

# Nordic Ultratune Update

177 Riverside Ave, P.O. Box 422, Winthrop, WA 98862,  
Mark Waecher, Editor - Nat Brown, Contributing Editor  
see our website at [www.ultratune.net](http://www.ultratune.net)  
e-mail (except subscriptions): [xcgrind@ultratune.net](mailto:xcgrind@ultratune.net)  
subscriptions: [newsletter@ultratune.net](mailto:newsletter@ultratune.net)

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## **Nordic Ultratune Moves To Winthrop**

Saturday, April 23<sup>rd</sup> was moving day for Ultratune. The Tazzari grinder was packed up and transported through the wetlands of western Washington, through North Cascades National Park, over Rainy Pass and Washington Pass, and into the Methow Valley; a little less than 200 miles door-to-door from Nat's garage in Edmonds to the new shop in Winthrop.

The Tazzari, which weighs about 1700 pounds, was handled by a Norwegian piano mover named Helge Karlsen, which somehow seemed appropriate. All of you skiers would be mightily impressed by the strength of the piano mover – he was able to single-handedly lift one end of the Tazzari off the ground far enough to slide a dolly underneath it!

To make the move a bit more interesting was the worrisome detail of having to move the machine down a stairway in order to get it to the new shop. Luckily, there were some fabulous friends who showed up to help with the move, and my gratitude to these people is greater than I can express in this newsletter.

With a few piano-moving tricks, several strong bodies, and backed up with a safety cable on a snow plowing truck, the Tazzari was skidded down without a hitch. It was a moving experience that could be described as "No Problem" once it was completed, but up until it was done there was a great deal of concern over just how the heck that hulk was going to get down there!. Nat Brown suggested moving it into the upstairs space

just above the intended location, starting it up, and wait for it to fall through the floor.

The sense of relief wasn't complete until the electrician pulled some wire to the grinding room to accommodate the Tazzari, and the machine was running. A sense of relief is an understatement. Once, long ago, I had promised myself that I'd never own anything made in Italy that had a motor, but I was thinking of cars and motorcycles – not of a Stone Grinder for XC Skis!

Though moving the grinder will always be considered "the move", the month beforehand was just as memorable. Margaret & I spent a lot of hours turning a long-since vacated printer's shop (also once a hair salon) into a tidy shop space. Its history as a print shop was advantageous, as the grinding room was already set up with lots of lighting and ventilation.



## New Ski Labels

With the move to a new address, there are seemingly dozens of tiny details that pop up – anyone who has ever moved to a new home knows this all too well and it is no different for Ultratune. While most of this is invisible to the world, there is one that's noticeable and worth mentioning.

The labels that are stuck on your skis when they've been in for service had to change. The gold foil stickers have become recognizable at a glance, but they've got the wrong address and they've relied on pen-marking for the ski and grind info, which invariably comes off with wax remover. So we decided to find a laser-printable label that's weatherproof and wax-remover-proof!

The result is a 2 5/8 x 1 inch label that's computer printable and will have a bit more data on it.



The new label, shown above, includes the date, the grind, the last 4 digit's of the ski's s/n (in this case, it's "9330"), and finally the serial number of the grind.

We included the web address and phone number and hope that's enough info for people to find us!



## From Nat Brown:

### Summerizing Your Skis – And Yourself!

#### *“Summer-izing” Your Skis*

Okay, it's time to confess: at the end of the ski season, after the last desperate weekend or two of searching out a last shady spot with some coarse-grained snow under it to ski on, the last thing any of us want to do, is work on our skis. In fact, I have a confession to make: after the last race I skied on wooden skis, back in the spring of 1974 (see an upcoming article in *Cross-Country Skier*) I neglected to take the Rex silver klistler off my faithful Kongsberg skis. It's till there, having spread toward the tail of the skis somewhat, as is the invariable custom of klistler... - but therein lies an instructive story:

I used to spend summer at my grandmother's house in Philadelphia. It has been one of the first houses in the area to be fully wired, and over the years the rubber insulation on the wires had become very, very brittle and cracked. During summer storms the lightning inside the house, where the insulation on the wires had split, was almost a spectacular as the lightning outside - and a good deal more dangerous.

I don't know exactly what had happened, and I got all shot to rags a few years ago when I spoke about the "oxidization" of ski bases. But plastics age. The same, or some of the same, processes that worked on my grandmother's wiring, are at work on unprotected ski bases - and on un-cleaned-up wax, especially klistler, which is probably the last wax you used.

