



TECHNICAL SERVICE BULLETIN

3.0L EcoBoost - Cold Start Ticking/Tapping Or Rattle Type Noise

22-2377

17 October
2022

Model:

| | |
|-------------------------------------|-----------------------|
| Ford 2020-2022 Explorer | Engine: 3.0L EcoBoost |
| Lincoln 2020-2022 Aviator | Engine: 3.0L EcoBoost |

Issue: Some 2020-2022 Explorer/Aviator vehicles equipped with a 3.0L EcoBoost engine may exhibit a ticking/tapping or rattle type noise from the top front cover area of the engine on initial start-up after a cold soak of 6 hours or more that may last for 2-5 seconds. This may be due to a worn variable cam timing (VCT) unit. To correct the condition, follow the Service Procedure to replace the VCT units.

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

- 2020-2022 Explorer/Aviator
- 3.0L EcoBoost engine
- Customer symptom of ticking/tapping or rattle noise from the front cover area after a cold start

NOTE: Dealers should only order parts for customer vehicles that require repairs. Because of part constraints, dealers may experience situational short-term backorders on some parts. Customers should continue to drive vehicles while parts are on order.

Parts

Required For All Vehicles

| Service Part Number | Quantity | Description | Unit of Issue | Piece Quantity |
|---------------------|----------|---------------------------------|---------------|----------------|
| L1MZ-6C525-A | 2 | VCT Unit - Exhaust | 1 | 2 |
| L1MZ-6256-A | 2 | VCT Unit - Intake | 1 | 2 |
| BB5Z-4B422-A | 2 | Front Axle Pinion Stem Circlip | 1 | 2 |
| CN1Z-7H424-B | 2 | Halfshaft Seal | 1 | 2 |
| CP9Z-6279-C | 4 | VCT Unit Bolts | 1 | 4 |
| DS7Z-19B596-A | 1 | A/C Line-Compressor O-ring Seal | 1 | 1 |
| FT4Z-00815-A | 1 | Oil Gallery Seal | 1 | 1 |
| FT4Z-6020-A | 1 | Oil Cooler Gasket | 1 | 1 |
| FT4Z-6020-J | 1 | Engine Front Cover Gasket | 1 | 1 |
| FT4Z-6840-B | 1 | Oil Filter O-ring Seals | 2 | 2 |

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|--------------|---|---|---|---|
| FT4Z-6840-C | 1 | Stem-To-Oil Drain Port Seal | 1 | 1 |
| FT4Z-6N652-D | 1 | Oil Pump Return Tube O-ring Seals | 1 | 1 |
| FT4Z-6N652-G | 4 | Turbocharger Oil Return Tube O-ring Seal | 1 | 4 |
| FT4Z-6N652-F | 1 | Turbocharger Oil Return Tube-To-Engine Block Gasket | 1 | 1 |
| FT4Z-8507-C | 1 | Coolant Pump Seal | 1 | 1 |
| JR3Z-6701-A | 1 | Crankshaft Front Oil Seal | 1 | 1 |
| JT4Z-6020-A | 1 | Coolant Pump Gasket | 1 | 1 |
| JT4Z-6584-B | 1 | Valve Cover Gasket | 1 | 1 |
| JT4Z-6584-D | 1 | Valve Cover Gasket | 1 | 1 |
| JT4Z-6C683-A | 2 | Turbocharger Oil Supply Tube Filter | 1 | 2 |
| JT4Z-6N652-A | 1 | Turbocharger Oil Supply O-ring Seal | 1 | 1 |
| JT4Z-6N652-B | 1 | Turbocharger Oil Supply O-ring Seal | 1 | 1 |
| JT4Z-9E583-A | 1 | High Pressure Fuel Pump O-ring Seal | 1 | 1 |
| K2GZ-9440-A | 1 | Engine Front Cover Gasket | 1 | 1 |
| KU2Z-6731-A | 1 | Oil Filter Element | 1 | 1 |
| L1MZ-00815-A | 2 | Front Axle Pinion Stem O-ring | 1 | 2 |
| L1MZ-4382-A | 4 | Engine Mount Bolts | 1 | 4 |
| L1MZ-4382-B | 4 | Engine Mount Bolts | 1 | 4 |
| L1MZ-4421-B | 1 | Front Slip Yoke Boot Clamp Assembly | 1 | 1 |
| L1MZ-6584-A | 1 | Valve Cover Gasket, Left | 1 | 1 |
| L1MZ-6584-B | 1 | Valve Cover Gasket, Right | 1 | 1 |
| L1MZ-6584-C | 1 | Valve Cover Rocker Arm Gasket | 1 | 1 |
| L1MZ-6710-A | 1 | Oil Pan Gasket | 1 | 1 |
| L1MZ-6L612-B | 2 | Catalytic Converter Gasket | 1 | 2 |
| L1MZ-9448-A | 2 | Turbocharger Gasket | 1 | 2 |
| L1MZ-9J323-A | 1 | High Pressure Fuel Tube | 1 | 1 |

