



# TECHNICAL SERVICE BULLETIN

## 10R60 - Whine Noise During Deceleration Or During Acceleration

**23-2144**

02 June 2023

**Model:**

|                                |                               |
|--------------------------------|-------------------------------|
| <b>Ford</b><br>2023 Bronco     | Transmission/Transaxle: 10R60 |
| 2023 Explorer                  | Transmission/Transaxle: 10R60 |
| <b>Lincoln</b><br>2023 Aviator | Transmission/Transaxle: 10R60 |

**Issue:** Some 2023 Bronco/Explorer/Aviator vehicles equipped with a 10R60 automatic transmission built on 8-Dec-2022 and through 22-Dec-2022 may exhibit a whine noise during coast down from 25 mph (40 km/h). Vehicles built on 6-Feb-2023 and through 1-Mar-2023 may exhibit a whine noise during acceleration in 1st gear. These conditions may be caused by the machining of the No. 4 shell and sun gear. To correct the conditions, follow the Service Procedure to replace No. 4 shell and sun gear.

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

- 2023 Bronco/Explorer/Aviator
- Equipped with 10R60 automatic transmission
- At least one of the following conditions
  - Whine noise during coast down from 25 mph (40 km/h) on vehicles built on 8-Dec-2022 and through 22-Dec-2022
  - Whine noise during acceleration in 1st gear on vehicles built on 6-Feb-2023 and through 1-Mar-2023

**Parts****All Vehicles**

| Service Part Number | Quantity  | Description   | Unit of Issue | Piece Quantity |
|---------------------|-----------|---|---------------|----------------|
| HL3Z-7G199-A        | 1         | Auxiliary Pump Tube Seal (Auto-Stop-Start vehicles)   | 1             | 1              |
| L1MZ-7D062-A        | 1         | No. 4 Shell And Sun Gear (S4)   | 1             | 1              |
| LC3Z-7H223-A        | 12        | Front Support Bolt Seals  | 1             | 12             |
| LP5Z-7A248-A        | 1         | Torque Converter Seal   | 1             | 1              |
| LP5Z-7B031-A        | 1         | Front Support To Case Seal  | 1             | 1              |
| LP5Z-7G091-A        | 1         | Input Shaft Seal (F9)   | 1             | 1              |
| LP5Z-7G091-D        | 5         | Input Shaft Seals (F2)  | 1             | 5              |
| LP5Z-7G091-E        | 5         | Input Shaft To Sun Gear No. 3 Shaft Seals (F8)  | 1             | 5              |
| XT-12-QULV          | As Needed | Motorcraft® MERCON® ULV Automatic Transmission Fluid  |               |                |
| XT-10-QLVC          | As Needed | Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Transfer Case) (All Markets Except Canada) |               |                |
| CXT-10-LV6          | As Needed | Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Transfer Case) (Canada Only)               |               |                |

**Parts**

**All Vehicles - Parts To Inspect And Replace Only If Necessary**

| Service Part Number | Quantity | Description   | Unit of Issue | Piece Quantity |
|---------------------|----------|---|---------------|----------------|
| 7L1Z-7J227-A        | 2        | Transmission Fluid Cooler O-ring Seals                | 2             | 4              |
| 7T4Z-7Z302-A        | 1        | Transmission Fluid Filter Seal                        | 1             | 1              |
| HL3Z-7A191-B        | 1        | Fluid Pan Gasket                                      | 1             | 1              |
| HL3Z-7J227-A        | 1        | Auxiliary Pump Tube O-ring (Auto-Stop-Start Vehicles) | 1             | 1              |

**Parts****All Vehicles - Select One Of The Following If Needed**

| Service Part Number | Quantity | Description                    | Unit of Issue | Piece Quantity |
|---------------------|----------|--------------------------------|---------------|----------------|
| LP5Z-7A527-L        | 1        | T-3 Shim 2.9-3mm Selective     | 1             | 1              |
| LP5Z-7A527-M        | 1        | T-3 Shim 3.05-3.15mm Selective | 1             | 1              |
| LP5Z-7A527-N        | 1        | T-3 Shim 3.2-3.3mm Selective   | 1             | 1              |
| LP5Z-7A527-P        | 1        | T-3 Shim 3.35-3.45mm Selective | 1             | 1              |
| LP5Z-7A527-Q        | 1        | T-3 Shim 3.5-3.6mm Selective   | 1             | 1              |
| LP5Z-7A527-R        | 1        | T-3 Shim 3.65-3.75mm Selective | 1             | 1              |
| LP5Z-7A527-S        | 1        | T-3 Shim 3.8-3.9mm Selective   | 1             | 1              |
| LP5Z-7A527-T        | 1        | T-3 Shim 3.95-4.05mm Selective | 1             | 1              |
| LP5Z-7A527-U        | 1        | T-3 Shim 4.1-4.2mm Selective   | 1             | 1              |
| LP5Z-7A527-V        | 1        | T-3 Shim 4.25-4.35mm Selective | 1             | 1              |

