SECTION SN
SONAR SYSTEM

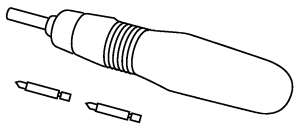
CONTENTS

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:0000000001317773

Tool name	Description
Power tool  PBIC0191E	Loosening bolts and nuts.

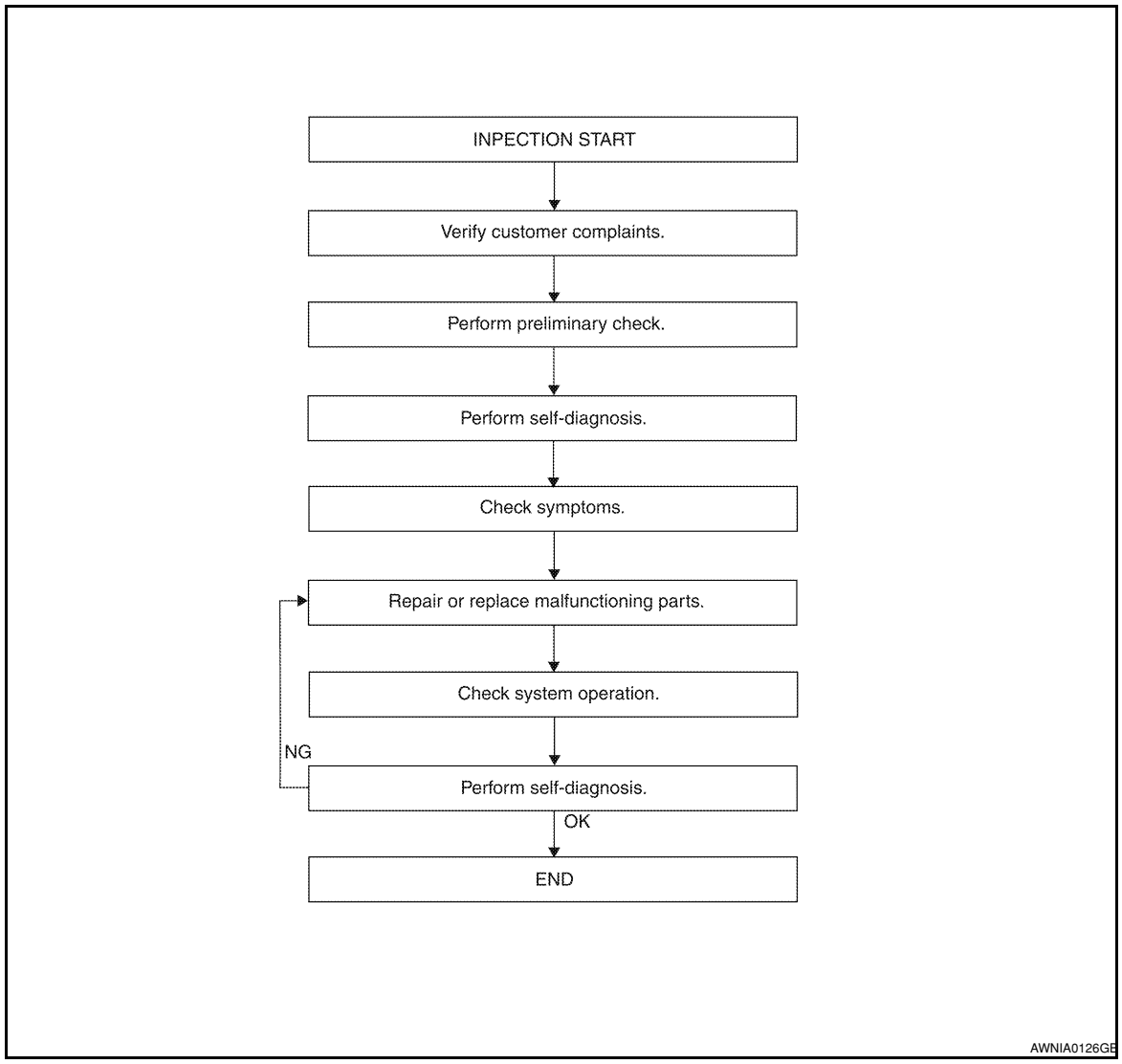
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000001278680

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-5, "Preliminary Check".

>> GO TO 3

3.SELF-DIAGNOSIS

Perform self-diagnosis. Refer to SN-7, "Self-Diagnosis Function" (with rear sonar system) or SN-12, "CONSULT-III Function (SONAR)" (with front and rear sonar system).

>> GO TO 4

4.SYMPTOM

Check for symptoms. Refer to SN-40, "Symptom Table".

>> GO TO 5

5.MALFUNCTIONING PARTS

Repair or replace the applicable parts.

>> GO TO 6

6.SYSTEM OPERATION

Check system operation. Refer to SN-5, "Preliminary Check".

>> GO TO 7

7.SELF-DIAGNOSIS

Perform self-diagnosis. Refer to SN-7, "Self-Diagnosis Function" (with rear sonar system) or SN-12, "CONSULT-III Function (SONAR)" (with front and rear sonar system).

Are any fault codes displayed?

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

INSPECTION AND ADJUSTMENT

Preliminary Check

INFOID:0000000001278936

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. Check that there are no obstacles within each sonar sensor's detection range.

Sonar sensors	Detection range
Front	Approx. 1.0 m (3 ft.) maximum
Rear	Approx. 1.8 m (5.9 ft.) maximum

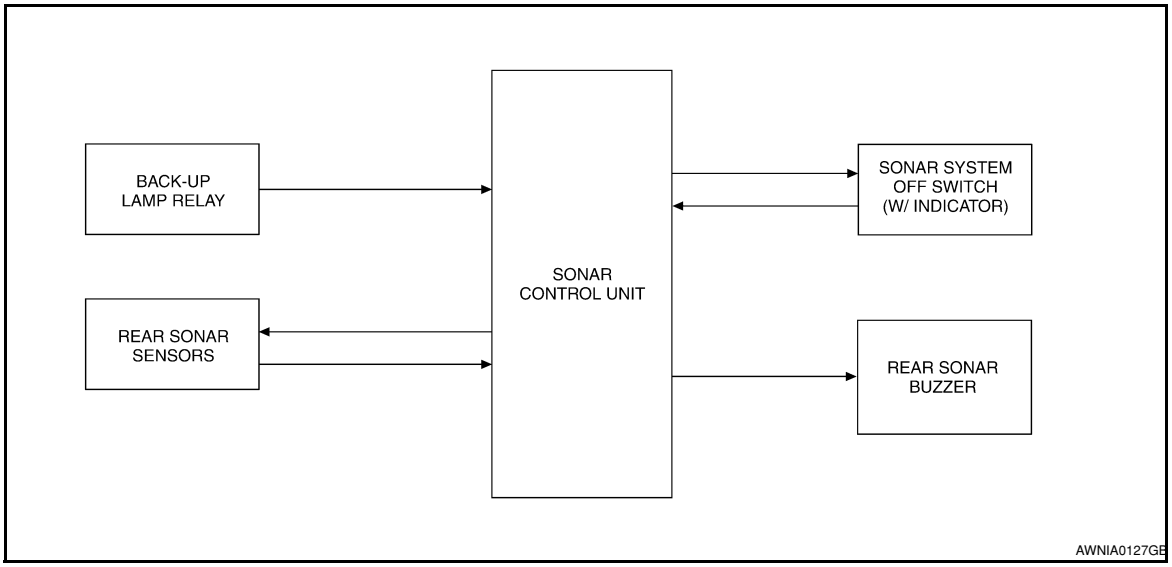
2. Check that there are no nearby ultrasound sources such as the sounds of vehicle horns, motorcycle engines or truck air brakes.
3. Check that the vehicle is on a level surface.

FUNCTION DIAGNOSIS

REAR SONAR SYSTEM

System Diagram

INFOID:0000000001278681



System Description

INFOID:0000000001278682

FUNCTION

With power and ground supplied, transmission gear selector lever in R position, and the sonar system OFF switch ON, 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 rear sonar buzzer depending on distance of obstacle being sensed.

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 rear sonar buzzer silenced by momentarily pressing the sonar system OFF switch. The sonar system OFF indicator lamp will be illuminated in the 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 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.

