



TECHNICAL SERVICE BULLETIN

Upper Engine Ticking/Tapping Noise At Idle

25-2322

16 July 2025

This bulletin supersedes 25-2200. Reason for update: update the parts list to add the new camshaft and tappet service kit and add F-650/F-750

Model:

Ford 2021-2025 E-Series	Engine: 7.3L
2021-2025 F-650/F-750	Engine: 7.3L
2020-2025 F-53 Motorhome/F-59 Commercial Stripped Chassis	Engine: 7.3L
2020-2025 F-Super Duty	Engine: 6.8L (2023-2025) Engine: 7.3L

Markets: North America markets only

Issue: Some of the vehicles listed in the Model statement above may exhibit an upper engine ticking or tapping noise at idle. Customers may also report experiencing rough engine performance, engine misfire, or a MIL with DTCs P0301-P0308 in the PCM. This may be due to camshaft and/or valve tappet having excess wear within the engine assembly.

Action: For vehicles that meet all of the criteria in the Issue and Model statements, follow the Service Procedure to diagnose the vehicle.

Parts

Service Part Number	Claim Quantity	Package Order Quantity	Description
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)
VC-13DL-G	As Needed	As Needed	Motorcraft® Yellow Prediluted Antifreeze/Coolant (All Markets Except Canada)
CVC-13DL-G	As Needed	As Needed	Motorcraft® Yellow Prediluted Antifreeze/Coolant (Canada Only)
XO-5W30-Q1FS	As Needed	As Needed	Motorcraft® Synthetic Blend Motor Oil
PM-4-A	As Needed	As Needed	Motorcraft® Brake Parts Cleaner - VOC Compliant (All Markets Except Canada)
PM-4-B	As Needed	As Needed	Motorcraft® Metal Brake Parts Cleaner (Not Compliant With Low Volatile Organic Compound Requirements) (All Markets Except Canada)
CPM-4-A	As Needed	As Needed	Motorcraft® Brake Parts Cleaner - VOC Compliant (Canada Only)
XL-5-A	As Needed	As Needed	Motorcraft® Multi-Purpose Grease Spray
TA-357	As Needed	As Needed	Motorcraft® High Performance Engine RTV Silicone
ZC-30-A	As Needed	As Needed	Motorcraft® Silicone Gasket Remover
ZC-20	As Needed	As Needed	Motorcraft® Engine Shampoo and Degreaser
ZC-31-B	As Needed	As Needed	Motorcraft® Metal Surface Prep Wipes
XL-22	As Needed	As Needed	Motorcraft® High Temperature Power Steering Fluid
XT-12-QULV	As Needed	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid

XT-10-QLVC	As Needed	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid
YN-12-D	As Needed	As Needed	Motorcraft® PAG Refrigerant Compressor Oil

Parts - F-Super Duty Pickup And Chassis Cab - Camshaft And Tappet Repair

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
LC3Z-6250-D	1	1	1	Camshaft/Tappet Service Kit
W715106-S439	2	1	4	Engine Mount Through Bolt
W709771-S440	2	2	1	Transmission Mount Nut
DS7Z-19B596-A	1	1	1	Air Conditioning (A/C) Condenser Line O-Ring
W715131-S442	1	1	1	Transmission Cooler Bolt (10R Transmission Application Only)
W714717-S439	2	1	4	Y Pipe To Muffler Bolt (Pickup Only)
W719575-S900	2	1	2	Y Pipe To Muffler Bolt (Chassis Cab Only)
W706447-S437	3	1	4	Power Steering Pump Bolt (2020-2022 Only)
W715068-S437	3	1	4	Power Steering Pump Bolt (2023-2025 Only)
W714286-S442	1	1	4	Exhaust Hanger Bolt (2023-2025 Only)
F1AZ-6731-BD	1	1	1	Engine Oil Filter
LC3Z-8C387-A	1	1	1	Front Timing Cover Gasket
W716090-S437	4	1	4	Exhaust Manifold Heat Shield
F1VY-8255-A	1	1	1	Thermostat Housing O-Ring Gasket

