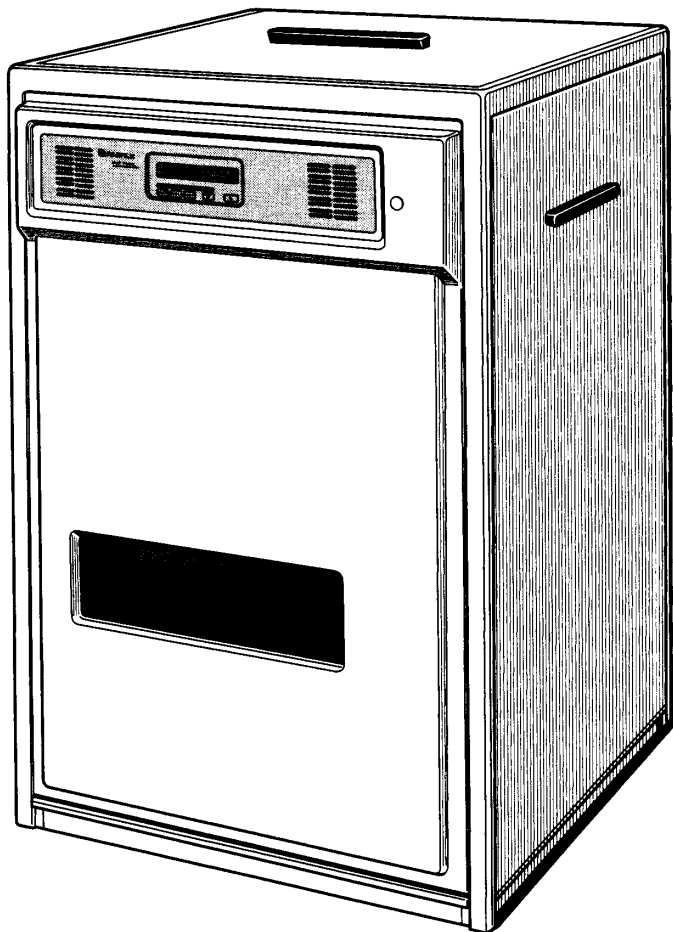




INSTRUCTION MANUAL

INDUSTRIAL X-RAY FILM PROCESSOR

FIP7000



Safety and Operating Environment

SAFETY

This section describes the precautions essential for safe operation of the FIP7000. Before operating the FIP7000, 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.

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.

Chemical(Developer/Fixer Solution)Handling Precautions

The developer solutions used with the FIP7000 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.

OPERATING ENVIRONMENT

The operating environment is important in providing optimum conditions for the FIP7000 use. Read the following precautions thoroughly before operating the FIP7000.

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 30°C and 34°C lower than the developing set temperature.

Introduction

This automatic processor has been designed for simple pushbutton control, great operational convenience, and increased economy resulting in high speed, high capacity processing.

To obtain optimum performance from your processor it is essential that this manual be thoroughly read and understood and that preventative maintenance be carried out on a regular basis. Whenever in doubt, call a Fuji Film service representative for relevant information or explanation.

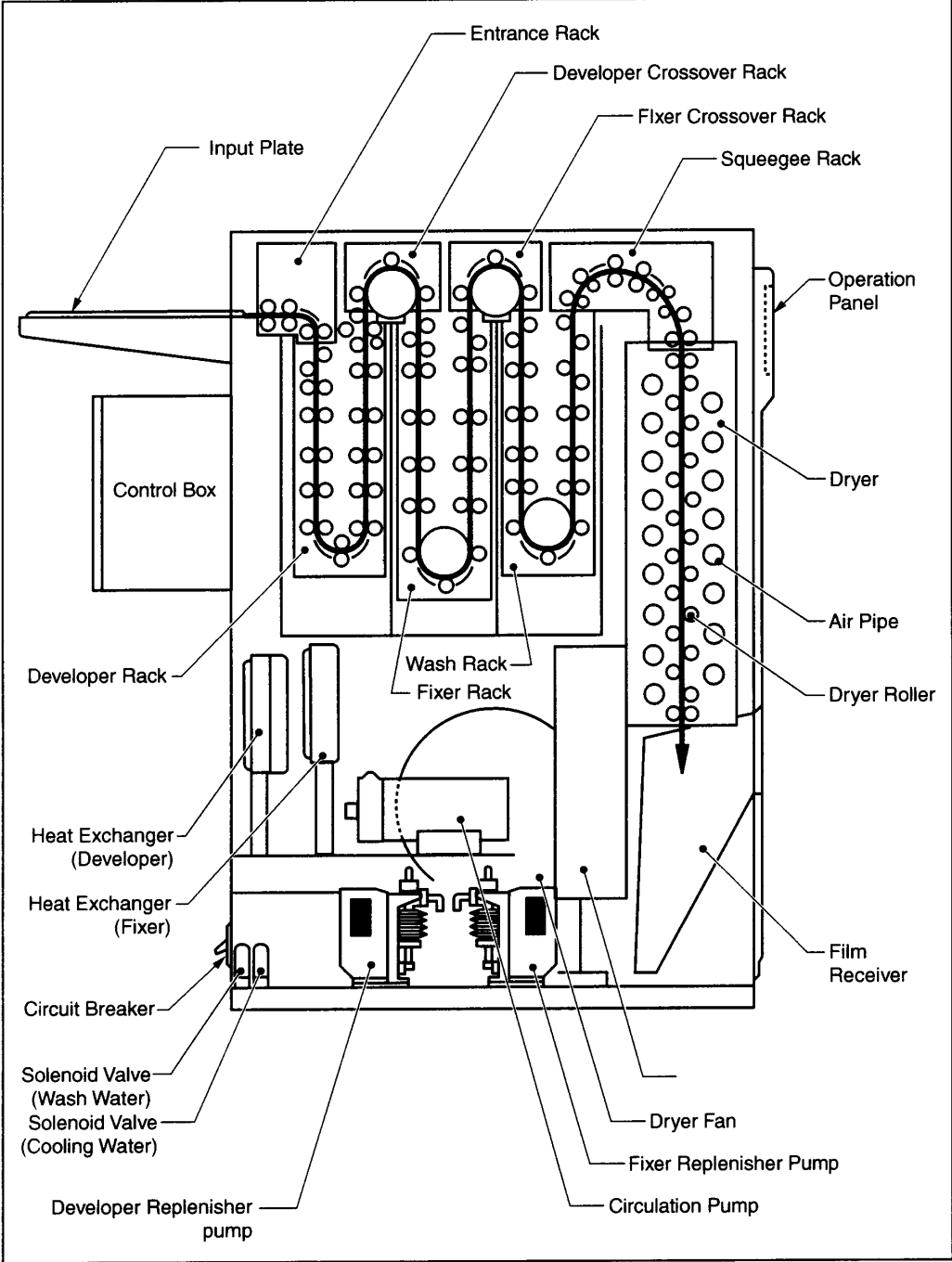
«FIP7000 Standard Processing Conditions»

Processing Cycle		5.5 min	11 min
Tank Capacity	Developer Tank	30 lit	
	Fixer Tank	24 lit	
Starter level		750 ml	
Set Point Temperature	Developer	30°C (86° F)	23°C (73.4° F)
	Fixer	31°C (87.8° F)	
	Wash water	31°C (87.8° F); wash water flow rate, 10 lit/min or more	
	Dryer (HEAT) in operation	50°C (122° F)	40°C (104° F)
	Dryer (PRE HEAT) in standby mode	35°C (95° F)	25°C (77° F)
Replenishment Rate	Developer	100 ml per 35.6 × 43.2 cm film	
	Fixer	300 ml per 35.6 × 43.2 cm film	

