



## ***Testing a Battery To See IF the BLS Will Restore Power***

We are constantly striving to improve our product and our testing procedures. Below you will find a summary that will help you to determine the presence of a bad battery and the clarification of what we consider a bad battery.

While we cannot see what is going on inside a battery, we can indirectly analyze its current condition. **A BLS will not be able to fix batteries** with shorted cells, floating cells or open cells; those are what we call bad batteries.

An open cell is not the same than an "open battery", in some cases this is how flooded batteries are described.

A floating cell can be easy to identify because it does not register voltage with a voltmeter or it registers a flashing a sporadic, unstable voltage.

When you have a shorted cell the reading voltage the voltage of a cell will be zero.

An open cell can be very deceiving as it can register as a heavy sulfated battery using the voltmeter. While in reality you have big holes on the battery's plates (see photo on page 3). Although you may be able to add a coat of lead on those plates while charging and using the BLS, the damage can be beyond real recovery. This condition is more frequent in starter batteries as they have thinner plates but you can find it on deep batteries that will make almost impossible to recover the battery.

Using a battery hydrometer you can test for a bad battery and have an idea of the presence of an Open Cell.

An Open Cell indicates that the one or more of the lead plates physical hole in it most frequently the positive plate as seen on the picture. The Battery Life Saver electronic device cannot recover a battery that has this condition (attached is a picture of an Open Cell).

Testing for an Open Cell is similar to testing for a a Short Cell. It is easiest to test for both of these conditions at the same time.

## **Testing for a Bad Battery**

### **Step 1: Preparing the Test**

a.) Make sure you turn off any instruments or accessories that will drain the battery or battery system during testing.

b.) Charge the battery or battery system until it is fully charged.

c.) If the system has multiple batteries connected, we recommend disconnecting them from each other to get accurate readings. Let the batteries sit for 4 to 12 hours, the longer the better. This important because if you measure the voltage immediately after charging, you will not be measuring the true voltage of the battery.

### Step 2: Testing for an Open Cell

*-If you have the sealed type batteries, this test method cannot be used.*

*-Use a temperature compensating battery hydrometer for this test.*

a.) With the hydrometer, measure and record the specific gravity of each battery cell (Example: Battery #1— Cell 1= 1.250, Cell 2=1.275, Cell 3= 1.275). *Fill & drain the hydrometer a few times before pulling a sample.*

b.) Compare the specific gravity readings between each battery. If a battery has a difference of more than .05 between the cells, that battery has an open cell.

	Cell #1	Cell #2	Cell #3	Condition
Battery A	1.250	1.225	1.250	Recoverable
Battery B	1.275	1.250	1.225	Recoverable
Battery C	1.200	1.250	1.275	Open Cell

Battery C has an Open Cell because the difference between Cell #1 and Cell #3 is .075, more than .05.

### Step 3: Testing for a Short Cell

a.) With a voltmeter, measure the voltage of each individual battery.

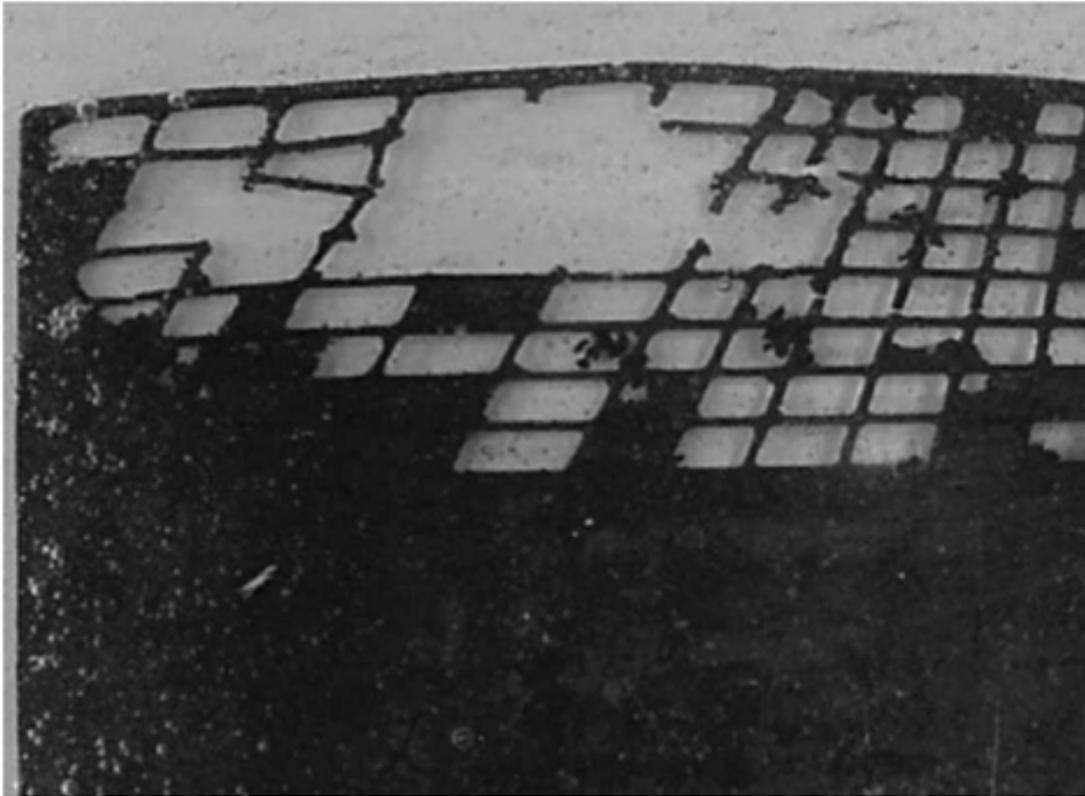
b.): Reference the chart on the next page to determine if a battery has a shorted cell.

Battery	Voltage Reading of a Short Cell
6 Volt	Below 4.3 volts
8 Volt	Below 6.5 volts
12 Volt	Below 10.6 volts

### Summary:

Any battery that has a short or open cell is not recoverable and it needs to be replaced. If you are using the BLS, you can replace the bad battery with another used or new battery, then use the BLS to recover the rest of the system.

This testing procedure can be found in all instruction manuals of the BLS.



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