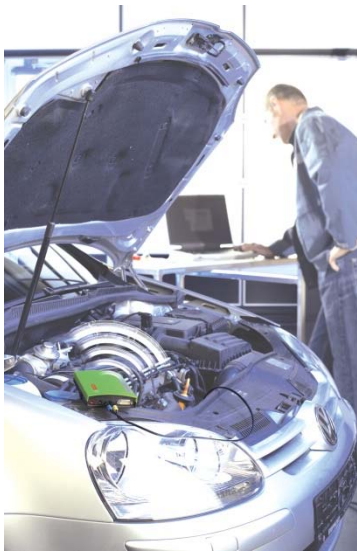


## Temperature and how it effects Battery Performance & Life

By Johnny Kennedy



As the days get shorter and temperatures starts to decline, like us, the battery goes through changes that can affect the starting performance of your vehicle.

These cold conditions increase friction around the engine components and an increase in oil viscosity creates higher demands on the engine that requires additional cranking power to start the vehicle.

To add more stress to the situation, a fully charged battery at 25°C has approximately 100% of its power to crank the engine.. At 0°C, the batteries ability to deliver the same amount of power is reduced by around 35%.

Power available from battery	Temperature, °C	Power required to crank engine
100%	27°	100%
65%	0°	155%
40%	-18°	210%

The combination of an increase in engine tolerances and a decrease in available CCA (Cold Cranking Amps) is a big factor for high battery failure over the colder months.

### **The World's highest battery related problem.**

It is estimated that over 85% of all early battery related failures come from undercharging. Prolonged undercharging of the battery can cause *Plate Sulphation & Stratification* that heavily reduces the life of your battery.

### ***What is Plate Sulphation?***

All batteries sulphate and is a natural process as a battery discharges. When the vehicle is running under normal conditions the alternator will recharge the battery and any Sulphation that is on the battery plates will easily dissipate. Unfortunately due to busy traffic conditions, and increased idling times, the vehicle generally doesn't provide enough power to charge the battery and run the added accessory loads in the colder conditions including heaters, wipers and lights.

Batteries that are in a constant low state of charge will in time build up hard Sulphation that will reduce starting capacity and eventually fail.

### ***What is Stratification?***

When a flooded battery is heavily discharged the Sulphuric acid in the electrolyte sinks to the bottom of the battery case. If the battery is not charged correctly the high strength acid corrodes the bottom of the plate and the upper half of the plate becomes inactive due to the high water content and also corrodes reducing the batteries capacity.

**“It is estimated that over 600,000 Batteries are replaced Roadside every year in Australia”.**

### ***So how do we prepare?***

Regular maintenance of the battery and battery components will go a long way in preventing your customer from being one of the 600,000 consumers stuck on the side of the road in need of a new battery.

When you are servicing your customer's vehicle it is important to carry out a Battery test. Battery testing and Maintenance over recent years has fallen along the wayside due to the increase of SMF (Sealed Maintenance Free) batteries been fitted to vehicles and a fit & forget society. What is not taken into account while the battery may not require water replacement over its life, checking and cleaning the terminals and leads is still required to maximize starting performance.

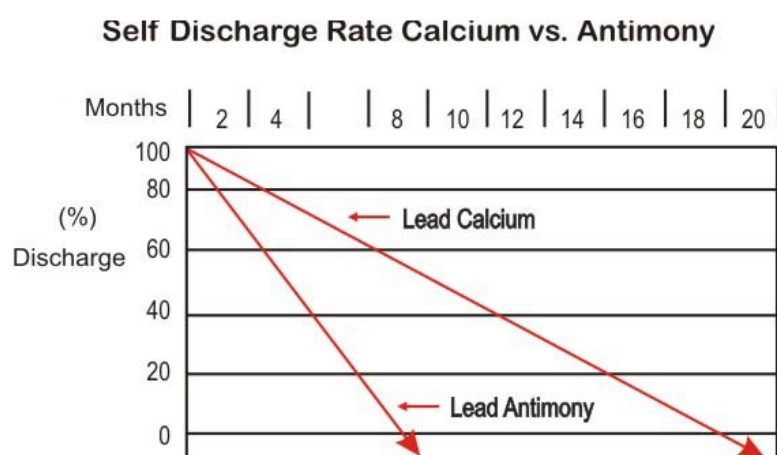
**Surprising Fact:** Most entry level car servicing plans do not have a battery servicing and testing procedure included.

### **Battery Servicing & Maintenance**

When providing a Battery servicing & Maintenance program some of the key components should include the following:

- Checking to see if the battery is secure in the tray and the hold down bracket is firm on the battery
- Checking for signs of corrosion around the terminals & leads
- Checking for signs of cracks, leaks or damage to the battery case
- Checking the Alternator Drive Belt is not loose
- Checking the batteries current state of charge
- Checking the batteries electrolyte levels and the colour if a serviceable model
- Checking the batteries starting power (CCA test)
- Checking the charging current (Alternator output to battery)
- Checking the starter motor current draw
- Checking for any parasitic drains that could reduce battery capacity

In addition to this, when storing batteries, make sure they are fully charged and in a cool dry place. As the chart below details, depending on the battery type a fully charged battery will drop to below 80% of its state of charge between 2 - 4 months.



On a final note it is also worthwhile talking to your customer about investing in a good quality automatic battery charger that they can use on the battery at regular intervals to prevent undercharging and improve battery performance & life.



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