

KODAK INDUSTRIAL X-OMAT PROCESSOR, MOD. B, 60CPS, HZ

PROD NO. 450-20020

KODAK INDUSTRIAL X-OMAT PROCESSOR, MOD. B, 50CPS, HZ

PROD. NO. 450-21010

## PACKING LIST

4585-261

10-14-82

621286

THIS PACKING LIST SUPERSEDES P/N 613234, CHG. NO. 4585-252

EFFECTIVITY - 11TH PD 1982, SERIAL 6426

ITEM NO	PART NO	DESCRIPTION	QTY	ASSY DEPT	PACK DEPT
1.	.....	KODAK INDUSTRIAL X-OMAT PROCESSOR, MODEL B, 60CPS, HZ OR MOD. B, 50CPS, HZ	1	----	----
2.	450379	ENTRANCE X-OVER ASSEMBLY	1	----	----
3.	450435	DEVELOPER RACK ASSEMBLY	1	----	----
4.	482390	FIX RACK ASSEMBLY	1	----	----
5.	450438	SQUEEGEE ASSEMBLY	1	----	----
6.	460275	RACK ASSEMBLY-WASH	1	----	----
7.	450687	FIX-WASH X-OVER	1	----	----
8.	450688	DEV-FIX X-OVER	1	----	----
9.	453009	TRAY-DRIP	1	----	----
10.	453055	GUARD-SPLASH	1	----	----
11.	454749	GASKET-LIGHTLOCK	1	----	----
12.	457958	BUCKET-11 QT.	1	----	----
13.	472261	STRAINER	2	----	----
14.	459698	GUARD ASSEMBLY	1	----	----
15.	467621	MIX VALVE PACKED IN VENDORS CARTON	1	----	----
16.	462742	TEST FILM PACKED IN BOX	1	----	----
17.	.....	POLY BAG, INCLUDES ITEMS 13,18,19 & 20	1	----	----
18.	598250	CLAMP HOSE	4	----	----
19.	452708	GROMMET	2	----	----
20.	452991	PLATE-FLOOR	4	----	----
21.	632018	MANUAL COMPLETE, IND. B X-OMAT	1	----	----
22.	458041	CARTRIDGE-FILTER	1	----	----



3. 638389 DESCRIPTOR CARE & CLEANING ST. STEEL  
24. 462593 COVER ASSY. X-OVER

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NOTE: DO NOT ORDER FROM THIS LIST. REFER TO YOUR ILLUSTRATED PARTS  
LIST FOR SPARE PART REQUIREMENTS.

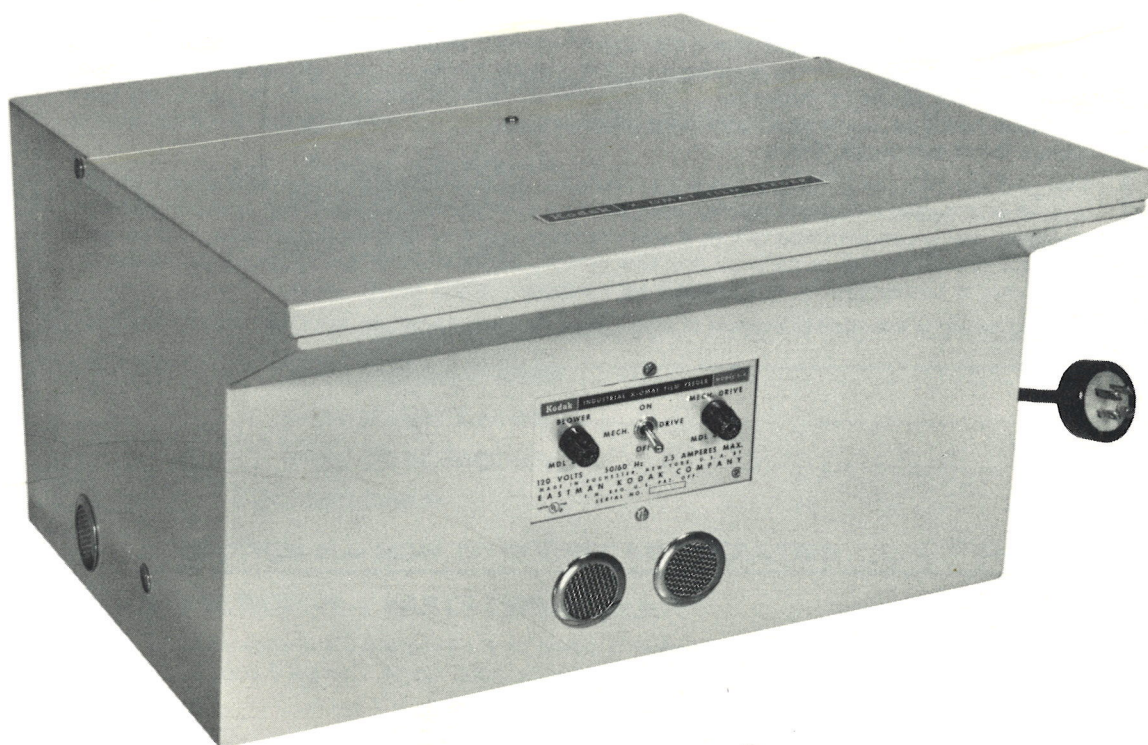
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12/77  
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## KODAK INDUSTRIAL X-OMAT FILM FEEDER MODEL 5-K

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## NEW EQUIPMENT WARRANTY

### KODAK INDUSTRIAL X-OMAT FILM FEEDER, MODEL 5-K

KODAK WARRANTS THIS KODAK INDUSTRIAL X-OMAT FILM FEEDER, MODEL 5-K, TO FUNCTION PROPERLY FOR SIX MONTHS FROM THE DATE OF INITIAL INSTALLATION WHEN INSTALLED IN NEW CONDITION. KODAK MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED, OR OF MERCHANTABILITY, FOR THIS EQUIPMENT.

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1. **Repair Service:** Upon your request, the equipment will be repaired on your premises at no charge during the normal working hours of the dealer performing the warranty service.
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You will be charged for parts and labor if the need for equipment service or parts is caused by: failure to follow Kodak's care, cleaning, maintenance, and operating instructions; misuse or circumstances beyond Kodak's control; or relocation of the equipment. There will be a charge for lamps and any items which are identified in the equipment instructions as supply items; as well as for the repair labor to replace lamps and supply items.

There will also be a charge to provide service or parts to correct problems that have resulted from work by other than a dealer-authorized service representative, or to correct problems that have resulted from materials used or operations performed that are contrary to instructions issued by Kodak. This warranty does not include service or parts for any attachments, accessories, or alterations not distributed by Kodak, nor to correct problems resulting from their use.

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**KODAK INDUSTRIAL X-OMAT FILM FEEDER  
MODEL 5-K**

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## SECTION I — INTRODUCTION

**1-1.** The *KODAK Industrial X-OMAT Film Feeder*, Model 5-K, figure 1, can be used with the *KODAK Industrial X-OMAT Processor*, Model B.

**1-2.** The feeder replaces the film feed tray on the processor and automatically feeds the following film sizes:

- a. Films to be fed one at a time:
  - 35.6 x 43.2 cm (14 x 17 inches) film
  - 27.9 x 35.6 cm (11 x 14 inches) film
  - 25.4 x 30.5 cm (10 x 12 inches) film
- b. Films to be fed simultaneously side-by-side:
  - 20.3 x 25.4 cm (8 x 10 inches) film
  - 17.8 x 43.2 cm (7 x 17 inches) film
- c. Films to be fed in pairs or three at a time:
  - 11.4 x 43.2 cm (4 1/2 x 17 inches)
  - 9.4 x 43.2 cm (3 1/2 x 17 inches)
  - 11.4 x 38.1 cm (4 1/2 x 15 inches)
  - 11.4 x 25.4 cm (4 1/2 x 10 inches)
  - 12.7 x 17.8 cm (5 x 7 inches)
  - 70 mm lengths of film

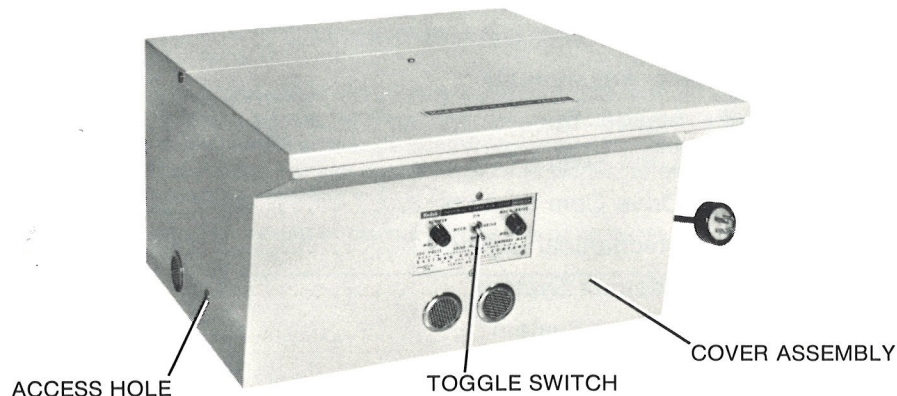
If films are fed three at a time, the center suction cup must be used. Film sizes can be intermixed, *except that a single 20.3 x 25.4 cm (8 x 10-inch) or smaller film must not be placed on top of a film 25.4 cm (10 inches) or more wide.*

**1-3.** The feeder has a lighttight lid that permits processor operation in normal room light. Loading must be done in the dark or under safelight conditions. (Use a 7 1/2-watt frosted bulb in a safelight lamp with a *KODAK Safelight Filter No. 6B* [brown], or equivalent, mounted at least 1.2 m [4 feet] above the feeder.)

