

SECTION **SN**
SONAR SYSTEM

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS FOR MEXICO

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

INFOID:000000006794129

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 "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

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

EXCEPT FOR MEXICO

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

INFOID:000000006794130

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with

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PRECAUTIONS

< PRECAUTION >

- a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

COMPONENT PARTS

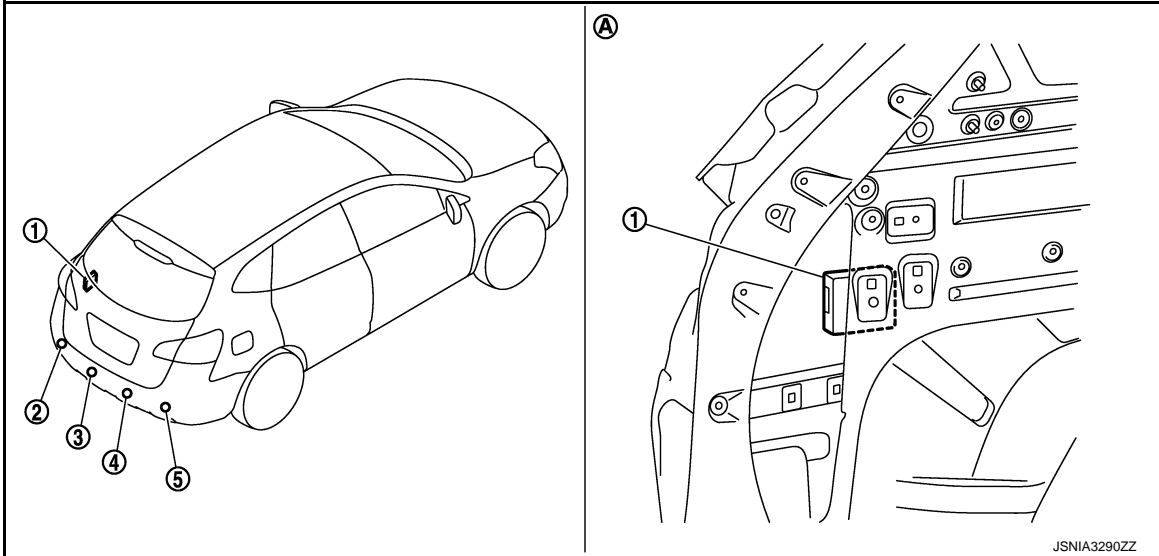
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000006276320



- 1. Sonar control unit
- 2. Corner sensor rear LH
- 3. Center sensor rear LH
- 4. Center sensor rear RH
- 5. Corner sensor rear RH
- A. Luggage side LH

Component Description

INFOID:000000006276321

Component	Description
SONAR CONTROL UNIT	<ul style="list-style-type: none"> • An integrated warning buzzer sounds when receiving a sensor signal from the corner/center sensor. • When reverse signal is input, a power supply is input into sonar control unit. • The activation condition is controlled by inputting reverse signal. • Capable of system settings and trouble diagnoses with CONSULT-III (K-LINE).
CORNER/CENTER SENSOR	The obstacle distance is detected. The signal is transmitted to the sonar control unit.

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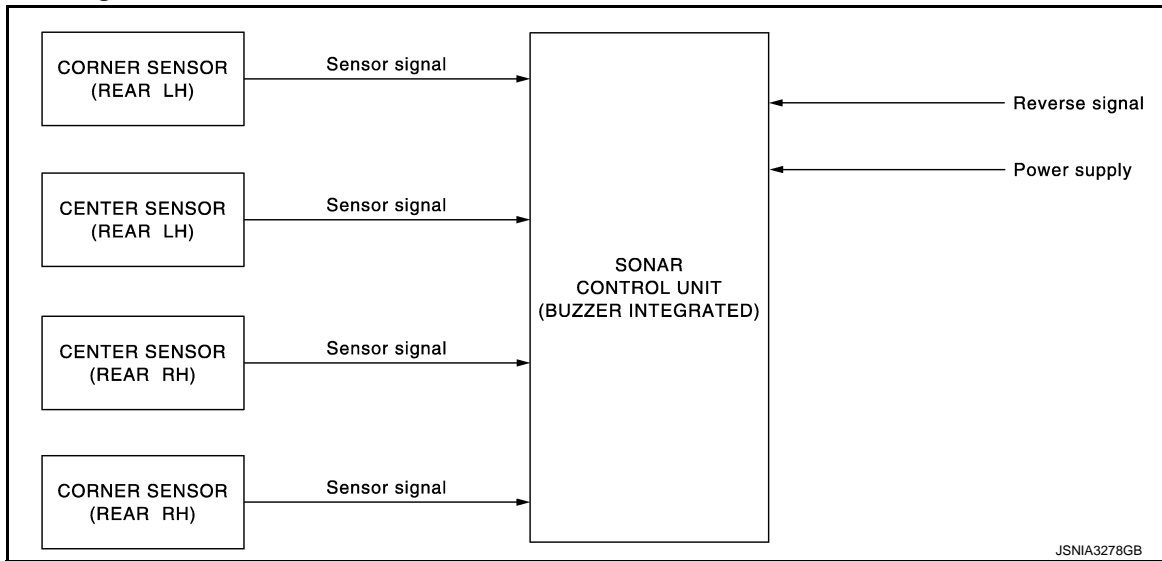
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SONAR SYSTEM

< SYSTEM DESCRIPTION >

SONAR SYSTEM

System Diagram



System Description

INFOID:000000006276319

- The sonar sensor installed to the rear bumper detects obstacles around the bumper.
- The distance between a bumper and obstacles is informed to the driver with different frequency of buzzer.

