

# CARING & COMMON FAILURES



## CARING FOR YOUR BATTERY

- If equipment is to be stored for a long period of time the batteries should be disconnected to avoid undue drain on the batteries and any potential for damage to the equipment. Although XcellR8 batteries have a low self-discharge rate which permits reasonable storage time of a fully charged battery, it is important that a lead acid battery when stored be recharged less than every 6 months.
- Batteries should not be stored in a discharged state or at elevated temperatures. If a battery has been discharged for some time, or the load was left on indefinitely, it must be recharged as soon as possible to prevent sulphation damage. Ensure battery is fully recharged as a partial charge will not prevent sulphation.
- Continuous over-or undercharging is the single worst enemy of a lead-acid battery. Caution should be exercised to ensure that charging system voltage is correct.
- Do not apply undue force to the terminals or bend them. Avoid applying heat to the terminals through processes such as soldering.
- Do not place batteries in close proximity to objects which can produce sparks or flames, and do not charge batteries in an inverted position.
- Avoid exposing batteries to heat! Care should be taken to place batteries away from heat-emitting components. If close proximity is unavoidable, provide ventilation. Service life is shortened considerably' at ambient temperatures above 30°C (86°F).
- Do not mix batteries with different capacities, different ages or of different makes. The difference in characteristics will cause damage to the batteries and possibly to the attached equipment.
- It is good practice to ensure that the connections are re-torqued and cleaned periodically.

## COMMON REASONS FOR BATTERY FAILURES

The battery's life is determined by the application and the operating conditions. There are various factors that can contribute to the battery's failure, all of which can be categorized into 2 separate groups: manufacturing and non-manufacturing faults.

### Manufacturing Faults

Typically, the first 3 months is when these will occur.

### Short Circuits/Dead Cells

This is when 1x cell will show a dramatically lower Specific Gravity reading than the other cells.

### Internal Break

This can result from physical damage to a battery during transportation.

### Non-Manufacturing Faults

These are not included in the Battery Manufacturers strict quality control systems and are more likely to occur the longer the battery is in service. These are often caused by a problem with the vehicle's electrical system, its operation or the battery application.

### Wear and Tear

As a battery gets older, grid metal corrodes, and active material is lost from the plate. Over time this leads to a point where the battery loses its capacity and will no longer be able to start a vehicle.

Note- High temperature will increase the rate at which they degrade.

### Sulphation

Sulphation is the formation or deposit of lead sulphate on the surface and in the pores of the active material of the batteries' lead plates. If the sulfation becomes excessive and forms large crystals on the plates the battery will not operate efficiently and may not work at all.

This occurs when the battery is not fully charged and left in this state for an extended period.

### **Over-Charging**

Often caused if the vehicles charging system is not operating correctly.

### **Under-Charging**

Short drives, stop start driving or faulty alternators can cause the battery to not receive a full charge.

### **Physical Damage**

Handling, storage and Incorrect fitment can lead to external damage and subsequent failure.

### **Incorrect Application**

Fitting a smaller, less powerful battery or a battery designed for another application can lead to early failure.

### **Discharge**

Some vehicles may have excessive current draw from computers, alarm etc, or lights and other accessories left on, that can drain the battery while stopped for extended periods.