DTC P2101 ELECTRIC THROTTLE CONTROL FUNCTION

Description

INFOID:0000000004408984

NOTE:
If DTC P2101 is displayed with DTC P2100 or P2119, first perform the trouble diagnosis for DTC P2100 or P2119. Refer to EC-1549 or EC-1564.
Electric throttle control actuator consists of throttle control motor, throttle position sensor, etc.
The throttle control motor is operated by the ECM and it opens and closes the throttle valve.
The current opening angle of the throttle valve is detected by the throttle position sensor. The throttle position sensor provides feedback to the ECM when opens/closes the throttle valve in responce to driving conditions via the throttle control motor.

On Board Diagnosis Logic

INFOID:0000000004408985

This self-diagnosis has the on e trip detection logic.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P2101 2101	Electric throttle control performance	Electric throttle control function does not operate properly.	• Harness or connectors (Throttle control motor circuit is open or shorted) • Electric throttle control actuator

FAIL-SAFE MODE

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

Engine operating condition in fail-safe mode
ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.

DTC Confirmation Procedure

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NOTE:
If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.
TESTING CONDITION:
Before performing the following procedure, confirm that battery voltage is more than 11 V when engine is running.

1. Turn ignition switch ON and wait at least 2 seconds.
2. Start engine and let it idle for 5 seconds.
3. Check DTC.
4. If DTC is detected, go to EC-1555, "Diagnosis Procedure".

Wiring Diagram

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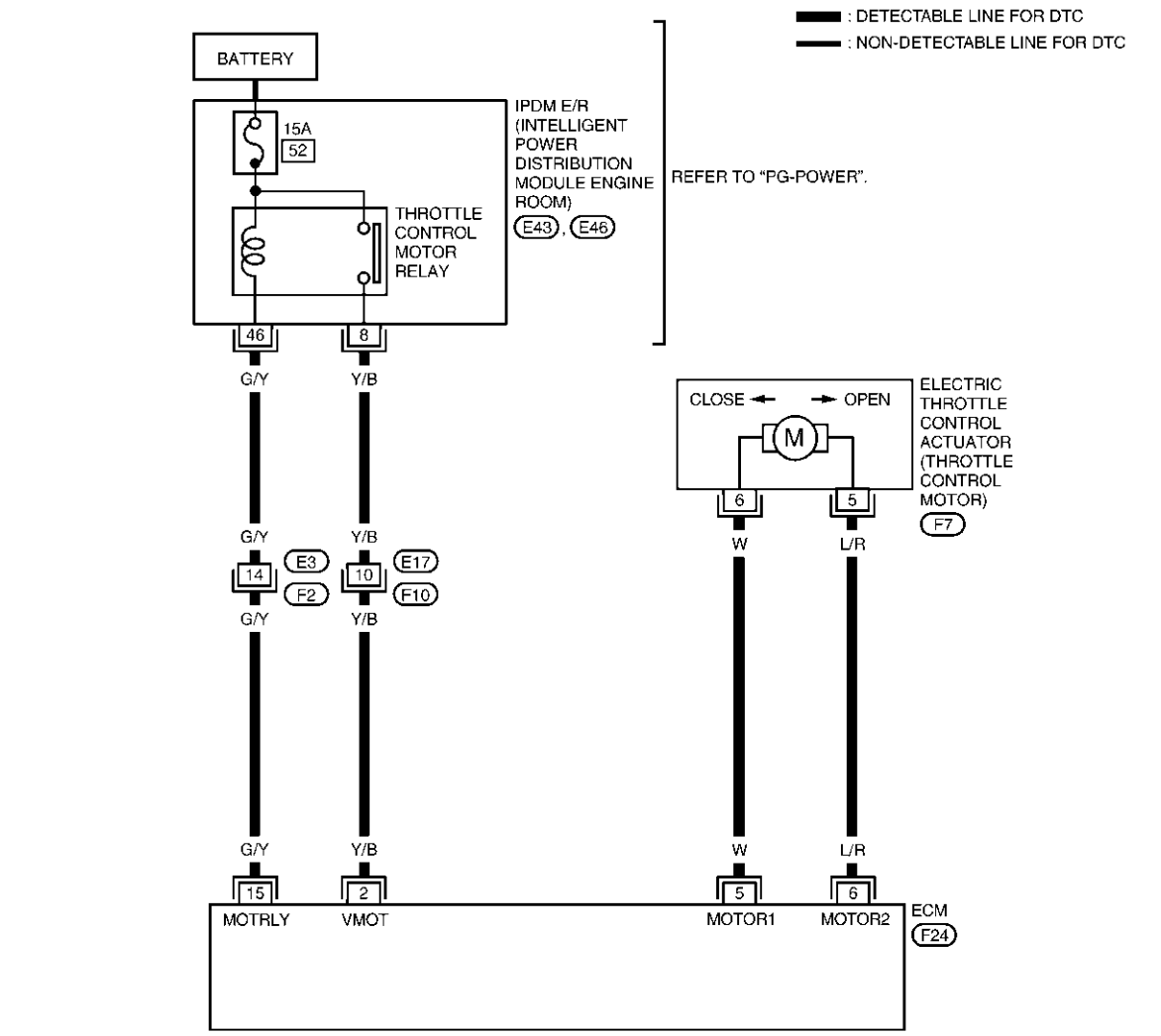
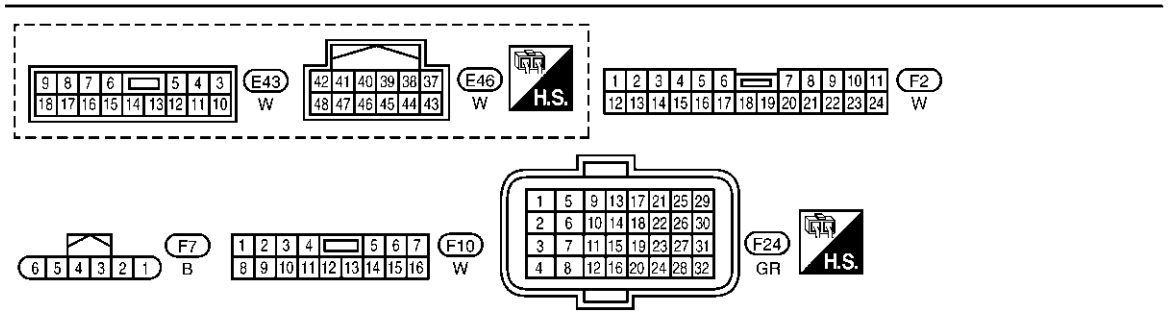
EC-ETC1-01

