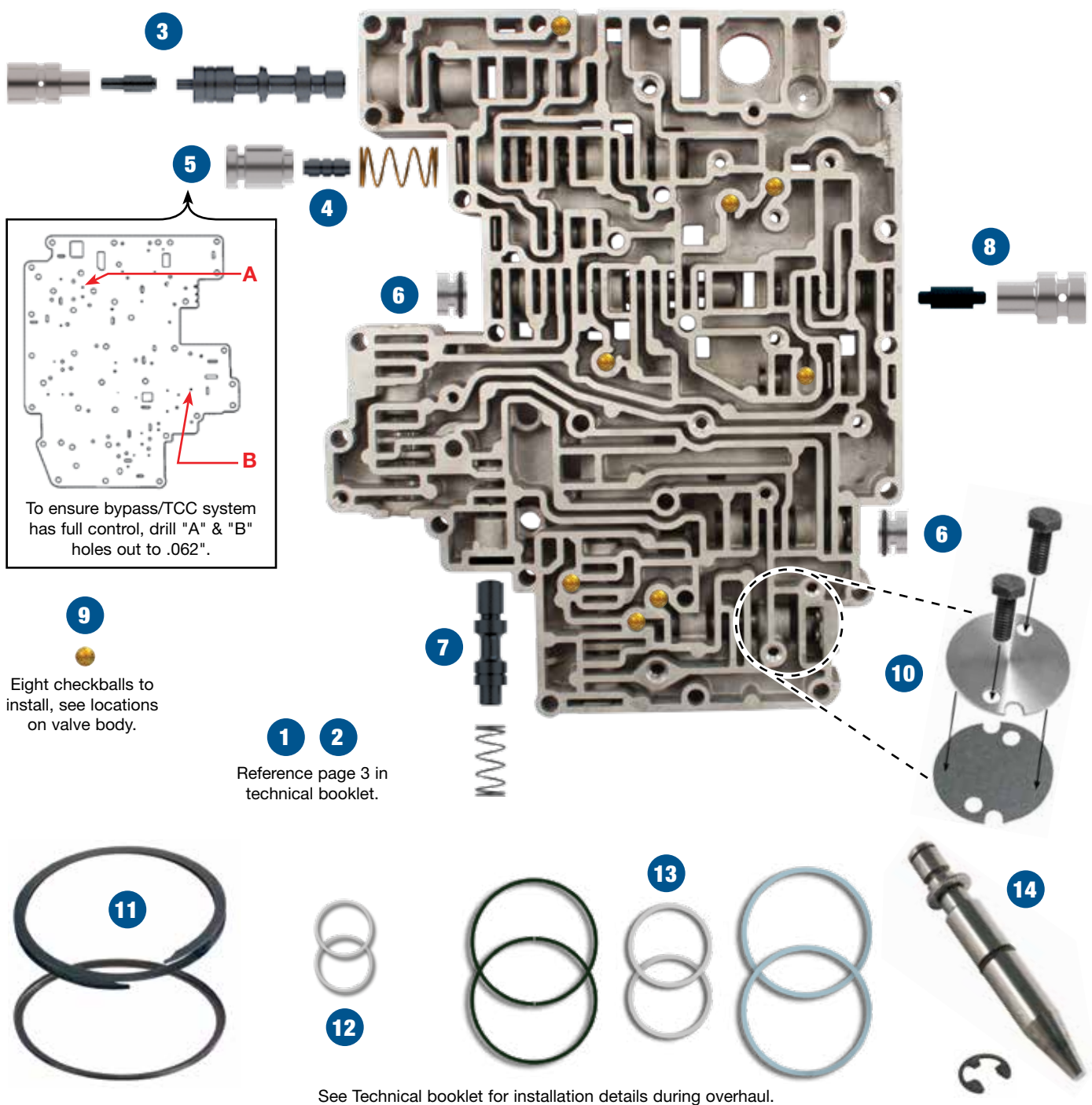


Parts are labeled here in order of installation. See other side of sheet for details on Sure Cure kit contents. See Sure Cure instruction booklet for detailed installation steps.

