

DTC	P0420	Catalyst System Efficiency Below Threshold (Bank 1)
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DTC	P0430	Catalyst System Efficiency Below Threshold (Bank 2)
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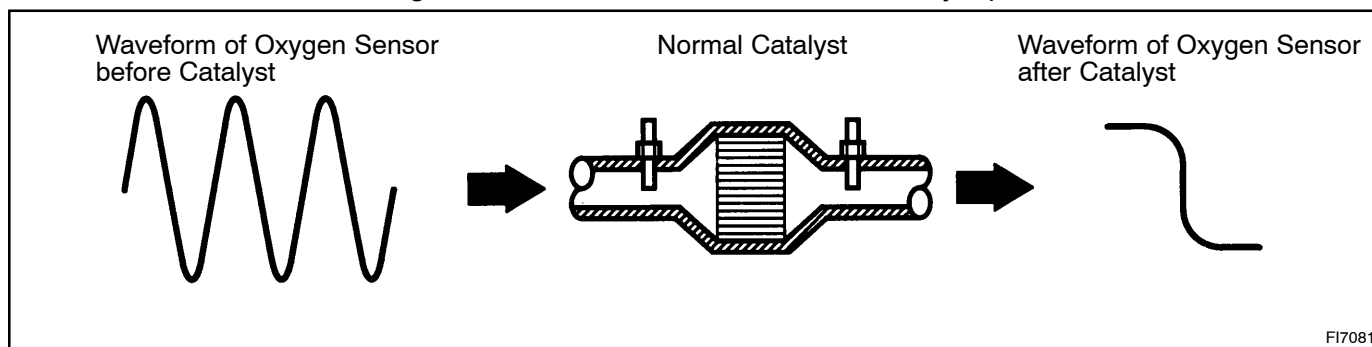
CIRCUIT DESCRIPTION

The ECM compares the waveform of the oxygen sensor located before the catalyst with the waveform of the oxygen sensor located after the catalyst to determine whether or not catalyst performance has deteriorated.

Air–fuel ratio feedback compensation keeps the waveform of the oxygen sensor before the catalyst repeatedly changing back and forth from rich to lean.

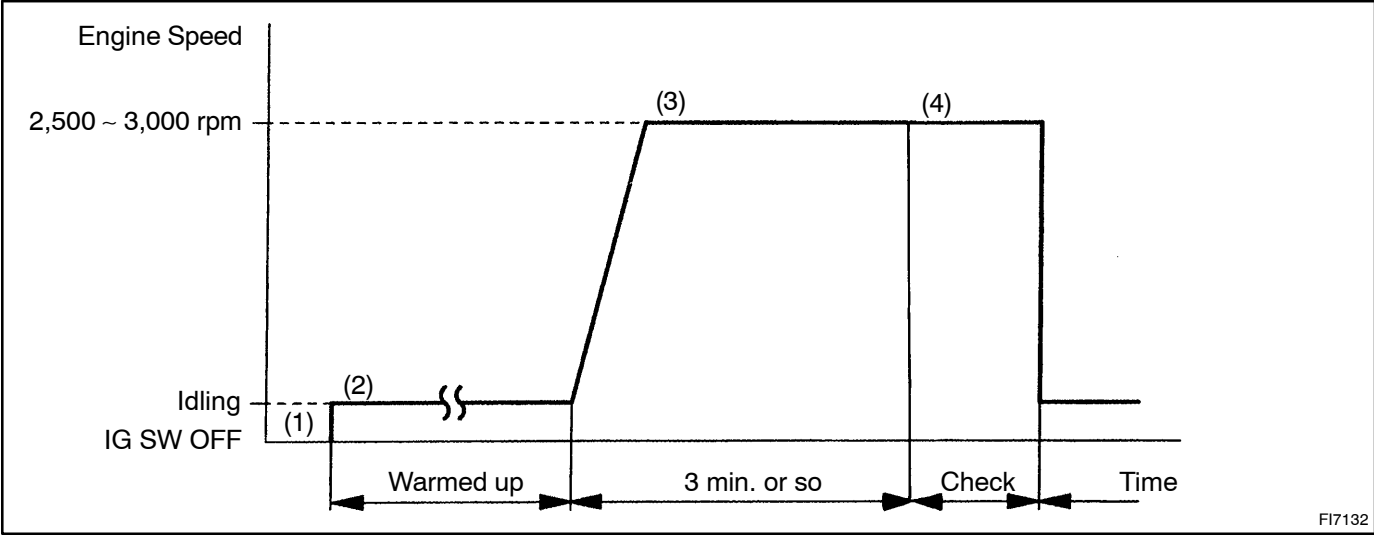
If the catalyst is functioning normally, the waveform of the oxygen sensor after the catalyst switches back and forth between rich and lean much more slowly than the waveform of the oxygen sensor before the catalyst.