REAR SONAR BUZZER

With power and ground supplied to the sonar control unit and the A/T 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 rear 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

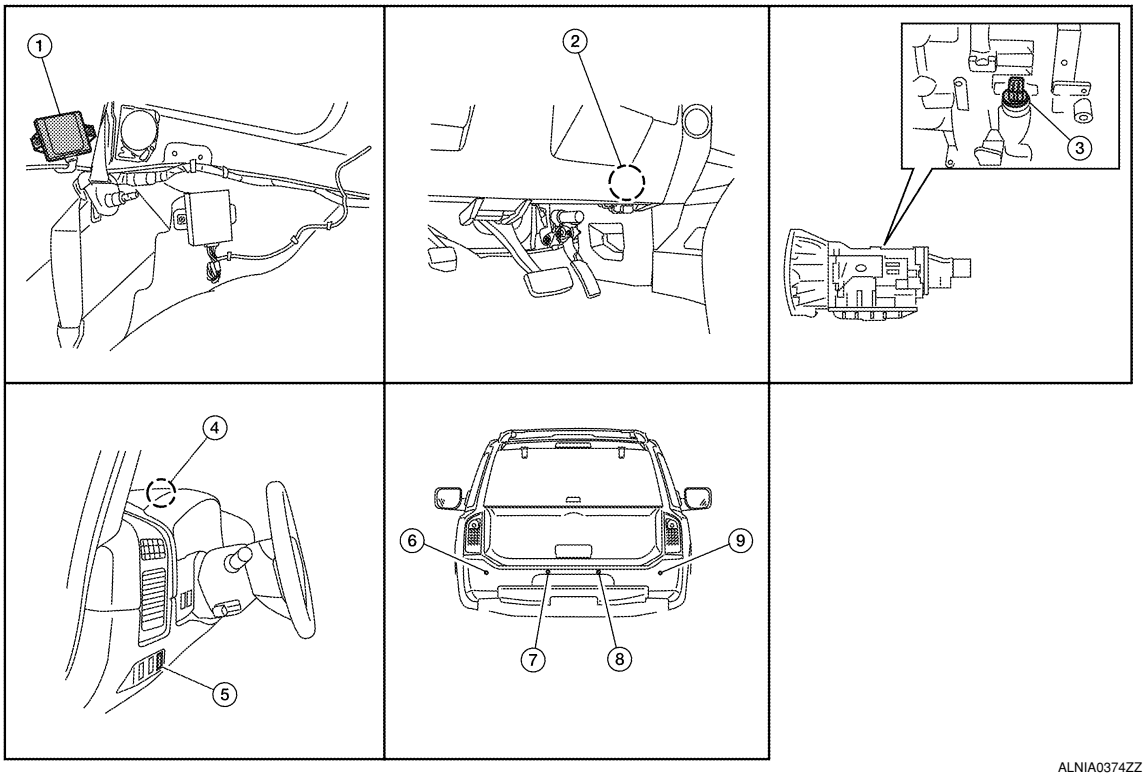
With power and ground supplied to the rear sonar sensors, the sonar sensors transmit an ultrasonic signal. This signal is reflected back to the sensor by objects large enough and close enough to be detected. The rear sonar sensors measure the time from the transmitted signal to the time the signal is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

BACK-UP LAMP RELAY

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

Component Parts Location

INFOID:0000000001278683



ALNIA0374ZZ

1. Sonar control unit B56 (view with luggage side finisher LH removed)
2. Back-up lamp relay M73
3. A/T assembly F9
4. Rear sonar buzzer B166
5. Sonar system OFF switch M116 (with sonar system OFF indicator)
6. Rear sonar sensor LH outer C102
7. Rear sonar sensor LH inner C103
8. Rear sonar sensor RH inner C104
9. Rear sonar sensor RH outer C105

Component Description

INFOID:0000000001374736

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

Self-Diagnosis Function

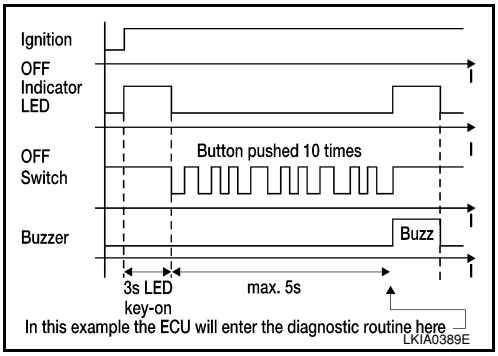
INFOID:0000000001278937

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.

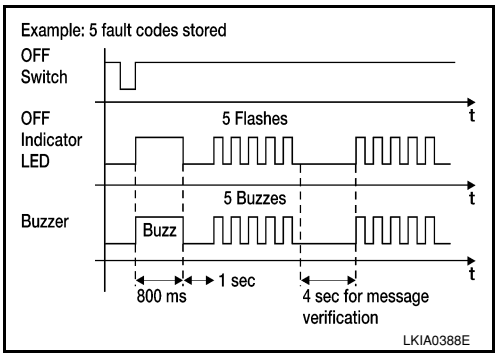
ENTERING DIAGNOSTICS MODE

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



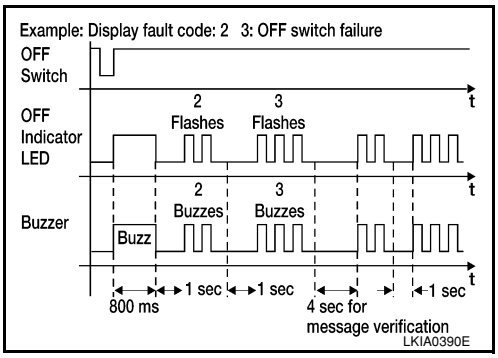
REQUESTING NUMBER OF FAULT CODES MODE

1. While in "entering diagnostic mode", push 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 rear sonar buzzer will sound once.
3. Sonar system OFF indicator will flash once and rear 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

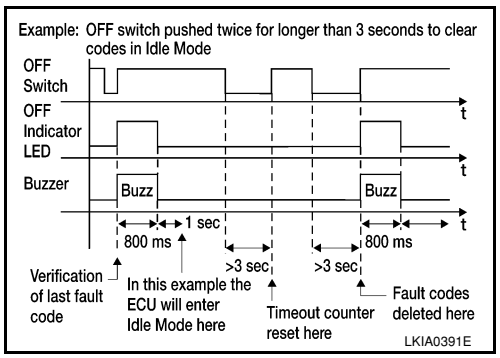
1. While in "requesting number of fault codes" mode, push sonar system OFF switch once.
2. The rear sonar buzzer will sound once.
3. Sonar system OFF indicator will flash and rear sonar buzzer will sound the first digit of the fault code followed by a one second pause.
4. Sonar system OFF indicator will flash and rear 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 sonar system OFF switch once (the rear 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-25, "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.

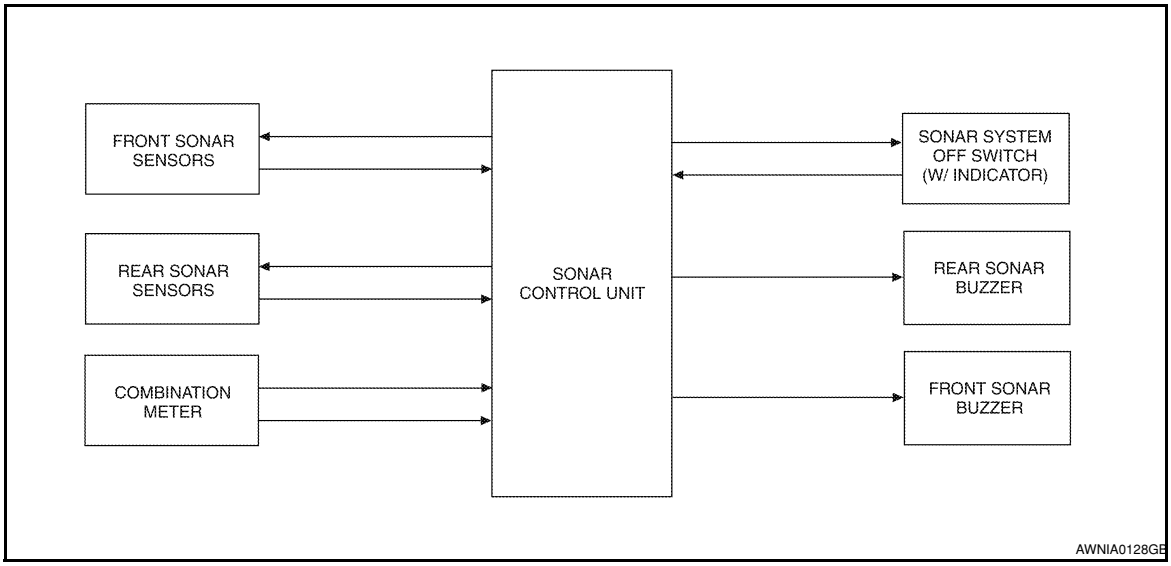
1. Push and hold sonar system OFF switch for three seconds to reset time-out counter.
2. Push and hold sonar system OFF switch for three seconds to clear codes.



