SECTION WW
WIPER & WASHER

CONTENTS

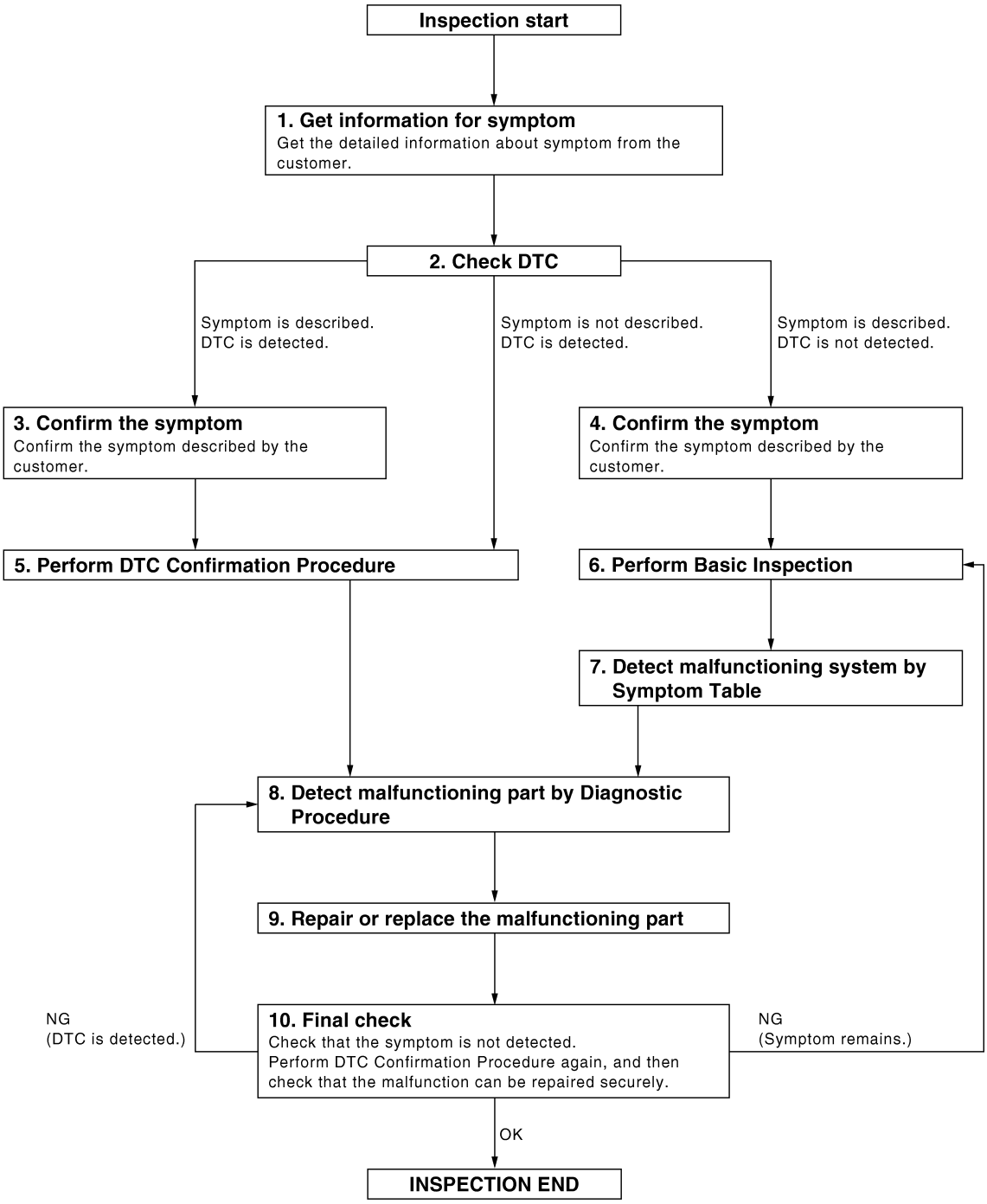
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000007253196

OVERALL SEQUENCE



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DETAILED FLOW

1. GET INFORMATION FOR SYMPTOM

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2

2. CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is displayed.
- Record DTC and freeze frame data (Print them out with CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Is any symptom described and any DTC detected?

Symptom is described, DTC is displayed>>GO TO 3
Symptom is described, DTC is not displayed>>GO TO 4
Symptom is not described, DTC is displayed>>GO TO 5

3. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in “DATA MONITOR” mode and check real time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5

4. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in “DATA MONITOR” mode and check real time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6

5. PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.
At this time, always connect CONSULT to the vehicle, and check diagnostic results in real time.
If two or more DTCs are detected, refer to BCS-64, "DTC Inspection Priority Chart" and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC Confirmation Procedure is not included in Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.
  If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC Confirmation Procedure.

Is DTC detected?

YES >> GO TO 8
NO >> Refer to GI-39, "Intermittent Incident".

6. PERFORM BASIC INSPECTION

Perform WW-3, "Work Flow".

Inspection End>>GO TO 7

7. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

Detect malfunctioning system according to WW-70, "Diagnosis Procedure" based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

>> GO TO 8

8. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure described is based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

Is malfunctioning part detected?

YES >> GO TO 9

NO >> Check voltage of related BCM terminals using CONSULT.

9. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is displayed, erase it.

>> GO TO 10

10. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction has been repaired securely.

When symptom was described from the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES (DTC is detected)>>GO TO 8

YES (Symptom remains)>>GO TO 6

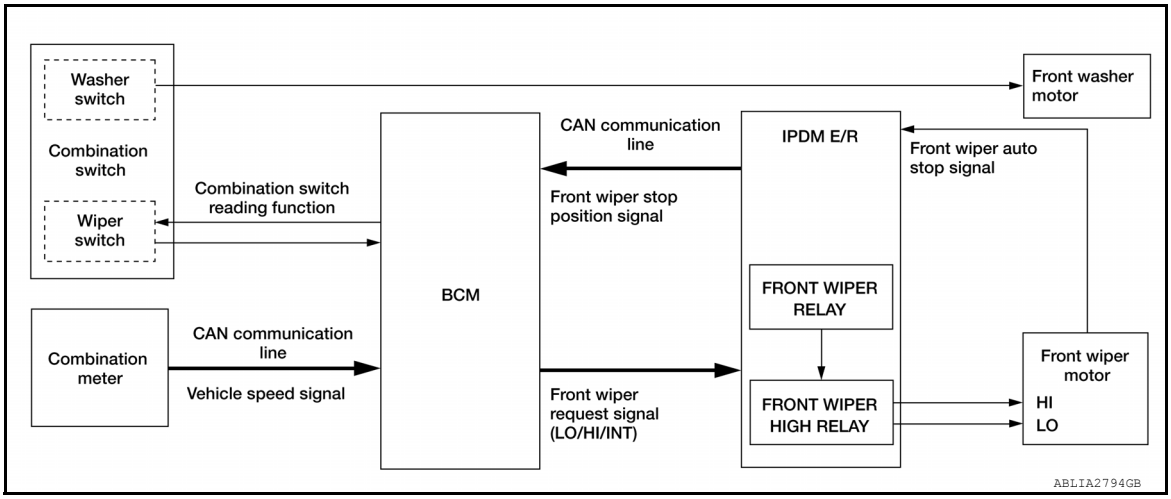
NO >> Inspection End.

SYSTEM DESCRIPTION

FRONT WIPER AND WASHER SYSTEM

System Diagram

INFOID:0000000007253197



System Description

INFOID:0000000007253198

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.

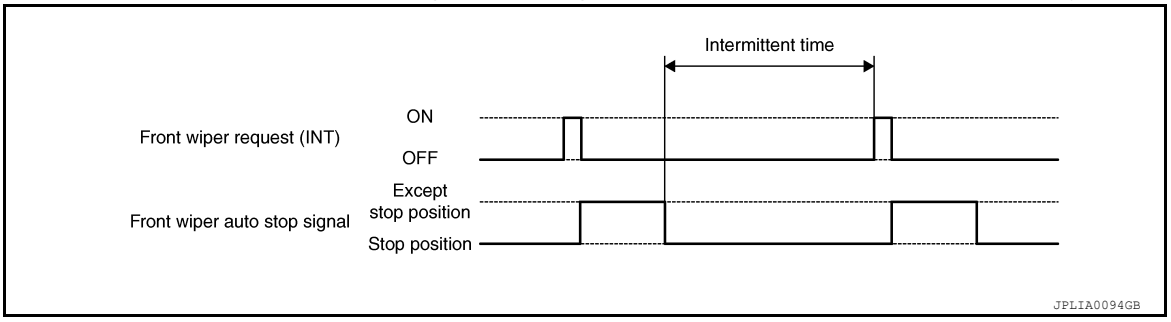
Front wiper HI operating condition
- Ignition switch ON
- Front wiper switch HI
- IPDM E/R turns ON the integrated front wiper relay and the front wiper high relay according to the front wiper request signal (HI).

FRONT WIPER INT OPERATION

- BCM transmits the front wiper request signal (INT) to IPDM E/R with CAN communication depending on the front wiper INT operating condition and intermittent operation delay interval according to the wiper intermittent dial position.

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

- IPDM E/R turns ON the integrated front wiper relay 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 auto stop signal received from IPDM E/R with CAN communication.
- BCM transmits the front wiper request signal (INT) again after the intermittent operation delay interval.



NOTE:
Front wiper intermittent operation can be set to the operation with vehicle speed by CONSULT. Refer to BCS-23, "WIPER : CONSULT Function (BCM - WIPER)".

Front 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)
- Wiper intermittent dial position

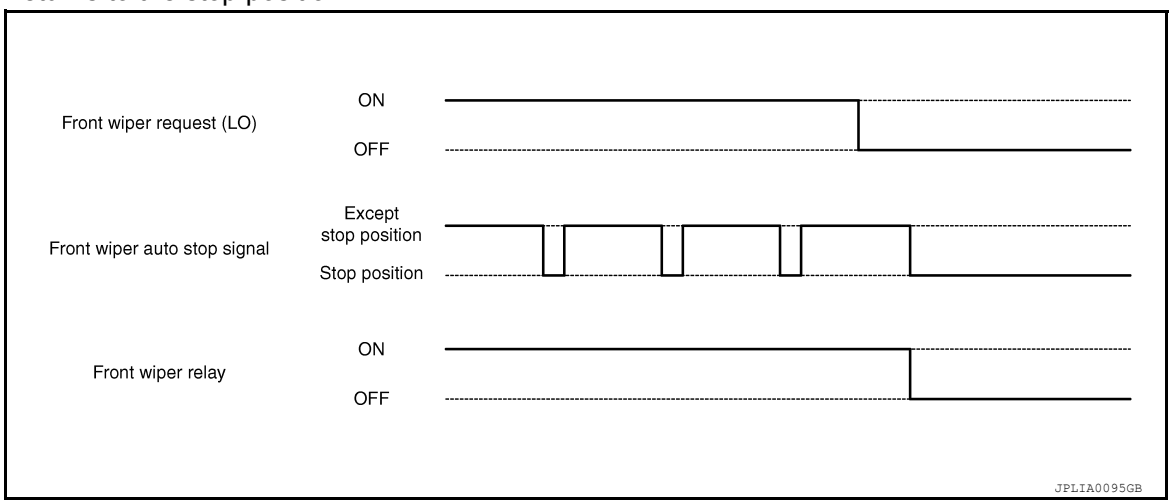
Wiper intermittent dial position	Intermittent operation interval	Intermittent operation delay Interval (s)			
		Vehicle speed			
		Vehicle stopped or less than 5 km/h (3.1 MPH)	5 km/h (3.1MPH) or more or less than 35km/h (21.7 MPH)	35 km/h (21.7 MPH) or more or less than 65km/h (40.4 MPH)*	65 km/h (40.4MPH) 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

*: When without vehicle speed setting

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 2 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)

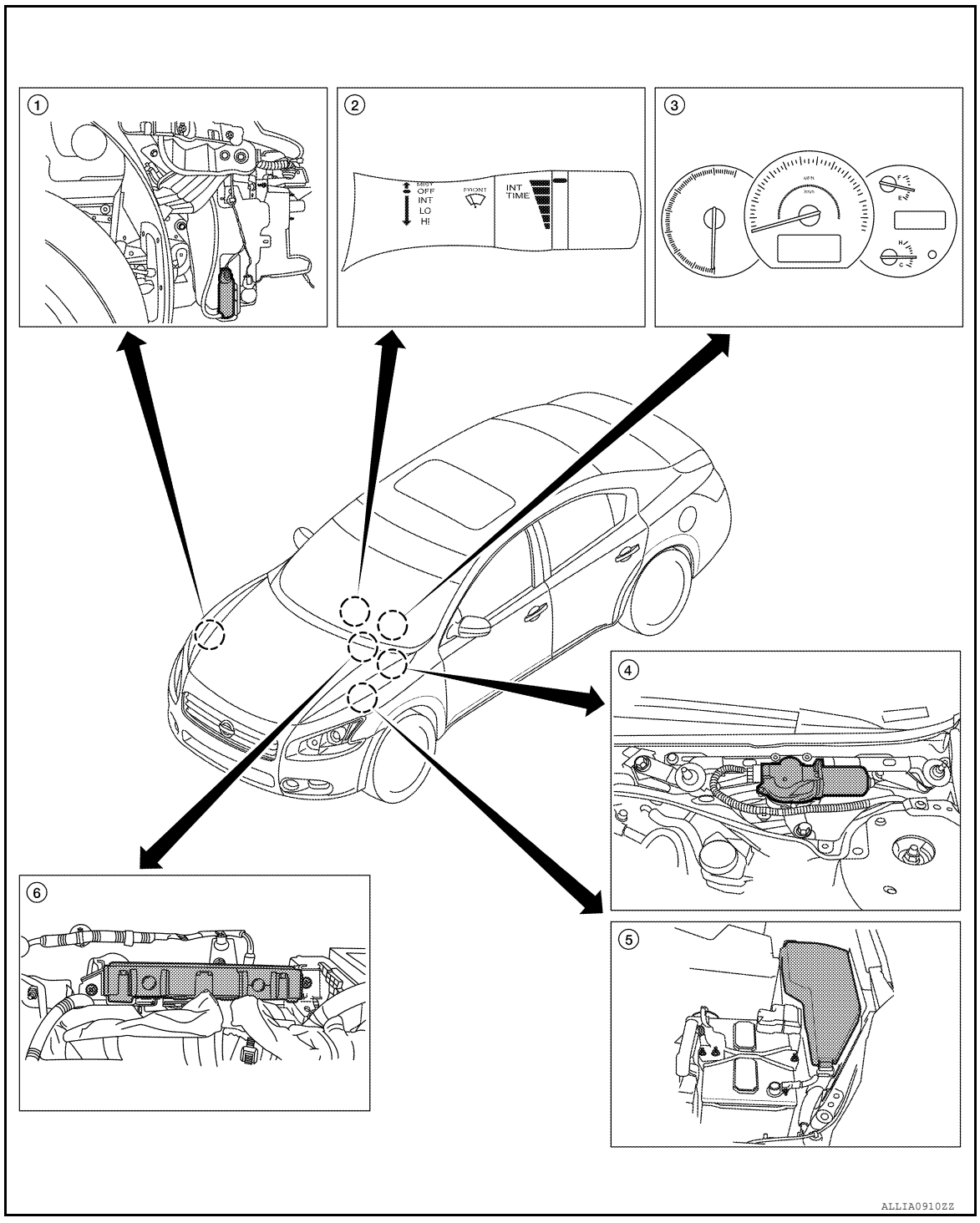
- IPDM E/R turns ON the integrated front wiper relay according to the front wiper request signal (LO).
- The front washer motor is grounded through the combination switch when the front washer switch is ON.

FRONT WIPER FAIL−SAFE OPERATION

When the front wiper auto stop circuit is malfunctioning, IPDM E/R performs the fail-safe function. Refer to PCS-25, "Fail Safe".

Component Parts Location

INFOID:0000000007253199



1. Front washer motor E226 (view with front bumper cover removed)
2. Combination switch (wiper and washer switch) M28
3. Combination meter M24
4. Front wiper motor E25
5. IPDM E/R E17, E18, E200
6. BCM M16, M17, M18, M19 (view with instrument panel removed)

Component Description

INFOID:0000000007253200

Part	Description
BCM	• Judges the switch status by the combination switch reading function. • Requests (with CAN communication) the front wiper relay and the front wiper high relay ON to IPDM E/R.
IPDM E/R	• Controls the integrated relay according to the request (with CAN communication) from BCM. • Performs the auto stop control of the front wiper.
Combination switch (Wiper and washer switch)	Refer to WW-6, "System Description".
Combination meter	Transmits the vehicle speed signal to BCM with CAN communication.
Front wiper motor	• Drives windshield wipers in HI or LO mode. • Sends wiper stop signal to IPDM E/R.
Front washer motor	Pumps windshield washer fluid to windshield in wash mode.