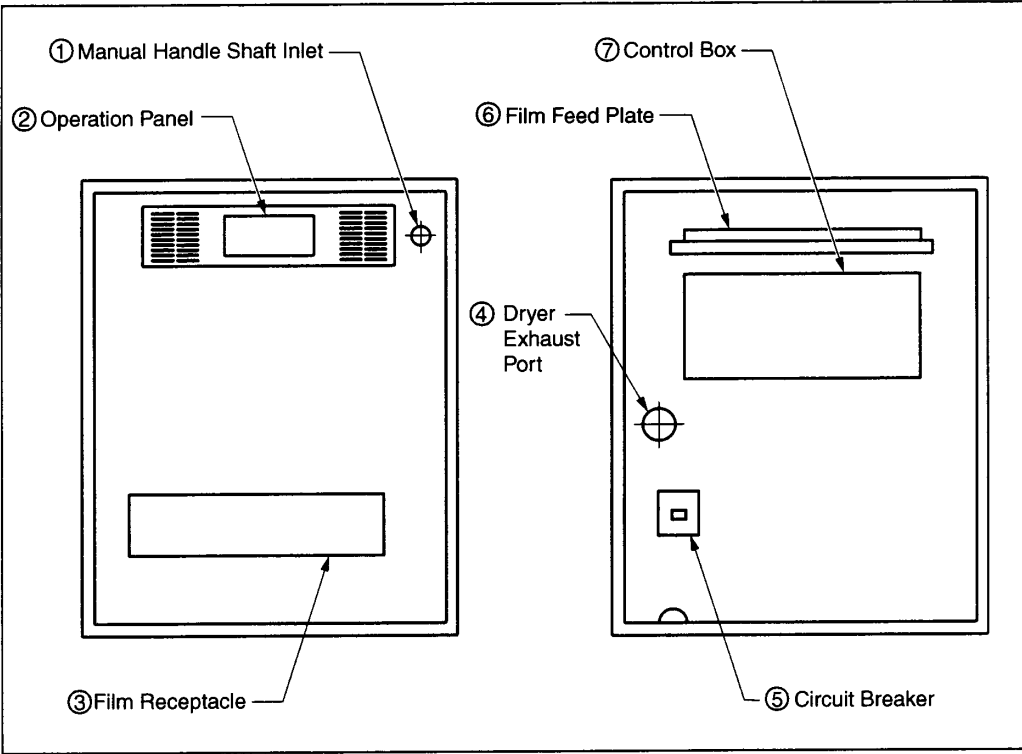
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1. Sectional Nomenclature



2. Sectional Functions

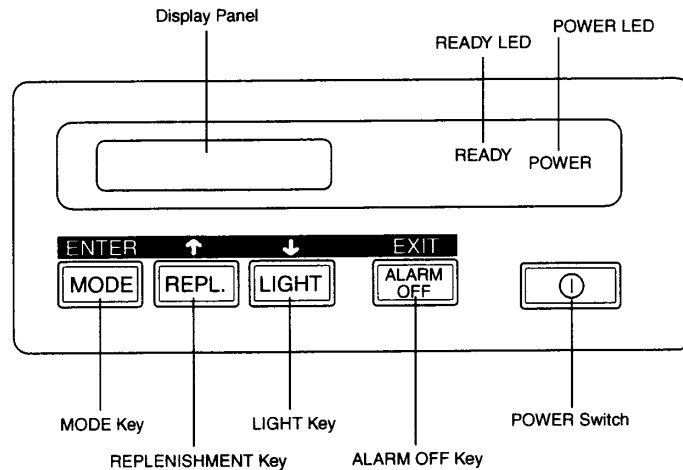


3. Operation Panel

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

READY DEV. = 30.0°C 5 min

NOTE:

- | | |
|--------|--|
| 5 min | 327 second processing cycle
(60 second developer immersion time) |
| 11 min | 649 second processing cycle
(120 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.

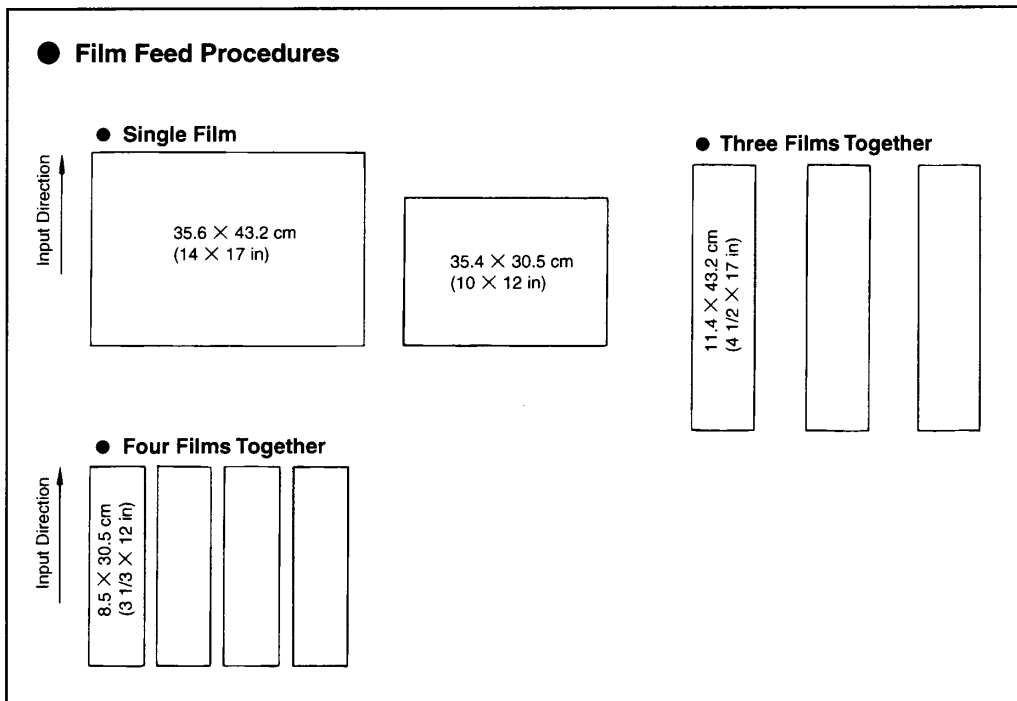
4. Operational Procedures

4.1 Operational Preparations

1	Check on the replenisher solutions.	Check to insure that there is enough developer and fixer replenishers in the replenisher tanks.
2	Check the tank solution levels.	Insure that the solution levels in the developing and fixing tanks are up to their marks.
3	Check the racks.	Insure that all the racks are located properly. Replace the developer crossover rack and the lids that are removed everyday.
4	Check on the wash water.	Close the Wash Water Drain Cock. Open the wash water valve and check on the water temperature and amount [10 liters per minute at 31°C (87.8° F)].
5	Check the tank solution level.	Insure that the solution level in the washing tank is up to the over flow level.
6	Turn on the power switch.	Insure that all the rollers are smoothly turning, that the dryer fan is functioning, and that the solutions are being circulated. Turn on the water cooler and check on the functioning of the cooling pump.
7	Set the solution splash guards.	Insure that all the covers and lids are in place and properly fitting.
8	Check for the temperature levels.	When the developer, fixer and dryer temperatures have reached the set-points, the READY lamp will light. Check for these indications. Also check for the temperature on the LCD display.
9	Process cleaning films.	Feed two or three films of the same size as those to be processed or larger.
10	Check on the replenisher lamp.	Insure that the replenisher solutions are being properly supplied. Check the functioning of the film input lamp and the buzzer.

4.2 Film Processing

1	Film feeding.	Fit the film edges along the side guides of the input plate and properly feed the films. Where possible feed film on the same path. With smaller films, in order to avoid overreplenishment, feed two or three films together. When the chime has sounded the processor is ready to accept the next film.
2	Interruption of operation.	For the purposes of maintaining solution temperatures, when operations are to be suspended for extended periods of time as during lunch breaks, leave the main switch on. After two minutes required for the final film to exit from the dryer section, the dryer heater, the heater fan, and the wash water supply automatically stop. Before resuming processing operations, be sure to feed a few cleaning films.
3	Turning on the darkroom lights.	Before turning on the lights in the darkroom, allow two minutes after the buzzer.



4.3 Shut Down

1	Turn OFF the power.	Sometime after depression of the \odot key, the LCD display changes to "POWER OFF". Then turn off all the switches.
2	Wash Water	Turn off the wash water supply valve. Open the Wash Water Drain Valve.
3	Clean the out-of-solution racks.	Remove and clean the entrance rack, the developer crossover rack, the fixer crossover rack and wash the rollers. (Refer to Sec. 4 under CLEANING.)
4	Clean the submerged racks.	Clean the out-of-solution rollers of the submerged developer, fixer and wash racks using a clean damp cloth.
5	Replace the racks.	Return all the racks removed to their original locations except for the developer crossover rack.
6	Other cleaning.	Clean the developer and fixer covers in running water. Clean the entire processor and wipe up any processing solutions that may have spilled.

NOTE: Store the developer crossover rack in a dust-free place at the end of each day so that the wiper cloth is not moistened with the vapors from the developer and fixer.

