SERVICE MANUAL

for **Colenta**®

MEDIPHOT 900E

X-Ray-Filmprocessor

Warnung: Diese Anleitung ist nur für qualifizierte Service Techniker bestimmt.
Warning: For the use of qualified service personnel only.
Avertissement: Réservé au personnel de service qualifié.

Colenta®

EN ISO
9001

DNV

Certified
Company

MMP89 V2.4 and up

02/2006 FR

Colenta® MEDIPHOT 900E
X-Ray-Filmprocessor

Technical Specifications

Processing applications:	Cut sheets of all commonly used X-Ray films incl. Mammography

Film thickness:	min. 0,10 mm
Material width:	min. 10 cm (4") - max. 36 cm (14")
Material length:	min. 10 cm (4")

Time in Developer:	min. **15** sec	max. **84** sec
Intake Speed:	76cm/min (31inch/min)	14cm/min (14inch/min)
Cycle Time:	82 sec	459 sec
	(see the table on one of the next page)	

MP 900 E

Tank capacity -	Developer	2,6 L
	Fixer:	2,5 L
	Wash water:	3 L

Solution heating (Fix and DEV):	variable in a range of 18°C - 43°C (350W Inline Heater)
Dryer:	warm air

Replenishment:	fully automatic. replenishment is microprocessor controlled and calculated from information received from sensors measuring the width and length of material entering the processor. Replenishment cycles are variable.

power supply:	1 / N / PE~ 230V (+6% / -10%), 50Hz, 13A, 1.7KW (alternatives are avaliable on request)

water supply:	2-way magnetic valve, with 3/4" hose connection by using a DVGW-approved system-separating device or pipe-separating device.

Wash water flow rate:	1,5 ltr/min when film is in process
Wash water supply pressure:	3 - 10 bar
Wash water supply:	filtered at a temperature of 10°C - 15°C

MP 900E

Weight:	Empty	58	kg
	With solution	66	kg

Technical specification subject to change without notice.

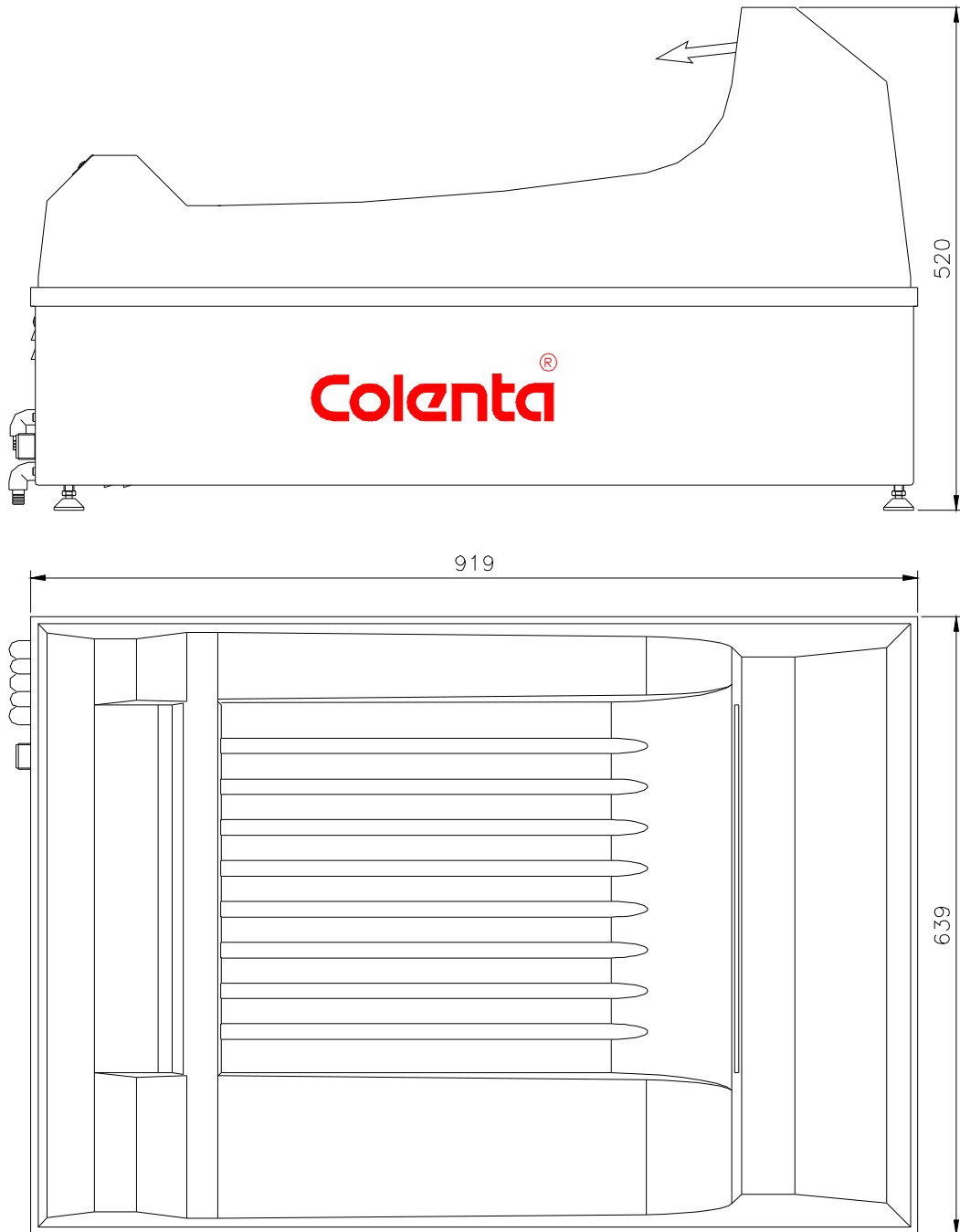## **INPUT SPEED / DEV-TIME / CYCLE-TIME:**

Colenta®
MEDIPHOT
900E

Cycle time [s]

Dev. time [s]
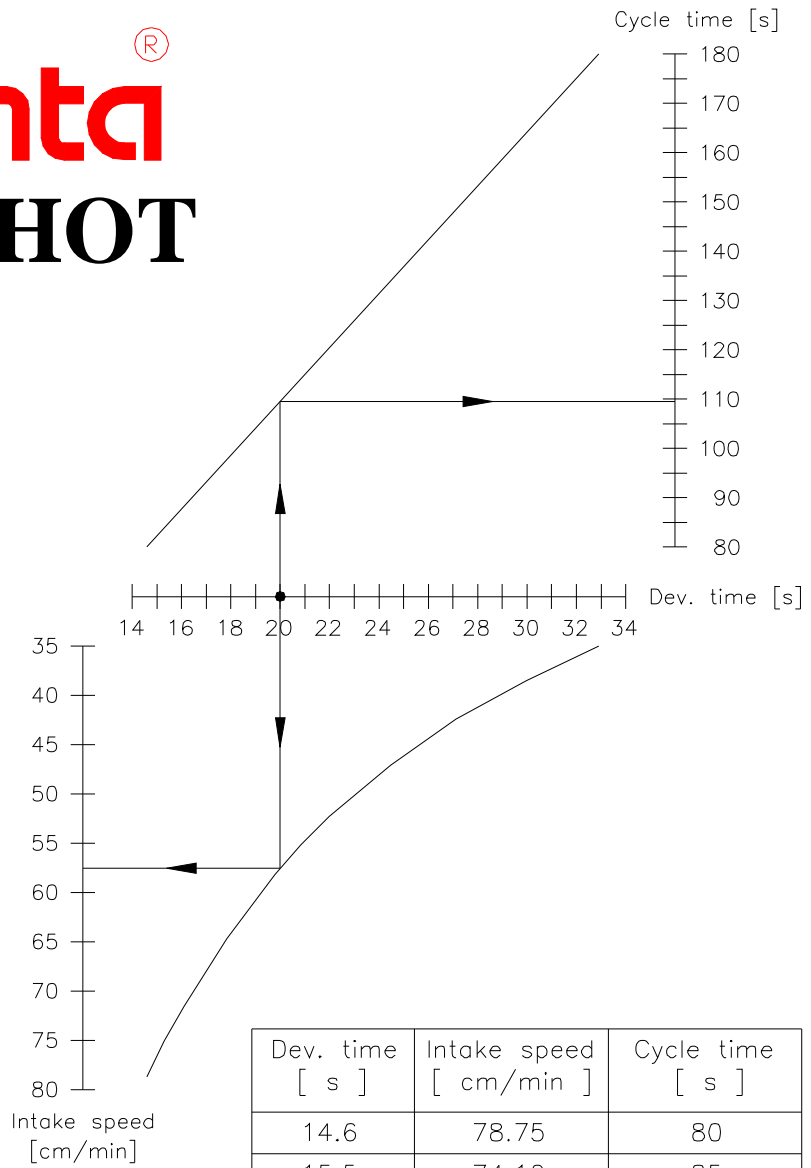
Intake speed
[cm/min]

Dev. time [s]	Intake speed [cm/min]	Cycle time [s]
14.6	78.75	80
15.5	74.12	85
16.5	70.00	90
17.4	66.32	95
18.3	63.00	100
19.2	60.00	105
20.1	57.27	110
21.0	54.78	115
21.9	52.50	120
23.8	48.46	130
25.6	45.00	140
27.4	42.00	150
29.3	39.38	160
31.1	37.06	170
32.9	35.00	180

Dimensions of MEDIPHOT 900E:

520

919

639

FACTORY SETTINGS: MP900E

PROCESSOR:	COLENTA MP 900 E		
with PDB	MINI 04 2004 P89C668		
Displayanzeige bei Initialisierung:		P89c668 MM_V2.4	

Program	P1	P2	RANGE
Tank1 time [sec]	023	018	015 - 084
T1 [°C]	33,0	33,0	18,0 - 43,0
R1 [ml/sqm]	0400	0400	0040 - 2000

	P3	P4	P5	RANGE
Tank1 time [sec]	030	030	030	015 - 084
T1 [°C]	33,0	33,0	33,0	18,0 - 43,0
R1 [ml/sqm]	0400	0400	0400	0040 - 2000

Setup [Werte für HA - Z12 MINI - MEDICAL]		(Setup Bridge neccessary)
Tank1 [pls]	0042	0010 - 1000
Machine [pls]	0248	0030 - 9999
Gear [pls/m]	219	050 - 999
Pump [ml/s]	02,6	00,5 - 99,9
Sensor distance [mm]	060	000 - 300
Replenish after each [sq.m.]	0,125	0,100 - 0,999
Ready [pls.] after film left	0030	0000 - 1000
Add [pulses] before start	14	00 - 99
Additional run [cm]	001	000 - 200

Standby		
SB replenishment [ml]	100	000 - 999
each [h]	6	0 - 9
SB self-cleaning [cm]	20	05 - 40
each [min]	10	01 - 20
Switch ON Dryer for [min]	05	00 - 20
DR On each [min]	10	00 - 50
for [min.]	01	01 - 10

Service

Inputs

Cov=	0 = Cover closed 1 = Cover open	Cover switch
Lev=	0 = closed 1 = open	Option level switch
SP=	1 = Setup disabled 0 = Setup enabled (wire in)	Setup Bridge
Th= Id=		Motor pulse output for speed regulation
Vd=		output for speed regulation

Outputs

H1=	1 = off 0 = on	Heater tanks
Cir=	1 = off 0 = on	Circulation pump
Rep=	1 = off 0 = on	Replenishment pump
Col=	1 = off 0 = on	Cooling magnetic valve
Wsh=	1 = off 0 = on	Wash magnetic valve
Hd=	1 = off 0 = on	Dryer heater and fan

LED

Testing LED.Look at little disp.		Display led check

Mem

Load default val Medical NDT Exit	Medical	Factory settings

Motor

Speed:	0 + -	for Motor test Range 0 - 60
Ph_Del:	x x	for motor service
T=	x x x	measured Motor speed

SB

Sensor: S-bar:	0 + - _ _ _ _ _ _	for sensorbar test

INDEX

1. INTRODUCTION

Congratulations upon your decision to buy a

COLENTA X-RAY FILMPROCESSOR.

Your purchase has been designed to meet the highest technical standards.

Some outstanding design features are:

*)   compact, space-saving design

*)   full automatic processing cycle

*)   smooth roller transport system

*)   low tank volumes

*)   electronically controlled temperature system

*)   automatic replenishment

*)   low energy consumption

This manual is an instruction for routine use of your:

COLENTA X-RAY FILMPROCESSOR.

MEDIPHOT 900E

2. GENERAL SAFETY INSTRUCTIONS

*)   Staff in charge of maintenance of the processor need to be thoroughly familiar with the equipment.

*)   Only the Top Cover of the Filmprocessor may be removed by the operator (see picture below)
.
*)   The film processor must be separated from mains prior to carrying out any maintenance. To do so, switch the mains switch of the machine to „0" position. Always wear safety goggles and protective clothing when handling chemicals.

Top cover

Main switch of the film processor
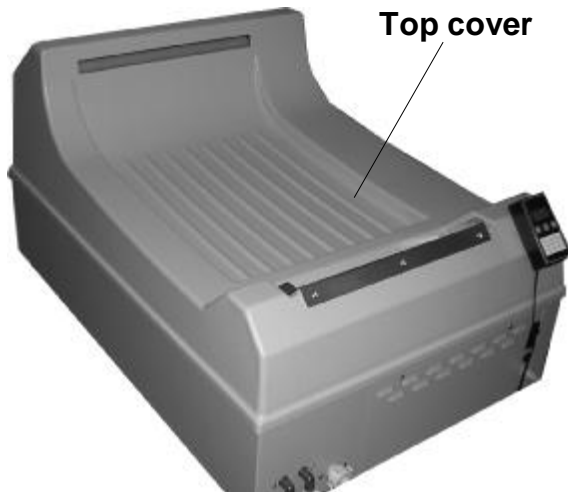
*)   The filmprocesor may not be in operation without supervision.

*)   Make sure that clothing or other objects cannot get entrapped in gear drives or similar of the film processor.

*)   The installation, service, repair as well as the initial operation of the machine may be carried out by qualified and trained service personnel only.

*)   Built-in safety devices may not be eluded or made inoperative. Use only original COLENTA spare parts when exchanging failed electrical components.

*)   Do not wear any loose necklaces or bracelets!

2.1   CHEMICAL HANDLING
*)   Observe all safety technical regulations of the chemical manufacturer.

*)   Wear safety goggles and protective clothing when handling chemicals.

*)   Ensure proper ventilation of the room in which the chemicals are prepared.

*)   Spillage or overflow of chemicals has to be removed instantly.

*)   In case of contact with the eyes flush with plenty of cold water for approximately fifteen minutes and consult an physician.

*)   Chemical disposal has to be in accordance with the local environmental codes. Contact your local water treatment and sewer district authorities for more information.

2.2   IMPORTANT WARNING AND SAFETY INSTRUCTIONS
(Please read these instructions carefully.)

Processor Operation
Make sure that no long hair, loose clothing or jewellry can get entrapped in the gear drives or in the media transport area.

> The „**Service Manual for Colenta Film Processor"** is for the use of qualified service personnel only.

> **The racks must be cleaned with running water outside the Film Processor.**

> Do not clean the processor with running water.

Electrical and Mechanical Hazards
Observe all safety warnings to minimize the risk of electrical shock,burns or equipment damage. Photographic Film Processors are complex machines with many electrical and mechanical parts as well
as with a considerable amount of chemicals.

Fire Prevention
The area around the processor must be kept clean at all times. Keep dust ,wood shavings, scrap paper or other inflamable materials out of the dryer compartment.

Fire extinguishers must be available in the room where the processor is installed.

Chemical Handling and Accident Prevention
Misuse of almost any chemical may create a hazard of some type.Generally photo chemicals are not any more dangerous as most of the regular cleaning agents. However, there is always a residual risk. When handling chemicals observe the procedures below.

1).Never sniff a container or open bottle to determine its contents. A cautious sniff of the cap or lid is safer.

2).When handling chemicals wear protective clothing, safety goggles and rubber gloves .

3).Label storage containers properly.Avoid storing hazardous chemicals on high shelves or in unprotected glass containers. Keep chemicals away from children.Do not store chemicals in a refrigerator used for food because they may contaminate food or be mistaken for edibles.

4).Ensure proper ventilation in the area where chemicals are used or stored.

5).Observe the manufacturer's recommen- dations for using and mixing chemicals.

> Overexposure to photographic chemistry may cause skin irritation to certain individuals.

PHOTOGRAPHIC CHEMICAL EMERGENCIES AND FIRST AID PROCEDURES:

• **SKIN** - Rinse thoroughly with water.

• **EYES** -Rinse thoroughly with water and consult a physician.

• **INGESTION** -Consult a physician imme- diately.

Chemical Disposal

Waste from photographic processing normally contains diluted chemicals. These chemicals should be collected and disposed in accordance with local environmental codes. Dumping chemicals into a drain system could lead to a pollution problem. Contact your local water treatment and sewer district authorities before disposing chemicals.

All plumbing must comply with local and national codes. The DRAIN must be made of chemical resistant and non-corrosive material. Use PVC or equivalent

Exhaust, Temperature and Humidity

It is necessary to ensure proper ventilation in order to receive good processing results. Make sure that the exhaust hose of the built-in exhaust fan is properly connected to the exhaust air socket (Picture 1). The built-in exhaust fan exhausts the fumes from the filmprocessor. These chemical fumes are corrosive. The top cover of the filmprocessor should be removed over night.

Room temperatures between 18-26 °C (65-80 °F) with a relative humidity between 35% and 75% are ideal for photographic processing and working.

The filmprocessor is a complex machine with moving parts such as the gear train and media transfer components. It uses photo processing chemicals which are irritating to eyes, lungs and skin. High voltage is used to power the filmprocessor.

The dryer compartment produces heat.

· High voltage may cause electric shocks, burns or even death.

· Hands or fingers may be pinched or injured by moving parts or when handling heavy parts.

