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“ I really wanted to develop my education but had to fund my own training, so I contacted BIGGA to ask for financial support. A refund of my course fees has enabled me to complete my chainsaw maintenance and cross cutting, felling of small trees and my PA6 spraying certificates. I really do appreciate what BIGGA, with the support of the Golden and Silver Key Companies, has done for my career. ”

Murray Mannall, Greenkeeper



“ The support for this fund has enabled BIGGA to enhance the value of being a member, and it has previously given many greenkeepers the opportunity to further develop their careers. As an association we owe our Golden and Silver Key sponsors a huge vote of thanks. ”

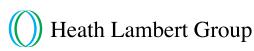
John Pemberton, Chief Executive



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The first of a new series in which James de Havilland takes a closer look at the intricacies of current machinery

The anatomy of... a Greens Mower

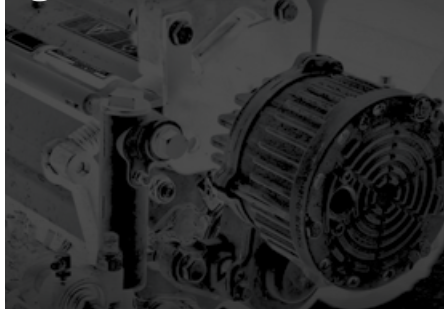
The John Deere 2500 greens mowers have a great deal in common, but are very different mowers...

Built around essentially the same running gear as the established John Deere 2500B greens mower, the 'hybrid' 2500E is now a well established model in the UK. Here we take a closer look at both models, outlining what they share and where they differ.



Step-by-step Analysis...

John Deere 2500 greens mowers



Brushless reel motors are well proven and liked for their ability to deliver precise cut speeds. As with all greens mowers, Deere places great emphasis upon quality of cut. Note the roller brush; users can specify a range of cutting unit options.



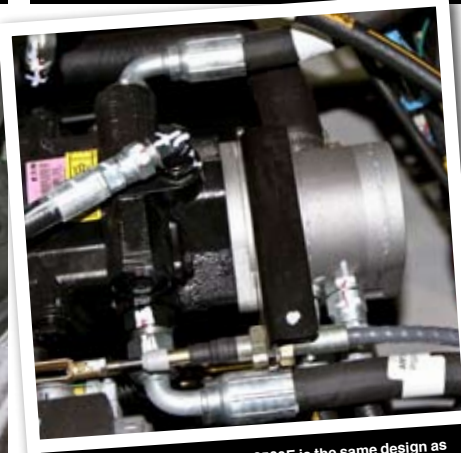
From the operator's point of view, there is little to tell the 2500B and 2500E apart from the seat. The latter mounted on a sloping rail to raise it as it is adjusted back. Steering column adjusts for reach.



At a modest 2,250 engine rpm, the powerful alternator on the 2500E will deliver enough 'juice' to power the cutting units at the desired cutting speed. In work, the engine can be throttle back, cutting noise and fuel consumption.



Below the command arm is a small cubby which can have a net cover. Greens mowers are designed to be light and compact, but a bit of storage space never goes amiss. Users can choose between smooth and tread pattern tyres.



Traction motor pump on the 2500E is the same design as used on its all-hydraulic sibling, the 25000B...

(continued on next page)

Calling the hydraulic-electric John Deere 2500E a 'hybrid' mower is somewhat misleading. Most of us associate the word 'hybrid', at least in the automotive sense, with a vehicle that has an engine with a large battery pack to power electric drive motors.

The engine provides generating power to keep these batteries topped up, chiming in when either more 'oomph' is required or when the batteries are in need of a charge.

The John Deere 2500E is different; a powerful 48 volt, 90 amp alternator directly powers the cylinder electric motors. There are no batteries involved and drive to the wheels is via conventional hydrostatic drive.

It is important to get this point established from the outset as there are still those who think the 2500E carries a heavy battery pack. In fact the 2500E and all hydraulic 2500B are pretty similar weight wise, the 'electric' models having a weight penalty of perhaps 22kg or so.

The electric advantage

Because these two greens mowers share the same cutting units, chassis and engine, John Deere is well placed to argue the case for and against electric drive. On the downside, current electric systems do add a bit of extra weight and it is fair to say there is better industry wide expertise in the understanding of hydraulic drive systems.

On the plus side, the electronics and components used on the 2500E are now well proven. If something goes wrong, swapping failed components is not difficult. There are no hydraulic fluids to deal with either. But this is not as important as the way in which the 2500E cuts grass.

"With a greens mower, the priority is quality of cut," said Henry Bredin, John Deere's UK Product Market-ing Manager - Turf Equipment.

"When we talk to customers about the 2500 series this is our starting point. The fact we offer electric cylinder drive on the 2500E

is important. We can demonstrate the system works well and can reduce operating costs. But quality of cut remains the most important issue".

