

HOW TO USE THIS MANUAL

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GI

Description

INFOID:000000009480194

This volume explains “Removal, Disassembly, Installation, Inspection and Adjustment” and “Trouble Diagnoses”.

Terms

INFOID:000000009480195

- The captions **WARNING** and **CAUTION** warn you of steps that must be followed to prevent personal injury and/or damage to some part of the vehicle.

WARNING indicates the possibility of personal injury if instructions are not followed.

CAUTION indicates the possibility of component damage if instructions are not followed.

BOLD TYPED STATEMENTS except **WARNING** and **CAUTION** give you helpful information.

Standard value: Tolerance at inspection and adjustment.

Limit value: The maximum or minimum limit value that should not be exceeded at inspection and adjustment.

Units

INFOID:000000009480196

- The **UNITS** given in this manual are primarily expressed as the SI UNIT (International System of Unit), and alternatively expressed in the metric system and in the yard/pound system. Also with regard to tightening torque of bolts and nuts, there are descriptions both about range and about the standard tightening torque.

“Example”

Range

Outer Socket Lock Nut : 59 - 78 N·m (6.0 - 8.0 kg·m, 43 - 58 ft·lb)

Standard

Drive Shaft Installation Bolt : 44.3 N·m (4.5 kg·m, 33 ft·lb)

Contents

INFOID:000000009480197

- **A QUICK REFERENCE INDEX**, a black tab (e.g. **BR**) is provided on the first page. You can quickly find the first page of each section by matching it to the section's black tab.
- **THE CONTENTS** are listed on the first page of each section.
- **THE TITLE** is indicated on the upper portion of each page and shows the part or system.
- **THE PAGE NUMBER** of each section consists of two or three letters which designate the particular section and a number (e.g. “BR-5”).
- **THE SMALL ILLUSTRATIONS** show the important steps such as inspection, use of special tools, knacks of work and hidden or tricky steps which are not shown in the previous large illustrations. Assembly, inspection and adjustment procedures for the complicated units such as the automatic transaxle or transmission, etc. are presented in a step-by-step format where necessary.

HOW TO USE THIS MANUAL

< HOW TO USE THIS MANUAL >

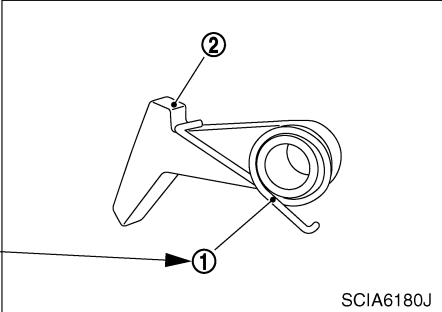
Relation between Illustrations and Descriptions

INFOID:000000009480198

The following sample explains the relationship between the part description in an illustration, the part name in the text and the service procedures.

< Example 1 >

1. Remove return spring (1) from parking pawl (2).




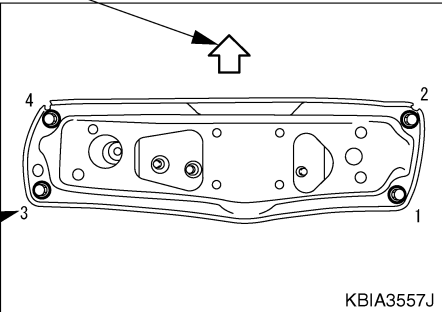
The identifier number of the part name in the text is consistent with the identifier part number in the illustration.

SCIA6180J

Direction mark

< Example 2 >

-  : Vehicle front
- Tighten rear member mounting bolts following the numerical order shown in the illustration.
- Note : View upward



The numbers in the illustration are consistent with the service operation instructions.

KBIA3557J

SAIA0519E

Component

INFOID:000000009480199

- **THE LARGE ILLUSTRATIONS** are exploded views (see the following) and contain tightening torques, lubrication points, section number of the **PARTS CATALOG** (e.g. SEC. 440) and other information necessary to perform repairs.

The illustrations should be used in reference to service matters only. When ordering parts, refer to the appropriate **PARTS CATALOG**.

Always check with the **PARTS DEPARTMENT** for the latest parts information.

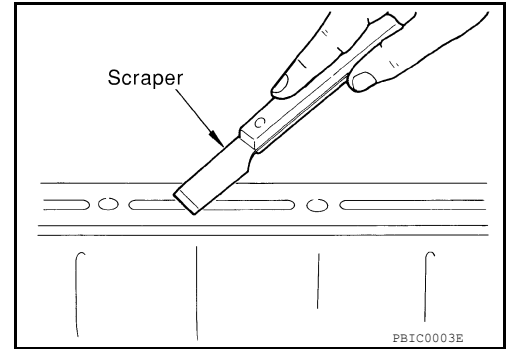
Components shown in an illustration may be identified by a circled number. When this style of illustration is used, the text description of the components will follow the illustration.

