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PAUL REDEHOFT

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Conversion Calculator

2004 Nissan-Datsun Truck Quest V6-3.5L (VQ35)

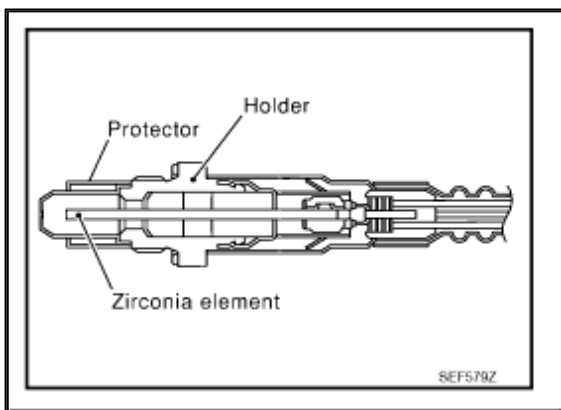
[Vehicle Level](#) → [Powertrain Management](#) → [Computers and Control Systems](#) → [Testing and Inspection](#)
 → [Diagnostic Trouble Code Tests and Associated Procedures](#) → [P Code Charts](#) → **P1273** ←

P1273

[Notes](#)

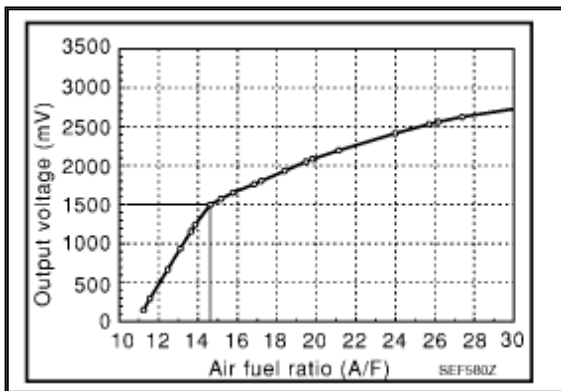
DTC P1273 A/F SENSOR 1

Component Description



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The A/F sensor is a planar dual-cell limit current sensor. The sensor element of the A/F sensor is the combination of a Nernst concentration cell (sensor cell) with an oxygen-pump cell, which transports ions. It has a heater in the element.

The sensor is capable of precise measurement $\lambda = 1$, but also in the lean and rich range. Together with its control electronics, the sensor outputs a clear,

continuous signal throughout a wide lambda range ($0.7 < \lambda < \text{air}$).

The exhaust gas components diffuse through the diffusion gap at the electrode of the oxygen pump and Nernst concentration cell, where they are brought to thermodynamic balance.

An electronic circuit controls the pump current through the oxygen-pump cell so that the composition of the exhaust gas in the diffusion gap remains constant at $\lambda = 1$. Therefore, the A/F sensor is able to indicate air/fuel ratio by this pumping of current. In addition, a heater is integrated in the sensor to ensure the required operating temperature of **700 - 800 °C (1,292 - 1,472 °F)**.

CONSULT-II Reference Value In Data Monitor Mode			
CONSULT-II Reference Value in Data Monitor Mode			<small>(ALISUGARD)</small>
Specification data are reference values.			
MONITOR ITEM	CONDITION		SPECIFICATION
A/F SEN1 (B1) A/F SEN1 (B2)	● Engine: After warming up	Maintaining engine speed at 2,000 rpm	Fluctuates around 1.5V

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CONSULT-II Reference Value in Data Monitor Mode

On Board Diagnosis Logic			
On Board Diagnosis Logic			<small>(ALISUGARD)</small>
To judge the malfunction, the A/F signal computed by ECM from the air fuel ratio (A/F) sensor 1 signal is monitored not to be shifted LEAN side or RICH side.			
DTC No.	Trouble diagnosis name	DTC detecting condition	Possible Cause
P1273 1273 (Bank 1)	Air fuel ratio (A/F) sensor 1 lean shift monitoring	● The output voltage computed by ECM from the A/F sensor 1 signal is shifted to the lean side for a specified period.	<ul style="list-style-type: none"> ● Air fuel ratio (A/F) sensor 1 ● Air fuel ratio (A/F) sensor 1 heater ● Fuel pressure ● Injectors ● Intake air leaks
P1283 1283 (Bank 2)			

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On Board Diagnosis Logic

DTC Confirmation Procedure

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.