Back to my now antique Kongsberg skis: that Rex silver is now glass hard, and can't be removed, short of drilling and blasting.

One more story: fifteen or twenty years ago when I was coaching at Overlake school, one of the kids bought some very nice Kneissl skis. Somehow he managed to forget where they were, until they turned up on a closet a year later. When I tried to work on the bases, they were too hard to scrape or sand.

That aging process had made the skis unusable.

Maybe bases oxidize. Maybe it's UV. Or maybe it's accumulated dirt. Whatever it is, bases age. So before you put too many miles on the roller skis, take care of your *snow* skis, as follows:

If the bases still have kick wax on them, remove it. I use a spatula and then Toko Gel Clean wax remover for this. Scrub clean with a paper towel, and then allow the base to sit for a short time, while the wax remover evaporates (Gel Clean doesn't leave much residue behind - another reason for using it, on top of effectiveness, speed, and utility... )

If the skis are skaters, or don't have kick wax on them, give them a good go-over with a copper/bronze/brass brush (I get a lot of letters asking which to use. It doesn't matter: the idea is to use a stiff brush with bristles fine enough to get down into the structure. Brush choice could be the subject of a future article, in which I will make a list of all the Olympic races lost because somebody used the wrong brush... ) The object of this brushing is to clean out the base.

Now "hot scrape" the bases: rub a layer of your softest wax down the entire length of the ski (yes, on classic skis, too). Now drip a lot more on. Iron fast, at a reasonable temperature, maybe three passes. While the wax is still molten, or at least soft, scrape the wax off with a sharp plastic scraper. Allow to cool, then brush thoroughly, finishing with that brass/copper/bronze brush.

The hot scraping will lift dirt or minute amounts of abraded base up off the ski, and the scraping will remove it. The subsequent brushing will clean out the structure.

Now crayon and iron on a generous amount of some soft wax over the whole length of the ski,, including the kick zone. The skis are clean, protected, and ready for summer storage. (How you get the klister out of the inside of the ski bag where the uncleaned skis have been for the last month or so, is your problem!)

(Yes: was the kick zone. Modern kick waxes are almost the same chemical base as glide

waxes, and if the kick zones are going to hold wax, they need to be protected.)

If you use a fluorinated wax for summer storage, be aware that the wax may turn chalky white over the summer. This is superficial and typical of fluorinated paraffins, and can be ignored.

I prefer s simple paraffin for summer storage, and some recommend a highly-dyed wax, as offering better UV protection.

Properly cleaned and stored skis will be ready to perform as soon as the snow falls next winter, and will save considerable work later on - as well as prolong the life of the ski.

*If you have damaged skis, or old skis that you're tempted to give up on, send them in now for stone grinding. I've seen a lot of "trash" or "rock-skis" that re-emerged after grinding, as good racing skis. At the very least, they will be great early-season skis, when rocks tend to pop through the snow, and you won't have a long wait because of over-burdened grinders and backlogs.*

### **"Summer-izing You"**

I've quoted Bernard Levin to the point almost of embarrassment, but it's worth quoting again, although I'm unable to find just where this comes from: "I believe it is true, though my claim is hotly contested, that wherever you wish to go, you must start from where you are."

Spring, or early summer, is an invaluable time to give some thought as to just where we are.

Most of us tend to be set in ways of training that are comfortable, and to train using methods we find enjoyable. But there is an old sports adage that is worth remembering at this time of year: "Race your strengths, train your weaknesses."

Now is a time to analyze just where our weaknesses lie, and devise a training plan to address them. If a story may be allowed, I remember any number of years ago, the Swedes build a "technique loop" at Bruksvalarna, where they used to go for early on-snow training. A technique loop is a small

loop with all sorts of obstacles built in: bike bumps (the track is built up higher under one foot than the other, then higher under the opposite foot, etc.), things to duck under or jump over, awkward changes of direction - you get the point. The two skiers that used the technique loop the most? Gunde Svan and Thomas Wassberg. The good guys are good because they good at *everything*.

Take some time for some honest self-evaluation. What were your weaknesses last season? (or historically?) Endurance? Upper-body strength? Balance? Technique?

Another old proverb is that every training session should be a technique session. It's equally true that every training session should have a specific goal. If we need better endurance, it's a waste of time to go out hard all the time (that's generally a waste of time, anyway). If we love classic skiing, it's easy to neglect skating. If we love to double pole, maybe it's time to do some hill work with the legs. Or devise ways to improve balance. Or deal with problems in V2 or uphill diagonal... The list goes on.

