

# SHIFT Sure-Cool® System Part# STL020

## STL020 cooler bypass

TECHNOLOGY PRODUCTS

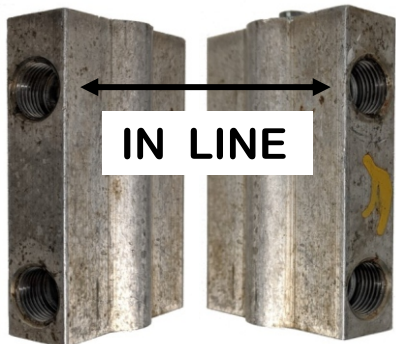
A DIVISION OF SUPERIOR TRANSMISSION PARTS, INC.



© Dean Mason/TransLab, and Superior Transmission Parts, Inc 2021, All Rights Reserved

### 1st DESIGN COOLER BLOCK

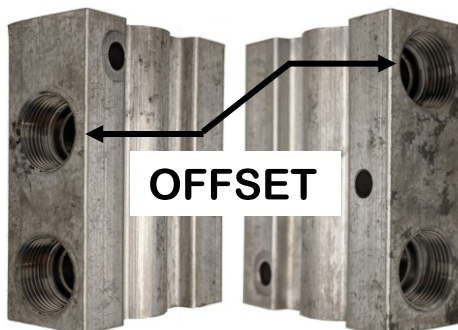
LEFT SIDE      RIGHT SIDE



{ FIGURE 1 }

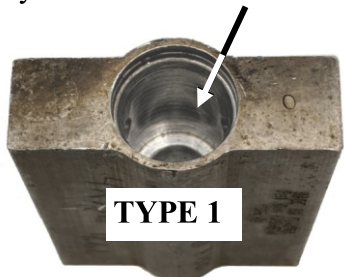
### 2nd DESIGN COOLER BLOCK

LEFT SIDE      RIGHT SIDE



OFFSET

Bore diameter = .688" all the way down to the shoulder



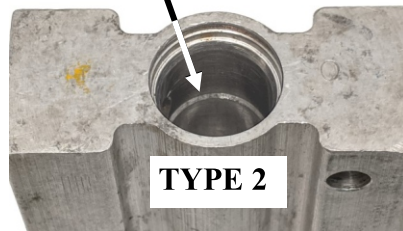
TYPE 1

USE  
BLACK  
O-RING



{ FIGURE 2 }

Bore diameter = .688" at the top and steps down to .657" half way down



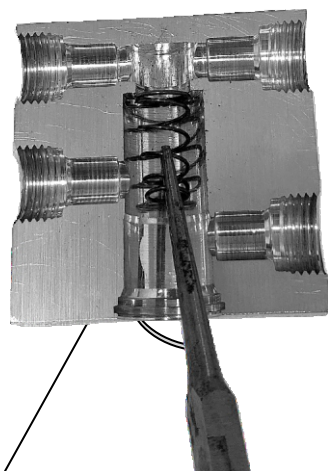
TYPE 2

USE  
GREEN  
O-RING

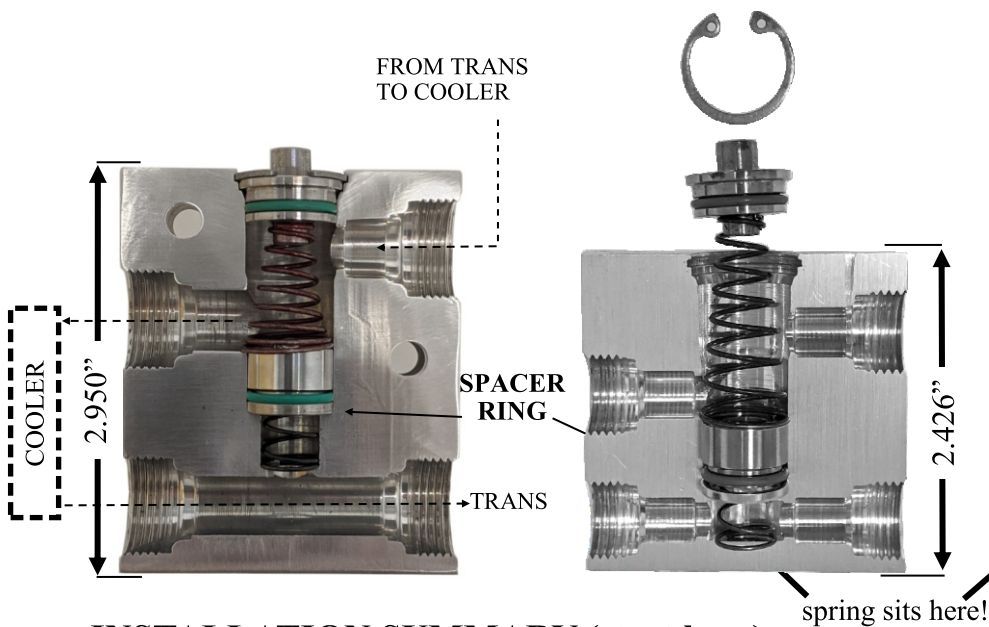
### OFFSET BLOCK CUTAWAY VIEWS

{ FIGURE 3 }

There are currently two offset blocks. The 2.950" block has larger cooler line fittings, and the 2.426" block has smaller. Note: the black cone spring sits on a step