

A
B
C

SECTION **WW**

WIPER & WASHER

CONTENTS

BASIC INSPECTION	3	Diagnosis Procedure	23	F
DIAGNOSIS AND REPAIR WORKFLOW	3	FRONT WIPER MOTOR GROUND CIRCUIT ...	25	
Work Flow	3	Diagnosis Procedure	25	G
SYSTEM DESCRIPTION	6	WASHER SWITCH	26	
FRONT WIPER AND WASHER SYSTEM	6	Description	26	H
System Diagram	6	Component Inspection	26	
System Description	6	WASHER MOTOR CIRCUIT	27	
Component Parts Location	9	Diagnosis Procedure	27	I
Component Description	10	ECU DIAGNOSIS INFORMATION	29	
DIAGNOSIS SYSTEM (BCM)	11	BCM (BODY CONTROL MODULE)	29	J
COMMON ITEM	11	Reference Value	29	
COMMON ITEM : CONSULT Function (BCM -		Terminal Layout	33	
COMMON ITEM)	11	Physical Values	33	K
WIPER	11	Fail Safe	51	
WIPER : CONSULT Function (BCM - WIPER)	11	DTC Inspection Priority Chart	53	
DIAGNOSIS SYSTEM (IPDM E/R)	12	DTC Index	55	WW
Diagnosis Description	12	IPDM E/R (INTELLIGENT POWER DISTRI-	58	
CONSULT Function (IPDM E/R)	15	BUTION MODULE ENGINE ROOM)	58	M
DTC/CIRCUIT DIAGNOSIS	18	Reference Value	58	
WIPER AND WASHER FUSE	18	Fail Safe	65	
Description	18	DTC Index	66	N
Diagnosis Procedure	18	WIRING DIAGRAM	68	
FRONT WIPER MOTOR LO CIRCUIT	19	FRONT WIPER AND WASHER SYSTEM	68	O
Component Function Check	19	Wiring Diagram	68	
Diagnosis Procedure	19	SYMPTOM DIAGNOSIS	73	
FRONT WIPER MOTOR HI CIRCUIT	21	FRONT WIPER AND WASHER SYSTEM		P
Component Function Check	21	SYMPTOMS	73	
Diagnosis Procedure	21	Symptom Table	73	
FRONT WIPER AUTO STOP SIGNAL CIR-		FRONT WIPER DOES NOT OPERATE	75	
CUIT	23	Description	75	
Component Function Check	23	Diagnosis Procedure	75	

NORMAL OPERATING CONDITION	77	FRONT WIPER DRIVE ASSEMBLY : Removal and Installation	84
Description	77		
PRECAUTION	78	FRONT WASHER	86
PRECAUTIONS	78	WASHER TUBE	86
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	78	WASHER TUBE : Layout	86
Necessary for Steering Wheel Rotation After Battery Disconnect	78	FRONT WASHER NOZZLE	86
Procedures without Cowl Top Cover	79	FRONT WASHER NOZZLE : Removal and Installation	86
		FRONT WASHER NOZZLE : Adjustment	87
REMOVAL AND INSTALLATION	80	WASHER TANK	88
FRONT WIPER	80	WASHER TANK : Removal and Installation	88
Exploded View	80	FRONT WASHER PUMP	88
FRONT WIPER BLADE REFILL	80	FRONT WASHER PUMP : Removal and Installation	88
FRONT WIPER BLADE REFILL : Removal and Installation	80	FRONT WIPER AND WASHER SWITCH	90
FRONT WIPER BLADE	83	Removal and Installation	90
FRONT WIPER BLADE : Removal and Installation	83	WASHER LEVEL SWITCH	91
FRONT WIPER ARMS	84	Removal and Installation	91
FRONT WIPER ARMS : Removal and Installation	84	SERVICE DATA AND SPECIFICATIONS (SDS)	92
FRONT WIPER DRIVE ASSEMBLY	84	SERVICE DATA AND SPECIFICATIONS (SDS)	92
		Specifications	92

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

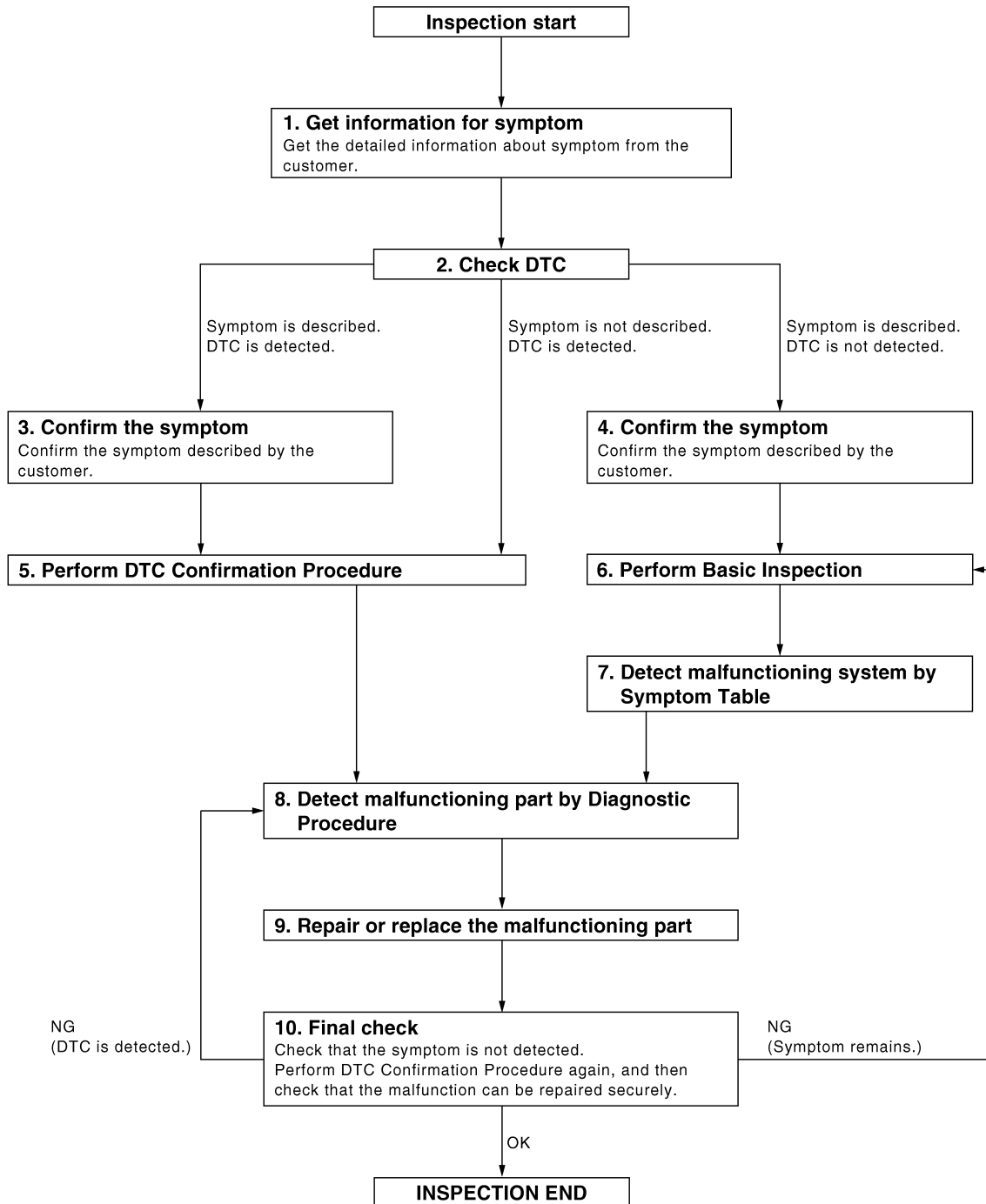
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000006393128

OVERALL SEQUENCE



DETAILED FLOW

Revision: June 2012

WW-3

JMKIA0101GB

2011 Altima GCC

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

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

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-65. "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-42. "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-75. "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

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

8. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure described 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 have 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.

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

WW

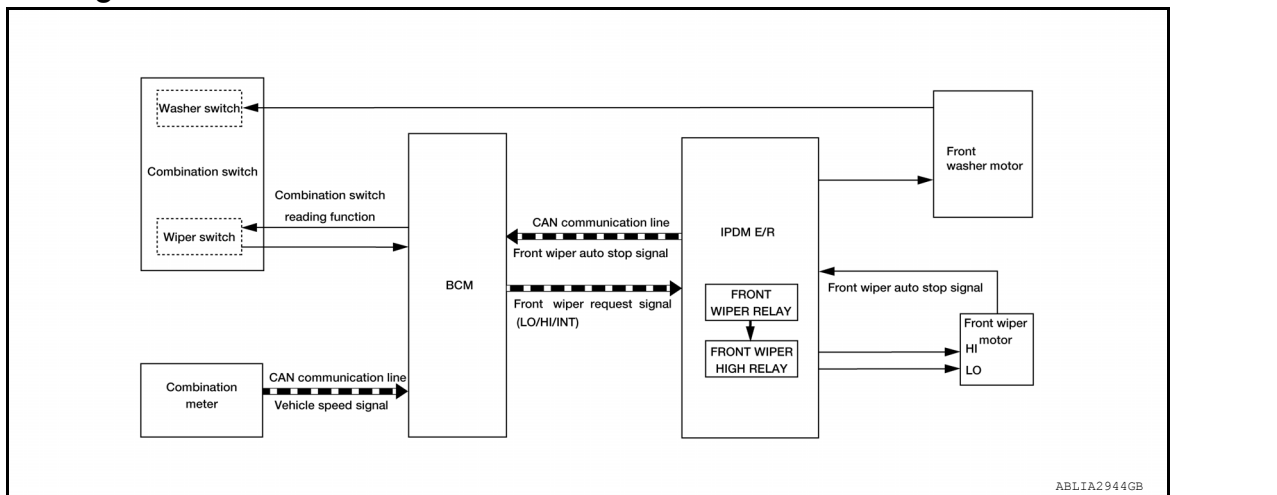
FRONT WIPER AND WASHER SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

FRONT WIPER AND WASHER SYSTEM

System Diagram



System Description

INFOID:000000006393130

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

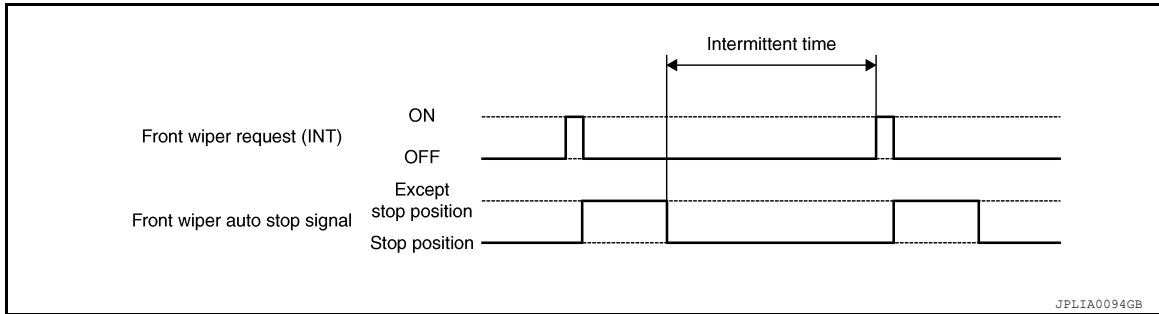
FRONT WIPER AND WASHER SYSTEM

< SYSTEM DESCRIPTION >

- 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-21, "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	Long ↓	32	24	16	9.6
7		42	31.5	21	12.6

*: When without vehicle speed setting

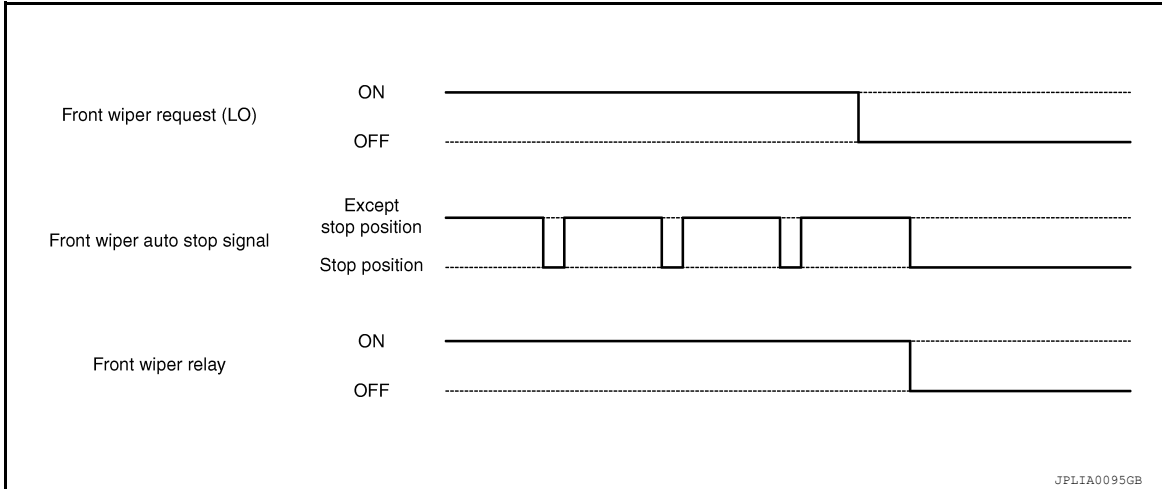
FRONT WIPER AUTO STOP OPERATION

- 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).

FRONT WIPER AND WASHER SYSTEM

< SYSTEM DESCRIPTION >

- 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 OFF.
- IPDM E/R turns the front wiper relay OFF when the ignition switch 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

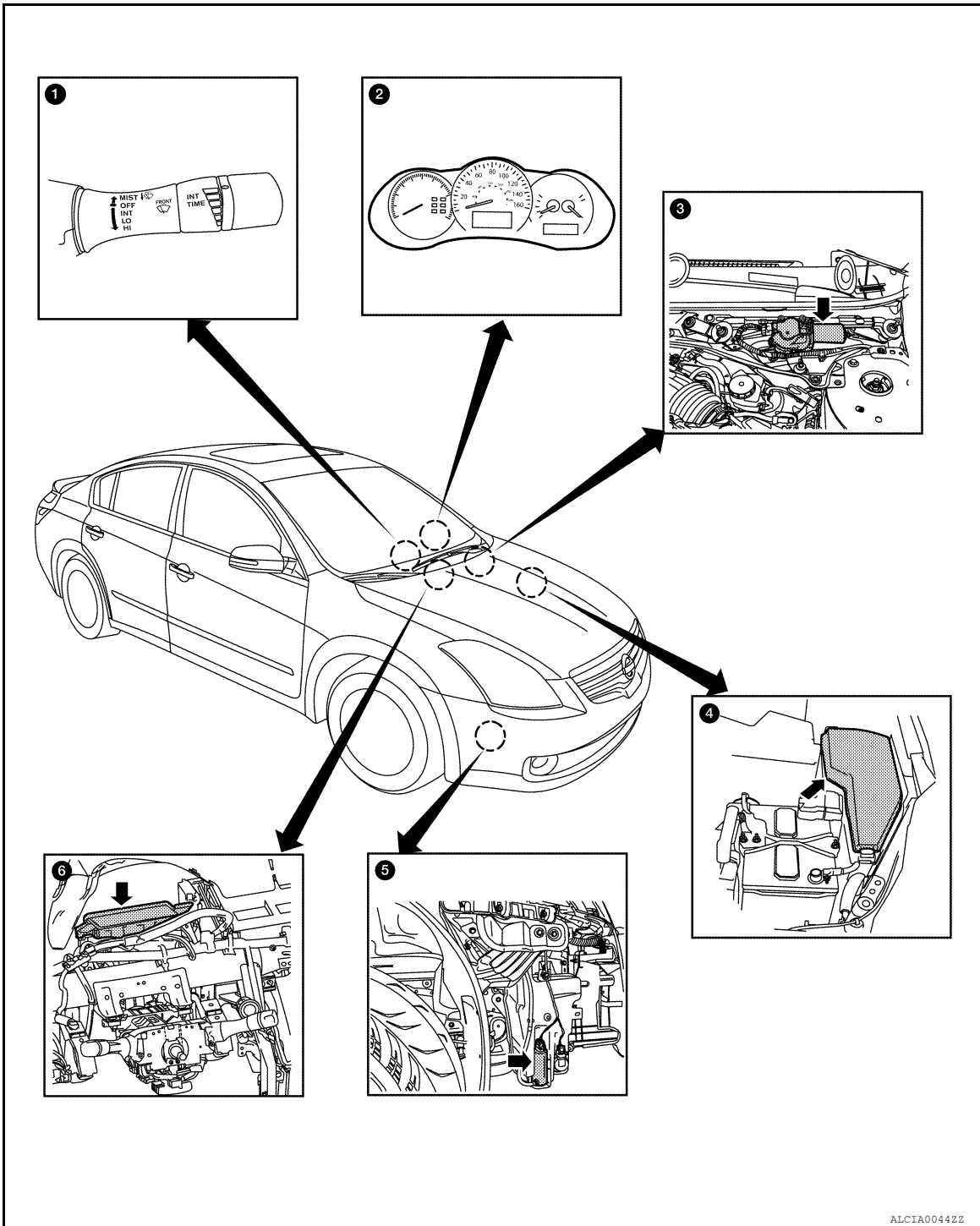
When the front wiper auto stop circuit is malfunctioning, IPDM E/R performs the fail-safe function. Refer to [PCS-28. "Fail Safe"](#).

FRONT WIPER AND WASHER SYSTEM

< SYSTEM DESCRIPTION >

Component Parts Location

INFOID:000000006393131



- | | | |
|---|----------------------------|--|
| 1. Combination switch (wiper and washer switch) M28 | 2. Combination meter M24 | 3. Front wiper motor E25 |
| 4. IPDM E/R E17, E18, E20 | 5. Front washer motor E226 | 6. BCM M16, M17, M18, M19 (view with instrument panel removed) |

NOTE: Sedan shown, coupe similar

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

WW

FRONT WIPER AND WASHER SYSTEM

< SYSTEM DESCRIPTION >

Component Description

INFOID:000000006393132

Part	Description
BCM	<ul style="list-style-type: none">• Judges the each switch status by the combination switch reading function.• Requests (with CAN communication) the front wiper relay and the front wiper high relay ON to IPDM E/R.
IPDM E/R	<ul style="list-style-type: none">• Controls the integrated relay according to the request (with CAN communication) from BCM.• Performs the auto stop control of the front wiper.
Combination switch (Wiper and washer switch)	Refer to WW-6, "System Description" .
Combination meter	Transmits the vehicle speed signal to BCM with CAN communication.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000006917493

ECU IDENTIFICATION

Displays the BCM part No.

