

PRECAUTIONS

Precautions for Multiport Fuel Injection System or Engine Control System

EAS00270

- Before connecting or disconnecting any harness connector for the multiport fuel injection system or ECM:
Turn ignition switch to "OFF" position.
Disconnect negative battery terminal.
Otherwise, there may be damage to ECM.
- Before disconnecting pressurized fuel line from fuel pump to injectors, be sure to release fuel pressure.
- Be careful not to jar components such as ECM and mass air flow sensor.

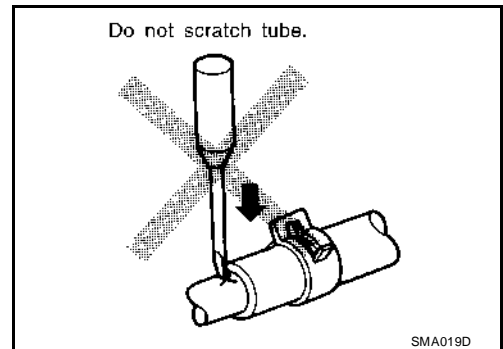


Precautions for Hoses

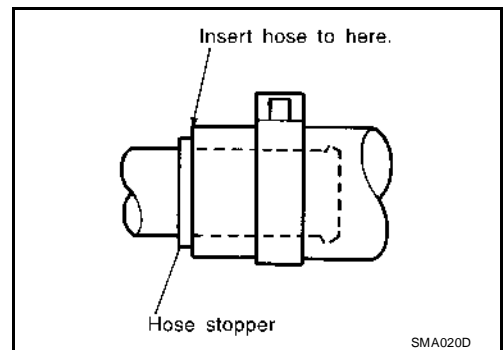
HOSE REMOVAL AND INSTALLATION

EAS0027P

- To prevent damage to rubber hose, do not pry off rubber hose with tapered tool or screwdriver.

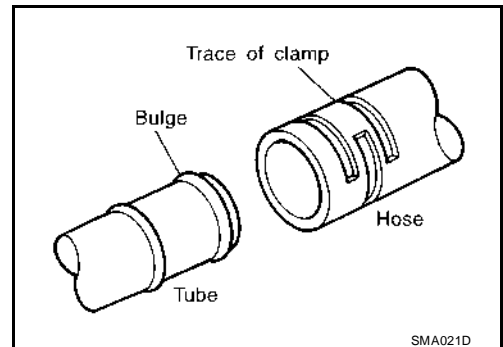


- To reinstall the rubber hose securely, make sure that hose insertion length and orientation is correct. (If tube is equipped with hose stopper, insert rubber hose into tube until it butts up against hose stopper.)



HOSE CLAMPING

- If old rubber hose is re-used, install hose clamp in its original position (at the indentation where the old clamp was). If there is a trace of tube bulging left on the old rubber hose, align rubber hose at that position.
- Discard old clamps; replace with new ones.



INDEX FOR DTC

[MR]

DTC*1		Items (CONSULT-III screen terms)	Reference page
CONSULT-III GST*2	ECM*3		
P0845	0845	TR PRS SENS/B CIRC	CVT-128
P0850	0850	P-N POS SW/CIRCUIT	EC-413
P1148	1148	CLOSED LOOP-B1	EC-419
P1217	1217	ENG OVER TEMP	EC-420
P1225	1225	CTP LEARNING-B1	EC-433
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P1421	1421	COLD START CONTROL	EC-437
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P1572	1572	ASCD BRAKE SW	EC-446
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P1610	1610	LOCK MODE	BL-189
P1611	1611	ID DISCORD, IMM-ECM	
P1612	1612	CHAIN OF ECM-IMMU	
P1614	1614	CHAIN OF IMMU-KEY	
P1615	1615	DIFFERENCE OF KEY	
P1715	1715	IN PULY SPEED	EC-458
P1740	1740	LU-SLCT SOL/CIRC	CVT-146
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P1778	1778	STEP MOTR FNC	CVT-156
P1805	1805	BRAKE SW/CIRCUIT	EC-460
P2100	2100	ETC MOT PWR-B1	EC-465
P2101	2101	ETC FUNCTION/CIRC-B1	EC-470
P2103	2103	ETC MOT PWR	EC-465
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P2122	2122	APP SEN 1/CIRC	EC-484
P2123	2123	APP SEN 1/CIRC	EC-484
P2127	2127	APP SEN 2/CIRC	EC-490
P2128	2128	APP SEN 2/CIRC	EC-490
P2135	2135	TP SENSOR-B1	EC-497
P2138	2138	APP SENSOR	EC-503
P2A00	2A00	A/F SENSOR1 (B1)	EC-510

*1: 1st trip DTC No. is the same as DTC No.

*2: This number is prescribed by SAE J2012.

*3: In Diagnostic Test Mode II (Self-diagnostic results), this number is controlled by NISSAN.

*4: The troubleshooting for this DTC needs CONSULT-III.

*5: When the fail-safe operations for both self-diagnoses occur, the MIL illuminates.