5. Cleaning

Location	Cleaning Period	Method	Precautions
Entrance Rack	Daily	Use a clean, damp cloth.	Return to position after completely dried.
Developer Crossover Rack*, Fixer Crossover Rack	Daily	Use a warm water dampened sponge.	
Developer Rack Fixer Rack	Daily	Wipe the out-of-solution rollers with a soft, damp cloth.	Do not wipe the developer rack with a cloth used on the fixer rack.
Wash Rack	Weekly	Removed the rack from the processor and wipe with a warm water dampened sponge.	
Developer Rack Developer Tank	Monthly	<p>Clean in the following sequence.</p> <ol style="list-style-type: none"> ① Empty the developer tank of solution. ② Flush away all remaining developer solution from the tank with running water. ③ Fill the developer tank with tank cleaner. ④ Turn on the main switch and run for about 15 minutes. ⑤ Empty out the tank cleaner and flush away all remaining cleaner with water. ⑥ Remove the rack from the processor. ⑦ Place water in the developer tank, run the processor and then remove the water, carrying out this step 2 or 3 times. ⑧ Clean each one of the rack rollers with a sponge moistened with a neutral detergent. ⑨ Rinse away all of the detergent with running water. 	<ul style="list-style-type: none"> ● The developer rack should remain in place. ● All tank cleaner should be completely removed. ● If rubber rollers are kept in contact with tank cleaner for extended periods, their functional capacity will be
Wash Rack	Monthly	<p>Clean in the following sequence.</p> <ol style="list-style-type: none"> ① Immerse in household bleach diluted as indicated at right for 15 minutes. ② Flush away all bleach with running water. 	<ul style="list-style-type: none"> ● One capful of household bleach for each liter of water. ● Turn the rollers once every 2-3 minutes while in the bleach.

Location	Cleaning Period	Method	Precautions
Fixer Rack Squeegee Rack	Monthly	Clean in the following sequence. ① Clean each roller with a sponge moistened with a neutral detergent. ② Flush away all detergent with running water.	
Fixer Tank	At processing solution replacement	Wash the inside of the tank with lukewarm water.	
Wash Tank	Monthly	Wash the inside of the tank with lukewarm water.	
Developer Filter	Weekly	Clean with brush and lukewarm water.	
Developer Replenisher Filter Fixer Replenisher Filter	As needed	Clean with brush and lukewarm water.	When it cannot be fully cleaned, replace the filter.
Wash Water Filter	As needed		When heavily clogged, replace the filter.
Film Feed Plate	Daily	Clean with a dry or alcohol, damp cloth.	In order to avoid scratching the film feed plate, brush lightly before wiping
Developer Cover Fixer Cover	Daily	Wash with lukewarm water.	
Overall Dirt	Daily	Wipe away with a damp cloth.	

Precautions:

1. When removing racks from the processor, insure that no solution splashes into adjacent tanks.
2. Any dirt or other foreign matter encrusted on the gears should be removed with the use of a brush.
3. When cleaning the racks, remove oil from the rack gears before washing is commenced in order that no oil adheres to roller surfaces.
4. When cleaning the rollers, do not use a stiff-bristle nylon brush or sharply edged tools; for such may scratch the roller surfaces.

Be sure to remove the stopper (installed near the helical gear on the drive shaft side) when removing the wash rack

6. Rack Inspection

■ RACK CONSTRUCTION

For a more detailed indication of rack construction, consult the separate parts lists.

■ RACK INSPECTION PERIODICITY

Carry out the following inspections as indicated in sections (1) through (8) below when weekly or monthly cleanings take place.

■ INSPECTION METHODS

When the racks are to be inspected, place them on a flat horizontal surface and carry out inspections for each of the respective racks as indicated in the following.

(1) Rack Quadrilateral Distortion

- When the racks are resting on a flat horizontal surface, check for any structural looseness and quadrilateral distortion.
- Turn the developer, fixer, and wash racks upside down and right them again, to check the entrance, the developer crossover, the fixer crossover, and the squeegee sections for any distortion.
- If there is any looseness or quadrilateral distortion, loosen the structural member retention bolts, correct the distortion, and then retighten the bolts.

(2) Rack Roller Motion Torque

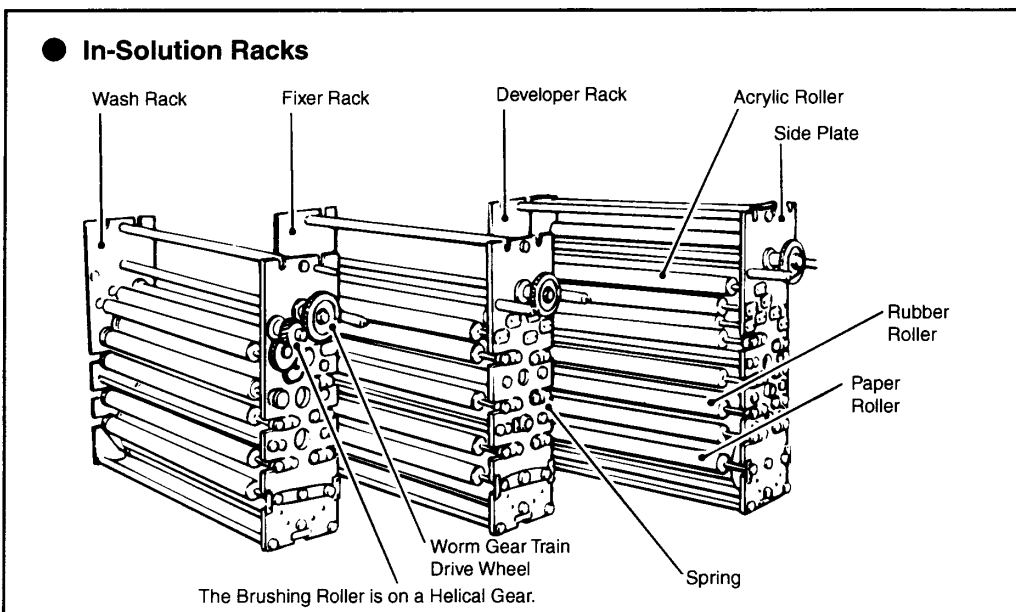
- Turn the worm gears in a clockwise direction and check for turning ease.
- If such turning is not easy or if there is periodic resistance, there is some problem that may be associated with the gears, the shaft collars, the rollers, the chains, or the springs. If so refer to sections (3) through (6) below.

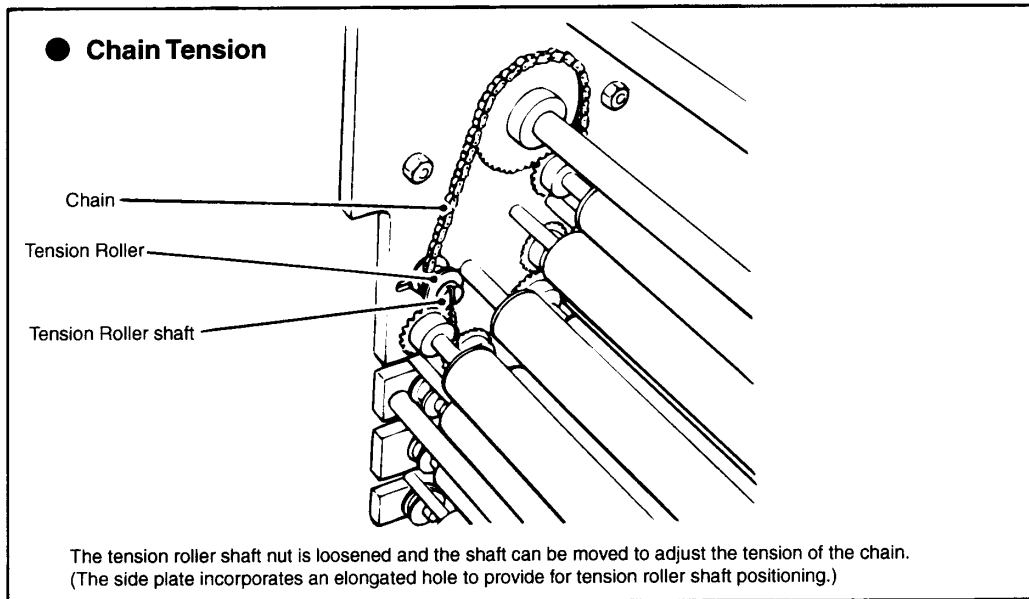
(3) Roller Turning

Turn the worm gear and note if all the rollers are turning.

(4) Springs

Note the springs for placement, stretching, and for breaks. Reposition out-of-place springs and replace the bad ones.





