SECTION DAS В **DRIVER ASSISTANCE SYSTEM**

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PRECAUTION PRECAUTIONS

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

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. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

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

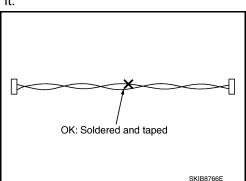
Precautions For Harness Repair

INFOID:000000012547603

ITS communication uses a twisted pair line. Be careful when repairing it.

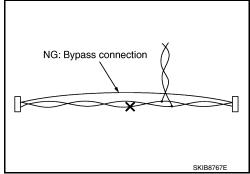
• Solder the repaired area and wrap tape around the soldered area. **NOTE:**

A fray of twisted lines must be within 110 mm (4.33 in).



• Bypass connection is never allowed at the repaired area. **NOTE:**

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



PRECAUTIONS

Precautions for Removing Battery Terminal

• When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.

NOTE:

< PRECAUTION >

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

• For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch. **NOTE:**

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
 NOTE:

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

Precaution for Blind Spot Warning/Blind Spot Intervention System Service INFOID:00000012547605

WARNING:

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

- Do not use the Blind Spot Intervention system when driving with free rollers or a chassis dynamometer.
- Do not perform the active test while driving.
- Do not disassemble the lane camera unit.
- Do not use the lane camera unit that is removed from the vehicle.
- Do not change BSW initial state ON \Rightarrow OFF without the consent of the customer.

TO KEEP THE BLIND SPOT WARNING/BLIND SPOT INTERVENTION SYSTEM OPERATING PROPERLY, BE SURE TO OBSERVE THE FOLLOWING ITEMS:

Lane Camera Unit Maintenance

The lane camera unit for the LDW/LDP system is located above the inside mirror. To keep the proper operation of the LDW/LDP systems and prevent a system malfunction, be sure to observe the following:

- Always keep the windshield clean.
- Do not attach a sticker (including transparent material) or install an accessory near the camera unit.
- Do not place reflective materials, such as white paper or a mirror, on the instrument panel. The reflection of sunlight may adversely affect the camera unit capability of detecting the lane markers.
- Do not strike or damage the areas around the camera unit.
- Do not touch the camera lens or remove the screw located on the camera unit.

System Maintenance

The two side radar for the Blind Spot Warning and Blind Spot Intervention systems 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.

Precaution for BSW System Service

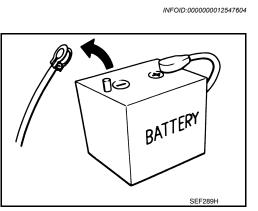
WARNING:

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

- Never perform the active test while driving.
- Never change BSW initial state $\text{ON} \Rightarrow \text{OFF}$ without the consent of the customer.

TO KEEP THE BSW SYSTEM OPERATING PROPERLY, BE SURE TO OBSERVE THE FOLLOW-

DAS-7



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2016 Pathfinder

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< PRECAUTION >

ING 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.

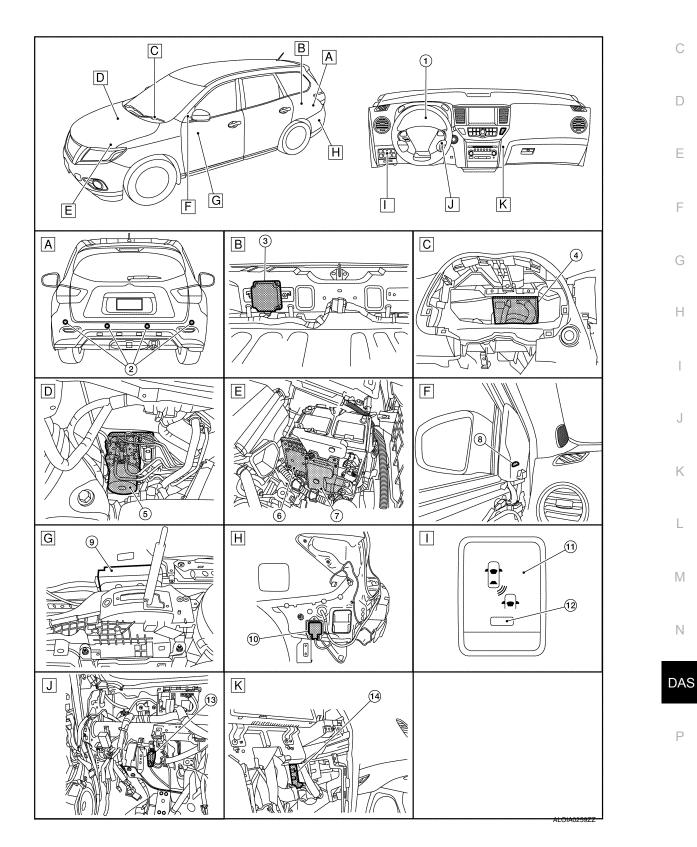
SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

- A. Rear view of vehicle
- D. Engine room right side

G.

- B.
 Rear storage area (view with storage C. Ins box removed)
 Ins con

 E.
 Engine room left side
 F.
 Let finitian
- H. Left rear bumper area (view with rear I. bumper fascia removed)
- ith K. Instrument panel right side (view with ed) glove box assembly removed)
- . Instrument panel left side (view with combination meter removed)
- . Left front door (view with driver door finisher removed)
 - Left side of instrument panel

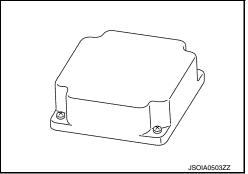
console assembly removed)J. Instrument panel left side (view with K. instrument panel assembly removed)

Center console (view with center

No.	Component	Function
1	Combination meter	 Description: Refer to <u>DAS-11, "Combination Meter"</u> System display and warning: <u>DAS-17, "System Display and Warning"</u> Refer to <u>MWI-6, "METER SYSTEM : Component Parts Location"</u> for detailed installation location
2	Sonar sensors	Refer to SN-4, "Component Description"
3	ADAS control unit	Refer to DAS-10, "ADAS Control Unit"
4	ВСМ	Refer to <u>DAS-11. "BCM"</u> Refer to <u>BCS-4. "BODY CONTROL SYSTEM : Component Parts Location"</u> for detailed in- stallation location
5	ABS actuator and electric unit (con- trol unit)	Refer to <u>DAS-11. "ABS Actuator and Electric Unit (Control Unit)"</u> Refer to <u>BRC-11. "Component Parts Location"</u> (type 1) for detailed installation location Refer to <u>BRC-169. "Component Parts Location"</u> (type 2) for detailed installation location
6	ECM	Refer to <u>DAS-12, "ECM"</u> Refer to <u>EC-20, "ENGINE CONTROL SYSTEM : Component Parts Location"</u> (USA and Canada) for detailed installation location Refer to <u>EC-516, "ENGINE CONTROL SYSTEM : Component Parts Location"</u> (Mexico) for detailed installation location
7	ТСМ	Refer to DAS-12, "TCM" Refer to TM-16, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F10E) for detailed installation location Refer to TM-238, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F10J) for detailed installation location
8	BSW indicator LH (RH similar)	Refer to DAS-11, "BSW Indicator LH/RH"
9	Around view monitor control unit	Refer to AV-209, "Component Parts Location"
10	Side radar LH (RH similar)	Refer to DAS-11, "Side Radar LH/RH"
11	Warning system switch	 Description: Refer to <u>DAS-11, "Warning System Switch"</u> System display and warning: <u>DAS-17, "Switch Name and Function"</u>
12	Warning system switch ON indicator (On the warning system switch)	Refer to DAS-17, "System Display and Warning"
13	Sonar control unit	Refer to SN-4, "Component Description"
14	CAN gateway	Refer to LAN-118. "System Description"

ADAS Control Unit





• Controls the BSW system, based on received signals.

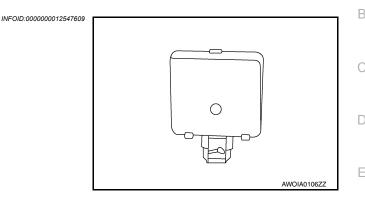
• Communicates with each control unit via CAN communication.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

- Connected with the side radar (LH and RH) via ITS communication, ADAS control unit receives a vehicle detection signal and transmits a BSW indicator signal and a BSW indicator dimmer signal to the side radar.
- Receives a warning system switch signal from the warning system switch.
- Transmits a buzzer output signal to the combination meter via CAN communication.

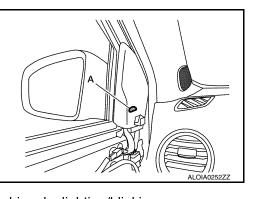
Side Radar LH/RH



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

BSW Indicator LH/RH

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 Installed on the door by the A pillar, the BSW indicator "A" 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.

Warning System Switch

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

Combination Meter

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

ABS Actuator and Electric Unit (Control Unit)

Transmits vehicle speed signal to ADAS control unit via CAN communication.

BCM

- Transmits turn indicator signal to ADAS control unit via CAN communication.
- Transmits dimmer signal to ADAS control unit via CAN communication.

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COMPONENT PARTS

< SYSTEM DESCRIPTION > TCM

Transmits shift position signal to ADAS control unit via CAN communication.

ECM

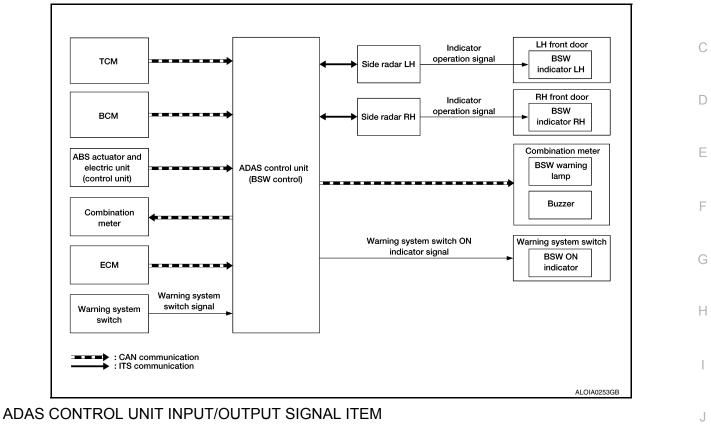
Transmits engine speed signal to ADAS control unit via CAN communication.

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SYSTEM

System Description

SYSTEM DIAGRAM



Input Signal Item

Transmit unit	S	ignal name	Description	K
ТСМ	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	L
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp	M
		Dimmer signal	Receives an ON/OFF state of dimmer signal	
Side radar LH, RH	ITS communication	Vehicle detection signal	Receives vehicle detection condition of detection zone	Ν
ECM	CAN communication	Engine speed signal	Receives an engine speed	
Warning system switch	Warning system switch	signal	Receives an ON/OFF state of the warning system switch	DA

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
meter		Buzzer output signal	Transmits a buzzer output signal to activate buzzer

[BSW]

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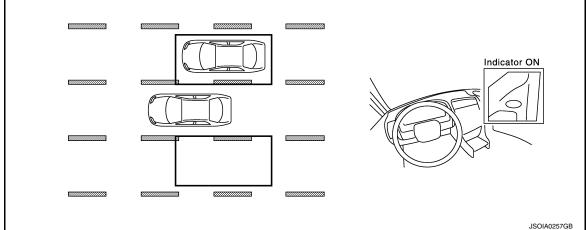
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Reception unit	Signal name		Description
		BSW indicator signal	Transmits a BSW indicator signal to turn ON the BSW indicator
Side radar LH, RH	ITS communication	BSW indicator dimmer signal	Transmits a BSW indicator dimmer signal to dimmer BSW indicator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

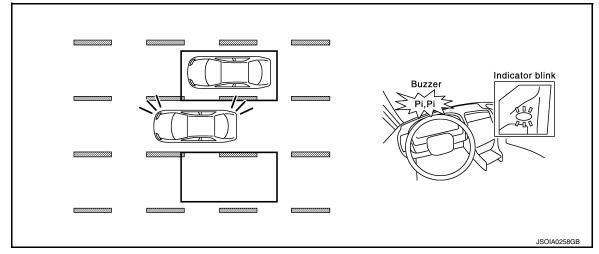
FUNCTION DESCRIPTION

- 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

• ADAS control unit enables BSW system.

• The ADAS control unit turns on the BSW system when the warning system switch is turned ON.

- Side radar detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to ADAS control unit via ITS communication.
- ADAS control unit 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 ITS 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

ADAS control unit performs the control when the following conditions are satisfied.

- When the warning system 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 <u>DAS-19</u>, "<u>Precautions for</u> <u>Blind Spot Warning</u>".

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 \Rightarrow ON	Approx. 2 sec. ON	Approx. 5 sec. ON [*]	OFF → OFF (Yellow) ON JSOIA0374GB
When DTC is detected	OFF	ON	OFF
When radar blockage is detected	OFF	ON	OFF

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

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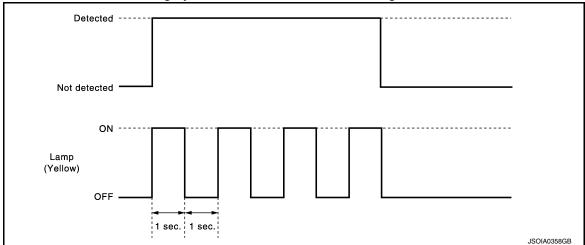
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SYSTEM

< SYSTEM DESCRIPTION >

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" \Rightarrow "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 \Rightarrow ON.
- BSW initial OFF BSW function is still OFF when the ignition switch OFF \Rightarrow ON.
- *: Factory setting

How to change BSW initial state

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

Fail-safe (ADAS Control Unit)

INFOID:000000012547618

INFOID:000000012547619

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

Fail-safe (Side Radar)

FAIL-SAFE CONTROL BY DTC

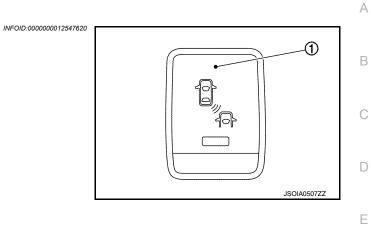
If a malfunction occurs in the side radar, ADAS control unit cancels the control. Then the BSW warning lamp in the combination meter illuminates.

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.

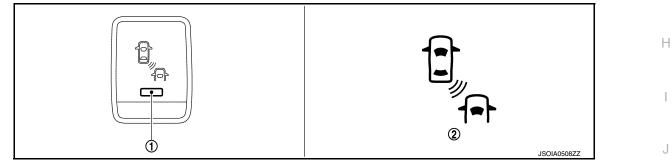
OPERATION



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

System Display and Warning

INDICATOR AND WARNING LAMP



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

DISPLAY AND WARNING OPERATION

Vehicle speed Turn sizes hicle detec-	-
BSW ON indicator (Approx.) [km/h (MPH)] Turn signal condition Indicator Indication on the BSW indicator Buzzer	Ν
OFF — — — OFF OFF	DAS

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OPERATION

< SYSTEM DESCRIPTION >

	Vehicle condition/	Driver's operatio	n	Ac	tion
BSW ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of ve- hicle detec- tion within detection area	Indication on the BSW indicator	Buzzer
	Less than ap- prox. 29 (18)	_	_	OFF	OFF
		—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
				Blink	Short continuous beep
ON	Approx. 32 (20) or more	ON (Vehicle de-	Before turn signal oper- ates Vehicle is detected	200 ms Indicator ON Indicator OFF 200 ms JSOIA0251GB	60 ms Buzzer ON Buzzer OFF 570 ms JSOIA0452GB
		tected direc- tion)	Vehicle is detected af- ter turn sig- nal operates	Blink 200 ms Indicator ON Indicator OFF 200 ms 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	А
Precautions for Blind Spot Warning	A
 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. 	B
 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. 	0
 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 	D
 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. 	E
 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. 	F
 Several types of vehicles such as motorcycles. Oncoming vehicles. 	G
 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. 	Η
 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.	J
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- DAS

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

CONSULT Function (BSW/BUZZER)

INFOID:000000012547623

[BSW]

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

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

SELF DIAGNOSTIC RESULT

Refer to DAS-28, "DTC Index".

DATA MONITOR

NOTE:

- The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.
- 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 ADAS control unit 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 ADAS control unit 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 ADAS control unit through CAN communication (BCM transmits turn indicator signal through CAN communication)
WARN SYS SW [On/Off]	×	×	Indicates [On/Off] status of warning system 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	

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

ICC BUZZER

Test item	Operation	Description	BSW warning chime operation sound
	MODE1	Transmits the buzzer output signals to the combination meter via CAN communication	Intermittent beep sound
	Test start	Starts the tests of "MODE1"	_
CC BUZZER	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	Off	Stops transmitting the BSW warning lamp signal below to end the test	_	
LAMP	On	Transmits the BSW warning lamp signal to the combina- tion meter via CAN communication	ON	F

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DIAGNOSIS SYSTEM (SIDE RADAR LH)

CONSULT Function (SIDE RADAR LEFT)

INFOID:000000012547624

[BSW]

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-30, "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 ADAS control unit) 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 **NOTE**:

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

Monitored item [Unit]	Description
BSW/CTA WARN STATUS [On/Off]	Indicates [On/Off] status of vehicle detection
CTA SYSTEM ON [On/Off]	Indicates [On/Off] status of Rear Cross Traffic Area system
BSW STATUS [On/Off]	Indicates [On/Off] status of Blind Spot Warning system
VHCL SPD SE [km/h]	Indicates vehicle speed in [km/h]
TURN SIGNAL [On/Off]	Indicates the position of the left turn signal switch
SHIFT POSITION [P/R/N/D]	Indicates position of transmission range switch
LUMINANCE (LEFT) [Hi/Lo]	Indicates the left side luminance level of the radar
LUMINANCE (RIGHT) [Hi/Lo]	Indicates the right side luminance level of the radar

ACTIVE TEST

CAUTION:

• Never perform the active test while driving.

• Active test cannot be started while the BSW indicator is illuminated.

DIAGNOSIS SYSTEM (SIDE RADAR LH)

< SYSTEM DESCRIPTION >

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Active test item	Operation	Description	А
BSW/BSI INDICATOR	On	Outputs the voltage to illuminate the BSW indicator	
DRIVE	Off	Stops the voltage to illuminate the BSW indicator	_
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DIAGNOSIS SYSTEM (SIDE RADAR RH)

CONSULT Function (SIDE RADAR RIGHT)

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-32, "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 ADAS control unit) 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 **NOTE**:

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

Monitored item [Unit]	Description
BSW/CTA WARN STATUS [On/Off]	Indicates [On/Off] status of vehicle detection
CTA SYSTEM ON [On/Off]	Indicates [On/Off] status of Rear Cross Traffic Area system
BSW STATUS [On/Off]	Indicates [On/Off] status of Blind Spot Warning system
VHCL SPD SE [km/h]	Indicates vehicle speed in [km/h]
TURN SIGNAL [On/Off]	Indicates the position of the right turn signal switch
SHIFT POSITION [P/R/N/D]	Indicates position of transmission range switch
LUMINANCE (LEFT) [Hi/Lo]	Indicates the left side luminance level of the radar
LUMINANCE (RIGHT) [Hi/Lo]	Indicates the right side luminance level of the radar

ACTIVE TEST

CAUTION:

Never perform the active test while driving.

• Active test cannot be started while the BSW indicator is illuminated.

DIAGNOSIS SYSTEM (SIDE RADAR RH)

< SYSTEM DESCRIPTION >

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

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ECU DIAGNOSIS INFORMATION ADAS CONTROL UNIT

Reference Value

INFOID:000000012547626

[BSW]

VALUES ON THE DIAGNOSIS TOOL

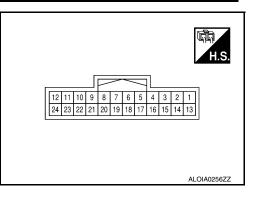
NOTE:

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

Monitor item		Condition	Value/Status
VHCL SPEED SE	While driving		Displays the ve- hicle speed cal- culated by ADAS control unit
BUZZER O/P		When the buzzer of the BSW system operates	On
BUZZER U/P	Engine running	When the buzzer of the BSW system not operates	Off
Shift position	Engine runningWhile driving	Displays the shift position	
	Turn signal lamps OFF	Off	
Turn signal	Turn signal lamp LH blinking	LH	
Turn signal	Turn signal lamp RH blinking	RH	
	Turn signal lamp LH and RH b	LH&RH	
	Institute switch ON	When warning system switch is pressed	On
WARN SYS SW	Ignition switch ON	When warning system switch is not pressed	Off
	Institute switch ON	BSW warning lamp ON	On
BSW/BSI WARN LMP	Ignition switch ON	BSW warning lamp OFF	Off
BSW SYSTEM ON		When the BSW system is ON (BSW ON indicator ON)	On
BSW STSTEM UN	Ignition switch ON	When the BSW system is OFF (BSW ON indicator OFF)	Off

TERMINAL LAYOUT

PHYSICAL VALUES



ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description		Condition		Standard value	Reference value	
+	-	Signal name	Input/ Output	Condition		Standard Value	(Approx.)	
1 (B)		CAN - high	_	_		_	_	
2 (W)		CAN -low	_	_		_	_	
5 (B)		Ground	—	_			_	
6 (L)		ITS CAN-H	_	_		_	_	
7 (Y)		ITS CAN-L	_	_		_	_	
8 (Y)	Ground	ITS CAN-L	_	_		_	_	
9 (BG)		ITS CAN-H	_	_		_	_	
12 (R)		Ignition power supply	Input	Ignition swite	ch ON	9.5 - 16 V	Battery Voltage	
18 (R)		Warning system switch	Input	Warning system switch	Pressed Released	0 - 0.1 V 9.5 -16 V	0 V Battery Voltage	
19 (LG)		Warning system ON in- dicator	Output	BSW ON indicator	Illuminated OFF	0 - 0.1 V 9.5 - 16 V	0 V Battery Voltage	

Fail-safe

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

DTC Inspection Priority Chart

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 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 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 	
5	C1A03: VHCL SPEED SE CIRC	
6	C1A00: CONTROL UNIT	

[BSW]

INFOID:000000012547627

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ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

DTC Index

INFOID:000000012547629

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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-53
C1A01	POWER SUPPLY CIR	ON	×	DAS-54
C1A02	POWER SUPPLY CIR 2	ON	×	<u>DAS-54</u>
C1A03	VHCL SPEED SE CIRC	ON	×	<u>DAS-55</u>
C1B53	SIDE RDR R MALF	ON	×	<u>DAS-60</u>
C1B54	SIDE RDR L MALF	ON	×	<u>DAS-61</u>
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-63
U0121	VDC CAN CIR 2	ON	×	DAS-68
U0401	ECM CAN CIR 1	ON	×	DAS-69
U0402	TCM CAN CIR 1	ON	×	<u>DAS-70</u>
U0415	VDC CAN CIR 1	ON	×	<u>DAS-72</u>
U1503	SIDE RDR L CAN CIR 2	ON	×	DAS-73
U1504	SIDE RDR L CAN CIR 1	ON	×	<u>DAS-74</u>
U1505	SIDE RDR R CAN CIR 2	ON	×	DAS-75
U1506	SIDE RDR R CAN CIR 1	ON	×	<u>DAS-76</u>
U1507	LOST COMM (SIDE RDR R)	ON	×	<u>DAS-77</u>
U1508	LOST COMM (SIDE RDR L)	ON	×	<u>DAS-78</u>

< ECU DIAGNOSIS INFORMATION >

SIDE RADAR LH

Reference Value

VALUES ON THE DIAGNOSIS TOOL

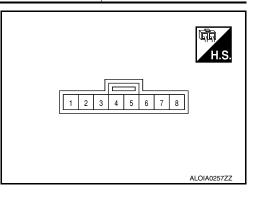
NOTE:

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

CONSULT	MONITOR	ITEM
00110021		

Monitor Item	Condition	Value/Status	
BSW/CTA WARN	BSW system is normal.	On	D
STATUS	BSW system is malfunctioning.	Off	
	CTA system is ON	On	
CTA SYSTEM ON	CTA system is OFF.	Off	- E
	BSW system is ON	Off	
BSW STATUS	BSW system is OFF.	On	F
VHCL SPD SE	Indicates current vehicle speed.	Km/h	
	Left turn signal is ON.	On	
TURN SIGNAL	Left turn signal is OFF.	Off	G
SHIFT POSITION	Shows the position of the transmission range switch.	P/R/N/D	
LUMINANCE(LEFT)	Shows radar left luminance level	Hi/Lo	- н
LUMINANCE (RIGHT)	Shows radar right luminance level	Hi/Lo	

TERMINAL LAYOUT



PHYSICAL VALUES

							N/I
	nal No. color)	Description		Condition	Standard value	Reference value	IVI
+	_	Signal name	Input/ Output	Condition	Standard value	(Approx.)	Ν
4 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF \Rightarrow ON (bulb check)	5.5 - 16 V	6 V	DAS
5 (R)		Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage	
6 (L)	Ground	ITS CAN-H	_	_	_	_	Ρ
7 (Y)		ITS CAN-L	_	_	—	_	
8 (B)		Ground	_	_	0 - 0.1 V	0 V	

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SIDE RADAR LH

< ECU DIAGNOSIS INFORMATION >

Fail-safe

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, ADAS control unit 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:000000012547632

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

×: Applicable

	DTC	BSW warning lamp	Fail-safe	Reference page
C1B50	SIDE RDR MALFUNCTION	ON	×	<u>DAS-56</u>
C1B51	BSW/BSI IND SHORT CIR	ON	×	<u>DAS-57</u>
C1B52	BSW/BSI IND OPEN CIR	ON	×	<u>DAS-58</u>
C1B55	RADAR BLOCKAGE	Blink	×	DAS-62
U1000	CAN COMM CIRCUIT	ON	×	DAS-64
U1010	CONTROL UNIT (CAN)	ON	×	DAS-66
U0104	ADAS CAN CIR1	ON	×	DAS-67
U0405	ADAS CAN CIR2	ON	×	DAS-71

< ECU DIAGNOSIS INFORMATION >

SIDE RADAR RH

Reference Value

VALUES ON THE DIAGNOSIS TOOL

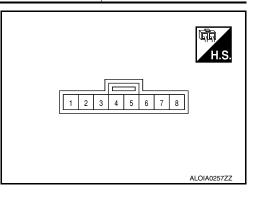
NOTE:

