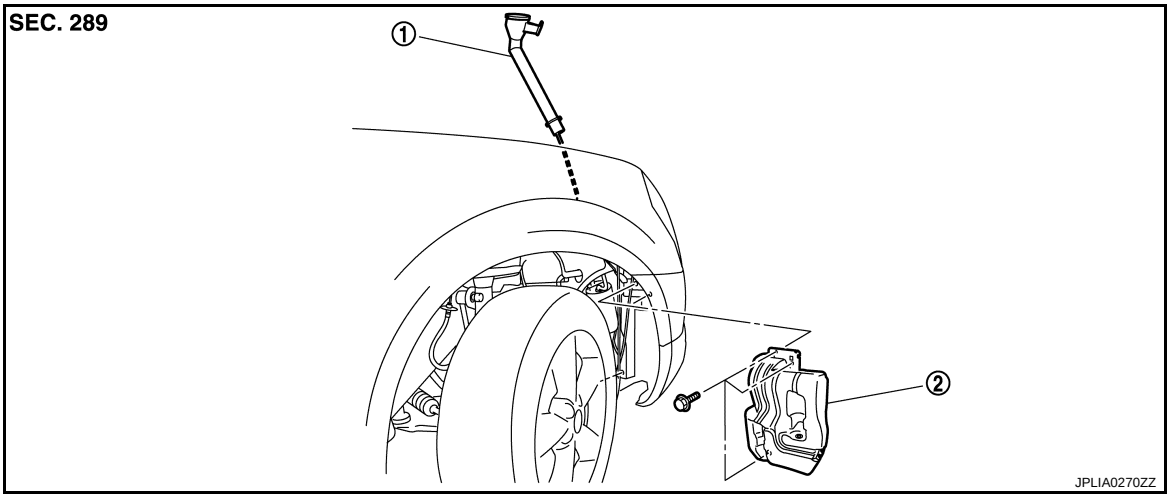
Check that the headlamp washer injection is certainly on the headlamp (LO) illuminating area. If the injection is out of the area, check the headlamp washer tube and headlamp washer nozzle leakages.



WASHER TANK

Exploded View

INFOID:0000000001189017



1. Washer tank inlet
2. Washer tank

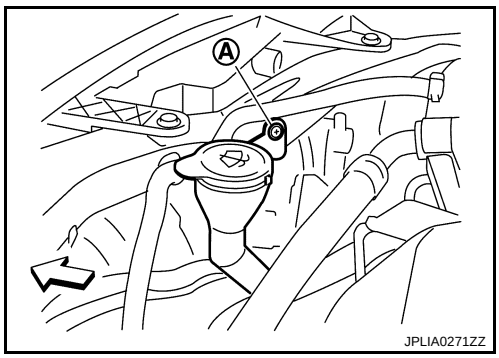
Removal and Installation

INFOID:0000000001189018

REMOVAL

1. Remove the clip (A).

⇦ : Vehicle front



2. Pull out the washer tank inlet from the washer tank.
3. Remove the splash guard. Refer to EXT-21, "Exploded View".
4. Remove the fender protector RH (front). Refer to EXT-21, "Exploded View".
5. Disconnect washer pump connector.
6. Disconnect headlamp washer pump connector.
7. Remove all washer tubes.
8. Remove washer tank mounting bolts.
9. Remove the washer tank from the vehicle.

INSTALLATION

Install in the reverse order of removal.

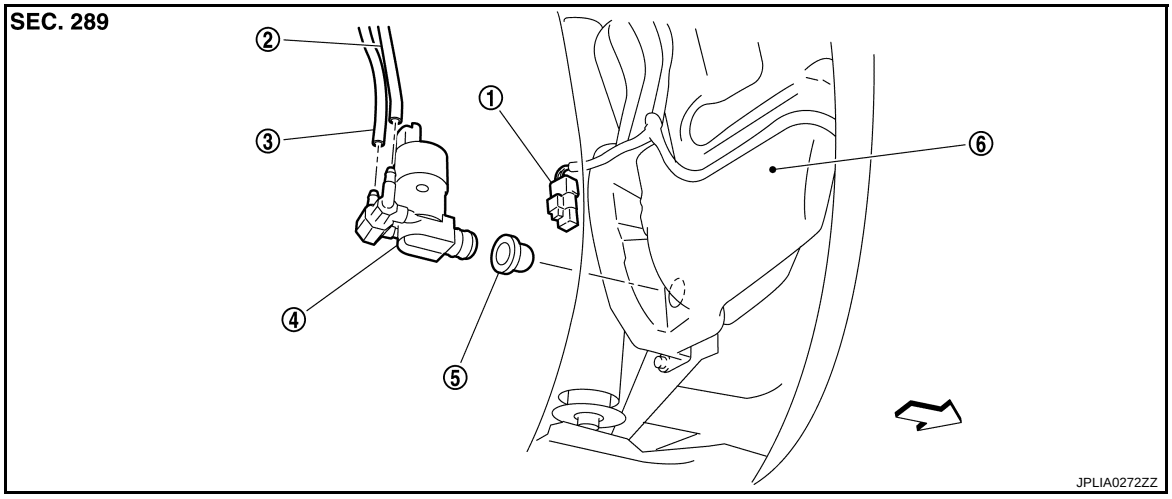
CAUTION:

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

WASHER PUMP

Exploded View

INFOID:0000000001189019



1. Washer pump connector
2. Front washer tube
3. Rear washer tube
4. Washer pump
5. Packing
6. Washer tank

⇦ : Vehicle front

Removal and Installation

INFOID:0000000001189020

REMOVAL

1. Remove the splash guard. Refer to EXT-21, "Exploded View".
2. Remove the fender protector RH (front). Refer to EXT-21, "Exploded View".
3. Disconnect washer pump connector.
4. Remove front washer tube and rear washer tube.
5. Remove washer pump from the washer tank.
6. Remove the packing from the washer tank.

