

TECHNICAL SERVICE BULLETIN

10R60/10R80/10R80 MHT Automatic Transmission - Harsh/Delayed Engagement And/Or Harsh/Delayed Shift

23-2250
14 August 2023

This bulletin supersedes 22-2428.

This bulletin supersedes 23-2176.

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 22-2428 and 23-2176 to update the Issue, Action, Service Procedure, Warranty Status and remove all labor operations. Use available labor times in Section 7 of the Service Labor Time Standards (SLTS) Manual or claim M-time in accordance with the Warranty and Policy Manual.

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 10R60/10R80/10R80MHT transmission may exhibit a harsh/delayed engagement and/or harsh/delayed shift, an illuminated malfunction indicator lamp (MIL) with 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:
 - 10R60
 - 10R80
 - 10R80 MHT
- 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
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
ML3Z-7Z490-B	1	Separator Plate (F-150 With 10R80 MHT)	1	1
HL3Z-7Z490-D	1	Separator Plate (2017 F-150)	1	1
L1MZ-7Z490-B	1	Separator Plate 10R60 (Explorer/Aviator)	1	1
L1MZ-7Z490-E	1	Separator Plate (2021-2023 F-150 10R80, Explorer/Aviator 10R60, 2022-2023 Expedition/Navigator Electronic Shift 10R80)	1	1
JL1Z-7Z490-C	1	Separator Plate (2018-2021 Expedition/Navigator Electronic Gearshift)	1	1
L1MZ-7Z490-F	1	Separator Plate (Explorer/Transit 10R80, Bronco 10R60)	1	1
JL3Z-7Z490-E	1	Separator Plate (Ranger, 2018-2020 F-150 10R80, Expedition Automatic Gear Shift 10R80)	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

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-F	5	Input Shaft Seals (F2) (10R80 And MHT)	1	5
HL3Z-7B399-C	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 (5.0L Mustang, Transit, 3.0L Explorer, 2017-2020 F-150, 2018-2021 Expedition/Navigator 10R80) (Explorer/Aviator 10R80 MHT)	1	1
JR3Z-7H351-B	1	CDF Cylinder (Ranger/3.3L Explorer/2.3L Mustang 10R80)	1	1
ML3Z-7H351-B	1	CDF Cylinder (2021-2023 F-150 10R80, 2021-2023 10R80 MHT, 2022-2023 Expedition/Navigator 10R80)	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 And MHT)	1	1
HL3Z-7B164-E	3	A Clutch Friction Plates (10R80 And MHT)	1	3
HL3Z-7F220-A	2	A Clutch Steel Plates (10R80 And MHT)	1	2
HL3Z-7B442-F	4 For Ranger, 5 For Transit/Explorer/Mustang/Expedition/Navigator/F-150	C Clutch Steel Plates (10R80 And 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 (2021-2023 F-150 10R80 And MHT, 2022-2023 Expedition/Navigator 10R80)	1	5
ML3Z-7B477-A	1	C Clutch Pressure Plate (10R80 And MHT)	1	1
HL3Z-7B442-D	5 For Transit/Ranger, 6 For Mustang/F-150/Expedition/Navigator/Explorer/Aviator	D Clutch Steel Plates (10R80 And 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 And MHT)	1	Transit/Ranger Require 5, Mustang/Expedition/Navigator/Explorer/Aviator Require 6
ML3Z-7B164-A	6	D Clutch Friction Plates (2021-2023 F-150 10R80 And MHT, 2022-2023 Expedition/Navigator 10R80)	1	6
HL3Z-7B066-E	1	D Clutch Pressure Plate (10R80 And MHT)	1	1
HL3Z-7B164-G	3 For Ranger/Transit, 4 For F-150/Expedition/Navigator/Mustang/Explorer/Aviator	F Clutch Steel Plates (10R80 And 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 And 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 (10R80 And MHT)	1	1

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 (10R80) Selective	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	Note
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 And Retaining Straps (4WD Expedition/Navigator)	1	3	
JL1Z-7N134-A	1	Park Override Lever Bolt (Non-Column Shift Expedition/Navigator)	1	1	

FL3Z-5C226-A	2	Left And Right Catalytic Converter Gasket (2018-2020 2.7L)	1	2	
ML3Z-5C226-A	2	Left And Right Catalytic Converter Gasket (2021-2023 2.7L and 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-S437	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			Transfer Case

		Transmission Fluid (4WD) (All Markets Except Canada)		Fluid
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)		Transfer Case Fluid
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	Note
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)			Transfer Case Fluid
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)			Transfer Case Fluid
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	Note
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	
W709176-S300	1	Splash Shield Push Pins	4	2	
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	
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			
XT-10-QLVC	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (All Markets Except Canada)			Transfer Case Fluid
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)			Transfer Case Fluid
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	3.5L EcoBoost Requires 2, 3.5L Duratec Requires 4

W720627-S900	1	Left Catalytic Converter Studs - (3.5L EcoBoost) (AWD)	4	2
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Parts

Explorer/Aviator Transmission Removal And Installation

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity	Note
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	
LIMZ-4A015-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 10R80)	4	2	
W716979-S439	1	Rear Subframe Bolts (3.0L 10R80)	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-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			
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)			

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)			Transfer Case Fluid
CXT-10-LV6	As Needed	Motorcraft® MERCON® LV Automatic Transmission Fluid (4WD) (Canada Only)			Transfer Case Fluid
XT-12-QULV	As Needed	Motorcraft® MERCON® ULV Automatic Transmission Fluid			
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
5L7Z-7D285-A	1	Transmission Fluid Cooler Tube Seals	2	2
5L7Z-7J324-A	1	Transmission Fluid Cooler Tube Backing Rings	2	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: Information Only.

