

A ton per cell battery

By G8MNY

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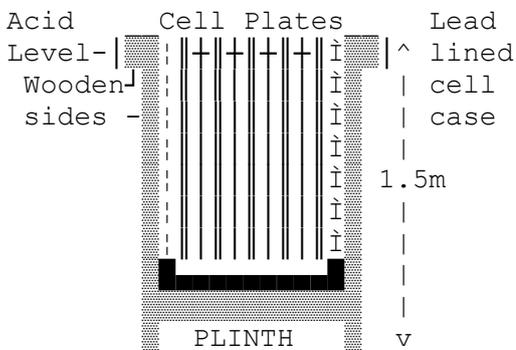
(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

When I was an telephone engineering apprentice in the 60's I had to work on the Croydon telephone exchange battery. These were some of the biggest in the UK, weighing in at about 1 ton per cell!

There was no backup generator on site, as the site was next to Croydon's main water well & any diesel oil spillage could be dangerous. (in 1952 there was water contamination!) So the batteries had to do at last 24 hours & handle a peak load of 1100 Amps (50V) for the 4 very busy 10,000 line Strowger telephone exchanges, so the total battery capacity was over 20000 AH (10000/battery).

The 2x 25 cell 50V battery sets (25 was unusual & gave a good 50-54V) came to 100 tons, plus 2x 1000 Amp charging rectifier bays (silicon diodes!), this lot was on the ground floor for obvious reason. From memory the cells were something like this..

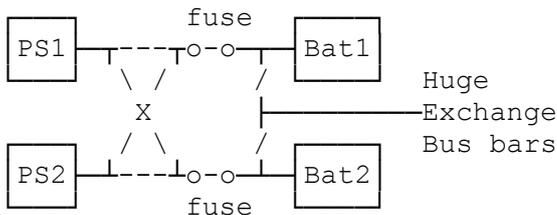
< ---- 1m ---- >



Each cell was about 1m x 1m & 1.5m tall open top construction type, made from wood outer shell lined with lead. My job for 1 day (done once per week) was to top up all the cells (50 gal cell?) with tap water from a hose, (Croydon's hard tap water was OK for this).

As well as topping up, 1 cell was de-scaled per week too, This was done by removing the glass splash guards on top & inserting a board between each plate to dislodge any whisker growths between plates. (dust coats, gloves & eye shields was essential).

POWER SYSTEM



The manual large copper knife switching, enabled either PS rectifier sets to be connected to either battery & either or both batteries to be connected to the load. The high DC currents were measured by new hall effect devices. Each rectifier set had a motor driven 3 phase choke feeding an isolation transformer. The secondary I think fed a 12 phase silicon bridge rectifier to the output. Some fused filtering caps were put across the output to remove the last of the 600Hz hum.

No battery room fuses were used on the main bus bar, as this was considered to dangerous to loose the whole lot.

Distribution fuses were used on each section in the building, but there were a few arc marks in the 4 story building where bus-bar accidents had happened! Up to 1V bus bar drop was allowed to the furthest point in the building, & even with thick copper & huge main ally feeds the bus bars still ran warm!

See my Tech bul on "AC 3 Phase Power"

Why Don't U send an interesting bul?

73 De John, G8MNY @ GB7CIP