SECTION DAS
DRIVER ASSISTANCE SYSTEM

CONTENTS

BSW

PRECAUTION

PRECAUTIONS

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

INFOID:0000000007492632

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

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 “SRS AIR BAG”.**
- **Never 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:

Always observe the following items for preventing accidental activation.

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Precaution for BSW System Service

INFOID:0000000007492633

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- **Never perform the active test while driving.**
- **Never change BSW initial state ON ⇒ OFF without the consent of the customer.**

TO KEEP THE BSW SYSTEM OPERATING PROPERLY, BE SURE TO OBSERVE THE FOLLOWING ITEMS:

System Maintenance

The two side radar for the BSW system are located near the rear bumper.

- Always keep the area near the side radar clean.
- Do not attach stickers (including transparent material), install accessories or apply additional paint near the side radar.
- Do not strike or damage the area around the side radar.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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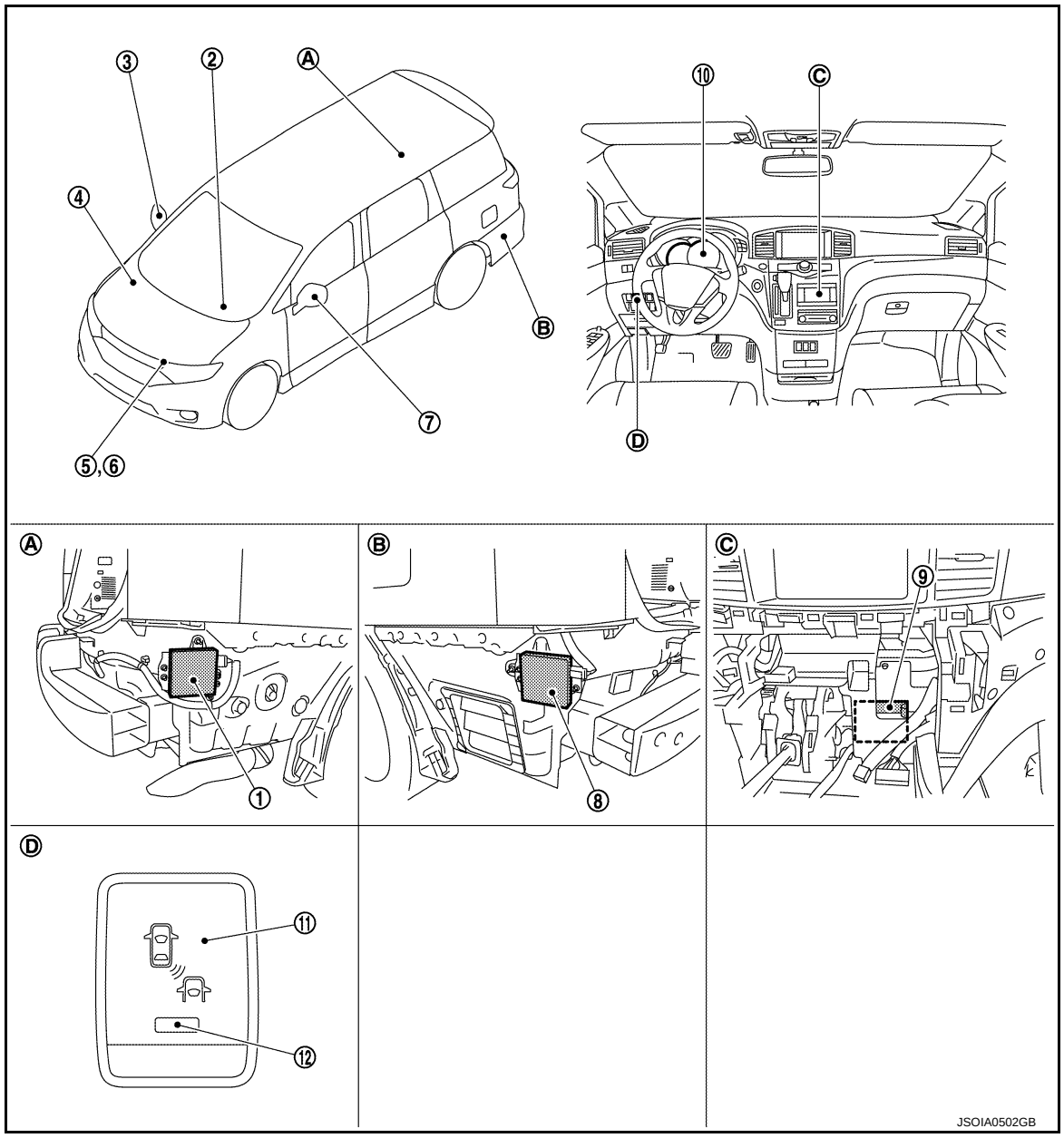

A. Rear bumper removed condition (RH)
B. Rear bumper removed condition (LH)
C. Center of the instrument panel
D. Instrument lower panel (LH)

No.	Component	Function
1	Side radar RH	Refer to DAS-6, "Side Radar LH/RH"
2	BCM	Refer to DAS-7, "BCM" Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location
3	BSW indicator RH	Refer to DAS-7, "BSW Indicator LH/RH"

No.	Component	Function
4	ABS actuator and electric unit (control unit)	Refer to DAS-7, "ABS Actuator and Electric Unit (Control Unit)" Refer to BRC-8, "Component Parts Location" for detailed installation location
5	TCM	Refer to DAS-7, "TCM" Refer to TM-10, "CVT CONTROL SYSTEM : Component Parts Location" for detailed installation location
6	ECM	Refer to DAS-7, "ECM" Refer to EC-15, "ENGINE CONTROL SYSTEM : Component Parts Location" for detailed installation location
7	BSW indicator LH	Refer to DAS-7, "BSW Indicator LH/RH"
8	Side radar LH	Refer to DAS-6, "Side Radar LH/RH"
9	BSW control module	Refer to DAS-6, "BSW Control Module"
10	Combination meter	• Description: Refer to DAS-7, "Combination Meter" • System display and warning: DAS-14, "System Display and Warning" Refer to MWI-6, "METER SYSTEM : Component Parts Location" for detailed installation location
11	BSW switch	• Description: Refer to DAS-7, "BSW Switch" • System display and warning: DAS-14, "Switch Name and Function"
12	BSW ON indicator (On the BSW switch)	Refer to DAS-14, "System Display and Warning"

BSW Control Module

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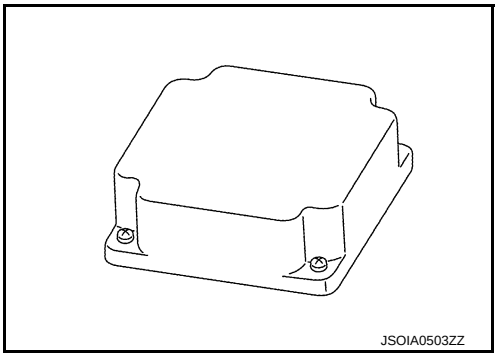

- Controls the BSW system, based on received signals.
- Communicates with each control unit via CAN communication.
- Connected with the side radar (LH and RH) via BSW communication, BSW control module receives a vehicle detection signal and transmits a BSW indicator signal and a BSW indicator dimmer signal to the side radar.
- Receives a BSW switch signal from the BSW switch.
- Transmits a buzzer output signal to the combination meter via CAN communication.

Side Radar LH/RH

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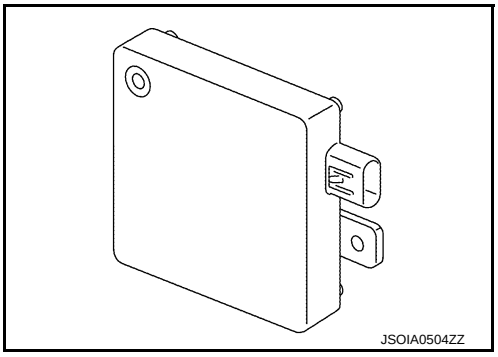
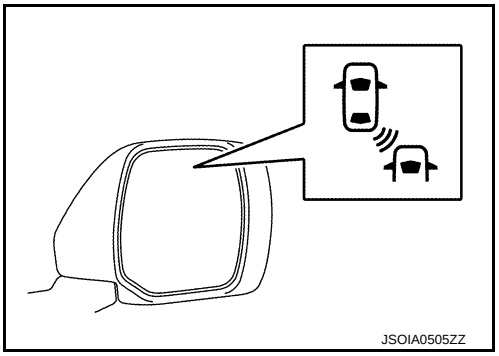


- Installed near the rear bumper, the side radar detects vehicles in the adjacent lane.
- Connected with the BSW control module via BSW communication, the side radar transmits a vehicle detection signal.
- Receives a BSW indicator signal and a BSW indicator dimmer signal from the BSW control module and transmits an indicator operation signal to the BSW indicator LH/RH.

BSW Indicator LH/RH

INFOID:0000000007492637



- Installed on the door mirror surface, the BSW indicator warns the driver by lighting/blinking.
- Receives a BSW indicator operation signal from the side radar LH/RH and blinks or turns ON/OFF the BSW indicator lamp.

BSW Switch

INFOID:0000000007492638

- Installed to the instrument lower panel, the BSW switch is used to activate/deactivate the BSW system.
- Transmits a BSW switch signal to the BSW control module.

Combination Meter

INFOID:0000000007492639

- Receives BSW warning lamp signal and buzzer output signal from BSW control module via CAN communication.
- Turns the BSW warning lamp ON/OFF according to the signals from the BSW control module
- Operates the buzzer according to the signal from the BSW control module

ABS Actuator and Electric Unit (Control Unit)

INFOID:0000000007492640

Transmits vehicle speed signal to BSW control module via CAN communication.

BCM

INFOID:0000000007492641

- Transmits turn indicator signal to BSW control module via CAN communication.
- Transmits dimmer signal to BSW control module via CAN communication.

TCM

INFOID:0000000007492642

Transmits shift position signal to BSW control module via CAN communication.

ECM

INFOID:0000000007492643

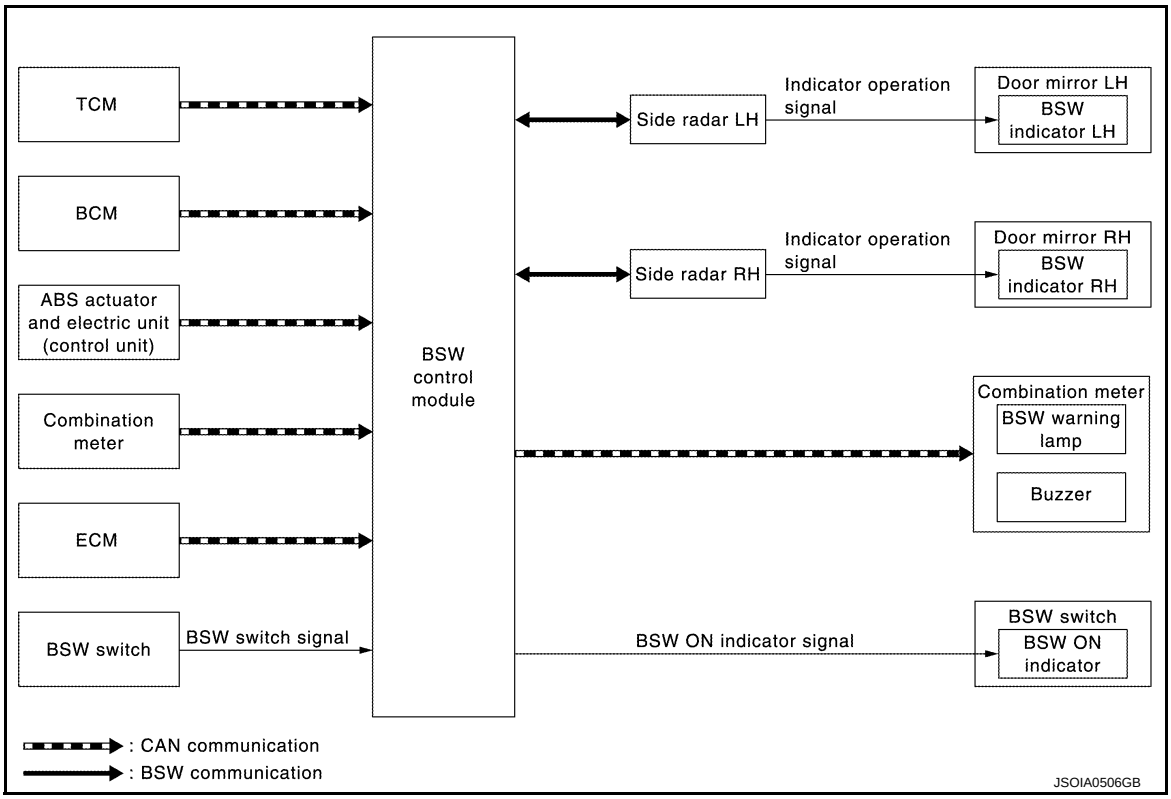
Transmits engine speed signal to BSW control module via CAN communication.

