

# 7 CLEANING AND MAINTENANCE PROCEDURES

## Cleaning Procedures

### Removing Process K-14 Developer Stains

**From clothing**—Standard household bleaches will remove most chemical stains. Select a bleach which is compatible with the material you are washing, and follow the manufacturer's directions.

**From the machine**—Do not use household bleach. Instead, use a mixture of alcohol, acetic acid, and water mixed in a ratio of 1/1/2. Be sure the room is well ventilated.

**From the floor around the machine**—Standard household bleaches will remove most chemical stains.

### Cleaning a Contaminated Replenisher Tank or Lines

If a solution was placed in an incorrect position or tank and it is in the replenisher lines, the tank and lines must be purged and cleaned. If this has occurred:

1. Disconnect the incorrect BIB or empty the plastic tank containing the incorrect solution.
2. If it is a tank, fill and empty the tank a minimum of three times. Use warm water.
3. Disconnect the appropriate replenisher line from the processor tank.
4. Fill the replenisher tank or a well rinsed BIB with warm water. Do not use a magenta developer or fixer BIB.
5. Using the manual operation button, pump the contents of the storage tank or BIB through the replenisher lines into a bucket or drain.
6. Restart the correct replenisher solution. See the initial start-up procedure on page 6-4.
7. Move the grey lever to "Run." Hold the manual operation button in until the line is filled with chemistry.
8. Connect the replenisher line to the correct tank.
9. If process control or product quality were affected, install fresh tank solution into the processor. Refer to "Contaminated Chemistry" on page 6-13.

## Controlling Biogrowth in the Wash Tanks

### Introduction

Biogrowth is common in film processor wash tanks. In Process K-14M, the wash following the fixer is most likely to develop biogrowth problems, but given the right combination of water supply and utilization levels, any of the wash tanks could be affected.

Biogrowth produces a slimy coating on the inside walls of the wash tanks. If the build-up becomes severe, material will begin to slough off the tank walls. This material may attach to the surface of the film as the film goes into the dryer. The material either dries on the film or creates dust in the dryer which creates numerous small specks of dirt on the processed film. Usually biogrowth at levels severe enough to slough off and attach to film, occurs near the end of the process and does not affect the sensitometry of the film.

Controlling biogrowth can require two different levels of cleaning:

1. Drain the wash tanks nightly. Drying kills much of the biogrowth. This may control the problem.
2. Treat the wash tanks with sodium hypochlorite solution. This may be necessary when draining the wash tanks nightly does not control the problem.



### Caution

**Never use sodium hypochlorite (household bleach) with photographic chemicals. Toxic fumes may result. Add sodium hypochlorite only to the wash tanks.**

Your lab may want to use a combination of these cleaning procedures. Drain the tanks nightly and add sodium hypochlorite on Fridays, at shutdown.

## Cleaning Wash Tanks Without Chemicals

**Note:** *The following procedure is a nightly procedure.*

1. While in Sleep Mode, open the drains for the affected wash tanks.
2. At the start of the next day, close the drain valves.



### Caution

**To prevent damage:**

- **Do not bring the processor to Standby Mode before filling the wash tanks. Not filling the tanks first can cause damage to the wash water recirculation pumps.**
  - **During the next step, be careful not to dilute the adjacent chemical solutions by splashing water as the hose is moved into position, or by filling the wash tanks too fast and exceeding the capacity of the overflow tube at the top. The wash tanks contain about 4 litres of water, and they have small diameter overflows.**
3. Fill the wash tanks.
  4. Proceed to the “Daily Start-up Procedure” on page 6-1.

## Cleaning the Wash Tanks with Chemicals

**Note:** *Use the following procedure if draining the wash tanks nightly does not control the biogrowth problem. Usually this level of cleaning is performed weekly at shutdown. Once control of the biogrowth is established, reduce the amount of sodium hypochlorite added to each tank to 25-50 mL.*

1. In Standby Mode, add 50 to 100 mL of sodium hypochlorite solution (such as *Clorox*) to each affected wash tank at shutdown.\*



### Caution

**Be sure that the sodium hypochlorite is added to the correct tanks and that the tanks are thoroughly washed prior to processing film. Never use sodium hypochlorite with photographic chemicals. Toxic fumes may result. Add sodium hypochlorite only to the wash tanks.**

**Sodium hypochlorite is an oxidizing agent that destroys developing agents (reducers) and the active ingredient in the conditioner.**

2. Allow the solution to recirculate for approximately two minutes.
3. Take the processor to Sleep Mode.
4. Before start-up, drain and flush the affected tanks twice.



### Caution

**To prevent damage:**

- **Do not bring the processor to Standby Mode before filling the wash tanks. Not filling the tanks first can cause damage to the wash water recirculation pumps.**
  - **During the next step, be careful not to dilute the adjacent chemical solutions by splashing water as the hose is moved into position, or by filling the wash tanks too fast and exceeding the capacity of the overflow tube at the top. The wash tanks contain about 4 litres of water, and they have small diameter overflows.**
5. Fill the wash tanks.
  6. Proceed to the “Weekend/Holiday Start-up Procedure” on page 6-3.

---

\* *Clorox* is a 5.25% solution of sodium hypochlorite in water. Other liquid bleaches sold for home laundry purposes are similar. Solutions sold for home swimming pool maintenance (such as *Sunny Sol*) contain 12.5% sodium hypochlorite. Cut the volume of solution added by half if using a concentrated product.

## Cleaning Rollers Other Than the Entrance Roller into the Buffer Box

The following applies to all rollers in the K-LAB Processor with the exception of the entrance roller into the buffer box.

### Wet Section

Use a small quantity of water from a squeeze bottle to clean the top rollers and drive shafts in the wet section. This is most effective at the end of a processing day while the rollers and shafts are wet from the processing.

### Dry Section

Use methanol or isopropanol to clean the center and final pacer rollers and all rollers in the splice chamber, the feed elevator and the dryer exit roller. Use a clean cloth to wipe the rollers when using the alcohol.

## Cleaning the Entrance Roller into the Buffer Box



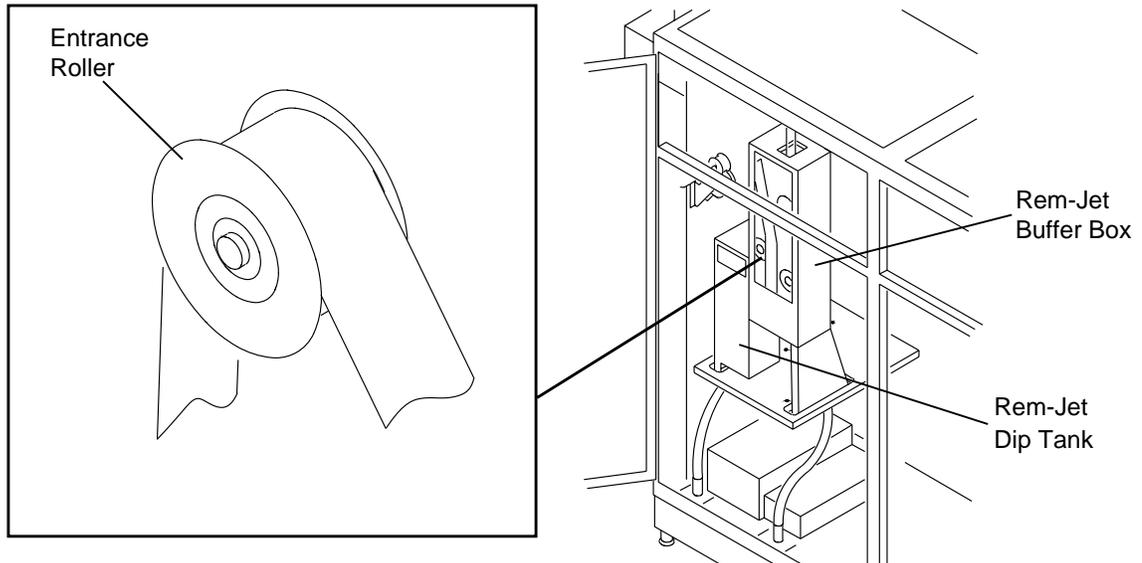
### Important

**Failure to clean the emulsion contact roller may cause physical quality problems, such as blue spots.**

The entrance roller into the buffer box becomes coated with residual Rem-Jet material and must be cleaned daily. It is easiest to clean the roller at shut-down when the deposits are soft.

To clean the entrance roller into the buffer box:

1. Place the processor in Sleep mode to turn off the water in the buffer box.
2. While spinning the roller, use a damp sponge to wipe it off.



