



TECHNICAL SERVICE BULLETIN

3.5L PowerBoost Engine - Illuminated Malfunction Indicator Lamp (MIL) With DTC P0420 And/Or P0430 Stored In The PCM

24-2124

25 April 2024

This bulletin supersedes 23-2425. Reason for update: revised software and update the Parts List.

Model:

Ford 2022-2023 F-150	Engine: 3.5L PoweBoost
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Markets: North American market only

Issue: Some 2022-2023 F-150 hybrid vehicles equipped with a 3.5L PowerBoost engine may exhibit an illuminated MIL with DTC P0420 and/or P0430 stored in the PCM. This may be due to calibration and controls sensitivity. To correct the condition, follow the Service Procedure to reprogram the PCM and perform the catalyst stabilization drive cycle.

Action: Follow the Service Procedure to correct the condition on vehicles that meet all of the following criteria:

- 2022-2023 F-150
- 3.5L PowerBoost engine
- Illuminated MIL with DTCs P0420 and/or P0430 stored in the PCM

Parts - Parts To Inspect and Replace Only If Necessary

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description	Note
W705443-S900	Only If Necessary (Up to 4)	Only If Necessary	4	Catalytic Converter Nut	
NL3Z-5E212-G	Only If Necessary (Up to 1)	Only If Necessary	1	Left Catalytic Converter	
NL3Z-5E212-H	Only If Necessary (Up to 1)	Only If Necessary	1	Right Catalytic Converter	
PL3Z-5C226-A	Only If Necessary (Up to 2)	Only If Necessary	1	Exhaust System Gasket	1 Required Per Catalytic Converter Replaced
W520114-S442	Only If Necessary (Up to 4)	Only If Necessary	4	Transmission Support Crossmember Nuts	
W714418-S439	Only If Necessary (Up to 4)	Only If Necessary	4	Transmission Support Crossmember Bolts	
W709771-S440	Only If Necessary (Up to 2)	Only If Necessary	1	Transmission Mount Nuts	
W500120-S439	Only If Necessary (Up to 3)	Only If Necessary	4	Transmission Support Insulator Bolts (RWD only)	Rear Wheel Drive (RWD) Only

W718926-S900	Only If Necessary (Up to 4)	Only If Necessary	4	Transmission Support Insulator Bolts (4WD only)	Four Wheel Drive (4WD) Only
W714717-S439	Only If Necessary (Up to 2)	Only If Necessary	4	Muffler Inlet Pipe Bolts	
ML3Z-6775-K	Only If Necessary (Up to 1)	Only If Necessary	1	Self-adhesive Heat Shield Material	
XL-2		As needed		Motorcraft® High Temperature Nickel Anti-Seize Lubricant	
XL-1	As Needed	As Needed		Motorcraft® Penetrating and Lock Lubricant	
VC-13-G	As Needed	As Needed		Motorcraft® Yellow Concentrated Antifreeze/Coolant (All Markets Except Canada)	
CVC-13-G	As Needed	As Needed		Motorcraft® Yellow Concentrated Antifreeze/Coolant (Canada Only)	

Claim Quantity refers to the total number of individual pieces required to repair the vehicle.

Package Order Quantity refers to the amount of the service part number package(s) required to repair the vehicle.

Number In Package refers to the number of individual pieces included in a service part number package.

As Needed indicates the amount of the part may vary and/or is not a whole number. Parts can be billed out as non-whole numbers, including less than 1.

Only If Necessary indicates the part is not mandatory.

Warranty Status: Eligible under provisions of New Vehicle Limited Warranty (NVLW)/Emissions Warranty/Service Part Warranty (SPW)/Special Service Part (SSP)/Extended Service Plan (ESP) coverage. Limits/policies/prior approvals are not altered by a TSB. NVLW/Emissions Warranty/SPW/SSP/ESP coverage limits are determined by the identified causal part and verified using the OASIS part coverage tool.

Labor Times

Description	Operation No.	Time
2022-2023 F-150 3.5L PowerBoost: Diagnose And Repair Following The Service Procedure	MT242124	Actual Time

Repair/Claim Coding

Causal Part:	RECALEM
Condition Code:	04

Service Procedure

NOTE: Perform the sulfur removal procedure one time only. If the vehicle exhibits this condition again, proceed with the replacement of the catalytic converter(s).

1. Perform Pinpoint Test HF: Catalyst Efficiency Monitor And Exhaust Systems Steps HF1-HF6. Refer to the WSM, Section 309-00D Exhaust System - 3.5L V6 PowerBoost (CN), Diagnosis and Testing, Catalyst System.
2. Is the concern still present?
 - (1). Yes - proceed to Step 3.
 - (2). No - this article does not apply.
3. Retrieve OBD mode 6 data from the FDRS and record oxygen storage values from both banks.
4. Reprogram the PCM using the latest software level of the FDRS diagnostic scan tool. Follow all on-screen instructions carefully to complete all coordinated module software updates.

NOTE: Advise the customer this vehicle is equipped with an adaptive transmission shift strategy which allows the vehicle's computer to learn the transmission's unique parameters and improve shift quality. When the adaptive strategy is reset, the computer will begin a relearning process. This relearning process may result in firmer than normal upshifts and downshifts for several days.

5. Perform the following sulfur removal cycle.

- (1). Warm up the engine to its normal operating temperature.
- (2). Identify an appropriate route to allow speeds around 70 mph (113 km/h).
- (3). From 30 mph (48 km/h) or slower, accelerate at WOT until the vehicle reaches 65 mph (105 km/h).
- (4). Place the transmission into manual (M).
- (5). Select 4th gear.
- (6). For at least 45 minutes, perform periodic, repeated medium (25%-50% throttle) acceleration / closed pedal (foot off throttle) deceleration events driving alternately between 60 mph and 70 mph (97 km/h and 113 km/h).

6. Take the transmission out of manual mode (M). Drive the vehicle normally at 55-65 mph (88-105 km/h) for 15 minutes.

7. Clear DTCs P0420 and/or P0430 stored in the PCM. This resets the mode 6 data to zero.

8. Run a catalyst monitor drive cycle. Refer to Pinpoint Test HF: Catalyst Efficiency Monitor And Exhaust Systems Step HF11 > On Board Diagnostics (OBD) Drive Cycle.

9. Retrieve OBD mode 6 data after the catalyst oxygen storage values have been populated. Have the oxygen storage values decreased from what was recorded in Step 3 and are they less than 0.4 on affected bank(s)?

- (1). Yes - repair is complete.
- (2). No - replace the catalytic converter(s) on the affected bank(s) that has a value greater than 0.4. Refer to the WSM, Section 309-00 > Exhaust System > Removal and Installation > Catalytic Converter.

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NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your car or truck. Contact a Ford or Lincoln dealership to determine whether the Bulletin applies to your vehicle. Warranty Policy and Extended Service Plan documentation determine Warranty and/or Extended Service Plan coverage unless stated otherwise in the TSB article. The information in this Technical Service Bulletin (TSB) was current at the time of printing. Ford Motor Company reserves the right to supersede this information with updates. The most recent information is available through Ford Motor Company's on-line technical resources.