

# *Nordic Ultra-Tune Update*

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## **Turnaround Time**

I have been experiencing the heaviest work loads ever this fall, and as a result, turnaround time has necessarily been a good deal slower than I like it to be. Business shows every sign of continuing at this level, so I'm afraid that quick returns of your skis may not be possible, at least a peak periods. To speed things up and/or to be sure you have your skis in time, I'd like to make several suggestions:

- 1) Get skis in to me as far in advance as possible! If you can e-mail me about skis that need to be back by a certain date, I can let you know when I need to have them in to make your deadline. Please indicate deadlines *on the Work Order Form*.
- 2) *Please* fill out the Work Order Form completely and carefully, and attach your check. A recent in-take took one entire workday, as five or six boxes did not contain Work Order Forms or checks, which meant spending most of a day calling and e-mailing the customers involved to find out what was needed, request checks, etc.
- 3) Do not require a signature – if I'm out, skis will not be delivered, necessitating in some cases a considerable delay. We have never lost skis in shipping.

*Please* be sure to enclose a check – I had four shipments in the current batch which

came in without checks! I am not set up to bill later.

I am considering no longer writing individual letters to explain the grinds and what I found on the skis. I will try to keep this up, but it takes half a day to write all those letters (20-30 per batch). In times of extremely high in-take, I may simply ship off the skis with a note to the effect that if you would like an individual report, simply request one by e-mail. I take notes as I work, and these are always available – and I can e-mail the letter later, when there is less needing to be done in the shop. This is a fall-back position, but if I need to use it, I hope customers will understand.

Finally – *please!* – no Styrofoam “peanuts”! I do not have the capacity to dispose of them, and I do not have the time to clean up all the ones that get away. It is impossible to extract skis from boxes filled with the things without having them all over the place. Today a 14” x 14” x 84” box, with *one* pair of skis arrived, full of peanuts. I have – regretfully – returned it to the sender. Unfortunately, the fault is probably that of the shipping store – but I cannot accept boxes with Styrofoam peanuts.

## **Wax Removal**

Lately I've had a spate of skis come in that are still waxed (in one case, with the kick zone mysteriously taped). Customers will please note that we require skis to be de-waxed, and that there is a surcharge of \$5.00 for wax removal. There are three reasons for this:

- 1) Any wax that gets into the grinding stone causes big problems: it clogs the stone so that it won't cut. I recently let a waxed ski slip past me, and it took five re-dressing of the stone, plus chemical cleaning, to get the stone clear again. Dressing the stone is a process that uses a diamond to remove a layer from the stone, which costs in terms of both stone and diamond wear (a new diamond is \$900, and a new stone about \$1,000). In addition, any wax in the stone will hold small bits of "sand" after dressing the stone, so that the grains are released during actual ski work, thus scratching the base – which means shipping a damaged ski, or re-grinding.
- 2) Having to stop and remove wax from the ski – *and the machine* – takes time from the real work of grinding your skis, thus adding to turnaround time.

Anyway, incoming skis are about to be ground, so there is no need or reason to protect the bases.

Please help out by removing all wax from the skis (including the grooves and edges/sidewalls!)

#### Cooler & Oil

I've finally installed a refrigerated water-cooling systems. The stone which does the actual grinding, as well as the dressing diamond, is constantly washed by a jet of water. This water also cools and keeps the ski clean as it passes through the grinder. Experience has shown that the cooler the water, the "cleaner" the grind: at lower temperatures, the base material of the ski loses elasticity, making the actual "cut" of the stone far more precise. In broad terms, warm base material "tears" when ground, while cold material cuts. The result of cold grinding then, is a sharper, crisper cut – grind – and coincidentally, fewer passes through the machine. In addition, keeping the base cold is a safeguard against over-

heating and sealing the base, as we sometimes see in factory grinds.

