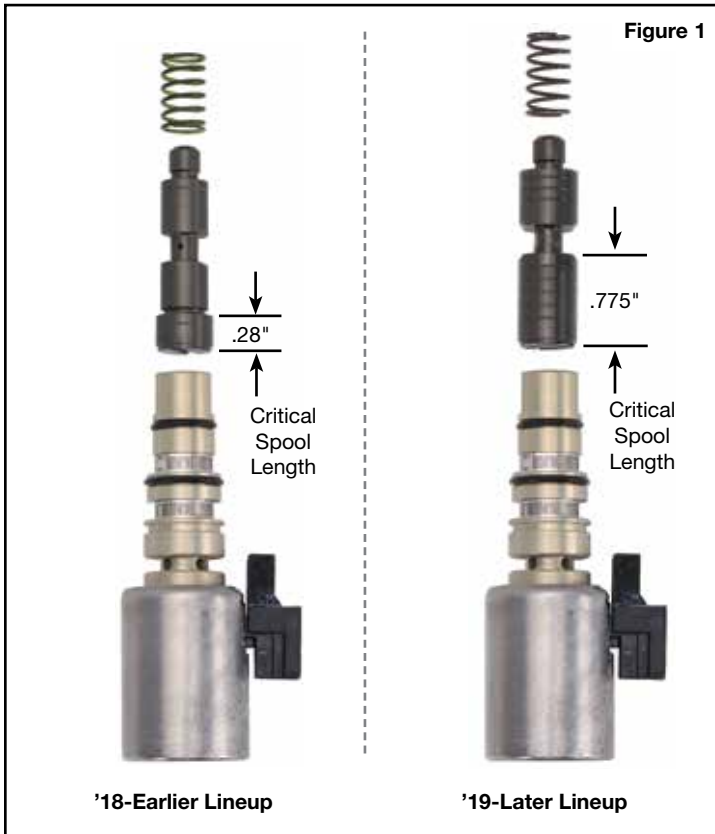
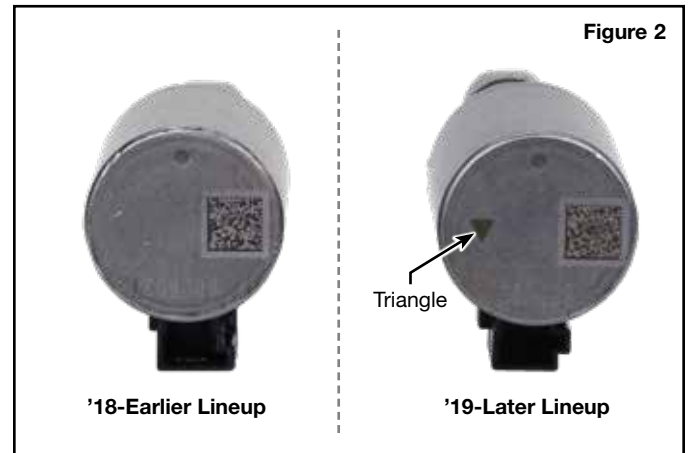


Identification of Valve Body

It is important to identify which generation valve body you have. The '18-earlier generation has an S4 clutch control valve that has a critical spool length of .28". The '19-later generation has an S4 clutch control valve with an extended critical spool length of .775" (Figure 1).



In addition, the '19-later generation has a black triangle on the back of the S4 clutch control valve solenoid (Figure 2).



