DTC	P0420	CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 1)

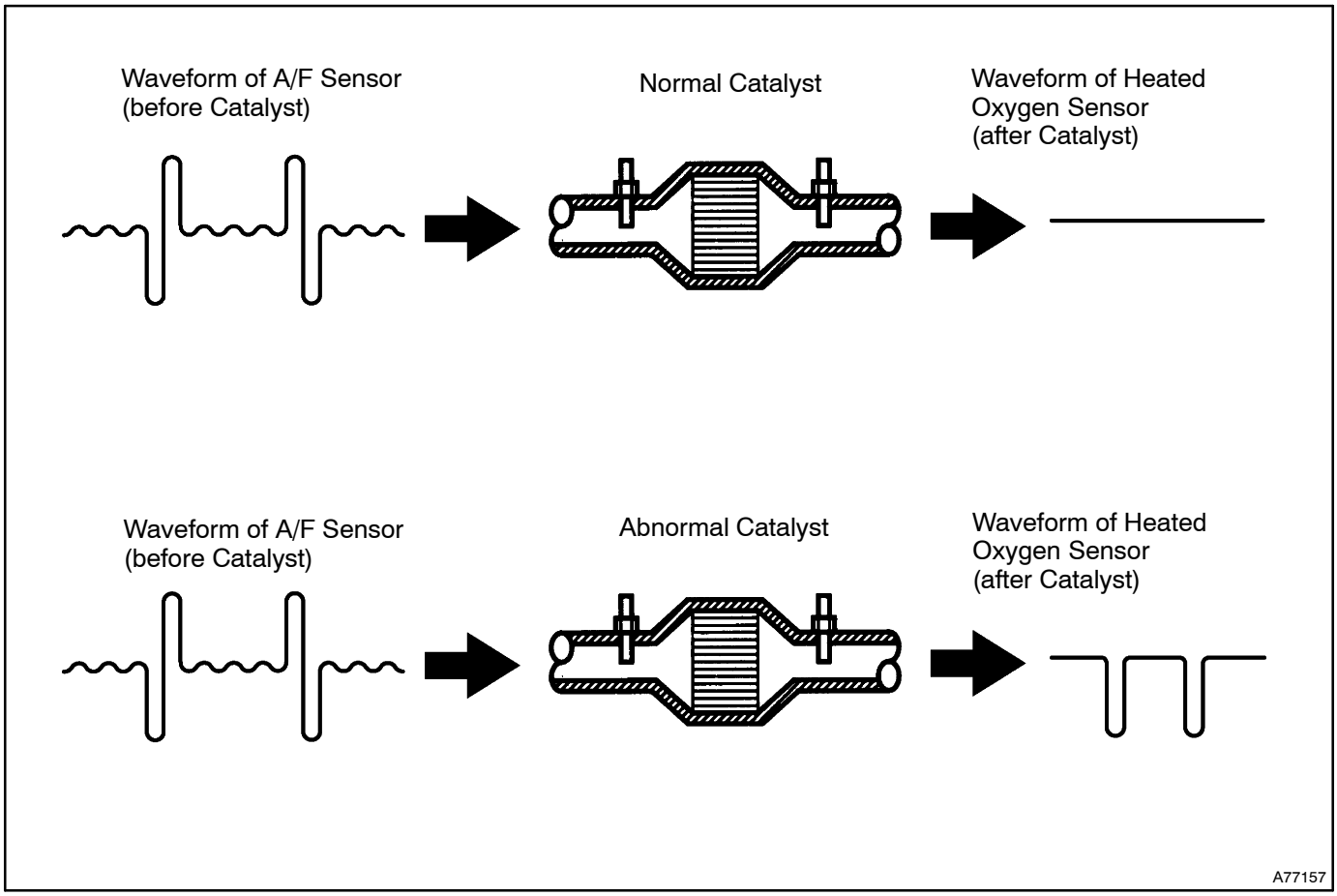
DTC	P0430	CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 2)

CIRCUIT DESCRIPTION

The ECM observes the waveform of the heated oxygen sensor located behind the catalyst to determine whether the catalyst performance has deteriorated.

If the catalyst is functioning normally, the waveform of the heated oxygen sensor located behind the catalyst switches back and forth between rich and lean much more slowly.

When the waveform of the heated oxygen sensor located behind the catalyst alternates frequently between rich and lean, it indicates that catalyst performance has deteriorated.