ON BOARD DIAGNOSTIC (OBD) SYSTEM

[QR]

SRT item	Self-diagnostic test item	DTC	Test value (GST display)		Test limit	Unit	
			TID	CID			
HO2S	A/F sensor 1 (Bank 1)	P0131	41H	8EH	Min.	5 mV	A
		P0132	42H	0EH	Max.	5 mV	EC
		P2A00	43H	0EH	Max.	0.002	
		P2A00	44H	8EH	Min.	0.002	
		P0133	45H	8EH	Min.	0.004	C
		P0130	46H	0EH	Max.	5 mV	
		P0130	47H	8EH	Min.	5 mV	D
		P0133	48H	8EH	Min.	0.004	
	A/F sensor 1 (Bank 2)	P0151	4CH	8FH	Min.	5 mV	E
		P0152	4DH	0FH	Max.	5 mV	
		P2A03	4EH	0FH	Max.	0.002	
		P2A03	4FH	8FH	Min.	0.002	F
		P0153	50H	8FH	Min.	0.004	
		P0150	51H	0FH	Max.	5 mV	
		P0150	52H	8FH	Min.	5 mV	G
		P0153	53H	8FH	Min.	0.004	
	Heated oxygen sensor 2 (Bank 1)	P0139	19H	86H	Min.	10mV/500 ms	H
		P0137	1AH	86H	Min.	10 mV	
		P0138	1BH	06H	Max.	10 mV	
		P0138	1CH	06H	Max.	10 mV	I
	Heated oxygen sensor 2 (Bank 2)	P0159	21H	87H	Min.	10mV/500 ms	J
P0157		22H	87H	Min.	10 mV		
P0158		23H	07H	Max.	10 mV		
P0158		24H	07H	Max.	10 mV	K	
HO2S HTR	A/F sensor 1 heater (Bank 1)	P0032	57H	10H	Max.	5 mV	
		P0031	58H	90H	Min.	5 mV	
	A/F sensor 1 heater (Bank 2)	P0052	59H	11H	Max.	5 mV	L
		P0051	5AH	91H	Min.	5 mV	
	Heated oxygen sensor 2 heater (Bank 1)	P0038	2DH	0AH	Max.	20 mV	
		P0037	2EH	8AH	Min.	20 mV	M
	Heated oxygen sensor 2 heater (Bank 2)	P0058	2FH	0BH	Max.	20 mV	
		P0057	30H	8BH	Min.	20 mV	

TROUBLE DIAGNOSIS

Line Pressure

Engine	Engine speed	Line pressure kPa (kg/cm ² , psi)
		"R", "D", "L" positions
MR20DE	At idle	750 (7.65, 108.8)
	At stall	5,700 (58.14, 826.5)*

*: Reference values

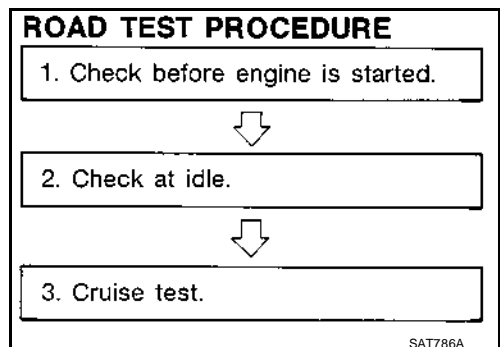
Judgment of Line Pressure Test

Judgment		Possible cause
Idle speed	Low for all positions ("P", "R", "N", "D", "L")	Possible causes include malfunctions in the pressure supply system and low oil pump output. For example <ul style="list-style-type: none"> ● Oil pump wear ● Pressure regulator valve or plug sticking or spring fatigue ● Oil strainer ⇒ oil pump ⇒ pressure regulator valve passage oil leak ● Engine idle speed too low
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.
	High	Possible causes include a sensor malfunction or malfunction in the line pressure adjustment function. For example <ul style="list-style-type: none"> ● Accelerator pedal position signal malfunction ● CVT fluid temperature sensor malfunction ● Pressure control solenoid A (line pressure solenoid) malfunction (sticking in OFF state, filter clog, cut line) ● Pressure regulator valve or plug sticking
Stall speed	Line pressure does not rise higher than the line pressure for idle.	Possible causes include a sensor malfunction or malfunction in the pressure adjustment function. For example <ul style="list-style-type: none"> ● Accelerator pedal position signal malfunction ● TCM malfunction ● Pressure control solenoid A (line pressure solenoid) malfunction (shorting, sticking in ON state) ● Pressure regulator valve or plug sticking
	The pressure rises, but does not enter the standard position.	Possible causes include malfunctions in the pressure supply system and malfunction in the pressure adjustment function. For example <ul style="list-style-type: none"> ● Accelerator pedal position signal malfunction ● Pressure control solenoid A (line pressure solenoid) malfunction (sticking, filter clog) ● Pressure regulator valve or plug sticking
	Only low for a specific position	Possible causes include an oil pressure leak in a passage or device related to the position after the pressure is distributed by the manual valve.

Road Test DESCRIPTION

UCS005YC

- The purpose of the test is to determine overall performance of CVT and analyze causes of problems.
- The road test consists of the following three parts:
 1. "Check Before Engine Is Started" [CVT-42](#) .
 2. "Check at Idle" [CVT-43](#) .
 3. "Cruise Test" [CVT-44](#) .



INTELLIGENT KEY SYSTEM

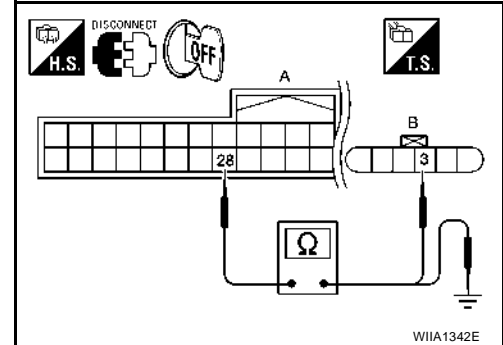
2. CHECK UNLOCK SENSOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect Intelligent Key unit and front door lock assembly LH (door unlock sensor) connector.
3. Check continuity between Intelligent Key unit harness connector M42 (A) terminal 28 and front door lock assembly LH (door unlock sensor) harness connector D9 (B) terminal 3.

