

# 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

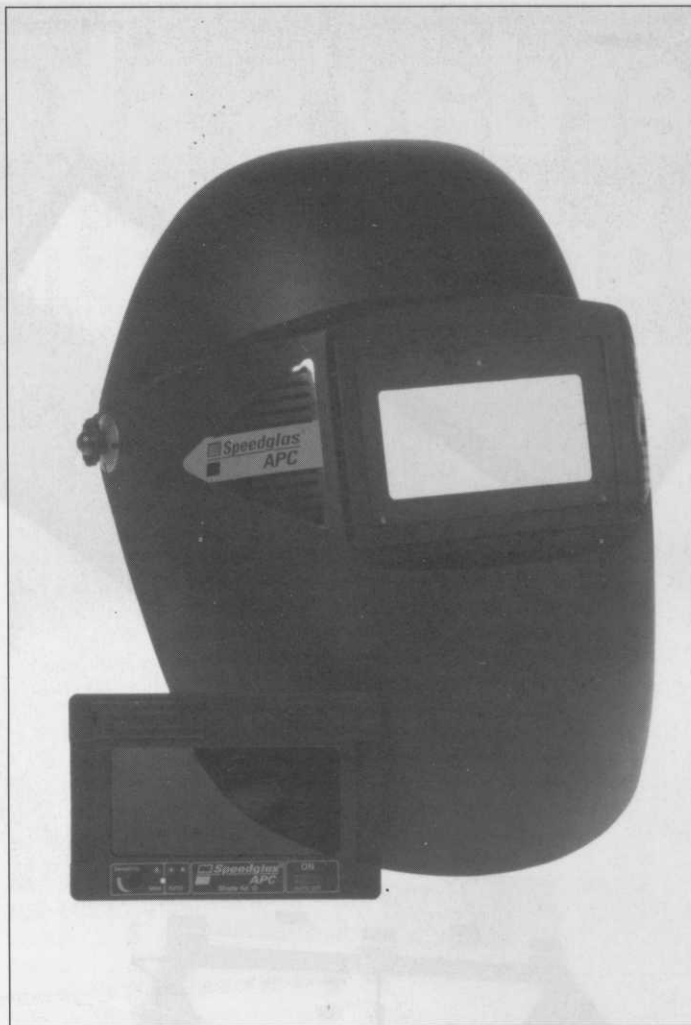
in one of the new free-standing benches which can lift equipment from ground level to a suitable working height at the touch of a button. Operated by air, hydraulics or electric motor, these benches are expected to become an essential part of workshop equipment in the coming months for, as workshop equipment 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

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

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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

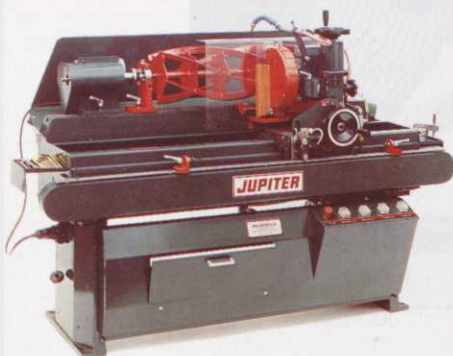
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27 → and to cool the work means that the cut is extremely clean, with virtually no distortion, even on very thin metal. Murex has introduced a highly portable unit suitable for single phase electricity and with an air pressure demand from 5-10bar (70-150psi). 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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