



# TECHNICAL SERVICE BULLETIN

## 6.7L Diesel - Engine Oil Leak

**22-2201**

20 May 2022

This bulletin supersedes 21-2447.

### Model:

<b>Ford</b> 2017-2019 F-650/F-750	Engine: 6.7L
2017-2019 F-Super Duty	Engine: 6.7L

### Summary

This article supersedes TSB 21-2447 to update the Parts List.

**Issue:** Some 2017-2019 F-Super Duty/F-650/F-750 vehicles equipped with a 6.7L may exhibit an engine oil leak. This may be due to the mating surface of the upper oil pan and the engine block. To correct the condition, follow the Service Procedure to reseal the engine block.

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

- 2017-2019 F-Super Duty/F-650/F-750
- Engine oil leak in the area of the upper oil pan

### Parts

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity	Note
BC3Z-6731-B	1	Oil Filter	1	1	
BC3Z-6840-A	1	Oil Filter Adaptor Press In Place Gasket	1	1	
W715618-S437	2	Torque Converter Nuts	4	6	
W711336-S441	2	Engine Support Insulator Nuts	4	6	
W709771-S440	2	Transmission Support Insulator Nuts	1	2	
W520515-S440	1	Cross Member Fastener Nuts	4	4	
W710356-S439	1	Cross Member Fastener Bolts	4	4	
391558-S102	2	Transmission Support Insulator To Transmission Bolt	1	2	
N605804-S439	1	Transmission Support Insulator Bracket Bolts (2WD Only)	4	1	
W715131-S437	1	Transmission Fluid Cooler Tube Bolt (Transmission Side)	4	1	
391308-S102	1	Transmission Fluid Filler Tube O-Ring (391308)	4	1	
BC3Z-6379-C	3	Flexplate Bolts	4	10	

DC3Z-6L621-B	1	Oil Cooler Gasket 1	1	1	
DC3Z-6L621-A	1	Oil Cooler Gasket 2	1	1	
DC3Z-6L621-C	1	Oil Cooler Gasket 3	1	1	
BC3Z-6695-B	1	Lower Oil Pan	1	1	
DC3Z-6710-A	1	Round Upper Oil Pan Press In Place Gasket	2	2	
DC3Z-6710-B	1	Square Upper Oil Pan Press In Place Gasket	1	1	
XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (All Markets Except Canada)			
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (Canada Only)			
XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4x4 Only, Transfer Case Fluid) (All Markets Except Canada)			
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4x4 Only, Transfer Case Fluid) (Canada Only)			
XO-10W30-QSDF	As Needed	Motorcraft® SAE 10W-30 Super Duty Diesel Motor Oil			
XO-15W40-QSDF	As Needed	Motorcraft® SAE 15W-40 Super Duty Diesel Motor Oil			
XO-5W40-QSD	As Needed	Motorcraft® SAE 5W-40 Full Synthetic Diesel Motor Oil			
XO-5W20-Q1FS	As Needed	Motorcraft® SAE 5W-20 Full Synthetic Motor Oil (F-Super Duty)			WSM Section 204-04A - Removal and Installation
XO-5W20-Q1SP	As Needed	Motorcraft® SAE 5W-20 Synthetic Blend Motor Oil (F-650/F-750) (All Markets Except Canada)			WSM Section 204-04 - Removal and Installation
CXO-5W20-LSP6	As Needed	Motorcraft® SAE 5W-20 Synthetic Blend Motor Oil (F-650/F-750) (Canada Only)			WSM Section 204-04 - Removal and Installation
TA-357	As Needed	Motorcraft® High Performance Engine RTV Silicone			
ZC-31-B	As Needed	Motorcraft® Metal Surface Prep Wipes			
XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray			
TA-24-B	As Needed	Motorcraft® Thread Sealant with PTFE (4x4 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)			
ZC-30-A	As	Motorcraft® Gasket Remover			

	Needed			
ZC-20	As Needed	Motorcraft® Engine Shampoo and Degreaser		
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)		
XL-2	As Needed	Motorcraft® High Temperature Nickel Anti-Seize Lubricant		
164-TP33200008	As Needed	Dye-Lite® Oil-Based Fluid Dye (Rotunda Part Number)		