I now have a 55 gallon freezer full of super-cooled water (about 50% antifreeze) which maintains a temperature of around  $-5 - -10^{\circ}\text{C}$ . The water that circulates through the machine is first circulated, via a hose, through 40 feet of copper tubing inside the freezer. This way, the water in the machine can be held all day at around  $5 - 10^{\circ}\text{C}$ . I try, when possible, to schedule work so that final base structuring – the last step of the grinding process – happens on a separate day from flattening and polishing. In this way, I can make sure that the water in the machine is at its coldest – another step in providing the cleanest and best grinds possible.

I have also switched to a new oil emulsion: the water that is sprayed on the stone and ski contains about 1:40 parts emulsified oil. This ensures a cleaner, cooler "cut" (traces of the oil are chemically removed in the next stage of preparing your skis – just before they are buffed and waxed). I am now using a new oil which seems to give even better results, and I am investigating both biodegradable oil, and a silicone-bearing oil which I am told will result in even lower grinding temperatures by reducing stone/ski friction even further. I keep learning...

#### Waxing irons

Lately I've seen a lot of burned and/or sealed bases. Burned kick zones on classic skis are dealt with below, but I'm also seeing over-heated bases on skate skis, and the glide zones of classic skis. Part of the trouble may simply be over-ambitious ironing, but part of it is probably waxing irons.

It's possible to seal a base. This will result in bad wax retention and grayed-out areas, and/or the base feeling odd when scraped (or "sludgy" when ironing). Bases start to melt circa  $85^{\circ}\text{C}$ , and go into total melt-down at

135° C. Superficial melting results in the bases becoming sealed, so they won't absorb wax. Deeper melting, the result of ironing too hot and/or too long, will melt the base altogether: this is referred to as burning the base. It may be possible to get below the burned area with the grinder, but equally, the ski may be a write-off, in terms of good performance.

Getting a good iron is *the* best way to avoid all these problems. A cheap iron – we won't even talk about the Goodwill specials with holes and nasty stains – will have a very wide temperature range, owing to a cheap thermostat. At the bottom end of the temperature range, the wax won't melt, at the top, the bases will melt. To avoid the cold end of the scale, we tend to turn the thermostat even higher – resulting in smoked wax (bad: the smoke is important wax ingredients coming out of the wax in the smoke as aerosols) and burned bases.

In contrast, a good iron will have a very narrow temperature range, and its fluctuations will not go up into the “red” zone.

Avoid folding or portable irons, and Goodwill specials, also retired clothes irons.

There several very good irons on the market. Star, Swix, and Toko all market good irons, specifically designed for working on skis. Again, go for the mid- or high-end irons even within these reliable brands. The more expensive versions will have better thermostats, and have heavier bases that will hold heat more evenly. At NUTS I use the Swix digital iron, which is very expensive, but holds temps to within a few degrees, and has an accurate digital temperature read-out. Perhaps not surprisingly, the best irons don't smoke (much) because they rarely heat up into the red zone.

One last thing: keep the iron clean and smooth. Cleaning it with a paper towel after using it each time will keep wax off the edges and out of the insides – a common

reason for smoke. It will also avoid those nasty brown-and-black stained irons that one usually sees in the junior wax room... It will also keep grit off the iron, which can scratch the base of the ski.

It's even a good idea to clean the (cool) iron from time to time with some Fibertex, to keep it smooth.

A good iron is an insurance policy for your skis, and it makes no sense whatever to invest hundreds or even thousands in your skis and other equipment, then damage the skis by saving money on a cheap iron.

Good “Extra Tool”: pick up a Swix Iron Cover. These protect the base of your iron from scratches, especially when traveling, keep it clean, and because they are insulated, you can pack the iron and go, without waiting for it to cool completely. A Very Good Idea, and also a good stocking-stuffer!

One other Good Tool to Have: a good form bench. David Smullin just sent me this address for what looks like a good, inexpensive wax/form bench: [www.ezbench.com](http://www.ezbench.com). Check it out!