SYSTEM

System Description

INFOID:0000000007492644

SYSTEM DIAGRAM



BSW CONTROL MODULE INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

Transmit unit	Signal name		Description
TCM	CAN communication	Shift position signal	Receives a selector lever position
ABS actuator and electric unit (control unit)	CAN communication	Vehicle speed signal (ABS)	Receives wheel speeds of four wheels
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp
		Dimmer signal	Receives an ON/OFF state of dimmer signal
Side radar LH, RH	BSW communication	Vehicle detection signal	Receives vehicle detection condition of detection zone
ECM	CAN communication	Engine speed signal	Receives an engine speed
BSW switch	BSW switch signal		Receives an ON/OFF state of the BSW switch

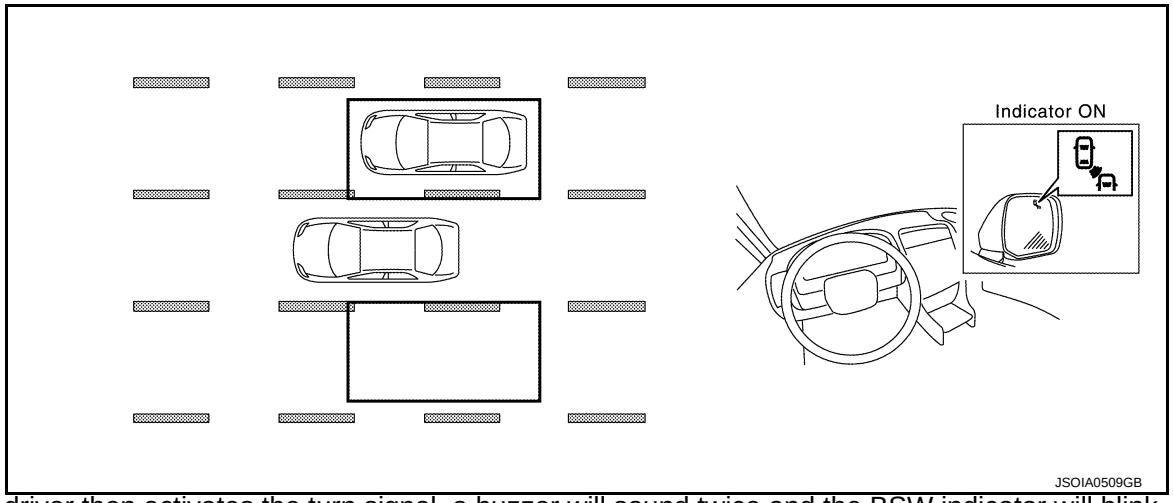
Output Signal Item

Reception unit	Signal name		Description
Combination meter	CAN communication	BSW warning lamp signal	Transmits a BSW warning lamp signal to turn ON the BSW warning lamp
		Buzzer output signal	Transmits a buzzer output signal to activate buzzer

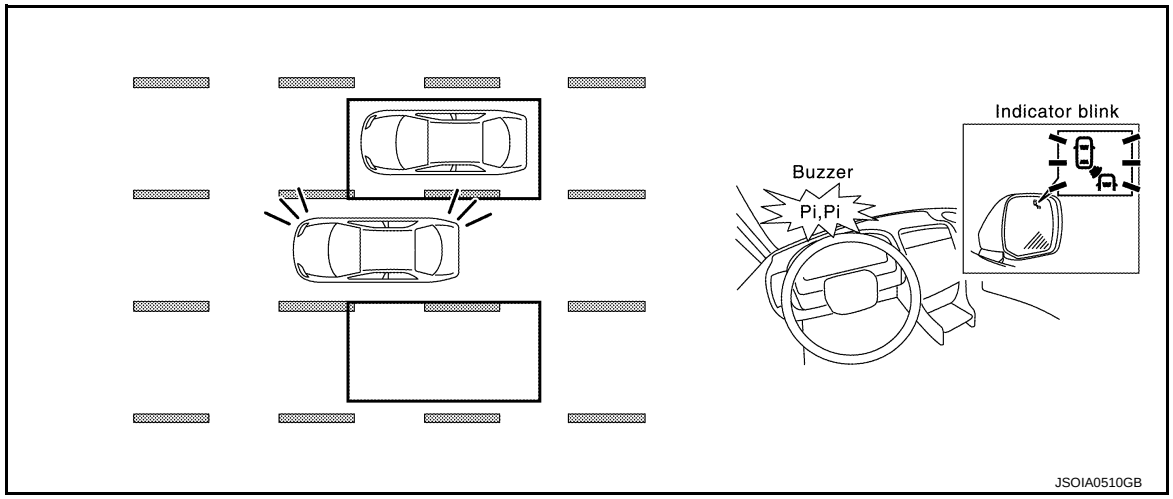
Reception unit	Signal name		Description
Side radar LH, RH	BSW communication	BSW indicator signal	Transmits a BSW indicator signal to turn ON the BSW indicator
		BSW indicator dimmer signal	Transmits a BSW indicator dimmer signal to dimmer BSW indicator
		Vehicle speed signal	Transmits a vehicle speed calculated by the BSW control module
BSW ON indicator	BSW ON indicator signal		Turns ON the BSW ON indicator

FUNCTION DESCRIPTION

- The BSW system can help alert the driver of other vehicles in adjacent lanes when changing lanes.
- The BSW system uses side radar installed near the rear bumper to detect vehicles in an adjacent lane.
- The side radar can detect vehicles on either side of vehicle within the detection zone shown as illustrated.
- This detection zone starts from the outside mirror of vehicle and extends approximately 10 ft (3.0 m) behind the rear bumper, and approximately 10 ft (3.0 m) sideways.
- The BSW system operates above approximately 32 km/h (20 MPH).
- If the side radar detects vehicles in the detection zone, the BSW indicator illuminates.



- If the driver then activates the turn signal, a buzzer will sound twice and the BSW indicator will blink.
  NOTE:
  A buzzer sounds if the side radar have already detected vehicles when the driver activates the turn signal. If a vehicle comes into the detection zone after the driver activates the turn signal, then only the BSW indicator blinks and no buzzer sounds.



BSW SYSTEM OPERATION DESCRIPTION

- BSW control module enables BSW system.
- The BSW control module turns on the BSW system when the BSW switch is turned ON.

- Side radar detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to BSW control module via BSW communication.
- BSW control module starts the control as follows, based on a vehicle detection signal, turn signal and dimmer signal transmitted from BCM via CAN communication:
- Buzzer output signal transmission to combination meter via CAN communication.
- BSW indicator signal and BSW indicator dimmer signal transmission to side radar via BSW communication.
- Side radar transmits an indicator operation signal to the BSW indicator according to BSW indicator signal and BSW indicator dimmer signal.

Operation Condition of BSW System

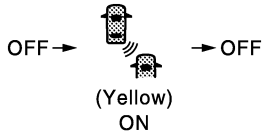
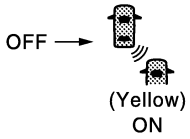
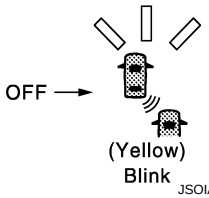
BSW control module performs the control when the following conditions are satisfied.

- When the BSW switch in turned ON.
- When the vehicle drives at approximately 32 km/h (20 MPH) or more to the forward direction.

NOTE:

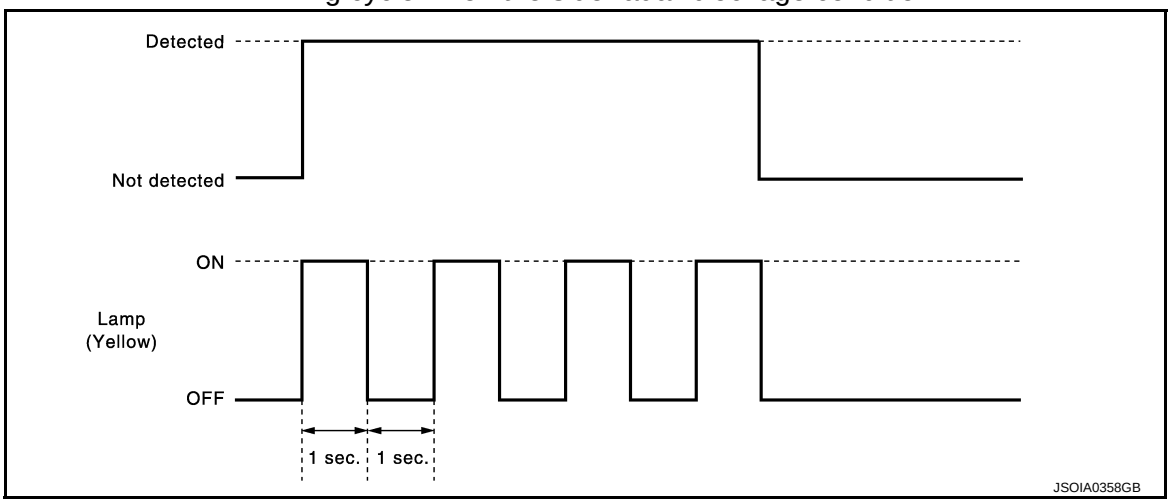
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 29 km/h (18 MPH)
- The BSW system may not function properly, depending on the situation. Refer to DAS-16, "Precautions for Blind Spot Warning".

BULB CHECK ACTION AND FAIL-SAFE INDICATION

Vehicle condition/Driver's operation	BSW indicator	BSW ON indicator	Indication on the combination meter
Ignition switch: OFF ⇒ ON	Approx. 2 sec. ON	Approx. 5 sec. ON*	
When DTC is detected	OFF	ON	
When radar blockage is detected	OFF	ON	

*: If BSW initial state is ON, BSW ON indicator continues turned ON.

Blinking cycle when the side radar blockage condition



NOTE:
Time shown in the figure is approximate time.

BSW INITIAL STATE CHANGE

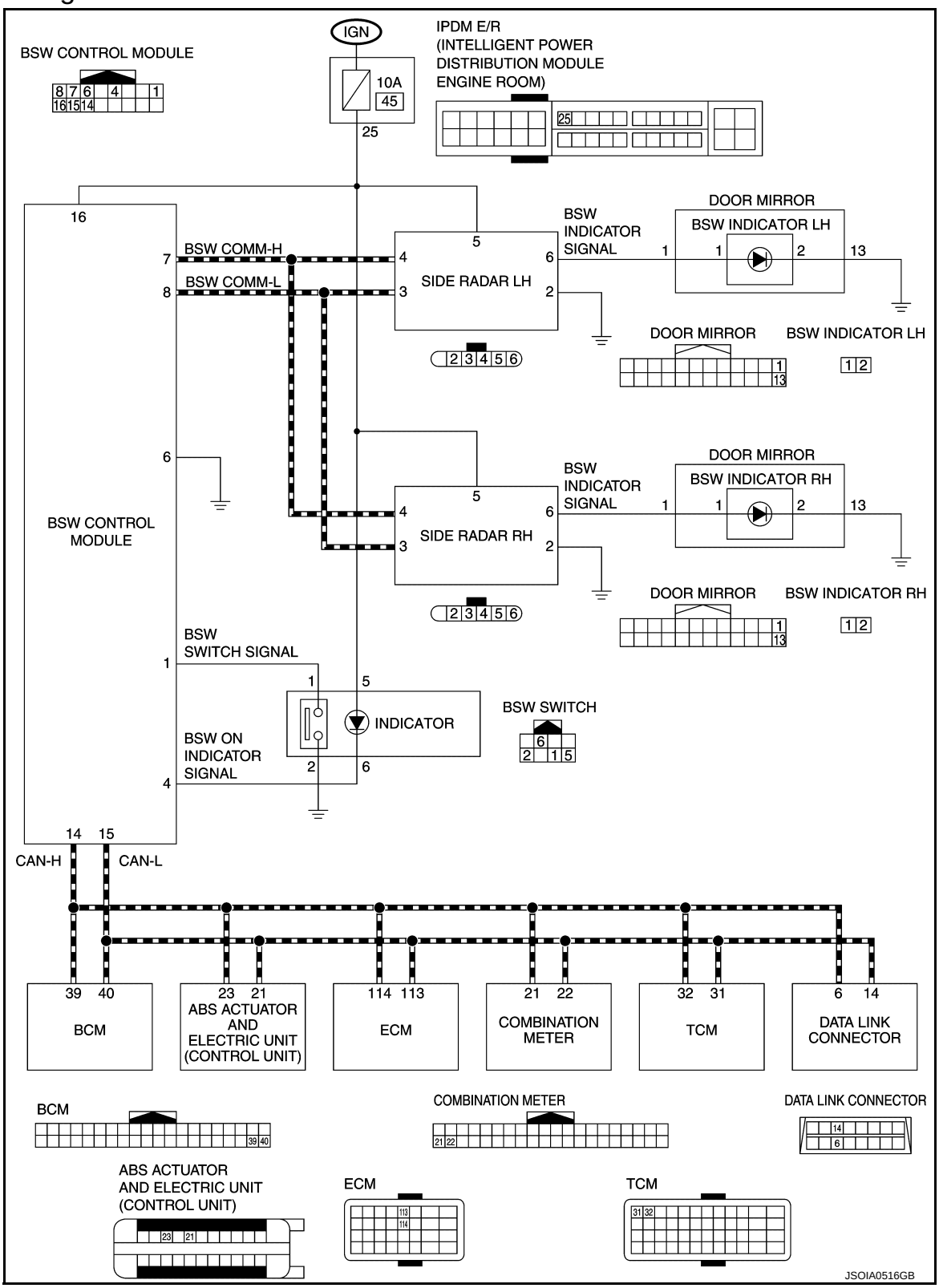
CAUTION:
Never change BSW initial state "ON" ⇒ "OFF" without the consent of the customer.
BSW initial state can be changed.
- BSW initial ON* - BSW function is automatically turned ON, when the ignition switch OFF ⇒ ON.
- BSW initial OFF - BSW function is still OFF when the ignition switch OFF ⇒ ON.

