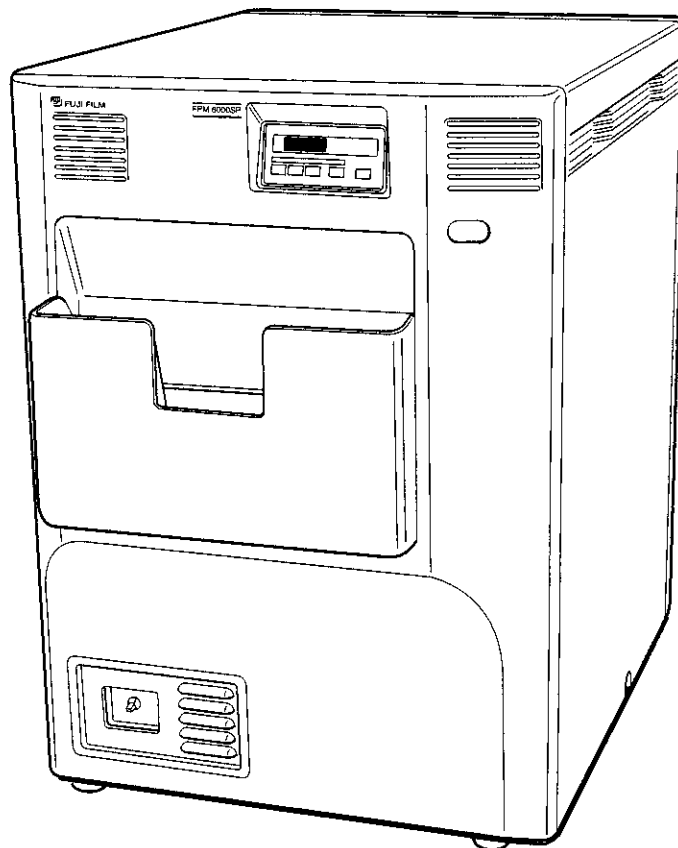




**INSTRUCTION MANUAL**

**FUJI INDUSTRIAL**  
FILM PROCESSOR  
**FPM 6000SP**



**First Edition**

IX-60-TOE

# RADIO FREQUENCY INTERFERENCE REGULATIONS COMPLIANCE

## UNITED STATES OF AMERICA(FCC)

**NOTE :** *This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expence.*

**FCC WARNING :** *Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.*

## CANADA(DOC)

This Class A digital apparatus meets all requirements of the Canadian interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

# INTRODUCTION

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The FPM6000SP Fuji Industrial Processor offers x-ray film processing capabilities. It performs film processing in one of two different operational cycles; SP (469 second cycle : 100 second developer immersion time) or RP (703 second cycle : 150 second developer immersion time).

This manual provides instructions as to safe and efficient operation of the equipment described herein. Before commencing equipment use, thoroughly read this manual which contains explanations and directions. Pay particular attention to all safety information.

Keep this manual in a safe place near the equipment for easy reference should further familiarization be required during actual operation.

Processor use should only be assigned to personnel who have recognized operator qualifications based, where relevant, on adequate training in processor use.

The processor owner/operator has responsibility of ensuring that existing legal regulations and building codes are followed with respect to processor installation and operation.

Incorrect operation and failure to observe the maintenance schedules in this manual relieves the manufacturer and related agents of all responsibility relative to any warranty coverage or claims made as a result of equipment non-compliance, damage, injury, defect, and malfunctions.

This processor must never come into contact with a patient, and should not be used, when feasible, in a patient environment.

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**1. SAFETY AND OPERATING ENVIRONMENT**

**2. COMPONENT NAMES AND FUNCTIONS**

**3. PROCESSING SOLUTION CHARGING**

**4. PROCESSING CONDITION SETUP**

**5. OPERATING PROCEDURES**

**6. MAINTENANCE**

**7. TROUBLESHOOTING GUIDE**

**8. SPECIFICATIONS**

**9. APPENDICES**

**10. INDEX**

## 1.1 SAFETY

This section describes the precautions essential for safe operation of the FPM6000SP. Before operating the FPM6000SP, carefully read for thorough comprehension the precautions set forth in this section. The safety precautions are classified into WARNING and CAUTION categories. These two categories are defined as follows.

### **WARNING**

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION**

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used in alert against unsafe practices and in relation to potential property-damage-only accidents.

### **IMPORTANT and NOTE**

IMPORTANT describes improper handling procedures that may adversely affect radiographic properties.

NOTE designates those items, provisions and explanations for which it is important to maintain methodological concern and consideration relative to operational procedures.

### 1.1.1 Basic Usage Precautions

#### **WARNING**

##### **PERSONAL INJURY**

Do not remove the panels or other parts that are screw secured, because injury or shock from moving parts or hazardous voltages may result. If it is necessary to service internal components, contact a qualified service person.

#### **WARNING**

##### **PERSONAL INJURY**

Do not modify the equipment (e.g., provide a bypass for an interlock or circuit breaker) without permission from the manufacturer, because such may result in equipment failure. Be sure to contact a qualified service person.

#### **WARNING**

##### **PERSONAL INJURY**

Do not wear neckties, necklaces, or other accessories that may get caught in the film inlet, during operation.

### 1.1.2 Chemical(Developer/Fixer Solution)Handling Precautions

The developer solutions used with the FPM6000SP are strongly alkali. Therefore, where possible avoid direct dermal contact with these solutions. Also, for safety's sake, observe the following chemical handling precautions. These precautions are contained in the text of this manual.

 **WARNING**

**EYE IRRITATION**

Avoid ocular contact. Wash contaminated areas thoroughly after handling chemicals.

**FIRST AID:** In case of ocular contact, immediately flush the eyes with plenty of running water for at least 15 minutes and seek medical attention.

 **CAUTION**

**SKIN IRRITATION**

Avoid contact with skin and clothing. Wash contaminated areas thoroughly after handling.

**FIRST AID:** In case of skin contact, flush the skin with plenty of running water.

Remove contaminated clothing. Get medical attention if irritation persists.

 **CAUTION**

- Wear protective goggles, rubber gloves, a rubber apron, and other suitable protective gears so that chemicals will not come into contact with any part of the body.
- Always wash hands well after handling chemicals.

## 1.2 OPERATING ENVIRONMENT

The operating environment is important in providing optimum conditions for the FPM6000SP use. Read the following precautions thoroughly before operating the FPM6000SP.

 **WARNING**

**PERSONAL INJURY**

Do not leave unnecessary objects on the dark room floor. Stumbling over them may result in possible injury.

 **CAUTION**

If the room is poorly ventilated, equipment is likely to rust. To avoid this, be sure to provide adequate ventilation. For details consult a qualified service person.

 **CAUTION**

**ENVIRONMENTAL POLLUTION**

Be sure that the waste solutions(developer and fixer)and water are disposed of in compliance with all applicable local, state, and federal regulations. For details consult a qualified service person.

 **CAUTION**

Please make sure that the environment maintains the following conditions.

Temperature : 10-30°C

Humidity : 30-80% relative humidity

Water temperature : constant-temperature water at a temperature that is at least 5°C and 5°C lower than the developing set temperature

### 1.3 PRECAUTIONS FOR USE

(1) Film that can be processed

For "SP (100 second developer immersion time) cycle processing", use Fuji Film SP process-compatible film or equivalent.

For "RP (150 second developer immersion time) cycle processing", use Fuji Film RP process-compatible film.

For detailed information, ask the qualified service person.

(2) Processing preparation

When the POWER key is pressed, some time will pass until the device is ready.

Wait for the READY lamp to light up before beginning film processing.

(3) During processing

If the POWER key is pressed while film is being processed, the film being processed is ejected and the processing stops.

(4) Errors

The occurrence of any abnormality in the device is made known by an alarm and an error indication on the LCD display.

(5) Note

To prevent misoperation, do not place anything on the top cover, which has a built-in mechanism for halting operation of the motor.

### 1.4 SAFETY INSPECTION

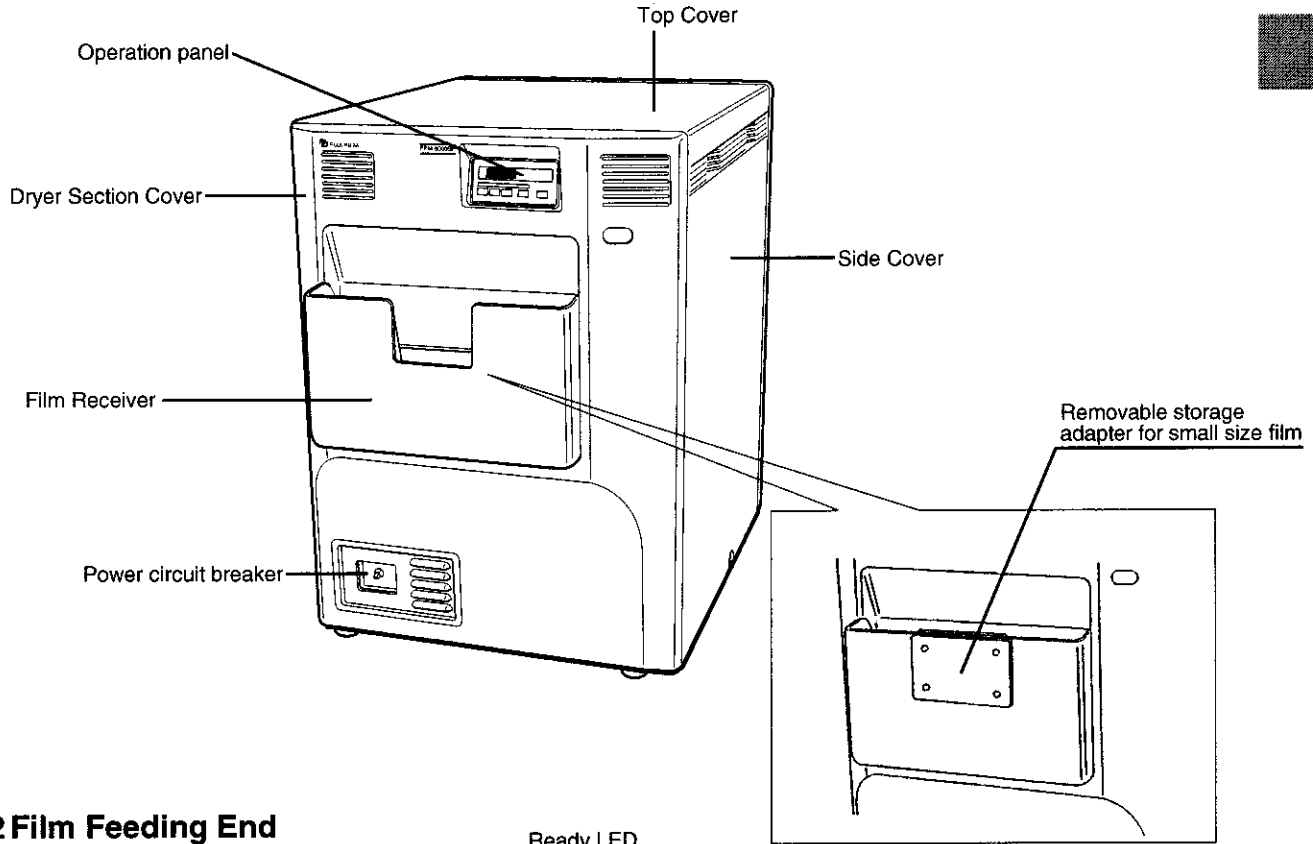
For safe use, it is recommended that the device you use has been in use for five years or longer, it should be inspected, even if it is operating satisfactorily. Please contact the qualified service person.