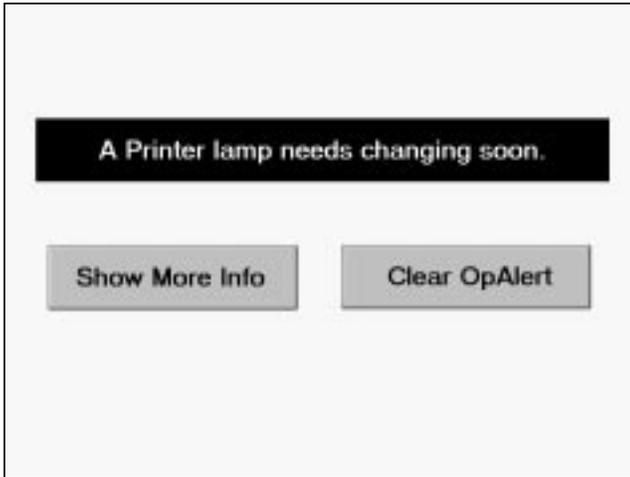
G128\_0442BCA  
G128\_0442BC

## Maintenance Procedures

### Maintenance Reminders

KPMS tracks the number of hours your processor is in Standby and Processing Modes. It uses this data to remind you when it is time to change your in-line filters, the solution recirculation filters, and the reexposure lamps. When KPMS determines it is time to change the filters or lamps, an Operator Alert message will appear.

At the same time, the appropriate lamp or filter box on the Processor Status screen becomes red.



These Operator Alert messages are displayed if the processor is in Sleep Mode, Standby Mode, or Processing Mode. If you are in Processing Mode, continue to process your customer's films. You can change the filters/lamps when you go to Sleep Mode at the end of the day.

## Checking the Reexposure Printers

### Measuring Lamp Intensity

The intensity of the light from both the red and blue reexposure printers must be measured on a daily basis. The values should be recorded on the mechanical data log sheet. If the intensities are incorrect, the intensity of the reexposure printer must be adjusted following the instructions below. If the printer intensity has been adjusted, verify that the new setting is correct before reassembling the printer.

When the printers are open for the intensity measurements, the colored filter glass and film path should be inspected and cleaned, if dirty. Use a damp sponge or paper towel. Do not use an abrasive cleaner. Streaky deposits may indicate the squeegee prior to the reexposure printer is not adjusted correctly and is allowing too much water into the reexposure chamber. Test the light lock rollers to ensure they are turning freely. If necessary, use a cotton swab dipped in final rinse concentrate to lubricate the sleeve bearings supporting the rollers.

### Changing the Setpoints for the Reexposure Printer Intensity

**Note:** *The System Password is required in order to change the intensity values.*

There are two different ways to calibrate the reexposure printers.

- Use the buttons on the printer housing
- Increase/decrease the values at the computer screen

The preferred approach is to calibrate the printers using the buttons on the printer housing while measuring the intensities of the light with your photometer.

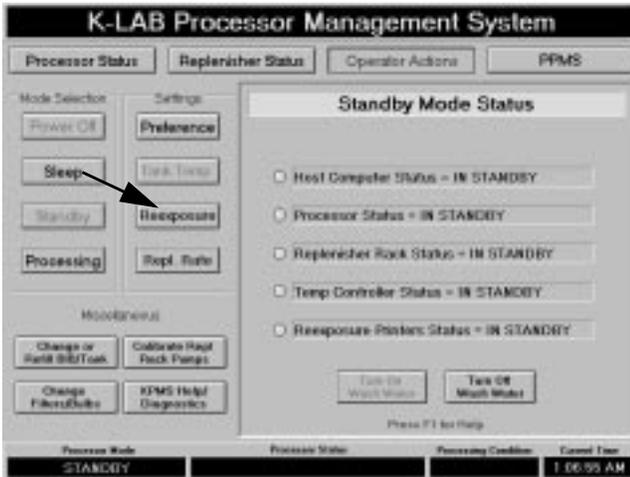
The other approach is to have someone raise/lower the values on the computer screen until the photometer displays the desired readings.

**Note:** *Because the intensity of the lamps will change with time, the photometer must be used to calibrate the printers.*

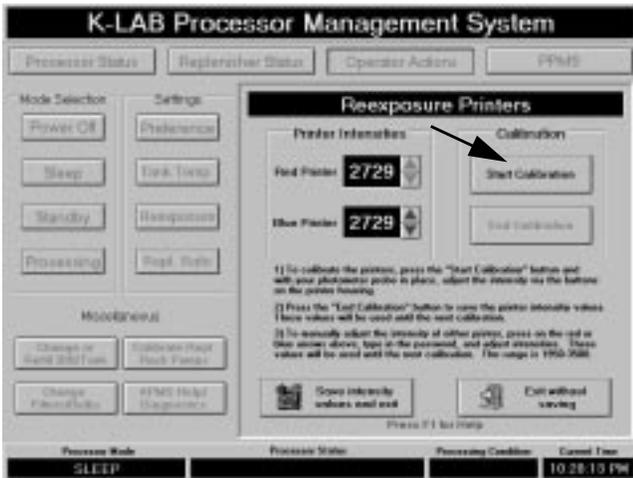
The printers must be calibrated every day as part of the daily start-up procedure. Your calibration is retained until the next calibration of the printers.

## Calibrating the Reexposure Printers with the Processor in Standby Mode

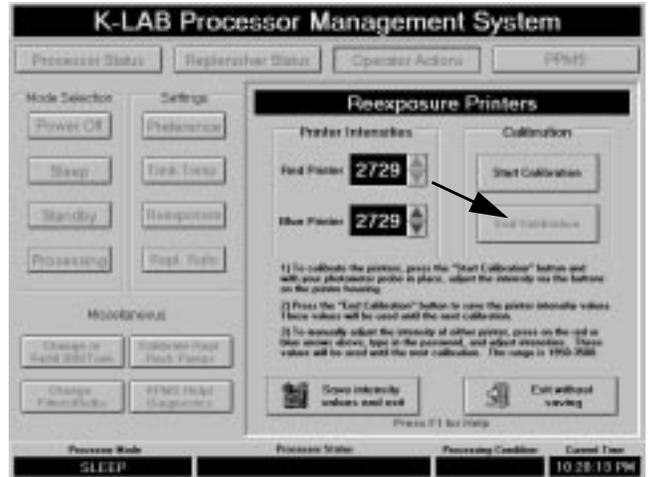
1. Place the processor in Standby Mode.
2. Select “Reexposure.”



3. Select “Start Calibration.”



4. Calibrate both printers.
  - a. Do the *Red Reexposure Printer Intensity Adjustment* on page 7-7.
  - b. Do the *Blue Reexposure Printer Intensity Adjustment* on page 7-8.
5. Return to the computer and select the “End Calibration” button.

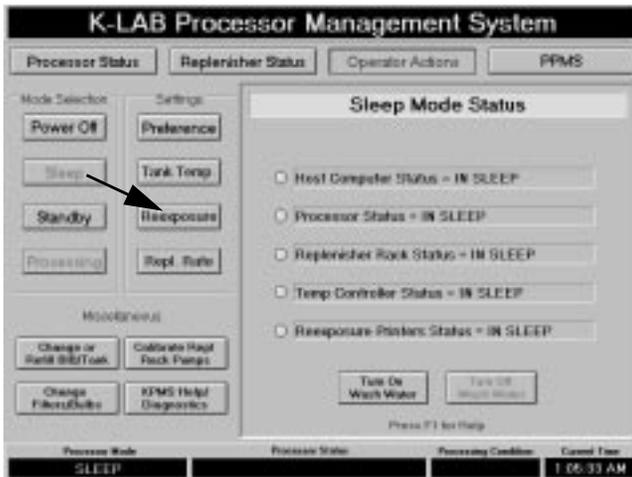


6. Select the “Save intensity values and exit” button.

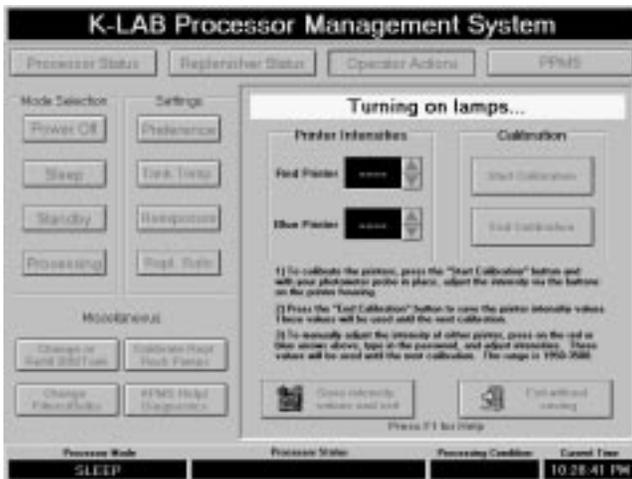
## Calibrating the Reexposure Printers with the Processor in Sleep Mode

The reexposure printers are off when the processor is in Sleep Mode. To calibrate the printers while in Sleep Mode:

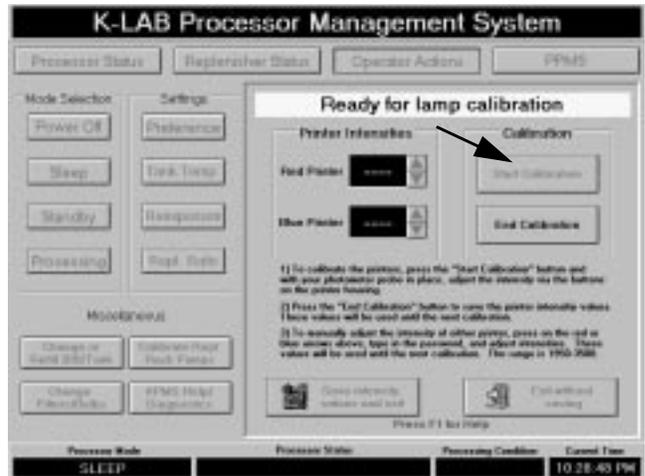
1. Select “Reexposure.”