Parts - F-Super Duty Pickup And Chassis Cab - Engine Replacement

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
6006	1	1	1	Engine Long Block - Refer To The Parts Catalog For The VIN Specific Application
W520514-S440	4	4	1	Exhaust Y Pipe Nuts
W714870-S430	16	4	4	Exhaust Manifold Nuts
LC2Z-9448-A	2	2	1	Exhaust Manifold Gasket
LC3Z-9439-A	8	1	8	Intake Manifold Gasket
W715106-S439	2	1	4	Engine Mount Through Bolt
W709771-S440	2	2	1	Transmission Mount Nut
DS7Z-19B596-A	1	1	1	Air Conditioning (A/C) Condenser Line O-Ring
W712861-S439	8	2	4	Engine Support Insulator Bracket Bolt
W715618-S437	4	1	4	Torque Converter Nut
W711336-S441	8	2	4	Engine Mount To Chassis Nut
AL3Z-6379-BA	8	1	8	Transmission Flex Plate Bolt
W714656-S439	4	1	4	Exhaust Hanger Bolt
W714286-S442	1	1	4	Exhaust Hanger Bolt (2023-2025 Only)
W714717-S439	2	1	4	Y Pipe To Muffler Bolt (Pickup Only)
W719575-S900	2	1	2	Y Pipe To Muffler Bolt (Chassis Cab Only)

W706447-S437	3	1	4	Power Steering Pump Bolt (2020-2022 Only)
W715068-S437	3	1	4	Power Steering Pump Bolt (2023-2025 Only)
LC3Z-12A227-A	1	1	1	Crankshaft Sensor Ring
W716090-S437	4	1	4	Exhaust Manifold Heat Shield

Parts - E-Series - Camshaft And Tappet Repair

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
LC3Z-6250-D	1	1	1	Camshaft/Tappet Service Kit
9W7Z-19B596-A	1	1	1	Air Conditioning (A/C) Condenser O-Ring
391308-S102	1	1	4	Transmission Dipstick Tube O-Ring
W715068-S437	3	1	4	Power Steering Pump Bolt
F1AZ-6731-BD	1	1	1	Engine Oil Filter
LC3Z-8C387-A	1	1	1	Front Timing Cover Gasket
W716090-S437	4	1	4	Exhaust Manifold Heat Shield
F1VY-8255-A	1	1	1	Thermostat Housing O-Ring Gasket

Parts - E-Series - Engine Replacement

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
6006	1	1	1	Engine Long Block - Refer To The Parts Catalog For The VIN Specific Application
W520514-S440	4	4	1	Exhaust Y Pipe Nuts
W714870-S430	16	4	4	Exhaust Manifold Nuts
LC2Z-9448-A	2	2	1	Exhaust Manifold Gasket
W715068-S437	3	1	4	Power Steering Pump Bolt
LC3Z-9439-A	8	1	8	Intake Manifold Gasket
9W7Z-19B596-A	1	1	1	Air Conditioning (A/C) Condenser O-Ring
W715618-S437	4	1	4	Torque Converter Nut
AL3Z-6379-BA	8	1	8	Transmission Flex Plate Bolt
391308-S102	1	1	4	Transmission Dipstick O-Ring
W520114-S440	4	4	1	Engine Mount Nut
N807479-S102	2	2	1	Transmission Support Mount Nut
BC2Z-3F887-A	1	1	1	Power Steering O-Ring
N807218-S441	8	8	1	Engine Mount Bolt
W714735-S439	8	2	4	Engine Mount Bolt
W714656-S439	4	1	4	Exhaust Hanger Bolt
LC3Z-12A227-A	1	1	1	Crankshaft Sensor Ring
W716090-S437	4	1	4	Exhaust Manifold Heat Shield

Parts - F-650/F-750 - Camshaft And Tappet Repair

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
---------------------	----------------	------------------------	-------------------	-------------

LC3Z-6250-D	1	1	1	Camshaft/Tappet Service Kit
W715106-S439	2	1	4	Engine Mount Through Bolt
W709771-S440	2	2	1	Transmission Mount Nut
9W7Z-19B596-A	1	1	1	Air Conditioning Condenser Line O-Ring
391308-S102	1	1	4	Transmission Dipstick O-Ring
W716090-S437	6	2	4	Exhaust Manifold Heat Shield
F1VY-8255-A	1	1	1	Thermostat Housing O-Ring Gasket
F1AZ-6731-BD	1	1	1	Engine Oil Filter
LC3Z-8C387-A	1	1	1	Front Cover Gasket

