

## Long Term Battery care.



**Replacement batteries are expensive! In order to maximise the life of your battery, please note the following important instructions:**

When a golf battery is not used to its full capacity, or becomes over-discharged, sulphation may occur. This is particularly common where a high-capacity (27/36 hole) battery is used mainly for only 18 holes, but can affect any modern battery.

Basically, sulphation is a chemical change where lead sulphate is deposited on the battery plates and prevents charge getting in or out of the battery. Battery performance will gradually reduce due to the effects of sulphation and appears like a type of 'memory effect'. Ideally, all golf batteries should be fully discharged every month or so to prevent this happening.

In order to prevent future problems, fully discharge the battery every 4 to 6 weeks by raising your trolley on blocks (raise the wheels off the ground) after you get home and let the battery run down. When the motor has stopped, charge your battery as normal.

If your battery does begin to sulphate - for instance performance gradually declines and the battery no longer manages 18 holes - the sulphation can be removed by the following easy, but tedious, procedure:

1. Fully charge your battery for at least 12 hours, even if the green light comes on during this time.
2. As soon as possible after charging, put the battery on the trolley and raise the wheels off the ground, or remove the wheels.
3. Start your trolley and let it run until the battery is fully discharged – the cut-out in the trolley will operate when the trolley reaches its discharge level – this may take several hours as the trolley has no load on it.
4. As soon as possible, fully recharge the battery and repeat the procedure 3 more times.

The rapid charging/discharging will break down the sulphate and restore your battery capacity.

This will allow the longest possible life for your battery – it is sulphation which 'kills' batteries prematurely.

The chemical deposition is not a fault with either the battery or the charger, it is simply a result of under-discharge. It is not covered by the Warranty.

### Winter Battery Charging

We recommend that you leave your battery on charge until the next time you need it.

The only exception to this is when you are unlikely to use your battery for a long period, especially in winter. If the battery is not going to be used for more than a month, fully charge your battery, disconnect and store it in a cool, dry place away from frost. Put the battery back on charge every 4-6 weeks to top it up and store it again. Charge the battery again just before you play.

If you leave your battery connected to the charger for an extended period, there is the possibility that the persistent 'float' current can cause the battery acid to evaporate and reduce the battery life.

It is also important to check your golf trolley from time to time: ensure that axles/bearings etc are lubricated and in good condition. If your trolley is more than 4 years old it is important to check the state of the carbon motor brushes as poor electrical transfer can impair the efficiency of your battery and motor.

Never allow your battery to freeze. This will permanently damage the battery.

The above procedures are designed to maximise the life of your battery.

# PowerPro Golf - Battery Care Instructions



## Charging the battery.

Always start every round with a fully charged battery.

Charge your battery as soon as possible after every round (certainly within 24 hours) even if you have played only a few holes. This will maximise the life of your battery.

Ideally, you should charge your battery for a minimum of 12 hours, even if the red light turns green before this. This will ensure that the maximum charge is put into the battery and will increase battery life.

The charger supplied with your Trojan<sup>®</sup> trolley is a modern 3 stage charger. We recommend that you leave the battery connected to the charger with the mains switched on until the next time you play golf, up to a maximum of one month. The electronic circuits in the charger will protect your battery from over-charging and will ensure your battery is kept topped-up. If you do not intend to use your trolley for several months.g. Over the winter period, fully charge the battery and then disconnect it from the charger. Store the battery in a cool, dry place away from frost. Recharge your battery every 4 to 6 weeks and again just before you next play golf.

Switch the charger off at the mains before disconnecting the battery.

DO NOT leave the charger connected to the mains if the battery is not attached. This will shorten the life of the charger.

DO NOT leave the charger connected to the battery if it is not connected to the mains. This will discharge your battery.

Please note that when charging your battery, the charger should be left on for at least 12 hours. The red light indicates the first phase of charging – rapid charging at up to 4amps (Stage 1).

The charger is designed to allow rapid-charging for 90% of the battery capacity. When the rapid-charging phase is completed, the green charging light will come on.

When this is reached, the battery can be used but it is not fully charged. The remaining 10% of the charge is put in much more slowly on a trickle-charge (Stage 2). If rapid charging continued the battery would overheat and distort, leading to the battery being permanently damaged. This trickle-charge is at a much lower current – around 0.4 amps and can take several hours to complete – hence our suggestion of 12 hours total charging time.

At the end of the charging cycle the charger switches to a very small 'Float' charge of <0.1 amp (Stage 3). This very low level maintains the optimum charge and allows your charger to remain connected to the battery until the next time you use it. With 2-stage chargers, you MUST disconnect the battery after 12 hours otherwise it will overheat. We supply only 3-stage chargers which can be left on-charge. We recommend that you leave your battery on charge until the next time you need it.



### SAFETY FIRST



Always charge your battery in a cool, dry place away from any flammable materials. Charge in a well ventilated area.