



## TECHNICAL SERVICE BULLETIN

### 10R80 Automatic Transmission - Harsh/Delayed Engagement And/Or Harsh/Delayed Shift - Non-Main Control Break-In Capable Vehicles

**23-2350**

14 November  
2023

#### Model:

<b>Ford</b> 2018-2021 Expedition	Transmission/Transaxle: 10R80
2017-2020 F-150	Transmission/Transaxle: 10R80
2018-2021 Mustang	Transmission/Transaxle: 10R80
2019-2023 Ranger	Transmission/Transaxle: 10R80
<b>Lincoln</b> 2018-2021 Navigator	Transmission/Transaxle: 10R80

**Issue:** Some 2017-2020 F-150, 2018-2021 Expedition/Navigator/Mustang, 2019-2023 Ranger vehicles equipped with a 10R80 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.

**NOTE: This article is for information only. Determine the causal part number and 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. Causal part number IN in this article refers to the information only status and is not able to be claimed.**

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

- One of the following vehicles:
  - 2017-2020 F-150
  - 2018-2021 Expedition/Navigator/Mustang
  - 2019-2023 Ranger
- Equipped with a 10R80 transmission
- 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 - All Vehicles - Main Control Overhaul**

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

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7A191-B	If Needed	Fluid Pan Gasket	1	1
L1MZ-7A098-A	If Needed	Fluid Filter (F-150/Expedition/Navigator/Mustang/Explorer)	1	1
HL3Z-7A098-A	If Needed	Fluid Filter (Ranger)	1	1
7T4Z-7Z302-A	If Needed	Transmission Fluid Filter Seal	1	1
HL3Z-7J227-A	If Needed	Auxiliary Pump Tube O-ring (If Equipped)	1	1
HL3Z-7Z490-E	If Needed	Chanel Plate	1	1
HL3Z-7Z490-D	If Needed	Separator Plate (2017 F-150)	1	1
JL1Z-7Z490-C	If Needed	Separator Plate (Expedition/Navigator With Electronic Gearshift)	1	1
JL3Z-7Z490-E	If Needed	Separator Plate (Expedition/2018-2020 F-150 Without Electronic Gearshift, All Ranger)	1	1
JL3Z-7Z490-D	If Needed	Separator Plate (Mustang Built On Or Before 3-Jan-2021)	1	1
L1MZ-7Z490-J	If Needed	Separator Plate (Mustang Built On Or After 4-Jan-2021)	1	1

**Parts - All Vehicles - CDF Cylinder Replacement**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7G199-A	1	Auxiliary Pump Tube Seal (Stop/Start)	1	1
HL3Z-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
HL3Z-7A248-G	1	Front Support To Case Seal	1	1
HL3Z-7G091-F	5	Input Shaft Seals (F2)	1	5
HL3Z-7B399-C	4	Sun Gear No. 3 Shaft Seals (F7)	1	4
HL3Z-7C099-A	1	C Clutch Balance Dam Inner Seal	1	1

HL3Z-7A548-B	2	C Clutch Balance Dam And Piston Outer Seal	1	2
HL3Z-7D404-A	2	C And D Clutch Piston Inner Seals	1	2
HL3Z-7A262-C	1	D Clutch Balance Dam	1	1
HL3Z-7D403-A	1	D Clutch Piston Outer Seal	1	1
HL3Z-7A548-G	2	F Clutch Balance Dam And Piston Outer Seal	1	2
HL3Z-7A548-A	2	F Clutch Balance Dam And Piston Inner Seal	1	2
HL3Z-7G091-G	5	Input Shaft To Sun Gear No. 3 Shaft Seals (F8)	1	5
HL3Z-7G091-C	1	Input Shaft Seal (F9)	1	1
JL3Z-7H351-B	1	CDF Cylinder (F-150/Expedition/Navigator, 5.0L Mustang)	1	1
JR3Z-7H351-B	1	CDF Cylinder (Ranger/2.3L Mustang)	1	1

