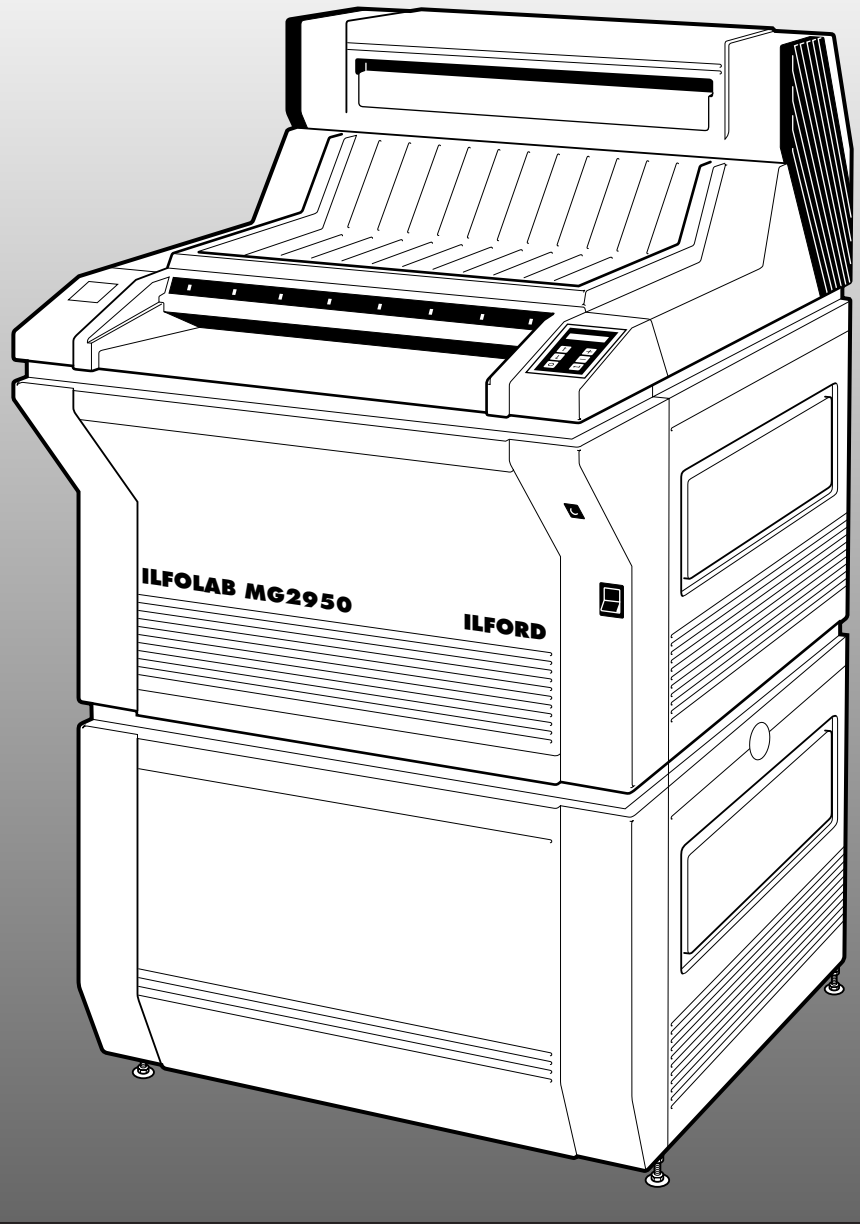
ILFORD

50/60 Hz

OPERATING MANUAL

ILFOLAB MG2950

FLOOR STANDING PROCESSOR FOR
BLACK AND WHITE PRINT MAKING



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SAFETY PRECAUTIONS

Your photographic equipment is powered by mains electricity, and is designed to comply with international electrical safety standards. However, basic safety precautions must always be followed when operating electrical equipment, including the following, where applicable:

1 Read and understand all instructions.

2 Observe labels on the equipment, particularly those advising of possible hazards.

3 Close supervision is necessary when the equipment is being used by inexperienced personnel.

4 Take care to avoid burns. Some internal parts of the equipment can become very hot with continuous use.

5 Do not operate equipment that has been dropped or damaged, or has damaged electrical leads. Have the equipment examined by qualified personnel.

6 Do not allow any electrical lead to touch hot surfaces.

7 Ensure the leads are arranged such that they cannot be pulled or tripped over.

8 Ensure the air flow through the vents is not obstructed when operating the equipment. An obstructed air vent can lead to overheating.

9 Do not dismantle the equipment unless you are qualified to do so. Incorrect assembly can cause hazards both to yourself and to the equipment.

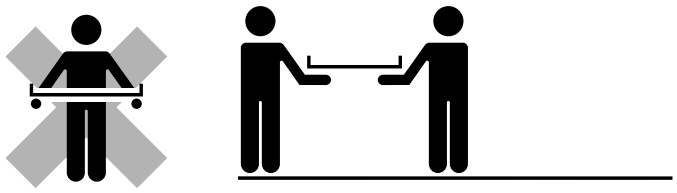
10 Always obey local codes of practice, particularly for installation requirements.

Do not destroy these instructions

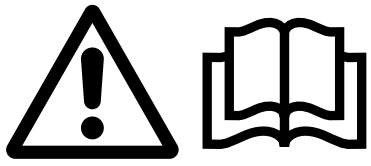
CONTENTS

PICTOGRAMS

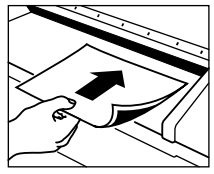
The following pictograms are used on labels fixed to the ILFOLAB MG2950 processor. Please ensure you understand their meaning.



Lift using two people



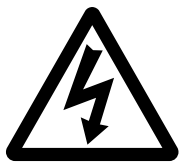
Hazard (refer to manual)



Feed emulsion side down

Caution hot surfaces

General hazard



Electrical hazard

IL905

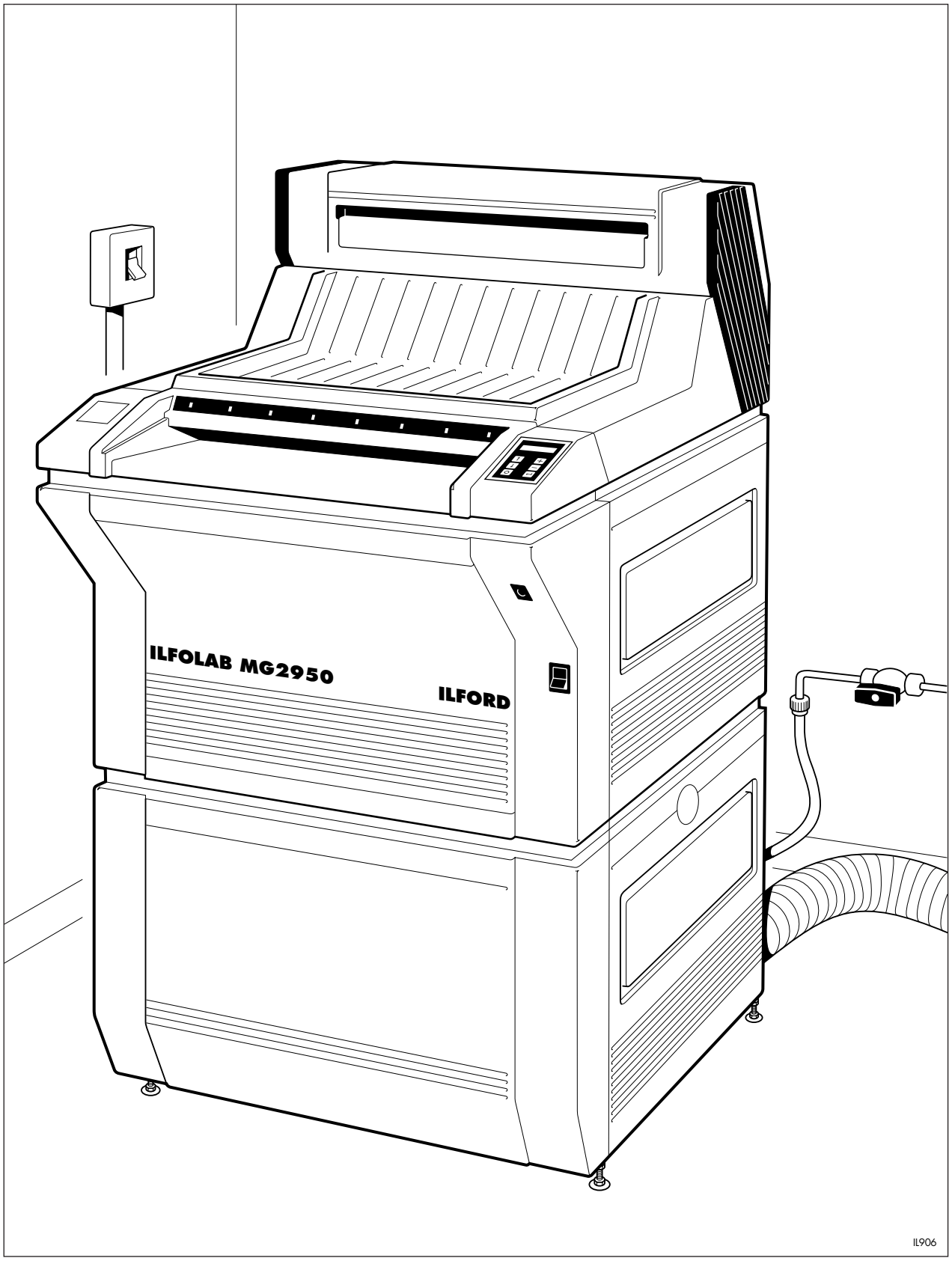


Figure 1.1 ILFOLAB MG2950 - typical installation

1
INTRODUCTION

See figure 1.1.

The ILFOLAB MG2950 floor standing processor is designed for high speed processing of sheets and rolls up to a maximum width of 50·8cm (20 inches). Typically, a 20·3x25·4cm (8x10 inch) sheet will be returned fully processed and dry in just 70 seconds. The processor uses latest technology electronics to make operating very easy - just switch the processor on and feed sheets after the warm up sequence is complete - the processor does the rest.

The processor has a number of features to make it more ecologically friendly. These include low consumption of wash water and low replenishment rates.

This manual gives full instructions for operating the processor. For ease of description, it is assumed the left and right hand sides of the processor are determined when facing the processor at the paper feed (front) end unless otherwise stated.

1.1 IMPORTANT INFORMATION

Chemicals

Chemicals are supplied in 5 litre bottles. Two bottles of each of developer and fixer are stored in the base of the processor for replenishment. When one bottle of developer (or fixer) is empty, the processor automatically takes solution from the other bottle.

Before handling ILFORD chemicals, please ensure you are familiar with the information detailed in the ILFORD Photochemical Safety Data Sheets supplied as part of the chemical pack.

Colour coding

Roller racks are colour coded red for developer, green for fixer and white for wash water. Do not interchange the roller racks for any reason. The same colour coding is used throughout the processor to identify items such as pipes, drains and components of the replenishment system.

Safety features

Solution and dryer temperatures are protected by thermal cut-outs to prevent overheating.

Removing the processor top cover, dryer cover or left hand upper side panel, while the processor is operating, or obstructing the air flow, will shut down some or all of the processor functions.

A smoke detector is fitted in the air extract system. This will sound an alarm and shut down the dryer section if an undetected paper jam occurs in the dryer section.

Manufacturing standards
The processor conforms to all the latest applicable legislation.

