

IRRIGATION CHECKLIST Your guide to manufacturers, dealers and distributors throughout the UK

Company Name	System/s Supplied	Manufacturer	Dealer/Distributor	Area UK	Other Countries	Spares	Repair/Service Maintenance	Telephone/Address
MJ Abbott Ltd	Buckner			South West		✓	✓	0722 716 361. Bratch Lane, Dinton, Salisbury, Wilts SP3 5EB
Arden Lea Irrigation Ltd	All types, inc. Toro, Rainbird, Hunter	✓	✓	All areas	Europe	✓	✓	0772 812433. 160 Moss Lane, Hesketh Bank, Preston PR4 6AE
Aquaflow (Irrigation Systems & Service)	Weathermatic	✓	✓	W. London/Home Counties		✓	✓	0831 380627. 43 Ludlow, Bracknell Berks RE12 4BZ
Aquaplast	Prime Watermen and Javelin		✓	Bucks/Berks/Oxon UK mainland		✓	✓	0772 813571. 109 Chapel Road, Hesketh Bank, Preston PR4 6RU
Aqua Pump Services	Toro		✓		Eire	✓	✓	1-337777. 26 Casino Rd, Marino, Dublin 3, Eire
Bell Turf Irrigation Services	Toro supplied Others serviced		✓	East Midlands Lincs/Leics/Notts/Humb		✓	✓	0777 817410. Milners Holt, Everton Doncaster DN10 5DR
British Overhead	Pop-up sprinklers (Buckner, Hunter, Toro)		✓	All areas		✓	✓	0932 788301. Upper Halliford Green Shepperton, Middlesex TW17 8SB
	CIC 1 and 4 Zone controllers/decoders	✓	✓					
	Hard-wire controllers		✓					
	Self-travelling sprinklers	✓						
C.I. Irrigation (Drilling) Ltd	Toro		✓	Channel Islands		✓	✓	0534 57013. Wayside, Rue de Samare, St Clement, Jersey
Flanderblade Ltd	Irrigation lagoons, Impact sprinklers		✓	Southern		✓	✓	0903 724545. 20 Whiteacre, Littlehampton W. Sussex BN17 7JA
GB Irrigation	Gear driven. 2 wire, 3 wire control systems		✓	All areas	Spain/Italy/Germany Greece/Turkey/Hungary	✓	✓	0425 473329. 20 Market Place, Ringwood, Hants BH24 1AW
Glen Heat & Irrigation	Buckner/Hunter		✓	All areas		✓	✓	0775 722327. Spalding Rd, Pinchbeck, Spalding, Lincs PE11 3UE
Hortech Systems Ltd	All systems		✓	All areas		✓	✓	0406 26513. Station St, Holbeach, Spalding, Lincs PE12 7LF
ILS Irrigation Systems	Watermation/other		✓	S. England/Mids/E. Anglia		✓	✓	0832 272450. Oundle Rd, Lutton, Peterborough PE8 5ND
Irrigation Technical Services	Toro/Hunter/Weathermatic		✓	All areas	Europe Scandinavia	✓	✓	0202 874216. Moulin, 43 Pinehurst Rd, West Moors, Dorset BH22 0AH
Irri-Serve Irrigation Systems	Toro		✓	N. West	Europe	✓	✓	0772 601534. Unit 9, Twin Lakes Ind. Pk, Bretherton Rd, Croston, Preston PR5 7RF
Irritec Ltd	Rainbird/Hunter		✓	Ireland		✓	✓	01 8404033. Lissenhall, Swords, Co. Dublin, Ireland
ISS (Irrigation Contracts)	Toro		✓	South/S.West/Home Counties Channel Islands		✓	✓	0722 412510. Unit 6, The Bourne Centre, Salisbury Business Park, Salisbury, Wilts SP1 2NY
Landscape Irrigation Systems	Any automatic system		✓	All areas		✓	✓	0425 473790. River View, Salisbury Rd, Ringwood, Hampshire BH24 1AS
Jersey Farmers Trading Union	Toro		✓	Channel Islands		✓	✓	0534 33277. 20 Commercial Bldgs, St Helier, Jersey.
Midland Irrigation Systems	All systems		✓	All areas		✓	✓	021 358 1246. 2 Fairdene Way, Great Barr, Birmingham B43 5JS
Mist Irrigation System Controls Ltd	Own 2 wire system	✓	✓	All areas		✓	✓	0425 474614. Unit 18 Hightown Ind Est, Ringwood, Hants BH24 1ND
North Staffs Irrigation Co.	Wright Rain/others		✓	Midlands/N. West/Central, N. Wales/Lake Dist.		✓	✓	0785 812706. Ivy Mill, Longton Rd, Stone, Staffs ST15 8TL
OCMIS UK Ltd	OCMIS/others	✓	✓	All areas	Ireland	✓	✓	0460 41939. Higher Burrow, Kingsbury, Martlock, Somerset
Par 4 Irrigation Ltd	Toro		✓	N.E. England/N. Lincs/N. Mids		✓	✓	0765 602175. Unit 18, Camp Hill Close, Dallamires La, Ripon HG4 1TT
Prime Watermen Ltd	Weathermatic		✓	All areas		✓	✓	050 278 481. Wangford, Beccles, Suffolk NR34 8AX
Pro-Turf Irrigation	Toro		✓		Eire	✓	✓	51-77659. 16 Ballinakill Court, Ballinakill, Co. Waterford, Eire
SJS	Weathermatic		✓	N. London/Beds/Bucks/Cambs Northants		✓	✓	0836 643877. 5 William Smith Cl, Woolstone, Milton Keynes MK15 0AM
Sports Ground Irrigation	Hunter	✓	✓	All areas		✓	✓	0858 463153. 6 Stuart Road, Market Harborough, Leics LE16 9PQ
Sports Turf Services	Toro		✓	Scotland		✓	✓	031 333 2345. Newbridge Ind. Ext. Newbridge, Midlothian EH28 8LE
T.I.L. Irrigation Ltd	Toro		✓	All areas	Europe/Africa Middle East	✓	✓	0425 476261. Unit 7 Millstream Tr. Est, Ringwood, Hants
Turf Irrigation Services	Toro		✓	S. East/Mids/N. Eng /Scotland/N. Ireland/Wales	Europe	✓	✓	0477500255. Love La, Betchton, Sandbach, Cheshire CW11 0TS
Watermation Sprinkler & Controls Ltd	Watermation	✓	✓	All areas	Worldwide	✓	✓	0252 336838. Tongham Rd, Aldershot, Hants GU12 4AA
Weathermatic	Weathermatic	✓	✓	All areas	Europe/Middle East	✓	✓	0202 897781. 17 Moorlands Rd, West Moors, Ferndown, Dorset BH22 0JN
Wright Rain Ltd	Rainbird		✓	All areas		✓	✓	0425 472251. Ringwood, Hants BH24 3AS (Head Office)

