



the system we bought. I saw the commercial benefits as a way of off-setting the investment. The question is, 'Would you spend the money just to have the survey done?' and the answer would be yes because over time it would enable us to make savings on the golf course. Philip will be able to use the benefits it brings to his and our advantage."

Since the survey, and the arrival of the accompanying software and laptop, Philip has been getting to grips with what it will be able to do for him.

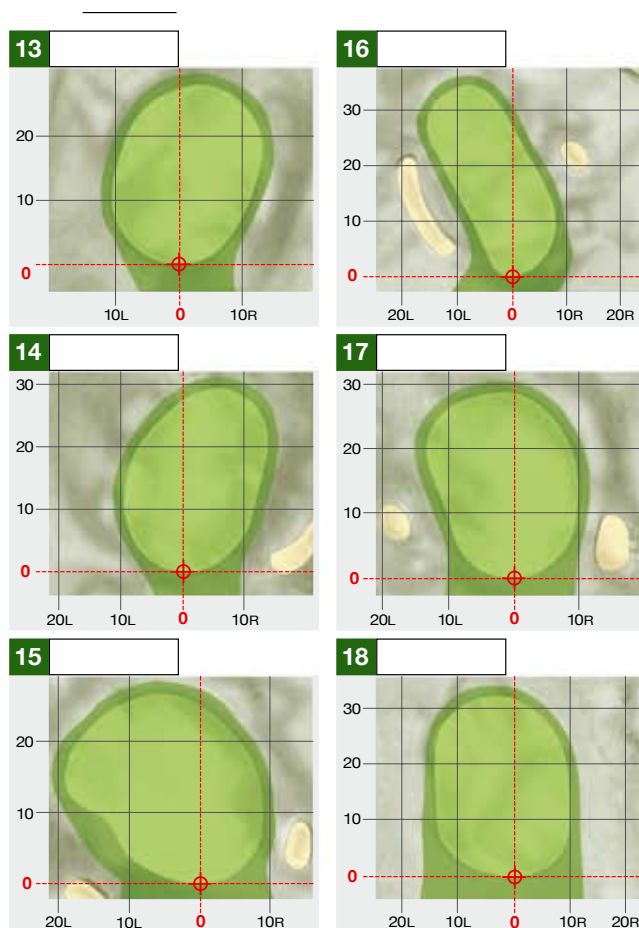
"It is great to know the exact sizes of greens and bunkers etc so I can work out how much I need to order when it comes to applications, gravel and sand etc. Rather than ordering enough for a hectare, for example, I can order 1.2 hectares worth or 0.9 hectares worth. It will mean in the long term I can be much more accurate when it comes to purchasing and there should be less wastage," said Philip. "It will also help when it comes to calculating the time required to do various jobs."

The surveying of the course was done remarkable quickly to the extent that Bob Gunning didn't even see anyone on site. "They first over flew the golf course then there were people here for no more than two or three hours. I didn't even see them," said Bob.

"They overlay the photograph they have taken from the air with the survey work they do on the ground. That's the clever bit," said Bob, adding that the fly through of all 18 holes will soon be available to view on the club's website.

"I'm hoping that what we have got here at Longniddry really sets us apart from the rest and will encourage more people to visit us and more people might consider becoming members."