INSTALLATION

Install in the reverse order of removal.

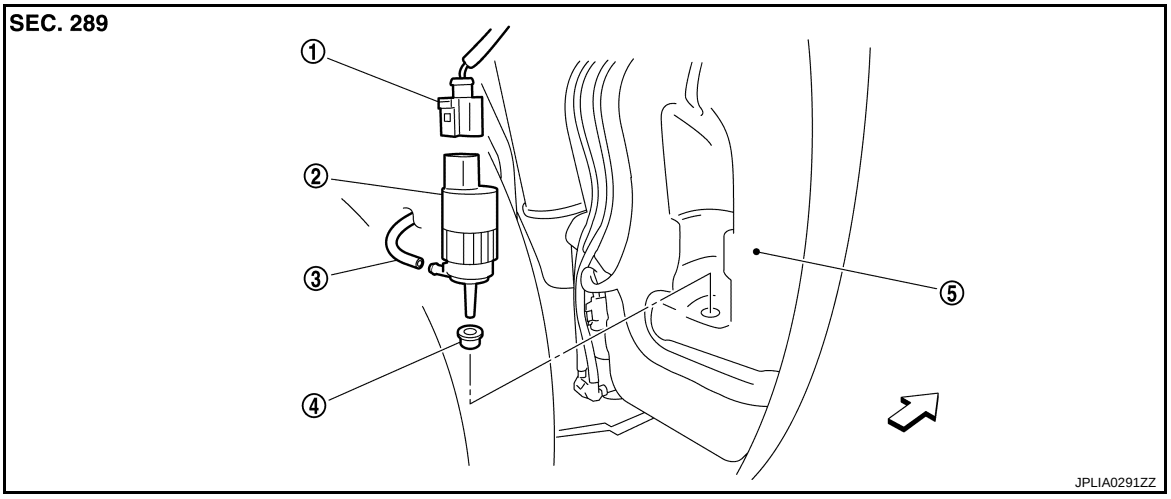
CAUTION:

Never twist the packing when installing the washer pump.

HEADLAMP WASHER PUMP

Exploded View

INFOID:0000000001189021



1. Headlamp washer pump connector
2. Headlamp washer pump
3. Headlamp washer tube
4. Packing
5. Washer tank

⇦ : Vehicle front

Removal and Installation

INFOID:0000000001189022

REMOVAL

1. Remove the splash guard. Refer to EXT-21, "Exploded View".
2. Remove the fender protector RH (front). Refer to EXT-21, "Exploded View".
3. Disconnect the headlamp washer pump connector.
4. Remove headlamp washer tube.
5. Remove headlamp washer pump from the washer tank.
6. Remove the packing from the washer tank.

INSTALLATION

Install in the reverse order of removal.

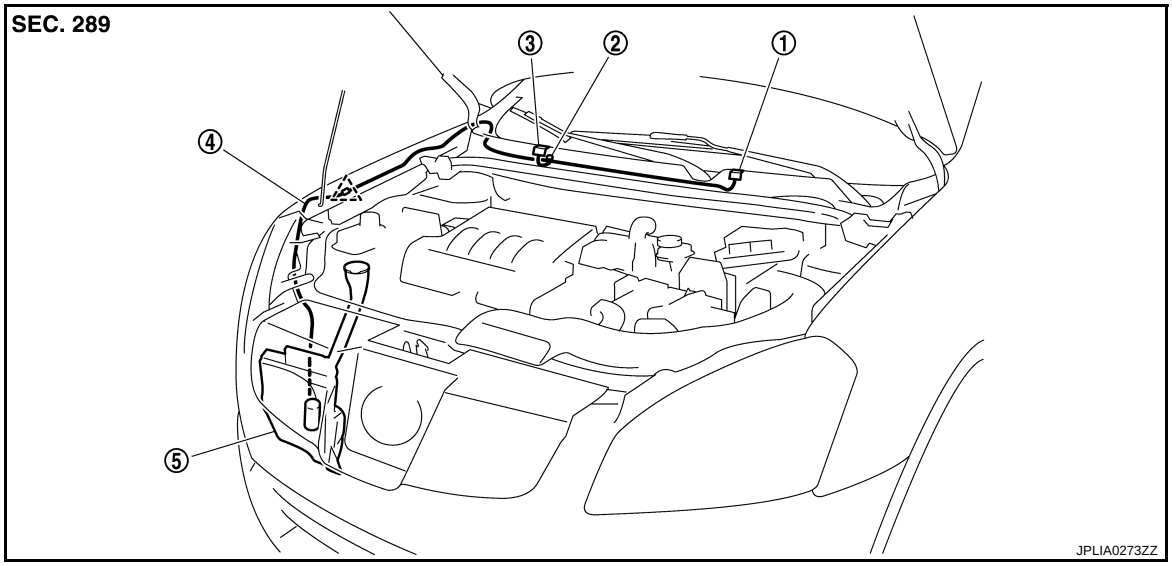
CAUTION:

Never twist the packing when installing the washer pump.

FRONT WASHER NOZZLE AND TUBE

Hydraulic Layout

INFOID:0000000001189023



1. Front washer nozzle (LH)
2. Check valve
3. Front washer nozzle (RH)
4. Front washer tube
5. Washer tank

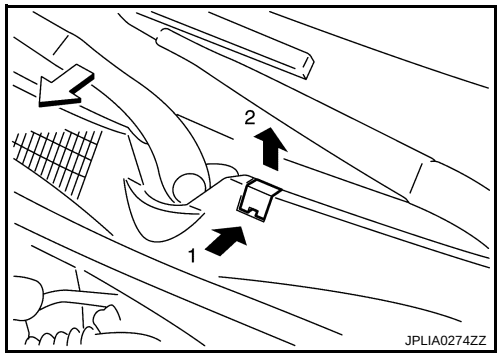
: Clip

Removal and Installation

INFOID:0000000001189024

REMOVAL

1. Open the hood.
2. Remove front washer nozzle in numerical order shown in the figure.
3. Remove the front washer tube from the front washer nozzle.



