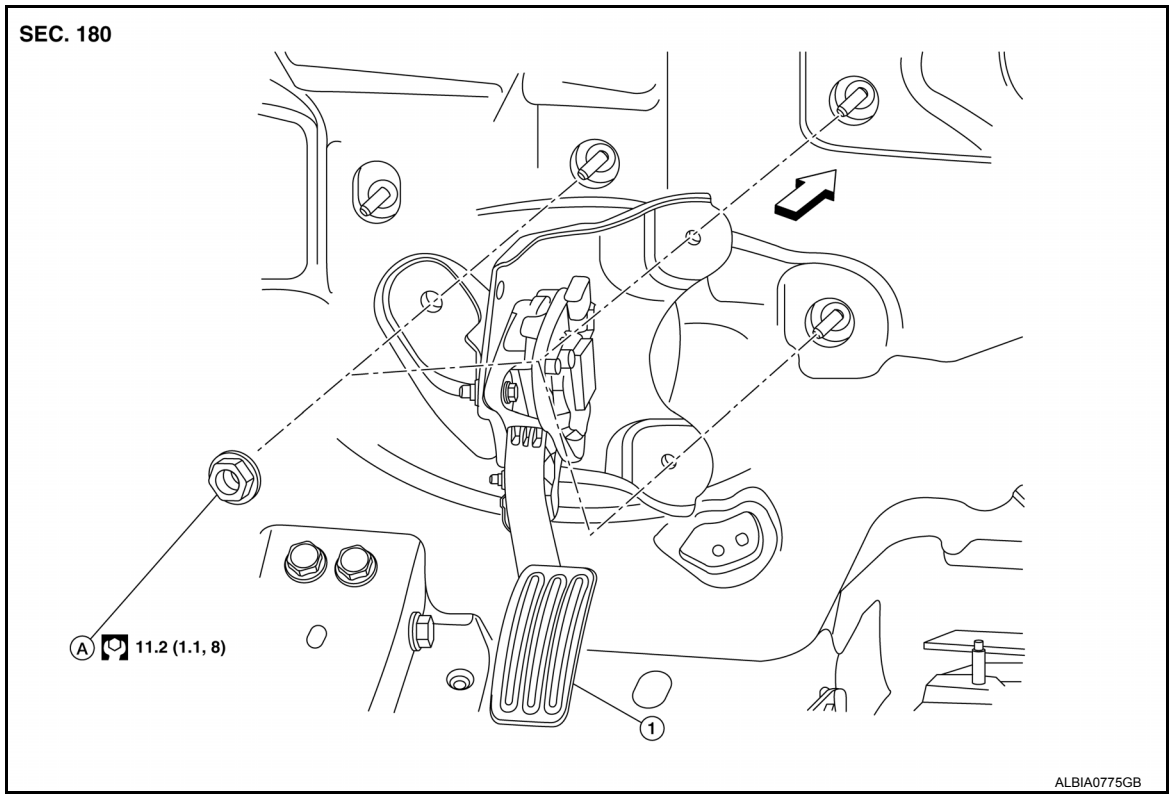
REMOVAL AND INSTALLATION

ACCELERATOR CONTROL SYSTEM

MODELS WITHOUT DISTANCE CONTROL ASSIST SYSTEM

MODELS WITHOUT DISTANCE CONTROL ASSIST SYSTEM : Exploded View

INFOID:0000000012857588



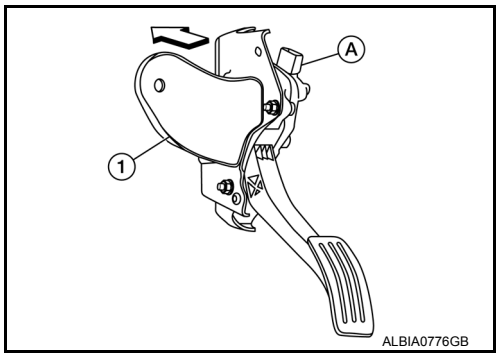
1. Accelerator pedal assembly
A. Nut
⇦ Front

MODELS WITHOUT DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation

INFOID:0000000012857589

REMOVAL

1. Remove three accelerator pedal assembly nuts.
2. Disconnect harness connector (A) from the accelerator pedal assembly (1).
   ⇦: Front
3. Remove the accelerator pedal assembly from vehicle.
   CAUTION:
   - **Do not disassemble accelerator pedal assembly.**
   - **Do not drop or impact accelerator pedal assembly.**
   - **Do not expose accelerator pedal assembly to water.**



INSTALLATION

Installation is in the reverse order of removal.

