



TECHNICAL SERVICE BULLETIN

10R60/10R80/10R80 MHT Automatic Transmission - Harsh/Delayed Engagement And/Or Harsh/Delayed Shift - Built On Or Before 23-Dec-2022

22-2428

26 May 2023

This bulletin supersedes 22-2139.

This bulletin supersedes 22-2102.

This bulletin supersedes 21-2377.

This bulletin supersedes 21-2434.

Model:

Ford
2021-2023 Bronco
2018-2023 Expedition
2020-2023 Explorer
2017-2023 F-150
2018-2023 Mustang
2019-2023 Ranger
2020-2023 Transit
Lincoln
2020-2023 Aviator
2018-2023 Navigator

Summary

This article supersedes TSB 22-2139, 22-2102, 21-2377 and 21-2434 to update the Issue, Action and Service Procedure.

Issue: Some 2017-2023 F-150, 2018-2023 Expedition/Navigator/Mustang, 2019-2023 Ranger, 2020-2023 Explorer/Aviator/Transit and 2021-2023 Bronco vehicles equipped with a 10R60 transmission and built on or before 23-Dec-2022 or with a 18R80/10R80MHT transmission and built on or before 15-Aug-2022 may exhibit a harsh/delayed engagement and/or harsh/delayed shift. It is possible the vehicle may also have an illuminated malfunction indicator lamp (MIL) or diagnostic trouble codes (DTC) P0751, P0752, P0756, P0757, P0761, P0762, P0766, P0767, P0771, P0772, P2700, P2701, P2702, P2703, P2704, P2705, P2707, P2708, P0729, P0731, P0732, P0733, P0734, P0735, P0736, P076F, P07D9, P07F6 and/or P07F7 stored in the powertrain control module (PCM) or transmission control module (TCM). This may be due to the software in the powertrain control module (PCM) or transmission control module (TCM), the transmission solenoid ID strategy, sticking valves in the main control valve body and/or axial movement of the CDF clutch cylinder (7H351) sleeve. To correct the condition, follow the Service Procedure to identify and correct the condition.

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

- One of the following vehicles:
 - 2017-2023 F-150
 - 2018-2023 Expedition/Navigator/Mustang
 - 2019-2023 Ranger
 - 2020-2023 Explorer/Aviator/Transit
 - 2021-2023 Bronco
- One of the following transmissions:
 - 10R80 or 10R80 MHT transmission with a vehicle build date on or before 15-Aug-2022
 - 10R60 transmission with a vehicle build date on or before 23-Dec-2022
- At least one of the following conditions:
 - DTC P0751, P0752, P0756, P0757, P0761, P0762, P0766, P0767, P0771, P0772, P2700, P2701, P2702, P2703, P2704, P2705, P2707, P2708, P0729, P0731, P0732, P0733, P0734, P0735, P0736, P076F, P07D9, P07F6 and/or P07F7
 - Harsh engagement
 - Delayed engagement
 - Harsh shift
 - Delayed shift

Parts

Main Control Overhaul - All Vehicles

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
W712658-S439	1	Solenoid Retaining Plate Bolt	4	2
HL3Z-7G007-A	6	Solenoid Retaining Clips	1	6
JL1Z-7N134-A	1	Park Override Bolt (Expedition/Navigator)	1	1
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		

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

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7A191-B	1	Fluid Pan Gasket (10R60/10R80)	1	1
L1MZ-7F396-A	1	Fluid Pan Gasket (10R80 MHT)	1	1
L1MZ-7A098-A	1	Fluid Filter (10R80) (F-150/Expedition/Navigator/Mustang/Explorer)	1	1
HL3Z-7A098-A	1	Fluid Filter (10R80) (Ranger)	1	1
LK4Z-7A098-A	1	Fluid Filter (10R80) (Transit)	1	1
L1MZ-7N265-A	2	Fluid Pan To Case Seals (10R80 MHT)	1	2
BL8Z-7G199-A	2	Hybrid Drive Unit Feed Tube Seals (10R80 MHT)	1	2
L1MZ-7A098-B	1	Fluid Filter (10R80 MHT)	1	1
L1MZ-7J135-A	1	Auxiliary Pump Seal (10R80 MHT)	1	1
MB3Z-7G186-A	1	Fluid Filter 10R60 (3.0L)	1	1
ML3Z-7Z490-B	1	Separator Plate (10R80 MHT F-150)	1	1
7T4Z-7Z302-A	1	Transmission Fluid Filter Seal	1	1
HL3Z-7J227-A	1	Auxiliary Pump Tube O-ring (If Equipped)	1	1
HL3Z-7Z490-E	1	Chanel Plate	1	1
L1MZ-7Z490-B	1	Separator Plate 10R60 (Explorer/Aviator)	1	1
L1MZ-7Z490-E	1	Separator Plate (F-150 10R80)	1	1
JL1Z-7Z490-C	1	Separator Plate (Expedition/Navigator Electric Shift)	1	1
L1MZ-7Z490-F	1	Separator Plate (Explorer/Transit 10R80, Bronco 10R60)	1	1
JL3Z-7Z490-E	1	Separator Plate (Expedition/Ranger Column Shift)	1	1
JL3Z-7Z490-D	1	Separator Plate (Mustang Built On Or Before 3-Jan-2021)	1	1
L1MZ-7Z490-J	1	Separator Plate (Mustang Built On Or After 4-Jan-2021)	1	1
L1MZ-7Z490-G	1	Separator Plate (Explorer/Aviator MHT)	1	1
L1MZ-7Z490-H	1	Separator Plate (Explorer MHT Column Shift)	1	1

Parts**10R60 CDF Cylinder Replacement - Required Parts**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7G199-A	1	Auxiliary Pump Tube Seal (If Equipped)	1	1
LP5Z-7A248-A	1	Torque Converter Seal	1	1
JL3Z-7N134-A	12	Front Support Bolts	1	12
LC3Z-7H223-A	12	Front Support Bolt Seals	1	12
LP5Z-7B031-A	1	Front Support To Case Seal	1	1
LP5Z-7G091-B	5	Input Shaft Seals (F2)	1	5
LP5Z-7B399-A	4	Sun Gear No. 3 Shaft Seals (F7)	1	4
LP5Z-7D404-A	1	C Clutch Piston Inner Seal	1	1
HL3Z-7C099-A	1	C Clutch Balance Dam Inner Seal	1	1
LP5Z-7C000-A	2	C Clutch Balance Dam And Piston Outer Seal	1	2
HL3Z-7C099-A	1	D Clutch Balance Dam Inner Seal	1	1