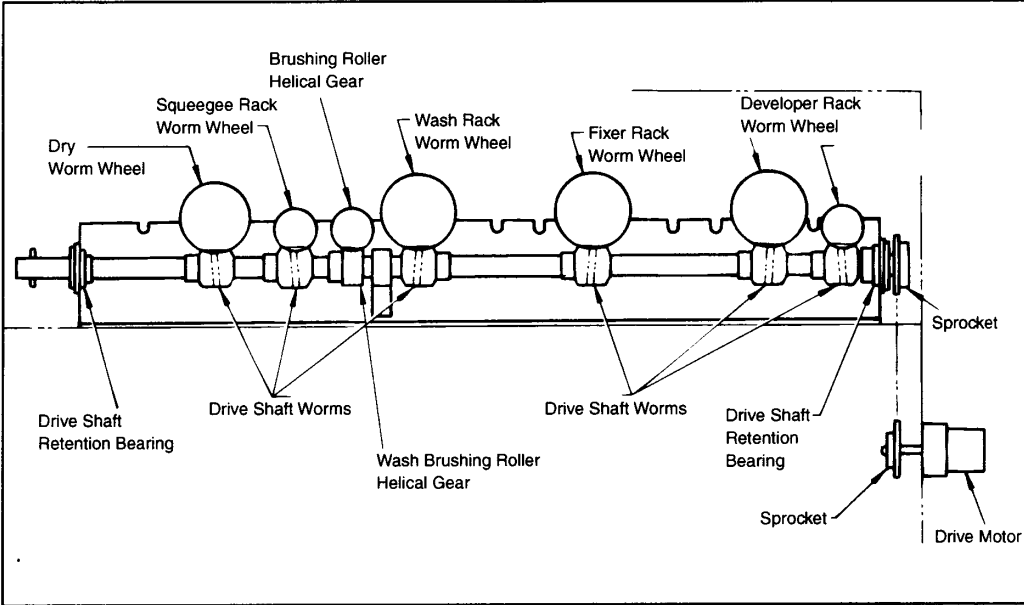
(5) **Chain Tension**

(6) **Shaft Collar and Gear Damage or Wear**

Check the gears and the shaft collar bearings for damage and/or wear and replace as necessary.

7. Lubrication

Apply white vaseline to the drive shaft worms, to the gears meshing with the worms, to the drive chain, and the gears meshing with drive chain.



8. Adjusting for Optimum Processing Conditions

8.1 On-screen Information

(1) "Power ON" period screen

While the film processor is inactive, the following is displayed.

Pressing the "Ⓜ" POWER switch causes the system to switch to the "Startup process screen."

When the timer is set

WEEKLY TIMER ON
MON. 10:00

When the timer is not set

POWER OFF

Displays the next timer ON day-of-the-week and time.

(2) Startup process screen

While the film processor is starting up, the following is displayed.

When the film processor is ready for film processing, the system switches to the "Film processing readiness screen."

Pressing the "Ⓜ" POWER switch causes the system to switch to the "Stop process screen."

WARM UP CYCLE
DEV. = 21.0°C 11min

Displays the processing speed setting.

Present developer temperature

(3) Film processing readiness screen

While the film processor is ready for film processing, the following is displayed.

When film is fed, the system switches to the "Film processing screen."

Pressing the "Ⓜ" POWER switch causes the system to switch to the "Stop process screen."

READY
DEV. = 23.0°C 11min

Displays the processing speed setting.

Displays the current developer solution temperature
Indicates the present temperature of the developer (32-second average value). (32-second average value of the control temperature + present indicated temperature × 10 + fractional value during previous calculation) / 10

(4) Film processing screen

While the film processor is engaged in film processing, the following is displayed.

When the film discharge drive comes to a stop, the system switches to the "Film processing readiness screen."

Pressing the "Ⓜ" POWER switch causes the system to switch to the "Film discharge completion wait screen."

F I L M P R O C E S S I N G
D E V . = 2 3 . 0 ° C 1 1 m i n

Displays the processing speed setting.

Displays the current developer solution temperature
Indicates the present temperature of the developer
(32-second average value).

(5) Film discharge completion wait screen

While the film processor is waiting for film discharge completion, the following screen is displayed. (While the following screen is displayed, the system continuously exercises film processing control.) When the film discharge drive comes to a stop, the system switches to the "Stop process screen." Pressing the "ⓘ" POWER switch causes the system to switch to the "Film processing screen."

* Waiting for film discharge completion → Waiting for film discharge completion due to operation OFF during film processing

C O O L D O W N C Y C L E
A F T E R P R O C E S S I N G

(6) Stop process screen

While the film processor is in the stop process, the following screen is displayed.

When a sequence of stop process operations is completed, the system switches to the "Power ON period screen."

Pressing the "ⓘ" POWER switch causes the system to switch to the "Startup process screen."

C O O L D O W N C Y C L E

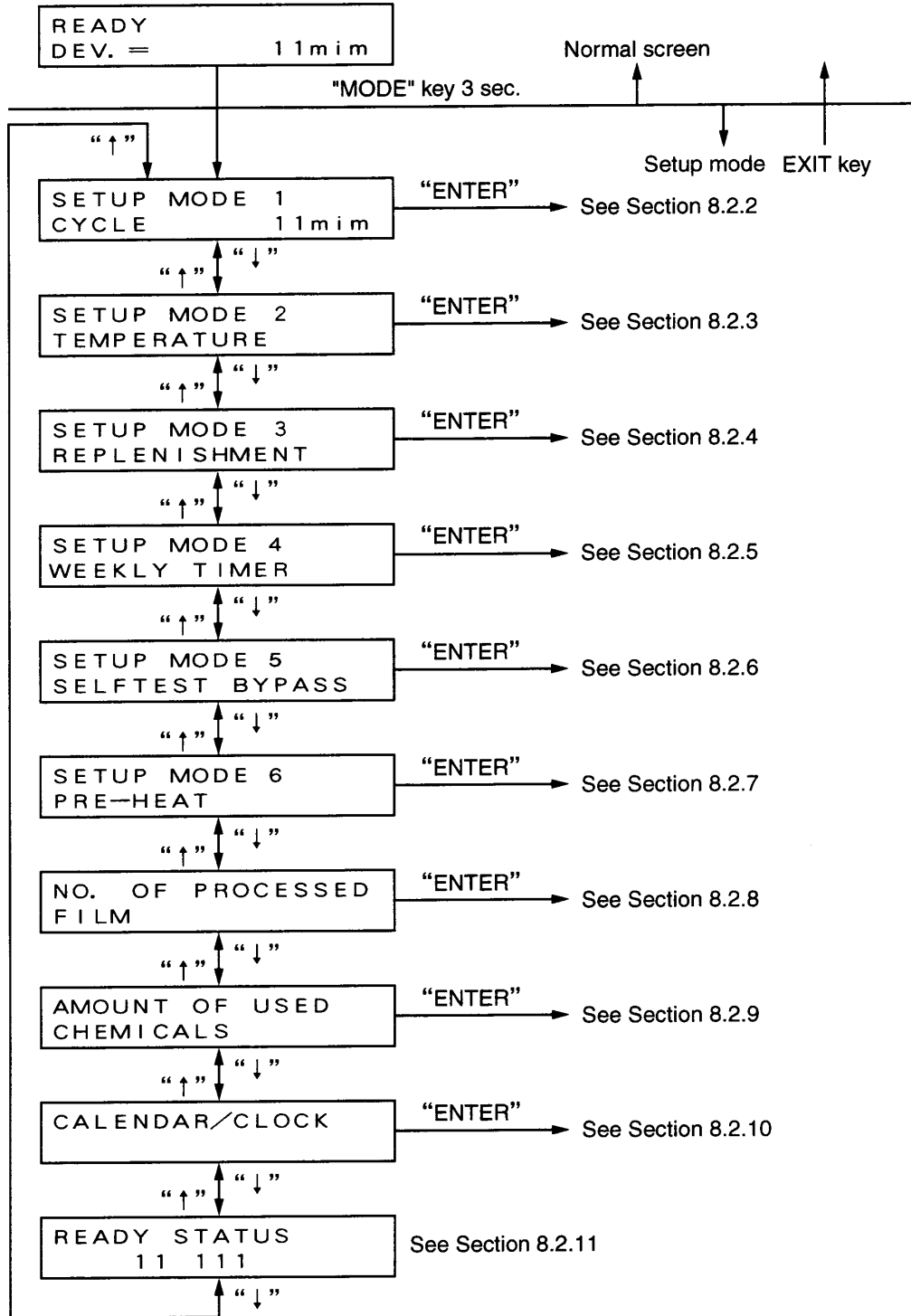
8.2 Setup Mode

In the setup mode, the settings can be edited or confirmed.