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

CONSULT	MONITOR ITEM

Monitor Item	Condition	Value/Status	_
BSW/CTA WARN	BSW system is normal.	On	
STATUS	BSW system is malfunctioning.	Off	_
	CTA system is ON	On	-
CTA SYSTEM ON	CTA system is OFF.	Off	- E
	BSW system is ON	Off	_
BSW STATUS	BSW system is OFF.	On	F
VHCL SPD SE	Indicates current vehicle speed.	Km/h	-
	Right turn signal is ON.	On	_
TURN SIGNAL	Right turn signal is OFF.	Off	
SHIFT POSITION	Shows the position of the transmission range switch.	P/R/N/D	-
LUMINANCE(LEFT)	Shows radar left luminance level	Hi/Lo	-
LUMINANCE (RIGHT)	Shows radar right luminance level	Hi/Lo	-

TERMINAL LAYOUT



PHYSICAL VALUES

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INFOID:000000012547634

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SIDE RADAR RH

< ECU DIAGNOSIS INFORMATION >

[BSW]

	nal No. color)	Description		Condition	Standard value	Reference value
+	_	Signal name	Input/ Output	Condition	Standard value	(Approx.)
3 (B)		Shield ground	_	_	0 - 0.1 V	0 V
4 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF \Rightarrow ON (bulb check)	5.5 - 16 V	6 V
5 (R)	Ground	Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage
6 (L)		ITS CAN-H	_	_	_	
7 (Y)		ITS CAN-L			_	_
8 (B)		Ground			0 - 0.1 V	0 V

Fail-safe

INFOID:000000012547635

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, ADAS control unit 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:000000012547636

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

				×: Applicable
	DTC	BSW warning lamp	Fail-safe	Reference page
C1B50	SIDE RDR MALFUNCTION	ON	×	DAS-56
C1B51	BSW/BSI IND SHORT CIR	ON	×	<u>DAS-57</u>
C1B52	BSW/BSI IND OPEN CIR	ON	×	<u>DAS-58</u>
C1B55	RADAR BLOCKAGE	Blink	×	DAS-62
U1000	CAN COMM CIRCUIT	ON	×	DAS-64
U1010	CONTROL UNIT (CAN)	ON	×	DAS-66

SIDE RADAR RH

< ECU DIAGNOSIS INFORMATION >

[BSW]

DTC		BSW warning lamp	Fail-safe	Reference page
U0104	ADAS CAN CIR1	ON	×	<u>DAS-67</u>
U0405	ADAS CAN CIR2	ON	×	<u>DAS-71</u>

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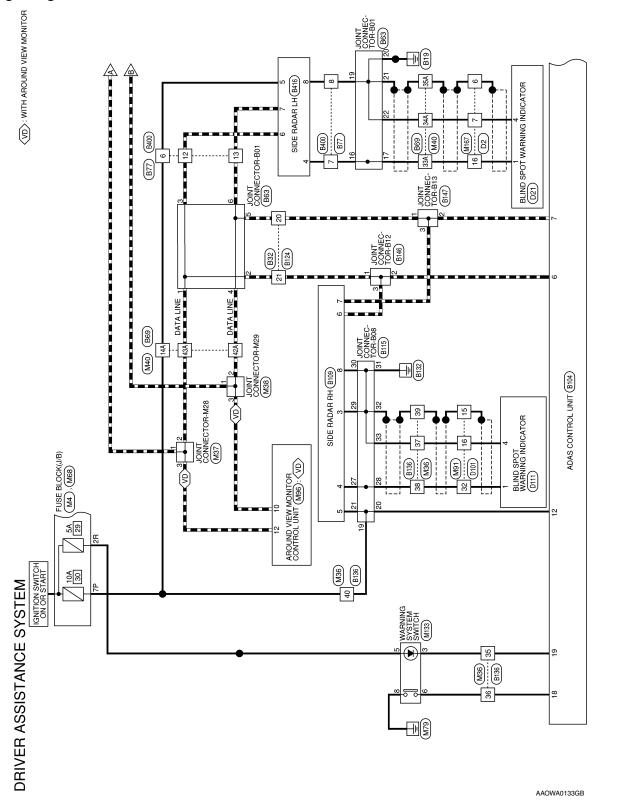
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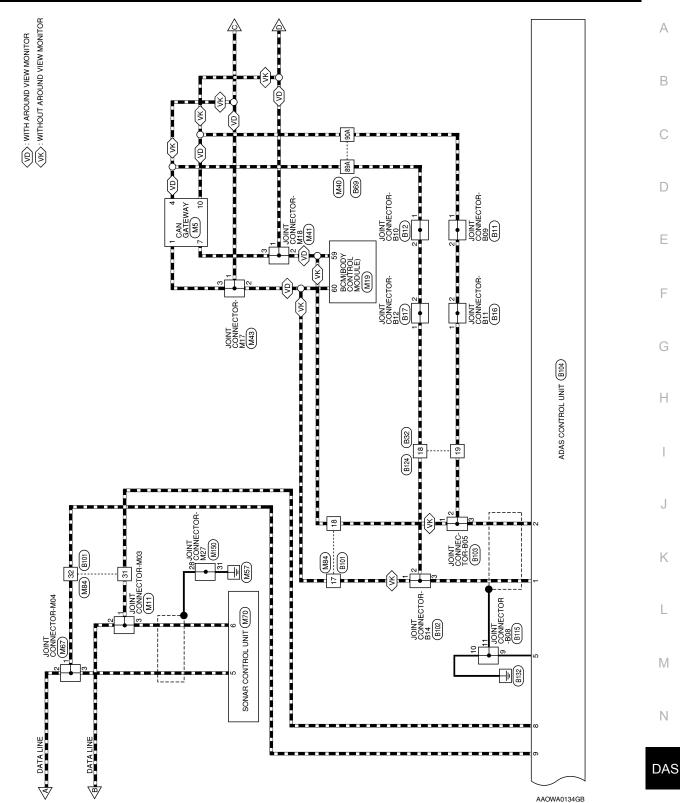
WIRING DIAGRAM BLIND SPOT WARNING

Wiring Diagram



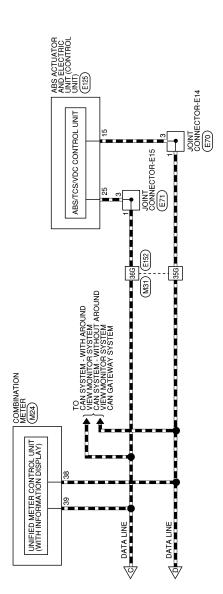
BLIND SPOT WARNING

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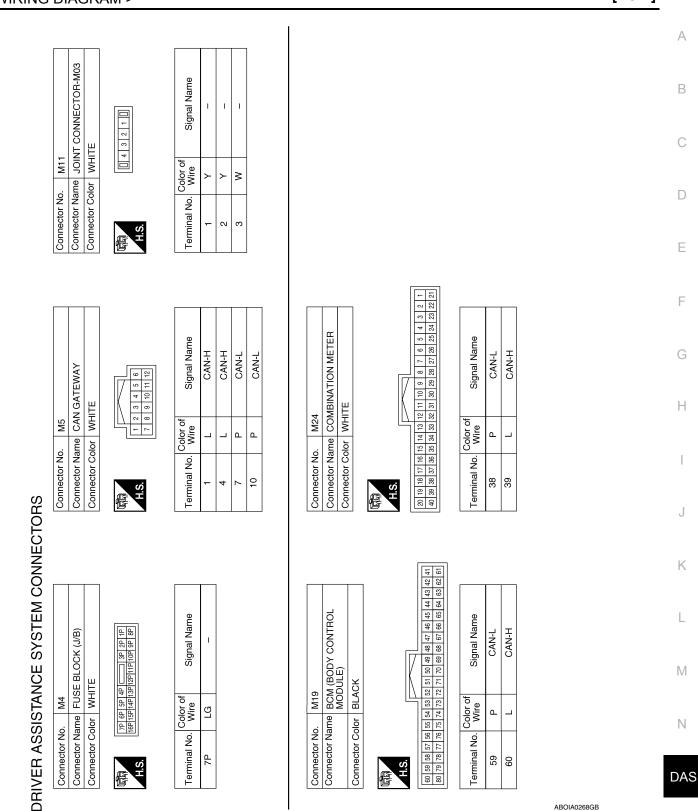


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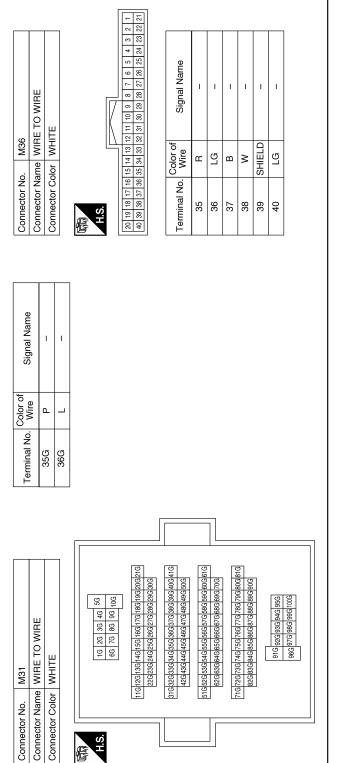
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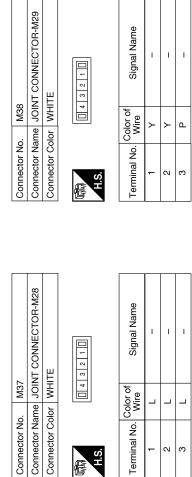


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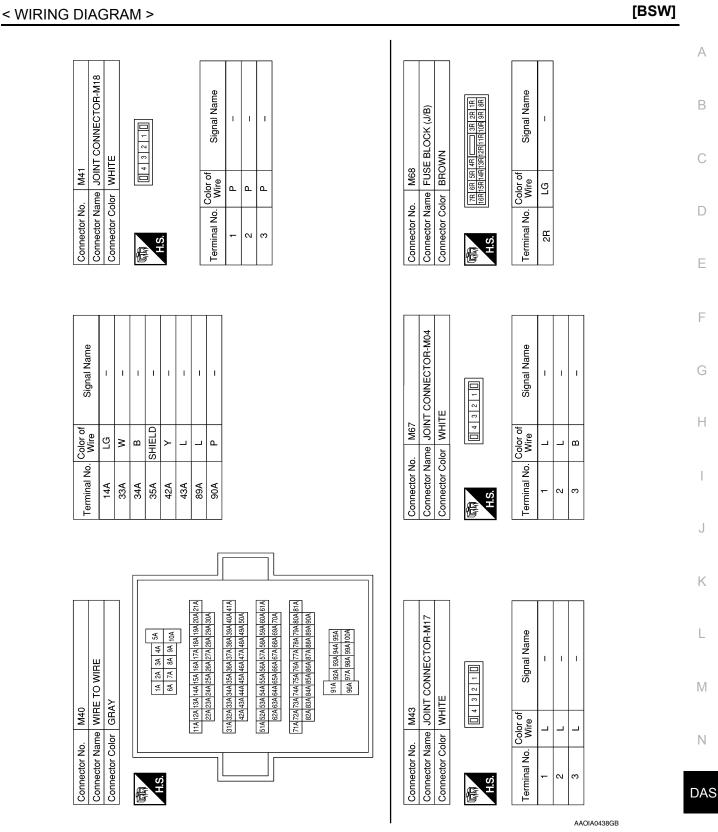
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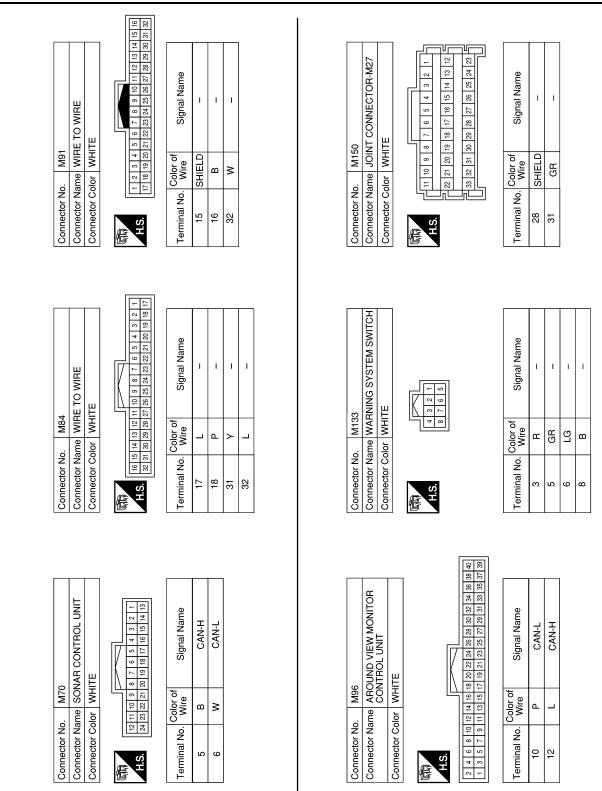


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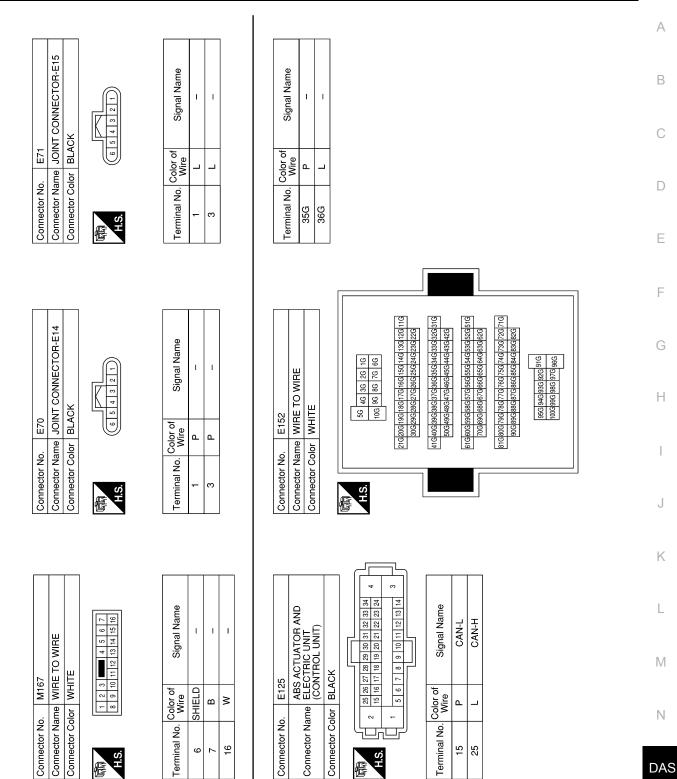
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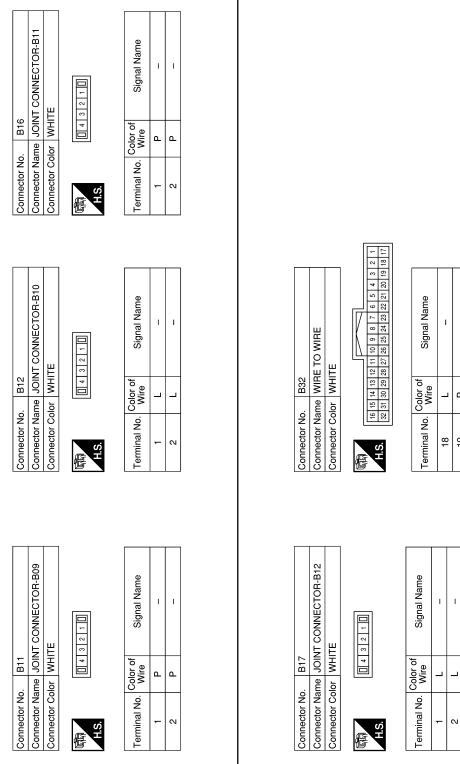
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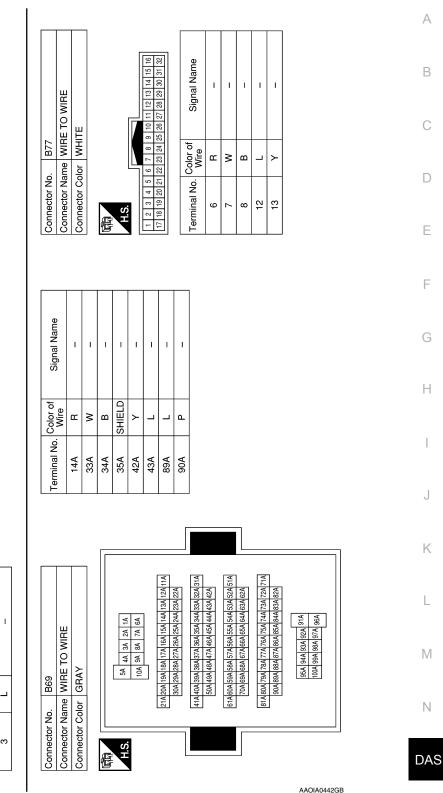
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Color of Wire SHIELD ≻ ≥ ≥ ш ш ≻ ≻ Terminal No. 16 17 19 20 2 9 4 ß

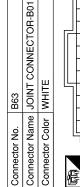
Signal Name

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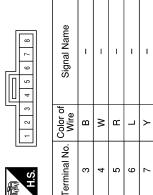
Signal Name I. Т Color of Wire _ _ _ Terminal No. -N ო

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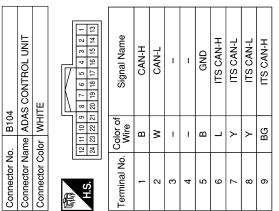
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Connector Name JOINT CONNECTOR-B05	HITE		of Signal Name	I	I	I			B109	Connector Name SIDE RADAR RH	BLACK		
	lor WI		Color of Wire	٩	٩	≥				me SI	lor BL	-	
Connector Nai	Connector Color WHITE	H.S.H	Terminal No.	-	N	m			Connector No.	Connector Na	Connector Color		E
T	1			1		1	1						
Connector Name JOINT CONNECTOR-B14	E	321	Signal Name	1	1	I			Signal Name		I	I	IGN
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or Name	or Color		No.										
Connecto	Connector Color	雨 H.S.	Terminal No. Color of Wire	-	2	ო			Terminal No		10	11	12
Connector Name WIRE TO WIRE	WHITE	4 5 6 7 8 9 10 11 12 13 14 15 16 20 21 22 23 24 25 27 28 29 30 31 32	r of Signal Name	1	1	1	1		B104	Connector Name ADAS CONTROL UNIT	WHITE		
Vame V	Color 1	1 2 3 17 18 19	. Color Wir		_	>	BG			Vame /	Solor V		
Connector 1	Connector Color WHITE	S.H	Terminal No. Color of Wire	17	18	31	32		Connector No.	Connector I	Connector Color		E





Signal Name	Τ	Ι	IGN	I	Ι	-	Ι	I	WARNING SYSTEM SW	WARNING SYSTEM ON IND	I	I	I	I	Ι
Wire	Ι	I	В	I	I	I	Ι	I	ГG	н	Ι	Ι	Ι	Ι	I
Terminal No. Wire	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24



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B103

Connector No.

B102

Connector No.

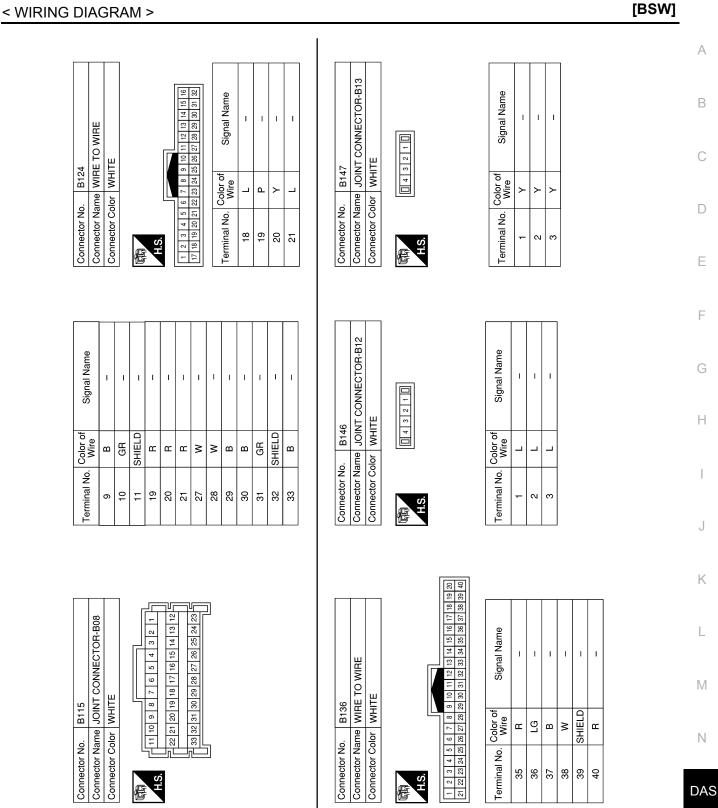
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< WIRING DIAGRAM >

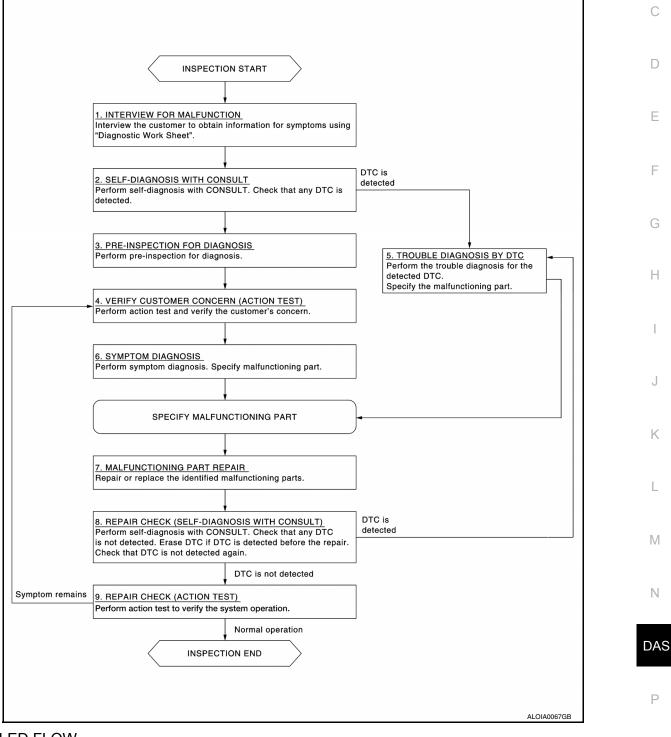
RE Connector Name Encornector Name Since RADAR LH Connector Name Connector Color B416 Connector Name Encornector Color BLACK Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image Image	Connector No. D2 Connector Name WIRE TO WIRE Connector Color WHITE	7 6 4 3 2 1 H.S.	Terminal No. Color of Wire Signal Name 6 SHIELD - 7 B - 16 W -	Connector No. D111 Connector Name BLIND SPOT WARNING Connector Color INDICATOR RH MHITE	Terminal No.Color of WireSignal Name1W-4B-
	RADAR LH X	9	Signal Name	RE 24 23 22 21 20 19 18	Signal Name
RE 2019 101 Name Inal Name Inal Name Inal Name Inal Name	Connector No. B416 Connector Name SIDE Connector Color BLAC	а F			
	Connector No. B400 Connector Name WIRE TO WIRE Connector Color WHITE	0 8 7 6 5 1 25 24 23 21 10 18 17	Signal Name	D21 BLIND SPOT WARNING INDICATOR LH WHITE	Signal Name - -

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BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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:**

INFOID:000000012547639

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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[BSW]

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.
- Check if the DTC is detected on the self-diagnosis results of "SIDE RADAR LEFT/RIGHT" and/or "BSW/ BUZZER".

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-50, "Inspection Procedure".

>> GO TO 4.

4.ACTION TEST

Perform BSW system action test to check the operation status. Refer to <u>DAS-51, "Description"</u>. Check if any other malfunctions occur.

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

- 1. Check the DTC in the self-diagnosis results.
- Perform trouble diagnosis for the detected DTC. Refer to <u>DAS-30, "DTC Index"</u> (SIDE RADAR LEFT) or <u>DAS-32, "DTC Index"</u> (SIDE RADAR RIGHT) and/or <u>DAS-28, "DTC Index"</u> (ADAS CONTROL UNIT).

NOTE:

If "DTC: U1000" is detected, first diagnose the ITS communication system.

>> GO TO 7.

6.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to <u>DAS-86, "Symptom</u> <u>Table"</u>.

>> 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/ BUZZER".

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?

Revision: November 2015

DIAGNOSIS AND REPAIR WORK FLOW

< BAS	IC INSPECTION >	[BSW]	
YES NO	>> GO TO 4. >> Inspection End.		A
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PRE-INSPECTION FOR DIAGNOSIS

< BASIC INSPECTION >

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

1.CHECK REAR BUMPER NEAR THE SIDE RADAR

Is 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.

\mathbf{3}. CHECK SIDE RADAR INSTALLATION CONDITION

Check side radar installation condition (installation position, properly tightened, a bent bracket). <u>Is it properly installed?</u>

YES >> Inspection End.

NO >> Install side radar properly.

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[BSW]

ACTION TEST

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ACTION TEST

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Description	1
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:	В
Be careful of traffic conditions and safety around the vehicle when performing road test. CAUTION:	С
 Fully understand the following items well before the road test; Precautions: Refer to <u>DAS-7, "Precaution for BSW System Service"</u>. System description: Refer to <u>DAS-13, "System Description"</u>. Normal operating condition: Refer to <u>DAS-87, "Description"</u>. 	D
Work Procedure	Е
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;	F
 Precautions: Refer to <u>DAS-7, "Precaution for BSW System Service"</u>. System description: Refer to <u>DAS-13, "System Description"</u>. Normal operating condition: Refer to <u>DAS-87, "Description"</u>. 	G
1 .BSW SYSTEM ACTION TEST	
 Drive the vehicle. Turn warning system switch ON (BSW ON indicator is ON). 	Н

3. Check BSW operation according to the following table.

	Vehicle condition/	Driver's operatio	n	Ac	tion
BSW ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of ve- hicle detec- tion within detection area	Indication on the BSW indicator	Buzzer
OFF	—	_	_	OFF	OFF
	Less than ap- prox. 29 (18)	_	_	OFF	OFF
		—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
ON	Approx. 32 (20) or more	ON (Vehicle de-	Before turn signal oper- ates Vehicle is detected	Blink 200 ms Indicator ON Indicator OFF 200 ms JSOIA0251GB	Short continuous beep 60 ms 60 ms 0N Buzzer 0FF 570 ms JSOIA0452GB
		tected direc- tion)	Vehicle is detected af- ter turn sig- nal operates	Blink 200 ms Indicator ON Indicator OFF 200 ms JSOIA0251GB	OFF

< BASIC INSPECTION >

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 >

DTC/CIRCUIT DIAGNOSIS C1A00 CONTROL UNIT

DTC Logic

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A00	CONTROL UNIT	ADAS control unit internal malfunction	ADAS control unit
TC CONFI	RMATION PROCEDU	IRE	
.PERFORM	1 DTC CONFIRMATION	I PROCEDURE	
. Check if tl <u>s "C1A00" de</u> YES >> R	All DTC Reading" with	as the current malfunction in "Self Dia <u>alfunction?</u>	gnostic Result" of "BSW/BUZZER".
iagnosis I	Procedure		INFOID:000000012547644
	ELF-DIAGNOSIS RESU		
any DTC de		is detected in "Self Diagnostic Resu	IT OF BSW/BUZZER.
YES >> P		e detected DTC and repair or replace	e the malfunctioning parts. Refer to
NO >> R	eplace the ADAS contr	ol unit. Refer to <u>DAS-88, "Removal a</u>	nd Installation".

