

Middle East & North Africa  
Personal Communication Sector

***Field Service Information***

**C33x Battery Metering Inaccurate**

Our Reference: SI35\_6\_2004

Date: June 28, 2004

Pages (including this page): 8

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Date: June 28, 2004

Our Reference: SI35\_6\_2004

Product/System: C33x

Subject: **C33x Battery Metering Inaccurate**

## **FIELD SERVICE INFORMATION**

**This FSB will expire on Aug 18, 2004 or until replacement battery connectors become available. A revised FSB will be issued at that time**

### **Problem:**

Service has been made aware of an issue with the battery level indicator on C33x GSM phones. When a call is placed, the battery level indicated on the phone's display will initially show three bars (with a fully charged battery), then drops one bar within minutes. Therefore the end user perceives this as "Short Battery Life", or "Battery Not Holding Charge" This false indication is particularly evident when a test call is made using a call simulator such as a CMU200 or HP8922 when the TX Power Level is set at maximum power. Within 15 minutes, the indicator can drop one bar.

### **Solution:**

**Battery/Charging failures have been determined to be the result of one or any combination of the following root causes:**

- 1) Phone software-versions prior to TA02\_06.04.2FR have a lower A to D sampling rate;
- 2) MIWA sideband(C333 only)-a conductive coating on the front housing sideband leads to degradation of the RF signal which results in the phone transmitting at a higher power level, thus shortening battery life;
- 3) Faulty phone battery
- 4) Hirose Battery connector (assy P/N 0189727L01) and/or PCB connector (P/N 2809180T01)-Oxidation/plating issues on contact pin(s) increasing the pin's resistance.

In addition, it has also been determined that changing the SEEM elements in the unit's flex results in a more accurate battery level reading.

### **Field Service Action:**

#### **Customer Returns:**

Perform the following procedure on all C33x returns:

1. Verify that the phone's software version is TA02\_06.04.2FR or later. Reflash if necessary.
2. Replace Miwa sideband if necessary (C333 only). Refer to Field Service Bulletin LVFSB2003-49 Rev A for details.
3. **For Euro Band products**-Re-flex with flex version 173

Perform the following Battery Connector rework using the procedure below **only** on units returned for battery or charging related complaints such as:

- 1) Battery Life Short
- 2) Battery Not Holding Charge
- 3) Battery Meter Inaccurate
- 4) Battery Charging Too Slow
- 5) Battery Does Not Charge

#### **Classification:**

**Motorola Internal Information**

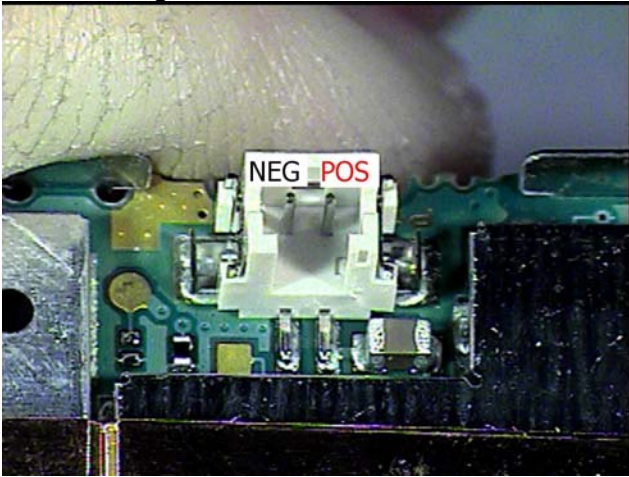
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**Battery Connector Rework Procedure:**