MIDLAND IRRIGATION

THE AUTOMATIC CHOICE FOR THE AUTOMATIC WATERING SYSTEM

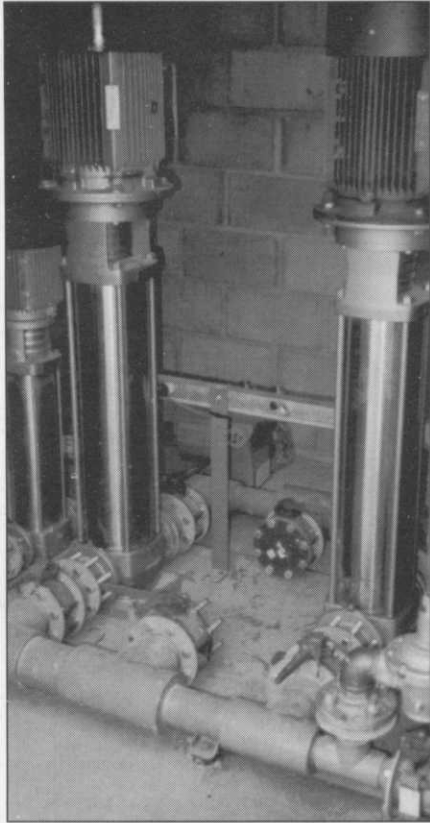
All leading irrigation equipment installed, serviced and supplied. Serving the UK and Europe.

For further details contact **MARK GANNING**

2 Fairdene Way, Great Barr, Birmingham B43 5JS

Telephone 021 358 1246

Keep controller unit warm



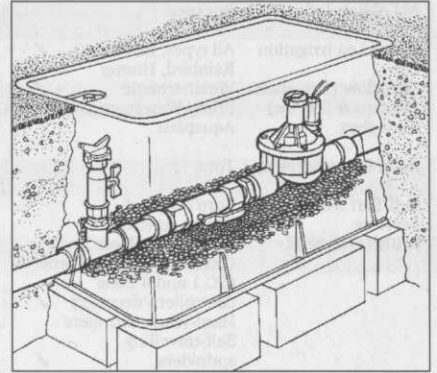
Use the winter months to remove and service system components which have shown signs of wear and tear or reduced performance. Pipework left exposed should be sealed against dirt and moisture. Picture: Cumulus Pump Sets

19 → solenoid valves should remain untouched.

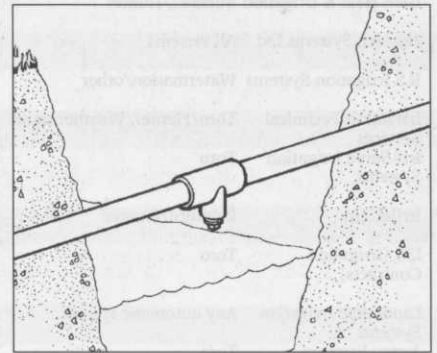
Sprinkler heads normally require little maintenance. If problems do occur, they usually happen during the watering season and will need to be attended to immediately. One point which is often overlooked is the fact that the sprinkler head usually includes a non-return valve to retain water and prevent lateral pipework draining down when the pressure drops.

"This retained water will not drain out when the system drain cocks are opened," Neale points out. "There may be a risk that it will freeze and damage the sprinkler head." There are two possible courses of action. One is to unscrew the sprinkler head to allow the water to escape. This will require a great deal of time and labour. The other is to feed low pressure compressed air into the system. Connection points can be fitted to a smaller system later, usually within the pump house, but a large system split into two or more separate circuits may require several inlet points around the course. The consequence is that most greenkeepers keep their fingers crossed and hope that if it does freeze, no damage results.

One part of the irrigation system which must be left for the attention of the supplier or installer is the controller. The unit must be kept dry and warm, ensuring that heaters are functioning properly. Apart from occasionally running the controller through its cycle during the winter months, check with the supplier as to any specific shut-down advice for the unit. The same applies to the rest of the system. All reputable suppliers and installers should provide a plan of the installation together with suitable information for its winter close-down and start-up in the spring. Most will also offer a contract to carry out these operations each year. It is in the greenkeeper's interests not only to become familiar with his system and its components and capabilities, but to ensure also that the supplier and installer provides full guidance on its operation and maintenance.



