

# **FORK COMPRESSION**

## **GOLD VALVE INSTALLATION**

### **VALVING POST TYPE**

Welcome to the wonderful world of Gold Valving. To obtain your personal Custom Suspension Settings:

[DVS Setup Sheet](#) - If you haven't already, go to [DVS Valving Search](#), insert your [Access Code](#), and rider data and print your [DVS Setup Sheet](#).

These are instructions for Compression Gold Valve Kits. For general fork rebuild procedure refer to the [Fork Gold Valve Instruction List](#).

**CAUTION: IF YOU ARE UNFAMILIAR WITH REBUILDING AND REVALVING FORKS, STOP!!! DO NOT PROCEED; SEEK OUT A QUALIFIED SUSPENSION TECHNICIAN.**

**NOTE:** All measurements are metric (for inches divide by 25.4). The valving list starts at the piston face and goes towards the Base Plate. Valve specs are listed by (QUANTITY) THICKNESS x DIAMETER. A number in parentheses means quantity. If there is no number in parenthesis the quantity is one. Example: (2).15x30 means quantity two, 15 hundredths of a millimeter thick by 30 millimeters in diameter.



### **Tools Required**

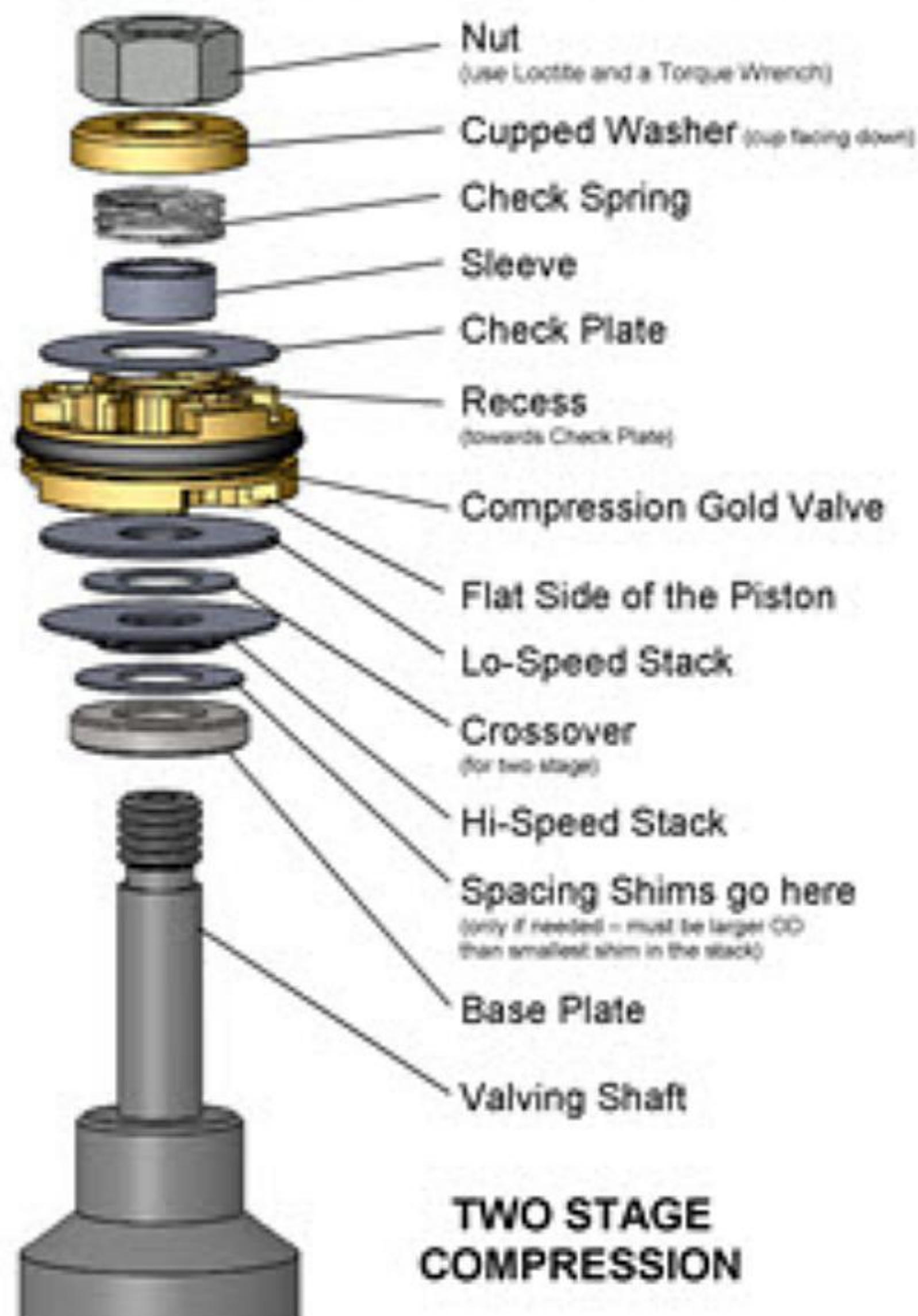
- In-lb torque wrench that accurately measures 0 to 50 in-lbs (0.58 kgf-m) (SnapOn Digital Torque Wrench shown)
- Hi-Strength Loctite (included)
- Metric calipers and micrometer

### **There are two types of Compression Base Assemblies:**

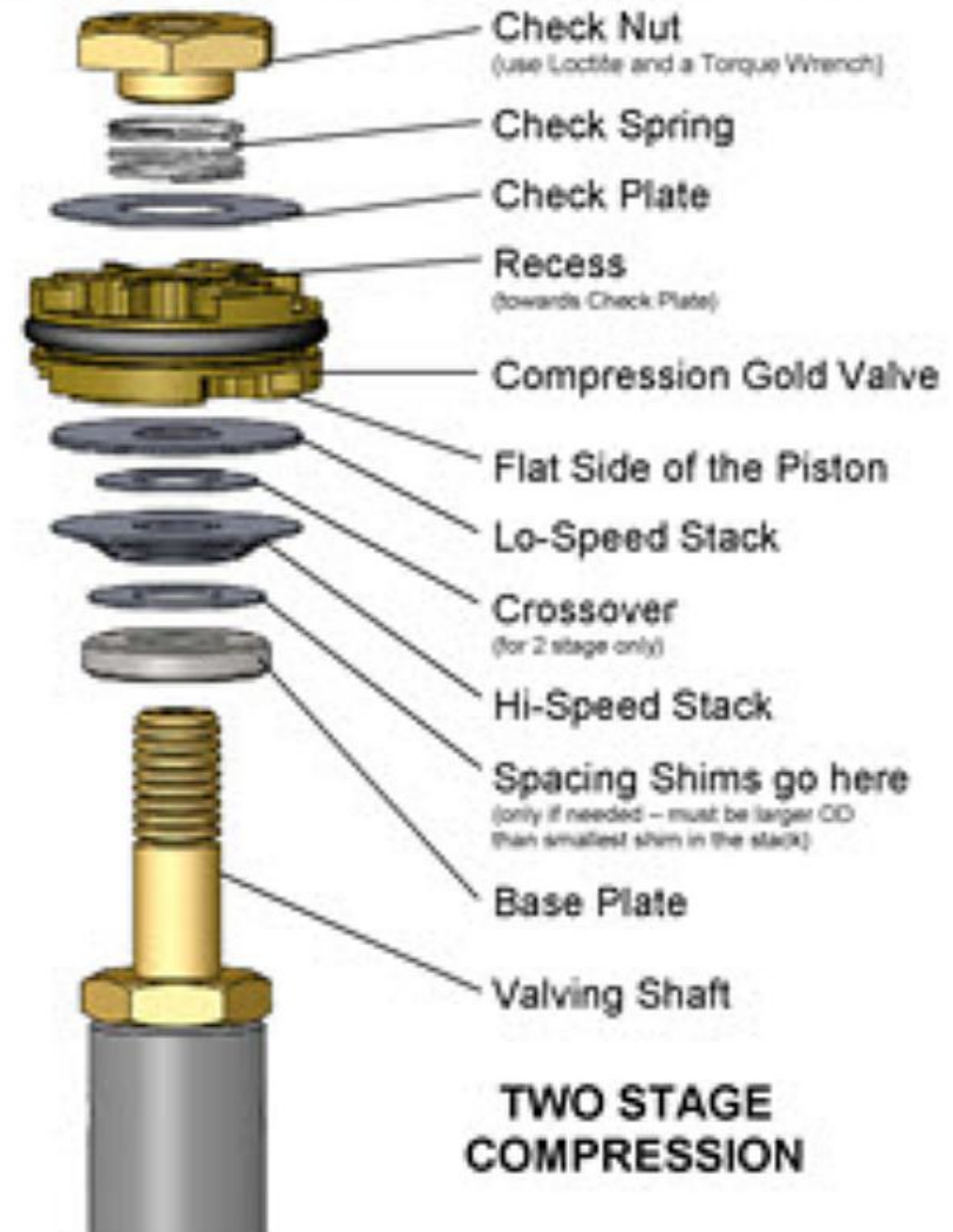
1. **Valving Post Type** - Post comes in from the bottom  
and
2. **Valving Bolt Type** - Bolt comes in from the top

These instructions cover the **Valving Post Type**.

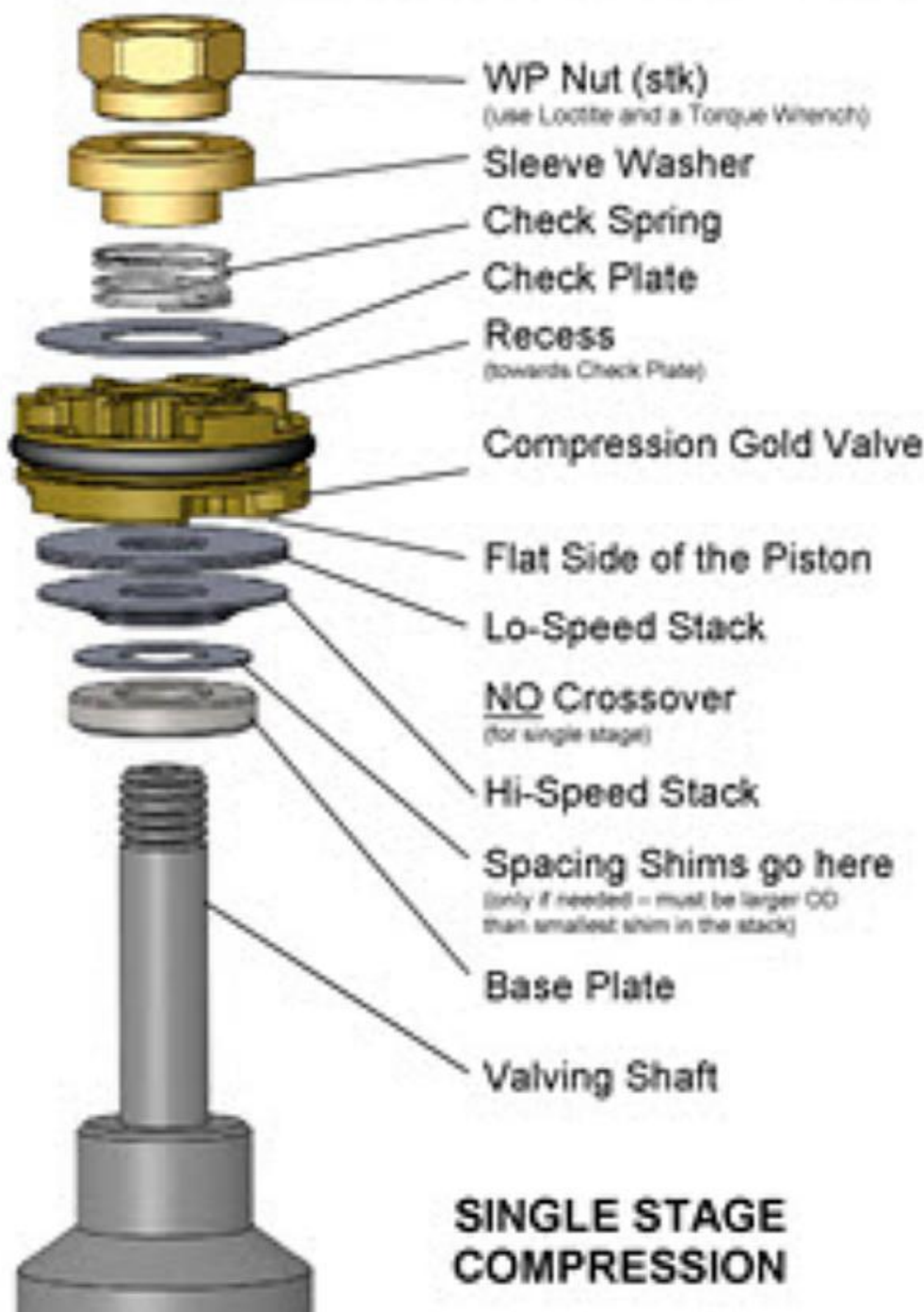
### FMGV 20 POST CUPPED WASH 2 STAGE



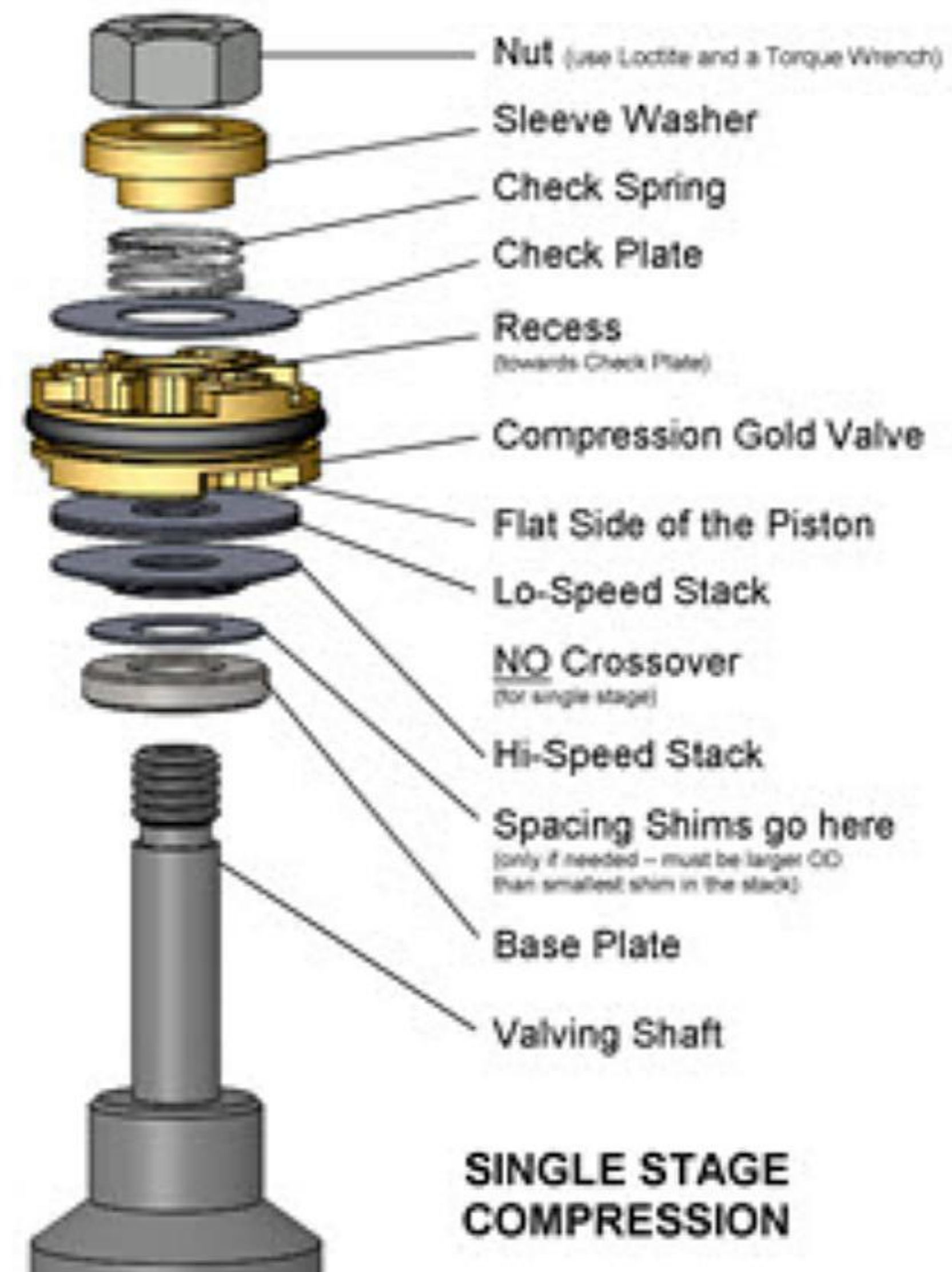
### FMGV 2001 POST CHECK NUT 2 STAGE



### FMGV 20 POST SLEEVE WASH WP 1 STAGE



### FMGV 20 POST SLEEVE WASH 1 STAGE



## 1. Valving Post - from the bottom



VP1- Most Japanese forks like KYB and Showa have peening on the end of the shaft for nut retention insurance.

File the peening from the top of the compression shaft down to the top of the nut.

There are some models where the shaft is "staked". This means there are sharp notches instead of smooth peening. In this case be sure the notches are completely cleaned out.

Euro models like WP, Sachs, and Ohlins are not peened and don't require this step.



VP2- The shaft should be ground to the nut's surface. Once this is done, remove the nut and Valving Stack.



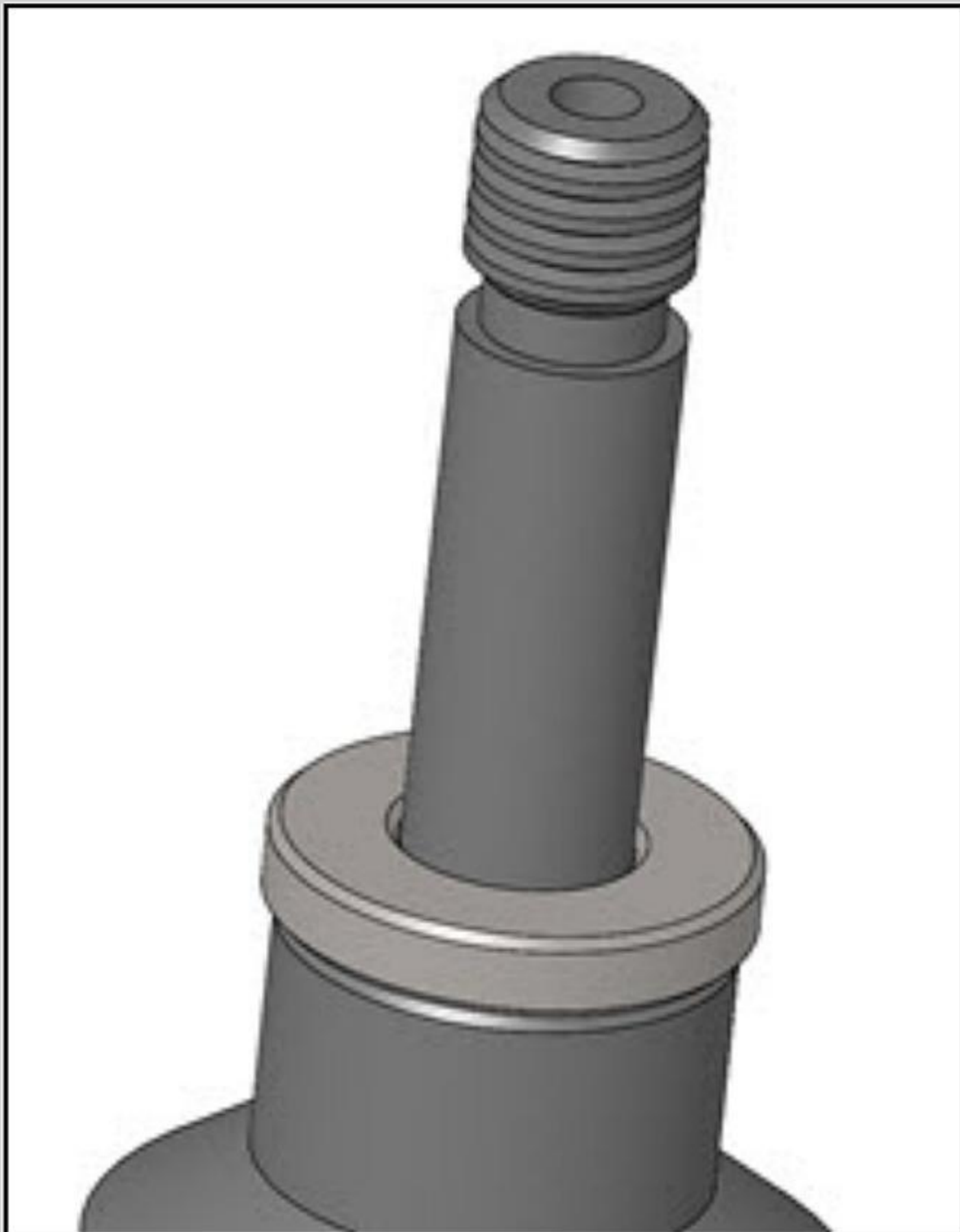
VP3- Slightly chamfer the end of the thread with a fine file. Do not be too aggressive as on some models there is not much thread.