### Technique

I got the following note from a young local skier. It's such a useful question, that I felt it might be useful to pass the question and my attempt at an answer on to all NUTS customers:

*Nat, I remember you telling me that I should try to make the leg component of my VI as even a possible--to push off of both legs with the same amount of force. However, you also said that in practice even at higher levels of competition skating wasn't always even for the VI. I've practiced this a fair amount and think that I'm skating off of each leg uniformly. Is there a practical reason (like keeping pole cadence up or something) for why top-level skiers don't always have*

*even strides in their V1s? Should I abandon my pursuit of even skating in my V1?*

Very good questions; if we had a few more skiers who would *think* like that, we might do pretty well!

Keep trying to equalize the legs. The reason is very simple: if only one leg is working, then a) the other leg is along for the ride and just dead weight to haul around and you only have one source of propulsion, and b) when you do use both equally, you have two power sources.

The big guys get uneven, yes - and you'll often see that they aim one ski more acutely up the hill than the other. But when you're going full-out, form falls a little by the side. The "sure winners" however, the Daehlie's and the Mogren's, usually maintain impeccable technique.

Technique does two things:

- 1) It's more effective, because it optimizes muscles/strength/propulsion, and thus provides more power & speed, and
- 2) Because it optimizes all this, it uses less energy at a given speed. In other words, the skier with good technique will win the long races because he has "spent" less at any given speed.

It's true that a gorilla can blast around a 5 km - and there is always Alexi Prokurov - which is why in the junior races some of the bigger guys do so well. But when everyone arrives at the plateau where strength and fitness are about equal, then the guys who can *ski* do well.

In the long run, if you want to be a skier, polish technique. I remember way back in the mid-80's when we were at Dachstein and I was filming the Swedes. Anders Blomquist came over to me and said, "Don't film me - film him" - pointing at Mogren. "He's not doing much now, but he's going to be the next one." Mogren trained less than the others - and played a lot more golf - but

he polished his technique to where when he was winning, as in the 50 km at Falun in '93, it looked like he wasn't working.

technique = efficiency = speed (and less energy at a given speed).

Two more anecdotes: I got a look at a copy of Alsgaard's training log once. There were 30 km no-pole sessions. Learn to skate well and efficiently!

The Slovenes used to do V2-only workouts. By "forcing" a technique, even in places where it may seem counter-productive, their coach, Marko Gracer, helped them to gain mastery of V2 and learn how to do it in a broader range of places, as well as getting a feel as to where it is or isn't to your advantage. I remember watching Marjan Zagoršek in a race in Les Saisies. The Italian Junior World Team showed up unexpectedly, and they were all bigger and older than Marjan. But the cool thing was watching Marjan catch and pass the Italians on long gradual climbs because he had so thoroughly mastered V2 and was able to use it more efficiently than the V1 the Italians were stuck in. You simply can't over-do technique!

#### Kick Zones & Heating in Kick Wax

I have been seeing a lot of *very* burned kick zones on classic skis. I assume this is from too-aggressively heating in kick wax to assure wax adhesion - the same reason we (*lightly*) sand kick zones. The object is to warm the wax so that it flows into the "pores" of the base. Unhappily, if we over-heat the base, we melt the base material, however peripherally, and seal it - which is counter-productive to our aim of ensuring wax adhesion. And this means a great deal more base may need to be removed during grinding, in order to get down through the sealed base. And of course, the more we have to grind off a base, the shorter the useful life of the ski. As well, over-heating simply eliminates the micro-hairs that

sanding has raised, again counterproductively.

Probably the easiest and best way to ensure wax adhesion is by one of both of two methods:

- 1) *Light* sanding with a medium-grit sandpaper: this raises tiny “micro-hairs” which give the wax (or binder) something to adhere to, as well as “opening” the base.
- 2) *Gentle* heating with an iron at a *moderate* temperature.

I wrote about sanding in a previous newsletter. Sanding can be combined with heating for maximum adhesion. I prefer to heat wax in at home or in the wax room, as part of the final scraping/brushing process before racing. Simply rub on a thick layer of the wax you anticipate using (or binder), then heat it in the same way you would heat in a glide wax, at something around 100°C. Be sure to keep the iron moving to avoid too much heat build-up. And clean the iron after applying kick wax with it!

