

REAL WORLD TEST
BUNKER RAKES
GREENKEEPER INTERNATIONAL

Raking the bunkers is a time-consuming chore and anything to make the task easier is to be welcomed. HUGH TILLEY examines just what's available.

Lots has been said – mostly by golfers and unprintable – about bunkers – those sand traps designed to make play more interesting.

However they need maintenance and while for the most part this is only to remove foot and pitching marks it is another chore which can consume a considerable amount of time, especially on those courses which seem to be more sand than grass. However there are a limited number of machines designed to mechanise the task although not all bunkers are suitable for mechanisation. Conventional wisdom is that some 70% can be raked by machines, or higher where the bunkers have been designed or adapted for machinery.

All machines have three wheel configuration, but some have greater power and all wheel drive, while in general the less expensive machines only have rear wheel drive and about 10 hp. Some machines are based on existing mower, or all terrain, technology which may make parts more readily available and obsolescence less likely.

Perhaps selection depends upon what is expected of the machine, but many clubs expect to use their machines for some landscaping work – and thus have equipped with them with front blades and even centre mounted cultivator rakes to enable them to scarify and push soil and/or sand around. These machines to be used to doze cores off the green and other greens work.

The most important features of a bunker rake is manoeuvrability and this is the main reason for the tricycle format. High clearance and/or short wheelbase also contributes to ease of accessing bunkers. Some machines are fully hydrostatic which should give greater operator convenience and speed of operation – but costs more. Only one operator admitted noticing any lack of power or drive with hydrostatic drive so obviously this is not a problem –

although the sample questioned was small. Mechanical drives incorporate variable speed usually with belt and variable diameter pulleys, and while these will need some maintenance and belt replacement they are relatively inexpensive. Speed between bunkers is also an important factor. With all wheel drive models the front wheel drive may be operator selectable, which is an advantage and generally allows for faster inter-bunker travel.

The tyres most often fitted on bunker rakes are 'knobbles' and although turf patterns are available these probably do not have the grip necessary for pushing sand etc, around. However where the machine is only used for raking and work on greens they may be a best option.

It is generally suggested that mechanical raking is twice as fast as hand raking, furthermore, and

perhaps more important there are important time savings in getting from bunker to bunker.

All the machines are US inspired thus some makes are only available with petrol engines, however, such manufacturers claim that modern fuel efficient engines are not expensive to run and are quieter than a diesel, and this seems to be borne out by greenkeepers with experience of both.

Another important factor for consideration in selection may be sand quality, however this is normally set by the course builder. Bunker rakes – like professional golfers – seem to like the sand firm with just the top layer 'fluffy'. New bunkers with some 100 or 150mm of loose sand can cause some problems for a mechanical rake – and golfers aren't too keen either. Given time, rain and golfers' feet and most firm up.

John Deere 1200 Bunker and Field Rake at Barton on Sea GC

Bought in 1991 and used extensively since then, but backed up by an older smaller machine of another make, Barton's JD1200 is now due to be semi retired and replaced by the newest John Deere 1200A model. However, it has served well and proved totally reliable, according to Course Manager Tony Gadd. Since purchase it has had its 10hp petrol Kawasaki engine re-ringed – in 1995 – and a new clutch installed.

Tony added that a crack in the air cleaner, which was undetected, may have hastened the need to re-ring.

Raking the bunkers is a daily chore, the operator Brian Munden, couldn't remember a day when the rake had not gone out, and the JD1200 is used for virtually all of the 92 bunkers on the two courses – with the minimum of hand work being needed. The machine was also used when the club was resited and extended, particularly for levelling and working the root zone soil over the greens. It has also been used for some other landscaping work with front plough and centre mounted cultivator.

In particular Tony has found the cultivator useful for breaking



Barton on Sea's Brian Munden aboard the John Deere 1200 Bunker and Field Rake

up pans in the bunkers to allow rain through to the underlying drains.

The JD1200 is a two wheel drive non hydrostatic machine with a hand counterbalanced lift of blades and rakes. The new machine will have extra power and Tony admitted that this will be a considerable advantage, however he is still happy with rear wheel traction and hand lift.

Prime of the good points of the machine Tony puts as reliability, and although it is petrol powered the Barton club have found it extremely economic to run, and always a good starter.

