



PARADISE
BIOMEDICAL

Expert Service, **Simplified.**

The Histology Technician's Guide for Reducing Service Calls

All the tips and tricks to keeping your equipment in tip top shape!

Expert Service, Simplified.

Paradise Biomedical, LLC. is one of the industry leading third party service companies. With decades of technical experience backing our reputation, we strive every day to bring more innovative service and helpful new information to your laboratory. We apply what we have learned to minimize any down time in your laboratory by offering personalized and flexible service plans, 24/7/365 technical support, and free loaner equipment.

If you are a large-scale pathology lab, major hospital chain or University, or a specialist location (ie. Dermatology, Urology, Gastroenterology) we want to work with you! We work with the major manufacturers of pathology and other related equipment, such as Sakura Finetec, Leica Biosystems, Thermo Fisher and Dako. Services from Paradise Biomedical include (but are not limited to): Preventative Maintenance, Repair Maintenance, Consulting, Certified Used Equipment Sales and Purchasing, Coordination and Execution of Laboratory Moves, and New Laboratory Installations.

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Capabilities:

We work with a wide variety of pathology-related equipment and medical lasers. Below, is a full list of the many different equipment types we work with.

- Medical Lasers
- Autoclaves
- Cryostats
- Tissue Processors
- Embedding Centers
- Microtomes
- Stainers
- Coverslippers
- Slide/Cassette Printers
- Microscopes
- Fume Hoods
- Refrigerators
- Centrifuges
- Electrical Safety Checks
- All Basic Dermatology Equipment

Paradise Biomedical, LLC. is the only “One Stop Shop” for ALL dermatologic equipment servicing.

With our roots originating in pathology/ mohs equipment servicing, we found the majority of our customers came from specialized dermatology locations. So we asked ourselves some questions:

1. How can we simplify the lives of our customers?

This is easily accomplished by reducing the number of different vendors that you as a customer have to deal with. By building the capabilities to properly service ALL dermatologic equipment, we have made it possible for you to make ONE call to ONE person for ANY and ALL service needs. This means you will only receive ONE bill from ONE company as well.

2. How can we reduce costs to our customers?

Pricing in this third-party industry can be very competitive. Many companies claim a “Lowest Price Guarantee” when in actuality, that lowest price claim is capped at what keeps their lights on. So the answer then? Volume! By grouping all of your service under one company, we can use the mass variety of equipment to bring costs down overall.

3. What if we come across equipment that we can’t properly service?

Aside from our capabilities, Paradise Biomedical has a massive network of qualified professionals that will be able to assist you if we are incapable. We can refer you to a friend or we will happily help you best understand what to expect and even which other vendors would be best to work with based on location, equipment type, their pricing and reputation.

EFFICIENCY

You call, We show. We guarantee a service engineer to your location within 24 hours of your initial service request.

PRICE

Not only is our pricing competitive, but we also constantly analyze your service spending to determine how we can save you more.

QUALITY

All of our service is completed with genuine OEM factory parts by trained and certified service engineers.

What is this Booklet?

This booklet was written as a standard guide for equipment maintenance based on in-field experience from what our field service engineers have learned about the most common of issues on the most common equipment types. There are many pieces of equipment not named in this booklet, but this booklet is still applicable. If your make/model of machine is not listed, yet another make/model of the same type is, you can still use this as a rough guide.

Section One covers routine and repair maintenance items that the histology technician in charge of the equipment can perform to help improve the quality and longevity of usage. These maintenance items are very easy and take minimal amounts of time yet massively improves odds of reducing the number of service calls you regularly need. None of these maintenance items require tools or a technically-minded brain. In the instance that a repair item doesn't fully make sense, simply give us a call.

Section Two covers other important information for the laboratory and ways to better protect your equipment and yourself. We discuss the health concerns related to fumes as well as electrical safety measures for you and your equipment.

Paradise Biomedical assumes no responsibility in any equipment damaged by the histology technician. This document serves only as a guide based on average user's usage and knowledge. If at any point this guide becomes confusing or issues arise during performed maintenance, please call us immediately so we can assist you further. Thank you!

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Expert Service, **Simplified.**

Section 1: Equipment Maintenance Items

Listed below are the easiest and most helpful methods to keeping your equipment running smoothly.

Sakura VIP K Series Maintenance Items

Relative Models: K1000, K2000, K3000

1. Hot Water Flush: After Every 4 Completed Processes

- A hot water flush is a very important maintenance item to be completed by the histology technician responsible for changing the reagents. Sakura recommends that the hot water flush be performed after every 4 fully completed processes. For most, once per week will suffice.
 - To start, remove the reagent bottles from stations 1-4.
 - Next, remove the fume water bottle, empty and refill with fresh hot water from the faucet. And place bottle into the station 1 slot.
 - Begin to manually pump the hot water into the retort. Once the pump-in is completed, initiate the pump-out and wait until the retort has been completely drained.
 - Take the full bottle from the station 1 slot and move it to station 2.
 - Complete this process for all stations 1-4.

2. Overall Cleanliness: Every Day

- Although it may seem sort of redundant, overall cleanliness absolutely matters. There is a noticeable difference in the number of service calls received between labs kept super clean and organized from labs where cleanliness is an afterthought. There are a few specific areas where the histology technician should focus their cleaning efforts.
 - The body of the machine can be easily cleaned with a plastic wax scraper or putty knife.
 - The keypad and screen should be cleaned at your discretion. Verify the machine is fully turned off prior to cleaning the keypad and screen.
 - Around the retort area and the retort lid.
 - Around the retort lid seal.
 - The inside of the reagent bottles. (Periodically flush with hot water)

Sakura VIP K Series Common Problems/ Repairs

Relative Models: K1000, K2000, K3000

1. Failed to Pump Out/In on Station 3

- There are a few possible reasons that this issue would come about, however, 99 out of 100 times, a failed pumping process in station 3 is solely due to a

sodium clog within the route of the reagent. When the formalin from station 2 and the diluted alcohol from station 3 interact, the chemical reaction leaves behind a sodium deposit. Over time, this deposit can accumulate and cause the reagent lines to become clogged. A very easy procedure fix to this issue is by performing a hot water flush on the machine, stations 1-4. The hot water will dissolve the salt and get the machine back up and running. **If this does not work, call for a service engineer to come diagnose further.**

- When running the hot water flush, focus efforts onto station 3. Pump the hot water in and out of the machine 2-3 times in station 3.
- If there is reagent in the retort, clear it out as best as possible.
- If the machine fails at trying to pump in the hot water to station 3, pour the hot water directly into the retort and retry pumping out first instead. Then proceed with the rest of the hot water flush.
- The hot water flush should be run regularly and thoroughly. (Sakura recommends it to be done after every 4 processes the machine runs.)