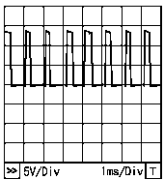
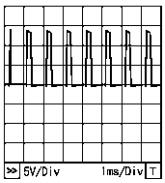




AABWA0269GE

Specification data are reference values and are measured between each terminal and ground.
Pulse signal is measured by CONSULT-III.
CAUTION:

Never use ECM ground terminals wh en measuring input/outp ut voltage. Doing so may result in damage to the ECM's transistor. Use a ground ot her than ECM terminals, such as the ground.

TERMINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
2	Y/B	Throttle control motor power supply	[Ignition switch: ON]	BATTERY VOLTAGE (11 - 14 V)
5	W	Throttle control motor (Open)	[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT), 1st (M/T) • Accelerator pedal: Fully depressed	0 - 14 V★  PBIA8150J
6	L/R	Throttle control motor (Close)	[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT), 1st (M/T) • Accelerator pedal: Fully released	0 - 14 V★  PBIA8149J
15	G/Y	Throttle control motor relay	[Ignition switch: OFF]	BATTERY VOLTAGE (11 - 14 V)
			[Ignition switch: ON]	0 - 1.0 V

★: Average voltage for pulse signal (Actual pulse signal can be confirmed by oscilloscope.)

Diagnosis Procedure

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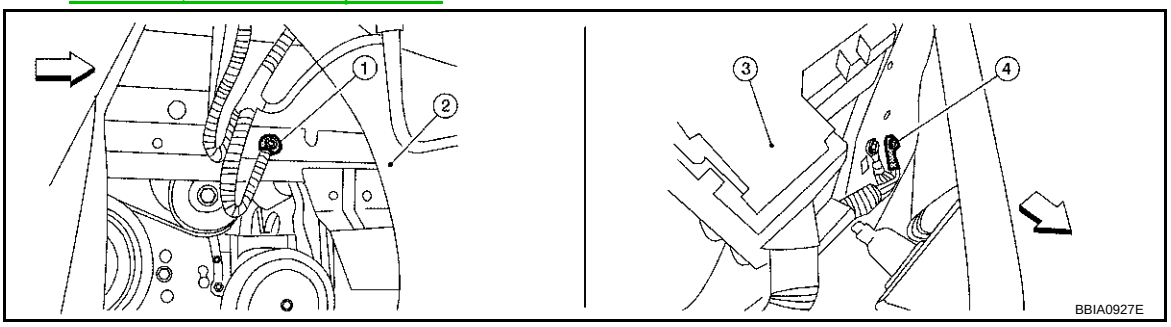
1.CHECK GROUND CONNECTIONS

1. Turn ignition switch OFF.
2. Loosen and retighten ground screws on the body.
   Refer to EC-1218, "Ground Inspection".



⇦: Vehicle front

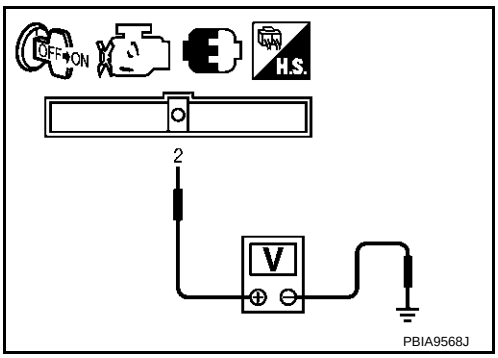
1. Body ground E9 (view with front wheel RH and fender protector RH removed.)
2. Washer tank
3. Fuse and fusible link box
4. Body ground E15

OK or NG

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

2.CHECK THROTTLE CONTROL MOTOR RELAY INPUT SIGNAL CIRCUIT-I

Check voltage between ECM terminal 2 and ground under the following conditions with CONSULT-III or tester.



Ignition switch	Voltage
OFF	Approximately 0 V
ON	Battery voltage (11 - 14 V)

OK or NG

OK >> GO TO 10.
NG >> GO TO 3.

3. CHECK THROTTLE CONTROL MOTOR RELAY INPUT SIGNAL CIRCUIT-II

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector E43.
4. Check continuity between ECM terminal 2 and IPDM E/R terminal 8. 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 5.
NG >> GO TO 4.

4. DETECT MALFUNCTIONING PART

Check the following.
- Harness connectors E17, F10
- Harness for open or short between ECM and IPDM E/R

>> Repair open circuit or short to ground or short to power in harness or connectors.

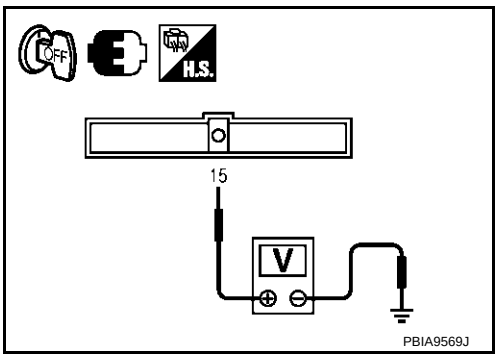
5. CHECK THROTTLE CONTROL MOTOR RELAY POWER SUPPLY CIRCUIT-I

1. Reconnect all harness connectors disconnected.
2. Check voltage between ECM terminal 15 and ground with CONSULT-III or tester.

Voltage: Battery voltage

OK or NG

OK >> GO TO 9.
NG >> GO TO 6.



6. CHECK THROTTLE CONTROL MOTOR RELAY POWER SUPPLY CIRCUIT-II

1. Disconnect ECM harness connector.
2. Disconnect IPDM E/R harness connector E46.
3. Check harness continuity between ECM terminal 15 and IPDM E/R terminal 46. 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 8.
NG >> GO TO 7.

7. DETECT MALFUNCTIONING PART

Check the following.
- Harness connectors E3, F2
- Harness for open or short between ECM and IPDM E/R

>> Repair open circuit or short to ground or short to power in harness or connectors.

8. CHECK FUSE

1. Disconnect 15 A fuse.
2. Check if 15 A fuse is blown.

OK or NG

OK >> GO TO 9.
NG >> Replace 15A fuse.