PRECAUTIONS

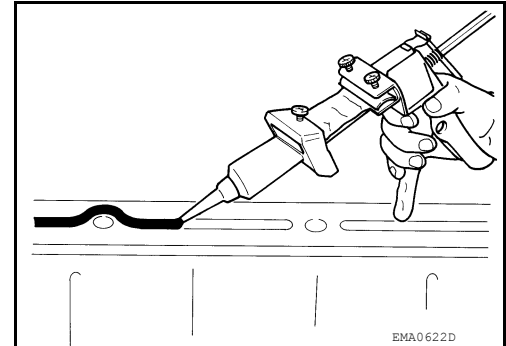
[VQ40DE]

< PRECAUTION >

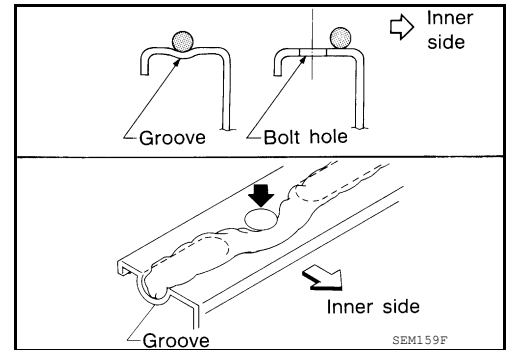
1. Remove the old liquid gasket adhering to the gasket application surface and the mating surface using suitable tool.
 - Remove the liquid gasket completely from the groove of the liquid gasket application surface, bolts, and bolt holes.
2. Thoroughly clean the mating surfaces and remove adhering moisture, grease and foreign material.



3. Attach the liquid gasket tube to the suitable tool.
Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-21, "Recommended Chemical Products and Sealants"](#).
4. Apply the liquid gasket without breaks to the specified location with the specified dimensions.



- If there is a groove for the liquid gasket application, apply the liquid gasket to the groove.
- Normally apply the liquid gasket on the inside edge of the bolt holes. Also apply to the outside edge of the bolt holes when specified in the procedure.
- Within five minutes of liquid gasket application, install the mating component.
- If the liquid gasket protrudes, wipe it off immediately.
- Do not retighten after the installation.
- Wait 30 minutes or more after installation before refilling the engine with oil or coolant.



CAUTION:

If there are more specific instructions in the procedures contained in this manual concerning liquid gasket application, observe them.

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F23
Connector Name	CAMSHAFT POSITION SENSOR (PHASE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	-
2	Y	-
3	BR	-

Connector No.	F21
Connector Name	CONDENSER-1
Connector Color	WHITE



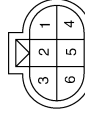
Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-

Connector No.	F18
Connector Name	KNOCK SENSOR
Connector Color	BLACK



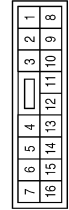
Terminal No.	Color of Wire	Signal Name
1	W	-
2	SHIELD	-

Connector No.	F45
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	O	-
3	LG	-
4	R	-
6	W/G	-

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W/R	-
2	L	-
3	P	-
4	R/B	-
5	B	-
9	V	-
10	G	-
11	GR	-
12	BR	-
13	LG	-
16	W/G	-

Connector No.	F24
Connector Name	ENGINE COOLANT TEMPERATURE SENSOR
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	W	-(WITH QR25DE)

ABBIA1994GB

P0452 EVAP CONTROL SYSTEM PRESSURE SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

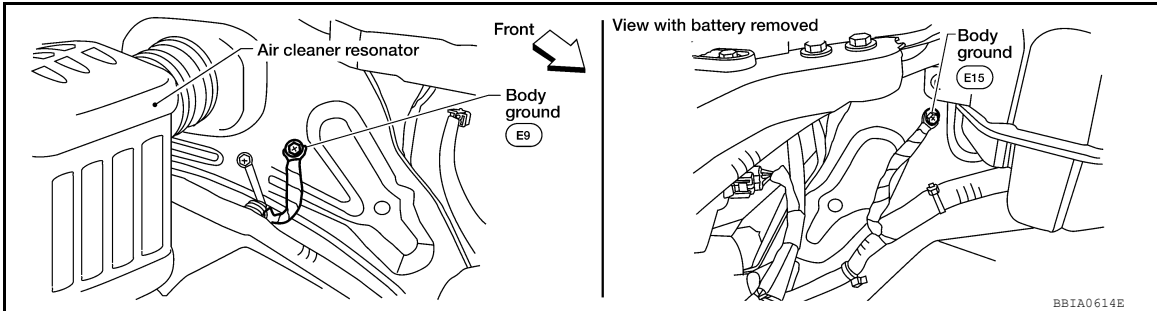
2. Check that voltage between ECM terminal 95 (Fuel tank temperature sensor signal) and ground is less than 4.2V.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and wait at least 20 seconds.
5. Select Service \$07 with GST.
6. Check 1st trip DTC.
7. If 1st trip DTC is detected, go to [EC-303. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009480967

1. CHECK GROUND CONNECTIONS

1. Turn ignition switch OFF.
2. Loosen and retighten two ground screws on the body. Refer to [EC-149. "Ground Inspection"](#).



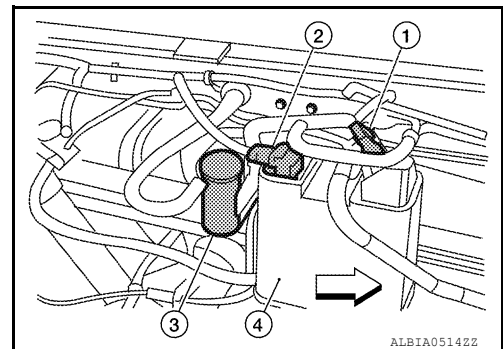
OK or NG

- OK >> GO TO 2.
- NG >> Repair or replace ground connections.