## Parts

### Driveshaft Bolts And Straps - Not All Vehicles Will Use All Of The Parts Listed

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
N811880-S100	1 Per Affected Joint	U-Joint Flange Style Bolts - Refer To The Parts Catalog For The Vin Specific Application	4	4 Per Affected Joint
F1HZ-4N272-A	1 Per Affected Joint	U-Joint Strap Style Bolts - Refer To The Parts Catalog For The Vin Specific Application	4	4 Per Affected Joint
F81Z-4N272-AA	1 Per Affected Joint	U-Joint Strap Style Bolts - Refer To The Parts Catalog For The Vin Specific Application	4	4 Per Affected Joint
E4HZ-4A254-A	2 Per Affected Joint	U-Joint Straps - Refer To The Parts Catalog For The Vin Specific Application	1	2 Per Affected Joint
E4HZ-4A254-B	2 Per Affected Joint	U-Joint Straps - Refer To The Parts Catalog For The Vin Specific Application	1	2 Per Affected Joint
BC3Z-4N272-A	1 Per Affected Joint	Driveshaft Center Bearing Bolts - Refer To The Parts Catalog For The Vin Specific Application	2	2 Per Affected Joint

## Parts

### Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue
LC3Z-6375-B	If Needed	Flexplate	1
HU2Z-11V002-ABRM	If Needed	Starter Motor	1
BC3Z-11002-B	If Needed	Starter Motor	1
5L7Z-7J324-A	If Needed	Transmission Fluid Tube Backing Rings	2
5L7Z-7D285-A	If Needed	Transmission Fluid Tube Seals	2
F2AZ-6397-A	If Needed	Transmission Dowel Pins	2

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.

If Needed indicates the part is not mandatory.

**Warranty Status:** Eligible under provisions of New Vehicle Limited Warranty (NVLW)/Service Part Warranty (SPW)/Special Service Part (SSP)/Extended Service Plan (ESP) coverage. Limits/policies/prior approvals are not altered by a TSB. NVLW/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
2017-2019 F-250/F-350 4X2 6.7L: Diagnose And Reseal The Upper Engine Oil Pan (Do Not Use With Any Other Labor Operations)	222201A	9.6 Hrs.
2017-2019 F-250/F-350 4X4 6.7L: Diagnose And Reseal The Upper Engine Oil Pan (Do Not Use With Any Other Labor Operations)	222201B	10.2 Hrs.
2017-2019 F-450/F-550 4X2 6.7L: Diagnose And Reseal The Upper Engine Oil Pan (Do Not Use With Any Other Labor Operations)	222201C	9.8 Hrs.
2017-2019 F-450/F-550 4X4 6.7L: Diagnose And Reseal The Upper Engine Oil Pan (Do Not Use With Any Other Labor Operations)	222201D	10.3 Hrs.
2017-2019 F-650/F-750 6.7L: Diagnose And Reseal The Upper Engine Oil Pan (Do Not Use With Any Other Labor Operations)	222201E	12.6 Hrs.
2017-2019 F-650/F-750 6.7L With Air Brakes: Diagnose And Reseal The Upper Engine Oil Pan (Do Not Use With Any Other Labor Operations)	222201F	12.7 Hrs.

### Repair/Claim Coding

Causal Part:	6675
Condition Code:	D8

### Service Procedure

- Inspect the lower portion of the engine for any signs of an oil leak. Refer to Workshop Manual (WSM), Section 303-01. If necessary, clean the engine, add fluorescent dye and inspect for the source of the oil leak. Are there signs of an oil leak in the area of the upper oil pan near the engine block to upper oil pan joint?
  - Yes - proceed to Step 2.
  - No - this article does not apply. Refer to Workshop Manual (WSM), Section 303-00 for further diagnostics.
- Clean the engine, add fluorescent dye to the engine oil and inspect for the source of the oil leak. Refer to WSM, Section 303-01. Is the dye present leaking from the mating surfaces of the upper oil pan and on the engine block assembly?
  - Yes - proceed to Step 3.
  - No - this article does not apply. Refer to WSM, Section 303-00 and any other applicable service communications for further oil leak diagnostics.
- Remove the upper engine oil pan. Refer to WSM, Section 303-01.