2. "Standby" Message Won't Disappear

- Generally this will only happen when the machine is turned off for an hour or more. The standby message illuminates when the machine believes that the paraffin wax inside is not fully melted.
 - If this light is on and wont disappear, first make sure that your reagent paraffin is fully melted in all stations. (If yes, proceed to step 2. If no, wait for paraffin to fully melt!)
 - Next, place the special U-Shaped service magnet onto "Manual".
 - Lastly, press the series of buttons, 2-0-verify-enter. Remove the magnet.
 - The light should have disappeared. **If this does not work, call for a service engineer to come diagnose further.**

3. Set Time is Wrong

- Sometimes we have time changes and power outages that can effect the accuracy of the recorded set time on the machine. Here is how to fix it:
 - Place the magnet onto "Program" and press the clock button on the right hand side.
 - The first thing you should see is the "AM/PM" flashing just above where the timer display is. Note, if the blinking option is correct, press enter. If the blinking option is incorrect, first press the "AM/PM/

Diagnose" button on the right side and the proper light should illuminate.

- Next you want to put in the time. The time should be put in as such: H - H - M - M. To give an example, if it was 3:06 PM, you would press 0 - 3 - 0 - 6. Then hit enter. If the time were 12:37 AM, you would press 1 - 2 - 3 - 7. Then hit enter.
- Remove the magnet and the time should be correct.

Sakura VIP E Series Maintenance Items

Relative Models: E150, E300

1. Hot Water Flush: **After Every 4 Completed Processes**

- A hot water flush is a very important maintenance item to be completed by the histology technician responsible for changing the reagents. Sakura recommends that the hot water flush be performed after every 4 fully completed processes. For most, once per week will suffice.
 - To start, remove the reagent bottles from stations 1-4.
 - Next, remove the fume water bottle, empty and refill with fresh hot water from the faucet. And place bottle into the station 1 slot.
 - Begin to manually pump the hot water into the retort. Once the pump-in is completed, initiate the pump-out and wait until the retort has been completely drained.
 - Take the full bottle from the station 1 slot and move it to station 2.
 - Complete this process for all stations 1-4.

2. Overall Cleanliness: **Every Day**

- Although it may seem sort of redundant, overall cleanliness absolutely matters. There is a noticeable difference in the number of service calls received between labs kept super clean and organized from labs where cleanliness is an afterthought. There are a few specific areas where the histology technician should focus their cleaning efforts.
 - The body of the machine can be easily cleaned with a plastic wax scraper.
 - The keypad and screen should be cleaned at your discretion. Verify the machine is fully turned off prior to cleaning the keypad and screen.
 - Around the retort area and the retort lid.
 - Around the retort lid seal.

- The inside of the reagent bottles. (Periodically flush with hot water)

Sakura VIP E Series Common Problems/ Repairs

Relative Models: E150, E300

1. Failed to Pump Out/In on Station 3

- There are a few possible reasons that this issue would come about, however, 99 out of 100 times, a failed pumping process in station 3 is solely due to a salt clog within the route of the reagent. When the formalin from station 2 and the diluted alcohol from station 3 interact, the chemical reaction leaves behind a salt build up. A very easy fix to this issue is by performing a hot water flush on the machine, stations 1-4. The hot water will dissolve the salt and get the machine back up and running. **If this does not work, call for a service engineer to come diagnose further.**
 - When running the hot water flush, focus efforts onto station 3. Pump the hot water in and out of the machine 2-3 times in station 3.
 - If there is reagent in the retort, clear it out as best as possible.
 - If the machine fails at trying to pump in the hot water to station 3, pour the hot water directly into the retort and retry pumping out first instead. Then proceed with the rest of the hot water flush.
 - The hot water flush should be run regularly and thoroughly. (Sakura recommends it to be done after every 4 processes the machine completes.)

2. "Wax Not Melted" Error (When Wax IS Melted)

- Usually this error is just a glitch within the brain of the system. The machine has a fail-safe engaged that will not allow the machine to process when the wax is still solidified. This prevents more extensive errors within the internals of the machine. The machine verifies the wax melting based off of a timer. If the machine is turned off for a substantial amount of time, the timer will be reset and once the machine is turned back on again, the timer will start. Sometimes however, if you turn your machine off for, say like 10 minutes and turn it back on, you will get this error message even though the wax never had time to harden. If you are getting this error message and the wax is melted, here are some steps to clear the error.
 - So first, make sure you are logged onto the normal user mode. Go to the home screen (main menu). The error message will be displayed

along the bottom of the screen, this is not an error that will appear in the error log.

- So to clear this error, look at the main menu. The 5th option down says "Check Paraffin". You can either hit the button 5 and then hit enter, or you can use the arrows and move the selector down to the 5th option and hit enter.
- Within this menu you should see an option that says "Paraffin Melted?" Hit enter and verify that wax is melted.
- This should cause the error message to disappear and make the machine ready to process! **If this does not work, call for a service engineer to come diagnose further.**

Sakura VIP 5/6 Series Maintenance Items

Relative Models: VIP 5, VIP 6, VIP 6AI

1. Hot Water Flush: **After Every 4 Completed Processes**

- A hot water flush is a very important maintenance item to be completed by the histology technician responsible for changing the reagents. Sakura recommends that the hot water flush be performed after every 4 fully completed processes. For most, once per week will suffice.
 - To start, remove the reagent bottles from stations 1-4.
 - Next, remove the fume water bottle, empty and refill with fresh hot water from the faucet. And place bottle into the station 1 slot.
 - Begin to manually pump the hot water into the retort. Once the pump-in is completed, initiate the pump-out and wait until the retort has been completely drained.
 - Take the full bottle from the station 1 slot and move it to station 2.
 - Complete this process for all stations 1-4.

2. Level Sensor Cleanliness: **Once Per Month or As Necessary**

- Level Sensor faults can cause an array of issues stemming from under fill errors to pumping in/out failures. Fortunately, maintaining the cleanliness is very easy to do.
 - First, you need cotton tipped applicators, xylene and alcohol.
 - Wet the cotton tipped applicators with xylene and wipe down all sides and around the level sensors.

- Make sure to removed ALL debris and discoloration from the level sensors.
- Next wet a cotton tipped applicator with alcohol and go back over all of the areas covered with xylene. (The xylene alone may leave a cloudy streak over the level sensors.)

3. Overall Cleanliness: **Every Day**

- Although it may seem sort of redundant, overall cleanliness absolutely matters. There is a noticeable difference in the number of service calls received between labs kept super clean and organized from labs where cleanliness is an afterthought. There are a few specific areas where the histology technician should focus their cleaning efforts.
 - The body of the machine can be easily cleaned with a plastic wax scraper.
 - The keypad and screen should be cleaned at your discretion. Verify the machine is fully turned off prior to cleaning the keypad and screen.
 - Around the retort area and the retort lid.
 - Around the retort lid seal.
 - The inside of the reagent bottles. (Periodically flush with hot water)

Sakura VIP 5/6 Series Common Problems/Repairs

Relative Models: VIP 5, VIP 6, VIP 6AI

1. Failed to Pump Out/In on Station 3

- There are a few possible reasons that this issue would come about, however, 99 out of 100 times, a failed pumping process in station 3 is solely due to a salt clog within the route of the reagent. When the formalin from station 2 and the diluted alcohol from station 3 interact, the chemical reaction leaves behind a salt build up. A very easy fix to this issue is by performing a hot water flush on the machine, stations 1-4. The hot water will dissolve the salt and get the machine back up and running. **If this does not work, call for a service engineer to come diagnose further.**
 - When running the hot water flush, focus efforts onto station 3. Pump the hot water in and out of the machine 2-3 times in station 3.
 - If there is reagent in the retort, clear it out as best as possible.