2. CHECK CONNECTOR

1. Disconnect EVAP control system pressure sensor (2) harness connector.
 - EVAP canister vent control valve (1)
 - Drain filter (3)
 - EVAP canister (4)

↔: Vehicle front
2. Check that water is not inside connector.



OK or NG

- OK >> GO TO 3.
- NG >> Repair or replace harness connector.

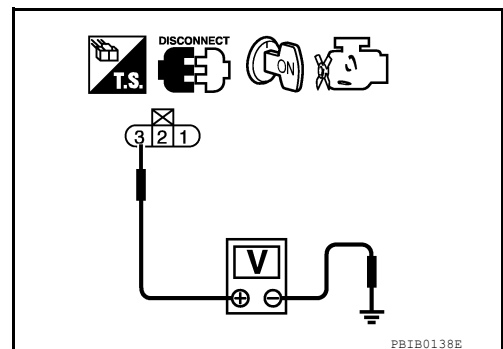
3. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between EVAP control system pressure sensor terminal 3 and ground with CONSULT or tester.

Voltage: Approximately 5V

OK or NG

- OK >> GO TO 5.
- NG >> GO TO 4.



4. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors C1, E41
- Harness for open or short between EVAP control system pressure sensor and ECM

P0447 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[VQ40DE FOR USA AND CANADA]

2. CHECK EVAP CANISTER VENT CONTROL VALVE CIRCUIT

With CONSULT

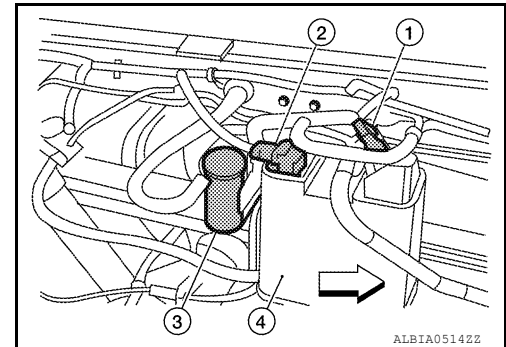
1. Turn ignition switch OFF and then ON.
2. Select "VENT CONTROL/V" in "ACTIVE TEST" mode with CONSULT.
3. Touch "ON/OFF" on CONSULT screen.
4. Check for operating sound of the valve.
Clicking noise should be heard.

OK or NG

- OK >> GO TO 7.
NG >> GO TO 3.

3. CHECK EVAP CANISTER VENT CONTROL VALVE POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect EVAP canister vent control valve (1) harness connector.
 - EVAP control system pressure sensor (2)
 - Drain filter (3)
 - EVAP canister (4)
 - ⇐: Vehicle front
3. Turn ignition switch ON.



4. Check voltage between EVAP canister vent control valve terminal 1 and ground with CONSULT or tester.

Voltage: Battery voltage

OK or NG

- OK >> GO TO 5.
NG >> GO TO 4.

4. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors E41, C1
- Harness for open or short between EVAP canister vent control valve and IPDM E/R

>> Repair harness or connectors.

5. CHECK EVAP CANISTER VENT CONTROL VALVE OUTPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check harness continuity between ECM terminal 106 and EVAP canister vent control valve terminal 2.
Refer to Wiring Diagram.

Continuity should exist.

4. Also check harness for short to ground and short to power.

OK or NG

- OK >> GO TO 7.
NG >> GO TO 6.

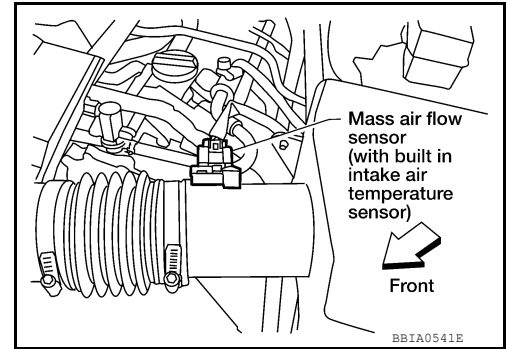
6. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors C1, E41
- Harness for open or short between EVAP canister vent control valve and ECM

< DTC/CIRCUIT DIAGNOSIS >

3. Disconnect mass air flow sensor harness connector, and restart and run engine for at least 5 seconds at idle speed.
4. Stop engine and reconnect mass air flow sensor harness connector.
5. Check DTC P0102 is displayed.
6. Erase the DTC memory. Refer to [EC-1005. "On Board Diagnosis Function"](#) (Without CONSULT) or [EC-1008. "CONSULT Function"](#) (With CONSULT).
7. Check DTC P0000 is displayed.
8. Run engine for at least 10 minutes at idle speed.
Is the 1st trip DTC P0172 or P0175 detected?
Is it difficult to start engine?

