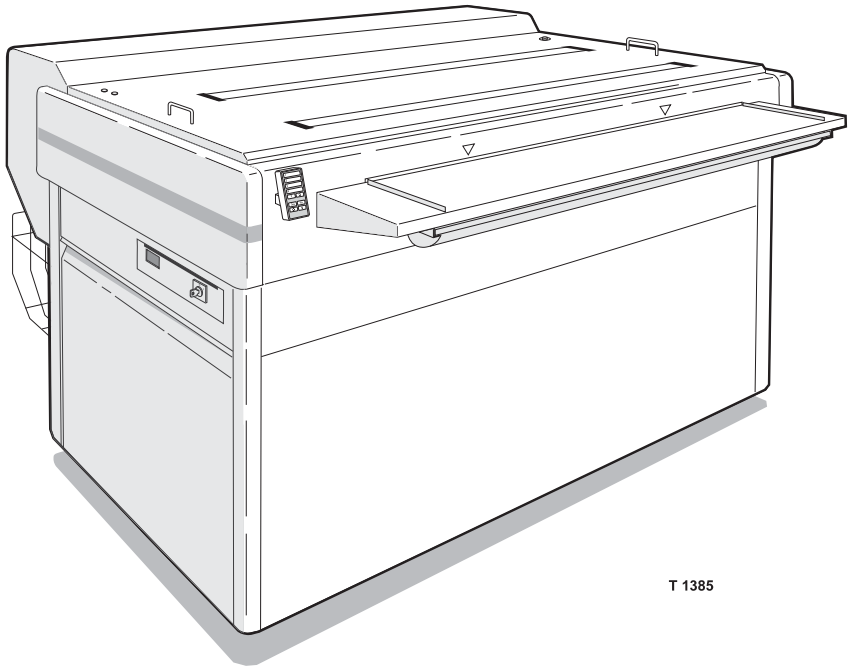
MultiLine 950/1250/1550
MultiLine 37/49/61



This manual is for Service Technicians only and the directions given must not be followed by unauthorized personnel. Always read the Safety Instruction *Manual part No 21741* before starting up the equipment and keep it with the machine for reference at all times.

Edition D - February 2000 **This manual has part No 11744-B**

GENERAL INFORMATION

This manual is published by:

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This manual is valid for:

MultiLine 950 film processors from serial nos **9385-0075** and **9395-0036**
MultiLine 1250 film processors from serial nos **9386-0118** and **9396-0044**
MultiLine 1550 film processors from serial no **9387-0020** and **9397-0005**
MultiLine 37 film processors from serial no **90168-0039**
MultiLine 49 film processors from serial no **90169-0046**
MultiLine 61 film processors from serial no **90170-0014**

The serial no is specified on the processor nameplate located on the backside of the machine next to the film basket.

The manual was written and illustrated using the best possible information available at the time of publication.
Any differences between the manual and the equipment reflect improvements introduced after the publication of the manual.
Changes, technical inaccuracies, and typographic errors will be corrected in subsequent editions.
As a part of our policy of continuous improvement, we reserve the right to alter design and specifications without further notice.

IMPORTANT!

It is the responsibility of the owner and operator/s of this machine, that the installation is made in accordance with local regulations, and by engineers authorized to carry out plumbing and electrical installations.
The manufacturer cannot be held responsible for any damage caused by incorrect installation of this machine.
The installation procedure is described in chapter 2 “INSTALLATION”.

SILVER RECOVERY

To avoid any damage (ex. corrosion of the fixer tank heater element) only a special Silver Recovery Unit must be connected to the processor! Contact your local dealer for more information.

WARNINGS, CAUTIONS AND NOTES!

Throughout the manual warnings, cautions, and notes are written in italics on a grey background like the example below:

CAUTION! Fuses should only be changed by authorized personnel.

Explanation:

NOTE!
The operator should observe and/or act according to the information in order to obtain the best possible function of the equipment.

CAUTION!
The operator must observe and/or act according to the information in order to avoid any mechanical or electrical damage to the equipment.

WARNING!
The operator must observe/and or act according to the information in order to avoid any personnel injury.

AUTHORIZED PERSONNEL

Some notes, cautions and warnings refer to Authorized personnel or Service Technician like the example below:

NOTE! Authorized personnel only.

NOTE! Call service technician.

Explanation:

Authorized personnel:
Persons inside your company who are familiar with all the processors functions, change in programs and maintenance.

Service Technician:
Service personnel from your local dealer, who is trained in servicing the film processors.

TABLE OF CONTENTS

. . . . . PAGE

GENERAL INFORMATION 0.2

APPROVALS 0.2
WARNINGS, CAUTIONS AND NOTES 0.4
AUTHORIZED PERSONNEL 0.4

TECHNICAL SPECIFICATIONS 1.1

PROCESSING MATERIAL 1.1
SPECIFICATIONS. 1.1
ADDITIONAL SPECIFICATIONS . . . . . (SEE APPENDIX B)

INSTALLATION 2.1

PREPARATIONS BEFORE INSTALLATION 2.1
ENVIRONMENTAL REQUIREMENTS 2.1
SPACE REQUIREMENTS 2.1
WATER SUPPLY 2.1
DRAIN OUTLETS 2.1
CLEANING FACILITIES 2.1
POWER CONNECTIONS 2.1
UNPACKING 2.2
MECHANICAL INSTALLATION 2.2
INSTALLATION KIT 2.2
INSTALLATION OF ROLLERS AND GUIDES 2.2
“THROUGH-THE-WALL” INSTALLATION. 2.6
WATER CONNECTION 2.7
DRAIN CONNECTIONS 2.8
REPLENISHMENT HOSES . . . . . (SEE APPENDIX B)
EXHAUST INSTALLATION FOR CHEMICAL VAPOURS 2.9
LEVELLING OF THE MACHINE 2.9
ELECTRICAL INSTALLATION 2.10
MOUNTING A PLUG 2.10
MODIFICATION FOR TRANSFORMER 2.10
MAIN POWER CONNECTION, USA-MODELS 2.11
TIMER 2.12

TABLE OF CONTENTS

. . . . . PAGE

FUNCTIONAL DESCRIPTION 3.1

GENERAL 3.1
DEVELOPER/FIXER SECTIONS 3.2
WASH SECTION 3.2
DRYER SECTION. 3.2
REPLENISHMENT SYSTEM 3.3
ECOLOGICAL UNITS 3.3
TRANSPORT SYSTEM 3.3
MAIN COMPONENTS. 3.5
ELECTRONIC CONTROL 3.11
MAINBOARD PCB GCB 3.11
FUSES 3.11
DRAWER LOCK 3.11
OPERATING MODES 3.13
“OFF”-MODE 3.13
“STAND-BY” MODE 3.13
PROCES MODE. 3.13
ECOLOGY EQUIPMENT 3.15
FIXER UNIT 3.15
DEVELOPER UNIT. 3.15
INSTALLATION 3.15
FUSES 3.16
ELECTRICAL DIAGRAM . . . . . (SEE BEHIND APPENDICES)

OPERATING PROCEDURES 4.1

INITIAL START-UP 4.3
SETTING OF THE PROGRAMS 4.5
DAILY START-UP 4.5
PROCESSING FROM THE FEED TABLE 4.7
PROCESSING FROM THE ROLL FILM TRAY. 4.7
PROCESSING PTS-CASSETTES FROM THE DAYLIGHT CASSETTE 4.9
PROCESSING FROM THE DAYLIGHT SLOT 4.11
USING THE REWASH SLOT 4.11
ADJUSTMENTS 4.13
MAKING ADJUSTMENTS 4.13
SHUT-DOWN PROCEDURE 4.15

TABLE OF CONTENTS

. . . . . PAGE

THE CONTROL BOX 5.1

GENERAL 5.1
DIMENSIONS 5.1
FEATURES 5.1
FUNCTIONAL DESCRIPTION 5.3
DAYLIGHT AND REWASH LAMPS 5.6

CLEANING AND MAINTENANCE 6.1

GENERAL 6.1
ROLLERS AND GEARS 6.3
CLEANING 6.5
GENERAL 6.5
DAILY CLEANING 6.5
WEEKLY CLEANING 6.5
MONTHLY CLEANING 6.7
CLEANING OF VALVES IN THE REPLENISHMENT PUMPS 6.7
DEVELOPER FILTER 6.7
CLEANING OF CIRCULATION PUMP 6.8
MAINTENANCE 6.9
REPLACING A FUSE 6.9
REPLACING THE RELAY 6.9
CHECK OF DEVELOPER REPLENISHMENT 6.10
CHECK OF FIXER REPLENISHMENT 6.10
CHECK OF OXIDATION REPLENISHMENT 6.10

TROUBLE SHOOTING 7.1

GENERAL 7.1
CONDITIONS BEFORE TROUBLE SHOOTING 7.1
PROBLEMS WITH THE PROCESSOR 7.2
PROBLEMS WITH PROCESSED MATERIAL 7.5

TABLE OF CONTENTS

. . . . . PAGE

SPAREPARTS **8.1**

PARTS DELIVERED . . . . . (SEE APPENDIX B)
INSTALLATION KIT . . . . . (SEE APPENDIX B)
SPAREPARTS KIT. . . . . (SEE APPENDIX B)
ISOMETRIC DRAWINGS AND SPARE PARTS 8.2
ADDITIONAL SPAREPARTS . . . . . (SEE APPENDIX B)

SERVICE INFORMATION **APPENDIX A**

PARAMETER LEVELS, PCB GCB A.1
PARAMETERS (EUR) A.2
PARAMETERS (USA) A.4
EXPLANATION, PARAMETERS A.6
DISPLAY FORMAT IN NORMAL MODE A.9
CALCULATING THE REPLENISHMENT. A.11
GENERAL A.11
CALCULATION A.11
DISPLAY OF REPLENISHMENT VALUES A.11
TEST-PROGRAM A.12
ENTERING TEST-MODE. A.12
DISPLAY FORMAT IN TEST-MODE A.12
LEAVING TEST MODE. A.12
SUB-TEST PROGRAMS A.13
ADJUSTING OF THE PCB GCB A.15
LED DESCRIPTION A.16
CURL-TEST. A.17

ADDITIONAL INFORMATION **APPENDIX B**

PARTS DELIVERED B.1
INSTALLATION KITS B.1
SPAREPARTS KIT B.5
ADDITIONAL SPAREPARTS. B.6
ADDITIONAL SPECIFICATIONS B.9
REPLENISHMENT HOSES B.9

ELECTRICAL DIAGRAM

CHAPTER 1

TECHNICAL SPECIFICATIONS

NOTE! Some film processors may have other technical specifications than described in the following.
See APPENDIX B for further information.

PROCESSING MATERIAL

- Rali materials.
- Imagesetting on RC paper and polyester film.
- Camera line exposures on rapid access film.
- Contact work on contact film, rapid access film and daylight film.
- Laser scanner positives on rapid access film.
- Halftones on rapid access film.
- Paper contact work.

SPECIFICATIONS

FILM WIDTH

Model 950: 7.0 - 95 cm (2.8" - 37.4")
Model 1250: 7.0 - 125 cm (2.8" - 49.2")
Model 1550: 7.0 - 155 cm (2.8" - 61.0")

FILM LENGTH

12.0 cm - 3.0 m (4.7"-118.1")

FILM THICKNESS

0.0762 - 0.1905 mm (0.003"-0.0075")

DEV. TIME

15 - 60 sec.

TRANSPORT SPEED

29 - 116 cm/min. (11.4 - 45.7 in/min.)

DRY-TO-DRY TIME

70 - 279 sec.

