SECTION DAS
DRIVER ASSISTANCE SYSTEM

CONTENTS

BSW

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012547602

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:

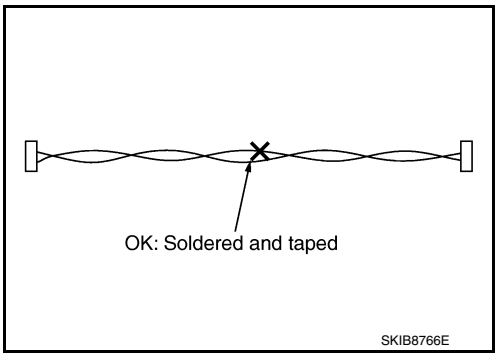
- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious 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

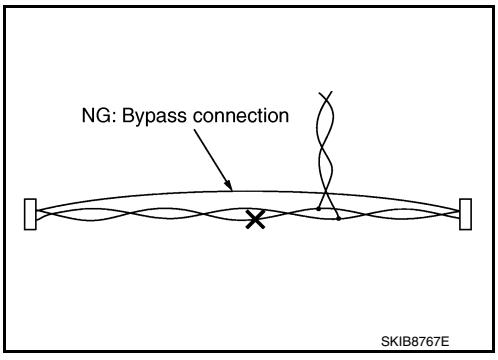
INFOID:0000000012547603

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 for Removing Battery Terminal

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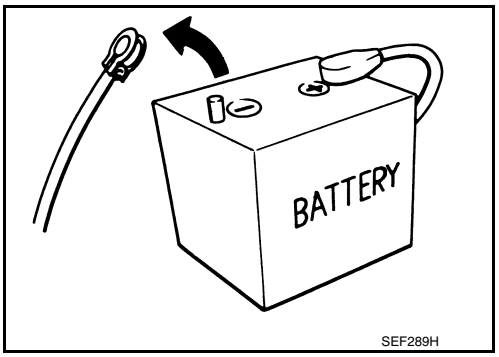

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  NOTE:
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption 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:0000000012547605

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 ⇒ 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

INFOID:0000000012547606

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
- **Never perform the active test while driving.**
- **Never change BSW initial state ON ⇒ OFF without the consent of the customer.**

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

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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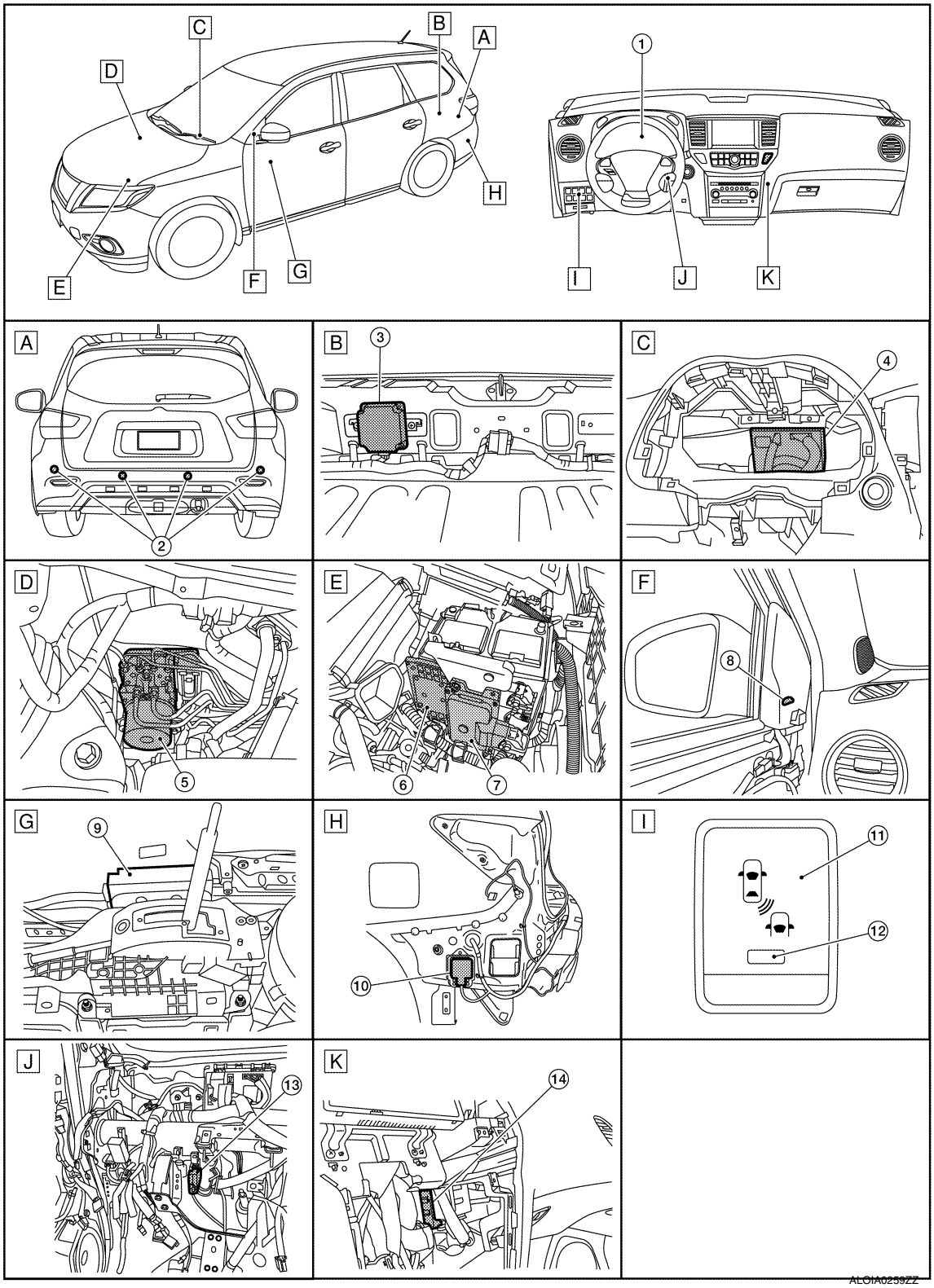

A. Rear view of vehicle
B. Rear storage area (view with storage box removed)
C. Instrument panel left side (view with combination meter removed)
D. Engine room right side
E. Engine room left side
F. Left front door (view with driver door finisher removed)
G. Center console (view with center console assembly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

No.	Component	Function
1	Combination meter	• Description: Refer to DAS-11, "Combination Meter" • System display and warning: DAS-17, "System Display and Warning" Refer to MWI-6, "METER SYSTEM : Component Parts Location" 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	BCM	Refer to DAS-11, "BCM" Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location
5	ABS actuator and electric unit (control unit)	Refer to DAS-11, "ABS Actuator and Electric Unit (Control Unit)" Refer to BRC-11, "Component Parts Location" (type 1) for detailed installation location Refer to BRC-169, "Component Parts Location" (type 2) for detailed installation location
6	ECM	Refer to DAS-12, "ECM" Refer to EC-20, "ENGINE CONTROL SYSTEM : Component Parts Location" (USA and Canada) for detailed installation location Refer to EC-516, "ENGINE CONTROL SYSTEM : Component Parts Location" (Mexico) for detailed installation location
7	TCM	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 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

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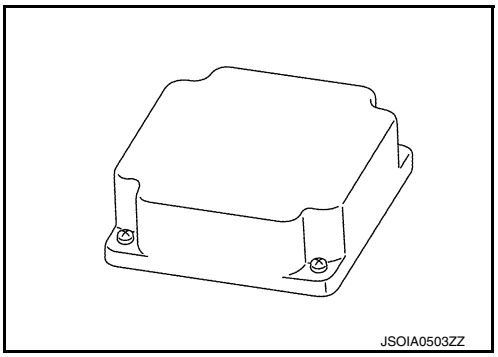
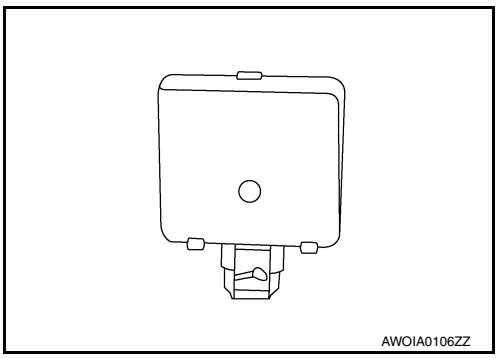


- Controls the BSW system, based on received signals.
- Communicates with each control unit via CAN communication.

- Connected with the side radar (LH and RH) via 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

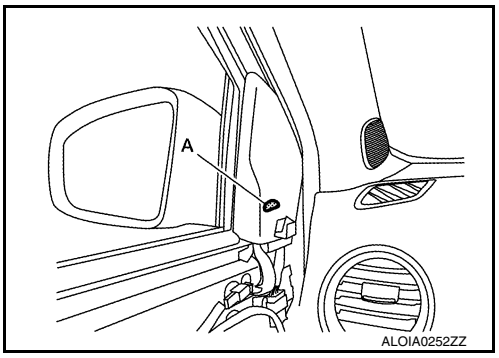
INFOID:0000000012547609



- 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

INFOID:0000000012547610



- 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

INFOID:0000000012547611

- 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

INFOID:0000000012547612

- 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)

INFOID:0000000012547613

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

BCM

INFOID:0000000012547614

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

TCM

INFOID:0000000012547615

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

ECM

INFOID:0000000012547616

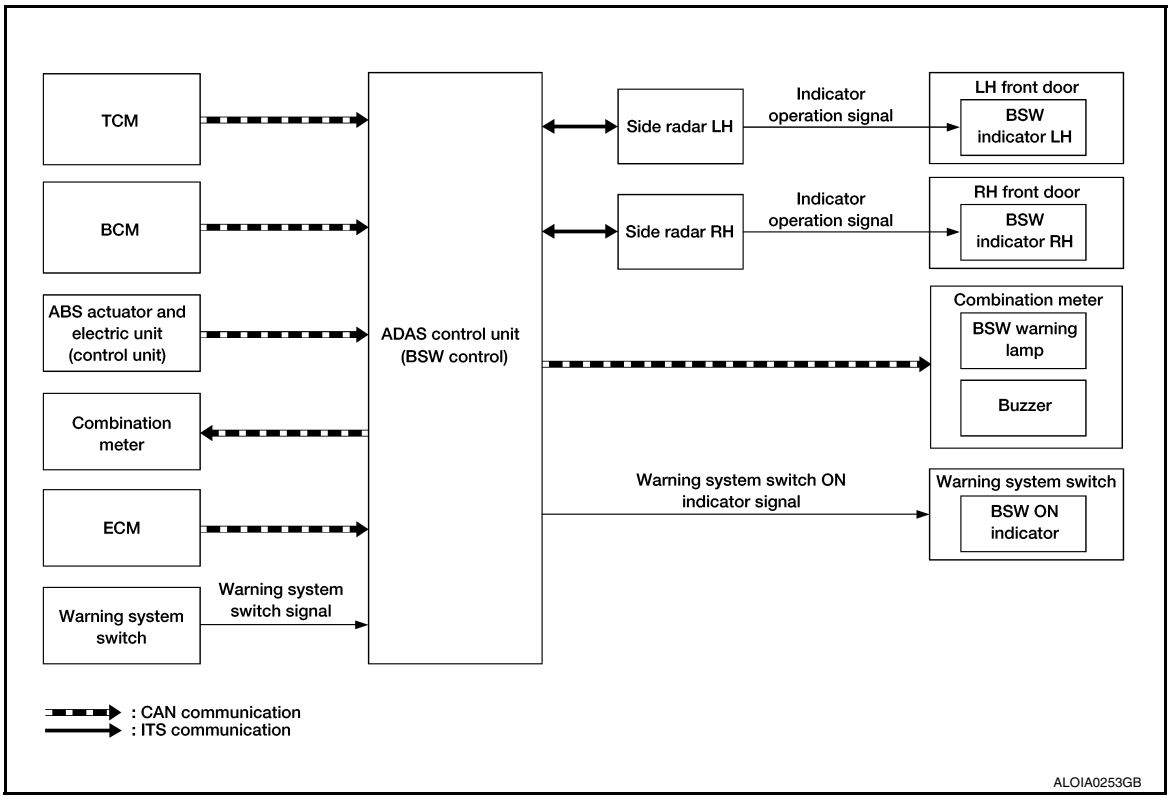
Transmits engine speed signal to ADAS control unit via CAN communication.

SYSTEM

System Description

INFOID:0000000012547617

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

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

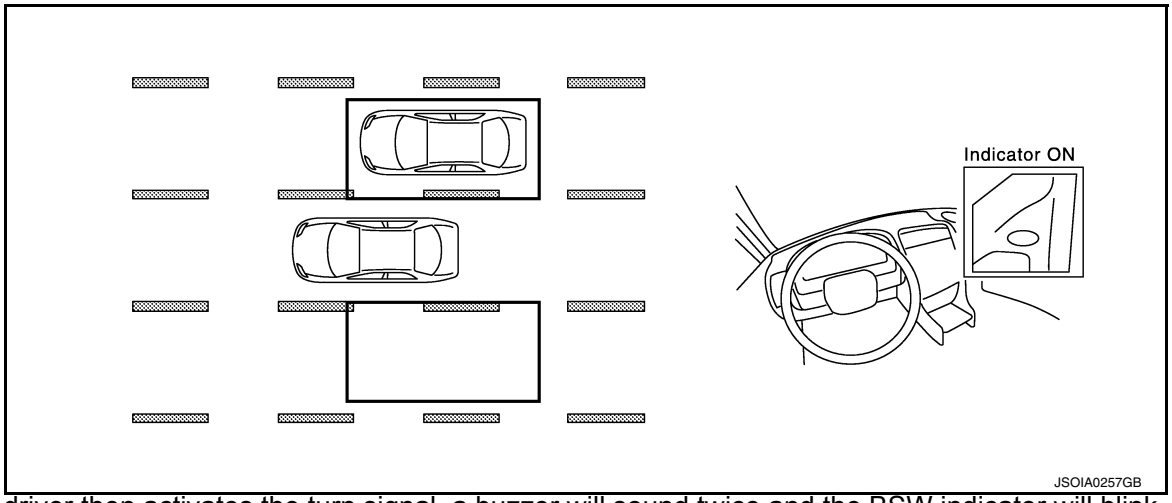
Output Signal Item

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

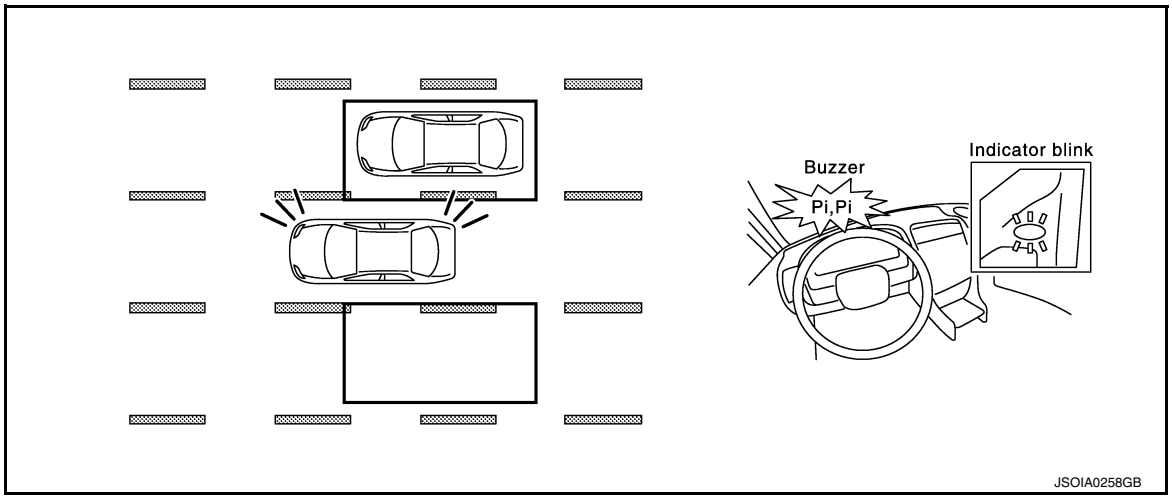
Reception unit	Signal name		Description
Side radar LH, RH	ITS communication	BSW indicator signal	Transmits a BSW indicator signal to turn ON the BSW indicator
		BSW indicator dimmer signal	Transmits a BSW indicator dimmer signal to dimmer BSW indicator
		Vehicle speed signal	Transmits a vehicle speed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

FUNCTION DESCRIPTION

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



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



BSW SYSTEM OPERATION DESCRIPTION

- 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

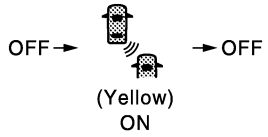
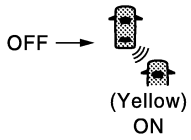
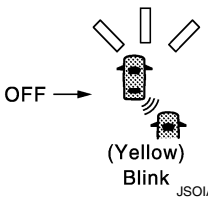
ADAS control unit performs the control when the following conditions are satisfied.

- 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:

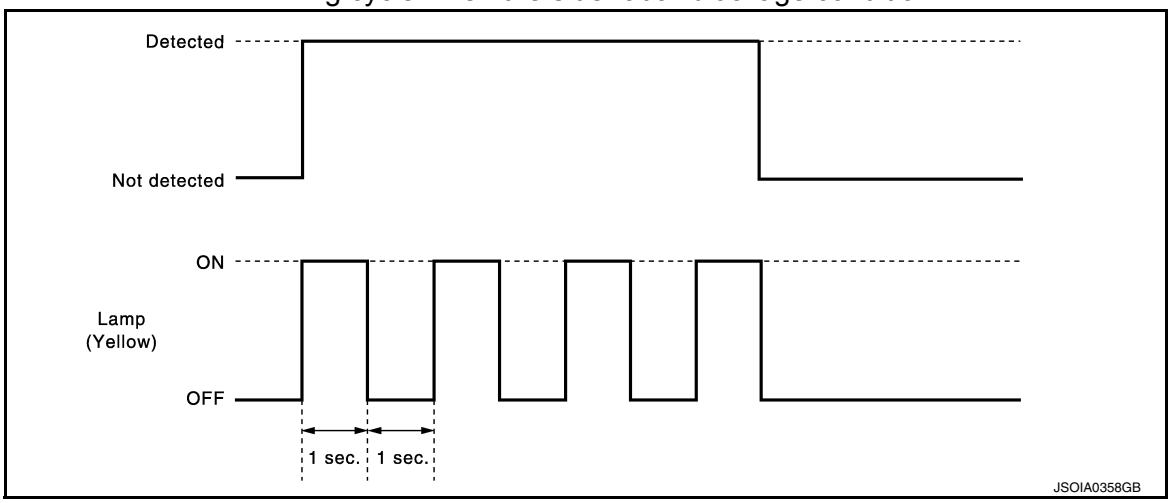
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 29 km/h (18 MPH)
- The BSW system may not function properly, depending on the situation. Refer to DAS-19, "Precautions for Blind Spot Warning".

