

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

The anatomy of...

A Charterhouse core collector



Charterhouse introduced its first pedestrian CC3000 Core Collector in 2002, the featured CC3001HL coming along in 2006. It may look the same, but it is much changed from the original.

Pick-up performance will be influenced by the condition of the cores but clean removal is more likely when working soon after coring has taken place. The Core Collector can work from both broadcast and windrowed cores and is also able to deal with deep scarifier debris.

Charterhouse has established that the average golf green will, post coring, yield around a tonne of cores depending upon size and moisture. Multiply that by 18 greens, and you could end up with 18 tonnes of cores that need to be picked up. No surprise that this task is increasingly carried out by a core collector, with many clubs hiring in a unit as needed.

The problem with hiring is that most clubs will want to be coring at pretty much the same time as everyone else which can mean you have to wait for a collector. It was to address this issue by offering a relatively low cost alternative that led to the development of the original CC3000 Core Collector. Picking up across a 1.0m width, the pedestrian machine was designed to keep up with a pedestrian corer of the same width.

The original unit proved a success for Charterhouse, but the design has moved on. First was the hydrostatic drive system. This was directly driven from the 5.5hp petrol engine which made starting tricky; the recoil starter had to pull over not just the engine but the drive as well. This made it difficult to turn the engine over, particularly when cold.

The second issue related to the pick-up system. In outline this used the same collection head design as the existing CC3001HL model but with a pair of impellers picking up and discharging the cores into the hopper. Turning at a relatively high speed, the impellers work just fine but they also had a tendency to smash the cores. This could in turn lead to debris building up in the elevator which, if left, could lead to blockages.

The CC3001HL overcomes the first issue by doing away with the hydrostatic drive and replacing it with a simple belt drive. When the collector is at a standstill, the drive brakes the wheels and disengages the transmission clutch. The power unit is thus disconnected, making it far easier to start. The 7.5hp Briggs also has a bit more power, this proving useful when handling a full hopper up an incline.

To get around the problem of cores getting broken up within the elevator, the two impellers were replaced by a conveyor. This has a more gentle pick-up action, helping reduce debris build up and the need for cleaning. Another new feature is the ability to reverse the conveyor. If the elevator does get blocked, reversing the conveyor should clear it.

Outline specification:
Charterhouse CC3001HL
Core Collector.
Working width: 1.0m
Tipping height: 1.30m
Hopper capacity: 250kg / 0.25m³
Tyre pressure: 1.2 – 1.4bar
Engine: Briggs and Stratton
Vanguard 7.5hp
Transmission: 4-speed,
neutral and reverse.
Conveyor drive: Hydraulic
Retail price: £6,595 ex-VAT

Supplier: Charterhouse Turf
Machinery Ltd, Surrey.
Tel: 01428 661222.
www.
charterhouseturfmachinery.
co.uk

These developments from the original design have helped boost sales of the Core Collector, Charterhouse having sold more of the British made units this year than any other year. The way in which cores are picked up, however, is not changed, the slim stainless steel bottom blade design of the original machines being carried over.

In work, the operator drives the three-wheel unit from the rear, the 'dead man' handle being pushed down to engage drive. Four forward speeds are offered, with the first two typically providing the right balance between a comfortable working

When it comes to emptying the hopper, the operator can discharge into a turf truck or trailer, the hopper lifting to clear a side of up to 1.30m. The actual tipping action is designed so the hopper lifts and moves back, avoiding the problem of material spilling back as the load is dumped.

The tricycle undercarriage affords the unit with good agility, making the Core Collector an ideal partner to pedestrian as well as tractor mounted corers. Running on smooth tyres inflated to 1.2 to 1.4 bar, a full collector will weigh in at around 530kg.

SUMMARY

Collecting cores manually can be time consuming, the job becoming a greater chore if the cores start to break up. Mechanical collection is therefore something that golf and sports turf professional tend to favour. The snag is some collectors are pretty costly to buy and hiring can be tricky if you are not at the front of the queue when you actually need one. With a retail price of £6,595, the Charterhouse CC3001HL Core Collector certainly appears to be well worth a look. Simple, easy to operate and, above all, capable of dealing with large volumes of cores it does exactly what it says in its name.