For maximum over-winter protection, it is recommended that the top of electrical solenoid valves be removed complete with soil assembly, diaphragm and spring, wrapping the parts in polythene. Illustration: Wright Rain Ltd



Open all drain valves in the underground pipework, not forgetting those crossing streams or ditches which are highly susceptible to freezing. Illustration: Wright Rain Ltd

NORTH STAFFS IRRIGATION

An Independent Company

At North Staffs Irrigation we can offer a range of equipment suitable for your irrigation project. A full design and installation service is provided ensuring an effective and efficient system tailored to your individual needs. We offer:



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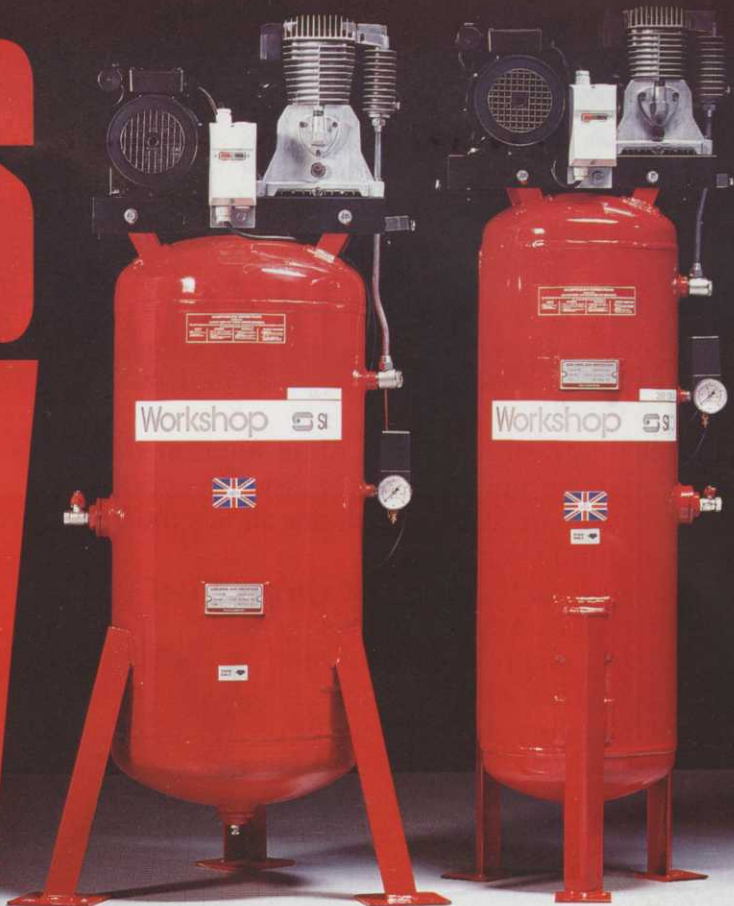
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FULL MEMBER OF BTLIA

WHAT'S NEW



MICHAEL BIRD

tracks down some of the latest workshop equipment ideas and innovations designed to make the service engineer's task that little bit easier



Left: The Retractable auto-rewind hose reel can be supplied with hose suitable for delivering water, air, gas, steam, oil or grease.

Above: Vertical compressor design from SIP saves space and improves pump cooling in confined or cluttered areas.

Every workshop needs at least one clean, firm, level surface where hand tools, small machines and assemblies can be inspected, serviced and made ready for another day. Although a spotless and uncluttered surface might be the ideal situation, it is not unusual to find the workbench used also as a table for coffee mugs, and as a place where discarded service components accumulate 'because they might come in useful one day', and where spanners and sockets lurk beneath a pile of cleaning rags and other items.

If you recognise the scene, then the answer might be to let your work bench (with a little tidying) remain as a storage area and invest

in one of the new free-standing benches which can lift equipment from ground level to a suitable working height at the touch of a button. Operated by air, hydraulics or electric motor, these benches are expected to become an essential part of workshop equipment in the coming months for, as workshop equipment specialists, R+R (UK) Ltd point out, employers will have to satisfy important requirements under new Health and Safety legislation coming into force at the beginning of 1993. They include the avoidance of hazardous manual handling operations and the need for employees to bend or kneel or have their working position dictated by the job being carried out.

From the employee's point of view, he or she will have the right to insist on mechanical assistance when lifting and to be equipped with a work station that can be varied to suit one's personal requirements. In basic terms, employers will have no defence against any claim made by an employee injured at work due to inadequate or insufficient lifting or handling equipment. Having specialised in work benches since the mid-eighties, R+R believes that the incoming legislation should not be the sole dictating factor for investment in a new powered-lift work bench. The company points out that the equipment has proved it can improve both the efficiency and the quality of work,

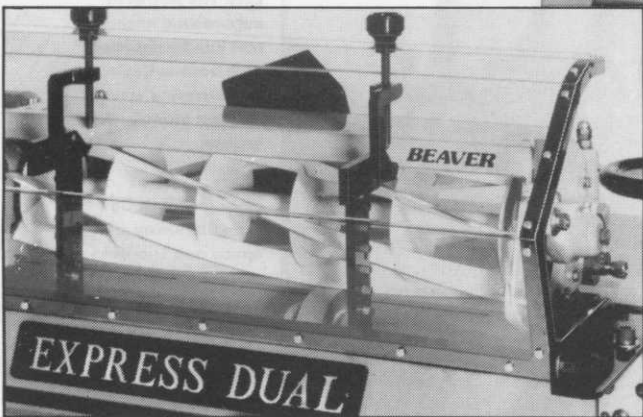
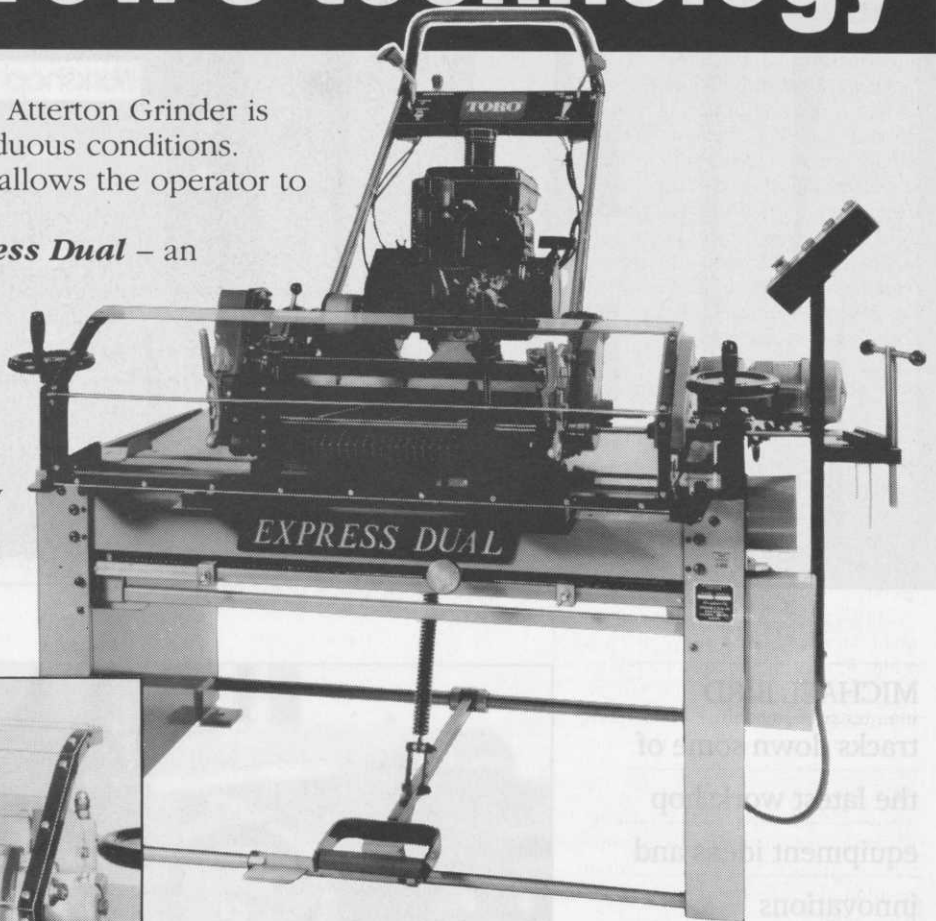
improving staff morale and the speed at which a job is completed.

