

Auto brake skimming saves thousands

Northumberland County Council charge-hand Steve Gray reports “significant savings” on brake discs and associated items, as well as labour, since buying an on-truck brake lathe. He also claims that the council has increased its first-time MOT pass rates and that it is saving the environment by re-using existing discs.

Gray explains that he originally specified the equipment to solve problems with corroded and warped discs, primarily on gritters left standing between winter seasons. Given the severity of salt exposure, the council was having to replace discs at a cost of £600 for 4x2s and £900 for 6x4s, for the discs alone. Add in pad sets, as well as labour and making good seal damage incurred when the hubs were extracted, and every truck was costing a lot of money.

Having seen Pro-Cut Europe’s brake lathe at the CV Show, he was convinced that he could change all that. “The machine cost £7,500, but I could see we would save that on half a dozen wagons,” he says.

And so it turned out: “We use the lathe to



skim the discs on every single truck in the fleet now and our brake lock-out efficiency rates are now 65–70%, which is 15% more than VOSA wants for service brakes. And although our gritters don’t need MOTs, none of them performs below that on the brake tester. The machine is definitely worth the money: it minimises downtime for the vehicles and also decreases the potential for

injury to technicians,” he insists.

Gray makes the point that truck calipers are heavy, so not having to disassemble the hubs is a significant benefit on its own – but it also saves time and eliminates risk of damage to bearings and seals. With the truck wheel off, the adaptor simply bolts directly onto the hub, he explains, and the lathe then connects to the adaptor. That runs automatically, taking about 20 minutes to complete a skim, while the technician works on the other side. “The hardest bit now is removing the wheel. So a technician can complete an axle in an hour.”

He also mentions other savings – for example, machined discs provide a true surface, so brake pads routinely give 80,000 miles’ life, instead of wearing unevenly on old discs. That means more time and distance between pad changes. And then there are those MOT pass rates. “The lock-out performance we get for brakes after skimming is always higher than VOSA specifies, because skimmed discs perform as well as new discs.”

Wheel security: the voice of experience

Having read our feature on wheel security (Transport Engineer, January page 24), Mike Phoenix, of Mike Phoenix Consulting Engineers, wants technicians and fleet managers to benefit from a six-month study he carried out, as senior engineer for a major fleet insurance company.

Main background points to note, he says, include the following. First, steel, when it corrodes, expands between eight and 10 times – meaning that it’s easy for 1mm of soft, yet brittle, lumpy and uneven rust to ‘grow’ on mating faces. Secondly, dirty, rusty and/or unlubricated wheel nuts and stud threads reduce clamping forces by 40–50%.

Thirdly, driving forces to the wheels should be transmitted by friction at the mating surfaces. Fourthly, wheels fit on a central hub spigot, which controls centralisation. And fifthly, wheel stud holes have a clearance of 4mm, so technicians should ensure that is maintained on fitting and tightening.

Phoenix next reminds us of common findings on wheel detachments. Vehicles involved are generally older and with big mileages. Wheels recovered often have elongated, polished fret marks, where wheel nuts have rubbed on the wheel face. And



wheel studs are usually heavily worn, where the wheel has battered against the studs.

Other observations include that: where broken studs are recovered, some have nuts still attached; the mating faces are usually dirty or corroded; studs are often stretched; and threads on studs and nuts are dirty.

For Phoenix, the way forward is then about sound engineering practice. “First, check the nuts and studs for condition – and discard any suspect items,” he says. “In fact, studs should be changed, maybe bi-annually. Then all stud and nut threads should be cleaned thoroughly, checked for absolutely free running, before lubricating with a ‘super lubricant’. Next, all mating surfaces – wheels,

brake drums, hub faces and centre spigots – must be de-rusted and cleaned, ensuring that they are flat.

“Then, where brake drums are fitted, attention must be paid to the condition and security of the countersunk retaining screws, also ensuring that the heads are below the mating face of the drum. Those screws are essential: they not only secure the drum, but also hold it in position to give correct clearance between the wheel studs and brake drum holes. And finally, the cleaned and checked wheels should be fitted, paying attention to maintaining the clearance between the studs and wheel holes, to stop the studs driving the wheels.”