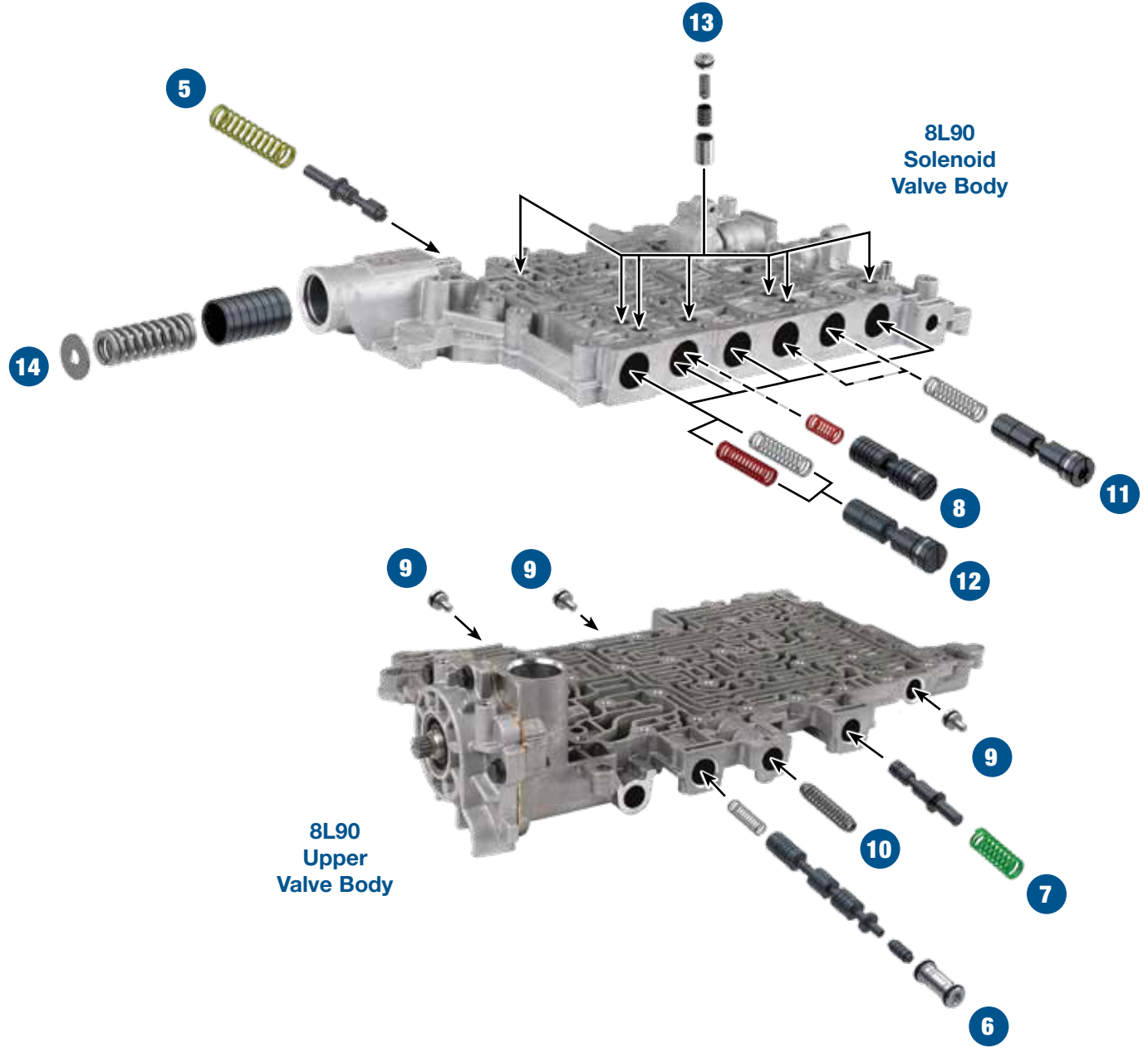
GM 8L45, 8L90 SURE CURE KIT

PART NUMBER SC-8L45-8L90

INSTALLATION GUIDE

Parts are labeled here in order of installation. See other side of sheet for details on kit contents.

INSTALLATION DIAGRAM





NOTE: Reference Installation & Testing Booklet for details on how to vacuum test the bores for wear.

Step 1 Ream Converter Feed Limit Bore

Step 2 Ream Pressure Regulator Bore

Step 3 Ream Actuator Feed Limit Bore

Step 4 Ream S4 Clutch Control Bore



WARNING: Only perform step 4 if you have a '19-later valve body.

Step 5 Install Oversized Converter Feed Limit Valve Kit

Packaging Pocket 1

- Valve
- Spring

Step 6 Install Oversized Pressure Regulator & O-Ringed Shuttle Valve Kit

Packaging Pocket 2

- Pressure Regulator Valve
- Shuttle Valve
- Shuttle Sleeve
- Spring
- O-Rings (3) 1 Extra

Step 7 Install Oversized Actuator Feed Limit Valve Kit

Packaging Pocket 3

- Valve
- Spring

Step 8 Install Oversized S4 Clutch Control Valve Kit

Packaging Pocket 4

- Valve
- Spring
- Seal



WARNING: Fits '19-later units only.

The parts listed here may be protected by one of these patent numbers: 11,933,326 & 12,129,922.

Step 9 Replace O-Ringed End Plugs

Packaging Pocket 5

- End Plugs (3)
- O-Rings (4) 1 Extra



WARNING: The default override valve end plug must be installed with the end plug protrusion outboard toward OE retainer, the other two locations require the end plug protrusion to face inboard.

