



# TECHNICAL SERVICE BULLETIN

## 10R140 Automatic Transmission - Harsh Reverse To Drive Engagements With No DTCs - Built On Or Before 13-Dec-2021

**22-2087**

08 March  
2022

**Model:**

<b>Ford</b> 2020-2022 F-Super Duty	Transmission/Transaxle: 10R140 Built on or before 13-Dec-2021
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**Issue:** Some 2020-2022 F-Super Duty vehicles built on or before 13-Dec-2021 and equipped with a 10R140 automatic transmission may exhibit harsh reverse to drive engagements without diagnostic trouble codes (DTCs). This may be due to sticking valves in the main control valve body or suspect input shaft seals (F9) and the output shaft seals (F10). To correct the condition, follow the Service Procedure steps to perform the transmission accelerated main control break-in routine for the E and F clutches and/or replace the input shaft seals (F9) and the output shaft seals (F10).

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

- 2020-2022 F-Super Duty
- 10R140 transmission
- Built on or before 13-Dec-2021
- Harsh reverse to drive engagements with no DTCs

**Parts**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
LC3Z-7H223-A	16	Front Support Assembly Bolt Washers	1	16
LC3Z-7B031-B	1	Front Support-To-Case Seal		
LC3Z-7A248-A	1	Torque Converter Hub Seal		
LC3Z-7G091-D	2	Input Shaft Torque Converter (F0) Teflon Seals	1	2
LC3Z-7052-A	1	Output Shaft Seal (Fixed Flange)		
LC3Z-7052-C	1	Output Shaft Seal (Slip Yoke)		
BC3Z-7G199-E	1	Rear Bushing Fluid Feed Seal (Slip Yoke)		
LC3Z-7052-B	1	Output Shaft Seal (4WD)		
LC3Z-7G091-C	3	Input Shaft Seals (F9)	1	3
LC3Z-7D019-A	3	Output Shaft Seals (F10)	1	3
W520514-S440	4	Y-Pipe-To-Exhaust Manifold Nuts (Right And Left Sides)	1	4
W715131-	1	Transmission Fluid Cooler Tube Bolt	4	1

S442				
W714824-S442	1	Selector Lever Cable Bracket Bolts	4	2
W715618-S437	1 For Gas Engine, 2 For Diesel Engine	Torque Converter Nuts	4	4 For Gas Engine, 6 For Diesel Engine
N605804-S439	3	Transfer Case To Transmission Bolts (4x4 Only)	4	11
E4HZ-4A254-B	2	Front Driveshaft Pinion Flange Strap (4x4 Only)	1	2
F81Z-4N272-AA	1	Front Driveshaft Pinion Flange Bolts (4x4 Only)	4	4
N811880-S100	1	Front Driveshaft CV Joint-To-Transfer Case Flange (4x4 Only)	4	4
W709771-S440	2	Transmission Mount Support Isolator Nuts	1	2
W710356-S439	1	Crossmember Bracket Bolts	4	2
W520515-S440	1	Crossmember Bracket Nuts	4	2
N605804-S439	1	Transmission Support Insulator Bracket Bolts (2WD Only)	4	4
391558-S102	2	Transmission Support Insulator Bolts	1	2
W714717-S439	1	Exhaust Y-Pipe-To-Resonator Bolts (7.3L Only)	4	2
W714656-S439	1	Exhaust Hanger Bracket Bolts (7.3L Only)	4	4
W718005-S900	1	Exhaust Lower Downpipe-To-Catalyst And Particulate Filter Assembly Bolts (6.7L Only)	2	2
XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (Transfer Case Fluid, 4WD Only) (All Markets Except Canada)		
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (Transfer Case Fluid, 4WD Only) (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)		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		
XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray		

## Parts

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

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
F1HZ-4N272-A	4 Per Affected Joint	U-Joint Strap Style Bolts - Refer To The Parts Catalog For The VIN Specific Application	1	4 Pieces Required Per Affected Joint
E4HZ-	2 Per	U-Joint Straps - Refer To The Parts Catalog For The	1	2 Pieces Required

4A254-A	Affected Joint	VIN Specific Application		Per Affected Joint
N811880-S100	1 Per Affected Joint	U-Joint Flange Style Bolts - Refer To The Parts Catalog For The VIN Specific Application	4	4 Pieces Required Per Affected Joint
BC3Z-4N272-A	1 Per Affected Joint	Driveshaft Center Bearing Bolts - Refer To Parts Catalog For The VIN Specific Application	1	1 Piece Required Per Affected Joint
W500633-S439	1	Driveshaft Center Bearing Bolts - Refer To Parts Catalog For The VIN Specific Application	1	1 Piece Required Per Affected Joint

