SKI & SNOWBOARD TOOLS & WAX

Tögnar Toolworks

2013-2014

WHY TUNE?

Your equipment, like a sportscar, needs to be tuned regularly. Otherwise you'll enjoy only a fraction of the performance you paid so dearly for...sorta like driving a Porsche with bald tires!

Basic tuning and waxing isn't rocket science. It doesn't take much time to learn. It can save bucks and make your day on the slopes a lot more enjoyable. Armed with some basic tools and information, you can learn to tune and wax achieving the same results that you'd expect from a shop...and enjoy yourself in the process too.

Here at Tognar we don't try to be all things to all skiers and riders...we simply stock all the tuning and waxing stuff you'll ever need along with great information and personal service to help you succeed and enjoy the process.

Have a great season!

PROFI SKI VISE

Cap skis, slippery sidewalls, super fat skis, this vise handles them all. What makes it different from others on the market is the clever, fully-adjustable, faux boot sole which snaps into the ski binding securing the ski to the central mount. It also automatically retracts binding brakes and keeps them out of your way.The ski can be positioned base-up or at a 45° angle using the faux boot clamping method. The ski can also be positioned vertically utilizing included clamps which are attached to the tip and tail supports of the vise. The faux-boot fits Alpine Bindings and Dynafit AT Bindings (yes, very exciting, the faux-boot has Dynafit attachment points built in, just like yer boots!) Includes a seperate binding adapter for use with nordic skis with NNN bindings. The tip and tail supports, and central tower attach to the bench with adjustable clamps, but can also be permanently mounted with predrilled holes. Vise set includes tip and tail supports, central faux boot attachment, faux boot sole, NNN adaptor and 3-bench clamps. This is seriously a very cool vise, if you're tired of struggling to keep your boards still while you tune or wax look no further!

Item# MTK-3400 Profi Vise Set $129.95 Item# MTK-3414 Spare faux boot sole $39.95

RECOMMENDED TUNING PRIORITIES

After each day on the snow, we recommend...

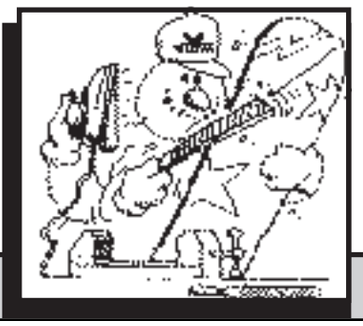
1) Check both your base and side edges for nicks and burrs...especially the inside front edges. Deburr these using a deburring stone in conjunction with your bevel device or guide, followed by a polishing stone.
2) Check your base for gouges. If they are shallow, you can either fill them now, or wait til your weekly tune-up. If they are deep, or you see fiberglass or core material exposed, fill them immediately. Remove excess repair material afterwards.
3) Check your base for dry or oxidized areas. This indicates that the base needs waxing. A hot wax is best, but rub-on liquid or paste wax will do in a pinch.
4) After hot waxing, let the base cool for 20-30 minutes. Then scrape off excess wax with a plastic scraper and brush all remaining wax out of the base structure with a nylon, bronze or combo brush.
5) Fasten skis together using strap or base protector that keeps bases from rubbing against each other.
6) Wipe off ski or snowboard top with clean dry rag.

Once a week, or after 3-5 days on the snow, we recommend...

1) All the above daily steps, plus...
2) Lightly file side edges using a steel mill file in conjunction with a side bevel device or guide. This resharpens 'em for better edgehold...especially on hardpack snow.
3) Hot scrape bases to clean them. This is the same as a hot wax, but you use a soft (warm temperature range) wax, and scrape it immediately after ironing...don't let the base cool first. This pulls dirt out of the base better than any other method. Follow this with a regular hot wax.
4) Check base for gouges...fill any and all gouges if possible.
5) Pull liners out of your ski or snowboard boots to let everything dry out before putting 'em back together.
6) Spray a little boot/binding lubricant on boots, bindings and ski or snowboard tops (but not bases)...this'll help prevent snow build-up.

Once a month, or after 15-18 days on the snow, we recommend...

1) All the above daily and weekly steps, plus...
2) Check your base with a true bar for flatness, and correct if necessary.
3) Check base structure for wear, and refresh or restructure if necessary.
4) Check binding mounting screws (but not release adjustments!) to make sure they're all snug.
5) Check poles for worn baskets, straps, etc., and repair as necessary. Ditto for your goggles.



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ADVICE TO ROOKIES

If you're just getting started, but aren't sure what tools to order, here's what we suggest:

1) Visit tognar.com and peruse our growing database...this will help guide you through basic tuning techniques and familiarize you with many basic tools.

2) Check out our blog for tuning tips and how-to videos at tognar.wordpress.com.

3) Next, look over our Basic Tool List below for our recommendations.

4) Then, browse through our catalog and look for this star ☆next to certain tools...it signifies a good basic tool for getting started, or...

5) Check out our Tuning Kits on page 4, or...

6) Attend a tuning school listed on page 36, or...

7) Buy one of every tool in our catalog. Heh, heh....just kidding...

Note for "busy" people...Some folks with no tuning experience occasionally skip all the above steps, call us on the phone and say "Hey, I want to tune my gear, but don't know anything...what do I do?"

This is sorta like calling up your local auto parts store and asking them to teach you about auto repairs over the phone...it probably ain't gonna happen.

The same is true with us. We are a small company...which means that the folks who spend time with you on the phone are the same folks who prepare this catalog, update the website, take phone orders, reorder and unpack inventory, process and pack orders, update the mailing list...blah, blah, blah. As much as we'd like to grab a cup of joe and sit down at the phone to talk ski tuning for an hour we just can't do it, not enough hours in the day! That being said....

We are happy to answer specific questions about tools, waxes or tuning techniques over the phone or on our tech line (800)299-9904 or by email info@tognar.com. Also, you may find the answer to your question on our website www.tognar.com, we are constantly updating our tips and tricks database with new information, photos and video tutorials.

BASIC TOOL LIST

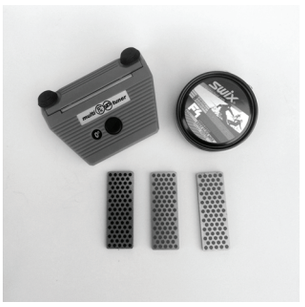
The first and most important tool in the workshop is abundant light. You can't fix what you can't see. Two 4' fluorescent light fixtures (each of which has two 4' bulbs) mounted three feet above the workbench will enable you to see most imperfections in the base.

1. Workbench (35 - 45" above the floor is best for most mechanics.)
2. Vise - to hold skis or snowboard securely so you can perform precision work.
3. Base flattener - to create a flat base on your skis or snowboard.
4. True bar - to check for a flat base.
5. P-tex material - to fill gouges in base material, best done with pistol or iron.
6. Surform or Pansar file to remove excess p-tex after filling gouges.
7. Structure tool. To impart a structure in the base.
8. Diamond stone. Used to remove burrs and rock-damaged areas on steel edges, as well as for deburring and polishing edges.
9. Mill files. Used to shape steel edges on a ski or snowboard.
10. Base and Side-edge beveling tools. Used to set exact bevel angles on edges.
11. File card. Used to clean debris from out of the teeth of a file.
12. Diamond stones. To remove burrs caused by files during edge filing...also used to polish edges.
13. Gummi stones. Used for removing microburrs and for polishing the edges.
14. Sandpaper. Used for base flattening, structuring and polishing edges.
15. Steel brush. Used to clean and open structure.
16. Scotchbrite or Fibertex pad. Used to scour away polyethylene hairs on base.
17. Omni-Prep pad. Used to remove polyethylene fuzz on base.
18. Electric iron to hot wax bases.
19. Wax. Whatever your preference...from universal glide wax to fluoro wax.
20. Plastic scraper. Used to scrape off excess wax.
21. Nylon, brass or horsehair brush. Used to open structure after waxing.
22. Fiberlene paper. Used to keep bases clean during tuning.
23. Brake retainers. Used to keep ski brakes up and out of the way when tuning.
24. Tognar Tuning Database www.tognar.com. To make sure you get all the steps right.

TUNE & WAX KITS

These kits are a great way for someone to get started with ski or snowboard tuning. They each contain what we think are the essentials neccessary to get the job done. There are other tools you may want to add later... such as a vise to securely hold your ski or board, additional wax brushes, extra wax, etc. Wax kits are also available with 230volt irons.

BASIC TUNING KIT



Our most basic, compact and portable kit. It's a good choice for skiers or boarders who are just getting started, or anyone requiring a minimal travel kit containing the basic tools necessary for edge maintenance and waxing.

Item#	Description	Qty.	Reg.Price
DMT-WS7K	Diamond Stone Set (3)	1	$25.95
MTK-701	Edge Bevel Tool w/file	1	$42.95
SWX-F440	Swix F4 Paste Wax 40ml	1	$12.95
	Regular Price		$81.85

Item #TOG-TRK Kit Price $69.95

SKI HOT WAX KIT

Outfit yourself with the basics required to hot wax, scrape and brush your skis. Includes a wax iron, two brushes, a scraper and enough universal wax for 6-8 hot-wax applications. A great starter kit which you can add to as needed. 230v version is for folks outside North America.

Item#	Description	Qty.	Reg.Price
APG-SKI	Plastic Wax Scraper - 6"	1	$5.95
APG-712	Brass Brush	1	$19.95
APG-713W	Nylon Brush	1	$ 14.95
TOK-T8/T8EU	Toko T8 Wax Iron	1	$ 59.95
TOK-2006	Universal Wax-120g	1	$10.95
	Regular Price		$111.75

Item #TOG-WAX 120v (US/CAN) $89.95

Item #TOG-WAXEU 230v (EU,AU,NZ) $89.95

SNOWBOARD HOT WAX KIT

The basics required to hot wax, scrape and brush your snowboard or super-wide skis. Includes a wax iron, nylon brush, scraper and enough universal wax for 5-7 applications. A solid foundation that you can add to as needed. 230v version is for folks outside North America.

Item#	Description	Qty.	Reg.Price
APG-SNBS	Plastic Wax Scraper - 12"	1	$8.95
TOK-T8/T8EU	Toko T8 Wax Iron	1	$59.95
APG-BO723W	Nylon Brush Oval	1	$ 24.95
TOK-2006	Universal Wax-120g	1	$10.95
	Regular Price		$104.80

Item #TOG-WAXBD 120v (US/CAN) $89.95

Item #TOG-WAXBEU 230v (EU,AU,NZ) $89.95

ALPHA SKI TUNING KIT

This collection of ski tuning tools is ideal for someone ready to go beyond the basics. Identical to the Basic Kit with the addition of p-tex drip candles, steel scraper, true bar, gummi stone and brake retainers.

Item#	Description	Qty.	Reg.Price
DMT-WS7K	Diamond Stone Set (3)	1	$25.95
MTK-701	Edge Bevel Tool w/file	1	$49.95
SAN-474	Steel Scraper	1	$8.95
SHP-187071	Clear Base Repair Candles	2	$1.00
MTK-3333	Brake Retainers	2	$5.00
SPK-TB6	True Bar 6"	1	$19.95
SWX-T177B	Swix Brass File Brush	1	$5.95
KLG-SF	Gummi Stone	1	$5.95
	Regular Price		$122.70

Item #TOG-ATK Kit Price $99.95

PRIMA SKI TUNING KIT

The Prima Kit is based around seperate file guides for the base and side edges. These guides offer greater versatility than a tuning tool (found in the kits above), just about any stone or file can be used in these guides. The diamond stones included in this kit are 100mm long and include a nylon storage roll, the true bar is upgraded as are the brake retainers. The Prima Kit is a good choice for racers or folks looking for a tuning kit that enables them to tune with great precision and allows them to branch out if other stones or files catch their fancy.

Item#	Description	Qty.	Reg.Price
ACE-3201	Spring Clamp for Bevel Guide	1	$4.95
BTS-10	Base Edge Bevel Guide- 1°	1	$19.95
BTS-TRUE	True Bar	1	$29.95
DMT-A4SET	Diamond Stone Set (4)	1	$79.95
MTK-3333	Ski Brake Retainers	2	$5.00
SAN-474	Steel Scraper	1	$8.95
SHP-187071	Clear Base Repair Candles	2	$1.00
SPK-HC08	8" Chrome Mill File	1	$10.95
SWX-T177B	Swix Brass File Brush	1	$5.95
SVT-PEB92	Side Edge Bevel Guide- 2°	1	$27.95
KLG-SF	Gummi Stone	1	$5.95
	Regular Price		$200.55

Item #TOG-PTK Kit Price $159.95

Definition- FLEX

This is the tip-to-tail flexibility of a ski or snowboard... its pattern establishes the arc a ski or board describes while carving a turn on its edge.

VISES

To get the best prices, more technical info, or to place an order, go to www.tognar.com

JOIN THE VISE SQUAD

Have you ever tried to file a ski or snowboard by leaning it against the wall or stabilizing it with your knees? Not much fun. Unless your gear is held solidly in place, it's nearly impossible to produce precision work. We offer a wide variety of vises to fit any need or budget. Do yourself a favor and pick one up!

TOKO SKI VISE RACE

NEW

This compact and sturdy 3-piece metal vise is a good choice for tuners seeking simplicity and economy. The central clamp adjusts from 40mm to 90mm wide. The clamp pads are 30mm long which allows them to clamp to binding riser plates if the skis are wider than 90mm underfoot. Tip and tail supports are a fixed height and hold the ski in a base-up position for waxing or at 90° or 60° for side edge work. The vise pieces clamp to workbenches up to 2.25" thick. Made in Italy.

Item #TOK-0047 $119.95

TOKO WORLD CUP SKI VISE

☆ This is the updated version of our most popular and versatile vise. It's a metal midpoint vise that features deep jaws to securely grip ski sidewalls from 40mm to 100mm wide. It clamps to workbenches up to 2.25" thick, and includes two spring-loaded tip and tail supports that adjust in height (from 5.5" to 6.75") and can pivot from 90 degrees to 60 degrees. These supports feature independent clamps that are adjustable to grip skis or snowboards "edge up" for side filing, beveling or deburring...a clever and time-saving feature. Optional clamp-on platforms fit atop tip and tail supports...12"-long snowboard platforms (TOG-SNOB) feature a grippy surface to support snow-boards placed face-up (for binding work) or base-up (for waxing, gouge repair and base tuning) ...nordic platforms (SPK-625) provide greater under-ski support for flexible nordic race ski tips and tails.

Item #TOK-0035 $149.95

BRAKE RETAINERS

☆ It is essential to keep ski brakes out of the way when tuning, these retainers are long-lasting, easy to use, non-finger-pinching works of genius.

Item #MTK-3333 $2.50 ea.

TOKO FREERIDE VISE

This all-metal vise features a robust central clamp that opens to an amazing 155mm to accept very wide skis. Tip and tail supports are identical to those used on the Toko Ski Vise Free, they are a fixed height and have slots which allow positioning of skis in a vertical or 60° angle for side edge work. Clamps to nearly any workbench (up to 2.25" thick). Great all-metal wide vise for a good price.

Item #TOK-0037 $189.95

SWIX POWER SKI VISE

This all-metal vise features the same robust central clamp as the Toko Freeride Vise, which opens to 155mm. But the tip and tail supports are different, these supports are spring-loaded and adjust in height (from 5.5" to 6.75") they can pivot from 90° to 60°. The supports feature independent clamps that are adjustable to grip skis or snowboards "edge up" for side filing, beveling or deburring...a clever and time-saving feature. Optional clamp-on platforms fit atop tip and tail supports...12"-long snowboard platforms (TOG-SNOB) feature a grippy surface to support snow-boards placed face-up (for binding work) or base-up (for waxing, gouge repair and base tuning) ...nordic platforms (SPK-625) provide greater under-ski support for flexible nordic race ski tips and tails.

Item #SWX-T147N $229.95

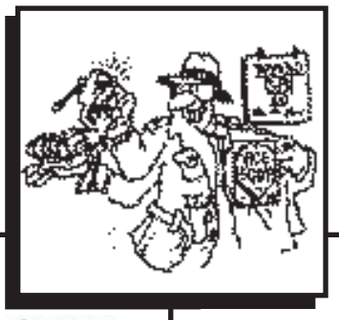
ALUMINUM SNOWBOARD PLATFORMS

These custom made platforms are made of thick aluminum stock topped with super grippy rubber pads to keep snowboards in place while waxing or addressing base edges. They also work well for waxing pairs of fat skis, monoboards, etc. Designed to fit Toko World Cup or Toko Wide vises as well as many similar vises from Swix, Holmenkol or Ski Man. Supports are 12" long. Sold in pairs.

Item #TOG-SNOB $39.95pr

VIBRATION

A ski or snowboard vibrates along its full length when you're riding. Both internal and external materials and features are used by manufacturers to help reduce or dampen this vibration and thus improve the ski or board's stability and edgehold.



VISES/PROFILES

TOKO PRO SNOWBOARD VISE

☆ This is a sturdy, two-tower metal snowboard vise designed to provide superior strength, stability and durability... which makes it a good choice for use in home or pro workshops. It features grippy rubber pads atop each support to provide good cushioning and friction, Support width is adjustable from 8.5” to 10.75”, narrow for storage - wide for base work and waxing. Adjustable-width center slots secure the snowboard vertically on edge for side-edge filing, beveling or deburring. They attach to workbenches or tables (up to 2.25” thick) with built-in adjustable clamps, so you can use ‘em at home or take ‘em with you on the road.

Item #TOK-4268 $119.95

SWIX 3-PIECE NORDIC VISE

☆ This is a dependable workshop or handy travel nordic (x-c) ski vise. The towers are made of aluminum...which is more rigid and durable than plastic vises...but not significantly heavier. It’s also compact enough to easily pack along for races. It features two composite tip and tail supports, and an aluminum center clamp that securely attaches to nordic ski bindings. All three components quickly clamp to any workbench or table.

Item #SWX-T785 $84.95

NORDIC PLATFORMS

These nordic platforms provide increased tip and tail support for nordic skis, they easily attach onto the tip and tail supports of the Toko World Cup and Toko Wide vises or similarly designed vises from Swix, Holmenkol or Ski Man. Constructed of thick-durable plastic topped with rubber pads. Length 8.25” width 1.5”. Sold as pair.

Item #SPK-625 $39.95 pr

SWIX NORDIC BINDING CLAMPS

These handy clamps are designed to secure nordic skis to profiles or benches by giving the binding something to clamp to. 60mm fits T793 and T768 profiles prior to 2010, 75mm fits later than 2010. T796T fits T7672 profile.

Item #SWX-T790T	60mm	$19.95 ea
Item #SWX-T79075	75mm	$19.95 ea
Item #SWX-T796T	T7672	$19.95 ea

SWIX ALUMINUM NORDIC PROFILE

Top level aluminum nordic waxing profile that provides excellent stability and support for tuning and waxing Nordic classic, skating and touring skis. Tip and tail supports slide independently along tracks in the rigid aluminum body accommodating skis from 140 to 210cm. The ski binding clamps onto a repositionable holder to secure the ski. A new feature this year is identical tip and tail profiles, allowing skis to be positioned facing right or left without moving the profile. Optional accessories include a pair of specially designed metal clamps to securely attach the profile to an existing tuning table or bench; a pair of detachable folding legs to use the profile in a freestanding position (especially handy at races and other on-site events), plus a handy wire basket that easily attaches to hold waxes, tools or other accessories.

Item #SWX-T7932	Profile	$199.95	● 8#
Item #SWX-T790K	Steel clamps	$29.95 pr	
Item #SWX-T79BA	Wire basket	$49.95	
Item #SWX-T791	Bench legs	$69.95 pr	

SWIX ECONOMY ALUMINUM NORDIC PROFILE

A great travel profile that is stable and easy to adjust. The main body is comprised of two parts that slide together allowing for quick length adjustment to accomodate skis from 150 to 210cm. Each piece is approx. 110cm long. When taken apart the profile is easily transported in two pieces. Skis are secured in the same manner as the T7932, tip and tail profiles are identical. It will accept all optional accessories listed for the T7932. A great profile for junior racers.

Item #SWX-T7672 $149.95 set● 8#

SWIX NORDIC PROFILE FOR TUNING TABLES

This clever steel profile is designed to slip into the metal framework of Swix tuning and waxing tables. The included binding holder screws into a central hole on the tables to secure the ski to the profile. Profile adjusts in length by sliding the pieces in our out of the table, accomodating skis from 170 to 210cm. Identical profile shape at each end. Swix tables will accept up to two sets of these puppies (one each side) for increased productivity.

Item #SWX-T7682 $109.95 set● 8#

TABLES

SWIX WORLD CUP WAXING TABLE

New this season, Swix now offers their top-of-the-line tuning and waxing bench with a metal topsheet, making it the stoutest, longest lasting Swix table yet! The table is constructed with a bomber steel frame and fold-up legs to handle any ski or snowboard tuning needs. It measures 47” long, 18” wide, and height is adjustable to 33.5” or 35.5”. Replacement feet for all four table legs are available, which are adjustable in length to compensate for uneven ground. It will also accept one or two sets of Swix steel profile set (SWX-T768), which slide into the square tubing that runs along either edge of the table. An optional set of vertical racks that clamp to this table to store two pair of alpine skis or four pair of nordic skis while waxing or tuning. A sturdy nylon travel bag is also available.

Item #SWX-T762	Table	$399.95 ● 35#
Item #SWX-T76SH	Ski racks	$69.95 pr.
Item #SWX-T76SF	Extra feet	$9.95 ea.
Item #SWX-T76B	Travel bag	$79.95

SWIX SNOWBOARD TUNING PLATFORM

This clever device provides a stable, adjustable platform for tuning and waxing snowboards. It works, and looks a bit like the legs on an ironing board. To use simply scissor the legs apart, set your board on top and away you go. Sticky pads hold the board by friction when set base-up to wax or tune the base edges; slip the board into the vertical grooves and screw in the clamps to secure the board for side edge tuning. Height is adjustable from 71-98cm (28-39inches). Works with all boards, Compact folding design for easy storage and travel.

Item #SWX-T758 $119.95 ● 10#

SKI BRAKE RETAINERS

Other items you can use for ski-brake retainers as suggested by our readers:

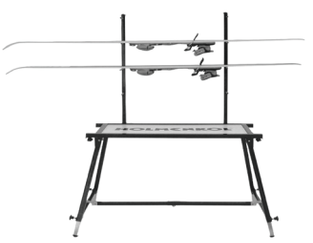
*short length of coat hanger wire
*large rubber O-ring
*long velcro ski straps
*bicycle innertube section
*rubber band from broccoli bunch
*bicycle pedal toe-strap
*paint can opener

SWIX TUNING & WAXING TABLE

A new wider version of the popular T75 table. Still slightly narrower than the T76, but plenty wide enough for skis and boards alike.It measures 13.75” wide x 47” long x 35” high. The frame is steel, the platform is wood covered with a durable composite topsheet.The legs fold up underneath for easy transport, and the foot of one leg is adjustable in length to help stabilize the table on uneven terrain. An optional set of vertical ski racks clamp to this table to store two pair of alpine skis or four pair of nordic skis while waxing or tuning. It will also accept one or two sets of Swix steel profile set (SWX-T768), which slide into the square tubing that runs along either edge of the table. Also available is a sturdy nylon travel bag.

Item #SWX-T75W	Table	$119.95 ● 24#
Item #SWX-T76SH	Ski racks	$69.95 pr.
Item #SWX-T76B	Travel bag	$79.95

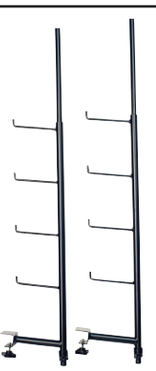
HOLMENKOL TUNING TABLE



An extremely well-built metal framed tuning and waxing table. Adjustable height, legs are also independently adjustable for optimum stability on uneven surfaces. Includes extensions that allow the table to accept longer skis. Includes a pair of vertical ski racks that clamp to the back edge of the table to keep skis up and out of the way while your working. Also includes a sturdy nylon travel bag which the whole schibang fits into. Holmenkol blue.

Item #HOL-20702 $499.95 ● 40#

SWIX SKI RACKS FOR TUNING TABLES



Clamp these handy racks onto the back edge of your tuning table to create storage for up to two-pairs of alpine or four-pairs of nordic skis. Keeps skis close at hand while you progress through the stages of tuning or waxing.
Telescoping legs drop down to floor level providing additional support.

Sold as a pair.

Item #SWX-T76SH $69.95 pr.

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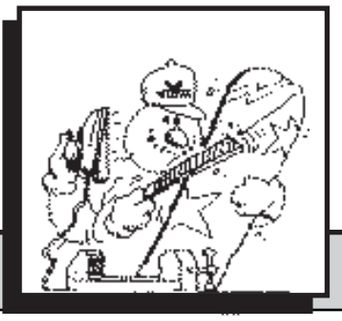
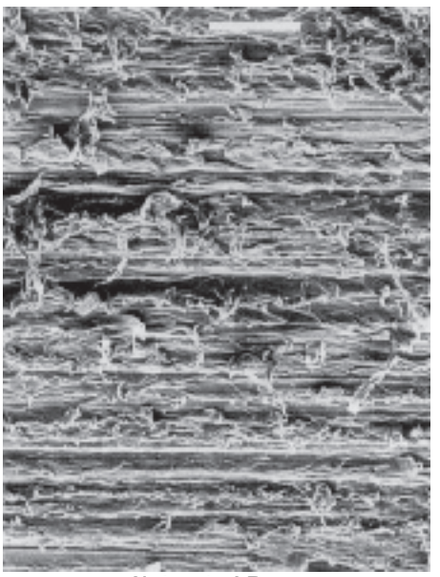


CARE & FEEDING OF P-TEX BASES

Compare the two photos below. The first is a magnified view of a fresh untreated p-tex base. It is rough and "fuzzy" with zillions of p-tex hairs. It will also be a very slow base due to this unfinished condition. Compare it to the next photo...it's the same base after it's been worked on by hand. This relatively clean look (remember, these photos are magnified 100X) will yield good glide. It also represents time well spent working the base with a brush, scotchbrite pads, Omni-prep pad, scraper, structure tool, etc. The ultimate tool that will give this base the perfect finishing touch (after waxing it, of course) will be snow...a good polishing tool in its own right.

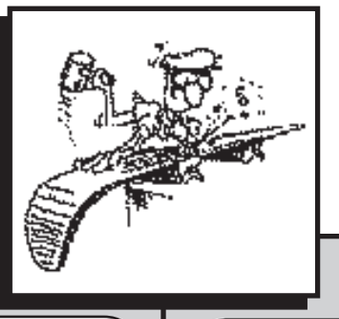


Untreated Base

Treated Base

After getting bases into the condition you see in the second photo, world cup techs start applying wax to impregnate the p-tex as deeply as possible, then send the skis or snowboards out to be ridden. They continue this cycle of waxing, brushing and riding until the bases get their fastest...which sometimes takes half a season. They do not structure or stonegrind the bases again that season, unless they become sufficiently damaged to warrant repair and a regrind. Compare this scenario to the racer who has their bases stoneground just before any big race. Unwittingly, they are giving themselves a significant technical handicap...and one that all the Cera F or other 100% fluoro in the world can't help overcome.

Finishing bases as thoroughly as possible before waxing is probably the most important thing you can do for fast and optimal glide...regardless if your discipline is snowboarding, alpine skiing, nordic skiing, telemark skiing, or anything else that involves sliding over snow on a p-tex base. This is gospel truth...no doubt about it. However, like politics and movie reviews, there are numerous opinions about the details involved in achieving the best base finish. Differing ideas abound about such subjects as stonegrinding vs. hand structuring, the type of structure (linear vs crosshatch vs. a combination of the two), using a thin flexible steel scraper vs. a stiff rigid one, use of a brass brush vs. bronze brush vs. copper brush, how many strokes to make with scotchbrite and brushes, etc. Rather than get confused by the fray, we recommend you simply try one particular method (such as detailed in several of the wax manuals and tuning books we offer), then decide for yourself. The exact tools and procedures these different volumes recommend may vary somewhat, but usually not substantially...and certainly not enough to make a significant difference to most junior or master racers, much less recreation riders. Any technician we've met who's worth their wax iron is usually looking, listening and asking for new ideas, trying them out, and, if they work, adopting them into their tuning procedures accordingly.



WATER - A KEY TO FAST BASES

As a ski or snowboard slides over snow crystals, heat is created due to friction. The heat, in turn, usually creates moisture by melting the tips of the snow crystals. This water is the key to bases that are fast and easier to turn, but only if the correct amount is present under your skis or snowboard. If the snow and humidity is very dry, there may not be enough water present to help improve glide. In this case, you may try to generate it by increasing friction between the snow and your base with a smooth or fine structured finish.

When snow is warm or wet, however, excess water can be generated underfoot that creates suction and slows your glide. In this situation, the base should be structured with a deeper pattern which, similar to tire tread, breaks up suction and helps channel water away. In general, a finer structure with base rills or ridges spaced .5mm or less apart is best for cold, dry snow...and a coarser structure with base rills or ridges spaced .75mm or more apart is best for warmer wet snow.

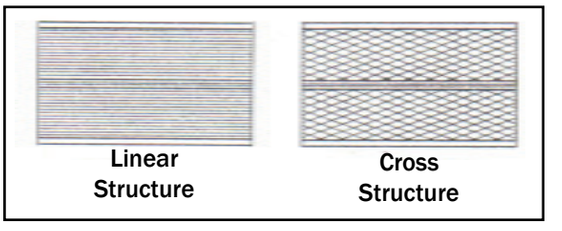
Another rule of thumb is that the rills or ridges should never be larger than one-half the size of the snow crystals...this avoids crystals from getting stuck in the troughs of the structure and creating drag.

Structuring can make more difference in speed than waxing, according to world cup technicians. It can also make a board or ski easier to turn for recreational riders.

Most all new skis and snowboards come from the factory with a medium structure base to satisfy the needs of most skiers or riders. You can change this, however, by hand structuring at home or going to a good shop for a stone-grind. Be aware, however, that even the best structure can't totally compensate for very dry cold snow. Tests have shown that when snow temperatures are around 28°F, there is usually the optimal amount of moisture in the snowpack to create the fastest glide (this can be enhanced by good wax and structure, of course). But when snow temperatures drop to -10°F, it is usually so dry that glide speeds drop dramatically (to less than half the glide speed at 28°F!). For more details, see the article "COLD SNOW = POOR GLIDE" on page 39 in this catalog.

STRUCTURE PATTERNS

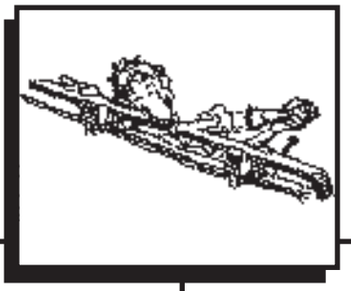
There are many structure patterns. Linear structures are straight grooves that run from tip-to-tail. Most hand-produced and belt-sander structures are linear, which works well for a wide variety of conditions, and is commonly used for speed events (SG, DH). Broken linear patterns are shorter, random structure lines that also run straight from tip-to-tail. Cross-hatch or diagonal structures are produced on a stone grinder by passing a diamond dressing tool in intersecting patterns over the stone face, and has traditionally been preferred for technical events (SL, GS).



