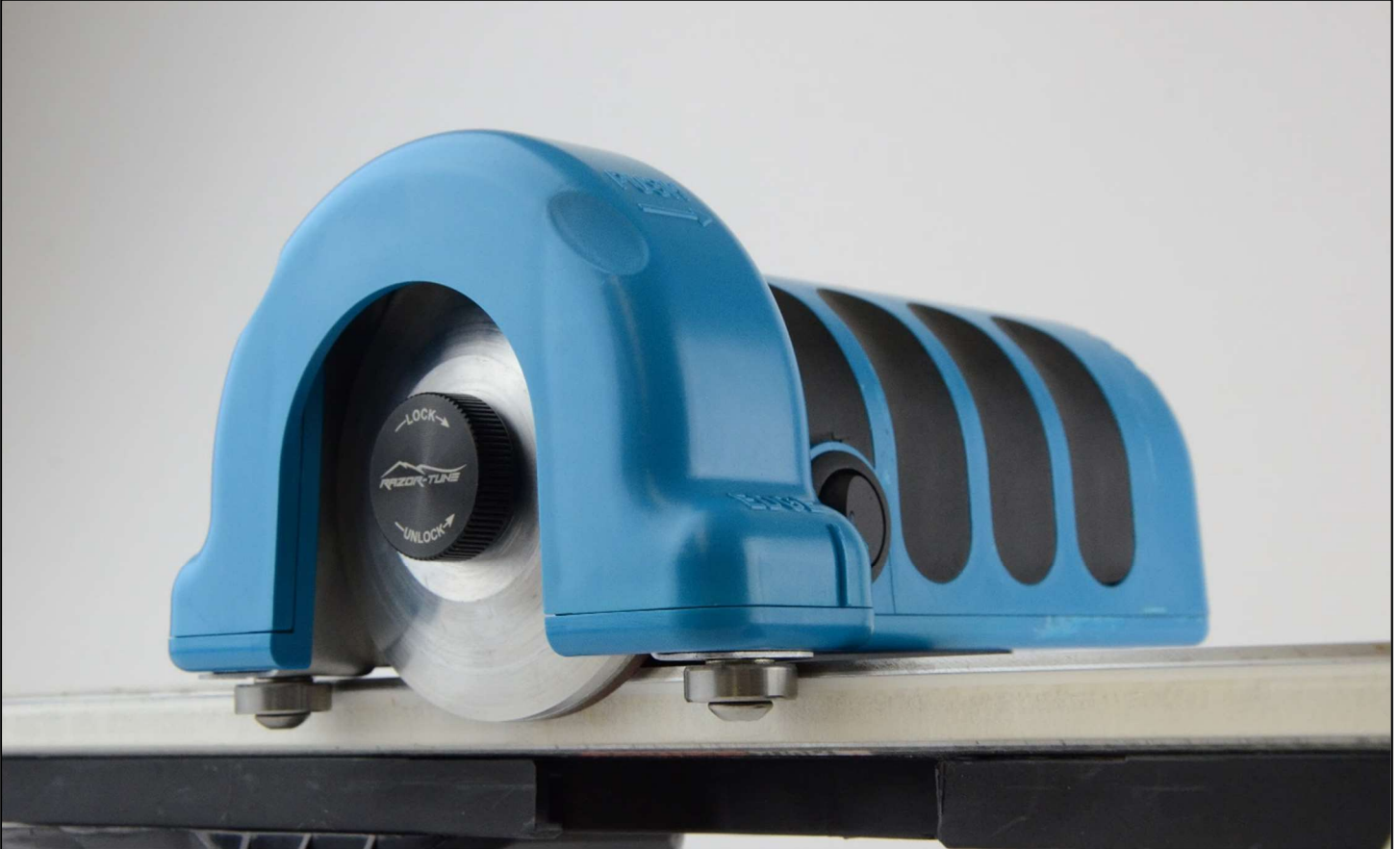




OWNERS MANUAL



THANK YOU FOR PURCHASING A RAZOR-TUNE SKI SHARPENER!

Razor-Tune is a precision ski sharpener that delivers world cup sharpness and surface finish. This product has been engineered and manufactured for durability, ease of operation, and operator safety. Properly cared for, it will give you years of trouble-free performance.

Carefully read through this entire operator's manual before using your new tool. We want every customer to get the best results possible so it is important to use the tool with proper techniques outlined in this manual. Training videos are also available at www.razor-tune.com.