LP5Z-7D404-A	1	D Clutch Piston Inner Seal	1	1
LP5Z-7D403-A	2	D Clutch Piston And Balance Dam Outer Seal	1	2
LP5Z-7A548-D	2	F Clutch Balance Dam Outer Seal	1	2
LP5Z-7A548-C	2	F Clutch Balance Dam Inner Seal	1	2
L1MZ-7H351-B	1	CDF Cylinder (2.7L/3.0L)	1	1
LP5Z-7H351-B	1	CDF Cylinder	1	1
LP5Z-7G091-C	5	Input Shaft To Sun Gear No. 3 Shaft Seals (F8)	1	5
LP5Z-7G091-A	1	Input Shaft Seal (F9)	1	1

Parts

10R60 CDF Cylinder Replacement - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
LP5Z-7B066-M	1	A Pressure Plate	1	1
LP5Z-7F219-A	4	A Clutch Friction Plates	1	4
LP5Z-7F220-A	3	A Clutch Steel Plates	1	3
LP5Z-7B442-D	5	C Clutch Steel Plates (Bronco 2.3L/Explorer)	1	5
L1MZ-7B442-A	5	C Clutch Steel Plates (2.7L Bronco/Aviator)	1	5
LP5Z-7H095-A	5	C Clutch Friction Plates	1	5
LP5Z-7B477-A	1	C Clutch Pressure Plate (Explorer/Bronco)	1	1
LP5Z-7G474-A	5	D Clutch Steel Plates	1	5
LP5Z-7B164-C	5	D Clutch Friction Plates	1	5
LP5Z-7B066-P	1	D Clutch Pressure Plate	1	1
LP5Z-7B164-D	3	F Clutch Steel Plates	1	3
LP5Z-7E313-A	3	F Clutch Friction Plates	1	3
LP5Z-7B066-L	1	F Clutch Pressure Plate	1	1

Parts

10R60 CDF Cylinder Replacement - Select One Of The Following If Needed

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
LP5Z-7B066-E	1	A Clutch Apply Plate 3.55-3.75 mm Selective	1	1
LP5Z-7B066-F	1	A Clutch Apply Plate 3.75-3.95 mm Selective	1	1
LP5Z-7B066-G	1	A Clutch Apply Plate 3.95-4.15 mm Selective	1	1
LP5Z-7B066-H	1	A Clutch Apply Plate 4.15-4.35 mm Selective	1	1
LP5Z-7B066-J	1	A Clutch Apply Plate 4.35-4.55 mm Selective	1	1
LP5Z-7B066-K	1	A Clutch Apply Plate 4.55-4.75 mm Selective	1	1
LP5Z-7A527-L	1	T-3 Shim 2.9-3.0 mm Selective	1	1
LP5Z-7A527-M	1	T-3 Shim 3.05-3.15 mm Selective	1	1
LP5Z-7A527-N	1	T-3 Shim 3.2-3.3 mm Selective	1	1
LP5Z-7A527-P	1	T-3 Shim 3.35-3.45 mm Selective	1	1
LP5Z-7A527-Q	1	T-3 Shim 3.5-3.6 mm Selective	1	1
LP5Z-7A527-R	1	T-3 Shim 3.65-3.75 mm Selective	1	1
LP5Z-7A527-S	1	T-3 Shim 3.8-3.9 mm Selective	1	1
LP5Z-7A527-T	1	T-3 Shim 3.95-4.05 mm Selective	1	1
LP5Z-7A527-U	1	T-3 Shim 4.1-4.2 mm Selective	1	1
LP5Z-7A527-V	1	T-3 Shim 4.25-4.35 mm Selective	1	1
LP5Z-7H032-B	1	T-3 Thrust Bearing	1	1
LP5Z-7H076-A	1	C Clutch Snap Ring 1.9 mm Selective	1	1
LP5Z-7H076-B	1	C Clutch Snap Ring 2.1 mm Selective	1	1

LP5Z-7H076-C	1	C Clutch Snap Ring 2.3 mm Selective	1	1
LP5Z-7H076-D	1	C Clutch Snap Ring 2.5 mm Selective	1	1
LP5Z-7H076-E	1	C Clutch Snap Ring 2.7 mm Selective	1	1
LP5Z-7H076-F	1	C Clutch Snap Ring 2.9 mm Selective	1	1
LP5Z-7B421-A	1	D Clutch Snap Ring 1.65-1.75 mm Selective	1	1
LP5Z-7B421-B	1	D Clutch Snap Ring 2.45-2.55 mm Selective	1	1
LP5Z-7B421-C	1	D Clutch Snap Ring 2.05-2.15 mm Selective	1	1
LP5Z-7B421-D	1	D Clutch Snap Ring 2.25-2.35 mm Selective	1	1
LP5Z-7B421-E	1	D Clutch Snap Ring 2.45-2.55 mm Selective	1	1
LP5Z-7B421-F	1	D Clutch Snap Ring 2.65-2.75 mm Selective	1	1
LP5Z-7H365-C	1	F Clutch Snap Ring 1.9 mm Selective	1	1
LP5Z-7H365-D	1	F Clutch Snap Ring 2.1 mm Selective	1	1
LP5Z-7H365-E	1	F Clutch Snap Ring 2.3 mm Selective	1	1
LP5Z-7H365-F	1	F Clutch Snap Ring 2.5 mm Selective	1	1
LP5Z-7H365-G	1	F Clutch Snap Ring 2.7 mm Selective	1	1