- If the machine fails at trying to pump in the hot water to station 3, pour the hot water directly into the retort and retry pumping out first instead. Then proceed with the rest of the hot water flush.
- The hot water flush should be run regularly and thoroughly. (Sakura recommends it to be done after every 4 processes the machine completes.)

2. “Retort Not Drained” or “Retort Under Fill” Error

- This error message usually stems from the Retort Level Sensors being dirty. As the machine is used and reagent is constantly flushed in and out of the retort, residue and stains are left behind and coat the inside of the retort and all of the fluid lines that each reagent flows through. This includes the level sensors that sit inside the retort. The level sensors are optical sensors, meaning that they have to physically “see” the reagent in order to trigger and notify the machine that the fluid has gone above/below that level. If these are not periodically cleaned, they can get overly coated in the left behind residue from the reagents that they become “blind” and won’t be able to sense the change fluid levels.
 - To clean this, start by using some cotton tipped applicators dipped in xylene and clean around the outer edges of the sensor. Move onto the sensor itself too.
 - This process will probably take a few cotton tipped applicators for each sensor. The xylene tends to really wipe away at stain color.
 - After the sensor appears to be clean, verify cleanliness one last time, but using 100% alcohol instead of the xylene. This will clean away any xylene that may cause a cloudiness within the sensor.
 - Be sure to get all corners! If the error persists after cleanliness has been verified, a level sensor may have been broken. **If this does not work, call for a service engineer to come diagnose further.**

Thermo Excelsior Series Maintenance Items

Relative Models: Excelsior ES, Excelsior AS

1. Level Sensor Cleanliness: **Once Per Month or As Necessary**

- Level Sensor faults can cause an array of issues stemming from under fill errors to pumping in/out failures. Fortunately, maintaining the cleanliness is very easy to do.

- First, you need cotton tipped applicators, xylene and alcohol.
- Wet the cotton tipped applicators with xylene and wipe down all sides and around the level sensors.
- Make sure to removed ALL debris and discoloration from the level sensors.
- Next wet a cotton tipped applicator with alcohol and go back over all of the areas covered with xylene. (The xylene alone may leave a cloudy streak over the level sensors.)

Thermo Excelsior Common Problems/ Repairs

Relative Models: Excelsior ES, Excelsior AS

1. Level Sensor Error

- As the machine is used and reagent is constantly flushed in and out of the retort, residue and stains are left behind and coat the inside of the retort and all of the fluid lines that each reagent flows through. This includes the level sensors that sit inside the retort. The level sensors are optical sensors, meaning that they have to physically “see” the reagent in order to trigger and notify the machine that the fluid has gone above/below that level. If these are not periodically cleaned, they can get overly coated in the left behind residue from the reagents that they become “blind” and won’t be able to sense the change fluid levels.
 - To clean this, start by using some cotton tipped applicators dipped in xylene and clean around the outer edges of the sensor. Move onto the sensor itself too.
 - This process will probably take a few cotton tipped applicators for each sensor. The xylene tends to really wipe away at stain color.
 - After the sensor appears to be clean, verify cleanliness one last time, but using 100% alcohol instead of the xylene. This will clean away any xylene that may cause a cloudiness within the sensor. **If this does not work, call for a service engineer to come diagnose further.**

Sakura/Leica Embedding Centers Maintenance Items

Relative Models: TEC3, TEC4, TEC5, EG1160, EG1150

1. Usage of Timers: Always

- Embedding Centers have built in timers that can/will automatically turn your machines heating elements on and off, depending on your schedule. Timers are set by the day and by the hour. All you need to do is program them.
 - Timer programming is easily accessible in the 'SET' menu.
 - It is recommended that the embedding centers should be programmed to begin work 2 hours prior than what you need. This will eliminate any lag time in heating the paraffin tank for dispensing wax.

2. Cold Spot Cleanliness: After Every Use

- Although it may be very difficult to keep the cold spot clean, it is important to the longevity of the cold spot itself. Old wax buildup can cause the Peltier to burn out over time. It is important to periodically clean it off.
 - To clean the Peltier use a plastic wax or putty scraper. It is important to use plastic because metal scrapers have sharp edges that can damage the cold spot, the cold spot seals or even the paint.
 - It is also recommended to treat the cold spot with a paraffin repellent to prevent future build up.

3. Overall Cleanliness: Once Per Week

- In the same aspect as the cold spot, the overall cleanliness of the embedding center and the attached cryo unit is important for longevity. Wax can severely damage the underlying electronics of the embedding center. Taking a bit of time to clean the wax from the body of the machine can reduce the amount that will inevitably drip in through the cracks to the underlying electronics.
 - Use a plastic wax or putty scraper to remove wax from the embedding center. Please make sure to use a plastic scraper. Metal scrapers WILL damage your machine.
 - It is recommended to use a paraffin repellent if you tend to be a bit messy. This will just make it easier for you to clean afterwards.

Sakura/Leica Embedding Centers Common Problems/ Repairs

Relative Models: TEC3, TEC4, TEC5, EG1160, EG1150

1. Light Bulb Won't Turn On

- Luckily this is a very simple thing to diagnose and repair. 1 of 2 things has happened, either there is an electrical problem that will require a service

engineer, or the light bulb has blown. Here are the steps to check the light bulb operation.

- Start by turning off the machine and then removing the light bulb. If you look up underneath the dispensing nozzle housing, you will see the bulb. The bulb will either look like a regular small sized light bulb, or it may look like a fuse (small glass rod with silver pieces on each end).
- To remove, just pull down and the bulb should pop out.
- Replace it with a new bulb by simple pushing a new bulb right back into the same place you removed the old one from.
- Turn the machine back on and check the operation of the bulb. If it works, you are good to go! **If this does not work, call for a service engineer to come diagnose further.**

2. Wax is Dripping From the Dispensing Nozzle

- No matter how fast the drops are falling, you should never see consistent wax dripping from the dispensing nozzle without the dispenser engaged. Yes, immediately after use, you may see minor amounts of wax dripping, but this should stop within a minute or 2. Now, if you notice a drop falling out of your dispenser every 10 minutes while the machine is not in use, this is an issue. Normally this is caused just by the dispensing valve being slightly dirty or being overrun with paraffin. It is possible that the dispensing arm has gone bad, but this is a much more rare occasion. So first thing you should do is flush out the paraffin lines to clean the internals.
 - First, start by removing the paraffin from the machine. This can either be done, in time, as the machine is used and you eventually run out, or it can be done immediately.
 - The way that I personally dispense and dispose of wax within an embedder is by first using a small cup and bailing out the wax from the paraffin tank. It is quickest to do it that way, however, it is impossible to get it all out like this
 - The next step is by using a disposable rubber glove held underneath the dispenser. Rubber gloves won't melt with the hot paraffin, and they are also carefree and easy to dispose of. Hold the glove open underneath the dispensing nozzle and dispense the rest of the paraffin into the glove until no more paraffin comes out.

