

Choosing Forklift Battery Fleet Management Systems: A Comparative Analysis of Fleet Tracker and NAB-2000

Lead-acid forklift batteries are the most reliable source of motive power in the industry, but they require strict management to operate at peak efficiency. Fleet managers must have a plan to care for their batteries, and to make that plan, they need data.

A comprehensive battery room strategy covers every aspect of usage: tracking charges, choosing the best battery for every change-out, recording battery performance, timing cycles strategically, and keeping up with strict maintenance intervals. With all those moving parts, it is no wonder that the most successful forklift fleet managers rely on advanced software solutions to monitor their activities.

But not all fleet management systems are created equal. There are countless options on the market, and cutting through the rhetoric to figure out the facts can be a challenge. In this paper, we will compare and contrast two leading management tools for forklift battery fleets: BHS Next Available Battery (NAB-2000) and BHS Fleet Tracker (FLT). Each has its own set of benefits, and by understanding how each one fits into a given operation, managers can make the best possible choice to get the most out of battery investments.

Essentially, NAB-2000 is a tool that perfects battery rotation. Fleet Tracker does the same thing, but it also offers comprehensive monitoring for every other aspect of the battery fleet, from watering sequences to maintenance intervals to charge and run time. Choosing a system will depend on a given operation's fleet size, operational demands, and level of staff training. But no matter which option is right, every electric forklift fleet will benefit from one of these fleet management tools.

Advantages of Forklift Fleet Management Systems

Both Fleet Tracker and NAB-2000 provide substantial gains to operators of electric forklifts. Industry publication Material Handling & Logistics reported on the effectiveness of battery management systems in 2010, and that analysis reveals the power of these tools.

According to technical writer Del Williams, fleet management software can "help users avoid premature battery failure, under performance, or both." He points to the following figures, which recommend fleet management resources in no uncertain terms:

- Fleet management systems improve efficiency during change-out, saving at least 30 minutes of downtime per lift truck, per day.
- By optimizing battery resources, these systems can cut down on the number of required lift truck batteries by up to 50 percent.
- A leaner fleet can reduce total costs of battery charging and maintenance by upwards of 25 percent.
- These savings provide a return on investment in battery management systems in less than a year, and often in as little as nine months.
- A distribution warehouse studied in the article was able to reduce their fleet by 60 batteries, saving \$250,000 virtually overnight.

An article published in trade journal Modern Materials Handling in 2013 recommended fleet management systems in similar terms.

"By pooling and effectively managing those batteries, it's often possible to reduce battery inventory by one per lift truck," said industry insider Harold Vanasse, quoted in the article.

Given the advantages of a fleet management system, fleet managers cannot afford to go without. But which one should they choose?

Next Available Battery: Optimizing Forklift Battery Rotation to Increase Efficiency

Improper battery rotation is a leading cause of premature battery failure. What makes this error so prevalent in an industry dominated by statistical thinking?

Site studies have shown that forklift operators on their own choose the battery that is closest, or the newest unit in the system. These biases cause some batteries to be overused, while others sit idle for weeks at a time. In fact, a study published in Logistics Management found that human error causes an

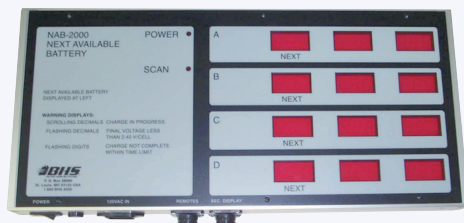


Figure 1. The BHS NAB-2000 provides a concise, single point display of battery status information. This at-a-glance information makes it possible to keep track of all the batteries in your facility, and to maintain the fullest state of charge in the equipment that uses them.

average of 30 percent of a facility's batteries to be under-used. Twenty percent, on the other hand, are over-used. That creates a highly unpredictable battery fleet.

Lack of optimal battery rotation also leads to over- and under-charging batteries, two practices that quickly diminish battery power.

Most modern forklift batteries have an expected working life of 2,000 charge cycles. When batteries are overcharged, the excess heat can damage cells, cutting down the maximum number of charge cycles available. To make matters worse, overcharging increases a battery's hydrogen production and lowers water levels in the electrolyte.

Under-charging forklift batteries fails to take full advantage of the charge cycle, which is a waste of energy. Besides, batteries require the full charging cycle to properly mix the electrolyte; a partial charging cycle will reduce battery efficiency considerably.