If you blow it and mess up the thread please call us as we may have a solution available.

Dressing the end with a wire wheel makes it very clean.



VP4- Blow air through one of the side holes while covering up the other side hole. This blows out fillings. Use contact cleaner and repeat.



VP5- Install the Base Plate on the Shaft.

There are models that require 2 or even 3 Base Plates to create the correct Total Valve Stack Height. [See step VP11.](#)

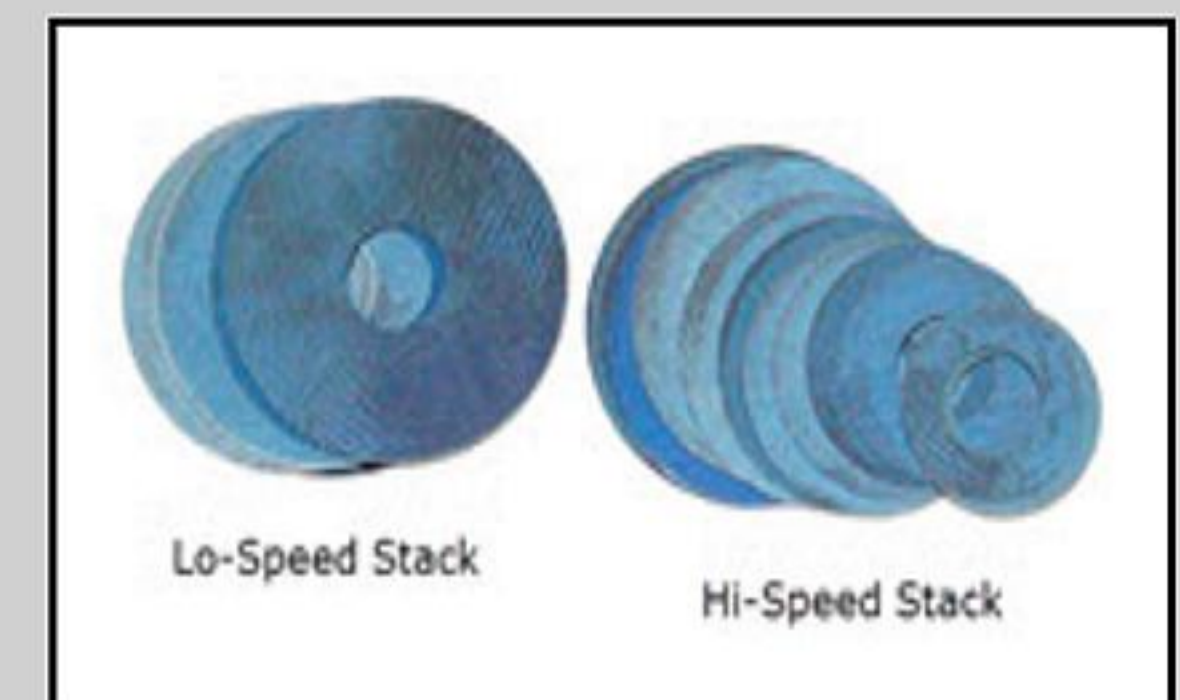
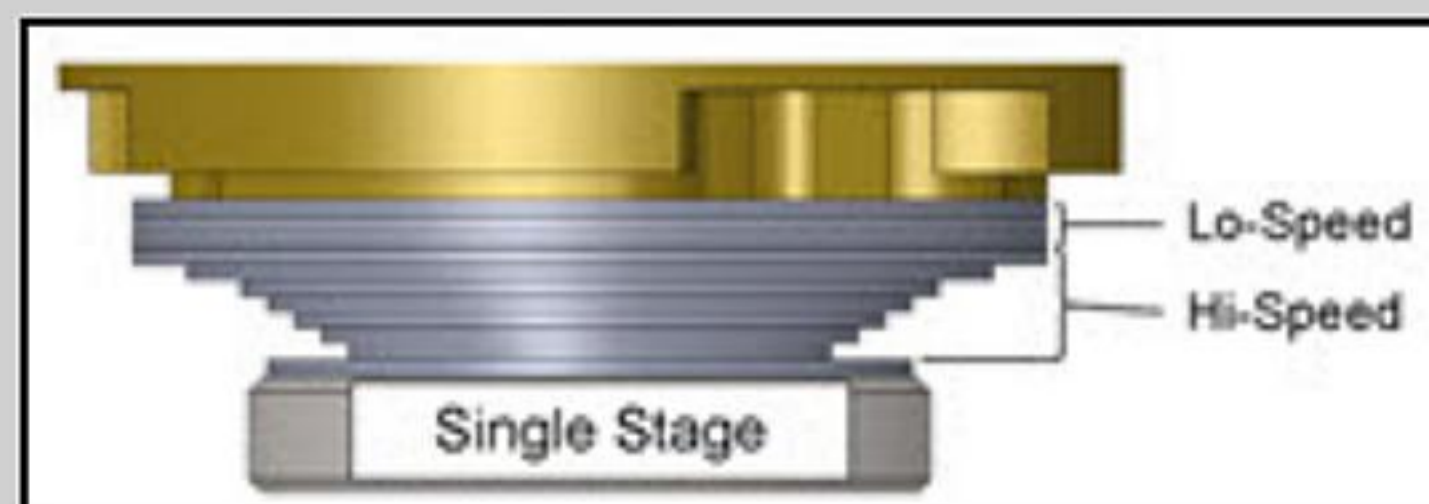
## VALVING STACK TYPES - SINGLE OR TWO STAGE

VP6- You will either be building a Single Stage or a Two Stage Stack. The difference is the Crossover. The Crossover is a smaller diameter shim between the Lo-Speed and the Hi-Speed Stacks.

**Note:** The DVS Custom Setup Sheet displays individual shims and does not label Hi-Speed, Crossover, and Lo-Speed. This is for your information only. Also you will not use all the shims provided in the Gold Valve Kit.

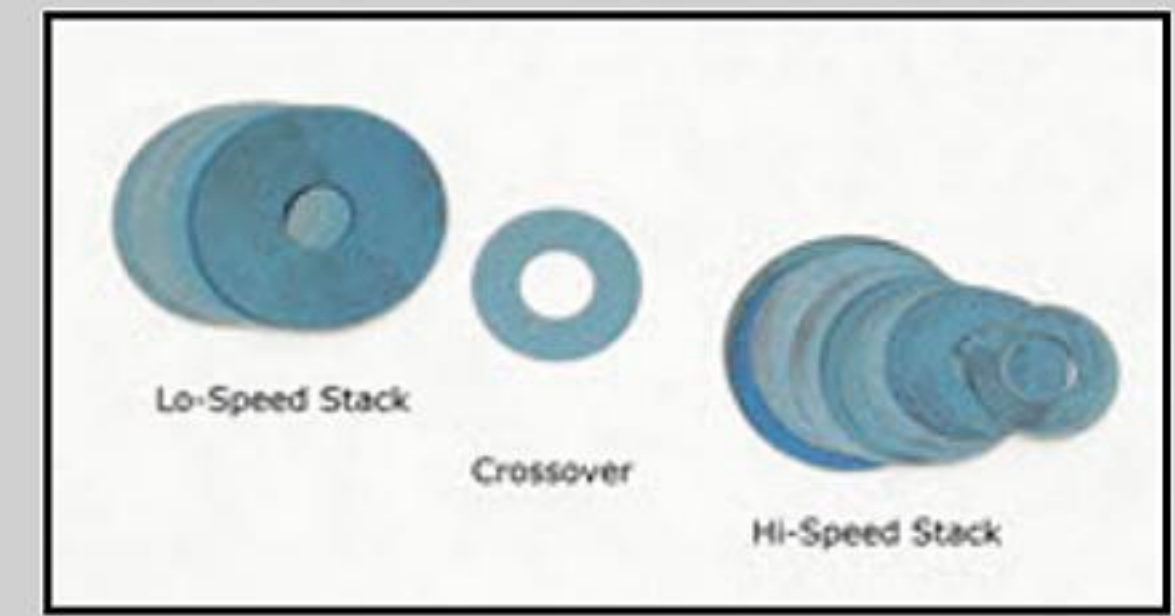
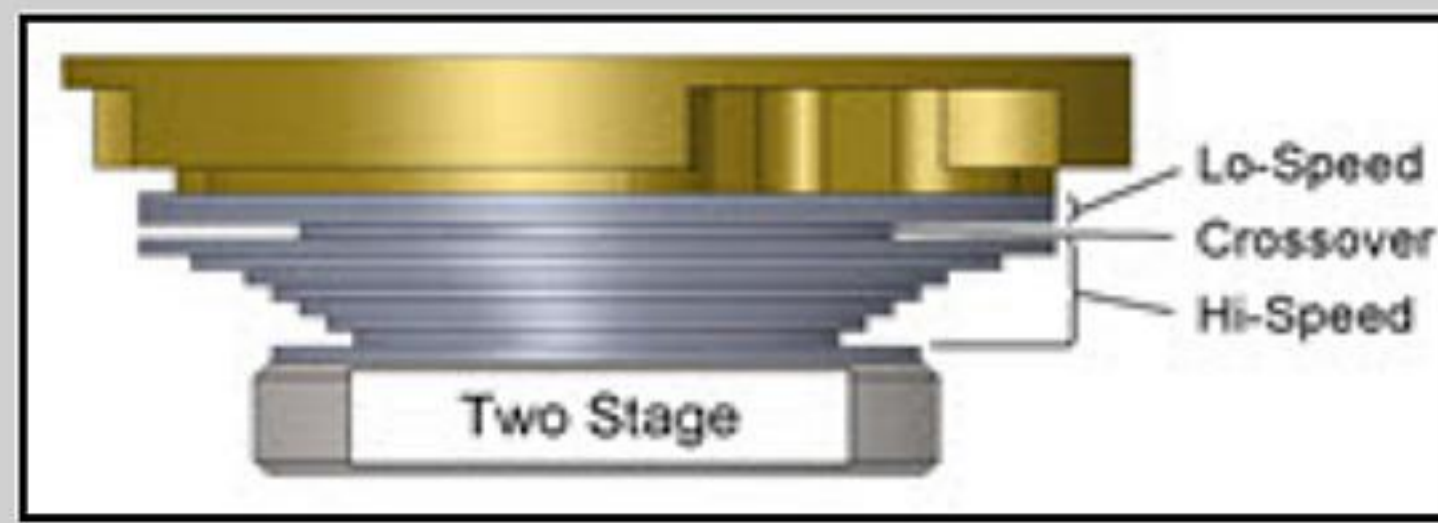
- **Single Stage** - made of:  
Lo-Speed Stack  
Hi-Speed Stack

There is NO Crossover  
(it becomes one stack.)



- **Two Stage** - made of:  
Lo-Speed Stack  
Crossover  
Hi-Speed Stack

The Crossover Gap is visible



## VP7- Two Stage Example

(Single Stage is exactly the same except there is no Crossover)

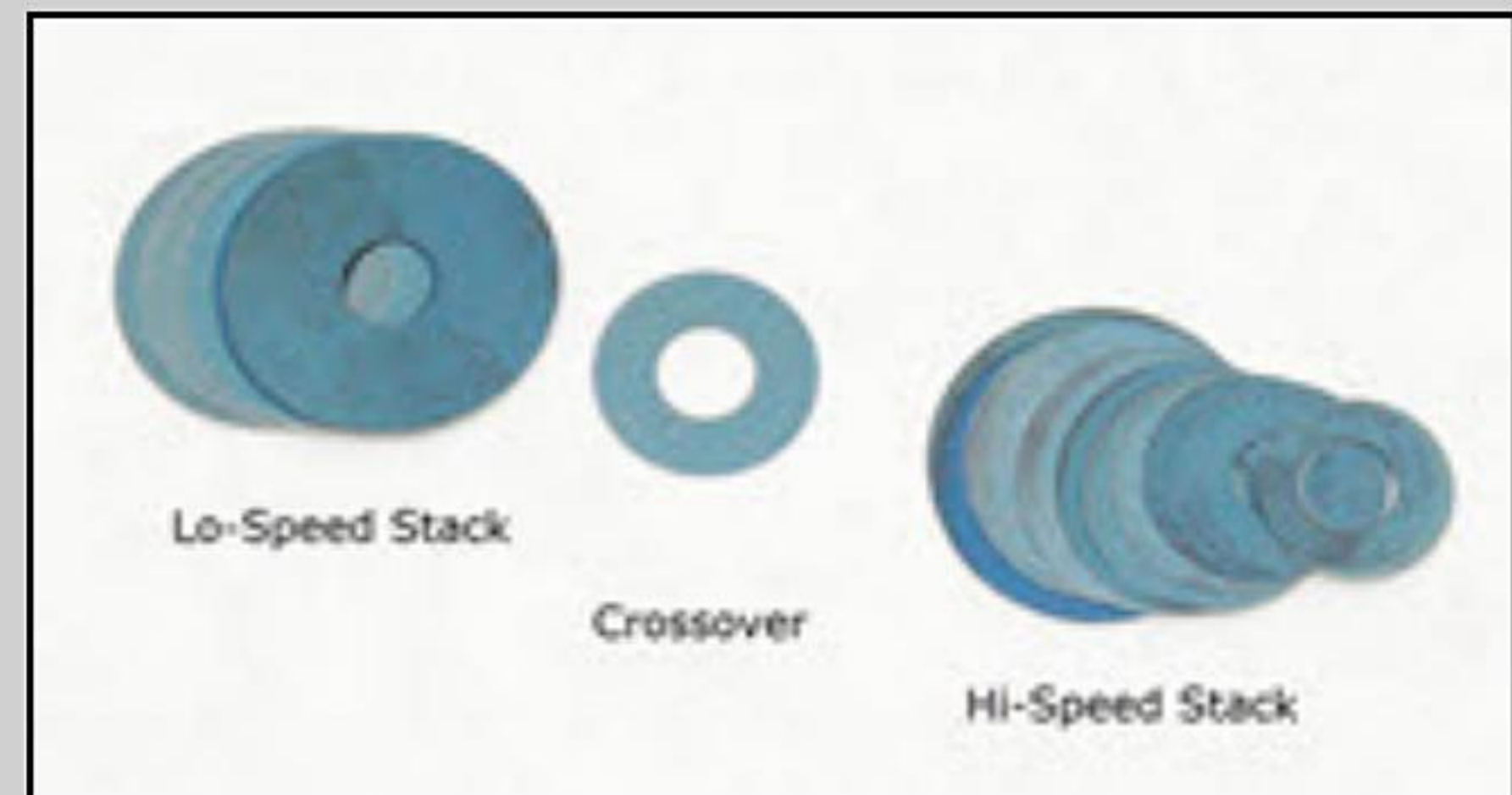
Put the valving on the shaft **in the reverse of the order listed**, starting with the last (smallest) shim of the Hi-Speed Stack.

For Two Stage the total valving stack is made up of a:  
Lo-Speed Stack  
Crossover and a  
Hi-Speed Stack

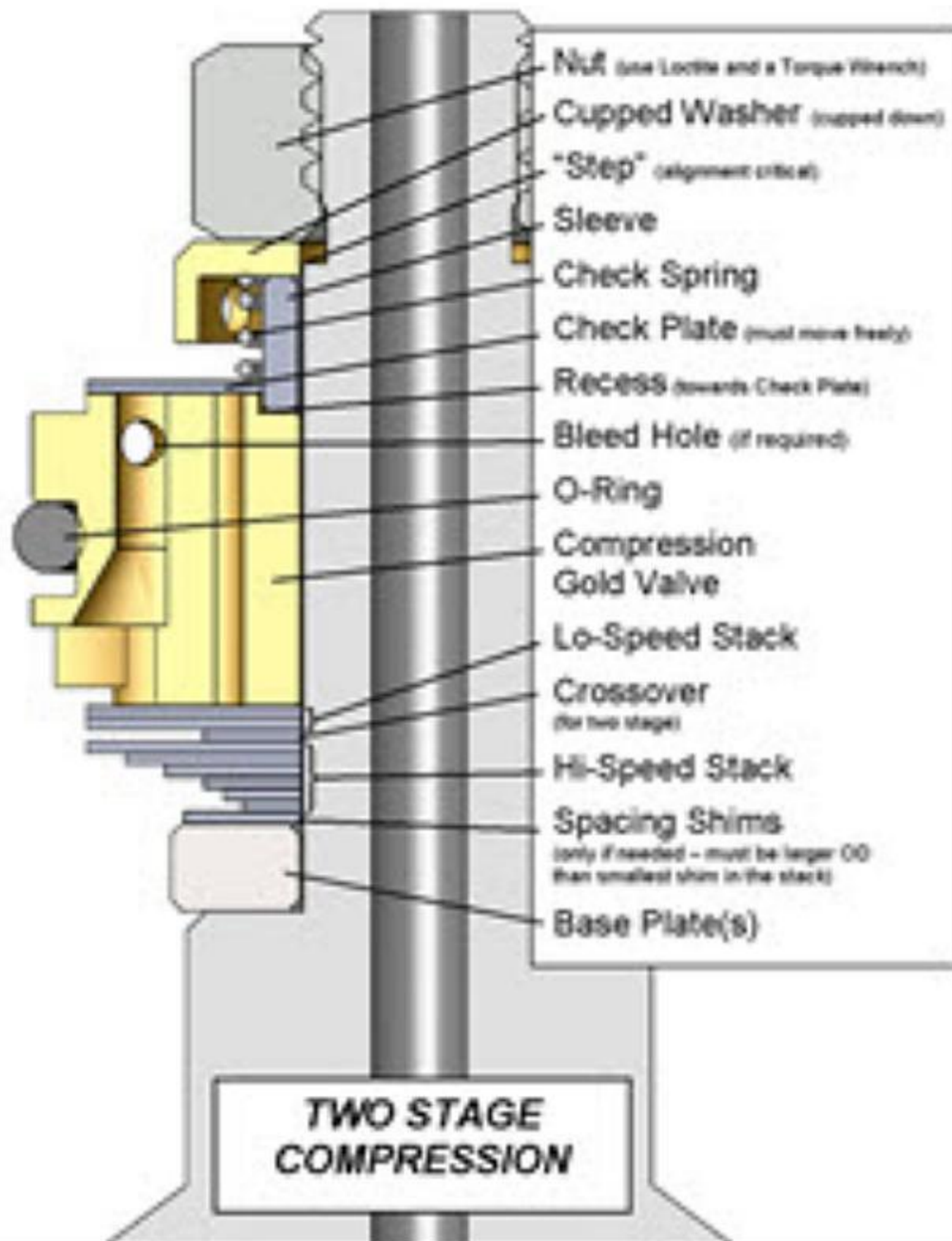
(this is only an example - not your setting)