· Dryer compartment heat may ignite combustible materials and cause fires.

· Eyes, skin and lungs may be irritated by photo chemicals. Before using photo processing chemicals always read the Material Safety Data Sheets (MSDSs) for information about the hazards of the particular chemicals and how to use them safely.

· Do not operate the film processor after consuming alcohol or taking strong medication.

· Do not wear jewellery or loose clothing when operating the processor.

Electronical and Electrical Hazards

HAZARDOUS VOLTAGE CAN CAUSE ELECTRIC SHOCK, BURNS OR EVEN DEATH·

Qualified service personnel must verify during installation that the processor is permanently and reliable grounded according to standards in the National Electrical Code.

Carry out the following steps prior removal of the top cover:

1.Train operators of the filmprocessor.

2.Switch off the main power switch („0"-position) and secure against restart by locking with a padlock (see picture below).

Main switch of the film processor

Fire Hazards

DRYER COMPARTMENT PRODUCES HEAT - PAPER OR OTHER COMBUSTI-BLES CAN BE IGNITED

· Keep the area within 10 feet of the processor clean. Do not store combustible materials, including paper, close to the filmprocessor.

· Verify that a functional 10 lb. ABC fire extinguisher is located closed to the processor.

Burn Hazard

DRYER COMPARTMENT PRODUCES HEAT - DRYER PANELS AND GUARDS GET HOT
· Therefore do not touch dryer panels or guards when dryer in operation

Corrosive Liquids

CHEMICALS MAY IRRITATE EYES, LUNGS, SKIN AND DIGESTIVE TRACT

Wear safety goggles, protective gloves and chemical aprons as indicated on Material Safety Data Sheets (MSDSs) when handling chemistry.

Drain tanks carefully, avoid splashing. Always drain the system thoroughly before working on any of the external hose systems.

Read the MSDSs for more information regarding the proper safety procedures for working with photo processing chemicals.

Do not allow untrained personnel to handle photo processing chemicals or to operate the filmprocessor.

To avoid hazardous situations, keep floors and floor coverings around the processor and associated drains clean and dry at all times. Any accumulation of fluids outside the film processor, should be cleaned up immediately

In the event of an accumulation
of liquid due to backup,overflow or other
malfunctions of the drain associated with the
filmprocessor call a plumber or other contractor
to correct the problem with the drain.
Colenta assume any responsibility or liability
whatsoever for the service ability of any
drain connected to the filmprocessor.
Such drains are the sole responsibility
of the customer.

DRAINS must be made of chemically
resistant and non-corrosive material.

Chemical Hazards

Chemicals can be the source for errors,
contaminate the waste water, irritate skin
or eyes.
Spills must be cleaned up immediately as
follows:

1.Prevent the spilled chemicals from entering
a waste water drain.

2.Clean up the spill with a moist mop or rag.

CAUTION!

> **When handling chemicals, especially fixer,
> wear protcctive clothing, safety goggles
> and rubber gloves.**

If filmprocessor chemicals make contact with the
eyes,rinse them thoroughly with lots
of water.If irritation persists,consult a physician.

3.Dispose cleaning materials and collected waste
water from the clean up according to
environmental regulations and locals codes.

4.Avoid any inhalation of chemicals as
this is dangerous to health.

5.Observe all environmental regulations for
storage and disposal of waste chemicals.

6.Use this manual together with the
instructions for chemicals.
When handlingchemicals wear
protective clothing, safety goggles and rubber gloves,

Corrosive Vapours

CHEMICAL VAPOURS MAY IRRITATE
EYES,LUNGS AND SKIN IF ALLOWED TO
ACCUMULATE IN WORK AREA

Assure an adequate supply of fresh
outdoor air through natural or mechanical
ventilation.

· Make sure that qualified service personnel
is checking the external exhaust system at
regular intervals.

· Read the Material Safety Data Sheets
(MSDSs)for more information regarding
the proper safety procedures for working
with photo processing chemicals.

3. PRE- INSTALLATION

*) Site preparation, e.g., water supply, drainage electrical supply must be completed prior installation.

3.1. LOCATION

*) Processor can be installed "through-the-wall" or completely in the darkroom. Required measurements can be taken from the processor specification sheet. For "through-the-wall", a purpose built panel is required (optional accessory).

3.2 ELECTRICAL SUPPLY

*) All electrical connections must meet national safety requirements. Correct fuses and electrical requirement can be taken from the processor specification sheet.

Main switch of the film processor

Power cord

3.3 WATER SUPPLY

*) The processor must be connected to the local water supply by using a DVGW-approved system separating device or pipe separating device.

*) The cold water supply pipe must have a stopcock fitted connection to the processor and should be done by using the 3/4" hose connector, supplied. Easy access to the stopcock should be provided as it has to be opened and closed daily.

*) A built in magnetic valve reduces water consumption to a maximum of 2,5 ltr./minute using pressure and quantity control.

*) It is recommended to run a second cold water supply with 2.5 meters of hosing to facilitate easy cleaning of the racks and tanks (water supply kit - optional accessory).

Water connection und drains in front of the processor.

4. Chemistry and water circuts

Following illustrations/drawings and pictures confirms the circulation and Washwater system of the processor:

Circulationpump   **Temp.-probe**   **Watervalve**

Heatexanger

Valve to adjust the flowrate of the intermediate rinse
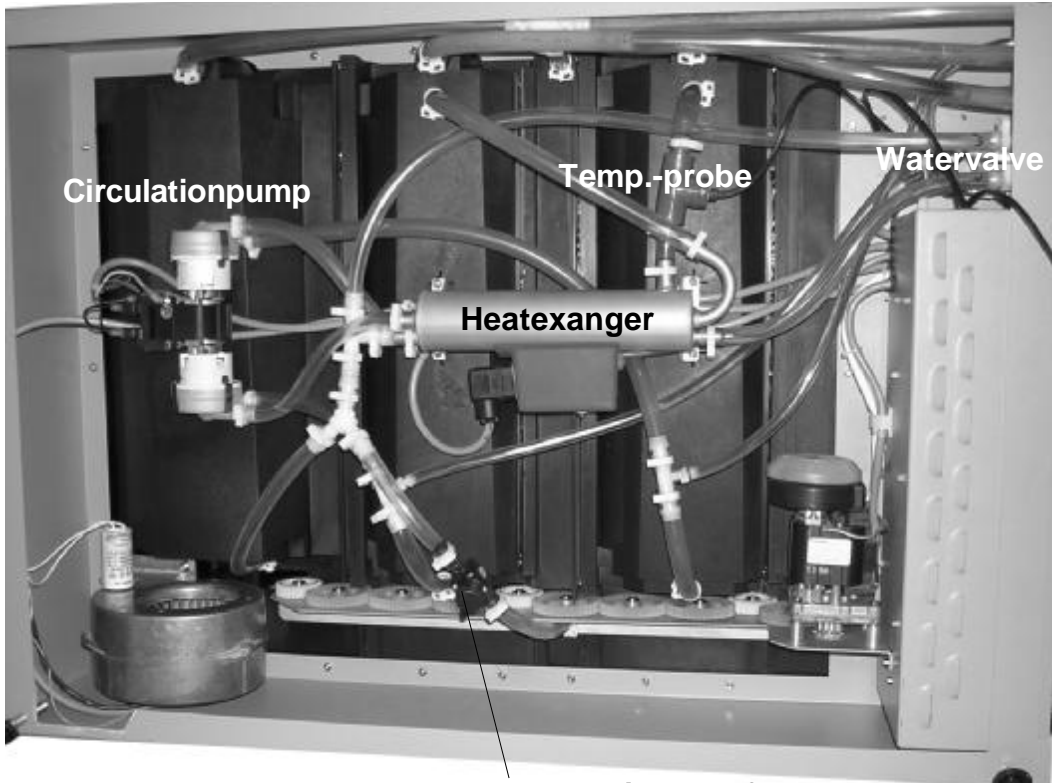
DEVELOPER TopView   **in detail....**

Temp.-probe DEV

Rep. DEV

Circulationpump

Heatexanger
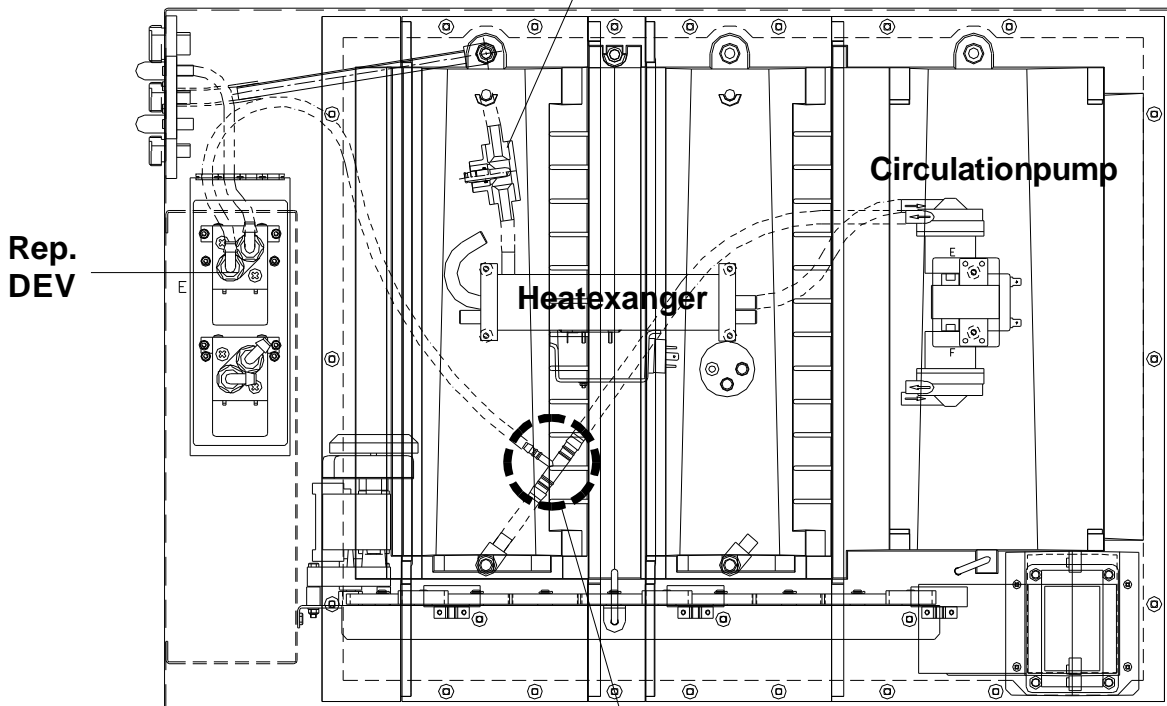
DEV Replenishment inlet

FIXER TopView in detail....

Circulationpump

Heatexanger

Rep. FIX
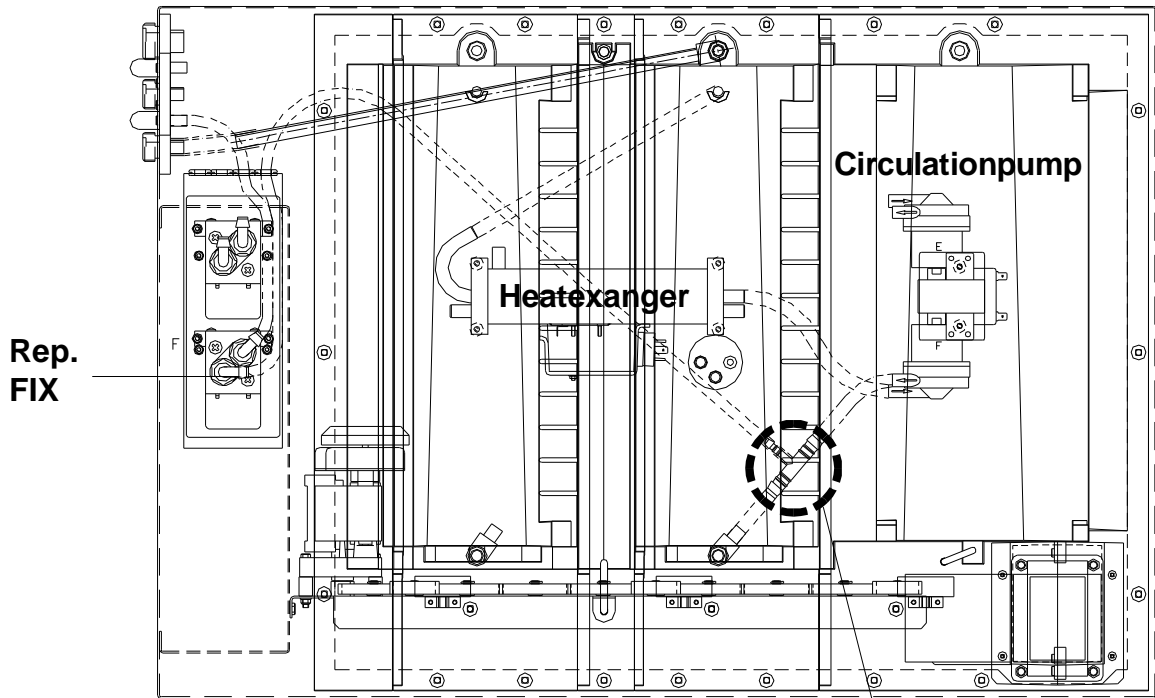
FIX Replenishment inlet

WATER TopView in detail....

to Wash and intermediate rinse

Water-valve

Cooling DEV/FIX
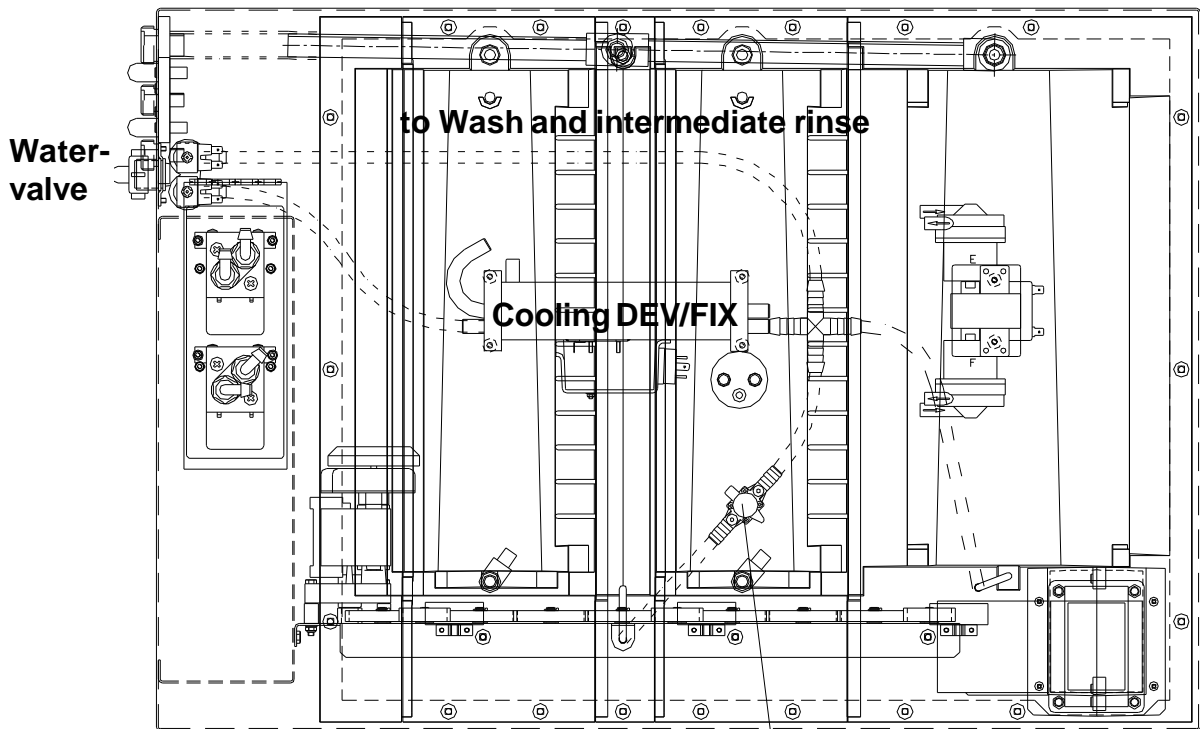
Valve to adjust the flowrate of the intermediate rinse

5. REPLENISHMENT

When operating a processor which uses chemicals for the continuous production of plate/film it is very important that the chemicals within the machine are keep in good working order so as to provide consistent processing quality. To achieve this consistency we use replenishment solutions, which are formulated by the chemical manufacturer and injected into the processor precisely for the area of material being produced. Replenishment of the chemical tanks is done automatically using infra red sensors located at the entrance to the processor. These sensors accurately monitor the width of material entering the processor, this information is in then used by the microprocessor (CPU) control software to calculate the surface area for each plate loaded into the processor. Each sensor, when covered, will generate a pulse, which is then recorded on a decoder and counted – the more sensors that are covered then the faster the count. When the count reaches the programmed value of pulse counts it triggers the start of a replenishment cycle. During each replenishment cycle the replenishment pumps inject fresh solution from small storage bottles/ tank and into the corresponding "working" tank solutions for a pre-set time.