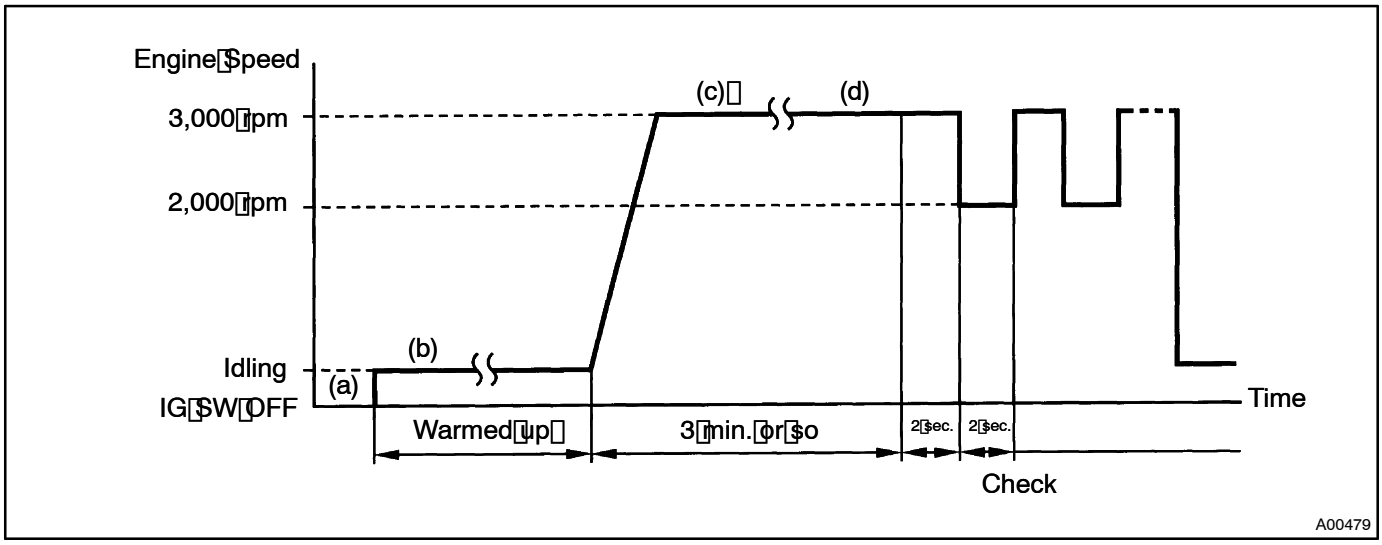


DTC No.	DTC Detecting Condition	Trouble Area
P0420	After engine and catalyst are warmed up, and while vehicle is driven within set vehicle and engine speed range, waveform of heated oxygen sensor (bank 1 sensor 2) alternates frequently between rich and lean (2 trip detection logic)	• Gas leakage in exhaust system • A/F sensor (bank 1 sensor 1) • Heated oxygen sensor (bank 1 sensor 2) • Three–way catalytic converter (Exhaust manifold)
P0430	After engine and catalyst are warmed up, and while vehicle is driven within set vehicle and engine speed range, waveform of heated oxygen sensor (bank 2 sensor 2) alternates frequently between rich and lean (2 trip detection logic)	• Gas leakage in exhaust system • A/F sensor (bank 2 sensor 1) • Heated oxygen sensor (bank 2 sensor 2) • Three–way catalytic converter (Exhaust manifold)

HINT:

- Bank 1 refers to the bank that includes cylinder No.1.
- Bank 2 refers to the bank that does not include cylinder No.1.
- Sensor 1 refers to the sensor closest to the engine assembly.
- Sensor 2 refers to the sensor farthest away from the engine assembly.

CONFIRMATION ENGINE RACING PATTERN



(a) Connect the hand–held tester to the DLC3.
(b) Start engine and warm it up with all the accessories switched OFF until the water temperature is stable.
(c) Race the engine at 2,500 to 3,000 rpm for about 3 min.
(d) When racing the engine at 3,000 rpm for 2 sec. and 2,000 rpm for 2 sec. alternately, check the waveform of the oxygen sensor (bank 1 sensor 2).

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester, as freeze frame data records the engine conditions when a 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	CHECK OTHER DTC OUTPUT (BESIDES DTC P0420 AND/OR P0430)

(a) Read the DTC using the hand–held tester.

Result:

Display (DTC output)	Proceed to
Only ”P0420 and/or P0430” are output	A
”P0420 or P0430” and other DTCs are output	B

HINT:

If any other codes besides ”P0420 and/or P0430” are output, perform the troubleshooting for those DTCs first.

B → **GO TO RELEVANT DTC CHART** (See page 05–22)

A

2	CHECK FOR EXHAUST GAS LEAKAGE

NG → REPAIR OR REPLACE EXHAUST GAS LEAKAGE POINT

OK

3	INSPECT AIR FUEL RATIO SENSOR (BANK 1, 2 SENSOR 1) (See page 05–182)

NG → REPLACE AIR FUEL RATIO SENSOR

OK

4	INSPECT HEATED OXYGEN SENSOR (BANK 1, 2 SENSOR 2) (See page 05–81)

NG → REPLACE HEATED OXYGEN SENSOR

OK

REPLACE THREE–WAY CATALYTIC CONVERTER