

how to making your own springs

I've been making custom springs for my 16 tooth ratchet and dog kit for the 9500SS, so I figured I'd take this opportunity to write up a how-to on winding your own springs from music wire or spring wire. I used 0.021" stainless spring wire for these springs because its the same size as the wire on the original spring.

Things you will need: wire, mandrels, needle nose pliers, and a way to hold the wire while you are winding it. I use a bench vise with angle aluminum between the jaws to apply tension to the line when winding. The mandrels will need to be smaller than the desired diameter of the spring, because it will "spring" back.

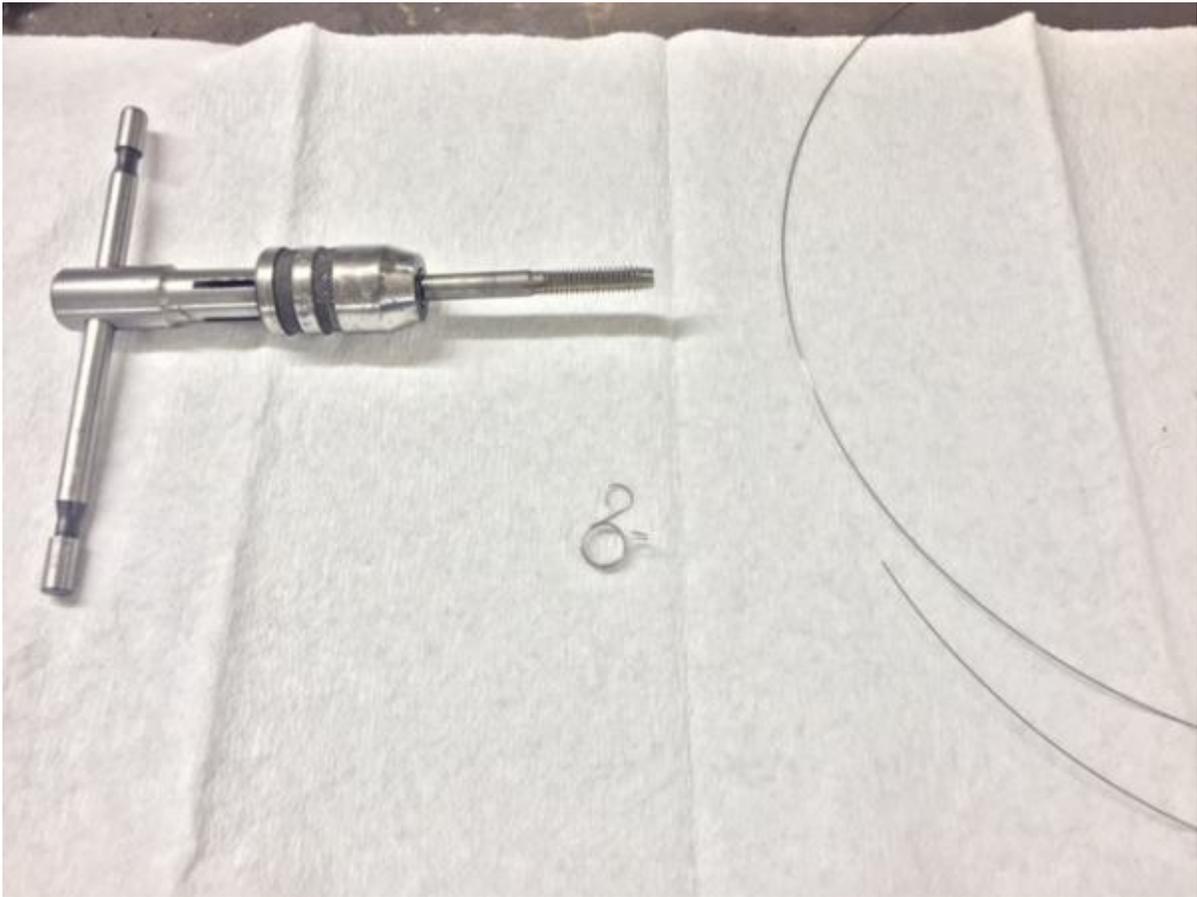
I found that a t handle tap holder and a tap is perfect for holding and winding the spring. The gap between the jaws is perfect for holding the end of the wire, and the round shank of a tap makes a nice mandrel.