DEV TANK   **FIX TANK**

Replenisherpump for DEV

Replenisherpump for FIX
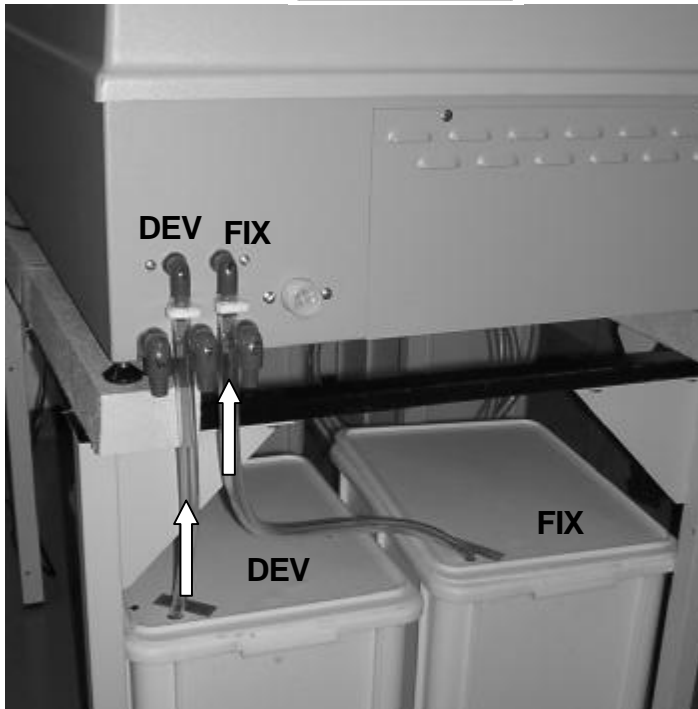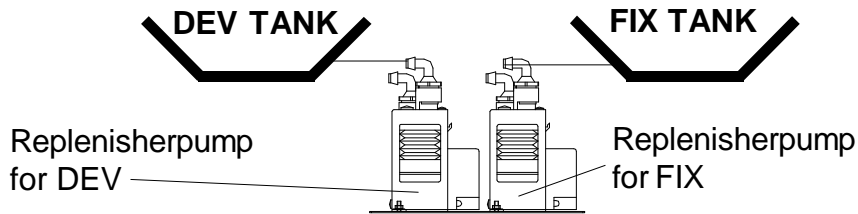
External Developer replenisher Tank

Cover

DEV

Standpipe

Filter

DEV FIX

FIX

DEV
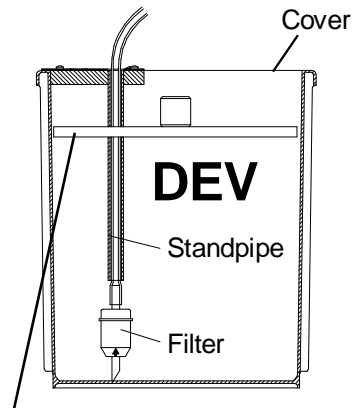
USE FLOADING LID TO PROTECT DEVELOPER AGAINST OXYDATION

Cover

FIX

Standpipe

Filter

External Fixier replenisher Tank
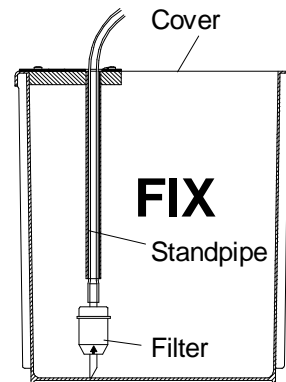
WARNING

*)   Do not use brass or copper in the drainage system.

*)   Chemistry disposal must be in accordance with local environmental regulations.

*)   To avoid back pressure in the drain, the hoses should be free of bends and with a constant downward gradient.
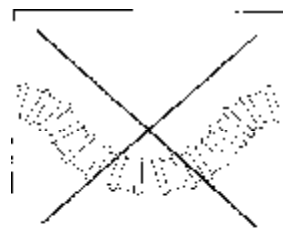
6. CHEMISTRY DRAINS / WATER DRAINS

To drain the filmprocessor (Developer, Fixer and the Wash) just open the drain tubes according the illustrations below. Take care that all the mentioned drain taps are close during re-fill up.
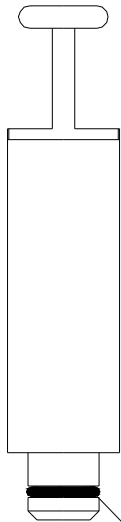
> **IMPORTANAT: Used Developer and used Fixer has to be collected in suitable conatiners seperately.**
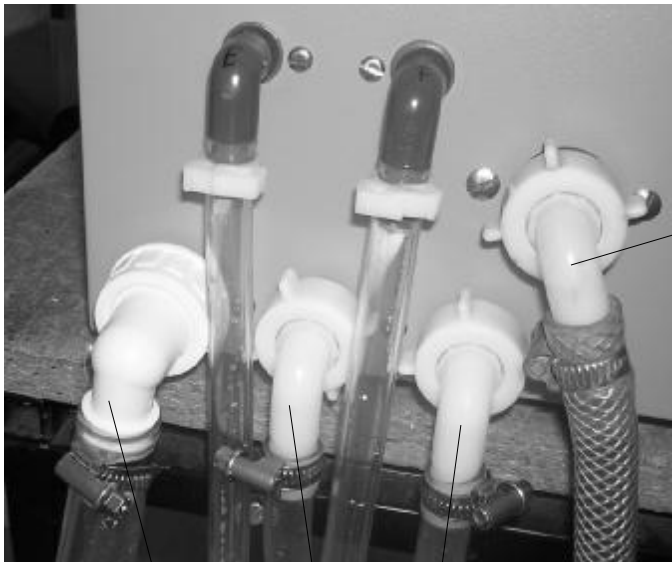
WATER Supply Line

DRAINS for:
WATER   DEV   FIX

Drain Tubes

Lift to drain the WASH (No-Code)

Lift to drain the FIX (Blue-Code)

Lift to drain the DEV (Red-Code)

Check regulary that the rubber O-Ring is in correct position.

6.1 INFRARED REPLENISHMENT SENSORBAR

The automatic replenishment system is useing an infrared-sensor-bar to detect the incoming film area. With that information the CPU of the filmprocessor will calculate the replenishment rate which will be need.

Sensorbar with
Infrared sensors

Replenishmentpump
for DEV

Replenishmentpump
for FIX
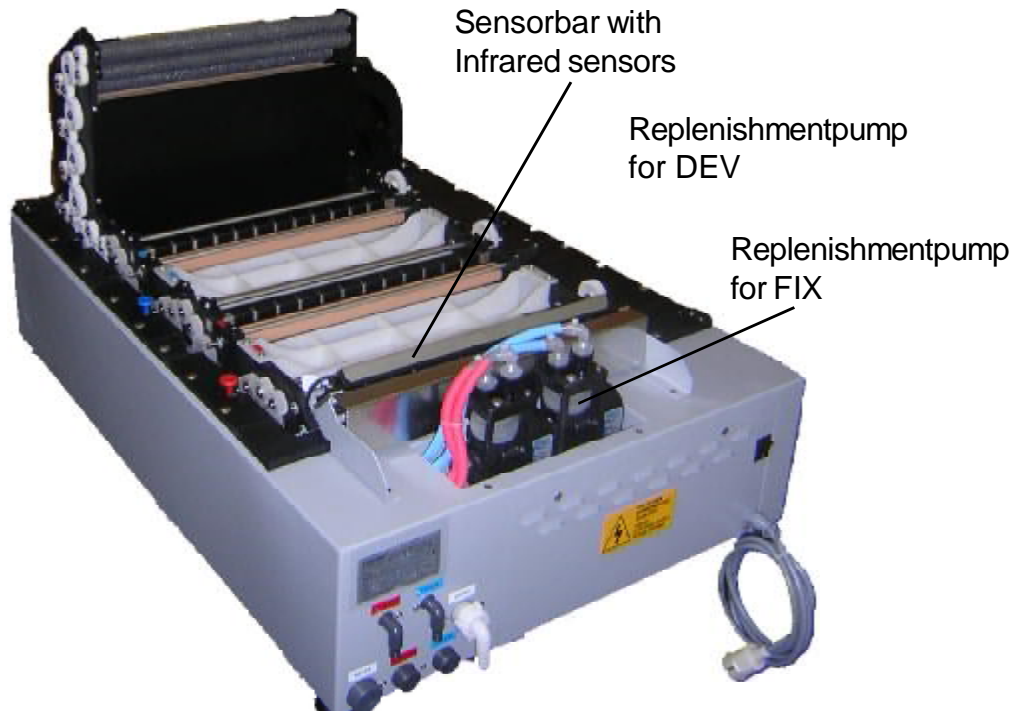
IMPORTANT: Special care must be taken to ensure that the processor entrance rollers are always clean and dry – any spillage of chemical or water onto the feed tray / feed rollers or sensor bar must be avoided. Any spillage must be cleaned immediately.

6.2 REPLENISHMENT CONTAINERS

DEV

Standpipe

Filter

30L Replenishmenttank

FIX

Standpipe

Filter

30L Replenishmenttank
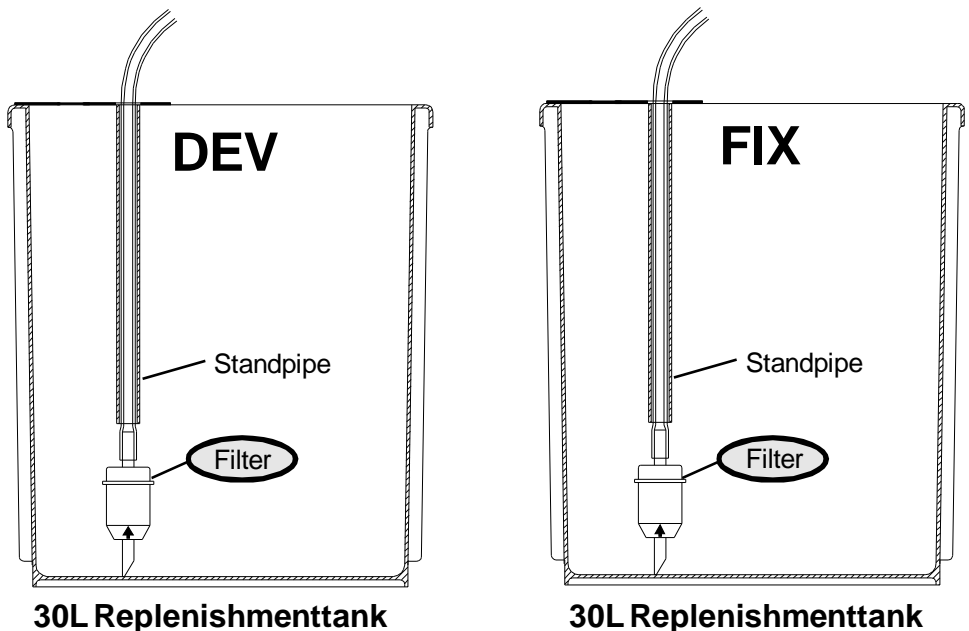
The filters, shown above, should be checked monthly and be cleaned or replaced if necessary.

WARNING: Separate the Film Processor from mains. To do so, switch the main power switch of the processor to „0" position. Wear safety goggles, protection gloves and clothing.

7. INSERT THE TRANSPORT RACKS

After cleaning or changing the chemistry, the transport racks has to be re-installed to the processor. To do that, follow the instruction and illustration mentioned below:

WARNING: Separate the Film Processor from mains. To do so, switch the main power switch of the Filmprocessor to „0" position. Wear safety goggles, protection gloves and clothing.

Wash the tanks with water, remove any deposits in the chemistry tanks.
Remove any possible algas from the washtank.
Close the the drain-tube (DEV-FIX-WASH) as mentioned on the page before.
Fill the chemistry tanks (first the FIXER, than the DEVELOPER!!) to the red maker.
   (Fill carefully and slowly - prevent splashes)
Fill the Washtank to the red marker.
Insert the racks according the reference number in follqwing the sequence below. *
Fix the rack according the next page.
Close the Topcover and switch on the processor.

*<u>Sequence to insert the racks:</u>

1. DevRack into the DevTank
2. FixRack into the FixTank
3. Wash&Dry Rack into the WashTank
4. COS-A between DEV & FIX
5. COS-B between FIX & WASH
COS...CrossOverSegment

INSERT THE TRANSPORT RACKS

WASH&DRY

FIX (Rack2)

DEV (Rack1)
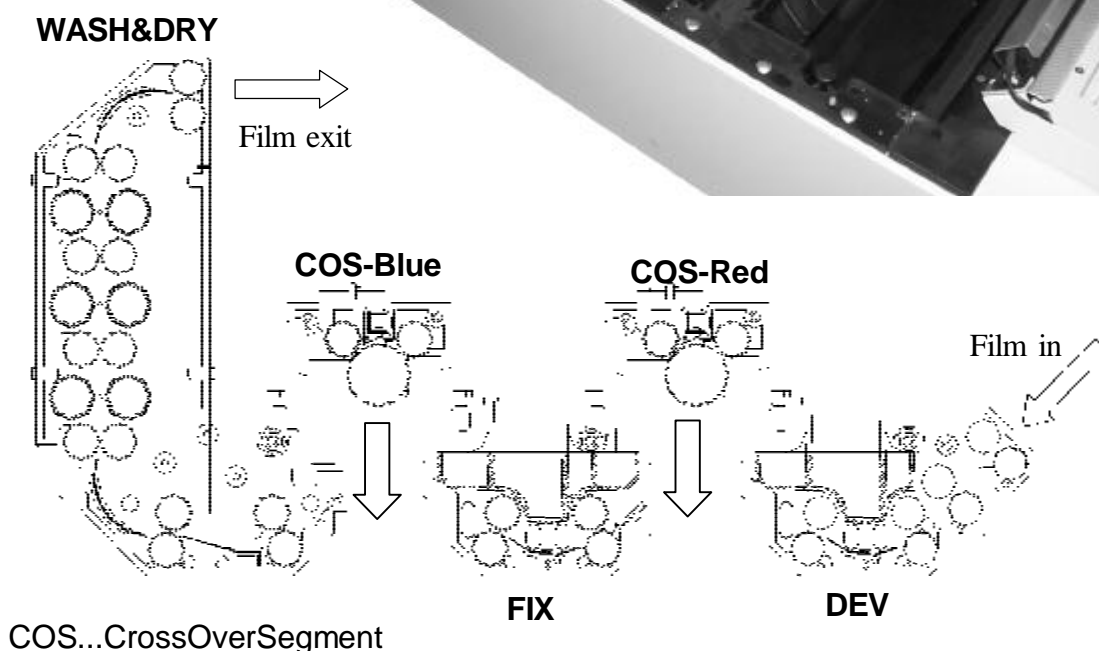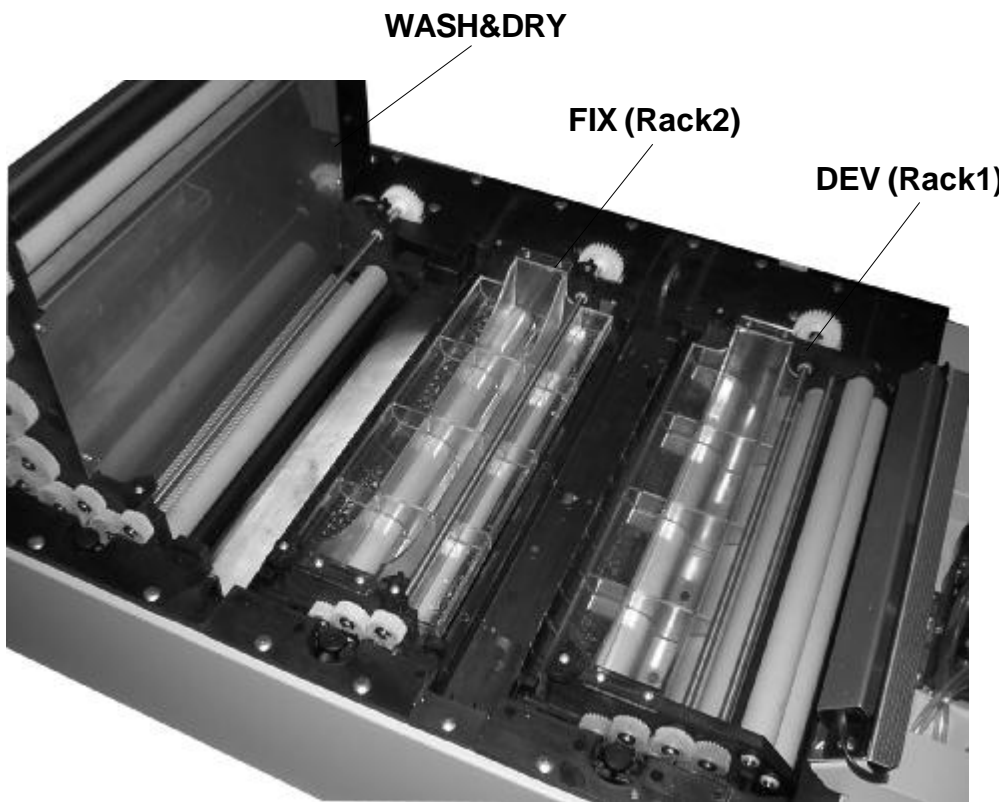
IMPORTANT:
check that the drive gears of the transport racks (DEV /
FIX / WASH) are in correct position.

