

UPHILL

Struggle



The most unplanned events – such as going out of control on steep banks and slopes – should never be entirely unexpected, warns HUGH TILLEY. Act like a boy scout – and be prepared for the hazards

Slopes and banks are synonymous with landscaping, yet these features cause the greenkeeper many mowing problems. While some banks are obviously essential to level a tee or green etc., some slopes can be reduced in angle to allow easier and safer mechanical maintenance. Grass is a notoriously treacherous surface, particularly when damp, and many smaller and steeper slopes are currently mowed by hand with a hover mower on a rope – a somewhat hazardous operation.

However there are a number of specialised pedestrian mowers with exceptional stability and suitable drive which are able to tackle most slopes, although greater selectivity is needed if reel mowing is required. Over larger areas four wheel drive ride-ons and tractors will safely tackle relatively steep slopes, though extreme caution is needed in certain weather conditions, with certain tyres or without adequate braking. Conventional two-wheel drive provides least ability on slopes and 'ability' is most variable according to vehicle configuration and balance: a rear steer ride-on mower should be safer mowing downhill than a front steer tractor with trailed gangs – depending on the tyres.

'Steep' is often a subjective judgment by the greenkeeper, perhaps depending upon the terrain he is used to, thus it is important to define measurement of slope. There are three systems in common use; one being angle, i.e. 11 degrees, whilst two use ratio of vertical to horizontal as linear measurement (the old 'road' style), such as 1:5 or (new Department of Transport style) as a percentage where 1:1 is called 100%, i.e. 12 degrees = 1:5 = 20%. In this feature I shall use linear ratio (such as 1:5) mainly because it is easiest to measure – with a spirit level and rule/tape. Measuring some typical slopes on your course is extremely helpful as this will give some figures with which you can relate.

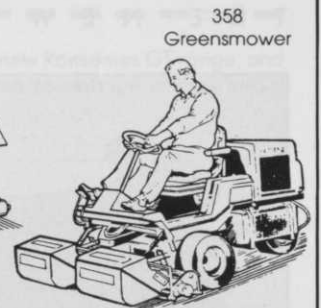
Most tractors and many ride-ons have roll-over protection, ROPS, however most slopes and banks have a run out at the bottom so loss of control seldom results in more than skid marks on the turf. ➔ 11

HUXLEYS

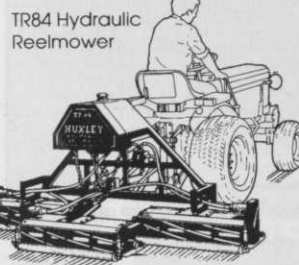
All-season turf maintenance



HU84 Multi-Depth Aerator



358 Greensmower



TR84 Hydraulic Reelmower



Royer Soil Shredder and Powerscreen

Please call us for illustrated literature on our full product range and a no-obligation demonstration on your ground.

