



# TECHNICAL SERVICE BULLETIN

## HF35 Transmission - Thumping/Rubbing Or Grinding Noise

**22-2396**24 October  
2022

This bulletin supersedes 20-2219.

**Model:**

<b>Ford</b> 2013-2018 C-MAX Hybrid	Transmission/Transaxle: HF35
2013-2020 Fusion	Transmission/Transaxle: HF35
<b>Lincoln</b> 2013-2020 MKZ	Transmission/Transaxle: HF35

**Summary**

This article supersedes TSB 20-2219 to update the Part List and Service Procedure.

**Issue:** Some 2013-2020 Fusion/MKZ and 2013-2018 C-Max vehicles equipped with an HF35 transmission may exhibit a thumping/rubbing or grinding noise coming from the transmission. The noise may be present in all gear ranges including neutral when the vehicle is moving but will not be present when the vehicle is stationary or in park.

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

- One of the following vehicles:
  - 2013-2020 Fusion/MKZ
  - 2013-2018 C-Max
- HF35 transmission
- Thumping/rubbing or grinding noise coming from the transmission

**Parts****All Models**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
W520102-S442	1	Axle Bearing Strap Nut	4	2
W520103-S442	2	Exhaust Nut	4	1
W716457-S439	1	Frame-To-Body Bolt	4	2
BT4Z-4221-B	1	Differential Bearing - Damper Side	1	1
BT4Z-4221-A	1	Differential Bearing - Case Side	1	1
5L7Z-7J324-A	1	Cooler Line O-ring	2	2
5L7Z-7D285-A	1	Cooler Line Seal	2	2
FG9Z-7H348-J	1	Transfer Shaft (Front Wheel Drive 2.57 Axle Ratio - C-MAX/Fusion FHEV)	1	1
FG9Z-7H348-H	1	Transfer Shaft (Front Wheel Drive 2.91 Axle Ratio - C-MAX/Fusion PHEV/MKZ)	1	1
ZC-31-B	As Needed	Motorcraft® Metal Surface Prep Wipes		
ZC-30-A	As	Motorcraft® Gasket Remover		

	Needed			
TA-26	As Needed	Motorcraft® Threadlock 262		
TA-29	As Needed	Motorcraft® Ultra Silicone Sealant		
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)		
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)		
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)		

## Parts

### C-MAX Parts

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
YS4Z-3N324-AA	1	Center Shaft Clamp	1	1
AE5Z-4B422-A	1	Axle Ciclip	1	1
CV6Z-9450-B	1	Exhaust Flange Gasket	1	1
CV6Z-9448-A	1	Manifold Gasket	1	1
CCPZ-3B477-G	1	Axle Nut	1	1
W520415-S442	1	Lower Ball Joint Nut	4	2
W704474-S437	2	Exhaust Manifold Stud	4	7
W713095-S437	2	Exhaust Manifold Nut	4	7
W715491-S442	1	Ball Joint Bolt	4	2
W520414-S442	1	Exhaust Nut	4	2

## Parts

### Fusion/MKZ Parts

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
BB5Z-4B422-B	1	Axle Circlip	1	1
W500545-S439	1	Ball Joint Bolt	4	2
W520214-S440	1	Ball Joint Nut	2	2
W520215-S440	1	Tie Rod Nut	4	2
W712503-S440	2	Stabilizer Nut	1	2
W714878-S439	1	Sterring Shaft Bolt	4	1
4S4Z-3N324-AA	1	Center Shaft	1	1
1S7G-8255-BD	1	Coolant Gasket	1	1
W705606-S440	1	Sway Bar Nut	2	2
CCPZ-3B477-C	1	Axle Nut	2	2

## Parts

### Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description
DG9Z-7A398-A	If Needed	Planetary
DG9Z-7A233-A	If Needed	Input Gear Assembly
W714358-S442	If Needed	Underbody Shield Nut (Fusion/MKZ)

