

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

The anatomy of...

Toro ProCore 648

Engineered to perform? James de Havilland turns his
attention to the newest machine to enter the corer market



In work, the aeration head
follows behind the inset wheels,
preventing the unit running over
non-windrowed cores

Step-by-step Analysis...

Toro ProCore 648



When working with needle tines, the operator can use fold out markers to assist aligning bout passes.. It does not take long to aerate a green, the total time required to cover 18 holes needing to include the time to move between. The latter can take longer than the aeration itself!

Superseding its Pedestrian Greens Aerator in 2006, the Toro ProCore 648 is now well established. Offering a 48in/122cm working width, the unit can be fitted with needle, solid, side-eject and hollow tines in diameters of 5 to 16mm and can work down to a maximum of 102mm. But is it really that different from its predecessor?

There are new model introductions that leave you scratching your head, wondering if it is just a few details or even just the model number that has changed. In the case of the Toro ProCore 648, however, the company ripped up its previous pedestrian aerator design and started anew.

A key feature of the ProCore 648 is its operating speed, Toro publicly boasting of its 18 greens in seven hours performance. That sounds pretty impressive for a pedestrian machine, but it perhaps detracts from the unit's other features that include of ease of set up and operation.

Opt for the Toro QuickChange tine option, launched in 2010, and swapping tine sets can be done without the need for spanners. Of equal importance, the QuickChange system makes it really simple to remove a damaged tine.

Setting the operating depth is achieved via a lever, Toro 'grading' the depth settings A to H. This allows the operator to set the working depth without the need for any tools and quickly adjust the unit to accommodate tine wear; rest a tine on the decal beside the depth setting lever, read off the letter that corresponds with the desired aeration depth and adjust the depth accordingly. Simple.

With regard to hole spacing, the adjustment is simple, a notched bracket alongside the lever enables operators to quickly return the lever to a pre-determined setting when using a different set of tines or working to a different hole pattern.

Any room for improvement?

Toro has done a good job with the design of the ProCore 648, but the optional QuickChange system would be even better if it came as standard. At present it adds an extra £680 to the unit's £18,507 list price. On the plus side, existing users can retrofit QuickChange.



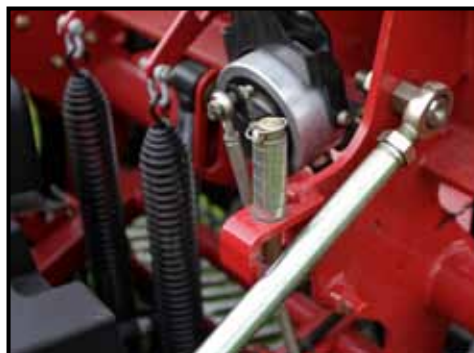
Once set up, operating the ProCore is straightforward. The only complexity is trying to decipher the warning on the decals.



The Toro QuickChange system was introduced in 2010 and is a retrofit option for existing ProCore 648 pedestrian and mounted 864 and 1298 models.



Simple tricycle undercarriage allows good contour following. Steering king pin is one of the few grease points on the machine.



Adding or removing shims can control lateral float. The head can be fixed when aerating level surfaces such as a bowling green.

This includes 6 tine heads, 24 Inserts and the QuickChange tool

We also think Toro could add a few small detail refinements to further enhance opting for Quick-Change. First, the combination tine release and lock tool has separate ends to perform each task. Each end could do with marking so you don't have to work out which end does what. Second, the tool could be stored on the aerator along with few tines and spare mounting collars. This would ensure they were always with the machine.

This nit picking does not get away from the impression that Toro appears to have listened to criticisms of its original Greens Aerator. The ProCore is manoeuvrable and easy to control and has little details that enhance its operation. An example is little markers that pull out to allow you to match each bout without having to walk so you can always see the nearside wheel. The wheels are also mounted inboard and ahead of the aeration head. This ensures the unit does not run over freshly produced holes or cores.