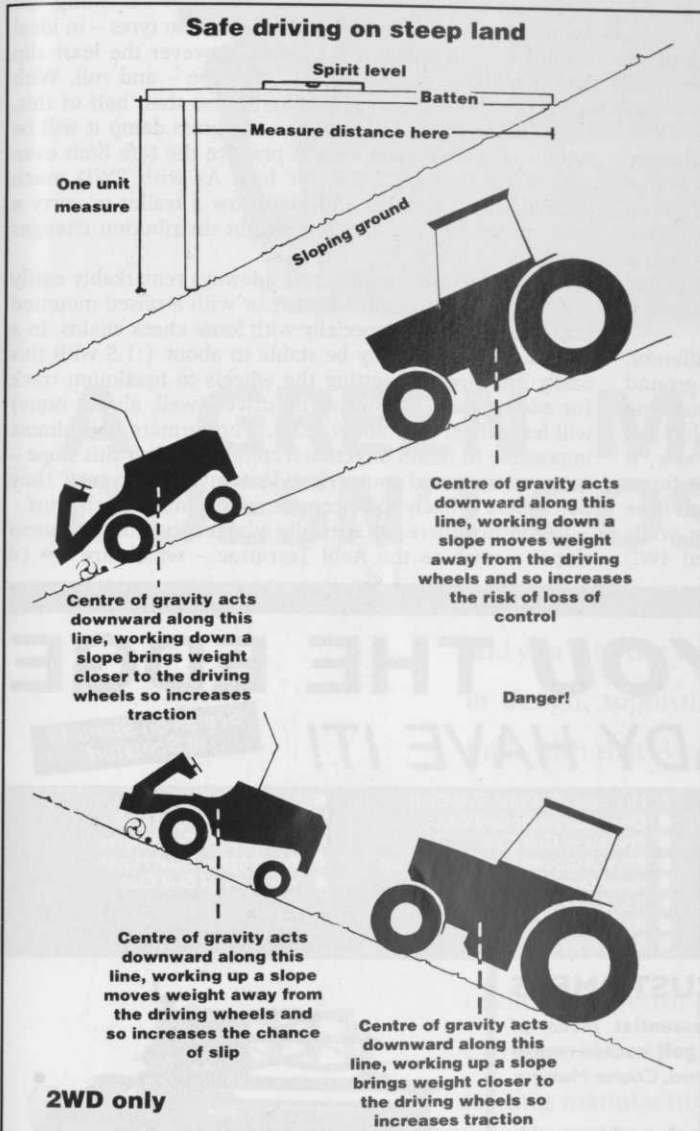


Huxleys Grass Machinery
The Dean, New Alresford,
Hampshire SO24 9BL
Tel: 0962 733222 Fax: 0962 734702

AD
REF
60

UPHILL Struggle

Safe driving on steep land



ALLETT MOWERS LTD



A CLOSE SHAVE

If you're looking for a fine cut mower for golf greens, bowling greens or cricket wickets, then you need look no further than the Allett Super Shaver. The Super Shaver can cut to within 1/16" and give a superb finish with 146 cuts per yard. All rollers are ground for absolute precision and the mower is powered by a Robin engine, which runs on lead free petrol.

For further details please contact:

ALLETT MOWERS LTD

UNIT 60, BIRKITT ROAD, EARLSTREES INDUSTRIAL ESTATE, CORBY, NORTHANTS, NN17 2DT.
TEL: CORBY (0536) 68950. FAX: (0536) 201856.

See us at Scotsturf on Stand 5

7 → Banks running into ponds or bunkers may be more of a problem and deserve more respect – even if the only real danger is of having to walk home to the gibes of your mates! Nevertheless it is extremely dangerous to be complacent: tractors can run away or be rolled over remarkably easily given the wrong set of circumstances and similarly applies to other mowers and turf machinery.

Two wheel drive machines should be safe on slopes of up to 1:6 in all but exceptional circumstances, however in dry conditions a well balanced machine will operate on a slope of up to 1:2.5 – in any direction including cross-wise – although this may feel very uncomfortable. Speeds must always be reduced when operating on sloping ground, thus allowing the operator more reaction time and minimising the danger of speed related control loss occurring. Working on a → 12

UPHILL Struggle

11 ➔ slope, especially across it, is safest with the wheels (front and rear) extended to the maximum. Greater safety comes from vehicles with all wheel braking, but only a few machines are so equipped, most having braking only on the drive axle. Be especially wary of transmission brakes. Some trailed gang mowers can be obtained with braking – such systems need to be hydraulically integrated with the tractor brakes rather than of the over-run type – and many modern tractors have a plug-in hydraulic brake coupling. Heavy (ballast) rollers are notorious for pushing a tractor and causing a jack-knife and roll-over.

Realisation of how gravity works on a vehicle (and its load) on a slope will help the greenkeeper to understand where and why the main dangers occur. Basically operating up and down slopes causes the centre of gravity to transfer the machine's weight alternatively from and away from the drive axle. When operating with mounted implements this is further varied according to the load being carried on the linkage – with spreaders and sprayers weight will gradually reduce as spreading progresses and this may reduce traction. Lifting mower units may also effect stability – for better or worse – according to the situation.

With four wheel drive the situation is radically different. Not only is there almost double the (controlled) ground contact area but operating either up or downhill causes no loss of weight from drive axles – thus no measurable loss of traction. As a result 4WD *should* be twice as safe, it isn't! When control is lost the consequence will be faster and more violent. Four wheel drive machines seldom have any more braking than 2WD so they are only safer while 4WD is engaged. Some tractors have badly located 4WD

engagement levers which can be accidentally knocked out, while some (worn) levers drop out of gear in set circumstances. In addition some early hydraulic engagement systems return to 2WD upon loss of pressure, however this is caused, be it due to stopping, stalling, low engine revs or very low oil pressure. True hydrostatic drive should give the best control as this keeps almost equal braking on all wheels, however hydrostatic drive is seldom the favoured system on hills because of its lesser efficiency – you need plenty of revs to move at all.

