

<b>DTC</b>	<b>25</b>	<b>Air-Fuel Ratio Lean Malfunction</b>
	<b>26</b>	<b>Air-Fuel Ratio Rich Malfunction</b>

**— CIRCUIT DESCRIPTION —**

Refer to page [EG-556](#) for the circuit description.

DTC No.	DTC Detecting Condition	Trouble Area
25 . 26	(1) Main heated oxygen sensor voltage is 0.45 V or less (lean) for 90 sec under conditions (a) and (b). (2 trip detection logic) *1  (a) Engine coolant temp: 70°C (158 °F) or more. (b) Engine speed: 1,500 rpm or more.	<ul style="list-style-type: none"> <li>•Open or short in main heated oxygen sensor circuit.</li> <li>•Main heated oxygen sensor/ignition system</li> <li>•Engine coolant temp. sensor</li> </ul>
	(2) Main heated oxygen sensor voltage is alternating above and below 0.45 V at 5 times per second or more under conditions (a) and (b). (2 trip detection logic) *1  (a) Engine speed: Idling (b) Engine coolant temp.: Between 60°C (140°F) and 95°C (203°F)	<ul style="list-style-type: none"> <li>•Open or short in injector circuit.</li> <li>•Fuel line pressure (injector blockage)</li> <li>•Volume air flow meter (air intake)</li> <li>•Engine ground bolt loose</li> <li>•Foreign object caught in valve</li> </ul>
	(3) Difference of air-fuel ratio feedback compensation value between right and left banks in more than 10 percentage for 30 sec. or more under conditions (a) and (b). (2 trip detection logic) *1  (a) Engine speed: 2,000 rpm or more. (b) Engine coolant temp.: Between 60°C (140°F) and 95°C (203°F)	<ul style="list-style-type: none"> <li>•Fuel line pressure (injector leak, blockage)</li> <li>•Mechanical system malfunction (skipping teeth of timing belt)</li> <li>•Ignition system</li> </ul>

\*1: See page [EG-515](#).

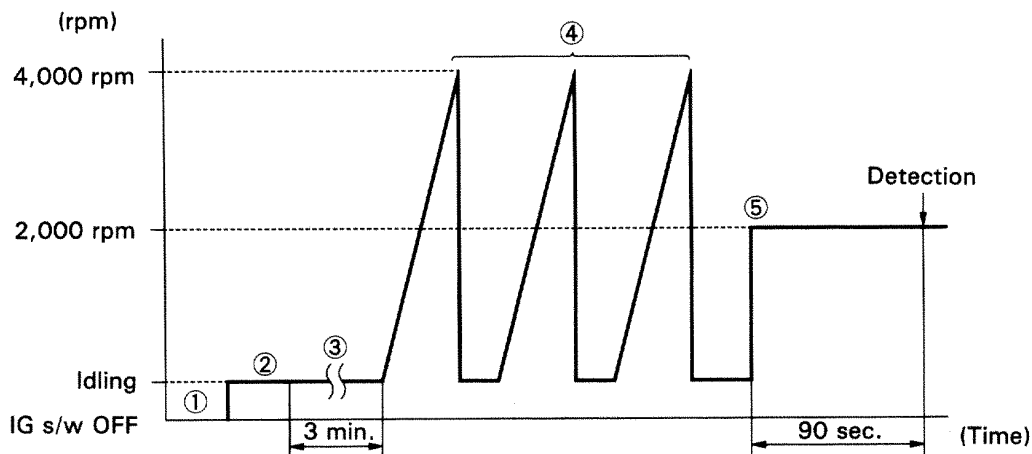
## CIRCUIT DESCRIPTION (Cont'd)

### DIAGNOSTIC TROUBLE CODE DETECTION DRIVING PATTERN

Purpose of the driving pattern.

- To simulate diagnostic trouble code detecting condition after diagnostic trouble code is recorded.
- To check that the malfunction is corrected when the repair is completed confirming that diagnostic trouble code is no longer detected.

