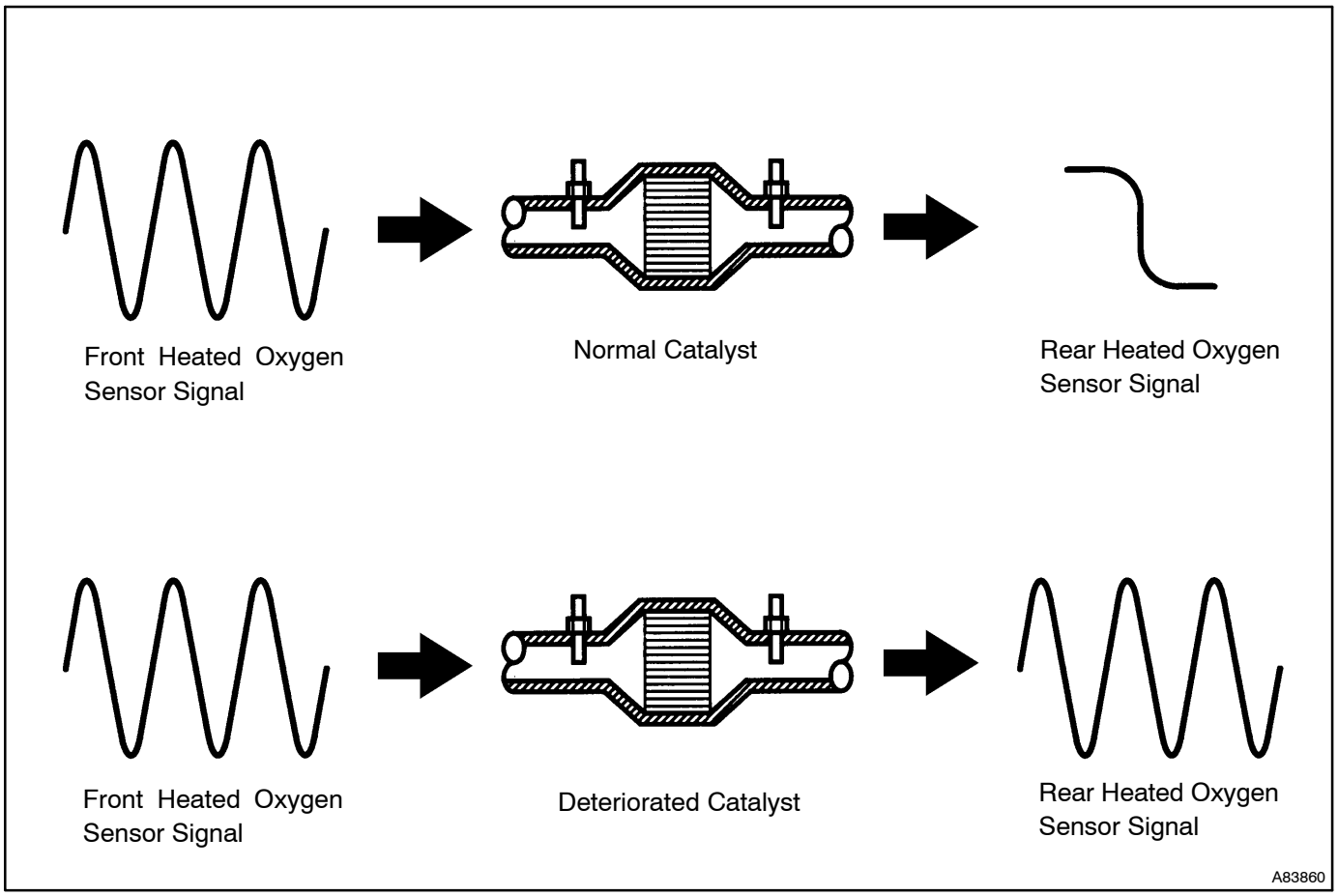
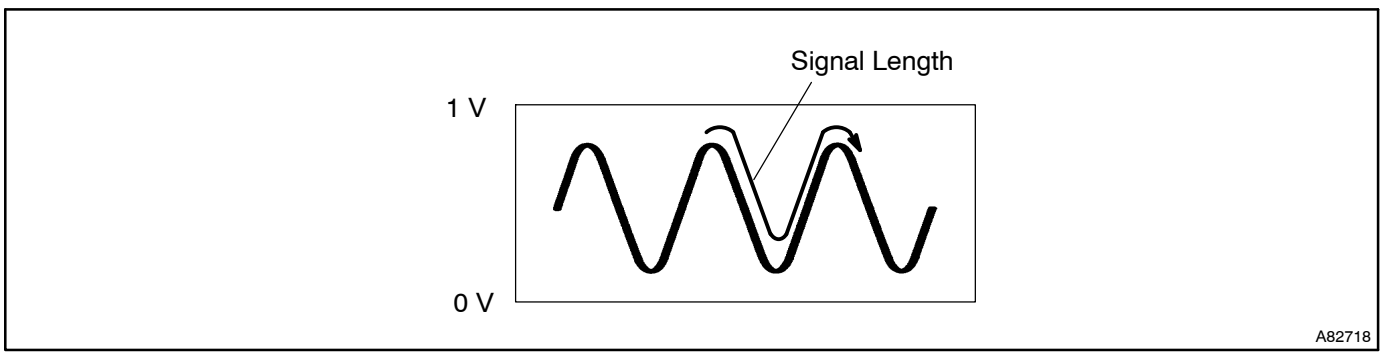
DTC	P0420	CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 1)