Structure patterns can be changed depending on many factors... weather and snow conditions, the whims of individual technicians, new structure tools, etc. Combination structures are commonly tried as well...such as a linear pattern overlaid with a light cross-hatch pattern, or a light linear pattern overlaid on a coarse linear pattern, etc. It's not a science carved in stone... only P-tex...so it's subject to change. And there's more variables one can consider when choosing structure... such as the type and speed and length of the race, the type of base material involved, the color of the ski or board (which affects how much heat it'll absorb on a sunny day), the core materials involved (steel, wood, foam, sagebrush?), etc. Then, regardless of the pattern used, you can debate the depth of the structure, configuration of the channels (peaked or planed-off ridge tops? sharp or semi-filled troughs?), spacing between channels, random or uniform width rills, etc. Obviously, there's enough rocket science here to keep anyone occupied.

Being basically lazy and cheap, we use hand tools to impart a basic linear pattern unless it's a special event that merits a spendy stone grinding. We generally use a fine-medium pattern for cold early winter snow, and a coarser one in late winter and spring when temperatures warm up. All gear can benefit from a good structure... including nordic skating and diagonal-glide skis, tele and alpine gear, freestyle and racing snowboards (and, of course, plastic trays for those exciting fast-food races).

To get the best prices, more technical info, or to place an order, go to www.tognar.com



BASE FLATTENING & STRUCTURE TOOLS

BASE FLATTENING TOOLS

Ski and snowboard bases need to be as flat as possible from edge to edge... otherwise they behave in strange, unpredictable ways on the snow.

That's why your first tuning priority is to seek and destroy any high or low spots along the length of your base... regardless if the gear is brand spanking new or veterans of many seasons.

BLACKLIGHT TRUE BAR

No, these babies don't glow in the dark like a psychedelic poster under ultraviolet light...but they do sport a stealthy black finish to help reduce reflected light. This makes it easier for your eye to detect variances when checking bases for flatness. They're made of hefty 5/8" square hardened steel with four crisp edges, so if you handle and store it with care (instead of dropping it on the floor like a blockhead), it'll last a lifetime. The ski model is 6" long, and the snowboard model is 14" long.

Item #SPK-TB6	ski model	$19.95
Item #SPK-TB14	snowboard model	$39.95

KNIFE EDGE TRUE BAR

A true bar that features a sharp "knife" edge like this one is easier to read than any other square or round bar designs, but it's also more susceptible to damage...so be careful to avoid dinging the bar edge during handling, transport or storage. This precision flat black anodized aluminum true bar is 6" long so it spans most ski widths.

Item #BTS-TRUE $29.95

BASE & EDGE MAGNIFIER

We offer this 5 power magnifier to inspect and evaluate base structure definition, the finish of steel edge surfaces, or the presence of unwanted p-tex hairs or oxidation. It doubles as a hand lens for examining snow crystals too.

Item #KOB-527 $9.95

BAD HAIRS

After structuring, examine your bases from the side while removing unwanted p-tex hairs. What may look clean from the top can still look fuzzy from the side, especially if you structure with sandpaper.

SKIVISIONS BASE FLATTENING & STRUCTURE TOOLS

These have long been some of our most popular tools. Why? Flattening a ski base is one of the most challenging and difficult tasks for home tuners. Hand sanding, flat-filing or a stonegrind at your local shop are all options, but they can be time-consuming, inaccurate or expensive.

These precision hand-planing tools use a hardened steel blade (BF1), or a file (BF3) to cleanly and efficiently shave/file off high or low spots on p-tex bases, cut away oxidized areas and remove unwanted p-tex hairs. Although the steel blade used with the ski tool is hard enough to cut down steel edges, we recommend you use a file or the BF3 for such work, and save the steel blade from unnecessary wear.

The BF1 not only removes P-Tex with the Steel Blade it also accommodates a medium or coarse stone blade to impart a linear base structure. A few quick passes periodically will refresh the structure, keep bases flat, remove any oxidation and thereby improve its ability to absorb wax. These touch-ups can significantly improve performance without removing excess base material.

The BF3 only accepts a file and is only used for flattening. The fairly aggressive cross-cut file quickly removes base and edge material, It is a great choice for flattening concave skis in short order! Think of it as a hand-held belt sander, it should not be used as a stand-alone-tool, it should be used in conjunction with the BF1.

The BF1 includes a 6" steel flattening blade and a 6" medium ruby structure stone. The BF3 includes the special cross-cut file.

A special 4"x 1" 80 grit silica carbide hand stone is offered for resharpening the steel blade. A diamond tool for redressing structure stones is also offered.

Complete tool instructions are available at **www.skivisions.us** Made in the USA.

Tools:

Item #SVN-BF1	BF1 (steel blade/stones)	$69.95
Item #SVN-BF3	BF3 (file only)	$59.95

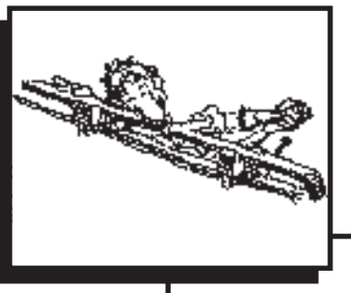
Ski Tool Inserts:

Item #SVN-BL6	6" steel flattening blade	$29.95
Item #SVN MB6	6" med. structure stone	$15.95
Item #SVN-CB6	6" coarse structure stone	$15.95
Item #SVN-BFF	File (for BF3 only)	$19.95

Redressing:

Item #SVN-BLSS	Steel blade redressing	$15.95
Item #SVN-DMF	Stone redressing tool	$19.95

BASE FLATTENING & STRUCTURE TOOLS



Visit our website for tuning tricks, tips and how to videos!
www.tognar.com

SANDVIK STEEL SCRAPER

Made of very high quality Swedish steel, these Sandvik scrapers will hold an excellent burr to scrape off excess base material if your bases aren't flat or p-tex hairs if your base is fuzzy. Still other folks use 'em as pressure plates when clamping delaminated skis. Whatever the use (do you refinish furniture in the off-season?), try these.

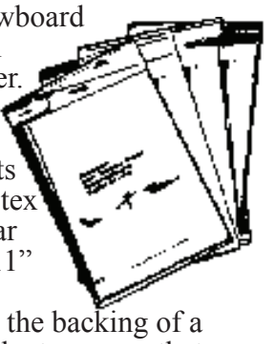
Item #SAN-474 $8.95

SCRAPER BURNISHER

A steel scraper only cuts effectively if you maintain a sharp and uniform cutting lip (or burr) along the edge. This burnisher tool does that job better and more safely than any other we've used. It features a protective wooden grip with an angled steel burnishing rod. If maintained, a good steel scraper should last a lifetime! Made in USA.

Item #TMT-SB1 $18.95

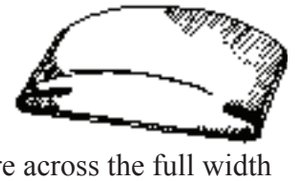
BASE SANDPAPER



You can flatten ski and snowboard bases by sanding them with progressively finer grit paper. The 80 grit paper is coarsest, 400 grit is finest. Our stearated sandpaper cuts cleaner and picks up less p-tex and wax residue than regular sandpaper. Three full 9" x 11" sheets come in each pack. Always use sandpaper with the backing of a sanding block or sanding tube to ensure that you apply even pressure across bases.

Item #KLG-80	80 grit	$3.95 pack
Item #KLG-100	100 grit	$3.95 pack
Item #KLG-120	120 grit	$3.95 pack
Item #KLG-150	150 grit	$3.95 pack
Item #KLG-180	180 grit	$3.95 pack
Item #KLG-240	240 grit	$3.95 pack
Item #KLG-320	320 grit	$3.95 pack
Item #KLG-400	400 grit	$3.95 pack

SANDING BLOCK



Sanding a base without a sanding block can do more harm than good. This tool insures that you are applying even pressure across the full width of the ski when sanding…and not creating any unwanted high or low spots in the process.

Item #JAN-45395 $5.95

MICROHAIR BASE SHAVER

No, this ain't for shaving beards or 5 o'clock shadows...it's a tool for scraping ski bases after they've been stoneground or hand structured. The sharp flexible blades help remove protruding p-tex microhairs for a faster glide. To use, tilt the handle in the direction of travel with the blade following behind...like using a paintbrush. We recommend about 10 light passes per ski, with blade replacement after shaving a dozen pair of skis.

Item #JAN-33250 $6.95

Item #JAN-33255 $4.95
• Replacement blades-pack of 5

ABRASIVE PADS

These 6"x9" abrasive pads have many uses... scour loose p-tex "hairs" away; remove excess wax to restore base structure; clean and polish ski tops and sidewalls, etc. Always wipe bases clean after scotchbriting to remove any loose particles left behind by the pad.

Item #SPK-NPM medium $1.95 ea.

Item #SPK-NPF fine $1.95 ea.

STEEL BASE REFRESHING BRUSH

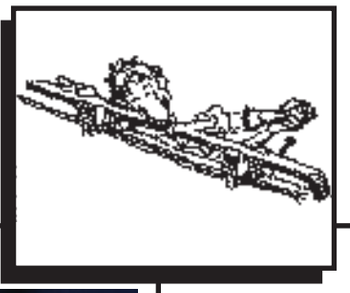
These steel brushes are specifically designed with medium stiff bristles to remove oxidized p-tex and old wax from bases, while "refreshing" the existing base structure. Two models are available...a 3" x 5" rectangular brush, and a larger oval brush with leather hand strap for extra leverage and power.

Item #APG-716X	Rectangular brush	$19.95
Item #APG-B0726X	Oval brush	$29.95

GRIT RATINGS

Out in the big industrial world, there are different grit ratings that they apply to different abrasive products... which can sometimes be a bit confusing for us common folks. So, for simplicity's sake, we decided to cheat the system a bit in this catalog by applying the same rating system to all abrasives we sell. This means, for example, that a 600-grit ceramic stone will match the smoothness of a 600-grit diamond stone. Likewise, a 150-grit sandpaper sheet will match the abrasiveness of a 150-grit diamond stone, etc.

This makes it easier to anticipate the results you'll get from whatever abrasive or polishing tool you buy. Just be aware that the rating system you see printed in our catalog will sometimes differ from the grit rating printed on the actual diamond stone, etc. you receive...but rest assured you are getting the product you meant to order.



BASE FLATTENING & STRUCTURE TOOLS

OMNI-PREP PADS

These thick white pads quickly erase any microscopic p-tex hairs left on a base after scotchbriting or fibertexing. In the past, it took days of riding before the natural abrasive action of snow crystals would scour off these drag-inducing microhairs. Now you can accomplish the same job with these pads in just seconds. If good glide is important to you, these thick white pads are an essential tool. They are sold individually to be used handheld or with a rotobrush.

Item #JNX-HOP Hand (4x4") $5.95

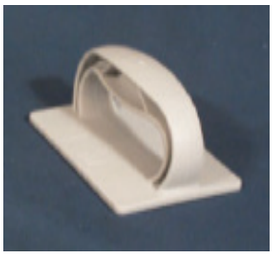
Item #JNX-OPFR Rotobrush (100mm) $24.95

BASE POLISHING CLOTH

This special microfiber cloth helps remove unwanted ultrafine p-tex hairs after structuring a ski or snowboard base by machine or hand tool. Make several passes against the hairs until the cloth slides freely down the base when it's tilted at a 45-degree angle. Use it after rubbing bases with a Scotchbrite and/or Omni-Prep pad for best results. This polishing cloth can be machine-washed periodically for greater longevity.

Item #SPK-202010 $9.95

SCOTCHBRITE HOLDER



This handy tool holds your Scotchbrite, Fibertex or Omni-prep pad with a hook and loop like grip and insures that you apply even pressure on the pad across the full width of the base.

Item #SVJ-09493 $8.95

BASE SANDING TIPS

You can flatten or structure your ski or snowboard base by sanding. Start with a coarse (80 grit) paper wrapped around a sanding tube or block to remove excess p-tex material. Then switch to progressively finer grits (100 to 240) to finish up. After sanding, it's very important to remove any p-tex "hairs" left behind on the base by brushing with a brass brush... followed by both medium and fine scotchbrite or fibertex...followed by a base shaver and Omni-Prep pad.

SWIX NORDIC RILLER TOOL

This effective hand tool allows a skier to apply a structure according to conditions encountered on race day. The tool includes a medium .75mm brass insert, other inserts are available and can be swapped as conditions demand. Simply set the tool on the ski base and, while applying moderate pressure, slide the tool from tip to tail. Composite guides on the side of the tool help it track straight while the brass riller bar presses the structure into the base. Structure is most effectively applied after waxing (so the heat of the iron will not affect structure shape) and is then lightly brushed.

Item #SWX-T401 Swix Riller Tool $59.95

Riller Blades

Item #SWX-T401XF X-Fine .33mm $25.95
Item #SWX-T401F Fine .5mm $25.95
Item #SWX-T401M Med. .75mm $25.95
Item #SWX-T401G Coarse 1mm $25.95
Item #SWX-T4012 Coarse 2mm $25.95
Item #SWX-T4013 Coarse 3mm $25.95

TOKO STRUCTURITE NORDIC RILLER

This simple but effective tool imprints (presses) a broken linear or continuous linear structure on Nordic ski bases. The tool includes a medium (red) broken linear roller. Also available are a coarse (yellow) broken-linear roller or a fine (blue) continuous linear roller. Toko has color coded the rollers to match the colors of their waxes (yellow, red and blue). This makes structure selection a breeze, simply match the roller color to the wax of the day's color and away you go! As with any imprinting tool it is best to structure after waxing and scraping so the shape of the structure remains crisp. Imprinting or pressing a structure into the base is not as permanent as a cut-in structure, but has the advantage of allowing the structure to be changed frequently without first scraping the base flat. This tool works well for applying structure the day of an event.

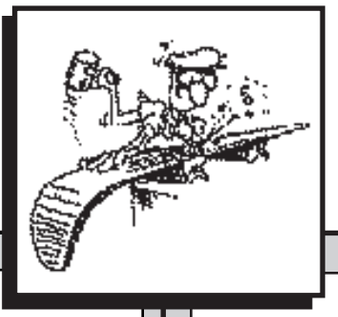
Item #TOK-0960 Structurite Tool $79.95
• Includes medium (red) broken linear roller

Item #TOK-0963 Fine (blue) roller $34.95
• Continuous

Item #TOK-0962 Medium (red) roller $34.95
• Broken-linear

Item #TOK-0961 Coarse (yellow) roller $34.95
• Broken-linear

BASE FLATTENING & STRUCTURE TOOLS



CREATING BASE STRUCTURE

Different tools create base structure in different ways. For example, tools like the brass riller bar create structure by pressing or imprinting it into p-tex base material...whereas the SkiVisions base flattener/structure tool or Swix steel structure brush create it by cutting away p-tex. Theoretically, a brass riller bar can also be used to cut, although we recommend it only be used to press in a structure because, unless brand new, doesn`t cut cleanly or easily.

In general, pressing in a structure is less durable than cutting it in. This is because p-tex is a fairly elastic material, which... when exposed to heat (such as when hot-waxing)...tends to return to its original shape and condition. This occurs on extruded bases at temperatures above 210°F (99°C), and on a sintered base above 270°F (132°C). A pressed-in structure, therefore, will become shallower and less defined fairly quickly if you hot-wax frequently.... but it's fast and easy to refresh.

A structure that has been cut into p-tex doesn't suffer this same problem as readily...but you need to make sure the structure tools are kept sharp. This means sharpening or replacing blades on the SkiVision base flattener regularly, or replacing a steel brush if you notice it ripping and tearing p-tex instead of cutting cleanly (use a loupe to determine this). Ripping and tearing creates a ton more of unwanted p-tex hairs or fuzz...which will take even more time to remove afterwards.

Another significant advantage of using a structure tool that cuts is that it removes oxidized p-tex on the surface of the base in the process. This helps the p-tex to absorb more wax.

All base structures wear down in time and occasionally need to be renewed...how long this takes depends on the snow hardness, frequency of waxing, base material hardness, how often you ski or ride, etc. Check it visually on a regular basis. You may also want to change structure during the season...from fine to coarse as the season changes from cold winter to warm spring.

WAX SCRAPING AND BRUSHING

Wax works best when, after application, you take the time to scrape and brush any excess wax from the ski or snowboard base. The whole idea is to glide on the p-tex base material, not a layer of wax. Wax is designed to act as a molecular lubricant for the base, and hot-waxing is the best way to impregnate the p-tex with wax.

WHAT IS P-TEX?

P-tex is a tradename for the polyethylene base material used on skis and snow-boards. It was originally produced and supplied by Inter Montana Sport (IMS) of Switzerland, and, although other companies now produce base material under different trade names, just about everyone in the ski and snow-board industry still calls it P-tex out of habit.

There are two types of p-tex used today...extruded and sintered. Extruded p-tex is a low molecular weight polyethylene that is manufactured by heating it to 350° F. and pressure feeding it through a die (or slot) to the desired shape and thickness. It is a less expensive base material used on recreational skis and snowboards.

Sintered p-tex is made by packing ultra high molecular-weight polyethylene powder into a cake that is heated and compressed (sintered) to form a log or billet. A lathe or mill is then used to shave (scive) off a thin layer to the desired thickness. It costs more to produce than extruded p-tex.

The advantages of sintered over extruded p-tex are 20% to 25% higher abrasion and impact resistance, a lower coefficient of friction, and the ability to absorb more wax. Accordingly, sintered p-tex is found on the bases of most racing and high performance skis and snowboards.

Electra or graphite base is a sintered p-tex to which 15% carbon black and graphite have been added to increase electrical and thermal conductivity. The frictional heat that develops (especially at higher speeds) is dissipated better along the entire ski or snow-board base due to this thermal conductivity...it helps reduce the water film that otherwise builds up and creates more suction and drag. The improved electrical conductivity helps reduce static electricity build-up that attracts dirt to the base, also creating more drag. The drawback of Electra bases, however, is less water repellency and less impact and abrasion resistance than that offered by clear sintered p-tex.

Electra-spec, double-sint and triple-sint bases are a blend of clear sintered, colored sintered, and/or electra p-tex mixed together and re-heated. While the cosmetic impact of these exotic recipes may be impressive, they offer no performance advantage over standard sintered p-tex bases.

To get the best prices, more technical info, or to place an order, go to www.tognar.com

BASE REPAIR TOOLS

RP105 BASE REPAIR PISTOL

This compact repair pistol is ready made for the home mechanic. It is extremely simple to operate, capable of producing quality base repairs with good durability and it's pretty darn affordable to boot! The RP105 uses the 11mm techo sticks which are more durable than drip repair candles, and produce longer lasting repairs (the material resists snow abrasion, so repairs don't cup-out over time).

It is crucial to allow the RP105 to heat-up to operating temperature, about 20 minutes. If you try to use it too soon the material will not flow smoothly and you'll have a gummy mess! Make sure you put a repair stick in the pistol while it heats!

When the pistol is hot simply hold the tip over the gouge and press the trigger, the ptex will begin to flow, press the molten ptex lightly into the gouge with the tip (always keep ptex between the tip and the base to avoid damaging the base) and proceed along the gouge until it is filled. Don't move too quickly, you want the tip to heat the base a bit so a good bond can form, nice and easy. Allow the p-tex to cool completely, then remove excess repair material with a Surform tool (ACE-2115), followed by a steel scraper (SAN-474) for the smoothest results.

The temperature the RP105 operates at is less than the RP360 and the Repair Iron (MMN-WB1), the lower the temperature the less durable the bond between base material and repair material. That said, the RP105 is worlds better than drip candles and almost at the level of our base repair Iron. The RP105 will get hot enough to melt co-polymer or ptex repair string but not the repair ribbon.

The RP105 includes a great stand for your bench, (2) four-inch clear repair sticks and a nice long seven-foot cord! It has an on/off switch and an adjustable trigger.

This repair pistol is designed operate on any voltage between 100-240v. The cord has an American-style plug, so folks in countries other than the U.S. and Canada will need a plug adaptor (available at travel or electronics stores), or, if you're electronically savy, you can replace the plug entirely.

Item #BLI-RP105	RP105 Gun	$59.95
Item #SHP-187033	Black techo stix	.69ea
Item #SHP-187034	Clear techo stix	.69ea

RP360 BASE REPAIR PISTOL

This shop-quality repair pistol is ideal for mechanics who do a lot of base repair work or need to repair large volume gouges. Its advantages are speed, convenience and superior repair strength.

Simply insert your choice of black or clear 11mm techo stix, pull the trigger, and extrude a bead of molten p-tex to fill base gouges. Unlike most repair pistols, the large aluminum extruding head is heated with its own element seperate from that of the body, this eliminates temperature fluctuation in the repair material and helps to pre-heat the base to ensure a strong bond. The pistol comes to a working temperature of 530°F in approximately 5 min. The reach-adjustable trigger is very light so it takes very little pressure to extrude an adequate amount of material.

It is recommended that the head should remain approximately 1-2mm above the base, and should float lightly on the extruded material. This helps to spread the base material to the adjacent base. Most gouges are filled in just one pass. It is important to keep the head moving at all times, a stationary head can damage the base.

Allow the p-tex to cool completely, then remove excess repair material with a Surform tool (ACE-2115), followed by a steel scraper (SAN-474) for the smoothest results.

Includes a magnetic bench stand that holds the pistol upright while not in use, it can be mounted to a wooden bench using screws. Cord length is a user friendly 9-feet in length. Available in 110V only.

Item #BLI-RP360	RP360 110V	$209.95
Item #SHP-187033	Black techo stix	.69 ea
Item #SHP-187034	Clear techo stix	.69 ea

EXTRUDED vs. SINTERED REPAIRS

All base repair materials (string, sticks, ribbon or candles) are made of extruded (not sintered) p-tex. Why? You can't heat sintered p-tex to the melting point without changing it's molecular structure to an extruded form. Also, black repair material does not contain graphite like a sintered (electra) base...a dye is used to darken it. Although these materials don't hold wax as well as sintered material, the amount of surface area they'll probably ever cover on most bases is too small to make much difference.

BASE REPAIR TOOLS

BASE REPAIR IRON

Our base repair iron is a good choice for home tuners who have previously used drip candles to fill base gouges. It works with p-tex repair ribbon, string or copolymer allowing melt-in repairs that are more durable and cosmetically cleaner than drip candle repairs. The tool features a wooden handle and a ceramic heating element that heats-up quickly. Unlike soldering irons or woodburning tools that heat to 1000F, it hovers around a safer 550F (288C) operating temperature. It includes a narrow 3/16" flat nickel-plated copper tip (4NS), which melts and smoothes repair material to make pinpoint repairs without unnecessarily affecting surrounding base material. An optional 1/2 inch-wide curved, spatula tip (LK16) is also available...it works better for melting repair material into especially wide gouges or core shots (simply slide it on after removing the standard narrow tip). The iron is available in 115 volts for use in the U.S., Canada, etc. or 230 volts for Europe and beyond. (230 volt requires a plug adaptor). Made in USA.

Item #MMN-WB1	Repair Iron 115 volt	$39.95
Item #MMN-EU	Repair Iron 230 volt	$39.95
Item #MMN-4NS	Replacement 4NS tip	$9.95
Item #MMN-LK16	Optional Wide tip	$9.95

BASE REPAIR DURABILITY

Different p-tex repair materials vary in hardness, which affects their durability when filling gouges on a ski or snowboard base.

A soft p-tex material, like a drip repair candle, is fast and easy to apply. This can be handy for travel or 'on-the-spot' repairs, but it will wear away quicker than surrounding base material. This might be okay for very shallow scratches, but with deeper gouges can become an ongoing maintenance nightmare.

Harder p-tex material, such as our repair string, ribbon or techo stix, take a little more time to apply... but last much longer. They won't wear or 'dish-out' in gouges as fast. Some folks have noted that these materials don't 'flow' into gouges like drip repair candles do. This is because they are denser and more durable, so don't be discouraged... simply apply the string, ribbon or techo stix using a base repair iron or pistol (in successive layers if necessary) until you've slightly overfilled the gouge. Let the material cool a few minutes. To remove excess, a regular steel scraper will usually not be sharp enough...its dull edge will tend to grab and yank the repair material out of the gouge. You need a sharper cutting tool for this. We recommend the Surform Versaplane to initially remove excess material...it's very sharp and cuts cleanly. Once you've shaved away most of the excess, you can then use a steel scraper or base flattener tool to take off remaining material until the repaired area is flush with the surrounding base.

To help make new repairs 'blend in' with the surrounding material, you can lightly restructure the base with a tool such as the brass riller bar or SkiVisions base flattener... altho if the repair is small, this might be more effort than it's worth.

If you need to fill deep core shots or gouges along steel edges, use metalgrip string since p-tex repairs won't bond to steel or fiberglas. For optimal durability and performance, you can use metalgrip to partially fill these repairs, then put p-tex repair material over the metalgrip as a top layer.

P-TEX REPAIR STRING

This repair string works better than traditional drip repair candles when filing base gouges for several reasons. First, it's made of harder, more durable polyethylene, so your repair jobs wear longer and don't "dish out" prematurely. Secondly, since it is melted into gouges using a base repair iron instead of burning with an open flame, no smudgy black carbon particles are created which flow into the gouge and create cosmetically-ugly and mushier repairs. String is 1/8" in diameter and comes in 10' rolls...enough material to keep most bases patched through a full season.This material bonds well in deep or shallow gouges, and can be applied atop copolymer repair material when making repairs to core shots or along steel edges.

Item #MTO-241	Clear	3.5mm	$6.95 roll
Item #MTO-242	Black	3.5mm	$6.95 roll

METALGRIP REPAIR STRING

P-tex does not bond to steel, aluminum, wood, or fiberglass...so if you get a deep gouge that exposes core material, or is along a steel edge, it won't stay in place. Metalgrip is a mix of polyethylene and heat-sensitive adhesive which is melted (using a base repair iron) into core-shot gouges or along steel edges. It is 5mm in diameter, and comes in a 5' roll. It is more rubbery in texture than p-tex, and should be be overlaid with p-tex repair material. Available in clear or black.

Item #SPK-560335	Clear	5mm	$6.95 roll
Item #SPK-560336	Black	5mm	$6.95 roll

P-TEX REPAIR RIBBON

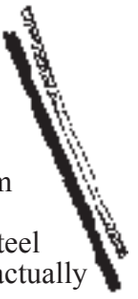
This ribbon is the toughest and most durable p-tex repair material we've been able to find on the planet... in fact, it's nearly equal to the hardness of your original sintered base material. To apply, melt and press it directly into base gouges using our base repair iron (MMN-WB1 or MMN-EU). It has a slightly gummier texture when molten than other repair materials, so be patient applying it...but, once in place, will last nearly forever. It bonds better in deep gouges versus shallow ones...but that's where you need it most anyway. After filling gouges, remove most of the excess repair material with our Versaplane tool before finishing up with a well-burnished steel scraper or base flattener tool. We offer this thin (1/32") ribbon in 7/8" wide x 1' lengths in either black or clear.

Item #SVN-CRIB	Clear	$1.00 ea
Item #SVN-RIBL	Black	$1.00 ea

Always use adequate ventilation, or better still a respriator (p.29), while p-texing!

BASE REPAIR TOOLS

DRIP REPAIR CANDLES



For temporary repair of base gouges, simply light one end of these sticks with a match, then drip...rather than iron...the molten p-tex into gouges. They burn extra-hot...in excess of 970°F, which helps consume some of the undesirable black carbon created while the candle burns. Please use them carefully because dripping p-tex is hot enough to severely burn skin. Hold a steel scraper under those candles when not actually dripping molten p-tex into gouges.

Item #SHP-187071	Clear	$.50 ea
Item #SHP-187070	Black	$.50 ea

TOKO REPAIR POWDER

Looking for quick, effective and durable base gouge repair, Toko repair powder may just fit the bill. To use simply shake powder out of the container into your gouge, until it is slightly overfilled. Lay the included transparent sheet over the top, set wax iron to the appropriate temperature and set it on top of the sheet/repair. Remove the sheet, allow the repair to cool then scrape and re-wax. This is powdered ptex so it will absorb wax. Available in clear or black. 40 gm.

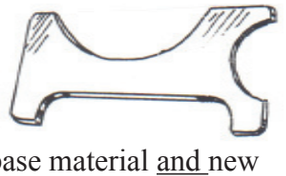
Item #TOK-5002	Clear 40gm	$19.95
Item #TOK-5001	Black 40gm	$19.95

P-TEX 2000 BASE MATERIAL

This sintered base material comes on most high-performance skis and snowboards today. Use it in conjunction with our base templates to make patches to repair especially large gouges or damaged areas... it is glued and clamped in place instead of melted. 3 1/2" wide, available in clear or black. We sell it in any length in 1-foot increments.

Item #MTO-021	Clear	$8.95 per foot
Item #MTO-002	Black	$8.95 per foot

BASE TEMPLATES



Indispensible tools if you're splicing a p-tex patch into a base. Use these metal templates as guides to cut out the old base material and new patch material. The exterior model features two different radius cut-outs, plus a longer parallel cut-out for repairs along edges. The interior model is for making patches in the center of the base and features two different oval cut-outs .

Item #SPK-BRT	Exterior model	$39.95
Item #SVT-BT2	Interior model	$39.95

SURFORM VERSAPLANE

The Versaplane utilizes a curved 3" surform blade to trim away excess p-tex repair material after filling gouges on ski or snowboard bases. The curved blade keeps the leading edge of the tool up off the base for smooth efficient cutting, and you can vary the cutting rate from fine to coarse by changing the blade angle and stroke speed. Use this tool to remove the bulk of p-tex repair material, then finish the job with a steel scraper or base flattener tool for the smoothest possible results. Replacement surform blades are available.

Item #ACE-2115	$8.95
Item #ACE-515	$6.95 ea

• Replacement blade only

SANDVIK STEEL SCRAPER

Made of very high quality Swedish steel, these Sandvik scrapers hold an excellent burr to scrape off excess base repair material or p-tex hairs if your bases are fuzzy. Still other folks use 'em as pressure plates when clamping delaminated skis. Whatever the use (do you refinish furniture in the off-season?), try one.

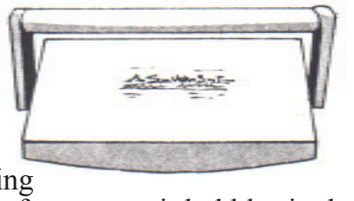
Item #SAN-474	$8.95

SCRAPER BURNISHER

A steel scraper only cuts effectively if you maintain a sharp and uniform cutting lip (or burr) along the edge. This burnisher tool does that job better and more safely than any other we've used. It features a protective wooden grip with an angled steel burnishing rod. A quality steel scraper, if maintained, should last a lifetime. Made in USA.

Item #TMT-SB1	$18.95

P-TEX ROLLER



Bear down on the handle of this roller and rock the curved base over freshly patched areas immediately after melting P-tex into place. This forces out air bubbles in the repair and helps it bond better. It also serves as a 'heatsink' to draw heat away from steel when making p-tex repairs alongside metal edges. The roller is machined from hi-grade 7075 aluminum and features teflon-impregnated anodizing to keep it from pulling up base material. 3 1/2" x 6" 2 1/4 lbs. Made in USA.