Key switch
A key switch is located at the front of the processor above the on/off switch, and is used for adjusting some of the processor operating parameters, eg solution temperature. Two keys are supplied with the key operators instructions. Do not make any adjustments without first referring to the key operators instructions, publication number 94071.4.

Note
One some early models, the key switch is located inside the electrical compartment.

1.2 OPTIONAL EXTRAS

The following optional extras are available. Please quote the part number when ordering. Each kit is supplied with its own set of instructions.

1 Roll feed attachments. Part number 6194-P-049.
2 White light covers for roll feed attachments. Part number 6194-P-091
3 Through the wall installation kit. Part number 6194-P-090.

1.3 ASSOCIATED PUBLICATIONS

The following publications are required in addition to this one. Please check that you have all publications before installation.

1 ILFOLAB MG2950 installation manual. Publication number 94071.1.
2 ILFOLAB MG2950 chemical information pack.
3 ILFOLAB MG2950 quick reference guide. Publication number 94071.3.
4 ILFOLAB MG2950 key operators instructions. Publication number 94071.4.

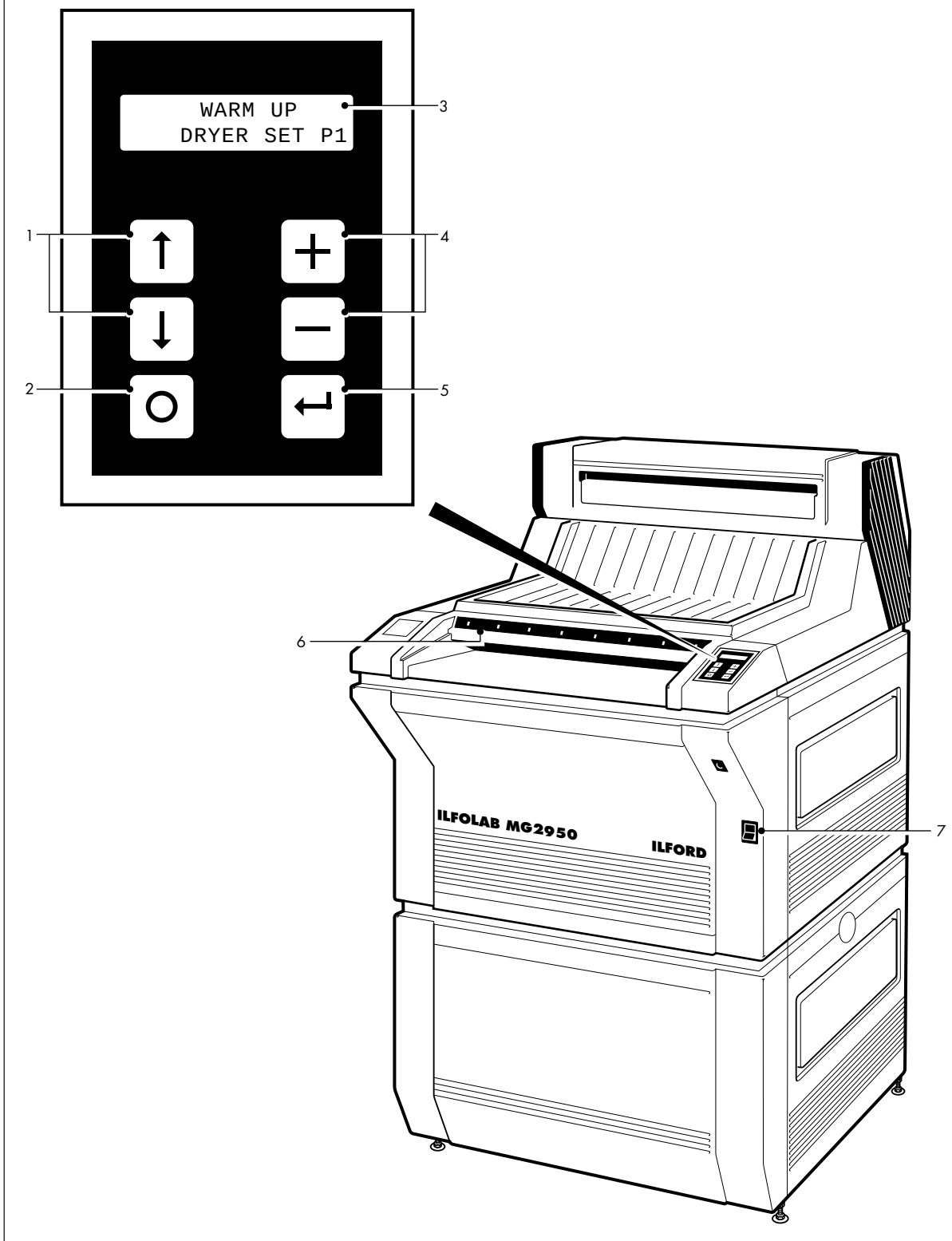


Figure 2.1 Controls and displays

2
CONTROLS AND DISPLAYS

Figure 2.1
1 Select display buttons
2 Ready LED
3 Display
4 Adjustment buttons
5 Enter button
6 Path indicators
7 Processor on/off switch

See figure 2.1.

The ILFOLAB MG2950 processor is switched on and off by the on/off switch located on the front of the processor chassis below the paper feed. The switch is labelled '0' for off and '|' for on. When the processor is switched on, the control buttons located on the display panel enable the operator to view pages on the display and change from one dryer program to another.

2.1 SELECT DISPLAY BUTTONS

Press the up (↑) or down (↓) buttons repeatedly to select pages 1 to 13, in sequence, on the display (see section 2.5). An audible signal sounds each time the up (↑) or down (↓) button is pressed. If either button is pressed continuously the display scrolls automatically from one page to another until the button is released.

2.2 READY LED

The ready LED provides information as follows:

Flashing indicates the processor is not ready for use or a fault condition has developed (see section 9). Steady on indicates the processor is ready for use. Off indicates the processor is in use.

2.3 ADJUSTMENT BUTTONS

The adjustment buttons (+) and (-) are used to adjust the dryer trim setting (see second 2.5b).

2.4 ENTER BUTTON

Press the enter button (↵) to:

a Enter the preferred dryer trim setting (see section 2.5b) or
b Enter the preferred dryer temperature program (see sections 2.5c to 2.5h) or
c Check the solution replenishment rates (see section 8.2).

An audible signal sounds each time the enter button (↵) is pressed.

2.5 DISPLAY PAGES

The following pages are obtained by pressing the select display buttons (see section 2.1).

2.5a Processor cycle page

This page displays the appropriate processor cycle automatically. The processor returns automatically to this display if no other button is pressed within 10 seconds of an alternative display being selected. The following six cycle pages are described in sequence.

```
WARM UP
DRYER SET P1
```

The processor is warming up. The ready LED is flashing continuously. In this example, dryer program P1 is selected (see section 2.5c). Solution heaters, developer and fixer circulation pumps, air exhaust fans and feed fans are switched on. The dryer fans are switched on for the first 90 seconds of the warm up cycle, and the developer and fixer replenishment pumps are switched on for the first 15 seconds of the warm up cycle. If necessary, extra developer is added to prevent oxidation of the developer solution. All other services are switched off to prevent accidental use of the processor before the solutions have reached operating temperature. If a sheet is fed during this period, the audible signal sounds and the sheet is not accepted. This sequence takes about 20 minutes from an ambient temperature of 20°C and the display changes to

```
FIRST CYCLE
DRYER SET P1
```

The dryer is warming up. The ready LED is flashing continously. First cycle is selected automatically to pre-heat the dryer. This enables the dryer to reach operating temperature in the shortest possible time during processing. The following additional services are switched on

- water supply to the spray bar
- wash water circulation pump
- main drive
- dryer heaters and fans

If a sheet is fed during this period, the audible signal sounds and the main drive is switched off. The sheet is not accepted. This sequence takes 4 minutes and the display changes to

```
STANDBY OFF
DRYER SET P1
```

This and the next display form the automatic standby sequence. The ready LED is steady on. Dryer program P1 is selected (see section 2.5c). During standby off, the solution heaters and

developer, fixer and wash water circulation pumps are switched on. The dryer fans remain switched on for a further 15 seconds after the first cycle is complete. The processor is ready to accept sheets. The standby off period lasts for 7 minutes and, if no sheets are fed, the display changes to

```
STANDBY ON
DRYER SET P1
```

The ready LED is steady on. Dryer program P1 is selected (see section 2.5c). During standby on, the main drive, water supply to the spray bar, dryer fans and dryer heaters are switched on in addition to those services detailed in standby off. The processor is ready to accept sheets. The standby on period lasts for 1 minute and, if no sheets are fed, the display changes back to standby off (see above). The dryer fans remain switched on for a further 15 seconds after the standby on period is complete.

```
PAPER FEEDING
DRYER SET P1
```

A sheet is being fed into the processor. Dryer program P1 is selected (see section 2.5c). The path indicators are switched on (see section 2.6) and the ready LED is switched off. When the trailing edge of the last sheet has been fed into the processor, the path indicators are switched off, an audible signal sounds after a short delay of 1·5 seconds and the ready LED is switched on. The display changes to

```
PROCESSING
DRYER SET P1
```

The sheet is being processed. Dryer program P1 is selected (see section 2.5c). If no further sheets are fed, the display returns to standby off after approximately 70 seconds. The dryer fans remain switched on for a further 30 seconds after processing is complete.

2.5b Dryer trim page

From the processor cycle page (see section 2.5a), press ↑ once to obtain the dryer trim page. The display will read

```
DRYER TRIM
±0 0 X %
```

Where X is adjustable between the range -5 to +5.

For example, if the dryer trim is set at +3, the display will read

```
DRYER TRIM
+0 0 3 %
```

This display allows the selected dryer program (see sections 2.5c to 2.5h) to be finely adjusted to give optimum drying. The dryer trim applies only to the dryer program selected and not to all programs, and is retained by the processor memory until it is changed again. It is possible, therefore, to assign different trim values to each of the dryer programs. Adjustment of the dryer trim can be made at any time when the processor is switched on. To adjust the dryer trim, see section 8.4.

2.5c Dryer program P1 page

From the processor cycle page (see section 2.5a), press ↑ twice to obtain the dryer program P1 page. The display will read

```
DRYER PROGRAM
P1 * ±0 0 X %
```

This display and the next 5 displays gives the operator a choice of 6 preset dryer temperatures for optimum performance. The asterisk * in line 2 indicates the processor is operating with dryer program P1 currently selected. The processor is supplied with program P1 selected, and the selection is retained by the processor memory until changed again. Selecting an alternative dryer program page can be made at any time when the processor is switched on. X is the dryer trim value for program P1 (see section 2.5b). For example, if the trim value for P1 is +3 the display will read

```
DRYER PROGRAM
P1 * +0 0 3 %
```

The preset temperatures in all the dryer programs are factory set to give optimum drying for different paper surfaces and formats. Adjustment of these temperatures should be carried out by (or in consultation with) ILFORD qualified service engineers, using the key switch.

To select an alternative dryer program, see section 8.3.

2.5d Dryer program P2 page

From the processor cycle page (see section 2.5a), press ↑ 3 times to obtain the dryer program P2 page. The display will read

```
DRYER PROGRAM
P2 ±00X%
```

For details, see section 2.5c. In this case, dryer program P2 is not selected.

2.5e Dryer program P3 page

From the processor cycle page (see section 2.5a), press ↑ 4 times to obtain the dryer program P3 page. The display will read

```
DRYER PROGRAM
P3 ±00X%
```

For details, see section 2.5c. In this case, dryer program P3 is not selected.

2.5f Dryer program P4 page

From the processor cycle page (see section 2.5a), press ↑ 5 times to obtain the dryer program P4 page. The display will read

```
DRYER PROGRAM
P4 ±00X%
```

For details, see section 2.5c. In this case, dryer program P4 is not selected.