CONVERSION TABLE

Dev. time in sec.	Film speed cm/min. (in/min.)	Dry-to-dry in sec.
60	29 (11.4)	279
55	32 (12.6)	256
50	35 (13.8)	233
45	39 (15.4)	209
40	44 (17.3)	186
35	50 (19.7)	163
30	58 (22.8)	140
25	70 (27.6)	116
20	87 (34.3)	93
15	116 (45.7)	70

TEMPERATURES

Dev : 20 - 40°C (68 - 104° F)
Fix : 20 - 40°C (68 - 104° F)
Dryer : 20 - 70°C (68 - 158° F)
Dryer stand-by: 40°C app. (104°F)

TANK CAPACITIES

Model 950:	Dev	21.0 l	(5.5 US gal.)
	Fix	22.0 l	(5.8 US gal.)
	Wash	18.0 l	(4.8 US gal.)
Model 1250:	Dev	27.0 l	(7.1 US gal.)
	Fix	28.0 l	(7.4 US gal.)
	Wash	24.0 l	(6.3 US gal.)
Model 1550:	Dev	33.0 l	(8.7 US gal.)
	Fix	34.0 l	(8.9 US gal.)
	Wash	30.0 l	(7.9 US gal.)

HOSE CONNECTIONS

Water supply: 12 mm reinforced hose (3/4" or 1/2" male thread)

Drains:

Dev:	22/25 mm	(1")
Fix:	22/25 mm	(1")
Wash:	22/25 mm	(1")

(Water hose and drain hoses are delivered with the machine).

Air exhaust: 100 mm (4")

WATER SUPPLY

Consumption:

in operate:	1.65 l/min.	(0.43 gal./min.)
	or	
	3.3 l/min	(0.86 gal./min.)
in stand-by:	0.0 l/min	(0.0 gal./min.)
Pressure:	1.5 - 4 bar	(22 - 60 psi)
Temperature:	5-40°C	(41-104°F)

DEVELOPER FILTER

Some processors are equipped with a developer filter. Information about the developer filter is specified in a separate manual delivered with the processor.

POWER SUPPLY

- 230V AC, single phase + PE, 50-60 Hz 28 A, or
- 230V AC, 3 phases + PE, 50-60 Hz, 3 x 17 A, or
- 3 x 230/400V AC + N + PE, 50-60 Hz, 3 x 12 A

Total, max.: 6800 Watt

VOLTAGE TOLERANCES

230V +10% / -14%

POWER CONSUMPTION

Max: 6.800 Watt

NOISE LEVEL

In operate: < 70 dB (A)
In stand-by: < 70 dB (A)

DIMENSIONS, PTS-CASSETTES

The max. dimensions of the PTS-cassettes that fit into the daylight cassette (option) are:

Model 950:

Width:	103 cm	(40.5")
Depth:	19.5 cm	(7.7")
Height:	19.5 cm	(7.7")

Model 1250:

Width:	133 cm	(52.3")
Depth:	19.5 cm	(7.7")
Height:	19.5 cm	(7.7")

Model 1550:

Width:	163 cm	(64.2")
Depth:	19.5 cm	(7.7")
Height:	19.5 cm	(7.7")

DIMENSIONS

(See Fig. 1/1)

Model 950:

Width **(W)**:	140 cm	(55.1")
Depth **(D):**	125 cm	(49.2")
Depth **(D2):**	26 cm	(10.2")
Height **(H1):**	113-115 cm	(44.5-45.3")
Height **(H2):**	99-101 cm	(39-39.8")

Model 1250:

Width **(W)**:	170 cm	(66.9")
Depth **(D):**	125 cm	(49.2")
Depth **(D2):**	26 cm	(10.2")
Height **(H1):**	113-115 cm	(44.5-45.3")
Height **(H2):**	99-101 cm	(39-39.8")

Model 1550:

Width **(W):**	200 cm	(78.7")
Depth **(D):**	125 cm	(49.2")
Depth **(D2):**	26 cm	(10.2")
Height **(H1):**	113-115 cm	(44.5-45.3")
Height **(H2):**	99-101 cm	(39-39.8")

WEIGHT

See APPENDIX B.

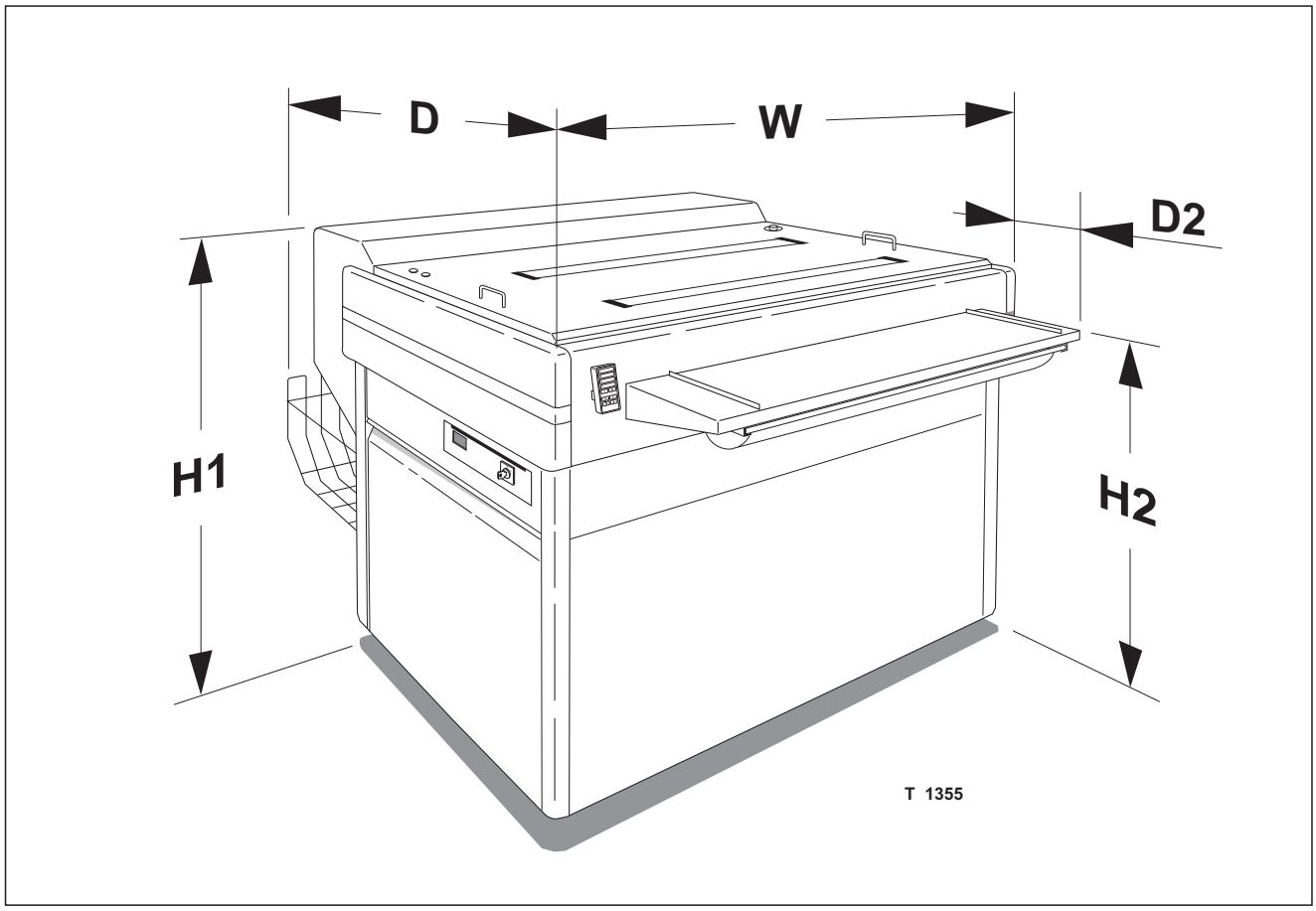


Fig. 1/1 Processor Dimensions

CHAPTER 2

INSTALLATION

PREPARATIONS BEFORE INSTALLATION

To avoid waste of your production time as well as the time it will take for the engineer to install the machine, make sure that the requirements listed below are fulfilled before you make the installation. Installation procedure is described from on the next pages.

ENVIRONMENTAL REQUIREMENTS

Provide a heating and ventilating system capable of maintaining room temperature between 15 and 25°C (59 - 77°F) and relative humidity (RH) on max. 80%.

SPACE REQUIREMENTS

Make sure that free space around the machine at the installation site will be approx. **1 m** (3-4 ft). This makes servicing possible, and allows you to pull out the electronics drawer and the trolley.

WATER SUPPLY

A water tap should be installed close to the installation site. Max. distance to the machine should be **2 - 3 m** (6 - 10 ft). See chapter 1 for specifications. The water hose is included with the installation kit.

DRAIN OUTLETS

The drain outlet should have a funnel shape to allow for proper drain line routing.
The recommended distance from the machine to the drain is **0.5 m - max. 2 m** (2 - 6 ft).

NOTE! Copper or brass should not be used in the drainage system as fixer containing silver might attack it. Therefore plastic or rubber is recommended.
(See also "DRAIN CONNECTIONS").

NOTE! If silver recovery is desired, the drain hose from the fixer tank can be connected to a silver recovery unit.
(See chapter 3, "ECOLOGICAL UNITS").

CLEANING FACILITIES

For cleaning purposes it would be convenient to have easy access to a water tap and a suitable sink, where rollers and guides can be washed and chemicals mixed.

POWER CONNECTIONS

If not already there, a main power outlet should be installed in the room, where the machine will be situated. Max. recommended distance to the machine is **2 m** (6 ft).
The requirements are specified in chapter 1.

UNPACKING

Carefully unpack the machine and check that all parts are present and in good condition. The parts included in the delivery are listed on page 8/1. Delivered with the processor are the different parts needed for the installation and parts for minor repairs:

Parts delivered ...
are specified on a packing list delivered with the processor.

Installation kit ...
is delivered with the processor in a cardboard box. The kit consists of different parts needed for the installation. The parts are specified on a separate list included.

Spareparts kit ...
is delivered in a small red box. Inside is a label with list of enclosed spareparts, numbers of each sparepart and sparepart order numbers.

Make sure that all parts are present and in good condition.

MECHANICAL INSTALLATION

INSTALLATION KIT

An installation kit is included with the processor. It comprises the different parts necessary for the installation.
See APPENDIX B for further information.

INSTALLATION OF ROLLERS AND GUIDES

The rollers and guides are delivered in boxes packed seperately for each section (DEV, FIX and WASH).
Install the rollers and guides etc. in the sequence indicated on the illustrations on the following pages. For references see roller configuration diagram in chapter 6.

NOTE! When installing the 50 mm bottom rollers remember to secure them with the clamp in the tank wall (see Fig. 2/1).

