

BREAKING THE HEAT WAVE

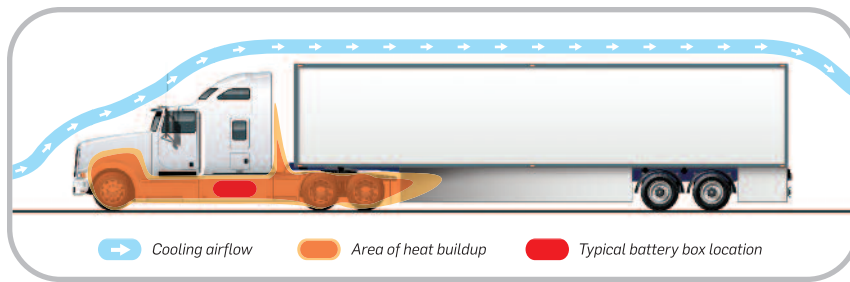


With A Breakthrough Battery Design

High temperatures are a widespread concern across the entire trucking industry. It is also a universal concern among parts manufacturers, dealers, fleet owners, and owner-operators. These groups are seeing alternators fail, belts stretch and hose connections expand, soft rubber seals harden, and even tires malfunctioning all because of increased vehicle heat. However, the truck parts that are taking the biggest hit are the batteries. Increased heat greatly accelerates internal corrosion and electrolyte dry out.



Who turned up the heat?



The majority of the airflow with the potential for cooling is directed up, over and behind the vehicle. Battery locations, especially battery boxes, are often excluded from the benefits of cooling with this airflow.

The name of today's game is fuel economy and emissions control. Instead of directing the vehicle's air flow to help cool the engine and other critical parts, air is redirected to help the vehicle achieve better aerodynamics to save on fuel. Battery boxes that had minimum ventilation to start are now having their airflow reduced to create less drag on the vehicle.

These boxes have been recorded to reach over 140°F, and the temperatures keep on rising. Exhaust systems or other heat generating items are being positioned too close to the battery bank all in efforts to save space and save fuel. For ordinary batteries, this means nothing but TROUBLE.

What's the solution?

Trucks are not going to stop traveling through varying climates, directing the air flow to save fuel, increasing the amount of electronics, working over hot summer months, or idling on hot asphalt pavements. **So what's the solution?**

- **Buy four new batteries after a single summer?**

That's expensive.

- **Run the risk of having to get emergency service because the truck won't start?**

That's really expensive with costs reaching thousands of dollars for minimum service.

- **Always drive through the most northern part of North America?**

Even if that was feasible, high internal temperatures can even occur in cooler weather.

Also remember that the cold can be extremely hard on batteries and it really puts them to the test. Protecting it during times of higher heat can help maximize its performance in the cold.



A NEW BREAKTHROUGH SOLUTION

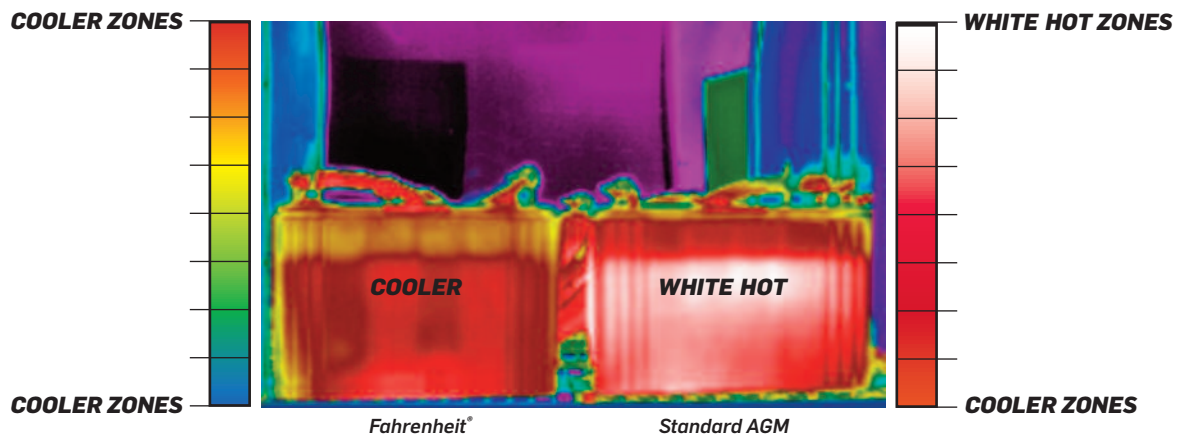
FAHRENHEIT® Thermal Shielding Technology