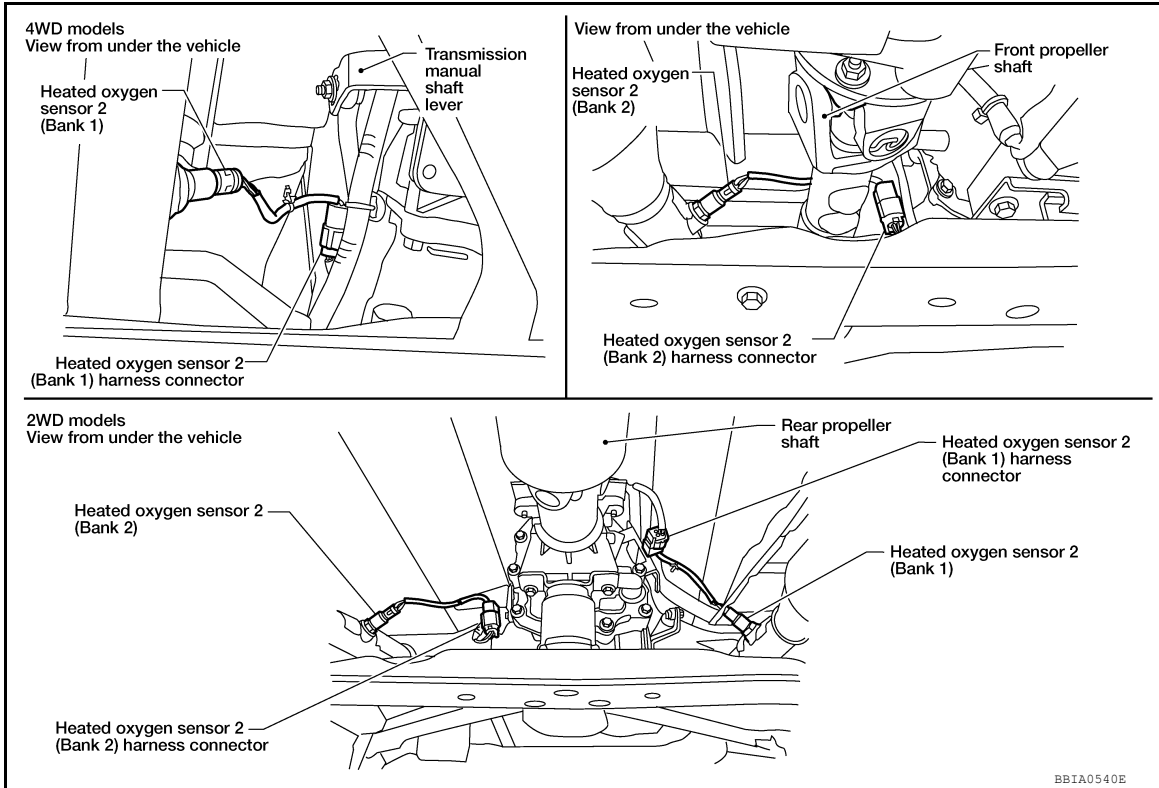


Yes or No

- Yes >> Perform trouble diagnosis for DTC P0172, P0175. Refer to [EC-1173. "On Board Diagnosis Logic"](#).
 No >> GO TO 3.

3. CHECK HO2S2 GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 harness connector.



3. Disconnect ECM harness connector.
4. Check harness continuity between HO2S2 terminal 4 and ECM terminal 78. Refer to Wiring Diagram.

Continuity should exist.

5. Also check harness for short to ground and short to power.

OK or NG

- OK >> GO TO 4.
 NG >> Repair open circuit or short to ground or short to power in harness or connectors.

4. CHECK HO2S2 INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check harness continuity between ECM terminal and HO2S2 terminal as follows. Refer to Wiring Diagram.

C1110, C1170 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< DTC/CIRCUIT DIAGNOSIS >

[TYPE 1]

C1110, C1170 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Logic

INFOID:000000009479268

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
C1110	CONTROLLER FAILURE	When there is an internal malfunction in the ABS actuator and electric unit (control unit).	• ABS actuator and electric unit (control unit)
C1170	VARIANT CODING	In a case where VARIANT CODING is different.	

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSIS RESULTS

Check the self-diagnosis results.

Self-diagnosis results
CONTROLLER FAILURE
VARIANT CODING

Is above displayed on the self-diagnosis display?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-45. "Diagnosis Procedure"](#).
NO >> Inspection End

Diagnosis Procedure

INFOID:000000009479269

1.REPLACE ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

- >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-115. "Removal and Installation"](#).

Special Repair Requirement

INFOID:000000009479270

1.ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

Always perform neutral position adjustment for the steering angle sensor when replacing the ABS actuator and electric unit (control unit). Refer to [BRC-12. "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Description"](#).