BULB CHECK ACTION AND FAIL-SAFE INDICATION

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

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

Blinking cycle when the side radar blockage condition



NOTE:
Time shown in the figure is approximate time.

BSW INITIAL STATE CHANGE

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

*: Factory setting

How to change BSW initial state
1. Turn ignition switch ON.
2. Switch BSW functions to OFF.
3. Push and hold 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:0000000012547618

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)

INFOID:0000000012547619

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

Switch Name and Function

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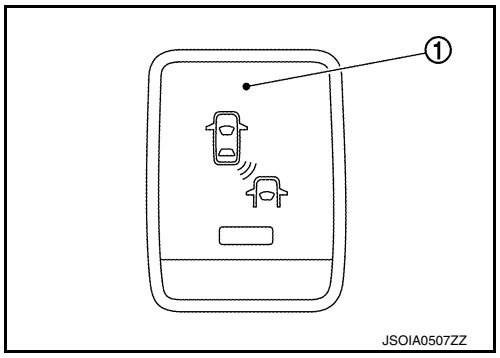
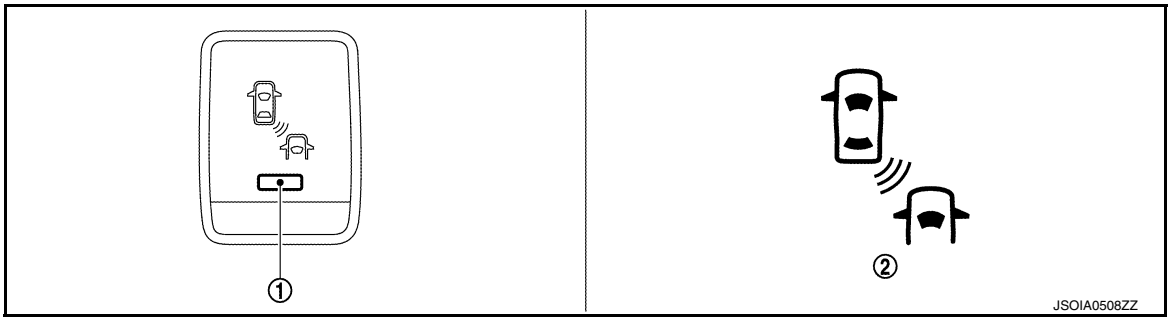


No.	Name	Function
1	Warning system switch	Turns BSW system ON/OFF

System Display and Warning

INFOID:0000000012547621

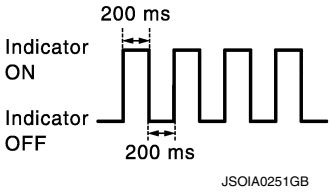
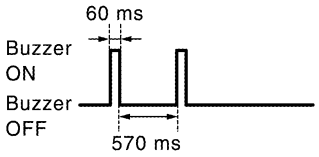
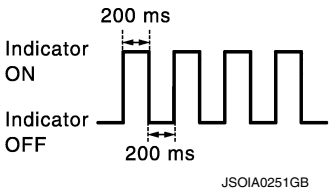
INDICATOR AND WARNING LAMP



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

DISPLAY AND WARNING OPERATION

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

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

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

HANDLING PRECAUTION

Precautions for Blind Spot Warning

INFOID:0000000012547622

SIDE RADAR HANDLING

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

PRECAUTIONS FOR BLIND SPOT WARNING

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

DIAGNOSIS SYSTEM (ADAS CONTROL UNIT)

CONSULT Function (BSW/BUZZER)

INFOID:0000000012547623

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

ICC BUZZER

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

BSW/BSI WARNING LAMP

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

DIAGNOSIS SYSTEM (SIDE RADAR LH)

CONSULT Function (SIDE RADAR LEFT)

INFOID:0000000012547624

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.**

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

DIAGNOSIS SYSTEM (SIDE RADAR RH)

CONSULT Function (SIDE RADAR RIGHT)

INFOID:0000000012547625

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.**

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

ECU DIAGNOSIS INFORMATION

ADAS CONTROL UNIT

Reference Value

INFOID:0000000012547626

VALUES ON THE DIAGNOSIS TOOL

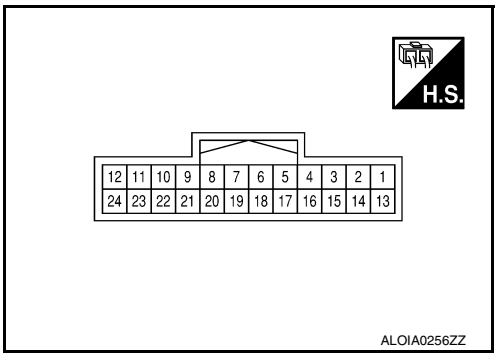
NOTE:

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

TERMINAL LAYOUT

PHYSICAL VALUES



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

Fail-safe

INFOID:0000000012547627

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

INFOID:0000000012547628

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

DTC Index

INFOID:0000000012547629

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

SIDE RADAR LH

Reference Value

INFOID:0000000012547630

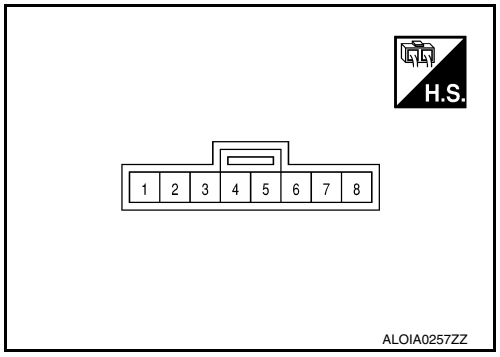
VALUES ON THE DIAGNOSIS TOOL

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 STATUS	BSW system is normal.	On
	BSW system is malfunctioning.	Off
CTA SYSTEM ON	CTA system is ON	On
	CTA system is OFF.	Off
BSW STATUS	BSW system is ON	Off
	BSW system is OFF.	On
VHCL SPD SE	Indicates current vehicle speed.	Km/h
TURN SIGNAL	Left turn signal is ON.	On
	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

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
4 (W)	Ground	BSW indicator	Output	Approx. 2 sec. after ignition switch OFF ⇒ 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)		ITS CAN-H	—	—	—	—
7 (Y)		ITS CAN-L	—	—	—	—
8 (B)		Ground	—	—	0 - 0.1 V	0 V

Fail-safe

INFOID:0000000012547631

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:0000000012547632

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:0000000012547633

×: 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	×	DAS-58
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

SIDE RADAR RH

Reference Value

INFOID:0000000012547634

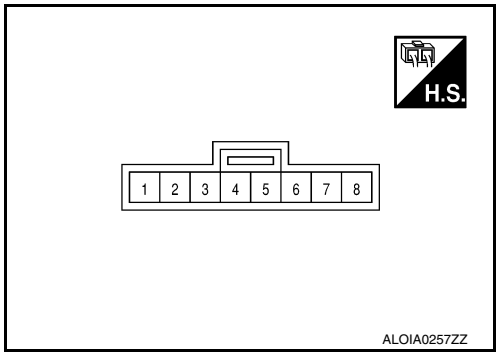
VALUES ON THE DIAGNOSIS TOOL

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 STATUS	BSW system is normal.	On
	BSW system is malfunctioning.	Off
CTA SYSTEM ON	CTA system is ON	On
	CTA system is OFF.	Off
BSW STATUS	BSW system is ON	Off
	BSW system is OFF.	On
VHCL SPD SE	Indicates current vehicle speed.	Km/h
TURN SIGNAL	Right turn signal is ON.	On
	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

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
3 (B)	Ground	Shield ground	—	—	0 - 0.1 V	0 V
4 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF ⇒ 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)		ITS CAN-H	—	—	—	—
7 (Y)		ITS CAN-L	—	—	—	—
8 (B)		Ground	—	—	0 - 0.1 V	0 V

Fail-safe

INFOID:0000000012547635

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:0000000012547636

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:0000000012547637

×: 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	×	DAS-58
C1B55	RADAR BLOCKAGE	Blink	×	DAS-62
U1000	CAN COMM CIRCUIT	ON	×	DAS-64
U1010	CONTROL UNIT (CAN)	ON	×	DAS-66

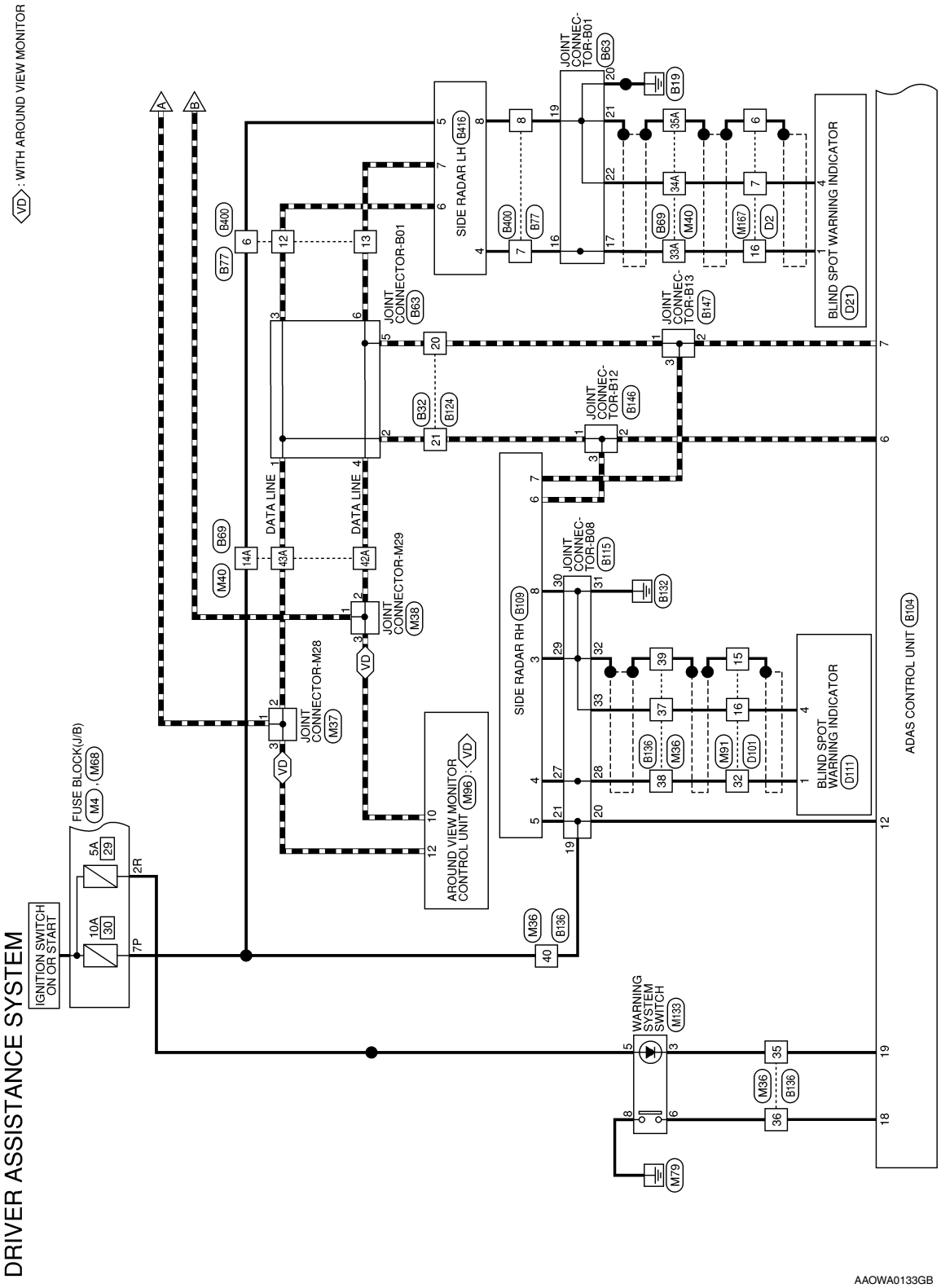
DTC		BSW warning lamp	Fail-safe	Reference page
U0104	ADAS CAN CIR1	ON	×	DAS-67
U0405	ADAS CAN CIR2	ON	×	DAS-71

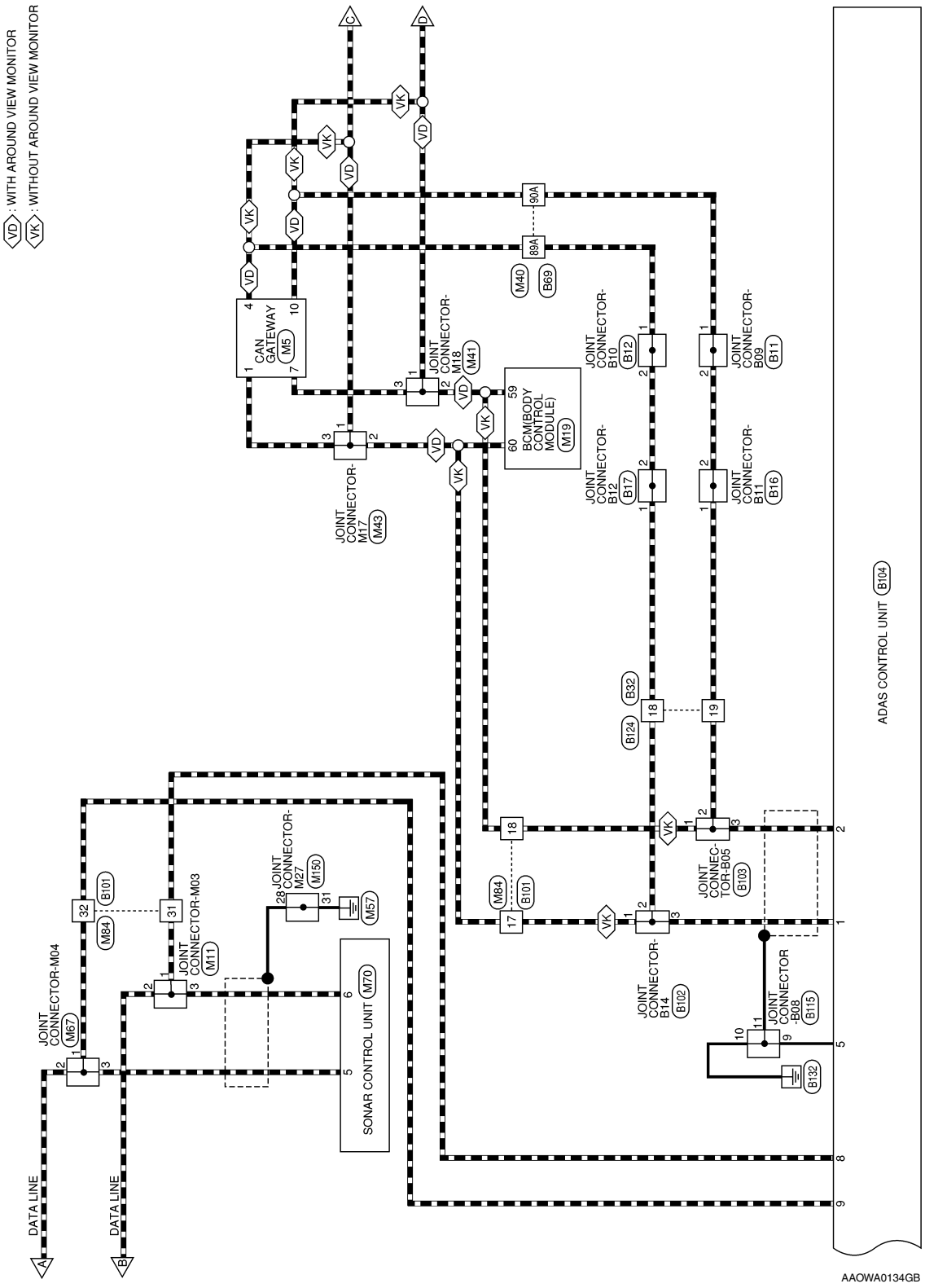
WIRING DIAGRAM

BLIND SPOT WARNING

Wiring Diagram

INFOID:0000000012547638




VD : WITH AROUND VIEW MONITOR
VK : WITHOUT AROUND VIEW MONITOR
CAN GATEWAY M5
JOINT CONNECTOR-M18 M41
BCM(BODY CONTROL MODULE) M19
JOINT CONNECTOR-M17 M43
JOINT CONNECTOR-B10 B12
JOINT CONNECTOR-B09 B11
JOINT CONNECTOR-B12 B17
JOINT CONNECTOR-B11 B16
ADAS CONTROL UNIT B104
JOINT CONNECTOR-M27 M150
JOINT CONNECTOR-M03 M11
JOINT CONNECTOR-M04 M67
SONAR CONTROL UNIT M70
JOINT CONNEC-TOR-B05 B103
JOINT CONNECTOR-B14 B102
JOINT CONNECTOR-B08 B115
DATA LINE
DATA LINE
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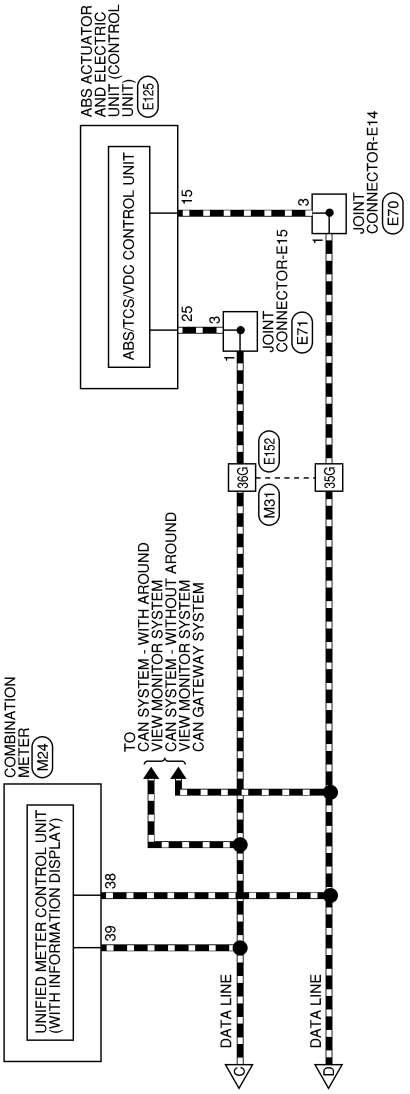

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

7P	6P	5P	4P		3P	2P	1P
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
7P	LG	–

Connector No.	M5
Connector Name	CAN GATEWAY
Connector Color	WHITE

H.S.