Parts

10R80 10R80MHT CDF Cylinder Replacement

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7G199-A	1	Auxiliary Pump Tube Seal (Stop/Start) (10R80 Only)	1	1
HL3Z-7A248-A	1	Torque Converter Seal (10R80 Only)	1	1
JL3Z-7N134-A	12	Front Support Bolts (10R80 Only)	1	12
LC3Z-7H223-A	12	Front Support Bolt Seals (10R80 Only)	1	12
HL3Z-7A248-G	1	Front Support To Case Seal (10R80 Only)	1	1
HL3Z-7G091-D	5	Input Shaft Seals (F2) (10R80 AndMHT)	1	5
HL3Z-7B399-B	4	Sun Gear No. 3 Shaft Seals (F7) (10R80 And MHT)	1	4
HL3Z-7C099-A	1	C Clutch Balance Dam Inner Seal (10R80 And MHT)	1	1
HL3Z-7A548-B	2	C Clutch Balance Dam And Piston Outer Seal (10R80 And MHT)	1	2
HL3Z-7D404-A	2	C And D Clutch Piston Inner Seals (10R80 And MHT)	1	2
HL3Z-7A262-C	1	D Clutch Balance Dam (10R80 And MHT)	1	1
HL3Z-7D403-A	1	D Clutch Piston Outer Seal (10R80 And MHT)	1	1
HL3Z-7A548-G	2	F Clutch Balance Dam And Piston Outer Seal (10R80 And MHT)	1	2
HL3Z-7A548-A	2	F Clutch Balance Dam And Piston Inner Seal (10R80 And MHT)	1	2
HL3Z-7G091-E	5	Input Shaft To Sun Gear No. 3 Shaft Seals (F8) (10R80 And MHT)	1	5
HL3Z-7G091-C	1	Input Shaft Seal (F9) (10R80 And MHT)	1	1
JL3Z-7H351-B	1	CDF Cylinder (Transit, 2017-2020 F-150, 2018-2021 Expedition/Navigator) (10R80 Only)	1	1
JR3Z-7H351-B	1	CDF Cylinder (Ranger/Transit/2.3LMustang/3.3L Explorer Police)	1	1
ML3Z-7H351-B	1	CDF Cylinder (2021 F-150 10R80/10R80 MHT, 2022-2023 Expedition/Navigator)	1	1

Parts

10R80 10R80MHT CDF Cylinder Replacement - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
ML3Z-7A191-A	1	Hybrid Drive Unit Gasket (MHT Only)	1	1

HL3Z-7B066-AB	1	A Pressure Plate (10R80 & MHT)	1	1
HL3Z-7B164-E	3	A Clutch Friction Plates (10R80 & MHT)	1	3
HL3Z-7F220-A	2	A Clutch Steel Plates (10R80 & MHT)	1	2
HL3Z-7B442-F	4 For Ranger, 5 For Transit/Explorer/Mustang/Expedition/Navigator/F-150	C Clutch Steel Plates (10R80 & MHT)	1	Ranger Requires 4 Pieces, Transit/Explorer/Mustang/Expedition/Navigator/F-150 Requires 5 Pieces
HL3Z-7B164-A	4 For Ranger, 5 For Transit/Explorer/Mustang/Expedition/Navigator/F-150	C Clutch Friction Plates (10R80 & MHT)	1	Ranger Requires 4 Pieces, Transit/Explorer/Mustang/Expedition/Navigator/F-150 Requires 5 Pieces
ML3Z-7H095-A	5	C Clutch Friction Plates (F-150) (10R80 & MHT)	1	5
ML3Z-7B477-A	1	C Clutch Pressure Plate (10R80 & MHT)	1	1
HL3Z-7B442-D	5 For Transit/Ranger, 6 For Mustang/F-150/Expedition/Navigator/Explorer/Aviator	D Clutch Steel Plates (10R80 & MHT)	1	Transit/Ranger Require 5, Mustang/F-150/Expedition/Navigator/Explorer/Aviator Require 6
HL3Z-7B164-C	5 For Transit/Ranger, 6 For Mustang/Expedition/Navigator/Explorer/Aviator	D Clutch Friction Plates (10R80 & MHT)	1	Transit/Ranger Require 5, Mustang/Expedition/Navigator/Explorer/Aviator Require 6
ML3Z-7B164-A	6	D Clutch Friction Plates (F-150) (10R80 & MHT)	1	6
HL3Z-7B066-E	1	D Clutch Pressure Plate (10R80 & MHT)	1	1
HL3Z-7B164-G	3 For Ranger/Transit, 4 For F-150/Expedition/Navigator/Mustang/Explorer/Aviator	F Clutch Steel Plates (10R80 & MHT)	1	Ranger/Transit Require 3 Pieces, F-150/Expedition/Navigator/Mustang/Explorer/Aviator Require 4 Pieces
HL3Z-7B164-D	3 For Ranger/Transit, 4 For F-150/Expedition/Navigator/Mustang/Explorer/Aviator	F Clutch Friction Plates (10R80 & MHT)	1	Ranger/Transit Require 3 Pieces, F-150/Expedition/Navigator/Mustang/Explorer/Aviator Require 4 Pieces
HL3Z-7B066-A	1	F Clutch Pressure Plate	1	1

(10R80 & MHT)

Parts**10R80 10R80MHT CDF Cylinder Replacement - Select One Of The Following If Needed**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7B066-AA	1	A Clutch Apply Plate 4.1 - 4.3 mm Selective (10R80 Only)	1	1
HL3Z-7B066-Z	1	A Clutch Apply Plate 4.4 - 4.6 mm (10R80) Selective	1	1
HL3Z-7B066-Y	1	A Clutch Apply Plate 4.7 - 4.9 mm (10R80) Selective	1	1
HL3Z-7B066-X	1	A Clutch Apply Plate 5 - 5.2 mm (10R80) Selective	1	1
HL3Z-7B066-W	1	A Clutch Apply Plate 5.3 - 5.5 mm (10R80) Selective	1	1
HL3Z-7H032-C	1	T-3 Bearing (10R80) (Replace If T-3 Shim Is Replaced)	1	1
HL3Z-7A527-Q	1	T-3 Shim 3.05-3.15 mm (10R80) Selective	1	1
HL3Z-7A527-P	1	T-3 Shim 3.2-3.3 mm (10R80) Selective	1	1
HL3Z-7A527-R	1	T-3 Shim 3.35-3.45 mm (10R80) Selective	1	1
HL3Z-7A527-K	1	T-3 Shim 3.5-3.6 mm (10R80) Selective	1	1
HL3Z-7A527-L	1	T-3 Shim 3.65-3.75 mm (10R80) Selective	1	1
HL3Z-7A527-M	1	T-3 Shim 3.8-3.9 mm (10R80) Selective	1	1
HL3Z-7A527-S	1	T-3 Shim 3.95-4.05 mm (10R80) Selective	1	1
HL3Z-7A527-T	1	T-3 Shim 4.1-4.2 mm (10R80) Selective	1	1
HL3Z-7A527-N	1	T-3 Shim 4.25-4.35 mm (10R80) Selective	1	1
HL3Z-7D483-A	1	D Clutch Snap Ring 1.8 mm (10R80) Selective	1	1
HL3Z-7D483-B	1	D Clutch Snap Ring 2.0 mm (10R80) Selective	1	1
HL3Z-7D483-C	1	D Clutch Snap Ring 2.2 mm (10R80) Selective	1	1
HL3Z-7D483-D	1	D Clutch Snap Ring 2.4 mm (10R80) Selective	1	1
HL3Z-7D483-E	1	D Clutch Snap Ring 2.6 mm (10R80) Selective	1	1
HL3Z-7D483-F	1	D Clutch Snap Ring 2.8 mm (10R80) Selective	1	1
HL3Z-7C122-A	1	C Clutch Snap Ring (Selective) 1.5 mm	1	1
HL3Z-7C122-B	1	C Clutch Snap Ring (Selective) 1.7 mm	1	1
HL3Z-7C122-C	1	C Clutch Snap Ring (Selective) 1.9 mm	1	1
HL3Z-7C122-D	1	C Clutch Snap Ring (Selective) 2.1 mm	1	1
HL3Z-7C122-E	1	C Clutch Snap Ring (Selective) 2.3 mm	1	1
HL3Z-7C122-F	1	C Clutch Snap Ring (Selective) 2.5 mm	1	1
HL3Z-7H365-C	1	F Clutch Snap Ring 1.5 mm (10R80) Selective	1	1
HL3Z-7H365-D	1	F Clutch Snap Ring 1.7 mm (10R80) Selective	1	1
HL3Z-7H365-E	1	F Clutch Snap Ring 1.9 mm (10R80) Selective	1	1
HL3Z-7H365-F	1	F Clutch Snap Ring 2.1 mm (10R80) Selective	1	1
HL3Z-7H365-G	1	F Clutch Snap Ring 2.3 mm (10R80) Selective	1	1