Other tips: Phoenix suggests that, to maintain stud clearance, make up two tubes of appropriate ID and OD, so you can fit and nip two pairs of opposing nuts first. Then, on torquing, he suggests that fitters mostly over-tighten, so you should check workshop procedures – and that includes rethinking how pneumatic nut runners are used.

Beyond that, kissing goodbye to detached wheel events is about regular checks and inspections – and not relying on wheel nut security indicators.



You can't beat quality engineering

Don't buy budget workshop equipment, if you want it to last and to continue to perform safely to specification. And make sure that, if you're preparing for a workshop revamp, you consult an organisation with a good track record. That's the advice not just from Tony Portlock, projects manager at garage services firm Gemco – from whom you might expect such comments – but also Dieter Hughes, head of workshops at Venson Automotive Solutions, the independent fleet management specialist.

Last year, Hughes commissioned Gemco to design and equip a substantial new workshop and bodyshop in Welwyn Garden City, primarily to support Hertfordshire County Council's fleet of 2,300 vehicles – a contract that was renewed last summer. He explains that Gemco won the deal, partly due to its size, engineering capability and experience – but also because of its approach to partnering with clients.

"I class Gemco as part of the main bank of transport engineering knowledge and, on this kind of job, you need a company large enough to be an all-round partner," he says. "You also need equipment to be fit for purpose and with good backup. For me, that meant buying British supported – such as Beissbarth wheel alignment systems and Gemco's Stenhoj lifters," he adds.

As for the project itself, the combined facility had to be designed to handle everything from cars to LCVs, low loaders, library vehicles, community transport buses

and the emergency service vehicles for Hertfordshire Fire and Rescue. It also had to be completed to a tight two-month deadline.

Looking at the workshop, Gemco supplied two MOT bays: one a vehicle lifting platform for class 4 and 7 cars and LCVs; the other, next to it, a VOSA inspection lane over a steel pit for Class 7, 5, HGVs and PSVs, equipped with a commercial roller brake tester, shaker plate and tachograph.

Beside those, the company also provided a maintenance area for fire engines and HGVs. This is served by two twin-ram 30-tonne in-ground multiplex hydraulic lift systems, equipped with bespoke adapters for the fire engines. Hughes makes the point that they were also designed to handle low-entry vehicles, such as mobile library trucks and Mercedes and Iveco minibuses, and that they can tolerate unbalanced weights, due, for example, to water storage on fire engines.

Service and bodyshop

That area is also supported by a full lube facility, with four grades, all on flexible hoses, as well as a waste oil system. A similar system, with lube service reels suspended from gantries and retractable LEV for exhaust gases, then supplies a 14 bay vehicle service area. That is also equipped with three two-post mechanical lifts, rated to 5 tonnes, and two more 3.2 tonners, as well as a 5-tonne four-post hydraulic platform lift and a set of mobile columns.

As for the bodyshop, that was equipped

with everything from a computer-based paint mixer (Standex in Stevenage) to two spray booths – one back-draft for HGVs and one down-draft for cars and LCVs, by Dalby – as well as a body jig lifter from Car-O-Liner.

Hughes makes the point that the bodyshop can run independently of the workshop, and has a pair of two-post lifts (3.2 and five tonnes), a two-poster for four-wheel alignment and a set of four mobile mechanical lifting columns, all from Gemco. He also says that Venson is currently going for PAS125 and ATA certification.

On the air services side, Gemco designed a combination energy-efficient compressor system, providing clean air for bodyshop staff and fire brigade testing, as well as for the workshop air tools. Then, in terms of electrical work, it provided supplies from the existing mains to both the workshop and bodyshop – with power into the spray booths, compressors, LV sockets, etc.

The secret of success, says Hughes, is to look for reliability and service backup. "The supplier needs to have longevity in the market, so the warranty is worth something. But also, the equipment needs to be well-built and not bought on price only.

"Best value is what's important to us," he says. "For example, we went for a single structure solid steel pit, with built-in roller brake, oil extraction, air lines, lights, escape routes etc for the Class 7 and 5 lane, in line with VOSA's recommendations – not a cheaper version."