Step 10 Replace Pressure Relief Ball Valve Spring

Packaging Pocket 6

- Spring

Step 11 Install S1/S5 Clutch Control Valve Kit

Packaging Pocket 7

**See Bore Sizing Warning*

- Valves (2)
- Springs (2)
- Seals (2)

Step 12 Install S2/S3/S4/TCC Clutch Control Valve Kit

Packaging Pocket 8

**See Bore Sizing Warning*

- Valves (4)
- Seals (4)
- Springs, White (3) S2, S3, S4
- Spring, Red (1) TCC



WARNING: This S4 valve and spring only work if you have an '18-earlier valve body.

Step 13 Install Signal Accumulator Piston Kit

Packaging Pocket 9

- Sleeves (7)
- Pistons (7)
- End Plugs (7)
- Springs (7)
- O-Rings (9) 2 Extra

Step 14 Install 1-3-5-6-7 Accumulator Piston Kit

Packaging Pocket 10

- Piston
- Spring
- Washer
- O-Rings (2) 1 Extra

Step 15 Valve Body Vacuum Test Verification



***WARNING:** Bore sizing tool **154740-BST11** may be needed for the S2/S3/S4/TCC clutch control valve kit, and **154740-BST13** may be needed for the S1/S5 clutch control valve kit to ensure proper clearance between the valve and the bore.

Step 1 Ream Converter Feed Limit Bore

- Remove the OE retaining clip and save for reuse.
- Remove and discard OE spring and valve.
- Align **VB-FIX** to ream the converter feed limit bore using Sonnax tool kit **F-154740-TL22**.

Step 2 Ream Pressure Regulator Bore

- Remove OE retaining clip and save for reuse.
- Remove and discard shuttle sleeve, shuttle valve, pressure regulator valve and spring.
- Use Sonnax tool kit **154740-TL32** to ream pressure regulator bore.
- Securely clamp the valve body horizontally to the bench, making sure not to clamp directly over the bore to be reamed.
- Soak the bore and reamer with cutting fluid.
- Place self-piloting **Reamer #1 (154740-RM32X)** into the bore and ease forward until the cutting tip contacts the first bore to be reamed.
- Turn the reamer in smooth and continuous clockwise motion, at 60-200 RPM. Continue reaming until the reamer bottoms in the bore.
- Using low air pressure, blow the chips free prior to removing the reamer.
- To remove the reamer, turn clockwise while slowly pulling outward on the reamer.
- Remove any remaining debris from the bore with air pressure and clean in a solvent tank.
- Repeat steps (e) through (j) using self-piloting **Reamer #2 (154740-RM33X)**.

Step 3 Ream Actuator Feed Limit Bore

- Remove and save OE retainer.
- Remove and discard OE spring and valve.
- Align **VB-FIX** to ream the actuator feed limit bore using Sonnax tool kit **F-154740-TL38**.

Step 4 Ream S4 Clutch Control Bore



WARNING: Only perform Step 4 if you have a '19-later valve body.

- Remove OE retaining clip and solenoid and save for reuse.
- Remove and discard OE valve and spring.
- Align **VB-FIX** to ream the S4 clutch control bore using Sonnax tool kit **F-154740-TL26**.

Step 5 Install Oversized Converter Feed Limit Valve Kit

- Ensure all debris has been removed from all valve bores and valve bodies.
- Install the Sonnax converter feed limit valve into the bore (**Figure 1**).
- Install the Sonnax converter feed limit spring.
- Reinstall the OE retaining clip.

