TRICKS FOR TRANSPORTING SEARCHERS

There are several options for transporting searchers. Each rider can ride solo. You can also ride “Canadian” with one person on each running board: one person controls the brake, while the other controls the throttle. The brake is used as a last resort, as it can easily pitch both riders forward and off the sled if used abruptly. A tether switch that cuts the engine is highly recommended.

It’s best to approach the hill straight on, to prevent tipping. If you need to sidehill, it can be better to have one rider straddle the seat while the throttle rider has both feet on the uphill running board. Effective sidehilling requires the snowmobile to be on edge with the downhill ski in the air.

The photo below shows the authors riding Canadian while towing a skier. The skier is being towed with a 7mm-9mm cord 20-30 feet behind the sled. The towed skier has a mountain bike inner tube that is doubled over and held around his waist with a carabiner. About five feet from end of the rope is a butterfly knot with a locking carabiner. The end of the rope goes through the carabiner, around the waist, then to the carabiner on the butterfly knot. This results in a 3:1 quick releasing system that takes very little effort to hold with (cold) hands. The rider holds the tail of the rope; if he or she falls and lets go, it self-releases. The inner-tube absorbs shock from the snowmobile as slack is removed.

LET’S BREAK TRADITION—AND SAVE MORE LIVES
Using snowmobiles for avalanche rescue

BY MIKE DUFFY AND BRUCE EDGERLY

Traditionally, snowmobiles have been used for decades to access accident sites. Once on site, the search is traditionally conducted on foot. We have developed techniques to use snowmobiles in the search stage to cut rescue times. In this article we present three ways sleds can be used to cut precious minutes in an avalanche rescue.

We have used these techniques in numerous environments: avalanche incidents, organized rescues, SAR trainings, and in practice scenarios with BCA employees. Lead author Mike Duffy has taught these methods in classes for six years with the Silverton Avalanche School. We are constantly refining these techniques and trying new methods. It’s a learning process, but we have had successful results.

THREE WAYS TO SPEED UP AVALANCHE RESCUES USING SNOWMOBILES:

1. Accessing the debris for immediate visual/signal search

Get right to the debris—and through it—faster with a snowmobile. A sled can cover ground very fast through most avalanche debris and makes uphill travel much faster. You can get right to the last-seen-point and then continue downhill on foot or skis (assuming the snowmobile is equipped with a ski rack).

This photo is from an avalanche on Vail Pass in 2013. The body had been recovered, but members of Vail Mountain Rescue needed to “clear” the area in case someone else had been buried. The avalanche had not run full path for many years, so hundreds of trees were taken out, many in places that had been considered to be “islands of safety.” Despite the rough surface conditions, the snowmobile proved to be extremely effective. I was able to ride the sled up the debris, starting from the bottom, and do a quick visual and transceiver search in approximately ten minutes. We then switched to skis (with skins) and had five searchers cover the same area using parallel search strips, also starting from the bottom. It took the five searchers 45 minutes to cover the same area that the snowmobile had covered in 10 minutes.

2. Moving searchers to locations quickly

Rescue organizers can use snowmobiles to get multiple searchers to the most likely burial areas right away. Nothing is worse than taking 15 minutes to get to the most likely burial area, then finding a visual clue—but too late for a live recovery. A snowmobile can get you and several others there in a matter of seconds. The bigger the avalanche, the more effective sleds can be for this purpose.

3. Towing skiers...

...faster and more effectively with a snowmobile. This is ideal when you want to cover ground quickly and don’t have any assurance that the skier is still alive. The tow, however, is not always effective, and skiers should always be checked for signs of life before being towed.

The photo below shows the authors riding Canadian while towing a skier. The skier is being towed with a 7mm-9mm cord 20-30 feet behind the sled. The towed skier has a mountain bike inner tube that is doubled over and held around his waist with a carabiner. About five feet from end of the rope is a butterfly knot with a locking carabiner. The end of the rope goes through the carabiner, around the waist, then to the carabiner on the butterfly knot. This results in a 3:1 quick releasing system that takes very little effort to hold with (cold) hands. The rider holds the tail of the rope; if he or she falls and lets go, it self-releases. The inner-tube absorbs shock from the snowmobile as slack is removed.
The type of snowmobile used (utility vs. deep powder) is a common debate. Here’s my thinking: Getting stuck will delay the rescue substantially. The two-up utility snowmobiles that most ski patrols and many mountain rescue teams use are not the best tool for getting into difficult terrain. They’re too heavy, can’t get to many areas and take too long to get unstuck. For backcountry rescues, light and fast is the way to go. I have been using Ski-Doo Summits for years. They are extremely reliable, low maintenance, have a “LINQ” system to easily attach extra fuel, ski racks, two-up seat and tunnel bag. At the end of the season with the Etec engine, add fuel stabilizer, start the sled, hit a few buttons and it lubricates the engine for summer storage. Doesn’t get any easier. Track length. 163” or greater for deep snow. The longer the better. Engine size: Horsepower matters. 800cc or bigger two stroke.