So does the 2500E do a 'better' job than the hydraulic 2500B? Short answer. No. More considered answer is that the 2500E may offer some advantage. The cylinder speed can be precisely matched to the job in hand and full motor torque chimes in as soon as power is applied. This ideal for mowing as it ensures a cutting unit is up to speed pretty much as soon as power is switched on.

"Although we can argue the merits of electric over hydraulic power we tend to look at more obvious advantages," added Henry.

"A key feature of the 2500E is that it can be operated with the engine running at a reduced speed. This cuts noise and vibration and, of equal importance, can reduce fuel use too".

It is always difficult to say by just how much any given 2500E will save on diesel, but Deere suggest



... the 2500B having three independent pumps to power the cutting units, the raise lower function and steering respectively.
(continued from previous page)



Both 2500 models have Command Arm diagnostic and more advanced 'under hood' diagnostic system. Light pulses will flash in a set sequence to identify key faults, such as a faulty engine glow plug.



A common control theme is part of Deere's design, the command arm retaining a yellow colour for throttle controls and orange for engaging drive. General ergonomics of Deere mowers is well liked by operators.



Separate travel pedals feature on both the 2500B and 2500E. As with any item of kit it can take a while to get used to different control types, particularly is you are used to a 'heel and toe' pedal design.



As with most manufacturers, John Deere makes subtle design tweaks to its mowers year on year, the catcher mounts...



... of 2010 model year 2500 mowers having been refined to ensure even less weight is passed back to the units when the catcher is full.

fuel use can be cut by up to 30% when compared to the 'B' model. In practice, the 2500B hydraulic motors need the engine to spin at rated speed of 3,000rpm for the hydraulic pump to deliver the right flow.

On the 2500E the alternator generates enough juice to spin the cylinders at the right speeds with just 2,250rpm engine speed. The only time the operator will want to apply full throttle on an 'E' is when travelling between the greens, the traction motors demanding full flow if the top travel speed is to be achieved.

So what else is different?

The back lapping procedure differs slightly between the 2500B and 2500E. In broad outline, the hydraulics on the 'B' relies upon a micro valve to prevent the cylinders stalling when the back lapping paste is applied. No extra intervention is required on the 'E'.

Is that it? Well pretty much, yes. The 'E' does not need any special tools to look after and can be treated pretty much the same as a

'B'. The only caveat is when it comes to pressure washing. Electronic systems of any type are not over fond of moisture.

Summary

John Deere charges a premium of around 6% for its 2500E. In practice, most operators suggest this is worth paying not just for the 'E' offering potential savings in operating costs but also for the way in which the mower operates.

Downsides to 'E' ownership? Deere is candid enough to admit that they have learned a great deal since they introduced the 2500E into Europe in 2004, early issues causing dealers and Deere, at Langar, more than a few headaches. But the 2500E is now a well refined product, and an ideal alternative to the 2500B.

"We offer end users a choice. The 2500E may not suit some golf courses. But where these mowers have been in use for a number of years, feedback has been positive. Those that have an 'E' are unlikely to buy a 'B' at replacement time," said Henry.

To back lap or not to back lap

There are those who suggest back lapping is a shortcut to destroying the relief grind on a fine turf mower and, as such, something to be avoided at all costs.

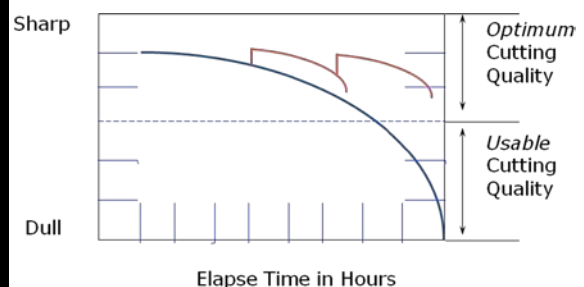
John Deere suggest back lapping can be a useful tool in helping to keep a cylinder sharp, and judicious back lapping can extend the period between needing to regrind.

"A relief grind is used by all the key fine turf mower manufacturers," says Henry Bredin.

"At John Deere we see back lapping as a useful tool to help keep cylinders and bottom blades sharp.

"It is not an alternative to spin grinding and maintaining a relief. In practice, a light back lap may extend the period that a cutting unit will deliver a premium quality of cut. Back lapping is not designed to restore a cutting edge to a blunt cylinder and bottom blade".

Graph to show back lapping can help retains optimum cut quality (see red lines)





Cutting units. Set up to cut exactly level

John Deere will set the cutting units of its 2500 series greens mowers in the factory so they run exactly parallel to the ground.

This is critically important in ensuring each unit will cut at exactly the same height as its neighbour and ensure an even cut height across the working width of the mower.