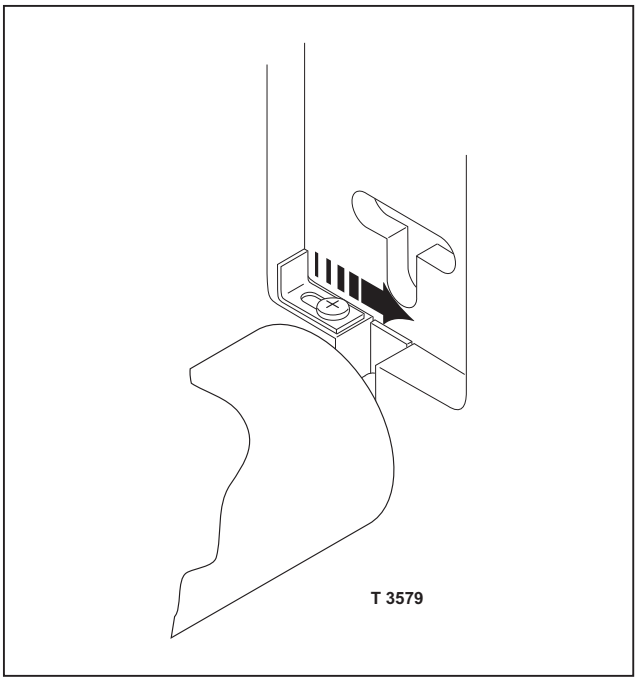
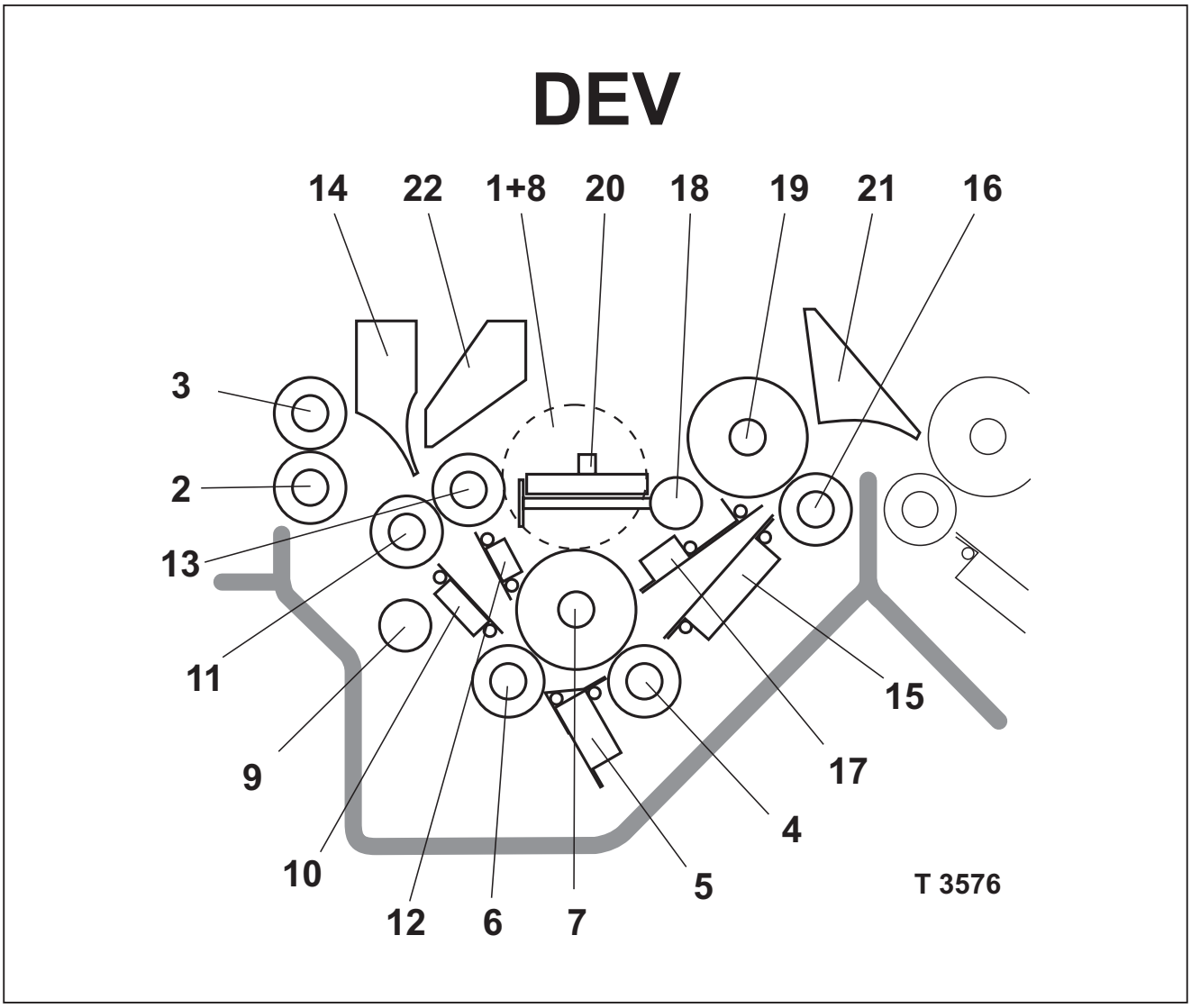


Fig. 2/1

INSTALLATION SEQUENCE DEVELOPER SECTION

NOTE! Some film processors may have special configuration in the developer section. See APPENDIX B for further information.

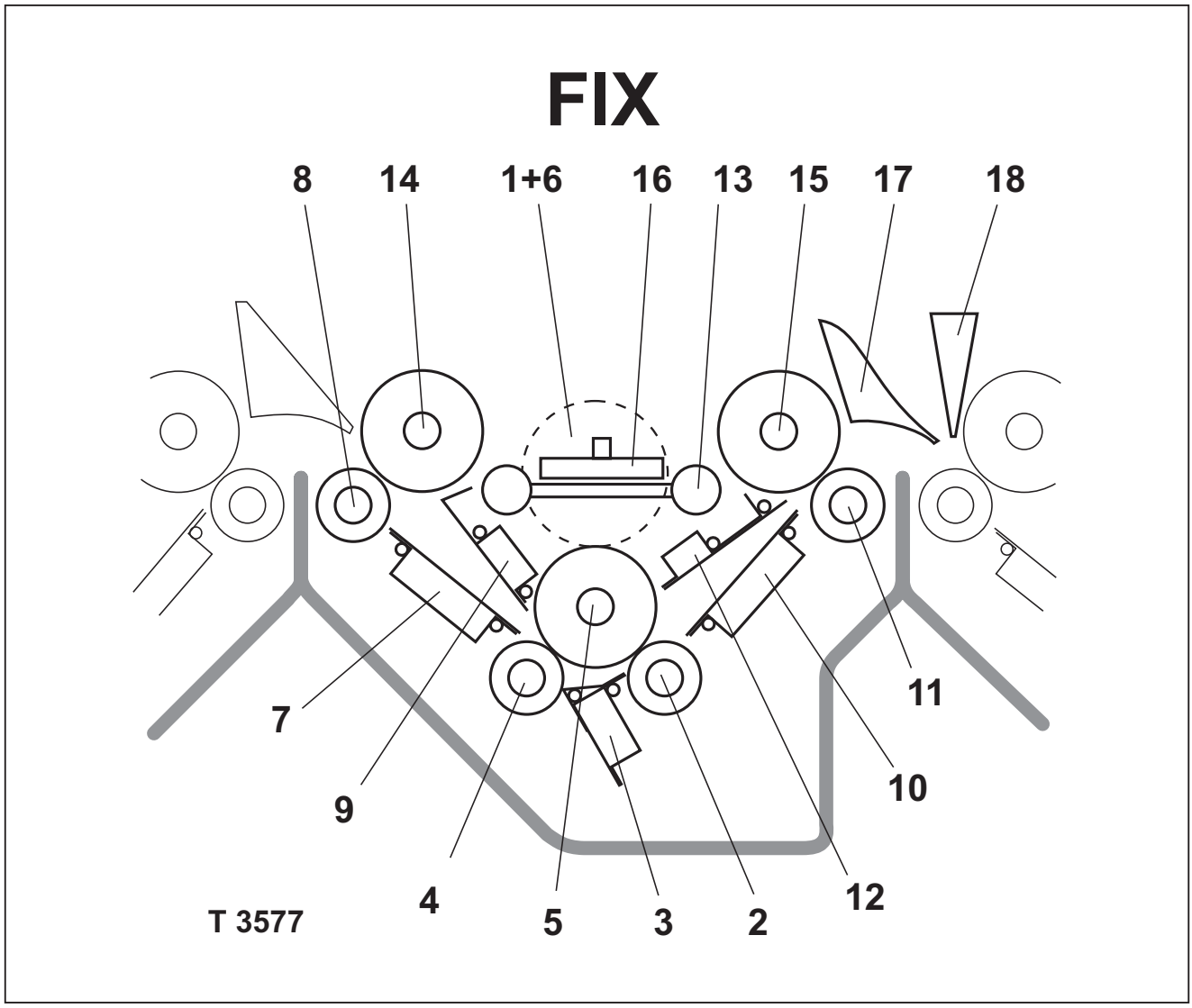
1. REMOVE GEAR Z70
2. RUBBER ROLLER
3. SPLIT-ROLLER
4. LIGHT ROLLER
5. BOTTOM GUIDE
6. LIGHT ROLLER
7. 50 MM ROLLER (SECURE WITH CLAMP)
8. INSERT GEAR Z70
9. SPRAY TUBE
10. GUIDE
11. HEAVY ROLLER
12. GUIDE
13. HEAVY ROLLER W/O-RING
14. ENTRANCE GUIDE
15. GUIDE
16. HEAVY ROLLER
17. GUIDE
18. SPRAY TUBE
19. 50 MM ROLLER
20. OXI LID
21. CROSS-OVER GUIDE
22. DAYLIGHT GUIDE (NOT STANDARD)



INSTALLATION SEQUENCE
FIXER SECTION

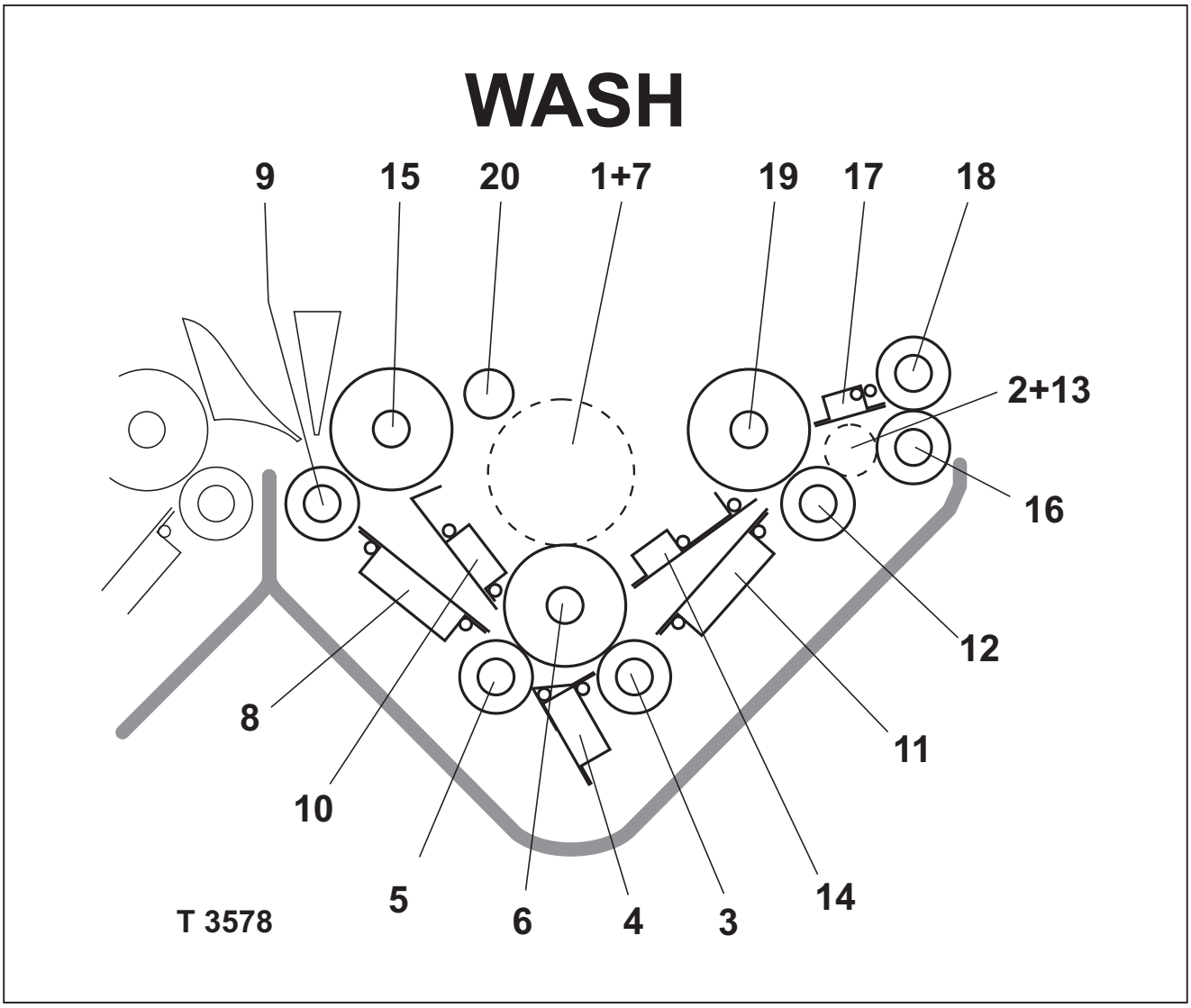
NOTE! Some film processors may have special configuration in the fixer section. See APPENDIX B for further information.