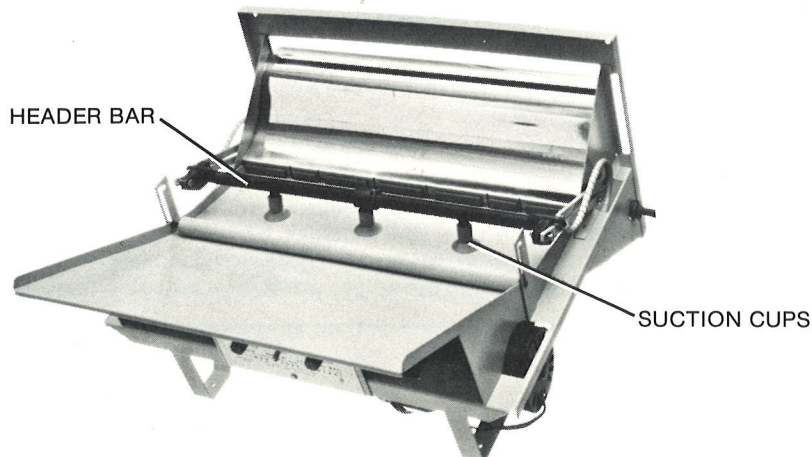
**1-4.** When the feeder is ready for operation, the **TOGGLE SWITCH**, figure 1, turns on the mechanism-drive motor and the vacuum pump. The film or films is lifted to the detector rollers by **SUCTION CUPS**, figure 2. The film entering the detector rollers opens the replenisher detector switches and stops the mechanism-drive motor and the vacuum pump. This releases the film from the suction cups. When the film is clear of the detector rollers, the mechanism-drive motor again repeats the cycle. Each cycle allows for proper film spacing. When the last film leaves the detector rollers, the feeder makes one complete cycle before shutting off. The lid can be opened after the safelight is on.

**1-5.** If two thicknesses of film are fed into the detector rollers, the **DOUBLE-THICKNESS DETECTOR SWITCH**, figure 3, opens. This sounds a buzzer which continues until the films leave the detector rollers.

**1-6.** The blower ruffles the films to prevent them from sticking together, and pressurizes the cabinet to force out chemical fumes.



**FIGURE 1**



**FIGURE 2**



## SECTION II — INSTALLATION

### NOTE

Use qualified personnel to install the FEEDER.

### WARNING

Dangerous Voltage.

- 2-1. Disconnect the main power source.
- 2-2. Remove the feed stand from the processor. Retain the screws.
- 2-3. Remove the duplex three-wire receptacle on the processor. Install the four-wire receptacle (provided) as follows:
  - a. Remove the electrical control panel cover.
  - b. From the three-wire receptacle, remove the two neutral wires, the two No. 22 wires, and the ground wire.
  - c. Make the following connections to install the four-wire receptacle:
    - two neutral wires to terminal X on the receptacle
    - two No. 22 wires to terminal Y on the receptacle
    - black wire to terminal Z on the receptacle and terminal No. 13 on the terminal strip.

- the remaining black wire (provided) to terminal W on the receptacle and terminal 21 on the terminal strip. See the Circuit Diagram, page 16.

### NOTE

Do not remove the channel if the processor has three existing detector switches. Renumber wires 15 and 48 on the center detector switch.

- 2-4. Remove the switches from the old channel and install in new channel. Install two new wires No. 15 and 48 in the existing sleeving. Install the buzzer between the bell and the dryer heater relay. Install the double-thickness detector switch and the wire harness.
- 2-5. Remove two screws from the front of the feeder and remove the COVER ASSEMBLY, figure 1. Using the two lower mounting holes, fasten the feeder to the processor. Holding the feeder tightly against the top of the processor, drill two holes with a No. 28 drill, and tap for an 8-32 screw. Use the screws that were removed in step 2-2.
- 2-6. Apply foam tape to the front panel of the processor, butting it against all four sides of the feeder. Install the feeder cover assembly.
- 2-7. Plug the feeder power cord into the receptacle.
- 2-8. Make the checks for the feeder referred to in the "Preoperation Checklist," page 6.

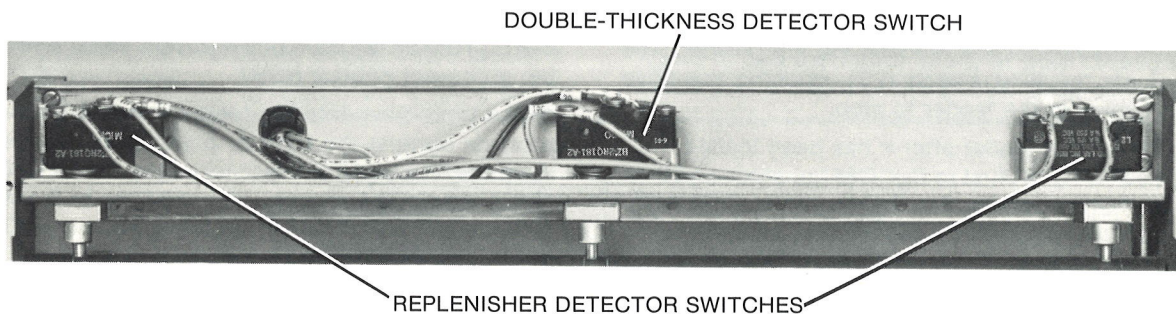


FIGURE 3

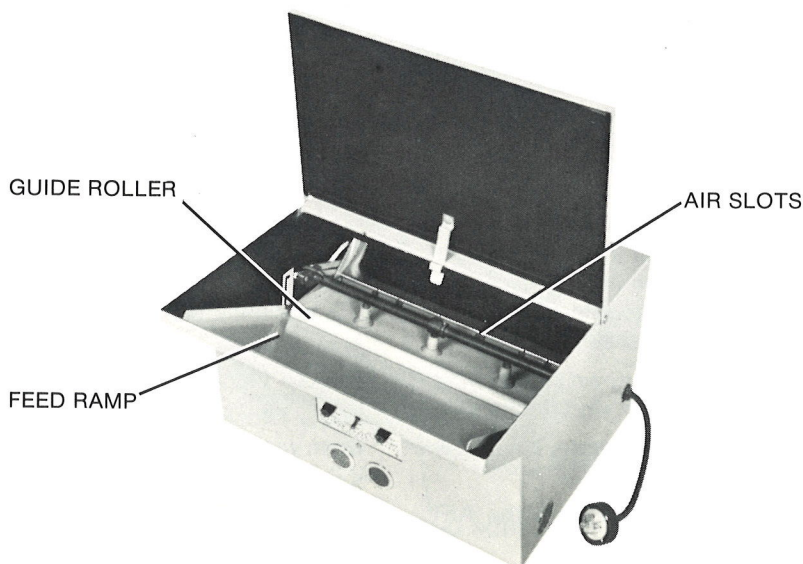


FIGURE 4



## SECTION III — OPERATION

### 3-1. PRINCIPLES OF OPERATION

**3-2.** The following paragraphs explain the operation of the feeder. The parenthetical symbols refer to the drawing symbols used on the Circuit Diagram, page 16.

**3-3.** When the power is turned on, the blower (M2) runs continuously.

**3-4.** Closing the toggle switch (SW) starts the mechanism-drive motor (M1).

**3-5.** The motor (M1) drives the mechanism and the vacuum pumps, causing the HEADER BAR, figure 2, to start down to pick up film. The film is lifted and fed into the detector rollers. Film entering the detector rollers causes the REPLENISH DETECTOR SWITCHES (MS1 and MS2), figure 3, to open and stop the motor (M1) when the header bar is in the top position. The limit switch (LS) is closed. The vacuum pump stops, allowing the cups to release the film.

