

## Bosch VE pump head reinstallation how-to.

I will show you how to put your Bosch VE type injection pump head back on the pump body and how to install all the parts inside the pump. You most likely had leaking seals on your pump and pulled the head off to put a new seal on and everything fell inside and now you have a mess on your hands. This how-to shows the pump head and associated parts only. The injection quantity parts have been show in other threads.

First, the only way to do this is take the pump off the car. Then take the pump cover and the injection quantity body off the pump if it is not already apart. Since you most likely screwed up Diesel geeks instructions, or you did not even try that and you pulled the head off yourself, all you have is a bunch of loose parts inside your pump, so dump them out and let's get started.

**Warning!!!! This is how I did my pump! It worked. I will not be responsible for what you do to your pump. I am not a Bosch service center, I am just a guy with the same problem you have. If you think IQ means intelligence quotient or you think bio is brief history of a persons life, or you think that a TDI timing belt job is the most difficult mechanical job you can think of, then stop right here. This is not for the average car owner. It will take lots of patience and you must be meticulous and have all the parts in their right place. If not you will be looking for a new pump. You have been warned!**

Tools you will need:

Coffee can (injection pump work stand)

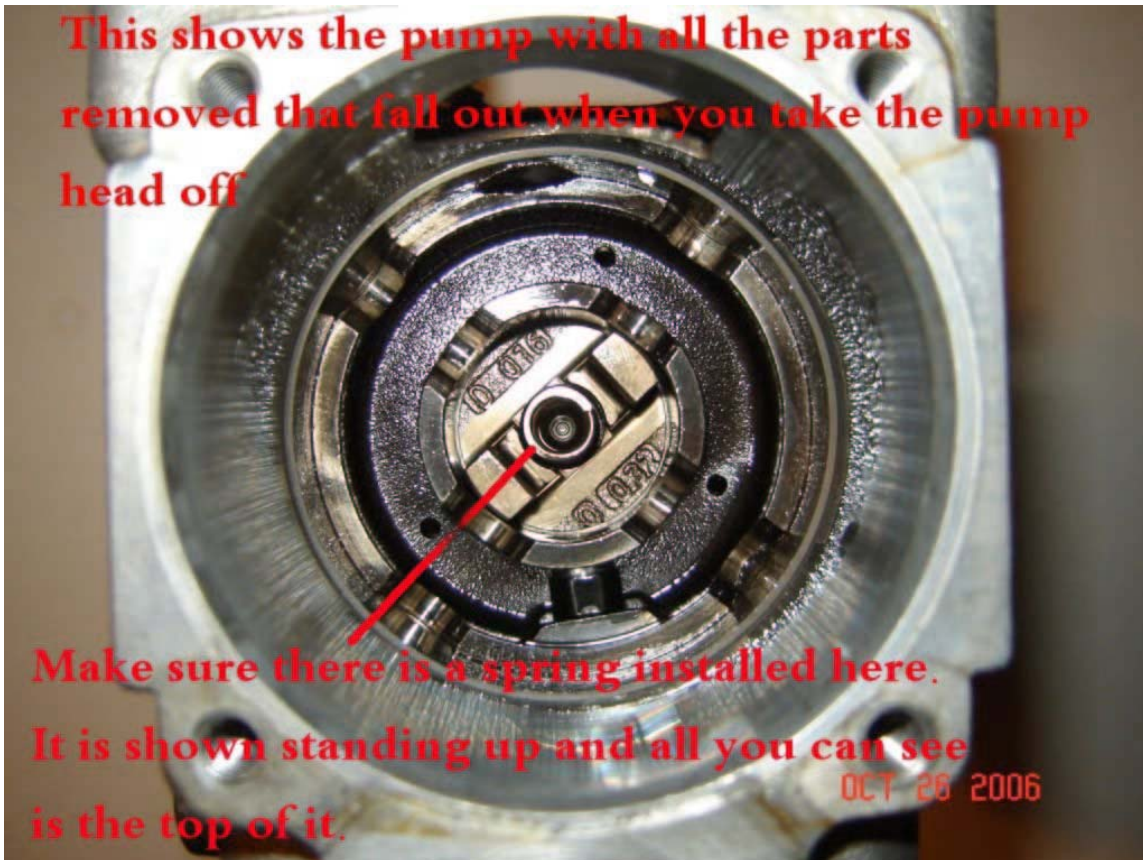
Petroleum jelly

A small pick

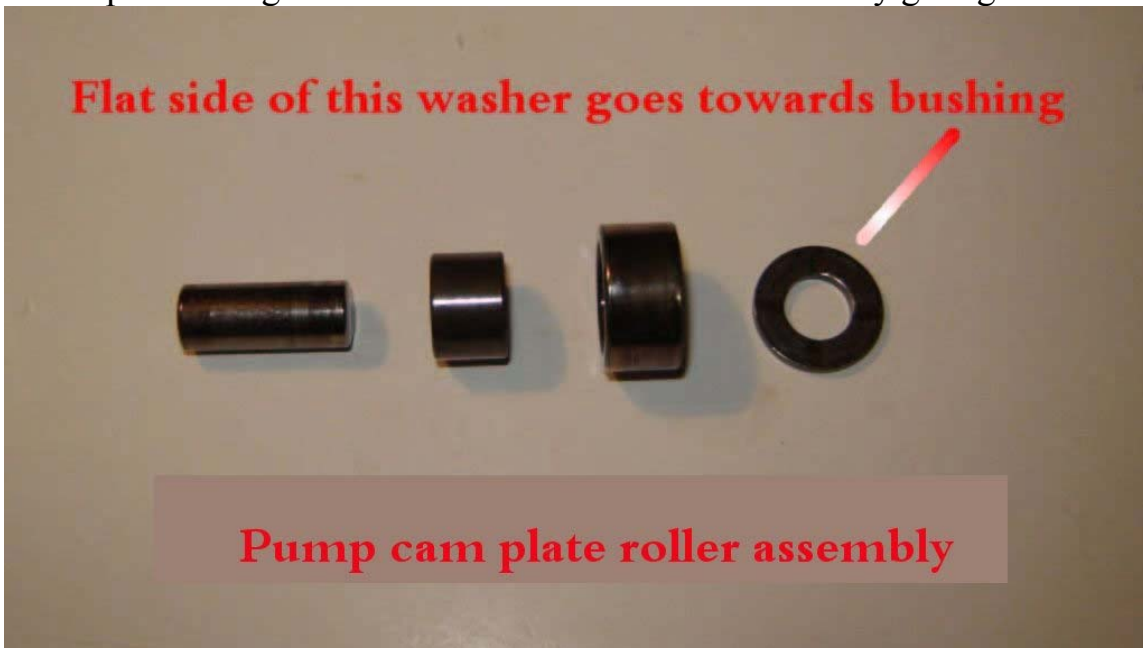
Patience

Plus the tools you would need for the seal replacement of the injection quantity body.

Get your work stand (coffee can) and put the pump on top of the can with the pump shaft pointing down into the can. Your pump should now be standing up with the open end of the pump pointing up so you can work on it. This is a shot of what you should have inside your pump now. What is left inside does not come out without taking more things apart. There should be a spring in the very center of the pump standing up. That spring did not come out of my pump. If it did on yours now is the time to put it in the pump.