Pressing the EXIT key in the setup mode returns the system to a normal screen.

8.2.1 Setup Mode Screen Transition

8.2.1.1 Setup Mode Screen Transition



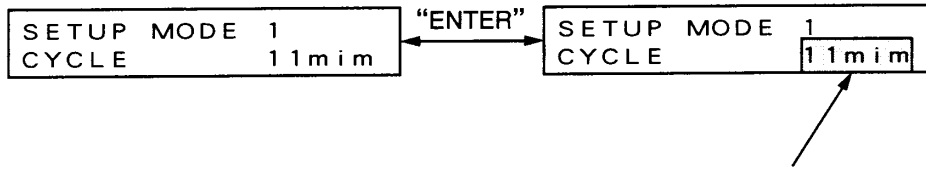
- * 1. The SETUP MODE 5 screen does not appear during selftest bypass processing.
- 2. The SETUP MODE 6 screen does not appear during film processing, preheat operation, or selftest bypass processing.

8.2.1.2 Setting Adjustment Ranges for Setup Mode (Tentative)

Item	Processing speed	Adjustment range	Resolution	Initial value	Unit		
Speed		5min, 11min		5min			
Temperature	Developer	5min	25.0~35.0	0.1	30.0	℃	
		11min			23.0		
	Fixer	5min	29.0~34.0	1.0	31.0		
		11min			31.0		
	Dryer	Main	5min	30.0~50.0	1.0		50.0
			11min				40.0
		Standby lower limit	5min	25.0~35.0	1.0		35.0
			11min				25.0
Replenishment Rate*1	Developer	5min	0,30~150	5	100	ml	
		11min					
	Fixer	5min	0,70~300	5	300	ml	
		11min					
Weekly timer		0:00~23:59 --:-- --:--		OFF (NOT USED) NOT SET			
DATE & TIME		1999~2098 1/1~12/31 0:00~23:59					

8.2.2 Speed Setup

The film processing speed (5min/11min) can be set up.



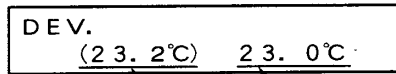
The processing speed selection toggles between 5min and 11min at each press of the "↑"/"↓" key.

The selection is finalized at the press of the ENTER key. However, if the processing speed selection is changed during film processing, selftest bypass processing, or transport start signal ON period, the speed change takes effect after the motor stops.

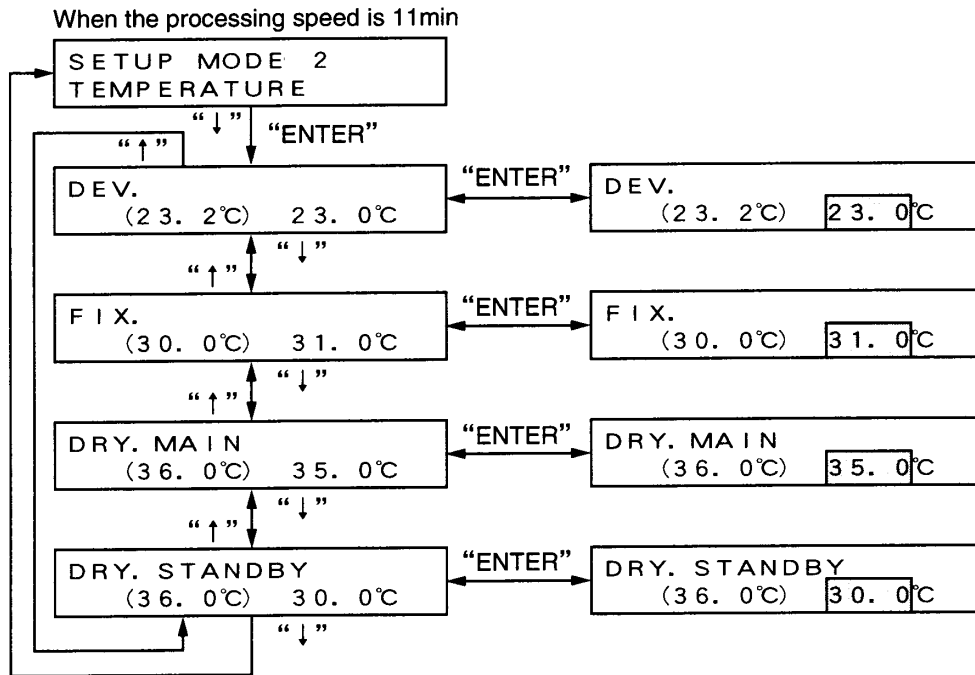
8.2.3 Temperature Setup

The developer, fixer, and dryer temperature settings for the selected processing speed can be set up.

* The menu changes as needed to match the processing speed selection. (When 11min is selected, only the 11min temperatures can be set up.)

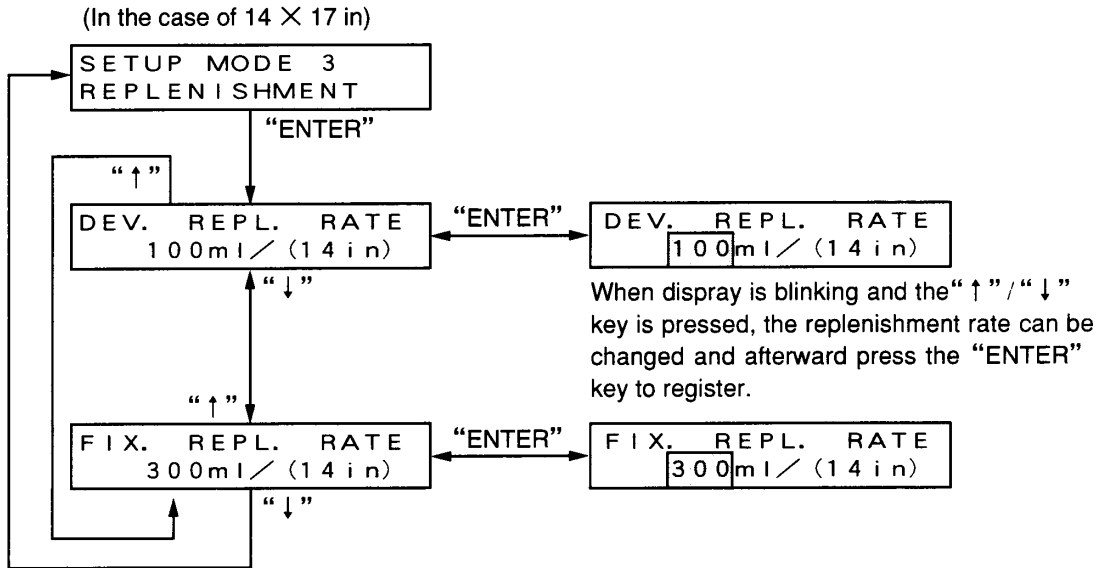
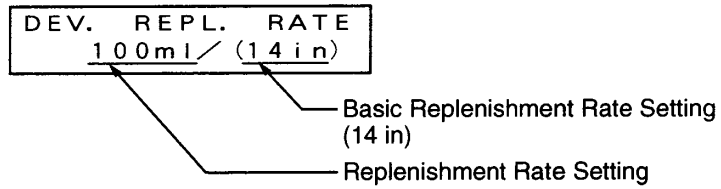


Temperature setting
(When the setting is blinking, it can be changed by pressing the "↑"/"↓" key and finalized by pressing the ENTER key.)
Measured temperature



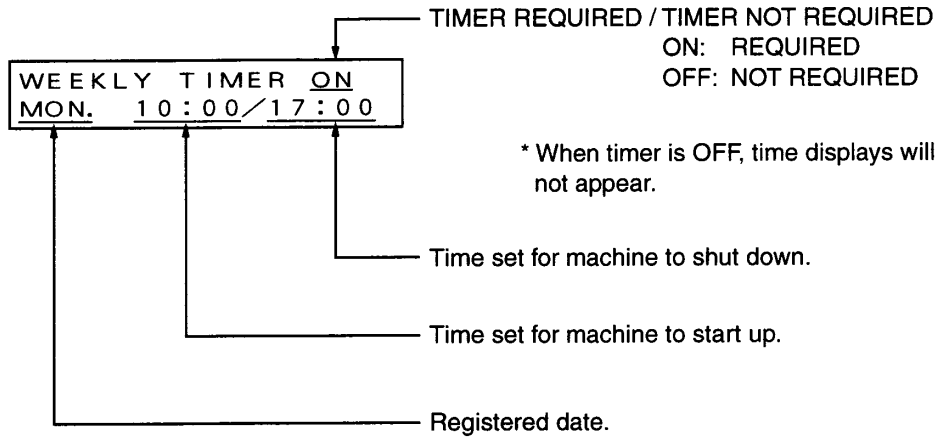
8.2.4 Replenishment Rate Setting

Replenishment rate for 1 sheet of 14 X17 inches or 5 sheets of 10 X12 inches can be registered.