2.5g Dryer program P5 page

From the processor cycle page (see section 2.5a), press ↑ 6 times to obtain the dryer program P5 page. The display will read

```
DRYER PROGRAM
P5 ±00X%
```

For details, see section 2.5c. In this case, dryer program P5 is not selected.

2.5h Dryer program P6 page

From the processor cycle page (see section 2.5a), press ↑ 7 times to obtain the dryer program P6 page. The display will read

```
DRYER PROGRAM
P6 ±00X%
```

For details, see section 2.5c. In this case, dryer program P6 is not selected.

2.5i Alarms status page

From the processor cycle page (see section 2.5a), press ↓ once to obtain the alarms status page. Under normal operating conditions, the display will read

PROCESSOR CYCLE (see section 2.5a)
NO ALARMS FOUND

If an alarm is found, the appropriate fault condition is displayed automatically (see section 9). However, other display pages can still be viewed by pressing ↑ or ↓ as appropriate. If an alternative page is selected (and an alarm condition is still present), and no further key is pressed for 10 seconds, the display will automatically return to the alarms status page.

2.5j Developer solution temperature page

From the processor cycle page (see section 2.5a), press ↓ twice to obtain the developer solution temperature page. The display will read

SET T DEV = 40·0
REAL T DEV = 40·0

The top line of the display shows the preset temperature. The second line of the display shows the actual temperature of the developer solution. When the processor is ready for use the two temperatures will be the same.

In normal operation, this page is a read only page. The preset temperature (top line) is factory set for optimum development of a range of paper surfaces and formats. Adjustment of the development solution temperature should be carried out by (or in consultation with) ILFORD qualified service engineers, using the key switch.

2.5k Fixer solution temperature page

From the processor cycle page (see section 2.5a), press ↓ 3 times to obtain the fixer solution temperature page. The display will read

SET T FIX = 40·0
REAL T FIX = 40·0

See section 2.5j and read fixer in place of developer.

2.5l Developer replenishment rate page

From the processor cycle page (see section 2.5a), press ↓ 4 times to obtain the developer replenishment rate page. The display will read

```
DEV REP RATE = 144
 PUMP TIME = 000
```

The top line of the display shows the volume of replenishment solution in ml/m^2. The second line of the display shows the time the replenishment pump operates, when replenishment is demanded. The interval between demands for replenishment varies in accordance with the area of paper processed (detected by the path indicators - see section 2.6).

In normal operation, this page is a read only page. The volume of replenishment and the pump time are factory set for optimum development of a range of paper surfaces and formats. Adjustment of the developer replenishment rate should be carried out by (or in consultation with) ILFORD qualified service engineers, using the key switch.

2.5m Fixer replenishment rate page

From the processor cycle page (see section 2.5a), press ↓ 5 times to obtain the fixer replenishment rate page. The display will read

```
FIX REP RATE = 240
 PUMP TIME = 000
```

See section 2.5l and read fixer in place of developer.

2.6 PATH INDICATORS

There are 8 path indicators (LED's) located above the paper feed. An LED will light when paper is fed along that path, and is a useful indicator, particularly when feeding multiple or mixed sheets. Additionally, the LED's measure the area of paper processed, in calculating correct replenishment.

3

DRAINING THE PROCESSOR

See figure 3.1.

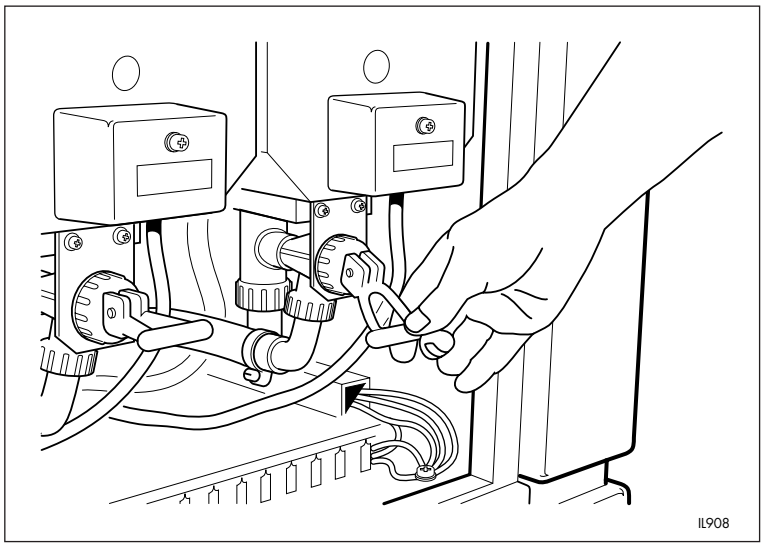


Figure 3.1 Draining the processor

To drain the processor, proceed as follows:

1 Switch the processor off (see section 6).

2 Release the two securing screws and remove the left hand upper side panel.

3 Drain the developer, fixer and wash water tanks by moving the three drain taps to the open (down) position.

4 When the tanks are empty, close the three drain taps (centre position).

3.1 Removing the solution roller racks

See figure 3.2.

To remove the roller racks, proceed as follows:

1 Remove the processor top cover.

2 Release the two knurled screws and remove the retaining plate from each side of the processor.

3 Remove the anti-condensation lids from the developer, fixer and wash water roller racks.

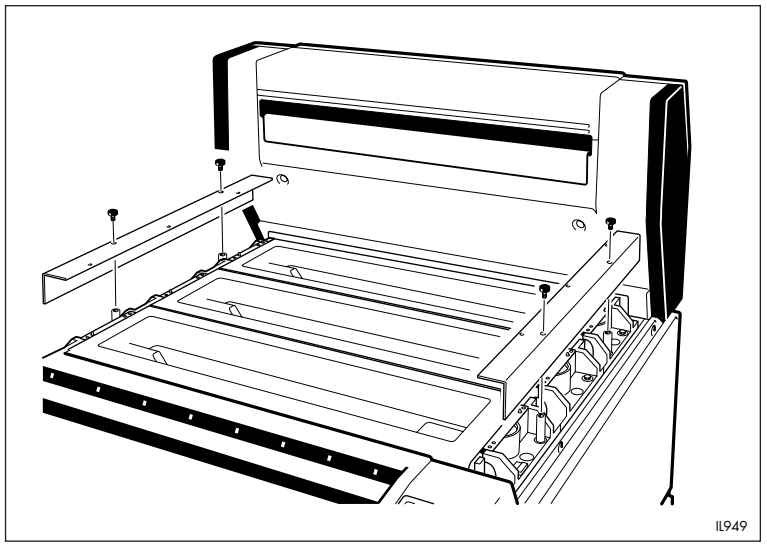


Figure 3.2 Removing retaining plates

4 Remove the developer, fixer and wash water racks in turn (see section 11.2a), and allow excess chemistry from the racks to drain back into the tank.

4
ADDING CHEMISTRY

See figure 4.1.

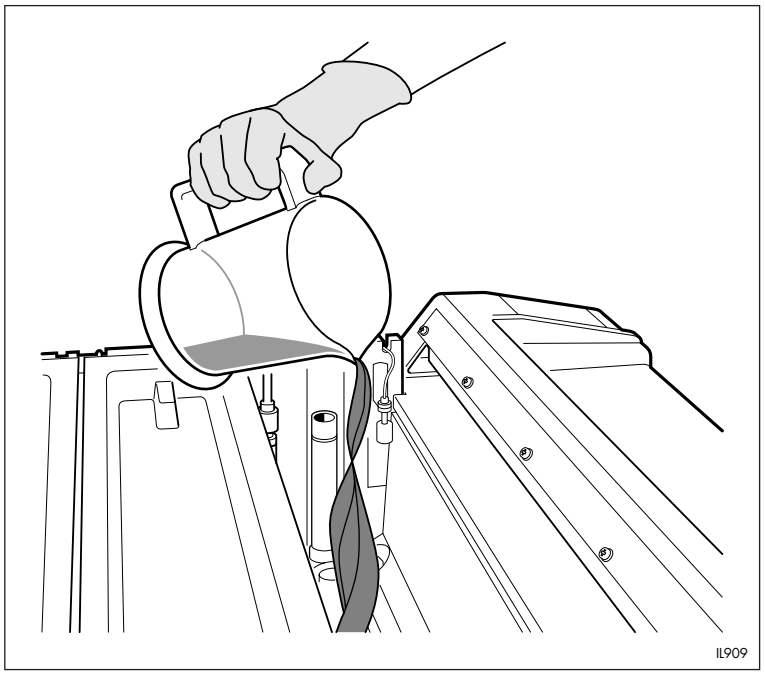


Figure 4.1 Adding chemistry

CAUTION
Before adding chemistry, ensure you are familiar with the information detailed on the ILFORD Photochemical Safety Data Sheets provided with the chemical information pack.

1 Ensure all drain taps are closed.

2 Measure and add 5 litres (1·3 US gallons) of clean, fresh water to each of the developer, fixer and wash water processing tanks.

3 Measure and add 3·15 litres (0·83 US gallons) of fresh ILFORD 2000RT developer concentrate to the developer tank. Pour carefully and avoid splashing.

4 Measure and add 3·15 litres (0·83 US gallons) of fresh ILFORD 2000RT fixer concentrate to the fixer tank. Pour carefully and avoid splashing.

5 Measure and add 12ml (0·4 US fl oz) of ILFORD BIOCLEAN to the wash water tank.

6 Carefully lower the correct roller rack into each tank by observing the colour coding. Ensure each rack is positioned correctly on the locating pins (see figure 4.2).

7 Add clean, fresh water to each tank until the solution/water is level with the level mark on the standpipe in each tank. This will take the processing solutions and wash water to the correct working levels.

8 Refit the left hand upper side panel. Secure the panel with the two screws.

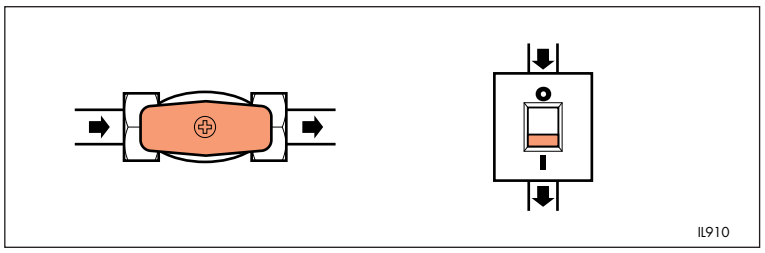
9 Refit the anti-condensation lids to the roller racks. Follow the colour coding.

10 Refit the retaining plates. Secure each plate with the two knurled screws tightened to finger tight.

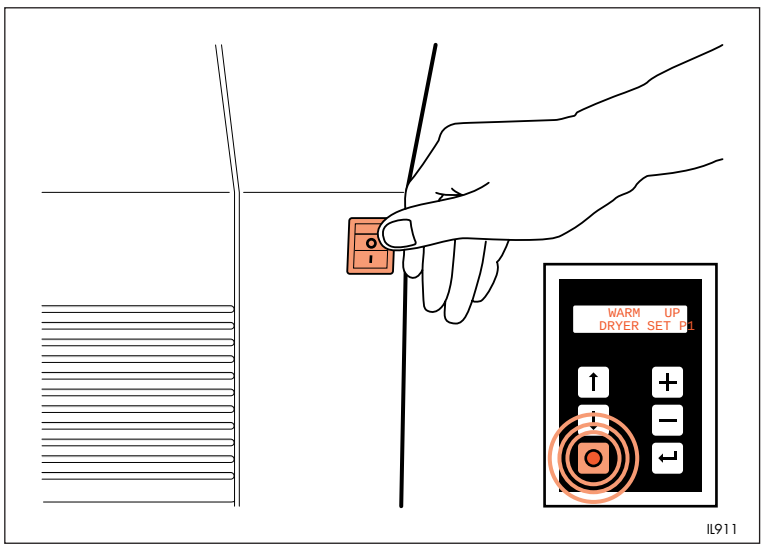
11 Refit the processor top cover.