**The Total Valving Stack starting from the Gold Valve piston face:**

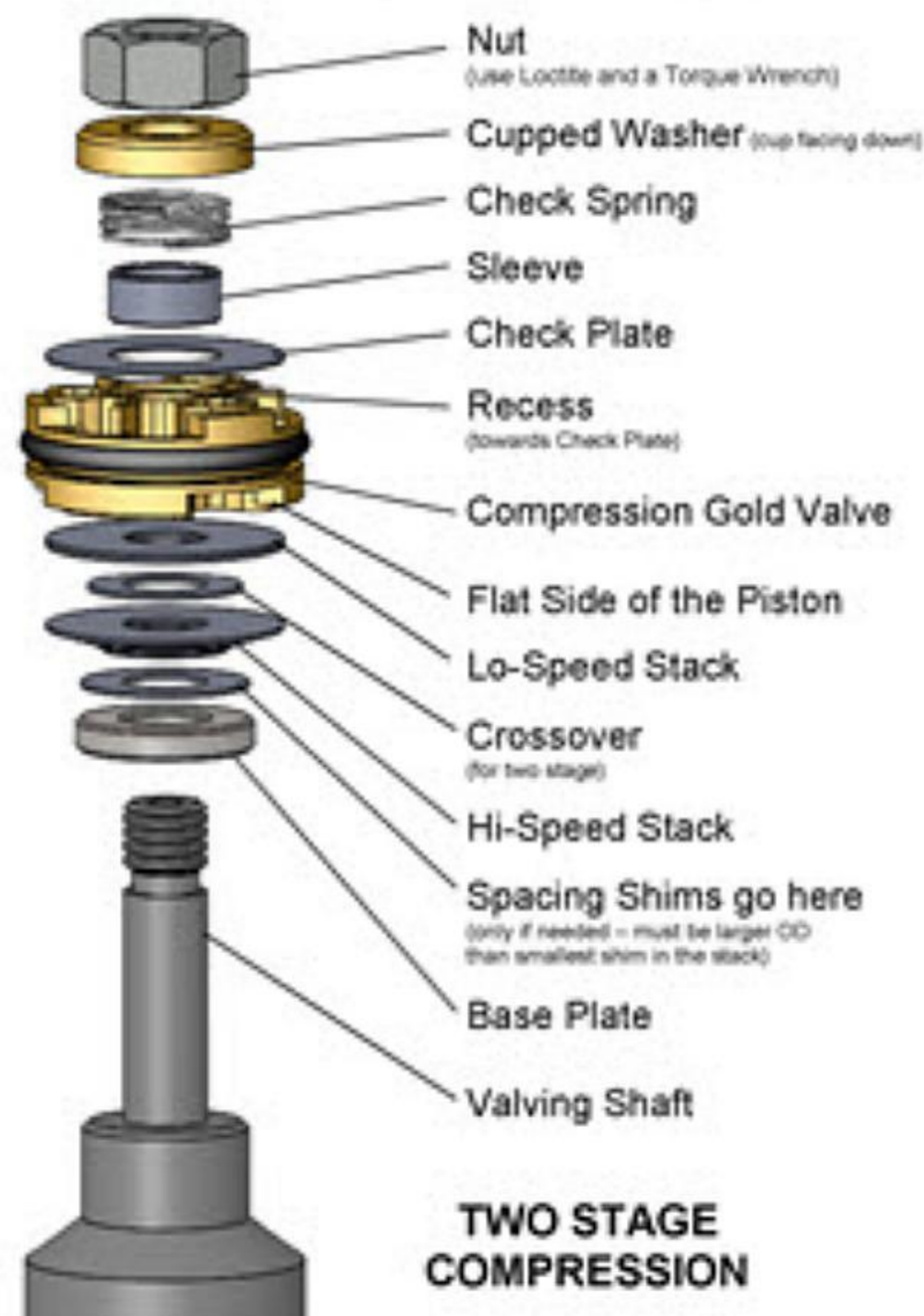
- (4) .15x17 - Lo-Speed Stack
- (1) .10x11 - Crossover (notice the smaller diameter)
- (1) .10x17 - Hi-Speed Stack
- (1) .10x16
- (1) .10x15
- (1) .10x14
- (1) .10x13
- (1) .10x12
- (1) .10x11
- (1) .10x10

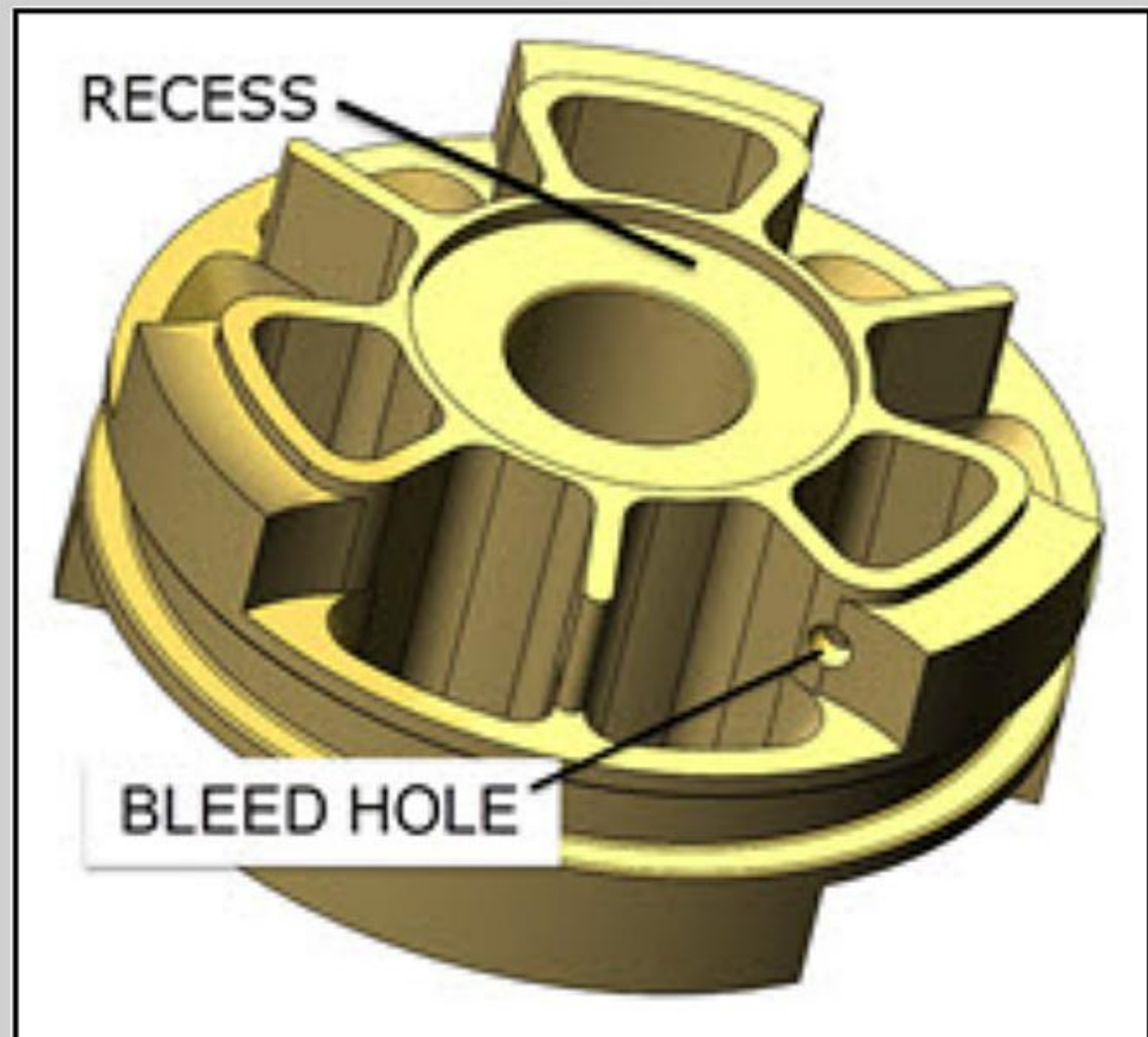


### CUPPED WASHER 2 STAGE



### FMGV 20 POST CUPPED WASH 2 STAGE





## VP8- COMPRESSION BLEED HOLE

If the DVS does not call for a Compression Bleed Hole skip this step.

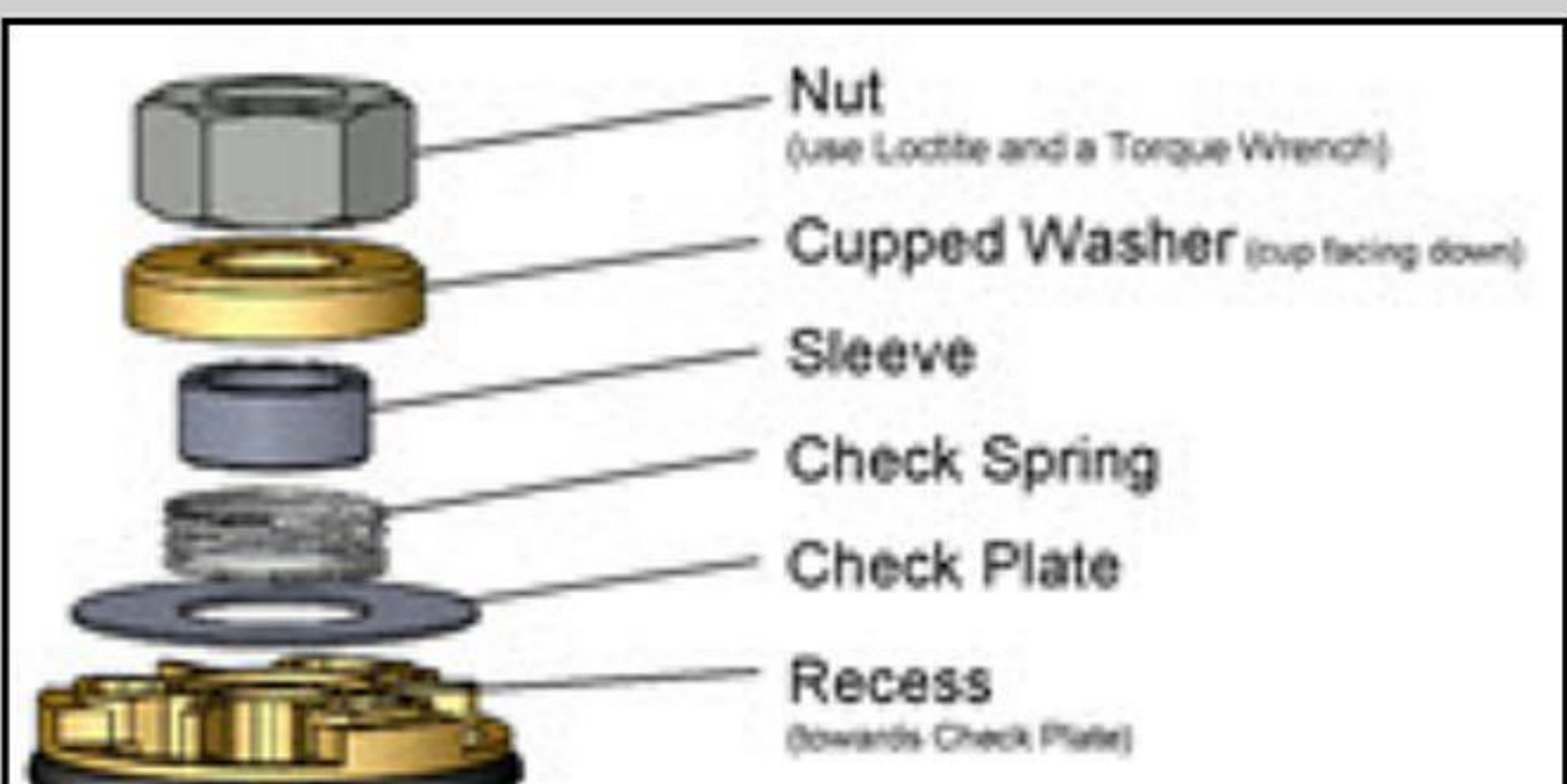
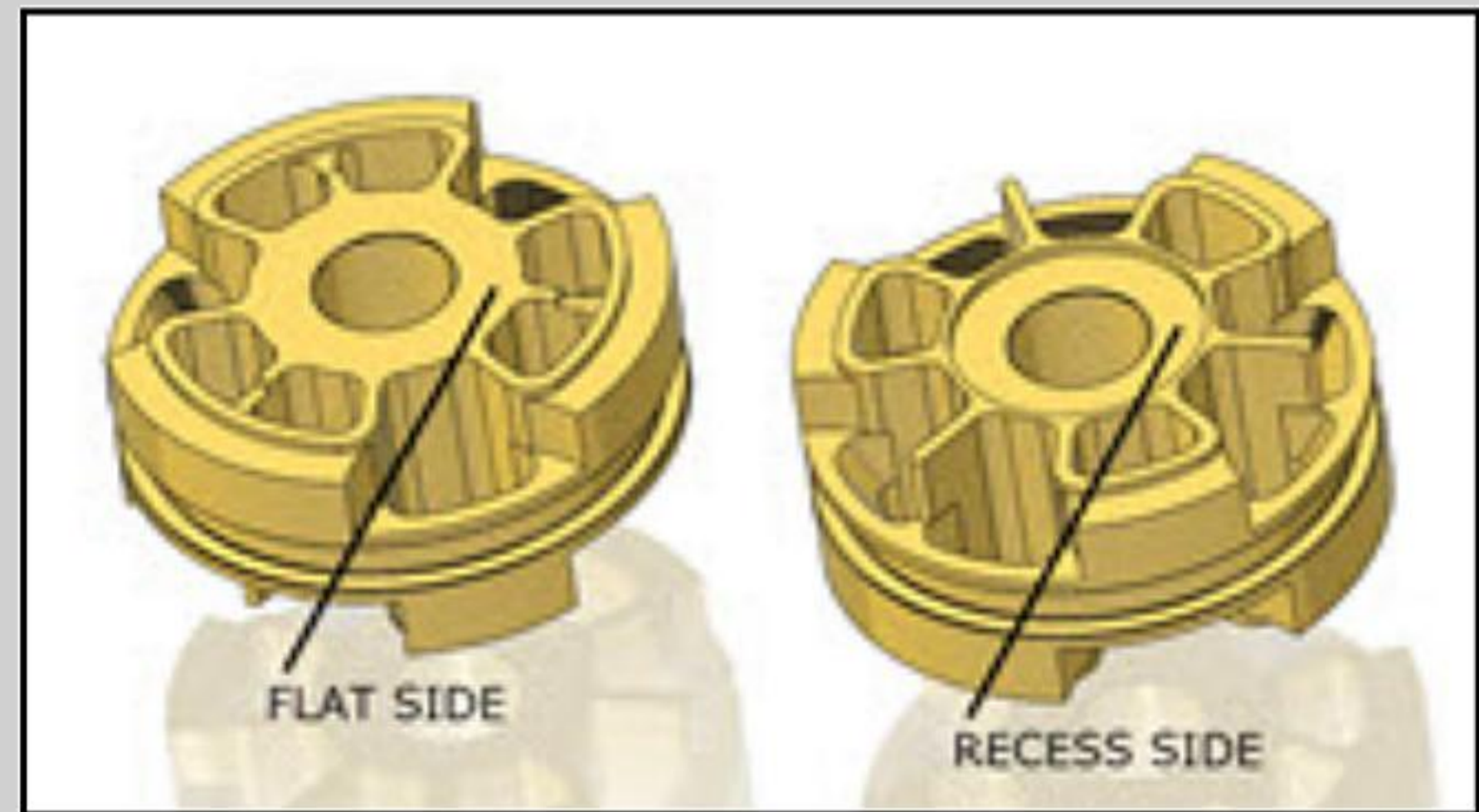
If your DVS Setup Sheet calls for a Compression Bleed Hole check to see if it is already pre-drilled in the piston. If it is not you will need to drill one.

Notice that the bleed hole is on the side of the piston with the recess and is drilled sideways. It connects the two sides of the piston and bypasses the valving stack. The exact location is not critical.



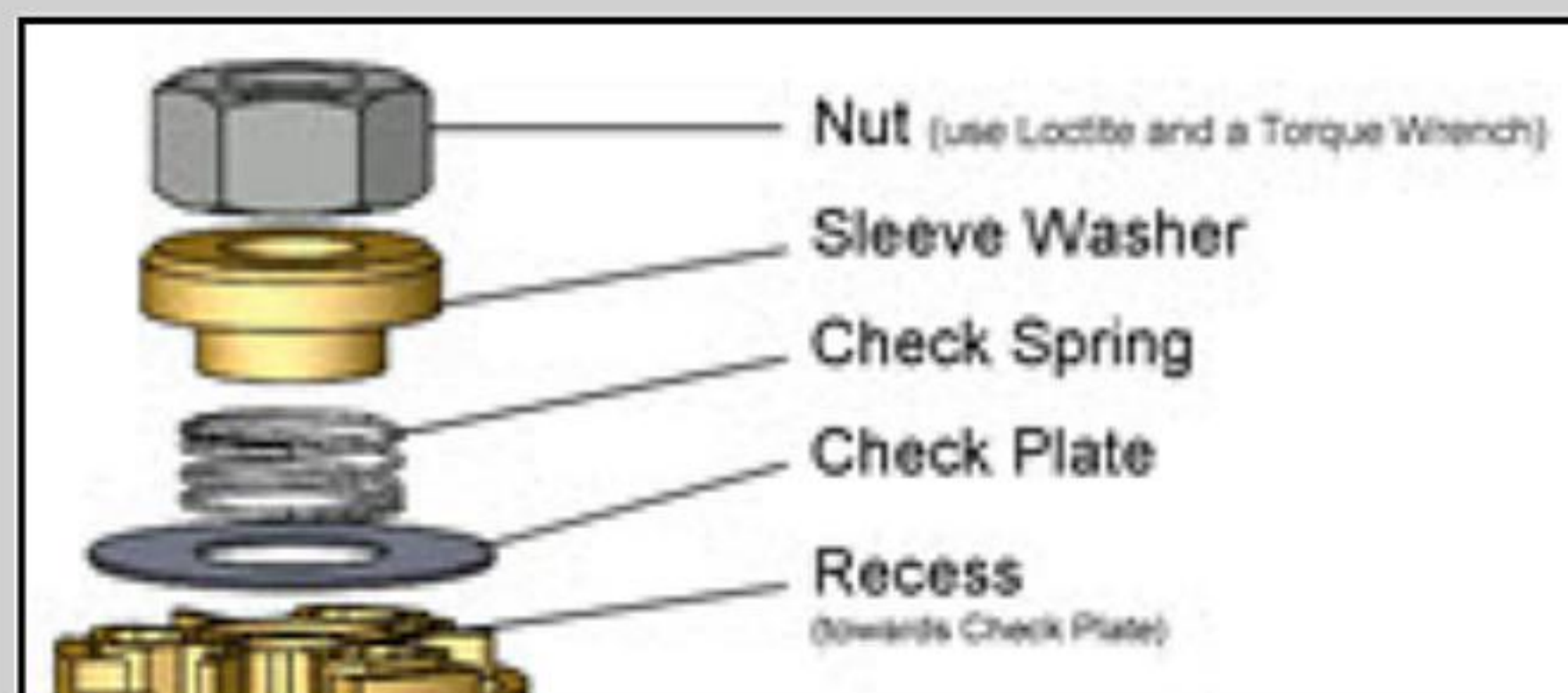
VP9- Install the Gold Valve. The recessed side goes up.

The Recess is the circular pocket on the top face of the Gold Valve Piston.