1. REMOVE GEAR Z70
2. LIGHT ROLLER
3. BOTTOM GUIDE
4. LIGHT ROLLER
5. 50 MM ROLLER (SECURE WITH CLAMP)
6. INSERT GEAR Z70
7. GUIDE
8. HEAVY ROLLER
9. GUIDE
10. GUIDE
11. HEAVY ROLLER
12. GUIDE
13. SPRAY TUBE
14. 50 MM ROLLER
15. 50 MM ROLLER
16. OXI LID
17. CROSS-OVER GUIDE
18. REWASH GUIDE (NOT STANDARD)



INSTALLATION SEQUENCE
WASH SECTION

1. REMOVE GEAR Z70
2. REMOVE GEAR Z24
3. LIGHT ROLLER
4. BOTTOM GUIDE
5. LIGHT ROLLER
6. 50 MM ROLLER (SECURE WITH CLAMP)
7. INSERT GEAR Z70
8. GUIDE
9. HEAVY ROLLER
10. GUIDE
11. GUIDE
12. HEAVY ROLLER
13. INSERT GEAR Z24
14. GUIDE
15. 50 MM ROLLER
16. RUBBER ROLLER
17. GUIDE
18. HEAVY ROLLER
19. 50 MM ROLLER
20. SPRAY TUBE



"THROUGH-THE-WALL" INSTALLATION

(See Fig. 2/2).
If the processor has to be installed in a "through-the-wall" installation, a hole has to be cut in the wall, through which the machine is going to be installed.
The hole should be cut min. **100 mm (4")** wider than the max. width of the machine (see chapter 1) and min. **200 mm (8")** higher than the feed table surface. Walls thicker than **50 mm (2")** should be cut with a slope (approx. 45°) above the feed table.

When the machine has been placed in position, the hole in the wall should be reduced to the exact size of the machine by means of a light-tight material (thickness 7 - 7.5 mm).
For this purpose a special "TWO-ROOM KIT" is available. Ask your local dealer for information about the kit.

With this kind of installation it should be taken into consideration that it must be possible, without any difficulties, to use the daylight feeding slot and to remove the top cover and the rollers and guides for cleaning and servicing purposes.

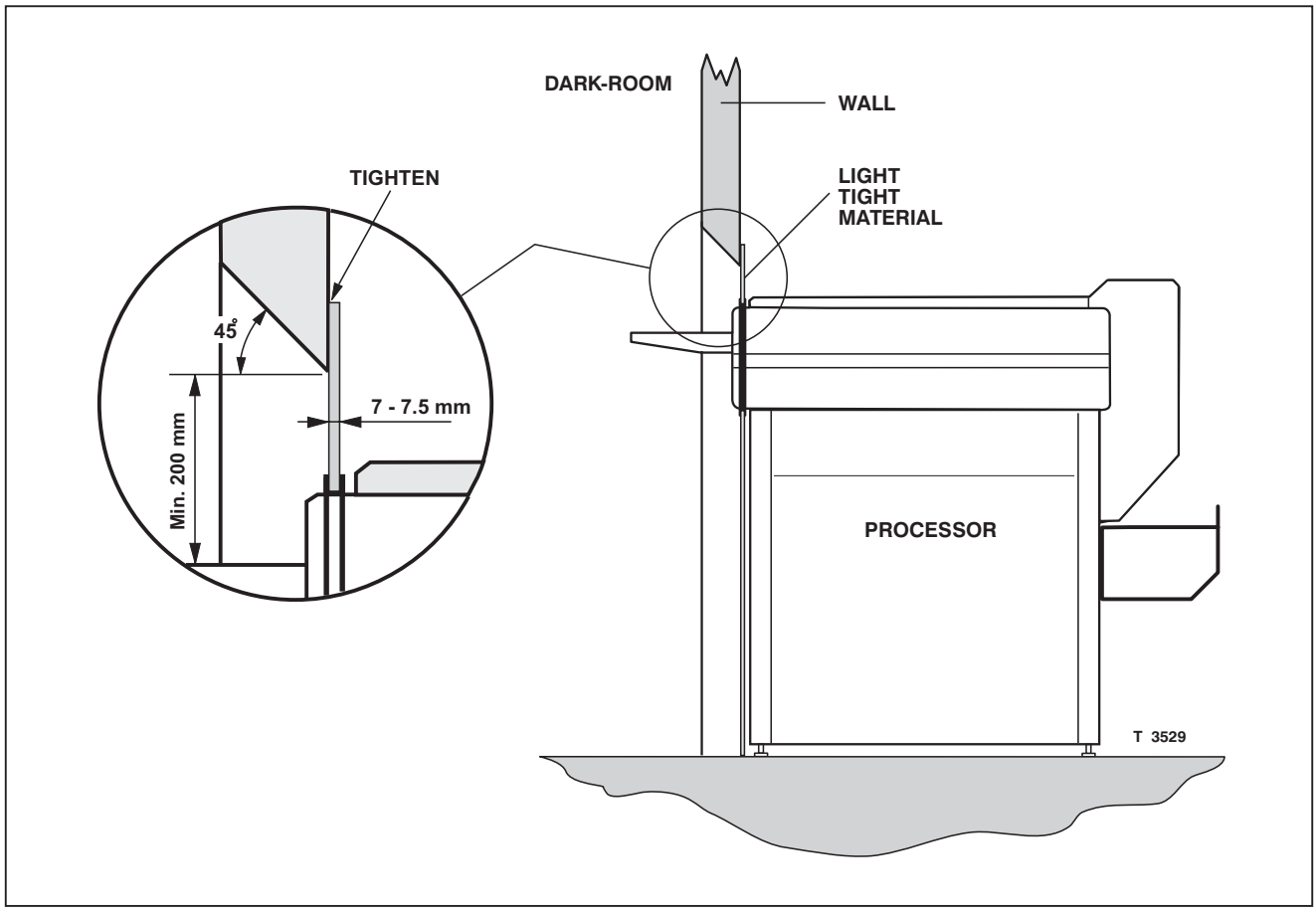


Fig. 2/2

WATER CONNECTION

The water supply connection is made by means of the plastic hose and the fitting (WRG) delivered with the machine.
As shown in Fig. 2/3 the hose must be connected between the water tap and the water inlet solenoid valve located at the left underneath the wash section.
The hose can be connected to a water tap with 1/2" or 3/4" male thread (WRG). When connecting to 3/4", the reduction nipple shall not be used.

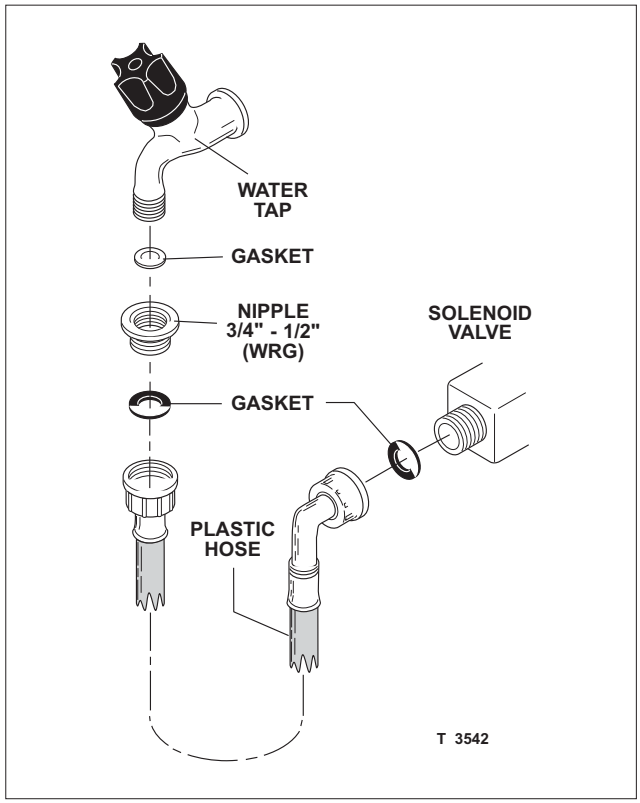


Fig. 2.3

DRAIN CONNECTIONS

Drain connections should be made underneath the machine (see Fig. 2/4). The drains from the baths are at the righthand side. Drain hoses are delivered with the machine. Lead the hoses out through the lowest hole in the lower right corner in the backside of the stand. The water drain should be led to a drain placed 0.5 - max. 2 m (2 - max. 6 ft) from the machine. Make sure there is a positive fall from the machine to the drain, and that the hoses do not sag or form water traps.

NOTE! Do not lead chemicals down the drain. Lead the drains from the chemical baths to waste chemical containers.

REPLENISHMENT HOSES

The replenishment hoses are located underneath the machine as well.

NOTE! See "APPENDIX B" for correct connection of replenishment hoses.

