

# Mower Maintenance

Proper maintenance of grass-cutting equipment is very important in good turf management. It can decrease down-time; reduce parts and repair costs; increase equipment life; and provide a continuous quality cut.

"Good turf management means the keeping of daily records necessary in order to stay on top of how your equipment is performing," W. H. "Babe" Brinkworth, Toro's district sales manager in the West, told GOLFDOM. "We suggest a simple formula of records. Make them simple so your operators can provide you with vital information on the equipment.

Brinkworth said a good daily record will provide operation costs; the amount of down-time on the mower; serves as a replacement guide for new equipment; and provides a service guide for maintenance men to work with.

There are other essentials of a good maintenance program. A clean, neat repair shop is one of them. Also, it should be centrally located to a superintendent's operation. He said proper tools, a well-lighted workshop and a knowledgeable mechanic in charge is also important. The mechanic must have knowledge of the methods and techniques used to grind and sharpen a mower, how to maintain and adjust air-cooled engines, how to adjust the mower correctly for the type of grass the machine is cutting.

This man should be kept aware of all changes of servicing techniques and the operational procedures required for each piece of equipment on the course. He should also train operators on all equipment.

Store the small equipment away from the tractors and larger mowing units, Brinkworth said. Damage to smaller mowers by the larger units often happens. Tractor-drawn equipment should also be stored separately. Oil, insecticides, pipe and mowers are not compatible from a storage standpoint. Mowers,

fertilizers, fungicides, signs, etc. are also out-of-place stored together.

Daily cleaning of mowers is an important maintenance function. A good, clean facility will handle the larger pieces of equipment, and proper sumps to catch the grass clippings and dirt washed from the equipment are important. Most maintenance areas require a good wash rack to encourage the operators to clean their equipment.

"Where compressed air is available it helps to use it after washing to make sure the excess water is blown from the bearing and seal areas," Brinkworth said. "Some superintendents prefer to use no water — just air for cleaning their equipment. Air will remove the grass clippings, but does not do a good job removing dirt and grit."

He said the engine is the most vital part of any piece of mowing equipment, and sometimes it is the most frequently neglected in maintenance. One of the areas most often neglected is the blower housing. The accumulation of grass on the intake screen of the blower housing shuts off the circulation of air that cools the engine. Air-cooled engines have carefully designed blower housings so it forces a maximum amount of air over the head and past the spark plug to cool the engine. Most auto engines normally run between 160°F. and 180°F. Air-cooled engines run at temperatures much higher. Normal is from 180°F. to 480°F., depending on the outside temperature. Blocking the air circulation may raise the head temperature well over 700°F.

The air cleaner should be maintained in a rigid, supervised schedule. The frequency of servicing should be tied into the type of use for the unit. If it is a dirty, dry, dusty condition, the air cleaner should be cleaned very frequently. This is the only entry for dirt into the crankcase, and if the air cleaner is allowed to get too dirty, premature wear of the internal engine parts will result.

"The operating manual says clean and refill at least every 25 operating hours," Brinkworth said. "This should be the maximum amount of time that any air cleaner should be let run. When you do service the air cleaner, clean thoroughly and refill with an SAE 30 grade oil."

He said proper lubricating should be done with the owner's manual being closely consulted to make sure that the proper lubrication at the proper points is made at the proper time interval. Each piece of equipment has a maintenance chart recommending what parts should be maintained at different hourly intervals. It should be available to all personnel.

Daily or hourly checks, depending on the condition of the engine, should be made of the crankcase oil. Oil should be changed frequently to a good grade of SAE 30 oil, and proper levels maintained. Changing oil often is a good money-saver, because it prolongs the life of the engine. Gear cases need close attention on a program of maintenance. Do not let gear case oil get dirty or the level get below normal. Dirt, sand and oil make an abrasive mixture.

Reel mower maintenance must first be preceded with a condition check of the mower, Brinkworth said. A simple condition check would be:

- check the reel bearings for excessive wear
- check the reel blades for tight rivets in the spiders and end play in the bearings
- make sure the reel spiders are riveted to the reel shaft and in position
- make sure the rollers and the roller bearings are properly adjusted for the correct height and the proper torque on the bearings
- make certain the frame is not misaligned
- make sure that you have

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enough material left on the edge of the bed knife that you are going to work with.