I often simply heat in a “neutral” wax such as Extra Blue before leaving the house. The theory is that if a colder wax is actually called for, the Extra Blue will be a good cushion, and if the snow is warmer, the Extra Blue will still be a good, firm base layer.

Iron, allow to cool completely, and cork smooth.

In the case of klister, do the same thing: iron in a *very* thin layer, just enough to make the ski “tacky” and allow to cool. Add the *klister du jour*. Clean the iron. Go ski.

Second layers can also be heated onto the binding layer or binder, but again, heat *gently*.

If you absolutely must use a torch (and if you don’t have a Bernzomatic self-lighting

iron yet, go out and get one), there are several ways to stave off base disasters:

- “Cork” klister in to an even layer or use a plastic klister spreader (useless when it’s cold; in other words, in real working conditions – and anyway, it will probably break), or with the heel of your hand. Several long, slow passes will go a long way towards spreading the klister out evenly for subsequent torching, or to use as-is. The oils on your hand will *not* effect the klister, and you won’t get that much on your hands; we used to refer to this as a “Norwegian cork”.
- Wave the torch around: do *not* concentrate it on any one spot, *especially* if you are trying to heat up a bead of klister on an otherwise clean base. Keep the torch moving: all you need to do is heat the wax and base slightly. Open flame is anathema to unprotected bases!
- Better yet see if you can find one of those old-fashioned aluminum irons with a wooden handle that you heat with a torch. Heat it, then smooth to klister (or hard wax) on. If it smokes, it’s too hot. Clean it when you are done, or it will wreak havoc in your wax box.

To clean kick wax off, remove the larger part of it with a klister spreader or a paint spatula (round the edges of the spatula with sandpaper, to avoid nicking the base). Heat, if you must, with a hot air gun on a low setting. You can “rag” the wax/klister off with hot air and a paper towel, but it is easy to apply too much heat and seal the base. Lately, I’ve preferred to use Toko Clean Gel, which is the quickest, easiest, lowest-residue wax remover I have ever used. It comes with an applicator/brush that does most of the work (hint: brush thoroughly), and a screw-on cap over the brush/applicator that effectively keeps goo out of the wax box. Whoever invented this deserves undying gratitude and the applause of everyone interested in the mental stability of the ski world.

### The Toko Thermo Bag – a portable hotbox.

From Ian Harvey of Toko; the Toko Thermo Bag is a portable, low-temperature version of the increasingly popular hotbox. Its enormous advantage is that it can be taken down and easily transported to race and training sites. I have not yet had the chance to use one, but heartily subscribe to the idea and principles of the Bag. It's expensive, but affordable for teams. Check out the site and note the temperatures that Toko recommends. Ian wrote:

“The following link provides complete information on the Toko Thermo Bag:  
[http://www.tokous.com/thermo\\_bag.htm](http://www.tokous.com/thermo_bag.htm)

“A Thermo Bag will enable the waxer to get more wax into a base and wax deeper into a ski base compared to using an iron - at any temperature, even one that burns the base. This is a fact and is documented on the link above. A Thermo Bag is excellent for use when treating new skis, slow skis, or freshly ground skis. It is also an excellent tool in preparing skis the night before an event with the final HF layer (heat the skis for around 6 hours and then unplug the bag so the skis cool off very slowly resulting in superb wax penetration even at the most superficial base layers).

“The Toko Thermo Bag is not your run-of-the-mill hot box. It has digital temperature setting, a digital temperature readout, a ventilator to ensure consistent temperatures throughout the bag, fits 12 pair of Nordic skis, and is portable (not easily, but yes, portable).”

### Scratches, Traces and Trauma

Occasionally I will leave traces of scratches in ski bases. There are several reasons why I may do this.