- Once the paraffin is free and clear of the machine, pour a very small amount of xylene into the paraffin tank to about an 1/8th of the way filled up. You don't need a whole lot. Use another glove and dispense the xylene through the entire machine and out through the nozzle. The xylene will clear up any debris. (Run this process twice!)
- Now your machine should be cleaned up! Fill the tank back up with paraffin and check operation over the next few days. **If this does not work, call for a service engineer to come diagnose further.**

Leica/Sakura/Thermo Microtome Maintenance Items

Relative Models: Accu-Cut, 2025, 2125, 2155, 2165, 2235, 2245, 2255, 2265, HM Series

1. Blade Locking Lever: After Every Use

- The blade holder on your microtome is one of the most sensitive pieces of equipment in your laboratory. Most often, cutting issues (ie. Thick and thin sections or chatter) are entirely related to minor tweaks within the blade holder. Therefore, the better you take care of the blade holder, the better it will perform and the less issues you will have. On the blade holder there are 3 locking levers that lock different directional motions into place. One locks the left and right motion, one locks the cutting angle motion and the last locks the actual blade into the blade holder. One very common mistake that most histology technicians make is leaving the blade locking lever locked while the machine is not in use.
 - The blade locking lever locks into place by the use of a 3 piece tensioning spring set. This spring set is replaced during the PM because consistent tension will cause wear over time.
 - Leaving the blade locking lever locked while not in use keeps tension on this spring set which will wear it out while you're not using the machine.
 - It is important to keep ALL other locking levers locked for the safety of the machine, however, this one locking lever should be kept unlocked to release that tension and preserve the longevity of the spring set.
 - It is very common for us to receive service calls related to the wear of a spring set, to reduce the chances of this happening to you, simply leave that lever unlocked when not in use.

2. Overall Cleanliness: After Every Use

- As you could imagine, wax and moving parts do not work well together. Unfortunately, your microtome has both. Therefore, it is up to you to keep your microtome as clean as possible in order to reduce the chances of hardened wax inhibiting proper functionality of your microtome. Here are a few areas to pay attention to when cleaning your microtome.
 - Wax shavings!! Clean your wax shavings after every use!! We have seen countless cutting issues related to sticking blade holders. More often than not, the machines that have this particular issue are the machines that are not cleaned at the end of the day. The wax shavings build up, stick to the base of the microtome, fall behind the dust covers and cause a variety of issues.
 - Make sure all wax shavings are cleaned from the base of the microtome as well as throughout the blade holder. You can even use a can of compressed air (available at any Walmart or other similar store) to spray the majority of the shavings away.
 - It is also recommended to treat your machine with a paraffin repellent to slow the buildup of dirty, old wax.

Leica/Sakura/Thermo Microtome Common Problems/Repairs

Relative Models: Accu-Cut, 2025, 2125, 2155, 2165, 2235, 2245, 2255, 2265, HM Series

1. Thick and Thin Cutting

- If you start to notice your specimen sections being cut thick and thin or just plainly inconsistent, it can make the cutting process more than annoying. Just about every tiny little component inside the microtome can cause this issue, however, usually the root of the problem lies within the blade holder. Here are a few things to look at when trying to understand what is causing this issue. **If this does not work, call for a service engineer to come diagnose further.**
 - First thing to check is the tightness of all locking levers. Check all levers that are on the blade holder, check the one on the specimen holder, and check the one that tightens the whole knife holder to the microtome base. Make sure all are tight and that none of the components move during the cutting process.
 - Next thing to check are the front and back plates. Start by removing the front plate and be very careful not to damage the plate. There are 2 things to check on the front plate. First, check the smoothness of the

top of the front plate where it actually presses against the blade. If there are any chips or if it does not appear to be smooth, that can cause the thick and thin cutting. Also check the thin metal pieces (known as the spring set) on the back side of the front plate. This spring set is specific to Leica cryostats. If those are bent and the locking lever is easy to lock into place, that can cause the issue as well. On the back plate, check for overall smoothness. If there are any chips or cracks on the back plate where the blade compresses against it, this will cause cutting issues. A service engineer will be required to come replace this item.

- Lastly, The most simple of all of the items to check is the angle of the cut. It is not uncommon to see this issue arise after a proper equipment cleaning has happened. Many people do not realize that the angle of the cut is very important to a proper cut. Make sure that the cutting angle is not at 0 degrees. This is straight up and down and you will never receive a proper cut at this angle. Unlock the lever slightly and readjust to approximately 5 degrees! This should solve your problem.

Leica/Sakura/Thermo/Avantik Cryostat Maintenance Items

Relative Models: 1510, 1520, 1800, 1850, 1860, 1900, 1950, 1960 (UV models included), Cryo 3, HM Series, QS Series

1. Blade Locking Lever: After Every Use

- The blade holder in your cryostat is one of the most sensitive pieces of equipment in your laboratory. Most often, cutting issues (ie. Thick and thin sections or chatter) are entirely related to minor tweaks within the blade holder. Therefore, the better you take care of the blade holder, the better it will perform and the less issues you will have. On the blade holder there are 2-3 locking levers that lock different directional motions into place. One locks the left and right motion, one locks the cutting angle motion and the last locks the actual blade into the blade holder. One very common mistake that most histology technicians make is leaving the blade locking lever locked while the machine is not in use.

- The blade locking lever locks into place by the use of a 3 piece tensioning spring set. This spring set is replaced during the PM because consistent tension will cause wear over time.

- Leaving the blade locking lever locked while not in use keeps tension on this spring set which will wear it out while you're not using the machine.
- It is important to keep ALL other locking levers locked for the safety of the machine, however, this one locking lever should be kept unlocked to release that tension and preserve the longevity of the spring set.
- It is very common for us to receive service calls related to the wear of a spring set, to reduce the chances of this happening to you, simply leave that lever unlocked when not in use.

2. Overall Cleanliness of Internals and Microtome: **After Every Use**

- As you could imagine, OCT and moving parts do not work well together. Unfortunately, your cryostat has both. Therefore, it is up to you to keep your cryostat as clean as possible in order to reduce the chances of hardened OCT inhibiting proper functionality of your cryostat. Here are a few areas to pay attention to when cleaning your microtome.

- OCT shavings!! Clean your wax shavings after every use!! We have seen countless cutting issues related to sticking blade holders. More often than not, the machines that have this particular issue are the machines that are not cleaned at the end of the day. The OCT shavings build up, stick to the base of the microtome, fall behind the dust covers and cause a variety of issues.
- Make sure all OCT shavings are cleaned from the base of the microtome as well as throughout the blade holder. You can even use a can of compressed air (available at any Walmart or other similar store) to spray the majority of the shavings away.