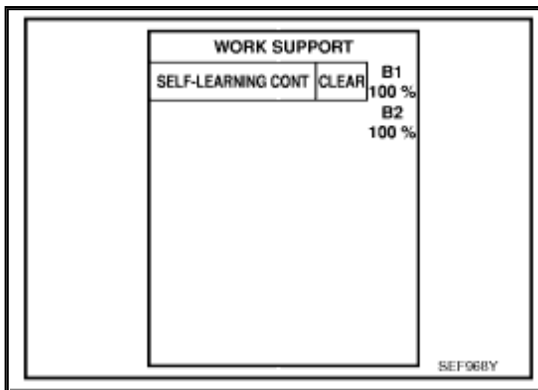
TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than **11 V** at idle.

WITH CONSULT-II

1. Start engine and warm it up to normal operating temperature.

2. Turn [ignition switch](#) OFF and wait at least **10 seconds** .
3. Turn [ignition switch](#) ON and select "SELF-LEARNING CONT" in "WORK SUPPORT" mode with CONSULT-II.



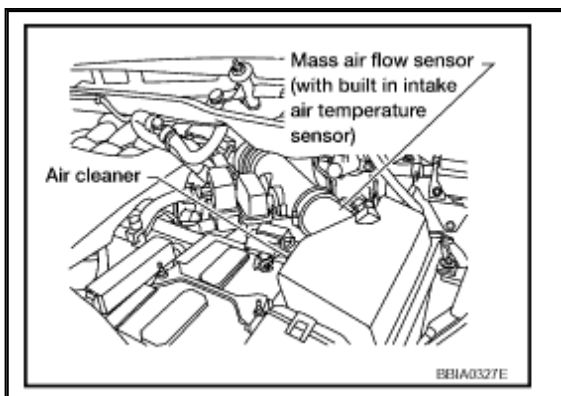
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4. Clear the self-learning coefficient by touching "CLEAR".
5. Turn [ignition switch](#) OFF and wait at least **10 seconds** .
6. Start engine and keep the engine speed between **3,500 rpm** and **4,000 rpm** for **1 minute** under no load.
7. Let engine idle for **1 minute** .
8. Keep engine speed between **2,500 rpm** and **3,000 rpm** for **13 minutes** .
9. If 1st trip DTC is detected, go to "Diagnostic Procedure".

WITH GST

1. Start engine and warm it up to normal operating temperature.
2. Turn [ignition switch](#) OFF and wait at least **10 seconds** .