Parts**F-150/Expedition/Navigator Transmission Removal And Installation**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
7L1Z-4B496-C	2	CV Joint-To-Pinion Flange Cup Bolts And Retaining Straps (4WD)	1	2
FL3Z-6775-D	1	Self-Adhesive Heat Shield	1	1

7L1Z-4B496-D	3	CV Joint-To-Transfer Case Flange Cup Bolts & Retaining Straps (4WD Expedition/Navigator)	1	3
JL1Z-7N134-A	1	Park Override Lever Bolt (Non-Column Shift Expedition/Navigator)	1	1
MB3Z-5C226-A	2	Left And Right Catalytic Converter Gasket (2.7L/3.5L/5.0L)	1	2
W520113-S440	1	Stabilizer Bar Bracket Nuts	4	4
W520114-S442	1	Transmission Support Crossmember Nuts	4	4
W520514-S440	4	Left And Right Catalytic Converter Nuts (All Gas)	1	4
W704980-S439	1	Park Manual Release Cable Bracket Bolt (2.7L/3.3L/3.5L/5.0L)	4	1
W709771-S440	2	Transmission Mount Nuts	1	2
W711140-S901	3	Transmission Insulator Bolts And Washers (RWD Gas)	1	3
W714418-S439	1	Transmission Support Crossmember Bolts	4	4
W714717-S439	1	Muffler Inlet Pipe Bolts (10R80 MHT)	4	2
W715131-S442	1	Transmission Fluid Cooler Tube Bracket Bolt (Expedition/Navigator)	4	1
W715618-S437	1 For F-150 2.7L/3.3L/3.5L/5.0L/Expedition/Navigator, 2 For F-150 3.0L	Torque Converter Nuts (10R80)	4	F-150 2.7L/3.3L/3.5L/5.0L/Expedition/Navigator Require 4 Pieces, F-150 3.0L Require 6 Pieces
W715798-S442	1	Fluid Cooler Tube Stud Bolt 3.0L (Park Manual Release Cable Bracket Bolt 3.5L)	4	1
W716375-S900	2	Transfer Case Bolts (4WD)	5	9
W718353-S900	1	Transmission Insulator Bolts (4WD) (2.7L/3.3L/5.0L)	4	4
W718926-S900	1	Transmission Insulator Bolts (4WD) (3.0L/3.5L)	4	4
W715579-S439	1	Driveshaft Center Bearing Bolt (If Equipped With Two Piece Driveshaft)	4	2
TA-24-B	As Needed	Motorcraft® Thread Sealant With PTFE (4WD)		
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)		

XG-1-E1	As Needed	Motorcraft® Premium Long-Life Grease		
XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray		
XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (All Markets Except Canada)		
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		

Parts

F-150/Expedition/Navigator Transmission Removal And Installation - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
4W9Z-6397-A	2	Engine Block Dowel Pins (F-150 3.0L)	1	2
5L7Z-7D285-A	1	Transmission Fluid Cooler Tube Seals (3.0L/3.5L)	2	2
5L7Z-7J324-A	1	Transmission Fluid Cooler Tube Backing Rings (3.0L/3.5L)	2	2
ML3Z-4421-A	1	Front Driveshaft Slip Yoke Boot	1	1
ML3Z-7869-C	1	Transmission Fluid Heat Exchanger (2.7L/3.3L/3.5L/5.0L)	1	1
W701228-S300	1	Engine Block Dowel Pins (5.0L)	4	2
W718758-S300	1	Engine Block Dowel Pins (2.7L/3.3L/3.5L)	4	2

Parts

F-150/Expedition/Navigator Transmission Removal And Installation - 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
W500635-S439	1	Driveshaft Center Bearing Bolt (If Equipped With Two Piece Driveshaft)	1	1
N800594-S100	1 Or 2	Driveshaft Flange To Flange Bolts (F-150)	4	4 Or 8 (Flange Dependent)
W713095-S437	1	Driveshaft Center Bearing Nut (If Equipped With Two Piece Driveshaft)	4	1
W719738-S439	1	Driveshaft Center Bearing Bracket Mounting Stud (If Equipped With Two Piece Driveshaft)	4	1
N811880-S100	1 Or 2	Driveshaft Flange To Flange Bolts (Expedition/Navigator)	4	4 Or 8 (Flange Dependent)