WASH&DRY

FIX (Rack2)

DEV (Rack1)

INSERT THE TRANSPORT RACKS

WASH&DRY

FIX (Rack2)

DEV (Rack1)

COS-Blue

COS-Red
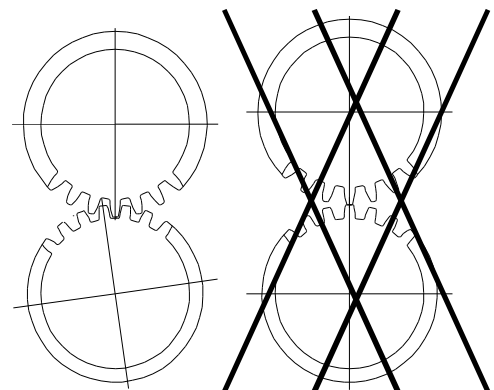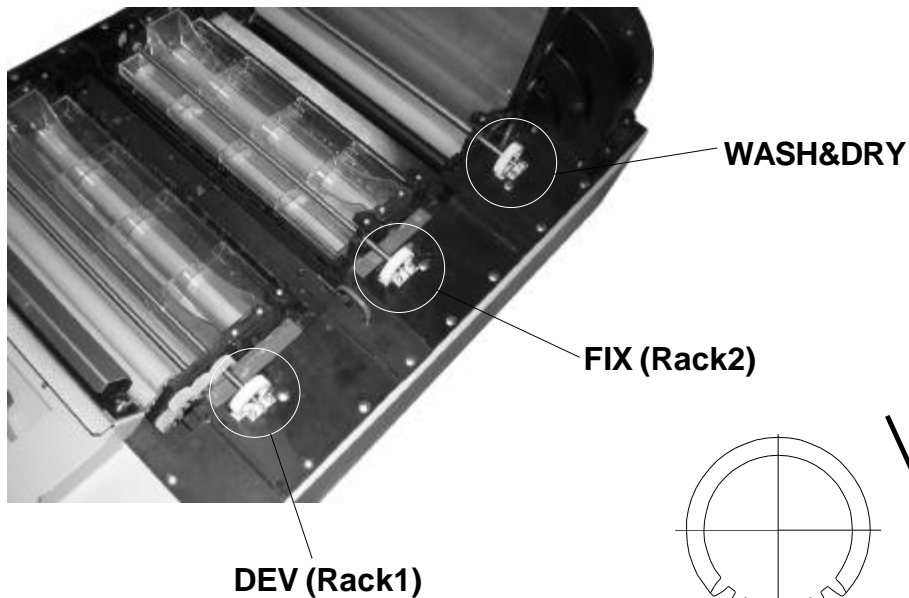
COS...CrossOverSegment
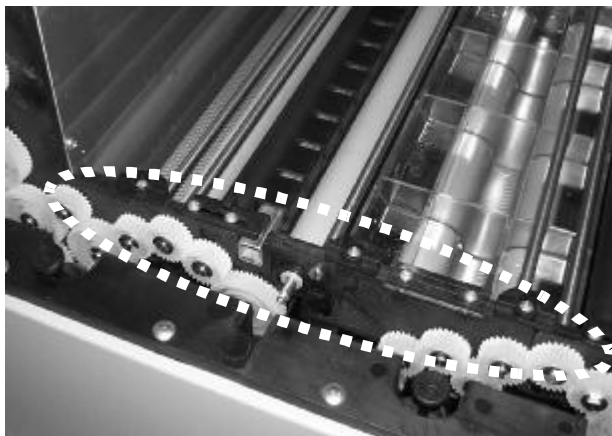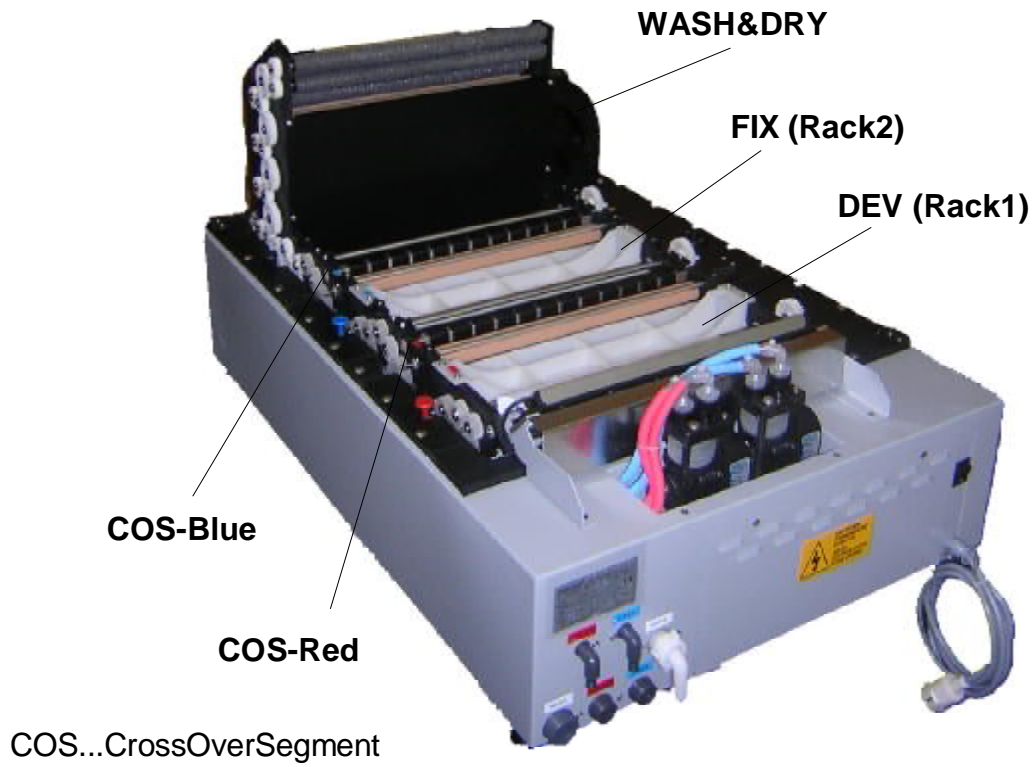
After all the racks and Cross-
OverSegmenents are installed,
fix them by closing the rotary joints.

Fix the racks!

Fix the racks!
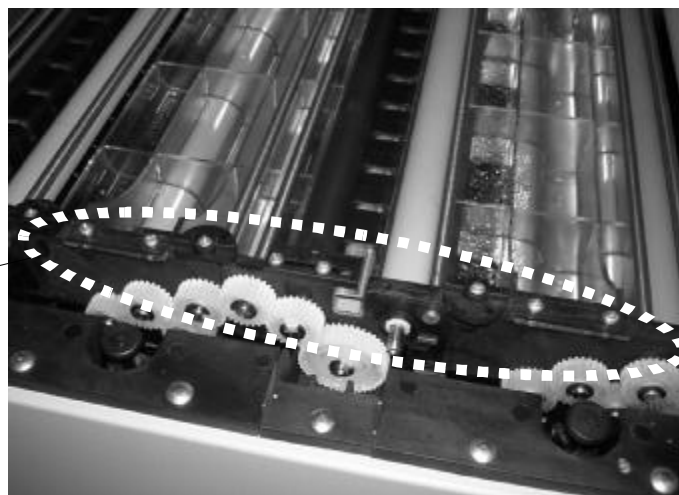
8. THE FIRST STEPS

WARNING: Separate the Film Processor from mains. To do so, switch the main power switch of the Filmprocessor to „0" position. Wear safety goggles, protection gloves and clothing.

8.1 Never switch on the processor (main switch position "1") when the tanks (DEV/FIX/WASH) are emty. This would create serious technical problems!!

8.2 USING THE CHEMISTRIES

*)   Only use chemistry suitable for roller transport systems.
*)   Follow instructions of chemistry manufacturers.

FIXER BATH:

*)   Empty fixer tank by opening the fix drain tap.
*)   Remove the Fixer-rack.
*)   Check fixer tank is free of alien material.
*)   Close fix drain tap.
*)   Fill fixer tank with ready-to-use-fixer solution to the red marker on the tank wall. Insert the Fixer-rack very carefully and slowly, add hardener solution if advised by the chemistry manufacturer.

DEVELOPER BATH:

*)   Empty developer tank by opening dev drain tap.
*)   Remove the Developer-rack.
*)   Check developer tank is free of alien material.
*)   Close dev drain tap.
*)   Fill developer tank with ready-to-use-developer solution to the red marker on the tank wall. Insert the developer-rack very carefully and slowly. Replenishment tanks may be used to mix the chemistry. Any remaining can be used for replenishment.

CAUTION:	Even the smallest quantity of fixer could contaminate the developer solution. Therefore, always fill with fixer first. When removing the fixer rack, always cover the developer tank. For removing the fixer rack use rack carrier tray (optional accessory)

9. WORKING WITH THE FILMPROCESSOR

IN THE MORNING

*)   Turn on water supply.
*)   Check the levels of the replenishment containers (DEV&FIX)
*)   Switch on the Filmprocessor with the Filmprocessor main switch (position „1").
*)   Wait for the "READY" of the processor

STARTING WORK

*)   Check level of the replenishment containers (DEV&FIX)
*)   Check level of the waste containers (DEV&FIX)
*)   Select programme
*)   Feed through one or two of cleaning films (optional item).
*)   During feeding films, always check the free-signal, given form the display.
*)   Ensure first rollers pull material.
*)   Feed large format films in straight.

IN THE EVENING

*)   Turn off water supply.
*)   Switch off the main power switch of the Filmprocessor. (Main switch in position „0")
*)   Open water drain tap to prevent algae growths in water tank.

*)   Lift the top cover to prevent condensation !!

9.1   PROCESSOR FUNCTIONS

PROGRAMMING:	Automatic processing parameters, e.g., temperature, speed and replenishment rates, can be stored in 3 different programmes.
WARMING-UP:	Once programmed, temperature settings are accurately controlled. Heating commences with switching on at the mains. Constant solution temperatures are maintained in the processing tanks. Temperatures tolerances +/- 0,2 °C are achieved by the microprocessor control unit while the solutions are circulated by circulation pumps. When temperature has reached PRE-SET levels, the filmprocessor enters STANDBY mode and is ready for use.
STANDBY:	In case no material is processed - after a programmable periode of time, since the last media has exited the filmprocessor transport, dryer and water supply is switched off automatically. The filmprocessor goes in standby mode and is ready for work.
ANTI CRYSTALLI-ZATION CYCLE	During STANDBY mode - within a programmable cycle periode - transport and intermediate rinse bath water supply is activated - this prevent cristallization build up on crossover rollers.
ANTI-OXIDATION CYCLE	During STANDBY mode - and no material is processed during set time - an preprogrammable ANTI OXIDATION cycle (replenishment cycle) is available. The additional replenishment compensates the impact of airoxidation of the chemistry during standby mode und tops up the chemistry levels in the tanks, compensating evaporation of the water in the solutions during standby.
AUTO REPLENISHMENT:	The filmprocessor comes equipped with a film area measuring facility. Infrared sensors scan the film area touchless and when the preprogrammed amount of film (area) entered the filmprocessor, a replenish-cycle is activated.
AUTOMATIC START-STOP:	Infrared sensors also automatically control the startcycle of the filmprosessor. The filmprocessor changes from STANDBY to RUN once a film has interrupted the light barrier. As the rollers turn, water is supplied to the wash tank and to the intermediate rinse bath system. Once the last film has passed through, the filmprocessor reverts to STANDBY. The film can be taken out of the receiving basket or top cover lid.

10.THE DISPLAY

Number of programs	5
Temperature range, developer and fixer	18.0 ÷ 43.0°C
Temperature control tolerances	±0.2°C
Temperature measurement resolution	0.03°C
Developing time tolerances at max. speed	±0,2%

· Motor speed is quartz-stabilized and controlled by a separate microprocessor

Light1 **Display** **Light2**
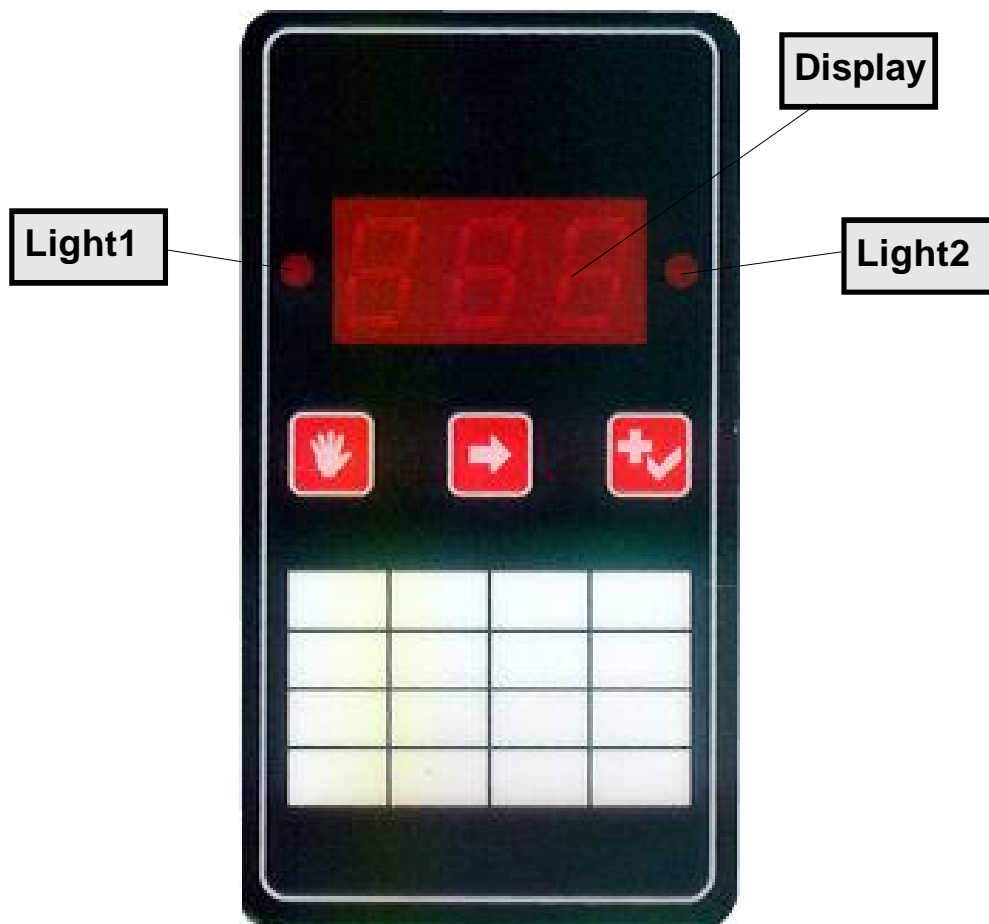
�094 **manual operation**
➡ **move cursor**
✚✓ **select menu item/ change value**

10.1 After switching on the processor

After the processor is installed and with all the components and service in place, switch on the processor. The controller display will illuminate and confirm the software revision monentarily.

| **u24** | ...in the display |

Never switch on the processor (main switch position "1") when the tanks (DEV/FIX/WASH) are emty. This would create serious technical problems!!

After the initialization-cycle is complete (it takes 1-2 sec.) the processor will start in program1 (P1)

| **21.1** | ...in the display |

| Light2 | ...will be on |

The **"21.1"** indicate that the current Developer temp. The flashing **Light2** informs about that an Error is existing. This is a normal status after switching on the processor, especially in the morning and depends on the room temp. where the unit is installed. The processor will start now to activate the heating element for the DEV, this of course to heat the DEV to value which is programed in the microprocessor. As soon as this value is reached, the **Light2** will stop to illuminate - that confirms that no error is pending anymore.
In that case the processor is ready to process films.

NOTE: the processor will deactivate the error code 1°C <u>before</u> the programmed value of the DEV is reached - but of course the heating element will still heat until the required temp. is reached - during that the **Light2** will flash, now it is possible to load film.
0,3 C° before the programmed DEV Temp., the processor will stop heating, the light2 is now OFF - the processor is now ready.

10.2 Error codes

As mentioned before, when **Light2** is active (on), an error is existing. To see which error, use the buttom ➡ on the display you will see:

Er1   use ➡ again to check wether there are
more errors - until on the display will show

Er-   this confirms that no more errors are pending any
more. Following error codes are possible:.

Error Code	Action
Er1 – Cover opened.	Close the top cover of the processor
Er2 – Developer too cold.	Normal message after start-up, when active during normal working
Er3 – Developer too warm.	Check wether the water-tap is open. when active during normal working -
Err – Motor overloaded.	Check the drive system
Er- – no more errors.	
E99 – Setup invalid;	reprogramm and check the Setup
E98 – Standby invalid;	reprogramm and check the Standby
E97 – Program invalid	reprogramm and check the Program (P1 to P3)
??? – Temp.-probe problem	Call service personal

Use ➡ to jump back to main page (actual Dev-Temp.).

10.3 PROGRAMPARAMETERS

The software offers the possibility to use 3 different processing-programs. They are called P1, P2 until P5. In each of that mentioned programes, the following parameters can be preprogrammed   # DeveloperTemp
Replenishment amount / m²
DeveloperTime

To see and to check the current parameters, push ✚✔ 1 time, you will get:

**blinking
between:**

Px

**current
program in**

t 23

21.1   **21.1**

**actual DEV temp.
(already there)
(C°)**   **progr. DEV temp.
(C°)**   **Developer
time Px
(sec)**

400

**replenishment
amount / m²
(ml/m²)**

1 time   1 time   1 time   1 time
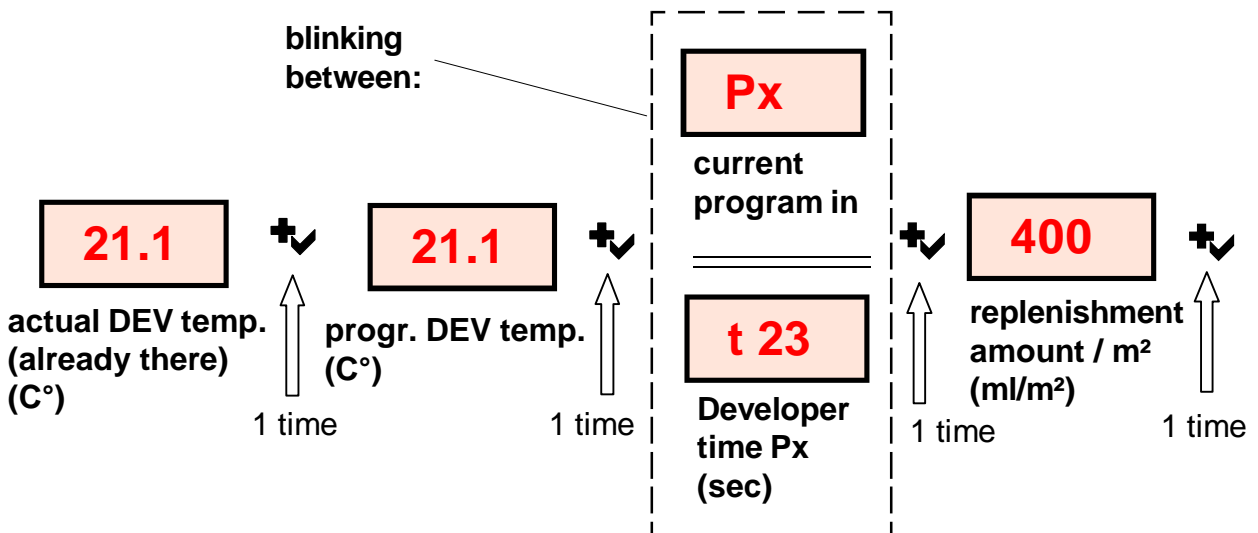
10.4 Changing the program

As mentioned before, the software offers 5 different programs which can be choosen by using the display: to do that, follow the instruction/illustrations below:

Push 🖐 1 time, you will get:

...in the display

<div align="right">

Hnd

</div>

Use ➡ 1 time you will get:

...in the display

P1   **....or P2 until P5**

Use ➕✓ to select the program (P1,P2 until P5) you want to use. When the program is

shown, push ➡1 time you will get   **USE**   confim ➕✓1 time. After the processor

finished the re-initialization cycle, the processor is now working according the new

programmparameters.