Repair/Claim Coding

Causal Part:	IN
Condition Code:	42

Service Procedure

NOTE: Use available labor times in Section 7 of the Service Labor Time Standards (SLTS) Manual or claim M-time in accordance with the Warranty and Policy Manual.

1. Determine which Procedure Group applies to the vehicle:

(1). PROCEDURE GROUP A: Go to the section for Procedure Group A, only use instructions for Group A.

- 2017-2020 F-150
- 2018-2021 Expedition/Navigator
- 2018-2021 Mustang
- 2019-2023 Ranger

NOTE: Procedure Group A is not main control break-in capable.

(2). PROCEDURE GROUP B: Go to the section for Procedure Group B, only use instructions for Group B.

- 2021-2023 F-150
- 2022-2023 Expedition/Navigator
- 2022-2023 Mustang
- 2020-2023 Transit
- 2020-2023 Explorer 10R80/10R80 MHT
- 2020-2023 Aviator 10R80 MHT

(3). PROCEDURE GROUP C: Go to the section for Procedure Group C, only use instructions for Group C.

- 2021-2023 Bronco 10R60
- 2020-2023 Explorer / Aviator 10R60

NOTE: No evidence of 10R60 CDF cylinder sleeve axial movement - not affected

PROCEDURE GROUP A

Diagnostics - Procedure Group A

1. Using the latest software level of the appropriate Ford diagnostic scan tool, check for DTCs.
2. 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 - proceed to Sticking Valves - Main Control Valve Body Step 1.
 - (2). No
 - For vehicles built on or before 1-Nov-2021 proceed to - Transmission Solenoid Strategy Step 1.
 - For vehicles built after 1-Nov-2021 proceed to - Sticky Valves - Main Control valve Body Step 1.

Transmission Solenoid Strategy - Procedure Group A

1. Reprogram the transmission strategy download into the PCM/TCM. Refer to WSM, Section 307-01.

NOTE: When prompted, select Transmission Replacement (Full Assembly) only and re-enter the production transmission serial information on the side of the transmission.

2. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.
3. Does the vehicle still exhibit the condition after performing the adaptive learning drive?
 - (1). Yes - proceed to Sticking Valves – Main Control Valve Body Step 1.
 - (2). No - repair is complete.

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.

Sticking Valves - Main Control Valve Body - Procedure Group A

NOTE: Procedure Group A is not Main Control Break In Capable.

1. 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.
2. Does the vehicle still exhibit the condition after overhauling the main control valve body and performing an adaptive learning drive cycle?
 - (1). Yes
 - For vehicles built on or before 15-Aug-2022 proceed to CDF Clutch Cylinder Replacement Step 1.
 - For vehicles built after 15-Aug-2022 this TSB is complete. Refer to WSM, Section 307-01 for normal diagnostics.
 - (2). No - repair is complete.

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.

CDF Clutch Cylinder Replacement - Procedure Group A

1. Remove the transmission and mount the transmission to the bench. Refer to WSM, Section 307-01.
2. 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.
 - (1). It is only necessary to remove the torque converter, 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.
3. 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.
 - (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.
4. 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.
5. Disassemble the C, D and F clutch assemblies from the CDF cylinder. Discard the CDF cylinder. Refer to WSM, Section 307-01.
6. Assemble the C, D and F clutch assemblies into the new CDF clutch cylinder. Refer to WSM, Section 307-01.
7. Perform the C, D and F clutch pack endplay measurements for proper clearance. Refer to WSM, Section 307-01.
8. 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.
9. Remove and discard the input shaft seal. Install the new input shaft seal. Refer to WSM, Section 307-01.
10. Install the 5 new input shaft front seals. Refer to WSM, Section 307-01.
11. To reassemble the clutch and planetary assembly, reverse the disassembly procedure. Refer to WSM, Section 307-01.

12. Perform the T3 thrust bearing measurement to set transmission front end clearance. Refer to WSM, Section 307-01.
13. Reassemble the transmission Refer to WSM, Section 307-01.
14. Install the transmission. Refer to WSM, Section 307-01.
15. 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.