FRONT AND REAR SONAR SYSTEM

System Diagram

INFOID:0000000001317748



System Description

INFOID:0000000001317749

FUNCTION

With power and ground supplied, transmission gear selector lever in R position, and the sonar system OFF switch ON, the sonar system will detect obstacles within 1.8 m (5.9 ft.) of the rear sonar sensors and the two outer front sonar sensors. The vehicle operator is notified of obstacles by varied rate of tone from the rear sonar buzzer depending on distance of obstacle being sensed. If the vehicle speed reaches 50 km/h (31 MPH) the sonar system will shut down.

With power and ground supplied, transmission gear selector lever in a forward drive gear, and the sonar system OFF switch ON, the front sonar system will detect obstacles within 1.0 m (3 ft.) of the front sonar sensors. The vehicle operator is notified of obstacles by varied rate of tone from the front sonar buzzer depending on distance of obstacle being sensed. When the vehicle accelerates to 12 km/h (7.5 MPH) the sonar system will shut down. When the vehicle decelerates to 8 km/h (5 MPH) the sonar system will turn back on.

SONAR SYSTEM OFF SWITCH

With power and ground supplied to the sonar control unit, transmission gear selector lever in a position other than P, the sonar system can be disabled and the sonar buzzers silenced by momentarily pressing the sonar system OFF switch. The sonar system OFF indicator lamp will be illuminated in the sonar system OFF switch. The sonar system and buzzers 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 sonar system will be enabled. Depressing the sonar system OFF switch again will enable the sonar system also. 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.

SONAR BUZZERS

With power and ground supplied to the sonar control unit and the A/T selector lever in R position, a stationary object that is at least 9.0 cm (3.5 in.) wide and that is closer than 1.8 m (5.9 ft.) will be detected by the rear sonar sensors and the two outer front sonar sensors, causing the rear 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.

With power and ground supplied to the sonar control unit and the A/T selector lever in a forward drive gear, a stationary object that is at least 9.0 cm (3.5 in.) wide and that is closer than 1.0 m (3 ft.) will be detected by the front sonar sensors, causing the front 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 30 cm (12 in.) from the front 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 send this information to the sonar control unit.

FRONT SONAR SENSORS

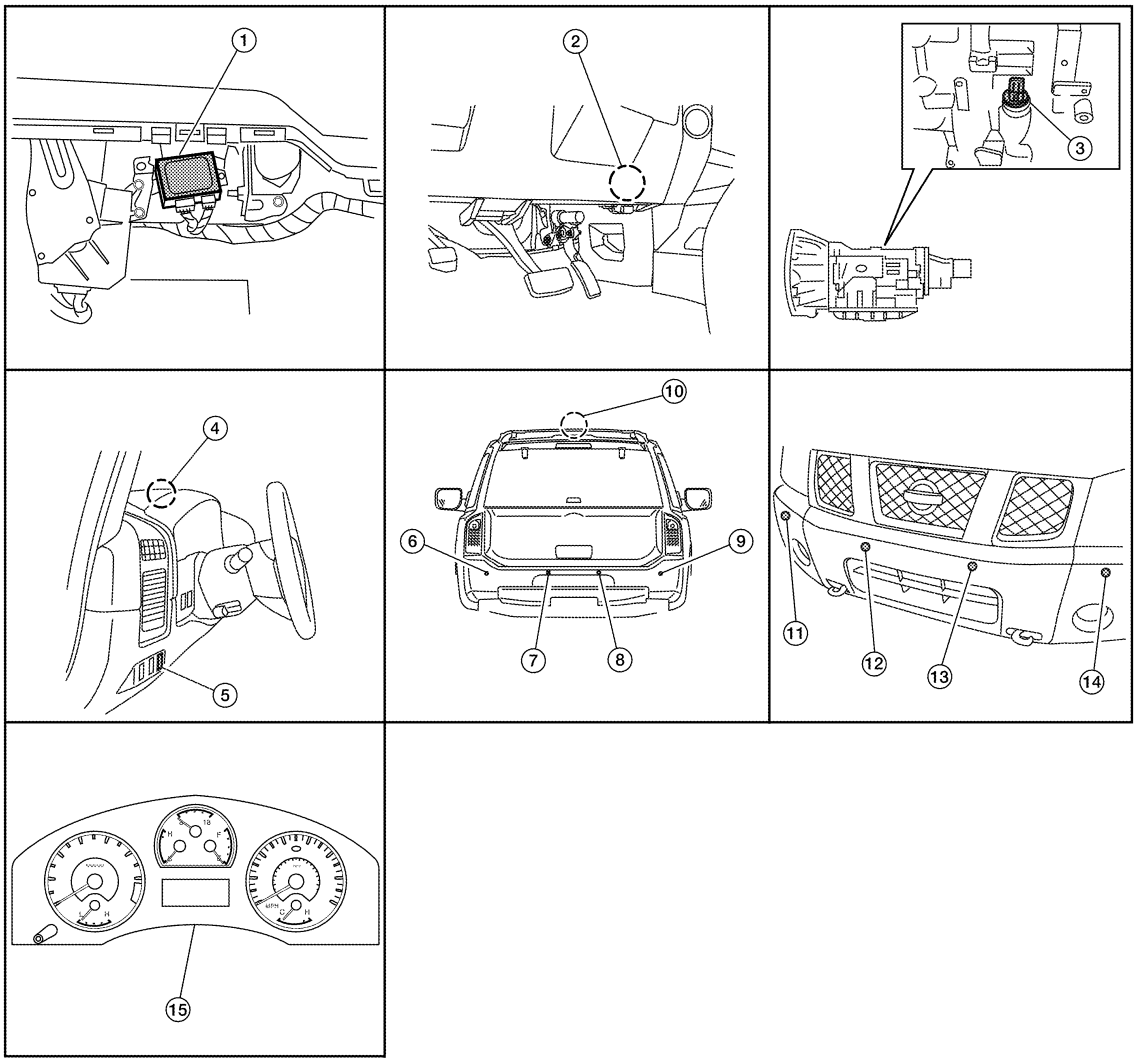
With power and ground supplied to the front sonar sensors, the sonar sensors transmit an ultrasonic signal. This signal is reflected back to the sensor by objects large enough and close enough to be detected. The front sonar sensors measure the time from the transmitted signal to the time the signal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

COMBINATION METER

The combination meter provides the vehicle speed and park signals to the sonar control unit.

Component Parts Location

INFOID:0000000001317750



AWNIA0129ZZ

1. Sonar control unit B56, B57 (View with luggage side finisher LH removed)
2. Back-up lamp relay M73
3. A/T assembly F9
4. Front sonar buzzer M118
5. Sonar system OFF switch M116 (with sonar system OFF indicator)
6. Rear sonar sensor LH outer C102
7. Rear sonar sensor LH inner C103
8. Rear sonar sensor RH inner C104
9. Rear sonar sensor RH outer C105
10. Rear sonar buzzer B166
11. Front sonar sensor RH outer E166
12. Front sonar sensor RH inner E163
13. Front sonar sensor LH inner E162
14. Front sonar sensor LH outer E158
15. Combination meter M24

Component Description

INFOID:0000000001374737

Component	Function
Sonar control unit	Controls sonar system and provides self-diagnosis
Back-up lamp relay	Provides reverse signal for sonar control unit
A/T assembly	Controls back-up lamp relay
Front sonar buzzer	Sounds a signal when objects are detected in the front of the vehicle
Rear sonar buzzer	Sounds a signal when objects are detected in the rear of the vehicle
Sonar system OFF switch	Enables the driver to turn the system off and signals a system malfunction
Front sonar sensors	Senses objects in the front of the vehicle
Rear sonar sensors	Senses objects in the rear of the vehicle
Combination meter	Provides Park and vehicle speed signals for sonar control unit

CONSULT-III Function (SONAR)

INFOID:0000000001374644

Diagnosis mode	Description
SELF-DIAG RESULTS	Displays sonar control unit self-diagnosis results.

SELF DIAGNOSTIC PROCEDURE

CONSULT-III can be used to read and clear DTCs. Refer to GI-47, "Description".

SELF DIAGNOSTIC RESULTS

Refer to SN-39, "DTC Index".

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure For Rear Sonar System

INFOID:0000000001278935

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown rear sonar system fuses.

Unit	Power Source	Fuse	Location
Sonar control unit	ON or START	12	Fuse block (J/B)
		51	IPDM E/R

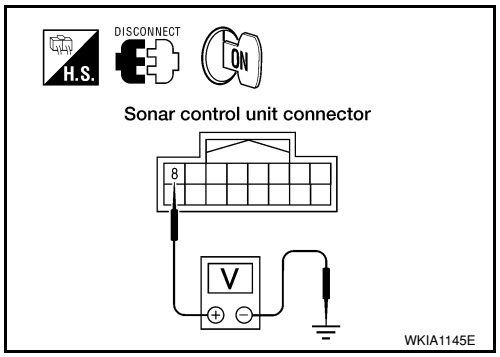
Are any fuses blown?