>> GO TO 2

2.CALIBRATION OF DECEL G SENSOR

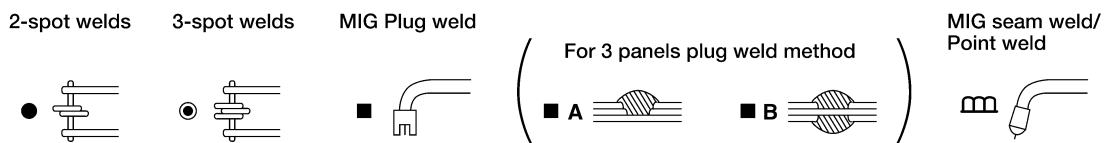
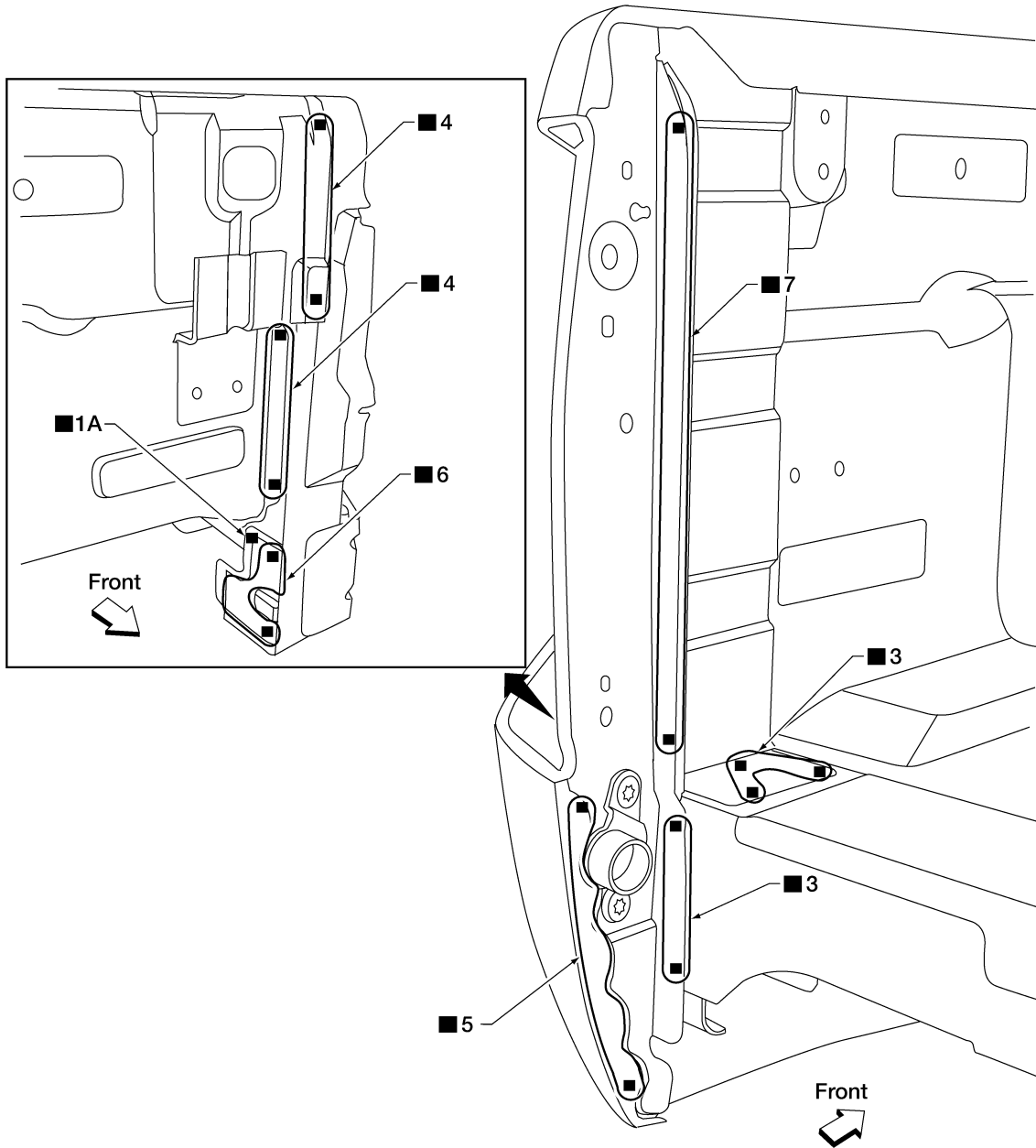
Always perform calibration of decel G sensor when replacing the ABS actuator and electric unit (control unit). Refer to [BRC-13. "CALIBRATION OF DECEL G SENSOR : Description"](#).

>> END

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

Service Joint



AWKIA1478GB

P1814 WAIT DETECTION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TX15B]

- YES >> GO TO 5.
- NO >> GO TO 2.

2. CHECK HARNESS BETWEEN TRANSFER CONTROL UNIT AND WAIT DETECTION SWITCH

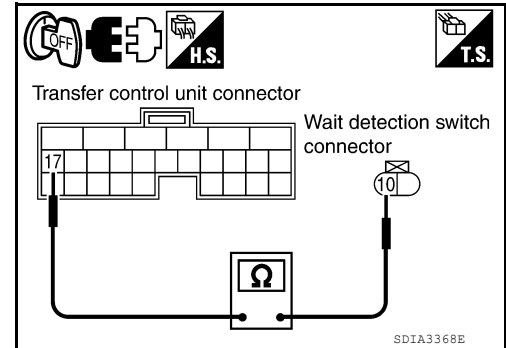
1. Turn ignition switch "OFF". (Stay for at least 5 seconds.)
2. Disconnect transfer control unit harness connector and the wait detection switch harness connector.
3. Check continuity between transfer control unit harness connector M152 terminal 17 and wait detection switch harness connector F59 terminal 10.

Continuity should exist.

Also check harness for short to ground and short to power.

Is there continuity?

- YES >> GO TO 3.
- NO >> Repair or replace damaged parts.