VALVE BODY INSTALL DIAGRAM



Sure Cure Contents & Installation Steps

Step 1 Ream Main Pressure Regulator Valve Bore

Step 2 Ream Solenoid Regulator Valve Bore

PART INSTALLATION: To implement best practices and avoid chip contamination, wait until all valve body reaming operations are finished before installing Sonnax products. Detailed installation instructions are explained later in this booklet.

F-TOOL REAMING: Visit Sonnax web site www.sonnax.com for general F-Tool reaming fixture instructions, as well as best practices for bore preparation, cautions and suggestions on bore reaming.

Step 3 Install Oversized Main PR Valve, Oversized Boost Valve & Sleeve

Reuse OE Spring. Reference page 4 for detailed instructions.

Packaging Pocket 1

- Oversized Main PR Valve • Boost Valve • Boost Sleeve

Step 4 Replace Bypass Clutch Control Valve Plunger, Sleeve & Spring

Packaging Pocket 2

- Plunger • Sleeve • Spring

Step 5 Perform Separator Plate Modifications

Packaging Pocket 3

- Drill bit, .062" (not shown)

Step 6 Replace 2-3 and 3-4 Shift Valve End Plugs

Remove OE clips and save for reuse. Remove and discard OE end plugs. Install O-Ring on Sonnax end plugs in shallow grooves. Large O-Ring fits the 2-3 shift valve end plug, small O-Ring fits the 3-4 shift valve end plug. Lubricate with Sonnax O-Lube or equivalent, roll on bench to size. Install O-ringed plugs into bores, o-ringed land first. Reinstall clips.

Packaging Pocket 4

- Plugs (2) • O-Rings (4) 2 extra

Step 7 Install Oversized Solenoid Regulator Valve & Spring

Packaging Pocket 5

- Valve • Spring

Step 8 Replace Overdrive Servo Regulator Valve & Sleeve



NOTE: '01-Later applications only.

Remove OE clip and save for reuse. Remove and discard OE overdrive servo regulator valve and sleeve.

NOTE: Remove the inboard overdrive servo regulator valve and ensure that it is free in its bore. The inboard valve is commonly stuck as OD servo retaining ring often breaks and pieces of the snap ring lodge in this bore.

Packaging Pocket 6

- Valve • Sleeve

Step 9 Replace OE Checkballs

Refer to page 1 for locations.

Packaging Pocket 7

- Checkballs (8)

Step 10 Install Valve Body Retainer Plate



NOTE: Used on '01-later applications only. Installation requires drilling of separator plate and valve body casting so it can be threaded. Reference page 6 for detailed instructions.

Packaging Pocket 8

- Retainer Plate • Gasket • Bolts (2)

Sure Cure Steps During Transmission Overhaul

Step 11 Install Intermediate Clutch Spiral Retaining Ring

Reference page 6 for detailed instructions.

Packaging Pocket 9

- Spiral Retaining Ring • Locking Ring

Step 12 Replace Output Shaft Seals. Inspect Direct Piston & Direct Clutch Drum.

Reference page 7 for detailed instructions.

Packaging Pocket 10

- Output Shaft Seals (2)

Step 13 Install Pump Cover & Input Shaft Seals



NOTE: There are 2 types of rings for the stator '02-Earlier and '03-Later.

Reference page 7 for detailed instructions.

Packaging Pocket 11

- Pump Cover Seals; Early (2), Late (2) • Input Shaft Seals (2)

Step 14 Replace Overdrive Servo Pin

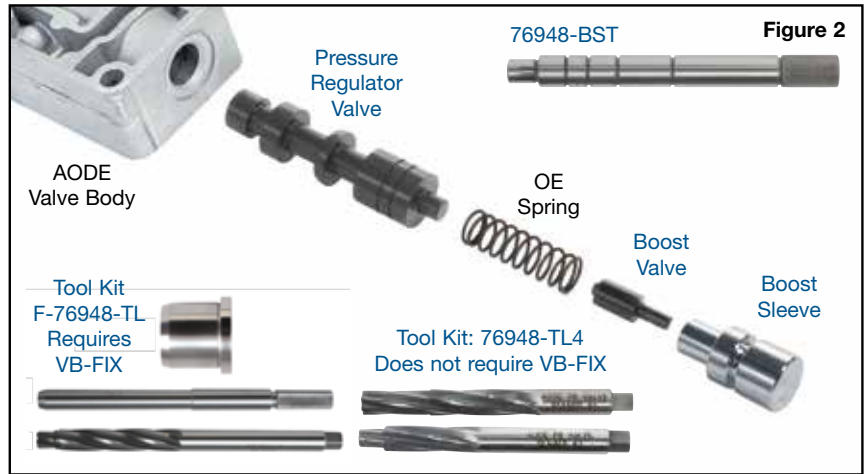
Reference page 8 for detailed instructions.