To further improve the ease of working on pedestrian mowers and other walk-behind machines, R+R has extended its range with the Unilift 380 workbench from the USA. Capable of lifting 200kg to more than 1m high, the unit can be tilted to any angle enabling convenient access to virtually any exposed part of a machine strapped to the work table. The Unilift's platform is raised and lowered on a threaded shaft driven by vee-belt from a 0.5hp electric motor. A control switch automatically stops movement of the work table at the top and bottom of its travel or it can be stopped manually at any convenient

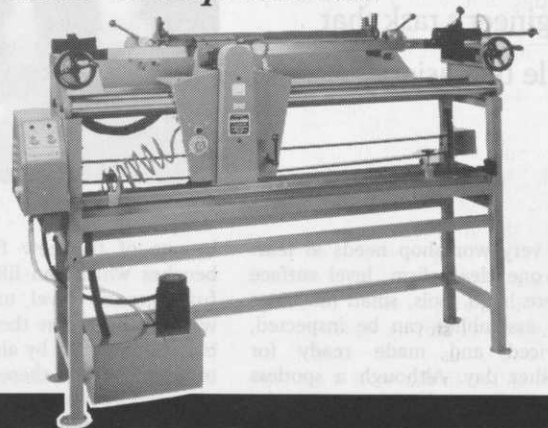
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Models include the proven **Express Dual** – an innovation from Atterton & Ellis. The first and highly successful "in situ" grinder that will accurately sharpen cylinders still fitted to the mowing machine or, alternatively, cylinders may be removed for a full strip down during the less busy periods and sharpened just as accurately.



Bottom blade grinders include the **Anglemaster** – a precision grinder that complements the **Express Dual**.



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for over 100 years*



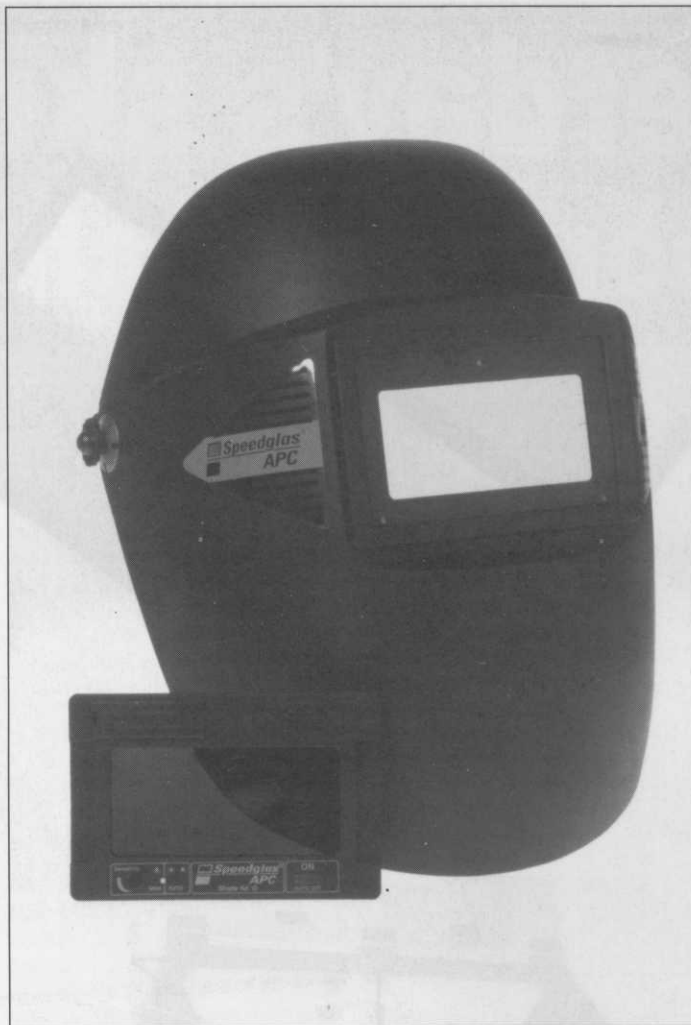
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The filter in the Speedglas welding helmet darkens the instant that light reaches it from the welding arc, leaving both hands free while giving full protection to the eyes



23 → point in between. Other standard features of the £699 Unilift include a 300mm by 965mm (12in by 38 in) opening in its platform to allow direct access to the underside of pedestrian machines, movable wheel channels to prevent equipment sliding when the platform is tilted, and a large tray to carry tools and parts. In addition to its range of work benches, R+R distributes a number of other useful items suitable for golf course workshops.

