

# Step by Step Assembly Instructions

## SF5000 NC

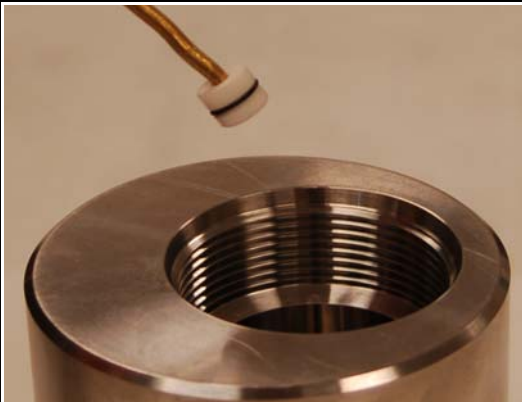
### Body Assembly

Body, P/N 20221, Seat, P/N 20121, Seat "O" Ring, Seat Retainer, P/N 20704 Spiral Ring, P/N 71001856, Base Cap, PN 20223, Base Cap "O" Ring, M8 X 1.25 X 12 Lock Bolt, Lock Plate, P/N 20677, Handle Top, P/N 20693, M8 X10 SHSS Cup, P/N 71002102



#### STEP 1

Install "O" Ring on Seat, P/N 20121.



#### STEP 2

Install Seat in Body.

ORIENTATION : Small Hole faces OUT.

NOTE : Be sure Seat Cavity in Body is clean and free of obstruction for proper Seat placement.



Seat Is properly installed

# Step by Step Assembly Instructions



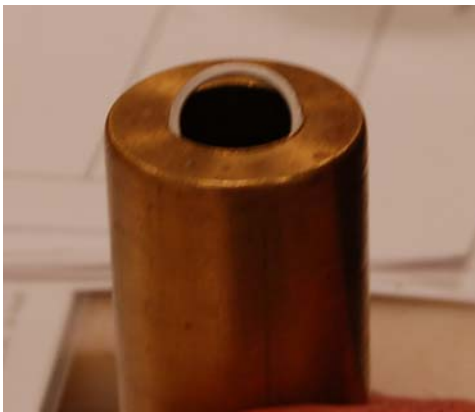
## STEP 3

Install Seat Retainer, P.N 20704 over Seat.

ORIENTATION : Recess in Retainer faces Seat.



Seat Retainer Is properly installed



## STEP 4

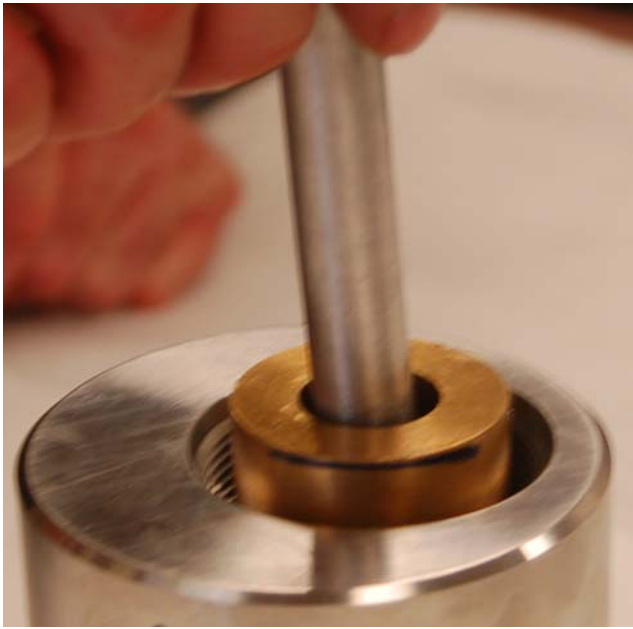
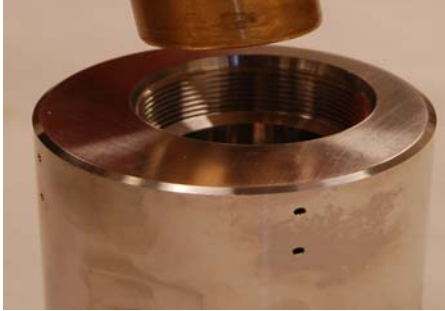
Press WS-78-S16 Spiral Ring into compression tool marked 748



## STEP 5

Position Compression Tool #748 in Body with exit lip to Seat.