5
USING THE PROCESSOR

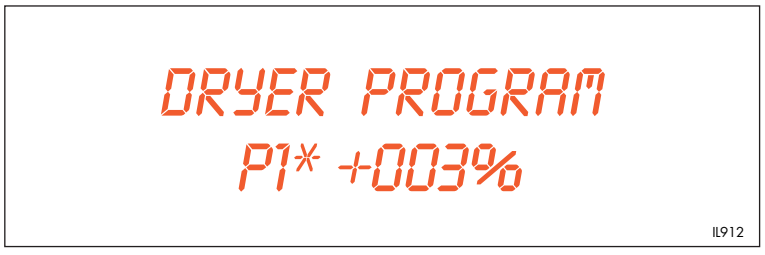
1 Turn on the water and electrical supplies to the processor.



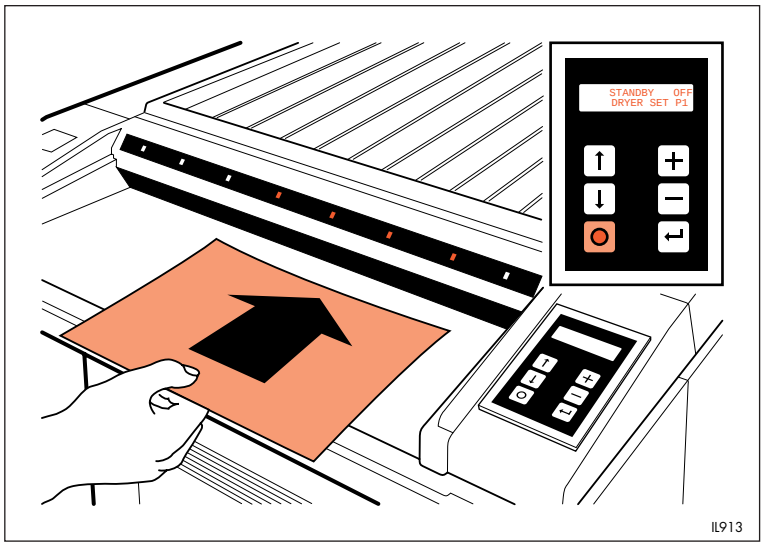
2 Switch the processor on. The display reads W A R M U P and the ready LED flashes, indicating the processor is not ready.



3 Check the required dryer program has been selected (see section 2.5c).

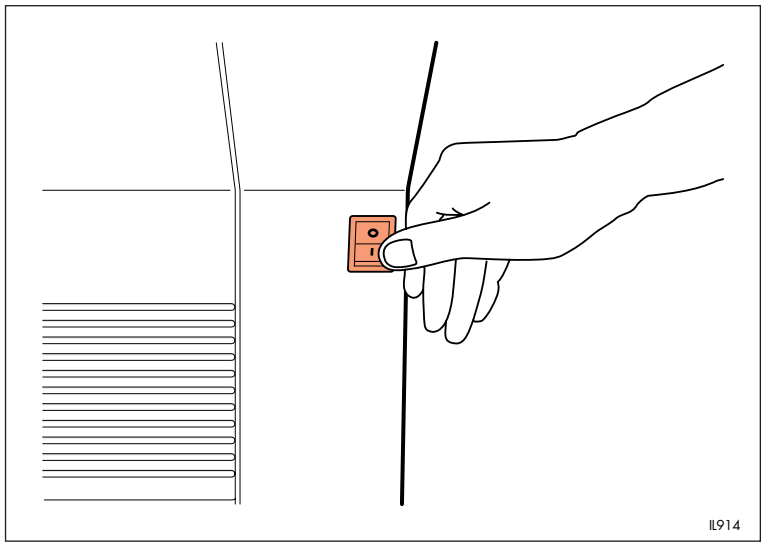


4 When the display reads STANDBY OFF and the ready LED is steady on, the processor is ready for use. Feed a few unexposed sheets to clean the rollers. Feed sheets emulsion side down. Wait for the audible signal before feeding in the next sheet.

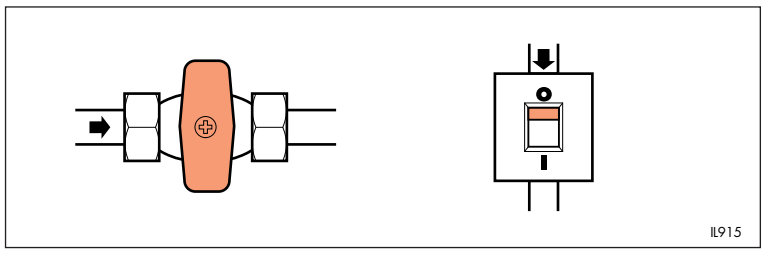


6
SWITCHING OFF

1 Switch the processor off.



2 Turn off the electrical supply then the water supply to the processor.



7
REPLENISHMENT

Each of the developer and fixer processing tanks is supplied with replenisher from one of two bottles (A or B) located behind the lower left panel. The replenisher is diluted 1+5 with water by the replenisher pump and delivered to the processing tank. Control of replenishment is by area of paper processed.

When a sheet of paper is fed into the processor, a number of path indicators are illuminated on the panel above the feed tray. The number of indicators illuminated, and the time they are switched on, is used by the processor to monitor the area of paper being processed and to calculate the correct volume of replenishment.

When bottle A is empty, the processor automatically switches over to bottle B. When this happens, the alarms status page (see section 2.5i) reads

PROCESSOR CYCLE (see section 2.5a)
MIN DEV A REP

or

PROCESSOR CYCLE (see section 2.5a)
MIN FIX A REP

and the ready LED flashes. At this point it is advisable to replace the empty bottle (see section 7.1).

The processor will continue to take replenisher solution from bottle B until bottle B becomes empty. The processor automatically switches back to bottle A and the display panel reads

PROCESSOR CYCLE (see section 2.5a)
MIN DEV B REP

or

PROCESSOR CYCLE (see section 2.5a)
MIN FIX B REP

and the ready LED flashes.

This process ensures that full bottles of replenisher are used up before the next bottle is started, minimising oxidation. The alarms status page for developer and fixer replenishment status will therefore read alternate pages

MIN DEV A (or FIX A) REP then
MIN DEV B (or FIX B) REP

and back again, if bottles are replaced promptly.

If both bottles A and B are allowed to empty, the alarms status page (see section 2.5i) reads

PROCESSOR CYCLE (see section 2.5a)
NO DEV REP

or

PROCESSOR CYCLE (see section 2.5a)
NO FIX REP

the ready LED flashes and, this time, the audible alarm sounds. The processor continues to run normally, but the appropriate replenishment bottles must be replaced at the earliest opportunity.

7.1 REPLACING REPLENISHMENT BOTTLE A OR B

See figure 7.1.

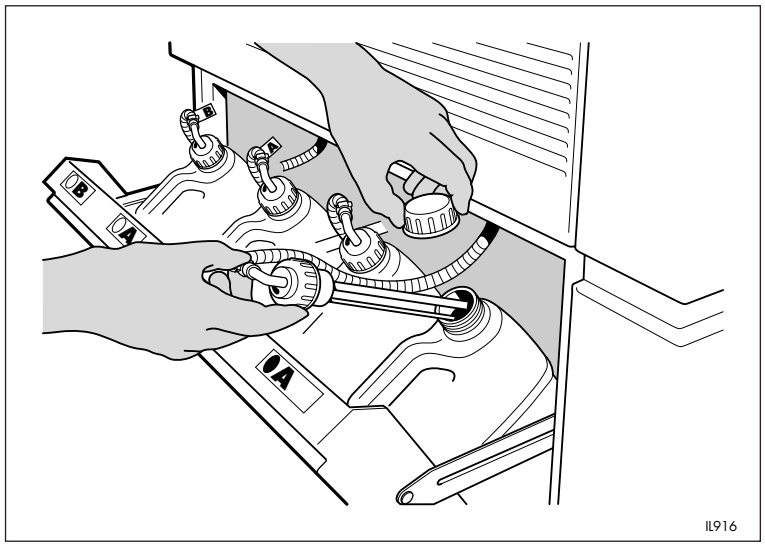


Figure 7.1 Replacing replenishment bottles

The following sequence applies to both developer and fixer replenishment bottles, and can be carried out with the processor operating.

1 Lift the locking catch and open the lower left hand panel.

2 Remove the cap and level switch from the empty bottle (see alarms status page to identify the empty bottle), and remove the bottle. Dispose of the empty bottle in accordance with local regulations. Wipe the level switch assembly clean.

3 Replace with a new bottle of chemistry. Ensure the bottle cap is positioned away from the panel (to avoid spills) as shown.

4 Remove the anti-tamper cap from the new bottle and refit the level switch and cap assembly. Ensure the cap is screwed down fully, but do not overtighten. Take care not to kink, trap or strain the wires or pipes.

5 Close the lower left hand panel.

6 Ensure the alarms status page reads

NO ALARMS FOUND

7 Press the enter button (↵) to reset the alarms status page and allow the display to return to the processor cycle page (see section 2.5a).