Of particular note is a 90 degree drive adaptor for power drills giving improved access for a number of jobs while also enabling the drill to be used more easily with grinding, sanding or buffing discs. Costing £8.95, the adaptor is suitable for 1/4in and 3/8in drills only and gives a 2:1 increase or reduction in speed.

British manufacturer, Sisis Equipment, also produces a range of work tables for use by engineers working on grass-cutting and other course maintenance machinery. Powered by compressor, the company's three model range Pneumate pneumatic work tables can handle equipment up to 500kg (1000lb) at variable working heights, secured for safety by a mechanical lock at the required position. Soon to join the range is a new version of the company 'S' model, currently still under development but designed very much with the golf course workshop in mind. It will have a larger platform than the existing unit, with access ports for easier work on the underside of machines. Lift capacity is to be upgraded to 750kg (1500lb) making it suitable for most triple ride-on greens mowers. Air pressure requirement is 7bar (100psi). Price of the 'S' model is expected to be announced in December.

Suitable for hoses delivering air, water, gas, oil, grease or steam, the Retracta auto-rewind hose reel from Redashe is a neat, tidy and convenient way of storing hoses both in and out of use, promoting maximum safety in the work area. The hose reel is supplied complete with up to 15m (50ft) of hose suitable for the intended purpose and a wall/overhead mounting bracket. For optimum ease of use, the Retracta has a low recoil tension to full extension while a two position switch provides latching at one metre intervals or can give a completely free run to suit requirements. Redashe can supply two auto-rewind air hose reels for use with compressors supplying hand tools, pressurised air lines and

equipment such as powered work tables. Designated AR100 and AR200, the former has 15m of 3/8in internal diameter hose and comes with 3/8in BSP female inlet and 1/4in BSP male outlet fittings. The AR200 model has 12m of 1/2in ID hose and 3/8in BSP female inlet and 3/8in BSP male outlet fittings. Both models have reinforced PVC hoses and can be used at working pressures of up to 16bar (230psi). For delivering hot or cold water at high pressures, the Retracta range now includes model WHPI00 suitable for water to 207bar (3000psi) at 95 degrees C. Hose lengths of 12m and 15m can be specified, both with 3/8in BSP male outlets suitable for guns and lances. A useful optional item for use with the company's complete range of retractable hose reels is a bracket which can be bolted to a work bench or floor for increased portability.

Workshops are now turning increasingly to compressed air as a safe, convenient and portable means of powering hand tools and other service equipment. Portable and fixed compressors are available in a wealth of outputs to suit applications from paint spraying to drilling and rivetting. Loughborough-based SIP offers one of the largest ranges of British-built fixed and portable air compressors. Available to suit single or three-phase supply, the electric motor versions are conveniently pre-wired to a mounted starter incorporating thermal overload protection.

In common with their electric stable-mates, SIP's petrol-engined compressors have twin cylinder monoblock pumps with aluminium alloy mainframes for rapid heat dissipation and cast iron cylinder liners for maximum durability. An interesting variation is SIP's vertical unit with the drive motor and pump sitting on top of an upright receiver vessel. Designed for use where space is at a premium, the vertical air compressor can be had with receivers of 100 and 150 litre capacities suitable for single or three phase electricity supplies. Maximum pressure is 150psi at a piston displacement of 14.3cu ft/min. Apart from its ability to fit into tight corners, the SIP vertical compressor has excellent cooling characteristics in cluttered conditions.

Those who are moving away from electricity as a power source for reasons of safety, limitations on reach and, in some cases, cost of installation, will welcome a petrol-engined pressure washer due to be introduced by SIP in the coming weeks. Weighing just 4.5kg but, says SIP, suitable for all commercial applications, the washer produces 145bar (2,100psi) at a flow rate of 10 litres/min (2.2gal). It will be supplied with a full lance with adjustable nozzle.

The surge of interest in compressors as a safe, convenient and cost-effective means of providing power within and outside the workshop has been reflected by the range of

air hand tools now available to the service engineer. Economically priced in comparison with similar specification electrically-driven tools, they can be easily interchanged and, when used with a mobile compressor, provide full portability around the golf course. A useful addition to any workshop is a hand-held powered saw and file from CompAir Autopower. Weighing just 1.8kg, this pistol-shaped air tool can accept mini hacksaw blades and files for rapid metal repair or assembly work. The finger trigger activates a 20mm cutting or filing stroke giving a cutting speed of up to 2.5m/minute.