## Step by Step Assembly Instructions



### STEP 6

Push WS-78-S16 Spiral Ring out of Compression Tool #748 with aluminum Seat Holder Install Tool.

Ensure Spiral Ring fits properly to secure 20704 Seat Retainer.

NOTE : When properly secure, Retainer will be movable under the Spiral Ring.



Spiral Ring and Seat Retainer properly installed.

# Step by Step Assembly Instructions



## Piston Assembly

Piston P/N 20803 Pin Holder, P/N 20682 Pin, P/N 21523 Pin Spring, P/N 71002067, Springs (11 ea.), P/N 71001962, Spacer, P/N 20682, Cup Seal, P/N 71001872, Cup Seal Retainer, P/N 20184, Spiral Ring, P/N 71001948



Piston P/N 20803

Cup Seal, P/N 71001872

Spiral Ring, P/N 71001948



## STEP 7

Install Cup Seal, P/N 71001872 on  
Piston, P/N 20803

ORIENTATION : Flat of Seal to Piston - Wire  
Ring Facing Out



## Step 8

Install Retainer, P/N 20184 over  
Cup Seal, P/N 71001872

ORIENTATION : Recessed area of Retainer  
faces to Cup Seal

# Step by Step Assembly Instructions



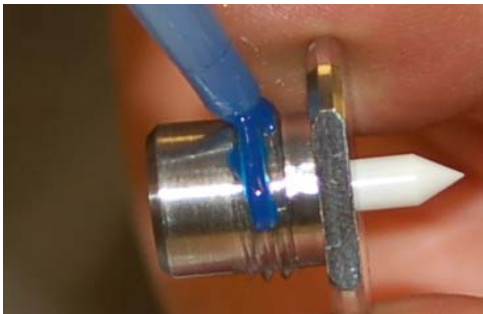
## Step 9

Install Spiral Ring in Piston groove next to Retainer, P/N 20184.



## Step 10

Install Pin Spring, P/N 71002067 in Piston, P/N 20803



## STEP 11

Place Pin, P/N 21523 in Pin Holder, P/N 20682

Apply Blue LokTite to threads on Pin Holder, P/N 20682



## STEP 12

Install Pin Holder, P/N 20862 in Piston, P/N 20803

# Step by Step Assembly Instructions



## STEP 13

Place Piston Assembly in Aluminum Jaw Vice and Tighten Pin Holder.

Torque to 15 Ft/Lbs



## STEP 14

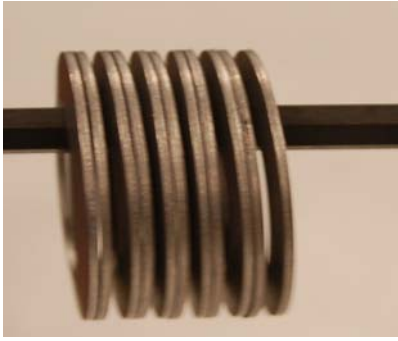
Place Spacer, P/N 20660 in Body, P/N 20221.

ORIENTATION : Flat Side goes in First; Large Bevel goes toward Piston.



20660 Spacer properly placed in Body.

# Step by Step Assembly Instructions



11 ea., Springs , P/N 71001962

ORIENTATION : Each Spring opposes the next one.



STEP 15

Place 11 ea. 71001962 Springs in Body.

ORIENTATION : Each Spring opposes the next one.



STEP 16

Apply Parker Lube to Cup Seal

# Step by Step Assembly Instructions



## STEP 17

Place Piston Assy. in Body.

ORIENTATION : Cup Seal faces out



## STEP 18

Piston Assy. Properly placed in Body.



## STEP 19

Place "O" Ring on Base Cap.