**3-6.** When the film leaves the detector rollers, the replenisher detector switches (MS1 and MS2) are closed and the mechanism-drive motor (M1) restarts. The header bar continues forward, opening the limit switch (LS). The feeder continues to run through the normally closed relay circuit (R).

**3-7.** After the last film leaves the detector rollers, the replenisher detector switches energize a signal to the time-delay relay. This energizes the feeder relay (R), opening the normally closed contact and closing the normally opened contact which holds in the relay.

**3-8.** When the header bar reaches the top position, the yoke contacts the limit switch (LS), opening the drive circuit and causing the feeder to stop.

**3-9.** To restart the feeder after it has been loaded, turn the toggle switch (SW) first to the "OFF" position and then back to the "ON" position. This de-energizes the hold-in relay circuit (R) and allows the normally closed relay contact (R) to close until the limit switch (LS) is closed.

**3-10.** When two thicknesses of film are fed into the detector rollers, the double-thickness detector switch (MS3) causes the buzzer (BZ) to sound.

**3-11.** The feeder is turned off by opening the toggle switch (SW).

### 3-12. PREOPERATION CHECKLIST

#### WARNING

Dangerous Voltage

**3-13.** Turn on the main power supply and the replenisher pump switch on the processor. Turn on the feeder toggle switch and check the following before initial operation. (To operate the feeder without film, the toggle switch must be turned off and on after the feeder stops.)

- The suction cups should come down so that they touch the FEED RAMP, figure 4, simultaneously.
- The suction cups should return to a vertical position.
- A flow of air should be coming from the AIR SLOTS, figure 4.

**3-14.** With the center cup in its operative (down) position, place three 12.7 x 17.8 cm (5 x 7-inch) films

abreast on the feed ramp. Turn on the remaining switches on the processor control panel, actuate the toggle switch, and check the following:

- The suction cups should pick up the films simultaneously.
- The detector rollers should accept the films simultaneously, and the header bar should stop promptly.

**3-15.** With the center cup in its inoperative (up) position, place two 20.3 x 25.4 cm (8 x 10-inch) films side-by-side against the edges of the feed ramp. Actuate the toggle switch and check as in steps 3-14a. and b.

**3-16.** Using the loading procedure outlined in the "Operation" section (paragraph 3-21), load the feed ramp with the various sizes of film to be processed. Observe the feeding of these films.

**3-17.** Should difficulty be encountered with any of the preoperation checks, or should the feeder fail to operate properly, refer to the "How to Correct Difficulties" section, page 9.

### 3-18. OPERATION

**3-19.** Plug the feeder power cord into the processor receptacle.

#### CAUTION

Check that the processor tanks are filled with solution before turning on the switches.

**3-20.** Turn on the main power supply and the switches on the processor control panel.

**3-21.** Load films into the feeder *one at a time*. Loading *must* be done in the dark or under safelight conditions. Keep the films against the outer edges of the FEED RAMP. Center 25.4 x 30.5 cm (10 x 12-inch) films on the feed ramp with the 30.5 cm (12-inch) edge leading. Load 20.3 x 25.4 cm (8 x 10-inch) and 17.8 x 43.2 cm (7 x 17-inch) films in pairs. Films 12.7 cm (5 inches or less) wide can be loaded three at a time. Films 25.4 x 30.5 cm (10 x 12 inches) or larger can be intermixed with the film sizes fed in pairs. However, films fed in pairs and three at a time cannot be intermixed. A single 20.3 x 25.4 cm (8 x 10-inch) or smaller film:

- must *not* be placed on top of a film 25.4 cm (10 inches) or more wide
- can be placed *under* a film 25.4 cm (10 inches) or more wide
- it can be fed into the processor manually before the toggle switch is activated.

It is recommended that no more than 15 films be stacked.

**3-22.** Lower the GUIDE ROLLER, figure 4, onto the stacked film.

**3-23.** Close the light-lock lid. (This is necessary only when room lights are required.)

**3-24.** Turn on the feeder toggle switch.

**3-25.** After the last film has been fed, the feeder will shut off automatically after one complete cycle. To restart the cycling, turn the toggle switch first to the "OFF" position and then back to the "ON" position.



## SECTION IV — MAINTENANCE AND SERVICE

### WARNING

Dangerous Voltage.

Disconnect the main power.

#### 4-1. PROCESSOR ADJUSTMENTS

**4-2. Detector Roller Assembly.** The detector rollers should be wiped daily with a clean, damp cloth. Be sure, however, not to feed film while the rollers are still damp.

**4-3.** If there is any hesitation of the detector rollers, examine the worm gears for signs of wear, and replace them if necessary. Lubricate these gears occasionally. (See the Lubrication Chart in the processor service manual.) Check the sprocket and worm for signs of wear and worn or broken teeth.

**4-4.** Check the clearance between the top and bottom detector rollers for possible roller eccentricity. If the clearance at either end of the rollers is more than 0.10 mm (.004 inch), check the worm gears as explained above. If the gears are in satisfactory condition, the roller is out of round and should be replaced.

**4-5. Double-Thickness Detector Switch.** This switch energizes a buzzer, but will not stop the film from transporting. To adjust this switch:

- insert a single 10.2 cm (4-inch) wide piece of film between the detector rollers directly under the double-thickness detector switch.
- tighten the adjusting nut until the buzzer sounds.
- loosen it until the buzzer stops. Then, loosen it 1/8 turn farther.

The buzzer should sound when a 10.2 cm (4-inch) wide double-thickness of film is inserted at any point between the detector rollers.

**4-6. Replenisher Detector Switches.** These switches are located at the ends of the detector rollers. To adjust these switches:

- with no film between the rollers, tighten the adjusting nut until the replenisher pump operates.
- loosen the switch until the pump stops; then loosen the switch an additional 1/8 turn.
- make the same adjustment for the other switch.

#### 4-7. FEEDER ADJUSTMENTS

**4-8. Header Bar.** To adjust the header bar:

- turn the feeder off when the header bar completes its downward cycle.
- loosen the lock nut on the adjusting screw. Use an Allen wrench to rotate the ADJUSTING SCREW, figure 5, so that the suction caps lightly touch the feed ramp.

**4-9. Limit Switch.** The LEAF SPRING of the LIMIT SWITCH, figure 5, is set to stop the header bar after the last film. Adjust, only if necessary, by *slightly* bending the leaf spring. If the limit switch is adjusted correctly, and the feeder still fails to operate or shut off properly, check the adjustment of the two replenisher detector switches.

**4-10. Drive Cam System.** Play between the DRIVE DISK, figure 5, and the motor shaft, or play caused by a worn bearing in the slot of the DRIVE CAM can result in the