9. CHECK INTERMITTENT INCIDENT

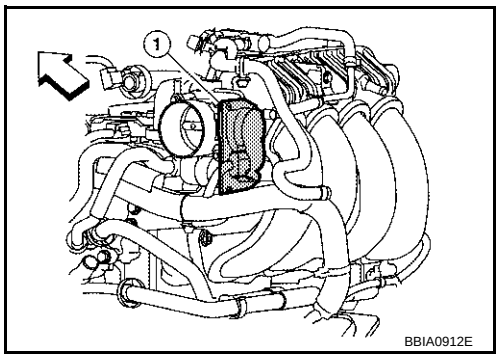
Refer to EC-1212.

OK or NG

OK >> Replace IPDM E/R. Refer to PG-17.
NG >> Repair or replace harness or connectors.

10. CHECK THROTTLE CONTROL MOTOR OUTPUT SIGNAL CIRCUIT FOR OPEN OR SHORT

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator (1) harness connector.
- ⇦: Vehicle front
3. Disconnect ECM harness connector.
4. Check harness continuity between the following terminals. Refer to Wiring Diagram.



Electric throttle control actuator terminal	ECM terminal	Continuity
5	5	Should not exist.
	6	Should exist.
6	5	Should exist.
	6	Should not exist.

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

OK or NG

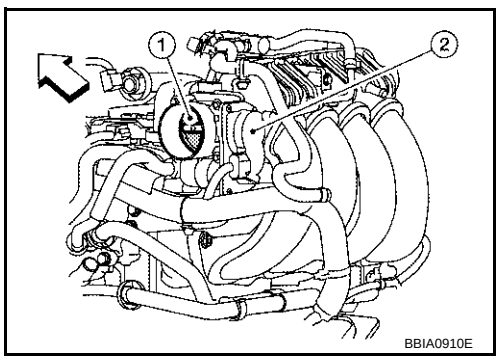
OK >> GO TO 11.
NG >> Repair or replace.

11. CHECK ELECTRIC THROTTLE CONTROL ACTUATOR VISUALLY

1. Remove the intake air duct.
2. Check if foreign matter is caught between the throttle valve (1) and the housing.
- ⇦: Vehicle front
- Electric throttle control actuator (2)

OK or NG

OK >> GO TO 12.
NG >> Remove the foreign matter and clean the electric throttle control actuator inside.



12. CHECK THROTTLE CONTROL MOTOR

Refer to EC-1558, "Component Inspection".

OK or NG

OK >> GO TO 13.
NG >> GO TO 14.

13. CHECK INTERMITTENT INCIDENT

Refer to EC-1212.

OK or NG

OK >> GO TO 14.
NG >> Repair or replace harness or connectors.

14. REPLACE ELECTRIC THROTTLE CONTROL ACTUATOR

1. Replace the electric throttle control actuator.
2. Perform EC-1159, "Throttle Valve Closed Position Learning".
3. Perform EC-1159, "Idle Air Volume Learning".

>> INSPECTION END

Component Inspection

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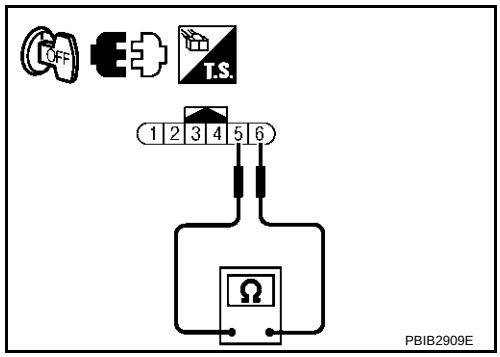
THROTTLE CONTROL MOTOR

1. Disconnect electric throttle control actuator harness connector.
2. Check resistance between terminals 5 and 6.

Resistance: Approximately 1 - 15 Ω [at 25 °C (77°F)]



3. If NG, replace electric throttle control actuator and go to next step.
4. Perform EC-1159, "Throttle Valve Closed Position Learning".
5. Perform EC-1159, "Idle Air Volume Learning".

Removal and Installation

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ELECTRIC THROTTLE CONTROL ACTUATOR

Refer to EM-133.