# Step by Step Assembly Instructions



## STEP 20

Apply SynLube to threads on Base Cap.



## STEP 21

Install Base Cap in Body

Torque to 30 Ft Lbs

## Needle Stem Assembly

Needle, P/N 20695, "O" Rings, (2 ea.), BU Rings, (2 ea.)

## STEP 22

Install "O" Rings and BU Rings on Needle Stem.

ORIENTATION : "O" Rings closest to point of Needle in both locations.



## Trim Assembly

Trim, P/N 20197, "O" Ring, (1 ea.), BU Ring, (1 ea.), "O" Ring, (1 ea.), BU Ring, (1 ea.)

# Step by Step Assembly Instructions



## STEP 23

Install "O" Rings and BU Rings on Trim.

ORIENTATION : "O" Rings go closest to small diameter of Trim in both locations.

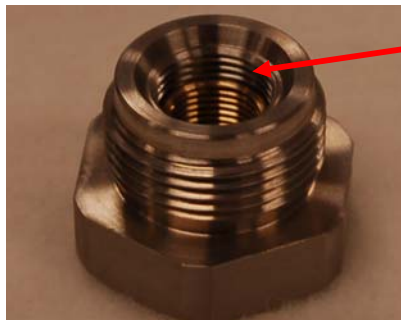
## Stem Retainer Nut Assembly

Nut, P/N 20969, Brass Bushing, P/N 20222, SHSS Cup, M4 X 8, P/N 71002100



## STEP 24

Apply Red Loctie to Brass Bushing, P/N 20222 and install in Retainer Nut, P/N 20696



NOTE : Bushing must be Flush with or Below chamfer in Retainer Nut.



## STEP 25

Install M4 X 8 SHSS Cup in Retainer Nut

# Step by Step Assembly Instructions



STEP 26

Install Needle Stem in Retainer Nut



Needle Stem properly installed in Retainer Nut

CAUTION :  
Ensure Stem is turned to Full Open Position before installing in valve to prevent damage to Trim and Needle..



STEP 27

Apply Parker Lube to Trim "O" Rings

## Step by Step Assembly Instructions



STEP 28

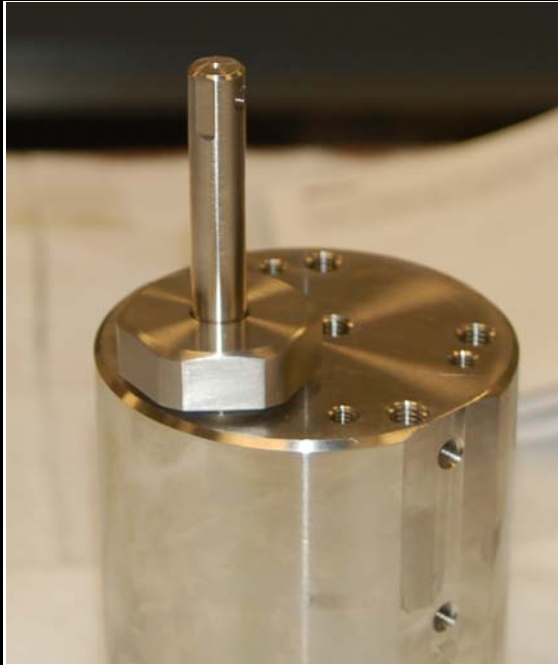
Install Trim in Body



STEP 29

Apply SynLube to Retainer Nut threads.

## Step by Step Assembly Instructions



### STEP 30

Install Needle and Retainer Nut Assembly in Body and firmly tighten Retainer Nut.



### STEP 31

Install Lock Plate, P/N 20677 over Retainer Nut

### STEP 32

Install M8 X 1.25 X 10 in Body to secure Lock Plate.

## Step by Step Assembly Instructions



### STEP 33

Install Handle Top on Needle Stem and secure with M8 X 10 SHSS Cup.

Set Screw must contact Machined Flat on Stem.

**ASSEMBLY PROCESS IS COMPLETE**