⇦ : Vehicle front

INSTALLATION

Install in the reverse order of removal.

CAUTION:

When the spray positions differ, check that left and right nozzles are installed correctly.

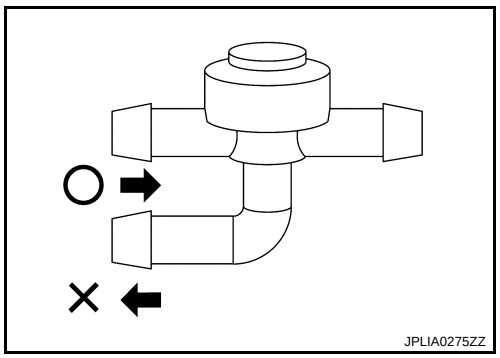
Inspection and Adjustment

INFOID:0000000001189025

INSPECTION

Washer Nozzle Inspection

Check that air can pass through the hose by blowing forward (toward the nozzle), and check that air cannot pass through by sucking.

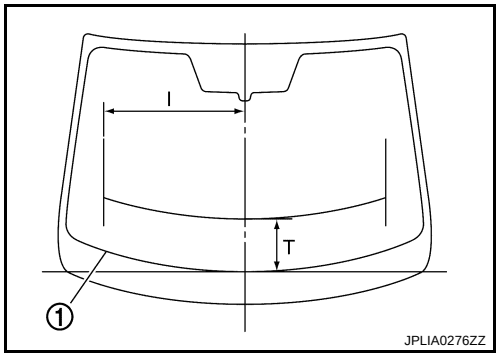


ADJUSTMENT

Washer Nozzle Spray Position Adjustment

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

1 : Black printed frame line



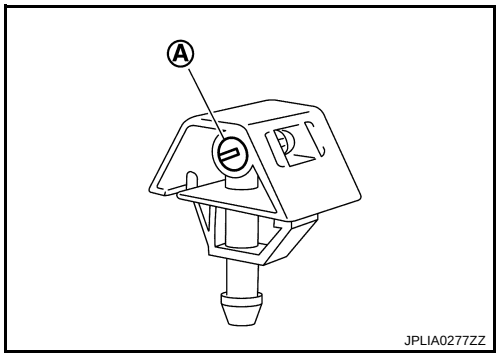
Unit: mm (in)

T (Standard)	I (Width)
200 (7.87)	522 (20.55)

NOTE:
Check the width is within the limit as it cannot be adjusted.

Turn an adjustment screw (A) to adjust a spray position.

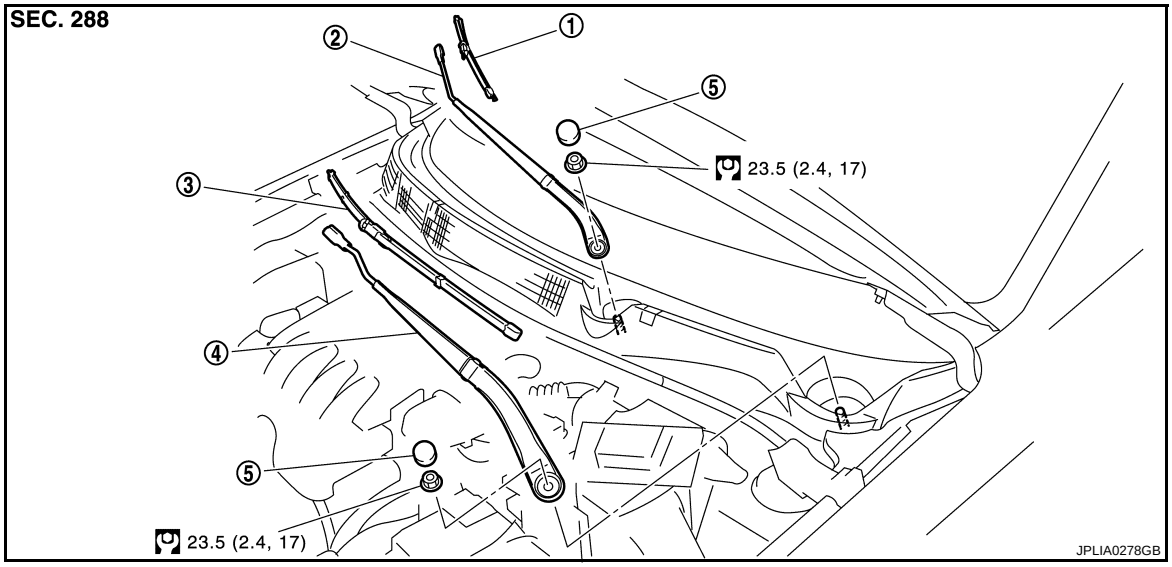
NOTE:
If wax or dust gets into the nozzle, remove wax or dust with a needle or small pin.



FRONT WIPER ARM

Exploded View

INFOID:0000000001189026



1. Front wiper blade (RH)
2. Front wiper arm (RH)
3. Front wiper blade (LH)
4. Front wiper arm (LH)
5. Front wiper arm cap

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

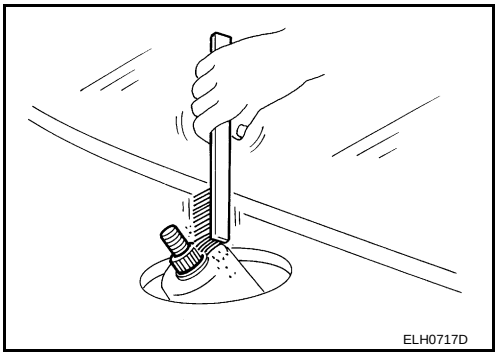
INFOID:0000000001189027

REMOVAL

1. Operate the front wiper to move it to the auto stop position.
2. Open the hood.
3. Remove front wiper arm caps.
4. Remove the front wiper arm mounting nuts.
5. Raise front wiper arm, and remove front wiper arm from the vehicle.