SELF-DIAG RESULT

Refer to [WW-55, "DTC Index"](#).

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:000000006917494

WORK SUPPORT

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

* : Initial setting

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [OFF/ON]	Displays the status of the engine switch (push switch) judged by BCM.
VEH SPEED 1 [km/h]	Displays the value of the vehicle speed signal received from combination meter with CAN communication.
FR WIPER HI [OFF/ON]	Status of each switch judged by BCM using the combination switch reading function
FR WIPER LOW [OFF/ON]	
FR WASHER SW [OFF/ON]	
FR WIPER INT [OFF/ON]	
FR WIPER STOP [OFF/ON]	Displays the status of the front wiper auto stop signal received from IPDM E/R with CAN communication.
INT VOLUME [1 - 6]	Status of each switch judged by BCM using the combination switch reading function

ACTIVE TEST

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000006917507

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:

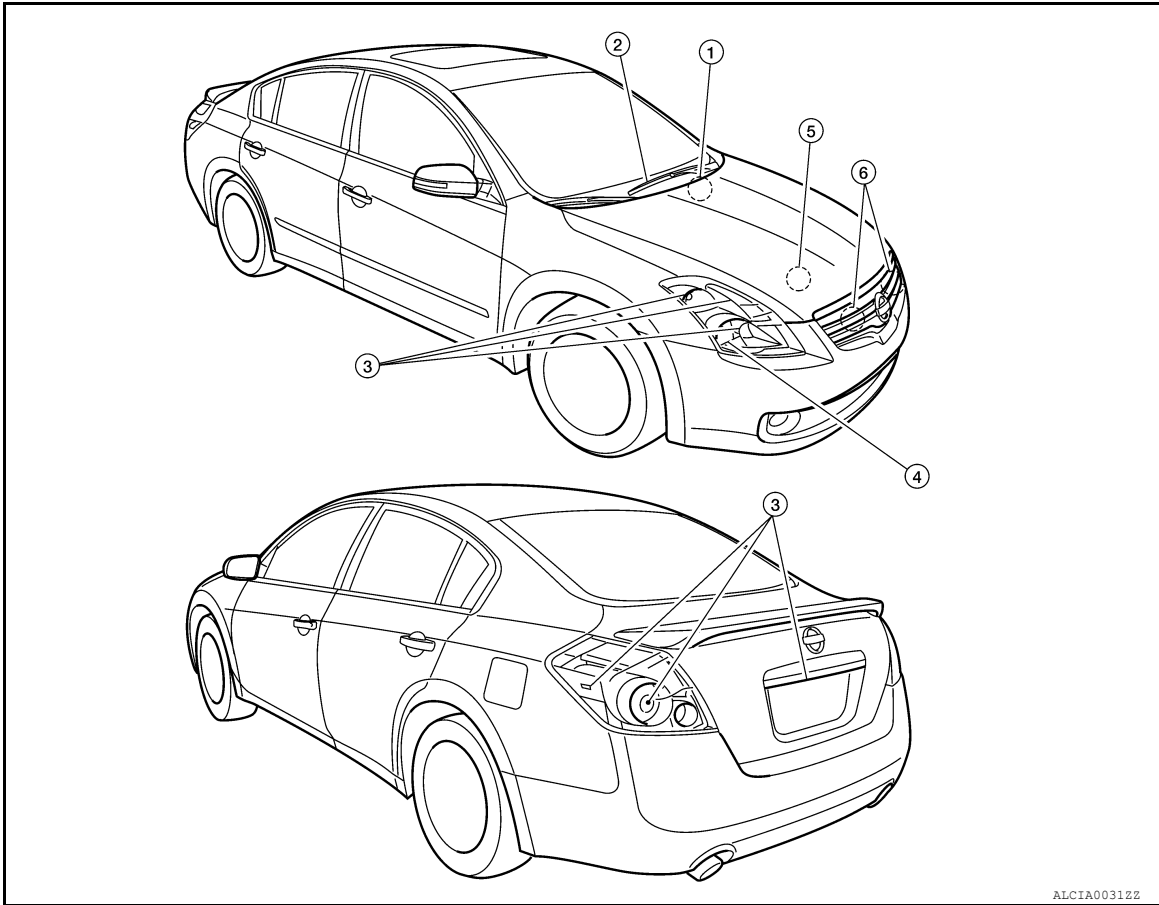
- If auto active test mode cannot be actuated, check door switch system. Refer to [DLK-286. "Description"](#).
- **Do not start the engine.**

Inspection in Auto Active Test Mode

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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	<ul style="list-style-type: none"> • 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

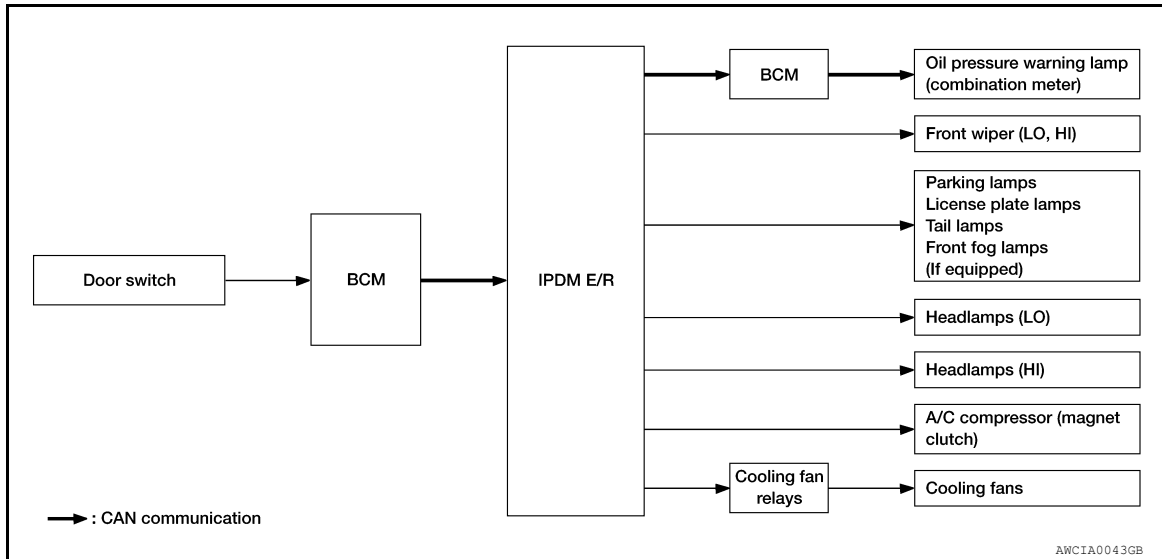
*: Outputs duty ratio of 50% for 5 seconds → duty ratio of 100% for 5 seconds on the cooling fan control module.

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Concept of auto active test



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

Diagnosis chart in auto active test mode

Symptom	Inspection contents	Possible cause
Any of the following components do not operate <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	YES <ul style="list-style-type: none"> • Combination meter signal input circuit • CAN communication signal between combination meter and ECM • CAN communication signal between ECM and IPDM E/R
		NO <ul style="list-style-type: none"> • Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Symptom	Inspection contents		Possible cause
Oil pressure warning lamp does not operate	Perform auto active test. Does the oil pressure warning lamp blink?	YES	<ul style="list-style-type: none"> • Harness or connector between IPDM E/R and oil pressure switch • Oil pressure switch • IPDM E/R
		NO	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • ECM signal input circuit • CAN communication signal between ECM and IPDM E/R
		NO	<ul style="list-style-type: none"> • Cooling fan • 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:000000006917508

APPLICATION ITEM

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

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

SELF DIAGNOSTIC

Refer to [WW-66, "DTC Index"](#).

DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIG- NALS	Description
MOTOR FAN REQ [%]	×	Displays the value of the cooling fan speed signal received from ECM via CAN communication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	MAIN SIG- NALS	Description
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
IGN RLY1 -REQ [Off/On]		Displays the status of the ignition switch ON signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Off/On]		Displays the status of the push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the clutch interlock switch (M/T models) or CVT shift position (CVT models) judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INH RLY [Off/ ST /INH]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the CVT shift selector (detention switch) judged by IPDM E/R.
S/L RLY -REQ [Off/On]		Displays the status of the steering lock relay request received from BCM via CAN communication.
S/L STATE [LOCK/UNLK/UNKWN]		Displays the status of the electronic steering column lock judged by IPDM E/R.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN communication.

ACTIVE TEST

Test item

Test item	Operation	Description
HORN	On	Operates horn relay 1 and horn relay 2 for 20 ms.
	Off	OFF
FRONT WIPER	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	1	OFF
	2	Outputs 50% pulse duty signal (PWM signal) to the cooling fan control module.
	3	Outputs 80% pulse duty signal (PWM signal) to the cooling fan control module.
	4	Outputs 100% pulse duty signal (PWM signal) to the cooling fan control module.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Test item	Operation	Description
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
	Fog	Operates the front fog lamp relay.

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

WW

WIPER AND WASHER FUSE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

WIPER AND WASHER FUSE

Description

INFOID:000000006393138

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:000000006393139

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

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR LO CIRCUIT

Component Function Check

INFOID:000000006393140

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. With operating the test item, check that 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-19, "Diagnosis Procedure"](#).

Diagnosis Procedure

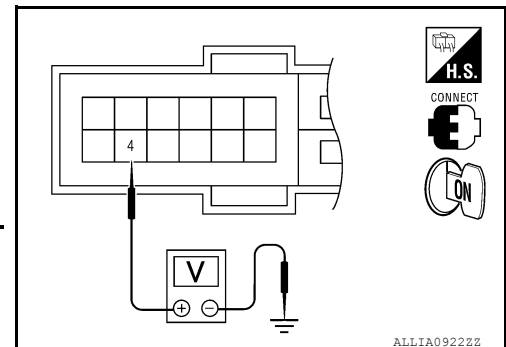
INFOID:000000006393141

Regarding Wiring Diagram information, refer to [WW-68, "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR (LO) INPUT VOLTAGE

Ⓜ CONSULT ACTIVE TEST

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



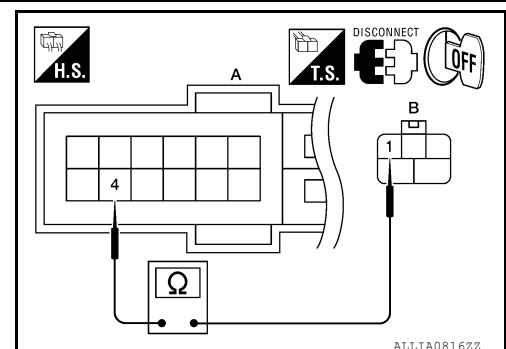
Terminals		Test item	Voltage (V) (Approx.)
(+)	(-)		
IPDM E/R		FRONT WIPER	Battery voltage
Connector	Terminal		
E18	4		
		LO	Battery voltage
		OFF	0V

Is the measurement normal?

- YES >> GO TO 2
 NO >> Replace IPDM E/R. Refer to [PCS-45, "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?

FRONT WIPER MOTOR LO CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

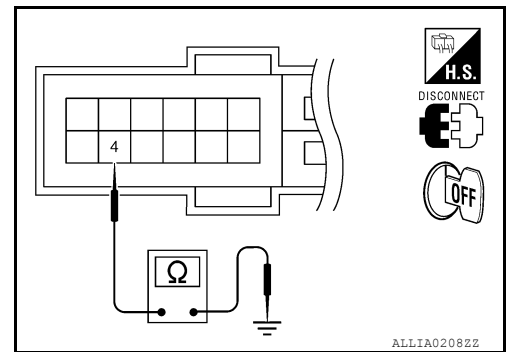
3. CHECK FRONT WIPER MOTOR (LO) SHORT CIRCUIT

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E18	4		No

Does continuity exist?

- YES >> Repair or replace harness.
NO >> Replace front wiper motor. Refer to [WW-84. "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation"](#).



FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:000000006393142

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. With operating the test item, check that 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-21, "Diagnosis Procedure"](#).

Diagnosis Procedure

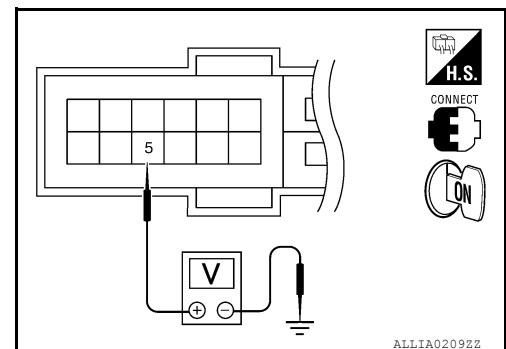
INFOID:000000006393143

Regarding Wiring Diagram information, refer to [WW-68, "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR (HI) INPUT VOLTAGE

Ⓜ CONSULT ACTIVE TEST

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



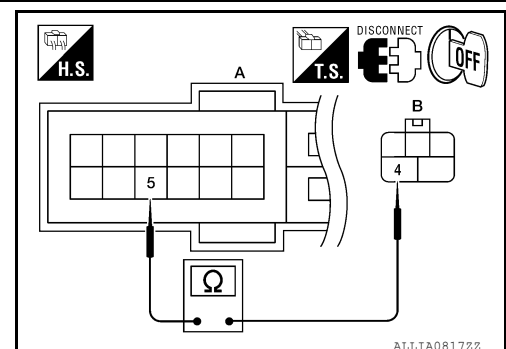
Terminals		Test item	Voltage (V) (Approx.)
(+)	(-)		
IPDM E/R		FRONT WIPER	Battery voltage
Connector	Terminal		
E18	5		
		HI	Battery voltage
		OFF	0V

Is the measurement normal?

- YES >> GO TO 2
 NO >> Replace IPDM E/R. Refer to [PCS-45, "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?

FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

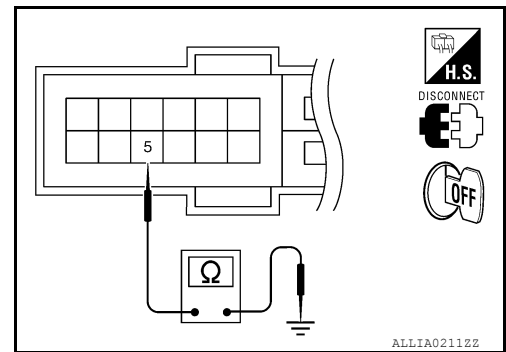
3. CHECK FRONT WIPER MOTOR (HI) SHORT CIRCUIT

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E18	5		No

Does continuity exist?

- YES >> Repair or replace harness.
NO >> Replace front wiper motor. Refer to [WW-84. "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation"](#).



ALLIA02112Z

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:000000006393144

1. CHECK FRONT WIPER (AUTO STOP) OPERATION

CONSULT DATA MONITOR

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

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

Is the status of item normal?

- YES >> Auto stop signal circuit is normal.
 NO >> Refer to [WW-23, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006393145

Regarding Wiring Diagram information, refer to [WW-68, "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 connector and ground.

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

Is the measurement normal?

- YES >> Replace front wiper motor. Refer to [WW-84, "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

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

WW

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-45, "Removal and Installation"](#).

NO >> Repair or replace harness.

FRONT WIPER MOTOR GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000006393146

Regarding Wiring Diagram information, refer to [WW-68. "Wiring Diagram"](#).

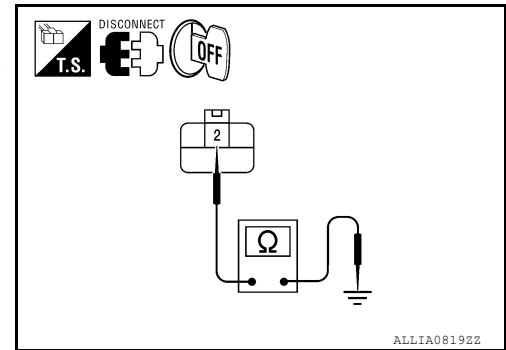
1. CHECK FRONT WIPER MOTOR (GND) OPEN CIRCUIT

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.



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

WW

WASHER SWITCH

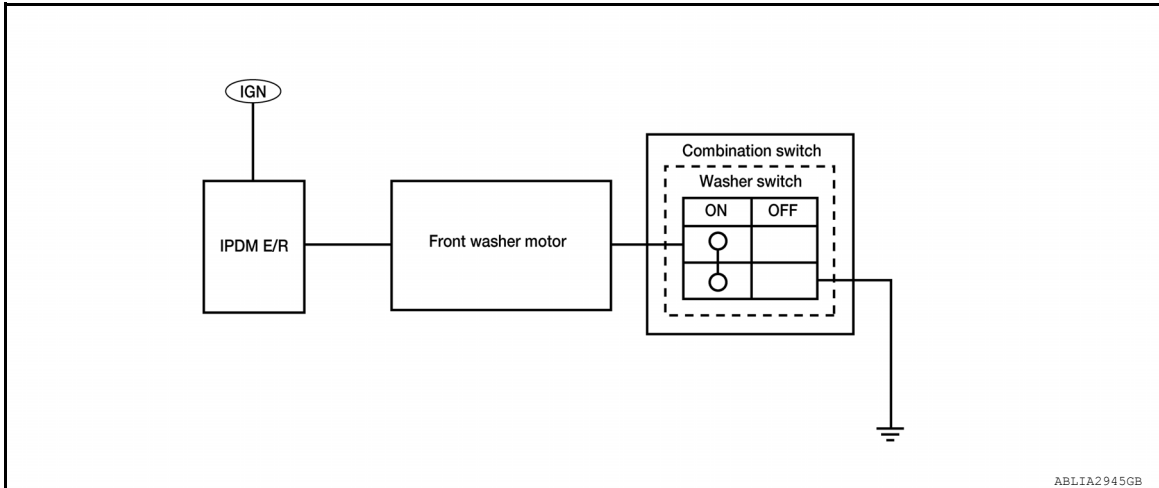
< DTC/CIRCUIT DIAGNOSIS >

WASHER SWITCH

Description

INFOID:000000006917571

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



Component Inspection

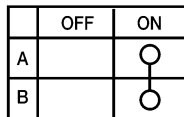
INFOID:000000006917572

Regarding Wiring Diagram information, refer to [WW-68, "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

Does continuity exist?