Item #SVT-PTR	$99.95

FILES & BEVEL TOOLS

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HOW TO CHOOSE A BEVEL TOOL

There are basically two mechanical approaches to beveling ski or snowboard edges.

First, on pages 26 and 27, you'll find an offering of bevel "devices". These tools usually feature a plastic body fitted with small steel files (or other optional inserts), plus an adjustment that lets you dial in a desired bevel angle. The advantage of these tools is convenience, adjustability, easy to learn to use, and they provide pretty precise results in the hands of even a less-than-attentive or skilled mechanic. Their disadvantages include more frequent file replacement (since file inserts are small and wear faster) and less "feel" for the cutting action of the files. We usually recommend these tools for beginners, folks born without meteoric learning skills, or those less mechanically-gifted (ok, klutzes).

By comparison, we offer bevel "guides" starting on page 26. These tools reflect more traditional filing techniques in that they're used along with a regular 8" (or similar) mill file, or any diamond or hard stones. Their advantage is flexibility (use 'em with whatever favorite file or stone you prefer to bevel, deburr, polish or detemper rock damage), longer file life (since files are larger and you utilize their full cutting surface), greater cutting sensitivity (since your fingers are usually in direct contact with the file itself instead of a plastic tool body), and more bragging rights (since this is assumed by some highbrows to be a more refined craft). Downside? Their use requires greater attentiveness and can take klutzes a little longer to master.

The bottom line? Bevel "devices" are akin to driving a nice sweet Buick with a smooth shifting automatic transmission, while bevel "guides" are for those who feel their hand is homeless if it ain't on a stickshift.

BURRED EDGES

ROUGH BURRED EDGE

A condition where a thin, vertical lip of steel forms along steel edges, usually the result of side filing, hitting rocks, and/or scissoring ski tips. This lip penetrates deeper into the snow than the rest of the edge and, depending on the consistency of the snow and the sidecut, makes skis and snowboards act very unpredictably. Fact is, they actually try to turn in opposite directions simultaneously. Yikes! It can quickly be removed with a gummi, diamond, pocket, or ceramic stone.

REVIEWING THE 3-D'S... BEHAVIOR MODIFICATION OF SKIS & BOARDS

Deburring is the process of removing rough burrs from the side and base steel edges of skis or snowboards after a day of ridin' 'em on the slopes. It's done with...what else?...a deburring stone (ceramic, diamond, arkansas, etc.). This helps keep edges sharp and free of nicks, rust, raggedness and roughness. Compared to personal hygiene, it's akin to brushing your teeth regularly.

Dulling, on the other hand, is more like performing a labotomy. It's usually done on new skis or boards with a deburring stone to intentionally dull (or radically bevel) base edges at the very tip and tail where skis and boards lift up out of the snow. Edges here curve dramatically in toward each other, and should be dulled so they don't unexpectedly engage in bump troughs, ruts, crusty snow or other funky condition and re-vector your planned line of travel downhill off in some new unanticipated direction.Yikes!

Detuning refers to the subtle massaging of an edge's sharpness or base bevel near tips and tails to intentionally adjust performance of a ski or board. On old traditional skis, detuning behind the contact points makes a skis less grabby and "hooky" for easier control. But shaped skis are used in shorter lengths than traditional skis, and are designed so the full length of the edge engages to carve nice crisp turns. But if you feel your shaped ski tips and tails are just a little too sharp and make it hard to initiate a turn, then simply increase the base edge bevel at tips and tails by 1/2° more than what you use underfoot. This will still give you good carving grip when the ski is turned up on edge, but allow the ski to initially slip into a turn easier.

Like Terry Young, ex-ski shop owner and professional tuning guru in Aspen says, "If you want to turn shaped carving skis into fenceposts, tune 'em like traditional old race skis."

POLISHED EDGES

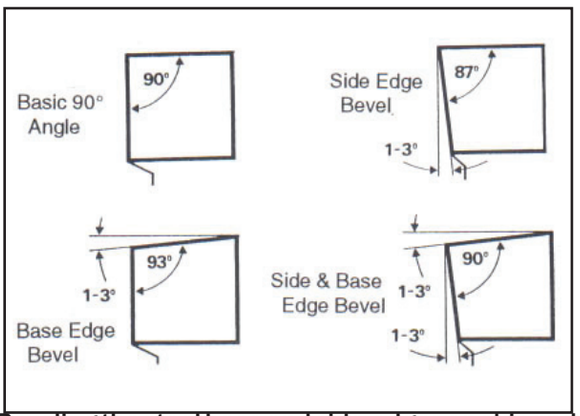
Filing steel edges will leave tiny but unwanted striations that can drastically slow down a ski and make it harder to turn. Polishing the steel edges with a fine polishing stone will leave the edge surfaces much smoother and free of scratches or burrs.

SMOOTH POLISHED EDGE

Stop by www.tognar.com for more tuning tips and tricks!

FILES & BEVEL TOOLS

EDGE BEVEL TIPS



Beveling the steel base and side edges on skis and snowboards can greatly affect their performance. Increasing the base edge bevel 'lifts' more of the bottom edge off the snow, which, because steel edges drag in snow more than p-tex base material, results in better glide and greater speed. Base edge bevel at the tips and tails also makes it easier to initiate a turn, since the outside lip of the edge is lifted slightly off the snow and won't catch unexpectedly. Beveling the side edge surface helps increase the gripping power of a ski or board on ice and hardpack snow. The trick is finding the right relationship between the base and side edge bevel to match your needs.

Most skis and boards come from the factory with a .5° to 1° base and 1 to 3° side edge bevel. For most recreational skiers, it's best to maintain this original bevel, or adjust it slightly according to the charts below.

Racers and high-performance skiers and riders may want to adjust the bevel more to suit their particular needs. A slalom racer, for example, might choose a 3°to 4° side and 0°to .5° base edge bevel for extra grip when making quick turns on an icy course. A giant slalom skier might stick with a .5°to 1° base edge bevel, but reduce the side edge bevel to 2°to 3° so the skis glide fast, but aren't too grabby. When Bill Johnson won the Olympic downhill in 1984, his skis were tuned with a very radical 5° base edge bevel and a slightly reduced side edge bevel. This provided the fastest possible speed for Johnson on a relatively flat, soft downhill course. By contrast, Tommy Moe won his Olympic downhill gold with 1° of base edge bevel. This was dictated by the steep, icy conditions on the course in Norway.

A freestyle skier who 'pivots' their ski underfoot and doesn't want tips or tails to catch in moguls might prefer a 1.5° bevel on both the base and side edges. Extreme skiers who drop into ultra-steep or icy chutes might vary the bevel along the length of their skis, such as a 2° side bevel underfoot that changes to a 0° or .5° bevel at the tips and tails. Conversely, they'll start with a 2° base edge bevel at the tips and tails, then taper down to a 0° base edge bevel underfoot. This allows their skis to get greater grip underfoot (handy when you're perched above a cliff or crevasse), while allowing tips & tails to turn easily in narrow chutes.

After any beveling, be sure to polish both the base and side surfaces of steel edges as smooth as possible without dulling the cutting edge.

Below are listed recommended bevel angles for skis and snowboards. These angles can be adjusted to suit your particular needs.

SUGGESTED SKI BEVEL RECOMMENDATIONS

Skier	Base Bevel	Side Bevel
Novice/ Intermediate	1°	1°
Advanced All-Mountain	1°	2°
Expert All-Mountain	.75 to 1°	2 to 3°
Slalom Racer	0 to .5°	3 to 4°
GS Racer	.5 to .75°	2 to 3°
SG & DH Racer	.75 to 1°	2 to 3°

SNOWBOARD BEVEL RECOMMENDATIONS

Rider	Base Bevel	Side Bevel
Beginner	1 to 2°	0 to 1°
Intermediate	1°	1°
Freerider	1°	1 to 2°
Spinner	2+°	0°
Halfpipe	1 to 2° at tip/tail 0 to 1° underfoot	1°
Boardercross	0 to 1°	1 to 2°
Slalom Race	0 to .5°	2 to 3°
GS Race	1°	2°

GET THE MOST OUT OF YOUR FILES

To extend the life of a file when using it with a bevel guide, start by using just the very end, when the teeth get dull shift the file out a bit to expose fresh teeth. When the first couple inches are dull (on both sides of course) snap the dull section off using a steel bench vise. Repeat until the file is too short to use comfortably.

FILES & BEVEL TOOLS

Visit our website for tuning tricks, tips and how to videos!
www.tognar.com

GET MORE MILES PER FILE!

Here's some tricks for longer file life...

1) Avoid the missionary position...never stack one file atop another or they'll literally wear each other down. Store each in it's own plastic sleeve or wrap each up in paper.

2) Brush their teeth...a file that is frequently brushed with a file card will cut better and last longer.

3) Chalk 'em up...rubbing a thin layer of common chalk into the teeth can help the file slide more easily along the ski, not load up with steel shavings that can otherwise be ground into the base, absorb oil from your hands that can otherwise contaminate the base, and doesn't impair cutting efficiency.

4) Stop backsliding...files are made to cut in only one direction. If you back-draw a file two or three times, it'll break off teeth and you'll end up having to buy a new one.

5) Avoid work-hardened edges...when a ski edge hits a rock, the resulting friction creates enough heat to temper (or harden) the edge at that location. The steel will look shiny and glazed, and is so hard that it can chip the teeth on a file. Use a diamond stone (see page 24) to remove all the glazing before filing this edge.

6) Before you start using a new file, put a piece of masking tape on one face of the file, and work with the other. When the file starts getting dull (begins skipping or rolling along an edge instead of cleanly cutting it), expose the unused face and cover the worn side.

7) Put a piece of cloth tape (from a first aid kit) on the surface of a file bevel guide where you clamp on your file...it'll create some cushioning that'll help keep the file from shifting around while beveling.

8) Don't use wraps of tape around one end of a file to bevel the base edges on sidecut skis. Due to the radical change of ski width from tip to waist to tail, this technique will create more base bevel underfoot than at the tip or tail, which is just the opposite of what you want. On a traditional ski, this variance might be as little as 20%, but on sidecut skis this variance can be magnified to as much as 50%. Instead, spring for a bevel guide or device to ensure getting results you want.

9) Soak 'em in vinegar...an 8-12 hour (overnight) bath will actually eat away some old metal, exposing sharper new material. This will usually work at least twice before retiring your files, but doesn't work with chrome files.

EFFECTIVE EDGE FILING TIPS

If you're learning to sharpen steel edges with a hand-held file, carefully "listen and feel" for clean cutting action...as opposed to grinding sensations or noise. Grinding indicates problems... such as a dull file (resharpen or replace it); edge shavings building up under the file (clean it frequently with a file brush); or work-hardened edge sections caused from nicking rocks (use a diamond or pocket stone to cut away these ragged and/or glazed areas before filing). Your filing will be cleaner and crisper as a result.

If you're filing ski or snowboard edges, but find that your file isn't contacting the edge consistently, avoid the temptation to just bear down harder to make it cut. This indicates other possible problems that heavy-handed filing might just make worse...such as a convex base (check it with a true bar, then flatten the base as required with sanding, a hand-flattening tool or a shop stonegrind); the edges may already be over-beveled (again, check this with a true bar... it may be necessary to flatten the base a bit to "erase" some base bevel); the file may be bent so that it's not contacting the edges (check the file against a true bar to see if this is so and flip it over or replace it if necessary); there may be old wax on the base that's gumming up file teeth (scrape all excess wax off the base first with a plastic scraper, and then keep file teeth clean using a file brush); the ski or board may have recessed edges (some come from the factory like this to simulate a predetermined base bevel); or, heck, it might just be late and you're wiped from a hard day on the hill, and don't realize you're filing a pair of nordic race or jumping skis that don't even have steel edges (get some ZZZ's, dude!).

Lastly, be aware that right- and left-handed tuners almost always bear down harder with their predominant hand when filing. This can create more bevel on one edge of your ski or snowboard than the other. Try to apply even pressure with both hands when working, and apply pressure directly over the steel edges (not the ends of the file) so as not to bow or bend the file, and use base and side edge file guides to insure precise bevel results on all edges along their full length (don't feel like this is wimping out or cheating... it's what world cup tuners do!).

The other remedy for bearing down harder on a file with your predominant hand is to file tip-to-tail down one edge, then tail-to-tip up the other. This will pretty much cancel out any discrepancy in bevel angles caused by uneven pressure... but, again, you're better off using a bevel guide with your file rather than risk uneven or variable results.

SIDEWALL PLANERS

FK

It can be difficult to bevel the side edges on some skis and snowboards because overhanging plastic sidewall material gets in the way and clogs up file teeth. Removing this stuff with a hand-held file is tricky. The fastest and easiest tools are sidewall planers. They use a sharp carbide insert to shave away excess plastic sidewall material and maintain a constant planing depth from tip to tail.

ERGO

We offer two planers... the FK model is a smaller, lighter model with a combination square and circular carbide steel cutting blade. The Ergo model is slightly beefier with a circular carbide steel blade an optional square cutting blade for traditional 90-degree sidewalls is also available. Both tools use a replaceable cutting blade that can be adjusted in height and depth, thus allowing you to shave away as much or little sidewall material as you want above the side edge of any ski or snowboard.

Item #MTK-721 $39.95
• FK sidewall planer

Item #MTK-3134 $13.95
• Replacement carbide blade

Item #SPK-3004 $49.95
• Ergo sidewall planer

Item #SPK-5130 $21.95
• Replacement circular carbide blade

Item #SPK-5120 $21.95
• Optional square carbide blade

BEAST SIDEWALL PLANER

Use this clever tool to quickly remove just enough material from sidewalls prior to filing. It is similar to a side edge file guide in construction, but the angle is a whopping 7-degrees. This robust aluminum/composite tool includes a replaceable 1.5" (35mm) long panzar file that easily removes metal or plastic from sidewalls. Simply make one or two passes down the length of the ski and just enough material will be removed to allow access to the edge material.
Made in USA.

Item #BTS-PLANE $39.95

Item #BTS-PANZ Repl. Panzar $14.95

TOO MANY PEOPLE GO THROUGH LIFE WITH DULL EDGES

The steel edges on most recreational skis and snowboards range in hardness from 42 to 51 (Rockwell hardness) but can go as high as 60 on some racing models. Ideally, a file should be at lease 10% harder than the steel edges you're filing...so don't expect a typical hardware store file with an average Rockwell hardness of 45 to 52 to last long. Although cheap to buy, they prove most expensive in the long run.

Our files feature an average Rockwell hardness of 67 for much greater durability.

Files also vary in their cutting ability. Our pansar files are the most aggressive (coarsest) in this regard, featuring about 10 teeth per inch. This allows them to remove steel edge material very quickly, which is handy for roughly cutting in side edge bevels when you're tuning many pairs of skis or snowboards. Our coarse mill files (sometimes referred to as 'bastard cut') feature 13 teeth per inch, which is plenty aggressive enough for most home tuners. Our medium files (sometimes referred to as '2nd cut'), feature 16 teeth per inch, which makes them very versatile for almost all filing needs. Our fine files (sometimes referred to as 'smooth cut'), feature 20 teeth per inch. They cut slower but create a smoother finish on edge surfaces.

Regardless which files you choose, always follow any filing work with deburring and polishing stones to create the smoothest, fastest and most precise edge.

VIIALA CHROME MILL FILES

These popular World Cup files offer great performance at a reasonable price. They have a hardness rating of 68, plus are hard-chromed for good abrasion resistance. Available in three lengths ...6" or 8" for side edge filing...8 or 10" for base edge filing. These are medium cut files with 16 teeth/cm.

Item #SPK-HC06	6" file	$7.95
Item #SPK-HC08	8" file	$10.95
Item #SPK-HC10	10" file	$12.95

SUPERTOOTH BRUSHES

Industrial grade "toothbrushes" featuring sturdy nylon bristles for regular cleaning, or brass bristles for tougher scrubbing. Especially useful for cleaning debris from files and hard-to-reach inserts in edge beveling tools.

Item #BM-93APN	Nylon brush	$1.95
Item #BM-93APB	Brass brush	$1.95

FILES

VALLORBE ICECUT FILE

These unique tang-less mill files have become increasingly popular for use with base and side-edge bevel guides. They are made with hard steel (high Rockwell index) for good durability, and are sized slightly shorter than traditional tanged files. The 4.75" file is coarsest with 13-teeth/cm, the 9.5" file is finer with 16-teeth/cm, and the 7.25" file is the smoothest and finest with 20-teeth/cm.

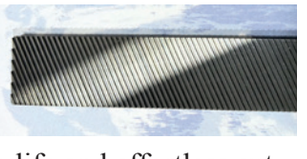
Item #SPK-500037	4.75" (120mm)	$19.95
Item #SPK-500038	7.25" (185mm)	$21.95
Item #SPK-500039	9.5" (245mm)	$23.95

SWIX WORLD CUP RACING PRO FILES

These keenly sharp single-sided, tangless files are some of the smoothest cutting we've encoutered. Available in two cuts -Fine (17tpi) and Medium (13tpi). The Medium is slightly more aggressive, but still leaves a fine finish, the Fine leaves an incredibly smooth finish making polishing up a breeze. Both files are 100mm long and have a handy directional arrow on top, 'case you get confused. Swix says they last up to 10X as long as a standard file, we're still testing this, but the outlook is good!

Item #SWX-T102X	Med. 13tpi	$79.95
Item #SWX-T103X	Fine 17tpi	$79.95

TUNGSTEN CARBIDE RACE FILES



Made of C10 tungsten carbide, these compact files are very hard and extremely sharp, for long life and effortless cutting. They measure 7/8" wide and 4" (100mm) long and are offered in three cuts. The 13tpi file is handy for quickly roughing in an edge. The 22tpi file leaves a super clean sharp edge. If you can't decide, get the 17tpi for all-around use and great finish. Carbide files need a bit more care taken than a standard file, though they are extremely sharp, they tend to be more brittle... so be careful not to drop them and be sure to remove major burrs from the edge (using a 100grit stone or similar) prior to filing, this prevents damage to the file teeth. Made in the USA.

Item #SVT-413M	Medium 13tpi	$89.95
Item #SVT-417F	Fine 17tpi	$89.95
Item #SVT-422XF	X-Fine 22tpi	$89.95

PANSAR FILES

These very aggressive body files have large curved teeth to remove edge or sidewall material quickly. It can be used in conjunction with an edge file guide to initially set side edge bevel on skis or snowboards. They also shave excess p-tex repair material off bases, or remove plastic sidewall material that overhangs steel edges. Use 'em with a light touch, however...they're real sharp and cut very fast.

Item #MTK-702P	2.75" file	$12.95
Item #MTK-707P	4" file	$14.95
Item #TOG-PANZ	300mm file	$19.95

FILE BRUSHES

A file gets dirty fast when sharpening edges. This not only reduces cutting efficiency but leads to faster wear. The fine wire bristles of these tools will remove filings and other gunk from the teeth of the file to ensure longer life and efficiency. Use frequently. Two models are offered...singleside has short wire bristles on one side for cleaning files, while the doubleside has wire bristles on one side and nylon bristles on the other for sweeping file shavings off the ski base as well.

Item #SWX-T177B	Singleside brush	$5.95
Item #FFC-BRC10	Doubleside brush	$8.95

ACCLIMATIZING

No...this isn't about shortness of breath at high altitude...instead, we're talking about a freshly-waxed p-tex base responding to cold. When laid in the snow, your ski or snowboard base cools and 'squeezes' out excess wax...which you'll want to brush away at the race start for the fastest glide.

AFTER THE GRIND

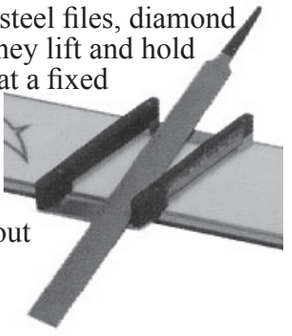
According to World Cup technicians, you'll win or lose a race more because of the preparation you do after a stonegrind than from the grind itself. Right before a race, don't go get a stonegrind because your skis will actually be slower until you've spent enough time fibertexing, waxing, scraping , brushing and skiing on 'em to achieve a really polished and fast base.

CASE HARDENED EDGES

Steel edges sometimes strike rocks, usually at good speed and under substantial weight (yours!). The result is an instant heat-treating of the steel that leaves it extremely hard on the surface. Use a coarse diamond or hard stone to remove the glazed and ragged surface before attempting to file it.

FILES & BEVEL TOOLS

BASE EDGE FILE GUIDES



These precise base bevel guides are used in conjunction with your favorite steel files, diamond stones or ceramic stones. They lift and hold one end of the file or stone at a fixed height, while allowing the other end to rest on one base edge. This ensures a precise and consistent base bevel from tip-to-tail (without being influenced by sidecut curvature). We offer two brands...the economical Beast guides feature a plastic body with a stainless steel bridge. The Final Cut guides are machined from aluminum and stainless steel, and feature replaceable delrin pads where the tool contacts steel edges. All guides made in USA

Beast Guides

Item #BTS-05	.5° bevel	$19.95
Item #BTS-07	.75° bevel	$19.95
Item #BTS-10	1.0° bevel	$19.95
Item #BTS-20	2.0° bevel	$19.95
Item #BTS-30	3.0° bevel	$19.95

Final Cut Guides

Item #SVT-TFC5	.5° bevel	$79.95
Item #SVT-TFC7	.75° bevel	$79.95
Item #SVT-TFC1	1.0° bevel	$79.95
Item #SVT-TFC3	3.0° bevel	$79.95
Item #SVT-TFC4P	4.0° plate	$29.95
• Optional bevel plate for TFC3 ONLY		
Item #SVT-TFC5P	5.0° plate	$29.95
• Optional bevel plate for TFC3 ONLY		
Item #SVT-RR		$9.95 pr.
• Replacement delrin pads for all Final Cut Guides		

SIDE OF BEAST PRO

An accurate and versatile side bevel tool. The frame is constructed of anodized aluminum with a stainless steel wear plate. Unlike most side bevel guides, the Side of Beast Pro doesn't require a separate clamp. Files or stones are held securely in place with an integral clamp that eliminates the possibility of angle inaccuracy due to the file/stone lifting away from the tool during filing. The tool ships with the designated bevel plate installed. Optional angle plates are available. Made in USA. File not included.

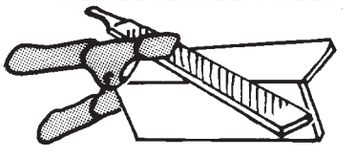
Side of Beast Pro

Item #BTS-PRO1	1.0° bevel	$59.95
Item #BTS-PRO2	2.0° bevel	$59.95
Item #BTS-PRO3	3.0° bevel	$59.95
Item #BTS-PRO4	4.0° bevel	$59.95

Optional Angle Plates

Item #BTS-PLT1	1.0° angle plate	$9.95
Item #BTS-PLT2	2.0° angle plate	$9.95
Item #BTS-PLT3	3.0° angle plate	$9.95
Item #BTS-PLT4	4.0° angle plate	$9.95

SIDE EDGE FILE GUIDES



These file guides guarantee precise side edge beveling. They are used in conjunction with any files or stones. Hold the face of the guide against your base, and set your stone or file on the top platform. The guides feature a recess to catch steel filings so they don't grind into bases. Three precision models are available...the Aluminum Pro-Edge Guides are made of 100% hard anodized aluminum and are an excellent choice for home mechanics, they are offered with or without a stainless wear plate. The Stainless Pro-Edge Guides are milled from solid stainless steel for unsurpassed accuracy and durability. Both models accept optional machined aluminum shims that can be used to increase the designated bevel angle of either guide from 1 to 3 degrees. The shims set firmly into a machined groove on any Pro-Edge guide.Optional clamps are strongly recommended to secure your file or stones to the guides. All guides made in USA.

Aluminum Pro-Edge Guides

Item #SVT-PEB90	0° bevel	$27.95
Item #SVT-PEB91	1° bevel	$27.95
Item #SVT-PEB92	2° bevel	$27.95
Item #SVT-PEB93	3° bevel	$27.95
Item #SVT-PEB94	4° bevel	$27.95

Aluminum/Stainless Pro-Edge Guides

Item #SVT-PEBS91	1° bevel	$34.95
Item #SVT-PEBS92	2° bevel	$34.95
Item #SVT-PEBS93	3° bevel	$34.95
Item #SVT-PEBS94	4° bevel	$34.95

Solid Stainless Pro-Edge Guides

Item #SVT-SSEB91	1° bevel	$77.95
Item #SVT-SSEB92	2° bevel	$77.95
Item #SVT-SSEB93	3° bevel	$77.95
Item #SVT-SSEB94	4° bevel	$77.95

Shims for Pro Edge Guides

Item #SVT-PEBA1	1° shim	$19.95
Item #SVT-PEBA2	2° shim	$19.95
Item #SVT-PEBA2	3° shim	$19.95

Clamps ACE-3201

SVT- PEBC

Item #ACE-3201	$4.95
Item #SVT-PEBC	$14.95

You say Tomato...

Bevel angle designation varies among edge bevel tools, e.g.: 2.0° vs 92°. These numbers designate the same angle...just from different perspectives.

FILES & BEVEL TOOLS

SKIVISIONS SKI SHARP EDGE BEVEL TOOL

One of our most popular bevel tools. The SkiSharp tool files, bevels and polishes both base and side edges simultaneously...instead of one at a time like other bevel tools. This is a huge advantage when you have lots of skis to tune, or if you want to do a quick touch-up after a day of skiing (just a pass or two with the Ceramic stone freshens up your edges). It features adjustments so you can choose different bevel angles for each edge surface in precise .25° increments from 0° to 3°. It includes a pair of incredibly sharp and smooth cutting file inserts for basic filing or beveling needs. Optional inserts include - Pansar file (for rapidly "roughing-in" side bevel angles), Green Stones (use in place of files to bring edges back to sharp without removing unnecessary material, and for cutting through hardened edge material), and Ceramic Stones (to sharpen and polish edges).The grit on the Ceramic and Green stones can be refreshed almost indefinately with the proprietary diamond file. The tool also includes a brass cleaning brush and a Tuning Stick. Complete instructions available at **www.skivisions.us**
Made in the USA.

Item #SVN-SS	Ski Sharp Tool	$59.95
Item #SVN-SSMF • Replacement mill file inserts		$13.95pr
Item #SVN-PANZ • Pansar file for side edge only (1 file)		$9.95ea
Item #SVN-GRN • Aggressive sharpening stones		$10.95pr
Item #SVN-CRR • Ceramic stones		$13.95pr
Item #SVN-DMF • For re-dressing Ceramic & Green stones.	Diamond file	$19.95ea

TOKO EDGE TUNER PRO

This easy to use side edge tuning tool is adjustable from 90° to 85° (or 0° to 5° if you prefer) in one-degree increments. Nice wide base excellent stability. Four widely spaced roller bearings act as wheels enabling the tool to glide smoothly along the base reducing the chance of scratches.Ergo shape really fits well in the hand. Works best with files or diamond stones 2.75" (70mm) long, but will accept slightly longer. Accepts DMT, Swix or Moonflex diamond stones. Includes a Toko mill file to get you started. For side edges only.

TOK-9830	Edge Tuner Pro	$59.95

EDGE BEVEL TOOL

This popular and versatile tool precisely bevels both base and side edges (although not simultaneously) from 0 to 5 degrees (in 1/2 degree increments). It includes a replaceable 2.75" mill file insert for beveling edges as well as occasionally resharpening side edges. Optional inserts are available and include- a 2.75" pansar file to rapidly "rough-in" new side edge bevels, a versatile set of three diamond stones or a simple but very effective 2-stone system which includes a tuning stick (see page 23). Inserts are placed in the tool vertically to work on side edges, or horizontally for base edges. The tool will accept any 2.75" (70mm) stone or file we offer.

Item #MTK-701	Tool w/mill file	$49.95
Item #MTK-702	Replacement mill file	$9.95
Item #MTK-702P	Optional pansar file	$12.95
Item #DMT-WS7K • Set of 3 stones- fine, medium and coarse	Diamond stone set	$25.95

PRO SHARP ADJUSTABLE BEVEL GUIDES

The aluminum Pro Sharp base bevel guide adjusts from .5° to 1.5° (1/4° increments) and accommodates files, stones or diamonds up to 6mm thick and 10" long. The aluminum/composite Pro Sharp side bevel guide features adjustable bevel angles from 0° to 5° (in 1° increment
It accommodates diamond stones or files (up to 6mm thick and 3" long). Includes a 3" Icecut mill file.

SPK-401112	Base bevel guide	$49.95
SPK-401140	Side bevel guide	$49.95

AVOID A HEAVY HAND

Take a look at your ski or snowboard edges, not a whole lot of material there huh, it helps to keep this in mind when taking a file to them! Ski tuning is gentle work, a heavy hand should be avoided. A sharp file should cut without more pressure than is needed to keep it on the edge. Use light, overlapping strokes followed by longer strokes to even things out. If the file is not cutting in an area check for "case hardened" metal and remove with a diamond stone. Always use a file guide and brush away metal shavings frequently.

DEBURRING & POLISHING TOOLS

DEBURRING STEEL EDGES

Ski and snowboard edges should be deburred after every day of use... otherwise nicks and dings will leave the edge ragged, which translates into unpredictable turns and reduced grip on hard pack.

SKI VISIONS STONES

These top notch stones feature internalized grit, which means they can be resurfaced (made new) almost indefinately using the proprietary diamond file (or 100grit Moonflex diamond stone. Use the Green stone on new edges, work-hardened edges or for imparting a wicked sharp edge for extremely firm snow. Use the Ceramic stone to hone edges and bring them to a high polish. The stones are 4" long, 1" wide and 1/4" thick. Sets include Green and Ceramic Stones and a Tuning Stick. More info at skivisions.us. Made in the USA.

4" (100mm) Stones

Item #SVN-4GRN	4" Green	$15.95
Item #SVN-4CRR	4" Ceramic	$19.95
Item #SVN-4SET	4" Set	$34.95

• set of 2x4"stones: green/ceramic & tuning stick

Diamond Refreshing File

Item #SVN-DMF	Diamond file	$19.95

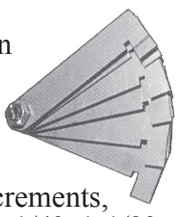
• for refreshing grit on ceramic & green stones

BASE TAPE

Apply strips of this ultra-thin tape to your base along steel edges before filing. It protects p-tex from filings and grime that would otherwise get ground-in, plus helps protect the base structure from being scratched by files or bevel guides. This PVC tape peels off without leaving harmful residue. 1-1/2" wide x 50-yd roll.

