

# WHEN SHOULD YOU CHANGE A SPORTident BSF7/8 STATION BATTERY?

Please **ignore** the CAP setting that appears on the LCD display on the station when you use the purple Service/Off key to set the station in Service Mode. Please also **ignore** the Battery % Remaining that you will see when you read the settings in a station using Config+.

You should base your decision to change a battery entirely on the voltage in the station which you can see on the station LCD display indicated as **BATxxx** where xxx is the voltage. ie **BAT310** means **3.10** volts. The voltage is also displayed when the read the settings in a station using Config+.

- You should change a battery when the voltage falls below **3.10 volts** (or **3.15 volts** if the station is programmed as a beacon for Contactless Punching) – readings on the LCD display of **BAT310** or **BAT315**.
- When the voltage falls below **3.0 volt**, the station will beep 4 times whenever a card is dipped in the station
- A station firmware upgrade consumes battery power and the voltage can reduce significantly during the upgrade. It is best to turn off the station and wait for about fifteen minutes before turning it back on. The battery voltage should have returned to a similar value to before the upgrade.

**However – things are never quite that simple!**

## Passivation

Lithium batteries are affected by a phenomenon known as passivation. If a station has not been used for a few months, the battery will not be delivering as high a voltage as it is capable of. The station should be switched on for **15-30** minutes using a **standard SI-Card**, not a purple Service/Off key. If the station is still switched on, switch it off with the **purple Service/Off key**. Then switch it on again with the Service/Off key. You will see in Config+ software and on the station's LCD display that the battery voltage has increased to the correct level.

## Sending Stations to Us For A Battery Replacement

Only send us stations if the voltage is less than **3.10/3.15** volts. To avoid the need to send us batches of stations too often, you could set your threshold at **3.15** volts but if you send us stations with voltages much higher than **3.20 volts**, you could be changing the battery at least a year too early!

- Replacing a battery/seal in BSF8 Station - **£17.49**
- Replacing a battery/sealing rings in a BS7 Station - **£20.99**
- Out of warranty BSF8 station repair & seal - **£23.32**
- Out of warranty BSF8 station repair, battery replacement & seal - **£30.32**
- Out of warranty BS7 station repair & sealing rings - **£26.82**
- Out of warranty BS7 station repair & battery replacement & sealing rings - **£33.81**
- Removal/Fitting of BSF8 permanent metal bottom plate - **£2.33**

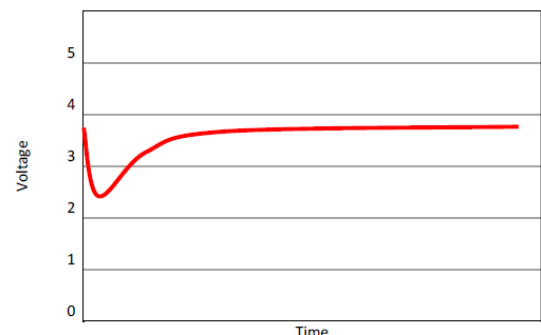
**VAT @ 20%** should be added to the prices above. Turn round time should be no more than 10 days from date of receipt unless the station needs to be returned to our manufacturer. Carriage back to you is charged at **cost**.

### Background Information About Passivation

Passivation is a film of lithium chloride (LiCl) that forms on the surface of the lithium anode, and it serves to protect the lithium from discharging on its own when the load is removed from the cell. The film of LiCl, which is essentially a high resistance layer between the electrodes, is primarily responsible for the long shelf life of lithium cells.

Passivation may cause voltage delay after a load is placed on the cell as illustrated in the graph.

After a load is placed on a cell, the high resistance of the passivation layer causes the cell's voltage to dip. The discharge reaction slowly removes the passivation layer thereby lowering the internal resistance of the cell. This in turn causes the cell's voltage to reach a peak value which should remain steady if other discharge conditions do not change. If the load increases after the cell's voltage stabilizes, then it may dip again until the passivation layer is sufficiently removed. Once the load is removed or lowered, the passivation layer will reform, and voltage delay may be a factor when subsequent loads are applied.



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