

## Section 7: Preventive Maintenance

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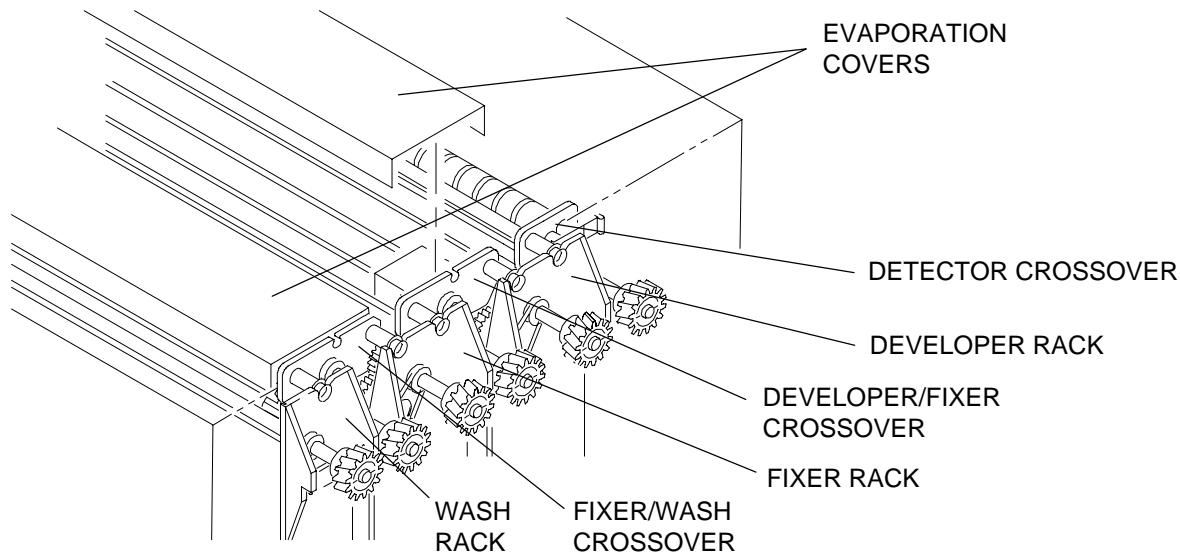
#### Important

Reliable operation of the PROCESSOR requires that all parts are cleaned, adjusted, and lubricated correctly. More frequent maintenance may be necessary because of site characteristics or actual usage. The following guidelines are for PROCESSORS installed according to the Site Specifications.

## Weekly Preventive Maintenance

- [1] Move the main wall CIRCUIT BREAKER to "OFF" and CIRCUIT BREAKER CB1 on the PROCESSOR to the "O" position.
- [2] Lift the TOP COVER.
- [3] Remove the WET SECTION COVER, the EVAPORATION COVERS, all CROSSOVERS, and the WASH RACK.
- [4] Rinse the 3 CROSSOVERS and the WASH RACK with warm water, 44°C (110°F) or less. Wipe the ROLLERS and the GUIDE SHOES with a damp, soft, synthetic sponge.
- [5] Allow the DETECTOR CROSSOVER to air dry before you install it in the PROCESSOR.
- [6] Check that all ROLLERS on all CROSSOVERS and on the WASH RACK rotate freely. Check the squareness of the CROSSOVERS and the WASH RACK. See Pages [2-2](#) and [2-3](#).
- [7] Check that the CROSSOVER TROUGHS are not broken and do not have cracks.
- [8] Install the WASH RACK, the CROSSOVERS, the EVAPORATION COVERS, and the WET SECTION COVER. Check that each assembly seats firmly.
- [9] Wipe any chemical deposits from the processing section of the PROCESSOR.
- [10] Energize the PROCESSOR and check for correct operation.
- [11] Process a test film and check the transport assemblies.