YES >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to GI-42, "Circuit Inspection".

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 B56 terminal 8 and ground.



Terminals			Ignition switch position
(+)		(-)	ON or START
Connector	Terminal		
B56	8	Ground	Battery voltage

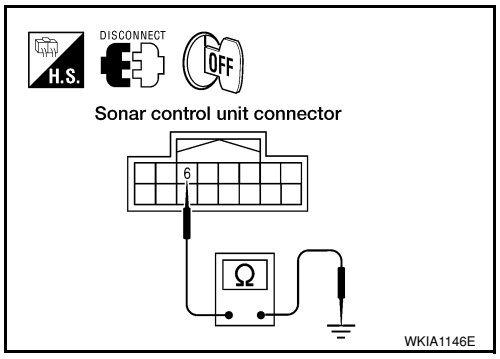
Is there battery voltage?

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 B56 terminal 6 and ground.



Terminals			Continuity
(+)		(–)	
Connector	Terminal		
B56	6	Ground	Yes

Is there continuity?

YES >> Inspection End.

NO >> Check harness ground circuit.

Diagnosis Procedure For Front And Rear Sonar System

INFOID:0000000001317753

INSPECTION FOR POWER SUPPLY AND GROUND CIRCUIT

1. CHECK FUSES

Check for blown sonar system fuses.

Unit	Power Source	Fuse	Location
Sonar control unit	ON or START	12	Fuse block (J/B)
		51	IPDM E/R

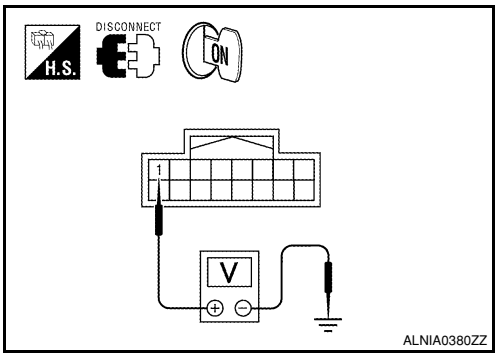
Are any fuses blown?

YES >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse. Refer to GI-42, "Circuit Inspection".

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Disconnect sonar control unit connector B56.
2. Turn ignition switch ON.
3. Check voltage between sonar control unit connector B56 terminal 1 and ground.



Terminals			Voltage
(+)		(-)	
Connector	Terminal		
B56	1	Ground	Battery voltage

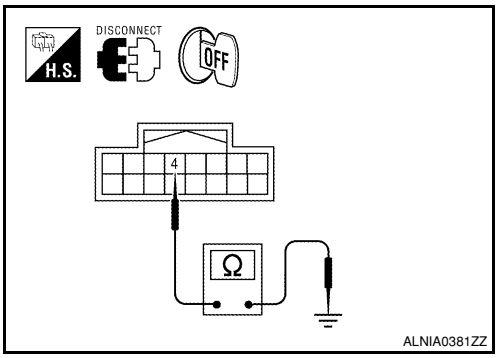
Is there battery voltage?

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 B56 terminal 4 and ground.



Terminals			Continuity
(+)		(–)	
Connector	Terminal		
B56	4	Ground	Yes

Is there continuity?

YES >> Inspection End.

NO >> Check harness ground circuit.

COMPONENT INSPECTION

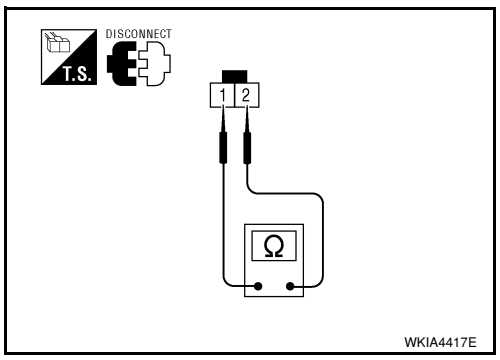
Sonar Buzzer

INFOID:0000000001317757

SONAR BUZZER

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

1 - 2 : Continuity should exist



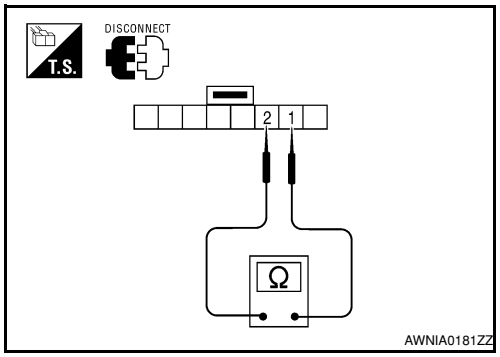
Sonar System OFF Switch

INFOID:0000000001317760

SONAR SYSTEM OFF SWITCH

1. Disconnect the sonar system OFF switch connector M116.
2. Check continuity between the following switch terminals.

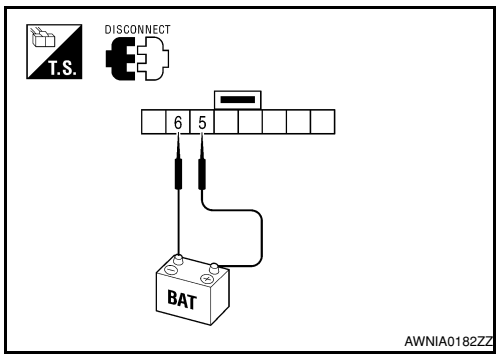
Sonar system OFF switch	Terminals	Continuity
Depressed	1 - 2	Yes
Released		No



SONAR SYSTEM OFF INDICATOR

1. Disconnect the sonar system OFF switch connector M116.
2. Apply battery voltage to switch terminal 5.
3. Check the sonar system OFF indicator operation when switch terminal 6 is connected to battery ground.

	Terminals	Condition	Operation
Sonar system OFF switch	5	Battery voltage	Indicator ON
	6	Ground	