**Parts****Bronco**

| Service Part Number | Quantity                   | Description   | Unit of Issue | Piece Quantity              |
|---------------------|----------------------------|---|---------------|-----------------------------|
| W520214-S440        | 2                          | Sway Bar/Stabilizer Bar Bracket   | 2             | 3                           |
| W715618-S437        | 1 For 2.7/3.0L, 2 For 2.3L | Torque Converter Nuts   | 4             | 6 For 2.3L, 4 For 2.7L/3.0L |
| W520515-S442        | 1 For 2.3L, 2 For 2.7L     | Transmission Support Crossmember Nuts (2.3L/2.7L)                                 | 4             | 4 For 2.3L, 8 For 2.7L      |
| W720940-S440        | 1                          | Stabilizer Bar Link Upper Nuts (Equipped With Sway Bar Connect)                   | 4             | 2                           |
| JB3Z-4B496-B        | 6                          | Pinion Flange Bolts & Retaining Straps - Front Driveshaft CV Joints               | 1             | 6                           |
| KB3Z-6L612-A        | 1                          | Catalytic Converter Gasket (2.3L)   | 1             | 1                           |
| LB3Z-4B496-A        | 4                          | CV Joint-To-Transfer Case Flange Cup Bolts And Retaining Straps (Rear Driveshaft) | 1             | 4                           |
| MB3Z-5A215-B        | 1                          | Exhaust Clamp (2.7L)  | 1             | 1                           |
| MB3Z-5C226-A        | 1                          | Right Exhaust Manifold Gasket (2.7L)  | 1             | 1                           |
| MB3Z-5C226-B        | 2                          | Exhaust Manifold Gasket (3.0L)  | 1             | 2                           |
| MB3Z-9450-B         | 1                          | Exhaust Flexible Pipe Flange Gasket (2.3L)  | 1             | 1                           |
| W500121-S439        | 2                          | Transfer Case Bolts   | 4             | 8                           |
| W500642-S439        | 4                          | Transmission Support Insulator Bolts, Right And Left (2.3L)                       | 1             | 4                           |

|               |           |   |   |                                    |
|---------------|-----------|---|---|------------------------------------|
| W520103-S442  | 1         | Exhaust Flexible Pipe Flange Nuts (2.3L)            | 4 | 2                                  |
| W713314-S439  | 1         | Exhaust Hanger Bracket Bolts (2.7L)                 | 4 | 2                                  |
| W714265-S442  | 1         | Catalytic Converter Nut                             | 4 | 2 For 2.7L, 3 For 2.3L, 4 For 3.0L |
| W714409-S439  | 1         | Steering Column Lower Shaft Coupler Retainer (2.3L) | 4 | 2                                  |
| W717376-S439B | 1         | Stabilizer Bar Undershield Bolts (If equipped)      | 4 | 4                                  |
| W720545-S442  | 1         | Transmission Fluid Heat Exchanger Tube Bolt         | 4 | 1                                  |
| W721041-S439  | 1         | Front Stabilizer Bar Bracket Studs                  | 4 | 2                                  |
| W721255-S442  | 1         | Shift Cable Bracket Bolts                           | 4 | 2                                  |
| W721449-S439  | 1         | Sway Bar / Stabilizer Bar Bracket Bolts             | 4 | 2                                  |
| XL-5-A        | As Needed | Motorcraft® Multi-Purpose Grease Spray              |   |                                    |

