

SeeDOS Product User Manual



Electrometer
Lead Acid Battery Replacement

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NOTE: Although this manual is provided by Standard Imaging as a reference, battery replacement by anyone other than a trained Standard Imaging employee will **void the warranty of the electrometer.**

What type of battery do I have?.....See table below

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Determine type of battery & manual needed:

<i>Electrometer</i>	<i>Serial #s starting w/</i>	<i>Battery Type</i>	<i>Manual Needed</i>
CDX 2000 or CDX2000A	B94-B97	NiCad	Doc # 80170
CDX2000A	B98-B00	Lead Acid	Doc # 80258
Premier 3000 or MAX-4000	All	Lead Acid	Doc # 80258

When to Replace the CDX-2000A sealed Lead Acid Battery

This section applies to the Standard Imaging CDX- 2000A electrometer only. These instructions are not valid for battery replacement in the CDX-2000 series electrometer.

Normal lifetime of this battery pack is about 500 charge/discharge cycles, or approximately two years of typical usage. However, actual lifetime will vary depending on average depth of discharge and battery temperature during charging.

The CDX-2000A battery may need replacement if:

- ✓ After the CDX-2000A has been recharged for 6-8 hours, the display remains blank when the switch is turned to the “RATE,” “CHARGE,” “ZERO,” or “VOLTAGE” positions.
- ✓ After the CDX-2000A has been recharged for 6-8 hours, the display continues to show “Recharge Battery.”

The CDX-2000A battery must be replaced if:

- ✓ After the electrometer has been recharged for 6-8 hours, the voltage of the battery pack, when measured with a voltmeter, is found to be less than 5.0 VDC.

Before Replacing the Battery

Check the wall charger before battery replacement. When plugged into a proper wall outlet, the no-load output voltage measured with a voltmeter should be 12 - 14 VDC. If it is below this level, the wall charger is probably not functioning properly and should be replaced. Contact Standard Imaging for replacement information.

Equipment List

Replacement battery pack REF 20043
Soldering iron, electrically grounded
Solder, rosin core, 60/40 Si/Pb nom
Wire cutter, fine
Screwdriver, phillips blade
Screwdriver, slotted blade
Wire stripper
Voltmeter and test leads

Work Environment

All work should be performed on a static-protected work surface and should follow established static and safety precautions. The user and soldering iron should be grounded to the work surface through the use of a wrist or other grounding strap.

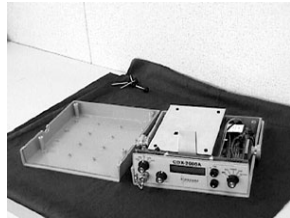
This manual assumes a basic level of electronics assembly proficiency. Although it is written using non-technical language whenever possible it is not recommended for a user without electronics handling experience to attempt the procedures listed in this manual. Contact Standard Imaging. for warranty or other repair services, if necessary.

CDX-2000A Battery Replacement Instructions

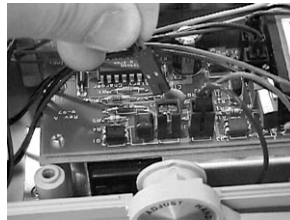
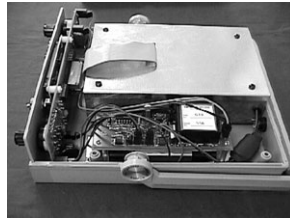
Step 1. Place the electrometer on a clean level surface in the upside-down position so the four rubber feet are facing up. Using the Phillips screwdriver, remove the four rubber feet.



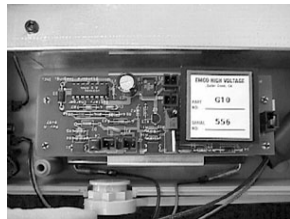
Step 2. Once the four rubber feet are removed, carefully turn the unit over and remove the top half, setting it aside for later reassembly.



Step 3. Observe the location of the battery charger circuit board. The lead acid battery is located underneath the circuit board and battery mounting bracket.

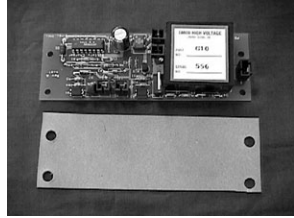
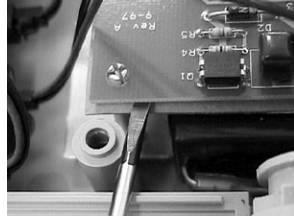


Step 4. Disconnect ALL five of the connectors that are connected to the battery charger circuit board, carefully noting and marking their locations for later reassembly.