1	2	3	4	5	6
7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
4	L	CAN-H
7	P	CAN-L
10	P	CAN-L

Connector No.	M11
Connector Name	JOINT CONNECTOR-M03
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	Y	–
3	W	–

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

H.S.

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
59	P	CAN-L
60	L	CAN-H

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
38	P	CAN-L
39	L	CAN-H

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Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
35	R	–
36	LG	–
37	B	–
38	W	–
39	SHIELD	–
40	LG	–

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1G	2G	3G	4G	5G
6G	7G	8G	9G	10G

11G	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G
22G	23G	24G	25G	26G	27G	28G	29G	30G		

31G	32G	33G	34G	35G	36G	37G	38G	39G	40G	41G
42G	43G	44G	45G	46G	47G	48G	49G	50G		

51G	52G	53G	54G	55G	56G	57G	58G	59G	60G	61G
62G	63G	64G	65G	66G	67G	68G	69G	70G		

71G	72G	73G	74G	75G	76G	77G	78G	79G	80G	81G
82G	83G	84G	85G	86G	87G	88G	89G	90G		

91G	92G	93G	94G	95G
96G	97G	98G	99G	100G

Terminal No.	Color of Wire	Signal Name
35G	P	–
36G	L	–

Connector No.	M38
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	M37
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE

H.S.

4	3	2	1

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

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Connector No.	M41
Connector Name	JOINT CONNECTOR-M18
Connector Color	WHITE

H.S.

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

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
2R	LG	–

Terminal No.	Color of Wire	Signal Name
14A	LG	–
33A	W	–
34A	B	–
35A	SHIELD	–
42A	Y	–
43A	L	–
89A	L	–
90A	P	–

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Connector No.	M67
Connector Name	JOINT CONNECTOR-M04
Connector Color	WHITE

H.S.

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

Connector No.	M43
Connector Name	JOINT CONNECTOR-M17
Connector Color	WHITE

H.S.

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

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Connector No.	M70
Connector Name	SONAR CONTROL UNIT
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
5	B	CAN-H
6	W	CAN-L

Connector No.	M84
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
17	L	–
18	P	–
31	Y	–
32	L	–

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
15	SHIELD	–
16	B	–
32	W	–

Connector No.	M96
Connector Name	AROUND VIEW MONITOR CONTROL UNIT
Connector Color	WHITE

H.S.

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

Terminal No.	Color of Wire	Signal Name
10	P	CAN-L
12	L	CAN-H

Connector No.	M133
Connector Name	WARNING SYSTEM SWITCH
Connector Color	WHITE

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
3	R	–
5	GR	–
6	LG	–
8	B	–

Connector No.	M150
Connector Name	JOINT CONNECTOR-M27
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
28	SHIELD	–
31	GR	–

AAOIA0439GB

Connector No.	E71
Connector Name	JOINT CONNECTOR-E15
Connector Color	BLACK

H.S.

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

Connector No.	E70
Connector Name	JOINT CONNECTOR-E14
Connector Color	BLACK

H.S.

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

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
35G	P	–
36G	L	–

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
6	SHIELD	–
7	B	–
16	W	–

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
15	P	CAN-L
25	L	CAN-H

AAOIA0440GB

Connector No.	B11
Connector Name	JOINT CONNECTOR-B09
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B12
Connector Name	JOINT CONNECTOR-B10
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B16
Connector Name	JOINT CONNECTOR-B11
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B17
Connector Name	JOINT CONNECTOR-B12
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B32
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
18	L	–
19	P	–
20	Y	–
21	L	–

AAOIA0441GB

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

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

Terminal No.	Color of Wire	Signal Name
4	Y	–
5	Y	–
6	Y	–
16	W	–
17	W	–
19	B	–
20	B	–
21	SHIELD	–
22	B	–

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

	5A	4A	3A	2A	1A
	10A	9A	8A	7A	6A
21A	20A	19A	18A	17A	16A	15A	14A	13A	12A	11A
	30A	29A	28A	27A	26A	25A	24A	23A	22A	
41A	40A	39A	38A	37A	36A	35A	34A	33A	32A	31A
	50A	49A	48A	47A	46A	45A	44A	43A	42A	
61A	60A	59A	58A	57A	56A	55A	54A	53A	52A	51A
	70A	69A	68A	67A	66A	65A	64A	63A	62A	
81A	80A	79A	78A	77A	76A	75A	74A	73A	72A	71A
	90A	89A	88A	87A	86A	85A	84A	83A	82A	
		95A	94A	93A	92A	91A				
		100A	99A	98A	97A	96A				

Terminal No.	Color of Wire	Signal Name
14A	R	–
33A	W	–
34A	B	–
35A	SHIELD	–
42A	Y	–
43A	L	–
89A	L	–
90A	P	–

Connector No.	B77
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
6	R	–
7	W	–
8	B	–
12	L	–
13	Y	–

AAOIA0442GB

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
17	L	–
18	P	–
31	Y	–
32	BG	–

Connector No.	B102
Connector Name	JOINT CONNECTOR-B14
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B103
Connector Name	JOINT CONNECTOR-B05
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B104
Connector Name	ADAS CONTROL UNIT
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	B	CAN-H
2	W	CAN-L
3	–	–
4	–	–
5	B	GND
6	L	ITS CAN-H
7	Y	ITS CAN-L
8	Y	ITS CAN-L
9	BG	ITS CAN-H

Connector No.	B109
Connector Name	SIDE RADAR RH
Connector Color	BLACK

H.S.

1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
3	B	–
4	W	–
5	R	–
6	L	–
7	Y	–
8	B	–

Terminal No.	Color of Wire	Signal Name
10	–	–
11	–	–
12	R	IGN
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	LG	WARNING SYSTEM SW
19	R	WARNING SYSTEM ON IND
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–

AAOIA0443GB

Connector No.	B124
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
18	L	–
19	P	–
20	Y	–
21	L	–

Connector No.	B147
Connector Name	JOINT CONNECTOR-B13
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	Y	–
3	Y	–

Terminal No.	Color of Wire	Signal Name
9	B	–
10	GR	–
11	SHIELD	–
19	R	–
20	R	–
21	R	–
27	W	–
28	W	–
29	B	–
30	B	–
31	GR	–
32	SHIELD	–
33	B	–

Connector No.	B146
Connector Name	JOINT CONNECTOR-B12
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B115
Connector Name	JOINT CONNECTOR-B08
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
35	R	–
36	LG	–
37	B	–
38	W	–
39	SHIELD	–
40	R	–

AAOIA0444GB

Connector No.	B400
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
6	R	–
7	W	–
8	B	–
12	L	–
13	Y	–

Connector No.	B416
Connector Name	SIDE RADAR LH
Connector Color	BLACK

H.S.

1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
4	W	–
5	R	–
6	L	–
7	Y	–
8	B	–

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
6	SHIELD	–
7	B	–
16	W	–

Connector No.	D21
Connector Name	BLIND SPOT WARNING INDICATOR LH
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	W	–
4	B	–

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	17
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18		

Terminal No.	Color of Wire	Signal Name
15	SHIELD	–
16	B	–
32	W	–

Connector No.	D111
Connector Name	BLIND SPOT WARNING INDICATOR RH
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	W	–
4	B	–

AAOIA0445GB

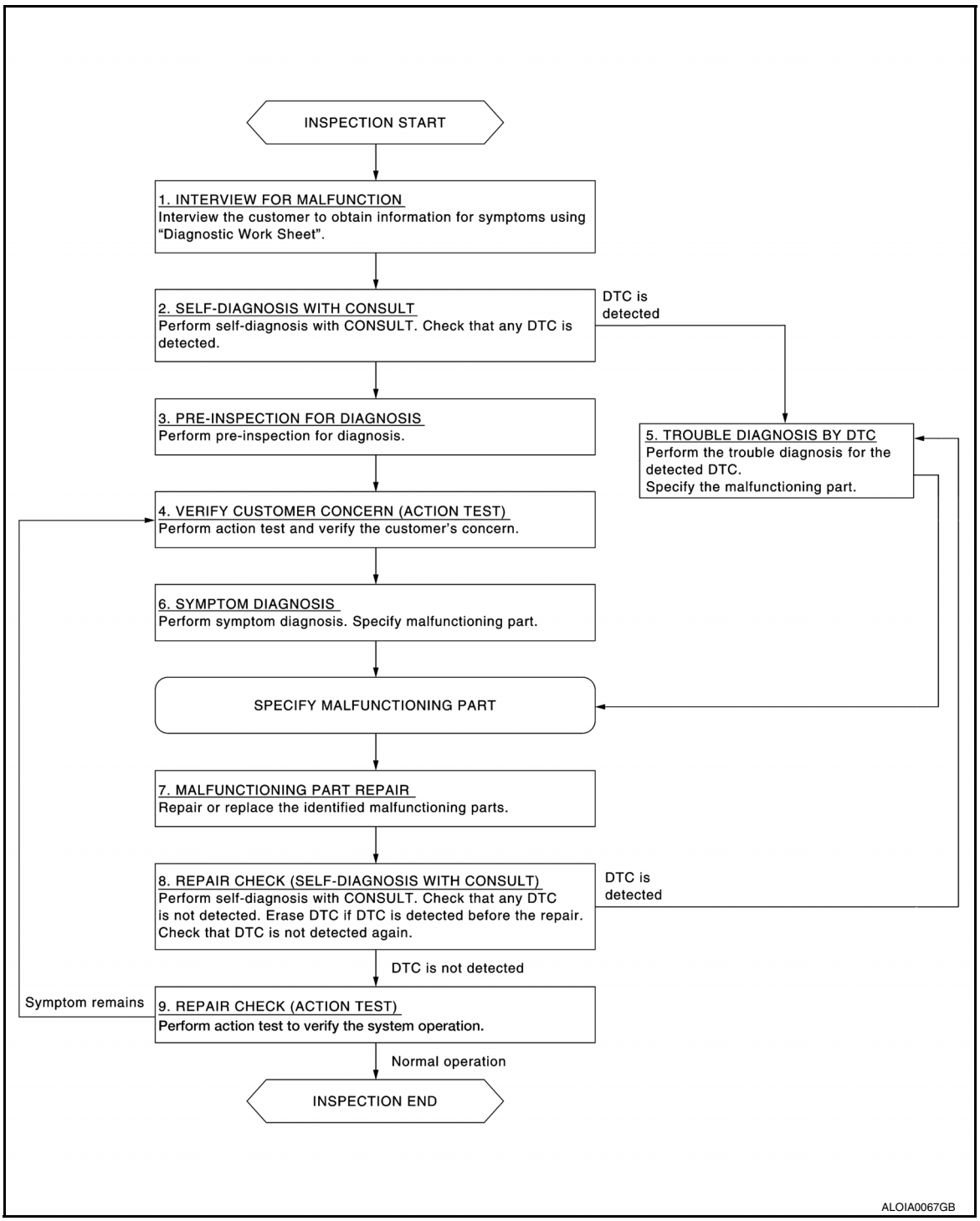
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012547639

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

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

NOTE:

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

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “SIDE RADAR LEFT/RIGHT” and/or “BSW/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 DAS-51, "Description".
Check if any other malfunctions occur.

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the self-diagnosis results.
2. Perform trouble diagnosis for the detected DTC. Refer to DAS-30, "DTC Index" (SIDE RADAR LEFT) or DAS-32, "DTC Index" (SIDE RADAR RIGHT) and/or DAS-28, "DTC Index" (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 DAS-86, "Symptom Table".

>> GO TO 7.

7.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

8.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

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

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

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:0000000012547640

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.

3.CHECK SIDE RADAR INSTALLATION CONDITION

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

Is it properly installed?

YES >> Inspection End.
NO >> Install side radar properly.

ACTION TEST

Description

INFOID:0000000012547641

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

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
Fully understand the following items well before the road test;
- **Precautions: Refer to DAS-7, "Precaution for BSW System Service".**
- **System description: Refer to DAS-13, "System Description".**
- **Normal operating condition: Refer to DAS-87, "Description".**

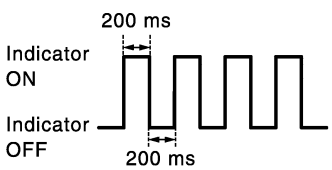
Work Procedure

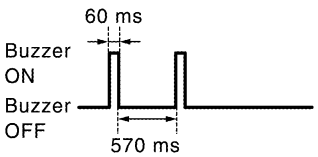
INFOID:0000000012547642

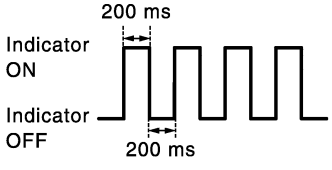
WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
Fully understand the following items well before the road test;
- **Precautions: Refer to DAS-7, "Precaution for BSW System Service".**
- **System description: Refer to DAS-13, "System Description".**
- **Normal operating condition: Refer to DAS-87, "Description".**

1.BSW SYSTEM ACTION TEST

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

<table>
<tr><th colspan="4">Vehicle condition/ Driver's operation</th><th colspan="2">Action</th></tr>
<tr><th>BSW ON indicator</th><th>Vehicle speed (Approx.) [km/h (MPH)]</th><th>Turn signal condition</th><th>Status of vehicle detection within detection area</th><th>Indication on the BSW indicator</th><th>Buzzer</th></tr>
<tr><td>OFF</td><td>—</td><td>—</td><td>—</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="5">ON</td><td>Less than approx. 29 (18)</td><td>—</td><td>—</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="4">Approx. 32 (20) or more</td><td>—</td><td>Vehicle is absent</td><td>OFF</td><td>OFF</td></tr>
<tr><td>OFF</td><td>Vehicle is detected</td><td>ON</td><td>OFF</td></tr>
<tr><td rowspan="2">ON (Vehicle detected direction)</td><td>Before turn signal operates Vehicle is detected</td><td>Blink
 

JSOIA0251GB</td><td>Short continuous beep
 

JSOIA0452GB</td></tr>
<tr><td>Vehicle is detected after turn signal operates</td><td>Blink
 

JSOIA0251GB</td><td>OFF</td></tr>
</table>

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

>> Inspection End.

DTC/CIRCUIT DIAGNOSIS

C1A00 CONTROL UNIT

DTC Logic

INFOID:0000000012547643

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 DAS-53, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012547644

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 DAS-28, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Logic

INFOID:0000000012547645

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

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

YES >> Refer to DAS-54, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547646

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.

C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:0000000012547647

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the ADAS control unit via CAN communication, 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 DAS-63, "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-55, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547648

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 DAS-63, "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 DAS-88, "Removal and Installation".

C1B50 SIDE RADAR MALFUNCTION

DTC LOGIC

INFOID:0000000012547649

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the “C1B50” detected as the current malfunction?

YES >> Refer to DAS-56, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012547650

1.CHECK SELF-DIAGNOSIS RESULT

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

Is any DTC detected?

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

C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

DTC Logic

INFOID:0000000012547651

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the “C1B51” detected as the current malfunction?

YES >> Refer to DAS-57, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012547652

Regarding Wiring Diagram information, refer to DAS-34, "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		Ground	Continuity
Connector	Terminal		
B416 (LH)	4		No
B109 (RH)			

Is the inspection result normal?

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

2.REPLACE THE SIDE RADAR

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

Is the DTC “C1B51” detected?

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

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

DTC Logic

INFOID:0000000012547653

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the “C1B52” detected as the current malfunction?

YES >> Refer to DAS-58, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000012547654

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 radar		BSW indicator		Continuity
Connector	Terminal	Connector	Terminal	
B416 (LH)	4	D21 (LH)	1	Yes
B109 (RH)		D111 (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 indicator		Ground	Continuity
Connector	Terminal		
D21 (LH)	4		Yes
D111 (RH)			

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.

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

BSW indicator		Ground	Condition	Standard voltage	Reference voltage (Approx.)
Connector	Terminal				
D21 (LH)	1		Ignition switch OFF ⇒ ON (Approx. 2 sec.)	5.5 - 16 V	6 V
D111 (RH)					

Is the inspection result normal?

YES >> Replace BSW indicator. Refer to DAS-90, "Removal and Installation".
NO >> Replace side radar. Refer to DAS-89, "Removal and Installation".

C1B53 SIDE RADAR RIGHT MALFUNCTION

DTC Logic

INFOID:0000000012547655

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?

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

Diagnosis Procedure

INFOID:0000000012547656

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 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 RIGHT”.

Is any DTC detected?

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

C1B54 SIDE RADAR LEFT MALFUNCTION

DTC Logic

INFOID:0000000012547657

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-61, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547658

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 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?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-30, "DTC Index" (SIDE RADAR LEFT).
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

C1B55 RADAR BLOCKAGE

DTC Logic

INFOID:0000000012547659

DTC DETECTION LOGIC

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

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

Diagnosis Procedure

INFOID:0000000012547660

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.

U1000 CAN COMM CIRCUIT

ADAS CONTROL UNIT

ADAS CONTROL UNIT : Description

INFOID:0000000012547661

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:0000000012547662

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	If ADAS control unit is not transmitting or receiving 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:0000000012547663

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 GI-47, "Intermittent Incident".

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000012547664

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.

SIDE RADAR LH : DTC Logic

INFOID:0000000012547665

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:0000000012547666

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 GI-47, "Intermittent Incident".

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000012547667

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.

SIDE RADAR RH : DTC Logic

INFOID:0000000012547668

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:0000000012547669

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".

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

U1010 CONTROL UNIT (CAN)

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000012547673

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

SIDE RADAR LH : DTC Logic

INFOID:0000000012547674

DTC DETECTION LOGIC

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

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000012547675

1.CHECK SELF-DIAGNOSIS RESULT

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

Is “U1010” detected as the current malfunction?