28 – 3 : Continuity should exist.

4. Check continuity between Intelligent Key unit harness connector M42 (A) terminal 28 and ground.

28 – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 3.

NG >> Repair or replace harness between Intelligent Key unit and front door lock assembly LH (door unlock sensor).

3. CHECK UNLOCK SENSOR GROUND CIRCUIT

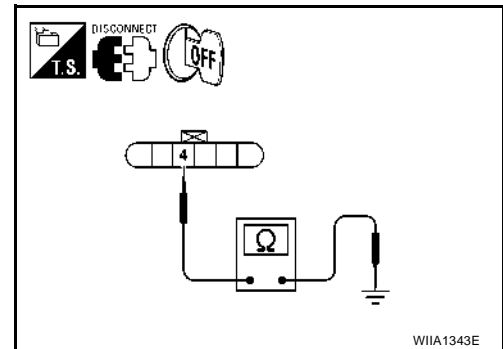
Check continuity between front door lock assembly LH (door unlock sensor) harness connector D9 terminal 4 and ground.

4 – Ground : Continuity should exist.

OK or NG

OK >> GO TO 4.

NG >> Repair or replace harness.



4. CHECK INTELLIGENT KEY UNIT OUTPUT SIGNAL

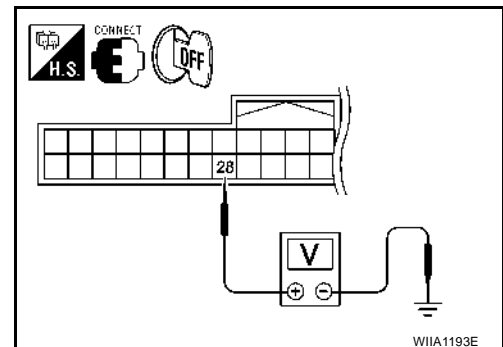
1. Connect Intelligent Key unit harness connector.
2. Check voltage between Intelligent Key unit harness connector M42 terminal 28 and ground.

28 – Ground : Approx. 5V

OK or NG

OK >> Replace front door lock assembly LH (door unlock sensor).

NG >> Replace Intelligent Key unit. Refer to [BL-143, "Removal and Installation of Intelligent Key Unit"](#) .



TROUBLE DIAGNOSIS

[CAN]

Signals	ECM	ABS*1	AV*2	BCM	EPS	M&A	IPDM-E
Fuel level sensor signal	R					T	
Market information signal			R			T	
Front wiper stop position signal				R			T
High beam status signal	R						T
Low beam status signal	R						T
Rear window defogger control signal	R						T

*1: Models with ABS

*2: Models with mid/premium audio system

*3: Models with air conditioner

*4: Models for Canada

*5: Models for USA

NOTE:

CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.

TYPE 5/TYPE 6/TYPE 7/TYPE 8/TYPE 9/TYPE 10

NOTE:

Refer to [LAN-21, "Abbreviation List"](#) for the abbreviations of the connecting units.

T: Transmit R: Receive

Signals	ECM	TCM	ABS*1	AV*2	BCM	EPS	I-KEY*3	M&A	IPDM-E
A/C compressor request signal*4	T								R
Accelerator pedal position signal	T	R							
ASCD CRUISE lamp signal	T							R	
ASCD SET lamp signal	T							R	
Closed throttle position signal	T	R							
Cooling fan motor operation signal	T								R
Engine coolant temperature signal	T							R	
Engine speed signal	T	R						R	
Engine status signal	T					R			
Fuel consumption monitor signal	T			R				R	
Malfunction indicator lamp signal	T							R	
Wide open throttle position signal	T	R							
CVT self-diagnosis signal	R	T							
Input shaft revolution signal	R	T							
OD OFF indicator signal		T						R	
Output shaft revolution signal	R	T							
Shift position indicator signal		T						R	
Vehicle speed signal	R			R	R	R		T	
	R	R	T			R		R	
		T*5						R*5	
ABS warning lamp signal			T				R		
Brake warning lamp signal			T				R		
A/C switch signal*4	R				T				
Blower fan motor switch signal	R				T				

DTC P0117, P0118 ECT SENSOR

< SERVICE INFORMATION >

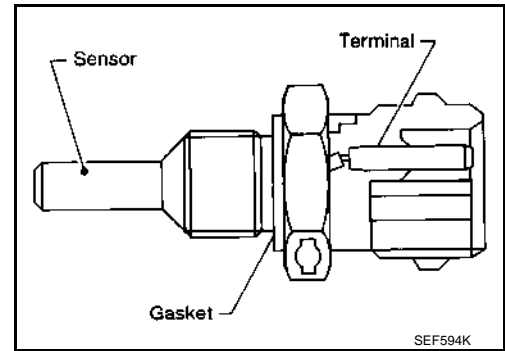
[MR]

