



TECHNICAL SERVICE BULLETIN

Intermittent Grinding/Hum/Rumble Noise From The Front Wheel Area - No DTCs Stored In The TCCM

25-2513

07 November
2025

This bulletin supersedes 24-2189. Reason for update: update the Service Procedure and affected vehicles.

Model:

Ford 2021-2025 F-150	non-Raptor 4WD ESOF transfer case (minor feature code FMLAS)
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Markets: North American markets only

Issue: Some 2021-2025 F-150 non-Raptor vehicles equipped with an ESOF transfer case (minor feature code FMLAS) may exhibit an intermittent grinding/hum/rumble noise from the front wheel area while in 2WD that goes away when the vehicle is put into 4WD. These vehicles will also have no DTCs stored in the TCCM. To confirm a vehicle is built with a certain minor feature code, review the build information by double-clicking the VIN in the upper left corner in the PTS. This may be due to incomplete disengagement of the IWE actuator assemblies.

Action: For vehicles that meet all of the criteria in the Issue and Model statements, follow the Service Procedure to check for a binding/stuck IWE.

NOTE: Some parts for this repair may be different than what is in the parts catalog.

Parts

Service Part Number	Claim Quantity	Package Order Quantity	Number in Package	Description
ML3Z-3C247-H	2	2	1	IWE Actuator Assembly (2021-2022 F-150 Equipped With Minor Feature Code FMLAS)
ML3Z-3C247-J	2	2	1	IWE Actuator Assembly (2023-2025 F-150 Equipped With Minor Feature Code FMLAS)
AL3Z-4B416-A	2	2	1	Axle Shaft Dust Seal
AL1Z-4L537-B	1	1	1	Axle Shaft Boot Kit
1L2Z-4B422-BA	4	1	4	Circlip
N802827-S100A	2	1	4	Front Wheel Hub Nut
W520215-S441	2	1	4	Front Stabilizer Bar Link Upper Nut
W520215-S440	2	1	4	Tie Rod End Nut
W717969-S440	2	1	4	Upper Ball Joint Nut
W720613-S439	4	1	4	Caliper Anchor Plate Bolts
Obtain Locally	1	1		Brass Disk Style Wire Brush
PM-4-A	As Needed	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	As Needed		Motorcraft® Metal Brake Parts Cleaner (Not Compliant With Volatile Organic Compound Requirements)
XY-75W85-QL	As Needed	As Needed		Motorcraft® SAE 75W-85 Premium Synthetic Hypoid Gear Lubricant

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.

Warranty Status: Eligible under provisions of New Vehicle Limited Warranty (NVLW)/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/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 F-150 4X4: Diagnose And Replace Left IWE Includes Time To Clean The Splines Following The Service Procedure (Do Not Use With Any Other Labor Operations)	252513A	2.3 Hrs.
2021-2025 F-150 4X4: Diagnose And Replace Right IWE Includes Time To Clean The Splines Following The Service Procedure (Do Not Use With Any Other Labor Operations)	252513B	2.1 Hrs.
2021-2025 F-150 4X4: Diagnose And Replace Both IWE Includes Time To Clean The Splines Following The Service Procedure (Do Not Use With Any Other Labor Operations)	252513C	3.4 Hrs.