Picture 1: tap holder and tap, the sample spring, and a length of spring wire.

Picture 2: close up of the spring I'm using as a sample.

Picture 3: piece of spring wire, with a 90 degree bend in one end

Picture 4: showing the gap between the jaws of the tap holder where we will put the bent end of the spring wire.



001.jpg (93.64 KB, 640x480 - viewed 1 times.)



002.JPG (64.26 KB, 640x480 - viewed 1 times.)



003.JPG (94.72 KB, 640x480 - viewed 1 times.)



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[Re: how-to: making your own springs](#)
« Reply #1 on: March 22, 2015, 07:59:47 PM »

[Quote](#)

Once you have a 90 degree bend in the end of the wire, insert that into the gap between the jaws of the tap holder.

Then clamp the other end of the wire in the vise. You want to be able to pull the wire through, but it should take a good bit of force.

Apply tension to the wire, and start rotating the tap handle to wind the coiled part of the spring. Keeping heavy tension on the wire when winding helps keep the coils even, and reduces the spring back once you let off the pressure. The spring will unwind, and the coils will expand when you let off the tension, so you will need to wind more coils than on the sample. I had to go nearly 5 turns to get 3 coils without tension on these springs.

It takes trial and error to determine the size of mandrel you need, as well as the number of coils to achieve the desired result. Luckily its not hard, and spring wire is very cheap.

Once you have the coils right, cut it from the long wire you started with, leaving some excess on the tag ends. You will need the excess for making the extra features on this spring.



005.JPG (101.93 KB, 640x480 - viewed 1 times.)



006.jpg (93.29 KB, 514x640 - viewed 2 times.)



007.jpg (82.46 KB, 490x640 - viewed 2 times.)



 008.jpg (111.04 KB, 614x640 - viewed 1 times.)

« Last Edit: March 22, 2015, 08:11:05 PM by Three se7ens »

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 **Re: how-to: making your own springs**
« Reply #2 on: March 22, 2015, 08:01:32 PM »

 [Quote](#)

Once you have your coil completed, its time to start bending the tag ends. Use the needle nose pliers to hold the wire, and bend it over by hand. Bending more than once in the same spot severely weakens it, so try to avoid re-do's here.

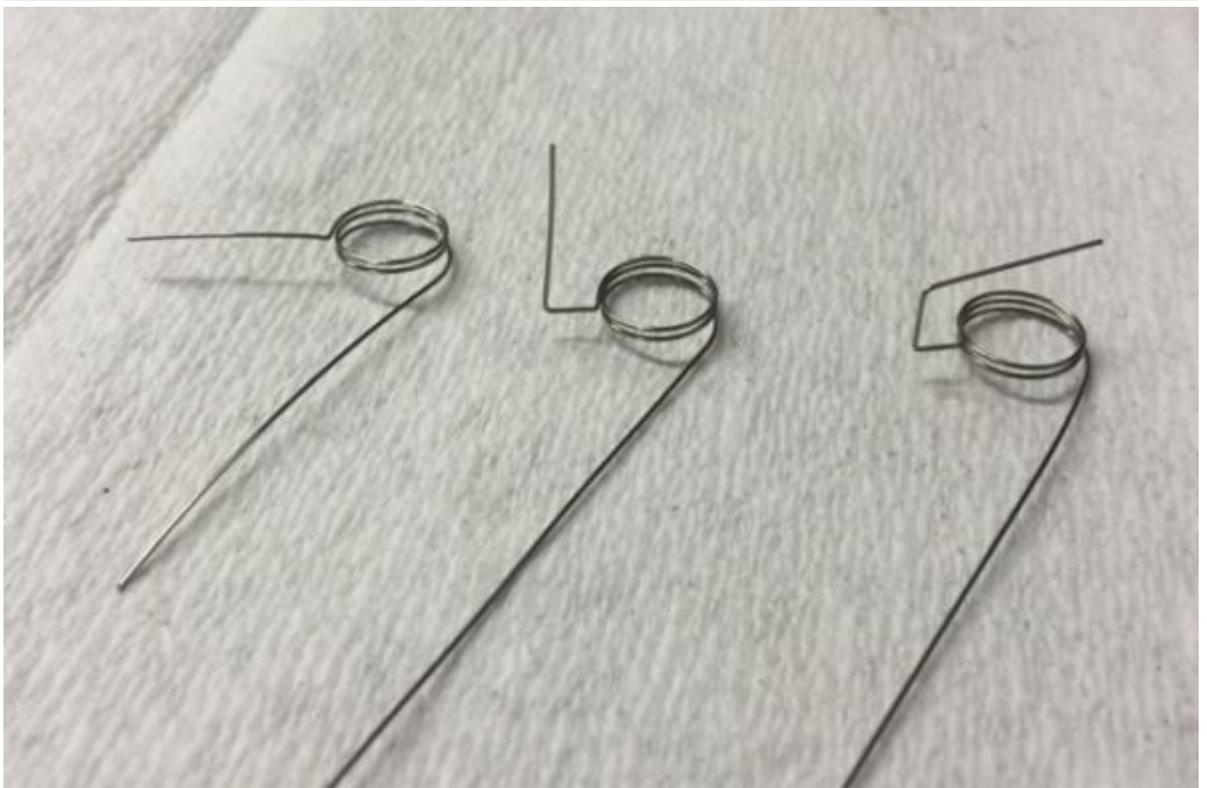
You can see the stages of the bends on this end in these 3 springs.