The best way to have a better season next year? Give thought to where you are, then devise a patient plan for improving weak areas over the next four or so months. No crash campaigns: steady, thoughtful, self-honest, *patient* work. And avoid the Latest Revolutionary New Break-Through in Training!

(And of course, have your skis ground!)

-Nat Brown



### The Ultratune Process, Revisited

This is a re-print from a past issue, from Nat's pen, but it's worth repeating:

From time to time I get some friendly questions about pricing, or hear of someone who has decided not to send me skis because of cost. I wrote the following to one very good customer who had passed on that a friend of his had decided not to ship skis for grinding. Custom grinding *is* expensive, but there are very good reasons why this is so:



Ultratune's process keeps getting complicateder and complicateder...

- 1) Initial flattening and base analysis with steel scraper
- 2) flattening with coarse stone setting - up to ten passes, because I use slow stone speed, low pressure and high feed speed, to avoid over-heating (remember: the cooling water is triple-filtered and cooled by passing through a heat-exchange inside a glycol-filled freezer; also - high lubricant content in the water that hits the skis, again to reduce heat; the cold water cools the base and not only avoids over-heating, but also makes for a more rigid plastic, which allows for cleaner "cut" on the stone)

- 3) Stone is polished twice (at .04 and -02 mm)
- 4) Skis are polished, with three to four passes, leaving them blank
- 5) Stone is set for the first grind (.04 mm)
- 6) Skis are structured in one pass, at medium to low pressure
- 7) Stone is polished between each structure, so that the structure in the stone goes into a blank stone, and is clear (Thus, for an R grind the stone will have been polished three times, and re-dressed three more - this uses up a LOT of diamond and stone, adding to cost)
- 8) Skis are chemically cleaned
- 9) Skis are "deep-cleaned" with soft steel brush at low rpm
- 10) Skis are buffed with Omniprep, which removes any hair (Omni prep consists of "knives" where all other "Fibertex" pads consist of fibrils of material with "sand" embedded in them)
- 11) Skis are waxed. In the case of Hotboxing, they get an hour in the hotbox at c. 55 C; in the case of World Cup Plus, they get four layers (soft anti-static, soft paraffin, hard paraffin w/ moly of graphite, final high fluoro-layer) - all hotboxed) Note that different waxes are used in the WC+ protocol, depending on the grind/snow for which the ski have been prepared.

**Note #1:** The stone and skis are constantly washed by about 30 gal/min of *chilled* water. This keeps the stone and ski clean, but equally important, holds the base of the ski at a temperature as low as 35°F. This avoids stone-burn on the base (common on many factory grinds), *and* assures a more precise cut because cold P-tex plastic is more rigid (a soft base shreds, while a rigid one cuts). This water is chilled by a custom-built system which circulates the water from the machine through a heat-exchange surrounded by sub-freezing fluid.

**Note #2:** All the water that washes the skis and stone is passed through a unique custom three-stage filtration system, ensuring that no "grit" enters the system, and

that grind sludge is not deposited on the base of the ski.

*That's why it's expensive!*

The skis are inspected at each stage, and often owners are called with suggestions & questions.

Not to mention the individualized reports on each pair of skis...

### New Ultratune Hotbox

At our new facility we've got a new and improved Hotbox.

Our new hotbox is a bit larger and has some features that really improve performance and safety. The new hotbox uses a Honeywell industrial temperature controller with a remote wet-bulb thermocouple. This provides very precise temperature control, with the measurement being made right at the ski rack in the hotbox. It also adds safety, as the hotbox has a 2<sup>nd</sup> thermal cut-out in case of a single-point failure in the system.

Here's a photo of Margaret showing off our new Hotbox, taken just before we installed a counter-top surface.



**Industry News:**  
**NIS Binding Plates**

There is quite a bit of excitement surrounding the new NIS binding plate system that will be showing up on Rossignol and Madshus skis this fall. Here are some notes from Nat Brown and others in the industry regarding the NIS setup:

Mark -

This might make a good "breaking news" item for the newsletter; it's from Madshus, via Svensk Skidsport; I'm going to use it in CC Skier.