Packaging Pocket 12

- Servo Pin • O-Rings; Large (1), Medium (1) • Washer
- Retaining Clip

Valve Body Verification

Verify that this kit fits your valve body. Rough forging must begin with **RF-F6** or **1L3P** located below stiffener plate (**Figure 1**). This kit fits '96-later units. It will NOT work on '91-'95 units.



Step 1 Ream Pressure Regulator Valve Bore (Figure 2)

1. Disassembly

- a. Remove OE retainer and save for reuse.
- b. Remove and discard OE boost valve and sleeve.
- c. Remove OE pressure regulator valve spring and save for reuse.
- d. Remove and discard OE pressure regulator valve.

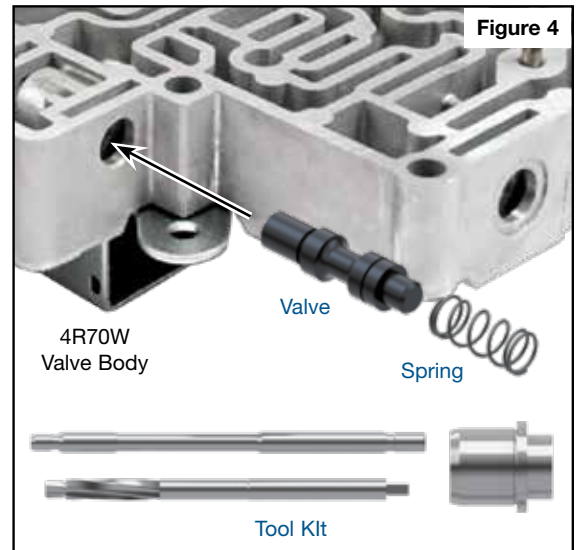
2. Ream Bore

NOTE: This bore requires the use of tool kit **76948-TL4** or tool kit **F-76948-TL** and the alignment fixture **VB-FIX** (not included in this kit).

NOTE: Sonnax **76948-BST** can be used if necessary to ensure that the pressure regulator valve moves freely.

NOTE: The oversized valve in this kit will also service the split spool design shown (**Figure 3**).

NOTE: Do not install valves at this time. Wait until all reaming operations are finished.



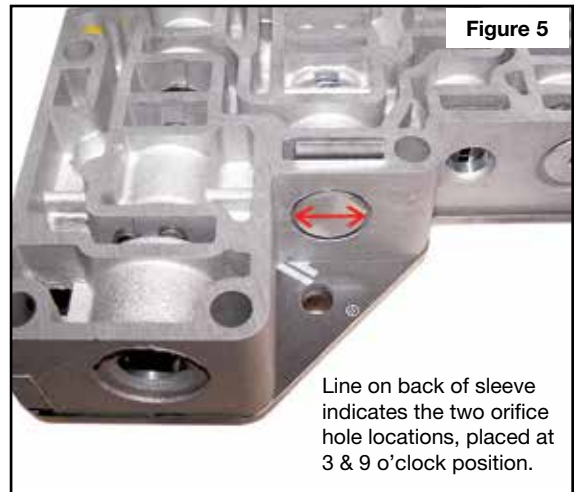
Step 2 Ream Solenoid Regulator Valve Bore (Figure 4)

1. Disassembly

- a. Remove OE retainer and save for reuse.
- b. Remove and discard OE spring and solenoid regulator valve.

2. Reaming Bore

NOTE: This bore requires the use of tool kit **F-76948-TL47** and the alignment fixture **VB-FIX** (not included in this kit).