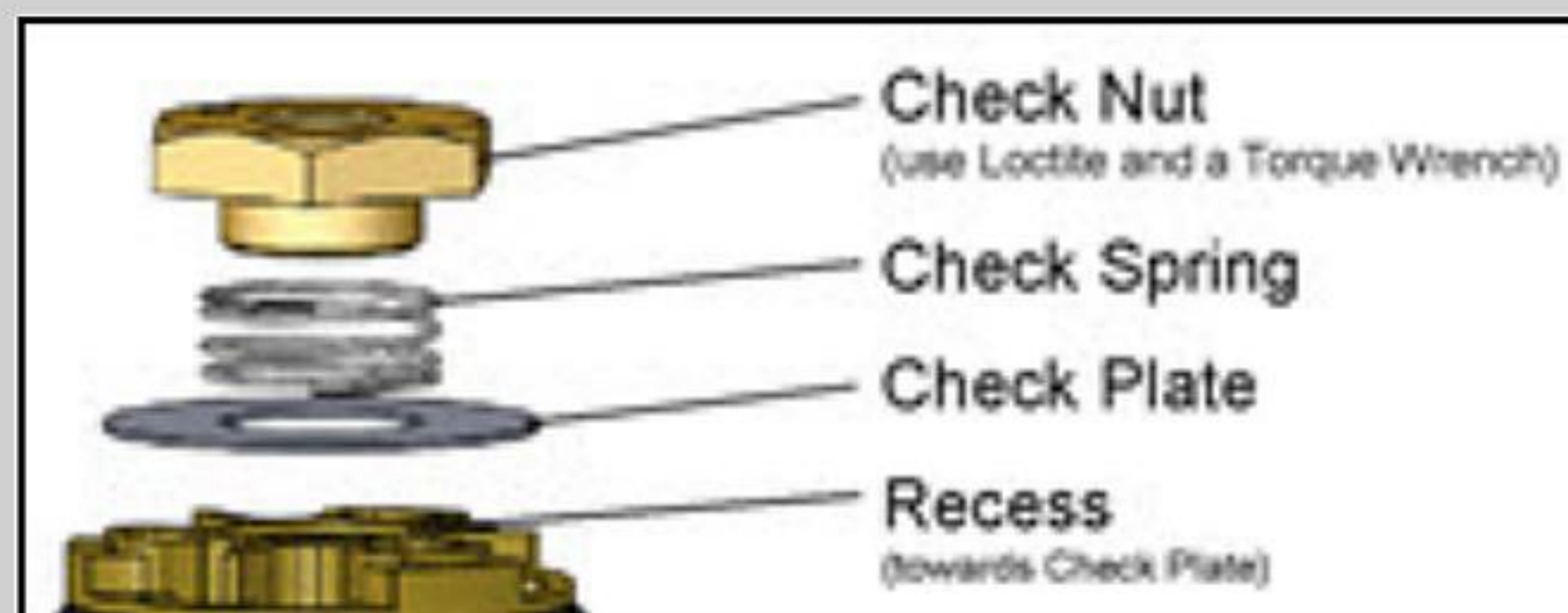


VP10- Place the Check Plate, Check Spring, and either:

1- Sleeve, Cupped Washer, and Nut



or  
2- Sleeve Washer and Nut  
(This type could also use a Wave Washer instead of a coil spring.)



or  
3- Check Nut  
on the Shaft.



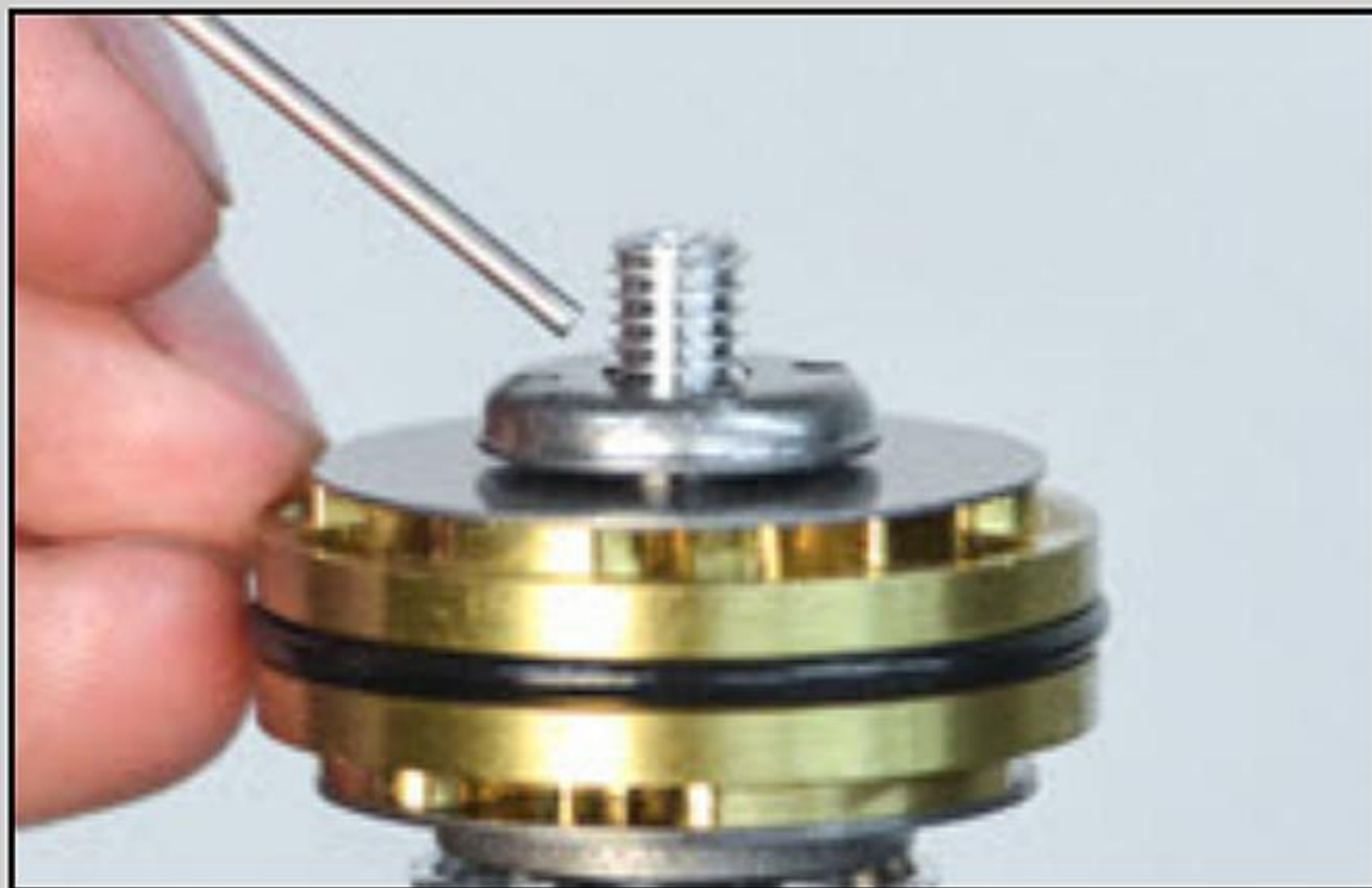
## VP11- Make sure the Total Valving Stack Height is correct.

This step is here to insure you don't "run out of thread" when tightening the Nut and the Nut gets full engagement.

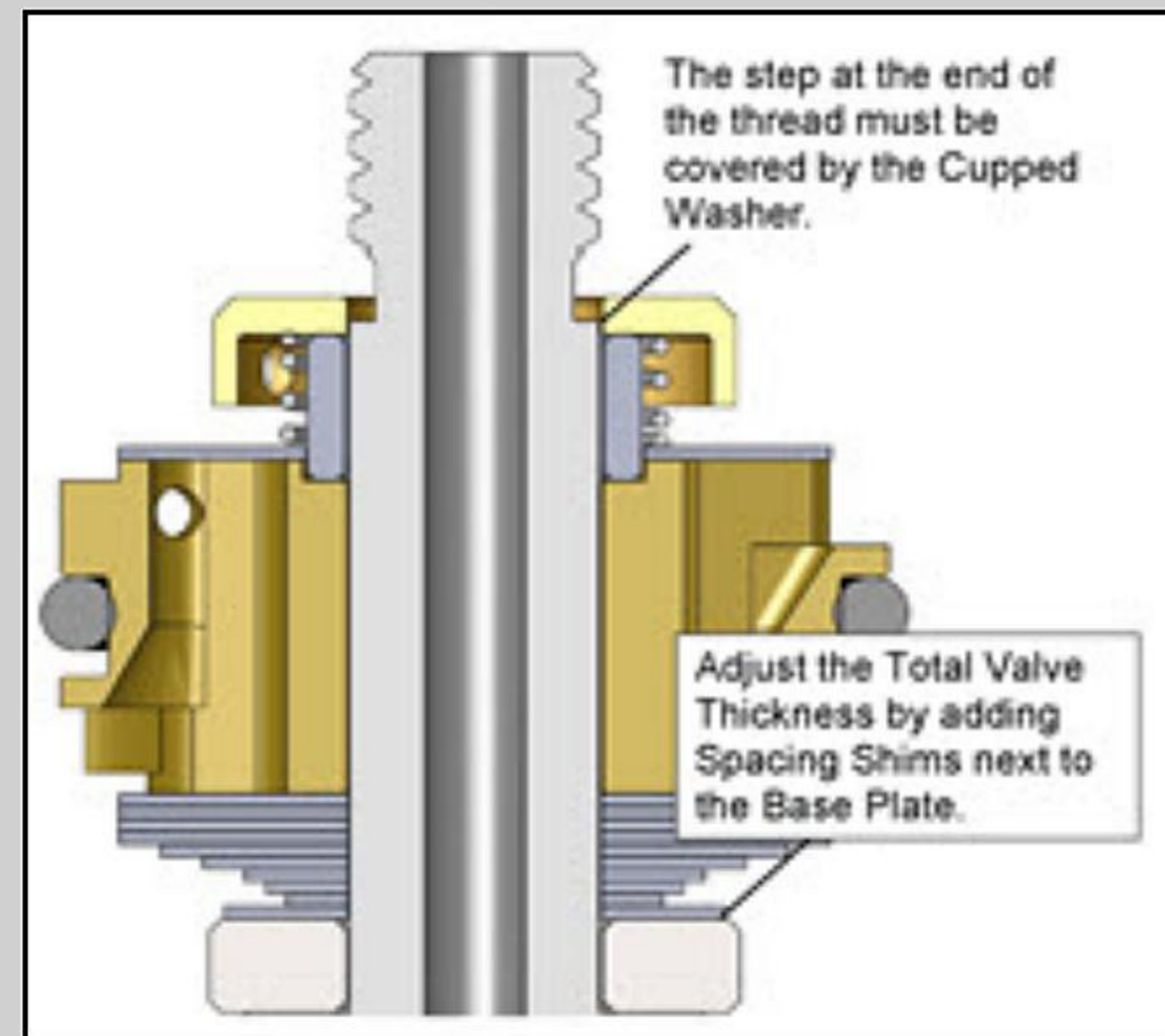
The shims should be guided with the straight, non-threaded part of the shaft and should not be on the thread so the thread should be covered by the Base Plate.

This height adjustment is done with Spacing Shims. If needed, they should be added just above the Base Plate. Spacing Shims must be larger in diameter than the smallest shim in the stack.

Incorrect stack height is shown in this photo (this stack is too short).



Click on the image to enlarge.





VP12- Apply a small drop of Loctite to the valving shaft nut.



VP13- Check to make sure the check valve is free before the nut is tightened.

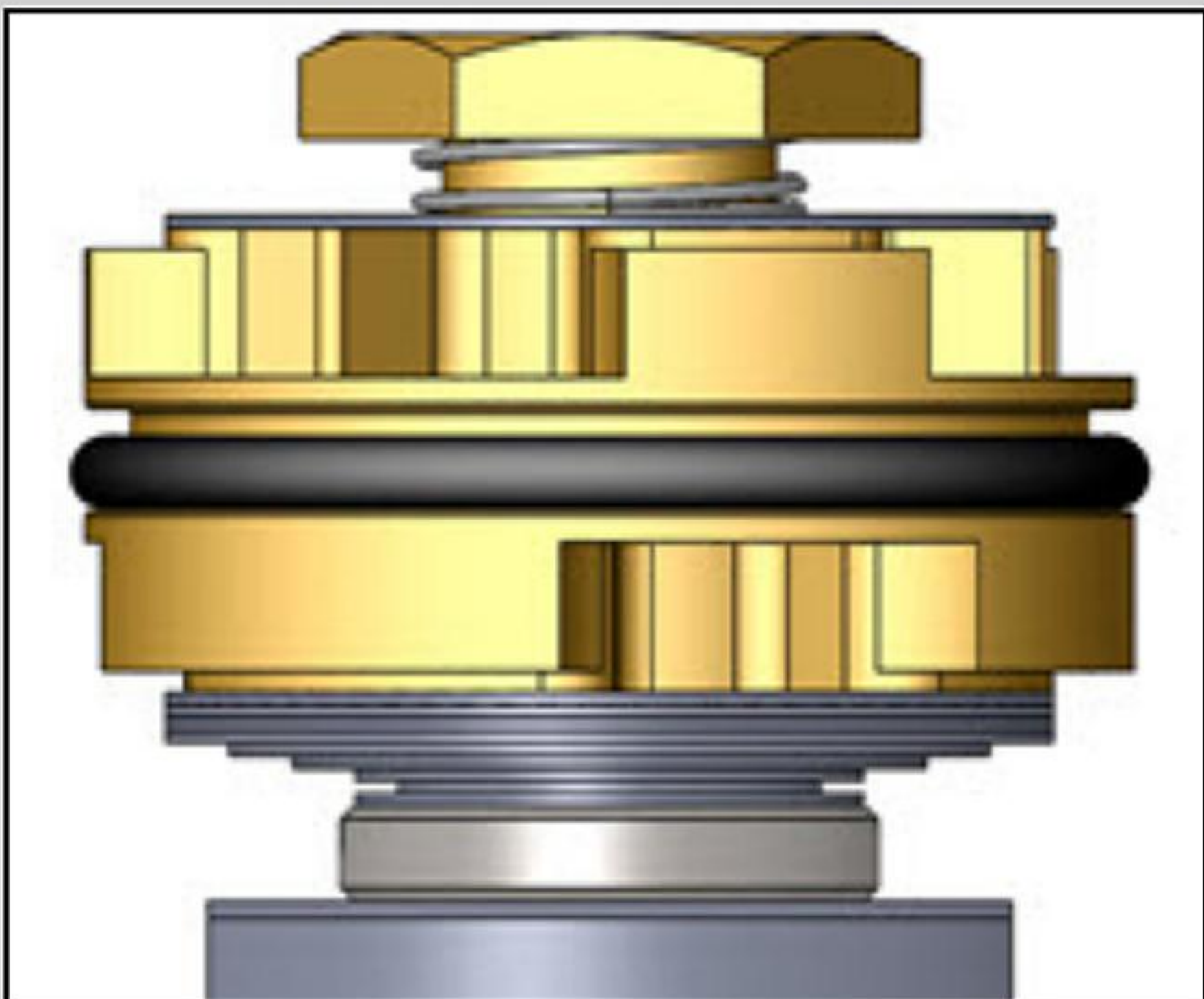


VP14- tighten it to spec with a torque wrench.

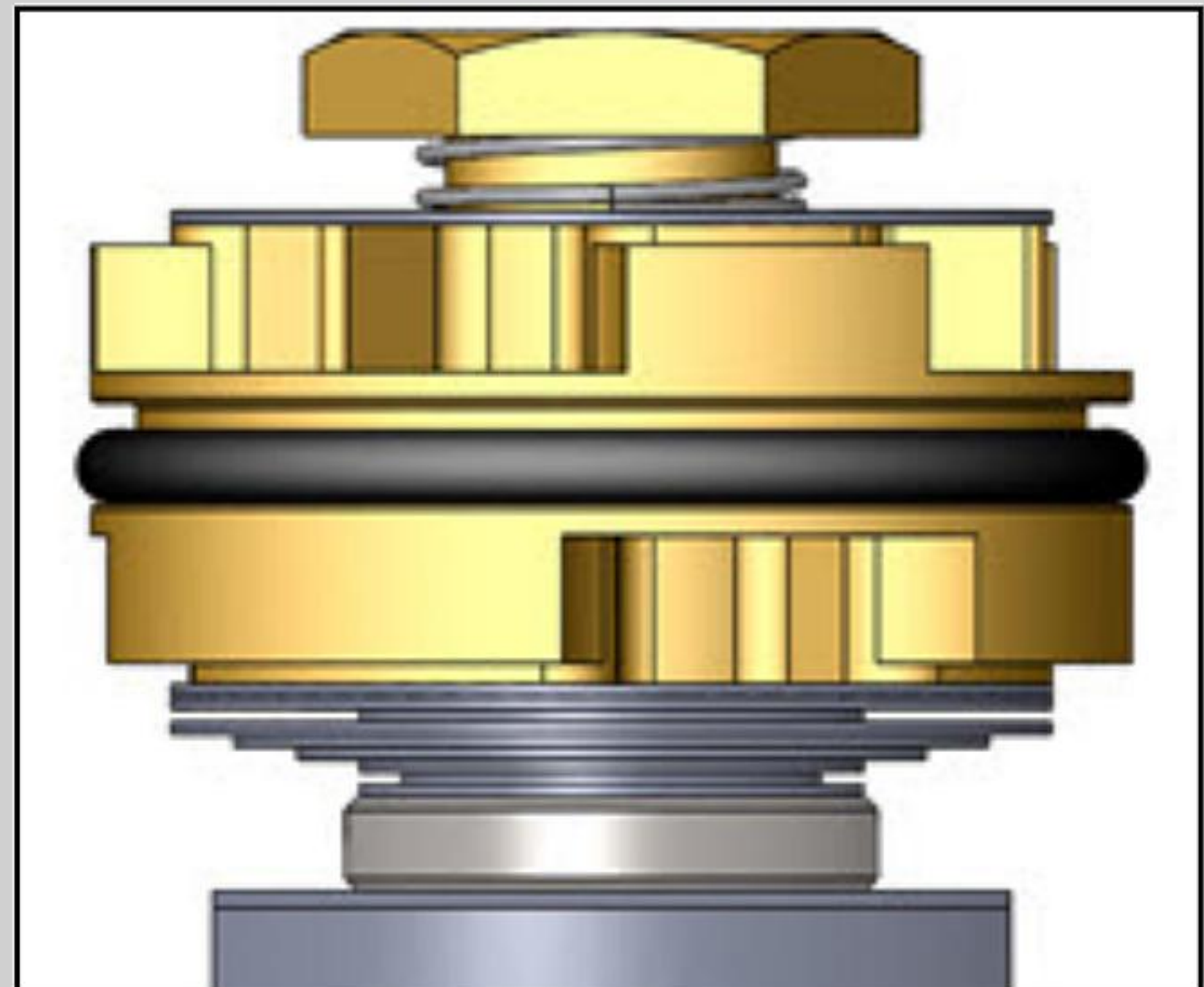
**CAUTION!** *The threads can be damaged without extreme care. You must use Loctite. Torque the Nut to the spec on your DVS Setup Sheet. NO MORE! Do not take this step lightly.*

**This is critical!**

VP15- **Single Stage**



VP15- **Two Stage**

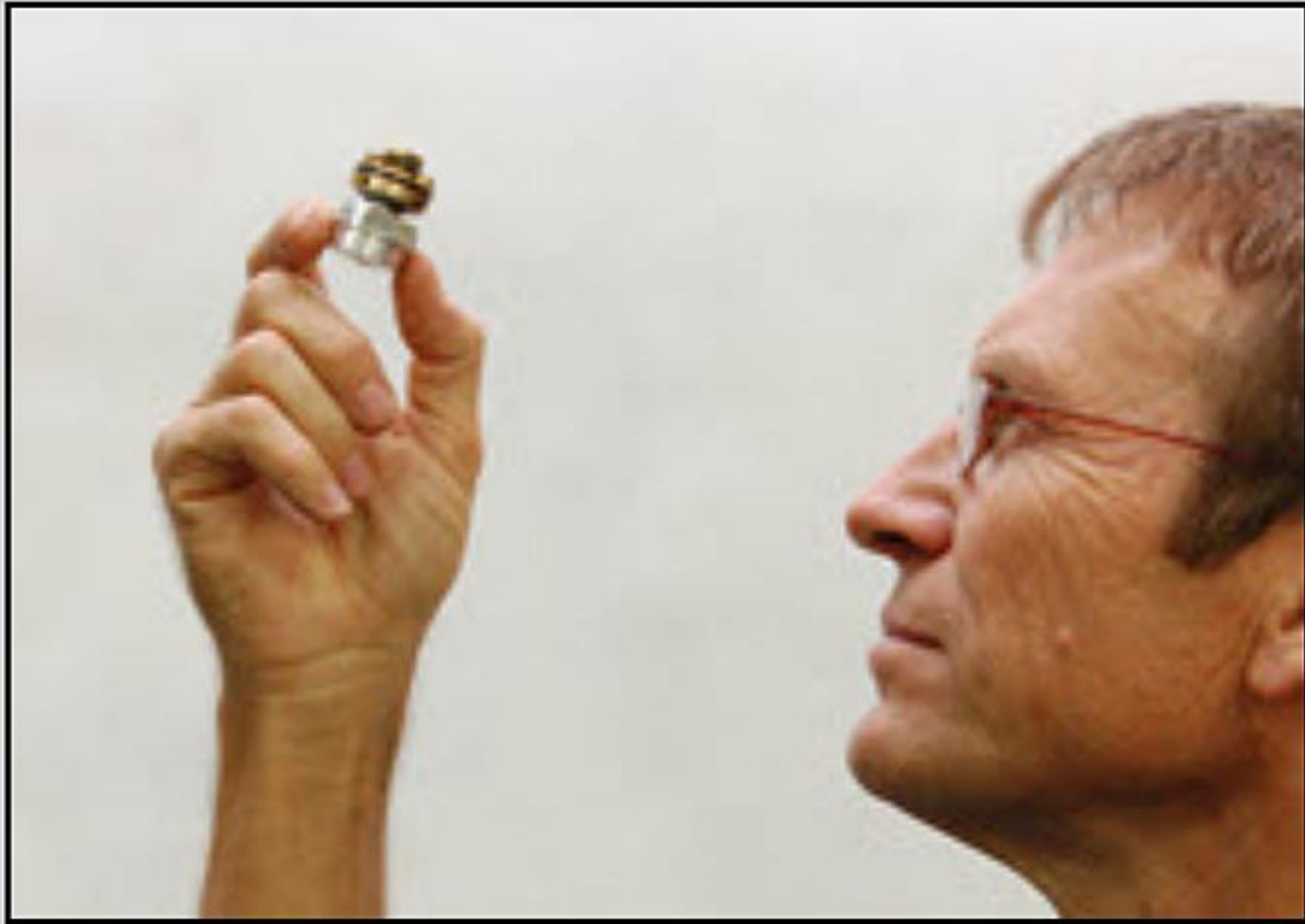


Notice the gap in the valving stack where the Crossover is. The Crossover Gap should be clearly visible.