- YES >> Washer switch is normal.
- NO >> Replace combination switch (wiper and washer switch). Refer to [WW-90, "Removal and Installation"](#).

WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER MOTOR CIRCUIT

Diagnosis Procedure

INFOID:000000006917573

Regarding Wiring Diagram information, refer to [WW-68. "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. Disconnect front washer motor.
2. Turn ignition switch ON.
3. Check voltage between front washer motor harness connector and ground.

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

Is the measurement value normal?

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

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

Does continuity exist?

- 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

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

WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Does continuity exist?

YES >> GO TO 5

NO >> Repair or replace harness.

5. CHECK WIPER AND WASHER SWITCH

Check wiper and washer switch. Refer to [WW-26, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace front washer motor. Refer to [WW-88, "FRONT WASHER PUMP : Removal and Installation"](#).

NO >> Replace wiper and washer switch. Refer to [WW-90, "Removal and Installation"](#).

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000006917501

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 - 6	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
DOOR SW-AS	Passenger door closed	OFF
	Passenger door opened	ON
DOOR SW-RR	Rear RH door closed	OFF
	Rear RH door opened	ON
DOOR SW-RL	Rear LH door closed	OFF
	Rear LH door opened	ON

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
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
FAN ON SIG	When AUTO switch or fan switch is pressed	ON
AIR COND SW	When A/C 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 driver door request switch is not pressed	OFF
	When driver door request switch is pressed	ON
REQ SW-AS	When passenger door request switch is not pressed	OFF
	When passenger door request switch is pressed	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 -F/B	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status	
ACC RLY -F/B	Ignition switch OFF	OFF	A
	Ignition switch ACC or ON	ON	
CLUTCH SW	When the clutch pedal is not depressed	OFF	B
	When the clutch pedal is depressed	ON	
BRAKE SW 1	When the brake pedal is not depressed	ON	C
	When the brake pedal is depressed	OFF	
DETE/CANCL SW	When selector lever is in P position	OFF	D
	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	E
	When selector lever is in P or N position	ON	
S/L -LOCK	Electronic steering column lock LOCK status	OFF	F
	Electronic steering column lock UNLOCK status	ON	
S/L -UNLOCK	Electronic steering column lock UNLOCK status	OFF	G
	Electronic steering column lock LOCK status	ON	
S/L RELAY-F/B	Ignition switch OFF or ACC	OFF	H
	Ignition switch ON	ON	
UNLK SEN-DR	Driver door UNLOCK status	OFF	I
	Driver door LOCK status	ON	
PUSH SW -IPDM	When engine switch (push switch) is not pressed	OFF	J
	When engine switch (push switch) is pressed	ON	
IGN RLY1 F/B	Ignition switch OFF or ACC	OFF	K
	Ignition switch ON	ON	
DETE SW -IPDM	When selector lever is in P position	OFF	WW
	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	M
	When selector lever is in P or N position	ON	
SFT P -MET	When selector lever is in any position other than P	OFF	N
	When selector lever is in P position	ON	
SFT N -MET	When selector lever is in any position other than N	OFF	O
	When selector lever is in N position	ON	
ENGINE STATE	Engine stopped	STOP	P
	While the engine stalls	STALL	
	At engine cranking	CRANK	
	Engine running	RUN	
S/L LOCK-IPDM	Electronic steering column lock LOCK status	OFF	
	Electronic steering column lock UNLOCK status	ON	
S/L UNLCK-IPDM	Electronic steering column lock UNLOCK status	OFF	
	Electronic steering column lock LOCK status	ON	
S/L RELAY-REQ	Ignition switch OFF or ACC	OFF	
	Ignition switch ON	ON	
VEH SPEED 1	While driving	Equivalent to speedometer reading	
VEH SPEED 2	While driving	Equivalent to speedometer reading	

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

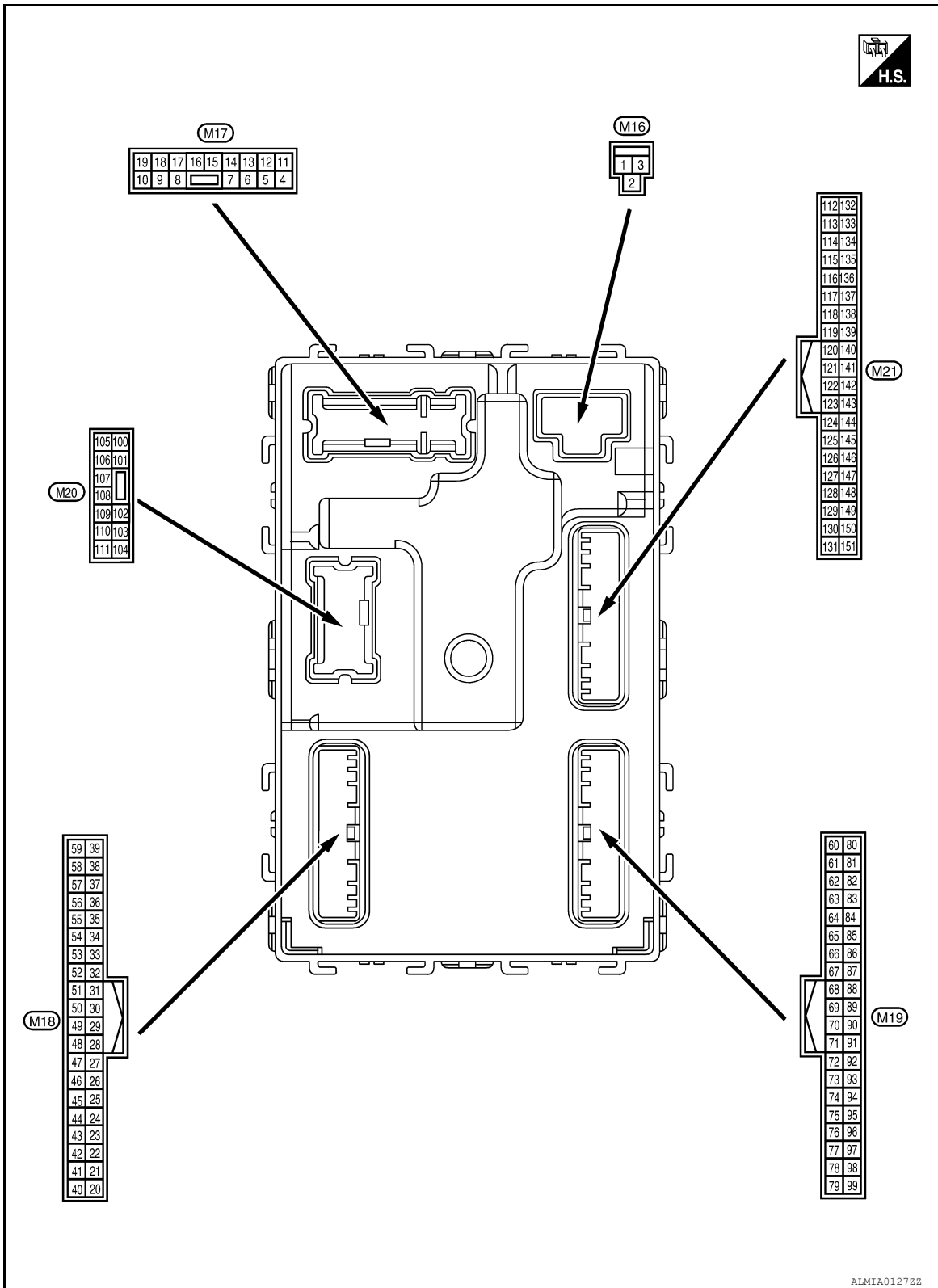
Monitor Item	Condition	Value/Status
DR DOOR STATE	Driver door LOCK status	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door UNLOCK status	UNLK
AS DOOR STATE	Passenger door LOCK status	LOCK
	Wait with selective UNLOCK operation (5 seconds)	READY
	Passenger door UNLOCK status	UNLK
ID OK FLAG	Ignition switch ACC or ON	RESET
	Ignition switch OFF	SET
PRMT ENG STAT	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
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
WARNING LAMP	Tire pressure indicator OFF	OFF
	Tire pressure indicator ON	ON

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:000000006917502



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

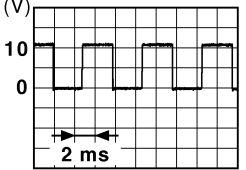
WW

Physical Values

INFOID:000000006917503

BCM (BODY CONTROL MODULE)

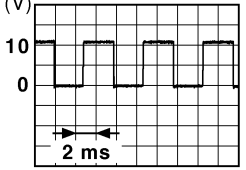
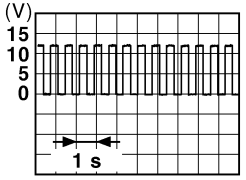
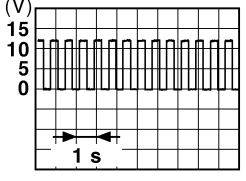
< ECU DIAGNOSIS INFORMATION >

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/Y)	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 (G)	Ground	Front door LH UNLOCK	Output	Front door LH	UNLOCK (actuator is activated)	Battery voltage
					Other than UNLOCK (actuator is not activated)	0V
10 ¹ (G/Y)	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 ¹ (O/W)	Ground	Engine switch (push switch) illumination ground	Input	Tail lamp	OFF	0V
					ON	<p>NOTE: When the illumination brightening/dimming level is in the neutral position</p>  <p style="text-align: center;">(V)</p> <p style="text-align: center;">10 0</p> <p style="text-align: center;">2 ms</p>

JSNIA0010GB

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
(+)	(-)	Signal name	Input/ Output			
14 ⁸ (R/Y)	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  <small>JSN1A0010GB</small>
15 (Y/L)	Ground	ACC indicator lamp	Output	Ignition switch	OFF	Battery voltage
					ACC	0V
17 (G/B)	Ground	Turn signal (RH)	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 <small>PKID0926E</small> 6.5 V
18 (G/Y)	Ground	Turn signal (LH)	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 <small>PKID0926E</small> 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
22 ² (R/Y)	Ground	Clutch interlock switch	Input	Clutch interlock switch	OFF (clutch pedal is not depressed)	0V
					ON (clutch pedal is depressed)	Battery voltage
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 not depressed)	0V
					ON (brake pedal is depressed)	Battery voltage

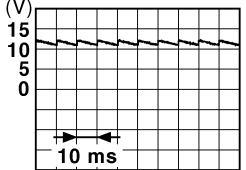
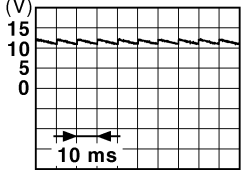
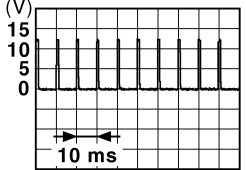
A
B
C
D
E
F
G
H
I
J
K

WW

M
N
O
P

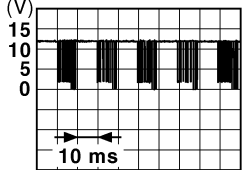
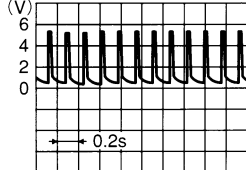
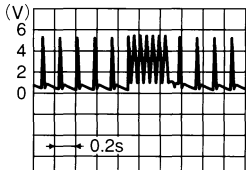
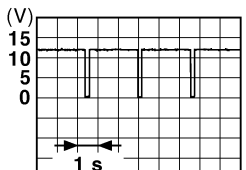
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
27 (G/W)	Ground	Front door lock as- sembly LH (unlock sensor)	Input	Front door LH	LOCK status	 <small>JPMIA0011GB</small> 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
30 (V/Y)	Ground	ACC feedback signal	Input	Ignition switch	OFF	0
					ACC or ON	Battery voltage
31 (G)	Ground	Rear window defog- ger feedback signal	Input	Rear window de- fogger switch	OFF	0V
					ON	Battery voltage
32 (R/B)	Ground	Front door RH switch	Input	Front door RH switch	OFF (when front door RH closes)	 <small>JPMIA0011GB</small> 11.8 V
					ON (when front door RH opens)	0V
33 (SB)	Ground	Compressor ON sig- nal	Input	A/C switch	OFF	9V - 12V
					ON	0V
34 ³ (L/R)	Ground	Front door lock as- sembly LH (key cylin- der switch) (unlock)	Input	Front door lock assembly LH (key cylinder switch)	OFF (neutral)	Battery voltage
					ON (unlock)	0V
36 ³ (GR)	Ground	Lock switch signal	Input	Door lock/unlock switch	Lock	Battery voltage
					Unlock	0V
37 (O)	Ground	Trunk lid opener can- cel switch	Input	Trunk lid opener cancel switch	CANCEL	 <small>JPMIA0012GB</small> 1.1V
					ON	0V
38 (GR/ W)	Ground	Rear window defog- ger ON signal	Input	Rear window de- fogger switch	OFF	Battery voltage
					ON	0V
39 ³ (GR/ R)	Ground	Unlock switch signal	Input	Door lock/unlock switch	Unlock	Battery voltage
					Lock	0V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

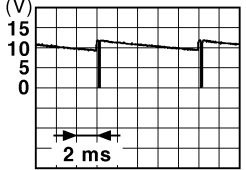
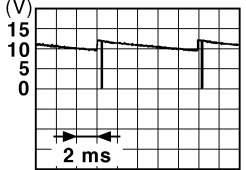

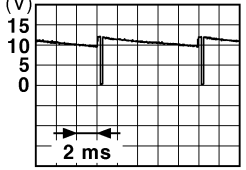
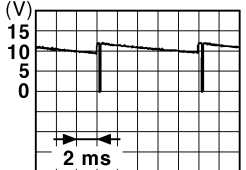
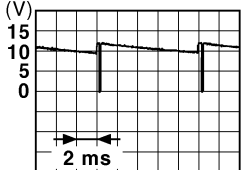
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
40 ⁴ (Y/G)	Ground	Power window serial link	Input/ Output	Ignition switch ON	 10.2V	
				Ignition switch OFF or ACC	0V	
41 (W)	Ground	Engine switch (push switch) illumination	Output	Engine switch (push 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	
47 (G/O)	Ground	Tire pressure receiver signal	Input/ Output	Ignition switch ON	 	
				When receiving the signal from the transmitter	 	
48 (R/G)	Ground	Selector lever P/N position 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	 11.3V	
				OFF	Battery voltage	

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

WW

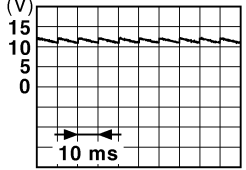
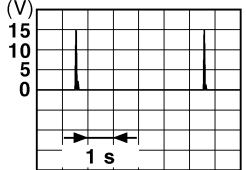
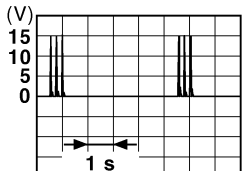
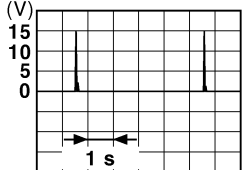
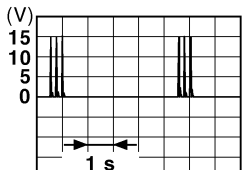
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
(+)	(-)	Signal name	Input/ Output			
50 (LG/ B)	Ground	Combination switch OUTPUT 5	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF Lighting switch 1ST Lighting switch high-beam Lighting switch 2ND Turn signal switch RH	0V  10.7V
				Combination switch	All switch OFF (Wiper intermittent dial 4)	0V
					Front wiper switch HI (Wiper intermittent dial 4)	 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						
52 (G/B)	Ground	Combination switch OUTPUT 2	Output	Combination switch	All switch OFF (Wiper intermittent dial 4) Front washer switch ON (Wiper intermittent dial 4)	0V  10.7V
				Combination switch	Any of the conditions below with all switch OFF	 10.7V
					• Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	
53 (LG/ R)	Ground	Combination switch OUTPUT 3	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF Front wiper switch INT Front wiper switch LO Lighting switch AUTO	0V  10.7V
				Combination switch (Wiper intermittent dial 4)	All switch OFF Front fog lamp switch ON Lighting switch 2ND Lighting switch flash-to-pass	 10.7V
					Turn signal switch LH	
55 (BR/ W)	Ground	Front blower monitor	Input	Front blower motor switch	ON OFF	Battery voltage 0V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

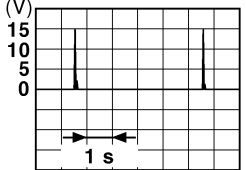
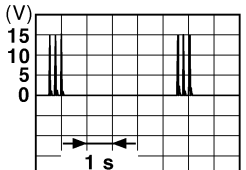
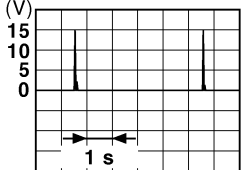
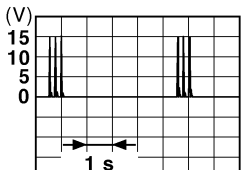
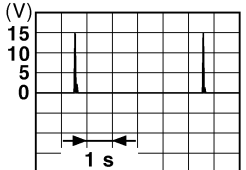
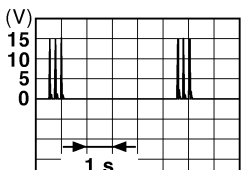
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
(+)	(-)					
56 ³ (L/B)	Ground	Front door lock assembly LH (key cylinder switch) (lock)	Input	Front door lock assembly LH (key cylinder switch)	OFF (neutral)	Battery voltage
					ON (lock)	0V
57 (W)	Ground	Tire pressure warning check switch	Input	—	—	Battery voltage
58 (SB)	Ground	Front door LH switch	Input	Front door LH switch	OFF (front door LH CLOSE)	 <p style="text-align: right; margin-right: 50px;">JPMIA0011GB</p> <p style="text-align: center;">11.8V</p>
					ON (front door LH OPEN)	0V
59 (G/R)	Ground	Rear window defogger relay	Output	Rear window defogger	Active	Battery voltage
					Not activated	0V
60 (B/R)	Ground	Front console antenna 2 (-)	Output	Ignition switch OFF	When Intelligent Key is in the passenger compartment	 <p style="text-align: right; margin-right: 50px;">JMKIA0062GB</p>
					When Intelligent Key is not in the passenger compartment	 <p style="text-align: right; margin-right: 50px;">JMKIA0063GB</p>
61 (W/R)	Ground	Center console antenna 2 (+)	Output	Ignition switch OFF	When Intelligent Key is in the passenger compartment	 <p style="text-align: right; margin-right: 50px;">JMKIA0062GB</p>
					When Intelligent Key is not in the passenger compartment	 <p style="text-align: right; margin-right: 50px;">JMKIA0063GB</p>