INSTALLATION

1. Clean wiper arm mount as shown in the figure to prevent nuts from being loosened.



2. Operate the front wiper motor to move the front wiper to the auto stop position.
3. Adjust the front wiper blade position. Refer to WW-105, "Adjustment".
4. Install the front wiper arm by tightening the mounting nut.
5. Inject the washer fluid.
6. Operate the front wiper to move it to the auto stop position.
7. Check that the front wiper blades stop at the specified position.
8. Install wiper arm cap.

Adjustment

INFOID:0000000001189028

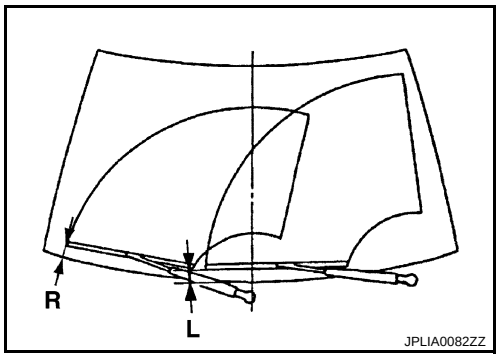
WIPER BLADE POSITION ADJUSTMENT

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

Standard clearance

R : 59.4 ± 10.3 mm (2.34 ± 0.406 in)

L : 56.1 ± 10.3 mm (2.21 ± 0.406 in)



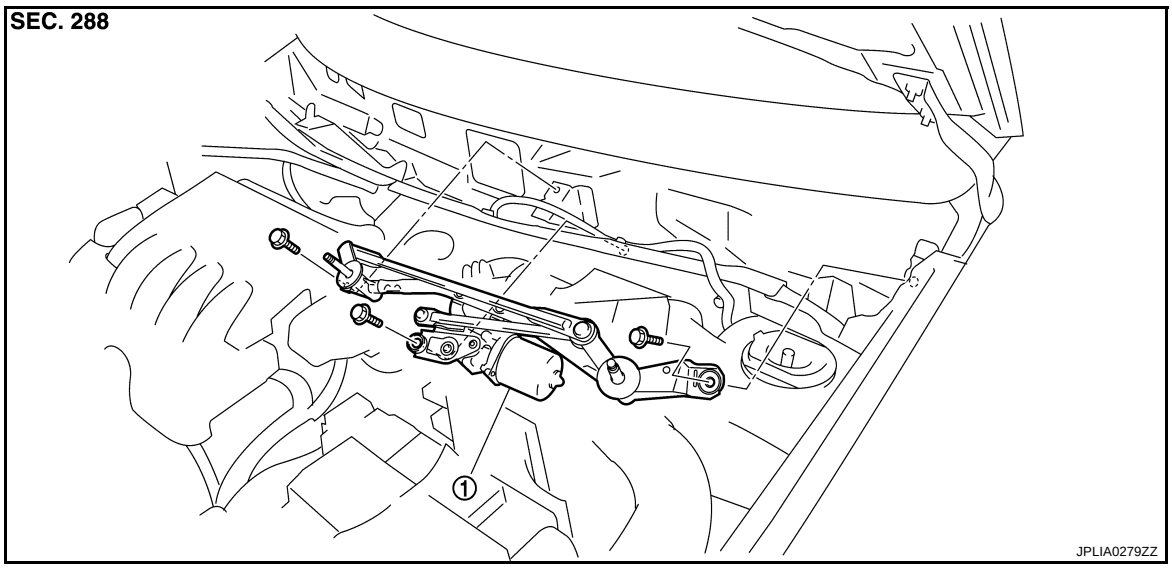
FRONT WIPER DRIVE ASSEMBLY

LHD MODELS

LHD MODELS : Exploded View

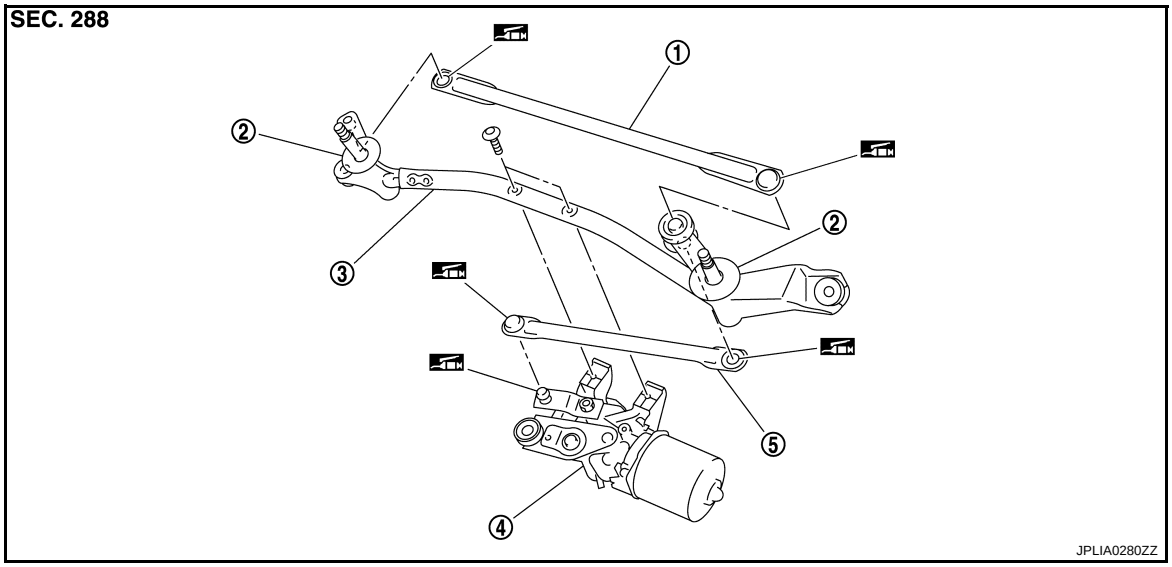
INFOID:0000000001189029

REMOVAL VIEW



1. Front wiper drive assembly

DISASSEMBLY VIEW



1. Front wiper linkage 1
2. Shaft seal
3. Front wiper frame
4. Front wiper motor
5. Front wiper linkage 2

: Multi–purpose grease or an equivalent.