Step 5. Using the regular screwdriver, snap the circuit board off the battery bracket standoffs. Place the screwdriver underneath the insulation material between the circuit board and the battery bracket. Do this slowly and carefully as to not break the circuit board. Once free, remove the circuit board and insulator from the bracket.

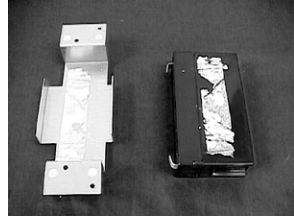
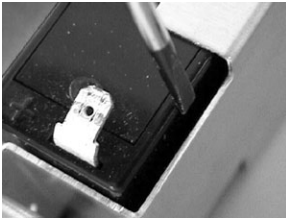


Step 6. Remove the two screws that hold the battery bracket in place.



Step 7. Remove the battery bracket assembly from the unit. Using the needle nose pliers, disconnect the Faston terminal connectors from the battery. Pull the connector straight off the terminal.



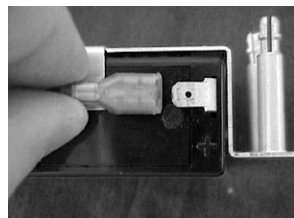


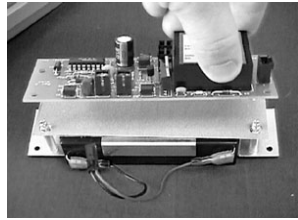
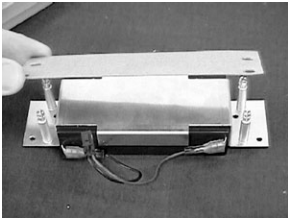
Step 8. Remove the battery from the battery bracket. The battery is attached to the battery bracket with two-sided adhesive tape. Insert a regular screwdriver between the battery and bracket in *several places* and at *several angles* to loosen the bond of the adhesive tape. Do not bend the battery bracket. Once the adhesive tape is loosened, remove the battery from the bracket.

Step 9. Place the new battery into the battery bracket with the negative terminal facing the front of the battery bracket. The remaining adhesive tape is sufficient to hold the new battery in place. The mounting screw holes should be facing the terminal side of the battery as shown above.

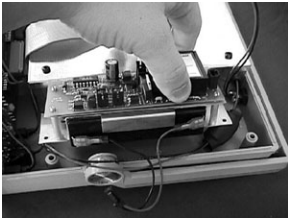


Step 10. Reconnect the Faston battery terminal connectors to the battery. **Connect the RED wire to the POSITIVE terminal and the BLACK wire to the NEGATIVE terminal.**

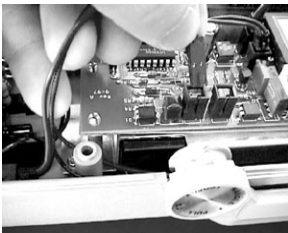
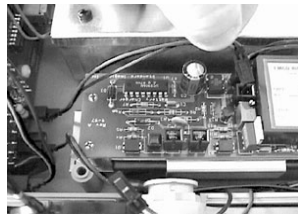
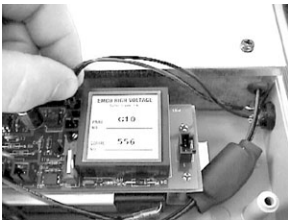




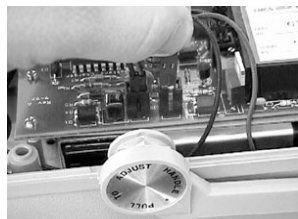
Step 11. Place the insulator and circuit board back onto the battery bracket as shown. Snap the circuit board firmly onto the snap-top standoffs. The circuit board should snap firmly down onto the standoff so it is level.



Step 12. Place the new assembly back into the electrometer enclosure, align the two mounting screws and tighten firmly.



Step 13. Replace all five connectors to the circuit board to their original positions.