He said the reel-to-bed knife adjustment is the most important adjustment to be made on a reel-type mower. If this adjustment is made incorrectly, a great number of things can malfunction: if this adjustment is too tight, it can rifle the bed knife; it can put undue stress and strain on the reel bearings; it can overload the counter shaft assemblies; it can

accelerate wear on belts and chains; it can overwork the engine to where it will overheat and wear prematurely.

"It is important to get a correct adjustment on the reel," he said. "I think the most important difference an incorrect adjustment can make is how the grass areas will look after the reel mower has passed over it. If it is not cut correctly, it will show up very quickly in the quality of cut. Starting with a sharp mower,

properly ground, so that all reel blades contact evenly across the bed knife, the mower should be lapped to give an air gap between the reel and the bed knife of about the thickness of a newspaper. I try to get a definite crease in newspaper rather than have it cut the newspaper. In doing this I know that if it does not cut the newspaper I have this air gap; but it can be too tight and still cut paper. Make sure that the adjustment is constant throughout the width of the bed knife, and on however many reel blades are in your reel. Make the crease six times at each end and in the middle on all six blades in the reel unit."

He said in sharpening the reel it is wise to use a reel-grinding gauge. In using a gauge in the grinder it will enable one to set up the mower correctly so correct grinding procedures can be followed. This gauge will eliminate any possible chance to grind the reel "cone-shaped." All measurements in set-up should be made from the reel shaft and not the lead edge of the reel blade. After grinding it is always advisable to lap the reel to make sure the reel and bed knife are properly seated.

Rotary mowing in the United States has grown by leaps and bounds, Brinkworth said, and so has the accident rate. Many accidents that happen are caused by minimal maintenance these mowers receive, he said. Mowers should not be used with out-of-balance blades.

"In one case, a portion of the blade had been broken off, setting up a high vibration which shook the engine right through the deck of the mower," he said. "To illustrate the cost involved on this unit, the blade could have been discarded and replaced for \$4.50. The operator chose to keep running. He ran less than an hour with part of the blade missing, and damaged a \$52 housing beyond repair. He also came close to causing a bad accident; what if the motor had broken completely off and had hit his feet?"

He said all rotary blades should be balanced and sharpened regularly, and if high vibration is felt, the mower should be taken out of service. If a nick or a piece of blade is knocked off one side, the opposite end should be ground until the blade balances on a blade balancing tool. □

The following list of suggestions for winter maintenance, though cursory, represents the items that should be checked and serviced as condition indicates. It was prepared by R. William Marberger, Jr., of Lawn & Golf Supply Co., Phoenixville, Pa.

### GANG MOWERS

- steam clean, inspect reels and bed knives, sharpen or replace as necessary
- check reel and roller bearings or bushings and seals, adjusting or replacing as required
- remove side plates, checking drive train gears, and making necessary adjustment or parts replacement
- lubricate all parts in accordance with the manufacturer's specifications

### TRACTORS

- check engine compression and rebuild or tune-up engine in accordance with condition
- drain and change all lubricants, changing all cleaners and filters; lube all points
- check clutch, brakes, steering and hydraulic system

### ROTARY AND REEL MOWERS

- check compression, ignition and fuel systems and adjust or repair; change motor oil, if four-cycle engine, and service air cleaner; winterize by placing tablespoon of oil in cylinder and cranking engine several times with plug removed
- drain fuel system and lubricate completely
- replace or sharpen rotary blades and balance
- check reels and bed knives, sharpen or replace according to condition

### SPRAYERS

- clean thoroughly, check tank and plumbing for leaks, flush out and drain
- check pump and repack, rebuild or replace as required; drain completely
- if engine-driven, follow procedure for small engine service

### AERIFIERS

- service engine and check cranks, bearings and drive train; replace tines or spoons
- check tractor-drawn aerifiers for bent or broken spoons; if majority are bad, replace entire set, keeping best of removed spoons for future replacement; you then keep spoons of equal size in the reel.