PROCEDURE GROUP B

PCM/TCM Software – Procedure Group B

1. Using the latest software level of the appropriate Ford diagnostic scan tool, check for later PCM/TCM software version.
2. 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 4.
3. Does the vehicle still exhibit the condition after reprogramming the TCM/PCM and performing the adaptive learning drive cycle?
 - (1). Yes - proceed to Step 4.
 - (2). No - repair is complete.

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.

4. 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 - proceed to Sticking Valves – Main Control Valve Body Step 2.
 - (2). No
 - For vehicles built on or before 1-Nov-2021 proceed to - Transmission Solenoid Strategy Step 1.
 - For vehicles built after 1-Nov-2021 proceed to - Sticky Valves - Main Control valve Body Step 1.

Transmission Solenoid Strategy - Procedure Group B

1. Reprogram the transmission strategy download into the PCM/TCM. Refer to WSM, Section 307-01.

NOTE: When prompted, select Transmission Replacement (Full Assembly) ONLY and re-enter the production transmission serial information on the side of the transmission.

2. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.
3. Does the vehicle still exhibit the condition after performing the adaptive learning drive?
 - (1). Yes - proceed to Sticking Valves – Main Control Valve Body Step 1.
 - (2). No - repair is complete.

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.

Sticking Valves - Main Control Valve Body - Procedure Group B

1. Determine the appropriate clutch(s) to be cycled related to the symptoms present. Refer to WSM, Section 307-01. Proceed to Step 3.
2. Determine the appropriate clutch(s) to be cycled related to DTCs present. Refer to WSM, Section 307-01.
3. 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.**

4. 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.
5. Using the Ford Diagnosis and Repair System (FDRS), perform the PCM - Transmission Accelerated Main Control Break In routine 3 times on the appropriate clutch(s) determined to be cycled.
6. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.
7. 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 8.
 - (2). No - repair is complete.

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.

8. 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.
9. Does the vehicle still exhibit the condition after overhauling the main control valve body and performing an adaptive learning drive cycle?
 - (1). Yes
 - For vehicles built on or before 15-Aug-2022 proceed to CDF Clutch Cylinder Replacement Step 1.
 - For vehicles built after 15-Aug-2022 this TSB is complete. Refer to WSM, Section 307-01 for normal diagnostics.
 - (2). No - repair is complete.

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.

CDF Clutch Cylinder Replacement - Procedure Group B

1. Remove the transmission and mount the transmission to the bench. Refer to WSM, Section 307-01.
2. 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.
 - (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.
3. 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.
 - (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.
4. 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.
5. Disassemble the C, D and F clutch assemblies from the CDF cylinder. Discard the CDF cylinder. Refer to WSM, Section 307-01.
6. Assemble the C, D and F clutch assemblies into the new CDF clutch cylinder. Refer to WSM, Section 307-01.
7. Perform the C, D and F clutch pack endplay measurements for proper clearance. Refer to WSM, Section 307-01.
8. 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.
9. Remove and discard the input shaft seal. Install the new input shaft seal. Refer to WSM, Section 307-01.
10. Install the 5 new input shaft front seals. Refer to WSM, Section 307-01.
11. To reassemble the clutch and planetary assembly, reverse the disassembly procedure. Refer to WSM, Section 307-01.
12. Perform the T3 thrust bearing measurement to set transmission front end clearance. Refer to WSM, Section 307-01.
13. Reassemble the transmission Refer to WSM, Section 307-01.
14. Install the transmission. Refer to WSM, Section 307-01.
15. 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.

PROCEDURE GROUP C

PCM/TCM Software - Procedure Group C

1. Using the latest software level of the appropriate Ford diagnostic scan tool, 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.

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.

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 - proceed to Sticking Valves - Main Control Valve Body Step 2.

(2). No

- For vehicles built on or before 1-Nov-2021, proceed to - Transmission Solenoid Strategy Step 1.
- For vehicles built on or after 2-Nov-2021, proceed to - Sticky Valves - Main Control valve Body Step 1.

Transmission Solenoid Strategy - Procedure Group C

1. Reprogram the transmission strategy download into the PCM/TCM. Refer to WSM, Section 307-01.

NOTE: When prompted, select Transmission Replacement (Full Assembly) Only and re-enter the production transmission serial information on the side of the transmission.

2. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.

3. Does the vehicle still exhibit the condition after performing the adaptive learning drive?

- (1). Yes - proceed to Sticking Valves - Main Control Valve Body Step 1.
- (2). No - repair is complete.

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.

Sticking Valves - Main Control Valve Body - Procedure Group C

1. Determine the appropriate clutch(s) to be cycled related to the symptoms present. Refer to WSM, Section 307-01. Proceed to Step 3.

2. Determine the appropriate clutch(s) to be cycled related to DTCs present. Refer to WSM, Section 307-01.

3. 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.**

4. 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.

5. Using the Ford Diagnosis and Repair System (FDRS), perform the PCM - Transmission Accelerated Main Control Break In routine 3 times on the appropriate clutch(s) determined to be cycled.

6. Perform the adaptive learning drive cycle. Refer to WSM, Section 307-01.

7. 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 8.
- (2). No - repair is complete.

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.

8. 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.

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