



VELOPEX[®]

Automatic X-Ray Film Processor

Extra - X Xtender (USA only)



USER GUIDE

Operation and Maintenance manual

WARNING:

Do not plug into the electrical mains power supply before reading this manual - or before filling the machine with liquids

Register your machine by returning the Warranty Card to enable full customer support.



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Hi-Tech
Diagnostics
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MAKERS OF DENTAL, VETERINARY AND MEDICAL EQUIPMENT



Machine serial number to be
quoted on all correspondence:

I/LIT0050P Extra-X Manual English Iss.4
Issued: 17/03/10

Introduction

Thank you for purchasing your automatic film processor from Velopex - we certainly appreciate your business.

In order to maintain the quality of our product and your processing it is important that you pay close attention to the instructions contained in this user manual. This will ensure a long life for your processor.

This manual is to be used with the following Velopex processors: Extra-X & Xtender.

The processor could be dangerous if incorrectly installed or maintained outside the guidelines set out in this manual and the warranty will be voided.

This equipment can only be serviced by technically qualified engineers, trained on Velopex machines, and is not designed to be serviced by the end user other than as specified in this manual.

Caution: *Use assistance when unpacking and putting the machine in place.*

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Velopex Processor



- ① Velopex X-Ray Film Processor - Left Side
- ② Lid Lock
- ③ Film Collector
- ④ Endo Slide
- ⑤ On/Off Power Switch
- ⑥ Viewer Cover
- ⑦ Daylight Loader viewing Window
- ⑧ Hand entry port/Glove
- ⑨ Daylight Loader Lid

- ⑩ Daylight Loader - Left Side
- ⑪ Daylight Loader Coupling Points/Studs
- ⑫ Film Entry Guide
- ⑬ Transport Module

- ⑭ Service Technician Interface
- ⑮ Display

Machine Accessories and Extras Supplied



- ⑯ USA - Chemical Container Cap - Developer
- ⑰ USA Chemical Container Cap - Fixer
- ⑱ Worldwide - Developer Pourer (Non-USA)
- ⑲ Worldwide - Fixer Pourer (Non-USA)
- ⑳ Cleaning Brush

- ㉑ Turning Tool
- ㉒ UK - Electricity Supply Cord
- ㉓ or USA - Electricity Supply Cord
- ㉔ or Continental - Electricity Supply Cord
- ㉕ Blank Endo Slide

- ㉖ Cleaning Tablets
- ㉗ Water Re-Circulation Tubes
- ㉘ Chemical Change Record Sheet
- ㉙ Quick Start Guide
- ㉚ Warranty Registration Card
- ㉛ Manual CD

Table Of Symbols

Symbol	Description
	Alternating Current
	Off
	On
	Attention / Warning - Refer to Manual

Symbols used within Manual

	Tip
	Attention / Warning

Chemical Tubes Colour Coding

Developer	USA - Red Worldwide - Black
Fixer	USA - Blue Worldwide - Red
Water	USA - White Worldwide - Grey/Blue

Contents

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ATTENTION! Use only the hoses supplied with this machine.

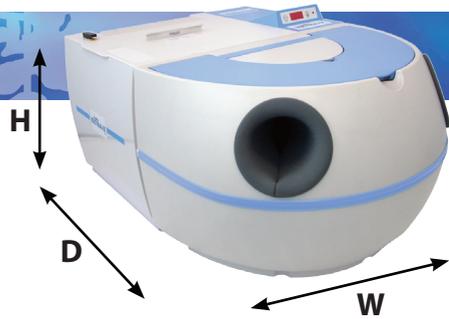
INSTALLATION

OPERATION

MAINTENANCE

TROUBLE SHOOTING

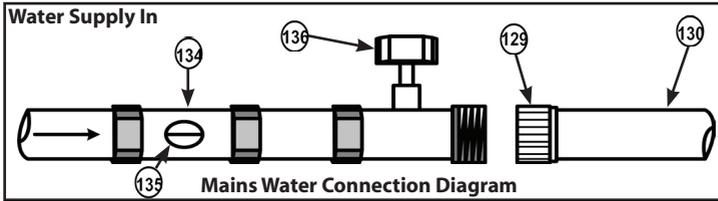
Specification



Width (W)	510mm / 20"	
Depth (D)	470mm / 18½"	
Inc. Loader	740mm / 29"	
Height (H)	340mm / 13½"	
Weight:	Empty	21Kg / 46¼lb
	Full Tanks	27Kg / 59½lb
Tank Capacity	3.8litres / 6¾Imp Pints each	
Operating Temperatures:	<i>Water- should not exceed 28°C (82.4°F)</i>	
	Developer	25.5°C (77°F) / 30°C (86°F)
	Fixer	30°C (86°F) / 33°C (91.4°F)
Electric Supply	100-120V, 200-240V, 50/60Hz	
Warm-up Time	10 min. approx.	
Film Feed Speed	470mm / 18½" per min.	
Max. Film Width	260mm / 10¼"	
Processing time*: Dry	4 min. approx.	
	Wet-Endodontic	2 min. approx.
	Fast Speed	2 min. approx.
Input Power	1150W	
Environmental Conditions:	Indoor use Only	
Environment Temperature	5°C-26°C (41°F-78.8°F)	
Maximum Relative Humidity	80%	