2. KPMS will direct the reexposure printer controller to turn on the reexposure lamps. The following screen will appear:



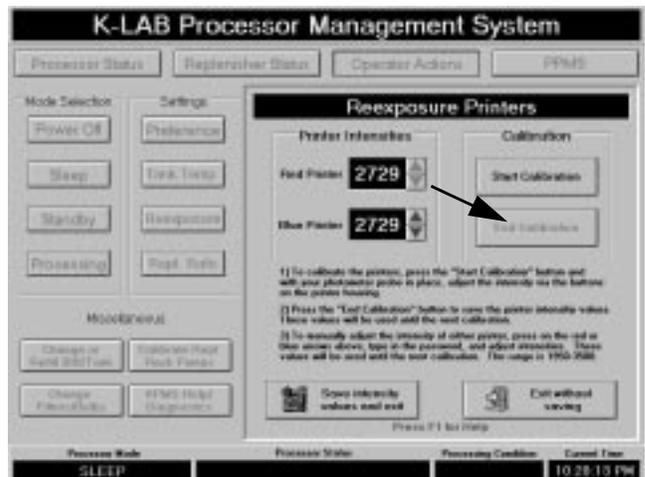
3. When the lamps are ready for calibration, select “Start Calibration.”



4. Calibrate both printers.

- a. Do the *Red Reexposure Printer Intensity Adjustment* on page 7-7.
- b. Do the *Blue Reexposure Printer Intensity Adjustment* on page 7-8.

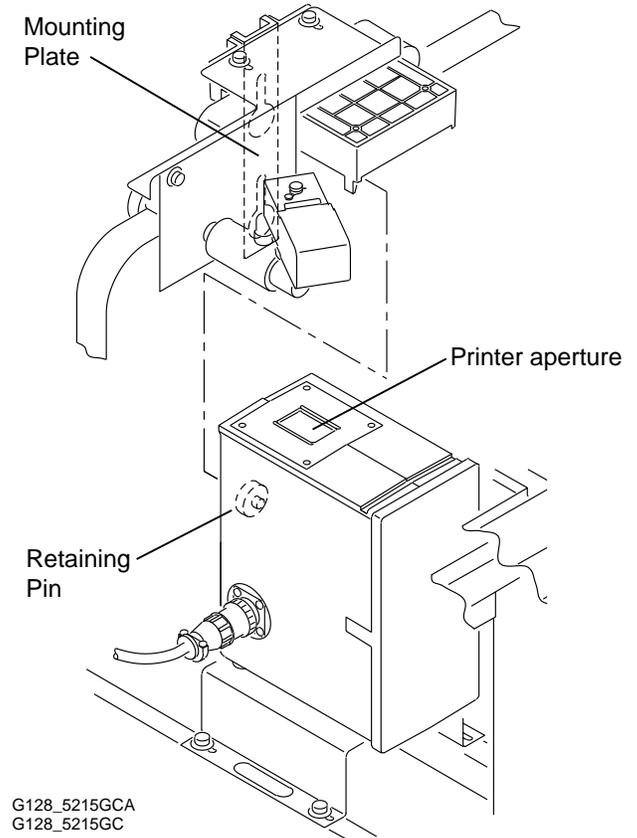
5. Return to the computer and select the “End Calibration” button.



6. Select the “Save intensity values and exit” button.

## Red Reexposure Printer Intensity Adjustment

1. Slide the cover vertically to align the retaining pins with the large openings.
2. Slide the cover towards the rear of the processor.
3. Turn on the printer probe unit.
4. Place the probe into the aperture of the printer and note the intensity displayed in foot-candles.
5. Compare the value to the standard value.
6. If the intensity is incorrect, adjust the intensity.
  - a. To use the buttons on the printer housing: place the photometer on the printer aperture and use the up/down buttons to get the desired digital reading.
  - b. To change the intensity value at the computer: have one person place the photometer on the printer aperture while another person does the following:
    - Select an up or down arrow
    - At the password pop-up screen, enter the System Password then select the “Enter password” button
    - Use the up or down arrow buttons to change the intensity value until you get the desired digital reading on the photometer
7. If the value is correct and the printer is clean, replace the cover.
8. Verify that the cover is seated correctly on the retaining pins.

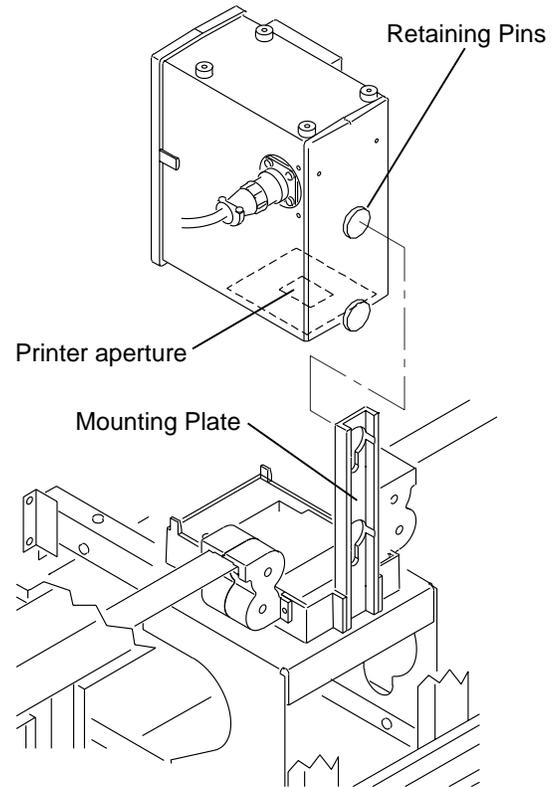


## Blue Reexposure Printer Intensity Adjustment

1. Slide the printer vertically to align the retaining pins with the large openings.
2. Remove the printer from the mounting plate.

**Note:** *The printer can be rotated onto its side or turned upside down while you check the cleanliness of the printer and measure the intensity of the light.*

3. Turn on the printer probe unit.
4. Place the probe into the aperture of the printer and note the intensity displayed in foot-candles.
5. Compare the value to the standard value.
6. If the intensity is incorrect, adjust the intensity.
  - a. To use the buttons on the printer housing, place the photometer on the printer aperture and use the up/down buttons to get the desired digital reading.
  - b. To change the intensity value at the computer, have one person place the photometer on the printer aperture while another person does the following:
    - Select an up or down arrow
    - At the password pop-up screen, enter the System Password then select the “Enter password” button
    - Use the up or down arrow buttons to change the intensity value until you get the desired digital reading on the photometer
7. When the intensity is correct and the printer is clean, rotate the printer and place it back into its mounting plate.
8. Verify that the printer is seated properly on the retaining pins.



G128\_5216GCA  
G128\_5216GC

## Changing the Lamps

The reexposure printer lamps are critical to the successful processing of your customer's films. The lamps must be replaced if they fail. The lamps should be replaced every 1000 hours. KPMS tracks the number of hours remaining on each bulb. To view the hours, select the "Change Filters/Bulbs" button on the Operator Actions screen, then select the "Reexposure Printer Bulbs" folder.

### Red Reexposure Printer

1. Place the processor in Sleep mode.
2. Unsnap the latches holding the lamphouse cover.
3. Push in on the metal extractor to slide out the bulb.
4. Discard the old bulb.
5. Verify that the optics are clean and shiny.
6. If the optics are dirty, use the regular method for cleaning the printer.



### Caution

**Use a soft, damp cloth, followed by a soft dry cloth to clean the optics. Do not use abrasive cleaners on the mirror polished metal integrator.**

**Do not touch the lamp portion of the bulb with your fingers. The oils from your fingers will cause the lamp to malfunction prematurely.**

7. Insert a new bulb and press it into place until it is seated.
8. Replace the lamphouse cover. Snap the latches back into the closed position.
9. Place the processor in Standby Mode.
10. Do the *Calibrating the Reexposure Printers with the Processor in Standby Mode* procedure on page 7-5.
11. Do the *Resetting the Timer* procedure on page 7-11.