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|---------------|---|---|---|---|
| LB5Z-3B477-A | 2 | Wheel Hub Nut (AWD) | 1 | 2 |
| N1MZ-4A015-B | 1 | Front Actuator Seal | 1 | 1 |
| W520517-S440 | 1 | Lower Strut-to-Wheel Knuckle Nuts (AWD) | 4 | 4 |
| W712961-S439 | 1 | Steering Shaft Bolt | 2 | 1 |
| W714870-S430 | 1 | Turbocharger Nuts | 4 | 4 |
| W715131-S442 | 1 | Cable Assembly Bolts (10R60 Transmission) | 4 | 2 |
| W715564-S442 | 1 | Turbocharger Oil Supply Bolt | 4 | 3 |
| W715618-S437 | 2 | Torque Converter Nuts | 4 | 6 |
| W715932-S439 | 1 | Lower Strut-to-Wheel Knuckle Bolts (AWD) | 4 | 4 |
| W716117-S437 | 2 | Turbocharger Bolt | 1 | 2 |
| W716979-S439 | 1 | Rear Subframe Bolts | 4 | 2 |
| W719413-S439 | 1 | Middle and Front Subframe Bolts | 4 | 4 |
| W719431-S439 | 1 | Transmission Bolts | 4 | 3 |
| W719511-S439 | 2 | Transfer Case Flange Bolts (4WD) | 4 | 6 |
| W719699-S442 | 4 | Catalytic Converter Nuts | 1 | 4 |
| W721083-S439 | 4 | Transmission Support Insulator Bolts | 1 | 4 |
| L1MZ-3B478-A | 1 | Halfshaft Boot Clamp | 1 | 1 |
| BR3Z-6A340-A | 1 | Crankshaft Pulley Bolt | 1 | 1 |
| 5L7Z-7D285-A | 1 | Transmission Cooler Line Seal | 2 | 2 |
| 5L7Z-7J324-A | 1 | Ring Seal | 2 | 2 |
| KX6Z-9C587-A | 1 | High Pressure Fuel Pump Roller Tappet | 1 | 1 |
| FT4Z-12A227-A | 1 | Crankshaft Ring | 1 | 1 |
| L1MZ-4676-C | 1 | Oil Seal Assembly | 1 | 1 |
| XW4Z-6700-B | 1 | Front Main Oil Seal | 1 | 1 |
| FL3Z-9439-A | 1 | Intake Manifold Gaskets | 6 | 6 |
| W520216- | 4 | Sway Bar Linkage Nut | 1 | 4 |

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|---------------|-----------|--|---|---|
| S440 | | | | |
| W716383-S437 | 4 | Turbo Stud | 1 | 4 |
| W718758-S300 | 4 | Block Dowel Pin | 1 | 4 |
| W719326-S439 | 1 | Engine Mount Bolts | 4 | 4 |
| W721083-S439 | 1 | Transmission Bracket Bolts | 4 | 4 |
| XL-5-A | As Needed | Motorcraft® Multi-Purpose Grease Spray | | |
| 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) | | |
| XT-12-QULV | As Needed | Motorcraft® MERCON® ULV Automatic Transmission Fluid | | |
| ZC-30-A | As Needed | Motorcraft® Gasket Remover | | |
| ZC-31-B | As Needed | Motorcraft® Metal Surface Prep Wipes | | |
| ZC-37-A | As Needed | Motorcraft® Wheel and Tire Cleaner | | |
| 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) | | |
| TA-357 | As Needed | Motorcraft® High Performance Engine RTV Silicone | | |
| ZC-20 | As Needed | Motorcraft® Engine Shampoo and Degreaser (All Markets Except Canada) | | |
| CXC-66-A | As Needed | Motorcraft® Engine Shampoo (Canada Only) | | |
| YN-35 | As Needed | Motorcraft® R-1234yf Refrigerant PAG Oil | | |