*: Factory setting

How to change BSW initial state
1. Turn ignition switch ON.
2. Switch BSW functions to OFF.
3. Push and hold BSW switch for more than 4 seconds.
4. Buzzer sounds and blinking of the BSW ON indicator informs that the BSW initial state changes completed.

Circuit Diagram

INFOID:0000000007492645



Fail-safe (BSW Control Module)

INFOID:0000000007492646

If a malfunction occurs in the system, BSW control module cancels the control. Then the BSW warning lamp in the combination meter illuminates.

Fail-safe (Side Radar)

INFOID:0000000007492647

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, BSW control module cancels the control. Then the BSW warning lamp in the combination meter illuminates.

TEMPORARY DISABLED STATUS AT BLOCKAGE

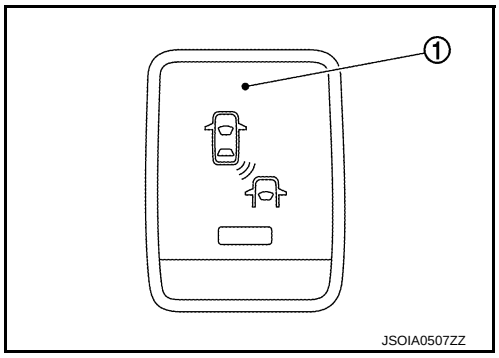
When the side radar is blocked, the operation is temporarily cancelled. Then BSW warning lamp in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

OPERATION

Switch Name and Function

INFOID:0000000007492648

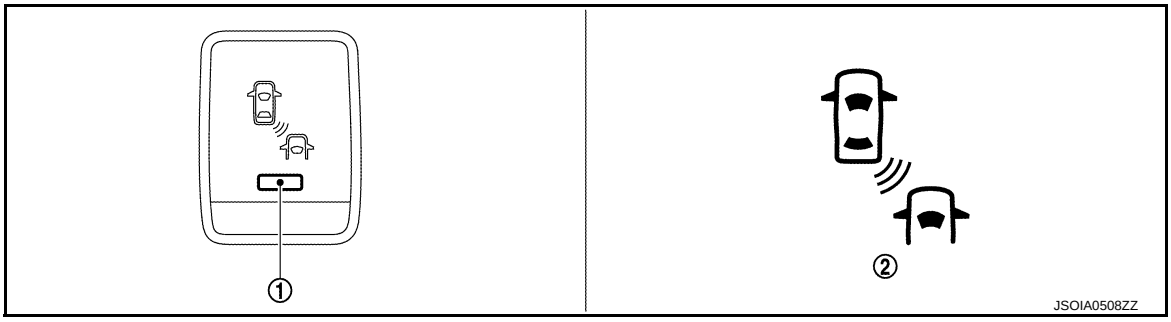


No.	Name	Function
1	BSW switch	Turns BSW system ON/OFF

System Display and Warning

INFOID:0000000007492649

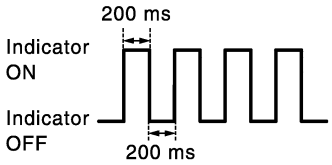
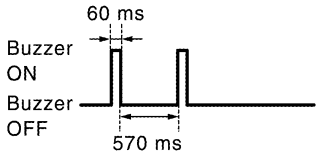
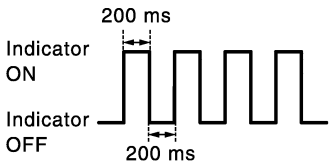
INDICATOR AND WARNING LAMP



No.	Name	Description
1	BSW ON indicator	Turns ON while BSW system is ON
2	BSW warning lamp (In the combination meter)	• Turns ON when BSW system is malfunctioning • Blinks when radar blockage is detected

DISPLAY AND WARNING OPERATION

Vehicle condition/ Driver's operation				Action	
BSW ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
OFF	—	—	—	OFF	OFF

Vehicle condition/ Driver's operation				Action	
BSW ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
ON	Less than approx. 29 (18)	—	—	OFF	OFF
	Approx. 32 (20) or more	—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
		ON (Vehicle detected direction)	Before turn signal operates Vehicle is detected	Blink  JSOIA0251GB	Short continuous beep  JSOIA0452GB
			Vehicle is detected after turn signal operates	Blink  JSOIA0251GB	OFF

NOTE:
- If vehicle speed exceeds approximately 32 km/h (20MPH), BSW function operates until the vehicle speed becomes lower than approximately 29km/h (18MPH).
- Time shown in the figure is approximate time.

HANDLING PRECAUTION

Precautions for Blind Spot Warning

INFOID:0000000007492650

SIDE RADAR HANDLING

- Side radar for BSW system is located inside the rear bumper.
- Always keep the rear bumper near the side radar clean.
- Do not attach a sticker (including transparent material), install an accessory or paintwork near the side radar.
- Do not strike or damage the areas around the side radar.
- Do not strike, damage, and scratch the side radar, especially the vent seal (gray circular) area, under repair.

PRECAUTIONS FOR BLIND SPOT WARNING

- The BSW system is not a replacement for proper driving procedure and are not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction driver will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The BSW system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the BSW system when towing a trailer because the system may not function properly.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The side radar may not be able to detect and activate BSW when certain objects are present such as:
  - Pedestrians, bicycles, animals.
  - Several types of vehicles such as motorcycles.
  - Oncoming vehicles.
  - Vehicles remaining in the detection zone when driver accelerate from a stop.
  - A vehicle merging into an adjacent lane at a speed approximately the same as vehicle.
  - A vehicle approaching rapidly from behind.
  - A vehicle which vehicle overtakes rapidly.
- Severe weather or road spray conditions may reduce the ability of the side radar to detect other vehicles.
- The side radar detection zone is designed based on a standard lane width. When driving in a wider lane, the side radar may not detect vehicles in an adjacent lane. When driving in a narrow lane, the side radar may detect vehicles driving two lanes away.
- The side radar are designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.

DIAGNOSIS SYSTEM (BSW CONTROL MODULE)

CONSULT Function (BSW)

INFOID:0000000007492651

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using BSW control module.

Diagnosis mode	Description
Self Diagnostic Result	Displays the name of a malfunctioning system stored in the BSW control module
Data Monitor	Displays BSW control module input/output data in real time
Active Test	Enables an operational check of a load by transmitting a driving signal from the BSW control module to the load
Ecu Identification	Displays BSW control module part number
CAN Diag Support Monitor	Displays a reception/transmission state of CAN communication and BSW communication

SELF DIAGNOSTIC RESULT

Refer to DAS-22, "DTC Index".

DATA MONITOR

NOTE:

SIGNAL B, SIGNAL C are displayed, but not used.

Monitored item [Unit]	SIGNAL A	BSW MAIN SIGNAL	Description
VHCL SPEED SE [km/h] or [mph]	×	×	Indicates vehicle speed calculated from BSW control module through CAN communication [ABS actuator and electric unit (control unit) transmits vehicle speed signal (wheel speed) through CAN communication]
BUZZER O/P [On/Off]	×		Indicates [On/Off] status of BSW warning chime output
Shift position [Off, P, R, N, D]		×	Indicates shift position read from BSW control module through CAN communication (TCM transmits shift position signal through CAN communication)
Turn signal [OFF/LH/RH/LH&RH]		×	Indicates turn signal operation status read from BSW control module through CAN communication (BCM transmits turn indicator signal through CAN communication)
WARN SYS SW [On/Off]	×	×	Indicates [On/Off] status of BSW switch
BSW/BSI WARN LMP [On/Off]		×	Indicates [On/Off] status of BSW warning lamp output
BSW SYSTEM ON [On/Off]		×	Indicates [On/Off] status of BSW system

ACTIVE TEST

CAUTION:

- **Never perform “Active Test” while driving the vehicle.**
- **The “Active Test” cannot be performed when the BSW warning lamp is illuminated.**
- **Shift the selector lever to “P” position, and then perform the test.**

Test item	Description
ICC BUZZER	Sounds a buzzer used for BSW system by arbitrarily operating ON/OFF
BSW/BSI WARNING LAMP	The BSW warning lamp can be illuminated by ON/OFF operations as necessary

ICC BUZZER

Test item	Operation	Description	BSW warning chime operation sound
ICC BUZZER	MODE1	Transmits the buzzer output signals to the combination meter via CAN communication	Intermittent beep sound
	Test start	Starts the tests of “MODE1”	—
	Reset	Stops transmitting the buzzer output signal below to end the test	—
	End	Returns to the “SELECT TEST ITEM” screen	—

BSW/BSI WARNING LAMP

Test item	Operation	Description	BSW warning lamp
BSW/BSI WARNING LAMP	Off	Stops transmitting the BSW warning lamp signal below to end the test	—
	On	Transmits the BSW warning lamp signal to the combination meter via CAN communication	ON

DIAGNOSIS SYSTEM (SIDE RADAR LH)

CONSULT Function (SIDE RADAR LEFT)

INFOID:0000000007492652

DESCRIPTION

CONSULT performs the following functions by communicating with the side radar LH.

Select diag mode	Function
Self Diagnostic Result	Displays memorized DTC in the side radar
Data Monitor	Displays real-time data of side radar
Active Test	Enables operation check of electrical loads by sending driving signal to them
Ecu Identification	Displays part number of side radar

SELF DIAGNOSTIC RESULT

Self Diagnostic Result

Displays memorized DTC in side radar LH. Refer to DAS-25, "DTC Index".

FFD (Freeze Frame Data)

The side radar records the following data when the malfunction is detected.

Freeze Frame Data item	Description
VHCL SP from ADAS	The vehicle speed (from BSW control module) at the moment a malfunction is detected is displayed
TURN SIG STATUS	Turn signal status at the moment a malfunction is detected is displayed

DATA MONITOR

Monitored item [Unit]	Description
BEAM DISTANCE [—]	**NOTE:** The item is displayed, but it is not used
BEAM POSITION [—]	**NOTE:** The item is displayed, but it is not used
SIDE RADAR MALF [On/Off]	Indicates [On/Off] status of side radar malfunction
BLOCKAGE COND [On/Off]	Indicates [On/Off] status of side radar blockage
ACTIVATE OPE [—]	**NOTE:** The item is displayed, but it is not used
VEHICLE DETECT [On/Off]	Indicates [On/Off] status of vehicle detection

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **Active test cannot be started while the BSW indicator is illuminated.**

Active test item	Operation	Description
BSW/BSI INDICATOR DRIVE	On	Outputs the voltage to illuminate the BSW indicator
	Off	Stops the voltage to illuminate the BSW indicator

DIAGNOSIS SYSTEM (SIDE RADAR RH)

CONSULT Function (SIDE RADAR RIGHT)

INFOID:0000000007492653

DESCRIPTION

CONSULT performs the following functions by communicating with the side radar RH.

Select diag mode	Function
Self Diagnostic Result	Displays memorized DTC in the side radar
Data Monitor	Displays real-time data of side radar
Active Test	Enables operation check of electrical loads by sending driving signal to them
Ecu Identification	Displays part number of side radar

SELF DIAGNOSTIC RESULT

Self Diagnostic Result

Displays memorized DTC in side radar RH. Refer to DAS-27, "DTC Index".

FFD (Freeze Frame Data)

The side radar records the following data when the malfunction is detected.