3. CHECK GROUND CIRCUIT

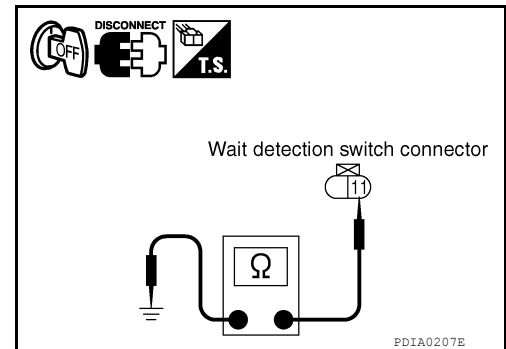
1. Turn ignition switch "OFF". (Stay for at least 5 seconds.)
2. Disconnect wait detection switch harness connector.
3. Check continuity between wait detection switch harness connector F59 terminal 11 and ground.

Continuity should exist.

Also check harness for short to power.

Is there continuity?

- YES >> GO TO 4.
- NO >> Repair open circuit or short to power in harness or connectors.



4. CHECK WAIT DETECTION SWITCH

1. Turn ignition switch "OFF". (Stay for at least 5 seconds.)
2. Disconnect wait detection switch harness connector.
3. Remove wait detection switch. Refer to [DLN-13, "Component Parts Location"](#).
4. Push and release wait detection switch and check continuity between wait detection switch terminals 10 and 11.

Terminal	Condition	Continuity
10 - 11	Push wait detection switch	Yes
	Release wait detection switch	No

Are the inspection results normal?

- YES >> GO TO 5.
- NO >> Replace wait detection switch.

5. CHECK TRANSFER CONTROL UNIT

Check transfer control unit input/output signal. Refer to [DLN-56, "Reference Value"](#).

Are the inspection results normal?

- YES >> GO TO 6.
- NO >> Check transfer control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace damaged parts.

6. CHECK DTC

Drive the vehicle and then perform self-diagnosis.

Is DTC P1814 displayed?

- YES >> Replace transfer control unit. Refer to [DLN-92, "Removal and Installation"](#).

A
B
C
DLN
E
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FRONT OIL SEAL

< REMOVAL AND INSTALLATION >

[REAR FINAL DRIVE: M226 (ELD)]

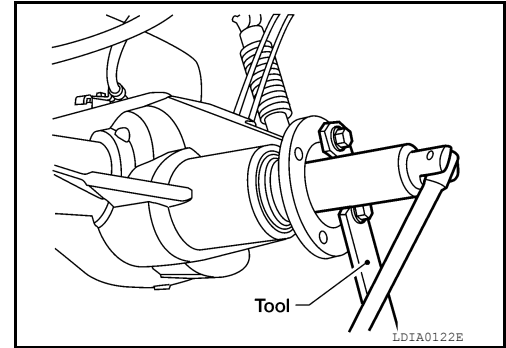
FRONT OIL SEAL

Removal and Installation

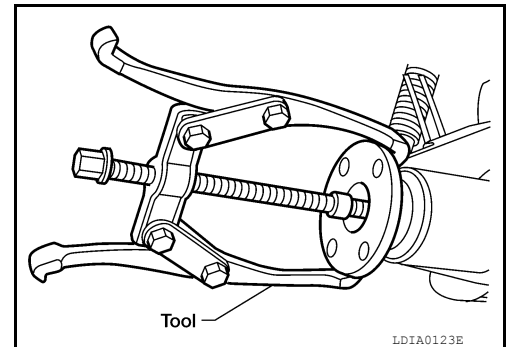
INFOID:000000009479874

REMOVAL

1. Remove rear propeller shaft. Refer to [DLN-143, "Removal and Installation"](#).
2. Remove brake calipers and rotors. Refer to [BR-40, "Removal and Installation of Brake Caliper and Disc Rotor"](#).
3. Measure the total preload torque. Refer to [DLN-331, "Inspection and Adjustment"](#).
NOTE:
Record the total preload torque measurement.
4. Remove the drive pinion nut using suitable tool.

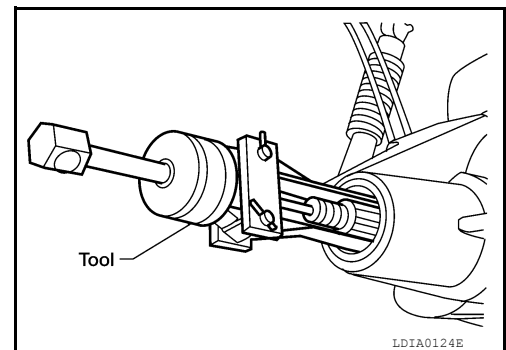


5. Put matching marks on the companion flange and drive pinion using paint.
CAUTION:
Use paint to make the matching marks. Do not damage the companion flange or drive pinion.
6. Remove the companion flange using suitable tool.



7. Remove oil seal/dust shield and discard.
CAUTION:
Do not reuse oil seal/dust shield.
8. Remove the front oil seal using Tool.

Tool number : ST33290001 (J-34286)



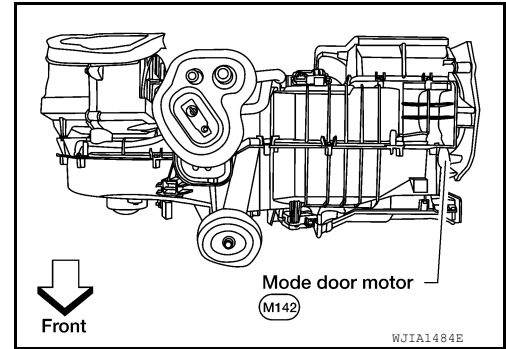
INSTALLATION

MODE DOOR MOTOR

[AUTOMATIC AIR CONDITIONER]

< DTC/CIRCUIT DIAGNOSIS >

The mode door motor is attached to the heater & cooling unit assembly. It rotates so that air is discharged from the outlet as indicated by the front air control. Motor rotation is conveyed to a link which activates the mode door.