Parts - F-650/F-750 - Engine Replacement

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
6006	1	1	1	Engine Long Block - Refer To The Parts Catalog For The VIN Specific Application
W520514-S440	4	4	1	Exhaust Y Pipe Nuts
W714870-S430	16	4	4	Exhaust Manifold Nuts
LC2Z-9448-A	2	2	1	Exhaust Manifold Gasket
LC3Z-9439-A	8	1	8	Intake Manifold Gasket
9W7Z-19B596-A	1	1	1	Air Conditioning (A/C) Condenser O-Ring
AL3Z-6379-BA	8	1	8	Transmission Flex Plate Bolt
391308-S102	1	1	4	Transmission Dipstick O-Ring
W714656-S439	4	1	4	Exhaust Hanger Bolt
LC3Z-12A227-A	1	1	1	Crankshaft Sensor Ring
W716090-S437	4	1	4	Exhaust Manifold Heat Shield
W715106-S439	2	1	4	Engine Mount Through Bolt
W712861-S439	8	2	4	Engine Support Insulator Bracket Bolt
W709771-S440	2	2	1	Transmission Mount Nut

Parts - F-53 Motorhome/F-59 Stripped Chassis Cab - Camshaft And Tappet Repair

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
LC3Z-6250-D	1	1	1	Camshaft/Tappet Service Kit
W715106-S439	2	1	4	Engine Mount Through Bolt
W709771-S440	2	2	1	Transmission Mount Nut
1W1Z-19E889-BB	1	1	1	Air Conditioning Condenser Line O-Ring
F1AZ-6731-BD	1	1	1	Engine Oil Filter
LC3Z-8C387-A	1	1	1	Front Timing Cover Gasket
W716090-S437	4	1	4	Exhaust Manifold Heat Shield
F1VY-8255-A	1	1	1	Thermostat Housing O-Ring Gasket

Parts - F-53 Motorhome/F-59 Stripped Chassis Cab - Engine Replacement

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
6006	1	1	1	Engine Long Block - Refer To The Parts Catalog For The VIN Specific Application
W520514-S440	4	4	1	Exhaust Y Pipe Nuts
W714870-S430	16	4	4	Exhaust Manifold Nuts
LC2Z-9448-A	2	2	1	Exhaust Manifold Gasket
LC3Z-9439-A	8	1	8	Intake Manifold Gasket
W715106-S439	2	1	4	Engine Mount Through Bolt
W709771-S440	2	2	1	Transmission Mount Nut
W712861-S439	8	2	4	Engine Support Insulator Bracket Bolt
W715618-S437	4	1	4	Torque Converter Nut
W711336-S441	6	2	4	Engine Mount To Chassis Nut
AL3Z-6379-BA	8	1	8	Transmission Flex Plate Bolt
W714656-S439	4	1	4	Exhaust Hanger Bolt
1W1Z-19E889-BB	1	1	1	Air Conditioning Condenser Line O-Ring
LC3Z-12A227-A	1	1	1	Crankshaft Sensor Ring
W716090-S437	4	1	4	Exhaust Manifold Heat Shield

Parts - Parts To Inspect And Replace Only If Necessary

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
LC3Z-8507-A	Only If Necessary (Up To 1)	Only If Necessary (Up To 1)	1	Water Pump Gasket
PC3Z-8507-A	Only If Necessary (Up To 1)	Only If Necessary (Up To 1)	1	Water Pump Gasket
F2AZ-6397-A	Only If Necessary	Only If Necessary	2	Engine Dowel Pin
5L7Z-7D285-A	Only If Necessary	Only If Necessary	2	Transmission Cooler Seals
5L7Z-7J324-A	Only If Necessary	Only If Necessary	2	Transmission Cooler Line Seals
LC3Z-12286-D	Only If Necessary	Only If Necessary	1	Ignition Spark Plug Wire
W717468-S439	Only If Necessary	Only If Necessary	4	Bumper/Grill Stud Fastener

Service part numbers and "number in package" quantity may change after publication, thus also affecting the "package order quantity". Refer to the parts catalog for the latest information.

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 part is necessary but 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. Refer to the Service Procedure to determine the inspection/inclusion criteria.