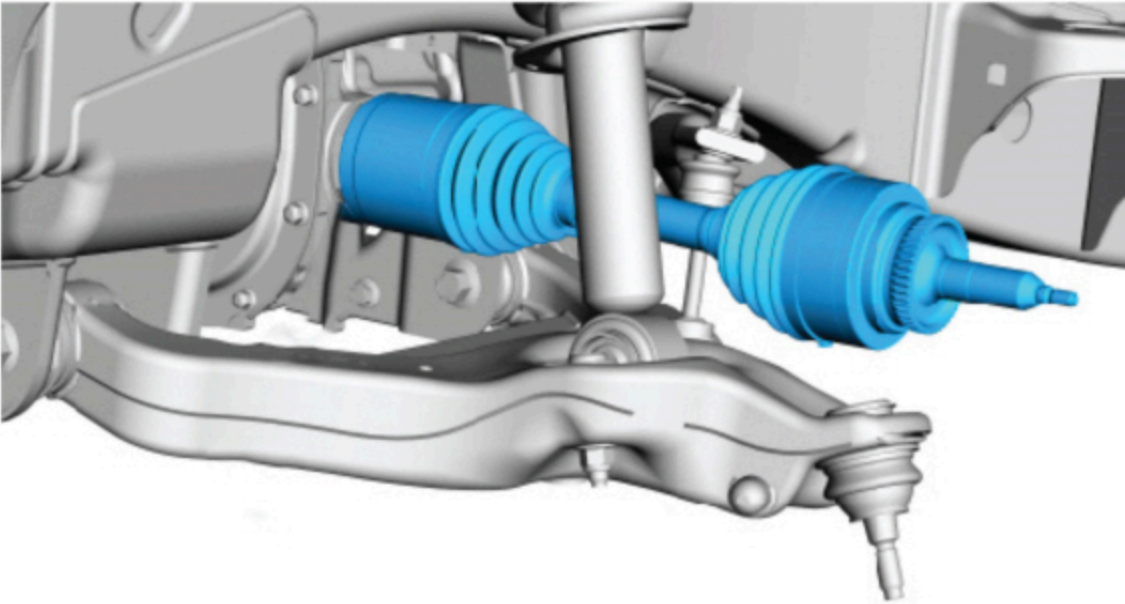
Repair/Claim Coding

Causal Part:	3C247
Condition Code:	42

Service Instruction

1. With the transmission in the N, position the vehicle on a hoist with a straight-ahead steering wheel angle and raise the vehicle until all 4 wheels are off the ground following WSM, Section 100 General Information > Service Information > Jacking and Lifting.
2. Place the vehicle in 2WD high (2H) mode and wait 5 seconds for the IWE to disconnect.
3. Rotate the left front tire one revolution forward and one revolution backward by hand while observing the left front halfshaft.
4. Rotate the right front tire one revolution forward and one revolution backward by hand while observing the right front halfshaft.
5. Did both halfshafts spin when the wheel(s) are turned?
 - (1). Yes - proceed to Step 6 and install new IWE on both sides.
 - (2). No - proceed to Step 6 and install a new IWE only on the side that the halfshaft spun with the wheel while in 2WD high (2H).
6. Put the vehicle into 4WD 4H.
7. Remove the front halfshaft from the wheel hub on the affected side(s) of the vehicle to gain access to the halfshaft splines (Figure 1). Do not remove the halfshaft from the differential. Refer to the WSM, Section 205-04, Removal and Installation.

Figure 1

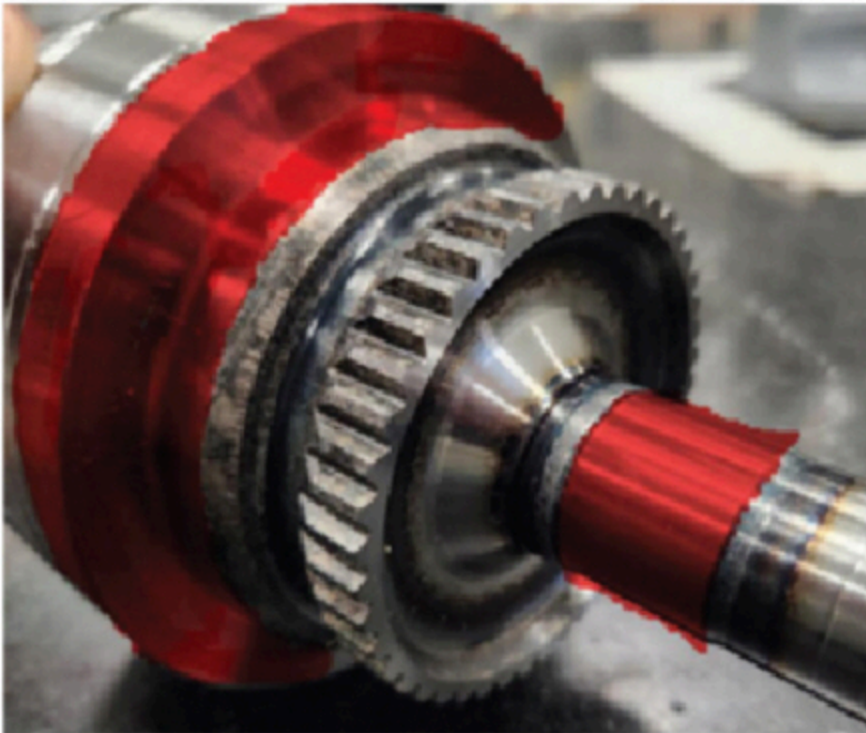


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8. Using Motorcraft® Metal Brake Parts Cleaner and a clean rag, remove the grease from the front halfshaft splines on both sides of the vehicle.

⚠ CAUTION: Do not use any other wire brush material other than brass to perform Step 9 as using other more abrasive materials could mar the splines. Take care to not damage the halfshaft surfaces highlighted in red in Figure 2.

Figure 2



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9. Using a brass disk style wire brush attached to a rotary tool, polish each spline face on both sides of the vehicle until a clean and even finish is achieved, about 5-10 seconds, making light passes with the tool. Rock the wire wheel back and forth to polish both faces of the spline valley (Figure 3).

Figure 3



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10. Using Motorcraft® Metal Brake Parts Cleaner and a clean rag, clean the halfshafts on both sides of the vehicle and blow dry with compressed air.
11. Install a new IWE actuator assembly on the affected side(s) of the vehicle. Reassemble the vehicle. Refer to the WSM, Section 205-04 Front Drive Halfshafts, Removal and Installation.
12. With the new IWE actuator assemblies installed, turn the vehicle to KOER.
13. Put the vehicle in 2WD high (2H) then wait 10 seconds.
14. Shift the vehicle to D, then allow the vehicle to idle forward roughly 1 meter (3.28 feet).
15. Put the vehicle into P, then 4H. Wait 10 seconds.
16. Shift the vehicle to R. Allow the vehicle to move backward roughly 1 meter (3.28 feet) then shift to P.
17. Repeat Steps 13-16 an additional 5 times to distribute grease onto the halfshaft splines. Repair is complete.

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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.