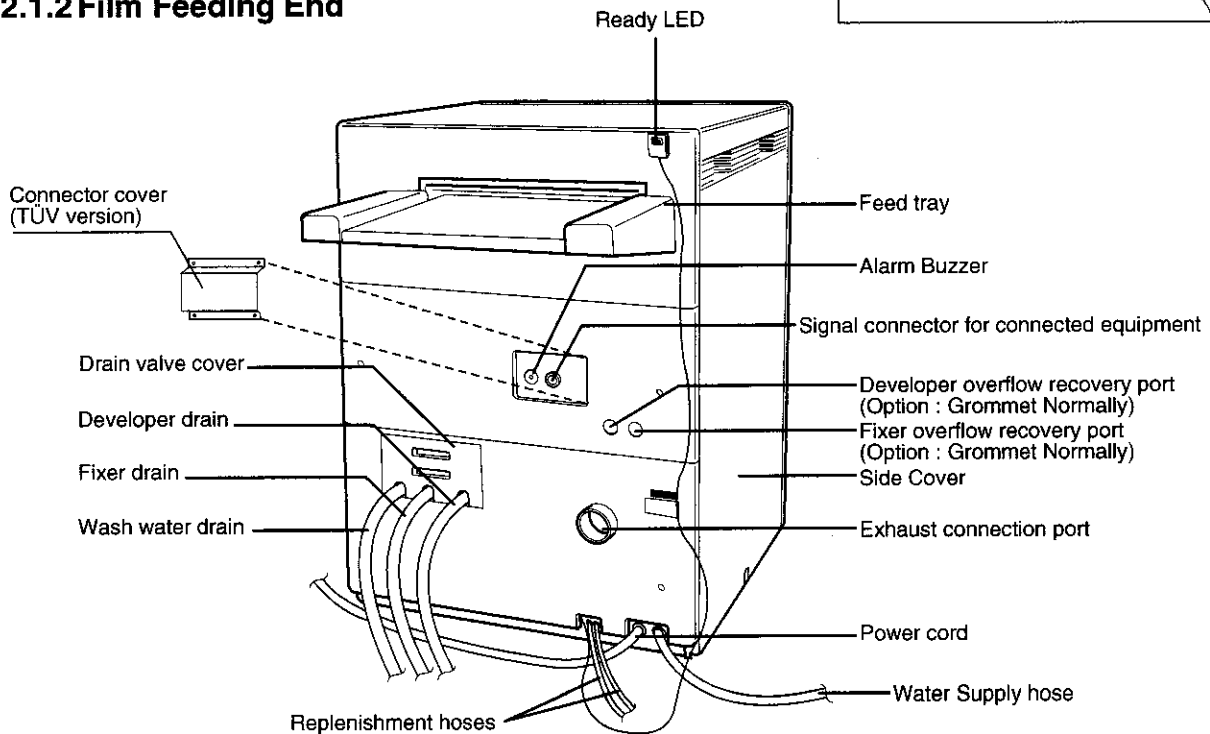
# COMPONENT NAMES AND FUNCTIONS

## 2.1 EXTERNAL COMPONENTS

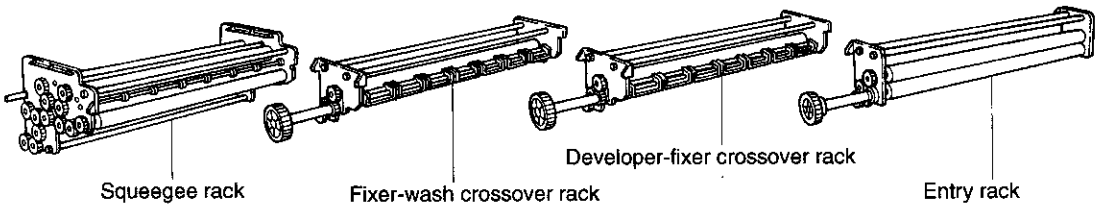
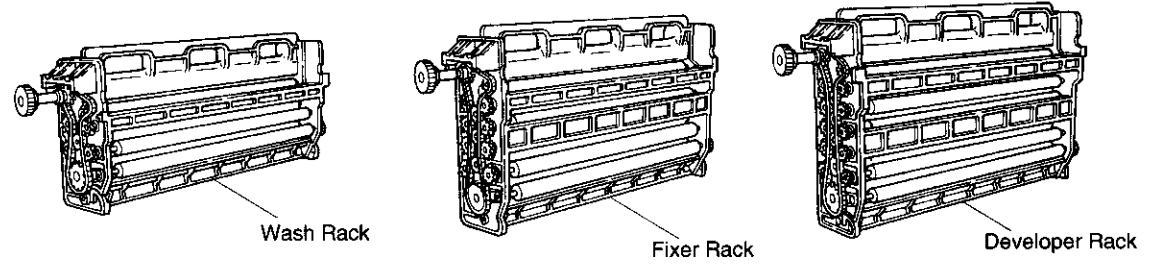
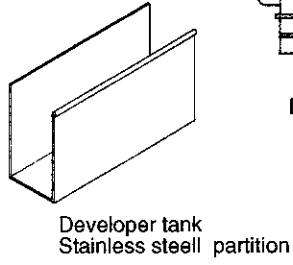
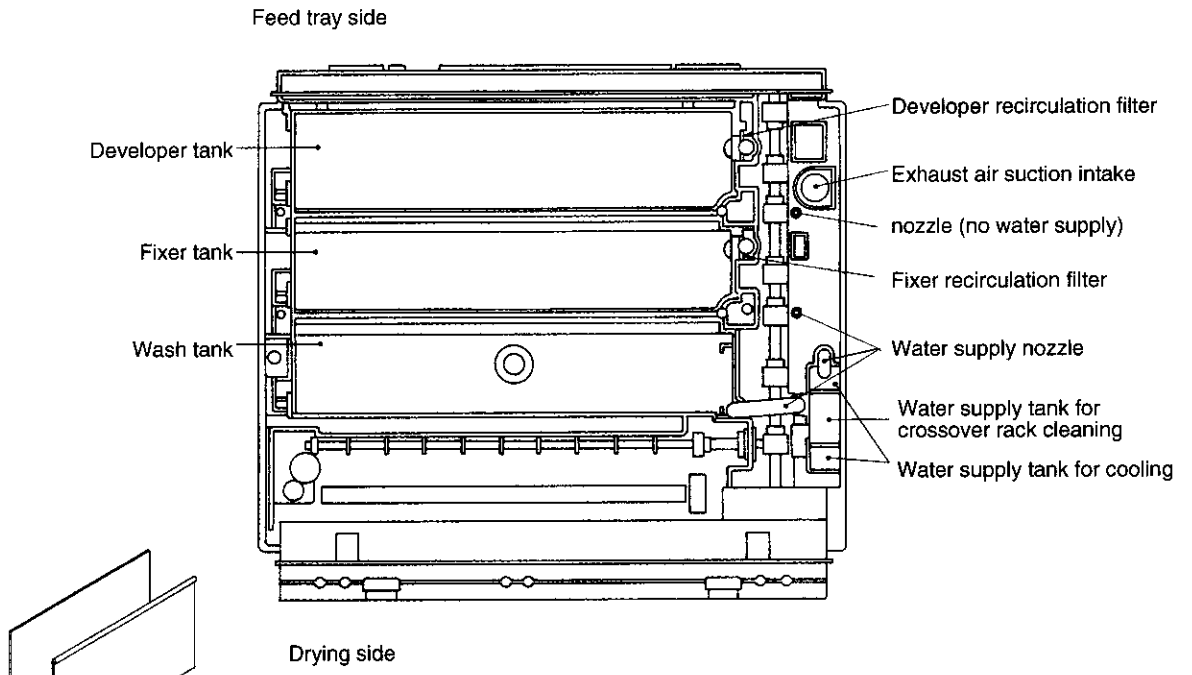
### 2.1.1 Film Receiving End



### 2.1.2 Film Feeding End



2.2 INTERNAL COMPONENTS

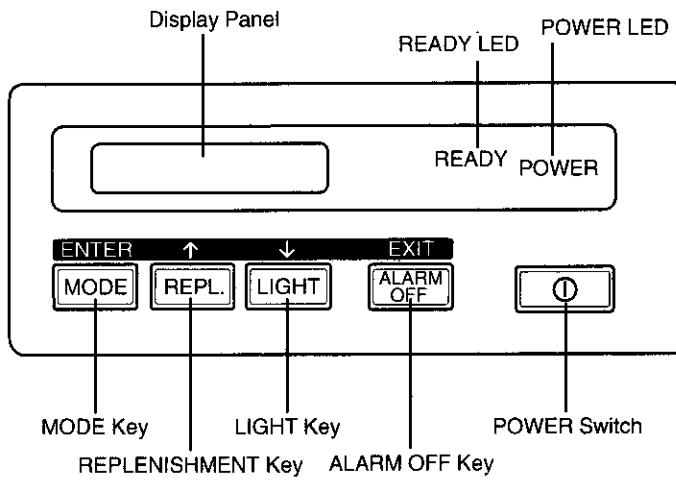


### 2.3 OPERATION PANEL

The switches and keys on the operational panel control the equipment functions. The key functions vary with the selected operation mode.

**NOTE:** The following two different operational modes are used.

- Regular Mode: For film processing operations.
- Setup Mode: For setting up processing conditions.



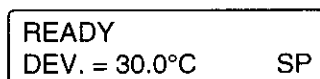
POWER Switch	POWER LED	Processor Status
POWER ON	Steady glow	The processor is operating.
POWER OFF	Blinking	The LED blinks during the time interval between POWER switch OFF activation and function processor termination.
POWER OFF	Extinguished	The processor is deactivated.

### DISPLAY PANEL

This panel indicates the operational modes or error messages.

When a message is displayed, the backlight LCD becomes green.

When the processor is ready for film processing in the regular mode, the READY message, developer solution temperature and operational cycle indication appear on the display panel.



**NOTE :**

- SP 469 second processing cycle  
(100 second developer immersion time)
- RP 703 second processing cycle  
(150 second developer immersion time)

### **READY LED (green Color).**

This is a backlit LED indicator which indicates the Ready condition for processing.

This green light LED goes out when film is fed, and comes on again when the processor is ready to accept the next film.

### **MODE Key.**

This Key changes the operational mode.

To select from one operation mode to another, press this key 3 seconds or longer.

### **In the setup mode, this key works as ENTER Key.**

The ENTER Key confirms any changes or information.

### **REPL Key.**

When this Key is activated in the regular mode with the developer and fixer tanks emptied, said tanks are simultaneously charged with processing solutions.

Solution charging takes about 25 minutes.

If the Key is pressed once while processing solutions remain in the tanks, 250ml of developer and fixer replenisher solutions are simultaneously added to the tanks.

### **In the setup mode, this key works as ↑ Key.**

This key changes the message or setting indicated on the display panel.

↑ key function is not provided by an independent key.

### **LIGHT Key.**

This key controls the ON/OFF of the back-light during regular mode.

### **In the setup mode, this key works as ↓ key.**

This key changes the message or setting indicated on the display panel.

↓ key function is not provided by an independent key.

### **ALARM OFF Key.**

This key stops error alarms.

When the key is pressed, alarms are silenced.

When the ALARM OFF key is pressed a second time, the error message is erased from the display.

(In the case of more than one error, press the ALARM OFF key the number of time coinciding with the number of errors.)

### **In the setup mode, this key works as EXIT Key.**

This key finalizes the setting indicated on the display panel at any time.

This EXIT key function is not provided by an independent key.

## 3.1 PREPARATIONS

**Note:** This paragraph describes how to supply new processing solution into a cleaned empty tank. For how to clean a tank, see chapter 6, paragraph 1.

### ⚠ CAUTION

When charging the processing tanks with solutions, be sure to place the wall-mounted circuit breaker and processor main circuit breaker in the "O" position.

### ⚠ CAUTION

#### EYE IRRITATION

Avoid ocular contact. Wash contaminated areas thoroughly after handling chemicals.

**FIRST AID :** In case of **ocular contact**, immediately flush the eyes with plenty of running water for at least 15 minutes and seek medical attention.

### ⚠ CAUTION

#### SKIN IRRITATION

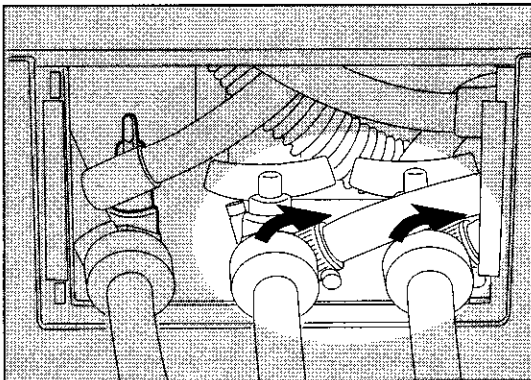
Avoid contact with skin and clothing. Wash contaminated areas thoroughly after handling.

**FIRST AID :** In case of **skin contact**, flush the skin with plenty of running water.

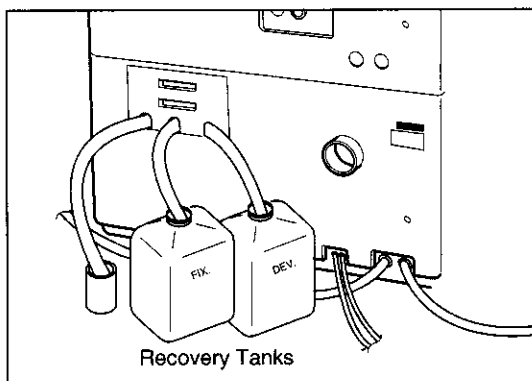
Remove contaminated clothing. Get medical attention if irritation persists.

### ⚠ CAUTION

- Wear protective goggles, rubber gloves, a rubber apron, and other suitable protective gear so that chemicals will not come into contact with any part of the body.
- Always wash hands well after handling chemicals.

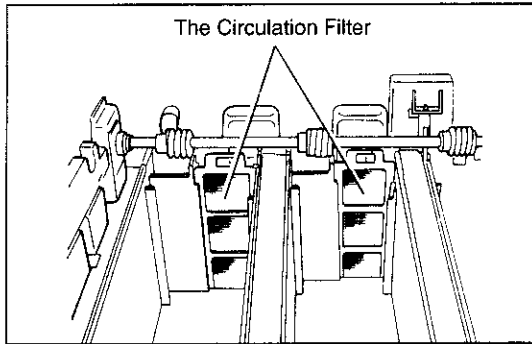


- (1) Close the developer and fixer drain valves at the processor feed end by placing valve handles in the "Closed" position.



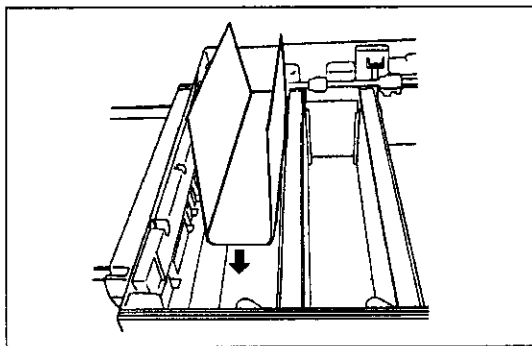
- (2) Connect hoses between the developer and fixer drain ports and the recovery tanks. Note that the recovery tank capacity must not be smaller than 15 liters. Also connect a hose between the wash water drain port and the water drain pipe.

### 3. PROCESSING SOLUTION CHARGING

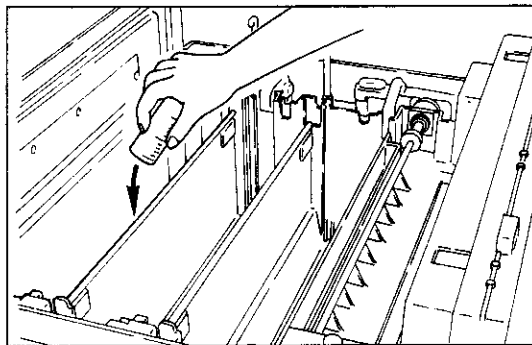


- (3) Open the processor top cover, and install the recirculation filters in the developer and fixer tanks.

**NOTE:** *Be sure that the recirculation filters are not inadvertently interchanged.*



- (4) Place the stainless steel partition into the developer tank until bottom of partition is firmly seated to the bottom of the developer tank.

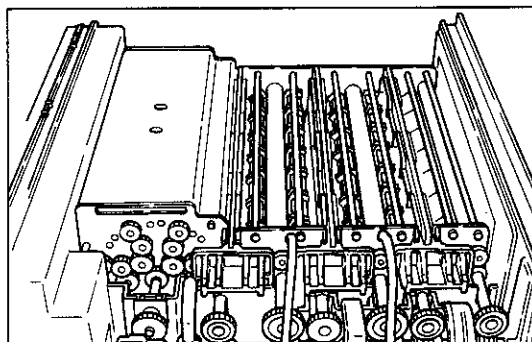


- (5) Pour the specified amount of Developer Starter into the developer tank.

**NOTE:** *The amount of Developer Starter must comply with the instructions pertaining for the processing chemical.*

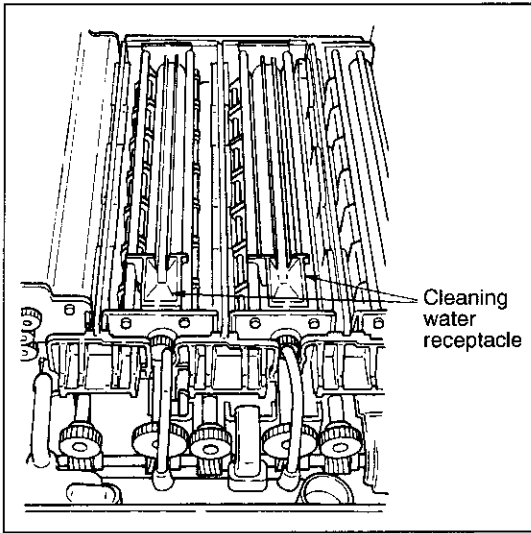
**IMPORTANT:**

- *Complete chemical mixing in compliance with the instructions for the processing chemical. Also be sure that the processing chemical is suited to the processor operational cycle (processing speed).*
- *When charging an empty developer tank for the first time with developer replenisher, be sure to add the specified amount of Developer Starter also. This assures normal sensitometric performance for the developer. For details consult a qualified service person.*

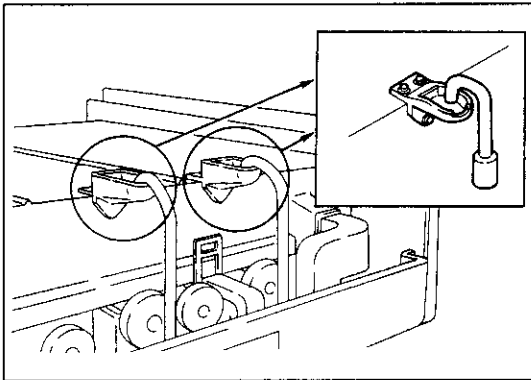


- (6) Properly install the processing racks, cross over racks and squeegee rack, in the developer, fixer, wash tanks and Dryer.

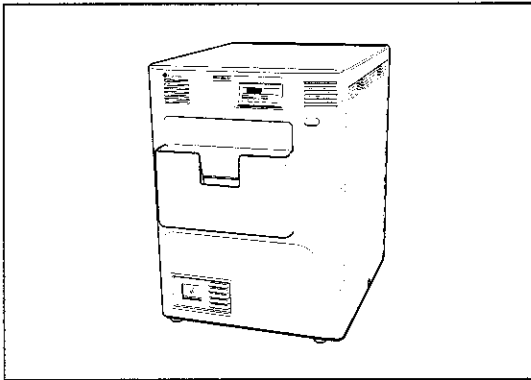
### 3. PROCESSING SOLUTION CHARGING



- (7) A cleaning water receptacle is attached to the top of the crossover rack. Attach it so that the receiving part is located on the drive shaft side.



