



## A guide to using leisure batteries from The Camping and Caravanning Club

# Looking after your leisure battery

**M**ost modern caravans have three sources of power – gas, mains electricity and a twelve volt battery.

If you run out of gas and you've left your mains cable at home you'll still be able to power your caravan lights, water pump and other twelve volt appliances provided that your battery is in good condition.

There are two sources of twelve volt power – one from your car and the other from your caravan.

Although you can use either battery to power your caravan's twelve volt system, batteries used in caravans and cars are constructed differently and should not be interchanged.

Your caravan battery has been designed to give you power over a long period whereas a car's battery has been designed to produce a higher power over a shorter time scale.

**T**here are two types of twelve volt batteries – the vehicle battery used to start a car and the leisure battery used in caravans and other camping units.

Vehicle batteries supply a high current of around 200 amps over a short period of time to start the engine.

This heavily drains the battery but this loss is soon replaced by the vehicle's alternator and the battery never becomes fully discharged.

It has a shallow

cycle of discharge and charge and is designed for that purpose.

The leisure battery is designed to supply a much lower current over a longer period of time to enable caravan lights, water pumps and even televisions to operate.

Recharging is carried out by hooking up to an electric mains supply, recharging from the towing vehicle or from a leisure battery charger when at home.

The battery has the ability to constantly discharge and

recharge to a greater degree compared to the vehicle battery during its normal life. This is known as deep cycling.

Although similar in shape they should not be interchanged on a permanent basis.

### **Battery construction**

Both types of batteries are similar in construction. They normally have six cells containing sulphuric acid topped with distilled water and are housed in a polypropylene casing. Each cell has a set of



The most suitable type of caravan battery is a leisure battery. It has been designed to meet the demands required by twelve volt appliances.

Both types of batteries need maintaining properly to ensure that they continue to operate satisfactorily.

This data sheet will tell you how to look after and get the best out of your leisure battery so that you can continue using your unit's equipment if no other power source is available.

**T**his Data Sheet is one of a series produced by The Camping and Caravanning Club on key camping and caravanning topics.

These are available as downloadable Acrobat files, free to all campers and caravanners.

This Data Sheet originally appeared in *Camping and Caravanning*, the Club's monthly magazine.

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lead plates.

During recharging and discharging each plate expands and contracts. In doing so the plates lose some of their active material.

A separator between the plates helps to stop this. In a car battery the separator is not sufficient to prevent deterioration if constant deep cycling takes place.

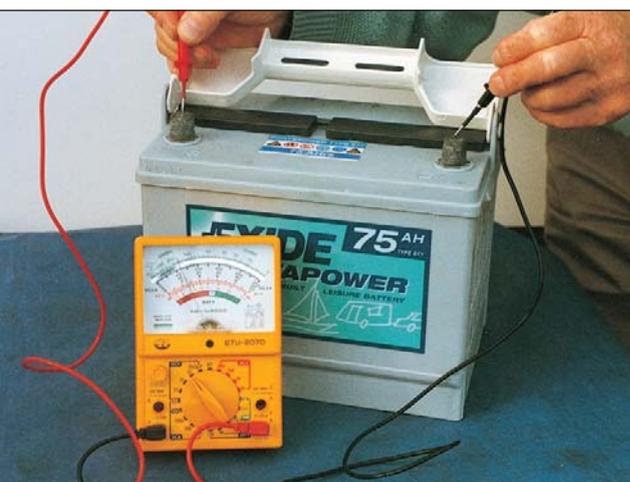
A leisure battery has a second glass wool separator which helps contain the active materials and prolongs battery life.

Sulphuric acid fills

## Safety check

- Always use clamping clips on the battery terminals.
- Ensure the battery venting pipe is in the correct position.
- Avoid naked lights or electric sparks when inspecting or topping up electrolyte levels.
- Remove the negative terminal first. Replace positive terminal first.
- Use a leisure battery charger rather than a car type battery charger.
- Turn off the battery charger and disconnect mains electricity before removing the battery.
- Ensure the battery is securely fixed.
- Use gloves, protective clothing and goggles when topping up cells.
- Never smoke near a charging battery or when maintaining it.

Using a volt meter, a reading of 12.7 volts will indicate that the battery is fully charged.



the voids in the cells and is used as a conductor between the plates.