8.2.5 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)



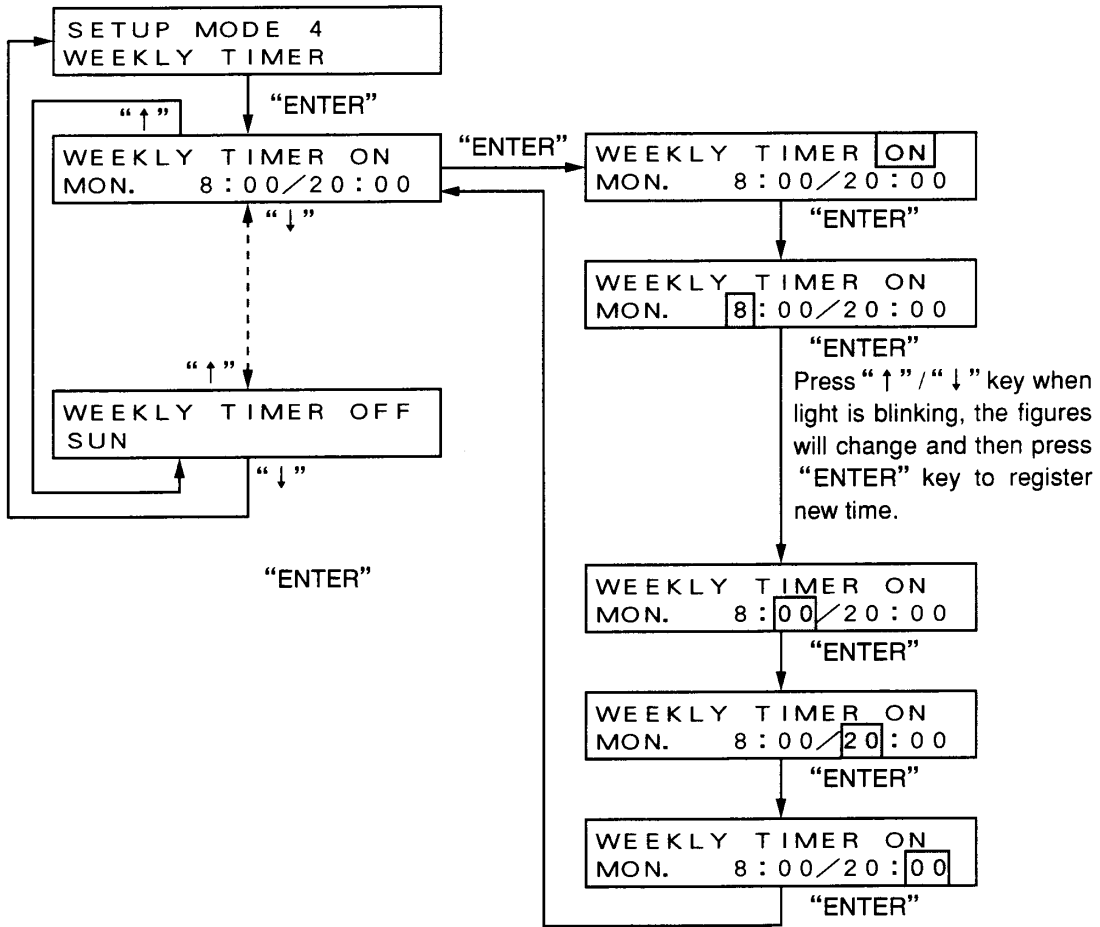
NOTE 1: When the "--:--" registers, machine will not function.

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

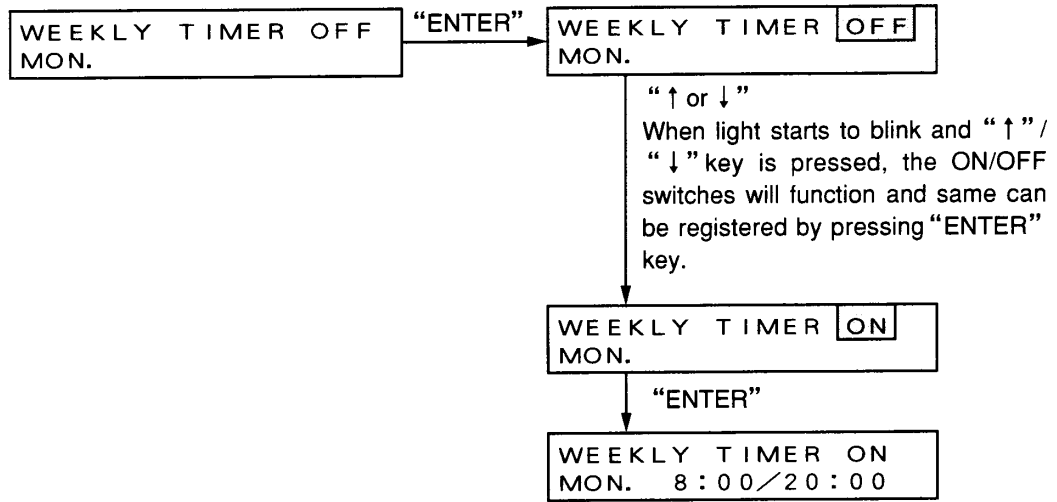
8.2.5.1 Change of Time ON Timer



8.2.5.2 Changing from OFF to ON

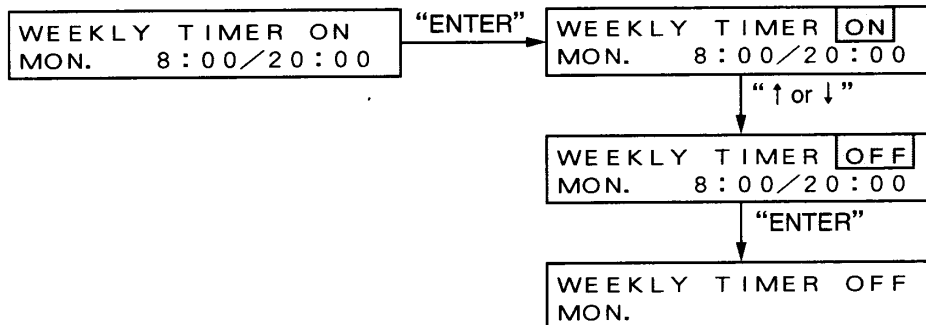
Nothing will be registered when the machine is OFF.

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



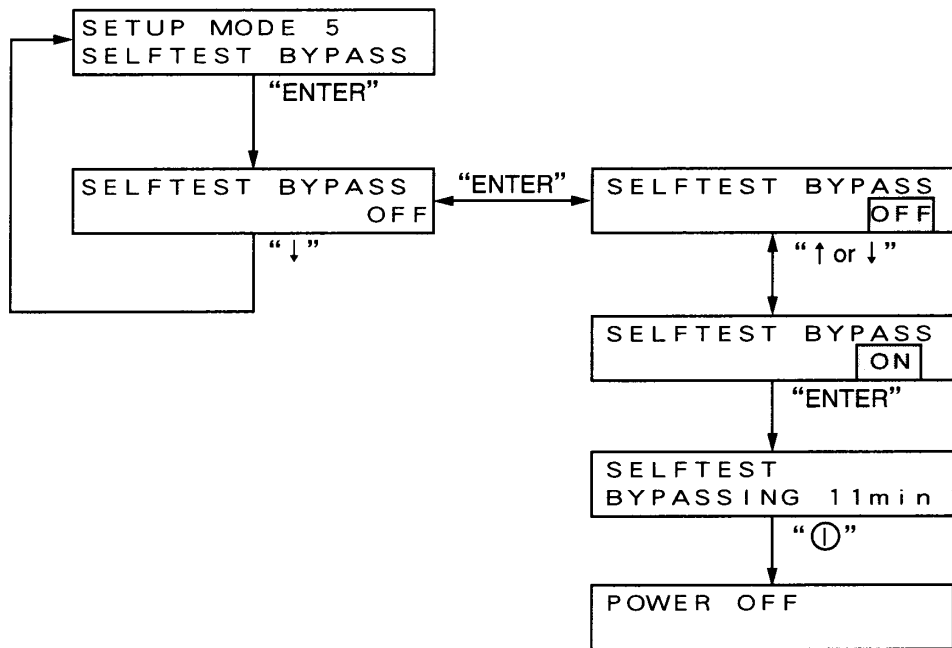
8.2.5.3 Changing from ON to OFF

Nothing will be registered when the machine is OFF. When the machine is switched from ON to OFF, the set time for weekly timer will not be appeared on display.