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

WW

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
(+)	(-)	Signal name	Input/ Output		
62 (B/Y)	Ground	Front outside handle RH antenna (-)	Output	When Intelligent Key is in the antenna detection area	 <p style="text-align: right; font-size: small;">JMKIA0062GB</p>
				When the front door RH request switch is operat- ed with ignition switch OFF	 <p style="text-align: right; font-size: small;">JMKIA0063GB</p>
63 (LG)	Ground	Front outside handle RH antenna (+)	Output	When Intelligent Key is in the antenna detection area	 <p style="text-align: right; font-size: small;">JMKIA0062GB</p>
				When the front door RH request switch is operat- ed with ignition switch OFF	 <p style="text-align: right; font-size: small;">JMKIA0063GB</p>
64 (V)	Ground	Front outside handle LH antenna (-)	Output	When Intelligent Key is in the antenna detection area	 <p style="text-align: right; font-size: small;">JMKIA0062GB</p>
				When the front door LH request switch is operat- ed with ignition switch OFF	 <p style="text-align: right; font-size: small;">JMKIA0063GB</p>

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

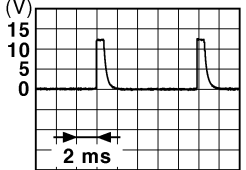

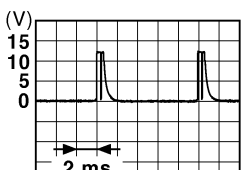
Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
(+)	(-)	Signal name	Input/ Output			
65 (P)	Ground	Front outside handle LH antenna (+)	Output	When the front door LH request switch is operat- ed with ignition switch OFF	<p style="text-align: right; font-size: small;">JMKIA0062GB</p>	
				When Intelligent Key is not in the antenna detection area	<p style="text-align: right; font-size: small;">JMKIA0063GB</p>	
68 (G/O)	Ground	NATS antenna amp (built in key slot)	Input/ Output	During waiting	Ignition switch is pressed while inserting the Intelli- gent 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 Intelli- gent Key into the key slot.	Just after pressing ignition switch. Pointer of tester should move.
70 (R/B)	Ground	Ignition relay-2 con- trol	Output	Ignition switch	OFF or ACC	0V
					ON	Battery voltage
71 (L/O)	Ground	Remote keyless entry receiver signal	Input/ Output	During waiting	<p style="text-align: right; font-size: small;">JMKIA0064GB</p>	
				When operating either button on Intelligent Key	<p style="text-align: right; font-size: small;">JMKIA0065GB</p>	

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

WW

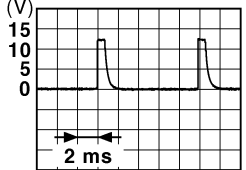
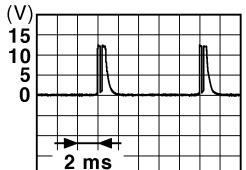

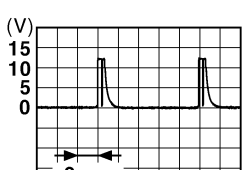
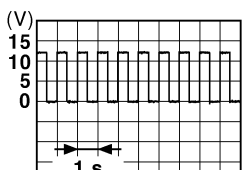
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
(+)	(-)	Signal name	Input/ Output		
75 (R/Y)	Ground	Combination switch INPUT 5	Input	Combination switch	All switch OFF (Wiper intermittent dial 4) <div style="text-align: right;">  <p>1.4V</p> </div>
					Front fog lamp switch ON (Wiper intermittent dial 4) <div style="text-align: right;">  <p>1.3V</p> </div>
					Any of the conditions below with all switch OFF <ul style="list-style-type: none"> • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7 <div style="text-align: right;">  <p>1.3V</p> </div>

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
		Signal name	Input/ Output			
(+)	(-)					
76 (R/G)	Ground	Combination switch INPUT 3	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 <small>JPMIA0041GB</small> 1.4V
					Lighting switch high-beam (Wiper intermittent dial 4)	 <small>JPMIA0036GB</small> 1.3V
					Lighting switch 2ND (Wiper intermittent dial 4)	 <small>JPMIA0037GB</small> 1.3V
					Any of the conditions below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	 <small>JPMIA0040GB</small> 1.3V
77 (BR)	Ground	Engine switch (push switch)	Input	Engine switch (push switch)	Pressed	0V
					Not pressed	Battery voltage
78 (P)	Ground	CAN-L	Input/ Output	—	—	
79 (L)	Ground	CAN-H	Input/ Output	—	—	
80 (R/L)	Ground	Key slot illumination	Output	Key slot illumina- tion	OFF	0V
					Blinking	 <small>JPMIA0015GB</small> 6.5V
					ON	Battery voltage

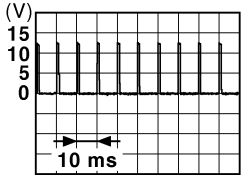
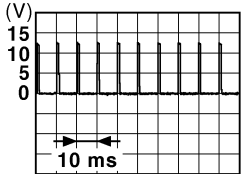
A
B
C
D
E
F
G
H
I
J
K

WW

M
N
O
P

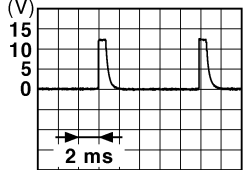
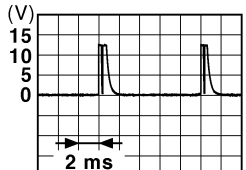

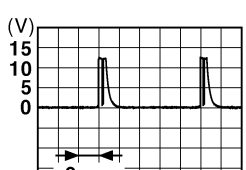
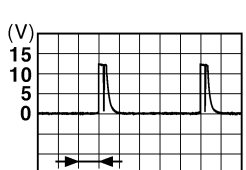
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
81 (LG)	Ground	ON indicator lamp	Output	Ignition switch	OFF or ACC	Battery voltage
					ON	0V
83 (L)	Ground	ACC relay control	Output	Ignition switch	OFF	0V
					ACC or ON	Battery voltage
84 ⁵ (Y/R)	Ground	CVT shift selector	Output	—		Battery voltage
85 (L/O)	Ground	Electronic steering column lock condition No. 1	Input	Electronic steer- ing column lock	Lock status	0V
					Unlock status	Battery voltage
86 (G/R)	Ground	Electronic steering column lock condition No. 2	Input	Electronic steer- ing column lock	Lock status	Battery voltage
					Unlock status	0V
87 ⁵ (G/B)	Ground	Selector lever P posi- tion switch	Input	Selector lever	P position	0V
					Any position other than P	Battery voltage
88 (P/L)	Ground	Front door RH re- quest switch	Input	Front door RH re- quest switch	ON (pressed)	0V
					OFF (not pressed)	 <p style="text-align: right;">1.0V</p>
89 (B/W)	Ground	Front door LH re- quest switch	Input	Front door LH re- quest switch	ON (pressed)	0V
					OFF (not pressed)	 <p style="text-align: right;">1.0V</p>
90 (Y)	Ground	Blower fan motor re- lay control	Output	Ignition switch	OFF or ACC	0V
					ON	Battery voltage
91 (L/R)	Ground	Remote keyless entry receiver power sup- ply	Output	Ignition switch OFF		Battery voltage
94 (G/Y)	Ground	Electronic steering column lock power supply	Output	Ignition switch	OFF or ACC	Battery voltage
					ON	0V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

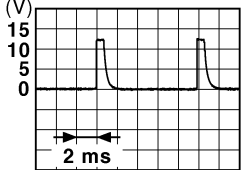
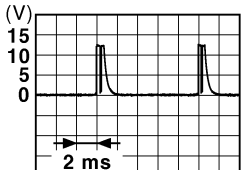
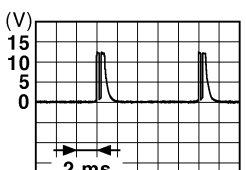
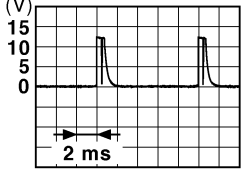
Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
(+)	(-)	Signal name	Input/ Output			
95 (R/W)	Ground	Combination switch INPUT 1	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	 <p style="text-align: right; font-size: small;">JPMIA0041GB</p> <p style="text-align: center;">1.4V</p>
					Turn signal switch LH	 <p style="text-align: right; font-size: small;">JPMIA0037GB</p> <p style="text-align: center;">1.3V</p>
					Turn signal switch RH	 <p style="text-align: right; font-size: small;">JPMIA0036GB</p> <p style="text-align: center;">1.3V</p>
					Front wiper switch LO	 <p style="text-align: right; font-size: small;">JPMIA0038GB</p> <p style="text-align: center;">1.3V</p>
					Front washer switch ON	 <p style="text-align: right; font-size: small;">JPMIA0039GB</p> <p style="text-align: center;">1.3V</p>

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

WW

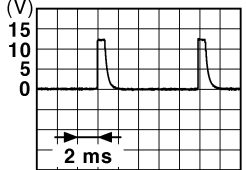
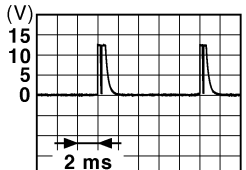

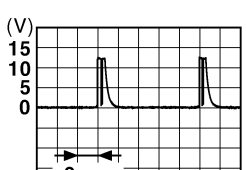

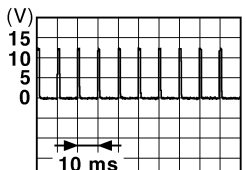
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
(+)	(-)	Signal name	Input/ Output		
96 (P/B)	Ground	Combination switch INPUT 4	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  <p style="text-align: right; font-size: small;">JPMIA0041GB</p> <p style="text-align: center;">1.4V</p>
					Lighting switch AUTO (Wiper intermittent dial 4)  <p style="text-align: right; font-size: small;">JPMIA0038GB</p> <p style="text-align: center;">1.3V</p>
					Lighting switch 1ST (Wiper intermittent dial 4)  <p style="text-align: right; font-size: small;">JPMIA0036GB</p> <p style="text-align: center;">1.3V</p>
					Any of the conditions below with all switch OFF <ul style="list-style-type: none"> • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6  <p style="text-align: right; font-size: small;">JPMIA0039GB</p> <p style="text-align: center;">1.3V</p>

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
(+)	(-)	Signal name	Input/ Output			
97 (R/B)	Ground	Combination switch INPUT 2	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	 <p style="text-align: center;">1.4V</p>
					Lighting switch flash-to-pass	 <p style="text-align: center;">1.3V</p>
					Lighting switch 2ND	 <p style="text-align: center;">1.3V</p>
					Front wiper switch INT	 <p style="text-align: center;">1.3V</p>
					Front wiper switch HI	 <p style="text-align: center;">1.3V</p>
					Pressed	0 V
98 (G/O)	Ground	Hazard switch	Input	Hazard switch	Not pressed	 <p style="text-align: center;">1.1V</p>

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

WW

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
(+)	(-)	Signal name	Input/ Output			
99 (L/Y)	Ground	Electronic steering column lock unit com- munication	Input/ Output	Electronic steer- ing column lock	LOCK status	Battery voltage
					LOCK or UNLOCK	<p style="text-align: right; font-size: small;">JMKIA0066GB</p>
					For 15 seconds after UN- LOCK	Battery voltage
				15 seconds or later after UNLOCK	0V	
103 (V)	Ground	Trunk lid opening	Output	Trunk lid	Open (trunk lid opener ac- tuator is activated)	Battery voltage
					Close (trunk lid opener ac- tuator 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 compart- ment	<p style="text-align: right; font-size: small;">JMKIA0062GB</p>
					When Intelligent Key is not in the passenger compart- ment	<p style="text-align: right; font-size: small;">JMKIA0063GB</p>

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

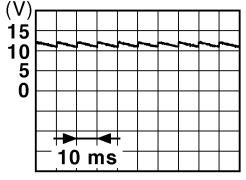
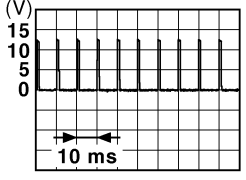
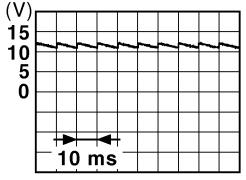
Terminal No. (Wire color)		Description		Condition	Value (Approx.)
(+)	(-)	Signal name	Input/ Output		
115 (W)	Ground	Trunk room antenna 1 (+)	Output	Ignition switch OFF	<p style="text-align: right; font-size: small;">JMKIA0062GB</p>
				When Intelligent Key is not in the passenger compart- ment	<p style="text-align: right; font-size: small;">JMKIA0063GB</p>
118 (L/O)	Ground	Rear bumper anten- na (-)	Output	When the trunk lid request switch is operated with ignition switch OFF	<p style="text-align: right; font-size: small;">JMKIA0062GB</p>
				When Intelligent Key is not in the antenna detection area	<p style="text-align: right; font-size: small;">JMKIA0063GB</p>
119 (BR/ W)	Ground	Rear bumper anten- na (+)	Output	When the trunk lid request switch is operated with ignition switch OFF	<p style="text-align: right; font-size: small;">JMKIA0062GB</p>
				When Intelligent Key is not in the antenna detection area	<p style="text-align: right; font-size: small;">JMKIA0063GB</p>

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

WW

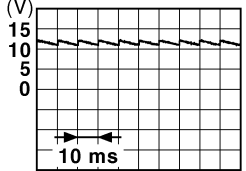
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
		Signal name	Input/ Output			
(+)	(-)					
127 (BR/ W)	Ground	Ignition relay (IPDM E/R) control	Output	Ignition switch	OFF or ACC	Battery voltage
					ON	0V
130 (Y/G)	Ground	Trunk room lamp switch	Input	Trunk room lamp switch	OFF (trunk is closed)	 <p style="text-align: right; margin-right: 50px;">11.8V</p>
					ON (trunk is open)	0V
132 (R)	Ground	Starter motor relay control	Output	Ignition switch OFF (M/T vehi- cle)	When the clutch pedal is depressed	Battery voltage
					When the clutch pedal is not depressed	0V
				Ignition switch ON (other than M/ T vehicle)	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
141 (G/R)	Ground	Trunk request switch	Input	Trunk request switch	ON (pressed)	0V
					OFF (not pressed)	 <p style="text-align: right; margin-right: 50px;">1.0V</p>
144 (GR)	Ground	Request switch buzz- er	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 ¹ (R/W)	Ground	Rear door RH switch	Input	Rear door RH switch	OFF (when rear door RH closes)	 <p style="text-align: right; margin-right: 50px;">11.8V</p>
					ON (when rear door RH opens)	0V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
(+)	(-)	Signal name	Input/ Output		
149 ¹ (R/B)	Ground	Rear door LH switch	Input	Rear door LH switch	 <p>11.8V</p>
				OFF (when rear door LH closes)	0V
				ON (when rear door LH opens)	

- 1: Sedan only
- 2: M/T only
- 3: With LH front window anti-pinch
- 4: With LH and RH front window anti-pinch.
- 5: CVT only
- 6: With auto lights
- 7: With low tire pressure warning system
- 8: Coupe only

Fail Safe

INFOID:000000006917504

Display contents of CONSULT	Fail-safe	Cancellation
B2013: ID DISCORD BCM-S/L	Inhibit engine cranking	Erase DTC
B2014: CHAIN OF S/L-BCM	Inhibit engine cranking	Erase DTC
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
B2557: VEHICLE SPEED	Inhibit electronic steering column lock	When normal vehicle speed signals have been received from ABS actuator and electric unit (control unit) for 500 ms
B2560: STARTER CONT RELAY	Inhibit engine cranking	500 ms after the following CAN signal communication status has become consistent <ul style="list-style-type: none"> • Starter control relay signal • Starter relay status signal
B2562: LO VOLTAGE	<ul style="list-style-type: none"> • Inhibit engine cranking • Inhibit electronic steering column lock 	100 ms after the power supply voltage increases to more than 8.8 V
B2601: SHIFT POSITION	Inhibit electronic steering column lock	500 ms after the following signal reception status becomes consistent <ul style="list-style-type: none"> • Selector lever P position switch signal • P range signal (CAN)
B2602: SHIFT POSITION	Inhibit electronic steering column lock	5 seconds after the following BCM recognition conditions are fulfilled <ul style="list-style-type: none"> • Ignition switch is in the ON position • Selector lever P position switch signal: Except P position (battery voltage) • Vehicle speed: 4 /h or more

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Display contents of CONSULT	Fail-safe	Cancellation
B2603: SHIFT POSI STATUS	Inhibit electronic steering column lock	500 ms after the following BCM recognition conditions are fulfilled <ul style="list-style-type: none"> • Ignition switch is in the ON position • Selector lever P position switch signal: Except P position (battery voltage) • Selector lever P/N position signal: Except P and N positions (0 V)
B2604: PNP SW	Inhibit electronic steering column lock	500 ms after any of the following BCM recognition conditions is fulfilled <ul style="list-style-type: none"> • Status 1 <ul style="list-style-type: none"> - Ignition switch is in the ON position - Selector lever P/N position signal: P and N position (battery voltage) - P range signal or N range signal (CAN): ON • Status 2 <ul style="list-style-type: none"> - Ignition switch is in the ON position - Selector lever P/N position signal: Except P and N positions (0 V) - P range signal and N range signal (CAN): OFF
B2605: PNP SW	Inhibit electronic steering column lock	500 ms after any of the following BCM recognition conditions is fulfilled <ul style="list-style-type: none"> • Ignition switch is in the ON position <ul style="list-style-type: none"> - Power position: IGN - Selector lever P/N position signal: Except P and N positions (0 V) - Interlock/transmission switch signal (CAN): OFF • Status 2 <ul style="list-style-type: none"> - Ignition switch is in the ON position - Selector lever P/N position signal: P or N position (battery voltage) - transmission switch signal (CAN): ON
B2606: S/L RELAY	Inhibit engine cranking	500 ms after the following CAN signal communication status has become consistent <ul style="list-style-type: none"> • Electronic steering column lock relay signal (Request signal) • Electronic steering column lock relay signal (Condition signal)
B2607: S/L RELAY	Inhibit engine cranking	500 ms after the following CAN signal communication status has become consistent <ul style="list-style-type: none"> • Electronic steering column lock relay signal (Request signal) • Electronic steering column lock relay signal (Condition signal)
B2608: STARTER RELAY	Inhibit engine cranking	500 ms after the following signal communication status becomes consistent <ul style="list-style-type: none"> • Starter motor relay control signal • Starter relay status signal (CAN)
B2609: S/L STATUS	<ul style="list-style-type: none"> • Inhibit engine cranking • Inhibit electronic steering column lock 	When the following electronic steering column lock conditions agree <ul style="list-style-type: none"> • BCM electronic steering column lock control status • Electronic steering column lock condition No. 1 signal status • Electronic steering column lock condition No. 2 signal status
B260A: IGNITION RELAY	Inhibit engine cranking	500 ms after the following conditions are fulfilled <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Power position changes to ACC • Receives engine status signal (CAN)
B2612: S/L STATUS	<ul style="list-style-type: none"> • Inhibit engine cranking • Inhibit electronic steering column lock 	When any of the following conditions is fulfilled <ul style="list-style-type: none"> • Electronic steering column lock unit status signal (CAN) is received normally • The BCM electronic steering column lock control status matches the electronic steering column lock status recognized by the electronic steering column lock unit status signal (CAN from IPDM E/R)
B2617: STARTER RELAY CIRC	Inhibit engine cranking	1 second after the starter motor relay control inside BCM becomes normal

