

Ski Shaping – “Finish what the Factory Started”

By Dave Peszek

This is the third in a series of articles on ski and snowboard tuning that will appear this season in Ski Racing. Each issue, we'll tackle different topics that arise in the preparation and maintenance of alpine and nordic skis and snowboards. The author will attempt to answer any tech questions that you may have – Pez@holmenkol.us.

Ski shaping is the preparation of the top sheet, sidewall, tip, & tail area of a new ski from factory condition to create maximum performance for the athlete.

To really understand ski shaping, one must understand two key factors: the skis' construction type, and the process of how they were made at the factory. There are tremendous technologies in the marketplace regarding ski constructions, but they can be boiled down to a few key types: laminate, monocoque, and a hybrid of the two. Skis from the factory come out of a press, which for our purposes can best be envisioned as similar to a George Forman sandwich grill – pressure & heat from above & below press the ski's component's together. During this process, fiberglass, rubber, ABS, phenolic, epoxy, and other components of the ski's construction can extend outward over the actual steel edge of the ski. Ski shaping involves accurate removal (filing, grinding, sanding, cutting) of the top sheet, sides, tip, and tail areas to make the ski slice through the snow with greater speed and ease, and also allow you to accurately set & maintain a proper side edge angle.

According to Chris Krause, the Canadian Women's World Cup multi-marque serviceman, ski shaping is like “first aid” for a new ski. “You can't approach every brand or model of ski in the same specific way” states Krause. “Instead, know what your goal is, and really think thru what the process needs to be to achieve that goal based on the exact construction of that model of ski. Pay close attention to the smoothness & texture of the sidewalls” offers Krause.

Rossignol's Thor Verdonk (US Race Dept.) goes on to say “ ski shaping is one of the least understood & practiced parts of ski tuning, yet incredibly important to achieving fast skis & correct edge angles. Most juniors neglect this aspect and can never properly achieve the proper edge angle with a file (due to interference from the ski's sidewall components). A good indicator is when you see any type of material on your file besides edge steel, you need to be more aggressive with your ski shaping.”

Both Krause, Verdonk, and myself subscribe to the belief that the technician should perform all of the ski shaping work at once, when the ski is new, which makes daily maintenance much easier.

To get started, you will need some or all of the following items:

1. body file (a.k.a. panzer or cross file), 2 sections – 1 sharp, 1 dull
2. regular file (doesn't have to be your best)
3. sidewall planer (round, radius'd, or square bit)
4. SKS tool
5. 200-320-400 grit sandpaper, drywall screen, green abrasive pads (Scotchbrite)
6. clean well lit work area, strong ski vises, and preferably no bindings or plates on your skis

Now take a look at the accompanying photos. You will see a before & after photo of a laminate ski's sidewall (no edge work done).

First, work the top sheet of your laminate or laminate-hybrid skis to completely round off the junction of the topsheet & sidewall. Monocoque ski owners can skip this step. I prefer to use the dull body file for this, though some skis have a metal top layer which needs the sharp one. Finish this area by sanding completely smooth using your sandpaper.

Next, using your SKS tool, and holding it at a 30-45 degree angle to the side edge, you will cut the fiberglass, rubber, ABS, phenolic, and/or alu layer back directly above the steel edge of the ski. This is sometimes referred to as back-filing, and the goal is to angle steeply the lip of material that sits above the steel edge. On monocoque skis, perform this step, but try not to gouge the actual larger sidewall section with the SKS tool.

Now is the time to get your sidewall planer out. Many top servicemen have several models of sidewall planers in their kit to tackle the variety of shapes & constructions they must face. In a perfect world, I would suggest actually having three blade types at your disposal – flat (square), radius, and round. Through this process & during the skis' life there will be a need to use all three on most ski constructions. Set your planer to begin cutting at the place where the SKS tool left off. Your goal is to remove material on the bulk of the sidewall above the section you just worked. Monocoque skis can skip this step. Remove the sidewall here until it is level & smooth with the angle you created with the SKS tool.

At this point, you have divided the top corner, sidewall, and sidewall lip into 3 distinct sections. Now the goal is to blend them all together, smooth out the rough edges, and step back to admire your work. Next, attack the tip & tail profiles to round them out, including the tail cap & the portion of edge that does not contact the snow.

Finally, place your sharp body file in a file guide that is set for 1-2 degree more than you intend to run, and rough in the side edge steel from tip to tail. Now go back & check using your SKS tool that you have removed and angled the lip enough so that there is no interference with the side edge filing process.

The first time you perform this work, I recommend using an old pair of skis. It takes some skill to get this right, and 1 practice session is advised before you tackle your new race skis. The entire process should take from 30 minutes (highly experienced serviceman) to 1 ½ hours for a first timer. Hopefully you are also giving your training & racing skis at least 2-3 coats of wax per week in preparation for a fast season.

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