

Article 7

Ski Tuning for Speed Events (Super-G and Downhill)

The ski tuning process for speed events is the same as for technical events with a few exceptions. The goal is to prepare the skis so that they glide on the snow with as little friction as possible and to carve in the snow as clean as possible.

The following is a list of ski tuning equipment that is necessary for efficient and effective preparation:

- A good set of ski vices
- A flat block
- Ski brake holders or sturdy elastic bands
- Fibertex pad
- Horse hair brush
- P-tex candles
- Silicon sandpaper (#100, #150 or #200)
- Metal scraper
- Plastic scraper
- File cleaner
- Body file
- Chrome files
- Masking tape (1/2')
- Diamond stone
- Wet stone
- Steel wire brush (texturing)
- Iron or waxer
- Plastic wrap
- Rotary brushes
- Drill (electric or battery)

Ski preparation process (8 steps)

Step 1: Sidewall and sheet

Check the side wall and top sheet of the skis for nicks, chips and marks. In long SG/DH turns the skis are running on the sidewall or the edges much longer. A marked or rough sidewall or top sheet may cause the skis to drag thereby causing the skis to glide with more friction causing the skis to slow. Use a file or sandpaper to smooth over nicks or roughness on these surfaces.

Step 2: Base repairs

Secure the ski in the vice and ensure the brakes are secured and out of the way. Check the running surface for any damage (gouges, nicks, scratches). Use a P-tex candle to repair the damage in the base. While dripping the P-tex into the base, try to ensure that

carbon from the burning P-tex does not fall onto the base. The carbon forms as a result of the P-tex burning too hot. Touch the burning P-tex candle to a metal scraper occasionally to cool the P-tex so it burns with a predominantly blue colored flame. Let the repair work cool and shave off the extra P-tex material with a metal scraper or a body file so the base is flat and smooth. Edge burn should be repaired in the same manner.

Step 3: Flat Base

Use a straight edge to check flatness of the base. If the base is not flat, use a flat block, wrap a #100 sandpaper around it and sand with even strokes until the base becomes flat. Use a true bar to check your progress. When the base is flat, use a brass brush to clean the base. The fibertex and the brass brush can be used one after the other, repeating many times.

Step 4: Bevel Edges

To bevel the edges wrap three layers of masking tape (1/2" wide) around a chrome file. Place the file across the ski. Use a felt pen to mark the edge to see where, and by how much the file is cutting. Note: three wraps of tape on the file is .5 – 10 of bevel. Bevel the edges before you pass the skis on the stone grinder, if needed.

Step 5: Sharpening Edges

Sharpen edges with a 2 or 3 degrees file guide. Skis in speed events do not have to be as sharp as in technical events. A ski that is too sharp can be "catchy" and too aggressive in turns, making them "dig in" and slow down. To polish the edge, always finish with a diamond stone or hard stone. To make an edge smooth, run a soft stone along the edge to remove burrs.

De-tune the skis much longer than regular skis. A general rule: halfway between the tip and toe piece and same from the tail to the heel piece. Take a piece of sandpaper #220 or #320 and pass it along the edge 3 – 4 times.

Step 6: Ski Grind

Two types of grind are commonly used by ski companies:

- Linear grind – long lines on the base from tip to tail;
- Diagonal-Linear grind – short lines in diagonal pattern from tip to tail.

These grinds are generally very good in all kinds of conditions (cold, old snow, new snow, wet snow, etc.). DH and SG skis *are not production skis* so they come with a good grind on them. Be careful playing with the grind. Don't be too extreme. Do step by step.

- If the skis do not match conditions, use a steel wire brush to open the base when it is warmer. If it is colder, use a sandpaper #220 to close the base. Whenever possible, avoid re-grinding. Finish by repeated brushing with a brass brush and fiber-tex.

Juveniles usually own only one pair of DH or SG skis. Often, they will borrow from someone else.

- Avoid changing texture on skis unless it's too coarse or aggressive
- After tuning skis they usually run slowly. The skier should free-ski on the tuned skis to give them mileage and to see what they feel like.
- When a pair of skis appears to be fast, in general, they'll be good in all kinds of conditions.

Step 7: Selecting the wax

Determining the type of snow. Things to consider:

- Snow type
- Air temperature
- Air humidity
- Cloud cover
- How flat is the course, etc.

Use a magnifying glass to look at snow crystals to view their shape, size and density. The air temperature, % humidity, sun and hill grooming will determine the shape of the snow crystals. Snow temperature, air temperature, % humidity are the most important. Take a hand full of snow to see how it feels. Is it sticky, dry or in between?

Today, wax companies have their labels well explained. It is recommended to work with one wax brand, learn the system well. It will become easier to mix and choose the right wax combination for different types of conditions when you are familiar with the wax.

- High fluorinated waxes are the best and most expensive waxes on the market.
- Keep them for race days
- Low fluorinated waxes are an excellent product in all conditions. Best on very cold dry conditions
- Hydro carbon waxes are also good for training and as travel wax.

A few tips:

- Take notes and keep a log. Use your notes from training runs to determine appropriate ski preparation for race day. Use training runs to test skis, texture and waxes
- Keep it simple. Avoid making waxing too complicated.
- Race skis should always travel with wax on them.

Step 8: Waxing and Scraping

Waxing procedure for DH and SG skis is the same as for GS and SL. Make sure the iron isn't too hot but warm enough to enable the wax to penetrate the base. Scrape the wax off with a good plastic scraper. The difference in DH and SG is the finishing. Specifically, how the skis are brushed after scraping. Rotary brushes are good, but expensive. Brushing with a regular brush is also effective, if really brushed well. Start with a horsehair/brass brush combination and finish with a horsehair brush. Rotary brushes do the same job. They are quicker and leave a nice finish.

Magic Powder (Cera F, Briko, Holmenkol, Toko, etc.) or the Magic Bloc ,Wet Jet, Dominator. It doesn't matter where you'll apply them, in the wax room or at the start.

Test Track

A good test track requires a good slope with a flat bottom. Install a timing unit where the flat section starts.

It is important to compare skis or athlete tuck position if athletes only have one pair of skis. By comparing athletes, you find out which grinds, waxes etc., are working well on the conditions that are being tested.