

BARONESS

Quality on Demand

Technical Information Leaflet

TIL: 046

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LM315GC

Drive Cable Maintenance & Failure Diagnosis



The LM315GC drive cables should have a service life of about 750 hours.

Regular maintenance is required to ensure that these drive cables last until this replacement period.

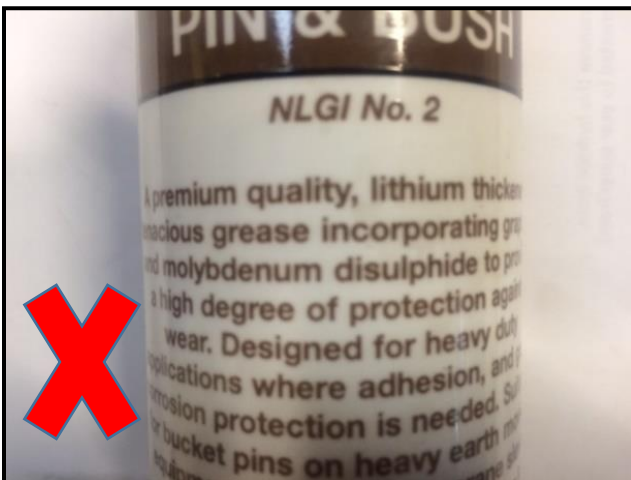
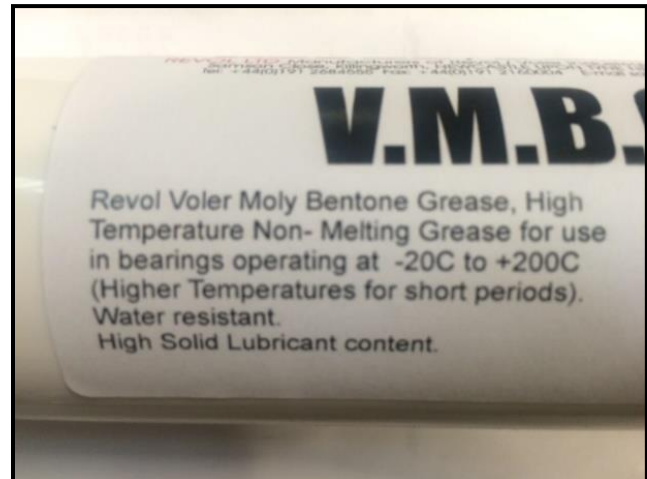
If a drive cable fails prematurely then the reason for this failure needs to be investigated before a new cable is fitted.

The cables should be greased daily using the correct type of grease.

The correct grease to use is a '**Molybdenum Disulphide**' grease that has been thickened using '**Bentone**'.

This is the only grease that will provide the required properties in order to protect the cables.

Note: Bentone thickened grease is a stable grease that does not get thinner as the temperature increases.



Do not use a Molybdenum Disulphide grease that is thickened with '**Lithium**'.

Lithium is a soap based thickener that gets thinner as its temperature increases. As it gets thinner it loses its lubricating properties and therefore will not protect the cables adequately.

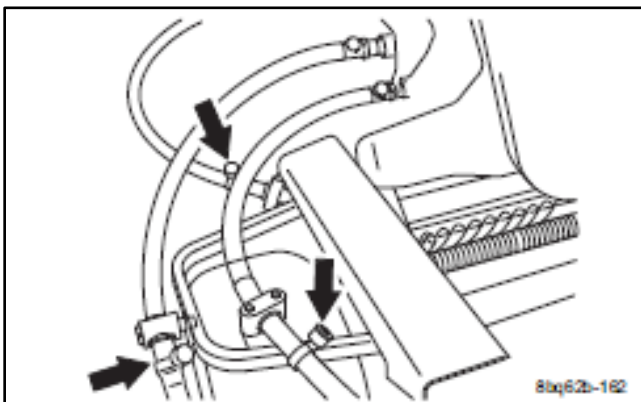
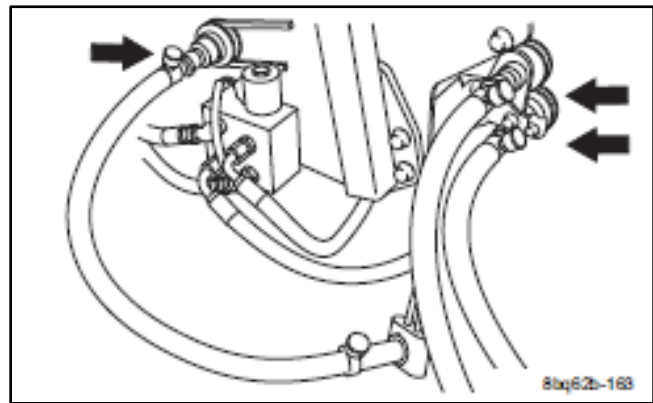
Do not use any other type of grease apart from Bentone thickened Molybdenum Disulphide.