Mode Door Motor Component Function Check

INFOID:000000009478275

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - DISCHARGE AIR

1. Press each mode switch and press the DEF (DEF) switch. Each position indicator should illuminate.
2. Confirm that discharge air comes out according to the air distribution table. Refer to [HAC-15, "Discharge Air Flow"](#).

NOTE:

Confirm that the compressor clutch is engaged (visual inspection) and intake door position is at FRESH (FRESH) when DEF (DEF) or D/F (D/F) is selected.

Is the inspection result normal?

YES >> Inspection End.

NO >> Go to diagnosis procedure. Refer to [HAC-22, "Mode Door Motor Diagnosis Procedure"](#).

Mode Door Motor Diagnosis Procedure

INFOID:000000009478276

Regarding Wiring Diagram information, refer to [HAC-63, "Wiring Diagram - Automatic Air Conditioner"](#).

SYMPTOM:

- Air outlet does not change.
- Mode door motor does not operate normally.

1. CHECK MODE DOOR MOTOR POSITION BALANCED RESISTOR (PBR) FEEDBACK VOLTAGE

1. Turn ignition switch ON.
2. Using CONSULT, check "MODE FDBCK" in "DATA MONITOR" mode in "HVAC". Refer to [HAC-17, "CONSULT Function \(HVAC\)"](#).
3. Observe "MODE FDBCK" voltage while cycling front air control mode switch through all modes.

Monitor Item	Condition	Results
MODE FDBCK	Cycle mode switch through all modes, D/F (D/F), VENT (VENT), B/L (B/L), and FOOT (FOOT)	Voltage varies between D/F (D/F) and VENT (VENT), and between VENT (VENT) and B/L (B/L).

Is the inspection result normal?

YES >> • Mode door motor is OK.

• Inspect mode door for mechanical failure. Refer to [VTL-21, "Removal and Installation"](#).

NO >> GO TO 2.

2. CHECK MODE DOOR MOTOR CIRCUITS FOR OPEN AND SHORT TO GROUND

1. Turn ignition switch OFF.
2. Disconnect the front air control harness connector M52 and the mode door motor harness connector M142.
3. Check continuity between front air control harness connector M52 terminals 19, 20 and the mode door motor harness connector M142 terminals 6, 1.

MODE DOOR MOTOR

System Description

INFOID:000000009478385

SYSTEM DESCRIPTION

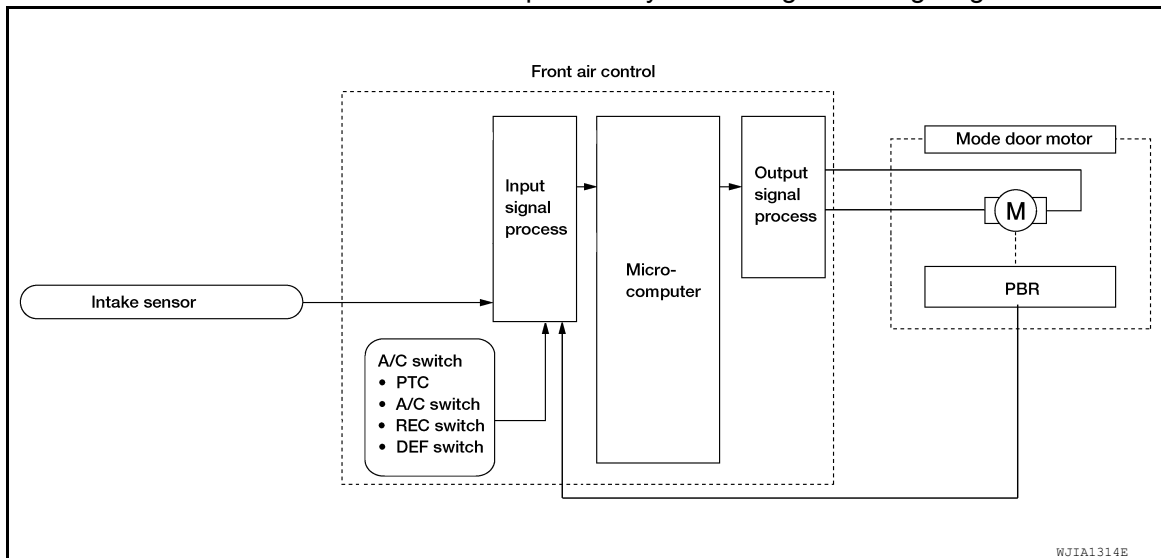
Component Parts

Mode door control system components are:

- Front air control
- Mode door motor
- Position Balanced Resistor (PBR) (built into mode door motor)
- Intake sensor

System Operation

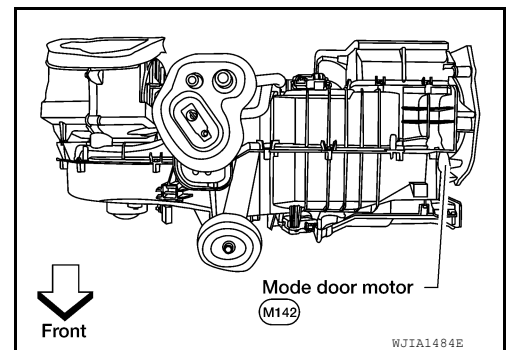
The mode door position (vent, B/L, foot, D/F, and defrost) is set by the front air control by means of the mode door motor. When a mode door position is selected on the front air control, voltage is applied to one circuit of the mode door motor while ground is applied to the other circuit, causing the mode door motor to rotate. The direction of rotation is determined by which circuit has voltage applied to it, and which one has ground applied to it. The front air control monitors the mode door position by measuring the voltage signal on the PBR circuit.



