

Superintendents share their sharpening and grinding tactics so that your colleagues will be green with envy about your greens.

# LOOK sharp!



Like anything else, the methodology in keeping reels sharp varies from course-to-course.



**“How are the greens?”** Invariably this is the first question one golfer will ask another when discussing a particular golf course. In this one little four-word sentence lies a dozen other unspoken questions with regard to speed, roll, size, firmness and even color.

What the golfer doesn't realize is the amount of maintenance that factors into the answers to these questions. Aside from your fertility and irrigation practices, the quality of cut from your greens mowing equipment can make all the difference between enticing a one-time customer and securing a repeat player.

Reel maintenance has been one of the most evolving practices of turf maintenance almost since the dawn of golf. Commercial reel mowers date back to the early 1800s and needed to be pulled by horses. Even then technicians were forever tweaking and adjusting the reel-to-bedknife relationship in their attempt to achieve optimum results.

Today superintendents and equipment managers have honed the practice of reel maintenance to a fine art. Whether the philosophy is light contact or no contact, spin grinding or angle grinding, all come down to the same thing: a clean cut goes a long way toward healthy greens and happy golfers.

Like anything else, the methodology in keeping reels sharp varies from course-to-course, one equipment manager to another. Budgets, equipment, personnel, and training all come in to play and it's vital that the superintendent and equipment manager see eye-to-eye on what is best for their facility.

For example, at Grand Traverse Resort & Spa in Acme, Mich., golf and grounds manager Paul Galligan keeps it pretty simple.

“Every time the mowers come in,” he says, “the reels are gone over, period.” Contact, height of cut, front facing if needed – everything is checked out. Of

course, Grand Traverse is a resort with 4 techs maintaining equipment for 3 golf courses. This level of maintenance is necessary, expected, and budgeted.

However, it's a whole different world at a public facility with a small budget and a single equipment technician. There, it's not unusual to hear reels spinning for hours on the backlap machine or witness mowing operations come to a grinding halt while a reel gets serviced because there was no backup equipment. That's never a good scenario.

Kenny Meals, turf equipment manager at Baltusrol Golf Club in Springfield, N.J., put things in perspective. “First you have to look at the golf course as a whole,” he says. “What grinders you have, what equipment, how much time you can afford to spend on grinding are all factors.

“Over the years, I've done different methods of maintaining reels and bedknives,” Meals adds. “First it was contact and backlapping, sharpening twice a year. Then I moved on to spin grinding and sharpening only on a Bernhard grinder with no contact. Once the reels started to make contact they would get sharpened, but that was mainly due to the ease of the setup of the Bernard... In general, you can grind the reels quicker. Fortunately, too, we had spare sets of reels for all the machines, which worked out very well.”

In the South, where there never really is an off-season, equipment techs don't have the luxury of a winter rebuilding program. Winter is the height of the season as the snowbirds fly south to play golf, and maintenance practices don't vary as much as they do in northern climates.

Stephen Tucker, equipment manager at the Ritz-Carlton Members Golf Club in Bradenton, Fla., explains his situation. “We don't have a winter rebuilding/sharpening routine here as winter is our prime season, so equipment has to perform day in and day out. Our summer and winter schedules look very similar despite the

growth patters of the turf.”

Tucker goes on to explain that because of the changing conditions there isn't a specific grinding “schedule” to follow.

“Whether we topdress, verticut, etc., all of these cultural practices affect the quality of cut so we address the need to grind as it becomes apparent from our daily checks,” Tucker says.

Obviously budget-sensitive, the ability to do daily checks on your cutting units goes a long way to maintaining a quality cut throughout the season. At those courses without the high-end budget, usually the mechanic depends on the operator to tell him if the units seem to be cutting OK. If there are no comments or complaints from the operator, then the mechanic usually moves on to put out some other fire instead of worrying about the reels.

While this method may work a majority of the time, superintendents must question whether the health of their greens is worth the risk? The operator might say the mower was cutting OK, but later in the afternoon the white cast across the green is the tell-tale sign the units were dull or out of adjustment and tearing the turf instead of cutting it clean. It's something an operator can easily miss during the morning mowing.

Remember, too, that an effective height of cut will be a little different than the bench setting. Factors such as the weight

## Additional factors

If you've never been to a Toro University training session, then you've missed out on an opportunity to learn some of the different factors that affect the quality of cut and the health of your turf. Some may surprise you and include:

- Tire pressure on the mower
- Traction speed
- Reel bearing condition and adjustment
- Roller and roller bearing condition
- Roller selection
- Reel and bedknife sharpness



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## EQUIPMENT

of the cutting units, attachments, as well as turf conditions like excessive thatch will all influence the effective height of cut. Be aware and adjust accordingly.