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C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2 [BSW] < DTC/CIRCUIT DIAGNOSIS >

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Logic

INFOID:000000012547645

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A01	POWER SUPPLY CIR	The battery voltage sent to ADAS control unit re- mains less than 7.9 V for 5 seconds	Connector, harness, fuse
C1A02	POWER SUPPLY CIR 2	The battery voltage sent to ADAS control unit re- mains more than 19.3 V for 5 seconds	ADAS control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

- 1. Start the engine.
- 2. Turn the BSW system ON.
- Perform "All DTC Reading" with CONSULT.
 Check if the "C1A01" or "C1A02" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BUZZER".

Is "C1A01" or "C1A02" detected as the current malfunction?

>> Refer to DAS-54, "Diagnosis Procedure". YES

>> Refer to GI-47, "Intermittent Incident". NO

Diagnosis Procedure

INFOID:000000012547646

1.CHECK ADAS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ADAS control unit. Refer to DAS-79, "ADAS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

- YES >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".
- NO >> Repair or replace the malfunctioning parts.

< DTC/CIRCUIT DIAGNOSIS >

C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:000000012547647

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[BSW]

DTC DETECTION LOGIC Trouble diagnosis DTC DTC detecting condition Possible causes name If the vehicle speed signal (wheel speed) from Wheel speed sensor VHCL SPEED SE ABS actuator and electric unit (control unit) re-· ABS actuator and electric unit (control C1A03 CIRC ceived by the ADAS control unit via CAN comunit) D munication, are inconsistent ADAS control unit NOTE: If DTC "C1A03" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to DAS-63, Е "ADAS CONTROL UNIT : DTC Logic" DTC CONFIRMATION PROCEDURE 1.PERFORM DTC CONFIRMATION PROCEDURE 1. Start the engine. Turn the BSW system ON. 2. 3. Drive the vehicle at 30 km/h (19 MPH) or more. **CAUTION:** Always drive safely. 4. Stop the vehicle. Н 5. Perform "All DTC Reading" with CONSULT. Check if the "C1A03" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BUZZER". 6. Is "C1A03" detected as the current malfunction? YES >> Refer to DAS-55, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure INFOID:000000012547648 1.CHECK SELF-DIAGNOSIS RESULTS Κ Check if "U1000" is detected other than "C1A03" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. 2.check abs actuator and electric unit (control unit) self-diagnosis results M 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 Ν BRC-47, "DTC Index" (type 1) or BRC-206, "DTC Index" (type 2). NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

DAS

C1B50 SIDE RADAR MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1B50 SIDE RADAR MALFUNCTION

DTC LOGIC

[BSW]

INFOID:000000012547649

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.
- 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-56, "Diagnosis Procedure".
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000012547650

1. CHECK SELF-DIAGNOSIS RESULT

Check if any DTC other than "C1B50" is detected in "Self Diagnostic Result" of "SIDE RADAR LEFT/RIGHT" <u>Is any DTC detected?</u>

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunction part. Refer to <u>DAS-32, "DTC Index"</u> (SIDE RADAR RIGHT) or <u>DAS-30, "DTC Index"</u> (SIDE RADAR LEFT).
- NO >> Replace the side radar. Refer to <u>DAS-89</u>, "Removal and Installation".

C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

DTC Logic

[BSW]

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INFOID:000000012547651

DTC	Trouble diagnosis name	DTO	C detecting condition	Possible cause
C1B51	BSW/BSI IND SHORT CIR	Short circuit in BSW rent is detected)	indicator circuit is detected. (Over c	ur- • BSW indicator circuit • BSW indicator • Side radar
отс со	ONFIRMATION PROC	EDURE		
1.PERI	FORM DTC CONFIRMA	TION PROCEDU	RE	
2. Per 3. Che RIG	t the engine. form "All DTC Reading" eck if the "C1B51" is det HT/LEFT". <u>C1B51" detected as the c</u> >> Refer to <u>DAS-57, "C</u> >> Inspection End.	ected as the curre current malfunctior	<u>1?</u>	nostic Result" of "SIDE RADA
	osis Procedure			
Jiagin				INFOID:000000012547
Regardi	ng Wiring Diagram infor	mation, refer to <u>DA</u>	AS-34, "Wiring Diagram".	
_				
1.сне	CK BSW INDICATOR C			
1 .CHE 1. Turi 2. Disc	CK BSW INDICATOR C	IRCUIT FOR SHC	BSW indicator harness con	nector.
1 .CHE 1. Turi 2. Disc	CK BSW INDICATOR C n ignition switch OFF. connect side radar harne	IRCUIT FOR SHC	BSW indicator harness con	
1 .CHE 1. Turi 2. Disc	CK BSW INDICATOR C n ignition switch OFF. connect side radar harne eck continuity between s	IRCUIT FOR SHC	ORT BSW indicator harness conr connector and ground.	nector. Continuity
1.CHE 1. Turi 2. Disc 3. Che	CK BSW INDICATOR C n ignition switch OFF. connect side radar harne eck continuity between s Side radar Connector B416 (LH)	IRCUIT FOR SHC	BSW indicator harness con	
1.CHE 1. Turr 2. Disc 3. Che	CK BSW INDICATOR C in ignition switch OFF. connect side radar harne eck continuity between s Side radar Connector B416 (LH) B109 (RH)	IRCUIT FOR SHC ess connector and ide radar harness Terminal	ORT BSW indicator harness conr connector and ground.	Continuity
1.CHE 1. Turr 2. Disc 3. Che 3. Che <u>s the in</u> YES NO	CK BSW INDICATOR C n ignition switch OFF. connect side radar harne eck continuity between s Side radar Connector B416 (LH)	IRCUIT FOR SHC ess connector and ide radar harness Terminal 4 es or connectors.	ORT BSW indicator harness conr connector and ground.	Continuity
1.CHE 1. Turr 2. Disc 3. Che <u>s the in</u> YES NO 2.REP 1. Rep	CK BSW INDICATOR C in ignition switch OFF. connect side radar harne eck continuity between s Side radar Connector B416 (LH) B109 (RH) spection result normal? >> GO TO 2. >> Repair the harnesse LACE THE SIDE RADA	IRCUIT FOR SHC ess connector and ide radar harness Terminal 4 es or connectors. R	ORT BSW indicator harness conr connector and ground.	Continuity
1.CHE 1. Turi 2. Disc 3. Che 3. Che <u>s the in</u> YES NO 2.REPI 1. Rep 2. Per 3. Che	CK BSW INDICATOR C in ignition switch OFF. connect side radar harne eck continuity between s Side radar Connector B416 (LH) B109 (RH) spection result normal? >> GO TO 2. >> Repair the harnesse LACE THE SIDE RADAR place the side radar. form "All DTC Reading" eck if the "C1B51" is deter	IRCUIT FOR SHC ess connector and ide radar harness Terminal 4 es or connectors. R with CONSULT.	ORT BSW indicator harness conr connector and ground.	Continuity No
1.CHE 1. Turi 2. Disc 3. Che 3. Che <u>s the in</u> YES NO 2.REPI 1. Rep 2. Per 3. Che	CK BSW INDICATOR C in ignition switch OFF. connect side radar harne eck continuity between s Side radar Connector B416 (LH) B109 (RH) spection result normal? >> GO TO 2. >> Repair the harnesse LACE THE SIDE RADA Dace the side radar. form "All DTC Reading" eck if the "C1B51" is detected?	IRCUIT FOR SHC ess connector and ide radar harness Terminal 4 es or connectors. R with CONSULT. ected in "Self Diag	BSW indicator harness conr connector and ground.	Continuity No AR RIGHT/LEFT"

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

DTC Logic

INFOID:000000012547653

[BSW]

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 circuitBSW indicatorSide 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.
- 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-58, "Diagnosis Procedure".
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000012547654

Regarding Wiring Diagram information, refer to DAS-34, "Wiring Diagram".

1. CHECK BSW INDICATOR CIRCUIT FOR OPEN 1

- 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 BSW indicator harness connector.

Side	e radar	BSW i	ndicator	Continuity
Connector	Terminal	Connector	Terminal	Continuity
B416 (LH)	4	D21 (LH)	1	Yes
B109 (RH)	- 4	D111 (RH)		res

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the harnesses or connectors.

2. CHECK BSW INDICATOR CIRCUIT FOR OPEN 2

Check continuity between BSW indicator harness connector and ground.

BSW i	ndicator		Continuity
Connector	Terminal	Ground	Continuity
D21 (LH)	4	Giouna	Yes
D111 (RH)	4		165

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK SIDE RADAR VOLTAGE OUTPUT

1. Connect side radar harness connector.

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

2. Check voltage between BSW indicator harness connector and ground.

BSW in	dicator		Opendition	Standard	Reference voltage
Connector	Terminal		Condition	voltage	(Approx.)
D21 (LH)		Ground	Ignition switch		
D111 (RH)	1		$OFF \Rightarrow ON$ (Approx. 2 sec.)	5.5 - 16 V	6 V

Is the inspection result normal?

YES >> Replace BSW indicator. Refer to <u>DAS-90. "Removal and Installation"</u>.

NO >> Replace side radar. Refer to <u>DAS-89, "Removal and Installation"</u>.

[BSW]

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C1B53 SIDE RADAR RIGHT MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1B53 SIDE RADAR RIGHT MALFUNCTION

DTC Logic

INFOID:000000012547655

[BSW]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B53	SIDE RDR R MALF	ADAS control unit 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/BUZZER". Is "C1B53" detected as the current malfunction?

is C1B53 detected as the current maifunction?

- YES >> Refer to <u>DAS-60</u>, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000012547656

1. CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1B53" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-63, "ADAS CONTROL UNIT : DTC Logic"</u>.

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 <u>DAS-32. "DTC Index"</u> (SIDE RADAR RIGHT).
- NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

C1B54 SIDE RADAR LEFT MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1B54 SIDE RADAR LEFT MALFUNCTION

DTC Logic

[BSW]

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INFOID:000000012547657

DTC DETECTION LOGIC DTC Trouble diagnosis name DTC detecting condition Possible cause С ADAS control unit detects that side radar LH has C1B54 SIDE RDR L MALF Side radar LH a malfunction. DTC CONFIRMATION PROCEDURE D 1.PERFORM DTC CONFIRMATION PROCEDURE 1. Start the engine. Е 2. Turn the BSW system ON. Perform "All DTC Reading" with CONSULT. 3. Check if the "C1B54" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BUZZER". 4 F Is "C1B54" detected as the current malfunction? >> Refer to DAS-61, "Diagnosis Procedure". YES >> Refer to GI-47, "Intermittent Incident". NO Diagnosis Procedure INFOID:000000012547658 1.CHECK SELF-DIAGNOSIS RESULTS Н Check if "U1000" is detected other than "C1B54" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-63, "ADAS CONTROL UNIT : 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? Κ >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to YES DAS-30, "DTC Index" (SIDE RADAR LEFT). >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation". NO L

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C1B55 RADAR BLOCKAGE

< DTC/CIRCUIT DIAGNOSIS >

C1B55 RADAR BLOCKAGE

DTC Logic

[BSW]

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 deposit- ed.

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:000000012547660

1.CHECK THE REAR BUMPER

Check rear bumper near the side radar for contamination with foreign materials.

>> GO TO 2.

2. CHECK THE SIDE RADAR

Check side radar and the side radar outskirts for contamination 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 are stains 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.

< DTC/CIRC	UIT DIAGNOSIS >		[BSW]	
	AN COMM CIRO	CUIT		А
ADAS CO	NTROL UNIT : De	escription	INFOID:000000012547661	В
CAN COMM	IUNICATION			
tiplex commu vehicle is equ	inication line with high upped with many elect	serial communication line for real time ap data communication speed and exceller ronic control units, and each control unit	nt error detection ability. Modern shares information and links with	С
with 2 commu Each control	unication lines (CAN-H unit transmits/receives	 (not independent). In CAN communicate , CAN-L) allowing a high rate of informate data but selectively reads the required data Refer to <u>LAN-38</u>, "CAN COMMUNICATION" 	on transmission with less wiring. ata only.	C
tion Signal Cl			<u></u>	E
		communication quaters. This analysis the	a outom to transmit and reactive	
large quant	ities of data at high spe	communication system. This enables the eed by connecting control units with 2 cor isted-pair line style (two lines twisted) for	nmunication lines.	F
ADAS CO	NTROL UNIT : D	FC Logic	INFOID:000000012547662	
DTC DETEC	CTION LOGIC			(
DTC	Trouble diagnosis name	DTC detecting condition	Possible causes	⊢
U1000	CAN COMM CIRCUIT	If ADAS control unit is not transmitting or receiv- ing ITS communication signal for 2 seconds or more	ITS communication system	
NOTE:	data ata di firat di agna a	the CAN communication system		I
	-	e the CAN communication system.		1
		agnosis Procedure	INFOID:000000012547663	0
	M THE SELF-DIAGNO	SIS		K
	ignition switch ON. BSW system ON. and	then wait for 2 seconds or more.		n
3. Perform	"All DTC Reading" with	CONSULT.	actic Decult" of "DSM/DUZZED"	L
	etected as the current r	I as the current malfunction in "Self Diagn nalfunction?	USUL RESUL UL DOW/DUZZER.	L
YES >> F	Refer to <u>LAN-21, "Troul</u>	<u>ole Diagnosis Flow Chart"</u> .		
NO >> F	Refer to <u>GI-47. "Intermi</u> DAR LH	ttent Incident".		N
SIDE RAD	AR LH : Descripti	on	INFOID:000000012547664	Ν
CAN COMM	IUNICATION			
CAN (Control	ller Area Network) is a	serial communication line for real time ap		DA
tiplex commu	inication line with high	data communication speed and excellent	nt error detection ability. Modern	

U1000 CAN COMM CIRCUIT

tiplex 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-38, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

· ITS 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.



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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

· ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR LH : DTC Logic

INFOID:000000012547665

[BSW]

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 ITS communication signal for 2 seconds or more	ITS communication system

SIDE RADAR LH : Diagnosis Procedure

INFOID:000000012547666

INFOID:000000012547667

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-21, "Trouble Diagnosis Flow Chart".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

SIDE RADAR RH

SIDE RADAR RH : Description

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 <u>LAN-38</u>, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

- ITS 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.
- · ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR RH : DTC Logic

INFOID:000000012547668

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 ITS communication signal for 2 seconds or more	ITS communication system

SIDE RADAR RH : Diagnosis Procedure

INFOID:000000012547669

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-21, "Trouble Diagnosis Flow Chart".

DAS-64

	U1000 CAN COMM CIRCUIT		
< DTC	/CIRCUIT DIAGNOSIS >	[BSW]	
NO	>> Refer to <u>GI-47, "Intermittent Incident"</u> .		A
			В
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U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN) SIDE RADAR LH

SIDE RADAR LH : Description

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

SIDE RADAR LH : DTC Logic

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

1.CHECK SELF-DIAGNOSIS RESULT

1. Turn the BSW system ON.

- Perform "All DTC Reading" with CONSULT. 2.
- Check if the "U1010" is detected as the current malfunction in "Self Diagnostic Result" of "SIDE RADAR 3. LEFT".

Is "U1010" detected as the current malfunction?

- YES >> Replace the side radar LH. Refer to DAS-89, "Removal and Installation".
- NO >> Inspection End.

SIDE RADAR RH

SIDE RADAR RH : Description

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

SIDE RADAR RH : DTC Logic

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

1.CHECK SELF-DIAGNOSIS RESULT

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

Is "U1010" detected as the current malfunction?

- YES >> Replace the side radar RH. Refer to DAS-89, "Removal and Installation".
- NO >> Inspection End.

INFOID-000000012547673

INFOID:000000012547674

[BSW]

INFOID:000000012547675

INFOID:000000012547676

INFOID:000000012547677

INFOID:000000012547678

U0104 ADAS CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U0104 ADAS CAN 1

DTC Logic

[BSW]

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INFOID:000000012547679

DTC DETECTION LOGIC

	Trouble diagnosis name	DTC detecting condition	Possible cause
U0104	ADAS CAN CIR1	Side radar detected an error of ITS communication signal that was received from ADAS control unit.	ADAS control unit
NOTE: If DTC "I <u>RADAR</u> RIGHT).	<u>LH : DTC Logic"</u> (SIDE R	ith DTC "U1000", first diagnose the DTC "U1000". ADAR LEFT), <u>DAS-64, "SIDE RADAR RH:DT</u>	Refer to <u>DAS-64, "SIDE</u> <u>C Logic"</u> (SIDE RADAR
DTC CC	ONFIRMATION PROCED	URE	
1.PERF	FORM DTC CONFIRMATIC	N PROCEDURE	
	t the engine.		
 Perf Che RIG 	HT/LEFT".	n CONSULT d as the current malfunction in "Self Diagnostic F	Result" of "SIDE RADAR
<u>Is the D</u> YES	TC "U0104" detected?	neeie Dreeedure"	
NO	>> Refer to <u>DAS-67, "Diac</u> >> Refer to <u>GI-47, "Interm</u>	ttent Incident".	
Diagno	osis Procedure		INFOID:000000012547680
1 .CHE	CK SELF-DIAGNOSIS RES	SULTS	
		han "U0104" in "Self Diagnostic Result" of "SIDE	RADAR RIGHT/LEFT".
<u>ls "U100</u>	00" detected?		
YES		nunication system inspection. Repair or replace t <u>E RADAR LH : DTC Logic"</u> (SIDE RADAR LEFT), RADAR RIGHT).	
	~~ GU TU Z.		
NO 2 CHE		SELE-DIAGNOSIS RESULTS	
2.сне		SELF-DIAGNOSIS RESULTS	
2.CHE	any DTC is detected in "Se	SELF-DIAGNOSIS RESULTS elf Diagnostic Result" of "BSW/BUZZER".	
2.CHE	any DTC is detected in "Se <u>TC detected?</u> >> Perform diagnosis on t		nctioning parts. Refer to
2.CHE Check if Is any D	any DTC is detected in "Se <u>TC detected?</u> >> Perform diagnosis on t <u>DAS-28, "DTC Index"</u> .	If Diagnostic Result" of "BSW/BUZZER".	

DAS

U0121 VDC CAN 2

< DTC/CIRCUIT DIAGNOSIS >

U0121 VDC CAN 2

DTC Logic

[BSW]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0121	VDC CAN CIR2	If ADAS control unit 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 <u>DAS-63, "ADAS</u> <u>CONTROL UNIT : DTC Logic"</u>.

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/BUZZER".

Is "U0121" detected as the current malfunction?

YES >> Refer to <u>DAS-68, "Diagnosis Procedure"</u>.

NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000012547682

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0121" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-63, "ADAS CONTROL UNIT : DTC Logic"</u>.
- NO >> GO TO 2.

 $2. {\sf CHECK} \text{ ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS}$

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 <u>BRC-47, "DTC Index"</u> (type 1) or <u>BRC-206, "DTC Index"</u> (type 2).
- NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U0401 ECM CAN 1

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U0401 ECM CAN 1	
DTC Logic	

DTC DETECTION LOGIC

< DTC/CIRCUIT DIAGNOSIS >

f DTC "U0401" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to DAS-63, CONTROL UNIT : DTC Logic". 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/BU, is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure 1. CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunction in Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.	U0401	Trouble diagnosis name	DTC detecting condition	Possible causes
CONTROL UNIT : 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/BU. s "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure Information of "BSW/BUZZER". 1. CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". s "U1000" detected? YES YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.		ECM CAN CIR1	that is received from ECM via CAN communi-	ECM
 Start the engine. Turn the BSW system ON. Perform "All DTC Reading" with CONSULT. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure Increase Increase Increase Increase Increase Is "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunction Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. NO >> GO TO 2. NO as the current of the context of the system of the context of the c				
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/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure Information of "BSW/BUZZER". Is "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.			h DTC "U1000", first diagnose the DTC	"U1000". Refer to <u>DAS-63, "ADAS</u>
1. PERFORM DTC CONFIRMATION PROCEDURE Start the engine. Turn the BSW system ON. Perform "All DTC Reading" with CONSULT. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. 				
 Start the engine. Turn the BSW system ON. Perform "All DTC Reading" with CONSULT. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure Increase Increase Increase Increase Increase Is detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. NO >> GO TO 2. Intermise Intermise Intermise NO Intermise				
 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/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure INFOID:000 1. CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunction in Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.	'ERFORM	1 DTC CONFIRMATIO	N PROCEDURE	
 3. Perform "All DTĆ Reading" with CONSULT. 4. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure INFOID:000 1. CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. 				
 4. Check if the "U0401" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BU. Is "U0401" detected as the current malfunction? YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure INFOID:000 1. CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. 			CONSULT	
YES >> Refer to DAS-69, "Diagnosis Procedure". NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure Imfolized 1.CHECK SELF-DIAGNOSIS RESULTS Imfolized Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.				nostic Result" of "BSW/BUZZER".
NO >> Refer to GI-47, "Intermittent Incident". Diagnosis Procedure Information 1.CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.	<u>J0401" de</u>	tected as the current n	nalfunction?	
Diagnosis Procedure Information 1.CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.				
1.CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.			<u>tent incident</u> .	
Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to <u>DAS-63</u> , "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.	gnosis I	Procedure		INFOID:000000012547684
Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.	אובטא פו	ELF-DIAGNOSIS RES	ULTS	
Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctionin Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2.				
Refer to <u>DAS-63, "ADAS CONTROL UNIT : DTC Logic"</u> . NO >> GO TO 2.		00" is detected other the	nan "U0401" in "Self Diagnostic Result"	of "BSW/BUZZER".
NO >> GO TO 2.	ck if "U10		nan "U0401" in "Self Diagnostic Result"	of "BSW/BUZZER".
	ck if "U10 J1000" de S >> P	<u>tected?</u> erform the CAN comn	nunication system inspection. Repair o	
	ck if "U10 J <u>1000" de</u> S >> P R	<u>tected?</u> erform the CAN comn efer to <u>DAS-63, "ADA</u> s	nunication system inspection. Repair o	
	ck if "U10 J <u>1000" de</u> S >> P R) >> G	<u>tected?</u> erform the CAN comn efer to <u>DAS-63, "ADA\$</u> iO TO 2.	nunication system inspection. Repair of <u>S CONTROL UNIT : DTC Logic"</u> .	
Check if any DTC is detected in "Self Diagnostic Result" of "ENGINE".	ck if "U10 J <u>1000" de</u> S >> P R) >> G CHECK E(tected? erform the CAN comn efer to <u>DAS-63, "ADAS</u> O TO 2. CM SELF-DIAGNOSIS	nunication system inspection. Repair of <u>S CONTROL UNIT : DTC Logic"</u> .	
<u>Is any DTC detected?</u> YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. F	ck if "U10 J1000" de S >> P R) >> G CHECK EC ck if any [tected? erform the CAN comm efer to <u>DAS-63, "ADAS</u> O TO 2. CM SELF-DIAGNOSIS	nunication system inspection. Repair of <u>S CONTROL UNIT : DTC Logic"</u> .	
EC-104, "DTC Index" (USA and Canada) or EC-592, "DTC Index" (Mexico).	ck if "U10 J1000" de S >> P R D >> G CHECK E0 ck if any [ny DTC de	tected? erform the CAN comm efer to <u>DAS-63, "ADAS</u> O TO 2. CM SELF-DIAGNOSIS DTC is detected in "Se etected?	nunication system inspection. Repair of <u>S CONTROL UNIT : DTC Logic"</u> . RESULTS If Diagnostic Result" of "ENGINE".	r replace the malfunctioning parts.
NO >> Replace the ADAS control unit. Refer to <u>DAS-88</u> , "Removal and Installation".	ck if "U10 J1000" de S >> P R >> G CHECK E0 ck if any I ck if any I ck if any I S >> P E	tected? erform the CAN comm efer to <u>DAS-63, "ADAS</u> O TO 2. CM SELF-DIAGNOSIS DTC is detected in "Se etected? erform diagnosis on th C-104, "DTC Index" (1	nunication system inspection. Repair of <u>S CONTROL UNIT : DTC Logic"</u> . RESULTS If Diagnostic Result" of "ENGINE". ne detected DTC and repair or replace JSA and Canada) or EC-592, "DTC In	the malfunctioning parts.

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[BSW]

INFOID:000000012547683

U0402 TCM CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U0402 TCM CAN 1

DTC Logic

INFOID:000000012547685

[BSW]

DTC DETECTION LOGIC

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

NOTE:

If DTC "U0402" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-63, "ADAS</u> <u>CONTROL UNIT : DTC Logic"</u>.

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/BUZZER".

Is "U0402" detected as the current malfunction?

