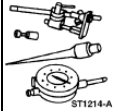
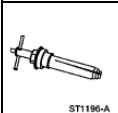
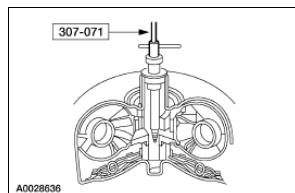


**Torque Converter End Play Check**

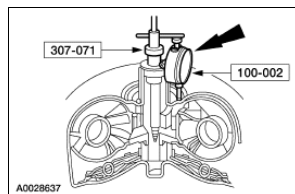
## Special Tool(s)

	Dial Indicator Gauge with Holding Fixture 100-002 (TOOL-4201-C) or Equivalent
	End Play Gauge, Torque Converter 307-071 (T80L-7902-A)

1. Install the special tool into the torque converter pump drive.
  - Tighten the inner post until the tool is securely locked.



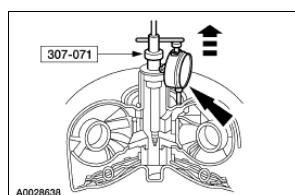
2. Install the special tool on the converter pump drive hub and zero the dial indicator.



3. Lift up on the special tool as far as it will move and note the dial indicator reading.
  - If the reading exceeds end play limits, replace the torque converter.

**Torque Converter End Play**

Engine	New or Rebuilt Torque Converter		Used Torque Converter	
	mm	Inch	mm	Inch
Gas	0.35- 0.96	0.014- 0.038	1.8 Max.	0.071 Max.





4. Remove the special tool.

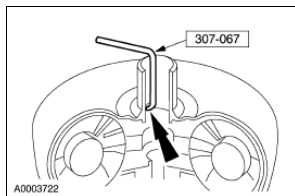


**Torque Converter One-Way Clutch Check**

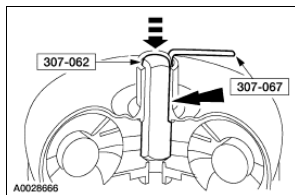
## Special Tool(s)

 ST1193-A	Holding Tool, One-Way Clutch 307-062 (T76L-7902-C) or equivalent
 ST1195-A	Holding Tool, Torque Converter Clutch 307-067 (T77L-7902-R) or equivalent

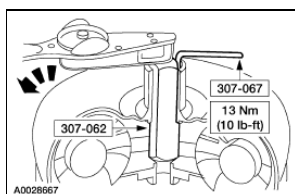
1. Insert the special tool in one of the grooves in the stator thrust washer.



2. Install the special tool in the converter pump drive.



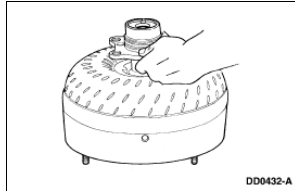
3. Using torque wrench, turn the special tool counterclockwise while holding the special tool stationary.
  - The converter one-way clutch should lock up and hold the specified torque.
  - The torque converter one-way clutch should rotate freely in the clockwise direction.
  - Try the clutch for lockup and hold in at least five positions.
  - If the clutch fails to lock up and hold the specified torque, install a new or remanufactured torque converter.



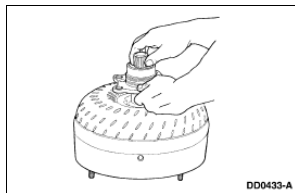


### Torque Converter Turbine to Pump Stator Interference Check

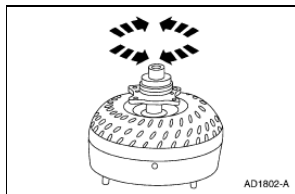
1. Position the torque converter with the converter hub up.
2. Install a pump stator support, engaging the mating splines of the stator support shaft.



3. Install the input shafts, engaging the splines with the turbine hub.



4. Hold the stator support stationary and attempt to rotate the turbine with the input shafts.
  - The turbine and lockup clutch assemblies should rotate in both directions, without any signs of interference or metallic scraping noise.











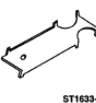


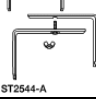
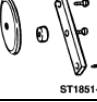
5. If interference exists, the stator front thrust washer may be worn, allowing the stator to hit the turbine. In such cases, a new or remanufactured torque converter must be installed.
  - Check the converter crankshaft pilot for nicks or damaged surfaces that could cause interference when installing the torque converter into the crankshaft pilot. Check the converter front impeller hub for nicks or sharp edges that would damage the pump seal.