LHD MODELS : Removal and Installation

INFOID:0000000001189030

REMOVAL

1. Remove front wiper arm. Refer to WW-104, "Exploded View".
2. Remove cowl top cover. Refer to EXT-19, "Exploded View".

3. Remove bolts from the front wiper drive assembly.
4. Disconnect the front wiper motor connector.
5. Remove front wiper drive assembly from the vehicle.

INSTALLATION

1. Install the front wiper drive assembly to the vehicle.
2. Connect the front wiper motor connector.
3. Operate the front wiper to move it to the auto stop position.
4. Install the cowl top cover. Refer to EXT-19, "Exploded View".
5. Install front wiper arms. Refer to WW-104, "Exploded View".

LHD MODELS : Disassembly and Assembly

INFOID:0000000001189031

DISASSEMBLY

1. Remove the front wiper linkage 1 and 2 from the front wiper drive assembly.
   CAUTION:
   Do not bend the linkage or damage the plastic part of the ball joint when removing the front wiper linkage.
2. Remove the front wiper motor mounting screws, and then remove the front wiper motor from the front wiper frame.

ASSEMBLY

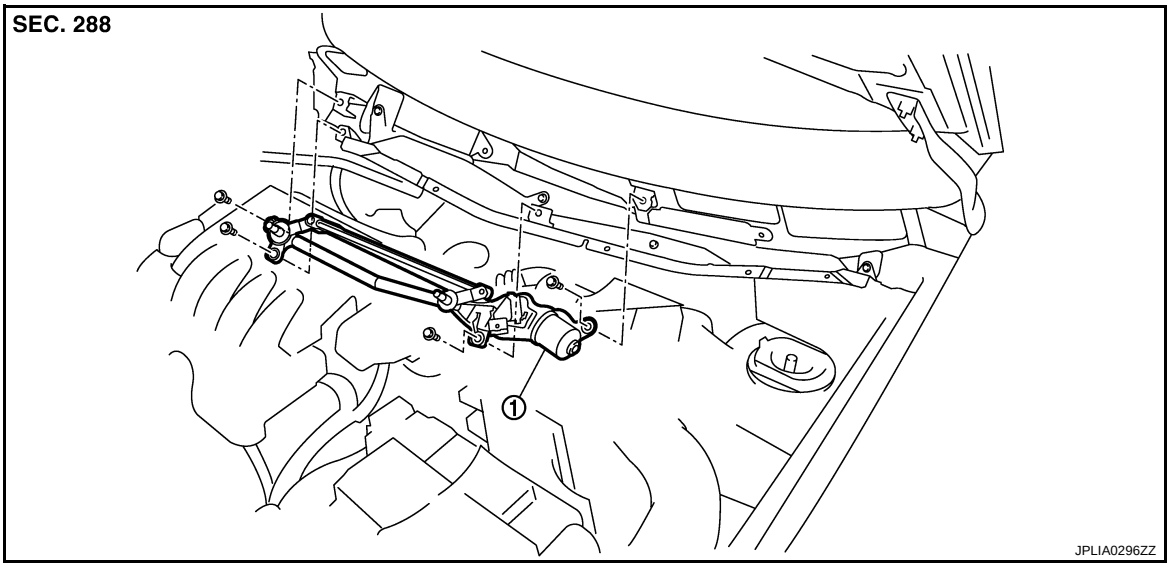
1. Connect the front wiper motor connector.
2. Operate the front wiper to move it to the auto stop position.
3. Disconnect the front wiper motor connector.
4. Install front wiper motor to front wiper frame.
5. Install the front wiper linkage 2 to the front wiper motor and the front wiper frame.
6. Install the front wiper linkage 1 to the front wiper frame.
   CAUTION:
   - **Do not drop front wiper motor or cause it to come into contact with other parts.**
   - **Be careful for the grease condition at the front wiper motor and front wiper linkage joint (retainer). Apply multi–purpose grease or an equivalent if necessary.**