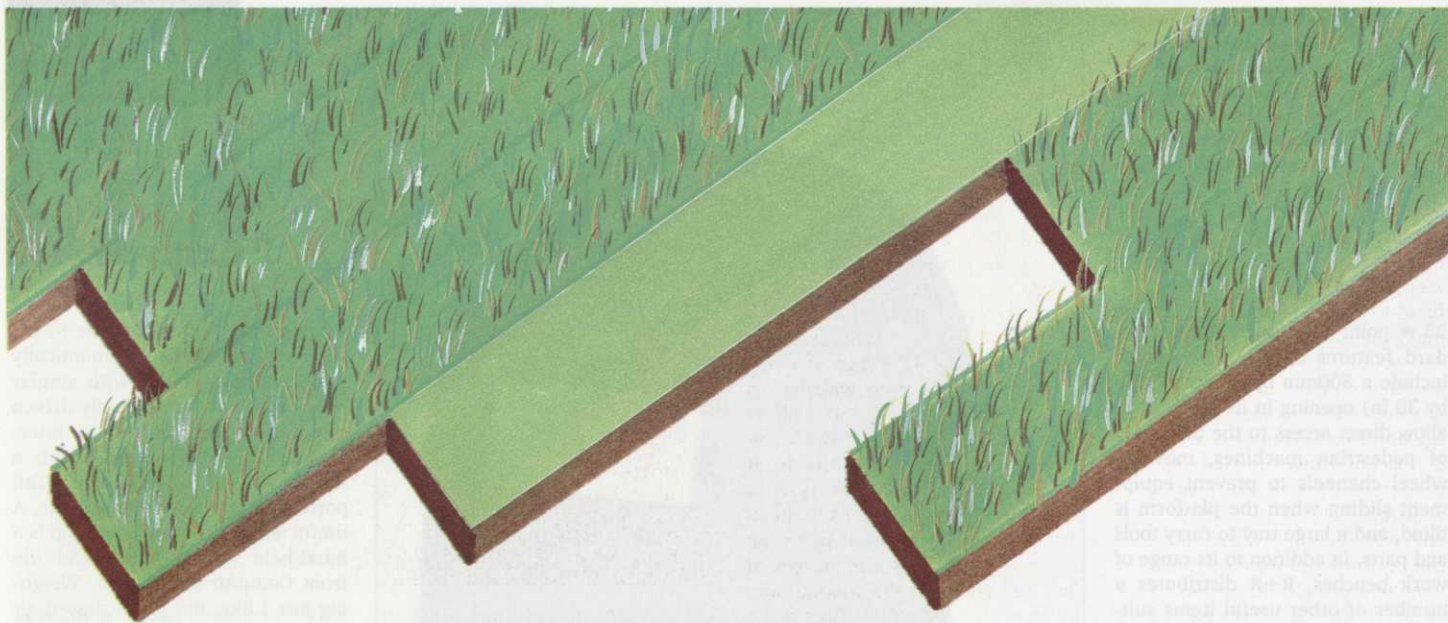
For repetitive work tightening or removing nuts and bolts in tight or awkward spaces – for example, those retaining scarifier or aerator blades – Harboran's air-powered mini ratchet provides a compact rapid solution available with either 1/4in or 3/8in square drive for use with standard sockets and extensions. Maximum bolt size handled is M6 revolving at 200 rpm. Price is a competitive £70.60 for either drive size.

Tractor tyre removal for puncture repair usually means calling in a specialist unless one is prepared to expend time and effort using a sledge hammer, wedges and tyre levers to 'break' the bead holding the tyre to the rim. Now, with the aid of Bead Buster, one person can repair punctures in the workshop, without even having to take the wheel off the tractor. The device, which weighs just 4.5kg, is inserted between the tyre and its rim. A few turns on the ratchet handle produces 10 tonnes of pressure – enough to break the bead and push the tyre into the rim well, from where the tube can be removed, repaired and replaced. Cost of the Bead Buster is £125 plus VAT, delivered.

Welding is an area which has seen some considerable advances in equipment and techniques over the past 20 years. With safety a prime concern in the majority of service and repair workshops, it is appropriate that BOC, a leading supplier of gas for welding purposes, should have produced a video on the subject. Costing £11+VAT, the video provides a concise guide to safe operating procedures for welding and cutting using oxygen and gas. Copies are available through BOC suppliers.

Metal Inert Gas or MIG welding is becoming increasingly widespread due to the improvements it → 27

WHAT'S NEW



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The 'Leader' range of grinders not only achieves this but offers many features unequalled on any other machine, making them the ultimate in lawn mower grinders.

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system, fully enclosed canopy that reduces noise and dust levels to a minimum and safety cut out devices that allow the operator to leave the machine whilst on automatic operation with absolute confidence.

For a demonstration and further details contact:— Linda Adams



WHAT'S NEW

25 → can bring to work rate and the finished job. These benefits arise from the fact that MIG welding uses continuously-fed wire from a reel, eliminating both the stopping and readjustment necessary with a hand-held welding rod. Another major difference between MIG and Arc welding is that instead of using a coated rod, gas is used to protect the weld from the atmosphere, leaving no residue. Although it is easier and cleaner than Arc welding, MIG is more expensive. However, it is well-suited to welding thin sheet and, with different wires and gasses, can be employed for mild steel, aluminium and stainless steel using the same equipment. Because gas is used to 'shroud' the weld, MIG welding is not ideal for use outside where wind can upset the process. However, a hybrid combining the best features of Arc and MIG welding is now available, eliminating this problem.

Gasless welding, as the system is known, employs a continuously-fed wire which is cored with a solid flux, similar to an Arc welding rod, which prevents the metal reacting with air. Simple, relatively inexpensive and ideal for use outside, the technique is suitable for bonding all mild steels without the need for a separate gas supply. Gasless MIG

welding equipment is available from Clarke International and SIP. The latter also produces a combination MIG/Gasless machine for the ultimate in versatility.

Many engineers who do not weld regularly – and many who do – will appreciate the new Speedglas welding helmet from Spaldings, allowing completely hands-free welding. In simple terms, this £160 helmet enables users to see the work and welding rod clearly until the arc is struck. The moment light reaches the helmet filter it darkens, protecting eyes against harmful radiation and the damaging consequences of intense light from the welding arc. Invented in Sweden, the filter in the Speedglas helmet uses polarisers and liquid crystal cells working in conjunction with photosensors which react immediately to changes in light intensity.

The welding filter is powered by a standard 12 volt battery with a lifetime of about 1,000 hours. It turns off automatically after 20 minutes. As a fail-safe measure, the welding filter reverts to a dark condition if the battery fails while in use. Because the helmet can remain permanently in the 'down' position, the manufacturer recommends the addition of a respirator unit for those carrying out extensive welding



Baelz mobile fuel retrievers are designed for the safe removal, storage and refilling of petrol and diesel. Earth leads eliminate risk of sparking

tasks. A belt-mounted motorised air filter unit provides a supply of clean air to the helmet, preventing condensation and expelling excess carbon dioxide.

For those who need a supply of cleansed air to the complete work area, a fully-portable filter extractor from Electac will be the answer. Available in a range of sizes, the unit extracts welding and other fumes through a flexible pipe and nozzle, returning clean, electrostatically-filtered air in its place. Quiet running, the extractor can be supplied with standard, high efficiency or charcoal filters and includes 3.75m of 45mm or 65mm extraction

hose, depending on the model chosen.