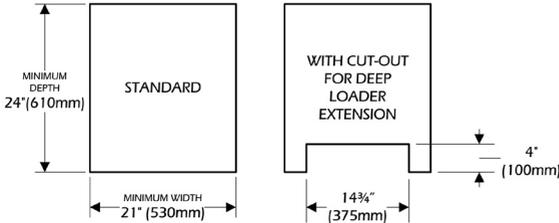
* in the unit's first few cycles, processing time can vary between four and five minutes. Then the process time will stabilise around four and a half minutes.

Pre-Installation Instructions

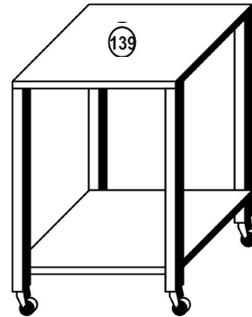


MACHINE STAND (OPTIONAL) USA

WORKTOP DIMENSIONS



**NB: FOR FIXED COUNTER INSTALLATIONS
REFER TO PAPER TEMPLATE IL 31.**



DEPTH - 15.5" (394 mm)
WIDTH - 23.5" (597 mm)
HEIGHT - 31.0" (787 mm)

- 129 Cold Water Hose Union
- 130 Flexible Hose - Cold Water Supply
- 134 Isolator valve
- 135 Valve Control
- 136 Domestic Appliance Service Valve / Faucet
- 139 Machine Stand (Optional)

MACHINE STAND (OPTIONAL) - WORLDWIDE

DEPTH - 19 1/2" (495mm)
WIDTH - 20 1/3" (517mm)
HEIGHT - 31 1/8" (810mm)



Pre-Installation Instructions (Cont.)

• Sitting of the VELOPEX

When using the machine in daylight or a darkroom, avoid sources of intense light. Do not mount the unit under a window, fluorescent light or flood lamp.



IMPORTANT NOTE: A well ventilated position is mandatory.

The ambient temperature must be below 26°C (78.8°F) and above 5°C (41°F) to prevent lengthy warm-up temperatures.

Prevent sitting the machine above or near other electrical or mechanical equipment. Surfaces susceptible to water or chemical damage should be avoided, such as carpeted areas.

1. COUNTER PLAN

(REFER TO MACHINE LOCATION AND DRILLING TEMPLATE IL-31)

- a) Use a counter that will support a minimum of 91Kg (200lbs).
- b) With a minimum height of 79cm (31in).
- c) With a minimum width of 53cm (21in).
- d) With a minimum depth of 61cm (24in).

This will give you a working area of 0.32 sq.m (3.5 sq.ft)(See page 1).

2. ELECTRICAL SUPPLY

- a) Refer to specification table, page v.
- b. The power source must be within one metre (3 feet) of the machine above the counter and well separated from the water supply. It should be easily accessible for operation and maintenance.

3. COMMERCIAL WATER SUPPLY

ATTENTION! Use only the hoses supplied with this machine.

- a) Water temperature no higher than 26° (78.8°F).
- b) A water valve adjusted to a water flow rate of 1.0ltr/min (0.27 gal/min).
- c) The supply should be fitted with an Isolating Valve just prior to the main On/Off faucet/valve which should be adjusted before installation to limit water flow to delivery rate of 1.0ltr/min (0.27gal/min).

Pre-Installation Instructions (Cont.)

d) The output side of the Mains On/Off faucet/valve must have a 3/4" male thread (see diagram on page 1). The faucet/valve should be situated in such a position that it can be easily turned off each day.

IMPORTANT NOTE: The water inlet hose supplied with this machine is not a standard Domestic Appliance Hose. It is fitted with a water flow restrictor valve designed to deliver water at a max. Rate of 1.0ltr/min (0.27gal/min). It is suitable for all installations where the mains water supply is rated between 0.2 & 10.0 Bar. However, for installations without mains water supply, e.g.: where a header tank is employed (min. height 1.83m (6ft.) above machine) a standard hose without restrictor must be used and the flow regulated to 1.0ltr/min (0.27gal/min) with the separate Control Valve.

4. DRAIN

a) A corrosion resistant PVC drainpipe 38mm (1.5 in) diameter with a length of 56-61 cm (22-24 inches).