### Blue Reexposure Printer

1. Place the processor in Sleep mode.
2. Remove the printer from its mounting plate.
3. Rotate the printer so the lamphouse cover is upright and place it in a stable location.
4. Unsnap the latches holding the lamphouse cover.
5. Push in on the metal extractor to slide out the bulb.
6. Discard the old bulb.
7. Verify that the optics are clean and shiny.
8. If the optics are dirty, use the regular method for cleaning the printer.



### Caution

**Use a soft, damp cloth, followed by a soft dry cloth to clean the optics. Do not use abrasive cleaners on the mirror polished metal integrator.**

**Do not touch the lamp portion of the bulb with your fingers. The oils from your fingers will cause the lamp to malfunction prematurely.**

9. Insert a new bulb and press it into place until it is seated.
10. Replace the lamphouse cover. Snap the latches back into the closed position.
11. Place the processor in Standby Mode.
12. Do the *Calibrating the Reexposure Printers with the Processor in Standby Mode* procedure on page 7-5.
13. Do the *Resetting the Timer* procedure on page 7-11.

## Replacing the Replenisher In-Line Filters

The replenisher in-line filters protect the poppet valves in the metering pumps from foreign material that may cause the pumps to deliver incorrect quantities of replenisher solution. These filters are used in all replenisher lines with the exception of the blend water and final rinse lines.

The in-line filters are scheduled for replacement once a month. If you encounter a low flow situation when calibrating a replenisher pump, consider replacing the in-line filter.



### Warning

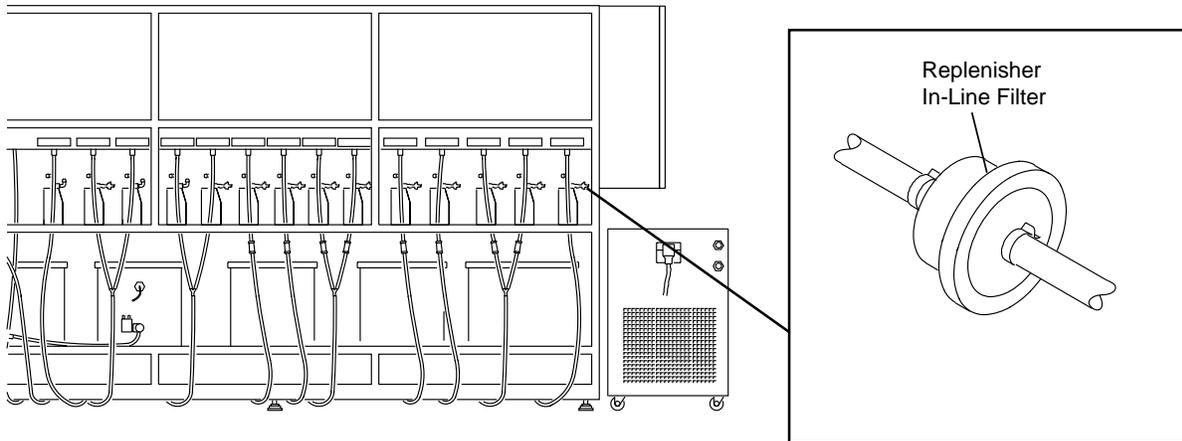
**Wear eye protection and gloves. When replacing the in-line filters you are at eye level and could be sprayed with solution when the tubes are removed.**

To replace an in-line filter:

1. Be sure the processor is in Sleep or Standby Mode.
2. Flip the appropriate Bag-In-Box (BIB) into an upright position.
3. Clip the tie wraps securing the tubes to the in-line filter.
4. Pull the filter from the tubes.
5. Inspect the filter and replace if necessary.

**Note:** *A used filter should be installed in its original orientation. There is no wrong way to install a new filter.*

6. Install new tie wraps.
7. Flip the BIB back into position.
8. Check for leaks.
9. Do the *Resetting the Timer* procedure on page 7-11.



G128\_5716BCA  
G128\_5716BC

## Replacing the Recirculation Filters

KPMS schedules a recirculation filter replacement every 28 days. If you find that this interval is too long (the filters are too dirty), you can replace the filters more frequently. When changing solution recirculation filters, retain as much of the solution as possible.



### Caution

Be sure that the processor is in Sleep Mode. Being in Sleep Mode ensures that the recirculation pumps are off. For routine filter changes, **DO NOT** drain solution from the filter housing (pot) prior to removing it from the machine. The housing has the capacity to contain the solution as long as it is in a near-vertical position.

Use the following procedure to change the recirculation filters:

1. Close the valves on both sides of the filter housing.
2. Unscrew the filter housing.
3. Remove the old filter from the housing. Hold the filter over the housing for a few seconds to allow the excess solution to drain back into the housing.
4. Insert a new filter into the housing.
5. Install the housing onto the machine.
6. Open the valves on both sides of the housing.
7. Do the *Resetting the Timer* procedure on page 7-11.

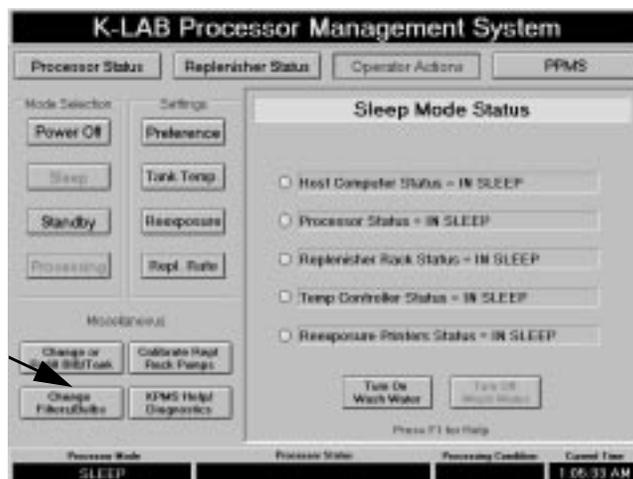
**Note:** The level of chemistry in the processor tank is slightly lower after a filter is changed. By following the procedure above, the solution loss will be less than 500 mL. The loss may be sufficient to cause the solution level sensor in the tank to send a “Low level” message to the computer, but is not a large enough loss to prevent the recirculation pumps from coming on. The solution level will return to normal during the next production run.

If the solution is not retained (or is spilled during the filter change), the solution level drops by as much as 2 litres. A loss of this magnitude causes aeration of the solution, and may prevent starting the recirculation pumps. If the loss occurred in the bleach or fix, you should prepare sufficient fresh tank solution to bring the tank level back to normal. See page 4-1. If the loss is in a developer solution, call Kodak for assistance.

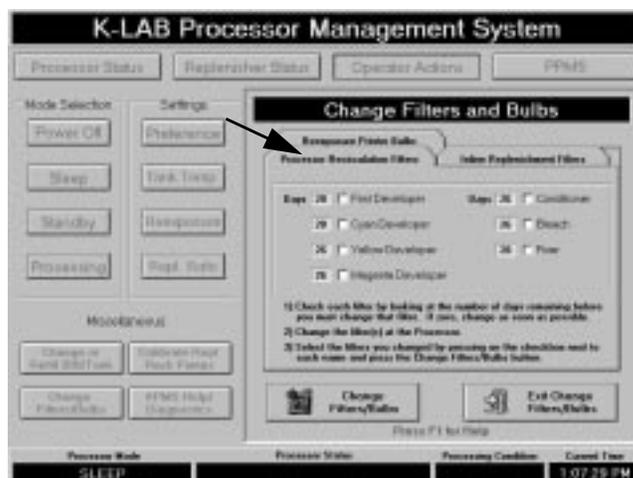
## Resetting the Timer

After you change the filters or lamps, you need to reset the timer.

1. Place the processor in Sleep Mode.
2. Change the appropriate filters or lamps.
3. Select the “Change Filters/Bulbs” button.



4. Select the appropriate folder



5. Indicate which filters or bulbs you have changed.
6. Select the “Change Filters/Bulbs” button. This resets the timer to 28 days.
7. Select the “Exit Change Filters/Bulbs” button.

## Film Transport System

### Checking the Shear Pins

The shear pins which hold the worm drive gear to the top drive shaft must be checked daily and after each occurrence of high tension in the processor.