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Display contents of CONSULT	Fail-safe	Cancellation
B2618: BCM	Inhibit engine cranking	1 second after the ignition relay (IPDM E/R) control inside BCM becomes normal
B2619: BCM	Inhibit engine cranking	1 second after the electronic steering column lock unit power supply output control inside BCM becomes normal
B261E: VEHICLE TYPE	Inhibit engine cranking	BCM initialization
B26E1: ENG STATE NO RECIV	Inhibit engine cranking	When any of the following conditions is fulfilled <ul style="list-style-type: none"> • Power position changes to ACC • Receives engine status signal (CAN)
B26E8: CLUTCH SW	Inhibit engine cranking	When any of the following BCM recognition conditions are fulfilled <ul style="list-style-type: none"> • Status 1 <ul style="list-style-type: none"> - Clutch switch signal (CAN from ECM): ON - Clutch interlock switch signal: OFF (0 V) • Status 2 <ul style="list-style-type: none"> - Clutch switch signal (CAN from ECM): OFF - Clutch interlock switch signal: OFF (Battery voltage)
B26E9: S/L STATUS	<ul style="list-style-type: none"> • Inhibit engine cranking • Inhibit electronic steering column lock 	When BCM transmits the LOCK request signal to the steering lock unit and receives LOCK response signal from steering lock unit, the following conditions are fulfilled <ul style="list-style-type: none"> • Steering condition No 1 signal: LOCK (0V) • Steering condition No 2 signal: LOCK (Battery voltage)

DTC Inspection Priority Chart

INFOID:000000006917505

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

Priority	DTC
1	<ul style="list-style-type: none"> • B2562: LOW VOLTAGE
2	<ul style="list-style-type: none"> • U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
3	<ul style="list-style-type: none"> • B2190: NATS ANTENNA AMP • B2191: DIFFERENCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM • B2195: ANTI SCANNING

A
B
C
D
E
F
G
H
I
J
K
P

WW

M
N
O

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Priority	DTC
4	<ul style="list-style-type: none"> • B2013: ID DISCORD BCM-S/L • B2014: CHAIN OF S/L-BCM • 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 SW • B2605: PNP SW • B2606: S/L RELAY • B2607: S/L RELAY • B2608: STARTER RELAY • B2609: S/L STATUS • B260A: IGNITION RELAY • B260B: STEERING LOCK UNIT • B260C: STEERING LOCK UNIT • B260D: STEERING LOCK UNIT • B260F: ENG STATE SIG LOST • B2611: ACC RELAY • B2612: S/L STATUS • B2614: ACC RELAY CIRC • B2615: BLOWER RELAY CIRC • B2616: IGN RELAY CIRC • B2617: STARTER RELAY CIRC • B2618: BCM • B2619: BCM • B261A: PUSH-BTN IGN SW • B261E: VEHICLE TYPE • B26E1: ENG STATE NO RECIV • B26E8: CLUTCH SW • B26E9: S/L STATUS • B26EA: KEY REGISTRATION • C1729: VHCL SPEED SIG ERR • U0415: VEHICLE SPEED SIG
5	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • B2622: INSIDE ANTENNA • B2623: INSIDE ANTENNA

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

DTC Index

INFOID:000000006917506

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 like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	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
B2013: ID DISCORD BCM-S/L	×	—	—	SEC-36 (Coupe), SEC-250 (Sedan)
B2014: CHAIN OF S/L-BCM	×	—	—	SEC-37 (Coupe), SEC-251 (Sedan)
B2190: NATS ANTENNA AMP	×	—	—	SEC-65 (Coupe), SEC-281 (Sedan)
B2191: DIFFERENCE OF KEY	×	—	—	SEC-69 (Coupe), SEC-285 (Sedan)
B2192: ID DISCORD BCM-ECM	×	—	—	SEC-70 (Coupe), SEC-286 (Sedan)
B2193: CHAIN OF BCM-ECM	×	—	—	SEC-71 (Coupe), SEC-287 (Sedan)
B2195: ANTI-SCANNING	—	—	—	SEC-72
B2553: IGNITION RELAY	—	—	—	PCS-59
B2555: STOP LAMP	—	—	—	SEC-73 (Coupe), SEC-289 (Sedan)
B2556: PUSH-BTN IGN SW	—	×	—	SEC-78 (Coupe), SEC-294 (Sedan)
B2557: VEHICLE SPEED	×	×	—	SEC-80 (Coupe), SEC-296 (Sedan)
B2560: STARTER CONT RELAY	×	×	—	SEC-81 (Coupe), SEC-297 (Sedan)
B2562: LOW VOLTAGE	—	—	—	BCS-35
B2601: SHIFT POSITION	×	×	—	SEC-82 (Coupe), SEC-298 (Sedan)
B2602: SHIFT POSITION	×	×	—	SEC-86 (Coupe), SEC-302 (Sedan)
B2603: SHIFT POSI STATUS	×	×	—	SEC-89 (Coupe), SEC-305 (Sedan)
B2604: PNP SW	×	×	—	SEC-92 (Coupe), SEC-308 (Sedan)
B2605: PNP SW	×	×	—	SEC-94 (Coupe), SEC-310 (Sedan)
B2606: S/L RELAY	×	×	—	SEC-96 (Coupe), SEC-312 (Sedan)

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
B2607: S/L RELAY	×	×	—	SEC-97 (Coupe), SEC-313 (Sedan)
B2608: STARTER RELAY	×	×	—	SEC-99 (Coupe), SEC-315 (Sedan)
B2609: S/L STATUS	×	×	—	SEC-101 (Coupe), SEC-317 (Sedan)
B260A: IGNITION RELAY	×	×	—	PCS-61
B260B: STEERING LOCK UNIT	—	×	—	SEC-106 (Coupe), SEC-322 (Sedan)
B260C: STEERING LOCK UNIT	—	×	—	SEC-107 (Coupe), SEC-323 (Sedan)
B260D: STEERING LOCK UNIT	—	×	—	SEC-108 (Coupe), SEC-324 (Sedan)
B260F: ENG STATE SIG LOST	×	×	—	SEC-109 (Coupe), SEC-325 (Sedan)
B2611: ACC RELAY	—	—	—	PCS-62
B2612: S/L STATUS	×	×	—	SEC-110 (Coupe), SEC-331 (Sedan)
B2614: ACC RELAY CIRC	—	×	—	PCS-64
B2615: BLOWER RELAY CIRC	—	×	—	PCS-67
B2616: IGN RELAY CIRC	—	×	—	PCS-70
B2617: STARTER RELAY CIRC	×	×	—	SEC-115 (Coupe), SEC-336 (Sedan)
B2618: BCM	×	×	—	PCS-73
B2619: BCM	×	×	—	SEC-117 (Coupe), SEC-338 (Sedan)
B261A: PUSH-BTN IGN SW	—	×	—	SEC-118 (Coupe), SEC-339 (Sedan)
B261E: VEHICLE TYPE	×	× (Turn ON for 15 seconds)	—	SEC-121
B2622: INSIDE ANTENNA	—	—	—	DLK-279
B2623: INSIDE ANTENNA	—	—	—	DLK-282
B26E1: ENG STATE NO RES	×	×	—	SEC-326
B26E8: CLUTCH SW	×	×	—	SEC-123
B26E9: S/L STATUS	×	× (Turn ON for 15 seconds)	—	SEC-125
B26EA: KEY REGISTRATION	×	× (Turn ON for 15 seconds)	—	SEC-126
C1704: LOW PRESSURE FL	—	—	×	WT-8
C1705: LOW PRESSURE FR	—	—	×	WT-8
C1706: LOW PRESSURE RR	—	—	×	WT-8
C1707: LOW PRESSURE RL	—	—	×	WT-8
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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page	A
C1713: [CHECKSUM ERR] FR	—	—	×	WT-15	B
C1714: [CHECKSUM ERR] RR	—	—	×	WT-15	C
C1715: [CHECKSUM ERR] RL	—	—	×	WT-15	D
C1716: [PRESSDATA ERR] FL	—	—	×	WT-17	E
C1717: [PRESSDATA ERR] FR	—	—	×	WT-17	F
C1718: [PRESSDATA ERR] RR	—	—	×	WT-17	G
C1719: [PRESSDATA ERR] RL	—	—	×	WT-17	H
C1720: [CODE ERR] FL	—	—	×	WT-15	I
C1721: [CODE ERR] FR	—	—	×	WT-15	J
C1722: [CODE ERR] RR	—	—	×	WT-15	K
C1723: [CODE ERR] RL	—	—	×	WT-15	L
C1724: [BATT VOLT LOW] FL	—	—	×	WT-15	M
C1725: [BATT VOLT LOW] FR	—	—	×	WT-15	N
C1726: [BATT VOLT LOW] RR	—	—	×	WT-15	O
C1727: [BATT VOLT LOW] RL	—	—	×	WT-15	P
C1729: VHCL SPEED SIG ERR	—	—	×	WT-18	
C1734: CONTROL UNIT	—	—	×	WT-19	

WW

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

< ECU DIAGNOSIS INFORMATION >

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

Reference Value

INFOID:000000006917509

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
RADFAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 - 100 %
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	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 (CVT models)	Off
		Release clutch pedal (M/T models)	
	Ignition switch ON	CVT selector lever in P or N position (CVT models)	On
		Depress clutch pedal (M/T models)	
ST RLY CONT	Ignition switch ON		Off
	At engine cranking		On
IHBT RLY -REQ	Ignition switch ON		Off
	At engine cranking		On

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

< ECU DIAGNOSIS INFORMATION >

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 <ul style="list-style-type: none"> • 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 NOTE: The lever is fixed ON for M/T	On
S/L RLY -REQ	None of the conditions below are present	Off
	<ul style="list-style-type: none"> • Open the driver door after the ignition switch is turned OFF (for a few seconds) • Press the push-button ignition switch when the steering lock is activated • Depress the clutch pedal when the steering lock is activated 	On
S/L STATE	Steering lock is activated	LOCK
	Steering lock is deactivated	UNLK
	[DTC B210A] is detected	UNKWN
OIL P SW	Ignition switch OFF, ACC or engine running	Open
	Ignition switch ON	Close
THFT HRN REQ	Not operated	Off
	<ul style="list-style-type: none"> • 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

A
B
C
D
E
F
G
H
I
J
K

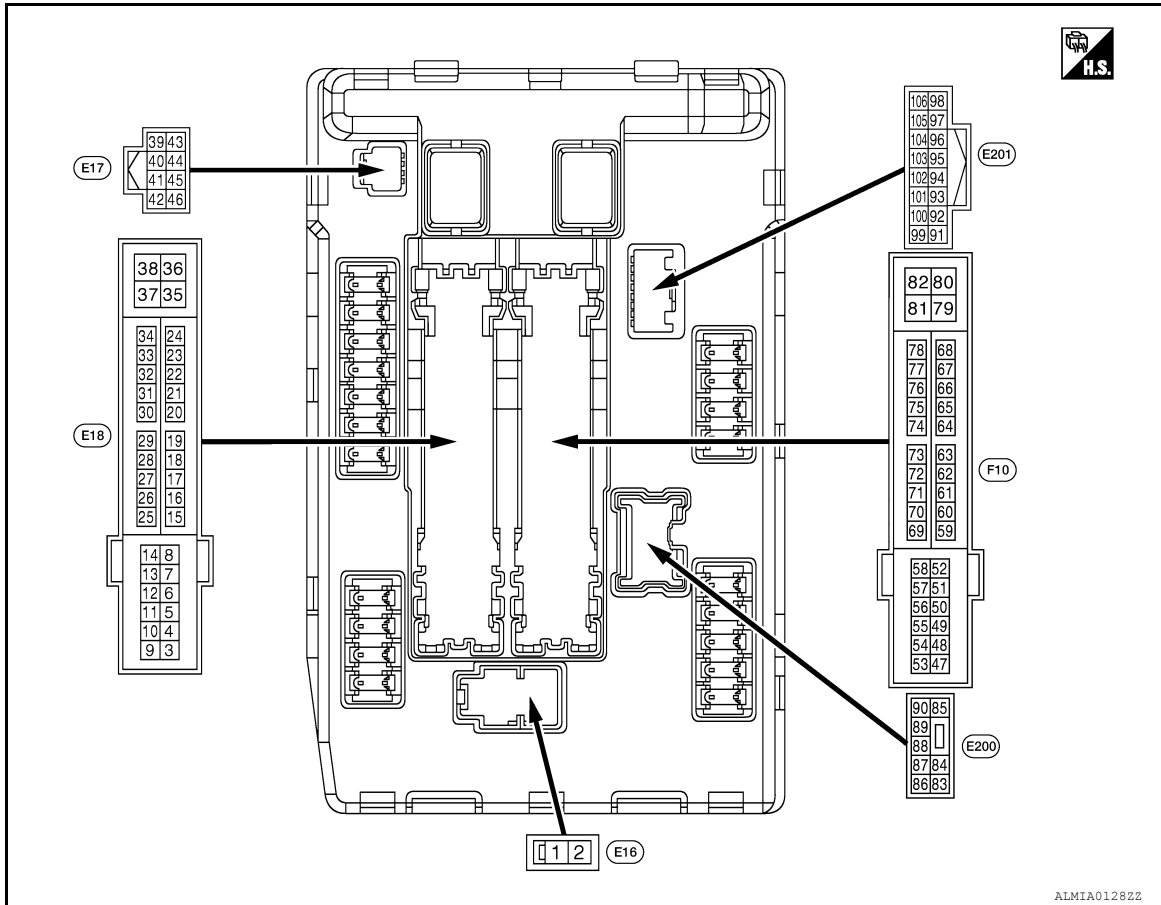
WW

M
N
O
P

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

< ECU DIAGNOSIS INFORMATION >

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 OFF	Front wiper switch OFF	0 V
				Ignition switch ON	Front wiper switch LO	Battery voltage
5 (Y)	Ground	Front wiper HI	Output	Ignition switch OFF	Front wiper switch OFF	0 V
				Ignition switch ON	Front wiper switch HI	Battery voltage
7 (GR)	Ground	Tail, license plate lamps & interior lamps	Output	Ignition switch OFF	Lighting switch OFF	0 V
				Ignition switch ON	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
				<ul style="list-style-type: none"> Ignition switch ON Ignition switch OFF (More than a few seconds after turning ignition switch OFF) 		Battery voltage

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

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)		
+	-	Signal name	Input/ Output					
11 (O)	Ground	Electronic steering column lock power supply	Output	Ignition switch OFF	A few seconds after opening the driver door	Battery voltage	A	
				Ignition switch LOCK	Press the push-button ignition switch	Battery voltage	B	
				Ignition switch ACC or ON		0 V	C	
12 (B)	Ground	Ground	—	Ignition switch ON		0 V	D	
13 (SB)	Ground	Fuel pump power supply	Output	Approximately 1 second or more after turning the ignition switch ON		0 V	E	
				<ul style="list-style-type: none"> Approximately 1 second after turning the ignition switch ON Engine running 		Battery voltage	F	
15 (W)	Ground	Ignition relay-1 power supply	Output	Ignition switch OFF		0 V		
				Ignition switch ON		Battery voltage		
16 (L/Y)	Ground	Front wiper auto stop	Input	Ignition switch ON	Front wiper stop position	0 V	G	
					Any position other than front wiper stop position	Battery voltage		
19 (Y)	Ground	Ignition relay-1 power supply	Output	Ignition switch OFF		0 V	H	
				Ignition switch ON		Battery voltage		
20 (L)	Ground	Ambient sensor ground	—	Ignition switch ON		0V	I	
21 (LG)	Ground	Ambient sensor	—	Ignition switch ON		5V	J	
22 (W/R)	Ground	Refrigerant pressure sensor ground	—	Ignition switch ON		0V		
23 (B/R)	Ground	Refrigerant pressure sensor	—	<ul style="list-style-type: none"> Ignition switch ON (READY) Both A/C switch and blower motor switch ON (electric compressor operates) 		1.0 - 4.0V	K	
24 (BR/W)	Ground	Refrigerant pressure sensor power supply	—	Ignition switch ON		5V	WW	
25 (GR)	Ground	Ignition relay-1 power supply	Output	Ignition switch OFF		0 V		
				Ignition switch ON		Battery voltage	M	
27 (W)	Ground	Ignition relay monitor	Input	Ignition switch OFF or ACC		Battery voltage		
				Ignition switch ON		0 V	N	
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 (R) (with M/T) 30 (BR) (with CVT)	Ground	Starter relay control	Input	CVT models	CVT selector lever in any position other than P or N (ignition switch ON)	0 V	O	
					CVT selector lever P or N (ignition switch ON)	Battery voltage	P	
				M/T models	Release the clutch pedal		0 V	
					Depress the clutch pedal		Battery voltage	

