

ASTRO-PHYSICS GTO KEYPAD



Maintenance Instructions

July 03, 2017

CONTENTS

REMOVING AND INSTALLING THE KEYPRO	2
KEYPRO Removal	2
KEYPRO Installation	3
OPENING AND CLOSING YOUR GTO KEYPAD	4
Opening the Keypad	4
Closing the Keypad	5
REPLACING YOUR GTO KEYPAD CABLE	6
Procedure	6
GTO KEYPAD BATTERY SYMPTOMS FOR REPLACEMENT	7
GTO KEYPAD BATTERY IDENTIFICATION	8
REPLACING YOUR GTO KEYPAD BATTERY	9
(keypads 1565GTO and earlier)	9
REPLACING YOUR GTO KEYPAD BATTERY	11
(keypads 1568GTO and later)	11
RED FILTER SCREEN REPLACEMENT FOR KEYPAD	13
KEYPAD RESETTING SOLUTIONS	15
Receptacle for Power Connector on CP1, CP2 or CP3 - Center Pin Halves Pinched Together (Does not apply to CP4)	15
Battery Voltage Drop	15
Break in Cable Connectors	15
Oxidation of Internal Connectors in the Keypad	15
If All Else Fails	16
Further Comments	16

REMOVING AND INSTALLING THE KEYPRO

The KEYPRO keypad protector is a heavy-duty molded silicone-rubber casing with a full 1/4" thickness on all impact surfaces. If you accidentally drop your keypad, the rubber casing will absorb much of the blow. Your display, keypad, electronics and the hard-plastic keypad case itself will be protected from damage. In addition, the rubber prevents the keypad from sliding when placed on a table or other flat surface and the keypad will feel secure in your hands as you observe. The KEYPRO also offers protection during transport and storage.

The black protective casing is designed with cutouts for the cable and retractable hanger.

KEYPRO Removal

Caution: The KEYPRO fits closely around the keypad controller. You must work it gently into place. If you force the rubber casing while it is being installed on your keypad, you may tear the rubber.

1. Remove the silicone-rubber keypad protector (KEYPRO) starting at the bottom of the keypad. Carefully work the protector's thin end over the cable strain relief and pull enough cable through to relieve any stress on either the keypad protector or the cable.

Two objectives:

- a) Don't tear the keypad protector!
- b) Don't damage the cable strain relief!



2. Slide the thick end of the keypad protector up and away from the display end of the keypad.



For battery replacement or internal contact cleaning, you do not need to completely remove the keypad protector. Simply pull enough cable through to get it out of your way. For keypad cable replacement, remove the KEYPRO completely by pulling the cable and locking plug out through the bottom opening.



KEYPRO Installation

Caution: The KEYPRO fits closely around the keypad controller. You must work it gently into place. If you force the rubber casing while it is being installed on your keypad, you may tear the rubber.

Procedure:

1. If you are installing a new KEYPRO, or if your old KEYPRO was removed completely from the keypad and cable, start by inserting the plug end of the cable into the KEYPRO as shown at right.

You **MUST** feed the cable from the top/front side of the keypad protector.



2. Feed most of the cable through the opening, but **DO NOT** pull it all the way through at this time.

3. Insert the display end of the keypad into the KEYPRO. Make sure that it is fully seated and that the wider part of the keypad is fully encased in the wider part of the KEYPRO.



4. Finally, gently work the cable the rest of the way through and carefully stretch the thin part at the bottom of the KEYPRO over the cable's strain relief. Again, be very careful that you neither tear the thin part of the KEYPRO, nor do any damage to the strain relief.

Think of the KEYPRO as a bumper for your keypad. This small investment may save costly repairs in the future.



OPENING AND CLOSING YOUR GTO KEYPAD

For all keypads Please note that photos show the inside of a keypad with serial # 1568GTO or higher. Earlier keypads will look different on the inside, but the procedure for opening and closing the keypad is the same.

Warranty considerations: The manufacturer warrants the Astro-Physics GTO Keypad for three years. If your keypad is still within the warranty period, you may void the warranty by opening the keypad. If you are unsure of the keypad's purchase date, jot down the serial number and call Astro-Physics.

Opening the Keypad

Remove the KEYPRO silicone-rubber keypad protector. For instructions, see the previous document.

1. Lay your keypad face down on your work surface. You will need a Phillips screwdriver, size #0. Locate the six screws that hold the two halves of the keypad together (arrows at right).