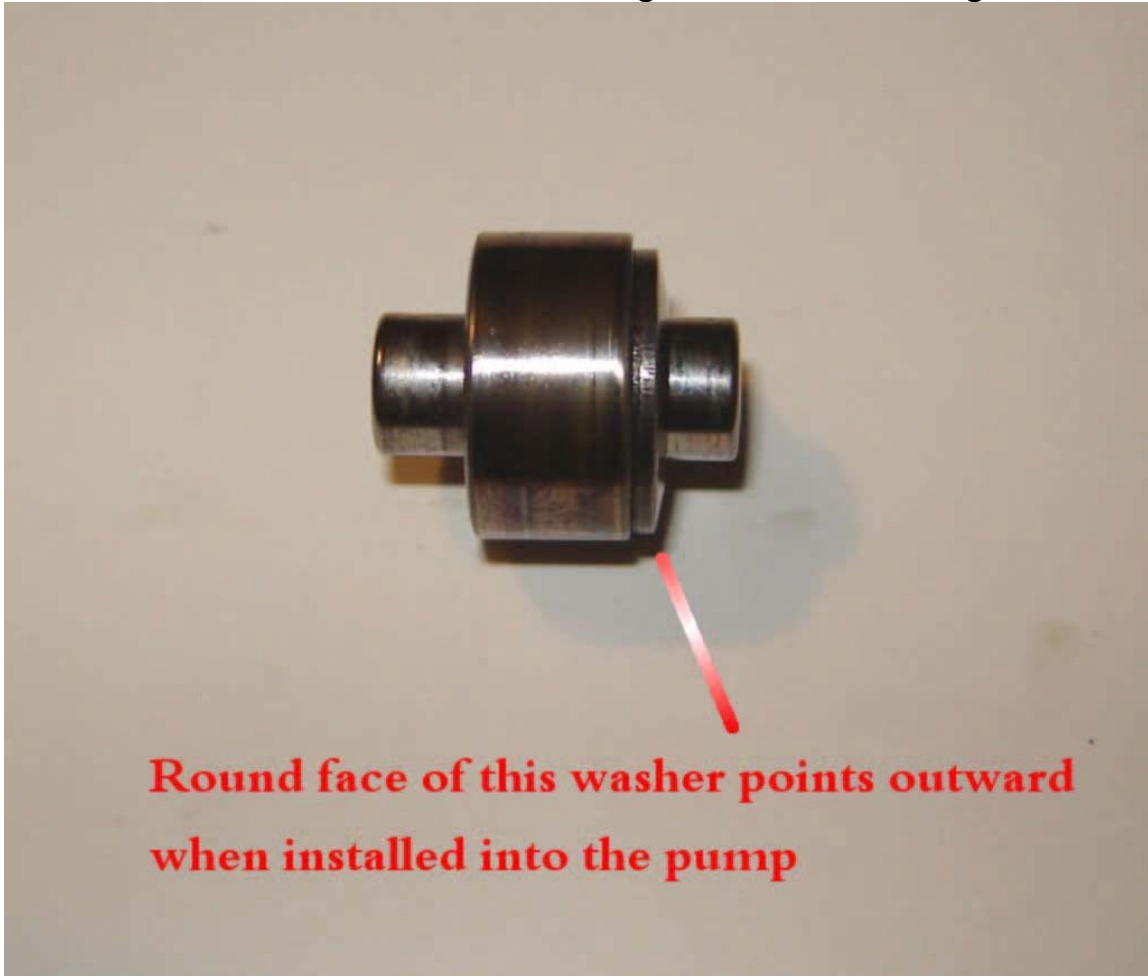


Find all the parts for the rollers and assemble them like this. I would not mix the parts up. Hopefully the assemblies are still together and you can just pick them up and straighten them out. But if not this is how they go together.



When completed you should have 4 roller assemblies that look like this:  
Note: There is only one washer looking part. It is flat on one side and

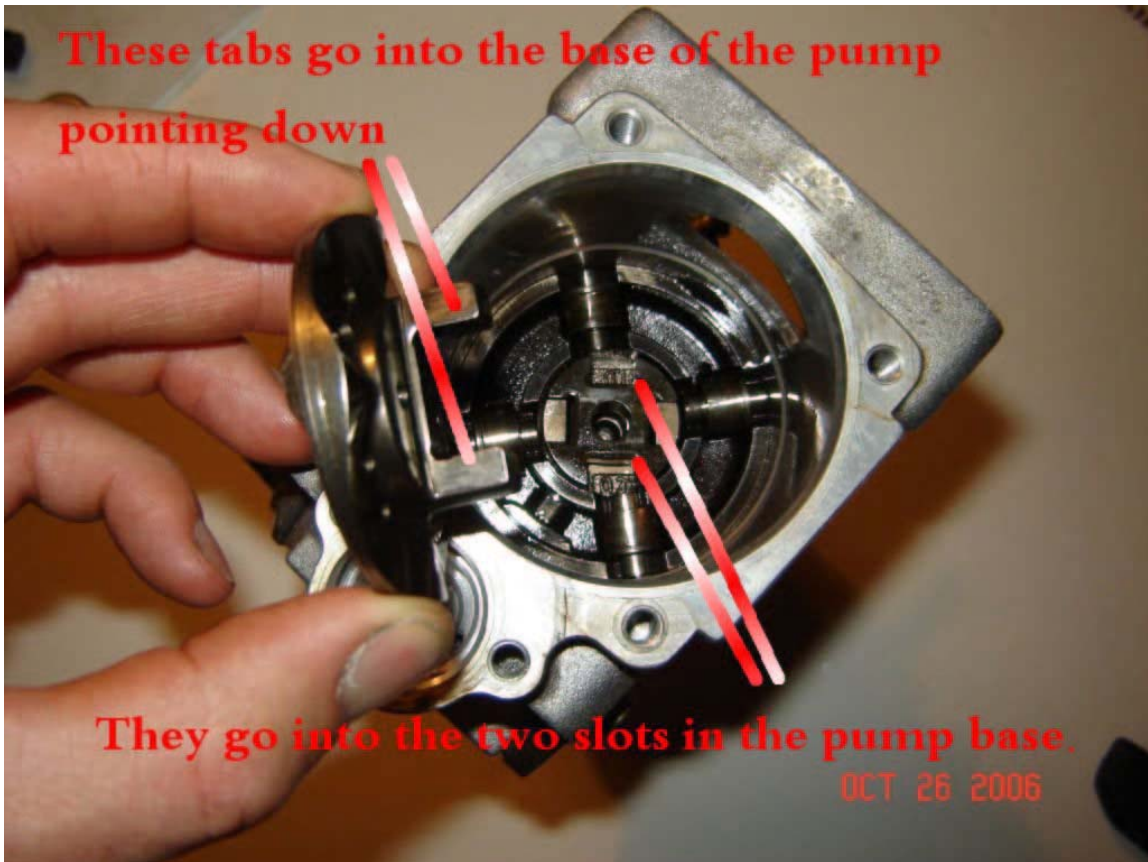
rounded on the other. The flat side should go towards the bushing.



