

Battery Maintenance Programs

A very much overlooked and deemphasized aspect of many material handling fleets are the batteries that are required to keep that fleet running at peak efficiency. Battery health has so many repercussions to the fleet's costs and effectiveness. Run time is the first aspect that is compromised when a battery fleet is not maintained properly. This of course trickles down to through put and overall warehouse performance. A second and what can quickly become a very costly aspect is in undercharged batteries that result in extraneous machine repairs. When the charge in a lead acid battery falls below 30%, the battery heats up beyond its normal operating temperature. This excess heat is then transferred to the machine it is powering. This excess heat is then the catalyst for unnecessary and costly repairs. Every forklift has protected and unprotected circuits. Each unprotected circuit can be adversely affected by low battery voltage resulting in the need for diagnostic labor hours as well as parts failures. When a part is deemed failed by low voltage, any warranty that was issued with that part is no longer valid.

The two primary task factors to proper battery maintenance is charging and watering. It sounds very simple yet so many facilities have challenges with these two basic tasks. Each requires a level of responsibility by either the operator or a designated warehouse person. The number of shifts a warehouse employs also adds to the battery maintenance issue. Watering can be somewhat confusing. The chemical process that takes place during the discharging of a battery creates a reduction in the amount of water within the battery cells. When recharged, the water level rises again. If the person maintaining the batteries looks at the water level prior to charging, sees it is low, adds water and then puts the battery on charge, the battery will overflow as it charges making for a dangerous and very messy acid discharge on and around the battery. If the battery is housed within the forklift, this acid overflow can destroy cables and if not cleaned properly, can eventually destroy the body of the machine. Water should only be checked and added if necessary after the battery has been fully charged. Now let's get to watering. As a battery is charged and discharged, the water levels will be slowly depleted. As mentioned above, they need to be checked after charging but how much water is the right amount? There are watering systems that can be installed on the battery which will place the proper amount of water in the battery as well as eliminate the need for the maintenance person or operator to open the battery cells thereby greatly reducing the risk of acid burns and acid damage to the area. These systems have a small investment of between \$300-\$500 per battery and are well worth the cost.

So what exactly is a good battery maintenance program, what benefits will it bring to the fleet and what level of investment are we discussing? A well rounded program will include a six month PM of each battery which should be inclusive of a gravity level check of each cell of every battery. Also included should be the cleaning of each battery as well as the issuance of a comprehensive report outlining the current health and effectiveness of each cell and battery. Basically, the gravity level of a cell is the amount of acid within the water mixture in that cell. Gravity levels need to be maintained to maximize the chemical reaction of the battery during use and charging. Your batteries are comprised of a number of individual cells. These cells work in tandem to create the

amount of amperage necessary to run your fleet for the required shift usage. When one cell weakens, it draws on the remaining cells. When left unattended, the entire battery will eventually fail and in the time it takes for the battery to fail, your machinery is exposed to the low voltage issues we discussed earlier as well as the inability of the machine to make it through the entire operational shift. This will force your operators to waste time either changing batteries or looking for a replacement machine or worse, simply not achieving the level of work your throughput equations require. By completing a 6 month PM, any cells that are starting to show signs of decline are identified. Then the battery maintenance company will remove that battery to their shop facilities to add acid to the failing cell and conduct what is called a reconditioning charge. This takes the battery through what would be a number of uses. They monitor the gravity levels during this reconditioning. If all is right, the battery is placed back in service. During this time, the maintenance company should provide a loaner battery to your operation at no charge to you so that your operation is not adversely affected. Another benefit to evaluating each individual cell is that bad cells can be replaced within each battery before the effects are seen throughout the entire battery. Cell replacement should cost between \$300-\$500 as opposed to replacing the entire battery at a cost of between \$1,500 and \$4,500. Big difference!

An additional service that can be handled by the battery maintenance program is watering. If your staff is having difficulties keeping up with watering and as a result you are experiencing down time, additional repairs and poor battery performance, for a very small fee, the battery maintenance folks will send a tech to your facility every other week or so to monitor and water each battery. The only caveat to this service is that you must have watering systems on each of your batteries. If watering is an issue, this service can save you significant dollars as well as downtime. It also then places the responsibility of water maintenance on the service company. Any repairs that are found to be a direct result of lack of watering will be redirected to the maintenance company rather than you.

The services discussed range in cost from between \$11.00-\$25.00 per month per battery depending on your demographic region and what level of service you engage. It is strongly recommended that you obtain equal service quotes from at least two local battery dealers. If at all possible, issue these quotes to companies that specialize in batteries and not forklifts. The technicians that will be dispatched from a battery company are highly trained in battery technology and do not engage in forklift repair. They understand the nuances and specific needs of your batteries and have all the proper resources to best maintain and recommend the truly required needs of your battery fleet. When properly implemented, a battery maintenance program can yield a myriad of cost and operational benefits. It is something most definitely worth the time and effort in researching.