KODAK INDUSTREX B 2000 Processor

Kodak

HEALTH SCIENCES

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981075

Covers and Panels

FEED-END
CONTROL PANEL

DRIVE-SIDE
ACCESS PANEL

LOWER ACCESS PANEL

H136_0803BCA
H136_0803BA

Figure 1 Feed-End View of Processor

TOP COVER

NON-DRIVE SIDE
ACCESS PANEL

RECEIVING-END
CONTROL PANEL

RECEIVING-END
ACCESS PANEL

FILM EXIT BIN
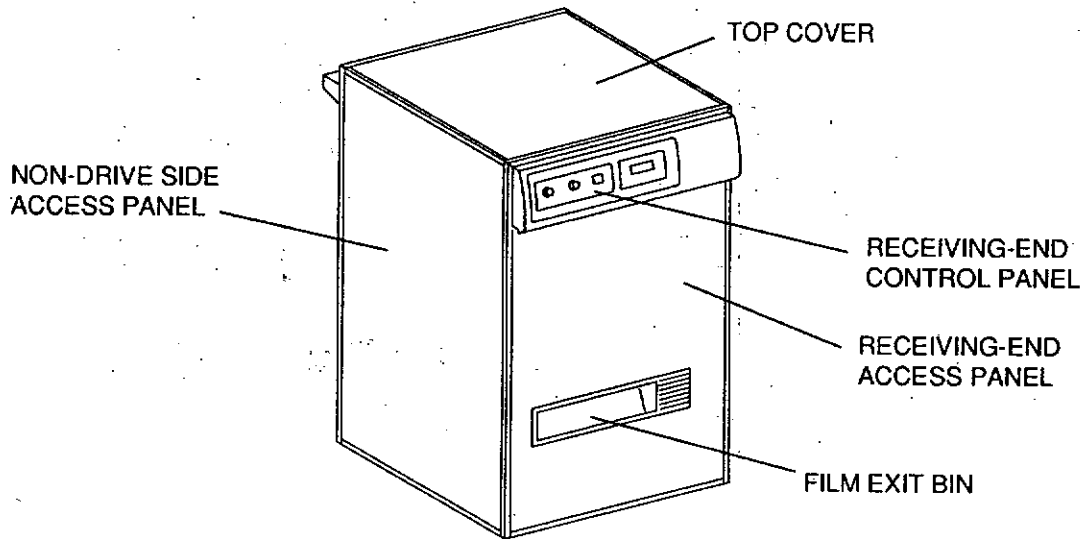
H136_0701BCA
H136_0701BA

Figure 2 Receiving-End View of Processor

Major Components

FEED-END
CONTROL PANEL

RUN
BUTTON

INTERFACE JACK

SAFELIGHT
RECEPTACLES

FEED TRAY

WASH DRAIN VALVE

Opening for
Silver Recovery

FIXER DRAIN VALVE

DEVELOPER DRAIN
VALVE

EXHAUST

DEVELOPER DRAIN

FIXER DRAIN

WATER INLET

POWER INLET

WASH DRAIN

MAIN CIRCUIT
BREAKER CB1

TUBING INLETS for
Optional Equipment

CIRCUIT BREAKERS
CB2 and CB3

TUBING INLETS for
REPLENISHMENT TANKS

H136_0803DCA
H136_0803DA

Figure 3 Major Components of Processor

Note

CB1 -   Controls the main power to the processor.

CB2 -   Controls power to the developer heater,
         power supply, and motors in the processor.

CB3 -   Controls power to the solenoids.

**Receiving-End
Control Panel**

You may select, change, and monitor processing variables for the
Kodak Industrex B 2000 Processor by using the Receiving-End Control Panel.

DRYER CONTROL   CYCLE CONTROL   REPLENISHMENT BUTTON   DEVELOPER TEMPERATURE DISPLAY °C

Min Dryer Max   Cycle   Replenishment   Developer

DRYER INDICATOR   REPLENISHMENT INDICATOR   DEVELOPER HEATER INDICATOR
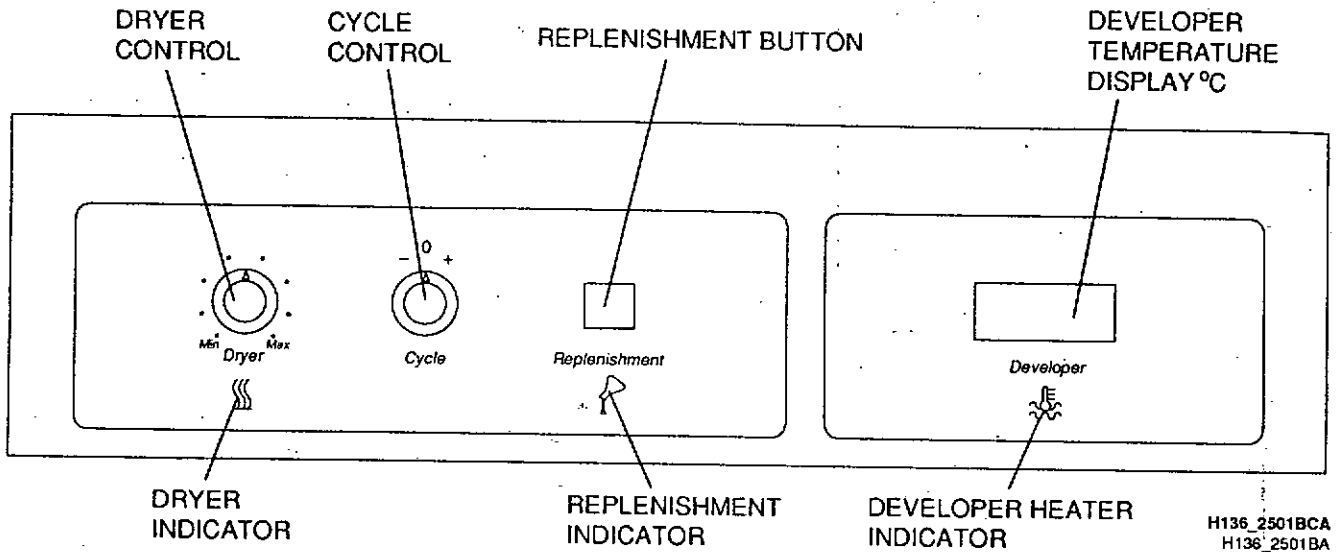
H136_2501BCA
H136_2501BA

