



## TECHNICAL SERVICE BULLETIN

### 3.5L EcoBoost - Cold Start Ticking/Tapping Or Rattle Type Noise - Built On Or Before 31-Oct-2019

21-2119

14 April 2021

This bulletin supersedes 20-2315. Reason for update: New Part/Procedure For Same Condition

#### Model:

<b>Ford</b> 2017-2020 F-150	Engine: 3.5L EcoBoost
2018-2020 Expedition	
<b>Lincoln</b> 2018-2020 Navigator	

#### Summary

This article supersedes TSB 20-2315 to update the Service Procedure.

**NOTE: Certain parts may now be reused for this repair. Refer to the Service Procedure for details.**

**Issue:** Some 2017-2020 F-150 2018-2020 Expedition/Navigator vehicles built on or before 31-Oct-2019 and equipped with a 3.5L 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 steps to replace the VCT units.

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

- One of the following vehicle lines:
  - 2017-2020 F-150
  - 2018-2020 Expedition/Navigator
- Built on or before 31-Oct-2019
- 3.5L 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.**

**NOTE: Part quantity refers to the number of that service part number required, which may be different than the number of individual pieces. Service part numbers contain 1 piece unless otherwise stated. "As Needed" indicates the part is required but the number may vary 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.**

**NOTE: Oil Pump Electrical Connector Seal and VCT Oil Control Seal are the same service part number.**

#### Parts

---

<b>Part Number</b>		<b>Description</b>	<b>Quantity</b>
HL3Z-6256-CD	Package Contains 1 Piece, 2 Pieces Required	Intake VCT Unit	2
HL3Z-6C525-CD	Package Contains 1 Piece, 2 Pieces Required	Exhaust VCT Unit	2
HL3Z-6279-A	Package Contains 1 Piece, 4 Pieces Required	VCT Unit Bolt	4
ML3Z-6584-G	-	Left Valve Cover Gasket	1
HL3Z-6584-A	-	Right Valve Cover Gasket	1
HL3Z-9439-A	Package Contains 3 Pieces, 6 Pieces Required	Intake Port Gasket	2
W503275-S437	Package Contains 4 Pieces, 1 Piece Required	High Pressure Fuel Tube Retaining Bolt	1
W503280-S437	Package Contains 4 Pieces, 1 Piece Required	High Pressure Fuel Tube Retaining Bolt	1
W714498-S900	Package Contains 4 Pieces, 2 Pieces Required	High Pressure Pump Mounting Bolt	1
AA5Z-9E583-A	-	High Pressure Pump O-ring	1
HL3Z-8507-A	-	Coolant Pump Gasket	1
BR3Z-8527-A	-	Coolant Pump O-ring	1
HL3Z-6A340-A	-	Crankshaft Pulley Shaft Bolt	1
XW4Z-6700-AA	-	Front Crankshaft Seal	1
BR3Z-6020-A	-	Front Cover Coolant Pipe Seal	1
BR3Z-6C535-A	-	Oil Pump Electrical Connector Seal	1
AA5Z-6714-A	-	Oil Filter	1
TA-357	-	Motorcraft® High Performance Engine RTV Silicone	As Needed
ZC-30-A	-	Motorcraft® Silicone Gasket Remover	As

			Needed
ZC-31-B	-	Motorcraft® Metal Surface Cleaner	As Needed
VC-13-G	-	Motorcraft® Yellow Antifreeze/Coolant Concentrated (All Markets Except Canada)	As Needed
CVC-13-G	-	Motorcraft® Yellow Antifreeze/Coolant Concentrated (Canada Only)	As Needed
XO-5W30-Q1SP	-	Motorcraft® SAE 5W-30 Premium Synthetic Blend Motor Oil (All Markets Except Canada)	As Needed
CXO-5W30-LSP6	-	Motorcraft® SAE 5W-30 Super Premium Motor Oil (Canada Only)	As Needed
ZC-20	-	Motorcraft® Engine Shampoo and Degreaser (All Markets Except Canada)	As Needed
CXC-66-A	-	Motorcraft® Engine Shampoo (Canada Only)	As Needed
PM-4-A	-	Motorcraft® Metal Brake Parts Cleaner (Compliant With Low Volatile Organic Compound Requirements As Required In Some USA States)	As Needed
PM-4-B	-	Motorcraft® Metal Brake Parts Cleaner (Not Compliant With Volatile Organic Compound Requirements)	As Needed
Parts To Inspect And Replace Only If Necessary			
HL3Z-9H486-A	Package Contains 6 Pieces	Upper Intake Manifold Gaskets	If Needed
BR3Z-6C535-A	-	VCT Oil Control Seal	If Needed
BR3Z-6C535-B	-	Spark Plug Tube Seal	If Needed
HL3Z-9417-A	-	High Pressure Pump Mounting Plate Seal	If Needed
BL3Z-9374-A	-	High Pressure Pump Mounting Plate O-ring	If Needed
HL3Z-8507-D	-	Thermostat Housing O-ring	If Needed
HL3Z-8527-A	-	Thermostat Housing O-ring	If Needed
HL3Z-8590-A	-	Water Pump Outlet O-ring	If Needed
HL3Z-9J323-C	-	High Pressure Pump to Rail Tube	If Needed

---

**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
2017-2020 F-150 3.5L EcoBoost: Replace All Four (4) VCT Units (Do Not Use With Any Other Labor Operations)	212119A	9.6 Hrs.
2017-2020 F-150 Raptor 3.5L EcoBoost: Replace All Four (4) VCT Units (Do Not Use With Any Other Labor Operations)	212119B	9.7 Hrs.
2018-2020 Expedition: Replace All Four (4) VCT Units (Do Not Use With Any Other Labor Operations)	212119C	9.8 Hrs.
2018-2020 Navigator: Replace All Four (4) VCT Units (Do Not Use With Any Other Labor Operations)	212119D	9.8 Hrs.

### Repair/Claim Coding

Causal Part:	6256
Condition Code:	42

### Service Instruction

**NOTE: The following parts may be reused for this repair if no damage is present.**

- Intake gaskets (HL3Z-9H486-A)
- High pressure fuel tube (HL3Z-9J323-C) may be reused for this repair, if the fuel tube has not previously been reused. The high-pressure fuel pump to fuel rail high-pressure fuel tube flare nuts must be tightened to 32 Nm +/-2 Nm when reusing the fuel tube for this article.
- VCT solenoid seals (BR3Z-6C535-A) and spark plug tube seals (BR3Z-6C535-B) should continue to be reused if no damage is present.

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.

---

© 2021 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.