Parts

Mustang Transmission Removal And Installation

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
BR3Z-5B266-A	1	Exhaust Gasket (5.0L Mustang)	1	1
W705443-S900	1	Catalytic Converter Flange Nuts (5.0L)	4	2
W710726-S437	1	Selector Lever Cable Bolts	4	2
W715131-S437	1	Transmission Fluid Cooler Tube Bolt	4	1
W715618-S437	1 For 5.0L, 2 For 2.3L	Torque Converter Nuts	4	5.0L Requires 4 Pieces, 2.3L Requires 6 Pieces
FR3Z-4B496-B	3	Driveshaft To Pinion Flange Bolts	1	3

W719298-S439	1	Driveshaft To Transmission Flange Bolts (If Equipped) (2.3L Mustang)	4	3
N800594-S101	1	Driveshaft To Transmission Flange Bolts (If Equipped) (5.0L Mustang)	4	4
W500545-S439	1	Driveshaft To Transmission Flange Bolts	4	3
W717822-S439	1	Driveshaft Center Bearing Bolts (If Equipped)	4	2
TA-25-B	As Needed	Motorcraft® Threadlock and Sealer (Convertible)		
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		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		

Parts

Mustang Transmission Removal And Installation - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
5L7Z-7D285-A	1	Transmission Fluid Cooler Tube Seals	2	2
5L7Z-7J324-A	1	Transmission Fluid Cooler Tube Backing Rings	2	2
JR3Z-4782-B	1	Flex Coupling Driveshaft	1	1

Parts

Ranger Transmission Removal And Installation

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
JB3Z-4B496-B	6	CV Joint-To-Transfer Case And Pinion Flange Bolts And Retaining Straps (4WD)	1	6
BE8Z-6731-AB	1	Engine Oil Filter And Gasket (4WD)	1	1
KB3Z-6L612-A	1	Catalytic Converter Gasket	1	1
W500121-S437	3	Transfer Case Bolts (4WD)	4	9
W500642-S437	4	Transmission Support Insulator Bolts (4WD)	1	4
W700056-S450B	1	Selector Lever Cable Bracket Bolts	4	2
W714265-S442	1	Catalytic Converter Nuts	4	3
W715618-S437	2	Torque Converter Nuts	4	6
W716936-S442	2	Stabalizer Bar Bracket Nuts	1	2
W719427-S439	1	Stabalizer Bar Bracket Bolts	4	2
W710233-S437	4	Driveshaft Flange To Pinion Flange Bolts	1	4
W714780-S439	1	Driveshaft Center Bearing Bolt (If Equipped With Two Piece Driveshaft)	4	2
W716344-S437	4	Driveshaft Flange To Transmission Flange Bolts	1	4
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)		
XL-2	As Needed	Motorcraft® High Temperature Nickel Anti-Seize Lubricant		
XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray		
XO-5W30-Q1SP	As Needed	Motorcraft® SAE 5W-30 Synthetic Blend Motor Oil (All Markets Except Canada)		
CXO-5W30-LSP6	As Needed	Motorcraft® SAE 5W-30 Super Premium Motor Oil (Canada Only)		

XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (All Markets Except Canada)		
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		

Parts

Ranger Transmission Removal And Installation - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
JB3Z-7J227-A	4	Transmission Fluid Cooler Tube Seals	1	4
W701183-S1300	1	Engine Block Dowel Pins (2.3L)	4	2

Parts

Transit Transmission Removal And Installation

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
LK4Z-3B498-A	1	Halfshaft Circlip (AWD)	1	1
LK4Z-4B496-A	3	CV Joint-To-Pinion Flange Cup Bolts And Retaining Straps (AWD)	1	3
N800594-S100	1 Or 2	Driveshaft Flange To Flange Bolts - Refer To The Parts Catalog For VIN Specific Application	4	4 Or 8 (Flange Dependent)
W506434-S439	3	Lower Load Push Bar Retainers	4	12
W520215-S442	1	Tie Rod End Nut / Front Subframe Forward Nuts (2 Per Application)	4	4
W520514-S440	4	Left And Right Catalytic Converter Nuts	1	4
W710660-S441	1	Transmission Support Insulator Nuts	4	2
W711076-S442	1	Lower Ball Joint Nut	4	2
W711137-S442	1	Steering Column Shaft Bolt	4	1
W712503-S440	2	Front Stabilizer Bar Link Rod Nuts	1	2
W713078-S439	1	Driveshaft Center Bearing Bolts - Refer To The Parts Catalog For VIN Specific Application	4	2 Or 4
W715618-S437	1	Torque Converter Nuts	4	4
W716331-S439	1	Transmission Crossmember Bolts	4	4
W718943-S439	1	Front Subframe Rearward Bolts	4	2
W719972-S439	2	Front Axle Bolts (AWD)	4	5
W720688-S439	1	Front Axle To Transmission Bolt (AWD)	4	1
LK4Z-4B496-A	3	Driveshaft CV-Joint To Transfer Case Flange Bolts And Straps (AWD)	1	3
W709176-S300	1	Splash Shield Push Pins (Step 9)	4	2
W709653-S303	1	Front Floor Heat Shield - Pop Rivets	4	2
W505264-S442	2	Driveshaft Safety Strap Bolts (If Equipped)	1	2
KK2Z-00811-A	2	Wheel Hub Nut	1	2
W500463-S442	1	Brake Caliper Anchor Plate Bolt	4	4
W719976-S439	1	Front Axle Tube Bolt	4	2
XY-75W140-QL	As Needed	Motorcraft® SAE 75W-140 Synthetic Rear Axle Lubricant		
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)		
XG-1-E1	As Needed	Motorcraft® Premium Long-Life Grease		

XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray		
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		

Parts

Transit Transmission Removal And Installation - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
LJ9Z-7J227-A	4	Transmission Fluid Cooler Tube Seals	1	4
LK4Z-3A427-A	1	Left Inner CV Joint Halfshaft (AWD)	1	1
LK4Z-3A428-A	1	Right Outer CV Joint Halfshaft (AWD)	1	1
W718758-S300	1	Engine Block Dowel Pins (3.5L)	4	2
W719583-S900	1	Catalytic Converter Studs (3.5L) (AWD)	4	2 For 3.5L EcoBoost, 4 For 3.5L Duratec
W720627-S900	1	Left Catalytic Converter Studs - (3.5L EcoBoost) (AWD)	4	2