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

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
32 (O/L)	Ground	Electronic steering column lock unit condition-1	Input	Electronic steering column lock is activated	0 V	
				Electronic steering column lock is deactivated	Battery voltage	
33 (G)	Ground	Electronic steering column lock unit condition-2	Input	Electronic steering column lock is activated	Battery voltage	
				Electronic steering column lock is deactivated	0 V	
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 (R/W)	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 (G/B)	Ground	CVT shift selector (Detention switch)	Input	Ignition switch ON	Press the CVT selector button (CVT selector lever P)	
					<ul style="list-style-type: none"> CVT selector lever in any position other than P Release the CVT selector button (CVT selector lever P) 	Battery voltage
44 (G/W) coupe (W) sedan	Ground	Horn relay control	Input	The horn is deactivated	Battery voltage	
				The horn is activated	0 V	
45 (L/O)	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 models	CVT selector lever in any position other than P or N (ignition switch ON)	
					CVT selector lever P or N (ignition switch ON)	Battery voltage
				M/T models	Release the clutch pedal	0 V
					Depress the clutch pedal	Battery voltage
48 (W)	Ground	A/C relay power supply	Output	Engine running	A/C switch OFF	
					A/C switch ON (A/C compressor is operating)	Battery voltage

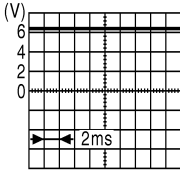
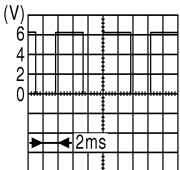
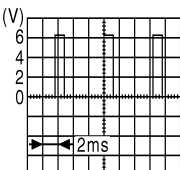
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
49 (V)	Ground	ECM relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)	0 V	A
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	Battery voltage	B C
51 (SB)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 V	D
				Ignition switch ON	Battery voltage	
52 (Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 V	E
				Ignition switch ON	Battery voltage	
53 (V) (with QR25DE) 53 (G) (with VQ35DE)	Ground	ECM relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)	0 V	F
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	Battery voltage	G
54 (GR)	Ground	Throttle control motor relay power supply	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)	0 V	H
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	Battery voltage	I
55 (LG)	Ground	ECM power supply	Output	Ignition switch OFF	Battery voltage	J
56 (R)	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	K
				Ignition switch ON	Battery voltage	
58 (BR) (with CVT)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 V	WW
				Ignition switch ON	Battery voltage	
69 (SB)	Ground	ECM relay control	Output	Ignition switch OFF (For a few seconds after turning ignition switch OFF)	Battery voltage	M
				• Ignition switch ON • Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 - 1.5 V	N
70 (G)	Ground	Throttle control motor relay control	Output	Ignition switch ON → OFF	0 - 1.0 V ↓ Battery voltage ↓ 0 V	O
				Ignition switch ON	0 - 1.0 V	P
72 (W) (with QR25DE) 72 (BR) (with VQ35DE)	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

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

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
74 (L)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
75 (LG)	Ground	Oil pressure switch	Input	Ignition switch ON	Engine stopped	0 V
					Engine running	Battery voltage
76 (Y)	Ground	Power generation command signal	Output	Ignition switch ON		 <small>JPMIA0001GB</small> 6.3 V
				40% is set on "Active test", "ALTERNATOR DUTY" of "ENGINE"		 <small>JPMIA0002GB</small> 3.8 V
				80% is set on "Active test", "ALTERNATOR DUTY" of "ENGINE"		 <small>JPMIA0003GB</small> 1.4 V
77 (GR)	Ground	Fuel pump relay control	Output	<ul style="list-style-type: none"> • 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 (R)	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) (If equipped)	Output	Lighting switch 2ND	Front fog lamp switch ON	Battery voltage
					Front fog lamp switch OFF	0 V
87 (L/Y)	Ground	Front fog lamp (LH) (If equipped)	Output	Lighting switch 2ND	Front fog lamp switch ON	Battery voltage
					Front fog lamp switch OFF	0 V
88 (R/W)	Ground	Washer pump power supply	Output	Ignition switch ON		Battery voltage

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

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
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 (O/L)	Ground	Refrigerant pressure sensor ground	—	Ignition switch ON		0V
102 (R/B)	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

Fail Safe

INFOID:000000006917510

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Parking lamps • License plate lamps • Illumination • Tail lamps 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

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

< ECU DIAGNOSIS INFORMATION >

Control part	Fail-safe in operation
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
Electronic steering column lock unit	Steering lock 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:000000006917511

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-17
B2098: IGN RELAY ON	×	CRNT	1 – 39	PCS-18
B2099: IGN RELAY OFF	—	CRNT	1 – 39	PCS-19
B2108: STRG LCK RELAY ON	—	CRNT	1 – 39	SEC-255
B2109: STRG LCK RELAY OFF	—	CRNT	1 – 39	SEC-256
B210A: STRG LCK STATE SW	—	CRNT	1 – 39	SEC-257
B210B: START CONT RLY ON	—	CRNT	1 – 39	SEC-262
B210C: START CONT RLY OFF	—	CRNT	1 – 39	SEC-263

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

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	TIME ^{NOTE}		Refer to
B210D: STARTER RELAY ON	—	CRNT	1 – 39	SEC-264
B210E: STARTER RELAY OFF	—	CRNT	1 – 39	SEC-266
B210F: INTRLCK/TRANSMISSION RANGE SW ON	—	CRNT	1 – 39	SEC-269
B2110: INTRLCK/TRANSMISSION RANGE SW OFF	—	CRNT	1 – 39	SEC-275

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.

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

WW

FRONT WIPER AND WASHER SYSTEM

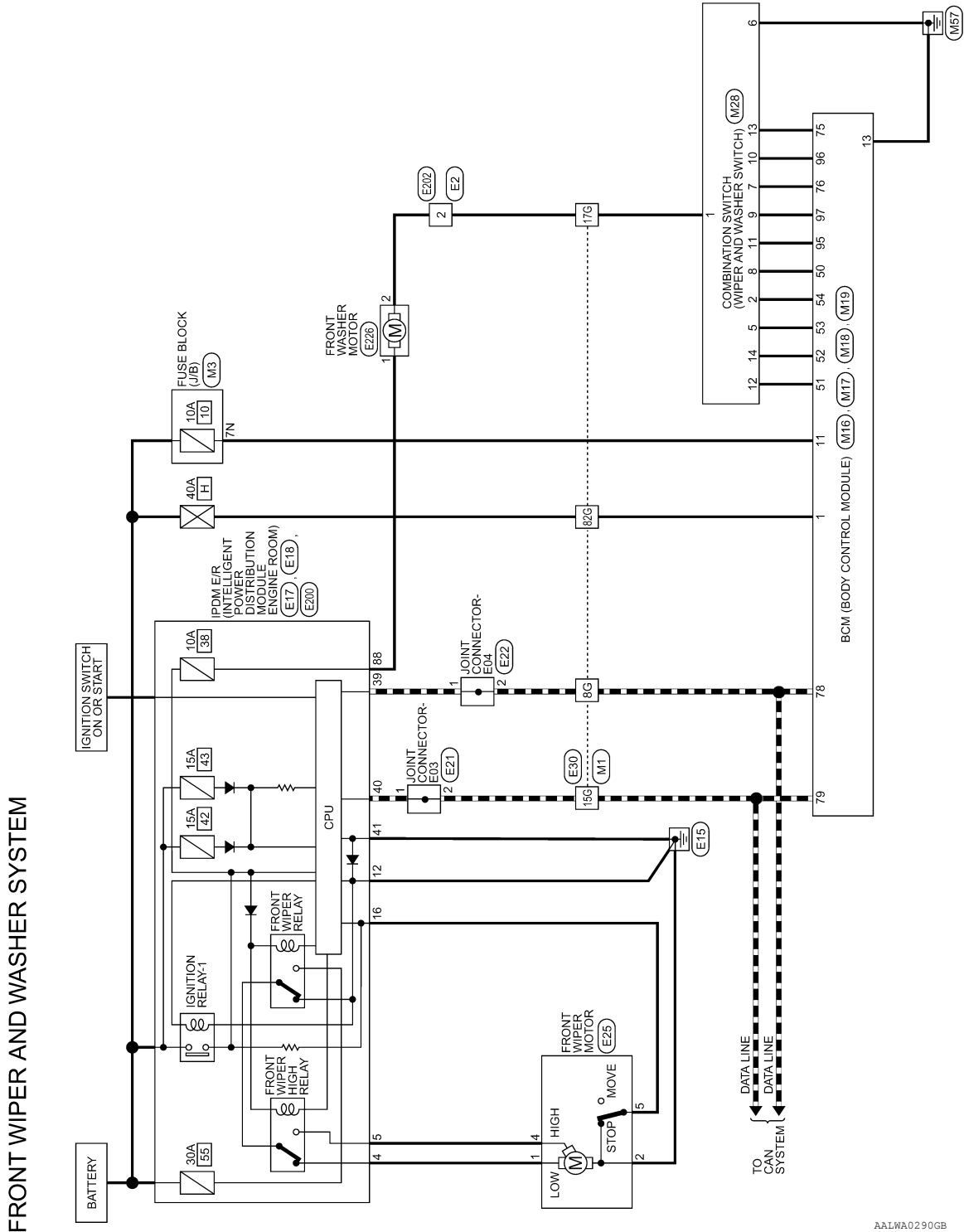
< WIRING DIAGRAM >

WIRING DIAGRAM

FRONT WIPER AND WASHER SYSTEM

Wiring Diagram

INFOID:000000006393156



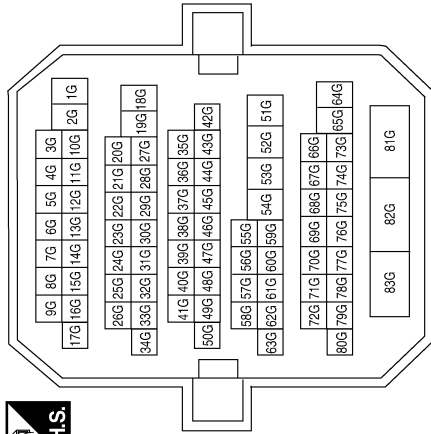
AALWA0290GB

FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

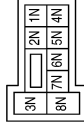
FRONT WIPER AND WASHER SYSTEM CONNECTORS

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



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



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

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



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

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



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



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

ABL1A125GB

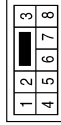
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P



FRONT WIPER AND WASHER SYSTEM

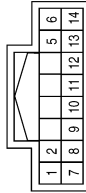
< WIRING DIAGRAM >

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



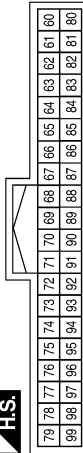
Terminal No.	Color of Wire	Signal Name
2	GR	-

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R/L	WASH_MTR
2	G/Y	OUTPUT_4
5	LG/R	OUTPUT_3
6	B	GND
7	R/G	INPUT_3
8	LG/B	OUTPUT_5
9	R/B	INPUT_2
10	P/B	INPUT_4
11	R/W	INPUT_1
12	L/W	OUTPUT_1
13	R/Y	INPUT_5
14	G/B	OUTPUT_2

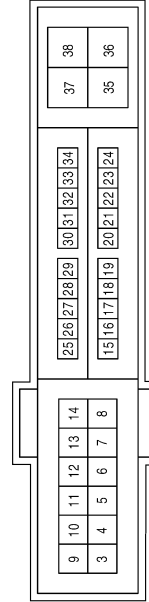
Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



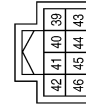
Terminal No.	Color of Wire	Signal Name
75	R/Y	OUTPUT_5
76	R/G	OUTPUT_3
78	P	CAN-L
79	L	CAN-H
95	R/W	OUTPUT_1
96	P/B	OUTPUT_4
97	R/B	OUTPUT_2

Terminal No.	Color of Wire	Signal Name
4	LG	FR WIPER LO
5	Y	FR WIPER HI
12	B	GND (POWER)
16	R	WIPER AUTO STOP

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



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



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

AALIA0464GB

FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

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



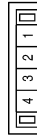
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	B/Y	-
4	Y	-
5	R	-

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



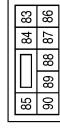
Terminal No.	Color of Wire	Signal Name
1	P	-
2	P	-

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



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

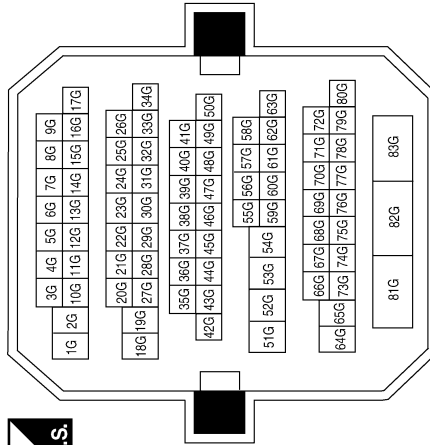
Connector No.	E200
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
88	RW	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



ABLIA2282GB

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

WW

FRONT WIPER AND WASHER SYSTEM

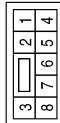
< WIRING DIAGRAM >

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



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

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



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

ABL1A1128GB

FRONT WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

FRONT WIPER AND WASHER SYSTEM SYMPTOMS

Symptom Table

INFOID:000000006393157

CAUTION:

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

Symptom		Probable malfunction location	Inspection item
Front wiper does not operate	HI only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-88, "Symptom Table" .
		<ul style="list-style-type: none"> IPDM E/R Harness between IPDM E/R and wiper motor Front wiper motor 	Front wiper motor (HI) circuit Refer to WW-21, "Component Function Check" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	LO and INT	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-88, "Symptom Table" .
		<ul style="list-style-type: none"> IPDM E/R Harness between IPDM E/R and wiper motor Front wiper motor 	Front wiper motor LO circuit Refer to WW-19, "Component Function Check" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	INT only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-88, "Symptom Table" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	HI, LO, and INT	SYMPTOM DIAGNOSIS Refer to WW-75, "Diagnosis Procedure" .	

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

WW

FRONT WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Probable malfunction location	Inspection item
Front wiper does not stop	HI only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) BCM 	Combination switch (wiper and washer switch) Refer to BCS-88, "Symptom Table" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
		IPDM E/R	—
	LO only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) BCM 	Combination switch (wiper and washer switch) Refer to BCS-88, "Symptom Table" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
		IPDM E/R	—
	INT only	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) BCM 	Combination switch (wiper and washer switch) refer to BCS-88, "Symptom Table" .
		Front wiper request signal <ul style="list-style-type: none"> BCM IPDM E/R 	IPDM E/R Data monitor "FR WIP REQ"
	Front wiper does not operate normally	Intermittent adjustment cannot be performed	<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM
BCM			—
Intermittent control linked with vehicle speed cannot be performed		Check the vehicle speed detection wiper setting. Refer to BCS-21, "WIPER : CONSULT Function (BCM - WIPER)" .	
Wiper is not linked to the washer operation		<ul style="list-style-type: none"> Combination switch (wiper and washer switch) Harness between combination switch (wiper and washer switch) and BCM BCM 	Combination switch (wiper and washer switch) Refer to BCS-88, "Symptom Table" .
		BCM	—
Does not return to stop position (Repeatedly operates for 10 seconds and then stops for 20 seconds. After that, it stops the operation.)	<ul style="list-style-type: none"> IPDM E/R Harness between IPDM E/R and front wiper motor Front wiper motor 	Front wiper auto stop signal circuit Refer to WW-23, "Component Function Check" .	

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

FRONT WIPER DOES NOT OPERATE

Description

INFOID:000000006393158

The front wiper does not operate under any operation conditions

Diagnosis Procedure

INFOID:000000006393159

Regarding Wiring Diagram information, refer to [WW-68, "Wiring Diagram"](#).

1. CHECK WIPER RELAY OPERATION

Ⓜ CONSULT ACTIVE TEST

1. Turn the ignition switch ON.
2. Select "FRONT WIPER" of IPDM E/R active test item.
3. With operating the test item, check that front wiper LO/HI operation and OFF.

LO : Front wiper LO operation

HI : Front wiper HI operation

OFF : Stop the front wiper.

ⓧ 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.

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

Front wiper motor		Ground	Continuity
Connector	Terminal		
E25	2		Yes

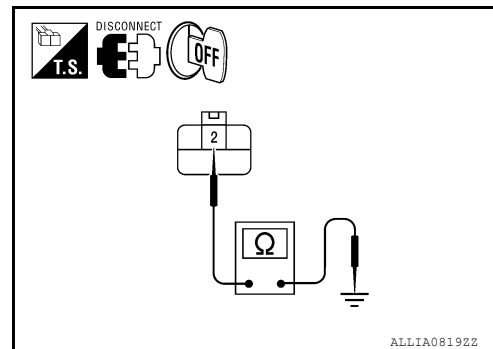
Does continuity exist?

YES >> GO TO 4

NO >> Repair or replace harness.

4. CHECK FRONT WIPER MOTOR OUTPUT VOLTAGE

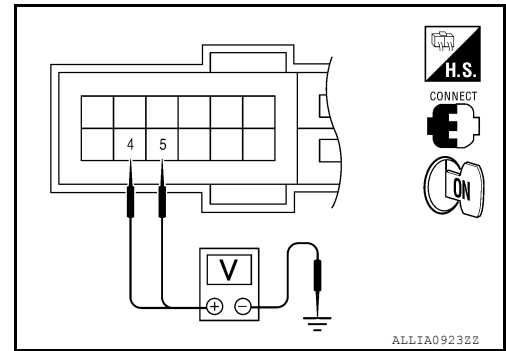
Ⓜ CONSULT ACTIVE TEST



FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

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



Terminals		Test item	Voltage (V) (Approx.)
(+)	(-)		
IPDM E/R		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-84, "FRONT WIPER DRIVE ASSEMBLY : Removal and Installation"](#).
- NO >> Replace IPDM E/R. Refer to [PCS-45, "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	With operating the front wiper switch condition		Monitor status
FR WIPER 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-45, "Removal and Installation"](#).
- NO >> GO TO 6

6. CHECK COMBINATION SWITCH (WIPER AND WASHER SWITCH)

1. Perform the inspection of the combination switch (wiper and washer switch). Refer to [BCS-88, "Symptom Table"](#).

Is combination switch (wiper and washer switch) normal?

- YES >> Replace BCM. Refer to [BCS-92, "Removal and Installation"](#).
- NO >> Repair or replace the malfunctioning parts.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Description

INFOID:000000006393160

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.

A

B

C

D

E

F

G

H

I

J

K

WW

M

N

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000006393161

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.

Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000006393162

NOTE:

- Before removing and installing any control units, first turn the push-button ignition switch to the LOCK position, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

This vehicle is equipped with a push-button ignition switch and a steering lock unit.