Freeze Frame Data item	Description
VHCL SP from ADAS	The vehicle speed (from BSW control module) at the moment a malfunction is detected is displayed
TURN SIG STATUS	Turn signal status at the moment a malfunction is detected is displayed

DATA MONITOR

Monitored item [Unit]	Description
BEAM DISTANCE [—]	**NOTE:** The item is displayed, but it is not used
BEAM POSITION [—]	**NOTE:** The item is displayed, but it is not used
SIDE RADAR MALF [On/Off]	Indicates [On/Off] status of side radar malfunction
BLOCKAGE COND [On/Off]	Indicates [On/Off] status of side radar blockage
ACTIVATE OPE [—]	**NOTE:** The item is displayed, but it is not used
VEHICLE DETECT [On/Off]	Indicates [On/Off] status of vehicle detection

ACTIVE TEST

CAUTION:

- **Never perform the active test while driving.**
- **Active test cannot be started while the BSW indicator is illuminated.**

Active test item	Operation	Description
BSW/BSI INDICATOR DRIVE	On	Outputs the voltage to illuminate the BSW indicator
	Off	Stops the voltage to illuminate the BSW indicator

ECU DIAGNOSIS INFORMATION

BSW CONTROL MODULE

Reference Value

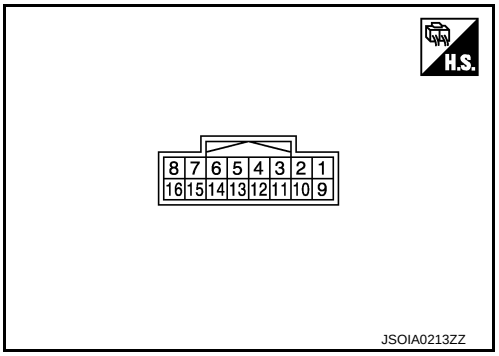
INFOID:0000000007492654

VALUES ON THE DIAGNOSIS TOOL

Monitor item	Condition		Value/Status
VHCL SPEED SE	While driving		Displays the vehicle speed calculated by BSW control module
BUZZER O/P	Engine running	When the buzzer of the BSW system operates	On
		When the buzzer of the BSW system not operates	Off
Shift position	• Engine running • While driving		Displays the shift position
Turn signal	Turn signal lamps OFF		Off
	Turn signal lamp LH blinking		LH
	Turn signal lamp RH blinking		RH
	Turn signal lamp LH and RH blinking		LH&RH
WARN SYS SW	Ignition switch ON	When BSW switch is pressed	On
		When BSW switch is not pressed	Off
BSW/BSI WARN LMP	Ignition switch ON	BSW warning lamp ON	On
		BSW warning lamp OFF	Off
BSW SYSTEM ON	Ignition switch ON	When the BSW system is ON (BSW ON indicator ON)	On
		When the BSW system is OFF (BSW ON indicator OFF)	Off

TERMINAL LAYOUT

PHYSICAL VALUES



Terminal No. (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output				
1 (BR)	6 (B/W)	BSW switch signal	Input	BSW switch	Pressed	0 - 0.1 V	0 V
					Released	9.5 -16 V	12 V
4 (Y)		BSW ON indicator signal	Output	BSW ON indicator	Illuminated	0 - 0.1 V	0 V
					OFF	9.5 - 16 V	12 V
6 (B/W)	Ground	Ground	—	Ignition switch ON		0 - 0.1 V	0 V

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
7 (L)	6 (B/W)	BSW communication-H	—	—	—	—
8 (Y)		BSW communication-L	—	—	—	—
14 (L)		CAN -H	—	—	—	—
15 (P)		CAN -L	—	—	—	—
16 (G)		Ignition power supply	Input	Ignition switch ON	9.5 - 16 V	Battery Voltage

Fail-safe

INFOID:0000000007492655

If a malfunction occurs in the system, BSW control module cancels the control. Then the BSW warning lamp in the combination meter illuminates.

DTC Inspection Priority Chart

INFOID:0000000007492656

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

Priority	Detected items (DTC)
1	• U1508: LOST COMM (SIDE RDR L)
2	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN) • U1507: LOST COMM (SIDE RDR R)
3	• C1B53: SIDE RDR R MALF • C1B54: SIDE RDR L MALF
4	• C1A01: POWER SUPPLY CIR • C1A02: POWER SUPPLY CIR 2 • U0121: VDC CAN CIR 2 • U0401: ECM CAN CIR 1 • U0402: TCM CAN CIR 1 • U0415: VDC CAN CIR 1 • U150B: ECM CAN CIRC 3 • U150C: VDC CAN CIRC 3 • U150D: TCM CAN CIRC 3 • U150E: BCM CAN CIRC 3 • U1503: SIDE RDR L CAN CIR 2 • U1504: SIDE RDR L CAN CIR 1 • U1505: SIDE RDR R CAN CIR 2 • U1506: SIDE RDR R CAN CIR 1 • U1518: SIDE RDR L CAN CIRC 3 • U1519: SIDE RDR R CAN CIRC 3
5	• C1A03: VHCL SPEED SE CIRC
6	• C1A00: CONTROL UNIT

DTC Index

INFOID:0000000007492657

NOTE:
• The details of time display are as per the following.
- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past
• IGN counter is displayed on FFD (Freeze Frame Data).
- 0: The malfunctions that are detected now
  CAN communication system (U1000, U1010)

- 1 - 39: It increases like 0 → 1 → 2 ··· 38 → 39 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 39, it is fixed to 39 until the self-diagnosis results are erased.
  Other than CAN communication system (Other than U1000, U1010)
- 1 - 49: It increases like 0 → 1 → 2 ··· 38 → 49 after returning to the normal condition whenever the ignition switch OFF → ON. It returns to 0 when a malfunction is detected again in the process.
- If it is over 49, it is fixed to 49 until the self-diagnosis results are erased.

×: Applicable

DTC		BSW warning lamp	Fail-safe	Reference
C1A00	CONTROL UNIT	ON	×	DAS-35
C1A01	POWER SUPPLY CIR	ON	×	DAS-36
C1A02	POWER SUPPLY CIR 2	ON	×	DAS-36
C1A03	VHCL SPEED SE CIRC	ON	×	DAS-37
C1B53	SIDE RDR R MALF	ON	×	DAS-42
C1B54	SIDE RDR L MALF	ON	×	DAS-43
NO DTC IS DETECTED. FURTHER TESTING MAY BE RE-QUIRED	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED	—	—	—
U1000	CAN COMM CIRCUIT	ON	×	DAS-46
U1010	CONTROL UNIT (CAN)	ON	×	DAS-49
U0121	VDC CAN CIR 2	ON	×	DAS-51
U0401	ECM CAN CIR 1	ON	×	DAS-52
U0402	TCM CAN CIR 1	ON	×	DAS-53
U0415	VDC CAN CIR 1	ON	×	DAS-55
U150B	ECM CAN CIRC 3	ON	×	DAS-56
U150C	VDC CAN CIRC 3	ON	×	DAS-57
U150D	TCM CAN CIRC 3	ON	×	DAS-58
U150E	BCM CAN CIRC 3	ON	×	DAS-59
U1503	SIDE RDR L CAN CIR 2	ON	×	DAS-60
U1504	SIDE RDR L CAN CIR 1	ON	×	DAS-61
U1505	SIDE RDR R CAN CIR 2	ON	×	DAS-62
U1506	SIDE RDR R CAN CIR 1	ON	×	DAS-63
U1507	LOST COMM (SIDE RDR R)	ON	×	DAS-64
U1508	LOST COMM (SIDE RDR L)	ON	×	DAS-65
U1518	SIDE RDR L CAN CIRC 3	ON	×	DAS-66
U1519	SIDE RDR R CAN CIRC 3	ON	×	DAS-67

SIDE RADAR LH

Reference Value

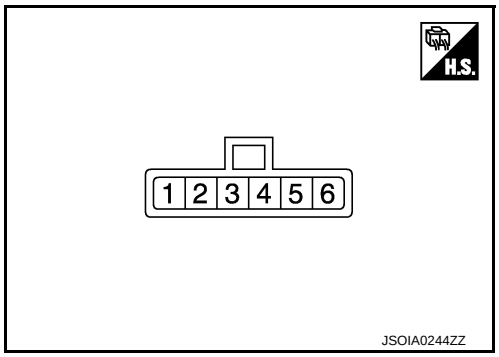
INFOID:0000000007492658

VALUES ON THE DIAGNOSIS TOOL

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
BEAM DISTANCE	**NOTE:** The item is displayed, but it is not used.	—
BEAM POSITION	**NOTE:** The item is displayed, but it is not used.	—
SIDE RADAR MALF	Side radar is normal.	Off
	Side radar is malfunctioning.	On
BLOCKAGE COND	Side radar is not blocked.	Off
	Side radar is blocked.	On
ACTIVATE OPE	**NOTE:** The item is displayed, but it is not used.	—
VEHICLE DETECT	Side radar does not detect a vehicle.	Off
	Side radar detects a vehicle.	On

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
2 (B)	Ground	Ground	—	—	0 - 0.1 V	0 V
3 (Y)	2 (B)	BSW communication-L	—	—	—	—
4 (L)		BSW communication-H	—	—	—	—
5 (V)		Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage
6 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check)	5.5 - 16 V	6 V

Fail-safe

INFOID:0000000007492659

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, BSW control module cancels the control. Then the BSW warning lamp in the combination meter illuminates.

TEMPORARY DISABLED STATUS AT BLOCKAGE

When the side radar is blocked, the operation is temporarily cancelled. Then BSW warning lamp in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

DTC Inspection Priority Chart

INFOID:0000000007492660

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

Priority	Detected items (DTC)
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• U0104: ADAS CAN CIR 1 • U0405: ADAS CAN CIR 2
3	C1B50: SIDE RDR MALFUNCTION
4	• C1B51: BSW/BSI IND SHORT CIR • C1B52: BSW/BSI IND OPEN CIR • C1B55: RADAR BLOCKAGE

DTC Index

INFOID:0000000007492661

×: Applicable

DTC		BSW warning lamp	Fail-safe	Reference page
C1B50	SIDE RDR MALFUNCTION	ON	×	DAS-38
C1B51	BSW/BSI IND SHORT CIR	ON	×	DAS-39
C1B52	BSW/BSI IND OPEN CIR	ON	×	DAS-40
C1B55	RADAR BLOCKAGE	Blink	×	DAS-44
U1000	CAN COMM CIRCUIT	ON	×	DAS-45
U1010	CONTROL UNIT (CAN)	ON	×	DAS-48
U0104	ADAS CAN CIR1	ON	×	DAS-50
U0405	ADAS CAN CIR2	ON	×	DAS-54

SIDE RADAR RH

Reference Value

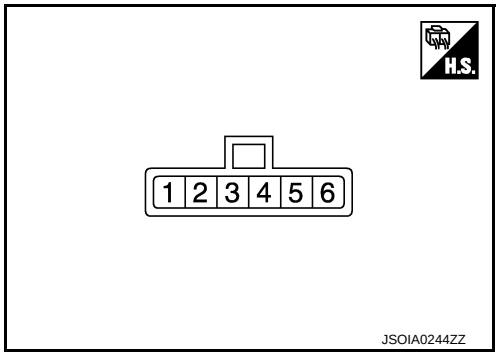
INFOID:0000000007492662

VALUES ON THE DIAGNOSIS TOOL

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
BEAM DISTANCE	**NOTE:** The item is displayed, but it is not used.	—
BEAM POSITION	**NOTE:** The item is displayed, but it is not used.	—
SIDE RADAR MALF	Side radar is normal.	Off
	Side radar is malfunctioning.	On
BLOCKAGE COND	Side radar is not blocked.	Off
	Side radar is blocked.	On
ACTIVATE OPE	**NOTE:** The item is displayed, but it is not used.	—
VEHICLE DETECT	Side radar does not detect a vehicle.	Off
	Side radar detects a vehicle.	On

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
2 (B)	Ground	Ground	—	—	0 - 0.1 V	0 V
3 (Y)	2 (B)	BSW communication-L	—	—	—	—
4 (L)		BSW communication-H	—	—	—	—
5 (G)		Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage
6 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF ⇒ ON (bulb check)	5.5 - 16 V	6 V

Fail-safe

INFOID:0000000007492663

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, BSW control module cancels the control. Then the BSW warning lamp in the combination meter illuminates.

TEMPORARY DISABLED STATUS AT BLOCKAGE

When the side radar is blocked, the operation is temporarily cancelled. Then BSW warning lamp in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.