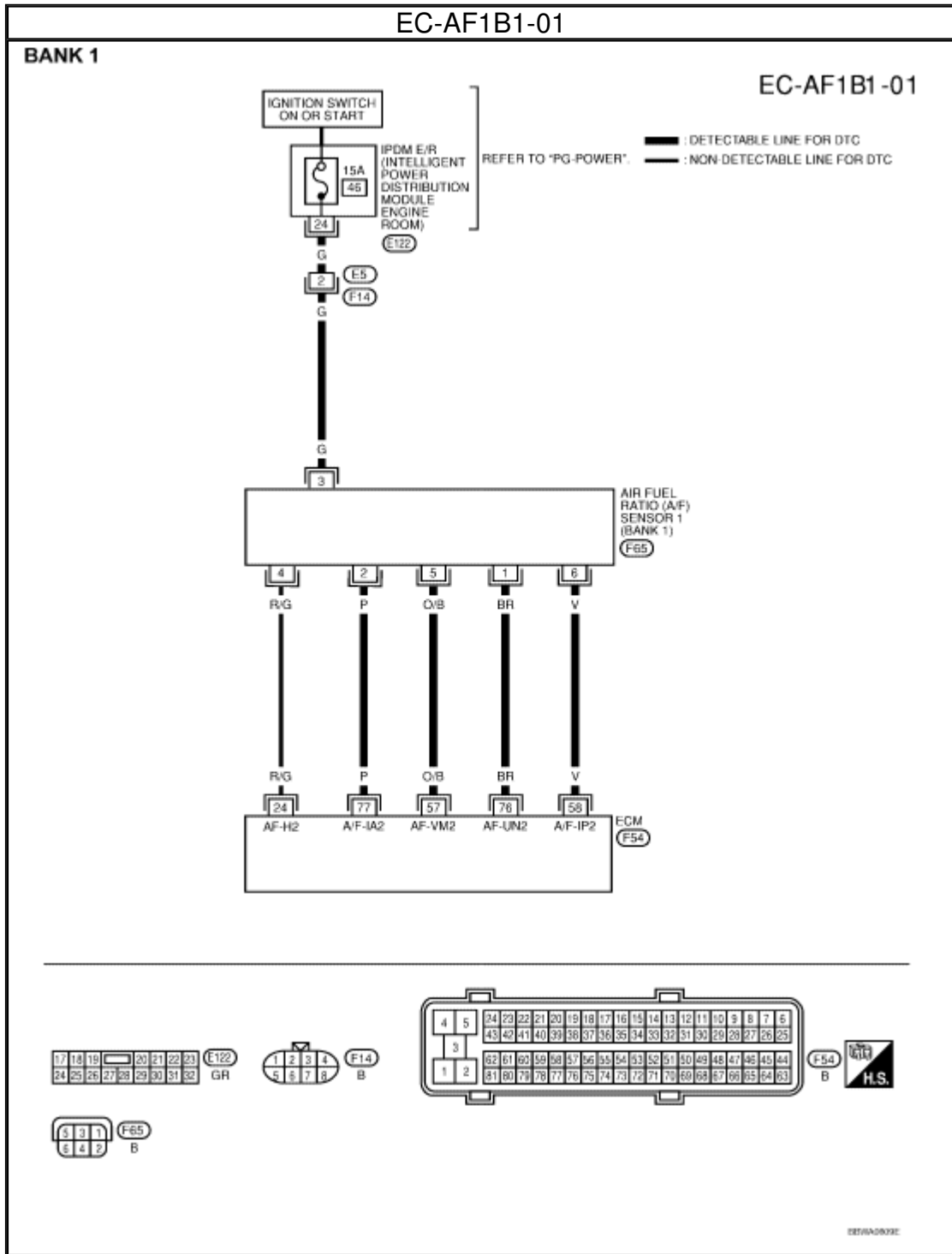


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3. Disconnect mass air flow sensor harness connector.
4. Start engine and let it idle for at least **5 seconds** .
5. Stop engine and reconnect mass air flow sensor harness connector.
6. Select MODE 3 with GST and make sure that DTC P0102 is detected.
7. Select MODE 4 with GST and erase the DTC P0102.

8. Start engine and keep the engine speed between **3,500 rpm** and **4,000 rpm** for **1 minute** under no load.
9. Let engine idle for **1 minute**.
10. Keep engine speed between **2,500 rpm** and **3,000 rpm** for **13 minutes**.
11. Select MODE 7 with GST. If 1st trip DTC is detected, go to "Diagnostic Procedure"



Zoom

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Specification data are reference values and are measured between each terminal 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.

TERMI- NAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
57	O/B	A/F sensor 1 (Bank 1)	[Engine is running] ● Warm-up condition ● Idle speed	Approximately 2.6V
58	V			Approximately 2.3V
76	BR			Approximately 3.1V
77	P			Approximately 2.3V

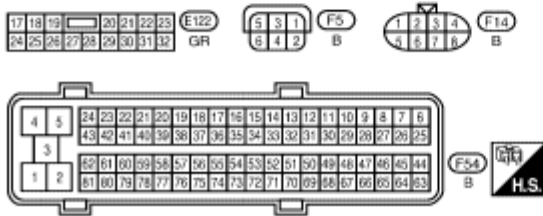
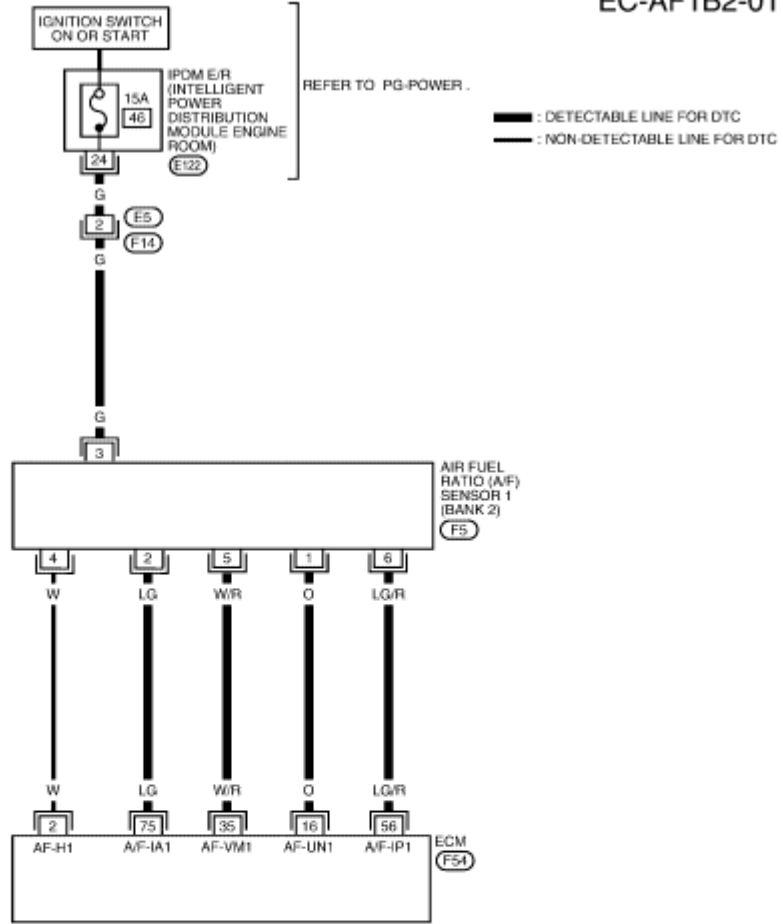
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EC-AF1B2-01

