

For your records, please record the date of purchase and your Razertip dealer information below. Should your Razertip product ever require service you can contact your dealer or send the product directly to Razertip Industries.

SK Serial # \_\_\_\_\_ Purchase Date \_\_\_\_\_

Dealer Name \_\_\_\_\_

Address \_\_\_\_\_

Phone# \_\_\_\_\_ Email \_\_\_\_\_

### Warranty Information

Your Razertip pyrographic tool is guaranteed to operate properly for a period of three (3) years on the power supply, one (1) year on handpieces (including fixed tips), and ninety (90) days on all interchangeable tips. This warranty provides for repair or replacement, at the manufacturer's option, of any defective components. This warranty is limited to the actual cost of repairs and will not cover shipping costs or any consequential damages resulting from failure of the unit or its components to perform as stated. All warranty work must be done by the manufacturer. The manufacturer will not cover the costs of repairs done elsewhere.

Warranty will be voided if unit has been tampered with, altered or repaired by unauthorized persons or companies. In the event that your burner or handpiece should need service, our average repair turn around time is only one day in shop. To receive in or out-of-warranty servicing, return the complete unit **including any cord(s), pen(s) and/or tip(s)** to your dealer or send it directly (prepaid) to Razertip Industries Inc. at the address below.

### Technical Data

**Type:** Electronic hot-wire pyrographic tool

**Model:** SK **Input:** 240VAC, 50/60Hz, 0.20A **Output:** 2.2VAC, 10.0A max.

**Wattage:** Max. 45 watts **Temperature range:** 500F(245C) to 1400F(760C) approx.

**Size:** 5"x5"x3.5" (127mm x 127mm x 82mm) **Weight:** 2.6 lb. / 1.2kg.

**Compliance:** Australia C-Tick Approved #N11614,

EMC Compliant to EN55014-2:1997 Inc. A1:2001 & CISPR14-2:1997 Inc. A1:2001;

EN61000-3-2:2000; EN61000-3-3:1995 Inc A1:2001

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*More Questions? Don't hesitate to contact us - that's what we're here for!*



Thank you for choosing a Razertip® Tool. Please take a few minutes to read these instructions. The SK features a solid state power supply and some of the finest tips made. Razertip® tools will provide many years of dependable service if properly used and maintained.

### Warnings

**Shock Hazard:** Do not open the cabinet. No user serviceable parts inside. Use only under the supervision of an adult. Keep this and all power tools well away from water or sources of moisture.

- Do not use excessive pressure on tip. If a deep cut is required, turn the temperature up and let the heat do the cutting. If necessary, heavy-duty handpieces are available. They will withstand considerably more pressure than the standard pens.
- Keep this and all tools away from children. This tool should not be used by children unless under the direct supervision of an adult.
- Always be sure to have adequate ventilation. Many materials give off dangerous fumes when burned.
- Any technical questions concerning this product can be directed to Razertip Industries Inc. (contact information on page 8).

## Useful Accessories & Procedures

- ✓ **Versatility.** Razertip® pyrographic tools are versatile and useful for many varied applications including:  
signing & stamping craft objects (woodturnings, carvings).  
burning detail on wood, leather, paper, and gourds.  
cutting stencils and paper.  
detailing, welding, and cutting plastics.  
shaping, sculpting, and melting jeweller's wax.
- ✓ **Heat Settings.** For best results, longest tip life, reduced carbon build-up, and maximum comfort, always use the lowest heat setting that will do the job.
- ✓ **Extra handpiece?** If your burning techniques require high heat settings, consider buying another handpiece. When one gets too warm to hold, switch to the other. Let the warm one cool for 10 minutes.
- ✓ **Fixed vs. Interchangeable.** Fixed-tip handpieces are the most convenient to use, and they offer small size and very solid tips. Should you ever want or need to replace the tip on your Razertip® fixed-tip pen, simply return the pen to us and we will install the tip of your choice for a very reasonable fee (or at no charge if you supply the replacement tip). Razertip's #BPH Interchangeable-tip pen allows use of almost any thickness of tip wire, and will accept almost all Razertip® tips, including Heavy-duty tips. The BPH pen is the same size as our HD pens, and it uses reliable stainless-steel connectors to hold your tips in place, assuring perfect electrical contact and a solid, secure tip. The BPH pen is also one of the coolest-on-the-fingers of any hot-wire pyrographic pen.
- ✓ **Carbon Build-up.** Carbon build-up on tips can be quickly and effectively removed with one or two passes over a Razertip tip cleaner/scrapper. This economical cleaner won't wear out your tip, and you can leave your burner on when using it. One hand operation means you don't have to put your work down, either. You should never use abrasives (sandpaper, emery, rouge) to clean your tip - they will wear it out prematurely, and will actually cause *quicker* carbon build-up.
- ✓ **Extending your reach.** When working in confined areas, you can reach further with your standard handpiece by sliding the foam grip back on the pen. Extra or replacement grips are available, as are extra-thick grips.
- ✓ **Consistent Heat.** For the most consistent heating, always burn in a location that is free from drafts or wind. Air movement will cause the fine tip to cool more quickly. Even lightly blowing on the tip will cool it.
- ✓ **Cooler fingers.** For better finger comfort, hold the pen in such a way that your fingers are not directly above the hot tip.
- ✓ **Melting materials.** If your application calls for burning any material that melts, you must use a fixed-tip pen. Molten material will cause a loss of tip contact. Be sure to work in well-ventilated conditions at all times when burning, but especially while melting substances. Many materials give off dangerous fumes when melted or burned.
- ✓ **Smoke in your eyes?** Try burning in front of a fan (we recommend the Razaire 530). Be sure the fan is sucking the air away from you, not blowing towards your work as the moving air will cool the tip too quickly.
- ✓ **Returning pens for service.** Should you need to send a pen back for service, remove the foam grip before mailing. Mail the pen back without the grip or clear tube, and mail it in a padded envelope or between two pieces of thin cardboard. A thin package (under 2cm thick) will cost much less to mail.