3. Manual Defrost: **Every 2 Weeks**

- All cryostats have a daily set time where it will automatically defrost the machine. Generally we set this up to happen at midnight while your lab is not being used. This is very important to the overall functionality of the compressor and potential ice buildup in your machine. A second layer of this protection falls onto you. It is recommended that you manually defrost your machine AT LEAST once every month, but more recommended to happen every 2 weeks. The manual defrost is very simple.
- In order to manually defrost your machine, make sure you have a 24-48 hour period where you will not be using the machine.

- Simply turn the machine off, open the glass window all the way, and allow your machine to bring itself back to room temperature.
- The machine requires that you leave it untouched for 24+ hours before turning it back on.
- IMPORTANT NOTE: If you see condensation inside the machine, it MUST be fully dried before turning the machine back on. The condensation will turn into ice as the cryostat cools back down and you will cause an issue for yourself (ie. Specimen head not advancing).
- The machine takes about 3 hours to cool from room temperature back to its standard set temperature at -24 Celsius.

Leica/Sakura/Thermo/Avantik Cryostat Common Problems/ Repairs

Relative Models: 1510, 1520, 1800, 1850, 1860, 1900, 1950, 1960 (UV Models Included), Cryo 3, HM Series, QS Series

1. Thick and Thin Cutting

- If you start to notice your specimen sections being cut thick and thin or just plainly inconsistent. Just about every tiny little thing inside the microtome can cause this issue, however, usually the root of the problem lies within the blade holder. Here are a few things to look at when trying to understand what is causing this issue. **If this does not work, call for a service engineer to come diagnose further.**
 - First thing to check is the tightness of all locking levers. Check all 3 that are on the blade holder, check the one on the specimen holder, and check the one that tightens the whole knife holder to the microtome base. Make sure all are tight and that none of the components move during the cutting process.
 - Next thing to check are the front and back plates. Start by removing the front plate and be very careful not to damage the plate. There are 2 things to check on the front plate. First, check the smoothness of the top of the front plate where it actually presses against the blade. If there are any chips or if it does not appear to be smooth, that can cause the thick and thin cutting. Also check the thin metal pieces (known as the spring set) on the back side of the front plate. This spring set is specific to Leica cryostats. If those are bent and the locking lever is easy to lock into place, that can cause the issue as well. On the back plate, check for overall smoothness. If there are any chips or cracks on

the back plate where the blade compresses against it, this will cause cutting issues. A service engineer will be required to come replace this item.

- Lastly, The most simple of all of the items to check is the angle of the cut. It is not uncommon to see this issue arise after a proper equipment cleaning has happened. Many people do not realize that the angle of the cut is very important to a proper cut. Make sure that the cutting angle is not at 0 degrees. This is straight up and down and you will never receive a proper cut at this angle. Unlock the lever slightly and readjust to approximately 5 degrees! This should solve your problem.

2. My Cryostat Will Turn On, But It Is Not Getting Cold

- This is never a fun situation, and a lot of times, this situation can lead to an expensive repair. The main causes of this issue are either a faulty compressor, a faulty starter capacitor and relay, or (in the best case scenario) a popped breaker button.
- This does not account for your cryostat not cooling enough. As an example, if you have a situation where it will only cool to say, -15 instead of all the way down to the set temperature, a technician will be required.
 - The only thing that you as a user can check is if you have a breaker button on the back of you're machine.
 - Pull your machine out so you can easily access the back panel. Visually inspect and search for a red circular button. Usually it is closer to the left side about 3/4 of the way to the bottom of the back panel. Note, not all cryostats have this red button. Unfortunately, if you do not see it, chances are your machine does not have one.
 - **MAKE SURE THE MACHINE IS TURNED OFF BEFORE PROCEEDING!**
 - Press the red button. This button is very strong and may seem quite difficult to push in. You should here a pretty loud click once the button is fully engaged.
 - Turn your machine on and give it time for the compressor to kick on. **If the compressor does not come on, please call for a service engineer to fully diagnose.**
 - Quick Tip: DO NOT set your machine to -30 degrees! Even though it may be normal for you, it is not necessary to cut this cold and will require the compressor to work much much harder. This will cause issues to arise much more frequently and more substantially related to

a worn out compressor. Cold temperatures can also cause ridges in the cut due to the OCT freezing too cold.

3. There is Substantial Ice in the Bottom of the Machine

- Cryostats require a defrost cycle every so often. Generally, these machines go through constant usage and are required to maintain a very cold temperature. This puts a lot of effort on the machine, so you cant blame it for wanting to sweat a little bit while it works. The machines are set to go through a small and quick defrost cycle every 24 hours, however a really good thing to do to give the machine a break is to completely turn it off for 24 hours or more. This will improve the quality and longevity of the machine.
 - Quick Tip: This should happen every couple weeks at minimum, if not more frequently. Icing is a common issue that arrises in machines that rarely get fully turned off.
 - If at the end of the 24 hour defrost cycle you notice a large amount of water still resting in the bottom of the machine, your drain plug is probably still inserted. Reach your hand down and to the left, sort of underneath the cryobar shelf on the left hand side. You will feel a rubber plug.
 - Make sure that there is a catch underneath the tube before you pull the plug. Some drain tubes already have a reattached bottle for drainage. Pull the plug straight out and the water should start to drain immediately. Any left over water can be either wiped up with a gauze pad, or left to air dry.

Leica/Sakura/Thermo Stainers Maintenance Items

Relative Models: Autostainer XL, ST5020, Prisma, DRS2000, DRS601, Linistat, Gemini

1. Cleaning of Drain Lines: **Once Per Month**

- Stainers are generally very stable machines. There are not a lot of common issues related to slide stainers besides clogged drain lines. Drain lines clog due to algae growth in the drain line. This algae forms from the constant running water and other liquids that go through your stainers drain lines every day.
 - To clean, first remove all staining containers from the machine to not mix up or ruin your stains.

- Next, pour standard bleach into the bottom of the machine and allow it to run through your drain lines. The bleach will destroy the growing algae and help prevent future algae growth.
- Make sure to rinse with water afterwards to verify proper flow through the drain lines and to reduce the bleach smell from your laboratory.

2. Lids Down: As Often as Possible

- The other common issue we hear about stainers is the intense smell released from the stains and other chemicals in the machine. Small stainers (ie. Thermo Linistat) do not have fume filters but most large stainers are equipped with fume filters that help reduce the antagonizing smells.
 - Keep the stainer lid down as often as possible. Stainers are designed to channel the fumes away from the user.
 - On larger stainers with fume filters, there are built in fans that draw the fumes through the filters. This process is maximized when the lid is down.
 - If you keep the lid down, yet still have very intense fume smells, you may need to replace the fume filter. As the fume filter becomes saturated, it will begin to work less effectively.