COMPONENT DESCRIPTION

Mode Door Motor

The mode door motor is attached to the heater and cooling unit assembly. It rotates so that air is discharged from the outlet as indicated by the front air control. Motor rotation is conveyed to a link which activates the mode door.



Mode Door Motor Component Function Check

INFOID:000000009478386

SYMPTOM:

- Air outlet does not change.
- Mode door motor does not operate normally.

INSPECTION FLOW

PREPARATION

< PREPARATION >

PREPARATION

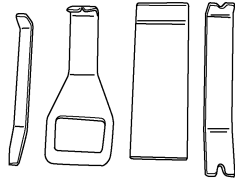
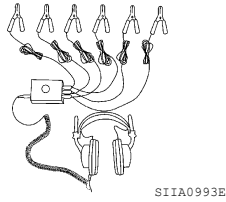
PREPARATION

Special Service Tool

INFOID:000000010151044

The actual shape of the tools may differ from those illustrated here.

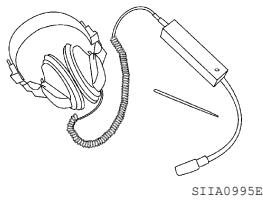
Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
— (J-46534) Trim Tool Set	Removing trim components
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise



Commercial Service Tools

INFOID:000000010151046

Tool number (TechMate No.) Tool name	Description
— (J-39565) Engine Ear	Locating the noise



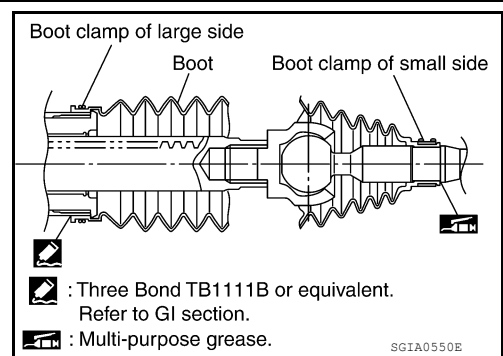
A
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MIR

STEERING GEAR AND LINKAGE

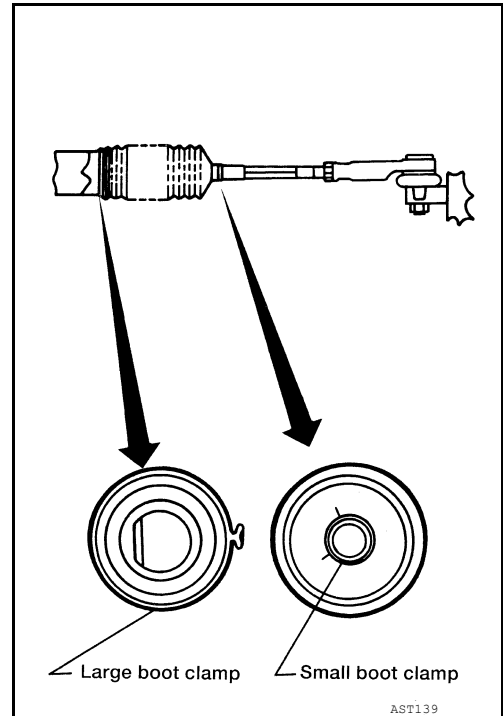
< UNIT DISASSEMBLY AND ASSEMBLY >

2. Install the large-diameter side of the boots to the gear housing assembly.
3. Install the small-diameter side of the boots to the groove of the inner sockets.



4. Install the boot clamps to the boots, as shown.

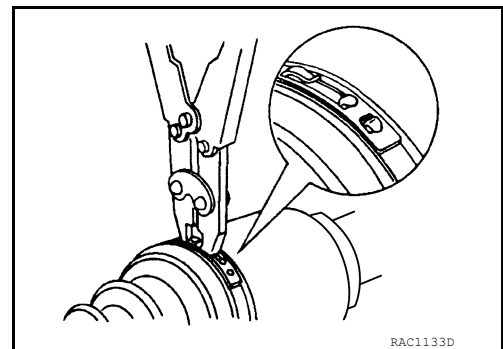
CAUTION:
Do not reuse the large boot clamps.



5. Crimp the large boot clamps, using Tool.

Tool number : KV40107300 (—)

6. Install the cylinder tubes to the gear housing assembly.
7. Install the lock nuts and outer sockets to the inner sockets.



8. Thread the outer sockets onto the inner sockets to the specified length (L) and a minimum thread depth of 18 threads, then tighten the lock nuts to the specified torque. Refer to "Disassembly and Assembly". Reconfirm that the tie-rod length (L) is within specification.

Maximum inner socket length (L)

Refer to [ST-30. "Steering Gear"](#)