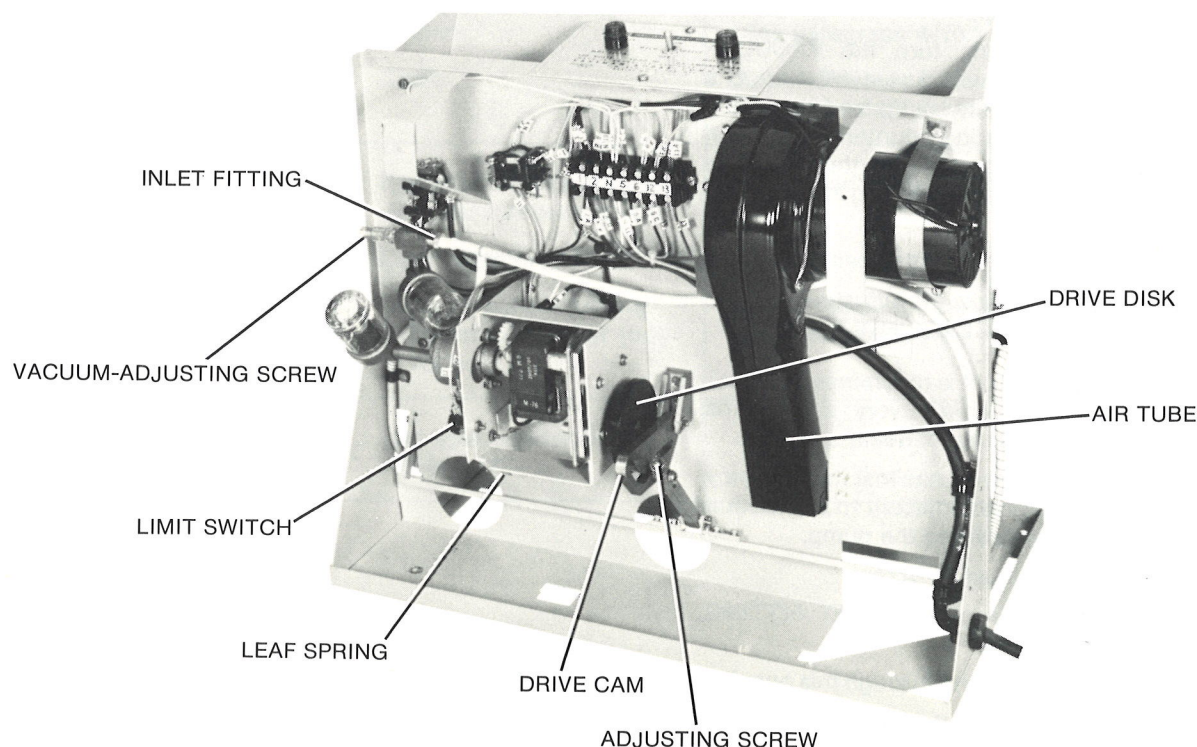


FIGURE 5



header bar dropping onto the ramp in an erratic manner. To correct this:

- a. tighten the setscrew in the drive disk.
- b. replace the bearing and screw in the cam slot.

#### 4-11. Mechanical Linkage.

- a. Using a high-grade lubricant, such as drive-gear grease, Part No. 760614,\* *lightly* lubricate the following pivot points:
  - yoke
  - arms
  - cam
- b. Sealant holds some of the fasteners in place. If this seal must be broken to replace a part, be sure to reseat it with a sealant such as *LOCTITE SEALANT, GRADE AV (10-10)*, or equivalent.

**4-12. Vacuum System.** On a weekly basis, clean the suction cups with a clean, damp cloth. If the suction cups are distorted, replace them.

**4-13.** If the suction cups do not touch the feed ramp simultaneously, align them by shimming the higher cup with the brass washers furnished. Place the washers between the orifice and the cup.

**4-14.** If the suction cups touch the ramp simultaneously, but fail to pick up on one side, then the orifice on one side is probably clogged. Insert the point of a fine needle to remove any obstruction. If it is necessary to remove or replace the orifice, recement it to the tube with a household cement.

**4-15.** If the suction cups do not come in contact with the feed ramp, set the header bar as described in paragraph 4-10.

**4-16.** If the suction cups fail to pick up film, check the adjustment of the vacuum pump.

**4-17.** To increase the vacuum, turn the VACUUM-ADJUSTING SCREW, figure 5, clockwise 1/8 turn at a time. Normally, the proper vacuum is obtained by closing (fully clockwise), and then rotating counterclockwise. If the suction cups cause marks on the film, the vacuum is too strong and should be reduced by turning the adjusting screw counterclockwise.

#### NOTE

Remove the plug button. Make the adjustment of the vacuum through the ACCESS HOLE, figure 1.

**4-18.** If the vacuum pump fails, it is recommended that it be replaced rather than repaired. Every six months, remove and clean the filter jars and filters.

**4-19.** If the pump seems noisy or has lost its efficiency, see the instructions on the plate adjacent to the vacuum pump on the feeder. Before flushing the pump:

- a. close the vacuum-adjusting screw,
- b. remove the tubing from the INLET FITTING, figure 5, and
- c. insert a flushing compound through this opening.

The flushing compound collects in the jar which should be emptied and cleaned.

**4-20. Blower System.** If the leading edges of the films fail to separate, check the following:

- a. a flow of air should be coming from the air slots.
- b. remove any particles of lint that may be clogging the air slots.

**4-21.** If the blower motor fails to operate, check the condition of the fuse.

**4-22.** When the feeder is not in use, open the feeder lid.

**4-23. Silver Recovery.** If a silver-recovery unit is used, position it as far as possible from the feeder. Be sure the recovery tank is covered.

#### 4-24. LUBRICATION

- a. NEVER lubricate the vacuum pump.
- b. Lubricate the blower motor every six months with a light motor oil, such as SAE No. 20.
- c. With a high-grade lubricant, such as drive-gear grease, Part No. 760614,\* *lightly* lubricate the pivot points (arm, cam, and yoke). Check monthly or as necessary.

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\*Order from Eastman Kodak Company, Parts Services, 800 Lee Road, Rochester, New York 14650.



## SECTION V — HOW TO CORRECT DIFFICULTIES

DIFFICULTY	POSSIBLE CAUSE	REMEDY
<b>Films Not Feeding Correctly</b>	<p>Improper loading of films</p> <p>Suction cups not swinging into pickup or feed positions</p> <p>Improper adjustment of replenisher detector switches</p>	<p>Be sure to load films into feeder one at a time. <b>(See paragraph 3-21.)</b></p> <p>1. Check all linkage for loose screws and binding arms.</p> <p>2. Lubricate pivot points. <b>(See paragraph 4-11a.)</b></p> <p>Check adjustment of switches. <b>(See paragraph 4-6.)</b></p>
<b>Light Streaks on Films</b>	<p>Light-lock lid not closed properly</p> <p>Light leak between feeder and processor</p>	<p>Check seal of light-lock lid.</p> <p>1. Tighten the feeder mounting screws so the feeder fits tightly against the processor.</p> <p>2. Reapply adhesive gasket material if necessary.</p>
<b>Density Marks on Films (from Suction Cups)</b>	<p>Vacuum too high</p> <p>Dirt on suction cups</p> <p>Header bar dropping on film</p> <p>Static</p>	<p>Reduce vacuum by turning vacuum-adjusting screw 1/8 turn at a time. <b>(See paragraph 4-17.)</b></p> <p>Clean the suction cups with a damp cloth.</p> <p>Check for excessive play in the drive cam system. <b>(See paragraph 4-10.)</b></p> <p>Apply antistatic solution to suction cups, header bar, linkage, and all the way to ground.</p>
<b>Erratic Feeding Cycle</b>	<p>Replenisher detector switches not set properly</p> <p>Dirty detector rollers</p> <p>Detector rollers turning in eccentric manner (out of round)</p>	<p>Check and adjust the switches.</p> <p>Clean rollers with a clean, damp cloth.</p> <p>Check rollers for concentricity. Replace, if necessary. <b>(See paragraph 4-4.)</b></p>
<b>Films Stubbing or Striking at Entrance</b>	<p>Improper header bar movement</p>	<p>Lubricate pivot points. <b>(See paragraph 4-11a.)</b></p>

DIFFICULTY	POSSIBLE CAUSE	REMEDY
Suction Cups Not Picking Up Films	<p>Vacuum too low</p> <p>Tubing pulled off header bar</p> <p>Tubing split</p> <p>Tubing binds</p> <p>Dirty suction cups</p> <p>Distorted suction cups</p> <p>Clogged orifice</p> <p>Drive arm improperly set</p> <p>Suction cups not touching the feed ramp simultaneously</p>	<p>Turn vacuum-adjusting screw clockwise 1/8 turn at a time until proper vacuum is obtained. <b>(See paragraph 4-17.)</b></p> <p>Refit tubing.</p> <p>Replace tubing as needed.</p> <p>Adjust path of tubing.</p> <p>Clean the suction cups with a damp cloth.</p> <p>Replace suction cups.</p> <p>Clean orifice. <b>(See paragraph 4-14.)</b></p> <p>Adjust drive arm. <b>(See paragraph 4-8b.)</b></p> <p>Align suction cups. <b>(See paragraph 4-13.)</b></p>
No Vacuum	Dirt or particles	Flush the vacuum pump. <b>(See paragraph 4-19.)</b>
Films Twisting	<p>Detector rollers dirty</p> <p>Detector rollers erratic</p>	<p>Clean rollers. Replace the worm gear if necessary.</p> <p>Replace rollers if necessary.</p>
No Air Flow	Blower not operating	Check operation of the blower and fuse.
Failure of Feeder to Shut off Properly When Feeder is Empty	<p>Limit switch not actuating</p> <p>Improper setting of replenisher detector switches</p> <p>Relay not operating properly</p> <p>Limit switch not operating properly</p>	<p>Set limit switch by <i>slightly</i> bending leaf spring. <b>(See paragraph 4-9.)</b></p> <p>Adjust replenisher detector switches.</p> <p>Clean relay contacts or replace relay if necessary.</p> <p>Check switch with ohmmeter and replace if necessary.</p>