Figure 7-1 Removing the RACKS and CROSSOVERS



H104\_0072BCE  
H104\_0072BA

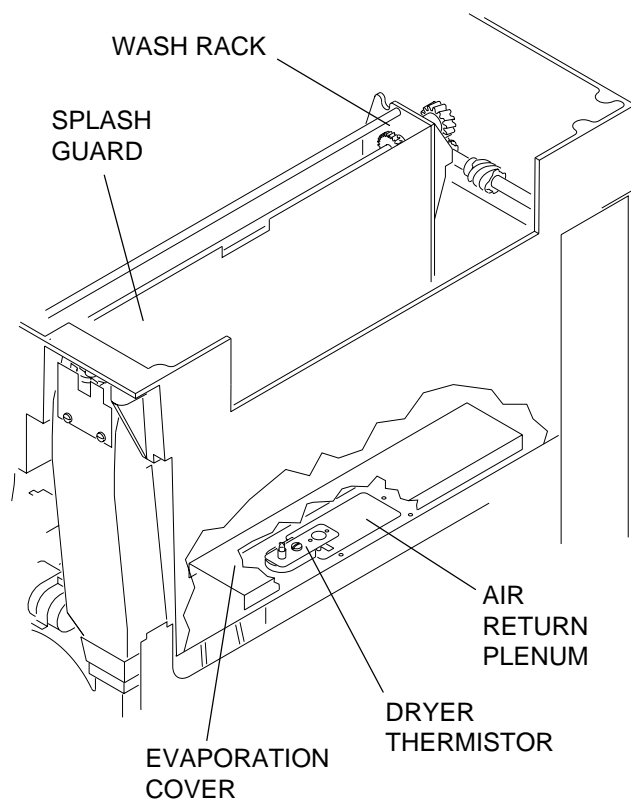
## Monthly Preventive Maintenance

- [1] Move the main wall CIRCUIT BREAKER to "OFF" and CIRCUIT BREAKER CB1 on the PROCESSOR to the "0" position.
- [2] Lift the TOP COVER.
- [3] Remove:
  - (a) WET SECTION COVER
  - (b) EVAPORATION COVERS
  - (c) all CROSSOVERS
  - (d) EXIT RACK
  - (e) DRYER RACK

### Note

If the PROCESSOR is a 180 LPS or a 180 LP with Mod 4 or Mod 7 installed, advance to Step 6 on Page 7-5.

Figure 7-2 **Protecting the ELECTRICAL BOX While Checking the SPRAY BARS**



H104\_0461GCA  
H104\_0461GA

- [4] Check that the holes in the 2 SPRAY BARS are clean and open.
  - (a) To protect the ELECTRICAL BOX from water, place an EVAPORATION COVER over the DRYER THERMISTOR and the AIR RETURN PLENUM. See Figure 7-2.
  - (b) Remove the SPLASH GUARD from the WASH RACK.
  - (c) Energize the PROCESSOR.
  - (d) Using the diagnostics procedures on the PORTABLE COMPUTER, select:
    - **Specific Test Mode**
    - **Processor Component Test**
  - (e) Change "Wash Input Water Solenoid" to **On**.
  - (f) Observe whether water comes through all the holes in the SPRAY BAR that is next to the DRYER RACK.
  - (g) Lift the WASH RACK a small distance and check that water comes through all the holes in the other SPRAY BAR.
  - (h) Immediately change "Wash Input Water Solenoid" to **Off**.
  - (i) If necessary, clean the SPRAY BARS by doing Step 5 on Page 7-4. If all holes in the SPRAY BARS are open, advance to Step 6 on Page 7-5.

## [5] Clean the SPRAY BARS in the WASH RACK.

(a) Stop the flow of water to the PROCESSOR. (Turn off the water.)