#### Malfunction: Open or Short in Main Heated Oxygen Sensor



FI6465

**HINT:** Before this test, check the feedback voltage for oxygen sensor.

- Disconnect the EFI fuse (20A) for 10 sec. or more with IG switch OFF. Initiate test mode (Connect terminal TE2 and E1 of data link connector 1 or 2 with IG switch OFF).
- Start engine and warm up.
- After engine is warmed up, let it idle for 3 min.
- Perform quick racing to 4,000 rpm three times by accelerator pedal.
- After performing the racing in ④, perform racing at 2,000 rpm for 90 sec.

**HINT:** If a malfunction exists, the malfunction indicator lamp will light up during step ④.

**NOTICE:** If the conditions in this test are not strictly followed, detection of the malfunction will not be possible.

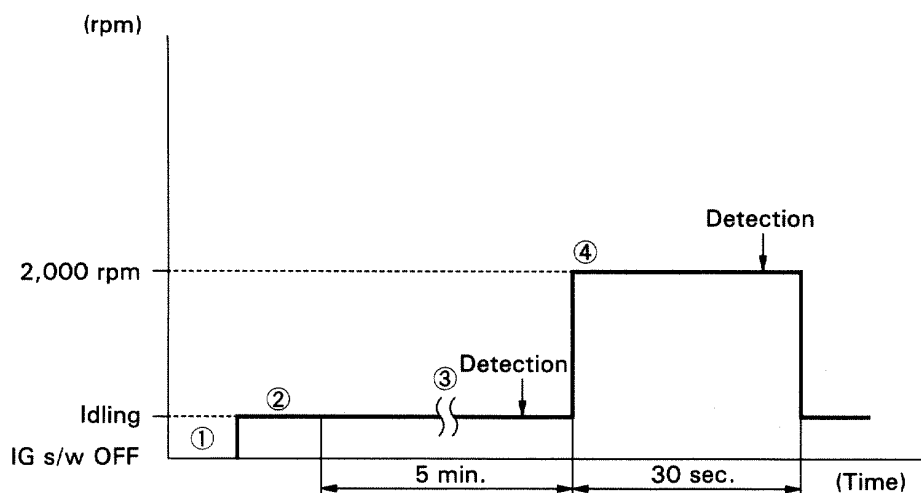
## CIRCUIT DESCRIPTION (Cont'd)

### DIAGNOSTIC TROUBLE CODE DETECTION DRIVING PATTERN

Purpose of the driving pattern.

- (a) To simulate diagnostic trouble code detecting condition after diagnostic trouble code is recorded.
- (b) To check that the malfunction is corrected when the repair is completed confirming that diagnostic trouble code is no longer detected.