Step 3 Install Oversized Main Pressure Regulator Valve, OE Spring & Oversized Boost Valve & Sleeve

- Install Sonnax oversized main pressure regulator valve, smaller diameter first.
- Reinstall OE pressure regulator valve spring.



NOTE: The small OE boost spring was eliminated in later applications and is not required. If your application originally had the spring, it may be reinstalled into the Sonnax boost assembly if desired. Use of the spring will provide slightly quicker Reverse line rise pressure.

- Install Sonnax boost valve assembly into bore, ensuring sleeve snout enters OE spring I.D.
- Reinstall OE retainer.

Step 4 Replace Bypass Clutch Control Valve Plunger, Sleeve & Spring (Figure 5)

- Remove OE clip and set aside for reuse.
- Remove and discard OE plunger sleeve, plunger valve and spring.
- Remove plunger valve from Sonnax sleeve, set aside for reuse.
- With enclosed Sonnax drill bit, drill thru existing Sonnax sleeve cross-orifice hole and out other side of sleeve. Remove debris and burrs. Reinstall Sonnax plunger into sleeve.
- Install Sonnax orange spring and plunger valve and sleeve assembly into bore and draw a line on the back of the sleeve indicating the two orifice hole locations and place at the 3 and 9 o'clock position (Figure 5).
- Reinstall OE clip.

Step 5 Perform Separator Plate Modifications

Step 6 Replace 2-3 and 3-4 Shift Valve End Plugs

Step 7 Install Oversized Solenoid Regulator Valve (Figure 4)

- Ensure valve bore and body are clean and clear of debris.
- Install Sonnax valve, longer spool end pointed inward.
- Install Sonnax spring, ensuring it seats over outboard valve stem.
- Compress spring and reinstall OE retainer.

Step 8 Replace Overdrive Servo Regulator Valve & Sleeve

Step 9 Replace OE Checkballs

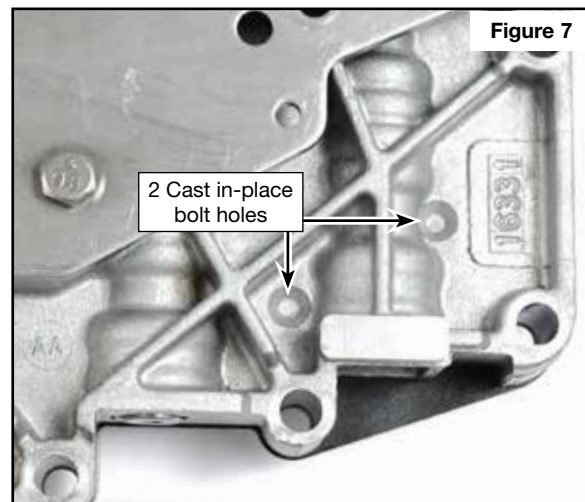
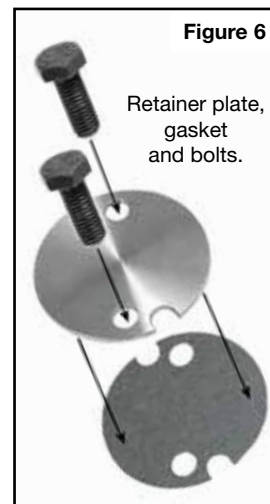
Step 10 Install Valve Body Retainer Plate Kit (Figure 6)

1. Tools Required

- 13/64" or #9 sharp drill bit
- 1/4" and 5/16" drill bits
- 6.0mm x 1.0mm thread tap

2. Installation & Assembly

- Install the separator plate onto the valve body and align the plate with the original alignment bolts.