Figure 4 Receiving-End Control Panel

The receiving-end control panel provides the following controls and status information
for the processor:

• Controls

  - The **"Dryer"** control is used to increase or decrease the dryer air temperature.
    The dryer indicator illuminates when the dryer is heating.

  - The **"Cycle"** control is used to select one of the three operating cycles of the
    processor.

  - **"Replenishment"** is used to actuate the replenishment pumps and to reset the
  - processor from the standby mode to the run mode. The replenishment indicator
    illuminates when the replenishment pump is operating.

• Operation Status

  - The **"Developer"** display indicates the current temperature of the developer
    solution in the processor tank in degrees Celsius. The developer indicator
    illuminates when the developer heater is operating.

Feed-End Control Panel

The Feed-End Control Panel, Figure 6, provides the following controls and status information:
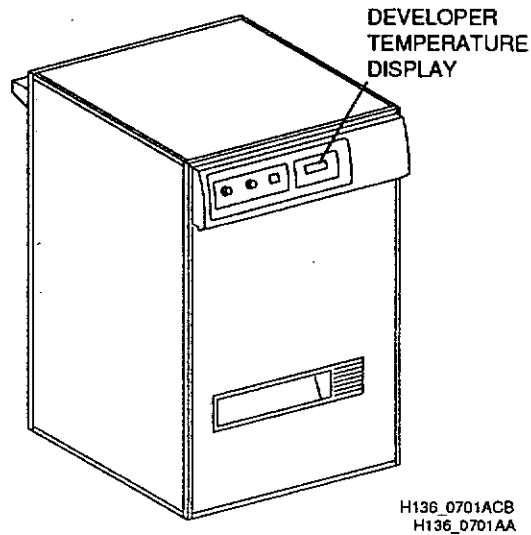
- Controls
    - The **"Run"** Button is used to reset the processor from standby into the run mode.
    - The **"Safelight"** Receptacle is used to provide power to a safelight. The safelight receptacle turns off the safelight when film is present in the detector rollers.
    - The **"Interface"** Jack is used to connect to a film feeder or other accessories.

- Operation Status
    - **"Cycle"** indicates the operator-selected cycle.
    - The **"Replenishment"** indicator illuminates when the replenishment pump is operating.
    - The **"Developer"** indicator indicates the status of the developer heater.
      The following are the three status conditions of the "Developer" indicator:

Indicator	Status	OK to Process
Off	At Set Temperature	Yes
See the "Note".	Over Set Temperature	No
On	Below Set Temperature	No
Flash	5°C or Less Below Set Temperature	Yes

NOTE

It will be necessary to check the Developer Temperature Display on the receiving-end control panel.

DEVELOPER TEMPERATURE DISPLAY

H136_0701ACB
H136_0701AA

Figure 5 Receiving-End View of Processor

REPLENISHMENT
INDICATOR

RUN BUTTON

Run.

DEVELOPER
HEATER
INDICATOR

Replenishment

CYCLE
INDICATOR

- 0 +

Cycle

Developer

INTERFACE
JACK

Interface

FILM FEED
AUDIO
INDICATOR

120 V ⌁ 2A Safelight Only

IEC SAFELIGHT
RECEPTACLE

SAFELIGHT
RECEPTACLE
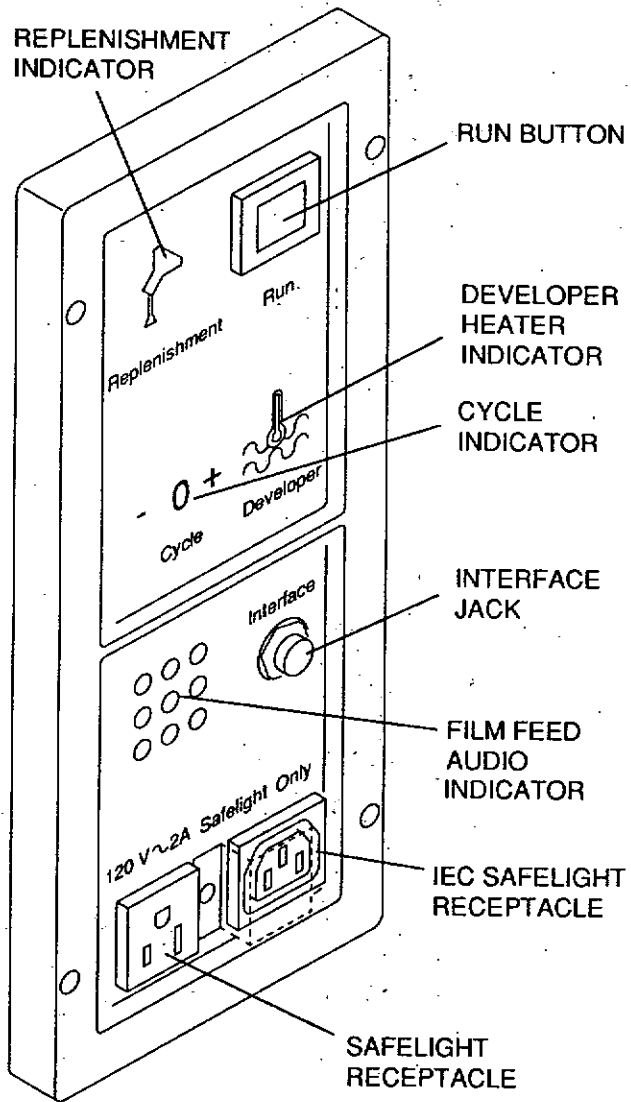
H136_2500CCA
H136_2500CA