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

INFOID:0000000007804461

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

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

SYSTEM APPLICATION
BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×			
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×	×		
Intelligent Key system	INTELLIGENT KEY			×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×	×		
Trunk open	TRUNK			×	×			
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×	×			
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000007804462

DATA MONITOR

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

ACTIVE TEST

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

WORK SUPPORT

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

* : Initial setting

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:0000000007804463

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
- Front wiper (LO, HI)
- Parking lamps
- License plate lamps
- Tail lamps
- Front fog lamps (if equipped)
- Headlamps (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fans

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 front door switch LH 10 times. Then turn the ignition switch OFF.
   CAUTION:
   Close front door RH.
4. Turn the ignition switch ON within 10 seconds. After that 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. Refer to DLK-64, "Component Function Check".**
- **Do not start the engine.**

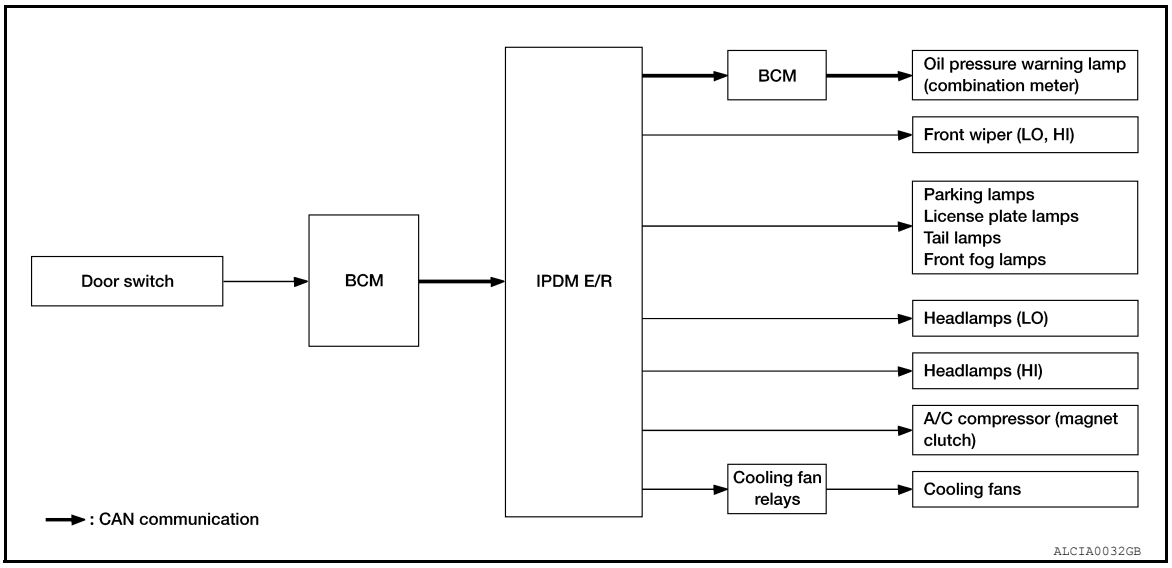
Inspection in Auto Active Test Mode

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	Front wiper	LO for 5 seconds → HI for 5 seconds
3	• Parking lamps • License plate lamps • Tail lamps • Front fog lamps (if equipped)	10 seconds
4	Headlamps	LO ⇔ HI 5 times
5	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
6*	Cooling fans	MID for 5 seconds → HI for 5 seconds

*: Outputs duty ratio of 50% for 5 seconds → duty ratio of 100% for 5 seconds on the cooling fan control module.

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
Any of the following components do not operate • Parking lamps • License plate lamps • Tail lamps • Front fog lamps (if equipped) • Headlamp (HI, LO) • Front wiper	Perform auto active test. Does the applicable system operate?	YES	BCM signal input circuit
		NO	• Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	YES	• Combination meter signal input circuit • CAN communication signal between combination meter 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

Symptom	Inspection contents		Possible cause
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 • Harness or connector between cooling fan and cooling fan relays • Cooling fan relays • Harness or connector between IPDM E/R and cooling fan relays • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:0000000007804464

APPLICATION ITEM

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

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is diplayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to PCS-27, "DTC Index".

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [1/2/3/4]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line

Monitor Item [Unit]	Main Signals	Description
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INHI RLY [Off/ ST /INHI]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line
OIL P SW [Open/Close]		Indicates condition of oil pressure switch
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [On].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/Tail/Off].

CAN DIAG SUPPORT MNTR

Refer to LAN-12, "CAN Diagnostic Support Monitor".

DTC/CIRCUIT DIAGNOSIS

WIPER AND WASHER FUSE

Description

INFOID:0000000007253205

Fuse list

Unit	Location	Fuse No.	Capacity
Front wiper motor	IPDM E/R	55	30 A
Front washer motor	IPDM E/R	38	10 A

Diagnosis Procedure

INFOID:0000000007253206

1. CHECK FUSES

Check that the following fuses are not blown.

Unit	Location	Fuse No.	Capacity
Front wiper motor	IPDM E/R	55	30 A
Front washer motor	IPDM E/R	38	10 A

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.
NO >> The fuse is normal.

FRONT WIPER MOTOR LO CIRCUIT

Component Function Check

INFOID:0000000007253207

1. CHECK FRONT WIPER LO OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the front wiper operates at the LO operation.

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

LO : Front wiper LO operation
OFF : Stop the front wiper.

Does the front wiper operate?

YES >> Front wiper motor LO circuit is normal.
NO >> Refer to WW-18, "Diagnosis Procedure".

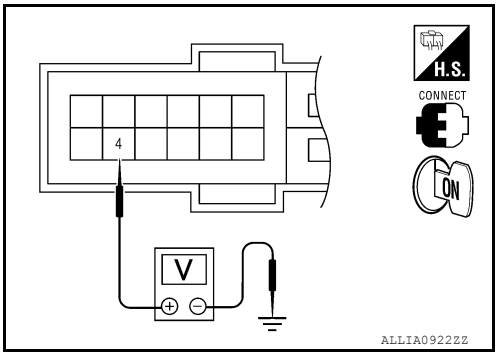
Diagnosis Procedure

INFOID:0000000007253208

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1. CHECK FRONT WIPER MOTOR (LO) OUTPUT VOLTAGE

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



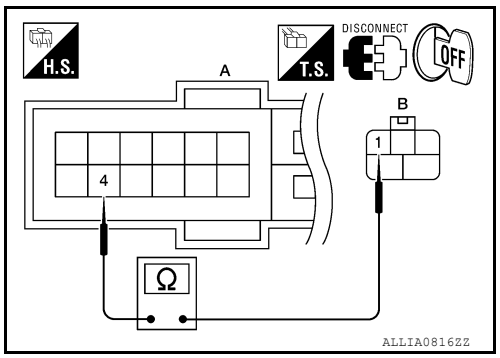
Terminals			Test item	Voltage (V) (Approx.)
(+)		(-)		
IPDM E/R		Ground	FRONT WIPER	
Connector	Terminal			
E18	4		LO	Battery voltage
			OFF	0V

Is the measurement normal?

YES >> GO TO 2
NO >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".

2. CHECK FRONT WIPER MOTOR (LO) OPEN CIRCUIT

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



IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E18 (A)	4	E25 (B)	1	Yes

Does continuity exist?

YES >> Replace front wiper motor. Refer to WW-79, "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation".

NO >> Repair or replace harness.

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:0000000007253209

1. CHECK FRONT WIPER HI OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the front wiper operates at the HI operation.

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

HI : Front wiper HI operation
OFF : Stop the front wiper.

Does the front wiper operate?

YES >> The front wiper motor HI circuit is normal.
NO >> Refer to WW-20, "Diagnosis Procedure".

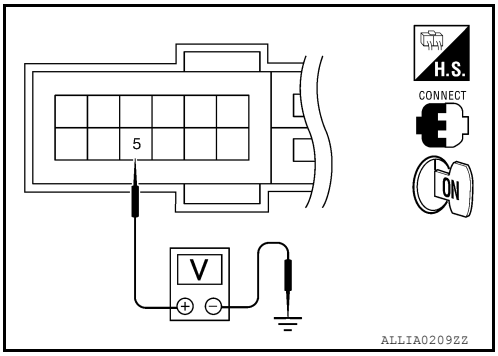
Diagnosis Procedure

INFOID:0000000007253210

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1. CHECK FRONT WIPER MOTOR (HI) OUTPUT VOLTAGE

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



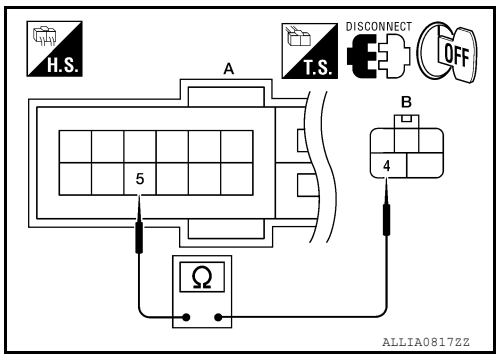
Terminals			Test item	Voltage (V) (Approx.)
(+)		(-)		
IPDM E/R		Ground	FRONT WIPER	
Connector	Terminal			
E18	5		HI	Battery voltage
			OFF	0V

Is the measurement normal?

YES >> GO TO 2
NO >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".

2. CHECK FRONT WIPER MOTOR (HI) OPEN CIRCUIT

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



IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E18 (A)	5	E25 (B)	4	Yes

Does continuity exist?

YES >> Replace front wiper motor. Refer to WW-79, "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation".

NO >> Repair or replace harness.

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:0000000007253211

1. CHECK FRONT WIPER (AUTO STOP) OPERATION

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

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

Is the status of item normal?

YES >> Auto stop signal circuit is normal.
NO >> Refer to WW-22, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000007253212

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1. CHECK IPDM E/R OUTPUT VOLTAGE

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

Terminals			Voltage (V) (Approx.)
(+)		(-)	
Front wiper motor		Ground	
Connector	Terminal		
E25	5		Battery voltage

Is the measurement normal?

YES >> Replace front wiper motor. Refer to WW-79, "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation".
NO >> GO TO 2

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

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector E18.
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	
E18	16	E25	5	Yes

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E18	16		No

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".
NO >> Repair or replace harness.

FRONT WIPER MOTOR GROUND CIRCUIT

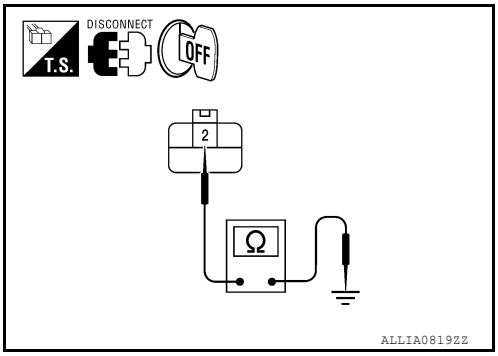
Diagnosis Procedure

INFOID:0000000007253213

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1.CHECK FRONT WIPER MOTOR (GND) OPEN CIRCUIT

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



Front wiper motor		Ground	Continuity
Connector	Terminal		
E25	2		Yes

Does continuity exist?

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

WASHER SWITCH

Description

INFOID:0000000007253214

- Washer switch is integrated with combination switch (wiper and washer switch).
- Combination switch (wiper and washer switch) supplies ground and fuse # 38 from the IPEM E/R supplies power for the front washer motor to operate.

Component Inspection

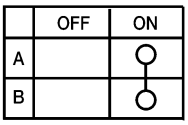
INFOID:0000000007253215

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1. CHECK WASHER SWITCH

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

A: Terminal 1
B: Terminal 6



ALLIA0546GB

Combination switch (wiper and washer switch)		Condition	Continuity
Terminal			
1	6	Washer switch ON	Yes
		Washer switch OFF	No

Is the measurement normal?

YES >> Washer switch is normal.
NO >> Replace combination switch (wiper and washer switch). Refer to WW-85, "Removal and Installation".

WASHER MOTOR CIRCUIT

Diagnosis Procedure

INFOID:0000000007253216

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1. CHECK FRONT WASHER MOTOR FUSE

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

Unit	Location	Fuse No.	Capacity
Front washer motor	IPDM E/R	38	10A

Is the fuse blown?

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

2. CHECK FRONT WASHER MOTOR POWER SUPPLY

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

Terminals			Voltage (Approx.)
(+)		(-)	
Front washer motor		Ground	
Connector	Terminal		
E226	1		Battery voltage

Is the measurement value normal?

YES >> GO TO 3.
NO >> GO TO 5.

3. CHECK FRONT WASHER MOTOR CIRCUIT CONTINUITY

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

Combination switch (wiper and washer switch)		Front washer motor		Continuity
Connector	Terminal	Connector	Terminal	
M28	1	E226	2	Yes

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

Combination switch (wiper and washer switch)		Ground	Continuity
Connector	Terminal		
M28	1		No

Is the measurement normal?

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

4. CHECK WIPER AND WASHER SWITCH GROUND CIRCUIT

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

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

Does continuity exist?

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

5. CHECK FRONT WASHER MOTOR OPEN CIRCUIT

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

IPDM E/R		Front washer motor		Continuity
Connector	Terminal	Connector	Terminal	
E200	88	E226	1	Yes

Does continuity exist?

YES >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".
NO >> Repair or replace harness.

6. CHECK WIPER AND WASHER SWITCH

Check wiper and washer switch. Refer to WW-25, "Component Inspection".

Is the inspection result normal?

YES >> Replace front washer motor. Refer to WW-82, "FRONT WASHER PUMP : Removal and Installation".
NO >> Replace wiper and washer switch. Refer to WW-85, "Removal and Installation".

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000007805663

NOTE:
The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.
- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs
- Check Intelligent Key relative signal strength
- Confirm vehicle Intelligent Key antenna signal strength

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
FR WIPER HI	Other than front wiper switch HI	OFF
	Front wiper switch HI	ON
FR WIPER LOW	Other than front wiper switch LO	OFF
	Front wiper switch LO	ON
FR WASHER SW	Front washer switch OFF	OFF
	Front washer switch ON	ON
FR WIPER INT	Other than front wiper switch INT	OFF
	Front wiper switch INT	ON
FR WIPER STOP	Front wiper is not in STOP position	OFF
	Front wiper is in STOP position	ON
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	Wiper intermittent dial position
TURN SIGNAL R	Other than turn signal switch RH	OFF
	Turn signal switch RH	ON
TURN SIGNAL L	Other than turn signal switch LH	OFF
	Turn signal switch LH	ON
TAIL LAMP SW	Other than lighting switch 1ST and 2ND	OFF
	Lighting switch 1ST or 2ND	ON
HI BEAM SW	Other than lighting switch HI	OFF
	Lighting switch HI	ON
HEAD LAMP SW 1	Other than lighting switch 2ND	OFF
	Lighting switch 2ND	ON
HEAD LAMP SW 2	Other than lighting switch 2ND	OFF
	Lighting switch 2ND	ON
PASSING SW	Other than lighting switch PASS	OFF
	Lighting switch PASS	ON
AUTO LIGHT SW	Other than lighting switch AUTO	OFF
	Lighting switch AUTO	ON
FR FOG SW	Front fog lamp switch OFF	OFF
	Front fog lamp switch ON	ON
DOOR SW-DR	Driver door closed	OFF
	Driver door opened	ON

Monitor Item	Condition	Value/Status
DOOR SW-AS	Passenger door closed	OFF
	Passenger door opened	ON
DOOR SW-RR	Rear door RH closed	OFF
	Rear door RH opened	ON
DOOR SW-RL	Rear door LH closed	OFF
	Rear door LH opened	ON
CDL LOCK SW	Other than power door lock switch LOCK	OFF
	Power door lock switch LOCK	ON
CDL UNLOCK SW	Other than power door lock switch UNLOCK	OFF
	Power door lock switch UNLOCK	ON
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	OFF
	Driver door key cylinder LOCK position	ON
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	OFF
	Driver door key cylinder UNLOCK position	ON
HAZARD SW	When hazard switch is not pressed	OFF
	When hazard switch is pressed	ON
REAR DEF SW	When rear window defogger switch is pressed	ON
TR CANCEL SW	Trunk lid opener cancel switch OFF	OFF
	Trunk lid opener cancel switch ON	ON
TR/BD OPEN SW	Trunk lid opener switch OFF	OFF
	While the trunk lid opener switch is turned ON	ON
TRNK/HAT MNTR	Trunk lid closed	OFF
	Trunk lid opened	ON
RKE-LOCK	When LOCK button of Intelligent Key is not pressed	OFF
	When LOCK button of Intelligent Key is pressed	ON
RKE-UNLOCK	When UNLOCK button of Intelligent Key is not pressed	OFF
	When UNLOCK button of Intelligent Key is pressed	ON
RKE-TR/BD	When TRUNK OPEN button of Intelligent Key is not pressed	OFF
	When TRUNK OPEN button of Intelligent Key is pressed	ON
RKE-PANIC	When PANIC button of Intelligent Key is not pressed	OFF
	When PANIC button of Intelligent Key is pressed	ON
RKE-P/W OPEN	When UNLOCK button of Intelligent Key is not pressed and held	OFF
	When UNLOCK button of Intelligent Key is pressed and held	ON
RKE-MODE CHG	When LOCK/UNLOCK button of Intelligent Key is not pressed and held simultaneously	OFF
	When LOCK/UNLOCK button of Intelligent Key is pressed and held simultaneously	ON
OPTICAL SENSOR	When outside of the vehicle is bright	Close to 5 V
	When outside of the vehicle is dark	Close to 0 V
REQ SW -DR	When front door request switch is not pressed (driver side)	OFF
	When front door request switch is pressed (driver side)	ON
REQ SW -AS	When front door request switch is not pressed (passenger side)	OFF
	When front door request switch is pressed (passenger side)	ON
REQ SW -RL	When rear door request switch is not pressed (driver side)	OFF
	When rear door request switch is pressed (driver side)	ON