RHD MODELS

RHD MODELS : Exploded View

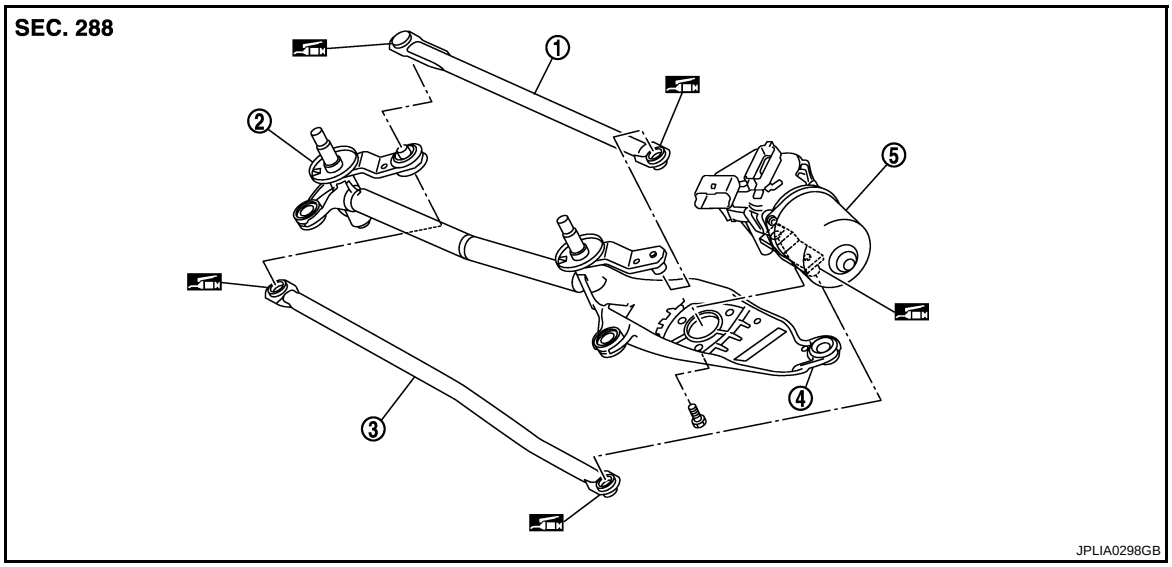
INFOID:0000000001189032

REMOVAL VIEW



1. Front wiper drive assembly

DISASSEMBLY VIEW



1. Front wiper linkage 1
2. Shaft seal
3. Front wiper linkage 2
4. Front wiper frame
5. Front wiper motor

: Multi–purpose grease or an equivalent.

RHD MODELS : Removal and Installation

INFOID:0000000001189033

REMOVAL

1. Remove front wiper arm. Refer to WW-104, "Exploded View".
2. Remove cowl top cover. Refer to EXT-19, "Exploded View".
3. Remove bolts from the front wiper drive assembly.
4. Disconnect the front wiper motor connector.
5. Remove front wiper drive assembly from the vehicle.

INSTALLATION

1. Install the front wiper drive assembly to the vehicle.
2. Connect the front wiper motor connector.
3. Operate the front wiper to move it to the auto stop position.
4. Install the cowl top cover. Refer to EXT-19, "Exploded View".
5. Install front wiper arms. Refer to WW-104, "Exploded View".

RHD MODELS : Disassembly and Assembly

INFOID:0000000001189034

DISASSEMBLY

1. Remove the front wiper linkage 1 and 2 from the front wiper drive assembly.
   CAUTION:
   Do not bend the linkage or damage the plastic part of the ball joint when removing the front wiper linkage.
2. Remove the front wiper motor mounting screws, and then remove the front wiper motor from the front wiper frame.

ASSEMBLY

1. Connect the front wiper motor connector.
2. Operate the front wiper to move it to the auto stop position.

3. Disconnect the front wiper motor connector.
4. Install front wiper motor to front wiper frame.
5. Install the front wiper linkage 2 to the front wiper motor and the front wiper frame.
6. Install the front wiper linkage 1 to the front wiper frame.

CAUTION:

- **Do not drop front wiper motor or cause it to come into contact with other parts.**
- **Be careful for the grease condition at the wiper motor and wiper linkage joint (retainer). Apply multi–purpose grease or an equivalent if necessary.**

RAIN SENSOR

Exploded View

INFOID:0000000001189035

Refer to EXL-178, "Exploded View".

Removal and Installation

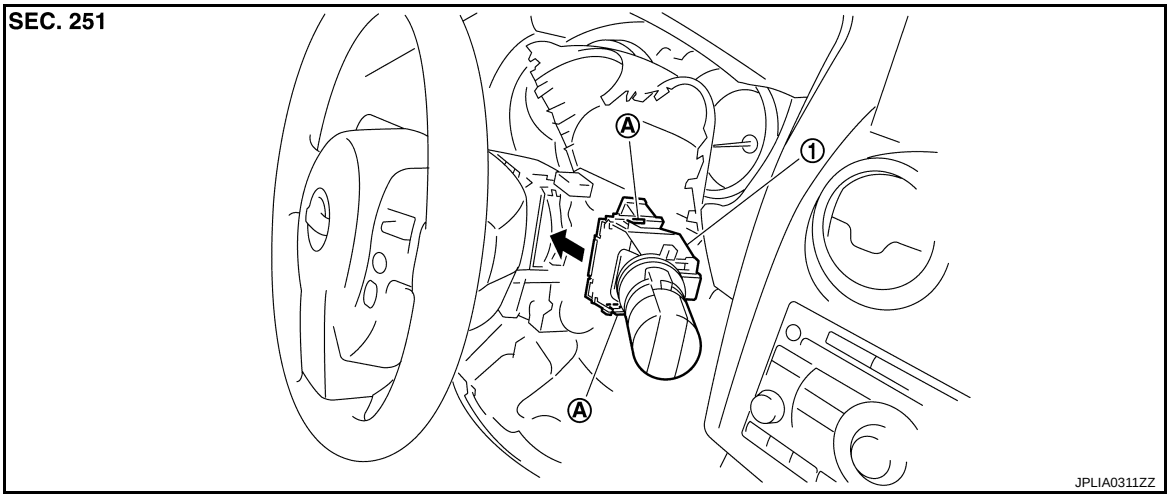
INFOID:0000000001189036

Refer to EXL-179, "Removal and Installation".

WIPER AND WASHER SWITCH

Exploded View

INFOID:0000000001189037



1. Wiper & washer switch
A. Pawl

Removal and Installation

INFOID:0000000001189038

REMOVAL

1. Remove steering column cover. Refer to IP-11, "Exploded View".
2. While pressing pawls, pull the wiper & washer switch. And disconnect from the switch base.