Step 15. Replace the top of the electrometer enclosure. Make sure the front panel fits into the groove of the enclosure cover. Turn the unit upside-down and replace the four rubber feet. Tighten with the Phillips screwdriver. This completes the battery

Charging the Battery

1. Once the **CDX-2000A** sealed lead acid battery has been replaced, it should be placed on the charger for 6-8 hours to allow the battery to obtain a 100% charge.
2. The **CDX-2000A** may be charged continuously with no detrimental effects to the internal lead acid battery.
3. Operating the **CDX-2000A** while charging the battery will not effect the validity of the measurements being recorded.
4. If the **CDX-2000A** is to be placed into storage for an extended period of time, it is recommended that the lead acid battery be fully charged prior to storage.

**Premier 3000 or MAX-4000
Battery Replacement
Instructions**

When to Replace the sealed Lead Acid Battery

This section applies to the Standard Imaging Premier 3000 and MAX-4000 electrometers only. These instructions are not valid for battery replacement in the CDX-2000 series electrometer.

Normal lifetime of this battery is about 500 charge/discharge cycles, or approximately two years of typical usage. However, actual lifetime will vary depending on average depth of discharge and battery temperature during charging.

The Premier 3000 & MAX-4000 battery may need replacement if:

- ✓ After the Premier 3000 or MAX-4000 has been recharged for 6-8 hours, the display remains blank when the “ON” switch is pressed.
- ✓ After the Premier 3000 or MAX-4000 has been recharged for 6-8 hours, the display continues to show “Recharge Battery.”

The Premier 3000 & MAX-4000 battery must be replaced if:

- ✓ After the electrometer has been recharged for 6-8 hours, the voltage of the battery, when measured with a voltmeter, is found to be less than 5.0 VDC.

Before Replacing the Battery

Check the wall charger before battery replacement. When plugged into a proper wall outlet, the no-load output voltage measured with a voltmeter should be 12-14 VDC. If it is below this level, the wall charger is probably not functioning properly and should be replaced. Contact Standard Imaging for replacement information.

Equipment List

Replacement Battery REF 20043

Needle nose pliers

Screwdriver phillips blade

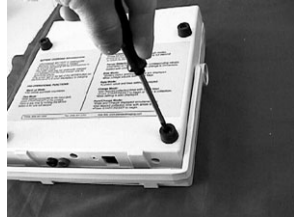
Work Environment

All work should be performed on a static-protected work surface and should follow established static and safety precautions. The user and soldering iron should be grounded to the work surface through the use of a wrist or other grounding strap.

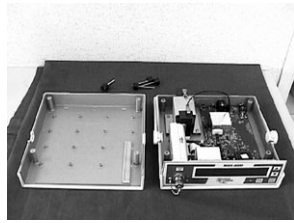
This manual assumes a basic level of electronics assembly proficiency. Although it is written using non-technical language whenever possible it is not recommended for a user without electronics handling experience to attempt the procedures listed in this manual. Contact Standard Imaging for warranty or other repair services, if necessary.

Premier 3000/MAX-4000 Battery Replacement Instructions

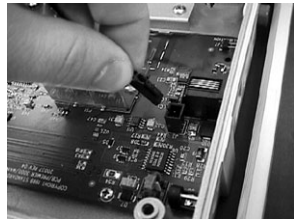
Step 1. Place the electrometer on a clean level surface in the upside down position so the four rubber feet are facing up. Using a Phillips screwdriver, remove the four rubber feet.



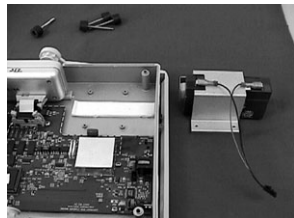
Step 2. Once the four rubber feet are removed, carefully turn the unit over and remove the top half, setting it aside for latter reassembly.



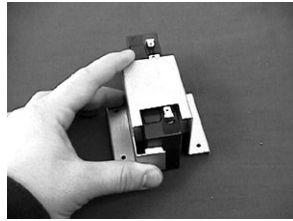
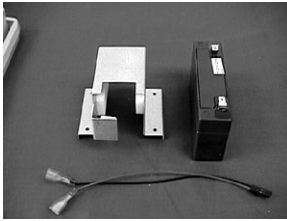
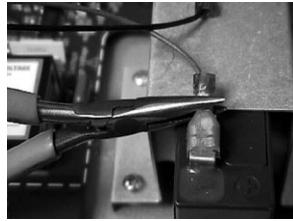
Step 3. Disconnect the two-position battery power connector on the circuit board.