**Malfunction: Open or Short in Injector Circuit, Injector Leak or Blockage, Loose E/G Earth Bolt.**



FI6463

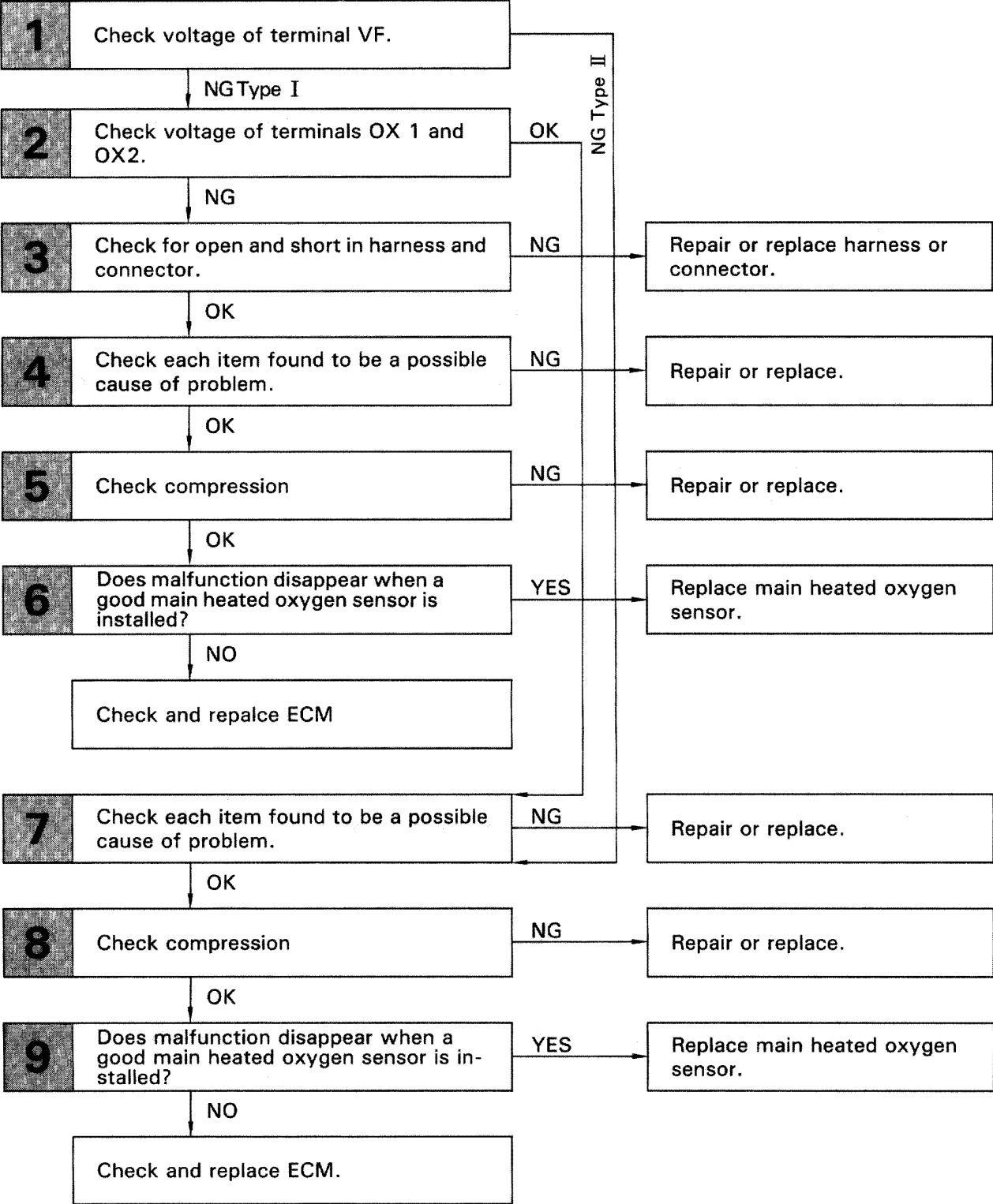
**HINT:** Before this test, check the feedback voltage for oxygen sensor.

- ① Disconnect the EFI fuse (20A) for 10 sec. or more, with IG switch OFF. Initiate test mode (Connect terminal TE2 and E1 of data link connector 1 or 2 with IG switch OFF).
- ② Start engine and warm up.
- ③ After engine is warmed up, let it idle for 5 min. (After the engine is started, do not depress the accelerator pedal.)
- ④ If the malfunction is not detected during idling, perform racing without any load at approx. 2,000 rpm for 30 sec.

**HINT:** If a malfunction exists, the malfunction indicator lamp will light up during step ④.

**NOTICE:** If the conditions in this test are not strictly followed, detection of the malfunction will not be possible.

DIAGNOSTIC CHART

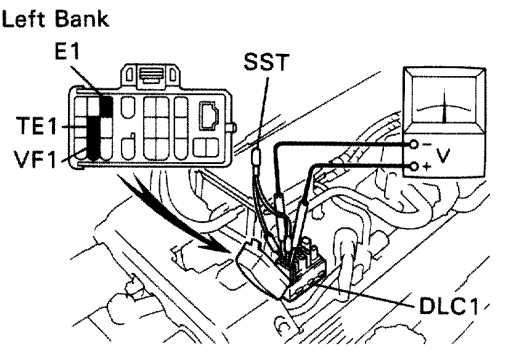


WIRING DIAGRAM

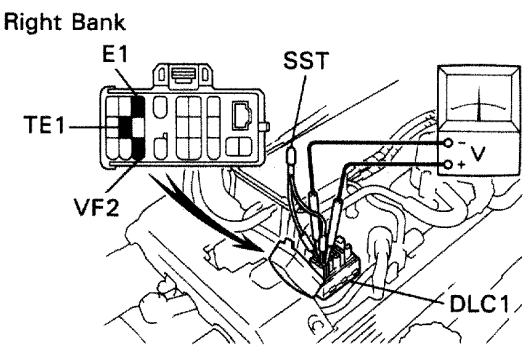
Refer to page EG-556 for the WIRING DIAGRAM.