The ability to cut metal cleanly and accurately, without gas or reciprocating blade, will appeal to all involved in fabrication or repair work on mild or stainless steel, aluminium, brass or copper. Air plasma cutters combine the heat of an electric arc with the force of compressed air to cut through most metals of up to 30mm thick, and greater. Machines from Welding Star and SIP feature pilot arcs for easy starting on painted surfaces, with no pre-preparation necessary.

The use of air to force the arc ('plasma') through the metal → 28

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- Ely City Golf Club

- Gleneagles Hotel
- Goring and Streetley
- Hags Castle Club
- Harpenden Golf Club
- Kinross (Green Hotel)
- Leek Golf Club
- Lingfield Park
- Massereene Golf Club

- Mere Golf & Country Club
- Milltown Golf Club (Dublin)
- Muirfield (Gullane) Golf Club
- Omonde Fields Golf Club
- Ponteland Golf Club
- Royal Ashdown Forest Golf Club
- Royal Dornoch Golf Club
- Royal Liverpool Golf Club

- Rye Golf Club
- St Andrews
- Sialely Hall G&C Club
- South Moore Golf Club
- Tehidy Park Golf Course
- Turnberry Hotel
- Washington Moat House
- Whitecraigs Golf Club



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"It is the best piece of machinery this course has ever invested in, a fine machine that I would recommend to anyone." Mr. John Bashford, Head Greenkeeper of the Green Hotel Golf Course, The Kinross Estate.

"A quality machine that gives a superb finish to our cylinders, and saves money." Mr. Derek Green, Head Greenkeeper of Royal Liverpool Golf Club.



The NEW JUNO 36" capacity Cylinder and Bottom Blade Grinder will accommodate every make and type of Professional and Domestic cutting cylinders and soleplates. Simple to operate, fast changeover from cylinder to bottom blade grinding.



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AD REF 73

WHAT'S NEW

27 → and to cool the work means that the cut is extremely clean, with virtually no distortion, even on very thin metal. Murex has introduced a highly portable unit suitable for single phase electricity and with an air pressure demand from 5-10bar (70-150psi). Weighing 20.5kg, the Sabre-arc 40i has a cutting capability of 15mm at 40amps, said to be almost double that of most 40amp plasma cutters. The result is safer working with reduced power consumption and an extended working life.

The handling and storage of diesel and petrol is causing increasing concern to Health and Safety officers, particularly when draining equipment tanks prior to major overhauls or repair work. Mobile fuel retrieval equipment from Baelz, a division of James H Vickery, is designed to facilitate the draining of fuel tanks in accordance with latest H & SE and COSHH legislation. Available in three sizes - 50 litres, 135 litres and 2 x 135 litres - the retrievers enable petrol and diesel to be withdrawn, stored and replaced with maximum safety and convenience. All retrievers feature an anti-flash device, earthing straps, braked non-spark wheels, shut-off valve, anti-theft device and contents gauge.

No article on workshop equipment would be complete without some mention of cylinder grinding. Describing back lapping of cylinders in many areas of the UK as 'a hit and miss affair using a variety of home-made concoctions', Derek Cooper of Garfitts International points out that the practice is a must for most greenkeepers in the USA seeking high performance from their machinery. Hoping to redress the situation on this side of the Atlantic, the company has now introduced to Britain an American-made back lapping compound. Described, rather medicinally, as Garfitts reel sharpening compound, it is available in ready-mixed 2kg tubs in fine, medium and coarse grits. A booklet produced by its American makers describes in excellent detail the reasons for and methods of back lapping cutting cylinders. It is hoped that a copy of this booklet or its contents will be provided to each purchaser of Garfitts' compound.

Relief grinding of cylinders is advocated both within this booklet and by Eric Hunter, managing director of the machinery company which bears his name. His single blade grinding technique produces a relief angle of between three and ten degrees on the cutting edge. This is achieved by approaching each



Up to 10 tonnes of pressure is produced by the Bead Buster to help remove tyres from rims without the use of hydraulics, pneumatics or very large sledge hammers

less damage to the grass than with rounded edge or badly ground cylinder blades.

For single blade grinding, the cylinder is removed from the mower and mounted in tailstocks on the grinder, where it is held within bearings while the grinding work.

Of real interest to greenkeepers is Supreme Mowing's introduction of a 4" relief grinding attachment for their range of grinders, which enables the user to impart a healthy relief angle on small diameter multi-bladed cutting cylinders like the Ransomes GT or the Jacobsen Greens King.

Those wishing to grind cylinders 'in situ', still mounted in a pedestrian mower or within the cutting head in the case of a ride-on machine or gang mower, should consider the Supreme Mowing 'Leader', a free standing frame with a cast iron bed and 2" precision ground guide rails that ensures an accuracy of less than 0.005" in 30" in straightness, whether grinding in situ or out of frame.

Alternatively, they can choose from the Atterton and Ellis Express Dual standard or Professional models. Using the spin grinding technique, these machines can also be used as a separate cylinder grinder.

blade from slightly below centre with the grinding wheel. The benefits of accurate relief grinding are many fold, according to Mr Hunter: "It is often quicker than the conventional spin grinding technique in Britain", he says.

"However, from the engineers' viewpoint, creating a relief angle on each blade has many advantages. These include reduction of drag created by excessive metal contact with the bottom blade, thereby minimising friction and increasing working life, fuel economy and the time between adjustments".

Other advantages, points out Mr Hunter, include the ability to mow in very wet conditions and, because the cutting action is cleaner, cause



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A lot to live up to

We face a daily barrage of statistics. For example, earlier this year the English Golf Union reported that there were almost as many planning applications for new golf courses (1,890) as there are existing courses. Nearer to home, the greenkeeping market in the UK was recently estimated to be a massive £187m per year.

Not wishing to be left out, I too have some statistics for the readers of Greenkeeper International. Think of the M25... that's if you can bear to! It runs round Greater London and its suburbs, an area of land which roughly equals the total area covered by golf courses in Great Britain. It is a substantial area indeed and is one which is managed by greenkeepers.