With grateful thanks to: Gareth Roberts, Course Manager, Hankley Common Golf Club and Nick Darking and Tim Franklyn, Charterhouse Turf Machinery.

“Simple, easy to operate and, above all, capable of dealing with large volumes of cores”

pace and the ability to cleanly pick-up the cores.

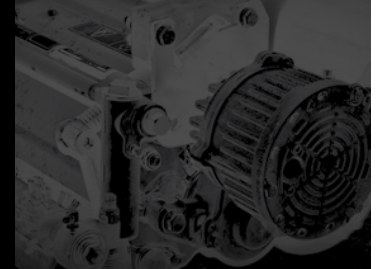
The swage boards at the front of the unit windrow the cores ahead of the collection head, the slim profile of bottom blade allowing it to slide beneath them.

The whole system is very simple, with the machine produce good results not just with cores but also debris brought up during deep scarifying. Once passed over the bottom blade, the cores are picked up by the conveyor and discharged into the 1m³ hopper. Dust and debris is contained by a hinged steel cover over the hopper.



Step-by-step Analysis...

Charterhouse C3001HL Core Collector



The original Charterhouse Core Collector CC3000 was powered by a 5.5hp petrol engine that featured hydrostatic drive. Introduced in 2006, the current CC3001HL model has a 7.5 hp Briggs and Stratton Vanguard power unit. See text.



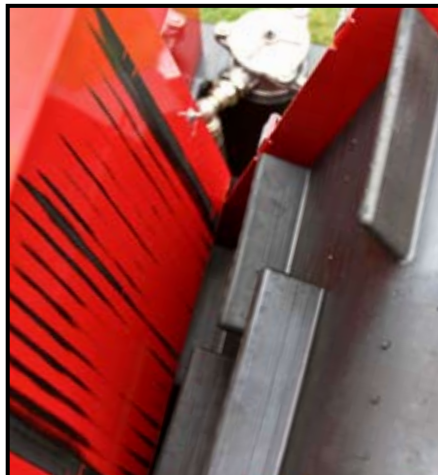
Three hydraulic levers look after the collecting head raise lower, conveyor drive and hopper tip. There is no need to set the collecting head height as it runs on a stainless bottom blade that is designed to 'slide' under the cores. Note sealed tube to house operator handbook.



The main chassis rail on the left houses the 22 litre capacity hydraulic tank with its integral filter and sight glass level. The right chassis rail covers the pair of V-belts that take power to the rear axle drive chain; this drives the axle via a differential to prevent tyre scuff when turning.



To engage drive, the operator pushes the control handle down; releasing pressure automatically brakes and holds the machine with no need to apply a park lock. Four forward ratios allow slow working to a brisk transport speed. In most conditions, the collector will keep pace with a pedestrian corer.



The paddles of the conveyor run up against the collection elevator to help prevent cores dropping back onto the surface. The predecessor CC3000 model has twin impellers. Although effective, the earlier design could break up cores, making it necessary to clean inside the elevator more frequently.



Simple driveline is designed to cut maintenance demands, the short drive chain requiring periodic lubrication. Note single hydraulic ram. This is used to raise and lower both the collection head and rear windrow swage boards.



The elevator top cover is secured by six Dzus fasteners and hinges forward to allow easy access to the conveyor for cleaning. The conveyor has external adjusters for tension with greaseable bearings. Keeping the unit clean and lubed is about all the maintenance required.



The 65kg / 1m³ capacity hopper is designed to move forward as it tips for emptying, allowing it to fill a turf vehicle or low sided trailer. Lift height is put at 1.30m. Note tricycle design which is designed to allow good manoeuvrability.



The swage board arms locate via a quick release system to allow them to be easily removed. When not in use, they can be stored in the hopper. This is useful when trying to cram a lot of equipment into a confined storage area. Note chain between the boards. This is used to set their working angle.