Item #SWX-R390	Swix Tape	$15.95
Item #TOK-7007	Toko Tape	$9.95
Item #HOL-20740	Holmenkol Tape	$9.95

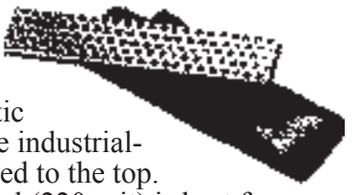
KUNZMANN BEVEL GAUGES



These professional-quality German gauges let you quickly check the bevel on any ski or snowboard. Made of steel for precision and durability, the 3157 measures side bevel from 0° to 5° in 1 degree increments, and base bevels in 1/2°, 3/4°, 1°, 1-1/4°, 1-1/2° and 2°. The 3159 measures side angles only from 0° to 5°

Item #MTK-3157	Side & Base	$69.95
Item #MTK-3159	Side Only	$39.95

DMT DIAMOND STONES



These metal and plastic laminate 'stones' have industrial-grade diamonds bonded to the top. The extra coarse model (220 grit) is best for repairing rock damage on steel edges (where it's been hardened by impact and looks glazed and/or very ragged), and for re-sharpening carbide tips on ski and skating poles. Use the coarse model (325 grit) to initially debur steel edges after filing or bevelling, and the fine model (600 grit) for finer deburring and edge polishing. The extra fine stone (1200 grit) is used for ultra-smooth edge polishing. Diamond stones last a long time if kept clean, are used with light pressure, as well as with water or cutting solution.

Pocker Stones- 2.75" length (70mm)

Item #DMT-W7X	x-coarse-220 grit	$9.95
Item #DMT-W7C	coarse-325 grit	$9.95
Item #DMT-W7F	fine-600 grit	$9.95
Item #DMT-W7E	x-fine-1200 grit	$9.95
Item #DMT-WS7K		$25.95

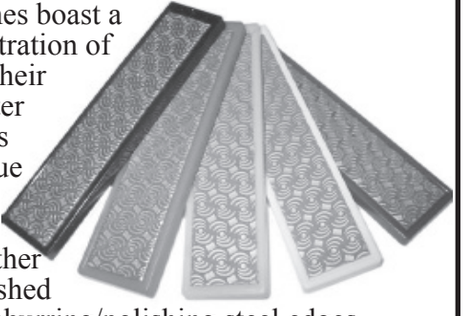
• set of 3 pocket stones: x-coarse/coarse/fine

Workshop Stones- 4.25" length (100mm)

Item #DMT-A4X	x-coarse-220 grit	$19.95
Item #DMT-A4C	coarse-325 grit	$19.95
Item #DMT-A4F	fine-600 grit	$19.95
Item #DMT-A4E	x-fine-1200 grit	$19.95
Item #DMT-A4SET		$79.95

• set of 4 workshop stones: x-fine/fine/coarse/x-coarse
• comes in nylon roll-up pack

MOONFLEX DIAMOND STONES



Moonflex stones boast a higher concentration of diamonds on their faces for greater durability, plus feature a unique spiral pattern designed to create a smoother and more polished finish when deburring/polishing steel edges. They are available in similar grits and in the same sizes as the DMT stones above.

Pocker Stones- 2.75" length (70mm)

Item #SPK-MFM1	coarse-100 grit	$19.95
Item #SPK-MFM2	medium-200 grit	$19.95
Item #SPK-MFM4	fine-400 grit	$19.95
Item #SPK-MFM6	x-fine-600 grit	$19.95

Workshop Stones- 4.25" length (100mm)

Item #SPK-MF100	coarse-100 grit	$29.95
Item #SPK-MF200	medium-200 grit	$29.95
Item #SPK-MF400	fine-400 grit	$29.95
Item #SPK-MF600	x-fine-600 grit	$29.95

DEBURRING & POLISHING TOOLS

To get the best prices, more technical info, or to place an order, go to www.tognar.com

CERAMIC FINE POLISHING STONES

These fused alumina ceramic stones polish side and base steel edge surfaces. This reduces edge drag and resists rusting as well. We offer a fine 600-grit stone, an ultrafine 1200-grit stone, and a combo stone with both grits... one on each side. They measure 5" x 1". Each includes a leather pouch.

Item #SPO-303M	600 grit stone	$23.95
Item #SPO-303F	1200 grit stone	$23.95
Item #SPO-303C	combo stone	$39.95

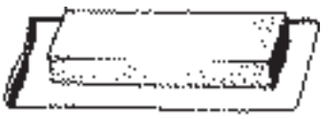
ARKANSAS POLISHING STONES

We offer two premium Arkansas stones for the finest, most precise edge honing and finishing results. These stones are cut by circular diamond saws from Novaculite blocks, a naturally-occurring 99.9% pure silica sedimentary rock with a unique crystal structure that cuts, hones and polishes steel extremely well. The fine Arkansas Hard stone is great for the edge finishing needs of most skiers and snowboarders...including recreational riders, master and junior racers. The ultrafine Translucent stone is a favorite of many World Cup techs for creating a near mirror-like finish (it's used in the medical field to sharpen scalpels). Both stones come in a sturdy leather pouch, and measure 3" x 1" x 1/4" so they can be used in conjunction with most base and side edge bevel guides to precisely maintain your desired bevel angles.

Item #DWH-HARD $8.95
• Arkansas Hard Stone 800-1000 grit

Item #DWH-TRANS $16.95
• Arkansas Translucent Stone 1200+ grit

POCKET STONE



Use this fine pocket stone to deburr steel edges after a day on the slopes.

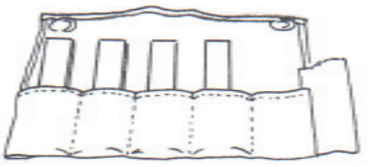
Item #SPK-200102 $4.95

GUMMI STONE

This rubber abrasive block is for polishing steel edges after filing or bevelling. It's softer than hard stones, so it doesn't dull edges if you don't hold it perfectly flush against side or base bevel surfaces while polishing...plus it's handy for removing rust from edges, too. It measures 3" x 1 x 5/8".

Item #KLG-SF $5.95

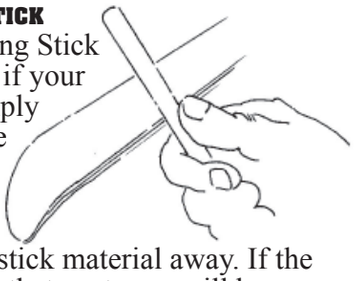
ALUMINUM OXIDE STONES



Aluminum oxide stones are made of bonded bauxite, which is slightly less abrasive than diamond stones. This makes them ideal for deburring and polishing base edges, since removing too much steel can unintentionally create excess base edge bevel...a very undesirable condition. We offer four stones...a coarse 220 grit for repairing rock damage, and increasingly finer 320, 400 and 600 grits for edge deburring and polishing. The stones measure 4" x 3/4" x 3/8", so they can be used in most base bevel guides to maintain precise bevel angles. For world class finishing, use a fine ceramic, arkansas or translucent hard stone to 'hone' (final polish) edges after using these stones. We also offer all four aluminum oxide stones in a set that comes in a protective cordura roll-up pouch.

Item #SPK-STONE2	220 grit	$19.95
Item #SPK-STONE3	320 grit	$19.95
Item #SPK-STONE4	400 grit	$19.95
Item #SPK-STONE6	600 grit	$19.95
Item #SPK-STONEX	set of 4	$69.95

SKIVISIONS TUNING STICK



The SkiVisions Tuning Stick helps you determine if your edges are sharp. Simply hold it at a 45-degree angle to the edge and, using moderate pressure, slide and try to "shave" some stick material away. If the steel edge is sharp at that spot, you will hear and feel noticeable resistance and vibration. If the edge is dull, the stick will not shave, but slide without much sound, resistance or vibration. A cheap but invaluable tuning aid!

Item #SVN-TS $5.95

CUTTING FLUID

Apply a squirt of this fluid to ceramic, arkansas or diamond stones to help reduce friction and residue build-up while deburring and polishing steel edges. A little goes a long way! 2oz spray bottle.

Item #SVT-SS2 $9.95

BASE & EDGE MAGNIFIER

This 5 power magnifier is ideal for base and edge inspections, and doubles as a good hand lens for examining snow crystals too.

Item #KOB-527 $9.95

SWING WEIGHT

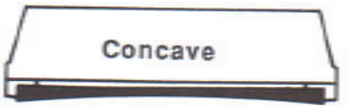
Pick up a ski and grab it with both hands at mid-point. Swing the tip and tail side-to-side several times. Feel how much effort this takes? That's the swing weight of the ski. Longer skis usually have a heavier swing weight than shorter skis. This gives them more stability at higher speed and helps dampen vibrations.

CONVEX

The opposite of a concave base. In this case the base protrudes further into the snow than the edges. It makes for a ski or snowboard that turns easily but is difficult to edge. It can be detected with the aid of a true bar, and can be corrected by sanding, stone-grinding or with a base flattener tool. Convex bases are a genuine thrill at high speed... they give new meaning to the phrase "a pig on ice".

CONCAVE

A condition where the base edges protrude further into the snow than the base material (think of the base as a "cave"). This condition feels similar to railed or burred edges when skiing or snowboarding. It can be detected with the aid of a true bar, and can be removed by filing, stone grinding or with a base flattener tool. Concave bases are exciting to ski or board because you're never quite sure just what direction they'll take you next!



FLATTENING CONCAVE BASES

In the past, skis were pretty easy to flatten with a stonegrinder, belt sander, or base flattener tool. But wider powder skis, shaped skis and snowboards have been more difficult...and, in some cases, nearly impossible. Constructing these makes it tougher for manufacturers to prevent some warpage from creeping in during the curing process. The result is usually slightly concave tips and tails. If this curvature is slight, it can be removed with a file and base flattening tools...but if more pronounced, it can be difficult to completely remove without also removing unacceptably large amounts of p-tex or steel edge material in the process. In this event, work to get the bases flat from each edge in toward the center of the ski or board at least 3/8", leaving a smaller concave area in the center. This will save base and edge material, and still provide good performance.

DON'T LET A GOOD TOOL GO BAD!

A clean tool is a happy tool.
Here's some care and feeding tips...

Ceramic Stones- scrub gently with a brass Supertooth brush (on p.28), using Comet or Ajax cleanser with water, or vinegar and water to cut away grime.

Diamond Stones- scrub gently with a nylon Supertooth brush (on p.25), along with a little wax remover or Ronson lighter fluid.

Steel files- clean frequently with a file brush (on p.25), and rub a little chalk into file teeth occasionally.

Plastic Scrapers- wipe away wax build-up frequently using a steel scraper, ski edge, etc. Resharpen with a pansar file, sanding screen or sharpening tool (p. 33).

Steel Scrapers- keep sharp using a flat file and burnisher (p. 11).

Aluminum Oxide & Hard Stones- gently lap face of stone with a coarse (black) diamond stone...but do not use too much pressure or you'll greatly accelerate wear on the diamond stone..

Base Repair Irons & Pistol- keep tips clean by wiping on an old scotchbrite pad while still warm.

Riller Bars/Structure Tools- clean out teeth and ridges on structure bars/blades with a brass brush (on p.25).

Wax Irons- wipe off wax and any dirt from the bottom of warm iron (not hot) with a soft, clean rag or old t-shirt (preferably not on someone's back at the moment).

Wax Brushes- Pour some base cleaning solvent in an old bread pan, set your brush bristles down in it and let stand for 15 minutes, then rinse clean with warm water.

Scotchbrite, Fibertex, Omni-Prep Pads- Rinse pads under hot water (180°F) to melt away wax.

DON'T BURN BASES!

Hot irons should never come in contact with dry or unwaxed base material or you can seriously burn and damage it. To avoid this, drip or rub on enough wax before ironing.

WAX TOOLS

CITRIC-NAPTHA BASE CLEANER

Our citric-naptha blend solvent is a safer alternative to the toxicity of traditional wax removers. It cleans efficiently and dries very quickly (naptha is added to increase drying speed). Apply sparingly to fiberlene, base-tex paper or a lint-free cleaning rag to wipe dirt or wax off any ski or snowboard base. Use with adequate ventilation. Ground shipping only to continental USA.

Item #TEC-JG16 16oz $9.95
Item #TEC-JG128 1 gallon $39.95 ●8#

CITRIC BASE CLEANER

Our citric solvent is 100% petrol free, a safer alternative to the toxicity of traditional wax removers. It cleans bases just as well as our citric-naptha blend but evaporates a bit slower. So if you're not in a rush and like the idea of adding a "green" product to your shop, this might be the ticket. Use sparingly on lint-free cloth and always with adequate ventilation. Ground shipping only to continental USA.

Item #TEC-BIO16 16oz $9.95
Item #TEC-BIO128 1 gallon $39.95 ●8#

PETROL BASE CLEANER

Although we usually prefer citric-basedwax remover for health and safety reasons, we also offer this extra heavy-duty petroleum-based solvent. We recommend applying it sparingly to fiberlene, base tex paper or a lint-free rag to wipe unwanted grime or wax off ski orsnowboard bases. Please use with very good ventilation, and not around open flames. 16 oz. can. Ground shipping only to continental USA.

Item #SWX-I64 $19.95

SWIX FLUORO WAX REMOVER

Special cleaner for fluoro waxes. Fluoro waxes are resistant to solving with standard citric or petroleum-based cleaners. Removal of old fluoro components in a base allows for better absorbtion of subsequent wax layers. Apply cleaner with a lint-free cloth, brush with a white nylon brush while wet, wipe clean and allow to dry for 5-30min. Finally brush with a steel or brass brush and begin re-waxing with base prep wax. 150 or 500ml.

Item #SWX-I84S 150ml $19.95
Item #SWX-I84L 500ml $34.95

FIBERFREE PAPER

This thin non-woven paper is strong, absorbent, and lint-free. Use it with wax remover to clean dirty bases, sidewalls and topsheets… as well as positioned between your iron and p-tex base when hot waxing to pick up unwanted dirt from your iron, base material or wax bar for faster glide. We offer a variety of brands in different size rolls.

Item #TOK-0004 $9.95
• Toko Base Tex 6" x 33 yards
Item #SWX-T151 $7.95
• Swix Fiberlene 5" x 28 yards
Item #SWX-T150 $13.95
• Swix Fiberlene 9" x 55 yards

FIBERLENE WAXING PAPER

Use a sheet of this lint-free absorbent paper between your iron and the ski or snowboard base during your last tip-to-tail pass when hot-waxing, especially when applying very hard (cold temp) waxes. It helps protect the base from overheating when applying cold waxes, and absorbs the excess wax leaving a thin and uniform wax layer that requires less scraping afterwards. Sold in a pack of 100, measure 5" x 9".

Item #SWX-T153 $13.95

WORKSHOP PAPER TOWELS

These hefty, fiber-free paper towels are ideal for cleaning off old wax and dirt when using wax remover, polishing ski and snowboard top sheets, absorbing excess wax (when placed between your iron and the base on a final hot-wax pass), and other uses in the workshop, coffee spills come to mind. They're sold in packs of 56 folded sheets, and each sheet measures 12 1/2" x 14".

Item #TOG-KREW $12.95 pack

TIPS & TRICKS WINNER!

This is where your tip or trick could appear, winning you a $300 credit at tognar.com. If you have a clever technique that works well in your backshop why not share it with your fellow tuners and stock-up on some free gear in the process. If your tip isn't the winner, but we think it needs to be known, we'll print it in the catalog and get you a $50 credit. Anything dealing with tuning, waxing, boots, etc. is fair game!

CHUGGER WAX IRON

This is a great choice for home tuners and will neatly fit nearly any waxbox budget. It features a hefty 3/8"-thick aluminum base that measures 4" x 5"...so it's large enough to span most ski bases in one pass, or snowboard bases in 2 side-by-side passes. It has an adjustable thermostat, warms up to optimal operating temperature in 5 minutes, and features a heating element that fluctuates only +/- 5°C. 110 volt, 850 watts.

Item #APG-MS256 $39.95

TOKO T8 WAX IRON

Toko's standard wax iron is both compact and rugged… ideal for home, pro workshop use, or traveling. It holds steady temperatures, and is adjustable from 212° to 320°F (100 to 160°C). It features a stout 1/2" thick aluminum base plate measuring 4" x 6". Available in 110 volts or 230 volts. 800W.

Item #TOK-T8 110V $59.95

Item #TOK-T8EU 230V $59.95

TOKO T14 DIGITAL WAX IRON

Toko's most powerful and professional waxing iron features a built-in microprocessor to precisely control temperature fluctuations, and heats up quickly to deliver a working temperature range of 212° to 320°F (100° to 160°C). It also features a digital read-out to continually display the current operating temperature. The compact ergonomic chassis has a pressure-cast aluminum base with diagonal grooves to help distribute wax evenly across the base. The base plate is a 1/2" thick and measures 4" x 6". Offered in a 110 volt or 230 volt model both with a whoping 1200 watts. Includes a padded nylon carrying case.

Item #TOK-T14 110V $124.95
Item #TOK-T14EU 230V $124.95

WHAT'S YOUR VOLTAGE VICTOR

We offer many of our waxing irons in two voltages, 110 volts and 230 volts. North America operates on 110 volts, most other continents operate on 230 volts. The 120 volt irons have a two-flat-prong plug, the 230 volt irons have a two-round-prong plug. If you live in a 230 volt country with outlets that won't accept the two-round-plug, you can always use a plug adaptor.

TANK WAX IRON 230V

A compact and capable waxing iron that won't break the bank. Features a 14mm thick base that measures 140mm x 90mm. The base is hourglass shaped with beveled edges for better wax spreading. Temperature is set with a ratcheting dial from below 100° to 150°C. Cord length is 180cm and has two round prongs. 230 volts 800 watts.

Item #SPK-100290 230V iron $49.95

SWIX T73 PERFORMANCE WAX IRON

This workhorse wax iron features a 8mm thick aluminum base plate to provide long lasting and consistent heat(±3°C. fluctuation). The sleekdesign fits nicely in the handthe temp. dial is easily accessed by the thumb. Operating temperature range is 203° to 338°F (95 to 170°C) Cord length is a generous 6 1/2'. The base plate measures 4 1/4" x 5 3/4". 110 volt, 500 watts.

Item #SWX-T7311 $134.95

SWIX T74 SPORT WAX IRON

Through the years, thousands of bases have been waxed with this venerable iron. Simple to use and reliable it is an excellent choice for the home tuner. Features a dial to adjust temperature, and a control light to indicate proper temperature. Includes a removable clip for attaching Fiberlene paper when using the "fast clean iron method" See page 24. Available in 110 volts or 230 volts, 400 watts.

Item #SWX-T7411 110 volt $74.95
Item #SWX-T7422 230 volt $74.95

SWIX ALPINE WORLD CUP T71A DIGITAL WAX IRON

Swix's top of the line digital waxing iron features a built-in micro processor that constantly displays the iron temperature in either Celsius or Fahrenheit. Temperature is regulated at 1°C deviation. The fully adjustable thermostat also features correct temperature settings for all Cera Nova waxes. An advanced ceramic element and 25mm-thick steel plate help hold heat and keep temperature fluctuations to a minimum. Half the base is dimpled to help spread wax evenly. Temperature range 176° to 356°F (80 to 180°C). 110 volts, 1000 watts. Includes carrying case.

Item #SWX-T711A T71A $449.95

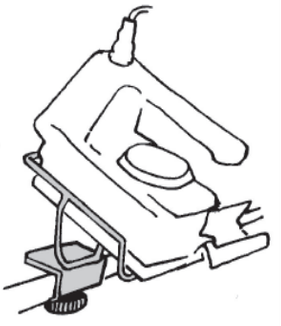
WAX TOOLS

PROTECTIVE IRON BASE COVER

Here's a simple and effective way to help keep your quality wax iron working like new. These nylon and foam-padded adjustable covers are designed to slip over the base plate of any of our wax irons, thereby protecting them from scratches and dings during transport or storage. This subsequently helps save your ski or snowboard bases from scratches when hot-waxing.

Item #SWX-R384 $19.95

WAX IRON HOLDER



This steel holder serves as a safe and clean 'perch' for your wax iron (whether hot or not), and easily clamps to workbenches up to 1" thick. It helps keep dirt and grime out of your wax jobs, and works well with our Swix and Toko wax irons.

Item #SWX-T73 $29.95

COVERITE IRON THERMOMETER

Have you ever wondered what temperature your wax iron is operating at? Here's a simple dial thermometer that can tell you. Simply hold the coiled bi-metal element against the base plate of your iron, then read the scale... it measures from 0°-500°F (0°-250°C).

Item #GPM-2410 $9.95

WAX AND TOOL BOXES

Transport and store valuable waxes, scrapers, and corks safely, securely and conveniently in these wax boxes. Constructed of heavy-duty plastic, with a sturdy, lockable metal clasp (includes two keys) and multiple removable and rearrangable drawers.
Small boxes measure 13"wide, 11" tall, and 7" deep. Large boxes measure 18" wide, 14" tall and 7" deep. (outside measurements).
Various drawer configurations and colors, depending on model. Please check website for current dimensions. tognar.com

Item #SWX-P57	Swix Lrg. Box	$119.95
Item #TOK-7168	Toko Sml. Box	$89.95
Item #TOK-7169	Toko Lrg. Box	$119.95

DIAL STEM THERMOMETER

An accurate 5" stem thermometer to determine temperature gradient in a snowpack and/or proper ski wax. The 1" diameter dial measures from -40° to 160°F or -40° to 70°C. Includes plastic sheath with secure pocket clip and stem clasp.

Item #VGS-81160	Fahrenheit scale	$9.95
Item #VGS-81070	Celsius scale	$9.95

TOKO DIGITAL SNOW THERMOMETER

A compact, waterproof thermometer for accurate snow measurements from -40°C to 200°C (-40°F to 392°F). Can be switched from °C to °F. Min/Max function. Probe measures 2.75" (70mm). Handy cap covers probe, when not in use, for safe pocketing. Overall length is 6" (150mm). Uses one LR44 battery (included).

Item #TOK-1001 $29.95

PRO-TEC RESPIRATOR

Protect your lungs from wax smoke, wax remover fumes, repair material smoke, etc. This respirator uses two filters to screen out vapors, dust, and smoke. It features a non-allergenic PVC face seal to fit most faces.

Item #PTR-M765 $39.95
• Respirator w/filters

Item #PTR-F785 $29.95 pr
• Replacement filters

PLEXIGLASS WAX SCRAPERS

These scrapers are precision cut and all four edges are planed smooth, square and straight to efficiently scrape excess wax from ski and snowboard bases. They can be resharpened with a file, sharpening screen or tool. The ski scrapers are 5" or 6" long, 2 3/8" wide and 5mm thick. The snowboard scraper measures 2 3/8" x 12" and is 4mm thick...it's also good for ultra wide powder skis, jumping skis and monoskis. Scrapers sport Tognar, Swix or Toko logos, just pick your favorite team!

Item #APG-SKI	Tognar 6"	$5.95
Item #SWX-T825	Swix 5"	$5.95
Item #TOK-3815	Toko 6"	$5.95
Item #APG-SNBS	Tognar 12"	$9.95

ELECTRIC SCRAPER SHARPENER

A dull scraper can make the simple task of removing wax arduous, especially with today's wider boards. We offer manual scraper sharpeners that work well, but if you are looking for a dead simple and efficient way to keep an edge on your scraper, or if you have a family or team worth of skis to scrape, this is the tool to have. We have one on the bench here at Tognar and love it! Simply slide the scraper through the slot and a sharp cylindrical cutting blade (spun by a high speed electric motor) imparts a super-smooth, super-sharp edge in seconds!
The tool measures 6"x3.5"x2.5" making it compact enough to take on the road. Accepts all Plexiglass scrapers up to 7.6mm in thickness. Made from recycled plastic. Machined and assembled in the USA. The unit itself will operate on any voltage from 110 to 240. Simply indicate the cord-type for your neck of the woods and it will ship with the unit. We offer the various cords for purchase seperately as well. If you plan on traveling, simply choose the cord for your destination, plug it in, and you're ready to go. NOT FOR METAL SCRAPERS!

Item #MAN-SSSH	Scraper Sharpener	$159.95
Item #MAN-CDUS	North America cord	$9.95
Item #MAN-CDEU	Europe cord	$9.95
Item #MAN-CDAU	Australia cord	$9.95

☆ **SCRAPER SHARPENER**

Run this tool along plastic wax scrapers to maintain a crisp clean edge. It features 4 different width slots (3, 4, 5 & 6 mm wide), and has a durable ceramic cutting insert that cuts away old wax and plastic scraper material. Using this tool continually, however, can lead to concave scraper edges…so occasionally flatten and sharpen them using our scraper sharpening screen (see below).

Item #TOK-1910 $29.95

TOKO WORLD CUP SCRAPER SHARPENER

Sets on a bench top to quickly and effectively sharpen any plastic scraper from 3 to 6mm in thickness. The tool accurately guides the scraper along a replaceable 100mm file, imparting crisp, clean edges to dull and ratty scrapers.

Item #TOK-0008 $49.95 ea

TOKO MULTI-EDGE SCRAPER

This handy plastic scraper has round and square groove scrapers and multiple flat edges for removing wax from hard to reach areas. It even sports a dedicated edge for smoothing Klister.

Item #TOK-3817 $5.95

WAX WHIZARD

This tool lets you safely and effectively apply wax without hot waxing. Simply rub on your favorite wax like a crayon, then use this 4" x 1.5" diameter tube with its high-friction fabric cover, and rub the base. Unlike a cork that tends to melt wax on the surface, this tool creates greater pressure and heat to drive wax deeper into bases for greater durability and performance. Covers can be cleaned by soaking in hot water. Includes one cover. Replacement fabric covers are also available, handy when using diferent waxes that you might want to keep from mixing.

Item #YUS-WW	Wax Whizard	$19.95
Item #YUS-RC	Replacement cover	$2.95 ea

WAX CORKS

Use a cork to rub in wax... rub-a-dub to create heat through friction that melts wax into the base. Use the natural cork for regular block waxes, the kind you could iron in. The synthetic cork creates a higher heat and is good for fluoro blocs and powders (less durable than the natural)

Item #TOK-2626	Toko Natural cork	$5.95
Item #SWX-T12	Swix Synthetic cork	$6.95

FLUORO POLISHING BLOCKS

This felt pad is used to apply 100% fluoro powders such as Cera F, Jetstream or Q, as well as buff and polish them to a fine finish on p-tex bases after corking them in. The felt pad is attached to a nicely finished hardwood block and is easily replacable.

Item #SVT-HWF	Polishing Block	$12.95
Item #SVT-RFP	Repl. Felt Pad	$6.95

WAX BUFFING PAD

These white nylon pads are used for buffing in a rub-on wax or removing old wax. 6"x 9" sheet.

Item #SPK-NPW $1.95 ea

WAX TOOLS

TOGNAR RECTANGULAR HAND BRUSHES

These quality hand brushes feature solid hardwood handles that measure 3” x 4.75” and feature our Tognar Logo.

Item #APG-712 Brass $19.95
• Use to remove old wax and debris from base prior to hot waxing. Also good for brushing out hard, cold snow waxes.

Item #APG-713 Nylon $14.95
• Use to remove soft to medium-hard wax from base structure after scraping. This is the brush to have if you only have one.

Item #APG-711 Horsehair $14.95
• For final polishing of all hot waxes. Gives bases a high luster. Reduces static.

Item #APG-713B Blue Nylon $14.95
• Soft nylon brush final polishing of 100% fluoro overlays.

Item #APG-716Y Fine Steel $19.95
• Use this very soft, fine steel bristled brush to remove excess wax (any hardness) from any structure after scraping. It can also be used to polish very hard waxes.

Item #APG-715 Brass/Nylon $14.95
• Half of this brush is brass and the other half is nylon. Brush out old wax and debris from the base with the brass prior to waxing. Use the nylon to brush excess wax off the base after scraping. Best used with Nordic skis due to narrow width of the brush.

TOGNAR OVAL HAND BRUSHES

These brushes are larger than our rectangular version effectively covering more base with each pass. They also have nylon hand straps for better grip and more power. A good choice for wider skis, snowboards or folks who want to cut down on time spent brushing. All brushes feature a solid hardwood handles with Tognar logo. Measure

Item #APG-BO722 Brass $29.95
• To clean old wax from base before waxing, and to remove new hard wax from fine structure.

Item #APG-BO723W Nylon $24.95
• To remove new soft wax from coarse or medium structures.

Item #APG-BO721 Horsehair $24.95
• For final polishing of all waxes.

Item #APG-BO723B Fine nylon $24.95
• For final polishing of 100% fluoro overlays.

SVST RADIAL BRUSHES

These unique brushes feature a rounded bristle profile which enables them to “roll” more naturally through the brushing motion. This loads and unloads bristles for a more focused and powerful brush-stroke, the radial also whisks away wax debris as you move along the ski. Hardwood handles measure 3 1/2” X 6”.

Item #SVT-RDNS Nylon Soft $39.95
• To remove soft wax from coarse or medium structures. Or as a second brush after stiff nylon.

Item #SVT-RDBB Bronze $44.95
• To clean old wax from bases before waxing, and to remove hard wax from finer structures.

Item #SVT-RDHH Horsehair 18mm $39.95
• For final polishing of all waxes. Reduces static.

Item #SVT-RDNB Nylon Stiff $39.95
• Works well with all wax temps and hardness. Use directly after scraping.

Item #SVT-RDBH Brass/Horsehair $44.95
• To clean old wax from bases before waxing, or brush out hard waxes. Horsehair bristles surrounding the perimeter help reduce static built up by the brass bristles and polish the base.

Item #SVT-RDCK Cork $16.95
• A very efficient, large area cork for applying hard waxes of fluoro overlays.

SWIX PASTE WAX COMBI BRUSH

This handy brush is designed for more effective application of paste waxes such as the Swix F4, One Ball Jay Viper, Purl Speed paste or Dominator Momentium. Simply use the felt side to spread and buff the wax into the base, allow the wax to dry for a few minutes then use the blue nylon side to remove excess wax from the structure. This process greatly increases the durability of any paste wax. 2.25” x 3.25”

Item #SWX-T166 $15.95

DON’T WAX COLD BASES

Make sure P-tex bases are clean and at room temperature (minimum 60°F) before waxing. If too cold, P-tex base molecules have less space between them to properly absorb wax, it can also result in overheating and possibly damaging bases with excessive iron heat.

RED CREEK ROTOBRUSHES

Rotobrushes save time and are very versatile...they can be used to remove wax, uncover base structure, cut away p-tex micro-hairs and polish bases. To operate, slip the desired brush or attachment onto a control handle, clamp the handle into any electric drill, and brush away. All rotobrush and handle brands we offer are interchangable.

Control Handles

Item #TOK-2547 $59.95
- Standard handle (accommodates one 100mm brush) with protective plexi shield

Item #TOK-2584 $69.95
- Snowboard handle (accommodates one 300mm brush or three 100mm brushes side-by-side) without plexi shield

100mm Ski Brushes

Item #TOK-2523 $79.95
- 10mm Brass bristles. Use to remove old wax and clean base structure before waxing. It can also be used after hot-waxing and scraping to remove very hard excess wax (very cold snow conditions) from base structure. Use back and forth at medium pace with light pressure at 800rpm, followed by 2 tip-to-tail finishing strokes.

Item #TOK-2531 $49.95
- 6mm Horsehair bristles. Use to brush out hard to medium-hard waxes. Use back and forth at medium pace with medium pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #TOK-2529 $49.95
- 10mm Soft Nylon bristles. Use for final polishing. Use back and forth at medium pace with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #TOK-2525 $49.95
- 4mm Medium Nylon. General use brush, good for removing medium-hard to soft waxes.

Item #TOK-2533 $39.95
- Rotocork. Use to cork-in 100% fluoro and soft hydrocarbon waxes (instead of ironing).Use with very light pressure and low (800) rpm's.

