Why can’t I use the machine on a slope greater than 20 degrees?

A slope limitation is not something unique to the DR Trimmer or the Hunkin Trimmer. It is a limitation with all machines using a small 4-cycle engine and this would include many ride-on mowers. All small 4-cycle engines with an oil sump essentially use a form of splash lubrication. This is where a small dipper is attached to the conrod. This dipper dips into the oil every revolution and literally throws the oil around inside the machine to spread oil everywhere. For a better explanation follow this link. There is a very good little video. [http://www.ustudy.in/node/4023](http://www.ustudy.in/node/4023)

![Diagram of machine on flat ground](image1)

![Diagram of machine on slope](image2)

In Fig 1 the machine is being used on flat ground. In Fig 2 the machine is now on a slope. Notice how the dipper is now not able to dip into the oil. If the engine is used like this for any length of time the engine will be deprived of oil and will suffer permanent engine damage. In the worst case scenario, the engine would seize. Seizure in a small engine generally means a new engine is required.

To avoid this happening never operate your machine on a slope greater than 20 degrees for any prolonged length of time. Mow across slopes and never forwards down a steep incline. With steep inclines the oil can run in behind the piston which is going up and down 50 times a second. At this speed when a piston hits a body of oil, the oil is like a solid object. Something has to break and it won’t be the oil.

What does a 20 degree slope look like?

A 20 degree slope is 365mm in 1 metre, so it is quite a slope and you would have to be sure of your footing when mowing.
The type of terrain this machine mows is not smooth so there will be times when the machine is tilted *sideways*, more than 20 degrees (one wheel falls into a depression for instance) but as long as these incidents are of short duration the engine will not be harmed. Making sure the oil in the sump is at the correct level is very important. **Do not be tempted to overfill**, as this may be equally damaging, especially if going downhill.