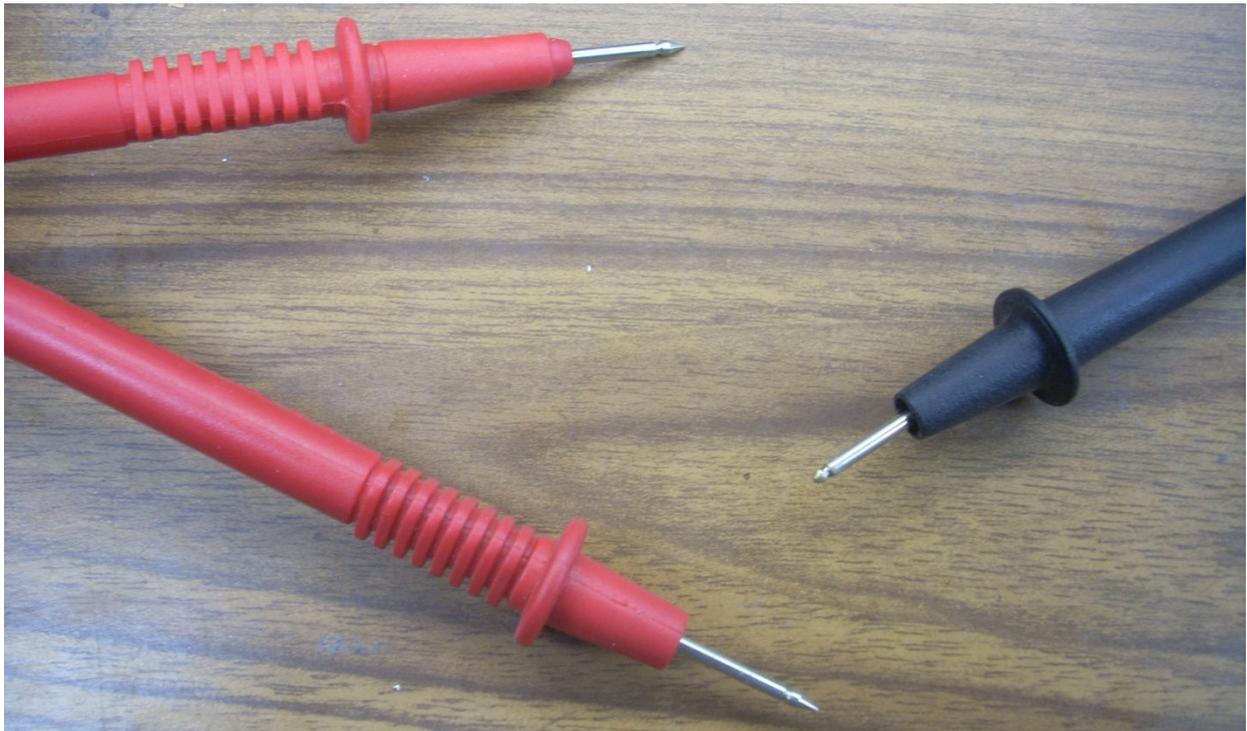


Molded Probe Tips

By R. G. Sparber

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Lots of Probes but no Protective Tips



I have a large collection of very sharp probes but I keep losing the tips.