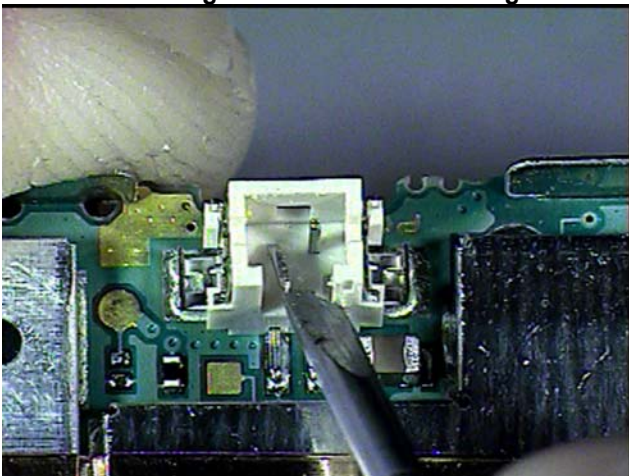
**CAUTION: The rework process involves working with exposed battery wires. Extreme care must be taken throughout the rework process to avoid shorting of these wires to each other or with PCB components. If a short does occur, then the wires will quickly become extremely hot, possibly resulting in a burn. The procedure MUST be followed step by step as described.**

- 1) Disassemble the unit to gain access to the battery.
- 2) Remove the battery from the PCB battery connector
- 3) Using a flat blade jeweller's screwdriver, break off the of the PCB battery connector negative (-) pin by moving the pin back and forth several times until it breaks at the connector's base. Refer to Photos 1 thru 4 below.

**Photo #1-Original PCB Batt Connector**



**Photo #2-Bending PCB Batt Connector Negative Pin**

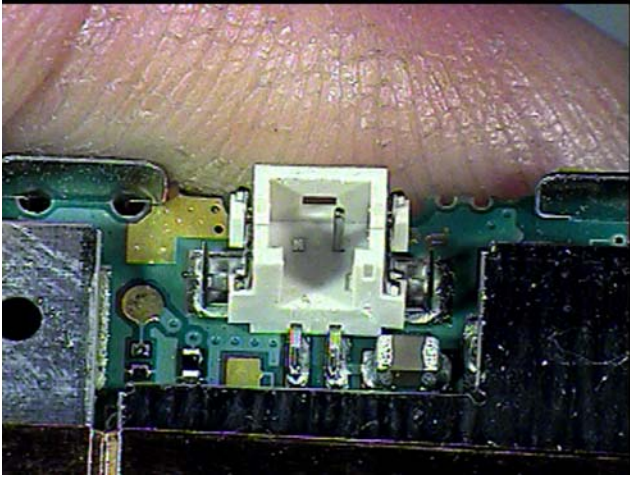


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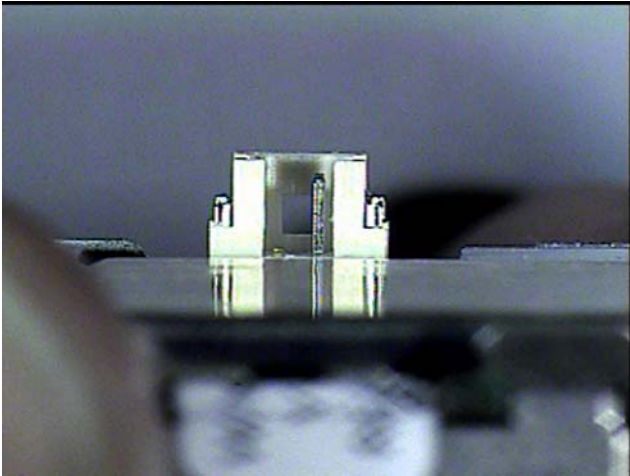
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**Photo #3-PCB Batt Connector Negative Pin Broken Off**

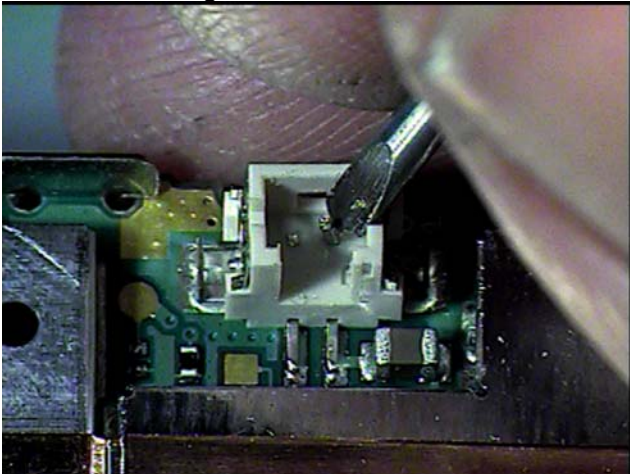


**Photo #4-Side View Of PCB Batt Connector Without Negative Pin**



- 4) Using the flat blade jeweller's screwdriver, bend the PCB Battery Connector positive (+) pin approximately 20 degrees towards the center of the connector. This is to allow clearance between the heat shrink tubing (installed later in this procedure) & the PCB connector body. Refer to Photos #5 & #6.

