INTERNAL CELL RESISTANCE AND SHORT CIRCUIT CURRENT

Internal Cell Resistance

There have been many long and interesting formulas derived to calculate internal resistance of cells. However, measured data again triumphs for any type of cell.

Using available current data, pick two different published voltages and note the difference (E). Then using the discharge data under the above two voltages, pick the current for the shortest time period published for the same battery type and note the difference (I). (Usually, currents are published down to one minute for lead acid batteries and down to one second for nickel cadmium batteries.)

You now have a difference in voltage and a difference in current. Now, from OHM's law, the internal resistance is calculated by:

$$R = \frac{E}{I}$$

Short Circuit Current

The short circuit current available from a cell is a function of its internal cell resistance. Again, using OHM's law, you can calculate the short circuit current as follows:

$$I = \frac{E}{R}$$

Where: R is the internal resistance
E is the nominal cell voltage of the electrochemical couple used.

Nickel cadmium cell 1.2 v/c
Lead acid cell 2.0 v/c

★☆★★☆★★☆★★☆★ END OF DOCUMENT ★☆★★☆★★☆★★☆★