Other vital advantages listed were the JD back-up and the price – which was well within the club's budget. The local JD dealer is about ten miles away but always ready to assist at a moment's notice.

Chippenham Golf Club with a Ransomes Groom Master

Chris Sealey, Course Manager at Chippenham, said that it had taken three years to persuade the greens committee of the merits of using a mechanical rake on bunkers, however now the consensus of the players is that it has considerably improved their quality. Chris estimated that mechanising the task has halved the time taken, taking it from being a two man four hour job, to being a one man operation which now allowed one man to work on another job. Alternatively he has the option of letting the operator take the Groom Master round the bunkers with another man following up to 'tidy up', again with overall time saving and getting clear of golfers sooner.

Another advantage which was commented on was that mechanising the task had ensured that no weeds got a chance to grow in the sand.

Although the Groom Master had been on the course for only a month Chris and his assistants were extremely pleased with it. Duncan Harford, the prime operator of the machine, said the club had tried out all makes before deciding on the Ransomes machine, and the only other that came close was the Toro Sand Pro. As far as he was concerned the most important features in



Duncan Harford gets to grips with the Ransomes Groom Master at Chippenham GC

selection were manoeuvrability and ease of operation. He also commented on the greater power that the Ransomes machine seemed to have.

The Groom Master at Chippenham is a fully hydrostatic drive machine with driver selectable front wheel drive and with hydraulic lift. It looks tidy and very compact, but no comment was sought about ease of servicing.

Chris stated that he had found it important that bunkers be made for mechanical raking, i.e. with minimum corners or steep banking. At Chippenham some hand finishing is required, however no doubt the extent of this will be reduced as experience is gained with the Groom Master and the sand traps are further modified.

Some difficulty has been experienced operating the machine when the sand is not consistently wet or dry, for instance with the surface dry but with wet sand below as this has resulted in the machine producing a wavy surface.

The only service problem has been that the brakes have 'stuck on' – and the operator added that he finds the safety switch is 'annoying' – because it stops the engine as soon as he gets off the seat. There was a suggestion that despite the safety implication this may get 'shorted out.'

One of the significant advantages of using the machine is the improved consistency of the sand across the course as all parts are now raked to the same depth. The machine is equipped with blade and cultivator which will allow the club to move sand around. Another feature that Chris has found is that he can operate even if the sand is wet

and this will aid drying out.

Bunkers at Chippenham are laid with 'Terram' geo-textile over the drains, thus it was important that an even layer of sand is kept over them and that the machine is not operated too deep, but to date this has not been a problem.

The diesel engine option comes with three wheel drive as standard and although the engine is relatively noisy until it is warm no one had voiced complaints about it, however the extra power is noticed. This model is significantly more expensive but it does offer more for the money.

Brian's last word on the Groom Master was "it's a brilliant bit of kit". Chippenham has a simple machinery policy – to buy what is right for the course – thus they owe allegiance to no one dealer or maker, although it was admitted that the Ransomes dealer T H White – was perhaps the best of all those in the area. As the club does not have either mechanic nor dedicated workshop the ability of the supplier is particularly critical.

Jacobsen Smithco Easy Ride at Kendleshire GC

This brand new private parkland course just outside Bristol has just opened up its first nine holes with the second nine anticipated to open shortly. The Smithco Easy Ride was bought ten months ago by course constructor, Adrian Stiff, mainly for levelling and working the greens, thus recently appointed Course Manager Kevin Green, had no say in the specification, nor has the machine seen much work on sand, although it had been extensively worked on the site.

Kevin admitted that the Easy Ride had done an excellent job on what it had been asked to do, however, he reserved judgement on its performs elsewhere – and in the sand. Price and simplicity are in favour of the machine which was supplied by local dealer B S Mowers.

The Easy Ride is powered by a Kohler 8h.p petrol engine and has two wheel drive with a variator belt drive. To date it has some 142 hours on the clock and had needed a new variator belt, however Kevin said this was extremely quick and easy to replace without needing any dismantling. Maintenance of the whole machine is simple with very good access to the engine and drive.