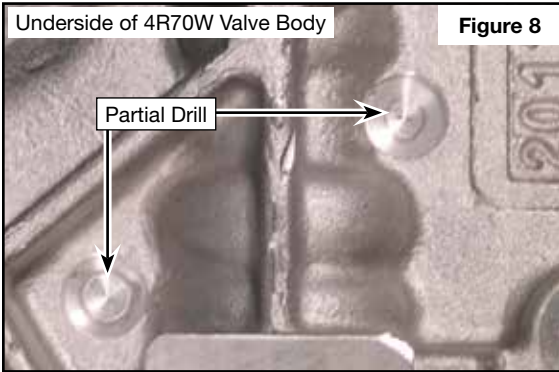


Figure 8

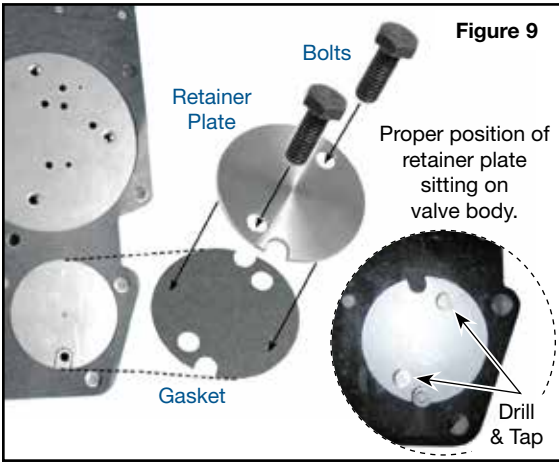


Figure 9

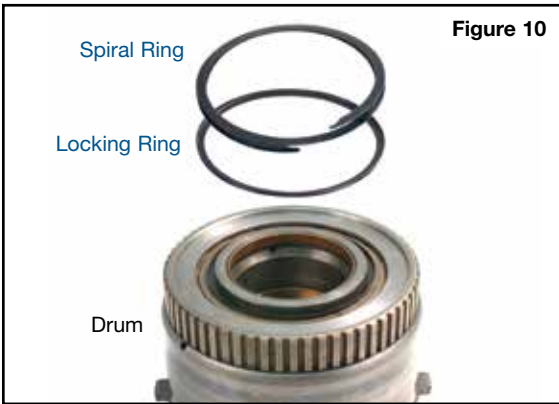


Figure 10

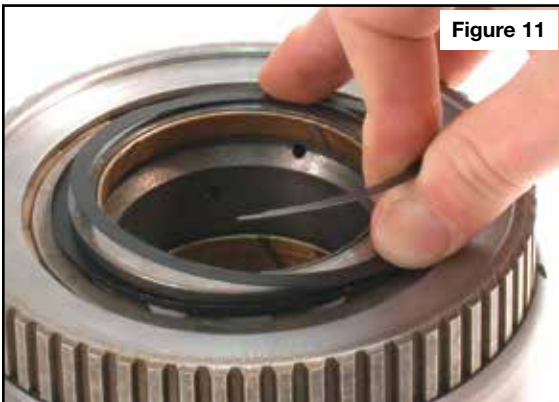


Figure 11

b. Locate the two cast in-place bolt hole locations on the underside of the valve body as shown in (Figure 7).

c. In a drill press use a 5/16" drill bit to clean up the cast in-place bolt hole locations and establish a true center for drilling further with the 13/64" or #9 drill.



WARNING: Do not drill deeper than 1/16" with the 5/16" drill bit (Figure 8).

d. After true center is established, use a 13/64" or #9 drill bit to drill all the way through the valve body AND separator plate with a piece of wood underneath to prevent the plate from deforming as the drill bit cuts through.

e. Remove the separator plate and enlarge the two drilled holes with a 1/4" drill bit. De-burr the new holes in the separator plate.

f. With a 6.0 x 1.0mm thread tap, cut new threads in the drilled holes in the valve body. De-burr the gasket surface, making sure there are no high spots.

g. Install Sonnax checkballs using the locations on page 1.

h. Assemble the valve body gaskets and separator plate using normal procedures.

i. Install the Sonnax gasket, valve body retainer plate and two screws and torque to 80-100 in-lb. (9-11Nm.) (Figure 9).

The following steps are to be performed during unit overhaul:

Step 11 Install Intermediate Clutch Spiral Retaining Ring

1. Disassembly

Remove and discard the OE retaining ring from the intermediate roller clutch or mechanical diode assembly.

2. Installation

a. Install the locking ring, cup side facing up as shown in (Figure 10).

