

FUJI IX PROCESSOR

Model FIP4000

Instruction Manual

Fuji Photo Film Co., Ltd.

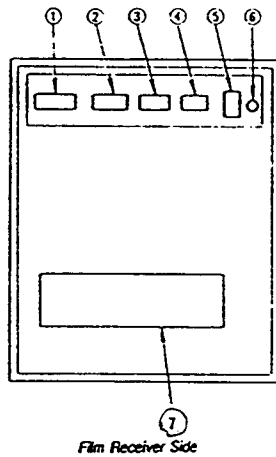
Tokyo Japan

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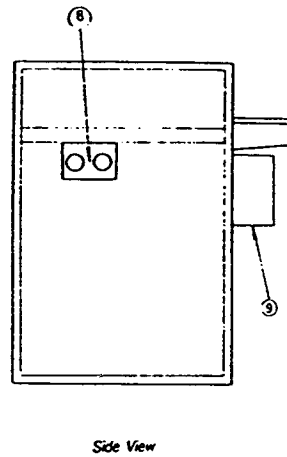
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Controls and Operation of the Processor



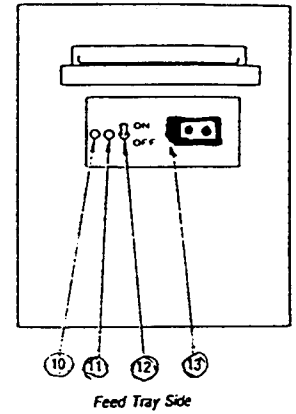
Film Receiver Side

Fig. 1



Side View

Fig. 2



Feed Tray Side

Fig. 3

Film receiver side (Fig. 1)

1. Digital Display of Developer Temperature

2. Ready Light (READY)

This light comes on when developer, fixer and dryer reach the preset temperatures, indicating the processor is ready to process films.

3. Replenishing Light (REPL)

This light comes on only while the replenisher pumps are operating.

4. Main Light (MAIN)

This light comes on when the main switch is turned on, indicating the unit has power.

5. Main Switch

Press this switch to ON position to turn the power on. The main light will come on.

6. Manual Handle Jack

7. Film Receiver

Side View (Fig. 2)

8. Dryer Temperature Setting Dials

Set dryer temperature according to the procedure described in "Adjustments of Processor Conditions".

9. Control Box

Feed Tray Side (Fig.3)

10. Ready Light (READY)

This light comes on when developer, fixer and dryer reach the preset temperatures.

11. Replenishing Light (REPL)

The light comes on only while the replenishing pumps are operating.

12. Replenishment Switch

When this switch is set to "ON", the replenisher pumps operate and the **REPL** lights on both sides of processor are illuminated while film is being processed.