The real solution is a new battery breakthrough – East Penn's new Fahrenheit® Technology. This new battery design utilizes a revolutionary High Thermal Prevention System that extends battery life under hotter than hot conditions. Fahrenheit Technology also has a reinforced cycle service AGM design. This means that it better withstands the grueling demands of extra electrical loads in high heat environments. Fahrenheit Technology also provides strong resistance to excessive vibration from large trucks and their powerful engines.



FAHRENHEIT vs. Standard AGM

*Both batteries were exposed to 160°F charged at 14.2 volts.
Fahrenheit Technology significantly lowered overall temperature.
The white spots on the standard AGM battery represent higher temperature zones.*



Special FAHRENHEIT® Technological Features include:

THERMAL RESISTANT CONTAINER

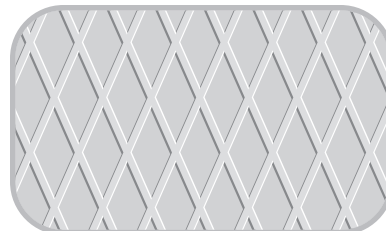
REINFORCED CROSSBAR STRUCTURE

- **Protects internal component compression and electrolyte saturation**

Critical to AGM performance in higher heat

SPECIAL HIGH-TEMP PROTECTION CASE

- **Improved rigidity**
Resists negative effect of internal higher heat build up
- **Improved heat protection**
Protects case structure and internal component performance



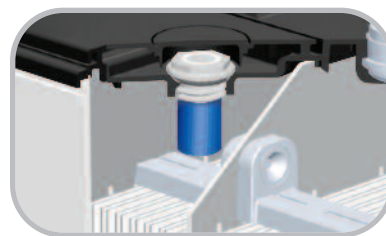
Reinforced crossbar structure protects case under high temperatures.



High melt strength polypropylene resists effects of heat on case.

HEAT REDUCTION CATALYST

- **Reduces rising internal battery temperatures**
Protects battery longer against the effects of electrolyte dryout, accelerated aging, and even thermal runaway
- **Properly balances oxygen utilization**
 - Optimizes recombination in high heat
 - Slows positive plate corrosion
 - Reduces heat and saves wear on alternators

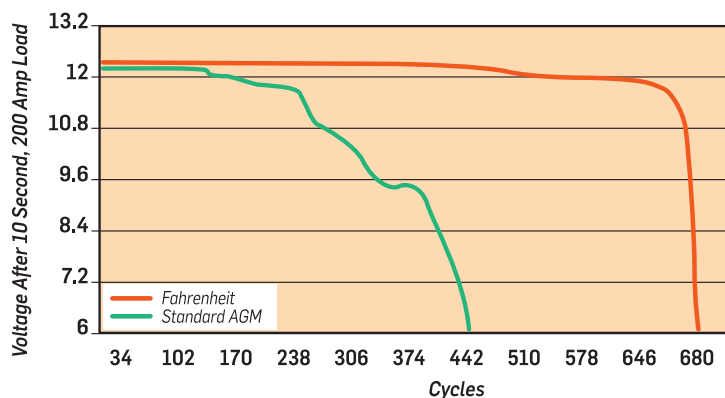


PUTTING HEAT TOLERANCE TO THE TEST

EXTREME HEAT FAHRENHEIT GROUP 31 LIFE RESULTS:

Fahrenheit vs. Standard AGM
J2801 testing @ 167°F.

Fahrenheit cycles 50% longer in extreme heat testing



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