

## Geometrics Knowledgebase

### **Use and care of G-856AX/G-858/G-859 batteries**

The batteries used in the portable magnetometers instruments are lead-acid gelled electrolyte batteries. The choice of this type of battery was dictated by their non-magnetic internal construction. We magnetically compensate these batteries to further reduce their magnetic signature. We do this with bucking coils which are mounted against the battery surfaces and then an external wrap applied.

The batteries should be charged using the charger furnished with the instrument. These chargers are fully automatic and designed to do the best job of charging and maintaining the batteries for long life. All of the chargers are equipped with lights indicating when the battery is being charged and when the charging cycle is completed.

The battery packs will provide the most operating cycles when they are fully charged after each use. The number of operating cycles can vary from 250 cycles to above 1000 cycles depending on how deep the discharge was and how soon the battery is charged after use.

A 30% discharge per cycle may result in a lifetime of 1000 cycles or more, whereas a 100% discharge per cycle can result in only 250 cycles. As a rule the magnetometer will shut down when the battery is discharged to about 20% of full voltage. This is to ensure proper shutdown of the instrument.

It is very important to recharge the battery as soon as possible after use so the maximum life can be expected from the pack. If the discharged pack is left to charge when we get back from the field the pack can suffer from sulphation. This is a high-resistance buildup in the battery which may render the battery unusable.

If a battery of this type must be stored for an extended period, it must be stored in a fully-charged condition. If such a battery is stored discharged and subject to below-freezing conditions, it is likely to freeze and be subsequently unusable.

All Lead-Acid batteries must be maintained when in storage. This means that the user must recharge each pack at least once a month. Lead Acid batteries will self-discharge due to stray internal resistances, causing very small drain currents. Thus the maintenance requirement for monthly recharging is critical to long battery life. Do not leave the charger on all the time during storage. Also it is very important to use discharge the batteries on a regular basis otherwise the lifespan will be severely shortened. For more information contact [support@geometrics.com](mailto:support@geometrics.com).

<http://support.geometrics.com/kb/questions.php?questionid=73>