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

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000012547676

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

SIDE RADAR RH : DTC Logic

INFOID:0000000012547677

DTC DETECTION LOGIC

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

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000012547678

1.CHECK SELF-DIAGNOSIS RESULT

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

Is “U1010” detected as the current malfunction?

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

U0104 ADAS CAN 1

DTC Logic

INFOID:0000000012547679

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 DAS-64, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-64, "SIDE RADAR RH : DTC Logic" (SIDE RADAR RIGHT).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the DTC “U0104” detected?

YES >> Refer to DAS-67, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547680

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-64, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-64, "SIDE RADAR RH : DTC Logic" (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”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-28, "DTC Index".
NO >> Replace side radar LH or RH. Refer to DAS-89, "Removal and Installation"

U0121 VDC CAN 2

DTC Logic

INFOID:0000000012547681

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 DAS-63, "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 “U0121” is detected as the current malfunction in “Self Diagnostic Result” of “BSW/BUZZER”.

Is “U0121” detected as the current malfunction?

YES >> Refer to DAS-68, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547682

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 DAS-63, "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 DAS-88, "Removal and Installation".

U0401 ECM CAN 1

DTC Logic

INFOID:0000000012547683

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 DAS-63, "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-69, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547684

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 DAS-63, "ADAS CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ECM SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to EC-104, "DTC Index" (USA and Canada) or EC-592, "DTC Index" (Mexico).
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U0402 TCM CAN 1

DTC Logic

INFOID:0000000012547685

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	TCM

NOTE:
If DTC “U0402” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-63, "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 “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 GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547686

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 DAS-63, "ADAS CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK TCM SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-65, "DTC Index" (RE0F10E) or TM-286, "DTC Index" (RE0F10J).
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U0405 ADAS CAN 2

DTC Logic

INFOID:0000000012547687

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 DAS-64, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-64, "SIDE RADAR LH : DTC Logic" (SIDE RADAR RIGHT).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the DTC “U0405” detected?

YES >> Refer to DAS-71, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547688

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-64, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-64, "SIDE RADAR RH : DTC Logic" (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”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-28, "DTC Index".
NO >> Replace side radar LH or RH. Refer to DAS-89, "Removal and Installation".

U0415 VDC CAN 1

DTC Logic

INFOID:0000000012547689

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 DAS-63, "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 “U0415” is detected as the current malfunction in “Self Diagnostic Result” of “BSW/BUZZER”.

Is “U0415” detected as the current malfunction?

YES >> Refer to DAS-72, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547690

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-63, "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 DAS-88, "Removal and Installation".

U1503 SIDE RDR L CAN 2

DTC Logic

INFOID:0000000012547699

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 received 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-63, "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.
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 DAS-73, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547700

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 DAS-30, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U1504 SIDE RDR L CAN 1

DTC Logic

INFOID:0000000012547701

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 received 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 DAS-78, "DTC Logic" for DTC “U1508”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is “U1504” detected as the current malfunction?

YES >> Refer to DAS-74, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547702

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” or “U1508” is detected other than “U1504” 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 DAS-30, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-89, "Removal and Installation".

U1505 SIDE RDR R CAN 2

DTC Logic

INFOID:0000000012547703

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 received 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 DAS-63, "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 “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-75, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547704

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 DAS-63, "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 DAS-32, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U1506 SIDE RDR R CAN 1

DTC Logic

INFOID:0000000012547705

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 received 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 DAS-63, "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 “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 GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547706

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 DAS-63, "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 DAS-32, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U1507 LOST COMM(SIDE RDR R)

DTC Logic

INFOID:0000000012547707

DTC DETECTION LOGIC

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

NOTE:
If DTC “U1507” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-63, "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 “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-77, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000012547708

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 DAS-63, "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 DAS-32, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".

U1508 LOST COMM(SIDE RDR L)

DTC Logic

INFOID:0000000012547709

DTC DETECTION LOGIC

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

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is “U1508” detected as the current malfunction?

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

Diagnosis Procedure

INFOID:0000000012547710

1.CHECK SIDE RADAR HARNESS CONNECTOR

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

Is the inspection result normal?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to LAN-21, "Trouble Diagnosis Flow Chart".
NO >> Repair the terminal or connector.

POWER SUPPLY AND GROUND CIRCUIT

ADAS CONTROL UNIT

ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:0000000012547715

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 ADAS CONTROL UNIT POWER SUPPLY CIRCUIT

Check voltage between ADAS control unit harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the 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 control unit		Ground	Continuity
Connector	Terminal		
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

INFOID:0000000012547716

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

Terminals			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(−)			
Side radar LH		Ground	Ignition switch		
Connector	Terminal				
B416	5		OFF	0 - 0.1 V	0 V
			ON	10 - 16 V	Battery voltage

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between side radar LH harness connectors and ground.

Side radar LH		Ground	Continuity
Connector	Terminal		
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:0000000012547717

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.

Terminals			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(−)			
Side radar RH		Ground	Ignition switch		
Connector	Terminal				
B109	5		OFF	0 - 0.1 V	0 V
			ON	10 - 16 V	Battery voltage

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between side radar RH harness connectors and ground.

Side radar RH		Ground	Continuity
Connector	Terminal		
B109	8		Yes

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair the side radar RH ground circuit.

WARNING SYSTEM SWITCH CIRCUIT

Component Function Check

INFOID:0000000012547718

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
WARN SYS SW	Warning system switch is pressed	On
	Warning system switch is not pressed	OFF

Is the inspection result normal?

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

Diagnosis Procedure

INFOID:0000000012547719

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	Voltage (Approx.)
(+)		(−)		
ADAS control unit		Ground	Warning system switch	
Connector	Terminal			
B104	18		Pressed	0 V
			Released	Battery voltage

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to DAS-88, "Removal and Installation".
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 DAS-91, "Removal and Installation".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the warning system switch. Refer to DAS-91, "Removal and Installation".

3.CHECK WARNING SYSTEM SWITCH GROUND CIRCUIT

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

Warning system switch		Ground	Continuity
Connector	Terminal		
M133	8		Yes

Is the inspection result normal?

YES >> GO TO 4.

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 control unit		Warning system switch		Continuity
Connector	Terminal	Connector	Terminal	
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 control unit		Ground	Continuity
Connector	Terminal		
B104	18		No

Is the inspection result normal?

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

Component Inspection

INFOID:0000000012547720

1. CHECK WARNING SYSTEM SWITCH

Check continuity of warning system switch.

Terminal		Condition	Continuity
6	8	When warning system switch is pressed	Yes
		When warning system switch is released	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace warning system switch. Refer to DAS-91, "Removal and Installation".

BSW ON INDICATOR CIRCUIT

Diagnosis Procedure

INFOID:0000000012547721

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 system switch		Ground	
Connector	Terminal		
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	
B104	19	M133	3	Yes

Is the inspection result normal?

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

3.CHECK BSW ON INDICATOR SIGNAL CIRCUIT FOR SHORT

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

ADAS control unit		Ground	Continuity
Connector	Terminal		
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 DAS-88, "Removal and Installation".
NO >> Replace warning system switch. DAS-91, "Removal and Installation".

Component Inspection

INFOID:0000000012547722

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
(+)	(-)		
5	3	When the battery voltage is applied	On
		When the battery voltage is not applied	Off

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace the warning system switch. Refer to DAS-91, "Removal and Installation".

SYMPTOM DIAGNOSIS

BSW SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000012547723

CAUTION:
Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.
NOTE:
For the operational conditions of BSW, refer to DAS-13, "System Description".

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON.	BSW warning lamp (Yellow) does not illuminate	• BSW warning lamp signal (CAN) - Combination meter - ADAS control unit • BSW warning lamp (combination meter)	• Power supply and ground circuit of ADAS control unit Refer to DAS-79, "ADAS CONTROL UNIT : Diagnosis Procedure" • ADAS control unit Active test “BSW/BSI WARNING LAMP” Refer to DAS-20, "CONSULT Function (BSW/BUZZER)". • ADAS control unit Data monitor “BSW/BSI WARN LMP” Refer to DAS-20, "CONSULT Function (BSW/BUZZER)" • Combination meter Data monitor “BSW W/L” Refer to MWI-18, "CONSULT Function (METER/M&A)"
	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 DAS-84, "Diagnosis Procedure"
	BSW indicator does not turn ON	• Harness between side radar and BSW indicator • Side radar LH/RH • BSW indicator	Perform self-diagnosis of side radar Refer to DAS-22, "CONSULT Function (SIDE RADAR LEFT)" or DAS-24, "CONSULT Function (SIDE RADAR RIGHT)"
BSW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	BSW ON indicator is not turned ON ⇔ OFF when operating 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 DAS-84, "Diagnosis Procedure"
	Buzzer is not sounding	• ADAS control unit • Combination meter	Meter buzzer circuit Refer to WCS-30, "Component Function Check"

NORMAL OPERATING CONDITION

Description

INFOID:0000000012547724

PRECAUTIONS FOR BLIND SPOT WARNING (BSW)

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

REMOVAL AND INSTALLATION

ADAS CONTROL UNIT

Removal and Installation

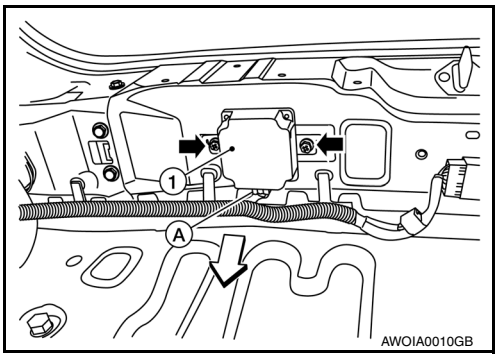
INFOID:0000000012547725

REMOVAL

CAUTION:

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

1. Disconnect the battery negative terminal. Refer to PG-93, "Removal and Installation".
2. Remove the storage box. Refer to INT-33, "STORAGE BOX : Removal and Installation".
3. 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.

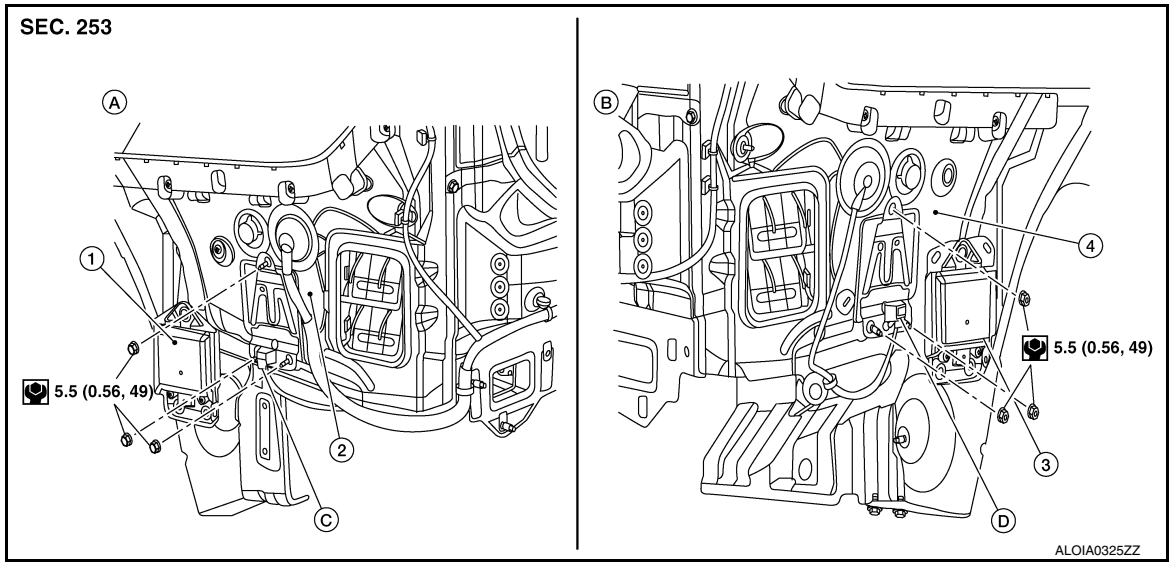
- Tighten ADAS control unit bolts to specification.

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

SIDE RADAR

Exploded View

INFOID:0000000012547726



1. Side radar (LH)
2. Body side (LH)
3. Side radar (RH)
4. Body side (RH)
A. LH side
B. RH side
C. Harness connector (LH)
D. Harness connector (RH)

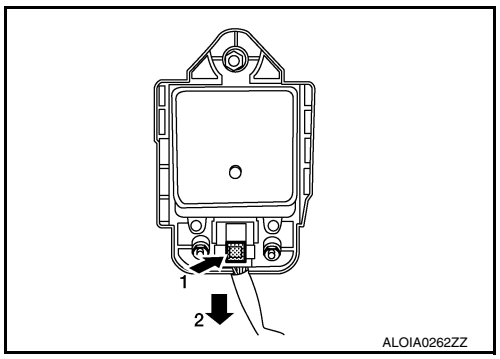
Removal and Installation

INFOID:0000000012547727

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.

CAUTION:

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

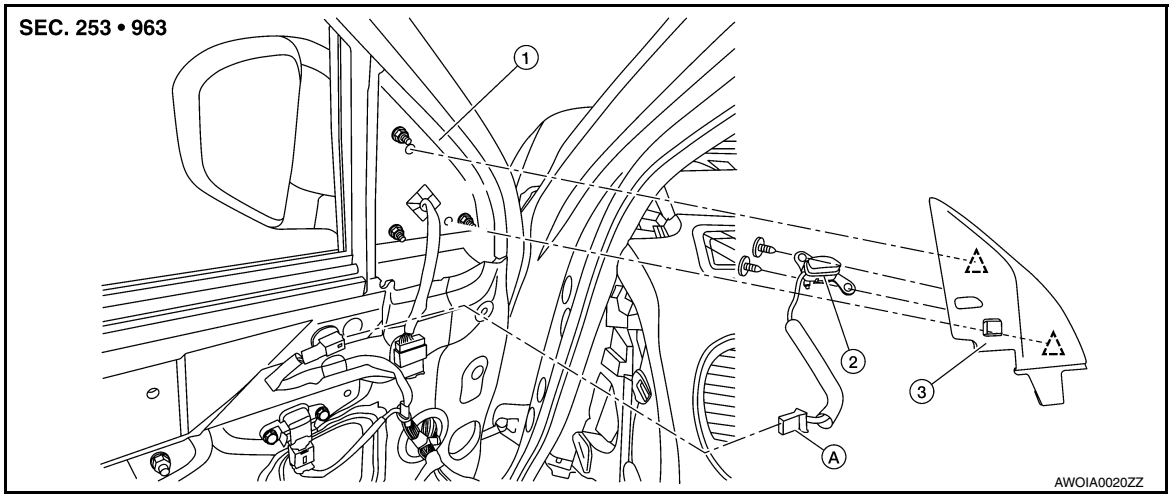
NOTE:

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

BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR

Exploded View

INFOID:0000000012547728



1. Front door
2. Blind spot warning/blind spot intervention indicator
3. Door mirror corner finisher
A. Blind spot warning/blind spot intervention indicator harness connector
Clip

Removal and Installation

INFOID:0000000012547729

REMOVAL AND INSTALLATION

Removal

1. Remove front door finisher. Refer to INT-15, "Removal and Installation".
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.

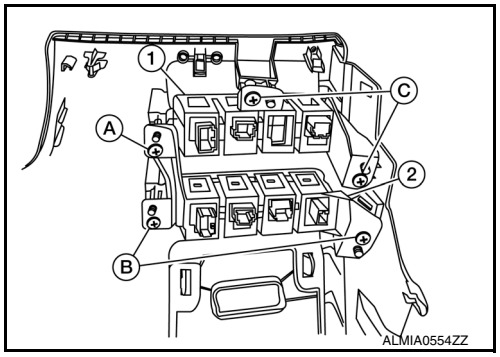
WARNING SYSTEMS SWITCH

Removal and Installation

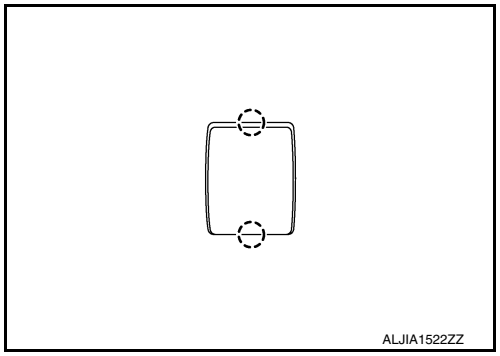
INFOID:0000000012547730

REMOVAL

1. Remove the instrument lower panel LH. Refer to IP-25, "Removal and Installation".
2. Remove three screws (A, B) that retain the lower switch carrier (2).
   (1): Upper switch carrier
   (C): Upper switch carrier screws



3. Release pawls using suitable tool and remove the warning system switch from the lower switch carrier.
   ◌: Pawl



INSTALLATION

Installation is in the reverse order of removal.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012547731

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:

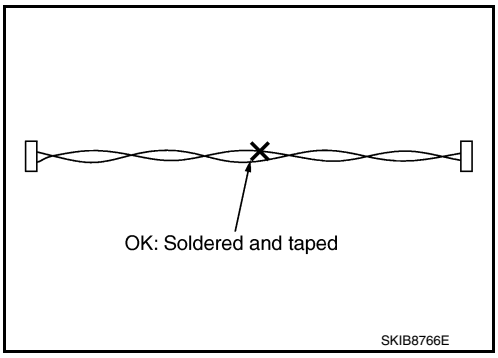
- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious 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

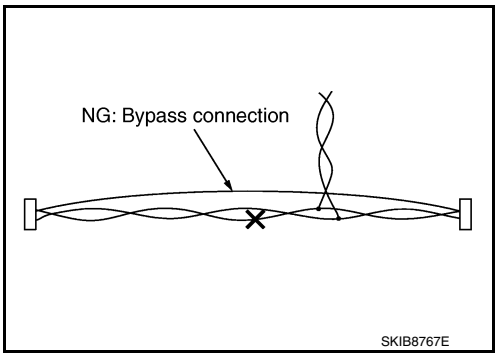
INFOID:0000000012547732

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.



Precaution for Backup Collision Intervention

INFOID:0000000012547733

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 chassis dynamometer.**
- **Do not perform the active test while driving.**
- **Do not change BCI initial state ON ⇒ OFF without the consent of the customer.**

TO KEEP THE BACKUP COLLISION INTERVENTION SYSTEM OPERATING PROPERLY, BE SURE TO OBSERVE THE FOLLOWING ITEMS:

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 near the side radars.
- Do not strike or damage the area around the side radars.