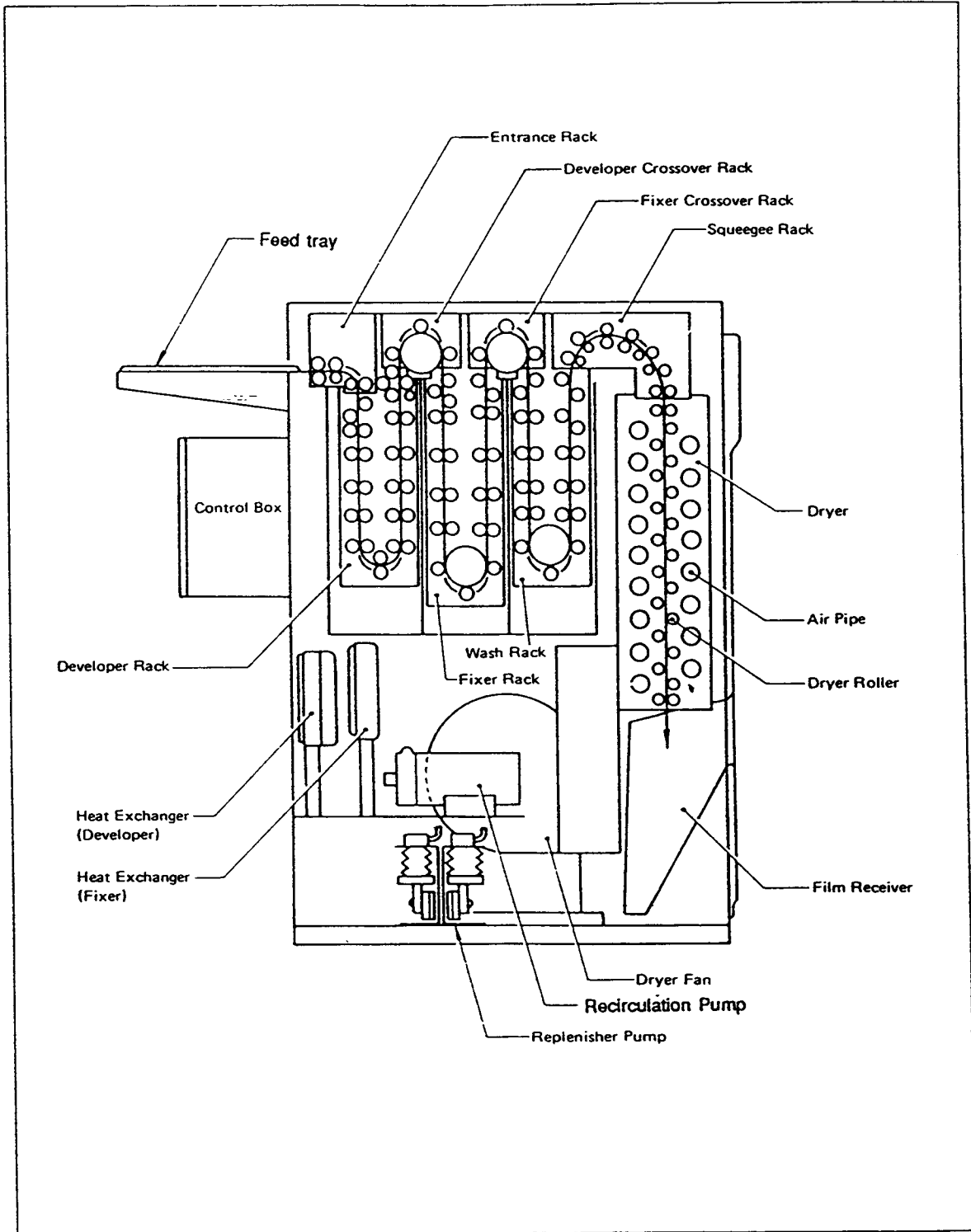
When this switch is set to "OFF", the replenishing light on the feed tray side does not come on and the replenishment pumps do not operate when films is being processed. The **REPL** light on the display panels, however, is illuminated while film is processed.

13. Short & Long Cycle Speed Control

Set the speed control to 5" for short cycle operations; 11" for long cycle operation or set the "MANUAL" position to select any other operating cycle.

- Turn the power off first when changing processing cycles.
- The speed control module may be mounted in any convenient location on or close to the processor.

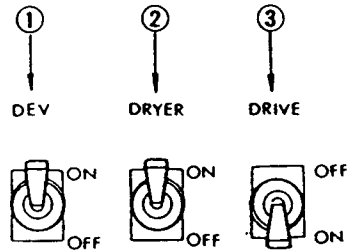
Sectional View



Adjustments of Processing Conditions

Control Box

Service Switches



» *These switches are for servicing use only. Do not touch under normal operation.*

1. DEV:

Press this switch to OFF to cut the developer and fixer temperature controllers and the recirculation lines.

2. DRY:

Press this switch to OFF to cut the dryer system.

3. DRIVE:

Changeover switch of the drive system.

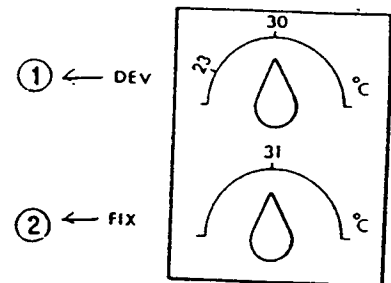
Shut-down or continuous operation. Under normal operation this switch is set at ON.

Temperature Adjustment Dials

1. DEV:

Developer temperature setting dial

- Standard:
 - 30°C (86°F) for 5-minute processing cycle
 - 23°C (73.4°F) for 11-minute processing cycle

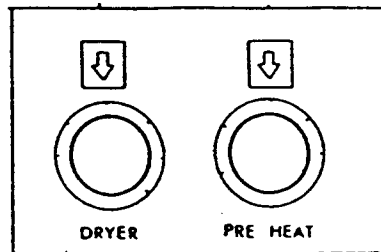


2. FIX:

Fixer temperature setting dial

- Standard:
 - 31°C (87.8°F) for 5- and 11-minute processing cycles

Dryer Temperature Setting Section



1. DRYER:

Dryer temperature adjustment dial. Set the temperature by referring the following standards.