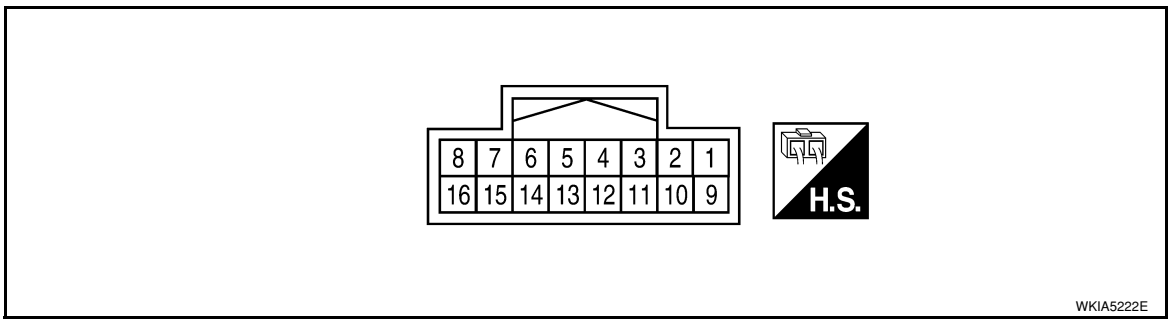
ECU DIAGNOSIS

SONAR CONTROL UNIT FOR REAR SONAR SYSTEM

Reference Value

INFOID:0000000001278684

SONAR CONTROL UNIT TERMINAL LAYOUT



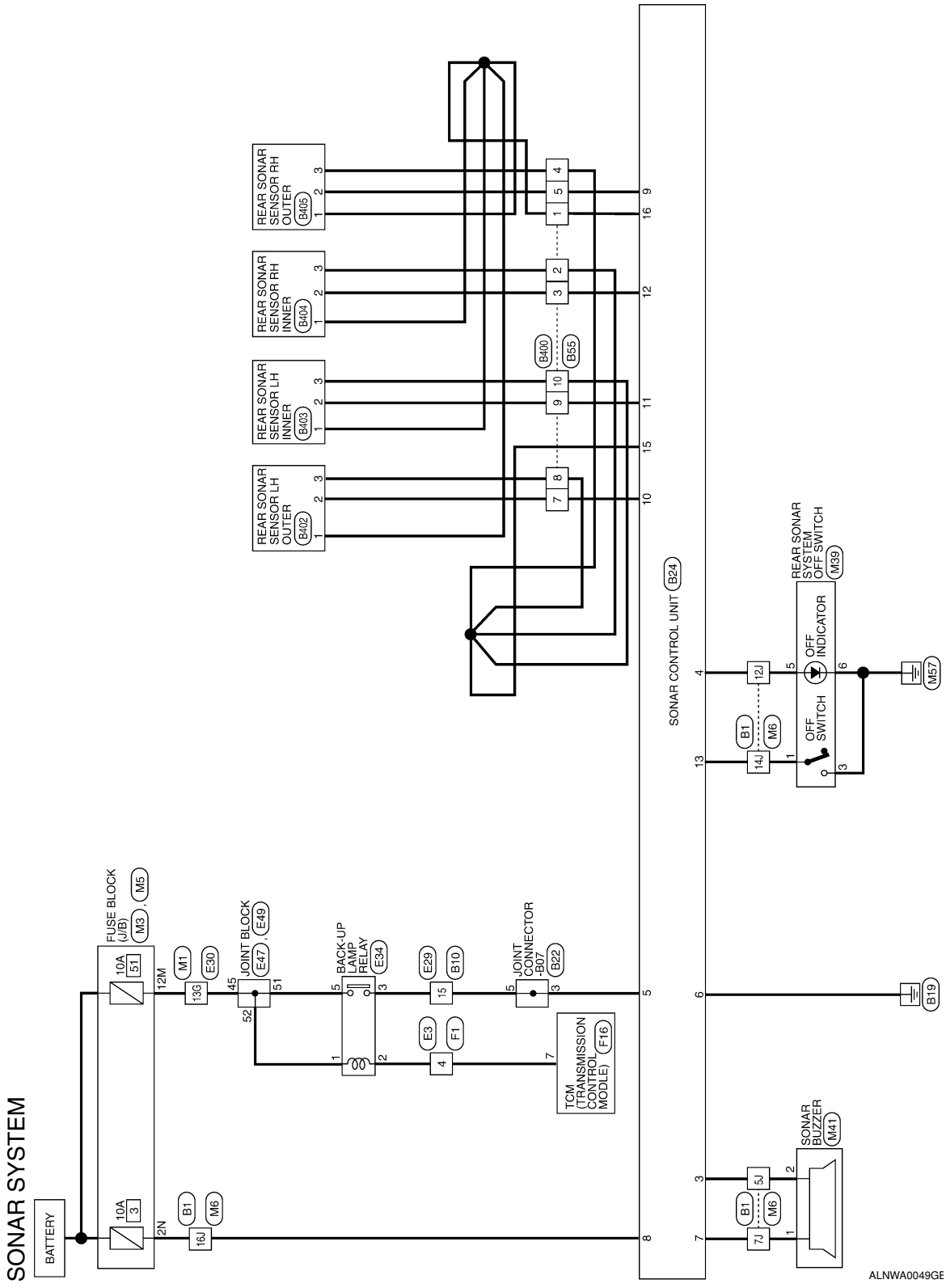
TERMINALS AND REFERENCE VALUES FOR SONAR CONTROL UNIT

Terminal (wire color)	Item	Condition			Reference value (V) (Approx.)
		Ignition switch	Operation		
3 (R)	Sonar buzzer return	ON	—		0 - 12 (variable)
4 (BR/Y)	Sonar system OFF indicator output	ON	Sonar system OFF switch	ON	0
				OFF	Battery voltage
5 (G/W)	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 (L)	Sonar buzzer drive signal	ON	—		Battery voltage
8 (G/R)	Sonar control unit power	ON	—		Battery voltage
9 (GR)	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 (O)	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 (LG)	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 (LG)	Sonar system OFF switch signal	ON	Sonar system OFF switch	ON	0
				OFF	Battery voltage

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

Wiring Diagram

INFOID:0000000001278685



SONAR SYSTEM - REAR CONNECTORS

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

H.S.

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

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

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

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

75G	74G	73G	72G	71G
	80G	79G	78G	77G	76G

Terminal No.	Color of Wire	Signal Name
1G	G	–
2G	G/W	–
14G	R	–

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

H.S.

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

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

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

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

75J	74J	73J	72J	71J
	80J	79J	78J	77J	76J

Terminal No.	Color of Wire	Signal Name
67J	G/R	–
68J	LG	–
69J	BR/Y	–

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.

3Q		2Q	1Q
8Q	7Q	6Q	5Q	4Q

Terminal No.	Color of Wire	Signal Name
1Q	G/R	–

Connector No.	M73
Connector Name	WIRE TO WIRE
Connector Color	BROWN

H.S.

2		1
7		5
6		3

Terminal No.	Color of Wire	Signal Name
1	G	–
2	R	–
3	G	–
5	G/W	–

ALNIA0195GB

Connector No.	M116
Connector Name	SONAR SYSTEM OFF SWITCH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG	–
2	B	–
5	BR/Y	–
6	B	–

Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
13	R	–

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
6	GR	–
7	LG	–
8	O	–
9	P	–
10	Y	–
11	LG/B	–
12	G/W	–

Connector No.	E41
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
22C	Y	–
23C	LG/B	–
38C	GR	–
39C	LG	–
40C	O	–
41C	P	–

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
16	G	–

ALNIA0196GB

Connector No.	E152
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

Terminal No.	Color of Wire	Signal Name
1G	G	–
2G	G/W	–
14G	R	–

Connector No.	F9
Connector Name	A/T ASSEMBLY
Connector Color	GREEN

H.S.

5	4	3	2	1
10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
7	R	–

Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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
13	R	–

Connector No.	F502
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GRAY

H.S.

10	9	8	7	6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
7	R	REV LAMP RLY

ALNIA0197GB

Connector No.	C1
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
22C	Y	–
23C	LG/B	–
38C	GR	–
39C	LG	–
40C	O	–
41C	P	–

Connector No.	C3
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
2	O	–
3	P	–
4	Y	–
6	GR	–
7	LG	–
8	LG/B	–

Connector No.	C101
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
2	O	–
3	P	–
4	Y	–
6	GR	–
7	LG	–
8	LG/B	–

Connector No.	C102
Connector Name	REAR SONAR SENSOR LH OUTER
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	P	SIGNAL
3	Y	GND

Connector No.	C103
Connector Name	REAR SONAR SENSOR LH INNER
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	O	SIGNAL
3	Y	GND

ALNIA0198GB

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
6	GR	–
7	LG	–
8	O	–
9	P	–
10	Y	–
11	LG/B	–
12	G/W	–

Terminal No.	Signal Name
9	ROR
10	ROL
11	RIL
12	RIR
13	DISABLE_SW
14	–
15	GND
16	PWR

Connector No.	C105
Connector Name	REAR SONAR SENSOR RH OUTER
Connector Color	BLACK

H.S.

3	2
1	

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	GR	SIGNAL
3	Y	GND

Connector No.	B56
Connector Name	SONAR CONTROL UNIT
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	R	RR_SOUNDER(-)
4	BR/Y	LED_STATUS
5	G/W	REVERSE_LAMP_SIG
6	B	GND
7	L	RR_SOUNDER(+)
8	G/R	IGN

Connector No.	C104
Connector Name	REAR SONAR SENSOR RH INNER
Connector Color	BLACK

H.S.

3	2
1	

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	LG	SIGNAL
3	Y	GND

Connector No.	B43
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
11	L	–
12	R	–

ALNIA0199GB

Connector No.	B111
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

Terminal No.	Color of Wire	Signal Name
11	L	–
12	R	–

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

H.S.

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

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

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

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

71J	72J	73J	74J	75J
76J	77J	78J	79J	80J

Terminal No.	Color of Wire	Signal Name
67J	G/R	–
68J	LG	–
69J	BR/Y	–

Connector No.	B166
Connector Name	REAR SONAR BUZZER
Connector Color	BLACK

H.S.

1	2

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

ALNIA0200GB

DTC Index

INFOID:0000000001278686

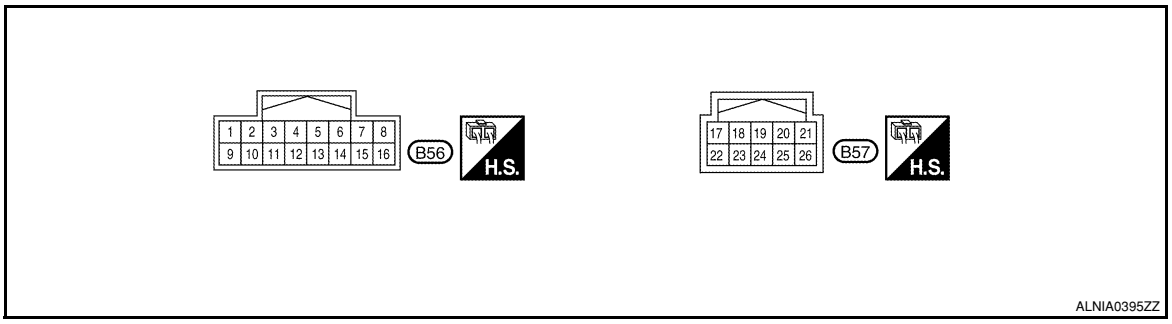
Fault Code	Malfunction	Service Procedure
11	Rear sonar sensor LH outer	1. Check harness for open or short. 2. Replace sonar sensor. Refer to SN-42, "Removal and Installation".
12	Rear sonar sensor LH inner	
13	Rear sonar sensor RH inner	
14	Rear sonar sensor RH outer	
21	Rear sonar buzzer	1. Refer to SN-15, "Sonar Buzzer". 2. Check harness for open or short. 3. Refer to SN-40, "Symptom Table".
22	Sonar system OFF indicator	1. Refer to SN-15, "Sonar System OFF Switch". 2. Check harness for open or short. 3. Refer to symptom table.
23	Sonar system OFF switch	
24	Sonar control unit	Replace sonar control unit. Refer to SN-43, "Removal and Installation".