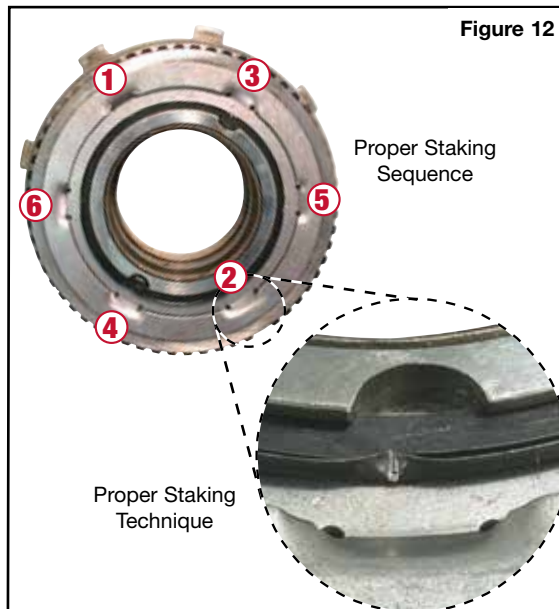


Figure 12

b. Walk the spiral ring into the retaining groove as pictured (Figure 11).



NOTE: The locking ring may need to be moved for correct spiral ring positioning.

c. Make sure the spiral ring is fully seated in the groove all the way around the assembly.

d. Stake the locking ring in six equally spaced places around the outside as shown (Figure 12).

Step 12 Install Output Shaft Seals

1. Disassembly & Inspection

- Remove and discard the OE seals on the output shaft and replace with the Sonnax seals as shown (Figure 13).



CAUTION: Don't nick the sealing ring lands as this can cause ring damage.

- Inspect the checkball in the direct piston (Figure 14) as it is prone to sticking. Clean and flush with solvent or WD-40® and reseal with a small punch and hammer.

2. Installation & Testing

- Assemble the direct clutch drum onto the output shaft (Figure 15).
- Squirt ATF into the feed hole for direct clutch feed.
- Apply 30–60 psi of air pressure into the feed hole.
- Verify that there are no leaks



NOTE: If there are leaks, look for a worn bushing in the drum or leaks in the ring grooves or the check ball seat.

Step 13 Install Pump Cover & Input Shaft Seals

1. Installation

- Install seals onto the pump cover (Figure 16).



NOTE: Two sets of seals are included. Select the correct size/style for the application. The early style is a solid ring (.110" width), the late style is a butt-cut ring (.083" width). Sizing of the early/solid style is required after installation. A mixture of ATF and STP can be used to lubricate the solid seals while sizing with finger pressure.

- Press input shaft out of the Forward drum. Sand ring surface lightly with 320 grit sand paper, using a crosshatch pattern (Figure 19).
- Install solid seals onto the input shaft. Resize with your fingers. Pre-lube seals and install into the stator for final sizing.

2. Inspect & Verify

- Inspect the check balls in the Forward drum shown (Figure 19), as they are prone to sticking. Flush with solvent or WD-40®. Also be sure that the orifice shown, is free of debris that can come from parts washers.
- An AOD Forward drum can be used to size the early stator seals (Figure 17). The seals can also be sized with the Forward drum, although it may take a little longer. Carefully use the back of a pick to work the seal into the drum and let sit for a while so the seal will stay conformed.
- Verify correct Forward piston return spring for the application you are working on (Figure 18).