Leica/Sakura/Thermo Stainers Common Problems/ Repairs

Relative Models: Autostainer XL, ST5020, Prisma, DRS2000, DRS601, Linistat, Gemini

1. Stains/Liquids Will Not Drain

- This can be kind of scary and also even cause strong smells to arise out of your stainer. Luckily enough the repair on this should be pretty easy as long as you catch the clog before the levels of the liquid rise too high. The more non-drained liquid, the more difficult it will be to clean.
- What causes this is actually algae and debris build up in the elbow/tubing of the drainage line, similar to what can happen on your air conditioner's condensation drain.
 - The best way to clear this clog is actually by dumping bleach into the bottom of the machine close to where the liquid drains out. The bleach kills the algae and separates it from the lining of the elbow and tubing.
 - If you pour in the bleach and there is still no drainage, a tech may be required to come and actually clear the tubing a different way. If the

algae is too thick and there is too much liquid that dilutes the bleach, the bleach may not be powerful enough to clear the clog.

- This is actually something you can do regularly to prevent this issue from ever arising. Once a month or so, pour in some bleach and all of the debris will be cleared out.

Sakura Coverslippers Maintenance Items

Relative Models: 4764 SCA, 4740 Tape, 5200 G2

1. Mounting Medium Spillage: Immediately After Spillage

- This maintenance item is specific to glass coverslippers. Tape coverslippers use xylene as the mounting medium, therefore if you spill the xylene, just wipe it up with a gauze pad or other similar absorbent. However, glass coverslippers use an actual glue-like mounting medium to seal the glass coverslip onto the slide. This maintenance item is reactive, not proactive, so you only have to do this if you spill mounting medium.
 - The stickiness of the mounting medium can severely damage the tiny moving parts of your coverslipper. It is important to ensure that you clean up the mess before it has the time to cause any substantial damages.
 - Fortunately, xylene (not xylene substitute) has the power to break down the adhesiveness of the mounting medium. Wet a cotton tipped applicator with xylene and scrub the spillage area. You may need to use multiple cotton tipped applicators to complete the job.
 - Once all of the mounting medium is gone, wipe away all excess mounting medium and xylene from the machine leaving the affected surfaces clean.

2. Humidity: Immediately as Issues Present Themselves

- Humidity is the overlooked issue creator with coverslippers. Humidity will cause your coverslips to stick together. When the machine tries to pick up the coverslip, it will pick up 2 or 3 instead. This can cause unsuccessful coverslipping or even mechanical jams.
 - If you notice that your coverslips are sticking together, unfortunately there is nothing that can be done to save them. You need to throw them away and replace them with a new batch.

- If this issue is a common problem for you, the room that the coverslipper is in could be the root of the issue. In this case, the cover slipper would need to be either removed and placed in a different room, or a dehumidifier would need to be purchased and placed in the same room to reduce the humidity effects.

3. Gentleness: **Every Day**

- Coverslippers are the most sensitive of any machine in the entire histology laboratory. They make the smallest movements and the smallest offsets can cause substantial errors. It is very important to make sure your coverslipping methods are on point. It is always better to go slow and methodical rather than fast. Areas you should definitely pay closer attention to are:
 - Placing the baskets into the machine. (Both on the input side and output side)
 - Placing the full mounting medium bottles into the machine.
 - Placing the baskets into the bath. (CV5030 specific).
 - Removing completed baskets from the machine.

4. Overall Cleanliness: **Every Day**

- Just like every other machine in the histology laboratory, overall cleanliness absolutely matters! With all of the small moving parts, even small amounts of dust can cause errors! Moving a bit slower and more gently will greatly assist you in keeping the machine clean. A few key areas to keep clean are:
 - Slide grippers (If your coverslipper has them).
 - All slide baskets! Sometimes we see mounting medium buildup on the slide baskets. This causes the slides to not move smoothly in or out of the baskets as the machine attempts to pull slides out/ put slides in.
 - The coverslip storage area.
 - The dispensing nozzle and brush (if applicable).
 - Basket chutes.

Sakura Coverslippers Common Problems/ Repairs

Relative Models: 4764 SCA, 4740 Tape, 5200 G2

1. Slides Jamming at Output or Input Rack

- ANY coverslipper malfunction is scary. Coverslippers are very sensitive machines with very strong specifications that can cause a whole plethora of issues. Most of the issues you will see on your coverslipper require a trained technician, however, this is the one issue you may be able to remove yourself.
- Run a coverslip cycle and pay close attention to where exactly the slides are jamming with the input/output rack. This can help you understand if it is a consistent problem or not.
 - Aside from mechanical misalignment, the slide baskets themselves can be the root of this issue.
 - Visually inspect all slide baskets. Check the teeth along the bottom of the basket to ensure that none of them are worn down. Inspect that there are no cracks in the basket anywhere and that slide can easily move in and out of the basket.
 - If you notice any build-up around the edges of the basket where the slides are accessible, that can cause the issue and needs to be cleaned. That can be cleaned with xylene and a cotton tipped applicator.
 - These baskets are made with a relatively soft plastic that can wear down quickly. It is not uncommon to see coverslipper issues caused by the pesky slide baskets.

Leica Coverslippers Maintenance Items

Relative Models: CV5000, CV5030

1. Mounting Medium Spillage: **Immediately After Spillage**

- This maintenance item is specific to glass coverslippers. Tape coverslippers use xylene as the mounting medium, therefore if you spill the xylene, just wipe it up with a gauze pad or other similar absorbent. However, glass coverslippers use an actual glue-like mounting medium to seal the glass coverslip onto the slide. This maintenance item is reactive, not proactive, so you only have to do this if you spill mounting medium.
 - The stickiness of the mounting medium can severely damage the tiny moving parts of your coverslipper. It is important to ensure that you

clean up the mess before it has the time to cause any substantial damages.

- Fortunately, xylene (not xylene substitute) has the power to break down the adhesiveness of the mounting medium. Wet a cotton tipped applicator with xylene and scrub the spillage area. You may need to use multiple cotton tipped applicators to complete the job.
- Once all of the mounting medium is gone, wipe away all excess mounting medium and xylene from the machine leaving the affected surfaces clean.

2. Humidity: **Immediately as Issues Present Themselves**

- Humidity is the overlooked issue creator with coverslippers. Humidity will cause your coverslips to stick together. When the machine tries to pick up the coverslip, it will pick up 2 or 3 instead. This can cause unsuccessful coverslipping or even mechanical jams.
 - If you notice that your coverslips are sticking together, unfortunately there is nothing that can be done to save them. You need to throw them away and replace them with a new batch.
 - If this issue is a common problem for you, the room that the coverslipper is in could be the root of the issue. In this case, the cover slipper would need to be either removed and placed in a different room, or a dehumidifier would need to be purchased and placed in the same room to reduce the humidity effects.

3. Gentleness: **Every Day**

- Coverslippers are the most sensitive of any machine in the entire histology laboratory. They make the smallest movements and the smallest offsets can cause substantial errors. It is very important to make sure your coverslipping methods are on point. It is always better to go slow and methodical rather than fast. Areas you should definitely pay closer attention to are:
 - Placing the baskets into the machine. (Both on the input side and output side)
 - Placing the full mounting medium bottles into the machine.
 - Placing the baskets into the bath. (CV5030 specific)
 - Removing completed baskets from the machine.