System Maintenance

The four rear sonars for the Backup Collision Intervention system are located in the rear bumper.

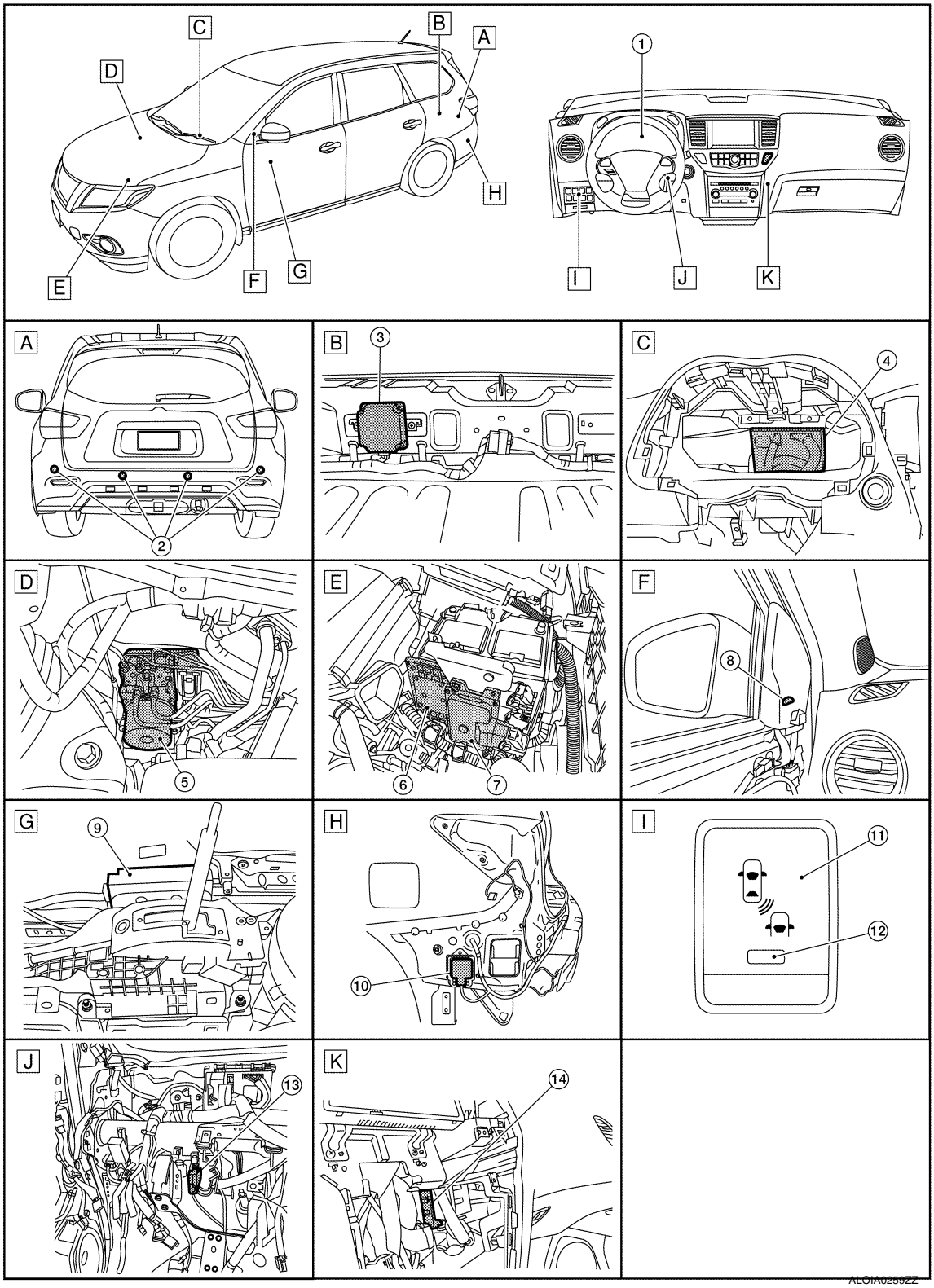
- Always keep the area near the rear sonars clean.
- Do not attach stickers (including transparent material), install accessories or apply additional paint near the rear sonars.
- Do not strike or damage the area around the rear sonars.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000013162042

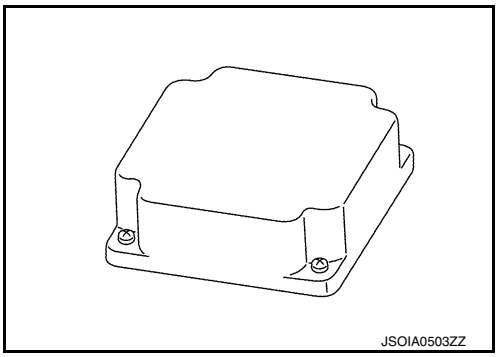


A. Rear view of vehicle
B. Rear storage area (view with storage box removed)
C. Instrument panel left side (view with combination meter removed)
D. Engine room right side
E. Engine room left side
F. Left front door (view with driver door finisher removed)
G. Center console (view with center console assembly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

No.	Component	Function
1	Combination meter	• Description: Refer to DAS-11, "Combination Meter" • System display and warning: DAS-17, "System Display and Warning" Refer to MWI-6, "METER SYSTEM : Component Parts Location" 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	BCM	Refer to DAS-11, "BCM" Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location
5	ABS actuator and electric unit (control unit)	Refer to DAS-11, "ABS Actuator and Electric Unit (Control Unit)" Refer to BRC-11, "Component Parts Location" (type 1) for detailed installation location Refer to BRC-169, "Component Parts Location" (type 2) for detailed installation location
6	ECM	Refer to DAS-12, "ECM" Refer to EC-20, "ENGINE CONTROL SYSTEM : Component Parts Location" (USA and Canada) for detailed installation location Refer to EC-516, "ENGINE CONTROL SYSTEM : Component Parts Location" (Mexico) for detailed installation location
7	TCM	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 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

INFOID:0000000013162043

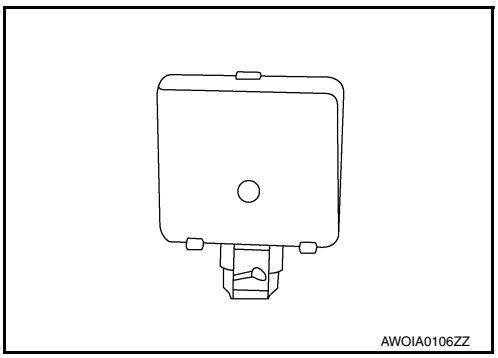


- Controls the BSW system, based on received signals.
- Communicates with each control unit via CAN communication.

- Connected with the side radar (LH and RH) via 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

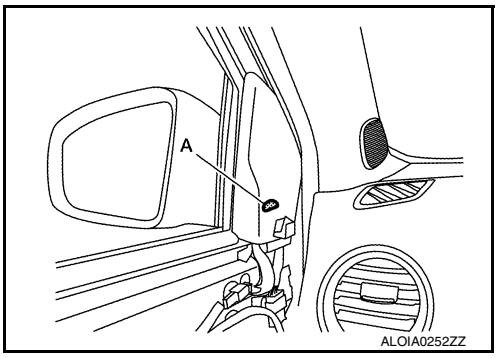
INFOID:0000000013162044



- 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

INFOID:0000000013162045



- 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

INFOID:0000000013162046

- 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

INFOID:0000000013162047

- 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)

INFOID:0000000013162048

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

BCM

INFOID:0000000013162049

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

TCM

INFOID:0000000013162050

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

ECM

INFOID:0000000013162051

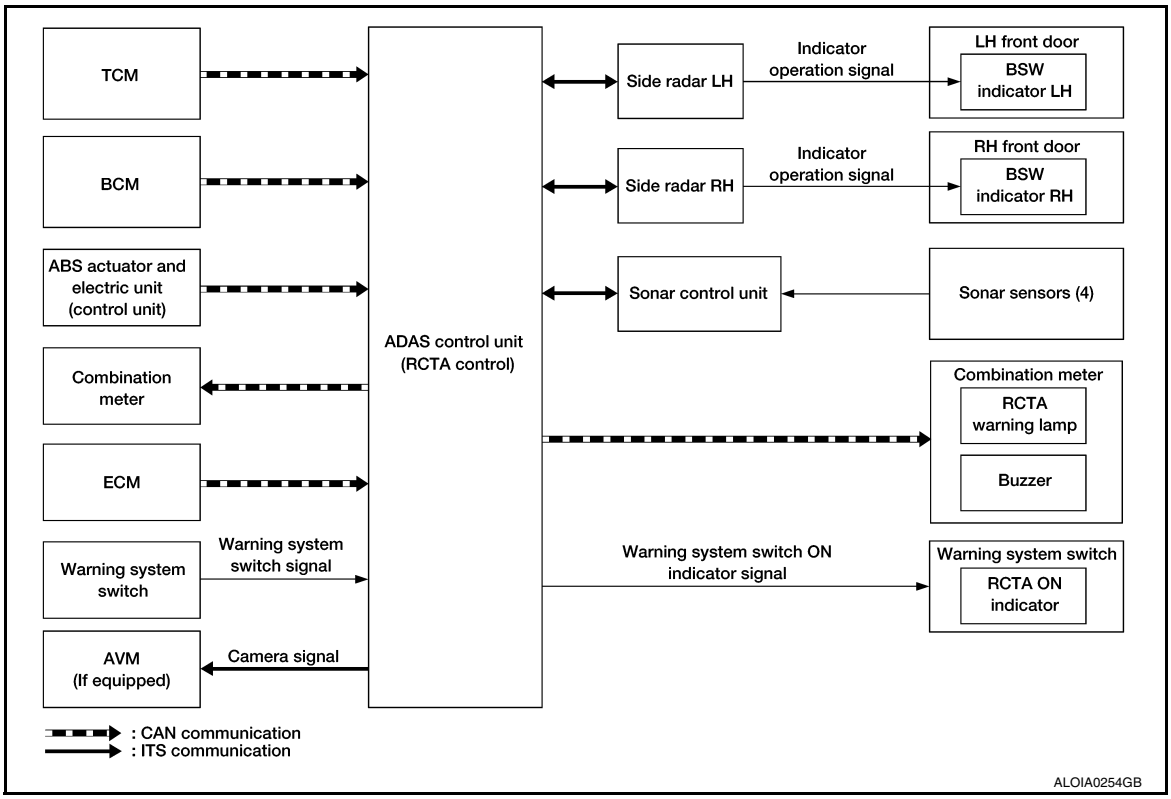
Transmits engine speed signal to ADAS control unit via CAN communication.

SYSTEM

System Description

INFOID:0000000012547744

SYSTEM DIAGRAM



ADAS CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

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

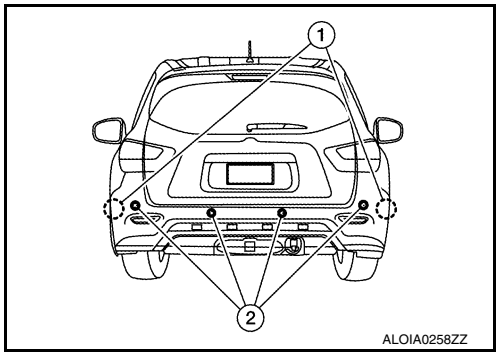
Output Signal Item

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
		Buzzer output signal	Transmits a buzzer output signal to activate buzzer

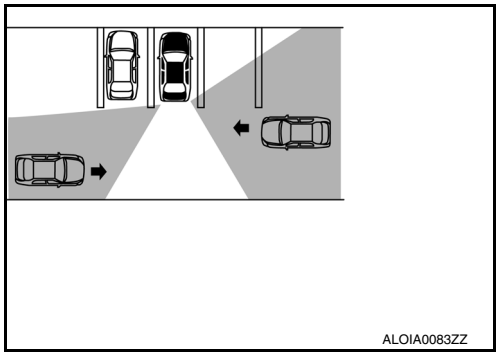
Reception unit	Signal name		Description
Sonar control unit	ITS communication	Warning buzzer signal	While the shifter is in reverse and backing up, transmits a request for a variable warning buzzer signal to alert the driver.
Around view monitor control unit	ITS communication	Visual signal request	Transmits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

FUNCTION DESCRIPTION

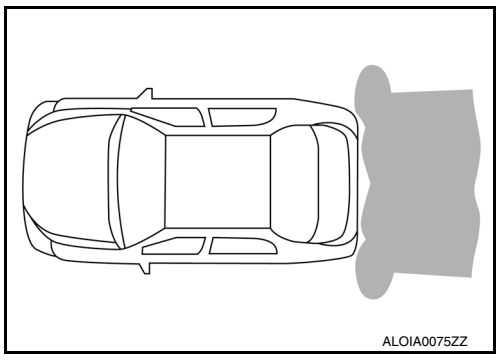
- The Rear Cross Traffic Area (RCTA) system can help alert the driver of approaching vehicles or rear objects when the driver is backing out of a parking space.
- The RCTA system comprise of two main detection systems. The side radars (1), and the four sonar sensors (2) mounted on the rear bumper cover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



- 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.



- 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.

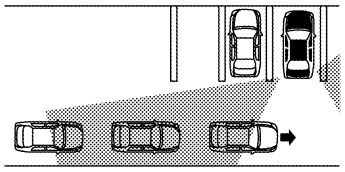
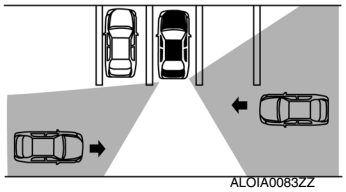
RCTA SYSTEM OPERATION DESCRIPTION

- 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

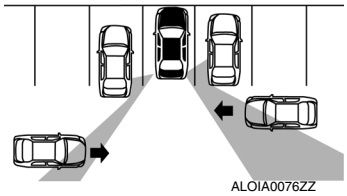
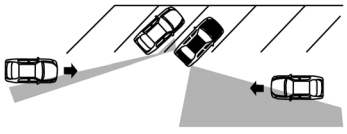
ADAS control unit performs the control when the following conditions are satisfied.

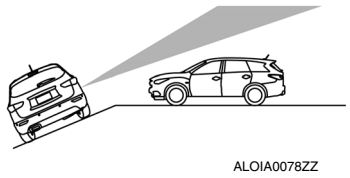
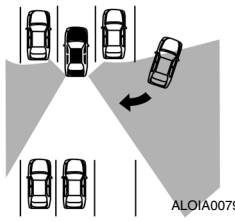
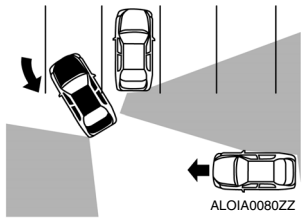
- When the warning system switch in turned ON.
- When the vehicle drives at approximately 5 MPH (8 km/h) or less in reverse (R) direction.

Examples of certain situations	Illustration of certain situations
• When several vehicles approaching in a row or in the opposite direction, a chime may not be sounded by the RCTA system after the first vehicle passes the sensors. • The sonar system chime indicating there is an object behind the vehicle has a higher priority than the RCTA chime (single beep) indicating an approaching vehicle. If the RCTA system detects an object behind the vehicle and an approaching vehicle at the same time, then the following will take place: - The sonar system chime sounds - BSW warning indicator lights on side of approaching vehicle flashes.	 ALOIA0255ZZ  ALOIA0083ZZ

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	 ALOIA0076ZZ
When the vehicle is parked in an angled parking space	 ALOIA0077ZZ

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	 ALOIA0079ZZ
When the angle formed by your vehicle and approaching vehicle is small	 ALOIA0080ZZ

RCTA INITIAL STATE CHANGE

CAUTION:

Never change RCTA initial state "ON" ⇒ "OFF" without the consent of the customer.

RCTA initial state can be changed.

- RCTA initial ON* - RCTA function is automatically turned ON, when the ignition switch OFF ⇒ ON.
- RCTA initial OFF - RCTA function is still OFF when the ignition switch OFF ⇒ ON.

*: Factory setting

How to change RCTA initial state

1. Turn ignition switch ON.
2. Switch RCTA 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:0000000012547745

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

Fail-safe (Side Radar)

INFOID:0000000012547746

FAIL-SAFE CONTROL BY DTC

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

TEMPORARY DISABLED STATUS AT BLOCKAGE

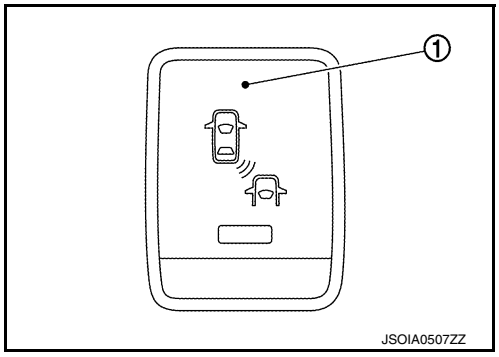
When the side radar is blocked, the operation is temporarily cancelled. Then RCTA warning lamp in combination meter blinks. Also, under the following conditions, the operation may be temporarily cancelled.

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

OPERATION

Switch Name and Function

INFOID:0000000012547747

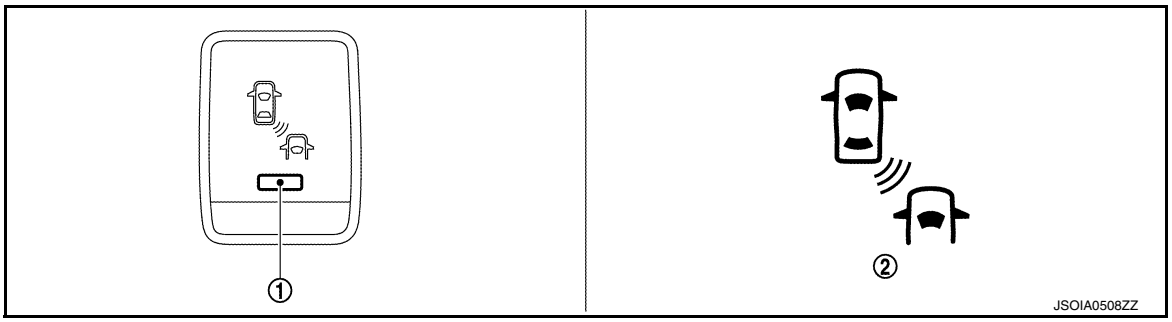


No.	Name	Function
1	Warning system switch	Turns RCTA system ON/OFF

System Display and Warning

INFOID:0000000012547748

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 malfunctioning • Blinks when radar blockage is detected

DISPLAY AND WARNING OPERATION

Vehicle condition/ Driver's operation				Action	
RCTA ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Shift lever position	Status of vehicle detection within detection area	Indication on the BSW indicator	Buzzer
OFF	—	—	—	OFF	OFF
ON	More than approx. 8 (5)	—	—	OFF	OFF
	Approx. 8 (5) or less	Except (R)	Vehicle is absent	OFF	OFF
		Reverse (R)	Vehicle is detected	ON	ON

NOTE:

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.