Step by step:

P1
➕✓

🖐 **Hnd** ➡ **P2** ➡ **USE** ➕✓ **u24**
➕✓
P5
➕✓

re-initialization cycle
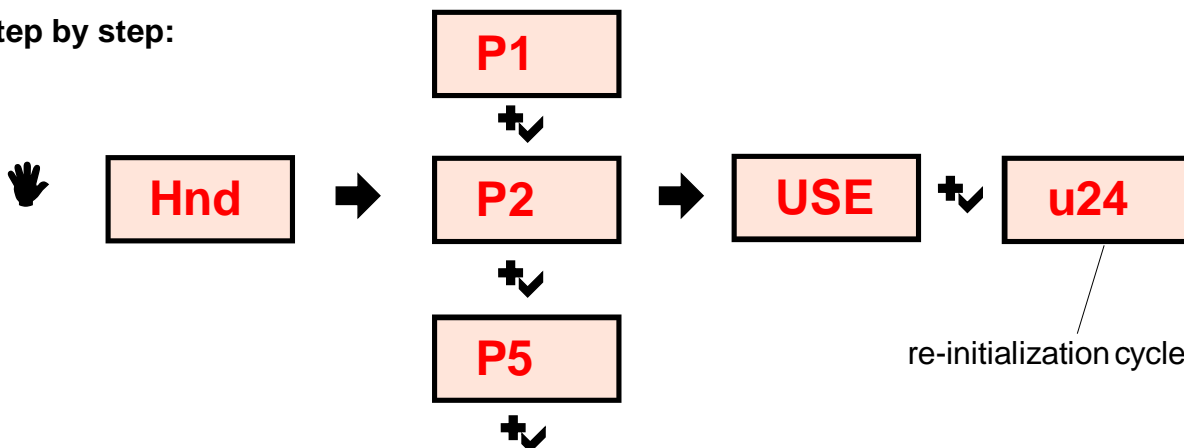
10.5 Reprograming the DEVELOPER temperature

In each of the five programs, the developer temp. can be reprogrammed, this according the specs given by the film/chemistry supplier.

To do that, use ✋ 1 time, you will get:

Hnd

...in the display

To do that, use ➡1 time, you will get:

Px

...in the display

x for P1,P2
until P5

➡ 1 time

USE

...in the display

Use again ➡1 time, you will get:

33.0

**actual Dev.
Temp. for Px**

x for P1,P2
until P5

Now, push again ✚✓ 1 time, the first digit will start flashing:

first digit

33.0

**actual Dev.
Temp. for Px**
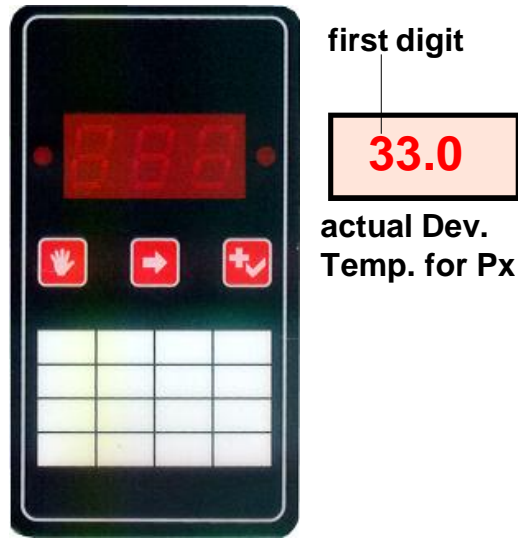
Again with ✚✓, change the number of the first digit to the values you wish. Use ➡ to move to the second digit and change the number with ✚✓ in the same way. Use again ➡ to move now to the last digit and again ✚✓ to change the number you need.

first digit	**second digit**	**last digit**
33.0	33.0	33.0

➡ between first and second, ➡ between second and last

**actual Dev.
Temp. for Px**   **actual Dev.
Temp. for Px**   **actual Dev.
Temp. for Px**   x for P1,P2
until P5

✚✓   ✚✓   ✚✓
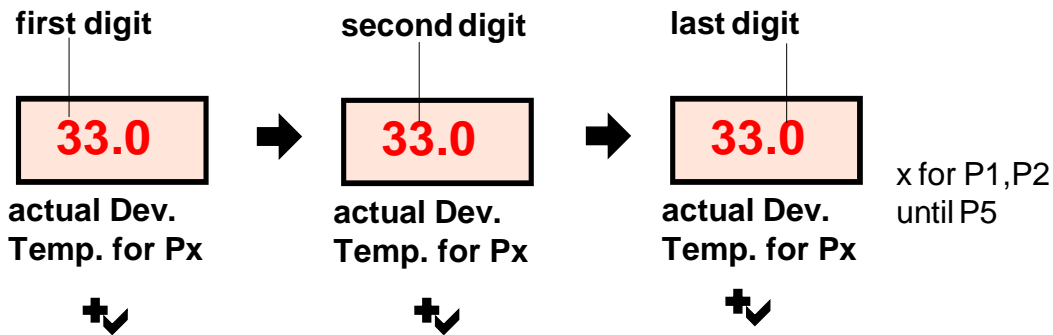
Now, when the new value is shown, the last digit is still flashing, push ➡ until (approx. 3 sec) you can see: **PrG**   This confirms that the new value is stored.

At least the processor will start one re-initialization cycle: **u24**

> **To change the DEV-temp. for other programs (P1 - P2....P5) in the same way:
> change the program in the way as disreibed on page 19 - 7.4.**

10.6 Manual Mode

It might be necessray to run the transport by hand, this for example to process film regardless the current DEV-temp. To start the dive motor by hand use ✋1 time you will get:

...in the display

<div style="border:1px solid; padding:5px; width:fit-content;">

Hnd

</div>

Now push ➕✔1 time , you can hear the running. To stop the motor push again ➕✔ . To exit this mode, use ✋

10.7 Distance between films

To prevent film jams, some minimum distance between the films is needed. This needed distance is fixed in the processor setup.

Load film: as soon as the sensorbar recognized that film is there, the Light2 will be on.

During loading in film, the Light2 will be on to confirm this. At this status, never load any films additional!!

Light2

When Light2 is off (there will be a beep as well) the processor is ready to load film again.
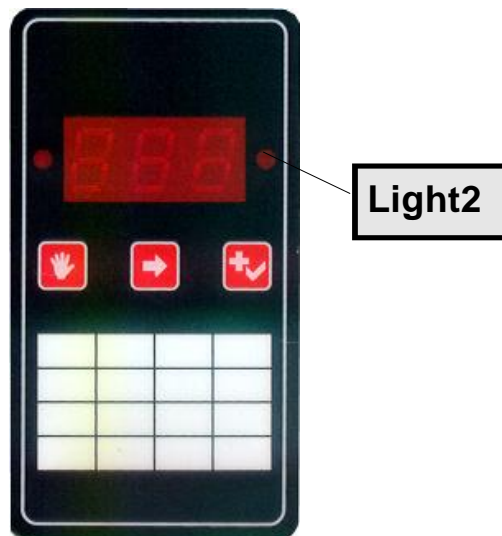
11. MAINTENANCE

The filmprocessor is designed to produce consistent high quality production with the minimum of maintenance.
Regular maintenance minimizes the chances for equipment failure and loss of processing quality. A a well trained person has to be responsible for performing the maintenance of the filmprocessor and must be familiar with the operation and function of the processor as well.

1. Daily maintenance

*)   Check levels of the external replenishmener tanks -
        If necessary mix fresh solution.

*)   Cleaning feed tray.

*)   Cleaning spray-bar-guide for the fixer

*)   Before starting production we advise to feed some cleaning films to remove any
        overnight residue.

2. Weekly maintenance

*)   Wipe external surfaces of film processor / enclosures / panels
        with a wet cloth to remove any chemical / dirt deposits.

*)   Inspect and clean the wash tank and intermediate water rins drains. If algaes present
        then the should be removed, in such a case we suggest to use a proven algae control
        system

*)   Check the COS (CrossOverSegments) remove any deposits.

*)   Take out the guide of the COS and clean them as well.
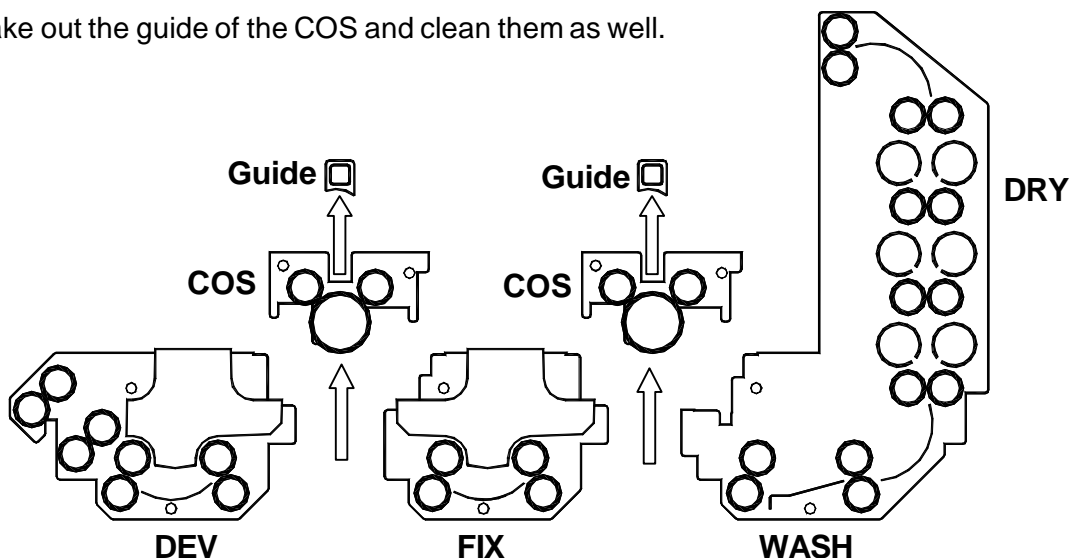
12. RECOMMENDED MAINTENANCE EVERY 2-4 MONTHS.
(Period is subject to filmprocessor useage.)

Good processing quality and the reliable operation of a filmprocessor is dependent upon regular and careful cleaning. Every 3-6 months, the chemicals in the tanks should be drained.
A chemical cleaning of the processing tanks and wash tank is recommended. Always follow safety warnings as described in section 1 when cleaning the filmprocessor.

> Prior to **carrying out any maintenance**, switch off the power at the main power switch (position "0") ensuring it cannot be accidently switched back on.

*)   Switch off the main power switch of the film processor first (position „0").
*)   Remove the top cover of the filmprocessor.
*)   Drain individual tanks by open the draintaps in front of the filmprocessor.
*)   Remove rack assemblies (water / DEV / FIX, see item 2.1) and put them aside.
*)   Close taps and fill all tanks with water or better with suitable cleaning solution until the red mark inside the tanks are reached.
*)   Put the racks back into the tanks of the filmprocessor and close the top cover.
*)   Switch on the filmprocessor and start some replenishment cycles. The hoses will be cleaned with water as well. Also start the transport of the filmprocessor, the racks has to be in. Let the filmprocessor run for 10 to 15 minutes.
*)   Switch off („0" position)the main power switch of the filmprocessor and drain the filmprocessor tanks again.
*)   NOTE: Use cleaning solution according to the manufacturer´s instructions.
*)   After tank cleaning, the developer- and wash-tank should be filled twice with fresh water (eventually use neutralizer recommended by manutacturer). Let the filmprocessor run for approximately 10 minutes again. Check all external (outside of the filmprocessor) hose connectors (outside of filmprocessor) and fittings for leaks.
*)   Drain all tanks.
*)   Remove the water / DEV / FIX Racks and check for:
> -worn gears
> -damaged or worn bearings
> -loose screws
> -scratched or bent film guides
> -plastic flat springs in developer bottom underturn.

*)   All repairs must be carried out by qualified service personnel.
*)   Check the inside of the tank for contamination and alien substances.
*)   Clean the rollers well.
*)   Close the drain taps of all 3 tanks.
*)   Fill developer and fixer tanks with fresh chemicals to the required level (1st fixer, 2nd developer)
*)   Fill wash tank.
*)   Re-install the racks carefully. Take care of correct sequence of the racks is followed and make sure the gears are in the right position. Secure the racks.
*)   Insert the respective suction pipe to the correct external replenisher tank. Re-install the top cover and switch on the filmprocessor.
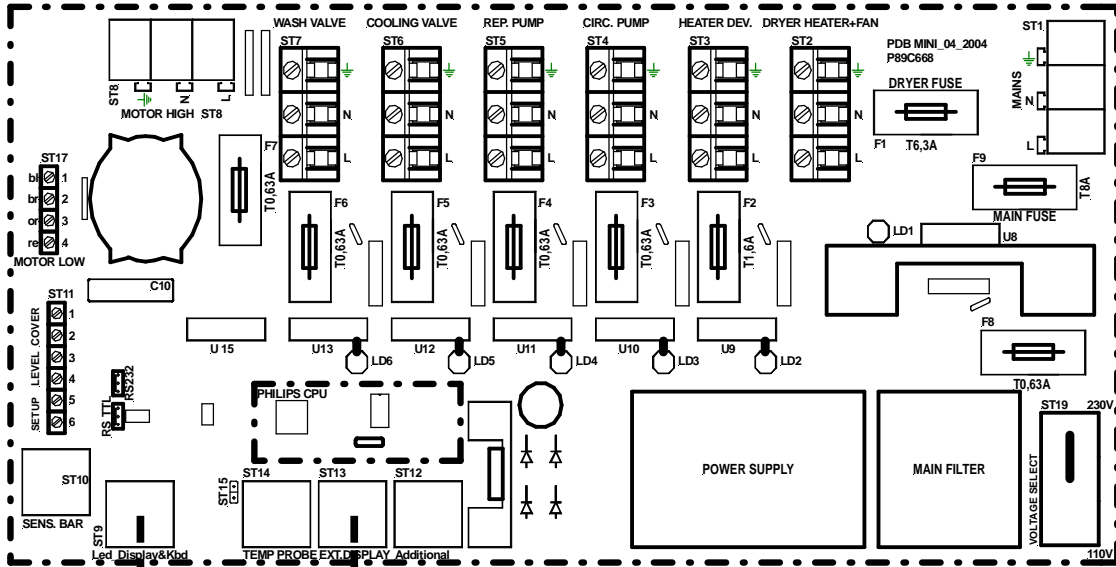*)   Process test films.

13. SERVICE OF THE PROCESSOR

> Warnung: Diese Anleitung ist nur für qualifizierte Service Techniker bestimmt.
> Warning: For the use of qualified service personnel only.
> Avertissement: Réservé au personnel de service qualifié.

The COLENTA MP900E X-Ray Filmprocessor is equipped with a small 7 segment OperatorDisplay - this display allows the operator, limited in a small range, to set some different processing parameters - described in the Instruction Manual. For service, a seperate Display has to be installed - this only for reprograming or service and trouble shooting.

Operator Display (Standard)

Display for Service (Optional)
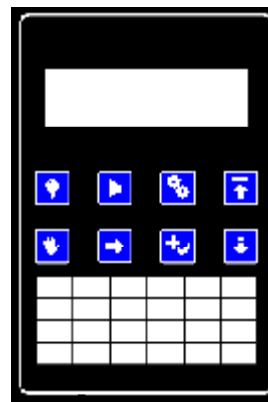
100cm cable

Switch off the power at the main power switch (position "0") ensuring it cannot be accidently switched back on.
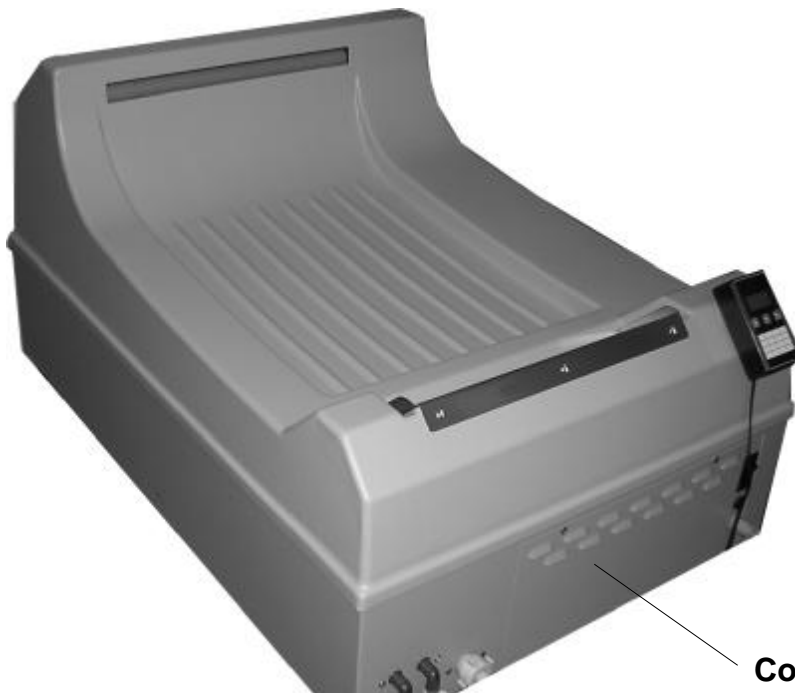
Open the Cover by opening the 2 fixing screws.