4. Overall Cleanliness: **Every Day**

- Just like every other machine in the histology laboratory, overall cleanliness absolutely matters! With all of the small moving parts, even small amounts of

dust can cause errors! Moving a bit slower and more gently will greatly assist you in keeping the machine clean. A few key areas to keep clean are:

- Slide grippers (If your coverslipper has them).
- All slide baskets! Sometimes we see mounting medium buildup on the slide baskets. This causes the slides to not move smoothly in or out of the baskets as the machine attempts to pull slides out/ put slides in.
- The coverslip storage area.
- The dispensing nozzle and brush (if applicable).
- Basket chutes.

Leica Coverslippers Common Problems/ Repairs

Relative Models: CV5000, CV5030

1. Coverslips Sticking Together

- This is caused by either a humid environment causing the coverslips to slightly condensate and stick together, or by a cutting miscue from the manufacturer.
- The only real way to fix this is by simply throwing away the coverslips that are currently in your machine and replacing them with a new batch.

2. “Coverslips Low” Error When Coverslips are Present (CV5030 Specific)

- This is always caused by a mistake within the coverslip sensor, whether it be a failed sensor, a failed sensor board, or (hopefully) just the sensor being stuck. The stuck sensor is something the user should be able to carefully fix.
 - First, locate the sensor. Looking at the machine from the front with the cover opened, you should see an arm that sticks out, slightly off centered to the left side. This is the arm that picks up the coverslips. On the far left of the arm, there should be 2 very small red suction cups. These suction cups are what actually lift 1 individual coverslip from the pile without touching the others.
 - Directly in-between the suction cups, you should see a small, silver, cylindrical piece that has a tiny silver ball, that is only 1/2 visible, at the bottom. That ball is what triggers the sensor about coverslips being present. As the arm drops down to pick up the coverslip, the ball is gently pushed inwards, triggering a sensor that detects the coverslip. If this ball gets stuck either in the upward or downward position, you could get a faulty reading.

- To clean the sensor, very carefully use a small amount of xylene on the end of a cotton tipped applicator. Rub it around on the ball until the ball can move freely and without obstruction.
- To test operations, simply push the ball bearing upwards with your finger and feel it falling back down. Make sure it can move freely.
- If this does not fix the issue, then chances are that sensor may have gone bad. **Call for a service engineer to further diagnose.**

3. Slides Crashing Into Output Rack

- Slides crashing, breaking and falling is the exact opposite of proper operation of the coverslipper. Again, there are many adjustments that can be offset due to constant usage, but before that is looked into, first check the overall cleanliness of the slide output system.

- Run a coverslip cycle with blank slides and watch exactly where the slides are crashing/breaking during the output movement. If you notice the slides seem to be stuck on the transfer arm, there is a big chance that mounting medium has got onto the transfer platform or onto the output rack. By using xylene and a cotton tipped applicator, thoroughly clean the top of the transfer arm that is in contact with the slide. Also, thoroughly clean the output racks and any medium that could block the slides. The slides need to be able to move freely for proper usage.

4. Gripper Missing Slides on Pick Up Movement (CV5030 Specific)

- This is the last of the user fixable errors that can also be caused by an alignment miscue. Unfortunately, all alignments are supposed to be done with a very specific Leica software that only Leica trained engineers have access to, which is why that is required to be done by a service engineer. If this issue just started out of no where with no warning, chance are unlikely that it is a machine alignment issue, but actually a basket misalignment.

- Check the input rack and xylene bath. If the rack is not perfectly seated into the bottom of the bath, the tiny offset on the basket will not be detected by the machine. The machine will assume that the basket is perfectly placed and will try to grab a slide where the slide is not.
- Dispose of the xylene from the xylene bath. Wipe out the insides of the bath, refill bath with xylene and place back into machine.
- Replace the rack into the bath and make sure it is fully seated. Retry to verify proper operation. If the machine still wont pick up slides properly, call for a service engineer to further diagnose.

5. Pressure Error

- These machines rarely have pressure issues, and 9 out of 10 times, it is luckily a very simple user error. When the machine is on, the mounting medium bottle pressurizes, this is what creates the flow of medium once the dispensing valve initiates.
 - If there is a crack in the cap of the mounting medium bottle or if the mounting medium bottle was not screwed on and seated properly, this will cause the pressure to slowly leak out and you will get the pressure error.
 - Turn the machine off and SLOWLY unscrew the mounting medium bottle cap (As if you were unscrewing a soda that has been shaken up!) Sometimes if there is residual pressure in the bottle cap it will vent out immediately as you open the cap.
 - Visually inspect the cap for cracks or tears and reseal it. Make sure the cap is tight. Turn the machine back on and try again. If you still receive the error message, There may be an air leak in the lines connectors within the air system. Call for a service engineer to further diagnose.

Thermo Slidemate Maintenance Items

Relative Models: Old Style (Blue), New Style (Tan)

1. Glass Dust:

- As your printers print, slides get dropped and pulled and pushed. These motions cause super tiny cracks and chips in the sides of the slides that eventually accumulate into slide dust. This slide dust tends to build up around the slide storage area and along the railing assembly. It is very easy to clean, however you must be very careful when cleaning it.
 - Use a can of compressed air. (Available at any walmart, home depot, electronics store, or anything else of the sort.) Please, for your own sake, DO NOT USE FREEZE SPRAY. The freeze spray WILL cause damage to the printhead and then your printhead will not print correctly.
 - Most compressed air cans come with a precision straw for more accurate air spray. It is highly recommended to use this so that you only spray what is necessary.

- Be sure to get all of the dust and do your best to not spray the printhead.

Thermo Slidemate Common Problems/ Repairs

Relative Models: Old Style (Blue), New Style (Tan)

The newly made Thermo SlideMate tape causes a wide range of issues due to a thinner material that burns through more easily. The result of this thinner tape is a narrower burn setting for optimal print quality. Due to the difference in material between your regular slides and charged slides, the range is even narrower. You will have to adjust your darkness setting accordingly. Service settings are set optimally so ONLY the darkness setting has to be adjusted. That being said, you will have to find the right darkness setting for your printer for each type of slide and adjust as needed. The charged slides will most likely NOT have the best quality print. Any time you run into a problem the following list instructs you to decrease darkness, roll all the used tape completely onto the used tape reel. Slack in the tape will result in continued problems.

As a starting point, try a darkness of 30 for your regular slides and 60 for your charged slides. Here are the common issues you will see in regards to the new tape!

1. Printout too light (full slide OR partial):
 - Increase darkness (Note Below)
2. Printout blotchy/tape sticking on slide:
 - Issue is caused by slack in tape - partially burned through. Decrease darkness (Note Below)
3. Printout missing horizontal lines:
 - Issue is caused by slack in tape - partially burned through. Decrease darkness (Note Below)
4. Tape ripping causing jamming:
 - Decrease darkness (Note Below)

To adjust the darkness setting, press Setup. Scroll down until you see Printer Settings and select it. Scroll down to darkness and select it. Move the middle piece up and down to adjust. Once adjusted, press Select and exit back to main screen.

