



TECHNICAL SERVICE BULLETIN

2021-2022 F-150 Raptor/Tremor - 3.5L EcoBoost - Reduced Engine Power With Illuminated MIL And DTC P0299 In The PCM

22-2198

06 June 2022

Model:

Ford 2021-2022 F-150	Engine: 3.5L EcoBoost
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Issue: Some 2021-2022 F-150 Raptor/Tremor vehicles equipped with a 3.5L EcoBoost engine may experience reduced engine power with an illuminated malfunction indicator lamp (MIL) and diagnostic trouble code (DTC) P0299 stored in the powertrain control module (PCM). This may be due to the upper radiator air deflector fit and possible interference with the engine air cleaner fresh air inlet. To correct the condition, follow the Service Procedure to replace the affected turbocharger and related components.

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

- One of the following vehicle lines:
 - 2021-2022 F-150 Raptor
 - 2021-2022 F-150 Tremor
- 3.5L EcoBoost engine
- Exhibits an illuminated MIL and DTC P0299 stored in the PCM
- Reduced engine power

Parts

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity	Note
ML3Z-19E525-B	1	Upper Radiator Air Deflector	1	1	
W715565-S450	1	Turbocharger Oil Return Tube Bolts, Right And Left	4	1 Per Affected Side	
ML3Z-9T515-A	1	Turbocharger Oil Return Tube, Right	1	1	
ML3Z-9T515-B	1	Turbocharger Oil Return Tube, Left	1	1	
HL3Z-00815-A	1 Per Affected Side	Turbocharger Oil Return Tube O-ring	1	1 Per Affected Side	Same name for 2 parts
FT4Z-6N652-E	1 Per Affected Side	Turbocharger Oil Return Tube O-ring	1	1 Per Affected Side	Same name for 2 parts
ML3Z-6L625-A	1 Per Affected Side	Turbocharger Fitting/Oil Filter Assembly, Right And Left	1	1 Per Affected Side	
W716088-S900	1 Per Affected Side	Turbocharger Oil Supply Tube Bolts, Right And Left	2	2 Per Affected Side	
ML3Z-9T516-A	1	Turbocharger Oil Supply Tube, Left	1	1	

ML3Z-9G440-A	1	Turbocharger Oil Supply Tube, Right	1	1	
ML3Z-6N652-G	2 Per Affected Side	Turbocharger Oil Supply Tube O-ring	1	2 Per Affected Side	Same name for 2 parts
ML3Z-6N652-A	2 Per Affected Side	Turbocharger Oil Supply Tube O-ring	1	2 Per Affected Side	Same name for 2 parts
W720722-S900	1 Per Affected Side	Turbocharger Retainers, Right And Left	4	3 Per Affected Side	
FT4Z-6N652-H	2 Per Affected Side	Turbocharger Coolant Tube O-ring Seal	1	2 Per Affected Side	
HL3Z-6N652-A	2 Per Affected Side	Turbocharger Coolant Tube Gasket	1	2 Per Affected Side	
ML3Z-9450-A	1 Per Affected Side	Turbocharger Gasket	1	1 Per Affected Side	
ML3Z-6K682-A	1	Turbocharger Assembly, Left	1	1	
ML3Z-6K682-B	1	Turbocharger Assembly, Right	1	1	
ML3Z-6775-K	2	Turbocharger Shield	1	2	
ML3Z-9R530-B	1	Turbocharger Air Inlet Hose Assembly, Right	1	1	
W520514-S440	2	Turbocharger To Exhaust Nuts	1	2	
W709771-S440	1	Transmission Mount Nut	1	1	
W718353-S900	1	Transmission Mount Bolt	4	2	
ML3Z-5C226-A	1 Per Affected Side	Exhaust Gasket	1	1 Per Affected Side	
W520114-S442	1	Frame Nut	4	2	
W714418-S439	1	Frame Bolt	4	2	
PM-4-A	As Needed	Motorcraft® Metal Brake Parts Cleaner (Compliant With Low Volatile Organic Compound Requirements As Required In Some USA States)			
PM-4-B	As Needed	Motorcraft® Metal Brake Parts Cleaner (Not Compliant With Volatile Organic Compound Requirements)			
VC-13DL-G	As Needed	Motorcraft® Yellow Prediluted Antifreeze/Coolant (All Markets Except Canada)			
CVC-13DL-G	As Needed	Motorcraft® Yellow Prediluted Antifreeze/Coolant (Canada Only)			
XO-5W30-Q1SP	As Needed	Motorcraft® SAE 5W-30 Synthetic Blend Motor Oil (All Markets Except Canada)			

CXO-5W30-LSP6	As Needed	Motorcraft® SAE 5W-30 Super Premium Motor Oil (Canada Only)			
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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.

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
2021-2022 F-150 Raptor/Tremor 3.5L EcoBoost: Inspect And Replace The Right Turbocharger Assembly Includes Time TO replace Right Turbocharger Outlet Pipe And Upper Radiator Air Deflector (Do Not Use With Any Other Labor Operations)	222198A	5.8 Hrs.
2021-2022 F-150 Raptor/Tremor 3.5L EcoBoost: Inspect And Replace The Left Turbocharger Assembly And Upper Radiator Air Deflector (Do Not Use With Any Other Labor Operations)	222198B	4.1 Hrs.
2021-2022 F-150 Raptor/Tremor 3.5L EcoBoost: Inspect And Replace The Left And Right Turbocharger Assemblies Includes Time To replace Right Turbocharger Outlet Pipe And Upper Radiator Air Deflector (Do Not Use With Any Other Labor Operations)	222198C	7.4 Hrs.

Repair/Claim Coding

Causal Part:	19E525
Condition Code:	42

Service Procedure

- Inspect the right and left turbocharger assembly compressor wheels for damage, that the turbine shaft spins freely and is not loose in the housing, and for contact marks between the compressor wheel and the housing. Refer to Workshop Manual (WSM), Section 303-12C, Intake Air Distribution and Filtering > 3.5L EcoBoost (BM) > Removal and Installation > Air Cleaner Outlet Pipe LH and RH. Is either turbocharger damaged?
 - Yes - proceed to Step 2.
 - No - this article does not apply. Refer to WSM, Section 303-00.
- Remove and replace the affected turbocharger assembly(s). Refer to WSM, Section 303-04H > Fuel Charging and Controls > Turbocharger > 3.5L EcoBoost (BM) > Removal and Installation.
 - If the right turbocharger is replaced, remove and replace the right turbocharger air cleaner outlet pipe. Refer to WSM, Section 303-12C > Intake Air Distribution and Filtering > 3.5L EcoBoost (BM) > Removal and Installation > Air Cleaner Outlet Pipe RH.
- Replace the upper radiator air deflector. Refer to WSM, Section 303-03C > Engine Cooling > 3.5L EcoBoost (BM) > Removal and Installation > Cooling Module > Step 5 and Step 6.

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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.