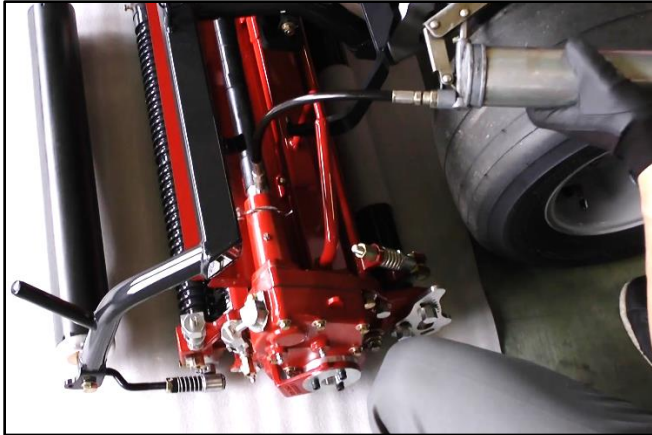
The caps of the grease reservoirs should be filled with **Bentone** thickened **Molybdenum Disulphide** grease as soon as they become empty and cannot be screwed down anymore.

Once the cap has been filled, refit the cap by screwing it on by 2 full turns.

Each of the three grease reservoir caps nearest to the engine/drive belt end of the drive cable need to be twisted by one full turn **every day** before operation. This will inject the correct daily amount of grease into the upper end of the drive cables.



Each of the three grease reservoir caps nearest to the cutting unit end of the drive cables need to be twisted by $\frac{1}{2}$ of one turn **every day** before operation. This will inject the correct daily amount of grease into the lower end of the drive cables.



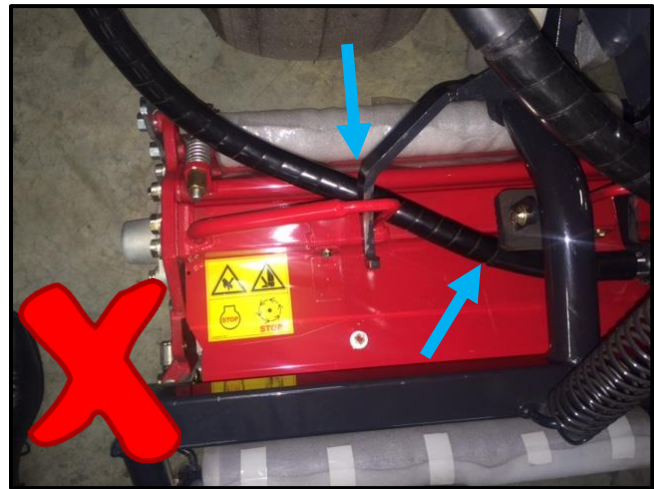
Add grease to the grease nipple on the cutting unit end of the flexible drive cable every 50 hours.

This should be about one pump from a small hand held grease gun (approximate 1 gram of grease).

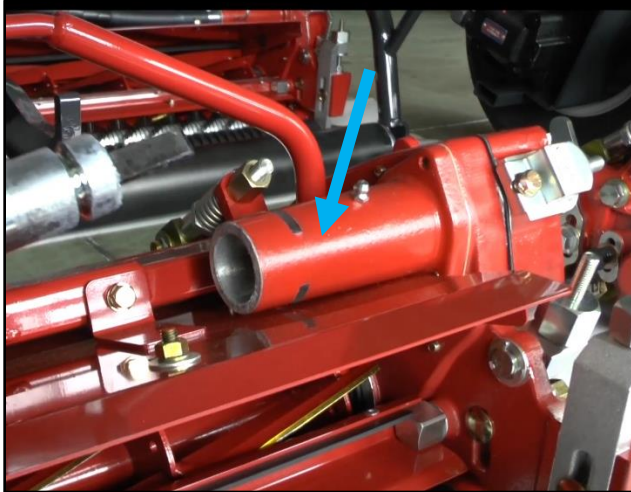
The grease used on this point should be a No: 2 grade universal EP grease and not a molybdenum disulphide grease as is used on other areas of the cables.

Check that the drive cables are routed correctly.

Make sure that they have no sharp bends caused by incorrect routing.



The cables should be routed with a long smooth curve and must not be able to rub or get trapped by any other component.