- Standard setting:

- 45°C (113°F) for 5-minute processing cycle
- 35°C (95°F) for 11-minute processing cycle

2. PRE HEAT:

Stand-by temperature setting dial.

- Standard setting:
 - 30°C (86°F) for 5-minute processing cycle
 - 20°C (68°F) for 11-minute processing cycle

Developer and Fixer

Rate Measurement Procedure

1.

Remove the "replenisher hook"s from the replenishment outlets, and place the outlets in a graduate each.

2.

Run a 14x17 film.

3.

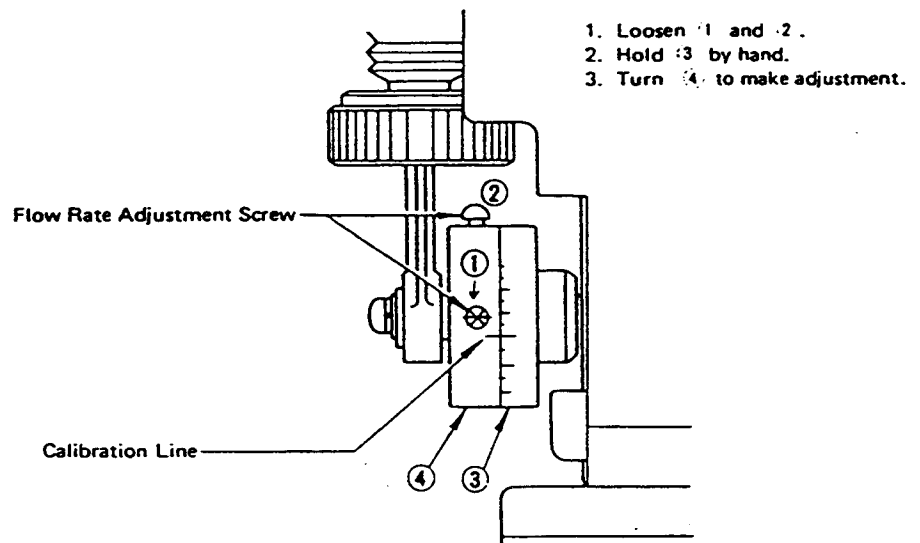
Read the lines of the graduate.

• **Standard Replenishment Rates (Average density $D=2.0$)**

— Developer: 100 *ml* per 14x17 sheet

— Fixer: 300 *ml* per 14x17 sheet

Adjustment Procedure



1.
Loosen the two adjustment screws in the diagram, and set the stroke of the replenisher pump double-eccentric cam system by rotating 4 while holding 3 with one hand. The scale is calibrated in percentage of output of the replenishment pump.

2.
Tighten the two adjustment screws after calibration.

Note:

Replenishment rates should be adjusted for the selected processing cycle based on one 14 x 17 sheet of film.

Wash Water Rate

- Standard rate :
 - 10 liters per minute or more when processing films
 - 1 to 3 liters under stand-by mode
- Temperature :
 - 31°C (87.8°F)

Adjustment Procedure

1

Rotate the valve, **B₁**, in the diagram while watching the flowmeter to set the proper rate.

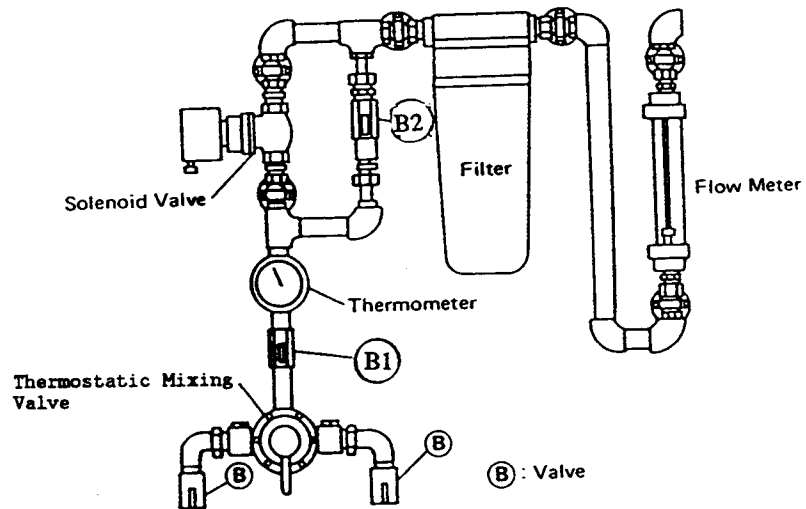
2

Check the water temperature on the thermometer after setting the flow rate.