in the 2.950" block, but goes all the way to the bottom in the 2.426" block. VISUALLY COMPARE THE RELATIVE POSITION OF THE BALL SEAT AND SPRINGS in tall and short blocks.



Hold small black cone spring by the small diameter end. Twist clockwise to pop the spring through this step



### INSTALLATION SUMMARY (start here):

#### STEP 1 CLEAN THE SNAP RING GROOVE!

High humidity, salt air (coastlines), and snow (salted roads) generate more corrosion. Combining incorrect install with failure to clean the groove may allow the snap ring to blow out! Thoroughly clean and dry the empty block. Insert snap ring in groove with rounded edge facing DOWN. Insert 90° pick into eyelet and rotate snap ring to scrape groove clean.

#### STEP 2 ASSEMBLE COVER PARTS

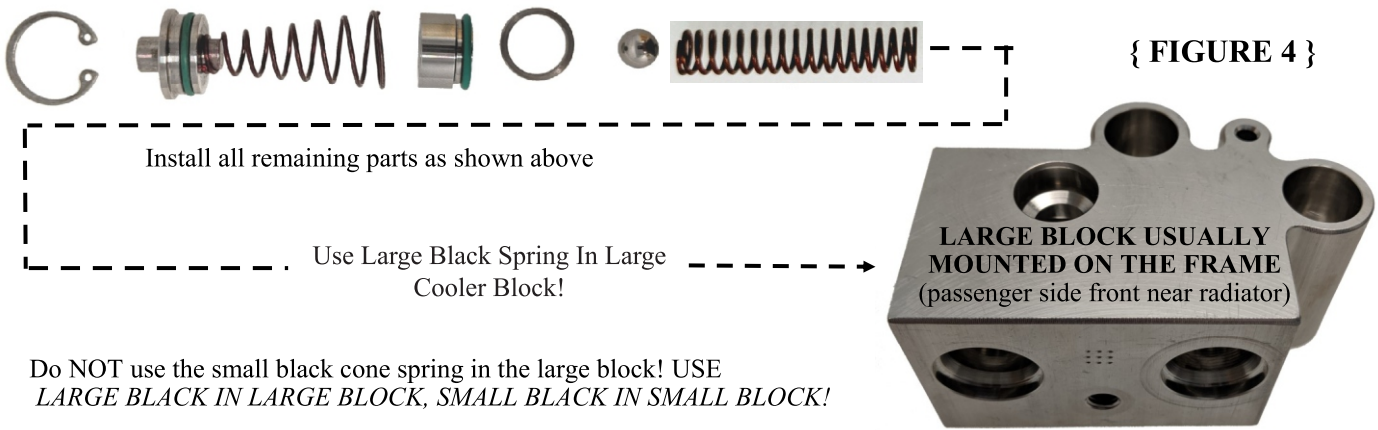
- \* INSTALL **GREEN** O-RING INTO GROOVE OF THE COVER.
- \* POP SMALL END OF RED CONE SPRING ONTO COVER PLUG.
- \* ADD SOME LUBE TO THE O-RING FOR EASY INSTALL

Set this SUBASSEMBLY aside with snap ring, ready for final install.