The other danger with 4WD is that of becoming too ambitious. Four wheel drive – with traction tyres – in ideal conditions will tackle a 1:1 slope. However the least slip and it is likely to turn across the slope – and roll. With worn or turf tyres the grip may be less than half of this, whilst if the ground is hard and the grass damp it will be significantly less again – so in practice the safe limit even with 4WD may be 1:2.5 or less. As with 2WD much depends upon weights and load: tow a trailer or carry a load on the linkage and the weight distribution changes radically.

Agricultural tractors will roll sideways remarkably easily if driven too fast round a corner or with a raised mounted implement or load, especially with loose check chains. In a tilt test the tractor may be stable to about 1:1.5 with this easily improved by setting the wheels to maximum track (or adding duals), however no driver (well, almost none) will feel safe at over about 1:2.5. Furthermore, it is almost impossible to retain directional stability at over this slope – most tractors and mowers slide away, and even if they don't there is likely to be considerable damage to the turf.

In contrast there are specially adapted 'tractors' for steep slopes – such as the Aebi Terratrak – which are ➔ 14

LET US GIVE YOU THE EDGE THESE CLUBS ALREADY HAVE IT!

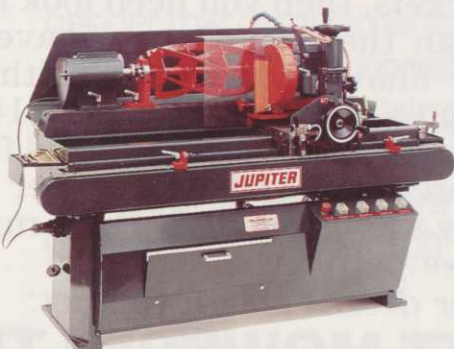
See us on Stand 19
at Scotsturf

- Carnoustie Golf Links
- Cawdor Golf Club
- Chirk Castle Golf Course
- Collingtree Leisure
- Crompton & Royton Golf Club
- Delapre Golf Complex
- Ely City Golf Club
- Gleneagles Hotel

- Goring & Streetley
- Hags Castle Club
- Harpenden Golf Club
- Kinross (Green Hotel)
- Leek Golf Club
- Lingfield Park
- Massereene Golf Club
- Mere Golf & Country Club

- Muirfield (Gullane) Golf Club
- Ormonde Fields Golf Club
- Ponteland Golf Club
- Royal Ashdown Forest Golf Club
- Royal Dornoch Golf Club
- Royal Liverpool Golf Club
- Rye Golf Club
- St Andrews

- Slaley Hall G&C Club
- South Moore Golf Club
- Tehidy Park Golf Course
- Washington Moat House
- Whitecraigs Golf Club



42" capacity Mower Cylinder and Bottom Blade Grinding Machine. A truly 'precision' grinder, built to last half a century. Used and preferred by Professionals.

SATISFIED CUSTOMERS

"The Juno is an essential piece of equipment for any golf course workshop." Mr. Alistair Connel, Course Manager, Cawder Golf Club.

"It is the best piece of machinery this course has ever invested in, a fine machine that I would recommend to anyone." Mr. John Bashford, Head Greenkeeper of the Green Hotel Golf Course, The Kinross Estate.

"A quality machine that gives a superb finish to our cylinders, and saves money." Mr. Derek Green, Head Greenkeeper of Royal Liverpool Golf Club.



The NEW JUNO 36" capacity Cylinder and Bottom Blade Grinder will accommodate every make and type of Professional and Domestic cutting cylinders and soleplates. Simple to operate, fast changeover from cylinder to bottom blade grinding.



ERIC HUNTER GRINDERS LTD

HOBSON INDUSTRIAL ESTATE, BURNOPFIELD, NEWCASTLE UPON TYNE,
NE16 6EB. TEL: (0207) 70316 FAX: (0207) 70312