Sometimes the scratch is too deep to take out without damaging the ski; this can take

the form of removing the groove (the double grooves of Rossignol skis are very shallow and quick to go). In other cases, the danger is going through the base into core material, especially at the up-turn of the tail where the base is thin, and the curve of the up-turn forces the ski down against the grinding stone with unusual pressure. In both cases, over-grinding will shorten the effective life of the ski.

At other times, it is simply not necessary: a linear scratch, once minimized by grinding, will have no measurable effect on ski performance, and may well be better left in, rather than removing more base material unnecessarily. (This is also the case with stone tears, caused when a grain of sand come off the stone, making a series of small linear cuts. These will often vanish with a few waxings, and at any rate, to remove them would, again, require more grinding, and more loss of base material.)

Filling a scratch with melted P-tex is an option, and if a scratch is unusually deep or wide, I may do this, but I prefer not to: when scratches are filled with molten P-tex, the area immediately around the scratch is also heated close to molten, effectually creating a large area of sealed base which will not accept wax. It is generally best *not* to fill scratches.

Sometimes there may be visible traces of a scratch, but no actual cut in the ski. This happens sometimes when the ski hits a rock at high speed: there is so much friction generated, that the base is traumatized (peripherally melted) around the scratch, and it is this “ghost” of the scratch that you will sometimes see, even after the scratch itself is gone.

In all cases, if customers feel that more grinding should have been done, I am happy to do so at absolutely no charge. Our goal is the same: to have you on the best possible ski.

### Quick Wax & No-Wax Skis

From Ian Harvey, of Toko:

“Dibloc HF Paste Wax is the ultimate quick wax job. I use this wax whenever I ski - when I am not testing or racing. I do not apply it over anything, I simply smear it on and wipe it off/polish it. It is fast in almost all conditions. Its best condition I'd say is skied in cold powder snow, but it is really good in all types of snow. A common mistake is for people to try to do an "extra good" job applying it and this always results in a much worse result. The key to applying Dibloc HF Paste is to apply it and then immediately wipe it off and polish it. The goal is to have a micro thin layer of Paste on the base. This stuff is durable and it will not hurt your skis. I know this stuff well - I've used it more than anybody in the world I'm sure. Do NOT let it dry or gel. This results in much slower skis.

“I have been asked regarding this wax a few times and every time someone had a less than sterling experience with it, I asked them if they had let it sit and gel up and the answer was yes.

“(Incidentally, this is the opposite problem of our new top wax, HelX, which is phenomenal. The only time with this wax the results have not been really awesome, the waxer did not let the liquid dry completely - there needs to be white powder on the ski when the base is ready to be polished - this is critical!).”

### Letters

Useful questions and ideas from customers, with responses where appropriate. I very much appreciate hearing from customers, whether with questions, ideas or criticisms.

*Nat, I have a couple of questions, if you would be so kind. I am intending to buy a pair of Atomic RS11 skate skis this fall and was wondering whether I should have them*

*reground right away. Atomic's tech manual says that the factory grind cannot be improved on new skis. They suggest new skis receive a gentle steel scrape to remove coarse hairs, warm wax cleaning, brass brushing and lots of waxing with increasingly cold waxes. I assume that they use a wide-range "universal" type grind.*

It looks like you're getting a good head start - fall's the time to buy skis, as the stocks are all up and there's good selection.

The question about grinding right away is a delicate one, with no clear answer. Top racers have them done right away, and I still think that's the optimum way to go, and I know that they can be improved. On the other hand, the skis will be in very good shape as they come from the factory, and a *gentle* scrape and thorough, multi-layer waxing will have them good and fast.

(I don't know if it's in the tech book, but I'd put in two or three layers of something very soft, and then, regardless of the conditions for which the skis are intended, put in at least one layer of something very hard, before putting in the actual running wax. I also like to put in a layer of graphite or moly during the initial prepping stage.)

