

# 4R70W/4R70/75E

## Interchange Information

### Anti-Rattle Spring

Ford has come up with a better designed anti rattle spring. The updated spring is a “V” shaped strip of spring steel that won’t eat into the case or center support. This spring will retrofit back all the way to the AOD transmission and is a great case saver for severely worn cases. The part number for the updated spring is 2L3Z-7F277-AA.

### Discard



### Updated Spring

Part # 2L3Z-7F277-AA



# 4R70W/4R75E

## Interchange Information (continued)

### Center Support

To make room for the turbine speed sensor, the 4R70E/75E center support has an extra notch cut out. If you install a 4R70W support in a 4R70E/75E case, the turbine speed sensor will not install all the way into the case.

If you are in a pinch, grinding a notch into the support to make room for the sensor will not pose a problem.

4R70W



4R70E/75E



NOTCH FOR  
TURBINE SPEED SENSOR

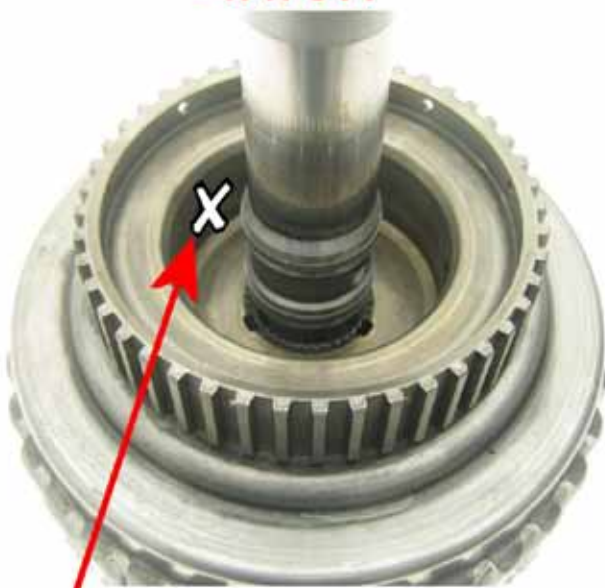
# 4R70W/4R75E

## Interchange Information (continued)

### Forward Drum

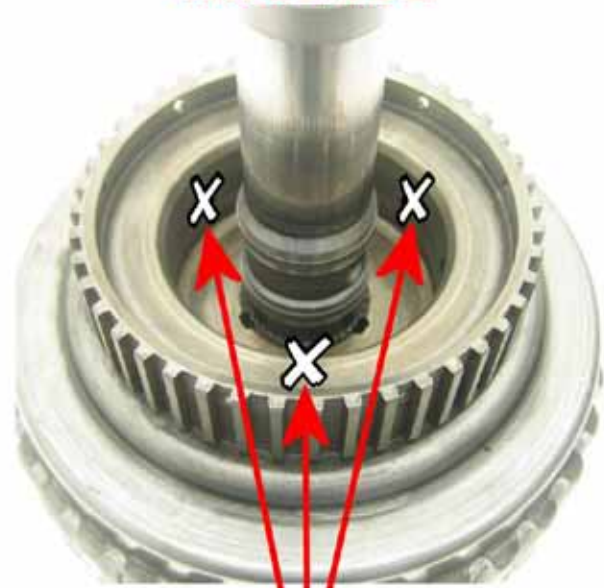
2004-on, forward drums have three clutch apply holes, 120° apart, verses the earlier version having only one. This design change is cosmetic and will not affect forward clutch apply if interchanged. The 4R70/75E drum will fit on all year models.

4R70W



Pre-2004 only has one apply hole

4R70E/75E



2004-on, forward drums have three clutch apply holes

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## Interchange Information (continued)

### Intermediate Mechanical Diode Sprag

In 2007, Ford introduced a new design mechanical diode. They increased the number of ratchet teeth in the diode which should increase holding strength. At the time of printing this manual, there have been no reports of premature failure.