## SECTION VI — PARTS LIST

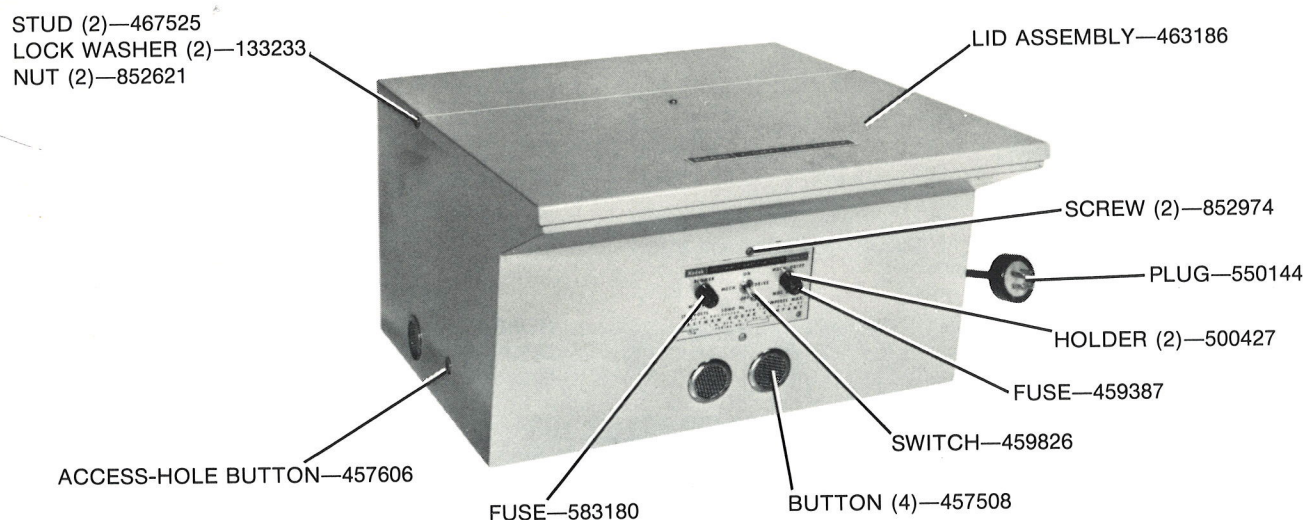


FIGURE 6

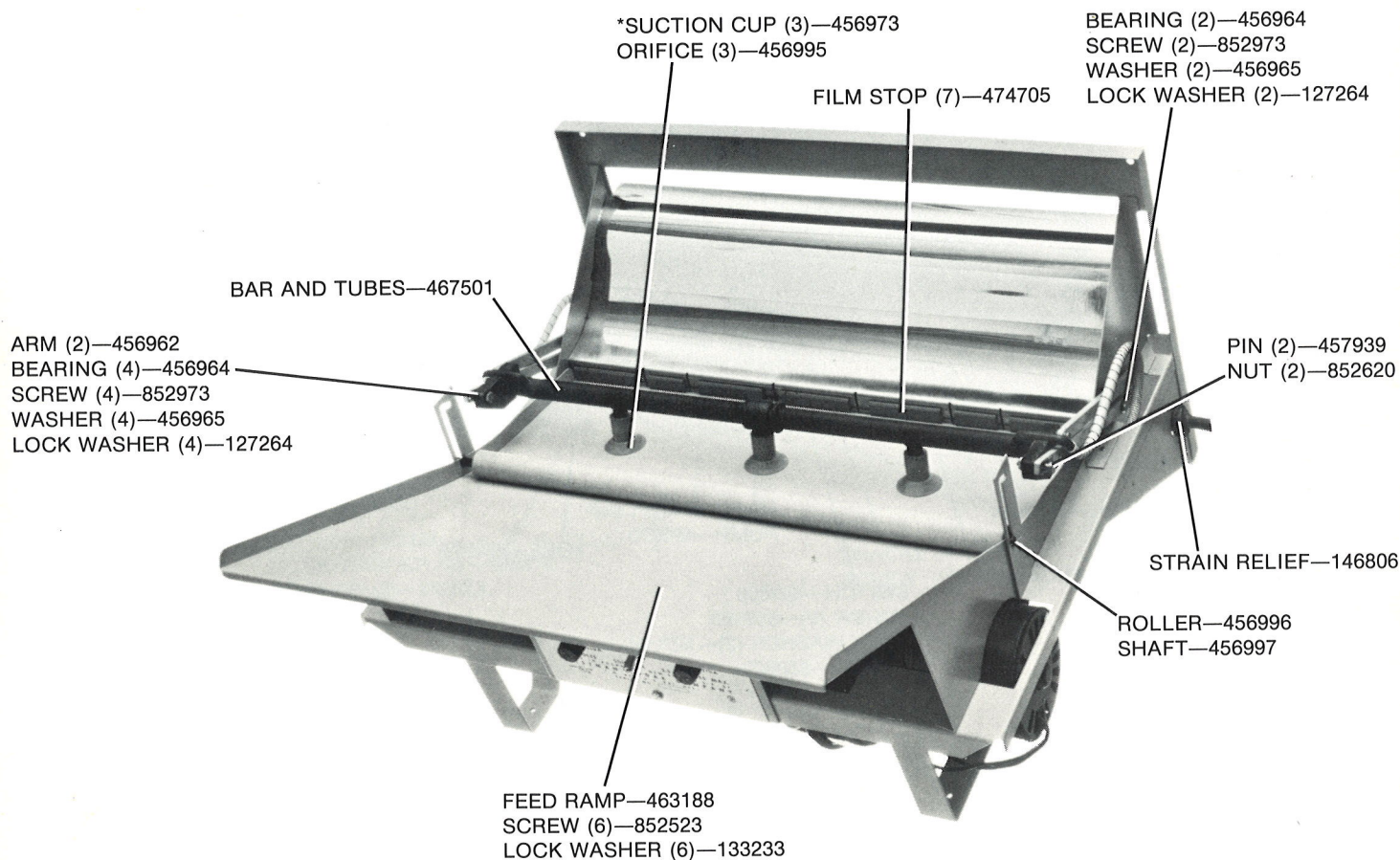


FIGURE 7

\*Use WASHER (4)—456965 if necessary.