VP16- Make sure the Check Plate is free and can move up and down against the Spring.

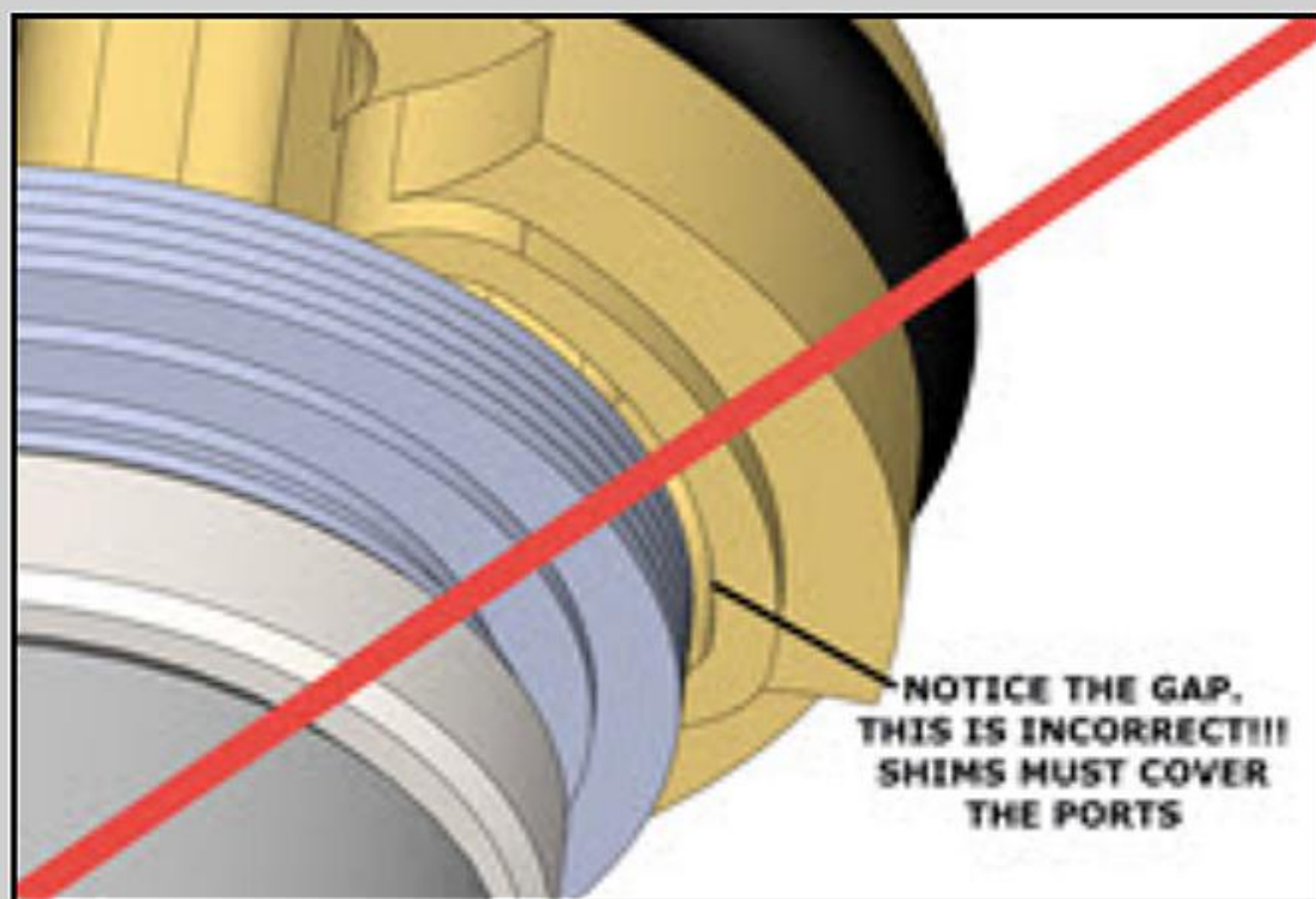


VP17- Visually check your work.

Hold the Valving Stack up to the light and look for proper assembly. If there are any problems, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.

On two-stage stacks make sure the Crossover Gap is clearly visible.

Make sure the o-ring is on the Gold Valve. Some kits contain more than one o-ring. See your DVS Setup Sheet Valving Comments for the correct o-ring.



VP18- Make sure the shims that go next to the Gold Valve completely cover the ports on both sides of the piston! If the ports are not covered there will not be enough damping.

This could be caused by a number of reasons. Please call Tech Support if this occurs and you can't figure it out.

VP19- Return to the main instructions and continue with Rebound Valving and Assembly.

# ***FORK REBOUND and MID-VALVE GOLD VALVE INSTALLATION Dirt FRGV with Sleeve Washer***

Welcome to the wonderful world of Gold Valving. To obtain your personal Custom Suspension Settings:

[DVS Setup Sheet](#) - If you haven't already, go to [DVS Valving Search](#), insert your Access Code, and rider data and print your DVS Setup Sheet.

**CAUTION: IF YOU ARE UNFAMILIAR WITH REBUILDING AND REVALVING FORKS, STOP!!! DO NOT PROCEED; SEEK OUT A QUALIFIED SUSPENSION TECHNICIAN.**

These instructions apply to many different forks. Your bike hardware may vary slightly from the images and/or examples used in this document.

**NOTE:** All measurements are metric (for inches divide by 25.4). The valving list starts at the piston face and goes towards the Base Plate. Valve specs are listed by (QUANTITY) THICKNESS x DIAMETER. A number in parentheses means quantity. If there is no number in parenthesis the quantity is one. Example: (2).15x30 means quantity two, 15 hundredths of a millimeter thick by 30 millimeters in diameter.



## **Tools Required**

- In-lb torque wrench that accurately measures 0 to 50 in-lbs (0.58 kgf-m) (SnapOn Digital Torque Wrench shown)
- Hi-Strength Loctite (included)
- Metric calipers and micrometer

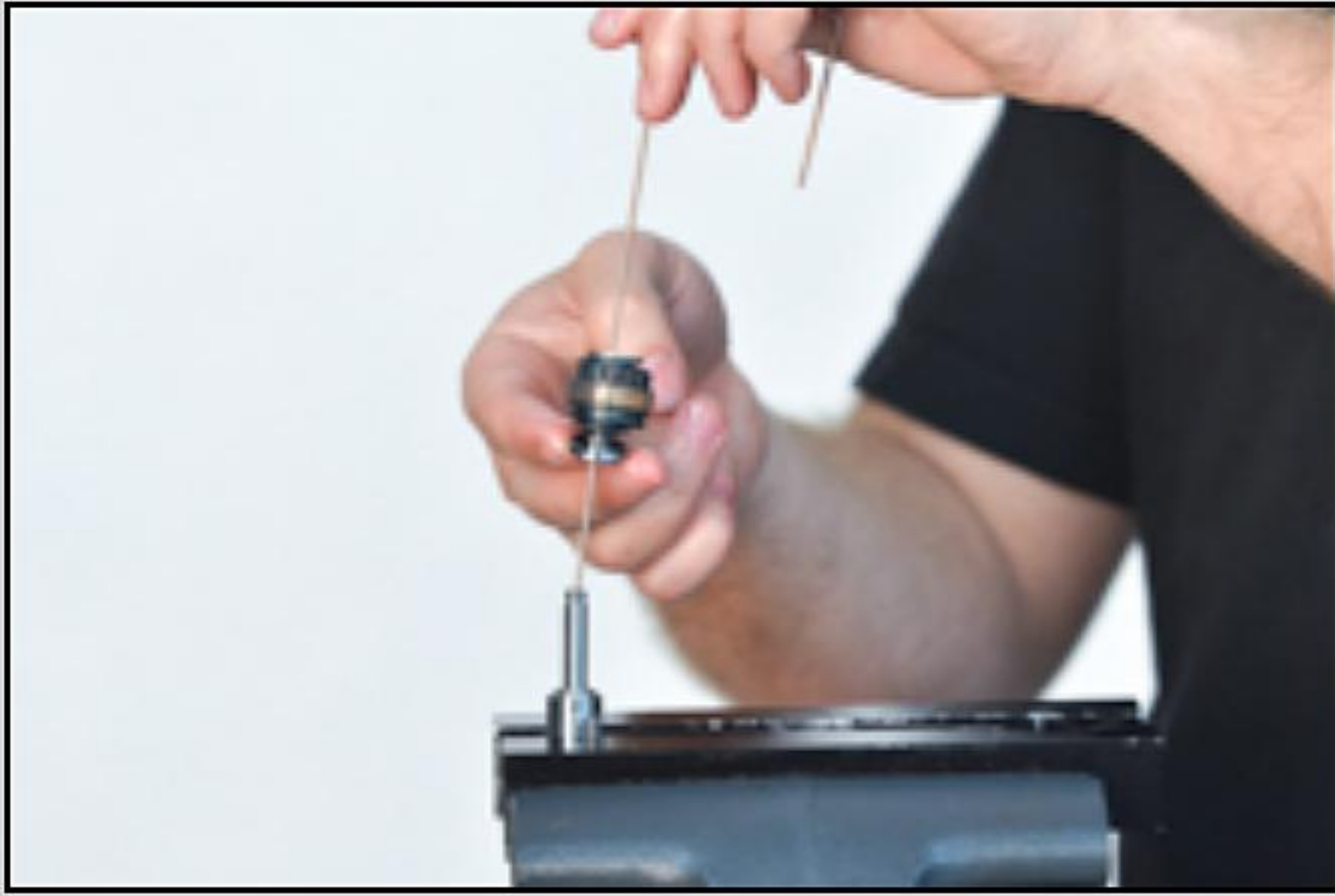


VR1- Put the rebound rod in the shaft holding tool and remove the peening by filing it down to the nut face.

This step is not required on WP and Ohlins.



VR2- Remove the rebound valving nut.



VR3- Remove the rebound valving assembly.



VR4- Chamfer the rebound valving shaft lightly. Use a wire wheel on the shaft end to smooth it.



VR5- Blow air through one of the side holes while covering up the other side hole. This allows any fillings that may be in the shaft to be removed through the top hole.

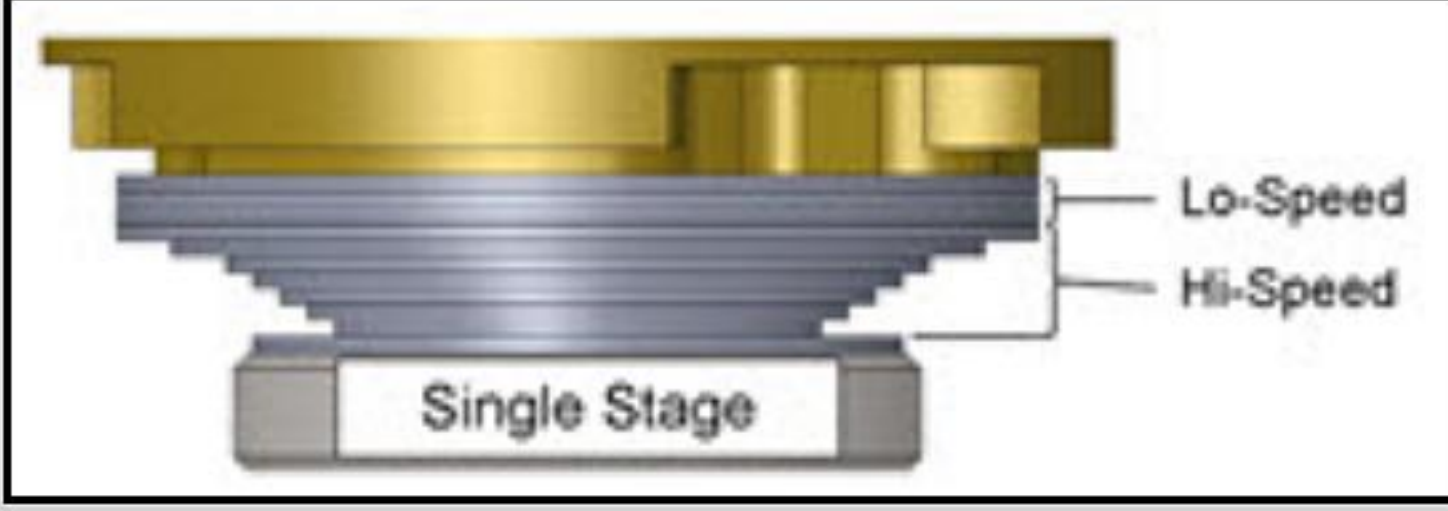
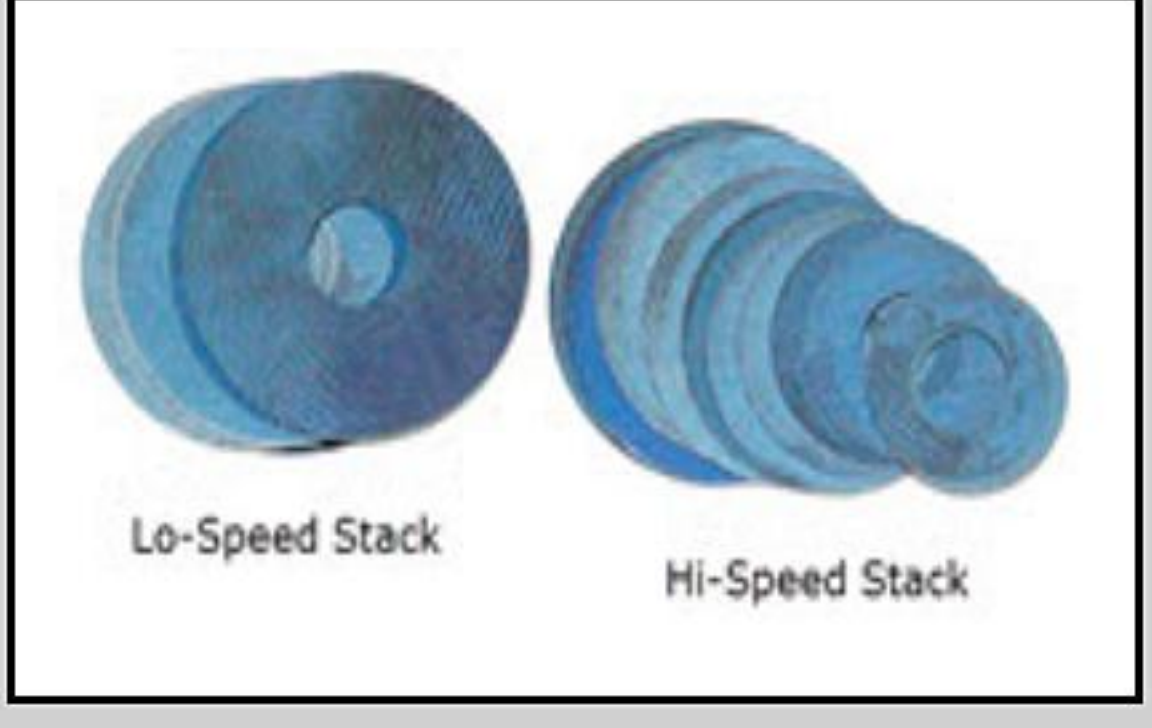
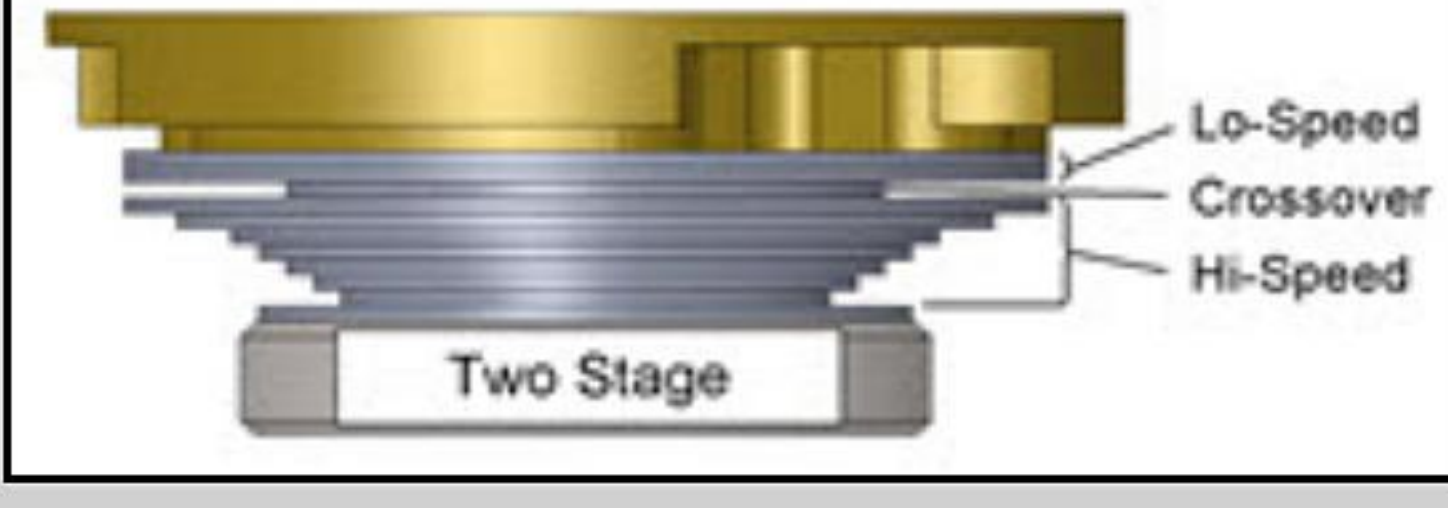
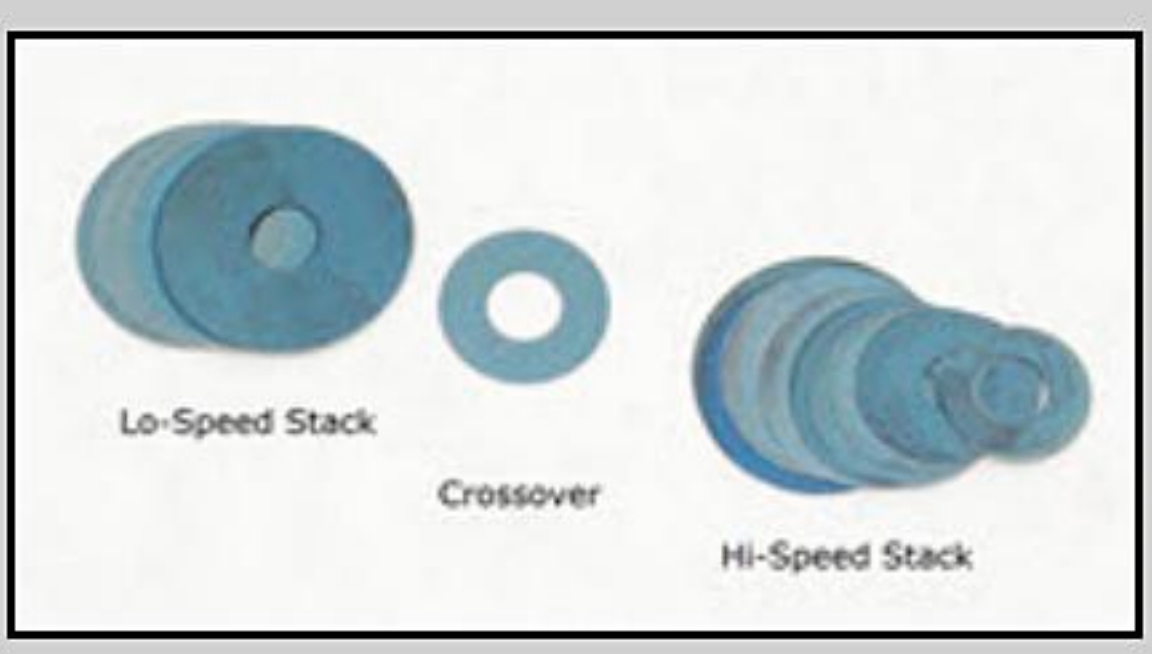
This model Rebound Holder does not look like this but you get the idea.