**Photo #5-Bending Positive Pin**

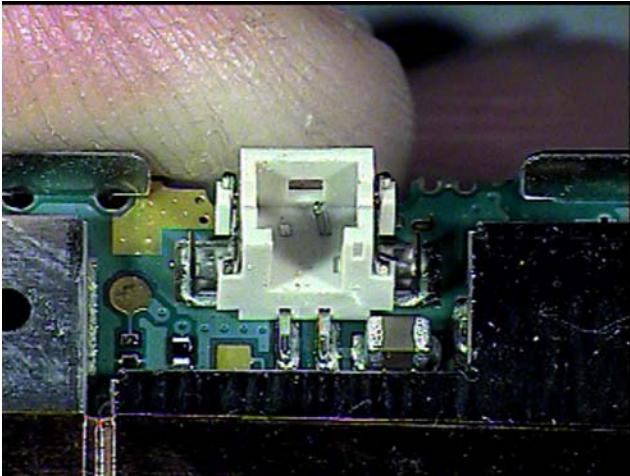


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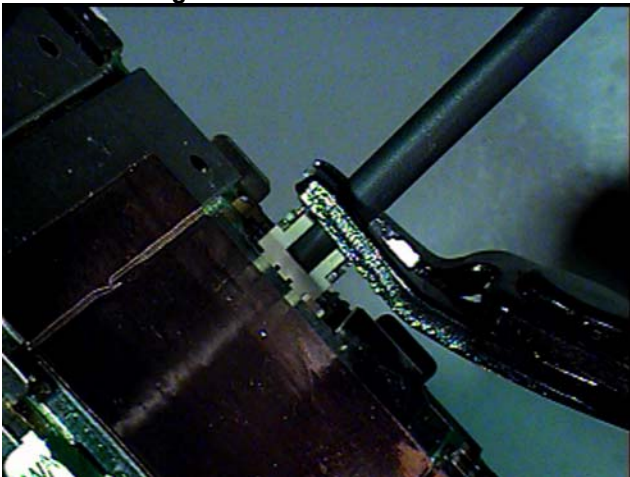
**Photo #6-Positive Pin Bent Toward Center Of Connector**



In Steps 5 & 6, the height of the PCB battery connector is being used as a gauge to cut the heat shrink to the correct length:

- 5) Insert a 3/32 diameter heat shrink tubing (3M Part # FP-301) until it fully seats into the PCB battery connector.
- 6) Using a diagonal wire cutter, cut the heat shrink flush to the top of the connector. **The cut length must not exceed 4mm.** Refer to Photo #7

**Photo #7-Using PCB Batt Connector To Cut Heat Shrink to Proper Length**



- 7) Remove the heat shrink from the connector.

**NOTE: If a short condition occurs while performing the following steps, cut any ONE of the battery leads immediately to break the circuit. DO NOT CUT BOTH BATTERY LEADS SIMULTANEOUSLY. Welding of the leads can occur and the battery leads will quickly become extremely hot due to the high current condition, possibly resulting in a burn.**

- 8) Using the diagonal wire cutter, cut the side of the battery connector housing which is closest to the red lead in order to remove the lead from the battery connector. Use caution to avoid damaging the battery wire or contact pin. Refer to Photo #8.