Thanks to Optimize Golf for their co-operation in producing this article



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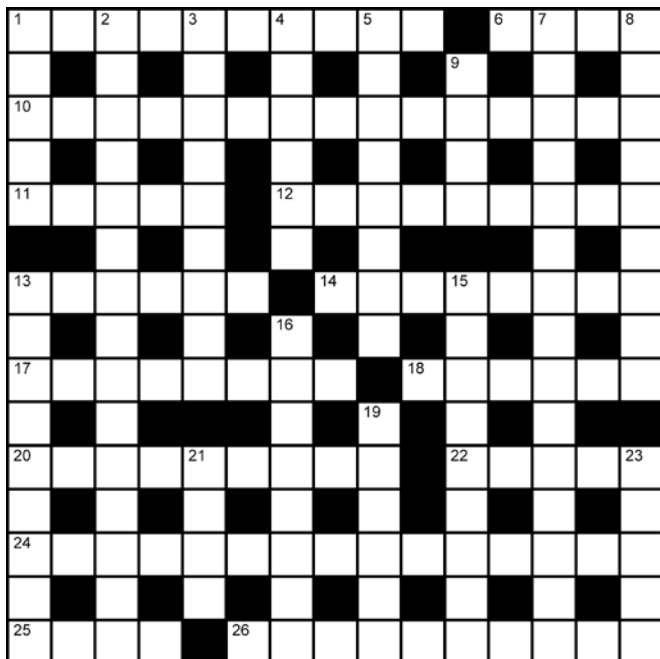
CROSSWORD

ACROSS

- 1 Of a statement, expressive of low opinion (10)
- 6 Musical notation indicating the scale of following notes (4)
- 10 Term given to discussions between leaders of major powers (6,9)
- 11 Perennial herb with yellow, daisy-like flowers (5)
- 12 Agreement, accord (9)
- 13 Conforming to, for example, Jewish dietary laws (6)
- 14 Italian composer of romantic symphonic poems (8)
- 17 Tiny insect which feeds on plant juices (8)
- 18 Puerile, immature (6)
- 20 Informally named London district, location of the BT Tower (9)
- 22 Measured portions of medicine (5)
- 24 Any factor whose relevance is not apparent (7,8)
- 25 Freight vehicle for transportation of gases or liquids (4)
- 26 The state capital of California (10)

DOWN

- 1 Ottawan hit of 1980 (5)
- 2 Brothers grim character who destroys himself when his name is guessed (15)
- 3 Legendary wife of King Arthur (9)
- 4 Monotony, sameness (6)
- 5 Replicated (8)
- 7 A -- is designed to elicit a preferred response (7,8)
- 8 Electronic control system in an aircraft (3-2-4)
- 9 -- Berra, renowned US baseball player born in 1925 (4)
- 13 Another name for Chinese gooseberry (4,5)
- 15 Writer's fictitious name (9)
- 16 European republic, part of Yugoslavia until 1991 (8)
- 19 A spotted wildcat, also called panther (6)
- 21 Protective covering, especially of a building (4)
- 23 (The power to give) authorisation (3-2)

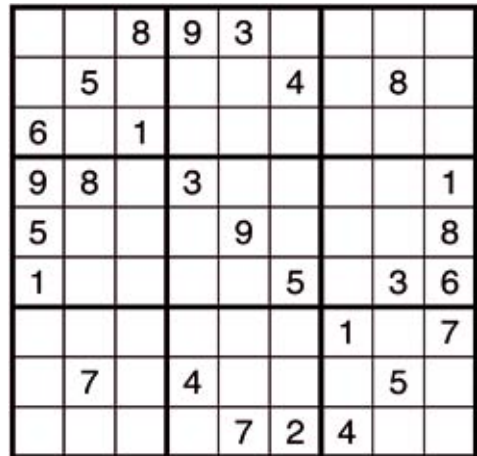


QUICK 'NINE HOLE' QUIZ

- 1 Why was there no winner of the World Series in 1994?
- 2 Which British footballer has the most number of International caps?
- 3 With which sport do you associate the Hawaii Ironman?
- 4 Tony Jacklin won the Open in 1969. Who was the next Briton to win the title?
- 5 Father Ted Crilly and Father Dougal McGuire lived on Craggy Island with which other priest?
- 6 Which sport forbids any competitor to play left-handed?
- 7 How much does it cost to buy Trafalgar Square on a monopoly board?
- 8 Magnolia, Flowering Peach, and Carolina Cherry are holes at which famous course?
- 9 What was the Titanic's first port of call after it left Southampton?

