

## Will You Make it, Break It, or Break It Down?

### Making the Right Battery Choice for Your Fleet



#### RIGHT BATTERY, RIGHT APPLICATION

Putting the right battery in the right application makes all the difference when it comes to uptime and fleet performance. The wrong type of battery, or ones not equipped for your fleet's needs, can turn routine maintenance into emergency replacements, and anything done in an emergency or on the side of the road will cost some serious money. Not to mention that frequent battery replacement equals more downtime, more maintenance time, less reliable performance, and potentially some very unhappy customers.

In order to best determine which batteries are right for your fleet, let's take a closer look at the different battery types.

Most batteries in Class 6, 7, and 8 trucks are either standard "flooded" batteries or AGM batteries. A standard "flooded" battery contains electrolyte that flows freely inside the battery and can leak if tipped or punctured. For many applications, flooded batteries have been a staple providing dependable service for heavy-duty commercial trucks and their needs. However, truck designs are always evolving and demands on the battery have changed. It's important to remember that what might have been the right battery type for a truck type in the past, may not be the right battery for modern-day vehicles. Flooded designs basically offer two types of service. Let's take a closer look at each:



### STARTING SERVICE

Certain types of trucks can function on just Starting batteries like Day Cab, Dump Trucks, Line Haul, Mixers, and Loggers. Starting Batteries offer high starting and minimal cycle service. However, even these types of HD trucks are evolving to need more cycle service power for extra electronics and auxiliary loads.

### CYCLE SERVICE

Accessory power requirements have increased along with key-off loads. This creates many scenarios where the minimal cycle service of a starting battery would not be enough. Cycle Service (sometimes called Dual Purpose) batteries are better equipped to withstand multiple electrical loads, while providing ample cranking power to start the engine. The list of truck applications expands to Sleeper Cabs, Day Cab, Delivery Trucks, School Buses, Lift Gates, and Reefer Units where the battery is able to handle additional cycle service needs.

### WHAT'S WRONG WITH FLOODED BATTERIES?

Absolutely nothing for certain applications. They can be great performers in the right type of application and service. And if truck designs would have stayed the same over the last 15-20 years, there would be no problem in just using flooded designs. Today's trucks are technological marvels—pushing efficiency gains into MPG ranges previously undreamed of and key-off loads from devices on par with modern hotels – they're also way more demanding on the truck's batteries.

### WHAT'S THE SOLUTION TO THE TRUCK EVOLUTION?

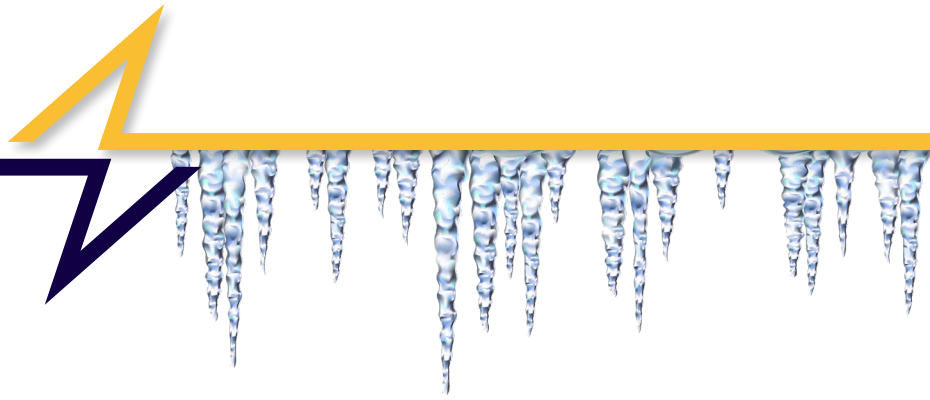
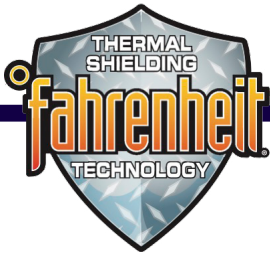
Batteries built with an AGM (Absorbed Glass Mat) design are the right place to start. These batteries are built with matted glass fibers that absorb electrolyte like a sponge. These "glass mats" are a step up, helping prevent battery damage from vibration and extend cycling. They also have a system of valve regulation that creates an internal ecosystem for the battery to promote long life through water retention, enabling premium maintenance-free performance. Although AGM battery designs can have more than twice the cycle life of a conventional flooded product, they still need to be designed for today's high temperatures in trucks.