Figure 6 Feed-End Control Panel

Cycle Information for the Processor

Cycle	Factory Setup			Special Setup	
	Process Time Minutes	Developer Temperature	Developer Immersion Time	Process Time Minutes	Developer Temperature
-	12	27.2°C (81.0°F)	146 seconds		
0	10	28.6°C (83.5°F)	122 seconds		
+	8	30.0°C (86.0°F)	98 seconds		

NOTE

Space is provided in the table so that your qualified service representative can enter the Process Time and Developer Temperature for any special setup.

Cycle is one of the three operating conditions of the processor. You may set up the processor for operation in one of these cycles by making a selection on the receiving-end control panel.

The selector switch automatically adjusts the process time, developer temperature, and clear time to the factory-set values for the selected cycle. These values can be changed by qualified service personnel.

Process Time is the time it takes the **leading edge** of a 35 cm (14 in.) sheet of film to travel from the detector rollers and drop into the film exit bin. The process time can be adjusted from 5 - 13 minutes.

Developer Temperature is the temperature at which the developer solution is maintained in degrees Celsius. The developer temperature can be set from 21 - 35°C (69.8 - 95°F).

Immersion Time is the time it takes the **lead edge** of film to exit the developer solution once it has entered the solution.

Operating Characteristics

- The drive motor will operate only if the top cover and the receiving-end access panel are installed correctly on the processor.
- When the replenishment pump is operating, the "Replenishment" indicators illuminate on both control panels.
- The feed-end control panel indicates the selected cycle and the current processor status.
- A film counter, on the electrical box, indicates the total number of films processed.
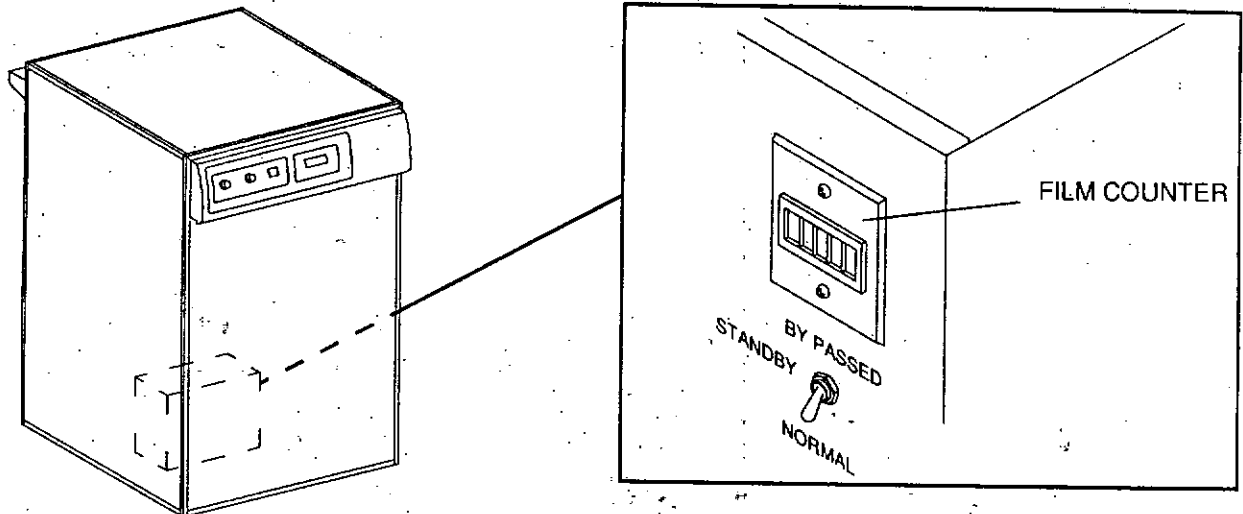
Standby Mode

Normal: When "Normal" is selected, the processor is allowed to enter the standby mode. In standby mode, the transport, wash, and dryer systems turn off when film is not processing. These systems operate automatically every 8 minutes. The processor returns to standby after the dryer stabilizes at the set operating temperature. This mode is designed to save energy and water.

Bypassed: When "Bypassed" is selected, the transport, wash, and dryer systems operate continuously.

H136_1901BCA
H136_1901BA

Figure 7 Selecting the Standby Mode

Replenishment Modes

Automatic Replenishment This mode allows the processor to automatically replenish developer and fixer with each film that is fed into the detector rollers. The processor is set at the factory for this mode.