Parts

Aviator Required Parts

| Service Part Number | Quantity | Description | Unit of Issue | Piece Quantity |
|---------------------|-----------|--|---------------|----------------|
| W711310-S440 | 1 | Lower Arm Bracket Nut (RWD) | 4 | 2 |
| W719503-S439 | 1 | Lower Arm Bracket Bolt (RWD) | 4 | 2 |
| W719506-S440 | 1 | Sway Bar Link Nut | 4 | 2 |
| W720050-S440 | 1 | Tie Rod End Nut (RWD) | 4 | 2 |
| W716375-S900 | 2 | Transfer Case Mounting Bolts | 5 | 8 |
| W716300-S450B | 1 | Engine Mount Nuts | 4 | 4 |
| W520214-S440 | 1 | Transmission Nut | 2 | 1 |
| XG-11 | As Needed | Motorcraft® High Temperature 4X4 Front Axle and Wheel Bearing Grease | | |

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|--------------|-----------|---|--|--|
| XL-2 | As Needed | Motorcraft® High Temperature Nickel Anti-Seize Lubricant (Hybrid) | | |
| XY-75W140-QL | As Needed | Motorcraft® SAE 75W-140 Synthetic Rear Axle Lubricant | | |

Parts

Explorer Required Parts

| Service Part Number | Quantity | Description | Unit of Issue | Piece Quantity |
|---------------------|----------|---|---------------|----------------|
| KR3Z-6A666-A | 1 | PCV Valve | 1 | 1 |
| W714660-S439 | 1 | Anchor Plate Bolts | 4 | 2 |
| W720782-S439 | 1 | Rear Subframe Bolts | 4 | 2 |
| W713714-S439 | 1 | Rear Subframe Bolts | 4 | 2 |
| W710726-S442 | 1 | Cable Assembly Bolts (10R80 Transmission) | 4 | 2 |
| W717521-S440 | 2 | Engine Mount Nuts, Left and Right | 1 | 2 |
| W705606-S440 | 2 | Sway Bar Link Nuts | 2 | 4 |
| W525174-S300 | 1 | Skid Bar Rivets (Police Only) | 10 | 1 |

Parts

Parts To Inspect And Replace Only If Necessary (Explorer/Aviator)

| Service Part Number | Quantity | Description | Unit of Issue | Piece Quantity |
|---------------------|-----------|--|---------------|----------------|
| FT4Z-6A832-C | 1 | Oil Filter Housing | 1 | 1 |
| FT4Z-8C387-A | 1 | Air Cleaner Outlet Pipe O-ring Seal | 1 | 1 |
| L1MZ-8527-A | 1 | Coolant Pipe O-ring | 1 | 1 |
| W719698-S900 | 4 | Catalytic Converter Stud | 1 | 4 |
| BR3Z-6C535-B | 6 | Spark Plug Seals | 1 | 6 |
| 7T4Z-6379-AA | 2 | Turbocharger Studs | 4 | 8 |
| W719485-S450 | 1 | Fuel Pump Studs | 4 | 2 |
| 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) | | |
| VC-1 | As Needed | Motorcraft® Premium Cooling System Flush | | |
| YN-23 | As Needed | Motorcraft® A/C System Flushing Solvent | | |

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 | Time |
|-------------|-----------|------|
|-------------|-----------|------|

| | No. | |
|--|---------|-----------|
| 2020-2022 Explorer RWD 3.0L EcoBoost: Replace All 4 VCT Units (Can Be Claimed With Operation E Or F) | 222377A | 21.6 Hrs. |
| 2020-2022 Explorer 4WD 3.0L EcoBoost: Replace All 4 VCT Units (Can Be Claimed With Operation E Or F) | 222377B | 23.4 Hrs. |
| 2020-2022 Aviator RWD 3.0L EcoBoost: Replace All 4 VCT Units (Can Be Claimed With Operation E Or F) | 222377C | 22.4 Hrs. |
| 2020-2022 Aviator AWD 3.0L EcoBoost: Replace All 4 VCT Units (Can Be Claimed With Operation E Or F) | 222377D | 23.7 Hrs. |
| Additional Time To Check And Correct Caster/Camber And Front Toe (Can Be Claimed With Operation A, B, C Or D) | 222377E | 1.1 Hrs. |
| Additional Time To Check And Correct Caster/Camber And Front Toe For Vehicles With Lane Departure (Can Be Claimed With Operation A, B, C Or D) | 222377F | 1.3 Hrs. |

Repair/Claim Coding

| | |
|-----------------|-------|
| Causal Part: | 6C525 |
| Condition Code: | 42 |

Service Procedure

1. Replace all 4 VCT units. Refer to Workshop Manual (WSM), Section 303-01. Do not replace any additional VCT or engine timing related components not included in the Parts List.

- (1). It is not necessary to remove the 2 left valve cover cam sensors.
- (2). All the VCT solenoid and spark plug tube seals require inspection, but not all require replacement.

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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.