DTC P0117, P0118 ECT SENSOR

Component Description

INFOID:000000001849841

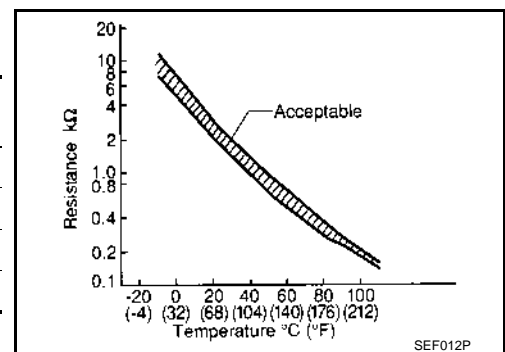
The engine coolant temperature sensor is used to detect the engine coolant temperature. The sensor modifies a voltage signal from the ECM. The modified signal returns to the ECM as the engine coolant temperature input. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



<Reference data>

Engine coolant temperature °C (°F)	Voltage* V	Resistance kΩ
-10 (14)	4.4	7.0 - 11.4
20 (68)	3.5	2.1 - 2.9
50 (122)	2.2	0.68 - 1.00
90 (194)	0.9	0.236 - 0.260

*: This data is reference value and is measured between ECM terminal 38 (Engine coolant temperature sensor) and ground.



CAUTION:

Do not use ECM ground terminals when measuring input/output voltage. Doing so may result in damage to the ECM's transistor. Use a ground other than ECM terminals, such as the ground.

On Board Diagnosis Logic

INFOID:000000001849842

These self-diagnoses have the one trip detection logic.

DTC No.	Trouble Diagnosis Name	DTC Detecting Condition	Possible Cause
P0117 0117	Engine coolant temperature sensor circuit low input	An excessively low voltage from the sensor is sent to ECM.	<ul style="list-style-type: none"> • Harness or connectors (Engine coolant temperature sensor circuit is open or shorted.) • Engine coolant temperature sensor
P0118 0118	Engine coolant temperature sensor circuit high input	An excessively high voltage from the sensor is sent to ECM.	

FAIL-SAFE MODE

When the malfunction is detected, the ECM enters fail-safe mode and the MIL lights up.

ON-VEHICLE SERVICE

< SERVICE INFORMATION >

1. CVT assembly
2. O-ring
3. Primary speed sensor

 : Apply CVT Fluid. Refer to [MA-13, "MR20DE"](#).

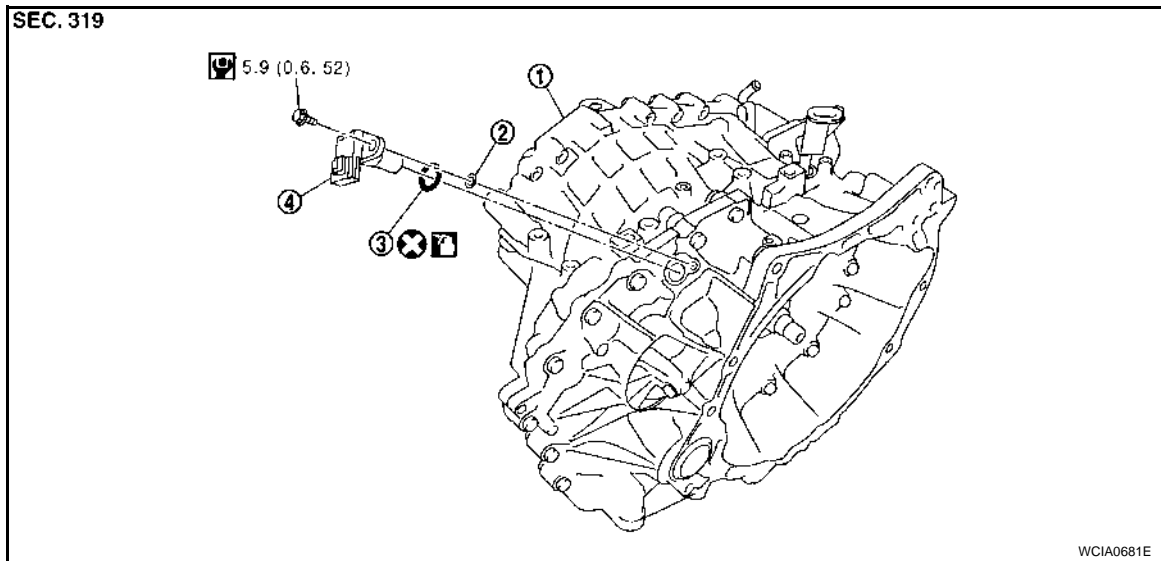
CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.
- After installation is complete, check for CVT fluid leakage and CVT fluid level. Refer to [CVT-14, "Checking CVT Fluid"](#).

Secondary Speed Sensor

INFOID:000000001851197

COMPONENTS



1. CVT assembly
2. Shim
3. O-ring
4. Secondary speed sensor

 : Apply CVT Fluid. Refer to [MA-13, "MR20DE"](#).

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.
- Insert the shim.
- After installation is complete, check for CVT fluid leakage and CVT fluid level. Refer to [CVT-14, "Checking CVT Fluid"](#).