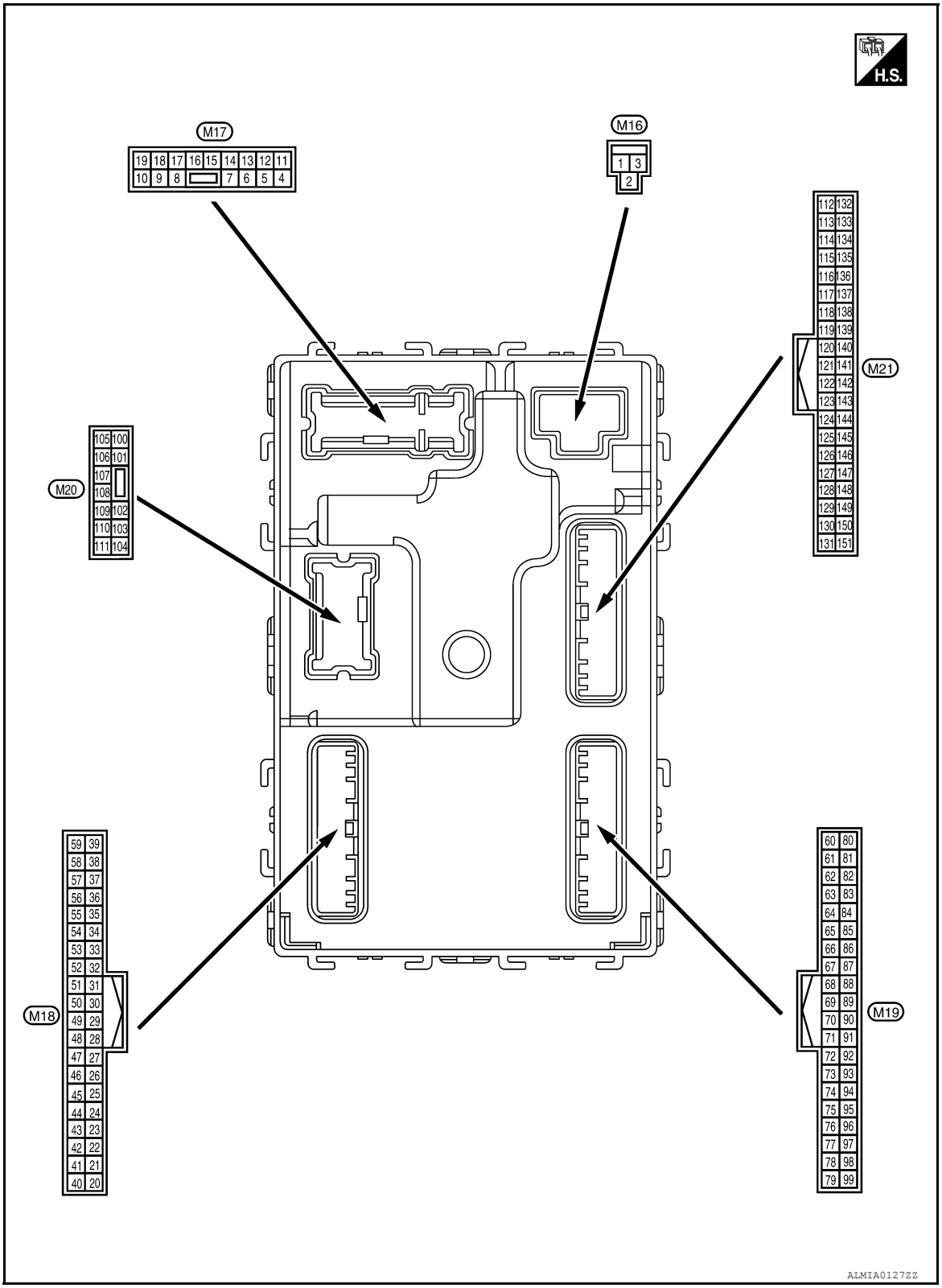
Monitor Item	Condition	Value/Status
REQ SW -RR	When rear door request switch is not pressed (passenger side)	OFF
	When rear door request switch is pressed (passenger side)	ON
REQ SW -BD/TR	When trunk request switch is not pressed	OFF
	When trunk request switch is pressed	ON
PUSH SW	When engine switch (push switch) is not pressed	OFF
	When engine switch (push switch) is pressed	ON
IGN RLY 2 -F/B	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
ACC RLY -F/B	Ignition switch OFF	OFF
	Ignition switch ACC or ON	ON
BRAKE SW 1	When the brake pedal is not depressed	ON
	When the brake pedal is depressed	OFF
DETE/CANCL SW	When selector lever is in P position	OFF
	When selector lever is in any position other than P	ON
SFT PN/N SW	When selector lever is in any position other than P or N	OFF
	When selector lever is in P or N position	ON
UNLK SEN -DR	Driver door UNLOCK status	OFF
	Driver door LOCK status	ON
PUSH SW -IPDM	When engine switch (push switch) is not pressed	OFF
	When engine switch (push switch) is pressed	ON
IGN RLY1 -F/B	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
DETE SW -IPDM	When selector lever is in P position	OFF
	When selector lever is in any position other than P	ON
SFT PN -IPDM	When selector lever is in any position other than P or N	OFF
	When selector lever is in P or N position	ON
SFT P -MET	When selector lever is in any position other than P	OFF
	When selector lever is in P position	ON
SFT N -MET	When selector lever is in any position other than N	OFF
	When selector lever is in N position	ON
ENGINE STATE	Engine stopped	STOP
	While the engine stalls	STALL
	At engine cranking	CRANK
	Engine running	RUN
VEH SPEED 1	While driving	Equivalent to speedometer reading
VEH SPEED 2	While driving	Equivalent to speedometer reading
DOOR STAT-DR	Driver door LOCK status	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door UNLOCK status	UNLK
DOOR STAT-AS	Passenger door LOCK status	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Passenger door UNLOCK status	UNLK
ID OK FLAG	Ignition switch ACC or ON	RESET
	Ignition switch OFF	SET

Monitor Item	Condition	Value/Status
PRMT ENG STRT	When the engine start is prohibited	RESET
	When the engine start is permitted	SET
KEY SW -SLOT	When Intelligent Key is not inserted into key slot	OFF
	When Intelligent Key is inserted into key slot	ON
RKE OPE COUN1	During the operation of Intelligent Key	Operation frequency of Intelligent Key
CONFRM ID ALL	The key ID that the key slot receives does not accord with any key ID registered to BCM.	YET
	The key ID that the key slot receives accords with any key ID registered to BCM.	DONE
CONFIRM ID4	The key ID that the key slot receives does not accord with the fourth key ID registered to BCM.	YET
	The key ID that the key slot receives accords with the fourth key ID registered to BCM.	DONE
CONFIRM ID3	The key ID that the key slot receives does not accord with the third key ID registered to BCM.	YET
	The key ID that the key slot receives accords with the third key ID registered to BCM.	DONE
CONFIRM ID2	The key ID that the key slot receives does not accord with the second key ID registered to BCM.	YET
	The key ID that the key slot receives accords with the second key ID registered to BCM.	DONE
CONFIRM ID1	The key ID that the key slot receives does not accord with the first key ID registered to BCM.	YET
	The key ID that the key slot receives accords with the first key ID registered to BCM.	DONE
TP 4	The ID of fourth key is not registered to BCM	YET
	The ID of fourth key is registered to BCM	DONE
TP 3	The ID of third key is not registered to BCM	YET
	The ID of third key is registered to BCM	DONE
TP 2	The ID of second key is not registered to BCM	YET
	The ID of second key is registered to BCM	DONE
TP 1	The ID of first key is not registered to BCM	YET
	The ID of first key is registered to BCM	DONE
AIR PRESS FL	Ignition switch ON (only when the signal from the transmitter is received)	Air pressure of front LH tire
AIR PRESS FR	Ignition switch ON (only when the signal from the transmitter is received)	Air pressure of front RH tire
AIR PRESS RR	Ignition switch ON (only when the signal from the transmitter is received)	Air pressure of rear RH tire
AIR PRESS RL	Ignition switch ON (only when the signal from the transmitter is received)	Air pressure of rear LH tire
ID REGST FL1	When ID of front LH tire transmitter is registered	DONE
	When ID of front LH tire transmitter is not registered	YET
ID REGST FR1	When ID of front RH tire transmitter is registered	DONE
	When ID of front RH tire transmitter is not registered	YET
ID REGST RR1	When ID of rear RH tire transmitter is registered	DONE
	When ID of rear RH tire transmitter is not registered	YET
ID REGST RL1	When ID of rear LH tire transmitter is registered	DONE
	When ID of rear LH tire transmitter is not registered	YET

Monitor Item	Condition	Value/Status
WARNING LAMP	Tire pressure indicator OFF	OFF
	Tire pressure indicator ON	ON
BUZZER	Tire pressure warning alarm is not sounding	OFF
	Tire pressure warning alarm is sounding	ON

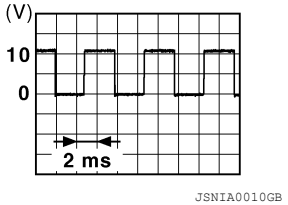
Terminal Layout

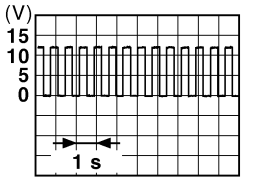
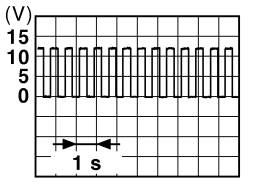
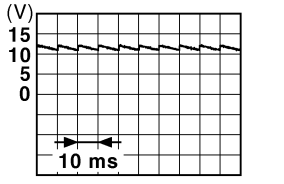
INFOID:0000000007805664

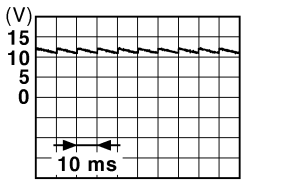
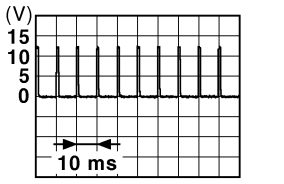
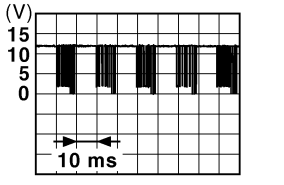


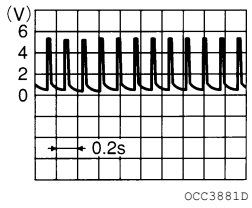
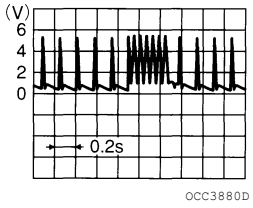
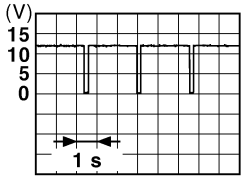
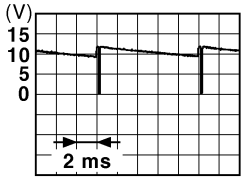
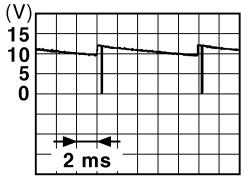
Physical Values

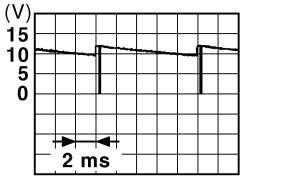
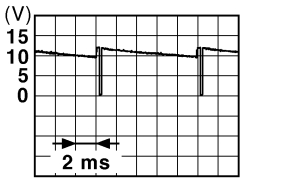
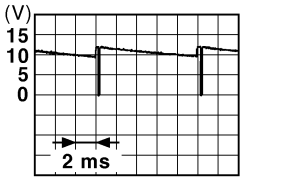
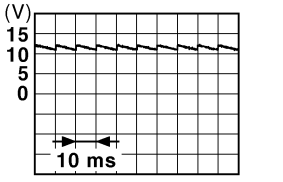
INFOID:0000000007805665

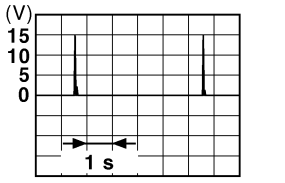
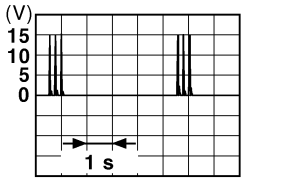
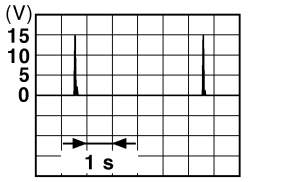
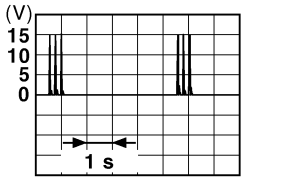
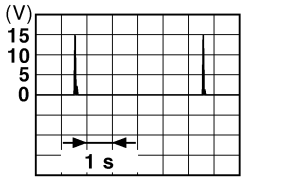
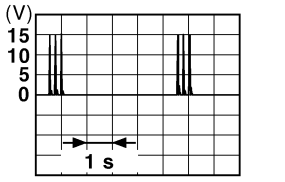
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
1 (W/B)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
2 (R/Y)	Ground	Battery power supply output	Output	Ignition switch OFF		Battery voltage
3 (L/W)	Ground	Ignition power supply output	Output	Ignition switch ON		Battery voltage
4 (P/W)	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time		0V
				Any other time after passing the interior room lamp battery saver operation time		Battery voltage
5 (G)	Ground	Front door RH UNLOCK	Output	Front door RH	UNLOCK (actuator is activated)	Battery voltage
					Other than UNLOCK (actuator is not activated)	0V
7 (R/W)	Ground	Step lamp	Output	Step lamp	ON	0V
					OFF	Battery voltage
8 (V)	Ground	All doors LOCK	Output	All doors	LOCK (actuator is activated)	Battery voltage
					Other than LOCK (actuator is not activated)	0V
9 (L)	Ground	Front door LH UNLOCK	Output	Front door LH	UNLOCK (actuator is activated)	Battery voltage
					Other than UNLOCK (actuator is not activated)	0V
10 (G)	Ground	Rear door RH and rear door LH UNLOCK	Output	Rear door RH and rear door LH	UNLOCK (actuator is activated)	Battery voltage
					Other than UNLOCK (actuator is not activated)	0V
11 (Y/R)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
13 (B)	Ground	Ground	—	Ignition switch ON		0V
14 (GR/W)	Ground	Engine switch (push switch) illumination ground	Input	Tail lamp	OFF	0V
					ON	**NOTE:** When the illumination brightening/dimming level is in the neutral position 
15 (Y/L)	Ground	ACC indicator lamp	Output	Ignition switch	OFF	Battery voltage
					ACC or ON	0V

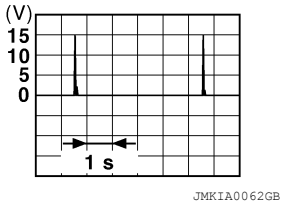
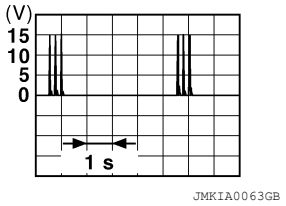
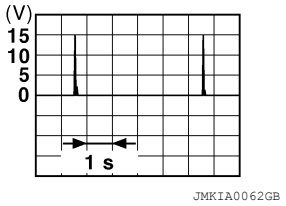
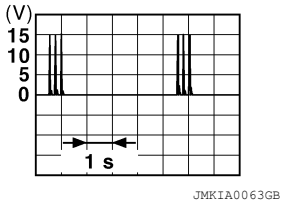
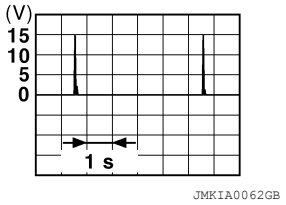
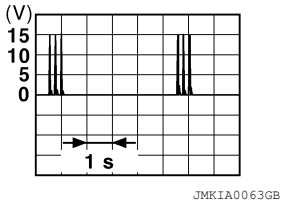
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
17 (G/B)	Ground	Turn signal (RH)	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 PKID0926E 6.5 V
18 (G/Y)	Ground	Turn signal (LH)	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 PKID0926E 6.5 V
19 (Y)	Ground	Room lamp timer control	Output	Interior room lamp	OFF	Battery voltage
					ON	0V
21 (P/B)	Ground	Optical sensor signal	Input	Ignition switch ON	When outside of the vehicle is bright	Close to 5V
					When outside of the vehicle is dark	Close to 0V
24 (R/W)	Ground	Stop lamp switch 1	Input	—		Battery voltage
26 (O/L)	Ground	Stop lamp switch 2	Input	Stop lamp switch	OFF (brake pedal is released)	0V
					ON (brake pedal is depressed)	Battery voltage
27 (O)	Ground	Front door lock assembly LH (unlock sensor)	Input	Front door LH	LOCK status	 JPMIA0011GB 11.8V
					UNLOCK status	0V
29 (Y)	Ground	Key slot switch	Input	When Intelligent Key is inserted into key slot		Battery voltage
				When Intelligent Key is not inserted into key slot		0V
31 (G)	Ground	Rear window defogger feedback signal	Input	Rear window defogger switch	OFF	0V
					ON	Battery voltage