HANDLING PRECAUTION

Precautions for Rear Cross Traffic Alert

INFOID:0000000012547749

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)

CONSULT Function (BSW/BUZZER)

INFOID:0000000013123892

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-113, "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

ICC BUZZER

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

BSW/BSI WARNING LAMP

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

DIAGNOSIS SYSTEM (SIDE RADAR LH)

CONSULT Function (SIDE RADAR LEFT)

INFOID:0000000013123893

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-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

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.**

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

DIAGNOSIS SYSTEM (SIDE RADAR RH)

CONSULT Function (SIDE RADAR RIGHT)

INFOID:0000000013123894

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-117, "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.**

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

ECU DIAGNOSIS INFORMATION

ADAS CONTROL UNIT

Reference Value

INFOID:0000000013123895

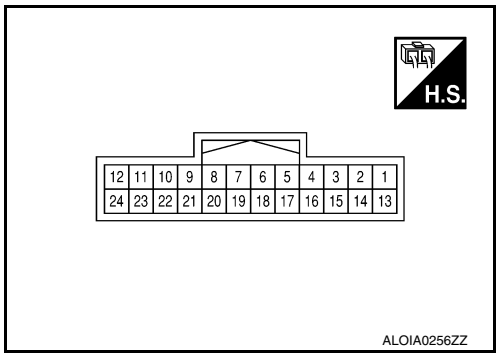
VALUES ON THE DIAGNOSIS TOOL

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

TERMINAL LAYOUT

PHYSICAL VALUES



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

Fail-safe

INFOID:0000000013123896

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

INFOID:0000000013123897

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

DTC Index

INFOID:0000000013123898

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

SIDE RADAR LH

Reference Value

INFOID:0000000013123899

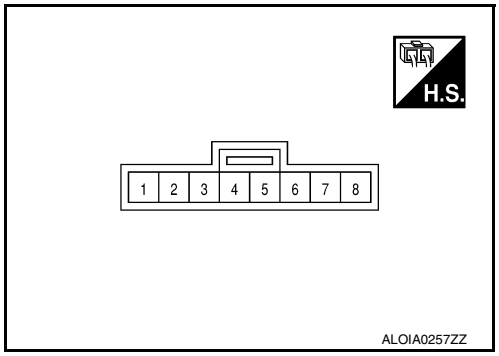
VALUES ON THE DIAGNOSIS TOOL

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 STATUS	BSW system is normal.	On
	BSW system is malfunctioning.	Off
CTA SYSTEM ON	CTA system is ON	On
	CTA system is OFF.	Off
BSW STATUS	BSW system is ON	Off
	BSW system is OFF.	On
VHCL SPD SE	Indicates current vehicle speed.	Km/h
TURN SIGNAL	Left turn signal is ON.	On
	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

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
4 (W)	Ground	BSW indicator	Output	Approx. 2 sec. after ignition switch OFF ⇒ 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)		ITS CAN-H	—	—	—	—
7 (Y)		ITS CAN-L	—	—	—	—
8 (B)		Ground	—	—	0 - 0.1 V	0 V

Fail-safe

INFOID:0000000013123900

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:0000000013123901

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:0000000013123902

×: 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	×	DAS-58
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

SIDE RADAR RH

Reference Value

INFOID:0000000013123903

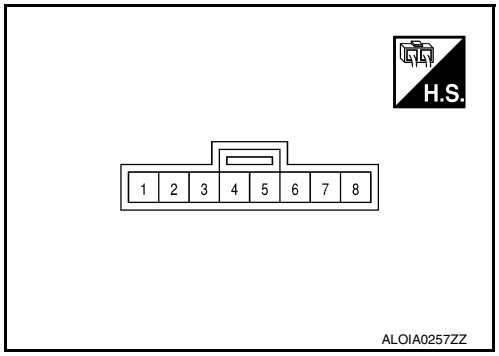
VALUES ON THE DIAGNOSIS TOOL

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 STATUS	BSW system is normal.	On
	BSW system is malfunctioning.	Off
CTA SYSTEM ON	CTA system is ON	On
	CTA system is OFF.	Off
BSW STATUS	BSW system is ON	Off
	BSW system is OFF.	On
VHCL SPD SE	Indicates current vehicle speed.	Km/h
TURN SIGNAL	Right turn signal is ON.	On
	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

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	–	Signal name	Input/ Output			
3 (B)	Ground	Shield ground	—	—	0 - 0.1 V	0 V
4 (W)		BSW indicator	Output	Approx. 2 sec. after ignition switch OFF ⇒ 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)		ITS CAN-H	—	—	—	—
7 (Y)		ITS CAN-L	—	—	—	—
8 (B)		Ground	—	—	0 - 0.1 V	0 V

Fail-safe

INFOID:0000000013123904

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:0000000013123905

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:0000000013123906

×: 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	×	DAS-58
C1B55	RADAR BLOCKAGE	Blink	×	DAS-62
U1000	CAN COMM CIRCUIT	ON	×	DAS-64
U1010	CONTROL UNIT (CAN)	ON	×	DAS-66

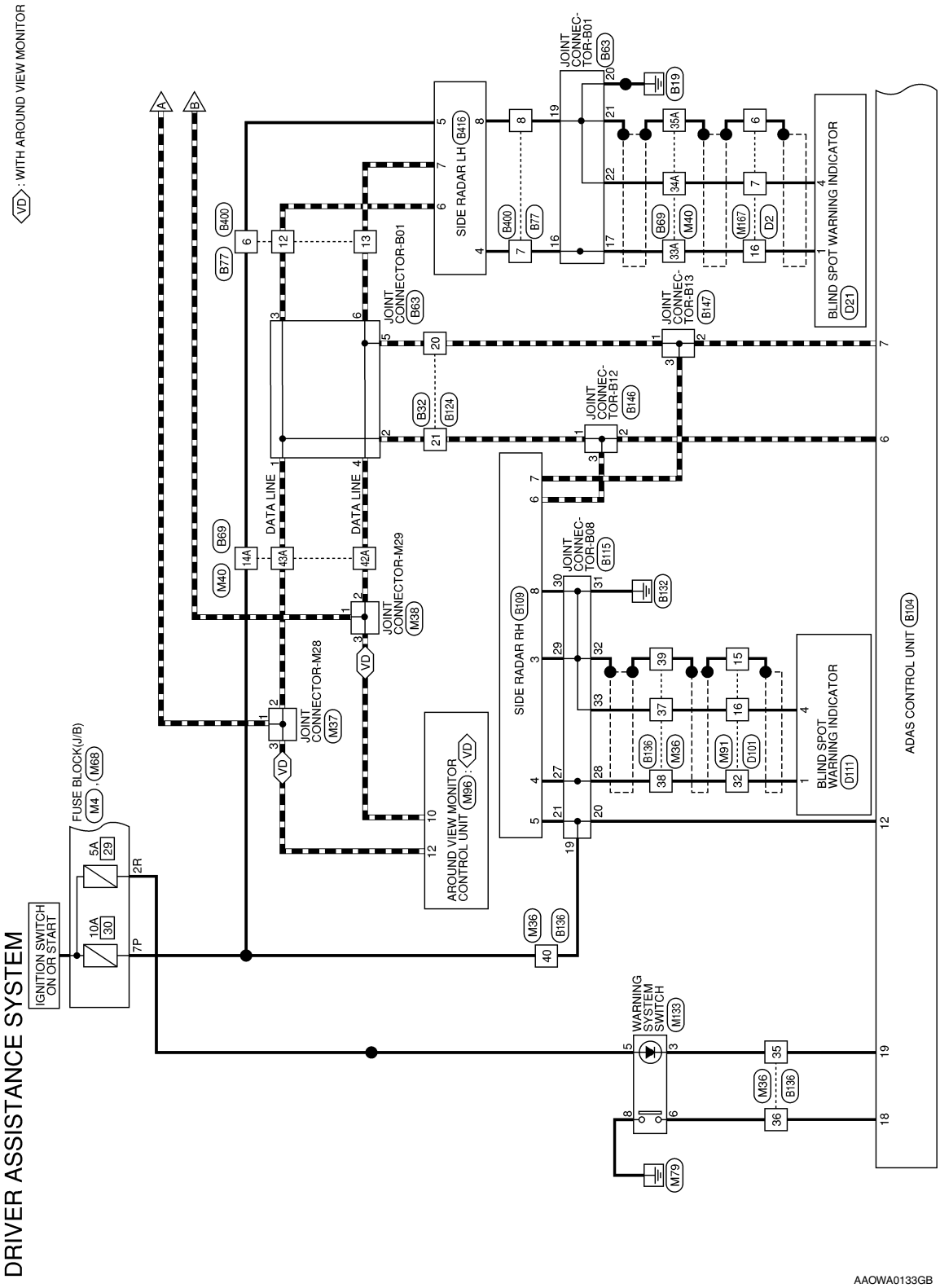
DTC		BSW warning lamp	Fail-safe	Reference page
U0104	ADAS CAN CIR1	ON	×	DAS-67
U0405	ADAS CAN CIR2	ON	×	DAS-71

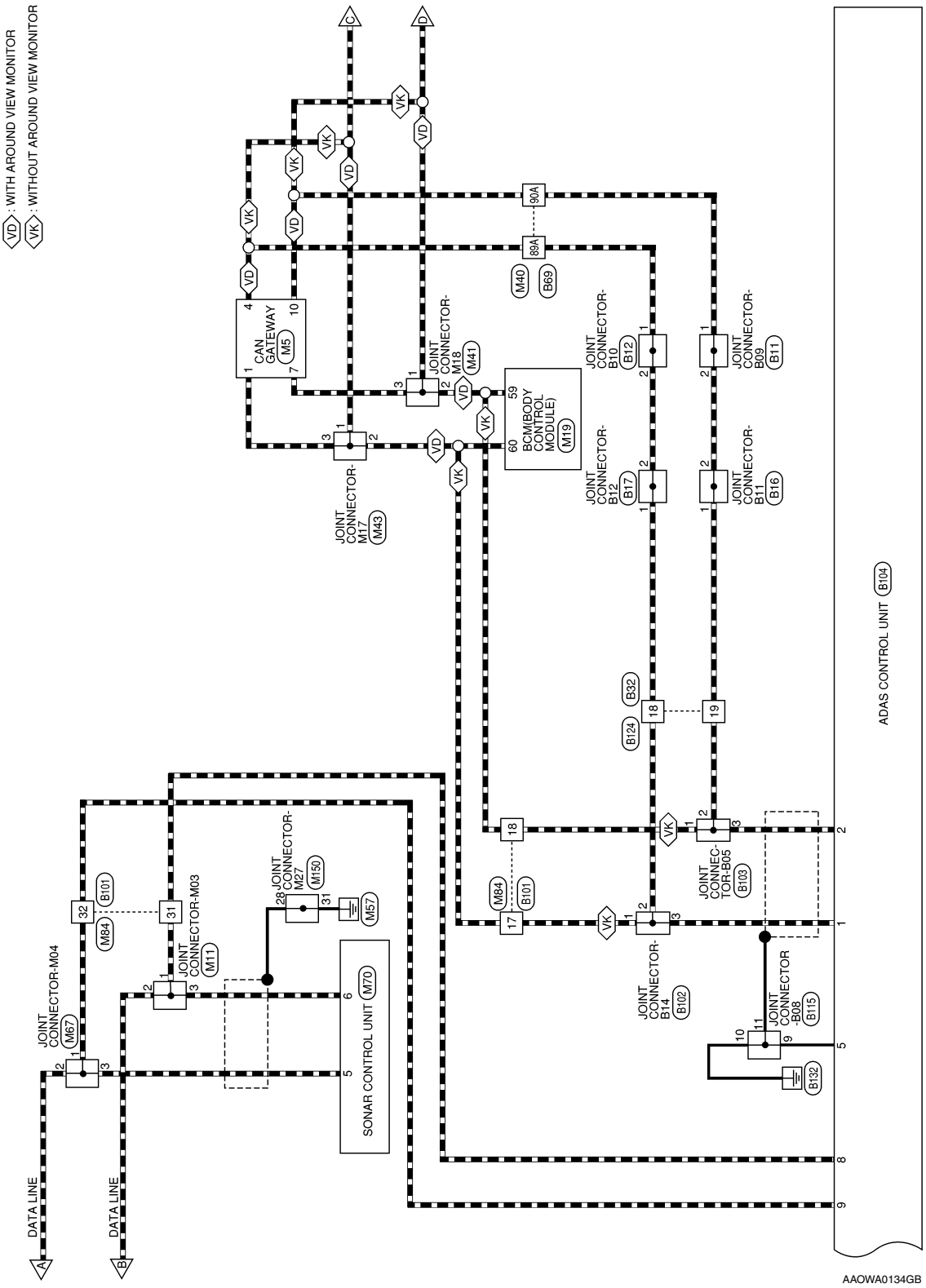
WIRING DIAGRAM

REAR CROSS TRAFFIC AREA

Wiring Diagram

INFOID:0000000013123907




VD : WITH AROUND VIEW MONITOR
VK : WITHOUT AROUND VIEW MONITOR
CAN GATEWAY (M5)
JOINT CONNECTOR-M18 (M41)
BCM(BODY CONTROL MODULE) (M19)
JOINT CONNECTOR-M17 (M43)
JOINT CONNECTOR-B10 (B12)
JOINT CONNECTOR-B09 (B11)
JOINT CONNECTOR-B12 (B17)
JOINT CONNECTOR-B11 (B16)
ADAS CONTROL UNIT (B104)
JOINT CONNECTOR-M27 (M150)
JOINT CONNECTOR-M03 (M11)
JOINT CONNECTOR-M04 (M67)
SONAR CONTROL UNIT (M70)
JOINT CONNEC-TOR-B05 (B103)
JOINT CONNECTOR-B14 (B102)
JOINT CONNECTOR-B08 (B115)
DATA LINE
DATA LINE
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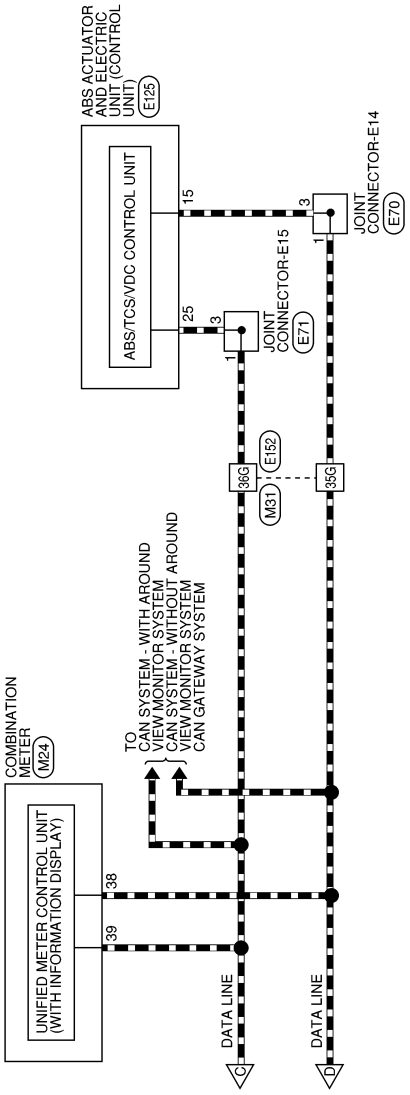

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DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

7P	6P	5P	4P		3P	2P	1P
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
7P	LG	–

Connector No.	M5
Connector Name	CAN GATEWAY
Connector Color	WHITE

H.S.

1	2	3	4	5	6
7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
4	L	CAN-H
7	P	CAN-L
10	P	CAN-L

Connector No.	M11
Connector Name	JOINT CONNECTOR-M03
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	Y	–
3	W	–

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

H.S.

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
59	P	CAN-L
60	L	CAN-H

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
38	P	CAN-L
39	L	CAN-H

ABOIA0268GB

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1G	2G	3G	4G	5G
6G	7G	8G	9G	10G

11G	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G
22G	23G	24G	25G	26G	27G	28G	29G	30G		

31G	32G	33G	34G	35G	36G	37G	38G	39G	40G	41G
42G	43G	44G	45G	46G	47G	48G	49G	50G		

51G	52G	53G	54G	55G	56G	57G	58G	59G	60G	61G
62G	63G	64G	65G	66G	67G	68G	69G	70G		

71G	72G	73G	74G	75G	76G	77G	78G	79G	80G	81G
82G	83G	84G	85G	86G	87G	88G	89G	90G		

91G	92G	93G	94G	95G
96G	97G	98G	99G	100G

Terminal No.	Color of Wire	Signal Name
35G	P	–
36G	L	–

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
35	R	–
36	LG	–
37	B	–
38	W	–
39	SHIELD	–
40	LG	–

Connector No.	M37
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	M38
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE

H.S.

4	3	2	1

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

ABOIA0269GB

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

1A	2A	3A	4A	5A
6A	7A	8A	9A	10A

11A	12A	13A	14A	15A	16A	17A	18A	19A	20A	21A
	22A	23A	24A	25A	26A	27A	28A	29A	30A	

31A	32A	33A	34A	35A	36A	37A	38A	39A	40A	41A
	42A	43A	44A	45A	46A	47A	48A	49A	50A	

51A	52A	53A	54A	55A	56A	57A	58A	59A	60A	61A
	62A	63A	64A	65A	66A	67A	68A	69A	70A	

71A	72A	73A	74A	75A	76A	77A	78A	79A	80A	81A
	82A	83A	84A	85A	86A	87A	88A	89A	90A	

91A	92A	93A	94A	95A
96A	97A	98A	99A	100A

Terminal No.	Color of Wire	Signal Name
14A	LG	–
33A	W	–
34A	B	–
35A	SHIELD	–
42A	Y	–
43A	L	–
89A	L	–
90A	P	–

Connector No.	M41
Connector Name	JOINT CONNECTOR-M18
Connector Color	WHITE

H.S.