NOTE:

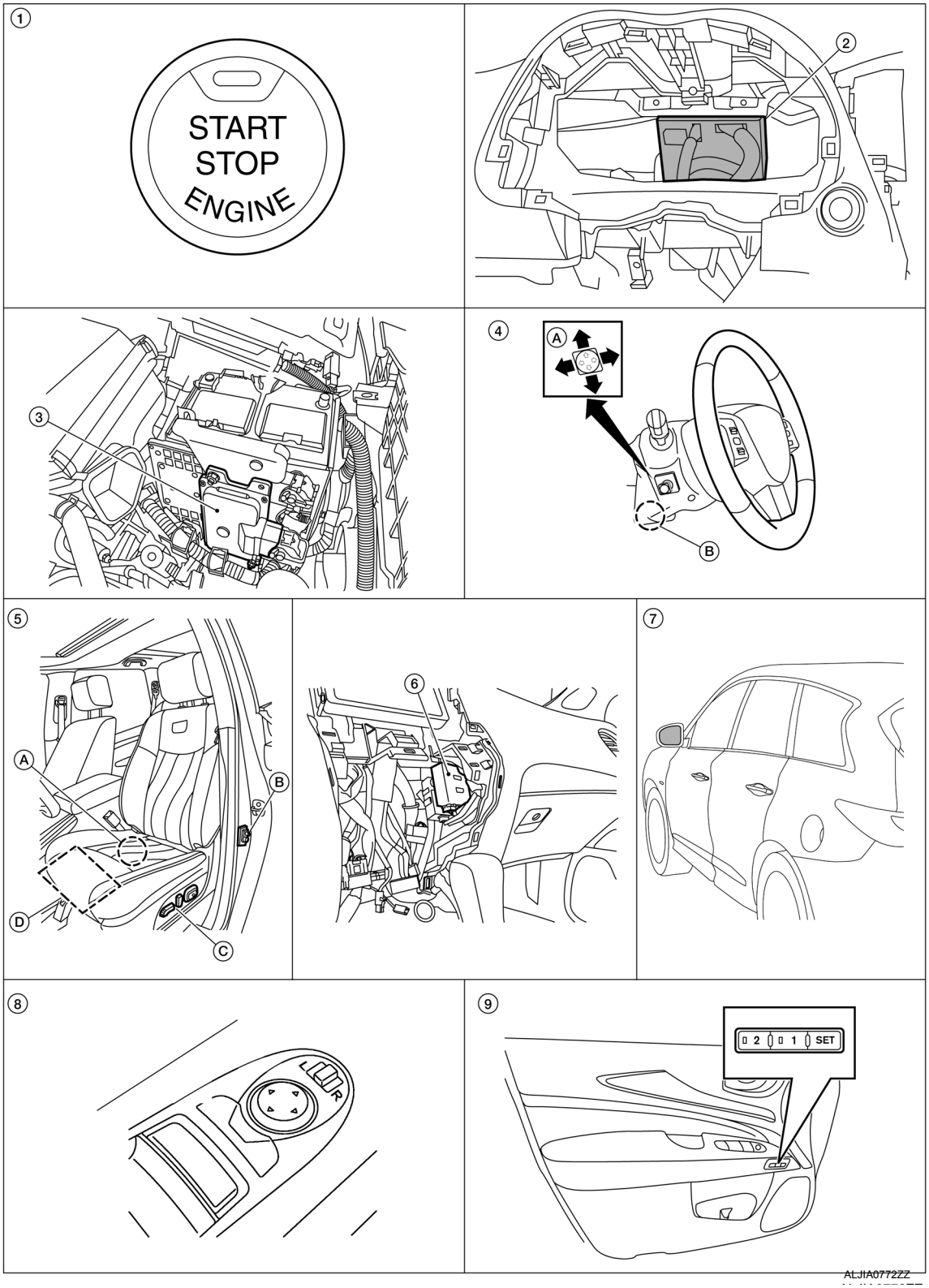
For inspection, refer to ACC-4, "MODELS WITHOUT DISTANCE CONTROL ASSIST SYSTEM : Inspection".

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012852754



3. Check continuity between driver seat control unit harness connector and lifting motor LH (front) harness connector.

Driver seat control unit		Lifting motor LH (front)		Continuity
Connector	Terminal	Connector	Terminal	
B209	30	B218	1	Yes

4. Check continuity between driver seat control unit harness connector and ground.

Driver seat control unit		Ground	Continuity
Connector	Terminal		
B209	30		No

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3. CHECK LIFTING SENSOR (FRONT) POWER SUPPLY

1. Connect driver seat control unit.
2. Turn ignition switch ON.
3. Check voltage between lifting motor LH (front) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Lifting motor LH (front)			
Connector	Terminals		
B218	3	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK LIFTING SENSOR (FRONT) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect driver seat control unit.
3. Check continuity between driver seat control unit harness connector and lifting motor LH (front) harness connector.

Driver seat control unit		Lifting motor LH (front)		Continuity
Connector	Terminal	Connector	Terminal	
B209	5	B218	3	Yes

4. Check continuity between driver seat control unit harness connector and ground.

Driver seat control unit		Ground	Continuity
Connector	Terminal		
B209	5		No

Is the inspection result normal?

YES >> Replace driver seat control unit. Refer to ADP-142, "Removal and Installation".
NO >> Repair or replace harness.