Parts

Bronco Transmission Removal And Installation

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
7L1Z-7J227-A	2	Transmission Fluid Cooler Tube O-ring Seals (2.7L)	2	4
JB3Z-4B496-B	6	CV Joint-To-Transfer Case & Pinion Flange Bolts & Retaining Straps	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-9450-B	1	Exhaust Flexible Pipe Flange Gasket (2.3L)	1	1
ML3Z-5C226-A	1	Exhaust Manifold Gasket (2.7L)	1	1
W500121-S439	2	Transfer Case Bolts	4	8
W505444-S439	1	Stabilizer Bar Undershield Bolts	4	4
W520103-S442	1	Exhaust Flexible Pipe Flange Nuts (2.3L)	4	2
W520214-S440	1	Stabilizer Bar Bracket Nuts (If Equipped)	2	2
W520515-S442	1	Transmission Support Crossmember Nuts	4	4
W712458-S900	1	Exhaust Studs	4	3
W713314-S439	1	Exhaust Hanger Bracket Bolts	4	2
W714265-S442	1	Catalytic Converter Nuts	4	2.7L Requires 2 Pieces, 2.3L Requires 3 Pieces
W714409-S439	1	Steering Column Lower Shaft Coupler Retainers (2.3L)	4	2
W715618-S437	1 For 2.7L, 2 For 2.3L	Torque Converter Nuts	4	2.7L Requires 4 Pieces, 2.3L Requires 6 Pieces
W720545-S442	1	Transmission Fluid Heat Exchanger Bolt	4	2.7L Requires 1 Piece, 2.3L Requires 3 Pieces
W721255-S442	1	Shift Cable Bracket Bolts	4	2
W721449-S439	1	Stabalizer Bar Bracket Bolts (If Equipped)	4	2
XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		

Parts

Bronco Transmission Removal And Installation - Parts To Inspect And Replace Only If Necessary

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
JB3Z-7J227-A	4	Transmission Fluid Cooler Tube Seals	1	4
W701183-S1300	1	Engine Block Dowel Pins (2.3L)	4	2
W718758-S300	1	Engine Block Dowel Pins (2.7L)	4	2

Parts

Explorer/Aviator Transmission Removal And Installation

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
W715131-S442	1	Transmission Fluid Cooler Tube Bracket Bolt	4	2
W710726-S442	1	Selector Lever Cable Bracket Bolts	2	2
W500213-S442	1	Park Manual Release Bracket Bolt	4	Explorer/Aviator 10R60 Requires 2 Pieces, Aviator MHT Requires 1 Piece
W715618-S437	1 For 3.3L, 2 For All Others	Torque Converter Nuts	4	3.3L Requires 4 Pieces, All Others Require 6 Pieces
W720506-S439	1	Transmission Support Bracket Bolts (RWD) (If Removed)	4	4
LB5Z-3B498-A	1	Axle Pinion Stem Circlip	1	1
L1MZ-9F598-B	1	Axle Pinion Stem O-ring	1	1
L1MZ-3B478-A	1	Front Drive Shaft Boot Clamp	1	1
L1MZ-4421-A	1	Front Drive Shaft Boot	1	1
W719511-S439	1 Or 2	Driveshaft Flex Coupling Bolts	4	3 Pieces Required If Driveshaft Is Disconnected At Only One End, 6 Pieces Required If Coupler Or Driveshaft Alignment Bush Are Replaced
W716375-S900	2	Transfer Case Bolts (4WD)	5	8
W719431-S439	1	Transmission Mount Bolts	4	RWD Requires 2 Pieces, AWD Requires 3 Pieces
W520214-S440	1	Transmission Mount Nut (4WD And RWD)	2	1
W721083-S439	1	Transmission Crossmember Bolts	4	4
W719413-S439	1	Middle Subframe Bolts (3.0L 10R60)	4	2
W716979-S439	1	Rear Subframe Bolts (3.0L 10R60)	4	2
W719699-S442	2 For 3.0L/3 For 2.3L/4 For 3.3L	Catalytic Converter Nuts	1	3.0L Requires 2 Pieces/2.3L Requires 3 Pieces/3.3L Requires 4 Pieces
L1MZ-6L612-A	1	Exhaust Gasket (2.3L)	1	1
L1MZ-6L612-B	1	Left Catalytic Converter Gasket (3.0L)	1	1
W719698-S900	2 For Explorer/Aviator 3.0L, 3 For Explorer 2.3L	Catalytic Converter Studs	1	Explorer/Aviator 3.0L Require 2 Pieces, Explorer 2.3L Require 3 Pieces
W714265-S442	1	Left And Right Catalytic Converter Nuts (3.3L 10R80)	4	4

XL-5-A	As Needed	Motorcraft® Multi-Purpose Grease Spray		
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid		
XL-1	As Needed	Motorcraft® Penetrating and Lock Lubricant		
XL-2	As Needed	Motorcraft® High Temperature Nickel Anti-Seize Lubricant		
XG-3-A	As Needed	Motorcraft® Silicone Brake Caliper Grease and Dielectric Compound		
5L3Z-19A506-A	As Needed	Slip Yoke Grease (Chassis Lubrication Grease) (2.3L)		
XG-11	As Needed	Motorcraft® High Temperature 4X4 Front Axle and Wheel Bearing Grease		
XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (All Markets Except Canada)		
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)		
XG-1-E1	As Needed	Motorcraft® Premium Long-Life Grease		

Parts

Explorer/Aviator Transmission Removal And Installation - 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 Tube O-ring Seals (10R60)	2	4
5L7Z-7D285-A	1	Transmission Fluid Cooler Tube Seals	2	2
5L7Z-7J324-A	1	Transmission Fluid Cooler Tube Backing Rings	2	2
W701183-S1300	1	Engine Block Dowel Pins (2.3L)	4	2
W525585-S300	2	Engine Block Dowel Pins (3.0L)	1	2
W718758-S300	1	Engine Block Dowel Pins (3.3L)	4	2
W716963-S900	1	Left And Right Catalytic Converter Studs (3.3L)	4	4
L1MZ-4650-A	1	Driveshaft Alignment Bushing	1	1
L1MZ-4782-A	1	Flex Coupling	1	1
W717822-S439	1	Driveshaft Center Bearing Bracket Bolts	4	2
L1MZ-3B498-A	1	Rear Axle Pinion Stem Circlip	1	1

Warranty Status: Eligible under provisions of New Vehicle Limited Warranty (NVLW)/Emissions Warranty/Service Part Warranty (SPW)/Special Service Part (SSP)/Extended Service Plan (ESP) coverage. Limits/policies/prior approvals are not altered by a TSB. NVLW/Emissions Warranty/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
Various Vehicles Included In This Article: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428A	1.0 Hrs.
2017-2020 F-150 4X2/4X4, 2019-2023 Ranger 4X2/4X4, 2020-2023 Mustang 2.3L, 2018-2023 Mustang 5.0L, 2018-2023 Expedition/Navigator: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (No Codes) Reprogram The Transmission Strategy Download, Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428B	1.6 Hrs.
2017-2020 F-150 4X2/4X4 2.7L EcoBoost: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (No Codes) Reprogram The Transmission Strategy Download, Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428C	5.9 Hrs.