Cover E-Box

13.1 INSTALLATION OF THE SERVICE DISPLAY

Install the Service display following the illustrations below:

Operator Display (Standard)
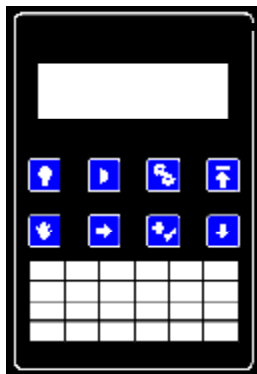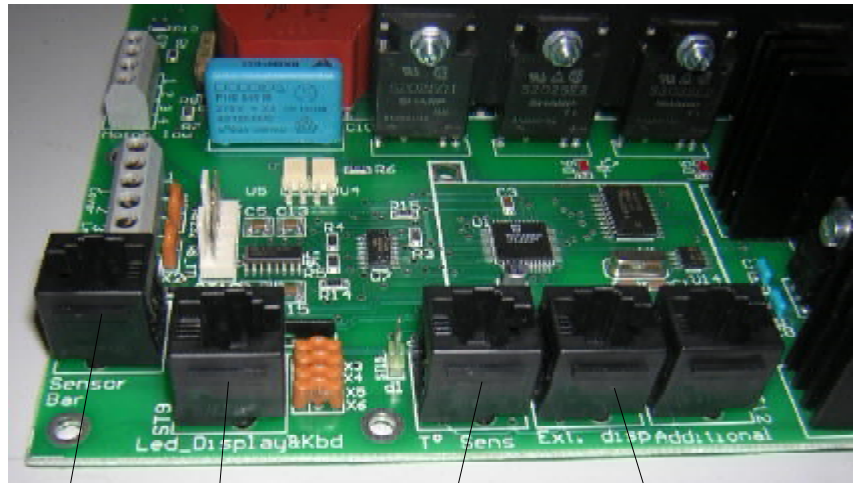
Sensorbar

Operator Display (Standard)

Temp. Probe DEV

Display for Service (Optional)

Display for Service (Optional)

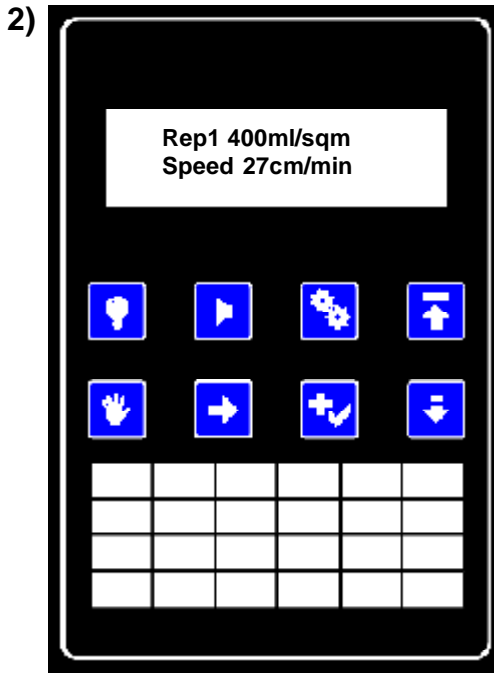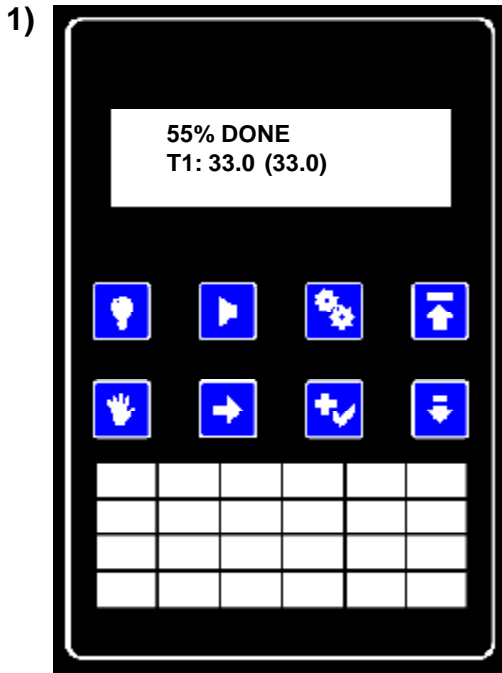When the service display is installed as mentioned before, switch on the processor.

NOTE: At this moment, the cover of the E-box is open so there is a risk of electrical shocks, ensure that nobody is getting contact with components and/or wirings inside the E-Box.

13.2 WORKING WITH THE NEW DISPLAY

13.2.1 AUTOMATIC MODE

The processor is designed to work without operator assistance. Under normal circumstances the operator will use the front panel only to check the process parameters and progress.

To scroll through the pages, press ⬇. - Press ⬆ to jump back to main page.

1)

```
55% DONE
T1: 33.0 (33.0)
```

2)

```
Rep1 400ml/sqm
Speed 27cm/min
```

3)

```
Tank1 time 25s
Dry to Dry 247s
```

4)

```
Add 14 pls
Rdy 10 pls
```
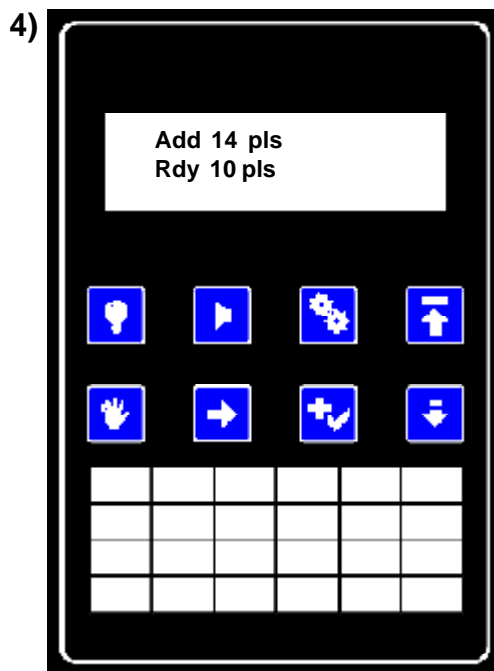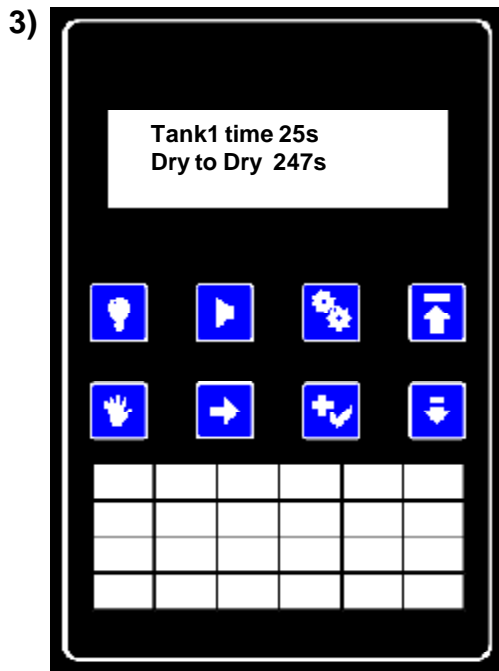
💡 **back light ON/OFF**
▶ **check errors /alarm shutdown**
⚙ **setup mode**
⬆ **back to top menu**

✋ **manual operation**
➡ **move cursor**
✚✓ **select menu item/ change value**
⬇ **scroll page down**

1) 55% Done is the progress indicator. It means that **55%** of the developing process are done. When **100%** are reached, the processor will go to standby.

T1=32.4⁰C confirms the actually measured temperature in the DevTank. The value shown in the brackets is the programmed temperature.

2)
Rep1 400ml confirms the amount of replenishment for the Developer .
Note: To supply fresh chemistry to the Fixer as well, a double head replenishment pump is installed. Read more on this issue on page....

Replenishmentpump
for DEV

Replenishmentpump
for FIX
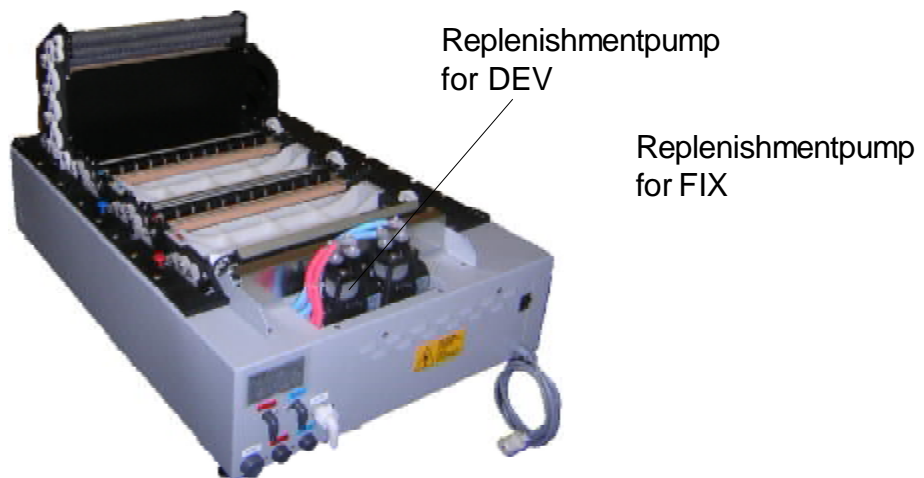
Speed: Linear speed of the Film "going" trough the processor in cm/min.

3)
Tank1 time is the time the media needs to pass through **tank 1** (Developer)
Dry to dry is the length of the complete processing cycle (leading edge to heading edge)

4)
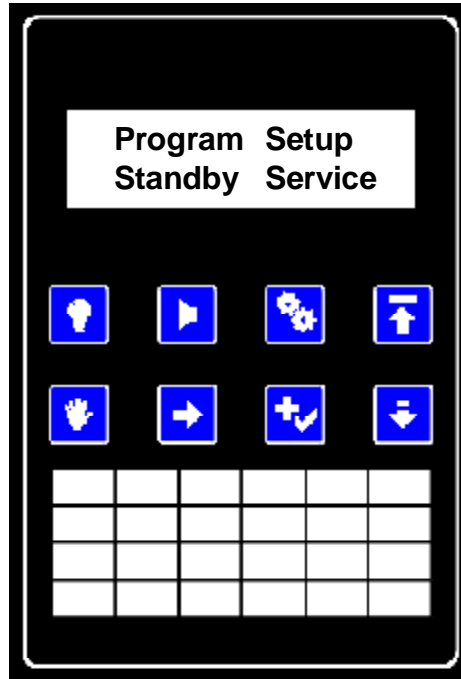**Add 14 pls** confirms the additional added pulses for the input section of the DEV
Rdy 10 pls confirms the safety distance between loading films
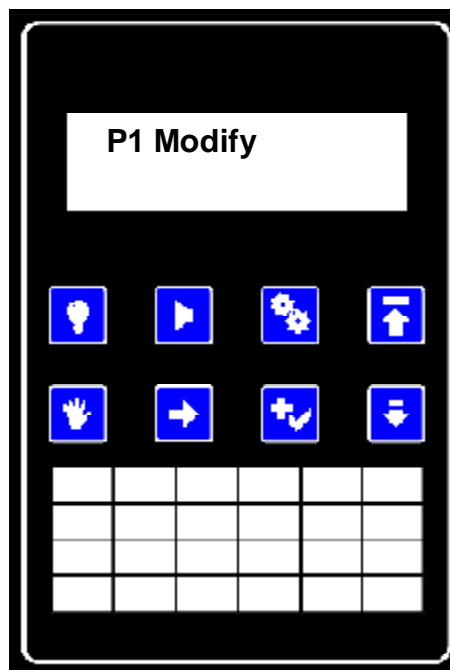
13.2.2 PROGRAMMING PROCEDURES

Switch on the processor it will start in work mode. Make sure that no media is being processed, re-programming is enabled only during standby.

Press ⚙. The programming menu will appear:

Use ➡, to move the cursor to Program and confirm with ✚✓.
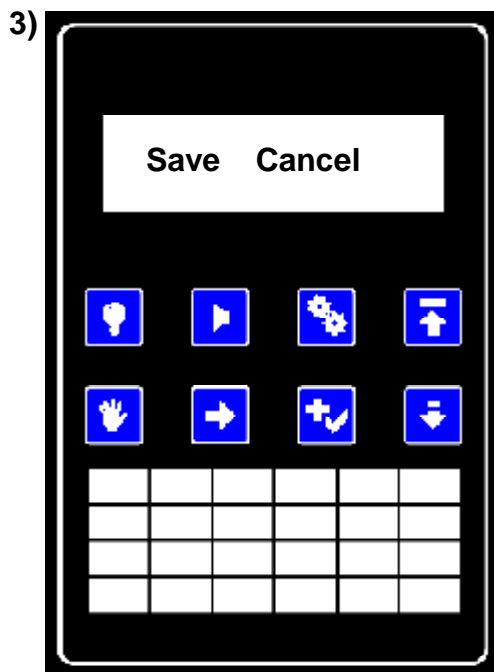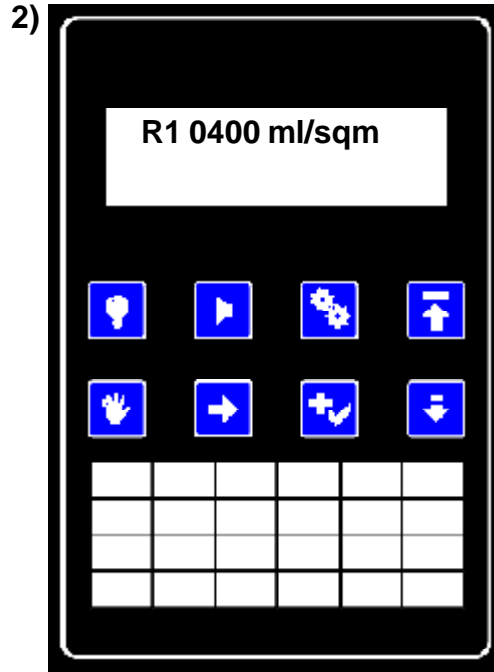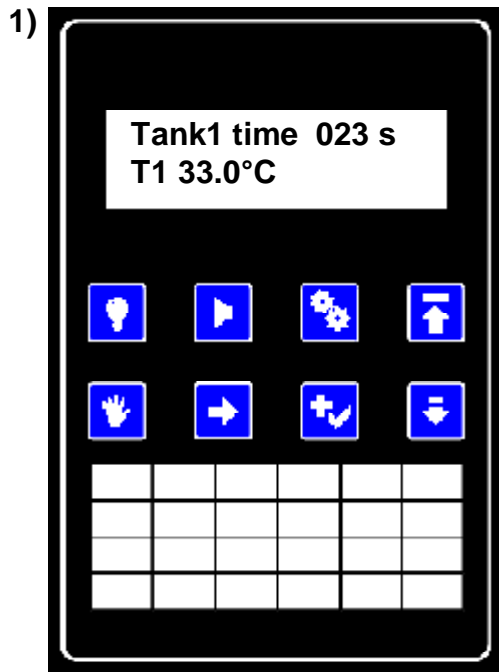You will get:

Press ✚ to change the number of the program you wish to modify (P1 to P5).

Use ➡, to move the cursor to Modify and use ✚ to confirm.

The programe (P1,P2 or P3) consists of three pages:

1)

> **Tank1 time 023 s**
> **T1 33.0°C**

2)

> **R1 0400 ml/sqm**

3)

> **Save   Cancel**

To change the programed values:

use ➡ to move the courser to the digit you want to modify.

use ✚ to add "+1" to the value (..8-9-0-1-2..)

use ⬇ to jump to the next page (..8-9-0-1-2..)
save / exit

NOTE: It's not possible to go back to the previous page. In case you programmed something wrong, start again form page one.

Use ⬇ to scroll through the pages. Use ✚ to confirm your changes or move the

to Cancel and confirm with ✚ as well to abort.

During saving, you might will get the message "Out of range" which confirms that one or more inputs are not allowed - even ot of range.

Out of range
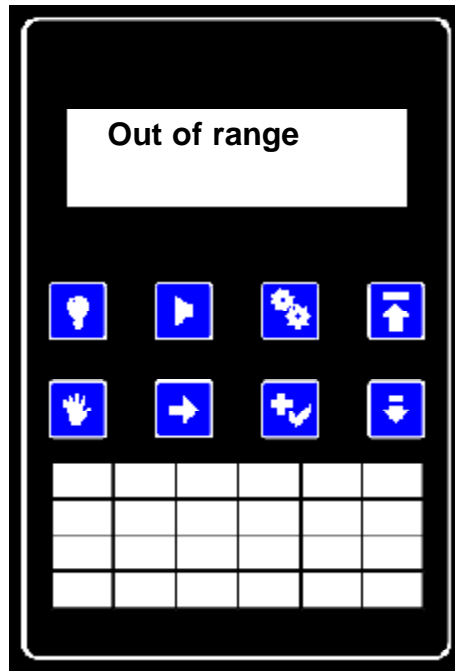
After 2 seconds the message will disappear and you will be taken back to re-programme the values. A parameter that was too high will be automatically reset to the maximum possible value. A parameter that was too low will be reset to the minimum possible value.