In practice, it may be necessary to fine tune the units that have been in service for a while, fine parallel adjustment being built in to each unit.

It is a small detail, but Deere claim this enables a 2500 mower to deliver a top class cut even when the cutting units have been in service for several years.



ABOVE AND LEFT: John Deere 2500 greens mowers come in two variants, the 'conventional' all-hydraulic 2500B and 'hybrid' 2500E. This uses a 48 volt alternator to drive brushless electric motors to power the units. The wheels use the same hydraulic system as 2500B.



Slight unit offset from the centre line is designed to help counter the 'triplex ring'; alternating the direction when doing the clean up cut will ensure the unit's wheels do not follow the same path each time the green is mown.

**Outline specifications:
John Deere 2500B and 2500E greens mowers**

Type	JD2500B	JD2500E
ENGINE	Yanmar IDI Diesel TNV70-XJGM	Yanmar IDI Diesel TNV70-XJGM
Power	14.6 kW (19.6 hp) @ 3,000 RPM	14.6 kW (19.6 hp) @ 3,000 RPM
Number of Cylinders	3	3
Displacement	784 cc	784 cc
Fuel capacity	29.9 litres	29.9 litres
WEIGHTS AND DIMENSIONS		
Wheelbase	129.5 cm	129.5 cm
Tread Width	101.5 cm	101.5 cm
Turning Radius, Uncut Circle	45.7 cm	45.7 cm
Weight (less fuel and operator)	637.3 kg	659 kg
CUTTING UNITS		
Number	3, Patented offset design	3, Patented offset design
Size	56 cm (22 in)	56 cm (22 in)
Back lapping	On Board Micro with speed control	Variable adjustment
Clip Frequency	0.71 mm/kmh (0.045-in per mph) with 11 blade reel; 1.14 mm/kmh (0.072-in per mph) with 7-blade reel	0.71 mm/kmh (0.045-in per mph) with 11 blade reel; 1.14 mm/kmh (0.072-in per mph) with 7-blade reel
Front Rollers	Optional, smooth, grooved or spiral	Optional/smooth, machined grooved, or spiral
Cylinder diameter	12.7 cm (5 in)	12.7 cm (5 in)
Bottom blade adjustment	Blade-to-cylinder	Blade-to-cylinder
Height of Cut	2.0 – 19 mm (5/64 – 3/4 in) or 16 – 32 mm (5/8 – 1.25 in)	2.0 – 19 mm (5/64 – 3/4 in) or 16 – 32 mm (5/8 – 1.25 in)
Number of Blades	7 or 11	7 or 11
Cylinder speed	User preference	User preference



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*Winning products...
Smashing prizes!*

Win an unforgettable 'Wimbledon Weekend' courtesy of Rigby Taylor

Rigby Taylor is serving up a fantastic double for visitors to their stand during Harrogate Week. An exciting new product launch and a fantastic competition where the prize is a pair of Centre Court tickets for the 2010 Wimbledon Lawn Tennis Championship.

And, if that wasn't enough, the winner also receives overnight accommodation at a top London Hotel.

Just visit the Rigby Taylor stand C23 where staff will

be on hand to explain how to enter the competition.

It's not just reserved debenture seats that the winner will receive but a hospitality package that includes champagne reception, à la carte luncheon, afternoon tea with strawberries and cream, complimentary bar, car park pass, souvenir programme and more.

The competition will be held over the first two days of the exhibition (19-20 January) and the winner will be announced at 4.45 on the Wednesday.



Rigby Taylor Ltd
www.rigbytaylor.com

* Only bona fide, practicing greenkeepers, groundsmen, landscapers and local authority amenity employees will be eligible to enter.



A Rookie's Guide to Harrogate Week

You're about to attend your first ever Harrogate Week and are understandably apprehensive about how you will get on. This Rookie's Guide to Europe's Biggest (and best) Indoor Sports Turf Week will help sooth the nerves, according to Scott MacCallum.

It can be a daunting prospect if you are facing it for the very first time. You've listened to countless stories, increasing in frequency and decreasing in believability, as January approaches and with Christmas now behind you Harrogate Week is about to start.

So how do you make the most of trip and what can you expect from your first ever visit to the "Greatest Show in Sports Turf".

To make the most of the week, you will have booked your Continue to Learn programme well in advance securing your place on

one of the popular Workshops and making sure you have a room in one of the many hotels, guest houses or B&Bs. It's always best to speak with your BIGGA Regional Officer—numbers are in the magazine – to see if any block bookings or other arrangements have been made of which you can take advantage. You will have also pre-registered for the week to prevent you from having to queue to get into the Halls on Show mornings.

Getting to Harrogate cannot be easier. Again, speak with your Regional Officer and ask what options are available. It may be that a bus has been arranged, either by

the Region or sponsored by one of the companies within the industry and you can book a place on that either free or for a charge that would beat any other method of getting to your destination.