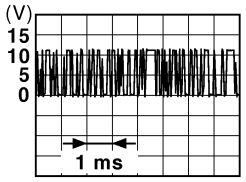
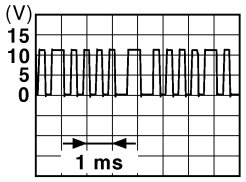
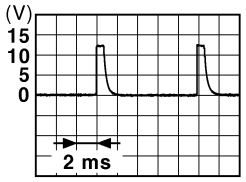
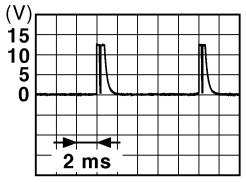
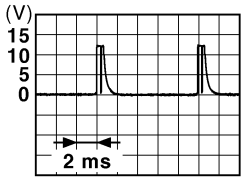
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
32 (R/B)	Ground	Front door RH switch	Input	Front door RH switch	OFF (when front door RH closes)	 JPMIA0011GB 11.8 V
					ON (when front door RH opens)	0V
37 (O)	Ground	Trunk lid opener cancel switch	Input	Trunk lid opener cancel switch	CANCEL	 JPMIA0012GB 1.1V
					ON	0V
38 (GR/ W)	Ground	Rear window defogger ON signal	Input	Rear window defogger switch	OFF	5V
					ON	0V
40 (Y/G)	Ground	Power window serial link	Input/ Output	Ignition switch ON		 JPMIA0013GB 10.2V
				Ignition switch OFF or ACC		0V
41 (W)	Ground	Engine switch (push switch) illumination	Output	Engine switch (push switch) illumination	ON	5.5V
					OFF	0V
42 (R)	Ground	LOCK indicator lamp	Output	LOCK indicator lamp	ON	0V
					OFF	Battery voltage
45 (P)	Ground	Receiver & sensor ground	Input	Ignition switch ON		0V
46 (V/W)	Ground	Receiver & sensor power supply output	Output	Ignition switch	OFF	0V
					ACC or ON	5.0V

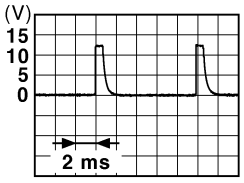
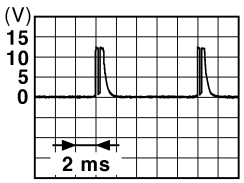
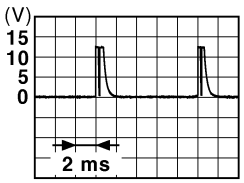
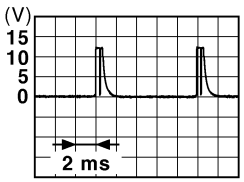
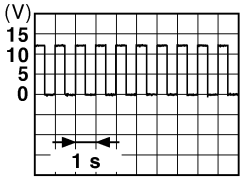
Terminal No. (Wire color) (+)	Terminal No. (Wire color) (-)	Description Signal name	Description Input/ Output	Condition		Value (Approx.)
47[1] (G/O)	Ground	Tire pressure receiver signal	Input/ Output	Ignition switch ON	Standby state	 OCC3881D
					When receiving the signal from the transmitter	 OCC3880D
48 (R/G)	Ground	Selector lever transmission range switch signal	Input	Selector lever	P or N position	12.0V
					Except P and N positions	0V
49 (L/O)	Ground	Security indicator signal	Output	Security indicator	ON	0V
					Blinking	 JPMIA0014GB 11.3V
					OFF	Battery voltage
50 (LG/ B)	Ground	Combination switch OUTPUT 5	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	0V
					Lighting switch 1ST	 JPMIA0031GB 10.7V
					Lighting switch high-beam	
					Lighting switch 2ND	
					Turn signal switch RH	
51 (L/W)	Ground	Combination switch OUTPUT 1	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0V
					Front wiper switch HI (Wiper intermittent dial 4)	 JPMIA0032GB 10.7V
					Any of the conditions 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	

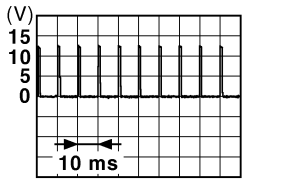
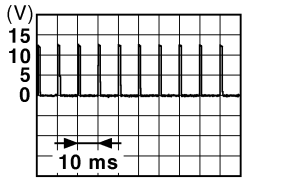
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
52 (G/B)	Ground	Combination switch OUTPUT 2	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0V
					Front washer switch ON (Wiper intermittent dial 4)	 JPMIA0033GB 10.7V
					Any of the conditions below with all switch OFF • Wiper intermittent dial 1 • WIper intermittent dial 5 • Wiper intermittent dial 6	
53 (LG/ R)	Ground	Combination switch OUTPUT 3	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	0V
					Front wiper switch INT	 JPMIA0034GB 10.7V
					Front wiper switch LO	
					Lighting switch AUTO	
54 (G/Y)	Ground	Combination switch OUTPUT 4	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	0V
					Front fog lamp switch ON	 JPMIA0035GB 10.7V
					Lighting switch 2ND	
					Lighting switch flash-to-pass	
					Turn signal switch LH	
57[1] (W)	Ground	Tire pressure warning check switch	Input	—		5V
58 (SB)	Ground	Front door LH switch	Input	Front door LH switch	OFF (front door LH CLOSE)	 JPMIA0011GB 11.8V
					ON (front door LH OPEN)	0V
59 (G/R)	Ground	Rear window defogger relay	Output	Rear window defogger	Active	Battery voltage
					Not activated	0V

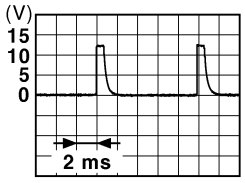
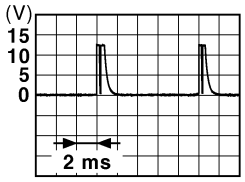
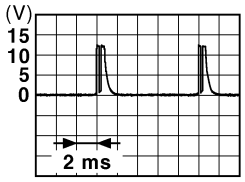
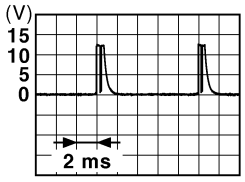
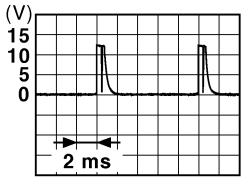
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
60 (B/R)	Ground	Front console antenna 2 (-)	Output	Ignition switch OFF	When Intelligent Key is in the passenger compartment	 JMKIA0062GB
					When Intelligent Key is not in the passenger compartment	 JMKIA0063GB
61 (W/R)	Ground	Center console antenna 2 (+)	Output	Ignition switch OFF	When Intelligent Key is in the passenger compartment	 JMKIA0062GB
					When Intelligent Key is not in the passenger compartment	 JMKIA0063GB
62 (V)	Ground	Front outside handle RH antenna (-)	Output	When the front door RH request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0062GB
					When Intelligent Key is not in the antenna detection area	 JMKIA0063GB

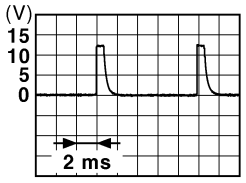
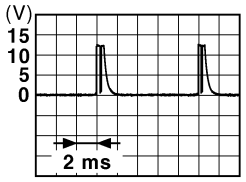
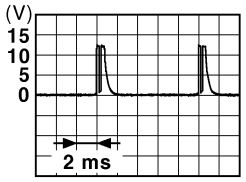
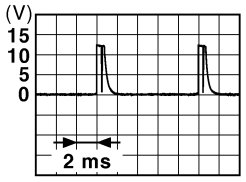
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
63 (P)	Ground	Front outside handle RH antenna (+)	Output	When the front door RH request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0062GB
					When Intelligent Key is not in the antenna detection area	 JMKIA0063GB
64 (V)	Ground	Front outside handle LH antenna (-)	Output	When the front door LH request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0062GB
					When Intelligent Key is not in the antenna detection area	 JMKIA0063GB
65 (P)	Ground	Front outside handle LH antenna (+)	Output	When the front door LH request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0062GB
					When Intelligent Key is not in the antenna detection area	 JMKIA0063GB

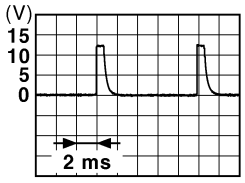
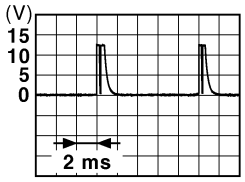
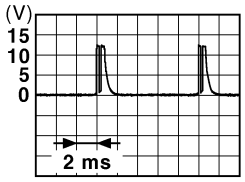
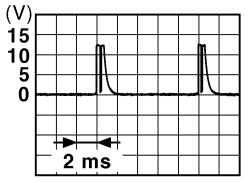
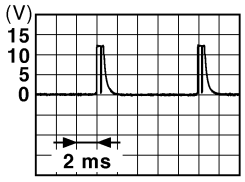
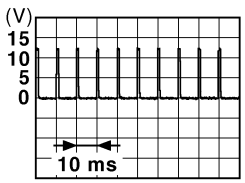
Terminal No. (Wire color) (+)	Terminal No. (Wire color) (-)	Description: Signal name	Description: Input/ Output	Condition		Value (Approx.)
68 (G/O)	Ground	NATS antenna amp (built in key slot)	Input/ Output	During waiting	Ignition switch is pressed while inserting the Intelligent Key into the key slot.	Just after pressing ignition switch. Pointer of tester should move.
69 (O)	Ground	NATS antenna amp (built in key slot)	Input/ Output	During waiting	Ignition switch is pressed while inserting the Intelligent Key into the key slot.	Just after pressing ignition switch. Pointer of tester should move.
70 (R/B)	Ground	Ignition relay-2 control	Output	Ignition switch	OFF or ACC	0V
					ON	Battery voltage
71 (L/O)	Ground	Remote keyless entry receiver signal	Input/ Output	During waiting		 JMKIA0064GB
				When operating either button on Intelligent Key		 JMKIA0065GB
75 (R/Y)	Ground	Combination switch INPUT 5	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0041GB 1.4V
					Front fog lamp switch ON (Wiper intermittent dial 4)	 JPMIA0037GB 1.3V
					Any of the conditions below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	 JPMIA0040GB 1.3V

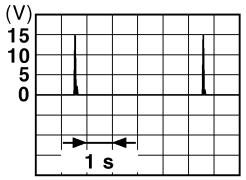
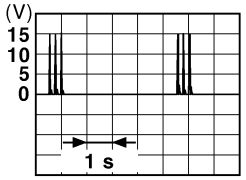
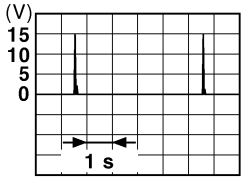
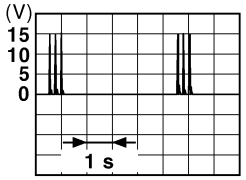
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
76 (R/G)	Ground	Combination switch INPUT 3	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0041GB 1.4V
					Lighting switch high-beam (Wiper intermittent dial 4)	 JPMIA0036GB 1.3V
					Lighting switch 2ND (Wiper intermittent dial 4)	 JPMIA0037GB 1.3V
					Any of the conditions below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	 JPMIA0040GB 1.3V
78 (P)	Ground	CAN-L	Input/ Output	—		—
79 (L)	Ground	CAN-H	Input/ Output	—		—
80 (R/L)	Ground	Key slot illumination	Output	Key slot illumination	OFF	0V
					Blinking	 JPMIA0015GB 6.5V
					ON	Battery voltage
81 (LG)	Ground	ON indicator lamp	Output	Ignition switch	OFF or ACC	0V
					ON	Battery voltage

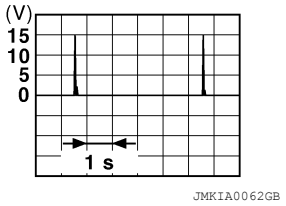
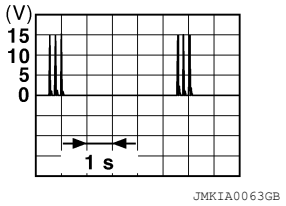
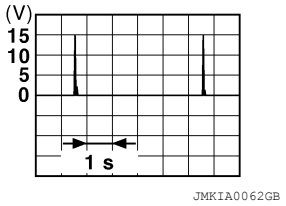
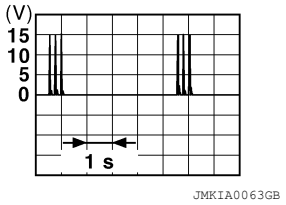
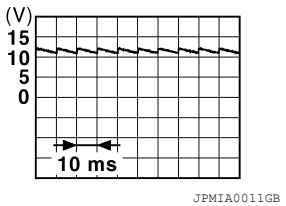
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
83 (L)	Ground	ACC relay control	Output	Ignition switch	OFF	0V
					ACC or ON	Battery voltage
84 (Y/R)	Ground	CVT shift selector	Output	—		Battery voltage
87 (G/B)	Ground	Selector lever P position switch	Input	Selector lever	P position	0V
					Any position other than P	Battery voltage
88 (R)	Ground	Front door RH request switch	Input	Front door RH request switch	ON (pressed)	0V
					OFF (not pressed)	 JPMIA0016GB 1.0V
89 (R)	Ground	Front door LH request switch	Input	Front door LH request switch	ON (pressed)	0V
					OFF (not pressed)	 JPMIA0016GB 1.0V
90 (Y)	Ground	Blower fan motor relay control	Output	Ignition switch	OFF or ACC	0V
					ON	Battery voltage
91 (L/R)	Ground	Remote keyless entry receiver power supply	Output	Ignition switch OFF		Battery voltage

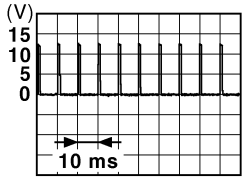
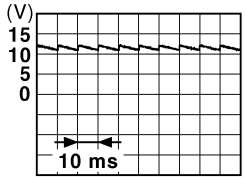
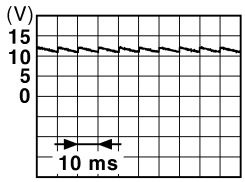
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
95 (R/W)	Ground	Combination switch INPUT 1	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	 JPMIA0041GB 1.4V
					Turn signal switch LH	 JPMIA0037GB 1.3V
					Turn signal switch RH	 JPMIA0036GB 1.3V
					Front wiper switch LO	 JPMIA0038GB 1.3V
					Front washer switch ON	 JPMIA0039GB 1.3V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
96 (P/B)	Ground	Combination switch INPUT 4	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0041GB 1.4V
					Lighting switch AUTO (Wiper intermittent dial 4)	 JPMIA0038GB 1.3V
					Lighting switch 1ST (Wiper intermittent dial 4)	 JPMIA0036GB 1.3V
					Any of the conditions below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	 JPMIA0039GB 1.3V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
97 (R/B)	Ground	Combination switch INPUT 2	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	 JPMIA0041GB 1.4V
					Lighting switch flash-to-pass	 JPMIA0037GB 1.3V
					Lighting switch 2ND	 JPMIA0036GB 1.3V
					Front wiper switch INT	 JPMIA0038GB 1.3V
					Front wiper switch HI	 JPMIA0040GB 1.3V
98 (G/O)	Ground	Hazard switch	Input	Hazard switch	Pressed	0 V
					Not pressed	 JPMIA0012GB 1.1V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
103 (V)	Ground	Trunk lid opening.	Output	Trunk lid	Open (trunk lid opener actuator is activated)	Battery voltage
					Close (trunk lid opener actuator is not activated)	0V
110 (V/W)	Ground	Trunk room lamp	Output	Trunk room lamp	ON	0V
					OFF	Battery voltage
114 (B)	Ground	Trunk room antenna 1 (-)	Output	Ignition switch OFF	When Intelligent Key is in the passenger compartment	 JMKIA0062GB
					When Intelligent Key is not in the passenger compartment	 JMKIA0063GB
115 (W)	Ground	Trunk room antenna 1 (+)	Output	Ignition switch OFF	When Intelligent Key is in the passenger compartment	 JMKIA0062GB
					When Intelligent Key is not in the passenger compartment	 JMKIA0063GB

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
118 (L/O)	Ground	Rear bumper antenna (-)	Output	When the trunk lid request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0062GB
					When Intelligent Key is not in the antenna detection area	 JMKIA0063GB
119 (BR/ W)	Ground	Rear bumper antenna (+)	Output	When the trunk lid request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0062GB
					When Intelligent Key is not in the antenna detection area	 JMKIA0063GB
127 (BR/ W)	Ground	Ignition relay (IPDM E/R) control	Output	Ignition switch	OFF or ACC	Battery voltage
					ON	0V
130 (W)	Ground	Trunk room lamp switch	Input	Trunk room lamp switch	OFF (trunk is closed)	 JPMIA0011GB 11.8V
					ON (trunk is open)	0V
132 (R)	Ground	Starter motor relay control	Output	Ignition switch ON	When selector lever is in P or N position and the brake is depressed	Battery voltage
					When selector lever is in P or N position and the brake is not depressed	0V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
140 (BR)	Ground	Engine switch (push switch)	Input	Engine switch (push switch)	Pressed	0V
					Not pressed	Battery voltage
141 (BR)	Ground	Trunk request switch	Input	Trunk request switch	ON (pressed)	0V
					OFF (not pressed)	 JPMIA0016GB 1.0V
144 (GR)	Ground	Request switch buzzer	Output	Request switch buzzer	Sounding	0V
					Not sounding	Battery voltage
147 (L/R)	Ground	Trunk lid opener switch	Input	Trunk lid opener switch	Pressed	0V
					Not pressed	Battery voltage
148 (R/W)	Ground	Rear door RH switch	Input	Rear door RH switch	OFF (when rear door RH closes)	 JPMIA0011GB 11.8V
					ON (when rear door RH opens)	0V
149 (R/B)	Ground	Rear door LH switch	Input	Rear door LH switch	OFF (when rear door LH closes)	 JPMIA0011GB 11.8V
					ON (when rear door LH opens)	0V