SECTION 307-01A: Automatic Transmission 4R100 2001 Expedition/Navigator Workshop Manual  
ASSEMBLY

## Transmission

### Special Tool(s)

 ST1219-A	Remover, O-Ring Seal 100-010 (T71P-19703-C)
 ST1274-A	Depth Micrometer 303-D026 (D80P-4201-A) or equivalent
 ST1740-A	Installer, Extension Housing Fluid Seal 307-013 (T61L-7657-B)
 ST1190-A	Compressor, Clutch Spring 307-015 (T65L-77515-A)
 ST1199-A	Installer, Shift Shaft Fluid Seal 307-050 (T74P-77498-A)
 ST1745-A	Installer, Extension Housing Bushing 307-063 (T77L-7697-C)
 ST1748-A	Handle, Torque Converter 307-091 (T81P-7902-C)
 ST2549-A	Aligner, Transmission Fluid Pump 307-222 (T89T-70010-B)
 ST1633-A	Alignment Gauge, TR Sensor 307-351 (T97L-70010-A)
 ST1854-A	Installer, Fluid Filler Tube 307-376
 ST2547-A	Installer, Output Shaft Bushing 307-381 (Vehicle Dependent)
 ST2544-A	Remover/Installer, Clutch Drum 307-436
 ST1851-A	Service Set, Clutch Spring 307-S223 (T89T-70010-C) or 164-R6302

 ST2159-B	Loading Fixture, Clutch 307-S383
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## Material

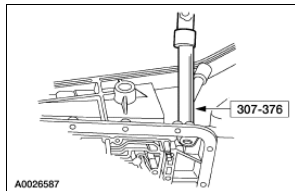
Item	Specification
Motorcraft MERCON® Multi-Purpose (ATF) Transmission Fluid XT-2-QDX	MERCON®

**NOTE:** Soak all friction clutch plates in clean automatic transmission fluid.

**NOTE:** Prior to installation, lightly lubricate all O-ring seals with clean automatic transmission fluid.

**NOTE:** Lightly lubricate all thrust washers with petroleum jelly to hold them in place during assembly.

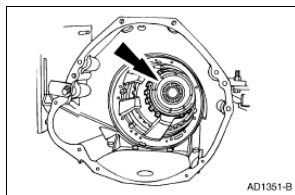
1. Mount the transmission case into suitable stand.
2. If removed, use the special tool to install the short fluid inlet tube.



3. **⚠ CAUTION:** If equipped, use care not to misalign the reverse clutch piston in the case bore.

**NOTE:** Coat the reverse clutch piston seals with petroleum jelly.

Install the reverse clutch piston in the case until it is fully seated in the case.



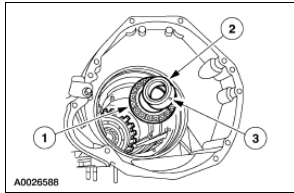
4. **⚠ CAUTION:** The low/reverse clutch inner race is vehicle-dependent. Refer to parts catalog for the correct parts.

**NOTE:** Clock position is viewed looking into the converter housing with the top of the transmission in the 12 o'clock position.

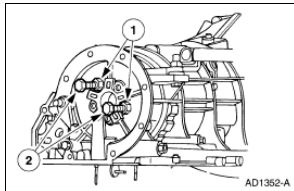
Install the reverse clutch return spring assembly.

1. Install the reverse clutch return spring assembly.
2. Install the low/reverse one-way clutch inner race.
3. Make sure that the lubrication hole on the face is in the 5 o'clock position.

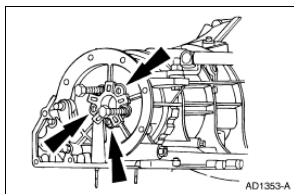




5. Install two 5/16-24 x 3 inch bolts with nuts in to the low/reverse one-way clutch inner race.
  1. Hold the nut.
  2. Turn the bolt to compress the low/reverse piston return spring.

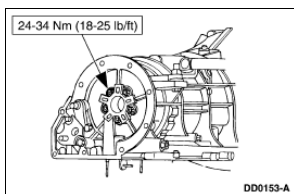


6. Install three of the one-way clutch inner race bolts and remove the two 5/16-24 x 3 bolts.



7. **NOTE:** Alternate tightening bolts from one side to the other (not in a circle).

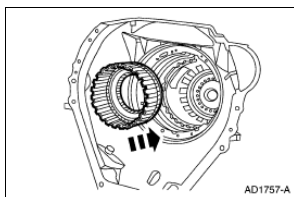
Install the remaining bolts retaining the low/reverse one-way clutch inner race to the case.



