



Regular and Year-end Preventive Maintenance on the SnoWizard® SnoBall Machine™.

Another snoball season will soon be coming to a close for most operators. This is the time to perform the annual maintenance on the SnoWizard® SnoBall Machine™. A little preventative maintenance now will prevent costly repairs later and your machine will be ready to go at the start of the next season.

First, unplug the power cord to your machine. If your machine is like most, there will be water spots and dried syrup on the exterior surfaces. Take a look at the underside and you probably have a buildup of mold under the right side where water drips out of the cabinet below the cutter head. There is probably a build up of mineral or calcium deposits on the interior of the machine and especially in the cavity where the cutter assembly fits.



Let's start the cleaning by removing the belt guard and the cutter assembly. To remove the belt guard, loosen the four wing nuts that attach it to the cabinet. These should be finger tight only with no tools needed to loosen and remove them. Slip off the belt as you would a bicycle chain off a sprocket.

Next, remove the entire cutter assembly from the cabinet. Check the opening on the right side where the cutter assembly fits for calcium build up and mold. Make a cleaning solution of hot water, dishwashing detergent with 1 tablespoon of bleach per gallon. Wet all of the interior surfaces with the solution to sanitize the interior. Use a soft to mild stiffness brush to scrub away any mold. The bottlebrush works great for cleaning the interior where the cutter assembly fits. Be certain to check the topside of the interior as well. Carefully tilt the machine back on its legs and scrub the underside with a utility brush. Once everything has been scrubbed, thoroughly rinse the cabinet clean. Look it over to see if any areas need to be redone.



With the wing nuts and belt removed a firm tug will separate the cutter head from the cabinet. It is not necessary to remove any additional nuts or bolts from the cutter assembly.

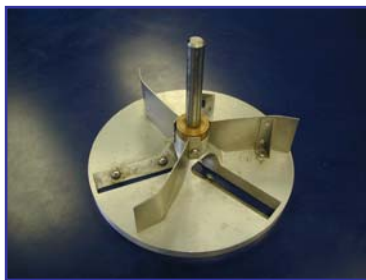
Now that everything has been cleaned, its time to apply a calcium deposit remover if you have any buildup. Lime or calcium deposit removers can be purchased at most hardware and drug stores. Follow the mixing and application instructions on the bottle and apply the solution to all parts of the cabinet that have a buildup. Depending upon the brand purchased, a waiting period may be necessary in order for the solution to dissolve the deposits. A Scotchbrite® pad may be necessary to get heavy deposits off. If a Scotchbrite® pad or other type of scrubbing pad is required, be certain to move the pad back and forth in the same direction as the grain of the stainless steel. When all of the deposits have been removed, thoroughly rinse the surfaces to remove all of the cleaner. A hose works really well here.

Now wet all of the surfaces again with the dishwashing liquid solution to sanitize it once more. Let the solution set for about 3 minutes to do its work. Thoroughly rinse the cabinet again with the hose and be sure to get the underside as well. When done, dry off all the surfaces, inside and out. When finished, leave the door to the machine open to let it air out and completely dry.

It is now time to service the cutter assembly. Let's start by removing the large pulley from the shaft. This is done by loosening the set screw from the pulley with a 5/32" allen wrench. Make sure the stainless steel key is put in a secure place with the pulley for installation later.



Next, slip the cutter out of the cylinder housing. If you have performed regular maintenance and greasing of the shaft and bearings, the cutter and shaft will easily slide out of the bearings of the cylinder housing. If there is any resistance or the shaft does not easily slide out of the bearings, do not use a hammer or other object to tap or hit on the shaft. This can result in damage to the shaft and cutter. Use a lubricant such as WD-40 and apply to the area where the shaft meets the bearings. Wipe the shaft clean of any dirt or grit. Slowly work the cutter and shaft in and out of the bearings with your hands. Apply more lubricant if necessary and wipe clean. Under no circumstances should you hit on the shaft with a hammer or other object. If you need assistance, please call us and we give you further instructions to safely remove the shaft.



Cutter shown with 3 bent fins. This occurred at our own SnoWizard® SnoBall Shoppe when the operator inserted an ice pick in the chute to remove clogged snow. Ironically, a water sprayer mounted on the drip pan, specifically for this purpose, was not used by the employee.