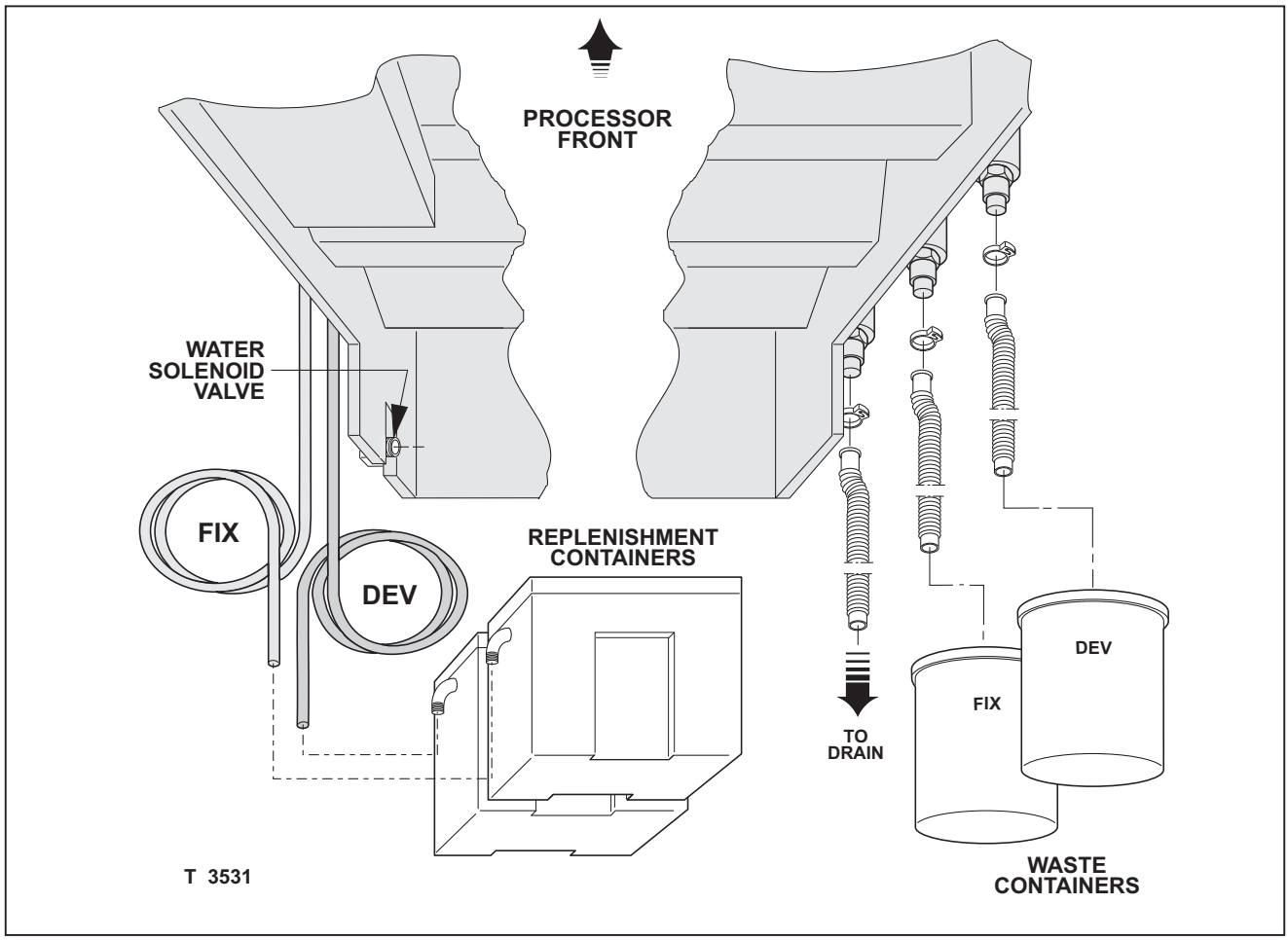


Fig. 2/4

EXHAUST INSTALLATION FOR CHEMICAL VAPOURS

The processor is equipped with a scavenger fan to remove chemical vapours from the processor and the room. The fan is located in the righthand side underneath the chemical baths. The processor can be connected to an external exhaust system by means of a 100 mm (4") exhaust hose (see Fig. 2/5).
Another possibility is to connect an Air Cleaning Unit to the processor - ask your local dealer for further information.

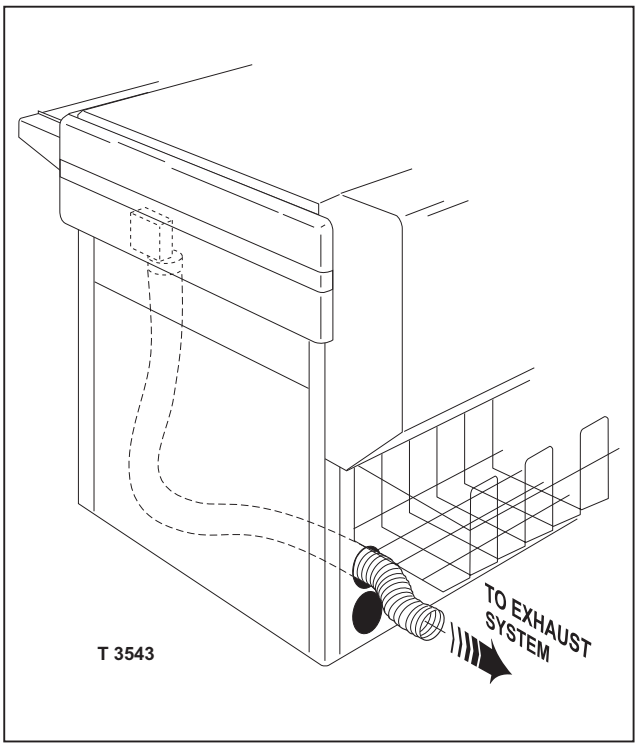


Fig. 2/5

NOTE! When connecting the processor to an external exhaust system, an adjusting valve should be fitted between the processor and the exhaust system to adjust the exhaust rate to approx. 15 m^3/h (530 ft^3/h).
If the exhaust capacity is too high you might get problems with keeping the correct temperature in the baths of the processor and the consumption of chemicals will increase unnecessarily.

LEVELLING OF THE MACHINE

NOTE! The machine must be placed on a steady surface so that it does not shake and the chemicals does not splash from one section to the other.

Use a spirit level to level out the machine. If possible place the spirit level on the top rollers in the wet sections for references. Level out by adjusting the four legs underneath the stand.
Do not rely on the floor being absolutely in level.

ELECTRICAL INSTALLATION

MAIN POWER OUTLET

TECHNICIANS ONLY

If not already there, a main power outlet should be installed next to the machine.
The requirements are specified in chapter 1.

MOUNTING A PLUG

TECHNICIANS ONLY

When mounting a plug, the wires in the main cable have to be connected as follows:

Yellow/green: Earth	
Blue:	Neutral
Black:	L1
Black:	L2
Brown:	L3

MODIFICATION FOR TRANSFORMER

TECHNICIANS ONLY

If the machine is installed in countries where the voltage is above 230V the following modification has to be made for transformer M1:

(See Fig. 2/6).

- Turn power off and unplug the unit.
- Locate terminal block **X510** on the **GCB.**
- Disconnect and isolate the **white** wire.
- In the same cable locate the **yellow** wire, remove the isolation and insert the wire into the terminal block.

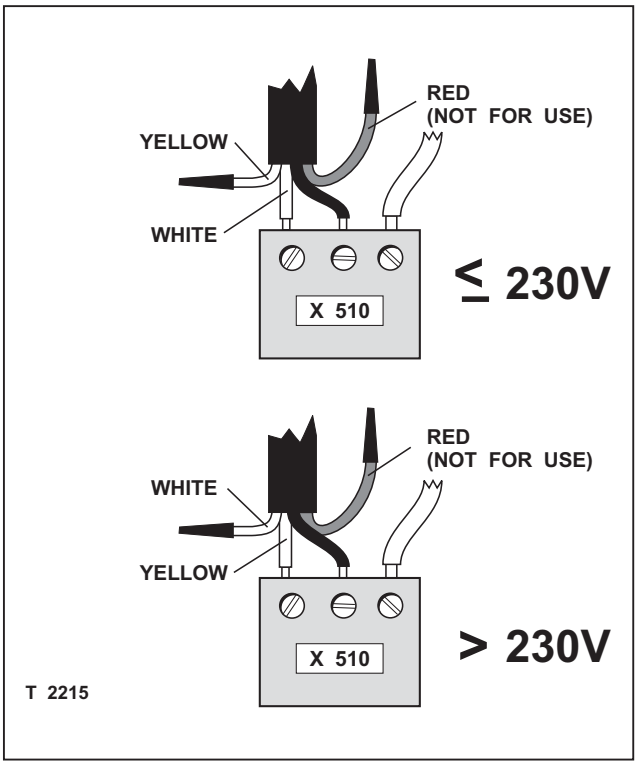


Fig. 2/6

MAIN POWER CONNECTION, US-MODELS

The processors for USA are shipped wired for single phase 208/220 volt operation and can be easily converted to a three phase power configuration.

All plugs and receptacles for this single phase connection should be the standard National Electrical Manufacturers Association (NEMA) polarized configuration L6-50 and be Underwriters Laboratory (UL) listed.

Processors for USA are provided with a 10 awg. 4 conductor power supply cord with a NEMA configuration L6-50 U.L. listed 50 amp single phase 250V + PE power plug. One conductor will be unused in the single phase connection.
For the proper receptacle please refer to your local electrician.

For three phase 208/220 volt + PE connections all plugs and receptacles should be the standard (NEMA) polarized configuration L15-30 and be Underwriters Laboratory (UL) listed.

To convert to a three phase connection make following modifications:
See Fig. 2/7.

- Change the main power plug to a NEMA configuration L15-30P U.L. listed 30 amp three phase 250 volt + PE twist lock power plug.
- Connect red, black and white wires to the gold terminals and the green wire to the green terminal.
- Connect the red insulated unused wire at the terminal block TB1, position L3.
- Place the jumpers on terminal block TB1 as shown in Fig. 2/7.
- For the proper receptacle please refer to your local electrician.

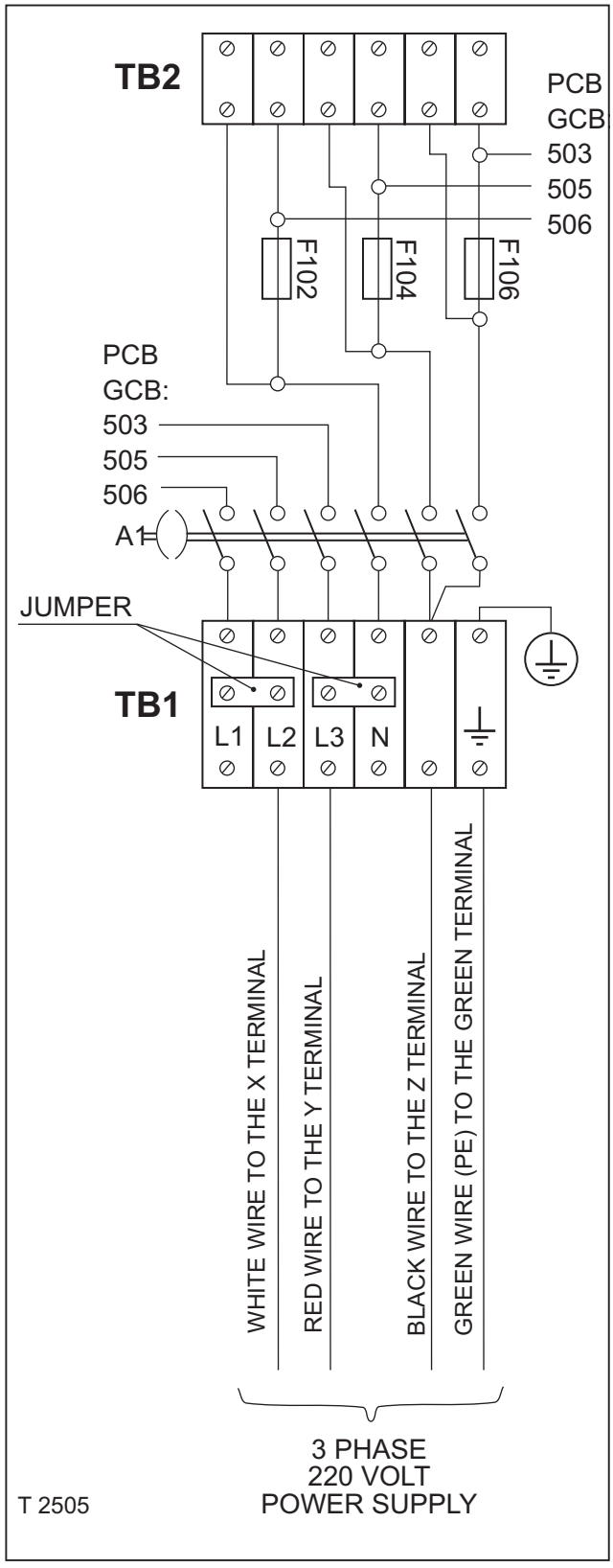


Fig. 2/7

TIMER

If you wish to connect the processor to an external timer it is possible to do so by means of the special cable delivered with the installation kit (see chapter 8).
The purpose of the timer is to start up the processor e.g. half an hour before start of working hours. This way the processor has reached the correct working temperatures when production starts.
The operator must be able to stop the processor manually but can only do so if the timer relay is “OFF”. Therefore the “ON”-time of the timer relay should be set to the shortest possible time.

