SECTION SN
SONAR SYSTEM

CONTENTS

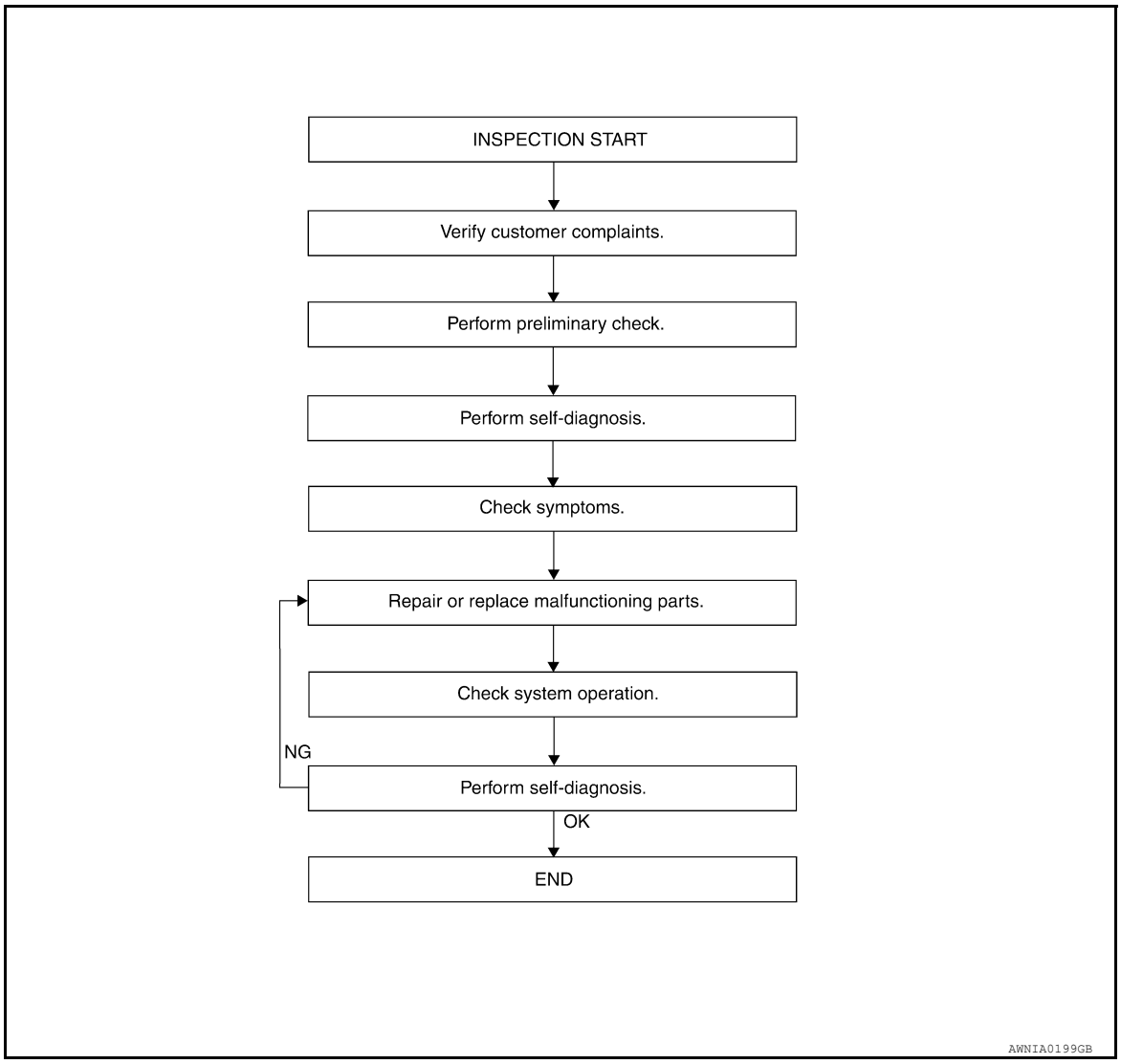
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000006389817

WORK FLOW



DETAILED FLOW

1.CUSTOMER INFORMATION

Interview the customer to obtain detailed information about the symptom.

>> GO TO 2

2.PRELIMINARY CHECK

Perform preliminary check. Refer to SN-4, "Preliminary Check".

>> GO TO 3

3.SELF-DIAGNOSIS

Perform self-diagnosis. Refer to SN-6, "Self-Diagnosis Function".

>> GO TO 4

4. SYMPTOM

Check for symptoms. Refer to SN-24, "Symptom Table".

>> GO TO 5

5. MALFUNCTIONING PARTS

Repair or replace the applicable parts.

>> GO TO 6

6. SYSTEM OPERATION

Check system operation.

>> GO TO 7

7. SELF-DIAGNOSIS

Perform self-diagnosis.

Are any fault codes displayed?

YES >> GO TO 5
NO >> Inspection End.

INSPECTION AND ADJUSTMENT

Preliminary Check

INFOID:0000000006389818

DESCRIPTION

The purpose of the sonar sensor preliminary check is to confirm that there are no outside factors affecting the sonar system.

CONDITIONS

- Ignition switch ON
- No obstructions within 3.0 m (10 ft.) of sonar sensors

SONAR SENSOR STATUS CHECK

- Check that the sonar sensors are properly aligned (no deformation in sensor mounting areas).
- Check that snow, mud or other foreign objects are not adhering to the sonar sensors.
- Check that there is no deformation, scratches or other damage to the sonar sensors.
- Check that water has not accumulated in the sonar sensors.

CAUTION:

Use water, cotton swab, or other soft material for cleaning the sensors.

1. Inspect for the following:
- Physical damage to wiring
- Physical damage to harness connectors
- Loose or disconnected harness connectors
- Physical damage to system components
2. Check that there are no obstacles within each sonar sensor's detection range.