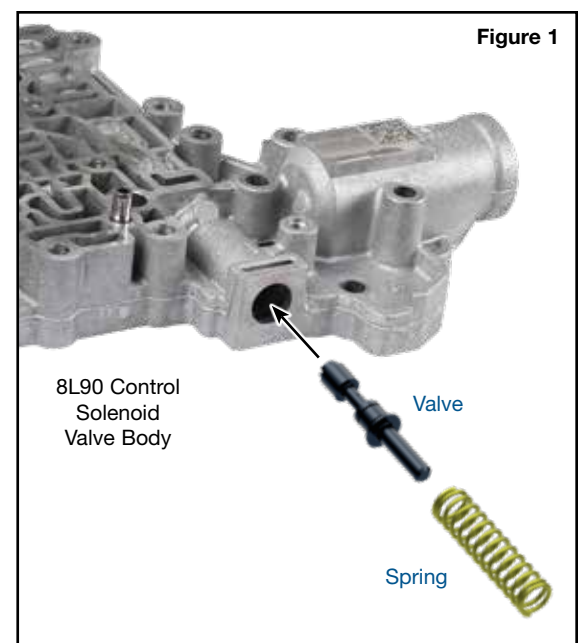


Figure 1

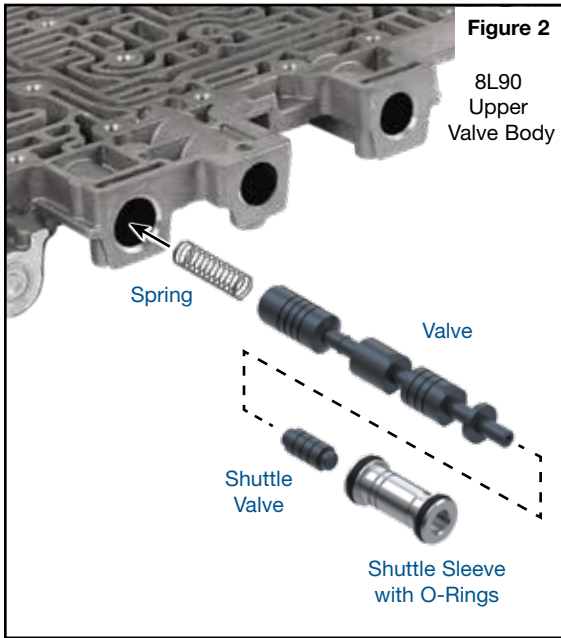


Figure 2

8L90
Upper
Valve Body

Step 6 Install Oversized Pressure Regulator & O-Ringed Shuttle Valve Kit

- Cover the O.D. of the Sonnax spring and the I.D. of the Sonnax valve spring pocket with assembly lube and assemble the two together.
- Install Sonnax spring and pressure regulator valve into the bore (**Figure 2**). Verify the valve fully strokes to the bottom of the bore.
- Install Sonnax O-rings into shallow grooves of Sonnax sleeve. Then lubricate with Sonnax Slippery Stick **O-LUBE** and roll-on bench to size the O-rings into the grooves.
- Install Sonnax valve and sleeve assembly.
- Reinstall OE Retaining clip.

Step 7 Install Oversized Actuator Feed Limit Valve Kit

- Ensure all debris has been removed from the bore.
- Install Sonnax valve (**Figure 3**).
- Install Sonnax spring and reinstall OE retainer.

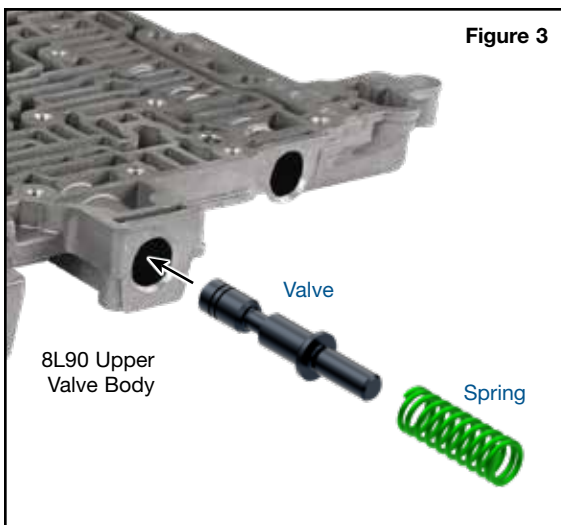


Figure 3

Step 8 Install Oversized S4 Clutch Control Valve



WARNING: Only perform step 4 and step 8 if you have an '19-later valve body.

- Ensure all debris has been removed from the bore.
- Place scarf-cut seal into shallow groove on valve. Rolling the seal into a smaller diameter before placing the seal in the groove will help to keep the seal surface below the valve diameter, allowing for easier installation.
- Lubricate seal with Sonnax Slippery Stick **O-LUBE**.
- Installing a small amount of assembly lube into the spring pocket of the valve will help to keep the spring in the pocket throughout the assembly process.
- Insert spring into the pocket of the valve (**Figure 4**).
- Install Sonnax spring and valve.
- When inserted, verify that the valve can stroke fully to the end of the bore in a smooth motion. Spring should not be visible at full stroke. If the valve doesn't stroke smoothly, the spring is not seated properly in the spring pocket.
- Reinstall OE solenoid and retaining clip.