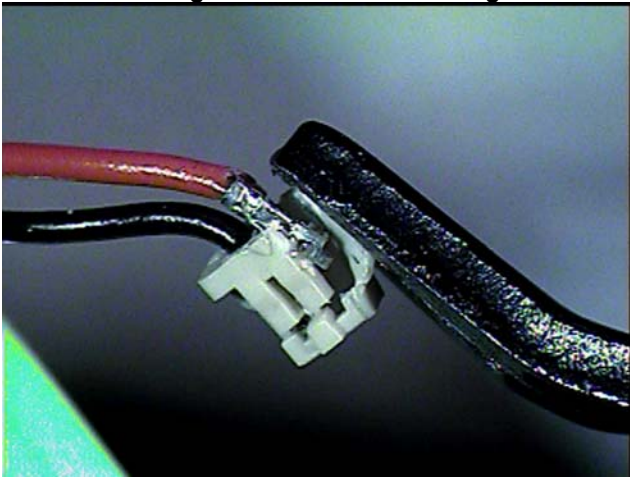
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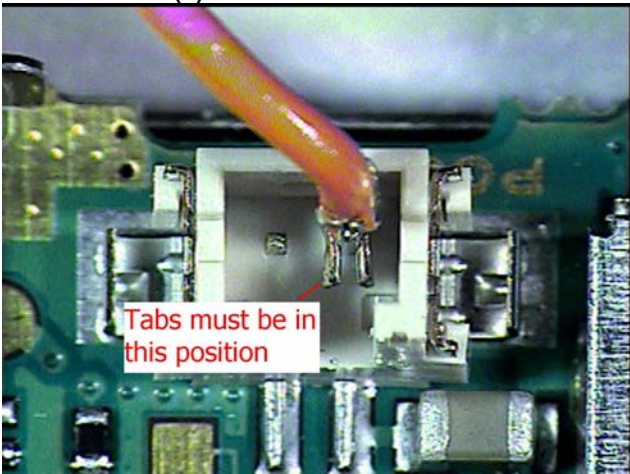


**Photo #8-Cutting Batt Connector Housing**



- 9) Remove the red lead from the battery connector housing. **DO NOT REMOVE THE BLACK LEAD AT THIS TIME.**
- 10) Install the heat shrink tubing that was cut in the previous steps over the red battery lead.
- 11) Apply a drop of liquid flux to the battery red lead contact pin.
- 12) Add solder to the soldering iron tip. Avoid using excess solder.
- 13) Position the red battery lead pin so its tabs are facing toward the opening of the PCB batt connector. **The tabs must not face the negative side of the batt connector.** Refer to Photo #9.

**Photo #9-Batt (+) Lead Tab Position**



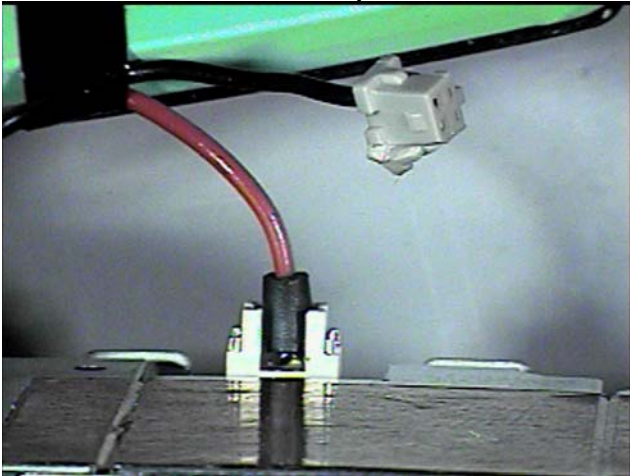
- 14) Attach the battery lead pin to the PCB battery connector positive pin and touch the soldering iron tip to the connection. Use care to avoid excessive heat.
- 15) Verify proper soldering adhesion has taken place by gently pulling on the red lead. If the lead disengages from the PCB connector pin, repeat Steps 11 thru 14.
- 16) Slip the heat shrink tubing over the soldered connection until it fully seats into the PCB battery connector.
- 17) Using a heat gun, apply heat to the tubing. Refer to Photo #10.