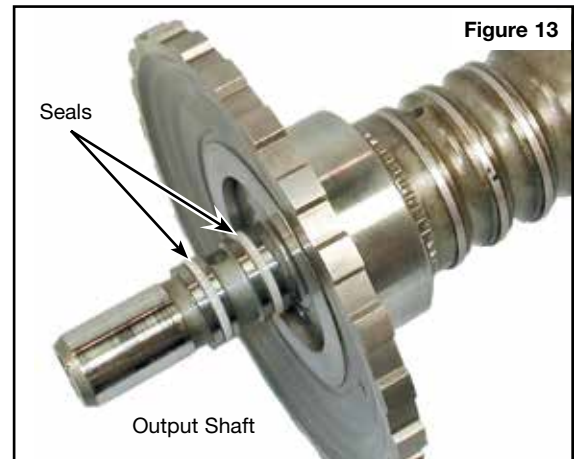


Figure 13

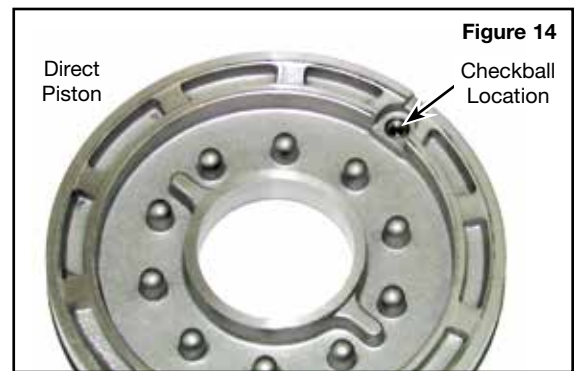


Figure 14



Figure 15

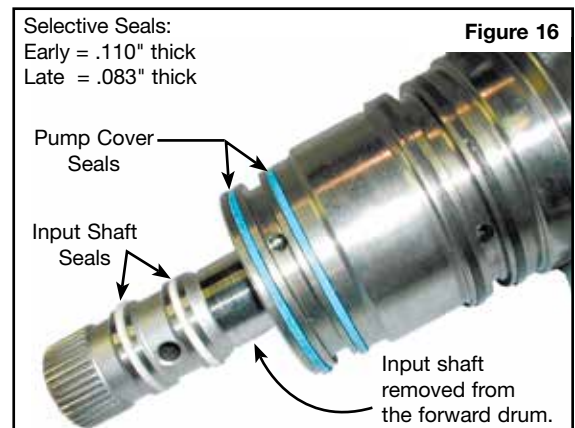


Figure 16

Selective Seals:
Early = .110" thick
Late = .083" thick

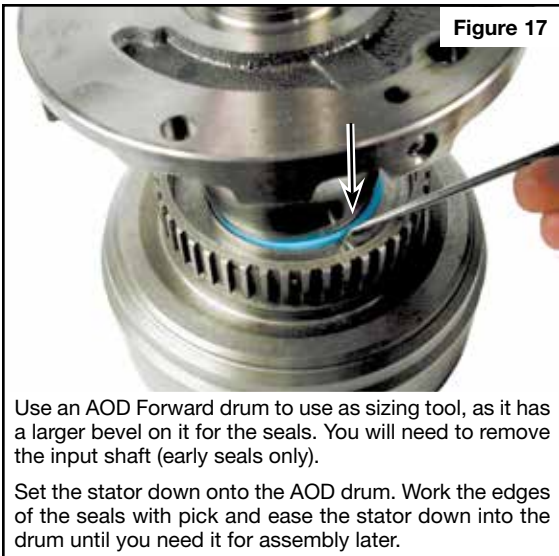


Figure 17

Use an AOD Forward drum to use as sizing tool, as it has a larger bevel on it for the seals. You will need to remove the input shaft (early seals only).

Set the stator down onto the AOD drum. Work the edges of the seals with pick and ease the stator down into the drum until you need it for assembly later.

Step 14 Replace Overdrive Servo Pin (Figure 20)

- a. Use bore brush to remove sharp edges of overdrive servo pin bore in case.
- b. Install O-rings on Sonnax servo pin.
- c. Lubricate O-rings and roll pin on clean flat surface to size O-rings into pin grooves.

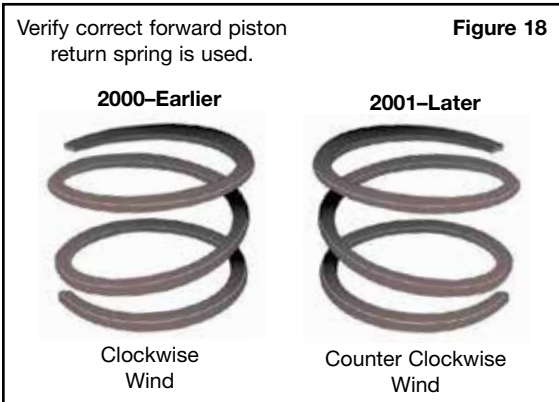


TECH TIP: If a firmer 3-4 shift is desired, place Sonnax washer on pin against shoulder to pre-load spring.



NOTE: Following step is easier if piston is compressed in bench vise to facilitate retaining clip installation.

- d. Install OE spring seat followed by springs, piston and retaining clip.
- e. Set servo travel according to OE specifications.



