

Outfitting my Snowmobile for Grooming with a Tidd Tech G2

By Mike Fritz from Beaver Brook Farm Ski Trails in Marshfield, VT ©2004

It's almost ski season in Vermont. We've had a long fall to get the trails and equipment ready. This year I made a big push to outfit my Skidoo Skandic SWT with some practical and worthwhile improvements.

Here is my 6-year-old Skandic with Flexi-Skis on a 2x4 platform in the barn. The Flexi-Skis are essential (and easily available from Tidd Tech). I added them three years ago and it was by far the best thing I did to the Skandic. They have allowed me to steer up hills I never made before and make the steering effort a lot less strenuous over a long day.



The Skandic suspension has been modified to put more weight on the front end. I also add up to 50 lbs of weights on the front end depending on conditions for more steering control. I'll try anything to help with steering.

This fall I built out my toolbox to carry everything I could possibly need. I also spent a lot of time setting up the groomer wiring just the way I wanted. This article will focus on these two practical (but mundane) improvements.

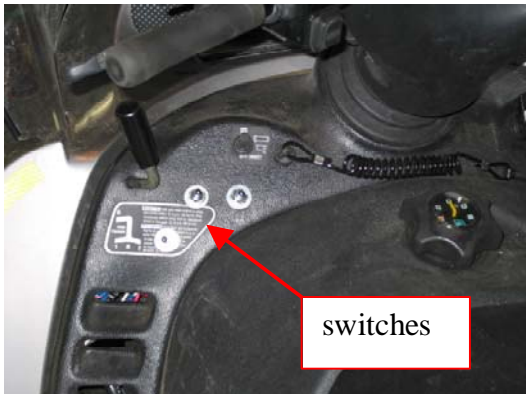
To appreciate why my tool box is so important here are a couple of details about Beaver Brook Farm that might also apply to your place. We have 18Km of ski trails that wind through a large forest of balsam fir trees. This particular tree, while being a good lumber tree, is also very prone to high winds and old age. About once a month we get a high wind going through. I can go out the next day and find a dozen large trees that have fallen across the trails. I carry a fully fueled medium sized chainsaw, peavey, chainsaw safety gear (chaps, helmet), and more tools. I do all the grooming myself during daylight and don't have anyone readily available to help bail me out. Therefore, I have to carry everything I need to re-open the trails, get the Skandic unstuck, and keep the grooming equipment going.

This year I decided to carry a peavey with me all the time. Mine has a detachable foot that allows me to raise a log off the ground for safer cutting. It's called a Timberjack and takes up a bit of space in the toolbox. When the Tidd Tech G2 came out I needed to make room for a portable battery pack. My Skandic is getting older and doesn't have a 12V outlet. I also heard cautions from other groomers about tapping into the Skandic electrical system. So this year I'm continuing with the separate battery pack. I bring it inside every night and charge it. Everything is ready for the

next grooming run. My battery pack has never failed me during my 7 hour grooming run and I make a lot of adjustments to the G2 teeth and the tracksetter. The battery just takes up more space in the toolbox.

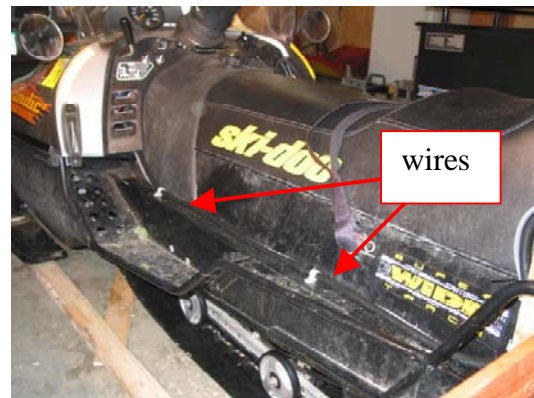
Last year I used the G2 switch box between my legs on the seat. This year I vowed to get rid of it and move the switches up to the dash. I've had a number of email conversations with Dave Zink about the wiring design. He pointed out the key components and got me started. And of course my solution revolved around my toolbox.

I decided to do the wiring myself because I wanted to get it just right and I had a number of toolbox constraints. However, I would strongly recommend that you get your local snowmobile shop to set up the wiring for you and save yourself a lot of time. Here's where it starts with the switches up front on the left side of the dash.



I had a couple of criteria when I started this wiring project: 1) don't mess with the Skandic – e.g. stay away from the exhaust, the gas tank, and the electronics; 2) get the switches up to the dash; 3) have easy disconnects that work in the cold. These criteria led me to do everything on the left hand side of the Skandic. I stayed as far away from the

exhaust as I could. There were already switches on the left side. I could see how to add a couple more and route the cabling back to the toolbox without messing with the gas tank or the seat box. The lower left switch is for the teeth bar. It's the easiest to reach and the switch I use most often and sometimes need to get to in a hurry. The wiring is routed back to the toolbox on the ledge next to the seat with a couple of wire ties to keep everything secure.



The switches are in the middle of this electrical circuit. I ran a 2-wire cable from the switches to the battery, and a 6-wire cable from the switches back to the groomer actuators.

The one area where things got a little complicated was under the dash. Tidd Tech recommended using a double pole double throw switch from Mouser Electronics (www.mouser.com) PN 633-S7F (\$6.20@), which works great. However, it does require a bit of wiring to set up. Each switch has six poles on it, making a total of 18 connection points. I needed to replicate the 2-wire cable coming from the battery into 6 wires for the 3 switches. I also needed to replicate the 6-wire cable coming from the 3 groomer actuators into 12 wires. After getting a couple of terminal strips from Radio Shack I replicated the

8 wires into the 18 required for the switches. Here is a shot under the dash.