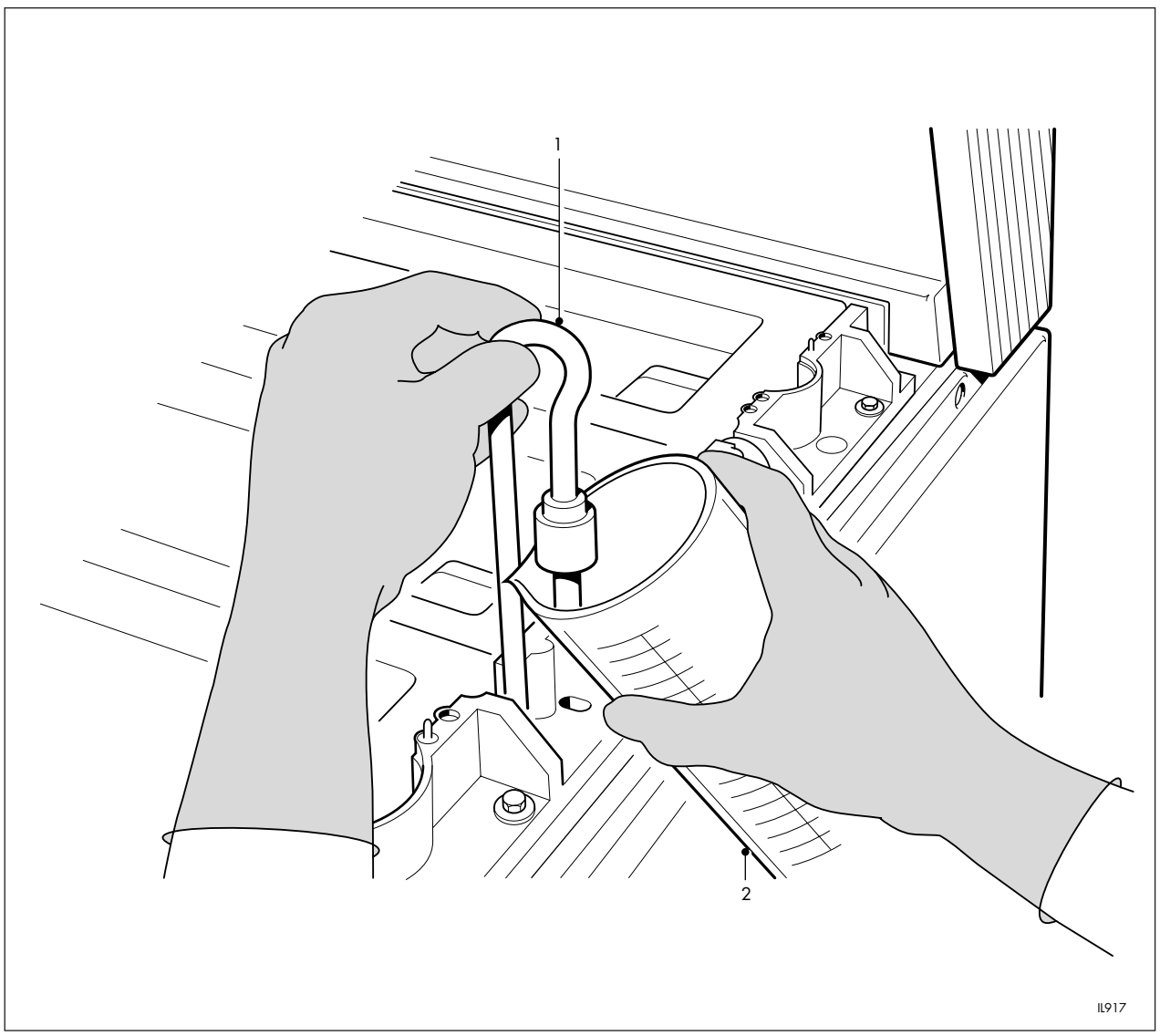


Figure 8.1 Check replenishment rates

8

CHECKS AND ADJUSTMENTS

Figure 8.1
1 Hooked replenishment pipe
2 Measuring cylinder (plastic)

8.1 CHECK SOLUTION TEMPERATURES

The following sequence is the same for both developer and fixer solutions.

1 Press ↓ twice to obtain the developer solution temperature page or three times to obtain the fixer solution temperature page.

2 Ensure the display reads

```
SET T DEV = 40•0
REAL T DEV = 40•0
```

or

```
SET T FIX - 40•0
REAL T FIX = 40•0
```

indicating the actual solution temperature is the same as, or very close to, the preset temperature. Ensure the display returns automatically to standby off.

8.2 CHECK REPLENISHMENT RATES

See figure 8.1.

With the processor in the standby off mode, lift and remove the processor top cover. Note that the ready LED flashes repeatedly and the display reads

```
TOP COVER OPEN
```

The following sequence is the same for both developer and fixer solutions.

1 Lift and remove the developer (fixer) anti-condensation lid from the processing rack.

2 Release the two knurled screws and remove the retaining plate from each side of the processor.

3 Carefully lift and turn the developer (fixer) hooked replenishment pipe through 180° until the open end is positioned over the side of the processor. The hooked replenishment pipe is located on the right hand side of the tank.

4 Position a 500ml (17 US fl oz) plastic measuring cylinder below the open end of the hooked replenishment pipe.

5 Press ↵ 4 times (5 times for fixer) to obtain the developer (fixer) replenishment rate page. Ensure the display reads

```
DEV REP RATE = 144
 PUMP TIME = 000
```

or

```
FIX REP RATE = 240
 PUMP TIME = 000
```

6 Press the enter button (↵) and ensure solution flows from the hooked replenishment pipe into the measuring cylinder. At the same time ensure the pump time counts down to zero.

7 When the pump stops, return the hooked replenishment pipe to its original position with the open end located in the socket. Check the volume of solution in the measuring cylinder. The volume should be 245ml ± 5ml (8·3 US fl oz ± 0·2 US fl oz).

8 Refit the retaining plates. Secure each plate with the two knurled screws tightened to finger tight.

9 Refit the anti-condensation lid to the processing rack and the processor top cover. Press the enter button (↵) to reset the alarms status page and allow the display to return automatically to standby off.

8.3 SELECT ALTERNATIVE DRYER PROGRAM

The operator has a choice of 6 different drying programs P1 to P6, and these are found on the page displays by pressing ↑ repeatedly until the required program is displayed (see sections 2.5c to 2.5h). The processor is supplied with dryer program P1 selected. To select an alternative program, proceed as follows:

1 Press ↑ until the required program is displayed. For example, if you wish to choose dryer program P2 in place of P1, press ↑ 3 times (from the processor cycle page) to obtain

```
DRYER PROGRAM
P2 ±00X%
```

where X is the dryer trim value associated with that program (see section 2.5b).

2 Press the enter button (↵). The display now reads

```
DRYER PROGRAM
P2 * ±00X%
```

with the asterisk (*) indicating the processor will operate with dryer program P2 selected. P2 will be displayed on all the processor cycle pages. After 10 seconds ensure the display returns automatically to the processor cycle page.

Table 8.1 provides a guide for choosing the correct dryer program for different materials.

Table 8.1 Recommended dryer programs

Program	Material
P1	General purpose sheet material with gloss, matt and pearl surfaces
P2	Sheet material requiring a high gloss finish
P3	*Roll material with matt and pearl surfaces
P4	*Roll material requiring a high gloss finish
P5	Spare
P6	Spare

*With roll feed attachments fitted

8.4 SET DRYER TRIM

To fine tune the dryer temperature within the program selected, proceed as follows:

1 Ensure the required dryer program is displayed (see section 8.3).

2 Press ↑ once to display the dryer trim page. The display reads

```
DRYER TRIM
±00X%
```

where X is the current setting between -5 and +5.

3 Press the adjustment buttons + or - until the required new dryer trim setting is displayed. For example, if the new dryer trim setting is to be +3, press + or - until the display reads

```
DRYER TRIM
+003%
```

4 Press the enter button (↵). The new dryer trim is now assigned to the selected dryer program. All other programs are unaffected. This enables different trim values to be assigned to each of the dryer programs as required.

9
ALARMS

There are a number of conditions that are simple to correct but, if left unchecked (and in extreme conditions), could cause a hazard to the operator or prevent the processor from giving the best results. These conditions are monitored by the processor. All alarms are characterised by the alarm display, a flashing ready LED and/or an audible signal (depending on the severity of the condition). In some cases the processor is switched off automatically.

Table 9.1 details the alarm display, what each one does to the processor and the remedy. For information on faults in the processed prints, see section 10.

9.1 ALARM DISPLAY

Under normal operating conditions, the processor cycle is displayed on the processor cycle page (see section 2.5a). If the ready LED starts to flash, assume an alarm condition has developed. If this is the case, the display will show the appropriate condition automatically. The display will read

PROCESSOR CYCLE (see section 2.5a)
ALARM (see table 9.1)

If more than one alarm condition has developed, the processor will display the most severe alarm first, and, when that condition has been corrected, the next severe and so on.

9.2 ALARM RESET

The alarm is reset only if the fault condition is corrected and the enter button (↵) is pressed. This feature is useful on intermittent faults. The fault is recorded, and the display is reset only when the enter button (↵) is pressed.

When the enter button (↵) is pressed the display may show an additional alarm indicating faults have stacked up. Continue with corrective actions and pressing the enter button (↵) until all faults have been cleared and the display reads

PROCESSOR CYCLE (see section 2.5a)
NO ALARMS FOUND

for 10 seconds, before returning automatically to the processor cycle page (see section 2.5a).

Table 9.1 Alarm displays and remedies

	Display	Processor status	Remedy
1	NOT READY	Ready LED flashes. Audible alarm sounds continuously. Main drive and dryer heaters are switched off.	Do not feed a sheet during the FIRST CYCLE. Press enter (↵)
2	TOP COVER OPEN	Ready LED flashes. Main drive and dryer heaters are switched off.	Refit top cover. Press enter (↵)
3	DRY COVER OPEN	Ready LED flashes. Audible alarm sounds. All main functions shutdown.	Refit dryer cover correctly. Press enter (↵)
4	DEV THERMAL OPEN	Ready LED flashes. Audible alarm sounds. All main functions shutdown.	Reset the developer thermal cut-out (see section 11.5). Press enter (↵)
5	FIX THERMAL OPEN	Ready LED flashes. Audible alarm sounds. All main functions shutdown.	Reset the fixer thermal cut-out (see section 11.5). Press enter (↵)
6	DRY THERMAL OPEN	Ready LED flashes. Audible alarm sounds. All main functions shutdown. CLOSED.	Dryer thermal cut-out is self-resetting. When the dryer has cooled down, the display reads DRY THERMAL Switch the processor off and on to clear. See note 1 below.Press enter (↵)
7	DEV MIN LEVEL	Ready LED flashes. Audible alarm sounds. Processor continues to operate and complete the processing cycle, but will not re-start.	Processor switches the developer replenishment pump on automatically to clear the fault. See note 2 below. Press enter (↵)
8	FIX MIN LEVEL	Ready LED flashes. Audible alarm sounds. Processor continues to operate and complete the processing cycle, but will not re-start.	Processor switches the fixer replenishment pump on automatically to clear the fault. See note 2 below. Press enter (↵)

	Display	Processor status	Remedy
9	WASH MIN LEVEL	Ready LED flashes. Audible alarm sounds (except during the warm up cycle). Processor continues to operate and complete the processing cycle, but will not re-start.	Processor switches the wash water supply on automatically to clear the fault. See note 2 below. Press enter (↵)
10	MIN DEV A REP	Ready LED flashes. Audible alarm does not sound. Processor does not stop.	Replace the developer replenishment bottle A (see section 7.1). Press enter (↵)
11	MIN DEV B REP	Ready LED flashes. Audible alarm does not sound. Processor does not stop.	Replace the developer replenishment bottle B (see section 7.1). Press enter (↵)
12	MIN FIX A REP	Ready LED flashes. Audible alarm does not sound. Processor does not stop.	Replace the fixer replenishment bottle A (see section 7.1). Press enter (↵)
13	MIN FIX B REP	Ready LED flashes. Audible alarm does not sound. Processor does not stop.	Replace the fixer replenishment bottle B (see section 7.1). Press enter (↵)
14	MIN WATER REP	Ready LED flashes. Audible alarm sounds. Processor does not stop.	Turn wash supply on at the stop cock. Press enter (↵)
15	NO DEV REP	Ready LED flashes. Audible alarm sounds. Processor continues to operate.	Replace developer replenishment bottles A and B (see section 7.1). Press enter (↵)

Notes

1 Continued display of 6 would suggest the dryer electrical connectors have not been replaced correctly after a print jam in the dryer (see section 11.7).

2 Continued or intermittent display of 7, 8 and 9 would suggest further reasons for the problem. For example, wash water supply is turned off, drain tap(s) are open or the processor has developed a leak.

	Display	Processor status	Remedy
16	NO FIX REP	Ready LED flashes. Audible alarm sounds. Processor continues to operate.	Replace fixer replenishment bottles A and B (see section 7.1). Press enter (↵)
17	LEFT PANEL OPEN	Ready LED flashes. All main functions shutdown.	Refit left hand panel. Press enter (↵)
18	SMOKE ALARM	Ready LED flashes. Audible alarm sounds. Main drive and dryer heaters are switched off.	Press enter (↵). If the display does not reset, switch the processor off and contact your nearest ILFORD Selling Company
19	FAN SWITCH OPEN	Ready LED flashes. Audible alarm sounds. Main drive remains on. Dryer heaters are switched off.	Press enter (↵). If the display does not reset, switch the processor off and contact your nearest ILFORD Selling Company
20	DRIVE STOPPED	Ready LED flashes. Audible alarm sounds. Dryer heaters are switched off.	Press enter (↵). If the display does not reset, switch the processor off and contact your nearest ILFORD Selling Company

10
FAULT FINDING

This section provides a number of checks to make if there are any faults in the processed prints. The checks can be made by any competent person. If the remedy proves to be ineffective, contact your nearest ILFORD Selling Company at the address on the back cover of this manual.