Flooded Replenishment Replenishment is added automatically each time a film is fed into the detector rollers <u>and</u> each time the processor comes out of standby.
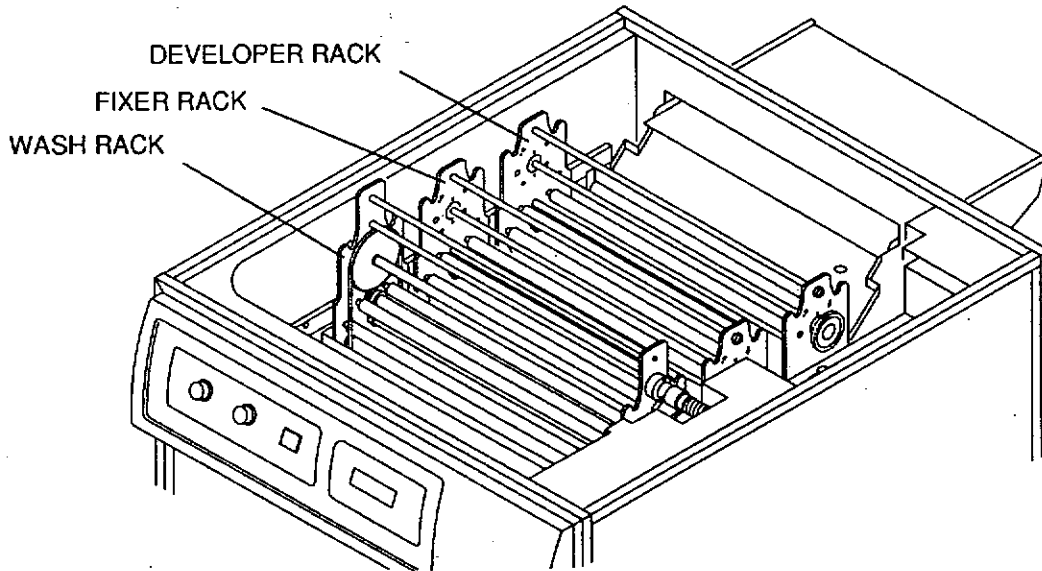
NOTE

Check with your qualified service representative to see if the Flooded Replenishment Mode is right for the film usage of the processor.
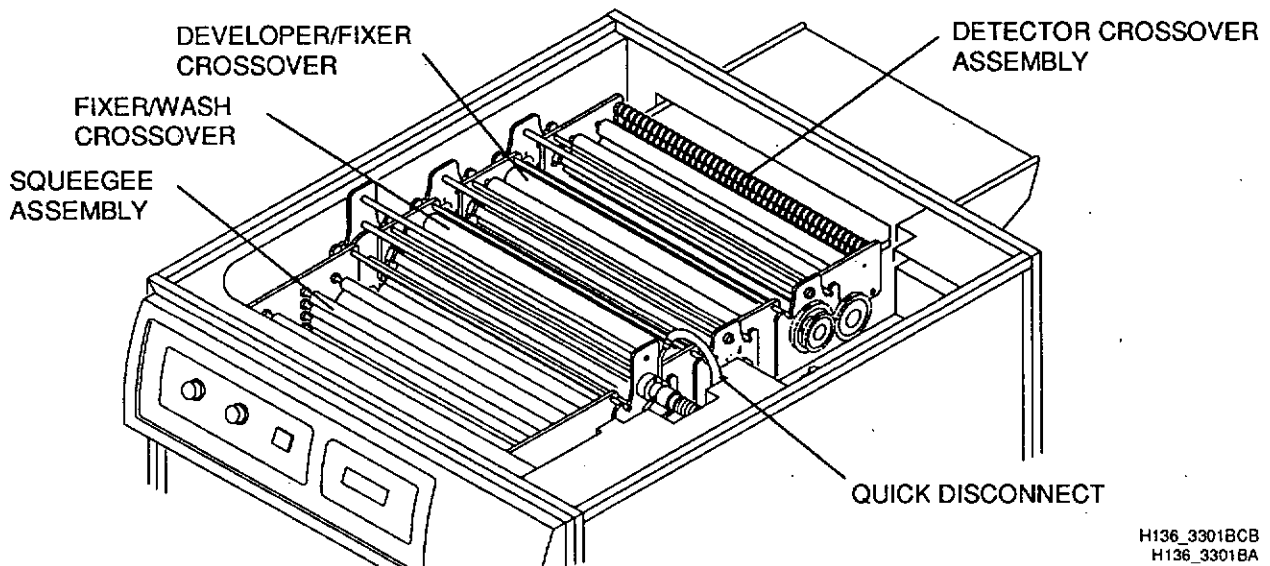
Daily Start-up

[1] Check the following:

    a. All Racks, Crossover Assemblies, and the Squeegee Assembly are firmly seated in the correct positions.

    b. The wash water Quick Disconnect is seated correctly.

    c. The drain valve for the wash tank is closed.

    d. The fixer and developer solutions are at the overflow level of each tank. Add solutions, if necessary.

[2] Install the top cover onto the processor.

DEVELOPER RACK

FIXER RACK

WASH RACK

H136_3300BCA
H136_3300BA

DEVELOPER/FIXER CROSSOVER

DETECTOR CROSSOVER ASSEMBLY

FIXER/WASH CROSSOVER

SQUEEGEE ASSEMBLY

QUICK DISCONNECT

H136_3301BCB
H136_3301BA

Figure 8 Top View of the Processor

[3]   Turn on the water supply.

IMPORTANT

The incoming water temperature should be between 16 - 21°C (60 - 70°F).

[4]   Adjust the mixing valve, if necessary.

[5]   Remove any film from the Feed Tray.

[6]   Move the wall power switch to the "ON" position.

[7]   Move Circuit Breakers CB2 and CB3 to the "I" position.

[8]   Move the Main Circuit Breaker, CB1, to the "I" position.