SONAR CONTROL UNIT FOR FRONT AND REAR SONAR SYSTEM

Reference Value

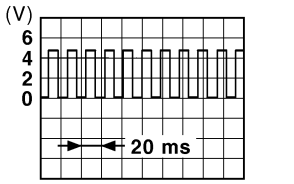
INFOID:0000000001317762

SONAR CONTROL UNIT HARNESS TERMINAL LAYOUT



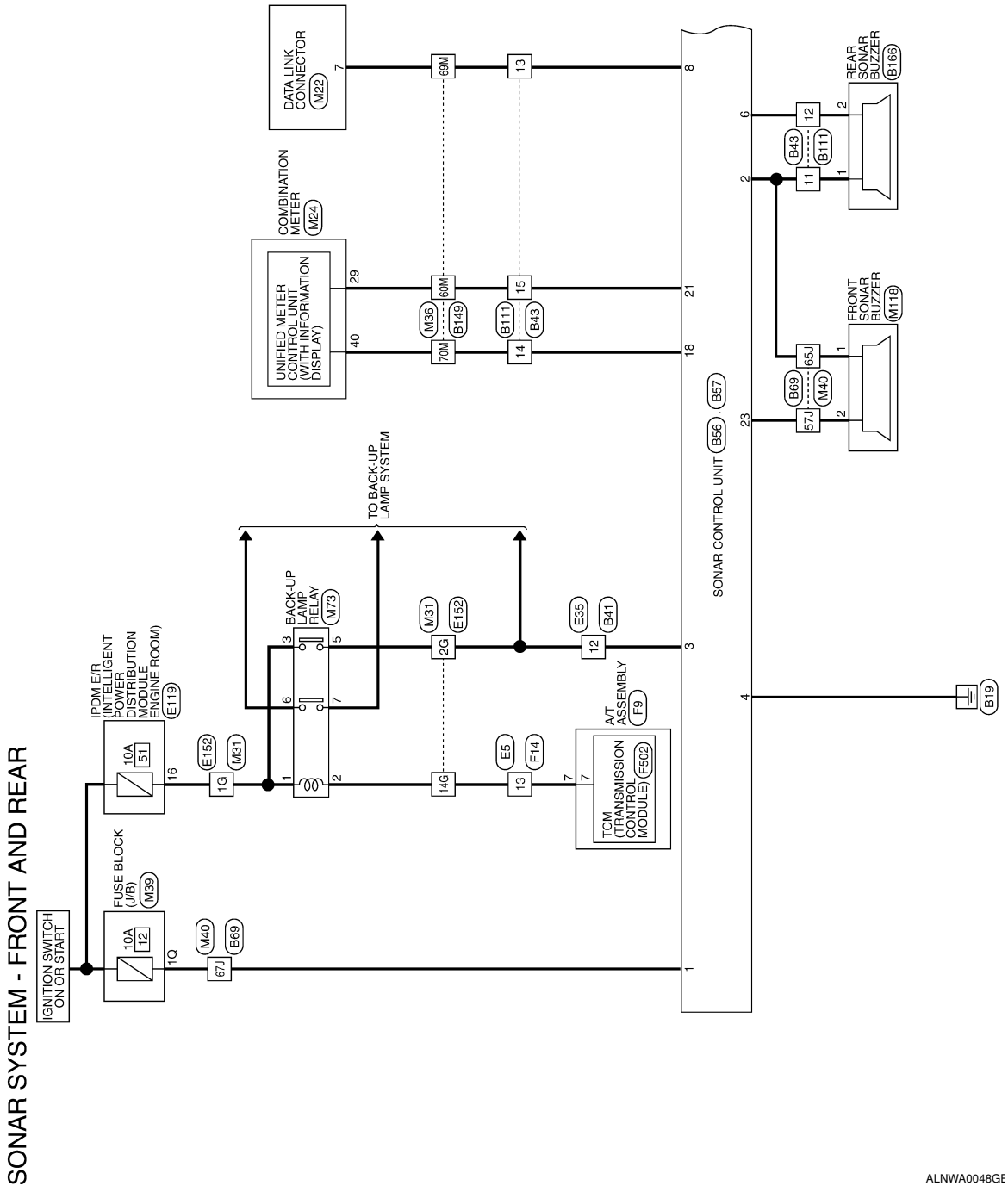
TERMINALS AND REFERENCE VALUES FOR SONAR CONTROL UNIT

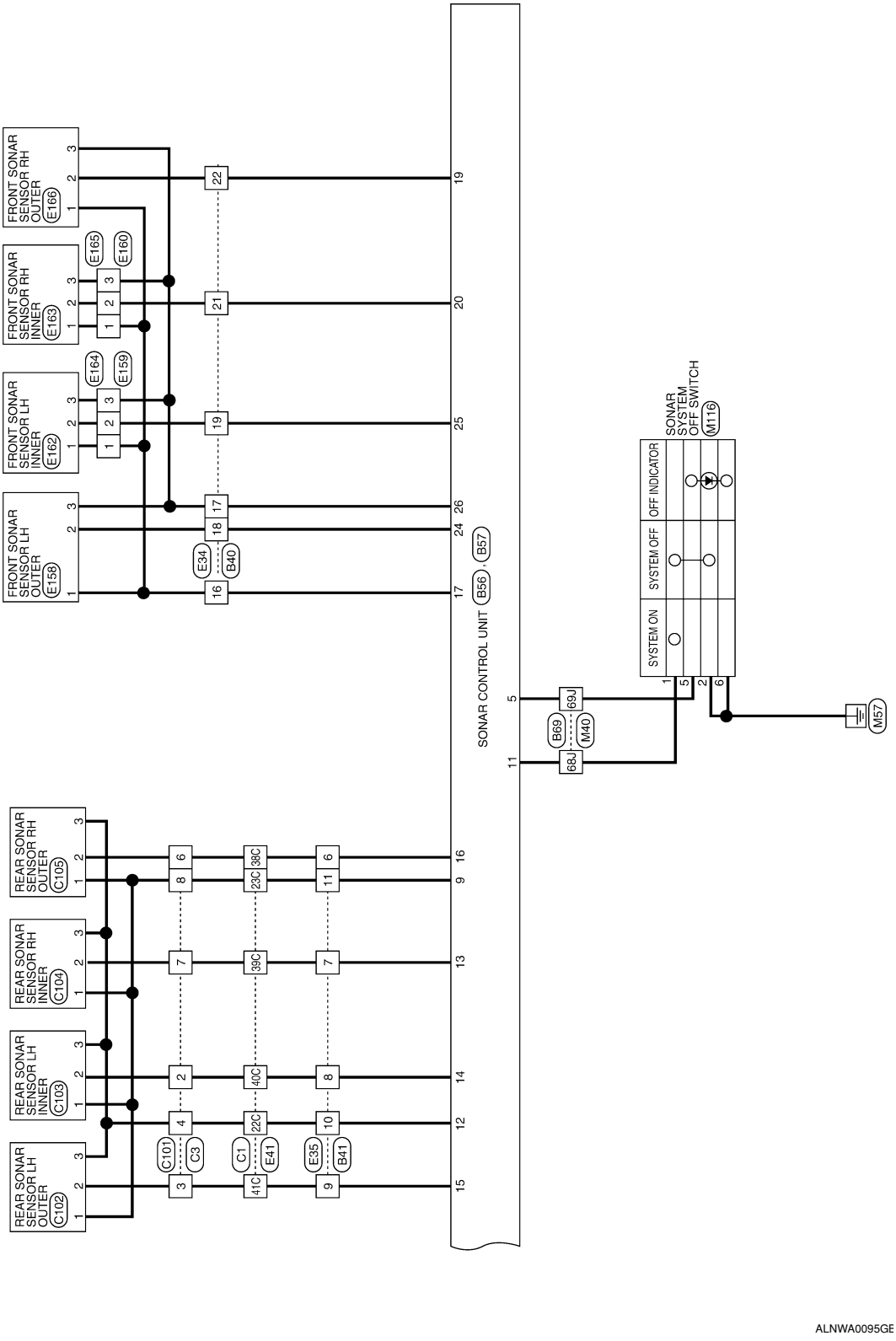
Terminal (color)	Item	Condition			Reference value (V) (Approx.)
		Ignition switch	Operation		
1 (G/R)	Sonar control unit power	ON	—		Battery voltage
2 (L)	Sonar buzzer drive signal	ON	Object sensed		Battery voltage
3 (G/W)	Reverse signal	ON	Transmission gear selector lever in R position		Battery voltage
			Transmission gear selector lever not in R position		0
4 (B)	Sonar control unit ground	—	—		—
5 (BR/Y)	Sonar system OFF indicator output	ON	Sonar system OFF switch	ON	0
				OFF	Battery voltage
6 (R)	Rear sonar buzzer return	ON	—		0 - 12 (variable)
8 (G/W)	K-line	ON	—		—
9 (LG/B)	Rear sonar sensor power	ON	Ignition switch ON		Battery voltage
11 (LG)	Sonar system OFF switch signal	ON	Sonar system OFF switch	ON	0
				OFF	Battery voltage
12 (Y)	Rear sonar sensor ground	ON	—		—
13 (LG)	Rear sonar sensor signal - RH inner	ON	• Sonar system OFF switch ON • Transmission gear selector lever in R position • Distance obstacles		Battery voltage
14 (O)	Rear sonar sensor signal - LH inner	ON	• Sonar system OFF switch ON • Transmission gear selector lever in R position • Distance obstacles		Battery voltage
15 (P)	Rear sonar sensor signal - LH outer	ON	• Sonar system OFF switch ON • Transmission gear selector lever in R position • No obstacles		Battery voltage