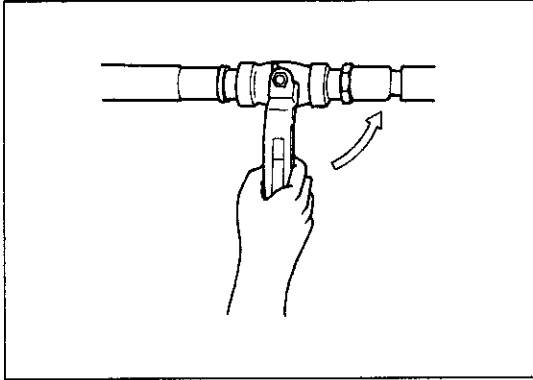
- (8) After verifying that all racks are correctly installed, put on the squeegee rack cover and crossover rack cover, and attach the end of the water supply nozzle for crossover roller cleaning to the washing water receiving tray of the crossover rack cover.



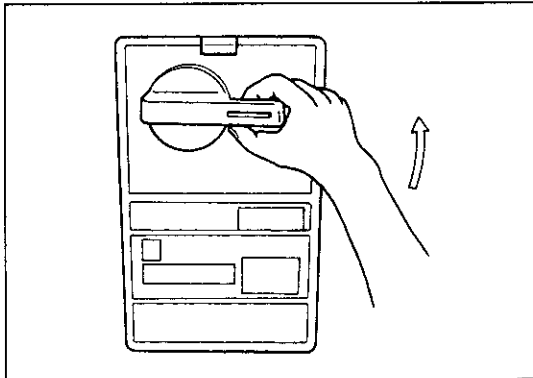
- (9) Close the top cover.

### 3.2 CHARGING THE PROCESSING TANKS WITH SOLUTIONS

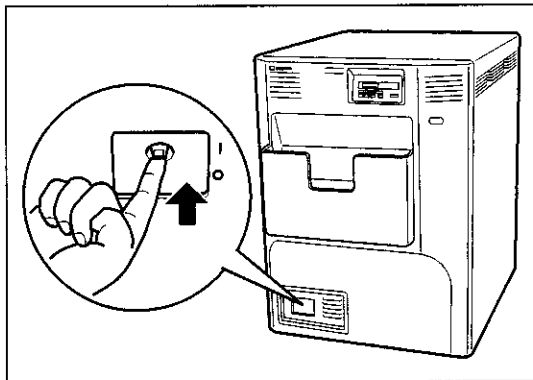
The processing tanks are charged with processing solutions at REPLENISHMENT key activation.



(1) Open the water supply valve connected to the processor.



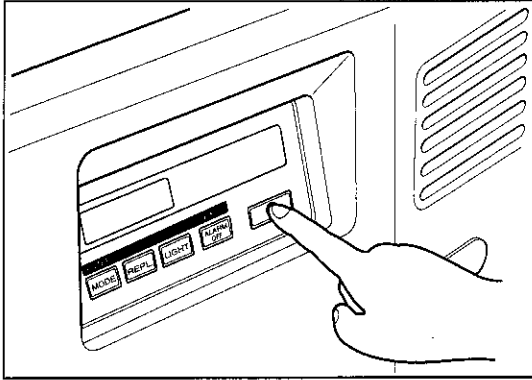
(2) Place the wall-mounted circuit breaker in the "ON" position.



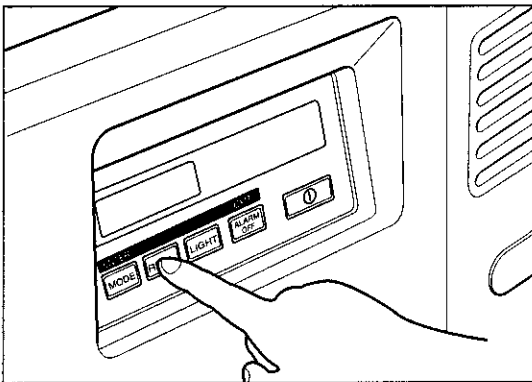
(3) Place the processor power circuit breaker in the "I" position.



### 3. PROCESSING SOLUTION CHARGING



(4) Press the POWER (ⓐ) switch on the operation panel to start processor operations.



(5) When you press the REPLENISHMENT (REPL.) key, the replenisher solutions in the developer and fixer replenisher tanks are simultaneously supplied to the respective processing tanks. It takes about 25 minutes for the processing tanks to be filled with the replenishers. When the processing tanks are filled with replenisher solutions, the REPLENISHMENT (REPL.) key functions are automatically deactivated.

## 4.1 OPERATIONAL CYCLE

In the REGULAR MODE, the processor provides the following operational cycles (processing speeds), processing times, and processing capacities.

Cycle	Process Time. (Seconds)	Throughput. (Sheets of 35X43cm film/hour)
SP	469 (100 second developer immersion time)	41
RP	703 (150 second developer immersion time)	28

Use the SETUP MODE to define and register the processing conditions for the SP and RP operational cycles.

## 4.2 USING THE SETUP MODE

The SETUP MODE provides the following setup functions.

- 4.2.1 Operational Cycle Selection and Registration.
- 4.2.2 Processing Solution/Dryer Temperature Setting
- 4.2.3 Replenishment Rate Setting
- 4.2.4 Weekly Timer Setting
- 4.2.5 Selftest Bypass Setting
- 4.2.6 Pre-heat Mode Setting
- 4.2.7 Accounting of Films/Clearing Data
- 4.2.8 Accounting of Replenishment/Clearing Data
- 4.2.9 Calender/Clock Setting
- 4.2.10 Ready Status

**NOTE :** *The setup method is explained by the following procedure. In paragraph 4.2.1 each step is described in detail for cycle setup, but in the subsequent paragraphs only the sequence is pictured. The register method is the same as for cycle setup, so please refer to paragraph 4.2.1 for any matters that are unclear. For the initial settings at the time of shipment from the factory and the adjustable range in SETUP MODE, refer to the following table.*

ADJUSTABLE RANGE OF SET-UP MODE

Item		Cycle	Adjustable Range		Increment	Initial Setting	Unit	
Cycle			SP, RP			SP		
Temperature	Developer	SP	26.0~40.0		0.1	30.0	°C	
		RP				27.0		
	Fixer	SP	26.0~38.0		1.0	31.0		
		RP				31.0		
	Dryer	Main (Processing)	SP	30.0~58.0		1.0		35.0
			RP					30.0
		Standby (Not Processing)	SP	25.0~43.0		1.0		30.0
			RP					30.0
Replenishment Rate *1	Per 1 sheet of 14X17 in	DEV.	0, 50 ~ 200	5	100	ml		
		FIX.	0, 100 ~ 180	5	180			
	Per 5 Sheets of 10X12 in	DEV.	0, 150 ~ 500	5	250	ml		
		FIX.	0, 250 ~ 450	5	450			
Weekly Timer			0:00~23:59		1 minute	OFF (Not Used)		
Date & Time*2			1994~2093 1/1~12/31 0:00~23:59					

- \*1 UL model is set 14X17in Replenishment rate prior to shipment. Other models are set 10X12in rate. If you need to change this setting, please contact a qualified service person.
- \*2 UL model is set the order of date "Month/Day/Year" prior to shipment. Other models are set "Day/Month/Year". If you need to change this setting, please contact a qualified service person.

### 4.2.1 Operational Cycle Selection and Registration

READY  
DEV. = 30.0°C SP

Make sure that the regular mode [READY] is displayed on the display panel during processor operations.

MODE key  
Press 3 seconds or longer

SETUP MODE 1  
CYCLE SP

Press the MODE key longer than 3 seconds to call up the setup mode [SETUP MODE 1 CYCLE SP] display. This display indicates that the SP operational cycle (CYCLE SP) is selected and registered.

ENTER

To select the RP operational cycle (CYCLE RP), press the "ENTER" key.

**NOTE :** When in setup mode, the "MODE" key has the function of ENTER. If pressing the "ENTER" key, please press the "MODE" key.

SETUP MODE 1  
CYCLE SP

This causes the SP indication on the display to start blinking.

↓ or ↑

SETUP MODE 1  
CYCLE RP

When you press the "↓" or "↑" keys, the SP indication is changed to RP. This display allows you to select the RP operational cycle.

**NOTE :** As with the "ENTER" key, for the "↑" key during setup mode, press the "REPL" key, and for the "↓" key, press the "LIGHT" key.

ENTER

SETUP MODE 1  
CYCLE RP

To register the RP cycle, press "ENTER" key. The blinking is stopped. Press "↓" key to enter the SETUP MODE 2.

**NOTE1 :** When films are being processed or during selftest bypassing, this change can only be done after the drive motor stops functioning.

↓

SETUP MODE 2  
TEMPERATURE SP

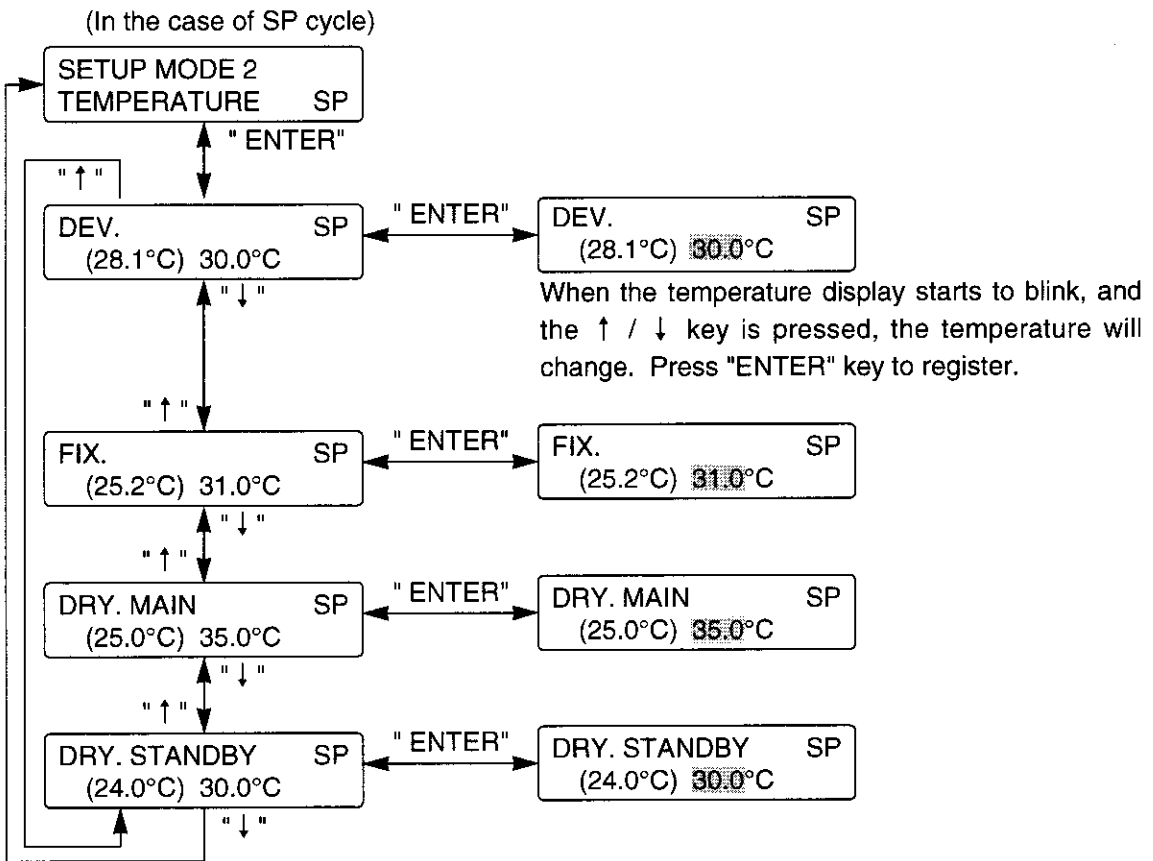
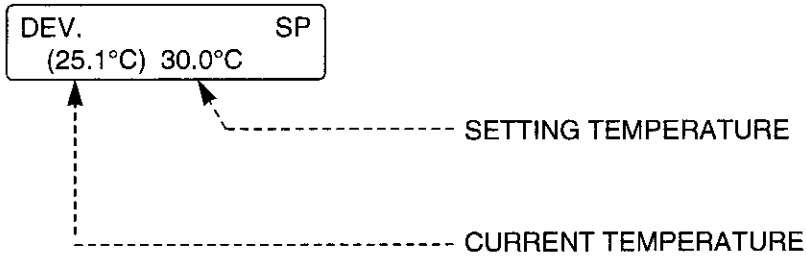
**NOTE2 :** When you press the "EXIT" key (ALARM OFF) key, any time you are returned to the REGULAR MODE.

### 4.2.2 Processing Solution/Dryer Temperature Setting

The temperature setting of the developer/fixer/dryer for the relevant speed can be registered.

Menu will change depending upon the cycle.

(During SP Cycle, SP temperature can be registered).

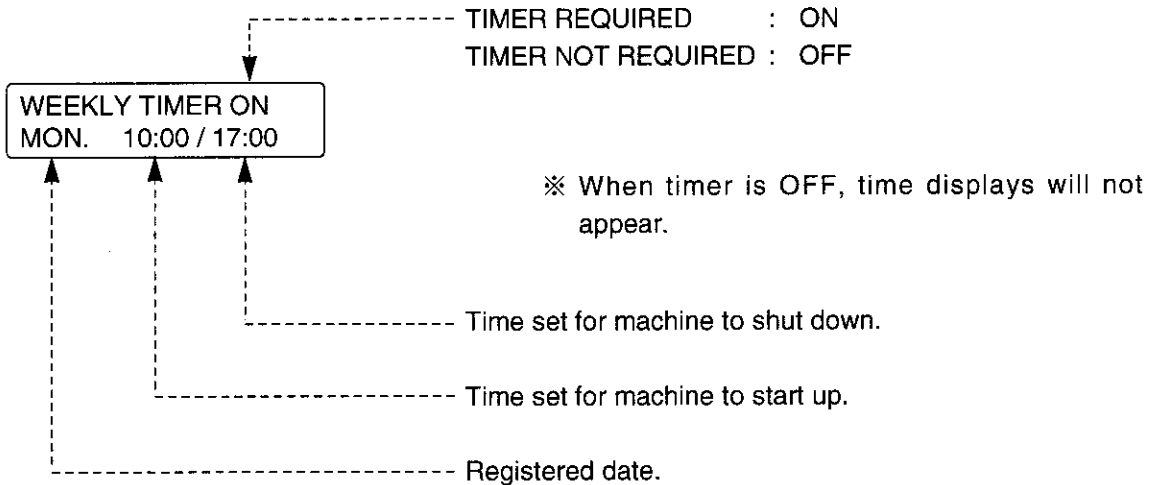


**NOTE:** The same procedures can be taken in RP cycle.



### 4.2.4 Weekly Timer Setting

When the weekly timer has been set up, the FPM6000SP starts up and shuts down automatically at the preset time. (One ON/OFF cycle per day)



**NOTE 1:** When "--:--" registers, machine will not function.

**NOTE 2:** When timer for functioning and to stop is set for the same time, machine will not function.

When the "ENTER" key is pressed, the following setup sequence will appear:

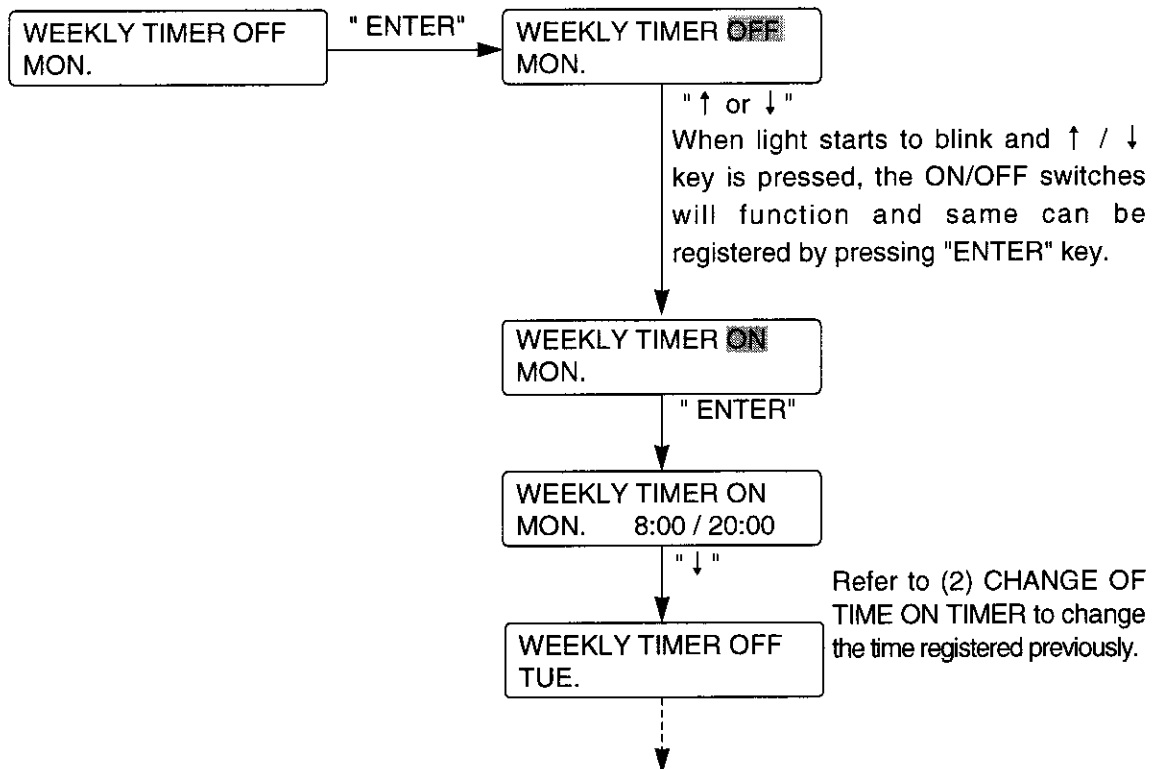
- ① TIMER ON/OFF
- ② ON TIME SETTING
- ③ ON MINUTE SETTING
- ④ OFF TIME SETTING
- ⑤ OFF MINUTE SETTING

#### 4. PROCESSING CONDITION SETUP

##### (1) CHANGING FROM OFF TO ON

Nothing will be registered when the machine is OFF.

When the machine is switched from OFF to ON, the weekly time registered previously will appear on display.

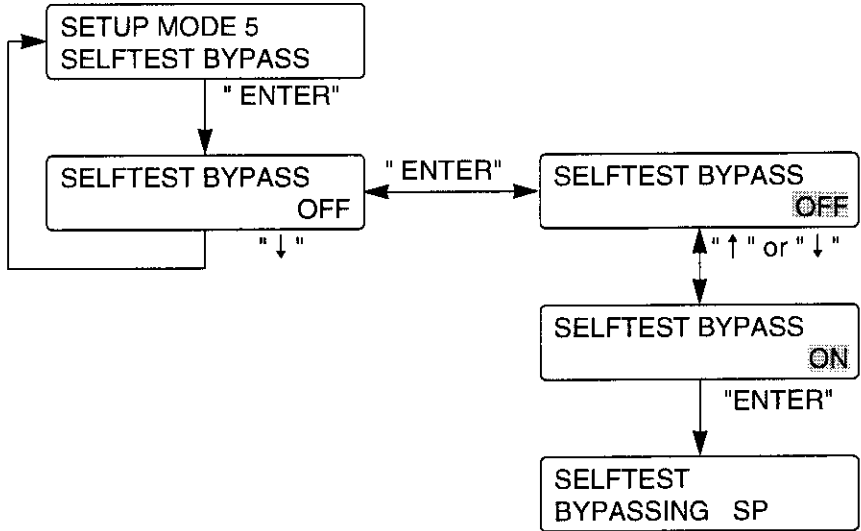






### 4.2.5 Selftest Bypass Setting

If you wish to do emergency processing when trouble occurs and the equipment stops, use this "Selftest Bypass" mode to process the film.



**NOTE:** This mode cannot be used automatically if the content of the error would be operationally dangerous, such as high-temperature abnormality, temperature sensor failure, etc.

**IMPORTANT:** In this processing it is impossible to do automatic replenishment, crossover rack washing, etc. Also, sometimes photo performance finishing is insufficient. Unless unavoidable, do not use, and call upon a qualified service person without delay.

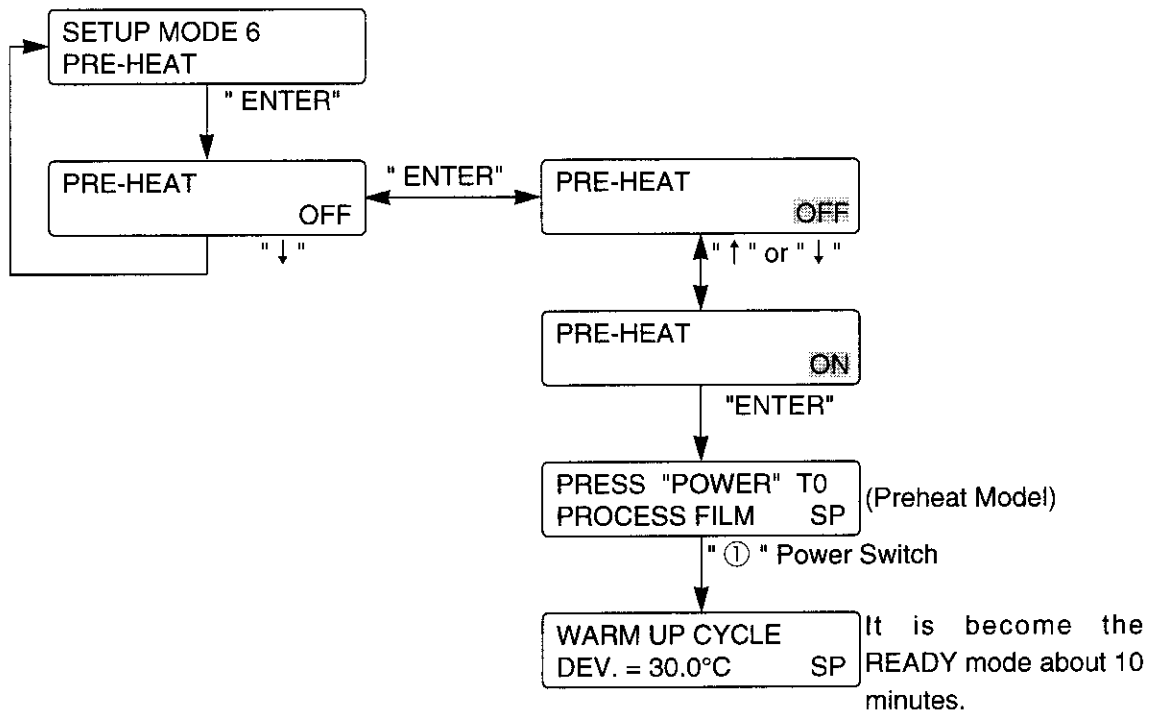
**NOTE :** The film insertion buzzer will not sound, so when processing a film leave an ample film insertion interval. Automatic replenishment does not function, so when 1 sheet of 14×17in film (or 5 sheets of 10×12in films) have been processed, press the "REPL" key once. This will carry out replenishment.

### 4.2.6 Pre-heat Mode Setting

When the pre-heat mode is selected, the FPM6000SP will maintain only developer and fixer temperatures within certain ranges while saving energy. This mode is ideal for emergency use. Press the power switch to enter the regular cycle.

When the PRE-HEAT mode is selected and the weekly time is set, the FPM6000SP will automatically turn on to the regular mode and turn off the power by the timer off.

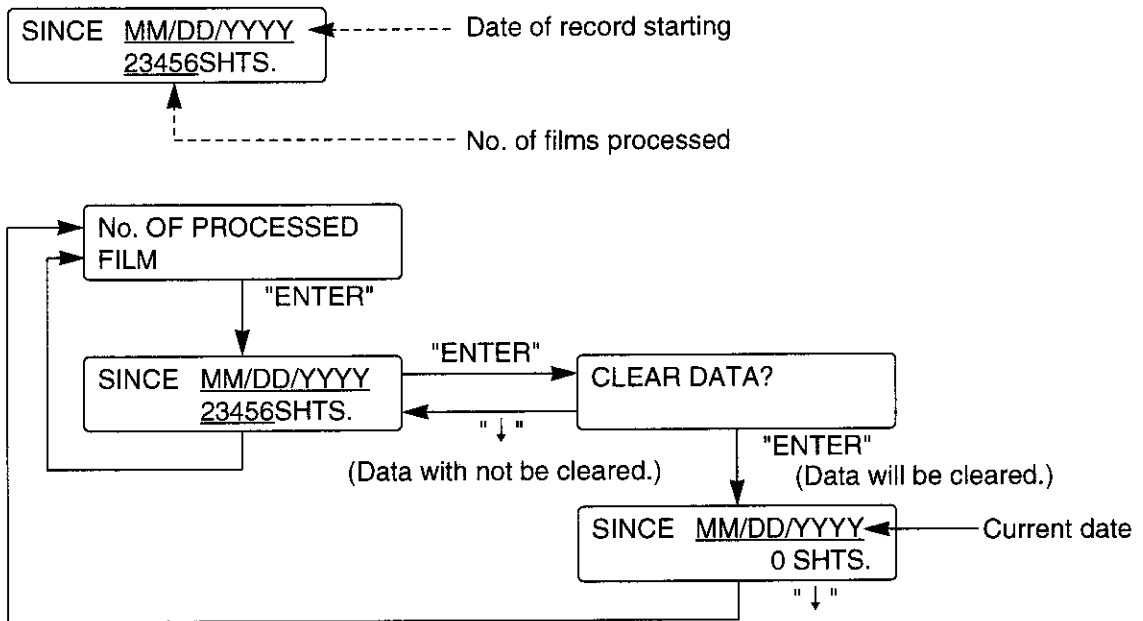
When the PRE-HEAT mode is selected under the condition of weekly timer on, this PRE-HEAT mode is maintained even the timer enters in off time.



## 4. PROCESSING CONDITION SETUP

### 4.2.7 Accounting of Films/Clearing Data

Number of films used can be accounted for and used data can also be cleared.



**NOTE 1:** Maximum number of films can be counted up to 99999.

When counting exceeds 99999, the next count will begin from "0".

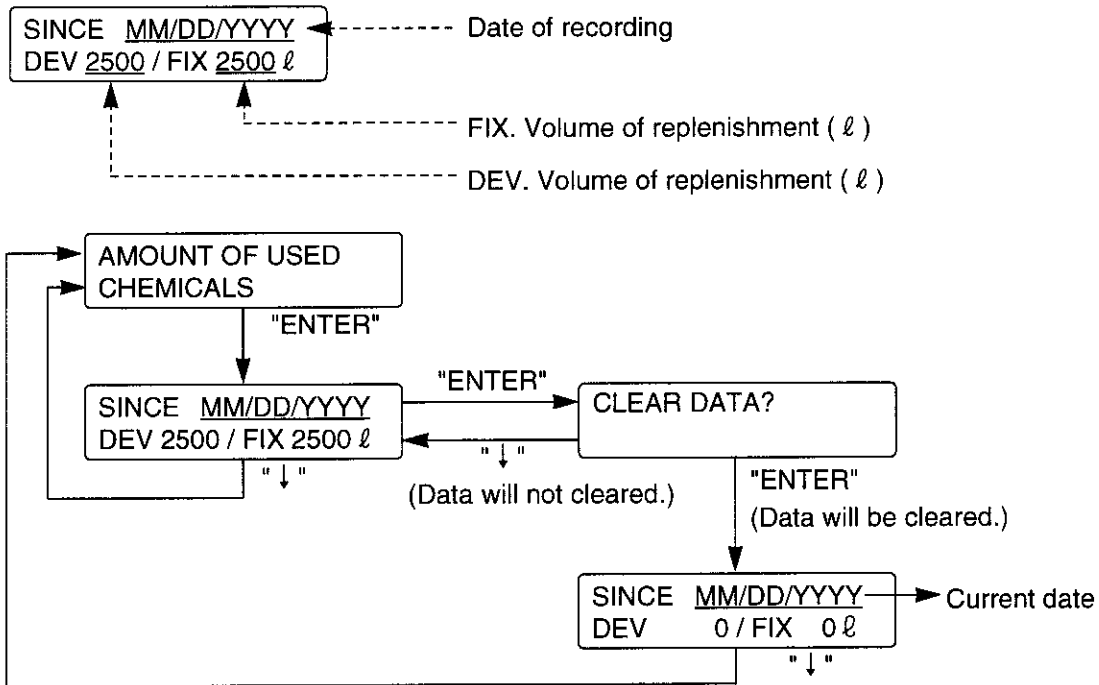
**NOTE 2:** When the display shows "CLEAR DATA" and then "ENTER" key is pressed, the number of films processed so far are cleared and the display shows the current date

**NOTE 3:** Data display has two different way, MM/DD/YYYY or DD/MM/YYYY.

Please contact a qualified service person if you need to change.

### 4.2.8 Measurement of Replenishment/Clearing Data

Volume of replenishment can be measured for and used data can also be cleared.



**NOTE 1:** Maximum measurement of replenishment will be 9999 ℓ . When volume exceeds 9999, the next count will begin from "0".

**NOTE 2:** When amount of replenishment is more than 500m ℓ display will register this as 1 liter. (Example) If replenishment is 500m ℓ , display will register this as 1 ℓ .

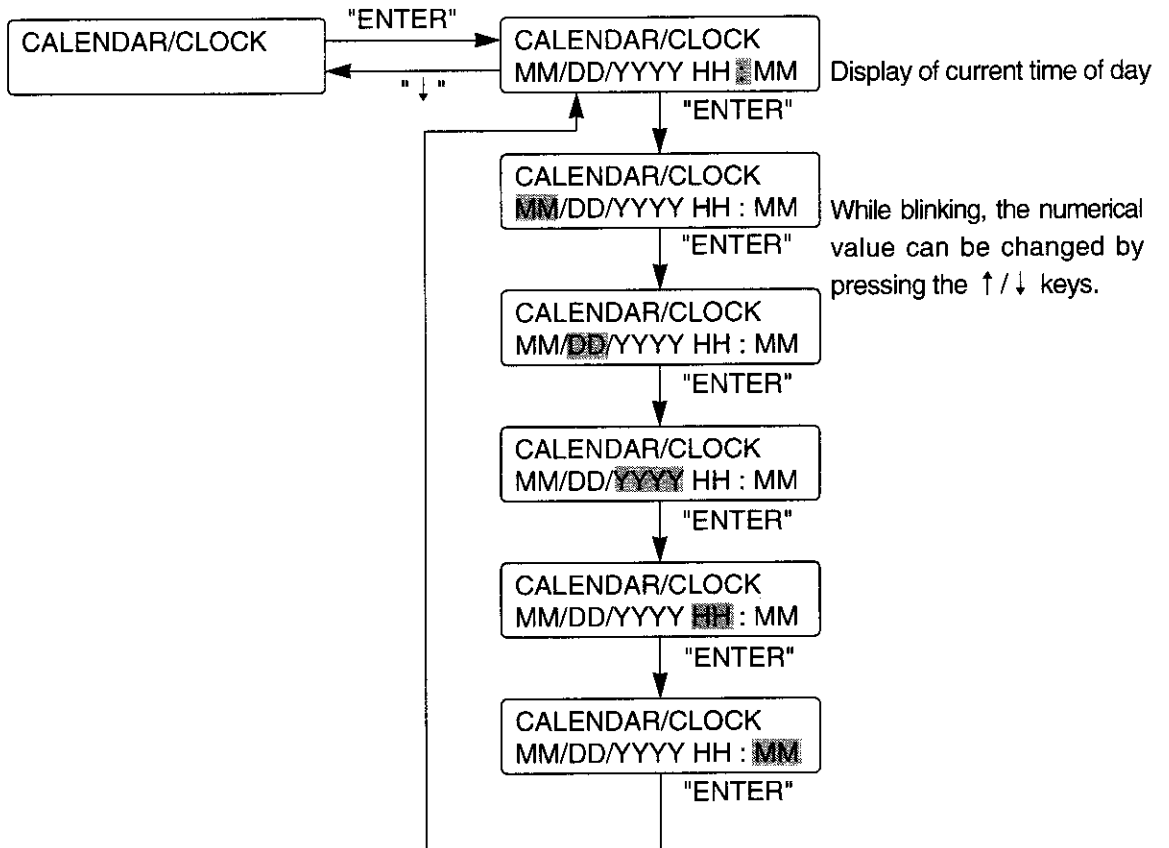
**NOTE 3:** When the display shows "CLEAR DATA" and then "ENTER" key is pressed, the volume of replenishment measured so far is cleared and the display shows the current date.