Connect the processor to the timer as shown on Fig. 2/8.

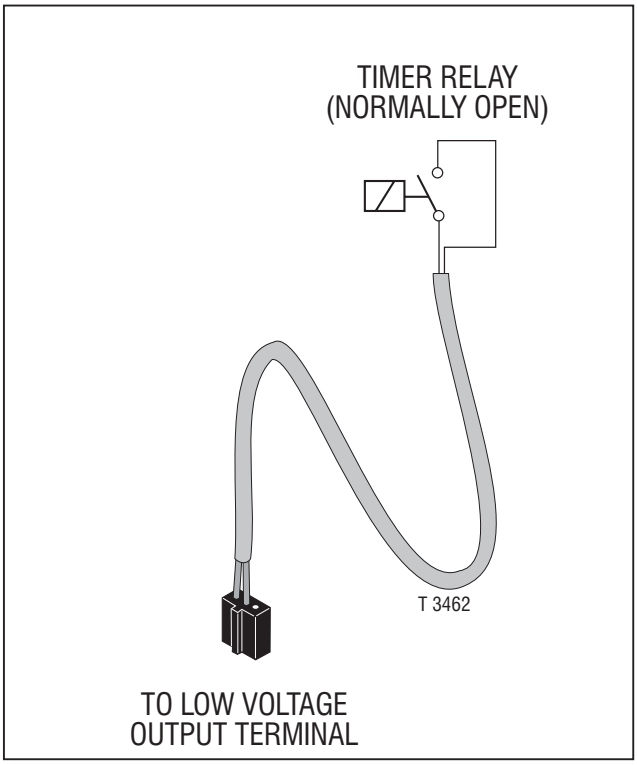


Fig. 2/8

CHAPTER 3

FUNCTIONAL DESCRIPTION

GENERAL

The processor contains 4 major sections (see fig. 3/1): Developer **(F)**, fixer **(G)**, wash **(J)**, and dryer section **(K)**. Each section performs a basic function to change the exposed film into a fully developed and dry film, ready for handling.
The operation of the processor is handled by the control box **(D)**.
The film material **(B)** is fed into the machine from the feed-table **(C)**.
A tray **(A)** underneath the feed table makes it easy to process film rolls.
If the machine is equipped with a daylight cassette **(X)** both film sheets and material frpm PTS/Imagesetter-cassettes **(Y)** can be processed.

The processor can also be equipped with a daylight slot **(E)** and a rewash slot **(H)** which make it possible to use the processor outside the darkroom when installed as a “Through-the-wall” installation. Ask your local dealer for more information about the Daylight- and Rewash slots.

At the processor entrance the transport roller system takes over and leads the film safely through each of the four sections at a uniform speed and special guides make sure that it passes smoothly from one section to another.
When the film leaves the machine, it lands in the film basket **(P)**.

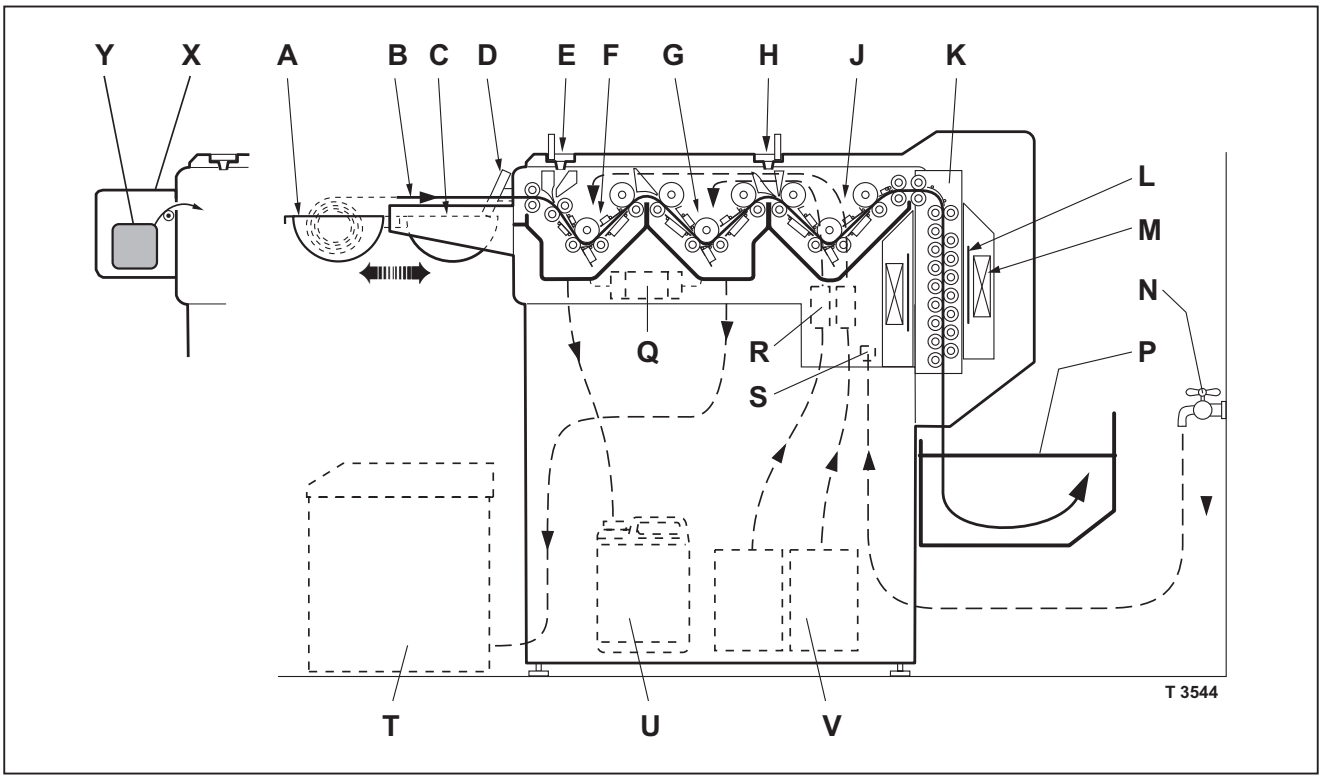


Fig. 3/1

DEVELOPER/FIXER SECTIONS

The developer **(DEV)** section **(F)** develops the latent image created during exposure and the fixer **(FIX**) section **(G)** stops the developing process and dissolves unexposed silver halide.
The **DEV** and **FIX** sections are identical, except for the rollers, containing a processing tank with a heater and a thermostate to keep the temperature constant. A level detector circuit in each tank prevents operation of the processor with insufficient amount of chemicals.
In both sections a pump recirculates the solution to maintain a uniform temperature of the chemicals and both tanks overflow into waste chemical containers **(U)** through combined overflow and drain tubes.
Each tank is covered with a floating lid preventing condensation underneath the top cover and oxidation of chemicals.

DEV and FIX roller configurations are described in chapter 6 “CLEANING AND MAINTENANCE”.

WASH SECTION

The wash section **(J)** washes off residual chemicals from the film material.
The wash section is connected to an external water tap **(N)** and the flow of the wash water is controlled by a solenoid valve **(S)**. The overflow/drain tube is accessible through the top cover.

WASH roller configuration is described in chapter 6 “CLEANING AND MAINTENANCE”.

DRYER SECTION

The dryer section **(K)** removes the moisture from the film to allow for handling immediately after processing. The dryer section contains two heater boxes, one inside and one outside the dryer rack, with integrated heaters **(L)** and blowers **(M)**.

DRYER rack roller configuration is described in chapter 6 “CLEANING AND MAINTENANCE”.

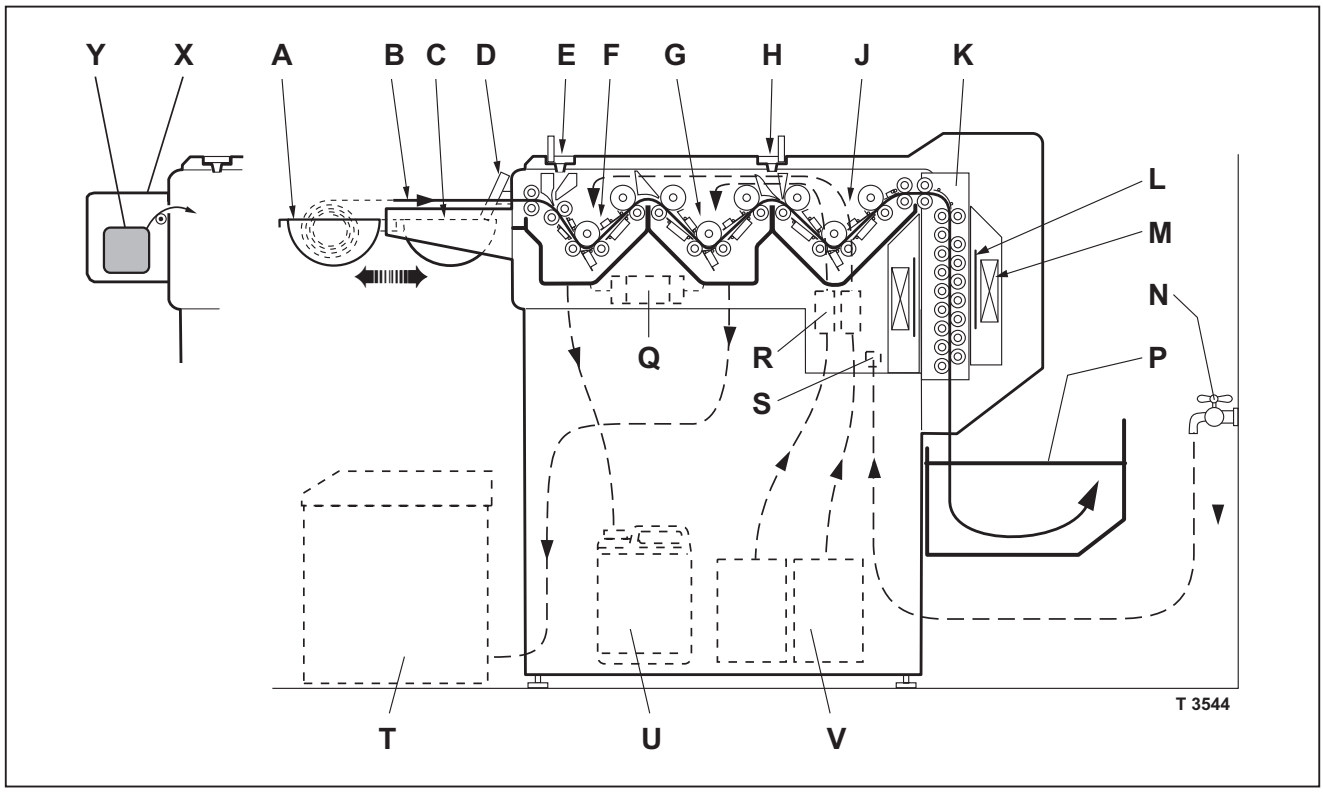


Fig. 3/1

REPLENISHMENT SYSTEM

Two oscillating pumps **(R)** connected to two external replenishment containers **(V)** automatically add developer and fixer to the tanks to compensate for chemicals used during actual film processing. The system also supplies additional developer to compensate for lost activity caused by normal oxidation.
It is possible to operate the replenishment pumps manually (to “top up” the tank levels) on the Control Box **(D)** (see also chapter 5).