CONTENTS:

- Safety
- Preparing Skis for Tuning
- Operating Instructions
- Selecting and Changing Wheels
- Tuning Dull Skis
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SAFETY

- Know the tool and read entire manual before first use.
- Keep your work area neat and clean.
- Remove other tools and liquids from work area. Do not run power cords in wet areas.
- **CAUTION: The tool creates dust and sparks during use. Use in a well-ventilated area and wear a NIOSH approved dust mask to prevent inhalation.**
- Keep by-standers a safe distance away from work area.
- Clean tool after each use to remove any grind dust that has accumulated in the wheel housing.

PREPPING SKIS

Before you use the tuner, skis should be prepared by cutting back the side wall and deburring the base edge.

Setting up vices

- Mount vices on a sturdy work bench or tuning table. NOTE: Narrow travel tables tend to be less stable. Brace table next to a wall to prevent it from sliding or tipping during use.
- Adjust position of the ski with the binding or base plate between the center vice with clamp.
- Adjust the height of the tip and tail stands so the center of the ski is higher than the center vice.
- Press down on the center of the ski and tighten center clamp to hold ski firmly.
- Check the ski position on the vice to ensure the tuner will not contact the vices. The ski should be hanging over the tip and tail stands. If necessary, move the center clamp out from the table edge slightly to give some overhang.



Cut back the sidewall

The plastic material on the side of the ski MUST be cut back on new skis and periodically during the life of the skis. If the sidewall is even with the metal edge, the grind wheel will just ride on the plastic and it won't sharpen. A variety of sidewall cutting tools are available at your local ski shops.

- Mount the ski in vices with the base vertical.
- Adjust the depth of the cutter so it peels off a thin ribbon of plastic.
- Pull the cutter along the length of the ski with firm downward pressure. If the cutter is grabbing, reduce the depth of cut and make multiple shallow cuts. Repeat until the back side of the edge is slightly exposed.



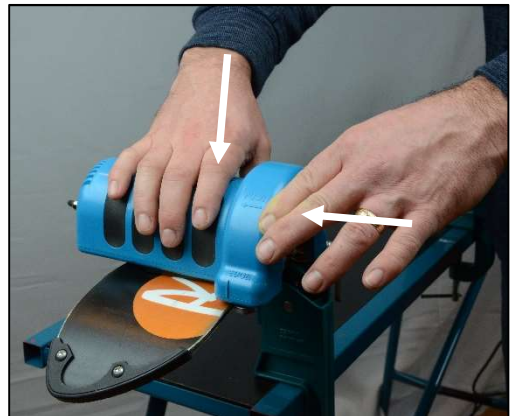
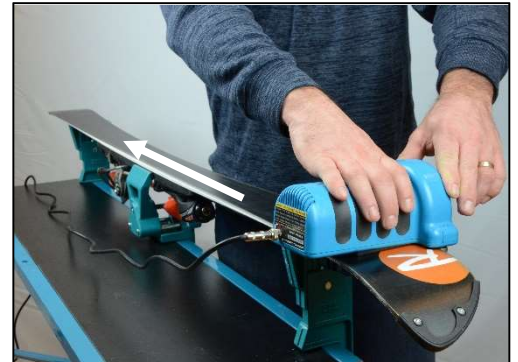
Deburr the base edge

The base side of the ski edge needs to be maintained in addition to the side wall. Rock hits cause scratches and burrs that need to be removed prior to sharpening the side edge. Mount the skis with the base side facing up.

- Use a diamond stone with a bevel guide or carefully use your thumb and forefinger to guide the stone along the edge with firm downward pressure.
- Keep most of the stone over the base and never allow the stone to roll over the edge.
- If the stone catches on burrs or damaged spots, make multiple passes until the stone slides smoothly.