Differential Side Oil Seal

INFOID:000000001851198

COMPONENTS

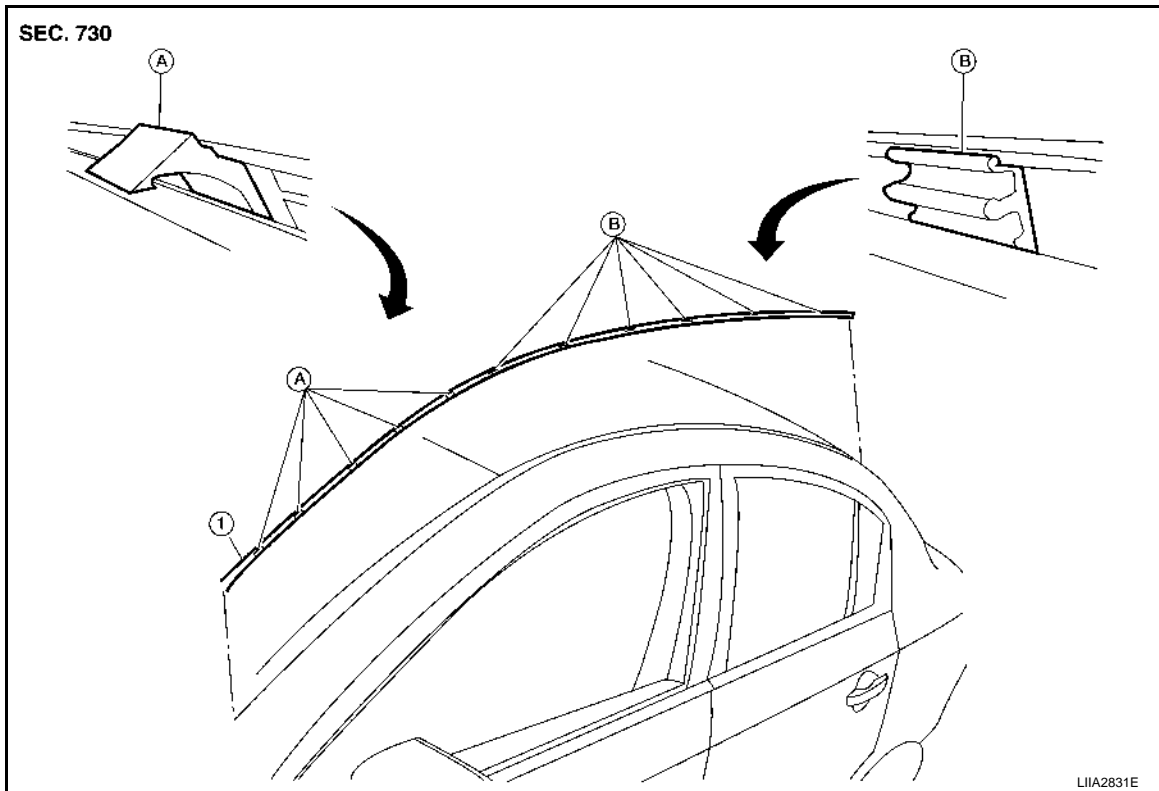
ROOF SIDE MOLDING

< SERVICE INFORMATION >

ROOF SIDE MOLDING

Removal and Installation

INFOID:000000002995135



1. Roof side molding

A. Roof side molding front clip

B. Roof side molding rear clip

REMOVAL

1. Using a suitable tool, release the rearward most roof side molding rear clip.
2. Lift up back edge of roof side molding and release remaining clips working forward.
3. Release roof side molding front clips, then remove roof side molding.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

For setting a new clip A or B, use Epoxy Adhesive DP-100C made by 3M. For adhesive DP-100C application, use applicator 9170 EPX W 1:1 and mixer nozzle 9742 EPX 50ML made by 3M.

SERVICE INFORMATION

PRECAUTIONS

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

INFOID:000000004777178

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS 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 SRS 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.
- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000004409474

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.
 - NOTE:**
Supply power using jumper cables if battery is discharged.
2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.
5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT-III.

A
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< SERVICE INFORMATION >

Refer to [EC-691](#).>> **INSPECTION END**

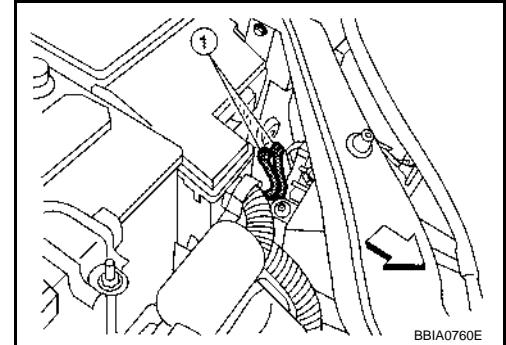
PROCEDURE FOR MALFUNCTION B

1. CHECK GROUND CONNECTIONS

1. Turn ignition switch OFF.
2. Loosen and retighten engine screws on the body.
Refer to [EC-696](#), "Ground Inspection".
- ↶ : Vehicle front
- Body ground (1)

OK or NG

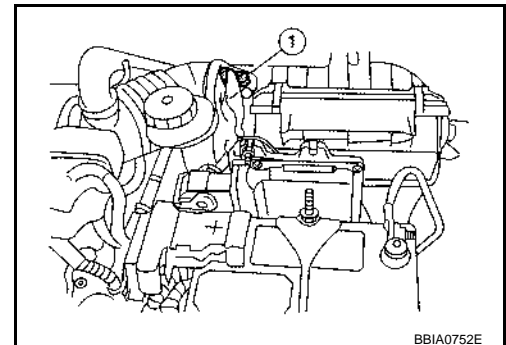
- OK >> GO TO 2.
NG >> Repair or replace ground connections.