The reason a custom grind will be faster is that the base will probably be cleaner and more open than a factory grind. This is the case because custom grinding can take a number of extra steps (cold water in the machine; frequently re-dressed, hence sharp, stone; more care with rpm & pressure) which a factory, no matter how good, cannot - and Atomic does do very good work! However, a custom grind can be tailored to your specific conditions, while a factory grind tends to be, of necessity, more generic. And of course, complex, multi-layered grinds such as the “R” series are simply beyond what any factory can afford the time to do.

On the other hand, as much as I'd like the business, I also think it's a good idea to test

the skis and be sure they fit, or be sure you know what conditions they are best in, before spending on a custom grind. There is also the chance of scratching them on early snow. So it *might* be better to ski them, test them, wait until the snow is good, then have them done.

If you grind them right off the start, I guarantee they'll be optimum - but many people do prefer to wait.

As to the rest of your question, after a Nordic UltraTune grind, there is no need for bronze brushing, buffing, or scraping. The Tazzari cuts clean, owing to cold water, good stone, and frequent stone dressings. And after grinding, all skis are buffed with a special soft steel roto-brush, which cleans the deep parts of the structure, as well as buffing.

*Thanks for the quick response! I'm going with your suggestions of LJ03 and R2.3, and packing the two pairs of Atomic RS10's for shipment on Monday Sept the 15th, or Tuesday latest. You've also convinced me on the hotboxing; how can I refuse when you both endorse it and offer it for free this month <grin>? I'm looking forward to seeing what your new super cooler can do also.*

*Just a clarification; is the shipping/handling/insurance doubled for two pairs? Also, I'm planning on using my small (holds 2-3 pair) plastic ski tube for shipment (no peanuts). Is that acceptable? It is hard to miss, being purple, and having my name in permanent marker in several places.*

*A few questions: since the skis are hotboxed, would you suggest putting in some harder wax right away? I plan on waxing them a few times prior to the season, unless you think that is a waste of time. I have typically followed the recommendations of first putting several coats of soft wax, and then harder waxes to fully "season" the base prior to getting them on snow. Hmmm, come*

*to think of it, SWIX published those recommendations.... Anyway, does hotboxing saturate the base to the point you should just jump to the hard wax?*

*On a related note, how do you feel about roto brushing? I normally brush by hand, but I'll be prepping several pairs this fall, and a little time savings would be appreciated!*

Yes, the shipping is \$13.50 *per pair*. That covers insurance as well. I actually lose just a bit on shipping - not to mention a whole day of packing and labeling - and am fighting off raising prices.

As to waxing, the hotboxing will have put a lot of wax into the bases. Another layer might not be a bad thing, but is most probably not needed. After the hotboxing though, I *do* recommend a layer of something very hard: I use a very hard graphite wax at this point, then the final "generic" wax depending on the snow for which the skis are intended - and then the skis are ready for the wax of the day. The hard wax layer hardens up the base, and seems to increase wear-resistance and optimize wax retention. I try to put in a hard layer every five or six waxings, by the way.

Roto brushing doesn't do any better a job than hand brushing, except that it tends to throw the wax away from the base a bit better than hand brushing. If it's just my skis, I use a hand brush every time - I like to keep a "feel" for the base. The only real use for roto brushes I feel, is the ease they give when doing a larger number of skis.

*Skis arrived just fine, thanks for the follow up. I'm a little surprised how fine the structures appear; I may have to rethink how coarsely I rill!*

*Looking forward to snow so I can test them out! It appears that the "bad" pair took the wax well, with none of the odd "oil and water" look they had before, so I'm really*

*hoping the grind fixed that issue. I was also surprised at the weight of the skis, to my carefully calibrated forearm, it does seem as though your hotbox really loaded them up with wax. I'll be sure to give you some feedback after I've skied them a few times.*

Many thanks for the note! I get so little feedback, that it's doubly welcome.

As to the fine-ness of the grinds: we're all (ski technicians) moving to finer structure. I think there are several reasons: for one thing, finer structure presents more actual "grooves" per inch, and it seems as if more smaller grooves move water and dissipate structure faster than coarse structure. Also, it's my feeling that coarse structure actually creates a kind of "snow tread" and creates drag. At an extreme, coarse structure, or badly done structure, makes noise, and my conclusion is that if it's making noise, it must be doing more than just sliding along freely. So I extrapolate from the too-coarse, and believe that finer is "smoother", hence better.