As the cell discharges the density of the acid decreases, reducing the ability of the plates to release the electric current. Charging reverses the process.

## Battery choice

There are a number of important things to consider when choosing a leisure battery.

Most modern caravans have an integral locker. The size of this locker may restrict the size of battery you can use.

Older caravans carried an exposed battery in the gas or bed locker. This is not now recommended.

For caravans without a built-in compartment, a special sealed box can be fitted under the bed locker or in the wardrobe.

Weight is a further consideration. At 18-22kgs it takes up part of the caravan payload and can be difficult to lift into the storage locker.

In general the bigger the battery the more powerful it is.

Batteries are rated according to their current output over an hour. This is designated as ampere-hours (AH).

A 60/65AH battery is

## Calculating battery power

Equipment	Current (Amps)	Hours	Amp.hour (AH)
One fluorescent light	0.75	x 5.00	3.75
Two reading lamps	1.50	x 2.00	3.00
Colour TV	3.00	x 2.50	7.50
Water pump	7.00	x 0.25	1.75
Total ampere hours		=	16.00
Add 20 per cent safety margin			3.20
			19.20

If this is the amount used per day, a 75Ah battery will last around four days and be fully discharged. Never allow a battery to discharge beyond 50 percent of its capacity. Recharge the battery after two days.

suitable for weekend use, 75AH is an adequate size for the regular caravanner and a 90/100AH battery has plenty of power for those extra twelve-volt gadgets or for those who use sites without an electrical hook-up.

## Battery life

The life of the battery depends on its use. The more appliances you use in a given period the more current you will use and the quicker the battery will discharge.

Determine the rating of each appliance and the period of time, you are likely to use them each day.

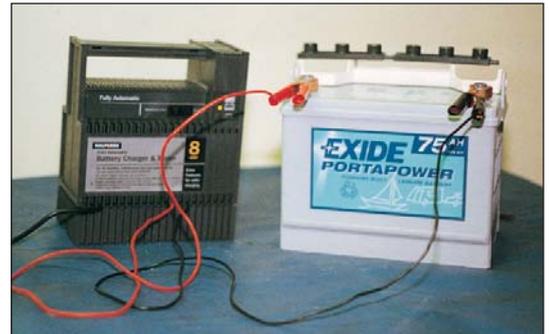
For example if you have two eight watt lamps being used over five hours and a 40 watt water pump used for one hour, this equates to 120 watt hours (2x8x5+1x40). Dividing this by twelve results in ten ampere hours per day.

For a 75AH battery a fully charged battery will last seven and a half days (75/10) and then will be fully discharged.

Never totally discharge a battery. It is unlikely that you will be able to recharge it again.

In practice it is better to never let your battery discharge to less than 80 per cent of its capacity.

If you allow the battery to discharge beyond half its capacity it is unlikely that you will fully recharge it again.



During a long lay-off period bench charge the battery using an appropriate leisure charger.

## Battery care

The more care you take with your battery the longer its life will be.

Regularly inspect the battery for cleanliness, electrolyte levels and state of charge.

Always wear protective clothing. Batteries contain acid and any spillage will damage your clothes and burn your skin.

Wipe the battery top dry with a cloth or kitchen paper.

Clean any white deposits from the terminals with warm water. Coat the terminals with petroleum jelly.

Unless the battery is of the maintenance free type, occasionally top up the electrolyte with distilled water obtainable from motor accessory shops.

Check the state of charge using a direct current voltmeter – 12.7 volts indicates a fully charged battery, 12.3 volts it's half discharged and anything less than 11.8 volts the battery has fully discharged.

Another method is to test the strength of the electrolyte in the cells using a hydrometer.

A reading of less than 1.1 indicates a discharged battery. At 1.28 the battery's fully charged.

## Battery charging

If you keep your battery in the caravan charge it from the car when towing.

If you are on a site and use a mains electric hook-up it will be charged through the caravan's own on-board charger.

Solar and wind chargers are becoming popular but will only provide a trickle charge to the battery.

During a long lay-up period store the battery in a dry place and use a leisure battery charger every month or so to keep it fully charged. If you use non-electrics sites, and your car is appropriately wired, charge the battery in the boot of the car during trips out.