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

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7B066-AB	If Needed	A Pressure Plate	1	1
HL3Z-7B164-E	If Needed	A Clutch Friction Plates	1	3
HL3Z-7F220-A	If Needed	A Clutch Steel Plates	1	2
HL3Z-7B442-F	If Needed	C Clutch Steel Plates	1	Ranger Require 4 Pieces, F-150/Mustang/Expedition/Navigator Require 5 Pieces
HL3Z-7B164-A	If Needed	C Clutch Friction Plates	1	Ranger Require 4 Pieces, F-150/Mustang/Expedition/Navigator Require 5 Pieces
ML3Z-7B477-A	If Needed	C Clutch Pressure Plate	1	1
HL3Z-7B442-D	If Needed	D Clutch Steel Plates	1	Ranger Require 5 Pieces, F-150/Mustang/Expedition/Navigator Require 6 Pieces
HL3Z-7B164-C	If Needed	D Clutch Friction Plates	1	Ranger Require 5 Pieces, F-150/Mustang/Expedition/Navigator Require 6 Pieces
HL3Z-7B066-E	If Needed	D Clutch Pressure Plate	1	1
HL3Z-7B164-G	If Needed	F Clutch Steel Plates	1	Ranger Require 3 Pieces, F-150/Mustang/Expedition/Navigator Require 4 Pieces
HL3Z-7B164-D	If Needed	F Clutch Friction Plates	1	Ranger Require 3 Pieces, F-150/Mustang/Expedition/Navigator Require 4 Pieces

HL3Z-7B066-A	If Needed	F Clutch Pressure Plate	1	1
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**Parts - All Vehicles - CDF Cylinder Replacement - Select One Of The Following If Needed**

Service Part Number	Quantity	Description	Unit of Issue	Piece Quantity
HL3Z-7B066-AA	If Needed	A Clutch Apply Plate 4.1 - 4.3 mm Selective	1	1
HL3Z-7B066-Z	If Needed	A Clutch Apply Plate 4.4 - 4.6 mm Selective	1	1
HL3Z-7B066-Y	If Needed	A Clutch Apply Plate 4.7 - 4.9 mm Selective	1	1
HL3Z-7B066-X	If Needed	A Clutch Apply Plate 5.0 - 5.2 mm Selective	1	1
HL3Z-7B066-W	If Needed	A Clutch Apply Plate 5.3 - 5.5 mm Selective	1	1
HL3Z-7H032-C	If Needed	T-3 Bearing (Replace If T-3 Shim Is Replaced)	1	1
HL3Z-7A527-Q	If Needed	T-3 Shim 3.05-3.15 mm Selective	1	1
HL3Z-7A527-P	If Needed	T-3 Shim 3.2-3.3 mm Selective	1	1
HL3Z-7A527-R	If Needed	T-3 Shim 3.35-3.45 mm Selective	1	1
HL3Z-7A527-K	If Needed	T-3 Shim 3.5-3.6 mm Selective	1	1
HL3Z-7A527-L	If Needed	T-3 Shim 3.65-3.75 mm Selective	1	1
HL3Z-7A527-M	If Needed	T-3 Shim 3.8-3.9 mm Selective	1	1
HL3Z-7A527-S	If Needed	T-3 Shim 3.95-4.05 mm Selective	1	1
HL3Z-7A527-T	If Needed	T-3 Shim 4.1-4.2 mm Selective	1	1
HL3Z-7A527-N	If Needed	T-3 Shim 4.25-4.35 mm Selective	1	1
HL3Z-7D483-A	If Needed	D Clutch Snap Ring 1.8 mm Selective	1	1
HL3Z-7D483-B	If Needed	D Clutch Snap Ring 2.0 mm Selective	1	1
HL3Z-7D483-C	If Needed	D Clutch Snap Ring 2.2 mm Selective	1	1
HL3Z-7D483-D	If Needed	D Clutch Snap Ring 2.4 mm Selective	1	1
HL3Z-7D483-E	If Needed	D Clutch Snap Ring 2.6 mm Selective	1	1
HL3Z-7D483-F	If Needed	D Clutch Snap Ring 2.8 mm Selective	1	1
HL3Z-7C122-A	If Needed	C Clutch Snap Ring 1.5 mm Selective	1	1
HL3Z-7C122-B	If Needed	C Clutch Snap Ring 1.7 mm Selective	1	1
HL3Z-7C122-C	If Needed	C Clutch Snap Ring 1.9 mm Selective	1	1
HL3Z-7C122-D	If Needed	C Clutch Snap Ring 2.1 mm Selective	1	1
HL3Z-7C122-E	If Needed	C Clutch Snap Ring 2.3 mm Selective	1	1
HL3Z-7C122-F	If Needed	C Clutch Snap Ring 2.5 mm Selective	1	1
HL3Z-7H365-C	If Needed	F Clutch Snap Ring 1.5 mm Selective	1	1

