Tech Talk

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Turning the World Cup upside down

NICOLE HOSP'S SOLID TACTICS STEERED HER TO CHAMPIONSHIP CRYSTAL BY RON LEMASTER

WITH THE 2007 overall World Cup title still in play going into the World Cup Finals in Lenzerheide, Switzerland, Nicole Hosp kicked into overdrive and dominated the last technical races to leave her main rival and teammate Marlies Schild eating her dust. Their performances, along with those of Aksel Lund Svindal and Benjamin Raich, gave us the most exciting finish to the World Cup in many years.

Hosp has a "tall" look as a skier. It's not just that, at 5-foot-9 in height, she is among the tallest of the top female competitors. Her basic stance is more upright than many of the top female competitors, and she often extends in places where others maintain a more compact posture. This makes one of her key technical assets readily visible — the ability to move quickly, smoothly and accurately through a long vertical range of motion, as she does in photomontage C at right. By "accurately," I mean that she can extend and flex without her balance being disturbed in any way. Mechanically speaking, her center of mass moves straight up and down.

A lot of skiers can't do this. Common problems are moving chronically forward, backward or inside as they flex quickly to a low position, and moving back as they extend. Often the problem is just that the athlete doesn't have the movement pattern for vertical motion properly grooved. Some good approaches to developing that movement pattern are skiing in moguls, including fast traverses and straight runs, and simply exaggerating vertical motion (as an exercise) while freeskiing on moderate terrain.

Boot issues also can cause inaccurate vertical motion — boots that are too stiff in the front or have insufficient forward lean in the cuff. To see if an athlete's boots have enough forward lean, have her buckle them up as if she were racing. Then, standing on a hard, flat floor, see if she can flex to a posture as low as Hosp's in the third frame of sequence C, without her balance getting behind the middle of her foot. If the skier can't get her hips as low as her knees without feeling like she is about to fall over backward, her boots need more forward lean, or she needs to loosen her top buckles.

There's nothing particularly modern or new about this. Since stiff plastic boots became common in the 1970s, great skiers such as Gustavo Thoeni and Annemarie Proell have been moving up and down in much the same way.

One aspect of Hosp's skiing that is quite modern is her ability to begin carving many slalom and GS turns in or above the fall line. This sort of early carving was only occasionally possible until the revolution in ski design that began in the late 1990s.

In the second frame of the photomontage B, Hosp's outside ski is already bent into reverse camber and about to start carving. To accomplish this in this short, round turn, she gets her upper body well to the inside of the new turn, rotates her left leg inward and flexes her left ankle. The third photo sequence (photomontage A) shows her make what coaches sometimes call an "upside-down turn." Early in the turn, in the third frame, she already has her skis up on their new edges, she is angulated over them, and







they are starting to bend into reverse camber. The "upside-down" idea comes not only from the fact that we can see the skier's feet are uphill of her body, but also that the skier herself may feel that she is somehow "upside down."

Like all the best racers, Hosp wins with a combination of sound fundamental technique and an understanding of how to exploit the advantages of the latest equipment — things that all athletes need to pay attention to. In Hosp's case, it helped take her to the highest achievement possible for a ski racer — the overall World Cup title. \mathbf{SR}

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