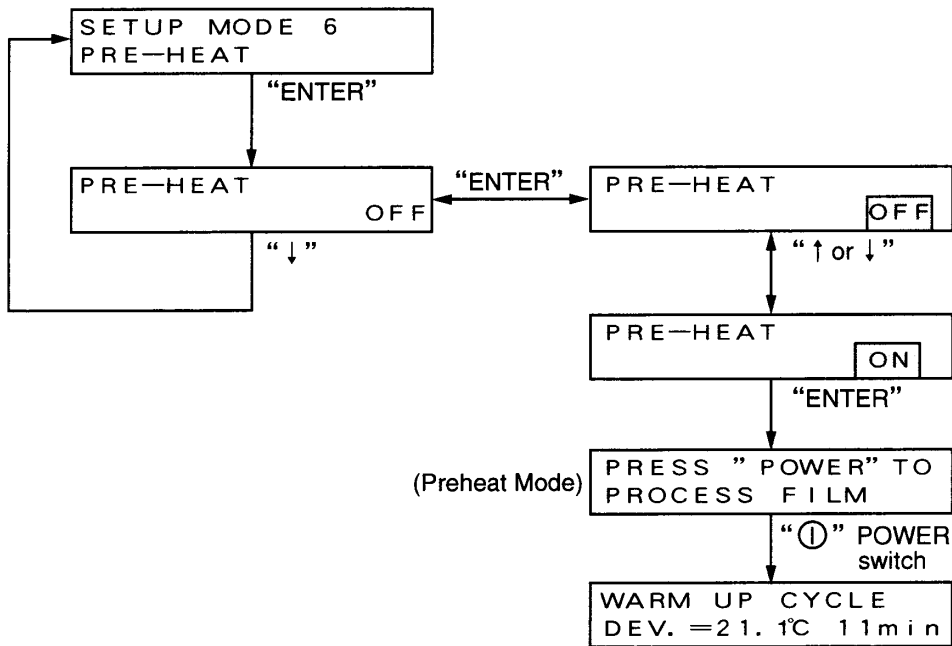
8.2.6 Selftest Bypass Setting

If emergency film processing is necessary in the event of processor trouble, the film can be processed by selftest bypass processing.

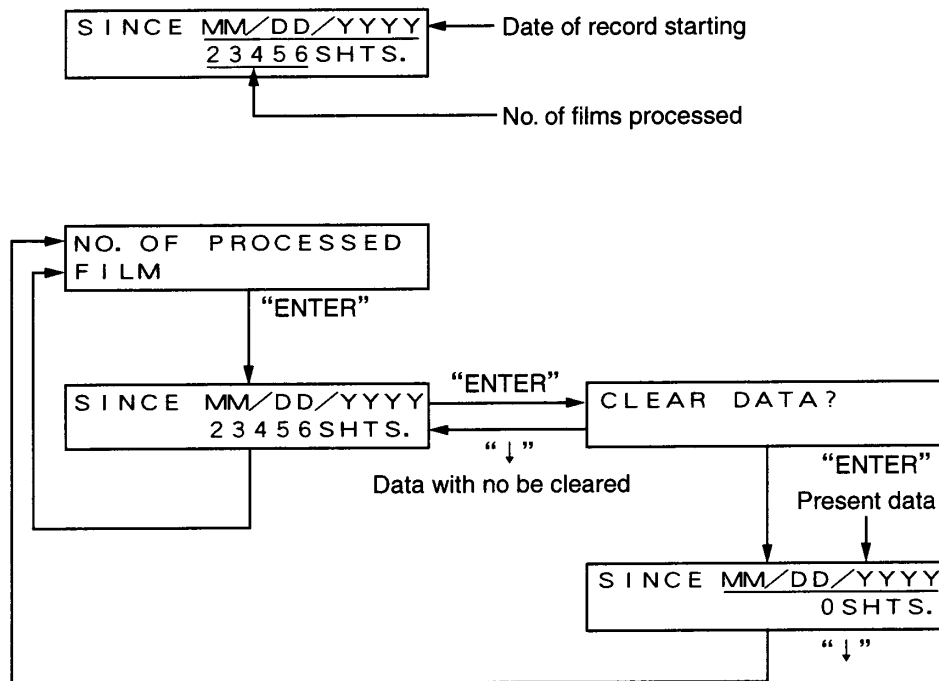


8.2.7 Preheat Mode Setting

When the preheat mode is selected, the FIP7000 will maintain only developer and fixer temperatures within certain ranges while saving energy.



8.2.8 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 accounted up to 99999.

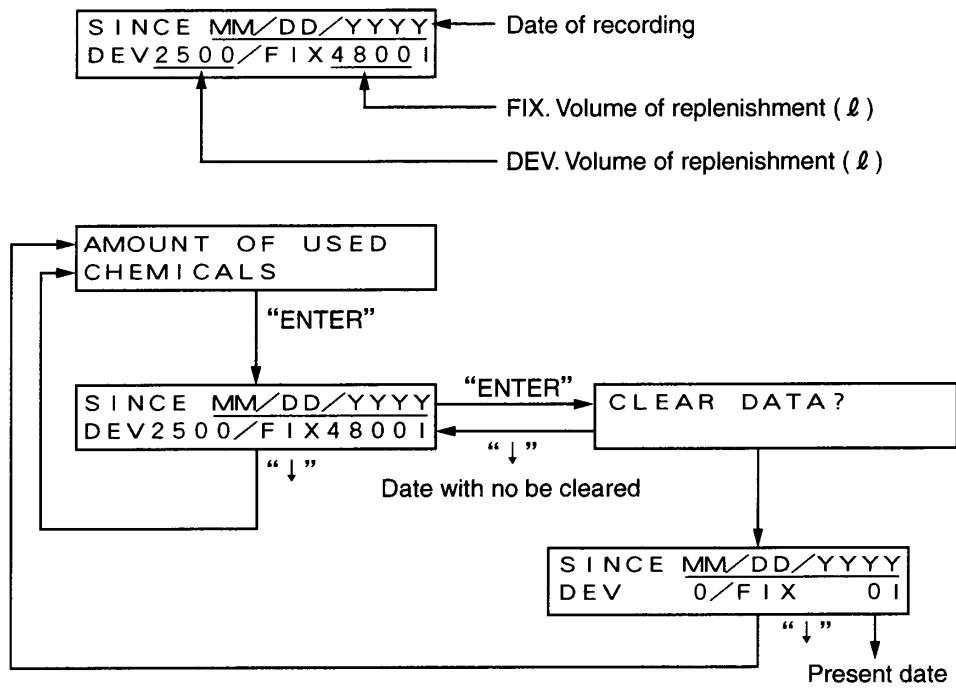
When accounting exceeds 99999, the next count will begin from "0".

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 present date.

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

8.2.9 Accounting of Replenishment/Clearing Data

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



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

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

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

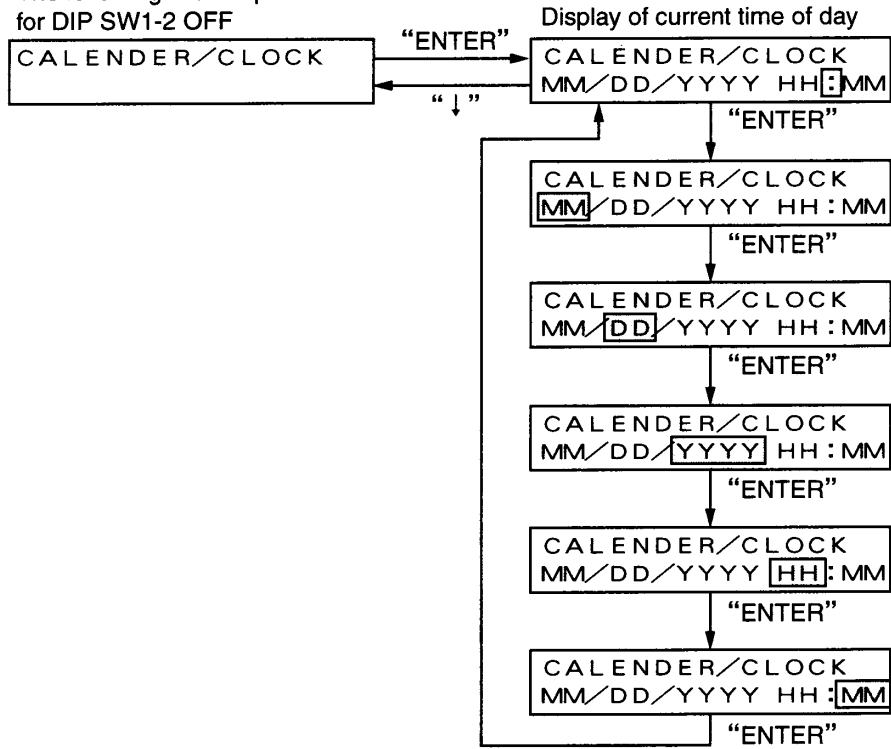
8.2.10 Calendar/Clock Setting

The current date and time of day can be set (or modified) by this setting. The CALENDAR display varies depending on the state of DIP SW1-2.