2. Partially remove the screws. Be careful not to strip the screw heads. The screws do not need to be removed completely. Just back them out until you feel that they are no longer engaged.

Be very careful separating the front and back of the keypad. In particular, pay attention to the cable strain relief, and be careful that the display circuit board does not catch on the screws. The display should remain with the front half of the keypad. Also, see note below on spacers.



3. Open and place the back case cover along the side without straining the speaker wires. You may leave the speaker wires plugged in.



Be careful not to lose the six spacer washers. Some may stick to the circuit board instead of staying on the screws. It is best to place the spacers onto the screws right away. This will keep you from losing them, and it makes lining things up easier when reassembling.

These spacers are vital for maintaining separation between components, and to avoid damage to the case.

DO NOT omit!

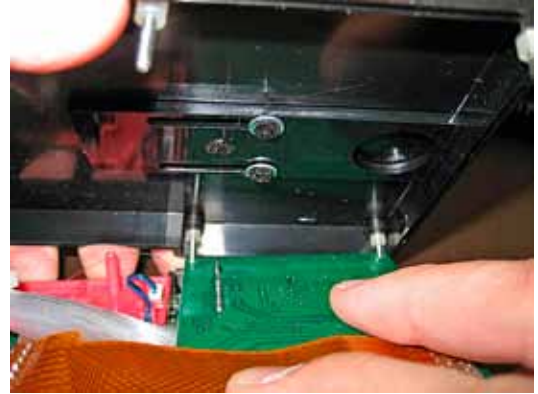
Closing the Keypad

When placing the back onto the unit, make sure the screws are aligned with the proper holes. Start by aligning the two screws on one side of the display. The four screws on the display end must pass through the display circuit board before engaging in their posts.

Make sure that all wires, fibers and cables will be safely inside the unit. If you have unplugged anything, be sure that it is correctly plugged back in.

Note the spacer washers in place on their screws!

1. Line up the display end before moving to the cable end of the keypad.



2. The cable strain relief may need to be held and guided gently into the cutout in the case to finish mating the two halves.



Make a final check to be sure that no wires, fibers or cables are caught between the front and back halves of the keypad.

3. Carefully apply a small amount of pressure to hold the back down while tightening all six screws.
4. Reinstall your keypad protector (KEYPRO) using the instructions referenced earlier.



REPLACING YOUR GTO KEYPAD CABLE

These instructions are for all versions of the keypad replacement cable. Your cable may have either a blue or a white connector. The replacement procedure is the same for both connectors.

It is necessary to open your keypad in order to identify the proper cable. Many keypads will be able to use either cable. However, we suggest that you order the same cable that you are replacing.

Part # E0190CABLE-E has a blue AMP connector and part # E0190CABLE-F has a white Molex connector. See photo below to identify the cable needed.

Warranty considerations

The manufacturer warrants the Astro-Physics GTO Keypad for three years. If your keypad is still within the warranty period, you may void the warranty by opening the keypad to make this repair. Note, damage to the cable itself is typically caused by wear and tear and is not covered by the warranty.

Tools and parts needed:

- Phillips screwdriver, size #0
- Keypad with Keypad Protector removed
- E0190CABLE-E or E0190CABLE-F cable

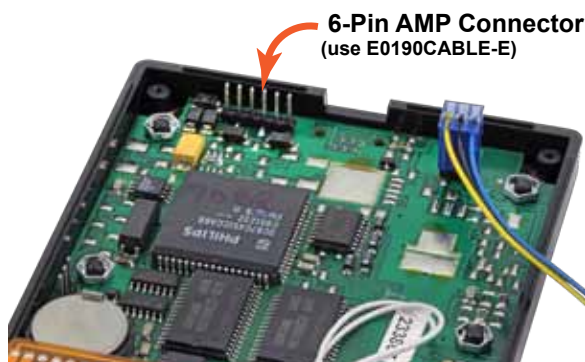
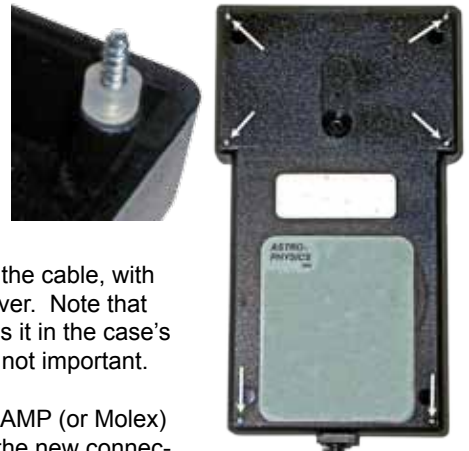
Procedure

1. Unscrew the six screws in the corners on the back of the keypad.
2. Carefully open the keypad, taking care to make sure that the white plastic washers on the screws are not lost. Lay both halves of the keypad with the wires still connected on your work space.
3. Locate the 6-wire connector that runs to the keypad cable. Take note of the connector's orientation. The wires of the blue AMP connector should be pointing towards the top of the keypad. The white Molex connector has small notches for orientation, as well as the wires being slightly offset towards one side.