(b) Remove:

- WASH RACK from the PROCESSOR
- YOKE HOSE from the STANDOFF CLIP
- 2 SCREWS that hold the drive side SPRAY BAR MOUNT
- drive side SPRAY BAR MOUNT from the SIDE PLATE
- 2 SPRAY BARS from the SPRAY BAR MOUNTS by carefully pulling and rotating them

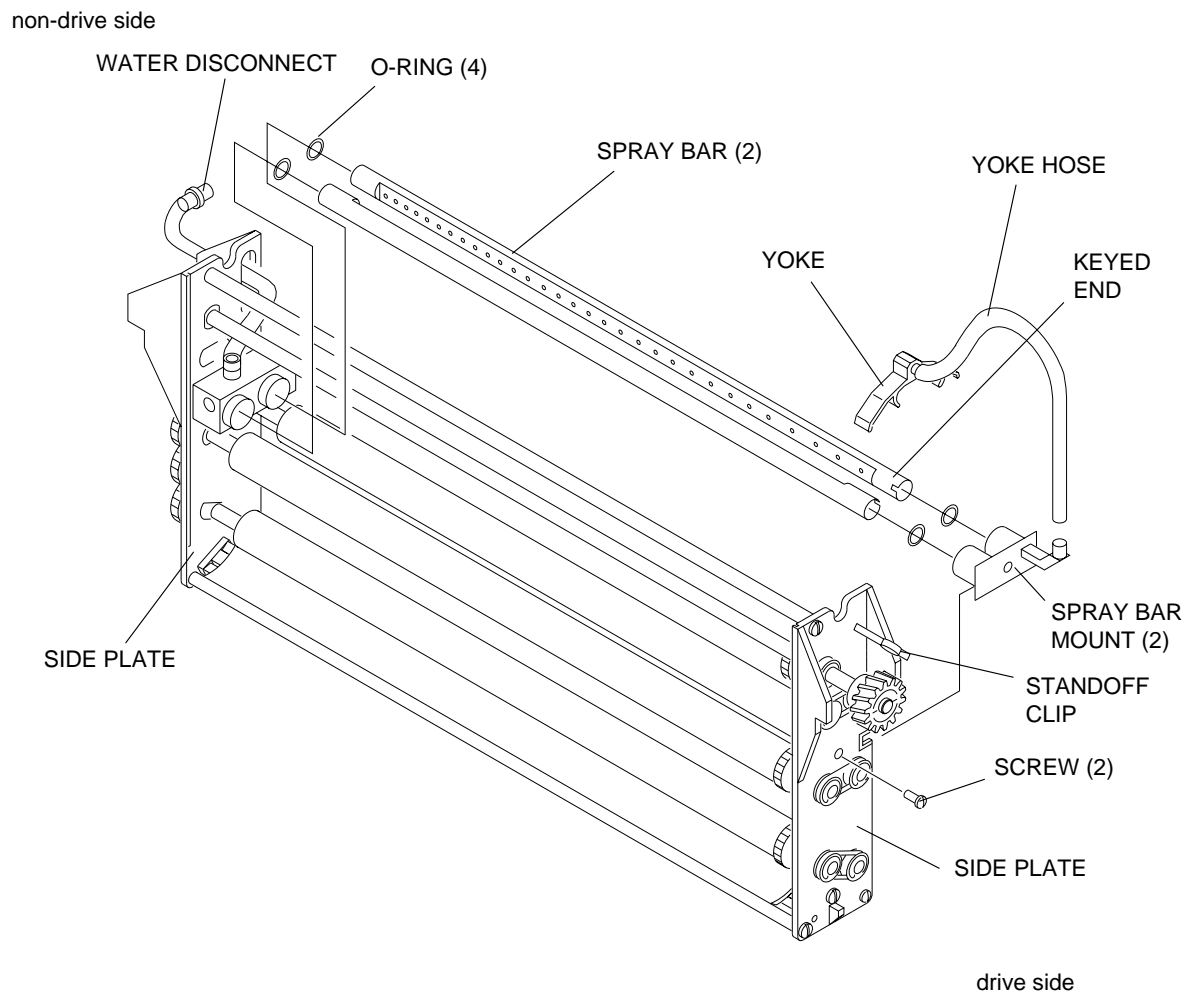


### Caution

If using *Kodak FIXER/WASH SYSTEM CLEANER*, see the directions and cautions packed with the SYSTEM CLEANER. Rinse the SPRAY BARS thoroughly.