If the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

2. Carry the Intelligent Key or insert it to the key slot and turn the push-button ignition switch to ACC position. (At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.
5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)

PRECAUTIONS

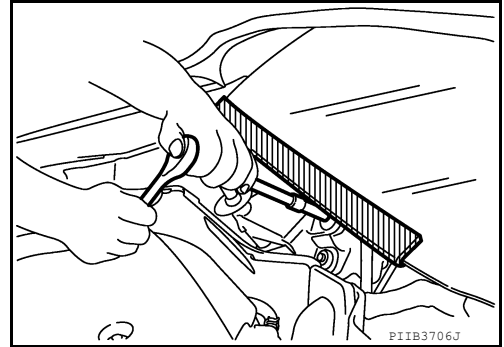
< PRECAUTION >

6. Perform self-diagnosis check of all control units using CONSULT.

Procedures without Cowl Top Cover

INFOID:000000006393163

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



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

WW

FRONT WIPER

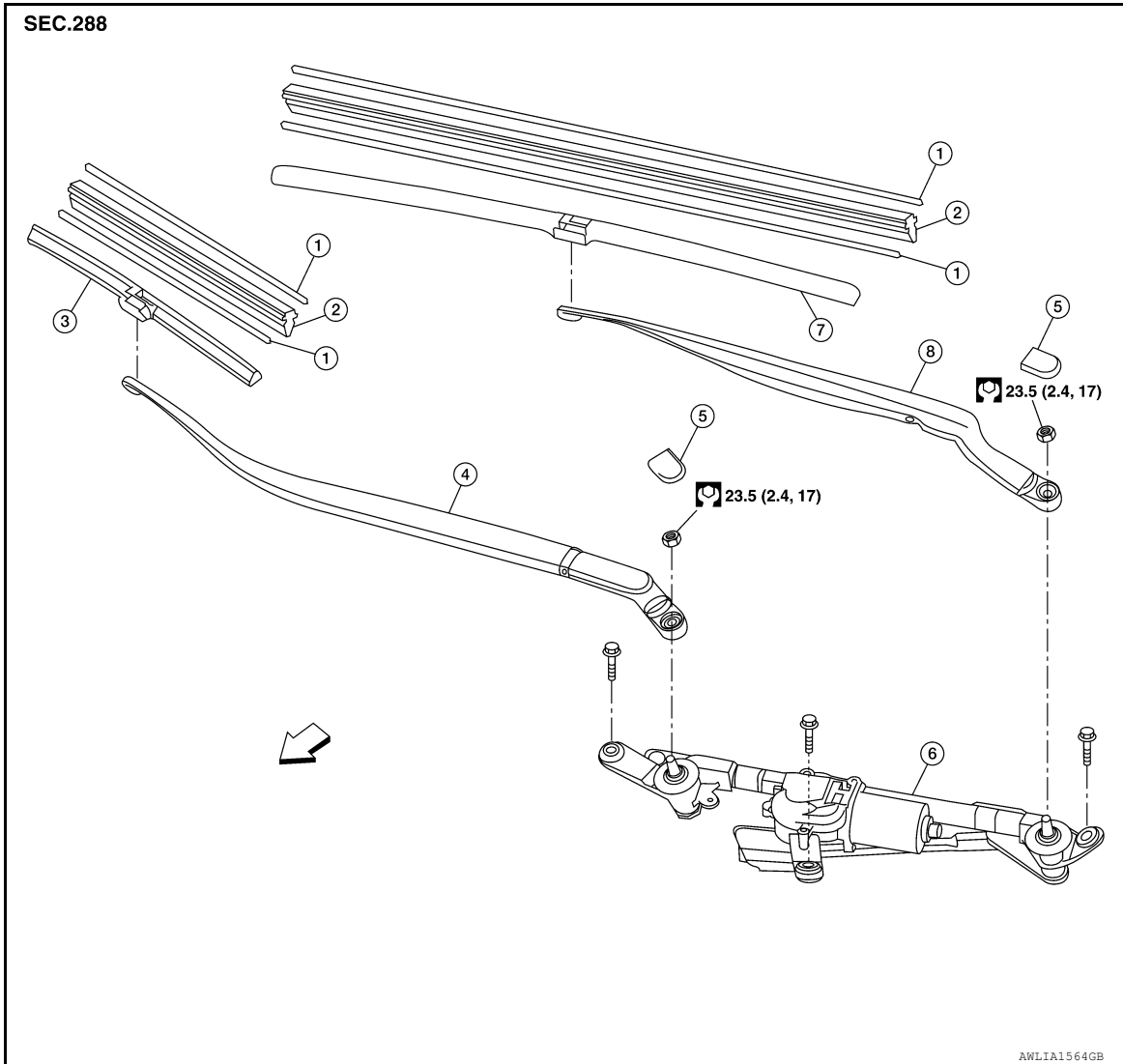
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT WIPER

Exploded View

INFOID:000000006393164



- | | | |
|--|-----------------------|--|
| 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:000000006393165

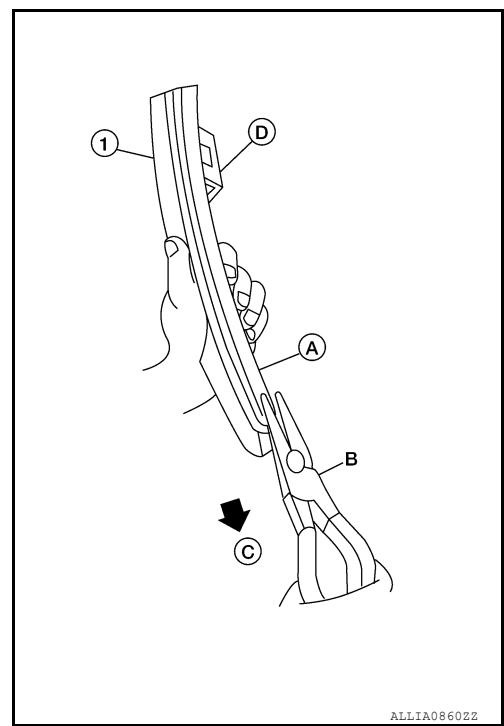
REMOVAL

1. Remove the front wiper blade. Refer to [WW-83, "FRONT WIPER BLADE : Removal and Installation"](#).

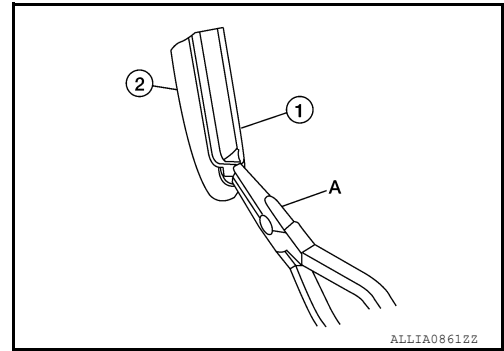
FRONT WIPER

< 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)

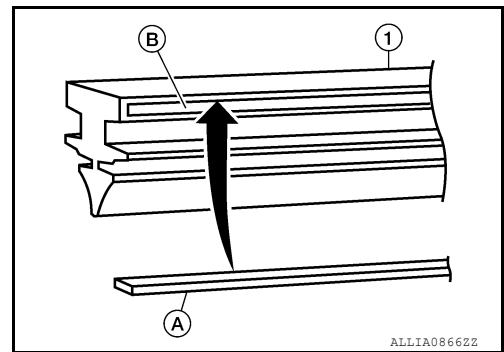


- If the wiper blade refill lip is torn due to wear, insert a suitable tool (A) into the space between the end of the wiper blade refill (1) and the front wiper blade (2) and pull the wiper blade refill (1) out as shown.



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.

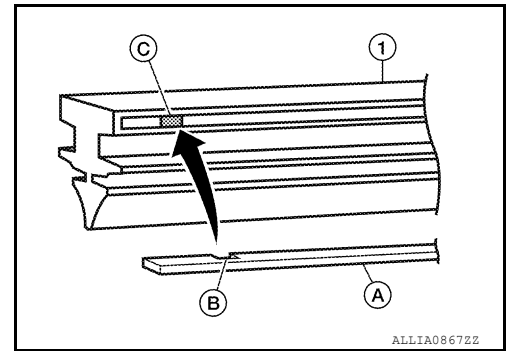


A
B
C
D
E
F
G
H
I
J
K
WW
M
N
O
P

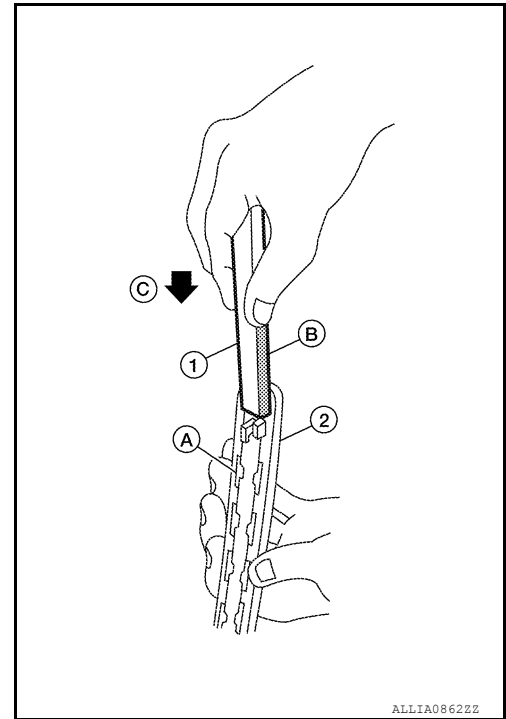
FRONT WIPER

< REMOVAL AND INSTALLATION >

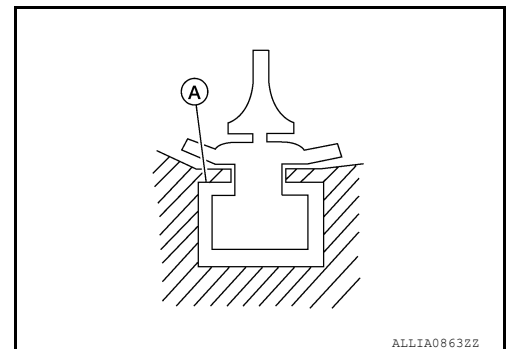
- If the rib (A) has a notch (B), insert the rib (A) into the wiper blade refill (1) so the notch (B) fits over the protrusion (C) in the wiper blade refill (1) as shown.



2. Insert the wiper blade refill (1) tip into the end of the 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)



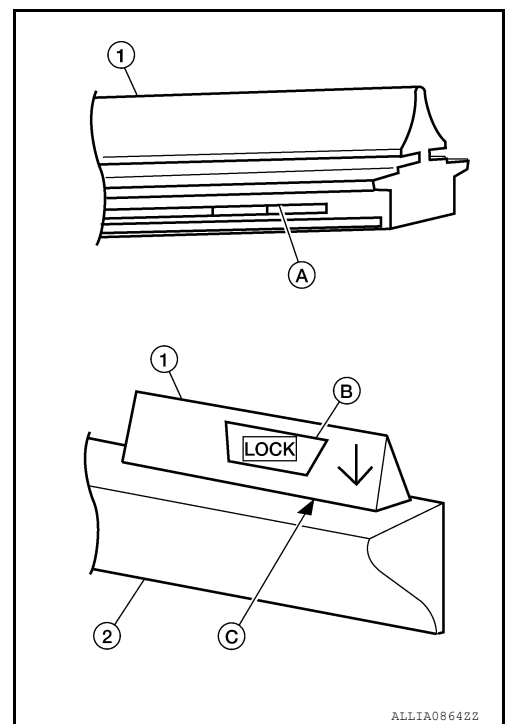
- Make sure to slide the refill into the front wiper blade so that the wiper blade refill is held by the tabs (A) on the front wiper blade as shown.



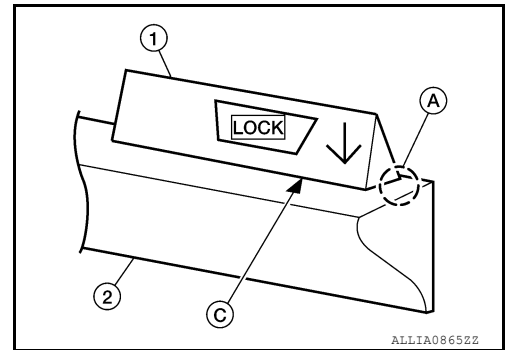
FRONT WIPER

< REMOVAL AND INSTALLATION >

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-83. "FRONT WIPER BLADE : Removal and Installation"](#).

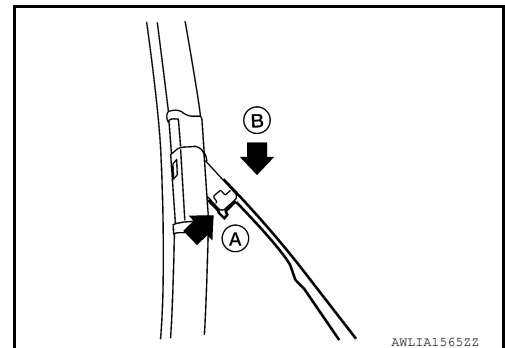
FRONT WIPER BLADE

FRONT WIPER BLADE : Removal and Installation

INFOID:000000006393166

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.

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

WW

FRONT WIPER

< REMOVAL AND INSTALLATION >

- 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

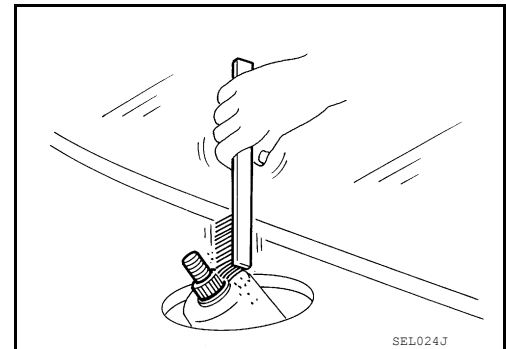
INFOID:000000006393167

REMOVAL

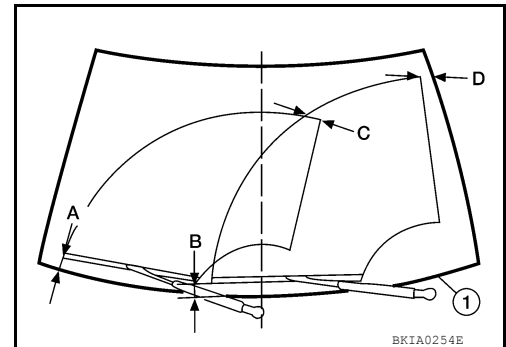
1. Turn wiper switch ON to operate wiper motor, and then turn wiper switch OFF (auto stop).
2. Open hood, remove wiper arm caps, and remove wiper arm nuts.
3. Raise wiper arm, and remove wiper arm from the vehicle.

INSTALLATION

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



2. Prior to wiper arm installation, turn the wiper switch on to operate wiper motor and then turn it "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 to clearance "A", "B", "C" and "D" immediately before temporarily tightening the wiper arm nuts.
5. Spray washer fluid. Turn the wiper switch on to operate wiper motor and then turn it OFF.
6. Make sure that wiper blades stop within clearance "A", "B", "C" and "D".
 - Cowel top cover edge (1)



Clearance "A"	: 41.3 ± 7.5 mm (1.626 ± 0.295 in)
Clearance "B"	: 65.5 ± 7.5 mm (2.579 ± 0.295 in)
Clearance "C"	: 27.8 mm (1.094 in)
Clearance "D"	: 53.7 mm (2.114 in)

7. Tighten wiper arm nuts to specification. Refer to [WW-80, "Exploded View"](#).
8. Attach wiper arm caps.

ADJUSTMENT

To adjust the wiper arm stop location, the wiper arm must be removed and installed. Refer to [WW-84, "FRONT WIPER ARMS : Removal and Installation"](#).

FRONT WIPER DRIVE ASSEMBLY

FRONT WIPER DRIVE ASSEMBLY : Removal and Installation

INFOID:000000006393168

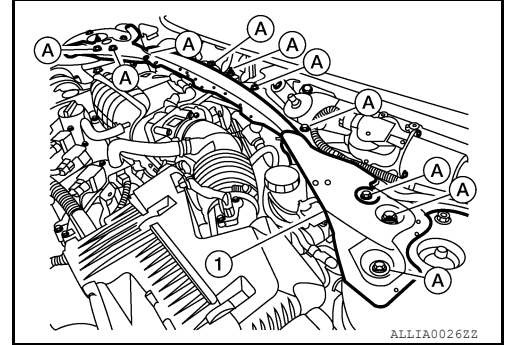
REMOVAL

1. Turn the wiper switch ON to operate the wiper motor, and then turn the wiper switch OFF (auto stop).

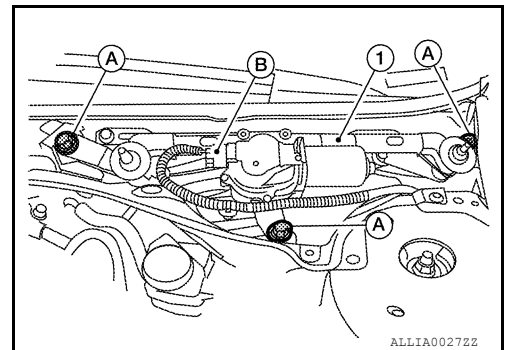
FRONT WIPER

< REMOVAL AND INSTALLATION >

2. Remove wiper arms. Refer to [WW-84, "FRONT WIPER ARMS : Removal and Installation"](#).
3. Remove the cowl top cover. Refer to [EXT-21, "Removal and Installation"](#) (Coupe) or [EXT-45, "Removal and Installation"](#). (Sedan).
4. Remove the strut brace bolts (A), detach the wiper drive assembly harness clips, then remove the strut brace (1).



5. Detach the wiper drive harness clip from the wiper drive assembly frame.
6. Remove the front wiper drive assembly bolts (A), disconnect the wiper drive motor connector (B) and remove the front wiper drive assembly (1).



INSTALLATION

1. Install the front wiper drive assembly.
2. Connect wiper motor connector. Turn wiper switch ON to operate wiper motor, then turn wiper switch OFF (auto stop).
3. Attach the wiper drive harness clip to the wiper drive assembly frame.
4. Install the strut brace, then attach the wiper drive assembly harness clips.
5. Install the cowl top cover. Refer to [EXT-21, "Removal and Installation"](#) (Coupe) or [EXT-45, "Removal and Installation"](#). (Sedan).
6. Attach and adjust the wiper arms. Refer to [WW-84, "FRONT WIPER ARMS : Removal and Installation"](#).