**4.2.9 Calendar/Clock Setting**

The current date and time of day can be set (or modified) by this setting. The CALENDAR display varies depending on the following condition.

UL model is set the order of date "Month/Day/Year" prior to shipment. Other models are set "Day/Month/Year". If you need to change this setting, please contact a qualified service person.

The following is an explanation for UL Model.



**NOTE :** If the day (DD) goes beyond the allowed range at the time the year (YYYY) is confirmed, the maximum day of the month is used.

(Example) 2/31/1995 → 2/28/1995

### 4.2.10 Ready Status

Checking can be made to see if all conditions of machine are in a ready position.

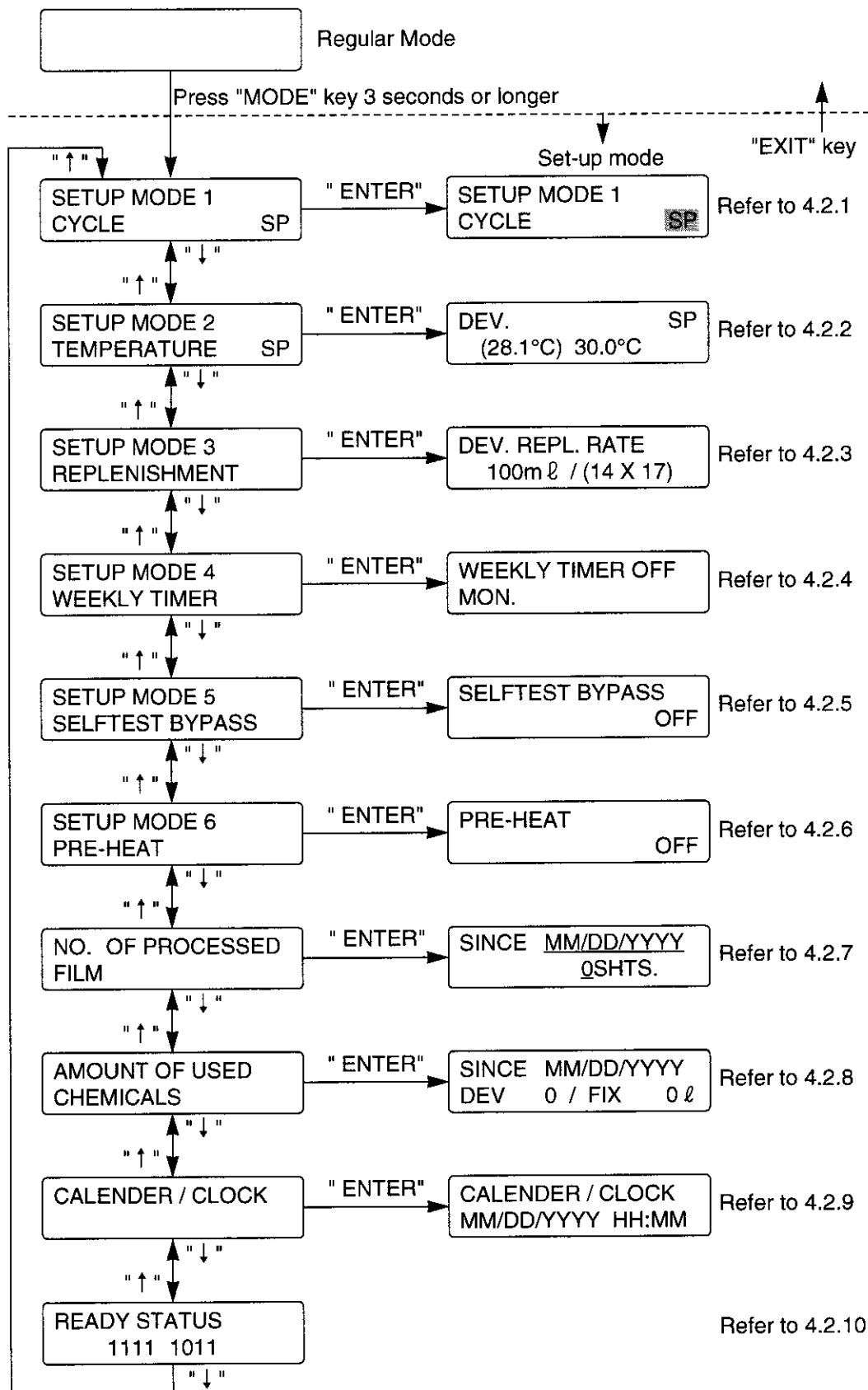
READY STATUS 1001 1100
---------------------------

READY STATUS (from the left)

- ① Film interval [When the film is feeding, this is changed to 0]
- ② Error [When the error is occurring, this status is changed to 0]
- ③ Temperature of Developer
- ④ Temperature of Fixer
- ⑤ Temperature of Dryer
- ⑥ Temperature of Heat roller 1
- ⑦ Temperature of Heat roller 2
- ⑧ Wast tank level

※ DISPLAY    1 : READY STATUS  
              0 : NOT READY STATUS

### 4.3 SETUP MODE SEQUENCE

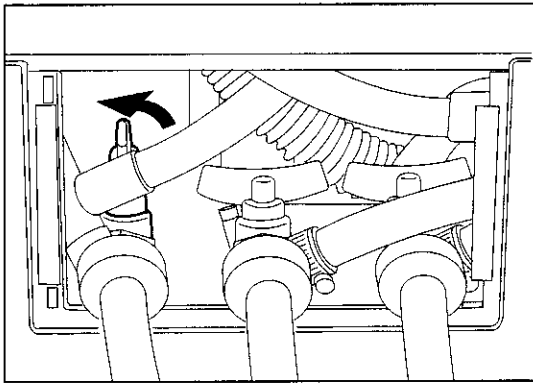


**NOTE :** When you press the "EXIT" key, the system returns to the Regular Mode at any time.

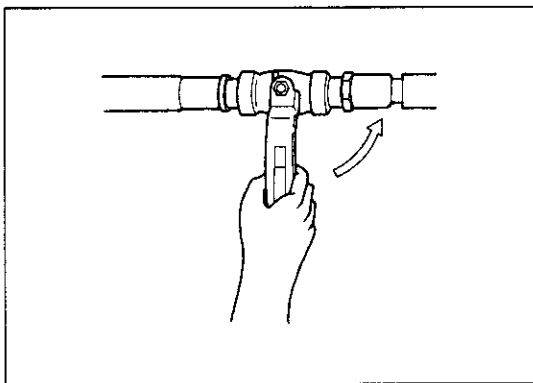


## 5.1 PROCESSOR STARTUP

(1) Make sure that the developer and fixer tanks are charged with their respective processing solutions.

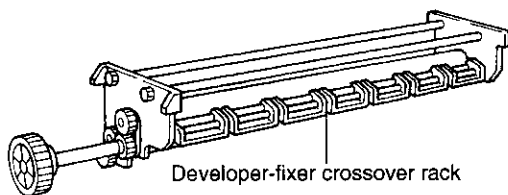


(2) Ensure that the wash water drain valve is opened.

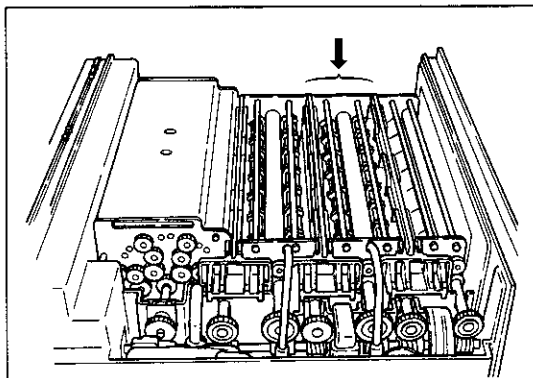


(3) Open the water supply valve connected to the processor.

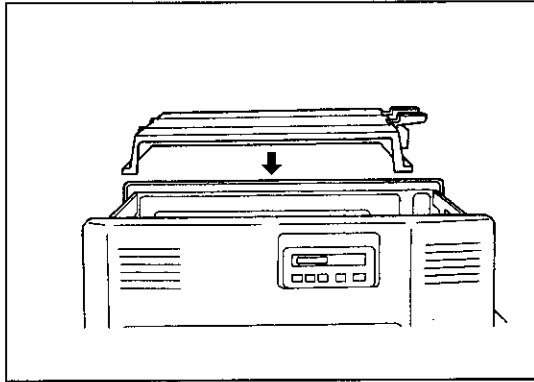
**NOTE:** *The wash water is automatically supplied to the wash tank upon POWER switch activation.*



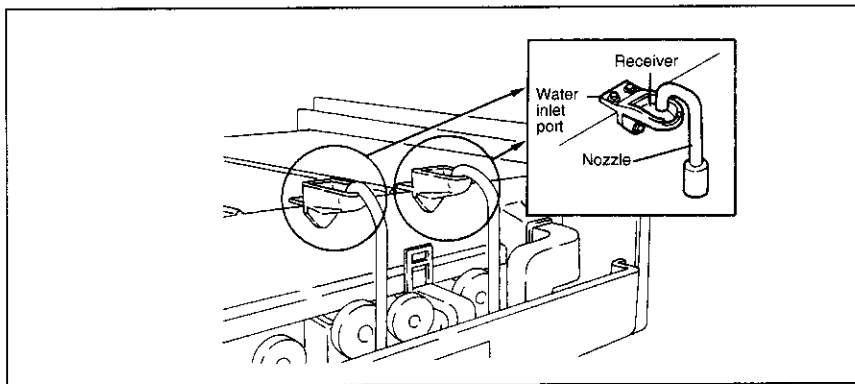
(4) Install the developer-fixer crossover rack in the processor. Make sure the crossover has been cleaned properly.



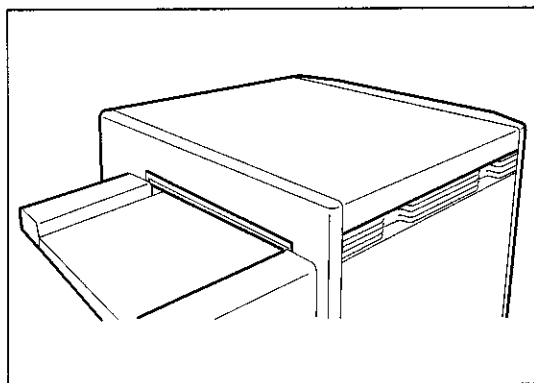
## 5. OPERATING PROCEDURES



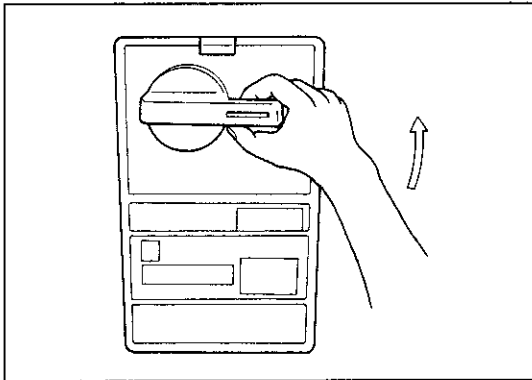
(5) Install the middle cover.



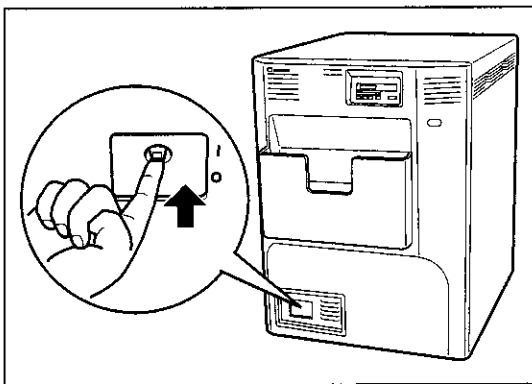
(6) Place the rinse nozzle into the receiver cup attached to the lid.



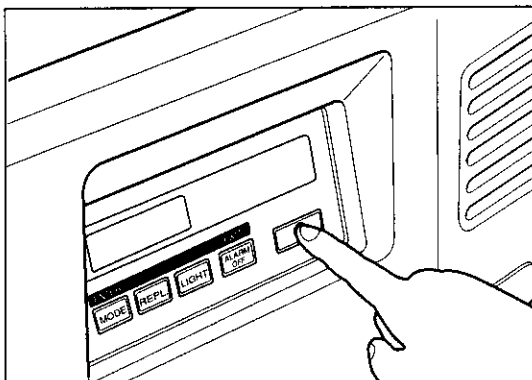
(7) Properly close the processor top cover.



(8) Place the wall-mounted circuit breaker in the "I" position. The processor exhaust fan then starts.

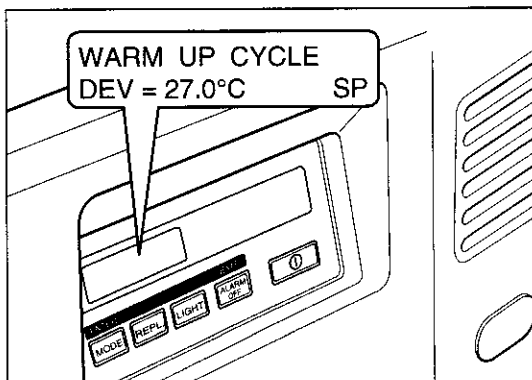


(9) Place the power circuit breaker in the "I" position.



(10) Press the operation panel POWER switch to start the processor. The POWER LED then comes on.

**NOTE:** *If the POWER LED does not come on at POWER switch activation, check for main circuit breaker proper placement in the "I" position.*



(11) Wait until the developer, fixer and dryer temperature respectively reach setup levels. The display shows "WARM UP CYCLE".

(12) The "READY" display indicates that the processor is ready for processing.

## 5.2 FILM PROCESSING

**⚠ WARNING**

**PERSONAL INJURY**

Do not wear neckties, necklaces, or other accessories that may get caught in the film inlet.

**⚠ WARNING**

**PERSONAL INJURY**

Do not leave unnecessary objects on the dark room floor. Stumbling over them may result in possible injury.

**⚠ CAUTION**

Wait until eyes adjust to darkness before starting work in the dark room.