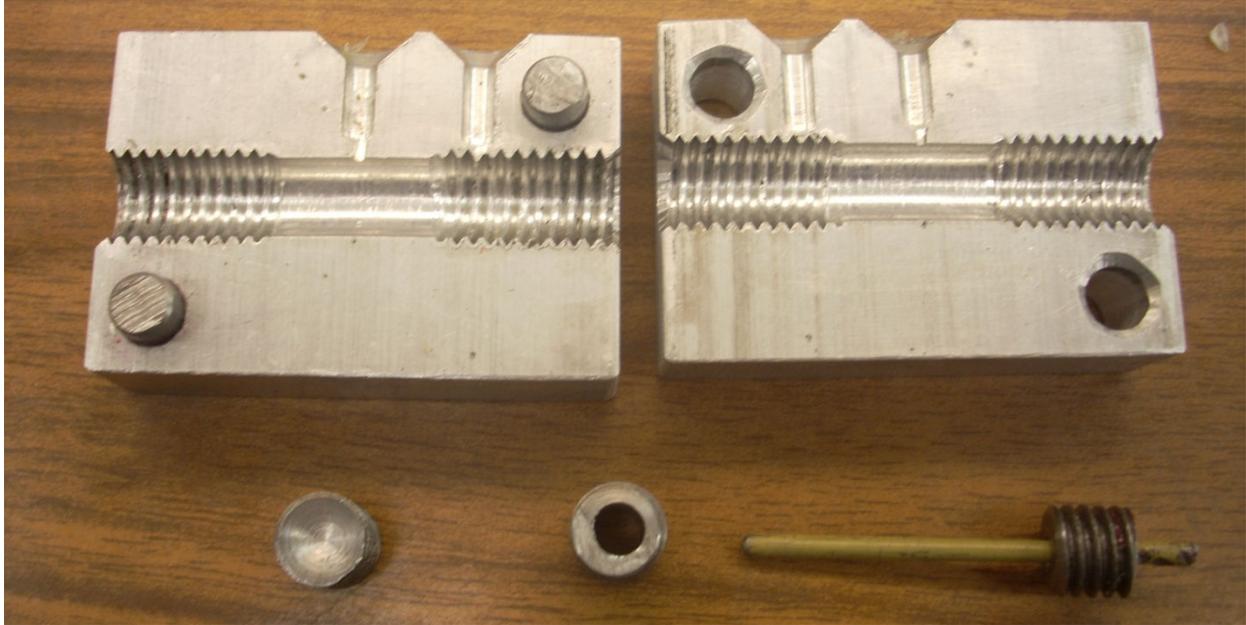


Here is one of my last store-bought tips. I don't have any red ones left.

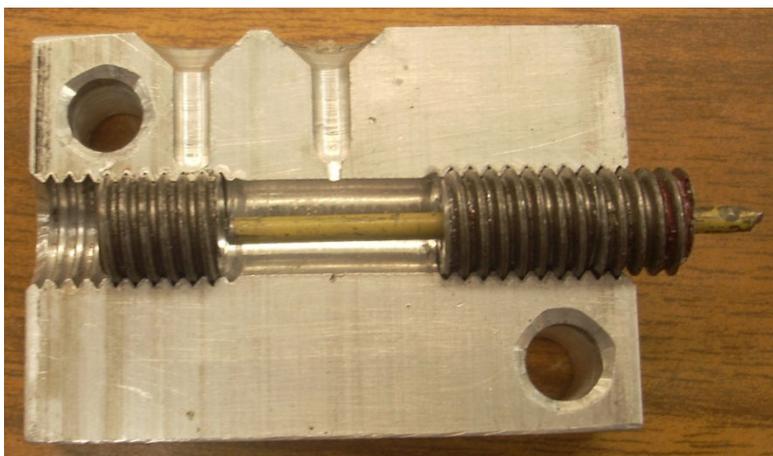
Seems like a great use for my new Gingery Injection Molder!

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The Mold



I am reusing my wire splice mold body and just had to make some new inserts. On the right is the mandrel that will form the hole which will take the probe. I'm using some coat hanger wire. In the center is a sleeve that will form the body's reduced diameter. On the left is the top of the body. I used a 3/8" ball end mill to cut the end.



The mold is assembled, clamped and ready to go.

Here we have the inserts in position.