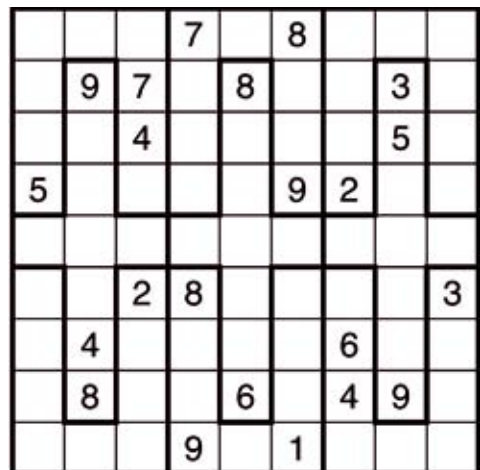
MONSTER SUDOKU

Fill in the grid so that every row, every column and every 3x3 box contains the numbers 1 to 9 and the letters A,B and C.



SQUIGGLY SUDOKU

Fill in the grid so that every row, every column and every 12 box shape contains the numbers 1 to 9.



IN THE SHED ANSWERS ON PAGE 59



IN THE SHED



BEST OF BRITISH

The British - polite, respectful, dignified, like their own space, detest queue jumpers, adopt a stiff upper lip and continually apologise - What are they good at? Innovation and celebration...and no, we are not apologising for being an innovative nation!

Melissa Toombs and James de Havilland celebrate the Best of British manufacturing in this special supplement

SISIS EQUIPMENT (Macclesfield) LTD - 2007 is a special year for SISIS, which is celebrating 75 years of innovation

In 1932 William Hargreaves, a 50 year-old steam engineer, could see his business ending - a casualty of The Depression. However, he could foresee a growing interest in physical recreation, and on 11th February 1932, founded W.Hargreaves & Co Ltd, using the registered trade name SISIS, and based in a converted chapel and cottages in Cheadle, Cheshire. The Company moved to a modern, custom-built factory in Macclesfield in 1962. By 1965 the Trade Name SISIS had become synonymous with the products and the company was renamed SISIS Equipment (Macclesfield) Ltd.

The first products were tennis and netball posts, and a game called Spiropole. A visit by William Hargreaves to the Board of Greenkeeping Research at Bingley (now STRI) sparked an interest in aeration and the challenge of mechanisation.

In the early days William Hargreaves was something of a pioneer - having to convince people that grass grew better if you put holes in the ground, before he could think of selling them an aerator. From a basic hand operated aerator and horse-drawn slitters a range of machines was developed.

Now the company offers aerators and deep slitters for every situation, including their new Aer-Aid. The Aer-Aid injects air directly into the



