

Auxiliary Batteries... What Sort, What Type and How Long?

When we're Overlanding and/or Camping out these days, batteries play a big part of our activities. No longer do we seem to be able to live these leisurely camping activities without the need of a fridge, lights and/or any other non-essential power-hungry device.

What Sort?

With so many different batteries now available on the market it seems our choices are endless. Gel, AGM, Flooded Lead Acid or Calcium... and now emerging from the future we have the new kids on the block... Lithium-Ion. Price plays a big part when shopping for batteries and it's my suggestion you stick with the reputable brands you know, the ones that come with a nationwide warranty and have you covered for a minimum of 2 years.

Battery mounting location will also play a big part when choosing a battery. For example, a number of battery manufacturers offering Gel and AGM batteries won't warrant these batteries if mounted in high temperature environments, say under the hood in engine bay location i.e. common auxiliary battery mounting location. These positions are subjected to extremely high temperatures.

My recommendations for batteries mounted in an engine bay would be... Flooded Lead Acid Batteries. Now there are many people who would like to debate whether we choose a Standard or Calcium flooded lead acid battery and both have their good and bad features. Let's leave that decision up to the battery specialist selling you the battery. Remember reputable brands and warranty periods!

My recommendations for the inside of the vehicle, motorhome, trailer, camper or similar would be... Gel or AGM batteries. AGM batteries tend to be more readily available and affordable when compared to the Gel type batteries with both offering similar performance and maintenance requirements. Both these battery types are generally fully sealed, meaning they won't give off that sulphur type smell when charging. The smell is associated with what's referred to as the gassing of the battery, this chemical reaction happens when the battery is being charged. This gaseous smell is a highly flammable hydrogen gas and not recommended for human consumption! It's also my experience that these AGM batteries generally recharge faster than their Flooded Lead Acid brothers.

What Type?

This is where you need to decide what you're requiring this auxiliary battery for? Generally speaking auxiliary batteries are utilised so as to preserve your main vehicle start battery for vehicle specific duties i.e. starting the vehicle. Whilst your auxiliary battery is added to enable you to run your other recreational loads i.e. fridge, lights etc.

My recommendation for an auxiliary battery would be what we commonly refer to as a Deep Cycle Battery. This type of battery is designed for many dis-charges and re-charges; we also refer to this as the cycling of a battery. People's misconception of Deep Cycle Batteries is they can be fully discharged and re-charged. However, caution must be noted as to not discharge your auxiliary Deep Cycle Battery/s below a level of 50% charge, as this type of continual over dis-charging will greatly reduce the performance and life expectancy of your Deep Cycle Battery. A rule I try and abide by is not taking my auxiliary battery lower than a voltage level of say 12Volts at the very worst. Remembering also if you discharge a battery for say 12 Hours it will surely take longer than a one hour drive to recharge it fully again!

How Long?

This is a beauty, how long will my battery run my fridge for? There are so many variables that when somebody tries to answer this question it's an educated guess at best. Below are a couple of examples of battery run times talking in "round figures".

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Example No.1

- 100 A/hr Battery
- Fridge in 77 Degree Fahrenheit ambient temperature
- Minimal opening and closing of the fridge
- Fridge draws 4 amps whilst running
- It cycles on for 25% of the time

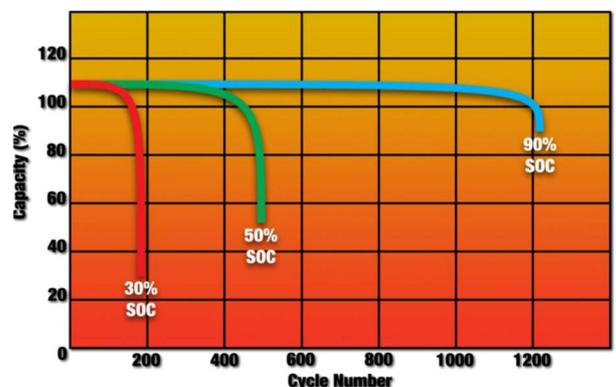
This means that in one hour the fridge (only) consumes 1Amp hour of charge from the battery. Remembering we don't want to discharge our battery below a level of 50%, this means we have 50A/hr of usable energy from a fully charged 100A/hr battery. Under these conditions we can run our fridge (only) for almost 2 days without the battery being charged.

Example No.2

- 100 A/hr Battery
- Fridge in 95 Degree Fahrenheit ambient temperature
- Regular opening and closing of the fridge (Dam Kids!)
- Fridge draws 4 amps whilst running
- It cycles on for 75% of the time

This example demonstrates that in one hour the fridge (only) consumes 3Amp hour of charge from the battery. Again, keeping in mind we don't want to discharge the battery below a level of 50%, this means we have 50A/hr of usable energy from a fully charged 100A/hr battery. Under these conditions we can run our fridge (only) for a little over 16Hours, a little over half a day!

Obviously, the figures listed above are an example only and the various loads, battery types, ambient temperatures, fridge temperatures and frequent of use will affect this suggested power consumption and run time. Starting with a battery which is at 100% is also very important. With many of us never achieving our batteries full potential, run times and battery life will differ immensely. Here I've illustrated an example of battery life versus various states of discharge. This highlights the importance of keeping your batteries maintained at 100% and not discharging your auxiliary batteries too much! 😊



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