Sonar sensors	Detection range
Rear	Approx. 1.8 m (5.9 ft.) maximum

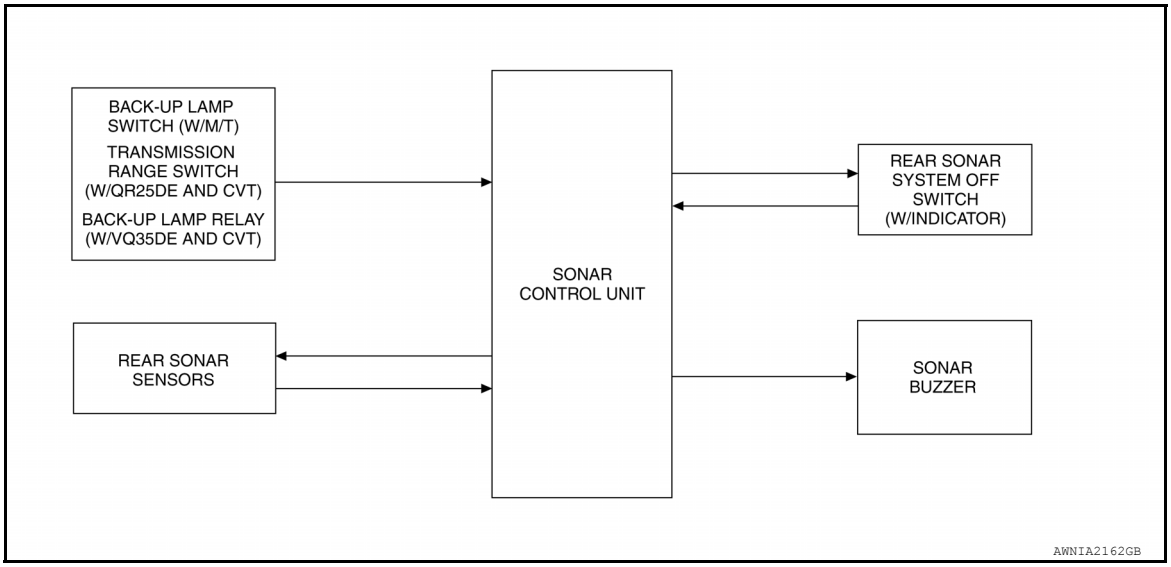
3. Check that there are no nearby ultrasound sources such as the sounds of vehicle horns, motorcycle engines or truck air brakes.
4. Check that the vehicle is on a level surface.

SYSTEM DESCRIPTION

REAR SONAR SYSTEM

System Diagram

INFOID:0000000006389819



System Description

INFOID:0000000006389820

FUNCTION

With power and ground supplied, transmission gear selector lever in R position, and the rear sonar system OFF switch ON (when indicator lamp is not illuminated), the rear sonar system will detect obstacles within 1.8 m (5.9 ft.) of the rear sonar sensors. The vehicle operator is notified of obstacles by varied rate of tone from the sonar buzzer depending on distance of obstacle being sensed.

REAR SONAR SYSTEM OFF SWITCH

With power and ground supplied to the sonar control unit, transmission gear selector lever in R position, the sonar system can be disabled and the sonar buzzer silenced by momentarily pressing the rear sonar system OFF switch. The sonar system OFF indicator lamp will be illuminated in the rear sonar system OFF switch.
The rear sonar system and buzzer will be disabled and the sonar system OFF indicator will be illuminated until the ignition switch is turned OFF. When the ignition switch is turned ON, the rear sonar system will be enabled. Depressing the rear sonar system OFF switch again will enable the rear sonar system also. Enabling the rear sonar system will cause the rear sonar system OFF indicator to go out. If the indicator light is blinking there is a malfunction in the system.

SONAR BUZZER

With power and ground supplied to the sonar control unit and the transmission gear selector lever in R position, a stationary object that is at least 7.0 cm (2.8 in.) wide and 1.0 m (39.0 in.) tall and that is closer than 1.8 m (5.9 ft.) will be detected by the rear sonar sensors, causing the sonar buzzer to sound a tone. As the vehicle moves closer to the object, the rate of the tone will increase. When the object is less than 25.0 cm (10 in.) from the rear bumper, the tone will sound continuously.

REAR SONAR SENSORS

With power and ground supplied to the rear sonar sensors, the sonar sensors transmit an ultrasonic signal. This signal is reflected back to the sensor by objects large enough and close enough to be detected. The rear sonar sensors measure the time from the transmitted signal to the time the signal is reflected back and sends this information to the sonar control unit.

BACK-UP LAMP SWITCH (WITH M/T)

The back-up lamp switch provides a reverse signal to the sonar control unit.

TRANSMISSION RANGE SWITCH (WITH QR25DE and CVT)

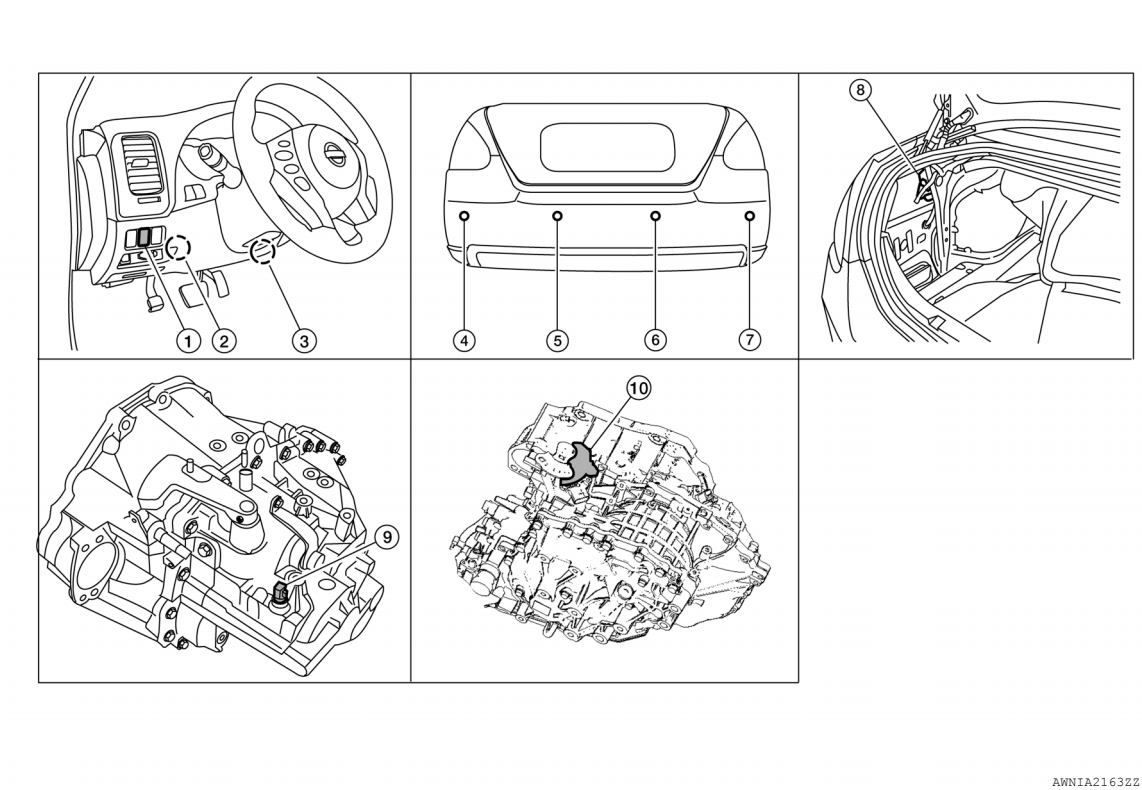
The transmission range switch provides a reverse signal to the sonar control unit.

BACK-UP LAMP RELAY (WITH VQ35DE and CVT)

The back-up lamp relay provides a reverse signal to the sonar control unit.

