

## **BATTERY STATE OF CHARGE**

A good estimate of a battery's state of charge can be made by measuring the voltage across the battery terminals with the battery at rest (No energy input, no energy output) for at least three hours. These readings are best taken in the early morning, at or before sunrise, or in late evening. Take the reading while almost all loads are off and no charging sources are producing power. Connect a voltmeter across the positive and negative outputs of the battery or battery bank. Voltages are for a 12 volt battery system.

For 24 volt systems multiply by 2, for 48 volt system, multiply by 4. Monitor your cell voltage, if you measure more than a .2 volt difference between each cell, you may need to equalize (Do not equalize Gel Cell Batteries). The following table will allow conversion of the readings obtained to an estimate of state of charge. The table is good for batteries at 77°F that have been at rest for 3 hours or more. If the batteries are at a lower temperature you can expect lower voltage readings.

*Table 7, Battery State of Charge Voltage*

### **PERCENT OF FULL CHARGE 12 VOLT DC SYSTEM CELL VOLTAGE**

100%	12.7	2.12
90%	12.6	2.10
80%	12.5	2.08
70%	12.3	2.05
60%	12.2	2.03
50%	12.1	2.02
40%	12.0	2.00
30%	11.8	1.97
20%	11.7	1.95
10%	11.6	1.93
0%	<=11.6	<=1.93