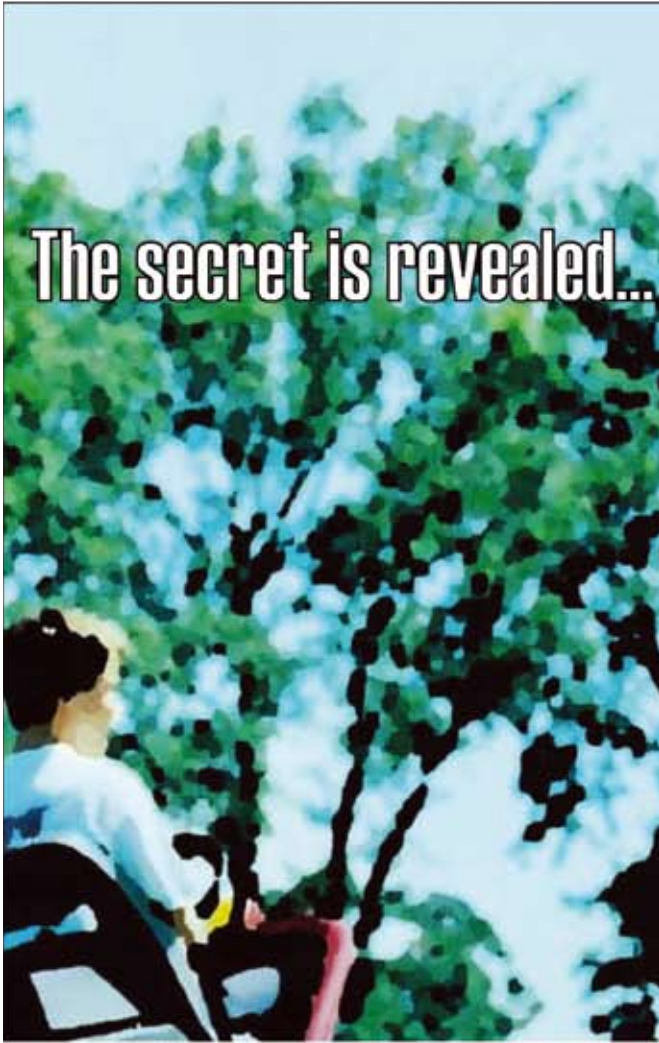
The Aer-Aid

root zone speeding up the aeration process and delivering the benefits of reduced compaction and healthier growth faster than conventional aerators, with minimal surface disturbance.

SISIS introduces new products every year, with the aim of making greenkeepers' lives less arduous. All products are designed and manufactured at the Macclesfield factory. In addition to aerators and scarifiers the SISIS range includes mowers, seeders, sweepers, top-dressers, rakes, brushes, drag-mats, rollers, line marker – even a land clearer and beach cleaner.



SISIS RR600 being used in Malaysia



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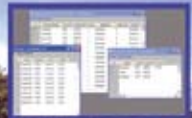
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SISIS is still very much a family business with two grandsons of the founder, Roger (left) and William (right) Hargreaves, being Joint Managing Directors

SISIS is a direct sales organisation with Territory Managers based around the country and has around 40 distributors worldwide (selling to countries as far apart as Mexico, Russia, Egypt and Iceland) and SISIS Inc, based in South Carolina with a network of distributors for SISIS Sales and Service in USA.

HERON – Specialists in Irrigation Control

Heron is a Sussex based electronics company dedicated to the design and manufacture of irrigation control systems.

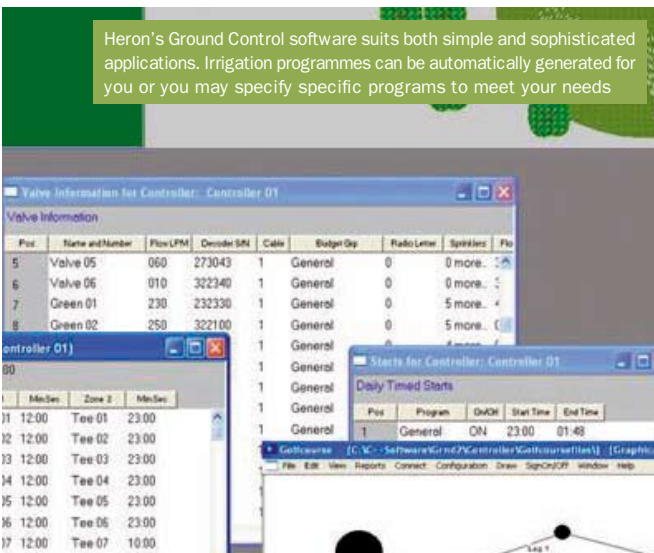
Two brothers, Jimmy and David Carter, founded Heron 19 years ago. The company initially designed and manufactured a multi-wire irrigation controller for the horticulture industry.



Jimmy Carter (left) and David Carter (right), Heron Company Directors

In 1991 they launched their two-wire irrigation controller the MCI-100S. 10 years ago they introduced pH control systems to their product range. Over the years the company has expanded steadily both within the UK and overseas.