5. CHECK LIFTING SENSOR (FRONT) GROUND

1. Turn ignition switch OFF.
2. Check continuity between lifting motor LH (front) harness connector and ground.

Symptoms	Check items	Probable malfunction location
No sound comes out or the level of the sound is low.	No sound from all speakers.	• Speaker circuit shorted to ground. Refer to AV-201, "Wiring Diagram". • Bose amp. ON signal circuit malfunction. Refer to AV-251, "Diagnosis Procedure". • Bose speaker amp. power supply and ground circuits malfunction. Refer to AV-273, "BOSE AMP. : Diagnosis Procedure".
	Only a certain speaker (front door speaker LH, front door speaker RH, front tweeter LH, front tweeter RH, instrument panel tweeter LH, instrument panel tweeter RH, center speaker, rear door speaker LH, rear door speaker RH, rear side speaker LH, rear side speaker RH, subwoofer) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and Bose speaker amp. Refer to: - AV-286, "Diagnosis Procedure" (front door speaker). - AV-283, "Diagnosis Procedure" (front tweeter). - AV-280, "Diagnosis Procedure" (instrument panel tweeter). - AV-278, "Diagnosis Procedure" (center speaker). - AV-289, "Diagnosis Procedure" (rear door speaker). - AV-292, "Diagnosis Procedure" (rear side speaker). - AV-295, "Diagnosis Procedure" (subwoofer). • Sound signal circuit malfunction between Bose speaker amp. and speaker. Refer to: - AV-286, "Diagnosis Procedure" (front door speaker). - AV-283, "Diagnosis Procedure" (front tweeter). - AV-280, "Diagnosis Procedure" (instrument panel tweeter). - AV-278, "Diagnosis Procedure" (center speaker). - AV-289, "Diagnosis Procedure" (rear door speaker). - AV-292, "Diagnosis Procedure" (rear side speaker). - AV-295, "Diagnosis Procedure" (subwoofer). • Malfunction in speaker. Refer to: - AV-339, "Removal and Installation" (front door speaker). - AV-340, "Removal and Installation" (front tweeter). - AV-341, "Removal and Installation" (instrument panel tweeter). - AV-342, "Removal and Installation" (center speaker). - AV-343, "Removal and Installation" (rear door speaker). - AV-344, "Removal and Installation" (rear side speaker). - AV-345, "Removal and Installation" (subwoofer). • Malfunction in AV control unit. Refer to AV-164, "On Board Diagnosis Function". • Malfunction in Bose speaker amp. Replace Bose speaker amp. Refer to AV-338, "Removal and Installation".

U176A, U1772 ROOF SPEAKER

DTC Logic

INFOID:0000000012849916

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
R-ROOF L-SQAWK (OPEN, SHORT, GND-SHORT or VB-SHOR) [U176A]	Sound signal circuit malfunction between BOSE speaker amp. and rear side speaker LH.	Sound signal circuits between BOSE speaker amp. and rear side speaker LH. Refer to AV-870, "Diagnosis Procedure".
R-ROOF R-SQAWK (OPEN, SHORT, GND-SHORT or VB-SHOR) [U1772]	Sound signal circuit malfunction between BOSE speaker amp. and rear side speaker RH.	Sound signal circuits between BOSE speaker amp. and rear side speaker RH. Refer to AV-870, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000012849917

1.PERFORM SELF DIAGNOSTIC RESULT

1. Perform Self Diagnostic Result for MULTI AV.
2. Erase Self Diagnostic Result. Turn ignition switch OFF.
3. Turn ignition switch ON. Perform Self Diagnostic Result again.

Is DTC U176A or U1772 detected?

YES >> Refer to AV-870, "Diagnosis Procedure".
NO >> Refer to GI-50, "Intermittent Incident".

ECU DIAGNOSIS INFORMATION

ADAS CONTROL UNIT

Reference Value

INFOID:0000000014222115

VALUES ON THE DIAGNOSIS TOOL

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

Monitor item	Condition		Value/Status
MAIN SW	Ignition switch ON	When MAIN switch is pressed	On
		When MAIN switch is not pressed	Off
SET/COAST SW	Ignition switch ON	When SET/COAST switch is pressed	On
		When SET/COAST switch is not pressed	Off
CANCEL SW	Ignition switch ON	When CANCEL switch is pressed	On
		When CANCEL switch is not pressed	Off
RESUME/ACC SW	Ignition switch ON	When RESUME/ACCELERATE switch is pressed	On
		When RESUME/ACCELERATE switch is not pressed	Off
DISTANCE SW	Ignition switch ON	When DISTANCE switch is pressed	On
		When DISTANCE switch is not pressed	Off
CRUISE OPE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When ICC system is controlling	On
		When ICC system is not controlling	Off
BRAKE SW	Ignition switch ON	When brake or clutch pedal is depressed	Off
		When brake or clutch pedal is not depressed	On
STOP LAMP SW	Ignition switch ON	When brake pedal is depressed	On
		When brake pedal is not depressed	Off
IDLE SW	Engine running	Idling	On
		Except idling (depress accelerator pedal)	Off
SET DISTANCE	• Start the engine and turn the ICC system ON • Press the DISTANCE switch to change the vehicle-to-vehicle distance setting	When set to “long”	Long
		When set to “middle”	Mid
		When set to “short”	Short
CRUISE LAMP	Start the engine and press MAIN switch	ICC system ON (MAIN switch indicator ON)	On
		ICC system OFF (MAIN switch indicator OFF)	Off
OWN VHCL	**NOTE:** The item is indicated, but not monitored		Off
VHCL AHEAD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected (vehicle ahead detection indicator ON)	On
		When a vehicle ahead is not detected (vehicle ahead detection indicator OFF)	Off
ICC WARNING	Start the engine and press MAIN switch	When ICC system is malfunctioning (ICC system malfunction ON)	On
		When ICC system is normal (ICC system malfunction OFF)	Off

DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M84
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	B	TO BODY HARNESS RH
2	W	TO BODY HARNESS RH
3	SHIELD	TO BODY HARNESS RH
4	LG	TO BODY HARNESS RH
5	P	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
5	Y	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
6	W	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
6	B	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
7	R	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
7	W	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
8	B	TO BODY HARNESS RH - (WITHOUT REAR ENTERTAINMENT SYSTEM)
8	R	TO BODY HARNESS RH - (WITH REAR ENTERTAINMENT SYSTEM)
9	SHIELD	TO BODY HARNESS RH
10	G	TO BODY HARNESS RH
11	L	TO BODY HARNESS RH
12	G	TO BODY HARNESS RH
13	G	TO BODY HARNESS RH
14	P	TO BODY HARNESS RH
15	O	TO BODY HARNESS RH
16	SB	TO BODY HARNESS RH
17	L	TO BODY HARNESS RH
18	P	TO BODY HARNESS RH
19	R	TO BODY HARNESS RH
20	–	TO BODY HARNESS RH
21	G	TO BODY HARNESS RH
22	R	TO BODY HARNESS RH
23	G	TO BODY HARNESS RH
24	R	TO BODY HARNESS RH - (WITH CLIMATE CONTROLLED SEAT)
24	V	TO BODY HARNESS RH - (WITHOUT CLIMATE CONTROLLED SEAT)

25	W	TO BODY HARNESS RH
26	W	TO BODY HARNESS RH
27	BG	TO BODY HARNESS RH
28	V	TO BODY HARNESS RH
29	SB	TO BODY HARNESS RH
30	L	TO BODY HARNESS RH
31	W	TO BODY HARNESS RH
32	–	TO BODY HARNESS RH

Connector No.	M124
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM-WITH NAVI WITHOUT SURROUND SOUND SYSTEM)
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
49	–	–
50	–	–
51	–	–
52	–	–
53	G	PKB SIG
54	–	–
55	W	NAVI COMP 1-
56	B	NAVI COMP 1+
57	BG	I-KEY MEMORY
58	G	AV-ACC (DCM)
59	SHIELD	PKB SIGMIC GND
60	W	MIC VCC
61	W	IT DISP
62	P	CAN-L
63	LG	M CAN-L
64	LG	M CAN-L TRM
65	–	–
66	–	–
67	P	MR OUTPUT
68	LG	IGN
69	R	REVERSE SIG
70	BG	SPEED
71	SHIELD	NAVI COMP 1 SHIELD
72	R	NAVI COMP 1 SYNC
73	–	–
74	–	–

75	B	MIC SIG
76	SHIELD	DISP SHIELD
77	B	DISP IT
78	L	CAN-H
79	SB	M CAN-H
80	SB	M CAN-H TRM

Connector No.	M126
Connector Name	WARNING SYSTEM SWITCH
Connector Type	TH08FB-NH
Connector Color	BLACK

H.S.

4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
1	R	ILL
2	–	–
3	G	WARNING SYSTEM ON IND
4	B	ILL CONT
5	W	BATT
6	Y	WARNING SYSTEM SW
7	–	–
8	B	GND

Connector No.	M146
Connector Name	JOINT CONNECTOR-M05
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	L	ITS CAN-H
2	L	ITS CAN-H
3	L	ITS CAN-H
4	L	ITS CAN-H

Connector No.	M147
Connector Name	JOINT CONNECTOR-M07
Connector Type	TK04FW-J
Connector Color	WHITE

H.S.

4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	ITS CAN-L
2	Y	ITS CAN-L
3	Y	ITS CAN-L
4	Y	ITS CAN-L

Connector No.	M149
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Type	TK08FGY
Connector Color	GRAY

H.S.

20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
13	R	ASCD
14	B	AUDIO STRG SW REMOTE A
15	GR	AUDIO STRG SW REMOTE B
16	L	ASCDG
17	BR	AUDIO STRG SW GND
18	G	HORN SWITCH
19	Y	ILL CONT
20	W	ILL

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- The predictive forward collision warning system is designed to warn driver before a collision but will not avoid a collision. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- The radar sensor does not detect the following objects.
- Pedestrians, animals, or obstacles in the roadway.
- Oncoming vehicles
- Crossing vehicles
- The predictive forward collision warning system does not function when a vehicle ahead is a narrow vehicle, such as a motorcycle.
- The radar sensor may not detect a second vehicle ahead in the following conditions:
- Snow or heavy rain
- Dirt, ice, snow or other material covering the radar sensor
- Interference by other radar sources
- Snow or road spray from traveling vehicles is splashed
- Driving in a tunnel
- The radar sensor may not detect a second vehicle when the vehicle ahead is being towed.
- When the distance to the vehicle ahead is too close, the beam of the radar sensor is obstructed.
- The radar sensor may not detect a second vehicle when driving on a steep downhill slope or on roads with sharp curves.
- Excessive noise will interfere with the warning tone sound, and it may not be heard.