Terminal (color)	Item	Condition		Reference value (V) (Approx.)
		Ignition switch	Operation	
16 (GR)	Rear sonar sensor signal - RH outer	ON	• Sonar system OFF switch ON • Transmission gear selector lever in R position • No obstacles	Battery voltage
17 (LG/B)	Front sonar sensor power	ON	Ignition switch ON	Battery voltage
18 (GR/R)	Park position signal	ON	Vehicle in PARK	12
19 (LG)	Front sonar sensor signal - RH outer	ON	• Sonar system OFF switch ON • Transmission gear selector lever in a forward drive gear • Distance obstacles	Battery voltage
20 (GR)	Front sonar sensor signal - RH inner	ON	• Sonar system OFF switch ON • Transmission gear selector lever in reverse or a forward drive gear • No obstacles	Battery voltage
21 (W/R)	Vehicle speed signal	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** Maximum voltage may be 12V due to specifications (connected units).  PKIC0643E
23 (R)	Front sonar buzzer return	ON	—	0 - 12 (variable)
24 (P)	Front sonar sensor signal - LH outer	ON	• Sonar system OFF switch ON • Transmission gear selector lever in reverse or a forward drive gear • No obstacles	Battery voltage
25 (O)	Front sonar sensor signal - LH inner	ON	• Sonar system OFF switch ON • Transmission gear selector lever in a forward drive gear • Distance obstacles	Battery voltage
26 (Y)	Front sonar sensor ground	ON	—	—

Wiring Diagram

INFOID:0000000001317763

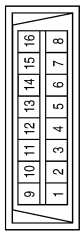



FRONT SONAR SENSOR RH OUTER E166
FRONT SONAR SENSOR RH INNER E163
FRONT SONAR SENSOR LH INNER E162
FRONT SONAR SENSOR LH OUTER E158
REAR SONAR SENSOR RH OUTER C105
REAR SONAR SENSOR RH INNER C104
REAR SONAR SENSOR LH INNER C103
REAR SONAR SENSOR LH OUTER C102
SONAR CONTROL UNIT B56, B57
SONAR SYSTEM OFF SWITCH M116
SYSTEM ON
SYSTEM OFF
OFF INDICATOR
M57
ALNWA0095GE

SONAR SYSTEM - FRONT AND REAR CONNECTORS

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE

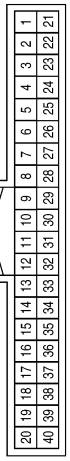
H.S.



Terminal No.	Color of Wire	Signal Name
7	G/W	–

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

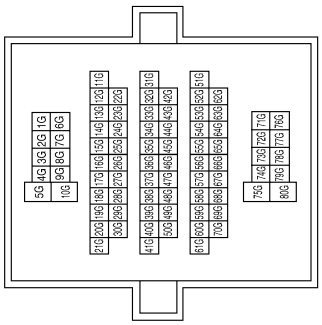
H.S.



Terminal No.	Color of Wire	Signal Name
29	W/R	SPEED_8P
40	GR/R	–

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

H.S.



Terminal No.	Color of Wire	Signal Name
1G	G	–
2G	G/W	–
14G	R	–

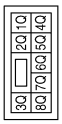
Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
60M	W/R	–
69M	G/W	–
70M	GR/R	–

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1Q	G/R	–

ALNIA0187GB

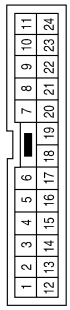
Connector No.	M73
Connector Name	WIRE TO WIRE
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
1	G	–
2	R	–
3	G	–
5	G/W	–

Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
13	R	–

Terminal No.	Color of Wire	Signal Name
57J	R	–
65J	L	–
67J	G/R	–
68J	LG	–
69J	BR/Y	–

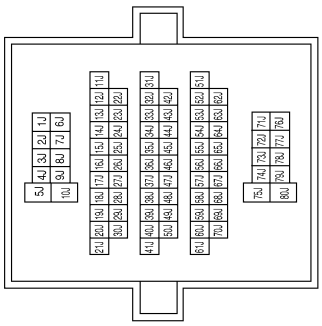
Connector No.	M118
Connector Name	FRONT SONAR BUZZER
Connector Color	BLACK

H.S.

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

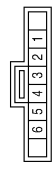
Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Connector No.	M116
Connector Name	SONAR SYSTEM OFF SWITCH
Connector Color	GRAY

H.S.



Terminal No.	Color of Wire	Signal Name
1	LG	–
2	B	–
5	BR/Y	–
6	B	–

ALNIA0188GB

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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
16	LG/B	–
17	Y	–
18	P	–
19	O	–
21	LG	–
22	GR	–

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
6	GR	–
7	LG	–
8	O	–
9	P	–
10	Y	–
11	LG/B	–
12	G/W	–

Connector No.	E41
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
22C	Y	–
23C	LG/B	–
38C	GR	–
39C	LG	–
40C	O	–
41C	P	–

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

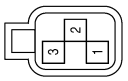
9	8	7	6		5	4	3
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
16	G	–

ALNIA0189GB

Connector No.	E158
Connector Name	FRONT SONAR SENSOR LH OUTER
Connector Color	BLACK

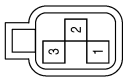
H.S.



Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	P	SIGNAL
3	Y	GND

Connector No.	E162
Connector Name	FRONT SONAR SENSOR LH INNER
Connector Color	BLACK

H.S.

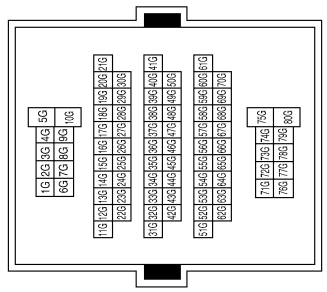


Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	O	SIGNAL
3	Y	GND

Terminal No.	Color of Wire	Signal Name
1G	G	–
2G	G/W	–
14G	R	–

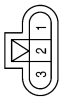
Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Connector No.	E160
Connector Name	WIRE TO WIRE
Connector Color	GRAY

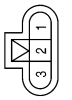
H.S.



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

Connector No.	E159
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.



Terminal No.	Color of Wire	Signal Name
1	LG/B	–
2	O	–
3	Y	–

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Connector No.	E165
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

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

Connector No.	E164
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG/B	–
2	O	–
3	Y	–

Connector No.	E163
Connector Name	FRONT SONAR SENSOR RH INNER
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	LG	SIGNAL
3	Y	GND

Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
13	R	–

Connector No.	F9
Connector Name	A/T ASSEMBLY
Connector Color	GREEN

H.S.