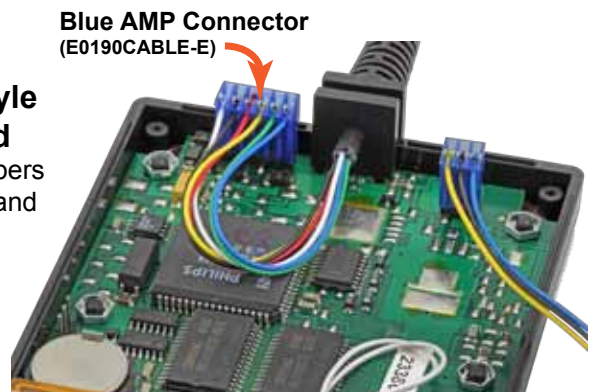


4. Gently unplug the connector and pull the cable, with its strain relief, from the cutout on the cover. Note that the strain relief has a "slot" which secures it in the case's cutout. It is square so that orientation is not important.

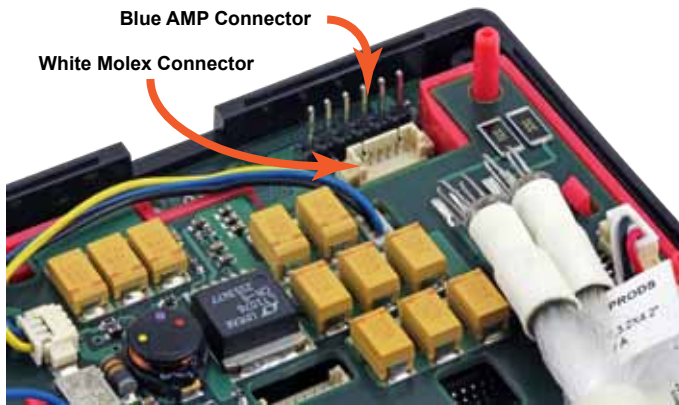
5. Unwrap the new cable and orient the AMP (or Molex) connector in the proper direction. Slide the new connector onto the pins (or into the Molex slot) where the old cable was attached. Place the strain relief of the new cable in the cutout of the cover. Check the position of the



Older Style Keypad
Serial Numbers
1565GTO and
Lower

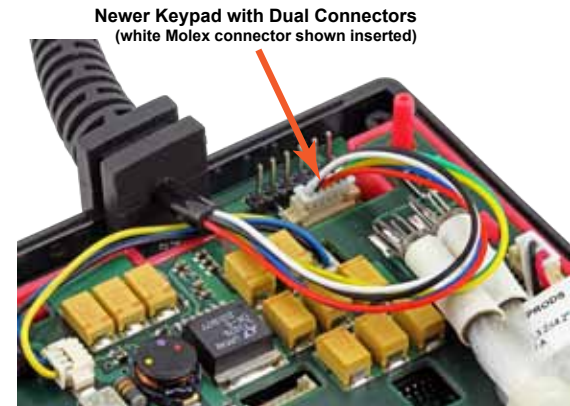
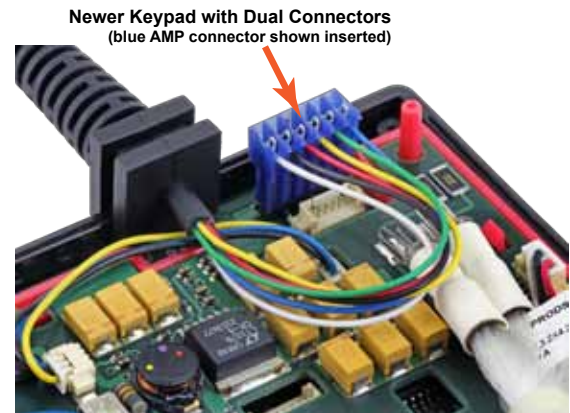


Newer Keypad with Dual Connectors



wires to be sure that they are not twisted excessively or pinched.