This can be used if you want to program extreme values - for instance you want to use the shortest developing time possible, but you don't remember the value. In this case just programme 000. After the "Out of range" message, the developing time will be reset to the minimum. Just select Save once again.
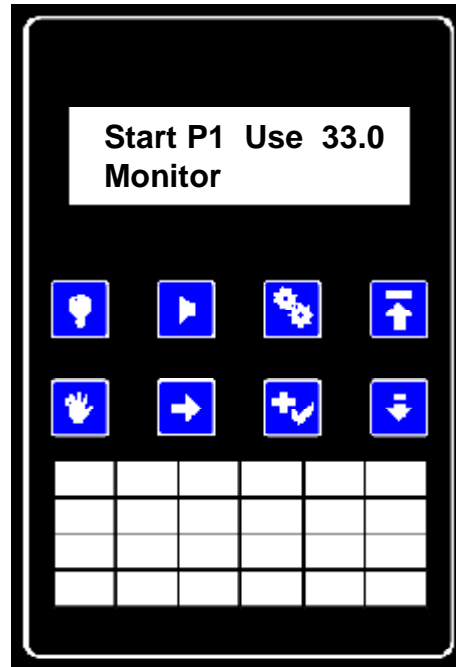
To go back to work mode, press ⤒ .

During programing by using the service display, on the operator display will be shown:

Pro

13.2.3 CHANING THE PROGRAM

To use another programme, use ✋ you will get:

With ➡, move the cursor under P1.

Press ✚✓ to change the programme number.

With ➡, move the cursor to Use and confirm with ✚✓.

Press ⤒ to jump back to main page.

Note: a cyclic redundancy check is used to verify the data being read from the non-volatile memory.
If some damage occurred to the program data, or the programme was never set up properly,
you will get an error message Program invalid*. The solution is to go to programming mode*
and re-program the data. This error will occur also if the EEPROM chip has been replaced in
which case it contains random data.

13.2.4 MANUAL START / STOP

The manual start/stop is possible only when no media is being processed.
During the processing the corresponding menu items are not selectable - you
can't move the cursor there.
To run the motor manually:

Press ✋

With ➡, move the cursor under Start and select it with ✚✓.
This will run the motor. The menu item Start changes to **Stop.**
You can stop the motor by selecting **Stop.**

When you start the motor manually, this will be indicated on the main page as
M1 **instead of P1.**

13.2.5 DISPLAY ILLUMINATION ON/OFF

In a dark room, it might be necessary to switch off the display backlight to prevent

exposure. The 💡 button toggles the backlight on/off.

When the backlight is off, all the buttons except 💡 are disabled.

This is done to prevent pressing buttons by accident in a dark room. Switching the
display off is a good idea if the processor is left unattended. This will reduce the
chances for unauthorized people to operate the machine.

13.2.6 AUTOMATIC START

The processor will start automatically when media is fed, except in case the developer is
too cold - more than 1ºC below the programmed. In this case, feeding the media will not start th
processor. Instead you'll get the message,
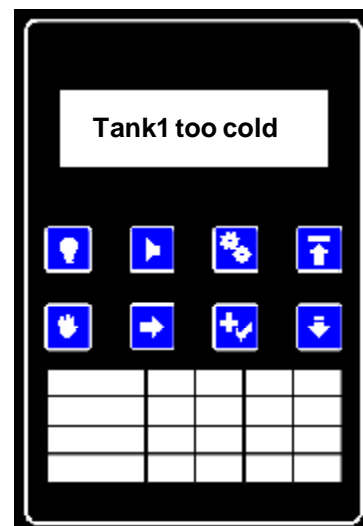
which will disappear after 2 seconds.
If you need to feed a film regardless of the low developer temperature, run the machine
in manual mode.

13.2.7 ERRORS

If an error occurs, the indication P1 (or M1) will alternate with Er. If this happens

Press the ▸ button. This will stop the beeper and bring you to the error menu, so you can check what the processor is telling you.

In case more than one error occurred, press ⬇ to scan the

rest of them. Press ⬆ to jump back to main page.

When the processor switched on at the beginning of the working hours ,it is expected to have low temperatures in the tanks.For this reason, the **Er** indication will be present, but without alarm. If, however, the temperature drops during normal work, the alarm will be activated.

Tank1 too cold

Error Code	Action
Er1 – Motor overloaded.	Only appears when the re-pulses given from the motor are not the same as the CPU of the processor are expacted them. The reason could be a blocked drive system. In that case for the first step, take out all CrossOverSegments and try again. 2nd take out all the racks/dryer and try again. When after that 2 tests the message is gone, check the racks, eventually replace them. In case the message is still active, check the drive gears below the tankbody. If they are OK, replace the motor and/or main board.
Er2 – Cover opened.	Close the top cover of the processor. In case the message is still present, check the magnets (2!) connected to the main board. Eventually replace them.
Er3 – Developer too cold.	Normal message after start-up, when active during normal working, check the circulation pump, the heating element for the DEV (over temp. fuse!! installed on the heatexchanger housing) Check wether all outputs are driven - from the main borad. (Service Mode)
Er4 – Developer too warm.	Check wether the water-tap is open. when active during normal working - Check wether the output on the main board is driven (Service Mode). In case yes, replace the 2 way Water valve.
Er- – no more errors.	no more errors
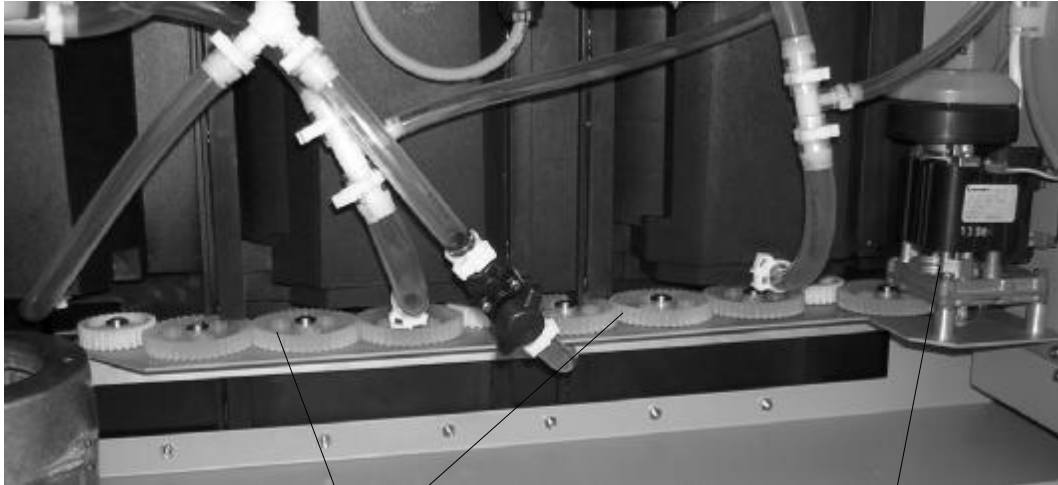
Drive system   **Drive Motor**

Circulation pump

2 way water valve

Temp. fuse

Heatexchanger

E99 – Setup invalid;   Check all the SETUP values, reprogram them and save
                              again. Check the WEB for software update.

E98 – Standby invalid;   Check all the STANDBY values, reprogram them and
                              save again. Check the WEB for software update.

E97 – Program invalid   Check all the STANDBY values, reprogram them and
                              save again. Check the WEB for software update.

Err – Problem with Temp.   Replace the temperature probe of the DEV
      probe DEV

13.2.8 STANDBY OPTIONS

The Processor supports an anti-oxidation and a anti-crystallization cycle.
That means, when in standby, the processor will start the transport of the rollers and the wash on regular intervals in order to prevent any crystallization or build ups on the rollers (Anti-crystallization). The anti-oxidation cycle activat, in free programmable time intervals, replenishment cycles. This will prevent oxidation of the the chemistry.

During such a cleaning cycle, the display will look like this.

**P1 Cleaning 30%
T1=32°C (32,0)**
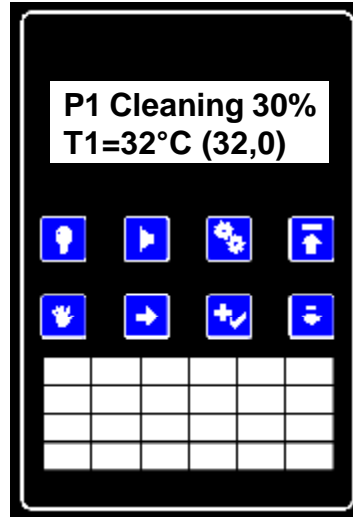
During such a cycle the processor will accept media. It's not necessary to wait to the end of the cycle.

Press ⚙, use ➡ to move the courser to **"Standby"** use ✚✓ to confirm; use ⬇ to scroll through the pages:

1) **SB replenishment 100ml each 6h**
The processor will activat a 100ml replenishment cycle each 6 hours.(Anti-oxidation-cycle)

2) **SB self-cleaning 20cm each 10min**
The processor will activat 3 roller turns (1 roller turn @ 8 cm) each 3 min.(Anti-crystallization-cycle)

3) **Switch ON Dryer for 5 min.**
After switching on the processor (Main switch) the dryer will start heating for 5 min. countinually this heat up the dryer and the dryer components.

4) **DR On each 10min for 01 min**
When the the processor is on, but not in use for longer time, the dryersystem would loose his heat. To prevent this, each 10 min the dryer (heater&fan) will start work.

Save Cancel

13.2.9 MONITOR MODE

The feature can be used to check current status of the processor. That mens it confirms wether different outputs are driven or not, the sensorbar is occupied or not.....
see the table below for more detail:

Motor OFF	**Main drive Motor is working or not**
Spd=34	**Speed of the Main drive motor**
v=00	**needed for internal calculation**
P=000	**needed for internal calculation**
t=000	**needed for internal calculation**

S-Bar: - - - - - -	**Confirms, which sensor is currently active**
Area=0,0000 sqm	**Confirms the ingoing filmarea**

P89c668 MM_V24	**Confirms the software code**
ID=000-0000	**Option for Identification No.**
r=1	**needed for internal calculation**

H1=1/0	**Output Heater driven or not...1=on, O=off**
Cir=1/0	**Output Circulation pump driven or not...1=on, O=off**
Rep=1/0	**Output Replenishment pump driven or not...1=on, O=off**
Col=1/0	**Output Cooling Valve driven or not...1=on, O=off**
Wsh=1/0	**Output Wash Valve driven or not...1=on, O=off**
Hd=1/0	**Output Fan for Dry driven or not...1=on, O=off**

13.2.10 SETUP OF THE PROCESSOR

Press ✹**,** use ➡ to move the courser to **"SETUP"** use ↴ to confirm**;** use ⬇ to scroll through the pages:

1)
Tank1	0042 pls
Machine	0248 pls

Start Point of the processor for counting pulses.
Total pulses trough the processor.

2)
Gear	219 pls
Pump	02.6 ml/s

Gear is the number of motor pulses corresponding to 1m advance of the material. It is needed to calculate the processed film area (for the replenishment) and the processing speed in cm/min.

Pump is the number of milliliters per second of the replenishment pump. Needed to allow programming the replenishment in milliliters.

3)
Sensor distance
060 mm

Sensor distance is the distance between two sensors of the sensorbar - needed for the film area calculation.

4)
Replenish after
each 0.125 sqm

Replenish after. This is that area, after one replenishment cycle has to be activated.

5)
Ready 0030 pls
after film left

Defines the safety distance between loading film (free signal for the next fim).

6)
Add 14 pulses
before start

Due the fact that the optical sensorbar is installed <u>before</u> the film will enter to the DEV, a calculation factor has to be added.

7)
Additional Run
001cm

For safety reasons, the moto will run 1cm additional after the exited the dryer rollers

Save Cancel

Main drive motor with tachometer
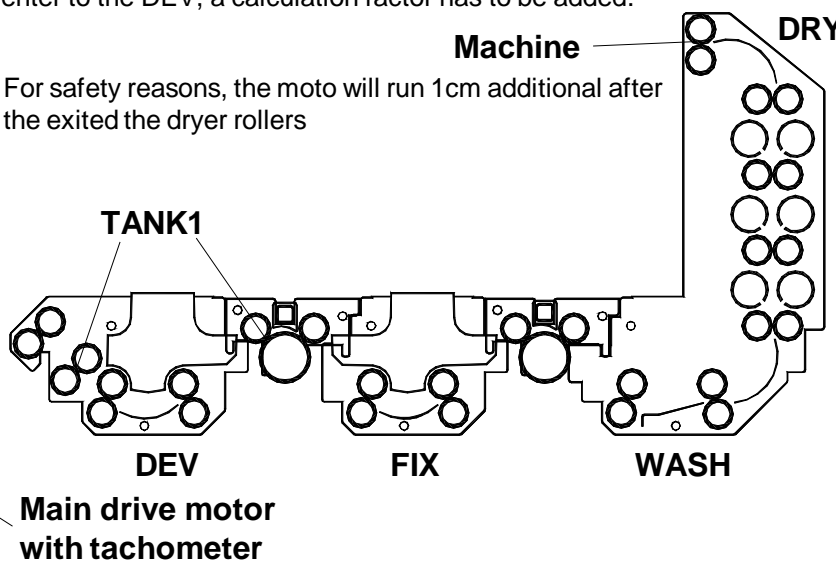
NOTE: The shaft of the main drive motor has a tachometer installed . When the drive motor starts the tacho will rotate to generate a speed counter which sends pulses to the Processor CPU. By using these pulses the CPU is able to accurately control the transport speed/timing sequences

It is possible to see data and to change working data in the SETUP menu but to save any new data entered into the SETUP menu then it will be necessary to insert a jumper on the main board of the processor:

SP........SetupProtection
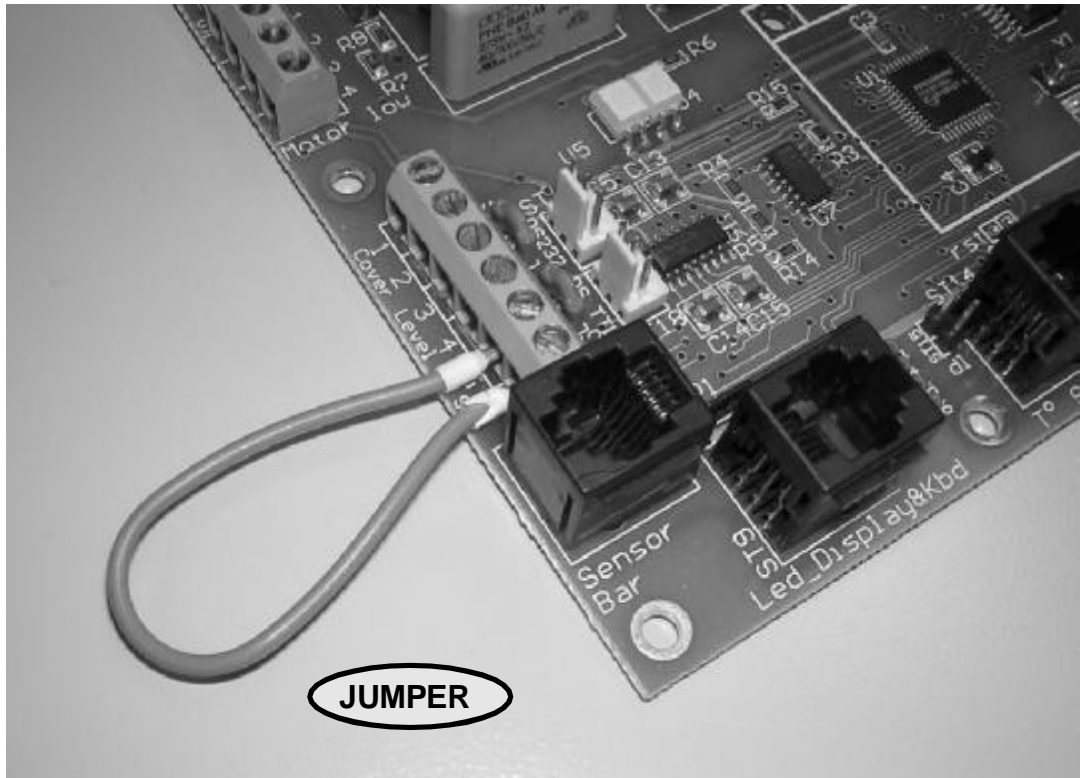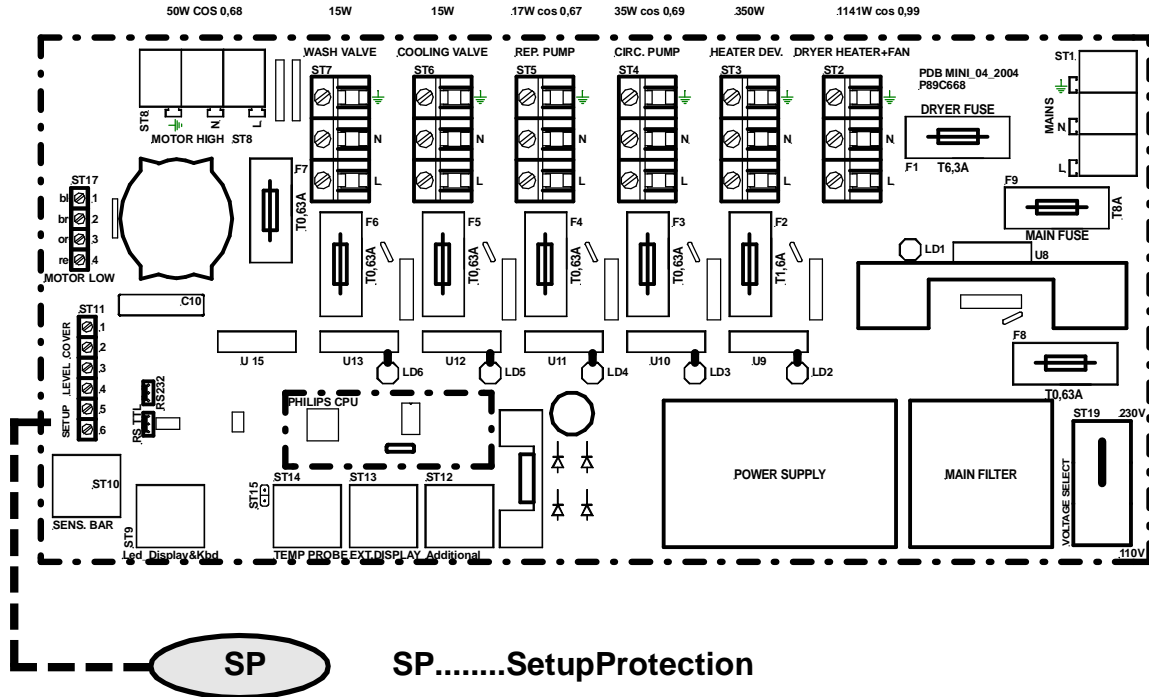
JUMPER

Don't forget to remove the jumper when the reprogrammong is done.