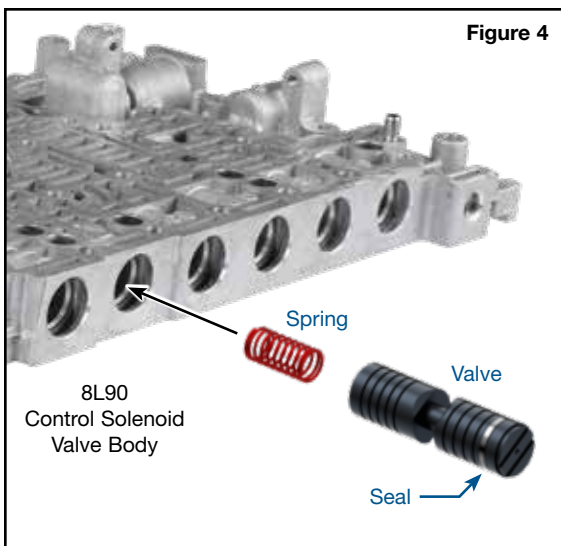


Figure 4

Step 9 Install O-Ringed End Plugs

- Install O-ring into groove of Sonnax end plug.
- Lubricate O-ringed end plug with Sonnax Slippery Stick **O-LUBE**. Roll on bench to size O-ring into groove.
- Install O-ringed end plugs in proper bores and in proper orientation (**Figure 5**).

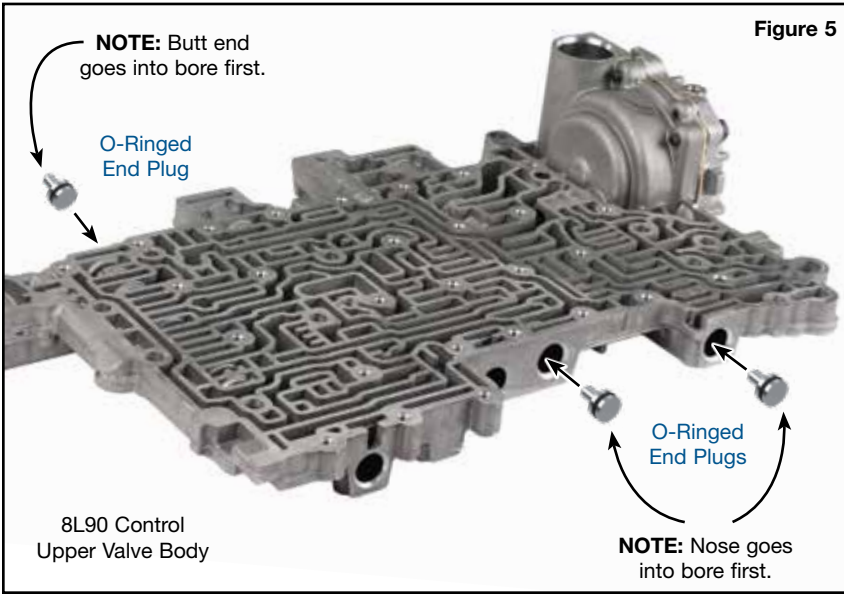


Figure 5

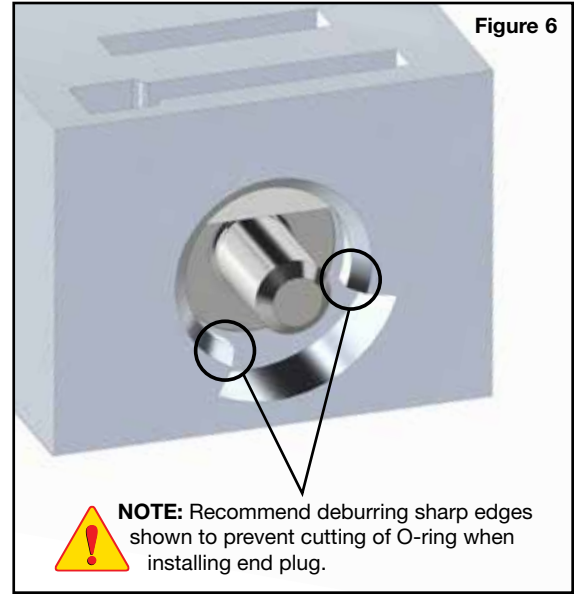


Figure 6

WARNING: Recommend deburring sharp edges shown to prevent cutting of O-ring when installing the plug (Figure 6).

Step 10 Install Pressure Relief Ball Valve Spring (Figure 7)

- Remove OE retaining rod, spring and ball from bore. Save rod and ball for reuse and discard spring.
- Reinstall OE ball and install Sonnax spring.
- Reinstall OE retaining rod.