NOTE: The Drains Pipe should not rise higher than 102mm (4.0 in.) below the bottom of the machine (see page 1).

5. VELOPEX free standing Machine Stand.

USA:

A) Shelf dimensions 49.5cm (19.5 in.) by 51.6cm (20.3 in.).

b) Shelf height "lower" 22.9cm (9in.) and "upper" 78.7cm (31in.).

WORLDWIDE:

a) Shelf dimensions 39.4cm (15.1in.) by 59.7cm (23.5in.).

b) Shelf height "lower" 22.9cm (9in.) and "upper" 81.0cm (31.9in.)

WARNING: X-ray radiation can be harmful to patient, technician and dentist. Inadequate lead shielding of the darkroom or film storage area will also cause fogging from exposure of films to stray x-ray radiation. Consult your local codes, Health Department or Dental Equipment Dealer for proper construction of darkroom or placement of film processing equipment in the vicinity of x-ray radiation sources.

NOTE: Pictures are for instruction only and are not necessarily identical to product.

Pre-Installation Instructions (Cont.)

NOTE: For unpacking and lifting the machine into position it is important to have assistance.



The machine comes in a single carton.

Check contents of the box, see page ii.

NOTE: Pictures are for instruction only and are not necessarily identical to product.

1. Lift the machine from the carton and position on counter top. Remove outer and inner packaging, including carry-straps and tape securing film-catcher. The transport modules are protected by internal packing pieces: these must be discarded.
2. Connect the Water Waste hose to the back of the machine.
3. Cut hoses to allow 200-300mm (8-12 inches) to be inserted into the waste outlet stand-pipe, ensuring no loops or kinks are left in them. Place hoses in drain. They must not rise higher than the outlet on the back of the machine.

WARNING: Any rise in the height of these pipes above the level of the outlet on the machine will cause incomplete drainage, and could cause the machine to flood.

Daylight Loader Installation



- 1.** Remove the Black Covers from the studs on the front panel.

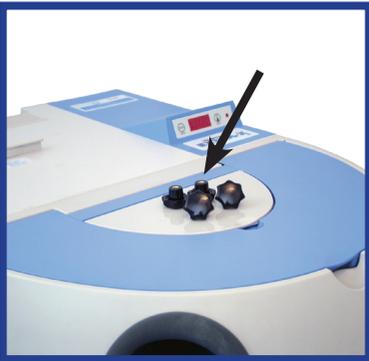


- 2.** Slide Loader over projecting studs.

Daylight Loader Installation (Cont.)



3. Lift Lid.



4a. Secure Loader with black knobs screwed onto Studs now positioned inside the Loader (as illustrated in 4b).



TIP: Black knobs are located inside the Loader.



4b.

Filling with Chemicals



5.

Unlock the Lid by means of the Lid Lock.



6.

Bring the Lid to the upright position. Indication of the opened lid is displayed as: "Lid"



TIP: The lid can be kept in the upright position while the machine is open.



WARNING: Remove internal and external transit packing from machine.



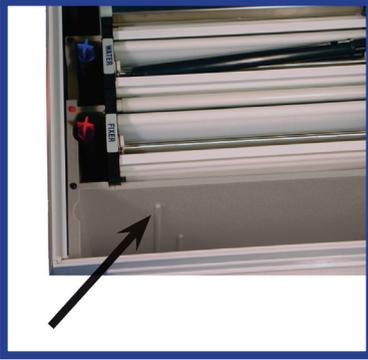
7.

Remove modules, starting with the Developer. Lift Module Slightly, slide it to the left and lift it straight out.



WARNING: BEFORE filling with chemicals run the machine with clean water in the Developer, Fixer and Water tanks with Transport Modules in position - for a complete running cycle.

Filling with Chemicals (Cont.)



8.

When Filling with “ready to use” chemicals, the solution level required is marked by the longer rib inside the tank.



TIP: Use VELOPEX chemicals designed for your unit. If unobtainable use ONLY a proprietary chemical available. When using “One Plus One” chemical, fill to lower rib in tank then top-up to the higher rib level with water. Always read and follow instructions on bottle.



WARNING: DO NOT use chemistry or film designed for manual processing.

9.

Fill Fixer and Developer tanks in that order with their respective chemical solutions.

WARNING: Ensure machine is disconnected from mains power supply whilst filling.



10.

Lower Transport Modules carefully into their respective tanks. Top up if required - should be one inch (2.5cm) below the top of the tank, level with Drain Tube overflow.



WARNING: Should there be any spillage of the Fixer into Developer tanks this MUST be wiped clean before filling with Developer.