For Meals, Baltusrol GC has some pretty high standards as far as reel maintenance goes. "To maintain sharpness we adjust the mowers after we mow six greens with the walkers, and adjust the fairway units after each cutting. We backlap all the mowers once a week and front face every two weeks."

When it comes to grinding Meals is in the 'light contact' camp. "Currently when we grind we relief grind and spin grind," he says. "Setting the reel to bedknife at light contact allowing the contact to keep the edges sharp through metal-to-metal contact."

Tucker, on the other hand, has a similar routine, but with a slightly different methodology.

"Every machine we use gets checked out after use," he says. "There isn't a time where

## Often overlooked grinding advice

**S**uperintendents and technicians all seem to have their own ideas on when and how to grind reels. For some, their grinding philosophies are as guarded as a certain colonel's seven secret herbs and spices.

So, for an expert look at reel maintenance, Erik Sides, training manager for Jacobsen Turf Equipment, offers a few basics superintendents and technicians should keep in mind when it's time to grind.

### Check the reel first

Before doing any grinding, Sides advises that you thoroughly clean the reel and cylinder. Next, always check to make sure the reel and roller bearings are good and reel has proper end play.

"It's virtually impossible to get a good, consistent grind if there are worn bearings," he says. "Save yourself the headache and check these before wasting time at the grinder."

You should also look for a "coned" reel by using a pi-tape or other measuring device to check circumference. An uneven reel can affect cut quality as well as lead to contact with the bed knife. If you find a coned reel, Sides recommends following the directions for your specific grinding equipment to get the reel back to true.

### Maintain proper clearance

"Easily the most overlooked, but key component of reel maintenance is to make sure bedknife clearances are maintained," Sides says. A couple of minutes spent ensuring the reel blades are not coming into contact with the bedknife can save hours of grinding time down the road.

"We definitely promote daily clearance checks," he adds. "As a rule, you want between one-thousandth to two-thousandths clearance between the bed knife and reel blades. Avoid metal-to-metal contact, as that quickly wears down a reel."

Pulling a reel, mounting it in the grinder and replacing the unit can take up to an hour per reel. Daily clearance checks take just a few minutes and can help extend reel life and save shop time by extending the duration between spin grinds.

### Don't overlook the relief angle

When you do have to grind, Sides says, don't

overlook the relief angle.

"There are two distinct schools of thought on grinding," Sides says. "Those that spin grind only and those that relief grind in addition to spin grinding. I wholeheartedly recommend everyone maintain the relief angle throughout the life of the reel."

The relief is key to keeping the reels and the tractor working the most efficiently.

"Without the relief angle, you potentially increase drag on the reels or increase the likelihood of metal-to-metal contact," he says. "This puts more strain on the entire tractor and generates more heat in the hydraulic or electrical systems."

In addition to adding wear to the unit as a whole, this additional strain can also start to have a negative impact on fuel economy.

"Drag, wear and heat are minimized with a relief angle and proper bedknife clearances," Sides says.

The proper angles for reels can generally be found in manufacturer's manuals.

### Time to grind

How often to grind is another question Sides is frequently asked. While there is no hard and fast rule, this is a major factor that a lot of folks overlook.

"How often and how heavy you topdress will dictate how often you'll need to grind," he says. "The more sand that goes down, the more frequently you'll have to grind."

One way to extend reel life and still aggressively topdress is to make sure the sand gets worked in well before mowing. Brushing or dragging will help keep the sand down at the root level where it belongs and not up eroding the reels on your mowers.

### Lay out a grinding schedule

Finally, Sides recommends setting up a grinding schedule. This will help ensure that units get taken care of in a regular fashion as well as allows superintendents to plan enough time to get the job done.

"Too often, we see reels get overlooked because there's 'Just no time to grind,'" Sides says.



we don't bring the machine in after it has been used and check the height, adjust the cut and file the bedknife. The reason being is that the most important job we do is to maintain cutting units."

The difference is in the backlapping, Tucker says. "We don't

backlap at all nor have I in my 13 years as an equipment manager," he says. "This is simply due to the fact that I have always been fortunate enough to have grinders."

He verifies that there are a lot of different schools of thought and all the tech's out there need

to do what allows you to produce the best results for your course.