- YES >> Refer to DAS-70, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47</u>, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000012547686

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0402" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-63, "ADAS CONTROL UNIT : DTC Logic"</u>.
- 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 <u>TM-65, "DTC Index"</u> (RE0F10E) or <u>TM-286, "DTC Index"</u> (RE0F10J).
- NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

< DTC/CIRCUIT DIAGNOSIS >

U0405 ADAS CAN 2

DTC Logic

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INFOID:000000012547687

DTC DETECTION LOGIC

	Trouble diagnosis name	DTC detecting condition	Possible cause
U0405	ADAS CAN CIR2	Side radar detected an error of ITS communication signal that was received from ADAS control unit.	ADAS control unit
	<u>LH:DTC Logic"</u> (SIDĔ R	th DTC "U1000", first diagnose the DTC "U1000" ADAR LEFT), <u>DAS-64, "SIDE RADAR LH:DT</u>	
DTC CC	ONFIRMATION PROCED	URE	
1.PERF	ORM DTC CONFIRMATIO	N PROCEDURE	
	t the engine.		
 Perfe Che 	h the BSW system ON. form "All DTC Reading" with ck if the U0405 is detected HT/LEFT".	CONSULT. as the current malfunction in "Self Diagnostic I	Result" of "SIDE RADAR
	TC "U0405" detected?		
	>> Refer to <u>DAS-71</u> , "Diage >> Refer to GI-47, "Intermit		
	osis Procedure		INFOID:000000012547688
	CK SELF-DIAGNOSIS RES	IIITS	
		nan "U0405" in "Self Diagnostic Result" of "SIDE	RADAR RIGHT/I FFT"
	<u>0" detected?</u>		
YES	>> Perform the CAN comm Refer to <u>DAS-64, "SIDE</u> <u>RH : DTC Logic"</u> (SIDE	nunication system inspection. Repair or replace <u>RADAR LH : DTC Logic"</u> (SIDE RADAR LEFT) RADAR RIGHT)	the malfunctioning parts. , <u>DAS-64, "SIDE RADAR</u>
NO		i de la completion de l	
-	>> GO TO 2.	, ,	
2.снес	>> GO TO 2. CK ADAS CONTROL UNIT	SELF-DIAGNOSIS RESULTS	
2.CHEC	>> GO TO 2. CK ADAS CONTROL UNIT	, ,	
2.CHEC Check if Is any D	>> GO TO 2. CK ADAS CONTROL UNIT any DTC is detected in "Se TC detected?	SELF-DIAGNOSIS RESULTS	unctioning parts. Refer to
2.CHEC Check if Is any D YES	 >> GO TO 2. CK ADAS CONTROL UNIT any DTC is detected in "Se <u>TC detected?</u> > Perform diagnosis on th <u>DAS-28, "DTC Index"</u>. 	SELF-DIAGNOSIS RESULTS If Diagnostic Result" of "BSW/BUZZER".	0.1

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< DTC/CIRCUIT DIAGNOSIS >

U0415 VDC CAN 1

DTC Logic

[BSW]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0415	VDC CAN CIR1	If ADAS control unit 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 <u>DAS-63, "ADAS</u> <u>CONTROL UNIT : DTC Logic"</u>.

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/BUZZER".

Is "U0415" detected as the current malfunction?

YES >> Refer to <u>DAS-72</u>, "Diagnosis Procedure".

NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000012547690

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0415" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-63, "ADAS CONTROL UNIT : DTC Logic"</u>.
- NO >> GO TO 2.

 $2. {\sf CHECK} \text{ ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS}$

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 <u>BRC-47. "DTC Index"</u> (type 1) or <u>BRC-206. "DTC Index"</u> (type 2).
- NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U1503 SIDE RDR L CAN 2

< DTC/CIRCUIT DIAGNOSIS >

DTC DETECTION LOGIC

U1503 SIDE RDR L CAN 2

DTC Logic

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[BSW]

INFOID:000000012547699

DTC DTC detecting condition Possible causes Trouble diagnosis name ADAS control unit detects an error signal that is re-U1503 SIDE RDR L CAN CIR 2 Side radar LH ceived from side radar LH via ITS communication NOTE: If DTC "U1503" is detected along with DTC "U1000", or "U1508", first diagnose the DTC "U1000" or "U1508". Refer to <u>DAS-63</u>, "ADAS CONTROL UNIT : DTC Logic" for DTC "U1000". • Refer to DAS-78, "DTC Logic" for DTC "U1508". DTC CONFIRMATION PROCEDURE **1.**PERFORM DTC CONFIRMATION PROCEDURE 1. Start the engine. Turn the BSW system ON. 2. Perform "All DTC Reading" with CONSULT. 3. Check if the "U1503" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BUZZER". 4 Is "U1503" detected as the current malfunction? >> Refer to DAS-73, "Diagnosis Procedure". YES >> Refer to GI-47, "Intermittent Incident". NO Diagnosis Procedure INFOID:000000012547700 1.CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" or "U1508" is detected other than "U1503" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" or "U1508" detected? YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-63, "ADAS CONTROL UNIT : DTC Logic". YES-2 >> U1508 detected: Refer to DAS-78, "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 <u>DAS-30. "DTC Index"</u>.

NO >> Replace the ADAS control unit. Refer to <u>DAS-88</u>, "Removal and Installation".

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U1504 SIDE RDR L CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U1504 SIDE RDR L CAN 1

DTC Logic

INFOID:000000012547701

[BSW]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1504	SIDE RDR L CAN CIR 1	ADAS control unit detects an error signal that is re- ceived from side radar LH via ITS 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-64, "SIDE RADAR LH : DTC Logic" for DTC "U1000".
- Refer to <u>DAS-78, "DTC Logic"</u> 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/BUZZER".

Is "U1504" detected as the current malfunction?

YES >> Refer to <u>DAS-74</u>, "Diagnosis Procedure".

NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000012547702

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1508" is detected other than "U1504" in "Self Diagnostic Result" of "BSW/BUZZER". <u>Is "U1000" or "U1508" detected?</u>

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-63, "ADAS CONTROL UNIT : DTC Logic"</u>.
- YES-2 >> U1508 detected: Refer to DAS-78, "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 <u>DAS-30. "DTC Index"</u>.
- NO >> Replace the ADAS control unit. Refer to <u>DAS-89</u>, "Removal and Installation".

U1505 SIDE RDR R CAN 2

< DTC/CIRCUIT DIAGNOSIS >

U1505 SIDE RDR R CAN 2

DTC Logic

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INFOID:000000012547703

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes				
U1505	SIDE RDR R CAN CIR 2 ADAS control unit detects an error signal that is received from side radar RH via ITS communication Side radar RH						
	5" is detected along with D <u>NIT:DTC Logic"</u> .	TC "U1000", first diagnose the DTC "U1000"	. Refer to <u>DAS-63, "ADAS</u>				
DTC CONFI	RMATION PROCEDUR	E					
1.PERFORM	DTC CONFIRMATION P	ROCEDURE					
 Perform " Check if the second se	3SW system ON. All DTC Reading" with CC he "U1505" is detected as tected as the current malf efer to <u>DAS-75, "Diagnos</u> efer to <u>GI-47, "Intermitten</u>	the current malfunction in "Self Diagnostic Re <u>unction?</u> is <u>Procedure"</u> .	esult" of "BSW/BUZZER".				
Diagnosis I	Procedure		INFOID:000000012547704				
1.CHECK SE	ELF-DIAGNOSIS RESULT	S					
		"U1505" in "Self Diagnostic Result" of "BSW	//BUZZER".				
<u>Is "U1000" de</u>							
R		ication system inspection. Repair or replace ONTROL UNIT : DTC Logic".	the malfunctioning parts.				
~	DE RADAR RH SELF-DIA	AGNOSIS RESULTS					
2.CHECK SI	DTC is detected in "Self D	AGNOSIS RESULTS iagnostic Result" of "SIDE RADAR RIGHT".					

- L YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-32, "DTC Index".
- >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation". NO

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U1506 SIDE RDR R CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U1506 SIDE RDR R CAN 1

DTC Logic

INFOID:000000012547705

[BSW]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1506	SIDE RDR R CAN CIR 1	ADAS control unit detects an error signal that is re- ceived from side radar RH via ITS communication	Side radar RH

NOTE:

If DTC "U1506" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-63, "ADAS</u> <u>CONTROL UNIT : DTC Logic"</u>.

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/BUZZER".

Is "U1506" detected as the current malfunction?

- YES >> Refer to DAS-76, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000012547706

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1506" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-63</u>, "ADAS CONTROL UNIT : 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 <u>DAS-32. "DTC Index"</u>.
- NO >> Replace the ADAS control unit. Refer to <u>DAS-88</u>, "Removal and Installation".

U1507 LOST COMM(SIDE RDR R)

< DTC/CIRCUIT DIAGNOSIS >

U1507 LOST COMM(SIDE RDR R)

DTC Logic

[BSW]

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INFOID:000000012547707

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes					
U1507	U1507 LOST COMM(SIDE RDR R) ADAS control unit cannot receive ITS commu- nication signal from side radar RH for 2 sec- onds or more Side radar RH for 2 sec-							
	" is detected along wit	h DTC "U1000", first diagnose the DTC	"U1000". Refer to <u>DAS-63, "ADAS</u>					
DTC CONFIF	RMATION PROCED	URE						
1.PERFORM	DTC CONFIRMATIO	N PROCEDURE						
1. Start the e								
2. Turn the E 3. Perform "/	3SW system ON. All DTC Reading" with	CONSULT						
4. Check if th	ne "U1507" is detected	as the current malfunction in "Self Diag	nostic Result" of "BSW/BUZZER".					
	ected as the current n							
		nairunction ?						
YES >> R	efer to <u>DAS-77, "Diagr</u>	nosis Procedure".						
YES >> R NO >> R	efer to <u>DAS-77, "Diag</u> r efer to <u>GI-47, "Intermit</u>	nosis Procedure".						
YES >> R NO >> R	efer to <u>DAS-77, "Diag</u> r efer to <u>GI-47, "Intermit</u>	nosis Procedure".	INFOID:000000012547708					
YES >> Re NO >> Re Diagnosis F	efer to <u>DAS-77, "Diag</u> r efer to <u>GI-47, "Intermit</u>	nosis Procedure". tent Incident".	INFOID:000000012547708					
YES >> R NO >> R Diagnosis F 1.check se	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES	nosis Procedure". tent Incident".						
YES >> Ro NO >> Ro Diagnosis F 1.check se	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other th	nosis Procedure". ttent Incident". ULTS						
YES >> Ro NO >> Ro Diagnosis F 1.CHECK SE Check if "U100 Is "U1000" det YES >> Po	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other th ected? erform the CAN comm	utent Incident". ULTS nan "U1507" in "Self Diagnostic Result" nunication system inspection. Repair or	of "BSW/BUZZER".					
YES >> Ro NO >> Ro Diagnosis F 1.CHECK SE Check if "U100 Is "U1000" det YES >> Pe Ro	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other the sected? erform the CAN comme efer to <u>DAS-63, "ADAS</u>	nosis Procedure". ttent Incident". ULTS nan "U1507" in "Self Diagnostic Result"	of "BSW/BUZZER".					
YES >> Ro NO >> Ro Diagnosis F 1.CHECK SE Check if "U100 Is "U1000" det YES >> Po Ro NO >> G	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES D0" is detected other th rected? erform the CAN comm efer to <u>DAS-63, "ADAS</u> O TO 2.	ULTS nan "U1507" in "Self Diagnostic Result" nunication system inspection. Repair or <u>S CONTROL UNIT : DTC Logic"</u> .	of "BSW/BUZZER".					
$\begin{array}{rrrr} YES & >> Ri \\ NO & >> Ri \\ \hline Diagnosis F \\ \hline 1. CHECK SE \\ \hline Check if "U100 \\ \hline IS "U1000" det \\ YES & >> Pe \\ Ri \\ NO & >> G \\ \hline 2. CHECK SII \\ \hline \end{array}$	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other th <u>rected?</u> erform the CAN comm efer to <u>DAS-63, "ADAS</u> O TO 2. DE RADAR RH SELF-	ULTS nan "U1507" in "Self Diagnostic Result" nunication system inspection. Repair or <u>S CONTROL UNIT : DTC Logic"</u> .	of "BSW/BUZZER".					
$\begin{array}{rrrr} YES & >> Ri \\ NO & >> Ri \\ \hline Diagnosis F \\ \hline 1. CHECK SE \\ \hline Check if "U100 \\ \hline IS "U1000" det \\ YES & >> Pe \\ Ri \\ NO & >> G \\ \hline 2. CHECK SII \\ \hline \end{array}$	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other the tected? erform the CAN comme efer to <u>DAS-63, "ADAS</u> O TO 2. DE RADAR RH SELF- DTC is detected in "Sel	ULTS nan "U1507" in "Self Diagnostic Result" nunication system inspection. Repair or <u>S CONTROL UNIT : DTC Logic"</u> .	of "BSW/BUZZER".					
$\begin{array}{rcl} YES & >> Re \\ NO & >> Re \\ \hline Diagnosis F \\ \hline 1.CHECK SE \\ \hline Check if "U100 \\ \hline IS "U1000" det \\ YES & >> Pe \\ Re \\ NO & >> G \\ \hline 2.CHECK SII \\ \hline Check if any D \\ \hline IS any DTC det \\ YES & >> Pe \\ \hline \end{array}$	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other the efer to <u>DAS-63, "ADAS</u> 0 TO 2. DE RADAR RH SELF- DTC is detected in "Selected? efform diagnosis on the	ULTS nan "U1507" in "Self Diagnostic Result" nunication system inspection. Repair or <u>S CONTROL UNIT : DTC Logic"</u> .	of "BSW/BUZZER". replace the malfunctioning parts.					
$\begin{array}{rcl} YES & >> Re \\ NO & >> Re \\ \hline Diagnosis F \\ \hline 1.CHECK SE \\ \hline Check if "U100 \\ \hline IS "U1000" det \\ YES & >> Pe \\ Re \\ NO & >> G \\ \hline 2.CHECK SII \\ \hline Check if any D \\ \hline IS any DTC det \\ \hline YES & >> Pe \\ D \\ \hline \end{array}$	efer to <u>DAS-77, "Diagr</u> efer to <u>GI-47, "Intermit</u> Procedure ELF-DIAGNOSIS RES 00" is detected other the rected? erform the CAN comme efer to <u>DAS-63, "ADAS</u> O TO 2. DE RADAR RH SELF- DTC is detected in "Selected? erform diagnosis on the <u>AS-32, "DTC Index"</u> .	ULTS Dan "U1507" in "Self Diagnostic Result" Dunication system inspection. Repair or <u>S CONTROL UNIT : DTC Logic"</u> . DIAGNOSIS RESULTS If Diagnostic Result" of "SIDE RADAR F	of "BSW/BUZZER". replace the malfunctioning parts. RIGHT". the malfunctioning parts. Refer to					

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U1508 LOST COMM(SIDE RDR L)

< DTC/CIRCUIT DIAGNOSIS >

U1508 LOST COMM(SIDE RDR L)

DTC Logic

INFOID:000000012547709

[BSW]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1508	LOST COMM(SIDE RDR L)	ADAS control unit cannot receive ITS commu- nication signal from side radar LH for 2 sec- onds or more	Side radar LH harness connectorITS communication systemSide 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/BUZZER".

Is "U1508" detected as the current malfunction?

- YES >> Refer to DAS-78, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47</u>, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000012547710

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 <u>LAN-21, "Trouble Diagnosis Flow Chart"</u>.
- NO >> Repair the terminal or connector.

	DIAGNOSIS > PPLY AND (GROUND CIR	CUIT		[BSW]
ADAS CONTR					
ADAS CONTR	OL UNIT : D	iagnosis Proce	dure		INFOID:0000000125477;
Regarding Wiring	Diagram informa	tion, refer to <u>DAS-3</u>	4, "Wiring Diagrar	<u>n"</u> .	
1.CHECK FUSES	3				
Check if any of the	following fuses	are blown:			
	Signal name			Fuse No.	
	Ignition power sup	oly		30 (10A)	
2.CHECK ADAS	0 2. ce the blown fuse CONTROL UNIT	e after repairing the POWER SUPPLY rol unit harness cor	CIRCUIT		
	Terminal		Condition		
(+) (-)		(-)	Condition	Standard voltage	Reference voltage
ADAS control unit Connector Terminal		_	Ignition switch		(Approx.)
		- Ground	OFF	0 - 0.1 V	0 V
B104	12		ON	9.5 - 16 V	Battery voltage
3. CHECK ADAS 1. Turn the ignition 2. Disconnect the	r the ADAS contr CONTROL UNIT on switch OFF. e ADAS control u	ol unit power supply GROUND CIRCUI nit connector. DAS control unit ha	Т	and ground.	
	ADAS control ur	it			
Connecto		Terminal	Ground	0	Continuity
B104		5			Yes
Is the inspection re YES >> Inspection	tion End. the ADAS contr	ol unit ground circu	it.		
	LH : Diagnos	is Procedure			INFOID:0000000125477

Revision: November 2015

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

Signal name	Fuse No.
Ignition power supply	30 (10A)

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			
(+) (-) Side radar LH		Condition	Standard voltage	Reference voltage		
			Ignition switch	Standard Voltage	(Approx.)	
Connector	Terminal	Ground	ignition switch			
B416	5	Giouna	OFF	0 - 0.1 V	0 V	
B410	5		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 ra	adar LH		Continuity	
Connector	Connector Terminal		Continuity	
B416	8		Yes	

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:000000012547717

Regarding Wiring Diagram information, refer to DAS-34, "Wiring Diagram".

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	30 (10A)

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.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Terminals		Condition				
(+) Side radar RH		(-)	Condition	Standard voltage	Reference voltage (Approx.)	
			Ignition switch			
Connector	Terminal		Ignition Switch			
D100	F	Ground	OFF	0 - 0.1 V	0 V	
B109 5			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 rac	lar RH		Continuity	
Connector	Terminal	Ground	Continuity	F
B109	8	-	Yes	-
Is the inspection result norm				G

YES >> Inspection End.

NO >> Repair the side radar RH ground circuit.

[BSW]

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WARNING SYSTEM SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WARNING SYSTEM SWITCH CIRCUIT

Component Function Check

1. CHECK WARNING SYSTEM 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 warning system switch, check the monitor status.

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

Is the inspection result normal?

- YES >> Warning system switch circuit is normal.
- NO >> Refer to <u>DAS-82, "Diagnosis Procedure"</u>.

Diagnosis Procedure

INFOID:000000012547719

Regarding Wiring Diagram information, refer to DAS-34, "Wiring Diagram".

1.CHECK WARNING SYSTEM SWITCH SIGNAL INPUT

- 1. Turn the ignition switch ON.
- 2. With operating the warning system switch, check voltage between ADAS control unit harness connector and ground.

	Terminals (-)		Condition		
(Condition	Voltage	
ADAS c	ontrol unit		Warping system switch	(Approx.)	
Connector	Terminal	Ground	Warning system switch		
B104	18	Ground	Pressed	0 V	
B104	18		Released	Battery voltage	

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to <u>DAS-88, "Removal and Installation"</u>.

NO >> GO TO 2.

2. CHECK WARNING SYSTEM SWITCH

1. Turn ignition switch OFF.

2. Remove warning system switch.

3. Check warning system switch. Refer to <u>DAS-91, "Removal and Installation"</u>.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the warning system switch. Refer to <u>DAS-91, "Removal and Installation"</u>.

${f 3.}$ CHECK WARNING SYSTEM SWITCH GROUND CIRCUIT

Check continuity between warning system switch harness connector and the ground.

Warning system switch			Continuity
Connector	Terminal	Ground	Continuity
M133	8		Yes

Is the inspection result normal?

INFOID:000000012547718

WARNING SYSTEM SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[BSW]

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NO >> Repair harness or connector.

4. CHECK WARNING SYSTEM SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

- 1. Disconnect the ADAS control unit connector.
- 2. Check continuity between the ADAS control unit harness connector and warning system switch harness connector.

ADAS co	ADAS control unit Warning system switch		Continuity	
Connector	Terminal	Connector	Terminal	- Continuity
B104	18	M133	6	Yes
s the inspection resul	It normal?			
YES >> GO TO 5				
	e harnesses or conne			
). CHECK WARNING	SYSTEM SWITCH	SIGNAL INPUT CIRC	UIT FOR SHORT	
Check continuity betw	veen the ADAS contro	ol unit harness connec	tor and ground.	
,			U U	
Al	DAS control unit			Continuity
Connector	Termin	al	Ground	Continuity
B104	18			No
s the inspection resul	t normal?			
YES >> Replace t	he ADAS control unit	. Refer to DAS-88, "R	emoval and Installation	<u>on"</u> .
NO >> Repair the	e harnesses or conne	ectors.		
Component Inspe	ection			INFOID:00000001254772
1.CHECK WARNING	SYSTEM SWITCH			

Check continuity of warning system switch.

Terr	ninal	Condition	Continuity	
6	6 9	When warning system switch is pressed	Yes	K
0	0	When warning system switch is released	No	I.V.

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace warning system switch. Refer to <u>DAS-91, "Removal and Installation"</u>.

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BSW ON INDICATOR CIRCUIT

Diagnosis Procedure

[BSW]

Regarding Wiring Diagram information, refer to DAS-34, "Wiring Diagram".

1. CHECK BSW ON INDICATOR POWER SUPPLY CIRCUIT

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

	Terminals		
(-	+)	(-)	Voltage (Approx.)
Warning sy	stem switch		(Approx.)
Connector	Terminal	Ground	
M133	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 ADAS control unit harness connector.
- 3. Check continuity between the ADAS control unit harness connector and warning system switch harness connector.

ADAS control unit		Warning system switch		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
B104	19	M133	3	Yes	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

 ${f 3}.$ CHECK BSW ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

ADAS control unit			Continuity
Connector	Terminal	Ground	Continuity
B104	19	*	No

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-85, "Component Inspection".

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to <u>DAS-88, "Removal and Installation"</u>.

NO >> Replace warning system switch. <u>DAS-91, "Removal and Installation"</u>.

BSW ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

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[BSW]

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1. CHECK BSW ON INDICATOR

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

Terminals		- Condition	BSW ON indicator
(+)	(-)	Condition	BSW ON Indicator
F	3	When the battery voltage is applied	On
5	3	When the battery voltage is not applied	Off
the insp	ection resu	Ilt normal?	·
	> Inspectic > Replace	the warning system switch. Refer to <u>DAS-91, "Remo</u>	val and Installation".

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SYMPTOM DIAGNOSIS BSW SYSTEM SYMPTOMS

Symptom Table

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 <u>DAS-13</u>, "System Description".

Sympt	om	Possible cause	Inspection item/Reference page
Indicator/warning lamps do not il- luminate when ignition switch OFF \Rightarrow ON.	BSW warning lamp (Yellow) does not illuminate	 BSW warning lamp signal (CAN) Combination meter ADAS control unit BSW warning lamp (combination meter) 	 Power supply and ground circuit of ADAS control unit Refer to <u>DAS-79</u>, "ADAS CON- TROL UNIT : Diagnosis Proce- <u>dure"</u> ADAS control unit Active test "BSW/BSI WARNING LAMP" Refer to <u>DAS-20</u>, "CONSULT <u>Function (BSW/BUZZER)"</u>. ADAS control unit Data moni- tor "BSW/BSI WARN LMP" Refer to <u>DAS-20</u>, "CONSULT <u>Function (BSW/BUZZER)"</u> Combination meter Data mon- itor "BSW W/L" Refer to <u>MWI-18</u>, "CONSULT <u>Function (METER/M&A)"</u>
	BSW ON indicator (on the warning system switch) does not illuminate	 Harness between ADAS control unit and warning system switch Warning system switch ADAS control unit 	BSW ON indicator circuit Refer to <u>DAS-84, "Diagnosis Pro-</u> cedure"
	BSW indicator does not turn ON	 Harness between side radar and BSW indicator Side radar LH/RH BSW indicator 	Perform self-diagnosis of side ra- dar Refer to <u>DAS-22, "CONSULT</u> <u>Function (SIDE RADAR LEFT)"</u> or <u>DAS-24, "CONSULT Function</u> (<u>SIDE RADAR RIGHT)"</u>
BSW system is not activated. (Indicator/warning lamps illumi- nate when ignition switch OFF \Rightarrow ON.)	BSW ON indicator is not turned ON ⇔ OFF when op- erating warning system switch	 Harness between ADAS control unit and warning system switch Harness between warning system switch and ground ADAS control unit Warning system switch 	BSW ON indicator circuit Refer to <u>DAS-84, "Diagnosis Pro-</u> cedure"
	Buzzer is not sounding	ADAS control unitCombination meter	Meter buzzer circuit Refer to <u>WCS-30, "Component</u> <u>Function Check"</u>

NORMAL OPERATING CONDITION

NORMAL OPERATING CONDITION

Description

Description	INFOID:000000012547724	
 PRECAUTIONS FOR BLIND SPOT WARNING (BSW) The BSW system is not a replacement for proper driving procedure a with vehicles or objects. When changing lanes, always use the side a 		В
 direction driver will move to ensure it is safe to change lanes. Never The BSW system may not provide a warning for vehicles that pass the Do not use the BSW system when towing a trailer because the system 	rely solely on the BSW system. nrough the detection zone quickly. m may not function properly.	С
 Excessive noise (e.g. audio system volume, open vehicle window) w may not be heard. 	ill interfere with the chime sound, and it	D
 The side radar may not be able to detect and activate BSW when cere- Pedestrians, bicycles, animals. 	rtain objects are present such as:	
 Several types of vehicles such as motorcycles. Oncoming vehicles. 		Е
 Vehicles remaining in the detection zone when driver accelerate from A vehicle merging into an adjacent lane at a speed approximately the A vehicle approaching rapidly from behind. A vehicle which vehicle overtakes rapidly. 		F
 Severe weather or road spray conditions may reduce the ability of the The side radar detection zone is designed based on a standard lane side radar may not detect vehicles in an adjacent lane. When drivin detect vehicles driving two lanes away. 	width. When driving in a wider lane, the	G
• The side radar are designed to ignore most stationary objects, how foliage and parked vehicles may occasionally be detected. This is a r		Н
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REMOVAL AND INSTALLATION ADAS CONTROL UNIT

Removal and Installation

INFOID:000000012547725

[BSW]

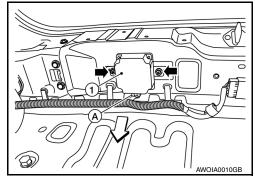
REMOVAL

CAUTION:

Before replacing ADAS control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>DAS-51, "Description"</u>.

- 1. Disconnect the battery negative terminal. Refer to <u>PG-93</u>, "Removal and Installation".
- 2. Remove the storage box. Refer to INT-33, "STORAGE BOX : Removal and Installation".
- Disconnect the harness connector (A) from the ADAS control unit (1).

 ←: Front
- 4. Remove bolts (**←**).
- 5. Lift upward to remove ADAS control unit (1).



INSTALLATION

CAUTION:

Be sure to perform "Read/Write Configuration" when replacing ADAS control unit. For details, refer to DAS-51, "Description".

Installation is in the reverse order of removal.

• Tighten ADAS control unit bolts to specification.