Returning to other people's figures: a few years ago the then Nature Conservancy Council (NCC) the nation's advisor on conservation matters, published findings concerning the loss of wildlife habitats. These made disturbing reading. In the years since the Second World War Britain had lost 95% of its flower-rich meadows, 60% of its lowland heathland and around half of its ancient woodland. The losses were the result of agricultural intensification, industry, housing and road development. Although these losses have slowed down in recent times, due to a combination of agricultural recession and government policies designed to reduce over-production whilst lessening the impact of agriculture on the environment, they still continue. Needless to say, Britain's wildlife needs all the help it can get in the face of such an onslaught and that is where golf courses come in.

Before we continue, consider the following tale. Among the wildlife frequenting the golf course is the greater-spotted-golfer (*Homo golfus*) of which there are over 2 million in Britain. This species depends almost entirely on golf courses for its existence, where it can be seen foraging on golf courses during daylight hours hunting for small, spherical objects either singly or in groups of up to four individuals. Greater-spotted-golfers are, by and large, harmless creatures, though greenkeepers are advised to approach them with care as they have been known to become aggressive under certain conditions (eg. in inclement weather). The species is breeding well in Britain and its numbers are growing steadily, in fact golf courses architects and constructors are working hard to create new habitats for the increasing population. So far the story is a happy one. But what if the unthinkable happened and 95% of the greater-spotted-golfer's habitat disappeared. The two million individuals which now range across 2,000 courses would have only 100 sites on which to live, and a single golf course would be unable to sustain the needs of 20,000 individuals. If this ever happened, not even St Andrews miracles could save the greater-spotted-golfer!

The above may only be a story, but it is said that truth is stranger than fiction. There once lived in Britain a creature known as the large blue butterfly (*Maculinea arion*). It was a beautiful butterfly and could be seen on bright summer days flying among the meadows where it lived. However, as the meadows started to disappear, so did the large blue. It became extinct in 1979.

Extinction is forever... and that is why conservation is so important. Golf courses can be a valuable resource when it comes to nature conservation and already make a significant con-



tributions to our natural heritage. This fact was acknowledged by Ian Dair the communications director of English Nature (EN) (England's successor body to the former NCC) who highlighted the environmental responsibilities of greenkeepers in a recent August edition of Greenkeeper International.

He also stressed that the public perception of the impact of golf on the environment was an important issue that needs addressing. Like many of my colleagues, I am frequently asked the question "What's ecology all about?" When faced with such a question I am often tempted to reply "Oh, just life, the universe and almost everything". It is precisely because the environment is so big that we, all of us, tend to be somewhat overawed by it.

But it needn't be so. The environment works according to a few basic easily understood concepts. Nature has its own economy and budgets accordingly. All living things operate through a series of checks and balances, cycles and networks. The skill of an environmental manager... and here I include the greenkeeper, involves understanding something of how the environment functions so that one can work with it rather than against it.

In the course of researching, writing and helping to promote the NCC/EN publication 'On Course Conservation' and its follow up document on environmental management planning I have seen some many instances where golf courses are managed for wildlife to the benefit of golf and the environment.

Still more can be done to improve nature's handicap. Your course needn't have a Site of Special Scientific Interest (SSSI) or some other recognised designation to be of value to wildlife, just keep on managing with good golf and conservation in mind

and let your course continue to be one of Britain's unofficial nature reserves.

There's a great deal of conservation potential within the average course. Take water features, for example: lakes and stream are not only of landscape and strategic benefit, they are also a focus of attention for wildlife in the absence of the scores of village and farm ponds which have been drained. Hedges within and around the course are also good places for wildlife many of which do a good job on the course in keeping down pests including worms and leatherjackets.

Conservation requires planning and forethought-just like any other management project. With this in mind, does your course have a conservation management plan? Does it have a tree planting or agrochemicals policy? Do the members know about the wildlife on their course? Likewise, do they know of the work you are doing to protect and enhance the environmental value of their course?

Greenkeepers have a great deal to be proud of as custodians of golf's living heritage and a lot to live up to too. So keep up the good work... and keep golf green!

◆ The author, Dr Anne-Maria Brennan, is a biologist with research interests in the environmental aspects of golf. If you have any questions, comments or examples of the greening of golf we would like to hear from you... just write care of the editor.

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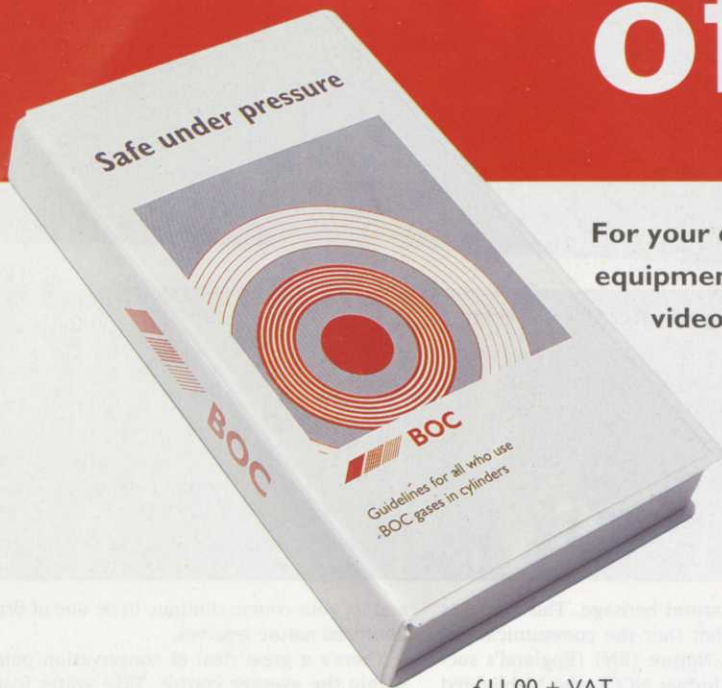
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