1 : With low tire pressure monitoring system

Fail Safe

INFOID:0000000007805666

Display contents of CONSULT	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2191: DIFFERENCE OF KEY	Inhibit engine cranking	Erase DTC
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI-SCANNING	Inhibit engine cranking	Erase DTC

Display contents of CONSULT	Fail-safe	Cancellation
B2560: STARTER CONT RELAY	Inhibit engine cranking	500 ms after the following CAN signal communication status has become consistent • Starter control relay signal • Starter relay status signal
B2562: LO VOLTAGE	Inhibit engine cranking	100 ms after the power supply voltage increases to more than 8.8 V
B2608: STARTER RELAY	Inhibit engine cranking	500 ms after the following signal communication status becomes consistent • Starter motor relay control signal • Starter relay status signal (CAN)
B260A: IGNITION RELAY	Inhibit engine cranking	500 ms after the following conditions are fulfilled • IGN relay (IPDM E/R) control signal: OFF (Battery voltage) • Ignition ON signal (CAN to IPDM E/R): OFF (Request signal) • Ignition ON signal (CAN from IPDM E/R): OFF (Condition signal)
B260F: ENG STATE SIG LOST	Maintains the power supply position attained at the time of DTC detection	When any of the following conditions is fulfilled • Power position changes to ACC • Receives engine status signal (CAN)
B2617: STARTER RELAY CIRC	Inhibit engine cranking	1 second after the starter motor relay control inside BCM becomes normal
B2618: BCM	Inhibit engine cranking	1 second after the ignition relay (IPDM E/R) control inside BCM becomes normal
B26E1: ENG STATE NO RECIV	Inhibit engine cranking	When any of the following conditions are fulfilled • Power position changes to ACC • Receives engine status signal (CAN)

DTC Inspection Priority Chart

INFOID:0000000007805667

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	• B2562: LO VOLTAGE
2	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
3	• B2190: NATS ANTENNA AMP • B2191: DIFFERENCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM
4	• B2553: IGNITION RELAY • B2555: STOP LAMP • B2556: PUSH-BTN IGN SW • B2557: VEHICLE SPEED • B2560: STARTER CONT RELAY • B2601: SHIFT POSITION • B2602: SHIFT POSITION • B2603: SHIFT POSI STATUS • B2604: PNP SWITCH • B2605: PNP SWITCH • B2608: STARTER RELAY • B260A: IGNITION RELAY • B260F: ENG STATE SIG LOST • B2614: ACC RELAY CIRC • B2615: BLOWER RELAY CIRC • B2616: IGN RELAY CIRC • B2617: STARTER RELAY CIRC • B2618: BCM • B261A: PUSH-BTN IGN SW • B26E1: ENG STATE NO RECIV • C1729: VHCL SPEED SIG ERR • U0415: VEHICLE SPEED SIG

Priority	DTC
5	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1712: [CHECKSUM ERR] FL • C1713: [CHECKSUM ERR] FR • C1714: [CHECKSUM ERR] RR • C1715: [CHECKSUM ERR] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1720: [CODE ERR] FL • C1721: [CODE ERR] FR • C1722: [CODE ERR] RR • C1723: [CODE ERR] RL • C1724: [BATT VOLT LOW] FL • C1725: [BATT VOLT LOW] FR • C1726: [BATT VOLT LOW] RR • C1727: [BATT VOLT LOW] RL • C1734: CONTROL UNIT
6	• B2622: INSIDE ANTENNA • B2623: INSIDE ANTENNA

DTC Index

INFOID:0000000007805668

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.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases 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	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	—	—	—	BCS-32
U1010: CONTROL UNIT (CAN)	—	—	—	BCS-33
U0415: VEHICLE SPEED SIG	—	—	—	BCS-34
B2190: NATS ANTENNA AMP	×	—	—	SEC-37
B2191: DIFFERENCE OF KEY	×	—	—	SEC-40
B2192: ID DISCORD BCM-ECM	×	—	—	SEC-41
B2193: CHAIN OF BCM-ECM	×	—	—	SEC-42
B2553: IGNITION RELAY	—	—	—	PCS-46
B2555: STOP LAMP	—	—	—	SEC-43
B2556: PUSH-BTN IGN SW	—	×	—	SEC-46
B2557: VEHICLE SPEED	×	×	—	SEC-48
B2560: STARTER CONT RELAY	×	×	—	SEC-49

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
B2562: LOW VOLTAGE	—	—	—	BCS-35
B2601: SHIFT POSITION	×	×	—	SEC-50
B2602: SHIFT POSITION	×	×	—	SEC-53
B2603: SHIFT POSI STATUS	×	×	—	SEC-56
B2604: PNP SWITCH	×	×	—	SEC-59
B2605: PNP SWITCH	×	×	—	SEC-61
B2608: STARTER RELAY	×	×	—	SEC-63
B260A: IGNITION RELAY	×	×	—	PCS-48
B260F: ENG STATE SIG LOST	×	×	—	SEC-65
B2614: ACC RELAY CIRC	—	×	—	PCS-50
B2615: BLOWER RELAY CIRC	—	×	—	PCS-53
B2616: IGN RELAY CIRC	—	×	—	PCS-56
B2617: STARTER RELAY CIRC	×	×	—	SEC-67
B2618: BCM	×	×	—	PCS-59
B261A: PUSH-BTN IGN SW	—	×	—	PCS-60
B2622: INSIDE ANTENNA	—	—	—	DLK-56
B2623: INSIDE ANTENNA	—	—	—	DLK-59
B26E1: ENG STATE NO RES	×	×	—	SEC-66
C1704: LOW PRESSURE FL	—	—	×	WT-43
C1705: LOW PRESSURE FR	—	—	×	WT-43
C1706: LOW PRESSURE RR	—	—	×	WT-43
C1707: LOW PRESSURE RL	—	—	×	WT-43
C1708: [NO DATA] FL	—	—	×	WT-13
C1709: [NO DATA] FR	—	—	×	WT-13
C1710: [NO DATA] RR	—	—	×	WT-13
C1711: [NO DATA] RL	—	—	×	WT-13
C1712: [CHECKSUM ERR] FL	—	—	×	WT-15
C1713: [CHECKSUM ERR] FR	—	—	×	WT-15
C1714: [CHECKSUM ERR] RR	—	—	×	WT-15
C1715: [CHECKSUM ERR] RL	—	—	×	WT-15
C1716: [PRESSDATA ERR] FL	—	—	×	WT-17
C1717: [PRESSDATA ERR] FR	—	—	×	WT-17
C1718: [PRESSDATA ERR] RR	—	—	×	WT-17
C1719: [PRESSDATA ERR] RL	—	—	×	WT-17
C1720: [CODE ERR] FL	—	—	×	WT-15
C1721: [CODE ERR] FR	—	—	×	WT-15
C1722: [CODE ERR] RR	—	—	×	WT-15
C1723: [CODE ERR] RL	—	—	×	WT-15
C1724: [BATT VOLT LOW] FL	—	—	×	WT-15
C1725: [BATT VOLT LOW] FR	—	—	×	WT-15
C1726: [BATT VOLT LOW] RR	—	—	×	WT-15
C1727: [BATT VOLT LOW] RL	—	—	×	WT-15

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
C1729: VHCL SPEED SIG ERR	—	—	×	WT-19
C1734: CONTROL UNIT	—	—	×	WT-20

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

Reference Value

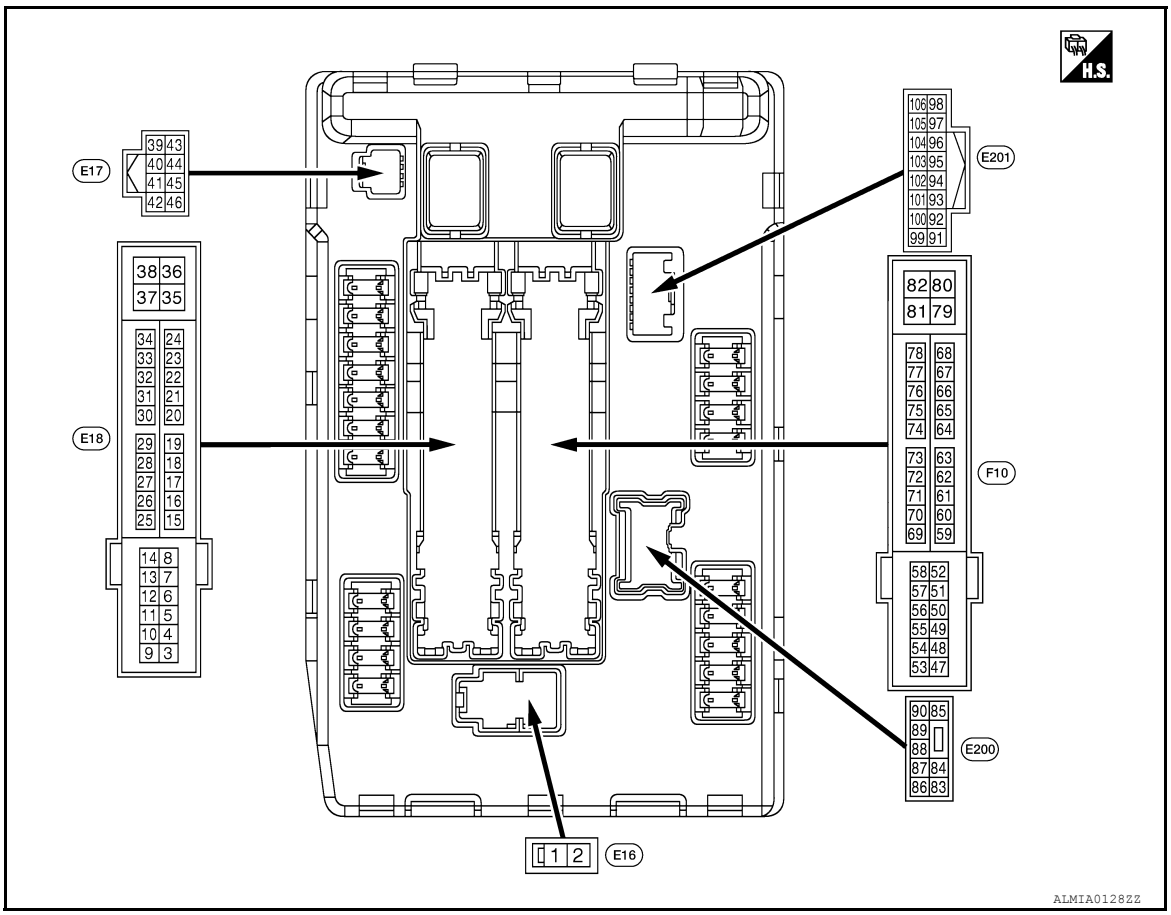
INFOID:0000000007805669

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.	1,2,3,4
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, HI or AUTO (Light is illuminated)		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND HI or AUTO (Light is illuminated)		On
HL HI REQ	Lighting switch OFF		Off
	Lighting switch HI		On
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	Off
		• Front fog lamp switch ON • Daytime running light activated (Only for Canada models)	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 at fail-safe operation	BLOCK
IGN RLY1 -REQ	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
IGN RLY	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
PUSH SW	Release the push-button ignition switch		Off
	Press the push-button ignition switch		On
INTER/NP SW	Ignition switch ON	CVT selector lever in any position other than P or N	Off
	Ignition switch ON	CVT selector lever in P or N position	On
ST RLY CONT	Ignition switch ON		Off
	At engine cranking		On
IHBT RLY -REQ	Ignition switch ON		Off
	At engine cranking		On

Monitor Item	Condition		Value/Status
ST/INHI RLY	Ignition switch ON		Off
	At engine cranking		ST →INHI
	The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter relay is ON and the starter control relay is OFF		UNKWN
DETENT SW	Ignition switch ON	• Press the selector button with CVT selector lever in P position • CVT selector lever in any position other than P	Off
	Release the CVT selector button with CVT selector lever in P position		On
DTRL -REQ	DTRL ON		On
	DTRL OFF		Off
OIL P SW	Ignition switch OFF, ACC or engine running		Open
	Ignition switch ON		Close
THFT HRN REQ	Not operated		Off
	• Panic alarm is activated • Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM		On
HORN CHIRP	Not operated		Off
	Door locking with Intelligent Key (horn chirp mode)		On

TERMINAL LAYOUT

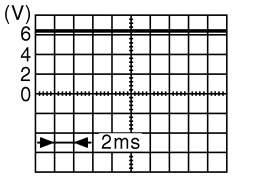
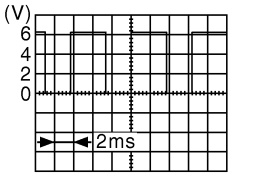
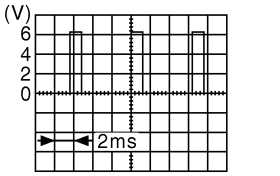


PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	–					
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
2 (L)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
4 (LG)	Ground	Front wiper LO	Output	Ignition switch ON	Front wiper switch OFF	0 V
					Front wiper switch LO	Battery voltage
5 (Y)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch OFF	0 V
					Front wiper switch HI	Battery voltage
6 (L)	Ground	Daytime light relay power supply (Canada models only)	Output	Ignition switch OFF		Battery voltage
7 (GR)	Ground	Tail, license plate lamps & interior lamps	Output	Ignition switch ON	Lighting switch OFF	0 V
					Lighting switch 1ST	Battery voltage
10 (BR)	Ground	ECM relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)		0 V
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		Battery voltage
12 (B)	Ground	Ground	—	Ignition switch ON		0 V
13 (SB)	Ground	Fuel pump power supply	Output	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
15 (W)	Ground	Ignition relay-1 power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
16 (R)	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
19 (Y)	Ground	Ignition relay-1 power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
20 (L)	Ground	Ambient sensor ground	—	Ignition switch ON		0V
21 (LG)	Ground	Ambient sensor	—	Ignition switch ON		5V
22 (SB)	Ground	Refrigerant pressure sensor ground	—	Ignition switch ON		0V
23 (GR)	Ground	Refrigerant pressure sensor	—	• Ignition switch ON (READY) • Both A/C switch and blower motor switch ON (electric compressor operates)		1.0 - 4.0V
24 (G)	Ground	Refrigerant pressure sensor power supply	—	Ignition switch ON		5V
25 (GR)	Ground	Ignition relay-1 power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
27 (W)	Ground	Ignition relay monitor	Input	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		0 V
28 (SB)	Ground	Push-button ignition switch	Input	Press the push-button ignition switch		0 V
				Release the push-button ignition switch		Battery voltage
30 (BR)	Ground	Starter relay control	Input	CVT selector lever in any position other than P or N (ignition switch ON)		0 V
				CVT selector lever P or N (ignition switch ON)		Battery voltage
34 (O)	Ground	Cooling fan relay-3 control	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		0.7 V
35 (P)	Ground	Cooling fan motor control	Output	Ignition switch OFF or ACC		0 V
				Ignition switch ON		0.7 V
36 (G)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
38 (GR)	Ground	Cooling fan motor control	Output	Ignition switch OFF or ACC		0 V
				Ignition switch ON		0.7 V
39 (P)	—	CAN - L	Input/ Output	—		—
40 (L)	—	CAN - H	Input/ Output	—		—
41 (B)	Ground	Ground	—	Ignition switch ON		0 V
42 (SB)	Ground	Cooling fan relay-2 control	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		0.7 V
43 (Y)	Ground	CVT shift selector (Detention switch)	Input	Ignition switch ON	Press the CVT selector button (CVT selector lever P)	Battery voltage
					• CVT selector lever in any position other than P • Release the CVT selector button (CVT selector lever P)	0 V
44 (W)	Ground	Horn relay control	Input	The horn is deactivated		Battery voltage
				The horn is activated		0 V
45 (GR)	Ground	Anti theft horn relay control	Input	The horn is deactivated		Battery voltage
				The horn is activated		0 V
46 (BR)	Ground	Starter relay control	Input	CVT selector lever in any position other than P or N (ignition switch ON)		0 V
				CVT selector lever P or N (ignition switch ON)		Battery voltage
48 (W)	Ground	A/C relay power supply	Output	Engine running	A/C switch OFF	0 V
					A/C switch ON (A/C compressor is operating)	Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
49 (R/G)	Ground	ECM relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)		0 V
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		Battery voltage
51 (LG)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
52 (Y/G)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
53 (R/W)	Ground	ECM relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)		0 V
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		Battery voltage
54 (G/W)	Ground	Throttle control motor relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)		0 V
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		Battery voltage
55 (W/L)	Ground	ECM power supply	Output	Ignition switch OFF		Battery voltage
56 (R/Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
57 (O)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
58 (Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
69 (W/B)	Ground	ECM relay control	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		0 - 1.5 V
70 (O)	Ground	Throttle control motor relay control	Output	Ignition switch ON → OFF		0 -1.0 V ↓ Battery voltage ↓ 0 V
				Ignition switch ON		0 - 1.0 V
72 (R/B)	Ground	Transmission range switch signal	Input	Ignition switch ON	CVT selector lever in P or N position	Battery voltage
					CVT selector lever in any position other than P or N position	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
75 (LG)	Ground	Oil pressure switch	Input	Ignition switch ON	Engine stopped	0 V
					Engine running	Battery voltage
76 (SB)	Ground	Power generation command signal	Output	Ignition switch ON		 JPMIA0001GB 6.3 V
				40% is set on “Active test”, “ALTERNATOR DUTY” of “ENGINE”		 JPMIA0002GB 3.8 V
				80% is set on “Active test”, “ALTERNATOR DUTY” of “ENGINE”		 JPMIA0003GB 1.4 V
77 (GR)	Ground	Fuel pump relay control	Output	• Approximately 1 second after turning the ignition switch ON • Engine running		0 - 1.0 V
				Approximately 1 second or more after turning the ignition switch ON		Battery voltage
80 (B)	Ground	Starter motor	Output	At engine cranking		Battery voltage
83 (R/Y)	Ground	Headlamp LO (RH)	Output	Ignition switch ON	Lighting switch OFF	0 V
					Lighting switch 2ND	Battery voltage
84 (L)	Ground	Headlamp LO (LH)	Output	Ignition switch ON	Lighting switch OFF	0 V
					Lighting switch 2ND	Battery voltage
86 (W/R)	Ground	Front fog lamp (RH)	Output	Lighting switch 2ND	• Front fog lamp switch ON • Daytime running light activated (Only for Canada models)	Battery voltage
					Front fog lamp switch OFF	0 V
87 (L/Y)	Ground	Front fog lamp (LH)	Output	Lighting switch 2ND	• Front fog lamp switch ON • Daytime running light activated (Only for Canada models)	Battery voltage
					Front fog lamp switch OFF	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
88 (R/W)	Ground	Washer pump power supply	Output	Ignition switch ON		Battery voltage
89 (L/W)	Ground	Headlamp HI (RH)	Output	Ignition switch ON	• Lighting switch HI • Lighting switch PASS	Battery voltage
					Lighting switch OFF	0 V
90 (G)	Ground	Headlamp HI (LH)	Output	Ignition switch ON	• Lighting switch HI • Lighting switch PASS	Battery voltage
					Lighting switch OFF	0 V
91 (LG/ R)	Ground	Parking lamp (RH)	Output	Ignition switch ON	Lighting switch 1ST	Battery voltage
					Lighting switch OFF	0 V
92 (LG/ B)	Ground	Parking lamp (LH)	Output	Ignition switch ON	Lighting switch 1ST	Battery voltage
					Lighting switch OFF	0 V
99 (BR/ W)	Ground	Ambient sensor ground	—	Ignition switch ON		0V
100 (SB)	Ground	Ambient sensor	—	Ignition switch ON		5V
101 (W)	Ground	Refrigerant pressure sensor ground	—	Ignition switch ON		0V
102 (R)	Ground	Refrigerant pressure sensor	—	• Ignition switch ON (READY) • Both A/C switch and blower motor switch ON (electric compressor operates)		1.0 - 4.0V
103 (P)	Ground	Refrigerant pressure sensor power supply	—	Ignition switch ON		5V
105 (V)	Ground	Daytime light relay control (Only for Canada models)	Output	Ignition switch ON	Daytime light system active	Battery voltage
				Ignition switch ON	Daytime light system inactive	0 V