**1 Check voltage between terminals VF1, VF2 and E1 of data link connector 1.**

**Left Bank**



**Right Bank**



PO9206  
PO9207

**P**

1. Warm up engine to normal operating temperature.
2. Using SST, connect terminals TE1 and E1 of data link connector 1  
SST 09843-18020
3. Using SST, connect positive probe to terminals VF1, VF2 and negative probe to terminal E1 of data link connector 1.  
SST09843-18020

**C**

1. Warm up the oxygen sensor by running engine at 2,500 rpm for about 2 minutes.
2. Then, maintaining engine at 2,500 rpm, count how many times needle of voltmeter fluctuates between 0 and 5 V.

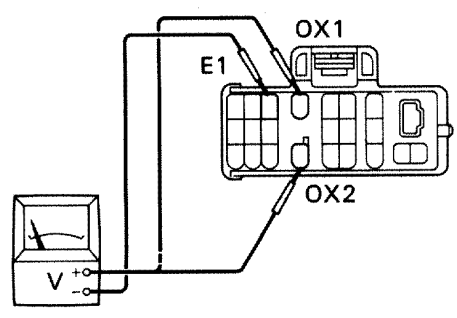
**RESULT:**

Result	
Needle fluctuates 8 times for every ten seconds	OK
Continue at 0 V	NG Type I
Continue at 5 V	NG Type II

**NG**  
Type I

**NG**  
Type II Go to step 7.

**2 Check voltage between terminals OX1, OX2, and E1 of data link connector 1.**



F16481

**P** Warm up engine to normal operating temperature.

**C** Measuring voltage between terminals OX1, OX2 and E1 of data link connector 1 when engine is suddenly raced to full throttle.

**OK** The voltage should be 0.5 V or higher at least once.

**Hint** Perform inspection within 1 second.

**NG**

**OK** Go to step 7.

**3** Check for open and short in harness and connector between engine control module and main heated oxygen sensor, engine control module and data link connector 1 (See page [IN-34](#)).

**OK**

**NG**

Repair or replace harness or connector.

**4** Check each item found to be a possible cause of problem.

Check each circuit found to be a possible cause of trouble according to the results of the check in **1** or **2**. The numbers in the table below show the order in which the checks should be performed.

Main heated oxygen sensor signal from either side continues at 0 V.	Main heated oxygen sensor signals from both sides continue at 0 V.	Possible Cause	See page
1		Faulty sensor installation.	-
3		Injector circuit	EG-628
2	3	Misfire	IG-7
4		Valve timing	EG-69
	1	Air leakage	EG-292
	2	Fuel system	EG-610
	6	Characteristics deviation in volume air flow meter.	EG-578
	4	Characteristics deviation in engine coolant temp. sensor.	EG-560
	5	Characteristics deviation in intake air temp. sensor.	EG-564

**OK**

**NG**

Repair or replace.

**5** Check compression (See page [EG-43](#)).

**OK**

**NG**

Repair or replace.

**6** Does malfunction disappear when a good main heated oxygen sensor is installed?


**NO**

**YES**

Replace main heated oxygen sensor.

Check and replace engine control module.

**7** Check each item found to be a possible cause of problem.

Check each circuit found to be a possible cause of trouble according to the results of the check in . The numbers in the table below show the order in which the checks should be performed.

Main heated oxygen sensor signal from either side continues at 5.0 V	Main heated oxygen sensor signals from both sides continue at 5.0 V	Main heated oxygen sensor signals from both sides are normal.	Possible Cause	See page
1		7	Injector circuit	EG-628
		3	Misfire	IG-7
2		4	Valve timing	EG-69
		1	Air leakage	EG-292
	1	2	Fuel system	EG-610
	4	8	Characteristics deviation in volume air flow meter.	EG-578
	2	5	Characteristics deviation in engine coolant temp. sensor.	EG-560
	3	6	Characteristics deviation in intake air temp. sensor.	EG-564

**OK**

**NG** Repair or replace.

**8** Check compression (See page [EG-43](#)).

**OK**

**NG** Repair or replace.

**9** Does malfunction disappear when a good main heated oxygen sensor is installed?

**NO**

**YES** Replace main heated oxygen sensor.

Check and replace engine control module.