[9]   **Begin processing film when the "Developer" indicators, on the Feed-End or Receiving-End Control Panels, flash rapidly and the developer temperature is correct for the selected cycle.**

[10] Feed a sheet of 35 x 43 cm (14 x 17 in.) unprocessed film into the processor to remove any deposits from the rollers.
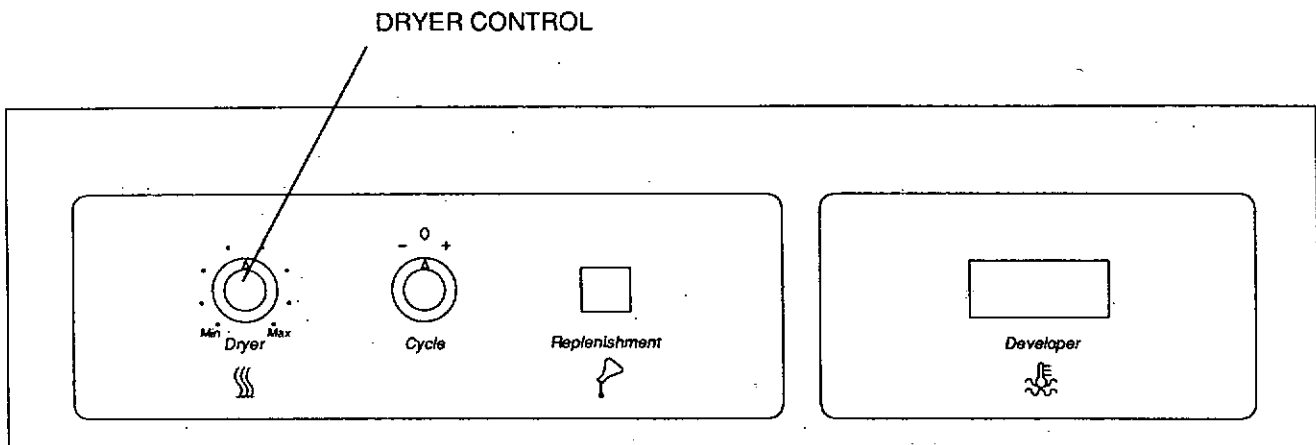

FEED-END
CONTROL PANEL

FEED TRAY

CIRCUIT BREAKER
CB2 and CB3

MAIN CIRCUIT
BREAKER CB1
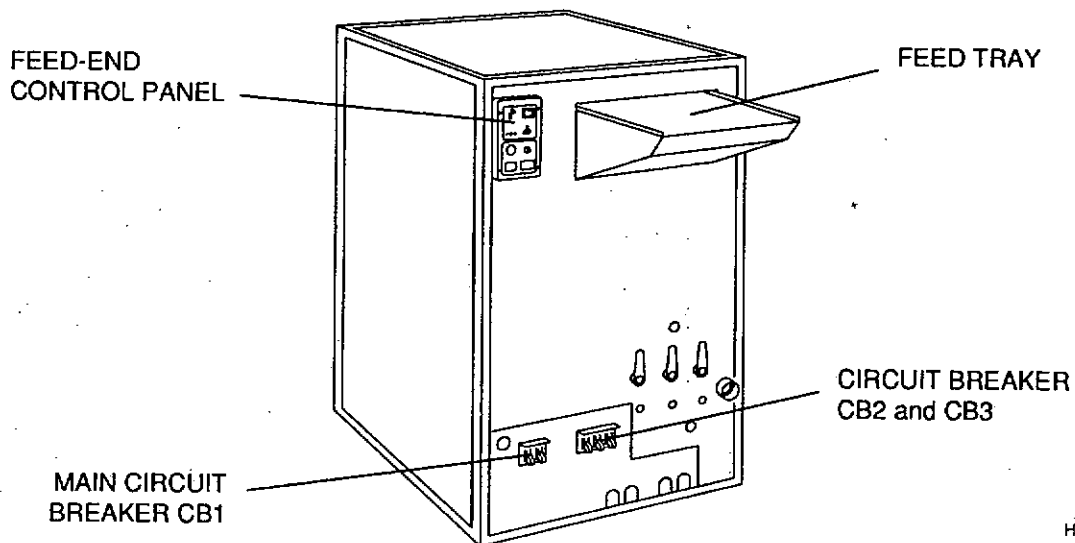
H136_0803BCC
H136_0803BA

Figure 9 Feed End of Processor

Dryer Temperature Adjustment

IMPORTANT

Adjust the Dryer Control to the lowest possible temperature that provides dry films.

DRYER CONTROL

H136_2501BCB
H136_2501BA

Film-Feeding Procedure

IMPORTANT

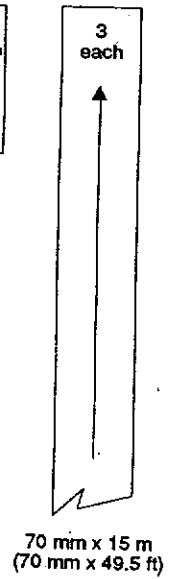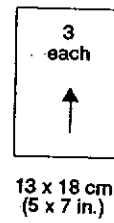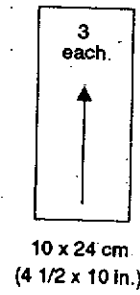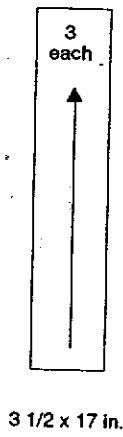After feeding the first film, listen for the film feed signal before feeding the next film.

Sheet Film: See Figure 10 for the correct film sizes used with this processor. Arrows indicate the direction for feeding films into the processor. Feed films <u>square</u> with the edge of the film guide.

Feed single-emulsion films **emulsion-side-up** into the processor, aligning the film edge with the edge of the film guide.

CAUTION

• Prevent contamination of the solutions and damage to the processor.

• **Do not** try to pull the films back out of the processor once you have fed them into the processor.