OPERATING INSTRUCTIONS

- Plug the power cord connector into the tool and screw the locking ring finger tight.
- Lay the power cord running in the direction you will be moving the tool so it doesn't snag (Fig 2). It is best to start on the left end of the ski, moving to the right. Pay close attention so the cord doesn't snag and disrupt smooth motion of the tool.
- Set the tool flat on the on the base of the ski and place one hand on the finger grips of the tool. Keep hand close the front of the tool for stability and control. Place the opposite hand with thumb and fore finger on the indents on the front of the wheel housing.
- Apply downward and sideways pressure to bring the guide bearings against the ski edge. Check to make sure marks on the tool are aligned at the edge.
TIP: When first learning to use the tool, rock the tool back and forth to get the feel when both bearings are touching the ski edge.
- Turn on the power switch and immediately start moving the tool along the edge. Guide the tool with constant motion and maintain downward and sideways pressure and to ensure tool stays flat on the ski and both guide bearings stay firmly against the ski edge.
IMPORTANT: Do not allow the bearings to drift away from the edge or tilt as you guide it along the ski.
- When you reach the end of the ski, run the tool straight off end of the ski keeping the tool parallel to the ski edge.
- Check the sharpness of the edge at several locations by carefully running a thumb or finger perpendicular to the ski edge. If you can feel the edge "grabbing" your finger prints the edge is sharp.
- If there are dull spots use the tool to tune where needed. You can move forward and back in an area to sharpen a dull spot. After 4 or 5 passes move to a new area or wait a few seconds to allow the edge to cool.
- Once the entire edge is sharp, use one or two passes with medium or fine wheel to polish the edge.



SELECTING AND CHANGING WHEELS

There are 3 different wheel grits, and each has a specific purpose and use.

Coarse

The coarse wheel should be used anytime the ski edge has lost sharpness. The coarse wheel cuts quickly, but still only removes less than 0.0005" per pass, so you don't have to worry about taking off too much of the edge. Edges in good condition may only require 2 or 3 passes to sharpen. A dull ski will require more passes depending on condition.



Medium

The medium wheel is best suited for restoring a razor sharp edge after a day or two of skiing. One or two passes is frequently all that is required, but additional passes may be needed after skiing on hard ice. The medium wheel only removes about 0.0001" per pass, so you can do a quick tune every ski day and still get long life out of your skis.



Fine (Final Polish)

The Fine wheel is only used to hone and polish after the edge has been sharpened with other wheels. Make a single slow pass with the Fine wheel for a silky-smooth edge and almost mirror finish.

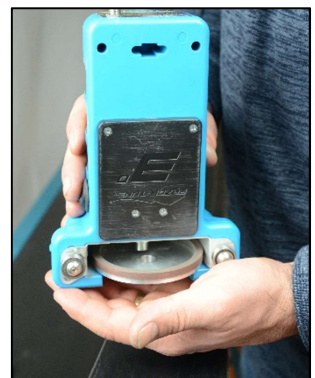
TIP: The Fine wheel can be used dry, but works even better with a lubricant such as soapy water or WD-40. Apply lubricant to the abrasive wheel and to the ski edge using a sponge or cloth prior to sharpening.

NOTE: The fine wheel does not grind off material, so there is more friction and heat going into the edge. Only make a single pass so the edge does not over heat. If multiple passes are needed, allow 10 or 15 seconds between passes for the edge to fully cool.



Changing Wheels

- Hold the wheel with your thumb to prevent it from rotating, and unscrew the knob (counter clockwise).
- With the knob removed, tilt the tool vertically over your hand. The wheel will drop off the arbor and carefully pull out the wheel.
- Next Hold the tool facing up, and slide the desired wheel on to the arbor.
- Hold the wheel with your thumb to prevent it from rotating, and screw on the knob until finger tight (clockwise)



Cleaning wheels

The grind wheels are constructed of high quality aluminum alloy and CBN super abrasive. The wheels are "self-dressing" and require minimal maintenance. Over time the abrasive can form a glaze from wax build-up, embedded metal dust, or contact with the plastic sidewall. The fine wheel is most susceptible to glazing and should be cleaned periodically. Wheels can be cleaned with a rubberized abrasive cleaning stick, or they can be cleaned by hand with a stiff brush and hot soapy water. If wax or sidewall plastic is embedded in the abrasive, use nail polish remover or acetone with a stiff brush to deep clean the abrasive. **CAUTION: Always wear appropriate gloves when using solvents.**

TIPS AND TECHNIQUES

Using you car adapter

- Plug the optional car adapter cable into a 10 amp rated power port on your vehicle. It is recommended to have the engine running to provide proper voltage and optimum tool speed.
- Hold one end of the ski base side up and rest the opposite end of the ski on a stable surface (ground, car bumper etc.) TIP: Hold the ski at an angle so that gravity is helping to pull the guide bearing against the ski edge.
- Grasp the tuner with free hand and set the tuner on the ski as shown in picture below.
- Turn on the power switch and immediately start moving the tool along the edge.
- Guide the tool with constant motion ensuring tool stays flat on the ski and both guide bearings stay against the ski edge.