Component Parts Location

INFOID:0000000006389821



1. Rear sonar system OFF switch M39
2. Back-up lamp relay E34
3. Sonar buzzer M41
4. Rear sonar sensor LH outer B402
5. Rear sonar sensor LH inner B403
6. Rear sonar sensor RH inner B404
7. Rear sonar sensor RH outer B405
8. Sonar control unit B24 (view with trunk side finisher LH removed)
9. Back-up lamp switch F24 (with M/T) (view with transmission removed)
10. Transmission range switch F25 (with CVT) (view with CVT removed)

Component Description

INFOID:0000000006389822

Component	Function
Sonar control unit	Controls sonar system and provides self-diagnosis
Back-up lamp switch (with M/T)	Provides reverse signal for sonar control unit
Back-up lamp relay (with VQ35DE and CVT)	
Transmission range switch (with QR25DE and CVT)	
TCM	Controls back-up lamp relay
Sonar buzzer	Sounds a signal when objects are detected in the rear of the vehicle
Rear sonar system OFF switch	Enables the driver to turn system off and signals a system malfunction
Rear sonar sensor	Senses objects in the rear of the vehicle

Self-Diagnosis Function

INFOID:0000000006389823

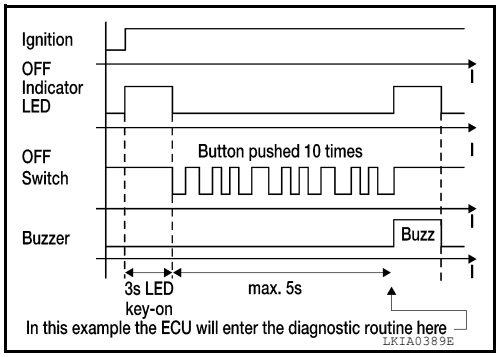
There are four modes of self-diagnosis. These modes must be followed in the following order:
1. Entering diagnostics mode
2. Requesting number of fault codes mode

3. Requesting fault codes mode
4. Clearing fault codes mode

Self-diagnosis can be manually exited by turning the ignition OFF or selecting reverse gear. Self-diagnosis will exit unless a fault code request occurs before a message is repeated five times without acknowledgement.

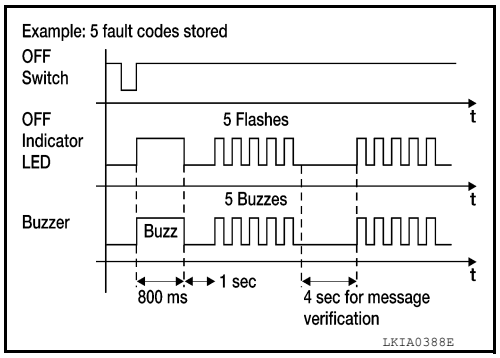
ENTERING DIAGNOSTICS MODE

1. Turn ignition switch ON. Rear sonar system OFF switch indicator lamp illuminates for three seconds and then turns off.
2. Immediately push rear sonar system OFF switch ten times within five seconds.
3. The sonar buzzer will sound once and the sonar system OFF indicator will flash once.



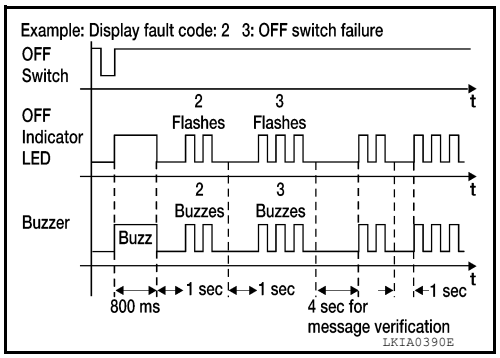
REQUESTING NUMBER OF FAULT CODES MODE

1. While in "entering diagnostic mode", push rear sonar system OFF switch once within 30 seconds of entering diagnostic mode.
   NOTE:
   If the number of fault codes is not requested within 30 seconds after entering diagnostic mode, the system will return to regular operation mode.
2. The sonar buzzer will sound once.
3. Sonar system OFF indicator will flash once and sonar buzzer will sound once for each fault code detected.
4. There will be a four second pause.
5. The number of fault codes will repeat five times then pause.
   NOTE:
   Self-diagnosis will exit unless "requesting fault codes mode" occurs before five repeats ends.



REQUESTING FAULT CODES MODE

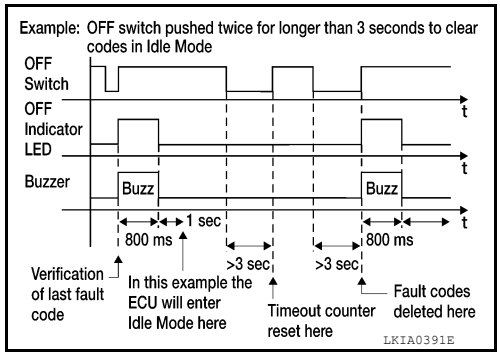
1. While in "requesting number of fault codes" mode, push rear sonar system OFF switch once.
2. The sonar buzzer will sound once.
3. Sonar system OFF indicator will flash and sonar buzzer will sound the first digit of the fault code followed by a one second pause.
4. Sonar system OFF indicator will flash and sonar buzzer will sound the second digit of the fault code followed by a four second pause.
5. Each fault code will repeat five times then pause.
6. Write down each fault code. Then, acknowledge the fault code by pushing the rear sonar system OFF switch once (the sonar buzzer may sound).
   NOTE:
   "Requesting fault codes mode" will exit unless the fault code is acknowledged before it is repeated five times. When all fault codes have been indicated, "clearing fault codes mode" will be entered. Refer to SN-16, "DTC Index".



CLEARING FAULT CODES MODE

NOTE:
While in "clearing fault codes mode", self-diagnosis will automatically exit if no activity occurs for 30 seconds.

1. Push and hold rear sonar system OFF switch for three seconds to reset time-out counter.
2. Push and hold rear sonar system OFF switch for three seconds to clear codes.



DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure For Rear Sonar System

INFOID:0000000006389824

Regarding Wiring Diagram information, refer to SN-17, "Wiring Diagram".

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown rear sonar system fuses.

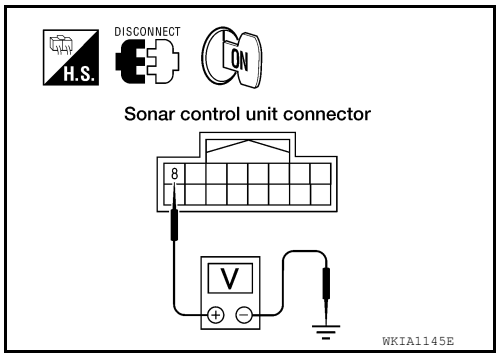
Component	Power Source	Fuse	Location
Sonar control unit	ON or START	3	Fuse block (J/B)
Back-Up lamp switch (with M/T)		4	
Transmission range switch (with QR25DE and CVT)			
Back-Up lamp relay (with VQ35DE and CVT)			

Are any fuses blown?