Leica/Sakura Printers Common Problems/ Repairs

Relative Models: IPS, IPC, AutoWrite

1. Jam at Input

- Jamming issues are the most common of issues that we see with the Leica and Sakura printers. Small bits of debris in the track of the slide or cassette can instantly call for a bad day in the lab.
 - If you notice your slides/cassettes are getting stuck in the input area of the machine, chances are there is debris in the cartridge racks.
 - Empty the cartridge racks and wipe clean. Verify there are no blockages and that cassettes/slides can move freely. Retest to verify proper operation.

2. Slides or Cassette Stuck in Chute

- Very similar to the above jam issue in the input area, slides/cassettes are also very commonly jammed up in chute. Usually this will happen due to debris or paraffin.
 - Just as you did with the input cartridge rack, remove all jams from the chute and verify there is nothing blocking it.
 - Wipe the chute clean or carefully blow out with an electronics duster air can.
 - As an added step, you can also wipe the machine with Paraguard. This will hopefully prevent debris from sticking to the chute in the future.
 - Retest the machine and verify proper operation.

3. Poor Quality Print

- Generally this error is caused by a malfunction with the ink or ink system. If the ink is expired or not used very often, or if the lines are not primed, you will always get a poor print quality. Printing should look crispy.
 - Access to the ink is on the left side of the machine, accessible from the outside. First check the date that the ink was last replaced. Leica only certifies their ink for 3 month periods and require replacements every 3 months. If your ink, used or not, is over 3 months old, it needs to be replaced.

- If the ink cartridge is less than 3 months old, but is just not used very often, chances are it may have just gotten slightly stuck. Remove the ink cartridge and gently swirl the ink. (DO NOT SHAKE THE INK).
- Reinsert the ink cartridge and hit the ERROR button on the front of the machine. The error button doubles as the priming button. If the ink is not primed in the machine, then the lines are not filled with ink. If the lines are not filled with ink, you will not have enough ink for a proper print. Once the machine is primed, it should work properly again. If it does come down to replacing the ink entirely, after installing the ink, hit the loaded button instead of the error button. The loaded button will also reset the ink usage timer inside the brain of the machine. Do not hit the loaded button if it is still an old ink cartridge. If this did not fix your issue, please call for a service engineer to further diagnose!



Expert Service, **Simplified.**

Section 2: Other Important Information

Listed below are the most helpful extra steps you can take to protect your laboratory equipment.

UPS Usage

Relative Models: ALL cryostats and tissue processors

1. Importance

- A UPS system, aka. Uninterruptible Power Supply, is a backup battery for your machine. In the same way that a surge protector protects electronic equipment from power surge damage, a UPS system will protect your cryostats and tissue processors. On top of just protecting your cryostats and tissue processors, a UPS system will actually keep your machines powered on for a short duration of time (ie. 10 minutes). This is important because if your laboratory is susceptible to common power outages and power surges, every time this happens, there is electronic damage caused to machines. Often this will even blow out electronic boards which then will need to be replaced. With the usage of the proper UPS system, all of these potential problems will disappear.

2. How it will benefit

- The benefit is pretty obvious. A UPS system is a sort of preventative item that will help your equipment not break, but also, work uninterrupted. Sometimes power surges happen at night. There have been many times where we have received calls from customers where the machine was on when they left the day before, a power surge happened over night, then when they go to use the machine in the morning for MOHS, its warm because the machine was shut off. On top of having to reschedule all of the MOHS patients for the day, you also may have electronic damage that will need to be inspected. A UPS system is much less expensive to purchase than replacing a main board in your machine. The other option is to have a back-up generator installed at your facility. While this is common for hospitals and other major institutions and universities, it is quite expensive for a specialty location to have installed. That's why we recommend the UPS system.

3. Where you can get the right one

- There are many different kinds of UPS systems that are all made to power different levels of equipment. It is important to purchase the right one because if you purchase one that is not rated to power a machine like a cryostat, it will be basically useless. Anything that draws heat or coldness requires a lot of power to operate. (ie. Cryostats that cool and the wax containers of a tissue processor). Most UPS systems are not made to handle that amount of power, so the right options for your are quite limited. **Contact us and we can help set you up with the most cost effective UPS systems on the market.**

Fume Hood Filter Replacement

Relative Models: Any Fume Hood or Grossing Station

1. Importance

- First off, filter replacement is not only important for health reasons, but it is also 100% required by all accrediting and inspection agencies. As fumes get sucked in through the filters, they will slowly use their ability to filter-out the harmful fumes. Standard replacement is once per year, however, this is not the case for every lab. Some fume hoods and grossing stations are used more than the average unit. Other ways to know if it is time to replace your filter are based on intense fume smells, eye watering, and headaches. If you begin to notice these feelings, it is time to replace the filter ASAP.

2. How to Order a Replacement Filter

- Paradise Biomedical can certify, clean, PM, and electrically check your fume hoods. We can also replace your filters. It is standard practice of ours to replace your fume hoods during your annual required hood certification and PM. However, if you want to handle filter replacement on your own, we also distribute filters directly to you for your own installation. All you need is to tell us either the filter size and type, or tell us the make/model/serial number of your machine and we can look it up for you. We will then send your filter directly to your facility.

3. Keeping Track of Filter Replacement

- It is easy to lose track of when you last replaced your fume filter. If we handle your hood certification, then we keep track of it for you. However, we also leave a filter replacement card on your fume hood for you to easily check when the last filter replacement was. If you replace your own filters, the next page has a filter replacement card for your convenience. Fill it out to the best of your ability or call us to help you out.

4. Important Note

- If you replace your own fume filters, please understand that this does not certify the filter for inspection purposes. In order to properly pass an inspection with the right certifications, the fume hood must be inspected by trained professionals. Give us a call for more information. Thank you!



For Replacement Filters, Please Call:
(833) 624-6633

Filter Replacement Information

Make/Model: _____
Serial Number: _____
Filter Size: _____
Filter Type: _____

Recommended Replacement: 1 Year Intervals

Replaced By	Date Replaced	Replacement Due

See Other Side



IMPORTANT:

THIS DOCUMENT SERVES AS A ROUGH GUIDE FOR FILTER INTERVAL REPLACEMENT BASED ON THE AVERAGE CUSTOMER USAGE. THE ACTUAL LIFE OF YOUR FILTER MAY VARY FROM THE RECOMMENDATION OF THIS FILTER CARD. THIS CARD SHOULD ONLY BE USED TO TRACK FILTER REPLACEMENT. THIS CARD SHOULD NOT BE USED AS YOUR GUIDE TO TRACK EQUIPMENT USAGE OR TO MONITOR THE BREAKTHROUGH OF CONTAMINATED PARTICLES.

PARADISE BIOMEDICAL ASSUMES NO RESPONSIBILITY FOR ACCURATE ASSESSMENT OF FILTER LIFE SINCE THIS VARIES DEPENDING ON TYPE AND VOLUME OF CONTAMINATES, HUMIDITY LEVELS AND STORAGE CONDITIONS.

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