CAUTION
If in doubt about making any of the checks, consult a competent engineer. Any further repair work carried out by unqualified personnel could cause a hazard both to yourself and to the equipment, and may invalidate any guarantees applicable to the equipment.

	Symptom	Possible cause	Remedy
1	**Prints are generally too light (low contrast or low maximum density)**	Developer temperature is set too low (see section 2.5j)	Contact your nearest ILFORD Selling Company
		Developer solution is contaminated	Change developer solution in the processing tank (see sections 3 and 4)
		Developer solution is over diluted	Change developer solution in the processing tank (see sections 3 and 4)
		Developer replenishment bottles A and B are empty (see, also, table 9.1)	Replace developer replenishment bottles A and B (see section 7.1)
		Replenishment system faulty	Check for kinked, blocked or split replenishment pipes Contact your nearest ILFORD Selling Company
2	**Print fog (highlights)**	Developer temperature is set too high (see section 2.5j)	Contact your nearest ILFORD Selling Company
		Incorrect safelighting	Contact your nearest ILFORD Selling Company
		Light leakage	Check processor top cover is fitted correctly
		Developer solution is contaminated	See symptom 1

	Symptom	Possible cause	Remedy
3	**Uneven density**	Dirty rollers	Clean roller racks in developer, fixer and wash water tanks (see section 11.2)
		Roller rack judder (jumping)	This is caused by incorrect spring tension or worn drive gears on the roller rack(s).Contact your nearest ILFORD Selling Company
		Roller rack not seated correctly, ie not level	Refit the rack correctly
		Developer and/or fixer solution contaminated	Change both solutions (see sections 3 and 4)
4	**Marks or stains**	Dirty wash tank	Drain and clean the wash water tank. Refill the tank and add ILFORD BIOCLEAN (see section 11.1)
		Developer solution is contaminated	See symptom 1
		Developer solution is over diluted	See symptom 1
		Roller rack judder causing sheet to be impeded through the developer solution	See symptom 3
		Dirty rollers	See symptom 3
		Fixer solution is contaminated	Change fixer solution in the processing tank (see sections 3 and 4)
		Replenishment rates are set too low (see sections 2.5l and 2.5m)	Contact your nearest ILFORD Selling Company
		Excessive sludge suspended in developer and/or silver in the fixer solution	Chemicals are exhausted. Change both solutions (see sections 3 and 4)
		Damaged rollers in roller rack(s)	Contact your nearest ILFORD Selling Company

	Symptom	Possible cause	Remedy
		Sheet fed incorrectly	Feed sheets emulsion side down
		Paper guides are mis-aligned in the roller racks	Contact your nearest ILFORD Selling Company
5	**Prints are not fixed correctly and turn brown quite rapidly in daylight**	Fixer temperature is set too low (see section 2.5k)	Contact your nearest ILFORD Selling Company
		Fixer replenishment rate is set too low (see section 2.5m)	Contact your nearest ILFORD Selling Company
		Fixer replenishment bottles A and B are empty (see also, table 9.1)	Replace fixer replenishment bottles A and B (see section 7.1)
		Replenishment system faulty	See symptom 1
		Fixer solution is over diluted	Change fixer solution in the processing tank (see sections 3 and 4)
		Fixer solution is contaminated by a large quantity of developer solution	Change fixer solution in the processing tank (see sections 3 and 4)
6	**Wet or damp prints**	Dryer program selected is incorrect	Select another program (see section 8.3)
		Dryer trim is incorrect	Adjust the dryer trim (see section 8.4)
		Dryer fans and/or heaters are faulty	Contact your nearest ILFORD Selling Company
		Sheet fed incorrectly	Feed sheets emulsion side down
7	**Scratches on print, parallel to direction of travel through the processor**	Prints are being pulled out of the exit rollers	Allow prints to fall onto the processor top cover before handling them
		Sheet fed incorrectly	Feed sheets emulsion side down
		Damaged paper guides in roller rack(s)	Contact your nearest ILFORD Selling Company

	Symptom	Possible cause	Remedy
		Dirty paper guides in roller racks	Clean the developer, fixer and wash water roller racks (see section 11.2)
		Paper guides are mis-aligned in roller racks	See symptom 4
8	**Imperfect gloss on glossy**	Dryer program selected surfaces	See symptom 6 is incorrect
		Dryer trim is incorrect (set too low)	See symptom 6
		Sheet fed incorrectly	Feed sheets emulsion side down
		Damaged or misaligned rollers in wash and/or dryer rack	Contact your nearest ILFORD Selling Company
		Dryer heater element damaged	Contact your nearest ILFORD Selling Company
9	**Surface blistering or glossy patches on matt or pearl surfaces**	Dryer program selected is incorrect	See symptom 6
		Dryer trim is incorrect (set too high)	See symptom 6
10	**Dull patches on glossy surfaces**	Dirt in dryer roller rack	Feed a few unexposed sheets to clean rollers
		Sheet fed incorrectly	Feed sheets emulsion side down
		Damaged or misaligned rollers in wash and/or dryer rack	Contact your nearest ILFORD Selling Company
11	**Prints overlap**	Failure to observe the feed indicator	Wait for the audible signal before feeding in the next sheet
12	**Print fails to emerge**	Paper sheet too small	Switch processor off. Retrieve the sheet. Sheets must be at least 12·5cm (5 inches) long

	Symptom	Possible cause	Remedy
		Print jam in processing racks caused by damaged sheet.	Switch processor off. Remove roller racks in turn (see section 11.2b) and retrieve the sheet.
		Print jam in dryer compartment caused by damaged sheet.	Switch processor off. Retrieve the sheet from the dryer 11.7).
		Damaged or misaligned paper guides or rollers in roller rack(s)	Contact your nearest ILFORD Selling Company
13	**Processor will not power up**	Mains isolator switched off	Switch mains isolator on
		Processor switched off	Switch processor on
		Mains fuses blown	Replace mains fuses. See section 11.6
14	**Processor is switched on but will not operate. LED flashes and, in some cases, the audible alarm sounds**	Alarm condition	See section 9
		First cycle warm up is in progress	Wait for warm up sequence to finish
15	**Processor will not accept paper**	First cycle warm up is in progress	See symptom 14
		Damaged or mis-aligned input roller assembly	Contact your nearest ILFORD Selling Company

11

CLEANING AND SIMPLE REPAIRS

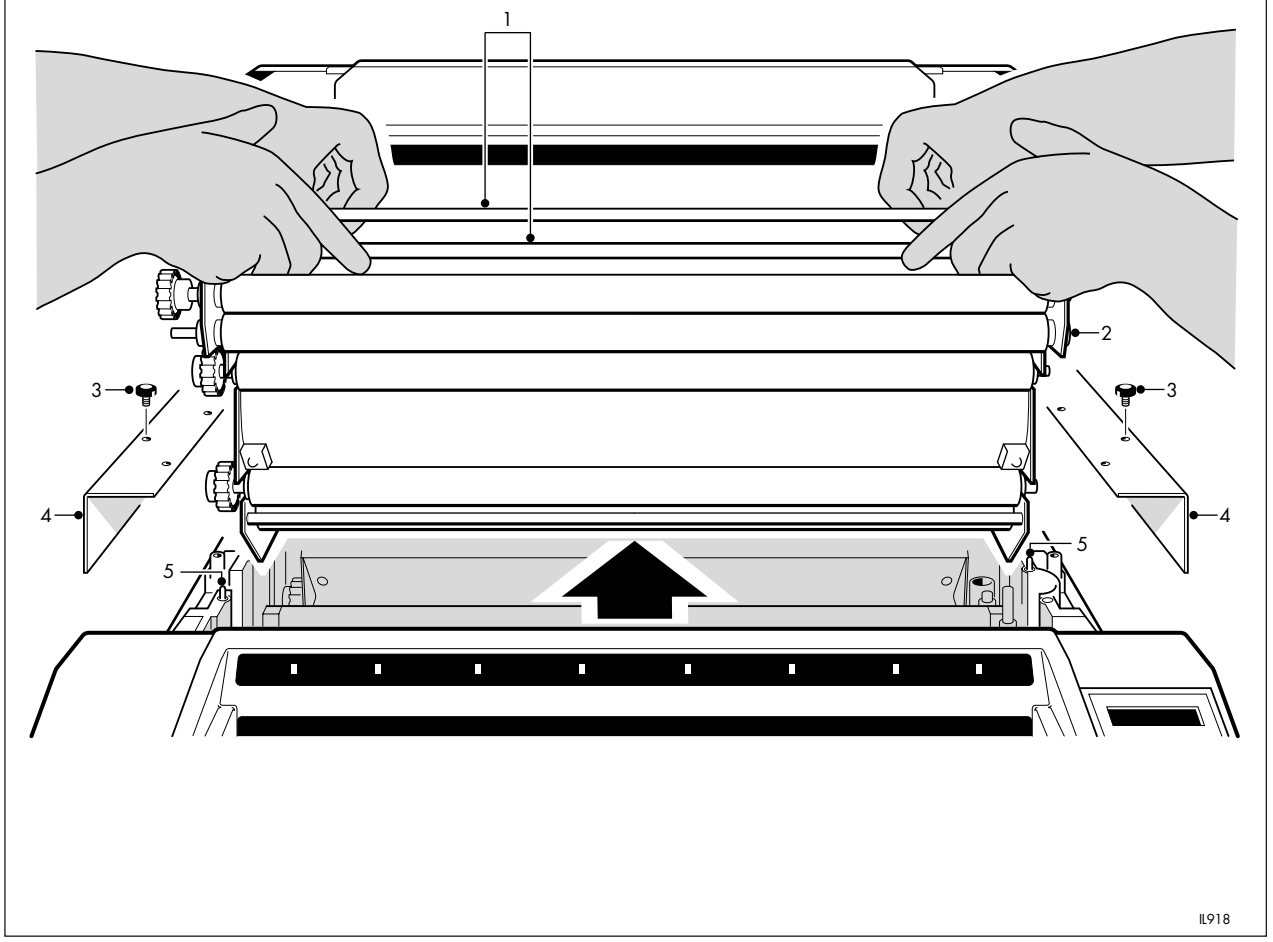


Figure 11.1 Removing roller racks

Figure 11.1
1 Tie rod
2 Roller rack
3 Knurled screw
4 Retaining plate
5 Rack locating pin

Cleaning is the only regular maintenance required on the ILFOLAB MG2950 processor. Regular cleaning will ensure correct operation and consistently high print quality. In addition to the routine operations detailed below, it is strongly recommended that your processor is serviced every 12 months (or more frequently) by a competent engineer. The name and address of your nearest ILFORD Selling Company is given on the back cover of this manual.

11.1 DAILY CLEANING ROUTINE

Clean the rollers by processing a few sheets of unfogged paper. If the last of the sheets is returned free of deposits or marks, the

processor is ready for use. If there are significant marks on the sheets, carry out the weekly routine detailed in section 11.2. Clean the feed tray with a soft cloth.

Add 12ml (0·4 US fl oz) of ILFORD BIOCLEAN to the wash tank at the end of each day to reduce the build up of algae.

Note

ILFORD BIOCLEAN is effective for maintaining a clean tank. It is not effective for cleaning a dirty tank. Use only ILFORD BIOCLEAN. Use of other biocides may cause corrosion of the stainless steel components.