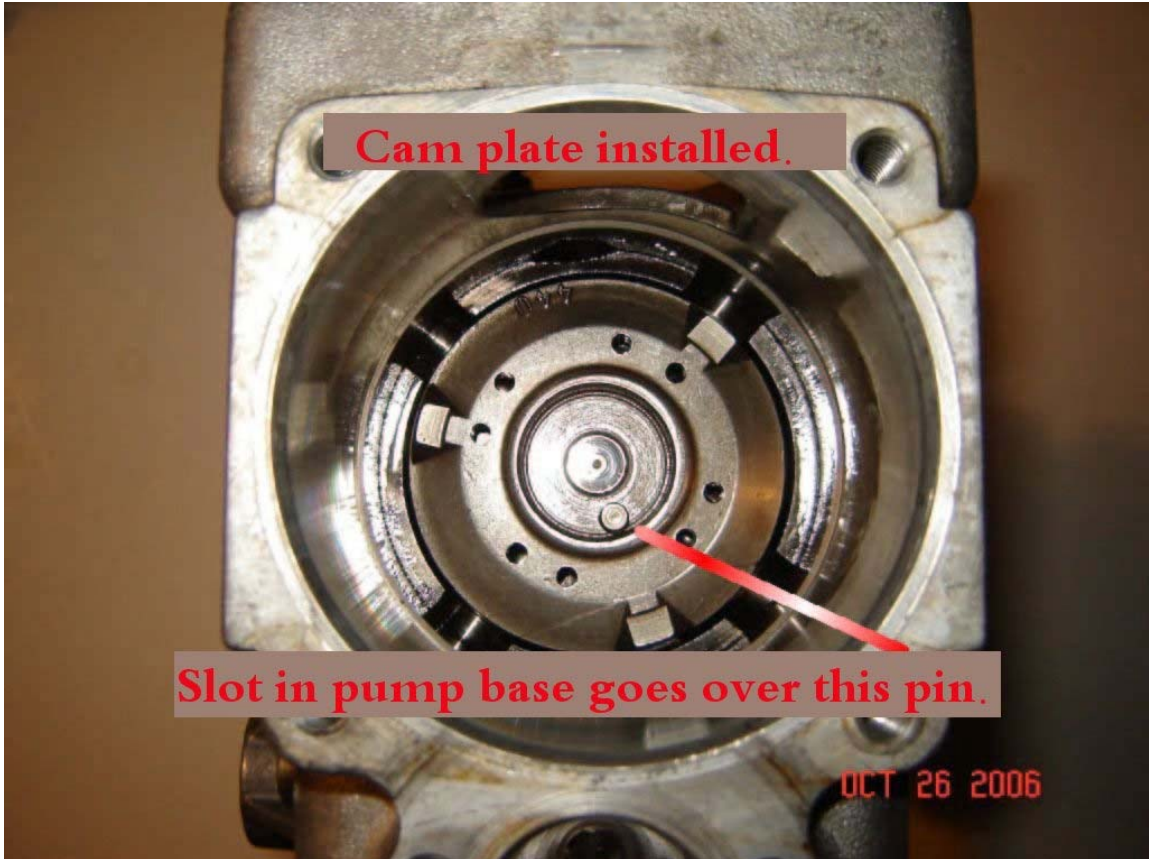
Next you put them into the pump as shown. The washer should stay next to the bushing, and it should point to the outside of the pump. You can also install the piece that looks like a funny cross into the center of the pump. It is outlined in red in the picture below. There is a spring that did not come out of my pump that it goes over, so once installed you can push down on the cross piece and will spring back at you a little bit.



Next you put the cam plate in. It has two tangs that go into the cross piece you just installed. Don't worry if you don't see how it goes from the picture. It is self explanatory when you put it in the pump.

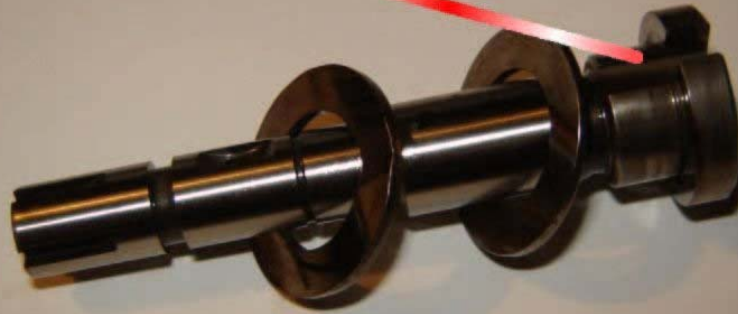


The cam plate should now be resting on top of the rollers as show like this:



On top and in toward the center of the cam plate there is a pin sticking up. The pump shaft has a slot cut into it. That slot goes over the pin sticking up. The pump shaft parts look like this:

**This slot must be inserted over the pin in the  
cam plate.**



**This shows the pump shaft and washer  
stack up.**

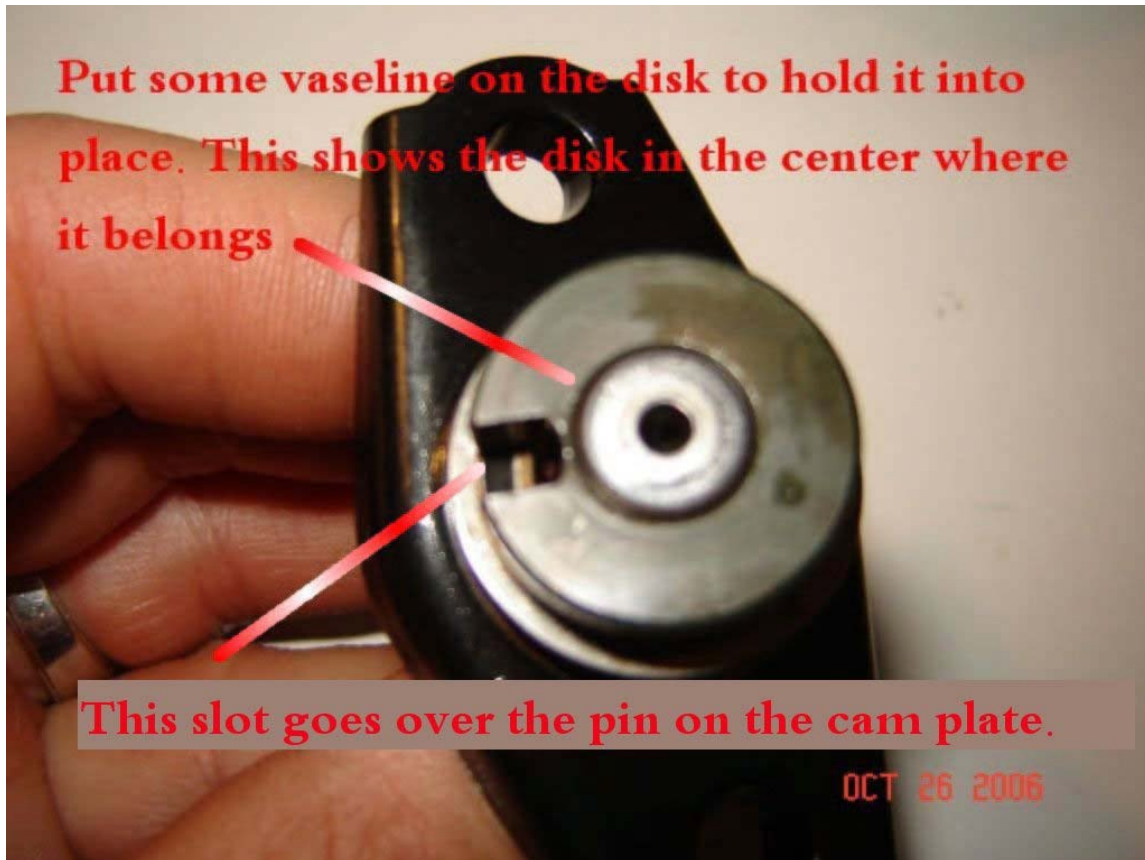
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Before you drop the shaft into the pump look at the bottom of the shaft. It has a disk in the center that the shaft rides on. Put a little bit of petroleum jelly on the disk and put into the center of the shaft. This disk will be going down into the pump first. You don't want the disk to fall out! You can't see if it does, so make sure that it is held in place with the petroleum jelly!!  
Note: In the picture there is the pump spring base (part with two holes in it) installed over the shaft. The two washers on the pump shaft go between the end of the shaft and the spring base.