BANK 2

EC-AF1B2-01



BEWAARDE

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Specification data are reference values and are measured between each terminal 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.

TERMI- NAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage)
16	O	A/F sensor 1 (Bank 2)	[Engine is running] ● Warm-up condition ● Idle speed	Approximately 3.1V
35	W/R			Approximately 2.6V
56	LG/R			Approximately 2.3V
75	LG			Approximately 2.3V

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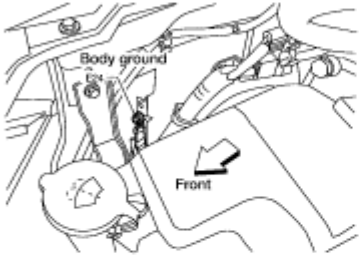
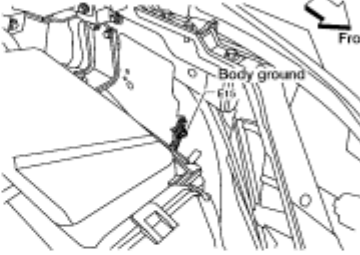
Wiring Diagram

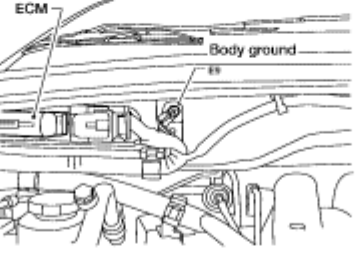
Diagnostic Procedure (Step 1)

Diagnostic Procedure L05534187

1. CHECK GROUND CONNECTIONS

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



OK or NG

OK >> GO TO 2.

NG >> Repair or replace ground connections.

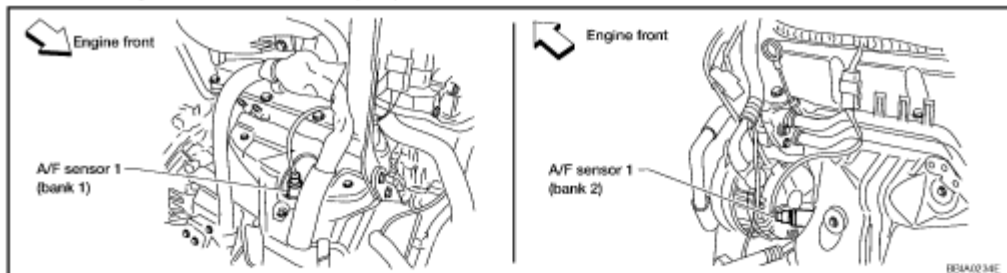
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Diagnostic Procedure (Steps 2 - 3)

2. RETIGHTEN AIR FUEL RATIO (A/F) SENSOR 1

Loosen and retighten the air fuel ratio (A/F) sensor 1.



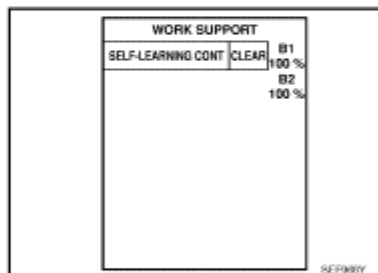
Tightening torque: 40 - 60 N-m (4.1 - 6.1 kg-m, 30 - 44 ft-lb)

>> GO TO 3.