6. Carefully close the keypad. (Reference the section on Opening and Closing the Keypad). Make sure that the white plastic washers on the screws and the strain relief on the cable are in place.
7. Secure the six screws. Test your keypad to make sure the new cable works properly.
8. If your keypad has a rubber keypad protector (KEYPRO), reinstall it now using the previous instructions (also available from our website). If you don't have a KEYPRO, we strongly suggest that you purchase one. Refer to our website for additional information.



GTO KEYPAD BATTERY SYMPTOMS FOR REPLACEMENT

We generally state that the life expectancy of the keypad battery is 4 to 5 years. However, we have seen unusual circumstances where a battery has still been functioning after 10 years. It is a battery. It will last until it is no longer functioning.

The battery's sole purpose is to maintain the objects database when the keypad is powered off. The keypad will sometimes display the warning "LOW BATTERY." That does not refer to the internal database battery; it is referring to the power source that is powering the mount. If the internal battery fails the object information provided will be wrong:

- **Object below the horizon** - You may be told that the object that you wish to slew to is below the horizon when that is clearly not the case.
- **Magnitude 100** - The object data may indicate that the magnitude of the object is absurdly high, such as Mag 100.

Please know that stars and planets will not be affected by a dead keypad battery, as they are calculated positions and do not rely on the database. Only database objects are affected, such as Messier objects or NGC and IC objects.

Given the low cost of replacement batteries, it is a good practice to replace the battery on a regular 4-5 year schedule so that a long awaited trip to a dark site or star party is not ruined.

GTO KEYPAD BATTERY IDENTIFICATION

Please be sure that you order the correct battery for your keypad! To determine which battery you need, carefully unscrew the six screws on the back of the unit. Do not remove the screws completely. When pulling the case apart, be careful of the cable, and be careful not to lose the nylon spacer washers that are on each screw!

Older Style Keypad - Serial numbers up to the 1565GTO (except some repaired units)



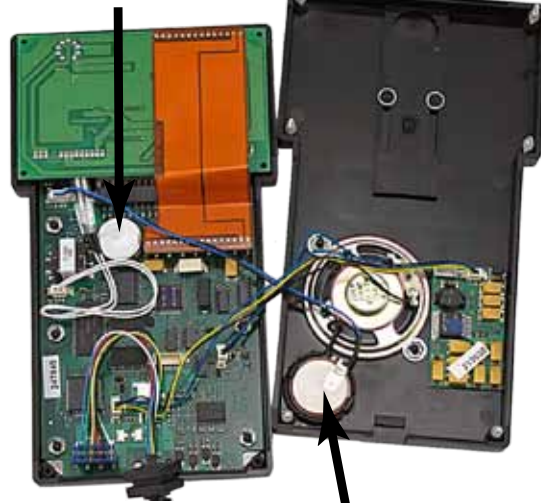
Renata CR1632 Battery
(AP # E0310)

Real Time
Clock

Note: The CR2430 batteries (both the E0334 & the E0338) must be purchased from Astro-Physics. They are custom made with a "pigtail" and are not available at your local battery supplier.

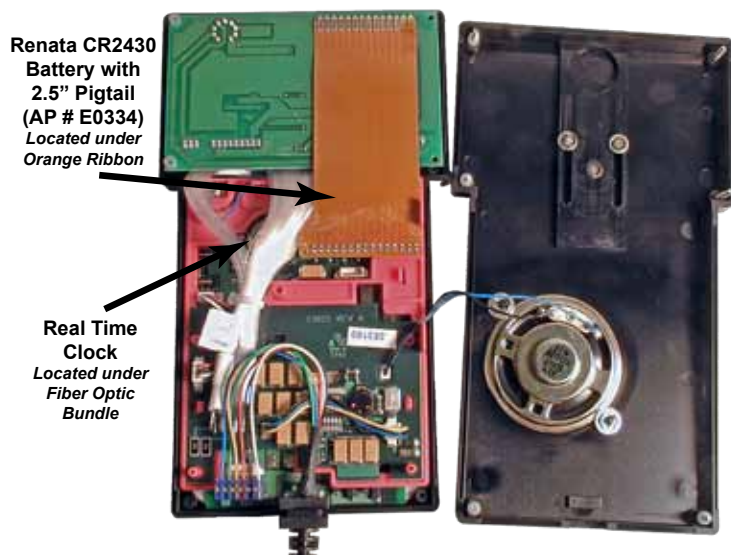
Some keypads with serial numbers in the 1400GTO - 1565GTO range and older keypads that have had major repair done.