Verify correct forward piston return spring is used.

Figure 18

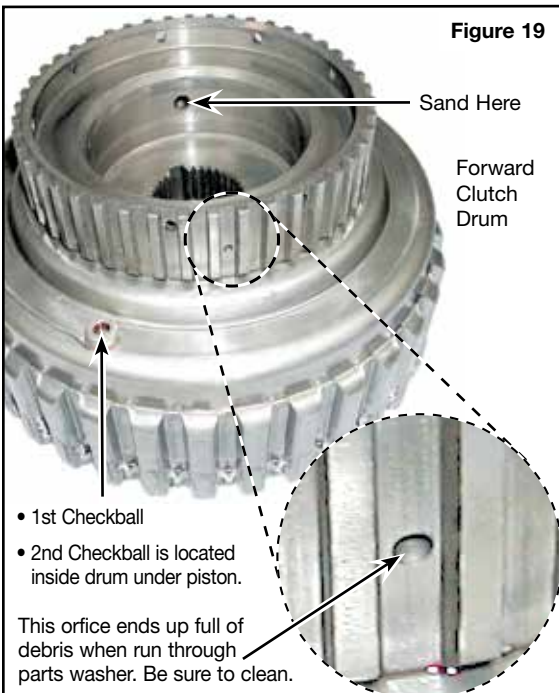


Figure 19

- 1st Checkball
- 2nd Checkball is located inside drum under piston.

This orifice ends up full of debris when run through parts washer. Be sure to clean.

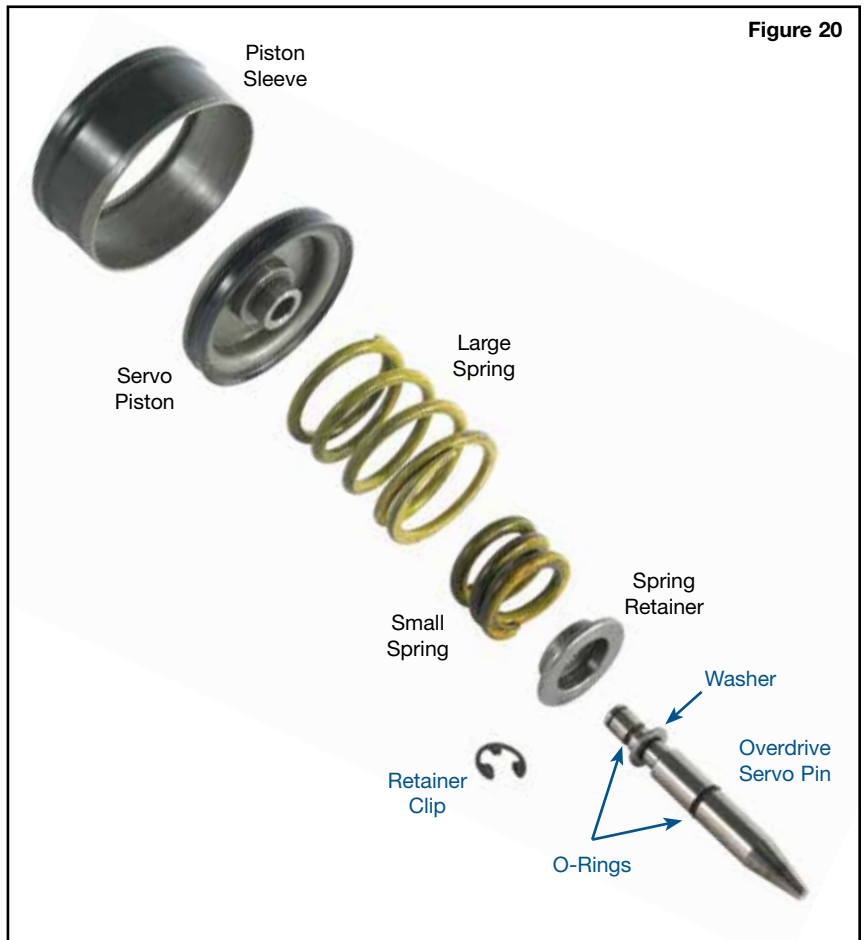


Figure 20