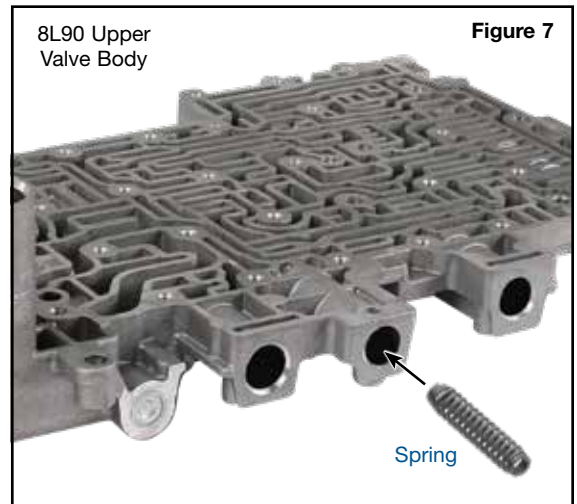


Figure 7

Step 11 Install S1/S5 Clutch Control Valve (Figure 8)

- Remove OE retaining clip and save for reuse. Remove and discard OE valve and spring.
- Test fit valve in bore. If valve moves freely move on to step "c". If not use 154740-BST13 to size bore.
- Place scarf-cut seal into shallow groove on valve. Rolling the seal into a smaller diameter before placing the seal in the groove will help to keep the seal surface below the valve diameter, allowing for easier installation.
- Lubricate seal with Sonnax Slippery Stick O-LUBE.
- Install spring and valve into bore.
- Reinstall OE solenoid and retaining clip.

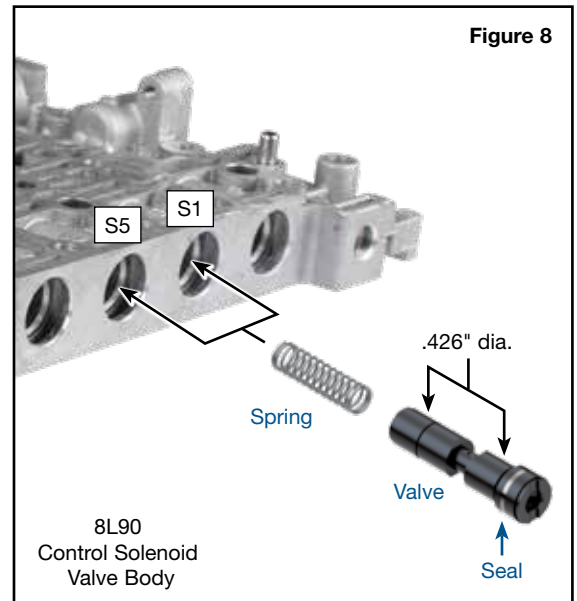


Figure 8

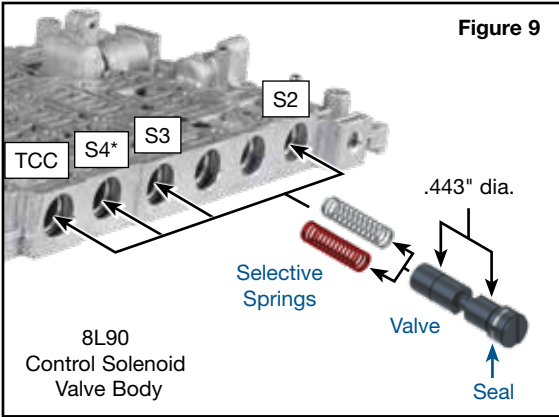


Figure 9

Step 12 Install S2/S3/S4 TCC Clutch Control Valve (Figure 9)



***WARNING:** Use this S4 clutch control valve for '18-earlier valve bodies only. If you have a '19-later, see steps 4 and 8.

- Remove OE retaining cup and solenoid and save for reuse. Remove and discard OE valve and spring.
- Test fit valve in bore. If valve moves freely move on to step "c". If not, use **154740-BST11** to size bore.
- Place scarf-cut seal into shallow groove on valve. Rolling the seal into a smaller diameter before placing the seal in the groove will help to keep the seal surface below the valve diameter, allowing for easier installation.
- Lubricate seal with Sonnax Slippery Stick **O-LUBE**.
- Install red spring in the TCC bore, and the white springs in all the other bores.
- Install valve into bore, then reinstall OE solenoid and retaining clip.

