



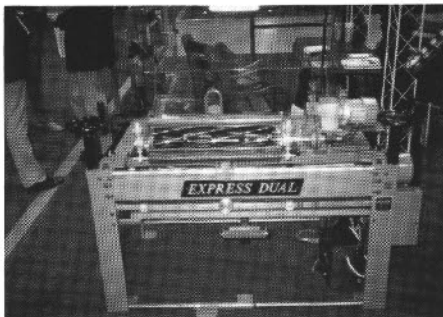
Mower Grinding— “Spin Grind It” or “How Do You Spell Relief”?

By Pat Norton

A hot topic in golf course maintenance circles this winter seems to be reel and bedknife grinding. In fact, those who attended the GCSAA Phoenix tradeshow might well have noticed the increased attention that the Neary, Foley-Belsaw, and Express Dual displays were receiving. Express Dual especially seemed very crowded and busy. They had some very revolutionary grinding equipment on display and had almost more potential customers and distributors around their display than they could handle. There is no doubt that the advent of the spin grinder has created a lot of controversy on a subject that formerly was very mundane and boring. Both nationwide and here in Wisconsin, reel grinding is suddenly a hot topic. Most WGCSA members that I've talked to have a definite opinion on grinding. It seems that there's a real lack of understanding of the spin grinding concept, even among the relief type grinder manufacturers. Needless to say, reel grinding is no longer boring to talk about, just repetitive and boring when you have to do it day after day.

So, let's talk about grinding—conventional relief vs. spin grinding, high initial cost of the spin equipment vs. long term labor and equipment wear savings, and lastly some reports from individuals who have experience with spin grinding.

Conventional relief grinding is the old tried and true method. Everybody knows, or should know the principles behind relief grinding. Foley-Belsaw does now make a spin grinder, but mainly still advocates relief grinding. Their explanation of the principles of relief grinding is a good one. They basically say that minimal contact between reel and bedknife is achieved by grinding two different angles on each reel blade, the relief grind (usually about 60% of the blade width) and the face grind or “land area” (usually about 40% of the blade width). “Zero clearance” between the reel and bedknife should result when relief grinding (or spin grinding) is done properly.



The Express Dual is the “cadillac” of the spin grinders, but carries an expensive price tag.

With relief grinding, backlapping is necessary to keep mowing units in good cutting condition once the season is underway. As the reel is turned backward, a metal grit compound is brushed on the reel. The grit compound, along with the contact between the dulled reel and bedknife removes a small amount of steel on both cutting surfaces, returning both surfaces to a sharp cutting edge once again. Relief grinding does allow easy lapping, while with spin grinding backlapping is taboo—once you backlap a spun ground reel you destroy any relief angle that the reel has had ground into it. (Express Dual claims that 2° relief is ground into each blade.) Backlapping the spun ground reel leaves the whole blade thickness dragging flat across the bedknife, making quality cutting very hard to achieve. By the way, personal experience has taught me that lapping a spun ground reel just doesn't work. This very thing happened with our new Ransomes 213D cutting units in 1985 - we tried to lap them and thereafter were lapping them quite often with poor results. Spin grinding advocates say that the correct procedure is to take that dulled reel, quickly sharpen on the spin grinder (usually about 30 minutes floor to floor) and don't ever lap again.

Spin grinding is a very misunderstood concept. Express Dual, (manufactured by Bernhard and Co. of England), is easily the best known and best made of the spin grinders. They have

a very solid, well engineered series of grinders—on this there shouldn't be any argument. The argument enters the picture when the basic concept of spin grinding is debated—most superintendents still believe in relief grinding and have had experience similar to mine. They have bought new mowers with spun ground cutting units, had them dull with wear, tried to lap them, realized that lapping doesn't work and come to the conclusion that spin grinding is a bunch of bull.

Most superintendents (or course managers) still maintain that relief grinding is the best and proper way to grind, but a modified use of the spin grinder is now pretty much accepted by superintendents, grinder distributors, and grinder manufacturers such as Foley-Belsaw. They maintain that a spin grinder is useful only for grinding the reel perfectly cylindrical and taking out any conical shape, then putting a relief back grind on with a line grinder. So there is at least some validity to the spin grinding concept.

But is there validity to the point of using spin grinding as your only grinding method? After some discussion and research with both the advocates and naysayers, I'll sit on the fence and say that you need to decide for yourself. Reinders Brothers Inc. and Ed Devinger are firm believers in spin grinding and can cite many examples of spin grinding success, as could Express Dual representatives at the GCSAA tradeshow. On the other hand, Brian Larson, service manager at Wisconsin Turf Equipment, states that they have purchased a Foley spin grinder solely for grinding reels into a true cylinder. They follow this with relief backgrind, however, as their experience has been shortened grind life with spun ground reels.