PRECAUTIONS FOR LANE DEPARTURE WARNING (LDW)

- If the LDW system malfunctions, it will cancel automatically, and the LDW malfunction message will appear in the vehicle information display.
- LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver’s responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- LDW system will not operate at speeds below approximately 70 km/h (45 MPH) or if it cannot detect lane markers.
- Excessive noise will interfere with the warning chime sound, and the chime may not be heard.
- LDW system may not function properly under the following conditions:
- On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt or snow, etc.
- On roads where the discontinued lane markers are still detectable.
- On roads where there are sharp curves.
- On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
- On roads where the traveling lane merges or separates.
- When the vehicle's traveling direction does not align with the lane marker.
- When traveling close to the vehicle in front of driver, which obstructs the lane camera unit detection range.
- When rain, snow or dirt adheres to the windshield in front of the lane camera unit.
- When the headlights are not bright due to dirt on the lens or if the aiming is not adjusted properly.
- When strong light enters the lane camera unit. (For example, the light directly shines on the front of the vehicle at sunrise or sunset.)
- When a sudden change in brightness occurs. (For example, when the vehicle enters or exits a tunnel or under a bridge.)

PRECAUTIONS FOR LANE DEPARTURE PREVENTION (LDP)

- If the LDP system malfunctions, it will cancel automatically, and the LDP malfunction message will appear in the vehicle information display.
- The LDP system will not always steer the vehicle to keep it in the lane. It is not designed to prevent loss of control. It is the driver’s responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of vehicle at all times.
- LDP system is primarily intended for use on well-developed freeways or highways. It may not detect the lane markers in certain roads, weather or driving conditions.
- Using the LDP system under some conditions of road, lane marker or weather, or when driver change lanes without using the turn signal could lead to an unexpected system operation. In such conditions, driver needs to correct the vehicle's direction with driver's steering operation to avoid accidents.
- The LDP system will not operate at speeds below approximately 70 km/h (45 MPH) or if it cannot detect lane markers.
- Do not use the LDP system under the following conditions as it may not function properly:

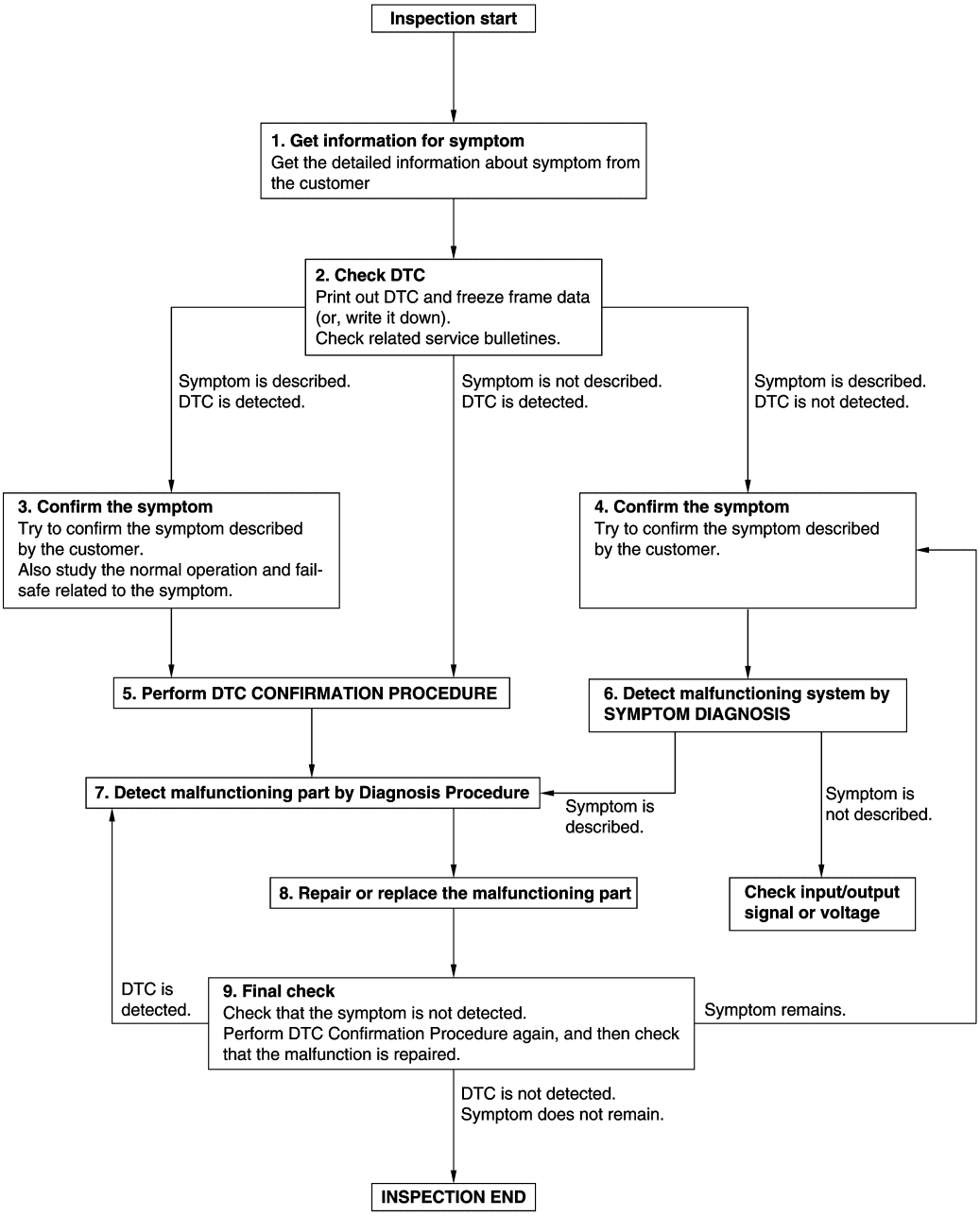
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000012851912