3. CLEAR THE SELF-LEARNING DATA.

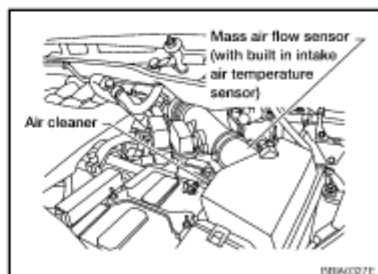
Ⓜ With CONSULT-II

1. Start engine and warm it up to normal operating temperature.
2. Select "SELF-LEARNING CONT" in "WORK SUPPORT" mode with CONSULT-II.
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 P0171 or P0174 detected?
Is it difficult to start engine?



⊗ Without CONSULT-II

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF.
3. Disconnect mass air flow sensor harness connector.
4. Restart engine and let it idle for at least 3 seconds.
5. Stop engine and reconnect mass air flow sensor harness connector.
6. Make sure DTC P0102 is displayed.
7. Erase the DTC memory.
8. Make sure DTC P0000 is displayed.
9. Run engine for at least 10 minutes at idle speed.
Is the 1st trip DTC P0171 or P0174 detected?
Is it difficult to start engine?



Yes or No

- Yes >> Perform trouble diagnosis for DTC P0171 or P0174.
- No >> GO TO 4.

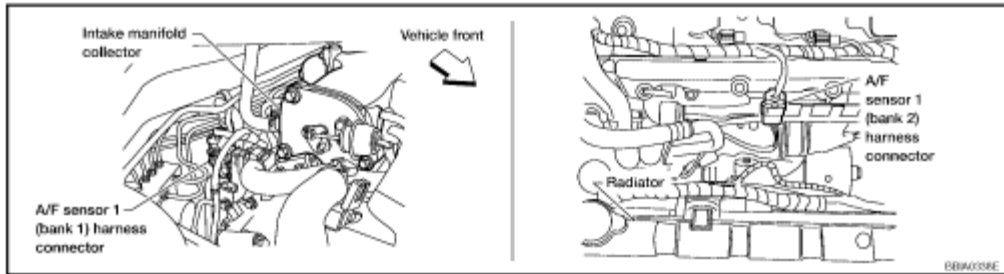
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Diagnostic Procedure (Steps 4 - 5)

4. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect air fuel ratio (A/F) sensor 1 harness connector.

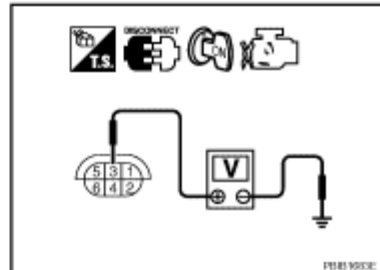


3. Turn ignition switch ON.
4. Check voltage between A/F sensor 1 terminal 3 and ground with CONSULT-II or tester.

Voltage: Battery voltage

OK or NG

- OK >> GO TO 6.
NG >> GO TO 5.



5. DETECT MALFUNCTIONING PART

Check the following.

- Harness connectors E5, F14
- IPDM E/R harness connector M4
- 15A fuse
- Harness for open or short between A/F sensor 1 and fuse

>> Repair or replace harness or connectors.

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Diagnostic Procedure (Steps 6 - 8)

6. CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check harness continuity between the following terminals.
Refer to Wiring Diagram.

Bank 1		Bank 2	
ECM terminal	A/F sensor 1 terminal	ECM terminal	A/F sensor 1 terminal
76	1	16	1
57	5	35	5
58	6	56	6
77	2	75	2

Continuity should exist.

4. Check harness continuity between the following terminals and ground.
Refer to Wiring Diagram.

Bank 1		Bank 2	
ECM terminal	A/F sensor 1 terminal	ECM terminal	A/F sensor 1 terminal
76	1	16	1
57	5	35	5
58	6	56	6
77	2	75	2

Continuity should not exist.

5. Also check harness for short to power.

OK or NG

OK >> GO TO 7.

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

7. CHECK A/F SENSOR 1 HEATER

Refer to "Component Inspection".

OK or NG

OK >> GO TO 8.

NG >> Replace A/F sensor 1.

8. CHECK INTERMITTENT INCIDENT

Perform "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT".

OK or NG

OK >> Replace A/F sensor 1.

NG >> Repair or replace.

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Diagnostic Procedure