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1 CHECK ANY OTHER DTCS OUTPUT (IN ADDITION TO DTC P0420 AND/OR P0430)

- Connect the intelligent tester to the DLC3.
- Turn the engine switch on (IG) and turn the tester ON.
- Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- Read DTCS.

Result

Display (DTC output)	Proceed to
P0420 and/or P0430	A
P0420 and/or P0430 and other DTCS	B

HINT:

If any DTCS other than P0420 or P0430 are output, troubleshoot those DTCS first.

B **GO TO DTC CHART**

A

2 PERFORM ACTIVE TEST USING INTELLIGENT TESTER (A/F CONTROL)

- Connect the intelligent tester to the DLC3.
- Start the engine and turn the tester ON.
- Warm up the engine at engine speed of 2,500 rpm for approximately 90 seconds.
- On the tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / ACTIVE TEST / A/F CONTROL.
- Perform the A/F CONTROL operation with the engine in an idling condition (press the RIGHT or LEFT button to change the fuel injection volume.)
- Monitor the output voltages of the A/F and HO2 sensors (AFS B1 S1 and O2S B1 S2 or AFS B2 S1 and O2S B2 S2) displayed on the tester.

HINT:

- The A/F CONTROL operation lowers the fuel injection volume by 12.5 % or increases the injection volume by 25 %.
- Each sensor reacts in accordance with increases and decreases in the fuel injection volume.

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Standard:

Tester Display (Sensor)	Injection Volume	Status	Voltage
AFS B1 S1 or AFS B2 S1 (A/F)	+25 %	Rich	Less than 3.0
AFS B1 S1 or AFS B2 S1 (A/F)	-12.5 %	Lean	More than 3.35
O2S B1 S2 or O2S B2 S2 (HO2)	+25 %	Rich	More than 0.55
O2S B1 S2 or O2S B2 S2 (HO2)	-12.5 %	Lean	Less than 0.4

Result:

Status AFS B1 S1 or AFS B2 S1	Status O2S B1 S2 or O2S B2 S2	A/F Condition and A/F and HO2 Sensor Conditions	Misfire	Main Suspected Trouble Areas	Proceed to
Lean/Rich	Lean/Rich	Normal	-	<ul style="list-style-type: none"> Three-Way Catalytic Converter (TWC) Gas leakage from exhaust system 	A
Lean	Lean/Rich	A/F sensor malfunction	-	<ul style="list-style-type: none"> A/F sensor 	B
Rich	Lean/Rich	A/F sensor malfunction	May occur	<ul style="list-style-type: none"> A/F sensor 	B
Lean/Rich	Lean	HO2 sensor malfunction	-	<ul style="list-style-type: none"> HO2 sensor Gas leakage from exhaust system 	C
Lean/Rich	Rich	HO2 sensor malfunction	-	<ul style="list-style-type: none"> HO2 sensor Gas leakage from exhaust system 	C
Lean	Lean	Actual air-fuel ratio lean	May occur	<ul style="list-style-type: none"> Extremely rich or lean actual air-fuel ratio Gas leakage from exhaust system 	A
Rich	Rich	Actual air-fuel ratio lean	-	<ul style="list-style-type: none"> Extremely rich or lean actual air-fuel ratio Gas leakage from exhaust system 	A

Lean: During A/F CONTROL, the A/F sensor (AFS) output voltage is consistently more than 3.35 V, and the HO2 sensor output voltage (O2S) is consistently less than 0.4 V.
 Rich: During A/F CONTROL, the AFS is consistently less than 3.0 V, and the O2S is consistently more than 0.55 V.
 Lean/Rich: During A/F CONTROL of the ACTIVE TEST, the output voltage of the HO2 sensor alternates correctly.















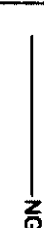
B

CHECK AND REPLACE AIR FUEL RATIO SENSOR

C

CHECK AND REPLACE HEATED OXYGEN SENSOR, AND CHECK AND REPAIR EXHAUST GAS LEAKAGE

A

Case	A/F Sensor (Sensor 1) Output Voltage	HO2 Sensor (Sensor 2) Output Voltage	Main Suspected Trouble Area
1	Injection Volume +25 % -12.5 % 	Injection Volume +25 % -12.5 % 	
	Output Voltage More than 3.35 V Less than 3.0 V 	Output Voltage More than 0.55 V Less than 0.4 V 	
2	Injection Volume +25 % -12.5 % 	Injection Volume +25 % -12.5 % 	<ul style="list-style-type: none"> • A/F sensor • A/F sensor heater • A/F sensor circuit
	Output Voltage Almost no reaction 	Output Voltage More than 0.55 V Less than 0.4 V 	
3	Injection Volume +25 % -12.5 % 	Injection Volume +25 % -12.5 % 	<ul style="list-style-type: none"> • HO2 sensor • HO2 sensor heater • HO2 sensor circuit
	Output Voltage More than 3.35 V Less than 3.0 V 	Output Voltage Almost no reaction 	
4	Injection volume +25 % -12.5 % 	Injection Volume +25 % -12.5 % 	<ul style="list-style-type: none"> • Injector • Fuel pressure • Gas leakage from exhaust system (Air-fuel ratio extremely lean or rich)
	Output Voltage Almost no reaction 	Output Voltage Almost no reaction 