2019-2023 Ranger 4X2, 2018-2021 Expedition 4X2: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Has Codes) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428F	16.3 Hrs.
2019-2023 Ranger 4X4, 2018-2021 Expedition 4X4: The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Has Codes) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428F	17.3 Hrs.
2022-2023 Expedition 4X4: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Has Codes) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428F	16.6 Hrs.
2022-2023 Expedition 4X2: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Has Codes) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428F	15.5 Hrs.
2022-2023 Navigator 4X4: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Has Codes) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428F	16.9 Hrs.
2022-2023 Navigator 4X2: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Has Codes) Overhaul The Main Control, Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428F	15.8 Hrs.
2021-2023 F-150 4X2/4X4 3.5L EcoBoost 3.3L TiVCT, 2021-2023 Bronco, 2020-2023 Explorer, 2020-2023 Transit, 2020-2023 Aviator: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428G	2.9 Hrs.
2021-2023 F-150 4X2/4X4 3.5L EcoBoost: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	9.4 Hrs.
2021-2023 F-150 4X2/4X4 3.3L TiVCT: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	7.0 Hrs.
2021-2023 Bronco 2.3L EcoBoost With Electronic Sway Bar Disconnect: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	7.2 Hrs.
2021-2023 Bronco 2.7L EcoBoost With Electronic Sway Bar Disconnect: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	7.1 Hrs.
2021-2023 Bronco 2.3L EcoBoost Without Electronic Sway Bar Disconnect, 2020-2023 Explorer RWD 2.3L: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	6.7 Hrs.
2021-2023 Bronco 2.7L EcoBoost Without Electronic Sway Bar Disconnect, 2020-2023 Explorer RWD/AWD 3.3L Electric: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	6.9 Hrs.
2021-2023 Bronco Raptor 3.0L EcoBoost Without Electronic Sway Bar Disconnect: Program The PCM/TCM, Perform Adaptive Learning Drive Cycle (Fail) Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428H	7.2 Hrs.

And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)		
2021-2023 F-150 4X2 3.3L TiVCT, 2021-2023 Bronco 2.3L/2.7L/3.0L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428Q	2.0 Hrs.
2020-2023 Transit 3.5L EcoBoost/3.5L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428Q	2.0 Hrs.
2021-2023 F-150 4X4 3.3L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428Q	2.1 Hrs.
2020-2023 Explorer RWD/4WD 2.3L/3.0L EcoBoost 3.3L Electric, 3.3L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428Q	2.1 Hrs.
2020-2023 Aviator RWD/AWD 3.0L EcoBoost 3.0L PHEV: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428Q	2.1 Hrs.
2021-2023 F-150 4X2/4X4 3.5L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	8.6 Hrs.
2021-2023 F-150 4X2/4X4 3.3L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	6.2 Hrs.
2021-2023 Bronco 2.3L/2.7L With Electronic Sway Bar Disconnect, 2023 Bronco Raptor 3.0L: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	6.4 Hrs.
2021-2023 Bronco 2.3L Without Electronic Sway Bar Disconnect: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	5.9 Hrs.
2021-2023 Bronco 2.7L Without Electronic Sway Bar Disconnect, 2020-2023 Explorer RWD/4WD 3.3L Electric: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	6.1 Hrs.
2020-2023 Explorer RWD/4WD 2.3L/3.0L EcoBoost, Explorer 4WD 3.3L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	5.8 Hrs.
2020-2023 Transit RWD/4WD 3.5L EcoBoost/3.5L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Can Be Claimed With Operation T)	222428R	8.0 Hrs.
2020-2023 Aviator RWD/AWD 3.0L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	5.9 Hrs.
2020-2023 Aviator AWD 3.0L PHEV: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Pass Repair Complete) (Do Not Use With Any Other Labor Operations)	222428R	6.1 Hrs.
2021-2023 Bronco 2.3L/2.7L With Electronic Sway Bar Disconnect: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road	222428R	6.4 Hrs.

2020-2023 Explorer RWD 3.0L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	15.9 Hrs.
2020-2023 Explorer 4WD 3.0L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	16.3 Hrs.
2020-2023 Explorer 4WD 3.3L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	17.0 Hrs.
2020-2023 Transit RWD 3.5L EcoBoost/3.5L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Can Be Claimed With Operation U Or V And T)	222428S	18.5 Hrs.
2020-2023 Transit AWD 3.5L EcoBoost/3.5L TiVCT: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Can Be Claimed With Operation U Or V And T)	222428S	21.5 Hrs.
2020-2023 Aviator RWD 3.0L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	15.4 Hrs.
2020-2023 Aviator AWD 3.0L EcoBoost: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	15.9 Hrs.
2020-2023 Aviator AWD 3.0L PHEV: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	17.8 Hrs.
2021-2023 Bronco Raptor 3.0L: No PCM/TCM Software Update Available, Retrieve Codes (Codes/No Codes) Determine Clutch(s) To Be Cycled And Perform Transmission Accelerated Main Control Break In Routine And Perform Adaptive Learning Drive Cycle (Fail) Overhaul The Main Control Road Test Following The Adaptive Learn Drive Cycle (Fail) Repair Transmission Following The Service Procedure Includes Time To Remove And Install Transmission (Do Not Use With Any Other Labor Operations)	222428S	18.3 Hrs.
2020-2023 Transit Additional Time If Equipped With Running Boards (Can Be Claimed With Operation H, J, R, S)	222428T	0.3 Hrs.
2020-2023 Transit Additional Front Toe Check And Alignment Without Lane Departure (Can Be Claimed With Operation J Or S)	222428U	0.8 Hrs.
2020-2023 Transit Additional Front Toe Check And Alignment With Lane Departure (Can Be Claimed With Operation J Or S)	222428V	1.2 Hrs.