3

The solenoid valve shuts off under stand-by mode, causing the flow rate to switch to the proper stand-by rate. Adjust the stand-by flow rate by rotating **B₂**.

• Water Supply Panel



» *Note: Wash water is kept running at stand-by to keep water temperature at certain range, and to prevent alga deposit in the water line and the tank of the processor.*

Recirculation Line Valves

Open the 11-minute processing cycle valve located inside the processor for 11-minute processing operation; the 5-minute processing cycle valve for the 5-minute processing operation.

Operating Procedure

Start-up Processor and Processing Films

1

Check the processing cycle selector to confirm whether the cycle selection is correct or not.

2

Check the replenisher tanks for proper chemical supply.

3

Check the chemical level of tanks in the processor to assure that both developer and fixer surface lines meet the over-flow line.

4

Check racks to assure that all racks are set at the correct position.

Replace the inner covers.

5

Check wash water.

Close the drain valve. Check the flow rate. It should be 10 liters per minute or more at 88°F.

6

Turn Power ON.

Allow the processor to operate for a while. Check all rollers to assure they are rotating smoothly.

- Check the recirculation pumps to assure they are functioning properly.
- If necessary turn the water cooler on and check to assure the cooling pump is functioning properly.

7

Assure that all covers are correctly set.

8

Check the **READY** light.

The **READY** light comes on when developer temperature, fixer temperature, and dryer temperature reach the preset values. Check the digital display to assure that it displays the preset developer temperature.

9

Run several sheets of clean-up film and check them for roller marks and scratches. The recommended size of clean-up sheet is 14x17.

10

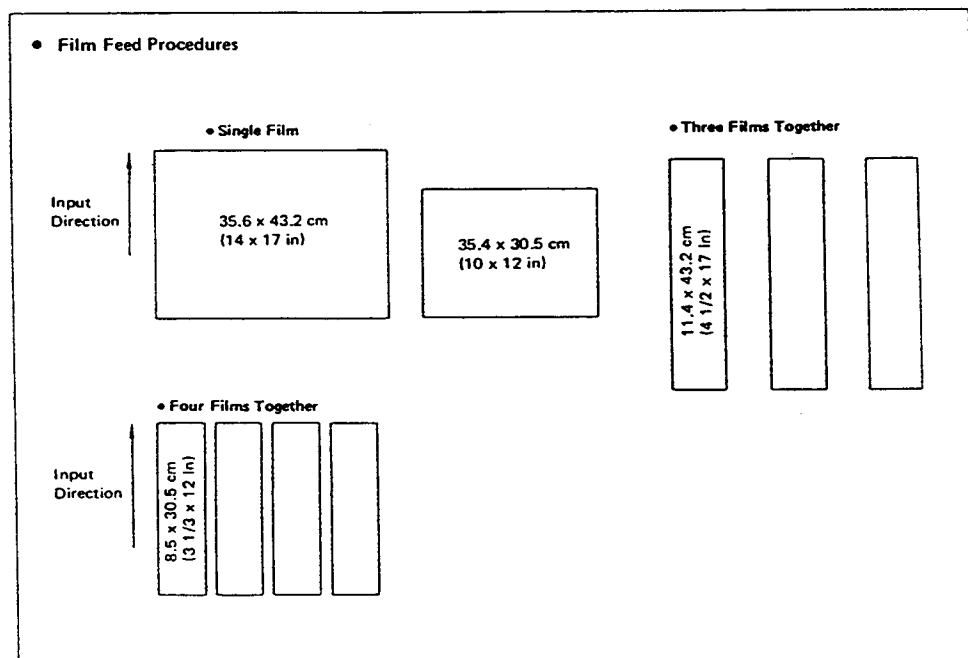
Check the **REPL** light and the chime.

Check the **REPL** light to confirm the light comes on and replenishment chemicals are properly supplied. Confirm a chime is heard when a film has been completely taken into the processor.

11

Insert film.

Gently feed film with one edge against the side of the tray. Refer to the illustration below for proper film orientation.



When a chime is heard, feed the next film.

Notes:

Stand-by mode

- To maintain solutions at the "ready" temperatures, leave the main switch ON. About 1 minute after the last film is discharged from the processor, the dryer heater, and the dryer fan operation automatically stop, and the wash water supply rate is reduced to save energy.
- If the processor is left idle for a long period of time, run several sheets of clean-up films.

Room Light

- If you wish to turn on room light, please wait for 20 seconds after the chime is heard.

Shut-down Procedure

1

Turn all switches (processor, circuit breaker and water cooler) off.