YES >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect sonar control unit connector.
2. Turn ignition switch ON.
3. Check voltage between sonar control unit connector B24 terminal 8 and ground.



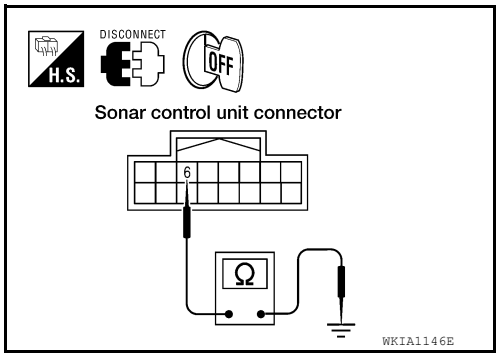
Terminals			Ignition switch position
(+)		(-)	ON or START
Connector	Terminal		
B24	8	Ground	Battery voltage

Is there battery voltage?

YES >> GO TO 3.
NO >> Check harness for open between sonar control unit and fuse.

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between sonar control unit B24 terminal 6 and ground.



Terminals			Continuity
(+)		(–)	
Connector	Terminal		
B24	6	Ground	Yes

Is there continuity?

YES >> Inspection End.
NO >> Check harness ground circuit.

SONAR SENSOR CIRCUIT INSPECTION

Description

INFOID:0000000006389825

With power and ground supplied to the rear sonar sensors, the rear sonar sensors transmit an ultrasonic signal. This signal is reflected back to the rear sonar sensor by objects large enough and close enough to be detected. The rear sonar sensors measure the time from the transmitted signal to the time the signal is reflected back and send this information to the sonar control unit. Refer to SN-5, "System Description" for more details.

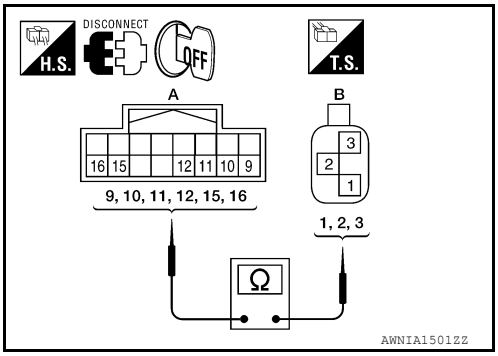
Diagnosis Procedure

INFOID:0000000006389826

Regarding Wiring Diagram information, refer to SN-17, "Wiring Diagram".

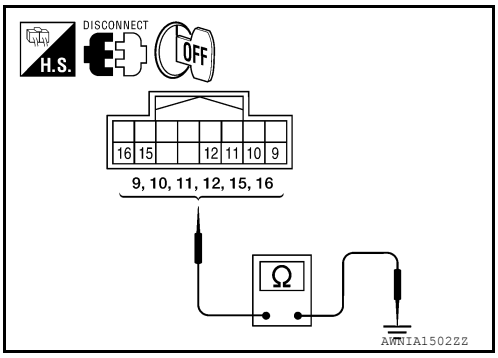
1. CHECK REAR SONAR SENSOR CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and rear sonar sensor connectors.
3. Check continuity between sonar control unit harness connector (A) and rear sonar sensor harness connectors (B).



Connector	Terminal	Connector	Terminal	Continuity
B24 (A)	16	B402, B403, B404, B405 (B)	1	Yes
	15		3	
	9, 10, 11, 12		2	

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



Connector	Terminal		Continuity
B24	9, 10, 11, 12, 15, 16	Ground	No

Are the inspection results normal?

YES >> Inspection End.
NO >> Repair harness or connector.

SONAR BUZZER CIRCUIT INSPECTION

Description

INFOID:0000000006389827

When the transmission selector lever is in the R position, a stationary object will be detected by the rear sonar sensors causing the sonar buzzer to sound a tone. As the vehicle moves closer to the object, the rate of the tone will increase. When the object is very close to the vehicle, the tone will sound continuously.

Diagnosis Procedure

INFOID:0000000006389828

Regarding Wiring Diagram information, refer to SN-17, "Wiring Diagram".

1. CHECK SONAR BUZZER

Refer to SN-11, "Component Inspection".

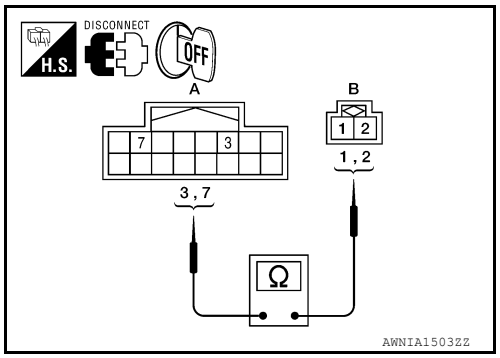
Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace sonar buzzer. Refer to SN-29, "Removal and Installation".

2. CHECK SONAR BUZZER CIRCUITS

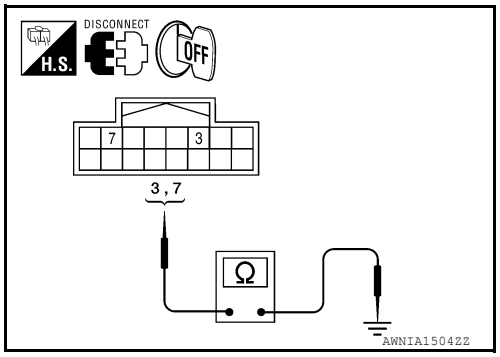
1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and sonar buzzer connector.
3. Check continuity between sonar control unit harness connector (A) and sonar buzzer harness connector (B).

Connector	Terminal	Connector	Terminal	Continuity
B24 (A)	3	M41 (B)	2	Yes
	7		1	



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

Connector	Terminal		Continuity
B24	3, 7	Ground	No



Are the inspection results normal?

YES >> Inspection End.
NO >> Repair harness or connector.

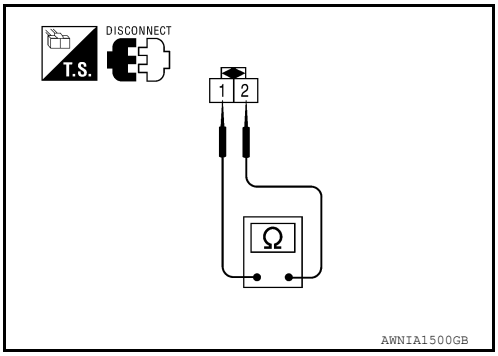
Component Inspection

INFOID:0000000006389829

SONAR BUZZER

1. Disconnect the sonar buzzer connector.
2. Check continuity between sonar buzzer terminals 1 and 2.

1 - 2	**: 50 Ω (+/- 10 Ω)**



SONAR SYSTEM OFF SWITCH CIRCUIT INSPECTION

Description

INFOID:0000000006389830

The sonar system can be disabled by momentarily pressing the rear sonar system OFF switch. The sonar system OFF indicator lamp will be illuminated when the rear sonar system is OFF. Enabling the sonar system will cause the sonar system OFF indicator to go out. The indicator will flash if a malfunction exists in the system.