"I look at it like maintaining an airplane," he says. "Pilots have to go through a series of checks every time they go from one airport to another to insure the safety of the aircraft and that it

will perform as intended. If they see the least little thing wrong they address it immediately. I don't see cutting units as needing any less attention than that." **GCI**

*Jim Black is a frequent GCI contributor.*

## Backlapping vs Grinding

**T**here are many practices and philosophies for maintaining reels and bedknives. Some choose to grind and utilize no backlapping, some will backlap only to get the longest life between grinds, and others prefer a position somewhere in the middle. Regardless of your preference, the key to proper cutting is to have a sharp reel and bedknife.

The modern technology in backlapping valves provides

Backlapping is a very quick and simple process and, depending on the number of reels on the machine, should take no more than two to 10 minutes to complete an entire mower. In regard to how often to backlap, first determine what level of expectation you require for your cut quality. The lower your height-of-cut, the more maintenance is required for the turf and for the

substitute for grinding. There will come a point in time during the reel's life where simply backlapping alone will not be sufficient. The land area of the reel blade will eventually increase, the length of the relief angle will decline, and there won't be as much surface area to hold the backlapping compound. At that point, the reel must be ground. However, backlapping is successful in extending the time between grinds to save maintenance time during the growing season.

When a reel is ground, it is important to re-establish the relief angle to allow for backlapping again in the future. The relief angle is critical in that it gives a place for the reel to hold the backlapping compound when it is applied.

Even more important, when both reels and bedknives are ground, backlapping after grinding matches the bedknife to the reel to ensure both components are operating in exactly the same cutting plane. Backlapping hones the reel and bedknife to the same cutting plane.

Also, when a reel is ground, it's common for a burr to exist on the backside of the reel blade. Technicians may sometimes experience issues where the bedknife-to-reel clearance opens up while mowing, causing the mowers to lose their cut. The cut may be shaggy, and grass blade tips may be torn and brown out. What causes this in a lot of cases is that the bedknife-to-reel clearance was set with the burr still present on the back of the reel blade. The machine cuts paper when it leaves the shop, the fairway or green may be cut very well for a few holes, and then – all of a sudden – the mower is cutting poorly. The burr on the back of a freshly ground reel wears very rapidly. By backlapping after

grinding, the burr is removed and the cutting unit can be set properly before it goes out to mow and it will stay on cut for a longer period of time.

*Tracy Lanier and Brad Aldridge are John Deere Golf product managers.*



There are many philosophies for maintaining reels and bedknives.

all reels on a machine can be backlapped at the same time. Backlapping valves are innovative in that they sense the restriction between the reel and bedknife when the backlapping compound is required, and adjust hydraulic flow accordingly to keep reel speed constant for a premium backlap. This makes the backlapping process the quickest method to help maintain the sharpness to the reel and bedknife. The more frequently a golf course backlaps, the longer they are able to keep a pristine, sharp edge on both the reel and the bedknife, and extend the time between grinds.

reel mower. There are also other variables – such as top dressing program, grass type, course soil conditions and the amount of grass being mowed by the machine. These variables and expectations for cut quality will determine how often to backlap and each individual course should determine its own program. It can be as frequent as after each mowing or it can be once every week or two. The key to backlapping is that you are maintaining the sharpness, while not trying to re-establish like when you are grinding. So, backlap before you lose your edge.

Backlapping should never be a

### Spin Grinding vs Relief Grinding

This is public information on the [www.deere.com](http://www.deere.com) public website that will provide some excellent information on relief vs spin grinding.

[www.deere.com/en\\_US/ProductCatalog/GT/servlet/com.deere.u90785.cce.productcatalog.view.servlets.ProdCatProduct?pNbr=RG55\\_XF&tM=GT](http://www.deere.com/en_US/ProductCatalog/GT/servlet/com.deere.u90785.cce.productcatalog.view.servlets.ProdCatProduct?pNbr=RG55_XF&tM=GT)

When opening the page, click on the "More" link at the end of the first bullet point that says "Choose from spin only or spin and relief grinding ..."

### Bedknife Grinding

This is also public information on the [www.deere.com](http://www.deere.com) public website that will provide some information on the importance of maintaining proper bedknife angles.

[www.deere.com/en\\_US/ProductCatalog/GT/servlet/com.deere.u90785.cce.productcatalog.view.servlets.ProdCatProduct?pNbr=BG15\\_XF&tM=GT](http://www.deere.com/en_US/ProductCatalog/GT/servlet/com.deere.u90785.cce.productcatalog.view.servlets.ProdCatProduct?pNbr=BG15_XF&tM=GT)

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