12 Volt adaptor: Great for running auxiliary lights and running/charging devices (GPS, cell phone). Stock snowmobile headlights can easily get covered by snow in deep powder. Many riders use helmet mounted lights to see when the going gets deep. FrankenSled Backcountry 8.4 light and Lead Dog Helmet light are good choices. I use a handlebar mounted Ram Mount for my Garmin Montana GPS.

Communication: I prefer not to have radios on my chest, they tend to break ribs when you bounce off the handlebars. I wear a protective vest when riding (BCA MtnPro Midlayer vest) or an airbag protective vest. Body of radio is in pack, with BC Link remote mic clipped to shoulder strap of pack.

Hand signals: If you pass snowmobilers going the opposite direction on a trail, they may be using hand signals to let you know how many are following. Number of fingers held up indicates how many riders are behind that rider. Last person in group holds up a closed fist to indicate they are the last one. It’s a system that is universal in the U.S. and works well.
At Silverton Avalanche School we set up an avalanche rescue scenario on a hill with five victims (three with transceivers and two without transceivers but with visual clues). Five rescuers will be involved. We typically have two on snowmobiles driving to the farthest most likely burial areas, performing a visual search on the way. Once they get to that area, they step off the snowmobile, turn it off and do a transceiver/visual search on foot. Level I students are consistently pulling off these scenarios in under ten minutes, with the record being in the four-minute range. These scenarios are on relatively large slopes that exceed 100 x 100 meters.

3. Searching from Snowmobiles

Using snowmobiles to do transceiver searches? How does that work? Quite well: we’ve found that you can easily cut search times in half. Let’s say you’re the first on scene and have a large area to cover. Use the sled to cover ground faster for the visual and/or transceiver search. Here are some techniques we have developed, practiced, and found to reduce search times considerably:

1. Keep the ignition switch tether unhooked, so you can keep the engine running when you get off the sled. Use your best judgment here on safety.
2. Keep your transceiver easy to access. The BCA Float MtnPro Vest has an easily accessed, yet well-protected transceiver pocket on the outside.
3. Drive quickly to the debris and get up on it with the snowmobile. Stop and set the parking brake.
4. Keep the snowmobile running (it can be awkward to pull start when tilted). Step at least three feet away from your sled, to avoid electrical interference from snowmobile electronics. BCA testing has found that searching within three feet of most sleds (and six feet of the Polaris Axys) will often reduce receive range and/or cause “false triggers” in the distance/direction display. The snowmobile can be turned off to stop the interference, but many need to “power down” for 20–30 seconds for the interference to subside. Usually it’s faster to leave it running and get off the sled to resume searching.
5. Rotate your transceiver on all three axes to pick up a signal as early as possible. Look for visual clues.
6. If you capture a distance reading and directional arrow on your transceiver, walk a few steps to see if the numbers decrease, to confirm direction.
7. Get a visual on the direction/distance the transceiver is pointing, then use the snowmobile to get to that location.
8. No signal from your transceiver? Continue your search pattern, stopping within transceiver range. Ride into the middle of the debris or continue around the perimeter, depending on the size of the avalanche and range of your transceiver. You can also use a signal search pattern (see transceiver owner’s manual). It all depends on the size of the avalanche. Stop your sled within the range of your transceiver and repeat steps 4, 5, and 6. You should be looking for visuals the entire time.
9. Once you get closer on the coarse search, stop the snowmobile, pull your extra shovel off your tunnel bag and proceed on foot with the coarse and fine search. If using an airbag, we recommend carrying an extra shovel on your sled—preferably secured to a tunnel bag—so if your sled gets stuck and you need your shovel to dig it out, then you don’t have to take off your airbag pack.
10. Probe to pinpoint and start digging using strategic shoveling techniques.

Learning to ride

Advanced riding skills are needed for most of these techniques when riding on avalanche debris. A rider accustomed to sledding on groomed terrain will have a difficult time. If the riding skills aren’t there, it will be faster to travel on foot or skis. The good news is that there are backcountry snowmobile riding schools. These schools will teach you advanced skills in one or two days. It will change your perspective on what a snowmobile can do and will increase your skills enough so your sled can be a valuable and fast tool for avalanche rescue. BCA has put its entire sales and marketing staff through an advanced riding clinic with hillclimbing champ Bret Rasmussen. For more info, see www.riderasmusenstyle.com.

BCA has recently produced an instructional video on using snowmobiles for avalanche rescue. It can be downloaded and used for instruction by visiting www.backcountryaccess.com/education (videos page.)