(c) Use BRUSH TL-4460 and water or a mild solution of water and vinegar or *Kodak FIXER/WASH SYSTEM CLEANER* to clean inside the SPRAY BARS.

Figure 7-3 Removing the SPRAY BARS from the WASH RACK



H104\_0283DCB  
H104\_0283DA

**Caution**

Do not make the holes in the SPRAY BARS larger when inserting objects. If using a drill bit, manually insert the non-cutting end into the holes.

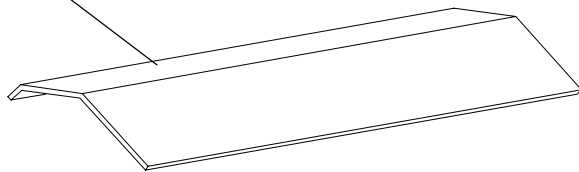
- (d) If necessary, manually insert a small object, such as the non-cutting end of a small drill bit, into each of the holes in the SPRAY BARS to clean the holes.
- (e) Rinse the SPRAY BARS.
- (f) Check that the O-RINGS are correctly seated in the SPRAY BAR MOUNTS.

**Caution**

The SPRAY BARS must be fully seated in the SPRAY BAR MOUNTS to install the SPRAY BAR MOUNTS in the WASH RACK. Water on the SPRAY BARS and the SPRAY BAR MOUNTS makes installation easier.

- (g) Insert the KEYED ENDS of the SPRAY BARS into the drive side SPRAY BAR MOUNT.
- (h) Rotate the SPRAY BARS until the KEYED ENDS are seated fully in the SPRAY BAR MOUNT.
- (i) Install the other ends of the SPRAY BARS in the non-drive side SPRAY BAR MOUNT.
- (j) Install the drive side SPRAY BAR MOUNT in the WASH RACK.
- (k) Install the 2 SCREWS.
- (l) Connect the YOKE HOSE to the STANDOFF CLIP.

SPLASH  
GUARD



DRIP  
TRAY

H108\_0035ACC  
H108\_0035AA

**Caution**

Prevent contamination of the developer and fixer solutions when removing the FIXER RACK and the DEVELOPER RACK, by placing the SPLASH GUARD between the DEVELOPER TANK and the FIXER TANK. Use the DRIP TRAY for removal or installation of the RACKS.

**Important**

The holes in the SPRAY BARS in the WASH RACK can become clogged from the minerals in the water supply. For correct operation of the WASH RACK, clean the SPRAY BARS periodically. The characteristics of the water supply determine the frequency of cleaning.

[6] Install the SPLASH GUARD between the DEVELOPER TANK and the FIXER TANK.

[7] Remove:

- (a) FIXER RACK
- (b) SPLASH GUARD
- (c) DEVELOPER RACK

[8] Rinse all RACKS and CROSSOVERS with warm water, 44°C (110°F) or less. Wipe the ROLLERS and the GUIDE SHOES with a soft, synthetic sponge.

[9] Remove and clean the CROSSOVER TROUGHS. Check that the holes in the CROSSOVER TROUGHS are free from biological growth or other obstructions.

[10] Install the CROSSOVER TROUGHS.

