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2023 Ford Bronco Service and Repair Manual

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<p>PCM (powertrain control module) P1127:00</p>	<p>Exhaust Temperature Out of Range, O2 Sensor Tests Not Completed: No Sub Type Information</p>	<p>Sets when PCM (powertrain control module) detects the inferred exhaust temperature is below a minimum calibrated value. The DTC (diagnostic trouble code) P1127 is present if the exhaust is not hot. The HO2S (heated oxygen sensor) monitor uses an exhaust temperature model to determine when the universal HO2S (heated oxygen sensor) heaters are cycled ON. Monitor the universal HO2S (heated oxygen sensor) heater PIDs to determine the ON or OFF state. The DTC (diagnostic trouble code) P1127 is present if the exhaust is not hot.</p>
<p>PCM (powertrain control module) P1646:00</p>	<p>Linear O2 Sensor Control Chip (Bank 1): No Sub Type Information</p>	<p>Sets when PCM (powertrain control module) detects an internal circuit or communication concern. The PCM (powertrain control module) monitors the application specific integrated circuit that controls and monitors the universal HO2S (heated oxygen sensor) bank 1, sensor 1. Check for other Diagnostic Trouble Codes (DTCs) and diagnose those first. Check for other Diagnostic Trouble Codes (DTCs) and diagnose those first. Check for intermittent universal HO2S (heated oxygen sensor) wiring concerns. Check the universal HO2S (heated oxygen sensor) wiring between the PCM (powertrain control module) and the sensor for damage. Check for aftermarket performance products. Reprogram or update the calibration. Clear the Diagnostic Trouble Codes (DTCs), repeat the self-test.</p>
<p>PCM (powertrain control module) P1647:00</p>	<p>Linear O2 Sensor Control Chip (Bank 2): No Sub Type Information</p>	<p>Sets when PCM (powertrain control module) detects an internal circuit or communication concern. The PCM (powertrain control module) monitors the application specific integrated circuit that controls and monitors the universal HO2S (heated oxygen sensor) bank 2, sensor 1. Check for other Diagnostic Trouble Codes (DTCs) and diagnose those first. Check for intermittent universal HO2S (heated oxygen sensor) wiring concerns. Check the universal HO2S (heated oxygen sensor) wiring between the PCM (powertrain control module) and the sensor for damage. Check for aftermarket performance products. Reprogram or update the calibration. Clear the Diagnostic Trouble Codes (DTCs), repeat the self-test.</p>
<p>PCM (powertrain control module) P164A:00</p>	<p>O2 Sensor Positive Current Trim Circuit Performance (Bank 1 Sensor 1):</p>	<p>Sets when PCM (powertrain control module) detects an inconsistent or erratic measurement of the resistor. A resistor is installed in the universal HO2S (heated oxygen sensor) bank 1, sensor 1 connector for part to part variance. The PCM (powertrain control module) determines the value of this resistor by taking multiple</p>

module) P2237:00	No Sub Type Information	
PCM (powertrain control module) P2240:00	O2 Sensor Positive Current Control Circuit/Open - Bank 2, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
PCM (powertrain control module) P2243:00	O2 Sensor Reference Voltage Circuit/Open - Bank 1, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
PCM (powertrain control module) P2247:00	O2 Sensor Reference Voltage Circuit/Open - Bank 2, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
PCM (powertrain control module) P2251:00	O2 Sensor Negative Current Control Circuit/Open - Bank 1, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
PCM (powertrain control module) P2254:00	O2 Sensor Negative Current Control Circuit/Open - Bank 2, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects a concern with the circuit used to determine the oxygen content in the exhaust gas.

PCM (powertrain control module) P2631:00	O2 Sensor Positive Current Trim Circuit High Bank 2, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects a concern with the circuit used to determine the oxygen content in the exhaust gas.
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Possible Sources

- HO2S (heated oxygen sensor) circuitry concern
- Exhaust leak
- Intake air leak
- Engine not operating long enough before carrying out the KOER (key on, engine running) self-test
- MAF (mass air flow) sensor (if equipped)
- HO2S (heated oxygen sensor) (9Y460)
- PCM (powertrain control module) (12A650)

Pinpoint Test Steps available in the on-line Workshop Manual.

PINPOINT TEST H : FUEL CONTROL

WARNING

While conducting tests on a hot engine take all safety precautions to prevent skin contact with hot engine components. Failure to follow these instructions may result in personal injury.