ACTIVATION CONDITION

The rear sensor activates and outputs the warning buzzer in the following conditions.

- Reverse signal ON
- Obstacle detection

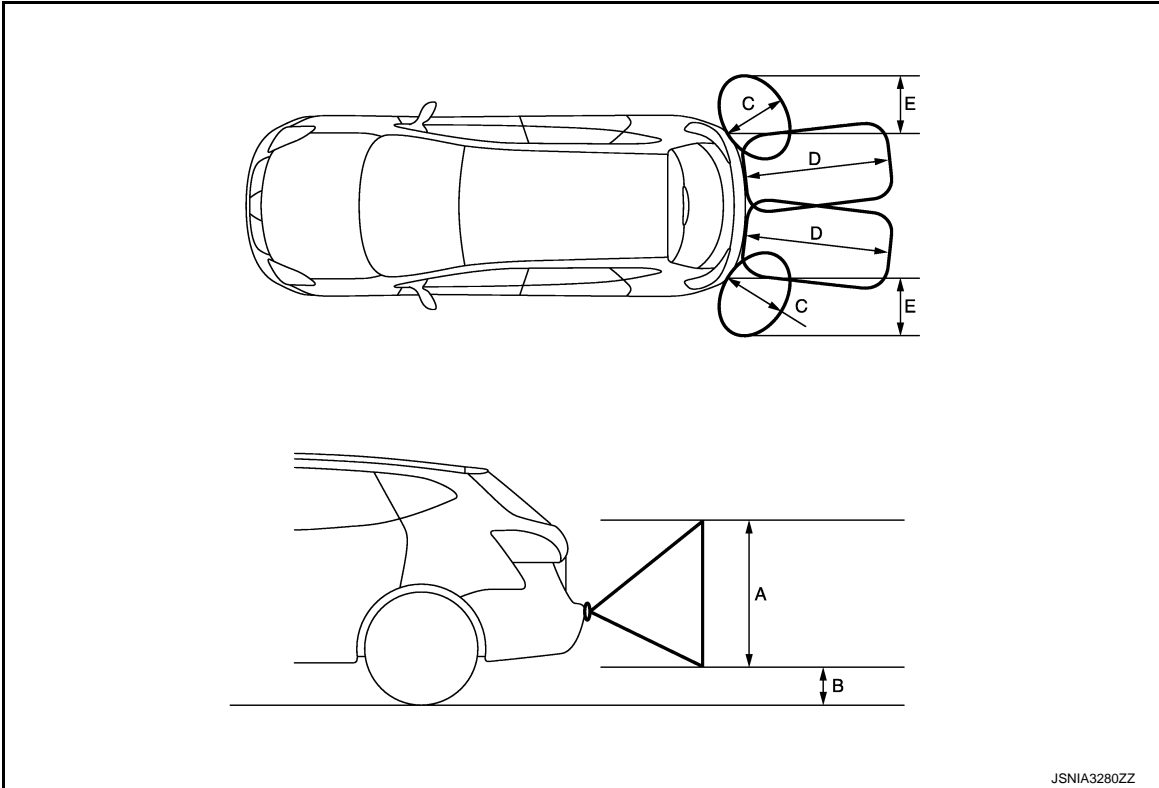
OBSTACLE DETECTION DISTANCE

- The sonar control unit controls the obstacle detection distance. The detection distance differs between the corner sensor and the center sensor.
- The sonar control unit outputs the warning buzzer frequency at 3 levels according to the corner sensor detection condition.
- The sonar control unit outputs the warning buzzer frequency at 4 levels according to the center sensor detection condition.
- The detection condition setting is adjustable to 4 levels with CONSULT-III. Refer to [SN-9, "CONSULT-III Function"](#).
- CONSULT-III enables the center sensor (rear) not to detect the range of 40 cm (15.7 in) or less to prevent from the trailer hitch vehicles misdetection. Refer to [SN-9, "CONSULT-III Function"](#).

SONAR SYSTEM

< SYSTEM DESCRIPTION >

Obstacle detection range image



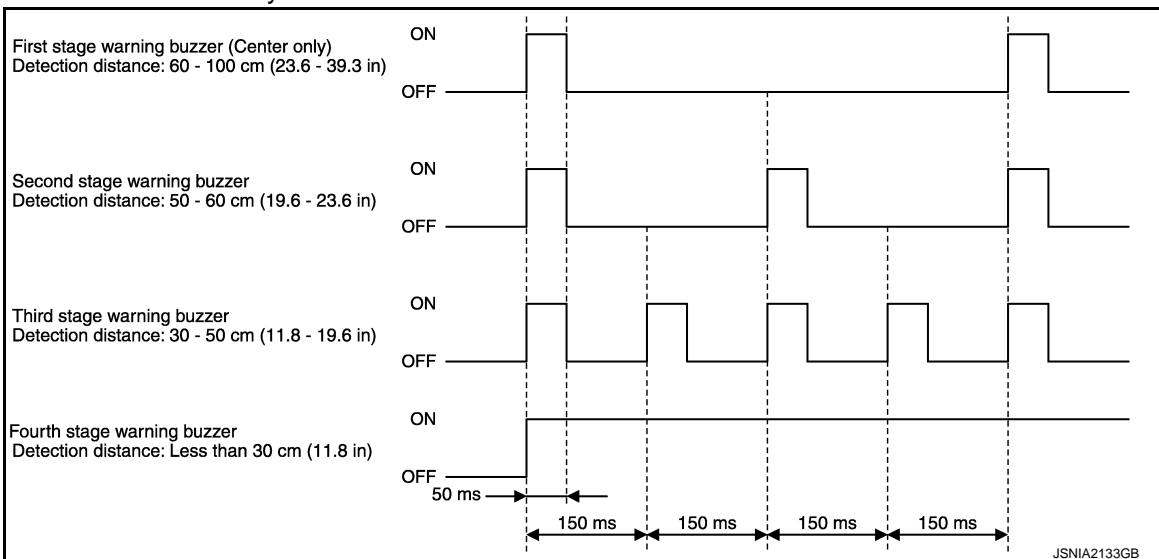
- A. Approx. 50 cm (19.6 in)
- B. Approx. 15 cm (5.9 in)
- C. Approx. 60 cm (23.6 in)
- D. Approx. 100 cm (39.3 in)
- E. Approx. 50 cm (19.6 in)