When selecting Save in the setup menu, the program will refuse to save the data unless this wire jumper is present.

13.2.10 SERVICE / Electronic check (Inputs-Outputs-Components)

Press ⚙, use ➡ to move the courser to "**SERVICE**" use ✚✓ to confirm you will get:

```
┌─────────────────────────────┐
│ Inputs        Outputs       │
│ Mem  LED  Motor  SB         │
└─────────────────────────────┘
```

(**Inputs**) ✚✓

Cov=0	**1=On and 0=Off**	**Inpout for Coverswitch**
Lev=0	**1=On and 0=Off**	**Input for Level Switch (Option,Not in use)**
SP=0	**1=On and 0=Off**	**Input for Setup jumper**
Th=0	**Re-pulses given from the motor disk**	
ID=0	**Input for speed regulation**	
VD=0	**Output for speed regulation**	

(**Inputs**) ✚✓

H1=0	**1=On and 0=Off**	**Output for HeaterH1**
Cir1=0	**1=On and 0=Off**	**Output for Circulation Pump**
Rep1=0	**1=On and 0=Off**	**Output for Replenishment Pump**
Col=0	**1=On and 0=Off**	**Output for Magnetic Valve: Cooling**
Wsh=0	**1=On and 0=Off**	**Output for Magnetic Valve: Wash**
Hd=0	**1=On and 0=Off**	**Output for DryerFan**

(**Mem**) ✚✓

Load default val
Medical NDT Exit   **........Medical when the processor is used for**
                      medical X-Ray application
                ....NDT when the processor is used for
                      industrial X-Ray application

(**LED**) ✚✓

Use to check the LEDs of the operator Display

(**Motor**) ✚✓

Speed:	**0 +-**	**Used to check the motor**
Ph_Del:	**0**	**needed for internal calculation**
T=0		**needed for internal calculation**

(**SB**) ✚✓

Speed:	**0 +-**	**no. of sensor**
S-bar:	**- - - - - -**	**Sensor check (optical sensorbar)**

14. SOFTWARE UPDATE

Warnung: Diese Anleitung ist nur für qualifizierte Service Techniker bestimmt.
Warning: For the use of qualified service personnel only.
Avertissement: Réservé au personnel de service qualifié.

Whenever a Software update available,we are announcing that on our Homepage. We rcommend to check this side regulary to see wether a new software is available. In case yes, you can download the update free of charge.

* # <u>http://www.colenta.de</u> /X-ray/X-Ray Processors/MP900E

* # click to Software update and enter the Password: **MINI56xf**

* # Dowload the software and store the file (hex) on your hard disc

* # Check wether some additional informations are available

<u>Follow now the illustrations below to update the processor.</u>

Firstly you need to install the program "Flash Magic" on your system. To do that, open the folder MINI_FlashMagic supplied on that CD or download from WEB as well. Follow up the installation routine. When the installation was done successfully, start the program, open the pull-down menu "Options", confirm "Advanced Options" open the register card "Timeouts" and set the values as shown below:
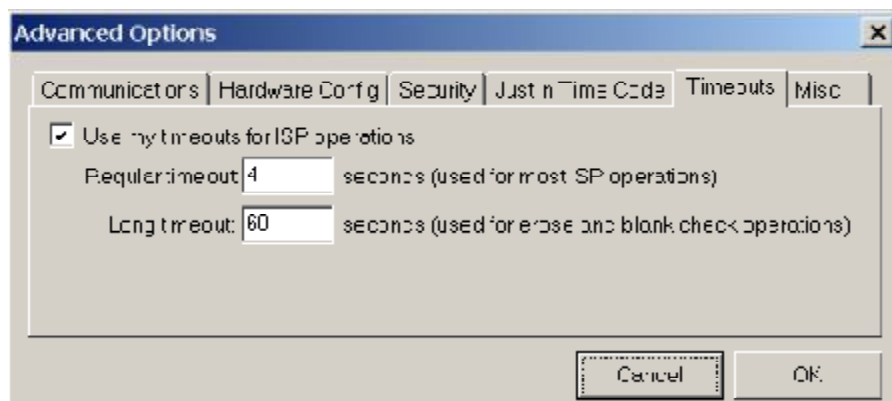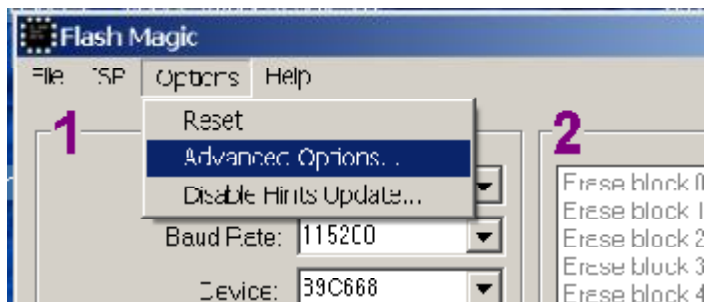
 #   Switch off the Processor

 #   Place the jumper on ST15 as shown.
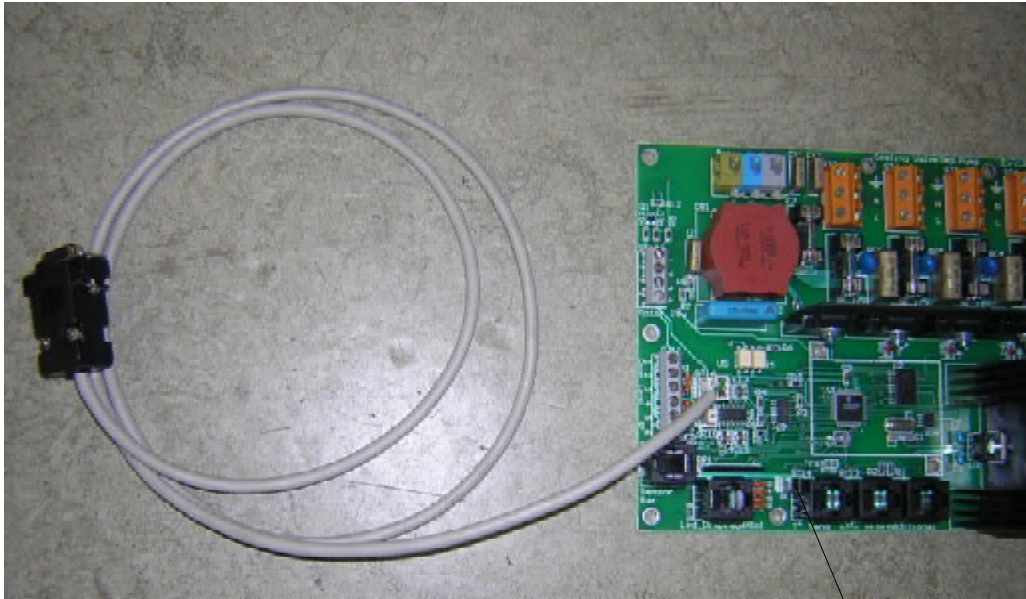
JUMPER ST15

 #   Connect the download cable
       - on your PC / RS232 - 9pin
       - on the MainBoard of the processor on RS232
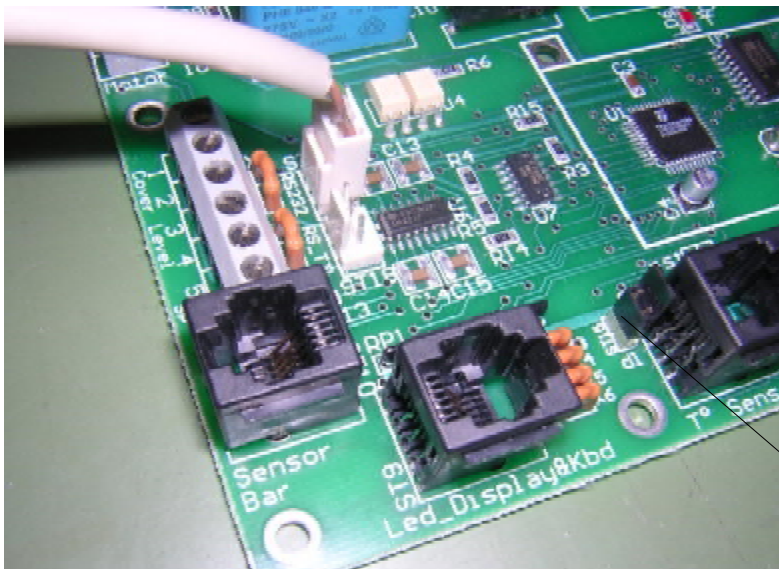
JUMPER ST15

 #   Switch on the Processor (the service display will confirm that the CPU is now in program mode by showing black lines

 #   Start the program "FlashMagic"

Don't forget to remove the jumper when the reprogramming is done.
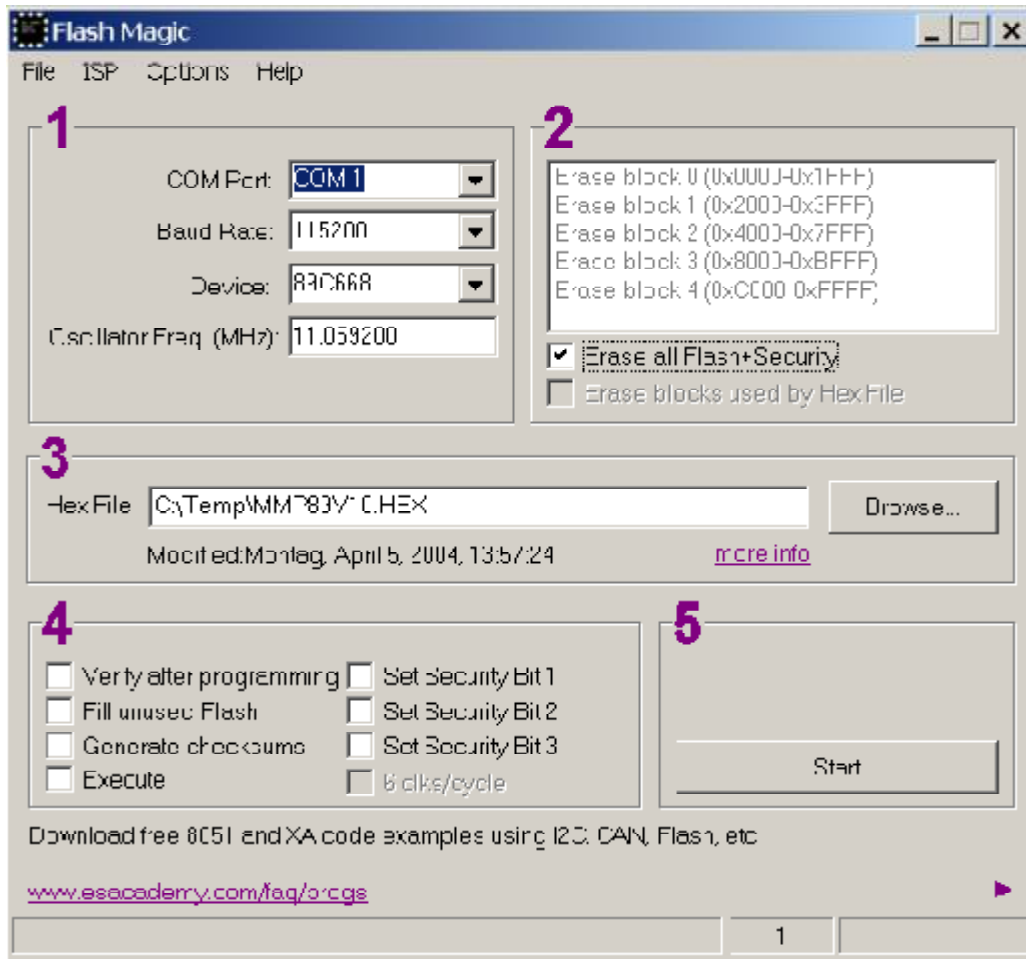
add1) Compare the values shown on the image before with the values mentioned on your FlashMagic program.

add2) Make sure that the box " Erase all Flash+Security" is choosen.

add3) Browse the new Download file

add4) make sure that nothing is chossen

add5) Push the button Start

NOTE: In case an Error is indicated right after starting, restart the processor, restart the program and try again.

IMPORTANT: After succefully updating the software, remove the update jumper (mentioned on the page before), put the setup jumper in position and enter the setup by pushing ⚙ (service display!) . Choose <u>Service</u>, move over to <u>MEM</u> you will get :
Load default val
Medical NDT Exit

According the application: choose Medical or NDT

NOTES:

NOTES:

NOTES:

0	1	2	3	4	5	6	7	8	9	10	11	12	13

PDB - ST1 (MAINS)

F8
T8A

L (Page 2/1)
N (Page 2/1)
PE (Page 2/1)

F7
T0,63A

S1

3
2

1,5mm²
(AWG 16)

L N PE
L N PE

NETZANSCHLUSS
POWER CONNECTION
N~/230 50/60Hz
13A 1,7kW

MEDIPHOT 900E

TC1
+5V

ST 8 ⊥ L N
ST17 1 2 3 4

black
brown
orange
red

1 2

2 1
115V
T>
115V
3 4

M1

MAIN-DRIVE-MOTOR

LD6
IC13
R6
RC6
U
F6 T0,63A
PDB - ST7
1 2
L´ N

LD5
IC12
R5
RC5
U
F5 T0,63A
PDB - ST6
3 4
L´ N

1 2
Y1
MAGNETIC VALVE
WASH VALVE

1 2
Y2
MAGNETIC VALVE
COOLING VALVE

LD4
IC11
R4
RC4
U
F4 T0,63A
PDB - ST5
L´ N

LD3
IC10
R3
RC3
U
F3 T0,63A
PDB - ST4
1 2
L´ N

LD2
IC09
R2
RC2
U
F2 T1,6A
PDB - ST3
1 2
L´ N

1 2
T>
M6
REP. PUMP
TANK 1
(DEV.)

1 2
T>
M7
REP. PUMP
TANK 2
(FIX.)

T>
M2
CIRC. PUMP
TANK 1+2
(DEV.+FIX.)

T>
50°C
350W
TANK1+2 - HEATER
(DEV.+FIX.)

			Datum	28-11-2005	RDM8-2_01	1			STROMLAUFPLAN RDM8-2	
			Bearb.	HANDLER				Colenta		
			Gepr.	fh				LABORTECHNIK	WIRING DIAGRAM RDM8-2	Blatt 1
Zust.	Aenderung	Datum	Name	Norm	DIN EN 60950	Z.Nr.		Zust.	Ers. fuer	A-2700 Wr. Neustadt		von 3	Bl.

DETAIL DRAWING
DRYER HEATER

DRYER HEATER

1100W

L (Page 1/12)
N (Page 1/12)
PE (Page 1/12)

LD1
IC08
R1
U
RC1
F1 T6,3A
PDB - ST2
L'   N

black
blue
T>

blue   black   brown
C1
1,5µF

STROMLAUFPLAN RDM8-2

WIRING DIAGRAMM RDM8-2

				Datum	28-11-2005							
				Bearb.	HANDLER	RDM8-2_03	0			Colenta	Blatt 3	
				Gepr.	fh					LABORTECHNIK		
Zust.	Aenderung	Datum	Name	Norm	DIN EN 60950	Z.Nr.		Zust.	Ers. fuer	A-2700 Wr. Neustadt	von 3 Bl.	

0	1	2	3	4	5	6	7	8	9	10	11	12	13

50W COS 0,68   15W   15W   34W cos 0,67   35W cos 0,69   350W   1141W cos 0,99

WASH VALVE   COOLING VALVE   REP. PUMP   CIRC. PUMP   HEATER DEV.   DRYER HEATER+FAN

ST7   ST6   ST5   ST4   ST3   ST2

PDB MINI_04_2004
P89C668

ST1

MAINS

DRYER FUSE

N   N   N   N   N   N   N

L   L   L   L   L   L   L

F1   T6,3A

F9   T8A

MAIN FUSE

ST8

MOTOR HIGH   ST8

F7   T0,63A

F6   T0,63A   F5   T0,63A   F4   T0,63A   F3   T0,63A   F2   T1,6A

ST17
bl 1
br 2
or 3
re 4
MOTOR LOW

LD1   U8

F8   T0,63A

ST11
LEVEL COVER   SETUP
1
2
3
4
5
6

C10

U 15   U13   U12   U11   U10   U9

LD6   LD5   LD4   LD3   LD2

RS TTL   RS232

PHILIPS CPU

ST19   230V

VOLTAGE SELECT

110V

ST10

SENS. BAR

ST9

Led_Display&Kbd

ST15   ST14   ST13   ST12

TEMP PROBE   EXT.DISPLAY   Additional

POWER SUPPLY   MAIN FILTER

				Datum	28-11-2005	PDB_MINI_04_2004 _P89C668	0			Colenta	SICHERUNGSBESTÜCKUNG RDM 8-2		
				Bearb.	HANDLER					LABORTECHNIK A-2700 Wr. Neustadt	PDB RDM 8-2	Blatt 1	
				Gepr.	fh								
Zust.	Aenderung	Datum	Name	Norm	DIN EN 60950	Z.Nr.		Zust.	Ers. fuer			von 1	Bl.