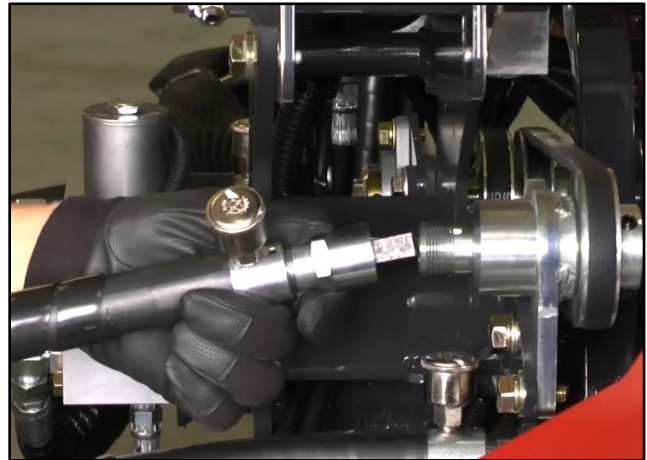


When the flexible drive cable housing socket becomes very worn and the cable fit becomes very loose then the housing socket must be replaced.

If the inner lining of the outer cable becomes worn due to a lack of grease, then a large gap will develop between the inner and outer cables.

This can then allow the inner cable to recoil inside the outer cable which can then cause the drive to the cutting reel becoming disengaged.

If the lining of the outer cables becomes worn, then the outer cable needs replacing.



When replacing the inner drive cable only, make sure that there is just one spacer collar on the flange end as shown.

It is possible that the original collar could stick to the outer cable union when the original inner cable is removed which would then result in 2 collars being fitted.

This would result in the inner cable being 'pinched' which could then cause both the inner and the outer cables to fail due to friction and wear.



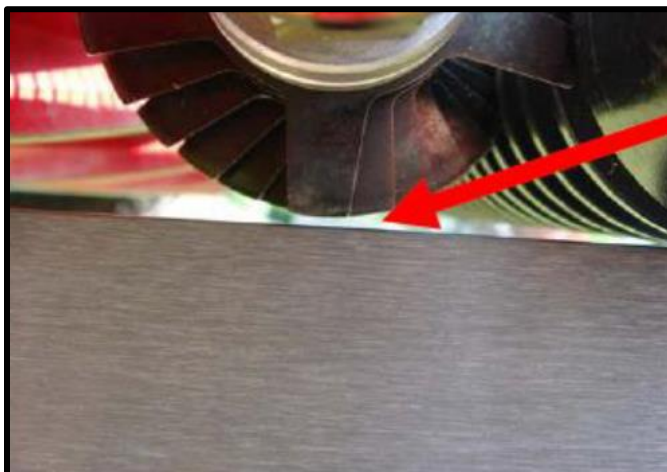
All blades should be kept sharp and should be able to cut with minimal contact.

Increasing the blade contact in order to make blunt blades cut is not acceptable as this will increase the strain on the drive cables.

If the blade relief is badly worn away, then this should be reinstated by grinding.

Make sure that the reel bearings are lubricated and adjusted annually.

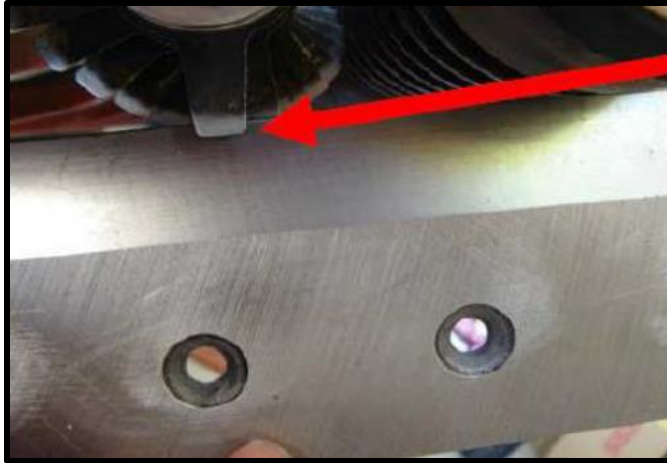
Failure to perform these tasks can cause rotation resistance which will put extra strain on the drive cables.



A groomer is not a ground engaging attachment and should never come into contact with the soil layer.

The Groomer should always have a clearance between the tip of the blades and the surface of at least 1.5mm.

If the groomer is set any lower than this, then it will put excess strain onto the drive cables which could result in a cable failing.



A Dethatching attachment is designed to run within the thatch layer, but it should not be adjusted too deep.