Back in about '91 at Junior Worlds in Vuokatti, Finland, we had extremely wet snow; in fact, the fire department was pumping out the stadium. We tried all kinds of rills and combination of rills, Toko rolling riller, etc. The fastest thing I could come up with was a real work-over with the Swix steel "barbecue brush". It took a lot of cleaning up to remove all the hair, but the resulting structure was very fine, there was a lot of it per square inch, and it was *fast*. The US team had very good skis and took some places on downhills, and the Slovenes (I was moonlighting) had a top-ten or so. Again, fine structure.

*Nat, last year I sent you my Rossi skate skis for grinding and hot box. I live in Truckee, Ca and I think we decided on an R-2 grind. I was very pleased with how the skis performed when I got them back. So now I have another pair I would like to send up and I am wondering what grind you would recommend. I think the grind options have*

*changed. I ski on a daily basis and love to race every weekend. I would use these skis as my number one race skis. Also, why are the R series grinds more expensive?*

If you already have an R2.3 grind, I'd recommend having an LJ03 on the other pair. That way they compliment each other well: the R2.3 will go from around -3 C or so, up into fairly wet snow, and is good at 0 C; it's especially for wetter or coarser, transformed snow (that has melted & re-frozen). The LJ03 will go from +1 or 2 down as low as -15 C, and it mostly for dryer, colder snow that is fresher & sharper.

The R2.3 is more expensive because it has three different structures down its length; this means re-dressing the stone up to 6 times (it has to be polished between re-settings), and thus takes a lot more time to do as well as wearing out a lot more stone (.24 mm as opposed to .08 for LJ03) and diamond. Stones are around \$1,000, and diamonds at about the same price. The combination grinds are also a bit harder to do, as the ski has to come out of the machine after partial passes, go back in on another section, etc., which takes a lot of practice – and extra time.

***Query to customers from NRB:*** From time to time I get customers asking me about good ski bags. In my experience they're hard to find. I don't mean the somewhat light-weight bags put out by a lot of the ski companies, with logos all over them – though some of these are good bags. What I mean is a bomb-proof, padded bag with straps that don't rip off, a heavy-duty zipper, and reinforced ends, maybe even padding in the middle to save bindings. One big compartment, or separate compartments. If any readers have leads on really good, damn-the-expense, airline-proof (or almost... ) bags, would they let me know where to find one?

### A Racer's point of view

*The following is by Zack Simons; have a look at: [www.fullthrottlexc.com](http://www.fullthrottlexc.com)*

Its November 6th. Snow has fallen in some parts of the country and many have already begun skiing. Soon racing will begin. Every racer knows the uncertainty that the first competitions of the season will bring. Why not be certain that you have the fastest skis possible??

For upwards of five years now I have been a customer of Washington based ski preparation service, **Nordic Ultra Tune**. I can say without a doubt in my mind that Nordic Ultra Tune provides the absolute best stone grinds available in America, and arguably the world. If you are at all serious about having fast skis, stone grinding is nothing short of a necessity.

#### ***So Who Are These Guys?***

**Nordic UltraTune** is owned and operated by Nat Brown. Nat has prepared skis at the international level since 1983. He has been responsible for ski service at 3 Olympics, 7 World Championships, 7 Junior World Championships, and countless World Cups. Three World Championship bronze and one silver medal have been won on skis prepared by him. Most recently Nat worked with the Swedish and Czech National Teams at the 2002 Olympics in Salt Lake City.

