



Reel and Bedknife Extremes

One of a technician's many goals is to save money by maintaining the equipment in order to help increase its longevity. Getting the most bang for your company's buck on reels, without diminishing the quality of cut, raises the question of when enough is enough? My example comes from a set of greens cutting units that are used only after top dressing. My result was some serious scalping that did not occur the previous day. Specifically, I'm referring to the Toro four-bolt adjust cutting units mounted on GM3100s. After opening up a set of new reels and comparing them to the old ones there was an obvious difference in diameters. According to the factory specs, the smaller diameter on the old reels showed they were still serviceable by at least .200". According to the factory specs this was true, but in this situation it wasn't. The following were my findings after further measurements: The old reels were at 4.750", 4.780", and 4.690". Manufacture's serviceable limits are 4.500".

With the set up I was using, at .125" H.O.C., a 5.00" diameter 11 blade reel is only usable up to 4.750". Another hint of problems came into play when on final assembly the height adjuster had little to give beyond the required H.O.C.

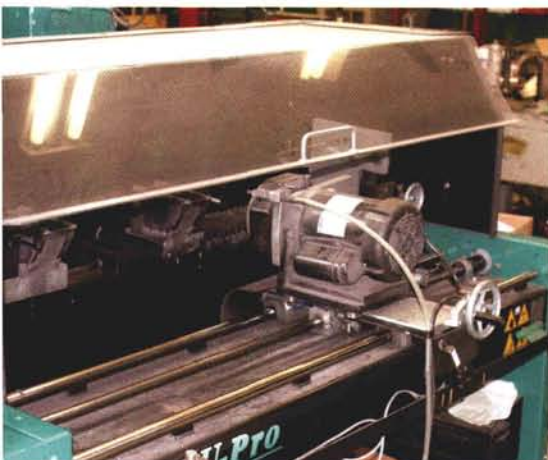
Naturally after cutting, or I should really say shoveling sand off, the greens, the cutting units are ground and bed knives are resurfaced. This time around what wasn't figured in was the extremely low height of cut we were using. Normally we're at .135", but in this case the H.O.C. was .125".

In the process of re-sharpening the reels and front facing the bed knives, the geometric relationship of the two components in the cutting unit became overly aggressive. An overly aggressive cutting unit means the reel blade is out in front of the bed knife beyond factory specifications. Also the front face angle of the bed knife is automatically changing every time it is front faced. This of course changes the attitude of the bed knife. Over time the front to back measurement of the bed knife should be taken after front facing. Compare the findings to the dimensions of a new bed knife and also compare to the other bed knives that are in place on the same traction unit if a tri-plex is used. By doing this comparison you will factor in: 1) the aggressiveness of the cutting units, 2) the uniformity of appearance of all three, and 3) how it affects the H.O.C. I have found that if ground much beyond .040" from original, it is time to replace the bed knife (this pertains to a greens cutting unit only).

Cutting through the long and short of all this, it is important to understand that as the reel diameter gets smaller and the bed knife shortens from front to back, the behavior of the cutting unit changes. To what extreme can you go? Well this time I found out the hard way.

I hope this prevents some of you from going to extremes to save the almighty buck.

From my bench to yours I hope you all are having a great summer.



A commonly used bed knife grinder. After grinding, the aggressiveness of the reel needs to be measured.