Reel mower sharpening:

Two months ago, one industry expert gave his analysis of reel mower sharpening. Here are some alternatives to consider.

by Paul Fox

When grinding the faces of bedknives on reel mowers, make your angle measurements from the center of the axle shaft to the longest radius of the blade tip. (This is the leading edge of the blade. The shorter radius is the back side of blades.) At the perpendicular point where the longer radius meets the top edge of the bedknife, add an extra 5° to determine grinding angle. The relief angle on the back side of the bedknife, meanwhile, will differ depending on the size of the reel and the amount of grass being cut.

On greens mowers and walkers, the most often used grinding angle is 7° plus a "dirt factor" of 2°. For tee and collar mowers, it is usually 9° with a dirt factor of 3°. Large fairway and pull gang units use 11° with a dirt factor of 4°. This relief angle on the bedknife is for ejecting the grass clippings and debris. When this angle is worn away by lapping, grass builds up on the back of the bedknife, causing it to rifle, which in turn leads to poor ejection of clippings and loss of cut quality.

Spin grinders achieve what is known as a convex grind. Over a three- to eight-week period, blade tips wear 60 to 100 percent, causing excessive drag. Thus, reducing the blade thickness by relief grinding is a correctly recommended solution.

An Express Dual gives a hollow (concave) grind. This is achieved by the stone hitting the back side of the blade and then grinding forward to the blade tip. This gives anywhere from 2° to 4° relief in the reel. Over the same three- to eight-week period, the blade tip wears only 15 percent.

Once the reel and bedknife are ground, the clearance should be anywhere from .002 to .003 inch. Greens and tee mowers should cut a piece of paper that has been folded in half and pinched. Light fairway and larger units should cut a business card.

Regular maintenance of the bedknife is essential to keep acceptable cut quality. This is done by facing the bedknife with a file or a die grinder. A product from Precision Small Engine, Pompano Beach, Fla., will be on the market soon that will face bedknives on the traction unit.

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Jacaranda's program

Our equipment consists of four Toro 3100s with S.P.A. reels, two Jacobsen Greensking IV greensmowers, four Jacobsen Greensking IV tee mowers, two Jacobsen 3810 fairway units, two John Deere 3325 slope mowers with old-style beaver reels, two seven-gang Toro Reelmaster rough units and two spare sets of 3100 S.P.A. reels.

All cutting units have regular bedknife maintenance, facing the bedknife. For other specifics, please consult the accompanying chart.

Modifications to the reels and frames of our 3810 fairway units made by head mechanic Jim Wicklein and myself make the reels much easier to grind and remove from the traction unit.

John Deere 3325s with the old beaver reels take 8-10 hours due to the amount of work to remove the bedknife. We have just modified the bedknife holders on these reels that could cut grinding time by up to two hours.

All spare reels are ground and ready to go whenever needed.

In seven months, I have only replaced two 3810 reel bearings on two cutting units. I haven't had to replace any on greens, tees or rough units. I've only had to replace three cutting units on slope mowers, due to factors other than grinding or lapping reels.

If you are interested in the modifications we made on the Jacobsen 3810 or John Deere 3325, contact me at Jacaranda Golf Club, 9200 W. Broward Blvd., Plantation, FL; (305) 472-5251.

—Paul Fox

EQUIPMENT | GRINDING INTERVAL | OUT OF SERVICE | BEDKNIFE LIFE
---|---|---|---
Toro 3100 | 6-8 wks. | 40-45 mins. | 4-4.5 mos.
Jacobsen Greensking IV | 6-8 wks. | 60 mins. | 6 mos.
Jacobsen 3810 | 8-10 wks. | 4.5-5 hrs. | >10 mos.
John Deere 3325 | 8-10 wks. | 8-10 hrs. | 1.5 yrs.
Toro Reelmaster | 16-18 wks. | 8-8.5 hrs. | 1.5-2 yrs.

* 1Time between grinds
* 2Time out of service during grinding

Source: Paul Fox