Albércorp.

Intercell Resistance
Measurement Procedures

Introduction

Intercell resistance problems account for a great many battery system failures. In UPS or other high current applications, the failures can lead to explosions and fires that are not only costly but also represent safety hazards.

Most battery manufacturers, unfortunately, do not supply baseline resistance values, so, presently, users must establish their own values. The recommended procedures for establishing baselines are:

New systems... read all the resistance values after installation and calculate the average value.

Older systemss... disassemble ten sets of intercell connections; burnish, neutralize and clean them; reapply corrosion inhibiting compound, reconnect, retorque and then calculate the average of the new readings.

Intercell resistance measurements should be taken once a year of all cells (IEEE-450-1995 and IEEE-1188 maintenance recommendations.) Any connection that is 20% or greater than the baseline or installation value requires corrective action. The importance of these measurements is illustrated by the 1188 VRLA standard that recommends quarterly sampling 25% of the intercell connection resistances. If an upward trend is detected, all connection resistances should be measured to aid in determining the cause and corrective actions.

How To Take Readings

When taking intercell connection resistance readings, it is important that:

a) the test leads are connected properly. Measurements should include the post to intercell connector resistance. Always check your connections and connect only to posts, not nuts, bolts or straps. (See figs. 1 to 5). This is the main area where connection problems occur; and,

b) the test probe tips/fingers make a good connection, piercing any grease, lead oxide or crud coating the posts or straps. This is the leading cause of error messages after pressing the test button. Often jiggling the probe will lower the readings significantly and save you the headache of unnecessarily reworking a connection.

Single Interconnections

Figure 1 shows how the Albércorp Cellcorder should be connected to obtain the proper measurement. Note that, ideally, the reading includes both the intercell connector resistance and the post to intercell connection resistance.

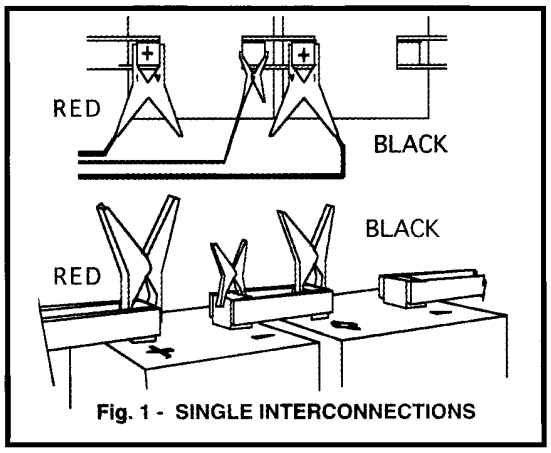
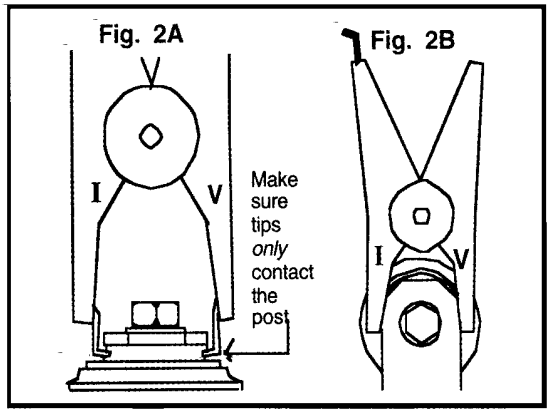


Fig. 1 - SINGLE INTERCONNECTIONS

Figure 2A shows the connection for VRLA cells, such as the ABSOLYTE II batteries, where the terminal post is accessible. Figure 2B shows the connection for VRLA cells where the terminal post is not accessible. In this type of cell, the intercell to post connection resistance is included in the internal cell resistance measurement.



NOTE: Do not connect to the stainless steel bolt heads to make this measurement.

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Dual Interconnections

Figures 3A and 3B show the typical intercell connections for dual post cells. This type of interconnection requires that two readings be taken. The first one shown should be with the intercell leads connected from Terminal Post A to Terminal Post C.