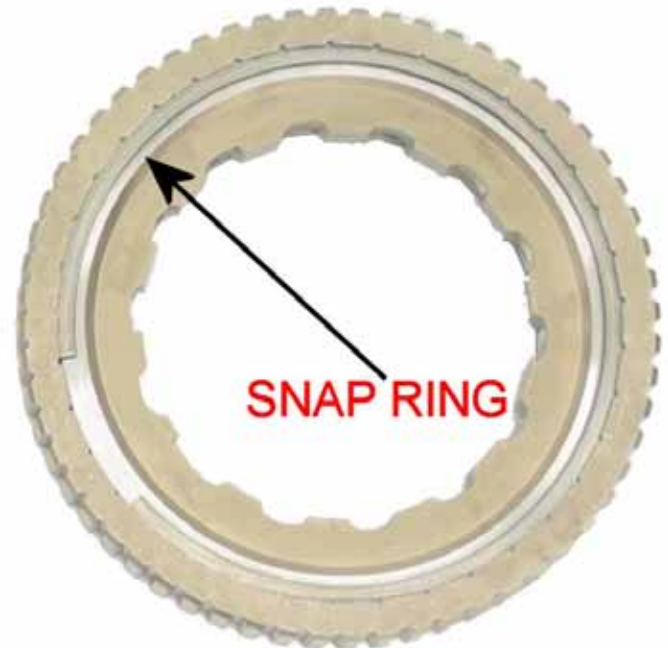
The new diode has a snap ring that holds the element retainer in place instead of the earlier pressed design. Height dimensions have changed slightly where the snap ring rides on the reverse input/OD drum.

The new design diode supersedes the previous design, and when used on any diode-style drum, will increase the clearance between the inner race and the snap ring by about 0.020", this is a normal clearance by design. An aftermarket-designed spiral snap ring should be used in place of the stock snap ring to prevent snap ring failure.

1998-2006



2007-ON



# 4R70W/4R75E

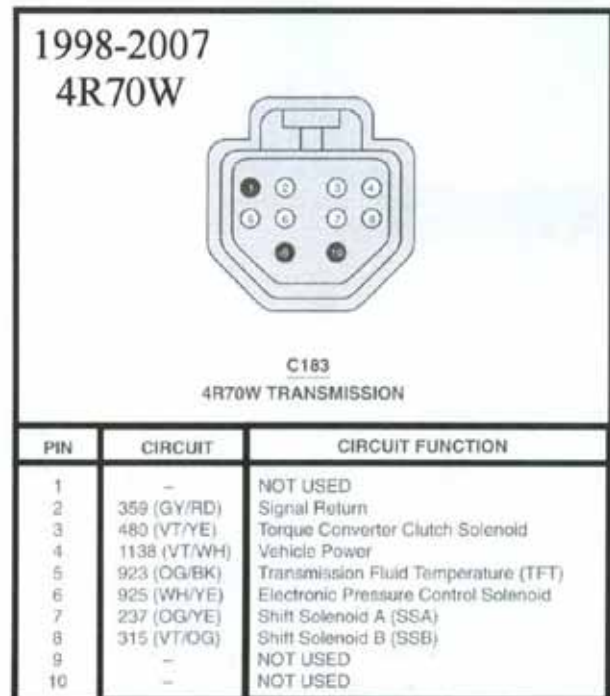
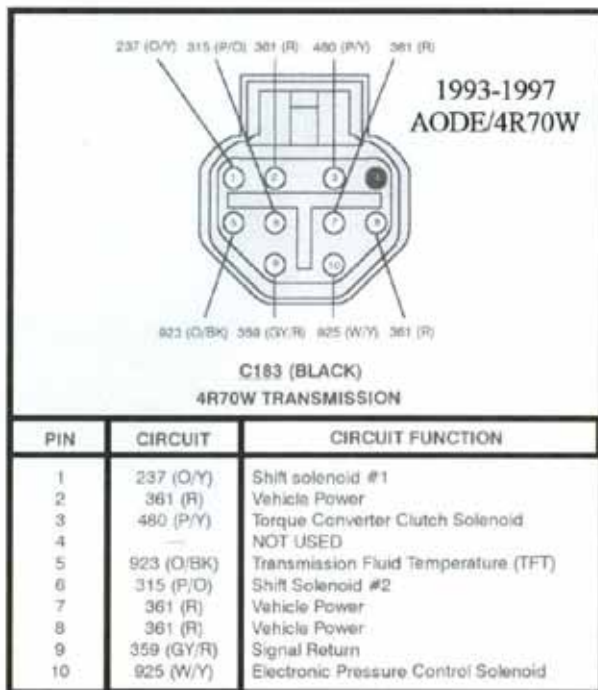
## Interchange Information (continued)

### Harness Connector Changes

Use the diagrams to make sure you are using the correct connector for your application. The diagrams shown are the vehicle side of the harness. From 1993-1997, the transmission connector is white with soft wiring built into the connector.

