

Rathbone Energy, Inc.

On High Load Issues

Being “the only Battery Assembler” Worldwide that supports rebuilding battery packs, we understand battery specification sheets verses real world applications. That is why so many battery companies come to our web site.

Lithium Ion “High Load” issues:

1. The Best available Nickel Cadmium Press Negative battery cells and Nickel Metal Hydride Foam Paste Negative battery cells, under “high load” even a constant 48WH, or heat, will deteriorate as fast as the Best Available Lithium Ion cells. Constant High Load, Heat, and Very High Impulse discharge will definitely eat away at the “ideal world” discharge specifications of any brand battery cell pack. My web sites have the specification sheets for LG Chem, Panasonic, and Sanyo Brand Lithium Ion, Nickel Cadmium, Nickel Metal Hydride, and Lithium Ion battery cells.
2. **Consider "Best Available" LG Chem – South Korea, Panasonic-Japan, Sanyo-Japan, “BEST Available”**), NO CHINESE BATTERY CELLS:
 - a) **Nickel Cadmium-Sintered Positive Electrode: 1200 Discharge Cycles** –Quality models are gone, No Longer Available, Not green, and are being banned in many countries. Of the chemicals listed this one has the broadest temperature range.
 - b) **The next three chemical compounds are more narrow in discharge cycles, durability, impulse-high discharge, and temperature range**
 - c) **Nickel Cadmium-Press Negative: 500 Discharge Cycles – Poor Durability**, Not green, and are being banned in many countries.
 - d) **Nickel Metal Hydride-Foam Paste: 500 Discharge Cycles** - Equivalent to Nickel Cadmium Press Negative in Quality and Temperature Range.
 - e) **Lithium Ion: 500 Discharge Cycles** and 60% of the broadcast market has already gone to lithium ion.
3. Rathbone lithium ion battery cell options such as our Rathbone Broadcast Lithium Ion battery packs have a discharge cycle life expectancy of 500 discharge cycles and Rathbone packs are built flat to help dissipate heat. But, with any and **ALL** battery cells, high heat and high load more quickly degrade the battery cells reducing their life. It is a cost of doing business. When I have nickel cadmium or nickel metal hydride batteries come back under warranty inspection I almost always discover serious venting of the cells. The same principle applies to ANY and ALL Lithium Ion Broadcast Batteries, No Matter the Vendor Battery Pack Supplier, No Matter the battery cell, and No Matter their marketing propaganda on their cell choices! This battery cell degradation is caused by multiple and long term high load and high discharge rates. It is NOT warranty and the cost here to evaluate what the client already know is \$75.00. My average active and passive labor and equipment usage per warranty inspection is an extensive 92 hours.
4. Actually, with a 95WH or more battery using the BEST cell choice from LG Chem or Panasonic, you should get about 300 discharge cycles before seeing noticeable degradation. Of course, manufacturing specifications from every manufacturer considers a battery good until they reach 50% capacity. My standard is that 60 % would be normal.
5. I suggest using a T adaptor plate such as our Rathbone **RBMB-TDVP90** T Shape Dual V Mount Adaptor or **RBMB-TDGP90** T Shape Dual G Mount Adaptor allowing your system to pull from two lithium ion batteries at the same time or elect our more robust brief case style lithium ion batteries delivering up to 600WH, all found at www.rathbonebroadcastbatteries.com and www.rathboneenergy.biz
6. **No Value Added Distributor** does rebuilding except me, all have 5000 piece minimum orders. At the 1st of the 4th quarter of each year end the battery cell manufacturers and value added distributors like me begin unloading any battery cell model still on their shelves without incoming replacement inventory. More unpopular battery cell models may sit in their warehouses for long periods of time for many, but not me. Value added Distributors then begin to re-stock their shelves in mid 1st quarter of the next year.
 - a) Rebuilders call value added distributors like me or distributors who buy from value added distributors like me and say, "I need battery inserts to fit this bla bla. What is the best price you can give me?" No idea of cell quality, age, or testing, just ability to hopefully attach a wiring harness to an insert as long as it gives a voltage and glue the package

- b) At this point, considering the new discharge cycles on higher grade lithium ion battery cells versus the available options in Nickel Cadmium or Nickel Metal Hydride, I would NOT waste my money on Nickel Cadmium or Nickel Metal Hydride even if through the OEM, new!
 - i) How long did that battery sit on a distributor shelf before being bought by you?
 - ii) Nickel cadmium-500 Discharge Cycles, Nickel Metal Hydride-500 Discharge Cycles, New LG Chem, Panasonic, and Sanyo, "Best" Lithium Ion-500 Discharge Cycles. That is why we are focusing on our Rathbone Lithium Ion Broadcast Batteries. We can retrofit belts with adaptor plates for our Lithium Ion Batteries.

Rathbone Energy, a battery assembler, as well as all broadcast battery suppliers use some brand and model of the CGR-1865 Lithium Ion cell in our 90WH or 95WH lithium ion battery packs. All except Sony which is justifiably more expensive, but they overshoot the price margin.

Sony wears their belt and suspenders. A long time ago when opening a Sony BP-GL95 for diagnostics and engineering purposes we discovered that Sony uses a much larger / beefy lithium ion battery cell for their 95WH battery than any competitor. This battery cell could offer more watt hours of run time but instead Sony utilizes a circuit board design limiting the current flow and holding the battery pack output to +/- 90WH of power. Why?

Sony understands the High Load issues involved with today's Broadcast, Production, and Cinema cameras. The consumer only understands what it cost today. If Sony sold their Beefy 90WH batteries for say, \$250.00 each new, this would be a fair price for what is the best design in the market, the V Mount technology.

Thank you for thinking of me.

Sincerely,

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www.rathbonebroadcastbatteries.com (Strictly Broadcast Batteries)

www.rathboneenergy.com (Detailed Product Information for infinite industries)

www.rathboneenergy.biz (On-Line Broadcast Store with On-line Specials)

There's a better way - rathboneenergy.com - when cell quality is paramount. Remember, the more you know, the better your judgment of your expenses.