11.2 WEEKLY CLEANING ROUTINE

See figure 11.1.

The weekly routine is confined mainly to cleaning the roller racks, and the wash water tank (if algae is a problem).

11.2a Handling roller racks

When handling roller racks, always observe the following:

1 To avoid back strain or other injury lift the rack using two people, one positioned at each end.

2 Handle roller racks by the tie rods located at the top of the rack. Supporting the rack from below may displace or damage the paper guides.

3 Allow surplus solution from the rack to drain back into the processing tank.

4 Always stand the rack on a clean, level surface.

5 Do not allow the solution from one rack to contaminate any other tank.

11.2b Cleaning roller racks

1 Switch the processor off.

2 Remove the processor top cover.

3 Release the two knurled screws and remove the retaining plate from each side of the processor.

4 Remove the anti-condensation lid from the wash rack.

5 Carefully lift and remove the wash roller rack. Thoroughly clean the rack with a soft, lint-free cloth and warm water. More

stubborn chemical deposits on metal and plastic surfaces can be removed using a soft bristle brush and warm water.
When cleaning roller racks take extreme care not to damage the surfaces of the rollers or guides. Damaged surfaces will cause marks on subsequent prints.

6 If the wash tank is contaminated by algae, drain the tank and clean it and the spray bar thoroughly using a soft bristle brush and warm water. Pay particular attention to the spray holes.

Note
This operation may have to be carried out more frequently if the water supply is of a poor quality. In severe cases, clean the tank and spray bar with diluted bleach, and rinse thoroughly. Never use bleach on any roller rack.

7 Carefully remove the developer and fixer roller racks on alternate weeks and clean them in the same way as the wash rack (see operations 3, 4 and 5 above).

8 Carefully refit the roller racks ensuring they are secured correctly on the locating pins. Observe the colour coding.

9 Refit the anti-condensation lid on the processing rack. Observe the colour coding.

10 Refit the retaining plates. Secure each plate with the two knurled screws tightened to finger tight.

11 Refit the processor top cover.

12 Carry out the daily routine detailed in section 11.1.

11.3 SIX MONTHLY CLEANING ROUTINE

Every six months, it is recommended that the processing tanks are drained and cleaned thoroughly. For the developer tank, this is best achieved with ILFORD ILFOCLEAN developer systems cleaner, by following the instructions supplied with the cleaner.

CAUTION
Before handling ILFORD ILFOCLEAN, ensure you are familiar with the information detailed on the Photochemical Safety Data Sheet provided with the chemical pack.

11.4 CHECKING OPERATION OF SMOKE DETECTOR

See figure 11.2.

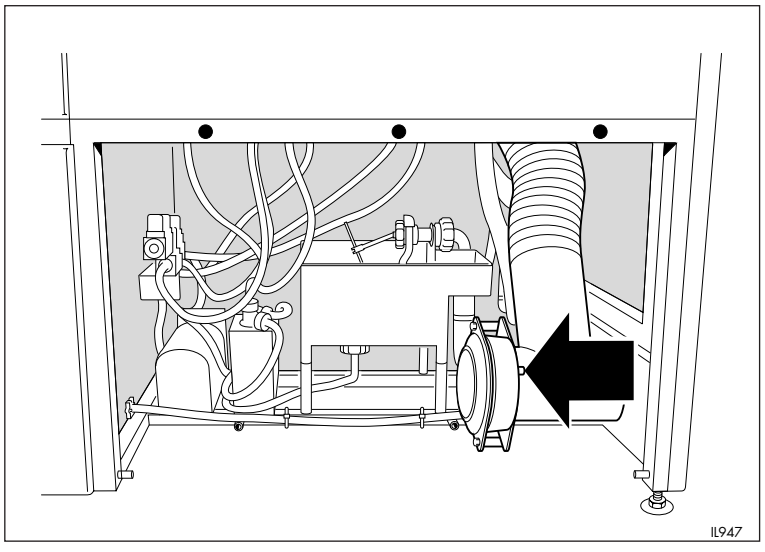


Figure 11.2 Smoke detector test button

Every week, check the operation of the smoke detector by pressing the test button. The alarm should sound within 10 seconds. If the alarm fails to operate, contact your nearest ILFORD Selling Company.

11.5 RESETTING SOLUTION THERMAL CUT-OUTS

See figure 11.3.

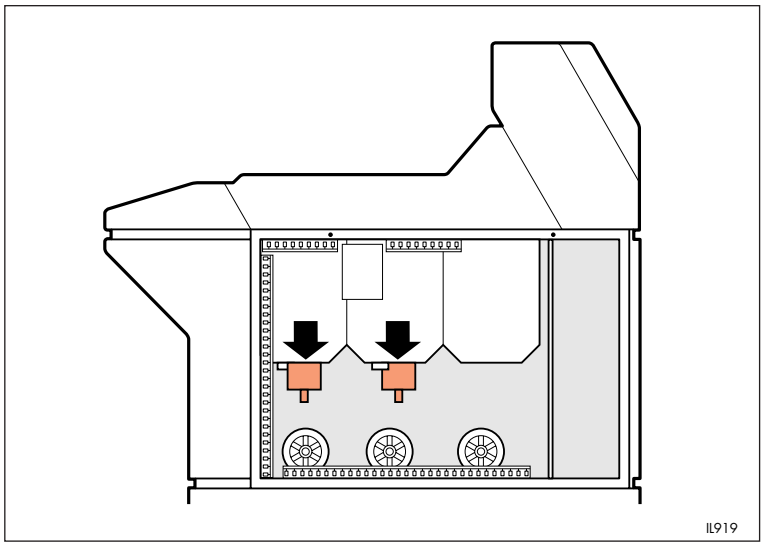


Figure 11.3 Resetting thermal cut outs

Each of the developer and fixer solutions has an independently operating thermal cut-out which switches the heaters off automatically if the temperature becomes excessive in the processing tank. The thermal cut-outs are manually reset.

Note
To avoid nuisance tripping of the thermal cut-outs, never use water above 55°C (131°F) when cleaning the solution tanks. If this operation becomes frequent, contact your nearest ILFORD Selling Company.

The thermal cut-outs are located on the base of the processing tanks. To reset the cut-outs, proceed as follows (the sequence is the same for both developer and fixer):

1 Switch the processor off (see section 6).

2 Release the two securing screws and remove the right hand upper side panel.

3 Locate the thermal cut-out housing, and push the extended reset button back into the housing until the button clicks and locks in place.

4 Refit the right hand upper side panel. Secure the panel with the two screws.

5 Switch the processor on (see section 5).

11.6 REPLACING MAINS FUSES

See figure 11.4.

CAUTION
This procedure requires access to the electrical compartment. Do not carry out any other darkroom procedures involving the use of liquids, or leave the processor unattended, while the electrical cover is removed. Pay particular attention to switching off the mains isolator as well as the processor.

1 Switch the processor off (see section 6).

2 Release the two securing screws and remove the processor front upper panel, to gain access to the electrical compartment.

3 Release the three screws and remove the internal electrical panel.

4 Locate the three mains fuses F1, F2 and F3 on PCB1. Replace the blown fuse or fuses with fuses of the same type and value. See table 11.1.

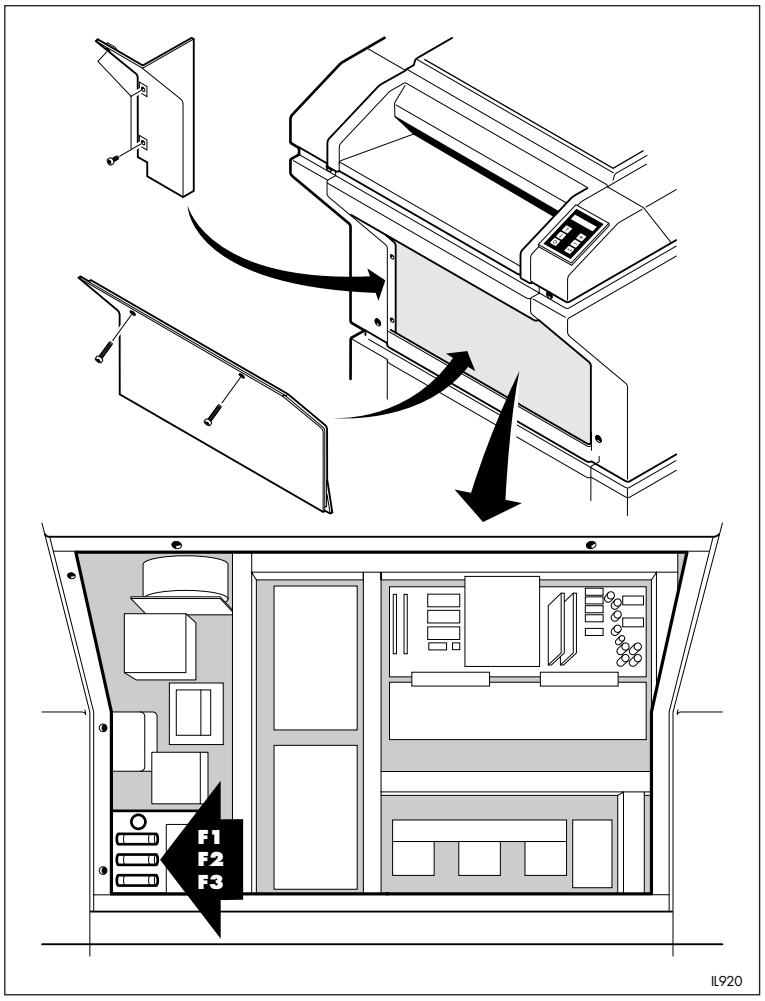


Figure 11.4 Replacing mains fuses

Table 11.1 Mains Fuses

Fuse	Fuse value
50Hz processors	
F1	F-16A 250V
F2	F-16A 250V
F3	F-16A 250V
60Hz processors	
F1	F-15A 250V
F2	F-15A 250V
F3	F-15A 250V

5 Refit the internal electrical panel. Secure the panel with the three screws.

6 Refit the processor front upper panel. Secure the panel with the two screws.

7 Switch the mains isolator and processor on (see section 5).

11.7 REMOVING JAMMED PRINTS FROM THE DRYER

See figures 11.5 and 11.6.

Accessing the dryer compartment should not be a routine operation. It requires more care than the three processing racks. The following procedure should be carried out only to retrieve jammed prints.

1 Switch the processor off (see section 6) and allow it to cool for approximately 10 minutes.

2 Release the two screws and remove the dryer access panel.

3 Release the two thumb screws and remove the nozzle assembly from the dryer roller rack.

4 Unplug the two electrical connectors on the left hand side of the dryer compartment (when viewing from the rear of the processor).

5 Slacken the two thumb screws and carefully remove the heater assembly. Take care not to damage the heater elements in the rack.

CAUTION
Take care not to touch the wire guides, heater elements or adjacent components. They may still be very hot.

