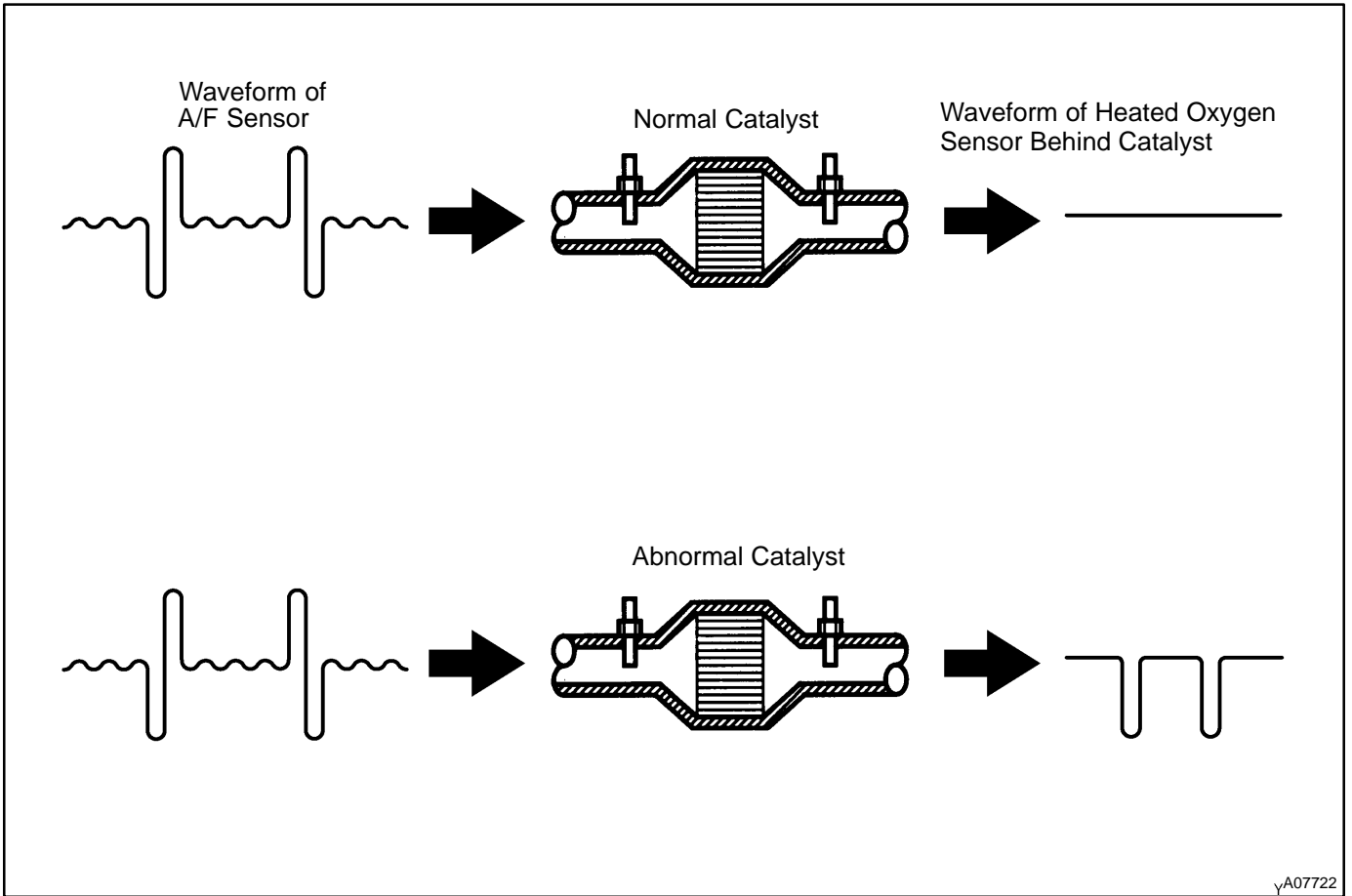


<b>DTC</b>	<b>P0420</b>	<b>Catalyst System Efficiency Below Threshold (Bank 1)</b>
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**CIRCUIT DESCRIPTION**