Detection distance (Default)

Warning item	Corner sensor	Center sensor
First stage warning	—	60 – 100 cm (23.6 – 39.3 in)
Second stage warning	50 – 60 cm (19.6 – 23.6 in)	50 – 60 cm (19.6 – 23.6 in)
Third stage warning	30 – 50 cm (11.8 – 19.6 in)	30 – 50 cm (11.8 – 19.6 in)
Fourth stage warning	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)

Warning Buzzer Frequency

- The warning buzzer output frequency changes 4 levels (for center) and 3 levels (for corner) according to the detection distance.
- The nearest sensor from the detected obstacle applies the buzzer output frequency if plural sensors detect any obstacle simultaneously.



SONAR SYSTEM

< SYSTEM DESCRIPTION >

NOTE:

The warning buzzer of the corner sensor sounds as follows:

- As for the first, second, and third stages, the warning buzzer sounds 3 seconds at maximum.
- As for the fourth stage, the warning buzzer does not stop even after a lapse of 3 seconds.

DIAGNOSIS SYSTEM (SONAR CONTROL UNIT)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (SONAR CONTROL UNIT)

CONSULT-III Function

INFOID:000000006276322

APPLICATION ITEMS

CONSULT-III can display each diagnostic item using the diagnostic test modes shown as follows:

Test mode	Function
Ecu Identification	Sonar control unit part number can be read.
Self Diagnostic Results	Sonar control unit checks the conditions and displays memorized error.
Data Monitor	Sonar control unit input/output data in real time.
Work support	Changes setting of each function.
Active Test	Gives a drive signal to a load to check the operation.

ECU IDENTIFICATION

Displays the part number of the sonar control unit.

SELF-DIAGNOSTIC RESULTS

For details, refer to [SN-13, "DTC Index"](#).

DATA MONITOR

Monitor Item	Display	Description
REAR BUZZER	On	Buzzer is output condition.
	Off	Buzzer is non-output condition.
REVERSE RANGE	On	Selector lever in R position.
	Off	Other than selector lever in R position.
CR SEN [RL] CR SEN [RR]	ERROR	When a sensor is abnormal.
	LV.0	When a sensor is not detection.
	LV.2	The distance between the corner sensor and an obstacle is 50 cm (19.6 in) or more and less than 60 cm (23.6 in).
	LV.3	The distance between the corner sensor and an obstacle is 30 cm (11.8 in) or more and less than 50 cm (19.6 in).
	LV.4	The distance between corner sensor and an obstacle less than 30 cm (11.8 in).
CTR SEN [RL] CTR SEN [RR]	ERROR	When a sensor is abnormal.
	LV.0	When a sensor is not detection.
	LV.1	The distance between the center sensor and an obstacle is 60 cm (23.6 in) or more and less than 100 cm (39.3 in).
	LV.2	The distance between the center sensor and an obstacle is 50 cm (19.6 in) or more and less than 60 cm (23.6 in).
	LV.3	The distance between the center sensor and an obstacle is 30 cm (11.8 in) or more and less than 50 cm (19.6 in).
	LV.4	The distance between center sensor and an obstacle less than 30 cm (11.8 in).

ACTIVE TEST

Active test item	Function
BUZZER	This test is able to check buzzer (backward) operation.
SONAR SENSOR	This test is able to check each sonar sensor operation.

WORK SUPPORT

DIAGNOSIS SYSTEM (SONAR CONTROL UNIT)

< SYSTEM DESCRIPTION >

Work support item	Function
CORNER SEN DISTANCE SET	Corner sensor warning buzzer distance is adjustable to 4 phases.
CENTER SEN DISTANCE SET	Center sensor warning buzzer distance is adjustable to 4 phases.
TRAILER HITCH MODE	Center sensor (RR, RL) only is adjustable not to detect the distance less than 40 cm (15.7 in). NOTE: This adjustment is for preventing to miss detect the distance when installing the trailer hitch.

CORNER SEN DISTANCE SET

Corner sensor warning buzzer distance can set it to 4 phases as follows.

Warning item	FARTHER	FAR	NORMAL (Default)	NEAR
Second stage warning	70 – 80 cm (27.5 – 31.4 in)	60 – 70 cm (23.6 – 27.5 in)	50 – 60 cm (19.6 – 23.6 in)	40 – 50 cm (15.7 – 19.6 in)
Third stage warning	50 – 70 cm (19.6 – 27.5 in)	40 – 60 cm (15.7 – 23.6 in)	30 – 50 cm (11.8 – 19.6 in)	30 – 40 cm (11.8 – 15.7 in)
Fourth stage warning	Less than 50 cm (19.6 in)	Less than 40 cm (15.7 in)	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)

The default of this model is “NORMAL”.

CENTER SEN DISTANCE SET

Center sensor warning buzzer distance can set it to 4 phases as follows.