2

Close the water supply, and open the drain valve.

3

Wash the entrance and the crossover racks immediately after the processor has been shut down.

4

Wipe all exposed surfaces of those rollers which are not submerged in the chemicals with a soft damp cloth to assure that chemicals do not dry on any roller surfaces.

5

Replace the dried entrance and crossover racks to their proper positions.

6

Wash protection covers of developer and fixer racks. Wipe all dry surfaces of processor with a soft damp cloth.

REPLACING PROCESSING SOLUTIONS

1. Changing the Developer

1.

Turn OFF the main switch.

2

Open the developer drain cocks.

- Turn the cock handle 90 degrees counterclockwise.

3

Remove the developer rack.

- Be careful not to spill chemicals.

4

Remove the developer filter.

5

Wash the developer filter and tank with water.

6

Drain all the wash water and close the developer drain cock.

- Turn the cock handle 90 degree clockwise.

7

Reinstall the cleaned filter and close the lid securely.

8

Fill the developer tank with 26 liters (6.8 US gallons) of fresh solution.

9

Carefully reinstall developer racks in the tank.

10

Add proper amount of starter to the developer tank.

- Refer to the instructions on the starter bottle label for the proper amount.

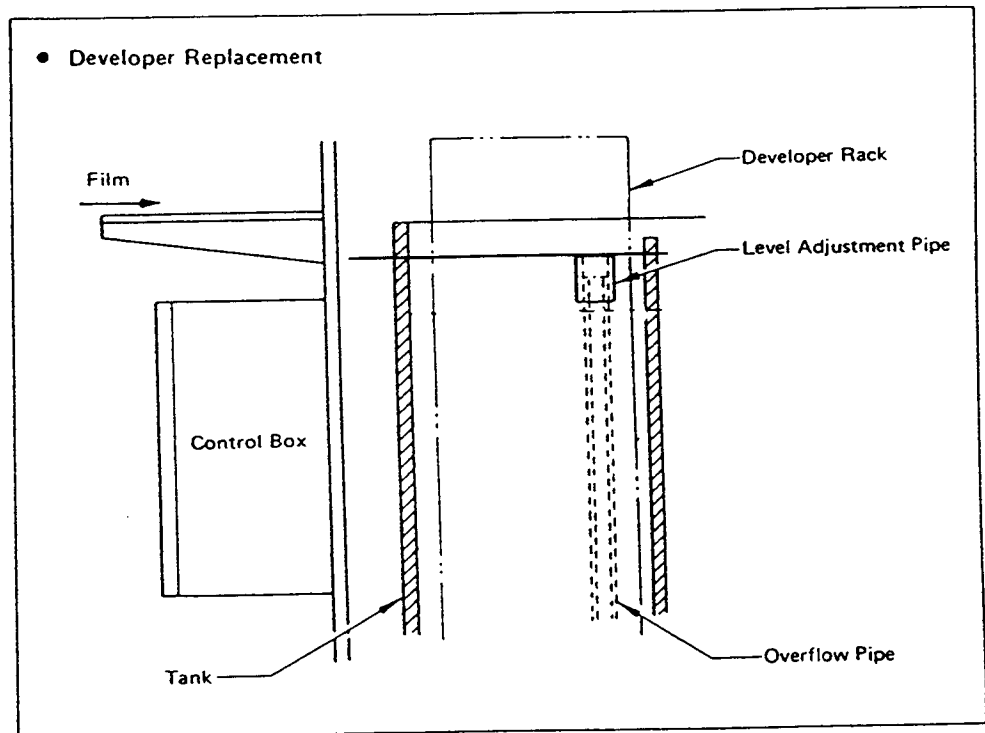
11

Turn ON the main switch and make sure that the circulation pump operates. Bleed the circulation system at the filter and check it for solution leaks.

12

Add fresh solution into the tank until the solution overflows from the level adjustment pipe.

» *Refer to the illustration below for overflow adjustment.*



2. Changing the Fixer

1

Open the fixer drain cock.

2

When the fixer tank is emptied, carefully remove the fixer rack so that no solution contaminates the developer tank.

3

Wash the fixer tank with fresh water.

4

Drain all the wash water and close the fixer drain cock.

5

Fill the fixer tank with 20 liters (5.3 US gallons) of fresh solution.

6

Reinstall the fixer racks.

7

Add fresh solution into the fixer tank until it starts to overflow from the overflow pipe.

3. Changing the Wash Water

1

Open the wash water drain cock.

2

After draining is completed remove the wash rack.

3

Wash the wash tank with fresh water.