-Nat

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### **Nordic Integrated System**

Rottefella, Madshus, and Rossignol have developed and designed a completely new and revolutionary ski-/binding system – Nordic Integrated System (NIS). By using the new NIS system, the bindings may be mounted quickly and easily directly on skis without the use of screws – “click-on”. The bindings may be adjusted in the longitudinal direction and be locked in five different positions, depending on what is suitable for the skier.

The NIS system makes it possible for the first time to mount a cross country binding to a ski without the use of screws. The ski producers Madshus and Rossignol, by making use of a technology much like the one used by Formula 1 Racing, attach a NIS plate to the ski, making it an integrated part of the ski. Rottefella in turn has developed a binding that slides on to the plate and locks easily in five different positions.

The system has great advantages when compared to what is available on the market today. The close contact that arises between

ski and binding offers a substantial improved stability, ski control and kick. Each skier may adjust the binding forward or backward making it possible to adapt an individual kick and technique, thus creating a more relaxed and efficient style.

Rottefella's main tester and technical adviser Thomas Alsgaard, as well as several of the top skiers have all participated in the development and testing of the new system. Skiers like Ole Einar Bjoerndalen and Raphael Poiree will make use of the new system this season already.

- This must be the most revolutionary news concerning the combination of ski- and binding development in many years. Whatever a skier might wish for has been taken care of in this concept, says Thomas Alsgaard

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Also, the following note from Nils Hult of Madhus:

***Nils Hult (of Madshus, in Norway)***  
wrote:

Hej Peter and Nat

Long time no see!

I hope you guys are fine!

Regarding Salomon bindings on NIS

We have no intention of closing off Salomon bindings from our skis, on the contrary there are benefits for the owners of Salomon boots to buy a NIS ski.

-A Salomon binding on a NIS ski is a very good match

-First of all Madshus took away the binding mat (3-4 mm thick glassfiber mat) inside the ski which means less material stiffness in the construction making these easy skiing skis even easier to ski.

-The NIS plate distributes pressure better over the full length of the camber because of it's length and shape.

### Remarks on Waxing Temperatures

-When you mount a Salomon binding on the plate you have the following advantages

-The NIS plate is a little bit wider than the ski which means that the Salomon binding will have better surface contact than before and increased stability.

-The NIS plate is made of a Plexiglas material and therefore much stronger than the regular binding mat. This increases the hold for the binding, and makes the whole package stronger.

-Regarding the height issue please remember that a Madshus ski is lower than the competitors from the start which means that we will not be higher than our competitors with the NIS plate mounted.

We have been doing some extensive testing on this and as Peter commented we have had WC victories on this combo already this winter.

For the NNN users there are more benefits as you all know since the binding is movable and there are now binding stiffness adding to the ski stiffness.

As you all know the SNS bindings are known to stiffen the ski app. 2kg on all brands and we can't get around this, but remember that we reduced the construction stiffness by taking away the binding mat inside the ski.

One more comment regarding the NIS binding

-The NIS binding is now fixed in 2 fixation points close together under the foot allowing the binding head to flex with the ski. This result in almost no binding stiffness transferred to the ski.

If you need more material please don't hesitate to email or call me.

Best regards,  
Nils Hult

Nils

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Keep an eye on your waxing temp. Bases start to melt at 85C, and really melt at 135C. Even with the hardest waxes, there is little reason to go over 130 at the most, and a great many waxes will iron well at 110, or even lower. Having said that, some service people such as Peter Hale and Zach Caldwell, prefer to use a hot iron (130C, perhaps) and move it very fast. Wax is absorbed as a product of time/temp, so the hotter the faster, the "colder" the slower. The trick is to balance wax absorption with accumulated-heat damage to the core (crucial in Madshus skis, which are quite heat-sensitive) and base. Personally, I iron once or twice at about 130, very fast, then pop them into the hotbox. I recently re-ground my best classic skis (owing to scratches, and because I get a huge discount!) and found the bases to be extremely sweet: soft, open, and even, holding wax very well. This pair has had nothing but quick ironing, then hotboxing. It's cheap, most effective, and good ski and grind insurance!

### When to Stone Grind Skis

Skis are subject to damage every time you ski on them or wax them, or just leave them sitting around! Abrasive skiing conditions, heat from wax irons, and exposure to air all cause degradation to your ski bases. The performance of your skis is greatly affected by the condition of the P-Tex and the surface condition of your skis.