4 3 2 1

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

Connector No.	M43
Connector Name	JOINT CONNECTOR-M17
Connector Color	WHITE

H.S.

4 3 2 1

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

Connector No.	M67
Connector Name	JOINT CONNECTOR-M04
Connector Color	WHITE

H.S.

4 3 2 1

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

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

H.S.

7R	6R	5R	4R		3R	2R	1R
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
2R	LG	–

AAOIA0438GB

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
15	SHIELD	–
16	B	–
32	W	–

Connector No.	M84
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
17	L	–
18	P	–
31	Y	–
32	L	–

Connector No.	M70
Connector Name	SONAR CONTROL UNIT
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
5	B	CAN-H
6	W	CAN-L

Connector No.	M150
Connector Name	JOINT CONNECTOR-M27
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
28	SHIELD	–
31	GR	–

Connector No.	M133
Connector Name	WARNING SYSTEM SWITCH
Connector Color	WHITE

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
3	R	–
5	GR	–
6	LG	–
8	B	–

Connector No.	M96
Connector Name	AROUND VIEW MONITOR CONTROL UNIT
Connector Color	WHITE

H.S.

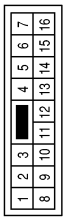
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

Terminal No.	Color of Wire	Signal Name
10	P	CAN-L
12	L	CAN-H

AAOIA0439GB

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE

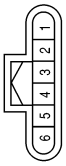
H.S.



Terminal No.	Color of Wire	Signal Name
6	SHIELD	–
7	B	–
16	W	–

Connector No.	E70
Connector Name	JOINT CONNECTOR-E14
Connector Color	BLACK

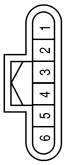
H.S.



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

Connector No.	E71
Connector Name	JOINT CONNECTOR-E15
Connector Color	BLACK

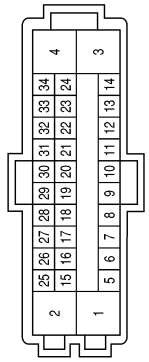
H.S.



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

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK

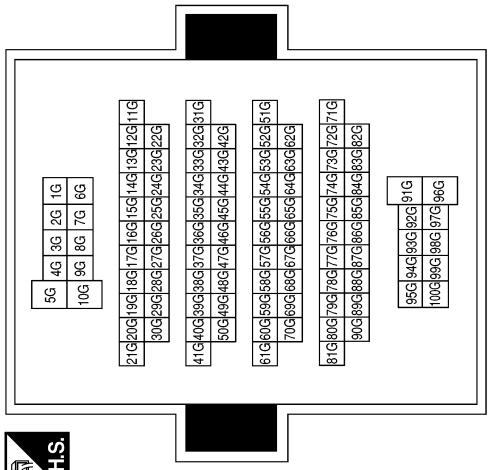
H.S.



Terminal No.	Color of Wire	Signal Name
15	P	CAN-L
25	L	CAN-H

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
35G	P	–
36G	L	–

AAOIA0440GB

Connector No.	B11
Connector Name	JOINT CONNECTOR-B09
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B12
Connector Name	JOINT CONNECTOR-B10
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B16
Connector Name	JOINT CONNECTOR-B11
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B17
Connector Name	JOINT CONNECTOR-B12
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B32
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

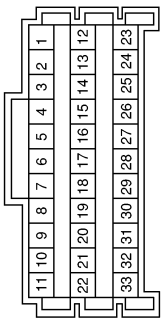
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
18	L	–
19	P	–
20	Y	–
21	L	–

AAOIA0441GB

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	WHITE

H.S.

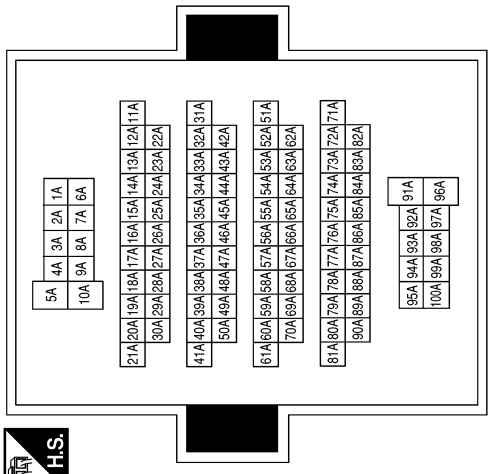


Terminal No.	Color of Wire	Signal Name
1	L	–
2	L	–
3	L	–

Terminal No.	Color of Wire	Signal Name
4	Y	–
5	Y	–
6	Y	–
16	W	–
17	W	–
19	B	–
20	B	–
21	SHIELD	–
22	B	–

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Color	GRAY

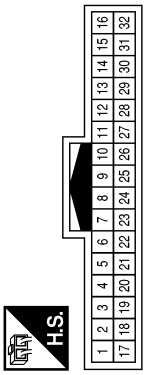
H.S.



Terminal No.	Color of Wire	Signal Name
14A	R	–
33A	W	–
34A	B	–
35A	SHIELD	–
42A	Y	–
43A	L	–
89A	L	–
90A	P	–

Connector No.	B77
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
6	R	–
7	W	–
8	B	–
12	L	–
13	Y	–

AAOIA0442GB

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
17	L	–
18	P	–
31	Y	–
32	BG	–

Connector No.	B102
Connector Name	JOINT CONNECTOR-B14
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B103
Connector Name	JOINT CONNECTOR-B05
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B104
Connector Name	ADAS CONTROL UNIT
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	B	CAN-H
2	W	CAN-L
3	–	–
4	–	–
5	B	GND
6	L	ITS CAN-H
7	Y	ITS CAN-L
8	Y	ITS CAN-L
9	BG	ITS CAN-H

Terminal No.	Color of Wire	Signal Name
10	–	–
11	–	–
12	R	IGN
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	LG	WARNING SYSTEM SW
19	R	WARNING SYSTEM ON IND
20	–	–
21	–	–
22	–	–
23	–	–
24	–	–

Connector No.	B109
Connector Name	SIDE RADAR RH
Connector Color	BLACK

H.S.

1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
3	B	–
4	W	–
5	R	–
6	L	–
7	Y	–
8	B	–

AAOIA0443GB

Connector No.	B124
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
18	L	–
19	P	–
20	Y	–
21	L	–

Connector No.	B147
Connector Name	JOINT CONNECTOR-B13
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	–
2	Y	–
3	Y	–

Terminal No.	Color of Wire	Signal Name
9	B	–
10	GR	–
11	SHIELD	–
19	R	–
20	R	–
21	R	–
27	W	–
28	W	–
29	B	–
30	B	–
31	GR	–
32	SHIELD	–
33	B	–

Connector No.	B146
Connector Name	JOINT CONNECTOR-B12
Connector Color	WHITE

H.S.

4	3	2	1

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

Connector No.	B115
Connector Name	JOINT CONNECTOR-B08
Connector Color	WHITE

H.S.

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12
33	32	31	30	29	28	27	26	25	24	23

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
35	R	–
36	LG	–
37	B	–
38	W	–
39	SHIELD	–
40	R	–

AAOIA0444GB

Connector No.	B400
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
6	R	–
7	W	–
8	B	–
12	L	–
13	Y	–

Connector No.	B416
Connector Name	SIDE RADAR LH
Connector Color	BLACK

H.S.

1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
4	W	–
5	R	–
6	L	–
7	Y	–
8	B	–

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4	3	2	1
16	15	14	13	12	11	10	9	8
---	---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
6	SHIELD	–
7	B	–
16	W	–

Connector No.	D21
Connector Name	BLIND SPOT WARNING INDICATOR LH
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	W	–
4	B	–

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	17
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18		

Terminal No.	Color of Wire	Signal Name
15	SHIELD	–
16	B	–
32	W	–

Connector No.	D111
Connector Name	BLIND SPOT WARNING INDICATOR RH
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	W	–
4	B	–

AAOIA0445GB

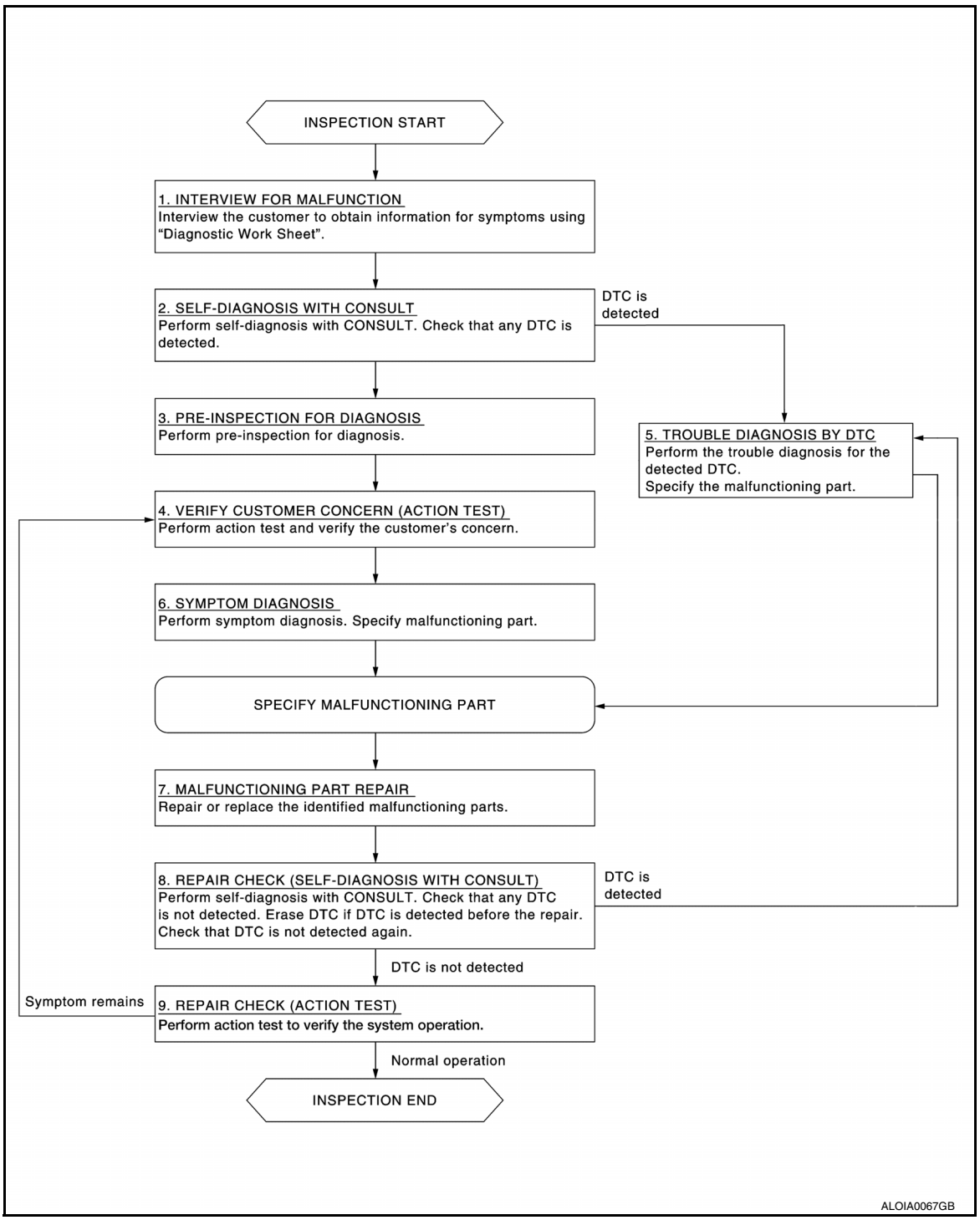
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012547766

OVERALL SEQUENCE



DETAILED FLOW

1.INTERVIEW FOR MALFUNCTION

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

NOTE:

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

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the self-diagnosis results of “SIDE RADAR LEFT/RIGHT” and/or “BSW/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-135, "Inspection Procedure".

>> 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.
2. Perform trouble diagnosis for the detected DTC. Refer to DAS-115, "DTC Index" (SIDE RADAR LEFT) or DAS-117, "DTC Index" (SIDE RADAR RIGHT) and/or DAS-113, "DTC Index" (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 DAS-171, "Symptom Table".

>> GO TO 7.

7.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 8.

8.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

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

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

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:0000000012547767

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).

Is it properly installed?

YES >> Inspection End.
NO >> Install side radar properly.

ACTION TEST

Description

INFOID:0000000012547768

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 DAS-93, "Precaution for Backup Collision Intervention".**
- **System description for Rear Cross Traffic Alert: Refer to DAS-98, "System Description".**
- **Normal operating condition: Refer to DAS-172, "Description".**

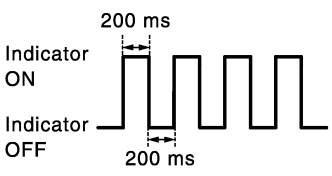
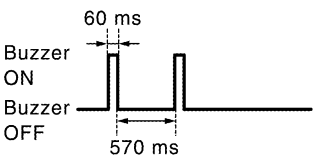
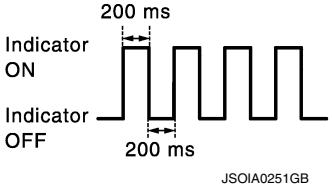
Work Procedure

INFOID:0000000012547769

WARNING:
Be careful of traffic conditions and safety around the vehicle when performing road test.
CAUTION:
Fully understand the following items well before the road test;
- **Precautions: Refer to DAS-7, "Precaution for BSW System Service".**
- **System description: Refer to DAS-13, "System Description".**
- **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.

<table>
<tr><th colspan="4">Vehicle condition/ Driver's operation</th><th colspan="2">Action</th></tr>
<tr><th>RCTA ON indicator</th><th>Vehicle speed (Approx.) [km/h (MPH)]</th><th>Shift lever position</th><th>Status of vehicle detection within detection area</th><th>Indication on the BSW indicator</th><th>Buzzer</th></tr>
<tr><td>OFF</td><td>—</td><td>—</td><td>—</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="5">ON</td><td>More than approx. 8 (5)</td><td>—</td><td>—</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="4">Approx. 8 (5) or less</td><td>Except (R)</td><td>Vehicle is absent</td><td>OFF</td><td>OFF</td></tr>
<tr><td rowspan="3">Reverse (R)</td><td>Vehicle is detected</td><td>ON</td><td>ON</td></tr>
<tr><td>Several vehicles approaching in detection zone behind</td><td>Blink
 
</td><td>One single beep
 
</td></tr>
<tr><td>Object behind vehicle and several vehicles approaching in detection zone</td><td>Blink
 
</td><td>Sonar chime sounds</td></tr>
</table>

NOTE:
- 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.
- Time shown in the figure is approximate time.

>> Inspection End.

DTC/CIRCUIT DIAGNOSIS

C1A00 CONTROL UNIT

DTC Logic

INFOID:0000000013147263

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 DAS-138, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000013147264

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 DAS-113, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Logic

INFOID:0000000013147265

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

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

YES >> Refer to DAS-139, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147266

1.CHECK ADAS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of ADAS control unit. Refer to DAS-164, "ADAS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

C1A03 VEHICLE SPEED SENSOR

DTC Logic

INFOID:0000000013147267

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
C1A03	VHCL SPEED SE CIRC	If the vehicle speed signal (wheel speed) from ABS actuator and electric unit (control unit) received by the ADAS control unit via CAN communication, 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 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. 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 GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147268

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 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 DAS-174, "Removal and Installation".

C1B50 SIDE RADAR MALFUNCTION

DTC LOGIC

INFOID:0000000013147269

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the “C1B50” detected as the current malfunction?

YES >> Refer to DAS-141, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000013147270

1.CHECK SELF-DIAGNOSIS RESULT

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunction part. Refer to DAS-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".

C1B51 BSW/BSI INDICATOR SHORT CIRCUIT

DTC Logic

INFOID:0000000013147271

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the “C1B51” detected as the current malfunction?

YES >> Refer to DAS-142, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000013147272

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

Is the inspection result normal?

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

2.REPLACE THE SIDE RADAR

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

Is the DTC “C1B51” detected?

YES >> Replace the side radar. Refer to DAS-175, "Removal and Installation".
NO >> Inspection End.

C1B52 BSW/BSI INDICATOR OPEN CIRCUIT

DTC Logic

INFOID:0000000013147273

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the “C1B52” detected as the current malfunction?

YES >> Refer to DAS-143, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000013147274

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.

Side radar		BSW indicator		Continuity
Connector	Terminal	Connector	Terminal	
B416 (LH)	4	D21 (LH)	1	Yes
B109 (RH)		D111 (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 indicator		Ground	Continuity
Connector	Terminal		
D21 (LH)	4		Yes
D111 (RH)			

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.

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

BSW indicator		Ground	Condition	Standard voltage	Reference voltage (Approx.)
Connector	Terminal				
D21 (LH)	1		Ignition switch OFF ⇒ ON (Approx. 2 sec.)	5.5 - 16 V	6 V
D111 (RH)					

Is the inspection result normal?

YES >> Replace BSW indicator. Refer to DAS-176, "Removal and Installation".
NO >> Replace side radar. Refer to DAS-175, "Removal and Installation".

C1B53 SIDE RADAR RIGHT MALFUNCTION

DTC Logic

INFOID:0000000013147275

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?

YES >> Refer to DAS-145, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147276

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 DAS-148, "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 RIGHT”.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to DAS-117, "DTC Index" (SIDE RADAR RIGHT).
NO >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".

C1B54 SIDE RADAR LEFT MALFUNCTION

DTC Logic

INFOID:0000000013147277

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 GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147278

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 DAS-148, "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?

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

C1B55 RADAR BLOCKAGE

DTC Logic

INFOID:0000000013147279

DTC DETECTION LOGIC

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

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

Diagnosis Procedure

INFOID:0000000013147280

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.

U1000 CAN COMM CIRCUIT

ADAS CONTROL UNIT

ADAS CONTROL UNIT : Description

INFOID:0000000013147281

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:0000000013147282

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detecting condition	Possible causes
U1000	CAN COMM CIRCUIT	If ADAS control unit is not transmitting or receiving 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:0000000013147283

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 GI-47, "Intermittent Incident".

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000013147284

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.

SIDE RADAR LH : DTC Logic

INFOID:0000000013147285

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:0000000013147286

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 GI-47, "Intermittent Incident".

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000013147287

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.

SIDE RADAR RH : DTC Logic

INFOID:0000000013147288

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:0000000013147289

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".

