Astro-Physics
Replacing Your GTO Keypad Battery

For most keypads up to Serial # 1565GTO - Keypads that use CR1632 Battery (Our Part # E0310)

See Identifying Your Keypad Battery Document also in Technical Support.

Keypads with this battery should all be past warranty since the last of this generation shipped in mid 2003. These instructions are ONLY for keypads that use the Renata CR1632 - 3 volt lithium battery. Your keypad may have a different battery, especially if it is in the serial number range from 1400 to 1565GTO or if it has had major repair work done.

E0310
CR1632

Tools and parts needed

- ☆ Small Phillips screwdriver size #00
- ☆ 2 Small screwdrivers: 2 mm & 3 mm tips
- ☆ Keypad with Keypad Protector removed (partially removed is OK - see KEYPRO instructions)
- ☆ New battery: Renata CR1632 (3V) or equivalent) our # E0310

Additional Helpful Documents in Technical Support

- ☆Removing and Installing the KEYPRO Keypad Protector - PDF
- ☆Opening up and re-closing the keypad - PDF
- ☆Identifying Your Keypad Battery - PDF
- ☆Keypad Database Corruption and Reloading - HTML or PDF

1. **Please Note:** The previous instructions that were published on the web were written before internet-based uploading of the database was available. It was therefore recommended that you leave your keypad powered up during the battery replacement so that the database would not corrupt. It was felt that the risk of damage posed by working on a "live" keypad was worth it to prevent the necessity of returning the keypad to us for a database reload. This also assumed that the battery was being replaced as a preventive measure before the database actually corrupted. Experience has since taught us that batteries are rarely replaced before the database has corrupted. We now also have the database loader on our website so that you can easily reload the database yourselves.

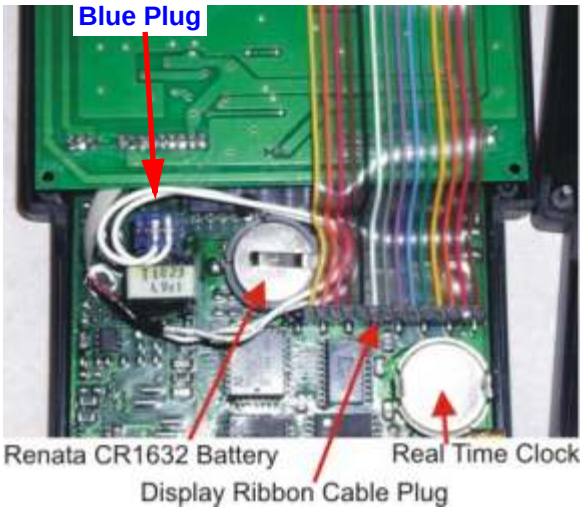
   With these factors in mind, we now strongly recommend that you NOT have your keypad powered up during this procedure. The risk of damage to the sensitive electronics is too great. (At 12 volts, there was never any danger to personal safety.)

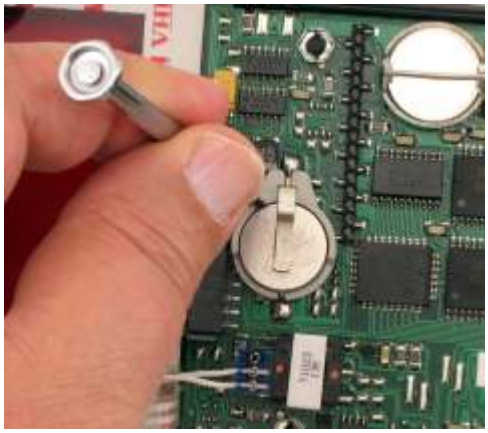
   We are also recommending a somewhat different method of battery removal from the one previously published. Again, experience and experimentation have given us a better approach to removing and re-inserting the battery without damaging the battery carrier. If you are familiar with the previous method, please take note of the new procedure outlined below.

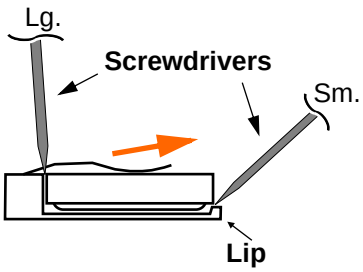
2. Unscrew the 6 screws in the corners on the back of the keypad with a #00 Phillips head screwdriver. The screws do not need to be removed completely. More detailed instructions on opening and closing the keypad are referenced above.

3. Carefully open the keypad, taking care to make sure that the white plastic spacer-washers on the screws are not lost. They are important safeguards for both the electronic components and the case! Lay both halves of the keypad with the wires still connected flat on your workspace.

