

Roland Taylor gives advice on how to ensure the best results from your cutting units

Blade runner



As the main cutting season comes to a close, it is a good time to assess the performance of your mowers and determine the necessary maintenance that will be required to ensure they continue to operate at their optimum.

Regardless to whether the mower is a cylinder, rotary or flail there is one fundamental element that all machines have in common - sharpness of the blades.

Prior to the mid 1800's any mowing of turf was done by a man with scythe and he certainly would have been continually sharpening his blade to make the job as easy as possible.

Throughout the spring and summer, with so much going on, it is easy to forget some of the principles relating to quality of the cut. Obviously the

results of a dulled or badly adjusted cylinder will show very quickly on fine turf, but with rotaries and flails on areas such as fairways or the rough the signs may be less obvious.

Cylinder Mowers

This system relies very heavily on precision - not only in its manufacturer but also when it is being set up - a fact that is very often overlooked in the environment the unit is used in. A round cylinder cuts against a straight edge, the slightest distortion will affect the performance. If the gap between the two surfaces is too great then the grass leaves are torn and seriously damaged. A symptom of this is grass folded over the bedknife. Also with this situation sand or top dressing can

be scooped between the two surfaces and cause excessive wear. Where the adjustment is too tight, severe stress is placed on the mower's components and fuel consumption drastically increases. Heat builds up, especially on multi-bladed cylinders with a thin bottom blade. This can result in fine turf being scorched.

There are three cutting surfaces that need to be accurate on these machines; the cylinder spirals, the leading front edge and the top cutting surface of the bottom blade. A fault in any one of these will cause a poor finish. Back-lapping can be carried out. This will re-establish a cutting edge but is only a stop-gap measure and the unit will eventually require regrinding if the high standards are to be maintained.

There are other contributing factors to watch out for if a machine is to operate safely. As said before, the system relies heavily on precision so cleanliness is important, a fact often overlooked. Grass deposits can build-up on the spiral blades and these need to be removed. The leading edge of the bottom blade is continually in direct contact with the surface so is liable to get worn or damaged. This can be refaced in-situ in a matter of minutes with a grinder especially designed for this purpose.

Where a mower is not going to be used for a period of time, the cylinder should be adjusted away from the bed-knife to avoid any rust building up between the two surfaces. Clean of all dried grass and other debris and spray the metal parts with WD40. Details regarding the engine in this situation are below.

Rotary

While there is less precision involved in the design, the same applies as regards sharpness. A rotary blade works best at around 3000 to 3500 rpm (blade tip travel in the region of between 80 and 100 mph). At this





speed the blunt blade will hack the grass but because of the effort involved, the blade slows down and quality of finish rapidly deteriorates; the cut material builds-up under the deck, and the machine will eventually stall. In this situation the engine consumes more fuel and oil. If the rotary mower is being used with a collector, then the airflow is reduced with a result that the clippings are not ejected correctly so the whole system becomes clogged up.

Considerable stress is placed on all the machine's components and their life can be drastically shortened.

Because rotaries are often used in hostile conditions, there is more chance of the cutting system being damaged and the unit become unsafe. In addition to speed, the rotary relies heavily on balance - a broken or badly chipped blade will cause vibration to occur, which if left unchecked will become a major safety hazard and eventually cause considerable damage.

On a pedestrian machine, it will become obvious to the operator that there is a problem due to the amount of vibration being experienced. This is not always the case with a tractor-mounted rotary. Here the driver is not in direct contact with the unit so is less likely to experience the warning signs, therefore it is important always to be vigilant and check the units regularly.

The rotary system cuts material with a relatively short length of the sharpened edge and cutting occurs only in the front half of rotation. For this reason there is usually a built-in forward tilt in the design of the blade assembly. On machines with height adjustment to each wheel, this angle can be altered so the front of the blade becomes higher than the back. The grass is then being cut both at the front and the rear (double cutting) and the system has of twice as much material to eject. Power requirement increases

by 50% resulting in high fuel consumption and blockages as the rotor speed is reduced. On mowers with multi-height adjustment, the level should always be the same for each wheel or slightly higher at the rear. If a rotary blade is sharpened it must also be balanced.

Flail Mowers

While the principle is different from a rotary, most of the details regarding maintenance and things to watch out for are the same. The rotor with its swing blades is vulnerable to damage, especially in some of the conditions these mowers are worked in. A careful watch should be kept for damaged or missing blades as this can cause vibration with all its inherent problems.

General

Maintaining a consistent drive to the cutting units is important. If either chains or belts are fitted, these may have automatic tensioning devices but they still need checking for signs of slackness or wear.

Where hydraulic systems are used, the main concern is the oil. This must be "squeaky" clean. Contamination from water or even worse dirt will seriously damage the pumps and motors. Hoses and their connectors should be regularly inspected signs of a leakage. Also be on the look out for chuffed or damaged hoses. If one of these bursts hot oil will be sprayed on to the turf and operator - not a pleasant experience. The correct hydraulic oil level has to be maintained if the system is to work correctly.

Greasing points are often fitted these will need regular attention, but be wary how much lubricant is applied. Great dollops of grease clinging to nipples attract abrasive substances such as sand and top dressing. Bearings can also be dislodged.

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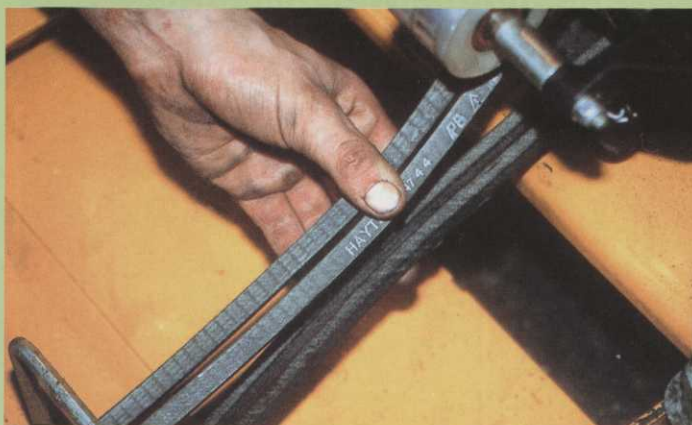
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The engine

The state of the engine is vital to everything else working correctly so it needs to be in tip-top condition. Oil is relatively cheap compared to having to replace an engine because it has seized-up so regular changes should be carried out.

A dirty oil air filter affects performance and increases fuel consumption.

Modern electronic systems are highly reliable, but spark plugs do not last forever.

All grass cutting machinery is designed to run at an optimum level of rpm and the engine governs this, so it is worth regularly checking the

engine's speed. The difference a slight drop of just 200-rpm can make is considerable.

At this time of year, machinery may not be used often and the fuel in the tank can become stale and also clog up the carburettor system. For a relatively small investment this problem can be overcome. There are fuel additives available, which will keep it fresh for up to 24 months.

Care of machinery is important not just to ensure it is trouble free and works correctly but also as far as pollution from both emissions and noise are concerned.



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