

eMate spring issue

Root cause

Problem

- ✦ A nicely behaved set of springs.
- ✦ But, with the potential for disaster.
- ✦ Constant use of the hinge will allow one or both spring ends to unseat allowing it to puncture the ribbon cable.



The problem...

- ✦ The spring is actually two springs
- ✦ Either one can move past the retaining screw



The solution...

- ✦ Replace with a single spring that loops around the retaining screw.
- ✦ Start by dismantling all the hinge parts.



Fabrication

- ✦ Obtain a roll of music wire.
(Precision brand 039-21045
music wire) Amazon



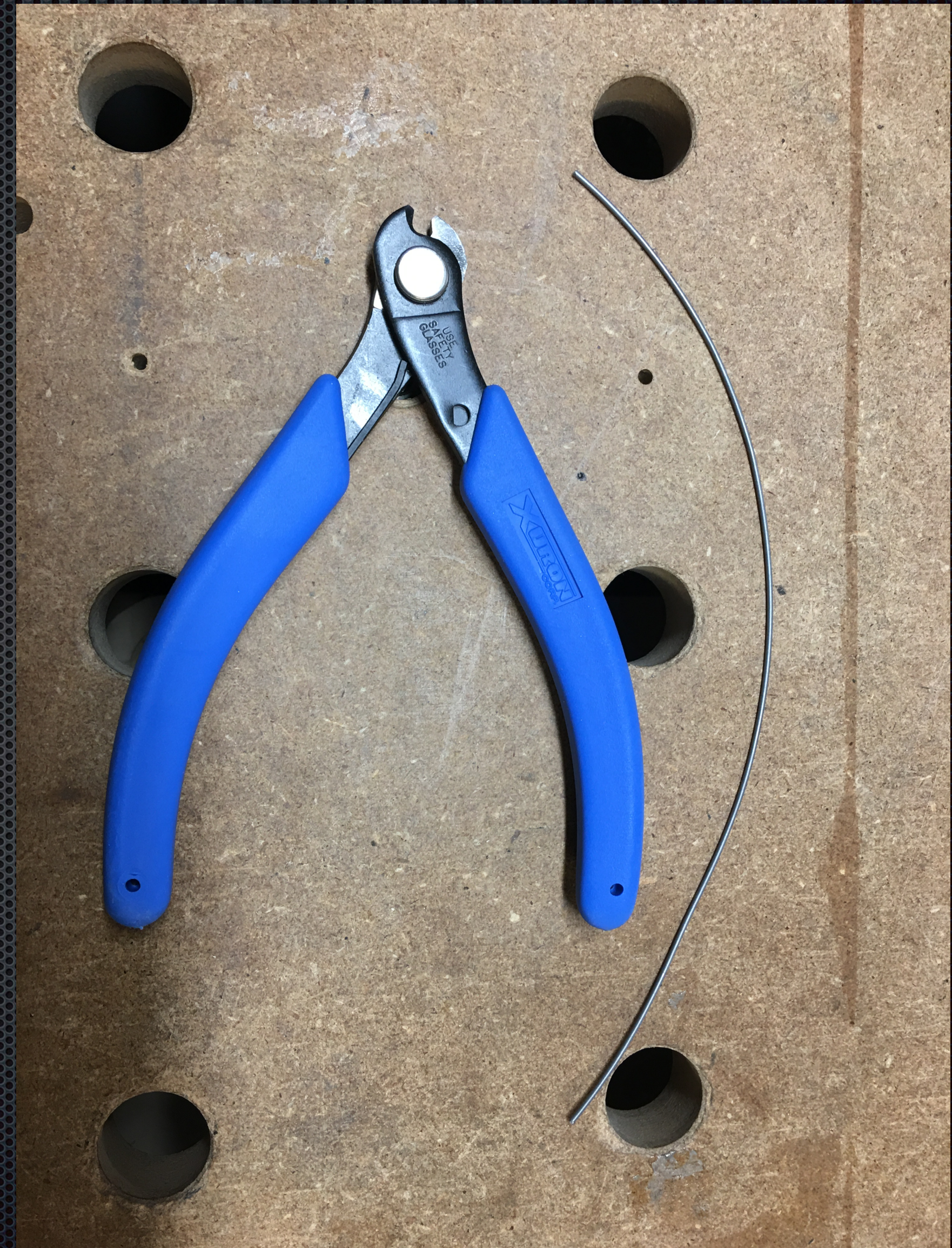
Fabrication

- Use .045" (1.143mm) thick music wire.



Fabrication

- Music wire is high-carbon spring steel.
- You need the correct wire shears. (Xuron 2193 wire shear) Amazon
- Wear safety glasses.
- Cut approximately 8" (20cm).



Fabrication

- ✦ Bend the wire into a hairpin and fit into the block under the screw and washer.
- ✦ Use a 3.5mm drill to act as a mandrill for bending.
- ✦ Actual shaft is 4mm.