Jimmy and David pride themselves on developing their products by listening to their customer's needs. They have exploited the latest innovations in technology to develop the features of their irrigation controllers and



Heron's Ground Control software suits both simple and sophisticated applications. Irrigation programmes can be automatically generated for you or you may specify specific programs to meet your needs

produce user friendly, control systems with an outstanding level of reliability. The Heron two wire irrigation controller has proved so reliable that it is exported to some of the most challenging environments in the world, for example Florida and Australia.



The MCI-100S

Heron is committed to developing their products to use water efficiently. Their irrigation controllers already integrate with a number of sensors. Next year will see the full integration of the MCI-100S irrigation controller with a Heron weather station.

The MCI-100S two-wire irrigation controller can operate as a standalone controller or be operated from a PC using Heron's Ground Control software. There is also the option to dial up and operate the controller via a mobile phone. The controller has been built with a unique lightning surge suppression feature utilising optical technology.

With Ground Control, no dedicated PC is required. The irrigation controller still operates the irrigation, giving you a much more reliable control system. Multiple irrigation controllers can be run from one PC. Estimated water usage is calculated and actual water usage can be reported.

HUNTERS PROMOTIONS LIMITED – Golf Course Products

Hunter's Promotions is a husband and wife team based in Wick, Caithness, in the Scottish Highlands. John Hunter is Managing Director and his wife Christine, Director.

The company came about through John being heavily involved with Wick Golf Club - He is one of the countries longest standing captains, having served 16 consecutive years. During this spell John was privileged to re-design part of Wick golf course and it was in this period of time that he came up with new ideas and inventions for greenkeepers. He then decided, after being made redundant after 33 years in the music manufacturing industry, that he would start up Scotlands only manufacturing facility for golf course products.



Hunters Shoe Cleaner at Brora Golf Club



Husband and wife team, John and Christine Hunter, are both active in the day-to-day manufacturing, design and marketing of the company

The company was started in May 2003 and during this time the range has been extended to over 25 products with many new ideas still in the pipeline. The extensive customer list includes many very famous courses throughout the whole of Britain and Northern Ireland, and is continuing to grow.

Out of the range of products there is no doubt that the wooden slatted bins are proving to be a big hit along with our very high quality traffic control frames. We travel around the country extensively, demonstrating our products and letting greenkeepers see and feel the quality first hand. Although we are based in the North of Scotland this is no hindrance - as we have proven over the years - and our aim is to continue to satisfy our many customers and to introduce our company to as many golf courses as possible.

TERRAIN AERATION – Providers of compressed-air de-compaction treatment

David Green, the Managing Director of Terrain Aeration, designs, builds and develops the company's unique Airforce Terralift machines, supervises site visits, liaises with customers and trains all machine operators.



Terrain Aeration: Founded and owned by David and Lynda Green

Lynda Green, Operations Director, oversees all other aspects of the business including sales, finance, transportation and forward planning.

Based in Suffolk, Terrain Aeration was founded in 2000 and has become the leading provider of compressed-air de-compaction treatment at a depth of one metre. The couple started with a standard, original Terralift machine, which over the last six years has been adapted to improve both speed and performance while remaining true to Terralift principles. David and Lynda Green are the people manufacturing new machines of this type.

Terrain Aeration now fields the largest fleet of Terralift machines in Europe – two lightweight Airforce Scamper machines for golf greens, bowling greens, cricket squares and croquet lawns, two Airforce Trackers for

small, difficult to access areas including back gardens and Airforce, the largest of the fleet, ideal for football, rugby and all winter sports pitches, polo fields, race courses and large areas of parkland. Utilising the Terralift injection technology, in addition to their compressed – air de-compaction service, the company can inject water-storing polymers to combat drought, oil digesting bugs to de-contaminate soil, and mycorrhizal fungi to aid the establishment of newly planted trees. In addition their Airblaster can safely excavate tree roots to establish spread, and their soil corer can take accurate soil samples from the surface to a depth of one metre.