Terminal No.	Color of Wire	Signal Name
7	R	–

Connector No.	E166
Connector Name	FRONT SONAR SENSOR RH OUTER
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	LG	SIGNAL
3	Y	GND

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Connector No.	F502
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
7	R	REV LAMP RLY

Connector No.	C1
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
22C	Y	–
23C	LG/B	–
38C	GR	–
39C	LG	–
40C	O	–
41C	P	–

Connector No.	C3
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
2	O	–
3	P	–
4	Y	–
6	GR	–
7	LG	–
8	LG/B	–

Connector No.	C101
Connector Name	WIRE TO WIRE
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
2	O	–
3	P	–
4	Y	–
6	GR	–
7	LG	–
8	LG/B	–

Connector No.	C102
Connector Name	REAR SONAR SENSOR LH OUTER
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	P	SIGNAL
3	Y	GND

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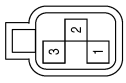
Connector No.	C103
Connector Name	REAR SONAR SENSOR LH INNER
Connector Color	BLACK

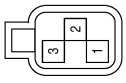
H.S.



Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	O	SIGNAL
3	Y	GND

Connector No.	C104
Connector Name	REAR SONAR SENSOR RH INNER
Connector Color	BLACK

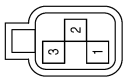
H.S.



Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	LG	SIGNAL
3	Y	GND

Connector No.	C105
Connector Name	REAR SONAR SENSOR RH OUTER
Connector Color	BLACK

H.S.



Terminal No.	Color of Wire	Signal Name
1	LG/B	PWR
2	GR	SIGNAL
3	Y	GND

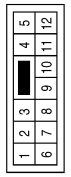
Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
16	LG/B	–
17	Y	–
18	P	–
19	O	–
21	LG	–
22	GR	–

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

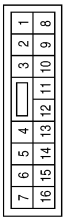
H.S.



Terminal No.	Color of Wire	Signal Name
6	GR	–
7	LG	–
8	O	–
9	P	–
10	Y	–
11	LG/B	–
12	G/W	–

Connector No.	B43
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
11	L	–
12	R	–
13	G/W	–
14	GR/R	–
15	W/R	–

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Connector No.	B56
Connector Name	SONAR CONTROL UNIT
Connector Color	GRAY

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	G/R	IGN
2	L	RR_SOUNDER (+)
3	G/W	REVERSE_LAMP_SIG
4	B	GND

Terminal No.	Color of Wire	Signal Name
5	BR/Y	LED_STATUS
6	R	RR_SOUNDER (-)
7	–	–
8	G/W	K-LINE
9	LG/B	PWR
10	–	–
11	LG	DISABLE_SW
12	Y	GND
13	LG	RIR
14	O	RIL
15	P	ROL
16	GR	ROR

Connector No.	B57
Connector Name	SONAR CONTROL UNIT
Connector Color	GRAY

H.S.

17	18	19	20	21
22	23	24	25	26

Terminal No.	Color of Wire	Signal Name
17	LG/B	POWER
18	GR/R	PARK-POS
19	LG	FOR
20	GR	FIR
21	W/R	VEHICLE_SPEED
23	R	FR_SOUNDER(-)
24	P	FOL
25	O	FIL
26	Y	GND

Connector No.	B111
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

Terminal No.	Color of Wire	Signal Name
11	L	–
12	R	–
13	G/W	–
14	GR/R	–
15	W/R	–

Terminal No.	Color of Wire	Signal Name
57J	R	–
65J	L	–
67J	G/R	–
68J	LG	–
69J	BR/Y	–

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

H.S.

ALNIA0194GB

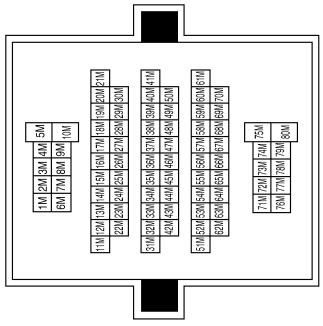
Connector No.	B166
Connector Name	REAR SONAR BUZZER
Connector Color	BLACK

H.S.

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

Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
60M	W/R	–
69M	G/W	–
70M	GR/R	–

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DTC Index

INFOID:0000000001317764

DTC	Malfunction	Service Procedure
A700	Front sonar sensor LH inner	Replace sonar sensor. Refer to SN-42, "Removal and Installation".
A701	Front sonar sensor LH inner harness	1. Check harness for open or short. 2. Replace sonar sensor.
A702	Front sonar sensor RH inner	Replace sonar sensor.
A703	Front sonar sensor RH inner harness	1. Check harness for open or short. 2. Replace sonar sensor.
A704	Rear sonar sensor LH inner	Replace sonar sensor.
A705	Rear sonar sensor LH inner harness	1. Check harness for open or short. 2. Replace sonar sensor.
A706	Rear sonar sensor RH inner	Replace sonar sensor.
A707	Rear sonar sensor RH inner harness	1. Check harness for open or short. 2. Replace sonar sensor.
A708	Rear sonar sensor LH outer	Replace sonar sensor.
A709	Rear sonar sensor LH outer harness	1. Check harness for open or short. 2. Replace sonar sensor.
A70A	Rear sonar sensor RH outer	Replace sonar sensor.
A70B	Rear sonar sensor RH outer harness	1. Check harness for open or short. 2. Replace sonar sensor.
A70C	Front sonar sensor LH outer	Replace sonar sensor.
A70D	Front sonar sensor LH outer harness	1. Check harness for open or short. 2. Replace sonar sensor.
A70E	Front sonar sensor RH outer	Replace sonar sensor.
A70F	Front sonar sensor RH outer harness	1. Check harness for open or short. 2. Replace sonar sensor.

SYMPTOM DIAGNOSIS

SONAR SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000001281917

Symptom	Repair order
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-15, "Sonar System OFF Switch". 2. Check harness and connections for sonar system OFF switch. 3. Replace sonar control unit. Refer to SN-43, "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-15, "Sonar System OFF Switch". 2. Check harness and connections for sonar system OFF indicator lamp. 3. Replace sonar control unit.
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-15, "Sonar Buzzer". 2. Check harness and connections between sonar buzzer and sonar control unit. 3. Replace sonar control unit.
When sonar system is ON, the sonar system OFF indicator lamp lights up and the sonar buzzer sounds intermittently (for about 4 seconds). (Rear sonar system only)	1. Check harnesses between sonar sensors and sonar control unit for an open condition. 2. Check sonar sensors. Refer to SN-5, "Preliminary Check". 3. Replace sonar control unit.
The sonar system still operates when the sonar system is OFF.	1. Replace sonar control unit.
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 PNP switch. Refer to TM-44, "Diagnosis Procedure". 2. Check back-up lamp relay. 3. Check related harness and connections for back-up lamp relay. 4. Replace sonar control unit.
When the transmission gear selector lever is in a forward drive gear and the sonar system is ON, the front sonar system does not operate. (With front and rear sonar system only)	1. Check harness and connections between sonar control unit and combination meter. 2. Replace sonar control unit.
Sonar system OFF indicator lamp lights up and buzzer sounds although there are no obstacles within the detection range.	1. Check sonar sensors. 2. Check harness and connections between sonar sensors and sonar control unit. 3. Replace sonar control unit.
The sonar sensors do not detect objects in the detectable range.	1. Check sonar sensors. 2. Replace sonar control unit.

PRECAUTION

PRECAUTION

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

INFOID:0000000001317765

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.**

REMOVAL AND INSTALLATION

SONAR SENSOR

Removal and Installation

INFOID:0000000001316541

Front Sonar

1. If equipped, refer to EXT-12, "Removal and Installation" for front sonar removal and installation procedures.

Rear Sonar

1. Refer to EXT-14, "Removal and Installation" for rear sonar removal and installation procedures.

SONAR CONTROL UNIT

Removal and Installation

INFOID:0000000001316542

Removal

1. Remove the luggage side finisher lower LH. Refer to INT-18, "Removal and Installation".
2. If equipped, disconnect the electrical connectors, remove the bolt, then remove the sonar control unit. Refer to SN-11, "Component Parts Location".

Installation

Installation is in the reverse order of removal.

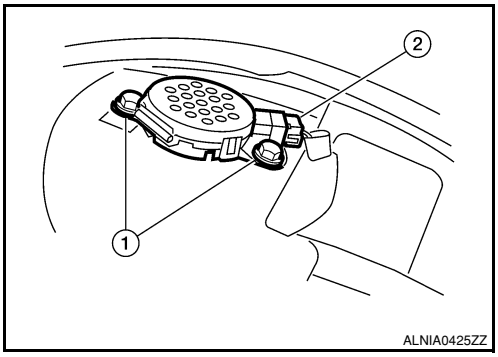
BUZZER

Removal and Installation

INFOID:0000000001346520

Front Buzzer

1. Remove the instrument panel upper cover. Refer to IP-11, "Removal and Installation".
2. Remove the two bolts (1) Disconnect the connector (2) and remove the front buzzer.



Rear Buzzer

1. Partially remove the rear headliner. Refer to INT-16, "Removal and Installation".
2. Release the buzzer from the bracket, disconnect the connector and remove the buzzer.