- [11] On all RACKS, check:
- (a) that all ROLLERS rotate freely
  - (b) that the ROLLERS are clean and smooth
  - (c) that the GEARS do not have excessive wear or burrs
  - (d) that the BEARINGS do not have excessive wear
  - (e) for broken, missing, or corroded E-RINGS and SPRINGS
- [12] If necessary, install new parts.
- [13] Check the RACKS for squareness. See Pages [2-2](#) and [2-3](#).
- [14] Check that the AIR TUBES are installed in the correct positions in the DRYER RACK. See the diagram on the DRYER COVER of the DRYER RACK.
- [15] Check that the SLOTS in the AIR TUBES are clean. If necessary, clean the AIR TUBES with a BRUSH TL-4460 and rinse with water.
- [16] Wipe any chemical deposits from the processing section of the PROCESSOR.
- [17] Change the DEVELOPER FILTER. See Page [5-8](#).
- [18] Allow the DETECTOR CROSSOVER to air dry before you install it in the PROCESSOR.
- [19] Install the RACKS.
- [20] Connect the WATER DISCONNECT.
- [21] Install:
- CROSSOVERS
  - YOKE
  - EVAPORATION COVERS
  - WET SECTION COVER
- [22] Check that each assembly seats firmly.
- [23] Clean the REPLENISHER STRAINERS that are between the REPLENISHMENT TANKS and the REPLENISHMENT PUMPS.
- [24] Check the water supply FILTER. If necessary, change the FILTER.



### Caution

- Any obstruction such as biological growth or small bends or an upward sloping WASH DRAIN HOSE can cause wash water to return to the WASH TANK causing an overflow of water and possible damage to the ELECTRICAL BOX.
  - Concentrations of chlorine bleach higher than 10% or leaving the chlorine bleach in the PROCESSOR for longer than 30 minutes can cause damage to the PROCESSOR.
- [25] Check the WASH DRAIN for biological growth, small bends, or other obstructions. To remove biological growth:
- (a) Fill the wash system with a 10% solution of chlorine bleach, including all HOSES and the HOSES to the floor drain.
  - (b) Wait a minimum of 20 minutes and a maximum of 30 minutes.
  - (c) Drain the chlorine bleach and rinse the system thoroughly with water before returning the PROCESSOR to normal use.

**Important**

Check the local codes before you install new plumbing. All plumbing must meet local codes.

**[26]** Correctly route the WASH DRAIN HOSE to slope down toward the WASH DRAIN. If necessary, use REINFORCED HOSES that resist making small bends. Right angle ELBOW FITTINGS are also available. The Part Numbers are:

- 696442 - REINFORCED HOSE, 5/8-in. I.D. Order by the foot.
- 1C4521 - ELBOW FITTING, 5/8 in.
- 696441 - REINFORCED HOSE, 1-in. I.D. Order by the foot.
- 1C4524 - ELBOW FITTING, 1 in.

**[27]** Energize the PROCESSOR and check for correct operation.

**[28]** Process a test film and check the transport assemblies.

**[29]** Check the negative static pressure at the EXHAUST VENT for the DRYER. See Service Bulletin No. 101, October 1992.

**Note**

A *Kodak* AUXILIARY VENTILATION FAN KIT is available for sites that do not meet exhaust requirements. Order Part No. 264503 (for 110 V) or 8B7105 (for 95 - 250 V).

## Every 3 Months, or as Required, Preventive Maintenance

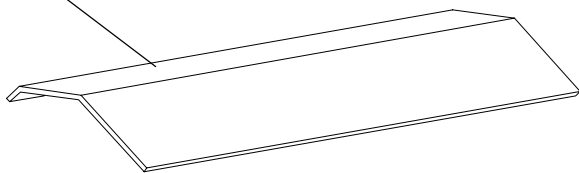
- [1] Move the main wall CIRCUIT BREAKER to "OFF" and CB1 on the PROCESSOR to the "0" position.
- [2] Lift the TOP COVER.
- [3] Open the FIXER and DEVELOPER DRAIN VALVES to drain the solutions from the PROCESSOR.
- [4] Remove:
  - (a) WET SECTION COVER
  - (b) EVAPORATION COVERS
  - (c) all CROSSOVERS
  - (d) EXIT RACK
  - (e) DRYER RACK

### Note

If the PROCESSOR is a 180 LPS or a 180 LP with Mod 4 or Mod 7 installed, skip Step 5.