The course has a lot of sand but as this had only just been laid it was expecting a lot of the machine to expect it to operate on it, added to which it had been raining just before *Greenkeeper International's* visit, thus getting



Kendleshire GC's Course Manager Kevin Green and the Jacobsen Easy Ride



in and out of the first bunker selected was not easy – and made deep marks.

Jacobsen Smithco Super Rake at Salisbury & SW Wilts Golf Club

Salisbury & SW Wilts' new Super Rake is a direct replacement of a previous machine, complete with the minor failings of that machine. However as the previous Super Rake had been on the 27 hole club for five or six years there could have been no major complaints or criticisms about it or its performance – a fact later confirmed in a phone call to Kerran Daly, Course Manager. When photographed the Super Rake had just come back from B S Mowers, the suppliers, who had re-routed the front wheel drive hoses, these chafe on the chassis and had been a problem on previous machine and so were being re-routed in the hope of solving the problem.

At Salisbury the machine is used three times a week on the bunkers of both courses, these have large lips and so only high clearance machines were considered. Kerran said that there were two machines in contention as a replacement. The Jacobsen is seen as a small neat machine which was known to fit the bunkers and it was preferred by the operators. Salisbury's machine is diesel powered with full hydraulics for both lift and transmission. Having hydraulic lift was considered to be far less fatiguing to the operator. Other than raking bunkers the machines are used for the occasional seedbed preparation, but no 'dozing' nor cultivation nor scarifying – Kerran is worried that any cultivation in the bunkers would bring up the chalk base.

Toro Sand Pro 5000 on the Oxfordshire

The Oxfordshire has three Sand Pro 5000's – but Course Manager Martin Jones only bought a third and not the whole company, when he found the first so good – he realised that the club was making increasing use of bunker rakes and that the older machines had put in a lot of hours work.

Maintaining the course to the highest of championship standards with professionals extremely critical of every aspect including of the sand has meant that Martin has had to get it right. The 18 hole course has worked its bunker rakes hard and for long hours, particularly because of the standards set, but in addition they have been found extra work on greens aeration and drag matting.

The first machine, bought in August 1992, had clocked up 3271 hours, had parts replaced to the value of 2400 and had consumed some 2716 worth of petrol. The second machine, BR2, was bought in May '93, has run for 2423 hours for a 1447 parts bill and 2200 fuel, while BR3, the March '96 acquisition, with only 206 hours has drunk 445 worth of petrol but only required 21 worth of parts.

Martin said that one reason for the high hours is that the machines have been used extensively with the Toro Pricker Aerator. This is the most undersold item on the list as far as he was concerned, yet he said that on the Oxfordshire's sand based greens, which only need the thatch to be opened up, this implement was absolutely ideal. It bolts on the back of the Sand Pros and is a fairly heavy bit of kit with an axle with small blades – giving an aer-

Salisbury and SW Wilts' Jacobsen Smithco Super Rake

ation depth of up to about 50mm – although the aim at Thame is only to penetrate about 38mm deep. The other use for the machines has been drag matting, they have a tow hitch and two 'L' shaped brackets to allow the mat to roll and be carried.

Another option which has impressed has been the spring tines which Martin said gave as good a finish as the standard rakes. The club has replaced its straight tines on the rakes with ordinary bolts, which are much cheaper than original parts, but perhaps more important on The Oxfordshire are not as long.

Although the machines are used extensively on greens, Martin said he did not believe that turf tyres were necessary – the knobbles did not mark the grass as the bunker rakes were very light and have wide low pressure tyres. He also commented on the fact that as he got used to the machines he was finding more and more work for them.

Another comment was that he

was certain that he should do more aeration of the greens – perhaps even daily whereas in fact it was only being carried out weekly. The advantage of the pricker aerator was that it did not make any damage on the greens – thus it can be carried out regularly.

The course has 145 bunkers and these are raked virtually daily. Early in the course's history compacting the sand had been necessary, and while the club had hired plate compactors, Martin said that the most effective means of compaction has proved to be wheeling with the Sand Pros.

The machines are powered by Briggs & Stratton Vanguard 'Vee' twin engines which Martin said are very economic and quiet. All have operator selected three wheel drive, and hydraulic lift on the rakes. Overall the machines have proved to be extremely reliable.

Martin Jones, Course Manager at Oxfordshire GC, and Toro Sand Pro