If you drive, you can take advantage of the Park and Ride Scheme, open Tuesday, Wednesday and Thursday, which enables you to park on the Yorkshire Show Ground on the outskirts of the town free of charge and take a free bus to the Exhibition Halls. It means you avoid having to pay parking charges in Harrogate. Even if you are staying in a Hotel it may be worth considering as some of the





Hotels now charge to leave a car in their car parks.

So you've arrived at the fabled North Yorkshire Spa town, checked into your room and are ready to start your Harrogate experience. What next?

Well, if you have arrived the evening of the night before to be in good time for the start of your Workshop you are in for a treat. A stroll into town for a bite to eat is always an experience. Chatter in the bars and restaurants has a real agronomic flavour and wherever you look you will see familiar faces – colleagues from your Section or people who you recognise from the magazine or website.

But you will be no outsider. Harrogate Week is the most inclusive of all events. No fellow turf professional is left to sit in the corner of a room alone, at least not if they don't wish to be. However, an early night is a smart move as you will wish to be on top form for the start the next day.

In the morning, after a hearty Yorkshire breakfast, you will make

your way to Harrogate International Centre and the Queen's Suite where your Workshop will take place. Once you have registered with the BIGGA staff and grabbed your first coffee you will meet your tutor and your fellow students.

If you haven't met any of them before you can be sure that by the first break you will be firm friends – such is the togetherness created by approaching a new challenge or task as a group. From that moment on Harrogate will never again be a daunting prospect but merely one which sits penned into your calendar until the final date has been ticked off and you can meet up with your friends again.

With CPD points on offer, and the quality of the trainers used at Harrogate Week top notch, the Continue to Learn programme is unrivalled in Europe and by taking advantage of the Workshops and some of the excellent Fringe Seminars which have become a part of Harrogate Week in recent years a career boost is often a consequence.

Having made new friends during



the day and met up for dinner in a local restaurant that evening you are more than ready to "Hit the Halls" the following day.

With so much to see it is best to take a little time to sit down and plan your campaign.

Another useful tool in this regard is the Harrogate Week website – harrogateweek.org.uk – where you can pre-register but where you can also take advantage of the Product Guide which will give you a guide as to what you will see in the Halls.

There is a load of useful information on the site and it is well worth logging on regularly to see what's new.

Once you have arrived you can use the map you are provided with either at the Show or in your magazine and find out in which of the Halls the companies you wish to see are located and plan the order in which you hope to visit them.

There is a good chance the person you wish to see will be involved with someone else when you get to their stand but it is still best to plan your visits. An ad hoc approach can





easily lead to you missing out a chunk of the show not going on to a stand you had originally intended visiting.

A show is the ideal opportunity to clinch a deal for a piece of machinery or product as often there are "Show Deals" available which can end up saving you quite a bit of the club's budget. Seeing representatives at Harrogate is also an ideal opportunity to set up demos at your place of work for later in the year when you will be able to see the machines operating in their natural environment.

As you will have discovered from earlier in your week much of what you take for the Week is what goes on "après show" in the bars and restaurants but it is wise to ensure that you don't burn the candle at both ends and are sharp for the following day.

More often than not your visit will have been funded or part-funded by your employer and you owe it to them to make as much of your show hours time as you possibly can.

That said it is worth considering the BIGGA Social Night on the Tuesday night which is a fun evening. This year it has a Wild West theme, featuring gaming tables with a prize to the person who accumulates the most chips, arcade games and a bucking bronco.

When you return to your place of work it would be a wise move to write a report on your Harrogate trip outlining what you learned from your Workshop and how it will benefit you in your day-to-day life and what you gleaned from your time in the Halls – new machinery or materials that may improve the product for which you are responsible.

It may be something that you can put into your budget once you've given it a successful demo.

The last thing you will see when you leave the Halls will be the dates of Harrogate Week 2011 and you will be desperate to return with all your new found experience

Tips for Harrogate Week

- *Speak with your Regional Officer when you decide to attend Harrogate to see if there are accommodation and/or travel opportunities in place.*
- *Make sure you book any Workshops you wish to attend early to avoid disappointment. Popular Workshops do book up extremely quickly.*
- *Pre-register. It will avoid you having to queue up at the Halls when the Show starts.*
- *Take advantage of the Park and Ride Scheme if you are bringing a car to Harrogate.*
- *Don't be shy. You are only the "Newbie" for a very short time and everyone is very quick to bring you into the fold.*
- *Decide upon whom you wish to see during the Show in advance and plan accordingly. Wandering around looking for a company wastes time and there is a lot to pack in during Show days.*
- *Write a report for your employer on your return identifying what you learned and have taken from your time away in Harrogate.*
- *Enjoy yourself! But always remember the reason you are in Harrogate.*

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