- [5] Check that the holes in the 2 SPRAY BARS are clean and open. If necessary, clean the SPRAY BARS. See Steps 4 and 5 on Page 7-3.

SPLASH  
GUARD



DRIP  
TRAY

H108\_0035ACC  
H108\_0035AA



### Caution

Prevent contamination of the developer and fixer solutions when removing the FIXER RACK and the DEVELOPER RACK, by placing the SPLASH GUARD between the DEVELOPER TANK and the FIXER TANK. Use the DRIP TRAY for removal or installation of the RACKS.

- [6] Install the SPLASH GUARD between the DEVELOPER TANK and the FIXER TANK.
- [7] Remove:
  - (a) FIXER RACK
  - (b) SPLASH GUARD
  - (c) DEVELOPER RACK
- [8] Remove the DEVELOPER FILTER. See Page 5-8.



### Warning

- Carefully follow all safety precautions and directions included with the *Kodak* FIXER/WASH SYSTEM CLEANER and *Kodak* DEVELOPER SYSTEM CLEANER AND NEUTRALIZER.
- The RACKS in the PROCESSOR have hollow ROLLERS. Use the instructions for cleaning RACKS with hollow ROLLERS. Do not immerse RACKS with hollow ROLLERS in SYSTEM CLEANER. SYSTEM CLEANER that remains inside the ROLLERS will contaminate the processing solutions.
- When circulating SYSTEM CLEANER or water through the recirculation system, energize the developer COOLING SOLENOID, or:
  - The effectiveness of the DEVELOPER SYSTEM CLEANER AND NEUTRALIZER will be greatly reduced because of the developer remaining in the HEAT EXCHANGER.
  - The DEVELOPER SYSTEM CLEANER AND NEUTRALIZER remaining in the HEAT EXCHANGER will contaminate the new developer when the PROCESSOR is returned to operation.



- [9] Clean the DEVELOPER RACK and the DEVELOPER TANK with *Kodak* DEVELOPER SYSTEM CLEANER AND NEUTRALIZER, CAT No. 843 4615.
- [10] Clean the FIXER RACK, the WASH RACK, and the FIXER TANK with *Kodak* FIXER/WASH SYSTEM CLEANER, CAT No. 139 5110.
- [11] Clean the WASH TANK with *Kodak* FIXER/WASH SYSTEM CLEANER or with a 10% solution of chlorine bleach if biological growth exists.
- [12] If necessary, clean the LEVEL SENSOR PROBES with the correct SYSTEM CLEANER.
- [13] Rinse the CROSSOVERS and the EVAPORATION COVERS with warm water, 44°C (110°F) or less. Wipe the ROLLERS and the GUIDE SHOES with a soft, synthetic sponge.

### **Note**

If necessary, DEVELOPER SYSTEM CLEANER AND NEUTRALIZER may be used on the DEVELOPER/ FIXER CROSSOVER and FIXER/WASH SYSTEM CLEANER on the FIXER/WASH CROSSOVER.

- [14] Remove and clean the CROSSOVER TROUGHS. Check that the holes in the CROSSOVER TROUGHS are free from biological growth or other obstructions.
- [15] Install the CROSSOVER TROUGHS.
- [16] On all RACKS, check:
  - (a) that all ROLLERS rotate freely
  - (b) that the ROLLERS are clean and smooth
  - (c) that the GEARS do not have excessive wear or burrs
  - (d) that the BEARINGS do not have excessive wear
  - (e) for broken, missing, or corroded E-RINGS and SPRINGS
  - (f) the CHAIN for wear and correct adjustment.
- [17] If necessary, install new parts.
- [18] Check the RACKS for squareness. See Pages [2-2](#) and [2-3](#).
- [19] Check that the AIR TUBES are installed in the correct positions. See the diagram on the DRYER COVER of the DRYER RACK.
- [20] Check that the SLOTS in the AIR TUBES are clean and in the correct positions. If necessary, clean the AIR TUBES with a BRUSH TL-4460 and rinse with water.
- [21] Wipe any chemical deposits from the processing section of the PROCESSOR.
- [22] Install a new DEVELOPER FILTER. See Page [5-8](#).
- [23] Allow the DETECTOR CROSSOVER to air dry before you install it in the PROCESSOR.
- [24] Install the RACKS, the CROSSOVERS, the EVAPORATION COVERS, and the WET SECTION COVER. Check that each assembly seats firmly.
- [25] Clean the REPLENISH STRAINERS located between the REPLENISHMENT TANKS and the REPLENISHMENT PUMPS.
- [26] Check the water supply FILTER. If necessary, change the FILTER.