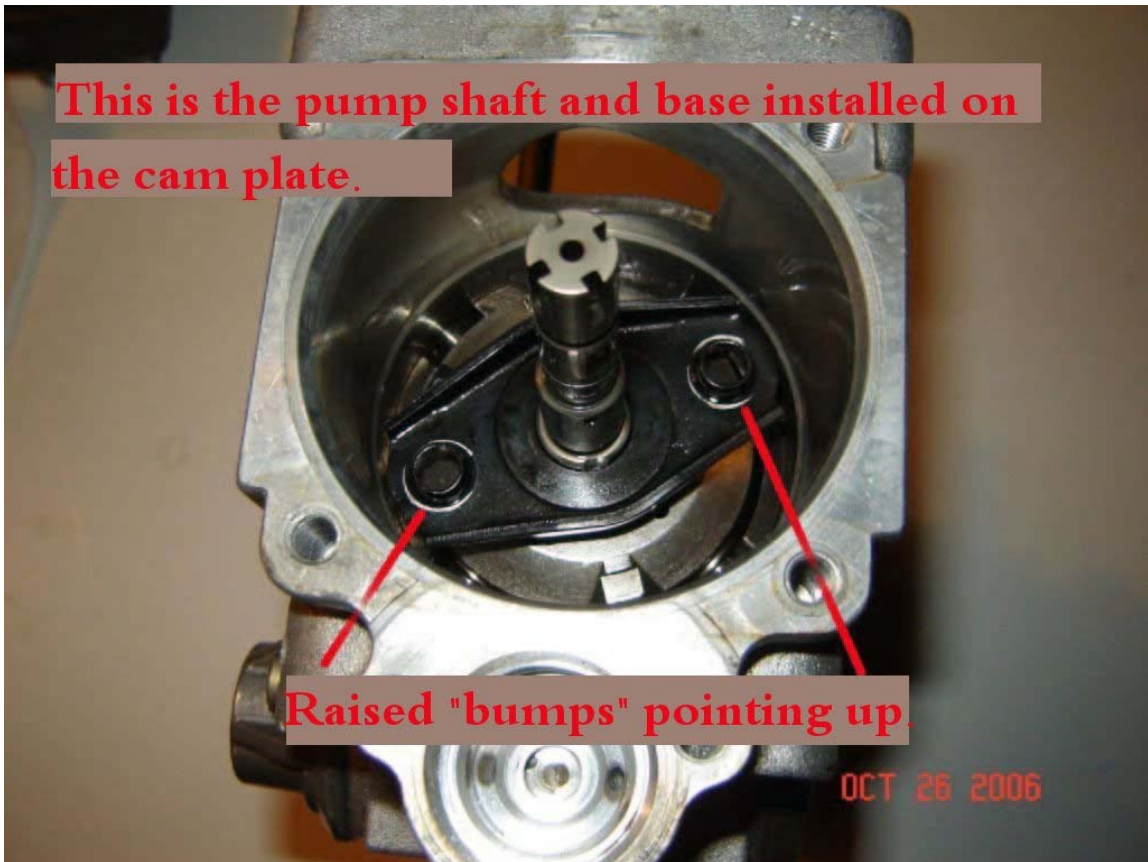


This is what the pump shaft should look like just before you put it in the pump:





Drop the pump shaft into the pump. It goes on top of the cam plate, slot in the shaft over the pin on top of the cam plate. Note the spring base has two holes in it. There is a raised part around each hole. The raised bumps should point up as shown:

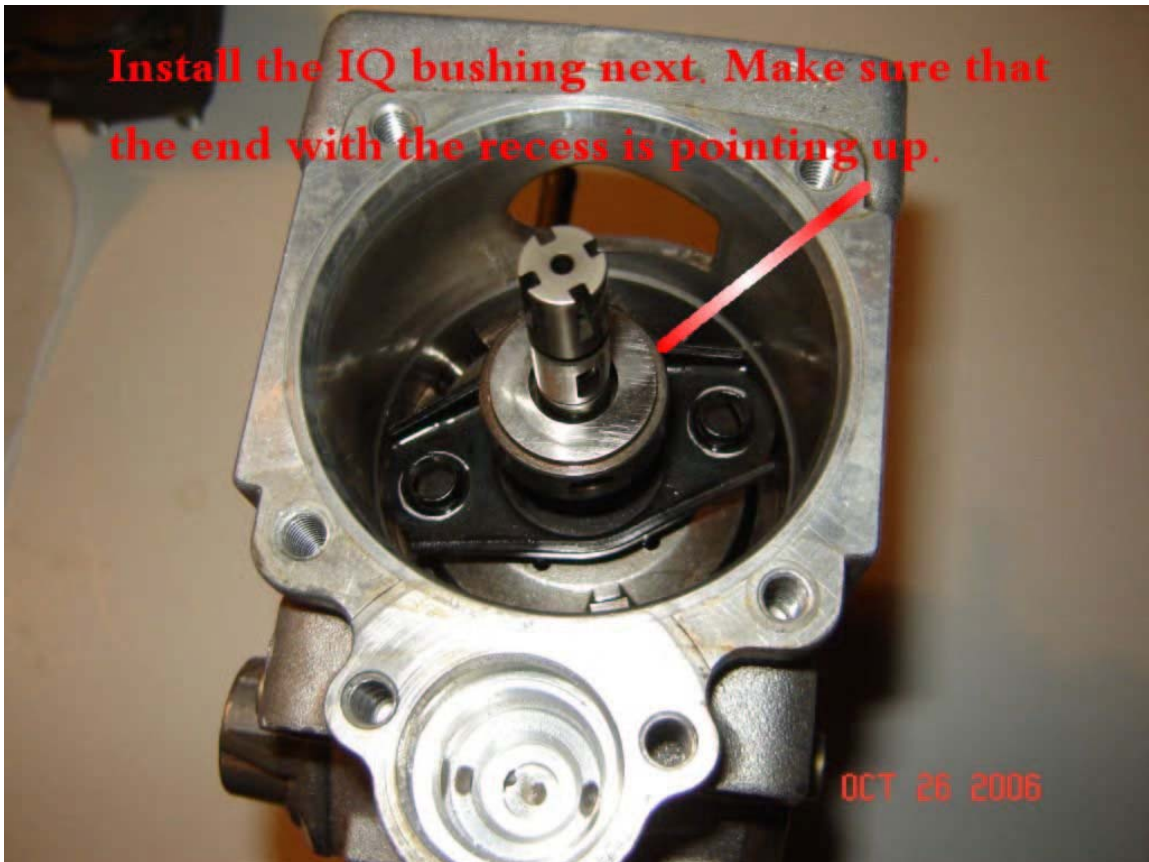


**This is the pump shaft and base installed on the cam plate.**

**Raised "bumps" pointing up.**

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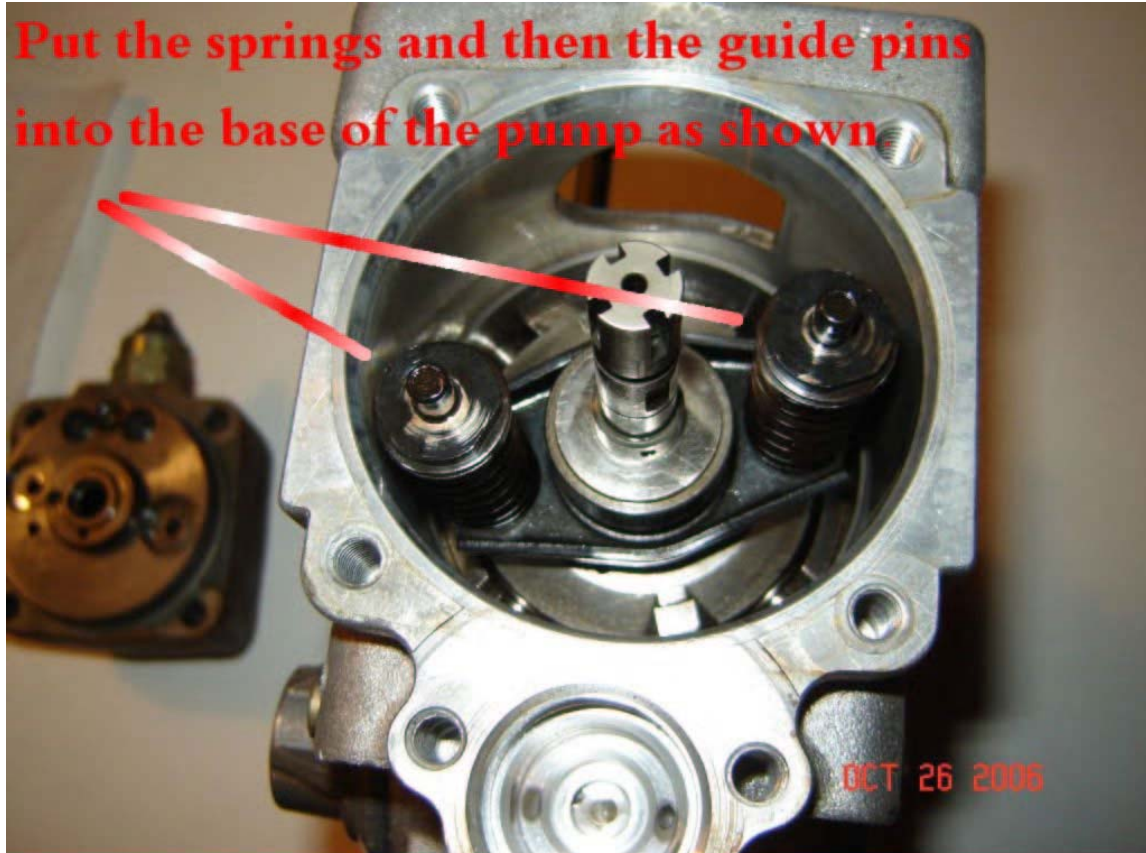
Put the injection quantity bushing onto the pump shaft. There is a recess or a groove on one end of the bushing. It goes up and the pump should look like this:



Next we need to install the pump guide pins and spring assemblies. They go together like this:



So you will take the two springs and put them on top of the spring base plate over the two raised bumps. Then you will insert the guide pins shown above into the center of each spring that is standing up. Your pump should now look like this:



Now comes the tricky part. You have to put the pump head on the pump, and get the top of the guide pins into their recesses in the pump head. This is showing the guide pins you just installed into the pump sticking up out of the pump head. This is shown so you can clearly see where the pump guide pins go when you put the pump head on. But remember the guide pins won't be on the pump head when you insert it on to the pump body!!



Put your new o ring on the pump head. Put some petroleum jelly on it. Now go take a break. Walk away from this for few minutes and relax! You are going to need the patience from the list of tools above next. Pick the pump head up, put it on top of the pump gently. The guide pins are going to stop the pump from going all the way down. It should look like this now.