Take the second reading with the intercell leads connected from Terminal Post B to Terminal Post D. The positive (a red clip) Cellcorder lead should remain connected (as shown) to the same terminal post for both measurements.

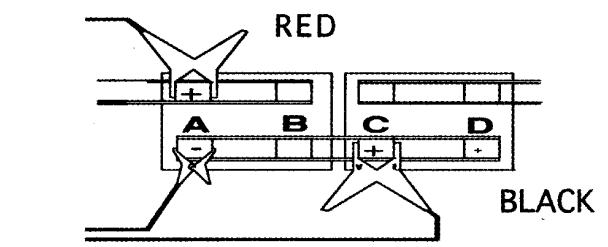


Figure 3A

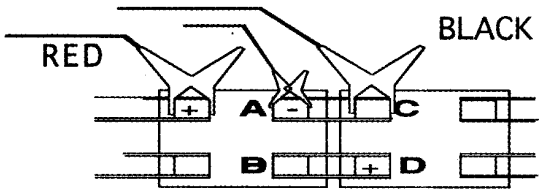
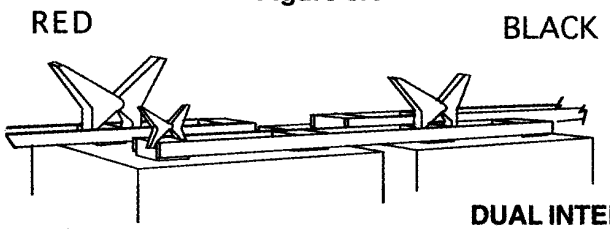
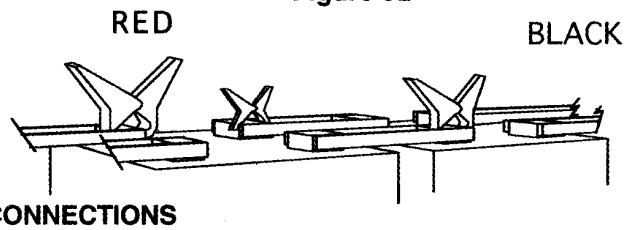


Figure 3B





DUAL INTERCONNECTIONS

Triple Interconnections

Figures 4 and 5 show the typical intercell connections for triple post cells. For cells arranged as in Figure 4, three readings are made. The first one, shown, should be with the intercell leads connected from Terminal Post A to Terminal Post D. Take the second reading with the intercell leads connected from Terminal Post B to Post E. The third reading is with the intercell leads connected from Terminal Post C to Post F.

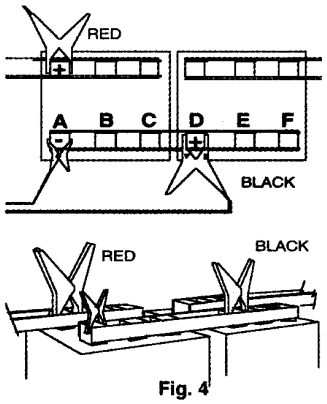


Fig. 4

TRIPLE INTERCONNECTIONS

For VRLA cells or flooded cells configured as shown in Figigure 5, four readings are made, forming two X's: Terminal Posts A to E then B to D, and B to F then C to E.

In all triple post strap measurements, the positive (a red clip) Cellcorder lead should remain connected (as shown) to the same terminal post for all readings.

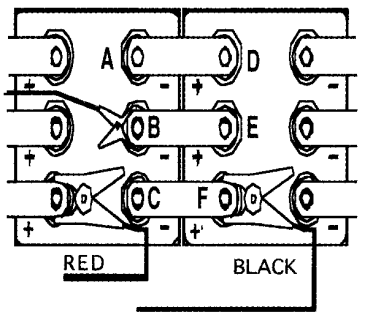


Fig. 5 TRIPLE POST VRLA

For further information on the Cellcorder, contact your local representative or ALBERCORP directly at:

Albercorp.

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