Fail Safe

INFOID:0000000007805670

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	• Signals cooling fans ON when the ignition switch is turned ON • Signals cooling fans OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF
Generator	Outputs the power generation command signal (PWM signal) 0%

If No CAN Communication Is Available With BCM

Control part	Fail-safe in operation
Headlamp	• Turns ON the headlamp low relay when the ignition switch is turned ON • Turns OFF the headlamp low relay when the ignition switch is turned OFF • Headlamp high relay OFF
• Parking lamps • License plate lamps • Illumination • Tail lamps	• Turns ON the tail lamp relay when the ignition switch is turned ON • Turns OFF the tail lamp relay 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 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 (if equipped)	Front fog lamp relay OFF
Horn	Horn OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the excitation coil circuit.
- 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	—
B2098: IGN RELAY ON	OFF	ON	ON (10 minutes)
B2099: IGN RELAY OFF	ON	OFF	—

NOTE:

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

FRONT WIPER CONTROL

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

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The 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.

STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

DTC Index

INFOID:0000000007805671

CONSULT display	Fail-safe	TIME[NOTE]		Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-15
B2098: IGN RELAY ON	×	CRNT	1 – 39	PCS-16
B2099: IGN RELAY OFF	—	CRNT	1 – 39	PCS-17
B210B: START CONT RLY ON	—	CRNT	1 – 39	SEC-69
B210C: START CONT RLY OFF	—	CRNT	1 – 39	SEC-70
B210D: STARTER RELAY ON	—	CRNT	1 – 39	SEC-71
B210E: STARTER RELAY OFF	—	CRNT	1 – 39	SEC-72
B210F: INTRLCK/PNP SW ON	—	CRNT	1 – 39	SEC-74
B2110: INTRLCK/PNP SW OFF	—	CRNT	1 – 39	SEC-76

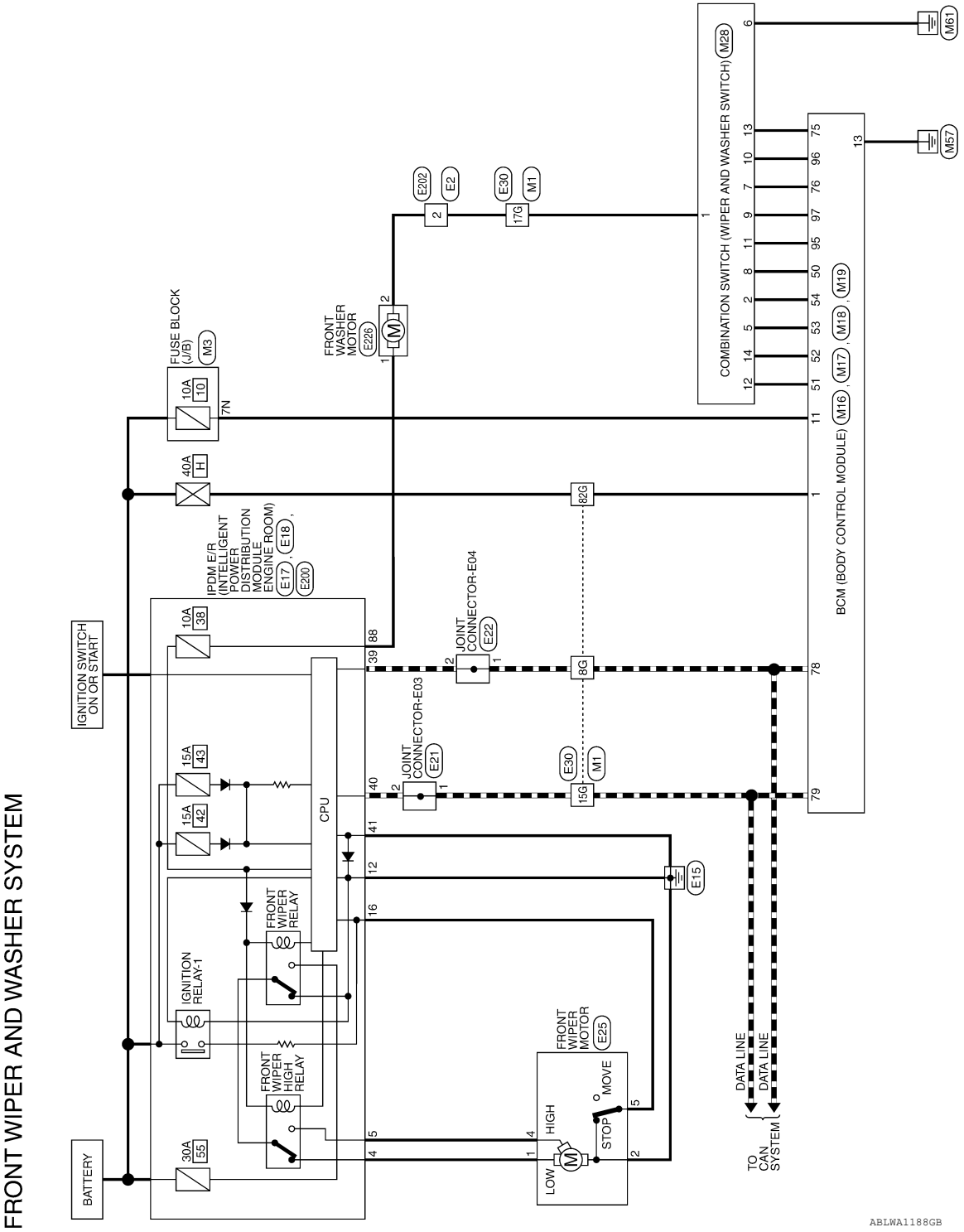
NOTE:
The details of TIME display are as follows.
- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ··· 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results are erased if it is over 39. It returns to 0 when a malfunction is detected again in the process.

WIRING DIAGRAM

FRONT WIPER AND WASHER SYSTEM

Wiring Diagram

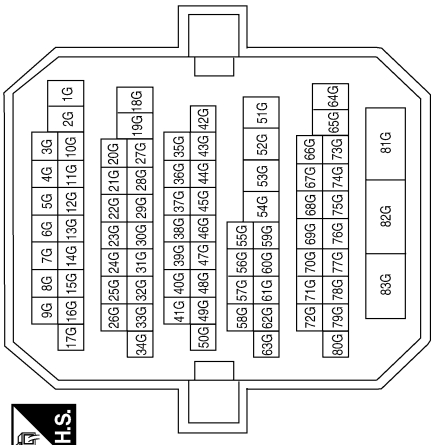
INFOID:0000000007253226



FRONT WIPER AND WASHER SYSTEM CONNECTORS

Connector No.	M1
Connector Name	WIRE TO WIRE
Connector Color	WHITE

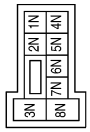
H.S.



Terminal No.	Color of Wire	Signal Name
8G	P	–
15G	L	–
17G	R/L	–
82G	W/B	–

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
7N	Y/R	–

Connector No.	M16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	W/B	BATT (F/L)

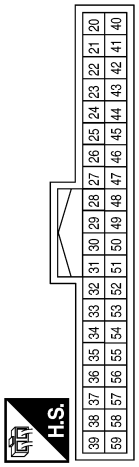
Connector No.	M17
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
11	Y/R	BAT BCM FUSE
13	B	GND1

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

H.S.



Terminal No.	Color of Wire	Signal Name
50	LG/B	INPUT 5
51	L/W	INPUT 1
52	G/B	INPUT 2
53	LG/R	INPUT 3
54	G/Y	INPUT 4

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Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

H.S.

79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80

Terminal No.	Color of Wire	Signal Name
75	R/Y	OUTPUT 5
76	R/G	OUTPUT 3
78	P	CAN-L
79	L	CAN-H
95	R/W	OUTPUT 1

Terminal No.	Color of Wire	Signal Name
96	P/B	OUTPUT 4
97	R/B	OUTPUT 2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

H.S.

1	2				5	6
7	8	9	10	11	12	13	14

Terminal No.	Color of Wire	Signal Name
1	R/L	–
2	G/Y	OUTPUT 4
5	LG/R	OUTPUT 3
6	B	–
7	R/G	INPUT 3
8	LG/B	OUTPUT 5
9	R/B	INPUT 2
10	P/B	INPUT 4

Terminal No.	Color of Wire	Signal Name
11	R/W	INPUT 1
12	L/W	OUTPUT 1
13	R/Y	INPUT 5
14	G/B	OUTPUT 2

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

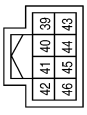
1	2		3
4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
2	GR	–

ABLIA2637GB

Connector No.	E17
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

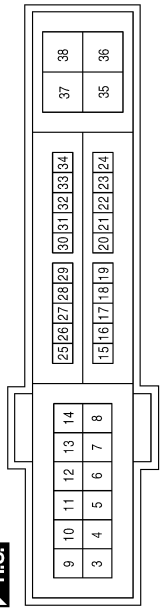
H.S.



Terminal No.	Color of Wire	Signal Name
39	P	CAN-L
40	L	CAN-H
41	B	GND (SIGNAL)

Connector No.	E18
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
4	LG	FR WIPER LO
5	Y	FR WIPER HI

Terminal No.	Color of Wire	Signal Name
12	B	GND (POWER)
16	R	WIPER AUTOSTOP

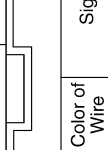
Connector No.	E21
Connector Name	JOINT CONNECTOR-E03
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	L	–

Connector No.	E22
Connector Name	JOINT CONNECTOR-E04
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	P	–
2	P	–

Connector No.	E25
Connector Name	FRONT WIPER MOTOR
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG	–
2	B/Y	–
4	Y	–
5	R	–

ABLIA1703GB

Connector No.	E200
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
88	R/W	WASHER MTR

Terminal No.	Color of Wire	Signal Name
8G	P	–
15G	L	–
17G	GR	–
82G	LG	–

Connector No.	E30
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Connector No.	E226
Connector Name	FRONT WASHER MOTOR
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	R/W	–
2	R/L	–

Connector No.	E202
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
2	R/L	–

ABLIA1704GB

SYMPTOM DIAGNOSIS

FRONT WIPER AND WASHER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000007253227

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

Symptom		Probable malfunction location	Inspection item
Front wiper does not operate	HI only	• Combination switch (wiper and washer switch) • Harness between combination switch (wiper and washer switch) and BCM • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Description".
		• IPDM E/R • Harness between IPDM E/R and wiper motor • Front wiper motor	Front wiper motor (HI) circuit Refer to WW-20, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor "FR WIP REQ"
	LO and INT	• Combination switch (wiper and washer switch) • Harness between combination switch (wiper and washer switch) and BCM • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Description".
		• IPDM E/R • Harness between IPDM E/R and wiper motor • Front wiper motor	Front wiper motor (LO) circuit Refer to WW-18, "Component Function Check".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor "FR WIP REQ"
	INT only	• Combination switch (wiper and washer switch) • Harness between combination switch (wiper and washer switch) and BCM • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Description".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor "FR WIP REQ"
	HI, LO, and INT	SYMPTOM DIAGNOSIS Refer to WW-70, "Diagnosis Procedure".	

Symptom		Probable malfunction location	Inspection item
Front wiper does not stop	HI only	• Combination switch (wiper and washer switch) • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Description".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor "FR WIP REQ"
		IPDM E/R	—
	LO only	• Combination switch (wiper and washer switch) • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Description".
		Front wiper request signal • BCM • IPDM E/R	IPDM E/R Data monitor "FR WIP REQ"
		IPDM E/R	—
	INT only	• Combination switch (wiper and washer switch) • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Description".
		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 (wiper and washer switch) • Harness between combination switch (wiper and washer switch) and BCM • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Diagram".
		BCM	—
	Intermittent control linked with vehicle speed cannot be performed	Check the vehicle speed detection wiper setting. Refer to BCS-23, "WIPER : CONSULT Function (BCM - WIPER)".	
	Wiper is not linked to the washer operation	• Combination switch (wiper and washer switch) • Harness between combination switch (wiper and washer switch) and BCM • BCM	Combination switch (wiper and washer switch) Refer to BCS-10, "System Diagram".
		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-22, "Component Function Check".

FRONT WIPER DOES NOT OPERATE

Description

INFOID:0000000007253228

The front wiper does not operate under any operation conditions

Diagnosis Procedure

INFOID:0000000007253229

Regarding Wiring Diagram information, refer to WW-63, "Wiring Diagram".

1. CHECK WIPER RELAY OPERATION

IPDM E/R AUTO ACTIVE TEST
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the front wiper operates at the LO/HI operation.

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

LO : Front wiper LO operation
HI : Front wiper HI operation
OFF : Stop the front wiper.

Does the front wiper operate?

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

2. CHECK FRONT WIPER MOTOR FUSE

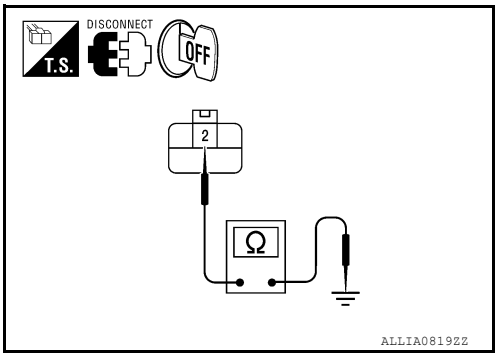
1. Turn the ignition switch OFF.
2. Check that the front wiper motor fuse 30A (No. 55, located in the IPDM E/R) is not blown.

Is the fuse blown?

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

3. CHECK FRONT WIPER MOTOR (GND) OPEN CIRCUIT

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



Front wiper motor		Ground	Continuity
Connector	Terminal		
E25	2		Yes

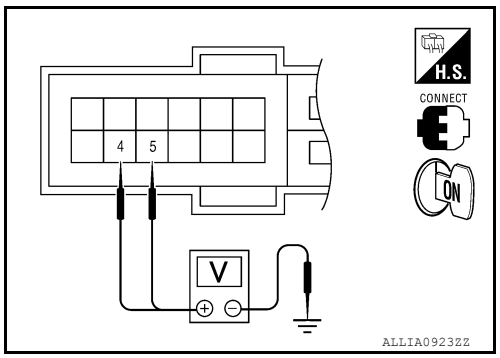
Does continuity exist?