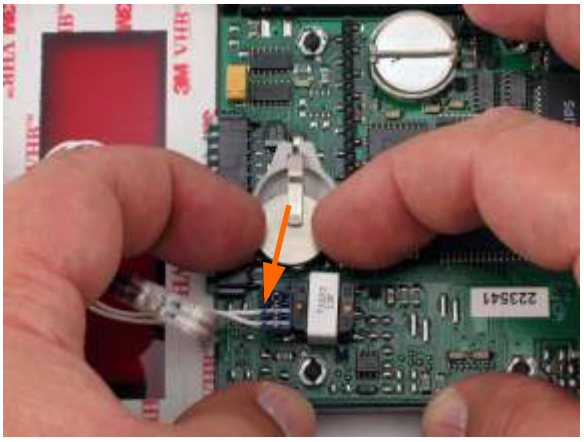
4. Locate the CR1632 battery in its clip holder on the circuit board. You may wish to unplug the display's ribbon cable, and possibly the blue plug just to the left of the battery (as shown at right) before changing the battery. It is not necessary to do so, but it does give you more room to work. Be very careful that you don't damage the ribbon cable, and take note of exactly how everything is plugged in so that you put it all back correctly. (At Astro-Physics, we generally do remove all the cables during a battery replacement in order to clean and de-oxidize the plug contact surfaces anyway.)





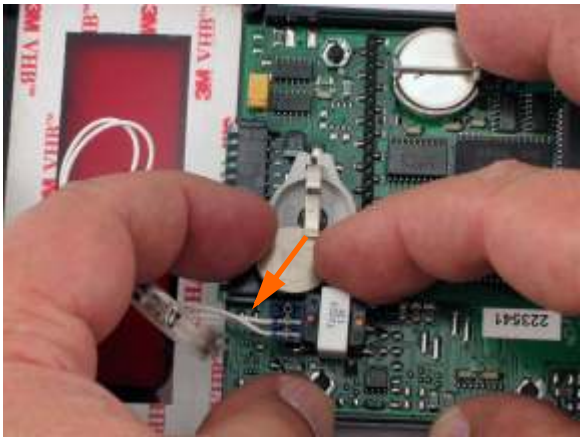


The battery is held in its carrier by a spring clip that also serves as the positive terminal lead. It is very important that you do NOT bend this out so that it loses its tension. The drawing above is a cross section view of the battery in its carrier. The challenge is to get the battery up over the little lip that goes around the access side of the battery carrier without bending the clip up.



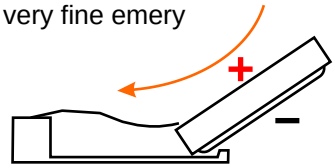
Work the smaller (2 mm) screwdriver into the tiny gap between the back of the carrier and the battery. When you have sufficiently enlarged the small gap, place the larger screwdriver into the gap and remove the smaller screwdriver. Work the small screwdriver underneath the battery just enough to help it over the lip.

Do not pry the battery, but instead, use a twisting motion of the larger screwdriver to force the battery in the direction shown by the arrows at right. The smaller screwdriver should only lift enough to help the battery over the lip. By using the twisting motion of the larger screwdriver to force the battery out, you don't slip and jab anything. DO NOT try to lift the clip away from the battery, and DO NOT try to pry the battery out. Only lift under the battery enough to lessen the tension and allow you to maneuver the battery up over the lip.

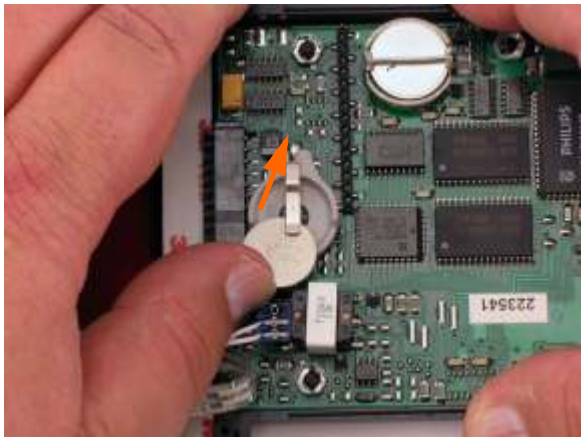


Once you have cleared the lip, set the screwdrivers down and use your fingertips to finish the removal. The battery is not difficult to slide out once you have overcome the carrier lip. As shown by the arrows in the two photographs, you will need to maneuver the battery off to the display side to clear some of the circuit board's components. Keep the battery relatively flat while sliding it out. Do not lift it out, and in so doing, bend the clip!

Make sure that your new battery is a FRESH Renata CR1632 - 3 volt lithium or equivalent (our part # **E0310**). It is a good idea to lightly burnish the contact surfaces with a very fine emery paper.



To replace the battery, start by ensuring that the positive side is up. Again, you will need to approach the carrier a bit offset to the display side. Carefully tip the battery in under the carrier's retaining clip as shown in the drawing above. Gently push the battery into place and make sure that it is fully seated into the carrier. The clip should hold the battery firmly in place. If the battery feels loose, you have probably bent the clip out too far when removing the battery.



Plug all your internal cables back onto their pins taking care to orient the plugs exactly as they were before. Make sure you have all the little white spacers in place on the case's screws. Then, carefully close the keypad back up and reload your database. You are now ready to go!