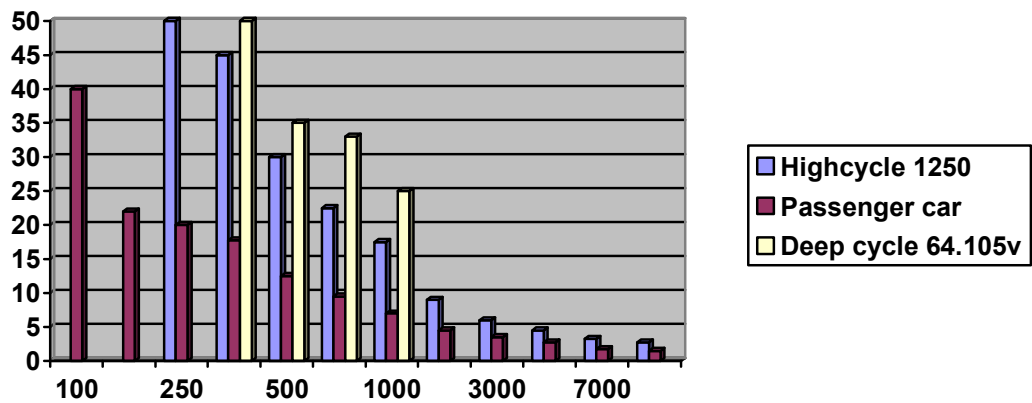


# CRANKING vs. HIGH CYCLE vs. DEEP CYCLE

## HIGH CYCLE BATTERIES

- Frequent cranking
- Large accessible loads
- Alternator output does not always cover accessible loads
- Thicker plates with higher plate density
- Discharge 25 % max

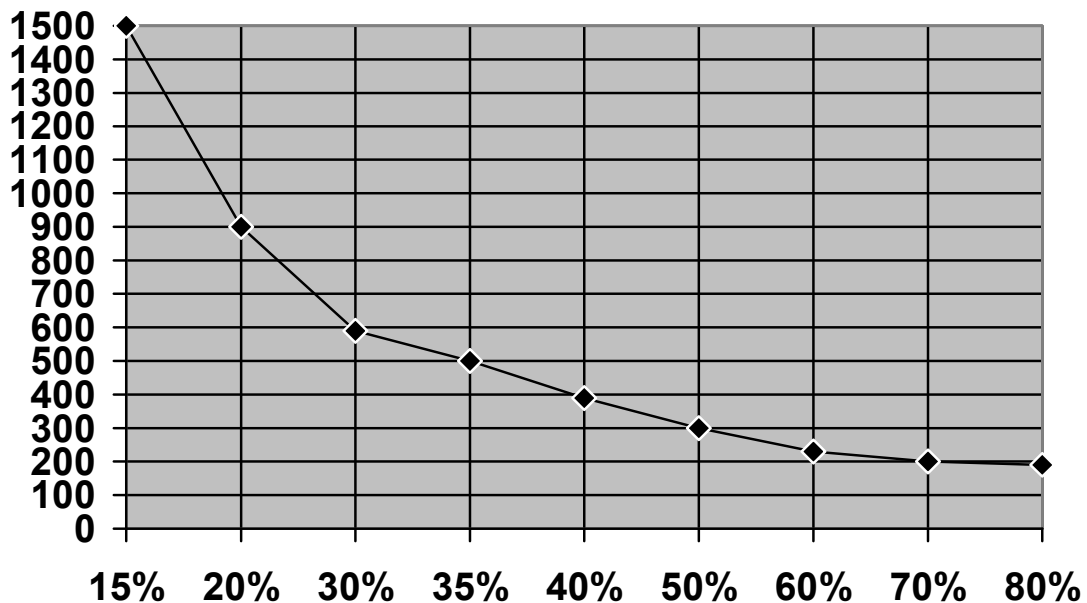


## **DEEP CYCLE BATTERIES** **(Heavy-duty construction)**

The concept of what is called a “Deep Cycle” battery seems to vary from one individual to another.

- Usually no alternator
- Deep discharge to 50 % state of charge - 12.30 Volts
- Occasional excursions to 80% DOD.
- Frequent equalization charges are required in deep cycle applications to achieve expected battery life
- Thicker grids to resist corrosion
- Special chemical composition
- More paste on plate for additional capacity
- High density paste for increased battery life
- Terminal cells anchored to resist damage from vibration
- 20 % - 25% Longer life expectancy than your average battery
- State of charge indicator Green (70%-100%), Black(70%-50%), Red(Below 50%), Yellow(replace)

### **NUMBER OF CYCLES VS DEPTH OF DISCHARGE FOR DELTEC M27MF / 54.105V / 64.105V DEEP CYCLE BATTERIES AT 25 °C**



## **RULES FOR MAINTAINING DEEP CYCLE BATTERIES**

- 1. Always recharge battery back to 100 % state of charge as soon as possible after discharging.**

**Reason:** During discharge, the sulphur from the sulphuric acid goes to both the positive and the negative plate forming lead sulphate ( $\text{PbSO}_2$ ) and leaving pure water as the electrolyte ( $\text{H}_2\text{O}$ ).

**In a totally discharged battery the lead sulphate on both plates is referred to Sulphation and unless a charge is applied to a sulphated battery very quickly this condition will persist and no amount of charging will remove the sulphate.**

**With sulphation on the plates of a battery if we allow the sulphated plates to remain for any length of time the sulphate forms a hard surface on the plates and no amount of charging will break the sulphate down and restore the power to the battery.**

**In order to illustrate: Bricks and cement**

**If we commence laying the bricks with wet cement and whilst the cement is still wet discover we have laid the bricks in the wrong direction we can remove the bricks and the cement and use this wet cement on the bricks to be laid in the correct direction.**

**Should however allow the cement to set, lets say for a week or so, it will be impossible to remove the cement from the bricks and re-use the cement as it has hardened and therefore beyond further use.**

## **CRANKING BATTERIES**

- Infrequent cranking
- Minimal accessible loads
- Plates with maximum surface area & extra plates
- Discharge 5 % max