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

4. CHECK FRONT WIPER MOTOR OUTPUT VOLTAGE

CONSULT ACTIVE TEST

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



Terminals			Test item	Voltage (V) (Approx.)
(+)		(-)		
IPDM E/R		Ground	FRONT WIPER	
Connector	Terminal			
E18	4		LO	Battery voltage
			OFF	0 V
	5		HI	Battery voltage
			OFF	0 V

Is the measurement normal?

YES >> Replace front wiper motor. Refer to WW-79, "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".

5. CHECK FRONT WIPER REQUEST SIGNAL INPUT

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

Monitor item	While operating the front wiper switch condition		Monitor status
FR WIP REQ	Front wiper switch HI	ON	HI
		OFF	STOP
	Front wiper switch LO	ON	LOW
		OFF	STOP

Is the status of item normal?

YES >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".
NO >> GO TO 6

6. CHECK COMBINATION SWITCH (WIPER AND WASHER SWITCH)

Perform the inspection of the combination switch (wiper and washer switch). Refer to BCS-10, "System Description".

Is combination switch (wiper and washer switch) normal?

YES >> Replace BCM. Refer to BCS-80, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

NORMAL OPERATING CONDITION

Description

INFOID:0000000007253230

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.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000007253231

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 SR and SB section of this Service Manual.

WARNING:

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

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

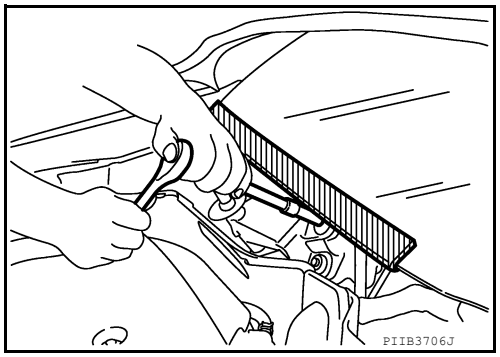
WARNING:

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Precaution for Procedure without Cowl Top Cover

INFOID:0000000007253232

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

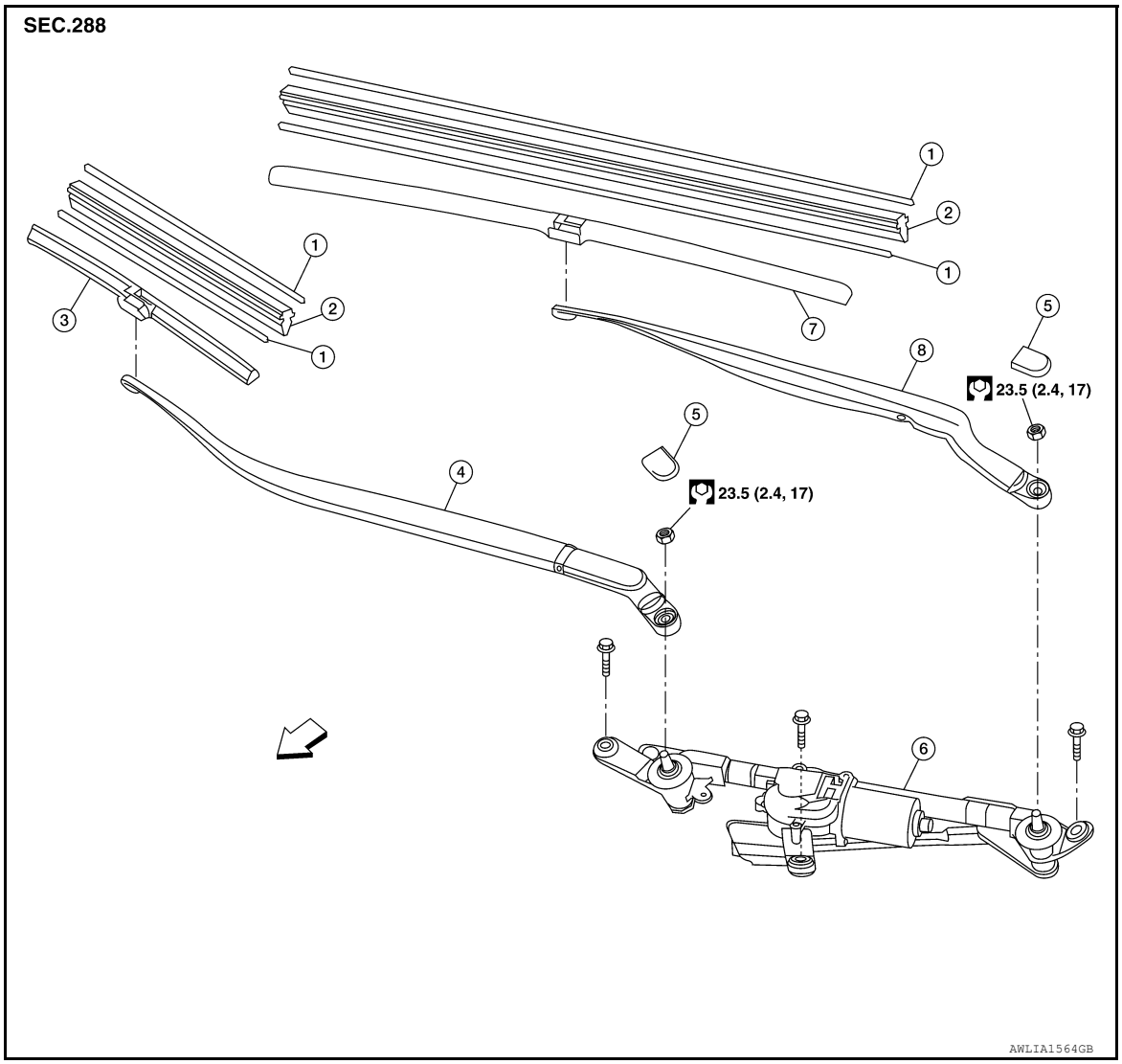


REMOVAL AND INSTALLATION

FRONT WIPER

Exploded View

INFOID:0000000007253233



1. Rib (part of wiper blade refill)
2. Wiper blade refill
3. Front RH wiper blade assembly (includes wiper blade refill)
4. Front RH wiper arm
5. Wiper arm cap
6. Front wiper drive assembly
7. Front LH wiper blade assembly (includes wiper blade refill)
8. Front LH wiper arm

⇦ Front

FRONT WIPER BLADE REFILL

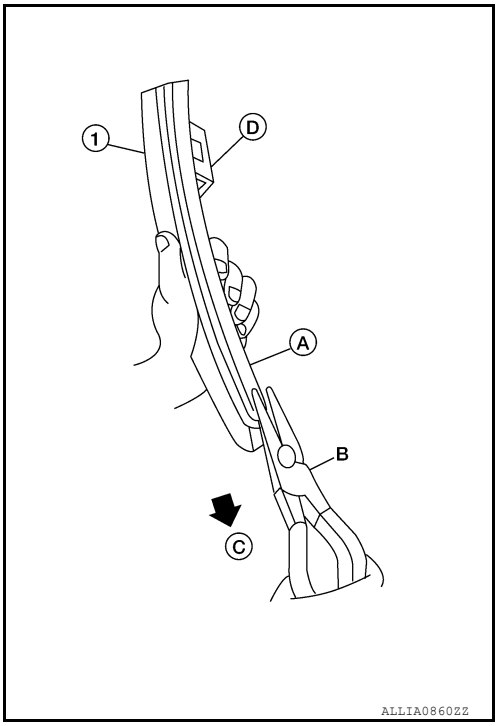
FRONT WIPER BLADE REFILL : Removal and Installation

INFOID:0000000007253234

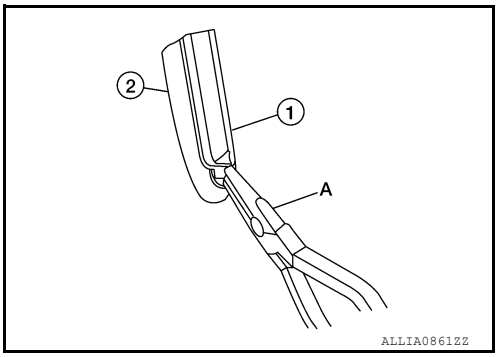
REMOVAL

1. Remove the front wiper blade. Refer to WW-77, "FRONT WIPER BLADE : Removal and Installation".

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

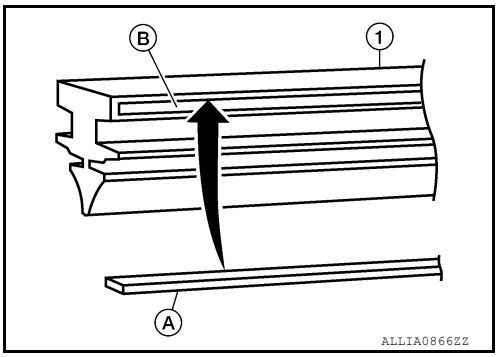


   • If the wiper blade refill lip is torn due to wear, insert a suitable tool (A) into the space between the end of the wiper blade refill (1) and the front wiper blade (2) and pull the wiper blade refill (1) out as shown.

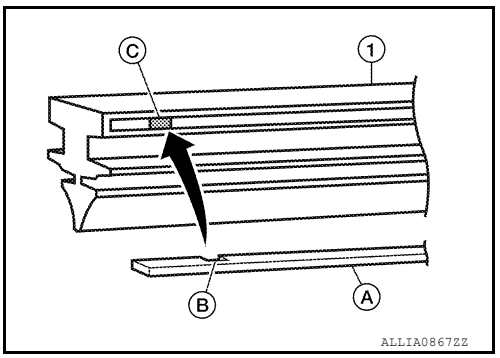


INSTALLATION

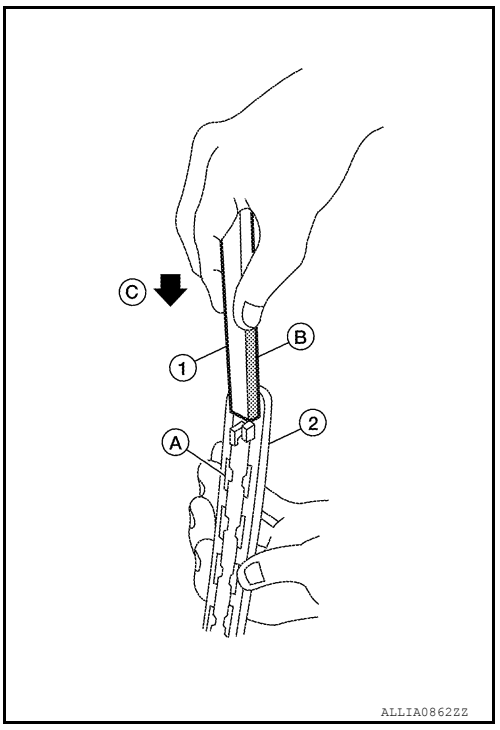
1. If the rib (A) has become detached from the wiper blade refill (1), check that the curve of the rib (A) is in the same direction as the curve of the wiper blade refill (1) and insert the rib (A) into the slit (B) in the wiper blade refill (1) as shown.



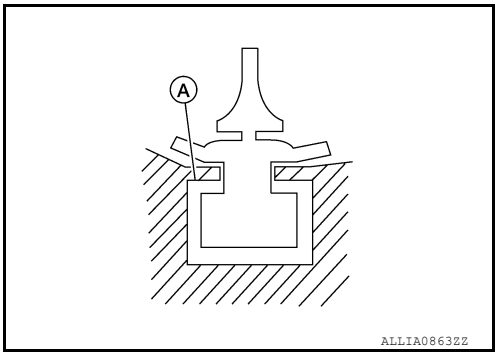
- If the rib (A) has a notch (B), insert the rib (A) into the wiper blade refill (1) so the notch (B) fits over the protrusion (C) in the wiper blade refill (1) as shown.



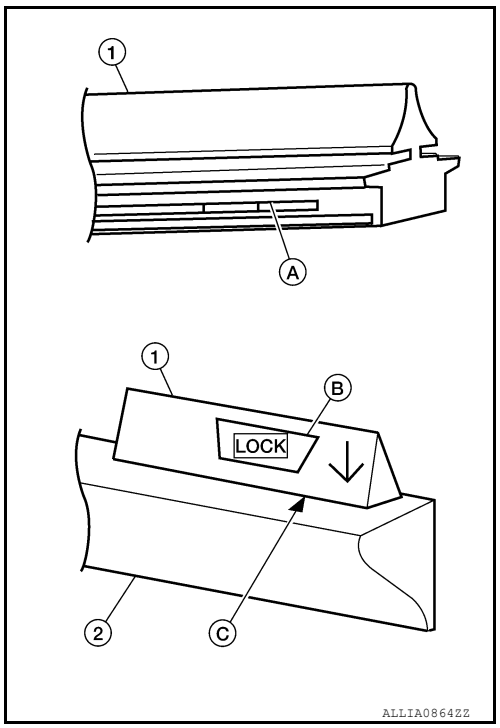
2. Insert the wiper blade refill (1) tip into the end of the front wiper blade (2) in the direction (C). Push the wiper blade refill (1) in while pressing it into the end of the front wiper blade (2) as shown. After the wiper blade refill is fully inserted, remove the holder (B).
   - Tab [part of front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



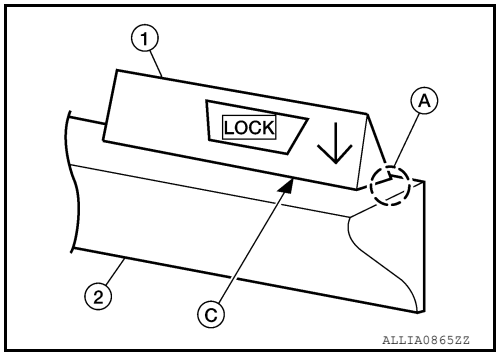
- Make sure to slide the refill into the front wiper blade so that the wiper blade refill is held by the tabs (A) on the front wiper blade as shown.



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



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



5. Install the front wiper blade. Refer to WW-77, "FRONT WIPER BLADE : Removal and Installation".

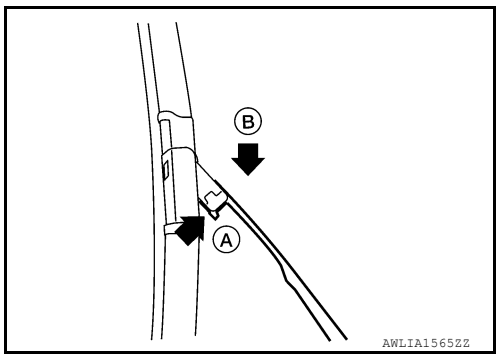
FRONT WIPER BLADE

FRONT WIPER BLADE : Removal and Installation

INFOID:0000000007253235

REMOVAL

1. Lift the front wiper arm and wiper blade assembly away from the windshield.
2. Rotate the front wiper blade assembly and push the release tab (A), then move the front wiper blade assembly down (B) the front wiper arm.
3. Remove the front wiper blade assembly.



INSTALLATION

CAUTION:

- **After the front wiper blade assembly installation, return the front wiper arm to the original position on the windshield to prevent damage when the hood is opened.**

- **Check that the front wiper blade assembly contacts the windshield properly; otherwise the front wiper arm may be damaged from wind pressure while driving.**

1. Insert the front wiper blade assembly onto the front wiper arm and slide it up until it clicks into place.
2. Rotate the front wiper blade assembly so the dimple is in the groove.
3. Lay the front wiper arm and front wiper blade assembly back down on the windshield.

FRONT WIPER ARMS

FRONT WIPER ARMS : Removal and Installation

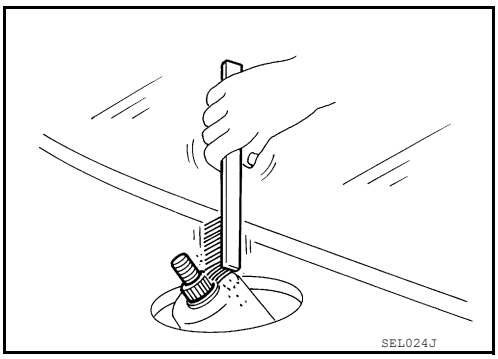
INFOID:0000000007253236

REMOVAL

1. Turn wiper switch ON to operate wiper motor and then turn wiper switch OFF (auto stop).
2. Open hood, remove arm caps, and remove wiper arm nuts.
3. Raise wiper arm, and remove wiper arm from the vehicle.

INSTALLATION

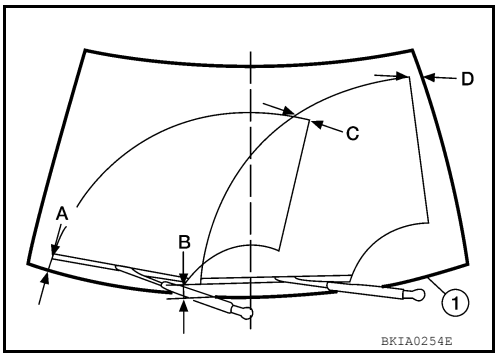
1. Clean up the pivot area as shown. This will reduce the possibility of wiper arm looseness.



2. Prior to wiper arm installation, turn wiper switch ON to operate wiper motor and then turn wiper switch OFF (auto stop).
3. Push wiper arm onto pivot shaft, paying attention to blind spline.
4. Lift the blade up and then set it down onto glass surface to set the blade center immediately before temporarily tightening the wiper arm nuts.
5. Spray washer fluid. Turn wiper switch ON to operate wiper motor and then turn wiper switch OFF (auto stop).