INSTALLATION

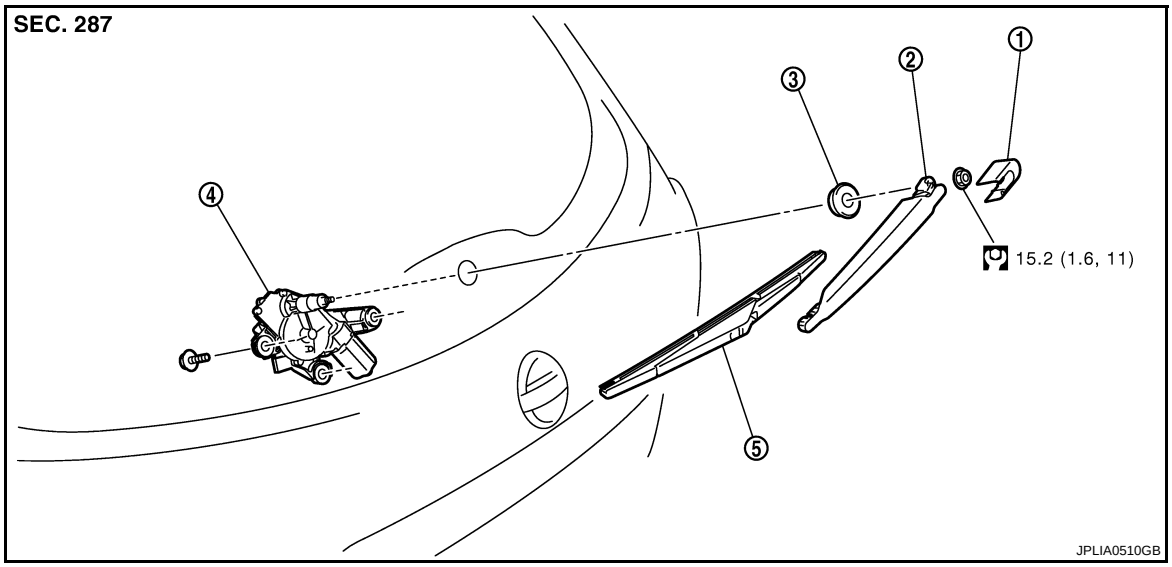
Installation is the reverse order of removal.

REAR WIPER MOTOR

Exploded View

INFOID:0000000001189039

REMOVAL VIEW



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

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000001189040

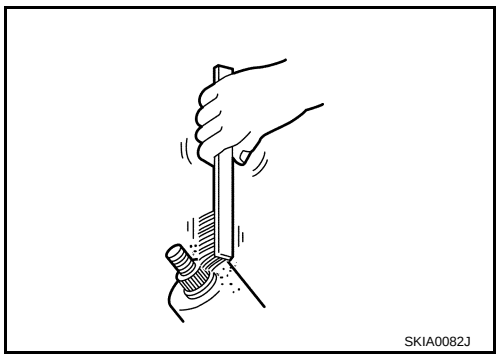
REMOVAL

1. Operate the rear wiper to the auto stop position.
2. Remove rear wiper arm cover.
3. Remove the rear wiper arm mounting nut.
4. Raise rear wiper arm, and remove wiper arm from the vehicle.
5. Remove back door trim finisher lower. Refer to INT-26, "Exploded View".
6. Disconnect the rear wiper motor connector.
7. Remove bolts.
8. Remove rear wiper motor from the vehicle.
9. Remove pivot seal.

INSTALLATION

1. Install the pivot seal.
2. Install the rear wiper motor to the vehicle.
3. Connect the rear wiper motor connector.
4. Operate the rear wiper to the auto stop position.
5. Install the back door trim finisher lower. Refer to INT-26, "Exploded View".

6. Clean wiper arm mount as shown in the figure to prevent nut from being loosened.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7. Operate the rear wiper motor to the auto stop position.
8. Adjust the rear wiper blade position. Refer to WW-113, "Adjustment".
9. Install the rear wiper arm by tightening the mounting nut.
10. Inject the washer fluid.
11. Operate the rear wiper to the auto stop position.
12. Check that the rear wiper blades stop at the specified position.
13. Install rear wiper arm cover.

Adjustment

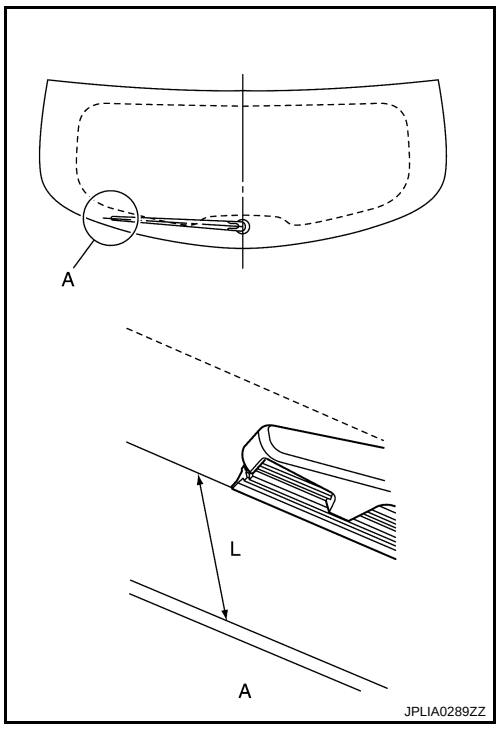
INFOID:0000000001189041

REAR WIPER BLADE POSITION ADJUSTMENT

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

Standard clearance

L : 26.5 ± 10.3 mm (1.04 ± 0.406 in)



