

# Table of Contents

<b>REF: Engine Mechanicals - Sub-02F .....</b>	<b>1</b>
<b>Installing Hammer Performance Billet Pushrod Base Kit .....</b>	<b>1</b>



[Go To Technical Menu](#)

## REF: Engine Mechanicals - Sub-02F

# Installing Hammer Performance Billet Pushrod Base Kit

The installation instructions below are from [Hammer's website](#) for the most part. They also have an [Installation Video](#) for the billet bases.



1)



2)

### Installing the billet pushrod bases:

- The undersides of the billet bases are dimensionally the same as the factory pot-metal rings.
- Hammer's website suggests to install two pushrod tubes into each base at the same time. This can be done but it may be easier for some to do them one at a time. Installing two at the same time takes unnecessary pressure to push the base down the tubes. Both tubes have to be lined up very straight or the base hangs up without going down without further pressure.  
(their installation video also mentions you can do one at a time)
- With the heads installed, put the upper O-rings into their pockets in the undersides of the heads.

Lube inside of O-rings with a little grease or oil. <sup>3)</sup>



- Remove the roll pins in the case deck that are used to align the factory bases.
- You can pull them out with a pair of pliers or vise grips.
- They come out easily if you clamp them, turn them left and right to loosen them and then lift up.

Be careful not to scratch the case while removing the pins. <sup>4)</sup>



- You can place a flat piece of metal on the case to protect it while maneuvering the pins.

If the pins are tight, you can use a pair of vise grips to clamp them. (that way you don't slip off the pin onto the case by accident) <sup>5)</sup>



- Clean the case deck and make sure the deck is free of debris or scratches.
- Clean any grease or oil residue from the underside of the billet base.
  - This is especially important in the areas where the seal will be contacting it.
  - Use brake parts cleaner or a similar solvent and wipe with a paper towel.
- Clean the seal in the same manner in all areas where it will contact the billet base.
- Put two seals into position in the underside of a billet base (the seals will normally hold up in the



base by themselves).

- You can put a few drops of super glue onto each seal to help hold them in place in the base if you choose.

(but this generally isn't necessary if you've got both squeaky clean).

- Lightly oil the pushrod tube in the middle where the larger OD starts.

Everything needs to be squeaky clean so the seals don't slide out of the base. <sup>6)</sup>



The seals fit snug in the base. <sup>7)</sup>



Oil the shoulders. This oil will get squeezed down by the seal. <sup>8)</sup>



- Stand up both pushrod covers side by side.
  - Obviously just one if you're doing it that way.
- Carefully slide the base and seal assembly over the tops of the pushrod covers.
- Push them down the covers, over the thick part of the covers, and down to about an inch from the bottom.
  - ( make sure you don't dump the seals off the end of the tubes)
- Now, make sure the seals are still in place in the underside of the billet base.

There is a tight fit between the tube, seal and base.

If the seal comes out of the base in any area during this step, remove it all.

Make sure the seals and base are clean and try again.

Two tubes at a time can be done. It just takes more force and both tubes vertical to each other. <sup>9)</sup>



One at a time is easier. Just make sure to hold the finished one good while doing the other. <sup>10)</sup>

Check that the seals are still in place. <sup>11)</sup>



- Carefully insert the tops of the pushrod covers up into the O-rings in the head at an angle.
  - Be careful not to cut or damage the seals with the lip on the tubes.
- Swing the bottom of the assembly over the lifters.
- Check seals one last time.

Add a little oil to the top and install them into the heads. <sup>12)</sup>



Swing them in and center the tubes over the lifter bore. Stop short of all the way down and make sure the seals are still in place all around the base.