8. **⚠ CAUTION:** The low/reverse clutch, one-way clutch is vehicle-dependent. Refer to parts catalog for the correct parts.

**NOTE:** When the reverse clutch and the low one-way clutch are installed, the reverse clutch should rotate clockwise. The one-way clutch will hold and not let the clutch hub rotate counterclockwise.

Install the reverse clutch hub and the low one-way clutch assembly over the low/reverse one-way clutch inner race by pressing the hub inward and rotating it clockwise to seat fully.



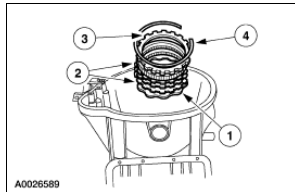
9. **⚠ CAUTION:** The number of plates is vehicle-dependent.

**NOTE:** No stack-up clearance measurement is required.

**NOTE:** Clock position is viewed looking into the converter housing with the top of the transmission in the 12 o'clock position.

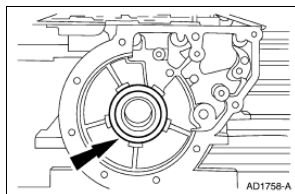
Install the reverse clutch pack assembly.

1. Install the cushion spring.
2. Install the reverse clutch plates starting with an external spline steel plate and alternating with internal splined friction plates.
3. Install the reverse clutch pressure plate.
4. Install the reverse clutch pressure plate retainer snap ring with the ring opening between the 12 o'clock and 3 o'clock positions.



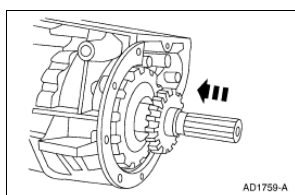
10. **NOTE:** Apply petroleum jelly to the No. 13 parking gear bearing to hold it in place.

Install the No. 13 parking gear bearing.



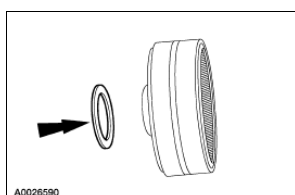
11. **CAUTION:** Use care not to damage the output shaft drive sprocket speed sensor wheel. This will cause an incorrect reading at the output shaft speed (OSS) sensor, which will cause a repeat repair.

Install the output shaft.

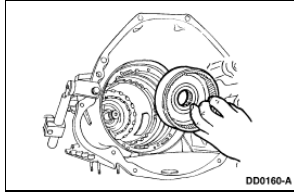


12. **NOTE:** Lubricate the thrust bearing with petroleum jelly to hold it in place during assembly.

Install the No. 12 thrust bearing onto the rear surface of the hub assembly.

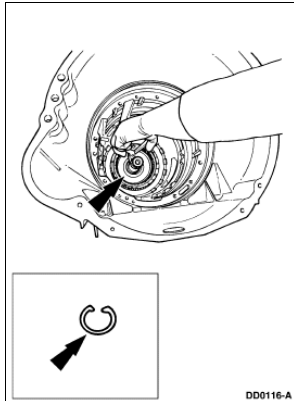


13. Install the output shaft ring gear assembly.

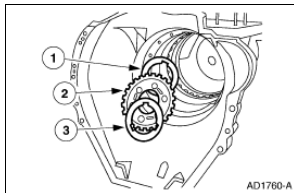


14. **⚠ WARNING:** Do not overextend the output shaft retaining ring during installation. Make sure the output shaft retaining ring is securely seated in the groove. Failure to follow these instructions may result in personal injury.

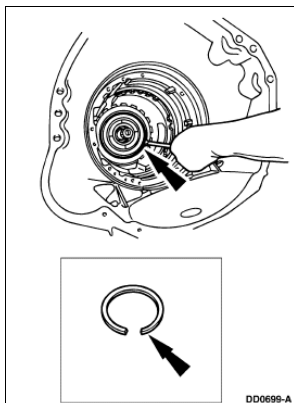
Install the new output shaft retaining ring onto the output shaft.



15. Install the reverse planet assembly.
1. Install the No. 11 thrust washer.
  2. Install the reverse planet.
  3. Install the No. 10B thrust washer.



16. Install the reverse planet retaining ring into the reverse clutch hub, making sure the retaining ring is fully seated.



17. **NOTE:** The large outer diameter radius of the needle bearing must be installed facing inward.

**NOTE:** Lightly lubricate the needle bearing with petroleum jelly to hold it in place during assembly.