DTC	P0430	CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 2)

CIRCUIT DESCRIPTION

In order to monitor the catalyst, the engine control module (ECM) calculates the catalyst deterioration level several times while the vehicle is running under the specified conditions (for example: 40 mph for 10 minutes after the engine warmed–up). If the catalyst deterioration level exceeds the malfunction threshold, the ECM interprets this as a malfunction. The malfunction indicator lamp (MIL) is turned on and a DTC is set when this malfunction is detected in consecutive driving cycle (2 trip detection logic).
The catalyst deterioration level is a rate of the signal lengths (and areas) between front and rear heated oxygen sensors (HO2Ss). When the catalyst is normal, the rear HO2S signal length is much shorter than the front one. With deteriorating the catalyst, the rear HO2S signal length closes to the front one.





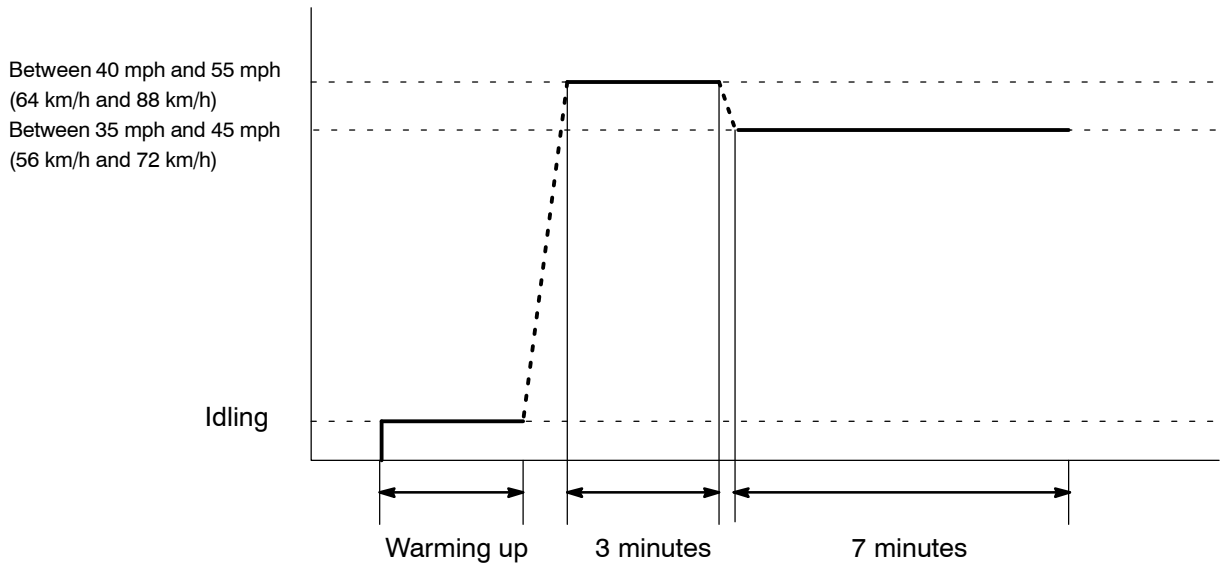
DTC	Detection Condition	Trouble Area
P0420	Bank 1 catalyst deterioration level exceeds malfunction threshold while vehicle is being driven under specified conditions (2 trip detection logic).	• Exhaust manifold sub–assy LH (front catalyst) • Exhaust pipe assy front No.2 (rear catalyst) • Gas leakage in exhaust pipes • Heated oxygen sensor (bank 1 sensor 2) • Heated oxygen sensor (bank 1 sensor 1)
P0430	Bank 2 catalyst deterioration level exceeds malfunction threshold while vehicle is being driven under specified conditions (2 trip detection logic).	• Exhaust manifold sub–assy RH (front catalyst) • Exhaust pipe assy front No.2 (rear catalyst) • Gas leakage in exhaust pipes • Heated oxygen sensor (bank 2 sensor 2) • Heated oxygen sensor (bank 2 sensor 1)