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

U1010 CONTROL UNIT (CAN)

SIDE RADAR LH

SIDE RADAR LH : Description

INFOID:0000000013147290

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

SIDE RADAR LH : DTC Logic

INFOID:0000000013147291

DTC DETECTION LOGIC

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

SIDE RADAR LH : Diagnosis Procedure

INFOID:0000000013147292

1.CHECK SELF-DIAGNOSIS RESULT

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

Is “U1010” detected as the current malfunction?

YES >> Replace the side radar LH. Refer to DAS-175, "Removal and Installation".
NO >> Inspection End.

SIDE RADAR RH

SIDE RADAR RH : Description

INFOID:0000000013147293

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

SIDE RADAR RH : DTC Logic

INFOID:0000000013147294

DTC DETECTION LOGIC

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

SIDE RADAR RH : Diagnosis Procedure

INFOID:0000000013147295

1.CHECK SELF-DIAGNOSIS RESULT

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

Is “U1010” detected as the current malfunction?

YES >> Replace the side radar RH. Refer to DAS-175, "Removal and Installation".
NO >> Inspection End.

U0104 ADAS CAN 1

DTC Logic

INFOID:0000000013147296

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 DAS-115, "DTC Index" (SIDE RADAR LEFT), DAS-117, "DTC Index" (SIDE RADAR RIGHT).

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the DTC “U0104” detected?

YES >> Refer to DAS-152, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147297

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-149, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-149, "SIDE RADAR RH : DTC Logic" (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”.

Is any DTC detected?

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

U0121 VDC CAN 2

DTC Logic

INFOID:0000000013147298

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 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.
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 DAS-153, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147299

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 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 DAS-175, "Removal and Installation".

U0401 ECM CAN 1

DTC Logic

INFOID:0000000013147300

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 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.
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:0000000013147301

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 DAS-148, "ADAS CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK ECM SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

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

U0402 TCM CAN 1

DTC Logic

INFOID:0000000013147302

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	TCM

NOTE:
If DTC “U0402” 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.
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-155, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147303

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 DAS-148, "ADAS CONTROL UNIT : DTC Logic".
NO >> GO TO 2.

2.CHECK TCM SELF-DIAGNOSIS RESULTS

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

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to TM-65, "DTC Index" (RE0F10E) or TM-286, "DTC Index" (RE0F10J).
NO >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".

U0405 ADAS CAN 2

DTC Logic

INFOID:0000000013147304

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is the DTC “U0405” detected?

YES >> Refer to DAS-156, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147305

1.CHECK SELF-DIAGNOSIS RESULTS

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

Is “U1000” detected?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to DAS-149, "SIDE RADAR LH : DTC Logic" (SIDE RADAR LEFT), DAS-149, "SIDE RADAR RH : DTC Logic" (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”.

Is any DTC detected?

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

U0415 VDC CAN 1

DTC Logic

INFOID:0000000013147306

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 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.
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 DAS-157, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147307

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 DAS-174, "Removal and Installation".

U1503 SIDE RDR L CAN 2

DTC Logic

INFOID:0000000013147308

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 received 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 DAS-163, "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 DAS-158, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147309

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-148, "ADAS CONTROL UNIT : DTC Logic".
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”.

Is any DTC detected?

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

U1504 SIDE RDR L CAN 1

DTC Logic

INFOID:0000000013147310

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 received 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-149, "SIDE RADAR LH : DTC Logic" for DTC “U1000”.
- Refer to DAS-163, "DTC Logic" for DTC “U1508”.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is “U1504” detected as the current malfunction?

YES >> Refer to DAS-159, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147311

1.CHECK SELF-DIAGNOSIS RESULTS

Check if “U1000” or “U1508” is detected other than “U1504” 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-148, "ADAS CONTROL UNIT : DTC Logic".
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”.

Is any DTC detected?

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

U1505 SIDE RDR R CAN 2

DTC Logic

INFOID:0000000013147312

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 received 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 DAS-149, "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 “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 GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147313

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 DAS-148, "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 DAS-117, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".

U1506 SIDE RDR R CAN 1

DTC Logic

INFOID:0000000013147314

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 received 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 DAS-149, "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 “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-161, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147315

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 DAS-148, "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 DAS-117, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".

U1507 LOST COMM(SIDE RDR R)

DTC Logic

INFOID:0000000013147316

DTC DETECTION LOGIC

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

NOTE:
If DTC “U1507” is detected along with DTC “U1000”, first diagnose the DTC “U1000”. Refer to DAS-149, "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 GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147317

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 DAS-148, "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 DAS-117, "DTC Index".
NO >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".

U1508 LOST COMM(SIDE RDR L)

DTC Logic

INFOID:0000000013147318

DTC DETECTION LOGIC

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

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is “U1508” detected as the current malfunction?

YES >> Refer to DAS-163, "Diagnosis Procedure".
NO >> Refer to GI-47, "Intermittent Incident".

Diagnosis Procedure

INFOID:0000000013147319

1.CHECK SIDE RADAR HARNESS CONNECTOR

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

Is the inspection result normal?

YES >> Perform the CAN communication system inspection. Repair or replace the malfunctioning parts. Refer to LAN-21, "Trouble Diagnosis Flow Chart".
NO >> Repair the terminal or connector.

POWER SUPPLY AND GROUND CIRCUIT
ADAS CONTROL UNIT
ADAS CONTROL UNIT : Diagnosis Procedure

INFOID:0000000013147320

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the 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 control unit		Ground	Continuity
Connector	Terminal		
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

INFOID:0000000013147321

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 POWER SUPPLY CIRCUIT

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

Terminals			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(−)			
Side radar LH		Ground	Ignition switch		
Connector	Terminal				
B416	5		OFF	0 - 0.1 V	0 V
			ON	10 - 16 V	Battery voltage

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between side radar LH harness connectors and ground.

Side radar LH		Ground	Continuity
Connector	Terminal		
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:0000000013147322

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 POWER SUPPLY CIRCUIT

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

Terminals			Condition	Standard voltage	Reference voltage (Approx.)
(+)		(–)			
Side radar RH		Ground	Ignition switch		
Connector	Terminal				
B109	5		OFF	0 - 0.1 V	0 V
			ON	10 - 16 V	Battery voltage

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between side radar RH harness connectors and ground.

Side radar RH		Ground	Continuity
Connector	Terminal		
B109	8		Yes

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair the side radar RH ground circuit.

WARNING SYSTEM SWITCH CIRCUIT

Component Function Check

INFOID:0000000013147323

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
WARN SYS SW	Warning system switch is pressed	On
	Warning system switch is not pressed	OFF

Is the inspection result normal?

YES >> Warning system switch circuit is normal.
NO >> Refer to DAS-167, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000013147324

Regarding Wiring Diagram information, refer to DAS-119, "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	Voltage (Approx.)
(+)		(–)		
ADAS control unit		Ground	Warning system switch	
Connector	Terminal			
B104	18		Pressed	0 V
			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

1. Turn ignition switch OFF.
2. Remove warning system switch.
3. Check warning system switch. Refer to DAS-168, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 3.
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.

Warning system switch		Ground	Continuity
Connector	Terminal		
M133	8		Yes

Is the inspection result normal?

YES >> GO TO 4.

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 control unit		Warning system switch		Continuity
Connector	Terminal	Connector	Terminal	
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 control unit		Ground	Continuity
Connector	Terminal		
B104	18		No

Is the inspection result normal?

YES >> Replace the ADAS control unit. Refer to DAS-174, "Removal and Installation".
NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000013147325

1. CHECK WARNING SYSTEM SWITCH

Check continuity of warning system switch.

Terminal		Condition	Continuity
6	8	When warning system switch is pressed	Yes
		When warning system switch is released	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace warning system switch. Refer to DAS-177, "Removal and Installation".

BSW ON INDICATOR CIRCUIT

Diagnosis Procedure

INFOID:0000000013147326

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.
4. Check voltage between warning system switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(−)	
Warning system switch		Ground	
Connector	Terminal		
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	
B104	19	M133	3	Yes

Is the inspection result normal?

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

3.CHECK BSW ON INDICATOR SIGNAL CIRCUIT FOR SHORT

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

ADAS control unit		Ground	Continuity
Connector	Terminal		
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-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".

Component Inspection

INFOID:0000000013147327

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
(+)	(-)		
5	3	When the battery voltage is applied	On
		When the battery voltage is not applied	Off

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace the warning system switch. Refer to DAS-177, "Removal and Installation".

SYMPTOM DIAGNOSIS

RCTA SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000012547850

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 RCTA, refer to DAS-98, "System Description".

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ 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 DAS-164, "ADAS CONTROL UNIT : Diagnosis Procedure" • ADAS control unit Active test “BSW/BSI WARN LMP” Refer to DAS-105, "CONSULT Function (BSW/BUZZER)". • ADAS control unit Data monitor “BSW/BSI WARN LMP” Refer to DAS-105, "CONSULT Function (BSW/BUZZER)" • Combination meter Data monitor “BSW W/L” Refer to MWI-18, "CONSULT Function (METER/M&A)"
	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 DAS-169, "Diagnosis Procedure"
	RCTA indicator does not turn ON	• Harness between side radar and RCTA indicator • Side radar LH/RH • RCTA indicator	Perform self-diagnosis of side radar Refer to DAS-107, "CONSULT Function (SIDE RADAR LEFT)" or DAS-109, "CONSULT Function (SIDE RADAR RIGHT)"
RCTA system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	RCTA ON indicator is not turned ON ⇔ OFF when operating 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 DAS-169, "Diagnosis Procedure"
	Buzzer is not sounding	• ADAS control unit • Combination meter	Meter buzzer circuit Refer to WCS-30, "Component Function Check"

NORMAL OPERATING CONDITION

Description

INFOID:0000000012547851

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:0000000012547852

PRECAUTIONS FOR BLIND SPOT WARNING (BSW)

- The BSW system is not a replacement for proper driving procedure and are not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction driver will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The BSW system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the BSW system when towing a trailer because the system may not function properly.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The side radar may not be able to detect and activate BSW when certain objects are present such as:
- Pedestrians, bicycles, animals.
- Several types of vehicles such as motorcycles.
- Oncoming vehicles.

- Vehicles remaining in the detection zone when driver accelerate from a stop.
- A vehicle merging into an adjacent lane at a speed approximately the same as vehicle.
- A vehicle approaching rapidly from behind.
- A vehicle which vehicle overtakes rapidly.

• Severe weather or road spray conditions may reduce the ability of the side radar to detect other vehicles.
• The side radar detection zone is designed based on a standard lane width. When driving in a wider lane, the side radar may not detect vehicles in an adjacent lane. When driving in a narrow lane, the side radar may detect vehicles driving two lanes away.
• The side radar are designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.

REMOVAL AND INSTALLATION

ADAS CONTROL UNIT

Removal and Installation

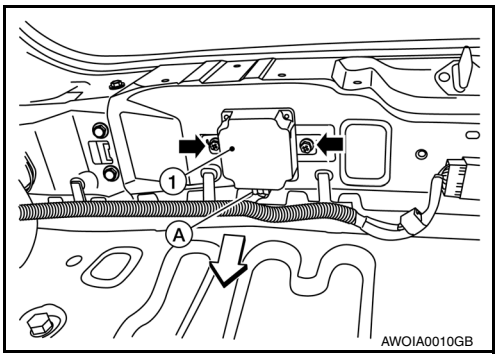
INFOID:0000000012547853

REMOVAL

CAUTION:

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

1. Disconnect the battery negative terminal. Refer to PG-93, "Removal and Installation".
2. Remove the storage box. Refer to INT-33, "STORAGE BOX : Removal and Installation".
3. 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)

SIDE RADAR

Exploded View

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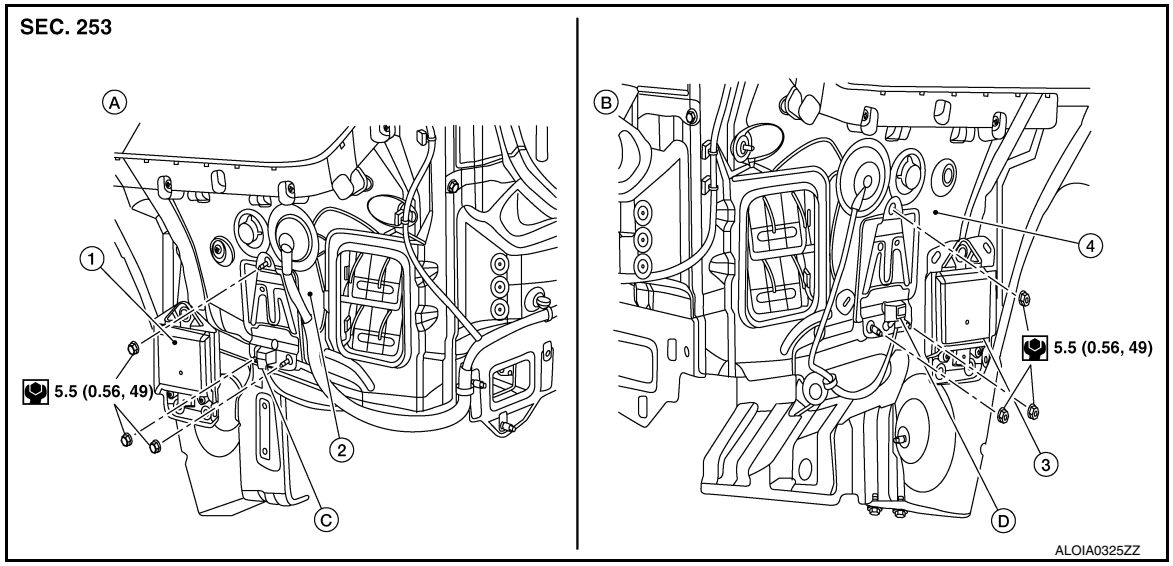


1. Side radar (LH)
2. Body side (LH)
3. Side radar (RH)
4. Body side (RH)
A. LH side
B. RH side
C. Harness connector (LH)
D. Harness connector (RH)

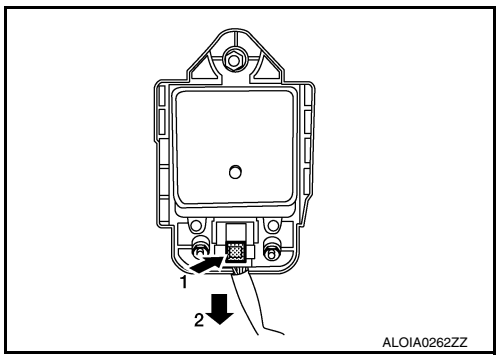
Removal and Installation

INFOID:0000000012547855

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.

CAUTION:

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.

BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR

Exploded View

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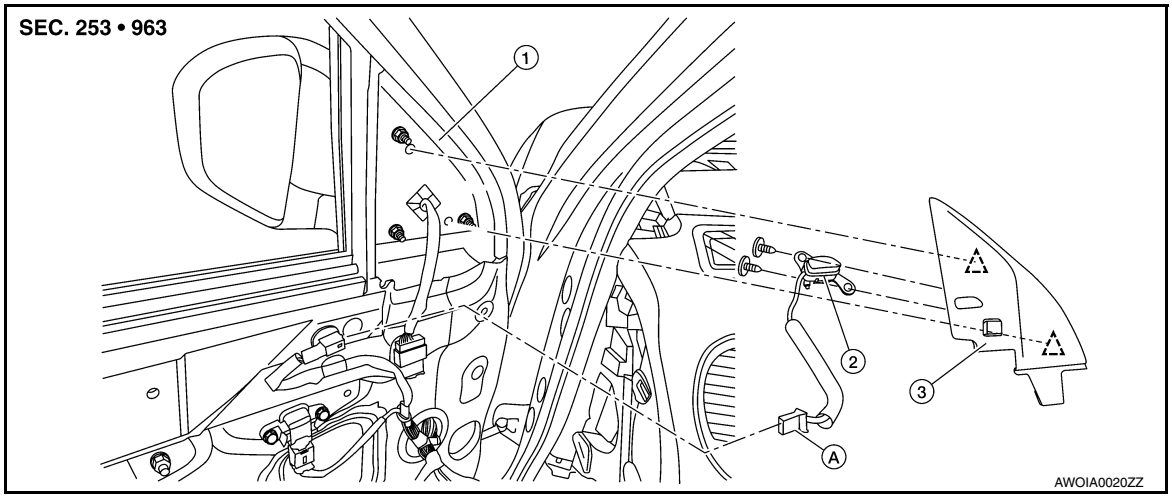


1. Front door
2. Blind spot warning/blind spot intervention indicator
3. Door mirror corner finisher
A. Blind spot warning/blind spot intervention indicator harness connector
Clip

Removal and Installation

INFOID:0000000012547857

REMOVAL AND INSTALLATION

Removal

1. Remove front door finisher. Refer to INT-15, "Removal and Installation".
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.

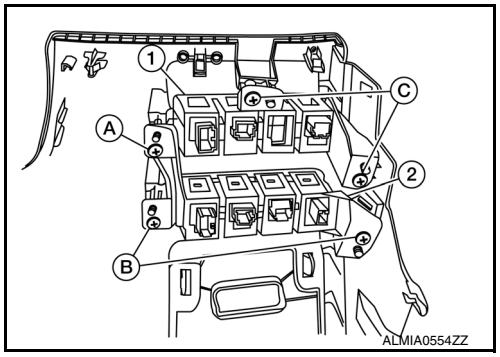
WARNING SYSTEMS SWITCH

Removal and Installation

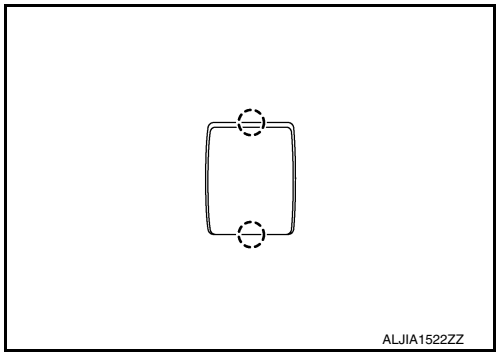
INFOID:0000000012547858

REMOVAL

1. Remove the instrument lower panel LH. Refer to IP-25, "Removal and Installation".
2. Remove three screws (A, B) that retain the lower switch carrier (2).
   (1): Upper switch carrier
   (C): Upper switch carrier screws



3. Release pawls using suitable tool and remove the warning system switch from the lower switch carrier.
   ◌: Pawl



INSTALLATION

Installation is in the reverse order of removal.