Spin grinding is gaining at least a few converts, however. Madison's local spin grinding experts are Randy Smith and Charlie Frazier at Nakoma Golf Club. They have had an Express Dual for almost two winter seasons now and report that they are impressed. For them spin grinding saves considerable in-season downtime (They don't need to sharpen as often as they once had to relap.), improves employee winter morale considerably, and virtually eliminates the need for backlapping. And, with the popularity of lightweight fairway mowing and multiple units, using spin grinding to keep mowers sharp and cutting well makes even more sense.

Smith and Frazier (sounds like the

name of a gun, doesn't it?) also report no incompatibility problems between their Express Dual reel grinder and their Foley auto traverse bedknife grinder. That's interesting in that I was convinced by the Express Dual rep at the tradeshow that my new Foley bedknife grinder was probably not accurate enough to be used in tandem with their Express Dual grinder. Was this guy trying to sell me a new grinder, or what?



The Foley Accu-Spin Grinder is designed for both spin and relief grinding.

Initial cost of the Express Dual and the Neary are about the same, around \$9000, while the Foley spin grinder is priced considerably less, around \$5700. With any of these grinders, either the economical Foley or the quality-built Express Dual, the justification for the high purchase price is the long-term labor and equipment wear savings. The Express Dual computer analysis that I completed (one with Steve Barritt from Reinders and one at the tradeshow) both showed annual savings of around \$2500 in the areas of sharpening time, backlapping time, lapping compound cost, extended bedknife life, extended reel life, extended bearing life, and less teardown and unit inspection time. So, assuming that my bedknife grinder is in good shape, I only need buy the real grinder. Simple division shows that my grinder pays for itself in less than four years. After four years this grinder saves my operation quite a bit of money, hassle and the frustration of constantly lapping mowers. The high initial cost has definitely frightened off some superintendents, but if you're sold on the concept then your decision to go with the Express Dual becomes an easy one.

Before doing this article, I really had my doubts about spin grinding. For the years that I've been grinding reels relief grinding has always worked just fine, or has it? What about all the time spent lapping tee, green, and collar mowing units (the interval between lappings

always seemed to get shorter as the season wore on). And what about all the fairway and rough mowing units that needed lapping or sharpening by July or August, but couldn't be touched because there just wasn't time to do it?

Consider changing over to spin

grinding. The soundness of the theory is good, the quality of the grinder is excellent (especially the Express Dual), and the benefits are definitely there-if the program is carried out to the letter. Check it out fellas, and do some homework on it-you might just find yourself becoming a convert to spin grinding.

Wisconsin Golf Course Superintendents Association 1987 Education Program

Once again, Carl Grassl has done an outstanding job in putting together our 1987 Educational program. Note these dates on your calendar.

Date	Location	Topic/Speaker
January 19 (Monday)	Travelers Inn Fond du Lac, WI.	Board Meeting
March 23 (Monday)	Travelers Inn Fond du Lac, WI.	Business Meeting
April 27 (Monday)	Janesville Riverside C.C. Janesville, WI.	Spin Grinding/ Steve Bernhard
May 18 (Monday)	Reedsburg Country Club Reedsburg, WI.	Winter Overview/ James Latham, USGA
June 15 (Monday)	Brown County Golf Course Oneida, WI	Pre-Emergent Herbicides Dr. Bruce Augustin
July 13 (Monday)	Lake Wisconsin C.C. Prairie du Sac, WI.	Aquatic Weed Control/ Scott Seymour
August 17 (Monday)	Bull's Eye Country Club Wisconsin Rapids, WI.	New Design Concepts/ Dick Nugent
September 14 (Monday)	Mascoutin Country Club Berlin, WI.	Golf Reporter/ Rob Shultz
October 12 (Monday)	Deer Run Country Club Brillion, WI.	Relief Grind/ To Be Announced
November 2 (Monday)	Travelers Inn Fond du Lac, WI.	Business Meeting
December 7 (Monday)	Travelers Inn Fond du Lac, WI.	Board Meeting
January	1987 Wisconsin Turfgrass Association - Seminar	
March	1987 Golf Design Seminar	
August	1987 Wisconsin Turfgrass Association - Field Day	
October	1987 Rules of Golf Seminar	
October	1987 Wisconsin Golf Turf Symposium	

Certified Golf Superintendents can gain CEU credit through attendance at monthly meetings and educational programs.