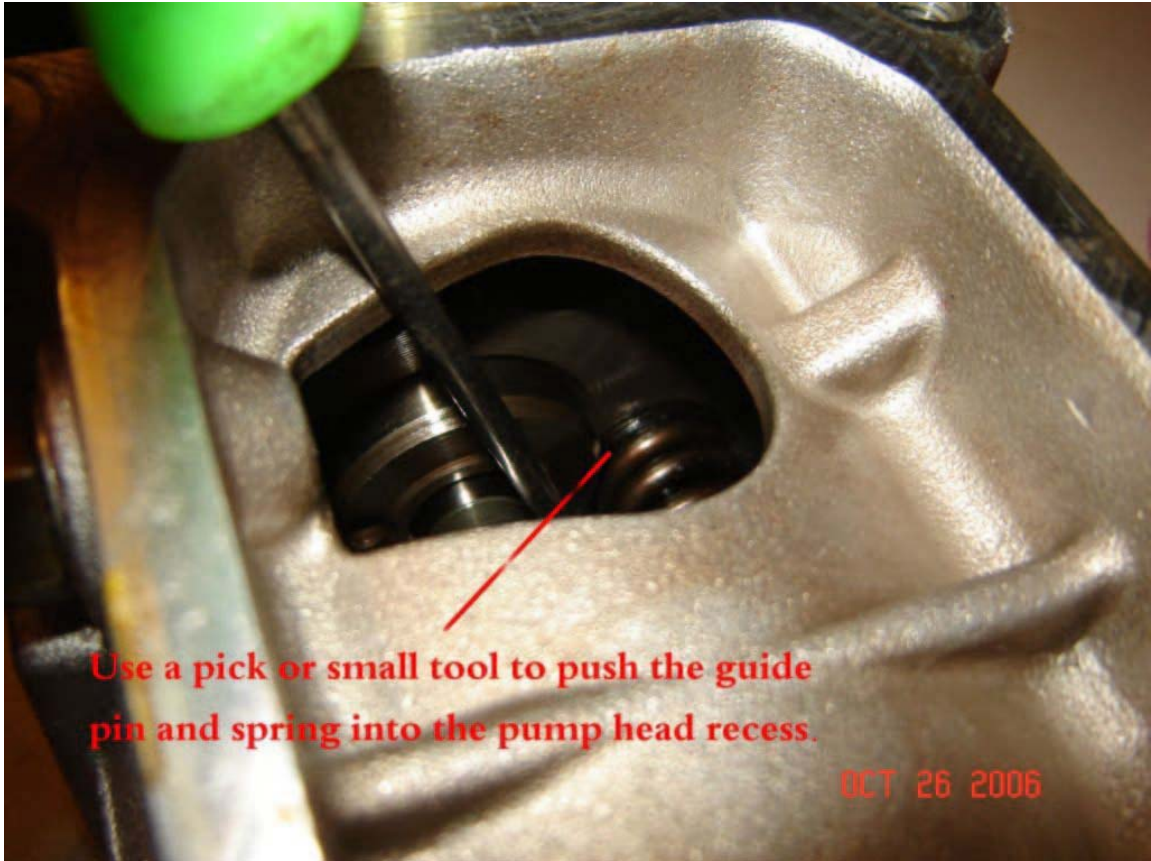


**Put the pump head on. You can see that the guide pins did not go into their recesses.**

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The trick is that you need to get the top of the guide pins into their recesses in the pump head. You need to put some pressure on the pump head to hold everything together. I took the pump off the work stand (coffee can) at this point. I held the pump in my left arm like a baby with the pump head away from me. Now you can use your hand to hold the pump head onto the pump and try to get the pump guide pins into their recesses in the pump head. You can now use the pick, small screw driver or something similar to push the springs around until the guide pins go into their recesses. Like this:

This shows using a pick to push the springs around until both of them drop into their recesses:



This picture shows the springs resting in their recess.



**This picture shows the pump spring on the other side of the pump. You can see that it is sitting in it's recess.**

At this point the pump head will still be sticking up out of the pump body. When you put the bolts that hold the pump head back on they will compress the springs. Tighten the pump bolts in a cross fashion, a little at a time or the pump head will be cocked into its bore and will hang up.

At this point you need to finish the job by installing the injection quantity body and cover. Simple wasn't it? That procedure is found on other threads on the forums.

After you put the pump back together put the woodruff key and pulley on the shaft and put the nut back on to the pump. Lay it on its side and rotate the pulley in the direction that the car would normally run, (Clockwise facing the pump shaft) Turn the pump by hand a few times. It should get tight as you come up on the pressure stroke, Then get really easy to turn and so on. Pick the pump up and shake it. Do you hear any parts rattling around? You want to make sure that you have all the internal pieces where they belong. If not and you turn you car over and something comes out of place



you will destroy your pump!! **YOU HAVE BEEN WARNED AGAIN!!**  
Did I mention what will happen if something comes out of place when you  
start your car??