

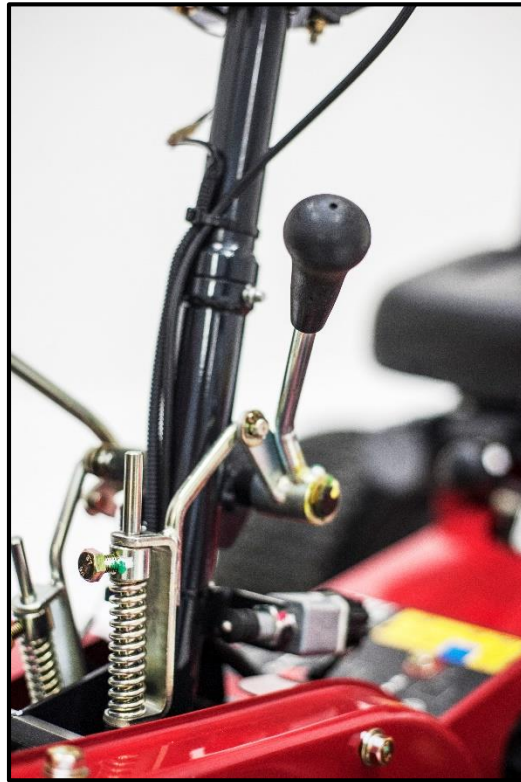
# **BARONESS**

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## **Technical Information Leaflet**

**TIL: 043**



### **LM180 Reel Mower**

**Analysing and Rectifying LB31 Drive Belt Failures**

There could be many reasons why the LB31 drive belt on an LM180 is failing. This can be due to:

- Faulty Parts
- Incorrect Adjustment
- Insufficient Maintenance

### **Belt Life**

A drive belt is an inexpensive service component that should be expected to need replacing periodically. If the machine is used heavily or the belt is getting old, then it has probably failed due to reaching the end of its service life.

### **Failed Belt Analysis**

If it is thought that a belt has failed prematurely then the first thing to do is to inspect the area that the belt failed. The way the belt has failed will then point you towards the reason for the failure. The belt will have failed in one of two ways:

- The belt has failed with a clean cut.
- The belt has failed with a frayed break.

### **Clean Cut**

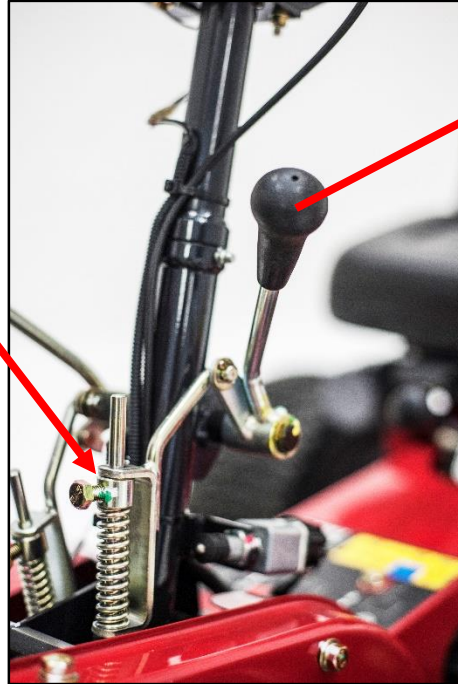
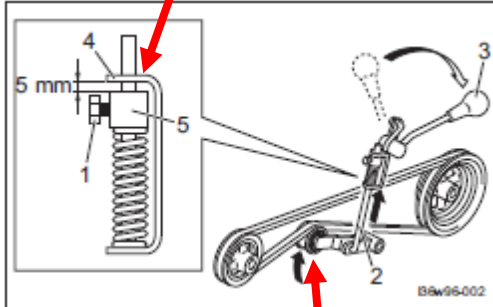
If failure is found to be a clean break, then this is probably due to the belt having come off its pulley and then having been forced between the edge of the pulley and the pulley guard which has then sliced it through. If this is the case, then the following should be checked:

- Check that the belt tension is being maintained correctly. All new belts will initially stretch a little and this will need to be compensated for by adjustment. Also, as the sides of the belt get worn the belt will sink further into the drive pulley which again will need to be compensated for by adjustment.