4

Drain all the wash water and close the wash water drain cock.

5

Reinstall the wash rack and fill the tank with a proper amount of fresh water.

Note:

- » *Release the Lock Bar installed over the helical gear on the drive shaft side before removing the wash racks.*

Processor Cleaning and Maintenance

Rack and Tank

Everyday

Entrance Rack

- Wipe with soft, wet cloth

Crossover Racks

- Immerse racks in a warm water bath, and wash them with a sponge.
- » *(Note: Do not set wet racks on the processor.)*

Dev. & Fix. Racks

- Wipe rollers which are not immersed in chemicals with soft, wet cloth.
- » *Note: Do not wipe the developer rack with the cloth used to clean the fixer rack.*

Once a Week

Wash Racks

Immerse rack in a warm water bath, and wash them with a sponge.

Once a Month

Dev. Rack and Tank

Clean the rack and tank in the processor using the following procedure.

1

Drain the tank.

2

Flush the developer tank with fresh water.

3

Add the recommended developer systems cleaner into the tank.

Note: Never use a fixer system cleaner in the developer tank.

4

Turn the main switch on, and allow the processor to operate for 15 minutes.

Leave the rack inside the tank.

5

Drain immediately.

- *Rubber rollers deteriorate if they are left in the developer system cleaner solution for prolonged periods of time.*

6

Remove the rack from the tank.

7

Re-fill the tank with fresh water, and allow the processor to operate for a few minutes. Drain. Repeat this process at least 3 times to eliminate any residual systems cleaner.

8

Wash rollers one by one with a sponge and neutral detergent.

9

Rinse rollers completely with water.

Wash Rack

Clean the rack using the following procedure.

1

Prepare a solution (a cap of bleaching solution mixed with one liter of water), and submerge the rack in the bleach bath for 15 minutes.

Rotate rollers once every 2 to 3 minutes.

2

Rinse the rack thoroughly with fresh water.

Wash Tank

Thoroughly flush and rinse the tank with warm water.

Fixer Rack & Squeegee Racks

1

Wash rollers one by one with a sponge and neutral detergent.

2

Rinse rollers completely with fresh water.

When Fixer Is changed:

Fixer Tank: Drain and flush the fixer tank with warm water.

Other Parts

Filter

- Developer recirculation filter
 - Developer replenisher filter
 - Fixer replenisher filter
 - Wash Water filter
- Using a warm water bath, clean the filter with a brush at least once a week.
- » *Note: Replace the filter with a new filter whenever necessary.*

Feed Tray

Dust the tray, and wipe it with a dry cloth, or wipe it with alcohol everyday.

Protection covers for the developer and the fixer racks.

Wash daily in warm water immediately after the processor has been shut down.

Notes:

- Do not allow developer or fixer to mix when removing any racks.
- Use a brush to remove dried up or dirty residue on gears or chains.
- When cleaning a rack, first remove grease from gears to protect rollers from contamination.
- Do not use any hard brushes to clean rollers. Hard materials damage roller surfaces.

Inspection of Racks

Structure:

Refer to the illustration of "Parts List"

Maintenance Period:

— Every week and at rack cleaning time

Procedure:

1

Place a rack on a flat surface.

Set the developer rack, the fixer rack, and the wash rack in vertical positions. Set the entrance, the D-F crossover rack, the F-W crossover rack, and the squeegee rack in upside down positions.

2

Check rack shape

Check the rack to assure that all screws are tight, and the rack is not warped.

3

Check the rotation torque

Rotate worms in clockwise direction to assure their movements are smooth.

4

Check roller rotation

Rotate worms and visually check that all rollers are turning smoothly. If necessary, clean roller shafts and bearings on rollers operating above solution levels to remove oxidized residue and insure smooth operation.

5

Check springs.