DTC Inspection Priority Chart

INFOID:0000000007492664

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

Priority	Detected items (DTC)
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• U0104: ADAS CAN CIR 1 • U0405: ADAS CAN CIR 2
3	C1B50: SIDE RDR MALFUNCTION
4	• C1B51: BSW/BSI IND SHORT CIR • C1B52: BSW/BSI IND OPEN CIR • C1B55: RADAR BLOCKAGE

DTC Index

INFOID:0000000007492665

×: Applicable

DTC		BSW warning lamp	Fail-safe	Reference page
C1B50	SIDE RDR MALFUNCTION	ON	×	DAS-38
C1B51	BSW/BSI IND SHORT CIR	ON	×	DAS-39
C1B52	BSW/BSI IND OPEN CIR	ON	×	DAS-40
C1B55	RADAR BLOCKAGE	Blink	×	DAS-44
U1000	CAN COMM CIRCUIT	ON	×	DAS-46
U1010	CONTROL UNIT (CAN)	ON	×	DAS-48
U0104	ADAS CAN CIR1	ON	×	DAS-50
U0405	ADAS CAN CIR2	ON	×	DAS-54

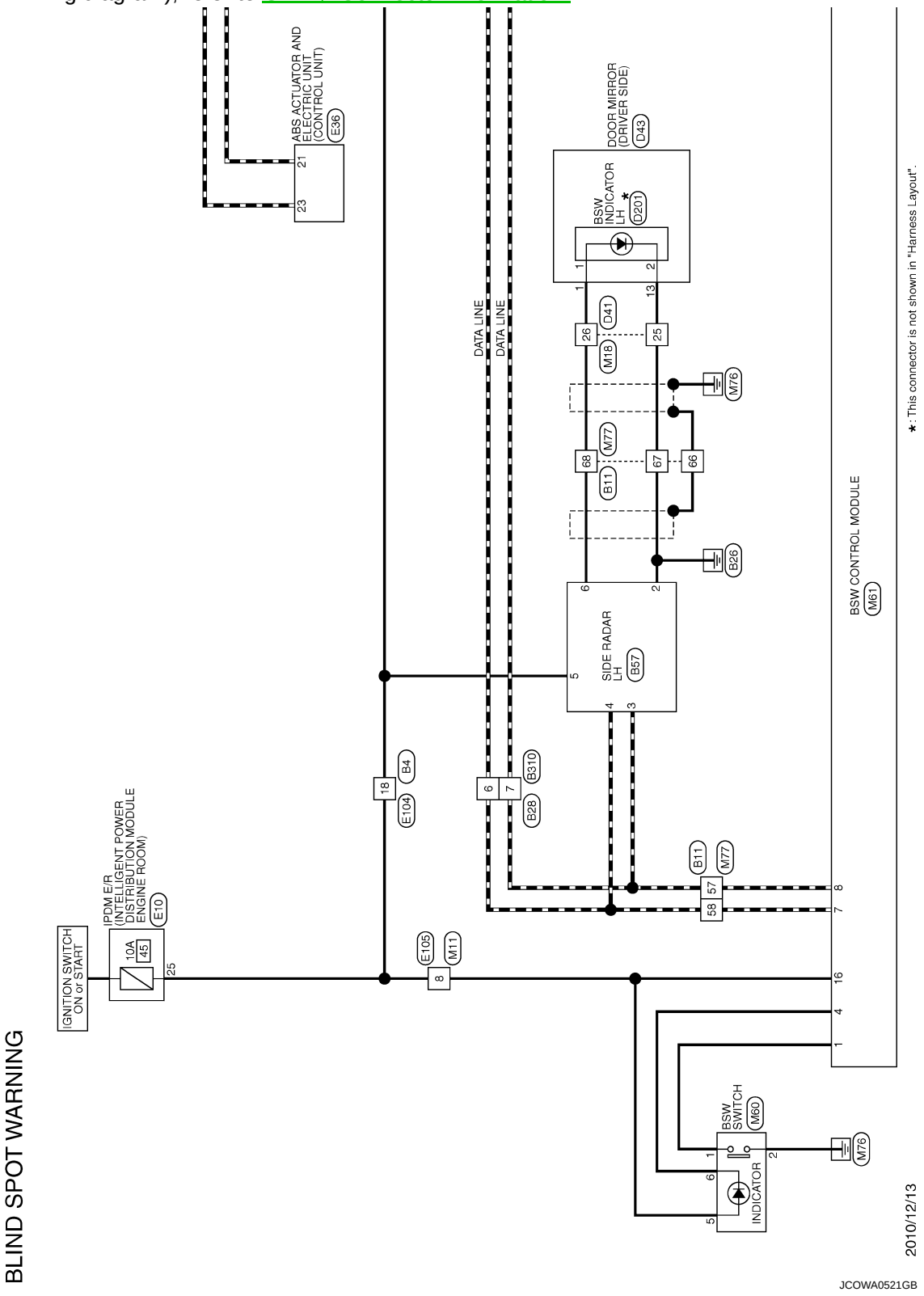
WIRING DIAGRAM

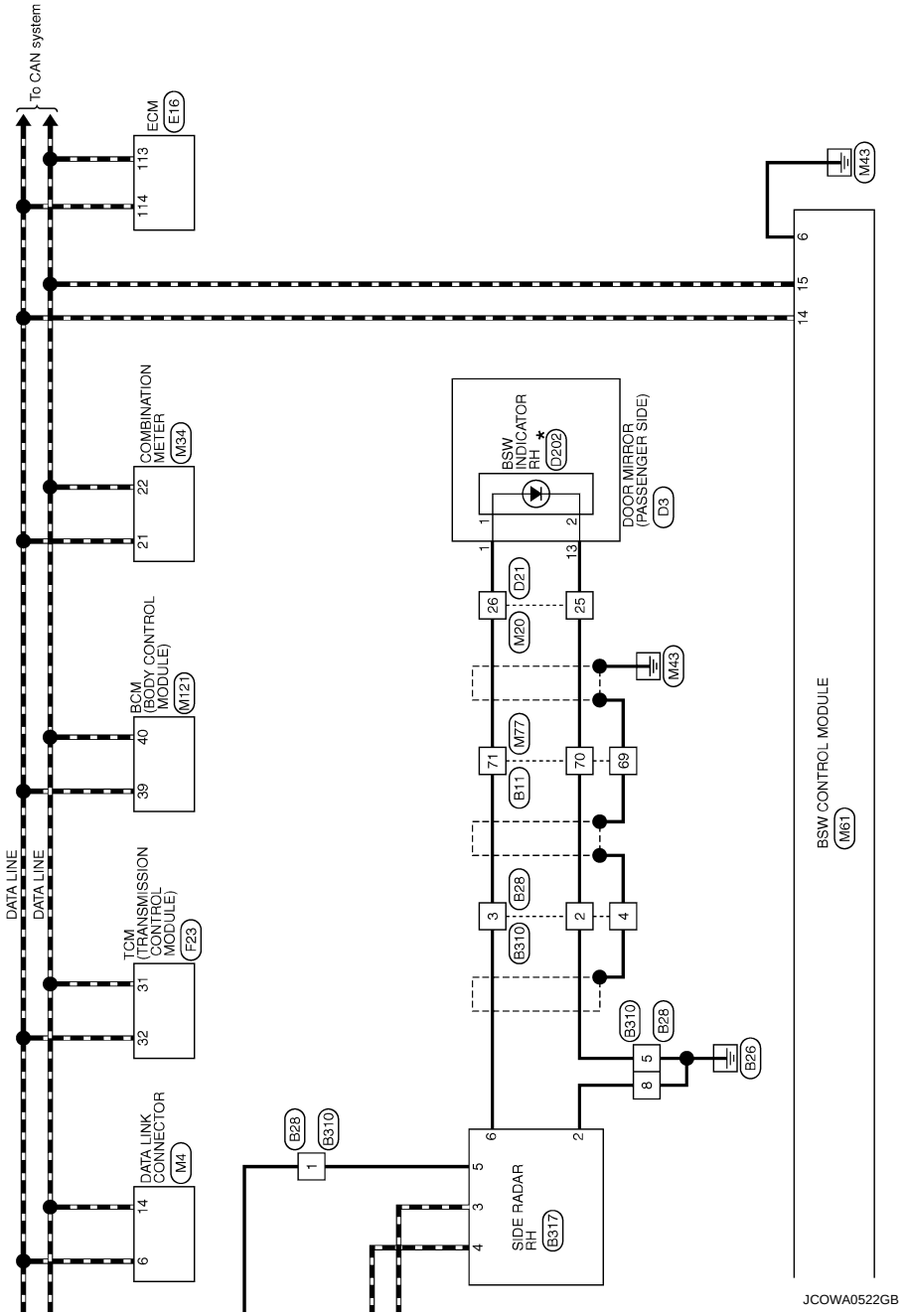
BLIND SPOT WARNING

Wiring Diagram

INFOID:0000000007492666

For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if notdescribed in wiring diagram), refer to GI-12, "Connector Information".




To CAN system
ECM
E16
113
114
COMBINATION METER
M34
22
21
BCM (BODY CONTROL MODULE)
M121
40
39
TCM (TRANSMISSION CONTROL MODULE)
F23
31
32
DATA LINE
DATA LINE
DATA LINK CONNECTOR
M4
14
6
SIDE RADAR RH
B317
BSW INDICATOR RH
D202
DOOR MIRROR (PASSENGER SIDE)
D3
BSW CONTROL MODULE
M61
M43
M20
D21
M77
B11
B28
B310
B26
JCOWA0522GB

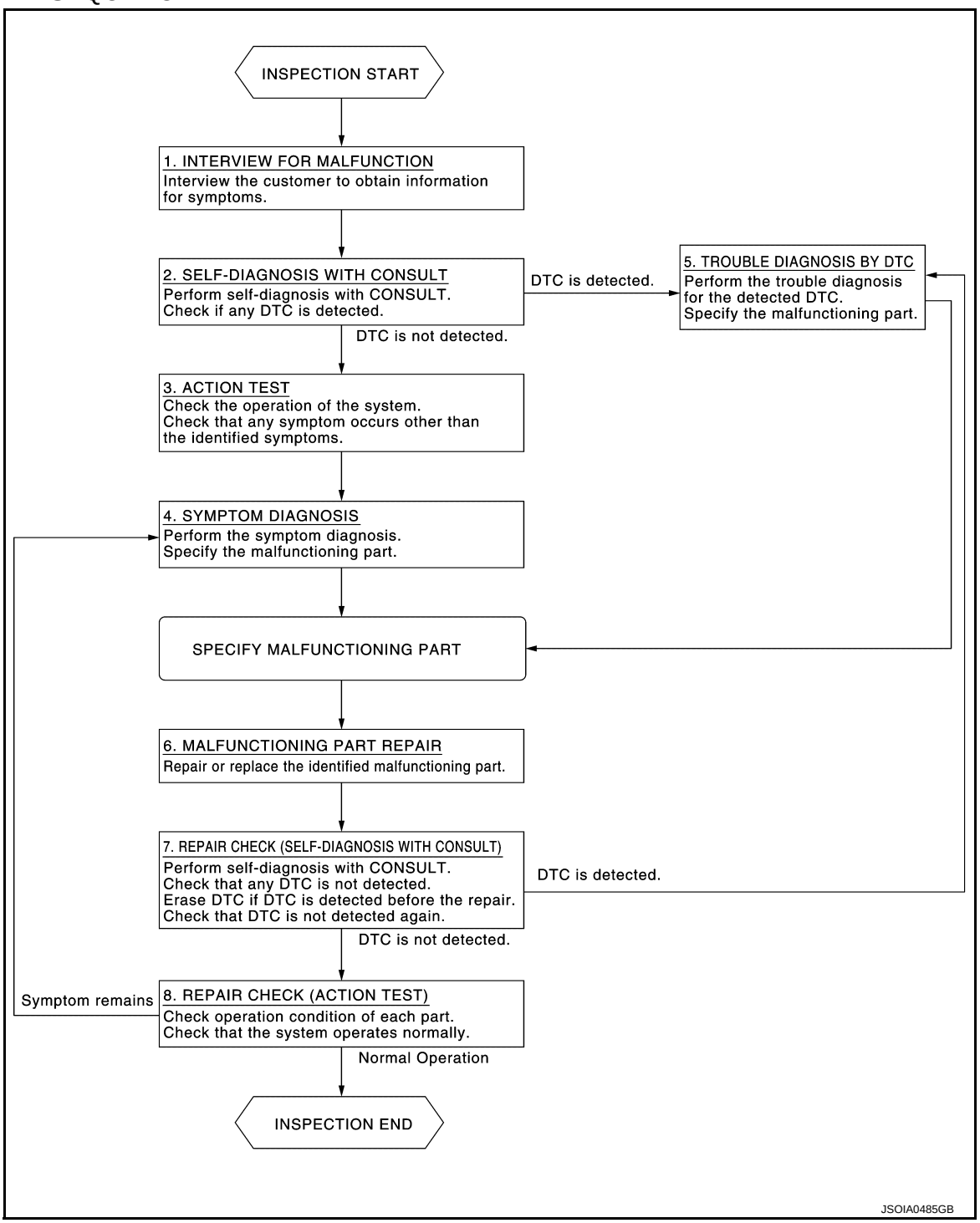
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000007492667

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW FOR MALFUNCTION

It is also important to clarify the customer concerns before starting the inspection. Interview the customer about the concerns carefully and understand the symptoms fully.

NOTE:

The customers are not professionals. Never assume that “maybe the customer means···” or “maybe the customer mentioned this symptom”.

>> GO TO 2.

2. SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “SIDE RADAR LEFT/RIGHT” and/or “BSW”.

Is any DTC detected?

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

3. PRE-INSPECTION FOR DIAGNOSIS

Perform pre-inspection for diagnosis. Refer to DAS-32, "Inspection Procedure".

>> GO TO 4.

4. ACTION TEST

Perform BSW system action test to check the operation status. Refer to DAS-33, "Description".
Check if any other malfunctions occur.

>> GO TO 6.

5. TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Refer to DAS-25, "DTC Index" (SIDE RADAR LEFT) or DAS-27, "DTC Index" (SIDE RADAR RIGHT) and/or DAS-22, "DTC Index" (BSW).

NOTE:
If “DTC: U1000” is detected, first diagnose the CAN communication system or BSW communication system.