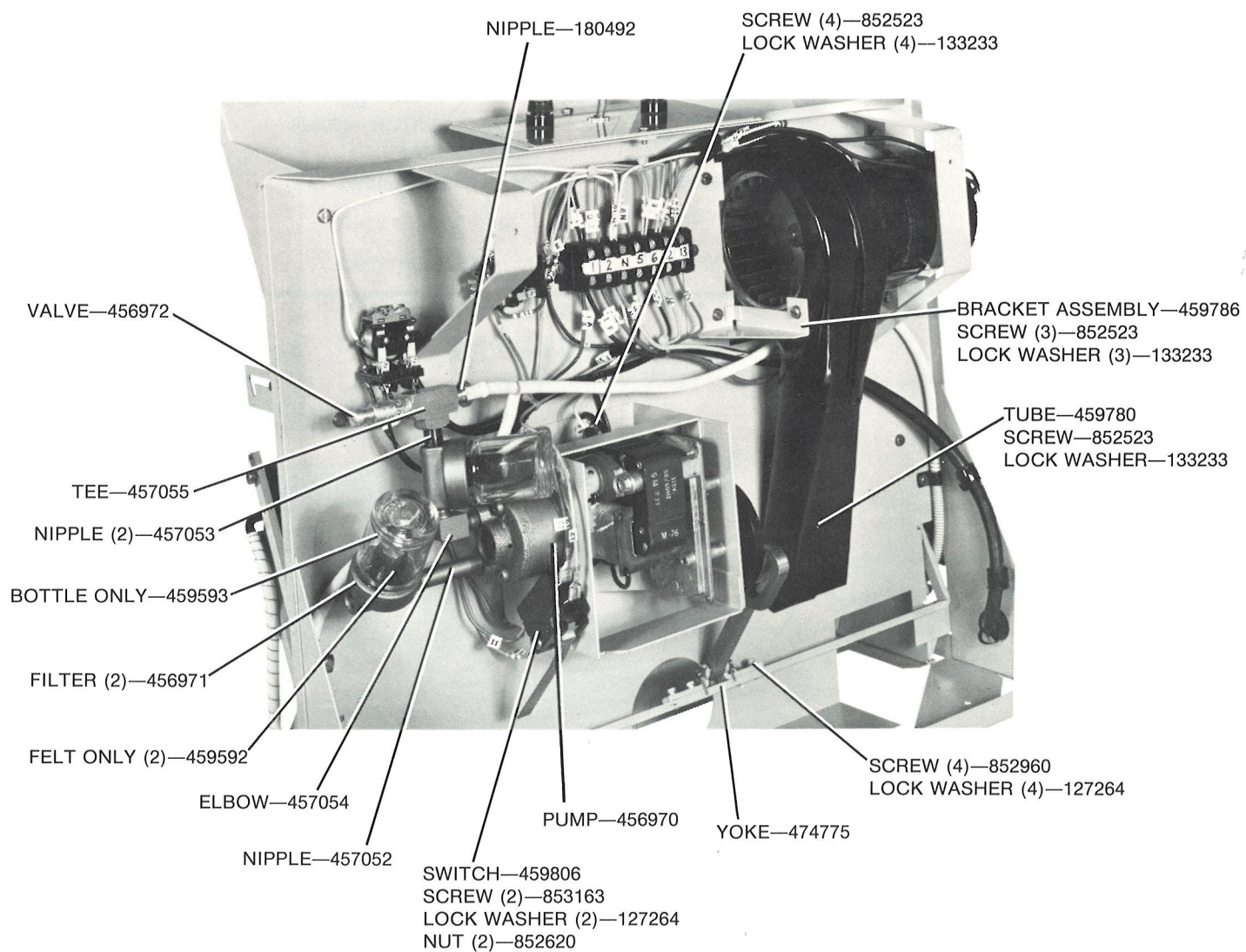
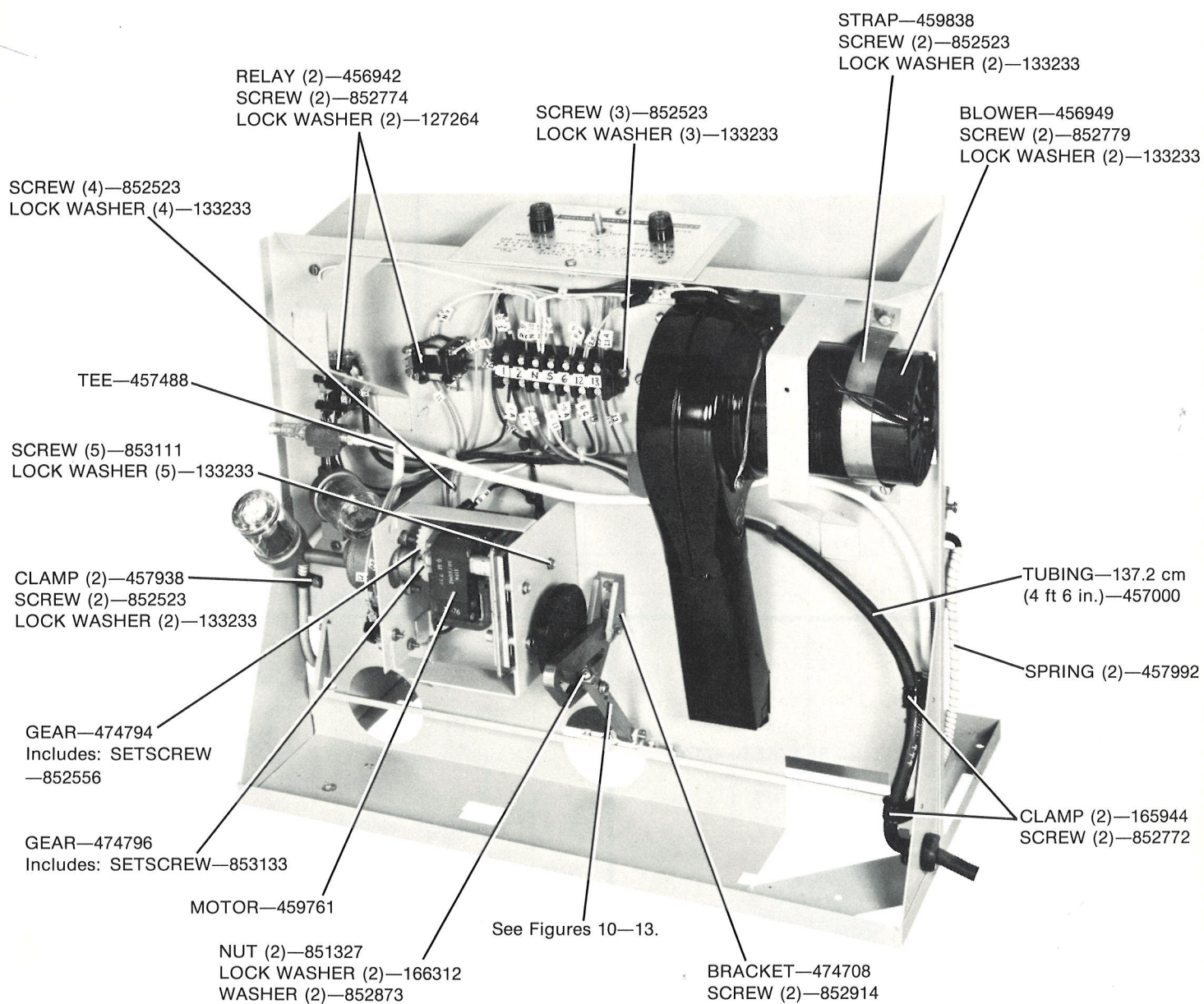