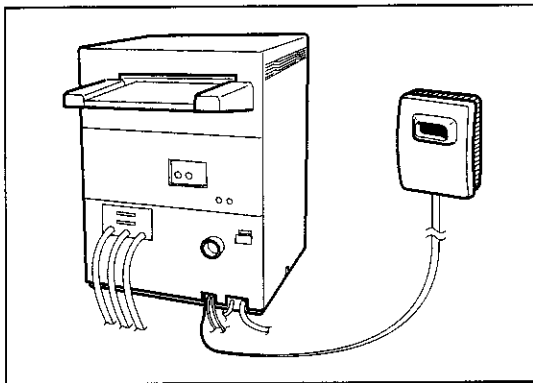
**IMPORTANT**

- *Single emulsion films should be processed emulsion side down.*
- *If processing has been suspended for prolonged periods (more than 1 hour), feed 4 to 6 cleaning films before resuming operations.*

**NOTE :** *During the Warm Up Cycle, in case the film is fed into the processor, an alarm sounds and the LCD display changes to as follows.*

NOT READY  
PLEASE WAIT

*If you pull the film, an alarm stops and LCD returns to Regular operation mode.*



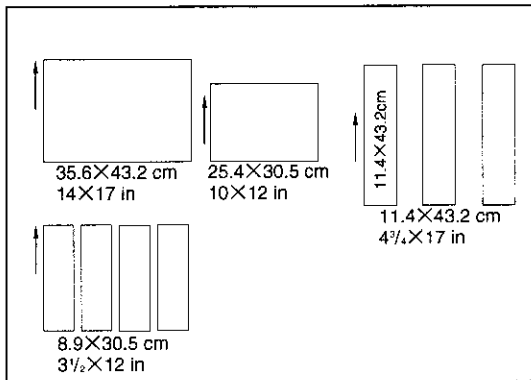
(1) Processing 4 to 6 sheets of cleaning film.\*

When the film is fed to the feed tray entry roller, the feed end READY LED and the operation panel READY LED go off.

When the film is completely fed into the processor, the alarm sounds and the READY LED's come on to indicate that the processor is ready to accept the next film.

\*Use unprocessed film or processed blackened film as cleaning film.

(2) Turn ON the dark room safelight.



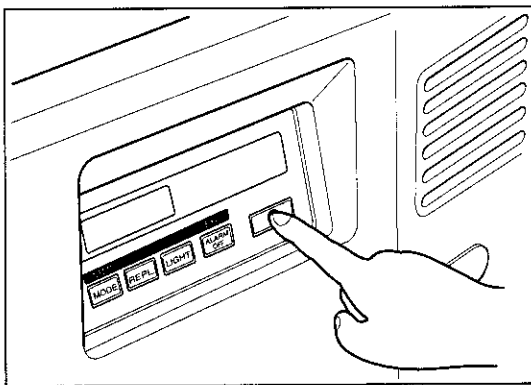
(3) Make sure that the READY LED is illuminated, and then feed the first film into the processor. Feed the film against the right or lefthand guide of the feed tray.

Ensure that the film is positioned at right angles to the entry roller. When the film reaches the entry roller section, it automatically advances into the processor and the READY LED goes off.

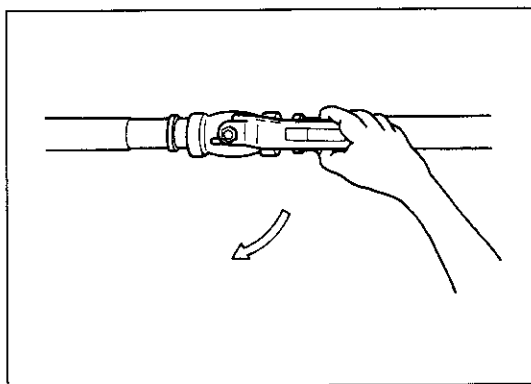
(4) When the alarm sounds with the READY LED coming on, feed the next.

(5) Repeat the preceding steps as needed to complete film processing.

### 5.3 PROCESSOR SHUTDOWN

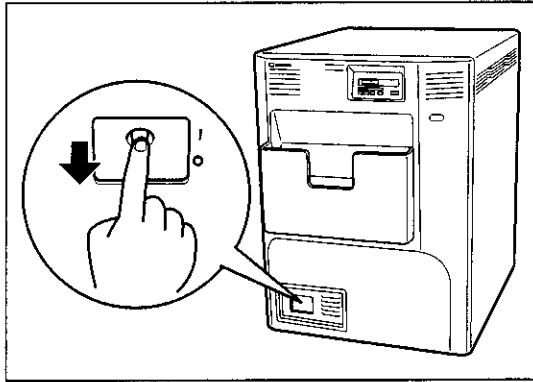


(1) To stop the processor, press the POWER switch on the operation panel. The display panel LCD changes to [COOL DOWN CYCLE ], and the POWER LED blinks for an 12 minute period during the processor cleaning. After the cleaning is completed, the LCD backlight goes off and the message "POWER OFF" appears on the display.



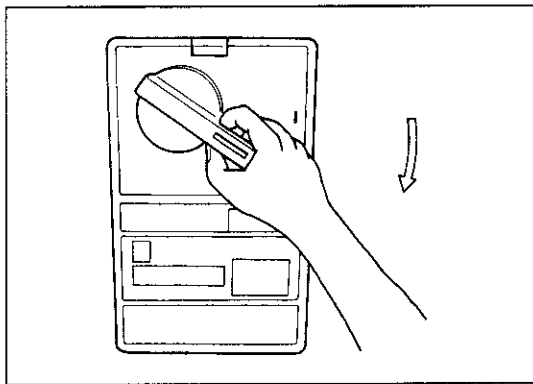
(2) Close the water supply valve connected to the processor.

## 5. OPERATING PROCEDURES



(3) Place the power circuit breaker in the "O" position.

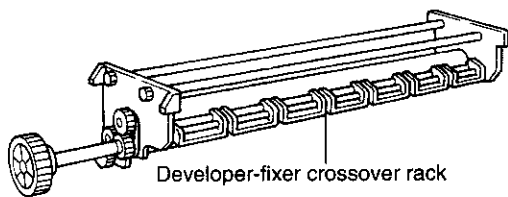
**NOTE:** *The processor power is normally left ON. (The exhaust fan operates intermittently, preventing condensation and rust inside the unit.) If the power is cut off due to, for example, internal hospital regulations, perform the following operation.*



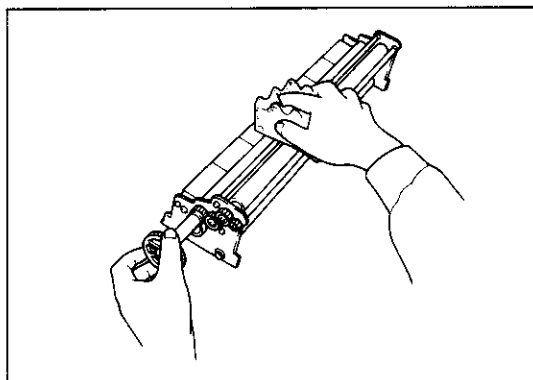
(4) Place the wall-mounted circuit breaker in the "OFF" position.

### CAUTION

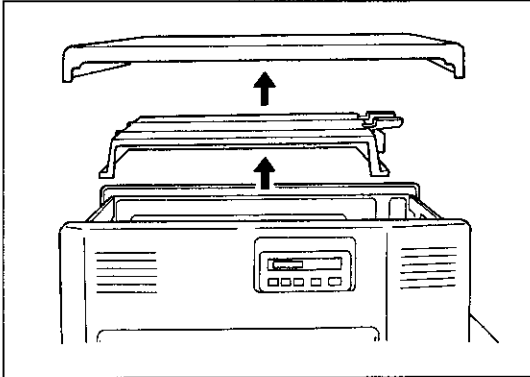
Wear protectuer goggles and rubber gloves during clearing so that chemicals will not come into contact with any part of the body.



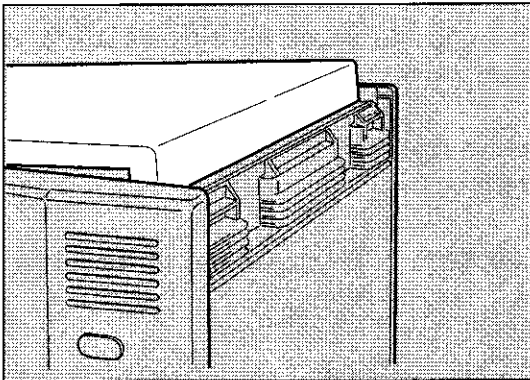
(5) Remove the developer-fixer crossover rack.



(6) Wash thoroughly with a sponge while rotating rollers.



(7) Remove the top cover and middle cover.



(8) Slightly open the processor top cover.

**NOTE :** *Be sure to open the top cover because the processor chemical vapor may corrode the interior of any daylight equipment (MOL) connected to the processor.*

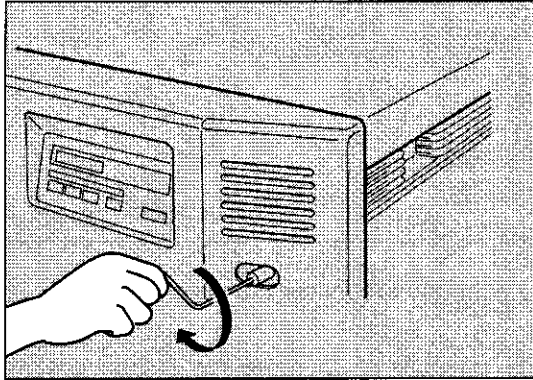
**⚠ WARNING**  
**EYE AND SKIN IRRITATION**

Wear rubber gloves and suitable eye and clothing protection to avoid skin or clothing contact with solutions.

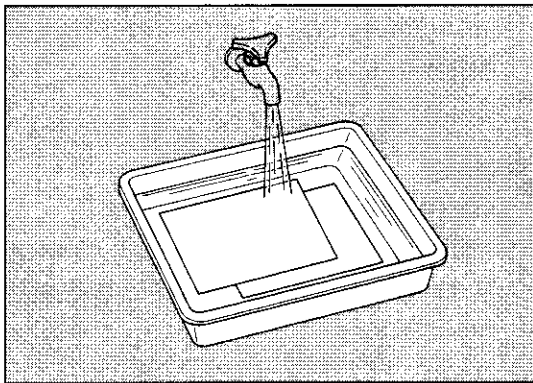
(9) Check the remaining solution levels in the replenisher tanks. If the remainder of any replenisher solution is less than 5 liters, fill the tank with newly prepared replenisher solution.

## 5.4 POWER FAILURE COUNTERMEASURES DURING PROCESSING

In the event of a power failure, use the manual drive crank and follow the procedures described below to complete the processing of any films in process.



- (1) Turn the MAIN (circuit breaker) switch OFF.
- (2) Remove the manual drive crank cover and attach the manual drive crank to the shaft.
- (3) Manually turn the crank clockwise at a speed as high as possible.
- (4) Keep turning the crank until the last film is discharged into the film receiver.



- (5) Remove the films from the film receiver and place them in the tray.
- (6) Wash the films in running water for about two minutes.
- (7) Hang the films on the film hanger and allow them to dry naturally.



## 6.1 MAINTENANCE OF THE PROCESSOR

In order to be able to stably use the machine at all times and obtain optimum film processing results, periodically replace the chemicals in the processing tanks and clean the racks.

When too few sheets are processed, the developer will be insufficiently replenished. And when the cumulative number of sheets processed becomes large, various chemical substances will build up in the processing solutions, so that high-quality of the processed film can no longer be made. Since the processing solutions cannot be regenerated once it deteriorates, the solutions in the processing tanks must be replaced periodically.

### Precautions in handling the chemicals (developer, fixer)

Follow the following CAUTIONs in handling and disposing of the developer and fixer.

#### **WARNING** **EYE IRRITATION**

Avoid ocular contact. Wash contaminated areas thoroughly after handling chemicals.

**FIRST AID: In case of ocular contact**, immediately flush the eyes with plenty of running water for at least 15 minutes and seek medical attention.

#### **CAUTION** **SKIN IRRITATION**

Avoid contact with skin and clothing. Wash contaminated areas thoroughly after handling.

**FIRST AID: In case of skin contact**, flush the skin with plenty of running water.

Remove contaminated clothing. Get medical attention if irritation persists.

#### **CAUTION**

- Wear protective goggles, rubber gloves, a rubber apron, and other suitable protective gears so that chemicals will not come into contact with any part of the body.
- Always wash hands well after handling chemicals.

#### **CAUTION**

If the fixer gets mixed in with the developer, film fog will occur. In attaching and removing the racks, be very careful that no fixer gets into the developer. Turn off the power to the machine before attaching or removing racks.

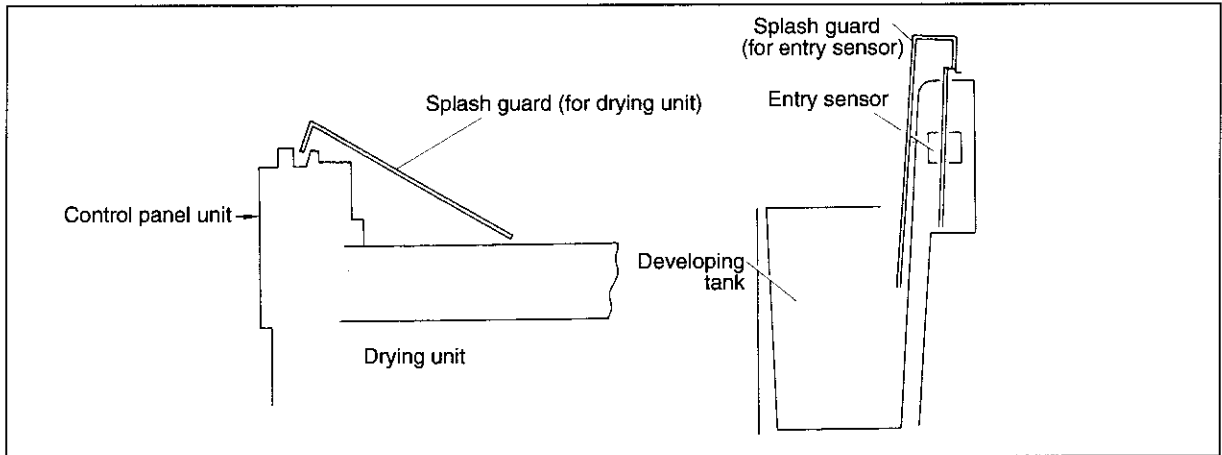
#### **CAUTION** **ENVIRONMENTAL POLLUTION**

Be sure that the waste solutions (developer and fixer) and water are disposed of in compliance with all applicable local, state, and federal regulations. For details consult a qualified service person.

