



Tech Series 2007

The Mother of All Ski Tuning Charts

Introduction

A slalom ski must be able to deliver efficient cross course movement in the pull with the ski tip directed away from the boat. On release of the pull, the ski carves a turn that sees the tip progressively engage the water, reaching its deepest (slowest) point at the apex of the turn.

The ski (tip) then exits the turn apex to the finish just at the point where the boat and the skier meet again to move cross course in another pull phase. Each side should be as symmetrical as possible.

Fluid Motion has compiled a symptom and solutions chart to aid in tuning of this process. Each problem has multiple solutions, separated by commas. Slalom is a fairly complex multi-variable process where tuning adjustments are coupled to one another. Therefore to change one aspect of your skis' performance without detriment to another typically means that you have to make two if not more changes. For small tweaks such as a seasonal changes on a well set-up ski, one adjustment is usually OK as the skier can compensate for any other small adjustments that would be theoretically necessary.

Description of Problem	Possible Solutions
Too much ski tip rise at finish of turn, most noticeable offside.	Move fin back, move boots forward (2), increase fin area
Too much ski tip bite/grab at finish of turn, most noticeable offside	Move fin forward, decrease fin area, move boots back(1), goto stiffer ski, goto larger ski.
Ski feels squirrely, or loose into and during offside turn	Increase fin area, move fin backward
Ski doesn't roll out from under skier during onside turn, with slack at completion of onside turn, even though there is sufficient time before the ball.	Reduce fin area, reduce wing size (if using a large wing) ,goto softer flex, goto smaller ski.
Not enough ski contact under front boot in preturn	Reduce depth/increase length. Move boots and fin forward(2), goto softer flex, goto smaller ski.
Feeling too fast into ball even though there is sufficient space before ball.	Reduce depth/increase length, Move fin back(1), Move boots and fin forward(2).
Not getting enough width or getting cross course quickly enough.	Move boots and fin forward(2), increase length/reduce depth, increase fin area, reduce wing, goto stiffer flex, goto larger ski, use a ski with sharp/smaller bevels, CR fin shape.
Turns are too slow, scrubbing off too much distance to turn. Narrow on one side of the course	Reduce depth/increase length, reduce fin area, move boots and fin forward(2), or if there is an imbalance present, then move fin forward, CR Fin shape. Move fin forward to increase offside width, and vice versa. Check boot alignments.
Off side slack	Poor direction on exit from onside pull. Increase front end grip of ski (boots/fin forward, increase length/reduce depth) and/or increase slip in ski by moving fin forward. Reduce wing angle, CR fin shape.
On side slack	Poor direction on exit of offside pull, incomplete offside turn finish and/or onside radius too large. Reduce fin area/depth, increase length/reduce depth, move fin back, move boots forward, move fin forward(4), move boots back(4), goto softer flex, goto smaller ski, CR fin shape.



Description of Problem	Possible Solutions
Ski feels hot coming into onside turn, can't feel the wing.	Move fin back, move boots ahead.
Ski curls in too soon, offside	Increase depth/decrease length, Move fin forward(1), Move boots and fin back(2).
Ski curls in too soon, onside	Increase depth/decrease length, Move fin forward(1), Move boots and fin back(2).
Line load increases into the wakes, tendency to get pulled out the front into wakes	Move fin forward, boots back.
Slack at finish of onside turn and/or heavy & late line load in onside pull, with tendency to crush on the ski.	Move fin forward, boots back, reduce fin area, increase wing, goto stiffer ski.
Ski is flippy at the wakes	Move fin back, move boots ahead, increase length/reduce depth
Ski hops, skips, feels unstable, difficulty in non-ideal conditions.	Move fin back, increase fin area, goto softer ski, goto deeper riding ski.
Tip grabs during turn, back end is generally loose	Increase fin area, move fin backward
Water is hot and ski is a slug, no carryout, too stuck to water.	Move boots and fin back. Add fin area, add depth, reduce wing angle, goto stiffer flex, goto larger ski.
Water is hot and I'm in a slump	Move fin back, increase fin area (add depth), reduce length/increase depth, reduce wing angle, goto stiffer flex, goto larger ski, snap your FM's into something new.
Ski is too stuck	Move fin forward, move boots back &, increase wing, goto a larger ski or stiffer flex.
Ski rides too high	Move fin back, move boots forward & reduce wing, goto a softer flex or smaller ski.
Tendency to miss gates to the outside	Move fin forward, increase wing
Tendency to split the gates	Move fin back, decrease wing
Too much gate load, sling shot into one creating a ton of slack.	Move fin forward, move boots and fin forward, increase length/decrease depth, reduce fin area, check boot alignments, set boots to neutral (if LFF).
Tendency to hunt in glide for gates, or difficulty controlling turn-in process.	Move boots and fin forward, check boot alignments, move fin back, reduce fin area, goto lower cuff height, goto a softer boot setup, goto larger ski.
Inconsistent Offside turns, even though there is time before ball.	Check boot alignment is centered on ski, set boots to neutral, increase fin area, move boots and fin forward(2), goto stiffer flex, goto larger ski, Rotate or Bias rear boot to inside edge(3), goto stiffer front boot, increase cuff support, reduce wing angle if over 8 Deg.
Tendency to fall over onside turn.	Reduce fin area, goto larger ski
Need a more dynamic onside turn	Reduce fin area, increase length/reduce depth, goto a softer rear boot setup, reduce cuff height, goto softer front boot, goto softer ski flex, goto smaller ski.



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Notes:

- (1) Move in multiples of 0.010" or move boots ahead multiples of 0.050"
- (2) Move fin $\frac{1}{4}$ to $\frac{1}{5}^{\text{th}}$ of boots move in same direction.
- (3)
- (4)

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