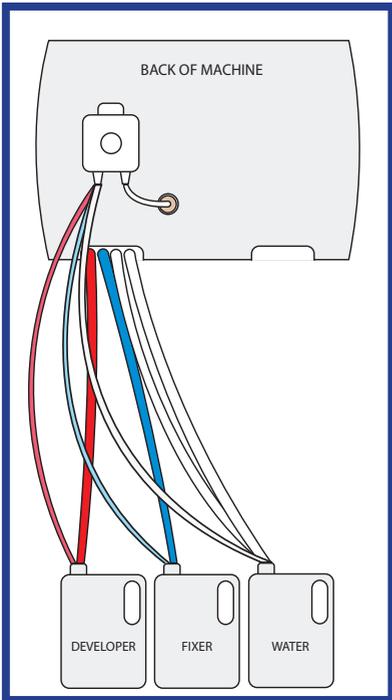
Filling with Chemicals (Cont.)



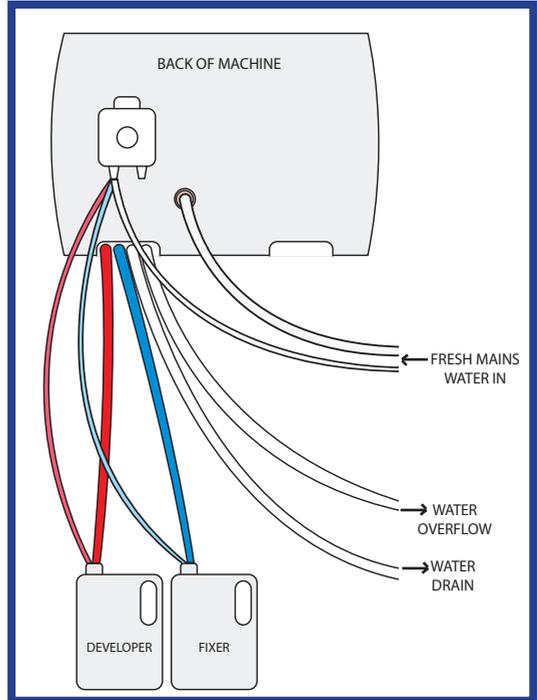
11. Replace the lid – lock into position.

INSTALLATION

GENERAL PLUMBING LAYOUT OPTIONS

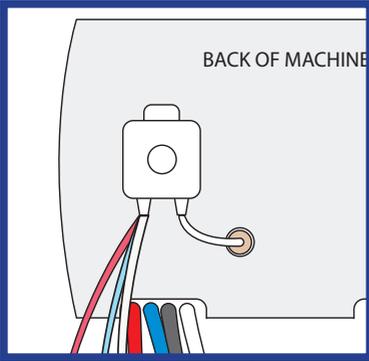


(USA Re-Circulation Plumbing Layout with Re-Circulated Water Supply)

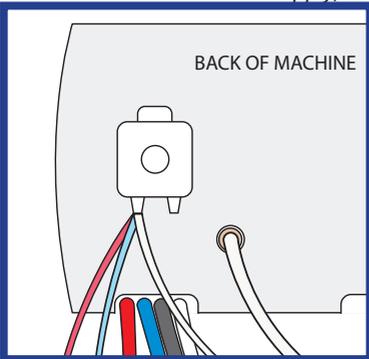


(USA Re-Circulation Plumbing Layout with Mains Water Supply)

Replenisher/Re-circulation Pump



(USA Re-Circulation Plumbing Layout with Re-Circulated Water Supply)



(USA Re-Circulation Plumbing Layout with Mains Water Supply)



(Cutaway image for instruction only)

12.

Insert tubes/hoses through holes in counter and into the appropriate chemical container, water supplies and drain pipes.



TIP: When attaching NEW chemical containers follow colour coding for appropriate chemicals, otherwise contamination will occur.



WARNING: Ensure that the tubes are in correct chemical:

Developer

USA - Red

Worldwide - Black

Fixer

USA - Blue

Worldwide - Red

Water

USA - White/Clear

Worldwide - Blue/Grey

13.

The Replenisher Tube/Straw must be pushed to the bottom of the container.

Replenisher/Re-circulation Pump (Cont.)



14. Each time the machine is initiated, a charge of chemical will be injected into the machine tank. The overflow will return to the same containers.



TIP: The machine can be linked up in a replenishment mode by diverting the waste chemicals into separate containers for both Developer and Fixer. This mode of replenishment is more costly to run than re-circulation.



15. For Water Re-Circulation remove tubes from packaging. Dip tube ends into a cup of boiling water for at least 30 seconds and swiftly sleeve onto the fittings. Screw the elbow connector onto the water inlet.