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
2013-2018 C-MAX Hybrid: Diagnose, Inspect And Repair Transmission Includes Time For Road Tests And Flushing (Do Not Use With Any Other Labor Operations)	222396A	14.7 Hrs.
2013-2018 C-MAX Energi: Diagnose, Inspect And Repair Transmission Includes Time For Road Tests And Flushing (Do Not Use With Any Other Labor Operations)	222396B	15.0 Hrs.
2013-2020 Fusion Hybrid: Diagnose, Inspect And Repair Transmission Includes Time For Road Tests And Flushing (Do Not Use With Any Other Labor Operations Except F Or G)	222396C	13.1 Hrs.
2013-2020 MKZ Hybrid: Diagnose, Inspect And Repair Transmission Includes Time For Road Tests And Flushing (Do Not Use With Any Other Labor Operations Except F Or G)	222396D	13.6 Hrs.
2013-2020 Fusion Energi: Diagnose, Inspect And Repair Transmission Includes Time For Road Tests And Flushing (Do Not Use With Any Other Labor Operations Except F Or G)	222396E	13.2 Hrs.
2013-2020 Fusion/MKZ Hybrid/Energi Without Lane Departure Warning System: Check And Set Front End Toe (Do Not Use With Any Other Labor Operations Except C, D Or E)	222396F	0.6 Hrs.
2013-2020 Fusion/MKZ Hybrid/Energi With Lane Departure Warning System: Check And Set Front End Toe (Do Not Use With Any Other Labor Operations Except C, D Or E)	222396G	0.8 Hrs.

### Repair/Claim Coding

Causal Part:	7H348
Condition Code:	30

## Service Procedure

1. With the vehicle at operating temperature, perform a road test and lightly apply the brakes from 48-16 km/h (30-10 mph).
  - (1). The engine shuts-off on deceleration when the vehicle is at operating temperature.
2. Is a thumping/rubbing or grinding noise present?
  - (1). Yes - proceed to Step 3.
  - (2). No - this article does not apply. Refer to Workshop Manual (WSM), Section 307-01 for normal diagnostics.
3. Remove the transmission assembly. Refer to WSM, Section 307-01.
4. Disassemble the transmission and remove the rotors for a full internal inspection. Refer to WSM, Section 307-01.

**NOTE: Generator and traction rotors are magnetic so they must be placed on a non-magnetic surface away from one another.**

**5.** Inspect the damper housing for transfer shaft to housing contact. Is damage present on the damper housing from the transfer shaft?

(1). Yes - replace the damper housing and transfer shaft using the transfer shaft repair kit. Follow the repair kit procedure. Proceed to Step 7.

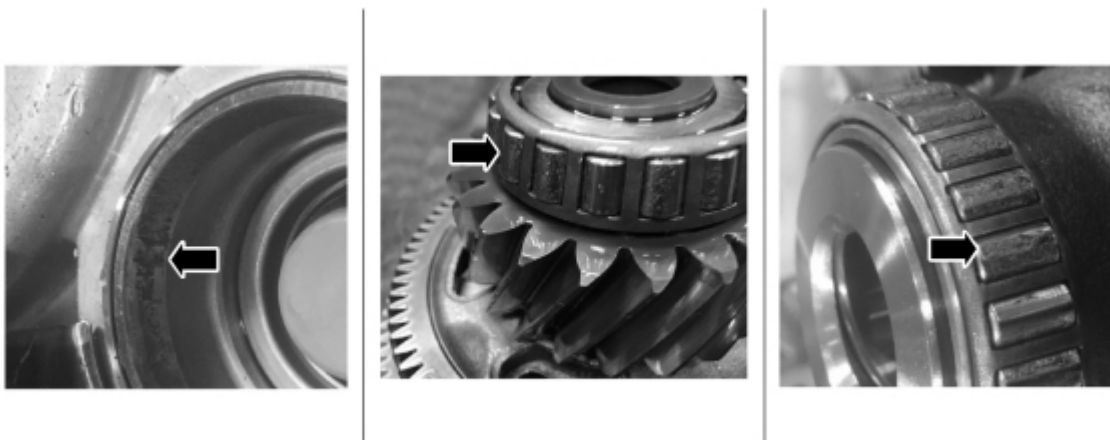
(2). No - proceed to Step 6.

**6.** Inspect the differential bearings. Is there any noticeable roller bearing damage? (Figures 1-2)

Figure 1



Figure 2



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(1). Yes - replace the differential bearings, clean transmission of any internal debris. Refer to WSM, Section 307-01.

(2). No - proceed to Step 7.

**7.** Inspect the input gear bearings. Replace the input gear assembly if any damage found.

**8.** Remove the generator rotor to inspect the planetary assembly. Refer to WSM, Section 307-01.

**9.** Inspect the forward input planetary assembly. Is there any damage to the gear or bearing?

(1). Yes - replace the planetary assembly.

(2). No - clean and reinstall planetary assembly.

**10.** Reassemble the transmission. Refer to WSM, Section 307-01.

**11.** Reinstall transmission assembly. Refer to WSM, Section 307-01.

**12.** Flush the transmission fluid cooling system. Refer to WSM, Section 307-01.

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.