### **Caution**

- Any obstruction such as biological growth or small bends or an upward sloping WASH DRAIN HOSE can cause wash water to return to the WASH TANK causing an overflow of water and damage to the ELECTRICAL BOX.
- Concentrations of chlorine bleach higher than 10% or leaving the chlorine bleach in the PROCESSOR for longer than 30 minutes can cause damage to the PROCESSOR.

**[27]** Check the WASH DRAIN for biological growth, small bends, or other obstructions. To remove biological growth:

- (a) Fill the wash system with a 10% solution of chlorine bleach, including all HOSES and the HOSES to the floor drain.
- (b) Wait a minimum of 20 minutes and a maximum of 30 minutes.
- (c) Drain the chlorine bleach and rinse the system thoroughly with water before returning the PROCESSOR to normal use.



### Important

Check the local codes before you install new plumbing. All plumbing must meet local codes.

**[28]** Correctly route the WASH DRAIN HOSE to slope down toward the WASH DRAIN. If necessary, use REINFORCED HOSES that resist making small bends. Right angle ELBOW FITTINGS are also available. The Part Numbers are:

- 696442 - REINFORCED HOSE, 5/8-in. I.D. Order by the foot.
- 1C4521 - ELBOW FITTING, 5/8 in.
- 696441 - REINFORCED HOSE, 1-in. I.D. Order by the foot.
- 1C4524 - ELBOW FITTING, 1 in.

**[29]** Check the DRIVE CHAIN.

- (a) If the DRIVE CHAIN is dry, apply lubricant to the DRIVE CHAIN. Use NLGI - GREASE NO. 2 TL-2324.
- (b) If the DRIVE CHAIN is rusty, remove it and install a new DRIVE CHAIN.
- (c) Adjust the tension of the DRIVE CHAIN. See Page [3-5](#).

**[30]** Check the SPRING SPADES on the LEVEL SENSING PROBES for corrosion. If necessary, clean or install new SPRING SPADES.

**[31]** Check the operation of the DETECTOR SWITCHES. If necessary, adjust the DETECTOR SWITCHES. See Pages [6-4](#) and [6-5](#).

**[32]** Close the DRAIN VALVES and fill the processing TANKS with processing solutions. See the Operator Manual for filling instructions.

**[33]** Energize the PROCESSOR and check for correct operation.

**[34]** Process a test film and check the transport assemblies.

**[35]** Check the negative static pressure at the EXHAUST VENT for the DRYER. See Service Bulletin No. 101, October 1992.