Diagnosis Procedure

INFOID:0000000006389831

Regarding Wiring Diagram information, refer to SN-17, "Wiring Diagram".

1. CHECK REAR SONAR SYSTEM OFF SWITCH

Refer to SN-13, "Component Inspection".

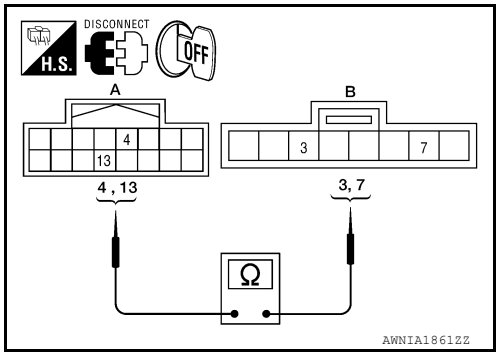
Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace rear sonar system OFF switch. Refer to IP-12, "Removal and Installation - Instrument Panel".

2. CHECK REAR SONAR SYSTEM OFF SWITCH CIRCUITS

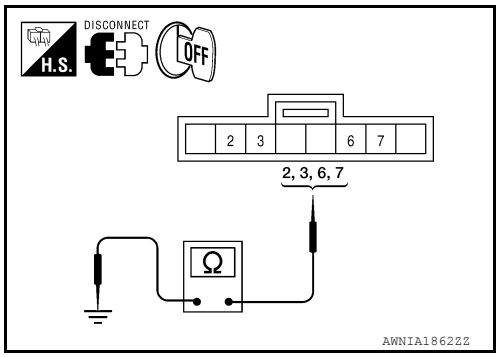
1. Turn ignition switch OFF.
2. Disconnect sonar control unit connector and rear sonar system OFF switch connector.
3. Check continuity between sonar control unit harness connector (A) and rear sonar system OFF switch harness connector (B).

Connector	Terminal	Connector	Terminal	Continuity
B24 (A)	4	M39 (B)	3	Yes
	13		7	



4. Check continuity between rear sonar system OFF switch harness connector and ground.

Connector	Terminal		Continuity
M39	3, 7	Ground	No
	2, 6		Yes



Are the inspection results normal?

YES >> Inspection End.
NO >> Repair harness or connector.

Component Inspection

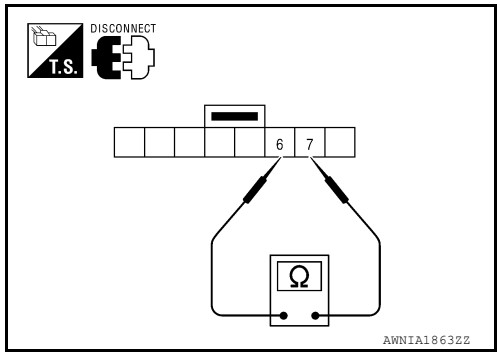
INFOID:0000000006389832

REAR SONAR SYSTEM OFF SWITCH

1. Disconnect the rear sonar system OFF switch connector M39.

2. Check continuity between the following switch terminals.

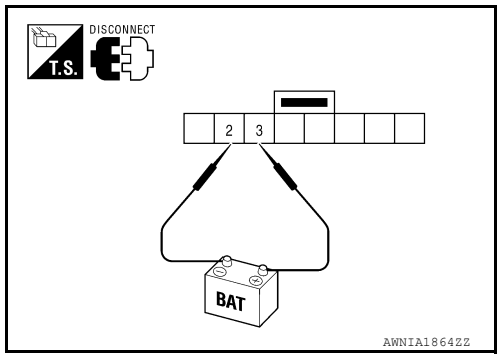
Rear sonar system OFF switch	Terminals	Continuity
Depressed	6 - 7	Yes
Released		No



SONAR SYSTEM OFF INDICATOR

1. Disconnect the rear sonar system OFF switch connector.
2. Apply battery voltage to switch terminal 3.
3. Check the sonar system OFF indicator operation when switch terminal 2 is connected to battery ground.

	Terminals	Condition	Operation
Rear sonar system OFF switch	3	Battery voltage	Indicator ON
	2	Ground	



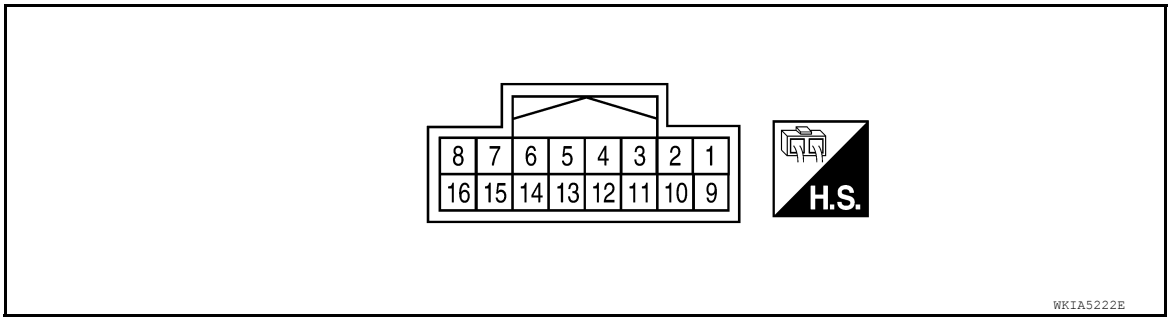
ECU DIAGNOSIS INFORMATION

SONAR CONTROL UNIT FOR REAR SONAR SYSTEM

Reference Value

INFOID:0000000006389833

SONAR CONTROL UNIT TERMINAL LAYOUT



TERMINALS AND REFERENCE VALUES FOR SONAR CONTROL UNIT

Terminal (wire color)	Item	Condition			Reference value (V) (Approx.)
		Ignition switch	Operation		
3 (GR)	Sonar buzzer return	ON	—		0 - 12 (variable)
4 (O)	Sonar system OFF indicator output	ON	Rear sonar system OFF switch	ON	0
				OFF	Battery voltage
5 (V)	Reverse signal	ON	Transmission gear selector lever	R position	Battery voltage
			Transmission gear selector lever	Not R position	0
6 (B)	Sonar control unit ground	—	—		0
7 (Y)	Sonar buzzer drive signal	ON	—		Battery voltage
8 (R)	Sonar control unit power	ON	—		Battery voltage
9 (W)	Rear sonar sensor signal - RH outer	ON	• Rear sonar system OFF switch ON • Transmission gear selector lever in R position • No obstacles		Battery voltage
10 (P)	Rear sonar sensor signal - LH outer	ON	• Rear sonar system OFF switch ON • Transmission gear selector lever in R position • No obstacles		Battery voltage
11 (R)	Rear sonar sensor signal - LH inner	ON	• Rear sonar system OFF switch ON • Transmission gear selector lever in R position • Distance obstacles		Battery voltage
12 (Y)	Rear sonar sensor signal - RH inner	ON	• Rear sonar system OFF switch ON • Transmission gear selector lever in R position • Distance obstacles		Battery voltage
13 (P)	Sonar system OFF switch signal	ON	Rear sonar system OFF switch	ON	0
				OFF	Battery voltage

