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Review of the new BURMASTER Pen with Replaceable Tips

I've used several different types of burners, pens, and tips over the years. One thing I was sure of was that I never liked any of the replaceable tip wire-type burners. The problem with the ones I've used was that they had a friction-based contact mechanism. This means that the contact between the wire of the tip and the pen was created by pushing the wire of the tip into small holes of the end of the pen and the wire would make contact with the pen contacts.

This type of a system works alright for a while. But once you've pushed the wire tip into the pen several times, it becomes loose. With this type mechanism, both the pen contacts and the wire tip grate against each other, filing material away from each other. Material designers know this and usually try to avoid the grating contact of materials of similar density.

Now, right before Christmas of 2009 (about a month ago), I received the new replaceable-tip pen with the selection of 10 tips from Burnmaster. I wanted to see if Burnmaster had done it right.



The first thing I noticed is that the body of the pen was heftier, similar to the 'soldering iron' type of pen a lot of us started out using. This type of body has the advantage of not getting as hot as the thinner, pencil-type pen bodies. And, I am finding as I get older that my hand is having a harder and harder time holding the thinner, pencil-type burning pens. This pen from Burnmaster actually felt nice to hold. I admit I liked the slender pens 10 years ago, but they are getting more difficult for me to hold. This heavier body takes me back to the time of my old Walnut Hollow burning pen, having a very similar handle. Others that still use the Walnut Hollow for that reason may finally have found a wire-type pyrography pen that they will like and can hold they way they have held the Walnut Hollow for years.



The next thing I noticed about the Burnmaster pen was the large (about 1/8 inch diameter) hole for the pen tip wires to slide into. I thought, how can a wire tip fit snugly into that pen contact hole. That's when I found the tips, and noticed that they are not simply wire tips. They ARE wire tips, shaped like many others, but they are secured into a rather large tube, similar to the tube that is embedded into the phenolic handles the tips are welded into in the various manufacturers fixed tip pens! When I took one of the tips and slid it into the pen body, I knew they had something. Finally a replaceable-tip pen that does not rely simply on friction to make a secure electrical connection!! There were two screws to hold the tip in place. The tube that the wire tip is secured to slides into the pen body contacts, but it is not sloppy loose either. It fits nicely into that hole! There is one screw that secures each of the two wire-tip connection ends into the body. The screw pushes the pen and tip contacts together very snugly, making a very good electrical connection.

Next was to try out the new pen and replaceable-tips. But before I tell you about my experience with Burnmaster's replaceable tips, let me digress a bit and talk about electrical connections as they relate to the burner's pen. For those who don't know me and my background, I'm an electrical engineer by profession. I have been for 30 years. So I have some idea of what makes a good, or a bad, connection. A bad electrical connection can cause power loss into the body of the pen in the form of heat. This happens when the connection has a high electrical resistance. The wire used in pyrography pens is an example of a material with high electrical resistance (it's commonly called resistance wire). It is the higher resistance of the nichrome wire relative to the rest of the pen lead wire that causes it to heat up when an electrical current is applied. Thus it makes sense that a bad connection with a high resistance will also heat up a lot!! And they can heat up a lot!! And the heat flows right into the body of the pen. Well, I was pleasantly surprised that this didn't happen. The pen body stayed cool, meaning that the connection is nice and tight. And since it is secured with a screw rather than simply friction, the connection of this pen will always remain tight.



Now back to my experience with the replaceable tips. The first test I performed was to find the heaviest tip and set the Heat Adjuster knob of the Burnmaster [àc0èHawkaè](#) slowly to 10, which was more than enough to cause the pen tip to glow a bright red. NOTE: This is normally not recommended practice. This could shorten the life of a pen tip! I did it only for this test. I wanted to see if the pen body would get hot!!! I let the pen tip 'bake' bright red in the pen for 15 minutes. There was no air-conditioner or fan running in the room, so there was minimal 'breeze'. I used the heaviest pen tip I could find to ensure enough mass to generate plenty of heat! After 15 minutes of keeping the already red-hot tip on high, the handle of the pen was only very slightly warmer near where you hold the pen. This could have been radiant energy from the pen tip itself. I would expect some additional heat, but it was very slight. I then pulled back the black rubber material (the pen grip) to see if the plastic material was hot. It also just slightly warmer than the rubber material. As one more test, I held onto the body of the pen while the tip was red-hot for about 5 minutes beyond the 15 minutes, just to see if my hand would get warm while holding the pen. I did not feel any warmth that would have caused me to stop holding the pen. So, for the pen body heat test, which is a measure of the tightness of the tips connections, the Burnmaster Pen with Replaceable Tips passed with flying colors.

Now, I can't imagine anyone using a pyrographic burning tool with the tip red hot! And neither do I. During normal use, I did not feel any extra heat being radiated from the pen body.

My next test was to determine how long it would take for a red-hot tip to cool enough to allow you to change the tip! This seemed like a good thing to check àc* no one wants to wait a half-hour to change the tip in their pen! So, from the red-hot tip condition of the previous test, I set the power switch to OFF and timed how long it took for the pen to cool such that the tip would not burn paper when removed and set down on the paper in order to change the tip. Now, I'm starting from a red-hot tip. That is the worst-case condition. After 15 seconds, the pen tip was cool àc* it wouldn't burn wood, pen, or my finger (yes, I just had to touch it!). So the bottom line is that you won't have to wait long after removing the power before you can change the tip: about 15 seconds at the most! NOTE: Do not over-tighten the screw when installing a tip. The screw needs to be snug, but not really, really tight 😊



I replaced the large tip with a small skew-type tip. The smallest skew that was in the 10-tip selection. I wanted to see if it would retain the heat while drawing a line on wood. I used a piece of basswood for the test. It's smooth and without an alternating hard/soft grain such as pine. I set the Heat Adjuster to 2 for this test. A setting of 4 was red-hot for this tip àc* I didn't want to scorch the wood. Moving the pen across the 4 inches of wood, I noticed the only difference in the burn going cross grain was due to my inability to maintain a constant speed when moving the pen. At a setting of 1 on the dial, I got a nice light toasty burn throughout the entire burn of the line. It was very nice! In summary, I would have to say that the burn is consistent, and that the pen tip gains heat as fast as it is used to burn the wood.

I would have to say that the Burnmaster Pen with Replaceable Tips is the best replaceable tip burner I have ever used, and it rivals the performance of the fixed-tip pens. If you are considering buying your first burner, or replacing your existing one, you must look at the Replaceable Tip Pen by Burnmaster - I can also recommend you take a look at the Burnmaster unit powering the pen, the Hawk - I used it during this review, so part of the credit goes to the power control unit!!

I would also like to mention that the Burnmaster pen will not only hold its own tips securely, but will also hold other Hot Wire Tips from other manufacturers. However, I'm sure the Burnmaster Pen will work best with Burnmaster Replaceable Tips, as they were designed to work together.

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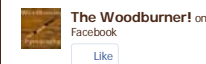
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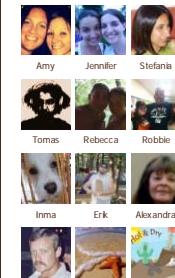


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