Airforce scamper has been developed to work away from the main air compressor, which is attached by an umbilical air hose.



Airforce Scamper



Airforce Tracker

When the turf surface is soft, the compressor can be parked off the green.

Another great seller is the Airforce Tracker. Built on a reliable Honda base, Airforce Tracker is designed to treat rough turf or bare ground in difficult to access areas.

DENNIS – A world-renowned brand

Dennis dates back to the late 19th century, early products having included motor tricycles, cars, lorries and fire engines. Mower manufacture began in 1922 and Dennis soon became the name on the equipment used on the world's fine lawns and sportsfields. In 1981, the company transferred to



Ian Howard

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Derby and massive investment in new products and manufacture followed. Today, Dennis machines are used by groundsmen, greenkeepers and landscapers at public and private sector facilities the world over.

Ian Howard is Managing Director of Dennis. He believes the key to the company's success is listening to their customers, having a sound knowledge of the UK market and producing British products for British conditions.

The company's pro-active design philosophy is typified by the ingenious Dennis FT range of pedestrian cylinder mowers, which feature specially developed cassette attachments that can be quickly interchanged.



The Dennis FT510

These include verti-cutters, scarifiers, aerators and turf brushes, as well as various mowing reels. As well as the precision finish to turf that Dennis equipment is famous for, the versatility of the FT machines enables grounds professionals to use one product for many essential tasks, maximising operational efficiency.

Another British success story is Dennis' Sport Ultra. Derived from the Sport pedestrian mower, which was developed specifically for work on fine turf like golf greens and features simple click-adjust cutting height adjustment, the Ultra incorporates a powered tungsten tipped groomer reel.



Aston Villa's Head Groundsman, Jonathan Calderwood with his two Dennis G860s and Premiers

Dennis also recognise how changing Health & Safety regulations influence product choice. The handlebar mechanism and other refinements to Dennis machines have been developed in conjunction with experts in the field. This includes research carried out at universities as well as by the development arm of QinetiQ, one of the world's leading technology companies.

Continuing to flourish, Ian Howard reports ongoing sales growth and an annual turnover now in excess of £2m. Dennis strives for continuous improvement of their quality British-engineered products to suit changing customer needs.

BERNHARD AND CO – Manufacturers of Express Dual and Anglemaster sharpening machines

Bernhard and Company, based in Rugby, Warwickshire, is owned by Stephen Bernhard and grew from the export services division of Jeffery Bernhard & Sons – a family firm with a long and successful heritage in commercial landscaping and horticulture.



Stephen Bernhard is owner of Bernhard and Company Ltd

The landscape division encompassed the construction and maintenance of golf courses and it was here that Bernhard's founder, Stephen Bernhard – an experienced agronomist and horticulturist – developed a special interest in the technical issues surrounding the cutting of grass. In particular, the critical effect that grinding technique had on turf quality and mower maintenance benefits.

Disappointed by the many inadequacies of the cylinder and bottom blade grinders then available, Stephen acquired Atterton and Ellis Ltd, the original manufacturers of spin grinding machines whose origins date back to the 1880's. Together they redeveloped a range of precision grinding systems, specifically to meet the practical demands of busy maintenance workshops.



Express Dual (left) and Anglemaster (right) remain uniquely British as they are still manufactured in the Haverhill, Suffolk, factory where John Atterton first engineered the spin grinder

The result was the redesigned Express Dual cylinder grinder and the Anglemaster bottom blade grinder. Express Dual and Anglemaster transformed workshop practice and boosted productivity. Moreover, they produced a cleaner cut which caused less damage to the grass, improving its health, disease resistance, appearance and playing quality.

Bernhard and Company started to export its grinding system to golf courses and mower maintenance shops around the world. One of the biggest challenges was the North American market where grinding practice was largely based on the use of traditional, low cost US machines

(single blade grinders) and there was an understandable resistance to change and investment.