Warning item	FARTHER	FAR	NORMAL (Default)	NEAR
First stage warning	80 – 120 cm (31.4 – 47.2 in)	70 – 110 cm (27.5 – 43.3 in)	60 – 100 cm (23.6 – 39.3 in)	50 – 90 cm (19.6 – 35.4 in)
Second stage warning	70 – 80 cm (27.5 – 31.4 in)	60 – 70 cm (23.6 – 27.5 in)	50 – 60 cm (19.6 – 23.6 in)	40 – 50 cm (15.7 – 19.6 in)
Third stage warning	50 – 70 cm (19.6 – 27.5 in)	40 – 60 cm (15.7 – 23.6 in)	30 – 50 cm (11.8 – 19.6 in)	30 – 40 cm (11.8 – 15.7 in)
Fourth stage warning	Less than 50 cm (19.6 in)	Less than 40 cm (15.7 in)	Less than 30 cm (11.8 in)	Less than 30 cm (11.8 in)

The default of this model is “NORMAL”.

TRAILER HITCH MODE

Center sensor (RR, RL) only is adjustable not to detect the distance less than 40 cm (15.7 in).

When installing the trailer hitch : ON

When not installing the trailer hitch : OFF

SONAR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

SONAR CONTROL UNIT

Reference Value

INFOID:000000006276348

VALUES ON THE DIAGNOSIS TOOL

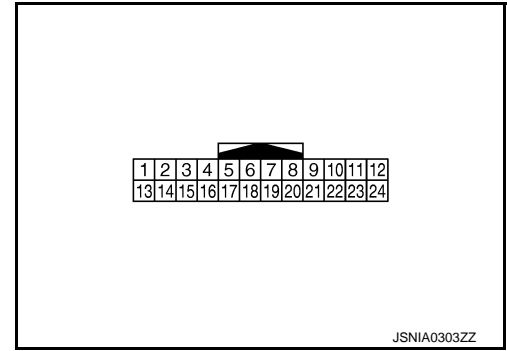
Monitor Item	Display	Description
REAR BUZZER	On	Buzzer (backward) output condition.
	Off	Buzzer (backward) non-output condition.
REVERSE RANGE	On	Selector lever in R position.
	Off	Other than selector lever in R position.
CR SEN [RL]	ERROR	When a sensor is abnormal.
	LV.0	When a sensor is not detection.
	LV.2	The distance between the corner sensor and an obstacle is 50 cm (19.6 in) or more and less than 60 cm (23.6 in).
	LV.3	The distance between the corner sensor and an obstacle is 30 cm (11.8 in) or more and less than 50 cm (19.6 in).
	LV.4	The distance between corner sensor and an obstacle less than 30 cm (11.8 in).
CR SEN [RR]	ERROR	When a sensor is abnormal.
	LV.0	When a sensor is not detection.
	LV.2	The distance between the corner sensor and an obstacle is 50 cm (19.6 in) or more and less than 60 cm (23.6 in).
	LV.3	The distance between the corner sensor and an obstacle is 30 cm (11.8 in) or more and less than 50 cm (19.6 in).
	LV.4	The distance between corner sensor and an obstacle less than 30 cm (11.8 in).
CTR SEN [RL]	ERROR	When a sensor is abnormal.
	LV.0	When a sensor is not detection.
	LV.1	The distance between the center sensor and an obstacle is 60 cm (23.6 in) or more and less than 100 cm (39.3 in).
	LV.2	The distance between the center sensor and an obstacle is 50 cm (19.6 in) or more and less than 60 cm (23.6 in).
	LV.3	The distance between the center sensor and an obstacle is 30 cm (11.8 in) or more and less than 50 cm (19.6 in).
CTR SEN [RR]	ERROR	When a sensor is abnormal.
	LV.0	When a sensor is not detection.
	LV.1	The distance between the center sensor and an obstacle is 60 cm (23.6 in) or more and less than 100 cm (39.3 in).
	LV.2	The distance between the center sensor and an obstacle is 50 cm (19.6 in) or more and less than 60 cm (23.6 in).
	LV.3	The distance between the center sensor and an obstacle is 30 cm (11.8 in) or more and less than 50 cm (19.6 in).
	LV.4	The distance between center sensor and an obstacle less than 30 cm (11.8 in).

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SONAR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output			
3 (L)	12 (GR)	Center sensor signal LH	Input	Ignition switch ON	—	<p style="text-align: right;">SKIB8942E</p>
4 (BR)	12 (GR)	Center sensor signal RH	Input	Ignition switch ON	—	<p style="text-align: right;">SKIB8942E</p>
5 (V)	12 (GR)	Corner sensor signal LH	Input	Ignition switch ON	—	<p style="text-align: right;">SKIB8942E</p>
6 (LG)	12 (GR)	Corner sensor signal RH	Input	Ignition switch ON	—	<p style="text-align: right;">SKIB8942E</p>
13 (G)	Ground	Ignition power supply	Input	Ignition switch ON	—	Battery voltage
17 (SB)	Ground	Reverse signal	Input	Ignition switch ON	Shift the selector lever to "R" position.	Battery voltage
					Shift the selector lever other than "R" position.	0 V

SONAR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output			
18 (P)	—	K-line (CONSULT-III)	Input/ Output	—	—	—
24 (B)	Ground	Ground	—	Ignition switch ON	—	0 V

Fail Safe

INFOID:000000006276349

The sonar control unit detects sonar sensor malfunction and activates warning chime approximately 3 seconds when the selector lever is in the reverse position.