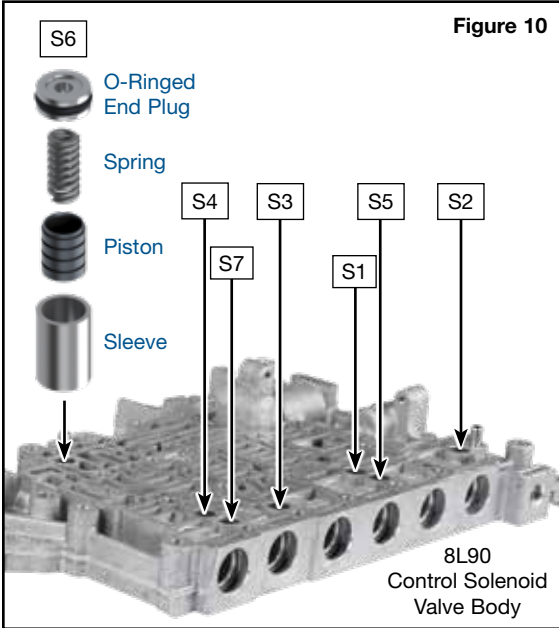


Figure 10

Step 13 Install Signal Accumulator Pistons (Figure 10)

- Remove and discard OE accumulator pistons and springs.
- Install Sonnax sleeve into OE casting bore.
- Install Sonnax piston into sleeve with open end facing upward.
- Install Sonnax spring into piston spring pocket.
- Install O-ring into groove in Sonnax plug. Lubricate with Sonnax Slippery Stick **O-LUBE** and roll on bench to size.
- Install O-ringed end plug into bore with recessed end upward. The small boss on the end plug should slide into the installed sleeve inner diameter (Figure 11).

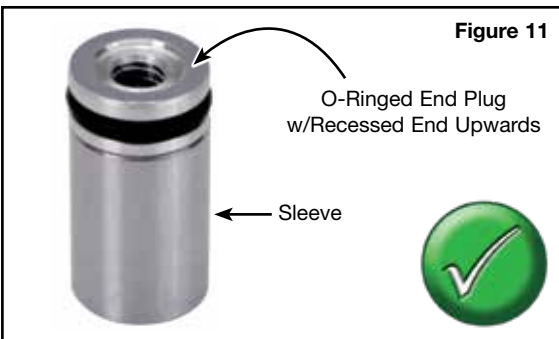
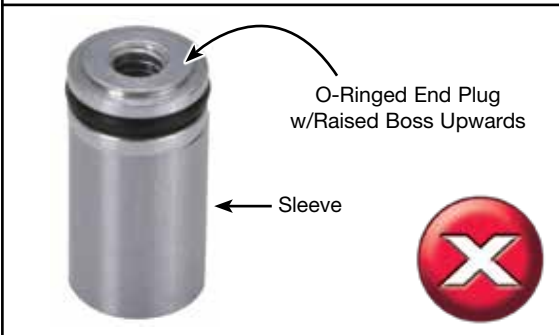


Figure 11



Step 14 Install 1-3-5-6-7 Accumulator Piston Kit (Figure 12)

- Remove OE retaining clip and solenoid and save for reuse. Remove and discard OE valve and spring.
- Install Sonnax O-ring in the Sonnax piston groove.
- Coat O-ring on piston with Sonnax Slippery Stick **O-LUBE** and roll to size.
- Install piston, O-ring end first, into bore.
- Install Sonnax spring and washer, secure with OE retaining ring.