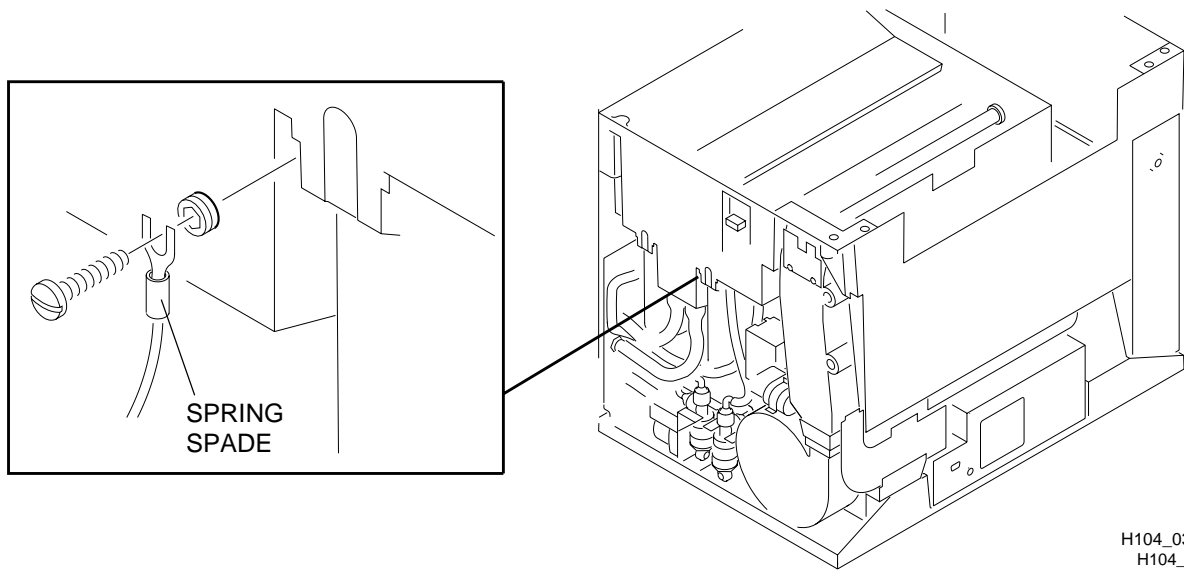


### Note

A Kodak AUXILIARY VENTILATION FAN KIT is available for sites that do not meet exhaust requirements. Order Part No. 264503 (for 110 V) or 8B7105 (for 95 - 250 V).

**[36]** Calibrate the REPLENISHMENT PUMPS. See the section "Calibration of the Replenishment System" in the Operator Manual or use the diagnostics on the PORTABLE COMPUTER.

Figure 7-4 Cleaning the SPRING SPADES



Preventive Maintenance for the <i>Kodak X-Omat</i> 180 LP and 180 LPS PROCESSORS			
Part or Assembly	Schedule*		
	Weekly	Monthly	3 Months
DETECTOR CROSSOVER	C		
DEVELOPER/FIXER CROSSOVER	C		
FIXER/WASH CROSSOVER	C		
WASH RACK	C		C(2)
WASH RACK SPRAY BARS		I,C(2)	
DEVELOPER RACK		I,C	C(1)
FIXER RACK		I,C	C(2)
DRYER RACK		I,C	
EXIT RACK		I,C	
BEARINGS, CHAINS, and DRIVE GEAR on the RACKS		I	
Squareness of the RACKS		I	
DRYER AIR TUBES		I,C	
DEVELOPER FILTER		R	
REPLENISHER STRAINERS		C	
WATER SUPPLY FILTER		R	
DRAIN HOSE		I,R	
Exhaust and ventilation system		T	
DRIVE MOTOR CHAIN			I,L
LEVEL SENSOR PROBES			C
SPRING SPADES of the PROBES			C(3)
DEVELOPER TANK			C(1)
FIXER and WASH TANKS			C(2)
Calibration of the REPLENISHMENT PUMPS			T
DETECTOR SWITCHES			T

- I = Inspect for condition and adjust or install new parts, if necessary.  
 L = Lubricate with recommended material.  
 R = Install new, if necessary.  
 T = Test and adjust, if necessary.

- C = Rinse and clean carefully and completely using warm water and a soft synthetic sponge.

- C(1) = Clean with *Kodak* DEVELOPER SYSTEM CLEANER AND NEUTRALIZER.

- C(2) = Clean with *Kodak* FIXER/WASH SYSTEM CLEANER.

- C(3) = Clean any corrosion from the SPRING SPADES.

\*Actual usage and site characteristics may require shorter intervals between maintenance. These guidelines are for locations adhering to Site Specifications issued by Kodak. The customer or the trained service personnel may perform the weekly preventive maintenance.