



TECHNICAL SERVICE BULLETIN

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

23-2425

19 December
2023

This bulletin supersedes 23-2337.

Model:

Ford 2022-2023 F-150	Engine: 3.5L PowerBoost
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Summary

This article supersedes TSB 23-2337 to update the Service Procedure and the causal part.

Issue: Some 2022-2023 F-150 hybrid vehicles equipped with a 3.5L PowerBoost engine may exhibit an illuminated MIL with diagnostic trouble codes (DTCs) P0420 and/or P0430 stored in the powertrain control module (PCM). This may be due to high sulfur content in the fuel. To correct the condition, follow the Service Procedure to reprogram the PCM and remove sulfur from the catalytic converters.

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
- DTCs P0420 and/or P0430 stored in the PCM

Parts

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity	Note
W705443-S900	If Needed	Catalytic Converter Nut	4	4	
NL3Z-5E212-G	If Needed	Left Catalytic Converter	1	1	
NL3Z-5E212-H	If Needed	Right Catalytic Converter	1	1	
ML3Z-5C226-A	If Needed	Exhaust System Gasket	1	1	1 Required Per Catalytic Converter Replaced
W520114-S442	If Needed	Transmission Support Crossmember Nuts	4	4	
W714418-S439	If Needed	Transmission Support Crossmember Bolts	4	4	
W709771-S440	If Needed	Transmission Mount Nuts	1	2	
W711140-S901	If Needed	Transmission Support Insulator Bolts (RWD only)	4	3	Rear Wheel Drive (RWD) Only
W718926-S900	If Needed	Transmission Support Insulator Bolts (4WD only)	4	4	Four Wheel Drive (4WD) Only
ML3Z-6775-K	If Needed	Self-adhesive Heat Shield Material	1	1	
XL-2	As needed	Motorcraft® High Temperature Nickel Anti-Seize Lubricant			

XL-1	As Needed	Motorcraft® Penetrating and Lock Lubricant			
VC-13-G	As Needed	Motorcraft® Yellow Concentrated Antifreeze/Coolant (All Markets Except Canada)			
CVC-13-G	As Needed	Motorcraft® Yellow Concentrated Antifreeze/Coolant (Canada Only)			

Quantity refers to the amount of the service part number required to repair the vehicle.

Unit of Issue refers to the number of individual pieces included in a service part number package.

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

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.

If Needed 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	MT232425	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 Workshop Manual (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 onboard diagnostics (OBD) mode 6 data from the Ford Diagnosis and Repair System (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 wide open throttle (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 0.3 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 0.3. Refer to the WSM, Section 309-00 > Exhaust System > Removal and Installation > Catalytic Converter.

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