The Next Available Battery fleet management system provides a solution to this common operational inefficiency. It monitors battery charges every step of the way, from the start of the charge through the recommended cool-down period.

A clear, easy-to-read display shows operators at a glance which batteries are ready for use. By eliminating bias in battery choice, NAB-2000 ensures that every battery will provide the maximum possible run-time for lift trucks.

One facility tracked the difference between haphazard battery rotation and an organized system like the one provided by NAB-2000. They found that, with proper rotation, their average battery run time increased by nearly half an hour in only three months.

Next Available Battery allows users to achieve the most effective sequence of use for forklift batteries. It alerts forklift operators who inadvertently select the wrong battery with an alarm and/or a flashing light. It even logs all battery charge data for up to 40,000 cycles, so managers can analyze usage. But despite all these benefits, NAB-2000 is not a comprehensive battery management system. To fully control and analyze every aspect of the battery fleet, facility managers will need to track additional points of data. For that, they need Fleet Tracker.

Fleet Tracker: Comprehensive Data Collection for Advanced Battery Management

To truly right-size a battery fleet, managers need key data points on every aspect of a battery's usage. Logistics Management lists six crucial processes for battery health:

1. The ideal charge, neither too much nor too little.
2. A full discharge, usually 80 percent of the battery capacity.
3. Adequate watering.
4. Controlling battery cycles to prevent under- or over-cycling.
5. Regular battery washes.
6. Hardware upkeep, particularly on cables and connectors.

We would also add proper battery rotation, equalization cycles, and historical usage information to the list. Fleet Tracker monitors all of the above processes, producing user-friendly reports through an SQL Server database.

The system assigns each battery and truck an ID asset number. These unique IDs allow managers to spot under-performing batteries or trucks with electrical problems. Over time, data about all forklift assets will tell users the full story of a battery's effectiveness, and even help to predict future change of equipment or repair tasks.

Fleet Tracker is also easy on battery room staff. An ergonomically designed ID scanner automatically sends battery information into the system. There is no time-consuming manual entry, and with Fleet Tracker, paper logs are a thing of the past.

To implement a comprehensive battery fleet management system, with reduced change-out times and better output from every battery, Fleet Tracker is the industry's best option.



Figure 2. BHS Fleet Tracker™ uses the latest technology to provide a detailed look into an organization's battery inventory to help managers reduce maintenance costs, improve profitability, and increase productivity.

Making the Choice Between Fleet Tracker and NAB-2000

Again, the crucial difference between the two systems is one of scope. Facilities that have problems with battery rotation can solve their problem with NAB-2000 alone. But if a manager's goal is to increase forklift productivity, slash maintenance costs, and optimize battery life, Fleet Tracker is the right investment.

"The immediate and ongoing payoff of using a battery management system is spurring more company managers to optimize their motive equipment operations with the improved tactical and strategic capabilities that such systems provide," wrote Williams in his Material Handling & Logistics piece. Both NAB-2000 and Fleet Tracker will help businesses that rely on electric forklifts stay competitive. The only question is how comprehensive a battery management plan decision-makers are willing to introduce. The more data managers track, the easier it will be to achieve the full potential of every forklift battery in the fleet.

References:

Bond, Josh. "Lift Truck Tips: Battery management replaces gut reactions and guesswork." MMH. Peerless Media Network, 1 Apr. 2013. Web. 30 Apr. 2016.

Williams, Del. "Develop a Battery Management Strategy." MHLNews. Penton, 24 Sept. 2010. Web. 30 Apr. 2016.

Vanasse, Harold. "Other Voices: Lean thinking in the industrial battery room." Logisticsmgmt. Peerless Media Network, 17 Sept. 2014. Web. 30 Apr. 2016.

Vanasse, Harold. "Other Voices: Three major impacts on battery room operation and maintenance - #1: Battery rotation." Logisticsmgmt. Peerless Media Network, 17 Sept. 2014. Web. 30 Apr. 2016.

Data Points Tracked by BHS Fleet Management Software	
Next Available Battery (NAB-2000)	Fleet Tracker
Battery type and location	Battery ID asset number
Charger number	Charger number
Completion of charge	Truck ID, model number, and manufacturer
Charge time	Charge time
Peak battery voltage	Run time
Cool-down interval	Maintenance intervals
Date	Wash cycles
Time	Watering cycles
Battery chosen out of sequence	Optimal watering sequence
Errors during the charge cycle	Equalization cycles
	Rack configuration
	Missing batteries
	Historical usage information on batteries
	Truck hour meter reading