>> GO TO 7.

6. SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to DAS-75, "Symptom Table".

>> GO TO 7.

7. MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

8. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if any DTC is detected in self-diagnosis results of “SIDE RADAR LEFT/RIGHT” and “BSW”.

Is any DTC detected?

YES >> GO TO 5.
NO >> GO TO 9.

9. REPAIR CHECK (ACTION TEST)

Perform the BSW system action test. Check that the malfunction symptom is solved or no other symptoms occur.

Is there a malfunction symptom?

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

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:0000000007492668

1.CHECK REAR BUMPER NEAR THE SIDE RADAR

Are rear bumper near the side radar contaminated with foreign materials?

YES >> Clean the rear bumper.
NO >> GO TO 2.

2.CHECK SIDE RADAR AND THE SIDE RADAR OUTSKIRTS

Are side radar and the side radar outskirts contaminated with foreign materials?

YES >> Clean the side radar or side radar outskirts.
NO >> GO TO 3.

3.CHECK SIDE RADAR INSTALLATION CONDITION

Check side radar installation condition (installation position, properly tightened, a bent bracket).

Is it properly installed?

YES >> INSPECTION END
NO >> Install side radar properly.

ACTION TEST

Description

INFOID:0000000007492669

Always perform the BSW system action test to check that the system operates normally after replacing the side radar LH/RH, or repairing any BSW system malfunction.

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
Fully understand the following items well before the road test;
- **Precautions: Refer to DAS-4, "Precaution for BSW System Service".**
- **System description: Refer to DAS-8, "System Description".**
- **Normal operating condition: Refer to DAS-76, "Description".**

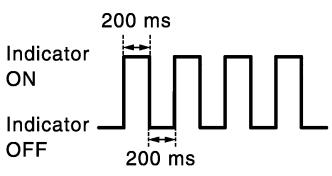
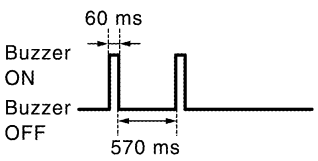
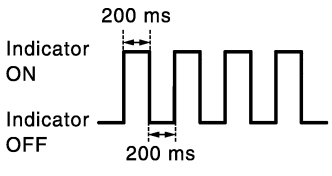
Work Procedure

INFOID:0000000007492670

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
Fully understand the following items well before the road test;
- **Precautions: Refer to DAS-4, "Precaution for BSW System Service".**
- **System description: Refer to DAS-8, "System Description".**
- **Normal operating condition: Refer to DAS-76, "Description".**

1. BSW SYSTEM ACTION TEST

1. Drive the vehicle.
2. Turn BSW switch ON (BSW ON indicator is ON).
3. Check BSW operation according to the following table.

Vehicle condition/ Driver's operation				Action	
BSW ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
OFF	—	—	—	OFF	OFF
ON	Less than approx. 29 (18)	—	—	OFF	OFF
	Approx. 32 (20) or more	—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
		ON (Vehicle detected direction)	Before turn signal operates Vehicle is detected	Blink 	Short continuous beep 
			Vehicle is detected after turn signal operates	Blink 	OFF

NOTE:
- If vehicle speed exceeds approximately 32 km/h (20MPH), BSW function operates until the vehicle speed becomes lower than approximately 29km/h (18MPH).
- Time shown in the figure is approximate time.

>> INSPECTION END

DTC/CIRCUIT DIAGNOSIS

C1A00 CONTROL UNIT

DTC Logic

INFOID:0000000007492671

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A00	CONTROL UNIT	BSW control module internal malfunction	BSW control module

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1A00” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “C1A00” detected as the current malfunction?

YES >> Refer to DAS-35, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000007492672

1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than “C1A00” is detected in “Self Diagnostic Result” of “BSW”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-22, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Logic

INFOID:0000000007492673

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A01	POWER SUPPLY CIR	The battery voltage sent to BSW control module remains less than 7.9 V for 5 seconds	• Connector, harness, fuse • BSW control module
C1A02	POWER SUPPLY CIR 2	The battery voltage sent to BSW control module remains more than 19.3 V for 5 seconds	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “C1A01” or “C1A02” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “C1A01” or “C1A02” detected as the current malfunction?

YES >> Refer to DAS-36, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492674

1.CHECK BSW CONTROL MODULE POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of BSW control module. Refer to DAS-68, "BSW CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:0000000007492675

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the BSW control module via CAN communication, are inconsistent	• Wheel speed sensor • ABS actuator and electric unit (control unit) • BSW control module

NOTE:
If DTC “C1A03” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic"

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Drive the vehicle at 30 km/h (19 MPH) or more.
   CAUTION:
   Always drive safely.
4. Stop the vehicle.
5. Perform “All DTC Reading” with CONSULT.
6. Check if the “C1A03” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “C1A03” detected as the current malfunction?

YES >> Refer to DAS-37, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492676

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “C1A03” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-37, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

C1B50 SIDE RADAR MALFUNCTION

DTC LOGIC

INFOID:0000000007492677

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1B50	SIDE RDR MALFUNC-TION	Side radar malfunction	Side radar

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1B50” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the “C1B50” detected as the current malfunction?

YES >> Refer to DAS-38, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000007492678

1.CHECK SELF-DIAGNOSIS RESULT

Check if any DTC other than “C1B50” is detected in “Self Diagnostic Result” of “SIDE RADAR LEFT/RIGHT”

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunction part. Refer to DAS-27, "DTC Index" (SIDE RADAR RIGHT) or DAS-25, "DTC Index" (SIDE RADAR LEFT).
NO >> Replace the side radar. Refer to DAS-78, "Removal and Installation".

C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

DTC Logic

INFOID:0000000007492679

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B51	BSW/BSI IND SHORT CIR	Short circuit in BSW indicator circuit is detected. (Over current is detected)	• BSW indicator circuit • BSW indicator • Side radar

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1B51” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the “C1B51” detected as the current malfunction?

YES >> Refer to DAS-39, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000007492680

1.CHECK BSW INDICATOR CIRCUIT FOR SHORT

1. Turn ignition switch OFF.
2. Disconnect side radar harness connector and BSW indicator harness connector.
3. Check continuity between side radar harness connector and ground.

Side radar		Ground	Continuity
Connector	Terminal		
B57 (LH)	6		Not existed
B317 (RH)			

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the harnesses or connectors.

2.REPLACE THE SIDE RADAR

1. Replace the side radar.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “C1B51” is detected in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”

Is the DTC “C1B51” detected?

YES >> Replace the side radar. Refer to DAS-78, "Removal and Installation".
NO >> INSPECTION END

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

DTC Logic

INFOID:0000000007492681

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B52	BSW/BSI IND OPEN CIR	Open circuit in BSW indicator circuit is detected.	• BSW indicator circuit • BSW indicator • Side radar

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “C1B52” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the “C1B52” detected as the current malfunction?

YES >> Refer to DAS-40, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000007492682

1.CHECK BSW INDICATOR CIRCUIT FOR OPEN 1

1. Turn ignition switch OFF.
2. Disconnect side radar harness connector and door mirror harness connector.
3. Check continuity between side radar harness connector and door mirror harness connector.

Side radar		Door mirror		Continuity
Connector	Terminal	Connector	Terminal	
B57 (LH)	6	D43 (LH)	1	Existed
B317 (RH)		D3 (RH)		

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the harnesses or connectors.

2.CHECK BSW INDICATOR CIRCUIT FOR OPEN 2

1. Disconnect BSW indicator harness connector.
2. Check continuity between door mirror harness connector and BSW indicator harness connector.

Door mirror		BSW indicator		Continuity
Connector	Terminal	Connector	Terminal	
D43 (LH)	1	D201 (LH)	1	Existed
D3 (RH)		D202 (RH)		
D43 (LH)	13	D201 (LH)	2	
D3 (RH)		D202 (RH)		

Is the inspection result normal?

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

3.CHECK BSW INDICATOR CIRCUIT FOR OPEN 3

Check continuity between door mirror harness connector and ground.

Door mirror		Ground	Continuity
Connector	Terminal		
D43 (LH)	13		Existed
D3 (RH)			

Is the inspection result normal?

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

4. CHECK SIDE RADAR VOLTAGE OUTPUT

1. Connect side radar harness connector.
2. Check voltage between door mirror harness connector and ground.

Door mirror		Ground	Condition	Standard voltage	Reference voltage (Approx.)
Connector	Terminal				
D43 (LH)	1		Ignition switch OFF ⇒ ON (Approx. 2 sec.)	5.5 - 16 V	6 V
D3 (RH)					

Is the inspection result normal?

YES >> Replace glass mirror.
NO >> Replace side radar. Refer to DAS-78, "Removal and Installation".

C1B53 SIDE RADAR RIGHT MALFUNCTION

DTC Logic

INFOID:0000000007492683

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B53	SIDE RDR R MALF	BSW control module detects that side radar RH has a malfunction.	Side radar RH

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “C1B53” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “C1B53” detected as the current malfunction?

YES >> Refer to DAS-42, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492684

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “C1B53” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-27, "DTC Index" (SIDE RADAR RIGHT).
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

C1B54 SIDE RADAR LEFT MALFUNCTION

DTC Logic

INFOID:0000000007492685

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B54	SIDE RDR L MALF	BSW control module detects that side radar LH has a malfunction.	Side radar LH

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “C1B54” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “C1B54” detected as the current malfunction?

YES >> Refer to DAS-43, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492686

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “C1B54” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-25, "DTC Index" (SIDE RADAR LEFT).
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

C1B55 RADAR BLOCKAGE

DTC Logic

INFOID:0000000007492687

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B55	RADAR BLOCKAGE	Side radar is blocked.	Stain or foreign materials is deposited.

NOTE:
DTC “C1B55” may be detected under the following conditions except for possible cause. (Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them “This is not malfunction”.)
- The side radar may be blocked by temporary ambient conditions such as splashing water, mist or fog.
- The blocked condition may also be caused by objects such as ice, frost or dirt obstructing the side radar.
- Due to the nature of radar technology it is possible to get a blockage warning and not actually be blocked. This is rare and is known as a false blockage warning. A false blocked condition either self-clears or clears after an ignition cycle.

Diagnosis Procedure

INFOID:0000000007492688

1.CHECK THE REAR BUMPER

Check rear bumper near the side radar contaminated with foreign materials.

>> GO TO 2.

2.CHECK THE SIDE RADAR

Check side radar and the side radar outskirts contaminated with foreign materials.

>> GO TO 3.

3.CHECK THE SIDE RADAR INSTALL CONDITION

Check side radar installation condition (installation position, properly tightened, a bent bracket).

>> GO TO 4.

4.INTERVIEW

1. Ask if there is stain or foreign materials.
2. Ask if there is any temporary ambient condition such as splashing water, mist or fog.
3. Ask if there is any object such as ice, frost or dirt obstructing the side radar.

Is any of above conditions seen?

YES >> Explain to the customer about the difference between the blockage detection function and the indication when the malfunction is detected and tell them “This is not malfunction”.
NO >> INSPECTION END

U1000 CAN COMM CIRCUIT

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000007492689

CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.
CAN communication signal chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

BSW COMMUNICATION

- BSW communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- BSW communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR LH : DTC Logic

INFOID:0000000007492690

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	If side radar LH is not transmitting or receiving BSW communication signal for 2 seconds or more	BSW communication system

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000007492691

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the BSW system ON, and then wait for 2 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-42, "Intermittent Incident".

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000007492692

CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.
CAN communication signal chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

BSW COMMUNICATION

- BSW communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- BSW communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR RH : DTC Logic

INFOID:0000000007492693

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	If Side radar RH is not transmitting or receiving BSW communication signal for 2 seconds or more	BSW communication system

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000007492694

1.PERFORM THE SELF-DIAGNOSIS

1. Start the engine.
2. Turn the BSW system ON, and then wait for 2 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-42, "Intermittent Incident".

BSW CONTROL MODULE

BSW CONTROL MODULE : Description

INFOID:0000000007492695

CAN COMMUNICATION

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control units, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads the required data only.
CAN communication signal chart. Refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

BSW COMMUNICATION

- BSW communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with 2 communication lines.
- BSW communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

BSW CONTROL MODULE : DTC Logic

INFOID:0000000007492696

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	If BSW control module is not transmitting or receiving CAN communication signal or BSW communication signal for 2 seconds or more	• CAN communication system • BSW communication system

NOTE:
If “U1000” is detected, first diagnose the CAN communication system.

BSW CONTROL MODULE : Diagnosis Procedure

INFOID:0000000007492697

1.PERFORM THE SELF-DIAGNOSIS

1. Turn the ignition switch ON.
2. Turn the BSW system ON, and then wait for 2 seconds or more.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1000” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected as the current malfunction?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000007492698

CAN controller controls the communication of BSW communication signal and the error detection.

SIDE RADAR LH : DTC Logic

INFOID:0000000007492699

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
U1010	CONTROL UNIT (CAN)	If side radar LH detects malfunction by CAN controller initial diagnosis.	Side radar LH

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000007492700

1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the BSW system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is “U1010” detected as the current malfunction?