Due to angles of the tubes and the way you pulled the base down, the seal(s) may be a little uneven. Just make sure the seals are inside the base at this point. <sup>13)</sup>

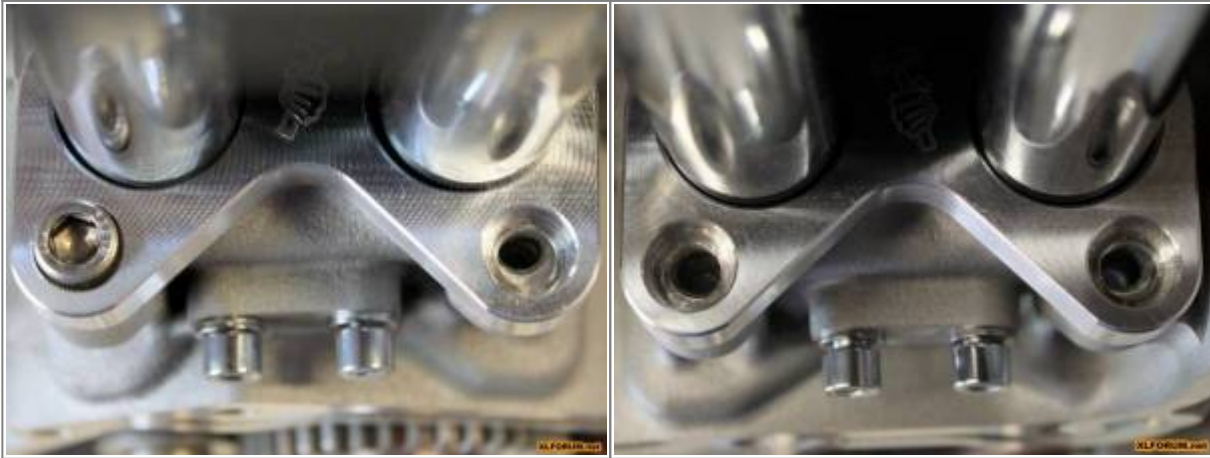


**Check the clearance between the tubes and cylinder fins before installing the bolts.**

On big cylinders, you may have to grind some off the fins to get a good fit between them.

(R) (fins 90" jugs had to be ground for tube clearance) (F) <sup>14)</sup>





Also check that the cylinder base gasket isn't interfering with the pushrod tube base. <sup>15)</sup>  
It could hang up on the gasket and potentially cause an oil leak.  
You may have to trim the cylinder base gasket to clear the pushrod base retainer.  
You can use the edge of the bottom gasket mating surface as a cutting guide.  
With a sharp ExActo Knife, cut the gasket along the outline of the cylinder base edge.

Trimming the base gasket. <sup>16)</sup>



- Push the base down onto the case deck and hold pressure on the base with one hand.
- Without releasing pressure on the base, install both screws and snug them down.
  - Once they're snugged down you can let go of the base and finish tightening the screws.
- The key is to never let the seal pop out of the bottom of the billet base.
  - If it pops out during this process, it'll get sandwiched between the base and the case deck and you'll have a leak.
  - As long as the seals stay in place, they will seal just fine.
- Repeat the process for the other cylinder.

Add Loctite (blue) to a couple threads on the bolts.

Hold downward pressure on the base until you get the bolts snugged up. <sup>17)</sup>



Torque to 80-110 in/lbs. Check the bottoms for evenness.

If you can't get a torque wrench on the bolts, snug them good plus a little more. <sup>18)</sup>



### Go To Technical Menu

1) , 2) , 3) , 6) , 7) , 8) , 11) , 17)

photo by Hippysmack

4) , 5) , 9) , 10) , 12) , 13)

photos by Hippysmack

14)

photos by DonChicago48 of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/frame-mount-evo-sportster-talk-1986-2003-models/148266-building-a-90-inch-sledge-hammer/page21?t=1610587&page=21>

15) , 16)

DonChicago48 of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/frame-mount-evo-sportster-talk-1986-2003-models/148266-building-a-90-inch-sledge-hammer/page17?t=1610587&page=17>

18)

Photos by Hippysmack



From:

<https://mail.sportsterpedia.com/> - **Sportsterpedia**

Permanent link:

<https://mail.sportsterpedia.com/doku.php/techtalk:ref:engmech02f>

Last update: **2024/01/14 21:04**