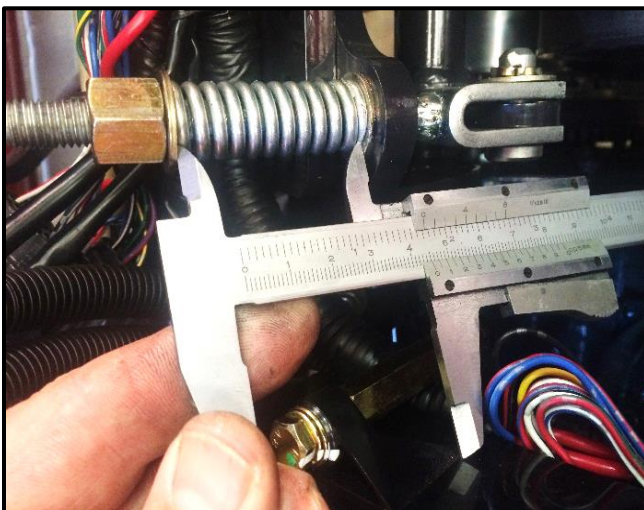
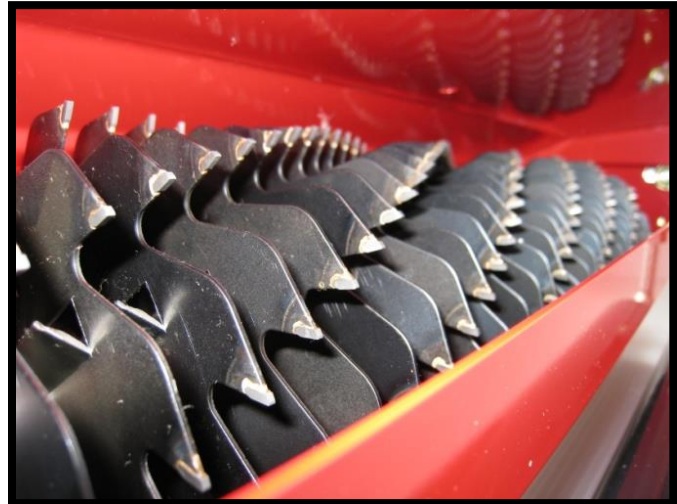
The maximum depth that the Dethatching blades should be set to is 2mm into the surface layer.

If the Dethatching attachment is set any lower than this, then it will put extra strain onto the drive cables which could result in a cable failing.

A Verti-Cutting unit is designed to run within the thatch layer, but it should not be adjusted too deep.

The maximum depth that the Verti-Cutting blades should be set to is 2mm into the surface layer.

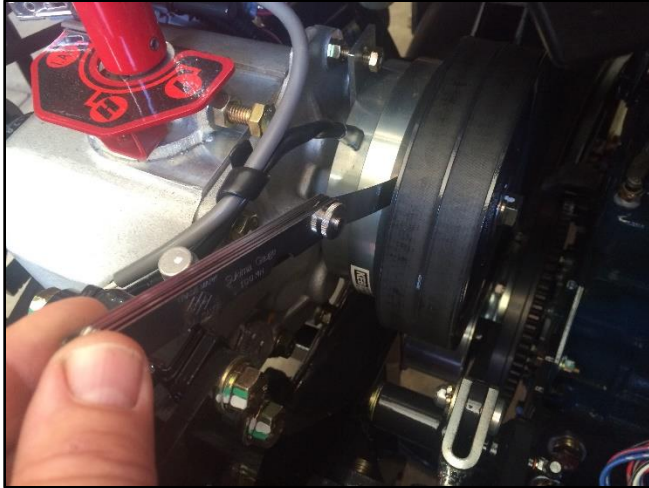
If the Verti-Cutting unit is set any lower than this, then it will put extra strain on the drive cables which could result in a cable failing.



If the drive belts from the engine to the gearbox are too slack, then the belt tension can fluctuate causing the output speed of the gearbox to be inconsistent.

This inconsistent drive speed could put extra strain on the drive cable which could eventually lead to a failure.

Always make sure that the belt tension spring is adjusted to a length of 45mm.



The electromagnetic clutch engages gradually in a series of pulses so as not to shock load the flexible drive cables.

If the clutch gets out of adjustment due to wear the pulses will become ineffective and the clutch will engage abruptly.

This could shock load the drive cables which could then lead to a cable failure.