If your skis have base damage, they can be improved with a fresh grind. Any of these symptoms can be remedied with a new base finish from Nordic Ultratune:

- *Surface scratches*
- *Over-heated, oxidized, dried out*
- *Skis won't hold wax*
- *No longer flat – convex or concave*
- *No structure remaining*
- *Skis just aren't fast as they used to be...*

In addition, you can choose the base structure that you need – whether it's an all-around structure for your one-and-only pair of skis, or a special purpose grind for specific snow conditions.

### Why Grind New Skis?

The bases of new skis are better than they've ever been in the past. However, your new skis have probably been sitting in a warehouse for the better part of a year. Often new skis have dried-out, oxidized base material before you ever ski on them. It's also common for new skis to have a very aggressive structure on the base which is slow for all but wet or icy conditions. Sometimes new skis have scratches and often brand-new skis aren't perfectly flat.

### Next Issue's Topics

The next issue of the Ultratune Update:

- Flex testing: How we do it, why it is useful
- Hand-picked skis available from Ultratune

### 15% Off – Summer Special!

Nordic Ultratune is having a summer stone-grinding special during May – August of 2005. All stone-grinding and hotbox services are 15% off! Check our website for a download of the work order form with summer special pricing. ([www.ultratune.net](http://www.ultratune.net))

ULTRATUNE.NET

TAZZARI STONE GRINDING

XC-SKI SERVICE & SUPPLIES

NORDIC ULTRATUNE

509-996-4145

### Make It Simple...

#### Recommended Grinds:

- LJ03: Lowest cost, general-purpose, all-around grind
- XC02: Racing grind for dry snow
- R2.3: Racing grind for moist snow
- R3.3: More aggressive structure for wet corn snow

#### Recommended Waxing Service:

- Hotbox: Saturate your skis with this 90 minute hotbox treatment
- Hotbox Deluxe: Anti-static wax plus warm paraffin, with 3 hour super-saturating hotbox



# NORDIC ULTRATUNE

## WORK ORDER FORM & PRICE LIST

(Please attach one copy of this form to each pair of skis)

### INSTRUCTIONS:

- Please: we must have a *fully completed* order form to begin work on your skis!
- A personal check, money order, or charge card info (Visa/Mastercard) **must** accompany your skis. We will not begin work until payment is received.
- Remove all wax from skis - there will be a \$5.00 surcharge for removing wax from skis.
- Tie skis together with rubber bands or tape - ski ties will not be returned.
- Fold this form and tape it to your skis. One work order form per pair.
- No styrofoam "peanuts"!

### SHIP SKIS TO:

**NORDIC  
ULTRATUNE**  
177 Riverside Ave  
Winthrop, WA 98862

#### Grinds (all grinds include travel wax):

LJ Series - LJ02, LJ03  
XC02 - for cold & dry snow  
R2.3, R3.3 - for coarser, transformed snow, high humidity

#### Waxing (add to the above price):

Hot Box  
Hot Box Deluxe  
World Cup PLUS (hotboxing included - "race ready!")

#### Additional Services (add to the above price):

Binding Installation (specify boot size \_\_\_\_\_)  
Ultratune Flex Analysis  
Rush order and overnight shipping (please call in advance)

	Special Price	Prices in US\$
Summer Special May-July 2005	\$49	\$58.00
	\$61	\$72.00
	\$75	\$88.00
	\$12	\$15.00
	\$21	\$25.00
	\$64	\$75.00
	\$10	\$12.00
	\$12	\$15.00
	\$30	\$35.00

**Subtotal:** \$ \_\_\_\_\_  
\$ \_\_\_\_\_  
\$ \_\_\_\_\_  
**Total:** \$ \_\_\_\_\_

Washington Residents add 7.6% sales tax:

**Packaging, Shipping & Insurance:** \$15.00 first pair, \$8.00 subsequent pairs

### SHIPPING ADDRESS

NAME		
ADDRESS		
APT / SUITE		
CITY		
STATE	ZIP	

### SKI INFO

BRAND		
LAST 4 DIGITS OF SERIAL NUMBER		
SKATE	<input type="checkbox"/>	CLASSIC <input type="checkbox"/>

### SKIER INFO FOR FLEX ANALYSIS

SKIER HEIGHT	<input type="text"/>	WEIGHT	<input type="text"/>
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### NOTES

### CHARGE CARD PAYMENT INFORMATION

NAME ON CARD		
VISA / M.C.	<input type="text"/>	EXP <input type="text"/> / <input type="text"/>
SIGNATURE	<input type="text"/>	