VERY IMPORTANT: Before draining chemicals replace with empty containers of at least 5 litres (1 gallon) capacity. Machine tanks may then be drained by unscrewing the drain tubes in each tank. When machine chemical tanks are completely empty, remove full waste containers, and replace with those appropriate for the system in use. Refill machine (follow sections 6-15).



Operating the Processor



1. Turn on Water Supply (if not already on) or make sure water inlet hose is properly located in the appropriate water tank.



WARNING: Make sure all hoses are connected properly and drain pipes are in place.

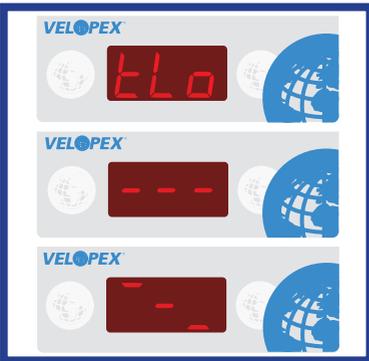
Always turn water supply off at night.



2. Plug in electric cord and switch on mains power supply. The machine will then run through a high speed cycle.



WARNING: Always turn mains switch off at night.



3. Incorrect temperature is indicated when the message on the LED display reads "tLO". Ready to use is indicated by three horizontal central lines and cooling down is indicated in the lines descending from left to right.



TIP: The time taken to achieve the correct temperature depends on the room temperature (usually 10-20 min.).

Operating the Processor (Cont.)



- 4.** The Velopex is equipped with automatic stand-by mode. Touch the Film Entry Slot to initiate processing.



WARNING: Before placing in the machine, intra oral film packets should be wiped clean of all mouth contaminants.



- 5.** Open Daylight Loader and place film inside, Close and lock Lid.



WARNING: Always remove old film wrappers from inside the loader.



- 6.** Put hands through Loading Gloves and strip wrapping from film, insert film into Entry Slot. Touch the Film Entry Slot to initiate processing. A beep will indicate film detected.



TIP: Intra oral film can be processed via the film guides across the width of the film entry slot for ease of patient identification.

(Image for instruction ONLY, Lid is closed when operating machine)

Operating the Processor (Cont.)



- 7. Extra Oral films - Ensure Loader Lid is closed before loading cassette or processing film.**



WARNING: Extra Oral films are extremely light sensitive. When loading Extra-Oral film always have the viewer cover in place to avoid film fogging.



- 8. When the message on the LED display reads "E21" or "E22", top up Chemicals (See Display error code list on page 21 and Installation sections 6-12). If a re-circulation pump is installed, chemical tanks will be full unless the reservoir containers are empty.**



TIP: Before processing run through "clean-up film" or any spare extra oral film. This helps to clean the transport system.



WARNING: The same film may be used for this purpose for one week, after which discard the old film and use a fresh one.



- 9. Feed films squarely into the film entry slot. Touch the Film Entry Slot to initiate processing.**



TIP: Use this opportunity to reload your cassette to minimise handling time.



WARNING: Do not remove hands from Daylight Loader until the film has completely entered the machine. Remember to replace lid on the film storage box before removing hands.

(Image for instruction only)

Operating the Processor (Cont.)



10. All films are collected in the Film Catcher at the rear of the machine.



TIP: You will find the small films collected in pockets, which are aligned with the entry slots on the front film entry guide. The larger films are collected by the film catcher.



WARNING: At the end of the day turn off water and main electric switch.



11. For quick viewing of intra oral X-Rays use the Endo Slide. To use: press the Endo Slide FULLY down, by pressing the latch and lowering the slide.



TIP: This procedure is only "Dry-to-Wet", which means the film should be washed with water and hung up to dry when needed for archiving.



WARNING: The Endo Slide must be returned to the up position before further processing. If not, a jam will occur with extra-oral films.



INTRA ORAL FILM ONLY

Operating the Processor (Cont.)



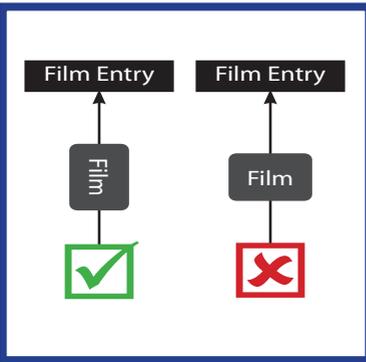
12. When using Endo facility, feed in Endo film through the Fourth slot from the right on the film loading guide.



TIP: When using a daylight loader it is easy to count the ribs on the entry slot and feel your way to the Fourth slot.



WARNING: Make sure the film is fed squarely, and the short edge is the leading edge.



13. Remove film from ENDO slot.



WARNING: Make sure the film does not fall back into the Velopex - remove it as soon as it emerges.



14. For Reference, the machine will display a countdown in seconds from the start to the end of the process. The first cycle after switching the machine on will be a fast Test Cycle. Every cycle thereafter will run for 350 seconds.