Roll Film: Use a sheet of film as a leader. Make sure that the sheet film is wider than the roll film and at least 17.8 cm (7 in.) long. Using 1-inch-wide tape, such as *3M SCOTCH* Brand Polyester Film Tape No. 850, fasten the film to the leader, making sure that the adhesive side of the tape is not exposed. Most other types of tape are not acceptable, because their bases are soluble in the processing solutions.

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1 each

35 x 43 cm
(14 x 17 in.)

1 each

30 x 40 cm
(11 x 14 in.)

1 each

24 x 30 cm
(10 x 12 in.)

2 each

18 x 24 cm
(8 x 10 in.)

2
each

18 x 43 cm
(7 x 17 in.)

3
each

10 x 40 cm
and
10 x 48 cm
(4 1/2 x 17 in.)

3
each

3 1/2 x 17 in.

3
each

4 1/2 x 15 in.

3
each.

10 x 24 cm
(4 1/2 x 10 in.)

3
each

13 x 18 cm
(5 x 7 in.)

3
each

70 mm x 15 m
(70 mm x 49.5 ft)
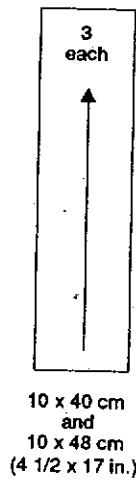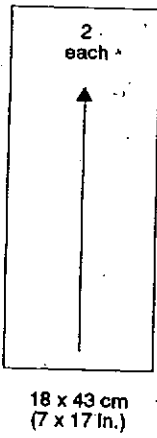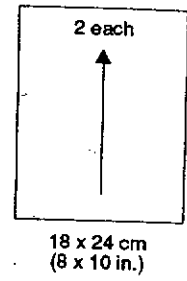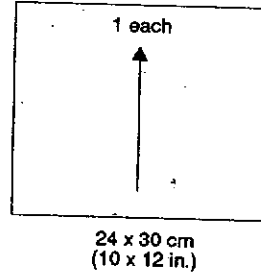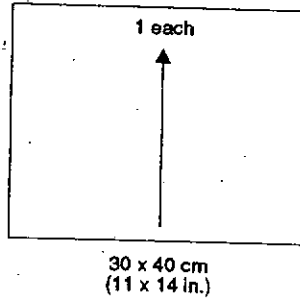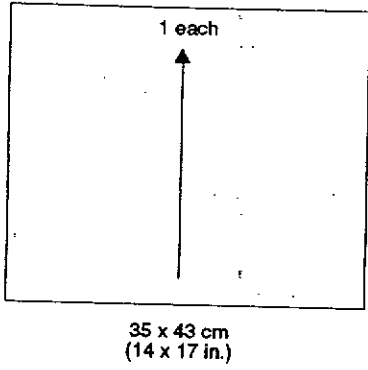
H136_9000DC

Figure 10 Film Sizes

Shutdown

[1] Move the wall power switch to the "OFF" position.

[2] Move the main circuit breaker, CB1, and the circuit breakers CB2 and CB3 to the "O" position.

[3] Turn off the water supply.

IMPORTANT

Minimize biological growth in the wash tank.

[4] Open the drain valve on the wash tank.

Daily Cleanup

WARNING

Wear rubber gloves, safety glasses, and protective clothing when doing any daily maintenance procedure. Report any change in the operating condition of the processor to your service personnel.

CAUTION

- Reliable operation of the processor requires that all parts are clean.
- Handle the assemblies carefully to prevent changing their alignment. **DO NOT use abrasive materials to clean the racks, crossover assemblies, or squeegee rollers.** Do not wash the roller racks and assemblies with water hotter than 37.5°C (100°F).

[1] Disconnect the wash water quick disconnect.

[2] Remove the crossover and squeegee assemblies.

[3] Clean the assemblies with warm water and a damp cloth.

[4] Dry all the parts with a clean cloth and allow the parts to air dry overnight.

IMPORTANT

To prevent contamination, do not use the same cloth for the fixer and developer sections.

[5] Use a clean cloth to wipe all chemical residue from the processing section of the processor.

CAUTION

Failure to leave the top cover open when the processor is not in use will cause corrosion of metal parts and will reduce the life of the processor.

[6] Leave the top cover open approximately 10 cm (4 in.) overnight to allow the parts to completely dry and to allow chemical vapors to dissipate.

981075

Mixing the Solutions

<div align="center">

WARNING

</div>

Wear rubber gloves, safety glasses, and protective clothing when mixing the solutions.

IMPORTANT

• When mixing the solutions, follow all instructions and precautions.
• Mix no more than a 2 week supply of developer replenishment.
• Prevent oxidation of the developer replenishment by using the floating lid in the developer replenishment tank.

Draining the Tanks

[1] Move the circuit breakers CB2 and CB3 to the "O" position.

[2] Move the main circuit breaker, CB1, to the "O" position.

IMPORTANT

Follow local environmental codes when draining the tanks.

[3] Open the developer, fix, and wash drain valves.

[4] Change the Developer Filter, if necessary.

[5] Check that the O-Ring is seated correctly.

[6] Check that the Filter Cap is on tight.

[7] Close the developer, fix, and wash drain valves.
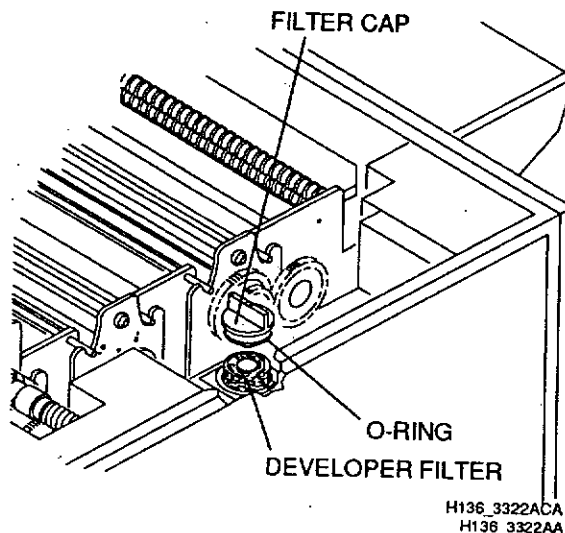
FILTER CAP

O-RING
DEVELOPER FILTER

H136_3322ACA
H136_3322AA

Figure 11 Developer Filter

Filling the Tanks

[1] Move the circuit breakers CB2 and CB3 to the "O" position.