Normal Operation and Fault Conditions

Refer to the DTC (diagnostic trouble code) Fault Trigger Conditions.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0171:00	System Too Lean Bank 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the adaptive fuel tables reach a rich calibrated limit. Refer to Fuel Trim for additional information. The adaptive fuel strategy continuously monitors the fuel delivery hardware. View the freeze frame data to determine the operating conditions when

control module) P1157:00	Sub Type Information	(heated oxygen sensor) bank 2, sensor 2 is forced rich and lean and monitored by the PCM (powertrain control module) .
PCM (powertrain control module) P1158:00	Lack Of HO2S22 Switches - Sensor Indicates Rich: No Sub Type Information	Sets when PCM (powertrain control module) detects no output of the HO2S22 in a calibrated amount of time. The HO2S (heated oxygen sensor) bank 2, sensor 2 is forced rich and lean and monitored by the PCM (powertrain control module) .
PCM (powertrain control module) P2195:00	O2 Sensor Signal Biased/Stuck Lean - Bank 1, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the fuel control system is not switching for a calibrated amount of time. A HO2S (heated oxygen sensor) bank 1, sensor 1 indicating lean at the end of a test is trying to correct for an over lean condition.
PCM (powertrain control module) P2196:00	O2 Sensor Signal Biased/Stuck Rich - Bank 1, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the fuel control system is not switching for a calibrated amount of time. A HO2S (heated oxygen sensor) bank 1, sensor 1 indicating rich at the end of a test is trying to correct for an over rich condition.
PCM (powertrain control module) P2197:00	O2 Sensor Signal Biased/Stuck Lean - Bank 2, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the fuel control system is not switching for a calibrated amount of time. A universal HO2S (heated oxygen sensor) bank 2, sensor 1 indicating lean at the end of a test is trying to correct for an over lean condition.
PCM (powertrain control module) P2198:00	O2 Sensor Signal Biased/Stuck Rich - Bank 2, Sensor 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the fuel control system is not switching for a calibrated amount of time. A universal HO2S (heated oxygen sensor) bank 2, sensor 1 indicating rich at the end of a test is trying to correct for an over rich condition.
PCM (powertrain control module) P219A:00	Bank 1 Air-Fuel Ratio Imbalance: No Sub Type Information	Sets when PCM (powertrain control module) detects the air to fuel ratio difference per cylinder is greater than a calculated amount. The air to fuel imbalance monitor is designed to detect large differences in the air to fuel ratio between cylinders per engine bank.
PCM (powertrain control module) P219B:00	Bank 2 Air-Fuel Ratio Imbalance: No Sub Type Information	Sets when PCM (powertrain control module) detects the air to fuel ratio difference per cylinder is greater than a calculated amount. The air to fuel imbalance monitor is designed to detect large differences in the air to fuel ratio between cylinders per engine bank.

control module) P2BED:00	No Sub Type Information	fuel strategy continuously monitors the fuel delivery hardware. Refer to Fuel Trim for additional information. View the freeze frame data to determine the operating conditions when the DTC (diagnostic trouble code) was set. Observe the LONGFT1 and LONGFT2 PIDs.
PCM (powertrain control module) P2BEE:00	Fuel Control System 'A' Too Lean Bank 2: No Sub Type Information	Sets when PCM (powertrain control module) detects the adaptive fuel tables reach a rich calibrated limit. The adaptive fuel strategy continuously monitors the fuel delivery hardware. Refer to Fuel Trim for additional information. View the freeze frame data to determine the operating conditions when the DTC (diagnostic trouble code) was set. Observe the LONGFT1 and LONGFT2 PIDs.
PCM (powertrain control module) P2BEF:00	Fuel Control System 'A' Too Rich Bank 2: No Sub Type Information	Sets when PCM (powertrain control module) detects the adaptive fuel tables reach a lean calibrated limit. The adaptive fuel strategy continuously monitors the fuel delivery hardware. Refer to Fuel Trim for additional information. View the freeze frame data to determine the operating conditions when the DTC (diagnostic trouble code) was set. Observe the LONGFT1 and LONGFT2 PIDs.
PCM (powertrain control module) P2BF0:00	Fuel Control System 'B' Too Lean Bank 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the adaptive fuel tables reach a rich calibrated limit. The adaptive fuel strategy continuously monitors the fuel delivery hardware. Refer to Fuel Trim for additional information. View the freeze frame data to determine the operating conditions when the DTC (diagnostic trouble code) was set. Observe the LONGFT1 and LONGFT2 PIDs.
PCM (powertrain control module) P2BF1:00	Fuel Control System 'B' Too Rich Bank 1: No Sub Type Information	Sets when PCM (powertrain control module) detects the adaptive fuel tables reach a lean calibrated limit. The adaptive fuel strategy continuously monitors the fuel delivery hardware. Refer to Fuel Trim for additional information. View the freeze frame data to determine the operating conditions when the DTC (diagnostic trouble code) was set. Observe the LONGFT1 and LONGFT2 PIDs.
PCM (powertrain	Fuel Control System 'B' Too Lean Bank 2:	Sets when PCM (powertrain control module) detects the adaptive fuel tables reach a rich calibrated limit. The adaptive fuel strategy continuously monitors the fuel delivery hardware.