Posts: 423



Then we can move onto the other end. I marked where the small loop on the end should start, and clamped another tap in the vise to use as a mandrel. Using my hands, I pinched the wire around the mandrel with one hand, and used the other to bend the tag end around. Then I used the needle nose pliers to adjust the loop to the proper size.

Once both ends are bent to their final shape, trim the ends to length, and you are finished.



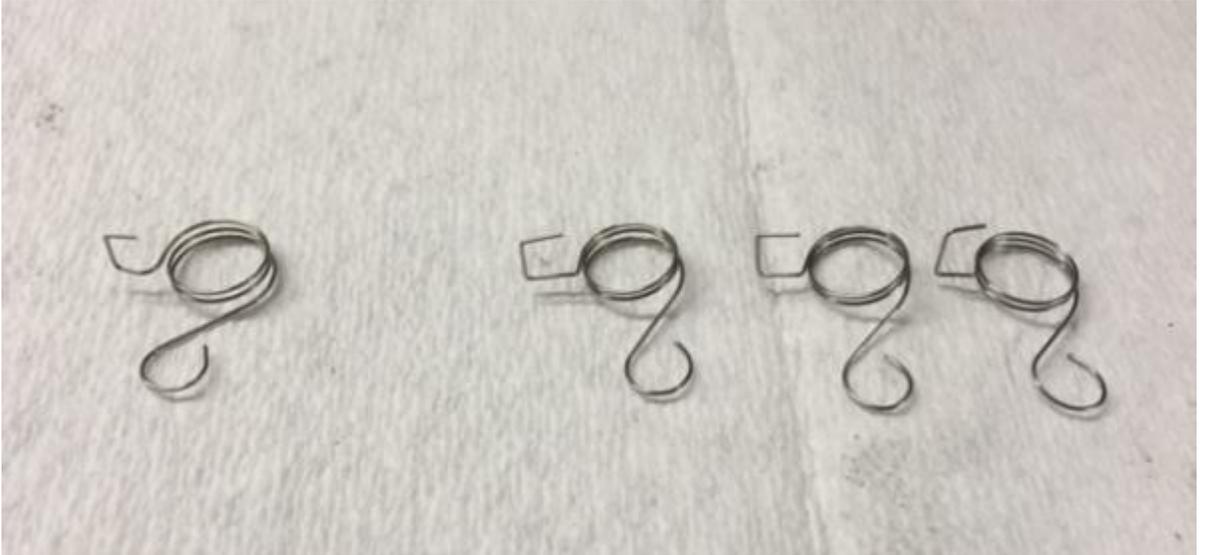
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