#### ***What Particular Grinds Does FTXC Suggest?***

I am a huge fan of all of **Nordic UltraTune's** grinds. My absolute favorites are the "R2" and the "xc02". These are two of the fastest grinds ANYONE will find out there, national teams included. The "R2" grind is considered to be an all around grind, ideal for conditions around 0 degrees Celsius. For several years I raced on this grind almost exclusively... That was until Nat came out with the "xc02". The "xc02" grind is a cold weather grind, however, I race on this grind all the way up to 0 degrees Celsius (32 degrees Fahrenheit). If you are planning on

racing any place with cold, dry snow, the "xc02" is a must have. Finally, the "LJ03" is another excellent choice, especially if you are in an area with cold temperatures and high humidity.

I can all but guarantee you that if you have a pair of skis with the "xc02" or "LJ03" (depending on the predicted humidity level") and another with the "R2" you will be completely covered for 98% of ski conditions.

### Please Leave a Message!

I am often unable to get to the phone in time to answer if before the answering machine takes over (abandoning a ski in the grinder is *not* a good idea). So *please!* Leave a message – I may be able to get to you before your are done recording the message, and at any rate, if you don't leave a message, I can't call back!

A confession: I get a lot of solicitation calls, so if I'm busy, I monitor calls. Answering the phone means finishing the ski that's in the machine, turning the machine off so I can hear, getting to the phone... so I do often monitor. Leave a message – I may even get to you before you get done!

E-mail remains the preferred means of communication, so if it's not urgent, please e-mail me and I will respond as soon as possible – and won't need to interrupt work (thus helping to speed up turnaround time!)

### Valuable Website

Let me draw your attention to a very interesting and useful new (to me) website: <http://www.brokenski.com> This may come in very useful: Broken ski matches your one remaining ski to other skis of the same make/flex – no need to buy a whole new pair!

### Canadian Regrets

I regret that I am unable to accept business from Canada. Shipments from Canada have been enormously expensive (\$80 for a recent shipment, including customs brokerage fees...), and return shipping involves a great deal of paper work at my end, as well as taking the skis to a depot: I am not set up to ship internationally, and my bank refuses to accept Canadian checks. If Canadian customers can drop skis off, and/or arrange to have them transported (some customers near the border drive their skis into the US, and ship from the South side of the border and I return ship to the same US address) I will be delighted to have the business, but it is simply too complicated and too expensive and time-consuming for me to be able to accept skis shipped from Canada.

New this week: a recent shipment, which was carried up to Canada by a friend to return it to the customer, had to pay import duty on the work done. My apologies and regrets.

**Reviews of *The Complete Guide to Cross-Country Ski Preparation*:**

“When I read this book, I acquired at least thirty new and fascinating friends, learned how to invest wisely, mastered home-made pasta making, got over a persistent fall-training cold, and became a much better person. A must-buy!”

Ryan Quinn

“This slim volume... “

The Book Worm

“We look forward eagerly to the appearance of his last book... “

Jordan Goldwarg, *Dartmouth Review of Big Green Ski Books*

“Where’s the wine?”

Peter Hale

“All of my tools have Nat’s name on them... “

Jim Galanes

Seriously, here’s what Peter Hale (Madshus/Alpina) really did say about the book: “Let me recommend this excellent book, *The Complete Guide to Cross-Country Ski Preparation*, by Nat Brown, published by The Mountaineers Books ([www.mountaineers.org](http://www.mountaineers.org)), and carried by numerous ski shops. It’s very well-written, explaining all the esoteric details of World Cup waxing, but also, and most important, tells how simple and easy waxing can be. It’s often as good to learn what you don’t need to worry about, even as you learn how to do it!”

The book is just out in its third printing. To purchase a copy, go directly to The Mountaineers Books, or order on-line at Amazon.com. REI carries it – or better yet, ask your local ski shop to stock it. – NRB

**Closures**

Nordic Ultratune will be closed for the Thanksgiving weekend, and from Dec 24 to Jan 2. Time for me to get in some skiing!

I will also be closed for the last weekend of March and the first week in April, for the National Gay & Lesbian Athletes’ Conference in Boston, then a *warm* week in the sun in the Caribbean (ship skis to NRB, c/o The Papagayo Bar and Grill, St. Maarten.