DTC Index

INFOID:000000006276350

DTC	Display item	Malfunction is detected when...	Refer to
B2704	CORNER SENSOR [RL] [B2704]	Corner sensor rear LH is malfunctioning.	SN-20
B2705	SENSOR HARNESS OPEN [CR-RL] [B2705]	Corner sensor rear LH harness circuit is open.	SN-21
B2706	CORNER SENSOR [RR] [B2706]	Corner sensor rear RH is malfunctioning.	SN-22
B2707	SENSOR HARNESS OPEN [CR-RR] [B2707]	Corner sensor rear RH harness circuit is open.	SN-23
B2708	CENTER SENSOR [BL] [B2708]	Center sensor rear LH is malfunctioning.	SN-24
B2709	SENSOR HARNESS OPEN [CT-BL] [B2709]	Center sensor rear LH harness circuit is open.	SN-25
B270A	CENTER SENSOR [BR] [B270A]	Center sensor rear RH is malfunctioning.	SN-26
B270B	SENSOR HARNESS OPEN [CT-BR] [B270B]	Center sensor rear RH harness circuit is open.	SN-27

NOTE:

“TIME” means the following.

- 0: Means detected malfunction at present. (From malfunction detection to turning ignition switch OFF)
- 1–39: Means detected malfunction in past.

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SONAR SYSTEM

< WIRING DIAGRAM >

SONAR SYSTEM

Connector No.	B83
Connector Name	WIRE TO WIRE
Connector Type	TH22MW-NH



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
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Terminal No.	Color of Wire	Signal Name [Specification]
1	L	
2	G	
4	R	
5	W	
6	G	
10	G	
13	Y	
14	BR	
15	P	
16	W	
17	LG	
18	R	
19	SB	
20	B	
21	SHIELD	
26	P	
29	L	
30	O	
31	GR	
32	LG	

Connector No.	B11
Connector Name	WIRE TO WIRE
Connector Type	TH20MW-CS (E-TM4)



Terminal No.	Color of Wire	Signal Name [Specification]
1	G	
5	L	

8	R	
9	Y	
12	BR	
13	O	
22	G	
23	SB	
23	SB	
51	GR	
52	SHIELD	
53	L	
54	B	
62	Y	
63	R	
96	G	

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Type	NS12MW-CS



1	2	3	4	5	6	7	8	9	10	11	12
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Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	
3	SHIELD	
4	R	
5	L	
6	R	
7	GR	
8	GR	
9	LG	
10	BR	
11	L	
12	V	

Connector No.	B55
Connector Name	WIRE TO WIRE
Connector Type	NS12PW-CS



5	4	3	2	1	12	11	10	9	8	7	6
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Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	
3	SHIELD	
4	R	
5	L	
6	R	
7	W	
8	GR	
9	LG	
10	BR	
11	L	
12	V	

Connector No.	B89
Connector Name	WIRE TO WIRE
Connector Type	RS08FB



1	2	3	4	5	6
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Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	
2	L	
3	V	
5	GR	
6	LG	

Connector No.	B70
Connector Name	SONAR CONTROL UNIT
Connector Type	TH22PW-NH



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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Terminal No.	Color of Wire	Signal Name [Specification]
3	L	CENTER SENSOR SIGNAL LH
4	BR	CENTER SENSOR SIGNAL RH
5	V	CORNER SENSOR SIGNAL LH
6	LG	CORNER SENSOR SIGNAL RH
12	GR	SENSOR GND
13	G	IGNITION POWER SUPPLY
17	SB	REVERSE SIGNAL
18	P	K LINE
24	B	GND

Connector No.	B255
Connector Name	WIRE TO WIRE
Connector Type	RS08MB



1	2	3	4	5	6
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Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	
2	SB	
3	P	
5	R	
6	BR	

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SONAR SYSTEM

< WIRING DIAGRAM >

SONAR SYSTEM

Connector No.	B256
Connector Name	CORNER SENSOR REAR RH
Connector Type	YDX02FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	-
2	R	-

Connector No.	B257
Connector Name	CENTER SENSOR REAR RH
Connector Type	YDX02FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	R	-

Connector No.	B258
Connector Name	CENTER SENSOR REAR LH
Connector Type	YDX02FB



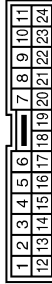
Terminal No.	Color of Wire	Signal Name [Specification]
1	SB	-
2	R	-

Connector No.	B259
Connector Name	CORNER SENSOR REAR LH
Connector Type	YDX02FB



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	R	-

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TK2MMH-TV



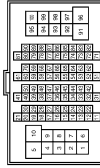
Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	-
2	SB	-
3	G	-
4	LG	-
5	L	-
6	BR	-
8	O	-
10	LG	-
11	Y	-
12	P	-
13	L	-
15	LG	-
16	R	-
18	L	-
19	Y	-
20	W	-
21	GR	-
23	W	-
24	L	-

Connector No.	E15
Connector Name	ENGINE INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM
Connector Type	NS18FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
47	BR	-
48	R	-
50	G	-
51	L	-
52	P	-
55	O	-
56	SB	-
57	V	-
58	LG	-
59	BR	-
60	SB	-
61	R	-

Connector No.	E101
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	G	-
5	L	-
8	R	-
9	Y	-
12	BR	-
13	O	-
22	G	-
23	SB	-
51	GR	-
52	SHIELD	-

53	L	-
54	B	-
62	Y	-
63	R	-
96	O	-

Connector No.	F21
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	PK08FG



Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	-
2	R	-
3	SB	-
4	L	-
5	G	-
6	Y	-
7	W	-
8	V	-

JCNWM5058GB

SONAR SYSTEM

< WIRING DIAGRAM >

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SONAR SYSTEM

Connector No.	F123
Connector Name	WIRE TO WIRE
Connector Type	TK24FW-1V



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

Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	-
2	SB	-
3	G	-
4	Y	-
5	L	-
6	BR	-
8	O	-
10	P	-
11	R	-
12	P	-
13	L	-
15	LG	-
16	R	-
18	L	-
19	Y	-
20	W	-
21	GR	-
23	W	-
24	L	-