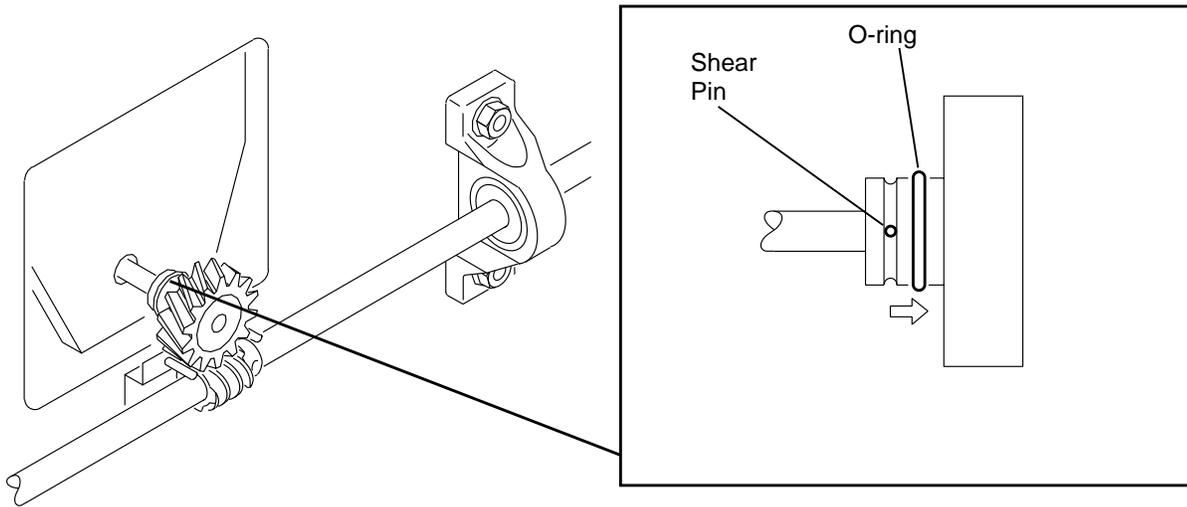
The shear pins protect the film transport from damage. If a shear pin is broken, the springs on the drive spools, the bottom spools, and the film tension should be checked to identify the source of the problem.

To check the shear pins:

1. Place the processor in Sleep Mode.
2. Attempt to turn the gray drive rollers in each tank assembly. If they turn freely, the shear pin is broken and must be replaced.

To replace the shear pin:

1. Slide the o-ring on the collar of the gear toward the gear.
2. Locate and remove all broken shear pin parts.
3. Slide the new shear pin through the gear and shaft.
4. Reposition the o-ring to secure the shear pin.
5. Check the springs on the drive spools, the bottom spools and the film tension.



G128\_4020BCA  
G128\_4020BC

### Checking the Drive Spool Springs

A broken plastic spring inside the top drive spools may be caused by high tension or normal wear. The springs should be visually checked weekly and following each occurrence of high tension. A broken drive spool spring causes film transport problems.

To check the drive spool springs:

1. Check that the drive spools do not touch the drive roller.
2. Check that the springs are not broken.
3. If there is any question, test the spools by removing the leader tension and checking for smooth movement and abnormal tipping.

To replace a drive spool spring:

1. Remove the top shaft.
2. Remove the collars and spools.
3. Replace the spring(s). The springs must be properly installed to be effective. Place the springs in the spool so that when the spool is rotated clockwise (the direction of film travel) the spring facing you closes or collapses toward the hub. The spring on the back side of the spool must operate in the same direction. To verify the orientation, look through the spool and check that the springs point in the same direction.
4. Place the spool on the shaft. Verify that the springs collapse when the spool is rotated in the direction of film travel. If not, turn the spool around and test it again.
5. Reassemble the collars and spools on the shaft.
6. Verify the positioning and alignment of the drive and crossover spools. Tighten the collars.

### Checking the Spacing Between the Drive Spools and Rollers

The plates that control the spacing between the drive spools and the drive roller may become loose and cause the drive spools to be in constant contact with the drive rollers. This causes film transport problems and may lead to broken shear pins or drive spool springs.

If a visual check of the drive spool springs shows a drive spool in contact with the drive roller, and the spring is not broken, check the spacing.

To check the spacing:

1. Remove the leader from the suspect tank.
2. Verify that the plates are secure.
3. Rotate the adjustment screw, on the side where the entrance drive spool is located, clockwise until the spool is just touching the drive roller.
4. Rotate the adjustment screw counterclockwise 1/2 rotation.
5. Rotate the adjustment screw, on the side where the exit drive spool is located, clockwise until the spool is just touching the drive roller.
6. Rotate the adjustment screw counterclockwise 1/4 rotation.

7. Verify that there is a space between both the entrance and exit drive spools and the drive roller.
8. Thread the tank and check for twists.
9. Recertify the processor before processing customer film.

### Troubleshooting Fluted or Crinkled Film

High film tension causes the edges of the film to become fluted or crinkled. If the situation is severe, the film or splices may break.

If you have encountered fluted or crinkled film, do not process additional customer films until the source of the problem is corrected.

Check for:

- broken shear pins
- broken drive spool springs
- rollers that do not turn freely (both top and bottom)
- foreign items that are interfering with the film transport mechanism
- squeegees that are not in the proper position
- squeegees that are too tight
- spools that are not properly aligned with the tubes
- crossover spools that are not aligned
- film bunching at the center drive roller

The source of the tension may not be in the processor. If the gap at the splice is too large, the edge of the film may catch. The same problem could occur if the ends of a leader splice are not trimmed correctly.

If the fluting is noted prior to the center drive assembly, the source of the tension could be between the splicing operation and the center drive. The source of the tension could be in the splicing chamber where the brake may not have released the film.

If the fluting is noted after the center drive and before the final drive and the take-off, it is caused by the center drive or a problem occurring after the center drive. If the high tension cannot be traced to an assignable cause in this part of the machine, do a maintenance procedure to check the relationship between the two drive units. If they are not balanced correctly, there may be too much or too little film between the two drive systems. Too much film causes low tension and may result in scratches or other physical defects. Too little film causes high tension as the final drive attempts to pull film that the center drive has not delivered.

After the source of the tension has been identified and eliminated, check for damage to the rem-jet roller assemblies, especially the top exit roller from the rinse. Excessive tension in the front part of the processor may cause the shaft supporting this roller to bend. If this occurs, bend the shaft back to its normal position.

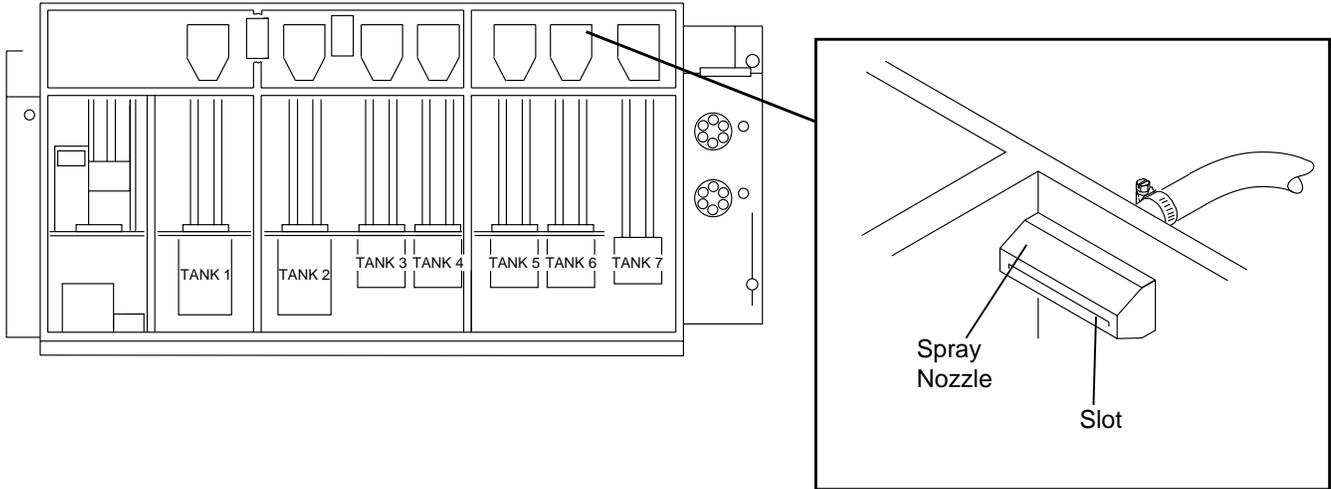
The processor should be recertified prior to processing additional customer film. If the leader was cut during the troubleshooting process, check for twists.

## Checking the Spray Washes

Each wash tank has a spray nozzle at the exit. The nozzle is the entry point for fresh water replenishment for that wash tank. The water should flow from the nozzle in an even, fan-like pattern. If the fan-like pattern is not present, the nozzle should be cleaned.

To clean the spray washes:

1. Run your finger along the slot.
2. If this does not correct the problem, use a soft brush to dislodge foreign material that may have caught in the nozzle orifice.



G128\_4308BCA  
G128\_4308BC

## Cleaning and Adjusting Squeegees

Remove the wiper blade and vacuum squeegee assemblies daily and clean them with warm water. Visually check the squeegees, then return them to their respective locations. It is generally recommended that this procedure be completed during the morning start-up activities. However, it is also acceptable to clean and reinstall the squeegees following shutdown; or they can be removed following shutdown, soaked overnight, and reinstalled during start-up.

It is normal to see a substantial build-up of cyan material on the final vacuum squeegee. If the build-up becomes hard, warm water may not completely remove it. If necessary, *Lysol Tub and Tile Cleaner* can be used to remove the stubborn stains. Be sure to rinse the assembly thoroughly before returning it to the processor.