Terminal (wire color)	Item	Condition		Reference value (V) (Approx.)
		Ignition switch	Operation	
15 (L)	Rear sonar sensor ground	ON	—	0
16 (GR)	Rear sonar sensor power	ON	Ignition switch ON	Battery voltage

DTC Index

INFOID:0000000006389834

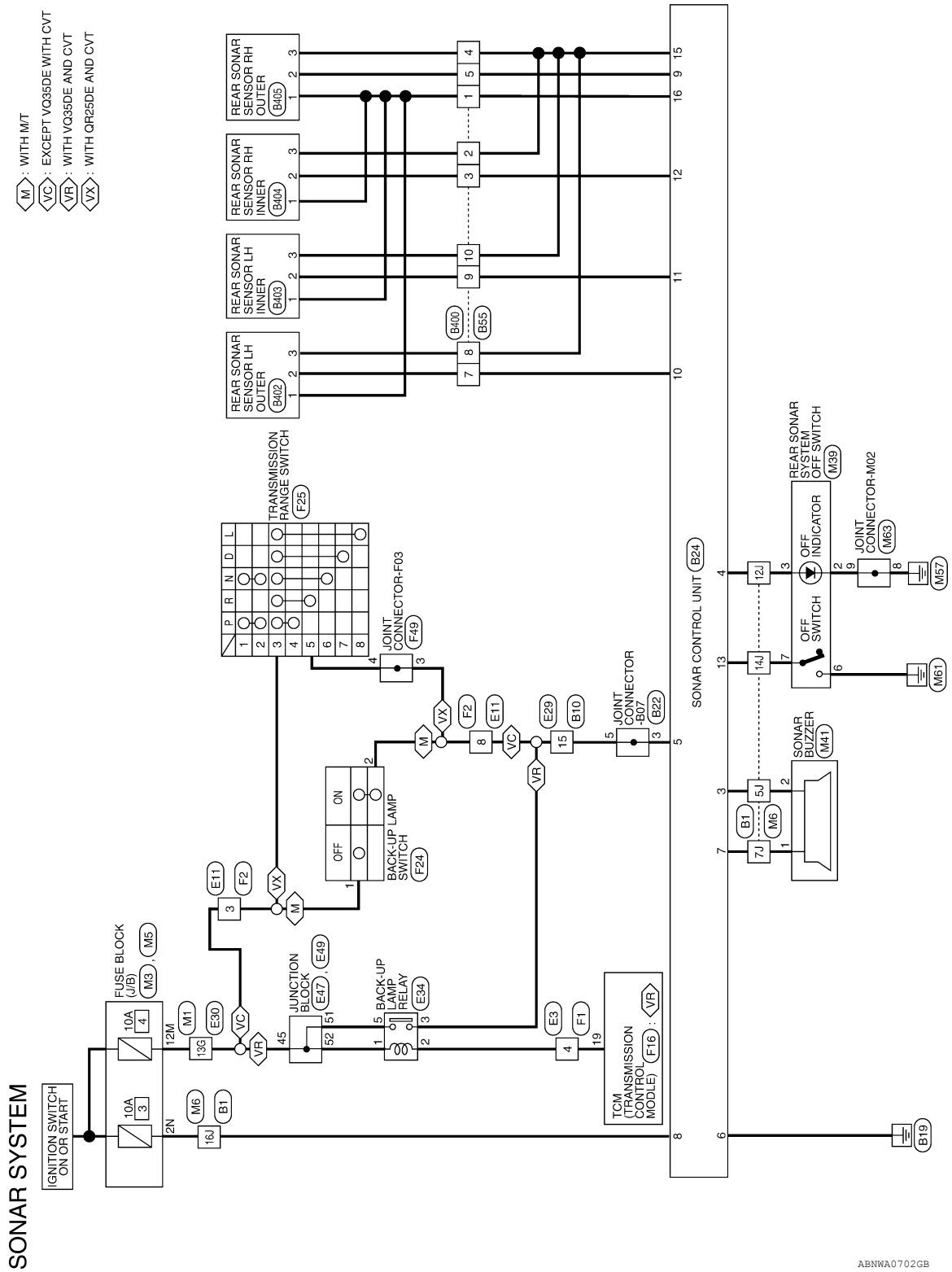
Fault Code	Malfunction	Service Procedure
11	Rear sonar sensor LH outer	1. Check harness for open or short. 2. Replace sonar sensor. Refer to SN-27, "Removal and Installation".
12	Rear sonar sensor LH inner	
13	Rear sonar sensor RH inner	
14	Rear sonar sensor RH outer	
21	Sonar buzzer	1. Refer to SN-11, "Diagnosis Procedure". 2. Check harness for open or short. 3. Refer to SN-24, "Symptom Table".
22	Rear sonar system OFF indicator	1. Refer to SN-13, "Diagnosis Procedure". 2. Check harness for open or short. 3. Refer to symptom table.
23	Rear sonar system OFF switch	
24	Sonar control unit	Replace sonar control unit. Refer to SN-28, "Removal and Installation".

WIRING DIAGRAM

SONAR SYSTEM

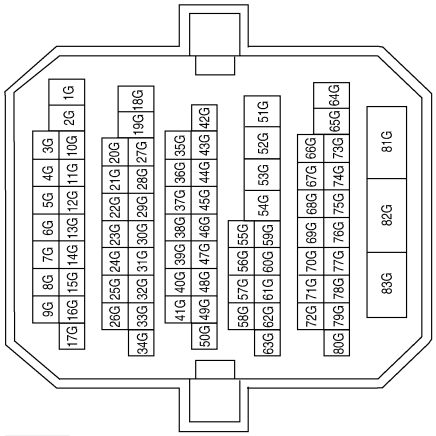
Wiring Diagram

INFOID:0000000006389835



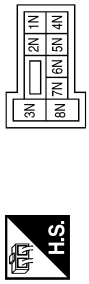
SONAR SYSTEM CONNECTORS

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



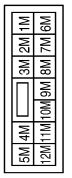
Terminal No.	Color of Wire	Signal Name
13G	O	–

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2N	G	–

Connector No.	M5
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

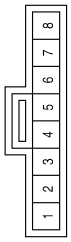


Terminal No.	Color of Wire	Signal Name
12M	O	–

ABNIA0891GB

Connector No.	M39
Connector Name	REAR SONAR SYSTEM OFF SWITCH
Connector Color	GRAY

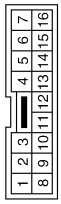
H.S.