**2. CLEAR THE SELF-LEARNING DATA****Ⓟ With CONSULT-III**

1. Start engine and warm it up to normal operating temperature.
2. Select "SELF-LEARNING CONT" in "WORK SUPPORT" mode with CONSULT-III.
3. Clear the self-learning control coefficient by touching "CLEAR".
4. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0172 detected?**Is it difficult to start engine?****ⓧ Without CONSULT-III**

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF.
3. Disconnect mass air flow sensor (1) 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. Make sure that DTC P0102 is displayed.
6. Erase the DTC memory. Refer to [EC-606](#), "Emission-related Diagnostic Information".
7. Make sure that DTC P0000 is displayed.
8. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0172 detected?**Is it difficult to start engine?****Yes or No**

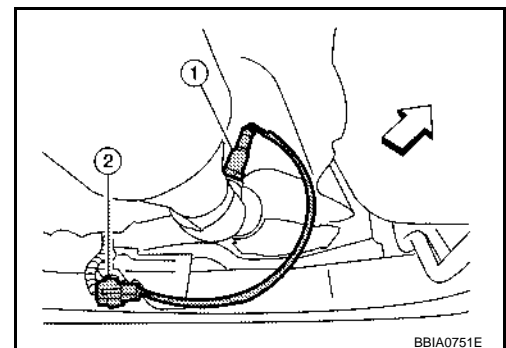
- Yes >> Perform trouble diagnosis for DTC P0172. Refer to [EC-818](#).
No >> GO TO 3.

3. CHECK HO2S2 GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 harness connector (2).
- ↶ : Vehicle front
- Heated oxygen sensor 2 (1)
3. Disconnect ECM harness connector.
4. Check harness continuity between ECM terminal 59 and HO2S2 terminal 1. Refer to Wiring Diagram.

Continuity should exist.

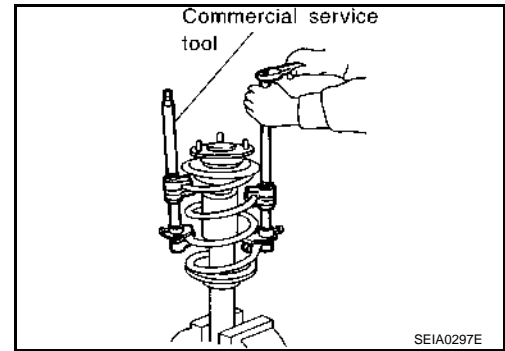
5. Also check harness for short to ground and short to power.

OK or NG

COIL SPRING AND STRUT

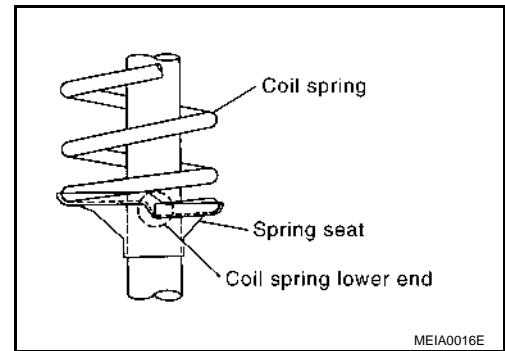
< SERVICE INFORMATION >

3. Compress coil spring using tool, and install it onto strut.

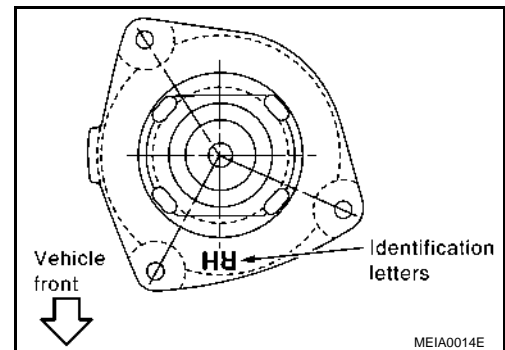


CAUTION:

- Face tube side of coil spring downward. Align the lower end to spring lower seat as shown.
- Be sure tool is securely attached to coil spring. Compress coil spring.



4. Install bound bumper, dust cover and upper insulator.
5. Attach strut mounting bearing and strut mounting insulator.
 - Installation position of strut mounting insulator as shown.



6. Secure piston rod tip so that piston rod does not turn, then tighten piston rod lock nut to specified torque.
7. Gradually release tool, and remove coil spring.

CAUTION:

While loosening make sure tool position does not move.

8. Remove the tool from strut.

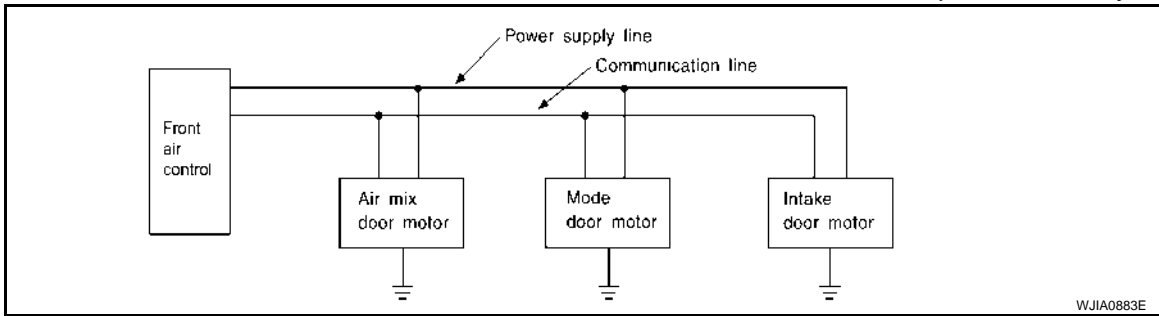
TROUBLE DIAGNOSIS

< SERVICE INFORMATION >

LAN System Circuit

INFOID:000000004407916

SYMPTOM: Mode door motor, intake door motor and/or air mix door motor do not operate normally.