OVERALL SEQUENCE



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DETAILED FLOW

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 6.

6. CHECK AWD SOLENOID POWER SUPPLY (2)

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#62)
3. Check the harness for open or short between AWD control unit harness connector No.9 terminal and 10A fuse (#62).

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit. Refer to PG-17, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace error-detected parts.

7. CHECK AWD CONTROL UNIT GROUND

1. Turn the ignition switch OFF.
2. Check the continuity between AWD control unit harness connector and ground.

AWD control unit		—	Continuity
Connector	Terminal		
B67	10	Ground	Existed
	11		

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace error-detected parts.

Control item	Vehicle drive mode			Description
	SPORT	ECO	SNOW	
Engine		×	×	Changes throttle angle and the ECO drive indicator*1.
ECO pedal*2		×		Controls ECO pedal (Accelerator pedal reaction force control).

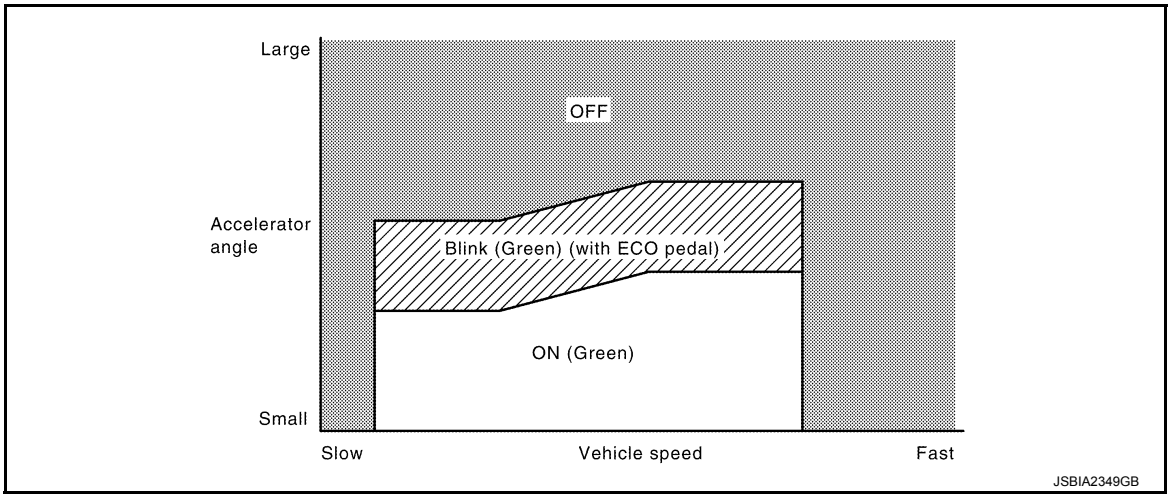
*1: The ECO drive indicator is available only when in ECO mode.

*2: ECO pedal control is only for vehicles with an intelligent pedal (distance control assist).

ECO drive indicator control

- ECO drive indicator turns ON or blinks (with ECO pedal) when in ECO mode, according to the operation of the accelerator pedal.
- For vehicles with ECO pedal, the blinking timing of the ECO drive indicator (green) synchronizes to the generation timing of ECO pedal reaction force.

ECO drive indicator (color)	Driving condition
ON (Green)	Within the ECO drive range.
Blink (Green) (if so equipped ECO pedal)	Likely over the ECO drive range.
OFF	• Over the ECO drive range. • Low-speed range [approx. 2 MPH (3.2 km/h) or less] and high-speed range [approx. 90 MPH (144 km/h) or more]



NOTE:

ECO drive indicator turns OFF under the following conditions.

- Intelligent cruise control in operation.
- Selector lever is in R range.

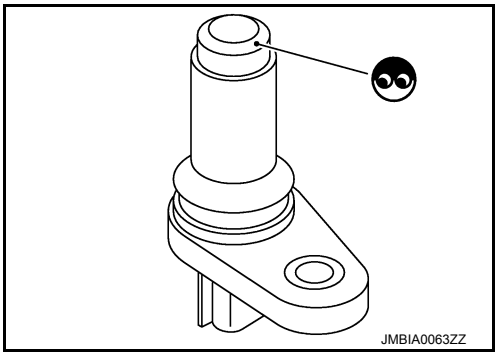
ECO pedal control

- Increasing reaction force of the accelerator pedal supports ECO driving in accordance with the accelerator pedal operation when in ECO mode.
- The level of reaction force to the accelerator pedal can be changed among Standard/Soft/OFF on the navigation screen. ECO pedal reaction force can be turned OFF even when in ECO mode.
- The generation timing of ECO pedal reaction force synchronizes to the blinking timing of the ECO drive indicator (Green).

5. Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace crankshaft position sensor (POS). Refer to EM-36, "Exploded View".



2.CHECK CRANKSHAFT POSITION SENSOR (POS) - 2

Check resistance between crankshaft position sensor (POS) terminals as follows.

Crankshaft position sensor		Condition		Resistance
+	–			
Terminals				
1	2	Temperature	25°C (77°F)	Except 0 Ω or ∞
1	3			
2	3			

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace crankshaft position sensor (POS). Refer to EM-36, "Exploded View".

Component Inspection (Exhaust Valve Timing Control Position Sensor)

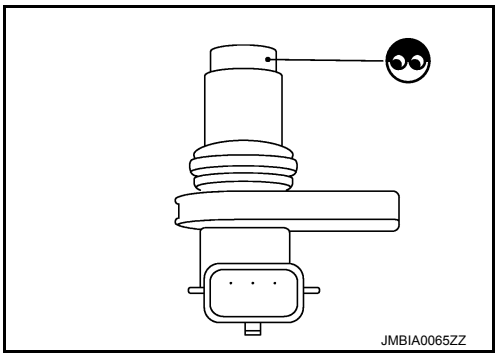
INFOID:0000000012856853

1.EXHAUST VALVE TIMING CONTROL POSITION SENSOR - 1

1. Turn ignition switch OFF.
2. Disconnect exhaust valve timing control position sensor harness connector.
3. Loosen the fixing bolt of the sensor.
4. Remove the sensor. Refer to EM-43, "Exploded View".
5. Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace malfunctioning exhaust valve timing control position sensor. Refer to EM-43, "Exploded View".



2.EXHAUST VALVE TIMING CONTROL POSITION SENSOR - 2

Check resistance exhaust valve timing control position sensor terminals as follows.

Exhaust valve timing control position sensor		Condition		Resistance
+	–			
Terminal				
1	2	Temperature	25°C (77°F)	Except 0 Ω or ∞ Ω
1	3			
2	3			

Is the inspection result normal?

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012857189

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 dual stage front air bag modules. The SRS system may only deploy one front air bag, depending on the severity of a collision and whether the front passenger seat is occupied. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

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

Precautions For Xenon Headlamp Service

INFOID:0000000012857190

WARNING:

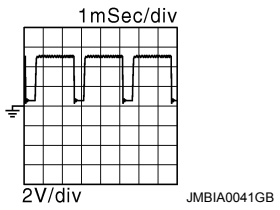
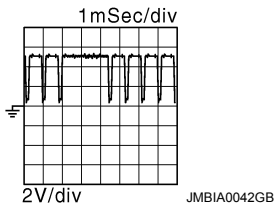
Comply with the following warnings to prevent any serious accident.

- **Disconnect the battery cable (negative terminal) or the power supply fuse before installing, removing, or touching the xenon headlamp (bulb included). The xenon headlamp contains high-voltage generated parts.**
- **Never work with wet hands.**
- **Check the xenon headlamp ON-OFF status after assembling it to the vehicle. Never turn the xenon headlamp ON in other conditions. Connect the power supply to the vehicle-side connector. (Turning it ON outside the lamp case may cause fire or visual impairments.)**
- **Never touch the bulb glass immediately after turning it OFF. It is extremely hot.**

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- **Install the xenon bulb securely. (Insufficient bulb socket installation may melt the bulb, the connector, the housing, etc. by high-voltage leakage or corona discharge.)**
- **Never perform HID circuit inspection with a tester.**
- **Never touch the xenon bulb glass with hands. Never put oil and grease on it.**
- **Dispose of the used xenon bulb after packing it in thick vinyl without breaking it.**
- **Never wipe out dirt and contamination with organic solvent (thinner, gasoline, etc.).**