## Parts

### Bronco - Parts To Inspect And Replace Only If Necessary

| Service Part Number | Quantity | Description   | Unit of Issue | Piece Quantity |
|---------------------|----------|---|---------------|----------------|
| W525585-S300        | 2        | Engine Block Dowel Pins (3.0L)                        | 1             | 2              |
| W718758-S300        | 1        | Engine Block Dowel Pins (2.7L)                        | 4             | 2              |
| W701183-S1300       | 1        | Engine Block Dowel Pins (2.3L)                        | 4             | 2              |
| HL3Z-7A098-A        | 1        | Transmission Fluid Filter (Bronco)                    | 1             | 1              |
| JB3Z-7J227-A        | 4        | Transmission Fluid Heat Exchanger O-ring Seals (2.3L) | 1             | 4              |
| MB3Z-5484-A         | 2        | Front Stabilizer Bar Bushings                         | 1             | 2              |
| MB3Z-5A231-C        | 1        | Exhaust Flexible Pipe Clamp (2.3L)                    | 1             | 1              |
| W712458-S900        | 1        | Exhaust Studs   | 4             | 3              |

## Parts

### Explorer/Aviator

| Service Part Number | Quantity                    | Description                            | Unit of Issue | Piece Quantity              |
|---------------------|-----------------------------|--|---------------|-----------------------------|
| W520214-S440        | 1                           | Transmission Mount Nut                 | 2             | 1                           |
| W715618-S437        | 1 for 3.3L, 2 For 2.3L/3.0L | Torque Converter Nuts                  | 4             | 6 For 2.3L/3.0L, 4 For 3.3L |
| W715131-S442        | 1                           | Park Manual Release Bracket Bolt       | 4             | 2                           |
| L1MZ-3B478-A        | 1                           | Front Drive Shaft Boot Clamp (4WD)     | 1             | 1                           |
| L1MZ-3B498-F        | 1                           | Rear Axle Pinion Stem Circlip          | 1             | 1                           |
| L1MZ-4421-A         | 1                           | Front Drive Shaft Boot (4WD)           | 1             | 1                           |
| L1MZ-6L612-A        | 1                           | Exhaust Gasket (2.3L)                  | 1             | 1                           |
| L1MZ-6L612-B        | 1                           | Left Catalytic Converter Gasket (3.0L) | 1             | 1                           |

|               |                                    |  |   |   |
|---------------|------------------------------------|--|---|---|
| LB5Z-3B498-A  | 1                                  | Front Axle Pinion Stem Circlip (4WD)   | 1 | 1   |
| W716375-S900  | 2                                  | Transfer Case Mounting Bolts (4WD)   | 5 | 8   |
| W716979-S439  | 1                                  | Rear Subframe Bolts (3.0L)   | 4 | 2   |
| W717822-S439  | 1                                  | Driveshaft Center Bearing Bracket Bolts  | 4 | 2   |
| W719413-S439  | 1                                  | Middle Subframe Bolts (3.0L)   | 4 | 2   |
| W719431-S439  | 1                                  | Transmission Mount Bolts   | 4 | 3 For 4WD, 2 For RWD  |
| W719511-S439  | 1 Or 2                             | Flex Coupling Drive Shaft Bolts  | 4 | 3 Pieces Needed, 6 Total Pieces Needed If Also Replacing The Driveshaft Bushing |
| W719699-S442  | 2 For 3.0L, 3 For 2.3L, 4 For 3.3L | Catalytic Converter Nuts   | 1 | 2 For 3.0L, 3 For 2.3L, 4 For 3.3L  |
| W720506-S439  | 1                                  | Transmission Support Bracket Bolts (RWD)   | 4 | 4   |
| W721083-S439  | 1                                  | Transmission Crossmember Bolts   | 4 | 4   |
| L1MZ-4A015-B  | 1                                  | Axle Pinion Stem O-ring  | 1 | 1   |
| 5L3Z-19A506-A | As Needed                          | Slip Yoke Grease   |   |   |
| 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)                                |   |   |
| TA-29         | As Needed                          | Motorcraft® Ultra Silicone Sealant   |   |   |
| XG-11         | As Needed                          | Motorcraft® High Temperature 4X4 Front Axle and Wheel Bearing Grease   |   |   |
| XG-1-E1       | As Needed                          | Motorcraft® Premium Long-Life Grease   |   |   |
| XG-3-A        | As Needed                          | Motorcraft® Silicone Brake Caliper Grease and Dielectric Compound  |   |   |
| XL-1          | As Needed                          | Motorcraft® Penetrating and Lock Lubricant   |   |   |
| XL-2          | As Needed                          | Motorcraft® High Temperature Nickel Anti-Seize Lubricant   |   |   |
| XL-5-A        | As Needed                          | Motorcraft® Multi-Purpose Grease Spray   |   |   |
| ZC-20         | As Needed                          | Motorcraft® Engine Shampoo and Degreaser   |   |   |
| ZC-30-A       | As Needed                          | Motorcraft® Gasket Remover   |   |   |
| ZC-31-B       | As Needed                          | Motorcraft® Metal Surface Prep Wipes   |   |   |