DIAGNOSTIC PROCEDURE

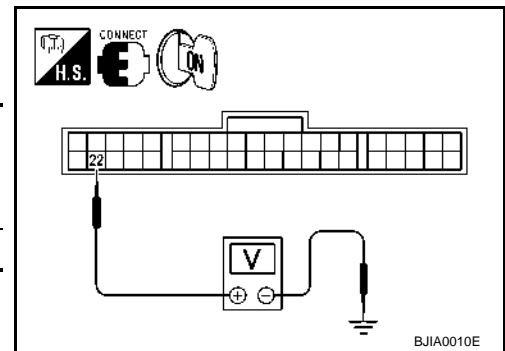
1. CHECK POWER SUPPLY FOR DOOR MOTORS

1. Turn ignition switch ON.
2. Check voltage between front air control connector M33 terminal 22 and ground.

Terminals		Voltage (V) (Approx.)
(+)	(-)	
Connector		
M33-22	Body ground	12V

OK or NG

- OK >> GO TO 2.
 NG >> Replace front air control. Refer to [MTC-65. "Removal and Installation"](#).



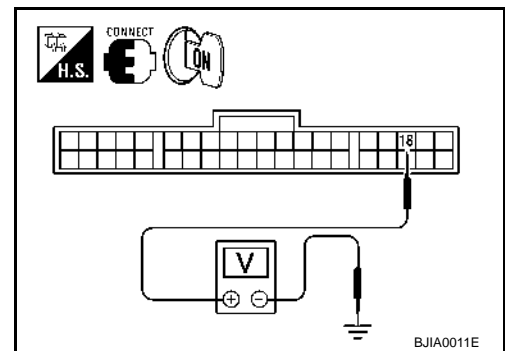
2. CHECK SIGNAL FOR DOOR MOTORS

Check voltage between front air control connector M33 terminal 18 and ground.

Terminals		Voltage (V) (Approx.)
(+)	(-)	
Connector		
M33-18	Ground	5.5V

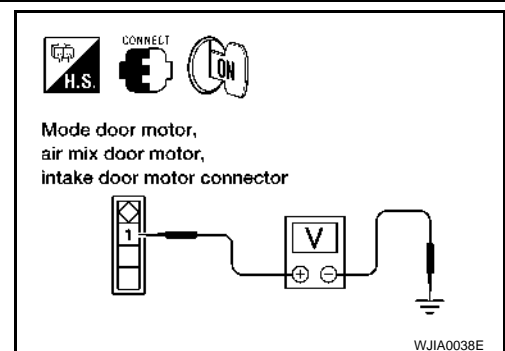
OK or NG

- OK >> GO TO 3.
 NG >> Replace front air control. Refer to [MTC-65. "Removal and Installation"](#).



3. CHECK POWER SUPPLY FOR MOTOR

Check voltage between mode door motor connector M51 terminal 1 and ground, between air mix door motor connector M34 terminal 1 and ground, and between intake door motor connector M48 terminal 1 and ground.



DTC P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

< SERVICE INFORMATION >

[QR25DE]

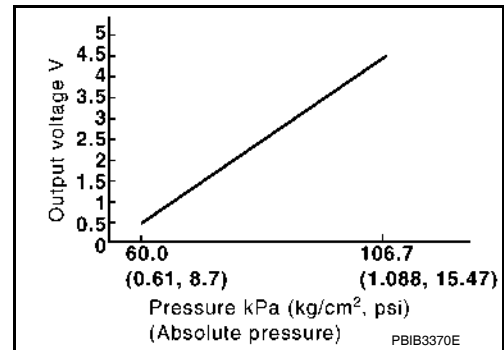
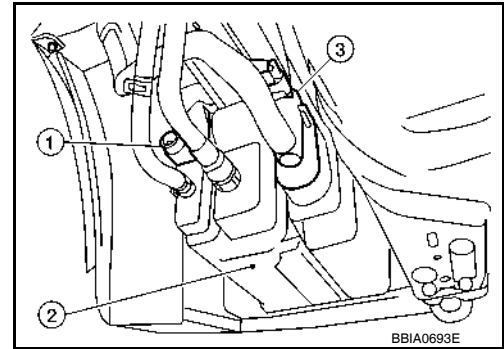
DTC P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

Component Description

INFOID:000000005286044

The EVAP control system pressure sensor (1) detects pressure in the purge line. The sensor output voltage to the ECM increases as pressure increases.

- This illustration is a view from under vehicle
- EVAP canister (2)
- EVAP canister vent control valve (3)



CONSULT-III Reference Value in Data Monitor Mode

INFOID:000000005286045

Specification data are reference values.