YES >> Replace the side radar LH. Refer to DAS-78, "Removal and Installation".
NO >> INSPECTION END

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000007492701

CAN controller controls the communication of BSW communication signal and the error detection.

SIDE RADAR RH : DTC Logic

INFOID:0000000007492702

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
U1010	CONTROL UNIT (CAN)	If Side radar RH detects malfunction by CAN controller initial diagnosis.	Side radar RH

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000007492703

1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the BSW system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is “U1010” detected as the current malfunction?

YES >> Replace the side radar RH. Refer to DAS-78, "Removal and Installation".
NO >> INSPECTION END

BSW CONTROL MODULE

BSW CONTROL MODULE : Description

INFOID:0000000007492704

CAN controller controls the communication of CAN communication signal and BSW communication signal, and the error detection.

BSW CONTROL MODULE : DTC Logic

INFOID:0000000007492705

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1010	CONTROL UNIT (CAN)	If BSW control module detects malfunction by CAN controller initial diagnosis	BSW control module

BSW CONTROL MODULE : Diagnosis Procedure

INFOID:0000000007492706

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the BSW system ON.
2. Perform “All DTC Reading” with CONSULT.
3. Check if the “U1010” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1010” detected as the current malfunction?

YES >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".
NO >> INSPECTION END

U0104 ADAS CAN 1

DTC Logic

INFOID:0000000007492707

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
U0104	ADAS CAN CIR1	Side radar detected an error of BSW communication signal that was received from BSW control module.	BSW control module

NOTE:
If DTC “U0104” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-45, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-46, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RIGHT).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT
4. Check if the U0104 is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the DTC “U0104” detected?

YES >> Refer to DAS-50, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492708

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0104” in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-45, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-46, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RIGHT).
NO >> GO TO 2.

2.CHECK BSW CONTROL MODULE SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “BSW”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-22, "DTC Index".
NO >> Replace side radar LH or RH. Refer to DAS-78, "Removal and Installation"

U0121 VDC CAN 2

DTC Logic

INFOID:0000000007492709

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0121	VDC CAN CIR2	If BSW control module detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:
If DTC “U0121” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0121” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U0121” detected as the current malfunction?

YES >> Refer to DAS-51, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492710

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0121” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-37, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U0401 ECM CAN 1

DTC Logic

INFOID:0000000007492711

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0401	ECM CAN CIR1	If BSW control module detects an error signal that is received from ECM via CAN communication	ECM

NOTE:
If DTC “U0401” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0401” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U0401” detected as the current malfunction?

YES >> Refer to DAS-52, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492712

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0401” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ENGINE”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to EC-93, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U0402 TCM CAN 1

DTC Logic

INFOID:0000000007492713

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0402	TCM CAN CIRC1	If BSW control module detects an error signal that is received from TCM via CAN communication	TCM

NOTE:
If DTC “U0402” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0402” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U0402” detected as the current malfunction?

YES >> Refer to DAS-53, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492714

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0402” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-48, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U0405 ADAS CAN 2

DTC Logic

INFOID:0000000007492715

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
U0405	ADAS CAN CIR2	Side radar detected an error of BSW communication signal that was received from BSW control module.	BSW control module

NOTE:
If DTC “U0405” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-45, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-45, "SIDE RADAR LH : DTC Logic" (SIDE RADAR RIGHT).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the U0405 is detected as the current malfunction in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is the DTC “U0405” detected?

YES >> Refer to DAS-54, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492716

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0405” in “Self Diagnostic Result” of “SIDE RADAR RIGHT/LEFT”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-45, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-46, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RIGHT).
NO >> GO TO 2.

2.CHECK BSW CONTROL MODULE SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “BSW”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-22, "DTC Index".
NO >> Replace side radar LH or RH. Refer to DAS-78, "Removal and Installation".

U0415 VDC CAN 1

DTC Logic

INFOID:0000000007492717

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0415	VDC CAN CIR1	If BSW control module detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:
If DTC “U0415” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U0415” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U0415” detected as the current malfunction?

YES >> Refer to DAS-55, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492718

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U0415” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-37, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U150B ECM CAN 3

DTC Logic

INFOID:0000000007492719

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U150B	ECM CAN CIRC 3	BSW control module detects an error signal that is received from ECM via CAN communication	ECM

NOTE:
If DTC “U150B” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U150B” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U150B” detected as the current malfunction?

YES >> Refer to DAS-56, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492720

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U150B” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ECM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ENGINE”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to EC-93, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U150C VDC CAN 3

DTC Logic

INFOID:0000000007492721

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U150C	VDC CAN CIRC 3	BSW control module detects an error signal that is received from ABS actuator and electric unit (control unit) via CAN communication	ABS actuator and electric unit (control unit)

NOTE:
If DTC “U150C” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U150C” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U150C” detected as the current malfunction?

YES >> Refer to DAS-57, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492722

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U150C” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “ABS”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-37, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U150D TCM CAN 3

DTC Logic

INFOID:0000000007492723

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U150D	TCM CAN CIRC 3	BSW control module detects an error signal that is received from TCM via CAN communication	TCM

NOTE:
If DTC “U150D” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U150D” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U150D” detected as the current malfunction?

YES >> Refer to DAS-58, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492724

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U150D” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK TCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “TRANSMISSION”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-48, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U150E BCM CAN 3

DTC Logic

INFOID:0000000007492725

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U150E	BCM CAN CIRC 3	BSW control module detects an error signal that is received from BCM via CAN communication	BCM

NOTE:
If DTC “U150E” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U150E” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U150E” detected as the current malfunction?

YES >> Refer to DAS-59, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492726

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U150E” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK BCM SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “BCM”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BCS-59, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1503 SIDE RDR L CAN 2

DTC Logic

INFOID:0000000007492727

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1503	SIDE RDR L CAN CIR 2	BSW control module detects an error signal that is received from side radar LH via BSW communication	Side radar LH

NOTE:
If DTC “U1503” is detected along with DTC “U1000”, or “U1508”, first diagnose the DTC “U1000” or “U1508”.
- Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic" for DTC “U1000”.
- Refer to DAS-65, "DTC Logic" for DTC “U1508”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1503” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1503” detected as the current malfunction?

YES >> Refer to DAS-60, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492728

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” or “U1508” is detected other than “U1503” in “Self Diagnostic Result” of “BSW”.

Is “U1000” or “U1508” detected?

YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
YES-2 >> U1508 detected: Refer to DAS-65, "DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR LH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-25, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1504 SIDE RDR L CAN 1

DTC Logic

INFOID:0000000007492729

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1504	SIDE RDR L CAN CIR 1	BSW control module detects an error signal that is received from side radar LH via BSW communication	Side radar LH

NOTE:
If DTC “U1504” is detected along with DTC “U1000”, or “U1508”, first diagnose the DTC “U1000” or “U1508”.
- Refer to DAS-45, "SIDE RADAR LH : DTC Logic" for DTC “U1000”.
- Refer to DAS-65, "DTC Logic" for DTC “U1508”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1504” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1504” detected as the current malfunction?

YES >> Refer to DAS-61, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492730

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” or “U1508” is detected other than “U1504” in “Self Diagnostic Result” of “BSW”.

Is “U1000” or “U1508” detected?

YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
YES-2 >> U1508 detected: Refer to DAS-65, "DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR LH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-25, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1505 SIDE RDR R CAN 2

DTC Logic

INFOID:0000000007492731

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1505	SIDE RDR R CAN CIR 2	BSW control module detects an error signal that is received from side radar RH via BSW communication	Side radar RH

NOTE:
If DTC “U1505” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1505” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1505” detected as the current malfunction?

YES >> Refer to DAS-62, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492732

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U1505” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-27, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1506 SIDE RDR R CAN 1

DTC Logic

INFOID:0000000007492733

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1506	SIDE RDR R CAN CIR 1	BSW control module detects an error signal that is received from side radar RH via BSW communication	Side radar RH

NOTE:
If DTC “U1506” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1506” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1506” detected as the current malfunction?

YES >> Refer to DAS-63, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492734

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U1506” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-27, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1507 LOST COMM(SIDE RDR R)

DTC Logic

INFOID:0000000007492735

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1507	LOST COMM(SIDE RDR R)	BSW control module cannot receive BSW communication signal from side radar RH for 2 seconds or more	• BSW communication system • Side radar RH

NOTE:
If DTC “U1507” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic"

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1507” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1507” detected as the current malfunction?

YES >> Refer to DAS-64, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492736

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U1507” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-27, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1508 LOST COMM(SIDE RDR L)

DTC Logic

INFOID:0000000007492737

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1508	LOST COMM(SIDE RDR L)	BSW control module cannot receive BSW communication signal from side radar LH for 2 seconds or more	• Side radar LH harness connector • BSW communication system • Side radar LH

NOTE:
DTC “U1508” is detected along with DTC “U1000”, first diagnose the DTC “U1508”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1508” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1508” detected as the current malfunction?

YES >> Refer to DAS-65, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492738

1.CHECK SIDE RADAR HARNESS CONNECTOR

1. Turn the ignition switch OFF.
2. Check the terminals and connectors of the side radar LH for damage, bend and short (unit side and connector side).

Is the inspection result normal?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Repair the terminal or connector.

U1518 SIDE RDR L CAN 3

DTC Logic

INFOID:0000000007492739

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1518	SIDE RDR L CAN CIRC 3	BSW control module detects an error signal that is received from side radar LH via BSW communication	Side radar LH

NOTE:
If DTC “U1518” is detected along with DTC “U1000”, or “U1508”, first diagnose the DTC “U1000” or “U1508”.
- Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic" for DTC “U1000”.
- Refer to DAS-65, "DTC Logic" for DTC “U1508”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1518” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1518” detected as the current malfunction?

YES >> Refer to DAS-66, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492740

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” or “U1508” is detected other than “U1518” in “Self Diagnostic Result” of “BSW”.

Is “U1000” or “U1508” detected?

YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
YES-2 >> U1508 detected: Refer to DAS-65, "DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR LH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR LEFT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-25, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

U1519 SIDE RDR R CAN 3

DTC Logic

INFOID:0000000007492741

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1519	SIDE RDR R CAN CIRC 3	BSW control module detects an error signal that is received from side radar RH via BSW communication	Side radar RH

NOTE:
If DTC “U1519” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Turn the BSW system ON.
3. Perform “All DTC Reading” with CONSULT.
4. Check if the “U1519” is detected as the current malfunction in “Self Diagnostic Result” of “BSW”.

Is “U1519” detected as the current malfunction?

YES >> Refer to DAS-67, "Diagnosis Procedure".
NO >> Refer to GI-42, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000007492742

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” is detected other than “U1519” in “Self Diagnostic Result” of “BSW”.

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-46, "BSW CONTROL MODULE : DTC Logic".
NO >> GO TO 2.

2.CHECK SIDE RADAR RH SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in “Self Diagnostic Result” of “SIDE RADAR RIGHT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-27, "DTC Index".
NO >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".

POWER SUPPLY AND GROUND CIRCUIT

BSW CONTROL MODULE

BSW CONTROL MODULE : Diagnosis Procedure

INFOID:0000000007492743

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	45

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK BSW CONTROL MODULE POWER SUPPLY CIRCUIT

Check voltage between BSW control module harness connector and ground.

Terminal			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(–)			
BSW control module		Ground	Ignition switch		
Connector	Terminal				
M61	16		OFF	0 - 0.1 V	0 V
			ON	9.5 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the BSW control module power supply circuit.

3.CHECK BSW CONTROL MODULE GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the BSW control module connector.
3. Check for continuity between BSW control module harness connector and ground.

BSW control module		Ground	Continuity
Connector	Terminal		
M61	6		Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair the BSW control module ground circuit.

SIDE RADAR LH

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000007492744

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	45

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the side radar LH connector.
3. Check voltage between side radar LH harness connector and ground.

Terminals			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(–)			
Side radar LH		Ground	Ignition switch		
Connector	Terminal				
B57	5		OFF	0 - 0.1 V	0 V
			ON	10 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the side radar LH power supply circuit.

3.CHECK GROUND CIRCUIT

Check continuity between side radar LH harness connectors and ground.

Side radar LH		Ground	Continuity
Connector	Terminal		
B57	2		Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair the side radar LH ground circuit.

SIDE RADAR RH

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000007492745

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	45

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the side radar RH connector.
3. Check voltage between side radar RH harness connector and ground.

Terminals			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(–)			
Side radar RH		Ground	Ignition switch		
Connector	Terminal				
B317	5		OFF	0 - 0.1 V	0 V
			ON	10 - 16 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the side radar RH power supply circuit.

3.CHECK GROUND CIRCUIT

Check continuity between side radar RH harness connectors and ground.

Side radar RH		Ground	Continuity
Connector	Terminal		
B317	2		Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair the side radar RH ground circuit.