TIP: If the lid is opened during a cycle, closing it will initiate a "350 cycle". This cycle tests the unit and clears any residue. It will not develop films.

Velopex Processor Cleaning



1. It is suggested that the **VISCHECK Quality Manager** be used to ensure consistent quality X-Rays.



TIP: Regular use of this product will ensure that the quality of the film processing and reduce the risk of retakes. Visccheck will also tell you when to change the chemicals. Visccheck is available from your Velopex stockist.



2. **Unlock the Lid** (see section 6, page 4).



WARNING: Carry out the cleaning routine each chemical change or approx. once every four weeks, according to use.



3. **Drain Tanks by unscrewing drain tubes** (refer to image in next section). **Remove Modules.**



TIP: Tip the Module and lean it on the edge of the tank letting it drain before completely removing.



WARNING: The Modules are wet with chemicals; handle with care. May cause staining or corrosion of surfaces, skin and eye irritation. Wipe away and spillage immediately or flush with copious amounts of water.

(Use Turning Tool to Release Over-Tightened Drain Tubes)

Velopex Processor Cleaning (Cont.)



(Worldwide drain tube)

4.

Replace Drain Tubes. Hand screw the drain tubes in, do not over tighten them. Make sure the "O"-Ring is at the bottom of the pipe.



WARNING: Check that drain tubes are secure before refilling with Chemicals - **FINGER TIGHT - Do Not Over Tighten.**



(Images for instruction ONLY)

5.

Clean the Modules using the Velopex Cleaning Tablets: Drain Chemical and Water tanks. Re-fill with fresh cold water.



WARNING: Do not allow cleaning solution to drain into containers containing processing chemicals - **FOLLOW INSTRUCTIONS SUPPLIED WITH CLEANING TABLETS.**



(Images for instruction ONLY)

6.

Replace the modules in their tanks and run for one cycle. Drain tanks again, remove Modules and re-fill with fresh cold water.



WARNING: Always return a Module to the tank it was removed from e.g. Developer-to-Developer.

Velopex Processor Cleaning (Cont.)



- 7.** Add Velopex Cleaning Tablets three per tank. Replace Modules and run for two cycles at operating temperature.



WARNING: DO NOT FILL THE DRYER TANK WITH WATER!



- 8.** Dryer Module Cleaning - Place Dryer Module in container or sink filled with fresh cold water. Add three Velopex Cleaning Tablets and soak for at least 10 minutes. Rinse thoroughly with water to remove all cleaning solution.



WARNING: Make sure you drip-dry the module before replacing in the dryer compartment.

(Images for instruction ONLY)



- 9.** Module cleaning - Immerse the Modules in a tank/sink filled with hot water and scrub with the supplied brush around the gears and rolled ends.

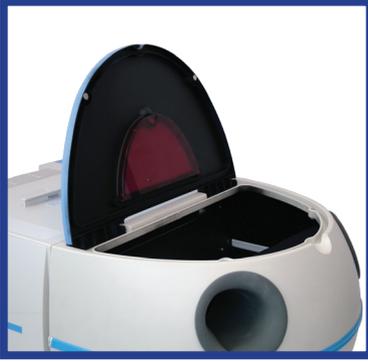


TIP: Use the turning tool; turn the gears and belts by hand to assist in thorough cleaning.



WARNING: DO NOT use boiling water; it will damage the modules. Use ONLY cold water when cleaning the machine tanks.

Velopex Processor Cleaning (Cont.)



10. Remove old film wrappers from daylight loader. Wipe clean the interior of loader.



TIP: The interior of the daylight loader should be cleaned with cold sterilising solution, wipe dry after appropriate period.



11. Fill up with Chemicals (See section 9, page 8). For best results, use VELOPEX chemicals.



TIP: Use the chart provided and keep a note of the date when chemicals were changed. Process a Vischeck strip to produce the master reference strip and place in position on the Quality chart (follow Vischeck instruction for use).

(Images for instruction ONLY)