Monitor item	Condition	Specification
EVAP SYS PRES	• Ignition switch: ON	Approx. 1.8 - 4.8 V

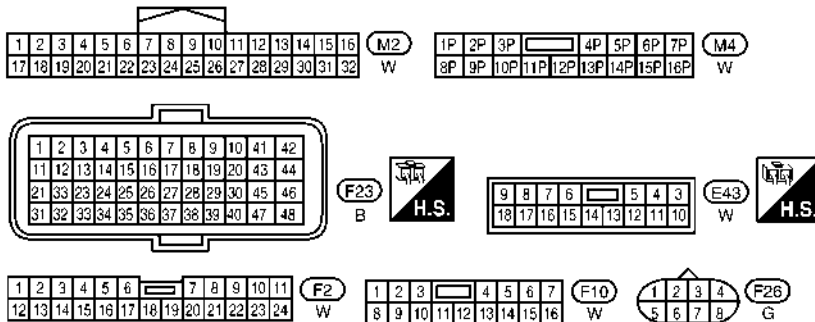
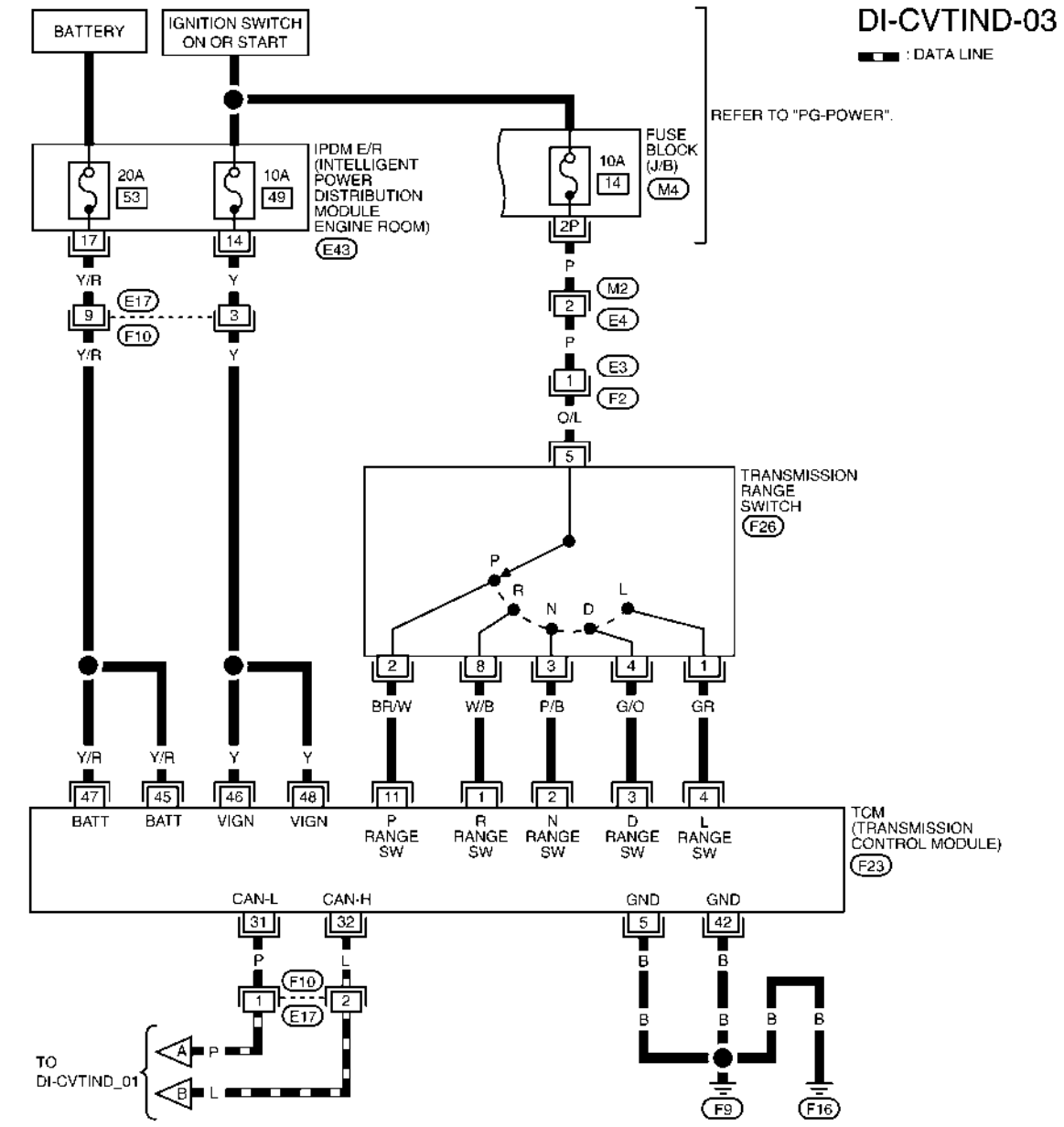
On Board Diagnosis Logic

INFOID:000000005286046

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P0453 0453	EVAP control system pressure sensor high input	An excessively high voltage from the sensor is sent to ECM.	<ul style="list-style-type: none"> • Harness or connectors (EVAP control system pressure sensor circuit is open or sorted.) [Crankshaft position sensor (POS) circuit is shorted.] (Accelerator pedal position sensor circuit is shorted.) (Refrigerant pressure sensor circuit is shorted.) • EVAP control system pressure sensor • Crankshaft position sensor (POS) • Accelerator pedal position sensor • Refrigerant pressure sensor • EVAP canister vent control valve • EVAP canister • Drain filter • Rubber hose to EVAP canister vent control valve

CVT INDICATOR

< SERVICE INFORMATION >



AANWA0179GB

INFOID:000000005283082

CVT Indicator Does Not Illuminate

1. CHECK SEGMENT OF CVT INDICATOR