#### **CAUTION**

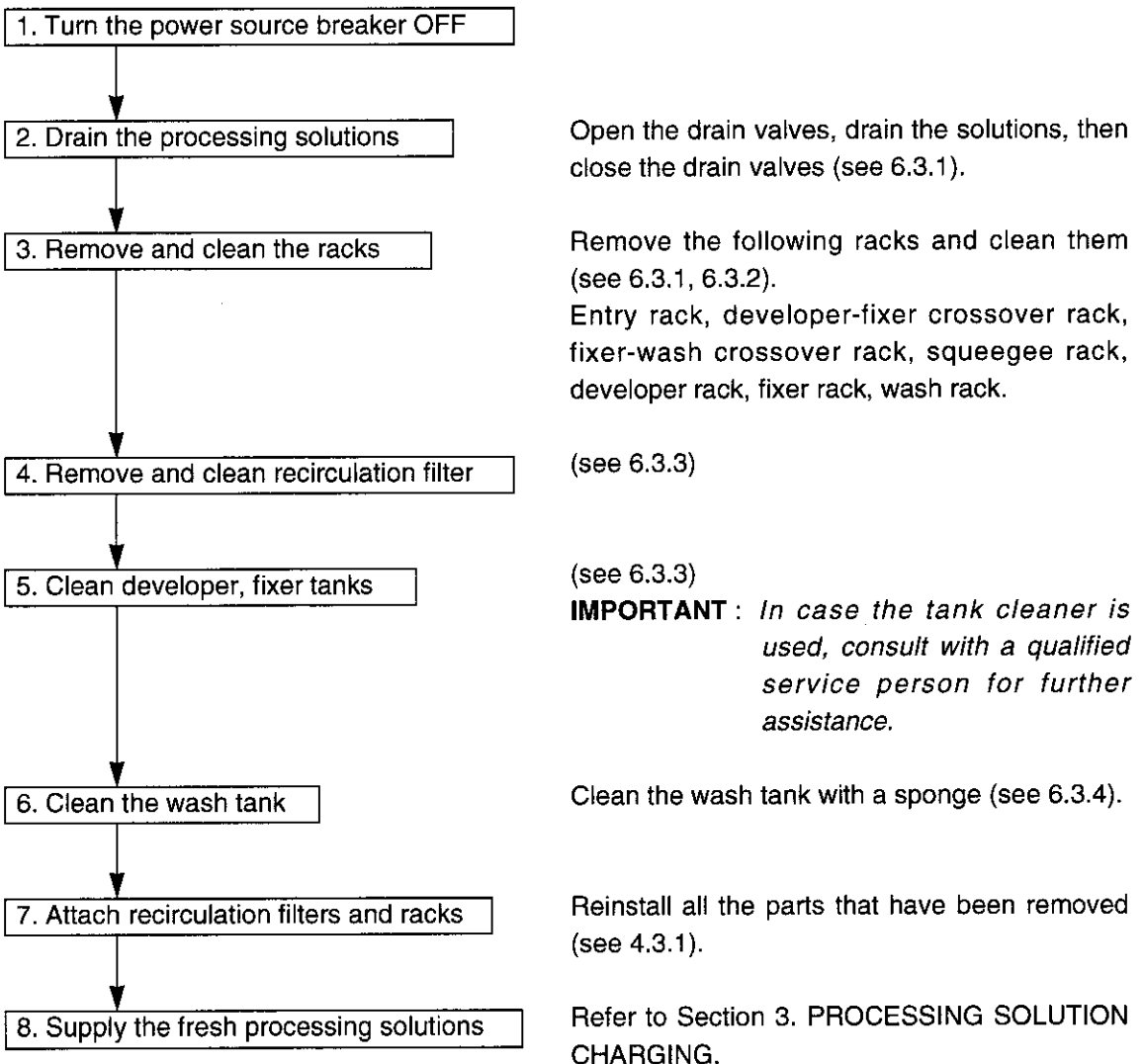
When attaching or removing the processing racks or cleaning the processing tanks, put the splash guards, which are provided with the equipment as standard accessories, onto the entry sensor unit and drying unit entry opening.

## 6. MAINTENANCE



### 6.2 PROCEDURE FOR MAINTENANCE OF THE PROCESSOR

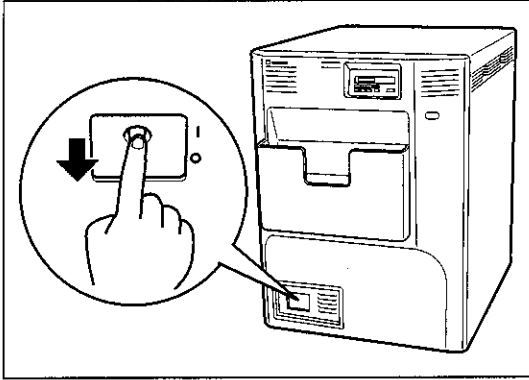
Maintain the processor by the following procedure about once a month.



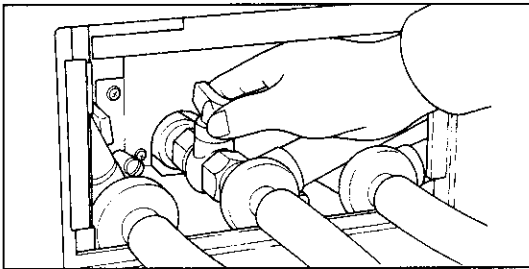
## 6.3 CLEANING THE RACKS AND PROCESSING TANKS

### 6.3.1 Removing the racks

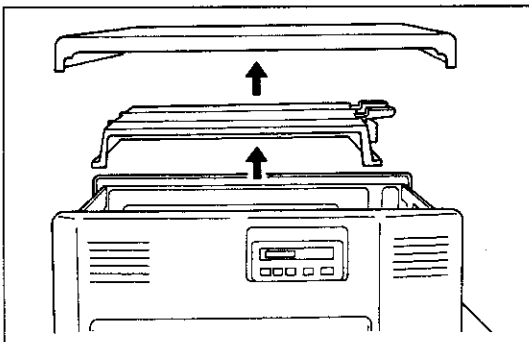
The racks and processing tanks are cleaned by the following procedure.



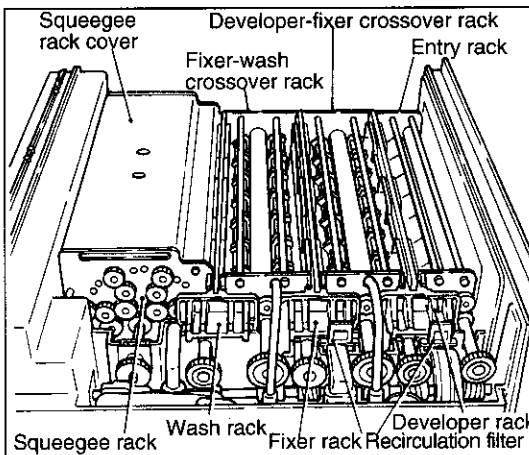
- (1) Place the power circuit breaker in the "O" position..



- (2) Open the drain valve and drain the liquid from the processing tanks. When the liquid is drained into waste liquid recovery tanks, verify beforehand that at least 13 liters of each liquid will go in.



- (3) Remove the top cover and middle cover.



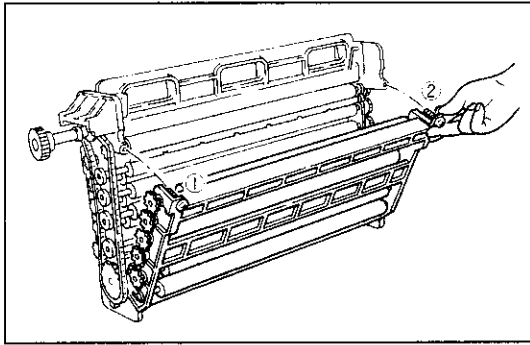
- (4) Remove racks and recirculation filters, etc. as necessary.

## 6. MAINTENANCE

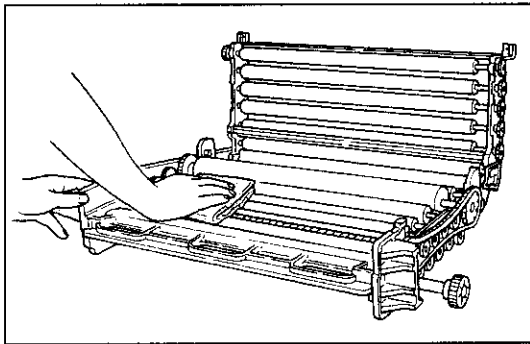
### CAUTION

Wear protective goggles, rubber gloves, a rubber apron, and other suitable protective gears so that chemicals will not come into contact with any part of the body.

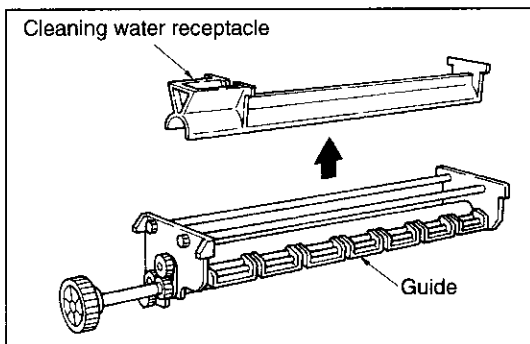
### 6.3.2 Cleaning the processing racks and crossover racks



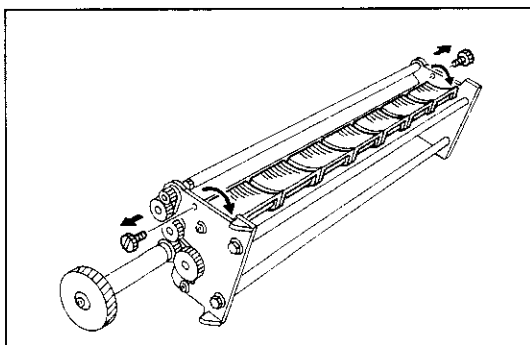
- (1) With a screwdriver, loosen screws ① and ② on the rack and separate the rack.



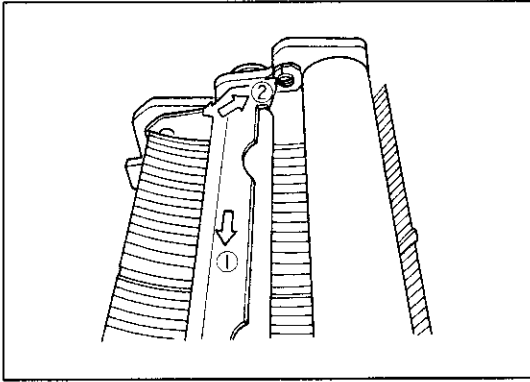
- (2) At the sink, wash the entire removed rack with lukewarm and running water using a sponge or soft cloth. While washing the rollers, rotate them and remove any contamination or foreign matter from them. If silver or processing residue remains on the rollers after cleaning, use developer systems cleaner to dissolve silver and residue then thoroughly rinse with running water.



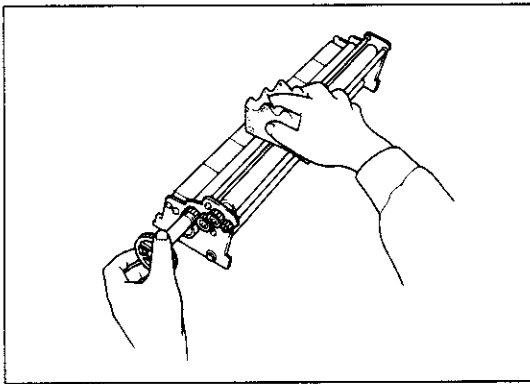
- (3) Also remove the crossover rack cleaning water receptacle and wash it thoroughly.



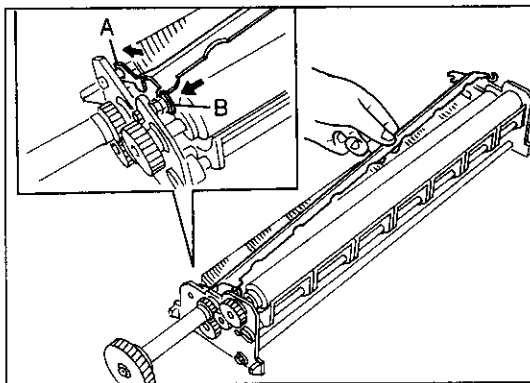
- (4) Remove the anchoring screws on both ends of the guide hidden inside the crossover rack, pull it out side, and wash it thoroughly.



(5) Remove the fixer-wash crossover rack by sliding the metal guide panel on the bottom in the direction of arrow ① then lifting it in the direction of arrow ②, and wash it thoroughly.



(6) Wash thoroughly with a sponge.

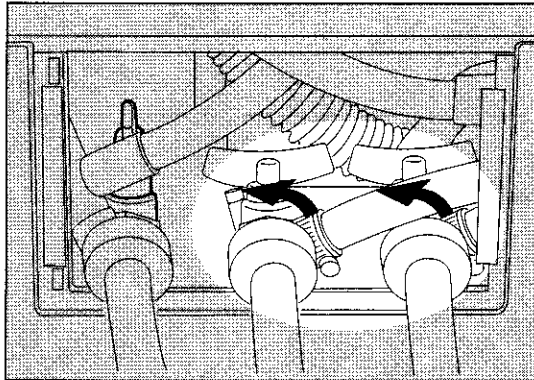


(7) Attach while inserting part A of the metal guide plate into the shaft and pushing part B against the spring.

### 6.3.3 Processing Tank and Recirculation Filter Cleaning

When replacing the tank solution, clean the processing tank and recirculation filter according to the following procedure.

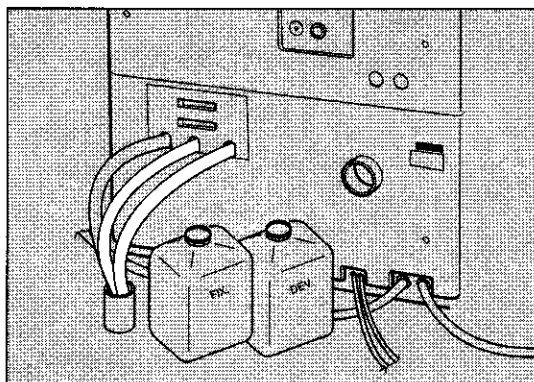
(1) Place the wall-mounted circuit breaker and main circuit breaker in the "OFF" position.



(2) Open the developer and fixer solution drain valves to empty the processing tanks. When receiving the drained waste solutions in tanks, furnish a 13 liter ( 3.4 US gal.) or larger capacity recovery tank for the developer and fixer respectively.

#### CAUTION

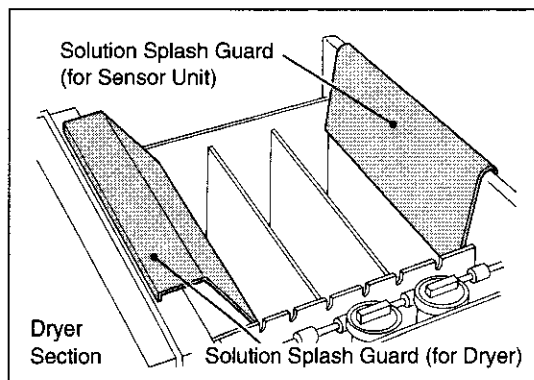
- Wear protective goggles, rubber gloves, a rubber apron, and other suitable protective gears so that chemicals will not come into contact with any part of the body.
- Always wash hands well after handling chemicals.



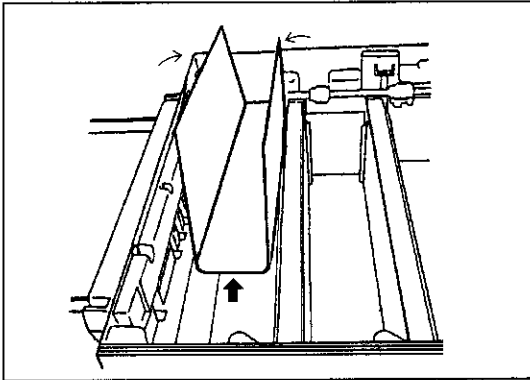
(3) After the processing tanks are drained, close the developer and fixer solution drain valves.

At the same time, connect the developer and fixer drain hose ends to the wash water drain pipe.

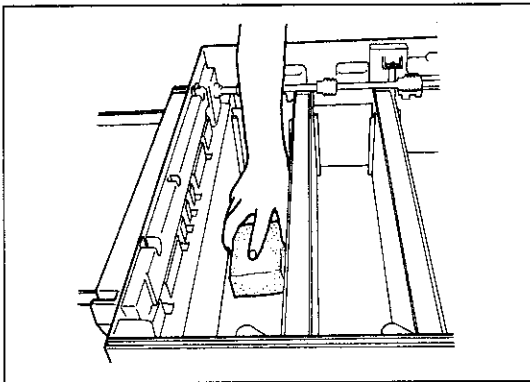
(4) Remove the crossover racks, processing racks, and recirculation filters from the processing tanks.



(5) Place the solution splash guards.



- (6) Remove the stainless steel partition from the developer tank pushing the upper part of it toward inside as illustrated.



