

# Know your Battery

**I**n your great-grandad's day cars came with crank handles. If you had a flat battery, you simply slipped this handle into the front of the engine and turned it until the car started.

You don't have this option on modern cars. Every car, from the smallest Daewoo to the mightiest Mercedes, is totally at the mercy of its battery, and yet batteries seem to get smaller and lighter with each generation. They usually work fine when the vehicle is new, but as the car ages, they grow old and die, sometimes stranding you at the side of the road.

There are lots of reasons why modern batteries are smaller and lighter than the ones your great-grandfather had. The first is that modern starter motors are far more efficient than the ones on older cars, and therefore need smaller batteries to power them. Modern car manufacturers put in small, light batteries and thus save weight. It's also cheaper to build a small, light battery than a heavy one. Few car manufacturers give a damn what happens to a car

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once it's outside warranty, so dead batteries tend to be your problem, not theirs.

New car batteries (which are often not covered by the car's guarantee) typically last between two and six years. The best ones we've come across seem to be fitted to Japanese domestic models.

Most modern replacement batteries are on borrowed time from about two years onwards and should probably be replaced at three. If you're the anxious type and your battery is over three years old, replace it before winter. Your mechanic or the man at the battery shop will be able to tell you how old your battery is. There's usually a label on the battery that says when it was made (see separate panel for instructions on how to read this label).

Car batteries are almost always *storage batteries*. Unlike, say, a torch battery, car batteries don't produce electricity, they merely store it for future use. A charger – usually an alternator or generator powered by

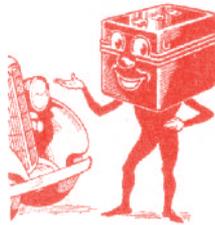


the vehicle's engine – is required to recharge the battery after each use. If your vehicle's alternator or generator isn't producing electricity, then the best battery in the world can't work properly. Even if the alternator or generator is working correctly it's important that the regulator – the device that controls how much electricity gets to the battery – works properly too. Too little electricity means that the battery won't charge properly, too much and it will over-heat and quickly die.

Even good batteries go flat if left for several months, and batteries do not like being left flat or partially flat. If you're going to store a car for a few months it's important to make sure that your battery is fully charged before you leave it. Otherwise you'll probably come back to a flat and permanently dead battery.

Replacement batteries tend not to be as good as the ones your car came out with, and if you want reliability, you have to pay for it. Ideally you should buy the battery that your mechanic recommends or else shop at a specialist battery shop. Unless your vehicle is on its last legs, within reason you should probably buy the best battery you can afford.

A key indicator of quality is the length of guarantee – if the manufacturer trusts his products, he'll give them a longer warranty than he would if they were cheap and nasty. This is important to remember, because if you don't know how to read the important information off a battery label, then you can be easily fooled. For example, terms like 'heavy duty' may mean that a battery is very ruggedly built, or it may simply be a label that gets slapped onto an otherwise fairly ordinary battery. Real heavy duty batteries get real heavy duty warranties.



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If you want to brave the world of technical jargon, there's a brief explanation of battery terms on the next page. You don't need to know these terms, but knowledge tends to level the playing field when you're dealing with salesmen.

On an older car with lots of space for a larger battery, there's no particular reason why you shouldn't fit the largest battery you can, provided that your mechanic says that your vehicle can reliably charge a battery of that size.

On newer cars you must generally fit a battery that closely resembles the original, at least in physical size, or you may be buying yourself endless grief; modern batteries are different sizes, have different terminals, have the terminals in different places, and so on. Most parts stores have battery catalogues that will quickly tell you what type of battery you should be fitting. However, specialist battery stores are often better because they probably stock several different makes of batteries, so you can choose the best battery with the best guarantee at the best price.

Please note, however, that most battery manufacturers are owned by one of a few dominant global corporations, so there's not actually all that many brands to choose between. Further, it's common for the batteries of one manufacturer to be sold under a lot of different brand names. So, just because a battery has a different label than the one sitting next to it does not mean that it's a different battery. It's the specifications of a battery – that is, the ability of a battery to do its job over a long period of time – that make it good or bad.

Comfort is a big factor in deciding how much to spend on a new battery. If you never leave the

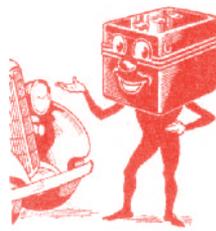


inside light on in your car overnight or never leave the headlights on by mistake, and if you don't really mind if your car doesn't start one cold morning a year from now, then the cheapest battery may be okay. If, however, you care about any of the above you should buy the largest capacity, longest guarantee battery that will fit in your vehicle, provided your mechanic says it's okay or provided it is specifically listed by the vehicle manufacturer or the battery manufacturer as being appropriate for your vehicle.

Climate is also a factor in deciding what battery to get. Starting a car in winter typically requires around 140–170% more current than in summer.

Unless you care to familiarise yourself with the technical terms on this page so that you can understand the label on the battery, *the length of guarantee is your most reliable indicator of battery quality*. Make sure, however, that the stated length of guarantee promises *full replacement for the entire duration of the guarantee*, because there are still a few places that try the old fake guarantee scam, whereby the battery shop will offer full replacement for only a part of the guarantee period and a discount off the cost of a new battery for the remainder of the guarantee. Also, some guarantees allow for unlimited mileage while others guarantee the battery for a limited mileage only.

Bear in mind that if your car won't start in the morning, it may not be the battery's fault. Before you replace the battery, get your vehicle's charging system checked by an expert. This should not be too expensive and could save you the cost of needlessly replacing your battery •



## What do the terms on battery labels mean?

- How old is your battery?

Battery labels usually give the date of manufacture with a number and letter (A is January, B is February and so on). So, a battery that is marked 1 A or 01 & A, was probably made in January 2001.

- Ampere hour, amp / hour & Ah all mean the same thing – they are a measure of how much overall grunt the battery can deliver. A 60 amp/hour battery will provide 60 amperes of current for one hour. A typical car battery can produce 25-90 amp/hours.

- Cold Current Assessment, also known as Cold Cranking Amps (CCA) both tell you the same thing – the amount of grunt that a battery can deliver at low temperatures. In other words, the CCA test is a simulation of a motorist in a cold climate trying to start his car first thing in the morning. The dominant CCA test, developed by the Society of Automotive Engineers (SAE), measures the output in amperes that a battery can deliver for 30 seconds while maintaining the voltage above 7.2 volts.

Car batteries typically have a CCA rating of between 270–720.

Diesel engines typically require 200% to 300% more current to start than petrol engines.

- Reserve Capacity Rating (RC). Imagine that your car's alternator or generator stops charging the battery but you keep driving. How long before the battery goes too flat to reliably start the engine? That's the question that the Reserve Capacity Rating answers. A battery's reserve capacity rating (RC) is a measure of how long it can keep going without being charged, at normal operating temperatures. Specifically, it's a measure of the number of minutes that a fully charged battery at 26.7°C (80°F) can be discharged at 25 amps before the voltage falls below 10.5 volts.

Reserve capacity is measured in minutes; a typical 12 volt car battery will have a reserve capacity of between 30 and 170 minutes.

- Deep cycle batteries (not usually used in motor vehicles except camper vans and the like) are usually rated in amp/hours. To convert Reserve Capacity to approximate Ampere-Hours, multiply RC by 0.4.

For further information, go to the dictionary at the back of this publication and look up *amperes, amp / hours, alternator, generator, regulator & starter motor*•