DIP SW1-2 OFF: MM/DD/YYYY

DIP SW1-2 ON: DD/MM/YYYY

The following is an explanation for DIP SW1-2 OFF



While blinking, the numerical value can be changed by pressing the "↓"/"↓" keys.

Update the year, month, day, hour, minutes, seconds (=0).

* 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) 2/31/2001 → 2/28/2001

8.2.11 Ready Status

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

READY STATUS
1 1 1 1 1

READY STATUS (from the left)

- ① Film interval [When the film is feeding, this change to 0]
- ② Error [When the error is occurred, this status is changed to 0]
- ③ Temperature of Developer
- ④ Temperature of Fixer
- ⑤ Temperature of Dryer

* Display

- 1: READY STATUS
- 0: NOT READY STATUS

8.3 Wash Water Amounts and Temperature

The adjustment of the wash water flow rates is provided through use of the stop valve on the water supply panel.

Wash Water Flow Rate : During film processing, 10 liters per minute.

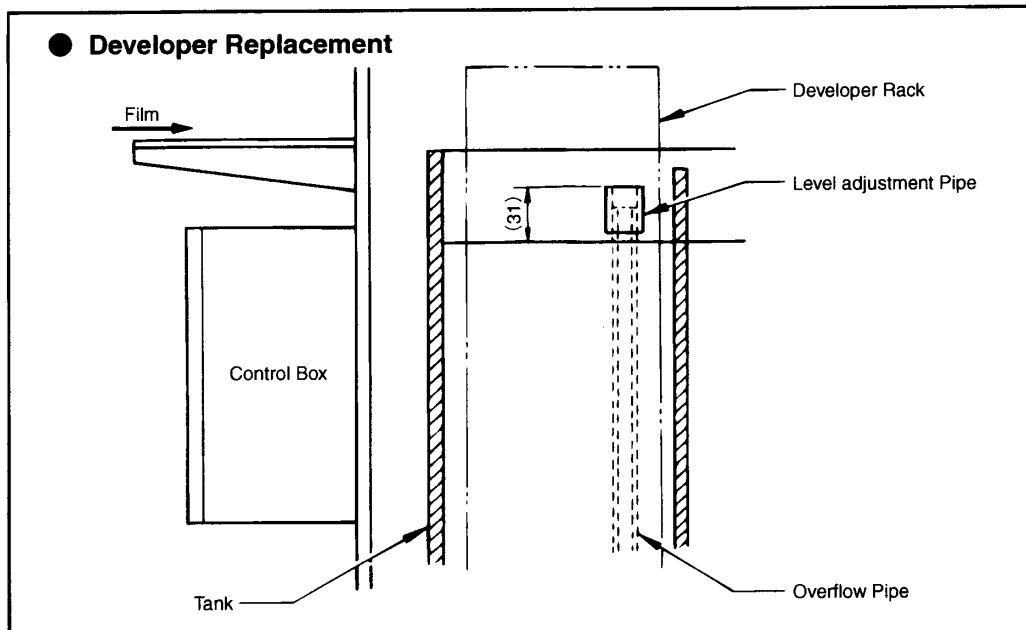
Wash Water Temperature : 31°C (87.8°F)

NOTE: If wash water is excessive, the overflow tank may run over, resulting in a short circuit.
Check to be sure that the wash water is at an appropriate level.

9. Processing Solution Replacement

9.1 Developer Replacement

1. Open the waste developer drain cock.
 - Turn the cock handle 90° counterclockwise.
2. Remove the developer rack.
 - Be sure that solution does not spill over into other tanks.
3. Remove the developer filter and carefully clean it.
4. After the tank has emptied, carefully wash the tank.
5. After all of the wash water has drained from the tank, close the drain cock.
 - Turn the cock handle 90° clockwise.
6. Replace the washed developer filter and close the cover.
7. Introduce 26 liters of new developer replenisher into the developer tank.
 - The level of the solution will come to the specified level when the rack is in place.
8. Introduce the developer rack into the tank.



NOTE: Position the level adjustment pipe in reference to the mark on the side panel of the developer rack.

9. Introduce the starter (750 ml) into the tank.
10. Turn on the main switch, insure that the developer is properly circulating, remove any air from the filter section, and check for leaks.
11. Add new developer solution until it slightly overflows the level adjustment pipe.

9.2 Fixer Replacement

1. Open the waste fixer drain cock.
2. Remove the fixer rack from the tank.
 - Insure that fixer solution does not splash into other tanks and exercise extra care to insure that no fixer gets into the developer tank.
3. When all of the waste solution has been drained, wash the fixer tank.
4. When the wash water has been completely drained from the tank, close the drain cock.
5. Introduce 20 liters of new fixer solution into the fixer tank.
 - Exercise extra care to insure that no fixer gets into the developer tank.
6. Introduce the fixer rack into the tank.
7. Add new fixer solution until it slightly overflows the overflow pipe.

9.3 Wash Water Replacement

1. Open the waste wash water drain cock.
2. After the water has been drained, remove the wash rack.
3. Rinse out the wash water tank.
4. After all of the rinse water has been drained from the tank, close the drain cock.
5. Replace the wash rack and fill the tank with water.

Be sure to remove the stopper (installed near the helical gear on the drive shaft side) before removing the wash water rack.

10. Processing Solution and Part Replacement Intervals

1	Developer	Intervals, 1 to 3 months or Amount of film processed, 10,000 to 20,000 sheets (8.5 x 30.5 cm) whichever is earlier when the solution is used under normal conditions.
2	Wash Water Filter	To be replaced when the water flow rate becomes smaller than 10 liters per minute.
3	Replenishment Tank Filter	6 to 12 months
The intervals set forth below apply when the parts are used for 8 hours a day and 25 days a month.		
4	Developer filter	1 month
5	Wash Water Brushing Roller	3 to 6 months (roller wear varies with the amount of film pro-cessed)
6	Developer Crossover Rack ● Wiper Cloth ● Teflon Roller	1 to 2 months (all of the cloth to be replaced) 3 to 12 months (all of the rollers to be replaced)
7	Rack Shaft Bearing Rack Mount	2 to 3 years (all of the bearings or mounts to be replaced)
8	Dryer Belt Dryer Drum	2 to 3 years 2 to 3 years
9	Submerged Rack Chain ● Developer ● Fixer ● Wash Water	1 to 2 years 1 to 3 years 1 to 3 years

11. Inspecting for and Correcting Abnormalities

Condition	Cause	Inspection	Contermeasures
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 removeing 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 not 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 pro-cessed 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 Struck	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	Contermeasures
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 feater.	
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	
	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?	Open 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	Foreigh matter on rollers.	Check the rollers.	Clean the rollers.
	Foreigh matter on guide plates.	Check the guide plates.	Check the guide plates.
	Inadequate roller action.	Check the roller springs and bearings.	Replace the roller springs and/or bearings

12. 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 ferein 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 swich. 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.

Error Message	Processor status	Remedy
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.
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.
DRY. HEATER MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
DRY. THERMISTOR MALFUNCTION	Stop after film discharge.	Contact a qualified service person.
DRY. THERMISTOR SHORT CIRCUITED	Stop after film discharge.	Contact a qualified service person.
ENTRANCE SENSORS MALFUNCTION	Immediate stop.	Contact a qualified service person. NOTE : This ERROR is generated if a film is below the entrance sensor when the POWER switch is turned ON.
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.

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