FIGURE 8





**FIGURE 9**

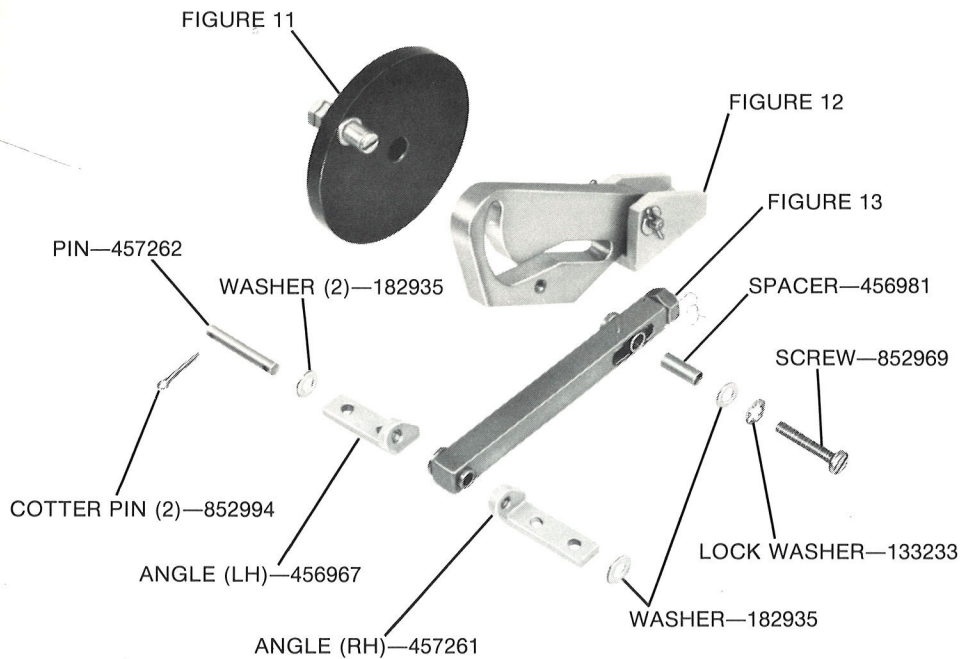


FIGURE 10

FIGURE 11

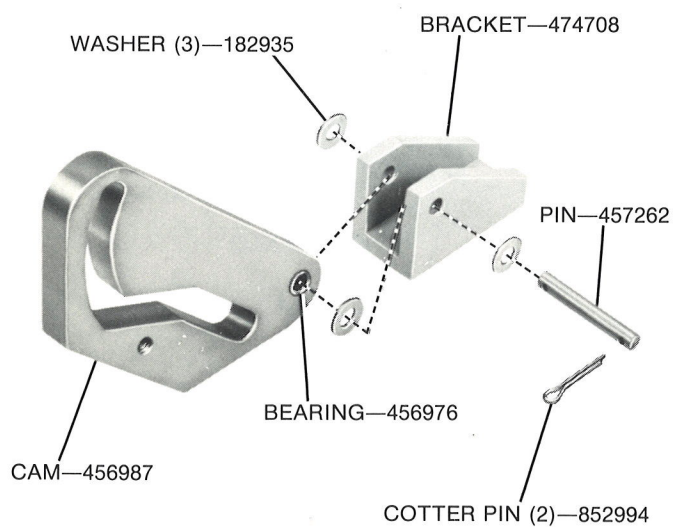


FIGURE 12

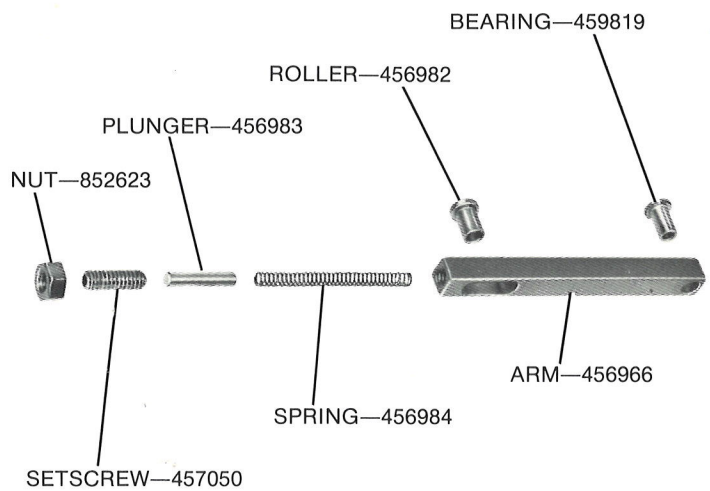


FIGURE 13



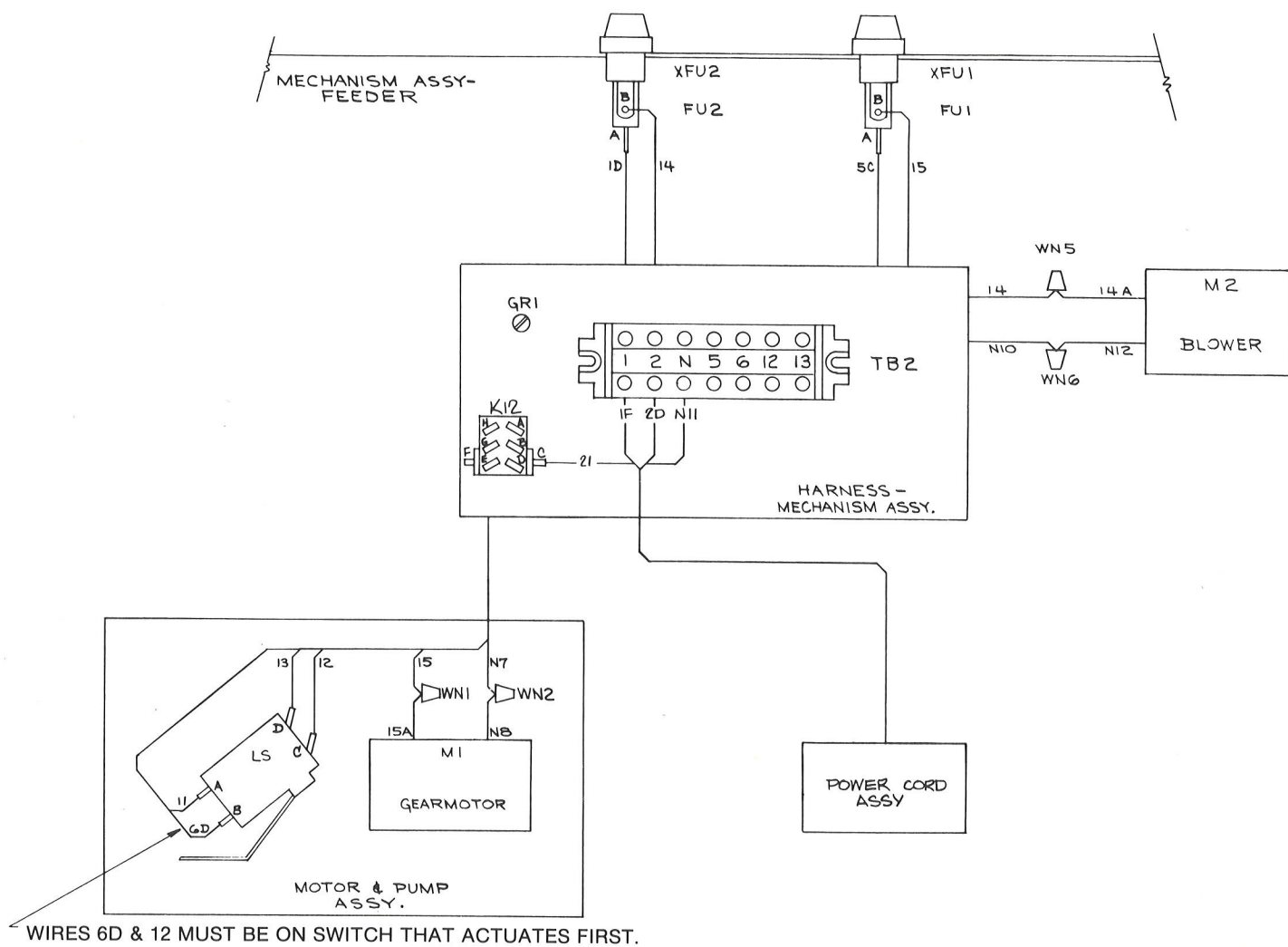
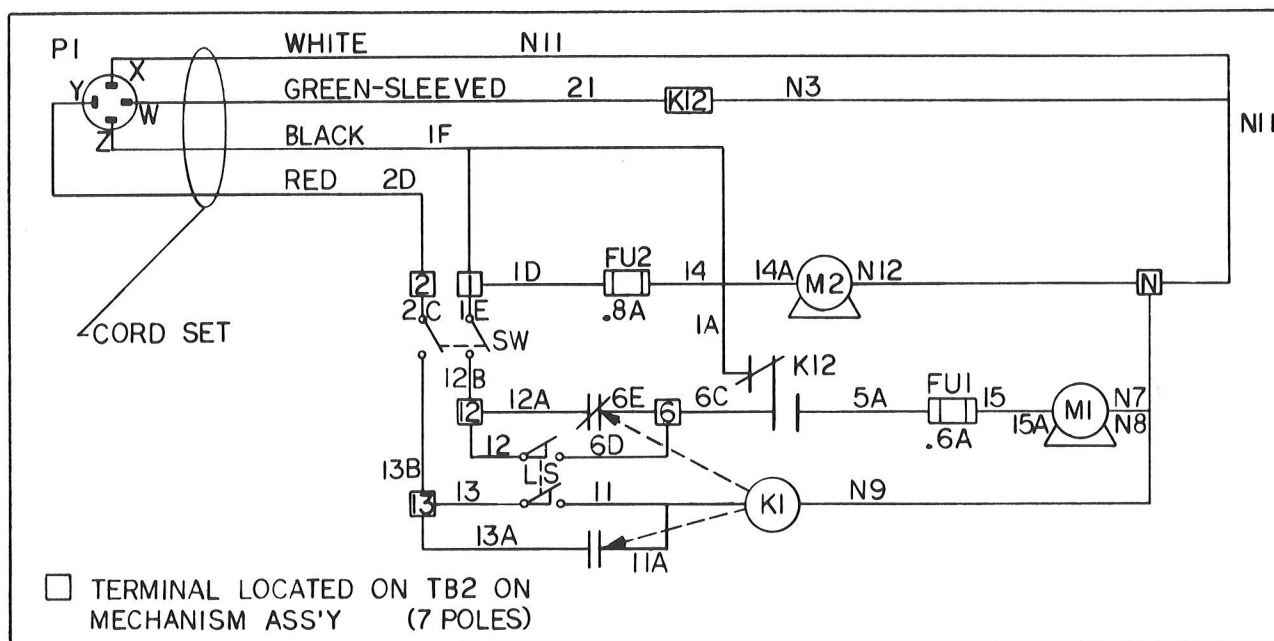


FIGURE 14 WIRING DIAGRAM FOR THE KODAK INDUSTRIAL X-OMAT FILM FEEDER, MODEL 5-K  
(Sept. 1977)