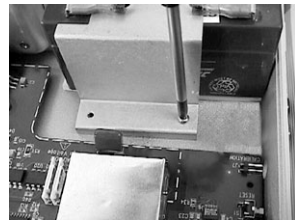
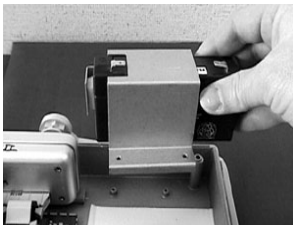
Step 4. Remove the four battery bracket screws that hold the battery bracket in place, and lift the assembly out of the unit.



Step 5. Using the needle nose pliers, disconnect the Faston terminal connectors from the battery. Pull the connector straight off the terminal.

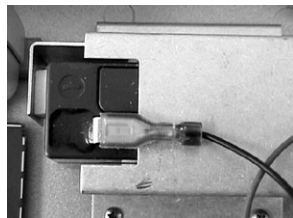


Step 6. Replace the old battery with the new one, being certain to observe the same polarity orientation.

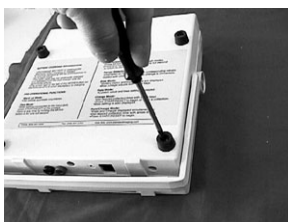
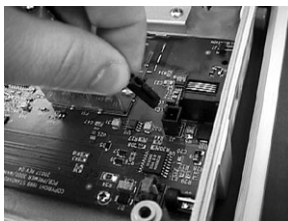


Step 7. Place the battery and bracket assembly into the electrometer with the notch on top of the bracket closest to the front panel. Align the four mounting screws and tighten firmly.

Step 8. Re-connect the battery electrical wiring harness to the battery. **Connect the RED wire to the POSITIVE terminal and the BLACK wire to the NEGATIVE terminal.**



Step 9. Re-connect the two-position connector to the circuit board.



Step 10. Replace the top of the electrometer enclosure. Make sure the front panel fits into the groove of the enclosure cover. Turn the unit upside-down and replace the four rubber feet. Tighten with the Phillips screwdriver. This completes the battery replacement.

Charging the Battery

1. Once the **Premier 3000 or MAX-4000** sealed lead acid battery has been replaced, it should be placed on the charger for 6-8 hours to allow the battery to obtain a 100% charge.
2. For MAX-4000 electrometers only, an amber light on the front panel next to the **MODE** switch will be illuminated when the battery is being charged.
3. The **Premier 3000 or MAX-4000** battery may be charged continuously with no detrimental effects to the internal lead acid battery.
4. Operating the **Premier 3000 or MAX-4000** while charging the battery will not effect the validity of the measurements being recorded.
5. If the **Premier 3000 or MAX-4000** is to be placed into storage for an extended period of time, it is recommended that the lead acid battery be fully charged prior to storage.

Warranty

This product is sold by Standard Imaging Inc. under the warranty herein set forth. The warranty is extended only to the buyer purchasing the product directly from Standard Imaging Inc. or as a new product from an authorized dealer or distributor of Standard Imaging Inc.

For a period of twelve (12) months from the date of original delivery to the purchaser or a distributor, this product is warranted against functional defects in materials and workmanship, provided it is properly operated under conditions of normal use, and that repairs and replacements are made in accordance herewith. The foregoing warranty shall not apply if the product has been disassembled, altered or repaired other than by Standard Imaging Inc. or if the product has been subject to abuse, misuse, negligence or accident.

Standard Imaging's sole and exclusive obligation and the purchaser's sole and exclusive remedy under the above warranties are limited to repairing or replacing free of charge, at Standard Imaging's option, a product: (1) which contains a defect covered by the above warranties; (2) which are reported to Standard Imaging not later than seven (7) days after the expiration date of the 12-month warranty period; (3) which are returned to Standard Imaging promptly after discovery of the defect; and (4) which are found to be defective upon Standard Imaging's examination. Transportation charges are the buyer's responsibility. STANDARD IMAGING INC. SHALL NOT BE OTHERWISE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO, INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WHETHER STATUTORY OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL STANDARD IMAGING INC. BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE, MISUSE OR ABUSE OF THE PRODUCT OR CAUSED BY ANY DEFECT, FAILURE OR MALFUNCTION OF THE PRODUCT, WHETHER A CLAIM OF SUCH DAMAGE IS BASED UPON THE WARRANTY, CONTRACT, NEGLIGENCE, OR OTHERWISE.

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