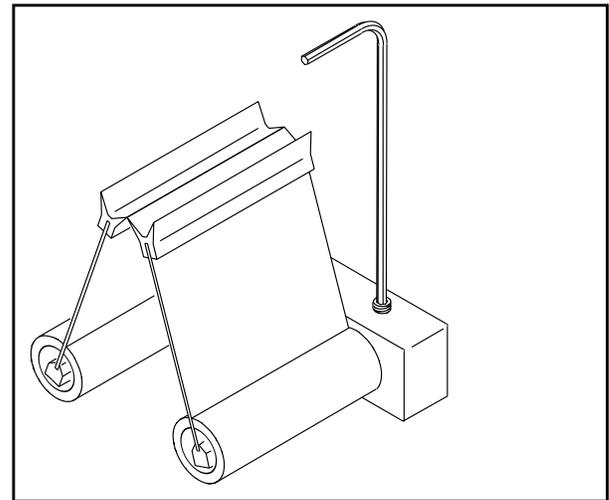
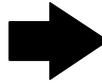
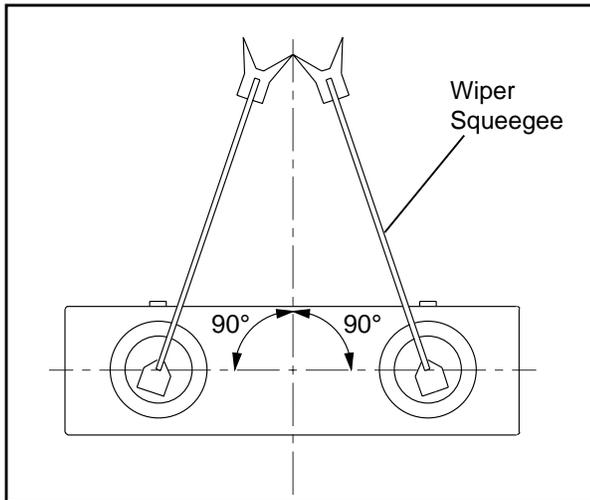
Replace the squeegee blades if they become worn or wavy. If streaks of solution are observed on the surface of the film during the morning start-up inspection, remove the squeegee assemblies and inspect them for cuts. If the blades

are good, check the tension and alignment to correct the problem.

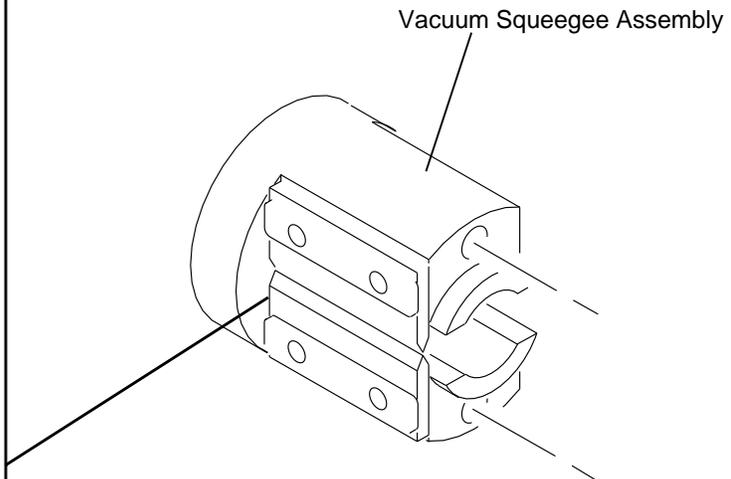
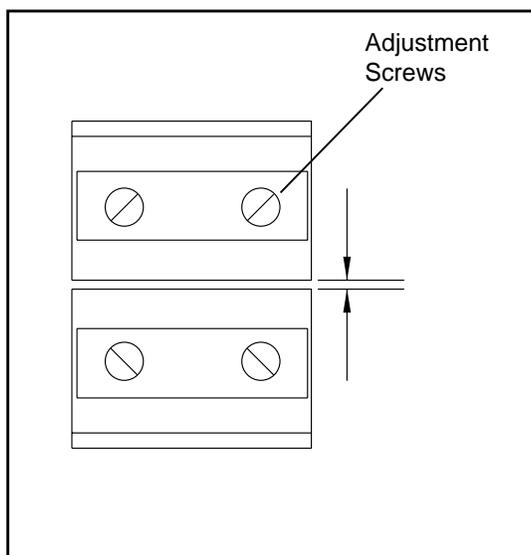
Adjust the wiper blade squeegees so that the film travels vertically between the barrels, with the blades just lightly touching when no leader of film is between them. See the illustration for a properly adjusted wiper blade squeegee assembly.

Use a shim to adjust the vacuum squeegees, such as Kodak's blue leader, which is 0.015-inches thick. Adjust the gap between the blades on the exit side of the squeegee to 0.015 - 0.020 inches. This measurement is slightly larger than one thickness of the blue leader. Adjust the gap on the inlet side of the squeegee to 0.030 inches. This measurement is approximately two thicknesses of the leader. Set the compressed air fed to the vacuum squeegee to 40 psi.

The squeegees should not be too tight or too loose. Over-tightening the squeegees will increase the film tension and may cause physical quality defects. Under-tightening the squeegees will lead to excess carryout/carryin of process solutions and may create a process control problem.



G128\_0015BCB  
G128\_0015BC



G128\_5214BCA  
G128\_5214BC

## Checking Solution Overflows

Visually check the solution and wash water levels in the processor daily. A level higher than normal may indicate a restricted or plugged overflow. In most cases, simply inserting a small brush dislodges the blockage and restores normal flow.

An air lock could occur causing the level of the solution or wash not to go down when the overflow is cleaned. There are two separate overflow systems in the processor. One serves the rem-jet remover through the cyan developer wash. The other serves the remainder of the process. Depending on its location, an air lock could affect more than one solution or wash.

If an air lock occurs:

1. Place the processor in Sleep Mode.
2. Massage the overflow tube to release the air.
3. Place the processor in Standby Mode.
4. Observe the levels of all solutions and washes.

## Checking for Static

Static occurs in two forms, tacky and branch.

Tacky static is usually related to high humidity. Films that have acclimated to a moist environment prior to entering the lab or are exposed to high humidity inside the lab, may exhibit tacky static. Environmental controls are the best way to deal with tacky static.

Branch static is usually related to low humidity. The source may be inside or outside the lab. The K-LAB Processor is equipped to deal with the discharges that cause branch static. Static eliminator brushes in the feed elevator and inside the processor prior to the rem-jet removal bath are intended to dissipate the electrical charges before they become strong enough to discharge and fog the film. The static eliminator brushes at the take-off end of the processor are intended to dissipate static which builds up in the dryer. The static eliminator brushes at the take-off end also dissipate static from leader which could discharge when the leader is reused.

If branch static is observed on your certification tests:

1. Check the position and grounding of the static brushes inside the feed elevator cabinet and in the processor prior to the rem-jet removal. The connections between the bar and the processor frame should be tight to ensure good grounding.
2. If branch static is observed only on the first one or two rolls in the certification test, the leader may be retaining a static charge. Check the alignment and grounding of the static eliminator brushes at the take-off end of the processor.

Dust on the certification tests may indicate a low-level static charge.

## Chiller Maintenance

The chiller supplied with the K-LAB is manufactured by NESLAB Instruments, Inc. Eastman Kodak does not provide service for the chiller during the warranty period or after the warranty period has expired. Service for the chiller should be obtained through NESLAB, its authorized service providers or through your own refrigeration provider. Refer to your NESLAB Instruction and Operation Manual for NESLAB's telephone numbers in North America and Europe.

The chiller requires periodic operator maintenance as specified in Section 5 of the NESLAB CFT Series Recirculating Chiller Instruction and Operation Manual provided with the chiller. The key items are:

- Keep the air filter clean.
- Periodically inspect the condenser cooling fins. Remove built up dust with a vacuum.
- Check the water level in the reservoir. Add water if the level is low.
- The recirculated water should be changed if it shows signs of contamination.
- The recirculated water should be replaced on a periodic basis. The NESLAB manual does not specify the interval which should be based on factors such as contamination and the possible presence of biogrowth. A change is recommended at least once a year when you perform your annual maintenance.

## Testing the Break Detectors

Break detectors are located at the exits from the rem-jet buffer box, first developer wash, cyan developer wash, yellow developer, magenta developer wash, bleach, and final rinse. Each break detector assembly consists of a spool with magnetic inserts in one flange and a sensor unit. When the processor is operating normally, the magnetic inserts pass the sensor on a regular frequency. If the frequency pattern is broken, the computer sounds an alarm indicating that there is a break downstream from the first detector that stopped turning.

Chemical corrosion or a misaligned sensor can cause a break alarm. Resetting the computer without eliminating the source of the problem disables the break detector. The computer does not recognize that break detector until it is operational and is again sending pulse data.