Undaunted, Stephen embarked on a series of educational workshops for golf course superintendents and technicians across US in which he demonstrated the many benefits of effective precision grinding and the huge impact it had on both maintenance costs and turf health.

This educational effort, coupled with recommendations from satisfied customers led to a rapid growth in sales. This was recognised in 1997 with the Department of Trade and Industry's Export Award. Today, over 30 years later, the majority of the world's top golf courses use Express Dual and Anglemaster grinders in their workshops, including 75 of the US Top 100.

LLOYDS & COMPANY LETCHWORTH LTD - Celebrate their 130th anniversary in 2008

Lloyd, Lawrence & Co was founded by John Post Lawrence in 1878 as an agency for the import and sale of American Pennsylvania mowing machines in the City of London. In 1913 John Lawrence decided that Letchworth would be an ideal new location for the company, thus beginning the company's long and deep association with the First Garden City.

In the 1930's the decision was taken to manufacture the machines in the UK. Production of the first Letchworth-made Pennsylvania machines started in early 1934 and this was followed by machinery such as: motor mowers, gang mowers, lawn sweepers, lawn rakes, lawn sprinklers, mechanical scythes and electrical hedge trimmers.



Ian Bunting, Production Director; Clive Nottingham Managing Director; Glenn Bray, Chairman & Client Director

During the post war period, business continually increased. True to the founder's principles, however, the directors of Lloyds were not in favour of mass production in a soulless corporation, preferring instead to retain the company's friendly family atmosphere. This philosophy meant a limit on production in the early 1960's, when the number of machine types were decreased so that the company could concentrate on producing high quality mowers, such as: the Leda gang mowers, Paladin and Ariel were introduced.

Lloyds continued to expand its range of machinery with the introduction of the Hydraulic Pentad gangs, Elite triple mower, Greenline Comb-trailers. As it moved into the new millennium development of machines continued with new designs. Most recently with the launch of the new Paladin TG and Dual machines with all the award winning attributes of the original Paladin. Other recent additions include the Hovermower and Eastman commercial mower range which has now been followed by the Pequea range of Top Dressers and Material Handlers.



Lloyds Pequea range of Top Dressers, TG100 Trailed or truck mounted suitable for greens, with the SuperSpread and FX 650

Lloyds today still remains a privately owned company with many of its employees having a vested interest and, as a result, retains the philosophy of giving a personal service in the supply and maintenance of high quality products to the professional market.

PERKINS ENGINE COMPANY LTD - Celebrating 75 years of diesel engine manufacture

Peterborough based Perkins Engines build both diesel and gas power units from 5 to 2,600hp. That is some product range! For compact equipment and ride-on mowers, the naturally aspirated 13-60hp two-three- and four-cylinder 400 series engines are key power units. These recently launched motors offer increased service intervals at 500 hours, lower emissions and much improved refinement over the units they have superseded. They are also the first in their class and power category to be offered to meet tough Tier III emissions standards.

Built in Peterborough as part of a joint venture with Shibaura of Japan, 400 series engines are used to power a wide range of mowers and utility vehicles, including machines produced by Ransomes Jacobsen.

Perkins success can be traced to it being a genuine pioneer. The company's P4 and P6 engines of 1937 introduced affordable and efficient high-speed diesel power to an era dominated by petrol and petrol/paraffin (TVO) powered commercial and agricultural vehicles.

A key customer post WWII was Massey Ferguson, the latter taking over the company in 1959. Caterpillar subsequently took control of Perkins in 1998, creating what is now the world's largest diesel engine manufacturer. Frank Perkins, who died in 1967, would have been proud that his company survives not just as one of Britain's leading exporters and employers but continues to innovate in the 21st century.

Perkins engines are used to power products that range from power boats and yachts through to tractors and ride-on mowers.



Massive investment in recent years will see a growing number of customers for its latest 400 series power units, these engines offering excellent refinement and long 500 hour service intervals