BSW SWITCH CIRCUIT

Component Function Check

INFOID:0000000007492746

1.CHECK BSW SWITCH INPUT SIGNAL

1. Turn the ignition switch ON.
2. Select the DATA MONITOR item “WARN SYS SW” of “BSW” with CONSULT.
3. With operating the BSW switch, check the monitor status.

Monitor item	Condition	Monitor status
WARN SYS SW	BSW switch is pressed	On
	BSW switch is not pressed	OFF

Is the inspection result normal?

YES >> BSW switch circuit is normal.
NO >> Refer to DAS-71, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000007492747

1.CHECK BSW SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. With operating the BSW switch, check voltage between BSW control module harness connector and ground.

Terminals			Condition	Voltage (Approx.)
(+)		(–)		
BSW control module		Ground	BSW switch	
Connector	Terminal			
M61	1		Pressed	0 V
			Released	12 V

Is the inspection result normal?

YES >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".
NO >> GO TO 2.

2.CHECK BSW SWITCH

1. Turn ignition switch OFF.
2. Remove BSW switch.
3. Check BSW switch. Refer to DAS-81, "Removal and Installation".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the BSW switch. Refer to DAS-81, "Removal and Installation".

3.CHECK BSW SWITCH GROUND CIRCUIT

Check continuity between BSW switch harness connector and the ground.

BSW switch		Ground	Continuity
Connector	Terminal		
M60	2		Existed

Is the inspection result normal?

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

4.CHECK BSW SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the BSW control module connector.

2. Check continuity between the BSW control module harness connector and BSW switch harness connector.

BSW control module		BSW switch		Continuity
Connector	Terminal	Connector	Terminal	
M61	1	M60	1	Existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the harnesses or connectors.

5. CHECK BSW SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the BSW control module harness connector and ground.

BSW control module		Ground	Continuity
Connector	Terminal		
M61	1		Not existed

Is the inspection result normal?

YES >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".
NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000007492748

1. CHECK BSW SWITCH

Check continuity of BSW switch.

Terminal		Condition	Continuity
1	2	When BSW switch is pressed	Existed
		When BSW switch is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace BSW switch.

BSW ON INDICATOR CIRCUIT

Diagnosis Procedure

INFOID:0000000007492749

1.CHECK BSW ON INDICATOR POWER SUPPLY CIRCUIT

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

Terminals			Voltage (Approx.)
(+)		(–)	
BSW switch		Ground	
Connector	Terminal		
M60	5		Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the BSW ON indicator power supply circuit.

2.CHECK BSW ON INDICATOR SIGNAL FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect the BSW control module harness connector.
3. Check continuity between the BSW control module harness connector and BSW switch harness connector.

BSW control module		BSW switch		Continuity
Connector	Terminal	Connector	Terminal	
M61	4	M60	6	Existed

Is the inspection result normal?

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

3.CHECK BSW ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the BSW control module harness connector and ground.

BSW control module		Ground	Continuity
Connector	Terminal		
M61	4		Not existed

Is the inspection result normal?

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

4.CHECK BSW ON INDICATOR

Check the BSW ON indicator. Refer to DAS-73, "Component Inspection".

Is the inspection result normal?

YES >> Replace the BSW control module. Refer to DAS-77, "Removal and Installation".
NO >> Replace BSW switch. DAS-81, "Removal and Installation".

Component Inspection

INFOID:0000000007492750

1.CHECK BSW ON INDICATOR

Apply battery voltage to BSW switch terminals 5 and 6, and then check if the BSW ON indicator illuminates.

Terminals		Condition	BSW ON indicator
(+)	(-)		
5	6	When the battery voltage is applied	On
		When the battery voltage is not applied	Off

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the BSW switch. Refer to DAS-81, "Removal and Installation".

SYMPTOM DIAGNOSIS

BSW SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000007492751

CAUTION:
Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.
NOTE:
For the operational conditions of BSW, refer to DAS-8, "System Description".

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON.	BSW warning lamp (Yellow) does not illuminate	• BSW warning lamp signal (CAN) - Combination meter - BSW control module • BSW warning lamp (combination meter)	• Power supply and ground circuit of BSW control module Refer to DAS-68, "BSW CONTROL MODULE : Diagnosis Procedure" • BSW control module Active test “BSW/BSI WARNING LAMP” Refer to DAS-17, "CONSULT Function (BSW)". • BSW control module Data monitor “BSW/BSI WARN LMP” Refer to DAS-17, "CONSULT Function (BSW)" • Combination meter Data monitor “BSW W/L” Refer to MWI-35, "CONSULT Function"
	BSW ON indicator (on the BSW switch) does not illuminate	• Harness between BSW control module and BSW switch • BSW switch • BSW control module	BSW ON indicator circuit Refer to DAS-73, "Diagnosis Procedure"
	BSW indicator does not turn ON	• Harness between side radar and BSW indicator • Side radar LH/RH • BSW indicator	Perform self-diagnosis of side radar Refer to DAS-19, "CONSULT Function (SIDE RADAR LEFT)" or DAS-20, "CONSULT Function (SIDE RADAR RIGHT)"
BSW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	BSW ON indicator is not turned ON ⇔ OFF when operating BSW switch	• Harness between BSW control module and BSW switch • Harness between BSW switch and ground • BSW control module • BSW switch	BSW ON indicator circuit Refer to DAS-73, "Diagnosis Procedure"
	Buzzer is not sounding	• BSW control module • Combination meter	Meter buzzer circuit Refer to WCS-35, "Component Function Check"

NORMAL OPERATING CONDITION

Description

INFOID:0000000007492752

PRECAUTIONS FOR BLIND SPOT WARNING (BSW)

- The BSW system is not a replacement for proper driving procedure and are not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction driver will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The BSW system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the BSW system when towing a trailer because the system may not function properly.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The side radar may not be able to detect and activate BSW when certain objects are present such as:
- Pedestrians, bicycles, animals.
- Several types of vehicles such as motorcycles.
- Oncoming vehicles.
- Vehicles remaining in the detection zone when driver accelerate from a stop.
- A vehicle merging into an adjacent lane at a speed approximately the same as vehicle.
- A vehicle approaching rapidly from behind.
- A vehicle which vehicle overtakes rapidly.
- Severe weather or road spray conditions may reduce the ability of the side radar to detect other vehicles.
- The side radar detection zone is designed based on a standard lane width. When driving in a wider lane, the side radar may not detect vehicles in an adjacent lane. When driving in a narrow lane, the side radar may detect vehicles driving two lanes away.
- The side radar are designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.

REMOVAL AND INSTALLATION

BSW CONTROL MODULE

Removal and Installation

INFOID:0000000007492753

REMOVAL

1. Remove cluster lid C. Refer to IP-13, "Removal and Installation".
2. Remove mounting bolts from BSW control module.
3. Disconnect BSW control module connector.
4. Remove BSW control module.

INSTALLATION

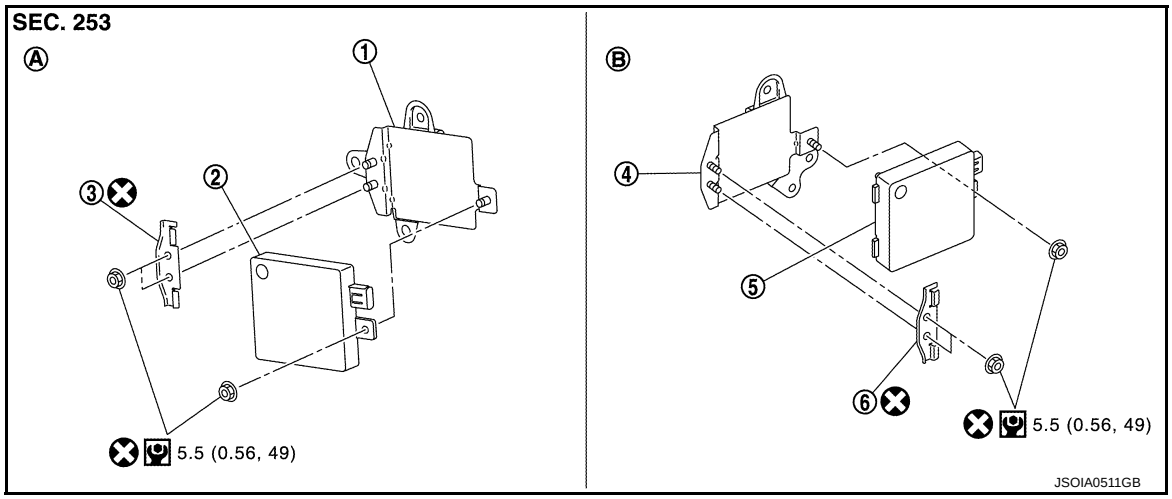
Install in the reverse order of removal.

SIDE RADAR

Removal and Installation

INFOID:0000000007492754

EXPLODED VIEW



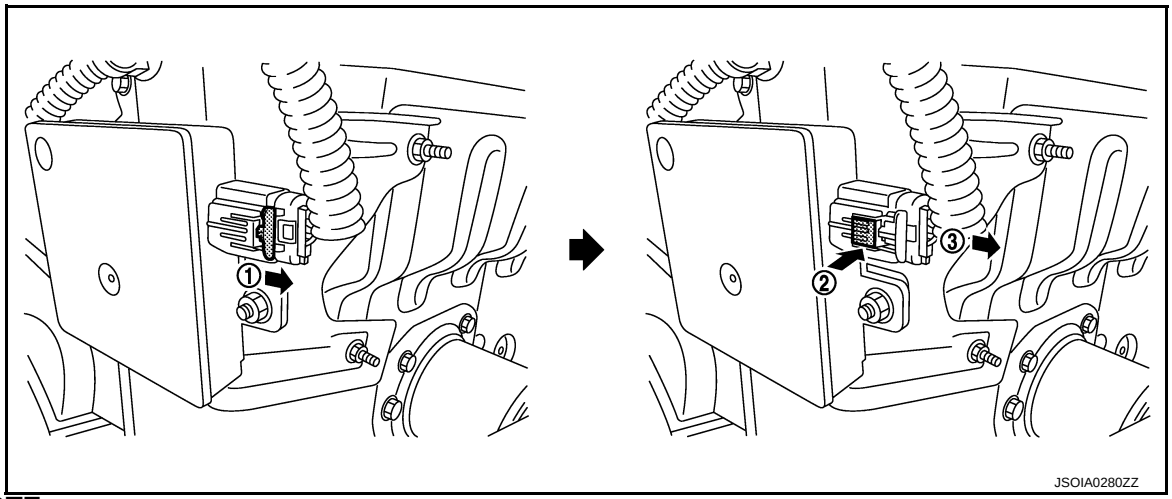
1. Bracket
2. Side radar LH
3. Bracket
4. Bracket
5. Side radar RH
6. Bracket
A. LH side
B. RH side

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

REMOVAL AND INSTALLATION

Removal

1. Remove the rear bumper fascia assembly. Refer to EXT-15, "REAR BUMPER : Removal and Installation".
2. Remove the side radar connector.



NOTE:
This illustration is an example.

3. Remove the mounting nuts to remove the side radar RH/LH from bracket.

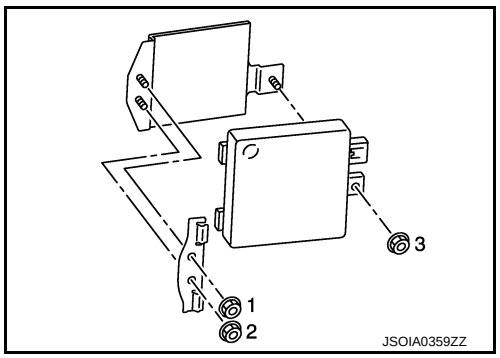
Installation

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

- Tighten mounting nuts in the numerical order as shown in the figure.
- Always lock the side radar connector.

CAUTION:

Since right side radar and left side radar are similar in shape, never confuse right with left.



BSW INDICATOR

Exploded View

INFOID:0000000007492755

BSW indicator is installed on the door mirror surface. Refer to MIR-29, "GLASS MIRROR : Removal and Installation".

NOTE:
Always remove BSW indicator together with glass mirror.

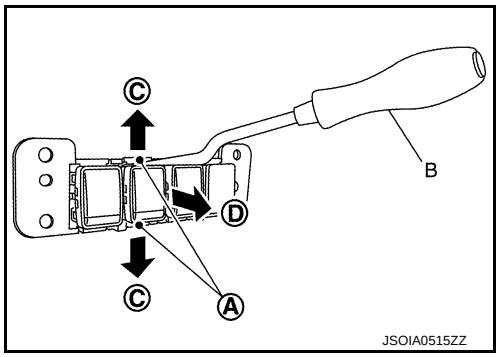
BSW SWITCH

Removal and Installation

INFOID:0000000007492756

REMOVAL

1. Remove the instrument lower panel (LH). Refer to IP-13, "Removal and Installation".
2. Remove the bracket for BSW switch and other switches from instrument driver lower panel.
3. Insert remover tool (B) in pawl (A) of the bracket and widen the pawl in (C) direction to release the fit.
4. Remove BSW switch from the bracket in (D) direction.



INSTALLATION

Install in the reverse order of removal.