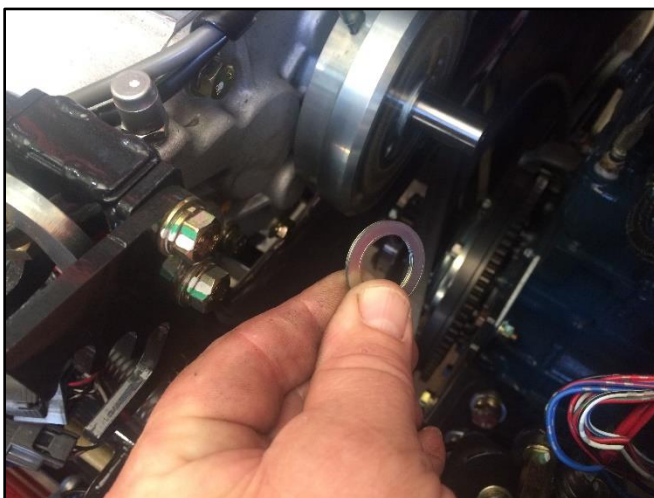
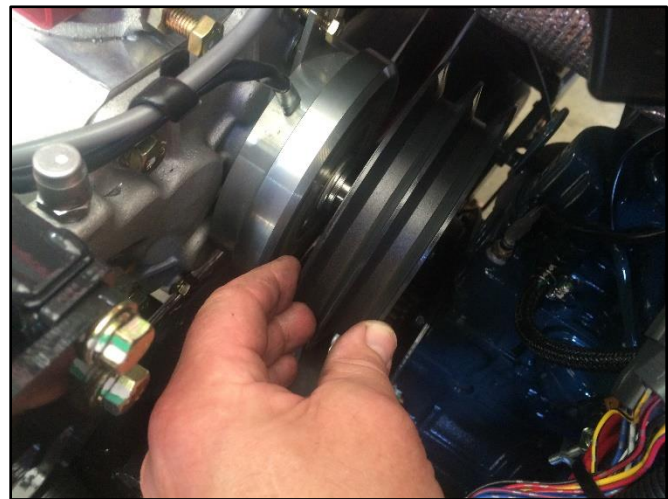
As the clutch gets older it is important to adjust it to compensate for wear.

The clutch is adjusted by a series of shims between the drive pulley and the electromagnetic clutch.

When the clutch wears, shims need to be removed to allow just a very small clearance between the clutch surfaces.

To access the shims, you will need to remove the drive pulley assembly from the clutch shaft as shown.

Use a puller to remove a tight pulley from the gearbox shaft. Do not lever off the pulley as this could break the gearbox shaft.



Remove 1 shim and then replace the drive pulley.

If the pulley continues to rotate freely remove another shim and try again.

Repeat this process until the clutch starts to bind. At this point add one thin shim to allow free rotation.

This setting will ensure that the clutch is not binding but with minimal clearance.



Regularly check the condition of the Belt Housing Bearings.

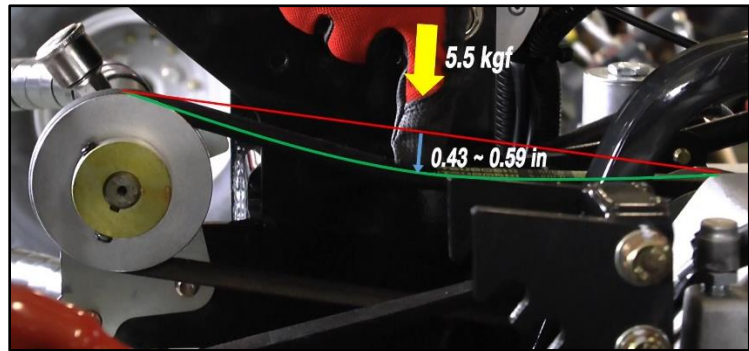
If these are allowed to get into a poor condition, then they could seize and stop rotating. This would result in the inertia from the cutting reel snapping the drive cable.

Never over tension the drive belts. This will increase friction which will increase heat and break down the grease within the bearings causing them to fail.

Always make sure that the cable drive belts are adjusted correctly.

5.5 kg of downwards force should deflect the belt by 11 to 15 mm (0.43 to 0.59 inches).

If you do not have the equipment to measure the downwards force then make sure that you can turn the belts through 90 degrees by using your finger and thumb.



Always make sure that the outer cable retaining nut is kept tight. If it is allowed to get loose, then the flared flanged can wear through and break the inner cable.

When replacing an inner drive cable always make sure that the lining of the outer cable is not damaged as a failed inner cable can damage this liner.

If when inserting a new inner cable you feel any resistance, then the lining could be damaged.



Always make sure that the golf green is in a satisfactory condition.

If the turf contains large amounts of thatch or is very wet through a lot of rain then this will cause the cutting units to sink a little lower into the green thus putting extra strain on the drive cables.

Make sure that the area to be cut is clear of debris before cutting commences.

If any debris gets caught between the reel blades, then it is possible that this could shock load and break the drive cable.