**STEP 3a** SELECT BLACK SPRING FOR BALL

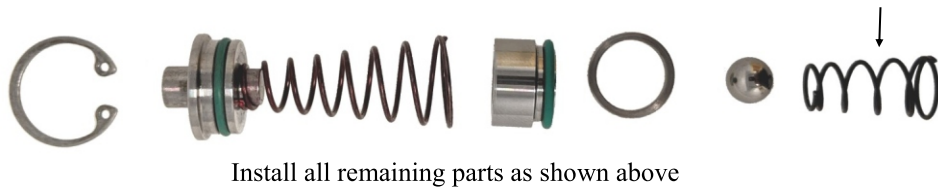
\* **LARGE BLOCK** {see figure 1} USE LARGE BLACK SPRING



Do NOT use the small black cone spring in the large block! USE *LARGE BLACK IN LARGE BLOCK, SMALL BLACK IN SMALL BLOCK!*

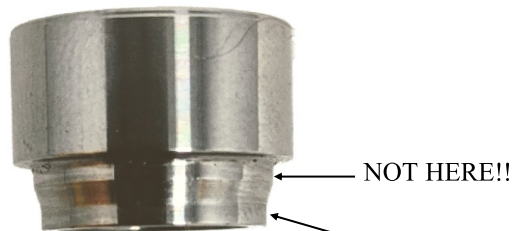
**STEP 3b** SELECT BLACK SPRING FOR BALL

\* **SMALL BLOCK** {see figures 2 & 4} USE SMALL BLACK CONE SPRING in ALL variations



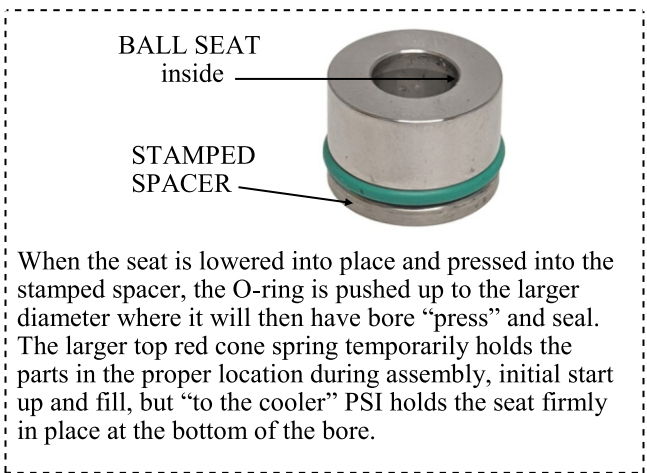
**STEP 4** SELECT GREEN OR BLACK O-RING FOR BALL SEAT {3 o-rings included... 2 GREEN 1 BLACK}

NO STEP DOWN? USE BLACK. HAS STEP DOWN? USE GREEN { see figure 2 }



**PLACE THE CORRECT O-RING HERE ON THE LOWER SMALLER DIAMETER!**

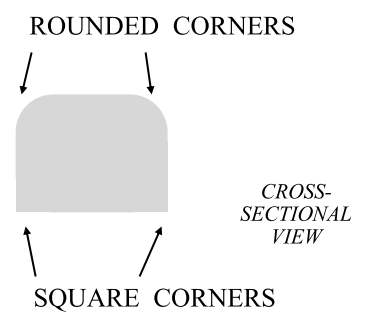
This allows the ring to pass by the cooler flow ports without slicing or chipping.



**STEP 5** ORIENT AND INSTALL STAMPED SPACER RING

EXAMINE RING CAREFULLY. **INSTALL IT IN COOLER FLOW BODY WITH ROUNDED CORNERS FACING UP TOWARD THE O-RING THAT WILL BE INSTALLED ABOVE IT.** Stick it in the body with trans gel { see figure 3 left / center }

Stamped parts formed on a punch press typically have rounded corners/edges on one side, a result of the sheering process as the tool hits the metal and deforms the contact side.



**STEP 6** FINAL ASSEMBLY

- \* [small block] Insert **BLACK CONE** spring **LARGE COIL FIRST**, all the way down in the bottom of the bore { see figure 3 }.
- \* Set the ball on top (small end) of the spring. (use trans gel if needed)
- \* Lower the ball seat and o-ring down into the bore over the ball (snap ring pliers in the ball seat hole is easy).
- \* Gently push on top of the seat to squeeze the parts together as shown in figure 4. (the top of the seat should be approximately flush with the bottom of the cooler flow hole).
- \* Hold the seat in place with a little pocket screw driver through the side hole, and insert the preassembled upper section from STEP 2.
- \* Install snap ring with rounded side toward cover, and sharp square edge deep in the groove facing outward so it won't pop out, and you're done!