300mm Snowboard Brushes

Item #TOK-2549 $89.95
- 4mm X .12mm medium gray nylon bristles. Use after scraping to remove excess wax from any base structure.

Item #SPK-500313 $89.95
- 10mm x .2mm black nylon bristles. Use to remove excess softer (warm snow) waxes from coarser base structures. Also good for polishing.

Item #SPK-500316 $89.95
- 6mm x .25mm horsehair bristles. Use to remove excess harder (cold snow) waxes from finer base structures. Also good for final polishing.

SWIX ROTOBRUSHES

Swix offers a broad range of quality rotobrushes. The quick release control handle allows brush changes without removing the control shaft from the electric drill each time...a clever time-saver. We recommend wearing protective eyewear whenever rotobrushing. All brushes and control handle are 100mm long. All rotobrush and handle brands we offer are interchangable.

Item #SWX-T14 $79.95
- Control shaft and shield with quick release handle

Item #SWX-T17B $42.95
- 5mm X .2mm black nylon bristles. Use after hotwaxing and scraping to remove excess harder waxes (colder snow conditions) from fine to medium base structures. Use back & forth with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes

Item #SWX-T17W $42.95
- 5mm X .3mm blue nylon bristles. Use after hotwaxing and scraping to remove excess softer waxes (warmer snow conditions) from medium to coarse base structures. Use back and forth with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #SWX-T16 $42.95
- 5mm X .25mm horsehair bristles. Use for final polishing of any waxes. Also use for polishing after applying 100% fluoro overlays (Cera F, Jetstream, Q, etc.). Use back and forth with light pressure at 2500rpm, followed by two tip-to-tail finishing strokes.

Item #SWX-T18 $42.95
- Rotocork. Use to warm Cera F and other 100% fluoro overlays, with very light pressure at 1000rpm.

ROTOBRUSH TIPS

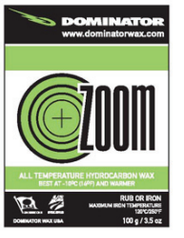
How can you determine the speed (in rpm's) of your drill when rotobrushing? A rough guideline to remember is that most cordless drills don't go above 1200rpm, whereas regular electric drills can reach 2500rpm. Use the sound of the drill (compared to how it sounds running full speed) to estimate your speed. If you use a rotocork (or hand cork) to rub in fluoro waxes, try to use separate corks for cold and warm waxes. Any cork gets better as wax gets embedded into it over time. For best results, operate a rotocork at 1000rpm or less. Rotocorks work best for melting in warmer (softer) waxes To install a roto omniprep pad over a 6mm or smaller brush, just wrap a regular piece of paper around the brush before sliding on the omniprep pad...then gently pull it out when the pad is in place. To remove, pull the omniprep pad off gently and evenly around the brush to avoid ripping it. Done properly, the pad and brush will suffer no wear during installation or removal. For more tips, www.tognar.com

DOMINATOR WAX

DOMINATOR WAX

Dominator is an American-made line of fluorinated performance waxes recognized for their low friction coefficients and high degree of water repellency. They have a handy "virtual technician"online at www.dominatorwax.com to help you choose which wax to use.

DOMINATOR UNIVERSAL ZOOM WAXES



Unlike traditional universal waxes, these "smart" waxes provide good glide in warmer temperatures, but also harden at colder temperatures to better reduce the increased drag and abrasion of cold sharp snow crystals. This versatility is ideal if you encounter a wide range of temperatures and conditions during the day. It's available in three versions. Zoom hydrocarbon is offered with or whithout-graphite (graphite helps resist dirt) and is ideal for recreational riding, instructors and patrollers, it is available in an economical 400gm bar. HyperZoom is a lo-fluoro wax suited for race training, junior racing or higher speed recreational cruising. RaceZoom is a mid-fluoro wax that'll pick up your pace on days when you want the fastest race or freeriding results. It is offered in a simple to use Old Snow and New Snow version. These waxes work great with a base layer of Dominator ReNew base prep wax, it helps the Zoom waxes bond better for increased the longevity of your wax job.

Zoom

Item #DOM-Z100	100g	$19.95
•Hydrocarbon Zoom		
Item #DOM-Z400	400g	$41.95
• Hydrocarbon Zoom		
Item #DOM-Z100G	100g	$19.95
• Hydrocarbon Graphite Zoom		
Item #DOM-Z400G	400g	$41.95
• Hydrocarbon Graphite Zoom		

Hyper-Zoom

Item #DOM-HZ40	40g	$22.95
Item #DOM-HZ100	100g	$41.95
• Lo-fluoro HyperZoom		

Race-Zoom

Item #DOM-RZ40OS	40g	$41.95
Item #DOM-RZ100OS	100g	$77.95
• Mid-fluoro RaceZoom (old snow)		
Item #DOM-RZ40NS	40g	$41.95
Item #DOM-RZ100NS	100g	$77.95
• Mid-fluoro RaceZoom (new snow)		

DOMINATOR ZOOM RENEW WAX

Unlike most traditional base prep waxes these are formulated to deeply penetrate ski or snowboard bases, when they cool they form a hard layer of wax which prevents subsequent glide waxes from mixing with the prep wax (mixing can change the characteristics). Use this as a storage, travel, new base prep or post-stonegrind. Sold in 100 or 400-gram bars in three formulas, regular, with graphite additive and the new Race Renew with SRB added to it for increased antistatic qualities when used on older snow, Race Renew is sold only in 100g.

Item #DOM-RN100	Regular 100gm	$19.95
Item #DOM-RN400	Regular 400gm	$41.95
Item #DOM-RN100G	Graphite 100gm	$19.95
Item #DOM-RN400G	Graphite 400gm	$41.95
Item #DOM-RR100	RaceRenew 100gm	$37.95

DOMINATOR HYDROCARBON WAXES

Highly refined hydrocarbon waxes for everyday use, base cleaning and travel waxing. Available in 100g or 400g packs in three temperature ranges. Simple, effective and affordable.

Item #DOM-HX77	100gm	$19.95
Item #DOM-HX77L	400gm	$41.95
• -4 to 20°F (-20 to -7°C)		
Item #DOM-HX88	100gm	$19.95
Item #DOM-HX88L	400gm	$41.95
• 16 to 32°F (-9 to 0°C)		
Item #DOM-HX99	100gm	$19.95
Item #DOM-HX99L	400gm	$41.95
• 26°F & above (-3°C+)		

DOMINATOR BULLET

These waxes are designed to cover the lower range of snow temperatures where it is too cold for the Zoom waxes. Bullet wax works best at snow temperatures of 14F (–10C) and lower, but will work on snow as warm as 22F (–5C) especially if it is icy. Simply apply with Zoom or other base layer as conditions warrant. Sport is non-fluorinated, Race Bullet are fluorinated

Item #DOM-BLLT	Sport 100g	$23.95

Race-Bullet

Item #DOM-B40OS	Old Snow 40g	$22.95
Item #DOM-B100OS	Old Snow 100g	$41.95
Item #DOM-B40NS	New Snow 40g	$22.95
Item #DOM-B100NS	New Snow 100g	$41.95

DOMINATOR WAX

DOMINATOR PSYCHO

When the conditions get really cold and the snow turns hard add a bit of Psycho to your wax to increase glide, wax durability and help resist the premature base oxidation. Simply shake a bit of the powder along the edges or over the entire base after applying your glide wax and iron in. We offer two formulas, old snow or new snow. Sold in 60 gram containers.

Item #DOM-PSYO old snow-60gm $23.95
• -22 to 5°F (-30 to -15°C)

Item #DOM-PSYN new snow-60gm $23.95
• -22 to 5°F (-30 to -15°C)

DOMINATOR ROCKET/RACE ROCKET

We offer two versions of this wax.
Rocket - a broad range mid-fluoro, ideal for freeskiing or recreational racing.
Race Rocket - also a broad range, mid-fluoro but includes two bars, a gray bar (SRB)for old snow and a black bar (graphite)for new snow. Simply rub the wax onto the base and polish with the included sythetic cork. To extend the life of your Q5 by first applying the black (new snow) Race Rocket, same for Q7, apply the gray (old snow). Rocket sold as 1-20gm bar. Race Rocket sold as 2-20gm bars.

Item #DOM-RKT 1x20gm $18.95
Item #DOM-RR 2x20gm $37.95

DOMINATOR BUTTER

This highly fluorinated antistatic soft wax is designed for very wet snow at high air temperatures. After the hot wax has been scraped and brushed, Butter is applied by rubbing (either alone or with Q6) then worked into the base with a cork and brushed out. 40-gram bar.

Item #DOM-BT40 $41.95

UNIVERSAL WAXES

The most basic and popular formulas are wide-temperature range (universal) waxes. These are versatile, inexpensive, reliable and convenient for recreational riders, patrollers, guides, instructors and others who commonly encounter a wide variety of snow/temperature conditions, and simply need such basic wax benefits as easier turning, decent glide and base durability more than top speed. These waxes are readily available in bar, paste or liquid form.

DOMINATOR VICTORY OVERLAYS

These top-line fluoro overlays are designed for optimal race speed. They cover a wide temperature range and work well for all snow crystal types.

Q5 - fluoro/graphite block that runs great in new snow.

Q6 - blend of fluorinated and fluorocarbon compounds in block form, is highly versatile, economical to use and the one to buy if you can only buy one.

Q7 - fluoro/SRB block that excels in old snow.

FLASH - (formerly R6) is a fluoro/hydro/anti-static blended paste (wipe-on) that runs well in its temp. range, great for recreational racers.

Item #DOM-FLASH 40gm $64.95
• -4 to 14°F (-20 to -10°C) for old snow
• -5 to 27°F (-15 to -3°C) for new snow

Item #DOM-Q5 20gm $129.95
• 5°F (-15°C) & warmer - new snow

Item #DOM-Q6 20gm $129.95
• 7 to 32°F (-14 to 0°C) for old snow
• 14 to 32°F (-10 to 0°C) for new snow

Item #DOM-Q7 20gm $129.95
• 5°F (-15°C) & warmer - old snow

DOMINATOR MOMENTUM PASTE WAX

This pair of fluorinated paste waxes is ideal for the many racers and performance riders. They are formulated for two different snow temperature ranges, but embodies properties of what would amount to several different types of waxes in other systems. We love the Momentium system, because if something changes with conditions up on the hill we can easily adapt with a quick rewax. To apply, spread a thin layer on your base with the included felt pad, wait 10 min, then polish well with a synthetic cork (or nylon stocking) and brush with a finishing brush. 40g jar.

Item #DOM-MNC 40g $23.95
• COLD 18° & colder (-8° & colder)

Item #DOM-MNW 40g $23.95
• WARM 18° & warmer (-8° & warmer)

To get more technical info, or to place an order, visit us on the web.
www.tognar.com

DOMINATOR WAX

DOMINATOR FX
LOW FLUORO WAX

High quality, low fluoro wax for racing and training. A great choice for junior racers. Designed for humidity les that 35% (dry snow). Offered in four temperature ranges listed below. Available in 40g or 100g packs.

Item #DOM-FX07C 40g $23.95
Item #DOM-FX07 100g $41.95
-15°C (5°F) and colder.

Item #DOM-FX77C 40g $23.95
Item #DOM-FX77 100g $41.95
-7°C to -15°C (20°F to 5°F)

Item #DOM-FX88C 40g $23.95
Item #DOM-FX88 100g $41.95
0°C to -7°C (32°F to 20°F)

Item #DOM-FX99C 40g $23.95
Item #DOM-FX99 100g $41.95
-3°C (26°F) and warmer.

DOMINATOR FX
MID FLUORO WAX

High quality race waxes with a mid fluoro content. Designed for use in humidity between 35% and 70%. Offered in four temperature ranges listed below. Available in 40g or 100g packs.

Item #DOM-FX04C 40g $39.95
Item #DOM-FX04 100g $76.95
-15°C (5°F) and colder.

Item #DOM-FX44C 40g $39.95
Item #DOM-FX44 100g $76.95
-7°C to -15°C (20°F to 5°F)

Item #DOM-FX55C 40g $39.95
Item #DOM-FX55 100g $76.95
0°C to -7°C (32°F to 20°F)

Item #DOM-FX66C 40g $39.95
Item #DOM-FX66 100g $76.95
-3°C (26°F) and warmer.

WAX CONSUMPTION

As a general rule, it takes 15-20 grams (1/2 oz) of wax to hot wax a pair of alpine skis... less for nordic and more for fat boards or snowboards. If you rub and cork in wax, it only takes about 1/2 this amount or less. Reminder...30 gr = 1 oz.

DOMINATOR FX
HIGH FLUORO WAX

High quality, high fluoro wax for racing. A great choice for junior racers. Designed for humidity greater than 70% (wet snow). Offered in four temperature ranges listed below. Available in 40g or 100g packs.

Item #DOM-FX01C 40g $59.95
Item #DOM-FX01 100g $109.95
-15°C (5°F) and colder.

Item #DOM-FX11C 40g $59.95
Item #DOM-FX11 100g $109.95
-7°C to -15°C (20°F to 5°F)

Item #DOM-FX22C 40g $59.95
Item #DOM-FX22 100g $109.95
0°C to -7°C (32°F to 20°F)

Item #DOM-FX33C 40g $59.95
Item #DOM-FX33 100g $109.95
-3°C (26°F) and warmer.

DOMINATOR FG
MICROGRAPHITE WAX

These waxes contain Electro-ground Micrographite. Essentially, graphite that has been directly fluorinated and ground to an extremely fine powder. This low fluoro wax runs extremely well on fresh snow in less than 35% humidity. Sold in 40g or 100g.

Item #DOM-FG07C 40g $26.95
Item #DOM-FG07 100g $49.95
-15°C (5°F) and colder.

Item #DOM-FG77C 40g $26.95
Item #DOM-FG77 100g $49.95
-7°C to -15°C (20°F to 5°F)

Item #DOM-FG88C 40g $26.95
Item #DOM-FG88 100g $49.95
0°C to -7°C (20°F) and warmer.

DOMINATOR SRB
FLUOROGRAPHITE WAX

These waxes contain Electro-ground Fluorographite Polymers, that have been ground to an extremely fine powder. This substance runs extremely well on snow that has transformed (old snow). Sold in 40gm.

Item #DOM-SRB11C $68.95
• 5°F to 20°F (-15° to 7°C)

Item #DOM-SRB32C $68.95
• 20°F (-7°C) and warmer.

HERTEL WAX

FRICTION

Although friction that occurs between the ski or snowboard base and snow is generally understood as a single entity, it is more accurately described as a sum of 4 components:
1) Dry friction...where dry snow particles touch the base
2) Wet friction...when a lot of free water is present, adheres to the base and creates suction
3) Static electricity friction...electric charged generated on base and edges through movement on the snow
4) Dirt friction...when hard dirt particles penetrate the base and snow simultaneously, connecting them and creating drag

-Dominator Wax

LEARN SKILLS AT SCHOOL

Ski & Snowboard Tuning and Repairs: Learn all about ski and snowboard tuning and repair at workshops offered each fall at locations all across the country. The Ski & Snowboard Mechanics Workshops are open to the public as well as ski and snowboard shop personnel, and are taught by very experienced and qualified instructors. (802) 899-2633 or www.vermontskisafety.com

Boot Fitting: Ski Magazine and Masterfit University take their campus on the road every fall for two-day workshops. Taught by some of the best boot-fitters in the country, they are also open to the public as well as shop personnel. Call (800) 575-4348, or go to www.masterfitinc.com.

Avalanche Training: Offered every other year, the National Avalanche School is a week-long classroom course, followed by on-slope training. Taught by a staff of over 20 well-known and respected experts in the field, it is the oldest and most popular avalanche course of its kind held in North America. Call (303) 987-1111, or go to www.avalancheschool.org

LEARN SKILLS ONLINE

Visit our website at www.tognar.com for a wide range of tuning and waxing tips and video tutorials. You'll also find wax temperature charts, recommended tools and a plethera of other useful information!
Please email us at info@tognar.com if you would like to see something added or have a tip of your own that might help others!

HERTEL WAX

Hertel has been making top-notch wax in the USA since 1972. A deceptively simple line of waxes covering the needs of rank amateurs to the pros. www.hertelskiwax.com

HERTEL SUPER HOT SAUCE

Hertel's Super Hot Sauce is uniquely formulated to work exceptionally well in a broad range of conditions. If you have been searching for one wax to rule them all, this could be the end of your quest! Solid bars can be ironed or corked in. Available in 5oz (a block of 5-one-ounce bars), 25oz (5-five-ounce-blocks of one-ounce bars), one big 3/4lb. block, or a dainty 2oz spray bottle. Made in the USA.

Item #HTL-HOT5	5oz solid	$12.95
Item #HTL-HOT25	25oz solid	$34.95
Item #HTL-HOTLB	3/4lb solid	$20.95
Item #HTL-HOTLQ	2oz liquid	$9.95

HERTEL RACING FC739

Hertel's Racing Fluorocarbon 739 wax was developed way back in 1986 and has been winning races, at all levels, ever since. The formula is designed to excel in all conditions from icy cold to water ski warm. Racing 739 also utilizes a new wax forumla developed by Hertel (158 Flex) that allows the wax to match the flex of any ski, this keeps wax in the base, where it belongs, and greatly increases wax durability, up to 7-days is the claim. Sold in 5oz (5-one-ounce bars), or one big 3/4lb block. Made in the USA.

Item #HTL-FC05	5oz solid	$29.95
Item #HTL-FCLB	3/4lb solid	$56.50

HERTEL SPRING SOLUTION

This fluorinated wax from Hertel is an antidote to the dreaded stop-start condition encountered during springtime. Seems pollen is one of the main culprits of the unexpected over-the-bar tumbles, this wax addresses the pollen issue and much more! Can be ironed on or corked in. Sold in 5oz (5-one-ounce bars). Made in the USA.

Item #HTL-SS05	5oz solid	$29.95
Item #HTL-SS12	12oz solid	$54.95

HOLMENKOL WAX

HOLMENKOL WAX

Founded in 1922, Holmenkol is a German wax company located in Stuttgart, just down the street from the Porsche factory, they offer waxes ideal for everything from occasional recreational riding to full-on World Cup racing. Their website is www.holmenkol.com.

HOLMENKOL HYDRO WAX

These premium hydrocarbon waxes are the foundation of Holmenkol's wax line. They can be used as travel or cleaning waxes, for recreational riding or race training, or as a base layer for any fluorocarbon additive or powder. They work especially well in conjunction with Holmenkol Fluoro Additive GW25 for weekend racers who want maximum fluoro wax flexibility, convenience and economy. Sold as single 150gm bars or a 900g pack (6x150g bars).

Item #HOL-241211	150g	$19.95
Item #HOL-241216	900g	$98.95

• Ultra, -22° to 5°F (-30° to -14°C)
• good for manmade and abrasive snow conditions

Item #HOL-241111	150g	$19.95
Item #HOL-241116	900g	$98.95

• Beta, 5° to 18°F (-14° to -8°C)

Item #HOL-241011	150g	$19.95
Item #HOL-241016	900g	$98.95

• Alpha, 18°F & above (-8°C & above)

HOLMENKOL RACING MIX HIGH FLUORO WAX

New this season. Holmenkol racing mixes are highly fluorinated waxes for Alpine or Nordic racing. A simple, but effective three-wax system helps take the guess work out of wax selection. Use with a base wax of Alph, Beta or Ultra hydrocarbon waxes. Sold in 70g (2x35g bars) or 150g packs.

Item #HOL-24970	70g	$44.95
Item #HOL-24971	150g	$79.95

• COLD -1° to 14°F (-18° to -10°C)
• good for manmade and abrasive snow conditions

Item #HOL-24960	70g	$44.95
Item #HOL-24961	150g	$79.95

• MID 14° to 25°F (-10° to -4°C)
• good for fine to coarse, damp snow.

Item #HOL-24950	70g	$44.95
Item #HOL-24951	150g	$79.95

• good for fine to coarse, wet snow

HOLMENKOL GW25 FLUORO ADDITIVE

Why didn't someone think of this clever idea before? Mix this fluoro additive with any Holmenkol hydro wax (Alpha, Beta or Ultra) to turn up performance and speed on race day. When mixed 1:1 (GW25:hydro wax) with any of these hydrocarbon waxes, it transforms them into a high fluoro wax for high-humidity snow conditions. Mixed 1:3 yields a mid-fluoro wax for mid-range humidity conditions, and mixed 1:4 yields a low-fluoro for low-humidity conditions. A simple, flexible and economical way to add fluoro. Sold in 70g (2x35gbars) or 150g bars.

Item #HOL-24140	70g	$89.95
Item #HOL-24141	150g	$169.95

COLD SNOW = POOR GLIDE

Cold slow is usually dry snow...in fact, somewhere around -20°F (-30°C), snow feels more like beach sand and bases are really slow...whether correctly waxed or not. Warmer temperatures usually create more moisture in the snowpack, which provides greater lubricity and helps the base slide...up to a point, since too much water creates suction that again slows your glide. Ideal glide usually occurs at temperatures just below freezing (28 to 30°F, or -2 to -1°C...depending on the moisture content).

Tests conducted by the Ski Research Group at Eagle River Nordic in Wisconsin (using nordic skis gliding downhill through a speed trap on a 12° slope) produced the following results:

Snow Temp	Glide Speed	% Difference
28°F	18mph	–
20°F	17mph	5% slower
10°F	15mph	11% slower
-4°F	12mph	33% slower
-10°F	8mph	56% slower

GRAMS TO OUNCES

Multiply grams by .035 to get ounces
(30 grams x .035 = 1.05 ounces)

OXIDATION

The "drying-out" of a p-tex base that occurs when it is left unprotected by wax and exposed to air. On metal, oxidation appears as rust...on p-tex, it appears as a whitish, dry area. Oxidation reduces wax absorption and gliding performance, and can only be removed by scraping, sanding or grinding the base.

Visit our new website for tuning tricks, tips and how to videos!
www.tognar.com

HOLMENKOL WAX

HOLMENKOL 100% FLUORO SPEEDBLOCKS

These 100% fluoro race overlays come in block form for fast and easy rub-on application nearly anywhere…including windy race starts. They can be applied without ironing… simply rub-on, then use elbow grease to melt in using a cork, felt polisher, and brush. Three temperature formulations are offered, each in 15-gram blocks.

Item #HOL-24355 $139.95
• Cold 5 to 23°F (-15 to -5°C)

Item #HOL-24353 $139.95
• Mid 14 to 28°F (-10 to -2°C)

Item #HOL-24351 $139.95
• Wet 23 to 32°F (-5 to 0°C)

HOLMENKOL 100% FLUORO SPEEDFINISH

Holmenkol claims Nanospeed to be the world's most advanced wax overlay for maximum acceleration, glide, durability, and dirt repellency. Formulated in conjunction with Holmenkol's parent company, Nanogate Technologies, it claims excellent durability, and works over any base wax. The liquid formulation allows full base coverage, and penetrates down to the bottom of the deepest base structure. The spray applicator contains no toxic or flammable propellant since it's dispersed thru the expansion of an internal pressure bladder charged with regular air. Two temperature ranges are offered in 1.7oz (50ml) spray applicators.

Item #HOL-20446 Cold formula $169.95
• 5° to 23°F (-15° to -5°C)

Item #HOL-20443 Mid formula $169.95
• 14° to 28°F (-10° to -2°C)

Item #HOL-20440 Wet formula $169.95
• 28°F and above (-2°C and above)

HOLMENKOL ICE WAX

Avoid base burn...sprinkle this super tough powder wax along yourski or snowboard bases and slightly melt it in with your wax iron before applying your wax of the day over it. It's formulated with abrasionresistant synthetic paraffins to provide greater base burn protection from ice, manmade snow and coarse snow crystals. Comes in a 25gm shaker can.

Item #HOL-24149 $39.95

HOLMENKOL SPEEDBASE HYBRID POWDER

These high fluoro base powders use nano-CFC technology for optimum glide, abrasion resistance and ease of application. The powders can be used alone or mixed (handy mixing suggestions on shaker) to create your own secret blend. Sold in 75g shakers.

Item #HOL-24560 $89.95
• Extreme Cold -13 to 14°F (-25 to -10°C)

Item #HOL-24555 $89.95
• Cold 10 to 23°F (-12 to -5°C)

Item #HOL-24545 $89.95
• Mid 19 to 32°F (-7 to 0°C)

Item #HOL-24335 $89.95
• Wet 28 to 32°F (-2 to 0°C)

HOLMENKOL SPEEDPOWDER HYBRID

These 100% perfluorocarbon powder overlays offer outstanding durability and speed with wide temperature ranges. They work with any snow type, just match the snow temp. iron in, brush out and hold on! Three temperature formulations are offered, each in a 25-gram shaker.

Item #HOL-24331 $219.95
• Cold -13 to 7°F (-25 to -14°C)

Item #HOL-24333 $219.95
• Mid 5 to 28°F (-15 to -2°C)

Item #HOL-24335 $219.95
• Wet 25 to 32°F (-4 to 0°C)

WHAT A DRAG!

Various types of friction are at work between your base and the snow. Waxing and proper base structure greatly reduce the affects.

1) Dry friction - where dry snow particles touch the base.

2) Wet friction - when a lot of free water is present, adheres to the base and creates suction.

3) Static electricity friction - electric charged generated on base and edges through movement on the snow.

4) Dirt friction - when hard dirt particles penetrate the base and snow simultaneously, connecting them and creating drag.

-Dominator Wax

ONE BALL JAY WAX

To get the best prices, more technical info, or to place an order, go to www.tognar.com

ONE BALL JAY WAX

This is an American-made line of hydrocarbon and fluorocarbon snowboard waxes for freeriding anywhere on the mountain or sessioning in the terrain park.

OBJ 4WD WAX

These temperature-specific hydrocarbon waxes are formulated for all-around riding, and also serve as a good underlay for fluoro waxes. They can be applied by hot-waxing, or by rubbing-on and corking-in with lotsa elbow grease. Sold in 150 gram bars.

Item #OBJ-W4I Ice $8.95
• 12°F & below (-11°C & below)

Item #OBJ-W4CL Cold $8.95
• 12 to 23°F (-11 to -5°C)

Item #OBJ-W4C Cool $8.95
• 21 to 28°F (-6 to -2°C)

Item #OBJ-W4W Warm $8.95
• 26°F & above (-3°C & above)

OBJ X-WAXES

X-Waxes are a temperature specific group of high-end fluorinated waxes that offer race performance without the price of full-blown race waxes. A step above the 4WD waxes. Each wax is packaged with a 40gram bar of graphite wax. Simply rub on the graphite wax first, then drip and iron in the colored X-Wax and you have a fast and durable combo.
110grams X-Wax + 40grams Graphite

Item #OBJ-WXI Ice $17.50
• 12°F & below (-11°C & below)

Item #OBJ-WXCL Cold $17.50
• 12°F to 23°F (-11°C to -5°C)

Item #OBJ-WXC Cool $17.50
• 21°F to 28°F (-6°C to -2°C)

Item #OBJ-WXW Warm $17.50
• 26°F & above (-3°C & above)

OBJ X-WAX RUB ON

An all-temperature fluorinated rub-on wax. Easy to use, just rub wax on your base like a crayon and buff it in using the cork attached to the container and go ride! Compact so it fits easily into pocket or pack, never get caught without wax again! 30 grams.

Item #OBJ-WXR $13.95

OBJ BLACK MAGIC GRAPHITE

An all-temperature hydrocarbon wax with fluoro-polymer graphite additive. Use it when snow is dirty, or in very dry snow conditions for optimal performance. We recommend rubbing it on your base (like a crayon), then dripping on your regular wax of the day before hot-waxing both in together. 65 grams.

Item #OBJ-WBMB $8.95

OBJ VIPER FLUORO WAX

Keep life simple with this two-temperature wax system. Both are fluorinated for faster glide, especially when there's enough moisture in the snow to make a snowball. 125 grams.

Item #OBJ-WVHC $13.95
• Cold 21°F (-6°C) & below

Item #OBJ-WVHW $13.95
• Warm 21°F (-6°C) & above

OBJ VIPER PASTE WAX

This high-fluoro paste wax is designed to give you extra zip when racing, freeriding, or hanging in the terrain park…especially when the snow is wet enough to make a snowball. Use the sponge applicator (included) to spread this paste over your entire base, let dry and polish with clean paper towel or cloth. Comes in a 55-gram puck container.

Item #OBJ-WVP $8.95

OBJ UNIVERSAL F-I WAX

This is an all-temperature, all condition wax that can be hot-waxed using a waxing iron or rubbed-on with a cork. A versatile wax, that is easy to use and priced right!
130 grams.

Item #OBJ-WFR $8.95

OBJ UNIVERSAL BIOGREEN SOY WAX

Rub-on or iron-in this eco-friendly wax for good glide in all temperature ranges. As the name implies, this wax is soy based (there's not a drop of petroleum in it) and it's packaged in a biodegradable cornstarch container. 150 grams.

Item #OBJ-SOY $10.95

PURL WAX

PURL WAX

Made in Summit County, Colorado. Purl wax offers a unique line of waxes for all conditions, including a range of enviromentally friendly PFC-free Verde waxes. All waxes ship in reusable velvet wax bags. Their website is www.purlwax.com

PURL ICE 9 WAX

These all natural wax blends are made with ingredients from natural and renewable resources. 100% biodegradable and non toxic. Not a Soy wax. Made from ingredients that form natural hydrocarbon chains to match the performance and durability of a traditional petroleum based wax. Three temperature ranges (Cold, Slush and All-temp) make selection a breeze. Available in 75 gram bars or one-pound bricks. Made in the USA.

Item #PRL-VBL75	75g cold	$11.95
Item #PRL-VBL1	1 lb cold	$24.95

• 0 to 15°F (-18 to -9°C) Blue

Item #PRL-VPR75	75g mid	$11.95
Item #PRL-VPR1	1 lb mid	$24.95

• 10 to 25°F (-12 to -9°C) Purple

Item #PRL-VYL75	75g slush	$11.95
Item #PRL-VYL1	1 lb slush	$24.95

• 20 to 35°F (-7 to 2°C) Yellow

CALIBRATING A WAX IRON

To calibrate your wax iron, give it 10 minutes or more to warm up, then check the temperature with our iron temperature platform or coverite thermometer. When the heat sensor (thermocouple) in the iron clicks off, the temperature will drop slightly, then climb again (probably a few degrees warmer than last time), when it reengages. After you see this take place 3 or 4 times, your iron has probably reached the maximum temperature for that particular thermostat setting. Record both this setting and temperature for future reference. By taking a reading whenever you change your iron setting and keeping a record of the melting temperatures of your favorite waxes, you'll be able to keep the iron at the safest optimal temperature to get the deepest wax absorption while minimizing the possibility of base damage. Check your iron calibration periodically since the operating temperature will change as the iron's thermocouple gets older.

-courtesy of Sun Valley Ski Tools

PURL MICROCRYSTALLINE WAX

These waxes have a unique ultra-fine crystalline structure which provides superior adhesion to base material and increased flexibility to resist wax breakdown from heat, static and friction. The Spring wax contains a silicone additive for increased glide in wet snow and high humidity conditions. The All-temp. is the go-to wax for most winter days. The graphite works well as an underlayer to any wax in extremely cold or icy snow. Use the Sub-Zero for man made snow or extreme icy conditions. Each wax comes with a reusable velvet bag. Available in 75 gram bars or one-pound bricks. Made in the USA.