**CAUTION: Cleaning and preparation of the engine sealing surface is absolutely critical for proper adhesion of the upper oil pan. Improperly cleaned and prepared sealing surfaces results in an oil leak.**

- Thoroughly clean the engine sealing surface using Motorcraft® Silicone Gasket Remover and a plastic scraper. Allow the gasket remover to set for several minutes after application to aid in the removal of the RTV sealant.
  - The engine block skirt stiffener and upper oil pan sealing surfaces must be clean and free of any residual RTV. Do not use metal scrapers, wire brushes, or rotary tools of any type on the engine sealing surface. These tools damage the sealing surfaces including scratches or gouges that create leak paths. A second application of Motorcraft® Silicone Gasket Remover may be required.

**NOTE: Use a lint-free cloth when cleaning the engine block and upper oil pan sealing surfaces. Spraying the surfaces with brake cleaner and air drying does not adequately remove the oil and other contamination from the surfaces and may leave residue from the brake cleaner behind that may interfere with RTV adhesion.**

- Use a lint-free towel and Motorcraft® Metal Brake Parts Cleaner to remove all residual sealant and oil from the engine and upper oil pan sealing surfaces until a clean lint-free towel no longer shows any residual oil when wiping

the surface.

- (1). Use only Motorcraft® Metal Brake Parts Cleaner to clean the upper oil pan and engine block sealing surfaces. Some unapproved brake parts cleaners contain chemicals that inhibit RTV adhesion or may evaporate without removing all of the residual oil from the sealing surface which results in a repeat leak condition.
6. Wipe the metal engine block skirt stiffener and upper oil pan sealing surfaces using Motorcraft® Metal Surface Prep Wipes. Thoroughly coat the surface with the fluid. Discard the wipes after a single use.
  - (1). Motorcraft® Metal Surface Prep Wipes create a conversion coating providing an improved base for RTV sealing. The Motorcraft® Metal Surface Prep Wipe fluid is a water-based, slightly acidic solution that etches and bonds to the metal to provide a microscopic layer to which the RTV sealant can adhere. If the surface is oily, the solution beads, indicating the surface is not clean. If the solution beads when applied to the sealing surface, clean the surface again with Motorcraft® Metal Brake Parts Cleaner and a lint-free towel and wipe the surface with Motorcraft® Metal Surface Prep Wipes.
7. Allow the surface to air dry for approximately 2 minutes.
  - (1). Do not dry the surface using any other method. Attempting to dry the surface may result in sealing surface contamination that may cause oil leaks.
8. Install the 3 new press-in-place oil pump gaskets. Refer to WSM, Section 303-01.



**CAUTION: Install the upper oil pan within 10 minutes of applying the RTV. Prior to installing the upper oil pan, check for any additional oil that has drained from the engine and clean as necessary. Failure to do so could result in a repeat repair.**

9. Apply a 4.5 mm (0.18 in.) bead of Motorcraft® High Performance Engine RTV Silicone to the upper oil pan. Make sure the RTV bead straddles the step chamfer and sealing face.
  - (1). Using too little sealant may result in oil leaks and using too much sealant may result in oil contamination and engine damage.
10. Apply a 9 mm (0.35 in.) bead of Motorcraft® High Performance Engine RTV Silicone to the engine front cover-to-cylinder block joint areas on the upper oil pan.
11. Install the upper oil pan. Refer to the WSM, Section 303-01.
12. Perform Steps 4-7 on the upper oil pan surface to prep the surface for installation of the lower oil pan.
13. Apply a 4.5 mm (0.177 in.) diameter bead of Motorcraft® High Performance Engine RTV Silicone on the outside of the chamfer on the new lower oil pan sealing face. Install the lower oil pan within 10 minutes of applying the RTV sealant.
  - (1). Using too little sealant may result in oil leaks and using too much sealant may result in oil contamination and engine damage.
14. Install the new lower oil pan. Refer to WSM, Section 303-01.

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