Real Time Clock



Renata CR2430 Battery with 6" Pigtail
(AP # E0338)

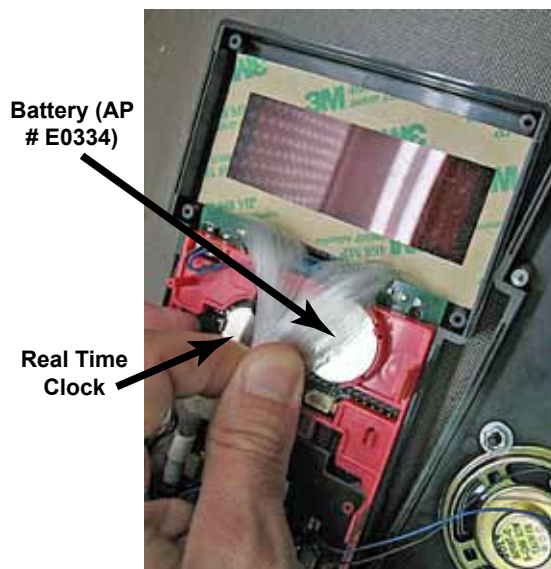
Current Style Keypad - all units after Serial number 1568GTO and some earlier units.



Renata CR2430
Battery with
2.5" Pigtail
(AP # E0334)
Located under
Orange Ribbon

Real Time
Clock
Located under
Fiber Optic
Bundle

Current Style Keypad - with Display Removed



Battery (AP
E0334)

Real Time
Clock

REPLACING YOUR GTO KEYPAD BATTERY

(keypads 1565GTO and earlier)

See Identifying Your Keypad Battery in previous section.

Keypads with this battery are 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 if it has had major repair work done.

Tools and parts needed:

- Phillips screwdriver, size #0
- 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) - AP # E0310

Additional Helpful Documents in Previous Sections:

- Removing and Installing the KEYPRO Keypad Protector
- Opening and Closing the Keypad
- Identifying Your Keypad Battery



Please Note: Previous instructions that were published on the web were written before internet-based downloading 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.)

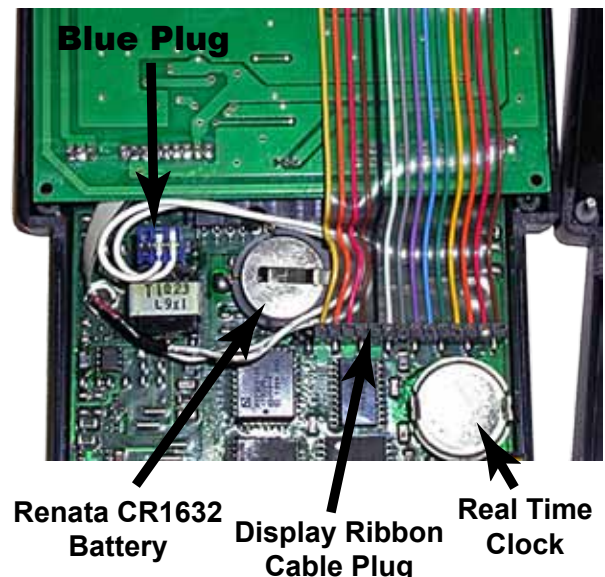
We are also recommending a somewhat different method of battery removal from the one previously published. Again, experience and experimentation have given us a better approach to removing and reinserting the battery without damaging the battery carrier. If you are familiar with the previous method,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

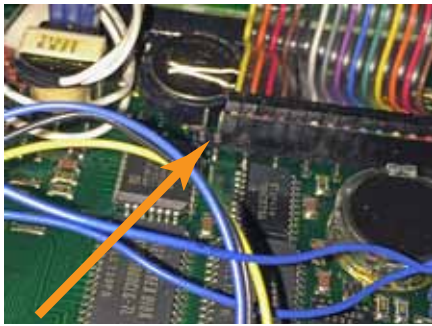
Remove the Battery

1. Unscrew the six screws in the corners on the back of the keypad with a #0 Phillips screwdriver. The screws do not need to be removed completely.

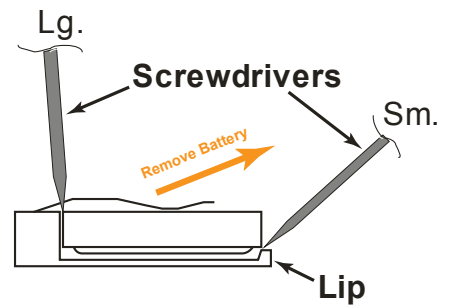
More detailed instructions on opening and closing the keypad are referenced in a previous section.