[2] Move the main circuit breaker, CB1, to the "O" position.

[3] Disconnect the wash water quick disconnect.

[4] Remove the crossover assemblies.

[5] Close the developer, fix, and wash drain valves.

CAUTION

- The developer solution can be contaminated by the fixer.
- Fill the fixer tank first so that any spills into the developer tank can be removed. Use the Splash Guard.
- The Splash Guard should be used when the fixer rack is removed from or installed into the processor.
- Rinse the Splash Guard after it is used.
- The Rack Drip Tray is used, when any of the racks are removed or installed, to prevent fixer/developer contamination.

[6] Install the Splash Guard so that it covers the developer tank.

WARNING

- The racks are heavy parts.
- Use a rack crane.

[7] Remove the fixer rack.

SPLASH
GUARD
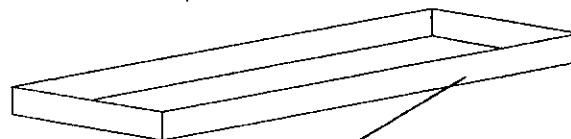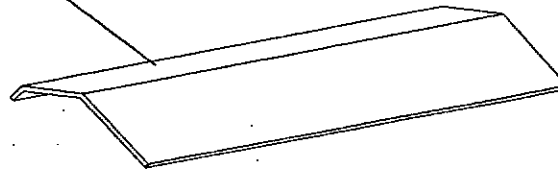
RACK
DRIP
TRAY

P108_0035ACA
P108_0035AA

Figure 12 Splash Guard and Rack Drip Tray

981075

[8]   Fill the fixer tank to the Fill Line.

[9]   Install the splash guard so that it covers the fixer tank.

[10]   Remove the developer rack.

[11]   Check the following:

   • The Developer Filter is installed.
   • The O-Ring is seated correctly.
   • The Filter Cap is on tight.

[12]   Fill the developer tank to the Fill Line.

[13]   Add the correct amount of starter solution to the developer tank.

FILTER CAP

O-RING

FILL LINES
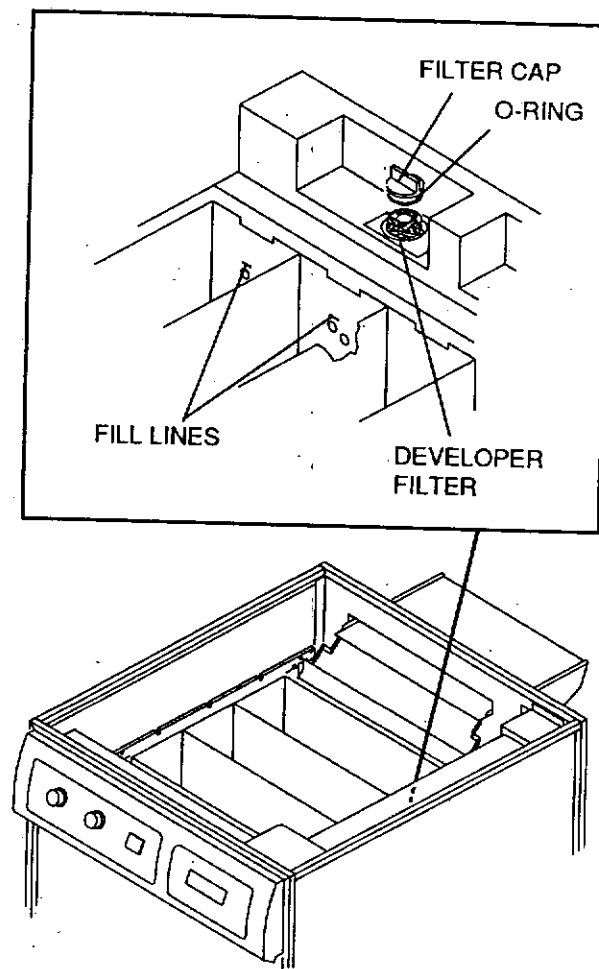
DEVELOPER
FILTER

H136_2702CCA
H136_2702CA

Figure 13 Filling the Tanks

[14]   To remove air from the recirculation system:

    (a)   Move CB2 and CB3 to the "I" position.

    (b)   Move the main circuit breaker CB1 to "I" and then to "O".

[15]   Install the developer and fixer racks.

[16]   Check that the racks are seated firmly.

[17]   Install the crossover assemblies.

[18]   Check that the crossover assemblies are seated firmly.

[19]   Connect the wash water Quick Disconnect.

[20]   Check that the Buffer Drive Coupling is engaged with the wash rack.

[21]   Move the main circuit breaker CB1 to the "I" position.