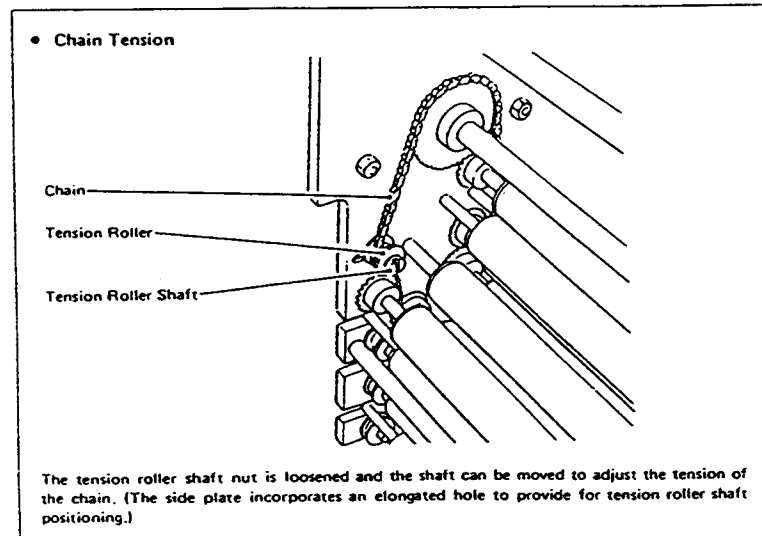
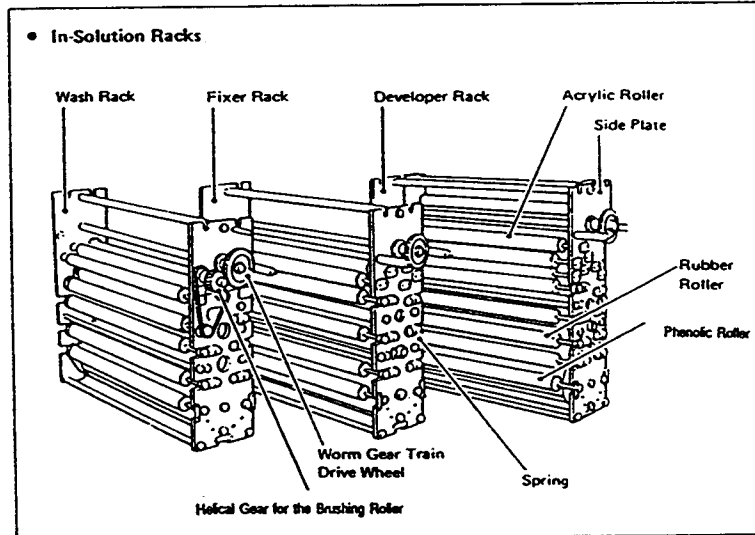
Check all springs to assure that they are not stretched, out-of-place, or bent. Replace any defective springs with new ones.

6

Check chain tension.

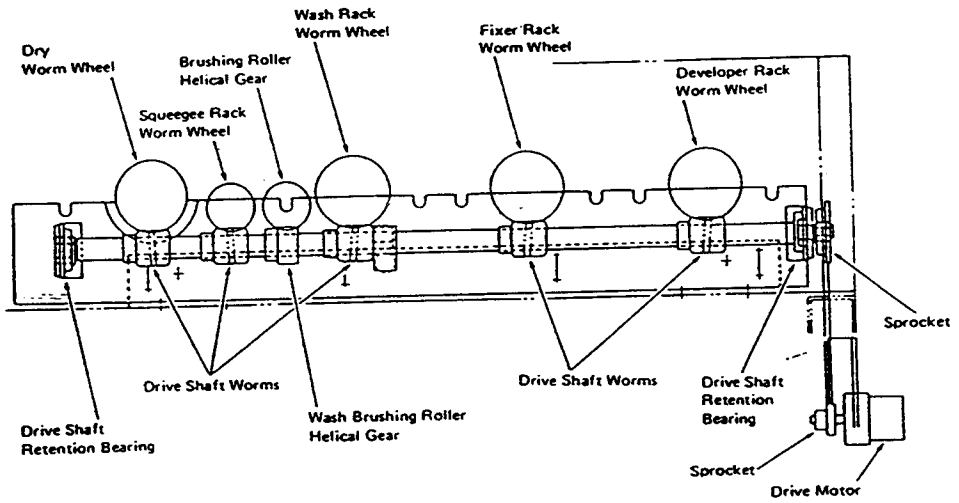
7

Check bearings and gears. Replace any damaged or worn-out parts with new parts.



Lubrication

Apply white vaseline on worms and pinions of the drive shaft.



REPLACEMENT PERIOD (Solutions and Parts)

1. Developer

Under normal usage, whichever comes first:

- 1 to 3 months
- 10,000 or 20,000 sheets (8.5x30.5 cm)

2. Wash Filter

When replenishment rate is restricted below 10 liters per minutes.

- Part #376F0024

3. Replenisher Tank Filters

Every 6 to 12 months.

(The standard loads are 8 hours per day and 25 days per month for the recommended replacement period for the following parts.)

4. Developer filter

- Every month

5. Washing Brushing Roller

- Every 3 to 6 months
- » *Wearing degrees depend on processing load.*

6. Rack Bearing

- All bearings at every 2 to 3 years.

