

Ion Hammer

BACKGROUND

This invention was first awarded for concept in 2012 by the Government of the Republic of Trinidad and Tobago. It purports to regenerate spent auto/marine and UPS type batteries economically. Proof of concept was achieved in 2013 under The Caribbean Industrial Research Institute (CARIRI) oversight. Over several years of development, the Ion Hammer product went into beta test in 2015/16.

Hundreds of batteries were processed and about 25% yields were established for the Roll-On Roll-off (RORO) market via a relationship with P&V Marketing. The process for energy efficiency was also recognized by the U of FH Joanneum/Austria in 2016. The Caribbean Climate Innovation Centre awarded it as a TT climate based, green innovation in 2017. Carbon reduction and environmental contamination are both reduced via the process/product. In 2018, ProtoFABTT formed a joint venture with MIC-IT to manufacture this and other products.



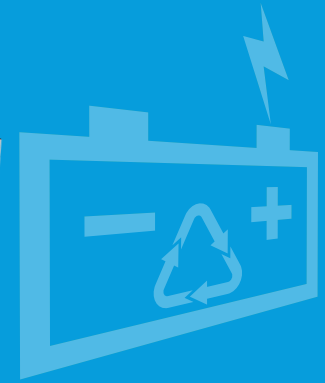
ABOUT THE ION HAMMER

It is a sophisticated portable device that permits the automated regeneration, re-certification and refurbishing of stale dated, used or spent automotive, marine, photo voltaic and backup (e.g. cell tower) batteries via purely electronic means.

The **Ion Hammer**, regenerates spent Used Lead Acid Batteries (ULAB) at a commercially viable rate, optimizing waste resource use while mitigating environmental contamination.

At about 6 Kg and around the size of an automotive SUV battery, it is eminently portable and suitable for use wherever 115/230 VAC is available. Its modern features include:

- global online monitoring
- yield tracking
- online diagnostics
- data logging of all battery processing
- remote shutdown capability



The product has been awarded by the Government of the Republic of Trinidad and Tobago (Ideas 2 Innovation 2012), the IPICA-project.eu (2016) and the Caribbean Climate Innovation Center Greentech Accelerator (2017).

The **Ion Hammer** system performs lead acid battery rejuvenation via a proprietary 13 phase process. It has proven to be a reliable, automated, economic means of recovering and re rating defunct lead acid batteries quickly. It is commercially targeted to fleet battery management, battery recyclers, solar batteries, and auto/marine services that have a sizeable turnover of failed or stale batteries. Batteries must be in good physical condition with no swelling or cracks.

The system processes batteries on a 24/7 basis and auto sequences two batteries in tandem. Each completed battery can be moved to the 'keep fresh' connections on the system for maintenance. Another 'defective or weak' battery can then be queued for processing without lost time. Thus each system supports two queued (weak/defunct) batteries and two 'keep fresh' regenerated batteries connected at once! No other testing tools are required.

FEATURES & SPECIFICATIONS

- Suitable Batteries: 6V or 12V, 12Ah to 250Ah. Sealed or AGM or flooded.
- Voltage: 115/120VAC or 230/240 VAC supply, grounded 3 pin receptacles.
- Peak Power Draw: 500VA , minimum draw : 20VA
- Physical: 25 cm cube @ 6 Kg each. 3 mm acrylic, corrosion proof housing.
- Display: Backlit large LCD, 10.5 cm x 2.5 cm viewable plus twin LED indicators.
- Alerts: Audiovisual (beep sequences and text displays (English))
- Battery Backup option to remember & suspend process during main power loss.
- On-line monitoring & results counter with remote shutdown.
- Regenerate, Boost Charge and Battery Exercise/rerate functions.
- Internal diagnostics report any system errors on the LCD display or online.
- Fully temperature compensated & reverse polarity protected
- Reports completed battery condition and battery ratings onscreen.
- Expect \approx 550Ah (OEM) worth of batteries regenerated per month.
- \approx 25% conversion of defective batteries. Batteries can be warrantied.
- Ex.: 12 (45Ah OEM) batteries regenerated/month out of 48 processed.
- Expect a typical 300% to 350% revenue to lease ratio result per month.

GREEN & SUSTAINABLE BENEFITS

- Regeneration of spent batteries results in almost overnight retailable or re-purposed batteries with consequent reduction in landfill contamination and reduction in re-smelting batteries for carbon footprint mitigation. In T&T alone, up to 20,000 spent ULABs (auto/marine/communications/UPS) are generated each MONTH.
- As a leased product the user can expect up to a **350%** return on investment per month at full utilization.
- Regenerated batteries are re-rated, re-branded and offered with a warranty.
- MIC-IT leases the Ion Hammer systems (1 cubic foot, 6 Kg) on a monthly basis to recyclers or other interested parties such as large RORO dealerships, trucking, rental fleets or new battery dealers (for warranty replacement).
- One Ion Hammer unit (1 cubic foot) can process 40 average sized vehicle batteries per month.
- Enables low capital intensive entrepreneurial start ups with almost immediate returns.
- Any defective Ion Hammers are replaced or repaired via the Green Tech Facility at no cost, unless physically damaged by users for which there is an assessed cost. 🏠