2. Carefully open the keypad, taking care to make sure that the white nylon 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 work space.
3. 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 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.) Note that the cable will plug into the pins with shifted away from the battery with 2 pins left exposed (extra pins). See photo at left



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 outward...it would lose its tension. The drawing shown 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.

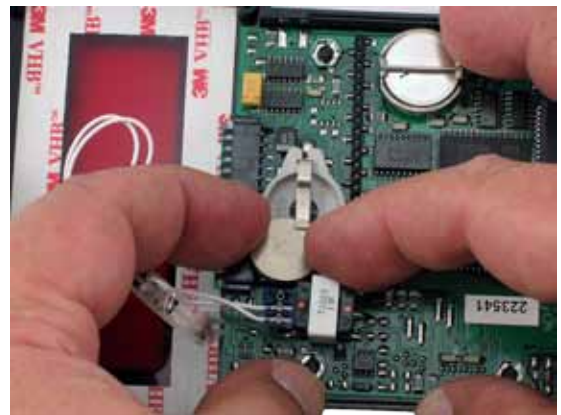
4. Work the smaller (2 mm) screwdriver into the tiny gap between the back of the carrier and the battery. When you have sufficiently enlarged the small gap, place the larger screwdriver into the gap and remove the smaller screwdriver. Work the small screwdriver underneath the battery just enough to help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

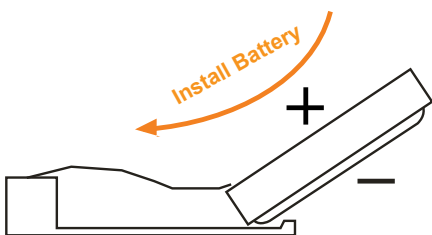


5. Once you have cleared the lip, set the screwdrivers down and use your fingertips to finish the removal. The battery is not difficult to slide out once you have overcome the carrier lip. As shown by the arrows in the two photographs, you will need to maneuver the battery off to the display side to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



Install the Battery



1. 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.

2. 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!



REPLACING YOUR GTO KEYPAD BATTERY

(keypads 1568GTO and later)

See Identifying Your Keypad Battery in previous section.

Warranty considerations: The manufacturer warrants the Astro-Physics GTO Keypad for three years. If your keypad is still within the warranty period, you may void the warranty by opening the keypad to make this repair.

Tools and parts needed:

- Phillips screwdriver, size #0
- Small Flat Blade Screwdriver
- Keypad with Keypad Protector removed (partially removed is OK - see KEYPRO instructions)
- New battery: AP # E0334 (CR2430 with 2.5" soldered pigtail) - MUST be purchased from Astro-Physics!

Additional Helpful Documents in Previous Sections:

- Removing and Installing the KEYPRO Keypad Protector
- Opening and Closing the Keypad
- Identifying Your Keypad Battery
- Keypad Database Corruption and Reloading - HTML or PDF



Please review the following instructions thoroughly. If you are not comfortable with the procedure, please consider sending the keypad in to Astro-Physics for service. Your keypad should be UN-plugged for this procedure!

Remove the Battery

1. Remove the KEYPRO, silicone-rubber keypad protector, following the instructions in a previous document. The KEYPRO does not need to be removed completely.
2. Lay the keypad face down on your work surface. Locate the six small screws in the corners. Undo these screws using a #0 Phillips screwdriver. Be careful not to strip the screw heads. The screws do not need to be removed completely. Just back them out until you feel that they are no longer engaged.
3. Carefully open the keypad, taking care to make sure that the white plastic spacer-washers on the screws are not lost. These spacers are vital to maintain separation of components and to protect the case from damage. Lay both halves of the keypad with the wires still connected flat on your work space.



Be extremely careful of the fiber-optic cable bundles throughout this procedure! They are easily damaged. DO NOT crush or sharply bend the fibers!

4. Unplug the display's ribbon connector as shown. Gently work the connector off of the display header. Be very careful not to damage the connector or the pins of the display header that are on the main circuit board.



Note: The connector will be snug. Do not pull on connector carelessly. The display header pins may bend.