Item #PRL-MGN75	75g sub-Zero	$9.95
Item #PRL-MGN1	1 lb sub-Zero	$19.95

• -10° to 5°F (-23° to -15°C) Green
• Good for cold, aggressive conditions, man made

Item #PRL-MBL75	75g winter	$9.95
Item #PRL-MBL1	1 lb winter	$19.95

• 5° to 20°F (-15° to -7°C) Blue
• Good for cold winter conditions

Item #PRL-MPR75	75g all-temp.	$9.95
Item #PRL-MPR1	1 lb all-temp.	$19.95

• 5° to 35°F (-15° to 2°C) Purple
• Extremely wide temp. range

Item #PRL-MYL75	75g spring	$9.95
Item #PRL-MYL1	1 lb spring	$19.95

• 20° to 35°F (-4° to 1°C) Yellow
• With silicone additive for high humidity, spring

Item #PRL-GR75	75g graphite	$11.95
Item #PRL-GR1	1 lb graphite	$24.95

• Graphite wax
• Anti-static all temperature

HUMIDITY AND FLUORO WAXES

Low fluoro wax should be used for low humidity conditions, mid fluoro wax for medium (normal) humidity, and high fluoro wax for higher humidity. Unfortunately, wax companies have different standards of humidity levels, as you can see below...

Humidity	Swix/Holmenkol	Toko	Dominator
Low	0-50%	0-40%	0-25%
Medium	50-70%	40-70%	25-65%
High	70-100%	70-100%	65-100%

But rather than getting confused, you can just use the trusty old snowball method to determine humidity... If you can't make a snowball, it's usually low humidity conditions. If you can make a snowball, it's usually medium humidity. If you make a snowball and it's wet and soggy, it's usually high. This is a greatly simplified seat of the pants method, but works well for most folks.

SWIX WAX

SWIX WAX

Swix is a Norwegian wax manufacturer that began in 1947 with a series of waxes based on synthetic raw materials rather than traditional natural products. The original Swix waxes had no color, so Swix elected to color-code their waxes using cool colors for cold snow and warm colors for warm snow. This color coding system was eventually adopted by most wax suppliers and is still common today. Their website can be found at www.swixsport.com

SWIX UNIVERSAL WAX

☆ Universal wax is ideal for recreational riders who need a general-use wax; ski patrollers, instructors and other professionals out in a wide variety of snow conditions; families, clubs or groups where the simplicity and economy of bulk waxing is a consideration. We offer it in a 180g all-temperature universal; or in an economical 900g (5x180gbars) size with the choice of a warm or cold formula ...and in one-kilogram bags of all-temp wax pellets for melting in pots or roller applicators.

Item #SWX-U20180	180gm Univ.	$19.95
Item #SWX-U10900	900gm Cold	$39.95
Item #SWX-U20900	900gm Warm	$39.95
Item #SWX-A1	1kg pellets	$39.95

SWIX UNIVERSAL F4 WAX

☆ Swix's low-fluoro universal wax is both convenient and versatile. Use the paste formula when you're traveling without a wax iron, or to wax a dry base when out on the snow. The solid bars can be used for your regular hot-waxing needs...especially for snow moist enough to make a snowball.

Item #SWX-F440 $12.95
• Rub-on paste: 40ml tin (shoe polish size)

Item #SWX-F4250 $39.95
• Rub-on paste: 250ml tin (car polish size)

Item #SWX-F4180	Solid bar 180gm	$29.95
Item #SWX-F4900	Solid bars 900gm	$79.95

WAX CONSUMPTION

As a general rule, it takes 15 to 20 grams (1/2 oz) of wax to hot wax a pair of alpine skis...less for nordic and more for fat boards or snowboards. If you rub and cork in wax, it only takes about 1/2 this amount or less. Reminder...30 gr = 1 oz.

SWIX BASE PREP WAX

This is a special blend of warm hydrocarbon wax and a harder additive. When ironed into ski or snowboard bases, the warmer wax penetrates deeply into the base, while the harder additive rises to the top. This pulls up any undesirable p-tex hairs and stiffens them. When the excess wax is scraped off using a sharp plastic wax scraper, these hairs are cut off, leaving a well-prepped base. Do a few cycles to prep new bases or newly stoneground bases. It also serves as a good summer storage or winter travel wax.

Item #SWX-BP180	180gm	$24.95
Item #SWX-BP900	900gm	$79.95

SWIX HYDRO WAX

These temperature-specific hydrocarbon waxes work well on any ski or snowboard base. They can be used alone or blended together for greater performance and durability. We offer these waxes in 180 gram or 900 gram size packs.

Item #SWX-CH4180 180gm $26.95
Item #SWX-CH4900 900gm $84.95
• -25° to 14°F (-32° to -10°C)

Item #SWX-CH6180 180gm $26.95
Item #SWX-CH6900 900gm $84.95
• 10° to 21°F (-12° to -6°C)

Item #SWX-CH7180 180gm $26.95
Item #SWX-CH7900 900gm $84.95
• 18° to 28°F (-8° to -2°C)

Item #SWX-CH8180 180gm $26.95
Item #SWX-CH8900 900gm $84.95
• 25° to 34°F (-4° to 1°C)

Item #SWX-CH10180 180gm $26.95
Item #SWX-CH10900 900gm $84.95
• 32°+F (0°+C)

Item #SWX-CH12A900 900gm $84.95
• 5x180gm bars CH4, CH6, CH7 and 2x CH8

Item #SWX-CH12N900 900gm $84.95
• 5x180gm bars CH4, CH6, CH7, CH8, CH10

SWIX BASE BURN POWDER

Sprinkle some of this ultrahard powder wax on your base (or at least along both edges) immediately after hotwaxing with your wax of the day...then iron both waxes in together. It helps protect the base in very cold and abrasive (icy, manmade) snow against base burn. Use the hydro powder for temperatures -26° to 12°F (-32° to -12°C)...and the lo-fluoro powder for -25° to 14°F (-32° to -10°C).

Item #SWX-CH3 Hydro powder 40g $24.95
Item #SWX-LF3 Lo-fluoro powder 60g $29.95

To get the best prices, more technical info, or to place an order, go to www.tognar.com

SWIX WAX

SWIX LO FLUORO WAX

This low (1-2.5%) fluorocarbon wax offers a wide temperature range, greater durability, better water and dirt repellency than hydrocarbon wax. It is a good choice for race training in nearly all conditions, or on race days when the humidity is low. Can be used alone, or overlaid with high fluoro wax or 100% fluoros like Cera F. Available in 60, 180 or 900 gram bars.

Item #SWX-LF460 60gm $24.95
Item #SWX-LF4180 180gm $62.95
Item #SWX-LF4900 900gm $249.95
• -25° to 14°F (-32° to -10°C)

Item #SWX-LF660 60gm $24.95
Item #SWX-LF6180 180gm $62.95
Item #SWX-LF6900 900gm $249.95
• 10° to 21°F (-12° to -6°C)

Item #SWX-LF760 60gm $24.95
Item #SWX-LF7180 180gm $62.95
Item #SWX-LF7900 900gm $249.95
• 18° to 28°F (-8° to -2°C)

Item #SWX-LF860 60gm $24.95
Item #SWX-LF8180 180gm $62.95
Item #SWX-LF8900 900gm $249.95
• 25° to 34°F (-4° to 1°C)

Item #SWX-LF1060 60gm $24.95
Item #SWX-LF10180 180gm $62.95
Item #SWX-LF10900 900gm $249.95
• 32°+F (0°+C)

Item #SWX-LF1260 60gm $23.95
• Includes 20gm each of LF6, LF7 and LF8

Item #SWX-LF12900 900gm $249.95
• 5-180gm bars LF4, LF6, LF7 and 2x LF8

SWIX MOLY FLUORO WAX

This fluorinated molybdenum wax is designed for use in dirtysnow conditions to help repel contaminants. Can be used alone or as a base for other waxes. Sold in 60, 180 and 900 grams.

Item #SWX-MB7760 60gm $23.95
Item #SWX-MB77180 180gm $62.95
Item #SWX-MB77900 900gm $249.95

GRAPHITE & MOLYBDENUM

Use graphite or molybdenum wax when humidity is low, the snow is fine-grained and temperatures are cold to enhance the static-reducing benefits of graphite bases. It also helps keep bases cleaner in old snow by reducing static "cling" that attracts and picks up contaminates such as dirt, ash, lubricants and pollen, as well as better equalizing heat build-up on bases that can increase suction.

SWIX HI FLUORO WAX

These waxes contain up to 15% fluorocarbon to deliver wide temperature range, excellent durability, water repellency and dirt-resistance. They work well alone, mixed with other Swix Fluoro waxes or overlaid with Cera F. Sold in 40, 90 or 180 gram bars.

Item #SWX-HF440 40gm $71.95
Item #SWX-HF490 90gm $119.95
Item #SWX-HF4180 180gm $249.95
• -25° to 14°F (-32°to -10°C)

Item #SWX-HF640 40gm $71.95
Item #SWX-HF690 90gm $119.95
Item #SWX-HF6180 180gm $249.95
• 10° to 21°F (-12° to -6°C)

Item #SWX-HF740 40gm $71.95
Item #SWX-HF790 90gm $119.95
Item #SWX-HF7180 180gm $249.95
• 18° to 28°F (-8° to -2°C)

Item #SWX-HF840 40gm $71.95
Item #SWX-HF890 90gm $119.95
Item #SWX-HF8180 180gm $249.95
• 25° to 34°F (-4° to 1°C)

Item #SWX-HF1040 40gm $71.95
Item #SWX-HF1090 90gm $119.95
Item #SWX-HF10180 180gm $249.95
• 32°+F (0°+C)

Item #SWX-HF1240 40gm $71.95
•Includes 20gm each of HF7 and HF8

SWIX HI FLUORO BLACK WOLF WAX

This is similar to Swix's hi-fluoro wax, but with the addition of a "secret" solid, shear-type lubricant (graphite, galium or molybdenum?). It's formulated to improve abrasion resistance on high humidity days when you're dealing with harsh manmade snow, or if you encounter new snow (sharp crystals) sitting atop wetter snow. This wax can be used alone, or with Cera F or similar 100% fluoro overlays. Sold in 40 gram bars.

Item #SWX-HFBW4 $71.95
• -25° to 14°F (-32° to -10°C)

Item #SWX-HFBW6 $71.95
• 10° to 21°F (-12° to -6°C)

Item #SWX-HFBW7 $71.95
• 18° to 28°F (-8° to -2°C)

Item #SWX-HFBW8 $71.95
• 25° to 34°F (-4° to 1°C)

Item #SWX-HFBW10 $71.95
• 32° to 50°F (0° to 10°C)

SWIX WAX

INTERNET ORDERS www.tognar.com

SWIX CERA F

This is the stuff to use for fastest acceleration and speed on most race days. Swix Cera F is a 100% fluorocarbon "wax" that is extremely water-repellent (hydrophobic), minimizes friction (30% less than Teflon), resists dirt or pollen, bonds easily to bases, and comes in different formulations for a wide range of race conditions. Cera F can be applied by hand with a synthetic (divinucell) cork for any alpine race and nordic races of 10km or less...or ironed in for greater durability on longer courses. For best results, apply Cera F atop a base layer of fluoro wax that has previously been ironed in, scraped and brushed. For quick re-application on a race course, simply apply a little Cera F on the base and cork it in. Follow all Cera F applications using a polishing brush and pad. It works equally well on snowboards, alpine or nordic skis. Available in powder form... 30gm yields about 4 applications. Also available as a solid 20gm bar which yields about 10 to12 applications when rubbed on.

Cera F Powders

Item #SWX-FC78 30 grams $169.95
- Very wide temperature range. 14°F to 34°F (-10° to 1°C) Recommended wax iron temperature is 329°F (165°C). Extreme care must be used to avoid overheating ski base. Used with a base of HF6, HF6BW, HF7, HF7BW, HF8, HF8BW.

Item #SWX-FC7 30 grams $139.95
- Use for new or old snow in colder and drier conditions when temperatures are -22° to 28°F (-30° to -2°C). Recommended wax iron temperature is 320°F (160°C).

Used with a base of HF6, HF6BW, LF6, HF7, HF7BW, or LF7.

Item #SWX-FC8X 30 grams $139.95
- Use for new or old snow when temperatures are 25° to 40°F (-4° to +4°C). Recommended wax iron temperature is 320°F (160°C).

Used with a base of HF8, HF8BW or LF8.

Item #SWX-FC10X 30 grams $139.95
- Use for very wet conditions when temperatures are 32°F and above (0°C and above). Recommended wax iron temperature is 320°F (160°C).

Used with a base of HF10, HF10BW or LF10.

Item #SWX-FC100 30 grams $134.95
- Use in cold conditions when temperatures are 5°F to 32°F (-15°C to -0°C). Recommended wax iron temperature is 320°F (160°C).

Used with a base of HF7, HF7BW or LF7.

KEEP WAX CLEAN

Be careful how you store wax after opening a new pack, or where you set it on your workbench when hot-waxing...it's all too easy to let it get contaminated with steel filings, dust or other grit. One simple way to keep wax clean is store it in ziplock bags.

SWIX CERA F SOLIDS

Item #SWX-FC7WS 20 grams $99.95
- Use for transformed or man made snow when temperatures are 4° to 32°F (-20° to 0°C). Black additive reduces friction in cold, dry snow. Can be rubbed-on by hand or rotocorked in. If ironing, the recommended wax iron temperature is 290°F (145°C).

Item #SWX-FC8XWS 20 grams $99.95
- Use in fine grained snow and clean, white snow covering most winter conditions. Wide temperature range. 25° to 40°F(-4° to 4°C). To be rubbed-on and hand or rotocorked in.

Item #SWX-FC10XWS 20 grams $99.95
- Use in wet/polluted/coarse snow. Black additive reduces friction caused by "dirty" snow. 32°F and above (0°C and above). To be rubbed-on and hand or rotocorked in.

SWIX CERA F HVC

High Velocity Cera (HVC) is a new fluorinated liquid topping for use as the final layer when waxing for top-level competitions. After several seasons of testing it is finally available to mere mortals! Use on new or old snow in wet and warm conditions -2°C to +10°C (28°F to 50°F). Use on top of LF or HF waxes for best results. 50ml container with sponge applicator, the Swix catalog claims 5-6 pairs of alpine skis, we have heard claims of 15-20 pairs...so lots of applications we think. Just apply a thin layer and allow to dry, no brushing or polishing needed.

NEW!

Item #SWX-FC80L 50ml $164.95

SWIX CERA F ROCKET SPRAY

Liquid waxes are the most economical way to take advantage of Cera F performance. Easy to use, simply spray evenly onto the base, allow it to dry and buff with a cork or felt pad. A little goes a long way. Both formulas work best in higher humidity conditions and can be applied over the top of LF or HF waxes. They can also be used on top of powder overlays to offer a bit more initial acceleration. Offered in two formulas, COLD is designed for +2°C to -10°C (36°F to 14°F). WARM is designed for +4°C to -4°C (40°F to 25°F). Rocket is a great choice for junior or citizen racers looking for excellent performance without breaking the bank. 70ml spray bottle.

NEW!

Item #SWX-FC8A WARM $79.95
Item #SWX-FC6A COLD $79.95

PHONE ORDERS
M - F 9 - 5 Pacific Time
800-299-9904

SWIX WAX

SWIX NORDIC KICK WAXES

Swix kick waxes provide grip underfoot on classic (diagonal-stride) nordic skis. They are available in a hydrocarbon selection, or in the more diverse Krystal fluorocarbon selection for better glide and durability, greater dirt repellency, wider temperature range, and reduced risk of icing. All kick waxes are either rubbed-on and corked-in, or ironed onto, the "wax pocket" area found underfoot on the ski base. A base layer binder wax is also available for greater wax durability in abrasive snow conditions. All waxes come in 45gm sticks.

Basebinder

Item #SWX-VG35 $14.95
- New/Old snow -7° to 30°F (-22° to -1°C)
- Base layer for all kick waxes in abrasive conditions.

Hydrocarbon selection

Item #SWX-V05 Polar $9.95
- New snow -12° to 10°F (-25° to -12C°)
- Old snow -22° to 5°F (-30° to -15C°)
- Excellent base wax for wooden base skis.

Item #SWX-V20 Green $9.95
- New snow 5° to 18°F (-15° to -8C°)
- Old Snow 0° to 14°F (-18° to -10C°)
- Excellent base wax for wooden base skis.

Item #SWX-V40 Blue Extra $9.95
- New snow 19° to 30°F (-7° to -1C°)
- Old Snow 14° to 27°F (-10° to -3C°)

Item #SWX-V45 Violet Special $9.95
- New snow 27° to 32°F (-3° to 0C°)
- Old Snow 21° to 28°F (-6° to -2C°)

Item #SWX-V55 Red Special $9.95
- New snow 32° to 34°F (0° to 1C°)
- Old Snow 28° to 32°F (-2° to 0C°)

Item #SWX-V60 Red/Silver $9.95
- New snow 32° to 37°F (0° to 3C°)
- Old Snow 30° to 34°F (-1° to 1C°)

Krystal fluorocarbon selection

Item #SWX-VR30 Light blue $17.95
- New snow -4° to 19°F (-20° to -7°C)
- Old snow -22° to 14°F (-30° to -10°C)

Item #SWX-VR40 Blue $17.95
- New snow 18° to 28°F (-8° to -2°C)
- Old snow 10° to 25°F (-12° to -4°C)

Item #SWX-VR45 Light violet $17.95
- New snow 28° to 34°F (-2° to 1°C)
- Old snow 23° to 32°F (-5° to 0°C)

Item #SWX-VR50 Violet $17.95
- New snow 32° to 36°F (0° to 2°C)
- Old snow 27° to 32°F (-3° to 0°C)

Item #SWX-VR60 Silver $17.95
- New snow 32° to 36°F (0° to 2°C)
- Old snow 28° to 34°F (-2° to 1°C)

Item #SWX-VR70 Yellow $17.95
- New snow 36° to 41°F (2° to 5°C)

SWIX KLISTERS

Swix klisters provide the grip you need underfoot on classic nordic skis for corn, icy, granular or slushy old snow conditions. We offer a simple selection of classic hydrocarbon klisters, as well as the more diverse Krystal selection. 55gm tubes.

Classic selection

Item #SWX-KB020 Green Spray $14.95
- Base binder layer for abrasive conditions, apply regular klister on top. 70ml spray can.

Item #SWX-K22N VM Universal $14.95
- 27° to 50°F (-3° to 10°C)
- For coarse granular snow from wet to crusty.

Item #SWX-K21S Silver $14.95
- 23° to 38°F (-5° to 3°C)
- For frozen and wet corn, and transformed fine grained corn. Both sides of freezing.

KX Selection

Item #SWX-KX20 Green Base $14.95
- Serves as base binder under other klisters.

Item #SWX-KX30 Blue Ice $14.95
- 10° to 32°F (-12° to 0°C)
- For frozen icy tracks in cold conditions...also serves as base layer under wet snow klisters in abrasive conditions

Item #SWX-KX35 Violet Special $14.95
- 25° to 34°F (-4° to 1°C)
- For transformed cold, coarse snow starting to get wet.

Item #SWX-KX45 Violet $14.95
- 28° to 39°F (-2° to 4°C)
- All around klister for wet, coarse snow as well as frozen corn snow.

Item #SWX-KX65 Red $14.95
- 34° to 41°F (1° to 5°C)
- For wet and moist, coarse corn snow.

Item #SWX-KX75 Red Extra $14.95
- 36° to 59°F (2° to 15°C)
- Wet snow & slush klister.

PINE TAR

To waterproof skis with untreated wood bases, paint on some pine tar. Carefully heat it in with a propane torch, then wipe off excess, apply wax and go ski. 125ml can.

Item #SWX-I21 $15.95

Application of Klisters

1. Sand the kick zone with #80 grit sandpaper. Apply a thin layer of base klister to sanded area.
2. Iron the first layer into the ski base and allow to cool. This makes for a more durable bond between the klister and ski base.
3. Apply the klister of the day in a "fish-bone" pattern or as a thin line on either side of the base groove and cork it in.

TOKO WAX

INTERNET ORDERS www.tognar.com

TOKO WAX

Toko is a Swiss company founded in 1916 that makes an easy to use selection of high quality hydrocarbon and fluorocarbon waxes for skiers and snowboarders. Their website can be found at www.tokowax.com

TOKO UNIVERSAL GLIDE WAX

☆ Universal wax is like aspirin...it serves the needs of nearly all skiers or snow-boarders, and performs well in almost all snow conditions. Rub or melt it onto bases as a glide wax, travel wax or storage wax. Good for waxing a lotta skis or boards for the family or club...or as a cleaning wax using a 'hot scrape' technique. Good, affordable, versatile stuff. Non fluorinated.

Item #TOK-2006 NF all-in-one $12.95
• 120gm (6-8 applications)

Item #TOK-0163 $39.95
• 1.25kg (50+ applications)

Item #TOK-0167 $74.95
• 2.5 kg (100+ applications)

TOKO NF HYDROCARBON WAX

These hydrocarbon waxes are the foundation of the Toko wax line. They can be used alone or mixed together for any recreational riding or race training needs. They also work as a good base wax for low or high fluoro waxes. Simple 3-wax system. Mix in the black wax with DLC additive to combat friction encountered in dirty snow. 120g

Item #TOK-2003 blue $17.95
• Snow -22° to 14°F (-30° to -10°C)
• Air -22° to 16°F (-30° to -9°C)

Item #TOK-2002 red $17.95
• Snow 10° to 25°F (-12° to -4°C)
• Air 12° to 28°F (-11° to -2°C)

Item #TOK-2001 yellow $17.95
• Snow 21° to 32°F (-6° to 0°C)
• Air 25° to 50°F (-4° to 10°C)

Item #TOK-2004 black $17.95
• Used as base wax or mixed as additive.

TOKO NF HOT BOX/CLEANING WAX

This is a very soft special-purpose wax with a very low meltin point, allowing it to penetrate deep into bases. A perfect wax for cleaning bases using the "Hot Scrape" method.Simply apply the wax and scrape while wax is still warm, this pulls impurities from the base without the use of harsh chemicals. Also, a great wax for Hot Box or Thermo-Bag use. Sold in 120g.

Item #TOK-2007 $17.95

TOKO LF HOT WAX

These low fluoro waxes are a good choice for race days, race training, or high performance recreational riding. They work best in lower humidity conditions, although they'll deliver better glide than hydrocarbon waxes whenever there is moisture in the snow. They can be used alone or as a base layer for high fluoro waxes or 100% fluoro additives. New Tribloc formulation this season improves an already great wax. 40g or 120g.

Item #TOK-1013 blue 40g $17.95
Item #TOK-2013 blue 120g $42.95
• Snow -22° to 14°F (-30° to -10°C)
• Air -22° to 16°F (-30° to -9°C)

Item #TOK-1012 red 40g $17.95
Item #TOK-2012 red 120g $42.95
• Snow 10° to 25°F (-12° to -4°C)
• Air 12° to 28°F (-11° to -2°C)

Item #TOK-1011 yellow 40g $17.95
Item #TOK-2011 yellow 120g $42.95
• Snow 21° to 32°F (-6° to 0°C)
• Air 25° to 50°F (-4° to 10°C)

Item #TOK-1014 black 40g $17.95
Item #TOK-2014 black 120g $42.95
• Used as base wax or mix as additive for improved dirt repellancy and abrasion resistance.

TOKO HF HOT WAX

Toko's venerable line of high fluoro-waxes have been upgraded this season from Dibloc to Tribloc. In addition to high quality paraffins the waxes now feature a new type of fluorine and a previously unknown anti-static additive. Expect excellent glide, acceleration and dirt/water repellancy from these superb waxes.
Available in 40g and 120g packs.

Item #TOK-1023 blue 40g $54.95
Item #TOK-2023 blue 120g $124.95
• Snow -22° to 14°F (-30° to -10°C)
• Air -22° to 16°F (-30° to -9°C)

Item #TOK-1022 red 40g $54.95
Item #TOK-2022 red 120g $124.95
• Snow 10° to 25°F (-12° to -4°C)
• Air 12° to 28°F (-11° to -2°C)

Item #TOK-1021 yellow 40g $54.95
Item #TOK-2021 yellow 120g $124.95
• Snow 21° to 32°F (-6° to 0°C)
• Air 25° to 50°F (-4° to 10°C)

Item #TOK-1024 black 40g $54.95
Item #TOK-2024 black 120g $124.95
• Used as base wax or mix as additive for improved dirt-repellancy and abrasion resistance.

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Find all sorts of tuning & waxing info., how to videos, product reviews and more.
tognar.wordpress.com

Visit our new website for tuning tricks, tips and how to videos!
www.tognar.com

TOKO WAX

TOKO HF AX134 HOT WAX

AX134 is a very soft, highly fluorinated special-purpose race wax. Used during World Cups as a "magic agent" when temperatures are very warm and the snow is wet. Tribloc technology for excellent glide properties and dirt resistance. When snow gets wet and sloppy and the snow is beating down, reach for this wax. 120g.

Item #TOK-2025 $124.95
- Snow 21° to 32°F (-6° to 0°C)
- Air 25° to 50°F (-4° to 10°C)

TOKO HF RUB-ON WAX

A handy, pocket-sized cylinder of high fluoro rub-on wax. Good for all types of snow and conditions. Useful as a last fine layer to boost start acceleration. Polish with a synthetic cork or cloth. Unique packaging, just twist the wax out like a tube of lipbalm. 25g.

Item #TOK-9181 $22.95
- Snow -22° to 32°F (-30° to 0°C)

TOKO JETSTREAM RACE BLOC

These 100% perfluorocarbon waxes provide high acceleration and optimum glide properties from race start to finish. Apply 'em over your favorite low, medium or high-fluoro wax and hold on! Jetstream Yellow is designed for all snow types and is a great choice for freshly fallen snow. Jetstream Red has a wide temperature range and is a safe bet for all snow conditions it has superior dirt resistant properties. Jetstream Blue excels in extreme cold and aggressive, icy snow conditions. Waxes can be rubbed-on or ironed-in. All are sold in solid 20g blocks.

Item #TOK-9092 Blue $109.95
- Snow 14°F to -22° (-10°C to -30°C)

Item #TOK-9091 Red $109.95
- Snow 25°F to 14° (-4°C to -10°C)

Item #TOK-9090 Yellow $109.95
- Snow 32°F to 25° (0°C to -4°C)

CAMBER

The arch of a ski or snowboard along its length that gives it extra spring (or pop) rebounding out a carved turn. It not only feels really cool, but also can help a racer accelerate through the gates. Nordic skiers appreciate it because camber keeps gripwax or pattern off the snow allowing a smooth glide between kicks.

TOKO JETSTREAM POWDER

These 100% perfluorocarbon waxes provide high acceleration and optimum glide properties from race start to finish. Apply 'em over your favorite low, medium or high-fluoro wax and hold on! Jetstream Yellow is designed for all snow types and is a great choice for freshly fallen snow. Jetstream Red has a wide temperature range and is a safe bet for all snow conditions it has superior dirt resistant properties. Jetstream Blue excels in extreme cold and aggressive, icy snow conditions. Waxes can be buffed-in or ironed-in. All are sold in 30g shakers.

Item #TOK-9082 Blue $134.95
- Snow 14°F to -22° (-10°C to -30°C)

Item #TOK-9081 Red $134.95
- Snow 25°F to 14° (-4°C to -10°C)

Item #TOK-9080 Yellow $134.95
- Snow 32°F to 25° (0°C to -4°C)

TOKO HELX 100% FLUORO LIQUID WAX

This is Toko's fastest, most versatile and simple-to-apply 100% fluorinated liquid wax. Just spray it on and buff it in for optimal acceleration and speed on race day. It doesn't require hot ironing (which can damage p-tex bases) or corking. Spray on a thin layer over your favorite low-fluoro or high-fluoro wax of the day...let dry a few minutes... then buff to a finish using the Toko dual polishing pad (included), base-tex paper or a fluoro polishing pad. It comes in a 100ml pump-spray can. Three formulas are available.

Item #TOK-9052 Blue $104.95
- Use for extreme cold and aggressive snow conditions. -22° to 14°F (-30° to -10°C).

Item #TOK-9051 Red $104.95
- Use for a wide range of snow conditions in the temperature range. 14° to 25°F (-10° to -4°C).

Item #TOK-9050 Yellow $104.95
- Use for any snow conditions when temperatures are 25° to 32°F (-4° to 0°C).

TOKO NORDLITE POWDER X-COLD

Very hard hydrocarbon powder wax. Use as an additive in cold aggressive snow conditions. Makes any wax it is added to harder and more reistant to wear. Sprinkle along edges or over entire base after dripping on glide wax, wax the two together, scrape and brush normally. 60g shaker.

Item #TOK-9869 $21.95
- Snow 5°F to -22° (-15°C to -30°C)

TOKO WAX/ ZARDOZ

TOKO NORDIC GRIP WAX

Toko grip waxes provide traction underfoot on classic (diagonal-stride) Nordic skis. Three easy to use temperature ranges (and one green base binder), ideal for beginner waxers. The grip waxes can be rubbed-on and corked into the "wax pocket" area found underfoot on the ski base. Sold in 25g.

Item #TOK-8750 green base $12.95
Used as a base wax for other grip waxes.
• Snow -22°F to 32°F (-30°C to 0°C)
• Air -22°F to 50°F (-30°C to 10°C)

Item #TOK-8751 yellow $12.95
For damp snow, just before klister.
• Snow 28°F to 32°F (-2°C to 0°C)
• Air 26°F to 38°C (-3°C to 3°C)

Item #TOK-8752 red $12.95
Broad range wax for new or old snow.
• Snow 14°F to 28°F (-10°C to -2°C)
• Air 14°F to 32°F (-10°C to 0°C)

Item #TOK-8753 blue $12.95
For cold, dry conditions or compacted snow.
• Snow -22°F to 19°F (-30°C to -7°C)
• Air -22°F to 20°F (-30°C to -7°C)

TOKO NORDIC KLISTER

Take some of the guesswork out of waxing with this simple and effective 3-color klister line that covers all conditions. A green base klister is also offered to be applied as an underlayer for other klisters to increase base bond and prevent the klister from slipping out of the wax pocket. Sold in 55g tubes.

Item #TOK-8740 green base $13.95
Used as a base wax for other klister layers.
• Snow -22°F to 32°F (-30°C to 0°C)
• Air -22°F to 50°F (-30°C to 10°C)

Item #TOK-8741 yellow $13.95
For wet to moist snow.
• Snow 28°F to 32°F (-2°C to 0°C)
• Air 26°F to 38°C (-3°C to 3°C)

Item #TOK-8742 red $13.95
Wide range, damp to frozen snow, universal klister.
• Snow 14°F to 28°F (-10°C to -2°C)
• Air 14°F to 32°F (-10°C to 0°C)

Item #TOK-8743 blue $13.95
For icy snow.
• Snow -22°F to 19°F (-30°C to -7°C)
• Air -22°F to 20°F (-30°C to -7°C)

HYDROPHOBIC

A fancy way to say 'water-repellent'...an important quality of wax which helps prevent your p-tex base from absorbing water and creating unwanted drag.