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

Labor Times

Description	Operation No.	Time
2021-2025 E-Series 7.3L: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Fail) Complete Repair Outside Of This Article	252322A	0.9 Hrs.
2021-2025 E-Series 7.3L: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Fail) Replace Engine Long Block (Do Not Use With Any Other Labor Operations)	252322B	18.3 Hrs.
2021-2025 E-Series 7.3L: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Camshsft And all Valve Tappets (Do Not Use With Any Other Labor Operations)	252322C	18.9 Hrs.
2021-2025 E-Series 7.3L: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Engine Long Block (Do Not Use With Any Other Labor Operations)	252322D	21.3 Hrs.
2020-2025 F-Super Duty: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Fail) Complete Repair Outside Of This Article	252322E	0.7 Hrs.
2020-2025 F-Super Duty: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Fail) Replace Engine Long Block (Do Not Use With Any Other Labor Operations Outside Of This Article)	252322F	16.9 Hrs.
2020-2025 F-Super Duty: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Camshsft And all Valve Tappets (Do Not Use With Any Other Labor Operations Outside Of This Article)	252322G	21.5 Hrs.
2020-2025 F-Super Duty: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Engine Long Block (Do Not Use With Any Other Labor Operations Outside Of This Article)	252322H	19.7 Hrs.
2020-2025 F-Super Duty: Additional Time To Perform 360 Degree Camera Alignment If Equipped (Can Be Claimed With Operations F, G And H)	252322J	0.4 Hrs.
2020-2025 F-53 Motorhome Chassis / F-59 Commercial Stripped Chassis: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Fail) Complete Repair Outside Of This Article	MT252322K	Actual Time Up To 0.7 Hrs.
2020-2025 F-53 Motorhome Chassis / F-59 Commercial Stripped Chassis: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Fail) Replace Engine Long Block	MT252322L	Actual Time Up To 17.9 Hrs.
2020-2025 F-53 Motorhome Chassis / F-59 Commercial Stripped Chassis: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Camshsft And all Valve Tappets	MT252322M	Actual Time Up To 22.5 Hrs.
2020-2025 F-53 Motorhome Chassis / F-59 Commercial Stripped Chassis: Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Engine Long Block	MT252322N	Actual Time Up To 20.7 Hrs.
2021-2025 F650/F-750 - Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Fail) Complete Repair Outside Of This Article	MT252322P	Actual Time Up

		To 0.9 hours
2021-2025 F650/F-750 - Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Fail) Replace Engine Long Block	MT252322Q	Actual Time Up To 15.3 Hrs.
2021-2025 F650/F-750 - Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Camshaft And all Valve Tappets	MT252322R	Actual Time Up To 23.5 Hrs.
2021-2025 F650/F-750 - Retrieve DTCs, Inspect Ignition Coil Wires And Spark Plugs For Damage (Pass) Using Scan Tool Cancel Cylinders, Remove And Inspect Oil Filter (Pass) Remove Cylinder Heads And Inspect Camshaft And Tappets And Engine Block Cylinder Walls Replace Engine Long Block	MT252322S	Actual Time Up To 21.7 Hrs.

Repair/Claim Coding

Causal Part:	6500
Condition Code:	42

Service Procedure

1. Is a misfire DTC P0301-P0308 present?
 - (1). Yes - proceed to Step 2.
 - (2). No - proceed to Step 3.
2. Check for a loose ignition coil wire connection or cracked spark plugs. Refer to WSM, Section 303-07 Engine Ignition. Are any of these conditions present?
 - (1). Yes - this article does not apply.
 - (2). No - proceed to Step 4.
3. Can the noise be isolated to a specific cylinder using a diagnostic scan tool to cancel out cylinders and/or an engine stethoscope?
 - (1). Yes - proceed to Step 4.
 - (2). No - this article does not apply. Refer to WSM for normal diagnostics.
4. Remove the engine oil filter.
5. Open the oil filter assembly. Refer to WSM, Section 303-00, General Procedures for Oil Filter Inspection. Is an excessive amount of metal debris present in the oil filter? Refer to GSB Various Vehicles - Engine Failure Analysis.
 - (1). Yes - replace engine long block assembly. Refer to WSM, Section 303-01 for engine removal and installation.
 - (2). No - proceed to Step 6.
6. Remove both engine cylinder heads. Refer to WSM, Section 303-01 for cylinder head removal and installation.
7. Inspect the camshaft and tappets for damage and the engine block cylinder wall for scoring. Is the extent of the damage limited to the valve tappets and/or camshaft?
 - (1). Yes - install new camshaft and all valve tappets. Refer to WSM, Section 303-01 for camshaft and valve tappet removal and installation.
 - (2). No - replace engine long block assembly. Refer to WSM, Section 303-01 for engine removal and installation.

© 2025 Ford Motor Company
All rights reserved.

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.