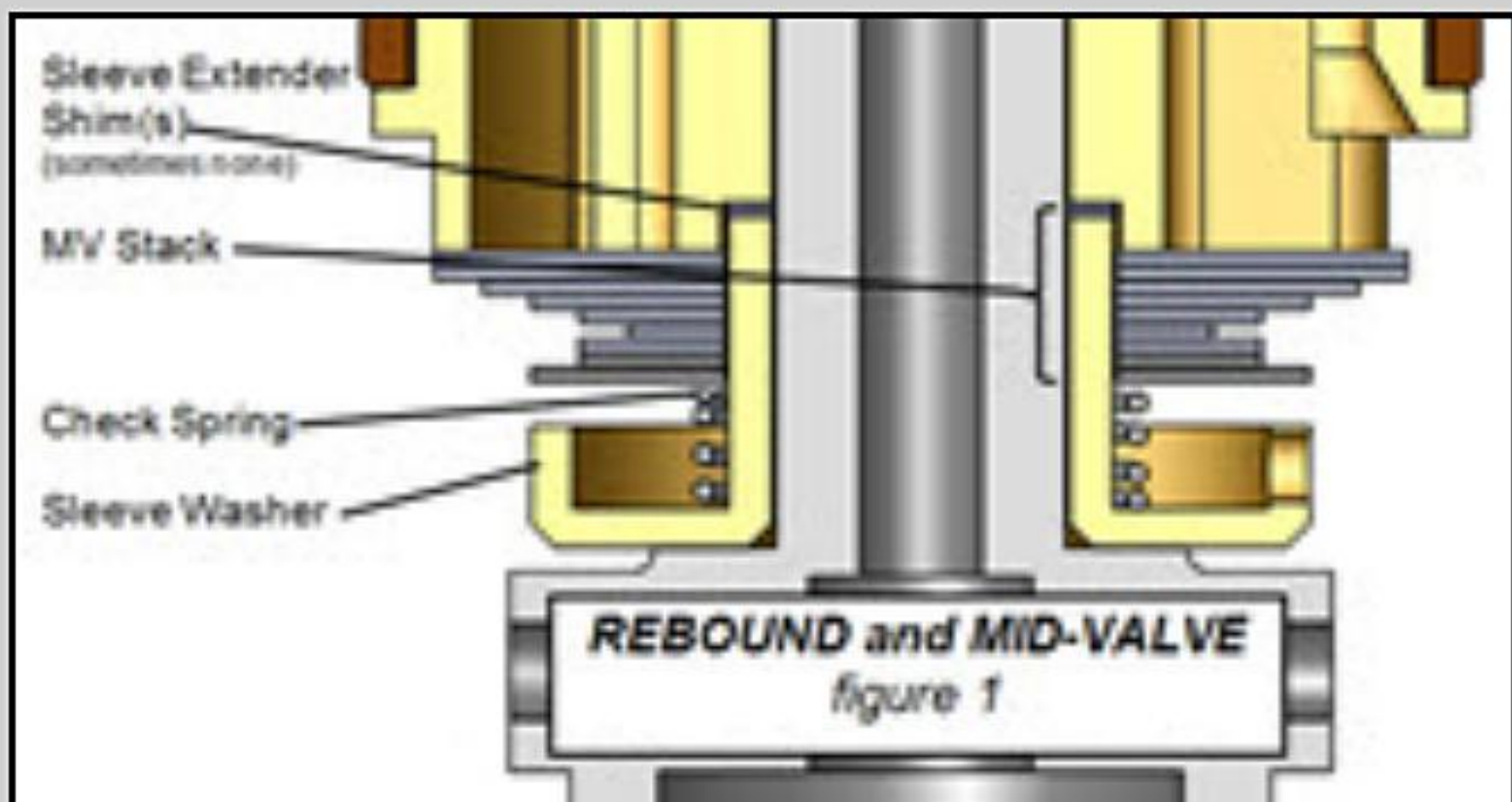
# VALVING STACK TYPES - SINGLE OR TWO STAGE

VR6- You will either be building a Single Stage or a Two Stage Stack for both the Mid-Valve and the Rebound Stacks. The difference is the Crossover. The Crossover is a smaller diameter shim between the Lo-Speed and the Hi-Speed Stacks. **THIS IS DISPLAYED SHIM BY SHIM IN THE NEW DVS.**

**Note that the DVS might call for a Single Stage Mid-Valve Stack and a Two Stage Rebound Stack (or the other way around).**

**Note: The DVS Custom Setup Sheet displays individual shims and does not label Hi-Speed, Crossover, and Lo-Speed. This is for your information only. Also you will not use all the shims provided in the Gold Valve Kit.**

<ul style="list-style-type: none"> <li>• <b>Single Stage</b> - made of: Lo-Speed Stack Hi-Speed Stack</li> </ul> <p>There is <u>NO</u> Crossover (it becomes one stack.)</p>		
<ul style="list-style-type: none"> <li>• <b>Two Stage</b> - made of: Lo-Speed Stack Crossover Hi-Speed Stack</li> </ul> <p>The Crossover Gap is visible</p>		



## VR7- MID-VALVE STACK

First install the:  
Sleeve Washer  
Check Spring

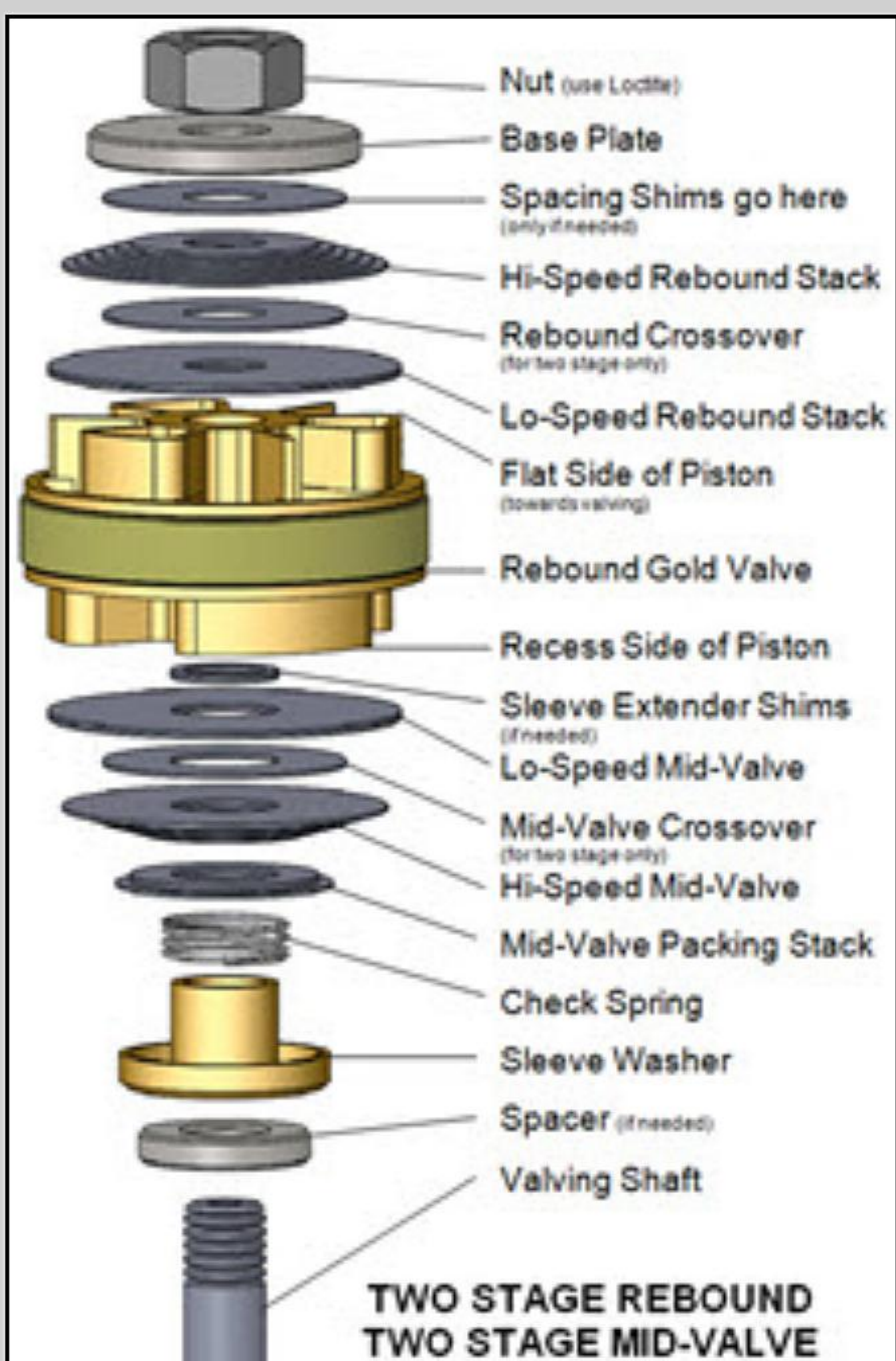
Assemble the Mid-Valve Stack recommended by the DVS onto the Valving Shaft.

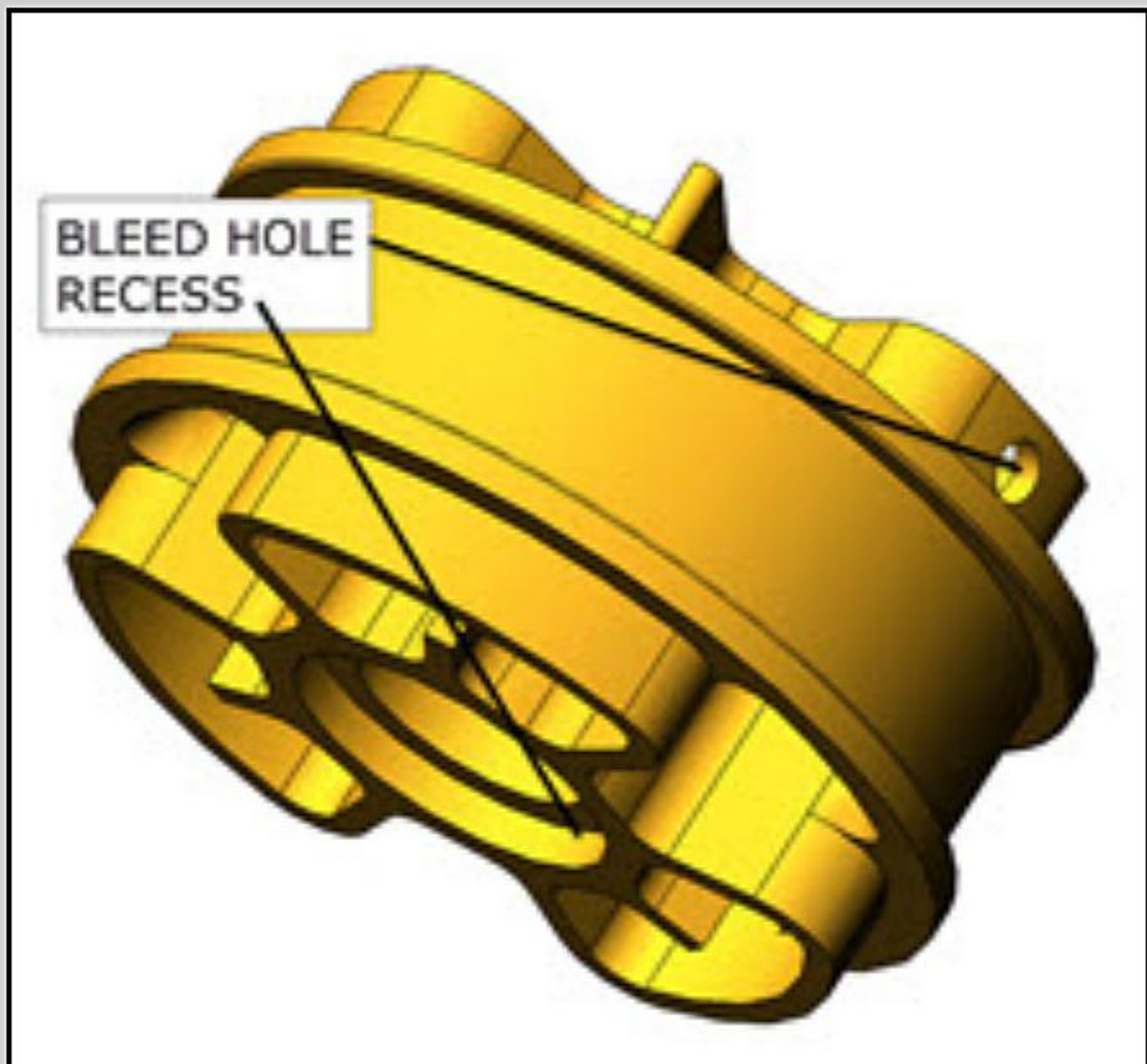
Note that on the DVS Setup Sheet it is listed from the piston face. This means it is in reverse order of assembly.

Note - there may be Sleeve Extender Shims (6 id x 8 od).

**Float** is the amount the Mid-Valve stack moves before it has to bend. Float is critical!

Once the **complete assembly** is built, **check the Float with a feeler gauge** (step VR14). This may be off due to production tolerances on all of the parts in the assembly. Adjust the MV Packing Stack to create the correct Float.



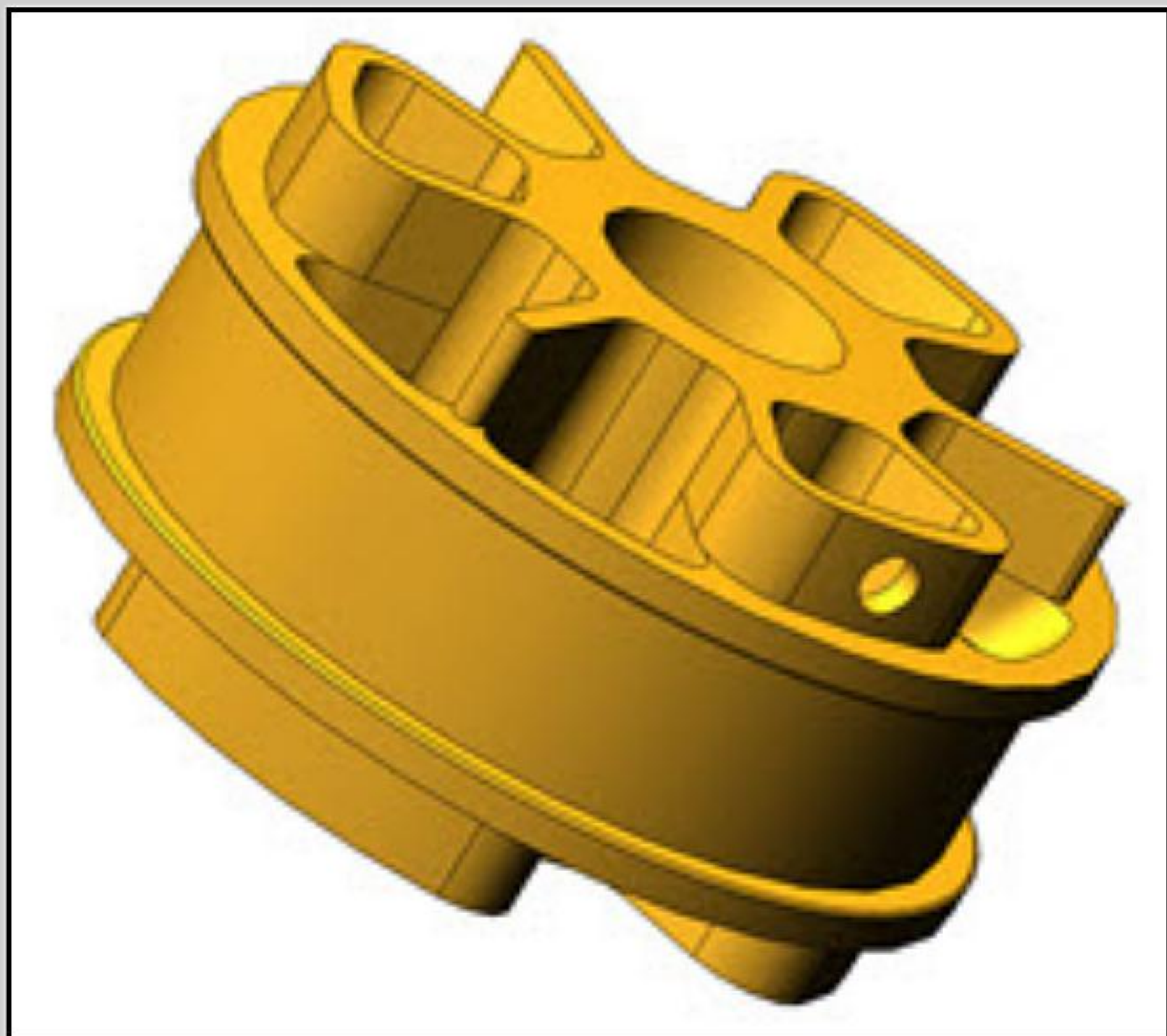


## VR8- REBOUND BLEED HOLE

If the DVS does not call for a Rebound Bleed Hole skip this step.