5. View of display connector unplugged (above right). At this point, the display can be carefully removed from the keypad. Lay the display aside on a soft surface. Be very careful not to scratch the glass on the front of the display.
6. Unplug the lithium battery connector. Note the Real Time Clock (RTC) Module. This is NOT the battery!! Do NOT attempt to remove this! (See photo top of following page)

7. Remove lithium battery wires from the red plastic molded clamp.
8. First, take note of the pigtail wire positions relative to the sides of the battery holder so that you orient the new battery correctly. Carefully remove the battery from the battery holder as shown with your small flat blade screwdriver. (See photo below right)

To completely remove the lithium battery: CAREFULLY guide the lithium battery wires under the fiber-optic cables.

Install the Battery

1. Be sure that you are installing the correct battery! The Astro-Physics part number is E0334. The battery is a CR2430 and will have a 2.5" pigtail spot-welded to it. This battery must be purchased from Astro-Physics.
2. Guide the lithium battery wires under the fiber-optic cable and plug it into the battery connector. The black lead is normally to the outside.

Note: The battery connector is keyed to prevent plugging it in backwards. In the proper orientation, it plugs in quite easily.

DO NOT force the plug! You could damage the pins on the receptacle!

3. Snap the battery into its carrier.
4. Snap the battery wires into position by pushing them into the spacer's molded clamp. Be careful not to catch any fiber-optic cables!
5. Gently pull the fiber-optic cable away from the window before replacing the display. You do not want to crush or sharply bend any of the fibers.

Use care when replacing the display to not scratch the window or to damage any of the optical fibers. Carefully place the display in the front of the case

6. Plug the display cable into the display header making sure the pins are aligned
7. When placing the back on the unit, first be sure that all six spacers are in place on the screws. Then, make sure the screws are aligned with the proper holes. Start by aligning the two screws on one side of the display. Make sure that all wires, fibers and cables will be safely inside the unit. Line up the display end before moving to the cable end of the keypad.
8. The cable strain relief may need to be held and guided gently into the cutout in the case to finish mating the two halves.
9. Make a final check to be sure that no wires, fibers or cables are caught between the front and back halves of the keypad.
10. Carefully apply a small amount of pressure to hold the back down while tightening all six screws.

11. Replace the KEYPRO Keypad Protector following the instructions in the document referenced previously. You should now be ready to reinstall your database.



RED FILTER SCREEN REPLACEMENT FOR KEYPAD

We recommend that the clear plastic protective window be kept in place to prolong the life of the red filter. Nevertheless, there may come a time when the red filter becomes scratched or fogged and prevents the display from being easily read. It is possible to acquire a replacement filter (E0190FILTER).



Begin replacement by backing off the six cover screws. You will need to use a #0 Phillips screwdriver (reference the earlier section on opening the keypad).

With the cover screws backed off, (there is no need to remove them), lift off the cover. There are six standoff washers with each screw. Make certain they are not lost. They can be kept with the screw on the cover.



Unplug the cable connections and set the cover aside. Depending on the model of keypad that you own, there may be anywhere from one to three cables to unplug. Make note of the connector placements for reassembly later.

Fold back the display panel ribbon cable so the display and PC board are out of the way of the filter. See above photos.

You will need to remove the original filter by prying it loose from the cover. This may be done by carefully prying the upper edge away from the cover, or by pushing from the other side, or by a combination of the two techniques. By gentle pressure you will break the glue bond.



With the old filter removed, check for remaining adhesive residue and remove with paper towel. Do not use acetone or any chemical that will melt the plastic.

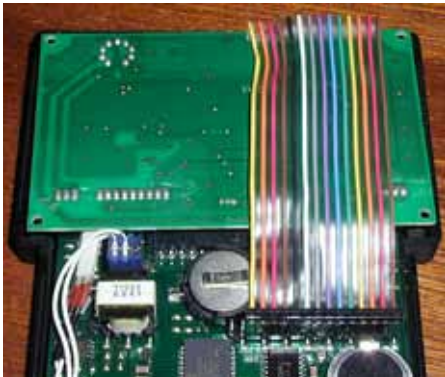


The new filter has a clear protective acetate on both sides plus a adhesive with a waxed paper backing on both sides. Both clear acetates are to be removed and only the white 3MVHB backing removed to expose it's adhesive (do this after testing the filter placement).



Before exposing the adhesive, seat the filter first so you get an idea of where it sits. Although the newer filter is framed, the window in the case is small enough so you don't have to worry about the frame being seen.