Look at the fins and make certain that they are straight and not bent or damaged in any way. Older machines built prior to 1983 will have a curved fin design. If the fins are bent, then something was inserted into the snow spout while the machine was in operation. Not to worry, though! If this occurs the SnoWizard® SnoBall Machine™ fins were designed to bend, not break. This ensures that you will never be put out of business if an object is inserted in the chute.



The fins can be straightened to their original shape with a pair of pliers (See picture below). However, as the owner of the business, I'd want to find out who did it so that it does not happen again.

Fins can be straightened to their original shape with a pair of pliers.

Next, remove the blade screws and all of the blades from the cutter and set them aside. Then remove the 6 screws that hold the fins in place and set the screws and fins aside. Look at the cutter and cylinder for any mineral deposit buildup. If there is any, clean these parts in the same manner that the cabinet was cleaned. Make certain to remove all buildup from the flat surfaces where the blades fit. **This is critical!** If mineral deposits are left on these surfaces, calcium crystals will form underneath the blades. Since the blades are held firmly in place with screws, the crystals will push up against the blades cracking them at their weakest point - the blade slots.



Remove the blades with a No. 2 Philips head screw driver.



This blade has cracked as a result of calcium deposits which formed on the underside. Water trapped between the blade and the cutter caused a catalytic reaction to occur. Calcium crystals formed and pushed up against the blade, cracking it at its weakest point; the screw slot.

At the start of each season, we have several customers who bring their cracked blades in wondering what happened. After an examination of the backside of their blades we saw that they were coated with calcium deposits. What happened? They simply turned off their machine at the end of the season without performing any end of year maintenance. The water trapped between the blades and the cutter formed calcium deposits and when the deposits formed crystals, which grew – they cracked the blades. Then at the beginning of the next season when they went to remove the blades to put in a fresh set, they found that their blades had cracked. So it is very important to remove any calcium deposit buildup from the blade slots.

Now let's go back to the cutter. Once the cutter has been cleaned of mineral deposits, thoroughly wash it with soapy water and then rinse it in very hot water. Let the water run over the cutter until it heats up the metal. Dry the cutter off well with a towel. As best as possible, blow through the screw holes to remove any water. Set the cutter down and let it rest for a while so that all water can evaporate from the screw holes.



Cutter has been cleaned regularly and is well maintained.



Cutter has been neglected and shows severe mineral deposit buildup. Regular cleaning and maintenance would have prevented this.

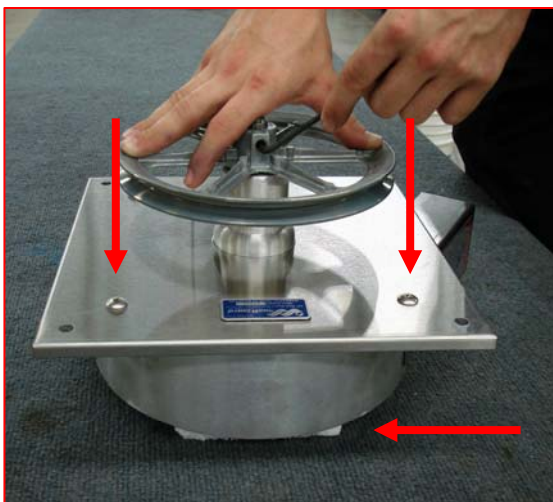
Now it is time to start putting it all back together. Squirt a small amount of foodservice grease into all of the screw holes. This is the Petro Gel grease that comes with your machine. Use your finger to push the grease down into the holes. Attach the fins first. Insert a screw into the tab of a fin. This is the part that screws into the hub of the cutter. Turn the screw until it's held in place by the threads, but not all the way. Then while holding the fin up a little, insert the other screw into the tab on the fin and screw it into the

cutter. Turn the screws back and forth a couple of times. This will work the grease into all the threads to thoroughly lubricate them. This is very important. If these screws are never removed, then water seeps into the threads and calcium deposits form, locking the screws in place over a period of time. If a fin ever needs to be replaced, the screws may not come out since they were never lubricated. Finish attaching the remaining fins and thoroughly tighten all of the screws when done.