HL3Z-7H365-D	If Needed	F Clutch Snap Ring 1.7 mm Selective	1	1
HL3Z-7H365-E	If Needed	F Clutch Snap Ring 1.9 mm Selective	1	1
HL3Z-7H365-F	If Needed	F Clutch Snap Ring 2.1 mm Selective	1	1
HL3Z-7H365-G	If Needed	F Clutch Snap Ring 2.3 mm 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 (F-150 2.7L)	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 Non-Hybrid)	1	4	
W704980-S439	1	Park Manual Release Cable Bracket Bolt (F-150 Gas/Hybrid)	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	
W715131-S437	1	Transmission Fluid Cooler Tube Bracket Bolt (Expedition/Navigator)	4	1	
W715618-S437	1 For Gas, 2 For Diesel	Torque Converter Nuts	4	Gas Engines Require 4 Pieces, Diesel Engine Require 6 Pieces	Does not apply to hybrid
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) (Gas/Hybrid)	4	4	
W718926-S900	1	Transmission Insulator Bolts (4WD) (Diesel)	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)			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 - 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	If Needed	Engine Block Dowel Pins (3.0L)	1	2
5L7Z-7D285-A	If Needed	Transmission Fluid Cooler Tube Seals (3.0L/3.5L)	2	2
5L7Z-7J324-A	If Needed	Transmission Fluid Cooler Tube Backing Rings (3.0L/3.5L)	2	2
ML3Z-4421-A	If Needed	Front Driveshaft Slip Yoke Boot	1	1
W701228-S300	If Needed	Engine Block Dowel Pins (5.0L)	4	2
W718758-S300	If Needed	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
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
N800594-S100	1 Or 2	Driveshaft Flange To Flange Bolts (F-150)	4	4 Or 8 (Flange Dependent)
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)	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 Require 4 Pieces, 2.3L Require 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)	4	3
N800594-S101	1	Driveshaft To Transmission Flange Bolts (If Equipped) (5.0L)	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	If Needed	Transmission Fluid Cooler Tube Seals	2	2
5L7Z-7J324-A	If Needed	Transmission Fluid Cooler Tube Backing Rings	2	2
JR3Z-4782-B	If Needed	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	If Needed	Transmission Fluid Cooler Tube Seals	1	4
W701183-S1300	If Needed	Engine Block Dowel Pins (2.3L)	4	2

Quantity refers to the amount of the service part number package(s) required to repair the vehicle.

Unit of Issue refers to the number of individual pieces included in a service part number package.



Piece Quantity refers to the total number of individual pieces required to repair the vehicle.

As Needed indicates the amount of the part may vary and/or is not a whole number. Parts can be billed out as non-whole numbers, including less than 1.

If Needed indicates the part is not mandatory.

**Warranty Status:** Information Only.

#### Repair/Claim Coding

Causal Part:	IN
Condition Code:	42

## Service Procedure

**NOTE: This article is for information only. Determine the causal part number and 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. Causal part number IN in this article refers to the information only status and is not able to be claimed.**

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 Transmission Solenoid Strategy Step 2.
  - (2). No - proceed to Transmission Solenoid Strategy Step 1.

## Transmission Solenoid Strategy

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

**NOTE: Affected vehicles are 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, vehicles built on or before 15-Aug-2022 - proceed to CDF Clutch Cylinder Replacement Step 1.
  - (2). Yes, vehicles built on or after 16-Aug-2022 - this article is complete. Refer to WSM, Section 307-01 for normal diagnostics.
  - (3). 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

**NOTE: For Mexico, USA and Canadian vehicles less than 3 years old and has less than 36,000 miles (60,000 km) the dealer has the option to continue with this TSB repair or replace the transmission under the low time in service (LTIS) policy.**

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.**

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