- (7) Pour about 4 liters of warm water each into the developer and fixer processing tanks, and thoroughly clean the insides of the tanks with a sponge.

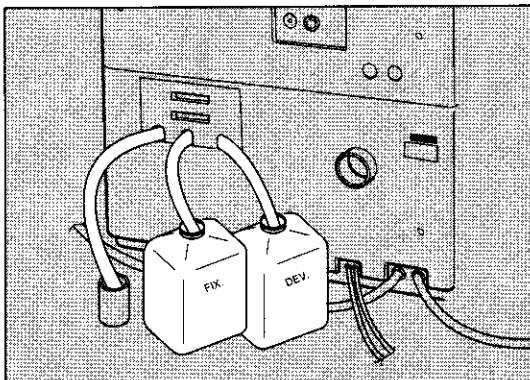
**NOTE :** *Do not use a brush or scrubbers for cleaning since they will mar the tank walls.*

- (8) After processing tank cleaning, open the developer and fixer solution drain valve to drain the washings.

Clean the tanks again with running water.

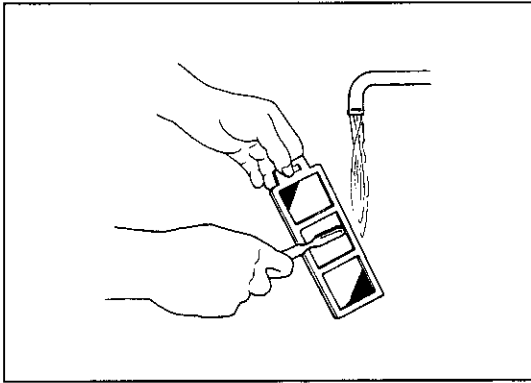
- (9) After the washings are drained, close the developer and fixer solution drain valves and put the developer and fixer overflow hose ends back in their emptied recovery tanks.

- (10) Remove the solution splash guards.



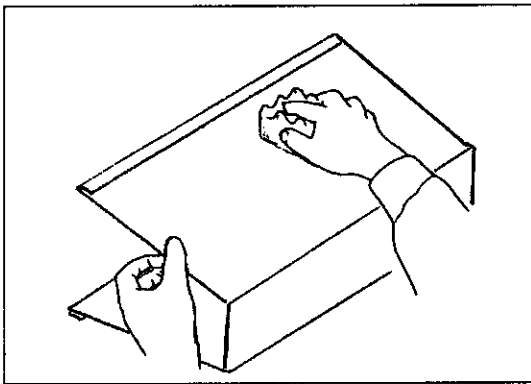
## 6. MAINTENANCE

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(11) Thoroughly clean the developer and fixer recirculation filters with running water and a brush.

(12) Reinstall the recirculation filters, processing racks, and crossover racks, in the order named, in their respective processing tanks.



(13) If necessary, use developer systems cleaner to dissolve silver and processing residue. After dearing, rinse thoroughly with running water.



### 6.3.4 Cleaning Wash Tank

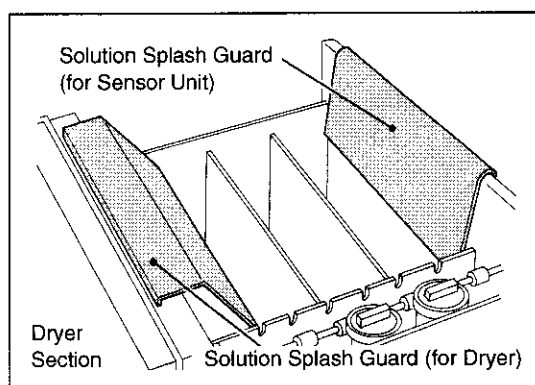
**⚠ CAUTION**  
**PERSONAL INJURY**

Do not attempt to lift heavy racks alone.

To avoid straining your back, lift with an assistant or with suitable equipment.

**IMPORTANT**

*Clean the wash tank once a month.*



- (1) Turn the POWER switch OFF.  
Wash water in the wash tank is automatically drained off.
- (2) Remove the fixer crossover, squeegee and wash racks.
- (3) Place the solution splash guard on the dryer section.
- (4) Clean the tank wall using warm water (preferably 50°C / 122°F or lower) and a sponge or soft cloth.  
  
**NOTE :** *Do not use brushes or scrubbers for cleaning since they will mar the tank walls.*
- (5) Remove the solution splash guard.
- (6) Position the all racks removed in step 2.

### 6.3.5 Feed Tray Cleaning

Wipe with a dry cloth or a soft cloth moistened from time to time.

## 6.4 PROCESSING SOLUTION REPLACEMENT

Processing tank solution replacement is recommended once a month. Solution should also be replaced when the processor has not been used for a week or more since processing solution performance will deteriorate. Refer to Section 3. PROCESSING SOLUTION CHARGING.

 **CAUTION**

- Wear protective goggles, rubber gloves, a rubber apron, and other suitable protective gears so that chemicals will not come into contact with any part of the body.
- Always wash hands well after handling chemicals.

 **CAUTION**

Turn off the power switch before rack removal to avoid air mixture in the circulation lines.

## WARNING

Review the safety information starting on page 6 before troubleshooting. Failure to follow safe procedures could result in personal injury, damage to the equipment or chemicals impairment.

**NOTE :** *If trouble other than listed below is encountered, contact a qualified service person.*

### 7.1 FILM PROCESSING PROBLEMS AND REMEDIES.

Problem	Probable Cause	Check	Remedy
Image density too low.	Improperly mixed developer solution.	Check proper developer solution mixing.	Replace with properly mixed solution. See page 13 (Section 3).
	Developer under replenishment.	Check sufficient developer replenishment.	Correct replenishment rate. See Page 22 (Section 4.2.3). Replace developer tank solution. See page 13 (Section 3).
	Contamination of developer with fixer.	Check whether fixer solution entry into developer tank during fixer rack removal.	Replace developer with fresh solution. See Page 13 (Section 3).
		Check whether fixer entry into developer replenisher tank.	Replace developer tank solution and replenisher with new ones. See Page 13 (Section 3).
	Developer temperature too low.	Check proper developer temperature setting.	Correct temperature setting. See Page 21 (Section 4.2.2).
		Check developer Filter clogging.	Wash Filter. See Page 46
		Check prepared solution due to infrequent use. If exhausted, the color of the solution is changed to dark brown.	Replace with fresh solution. See Page 13 (Section 3).
	Probable Cause	Check prepared solution oxidation due to infrequent use. If exhausted, the color of the solution is changed to dark brown.	Replace with fresh solution. See Page 13 (Section 3).

## 7. TROUBLESHOOTING GUIDE

(Section 6.3.3).	Film does not clear properly.	Developer over replenishment.	Remedy
Problem	Developer exhausted.	Check developer starter addition.	Replace with properly mixed solution or add the starter. See Page 13 (Section 3).
		Check developer replenishment rate.	Correct replenishment rate. See Page 22 (Section 4.2.3).
	Developer replenisher exhausted.	Check correct developer temperature setting.	Correct replenishment rate. See Page 22 (Section 4.2.3).
Image density too high.		Check proper fixer solution mixing.	Replace with properly mixed solution. See Page 13 (Section 3).
	Improperly mixed developer solution. (starter not added)	Check fixer replenishment rate.	Correct replenishment rate. See Page 22 (Section 4.2.3). Replace fixer tank solution. See Page 13 (Section 3).
Film not drying properly.	Dryer temperature too low.	Check correct dryer temperature setting.	Correct temperature setting. See Page 21 (Section 4.2.2).
	Developer solution exhausted.	See "Developer under replenishment" "Developer exhausted" and "Developer replenisher exhausted" for "Image density too low" on the preceding page.	
	Fixer solution exhausted.	See "Fixer under replenishment" for "Film does not clear properly" above.	
Film smudged.	Feed tray dirty.	Check dirt on feed tray .	Clean feed tray. See Page 49 (Section 6.3.5).
	Rollers dirty.	Check dirty developer rack.	Clean developer rack and rollers. See Page 44 (Section 6.3.2).
	Wash water.	Check solid wash tank.	Clean, wash tank and racks. See Page 43 to 49. (Section 6.3.1~6.3.4)

Problem	Probable Cause	Check	Remedy
Film scratched or jammed.	Foreign matter buildup on rollers.	Check dirt on rollers.	Wash rollers . See Page 43 (Section 6.3.2).
	Roller malfunction.	Check broken roller shaft supports and faulty springs.	Call service person to replace any defective shaft supports and springs.
	Racks improperly installed.	Check the rack setting.	Reseat racks.
	Film guides improperly installed.	Check crossover-turn around guides setting.	Call service person to correct alignment.

## 7.2. ERROR CODES AND MESSAGES

- In the event of an operational error or machine failure an message appears on the display and an alarm sounds.
- Press the ALARM OFF key to stop the alarm.
- Check the content of error message and follow the displayed instructions described herein under.

Error Message	Processor Status	Remedy
SETUP DATA ERROR	Immediate stop.	Enter the processing data again in accordance with the Setup Mode (see page 18), and turn ON the POWER switch. If same error recurs, contact a qualified service person.
PROCESSING AFTER POWER FAILURE	Stop after film discharge.	Do not feed any film until the drive system stops. After the drive system stops, operations can be resumed by turning the POWER switch ON.
DEV. TEMPERATURE TOO HIGH	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
DEV. TEMPERATURE TOO LOW	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
DEV. HEATER MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
DEV. THERMISTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
DEV. THERMISTOR SHORT CIRCUITED	Stop after film discharge.	Contact a qualified service person.
FIX. TEMPERATURE TOO HIGH	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.

<b>Error Message</b>	<b>Processor Status</b>	<b>Remedy</b>
FIX. TEMPERATURE TOO LOW	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
FIX. HEATER MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
FIX. THERMISTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
FIX. THERMISTOR SHORT CIRCUITED	Stop after film discharge.	Contact a qualified service person.
DRY. TEMPERATURE TOO HIGH	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
HR1. TEMPERATURE TOO HIGH	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
HR2. TEMPERATURE TOO HIGH	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
DRY. TEMPERATURE TOO LOW	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
HR1. TEMPERATURE TOO LOW	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.
HR2. TEMPERATURE TOO LOW	Stop after film discharge.	The temperature control circuit is abnormal. Turn OFF the POWER switch and contact a qualified service person.

## 7. TROUBLESHOOTING GUIDE

Error Message	Processor Status	Remedy
DRY. HEATER MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
HR1. HEATER MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
HR2. HEATER MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
DRY. THERMISTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
HR1. THERMISTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
HR2. THERMISTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
DRY. THERMISTOR SHORT CIRCUITED	Stop after film discharge.	Contact a qualified service person.
HR1. THERMISTOR SHORT CIRCUITED	Stop after film discharge.	Contact a qualified service person.
HR2. THERMISTOR SHORE CIRCUITED	Stop after film discharge.	Contact a qualified service person.
HR. SAFETY THERMOSTAT ACTIVATED	Stop after film discharge.	Contact a qualified service person.
ENTRANCE SENSORS MALFUNCTION	Immediate stop.	Contact a qualified service person. <b>NOTE :</b> <i>This ERROR is generated if a film is below the entrance sensor when the POWER switch is turned ON.</i>
DRIVE MOTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
TOP COVER OPEN	Immediate stop.	Be sure that the top cover is closed. If the error occurs while the top cover is closed, the control system is faulty. Contact a qualified service person.



Error Message	Processor Status	Remedy
NO WATER IN STOCK TANK	Continued operation.	<p>Check the wash tank level.</p> <ol style="list-style-type: none"> <li>1. If the water level is too low, make sure that the drain valve is completely closed and water supply valve is opened.</li> <li>2. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.</li> </ol>
WATER LEVEL OF STOCK TANK LOW	Continued operation.	<p>Check the wash tank level.</p> <ol style="list-style-type: none"> <li>1. If the water level is too low, make sure that the drain valve is completely closed and water supply valve is opened.</li> <li>2. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.</li> </ol>
FAILURE IN TANKS FILLING	Continued operation.	<p>Check the developer and fixer replenisher tank solution levels. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.</p>
NO DEV. IN TANK	Immediate stop.	<p>Check the developer and developer replenisher tank solution levels. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.</p>
DEV. LEVEL LOW	Immediate stop.	<p>Check the developer tank solution level.</p> <ol style="list-style-type: none"> <li>1. If the solution level is too low, make sure that the drain valve is completely closed and that there are no solution leaks in the tank and recirculation system. Then add the developer solution to the upper edge of the tank.</li> <li>2. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.</li> </ol>

## 7. TROUBLESHOOTING GUIDE

<b>Error Message</b>	<b>Processor Status</b>	<b>Remedy</b>
NO FIX. IN TANK	Immediate stop.	Check the fixer and fixer replenisher tank solution levels. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.
FIX. LEVEL LOW	Immediate stop.	Check the fixer tank solution level. 1. If the solution level is too low, make sure that the drain valve is completely closed and that there are no solution leaks in the tank and circulation system. Then add the fixer solution to the upper edge of the tank. 2. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.
NO WATER IN WASH TANK	Continued operation.	Check the wash tank level. 1. If the water level is too low, make sure that the drain valve is completely closed and water supply valve is opened. 2. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.
WATER LEVEL OF WASH TANK LOW	Continued operation.	Check the wash tank level. 1. If the water level is too low, make sure that the drain valve is completely closed and water supply valve is opened. 2. If the tank is already filled up to the upper edge, control system is faulty. Contact a qualified service person.

# 8 SPECIFICATIONS

- Film Transport ..... Continuous roller transport system
- Processing Time ..... SP (469sec. :100sec. developer immersion time)  
RP (703sec. :150sec. developer immersion time)  
Leading edge to leading edge
- Film Size ..... Sheet film:10x10cm~35.6X43.2cm (14X17in)
- Processing capacity ..... (14X17in)  
469sec.processing cycle : 41 sheets/hour  
703sec.processing cycle : 28 sheets/hour
- System Control ..... Microprocessor controlled
- Control Display ..... Back-light liquid crystal display
- Tank Capacity ..... Developer : 12.7 lit (3.4 US gal.)  
Fixer : 12.4 lit (3.3 US gal.)  
Wash : 10.9 lit (2.9 US gal.)
- Solution Temperature Control ..... Developer and Fixer temperature thermistor controlled  
Control precision : Dev.  $\pm 0.3^{\circ}\text{C}$  ( $0.5^{\circ}\text{F}$ )
- Solution Recirculation ..... Continuous solution recirculation and agitation by  
recirculation pumps
- Film Detection ..... Infrared sensors at entrance
- Replenishment System ..... Automatic replenishment based on area of film processed
- Wash Water Requirement ..... Water temperature : constant-temperature water at a temperature  
that is at least  $15^{\circ}\text{C}$  and  $5^{\circ}\text{C}$  lower than the developing set  
temperature.  
Flow rate : 3 lit. (0.8 US gal.) / min.during processing.
- Dimensions (WxDXH) ..... 780X793 (1121\*) X1076mm  
 $30\frac{11}{16} \times 31\frac{1}{4} (44\frac{1}{8}^*) \times 42\frac{3}{8}$  in  
\*including feed tray and film receiver.
- Weight ..... 221kg (487 lb) without solutions  
257kg (567 lb) with solutions
- Electrical Requirements ..... 200-240V AC, Single phase, 30A 50/60Hz  
380/400/415V AC, 3-phase, Y+N 10A 50Hz
- Standard Accessories ..... Manual handle, hoses, tool box, splash guards, flexible hose.
- Optional Accessories ..... Partition panels.
- Safety Specifications ..... Comply with UL and TÜV GS safety regulation.  
CE Mark.  
The non-return water connection complies with the DIN  
standard for connection to drinking water systems of the DVGW.
- Acoustic Noise ..... Below 58 dB (A) in both operating and stand-by conditions.

**NOTE :** *Specifications are subject to change without prior notice.*



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