Snow Damage Types and Repair Techniques

1. Introduction

This information is intended as a summary of gate maintenance. It is desirable that it be communicated to course crew, gate judges and coaches. Gate maintenance is critical to ensuring the course remains as consistent as possible from first racer to last. It is important that maintenance be constantly and regularly performed commencing after the close of course inspection.

2. Start Interval

It is critical to be fully aware of the start intervals during the event such that maintenance is performed during the interval. Generally, intervals are between 40 seconds and 1 minute 45 seconds during which considerable good can be done to maintain gates. Be aware of the interval at all times, as they change during the race.

3. Responsibility

- Resetting the gates in a vertical position. A leaning gate could aid or hinder a racer. Tightening and wedging gates properly and safely.
- Replacing gates that have been knocked down in their exact spot. A coloured spot in the snow indicates this spot.
- Replacing or re-attaching gate panels that have been knocked off.
- Replacing gates that have been broken, making sure to use the same colour as the broken one (blue or red). The broken pieces of gate pole must be picked up and placed out of the way so they cause no danger to the racers or spectators.
- Repairing the sections of the course under their control if it has been decided prior to the start of the race that this will be one of his/her duties.
- Making sure the course is “CLEAR” and watching for slippers and racers.

4. Positioning

- Gate judges and course workers should be close enough that they can run to their gates quickly to expedite repair and clear debris in a safe manner.
- They should ensure that they, and spectators, aren't in the racer's way or they are obstacles / hazards for racers who fall or leave the course.

5. Course Damage

It is critical for the safe and fair conduct of races that gates be maintained such that every athlete races on relatively the same course conditions.

(*Thanks Alpine Ontario – Officials Section)

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	What	Cause	Where	Effect	Tools	Repair
Hole	Similar to a pothole. Very dangerous.	Break-through of weak layers where racers pressure ski in the same place.	Racing line below the gate.	Disrupted race line possibly for several gates. Binding pre-release.	Steel shovel	1st: Lengthen hole along the race line by shoveling downhill hole edge, blending depth equal to surrounding snow (never deeper) over several feet. 2nd . Repeat along the uphill race line. 3rd . Repeat along the gate side edge being sure to blend with surrounding snow.
Chatters	Ripple, similar to washboard	Ski edges gripping and releasing as racers slide sideways.	Above and below gate.	Usually minimal. Possible binding pre-release.	Rakes	Work toothed side of rake parallel along chatter mark to smooth whole area. Sufficient pressure without breaking through the layer. Do not break through layers and cause holes.
Ruts	Long groove.	Softer snow yielding to ski pressure.	Along race line above and below, next to gate.	Deep/steep downhill end of rut make launching the racer or causing the ski to loose contact making the race ski a late line to the next gate.	Steel shovel	If not getting worse, leave it alone. Same as for holes, special attention to eliminating launching effect. Under melting conditions, gate pole may need to be tighten further into the base during the race relative rut maintenance
Double Rut	Two short parallel ruts likely across race line.	Double pumping to pressure skis.	Beside/below gate.	Possible pre-release. Racers thrown off balance, possible tail hooking.	Steel shovel	Lengthen the uphill and downhill ends of the ruts; merge the ruts by removing the bump/ridge between the ruts. Otherwise, fix as for a single rut.
Berm	Built up snow from slipping on the outside of the race line.	Insufficient widening of the slip area by slip crew to blend excess with surrounding snow.	Beginning opposite gate, continuing below gate outside and low of the race line.	Unbalanced, sudden deceleration leading to tumbling fall. Lateral launching.	Steel shovel and rake.	Excess snow spread out, packed down and blended into surrounding snow for entire length of the berm.
Snow Piles Around Gates	Snow build up at the base of turning gates	Slipped snow from inspection and racing.	At the base of turning gates	Ramping. Invisible dye spot impairing gate-judging quality, especially where gate pole may be missing. Levering as pole rebounds from racer impact such that gate key notch rises unseen above the hard layer -serious hazard to racers.	Grain scoops, steel shovels	Remove loose snow from wide area around pole base, down to firm layer. Critical to perform this action after inspection closes. Under melting conditions, gate pole may need to be tightened further into the base during the race relative rut maintenance.

(*Thanks Alpine Ontario – Officials Section)

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