The last thing to do is to install the blades. We highly recommend installing a newly sharpened set of blades, so before you re-install the set that you took out, check to see if they are sharp; really sharp. If they are, they will be able to shave the hair off of your arm. Spread a thin film of grease on the blade slots of the cutter. Work the screws back and forth to spread the grease throughout the threads. Install a sharpened or new set of blades. Do not put the old set back in that were just removed if they are dull and need sharpening. However, if they are sharp and you put them back on the cutter, check the backside of the blades to make certain that there are no calcium deposits. If there is, then remove the calcium deposits, and spread a thin film of grease on the backsides of all the blades before installing them onto the cutter.

Now, take a look at the shaft and check to see if there is any buildup of any kind. Also check the surface of the shaft for any small scratches or burrs that might scar the bearing. Wipe the shaft off with a rag or paper towel to remove any dirt and grit. If there is anything built up on the surface, remove it with a fine piece of steel wool or 400 grit sandpaper by wrapping the polishing material around the shaft and turning it back and forth with the palm of your hand. Wipe the shaft off when done and spread a thin film of grease over the surface. Place a dab of grease on each of the sealed bearings and spread it over the surfaces.

SnoWizard® machines built prior to 1983 have bushings and thrust bearings that require other maintenance. The shaft and bushings must be checked for wear. To check this, the cutter housing must be assembled. Check this by alternately pushing on either side of the cutter attempting to rock the cutter back and forth inside the cylinder housing. If the cutter can be rocked substantially, then the shaft and/or bushings are worn and need to be replaced. This is the time to replace them so don't assemble the cutter and put it back on the machine. Order the parts and replace them now, before the start of next season.



Reassemble the cutter according to the instructions in your manual. Make certain that the pulley and cutter are kept pressed together when tightening the setscrew on the pulley. To do so, form a ball with a rag and place it on the face of the cutter, up against the blades, at the same time turning the cutter down towards the working surface (see picture). This will keep the cutter recessed inside the cylinder. Place the pulley on the end of the shaft and insert the machine key into the slot. Press down on the pulley firmly while tightening the setscrew. Assembly is now complete.

Install the complete cutter assembly back onto the machine with the v-belt and belt guard. Turn the motor on and run it for a few seconds to make certain that everything sounds normal and was assembled correctly so you don't have any surprises on opening day next season.



Place the cutter assembly on the cabinet and hold it in place with one hand. Do not put the wing nuts on.



While holding the cutter assembly to the cabinet, place the V-belt on the small motor pulley and rotate around the large cutter pulley.



Next, place the belt and pulley guard on the threaded studs and screw on the four wing nuts. No tools should be used; finger tighten only.

The threaded rod should also be cleaned and re-greased. This is the part on top of the machine that is attached to the hand wheel and pressure plate. Turn the hand wheel counter-clockwise to fully expose all of the threads on the threaded rod. Wrap a small piece of rag around the threads and turn the hand wheel back and forth to remove any dirt and old grease. Place a small dab of foodservice grease on the threads and turn the hand wheel back and forth to spread the grease throughout the threads.



You should also inspect the legs of the machine for any mold, dried syrup or calcium deposit buildup. Since the legs sit in the drip pan where water accumulates, there's a good chance that calcium deposits are present on them. Treat the legs in the same manner as all other pieces to remove the deposits. Since you're working on cleaning the legs, why not give the drip pan a good scrubbing. Use the same solution of dishwashing liquid and bleach to scrub the sides and bottom. You might want to plug up the drain hole and pour in some extra sanitizing solution so that the entire bottom surface of the pan is filled with water. Add a little extra bleach if needed and let the solution stand for a while. The bleach should remove any syrup stains. Give the pan a good scrubbing with the utility brush and thoroughly rinse the legs and pan with clean water. It should look like new when you're done. Dry the pan and be sure to get underneath the legs.

The last thing that you should do is to wipe down the entire exterior of the machine with a polish. Furniture polish will do or you can use a lubricant such as WD-40 on a rag. Rub the machine with a polish to remove any water spots or stains. The lubricant also protects the cabinet from any surface moisture during the off-season.

O.K., you're done! At the beginning of next season your machine will be in tip-top shape and ready to shave fine fluffy snow. You won't have any surprises on your opening day of business. However, you should rinse out the machine with water and run a piece of ice through the cutter before opening day to insure that everything is fine and that no critters have used the machine as their home during the off-season.

Performing this maintenance at the close of every season takes only 30 to 45 minutes. However, it is time well spent and needed if you want to keep your SnoWizard® Snoball Machine™ in top condition without requiring unnecessary service.