QUICK DISCONNECT

BUFFER DRIVE
COUPLING
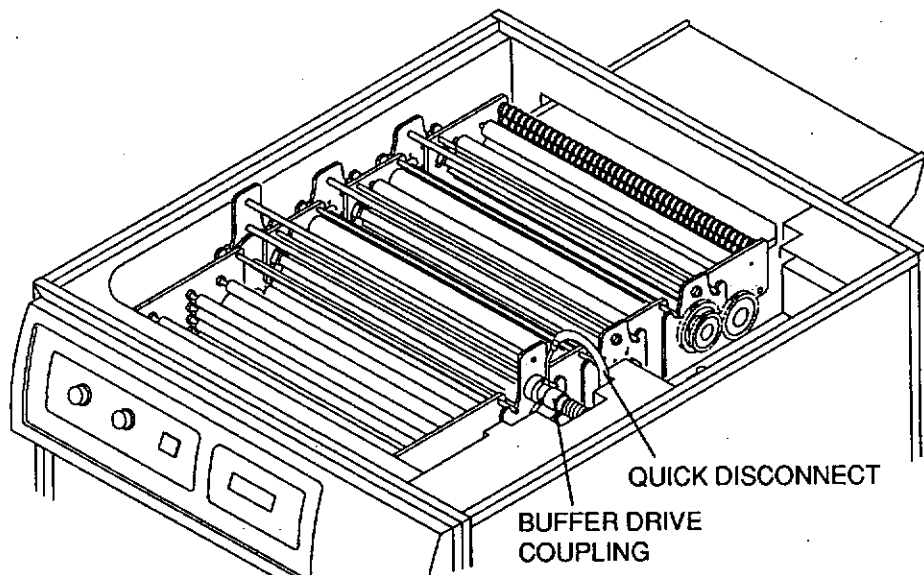
H136_3301BCC
H136_3301BA

Figure 14 Checking the Racks and Crossover Assemblies

Problem Solving

1. Transport Failure
2. Surface Artifacts
3. Abnormal Film Densities
4. Wet Films
5. Low Solution Levels
6. Overlapping of Films
7. Dryer Marks on Films

1	2	3	4	5	6	7	
					•		Film feeding: Wait for the film feed signal before feeding film.
•	•	•	•		•		Feed only compatible films.
•					•		Check that all racks and crossovers are seated correctly.
	•						Check the condition of the buffer rollers.
•	•						Check that the dryer rollers are seated in the correct position.
•	•		•			•	Check that the dryer air tubes are correctly seated.
	•		•			•	Remove any dirt from the dryer rollers and air tubes, especially the slots. Use a bottle brush and rinse with water.
	•	•	•	•		•	Check the settings for correct replenishment.
	•		•		•	•	Adjust the dryer temperature control setting to the **lowest** possible temperature that still allows good drying.
	•						Remove any buildup of debris from the feed tray and detector rollers.
•	•				•		Clean any biological growth in the wash tank with a mild solution of chlorine bleach. Use 60 mL (2 fluid ounces) of bleach for each 3.8 L (1 gal) of water. Wipe tanks with a soft sponge.
•				•	•		Check that drain valves are completely closed. Check that the tanks are full.
•	•	•	•		•		Change any incorrectly mixed, exhausted, or contaminated chemicals. Change the developer filter if necessary. Fill the replenishment tanks if necessary. *Mix the developer replenishment in quantities not to exceed a 2-week supply. Always use a splash guard and rack drip tray when lifting the fixer rack to prevent contamination of the developer. Mix chemicals as directed.*

1	2	3	4	5	6	7	
							1. Transport Failure
							2. Surface Artifacts
							3. Abnormal Film Densities
							4. Wet Films
							5. Low Solution Levels
							6. Overlapping of Films
							7. Dryer Marks on Films
•	•						If the wash water is dirty, clean the rack and tank thoroughly. Change the incoming water filter.
			•				Check that the dryer air exhaust is free from any obstruction and is installed correctly.
	•	•	•				Check incoming water temperature. Temperature must be between 16 - 21°C (60 - 70°F).
		•					Check that the correct bulb and safelight filter are in the safelight and at the correct distance from the feed tray and work surface.
•		•					Check that the cover and panels are tight on the processor.
					•		Check the time delay. For all transport speeds, the buzzer should sound once the trailing edge of the film has advanced 7.5 cm (3 in.) into the processor.
				•			Check that the processor and the tanks are correctly leveled.

Kodak warrants this *Kodak Industrex* B 2000 Processor to function correctly for one year from the date of initial installation, when installed within one year from date of shipment.

Warranty Repair Coverage

If this equipment does not function correctly during the warranty period, the dealer (for *Kodak Industrex* B 2000 Processors) who sold the equipment will provide or arrange for repair of the equipment during the dealer's normal working hours. Such repair service will include any adjustments and/or replacement of parts required to maintain your equipment in good working order.

How To Obtain Service

Should equipment require service, refer to the sales contract for details on whom to call for service, or contact the dealer (for *Kodak Industrex* B 2000 Processors) who sold the equipment.

Limitations

Warranty service is limited to the contiguous United States, the island of Oahu in Hawaii, and certain areas of Alaska.

This warranty does not cover—

- circumstances beyond the control of Kodak,
- misuse,
- abuse,
- attachments,
- accessories,
- alterations not marketed by Kodak (including service or parts to correct problems resulting from the use of such attachments, accessories, or alterations),
- failure to follow the operating instructions as recommended by Kodak,
- supply items.

Kodak makes no other warranties, express or implied, for this equipment.

Repair without charge is the only obligation of both Kodak and the dealer under this warranty. **Kodak will not be responsible for any consequential or incidental damages resulting from the sale, use, or incorrectly functioning of this equipment, even if loss or damage is caused by the negligence or other fault of Kodak.**

Such damages for which Kodak will not be responsible, include, but are not limited to, loss of revenue or profit, downtime costs, loss of use of the equipment, cost of any substitute equipment, facilities or services or claims of your customers for such damages.

This limitation of liability will not apply to claims for injury to persons or damage to property caused by the sole negligence or fault of Kodak or by persons under its direction or control.

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