

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

# The anatomy of...

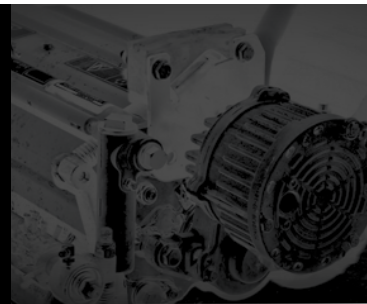
## Imants Shockwave

Imported by Campey Turf Care Systems, the Imants Shockwave range of rotary decompactors are not designed to 'replace' deep tine aeration systems, but complement them. So how do these tools operate?





# Step-by-step Analysis... Imants Shockwave



Campey Turf Care Systems can offer the Imants Shockwave in its compact tractor friendly 100, 155 and 210 versions, with the heavy duty 220 model being sold primarily as a contractor or local authority tool.



It is difficult to see in the photograph, but the test hole dug through a Shockwave slice can show how the turf has shuffled laterally across the working width of the machine.



With its protective cover removed, the central gearbox and rotor shaft and blades can be easily seen. The forged blades wear in a manner that is designed to preserve the working depth; new blades have squared off ends.



A collapsed drain provided a handy pool of water. Running the Shockwave through the waterlogged area speedily drained the surface water away.



Simple 'before' and 'after' readings from the dial of a Campey Compaction Meter suggest the tool has certainly made it easier to push the probe into the ground.

Formerly called the Earthquake, the Imants Shockwave rotary decompressor is designed to complement existing aeration systems. It should leave a clean finish, even in less than ideal conditions.

**There is nothing complicated about a Shockwave, formally known as the Earthquake. From a central gearbox, drive passes to a shaft that drives a three-blade rotor. These blades are used to power a vertical slit in the ground at a depth of up to 250mm (or 380mm for the heavy duty 220 model) and that is it. Simple.**

Well not quite. Although mechanically straightforward, the manner in which the Shockwave works is somewhat more complex.

This is firstly down to the individual blades and secondly the manner in which the unit is operated and set up.

The aim is to complement existing systems of aeration and drainage, slicing through compacted layers that may be punctured, but not be removed with alternative approaches. This is also designed to be achieved with the minimum of surface disturbance.

The blades are made from forged steel, with a curved profile that is claimed to preserve the blades overall length as it wears.

The way in which the blade is made also helps to keep the cutting edge 'sharp'. Compare a new to a part-worn blade and the latter should have a keen edge that will cut if you are foolish enough to rub its edge with your finger.

So far, so what. Slicing channels through fine turf is hardly a new idea. Where the Shockwave differs is that the blades have a slight offset. In work, this leads to each blade shuffling the soil laterally with each pass.

Take a look at a Shockwave in action, and you can see the turf physically shuffling back and forth across the width of the unit as it moves forward. It is not a dramatic shuffle, but it is easy to spot.

This lateral movement is aimed at breaking up compaction across the width of the unit and explains why a Shockwave can complement the action of tools such as a Verti-Drain or Terra Spike. The aim is to decompact and aerate by breaking a compaction layer of layers laterally, leaving the task of punching holes through a compaction layer to alternative tools.

That said, the Shockwave can be pretty effective when working on its own. The key is to look at how deep the compaction runs. The 'smaller' Shockwave 100, 155 and 210, which have respective widths of 1.0m, 1.5m and 2.1m, will work down to a depth of between 120mm to 250mm.

If the compaction runs deeper, the

larger 220 model will work at depths of between 200mm to 380mm. This larger unit is built to the same design as the narrower machines but is physically a lot larger. To get an idea of the difference between a Shockwave 210 and 220, consider their respective weights of 680kg and 1270kg.

The 220 is more typically seen as a contractor tool, with a guide tractor requirement of 80hp to 120hp, with Campey Turf Care suggesting a larger, heavy tractor is better able to cope with the machine when working ground with hidden debris such as large stones and other 'rubbish'. More on this later.

The 'smaller' Shockwave models can be used on tractors ranging in power from around 28hp for the 100 and up to 60hp for the 210. Operating speeds for all models can be varied between 0.5km/h to 2.5km/hr depending upon operating depth, soil conditions and levels of surface disturbance.

### Setting up

Once the depth of compaction has been established by digging a few test holes, the Shockwave depth can be set by adjusting the rear depth roller. A pair of gas struts help make this a simple job. The machine then needs to be lowered in to work, and set to run level via the tractor top link.

Once up and running, the quality of work and finish should be checked, matching the tractor's forward speed to the work done.

The rotor blades may draw up clods when they are new, a good run to burnish them typically improving the quality of work.

It is worth bearing this in mind when having a demonstration, a brand new machine needing chance to settle down before it leaves a clean finish.

Initial set up is this simple, but it pays to follow the machine and to check the set depth is delivering the required results. The simplest approach is to use a simple probe, testing how easy it is to push through the soil both before and after the passage of the machine.

### Underground debris

Tine aeration equipment has evolved to the point where most designs can cope with a degree of hidden sub-surface debris. But hit a suggestion of large stones and some machines may develop problems.

The Shockwave is designed so the smaller stones are either pushed

aside or even sliced through. If the stone or other obstruction will not yield to the blade, the rotary action will lift the unit up and over the obstruction.

According to Campey Turf Care, the Shockwave 220 has been used in projects to aerate local authority sports fields built in the 1950s and 1960s over demolished houses and factories. In some cases, the 'top soil' was a thin layer over broken up concrete and rubble. According to the company, the Shockwave did its job.

If the rotors do meet an object that will not allow the unit to slice through or force the machine out of the ground, the tractor and Shockwave transmission are protected via a torque-limiting clutch on the PTO. Once triggered, the clutch will reset once the obstruction has been cleared.

### Temporary slit drains?

During its demonstration for GI, a Shockwave was operated on a fairway that had a broken drain with a resultant damp patch.

Running the Shockwave from a ditch to the area where water was puddled on the surface demonstrated how the slits could be used to provide surface drainage.

The surface puddle drained away nicely. Not a solution but an effective temporary fix.

### Maintenance

Look for grease points on the 'smaller' Shockwave models, and you will find two – both on the PTO shaft.

The larger Shockwave 220 has a pair of grease points on the rear depth roller, but that is it.

Key maintenance checks will be the PTO shaft and the torque limiting clutch plus a periodic blade check.

Apart from keeping the unit clean and perhaps applying an anti-rust coat to the blades for units that will be parked out of action for a while, this is it.

### Summary

A Shockwave is one of those tools that can be a useful aid to relieving compaction over wider areas where surface disturbance needs to be minimised.

Relatively fast and capable of working in less than ideal conditions, the Shockwave should prove easy to operate and look after. Most important of all it appears to do a good job.