From 1998-on, the connector is black in color and uses the separate hard plastic harness. Solenoids will not interchange due to connection differences.

**NOTE: Installing the wrong wiring harness can create multiple codes and erratic shifts.**



# 4R70W/4R75E

## Interchange Information (continued)

### Stator Support

The stator supports are identical in hydraulic design but there is an important difference in the forward sealing ring lands. The 4R70E/75E uses a plastic ring that is much thinner than the 4R70W cast iron design.

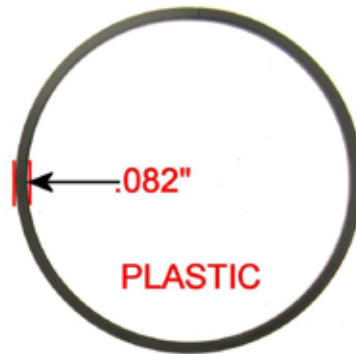
The outer dimensions of the two rings are identical so as long as the correct rings are used, the stator supports can be interchanged.

The other difference is the forward clutch feed hole. Ford changed the machining process for the forward clutch apply hole and turned it into a slot instead of a round hole. This is strictly cosmetic and will have no effect on forward clutch apply if interchanged.

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4R70E/75E



4R70W



4R70E/75E

Forward Clutch Feed



RING LANDS ARE DEAPER

# 4R70W/4R75E

## Interchange Information (continued)

### Planetary

The planetary gear set is the same ratio and dimensions between the two units. The only difference is how the rear cover is attached. The 4R70E/75E uses a welded design as the older versions use rivets to connect the bottom cover to the top portion of the gear set. That area has never had a real issue and the change is due to an easier manufacturing process. Interchange between years will not pose a problem.

4R70W



4R70E/75E



# 4R70W/4R75E

## Interchange Information (continued)

### Sun Shell and Forward Sun Gear

2004 & up sun shells are designed with added strength by utilizing a two piece riveted or a one piece design in the later applications. On both designs, the metal is thicker along the chamfer at the base of the gear which will reduce cracking. Height dimensions from the bottom of the sun gear to the area where the bearing rides has been reduced by .030" to make room for the thicker two piece bearing.

The sun shell, bearing, and forward sun gear must be changed as a set if changing over to a 4R70W or the end play will be incorrect. Ford sells this complete service kit under part # 4L3Z-7D234-AA.

