

INDUSTRY SPOTLIGHT

Marine Industry

PulseTech offers the ideal solution for marine battery problems. A typical boat owner may be out on the water only on the weekend so the boat is usually not in use five out of seven days. That means the boat sits idle either indoors or outdoors most of the time. Lack of use and temperature extremes contribute to extreme sulfation buildup and shorter battery life.



The RediPulse 6-12 (735X260) and Industrial 12-Volt Solargizer (735X130) systems are designed to eliminate this problem once and for all. They actually prevent the normal loss of battery power on stored watercraft no matter how long they sit unused — *even months at a time*. At the same time they maintain battery capacity and increase battery life.



TESTIMONIAL

"Out of ten days, only two had full sun giving teams with a larger initial (battery) pack an advantage. The PulseTech products helped us recondition our battery pack increasing its capacity further than we had ever measured. In a race where a fixed amount of energy is available, using it efficiently is the key to winning."

Josh Pieper
Director of Electrical Engineering
Sunrayce '99 Winning Solar Car Team
University of Missouri - Rolla

SUCCESS STORY

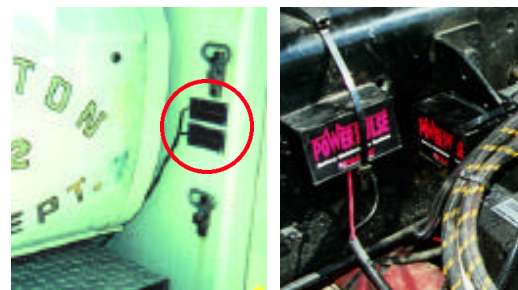
Houston Fire Dept. Improves Battery Performance

The Houston, Texas Fire Department services the fourth largest metropolitan city in the United States with approximately 50 stations. It uses over 260 pieces of fire-fighting equipment which include over 852 total batteries. With that many vehicles and all the electronic equipment they use, you can imagine the potential battery nightmares they could face on a regular basis. That's why Houston started using Solargizer and PowerPulse to prevent battery-related problems.

PROBLEM: During a routine call, fire trucks make an average trip of less than three miles, then sit idling at the scene. At the same time, electrical components such as emergency lights, radios and computers are kept on and draw a lot of power. This leaves batteries in a state of undercharge so the equipment will use more energy than the batteries are capable of supplying. As a result, the batteries only last about a year. Even if only one battery is bad it is standard procedure to replace all the batteries. This is costly, and it also requires engines to be put out of service for extended periods.

SOLUTION: Houston installed a 12-volt PowerPulse on the parallel batteries on a pumper truck, and the Industrial 12-volt Solargizer on the two batteries of a diesel refueling truck. Before installing the Solargizers, the refueling truck had to be jump started on a monthly basis. The batteries also had to be replaced every six months at a cost of about \$200. At the same time a control group of the same type equipment was also established *without* this technology so Houston could compare results.

RESULTS: At the end of the four months



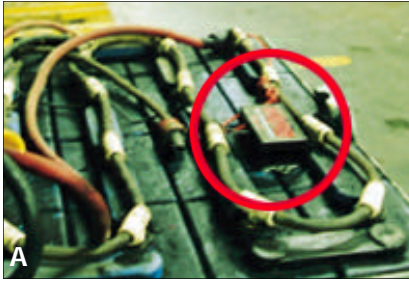
(Top) The Houston Fire Department is using PulseTech systems in order to improve battery reliability and increase battery life. (Bottom Left) Two Industrial 12-Volt Solargizers on a diesel refueling truck. (Bottom Right) 12-Volt PowerPulse units on a pumper truck.

both voltage and cold cranking amps (CCA) were up on the pumper truck with PowerPulse and down on the one without it. Also during this time the refueling truck never had to be jump started, and the batteries were in excess of their CCA rating. Higher voltage and CCAs means the batteries are stronger and more reliable. They are also more capable of supplying energy for vehicle electronics.

