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# Reduce down time Raise profits



Top access equipment manufacturers know that less down time means more productivity and profit. That's why OEM's such as Genie, Upright, Pinguely-Haulotte and Crown trust the Trojan brand to power their brands.

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# Batteries

## 60 years unchanged

**Battery technology on items such as mobile phones has progressed phenomenally in recent years, but the basic technology of the lead acid battery has hardly changed in 60. C&A reports.**

Well-over half of all self-propelled powered access units in the UK and Ireland and a much higher percentage of scissor lifts run on batteries. A small minority of users have moved to maintenance free and gel batteries, while some have adopted the spiral cell units made by Optima. The vast majority of aerial lifts, however, continue to run with traditional lead acid wet batteries with capacities from 220 to 400 amp/hours depending on the application.

In 2005, Trojan Battery celebrates its 80th year in business and whereas the founders would be quite familiar with the product they produce today, Trojan was one of the first companies to recognise the potential for deep-cycle applications. The company produced specially developed batteries for golf carts in 1952, which were developed further into the batteries used on most aerial lifts today. Trojan's UK dealer, Squadron, claims to be market leader in the UK replacement battery market.

While the basic technology has not changed, the deep-cycle battery, produced by companies such as Trojan, Dyno and US Batteries, the three main after market suppliers in the UK and Ireland, has evolved significantly since 1952. The changes cover everything from the battery casing or "box", to the plate design, and everything in between. As recent as 35 years ago batteries still had rubber casings with pitch covers, wooden separators and cell

connections externally mounted on top of the casing.

Trojan in particular has devoted a great deal of energy to its casing with its distinctive, rugged reddish brown polythene construction. However, all of the users we spoke to thought that the casings on all of the principle brands were more than rugged enough to cope with typical aerial lift applications - something that was certainly not true even 25 years ago.

### US only thanks

The improvements incorporated by the main US suppliers have reached the point where every single rental company and fleet owner we spoke to was very clear that it would take a great deal of persuasion for them to buy anything other than a US deep-cycle battery. Not so long ago

many owners would have sourced locally produced batteries when replacing the original units. However, local batteries of the same physical dimensions were less powerful and users found that they would often last no more than a year. The major suppliers benefit from massive volumes in their home market along with the current advantage of a low dollar. This currency factor has allowed importers to absorb the significant increases in the price of lead that battery producers have been hit with this past year.

### More power for heavy scissiors

The most common battery in use on aerial lifts is the six-volt, 220/225-amp/hour deep-cycle unit - depending on the producer, the

standard dimensioned unit can offer up to 245 amp/hours, although the most powerful version is marginally taller. Having this little extra power can be useful with the increased gross vehicle weights of many small scissiors.

Manbat, with its main distribution outlet in Shrewsbury, has seen an increase in the number of aerial lift users buying calcium-sealed batteries for aerial applications. While they use the same technology, they are maintenance free, but the vast majority of batteries sold by Manbat are the still, standard units made by US Energies, which claims to dominate the original equipment market to US aerial lift producers. Manbat works through a number of local outlets, but also has a strong branch network of its own.

### More work from a single charge

In recent years there has been a vast improvement in the time and amount of work possible between recharges. Almost all of this gain though has come from improvements in the efficiency of the drive systems on modern lifts. Almost all battery-powered aerial lifts today use some form of motor control device with an increasing number also using direct electric drive for the travel function. This provides travel distances on a single charge that were unthinkable a few years ago.

Modern control systems offer another benefit in that most incorporate a low voltage cut-out to protect them from power spikes. This also prevents batteries from being totally drained, or "cooked", as used



*Trojan Battery celebrates its 80th year in business this year and whereas the founders would feel quite at home with the product they produce today, the company was one of the first to recognise the potential for deep-cycle applications.*

to happen, and protects them from burnout and a shortened life. A number of service managers claim that this is the reason behind a general improvement in overall battery life. Most companies that monitor battery replacement systematically also claim that batteries are now averaging between three and four years, compared to two years on older models.

Everybody that we spoke to had an anecdote of a machine still running happily with six- to eight-year-old batteries, proving that if well looked after, batteries can last much longer than is generally the rule. Dyno told us that most of the "quality" OEM batteries in modern aerial lifts will endure between 800 and 900 complete recharge cycles.



The most common battery in use on aerial lifts today is the six-volt, 220-amp/hour deep-cycle unit.

Looking at this simplistically, it is easy to see why a battery pack ought to last at least three to four years even if discharged and recharged every working day. However, poor maintenance is still the biggest cause of premature battery failure. Few companies we spoke to tested their batteries on a

routine basis with most simply ensuring that the electrolyte levels are kept topped up and only testing when problems start to occur - usually in the form of customer complaint or breakdown.

#### Maintenance training pays off

Both Manbat and Squadron batteries, the exclusive importer for Trojan, provides both maintenance training and training materials and publications for its customers' staff, while Independent Parts and Service told C&A that it now offers battery maintenance training as part of a battery supply contract.

Pulling mechanics out of the field for a day and sending them on a training course may seem expensive, but both Squadron and Independent say that the pay back can be relatively quick. The full cost of in-field battery failure can be substantially more than the cost of a new battery pack when you include the travel cost, the time, the delivery of new batteries and fitting them in less than ideal conditions. This is without the impact of lost hire and a dissatisfied customer.

Sophisticated battery testing equipment is now available, but the majority of rental companies said that a simple two-pronged voltage/amp tester, plus a hydrometer, is still the most practical option for field-based engineers, but few routinely use them.

#### Point of sale

So where is the best place to buy replacement batteries? Don't expect a single word answer. There are too many variables for that. If you are happy buying batteries in pallet load quantities, then most battery



Dyno batteries are fitted as original equipment by Niftylift.

importers will deal direct and probably offer keen prices. However, you need to consider the cost of storage, delivering to local depots, possible damage and wastage, and disposal of the old batteries.

As a result, most batteries sold in the UK and Ireland are done so through local stockists. Most sell batteries in lower quantities, often in fours (single-packs), and will deliver the new and collect the old. Some even offer a full replacement service, travelling to the machine in question, removing the old and fitting the new. With many rental companies suffering from a shortage of engineers, this service can be quite attractive, if a little pricey.

For the best of both worlds, our advice from last year still stands. If you calculate your annual battery usage you can then negotiate an annual supply contract with a local supplier and, not only obtain a keen price, but also benefit from the extra services that you may want.

In terms of prices, we were quoted £40 up to £55 per unit plus delivery for an order of four to eight standard six-volt 220/225 A/H batteries. Much will depend though on how regular a customer you are and how fast you want them.

Even at £55 they are a bargain when you consider that they will last three years or more. JLG UK was the boldest in terms of pricing, being keen to promote a £42.50 price for medium volume orders on a two- to three-day delivery service. It offers a JLG badged version of the Douglas battery, the same unit fitted to all new JLG production units.

It also has the exclusive distribution rights for Douglas aerial lift batteries in the UK, Benelux and Finland. JLG says that when selecting Douglas several years ago, it tested all of the main suppliers and found that the Douglas unit offered it the best all round performance and value. The company is keen to build up its sales volume in the replacement market.



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