Tuning dull skis

If your skis haven't been tuned in a long time, or there is damage from hitting rocks it will take some extra work to get them sharp.

- Use a coarse diamond stone to dress up the base edge, de-burr and smooth out rock damage.
- Once the base side of the edge has been dressed, use the coarse wheel to sharpen the side edge. If the edge doesn't sharpen in ~10 passes with the coarse wheel, special attention is required.
- If the base edge is severely rounded over, or the base material is high, the base will need to be flattened before sharpening the side edges. An experienced tuner can use a base planer or flat filing to restore base edge flatness. If you don't have the tools or experience, have a ski shop do a "base grind" to make the bases flat and re-establish a 0.5 to 1.0° base bevel.
- If the base side of the edge is not severely damaged, use a coarse file or panzer file to the initial rough tuning, then complete the sharpening process with the Razor-Tune tool.

TROUBLESHOOTING

Problem	Inspection	Solution
Tool is not creating sparks	Check wheel grit installed on the tool	Always use coarse or medium wheel for sharpening. The fine wheel does not generate sparks and is only for polishing.
	Check for "hot plastic" smell while using the tool and condition of the sidewall.	Cut back plastic sidewall with appropriate tool until metal edge is fully exposed.
	Check surface of the abrasive wheel for contamination, gray or black "glazing".	If glazed with wax or plastic from the sidewall, clean the abrasive. Use a rubberized abrasive cleaner stick to remove glazing with the tool running. Alternatively, clean the abrasive with hot soapy water and a stiff brush.
Edge is dull in spots	Check base side of the edge for rock hits and spots where the base edge is rounded over.	If base edge is undamaged and flat, make multiple passes with a coarse wheel in the dull zone until sharp.
		If base edge has damage: <ul style="list-style-type: none"> • Use a coarse diamond stone to smooth and flatten base side of the edge. • Have the ski bases stone ground and beveled. • If you have the experience and tools, base edges can be dressed with base scrapers and flat filing.
Tool shuts off after heavy use	Check LED light on switch	If switch LED is on, but the wheel doesn't spin, the over-temp safety switch has activated. Turn off switch and allow tool to cool to room temp (20-30 min). Once cool, the tool will operate normally.
		If switch LED is off, the tool is not getting power. Ensure all cords are fully inserted. Check circuit breaker for the outlet.
Smoke coming from wheel housing	Look for grind dust build-up in corner of the wheel housing.	Remove wheel and clean out any grind dust that has accumulated.
Knob is tight but wheel spins.	Remove the knob and check for a white washer at the base of the screw.	If washer not present, replace with spare washer provided. If spare washer is lost, order replacement.
Motor hesitates before starting	Check that wire connections are fully engaged. Check for debris or blockage around wheel.	Fully screw in locking ring on wire connector.
		Remove any debris in and around wheel housing.
		If cold, run motor off the ski to warm up motor.
		If hesitation persists, contact customer service.

LIMITED WARRANTY STATEMENT

Razor Tune LLC warrants to the original retail purchaser that this product is free from defect in material and workmanship and agrees to repair or replace, at Razor Tune LLC's discretion, any defective product free of charge within these time periods from the date of purchase.

- 12 months if the product is used for personal, family or household use;
- 30 days, if used for any other purpose, such as commercial or rental.

This warranty extends to the original retail purchaser only and commences on the date of the original retail purchase.

This warranty is limited to thirty (30) days from the date of original retail purchase for any product that is used for rental or commercial purposes, or any other income-producing purpose.

How to Obtain Service

To obtain the benefit of this warranty, deliver the complete product via prepaid transportation to:

Razor Tune LLC, 31 Oregon Trail, Waterford, NY 12188.

Include a copy of the sales receipt and a written description of the problem for the warranty claim.

What We Will Do to Correct Problems

Warranted products will be repaired or replaced, at Razor Tune LLC's option, and returned at no charge.

What is Not Covered

Failures due to misuse, abuse or normal wear and tear are not covered by this warranty. Razor Tune LLC shall not be responsible for any incidental or consequential damages.

How Local Laws Relate to the Warranty

Some areas do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights, and you may also have other rights, which vary, from state to state, province to province, or country to country.