7. Rack Bracket

- All brackets at every 2 to 3 years.

9. Dryer Belt & Dryer Drum

- Every 2 to 3 years

9. Rack chain Immersed in solution

- Developer Rack -Every 1 to 2 years
- Fixer -Every 1 to 3 years
- Washing -Every 1 to 3 years

TROUBLESHOOTING GUIDE

Condition	Cause	Inspection	Countermeasures
Insufficient Image Density	Insufficient Developer Replenishment (In this case replace the developer.)	Are the replenisher lines clogged?	Clean the supply lines.
		Is there air in the supply lines?	Bleed all air from the replenisher lines.
		Is the replenisher filter dirty and clogged?	Clean or replace the filter.
		Make measurements to insure that the supplied amount of replenisher is adequate.	Adjust until the proper amounts of replenisher are supplied.
		Is the replenisher tank empty?	Fill the replenisher tank with replenisher.
	Fixer has gotten into the developer.	Did fixer get into the developer tank when removing the fixer rack?	Replace the developer.
		Are not solutions incorrectly placed in the replenisher tanks?	Replace both the developer and replenishers.
	Developer temperature too low.	Check for proper solution temperatures.	Adjust to correct levels.
		Is the developer filter clogged?	Replace the filter.
		Is the developer heater functioning?	Replace the heater.
		Is the cooling water supply solenoid clogged?	Take apart the solenoid and clean it.
	Developer Replenisher too old.	Check the replenisher solution mixing date.	Replace the replenishers.
Overly used developer solution.	Check the number of films processed and the days lapsed.	Replace with new solution.	
Excessive Image Density	Incorrect solution preparation.	Has the developer solution been properly prepared?	Replace with properly prepared developer.
	Excessive replenishment.	Measure the replenishment amount for accuracy.	Adjust for correct replenishment amount.
		Is the film feed orientation correct?	Feed films according to instruction manual.
	Developer temperature too high.	Insure that the determined temperature is correct.	Make adjustment corrections.
		Is the water cooler working?	Bring the cooler to proper functioning conditions.
		Is the cooling water solenoid functioning?	Replace the cooling water solenoid.
Film Light Fogged	Darkroom light leaks.	Check for light leaks.	Correct all light leak imperfections.
	Because of darkroom installation the processing section lid is not properly shut, or the light was turned on.	Check to insure that all lids are completely closed.	Correctly close all lids and covers.
	Fading safe light filter.	Is the safe light filter faded?	Replace the safe light filter.

Condition	Cause	Inspection	Countermeasures
Film Clarity Bad	Incorrect fixer mixing.	Insure that the fixer was mixed according to instructions.	Replace with properly mixed fixer.
	Inadequate replenishment. (In this case replace all the fixer solution.)	Are the replenisher supply lines clogged?	Clean out the supply lines.
		Is there air in the replenisher supply lines?	Bleed all air from the lines.
		Is the replenisher filter dirty and clogged?	Clean or replace the filter.
		Measure for accurate solution delivery.	Adjust for accurate replenisher delivery.
		Is the replenisher tank empty?	Fill the tank with replenisher.
	Fixer temperature too low.	Check for proper temperature setting.	Make adjustments for proper temperature.
Is the fixer heater functioning?		Replace the heater.	
Yellow Film Stain	Fixer exhausted.	Same as with "Inadequate Replenishment" under "Film Clarity Bad".	
Film Does Not Dry	Drying temperature too low.	Insure that the temperature setting is correct.	Make adjustment corrections.
	Developer replenishment inadequate.	Same as with "Insufficient Replenishment" under "Insufficient Image Density".	
	Fixer replenisher inadequate.	Same as with "Inadequate Replenishment" under "Film Clarity Bad".	
	Wash water temperature too high.	Check the wash water temperature.	Adjust for correct wash water temperature.
	No wash water flow.	Is the wash water valve open?	Close the valve and wash the rollers after the wash section.
	Fuse burned out.	Check the dryer heater fuse.	Replace the fuse.
Dirty Film	Wash water dirty.	Check the wash water filter.	Replace the wash water filter.
	Drying air is dirty.	Clean the dryer section.	Clean the dryer section.
	Roller is dirty.		Clean the racks and the rollers.
Scratched Film	Foreign matter on rollers.	Check the rollers.	Clean the rollers.
	Foreign matter on guide plates.	Check the guide plates.	Clean the guide plates.
	Inadequate roller action.	Check the roller springs and bearings.	Replace the roller springs and/or bearings.