Film sensors at the entrance of the processor start the replenishment control circuit when film is entered. The replenishment control circuit also starts when the daylight slot is opened, but not when the rewash slot is opened.

TRANSPORT SYSTEM

The transport system consists of a main drive-motor connected to a worm gear drive system. The drive system turns the rollers in each section and the film guides and crossovers directs the film through the processor (see Fig. 3/2). In the wet sections the bottom rollers of each rack are light, which allow them to float. This results in good contact on the film providing proper film transport. Squeegee rollers at the entrance of the dryer section remove surface moisture from the film and divert water to the wash section.

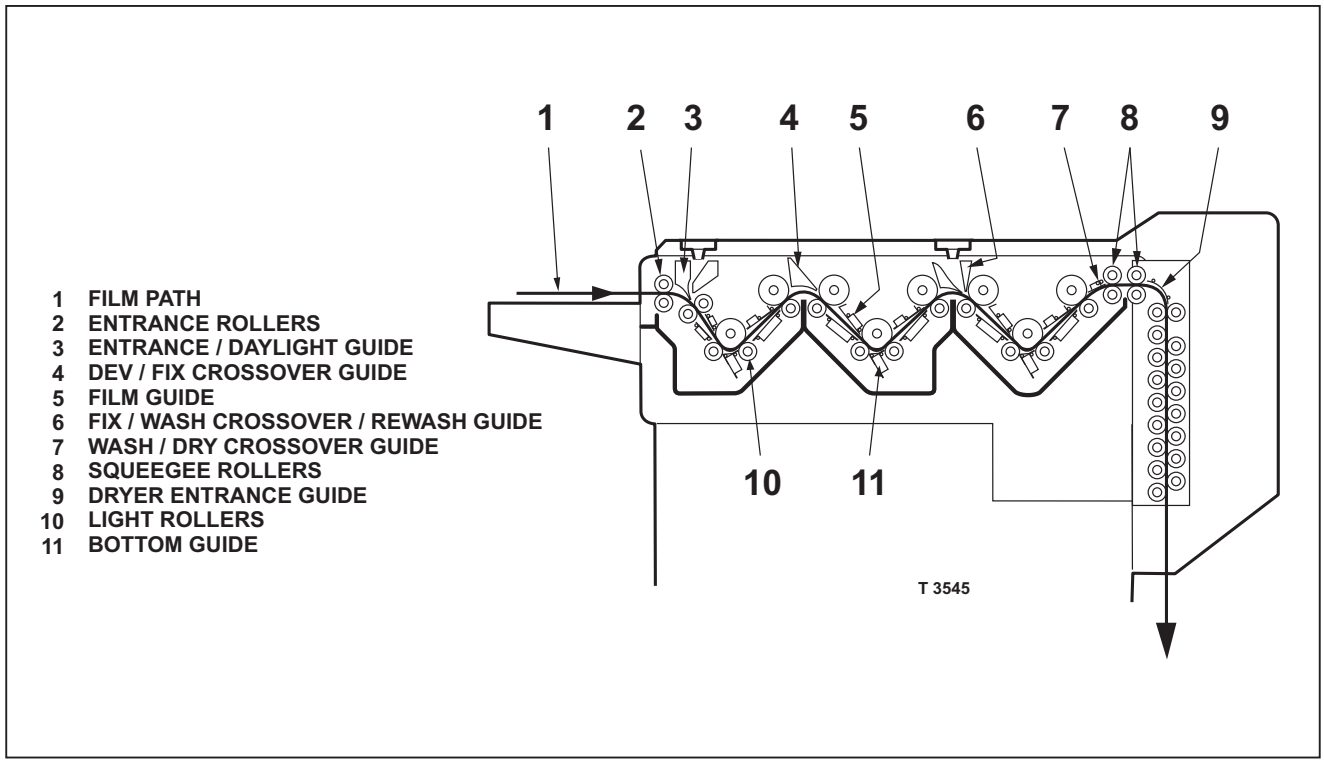
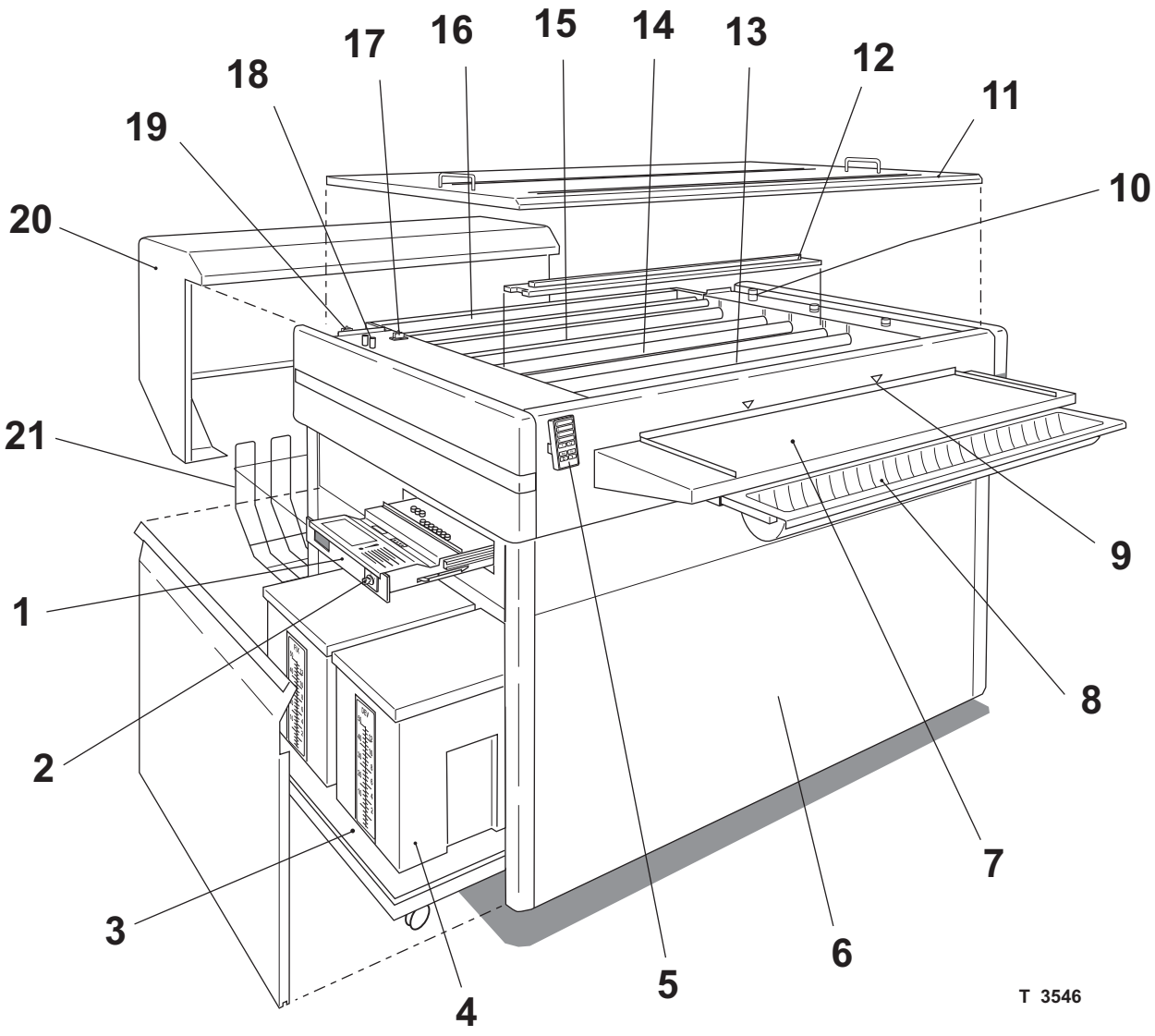


Fig. 3/2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T 3546

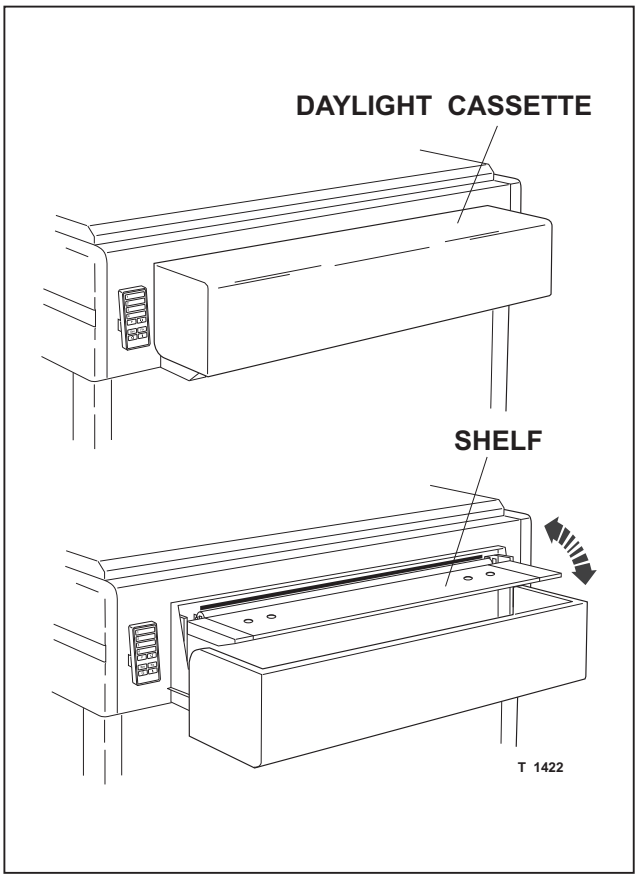
MAIN COMPONENTS

(See illustration opposite)

ELECTRONICS DRAWER (1)
The electronics drawer holds the main control electronics and the fuses for all functions (see description later in this chapter). The drawer is fitted with a cover inside to protect the electronics.

MAIN SWITCH (2)
Switches the power to the machine ON/OFF.
The main switch is also a lock, and cannot be turned on without the key delivered with the processor.

TROLLEY (3)
A trolley fits inside the stand **(6)** and makes it easy to handle replenishment containers **(4)** and/or containers for waste chemicals when changing, emptying, refilling etc.