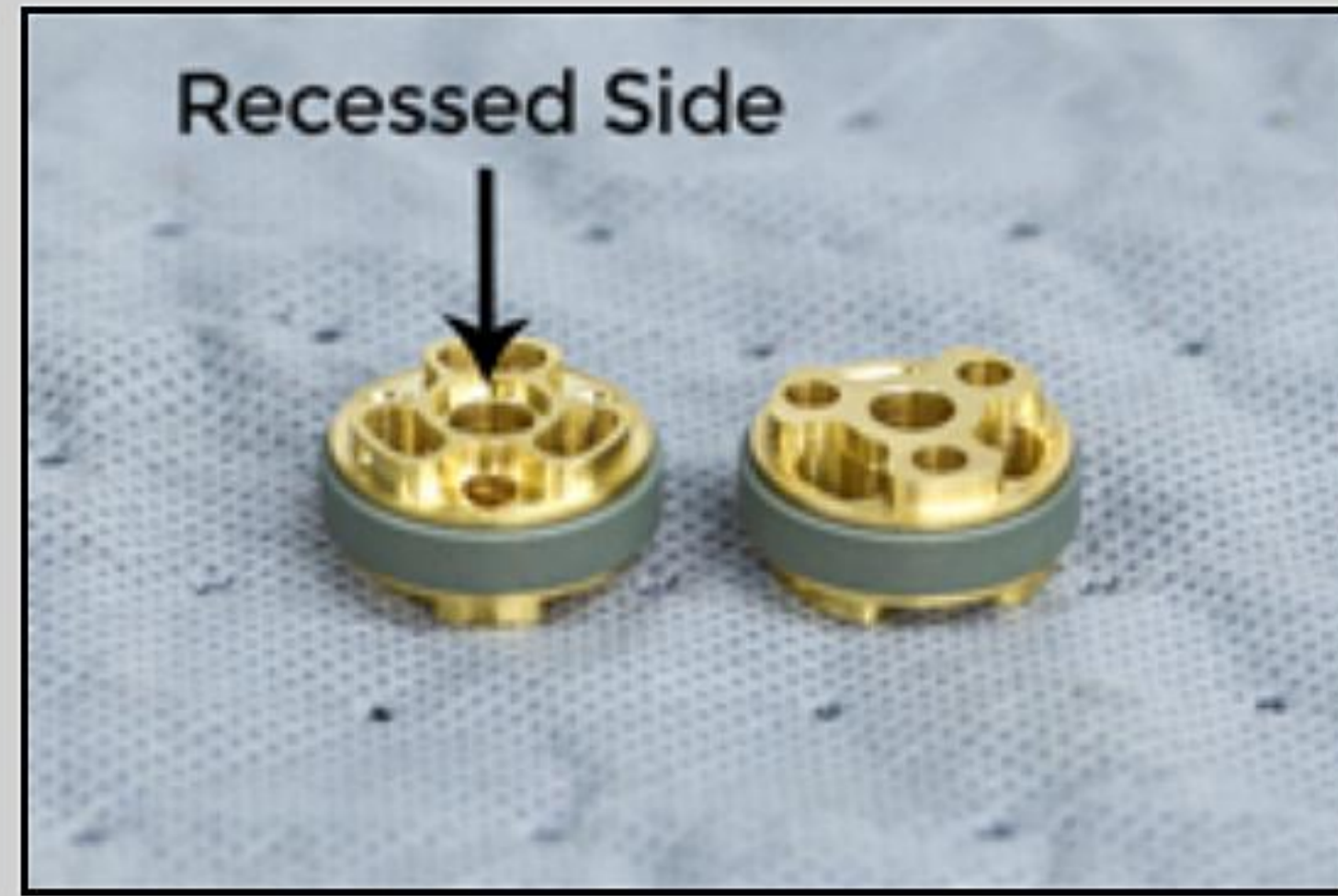
If your DVS Setup Sheet calls for a Rebound Bleed Hole check to see if there is one already pre-drilled in the piston. If one is called for, and there is no pre-drilled bleed hole, you will need to drill one.

Notice that the bleed hole is on the **opposite** side of the piston with the Recess and is drilled sideways. It connects the two sides of the piston and bypasses the valving stack. The exact location is not critical.





VR9- Install the Rebound Gold Valve **WITH THE RECESS IN THE GOLD VALVE FACING DOWN TOWARDS THE MID-VALVE.**

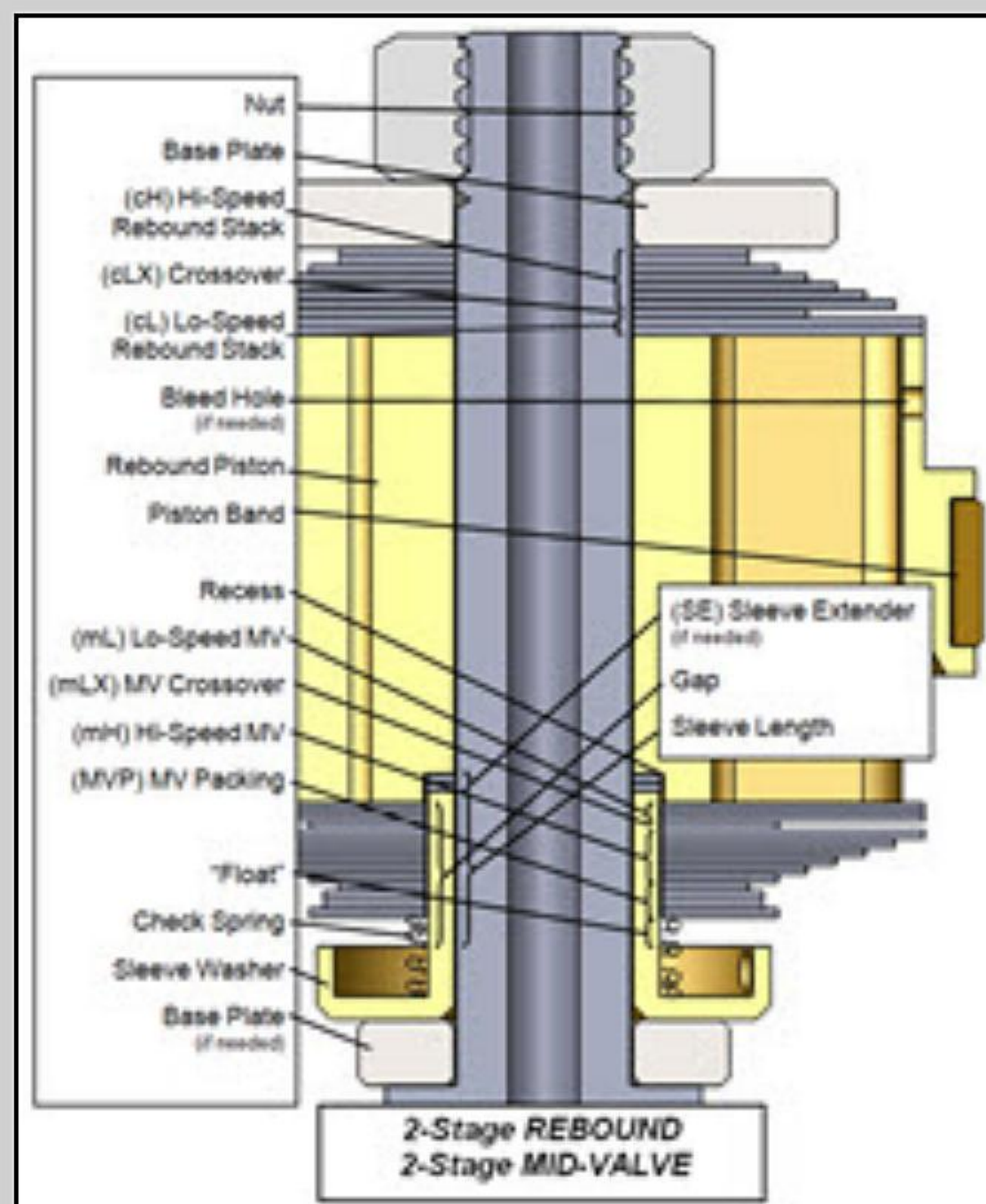


## VR10- REBOUND STACK

Install the DVS recommended Rebound Stack with the largest shim of the Lo-Speed Stack first against the piston face. Make sure the shims completely cover the ports.

If a two stage rebound stack is called for in the DVS, install the Rebound Crossover.

Install the Hi-Speed Rebound Stack in the order listed starting with the largest diameter shim and ending with the smallest diameter shim.



## VR11- Two Stage Rebound Example

**(Single Stage is exactly the same except there is no Crossover)**

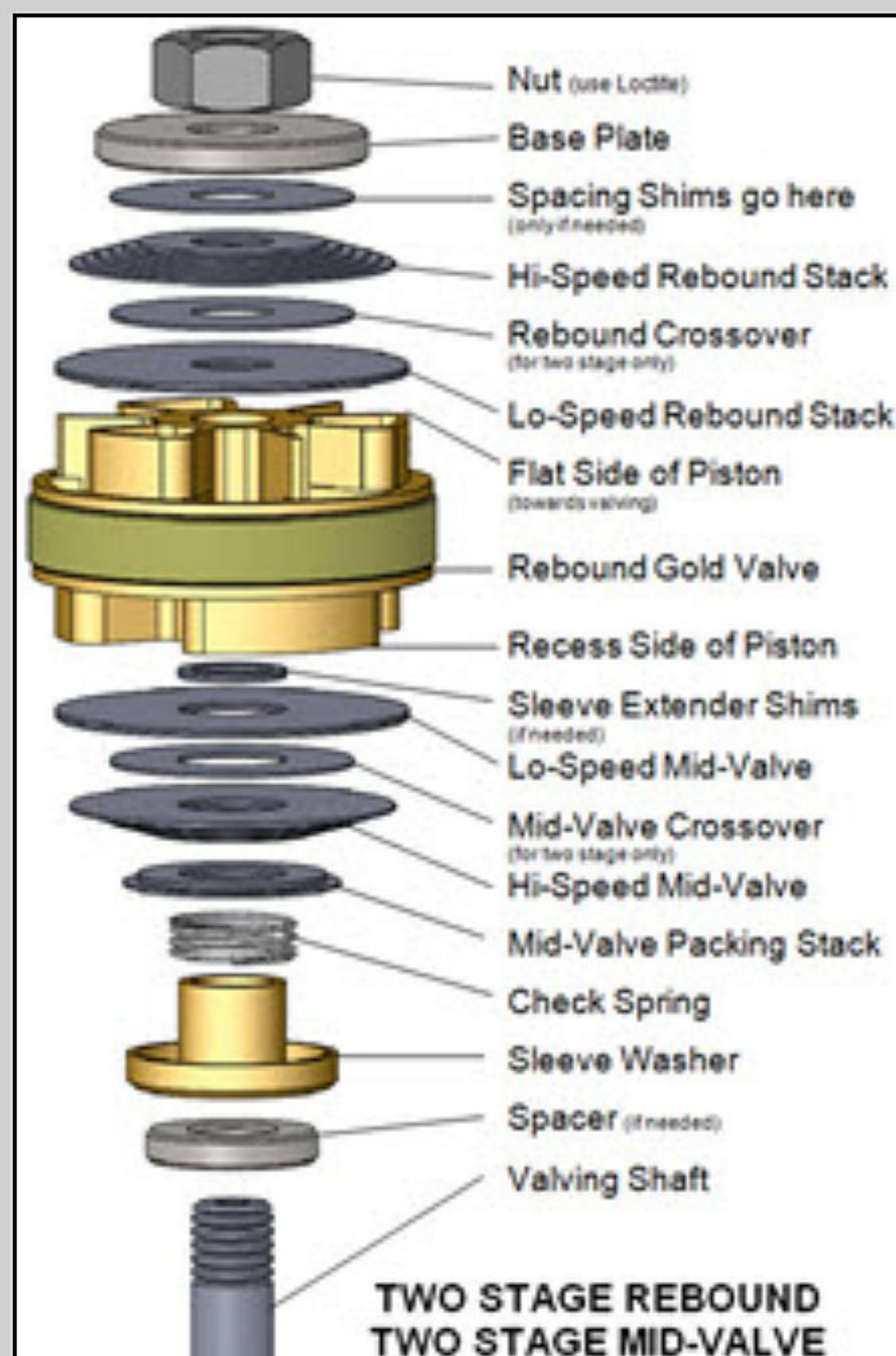
For Two Stage the total valving stack is made up of a:  
Lo-Speed Stack  
Crossover and a  
Hi-Speed Stack

(this is only an example - not your setting)

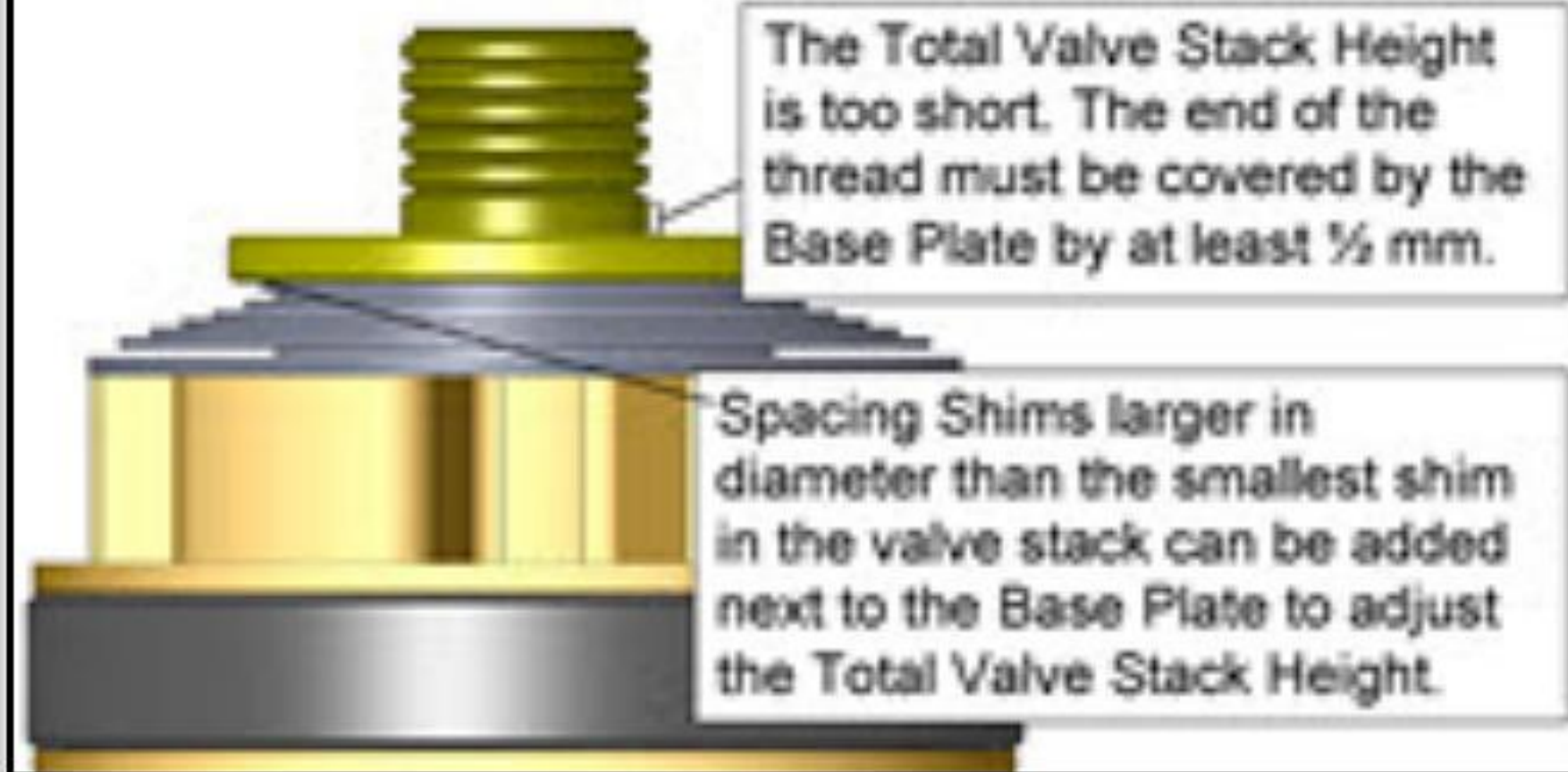
**The Total Rebound Valving Stack starting from the Gold Valve piston face:**

- (4) .15x21 - Lo-Speed Stack
- (1) .10x11 - Crossover (notice the smaller diameter)
- (1) .10x21 - Hi-Speed Stack
- (1) .10x20
- (1) .10x18
- (1) .10x16
- (1) .10x14
- (1) .10x12
- (1) .10x11

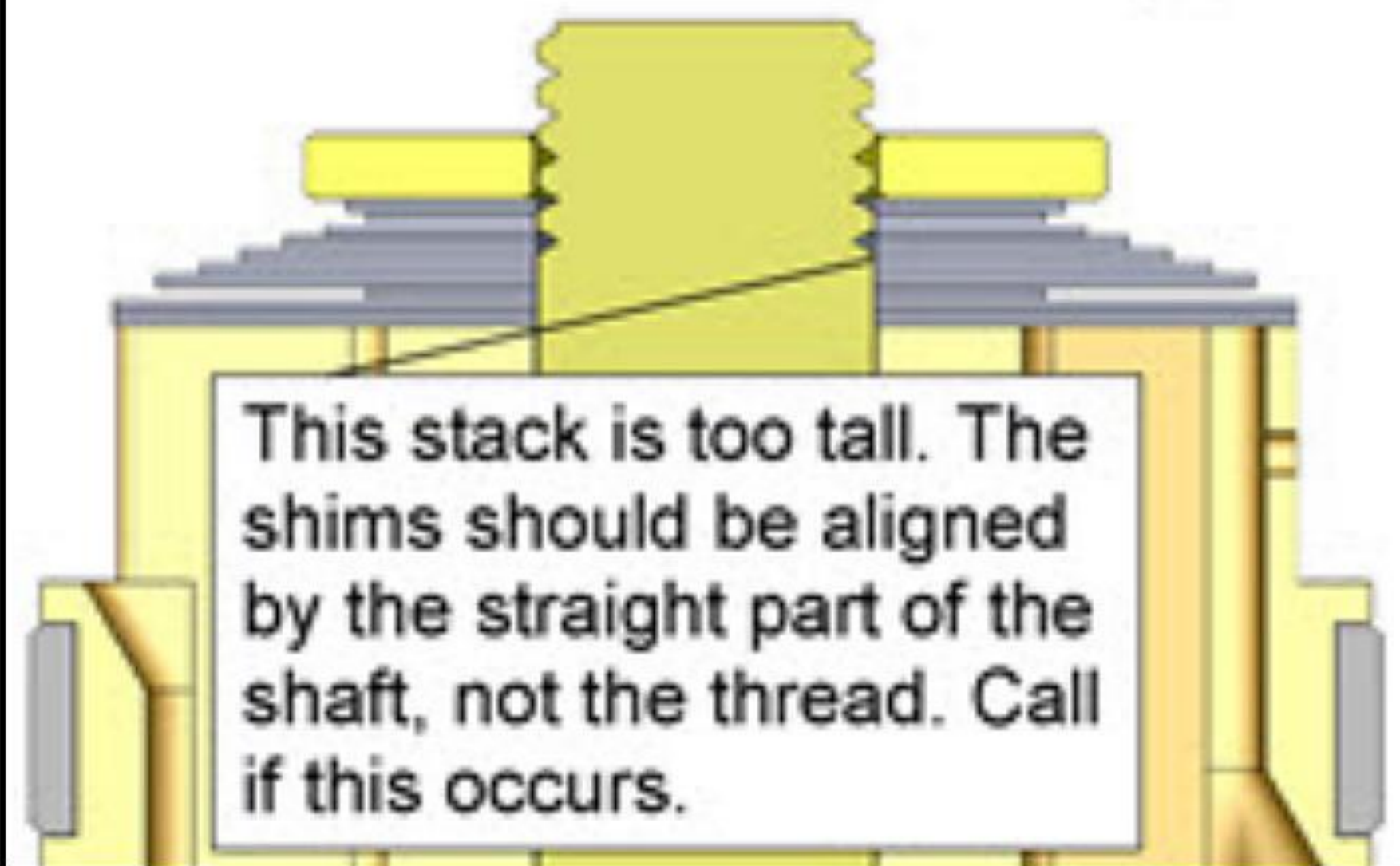
Note: Keep in mind that this is an example only. This valving stack only shows the orientation of the components and the direction of the stack tapers.



