

Giving RCVs a lift

Having started a comprehensive trial with the Ecoprocess electric binlifter being flooded, cleaned and restored, Garry Middleton and the team at Hull City Council have made some interesting discoveries – and there are more environmental gains to come...

Garry Middleton and the team at Hull City Council shouldn't need any introduction when it comes to being at the forefront of evaluating new ideas – after all, the City has a mobile library with on-board computers, and other systems that are powered by solar energy.

So, you're a manufacturer of a new item of equipment, or component, and you want to find out how well it will work in service in an urban environment. In order to iron out all the bugs before your sales people walk into the offices of the major users in the country, who would you place your kit with for a trial period, first? If your answer had the words 'Garry', 'Middleton' and 'Hull' in it somewhere, you'd at least be heading in the right direction.

We've been here before, back in August, 2006 to be precise, when VP&T went to Kingston-upon-Hull to do a story on how well the Air-Weigh system worked. Garry was concerned about the cost and effectiveness of the more expensive full house systems on the market and decided to look around for alternatives. That 'looking around for alternatives' thought seems to be part of the Hull ethos. And what's interesting about Garry's approach isn't that he doesn't believe a word any sales rep says. It's more that he wants to satisfy himself that the product is as good as the sales pitch.

Much of the City's fleet of refuse collection vehicles (RCVs) is due for replacement soon. Garry is determined that the next generation of vehicles will be capable of not only meeting the City's policies for the next decade or so, but also that the crews have better tools for the job. It's a job that needs to be tackled urgently.

Lower carbon footprint

We should all be looking for better quality kit that offers value in utilisation and reliability, while being safer and returning a lower environmental/carbon footprint. Single-engined vacuum sweepers do that. And working with local distributor Londonderry Garage, Hull is a major user of Scarab machines. Likewise, Heil RCV equipment offers advantages relating to providing packing power at low engine revs.

If the Heil system enables the truck engine to be used at reduced engine revs, what else



1. Much of the City of Hull's fleet of RCVs is due for replacement soon and the team at Hull City Council is working to equip the next generation of vehicles with better quality equipment

2. Despite early teething troubles, the new lifter is fast in operation

could be done to reduce diesel consumption noise emissions while packing? And if there are some added tweaks that can be achieved to the spec of the next generation of RCVs, it's vital that the improvements in one area don't compromise other areas.

On the other hand, the advantages offered by the Ecoprocess electric bin lifter really do stand out in that they are fast in operation, completely silent, and offer greater safety to both crew and public. Except...

Well, you see, this is the problem with being British and working in the waste sector. As a nation we seem to have lost the ability to design and make things ourselves. Also, the waste industry is still very conservative and if you work in a major contractor, or local authority fleet situation, you'll know that 'thinking outside the box' isn't encouraged. The problem is, we have to think outside the box to find new and better ways to do things.

So, when Ecoprocess wanted to get real life operational experience, it was to the city of Kingston-upon-Hull they went. The statistics that came out of several months of operational trials (since March 2007) on a Seddon

Atkinson/Heil 6x2 mid-steer have already been well documented at seminars at the RWM event in September and in press releases issued by Ecoprocess, since. These should also be considered together with a presentation made by Gordon McLean of Heil and more recent news that Ecoprocess is working with the Cooper Group and Farid (Farid is also known for quiet operation of the packing cycle) to spread the message through hire vehicles.

Heavyweight solution

It can be taken as read that a Heil 26-tonne GVW RCV with an Ecoprocess bin lifter, will return at least an 8% fuel saving when compared to the same vehicle, working with a traditional hydraulic bin lifter. But the Hull trials underline that the calculation has to be done on a 'per tonne lifted' basis, not on MPG terms. There are also major health and safety gains.

Garry is also about to start a fully documented noise trial. Driver Karl Jenks and his crew are already more than happy with the performance of the Ecoprocess Isbjörn lifter fitted to the 6 x 2 Seddon Atkinson YJ05 TBO, despite a few teething troubles early on. "It's fast in



operation and apart from some issues relating to personal preference, all the loaders like it," says Karl.

Working with Garry and his team, Karl and his crew have suggested ideas that should make the whole installation even better. Garry has a list of 10 improvements. All are useful, none are difficult or expensive. This dialogue works so well, that Garry is now well into phase two of the evaluation process.

Having accepted that there is likely to remain a slight price disadvantage against the Ecoprocess unit (at present, it's around £2,000 per unit), the Hull team are keen to get a handle on the other environmental advantages of the electric lifter. Noise reduction is one saving that not only increases crew safety, but makes the vehicle more customer friendly and might even allow for greater shift flexibility.

"The key is getting the lifter to work in harmony with the truck engine revs and packer cycles," Garry explains. "We've been working closely with Heil and Londonderry Garage (the local Heil distributor), by replacing the existing two-stage pump and circuitry with a single pump system. The next step is to re-map the

engine and up-rate the current hydraulic pump output to allow the compactor to operate at lower engine revs while remaining within the engines optimum torque band width. A hot shift packer activated clutch PTO will give us true on demand hydraulic power."

Heil engineers suggest a further potential saving of around 4% – remember, in the transport industry, a 1% fuel saving is headline news, double figures are impressive and a 12% figure would be unprecedented. That's a carbon dioxide saving of something like 5-tonnes per vehicle per year.

Garry said: "We are considering substituting the fixed vane pump with an engine-driven variable flow pressure compensating piston pump. This will produce hydraulic power, provide the precise demand need for the compactor while also reducing high engine shock loadings, hydraulic oil capacity and weight."

So far, it sounds impressive. But while weight saving was promoted as a major advantage of Ecoprocess units, the experience at Hull suggests this doesn't pan-out as a major advantage – although anticipated savings in pipe work and pump will be more significant on a

3. The team are anxious to get a handle on the advantages of an electronic lifter. Noise reduction, for example, would make vehicles more acceptable to the public

4. Driver Karl Jenks and his crew have drawn up a list of useful improvements

'phase two/three' vehicle. A big advantage is that with the Isbjörn working with a Heil packer, the programming parameters can be adjusted 'on the fly', for example, the compactor can be activated on every lift or, if required, by 'basic bin weighing', through measuring the electrical resistance on the motors when the bins are lifted. This way, there's a 5% fuel saving.

Final surprises

There have been a couple of final surprises. Being electric, a spare Isbjörn lifter can sit on the workshop wall ready to be used. You could not do that so easily with a hydraulic unit because it will have oil in it. Secondly, Garry notes that the fans needed on modern RCVs often create an unpleasant dust cloud. "If we can use lower engine revs by utilising an electric lifter on smaller collection vehicles, that would be a major environmental gain," he says. **VP&T**

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