To tension the belt, you will need to adjust the sliding collar on the tension lever mechanism. Moving this collar will increase the spring pressure on the lever mechanism which will in turn keep the belt tensioned. The collar is adjusted correctly when there is a 10mm gap between the collar and the spring retaining bracket when the lever is fully engaged (see section 9-10 of the Owner's Operating Manual).

Please note that the Owner's Operating Manual will state a measurement of 5mm, but this is the minimum acceptable, with 10mm being the preferred setting.

With the lever pulley fully back (engaged) measure the gap here between the sliding collar and the lever bracket.



Pull the lever fully back (engaged) to check the adjustment.

Adjust the Black lever for the transmission drive belt and adjust the red lever for the cutting unit drive belt.

- Another reason for the drive belt coming off of the drive pulley is that the bearings in the tensioning pulley could be very worn. This will cause play in the tension pulley which could then guide the belt out of its drive pulley groove. If the tensioning pulley bearings are worn they should be replaced. Also make sure that the tensioning pulley is running square and true to the drive belt. If it is not, then the alignment should be adjusted.
- Another possible reason for the drive belt coming off of the drive pulleys is that the pulleys are misaligned. Use a straight edge to check that the two drive pulleys and the belt tensioning pulley are all running on the same alignment and make adjustments if they are not.
- Make sure that all pulleys are in a good condition with not chips in them. The pulleys are made from cast iron and if they suffer a very hard impact it is possible to break a small section out of them. This will then cause the belt to pick-up and be lifted out of the pulley groove.
- Make sure that the drive pulleys are clean and that the bottom of the 'V' is not full with compressed dried mud, grass or debris. A small piece of a tree branch wedged in the pulley groove can cause the belt to be lifted off of its drive pulley. To avoid this debris build up make sure that the pulley cleaning bolt is in a serviceable condition and is adjusted correctly so that it runs just clear of the base of the pulleys 'V' groove.
- Make sure that all pulley drive shafts are straight and not bent through impact damage. If a pulley shaft is even slightly bent, then the pulley will oscillate at speed which can cause the belt to be thrown from the pulley.

## **Frayed Belt Break**

If the belt is found to be broken with lots of frayed fibres around the failed area, then this is usually caused by shock loading as follows:

- The LM180C cutting reels carry a lot of inertia when rotating at speed and if they are suddenly stopped due to a foreign object (tree branch or large pine cone etc) getting caught between the blades then this can exert a very high shock load onto the drive belt which can be high enough to snap it. This drive belt is designed to be a weak link in order to protect the more expensive components such as the engine or gearbox. The operator should therefore ensure that the area to be cut is cleared of large foreign objects prior to cutting.
- Over aggressive operating of the machine can also exert high loads onto the drive belts and all operators need to be educated in order to operate this machine in a sympathetic manner.

Engaging the blades whilst the mower is moving forward at speed with a high engine RPM setting can also exert high shock loads into the drive belts, especially if the grass to be cut is long. Operators need to be educated on the correct operation of the machine as follows:

1. Only engage the reel blades when the machine is at a standstill.
2. Pull away at a low engine RPM setting.
3. Once the machine is moving open up the throttle to achieve the desired speed.
4. Do not disengage or reengage the blades whilst the machine is moving.
5. Select a gear appropriate to the length of grass being cut: 1<sup>st</sup> gear for cutting longer grass. 2<sup>nd</sup> gear for normal cutting. 3<sup>rd</sup> gear is a transport gear that should not be used for cutting unless there is minimal grass growth and a high level of finish is not required.

## **Belt Option**

If the operator will not listen to our advice and continues to operate the machine in an unsympathetic manner, then we do have the option of fitting a stronger belt. The original belt used is an 'Orange' grade belt which is matched to the required load of the machine. The stronger belt is of a 'Gold' grade but using this should be seen as a last resort as it could exert extra pressures on the rest of the machine.

The part number for this 'Gold' grade belt is: K2344031000