- Windshield glass (1)

6. Make sure that wiper blades stop within clearance (A), (B), (C) and (D).



Clearance (A) : 62.5 ± 7.5 mm (2.461 ± 0.295 in)
Clearance (B) : 67.8 ± 7.5 mm (2.669 ± 0.295 in)
Clearance (C) : 29.2 mm (1.150 in)
Clearance (D) : 57.7 mm (2.272 in)

7. Tighten wiper arm nuts to specification. Refer to WW-74, "Exploded View".
8. Attach wiper arm caps.

ADJUSTMENT

To adjust the wiper arm stop location, the wiper arm must be removed and installed. Follow the FRONT WIPER ARM removal and installation procedure.

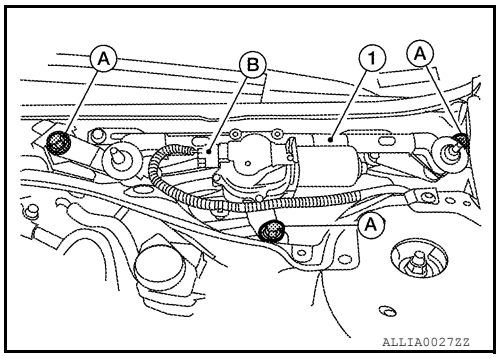
FRONT WIPER DRIVE ASSEMBLY

FRONT WIPER DRIVE ASSEMBLY : Removal and Installation

INFOID:0000000007253237

REMOVAL

1. Turn wiper switch ON to operate wiper motor and then turn wiper switch OFF (auto stop).
2. Remove wiper arms. Refer to WW-78, "FRONT WIPER ARMS : Removal and Installation".
3. Remove hood ledge covers.
4. Remove the cowl top grille. Refer to EXT-20, "Exploded View".
5. Disconnect washer hose from the lower cowl top extension brace.
6. Remove the lower cowl top extension brace. Refer to EXT-21, "Removal and Installation".
7. Detach the wiper drive harness clip from the wiper drive assembly frame.
8. Remove the front wiper drive assembly bolts (A), disconnect the wiper drive motor connector (B) and remove the front wiper drive assembly (1).



INSTALLATION

Installation is in the reverse order of removal.

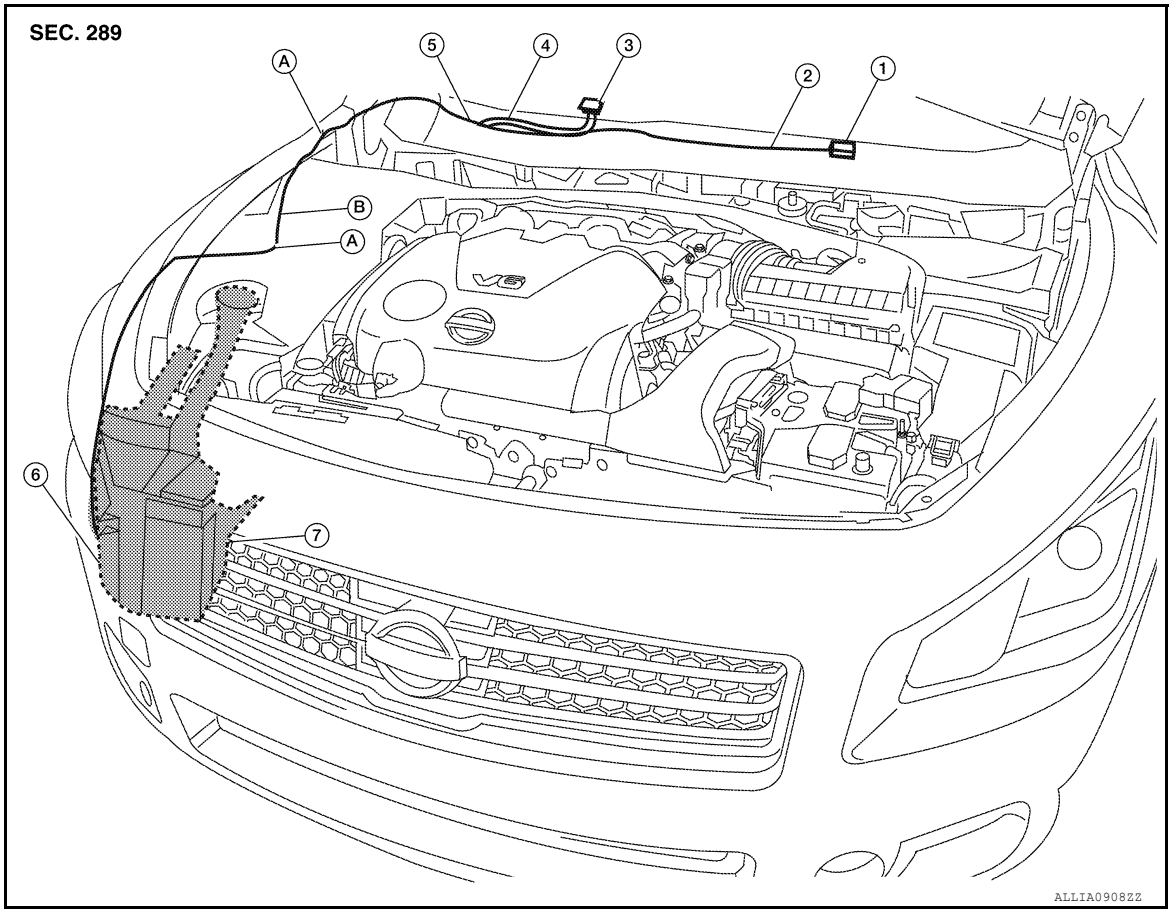
- Adjust wiper arm stop location as necessary. Refer to WW-78, "FRONT WIPER ARMS : Removal and Installation".

FRONT WASHER

WASHER TUBE

WASHER TUBE : Layout

INFOID:0000000007253238



1. Washer nozzle LH
2. Washer nozzle hose LH
3. Washer nozzle RH
4. Washer nozzle hose RH
5. Y-tube connector
6. Washer tank hose
7. Washer tank
A. Tube connectors
B. Clip

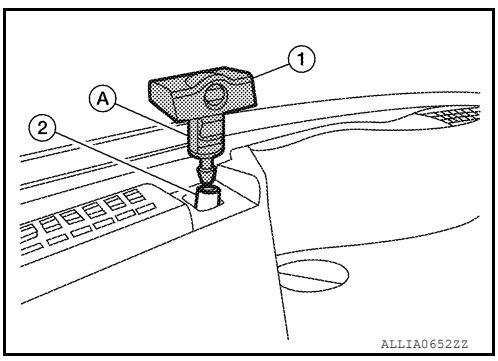
FRONT WASHER NOZZLE

FRONT WASHER NOZZLE : Removal and Installation

INFOID:0000000007253239

REMOVAL

1. Remove the cowl top grille. Refer to EXT-21, "Removal and Installation".
2. Push washer nozzle tab (A) to release the washer nozzle (1) from the cowl top grille, then disconnect the washer nozzle hose (2).



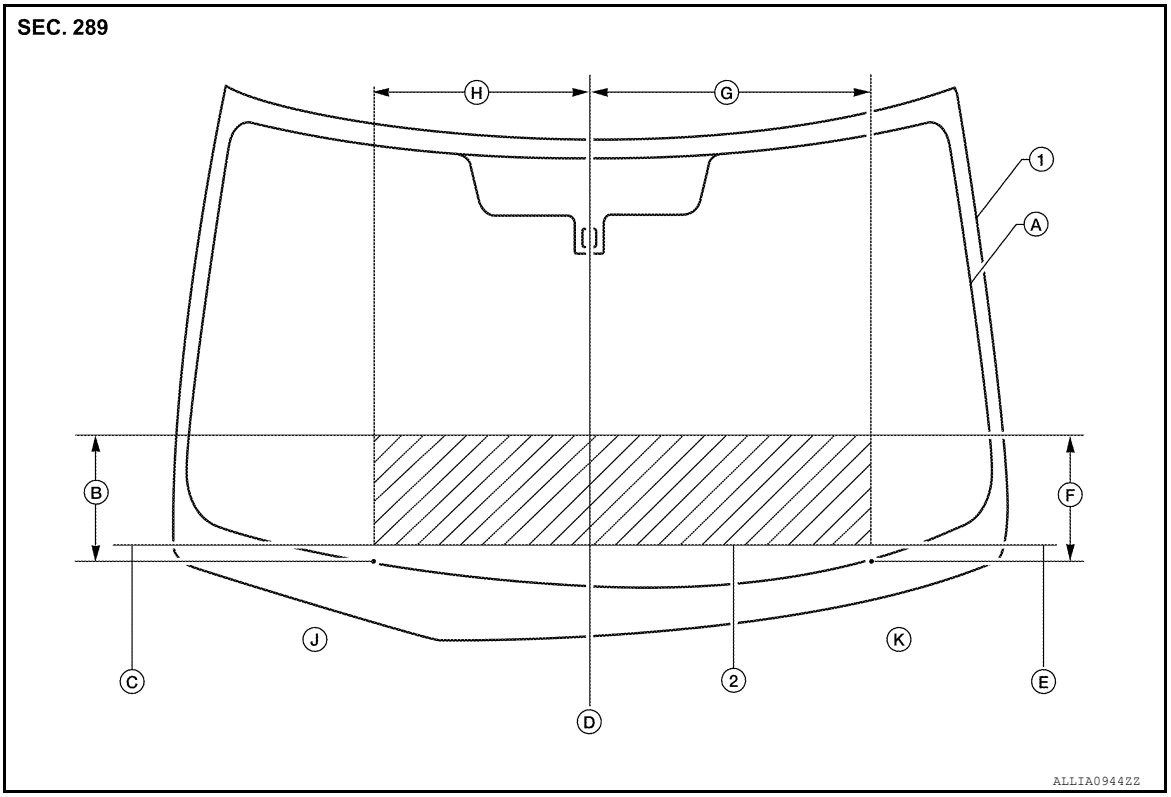
INSTALLATION

Installation is in the reverse order of removal.

- Adjust nozzle spray location. Refer to WW-81, "FRONT WASHER NOZZLE : Adjustment".

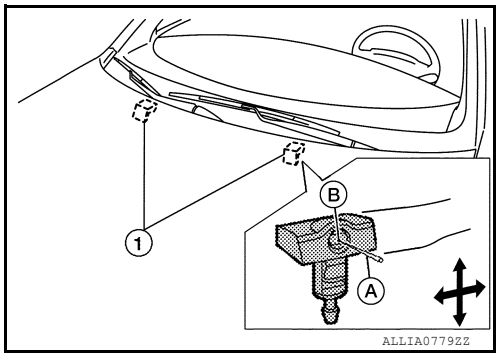
FRONT WASHER NOZZLE : Adjustment

INFOID:0000000007253240



1.	Windshield	2.	Spray zone	A.	Black printed frame line
B.	301.6 mm (11.87 in)	C.	24.7 mm (0.97 in)	D.	Windshield vertical center line
E.	24.4 mm (0.96 in)	F.	301.3 mm (11.86 in)	G.	502.3 mm (19.78 in)
H.	501.4 mm (19.74 in)	J.	RH side of windshield	K.	LH side of windshield

- To adjust the front washer nozzles (1), insert a suitable tool (A) into the nozzle hole (B) and move it up or down and left or right to adjust the spray into the specified spray zone.



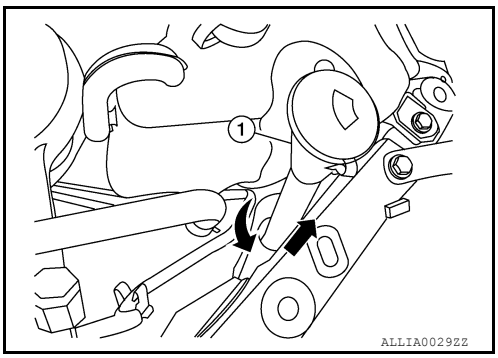
WASHER TANK

WASHER TANK : Removal and Installation

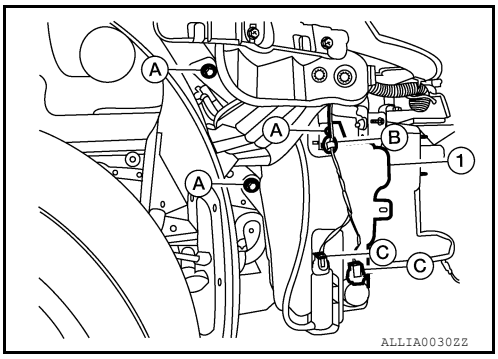
INFOID:0000000007253241

REMOVAL

1. Remove the washer tank filler tube (1).



2. Remove RH front tire. Refer to WT-60, "Adjustment".
3. Position the RH fender protector back. Refer to EXT-22, "Exploded View".
4. Remove engine undercover.
5. Remove side undercover.
6. Disconnect the washer pump and washer fluid level sensor connectors (C), then detach the connector harness clip (B).
7. Remove the washer tank bolts (A), disconnect the washer pump hose and remove the washer tank (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, add Nissan specified fluid up to the upper level of washer tank inlet, and check for leaks. Refer to MA-18, "FOR USA AND CANADA : Fluids and Lubricants".

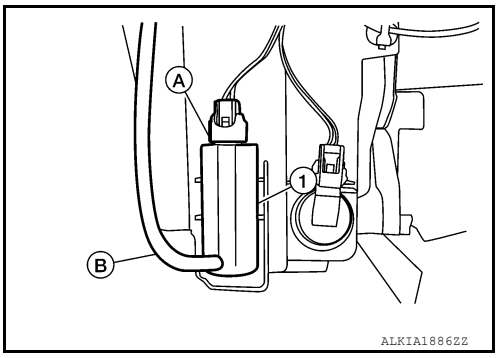
FRONT WASHER PUMP

FRONT WASHER PUMP : Removal and Installation

INFOID:0000000007253242

REMOVAL

1. Position the RH front fender protector back. Refer to EXT-23, "Removal and Installation".
2. Remove the engine under cover.
3. Remove the RH front fender protector side cover. Refer to EXT-23, "Removal and Installation".
4. Disconnect the front washer pump connector (A), and washer pump hose (B).
5. Remove the front washer pump (1).
6. Remove the front washer pump grommet.



INSTALLATION

Installation is in the reverse order of removal.

- After installation, add Nissan specified fluid up to the upper level of washer tank inlet, and check for leaks. Refer to MA-18, "FOR USA AND CANADA : Fluids and Lubricants". (for United States and Canada), MA-19, "FOR MEXICO : Fluids and Lubricants" (for Mexico).

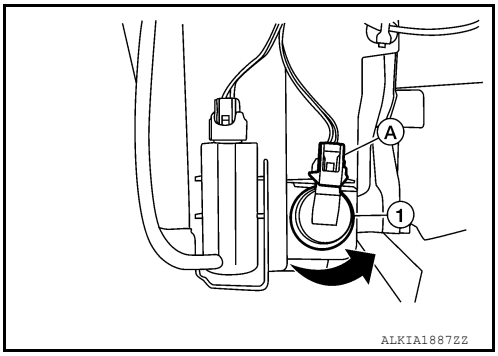
WASHER LEVEL SWITCH

Removal and Installation

INFOID:0000000007253243

REMOVAL

1. Position the RH front fender protector back. Refer to EXT-23, "Removal and Installation".
2. Remove the engine under cover.
3. Remove the RH front fender protector side cover. Refer to EXT-23, "Removal and Installation".
4. Disconnect the front washer level switch connector (A).
5. Rotate washer level switch (1) counter clockwise and remove.



INSTALLATION

Installation is in the reverse order of removal.

- After installation, add Nissan specified fluid up to the upper level of washer tank inlet, and check for leaks. Refer to MA-18, "FOR USA AND CANADA : Fluids and Lubricants" (for United States and Canada), MA-19, "FOR MEXICO : Fluids and Lubricants" (for Mexico).

FRONT WIPER AND WASHER SWITCH

Removal and Installation

INFOID:0000000007253244

NOTE:
The front wiper and washer switch is part of the combination switch assembly.

REMOVAL

1. Disconnect battery.
   CAUTION:
   - **Before servicing, disconnect both battery terminals and wait at least three minutes.**
   - **Do not use air tools or electric tools for servicing.**
   - **After the work is completed, make sure no system malfunction is detected by air bag warning lamp.**
   - **In case a malfunction is detected by the air bag warning lamp, reset with the self-diagnosis function and delete the memory with CONSULT.**
   - **If a malfunction is still detected after the above operation, perform self-diagnosis to repair malfunctions. Refer to SRC-12, "SRS Operation Check".**
2. Remove steering column covers. Refer to IP-19, "Removal and Installation".
3. Rotate steering wheel clockwise to access first combination switch bolt and remove the bolt.
4. Rotate steering wheel counter-clockwise to access second combination switch bolt and remove the bolt. Disconnect electrical connectors and remove the combination switch.

INSTALLATION

Installation is in the reverse order of removal.

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Specifications

INFOID:0000000007253245

Windshield Washer Fluid

Unit: mm (in)

Windshield washer fluid capacity	4.5 ℓ (1 1/4 US gal, 1 Imp gal)
Windshield washer fluid specification	Refer to MA-18, "FOR USA AND CANADA : Fluids and Lubricants" (United States and Canada), MA-19, "FOR MEXICO : Fluids and Lubricants" (Mexico).