PART NO.	DESCRIPTION	FIGURE
127264	Lock Washer - Int. tooth, No. 6, stain. steel .....	7-9
133233	Lock Washer - Int. tooth, No. 8, stain. steel .....	6,7,8,9-11
146806	Strain Relief .....	7
165944	Clamp .....	9
166312	Lock Washer - Int. tooth, No. 10, stain. steel .....	9
180492	Nipple .....	8
182935	Washer - 0.170 ID x 0.375 OD x 0.032 th, brass .....	10,12
456942	Relay .....	9
456949	Blower .....	9
456962	Arm .....	7
456964	Bearing .....	7
456965	Washer - 0.150 ID x 0.375 OD x 0.032 th, brass .....	7
456966	Arm .....	13
456967	Angle (LH) .....	10
456970	Pump .....	8
456971	Filter .....	8
456972	Valve .....	8
456973	Suction Cup .....	7
456976	Bearing .....	12
456978	Roller .....	11
456981	Spacer .....	10
456982	Roller .....	13
456983	Plunger .....	13
456984	Spring .....	13
456987	Cam .....	12
456995	Orifice .....	7
456996	Roller .....	7
456997	Shaft .....	7
457000	Tubing .....	9
457050	Setscrew .....	13
457052	Nipple .....	8
457053	Nipple .....	8
457054	Elbow - 90°, 1/2 IPS, brass, 125 lb class .....	8
457055	Tee .....	8
457261	Angle (RH) .....	10
457262	Pin .....	10,12
457488	Tee .....	9
457508	Button .....	6
457606	Access-Hole Button .....	6
457938	Clamp .....	9
457939	Pin .....	7
457992	Spring .....	9
459387	Fuse .....	6
459592	Felt .....	8
459593	Bottle .....	8
459761	Motor .....	9
459780	Tube .....	8
459786	Bracket Assembly .....	8
459806	Switch .....	8
459816	Disk .....	11
459817	Screw - Special .....	11
459819	Bearing .....	13
459826	Switch .....	6
459838	Strap .....	9
463186	Lid Assembly .....	6
463188	Feed Ramp .....	7
467501	Bar and Air Tubes .....	7
467525	Stud .....	6
474705	Film Stop .....	7
474708	Bracket .....	9,12

PART NO.	DESCRIPTION	FIGURE
474775	Yoke .....	8
474794	Gear - 28-tooth .....	9
474796	Gear - 20-tooth .....	9
500427	Holder .....	6
550144	Plug .....	6
583180	Fuse .....	6
851327	Nut - Hex, 10-32, stain. steel .....	9
852523	Screw - Mach, sl pan hd, stain. steel .....	7,8
852556	Setscrew - Hex, cup pt 6-32 x 1/4, stain. steel .....	9
852558	Setscrew - Hex, cup pt 10-32 x 1/4, stain. steel .....	11
852620	Nut - Hex, 6-32, stain. steel .....	7,8
852621	Nut - Hex, 8-32, stain. steel .....	6,11
852623	Nut - Hex, 1/4-20, stain. steel .....	13
852772	Screw - Mach, sl pan hd, 6-32 x 3/16, stain. steel .....	9
852774	Screw - Mach, sl pan hd, 6-32 x 1/4, stain. steel .....	9
852779	Screw - Tapping, sl pan hd 8-32 x 3/8, stain. steel .....	9
852873	Washer - 3/16 ID x 7/16 OD x 0.049 th, stain. steel .....	9
852914	Screw - Mach, sl flat hd, 8/32 x 3/8, stain. steel .....	9
852960	Screw - Cap, hex socket hd, 6-32 x 3/8, stain. steel .....	8
852969	Screw - Mach, sl pan hd, 8-32 x 7/8, stain. steel .....	10
852973	Screw - Mach, sl pan hd, 6-32 x 1/2, stain. steel .....	7
852974	Screw - Mach, sl pan hd, 8-32 x 5/16, stain. steel .....	6
852994	Cotter Pin - 1/16 x 1/2, stain. steel .....	10,12
853111	Screw - Mach, upset hex hd, 8-32 x 1/4, stain. steel .....	9
853133	Setscrew - Hex, cup pt, 6-32 x 3/16, stain. steel .....	9
853163	Screw - Mach, sl pan hd, 6-32 x 1, stain. steel .....	8



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# The Care and Cleaning of Stainless Steel Used in KODAK Processing Equipment



## Introduction . . . some facts about stainless steel.

Stainless steel is used in photographic processing equipment because of its ability to resist corrosion and maintain its appearance. Stainless steel relies on a thin, transparent, nonporous surface layer of complex oxides to resist corrosion and pitting. This layer of oxides will normally form rapidly on clean stainless steel when it is exposed to air. If this oxide layer is disturbed, and a contaminant left behind, the corrosion-resisting properties of stainless steel will decrease and the metal will corrode, pit, and eventually rust. The thin oxide layer can be disturbed by an accumulation of general dirt, chemical deposits, or condensed chemical vapors. Deposits can act as a contaminant and help "starve" the stainless steel for oxygen, thus reducing the effectiveness of the protective oxide layer. In addition, oxygen starvation can be created within a processor by chemical fumes.

Stainless steel can keep its "stainless" properties or be *restored* to its "stainless" state via simple, *continuous* cleaning procedures. These cleaning procedures are called "passivating"; that is, making the steel passive and inactive, and thus corrosion resistant. Even if stainless steel is pitted and rusting, it can be restored with only the pitted areas remaining.

Read and follow these cleaning instructions to obtain maximum service from the stainless steel in your Kodak equipment.

## General Cleaning

To remove general dirt and chemical deposits, use a sponge or a fiber brush and hot water. Use care when rinsing with hot water to prevent damage to components of the processor. After cleaning, immediately dry the stainless steel with a soft, clean cloth.

To remove more stubborn deposits and stains, use a sponge or a cloth, and a paste made from a mild abrasive cleaner such as Bon Ami, Vulcan Pumice, or an equivalent cleaner. Apply the paste in the direction of the original finish on the stainless steel. For stubborn deposits and stains, use a fiber brush or a stiff plastic scouring sponge (usually found in supermarkets for scouring pans) and the scouring paste. Use scouring sponges sparingly; because even though they feel fairly soft, they can scratch the stainless steel. Fine-textured stainless steel wool may also be used, with care. Never use regular steel wool! After cleaning, rinse and immediately dry the stainless steel with a soft, clean cloth.

In some areas, hard water will leave white deposits. These deposits can be eliminated by quickly drying stainless steel. Water spots that are already present may be removed with vinegar or a commercial water softener. Always rinse and quickly wipe dry.

Iron from the plumbing can leave a rust film if the rinse water is allowed to dry by itself. This is why you should always quickly dry stainless steel after rinsing.

## Heavy-Duty Cleaning

Occasionally you may encounter stains and deposits that resist general cleaning techniques. These stains and deposits can be removed with commercial cleaners and rust removers such as Oakite 33 (Oakite Products Co.), WO-2 (Turco Products Co.), or an equivalent cleaner.

### WARNING

*Commercial cleaners, such as Oakite 33, can cause contamination of photographic chemicals, especially lithographic-type developers. Commercial cleaners are NOT RECOMMENDED for cleaning processor tanks or racks. For processor tanks and racks, use the cleaning procedures described earlier.*

These cleaners usually contain solvents, detergents, and an acid such as phosphoric acid. Follow the manufacturer's instructions and use safe chemical handling practices such as using proper mixing vessels, rubber gloves, eye protection, and aprons.

After preparing the cleaner, flush the stainless steel with water and swab the cleaner over the area with a cloth or sponge. Allow the solution to soak the stained area for 5 or 10 minutes; then scrub with a cloth, brush, or plastic sponge. Rinse and dry.

When properly used, these cleaners will not harm stainless steel but they may harm paint, galvanized steel, fabrics, and rubber.



# The Care and Cleaning of Stainless Steel Used in KODAK Processing Equipment

## General Precautions

- 1) If you must use a scraper to remove deposits, use a stainless steel scraper. If a common steel scraper is used, the area that was scraped should be scoured with aluminum oxide abrasive paper and then cleaned as described in "Heavy-Duty Cleaning."
- 2) In cleaning, give special attention to joints and welds.
- 3) Don't splash cleaning solutions on vulnerable surfaces.
- 4) Don't let stainless steel come in contact with steel or iron, such as nails, rusty shelves, etc.
- 5) Always rinse thoroughly and wipe dry.

Use the following easy "Do and Don't" guidelines.

### DO

Wipe up chemical spills and deposits.

Use proper cleaning tools and chemicals.

Rinse and dry stainless steel quickly.

Keep stainless steel parts away from common steel and iron.

Clean *all* stainless steel parts.

Clean stainless steel regularly to maintain its protective oxide coating.

### DON'T

Allow deposits to harden.

Use steel wool or common steel scrapers. Avoid using harsh plastic sponges. Don't use cleaners other than those recommended. **DO NOT** use hydrochloric or muriatic acid.

Allow rinse water to dry by itself.

Hang stainless steel parts from nails or steel brackets. Don't put stainless steel parts on rusty shelves.

Overlook stainless steel parts that are not submerged in solutions.

Put off cleaning stainless steel components.



**EASTMAN KODAK COMPANY • Rochester, N.Y. 14650**