Figure 12

Step 15 Valve Body Vacuum Test Verifications

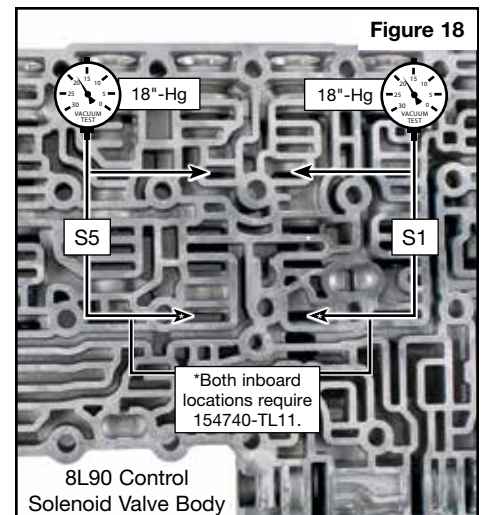
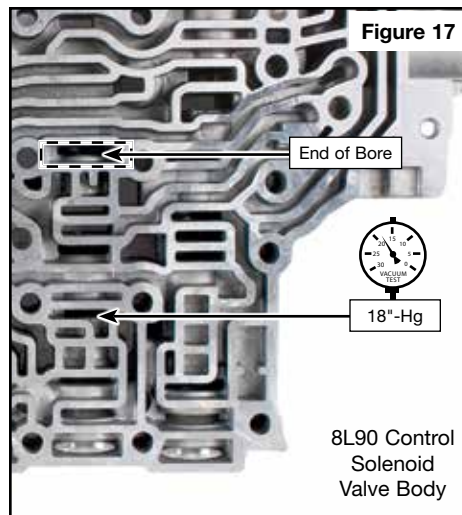
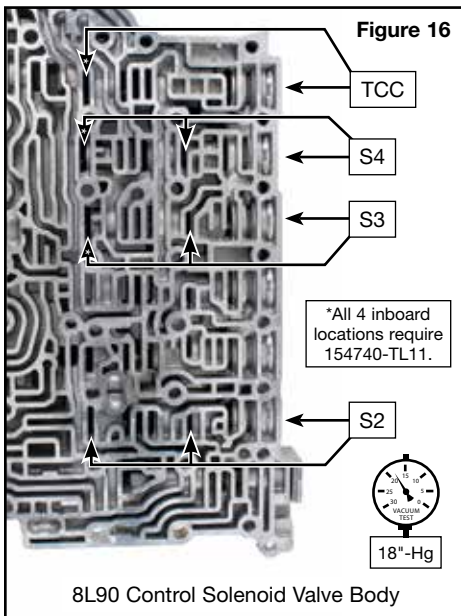
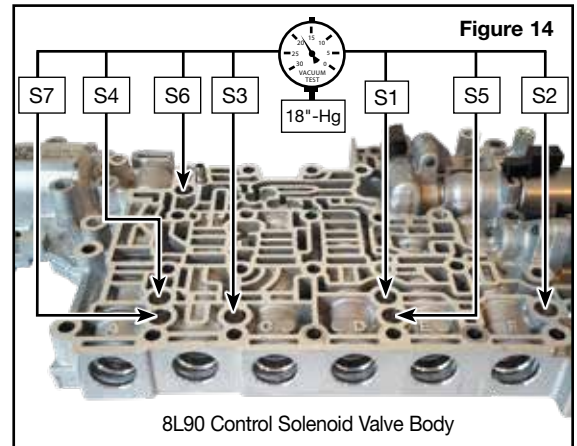
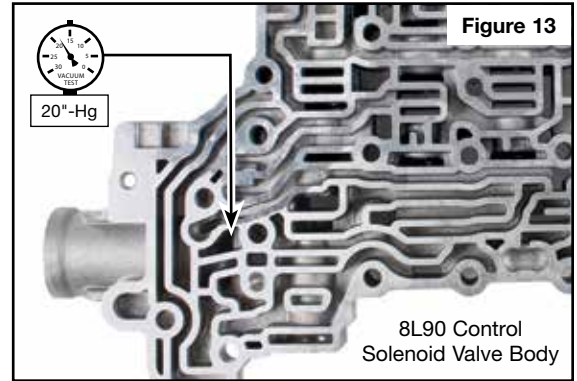
- a. Vacuum test the 1-3-5-6-7 accumulator piston in the recommended location. Vacuum test should hold minimum of 20 in-Hg (Figure 13).
- b. Vacuum test the signal accumulator piston in the recommended locations. Vacuum tests should hold a minimum of 18 in-Hg (Figure 14).

NOTE: Initial vacuum testing of the OE lineup should utilize the test plate included with the **VACTEST-01K**. For most accurate testing of the installed Sonnax kit, vacuum testing should be conducted by installing a small test tip into the plug hole (Figure 15).

- c. Vacuum test the S2/S3/S4/TCC clutch control valves in the outboard locations only. The inboard locations cannot be tested with new valves. Vacuum tests should hold a minimum of 18 in-Hg (Figure 16).

NOTE: If you have the '19-later valve body and installed oversized S4 clutch control valve, you can test the inboard and outboard locations and vacuum should hold a minimum of 18 in-Hg (Figure 17).

- d. Vacuum test the S1/S5 clutch control valves in the outboard locations. Vacuum test the recommended locations should hold minimum of 18 in-Hg in the outboard locations only with solenoid installed, inboard locations cannot be tested with new valves (Figure 18).



Step 15 Valve Body Vacuum Test Verifications (Continued)

- e. Vacuum test oversized actuator feed limit valve in the recommended locations should hold minimum of 16 in-Hg in the outboard locations (Figure 19).
- f. Vacuum test oversized pressure regulator and O-ringed shuttle valve in the recommended locations should hold a minimum of 18 in-Hg (Figure 20).
- g. Vacuum test oversized converter feed limit valve in the recommended outboard location only, should hold a minimum of 15 in-Hg (Figure 21). Inboard located can only be tested with the OE bore (Figure 22). Vacuum test should hold a minimum of 15 in-Hg.