Repair/Claim Coding

Causal Part:	7A100
Condition Code:	42

Service Procedure

1. Using the latest version of the Ford Diagnosis and Repair System (FDRS), check for later PCM/TCM software version. Is a later software version available?

- (1). Yes - reprogram the PCM/TCM to the latest software. Perform the adaptive learning drive cycle. Refer to Workshop Manual (WSM), Section 307-01.
- (2). No - proceed to Step 3.

2. Does the vehicle still exhibit the condition after reprogramming the TCM/PCM and performing the adaptive learning drive cycle?
 - (1). Yes - proceed to Step 3.
 - (2). No - repair is complete.
 3. Are any of the following DTCs present: P0751, P0752, P0756, P0757, P0761, P0762, P0766, P0767, P0771, P0772, P2700, P2701, P2702, P2703, P2704, P2705, P2707, P2708, P0729, P0731, P0732, P0733, P0734, P0735, P0736, P076F, P07D9, P07F6 and/or P07F7?
 - (1). Yes
 - For Ranger, 2018-2021 Expedition/Navigator/Mustang, and 2017-2020 F-150 vehicles, proceed to Step 14.
 - For Explorer/Aviator/Transit/Bronco, 2021-2023 F-150, and 2022-2023 Expedition/Navigator/Mustang vehicles, proceed to Step 8.
 - (2). No
 - For Ranger, 2018-2021 Expedition/Navigator/Mustang and 2017-2020 F-150 vehicles, proceed to Step 5.
 - For Explorer/Aviator/Transit/Bronco, 2021-2022 F-150, and 2022-2022 Expedition/Navigator/Mustang vehicles built on or before 1-Nov-2021 proceed to Step 4.
 - For Explorer/Aviator/Transit/Bronco, 2022-2023 F-150, and 2022-2023 Expedition/Navigator/Mustang vehicles built on or after 2-Nov-2021 proceed to Step 7.
 4. Reprogram the transmission strategy download into the PCM/TCM. Refer to WSM, Section 307-01.
 5. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.
 6. Does the vehicle still exhibit the condition after performing the adaptive learning drive?
 - (1). Yes - proceed to Step 14.
 - (2). No - repair is complete.
 7. Determine the appropriate clutch(s) to be cycled related to the symptoms present. Refer to WSM, Section 307-01. Proceed to Step 10.
 8. Determine the appropriate clutch(s) to be cycled related to DTCs present. Refer to WSM, Section 307-01.
 9. Record and clear all DTCs present before performing the PCM – Transmission Accelerated Main Control Break In routine.
-  **CAUTION: Failure to use a frame engaging lift could damage the vehicle.**
10. Prepare vehicle for the PCM - Transmission Accelerated Main Control Break In routine by positioning on a frame-engaging lift with wheels off the ground to prevent vehicle movement.
 11. Using the FDRS, perform the PCM - Transmission Accelerated Main Control Break In routine 3 times on the appropriate clutch(s) determined to be cycled.
 12. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.
 13. Does the vehicle still exhibit the condition after performing the PCM - Transmission Accelerated Main Control Break In routine and adaptive learning drive cycle?
 - (1). Yes - proceed to Step 14.
 - (2). No - repair is complete.
 14. Overhaul (clean and inspect) the main control valve body and road test vehicle following the adaptive learning drive cycle. Refer to WSM, Section 307-01.
 15. Does the vehicle still exhibit the condition after overhauling the main control valve body and performing an adaptive learning drive cycle?
 - (1). Yes - proceed to Step 16.
 - (2). No - repair is complete.
 16. Remove the transmission and mount the transmission to the bench. Refer to WSM, Section 307-01.
 17. Disassemble the transmission. Perform only the necessary steps to remove the clutch and planetary assembly from the transmission case. Refer to WSM, Section 307-01 > Overhaul.
 - (1). It is only necessary to remove the torque converter or the hybrid drive unit, transmission fluid pan and gasket, transmission fluid auxiliary pump (if equipped), fluid filter and main control valve body assembly, all 4 speed sensors (intermediate speed sensor A [ISSA], intermediate speed sensor B [ISSB], turbine shaft speed [TSS] and output shaft speed [OSS]), transmission fluid pump, front support assembly and the clutch and planetary assembly. Refer to WSM, Section 307-01 > Overhaul.
 18. Disassemble the clutch and planetary assembly. Perform only the necessary steps to remove the CDF clutch cylinder and the No. 3 sun gear shaft and No. 2 ring gear assembly from the clutch and planetary assembly. Refer to WSM, Section 307-01 > Overhaul.
 - (1). It is only necessary to remove the A clutch assembly, the selective shim and T3 thrust bearing, remove and discard the 5 input shaft front seals.
 - (2). Remove the No. 1 planetary carrier snap ring, clutch, and planetary container cylinder, the E clutch and input shaft assembly, the No. 3 planetary carrier and No. 3 sun gear, the No. 3 sun gear shaft and No. 2 ring gear assembly. Refer to WSM, Section 307-01 > Overhaul.

19. Remove and discard the sun gear No. 3 shaft seals. Install the 4 new sun gear No. 3 shaft seals. Refer to WSM, Section 307-01 > Overhaul.
20. Disassemble the C, D and F clutch assemblies from the CDF cylinder. Discard the CDF cylinder. Refer to WSM, Section 307-01 > Overhaul.
21. Assemble the C, D and F clutch assemblies into the new CDF clutch cylinder. Refer to WSM, Section 307-01 > Overhaul.
22. Perform the C, D and F clutch pack endplay measurements for proper clearance. Refer to WSM, Section 307-01 > Overhaul.
23. Remove and discard the input shaft-to-sun gear No. 3 shaft seals. Install the 5 new input shaft-to-sun gear No. 3 shaft seals. Refer to WSM, Section 307-01 > Overhaul.
24. Remove and discard the input shaft seal. Install the new input shaft seal. Refer to WSM, Section 307-01 > Overhaul.
25. Install the 5 new input shaft front seals. Refer to WSM, Section 307-01 > Overhaul.
26. To reassemble the clutch and planetary assembly, reverse the disassembly procedure. Refer to WSM, Section 307-01 > Overhaul.
27. Perform the T3 thrust bearing measurement to set transmission front end clearance. Refer to WSM, Section 307-01 > Overhaul.
28. Reassemble the transmission Refer to WSM, Section 307-01 > Overhaul.
29. Install the transmission. Refer to WSM, Section 307-01.
30. 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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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.