TOKO NORDIC GRIP SPRAY

Getting a grip has never been easier! Toko Grip Sprays are simplisity refined. No more choosing between klister or grip wax, grip spray effectively covers both. Three colors to choose from, each covers a broad range of conditions and temps. Spend less time prepping and more time skiing. Just spray on and cork up. 70ml.

Item #TOK-8790 green base $13.95
Used as a base wax for other grip sprays.
• Snow -22°F to 32°F (-30°C to 0°C)
• Air -22°F to 50°F (-30°C to 10°C)

Item #TOK-8791 yellow $11.95
For damp to wet snow.
• Snow 28°F to 32°F (-2°C to 0°C)
• Air 26°F to 38°C (-3°C to 3°C)

Item #TOK-8792 red $11.95
Wide range, new to old snow, very universal.
• Snow 14°F to 28°F (-10°C to -2°C)
• Air 14°F to 32°F (-10°C to 0°C)

Item #TOK-8793 blue $11.95
For cold snow/air conditions.
• Snow -22°F to 19°F (-30°C to -7°C)
• Air -22°F to 20°F (-30°C to -7°C)

TOKO UNIVERSAL LO-FLUORO WAX

Apply this all-temperature lo-fluoro wax whenever snow is damp enough to make a snowball since it provides more zip than hydrocarbon waxes. Available as an easily applied liquid rub-on or in solid bars for hot waxing. The leak-proof liquid container has a built-in sponge applicator for quick on the hill waxing. Solid bars are sold in 1.25kg (5x250gram bars) and 2.5kg (10x250gram bars) weights.

Item #TOK-9160 liquid 75ml $9.95
Item #TOK-1009 bar 1.25kg $59.95
Item #TOK-1010 bar 2.5kg $99.95

ZARDOZ NOTWAX

This easy-to-apply liquid wax for recreational skiers and boarders works best in warm, wet snow conditions, although it can be used down to 10°F. It can also be applied at the end of a day to steel edges to protect them from rusting. It comes in a refillable pocket-sized puck with a felt pad applicator...just wipe the stuff on and go. It's good for about 15 applications. A refill kit with 1/2oz bottle and replacement felt applicator is also available.

Item #SAA-63430 NOTwax disk $15.95
Item #SAA-63432 Refill kit $12.95

GENERAL SURGERY TOOLS

The idea of performing surgery to repair a delamination may sound complicated, but don't be intimidated...armed with a few of the tools and goodies shown here, you can cure a lot of those ills yourself.

DELAM CLAMPS

These small C-clamps are just the right size for clamping up a delaminated ski after you've applied epoxy with your oyster knife. They open to 1 1/2" and have a deep throat to reach half-way across an alpine ski. Use a steel scraper and release paper on both outer surfaces of the ski before tightening these down so you don't mar the ski base or top finish. Buy several to apply even pressure over large areas. Made in USA.

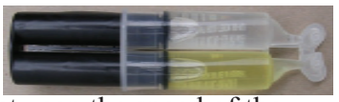
Item #ACE-CC2 $5.95 ea

OYSTER KNIVES

The sturdy but thin blades of these puppies are ideal for prying open delaminations wide enough to get inside and clean out gunk, dry out water, slip in epoxy and spread it around. Naturally, they're pretty good for prying open oysters, too.

Item #TOG-OYST $14.95

CLEAR EPOXY TUBES



This 2-hour epoxy is a good compromise between the speed of the 15-minute packet and the strength of the 24-hour epoxy. Mixed properly, this epoxy produces good strength and flexibility for delaminations, top surface nicks, etc. Contains 25ml.

Item #ACE-31345 $5.95

HYSOL EPOXY

These extremely flexible epoxies are ideal for delaminations, edge replacement and P-Tex base patches. We offer two types. EC (608) is a quick set, working time is 5-10min, 50% strength in 10-20min. Good for small repairs, topsheet delams or folks in a hurry. EB (11C) is slow set, 25min working time, 90% strength in 24hrs, full cure in 3 days. This is a good choice for tricky edge replacements and P-Tex base patches. EC is clear, EB is black. EC is 2.8oz total. EB is 4oz total.

Item #SPK-EC	Clear 608	$29.95
Item #SPK-EB	Black 11C	$29.95

QUICK-SET EPOXY

These little "double-bubble" epoxy packets are handy for those fast simple repair jobs (like up on the hill or trail) when just a little dopple of goo is all that you need. The curing time of this stuff is 15 minutes at 70°F.

Item #SPK-FE $2.95

URETHANE GLUE

Since urethane glue is more flexible than epoxy, it's ideal for repairing delaminations near the flexible tips and tails of skis and snowboards. It can also be used for some polyurethane boot modifications. These little two-part packets contain just the right amount of glue for most repair jobs. The curing time is 60 minutes.

Item #SPK-D50U $2.95

NEEDLE PICK

These steel picks are handy for picking old glue or plastic plugs out of binding screw holes, extracting grit and grime from base gouges, cleaning out between delaminated layers before gluing skis back together, etc. They feature both a straight and right-angle pick and measure 8" long.

Item #KOB-80 $5.95

EPOXY PIGMENT

Mix this coloring pigment with epoxy or urethane to match the color of the tops or sidewall of your skis or snowboard when making repairs. You can also intermix pigments to create different colors. If pigment hardens, loosen cap and microwave for 10-seconds it will be good as new. Sold in 2oz bottles.

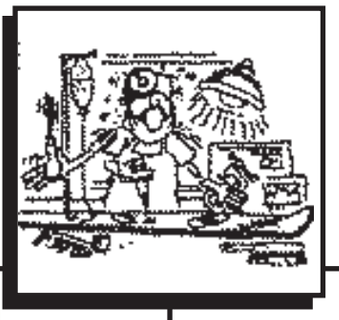
Item #SPK-EPBL	blue	$8.95
Item #SPK-EPR	red	$8.95
Item #SPK-EPY	yellow	$8.95
Item #SPK-EPW	white	$8.95
Item #SPK-EPB	black	$8.95
Item #SPK-EPBR	brown	$8.95
Item #SPK-EPGN	green	$8.95

MIXING STICKS & CUPS

How many times have you gunked up a good screwdriver using it as an epoxy stir stick? Or goofed up measuring out puddles of epoxy so that it never hardened or set up right? We offer these wood paddle sticks with 5cc increment measuring cups in packs of 10.

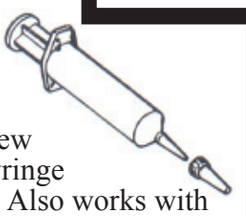
Item #SPK-EMC $1.95 pack

GENERAL SURGERY TOOLS



PHONE ORDERS
M - F 9 - 5 Pacific Time
800-299-9904

EPOXY & GLUE SYRINGE



When mounting hollow and honeycomb core skis, it's important to completely fill screw holes with epoxy. This 10cc syringe is just the ticket for such a job. Also works with white glue for injecting into mounting holes to lubricate and seal binding screws.

Item #SPK-S310 $1.95 ea

ELECTRIC REPAIR PLATE

This rigid metal heat plate is commonly used in ski and board shops to reduce epoxy curing time when repairing sidewall delaminations or installing p-tex base patches. Use it in place of a regular steel plate when c-clamping together delaminations or pressing in patches. It provides sufficient heat to accelerate epoxy curing time while gently heating surrounding material to help make especially strong and durable repairs. 110 volts.

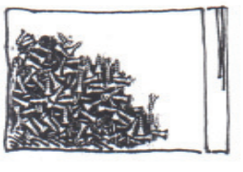
Item #SPK-530115 $199.95

REPLACEMENT STEEL EDGE SECTION

For the expert ski and snowboard surgeons in the audience, we offer these one-foot lengths of solid steel edge sections. Chances are if you're buying these, you're already skilled enough to know how to implant them. 12" long.

Item #SPK-500500 $9.95 ea

EDGE SCREWS



These small (1/4" long) phillips-head screws are used to screw replacement steel edges to a ski or snowboard. They are sold in bags of 10.

Item #SPK-ES10 $2.95 bag

EDGE SCREW SCREWDRIVER

This cute lil' puppy is just the right size to wrangle those teeny tottering edge screws into place.

Item #SPK-201032 $9.95

TOOLWORKS SHOP APRON

Establish yourself as a real-world mechanic and save on your laundry bill at the same time. Strap on one of our heavyweight cotton shop aprons and you'll be ready for anything the cat drags in. Apron features three large tool pockets, taped seams, and screened logo. One size fits all. Made and printed in USA.

Item #TOG-MA1 Black $16.95

Item #TOG-MA2 Royal Blue $16.95

SWIX SHOP APRON

This 100% nylon apron features a bunch of pockets to keep tools close at hand. It is machine-washable. Primarily red with black pockets and sports the famous Black Wolf and Swix logos. One size fits all.

Item #SWX-2275 $19.95

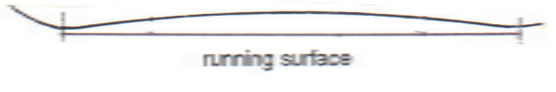
DULL EDGES T-SHIRT

What says it louder and prouder in a world where 97% of our riding brethren never bother to tune or wax their gear? Proclaim your true feelings about those techno losers by donning one of our 100% cotton t-shirts! They come in good ol' basic black with white snowflake logo and print.

Item #TOG-TS1M	Medium	$16.95
Item #TOG-TS1L	Large	$16.95
Item #TOG-TS1XL	Extra large	$16.95

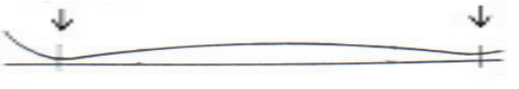
Definition - RUNNING SURFACE

The portion of the ski or snowboard base that contacts the snow when you stand on it. This is practically all the base except where it turns up at the tip and tail.



CONTACT POINT

This is where a ski or snow-board base contacts the snow. To find these points, lay your ski or snowboard down on a flat surface and see where the base rests at the tip and tail. Between contact points is the running surface of the base where steel edges should be filed, beveled and polished. Past these contact points, where tips and tails curve upwards, edges should be slightly dulled so they don't grab and make a ski or board "hook" unpredictably.



Visit our new website for tuning tricks, tips and how to videos!
www.tognar.com

BINDING TOOLS

DON'T GET IN A BIND

Most skiers and snowboarders buy their equipment with bindings already mounted. We recommend you do the same to guarantee safe binding installation. But bindings sometimes work loose with use, or binding screws strip out. We offer a variety of screw inserts to put 'em back in their rightful place, as well as other products to keep bindings working efficiently.

WOOD & PLASTIC HOLE PLUGS

Sometimes a screw pulls out of a ski without fracturing the top surface. Then what do you do? Fill the hole with fast-setting epoxy and drive one of these wooden plugs in. Trim off the excess and let sit for 15 minutes. Then redrill the hole with 3.1mm (1/8") bit and you've got a good repair job. We also have smaller plastic plugs for filling binding screw holes you won't be reusing.

Item #SPK-100216 $2.95 bag/10
• wood plugs

Item #SPK-SPW $2.95 bag/20
• white plastic plugs

Item #SPK-SPB $2.95 bag/20
• black plastic plugs

HELICOIL SCREW INSERTS

These kits are designed to repair stripped or ripped-out binding screw holes in skis. They utilize aluminum spiral inserts that thread into the damaged screw holes after enlarging and tapping them. All necessary parts are included in the kit...a drill bit, tap, handle, insert tool and 100 spiral inserts...you just need to supply an electric drill. Extra helicoil inserts are also available in bags of 100.

Item #SHP-150032 Complete kit $89.95

Item #SHP-100188 100 extra inserts $29.95

GRUB SCREWS

Here's some cheap insurance for your snowboard. Screw these nylon grubs in any empty mounting holes...they feature machine threads for easy installation to keep out water that can otherwise freeze, expand and possibly create rust and other structural damage. They're sold in bags of 10.

Item #SPK-GRUB6 $2.95 bag

PLASTIC SCREW HOLE INSERTS

If you encounter a stripped-out ski binding screw hole, you have several repair options. You can mix up some epoxy and steel wool, and put it in the hole as you reinstall the screw...or you can redrill the hole with a 1/8" (3.1mm) drill bit, hammer in a wood plug, then redrill and reinstall the screw. If these approaches fail, try these plastic inserts. Drill out the screw hole using a 5/16" drill bit, then tap in one of these inserts before reinstalling the screw. They don't have the holding power of helicoils, but are usually more than adequate if you only have one or two stripped screw holes per ski. Sold individually.

Item #SPK-530416 $ .45 ea

BINDING GLUE

Use this glue when installing binding screws in any skis. It is a flexible, water resistant acrylic adhesive designed to bond porous material to non-porous material. Keeps water out of the core and helps reduce vibration that can loosen screws. 2oz bottle.

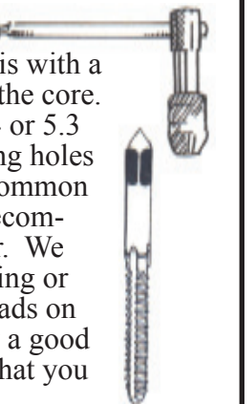
Item #SHP-100036 $8.95

BINDING DRILL BITS

These steel bits are ideal for mounting bindings. They fit mounting jigs, are a full 3" long, and will countersink the holes so you don't "bubble-up" the top ski surface when you tighten down the screw. The 3.6 x 9mm bit is for adult alpine skis with non-metal topskins, the 4.1 x 9mm bit for alpine skis with metal topskins, the 3.5 x 7mm bit for children's alpine skis, and the 3.6 x 14.5mm bit for adult nordic (x-c) skis.

Item #SPK-100310 3.6 x 9mm bit $14.95
Item #SPK-100330 4.1 x 9mm bit $14.95
Item #SPK-100315 3.5 x 7mm bit $14.95
Item #SPK-100314 3.6 x 14.5mm bit $14.95

SCREW TAP & HANDLE



You should tap screw holes before mounting bindings on skis with a metal topsheet or hard insert in the core. Use the #12 AB tap (.216" X 14 or 5.3 X 1.8mm) to thread these binding holes on skis with a metal topsheet (common on GS race skis) or whenever recommended by the ski manufacturer. We also offer a 6x1mm tap for tapping or cleaning damaged machine threads on snowboards. Tap handles allow a good grip on the tap and help insure that you thread it in straight.

Item #SPK-TAP #12 AB ski tap $14.95
Item #SPK-SBTAP Snowboard tap $15.95
Item #UBT-21916 T-Tap handle $ 8.95

BINDING TOOLS

PHONE ORDERS
M - F 9 - 5 Pacific Time
800-299-9904

THREAD LOCK

If you're installing snowboard binding screws and don't want 'em to work loose, drip a little blue goo on the threads first. Comes in a 2.5 ml squeeze bottle.

Item #ACE-24206 $4.95

POZI SCREWDRIVER

This burly #3 pozi-drive screwdriver is for adjusting bindings, installing or removing ski binding screws, as well as some snowboard bindings. It's 10" long with a hardened tip for long life.

Item #SAN-BE8830 $19.95

POZI SCREWDRIVER BITS

These longer insert bits will reach those elusive binding screws located deep down in holes. They are very stout and feature a standard hex fitting to work with all cordless screwdrivers, drills, etc. We still recommend final tightening be done by hand, to avoid stripping the hole or undertightening.

Item #SPK-POZIB6 $12.95
• #3 Pozidrive bit - 6" long

Item #SPK-POZIB2 $7.95
• #3 Pozidrive bit - 2 3/4" long

LEFT & RIGHT SKI STICKERS

These are waterproof stickers that you can put on your skis if you have adjusted your bindings or tuned your skis and need to keep track of left and right. Also handy for lots of other applications if your initials happen to be RL, LR, RR or LL!

Item #SPK-LR100 $ .50 pr

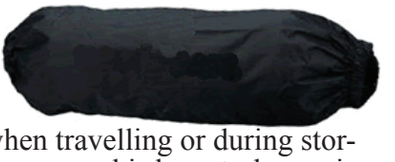
SVST MOUNTING JIG

This clever device is designed to keep your drill bit precicely aligned when drilling holes. After marking the hole positions for your binding using the manufacturers paper template clamp the jig to the ski and position the drill guide over the hole and drill, repeat for each hole. Constructed of machined aluminum, it sports a handy centering line and a track for the drill guide to slide in.

Item #SVT-CMJ $49.95

BINDING COVER

This 16" binding cover protects your bindings from the ravages of the elements when travelling or during storage. After strapping your skis base-to-base, simply wrap this cover around both sets of bindings and zipper it shut. Made of waterproof nylon packcloth. Fits all skis. Black.



Item #TSP-COVER $8.95 ea

SNOWBOARD BINDING SCREWS & WASHERS

We offer an assortment of #3 pozidrive flathead screws, and #3 pozidrive panhead screws. All screws are 6mm diameter...just choose the length and type you need. 6mm flat washers are also available. Sold each.

#3 Pozidrive Flathead Screws

Item #SPK-200121	3/8" length	$ .30 ea
Item #SPK-200122	1/2" length	$ .30 ea
Item #SPK-200123	5/8" length	$ .30 ea
Item #SPK-200124	3/4" length	$ .30 ea

#3 Pozidrive Panhead Screws

Item #SPK-200126	3/8" length	$ .30 ea
Item #SPK-200127	1/2" length	$ .30 ea
Item #SPK-200128	5/8" length	$ .30 ea
Item #SPK-200129	3/4" length	$ .30 ea

6mm Flat Washers

Item #SPK-M6FW $ .30 ea

POWDER LEASHES

Ski brakes work great when skiing packed slopes... but if your bindings release in deep powder, you may need a metal detector to find 'em again. Attach one end of these bright 4' long nylon leashes around a ski brake arm and tuck the rest under your pant cuff. If you tumble out of your bindings in deep powder, the leashes will stream out and flag where your ski lies buried under the snow for faster, easier retrieval. Sold as pair.

Item #CSA-PC $7.95 pr.

INTERNET ORDERS www.tognar.com

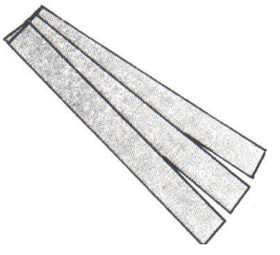
BINDING TOOLS

SCREW & DEPTH CALIPER

Wanna protect your bases, pride and reputation? Use these calipers to check screw hole depths, as well as screw, T-nut and insert lengths before screwing 'em into skis or snowboards. It'll help avoid such woes as drilling through bases, premature delaminations, ripped-out bindings, snide wisecracks from other mechanics, and withering gazes from less-than-happy clients who don't appreciate a perforated or dimpled base. These steel calipers feature metric and English scales to read depth, inside and outside diameters.

Item #UBT-541 $12.95

CANT STRIPS



We offer six different thickness cant strips for your boot/ski alignment needs. Each cant is 19.5" long enough to insert under the binding toe and heelpiece on a single ski (not pair). They are 58mm wide. Always trim and drill these strips to match binding patterns, and make sure your binding screws are long enough to accommodate the extra cant thickness...especially on cants greater than 1-degree. 1° of cant equals .05" (1.3mm) of lift.

Item #CCO-CS5	0.5° cant	$14.95 ea
Item #CCO-CS1	1.0° cant	$14.95 ea
Item #CCO-CS15	1.5° cant	$14.95 ea
Item #CCO-CS2	2.0° cant	$14.95 ea
Item #CCO-CS25	2.5° cant	$14.95 ea
Item #CCO-CS3	3.0° cant	$14.95 ea

TOKO POCKET DRIVER

This ratcheting tool is a great choice for boarders or teleskiers. Handle contains #2 & #3 Phillips, #3 Pozi, #6 flat, #4 Hex and a 10/11mm wrench. Round profile is pocket friendly. Don't leave home without it!

Item #TOK-4440 $10.95

SIDECUT

The hourglass shape of most any ski or snowboard. It's wider at the tip and tail, and narrower in the middle (waist). This curved shape along each edge helps the ski or board distribute full-length pressure in the snow and carve a turn.

BRAKE RETAINERS

Two choices, good or better. The good bands are better than rubber bands by a long shot, the better is a long-lasting, easy to use, non-finger-pinching work of genius. Either way, your brakes are guarenteed to be up and out of the way.

Item #SPK-BRAKE	Good	$.50 ea.
Item #MTK-3333	Better	$2.50 ea.

BOOTFITTING HELP?

Are you looking for a certified bootfitter in your local area? Go to www.bootfitters.com to search world wide.

MOUNTING NEW SKIS

Because alpine skis are still mostly handmade objects, don't assume they'll always have identical side-cuts on each side...even if they are supposed to. Before mounting bindings on new skis, determine which should be the left and right ski to maximize the sidecut they offer. To determine this, set the two skis down on their bases side-by-side on a workbench so they touch at the tip and tail, and measure the gap between them at the waist. Make a note of this. Then reverse their positions on the bench and measure the gap at the waist again. Any different? If so, pick the best left/right ski arrangement to take advantage of the more pronounced sidecut for greater turning ease.

BINDING SUCK

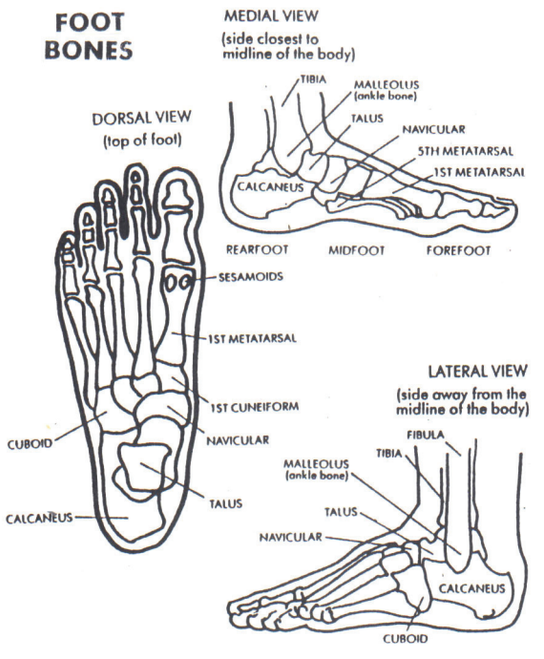
Frequently you'll find two concave pockets on the base of a snowboard that correlate directly to bindings mounted on the top. Commonly known as 'binding suck', this is a condition created by the binding screws pulling up those sections of the snowboard. Don't bother trying to sand or stone grind your snowboard base perfectly flat in hopes of removing this concavity...it'll remove much too much base and edge material from the rest of your board. Just tune your bases as though these areas didn't exist...chances are you won't even notice 'em when you're rippin'.

SIDEWALL PLANING

A sidewall planer is designed to remove excess-material from the lip (just above the edge) of the sidewall. This material gums-up files and reduces efficient filing. But, it is also and integral part of the ski structure so care must be taken to not remove too much. Remove just enough that the file can cleanly address the edge and no more. Generally one or two passes.

BOOT FITTING TIPS

85% of bootfitting is simple cause and effect... problem solving which can be accomplished with well made footbeds and/or basic boot fit aids. The remaining 15% may require some special tools, fit aids or diagnostic skills (such as recognizing the cause of the problem to be a railed ski, mismounted ski binding, or other cause not actually involving the boot or foot).



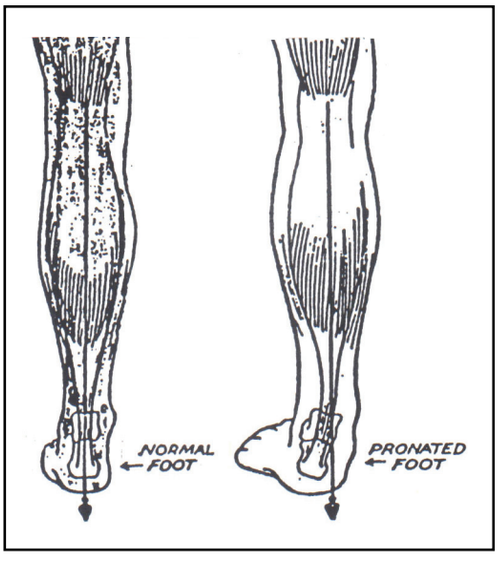
PRONATION- THE BIGGEST CULPRIT

The most common bootfitting problem is pronation of the foot. Being able to recognize and handle pronation will resolve 80% of fit problems. Although pronation appears to be simple problem of a flat foot...where the foot rolls to the inside and the instep nearly disappears...there is, in reality, much more going on. First, the bottom of the foot tries to turn to the outside while the front of the foot moves to the outside and up. These motions rotate the lower legs to the inside and put additional lateral stress on the knees. You are now confronted with a foot that is both misaligned and misshaped...and this creates misfunctions. Some pain may appear behind the small toe. The long toe can also hurt, because pronation makes a foot not only wider, but longer as well, and the long toe may jam against the end of the boot. Three bones on the inside of the foot...the ankle, navicular and talus can be a problem- the latter only sticking out during pronation. The arch may cramp, irritation at the back of the heel is common, there can be shin bite because of the leg rotation, and cold feet are not uncommon due to pinched vessels.

When confronted with a pronated foot, the boot you purchase becomes more critical. You want a boot that holds the foot snug and in alignment. If the boot lacks some containment, it can be augmented with side pads (narrowing pads, c-pads, etc.) on the inside of the foot, and heel wedges placed under the heel and metatarsal heads, positioned thick side to the inside under the insole. The ultimate aid is a well-built orthotic or custom insole.

SUPINATION

At the opposite end of this spectrum is the foot that has rolled to the outside. Unlike the loose pronated foot, it is locked and rigid. It can't be reshaped, so the boot has to be reshaped instead. Start with the footbed to redistribute pressure, then reshape the tongue to accommodate the high instep. This is one of the toughest problems to take care of. Fortunately, however, it is much more uncommon and not encountered nearly as frequently as a pronated foot.



BOOT SIZE STANDARDS

Ski boot sizing can sometimes be confusing since there's several standards. Mondopoint is an international metric sizing system.

US SIZE	MONDOPOINT	EURO SIZE
3-4	21.2	34 2/3
4-5	22.0	36
5-6	22.8	37 1/3
6-7	23.6	38 2/3
7-8	24.5	40
8-9	25.3	41 1/3
9-10	26.0	42 2/3
10	27.1	44
11	27.9	45 1/3
12	28.7	46 2/3
13	29.7	48
14	30.4	49 1/3
15	31.2	51 2/3

PHONE ORDERS
M - F 9 - 5 Pacific Time
800-299-9904

BOOT FITTING

DOWNUNDERS FOOTBEDS

These unique footbeds are designed to self-mold to your foot shape, the longer you wear them, the better they fit. We offer the BO1 (blue) version that is designed for edging sports (like skiing & boarding). Inserts under the forefoot create greater comfort and a solid platform for turn initiation. Deep heel cup securely cradles the heel and helps absorb shock. Propritary Active Arch helps keep the foot neutrally aligned and centered. Topped with a moisture wicking hypo-allergenic material that does not absorb odors. If needed, simply trim to fit using current insoles as a guide. Mens sizes listed, women choose one size down (for example, if you wear a womens size 7 order a mens size 6).
Sold as a pair, one right and one left!

Item #DWN-B03	Size 3	$39.95 pr
Item #DWN-B04	Size 4	$39.95 pr
Item #DWN-B05	Size 5	$39.95 pr
Item #DWN-B06	Size 6	$39.95 pr
Item #DWN-B07	Size 7	$39.95 pr
Item #DWN-B08	Size 8	$39.95 pr
Item #DWN-B09	Size 9	$39.95 pr
Item #DWN-B10	Size 10	$39.95 pr
Item #DWN-B11	Size 11	$39.95 pr
Item #DWN-B12	Size 12	$39.95 pr
Item #DWN-B13	Size 13	$39.95 pr
Item #DWN-B14	Size 14	$39.95 pr
Item #DWN-B15	Size 15	$39.95 pr

TAKE CARE OF YOUR BOOTS

When you get home from a day on the hill pull your liners out of your boots and your insoles out of your liners and let those suckers air out! Doing this everytime will prevent nasty things from growing and help your gear last longer. Spray some boot juice in them when they're dry if you have some...we sell it on P.57. Keep your boots buckled when not in use to help them keep their shape.

BONTEX INSOLE SHIMS

These mildew-resistant shims are inserted under footbeds to remove excess roominess in a boot. Their hefty fiber composition provides additional insulation and they can be trimmed to fit any boot.

1/16" Thick Shims

Item #SPK-S01	Size 6-7	$2.95 pr
Item #SPK-S02	Size 8-9	$2.95 pr
Item #SPK-S03	Size 10-11	$2.95 pr
Item #SPK-S04	Size 12-13	$2.95 pr

1/8" Thick Shims

Item #SPK-S11	Size 6-7	$3.95 pr
Item #SPK-S12	Size 8-9	$3.95 pr
Item #SPK-S13	Size 10-11	$3.95 pr
Item #SPK-S14	Size 12-13	$3.95 pr

BOOT FIITING AIDS

Fit aids should be viewed as tools. Don't be afraid to modify them or use them in areas that they weren't specifically designed for.

The heel lift should normally be glued in under the boot insole or footbed. Used this way, it lifts the foot and changes the fit in several places... including the ankle bones, instep, arch, and the calf at the top of the boot. Heel lifts can also be used as a metatarsal pad, tongue pad or forefoot wedge.

The heel wedge is usually used for pronation under the heel, positioned thick side to the inside. It can also be used under the big toe and first metatarsal head to take up slack there for better edging.

Tongue pads and insole shims are used to cut down on boot volume.

Side pads such as narrowing pads, C-pads, L-pads, modified heel wraps, etc. are used to take up slack and support the foot in cases of narrow heels, pronation, etc. Most pads should be customized (with sanding, etc.) to give space to ankle bones, naviculars, etc. If only one per foot is used, place it on the inside of the foot. Taper the edge, and glue it in position on the outside of the boot liner.

Instep pads can be fashioned from foam sheets and are used to hold the foot down and back. It will help take pressure off of the surf bump, shin and toes. After they have been tested, build them into the tongue if possible.

BOOT FITTING

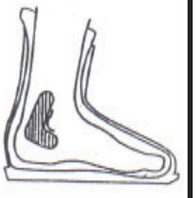
PHONE ORDERS
M - F 9 - 5 Pacific Time
800-299-9904

HEEL WEDGES

Although good footbeds are the best solution, you can slip wedges under your heels to correct for a foot that rolls to the inside (pronation) or outside (supination). Correcting pronation will make the foot seem shorter and narrower for less pinching in the boot. It will also aid in edging, slow down rotation causing shin bite, and cut down on arch cramps. All our wedges create 1/4" of lift.

Item #SPK-HWS	Size 5-7	$3.95 pr
Item #SPK-HWM	Size 8-10	$3.95 pr
Item #SPK-HWL	Size 10+	$3.95 pr

ANKLE L-PADS



Use L-pads to fill the void between the Achilles tendon and ankle bone. They provide better security and heel hold-down. They are self-adhesive and can be sanded or trimmed to fit as necessary. Attach them to the outside of the boot liner.

