



# 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

Service Part Number	Quantity	Description	
HL3Z-9439-A	2	Valve Cover Intake Port Gasket	Package Contains 3 Pieces, 6 Pieces Required
HL3Z-6256-CD	2	Intake VCT Unit	Package Contains 1 Piece, 2 Pieces Required
HL3Z-	2	Exhaust VCT Unit	Package Contains 1

6C525-CD			Piece, 2 Pieces Required
HL3Z-6279-A	4	VCT Unit Bolt	Package Contains 1 Piece, 4 Pieces Required
ML3Z-6584-G	1	Left Valve Cover Gasket	-
HL3Z-6584-A	1	Right Valve Cover Gasket	-
W503275-S437	1	High Pressure Fuel Tube Retaining Bolt	Package Contains 4 Pieces, 1 Piece Required
W503280-S437	1	High Pressure Fuel Tube Retaining Bolt	Package Contains 4 Pieces, 1 Piece Required
W714498-S900	1	High Pressure Pump Mounting Bolt	Package Contains 4 Pieces, 2 Pieces Required
AA5Z-9E583-A	1	High Pressure Pump O-ring	-
HL3Z-8507-A	1	Coolant Pump Gasket	-
BR3Z-8527-A	1	Coolant Pump O-ring	-
HL3Z-6A340-A	1	Crankshaft Pulley Shaft Bolt	-
XW4Z-6700-AA	1	Front Crankshaft Seal	-
BR3Z-6020-A	1	Front Cover Coolant Pipe Seal	-
BR3Z-6C535-A	1	Oil Pump Electrical Connector Seal	-
AA5Z-6714-A	1	Oil Filter	-
TA-357	As Needed	Motorcraft® High Performance Engine RTV Silicone	-
ZC-30-A	As Needed	Motorcraft® Silicone Gasket Remover	-
ZC-31-B	As Needed	Motorcraft® Metal Surface Cleaner	-
VC-13-G	As Needed	Motorcraft® Yellow Antifreeze/Coolant Concentrated (All Markets Except Canada)	-
CVC-13-G	As Needed	Motorcraft® Yellow Antifreeze/Coolant Concentrated (Canada Only)	-
XO-5W30-Q1SP	As Needed	Motorcraft® SAE 5W-30 Premium Synthetic Blend Motor Oil (All Markets Except Canada)	-
CXO-5W30-LSP6	As Needed	Motorcraft® SAE 5W-30 Super Premium Motor Oil (Canada Only)	-
ZC-20	As Needed	Motorcraft® Engine Shampoo and Degreaser (All Markets Except Canada)	-
CXC-66-A	As Needed	Motorcraft® Engine Shampoo (Canada Only)	-

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)	-
Parts To Inspect And Replace Only If Necessary			
HL3Z-9H486-A	If Needed	Upper Intake Manifold Gaskets	Package Contains 6 Pieces
BR3Z-6C535-A	If Needed	VCT Oil Control Seal	-
BR3Z-6C535-B	If Needed	Spark Plug Tube Seal	-
HL3Z-9417-A	If Needed	High Pressure Pump Mounting Plate Seal	-
BL3Z-9374-A	If Needed	High Pressure Pump Mounting Plate O-ring	-
HL3Z-8507-D	If Needed	Thermostat Housing O-ring	-
HL3Z-8527-A	If Needed	Thermostat Housing O-ring	-
HL3Z-8590-A	If Needed	Water Pump Outlet O-ring	-
HL3Z-9J323-C	If Needed	High Pressure Pump to Rail Tube	-

**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.

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