4R70W



4R70E/75E





# 4R70W/4R75E

## Interchange Information (continued)

### Sun Shell and Forward Sun Gear (continued)

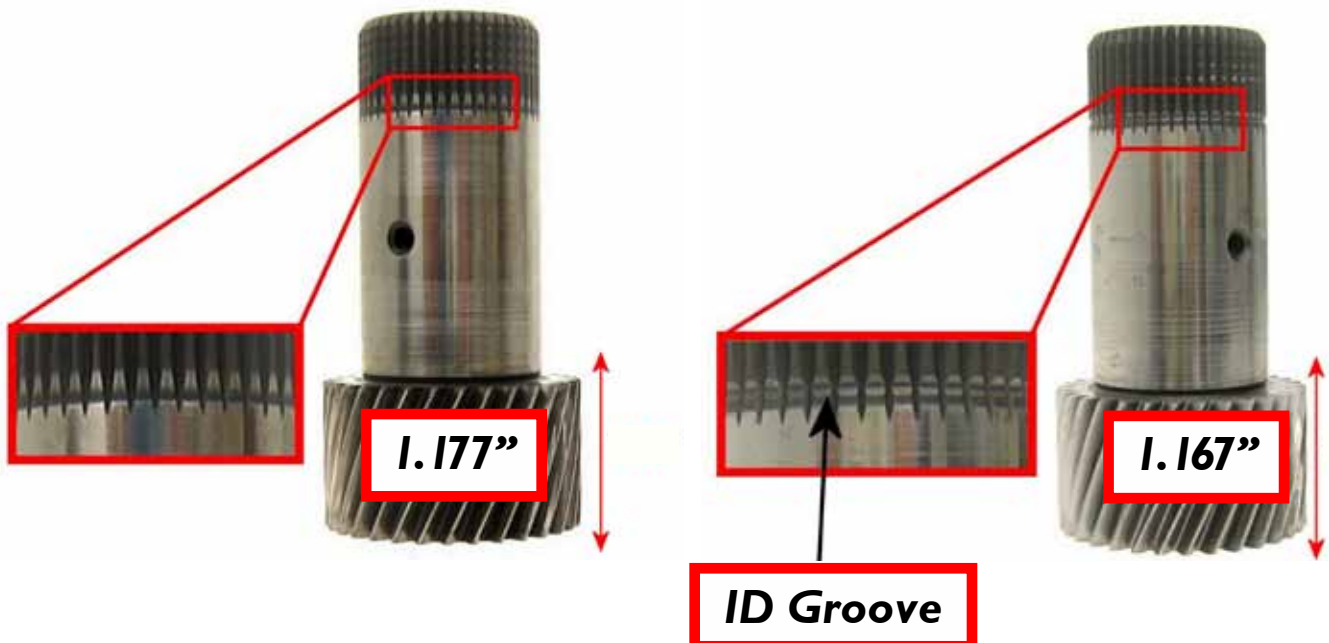
The sun shell, bearing, and forward sun gear must be changed as a set if changing over to a 4R70W or the end play will be incorrect. Ford sells this complete service kit under part # 4L3Z-7D234-AA.

**Thicker two piece bearing.**



**4R70W**

**4R70E/75E**



# 4R70W/4R75E

## Interchange Information (continued)

### Sun Shell and Forward Sun Gear (continued)

The single most important change with the 4R70E/75E sun shell is something you can not see with the naked eye, but will prevent the transmission from leaving your shop. That is the 4R70E/75E sun shell is non-magnetic. In order for the input speed sensor that the 4R70E/75E's now incorporate to work, the sun shell must be non magnetic so that the sensor can pick up the signal from the stamping on the forward drum. Failure to use a non magnetic sun shell will result in harsh or no shifting with possible ratio and input speed sensor codes.

**4R70W**



**4R70E/75E**

**2004-2005**



**2006-On**



# 4R70W/4R75E

## Interchange Information (continued)

### Pump Body

The pump bodies are identical except for the intermediate piston design. The 4R70E/75E uses a bonded rubber piston that is larger in size and will produce more holding power than the aluminum piston design.

A wave style piston return spring in 04-05 models and a one piece in the 06 and up models is utilized on the molded style and cannot retrofit back. The wave style spring requires a seat that sits in the case so that the wave spring does not eat into the aluminum. The later one piece style has a notch that indexes at 12 o'clock in the case and is placed with the springs facing up towards you.

The two different designed pumps can be interchanged from one another without any issues, but as a complete set. You cannot interchange intermediate pistons or springs with one another. If you choose to use a 4R75E pump in place of the early 4R70W, make sure to install the wave spring retainer into the early case or damage to the case will occur. If using the 06-up one piece design spring, no retainer is needed.

**4R70W**

**4R75E**



Area for the Intermediate Piston is larger for the molded rubber style



**2006-on uses the single piece retainer**

# 4R70W/4R75E

## Interchange Information (continued)

### Ring Gear

A new designed output speed sensor was incorporated for the 2004 model year. The new sensor uses the exciter ring from the 24 extended parking pawl lugs as where the old sensor uses six (6) holes that are machined around the ring gear.

Mismatching an early ring gear in a late transmission will result in a 75% reduction in the output speed sensor signal and will not let the trans shift out of first gear. Using a late ring gear in an early transmission will produce an output speed signal 400% faster and shift the transmission into fourth gear by the time you hit 10 MPH. No interchange possible.

4R70W



6 RELUCTOR HOLES

4R70E/75E



24 RELUCTOR LUGS

# 4R70W/4R75E

## Interchange Information (continued)

### Output Speed Sensor

The Output Speed Sensor changed from the oval connector to the square in 2001. The length is the same as the earlier version up to 2004 when the ring gear changed. Installing the shorter late sensor in 01-03 models could create a weak signal and intermittent OSS codes. Installing the early sensor in an 04 and up will cause damage to the sensor.