6 Remove the jammed print or prints.

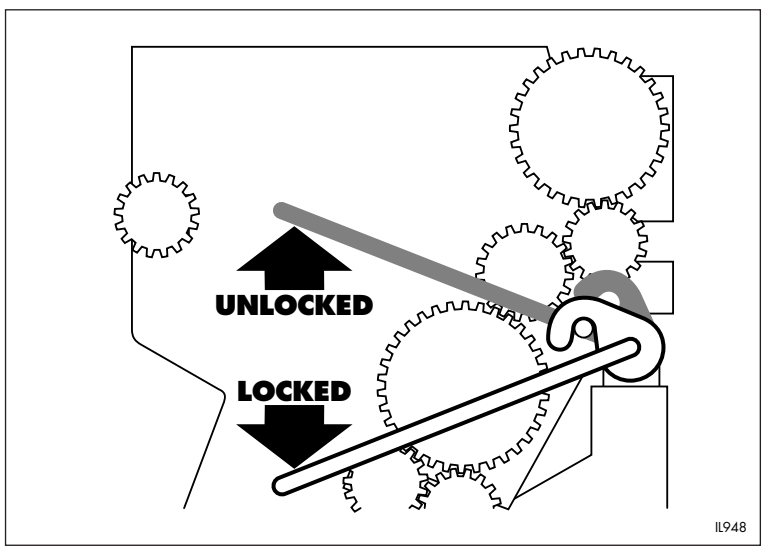


Figure 11.5 Dryer rack locking mechanism

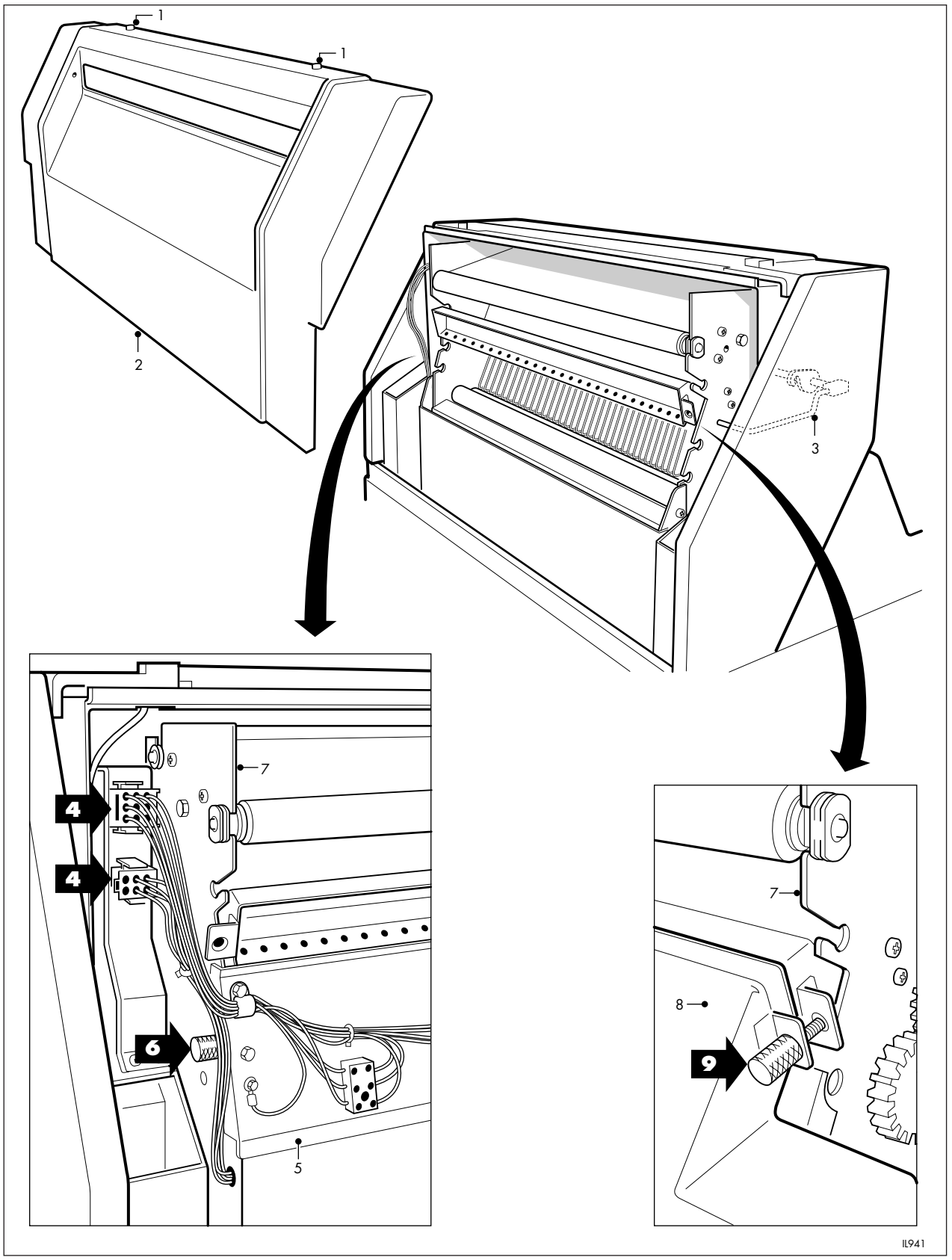


Figure 11.6 Access to dryer rack

Figure 11.6

1 Dryer access panel securing screws
2 Dryer access panel
3 Locking lever
4 Electrical connector
5 Heater assembly
6 Thumb screw, item 5
7 Dryer rack
8 Nozzle assembly
9 Thumb screw, item 8

If no jammed prints can be seen, it will be necessary to remove the dryer rack.

7 Lift the locking lever, located on the right hand side of the dryer compartment to release the dryer rack. See figure 11.5.

8 Carefully lift the rack away. Stand the rack on a clean, level surface, taking care not to displace or damage the paper guides.

9 Remove the jammed print or prints.

10 Refit the rack, ensuring the rack is located correctly.

11 Push the locking lever down. Ensure the locking catch is engaged correctly on the locking pin. See figure 11.5.

12 Refit the heater assembly to the dryer rack. Tighten the two thumb screws.

13 Re-connect the two electrical connectors. Ensure the connectors are pushed fully home and are secure.

14 Refit the nozzle assembly to the dryer rack. Secure with the two thumb screws.

15 Refit the dryer access panel. Secure the panel with the two screws.

16 Switch the processor on (see section 5).

12
SPECIFICATION

	PERFORMANCE
Processor speed	150cm/min (59 inches/min)
Dry to dry cycle time	63 seconds (see table below)
Access time	70 seconds
Feed in time	7 seconds
Feed in delay (from one print to the next)	1·5 seconds
Maximum output (sheets)	720 prints per hour
Maximum output (roll)	*800 prints per hour
Warm up time from 20°C	20 minutes
Processing temperature	40°C ± ½ °C (104°F ± 1°F) factory set
Dryer temperature	50 to 80°C (122 to 176°F)

Note
The above data is typical when processing 20·3x25·4cm (8x10inch) sheets, fed with the long edge leading

*With roll feed attachments fitted

Dry to dry cycle time

Process	Time (seconds)
Paper detector	2·4
Developer	12·2
Transfer to fixer	4·6
Fixer	12·2
Transfer to wash	6·3
Wash	11·8
Transfer to dryer	1·9
Dryer	11·6
Total	63·0

	PAPER ACCEPTED
Weight	180g/m² (medium weight)
Surfaces	ILFORD .1M Glossy ILFORD .44M Pearl ILFORD .5M Matt ILFORD .24M Semi-matt ILFORD .25M Satin
Type	General purpose, monochrome, resin coated papers such as ILFORD MULTIGRADE IV RC DeLuxe or ILFOSPEED RC DeLuxe Equivalent papers from other manufacturers can be processed in the ILFOLAB MG2950 processor, but performance cannot be guaranteed.
Feed	Emulsion side down
Maximum width	50·8cm (20 inches)
Minimum width	8·9cm (3·5 inches)
Minimum length	12·5cm (5 inches)
Paper roll handling	*Various configurations up to a maximum of 50·8cm (20 inches) wide
Maximum roll length	*152m (500 feet)
Paper configuration	Multiple sheets or *Single roll or multiple rolls *With roll feed attachments fitted
	PRINT COLLECTION
Sheets	Prints are delivered image upwards towards the operator
Rolls	*Prints are reeled image outwards away from the operator *With roll feed attachments fitted
	RECOMMENDED CHEMICALS
Developer	ILFORD 2000RT
Fixer	ILFORD 2000RT
Dilution	1+4 (tank solution) 1+5 (automatic replenishment solution)

	TANK CAPACITIES
Developer processing tank	15·75 litres (4·2 US gallons)
Fixer processing tank	15·75 litres (4·2 US gallons)
Wash water tank	12·75 litres (3·4 US gallons)
	DIMENSIONS
Maximum height	1430mm (56 inches)
Height to feed tray	1000mm (39 inches)
Width (with side covers fitted)	775mm (30·5 inches)
Width (without side covers fitted)	724mm (28·5 inches)
Maximum length (without roll feed)	1006mm (40 inches)
Maximum length (with roll feed)	1450mm (57 inches)
	WEIGHTS
Shipping	212kg (467 pounds)
Empty (net)	176kg (388 pounds)
With solutions	247kg (544 pounds)
Replenishment bottle	6·5kg (14 pounds)
Maximum (with solutions and roll feed attachments)	261kg (575 pounds)
	COLOUR CODING
	The following colour coding is used throughout the processor
Red	Developer
Green	Fixer
Clear or white	Wash water

	REPLENISHMENT
Capacity	2x5 litres (1·3 US gallons) of developer and fixer. Equivalent to 60 litres (15·8 US gallons) working strength solution
Number of bottle	4 in total. 2 each for developer and fixer
Replenishment rate developer	144ml/m^2 (4·9 US fl oz/$yard^2$) factory set
Replenishment rate fixer	240ml/m^2 (8·1 US fl oz/$yard^2$) factory set
	ANTIOX REPLENISHMENT CYCLE
No developer replenishment	If 200 or more 20·3x25·4cm (8x10 inches) sheets are processed in the previous 16 hour period. This is equivalent to 10·3m^2 (111ft^2) area of paper
Maximum 1500ml (51 US fl oz)	If 0 sheets are processed in the previous 16 hour period of developer
	WATER SUPPLY
Source	**Note** To comply with water supply regulations in some countries, water must be supplied via an isolated header tank
Flow rate	1·5 litres/min (0·4 US gallons/min). Controlled by an integral wash water solenoid valve
Recommended temperature of water supply	Between 5 and 30°C (41 and 86°F)
Pressure (minimum)	0·2 bar (3 pounds/in^2)
	DRAINAGE
Maximum capacity	20 litres/min (5·3 US gallons/min) when all tanks are drained
	GAS EMISSIONS
Ammonia	1ppm (part per million)
Sulphur dioxide	0·5ppm

	ELECTRICAL (3 MODELS)		
Voltage (V)	220/380	240/415	220
Frequency	50	50	60
Phase	Single/3	Single/3	Single
Maximum current (A) - single phase	30	28	30
Power consumption (kW)	6·6	6·7	6·6
Solution heaters	1000W each for developer and fixer		
Dryer heaters	Three 1300W on emulsion side in dryer chamber One 600W pre-heater on emulsion side		
Battery (smoke detector)	9v IEF type 6LR61A, eg MN1604, 522		
	SAFETY FEATURES		
Thermal cut-out - solutions	Operates at 60°C (140°F)		
Thermal cut-out - dryer	Operates at 130°C (266°F)		
Solution level switches	Monitors levels in the developer, fixer and wash water tanks to ensure optimum processing quality		
Mechanical protection	Interlocks operate if the top cover, dryer cover or left hand upper side panel is removed, to stop the processor		
Air flow	Switches operate if a reduction in air flow through the dryer is detected, to stop the processor		
Smoke detector	Switches off the dryer if an undetected paper jam occurs		

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Constant improvements in ILFORD products mean that changes in design or specification may occur from time to time. Any improvements will, however, maintain conformance of the product with all relevant legislation. The right to alter the design and specification of the equipment without prior notice is accordingly reserved.

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Printed in England 94071A.GB
June 1998