Remove the 3M VHB label and put the filter in place. Push it under the black bar at the top of the PC board and square it up before setting it down. The adhesive is strong and will not allow you a second chance. Once down run your fingertip over the framed surface of the filter to form a tight seal completely around the frame. **Leave the Scotch 468MPH-waxed label in place.**



Carefully put the display panel back in place. Check to be sure that it is properly seated so that no undue pressure is placed on it when the keypad is closed. Note that screws will need to align through the corner holes.



Reconnect the internal cabling, return the cover to the unit and tighten the screws. Test unit for functionality.



Finished.



KEYPAD RESETTING SOLUTIONS

If your keypad makes a clicking sound as it turns off for a second, then starts up again, it is resetting. Resets are due to an interruption of power to the keypad and can occur for a variety of reasons. If your keypad is displaying this behavior, please try the following suggested remedies.

Receptacle for Power Connector on CP1, CP2 or CP3 - Center Pin Halves Pinched Together (Does not apply to CP4)

This is the principle cause of keypad resetting incidences. It occurs in 90% of the cases.

The center prong of the power receptacle on the control box must be spread apart far enough to make solid contact with the cable plug. After repeated use, they may move closer together. Use a pointed object, like a knife tip or screw driver to spread them further apart. The arrow in the photo to the right shows the space between the prongs. When properly spaced you should feel frictional resistance when inserting the plug.



Battery Voltage Drop

- **Resets when battery is losing power.** If your battery voltage is declining, the keypad will not receive enough power to operate. This can occur if the output falls below 11 volts after extended use. We suggest that you monitor your output with a voltage meter (some batteries have one built in).
- **Resets when other items are plugged into same battery as the mount.** Keep in mind that the meter reading is an average and will not show dips. Gel cells have internal resistance, which will cause a voltage drop when the load changes. If you connect a CCD camera, PC or Kendrick dew remover to the same battery (not recommended since each of these draws a significant load), the load will momentarily drop below 9 volts and the keypad will reset or it may affect the GTO circuit itself and cause the keypad to lock up. If you plan to use a single battery to power multiple items, we recommend that you use a large marine battery that is not a gel cell and hook everything up to it before calibrating the GTO.

Break in Cable Connectors

Examine all of your power and motor cables to be sure that there are no broken connections. Also, wiggle the cables to see if you can initiate a reset. Pay particular attention to the connectors on both ends of the keypad coiled cable. Is the strain relief cracked or broken? Do you see the tiny wires exposed?

Oxidation of Internal Connectors in the Keypad

Over time, oxidation of the connector pins inside the keypad can cause incomplete contact and momentary loss of power resulting in resets. Generally, this is only a problem with keypads, serial number 1565GTO and earlier (later contact pins are gold plated). If your keypad is more than 3 years old, it is beyond the 3-year factory warranty and you can try the procedure below. If the keypad is still under warranty, you run the risk of voiding the warranty if you open it up to attempt this or any other procedure.

1. Using a Philips #0 screwdriver, carefully loosen the screws that hold the back cover in place. Lift the cover carefully and be sure that you do not lose the white spacers, one per screw.
2. Locate the four blue connectors.
3. Lift each connector carefully, one at a time, to reveal the pins beneath.
4. Clean the connectors using a Q-Tip or a cotton swab with a de-oxidant, such as DeoxIT D5, on it and gently rub the contacts.
5. Replace each connector firmly.
6. While gently positioning the cables, put the cover back in position and tighten the screws (with their white washers in place).



If All Else Fails

If you are unable to resolve the reset problem with any of the above procedures, please call Astro-Physics. We will ask about the results of these procedures before issuing a return authorization (RA) number. Please be prepared to discuss your results.

Further Comments

The mount will continue to track even if the keypad has reset. If you are in the middle of an exposure, you can continue as if nothing has happened. It will not affect the performance of the mount in any way.

Keypad version 3.0 or later (and C chip or above in the GTO control box). If the keypad resets, the chip in the GTO control box will remember the date, time and location set at the beginning of your session and the R.A. and Dec. coordinates of where your telescope is pointing. The mount will track as if nothing has happened. If the keypad screen has changed to another menu, simply return to the screen that you were in to continue your session. Keypad resets are annoying with these keypad versions, but do not cause a major interruption of your session.

Keypad version 2.6 or earlier. If the keypad resets, the mount will continue to track normally. However, the keypad will return to the normal startup sequence, which will require that you chose your location and follow one of the calibration routines. Keypad resets are very annoying and disruptive with these early keypad and GTO control chip versions. We strongly suggest that you upgrade to the newer versions to gain the advantage of many new features. Please refer to the Technical Support section of our website for further information regarding upgrades.