Terminal No.	Color of Wire	Signal Name
2	B	–
3	SB	–
6	B	–
7	V	–

Connector No.	E3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

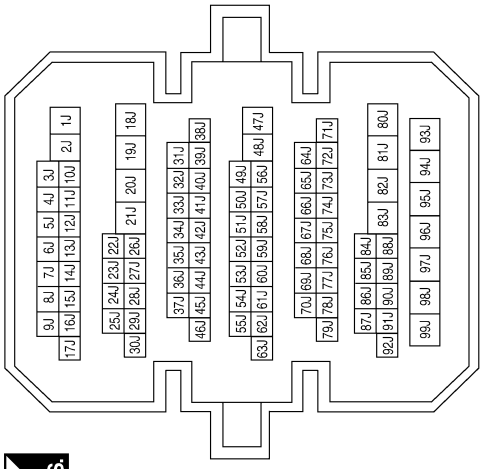
H.S.



Terminal No.	Color of Wire	Signal Name
4	R	–

Connector No.	M6
Connector Name	WIRE TO WIRE
Connector Color	WHITE

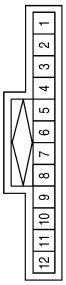
H.S.



Terminal No.	Color of Wire	Signal Name
5J	W	–
7J	LG	–
12J	SB	–
14J	V	–
16J	G	–

Connector No.	M63
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

H.S.



Terminal No.	Color of Wire	Signal Name
8	B	–
9	B	–

Connector No.	M41
Connector Name	SONAR BUZZER
Connector Color	WHITE

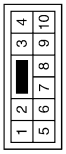
H.S.

Terminal No.	Color of Wire	Signal Name
1	W	SOUNDER-
2	LG	SOUNDER+

ABNIA2106GB

Connector No.	E11
Connector Name	WIRE TO WIRE
Connector Color	WHITE

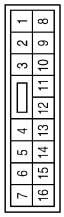
H.S.



Terminal No.	Color of Wire	Signal Name
3	O	–
8	W	–

Connector No.	E29
Connector Name	WIRE TO WIRE
Connector Color	WHITE

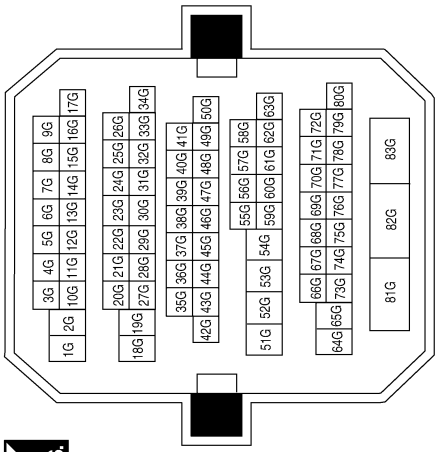
H.S.



Terminal No.	Color of Wire	Signal Name
15	W	–

Connector No.	E30
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
13G	BR	–

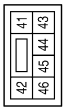
Connector No.	E34
Connector Name	BACK-UP LAMP RELAY
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	O	–
2	R	–
3	W	–
5	LG	–

Connector No.	E47
Connector Name	JUNCTION BLOCK
Connector Color	WHITE

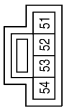
H.S.



Terminal No.	Color of Wire	Signal Name
45	BR	–

Connector No.	E49
Connector Name	JUNCTION BLOCK
Connector Color	BROWN

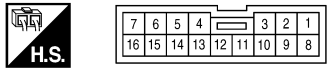
H.S.



Terminal No.	Color of Wire	Signal Name
51	LG	–
52	O	–

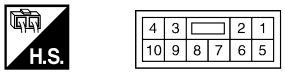
AANIA0471GB

Connector No.	F1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



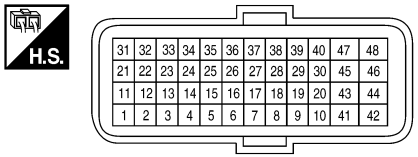
Terminal No.	Color of Wire	Signal Name
4	G	–

Connector No.	F2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	BR	–
8	R	–

Connector No.	F16
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK

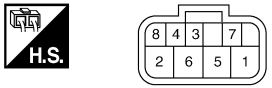


Terminal No.	Color of Wire	Signal Name
19	G	REV LAMP RLY

Connector No.	F24
Connector Name	BACK-UP LAMP SWITCH
Connector Color	BLACK

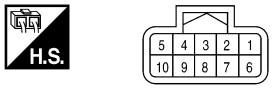
Terminal No.	Color of Wire	Signal Name
1	O	–
2	R	–

Connector No.	F25
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
3	O	IGN
5	R	R_OUTPUT

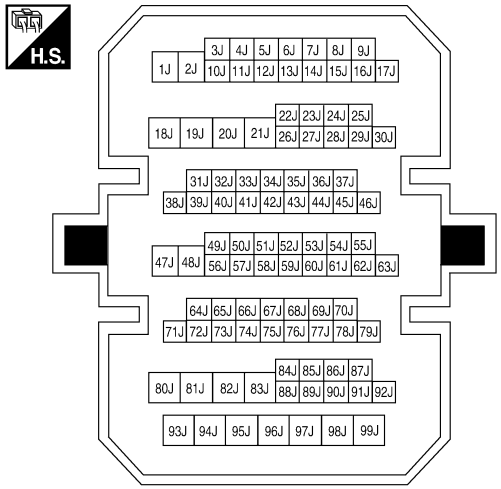
Connector No.	F49
Connector Name	JOINT CONNECTOR-F03
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
3	R	–
4	R	–

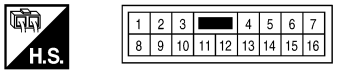
AANIA0472GB

Connector No.	B1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



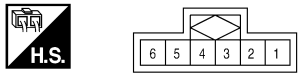
Terminal No.	Color of Wire	Signal Name
5J	GR	–
7J	Y	–
12J	O	–
14J	P	–
16J	R	–

Connector No.	B10
Connector Name	WIRE TO WIRE
Connector Color	WHITE



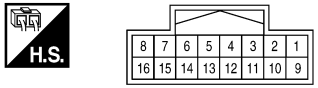
Terminal No.	Color of Wire	Signal Name
15	V	–

Connector No.	B22
Connector Name	JOINT CONNECTOR-B07
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	V	–
5	V	–

Connector No.	B24
Connector Name	SONAR CONTROL UNIT
Connector Color	WHITE

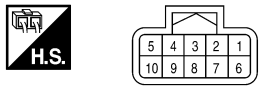


Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	GR	SOUNDER-
4	O	STATUS_LED
5	V	REVERS_LAMP_SIGNAL
6	B	GND
7	Y	SOUNDER+

Terminal No.	Color of Wire	Signal Name
8	R	POWER
9	W	SONAR_ROR
10	P	SONAR_ROL
11	R	SONAR_RIL
12	Y	SONAR_RIR
13	P	CANCEL_SW
14	–	–
15	L	SENS_GND
16	GR	SENS_POWER

