



Leading the charge

BARRY NORRIS powers up with seven battery chargers to see how they perform

MANY campers have a 12V lead acid leisure battery – it's a useful and convenient source of power – and if you want to maximise your battery's life it pays to look after it. But is it worth spending £50 or £100 for the latest smart chargers?

First it's important to understand how a lead acid battery works and how its life can be reduced without good care.

A leisure battery used without the benefit of a hook-up will soon drain and the towbar wiring is unlikely to give more than a trickle charge as you travel with your caravan. Some motorhomes have vehicle split charging systems that can be better, but not all do.

Even if a battery is fully charged when you store it, it will gradually discharge and will eventually degrade. Ultimately the battery could be ruined.

Make sure your battery is fully charged before storing it and that ideally you recharge it at least every two months – more often if there is a constant drain from something such as a security device. Battery experts recommend it shouldn't discharge below 50 per cent of its capacity before recharging.

Keeping the unit on permanent

hook-up can be helpful but again experts warn that a battery is best exercised and allowed to discharge a little before recharging, to prevent the liquid inside (the electrolyte) degrading.

The charger inside your caravan or motorhome normally works at 13.8V. This will run your 12V onboard equipment, but will only charge a battery to about 75 per cent of its full capacity. A voltage of 14.4V or more is required at some time in the charging cycle to achieve 100 per cent, ideally with a pulsing charge to keep the electrolyte in best condition.

All this aims to prevent sulphation, where the electrolyte degrades and the lead plates accumulate lead sulphate deposits.

However, the higher voltage needs to be controlled, to prevent gassing, which degrades the electrolyte further. The acceptable charging voltage will also vary depending on the type of battery you have, but indiscriminate charging will soon destroy your battery.

This is where smart chargers are useful, as they have the ability to analyse and adapt to an individual battery, while providing 100 per cent charge without damaging the battery.

THE TEST

Each charger was set to charge a typical caravan or motorhome battery. The sealed 105Ah battery was discharged to 12.2V with less than 50 per cent of its capacity remaining. We checked charging performance and took into account:

- 1 BASIC CHARGING STAGES: BULK AND ABSORPTION** – providing about 75 per cent of charge and topping up to 100 per cent respectively – all chargers managed this.
- 2 A PULSING MODE TO KEEP THE ELECTROLYTE IN GOOD CONDITION** – all but the Selmar charger had some form of pulse action.
- 3 RECONDITIONING MODE FOR DEEPLY DISCHARGED BATTERIES** – all but the Selmar had this or claim to be able to reclaim deeply discharged batteries.
- 4 LONG TERM MAINTENANCE FACILITY** – especially the ability to charge only when a pre-determined low voltage is detected.
- 5 SPEED OF CHARGING** – generally the chargers did the job in five to seven hours, two chargers were quicker.
- 6 BATTERY CHARGING CAPACITY RANGE**
- 7 EASE OF USE** – most were automatic, others had few controls.
- 8 ABILITY TO CHARGE WHILE THE BATTERY IS CONNECTED** – the Gunson, Numax, and Caravan and Leisure chargers were not recommended for such use.
- 9 SUPPLY LEADS AND THEIR STORAGE** – all units came with crocodile clips and a combined 'mains plus 12V' supply lead about 3m long, except where noted.
- 10 OVER-CURRENT** – all units tested came with over-current, over-voltage and temperature protection.



CTEK Multi XS7000
7A output; for batteries 14-150Ah
(up to 225Ah for maintenance)
£110

This one ticks all the boxes, having the most stages of any charger with good desulphation and reconditioning modes and switching to a pulse maintenance charge, which operates only when the battery voltage drops below a set voltage.

It can be used when other equipment is connected to the battery and CTEK guarantees it won't damage the equipment, though this isn't recommended in 'recond' mode.

A compact weather-resistant unit with the longest leads (4.15m) and alternative eyelet battery connections, plus a handy fabric storage bag.

The comprehensive range of charging stages and modes and five-year guarantee period justifies price.

Web: ctek.com or roadpro.co.uk
Tel: 01327 312233

Ring RSC 16 Smart charger
16A output; for batteries 20-200Ah
£90

If you like to know the charging voltage and current rather than relying on LEDs, this is the charger for you. It can even be used away from a mains supply to check the voltage of your battery.

Four charging settings up to 16A, with one giving the fastest charge time of three and a half hours. The comprehensive charging stages include a maintenance mode that gives a pulse charge when the battery drops to a pre-determined level. It also has a



manual recondition setting.

Includes a compartment where the quality leads (3.8m) and crocodile clips can be stored. Well worth considering alongside the CTEK XS7000.

Web: ringautomotive.co.uk
Tel: 0113 213 7389

Selmar Guardian Professional
7A output; for batteries 30-140Ah
£55

This unit is large as it relies on a traditional transformer rather than switch-mode technology, but it has a micro-processor to set the charging according to the battery condition. It provides basic charging modes of bulk charge, absorption and final float voltage to maintain charge. No user controls, but it has four lights to indicate the stage of charge.

Web: tadmod.com
Tel: 01624 618718



Numax Connect + Forget for caravans and motorhomes
10A output; for batteries up to 135Ah
£72

A compact charger without controls, but a small LCD screen shows the operation under way. Its crocodile clips have bare ends but alternative eye terminal connections are supplied. At the end of bulk and absorption charging, achieved in only five hours, it reverts to a trickle charge, but with gentle pulsing action. Not to be operated when other electronic equipment is connected.

Web: manbat.co.uk
Tel: 01743 460790



Gunson model 77026
2A/12A output; for batteries
up to 140Ah
£70

This charger has a single control for a 2A charge or a fast 12A charge. The 2A charge is for batteries up to 20Ah capacity, although the instructions don't state this. There are LEDs that indicate the state of charging. If the battery is discharged below 11.8V the charger starts in a special mode before the main charging cycle begins. At full charge the unit switches off and monitors battery voltage until it drops below 12.8V when a pulse mode will start. It has a simple, fast operation – our test completed in less than five hours with a couple of good start and maintenance cycles.

Web: toolconnections.co.uk
Tel: 01926 815000

Caravan and Leisure Smart Charger
SBC 8168
5A output; for batteries 2-100Ah
£40

A compact unit with weather-resistant body. Three settings for low capacity batteries, normal batteries and a low temperature setting. Comes with alternative eyelet

terminal connectors. This small unit charged in about seven hours with four stages including a precondition charge, absorption charge with pulse mode and the final float mode where pulse mode charging is initiated only when the voltage drops to a pre-determined level. A good budget buy.

Web: caravantechology.com
Tel: 08452 262675

