

James de Havilland takes a closer look at the intricacies of current machinery

The anatomy of... Electric mowers

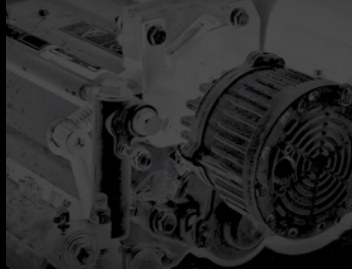


Modern electric and hybrid greens mowers benefit from years of development. A key point is that you have a choice, ranging from full diesel hydraulic mowers right through to fully electric models.

Slow burning move to electric drive?

When Jacobsen launched its Greens King Electric mowers in the '90s, some predicted this would herald a new dawn in the use of electric power. But rather than concentrate upon the mower's plus points – there are a large number of these mowers still at work – detractors focussed upon where electric power had a weakness, such as having insufficient power to drive groomers and roller brushes or run out of power prematurely. But that was then. Where are we now?

Step-by-step Analysis... Electric mowers



John Deere retains mechanical power to the drive roller on its 220E pedestrian greens mower. The cutting unit is of the same design to that fitted to the ride on 2500 series, the floating head offering a fully variable clip rate. Note ridges on catcher. These aid sighting when aligning bout passes.



Allett has invested a great deal in making the ELMOW not just quiet and efficient but also easily fine tuned to suit conditions. The mower's controls allow the forward speed of the mower to be readily adapted to suit the operator without impacting upon the quality of cut. So operators who walk at a different pace can easily adapt the mower to suit without alerting the clip rate.



Battery powered pedestrian mowers are not new, but what has changed is the sophistication of modern units. A key emphasis is upon quality of cut, electronics enabling great precision when it comes to clip rate. Modern lead acid batteries also pack more power and staying power, reducing the risk of running out of puff half way through a job.



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In full electric form, the Jacobsen Eclipse E322 is powered by six 8 volt batteries – two are mounted under the main pack of four - with a single point top up system making maintenance easier. A full charge should deliver 3 ¾ hours of running.

John Deere introduced its 2500E 'hybrid' ride-on greens mower in 2005 and with it helped re-kindle wider interest in the use of electric power.

Like the well-established Jacobsen pedestrian E-Walk 100 electric greens mower and the Ransomes E-Plex of the 90's, the 2500E benefitted from the ability to deliver precise and repeatable speeds for the units, quality of cut listing among these mowers key selling points.

John Deere, however, continues to retain hydraulic drive to the

traction motors of the 2500E, arguing its hybrid system delivers the right balance between proven technology, affordability and ease of use. Although the 2500E is now recognised as being able to deliver improved fuel economy when compared to its all-hydraulic 2500B alternative, consistent quality of cut has helped the 2500E win over those who perhaps were wary of switching for proven hydraulic s to electric motors. By 2010, Deere suggests its hybrid and all-hydraulic ride on models were selling in pretty even numbers in the UK.

Ransomes-Jacobsen, in the meantime, had been looking to develop a ride-on greens mower that eliminated any form of hydraulics. The result was the Eclipse 322, with UK sales starting to take off last year. Not only does this mower have electric traction motors, the steering system is also electrically powered and the units are raised using motorised screw jacks too.

What makes the Eclipse 322 even more interesting is that because it has no hydraulics it also can be offered in all-electric form. So where the 'hybrid' is powered by a 2-cylinder liquid cooled 13.3hp Kubota diesel, the all-electric model is driven by six 8 volt deep-cycle lead acid batteries. Ransomes-Jacobsen suggests these will deliver a run time of up to three and three quarter hours from a single overnight charge. This

should be sufficient to cut up to 21 greens in good going, reducing to up to 12 holes if grooming with roller brushes. The batteries should have a life span of between 750 to 1,000 charge cycles.

Back to pedestrian models, and John Deere's 'hybrid' 220E pedestrian greens mower has enjoyed increasing sales thanks to its ability to deliver a consistent quality of cut - Deere has adopted a fully floating cutting head for the mower as standard as this is easier to achieve with electric drive. Like its ride-on sibling, the 220E uses an internal combustion engine to generate the power to drive the cutting unit, but retains mechanical drive to the roller.

Again, Ransomes-Jacobsen has taken a different route, its Eclipse 122 models launched in 2008 featuring full electric drive. This enables the mowers, which are offered in standard 122 fixed and 122F floating head variants, to again be either battery or engine powered.

Other developments

In development for several years, the all-British Allett ELMOW electric fine-turf mower also benefits from advances made in battery, motor and controller technology. A key aim was to develop a mower that not only produces an exceptionally high quality finish but also does so in near-silence with low Hand Arm Vibration.

So what is Toro up to? In short, the company will unveil its new 'hybrid' and battery powered models later this year. Importers Lely UK has been working hard to ensure the new mowers will be up to the prevailing conditions in the UK, making no secret of the fact that the all-new Greensmaster Triflex is to be offered in both conventional and hybrid forms.

The company will also introduce new pedestrian models, the forthcoming Greensmaster coming in 18 and 21in versions with a choice of petrol or, in an industry first, eFlex lithium-ion battery power. Although these new models have been launched in the US, it is perhaps premature to go into too much detail ahead of their UK launch as some details may change.

What is clear is that the use of electric motors and battery power is increasing. And it is not confined to 'greens' mowers either. The John Deere five-gang 7500E hybrid fairway mower is currently selling as well as its conventional hydraulic 7500 sibling (and its 8000E and 8500E are not doing badly either). To suggest we are seeing the beginning of the end of hydraulic drive for some categories of mower would of course be wrong.

But what we are seeing is real progress and development, with some interesting developments that could lead to remote mowing in the future.



Soon to be launched in the UK, the all-new Greensmaster Triflex is to be offered in both conventional and, as pictured, hybrid forms. Pedestrian models will also be offered in hybrid and full electric variants, the latter featuring lithium-ion batteries.