## Tip Temperature Chart

The chart below shows the approximate temperatures of a Razertip SK using a #1L fixed tip with a Razertip #1 Flex cord. This chart is intended to provide you with an idea of the temperature range on a Razertip tool and to show how the temperatures are evenly distributed over the entire range of the heat dial. Using a heavier cord or a different pen may give different temperatures than shown below.

Setting	Approx. Temp ° C	Approx. Temp ° F	Setting	Approx. Temp ° C	Approx. Temp ° F
1	285	545	6	560	1040
2	305	581	7	610	1130
3	370	698	8	670	1238
4	430	806	9	720	1328
5	470	878	10	760	1400

### About Temperature Settings.

Hot-wire pyrographic tools are primarily intended to be used at moderate heat settings. If your tip is glowing red during use you will find that the handpiece will eventually get uncomfortable. If your work requires high heat settings, be sure to give yourself and the tool a bit of a break - a few minutes every half hour is a good idea.

### Razertip Pens and Tips

A copy of our product catalogue should accompany these instructions. If you did not get one, or would like additional copies, please contact us. You can also download the latest catalogue at [www.razertip.com](http://www.razertip.com).

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## Fundamentals of Pyrographic Tools

*We offer the following information to those who want a better understanding of how our tools work, along with some of the limitations that physics places on their design.*

There are two basic types of electric pyrographic tool: the hot-wire tool and the element-style tool. Razertip tools are the hot-wire variety, meaning that the hot tip of the tool is made from a special heating wire that gets hot when electricity is passed through it. Element-style tools also get their heat from a heating wire, but, unlike the hot-wire units, element tools have a relatively fine, delicate heating element enclosed in a housing (usually metal or porcelain). As the element heats, it transfers its heat into a heavy tip. On these tools the tip takes quite a while to heat and to cool down. Tips for these tools tend to be larger and heavier. Most people's first experience with pyrography was using a bulky, awkward element-style tool - and it often involved a burnt finger or two.

Razertip's hot-wire tools allow you to work with your fingers positioned close to the work surface. Because the wire tip is the only thing getting hot, the tip heats in a matter of seconds and cools almost as quickly. Until recently, tip shapes were limited to those that could be formed from a wire blank. Most tips are still formed from a single piece of heating wire. Recently we acquired the technology to fuse various metals directly to our heating tips. This allows us to make a "hybrid" tip that offers the best of both worlds. Designing a durable, comfortable hot-wire tool poses significant challenges. First, the tip must be operated at very low voltages - ideally less than 2 volts, otherwise the pen and cord will start to get hot along with the tip. In other words, the lower the voltage, the cooler the pen and cord.

Voltage, or volts, is electrical force, or pressure - think of how pressure is needed to pump water through a pipe. Powering a heating wire with only 2 volts is like trying to pump water through a pipe with a very small pump. In order to get the tip to heat

quickly, and to hold its heat well, we need to get lots of electricity (current) through the tip wire - but we're using a small pump! The measure of electrical current, or flow, is called amperage (amperes or amps). On a cold morning, your car may use 70 amps or more (at 12 volts of pressure) to start the engine. Most wall outlets can supply a maximum of 15 amps. The transformer in Razertip burners can provide 10 amps of current continuously. More amperage would be even better, but there is a limit to the amount of current that can flow through a given size wire - just like there is a limit to how much water you can squeeze through a certain size pipe.