Electronic Throttle Control System

303-04E Fuel Charging and Controls - 5.0L 32V Ti-VCT	2022 F-150
Diagnosis and Testing	Procedure revision date: 06/15/2021

Electronic Throttle Control System

Diagnostic Trouble Code (DTC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

Diagnostic Trouble Code Chart

Module	DTC (diagnostic trouble code)	Description	Action
PCM (powertrain control module)	P0068:00	MAP / MAF - Throttle Position Correlation: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	P0120:00	Throttle / Pedal Position Sensor / Switch A Circuit: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	P0121:00	Throttle/Pedal Position Sensor/Switch A Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	P0122:00	Throttle/Pedal Position Sensor/Switch A Circuit Low: No Sub Type Information	GO to Pinpoint Test DV

PCM (powertrain control module)	P061C:00	Internal Control Module Engine RPM Performance: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P061D:00	Internal Control Module Engine Air Mass Performance: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P061F:00	Internal Control Module Throttle Actuator Controller Performance: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P062B:00	Internal Control Module Fuel Injector Control Performance: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P062C:00	Internal Control Module Vehicle Speed Performance: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P1124:00	Throttle Position Sensor A Out Of Self Test Range: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	P1584:00	Throttle Control Detected ETB Malfunction: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	P1588:00	Throttle Control Detected Loss Of Return Spring: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	P162D:00	Internal Control Module Cruise Control Performance: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P1674:00	Control Module Software Corrupted: No Sub Type Information	GO to Pinpoint Test QE
PCM (powertrain control module)	P2100:00	Throttle Actuator A Control Motor Circuit / Open: No Sub Type Information	GO to Pinpoint Test DV

PCM (powertrain control module)	U0606:00	Lost Communication With Throttle/Pedal Position Sensor/Switch A: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	U210F:00	Throttle/Pedal Position Sensor/Switch A Communication Circuit Low: No Sub Type Information	GO to Pinpoint Test DV
PCM (powertrain control module)	U2110:00	Throttle/Pedal Position Sensor/Switch A Communication Circuit High: No Sub Type Information	GO to Pinpoint Test DV

Global Customer Symptom Code (GCSC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: [Diagnostic Methods](#)

(100-00 General Information, Description and Operation).

Global Customer Symptom Code Chart

Customer Symptom	Action
Driving Performance > Runs Rough > All Running Modes > Always	GO to Pinpoint Test DV
Driving Performance > Lack/Loss of Power > Acceleration > Always	GO to Pinpoint Test QE

Pinpoint Tests

PINPOINT TEST DV : THROTTLE BODY ASSEMBLY ELECTRONIC THROTTLE CONTROL (ETC)

WARNING

Substantial opening and closing torque is applied by this system. To prevent injury, be careful to keep fingers away from throttle mechanism when actuated. Failure to follow these instructions may result in personal injury.

Normal Operation and Fault Conditions

Refer to the DTC (diagnostic trouble code) Fault Trigger Conditions.

DTC Fault Trigger Conditions

module) P0123:00	High: No Sub Type Information	identification) reading greater than 4.75 volts in ignition ON, engine OFF or ignition ON, engine running indicates a concern is present.
PCM (powertrain control module) P0124:00	Throttle/Pedal Position Sensor/Switch 'A' Intermittent: No Sub Type Information	Sets when the PCM (powertrain control module) detects the TP (throttle position) circuit is intermittently open or shorted. This concern exhibits a symptom of limited power.
PCM (powertrain control module) P0221:00	Throttle/Pedal Position Sensor/Switch 'B' Circuit Range/Performance: No Sub Type Information	Sets when the PCM (powertrain control module) detects the PCM (powertrain control module) indicates the TP (throttle position) sensor 2 circuit is out of range in either the closed or WOT (wide open throttle) modes. This concern exhibits a symptom of limited power.
PCM (powertrain control module) P0222:00	Throttle/Pedal Position Sensor/Switch 'B' Circuit Low: No Sub Type Information	Sets when the PCM (powertrain control module) detects the TP (throttle position) 2 signal is too low. This concern exhibits a symptom of limited power. A TP2 PID (parameter identification) reading less than 0.25 volt in ignition ON, engine OFF or ignition ON, engine running indicates a concern is present.
PCM (powertrain control module) P0223:00	Throttle/Pedal Position Sensor/Switch 'B' Circuit High: No Sub Type Information	Sets when the PCM (powertrain control module) detects the TP (throttle position) sensor signal is too high. This concern exhibits a symptom of limited power. A TP2 PID (parameter identification) reading greater than 4.75 volts in ignition ON, engine OFF or ignition ON, engine running indicates a concern is present.
PCM (powertrain control module) P1124:00	Throttle Position Sensor 'A' Out Of Self Test Range: No Sub Type Information	Sets when the PCM (powertrain control module) detects the TP1 or TP2 is greater than the expected value. During key KOEO (key on, engine off) and KOER (key on, engine running) self-tests, the PCM (powertrain control module) monitors the TP (throttle position) sensor inputs to determine if the TP1 and TP2 signals are less than an expected value. Repeat the self-test without applying the accelerator pedal. Make sure the floor mat is not interfering with the accelerator pedal. Diagnose any TP (throttle position) circuit Diagnostic Trouble Codes (DTCs) first.