Battery Equalization with Power Supply
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The best tool for equalization & charging at home, IMHO, is a bench top power supply. You don't need one much larger than 10A and 30V unless each battery is quite large in Ah capacity over 150Ah. Bench top power supplies usually come in 15V or 30V models and 15V is too low for an EQ so you need a 30V model. If you're going to spend the money on one a 20A - 30A model would be a wise choice.

* Charge battery to be equalized to 100% SOC. Do not try to EQ a battery that is not already at 100% SOC.

*Charging to full will be at your manufacturers recommended absorption voltage, eg: 14.8V for Trojan FLA or 14.4V for Lifeline AGM. To define "full" allow the current to taper to the point where it essentially stops *declining*. This will usually be at sub 1% of Ah capacity for flooded or 0.5% of Ah capacity for Lifeline AGM. Most AGM's can not be equalized, except for Lifeline, and GEL batteries definitely can't be equalized.

*Remove battery caps (not Lifeline) and confirm good electrolyte levels and then *put them back on*. **NOTE:** You should not EQ with Hydrocap or Water-Miser type battery cap installed, so save your original caps.

*Adjust power supply voltage to 15.5V - 16.0V *while not connected to the battery*, unless the power supply has a dedicated voltage sense circuit. Make sure your voltage is temp compensated to battery makers specs and is measured at the battery terminals. In other words if your manufacturer says it is OK to EQ at 15.5V @80F you can't EQ at 15.5V at 95F and voltage must be compensated down for actual battery temp..

*Once the battery has attained the desired EQ voltage, slowly adjust current dial DOWN so the power supply can just barely maintain the desired EQ voltage of 15.5V-16.0V *at the battery terminals*. Dialing the current back to the minimum level required to maintain the desired EQ voltage prevents throwing 10A, 20A, 30A + into a dead short *should the battery fail during the EQ*. EQ*ing* older diminished batteries can be dangerous so always use the lowest current possible to attain the desired EQ target voltage. All that is necessary for a proper equaalization is enough current to maintain the desired EQ voltage. I am not a huge fan of using a "*one size fit all*" battery charger that has an EQ feature as the current on many of them can not be *capped* or *adjusted down* to a safe level..

*Stop at two hours, let battery rest, check specific gravity. If all cells are not yet in balance start the EQ again and re-check SG either on the half hour or hour..

* Repeat again if necessary.

*If you absolutely have to walk away during an equalization TURN OFF THE CHARGER!... Alternatively you can use a wall timer, but I prefer to shut it off as this is the only safe way to know your safe...

What does equalization do?

#1 It serves to re-balance the individual series cells by applying a controlled over charge , a 12V battery has six 2V cells in series, EQ*ing* brings the low cells up to 100% SOC. If all cells are already in balance then the EQ is not really needed for "*balance*" purposes. If you are routinely charging your flooded batteries at 14.7V to 14.8V I've found the need to EQ for "*balance*" issues diminishes by quite a bit. However if you were charging at only 14.2V to 14.4V (old school FLA charging mentality) series cell balance issues will be more prevalent.

#2 It can help to shed some of the dead and clustered lead sulfate from the surfaces of the cells thus allowing more usable cell surface area to be usable.

#3 It can help to reconvert *savable* lead sulfate (sulfate that is in the ER on life support) back into active material. Capacity loss, from dead non-reconverted lead sulfate can become permanent in less than 30 days. EQ*ing* once every 20-25 days +/-, for 30 minutes or so, for a 24/7 PSOC use cruiser (Partial State of Charge), is a good course of action but, not really ever going to happen though. This is why routinely using a higher absorption voltage, not 14.4V for flooded batteries, really helps fight off the effects of PSOC use.. Higher absorption voltages, held long enough, do help reduce the need for EQ*ing*..

#4 Stirs up the electrolyte and helps minimize the effects of electrolyte stratification. Not usually an issue on boats using a 14.7V to 14.8V absorption but is a bigger issue in off-grid stationary use.

Mastech 3010EX

or

Mastech 3020EX

Cheap Wal*Mart grade chargers, Schumacher etc., can be flat out dangerous for EQ*ing*.. Please be very cautious when buying any automotive or marine grade chargers that claim to EQ.