"On the units using the PulseTech systems the voltage and cranking amps have been maintained like new the past few months without having to charge the batteries," says George Martin, Fleet Maintenance Division Manager for the Houston Fire Department. "These systems have helped enhance fire department reliability and quality."

LEARN MORE: See your local PulseTech dealer to see how our products can help increase your battery reliability. For a dealer near you, call 1-800-580-7554. Or visit www.pulsetech.net.

SAMPLE INSTALLS



Installing PulseTech products is easy and well worth the time. Shown above are examples of actual customer installations:

- A. A major grocery chain using the 48-PowerPulse (735X048) system on a forklift battery to maintain maximum capacity.
- B. An Industrial 12-Volt Solargizer (735X130) solar panel installed by the steering wheel of a small yellow tractor.
- C. A UPS system with a 12-PowerPulse (735X012) installed near one of the batteries.
- D. The solar panel of an Industrial 12-Volt Solargizer (735X130) mounted on a taxi cab.

TECHTALK FAQ

Presenting a series of frequently-asked questions regarding the benefits of PulseTech products and how they can help your customers:

Can PulseTech products be used on more than one battery at a time?

It depends on the model. The RediPulse 6-12 is designed for use on one 6- or 12-volt battery, but it can also be used on two 6-volt batteries connected in series to equal 12 volts. The 12-volt PowerPulse model can be used on up to three 12-volt batteries connected in parallel. The Industrial 12-volt Solargizer can also be used on up to two batteries in parallel to prevent sulfation buildup on the plates, but if you want to maintain voltage in the battery you need to use one unit for a single 12-volt battery or two 6-volt batteries connected in series.

In a series application, you would use the total of the series voltage to size the unit. For example: Either the PowerPulse 24 or the 24-volt Solargizer can be used on two 12-volt batteries connected to equal 24 volts. Both also offer a 36-volt unit and PowerPulse even includes a 48-volt model. The RediPulse 36-48 model can be used on either a 36- or 48-volt battery system.

Each Solargizer unit is also designed to work on batteries up to their designated voltages. A 12-Volt Solargizer will work on batteries up to 12-volts, a 24-Volt will work on battery systems up to 24 volts and the 36-Volt will work on battery systems up to

36 volts. The PowerPulse 24, 36 and 48-volt systems are "voltage specific" which means they are designed to work only with their designated voltages: A 24-volt PowerPulse on a 24-volt battery system only, and so on.

The Solargizer Solar Charger will also charge more than one battery at a time. The 2-Watt works on two 12-volt batteries in parallel, while both the 5- and 10-Watt units work with up to four batteries in parallel. Both the RediPulse Pro-10 and the Pulse Recovery System can be used to desulfate and/or charge multiple 12-volt batteries at one time.

Will PulseTech products damage electrical systems on cars and other vehicles?

No, they will not. The pulsing energy is absorbed within the battery and is not "seen" elsewhere in the system. Our technology has been applied to a variety of military vehicles with very sensitive launching or computer systems with no interference or problems. Our products have also been evaluated by a major auto manufacturer and has passed all the emissions tests they put the products through. PulseTech products can only *enhance* a vehicle electrical system — not detract. 🚗

Scientifically-Proven Technology

Independent studies by researchers at Oakland University and Ohio State University recently confirmed that ReNew-It Pulse Technology increases battery efficiency and battery life dramatically. These two-year studies showed that our technology allowed a more even distribution of lead-sulfate crystals over the surface area of the battery plates. It also revealed a significant reduction in the size of crystals. These changes greatly improve a battery's ability to store and provide energy.

Our technology also prevents sulfate-induced corrosion that is the primary cause of shedding of active material on the plates. As a result, the life span of the battery is increased dramatically.



(Left) A battery plate covered in heavy sulfation buildup which reduces the battery's ability to accept, store and release energy. (Right) ReNew-It Pulse Technology™ cleans these lead-sulfate deposits off the plates and converts them to active electrolyte. This process exposes the active material on the battery plates which means batteries are stronger so you get up to three times longer life and maximum performance.



Visit this local PulseTech dealer today:

PulseTech
Products Corporation