Floating head and balance

When aerating a level surface, such as a bowling green, a fixed aeration head will deliver consistent hole depth across the width of the unit. Golf greens are of course different, so allowing the head to float to follow contours is desirable.

On the ProCore 648, Toro suspends the head via a pivot and spring system with removable spacers controlling the degree of available float.

The float can also be locked off if desired. For the most part, the float setting is something operators can just set and forget but those who also contract out the aeration services to a local bowls club will value the ability to set the head accordingly.

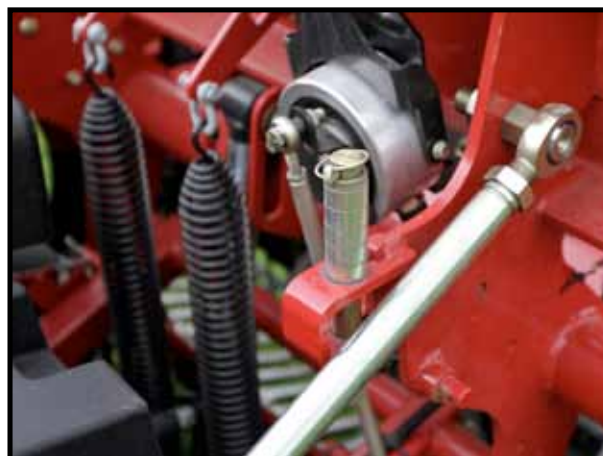
Moving on the crank, this is driven via a belt that is in turn powered via a hydraulic motor. The crank and connecting rods are balanced in the factory, with the components numbered to ensure they are matched following any maintenance.

To further reduce vibration, the crank hangers are mounted on isolation blocks and each throw of the crank is counter-balanced by the connecting rods acting in pairs.

In work, the ProCore obviously vibrates as does the ground as the tines penetrate the surface of the turf. But vibration passing through to the operator is well controlled.



A decal adjacent to the depth-setting lever enables the setting to be set to accommodate tine wear. Not collar on tine. This is part of the QuickChange system.



Adding or removing shims can control lateral float. The head can be fixed when aerating level surfaces such as a bowling green.

Spot the grease nipple

Those who enjoy delaying getting out to the greens nice and early will curse the ProCore for its lack of grease points.

The crank and key joints all run on sealed bearings, with just the steering pivot requiring the odd shot of lube to keep everything in order. Add QuickChange tines and there is no need for a pre-run spot of tine tightening either.

Summary

The ProCore 648 is a well-engineered item of equipment.



Balanced crank has numbered connecting rods to ensure they are re-matched following a major overhaul. Note vibration isolation blocks.

It is clear Toro has invested a great deal in making the machine efficient and easy to operate and also taken a look at maintenance demands too. It is the manner in which the tool goes about its work that is of course the key point. Here it is hard to really find fault

It is clear Toro has invested a great deal in making the machine efficient and easy to operate and also taken a look at maintenance demands too.

It is the manner in which the tool goes about its work that is of course the key point. Here it is hard to really find fault.

As long as the operator is fit enough to keep pace with the unit's potential work rate, the boast of 18 greens in seven hours should be no problem.

With particular thanks to Tadmarton Heath Golf Club and Course Manager Brian Owen, Alastair Rathbone, Central Contract Supplies and Rob Atwell of Toro distributor, Lely UK.

Toro ProCore 648 – outline specification

Engine Make.....	Kohler
Engine Power (hp).....	23
Working Width (mm).....	1220
Maximum Working Depth (mm) ..	102
Weight (kg)	722
Tine Types	
Needle (mm).....	5, 8
Solid (mm)	9.5, 11, 13, 16
Side-eject (mm)	6.4, 13, 16, 19
Hollow core	9.5, 13, 16
Tine holders.....	3 and 4-tine
Key options	QuickChange tines*
List price	£18,507.00

*Available as a retrofit kit.