FRONT WASHER

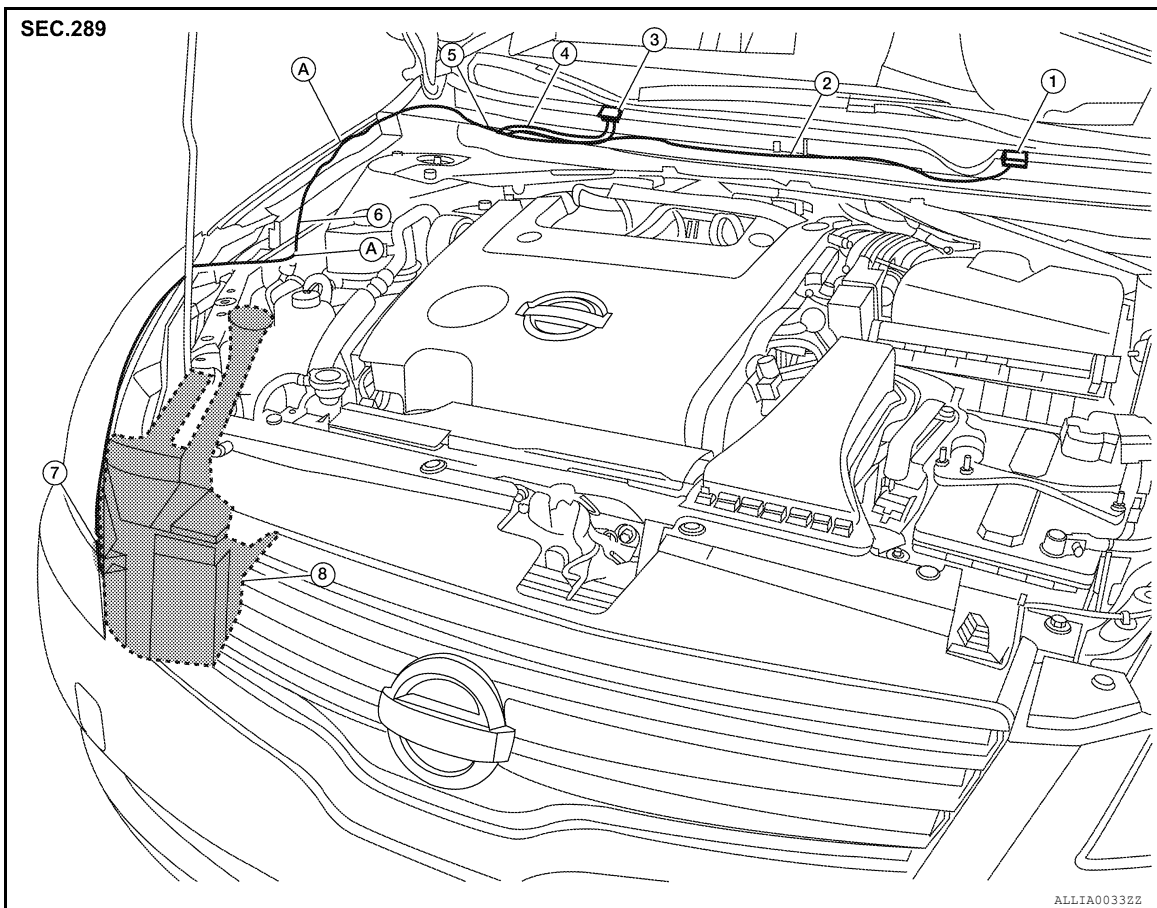
< REMOVAL AND INSTALLATION >

FRONT WASHER

WASHER TUBE

WASHER TUBE : Layout

INFOID:000000006393169



- | | | |
|--------------------------|--------------------------|---------------------|
| 1. Washer nozzle LH | 2. Washer nozzle hose LH | 3. Washer nozzle RH |
| 4. Washer nozzle hose RH | 5. Y-tube connector | 6. Clip |
| 7. Washer tank hose | 8. Washer tank | A. Tube connectors |

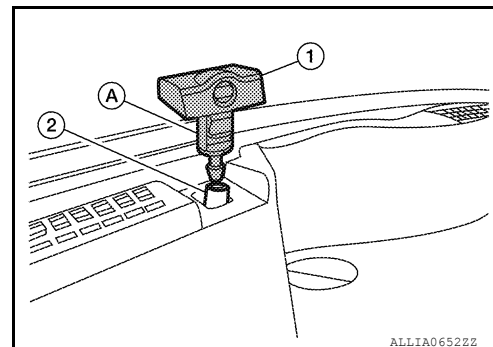
FRONT WASHER NOZZLE

FRONT WASHER NOZZLE : Removal and Installation

INFOID:000000006393170

REMOVAL

1. Remove the cowl top cover. Refer to [EXT-45, "Removal and Installation"](#) (Coupe) or [EXT-45, "Removal and Installation"](#). (Sedan).
2. Push washer nozzle tab (A) to release the washer nozzle (1) from the cowl top cover, then disconnect the washer nozzle hose (2).



FRONT WASHER

< REMOVAL AND INSTALLATION >

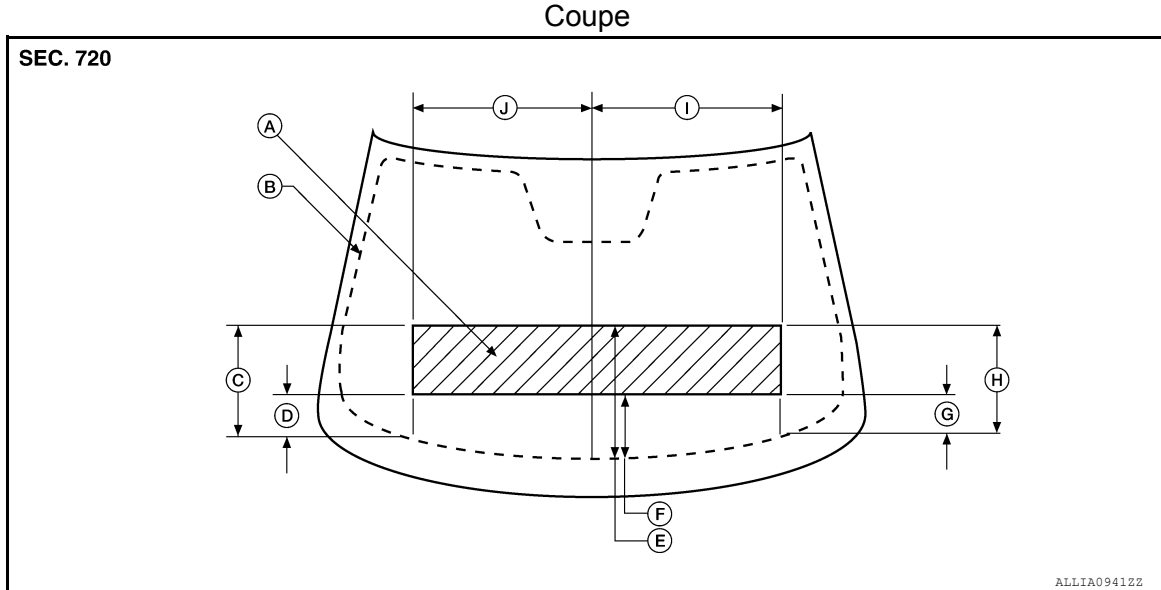
INSTALLATION

1. Installation is in the reverse order of removal.
2. Adjust nozzle spray location. Refer to [WW-87, "FRONT WASHER NOZZLE : Adjustment"](#).

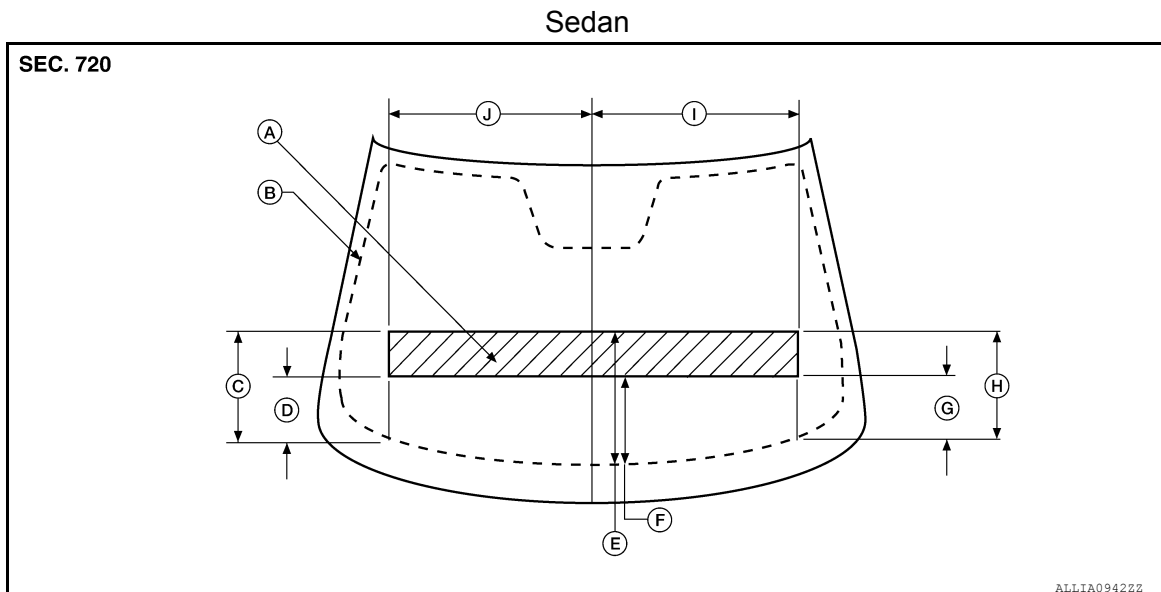
FRONT WASHER NOZZLE : Adjustment

INFOID:000000006393171

Adjust spray positions to hit the aiming target zone as shown.



- | | | |
|-----------------------|----------------------|----------------------|
| A. Aiming target zone | B. Black print edge | C. 295 mm (11.61 in) |
| D. 115 mm (4.53 in) | E. 360 mm (14.17 in) | F. 180 mm (7.09 in) |
| G. 105 mm (4.13 in) | H. 285 mm (11.22 in) | I. 580 mm (22.83 in) |
| J. 550 mm (21.65 in) | | |

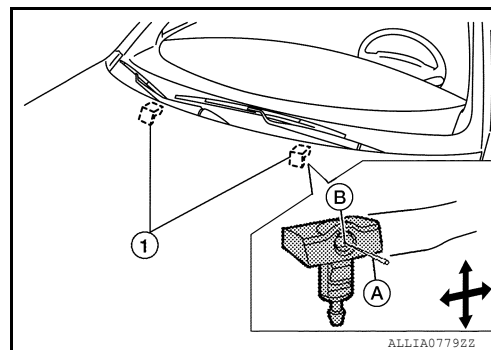


- | | | |
|-----------------------|----------------------|----------------------|
| A. Aiming target zone | B. Black print edge | C. 210 mm (8.27 in) |
| D. 80 mm (3.15 in) | E. 276 mm (10.87 in) | F. 148 mm (5.83 in) |
| G. 70 mm (2.76 in) | H. 200 mm (7.87 in) | I. 580 mm (22.83 in) |
| J. 550 mm (21.65 in) | | |

FRONT WASHER

< REMOVAL AND INSTALLATION >

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



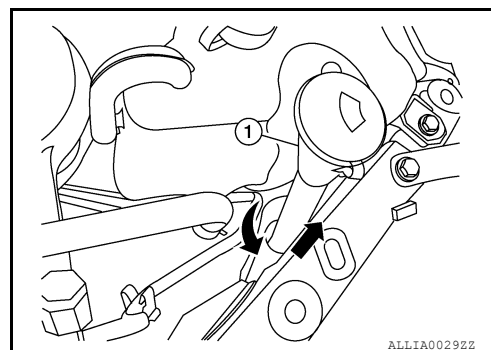
WASHER TANK

WASHER TANK : Removal and Installation

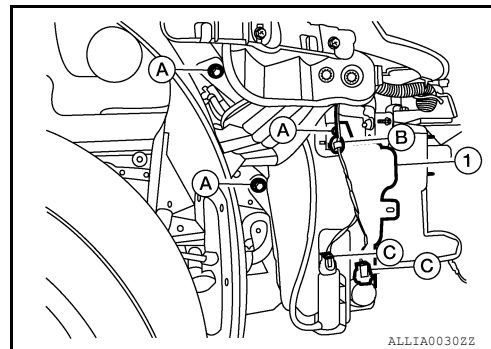
INFOID:000000006393172

REMOVAL

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



2. Remove engine under cover.
3. Position the RH fender protector back. Refer to [EXT-46. "Removal and Installation"](#) (Coupe) or [EXT-21. "Removal and Installation"](#) (Sedan).
4. Disconnect the washer pump and washer fluid level sensor connectors (C), then detach the connector harness clip (B).
5. Remove the washer tank nuts (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 specified fluid up to the upper level of washer tank inlet, and check for leaks. Refer to [MA-12. "Fluids and Lubricants"](#).

FRONT WASHER PUMP

FRONT WASHER PUMP : Removal and Installation

INFOID:000000006393173

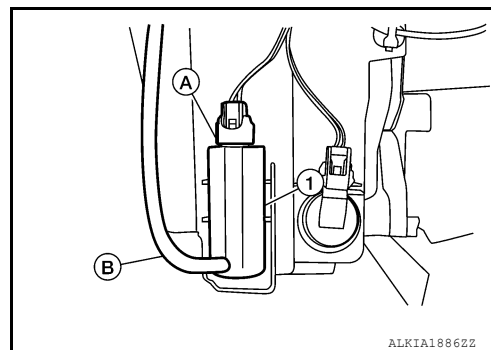
REMOVAL

1. Position the RH fender protector back. Refer to [EXT-46. "Removal and Installation"](#) for sedan or [EXT-22. "Removal and Installation"](#) for coupe.

FRONT WASHER

< REMOVAL AND INSTALLATION >

2. Disconnect the front washer pump connector (A), and washer pump hose (B).
3. Remove the front washer pump (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, add specified fluid up to the upper level of washer tank inlet, and check for leaks. Refer to [MA-12, "Fluids and Lubricants"](#).

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

WW

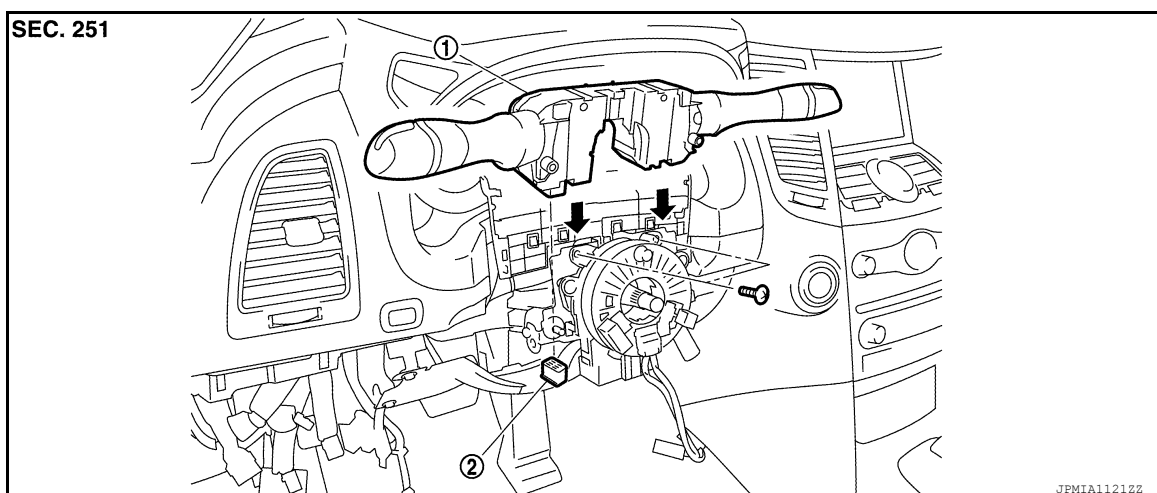
FRONT WIPER AND WASHER SWITCH

< REMOVAL AND INSTALLATION >

FRONT WIPER AND WASHER SWITCH

Removal and Installation

INFOID:000000006393174



1. Combination switch
2. Combination switch connector

NOTE:

Shown with steering wheel removed for clarity only.

REMOVAL

1. Unlock steering wheel.
2. 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-III.
- If a malfunction is still detected after the above operation, perform self-diagnosis to repair malfunctions. Refer to [SRC-12, "SRS Operation Check"](#).

3. Remove steering column covers. Refer to [IP-11, "Exploded View"](#).
4. Rotate steering wheel clockwise to access first combination switch mounting bolt and remove the bolt.
5. Rotate steering wheel counter-clockwise to access second combination switch mounting bolt and remove the bolt.
6. Disconnect the electrical connectors and remove combination switch.

INSTALLATION

Installation is in the reverse order of removal.

WASHER LEVEL SWITCH

< REMOVAL AND INSTALLATION >

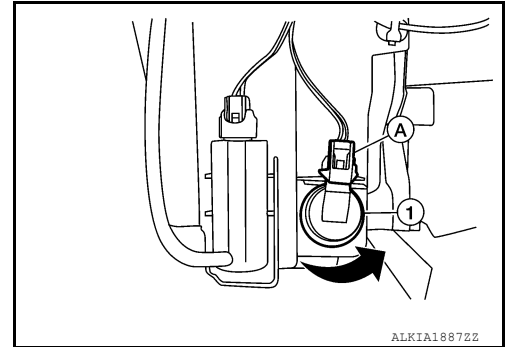
WASHER LEVEL SWITCH

Removal and Installation

INFOID:000000006393175

REMOVAL

1. Position the RH fender protector back. Refer to [EXT-46, "Removal and Installation"](#) for sedan or [EXT-22, "Removal and Installation"](#) for coupe.
2. Disconnect the front washer level switch connector (A).
3. Rotate washer level switch (1) counter clockwise and remove.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, add specified fluid up to the upper level of washer tank inlet, and check for leaks. Refer to [MA-12, "Fluids and Lubricants"](#).

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

WW

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Specifications

INFOID:000000006920750

WINDSHIELD WASHER FLUID

Unit: mm (in)

Windshield washer fluid capacity	4.5 ℓ (4 3/4 US qt, 4 Imp qt)
Windshield washer fluid specification	Refer to MA-12, "Fluids and Lubricants" .