Connector No.	IM
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW



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

Terminal No.	Color of Wire	Signal Name [Specification]
4	B	-
5	B	-
6	L	-

7	O	-
8	W	-
14	P	-
16	V	-

Connector No.	M13
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH



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 [Specification]
1	G	-
2	Y	-
4	R	-
5	W	-
6	G	-
10	W	-
13	Y	-
14	O	-
15	W	-
16	V	-
17	LG	-
18	BR	-
19	SB	-
20	B	-
21	SHIELD	-
26	W	-
29	L	-
30	B	-
31	GR	-
32	G	-

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

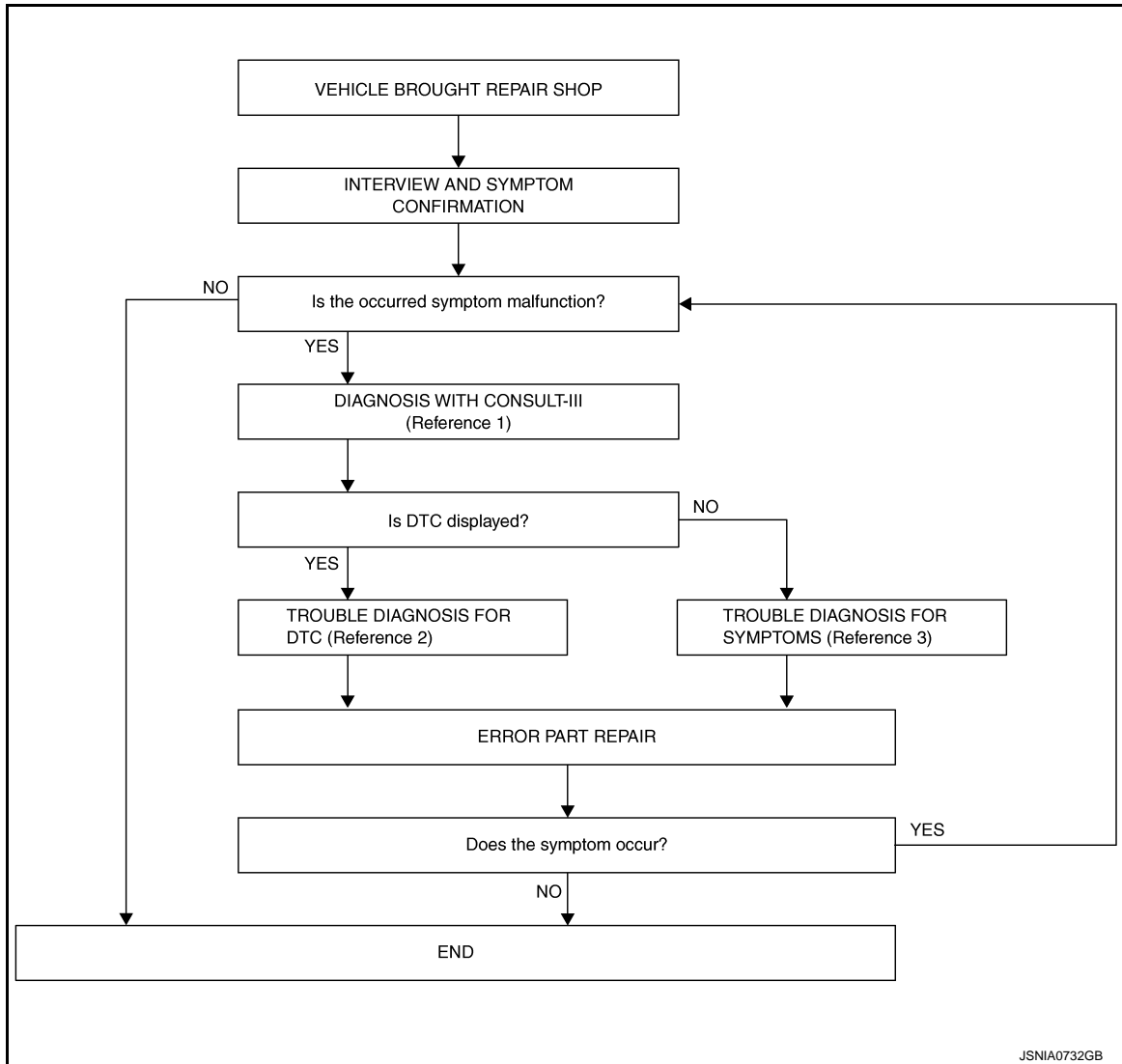
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000006276317

OVERALL SEQUENCE



JSNIA0732GB

- Reference 1... Refer to [SN-9, "CONSULT-III Function"](#).
- Reference 2... Refer to [SN-13, "DTC Index"](#).
- Reference 3... Refer to [SN-30, "Symptom Table"](#).

DETAILED FLOW

1. INTERVIEW AND SYMPTOM CONFIRMATION

Check the malfunction symptoms by performing the following items.

- Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred).
- Check if mud, or other foreign objects are not adhering to the sonar sensor.
- Check if there is no deformation, scratches, or other damage to the sonar sensor.
- Check if water has not accumulated in the sonar sensor.
- Check the symptom.

Is the occurred symptom malfunction?

YES >> GO TO 2.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

NO >> INSPECTION END

2. DIAGNOSIS WITH CONSULT-III

1. Connect CONSULT-III and perform a self-diagnosis for "SONAR". Refer to [SN-9, "CONSULT-III Function"](#).
2. Check if any DTC is displayed in the self-diagnosis results.