## Caution

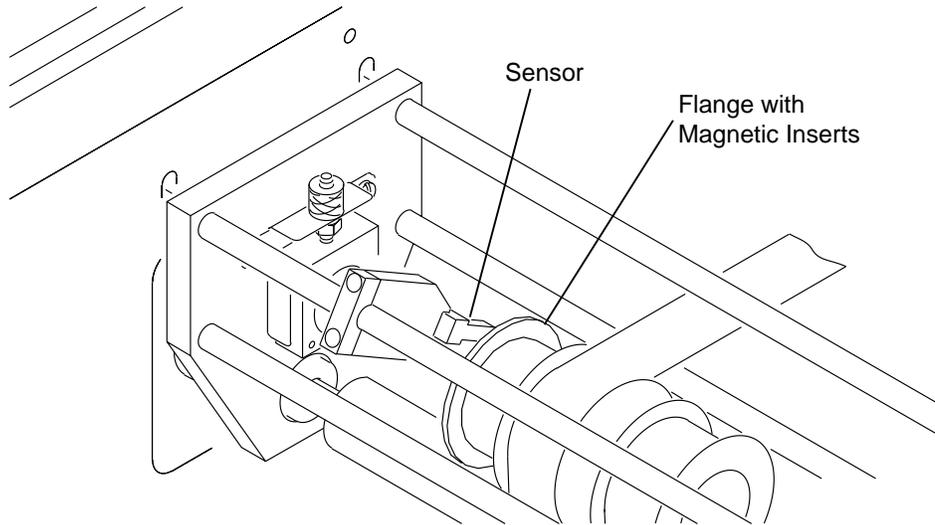
**Do not process customer film if a break detector is malfunctioning.**

The operation of the break detectors should be tested daily. Each break detector must be tested individually. To test the break detectors:

1. Place the processor in Processing Mode.
2. Starting at one end of the processor, rotate the sensor upward. Within 2 - 3 seconds, the pulse is broken and if the break detector is operating correctly, the computer sounds a break alarm.
3. Rotate the sensor back into position.
4. Reset the computer before testing the next break detector.
5. Repeat this procedure to test all seven detectors.

If you have an inoperative break detector:

1. Inspect and clean the break detector. This can be accomplished without removing it.
2. If this does not correct the problem, verify the sensor is properly aligned.
3. If the problem is still not corrected, call for service.



G128\_4019BCA  
G128\_4019BC

## Reexposure Printer Error Messages

There are three error messages related to the reexposure printers.

### Red Out of Range/Blue Out of Range

These messages indicate the setpoint of a printer is outside its optimum voltage range. Normally, these messages appear when you are calibrating the printers during the morning start-up.

If one of these messages appears, you should recalibrate that printer following the start-up procedure. If the error message persists, check the printer probe for damage and proper operation. Also look at the reexposure printer for obvious damage such as cracked glass.

Do not begin processing customer's film until the printer is operating within the acceptable range.

### Red Warning/Blue Warning

These messages indicate a printer lamp is not drawing a constant voltage from the printer controller. This lamp is unstable and will fail in the near future. When you see this message, you may continue processing if there is a magazine of film on the processor. When you reach the end of the magazine, splice on leader. Once you have cleared the machine of film, go to Sleep Mode and change the lamp following the procedure on page 7-9.

1. Calibrate the new lamp.
2. Process a control strip and a set of certification tests.
3. Once you are sure the process is in control and you have checked the physical quality, you may resume processing customer's film.

If the message appears when you are in Standby Mode, change the lamp and calibrate the new lamp. Process a control strip and a set of certification tests before processing customer's film.

### Red Failure/Blue Failure

These messages indicate the lamp in the red or blue reexposure printer has failed. If this happens:

1. Call for the secondary operator.
2. Turn off the room lights and the computer monitor, and put on the IR goggles.
3. Open the top covers of the processor.
4. Determine where the customer film is in relation to the failed printer.

## Responses to Reexposure Printer Failures

### If there is customer film prior to, but not yet in the failed printer

#### If the Red Reexposure Printer Failed

1. If customer's film is still feeding into the processor, reach down and locate and cut the first splice prior to the rem-jet dip tank. This will prevent additional customer's films from becoming wet. Splice blue leader to the trailing end of the film.
2. Cut the leader at the exit from the first developer wash.
3. Begin pulling the film through the rem-jet, first developer and first developer wash.
4. Place the film in the first trouble bucket. If there is film in the tail end of the machine, proceed to step 5. If there is no film in the machine, proceed to step 6.
5. Once you have cleared the machine of film prior to the failed printer, splice blue leader from an overhead reel to the trailing end of the film that has continued to move through the processor by:
  - lifting the film at a crossover between tanks
  - making the splice
  - guiding the film back into position
6. Wash and dry your hands.
7. At the feed end of the machine, splice blue leader to the lead end of the film exiting the feed elevator.
8. Disable the anti-backup roller at the exit of the feed elevator cabinet.
9. Open the cover of the feed magazine.
10. Rewind the film that is in the splice chamber and feed elevator back onto the feed reel. Wind in 3-4 feet of leader.
11. Cut the leader in the splice chamber.
12. Close the cover on the feed magazine. Remove and set the magazine aside.
13. Enable the anti-backup roller.
14. Verify that all customer film is safe. Check that the:
  - film is stripped from the dark portion of the processor
  - cover is securely on the feed magazine
  - cover is tightly on the trouble bucket
15. Turn on the lights and the computer monitor.
16. Go to Sleep Mode.
17. Change the lamp following the procedure on page 7-9.
18. Calibrate the new lamp using the *Calibrating the Reexposure Printers with the Processor in Standby Mode* procedure on page 7-5.
19. Using leader from an internal or overhead reel, thread the machine through the red reexposure printer to where the leader feeds into the machine from the overhead reel. Do not thread from the feed elevator to the cut point.



## Important

The secondary operator should be available to assist in getting the film from the trouble bucket back into the machine.

20. Go to Process Mode.
21. Turn off the room lights and the computer monitor, and put on the IR goggles.
22. Stop the processor by pressing one of the red buttons inside the processor.
23. Follow these steps to return film from the trouble bucket to the processor:
  - a. Open the trouble bucket and splice the film to the leader at the entrance to the red reexposure printer. Start the processor by pressing one of the green buttons inside the processor. Guide the film into the processor.
  - b. Splice emergency leader to the tail end of the film and allow the film to pass through the magenta developer.
  - c. Verify there is no film remaining in the trouble buckets.
  - d. Once the trailing end of the film has entered the magenta developer wash, remove the IR goggles and turn on the room lights.
  - e. Finish processing the film and then stop the processor. Cut the emergency leader and splice the end of the threading leader coming out of the first developer wash to the end of the leader in the machine.
  - f. Verify the leader between the feed elevator and rem-jet dip tank is spliced and that there is a leader reel on the feed stand.
  - g. Visually check the processor.
  - h. Close the covers on the processor.
  - i. Process a control strip and a set of certification tests.
  - j. Once you are sure the process is in control and you have checked the physical quality, you may resume processing customers' films.
  - k. Empty and clean the trouble bucket. Fill it with fresh water.

## If the Blue Reexposure Printer Failed

1. If customer's film is still feeding into the processor, reach down and locate and cut the first splice prior to the rem-jet dip tank. This will prevent additional customer's films from becoming wet. Splice blue leader to the trailing end of the film.
2. Cut the leader after the center pacer and prior to the yellow developer. Allow the center pacer to pull the film through the rem-jet, first developer, first developer wash, red reexposure printer, cyan developer, cyan developer wash, and the blue reexposure printer.
3. Place the film in the second trouble bucket. If there is film in the tail end of the machine, proceed to step 4. If there is no film in the machine, proceed to step 5.
4. Once you have cleared the machine of film prior to the failed printer, splice blue leader from an overhead reel to the trailing end of the film that has continued to move through the processor by:
  - lifting the film at a crossover between tanks
  - making the splice
  - guiding the film back into position
5. Wash and dry your hands.
6. At the feed end of the machine, splice blue leader to the lead end of the film exiting the feed elevator.
7. Disable the anti-backup roller at the exit of the feed elevator cabinet.
8. Open the cover of the feed magazine.
9. Rewind the film that is in the splice chamber and feed elevator back onto the feed reel. Wind in 3-4 feet of leader.
10. Cut the leader in the splice chamber.
11. Close the cover on the feed magazine. Remove and set the magazine aside.
12. Enable the anti-backup roller.
13. Verify that all customer film is safe. Check that the:
  - film is stripped from the dark portion of the processor
  - cover is securely on the feed magazine
  - cover is tightly on the trouble bucket
14. Turn on the lights and the computer monitor.
15. Go to Sleep Mode.
16. Change the lamp following the procedure on page 7-9.
17. Calibrate the new lamp using the *Calibrating the Reexposure Printers with the Processor in Standby Mode* procedure on page 7-5.
18. Using leader from an internal or overhead reel, thread the machine through the blue reexposure printer to where the leader feeds into the machine from the overhead reel. Do not thread from the feed elevator to the cut point.