Display Error Codes

Display Characters	Description	Actions
E01	Cassette temperature sensor s/c	Call for Service
E02	Cassette temperature sensor o/c	Call for Service
E03	Dryer temperature sensor s/c	Call for Service
E04	Dryer temperature sensor o/c or Connection to Main PCB	Call for Service
E05	Fixer temperature sensor s/c	Call for Service
E06	Fixer temperature sensor o/c	Call for Service
E07	Developer temperature sensor s/c	Call for Service
E08	Developer temperature sensor o/c	Call for Service
E10	Fan motor running slow	Call for Service
E11	Transport turns count not zero	Call for Service
E12	Transport motor overloaded	<ol style="list-style-type: none"> 1. Switch off the Machine. 2. Clean the Gears on the Modules. 3. Switch on the Machine. 4. If still E12 - Call for Service
E13	Transport motor not running when required	<ol style="list-style-type: none"> 1. Switch off the Machine 2. Clean the gears on the Modules. 3. Switch on the Machine. 4. If still E13 - Call for Service
E14	Excessive Fixer & Developer temperature	Call for Service
E15	Dryer temperature too high	Call for Service
E18	Dryer power duty cycle too low	Call for Service
E21	Developer level low	Re-fill with chemical
E22	Fixer level low	Re-fill with chemical
E33	Watchdog relay test failure (Low)	Call for Service
E34	Watchdog relay test failure (High)	Call for Service
tLO	Either Developer or Fixer tank temperature is low	Wait for the correct temperature
LId	Lid switch open	Close lid

Troubleshooting

TROUBLE SHOOTING

No.	SYMPTOM	POSSIBLE CAUSE	ACTIONS
1	Machine does not operate	Power Supply	Check Mains Power is plugged in and supply switched on. NOTE - Velopex machine will run one cycle when switched on and lid in correct position.
		Machine is in 'standby' mode	Check by swiping finger across Entry guide that machine is not in 'standby' mode.
		Blown Fuse	Call for Service.
2	Temperature Indicator Light stays on	Lid Open - Displayed	If the lid is not correctly closed the safety mechanism will prevent the machine from operating. Check by opening and closing again. Otherwise call for service.
			(At normal room temperature average warm-up time is 10-15 minutes; in an unheated environment this time could lengthen): If display stays on for an abnormally long time, call for service.
3	Solution overheating		DO NOT USE MACHINE - Call for Service.
4	Films Do Not Enter though Film Entry Guide.	Machine is in 'standby' mode	Press Entry guide - machine may be in 'standby' mode.
		Transport Modules not in Place	Open machine lid and check correct engagement of transport modules.
5	Film Lost in the Machine	Transport Modules not in Place	Check that the transport modules are correctly located in their drive dogs and running correctly. If not, re-locate.
		Wrong Positioning of Transport Module Spring	Check the springs on the modules for correct positioning. Use the module turning tool to rotate the belts for inspection, and run a test film through the module using this tool.
		Dirty Transport Modules	Check that all transport modules have been put through the correct cleaning procedure.
		Damaged/Torn Belt	Replace a Module
		Static Electricity in the Dryer Section of the Machine	Add a little domestic fabric softener to the washing water when washing dryer module to avoid 'static'. IMPORTANT: Fabric softener should be used on the Dryer Module ONLY - do NOT use it on the Developer, Fixer or Water Modules.

Troubleshooting (Cont.)

No.	SYMPTOM	POSSIBLE CAUSE	ACTIONS
	Films too Dark: Test for light fog by feeding an unexposed extra-oral film through the machine. It should process as a transparent piece of film base and there should be no shadows or blackness on it. REGULAR USE OF VISCHECK IS THE BEST TOOL FOR EARLY DIAGNOSIS OF PROCESSING AND X-RAY PROBLEMS.		
		Lid Open	Check that the top lid is firmly in place (no Lid display on).
		Dark room not Light-Tight	Check that the dark room is light-tight, and that the safe light is sound (e.g. process a test with safe light off).
		Daylight Loader not Secured	Check that the daylight loader is firmly secured, including removal of cover tapes from self-adhesive mounting.
			When the Daylight loader is used, ensure that the machine has not been sited in direct sunlight or in intense lighting conditions (e.g. directly under spot-lights or strip lights).
	There is Light Fog	Light Leaks	Do not remove your hands out of the hand entry sleeves before the film has fed completely into the machine. Fog at one end only of the film indicates premature removal of hands from daylight loader).
			Check that window cover on loader has been correctly replaced and check at hand entry ports to ensure there is a good light seal around the wrists - if not, call for service.
		Close to X-ray Source	Check whether films have been stored too close to X-ray source, and re-locate/replace.
		Film Box Lid open	Check that lid has not been left off film box: i.e. process one film from a new box of film.
		Film Expired	Check Expiry date on film box to ensure films are not out of date. (Keep films in cool, dry place; excessive heat can cause premature ageing of film).
		Chemical Contamination	Check that there has been no chemical mix-up, leading to cross-contamination.
	Dark Film	Mixing of Developer	Check that the Developer has been correctly mixed (if relevant).
		Temperature	Check temperature of developer and Fixer tanks. These are generally set at: Developer 77°F (25°C), Fixer 82°F (27.5°C). If the Developer temperature is significantly higher, it could lead to dark film. Switch off the machine and call for service.

Troubleshooting (Cont.)