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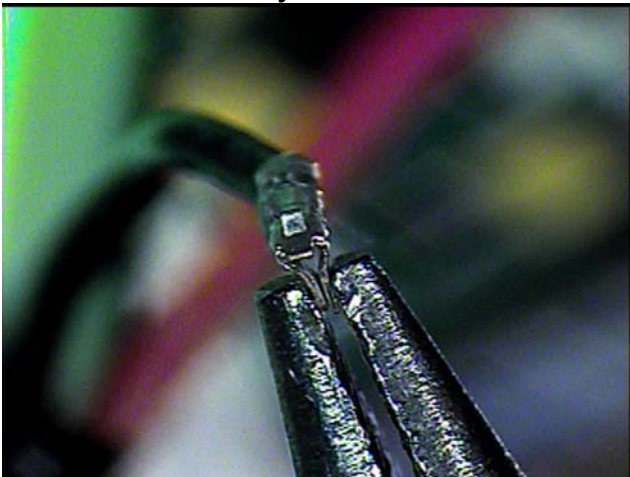
**Photo #10-Positive Lead Complete**



18) Repeat Steps 8 & 9 with the black battery lead.

19) Squeeze the black battery lead pin tabs together using needle nose pliers. Refer to Photo #11,

**Photo #11-Black Battery Lead Pin Tabs**



20) Tin the lead's contact pin with solder. Avoid excessive heat.

21) Add a drop of flux to the pin.

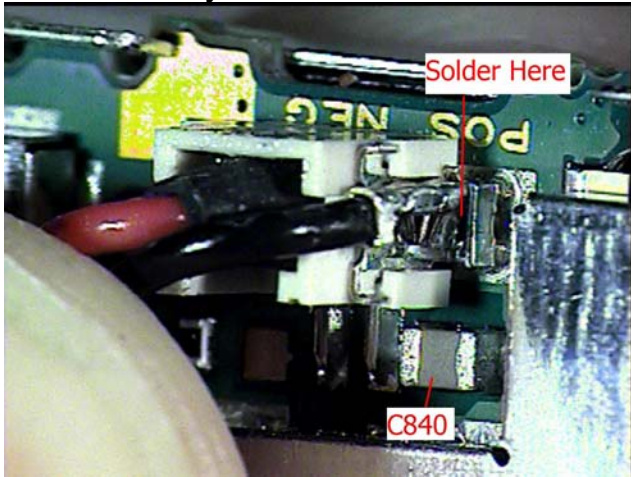
22) Insert the pin into the PCB battery connector's metal ground tab which is located on the side of the connector near C840. Ensure the pin is seated fully into the metal tab. Refer to Photo #12

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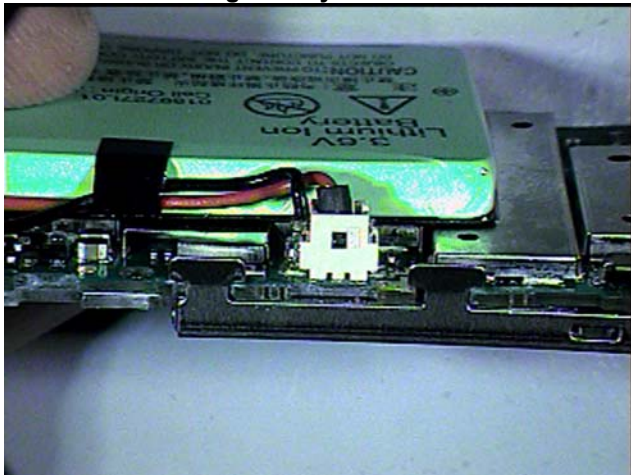
**Photo #12-Battery Black Lead to PCB Connection**



23) Solder the black battery lead pin to the connector's ground tab as shown in Photo #12 above.

24) Dress the battery leads so they do not exceed the battery height. Refer to Photo #13.

**Photo #13-Dressing Battery Leads**



25) Reassemble the unit.

26) Verify battery charger is functional and unit is able to power on.

**Service Warranty Codes:**

Please ensure that repairs of this type are logged on to the applicable database as follows:

**ServiceLink-**

<b>Customer Complaint:</b>	<b>BAT02</b>	<b>Battery Life Short</b>
<b>Problem Found:</b>	<b>BAT05</b>	<b>Battery Meter Inaccurate</b>
<b>Reference Designator:</b>	<b>J</b>	<b>Connector</b>
<b>Repair:</b>	<b>RBT10</b>	<b>Replace Battery-Mech Fault Contacts</b>

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