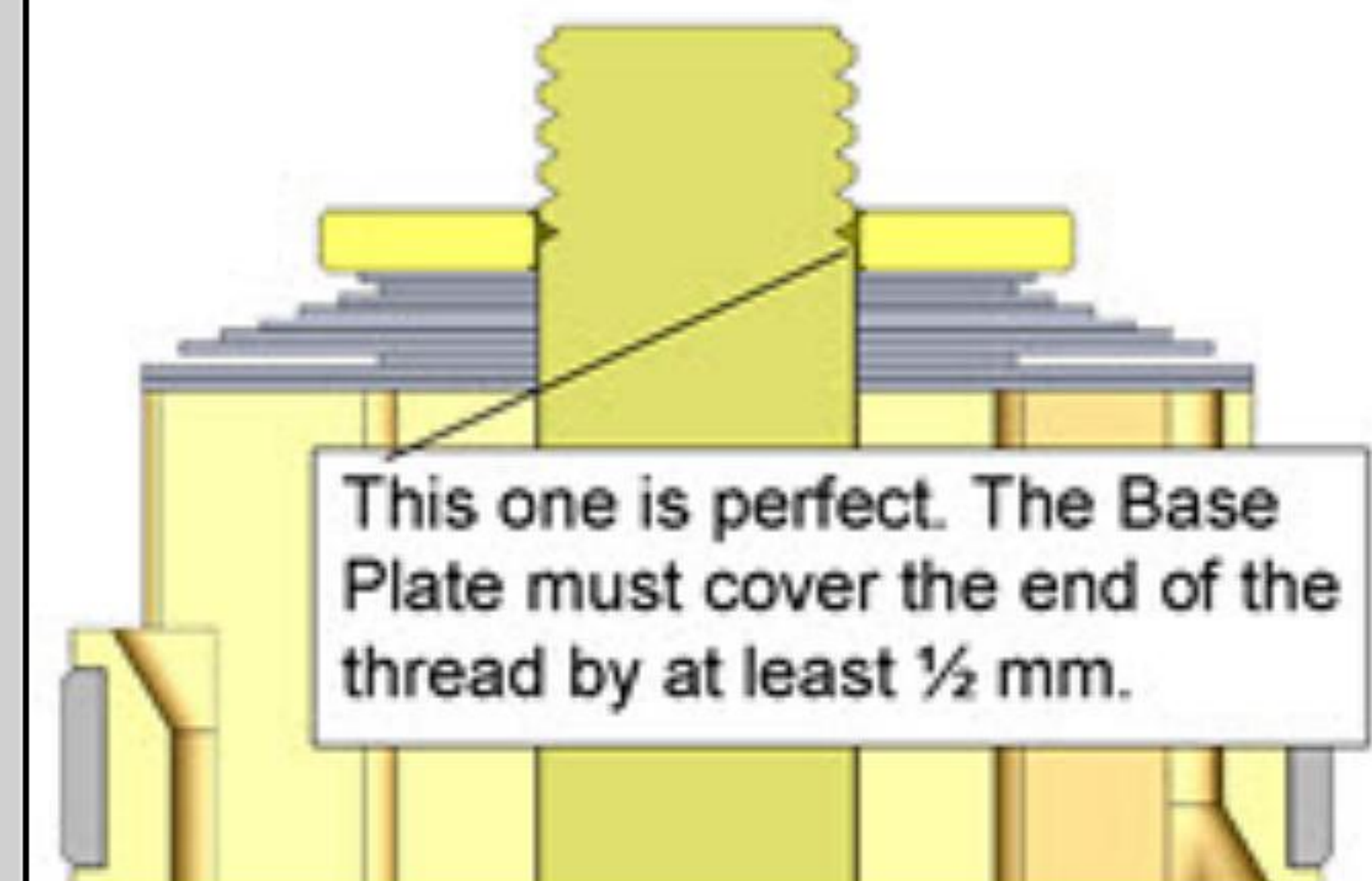
### STACK HEIGHT – Too Low



### STACK HEIGHT – Too High



### STACK HEIGHT – Just Right



## VR12- Make sure the Total Valving Stack Height is correct. Critical!!

This step is here to insure you don't "run out of thread" onto the straight, non-threaded, portion of the shaft when tightening the Nut and the Nut gets full engagement.

The shims should be guided with the straight, non-threaded part of the shaft and should not be on the thread. **The Rebound Base Plate should cover or "straddle" the end of the thread.**

If needed, height adjustment is done with Spacing Shims added just below the Rebound Base Plate.

**Spacing Shims must be larger in diameter than the smallest shim in the stack.** Sometimes this is best accomplished by adding additional Base Plates.



## VR13- TIGHTEN THE COMPLETE ASSEMBLY

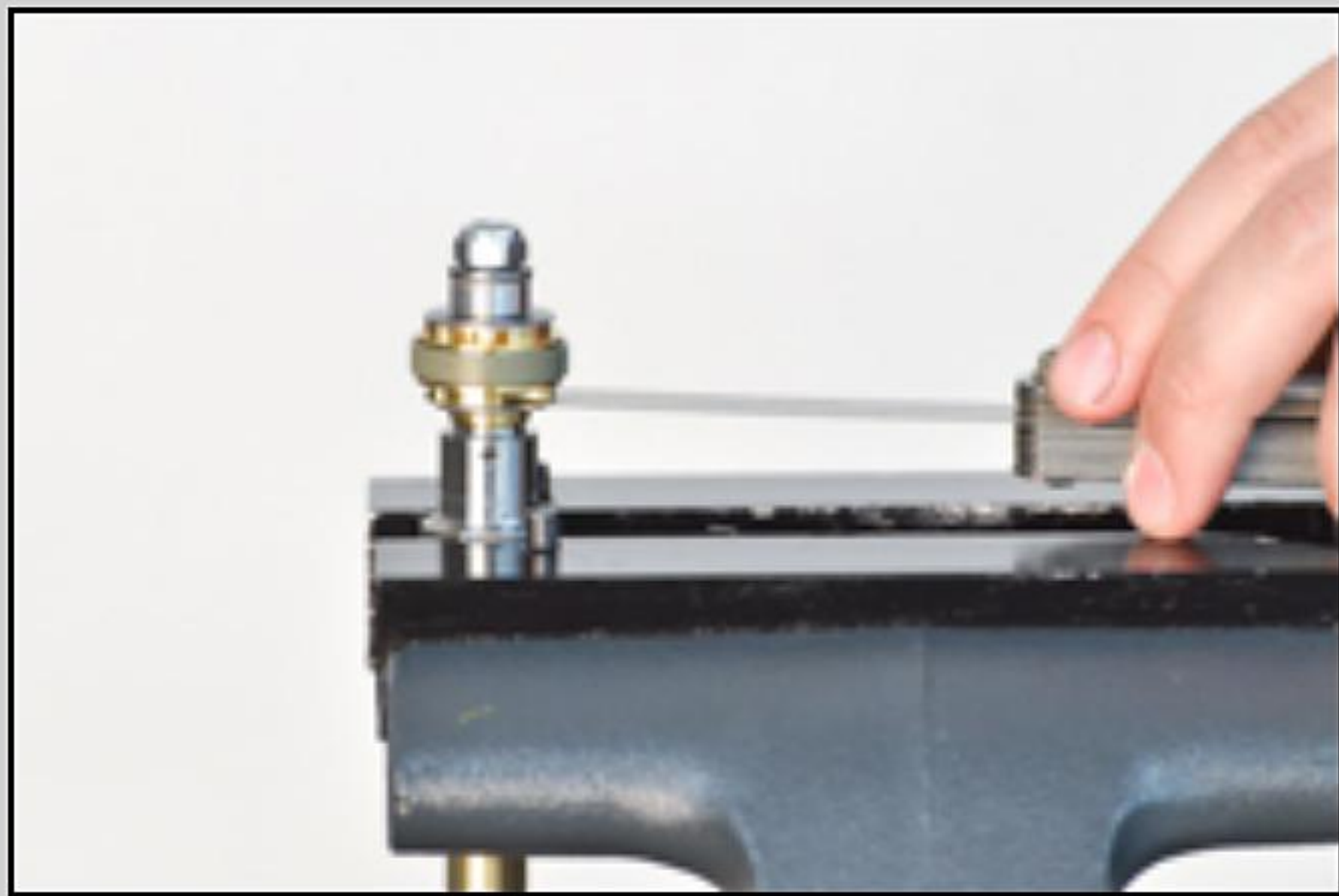
Make sure there is Loctite on the thread of the shaft. Make sure the mid-valve is free to move up and down. Tighten it to spec with a torque wrench.

***CAUTION! The threads can be damaged without extreme care. You must use Loctite.***

***Most 6mm bolts must be torqued with a torque wrench to 30 in-lbs (2.5 ft-lbs or 0.35 kgf-m), NO MORE!***

***8mm bolts must be torqued with a torque wrench to 45 in-lbs (3.8 ft-lbs or 0.52 kgf-m), NO MORE!***

***Check your DVS Setup Sheet. Do not take this step lightly.***



## VR14- CHECK THE FLOAT

**Float is the amount the stack moves before it has to bend.**

**FLOAT is the most critical valving setup in the entire front fork. Use a feeler gauge to measure the actual "float" of the mid-valve.**

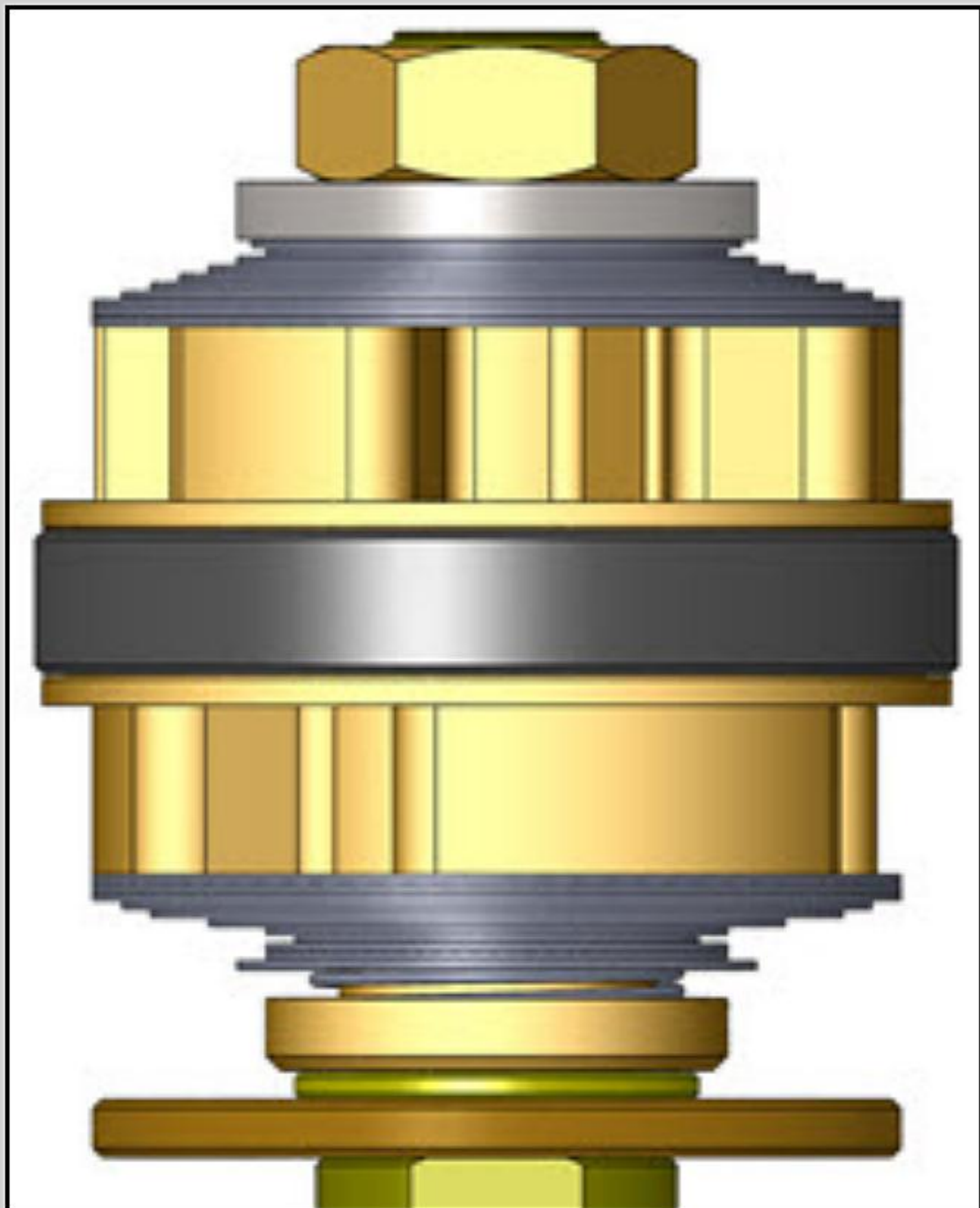
**Insert the feeler gauge between the Gold Valve Piston face and the first shim. Make sure the feeler gauge goes all the way in to the surface of the inner sleeve.**

**This is the best way to check the float as there are always production tolerances that will throw the predicted float off of the calculated number.**

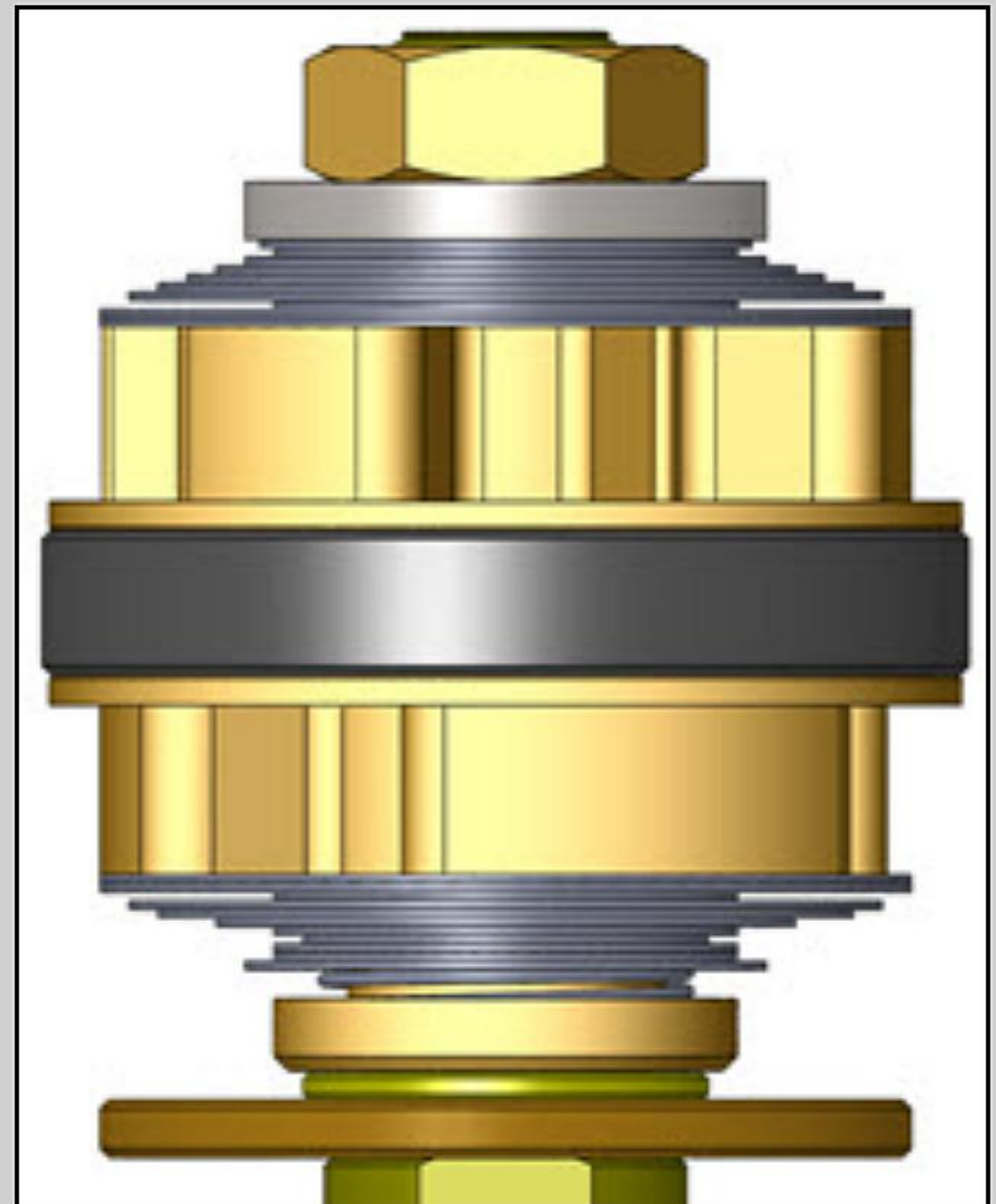
**Adjust the Sleeve Extender or Packing Stack (the last shims closest to the Check Spring) to get the correct float. THIS IS CRITICAL!**



VR15- **Single Stage Rebound and Single Stage Mid-Valve**



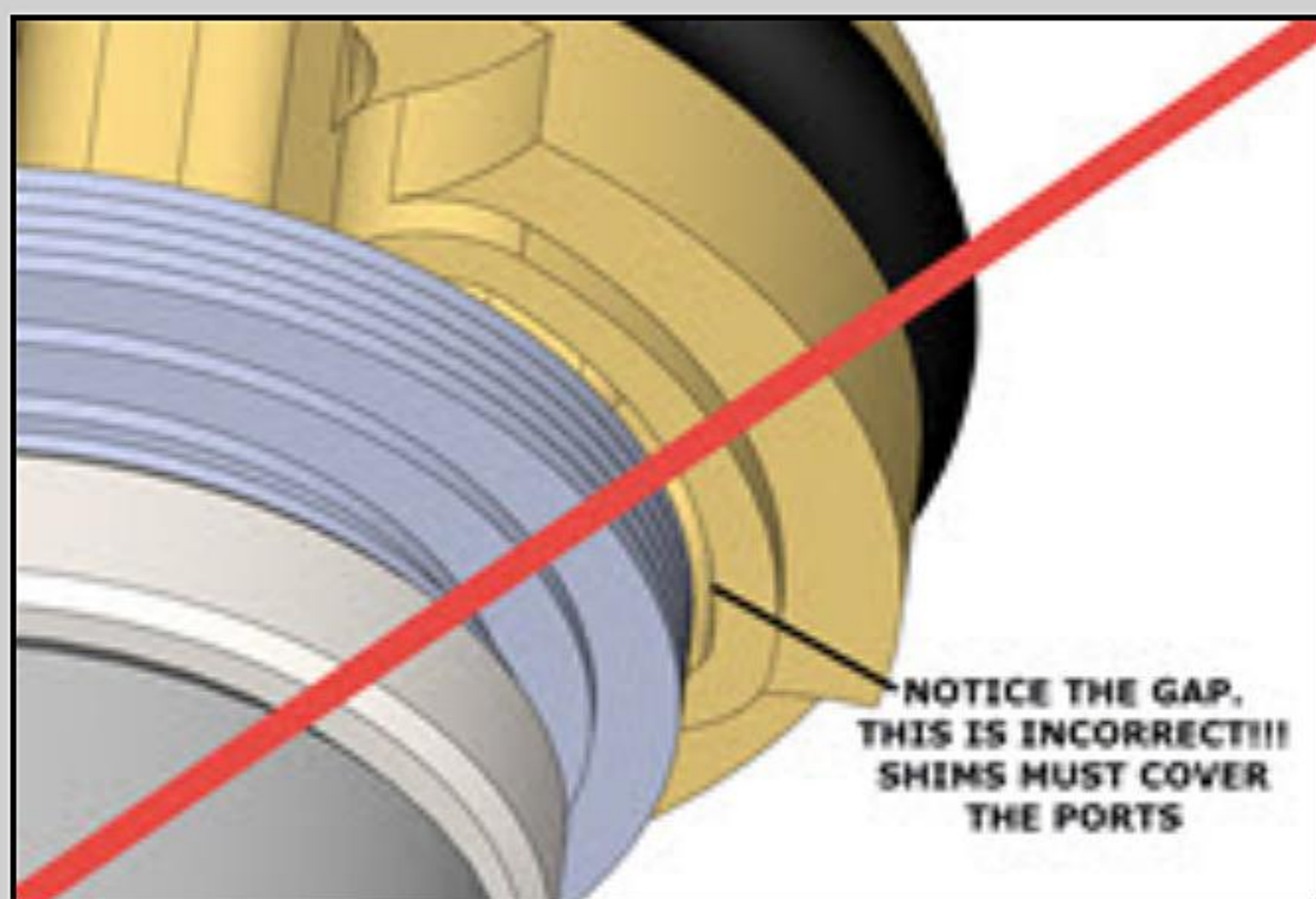
VR15- **Two Stage Rebound and Two Stage Mid-Valve**



Notice the gap in the valving stack where the Crossover is. The crossover gap should be clearly visible upon inspection.



VR16- Check your work. Hold the valve assembly up to the light and look for proper assembly. If there are any problems, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.



VR17- **Make sure the shims that go next to the Gold Valve completely cover the ports on both sides of the piston!** If the ports are not covered there will not be enough damping.

This could be caused by a number of reasons. Please call Tech Support if this occurs.

VR18- Continue with installation of the Compression Gold Valve and fork assembly.