## Parts

### Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
LC3Z-7N265-A	If Needed	Main Control Manifold Seal	1	
LC3Z-7N265-B	If Needed	Fluid Pump Gasket	1	
LC3Z-7F396-C	If Needed	Fluid Pan Gasket	1	
LC3Z-7J227-A	If Needed	Transmission Fluid Cooler O-Ring Seals	1	4 Maximum
LC3Z-7G186-A	If Needed	Transmission Fluid Filter	1	
F2AZ-6397-A	If Needed	Dowel Pins	2	2 Maximum

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.

Unit of Issue and Piece Quantity are 1 unless otherwise stated.

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
2020-2022 F-Super Duty: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure Repair Complete (Do Not Use With Any Other Labor Operations)	222087A	2.1 Hrs.
2020-2022 F-Super Duty 250/350 4X2 6.7L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087B	10.6 Hrs.
2020-2022 F-Super Duty 250/350 4X4 6.7L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087C	11.6 Hrs.
2020-2022 F-Super Duty 250/350 4X2 6.2L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087D	10.0 Hrs.
2020-2022 F-Super Duty 250/350 4X4 6.2L: Perform The Transmission Accelerated Main	222087E	11.2

Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)		Hrs.
2020-2022 F-Super Duty 250/350 4X2 7.3L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087F	10.0 Hrs.
2020-2022 F-Super Duty 250/350 4X4 7.3L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087G	11.2 Hrs.
2020-2022 F-Super Duty 450/550 4X2 6.7L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087H	10.6 Hrs.
2020-2022 F-Super Duty 450/550 4X4 6.7L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087J	11.7 Hrs.
2020-2022 F-Super Duty 450/550 4X2 7.3L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087K	10.0 Hrs.
2020-2022 F-Super Duty 450/550 4X4 7.3L: Perform The Transmission Accelerated Main Control Break In Routine, Clear KAM And Adaptive Learning Drive Cycle Following The Service Procedure, Replace The Input And Output Shaft Seals (Do Not Use With Any Other Labor Operations)	222087L	11.2 Hrs.

### Repair/Claim Coding

Causal Part:	7D019
Condition Code:	42

### Service Procedure

1. Prepare vehicle for the powertrain control module (PCM)/transmission control module (TCM) Transmission Accelerated Main Control Break In routine by positioning on a frame-engaging lift with wheels off the ground to prevent vehicle movement.
2. Using the latest software level of the Ford Diagnosis and Repair System (FDRS) scan tool, perform the PCM/TCM - Transmission Accelerated Main Control Break In routine 3 times on the E and F clutches.
3. Clear the keep alive memory (KAM).
4. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.
5. Shift the transmission to reverse (R) from drive (D). Wait 2 seconds.
6. Shift the transmission to drive (D) from reverse (R). Wait 2 seconds.
7. Repeat Steps 5 and 6 an additional 6 times for a total of 7 cycles.

**NOTE: Advise the customer this vehicle is equipped with an adaptive transmission shift strategy which allows the vehicle's computer to learn the transmission's unique parameters and improve shift quality. When the adaptive strategy is reset, the computer will begin a relearning process. This relearning process may result in firmer than normal upshifts and downshifts for several days.**

8. Does the vehicle still exhibit the condition after performing the PCM/TCM - Transmission Accelerated Main Control Break In routine and adaptive learning drive cycle?
  - (1). Yes - proceed to Step 9.
  - (2). No - repair is complete.
9. Remove the transmission. Refer to the Workshop Manual (WSM), Section 307-01B.

**10.** Disassemble the transmission only far enough to access the input shaft seals (F9) and the output shaft seals (F10). Refer to the Workshop Manual (WSM), Section 307-01B. Steps 7-26 are not required.

(1). Do not disassemble the clutch and planetary assembly (WSM Steps 75-213).



**CAUTION: Use caution when removing the input shaft seals (F9). Damage may occur as the shaft is not hardened in that location.**

**11.** Replace the input shaft seals (F9) and the output shaft seals (F10).

**12.** To reassemble the transmission, reverse the disassembly procedure. Refer to WSM, Section 307-01B.

**13.** Install the transmission. Refer to WSM, Section 307-01B.

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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.