Fabrication

- ✦ Using a vice to assist, bend wire around the drill as far as you can.
- ✦ You may have to reposition a few times to get it tight.



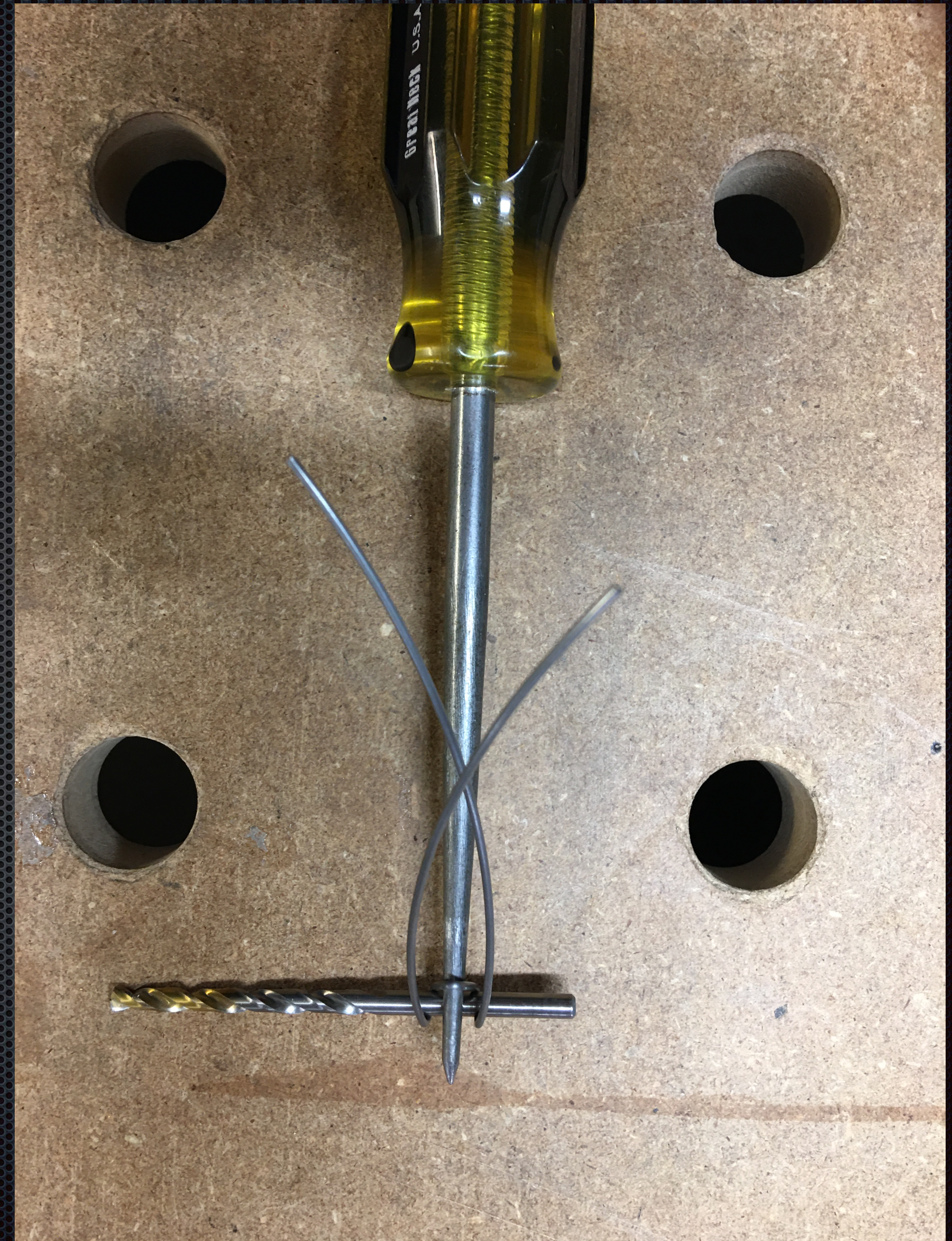
Fabrication

- You should end up with something like this.



Fabrication

- ✦ Then, using an awl to keep the loop from collapsing, bend the wire around the drill one turn on each side.
- ✦ The turn ends on the outside on both sides.



Fabrication

- You should end up with the spring formed like this.



Fabrication

- ✦ Using the wire cutters, trim as close to the loops as you can.
- ✦ Wear safety glasses.



Fabrication

- You can file or grind the wire ends to remove any sharp edges.



Fabrication

- ✦ Fit the spring into the block and line up ready for the shaft.
- ✦ Loosen the retaining screw slightly and push the shaft into the spring, rotating as you go.



Fabrication

- When the shaft is fully engaged, fit the c-clip to the end and apply a small amount of grease to the spring coils.



Fabrication

- This is the orientation of the left and right hinges.