The two handpiece cords available from Razertip use the most flexible cables possible that can handle the high current flow. The extra-flex cord is an 18-gauge cable that just handles 10 amps; it slightly restricts the current flow to your tip. For maximum tip heat recovery, the heavy-duty 16-gauge cord is available. It handles the 10 amps very well, providing superior tip heat recovery and stability. But it's heavier than the 18-gauge cord, and some users may find it a bit awkward. If we made a larger cord (say 14 or 12-gauge), it would provide even less current restriction, but the cord would be getting too thick to be useful.

If you're trying to pump lots of water through a small pipe with a small pump, you want to make sure that there are no restrictions. So it is with electricity. A poor electrical connection causes a restriction. That's why Razertip uses nothing but the best connectors available to ensure the best electrical contact possible. Each connector is electrically and mechanically reinforced, providing optimal contact over years of use.

Understanding how your Razertip tool works can be very helpful in diagnosing and correcting potential problems. Be sure that your cord, pen and tip are sound and that all of your connections are snug and fully seated.

## Basic Operation

The Razertip® SK is very easy to use. Plug one end of the handpiece cord into the handpiece jack. Plug the other end into the back of the handpiece. Be sure that the connectors are fully seated. Turn the main power switch "on", then adjust the handpiece temperature with the dial on the front panel ("1" is coolest, "10" is hottest). Most tips take only seconds to heat up.

## Controls and Their Operation

**Main Power Switch** - used to turn power supply on and off.

**Main Power Indicator** - Lights when power switch is "on."

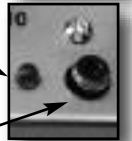
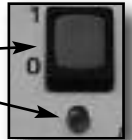
**Handpiece Indicator Light** - gets gradually brighter as temperature is increased. Will change intensity or flicker if handpiece or tip is disconnected or loses contact.

**Handpiece Jack** - Plug one end of the handpiece cord firmly and fully into this jack.

**Temperature Adjusting Knob** - used to adjust the temperature of the tip. "1" is coolest, "10" is hottest. For most woodburning applications, scorching of the wood starts around the "5" setting. Lower settings are used to detail wood without scorching, or for detailing waxes or plastics.

**Handpiece Clips** - hold pens when not in use. Snap-in, snap-out operation. Unbreakable. Replacements available Cat# CLIP.

**Foam Grip** - can be positioned on handpiece as desired. Spare or replacement grips are available as cat# GRIP. Extra-thick grips are also available (cat# GRIPL).



## Hints:

- ✓ For longest tip life, be sure to turn your burner off when not in use.
- ✓ Hot-wire pyrography is an "indoor sport". Even a slight breeze can cause a hot tip to cool, resulting in poor pen performance.

Updates, technical information and more available online at  
[www.razertip.com](http://www.razertip.com)

## FAQ's (Frequently Asked Questions)

**Q. Is there anything special I have to do to my tips before I use them? Should I anneal them?** A. There is nothing to do other than to simply plug in the pen and start using it. Besides being unnecessary, "annealing" (or softening) the tip would not be possible when using the pen on a Razertip power supply as the tip will hold its temper (or hardness) right up to 1700°F. Heating the tip beyond 1700°F would actually weaken the tip and shorten its useful life.

**Q. I wish the handpiece cords were more flexible. Why don't you use coiled cords?**

A. While coiled cords may seem like a good idea at first, they are not an option for a hot-wire tool. They simply won't work. Coiled cords develop a magnetic field inside the coil. Because hot wire tools use such low voltage, the coil would "suck up" all the power, leaving little to nothing for the pen. Even if we could get a coil to work, the wire would still have to contain a large amount of copper, so the wire would still be as heavy. Coiling it up would actually give more weight at the back of the pen than a straight cord.

**Q. What's the difference between heavy duty and regular pens, and why would I choose one over the other?**

A. Regular pens are recommended for most applications. HD pens were originally designed for schools, where students tend to be rough on the tips. HD pens have heavier connectors and tips, making them more durable. The trade-off is that they don't develop as much tip heat (you'll need to use a higher heat setting) and the tip won't recover its heat as quickly as a regular pen. Some pens are only made in HD (quill makers and shaders) because they must be able to withstand considerable pressure.

**Q. Can I use a standard cord on an HD pen, or vice-versa?**

A. Yes. Any Razertip cord can be used with any Razertip pen, but best results are obtained with HD pens on HD cords. In fact, any pen will perform better on an HD cord, but some users find the HD cords a bit stiff (see p.6 for a more detailed explanation).

