FIRST NATIONAL BATTERY
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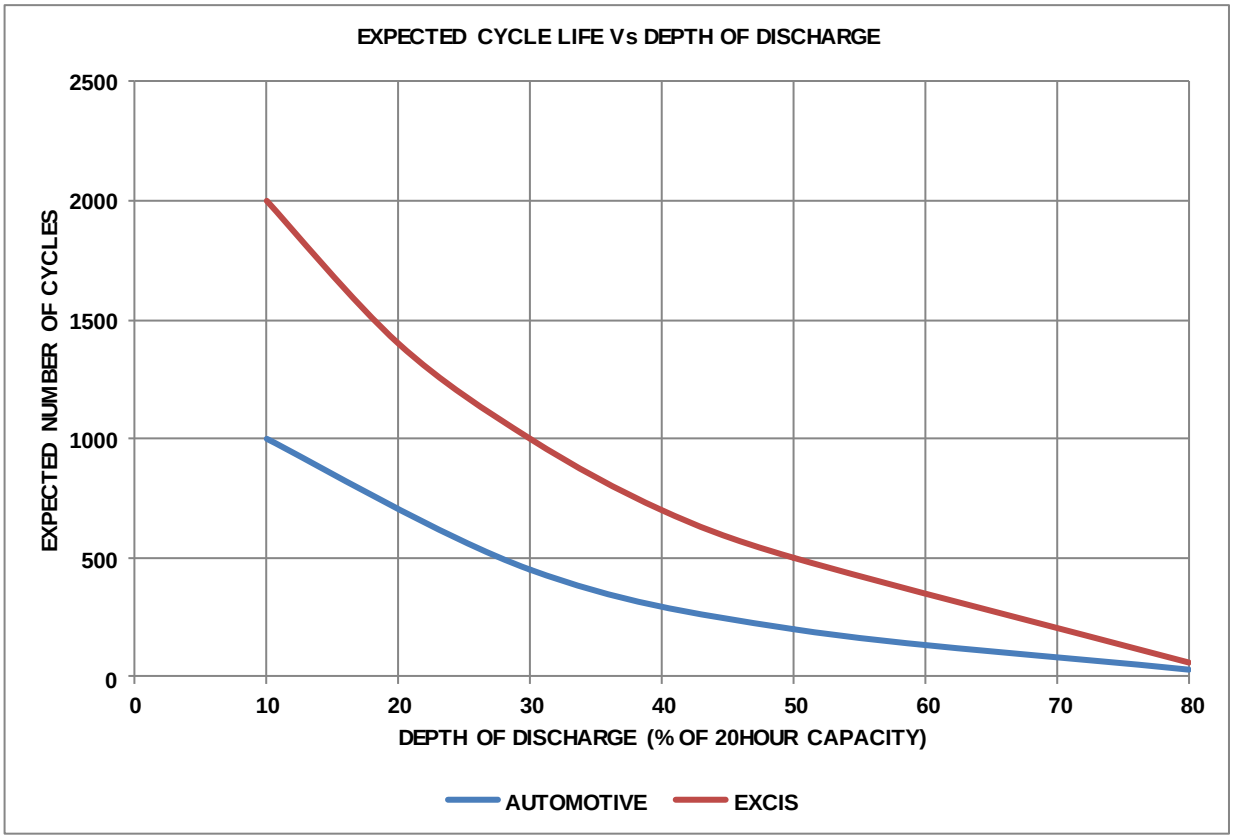
THE EXCIS BATTERY RANGE

Purpose

The Excis range of batteries has been developed to provide an economical medium term solution for providing electrical power to small capacity inverters and UPS devices for load shedding applications.

Automotive Vs Excis Batteries

All lead acid batteries will cycle. The design parameters of the battery determine how many times it can be discharged and recharged. The less deeply it is discharged the more times it can be cycled.
Automotive batteries are designed to give high currents for very short periods for many times over the life of a vehicle. As such they may be referred to as 'High Cycling' batteries. To do this they have thin plates with a porous active material and very low resistance separators. If they are subjected to deeper discharges the positive active material expands and because of lack of support from the plates and separators it falls from the plate.
The Excis battery is produced with thicker plates, high density paste and a double separation that has a glass matt against the positive plate. As a result it is far more able to withstand discharging to a deeper level without shedding active material and is thus referred to as a 'Deep Cycle' battery.
A comparison of cycling capabilities is shown below.



Recharging the battery

Traditionally uninterruptible power supplies (UPS) have recharged the batteries at the float voltage (usually about 2.25volts per cell). This has been acceptable because the depth of discharge (DOD) to which the battery has been subjected has not been very deep and there has normally been a very long period until the next outage. With load shedding the DOD is much more and there are often only a few hours in which to recharge the battery.

It is therefore advisable to have a more sophisticated charging regime. Typically the battery should charge at a constant current until it reaches 2.45Volts per cell. This is referred to as the 'bulk charge'. It should then charge at a constant voltage of 2.45Volts per cell for a period of approximately 3 hours ('absorption period') and then revert to 'float charge' of 2.27Volts per cell. Ideally the charger should allow for an 'equalising charge' at 2.60 to 2.70Volts per cell to be applied if required.

The operation of the charger, however, must be compatible with the equipment it is used with, especially in respect to the maximum voltage the inverter is able to withstand.

Where recharge at restricted voltage occurs it is possible that although the battery is substantially fully recharged the state of charge guide will not indicate green. This is because there has been insufficient agitation of the electrolyte to mix the acid in the cells. Under such circumstances it is advisable to occasionally apply an equalising charge for two hours after normal recharge.

Providing the charger reverts to float mode after charge the system can remain connected in line on a permanent basis.

It should be noted that the normal garage battery charger is often a taper charger that will start at a high current which will taper down as the battery charges. In many cases these chargers will operate at a relatively high voltage which will result in the cells gassing and losing water. These chargers are not suitable for maintenance free batteries and if left permanently connected will drastically reduce the life of the battery.

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