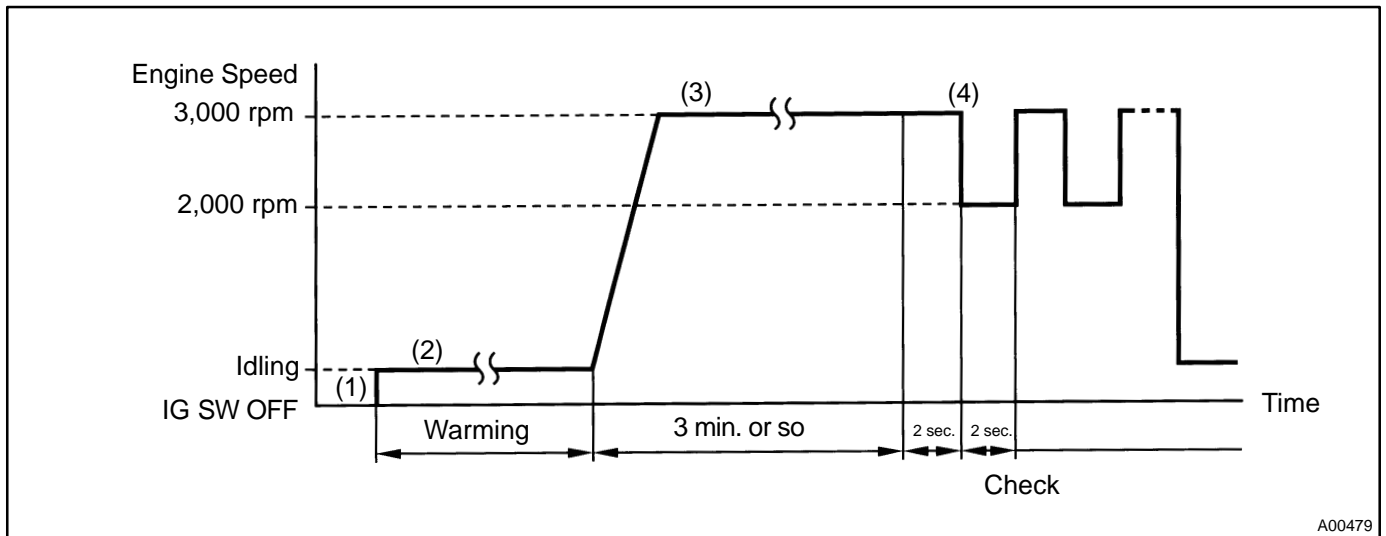
The ECM observes the waveform of the heated oxygen sensor located behind the catalyst to determine whether the catalyst is performance has deteriorated. If the catalyst is functioning normally, the waveform of the heated oxygen sensor located behind the catalyst switches back and forth between rich and lean much more slowly. When the waveform of the heated oxygen sensor located behind the catalyst alternates flatteringly between rich and lean, it indicates that catalyst performance has deteriorated.



γA07722

DTC No.	DTC Detection Condition	Trouble Area
P0420	After engine and catalyst are warmed up, and while vehicle is driven within set value and engine speed range, waveform of heated oxygen sensor (bank 1 sensor 2) alternates flatteringly between rich and lean (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Gas leakage in exhaust system</li> <li>• A/F sensor (bank 1 sensor 1)</li> <li>• Heated oxygen sensor (bank 1 sensor 2)</li> <li>• Three-way catalytic converter</li> </ul>

## CONFIRMATION ENGINE RACING PATTERN



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

## INSPECTION PROCEDURE

### HINT:

Read freeze frame data using the hand-held tester or the OBD II scan tool, 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.

<b>1</b>	<b>Are there any other codes (besides DTC P0420) being output?</b>
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**YES**

Go to relevant DTC chart (See page [DI-231](#)).

**NO**

<b>2</b>	<b>Check gas leakage on exhaust system.</b>
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**NG**

Repair or replace.

**OK**

<b>3</b>	<b>Check A/F sensor (bank 1 sensor 1) (See page <a href="#">SF-60</a>).</b>
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<b>NG</b>	<b>Repair or replace.</b>
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<b>OK</b>
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<b>4</b>	<b>Check heated oxygen sensor (bank 1 sensor 2) (See page <a href="#">SF-62</a>).</b>
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<b>NG</b>	<b>Repair or replace.</b>
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<b>OK</b>
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<b>Replace three-way catalytic converter.</b>
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