CONFIRMATION DRIVING PATTERN

(a) Connect the hand held tester to the DLC3.
(b) Clear the DTC.
(c) Warm up the engine until the engine coolant temperature reaches 75˚C (167˚F).
(d) Drive the vehicle at 40 to 55 mph (64 to 88 km/h) for at least 3 minutes.
(e) Drive the vehicle at 35 to 45 mph (56 to 72 km/h) for at least 7 minutes.

NOTICE:

Drive with smooth throttle operation and avoid sudden acceleration.



INSPECTION PROCEDURE

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.

1 CHECK DTC OTHER THAN P0420 AND P0430

If DTCs other than P0420 and P0430 are present, troubleshoot those DTCs first.

Result:

DTC	Proceed to
P0420 or P0430	A
P0420 or P0430 and others	B

B → **GO TO DTC CHART (See page 05–18)**

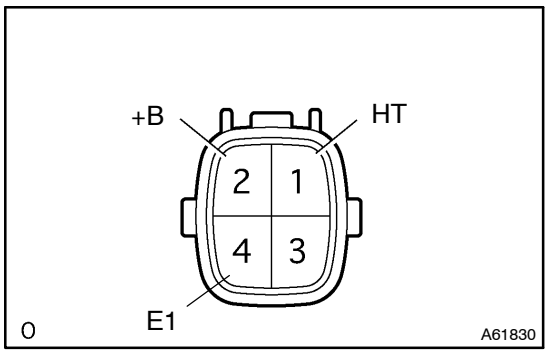
A

2 CHECK FOR EXHAUST GAS LEAKAGE

NG → **REPAIR OR REPLACE**

OK

3 CHECK HEATED OXYGEN SENSOR (BANK 1, 2 SENSOR 1)



(a) Measure the sensor resistance.

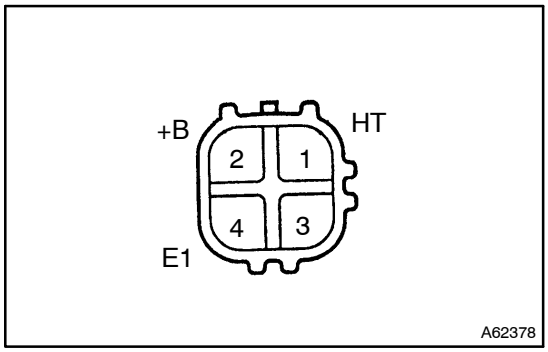
Standard

Terminal No.	Resistance
1 (HT) ⇔ 2 (+B)	11 – 16 Ω at 20 °C (68 °F)
1 (HT) ⇔ 4 (E1)	No Continuity

NG → **REPLACE HEATED OXYGEN SENSOR**

OK

4 CHECK HEATED OXYGEN SENSOR (BANK 1, 2 SENSOR 2)



(a) Measure the sensor resistance.

Standard

Terminal No.	Resistance
1 (HT) ⇔ 2 (+B)	11 – 16 Ω at 20 °C (68 °F)
1 (HT) ⇔ 4 (E1)	No Continuity

NG → **REPLACE HEATED OXYGEN SENSOR**

OK

REPLACE FRONT AND REAR CATALYSTS (See page 14–14 and 15–1)

If DTC P0420 is present, replace both of the exhaust manifold sub–assy LH (front catalyst) and the exhaust pipe assy front No.2 (rear catalyst).
If DTC P0430 is present, replace both of the exhaust manifold sub–assy RH (front catalyst) and the exhaust pipe assy front No.2 (rear catalyst).