No.	SYMPTOM	POSSIBLE CAUSE	ACTIONS
7		Chemicals Exhausted	Replace with fresh (this will depend on volume of film being processed and length of time since last chemical change).
		Chemicals Contaminated	Clean machine, replace chemicals with fresh solutions.
		Developer Incorrectly Mixed	Replace with fresh.
		Chemical Level too Low	Top up.
	Films too Light:	Temperature too Low	If temperature display message does not go out, check with a thermometer - generally set at: Developer 77°F (25°C), Fixer 82°F (27.5°C) - if significantly below these temperatures, call for service.
	Film Exposure	Check films have been exposed correctly.	
	Film Compatibility	Check that the films are compatible with the type of intensifying screen used with the x-ray machine.	
	Water Tank Dirty	Clean module thoroughly (insufficient cleaning can lead to a build-up of algae).	
	Transport Modules Dirty	Check transport modules are being cleaned correctly (see cleaning instructions above).	
	Chemical Level too Low	Top up.	
8	Films Dirty or Marked	Wrong Positioning of Modules	If found in wrong order, contamination will have occurred. Thoroughly clean modules and tanks; re-fill with fresh chemicals.
		Light Leaks	Check for stray light entering machine - proceed as for fogging (see symptom # 6).
		Wrong Solutions	Make sure solutions are in correct tanks.
9	Sudden Change in Image Density	Developer Contamination	Replace Developer if contaminated with Fixer.
		Temperature	Check Developer temperature (and Replenishment rate).
		X-ray Unit.	Check X-ray unit.

Troubleshooting (Cont.)

No.	SYMPTOM	POSSIBLE CAUSE	ACTIONS
10	Film not Drying	Replenishment Rate	Check top-up/replenishment rates.
		Water Flow	Check wash water flow rate.
		Dryer	Make sure Dryer is working and blowing hot air.
		Humidity	Look for poor air circulation or HIGH humidity in processing area.
		Electrical Component	Switch off machine. Switch on again after 10 seconds. If still not drying, call for Service.
11	Black Parallel Lines	<u>Deposits on Film:</u>	
		Water Flow	Check for very low wash water flow rate.
		Fixer	Check for contaminated or wrongly mixed Fixer.
		Fixer Deposits	Check for Dryer Module contaminated by fixer deposits.
		Dirt	Clean entry slot or feed guides
			Clean bridge-over rollers.
			Clean Modules.
12	Dark Areas on Film	Belts Jammed	Check belts are turning properly.
		Kinking the Film	Check Intensifying screens in cassette for dirt.
		Static Damage	Takes the form of dots, fern-like lines or lightening strikes; check for LOW ambient humidity in processing area. Clean area with anti static solution.
13	Light Spots in Exposed Areas	<u>Light Areas on Film:</u>	
		Temperature	Check Fixer temperature.
		Fixer	Check for exhausted Fixer.
		Water Flow	Check water flow in wash tank.
		Dirt in Cassette	Check for dirt on intensifying screens in film cassette.
	Cassette Screen	Poor screen contact.	

Troubleshooting (Cont.)

No.	SYMPTOM	POSSIBLE CAUSE	ACTIONS
14	Mottle	Dirty Transport Modules	Clean Modules.
		Film Expired	Check age and storage conditions of film.
		Light Fogging	See above, Symptom # 6.
15	Films coming Out Wet	Air Coming Out of the Vent is NOT Warm.	After the processor has been running for two minutes, check that the air coming out of the vent over the Dryer module is warm. If not, switch the processor off at the Mains Power Switch for two minutes and switch it on again. If that does not correct the fault, call for service.
16	Contamination	Chemicals	When changing Chemicals, make sure the tanks are drained down fully and rinsed out. Fresh chemical will be spoiled by contamination, leading to poor results.
			Should a tank fail to drain down fully when the drain tubes are removed, it will probably be because the waste outlet pipe is not lying flat but rising before entering the waste pipe. The tank will then take its level from this point. Correct this by ensuring that all waste exit pipes do not rise above counter top level. Check for kinks in pipes.
17	Abnormal Odour, Overheated or Unusual Noises		Immediately switch processor off and unplug from Mains Power Supply. Contact your supplier.

Service Log

Date	Service Description	Serviced By
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**ETL LISTED/ENREGISTRÉ ETL
CONFORMS TO/CONFORME À
UL 61010-1**



**THIS PRODUCT HAS BEEN TESTED TO
THE REQUIREMENTS OF
CAN/CSA-C22.2 No. 61010-1
SECOND EDITION INCLUDING
AMENDMENT 1 OR A LATER VERSION
OF THE SAME STANDARD INCORPORATION
THE SAME LEVEL OF TESTING
REQUIREMENTS. C No. 113778
ETL Testing Laboratories**



**Hi-Tech
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