## Important

The secondary operator should be available to assist in getting the film from the trouble bucket back into the machine.

19. Go to Process Mode.
20. Turn off the room lights and the computer monitor, and put on the IR goggles.
21. Stop the processor by pressing one of the red buttons inside the processor.
22. Follow these steps to return film from the trouble bucket to the processor:
  - a. Open the second trouble bucket and splice the film to the leader at the entrance to the blue reexposure printer. Start the processor by pressing one of the green buttons inside the processor, and guide the film into the processor.
  - b. Splice emergency leader to the tail end of the film and allow the film to pass through the magenta developer.
  - c. Verify there is no film remaining in the trouble bucket.
  - d. Once the trailing end of the film has entered the magenta developer wash, remove the IR goggles and turn on the room lights.
  - e. Finish processing the film and then stop the processor. Cut the emergency leader and splice the end of the threading leader coming out of the cyan developer wash to the end of the leader in the machine.
  - f. Verify the leader between the feed elevator and rem-jet dip tank is spliced and that there is a leader reel on the feed stand.
  - g. Visually check the processor.
  - h. Close the covers on the processor.
  - i. Process a control strip and a set of certification tests.
  - j. Once you are sure the process is in control and you have checked the physical quality, you may resume processing customer's films.
  - k. Empty and clean the trouble bucket. Fill it with fresh water.

## If there is customer film in the failed printer If the Red Reexposure Printer Failed

1. If customer's film is still feeding into the processor, reach down and locate and cut the first splice prior to the rem-jet dip tank. This will prevent additional customer's films from becoming wet. Splice blue leader to the trailing end of the film.
2. Locate and cut the film after the red reexposure printer and prior to the cyan developer. Pull the partial roll back through the printer. The film will be returned to the processor prior to the red printer, so that all frames are exposed in the printer.
3. Begin pulling the film through the rem-jet, first developer and first developer wash.
4. Place the film in the first trouble bucket.
5. Once you have cleared the machine of film prior to the failed printer, splice blue leader from an overhead reel to the trailing end of the film that has continued to move through the processor by:
  - lifting the film at a crossover between tanks
  - making the splice
  - guiding the film back into position
6. If the secondary operator has pulled all of the customer's film from the processor, you may stop the processor to tie leader to the trailing end of film once the trail end has reached the crossover between the yellow wash and the magenta developer.

**Note:** To stop the processor use any of the red buttons inside the machine. To start the machine again, use one of the green buttons.
7. Wash and dry your hands.
8. At the feed end of the machine, splice blue leader to the lead end of the film exiting the feed elevator.
9. Disable the anti-backup roller at the exit of the feed elevator cabinet.
10. Open the cover of the feed magazine.
11. Rewind the film that is in the splice chamber and feed elevator back onto the feed reel. Wind in 3-4 feet of leader.
12. Cut the leader in the splice chamber.
13. Close the cover on the feed magazine. Remove and set the magazine aside.
14. Enable the anti-backup roller.
15. Verify that all customer film is safe. Check that the:
  - film is stripped from the dark portion of the processor
  - cover is securely on the feed magazine
  - cover is tightly on the trouble bucket
16. Turn on the lights and the computer monitor.

17. Using leader from an internal or overhead reel, thread the machine through the red reexposure printer to where the leader feeds into the machine from the overhead reel. Do not thread from the feed elevator to the cut point.
18. Cut the leader coming off the overhead reel and splice the leader you have just threaded to it. Guide the leader into the processor.
19. Check for twists as the leader moves through the processor.
20. Go to Sleep Mode.
21. Change the lamp following the procedure on page 7-9.
22. Calibrate the new lamp using the *Calibrating the Reexposure Printers with the Processor in Standby Mode* procedure on page 7-5.



### Important

**The secondary operator should be available to assist in getting the film from the trouble bucket back into the machine.**

23. Go to Process Mode.
24. Turn off the room lights and the computer monitor, and put on the IR goggles.
25. Stop the processor by pressing one of the red buttons inside the processor.
26. Follow these steps to return film from the trouble bucket to the processor:
  - a. Open the first trouble bucket and splice the film to the leader at the entrance to the red reexposure printer. Start the processor by pressing one of the green buttons inside the processor. Guide the film into the processor.
  - b. Splice emergency leader to the tail end of the film and allow the film to pass through the magenta developer.
  - c. Verify there is no film remaining in the trouble bucket.
  - d. Once the trailing end of the film has entered the magenta developer wash, remove the IR goggles and turn on the room lights.
  - e. Finish processing the film and then stop the processor. Cut the emergency leader and splice the end of the threading leader coming out of the first developer wash to the end of the leader in the machine.
  - f. Verify the leader between the feed elevator and rem-jet dip tank is spliced and that there is a leader reel on the feed stand.
  - g. Visually check the processor.
  - h. Close the covers on the processor.
  - i. Process a control strip and a set of certification tests.

- j. Once you are sure the process is in control and you have checked the physical quality, you may resume processing customer's films.
- k. Empty and clean the trouble bucket. Fill it with fresh water.

### If the Blue Reexposure Printer Failed

1. If customer's film is still feeding into the processor, reach down and locate and cut the first splice prior to the rem-jet dip tank. This will prevent additional customer's films from becoming wet. Splice blue leader to the trailing end of the film.
2. Cut the film after the center pacer and prior to the yellow developer. Allow the center pacer to pull the film through the rem-jet, first developer, first developer wash, red reexposure printer, cyan developer, cyan developer wash, and the blue reexposure printer. The film will be returned to the processor prior to the blue printer, so that all frames are exposed in the printer.
3. Place the film in the second trouble bucket.
4. Once you have cleared the machine of film prior to the failed printer, splice blue leader from an overhead reel to the trailing end of the film that has continued to move through the processor by:
  - lifting the film at a crossover between tanks
  - making the splice
  - guiding the film back into position
5. If the secondary operator has pulled all of the customer's film from the processor, you may stop the processor to tie leader to the trailing end of film once the trail end has reached the crossover between the yellow wash and the magenta developer.

**Note:** To stop the processor use any of the red buttons inside the machine. To start the machine again, use one of the green buttons.

6. Wash and dry your hands.
7. At the feed end of the machine, splice blue leader to the lead end of the film exiting the feed elevator.
8. Disable the anti-backup roller at the exit of the feed elevator cabinet.
9. Open the cover of the feed magazine.
10. Rewind the film that is in the splice chamber and feed elevator back onto the feed reel. Wind in 3-4 feet of leader.
11. Cut the leader in the splice chamber.
12. Close the cover on the feed magazine. Remove and set the magazine aside.
13. Enable the anti-backup roller.

14. Verify that all customer film is safe. Check that the:
  - film is stripped from the dark portion of the processor
  - cover is securely on the feed magazine
  - cover is tightly on the trouble bucket
15. Turn on the lights and the computer monitor.
16. Using leader from an internal or overhead reel, thread the machine through the blue reexposure printer to where the leader feeds into the machine from the overhead reel. Do not thread from the feed elevator to the cut point.
17. Cut the leader coming off the overhead reel and splice the leader you have just threaded to it. Guide the leader into the processor.
18. Check for twists as the leader moves through the processor.
19. Go to Sleep Mode.
20. Change the lamp following the procedure on page 7-9.
21. Calibrate the new lamp using the *Calibrating the Reexposure Printers with the Processor in Standby Mode* procedure on page 7-5.
- f. Verify the leader between the feed elevator and rem-jet dip tank is spliced and that there is a leader reel on the feed stand.
- g. Visually check the processor.
- h. Close the covers on the processor.
- i. Process a control strip and a set of certification tests.
- j. Once you are sure the process is in control and you have checked the physical quality, you may resume processing customer's films.
- k. Empty and clean the trouble bucket. Fill it with fresh water.



### Important

**The secondary operator should be available to assist in getting the film from the trouble bucket back into the machine.**

22. Go to Process Mode.
23. Turn off the room lights and the computer monitor, and put on the IR goggles.
24. Stop the processor by pressing one of the red buttons inside the processor.
25. Follow these steps to return film from the trouble bucket to the processor:
  - a. Open the second trouble bucket and splice the film to the leader at the entrance to the blue reexposure printer. Start the processor by pressing one of the green buttons inside the processor, and guide the film into the processor.
  - b. Splice emergency leader to the tail end of the film and allow the film to pass through the magenta developer.
  - c. Verify there is no film remaining in the trouble bucket.
  - d. Once the trailing end of the film has entered the magenta developer wash, remove the IR goggles and turn on the room lights.
  - e. Finish processing the film and then stop the processor. Cut the emergency leader and splice the end of the threading leader coming out of the cyan developer wash to the end of the leader in the machine.