But when both waveform change at a similar rate, it indicates that catalyst performance has deteriorated.

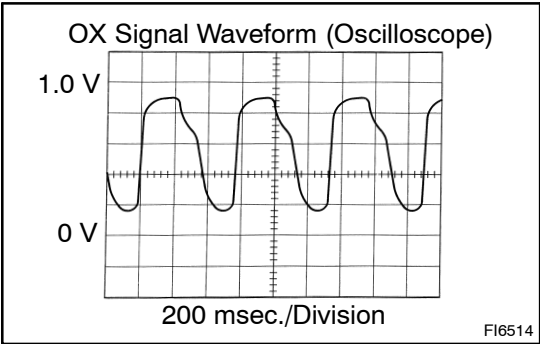


DTC No.	DTC Detecting Condition	Trouble Area
P0420	Bank 1 catalyst deterioration level exceeds malfunction threshold while vehicle is being driven under specified conditions (2 trip detection logic).	• Gas leakage on exhaust system • Heated oxygen sensor • LH front exhaust pipe (front and rear catalysts)
P0430	Bank 2 catalyst deterioration level exceeds malfunction threshold while vehicle is being driven under specified conditions (2 trip detection logic).	• Gas leakage on exhaust system • Heated oxygen sensor • RH front exhaust pipe (front and rear catalysts)

CONFIRMATION ENGINE RACING PATTERN



- (1) Connect the TOYOTA hand-held tester to the DLC3, or connect the probe of the oscilloscope between terminals OXL1, OXL2, OXR1, OXR2 and E1 of the ECM connector.
- (2) Start the engine and warm it up with all the accessories switched OFF until the engine coolant temperature is stable.
- (3) Race the engine at 2,500 – 3,000 rpm for about 3 min.
- (4) After confirming that the waveform of the heated oxygen sensor (bank 1, 2 sensor 1 (OXL1, OXR1)), oscillate around 0.5 V during feedback to the ECM, check the waveform of the heated oxygen sensor (bank 1, 2 sensor 2 (OXL2, OXR2)).



HINT:
If there is a malfunction in the system, the waveform of the heated oxygen sensor (bank 1, 2 sensor 2 (OXL2, OXR2)) is almost the same as that of the heated oxygen sensor (bank 1, 2 sensor 1 (OXL1, OXR1)) on the left.
There are some cases where, even though a malfunction exists, the MIL may either light up or not light up.

INSPECTION PROCEDURE

HINT:
Read freeze frame data using TOYOTA hand-held tester or OBD II scan tool. Because freeze frame records the engine conditions when the malfunction is detected. When troubleshooting it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air-fuel ratio was lean or rich, etc. at the time of the malfunction.

1	Are there any other codes (besides DTC P0420 or P0430) being output?
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YES

Go to relevant DTC chart (See page [DI-15](#)).

NO

2	Check gas leakage on exhaust system.
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NG

Repair or replace.

OK

3	Check heated oxygen sensors (bank 1, 2 sensor 1) (See page DI-52).
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NG

Repair or replace.

OK

4	Check heated oxygen sensors (bank 1, 2 sensor 2) (See page DI-61).
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NG

Repair or replace.

OK

Replace front and rear catalysts (See page [EC-9](#)).

If DTC P0420 is present, replace the LH front exhaust pipe (front and rear catalysts).

If DTC P0430 is present, replace the RH front exhaust pipe (front and rear catalysts).