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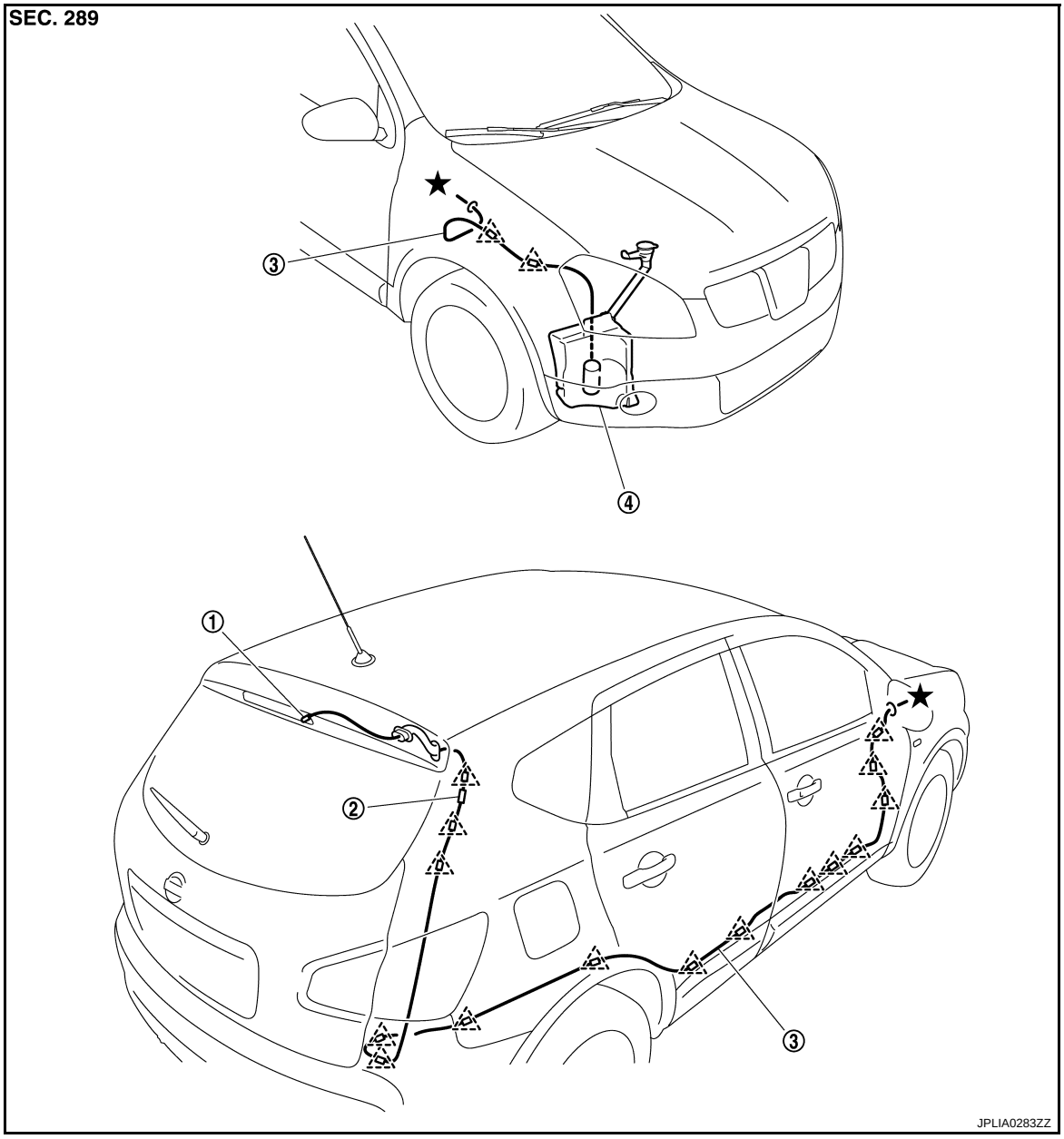
REAR WASHER NOZZLE AND TUBE

Hydraulic Layout

INFOID:0000000001189042



1. Rear washer nozzle
2. Check valve
3. Rear washer tube
4. Washer tank

: Clip

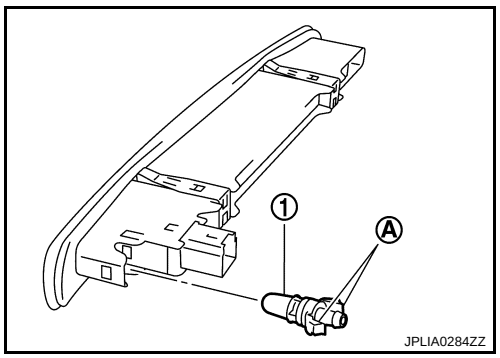
Removal and Installation

INFOID:0000000001189043

REMOVAL

1. Remove the high-mounted stop lamp. Refer to EXL-186, "Exploded View".
2. Remove the rear washer tube from the rear washer nozzle.

3. Push pawl (A), and remove the rear washer nozzle (1) from the high-mounted stop lamp.



INSTALLATION

Install in the reverse order of removal.

Inspection

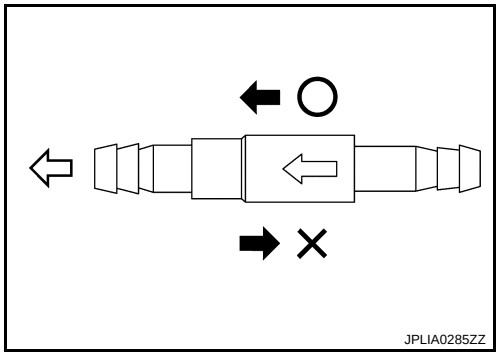
INFOID:0000000001189044

INSPECTION

Washer Nozzle Inspection

Check that air can pass through the hose by blowing forward (toward the nozzle), and check that air cannot pass through by sucking.

⇦ : To rear washer nozzle



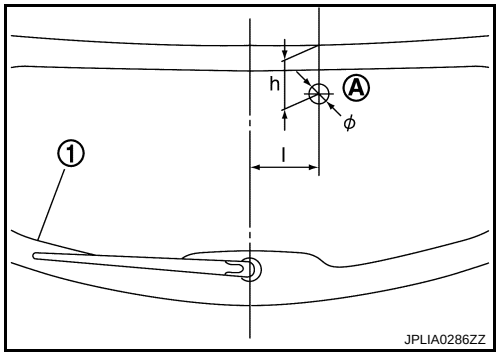
Washer Nozzle Spray Position

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

1 : Black printed frame line

Unit: mm (in)

Spray position	h (Height)	l (width)	ϕ (Spray position area)
A	43 (1.69)	93.6 (3.69)	30 (1.18)



NOTE:

If wax or dust gets into the nozzle, remove wax or dust with a needle or small pin.