## Parts

### Explorer/Aviator - Parts To Inspect And Replace Only If Necessary

| Service Part Number | Quantity               | Description                                  | Unit of Issue | Piece Quantity         |
|---------------------|------------------------|--|---------------|------------------------|
| W525585-S300        | 2                      | Engine Block Dowel Pins (3.0L)               | 1             | 2                      |
| W701183-S1300       | 1                      | Engine Block Dowel Pins (2.3L)               | 4             | 2                      |
| W718758-S300        | 1                      | Engine Block Dowel Pins (3.3L)               | 4             | 2                      |
| MB3Z-7G186-A        | 1                      | Transmission Fluid Filter (Explorer/Aviator) | 1             | 1                      |
| L1MZ-4650-A         | 1                      | Driveshaft Alignment Bushing                 | 1             | 1                      |
| L1MZ-4782-A         | 1                      | Flex Coupling                                | 1             | 1                      |
| W716963-S900        | 1                      | Catalytic Converter Studs (3.3L)             | 4             | 4                      |
| W719698-S900        | 2 For 3.0L, 3 For 2.3L | Left Catalytic Converter Studs               | 1             | 2 For 3.0L, 3 For 2.3L |

### Labor Times

| Description  | Operation No. | Time      |
|--|---------------|-----------|
| 2023 Aviator AWD 3.0L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)  | 232144A       | 8.6 Hrs.  |
| 2023 Aviator RWD 3.0L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)  | 232144B       | 8.1 Hrs.  |
| 2023 Explorer RWD 2.3L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)   | 232144C       | 9.5 Hrs.  |
| 2023 Explorer 4WD 2.3L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)   | 232144D       | 10.5 Hrs. |
| 2023 Explorer RWD 3.0L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)   | 232144E       | 8.2 Hrs.  |
| 2023 Explorer 4WD 3.0L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)   | 232144F       | 8.7 Hrs.  |
| 2023 Explorer 4WD 3.3L TiVCT: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Operations)  | 232144G       | 10.0 Hrs, |
| 2023 Bronco 2.3L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Labor Operations Outside Of This Article) (Can Be Claimed With Operation L) | 232144H       | 12.4 Hrs. |
| 2023 Bronco 2.7L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Labor Operations Outside Of This Article) (Can Be Claimed With Operation L) | 232144J       | 12.0 Hrs. |
| 2023 Bronco 3.0L EcoBoost: Replace The No. 4 Shell And Sun Gear And Perform Adaptive Learning Drive Cycle (Do Not Use With Any Other Labor Operations Outside Of This Article) (Can Be Claimed With Operation L) | 232144K       | 9.8 Hrs.  |
| 2023 Bronco Additional Time If Equipped With Electronic Sway Bar Disconnect (Do Not Use With Any Other Labor Operations Outside Of This Article) (Can Be Claimed With Operation H, J Or K)                       | 232144L       | 0.8 Hrs.  |

### Repair/Claim Coding

|                 |       |
|-----------------|-------|
| Causal Part:    | 7D062 |
| Condition Code: | 14    |

### Service Procedure

1. Remove the transmission from the vehicle. Refer to Workshop Manual (WSM), Section 307-01.

2. Disassemble the transmission to replace the No. 4 shell and sun gear. Refer to WSM, Section 307-01 Removal and Installation E-clutch Removal procedure.

3. Remove and discard the No. 4 shell and sun gear.

**NOTE: It is not necessary to remove the T7 thrust bearing or E clutch assembly from the input shaft.**

**NOTE: It is not necessary to disassemble the E clutch assembly.**

4. Install a new No. 4 shell and sun gear.

5. Reassemble the transmission. Refer to WSM, Section 307-01 Removal and Installation E-clutch Installation procedure.

6. Install the transmission into the vehicle. Refer to WSM, Section 307-01.

7. Perform an adaptive learning drive cycle. Refer to WSM, Section 307-01.

**NOTE: Advise the customer that 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.**

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