

SOLAR SYSTEM SET POINTS

Whilst there can never be hard and fast set points for a solar system due to variations in operating modes the following data is given as a guide.

Normal recharge maximum voltage:	2.45 Volts per cell
Float voltage:	2.33 Volts per cell
Equalisation voltage:	2.60 Volts per cell
Equalisation interval:	20 days
Duration of equalise charge:	2 hours
Low voltage cut-off (90% DOD)	1.90 Volts per cell
Temperature compensation coefficient:	2mV per cell per °C

In addition we recommend that batteries be fully equalised when individual cells become out of step. This condition is present when:

- (i) The end of charge voltages of individual cells differ by more than 0.10 Volt from the lowest to the highest voltage.
- (ii) The specific gravities at completion of charge vary by more than 0.030 or do not rise to within 0.030 of the normal recommended top of charge value.

Equalising implies charging at approximately 3.5% of the 100 hour capacity. At this rate of charge voltages of 2.60 to 2.75 volts per cell should be achieved (when new at temperatures of 20/25 degrees C, the voltage will be lower at higher temperatures and as the battery ages). If the solar panels do not have the power necessary for equalising, other means, such as a generator should be provided. Equalisation is regarded as complete when there is no rise in voltages or specific gravities over three one hourly readings.

The PV array should be sufficient to supply the daytime load while maintaining the battery in a charged state on days of average irradiation.