### ANOTHER IMPORTANT EVOLUTION

Since 2011, truck designs have caused battery boxes to reach much higher temperatures – some even 140°F and beyond. That's hot enough to fry an egg — and temperatures keep rising. Instead of directing the vehicle's air flow to help cool the engine and other critical parts below the vehicle, a truck's cooling airflow is now up, over and behind the vehicle to achieve better aerodynamics and fuel economy. Heat generating items are positioned very close to the battery box causing the temperature in this metal box to continue to rise.

Heat is detrimental to batteries. That's why an exclusive new type of AGM battery, called Fahrenheit, was developed with a special Thermal Shielding Technology. With its protection against higher temperatures and a reinforced cycle service AGM design, it is the necessary choice for most HD trucks including Day Cab, Sleeper Cab, Dump Truck, Refer Truck, Lift Gate, or Line Haul Mixers.

In tests, Fahrenheit was compared against leading "pure lead" AGM batteries on cycle life and water loss. Fahrenheit batteries tested at 158°F had 43%\* more cycle life than competitors. Fahrenheit batteries tested at 140°F resulted in 88%\*\* less water loss than leading "pure lead" products in the market today. Less water loss equates to much longer field performance before battery failure.



### HOW ABOUT THE COLD?

Batteries experience so much heat in warmer months that they lose the necessary capacity and resiliency to have the power needed for winter temperatures. One of the best methods to protect your battery's performance in the cold is to protect it from the heat. Battery designs with some type of thermal or heat protection are best equipped to maximize the truck's electrical system performance in the hot or cold.

It's also important to note that even in Northern regions where high heat has not traditionally been a problem, battery box temperatures are reaching beyond recommended operating temperatures. Fahrenheit Thermal Shielding products are not only exceeding expectations in high heat performance but also extending cycle life under normal operating temperatures.

### WHAT'S MY TOTAL COST OF OWNERSHIP?

It would be great if a TCO could be calculated with a simple equation like:  $a/b = c$ . (a = purchase price, b = how long the battery lasts, c = cost over time). However, throw in some other factors, and the equation gets a bit more complicated. Let's take into consideration warranty. Warranty can help recover some of your initial purchase price (a) if your battery doesn't last as long as expected (b); however, the cost of high warranties is usually built into your initial purchase price (a) increasing that number in the equation. Let's also factor into the equation if you have to replace batteries sooner than expected (b) but have batteries that are warrantied. While you may recover some of the initial purchase price (a), now downtime becomes an added cost in the equation (c). So, it's better not to pay extra for warranty as a reassurance to get back some of your initial purchase price. It's also better to have longer battery life with a lower AGM initial purchase price (a), which you'll find with Fahrenheit batteries.

Let's also look at the added cost of increasing your potential of emergency repair or unexpected downtime. The cost of emergency repair factored into this equation will significantly increase your cost over time (c). This would also greatly exceed any increase you would have had with the initial purchase price (a) if you would have invested in premium AGM batteries. The same goes with customer dissatisfaction because of increased downtime. That added variable would totally skew the equation in a bad direction.

While the TCO equation for premium Fahrenheit AGM batteries is not simple, the solution for the equation is. It almost always pays to invest in a premium AGM battery like Fahrenheit—not only to achieve the best cost over time (c), but also to insure against all other variables that could significantly increase your operational and reputational costs.





### TECHNOLOGY AS AN ENABLER, NOT A COMPLICATOR

In order to keep up with evolving technology, truck parts need to be designed smarter. High quality, innovative parts keep trucks on the road—instead of stranded on the shoulder—making it vital for parts like the battery to be built smart. That's why we developed battery technology like Fahrenheit.

For more information about how Fahrenheit can help today's fleets, visit [www.fahrenheit31.com](http://www.fahrenheit31.com), where you can find a Fahrenheit Hotline contact form to help directly answer any product or application-related questions. It also includes tools, videos, and other resources to help fleets win the fight against downtime and emergency repair.



*\*Tests conducted at 167°F comparing Fahrenheit and Standard AGM batteries. Voltage and cycles measured after 10 seconds and 200 AMP load.*

*\*\* Testing based on High Float Temp Charge Water loss test data. Charged at 14.2 volts at 140°F, weighed twice a week and then subjected to BCI Load Test. Others based on 2 part number, 2 sample average. Fahrenheit on 2 sample average.*