ADAS control unit bolts : 8.3 N·m (0.85 kg-m, 73 in-lb)

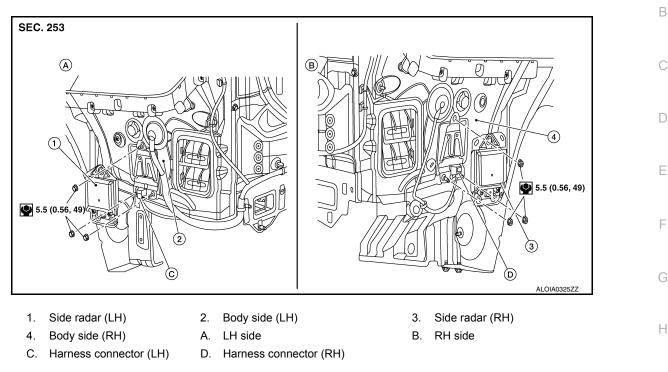
< REMOVAL AND INSTALLATION > SIDE RADAR

Exploded View

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INFOID:000000012547727

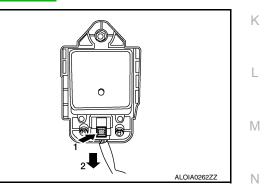


Removal and Installation

REMOVAL AND INSTALLATION

Removal

- 1. Remove the rear bumper fascia. Refer to EXT-20, "Removal and Installation".
- 2. Disconnect the harness connector from the side radar in the sequence shown.



3. Remove nuts and remove the side radar.

Installation

Installation is in the reverse order of removal.

Do not use the side radar if the lens has flaws. NOTE:

- Always lock the side radar connector.
- Do not touch the side radar lens and keep lens area clean.

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BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR

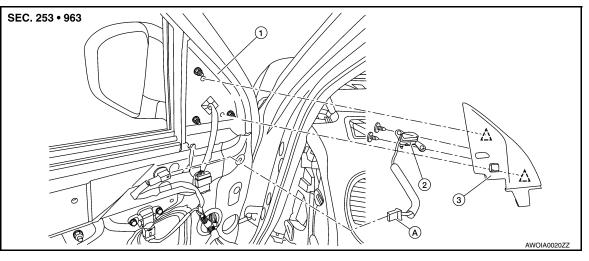
< REMOVAL AND INSTALLATION >

BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR

Exploded View

INFOID:000000012547728

[BSW]



- Front door 1.
- Blind spot warning/blind spot inter-Α. $\hat{\}$ vention indicator harness connector

Removal and Installation

REMOVAL AND INSTALLATION

Removal

- Remove front door finisher. Refer to INT-15, "Removal and Installation". 1.
- 2. Remove the door mirror corner finisher (LH/RH) as necessary. Refer to MIR-20, "Removal and Installation".

Clip

- 3. Remove the blind spot warning/blind spot intervention indicator screws.
- 4. Remove the blind spot warning/blind spot intervention indicator.

Installation

Installation is in the reverse order of removal.

- 2.
 - Blind spot warning/blind spot in- 3. Door mirror corner tervention indicator
 - finisher

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PRECAUTION PRECAUTIONS

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

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. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

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

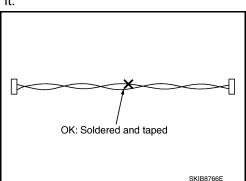
Precautions For Harness Repair

INFOID:000000012547732

ITS communication uses a twisted pair line. Be careful when repairing it.

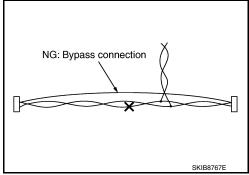
• Solder the repaired area and wrap tape around the soldered area. **NOTE:**

A fray of twisted lines must be within 110 mm (4.33 in).



• Bypass connection is never allowed at the repaired area. **NOTE:**

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



PRECAUTIONS

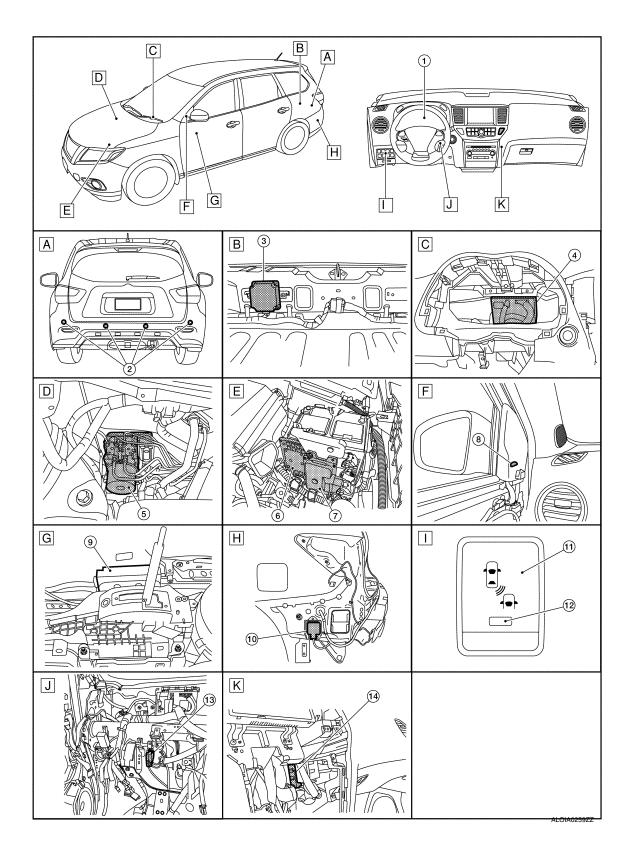
T RECACIONO	
	RCTA]
Precaution for Backup Collision Intervention	0000012547733
 WARNING: Be careful of traffic conditions and safety around the vehicle when performing road test. CAUTION: Do not use the Backup Collision Intervention system when driving with free rollers or a condynamometer. Do not perform the active test while driving. Do not change BCI initial state ON ⇒ OFF without the consent of the customer. 	E
TO KEEP THE BACKUP COLLISION INTERVENTION SYSTEM OPERATING PROPER SURE TO OBSERVE THE FOLLOWING ITEMS:	LY, BE
 System Maintenance The two side radars for the Backup Collision Intervention system are located near the rear bumper. Always keep the area near the side radars clean. Do not attach stickers (including transparent material), install accessories or apply additional paint n side radars. Do not attach stickers (including transparent material), install accessories or apply additional paint n side radars. 	ear the
 Do not strike or damage the area around the side radars. 	F
 System Maintenance The four rear sonars for the Backup Collision Intervention system are located in the rear bumper. Always keep the area near the rear sonars clean. Do not attach stickers (including transparent material), install accessories or apply additional paint n 	G near the
rear sonars.Do not strike or damage the area around the rear sonars.	F
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SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location

INFOID:000000013162042



COMPONENT PARTS

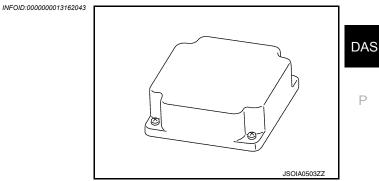
< SYSTEM DESCRIPTION >

[RCTA]

Α. Rear view of vehicle В. Rear storage area (view with storage C. Instrument panel left side (view with А box removed) combination meter removed) Engine room right side Ε. Engine room left side F. Left front door (view with driver door D. finisher removed) В Center console (view with center Left rear bumper area (view with rear I. Left side of instrument panel G. Η. console assembly removed) bumper fascia removed) J. Instrument panel left side (view with K. Instrument panel right side (view with instrument panel assemby removed) С glove box assembly removed)

No.	Component	Function		
1	Combination meter	 Description: Refer to <u>DAS-11. "Combination Meter"</u> System display and warning: <u>DAS-17. "System Display and Warning"</u> Refer to <u>MWI-6. "METER SYSTEM : Component Parts Location"</u> for detailed installation location 		
2	Sonar sensors	Refer to SN-4, "Component Description"		
3	ADAS control unit	Refer to DAS-10, "ADAS Control Unit"		
4	ВСМ	Refer to <u>DAS-11, "BCM"</u> Refer to <u>BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"</u> for detailed in- stallation location		
5	ABS actuator and electric unit (con- trol unit)	Refer to <u>DAS-11, "ABS Actuator and Electric Unit (Control Unit)"</u> Refer to <u>BRC-11, "Component Parts Location"</u> (type 1) for detailed installation location Refer to <u>BRC-169, "Component Parts Location"</u> (type 2) for detailed installation location		
6	ECM Refer to <u>DAS-12, "ECM"</u> Refer to <u>EC-20, "ENGINE CONTROL SYSTEM : Component Parts Location"</u> (USA ar Canada) for detailed installation location Refer to <u>EC-516, "ENGINE CONTROL SYSTEM : Component Parts Location"</u> (Mexico) detailed installation location			
7	7 TCM Refer to DAS-12, "TCM" Refer to TM-16, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F) detailed installation location Refer to TM-238, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F) detailed installation location Refer to TM-238, "CVT CONTROL SYSTEM : Component Parts Location" (RE0F) detailed installation location			
8	BSW indicator LH (RH similar)	Refer to DAS-11, "BSW Indicator LH/RH"		
9	Around view monitor control unit	Refer to AV-209, "Component Parts Location"		
10	Side radar LH (RH similar)	Refer to DAS-11, "Side Radar LH/RH"		
11	11 Warning system switch • Description: Refer to DAS-11, "Warning System Switch" • System display and warning: DAS-17, "Switch Name and Function"			
12	Warning system switch ON indicator (On the warning system switch)	Refer to DAS-17, "System Display and Warning"		
13	Sonar control unit	Refer to SN-4, "Component Description"		
14	CAN gateway	Refer to LAN-118, "System Description"		

ADAS Control Unit



• Controls the BSW system, based on received signals.

• Communicates with each control unit via CAN communication.

DAS-95

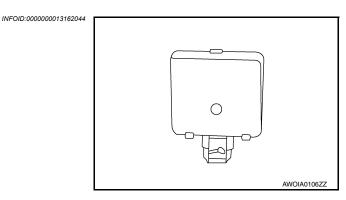
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[RCTA]

- Connected with the side radar (LH and RH) via ITS communication, ADAS control unit receives a vehicle detection signal and transmits a BSW indicator signal and a BSW indicator dimmer signal to the side radar.
- Receives a warning system switch signal from the warning system switch.
- Transmits a buzzer output signal to the combination meter via CAN communication.

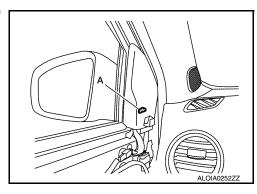
Side Radar LH/RH



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

BSW Indicator LH/RH

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- Installed on the door by the A pillar, the BSW indicator "A" 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.

Warning System Switch

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

Combination Meter

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

ABS Actuator and Electric Unit (Control Unit)

Transmits vehicle speed signal to ADAS control unit via CAN communication.

BCM

- Transmits turn indicator signal to ADAS control unit via CAN communication.
- Transmits dimmer signal to ADAS control unit via CAN communication.

INFOID:000000013162046

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INFOID:000000013162049

DAS-96

2016 Pathfinder

COMPONENT PARTS

< SYSTEM DESCRIPTION >	[RCTA]
ТСМ	INFOID:000000013162050
Transmits shift position signal to ADAS control unit via CAN communication.	
ECM	INFOID:000000013162051
Transmits engine speed signal to ADAS control unit via CAN communication.	

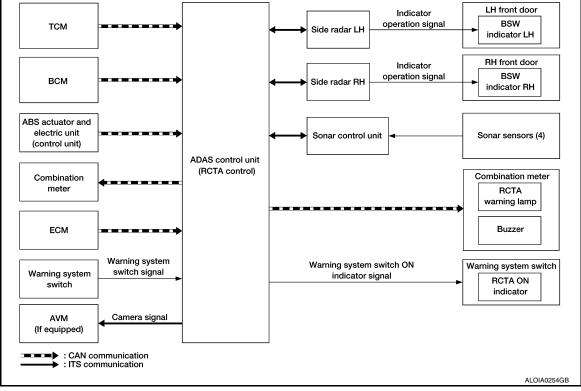
< SYSTEM DESCRIPTION >

SYSTEM

System Description

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SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

Transmit unit	S	ignal name	Description	
ТСМ	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	CAN communication	Vehicle detection signal	Receives vehicle detection condition of detection zone	
ECM	CAN communication	Engine speed signal	Receives an engine speed	
Sonar control unit	ITS communication	Rear object detection signal	Receives objects detection result of rear area behind vehicle	
Warning system switch	Warning system switch	signal	Receives an ON/OFF state of the warning system 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	
meter		Buzzer output signal	Transmits a buzzer output signal to activate buzzer	



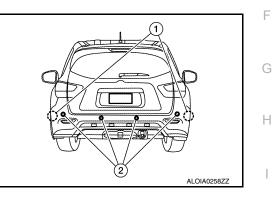
SYSTEM

< SYSTEM DESCRIPTION >

Reception unit	Signal name		Description
Sonar control unit	ITS communication Warning buzzer signal		While the shifter is in reverse and backing up, trans- mits a request for a variable warning buzzer signal to alert the driver.
Around view monitor control unit	ITS communication	Visual signal request	Transmits a visual signal request by the ADAS control unit to center display to override other signals and dis- play rear view while the shift lever is in reverse.
	CAN communication	BSW indicator signal	Transmits a BSW indicator signal to turn ON the BSW indicator
Side radar LH, RH		BSW indicator dimmer signal	Transmits a BSW indicator dimmer signal to dimmer BSW indicator
		Vehicle speed signal	Transmits a vehicle speed calculated by the ADAS control unit
BSW ON indi- cator	BSW ON indicator signal		Turns ON the BSW ON indicator

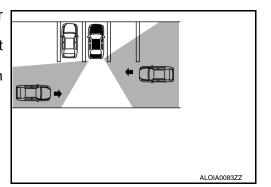
FUNCTION DESCRIPTION

- The Rear Cross Traffic Area (RCTA) system can help alert the driver of approaching vehicles or rear objects when the driver is backing out of a parking space.
- The RCTA system comprise of two main detection systems. The side radars (1), and the four sonar sensors (2) mounted on the rear bumper cover as illustrated.
- The RCTA system operates at speeds below 5 MPH (8 km/h) whenever the vehicle is in reverse.



[RCTA]

- The RCTA system uses the two side radars installed near the rear bumper to detect approaching vehicles and rear obstacles.
- The side radars can detect an approaching vehicle from up to 66 ft (20 m) away on either side of the vehicle.
- The side radar can detect vehicles on either side of vehicle within the detection zone shown as illustrated.



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- The sonar sensors can detect rear obstacles of up to approximately 4.9 feet (1.5 m).
- The RCTA system can help alert the driver of an approaching vehicle or objects behind the vehicle when the driver is backing out of a parking space.

- If the approaching vehicle is faster, the warning timer is faster. If the approaching vehicle is slower, the warning timer is slower.
- When the radar detects a vehicle approaching from the side, the system gives visual and audible warnings.

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SYSTEM

< SYSTEM DESCRIPTION >

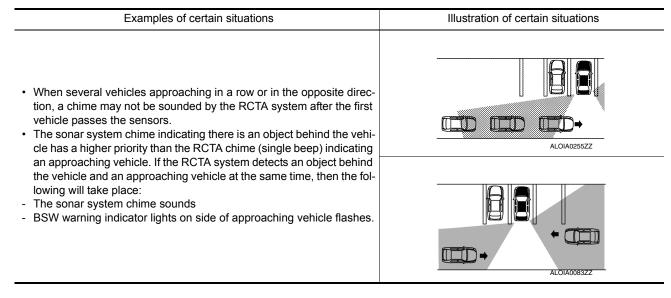
RCTA SYSTEM OPERATION DESCRIPTION

- ADAS control unit enables RCTA system.
- The ADAS control unit turns on the RCTA system when the warning system switch is turned ON.
- Side radar detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to ADAS control unit via CAN communication.
- ADAS control unit 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 CAN 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 RCTA System

ADAS control unit performs the control when the following conditions are satisfied.

- When the warning system switch in turned ON.
- When the vehicle drives at approximately 5 MPH (8 km/h) or less in reverse (R) direction.



The radar sensors may not be able to detect certain objects such as:

- Pedestrians, bicycles, animals
- A vehicle that is passing at a speed greater than approximately 15 MPH (24 km/h)
- The radar sensors may not detect approaching vehicles in certain situations:

Examples of certain situations	Illustration of certain situations
When the vehicle parked aside obstruct the beam of the radar sensor	
When the vehicle is parked in an angled parking space	ALOIA0077ZZ

SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION >	
Examples of certain situations	Illustration of certain situations
When the vehicle is parked on an inclined ground	ALOIA0078ZZ
When the vehicle turns around into your vehicle's aisle	
When the angle formed by your vehicle and approaching vehicle is small	
CTA INITIAL STATE CHANGE AUTION: ever change RCTA initial state "ON" \Rightarrow "OFF" without the CTA initial state can be changed. RCTA initial ON* - RCTA function is automatically turned ON RCTA initial OFF - RCTA function is still OFF when the ignit Factory setting	N, when the ignition switch OFF \Rightarrow ON.
w to change RCTA initial state Turn ignition switch ON. Switch RCTA functions to OFF. Push and hold warning system switch for more than 4 se Buzzer sounds and blinking of the BSW ON indicator ir pleted.	
ail-safe (ADAS Control Unit)	INFOID:000000012547745
a malfunction occurs in the system, ADAS control unit cance e combination meter illuminates.	els the control. Then the RCTA warning lamp in
ail-safe (Side Radar)	INFOID:000000012547746
AL-SAFE CONTROL BY DTC a malfunction occurs in the side radar, ADAS control unit ca the combination meter illuminates.	ancels the control. Then the RCTA warning lamp
MPORARY DISABLED STATUS AT BLOCKAGE	ancelled. Then RCTA warning lamp in combina-

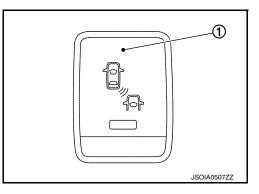
< SYSTEM DESCRIPTION >

OPERATION

Switch Name and Function

INFOID:000000012547747

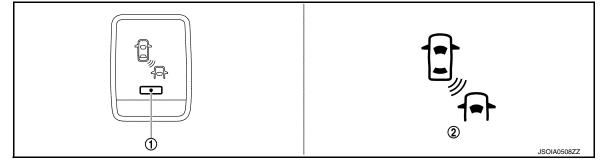
INFOID:000000012547748



No.	Name	Function
1 Warning system switch Turns RCTA system ON/OFF		Turns RCTA system ON/OFF

System Display and Warning

INDICATOR AND WARNING LAMP



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

DISPLAY AND WARNING OPERATION

	Vehicle condition/ I	Driver's operatio	n	Ac	tion
RCTA ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Shift lever position	Status of ve- hicle detec- tion within detection area	Indication on the BSW indicator	Buzzer
OFF	—	_	—	OFF	OFF
	More than ap- prox. 8 (5)	_	_	OFF	OFF
ON	Approx.	Except (R)	Vehicle is absent	OFF	OFF
	8 (5) or less	Reverse (R)	Vehicle is detected	ON	ON

NOTE:

OPERATION

< SYSTEM DESCRIPTION >

If vehicle speed exceeds approximately 8 km/h (5MPH), RCTA function will stop operating until the vehicle speed becomes approximately 8km/h (5MPH) or lower.

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HANDLING PRECAUTION

Precautions for Rear Cross Traffic Alert

SONAR HANDLING

- The four sonar sensors are located on the rear bumper cover.
- Always keep the sonar sensors clean.
- Do not attach a sticker (including transparent material), install an accessory or paintwork over any of the sonar sensors.
- Do not strike or scratch any of the sonar sensors causing physical damage. to a sensor or the surrounding area

SIDE RADAR HANDLING

- Side radar for Backup Collision Intervention 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 (circular area).

REAR CROSS TRAFFIC ALERT

- The Rear Cross Traffic Alert (RCTA) system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When backing up. always look in the direction driver will move to ensure it is safe to proceed. Never rely solely on the RCTA system.
- Using the RCTA system under some road or weather condition could lead to improper system operation. Always rely on driver's own steering and braking operation to avoid accidents.
- The RCTA system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the RCTA system when towing a trailer.
- 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 RCTA when certain objects are present such as:
- Pedestrians, bicycles, animals.
- A vehicle passing at a speed greater than approximately 5 MPH (8km/h).
- A radar sensor may not detect approaching vehicles in certain situations:
- When the vehicle parked aside obstruct the beam of the radar sensor.
- When the vehicle is parked in an angled parking space.
- When the vehicle is parked on an inclined ground.
- When the vehicle turns around into your vehicle's aisle.
- When the angle formed by your vehicle and approaching vehicle is small.
- Severe weather or road spray conditions may reduce the ability of the radar to detect other vehicles.
- The sonar system may not detect:
- Small or moving object.
- Wedge-shaped objects.
- Object closer to the bumper than 10 inch (30 cm).
- Thin objects such as rope, wire, chain, etc...
- The side radars 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 (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

CONSULT Function (BSW/BUZZER)

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication using ADAS control unit.

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

SELF DIAGNOSTIC RESULT

Refer to <u>DAS-113</u>, "DTC Index".

DATA MONITOR

NOTE:

- The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.
- SIGNAL B, SIGNAL C are displayed, but not used.

Monitored item [Unit]	SIGNAL A	SW MAIN SIGNAL	Description	
	•	BSW		
VHCL SPEED SE [km/h] or [mph]	×	×	Indicates vehicle speed calculated from ADAS control unit 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 ADAS control unit through CAN communication (TCM transmishift position signal through CAN communication)	
Turn signal [OFF/LH/RH/LH&RH]		×	Indicates turn signal operation status read from ADAS control unit through CAN communicat (BCM transmits turn indicator signal through CAN communication)	
WARN SYS SW [On/Off]	×	×	Indicates [On/Off] status of warning system 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		

[RCTA]

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DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

< SYSTEM DESCRIPTION >

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 combina- tion meter via CAN communication	ON

DIAGNOSIS SYSTEM (SIDE RADAR LH)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (SIDE RADAR LH)

CONSULT Function (SIDE RADAR LEFT)

DESCRIPTION

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

Select diag mode	Function	С
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-115, "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 ADAS control unit) at the moment a malfunction is detected is displayed	
TURN SIG STATUS	Turn signal status at the moment a malfunction is detected is displayed	Н

DATA MONITOR NOTE:

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

Monitored item [Unit]	Description	
BSW/CTA WARN STATUS [On/Off]	Indicates [On/Off] status of vehicle detection	K
CTA SYSTEM ON [On/Off]	Indicates [On/Off] status of Rear Cross Traffic Area system	_
BSW STATUS [On/Off]	Indicates [On/Off] status of Blind Spot Warning system	L
VHCL SPD SE [km/h]	Indicates vehicle speed in [km/h]	M
TURN SIGNAL [On/Off]	Indicates the position of the left turn signal switch	_
SHIFT POSITION [P/R/N/D]	Indicates position of transmission range switch	Ν
LUMINANCE (LEFT) [Hi/Lo]	Indicates the left side luminance level of the radar	DAS
LUMINANCE (RIGHT) [Hi/Lo]	Indicates the right side luminance level of the radar	
ACTIVE TEST		P

ACTIVE TEST

CAUTION:

· Never perform the active test while driving.

Active test cannot be started while the BSW indicator is illuminated.

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DIAGNOSIS SYSTEM (SIDE RADAR LH)

< SYSTEM DESCRIPTION >

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)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (SIDE RADAR RH)

CONSULT Function (SIDE RADAR RIGHT)

DESCRIPTION

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

Select diag mode	Function	С
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	U
ECU Identification	Displays part number of side radar	

SELF DIAGNOSTIC RESULT

Self Diagnostic Result

Displays memorized DTC in side radar RH. Refer to DAS-117, "DTC Index".

FFD (Freeze Frame Data)

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

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

DATA MONITOR **NOTE**:

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

Monitored item [Unit]	Description	J
BSW/CTA WARN STATUS [On/Off]	S Indicates [On/Off] status of vehicle detection	K
CTA SYSTEM ON [On/Off]	Indicates [On/Off] status of Rear Cross Traffic Area system	
BSW STATUS [On/Off]	Indicates [On/Off] status of Blind Spot Warning system	L
VHCL SPD SE [km/h]	Indicates vehicle speed in [km/h]	M
TURN SIGNAL [On/Off]	Indicates the position of the right turn signal switch	
SHIFT POSITION [P/R/N/D]	Indicates position of transmission range switch	N
LUMINANCE (LEFT) [Hi/Lo]	Indicates the left side luminance level of the radar	DAS
LUMINANCE (RIGHT) [Hi/Lo]	Indicates the right side luminance level of the radar	

ACTIVE TEST

CAUTION:

Never perform the active test while driving.

• Active test cannot be started while the BSW indicator is illuminated.