Item #SPK-LP3 $3.95 pr

BOOT FITTING FOAM

Sometimes pre-cut pads don't fit exactly as you need. We offer firm-density closed-cell neoprene foam that you can cut with scissors and/or sand to any desired shape or thickness. It's available in 1/8" thickness, has a self-adhesive coating on one side, and comes in a 100 sq. in. sheet.

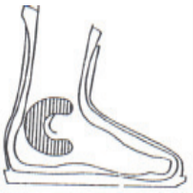
Item #SPK-BFF8 $6.95

ELIMINATOR TONGUE PADS

It's no secret that most boot fit and performance problems stem from oversized boots. The Eliminator is a large, semi-soft foam pad with a smooth inner face that's molded to fit snugly behind your existing boot tongue. It easily attaches in seconds with supplied fasteners (or permanently with contact cement) and can help cure a myriad of ills. These include shin bite relief, greater grip in the heel pocket and elimination of instep pain from overbuckling... particularly in snowboard boots. It also reduces or eliminates excess room in upper boot cuffs... especially valuable for folks with thin legs or calves who have previously not been able to enjoy all the control boots were designed to deliver without cranking boot buckles impossibly tight, which usually has the undesirable effect of overly stiffening the forward boot flex. Two sizes are offered...small fits boots up to mens size 9, while the large is for mens size 9 and larger.

Item #MFT-ES	Small	$29.95 pr
Item #MFT-EL	Large	$29.95 pr

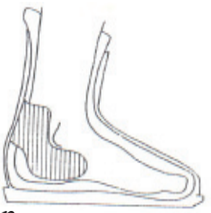
C-PADS



These pads snug up the fit around your ankle bone. It's good for heel and ankle retention if the hindfoot is loose in a boot. These pads are self-adhesive and are attached to the outside of the boot liner.

Item #SPK-CPD3 $4.95 pr

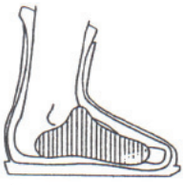
ANKLE WRAP PADS



Use this pad behind and around the ankle for snugging up the ankle area and creating a good heel pocket. They are self-adhesive to attach to the outside of the boot liner and can be sanded and trimmed for a precise fit.

Item #SPK-MWA $6.95 pr

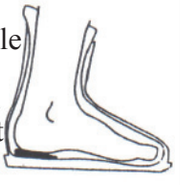
NARROWING PADS



Do you have narrow feet? If so, these pads are designed to narrow the boot for a more secure fit. They can be sanded and trimmed as necessary, and are self-adhesive to attach to the outside of your boot liner.

Item #SVT-188245 $4.95 pr

HEEL LIFTS



Heel lifts have many uses. They can help stop heel lift, reposition the ankle bone, take pressure off the arch, cut down on the leg diameter at the boot top, etc. They are offered in different sizes, and can be further trimmed or modified as necessary. The small size creates 3/8" of lift, medium 7/16" lift, and large 1/2" of lift.

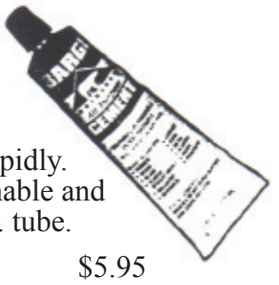
Item #SPK-HLS	Size 5-8	$3.95 pr
Item #SPK-HLM	Size 8-10	$3.95 pr
Item #SPK-HLL	Size 10+	$3.95 pr

TONGUE PADS

No, don't use these puppies to check for sore tonsils...instead, stick 'em to the inside of boot tongues to protect against shin "bang," to fill voids if the fit is too roomy there, or to push the heel back and help hold it in place. They're felt-covered for comfortable shin contact with a self-adhesive backing on the other side. One size can be trimmed (if necessary) to fit any boots.

Item #SPK-TPNL $5.95 pr

BARGE CEMENT



Use this strong contact cement to glue heel wedges to an innersole, or boot fit pads to a boot liner. It sets up rapidly. Use with care... it is flammable and the fumes are potent. 2 oz. tube.

Item #ADV-8425 $5.95

BOOT FITTING

SKI BOOT BUYING TIPS

1) Don't be in a hurry. Try on at least several boot models. When you narrow your choice down to two models, wear one model on one foot and the other model on your other foot. Stand and walk around in 'em for 15-20 minutes to see if the boots loosen up or pressure points develop.

2) Since feet tend to spread during the day, try boots on in the afternoon when they are largest. Don't try boots on after skiing that same day in your old boots because your feet may be sore and give you incorrect pressure point feedback.

3) To make sure you get the right size, pull out the inner boot and stand in the boot shell...this provides more accurate sizing than any foot-measuring device. Shell sizes do not usually get smaller with every shoe size, only the inner boot does...so see if you can fit comfortably in the next smaller shell size.

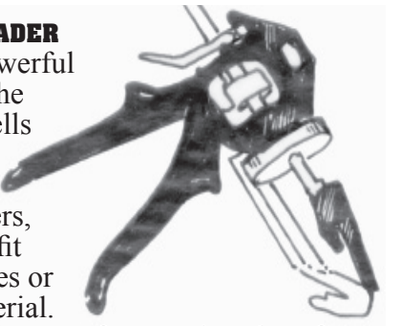
4) Wear your regular ski socks, long underwear and ski pants when trying on new boots.

5) To help determine if you should get custom insoles or footbeds, remove the inner boot, slip the new boot footbed in the shell and stand on it. If you have a hard time balancing on one foot in the boot shell, you're a good candidate for custom insoles. Remember, bootfitting is the art of marrying a soft-flexible foot to a hard-rigid shell...the footbed plays a critical part in helping to make a foot more rigid in a supportive, comfortable way.

Definition - CANTING

Canting could be considered the final phase of stance alignment for a skier. If, after good boot fitting and upper boot cuff adjustments have been made to align the skier's knees over their toes, they still stand predominantly on either the inside or outside edges (instead of on a "flat" ski), then cants (or wedges) should be installed to correct it. Although some skiers grind their boot soles to achieve this, most install cants under their bindings to do the job.

BOOT SHELL SPREADER



This simple but powerful tool spreads even the stiffest ski boot shells wide open so you can easily remove or install boots liners, insole shims, boot fit aids, replace buckles or grind off shell material. It's an indespensible part of any serious bootfitters workshop tool arsenal, plus it's portable so you can pack it along for boot repairs or adjustments on the road.

Item #SHP-165085 $129.95

BOOT BUCKLE & CARRIER TOOL

This handy little tool slips over boot buckle latches and provides extra leverage to close them without removing gloves. Compact and lightweight, it doubles as a handy boot carrier... ergonomical for carrying comfort.

Item #SKT-TOOL $7.95 ea

BOOSTER STRAPS

These industrial strength, semi-elastic boot-top straps can give most skiers significantly better foot-to-boot response. They wrap around the back of your upper boot shell and the top of the boot tongue in front. When you cinch 'em snug, the tongues becomes virtually glued to your shins whether you find yourself centered, forward or in the back seat... providing constant foot-to-ski response. Booster straps are sold by the pair and can be permanently attached to the back of your boot shell with a pop-rivet or similar. Three models are offered...the STANDARD uses two semi-elastic bands for slightly softer flex (best for most skiers who weigh 140lbs. or less), while the EXPERT model uses three bands for stiffer flex (for skiers who weigh 140lbs. or more), and the WORLD CUP uses three elastic bands and plastic stiffeners for the stiffest flex (best for racers and super aggressive skiers with stiff boots). All straps are made of top quality materials with metal strap latches for secure strap retention, and many seasons of use.
Sold in pairs.

Item #MFT-BOS	Standard	$29.95 pr.
Item #MFT-PRO	Expert	$37.95 pr.
Item #MFT-WC	World Cup	$40.95 pr.

BOOT FITTING

For the latest prices, close-outs and technical info, visit our on-line catalog at www.tognar.com

HOTRONIC POWER PLUS M4 FOOT WARMERS

When your feet are cold, it's hard to enjoy a good day on the slopes. Keep your tootsies toasty with Hotronic's top warmer. Simply install the heating elements to your existing footbeds and plug them into the battery packs. The compact battery packs attach easily to the back of boot shells using a metal clip or with optional screw or strap mounting brackets. Four temperature-heat settings are possible powered by high capacity cold weather NiMH cells. The M4 will run 2.5 to 21 hours depending on setting choice. If you have really cold feet the M4 will run a full day of skiing at heating level 3! Recharges in 3-hours or less with clever global recharger (120-240v includes North American and Eurpoean plug adaptors. Spare/replacement battery packs are available as well as replacement Cambrelle covers. We also offer a spare Heating element and Cambrelle cover set for folks who own additional boots (saves big bucks over purchasing another complete set). Hotronic offers a 3-year limited warranty.

Item #HOT-1043	Footwarmer M4	$219.95 pr
Item #HOT-143	Battery M4	$69.95 ea
Item #HOT-1500	Opt. Screw Brackets	$9.95 pr
Item #HOT-1503	Opt. Strap Brackets	$9.95 pr
Item #HOT-1240	Cambrelle Covers	$7.95 pr
Item #HOT-1220	Elements & Covers	$39.95 pr

BOOT GLOVES

If you suffer from cold feet, slip a pair of these neoprene Bootgloves over your ski boot shells. They help insulate your toes and forefoot, but won't compromise boot fit or interfere with safe binding operation. Simply slip 'em 'over the front of each boot and snug 'em up with the adjustable strap that runs around the back. For optimal efficiency, cut out the neoprene material to expose your lower boot buckles...this can easily be done without harm to the Bootgloves. Three sizes - Sml. fits 3-6, med. size 7 - 11, lrg. fits 11 - 15. Their black color also helps maximize solar heat absorption.

Item #DRY-BAS	Small size	$29.95 pr
Item #DRY-BAM	Medium size	$29.95 pr
Item #DRY-BAL	Large size	$29.95 pr

THERMOFEET HEAT INSOLE

Here's a simple step you can take to help keep feet warmer in ski or snowboard boots...as well as in other winter footwear. Slip these thin reflective insoles under your existing footbeds (or under the inner ski boot if you prefer), where they help reflect heat back up to your feet. Their ultrathin design won't affect boot fit, and they are easily trimmed with scissors to match the exact shape of your existing footbeds... from the most petite size on up to giant dimensions (well, size 15, anyway).

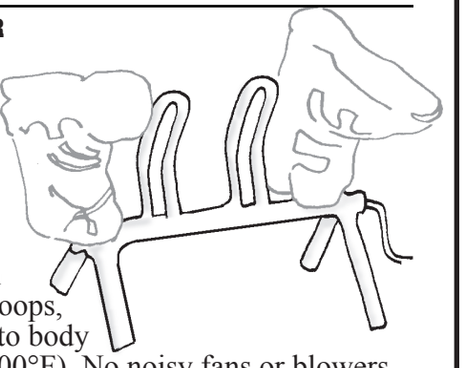
Item #DRY-DGTF $9.95 pr

TURBO CIRCULATOR

These sleek boot dryers combine convection heat with forced air to dry and warm your boots quickly and efficiently. Just slip them in your boots and let the quiet fan do all the work, no need to worry about overheating because the warm air is constantly exiting the boot taking moisture with it. The compact size is perfect for travel and includes options for 120 volt or 12 volt (car). You can use these babies to warm your boots on the way to the hill!

Item #DRY-DG00301 $39.95

THERMANATOR DRYERS



These quiet dryers accommodate two pairs of boots. Simply slide boots over the dryer's smooth upright metal loops, which heat up to body temperature (100°F). No noisy fans or blowers are used, so your boots dry silently in 3-6 hours, depending if your gear is slightly damp or very wet. These sturdy metal dryers can be placed on the floor as freestanding models or attached to an interior wall. The dryer equires 27" x 12" of floorspace,115 volts.

Item #DRY-T2 2-pr model $59.95 ● 9#

BOOT JUICE DEODORANT

Stamp out boot stink and mildew. Spray a dash of boot juice in those puppies every now and again to keep 'em smellin sweet as a daisy and keep creepy swamp growth at bay. Big 20 oz. spray can.

Item #SPK-BJ20 $10.95

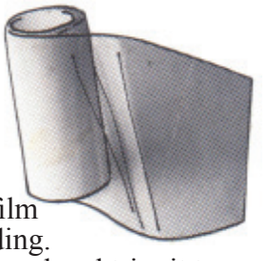
Visit our new website for tuning tricks, tips and how to videos!
www.tognar.com

RACKS & PROTECTION

DON'T LOSE THAT MAGIC TOUCH BETWEEN YOUR WORKBENCH AND THE SNOW

You invest precious time, energy and money to tune your skis just the way you like them...but what do you do to protect that investment from the ravages of rough handling, road grime or summer storage? Here's an arsenal of protective gear to insure that your skis don't lose that magic touch between the workbench and the snow.

SKUFF SAVER



Protect the tops of your skis or snowboard from scratches and scrapes and keep 'em looking new. This clear and tough DuPont Surlyn tape is backed with a self-adhesive film for easy application and bonding. Simply order the length you need and trim it to fit. It's 14.5" wide (enough to span any snowboard, or a pair of even the widest alpine skis) and is sold by the foot.

Item #TYC-7210 $2.95 per foot

BASE PROTECTOR

For maximum protection, strap this full-length padded protector to your ski bases after a tune-up or hot-wax. Constructed of thick neoprene, it features a hood at one end to slide ski tips into, the tail wraps for length adjustment. Three closure straps securely wrap the ski. Two sizes to fit skis from 130 to 215cm long. Made in USA.

Item #BTS-BASES 130-170cm $34.95

Item #BTS-BASEL 165-215cm $34.95

SUMMER STORAGE

At the end of the season don't just chuck your skis or board into a corner of the shed, take time to put them away properly. Clean the bases, sidewalls and topsheets with base cleaner. Repair any base damage and give the edges tune (or at least remove any oxidation). Perform a Hot Scrape (iron in a base prep or other soft wax and scrape while hot to remove any debris, follow up with a brass brush). Finally apply a generous coat of base prep or other soft wax and don't scrape it, get some on the side edges too, this will protect the bases from drying out and the edges from oxidizing. When next season rolls around all you need to do is scrape the base prep wax and apply your wax of choice for the season and away you go!

SKI STRAPS

These sturdy straps feature a pliable foam cushion that slips between the ski bases so they can't rub or scratch each other during transport or storage. Simple, strong and effective. Multiple lengths are available... measure the width of your skis near the tip or tail to choose the right size.

Item #TOK-0499 $4.95 pair
• fit skis up to 140mm (5 1/2") wide- Toko logo

Item #CSA-TIE $4.95 pair
• fit skis up to 120mm (4 3/4") wide- Tognar logo

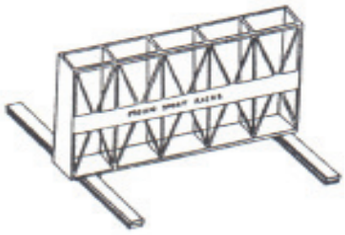
Item #SWX-R391 $5.95 pair
• fit skis up to 140mm (5 1/2") wide- Swix logo

Item #APG-STRAP $6.95 pair
• fit skis up to 165mm (6 1/2") wide- Tognar logo

Item #SWX-R402 $5.95 pair
• fit nordic skis up to 45mm (1 3/4") wide- Swix logo

Item #SWX-R397 $4.95 pair
• fit skis up to 120mm (4 3/4") wide- Swix logo
unpadded watchband style

MOHN SKI RACKS



These sturdy, free-standing PVC racks are handy for storing unruly skis. Just slip 'em in by the tails and they stay put. Holds up to five pair of twin-tip or standard skis up to 115mm wide at the tail.

Item #MOH-TT05 TT ski rack $89.95 ●10#

SKI & SNOWBOARD WALL RACK

Want to simplify life and help protect your valuable gear from unnecessary damage? We offer a handsome wood rack to store any skis or snowboards neatly and safely on a wall. It's made of pine and features a clever pivoting clamp that holds ski tips and tails firmly together. Holds up to 4 pair of snowboards or skis (any type) as well as poles vertically against a wall. Mounting hardware included. Handmade in USA.

Item #WHI-WR $79.95

WIDGETS & GIZMOS

DERMATONE LIP & SKIN PROTECTION

Dermatone is the time-tested Swedish formula we prefer for all outdoor activities...on slopes and rivers, in sand or snow, at elevations high or low.

Item #SWX-22704 $2.95

• Best lip balm on the planet in our opinion, it has double the contents of traditional sticks. .3oz, SPF15

Item #SWX-22854 $5.95

• .5oz tin of sunscreen ideal for extreme wind and sun exposure. Popular with mountaineers and ski professionals, this heavier SPF23 formula acts to help repel frostbite

RETRACTABLE CABLE LOCK

This palm-sized cable lock features a 30" (75cm) long, 1.7mm thick coated steel cable and an easy-to-reset 3-digit combination. Sized to fit in any pack or pocket.

Item #SAA-61804 $15.95

TOKO POCKET DRIVER

This ratcheting tool is a great choice for boarders or teleskiers. Handle contains #2 & #3 Phillips, #3 Pozi, #6 flat, #4 Hex and a 10/11mm wrench. Round profile is pocket friendly. Don't leave home without it!

Item #TOK-4440 $10.95

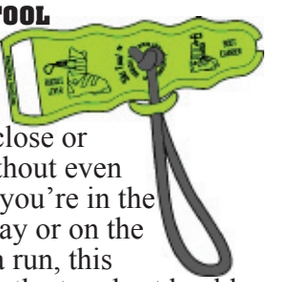
SWIX SHOT GLASSES

Classic Swix shot glasses. Nice thick walled glass. Perfect for and Après Ski Aquavit. Available in Blue or Red. Holds 1oz.

Item #SWX-R165B $9.95 -blue

Item #SWX-R165R $9.95 -red

BOOT BUCKLE & CARRIER TOOL



Here's a handy little tool that slips over the end of boot buckle latches and provides extra leverage to close or open ski boot buckles... without even removing gloves. Whether you're in the lodge buckling up for the day or on the slopes clamping down for a run, this ingenious lever makes even the toughest buckles a cinch to close or open. Compact and light-weight, it doubles as a handy boot carrier... ergo-nomical for carrying comfort. Made in USA.

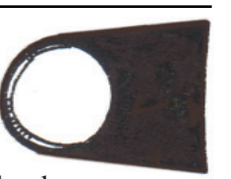
Item #SKT-TOOL $7.95 ea

CAT CRAP ANTI-FOG CREAM

Apply a dab to the inside of your goggles or sunglasses then buff with a clean soft cotton cloth or chamois for fog-free clarity. Safe for all lens materials and coating.The .25oz tub provides hundreds of applications.

Item #SAA-63027 Anti-Fog Cream $5.95

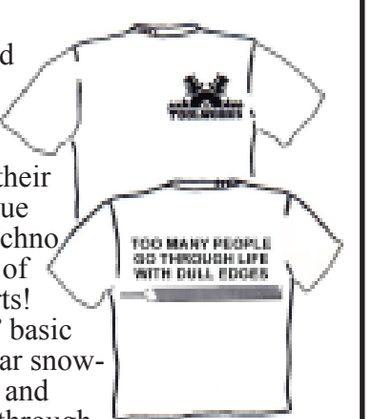
SKIGEE GOGGLE WIPER



These soft rubber gizmos look like miniature swim fins. They wipe water and snow off goggle lens without scratching, and slide over your glove thumb where they're always ready for use. Cool tool!

Item #SAA-63510 $2.95

DULL EDGES T-SHIRT



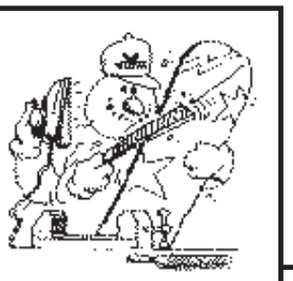
What says it louder and prouder in a world where 97% of our riding brethren never bother to tune or wax their gear? Proclaim your true feelings about those techno losers by donning one of our 100% cotton t-shirts! They come in good ol' basic black with white Tognar snow-flake logo on the front and "Too many people go through life with dull edges" on the back. Made in USA

Item #TOG-TS1M	Medium	$16.95
Item #TOG-TS1L	Large	$16.95
Item #TOG-TS1XL	Extra large	$16.95

CHECKING EDGE BEVEL

Before beveling the bottom or side surface of steel edges, color the entire surface of the edge from tip to tail with a black permanent marking pen. As you file, you'll remove the color coating. This technique allows you to visually monitor the amount and uniformity of bevel you're imparting.

To get the best prices, more technical info, or to place an order, go to www.tognar.com



BASIC TUNING GUIDE

Step 1- Flatten Your Bases

Ideally, a ski or snowboard base should be flat across from edge-to-edge to perform efficiently, comfortably and predictably. Check it with a true bar to determine this. If it's flat, you're ready to move on to Step 2. If not, and the ski or board is new, take it back to the shop where you purchased it, and ask them to correct this. If your gear is not new, you can flatten the base with tools on pages 10-12. Also, if a base is badly scratched or gouged, you can repair damaged areas with the base repair materials on pages 14-16.

Step 2- Structure Your Bases

A ski or snowboard base should be structured (see page 13). If your gear is new, it should already have a base structure. If not, take it back to the shop where you bought it and ask them to correct this. If your gear is not new, you can create a base structure (or refresh an existing structure) with tools on pages 10-12.

Step 3- Tune Your Edges

The steel edges on skis and boards should be tuned regularly. This greatly contributes to better control and performance. First, the edges should be beveled (see explanation on page 18). If your gear is new, it should already have beveled edges. Ask at your shop for the recommended bevel angles for your gear, or see the ski and snowboard bevel guides on page 18. If it's not new, then you can file and bevel the edges with tools featured on pages 22-23. Next, the edges should be deburred and polished to keep them crisp and rust-free, using tools featured on pages 24-25.

Step 4- Wax Your Bases

Ski and snowboard bases dry out quickly and need to be waxed regularly...otherwise they start losing their gliding ability, become harder to turn, and wear more quickly. The best way is to hot wax...a heated application that melts the wax and allows it to penetrate more deeply into a base. Otherwise, you can rub-on a paste or liquid wax. This doesn't offer the durability of hot-waxing, but serves it's purpose for half a day or so. We offer waxes and waxing tools starting on page 27. Recreational riders should start with 'hydrocarbon' waxes...which are inexpensive but provide good base protection and performance. A 'universal' or 'all-temperature' wax is the simplest approach for most all snow conditions. Racers and competitors should use 'fluorocarbon' waxes whenever snow has enough moisture in it to easily make a snowball. Although more expensive, it can provide faster glide in these conditions.

QUICK FIX CHART

Complaint	Cause	Solution
Skis or Snowboard Feel Hooky Pulls in one direction or the other. Won't move smoothly from turn to turn.	Base Concave	Flatten Base
	No Base Bevel	Edge Tuning
	Rough Base Finish	Scrape Base
Unstable at Speed Skis swim and clank together at speed.	Base Convex	Flatten Base
	Edge Over-beveled	Edge Tuning
No Edge Grip When you edge skis or snowboard on steep terrain, they slip out rather than biting in.	Dull Edges	Edge Tuning
	Rust on Edges	Edge Tuning
	Base Damage	Repair Damage
Bases Feel Slow On flatter terrain, skis or snowboard feel sticky, and others pass you easily.	Base Oxidized	Scrape & Wax Base
	No Wax	Apply Wax
	Wax Too Thick	Scrape Wax
	Fuzzy Base Finish	Scrape Base
Turn Too Abruptly When you begin a turn, skis or snowboard starts with a jerk.	No Base Bevel	Edge Tuning
	Edges too Sharp at Shovel	De-tune
Edges Feel Grabby After you've turned, the edges don't seem to want to let go.	Edges Too Sharp for Snow	De-tune or Resharpen
	Burr on Edges	De-burr

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Tögnar Toolworks

280 E. Hersey St. Unit 4
Ashland, OR 97520

info@tognar.com

2 WAYS TO ORDER

1. WEBSITE: www.tognar.com
2. PHONE: 800-299-9904

HANDY TOGNAR WISH/PHONE ORDER LIST

For as long as we can recall this page has functioned as our mail/FAX order form, but a steady decline in mail & FAX orders as-well-as our change from shipping rates based on the dollar amount of the order to one based on order weight, has prompted us to revise it. The page now functions as a convinient place to keep track of item number for a wishlist or prior to calling in a phone order. If you have prefered to FAX or mail your order in the past, please don't hesitate to give us a ring and we'll happily enter your order over the phone. Thanks!

No. of Items	Item No.	Description	Price Per Item	Total
			Total:	

Check for Special Deals and Close-outs at our website: **www.tognar.com**

ORDER INFORMATION

OPEN & SHUT

We're open Monday thru Friday from 9am to 5pm (Pacific Time) from October through April. May through September we're open from 10am to 4pm (PST). We shut down on weekends and major holidays so we can go ski, snowboard, hike, climb, bike and otherwise goof off. But you can reach us anytime by email at info@tognar.com, or place an order at our website at www.tognar.com. If all else fails, you can try contacting us by directing your well "tuned" thoughts to the Lemurians...a race of invisible telepathic beings who live inside Mt. Shasta and make some really cool tuning tools that you can't see or feel but can still purchase if you have a really big imagination and/or wallet. Pretty cosmic, eh?

WALK-IN TRAFFIC

We don't have a retail store front, we operate out of a warehouse focused on sending ski wax and tools all 'round the world in a timely manner. We really aren't set up for a leisurely stroll of the aisles. That being said, if you're local, or passing along the I-5 corridor, place your order online or phone ahead of time, let us know it's a pick-up and we'll have it ready and waiting for you. We'll even have a selection of tools and waxes on display to get your hands on.

REDUCE, REUSE, RECYCLE

If your order shows up in a used box stuffed with foam peanuts, don't be offended...we recycle newspaper, foam peanuts, shredded paper and sturdy boxes collected from other local businesses to reduce unnecessary waste.

RUSH RUSH RUSH

Barring blizzards, white-outs, earthquakes, volcanic eruptions or summer vacations, we endeavor to ship orders we receive prior to 11am PST that same day...and at no extra charge. So relax, we're pretty fast. Expedited shipping is also available.

CATALOG PRICING

We print our catalog once a year and over those 12 months things can change. Occasionally prices go up and sometimes they go down. Items become unavailable and are replaced with new options, etc. Treat it as a pretty accurate guide to what we offer, For real-time stock, prices, descriptions, and other info visit our website tognar.com.

WEBSITE

Take a look around our new site if you get the chance. The improvements over our old site are too many to list here, but the highlights are: a fast and functional search option, published shipping rates based on the weight of your order, a revised learning section and the ability to read and leave reviews on any product. The site is very mobile friendly, shoot you could order from the chairlift! We are very excited about the potential of the new site to make your shopping and tuning the very best it can be. If you have any questions or comments please contact us by phone 800-299-9904 or email info@tognar.com.

CURRENT TOGNAR CUSTOMERS

If you are an existing Tognar customer chances are your customer information has been moved to the new site. To access your account enter your email address and phone number into the appropriate spots and you should see your information. You can make any neccessary changes to address etc. at that time. If you have any difficulty don't hesitate to give us a ring and we'll get you squared away. Thank you!

DO YOU GUYS EVER SHIP DEFECTIVE TOOLS?

Sure, but only if you specifically ask for them. Otherwise we guarantee all tools we sell against defects in workmanship and materials.

REFUNDS/RETURNS

If you end up with an item that you don't want, just return it to the address below within 30 days (and in new condition, please). Please pack it securely (we can't be of help if your returned item doesn't make it back to us), include a copy of your sales slip or order #, and let us know if you want an exchange, credit or refund. Used merchandise is subject to a 25% restocking fee.

Tognar Returns
280 E. Hersey St. Unit 4
Ashland, OR 97520

TONS OF FREE TUNING TIPS

A whole mess of tuning tips and tricks, advice and articles, videos and photos for the DIY ski tech, check 'em out at **tognar.com and at tognar.wordpress.com**

MAILING LIST

We respect your privacy and do not make our mailing list available to any other companies..ever.

RECYCLE THIS THING

Unlike many companies, we only mail our catalog once a year. This saves paper, trees, ink, water, electricity...plus gives us more time to concentrate on serving your needs and goof off on the snow. It also means that it'll be a year before you receive another catalog, so don't throw this one out.
Our catalog is printed on recycled paper using soy-based inks. Please recycle it when you no longer need it by passing it on to a friend, or pulling the staples and recycling the paper. Thanks.

GIFT CERTIFICATE

If you're looking for a gift for a skier or snowboarder, but are uncertain what to buy, consider a gift certificate. They are available in any amount, can be ordered by phone, mail or through our website, and are payable by VISA, MASTERCARD, DISCOVER or Paypal.

INTERNATIONAL ORDERS

We ship orders all over the world. Pay by VISA, MASTERCARD, DISCOVER to avoid costly exchange rates. Simply enter your order on at tognar.com and select the desired shipping method, your card will not be charged until you submit the order. Customer is responsible for any additional duties, customs fees and VAT. Email us for more info at **info@tognar.com**.

SHIPPING RATES

The shipping cost of your order is based on the weight of the order and the method chosen. Tognar offers a variety of shipping options using Fedex and US POSTAL SERVICE. When your order ships you'll recieve and email with the tracking number so you can follow its journey.

SPECIAL ORDERS

If you don't see the tool, wax or gadget that you sorely desire in the catalog or on the site, give us a ring or send us an email and we'll do our darndest to get it for you in a timely manner. We specialize in special orders!

Printed on recycled paper!

PHONE ORDERS
M - F 9 - 5 Pacific Time
800-299-9904

INTERNET ORDERS
www.tognar.com

TECH QUESTIONS?
800-299-9904

E-mail
info@tognar.com

TOOLWORKS
280 E. Hersey St. Unit 4
Ashland, OR 97520

WIN FREE TOOLS!

Most years we receive lots of ski and snowboard tuning tips from our customers, last year was an exception for some reason, folks were keeping their super tuning and waxing tips to themselves! This season why not share your tip with the wide snowy world, you could get some free stuff and the fame you deserve!

If you wanna crack at getting free tools from our catalog, email us your favorite tuning or waxing tips or tricks. We'll print our favorites in next year's catalog, if we print your tip you'll get a $50 credit to spend at Tognar. If we judge your tip to be the very best you'll get a $300 credit!

Rocker Ski Racks

These are some of the finest ski racks we've come across. They differ from other wall-mounted racks because they store your skis (or snowboards) in a neutral position, in other words they don't alter the skape of the camber. This is especially important for skis with early rise or rocker. It is not necessary to use a ski strap on the tails of the skis either, which can further alter the natural shape. The XL version features 6" (152mm) coated arms, a good choice for wider skis or snowboards (this is our most popular size), the ST version has slightly shorter 4" (100mm) arms but will still retain the widest skis with ease. Racks are sold individually or premounted to a nicely finished piece of wood in sets of 3 or 4. You can designate the number of ST and XL units on the 3 and 4 pack racks to customize them to your needs (just give us a ring or order online at tognar.com). All racks include mounting hardware and instructions. Made in the USA.

Item #RSR-ST	Standard Single Rack	$29.00
Item #RSR-XL	XL Single Rack	$39.00
Item #RSR-3PK	Three Pack Rack	$149.00
Item #RSR-4PK	Four Pack Rack	$199.00