Is DTC displayed?

YES >> GO TO 3.

NO >> GO TO 4.

3. TROUBLE DIAGNOSIS FOR DTC

1. Check the DTC indicated in the self-diagnosis results.
2. Perform the relevant diagnosis referring to the DTC Index. Refer to [SN-13, "DTC Index"](#).

>> GO TO 5.

4. TROUBLE DIAGNOSIS FOR SYMPTOMS

Perform the relevant diagnosis referring to the diagnosis chart by symptom. Refer to [SN-30, "Symptom Table"](#).

>> GO TO 5.

5. ERROR PART REPAIR

1. Repair or replace the identified malfunctioning parts.
2. Perform a self-diagnosis for "SONAR" with CONSULT-III.
3. Check that the symptom does not occur.

Does the symptom occur?

YES >> GO TO 1.

NO >> INSPECTION END

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B2704 CORNER SENSOR [RL]

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

B2704 CORNER SENSOR [RL]

DTC Logic

INFOID:000000006276324

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B2704	CORNER SENSOR [RL]	Corner sensor rear LH is malfunctioning.	Replace corner sensor rear LH. Refer to SN-32, "Removal and Installation" .

B2705 SENSOR HARNESS OPEN [CR-RL]

< DTC/CIRCUIT DIAGNOSIS >

B2705 SENSOR HARNESS OPEN [CR-RL]

DTC Logic

INFOID:000000006276326

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B2705	SENSOR HARNESS OPEN [CR-RL]	Corner sensor rear LH harness circuit is open.	Check corner sensor rear LH circuit.

Diagnosis Procedure

INFOID:000000006276327

1. CHECK HARNESS CORNER SENSOR REAR LH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and corner sensor rear LH connector.
3. Check continuity between sonar control unit harness connector and corner sensor rear LH harness connector.

Sonar control unit		Corner sensor rear LH		Continuity
Connector	Terminal	Connector	Terminal	
B70	5	B259	1	Existed

4. Check continuity between sonar control unit harness connector and ground.

Sonar control unit		Ground	Continuity
Connector	Terminal		
B70	5		Not existed

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair harness or connector.

2. CHECK HARNESS CORNER SENSOR REAR LH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor rear LH harness connector.

Sonar control unit		Corner sensor rear LH		Continuity
Connector	Terminal	Connector	Terminal	
B70	12	B259	2	Existed

Is the inspection result normal?

- YES >> Replace sonar control unit. Refer to [SN-31, "Removal and Installation"](#).
NO >> Repair harness or connector.

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B2706 CORNER SENSOR [RR]

< DTC/CIRCUIT DIAGNOSIS >

B2706 CORNER SENSOR [RR]

DTC Logic

INFOID:000000006276329

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B2706	CORNER SENSOR [RR]	Corner sensor rear RH is malfunctioning.	Replace corner sensor rear RH. Refer to SN-32, "Removal and Installation" .

B2707 SENSOR HARNESS OPEN [CR-RR]

< DTC/CIRCUIT DIAGNOSIS >

B2707 SENSOR HARNESS OPEN [CR-RR]

DTC Logic

INFOID:000000006276331

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B2707	SENSOR HARNESS OPEN [CR-RR]	Corner sensor rear RH harness circuit is open.	Check corner sensor rear RH circuit.

Diagnosis Procedure

INFOID:000000006276332

1. CHECK HARNESS CORNER SENSOR REAR RH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and corner sensor rear RH connector.
3. Check continuity between sonar control unit harness connector and corner sensor rear RH harness connector.

Sonar control unit		Corner sensor rear RH		Continuity
Connector	Terminal	Connector	Terminal	
B70	6	B256	1	Existed

4. Check continuity between sonar control unit harness connector and ground.

Sonar control unit		Ground	Continuity
Connector	Terminal		
B70	6		Not existed

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair harness or connector.

2. CHECK HARNESS CORNER SENSOR REAR RH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and corner sensor rear RH harness connector.

Sonar control unit		Corner sensor rear RH		Continuity
Connector	Terminal	Connector	Terminal	
B70	12	B256	2	Existed

Is the inspection result normal?

- YES >> Replace sonar control unit. Refer to [SN-31, "Removal and Installation"](#).
NO >> Repair harness or connector.

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B2708 CENTER SENSOR [BL]

< DTC/CIRCUIT DIAGNOSIS >

B2708 CENTER SENSOR [BL]

DTC Logic

INFOID:000000006276334

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B2708	CENTER SENSOR [BL]	Center sensor rear LH is malfunctioning.	Replace center sensor rear LH. Refer to SN-32, "Removal and Installation" .

B2709 SENSOR HARNESS OPEN [CT-BL]

< DTC/CIRCUIT DIAGNOSIS >

B2709 SENSOR HARNESS OPEN [CT-BL]

DTC Logic

INFOID:000000006276336

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B2709	SENSOR HARNESS OPEN [CT-BL]	Center sensor rear LH harness circuit is open.	Check center sensor rear LH circuit.

Diagnosis Procedure

INFOID:000000006276337

1. CHECK HARNESS CENTER SENSOR REAR LH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and center sensor rear LH connector.
3. Check continuity between sonar control unit harness connector and center sensor rear LH harness connector.

Sonar control unit		Center sensor rear LH		Continuity
Connector	Terminal	Connector	Terminal	
B70	3	B258	1	Existed

4. Check continuity between sonar control unit harness connector and ground.

Sonar control unit		Ground	Continuity
Connector	Terminal		
B70	3		Not existed

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair harness or connector.

2. CHECK HARNESS CENTER SENSOR REAR LH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and center sensor rear LH harness connector.

