

## Looking After Your NiCads

The usual advice regarding charging NiCad batteries is: 'If in doubt, charge the battery anyway.' This is good advice as far as it goes, for clearly if the battery goes flat while the model is in use all control will be lost. It is not however the best way to care for your battery.

### It's a gas!

If a NiCad battery is charged further after it reaches full charge, the electricity passing through the cells is dissipated as heat and by the generation of gasses. Many years ago, when sealed button cell (DEAC) batteries were used, the cells would swell and burst. With modern vented cells, the gasses escape to cause a more insidious problem. Many of you will have heard of 'Black Wire Corrosion.' This is caused by the overcharge gasses from the NiCad passing along the wires connecting the battery to the receiver. It is not only the wires which corrode, as the connectors between the battery and switch harness, the switch contacts and the contacts between the harness and the receiver connection pins all suffer. In most cases, when a model ceases to respond to the transmitted signal and crashes and when the model is recovered everything is working perfectly, the problem is not low range as is often suspected, but corrosion of the receiver battery pins. The contact is remade by the scraping action of the connector as it is disturbed by the crash. The contact will usually remain good for a few weeks and then fail again for the same reason. The fault can be easily confirmed by checking the receiver contact pins for the black corrosion. If this happens to you, we recommend that you clean the receiver connector pins and replace the switch harness and battery pack wire with new.

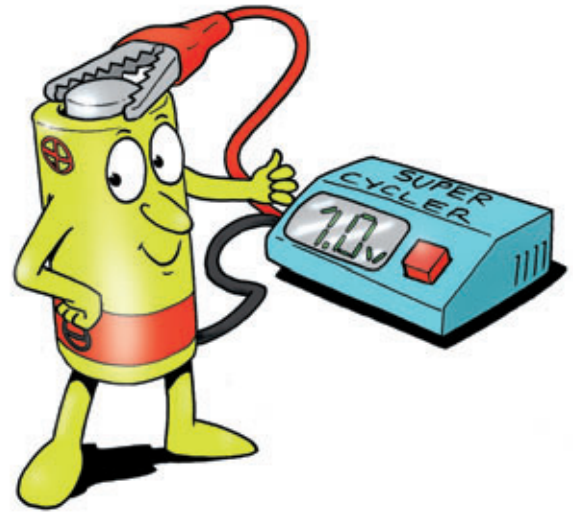
### Discharging in series

When fully charged, a NiCad cell reaches approximately 1.4 volts. During discharge, the voltage falls rapidly to about 1.2 volts

and then slowly to 1 volt. After 1 volt is reached, the voltage falls rapidly to zero. It is quite safe to discharge a single NiCad cell to zero volts and no damage will be caused. When NiCad cells are used in series, as in receiver and transmitter packs, the situation is quite different. With quality NiCad batteries, the capacity of all cells in a pack are matched to each other but even so, upon discharge, inevitably one of the cells will become discharged before the others. If discharge is continued beyond this point, the remaining cells will force electricity through the discharged cell in the reverse direction causing irreparable damage to the cell. This is the reason why transmitter and receiver packs should never be discharged by leaving the system switched on unattended. In practice, it is safe to discharge down to 1 volt per cell, (4 volts for the receiver pack and 8 volts for the transmitter pack) as at that level it is most unlikely that any single cell will be at zero volts. We find that the most convenient way to discharge a partially used NiCad is with the discharge part of a battery cyclor.

### Storage

A NiCad battery, unlike a car battery, will not be harmed by being stored in a discharged condition. Our recommendation is therefore that after use, you discharge your transmitter and receiver batteries down to 1 volt per cell and then store them discharged. Immediately before use, the batteries should be charged for 12 to 14 hours using the appropriate overnight charger. After the modelling



session, whether or not the batteries have been used, they should once again be discharged to 1 volt per cell.

If you adhere to this procedure, you will always have the full battery capacity available without the danger of overcharge. As an added bonus, any deviation from the normal time of discharge will provide an early indication of a problem.



Overcharged nicads vent gas which can cause Black Wire Corrosion and leaves unwanted deposits on connectors and switch contacts.