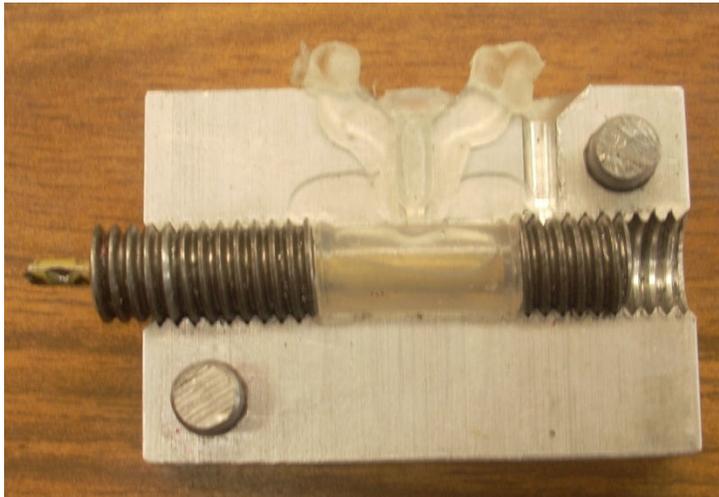
An Aside: Dealing with Polypropylene Pellets



Before I can inject molten plastic, I must first load my machine with polypropylene pellets. These pellets do not pour easily into the heating chamber. They just stick to the opening. My solution is to scoop up some pellets in this rectangular box. I then heat the box to around 400° F so they partially melt and stick together. The result is an easily managed bar. I can drop sections of this bar into the chamber with little fuss.

My next improvement to this process will be to form rectangular boxes out of aluminum foil on a cookie sheet. Then I can batch form many bars at the same time plus have much better control of the temperature.

My First Molding of the Probe Cover



I don't always get the threaded inserts properly aligned. This causes a small gap between the blocks. You can see the result here. All around the sprue is flash. Not a big deal and in fact, I'm amazed that my beginners luck has held out.



You can now clearly see the flash.

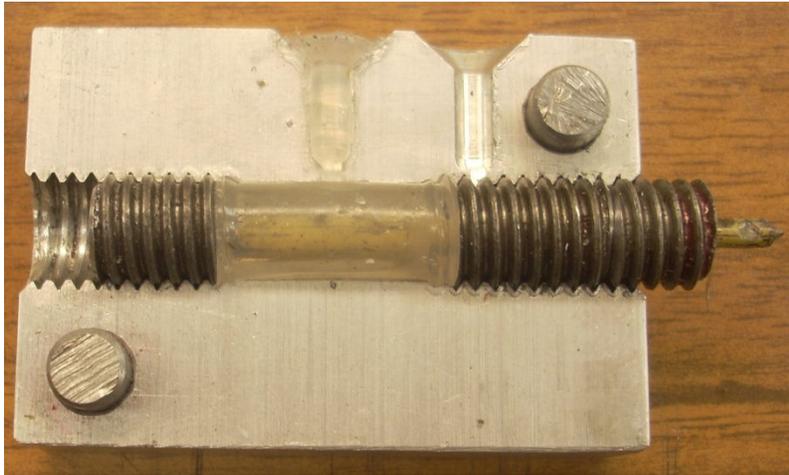


The plug is now exposed. Removing the flash takes just a few seconds with diagonal clippers.



Clearly the probe tip does not look store-bought but it does get the job done and I can now even afford to lose a few of them.

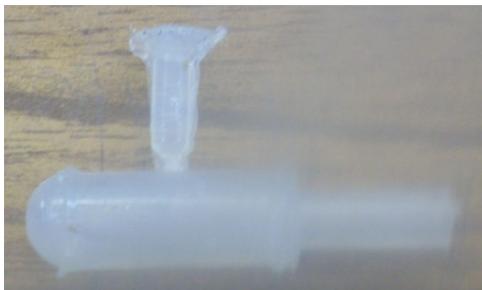
My Second Molding of the Probe



This is more like it. The blocks closed tight and there is no flash.



Nice clean lines this time.



My protective plastic bag got in front of the lens of my camera so it looks a bit blurry on the right.



And the finished probe tip in place.

Lessons Learned

Most of what I learned with this project is how easy it was to make the mold. I was able to reuse the blocks. These blocks have now been used to make a number of different parts. I am using threaded rod for the inserts so it is just a matter of drilling out the centers. It took about 30 minutes to make the inserts, 10 minutes to warm up my injection molding machine, and 30 seconds of heat time for the polypropylene. I am running at about 180° C.

Your questions and comments are welcome. All of us are smarter than any one of us.

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