**Q. What do you mean when you say they perform better with an HD cord?**

A. Tips heat up quicker and pens run cooler on the fingers with a HD cord.

**Q. My burner won't make a dark mark on wood until its set at "5" or higher? Why?**

A. Our burners are designed to give a very broad range of heat (see chart on page 7). The lower half of the dial is used for waxes, plastics, or for detailing wood without leaving a brown mark. The top half of the dial provides enough heat to scorch wood.

**Q. Sometimes my burner works great at a certain heat setting, and the next day I have to use a different setting to get the same burn. Why is this?**

A. When the voltage from a wall plug changes, the temperature of the tip will change with it. Razertip burners are set to perform optimally at 230V. We have seen wall outlet voltages ranging from 215V to over 240V. Wall outlet voltage can change depending on time of day and demand on the electrical grid.

**Q. Is there any way I can change the tip on a fixed-tip pen myself?**

A. No. When a tip needs replacing on a fixed-tip pen or an HD pen, the old tip needs to be removed, and a tip "blank" is welded in using specialized equipment. The blank is then formed, shaped, sharpened, and polished. Up to 50 tons of pressure is required to form some of the tips we produce. We form most of our tips after welding them into the pen because they last longer and perform better than if we formed them first. If interchangeability is important, we recommend our #BPH pen.

**Q. There are so many tip shapes to choose from, and I don't want to be stuck with a pen that I can't use. How do I know which pen(s) I should buy?**

A. Even though we produce over 500 different tip profiles, most artists will own and use between 2 and 6 different pens. Personal preference would dictate choice. We generally recommend starting with the pen that is packaged with your new burner. Use it until you find its limitations for your work. At that time you can look at the available tip shapes and determine which shapes might work for your needs. Also feel free to contact us for advice on which tip shapes might work best for your particular application. All that being said, you may still find that a certain pen you already own is of little or no use to you. Should that happen, you may return the pen(s) to us for re-tipping at any time. We charge only CAD \$6.00 to re-tip a pen, and we will install whatever tip you want - it doesn't have to be the same as the original. If the pen is still under warranty (under a year old), the re-tipping will be done at no charge.

Still have questions? Give us a call or drop us a line. We're here for you!

## Troubleshooting Guide

If the guide below doesn't solve a problem, contact your dealer or Razertip before returning product for service.

Symptom	Diagnosis	Suggested Solution
Hot Handpiece.	Handpiece used at too high heat setting for too long.	Allow cooling time for handpiece if high heat is necessary. Buy an extra handpiece and alternate them when hot.
	Cracked or broken tip	Return pen to Razertip for tip replacement. Fixed-tips have a 1 year warranty; out-of-warranty cost is just CAD \$6.00 for tip replacement.
Handpiece gets hot at back end.	Poor electrical contact between the cord and handpiece.	Be sure the plug is all the way into the pen. Try flipping the cord end-for-end. Try other pens and another cord to determine whether the fault is the pen or the cord. Replace the faulty component or return for service.
Inconsistent or erratic burning -may be accompanied by a faint "buzzing" in the handpiece or -may be accompanied by very hot connections at the handpiece or burner end.	(BPH only) Poor contact between the tip and the handpiece.	Be sure that the screw is snug and all contacts are clean. If problem persists, try a different tip.
	Broken contact in pen.	Replace or return pen to Razertip.
	Poor electrical contact somewhere between burner box and tip. Could be the box, cord, or pen.	You can use the Handpiece Indicator Light (page 3) to help diagnose the source of the poor connection. Plug the pen & cord in, turn on the power, and begin to wiggle each connection point. If the light flickers when the connection is being wiggled, that connection is likely weak. Heat will also build up at point of poor connection. Try a different pen, then a different cord to determine where poor contact is.
Unit will not operate; no main power light or heat at the tip.	No power at outlet, or unit not plugged in. If using a power bar, be sure it is switched "on".	Check power outlet with another device.
	Internal power supply fault.	Return for service.
Unit will not work, but the main power light comes on.	Defective cord, pen, or broken tip.	See "inconsistent or erratic burning", above to try diagnosing the source of poor contact, or try another cord, then another pen.
	Defective handpiece jack or other fault inside power supply.	Return for service.
Tips keep breaking or wearing out.	Too much pressure on the tip while burning, or too high heat setting.	Reduce pressure and/or heat setting while burning. Let the heat do the work for you, and always use the lowest setting that will do the job.
	Worn out tip from abrasive cleaning or incorrect carbon removal.	Use only scraping products to clean tips. Abrasives will wear them out prematurely.
	Old or defective tip.	If tip breakage continues to be a problem, try a Razertip Heavy-duty pen.