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DIAGNOSIS SYSTEM (SIDE RADAR RH)

< SYSTEM DESCRIPTION >

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

ECU DIAGNOSIS INFORMATION ADAS CONTROL UNIT

Reference Value

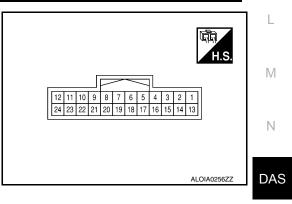
VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

Monitor item		Condition	Value/Status
VHCL SPEED SE	While driving		Displays the ve- hicle speed cal- culated by ADAS control unit
BUZZER O/P	Engine running	When the buzzer of the BSW system operates	On
BUZZER O/F	Engine running	When the buzzer of the BSW system not operates	Off
Shift position	Engine runningWhile driving		Displays the shift position
	Turn signal lamps OFF	Off	
Turn signal	Turn signal lamp LH blinking		LH
Turri Signai	Turn signal lamp RH blinking	RH	
	Turn signal lamp LH and RH	blinking	LH&RH
WARN SYS SW	Ignition owitch ON	When warning system switch is pressed	On
WARN STS SW	Ignition switch ON	When warning system switch is not pressed	Off
BSW/BSI WARN LMP	Ignition switch ON	BSW warning lamp ON	On
DOVV/DOI VVARIN LIVIP	Ignition switch ON	BSW warning lamp OFF	Off
BSW SYSTEM ON	Ignition switch ON	When the BSW system is ON (BSW ON indicator ON)	On
	Ignition switch ON	When the BSW system is OFF (BSW ON indicator OFF)	Off

TERMINAL LAYOUT PHYSICAL VALUES



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ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

	Terminal No. (Wire color) Condition		Description		n	Standard value	Reference value	
+	_	Signal name	Input/ Output	Condition			(Approx.)	
1 (B)		CAN - high		_		_	_	
2 (W)		CAN -low		_		_	_	
5 (B)		Ground		-		_	_	
6 (L)		ITS CAN-H	_	_		_	_	
7 (Y)		ITS CAN-L		_		_	_	
8 (Y)	Ground ITS CAN-L			_		_	_	
9 (BG)		ITS CAN-H		_		_	_	
12 (R)		Ignition power supply	Input	Ignition swite	ch ON	9.5 - 16 V	Battery Voltage	
18		Warning system switch	Input	Warning system	Pressed	0 - 0.1 V	0 V	
(R)		stanning bystem switch	mpot	switch	Released	9.5 -16 V	Battery Voltage	
19		Warning system ON in-	Output BSW ON indicator	BSW ON indicator	Illuminated	0 - 0.1 V	0 V	
(LG)		dicator	Supur		OFF	9.5 - 16 V	Battery Voltage	

Fail-safe

INFOID:000000013123896

INFOID:000000013123897

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

DTC Inspection Priority Chart

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 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 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
5	C1A03: VHCL SPEED SE CIRC
6	C1A00: CONTROL UNIT

ADAS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

DTC Index

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-53
C1A01	POWER SUPPLY CIR	ON	×	DAS-54
C1A02	POWER SUPPLY CIR 2	ON	×	DAS-54
C1A03	VHCL SPEED SE CIRC	ON	×	DAS-55
C1B53	SIDE RDR R MALF	ON	×	DAS-60
C1B54	SIDE RDR L MALF	ON	×	DAS-61
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-63
U0121	VDC CAN CIR 2	ON	×	DAS-68
U0401	ECM CAN CIR 1	ON	×	DAS-69
U0402	TCM CAN CIR 1	ON	×	DAS-70
U0415	VDC CAN CIR 1	ON	×	DAS-72
U1503	SIDE RDR L CAN CIR 2	ON	×	DAS-73
U1504	SIDE RDR L CAN CIR 1	ON	×	DAS-74
U1505	SIDE RDR R CAN CIR 2	ON	×	DAS-75
U1506	SIDE RDR R CAN CIR 1	ON	×	DAS-76
U1507	LOST COMM (SIDE RDR R)	ON	×	DAS-77
U1508	LOST COMM (SIDE RDR L)	ON	×	DAS-78

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< ECU DIAGNOSIS INFORMATION >

SIDE RADAR LH

Reference Value

VALUES ON THE DIAGNOSIS TOOL

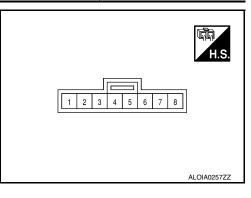
NOTE:

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

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
BSW/CTA WARN	BSW system is normal.	On
STATUS	BSW system is malfunctioning.	Off
	CTA system is ON	On
CTA SYSTEM ON	CTA system is OFF.	Off
	BSW system is ON	Off
BSW STATUS	BSW system is OFF.	On
VHCL SPD SE	Indicates current vehicle speed.	Km/h
TURN SIGNAL	Left turn signal is ON.	On
I URIN SIGINAL	Left turn signal is OFF.	Off
SHIFT POSITION	Shows the position of the transmission range switch.	P/R/N/D
LUMINANCE(LEFT)	Shows radar left luminance level	Hi/Lo
LUMINANCE (RIGHT)	Shows radar right luminance level	Hi/Lo

TERMINAL LAYOUT



PHYSICAL VALUES

	nal No. color)	Description		Condition	Standard value	Reference value	
+	_	Signal name	Input/ Output	Condition	Stanuaru value	(Approx.)	
4 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF \Rightarrow ON (bulb check)	5.5 - 16 V	6 V	
5 (R)		Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage	
6 (L)	Ground	ITS CAN-H		_	_	_	
7 (Y)		ITS CAN-L		_	_	_	
8 (B)		Ground	_	_	0 - 0.1 V	0 V	

SIDE RADAR LH

< ECU DIAGNOSIS INFORMATION >

Fail-safe

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, ADAS control unit 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

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:000000013123902

	DTC	BSW warning lamp	Fail-safe	Reference page	
C1B50	SIDE RDR MALFUNCTION	ON	×	DAS-56	
C1B51	BSW/BSI IND SHORT CIR	ON	×	<u>DAS-57</u>	
C1B52	BSW/BSI IND OPEN CIR	ON	×	<u>DAS-58</u>	
C1B55	RADAR BLOCKAGE	Blink	×	DAS-62	
U1000	CAN COMM CIRCUIT	ON	×	<u>DAS-64</u>	
U1010	CONTROL UNIT (CAN)	ON	×	<u>DAS-66</u>	
U0104	ADAS CAN CIR1	ON	×	<u>DAS-67</u>	
U0405	ADAS CAN CIR2	ON	×	DAS-71	

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< ECU DIAGNOSIS INFORMATION >

SIDE RADAR RH

Reference Value

VALUES ON THE DIAGNOSIS TOOL

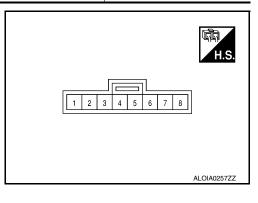
NOTE:

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

CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
BSW/CTA WARN	BSW system is normal.	On
STATUS	BSW system is malfunctioning.	Off
	CTA system is ON	On
CTA SYSTEM ON	CTA system is OFF.	Off
	BSW system is ON	Off
BSW STATUS	BSW system is OFF.	On
VHCL SPD SE	Indicates current vehicle speed.	Km/h
	Right turn signal is ON.	On
TURN SIGNAL	Right turn signal is OFF.	Off
SHIFT POSITION	Shows the position of the transmission range switch.	P/R/N/D
LUMINANCE(LEFT)	Shows radar left luminance level	Hi/Lo
LUMINANCE (RIGHT)	Shows radar right luminance level	Hi/Lo

TERMINAL LAYOUT



PHYSICAL VALUES

SIDE RADAR RH

< ECU DIAGNOSIS INFORMATION >

	nal No. e color)	Description		Condition	Standard value	Reference value	А
+	_	Signal name	Input/ Output	Condition	Stanuaru value	(Approx.)	В
3 (B)		Shield ground		_	0 - 0.1 V	0 V	
4 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF \Rightarrow ON (bulb check)	5.5 - 16 V	6 V	С
5 (R)	Ground	Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage	D
6 (L)		ITS CAN-H		_	_	_	_
7 (Y)		ITS CAN-L	_	_	_	_	E
8 (B)		Ground	_	_	0 - 0.1 V	0 V	F

Fail-safe

INFOID:000000013123904

INFOID:000000013123905

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[RCTA]

FAIL-SAFE CONTROL BY DTC

If a malfunction occurs in the side radar, ADAS control unit 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

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)	L
2	U0104: ADAS CAN CIR 1 U0405: ADAS CAN CIR 2	ъ./
3	C1B50: SIDE RDR MALFUNCTION	M
4	C1B51: BSW/BSI IND SHORT CIR C1B52: BSW/BSI IND OPEN CIR C1B55: RADAR BLOCKAGE	Ν

DTC Index

INFOID:000000013123906

DAS

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				×: Applicable
	DTC	BSW warning lamp	Fail-safe	Reference page
C1B50	SIDE RDR MALFUNCTION	ON	×	DAS-56
C1B51	BSW/BSI IND SHORT CIR	ON	×	DAS-57
C1B52	BSW/BSI IND OPEN CIR	ON	×	<u>DAS-58</u>
C1B55	RADAR BLOCKAGE	Blink	×	DAS-62
U1000	CAN COMM CIRCUIT	ON	×	DAS-64
U1010	CONTROL UNIT (CAN)	ON	×	DAS-66

SIDE RADAR RH

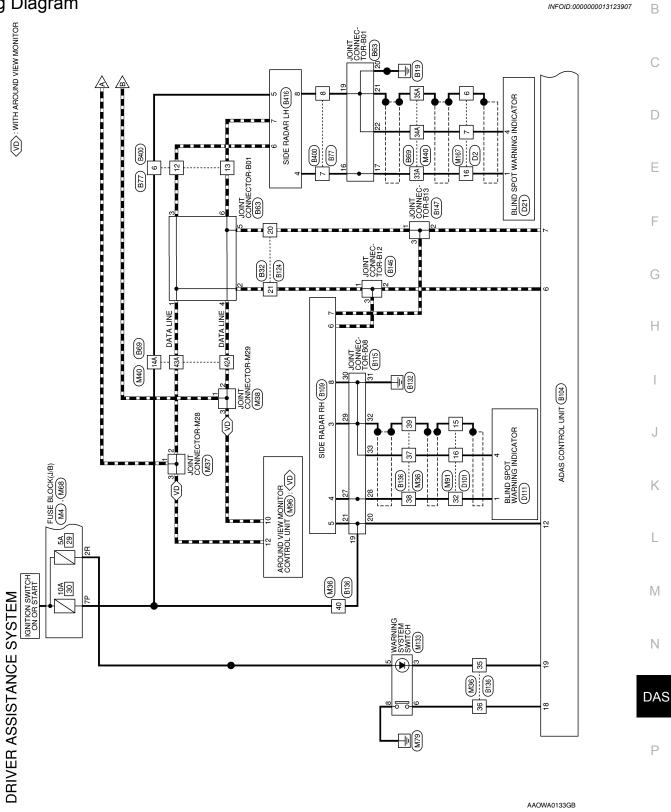
< ECU DIAGNOSIS INFORMATION >

	DTC	BSW warning lamp	Fail-safe	Reference page
U0104	ADAS CAN CIR1	ON	×	<u>DAS-67</u>
U0405	ADAS CAN CIR2	ON	×	<u>DAS-71</u>

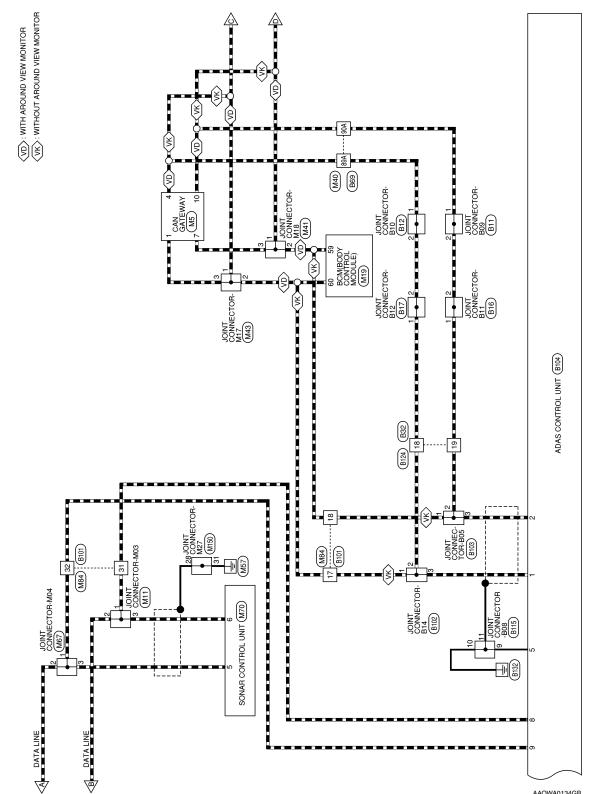
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WIRING DIAGRAM REAR CROSS TRAFFIC AREA

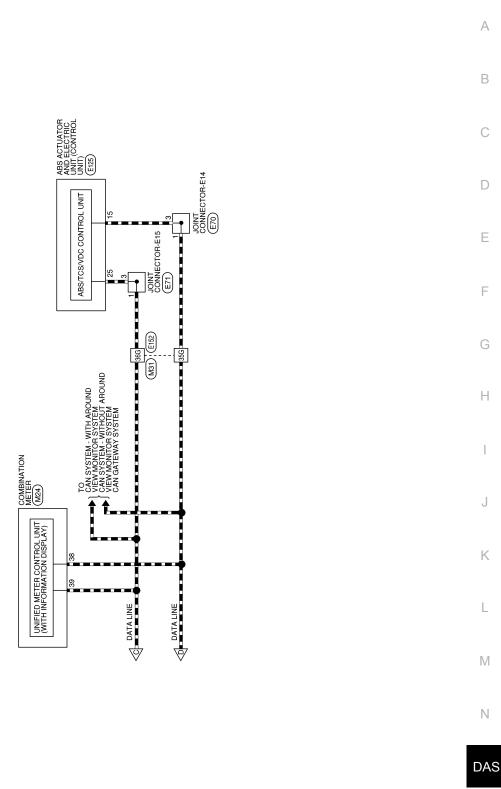
Wiring Diagram



< WIRING DIAGRAM >



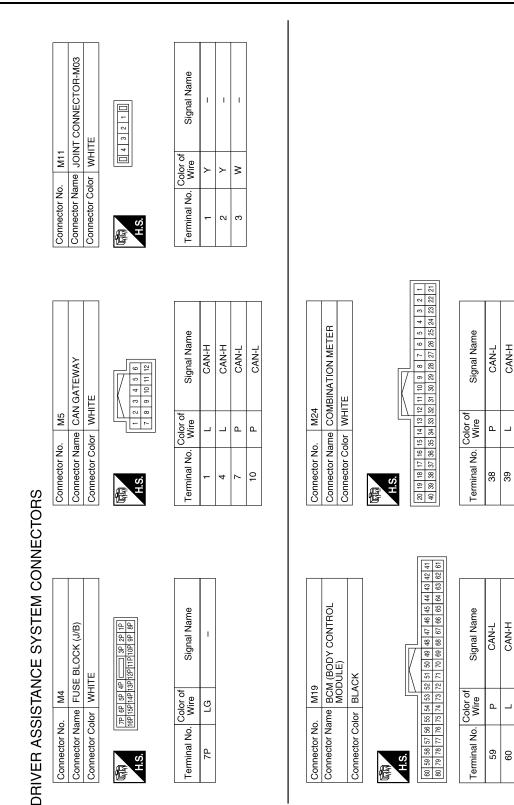
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AAOWA0135GB

Revision: November 2015

2016 Pathfinder

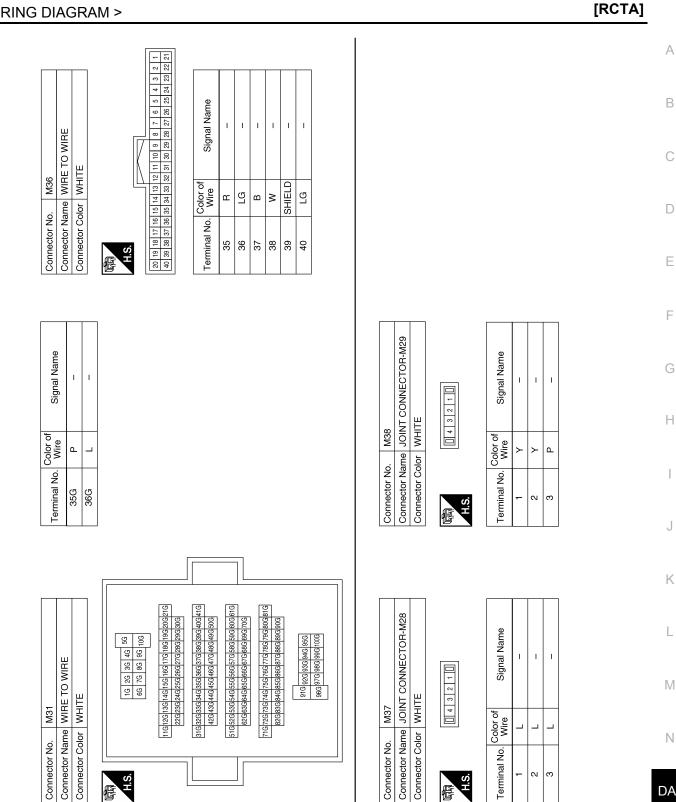


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< WIRING DIAGRAM >

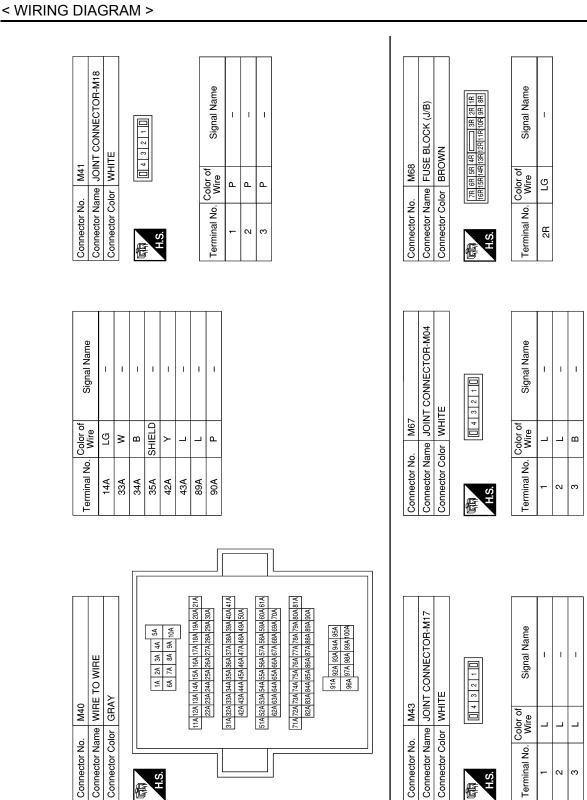
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Revision: November 2015

Connector Color

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Connector No.

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< WIRING DIAGRAM >

Connector Name WIRE TO WIRE

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Connector No.

Connector Color WHITE

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Signal Name

Color of Wire

Terminal No.

Signal Name

Color of Wire

Terminal No. 17

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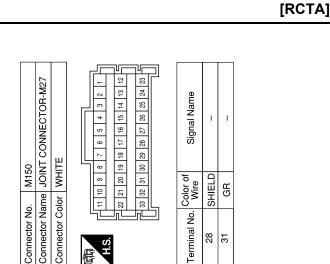
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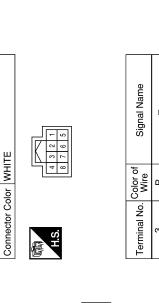
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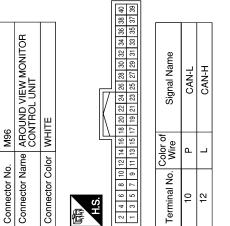
Connector Name WARNING SYSTEM SWITCH

M133

Connector No.

Signal Name	I	I	I	I
Color of Wire	В	GR	ГG	В
Terminal No. Color of Wire	3	5	9	8

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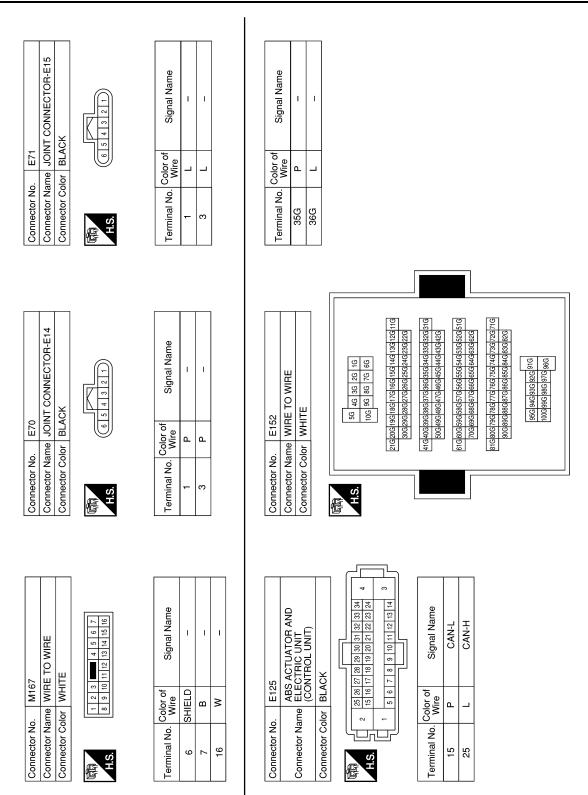
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Connector Name SONAR CONTROL UNIT	Nar	le l	0)	ΙŌ	₽	с,	18	z	É	Ы	5	E	
Connector Color WHITE	Co	Ъ	>	F	Ē								
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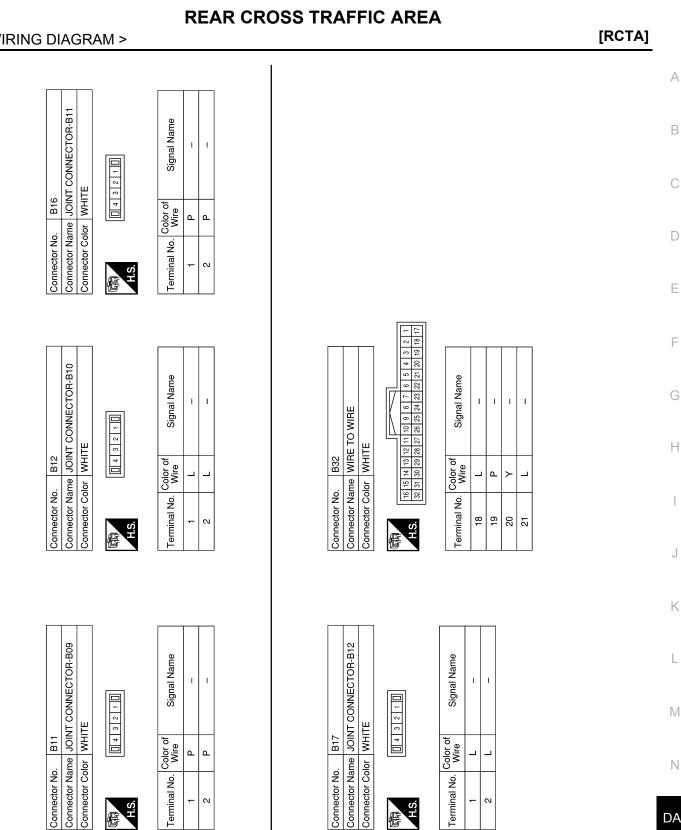
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Signal Name	CAN-H	CAN-L	
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< WIRING DIAGRAM >



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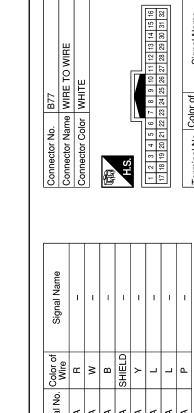
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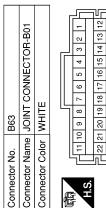
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Signal Name	I	I	I	I	Ι	I	I	I	I	
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Terminal No.	4	5	6	16	17	19	20	21	22	

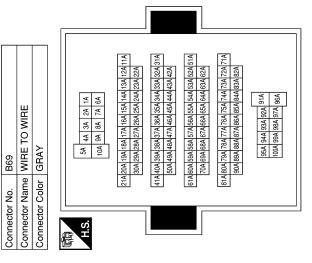
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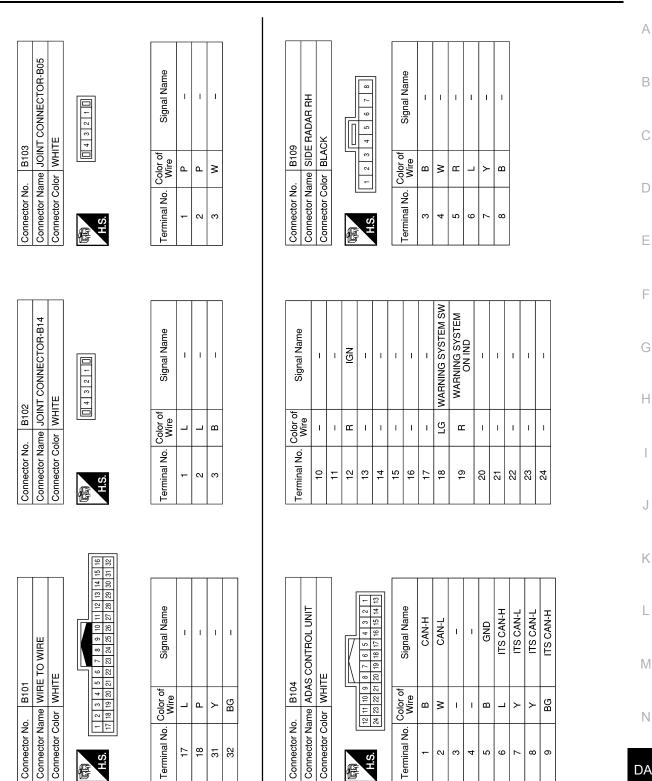
Signal Name	I	I	I	I	I	I	I	I
Color of Wire	œ	Ν	В	SHIELD	٢	Γ	_	٩
Terminal No. Color of Wire	14A	33A	34A	35A	42A	43A	89A	90A



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< WIRING DIAGRAM >

[RCTA]



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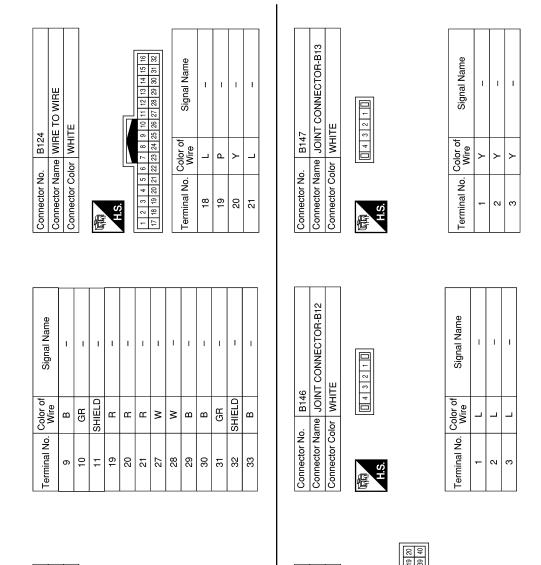
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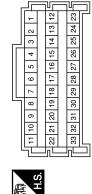
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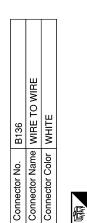
< WIRING DIAGRAM >

[RCTA]









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Signal Name	I	I	I	Ι	I	I
Color of Wire	œ	Гa	В	Μ	SHIELD	ш
Terminal No. Color of Wire	35	36	37	38	39	40

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< WIRING DIAGRAM >

А Connector Name BLIND SPOT WARNING INDICATOR RH Signal Name Signal Name В
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[RCTA]

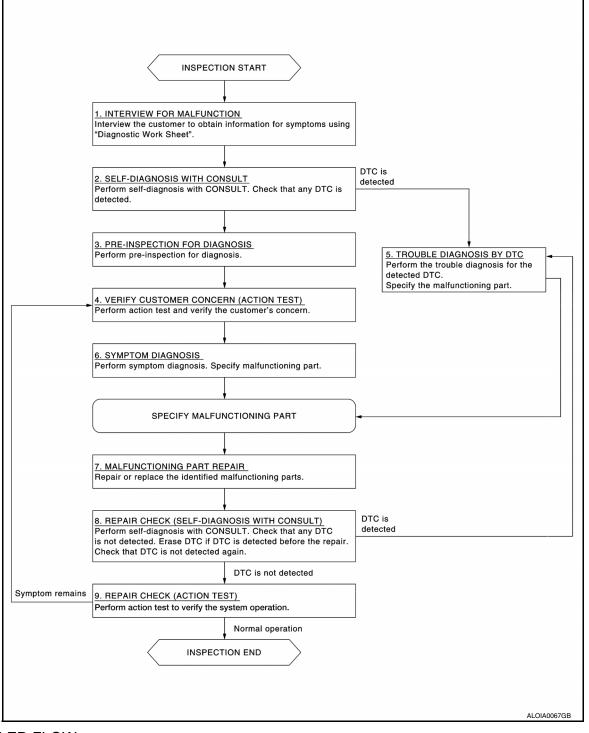
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BASIC INSPECTION DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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:**

DIAGNOSIS AND REPAIR WORK FLOW

DIAGNOSIS AND REPAIR WORK FLOW
< BASIC INSPECTION > [RCTA]
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
 Perform "All DTC Reading" with CONSULT. Check if the DTC is detected on the self-diagnosis results of "SIDE RADAR LEFT/RIGHT" and/or "BSW/ BUZZER".
Is any DTC detected?
YES >> GO TO 5. NO >> GO TO 3.
3. PRE-INSPECTION FOR DIAGNOSIS
Perform pre-inspection for diagnosis. Refer to <u>DAS-135</u> , "Inspection Procedure".
renorm pre-inspection for diagnosis. Refer to <u>DAS-135, inspection Procedure</u> .
>> GO TO 4.
4.ACTION TEST
Perform RCTA system action test to check the operation status. Refer to DAS-136, "Description".
Check if any other malfunctions occur.
>> GO TO 6.
5. TROUBLE DIAGNOSIS BY DTC
1. Check the DTC in the self-diagnosis results.
 Perform trouble diagnosis for the detected DTC. Refer to <u>DAS-115, "DTC Index"</u> (SIDE RADAR LEFT) or <u>DAS-117, "DTC Index"</u> (SIDE RADAR RIGHT) and/or <u>DAS-113, "DTC Index"</u> (ADAS CONTROL UNIT).
NOTE: If "DTC: U1000" is detected, first diagnose the CAN communication system.
>> GO TO 7.
6.SYMPTOM DIAGNOSIS
Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to <u>DAS-171, "Symptom</u> <u>Table"</u> .
>> GO TO 7.
7. MALEUNCTIONING PART REPAIR
Repair or replace the identified malfunctioning parts.
Repair of replace the identified manufationing parts.
>> GO TO 8.
8. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)
1. Erases self-diagnosis results.
 Perform "All DTC Reading" again after repairing or replacing the specific items. Check if any DTC is detected in self-diagnosis results of "SIDE RADAR LEFT/RIGHT" and "BSW/ BUZZER".
Is any DTC detected?
YES >> GO TO 5.
NO $>>$ GO TO 9.
9. REPAIR CHECK (ACTION TEST)
Perform the RCTA system action test. Check that the malfunction symptom is solved or no other symptoms occur.