Terminal No.		Description		Condition	Value (Approx.)
+	−	Signal name	Input/ Output		
78 (G)	76 (B)	Engine oil temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with engine oil temperature.
80 (BR)	—	Sensor ground (Mass air flow sensor, intake air temperature sensor)	—	—	—
81 (W)	128 (B)	A/F sensor 1 (bank 2)	Input	[Ignition switch: ON]	1.8 V
82 (P)	80 (BR)	Mass air flow sensor	Input	[Engine is running] • Warm-up condition • Idle speed	0.9 - 1.2 V
				[Engine is running] • Warm-up condition • Engine speed: 2,500 rpm	1.6 - 1.9 V
83 (BR)	88 (LG)	Sensor power supply [Camshaft position sensor (PHASE) (bank 1)]	—	[Ignition switch: ON]	5 V
84 (Y)	—	Sensor ground [Crankshaft position sensor (POS)]	—	—	—
85 (B)	91 (Shield)	Knock sensor (bank 1)	Input	[Engine is running] Idle speed	2.5 V*1
86 (W)	91 (Shield)	Knock sensor (bank 2)	Input	[Engine is running] Idle speed	2.5 V*1
87 (V)	92 (SB)	Sensor power supply [Camshaft position sensor (PHASE) (bank 2)]	—	[Ignition switch: ON]	5 V
88 (LG)	—	Sensor ground [Camshaft position sensor (PHASE) (bank 1)]	—	—	—
89 (L)	84 (Y)	Crankshaft position sensor (POS)	Input	[Engine is running] • Warm-up condition • Idle speed **NOTE:** The pulse cycle changes depending on rpm at idle	4.0 - 5.0 V★ 
				[Engine is running] Engine speed: 2,000 rpm	4.0 - 5.0 V★ 
91 (Shield)	—	Sensor ground [Knock sensor (bank 1), knock sensor (bank 2)]	—	—	—
92 (SB)	—	Sensor ground [Camshaft position sensor (PHASE) (bank 2)]	—	—	—

SYSTEM DESCRIPTION

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting - Engine Noise

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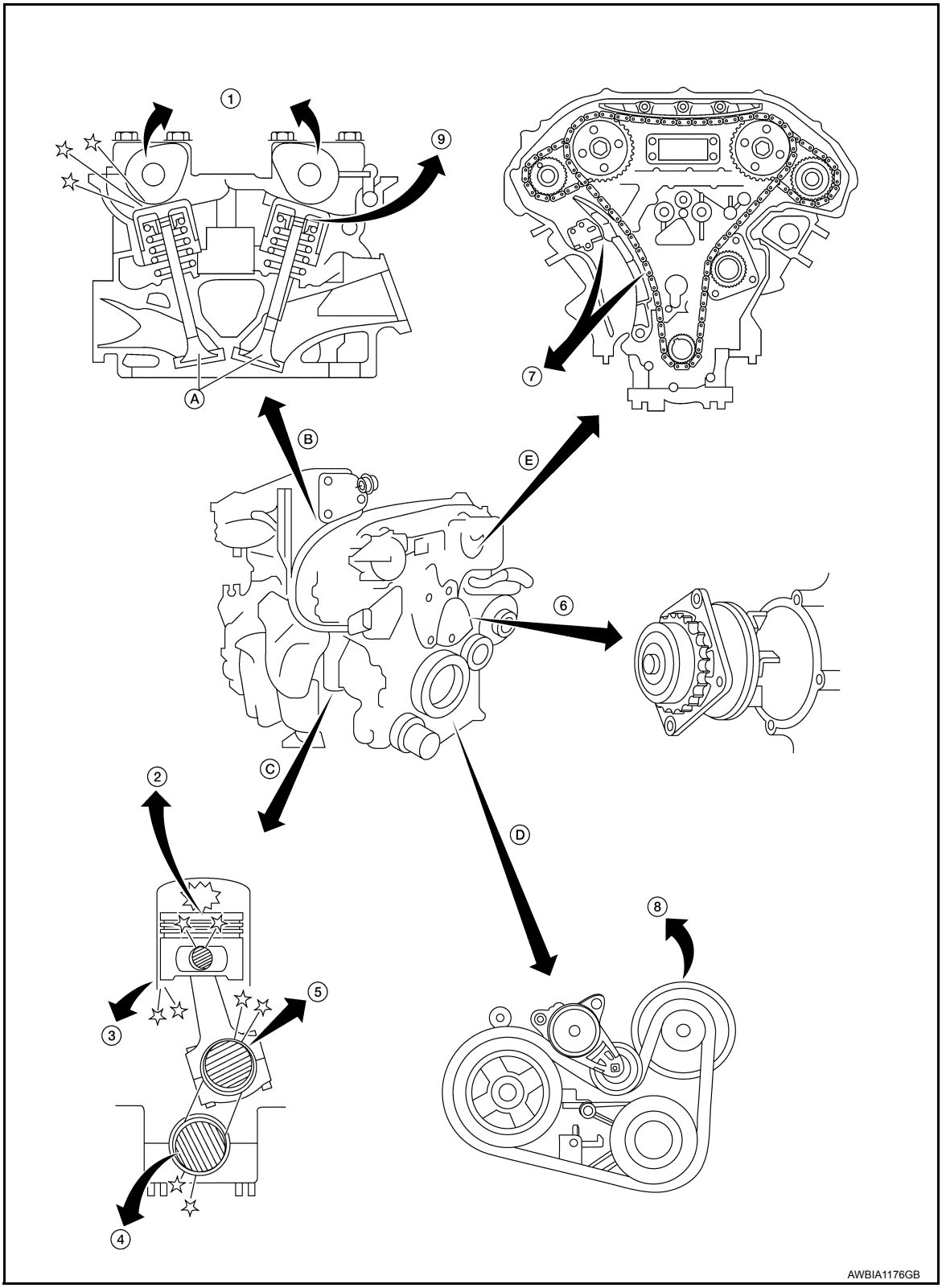

1. Camshaft bearing noise
2. Piston pin noise
3. Piston slap noise
4. Main bearing noise
5. Connecting rod bearing noise
6. Water pump noise