I added all the red and white wires. Don't stare at this picture too long. There are many ways to replicate 8 wires into 18. However if this picture is too much for you then it is a good signal to go directly to your snowmobile shop and have them do the wiring for you.

The 2-wire and 6-wire cables enter my toolbox on the left side just above the chainsaw.



Now I will be the first one to admit this toolbox is not pretty but it sure holds a lot. That's the chainsaw bar (with cover) coming out of the side through a slot in the toolbox.

The top half of the toolbox is occupied by a smaller hand toolbox, the yellow

battery power pack, and the peavey and shovel handles.



The 2-wire for the battery has an inline fuse on the positive wire and a 12V plug to go directly into the power pack. By having the power pack on a raised platform it is easy to plug in. There is also a light with the power pack that can be used at this raised elevation, and I can turn the battery pack around in either direction.



The bottom half of the toolbox is filled with a chainsaw, peavey, shovel, and an

electrical box. With a lid on, the electrical box serves as a platform for the battery.



Inside the electrical box, the 6-wire terminates into a 6-pin trailer plug. It also provides a dry place to store the battery plug when not in use and my chainsaw chaps.



Looking at the back of the toolbox you can see the 6-pin trailer plug in the lower left. I kept all the wiring on the Skandic on the left side. It kept me out of trouble with the main systems on the

snowmobile, and it used up minimal space in the toolbox.



Going back to the G2, I continued the 6-wire back to the actuators. It starts with the 6-pin trailer plug hanging on the left side of the groomer. From this side it's a straight shot to the plug on the left side of the toolbox, staying clear of the hitch.



Ideally I would have liked the metal wire loops to be on the left side of the groomer and I would have kept the wire on this side all the way back to the actuators. However, they are manufactured on the right side so I routed the wire over to that side to take advantage of the metal loops.

When the wire comes across the top bar I brought it over to the left side (by this point you must be thinking I am really crazy about keeping everything left, but there is a reason). I wanted this groomer

wire setup to be interchangeable on small and medium G2s. Beaver Brook Farm is Tidd Tech's New England demo center and I wanted to reuse the wire. The same wire that fits on the left side of a small G2 will fit on the right side of a medium G2. But now that I know how inexpensive it is, I'll probably just create another wire for a second G2.



The 6-wire runs into another electrical box for one important reason. I wanted to create a quick connect/disconnect for the tracksetters. Tidd Tech sends the tracksetters out with their actuators wired with spade connectors at their termination. Last year I had a hard time disconnecting these spade connectors out on the trail. Why would I need to do this? At Beaver Brook Farm we have some very steep trails and there are certain times and conditions when I get really stuck. This is always because of operator error – it's amazing what things I can try to do after sitting on a slow moving snowmobile for 6 hours. Sometimes the only solution is to take weight off. One of the first things I like to remove is the tracksetter, but I always wrestled with those spade connectors. I ended up carrying two needle nose pliers with me to do this. I spent a long time this fall looking for a better connector that would be solid during operation, but also disconnect. My search led me to a marine grade 12V socket and plug from

Parts Express (www.partsexpress.com) PN 265-274 and 265-272. The socket and plug cost \$11.63, but shipping was another \$7. Big improvement. They are watertight and lock when connected. For disconnecting they are big and easy to grab with my gloves and with a simple quarter turn they unlock.

Of course now I needed to mount the socket, but I'm an amateur woodworker so if I can do it in wood it's easy.



Here is a simple box to hold the socket. There is a second hole ready for another socket when I set up two tracksetters. All 6 wires come through this box with 2 wires going out the front to connect with the teeth actuator.

Now that I am done with the wiring I'm very satisfied with the result. Getting the switches onto a permanent location on the dash is a major improvement. However unless you are really into electronics, this is a lot of work your snowmobile dealer could do in a fraction of the time because they do this type of wiring all the time and have ready access to most of the parts.

I ordered the 3 switches from Mouser, and the 12V marine socket/plug from Parts Express. The rest of the parts (terminal strips, wiring, spade connectors, 6-pin trailer plug set, 12V plug, and inline fuse) were acquired at

our good local auto supply store or our local Radio Shack. Total parts cost came to \$136 and, as usual in northern Vermont, I probably paid more than you would pay in other parts of the country, or certainly what a snowmobile dealer would pay.

Getting back to the toolbox. There are two more parts to complete that story. First what do I have in that small toolbox?



There are a number of essential hand tools. The vise grips are handy for pulling out broken sheer pins from the Tidd Tech Tenderizer or Roller. The axe with a flat side is used mostly to pound new sheer pins in. The axe and the red saw are used for small trees that have bent down over the trail from the weight of snow and broken. The long screwdriver is handy for removing snow from the receiver portion of the hitch on the Tenderizer and the Roller. Whenever I hit a tree (yes, it happens) the hitch digs into the snow and gets completely plugged with compacted snow. There is a chainsaw T wrench and some bungee cords. The three containers on the left contain extra sheer pins, fuses, and sparkplugs.

The last storage area on the Skandic is the big seat box. I store items in here that I don't use on a daily basis.



I have the snowmobile toolkit, a fire extinguisher (don't travel anywhere without one), a first aid kit, spare drive belt, rags, and flagging. The flagging comes in handy whenever I come across wet areas on the trails that I want to work on next summer. If I don't flag them now in the winter then I won't recognize them in the summer.

There are three final items I carry along that were not in these pictures: 1) my chain saw helmet that loops over the peavey handle, 2) my come-along and straps that I store under the seat, and 3) my 5 mile range walkie-talkie that I carry in my chest pocket to keep the battery warm.

These are my essential tools that have earned a permanent place on my snowmobile over 5 years of trial and error. Hopefully you have gotten some new ideas on what you might need for your particular situation. Safe grooming everyone!