Is there a malfunction symptom?

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

YES >> GO TO 4. NO >> Inspection End.

PRE-INSPECTION FOR DIAGNOSIS	
< BASIC INSPECTION >	[RCTA]
PRE-INSPECTION FOR DIAGNOSIS	
Inspection Procedure	INFOID:000000012547767
1. CHECK SONAR SENSORS INSTALLATION ON THE REAR BUMPER COVER	
Are there any foreign materials obstructing the view of any sonar sensor?	
YES >> Clean the rear bumper and the sonar detection window. NO >> GO TO 2.	
2.CHECK REAR BUMPER NEAR THE SIDE RADAR	
Is rear bumper near the side radar contaminated with foreign materials?	
YES >> Clean the rear bumper. NO >> GO TO 3.	
3. 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 4.	
4. CHECK SIDE RADAR INSTALLATION CONDITION	
Check side radar installation condition (installation position, properly tightened, a bent bracket <u>Is it properly installed?</u>	:).
YES >> Inspection End. NO >> Install side radar properly.	

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ACTION TEST

< BASIC INSPECTION >

ACTION TEST

Description

Always perform the RCTA system action test to check that the system operates normally after replacing the side radar (left or right), or repairing any RCTA 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 <u>DAS-93</u>, "Precaution for Backup Collision Intervention".
- System description for Rear Cross Traffic Alert: Refer to <u>DAS-98</u>, "System Description".
- Normal operating condition: Refer to DAS-172, "Description".

Work Procedure

INFOID:000000012547769

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 <u>DAS-7</u>, "<u>Precaution for BSW System Service</u>".
 System description: Refer to <u>DAS-13</u>, "<u>System Description</u>".
- Normal operating condition: Refer to DAS-172, "Description".

1.RCTA SYSTEM ACTION TEST

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

Vehicle condition/ Driver's operation				Action		
RCTA ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Shift lever position	Status of ve- hicle detec- tion within detection area	Indication on the BSW indicator	Buzzer	
OFF	_	_	—	OFF	OFF	
	More than ap- prox. 8 (5)	_	_	OFF	OFF	
	Approx. 8 (5) or less Reverse (R)	Except (R)		OFF	OFF	
		8 (5)	Vehicle is detected	ON	ON	
				Blink	One single beep	
ON			Several ve- hicles ap- proaching in detection zone behind	200 ms Indicator ON Indicator OFF 200 ms JSOIA0251GB	60 ms Buzzer ON Buzzer OFF 570 ms	
		Object be- hind vehicle and several vehicles ap- proaching in detection zone	Blink 200 ms Indicator ON Indicator OFF 200 ms 200 ms JSOIA0251GB	Sonar chime sounds		

ACTION TEST

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< BASIC INSPECTION >	[RCTA]
NOTE: • If vehicle speed exceeds approximately 8 km/h (5MPH), RCTA function will stop operating	until the vehi-
cle speed becomes approximately 8km/h (5MPH) or lower.Time shown in the figure is approximate time.	
>> Inspection End.	

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS C1A00 CONTROL UNIT

DTC Logic

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A00	CONTROL UNIT	ADAS control unit internal malfunction	ADAS control unit

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/BUZZER".

Is "C1A00" detected as the current malfunction?

YES >> Refer to <u>DAS-138</u>, "Diagnosis Procedure". NO >> Inspection End.

Diagnosis Procedure

1.CHECK SELF-DIAGNOSIS RESULTS

Check if any DTC other than "C1A00" is detected in "Self Diagnostic Result" of "BSW/BUZZER".

Is any DTC detected?

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-113, "DTC Index"</u>.
- NO >> Replace the ADAS control unit. Refer to <u>DAS-174</u>, "Removal and Installation".

INFOID:000000013147264

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2 [RCTA]

< DTC/CIRCUIT DIAGNOSIS >

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Logic

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DTC DETECTION LOGIC

DTC	Trouble diagnosis DTC detecting condition Possible of		Possible causes
C1A01	POWER SUPPLY CIR	The battery voltage sent to ADAS control unit re- mains less than 7.9 V for 5 seconds	Connector, harness, fuse
C1A02	POWER SUPPLY CIR 2	The battery voltage sent to ADAS control unit re- mains more than 19.3 V for 5 seconds	ADAS control unit
OTC CONFI	RMATION PROC	EDURE	
1.PERFORM	1 DTC CONFIRMA	TION PROCEDURE	
3. Perform "	3SW system ON. All DTC Reading" the "C1A01" or "C	with CONSULT. C1A02" is detected as the current malfur	nction in "Self Diagnostic Result" of
YES >> R	efer to <u>DAS-139, '</u>	as the current malfunction? Diagnosis Procedure".	
	efer to <u>GI-47, "Inte</u> Procedure	ermittent incident".	INFOID:000000013147266
		NIT POWER SUPPLY AND GROUND CI	
<u>Diagnosis Pro</u>		d circuit of ADAS control unit. Refer to [DAS-164, "ADAS CONTROL UNIT :
•	eplace the ADAS	control unit. Refer to DAS-174, "Removal	and Installation".
		e maitunctioning parts	
	epair or replace th	e manufictioning parts.	
	epair or replace th	e mananetoning parts.	

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C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:000000013147267

IRCTA1

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) re- ceived by the ADAS control unit via CAN com- munication, are inconsistent	 Wheel speed sensor ABS actuator and electric unit (control unit) ADAS control unit

NOTE:

If DTC "C1A03" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-148.</u> "ADAS CONTROL UNIT : 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/BUZZER".

Is "C1A03" detected as the current malfunction?

- YES >> Refer to DAS-140, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000013147268

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1A03" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-148, "ADAS CONTROL UNIT : DTC Logic"</u>.

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 <u>BRC-47, "DTC Index"</u> (type 1) or <u>BRC-206, "DTC Index"</u> (type 2).
- NO >> Replace the ADAS control unit. Refer to <u>DAS-174, "Removal and Installation"</u>.

C1B50 SIDE RADAR MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1B50 SIDE RADAR MALFUNCTION

DTC LOGIC

INFOID:000000013147269

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DTC DETECTION LOGIC В DTC Trouble diagnosis name DTC detecting condition Possible causes SIDE RDR MALFUNC-C1B50 Side radar malfunction Side radar TION DTC CONFIRMATION PROCEDURE D 1.PERFORM DTC CONFIRMATION PROCEDURE 1. Start the engine. Ε 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? F >> Refer to DAS-141, "Diagnosis Procedure". YES NO >> Inspection End. Diagnosis Procedure INFOID:000000013147270 1.CHECK SELF-DIAGNOSIS RESULT Н 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-1 32, "DTC Index" (SIDE RADAR RIGHT) or DAS-30, "DTC Index" (SIDE RADAR LEFT). NO >> Replace the side radar. Refer to DAS-175, "Removal and Installation". Κ L M

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C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

DTC Logic

INFOID:000000013147271

[RCTA]

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 circuitBSW indicatorSide 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-142, "Diagnosis Procedure".
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000013147272

Regarding Wiring Diagram information, refer to DAS-119. "Wiring Diagram".

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		Continuity	
Connector	Terminal	Ground	Continuity	
B416 (LH)	4	oround	No	
B109 (RH)	4		INU	

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 <u>DAS-175, "Removal and Installation"</u>.
- NO >> Inspection End.

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

DTC Logic

[RCTA]

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INFOID:000000013147273

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	e diagnosis name DTC detecting condition Possible cause					
C1B52	BSW/BSI IND OPEN CIR	Open circuit in BSW indicator circuit is detected.	BSW indicator circuitBSW indicatorSide radar				
DTC CC	NFIRMATION PROC	EDURE					
1.PERF	ORM DTC CONFIRMA	TION PROCEDURE					
	the engine.						
 Turn the BSW system ON. Perform "All DTC Reading" with CONSULT. 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-143, "Diagnosis Procedure". NO >> Inspection End. 							
Diagnosis Procedure							
Regarding Wiring Diagram information, refer to DAS-119. "Wiring Diagram".							
1. CHECK BSW INDICATOR CIRCUIT FOR OPEN 1							

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 BSW indicator harness connector.

K	Side radar BSW indicator Continuity				
	Continuity	Terminal	Connector	Terminal	Connector
L	Yes	1	D21 (LH)	4	B416 (LH)
	165	I	D111 (RH)	4	B109 (RH)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the harnesses or connectors.

2.CHECK BSW INDICATOR CIRCUIT FOR OPEN 2

Check continuity between BSW indicator harness connector and ground.

BSW in	ndicator		Continuity	DAS
Connector	Terminal	Ground	Continuity	
D21 (LH)	4	Gibuna	Yes	P
D111 (RH)	4		165	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK SIDE RADAR VOLTAGE OUTPUT

1. Connect side radar harness connector.

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

2. Check voltage between BSW indicator harness connector and ground.

BSW indicator			Condition	Standard	Reference voltage
Connector	Terminal		Condition	voltage	(Approx.)
D21 (LH)		Ground	Ignition switch	5 5 4014	0.14
D111 (RH)			$OFF \Rightarrow ON$ (Approx. 2 sec.)	5.5 - 16 V	6 V

Is the inspection result normal?

YES >> Replace BSW indicator. Refer to <u>DAS-176</u>, "Removal and Installation".

NO >> Replace side radar. Refer to <u>DAS-175</u>, "Removal and Installation".

C1B53 SIDE RADAR RIGHT MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1B53 SIDE RADAR RIGHT MALFUNCTION

DTC Logic

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INFOID:000000013147275

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B53	SIDE RDR R MALF	ADAS control unit detects that side radar RH has a malfunction.	Side radar RH
DTC CON	IFIRMATION PROCED	URE	
1. PERFO	RM DTC CONFIRMATIO	N PROCEDURE	
 Turn th Perfor 	ne engine. ne BSW system ON. m "All DTC Reading" with if the "C1B53" is detected	CONSULT. I as the current malfunction in "Self Diagno	ostic Result" of "BSW/BUZZER".
<u>ls "C1B53"</u> YES >:	<u>detected as the current n</u> Refer to <u>DAS-145, "Diac</u> Refer to <u>GI-47, "Intermit</u>	nalfunction?	
Diagnos	is Procedure		INFOID:000000013147276
1 .CHECK	SELF-DIAGNOSIS RES	ULTS	
		nan "C1B53" in "Self Diagnostic Result" of	"BSW/BUZZER"
	detected?		BOWBOLLER.
YES >	> Perform the CAN comm	nunication system inspection. Repair or re AS CONTROL UNIT : DTC Logic".	eplace the malfunctioning parts.
•	SELF-DIAGNOSIS RES	ULTS	
		f Diagnostic Result" of "SIDE RADAR RIG	ЭНТ"
	<u>C detected?</u>		
YES >:	Perform diagnosis on th DAS-117, "DTC Index" (e detected DTC and repair or replace the SIDE RADAR RIGHT).	e malfunctioning parts. Refer to
NO >:		rol unit. Refer to DAS-174, "Removal and	Installation".

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C1B54 SIDE RADAR LEFT MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1B54 SIDE RADAR LEFT MALFUNCTION

DTC Logic

INFOID:000000013147277

[RCTA]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
C1B54	SIDE RDR L MALF	ADAS control unit 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/BUZZER".

Is "C1B54" detected as the current malfunction?

- YES >> Refer to DAS-146, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000013147278

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "C1B54" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-148, "ADAS CONTROL UNIT : DTC Logic"</u>.

NO >> GO TO 2.

2. CHECK SELF-DIAGNOSIS RESULTS

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

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-115. "DTC Index"</u> (SIDE RADAR LEFT).
- NO >> Replace the ADAS control unit. Refer to <u>DAS-174, "Removal and Installation"</u>.

C1B55 RADAR BLOCKAGE

< DTC/CIRCUIT DIAGNOSIS >

C1B55 RADAR BLOCKAGE

DTC Logic

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INFOID:000000013147279

INFOID:000000013147280

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 deposit- ed.

NOTE:

D 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".) Е

- 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

1.CHECK THE REAR BUMPER

Check rear bumper near the side radar for contamination with foreign materials.

>> GO TO 2.

2.CHECK THE SIDE RADAR

Check side radar and the side radar outskirts for contamination with foreign materials.

>> GO TO 3.

${f 3}$. 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 are stains or foreign materials.

2. Ask if there is any temporary ambient condition such as splashing water, mist or fog.

Ask if there is any object such as ice, frost or dirt obstructing the side radar. 3.

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.

< DTC/CIRCUIT DIAGNOSIS >

U1000 CAN COMM CIRCUIT ADAS CONTROL UNIT

ADAS CONTROL UNIT : Description

INFOID:000000013147281

IRCTA1

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-38, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

- ITS 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.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

ADAS CONTROL UNIT : DTC Logic

INFOID:000000013147282

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	If ADAS control unit is not transmitting or receiv- ing ITS communication signal for 2 seconds or more	ITS communication system

NOTE:

If "U1000" is detected, first diagnose the CAN communication system.

ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000013147283

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/BUZZER".

Is "U1000" detected as the current malfunction?

- YES >> Refer to LAN-21, "Trouble Diagnosis Flow Chart".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:000000013147284

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 <u>LAN-38</u>, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

• ITS 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.

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

· ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR LH : DTC Logic

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 ITS communication signal for 2 seconds or more	ITS communication system	

SIDE RADAR LH : Diagnosis Procedure

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-21, "Trouble Diagnosis Flow Chart".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

SIDE RADAR RH

SIDE RADAR RH : Description

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 <u>LAN-38</u>, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

ITS COMMUNICATION

- ITS 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.
- ITS communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

SIDE RADAR RH : DTC Logic

INFOID:000000013147288

INFOID:000000013147289

DTC DETECTION LOGIC

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

SIDE RADAR RH : Diagnosis Procedure

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-21, "Trouble Diagnosis Flow Chart".

DAS-149

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INFOID:000000013147285

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< DTC/CIRCUIT DIAGNOSIS >

NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS > U1010 CONTROL UNIT (CAN) SIDE RADAR LH

SIDE RADAR LH : Description

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

SIDE RADAR LH : DTC Logic

Trouble diagnosis name

DTC DETECTION LOGIC

DTC

U1010	CONTROL UNIT (CAN)	If side radar LH detects malfunction by CAN controller initial diagnosis.	Side radar LH	E
SIDE R	ADAR LH : Diagno	sis Procedure	INFOID:000000013147292	
1 .CHEC	K SELF-DIAGNOSIS RE	ESULT		F
2. Perfo		ith CONSULT. ted as the current malfunction in "Self Diagnostic I	Result" of "SIDE RADAR	G
YES NO	<u>0" detected as the curren</u> >> Replace the side rada >> Inspection End. RADAR RH	<u>t malfunction?</u> ar LH. Refer to <u>DAS-175, "Removal and Installation</u> "	"·	Н
SIDE R	ADAR RH : Descri	otion	INFOID:000000013147293	I
CAN controller controls the communication of ITS communication signal and the error detection. SIDE RADAR RH : DTC Logic				
DTC DE	TECTION LOGIC			Κ

DTC detecting condition

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause	1
U1010	CONTROL UNIT (CAN)	If Side radar RH detects malfunction by CAN controller initial diagnosis.	Side radar RH	

SIDE RADAR RH : Diagnosis Procedure

1. CHECK SELF-DIAGNOSIS RESULT

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

Is "U1010" detected as the current malfunction?

YES >> Replace the side radar RH. Refer to DAS-175, "Removal and Installation".

NO >> Inspection End.



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INFOID:000000013147291

Possible cause

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INFOID:000000013147295

< DTC/CIRCUIT DIAGNOSIS >

U0104 ADAS CAN 1

DTC Logic

INFOID:000000013147296

IRCTA1

DTC DETECTION LOGIC

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

NOTE:

If DTC "U0104" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-115, "DTC</u> <u>Index"</u> (SIDE RADAR LEFT), <u>DAS-117, "DTC Index"</u> (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 <u>DAS-152</u>, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000013147297

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 <u>DAS-149</u>, "<u>SIDE RADAR LH</u> : <u>DTC Logic</u>" (SIDE RADAR LEFT), <u>DAS-149</u>, "<u>SIDE RADAR RH</u> : <u>DTC Logic</u>" (SIDE RADAR RIGHT).
- NO >> GO TO 2.

2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "BSW/BUZZER".

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-113, "DTC Index"</u>.
- NO >> Replace side radar LH or RH. Refer to DAS-175, "Removal and Installation"

U0121 VDC CAN 2

< DTC/CIRCUIT DIAGNOSIS >

U0121 VDC CAN 2

DTC DETECTION LOGIC

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INFOID:000000013147298

DTC DTC detecting condition Possible causes Trouble diagnosis name If ADAS control unit detects an error signal ABS actuator and electric unit (control U0121 VDC CAN CIR2 that is received from ABS actuator and electric unit) unit (control unit) via CAN communication NOTE: D If DTC "U0121" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to DAS-148. "ADAS CONTROL UNIT : DTC Logic". Е DTC CONFIRMATION PROCEDURE 1.PERFORM DTC CONFIRMATION PROCEDURE 1. Start the engine. F 2. Turn the BSW system ON. 3. Perform "All DTC Reading" with CONSULT. Check if the "U0121" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BUZZER". 4. Is "U0121" detected as the current malfunction? YES >> Refer to DAS-153, "Diagnosis Procedure". >> Refer to GI-47, "Intermittent Incident". NO Н Diagnosis Procedure INFOID:000000013147299 1.CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0121" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? J YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-148, "ADAS CONTROL UNIT : DTC Logic". NO >> GO TO 2. 2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS RESULTS Κ Check if any DTC is detected in "Self Diagnostic Result" of "ABS". Is any DTC detected? L YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to BRC-47, "DTC Index" (type 1) or BRC-206, "DTC Index" (type 2). >> Replace the ADAS control unit. Refer to DAS-175, "Removal and Installation". NO Μ

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U0401 ECM CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U0401 ECM CAN 1

DTC Logic

INFOID:000000013147300

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0401	ECM CAN CIR1	If ADAS control unit 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 <u>DAS-148.</u> "ADAS CONTROL UNIT : 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/BUZZER".

Is "U0401" detected as the current malfunction?

- YES >> Refer to DAS-154, "Diagnosis Procedure".
- NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000013147301

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U0401" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-148, "ADAS CONTROL UNIT : DTC Logic"</u>.
- NO >> GO TO 2.

2. CHECK ECM SELF-DIAGNOSIS RESULTS

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

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>EC-104, "DTC Index"</u> (USA and Canada) or <u>EC-592, "DTC Index"</u> (Mexico).
- NO >> Replace the ADAS control unit. Refer to <u>DAS-175, "Removal and Installation"</u>.

U0402 TCM CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U0402 TCM CAN 1

DTC Logic

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INFOID:000000013147302

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U0402	TCM CAN CIRC1	If ADAS control unit detects an error signal that is received from TCM via CAN communication	ТСМ
	02" is detected along with D TROL UNIT : DTC Logic".	TC "U1000", first diagnose the DTC "U10	000". Refer to <u>DAS-148.</u>
DTC CONF	IRMATION PROCEDURE		
1.PERFORI	M DTC CONFIRMATION PRO	DCEDURE	
3. Perform	BSW system ON. "All DTC Reading" with CONS		
l <u>s "U0402" de</u> YES >> F	the 00402 is detected as the etected as the current malfund Refer to <u>DAS-155, "Diagnosis</u> Refer to <u>GI-47, "Intermittent Ir</u>	Procedure".	SUIT OF BSW/BUZZER.
Diagnosis	Procedure		INFOID:000000013147303
1 .check s	ELF-DIAGNOSIS RESULTS		
Check if "U10	000" is detected other than "U	0402" in "Self Diagnostic Result" of "BSW/E	BUZZER".
F		tion system inspection. Repair or replace t NTROL UNIT : DTC Logic".	he malfunctioning parts.
2. снеск т	CM SELF-DIAGNOSIS RESU	JLTS	
Check if any Is any DTC d	•	nostic Result" of "TRANSMISSION".	
YES >> F	Perform diagnosis on the dete TM-65, "DTC Index" (RE0F10	ected DTC and repair or replace the malfu E) or <u>TM-286, "DTC Index"</u> (RE0F10J).	
NO >> F	Replace the ADAS control uni	t. Refer to DAS-174, "Removal and Installa	tion .

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< DTC/CIRCUIT DIAGNOSIS >

U0405 ADAS CAN 2

DTC Logic

[RCTA]

INFOID:000000013147304

DTC DETECTION LOGIC

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

NOTE:

If DTC "U0405" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-149</u>, <u>"SIDE RADAR LH : DTC Logic"</u> (SIDE RADAR LEFT), <u>DAS-149</u>, <u>"SIDE RADAR RH : DTC Logic"</u> (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 <u>DAS-156</u>, "Diagnosis Procedure".

NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000013147305

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 <u>DAS-149</u>, "<u>SIDE RADAR LH</u> : <u>DTC Logic</u>" (SIDE RADAR LEFT), <u>DAS-149</u>, "<u>SIDE RADAR RH</u> : <u>DTC Logic</u>" (SIDE RADAR RIGHT).

NO >> GO TO 2.

2. CHECK ADAS CONTROL UNIT SELF-DIAGNOSIS RESULTS

Check if any DTC is detected in "Self Diagnostic Result" of "BSW/BUZZER".

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-113, "DTC Index"</u>.
- NO >> Replace side radar LH or RH. Refer to <u>DAS-175</u>, "Removal and Installation".

U0415 VDC CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U0415 VDC CAN 1

DTC DETECTION LOGIC

DTC Logic

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INFOID:000000013147306

DTC DTC detecting condition Possible causes Trouble diagnosis name If ADAS control unit detects an error signal ABS actuator and electric unit (control U0415 VDC CAN CIR1 that is received from ABS actuator and electric unit) unit (control unit) via CAN communication NOTE: If DTC "U0415" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to DAS-148, "ADAS CONTROL UNIT : 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. Check if the "U0415" is detected as the current malfunction in "Self Diagnostic Result" of "BSW/BUZZER". 4. Is "U0415" detected as the current malfunction? YES >> Refer to DAS-157, "Diagnosis Procedure". >> Refer to GI-47, "Intermittent Incident". NO Diagnosis Procedure INFOID:000000013147307 1.CHECK SELF-DIAGNOSIS RESULTS Check if "U1000" is detected other than "U0415" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected? YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-148, "ADAS CONTROL UNIT : 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-47, "DTC Index" (type 1) or BRC-206, "DTC Index" (type 2).

NO >> Replace the ADAS control unit. Refer to <u>DAS-174</u>, "Removal and Installation".

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U1503 SIDE RDR L CAN 2

< DTC/CIRCUIT DIAGNOSIS >

U1503 SIDE RDR L CAN 2

DTC Logic

INFOID:000000013147308

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1503	SIDE RDR L CAN CIR 2	ADAS control unit detects an error signal that is re- ceived from side radar LH via ITS 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-149, "SIDE RADAR LH : DTC Logic" for DTC "U1000".
- Refer to <u>DAS-163</u>, "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/BUZZER".

Is "U1503" detected as the current malfunction?

YES >> Refer to <u>DAS-158</u>, "Diagnosis Procedure".

NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:000000013147309

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" or "U1508" is detected other than "U1503" in "Self Diagnostic Result" of "BSW/BUZZER". <u>Is "U1000" or "U1508" detected?</u>

- YES-1 >> U1000 detected: Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-148</u>, "ADAS CONTROL UNIT : <u>DTC Logic</u>".
- YES-2 >> U1508 detected: Refer to DAS-163, "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".

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-115. "DTC Index"</u>.
- NO >> Replace the ADAS control unit. Refer to <u>DAS-174, "Removal and Installation"</u>.

U1504 SIDE RDR L CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U1504 SIDE RDR L CAN 1

DTC Logic

[RCTA]

INFOID:000000013147310

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes			
U1504	11504SIDE RDR L CAN CIR 1ADAS control unit detects an error signal that is received from side radar LH via ITS communicationSide radar LH					
Refer to <u>DA</u> Refer to <u>DA</u>	<u>S-149, "SIDE RADAR LH</u> <u>S-163, "DTC Logic"</u> for D		DTC "U1000" or "U1508".			
	RMATION PROCEDUR					
Perform "	BSW system ON. All DTC Reading" with CC					
<u>"U1504" de</u> ⁄ES >> R	he "U1504" is detected as <u>tected as the current malf</u> tefer to <u>DAS-159, "Diagno</u> tefer to <u>GI-47, "Intermitten</u>	sis Procedure".	esult" of "BSW/BUZZER".			
	Procedure	<u>incluent</u> .	INFOID:000000013147311			
	ELF-DIAGNOSIS RESULT					
<u>"U1000" or</u> (ES-1 >> U	<u>"U1508" detected?</u> 1000 detected: Perform t	d other than "U1504" in "Self Diagnostic Resu he CAN communication system inspection. I DAS-148, "ADAS CONTROL UNIT : DTC Lo	Repair or replace the mal-			
/ES-2 >> U NO >> G	1508 detected: Refer to O TO 2.	AS-163, "DTC Logic".				
	DE RADAR LH SELF-DIA	agnostic Result" of "SIDE RADAR LEFT".				
any DTC de	etected?					
	erform diagnosis on the c <u>AS-115, "DTC Index"</u> .	detected DTC and repair or replace the malf	unctioning parts. Refer to			

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U1505 SIDE RDR R CAN 2

< DTC/CIRCUIT DIAGNOSIS >

U1505 SIDE RDR R CAN 2

DTC Logic

INFOID:000000013147312

[RCTA]

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1505	SIDE RDR R CAN CIR 2	ADAS control unit detects an error signal that is re- ceived from side radar RH via ITS communication	Side radar RH

NOTE:

If DTC "U1505" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-149</u>, <u>"SIDE RADAR RH : DTC Logic"</u>.

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/BUZZER".

Is "U1505" detected as the current malfunction?

- YES >> Refer to DAS-160, "Diagnosis Procedure".
- NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000013147313

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1505" in "Self Diagnostic Result" of "BSW/BUZZER". Is "U1000" detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-148</u>, "ADAS CONTROL UNIT : <u>DTC Logic"</u>.

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".

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-117. "DTC Index"</u>.
- NO >> Replace the ADAS control unit. Refer to <u>DAS-174</u>, "Removal and Installation".

U1506 SIDE RDR R CAN 1

< DTC/CIRCUIT DIAGNOSIS >

U1506 SIDE RDR R CAN 1

DTC Logic

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INFOID:000000013147314

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes		
U1506	SIDE RDR R CAN CIR 1	ADAS control unit detects an error signal that is re- ceived from side radar RH via ITS communication Side radar RH			
	06" is detected along with <u>R RH : DTC Logic"</u> .	DTC "U1000", first diagnose the DTC "U1	000". Refer to <u>DAS-149.</u>		
DTC CONF	IRMATION PROCEDUR	E			
1.PERFOR	M DTC CONFIRMATION P	ROCEDURE			
3. Perform	BSW system ON. "All DTC Reading" with CC	DNSULT. the current malfunction in "Self Diagnostic Re	esult" of "BSW/BUZZER".		
	etected as the current malf	_			
	Refer to <u>DAS-161, "Diagno</u>				
	Refer to <u>GI-47, "Intermitten</u>	<u>t incident</u> .			
Jiagnosis	Procedure		INFOID:000000013147315		
1. снеск s	ELF-DIAGNOSIS RESULT	S			
Check if "U1	000" is detected other than	"U1506" in "Self Diagnostic Result" of "BSW	/BUZZER".		
ls "U1000" d					
		ication system inspection. Repair or replace CONTROL UNIT : DTC Logic".	the malfunctioning parts.		
	GO TO 2.	CONTROL ONT . DTO LOGIC .			
110		AGNOSIS RESULTS			
•	SIDE RADAR RH SELF-DIA				
2. снеск s		iagnostic Result" of "SIDE RADAR RIGHT".			
2.CHECK S Check if any Is any DTC c	DTC is detected in "Self Di letected?	iagnostic Result" of "SIDE RADAR RIGHT".			
2.CHECK S Check if any Is any DTC o YES >> I	DTC is detected in "Self Di letected? Perform diagnosis on the c		unctioning parts. Refer to		
2.CHECK S Check if any Is any DTC c YES >> I	DTC is detected in "Self Di <u>detected?</u> Perform diagnosis on the c <u>DAS-117. "DTC Index"</u> .	iagnostic Result" of "SIDE RADAR RIGHT".			

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U1507 LOST COMM(SIDE RDR R)

< DTC/CIRCUIT DIAGNOSIS >

U1507 LOST COMM(SIDE RDR R)

DTC Logic

INFOID:000000013147316

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DTC DETECTION LOGIC

DTC	Trouble diagnosis name DTC detecting condition		Possible causes
U1507	LOST COMM(SIDE RDR R)	ADAS control unit cannot receive ITS commu- nication signal from side radar RH for 2 sec- onds or more	ITS communication systemSide radar RH

NOTE:

If DTC "U1507" is detected along with DTC "U1000", first diagnose the DTC "U1000". Refer to <u>DAS-149.</u> "SIDE RADAR RH : 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/BUZZER".

Is "U1507" detected as the current malfunction?

YES >> Refer to DAS-162, "Diagnosis Procedure".

NO >> Refer to <u>GI-47, "Intermittent Incident"</u>.

Diagnosis Procedure

INFOID:000000013147317

1.CHECK SELF-DIAGNOSIS RESULTS

Check if "U1000" is detected other than "U1507" in "Self Diagnostic Result" of "BSW/BUZZER".

Is "U1000" detected?

- YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to <u>DAS-148, "ADAS CONTROL UNIT : DTC Logic"</u>.
- 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".

- YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to <u>DAS-117, "DTC Index"</u>.
- NO >> Replace the ADAS control unit. Refer to <u>DAS-174</u>, "Removal and Installation".

U1508 LOST COMM(SIDE RDR L)

< DTC/CIRCUIT DIAGNOSIS >

U1508 LOST COMM(SIDE RDR L)

DTC Logic

[RCTA]

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INFOID:000000013147318

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1508	LOST COMM(SIDE RDR L)	ADAS control unit cannot receive ITS commu- nication signal from side radar LH for 2 sec- onds or more	Side radar LH harness connectorITS communication systemSide radar LH
OTE: TC "U1508"	is detected along with	DTC "U1000", first diagnose the DTC "	U1508".
TC CONFII	RMATION PROCED	URE	
.PERFORM	I DTC CONFIRMATIO	N PROCEDURE	
. Start the			
. Perform "	3SW system ON. All DTC Reading" with		
. Perform " . Check if t <u>s "U1508" de</u> YES >> R	All DTC Reading" with	l as the current malfunction in "Self Diag <u>nalfunction?</u> <u>gnosis Procedure</u> ".	nostic Result" of "BSW/BUZZER".
. Perform " . Check if t <u>s "U1508" de</u> YES >> R NO >> R	All DTC Reading" with he "U1508" is detected tected as the current n efer to <u>DAS-163, "Dia</u> g	l as the current malfunction in "Self Diag <u>nalfunction?</u> <u>gnosis Procedure</u> ".	nostic Result" of "BSW/BUZZER".
. Perform " . Check if t <u>s "U1508" de</u> YES >> R NO >> R Diagnosis	All DTC Reading" with he "U1508" is detected tected as the current n efer to <u>DAS-163, "Diac</u> efer to <u>GI-47, "Intermit</u> Procedure DE RADAR HARNESS	as the current malfunction in "Self Diag <u>nalfunction?</u> <u>gnosis Procedure</u> ". <u>ttent Incident"</u> .	
. Perform " . Check if t <u>s "U1508" de</u> YES >> R NO >> R Diagnosis I .CHECK SI . Turn the i	All DTC Reading" with he "U1508" is detected tected as the current n efer to <u>DAS-163, "Diag</u> efer to <u>GI-47, "Intermit</u> Procedure DE RADAR HARNESS gnition switch OFF. e terminals and connect	as the current malfunction in "Self Diag <u>nalfunction?</u> <u>gnosis Procedure</u> ". <u>ttent Incident"</u> .	INFOID:000000013147319
Perform " Check if the <u>"U1508" de</u> YES >> R NO >> R iagnosis CHECK SI CHECK SI Turn the i Check the nector sid	All DTC Reading" with he "U1508" is detected tected as the current n efer to <u>DAS-163, "Diag</u> efer to <u>GI-47, "Intermit</u> Procedure DE RADAR HARNESS gnition switch OFF. e terminals and connect	as the current malfunction in "Self Diag <u>nalfunction?</u> <u>gnosis Procedure</u> ". <u>ttent Incident"</u> . S CONNECTOR	INFOID:000000013147319
. Perform " Check if the constraints of the constra	All DTC Reading" with he "U1508" is detected tected as the current n efer to <u>DAS-163</u> , "Diag efer to <u>GI-47</u> , "Intermit Procedure DE RADAR HARNESS gnition switch OFF. e terminals and connect b). <u>on result normal?</u> erform the CAN comn	as the current malfunction in "Self Diag <u>nalfunction?</u> <u>gnosis Procedure"</u> . <u>ttent Incident"</u> . S CONNECTOR ctors of the side radar LH for damage, I nunication system inspection. Repair or <u>ple Diagnosis Flow Chart"</u> .	INFOID:000000013147319 Dend and short (unit side and con-

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POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT ADAS CONTROL UNIT

ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:000000013147320

[RCTA]

Regarding Wiring Diagram information, refer to DAS-119, "Wiring Diagram".

1.CHECK FUSES

Check if any of the following fuses are blown:

Signal name	Fuse No.
Ignition power supply	30 (10A)

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 ADAS CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between ADAS control unit harness connector and ground.

	Terminal					
(*	(+) (–)			Standard voltage	Reference voltage	
ADAS co	ADAS control unit		Ignition switch	Standard Voltage	(Approx.)	
Connector	Terminal Ground					
B104	B104 12		OFF	0 - 0.1 V	0 V	
B104	12		ON	9.5 - 16 V	Battery voltage	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ADAS control unit power supply circuit.

3.CHECK ADAS CONTROL UNIT GROUND CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect the ADAS control unit connector.

3. Check for continuity between ADAS control unit harness connector and ground.

ADAS co	ontrol unit		Continuity
Connector	Terminal	Ground	Continuity
B104	5		Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair the ADAS control unit ground circuit.

SIDE RADAR LH

SIDE RADAR LH : Diagnosis Procedure

Regarding Wiring Diagram information, refer to DAS-119, "Wiring Diagram".

1.CHECK FUSES

Check if any of the following fuses are blown:

INFOID:000000013147321

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[RCTA]

	Signal nam	e		Fuse No.		
	Ignition power	supply		30 (10A)		
2.CHECK POW 1. Turn ignition 2. Disconnect t	TO 2. ace the blown f 'ER SUPPLY CI switch OFF. he side radar LI				۱.	
	-		g.v			
· · · · · · · · · · · · · · · · · · ·	Terminals		Condition			
(+ Side rad	-	(-)		Standard voltag	e Reference voltage (Approx.)	
Connector	Terminal		Ignition switch		(
	lenninar	Ground	OFF	0 - 0.1 V	0 V	
B416	5		ON	10 - 16 V	Battery voltage	
Is the inspection	result normal?			_	, , -	
3. CHECK GRO Check continuity	between side ra	adar LH harness co	nnectors and gro	und.		
Connect	Side radar Li			ind	Continuity	
Connecto B416		Terminal 8	Grou		Yes	
NO >> Repa SIDE RADA	ection End. air the side rada R RH	r LH ground circuit. osis Procedure			INFQID:000000013147322	
Regarding Wiring 1. CHECK FUSE Check if any of th	ES	nation, refer to <u>DAS</u> es are blown:	-119, "Wiring Dia	agram".		
	Signal nam	e		Fuse No.		
	Ignition power s			30 (10A)		
Is the inspection		۲. ما با				
YES \rightarrow GO NO \rightarrow Repl 2.CHECK POW	TO 2. ace the blown f 'ER SUPPLY CI	use after repairing t RCUIT	he affected circui	t if a fuse is blowr	۱.	
	he side radar R	H connector.	connector and gr	ound.		

3. Check voltage between side radar RH harness connector and ground.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[RCTA]

	Terminals					
((+) (–)		Condition	Standard voltage	Reference voltage (Approx.)	
Side ra	Side radar RH		lapition switch	Standard Voltage		
Connector	Connector Terminal Ground		Ignition switch			
B109	B109 5		OFF	0 - 0.1 V	0 V	
6109	5		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 ra	adar RH		Continuity	
Connector	Connector Terminal		Continuity	
B109	8	*	Yes	

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair the side radar RH ground circuit.

WARNING SYSTEM SWITCH CIRCUIT IRCTA < DTC/CIRCUIT DIAGNOSIS > WARNING SYSTEM SWITCH CIRCUIT А Component Function Check INFOID:000000013147323 1. CHECK WARNING SYSTEM SWITCH INPUT SIGNAL 1. Turn the ignition switch ON. Select the DATA MONITOR item "WARN SYS SW" of "BSW" with CONSULT. 2. With operating the warning system switch, check the monitor status. 3. С Monitor item Condition Monitor status D Warning system switch is pressed On WARN SYS SW OFF Warning system switch is not pressed Is the inspection result normal? Ε YES >> Warning system switch circuit is normal. >> Refer to DAS-167, "Diagnosis Procedure". NO Diagnosis Procedure INFOID:000000013147324 Regarding Wiring Diagram information, refer to DAS-119, "Wiring Diagram". CHECK WARNING SYSTEM SWITCH SIGNAL INPUT Н Turn the ignition switch ON. 1. With operating the warning system switch, check voltage between ADAS control unit harness connector 2. and ground. Terminals Condition (+) (-) Voltage (Approx.) ADAS control unit Warning system switch Connector Terminal Ground Κ 0 V Pressed B104 18 Released Battery voltage Is the inspection result normal? YES >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation". NO >> GO TO 2. 2.CHECK WARNING SYSTEM SWITCH M Turn ignition switch OFF. 1. Remove warning system switch. 2. Ν Check warning system switch. Refer to DAS-168, "Component Inspection". 3. Is the inspection result normal? YES >> GO TO 3. DAS NO >> Replace the warning system switch. Refer to DAS-177, "Removal and Installation". 3.CHECK WARNING SYSTEM SWITCH GROUND CIRCUIT Check continuity between warning system switch harness connector and the ground. Ρ Warning system switch Continuity Terminal Ground Connector M133 8

Is the inspection result normal?

Yes

WARNING SYSTEM SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair harness or connector.

4.CHECK WARNING SYSTEM SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

- 1. Disconnect the ADAS control unit connector.
- Check continuity between the ADAS control unit harness connector and warning system switch harness connector.

ADAS co	ontrol unit	Warning system switch		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
B104	18	M133	6	Yes	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

5. CHECK WARNING SYSTEM SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

Check continuity between the ADAS control unit harness connector and ground.

ADAS co	ontrol unit		Continuity
Connector	Terminal	Ground	
B104	18		No

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to <u>DAS-174</u>, "Removal and Installation".

NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:000000013147325

1.CHECK WARNING SYSTEM SWITCH

Check continuity of warning system switch.

Terr	minal	Condition	Continuity
6	8	When warning system switch is pressed	Yes
0	0	When warning system switch is released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace warning system switch. Refer to <u>DAS-177. "Removal and Installation"</u>.

BSW ON INDICATOR CIRCUIT [RCTA] < DTC/CIRCUIT DIAGNOSIS > **BSW ON INDICATOR CIRCUIT** А **Diagnosis** Procedure INFOID:000000013147326 В Regarding Wiring Diagram information, refer to DAS-119, "Wiring Diagram". 1. CHECK BSW ON INDICATOR POWER SUPPLY CIRCUIT 1. Turn ignition switch OFF. 2. Disconnect warning system switch connector. 3. Turn ignition switch ON. Check voltage between warning system switch harness connector and ground. 4. Ε Terminals (+) (-) Voltage (Approx.) Warning system switch F Connector Terminal Ground M133 5 Battery voltage Is the inspection result normal? YES >> GO TO 2. NO >> Repair the BSW ON indicator power supply circuit. Н 2.CHECK BSW ON INDICATOR SIGNAL FOR OPEN 1. Turn ignition switch OFF. 2. Disconnect the ADAS control unit harness connector. 3. Check continuity between the ADAS control unit harness connector and warning system switch harness connector. ADAS control unit Warning system switch Continuity Terminal Connector Terminal Connector Κ B104 19 M133 3 Yes Is the inspection result normal? YES >> GO TO 3. NO >> Repair the harnesses or connectors. ${f 3.}$ CHECK BSW ON INDICATOR SIGNAL CIRCUIT FOR SHORT Check continuity between the ADAS control unit harness connector and ground. M ADAS control unit Continuity Ν Terminal Ground Connector B104 19 No Is the inspection result normal? DAS YES >> GO TO 4. NO >> Repair the harnesses or connectors. **4.**CHECK BSW ON INDICATOR Ρ Check the BSW ON indicator. Refer to DAS-170, "Component Inspection". Is the inspection result normal? YES >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation". NO >> Replace warning system switch. DAS-177, "Removal and Installation".

BSW ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

1. CHECK BSW ON INDICATOR

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

Terminals		Condition	BSW ON indicator	
(+)	(-)	Condition		
5	3	When the battery voltage is applied	On	
5	When the battery voltage is not applied		Off	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the warning system switch. Refer to <u>DAS-177, "Removal and Installation"</u>.

SYMPTOM DIAGNOSIS

RCTA SYSTEM SYMPTOMS

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INFOID:000000012547850

CAUTION:

Symptom Table

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 RCTA, refer to <u>DAS-98. "System Description"</u>.

Symptom		Possible cause	Inspection item/Reference page	
Indicator/warning lamps do not il- luminate when ignition switch OFF \Rightarrow ON.	RCTA warning lamp (Yellow) does not illuminate	 RCTA warning lamp signal (CAN) Combination meter ADAS control unit RCTA warning lamp (combination meter) 	 Power supply and ground circuit of ADAS control unit Refer to <u>DAS-164. "ADAS</u> <u>CONTROL UNIT : Diagnosis</u> <u>Procedure"</u> ADAS control unit Active test "BSW/BSI WARN LMP" Refer to <u>DAS-105. "CONSULT</u> <u>Function (BSW/BUZZER)"</u>. ADAS control unit Data monitor "BSW/BSI WARN LMP" Refer to <u>DAS-105. "CONSULT</u> <u>Function (BSW/BUZZER)"</u>. Combination meter Data monitor "BSW W/L" Refer to <u>MWI-18. "CONSULT</u> <u>Function (METER/M&A)"</u> 	
	RCTA ON indicator (on the system warning switch) does not illuminate	 Harness between ADAS control unit and system warning switch System warning switch ADAS control unit 	RCTA ON indicator circuit Refer to <u>DAS-169, "Diagnosis</u> <u>Procedure"</u>	
	RCTA indicator does not turn ON	 Harness between side radar and RCTA indicator Side radar LH/RH RCTA indicator 	Perform self-diagnosis of side ra- dar Refer to <u>DAS-107, "CONSULT</u> <u>Function (SIDE RADAR LEFT)"</u> or <u>DAS-109, "CONSULT Func-</u> tion (SIDE RADAR RIGHT)"	
RCTA system is not activated. (Indicator/warning lamps illumi- nate when ignition switch OFF \Rightarrow ON.)	RCTA ON indicator is not turned ON ⇔ OFF when op- erating system warning switch	 Harness between ADAS control unit and system warning switch Harness between system warning switch and ground ADAS control unit System warning switch 	RCTA ON indicator circuit Refer to <u>DAS-169, "Diagnosis</u> <u>Procedure"</u>	
	Buzzer is not sounding	ADAS control unitCombination meter	Meter buzzer circuit Refer to <u>WCS-30, "Component</u> <u>Function Check"</u>	

NORMAL OPERATING CONDITION

Description

SONAR HANDLING

- The four sonar sensors are located on the rear bumper cover.
- Always keep the sonar sensors clean.
- Do not attach a sticker (including transparent material), install an accessory or paintwork over any of the sonar sensors.
- Do not strike or scratch any of the sonar sensors causing physical damage. to a sensor or the surrounding area

SIDE RADAR HANDLING

- Side radar for Backup Collision Intervention 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 (circular area).

REAR CROSS TRAFFIC ALERT

- The Rear Cross Traffic Alert (RCTA) system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When backing up. always look in the direction driver will move to ensure it is safe to proceed. Never rely solely on the RCTA system.
- Using the RCTA system under some road or weather condition could lead to improper system operation. Always rely on driver's own steering and braking operation to avoid accidents.
- The RCTA system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the RCTA system when towing a trailer.
- 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 RCTA when certain objects are present such as:
- Pedestrians, bicycles, animals.
- A vehicle passing at a speed greater than approximately 5 MPH (8km/h).
- A radar sensor may not detect approaching vehicles in certain situations:
- When the vehicle parked aside obstruct the beam of the radar sensor.
- When the vehicle is parked in an angled parking space.
- When the vehicle is parked on an inclined ground.
- When the vehicle turns around into your vehicle's aisle.
- When the angle formed by your vehicle and approaching vehicle is small.
- Severe weather or road spray conditions may reduce the ability of the radar to detect other vehicles.
- The sonar system may not detect:
- Small or moving object.
- Wedge-shaped objects.
- Object closer to the bumper than 10 inch (30 cm).
- Thin objects such as rope, wire, chain, etc...
- The side radars 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.

Description

INFOID:000000012547852

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.

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

 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.

DAS

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REMOVAL AND INSTALLATION ADAS CONTROL UNIT

Removal and Installation

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[RCTA]

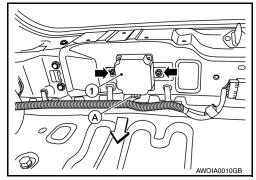
REMOVAL

CAUTION:

Before replacing ADAS control unit, perform "Read/Write Configuration" to save or print current vehicle specification. For details, refer to <u>DAS-136, "Description"</u>.

- 1. Disconnect the battery negative terminal. Refer to <u>PG-93</u>, "Removal and Installation".
- 2. Remove the storage box. Refer to INT-33, "STORAGE BOX : Removal and Installation".
- Disconnect the harness connector (A) from the ADAS control unit (1).

 ←: Front
- 4. Remove bolts (**←**).
- 5. Lift upward to remove ADAS control unit (1).



INSTALLATION

CAUTION:

Be sure to perform "Read/Write Configuration" when replacing ADAS control unit. For details, refer to DAS-136, "Description".

Installation is in the reverse order of removal.

• Tighten ADAS control unit bolts to specification.

ADAS control unit bolts : 8.3 N·m (0.85 kg-m, 73 in-lb)

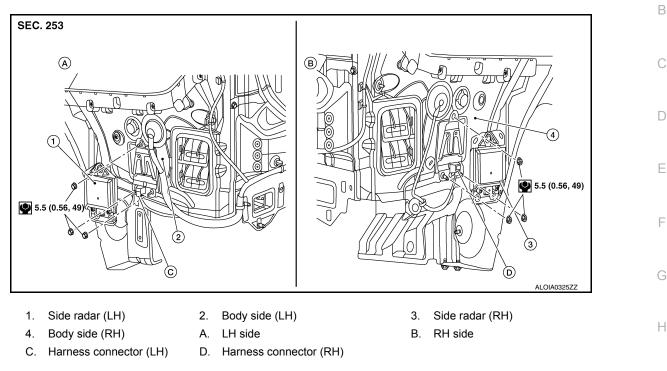
< REMOVAL AND INSTALLATION > SIDE RADAR

Exploded View

А

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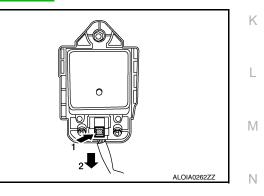


Removal and Installation

REMOVAL AND INSTALLATION

Removal

- 1. Remove the rear bumper fascia. Refer to EXT-20, "Removal and Installation".
- 2. Disconnect the harness connector from the side radar in the sequence shown.



3. Remove nuts and remove the side radar.

Installation

Installation is in the reverse order of removal.

Do not use the side radar if the lens has flaws. NOTE:

- Always lock the side radar connector.
- Do not touch the side radar lens and keep lens area clean.

DAS

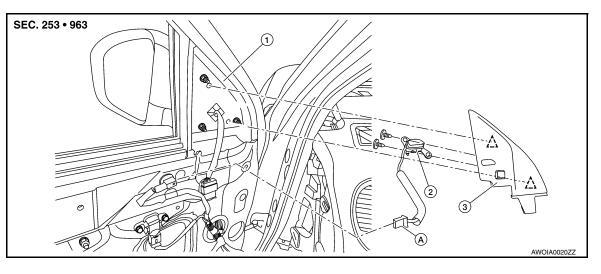
BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR [RCTA]

< REMOVAL AND INSTALLATION >

BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR

Exploded View

INFOID:000000012547856



tervention indicator

Blind spot warning/blind spot in- 3.

- Front door 1.
- Blind spot warning/blind spot inter-Α. $\hat{\}$ vention indicator harness connector

Removal and Installation

REMOVAL AND INSTALLATION

Removal

- Remove front door finisher. Refer to INT-15, "Removal and Installation". 1.
- 2. Remove the door mirror corner finisher (LH/RH) as necessary. Refer to MIR-20, "Removal and Installation".
- 3. Remove the blind spot warning/blind spot intervention indicator screws.
- 4. Remove the blind spot warning/blind spot intervention indicator.

Installation

Installation is in the reverse order of removal.

Clip

2.

INFOID:000000012547857

Door mirror corner

finisher

А

В

С

D

Ε

F

Н

J

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L

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