Sonar control unit		Center sensor rear LH		Continuity
Connector	Terminal	Connector	Terminal	
B70	12	B258	2	Existed

Is the inspection result normal?

- YES >> Replace sonar control unit. Refer to [SN-31, "Removal and Installation"](#).
NO >> Repair harness or connector.

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B270A CENTER SENSOR [BR]

< DTC/CIRCUIT DIAGNOSIS >

B270A CENTER SENSOR [BR]

DTC Logic

INFOID:000000006276339

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B270A	CENTER SENSOR [BR]	Center sensor rear RH is malfunctioning.	Replace center sensor rear RH. Refer to SN-32, "Removal and Installation" .

B270B SENSOR HARNESS OPEN [CT-BR]

< DTC/CIRCUIT DIAGNOSIS >

B270B SENSOR HARNESS OPEN [CT-BR]

DTC Logic

INFOID:000000006276341

DTC DETECTION LOGIC

DTC No.	CONSULT-III indication	DTC detection condition	Troubleshooting
B270B	SENSOR HARNESS OPEN [CT-BR]	Center sensor rear RH harness circuit is open.	Check center sensor rear RH circuit.

Diagnosis Procedure

INFOID:000000006276342

1. CHECK HARNESS CENTER SENSOR REAR RH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and center sensor rear RH connector.
3. Check continuity between sonar control unit harness connector and center sensor rear RH harness connector.

Sonar control unit		Center sensor rear RH		Continuity
Connector	Terminal	Connector	Terminal	
B70	4	B257	1	Existed

4. Check continuity between sonar control unit harness connector and ground.

Sonar control unit		Ground	Continuity
Connector	Terminal		
B70	4		Not existed

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair harness or connector.

2. CHECK HARNESS CENTER SENSOR REAR RH GROUND CIRCUIT

Check continuity between sonar control unit harness connector and center sensor rear RH harness connector.

Sonar control unit		Center sensor rear RH		Continuity
Connector	Terminal	Connector	Terminal	
B70	12	B257	2	Existed

Is the inspection result normal?

- YES >> Replace sonar control unit. Refer to [SN-31, "Removal and Installation"](#).
NO >> Repair harness or connector.

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POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT SONAR CONTROL UNIT

SONAR CONTROL UNIT : Diagnosis Procedure

INFOID:000000006276343

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Ignition switch ON or START	1

Is the inspection result normal?

YES >> GO TO 2.

NO >> Be sure to eliminate the cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between sonar control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Value
Power supply	B70	13	ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace sonar control unit power supply circuit.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector.
3. Check continuity between sonar control unit harness connector and ground.

Signal name	Connector No.	Terminal No.	Ignition switch position	Continuity
Ground	B70	24	OFF	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace sonar control unit ground circuit.

R RANGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

R RANGE SIGNAL CIRCUIT

Description

INFOID:000000006530864

The sonar control unit turns the sonar system activation ON when inputting the reverse signal.

Component Function Check

INFOID:000000006530865

1. SONAR CONTROL UNIT DATA MONITOR INSPECTION

Check "REVERSE RANGE" with "DATA MONITOR" of "SONAR".

REVERSE RANGE

Vehicle condition	Indication
Selector lever is in R position	: On
Selector lever is in other than R position	: Off

>> INSPECTION END

Diagnosis Procedure

INFOID:000000006530866

1. CHECK R RANGE SIGNAL

1. Turn ignition switch ON.
2. Check voltage between sonar control unit harness connector and ground.

(+) Sonar control unit		(-)	Condition	Voltage (Approx.)
Connector	Terminal			
B70	17	Ground	Selector lever is in R position.	12.0 V
			Selector lever is in other than R position.	0 V

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Repair harness or connector.

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SONAR SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SONAR SYSTEM SYMPTOMS

Symptom Table

INFOID:000000006276351

Symptom	Check item	Diagnosis method
All sonar sensors do not activate.	Buzzer beeps when indicating "On" on "BUZZER" screen of the ACTIVE TEST.	Check reverse signal for sonar control unit. Refer to SN-29, "Diagnosis Procedure" .
	Buzzer does not beeps when indicating "On" on "BUZZER" screen of the ACTIVE TEST.	Replace sonar control unit. Refer to SN-31, "Removal and Installation" .
	Sonar is not displayed on CONSULT-III menu items.	Check sonar control unit power supply and ground circuit. Refer to SN-28, "SONAR CONTROL UNIT : Diagnosis Procedure" .
Any sonar sensor does not activate.	—	Perform "Self Diagnostic Result" of "SONAR" with CONSULT-III. Refer to SN-9, "CONSULT-III Function" .

SONAR CONTROL UNIT

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

SONAR CONTROL UNIT

Removal and Installation

INFOID:000000006276354

REMOVAL

1. Remove luggage side lower finisher LH. Refer to [INT-32. "Exploded View"](#).
2. Remove sonar control unit screw, then disconnect sonar control unit connector and remove the sonar control unit.

INSTALLATION

Install in the reverse order of removal.

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SONAR SENSOR

< REMOVAL AND INSTALLATION >

SONAR SENSOR

Removal and Installation

INFOID:000000006404773

REMOVAL

1. Remove the bumper fascia assembly. Refer to [EXT-16. "Exploded View"](#).
2. Disconnect sonar sensor connector.
3. Press out the sonar sensor from back of bumper fascia assembly to remove sonar sensor.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

The connector direction is shown below:

- The connectors must be faced left ward when viewed from the vehicle rear side.
- within $\pm 10^\circ$ from the horizontal position when assembling the bumper. Please refer below drawing for connector direction of the sensor. (About all sensors)

A : Horizontal position

a : 10°