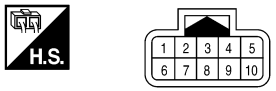
ABNIA2109GB

Connector No.	B55
Connector Name	WIRE TO WIRE
Connector Color	BLACK



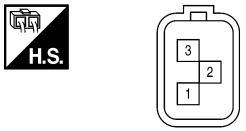
Terminal No.	Color of Wire	Signal Name
1	GR	–
2	L	–
3	Y	–
4	L	–
5	W	–
7	P	–
8	L	–
9	R	–
10	L	–

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



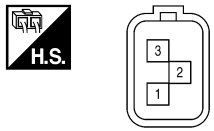
Terminal No.	Color of Wire	Signal Name
1	O	–
2	W	–
3	Y	–
4	L	–
5	P	–
7	B	–
8	GR	–
9	R	–
10	G	–

Connector No.	B402
Connector Name	REAR SONAR SENSOR LH OUTER
Connector Color	BLACK



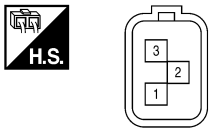
Terminal No.	Color of Wire	Signal Name
1	O	POWER
2	B	SIGNAL
3	GR	GND

Connector No.	B403
Connector Name	REAR SONAR SENSOR LH INNER
Connector Color	BLACK



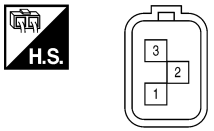
Terminal No.	Color of Wire	Signal Name
1	O	POWER
2	R	SIGNAL
3	G	GND

Connector No.	B404
Connector Name	REAR SONAR SENSOR RH INNER
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	O	POWER
2	Y	SIGNAL
3	W	GND

Connector No.	B405
Connector Name	REAR SONAR SENSOR RH OUTER
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	O	POWER
2	P	SIGNAL
3	L	GND

ABNIA2110GB

SYMPTOM DIAGNOSIS

SONAR SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000006389836

NOTE:
Always perform Preliminary Check and Self-Diagnosis Function before diagnosing vehicle by symptom. Refer to SN-4, "Preliminary Check" and SN-6, "Self-Diagnosis Function".

Symptom	Repair order
When the transmission gear selector lever is in the R position and the sonar system is ON, the rear sonar system does not operate.	1. Check sonar control unit power and ground circuits. Refer to SN-9, "Diagnosis Procedure For Rear Sonar System". 2. Check back-up lamp switch (with M/T). 3. Check transmission range switch (with QR25DE and CVT). Refer to TM-297, "Component Inspection (Transmission Range Switch)". 4. Check back-up lamp relay (with VQ35DE and CVT). 5. Check related harness and connections for back-up lamp relay. 6. Check rear sonar sensors. Refer to SN-10, "Diagnosis Procedure". 7. Check rear sonar buzzer. Refer to SN-11, "Diagnosis Procedure". 8. Replace sonar control unit. Refer to SN-28, "Removal and Installation".
Buzzer sounds although there are no obstacles within the detection range (false detection).	1. Check all sonar sensors for misalignment or damage (including bumper and fascia). Refer to SN-4, "Preliminary Check". 2. Check all sonar sensors for dirt or ice buildup. Refer to SN-4, "Preliminary Check". 3. Check sonar sensors. Refer to SN-10, "Diagnosis Procedure". 4. Replace sonar control unit. Refer to SN-28, "Removal and Installation".
The sonar system still operates when the sonar system OFF indicator lamp is ON.	1. Check sonar system OFF indicator lamp. Refer to SN-13, "Diagnosis Procedure". 2. Replace sonar control unit. Refer to SN-28, "Removal and Installation".
The sonar sensors do not detect objects within the detectable range (intermittent operation).	1. Check sonar sensors. Refer to SN-4, "Preliminary Check". 2. Replace sonar control unit. Refer to SN-28, "Removal and Installation".
When the sonar system is OFF, the OFF indicator does not light and the sonar buzzer does not sound.	1. Check sonar system OFF switch. Refer to SN-13, "Component Inspection". 2. Check harness and connections for sonar system OFF switch. Refer to SN-13, "Diagnosis Procedure". 3. Replace sonar control unit. Refer to SN-28, "Removal and Installation".
When the sonar system is OFF, the OFF indicator lamp does not light but the sonar buzzer does sound.	1. Check sonar system OFF indicator lamp. Refer to SN-13, "Component Inspection". 2. Check harness and connections for sonar system OFF indicator lamp. Refer to SN-13, "Diagnosis Procedure". 3. Replace sonar control unit. Refer to SN-28, "Removal and Installation".
When the sonar system is OFF, the sonar buzzer does not sound but the OFF indicator lamp lights.	1. Check sonar buzzer. Refer to SN-11, "Component Inspection". 2. Check harness and connections between sonar buzzer and sonar control unit. Refer to SN-11, "Diagnosis Procedure". 3. Replace sonar control unit. Refer to SN-28, "Removal and Installation".

PRECAUTION

PRECAUTION

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

INFOID:0000000006389837

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

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

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

WARNING:
- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Precautions Necessary for Steering Wheel Rotation after Battery Disconnect

INFOID:0000000006389838

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

This vehicle is equipped with a push-button ignition switch and a steering lock unit.
If the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.
If turning the steering wheel is required with the battery disconnected or discharged, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.
   NOTE:
   Supply power using jumper cables if battery is discharged.
2. Carry the Intelligent Key or insert it to the key slot and turn the push-button ignition switch to ACC position. (At this time, the steering lock will be released.)
3. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
4. Perform the necessary repair operation.

5. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the push-button ignition switch from ACC position to ON position, then to LOCK position. (The steering wheel will lock when the push-button ignition switch is turned to LOCK position.)
6. Perform self-diagnosis check of all control units using CONSULT.

UNIT REMOVAL AND INSTALLATION

SONAR SENSOR

Removal and Installation

INFOID:0000000006389839

Removal

1. Remove the rear bumper fascia and energy absorbing foam. Refer to EXT-42, "Removal and Installation"
2. Disconnect the rear sonar connector.
3. Remove the rear sonar sensor from the rear bumper fascia.
   - Disconnect the sonar sensors from the harness.
   - Remove the sonar sensors retainers from the rear fascia assembly.

Installation

Installation is in the reverse order of removal.

SONAR CONTROL UNIT

Removal and Installation

INFOID:0000000006389840

Removal

1. Remove the LH trunk side finisher. Refer to INT-30, "Exploded View".
2. Disconnect the sonar control unit connector.
3. Remove the two bolts and remove the sonar control unit.

Installation

Installation is in the reverse order of removal.

BUZZER

Removal and Installation

INFOID:0000000006389841

Buzzer

1. Remove the instrument lower cover (LH). Refer to IP-11, "Exploded View".
2. Disconnect the buzzer connector.
3. Remove the screw and the buzzer.

Installation

Installation is in the reverse order or removal.