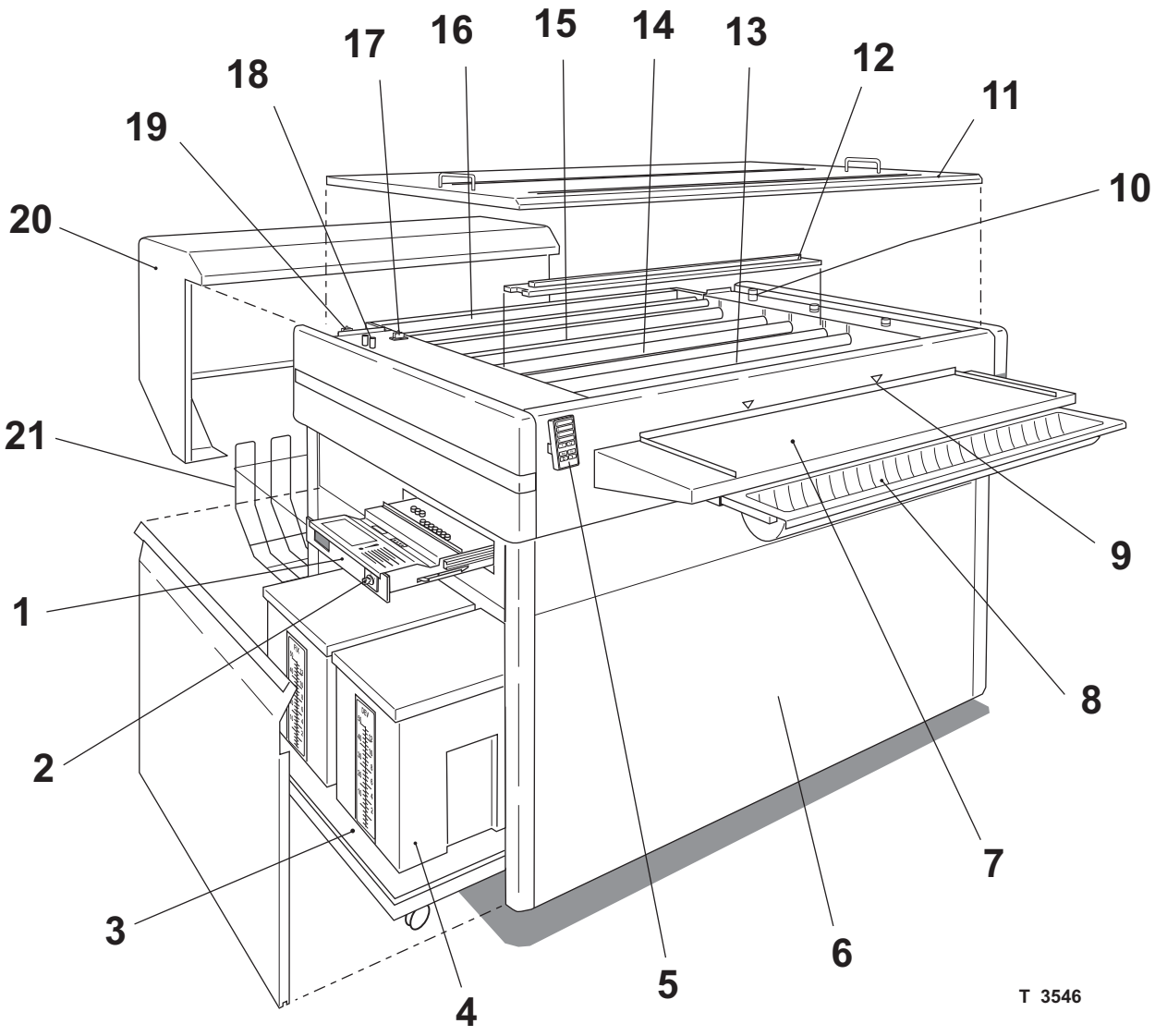


REPLENISHMENT CONTAINERS (4)
The containers for replenishment chemicals can be placed on the trolley **(3)** and rolled in underneath the processor. The replenishment containers must be ordered separately.

CONTROL BOX (5)
The processor is operated by the Control Box. (See description in Chapter 5).

STAND (6)
The processor is delivered with a closed stand. Inside the closed stand there is room for a trolley (3) with containers for replenishment **(4)** or waste chemicals.

FEED TABLE (7)
As standard the machine is equipped with a feed table. Alternatively it can be ordered with a daylight cassette (see the figure above).
The cassette is equipped with a specially designed shelf that makes it easy to handle both small and big PTS/Imagesetter cassettes. The shelf can also be used as a feed table.
See max. dimensions of PTS/Imagesetter cassettes in chapter 1 “DIMENSIONS PTS-CASSETTES”.
See description in chapter 4 - “PROCESSING FROM THE FEED TABLE” and “PROCESSING PTS-CASSETTES FROM THE DAYLIGHT CASSETTE”.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T 3546

ROLL FILM TRAY (8)

This tray is very useful when processing roll film material. Simply place the roll in the tray and enter the film into the processor.
See description in chapter 4 - “PROCESSING FROM THE ROLL FILM TRAY”.

INPUT SENSORS (9)

2 input sensors are placed at the processor entrance. When film is inserted, the input sensors automatically start the machine provided that the machine is in STAND-BY mode (see description later in this chapter).

OVERFLOW/DRAIN TUBE (10)

Each bath is equipped with a combined overflow and drain tube in the righthand side. The drain tubes for the developer section and fixer section are placed underneath the top cover **(11)**. The tube for the wash water is placed through a hole in the the top cover.
To empty the baths the tubes must be turned 90° counterclockwise.
As shown in Fig. 3/3 it is easily observed if the drain for the wash tank is opened or closed.

TOP COVER WITH DAYLIGHT/REWASH SLOTS (11)

The processor is normally delivered **without** the daylight/rewash slots. In cases where the processor should be installed in a “Through-the-wall” installation (see chapter 2) the daylight and rewash slots make it possible to use the processor outside the darkroom.
Ask your local dealer for further information about the daylight and rewash slots.

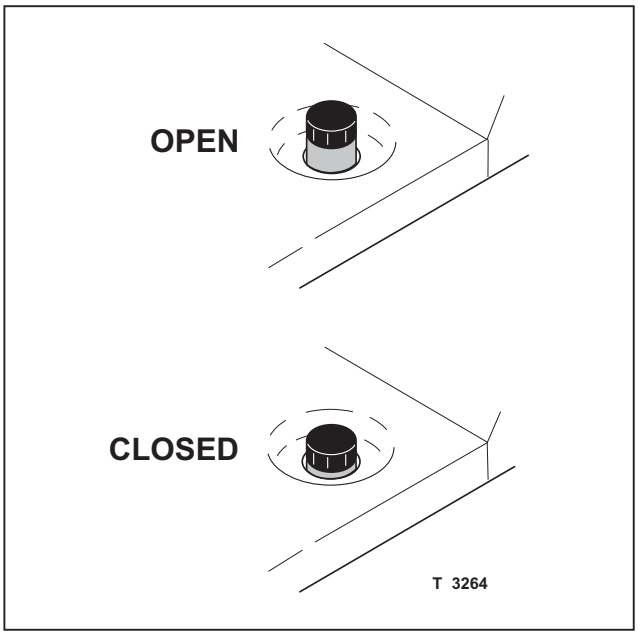


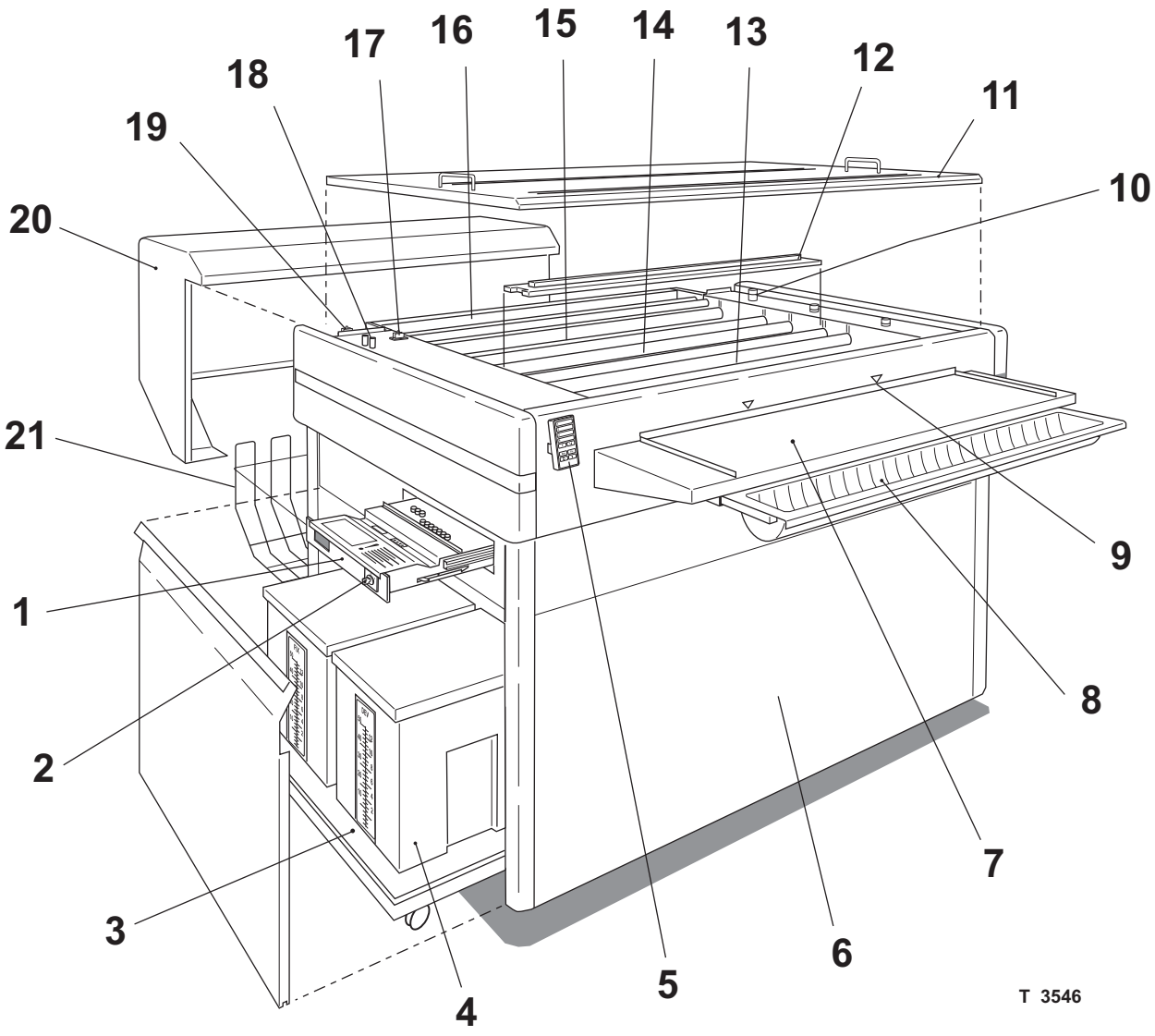
Fig. 3/3

ANTI-OXIDATION LIDS (12)

The developer and fixer sections are both equipped with an anti-oxidation lid. The anti-oxidation lids reduce the oxidation from the chemical baths as well as it prevents build-up of condensate underneath the top-cover **(11)**.

DEVELOPER SECTION (13)

See description in “DEVELOPER SECTION” earlier in this chapter.
The developer section roller configuration is described in chapter 6 - “CLEANING AND MAINTENANCE”.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T 3546

FIXER SECTION (14)

See description in “FIXER SECTION” earlier in this chapter.
The fixer section roller configuration is described in chapter 6 - “CLEANING AND MAINTENANCE”.

WASH SECTION (15)

See description in “WASH SECTION” earlier in this chapter.
The wash section roller configuration is described in chapter 6 - “CLEANING AND MAINTENANCE”.

DRYER RACK (16)

See description in “DRYER SECTION” earlier in this chapter.
The dryer rack roller configuration is described in chapter 6 - “CLEANING AND MAINTENANCE”.

INTERLOCK SWITCHES (17) & (19)

The processor is equipped with 2 interlock switches. If either the top cover **(11)** or the dryer cover **(20)** is removed from the machine e.g. for servicing, the related switch will turn off the machine if not already turned off.

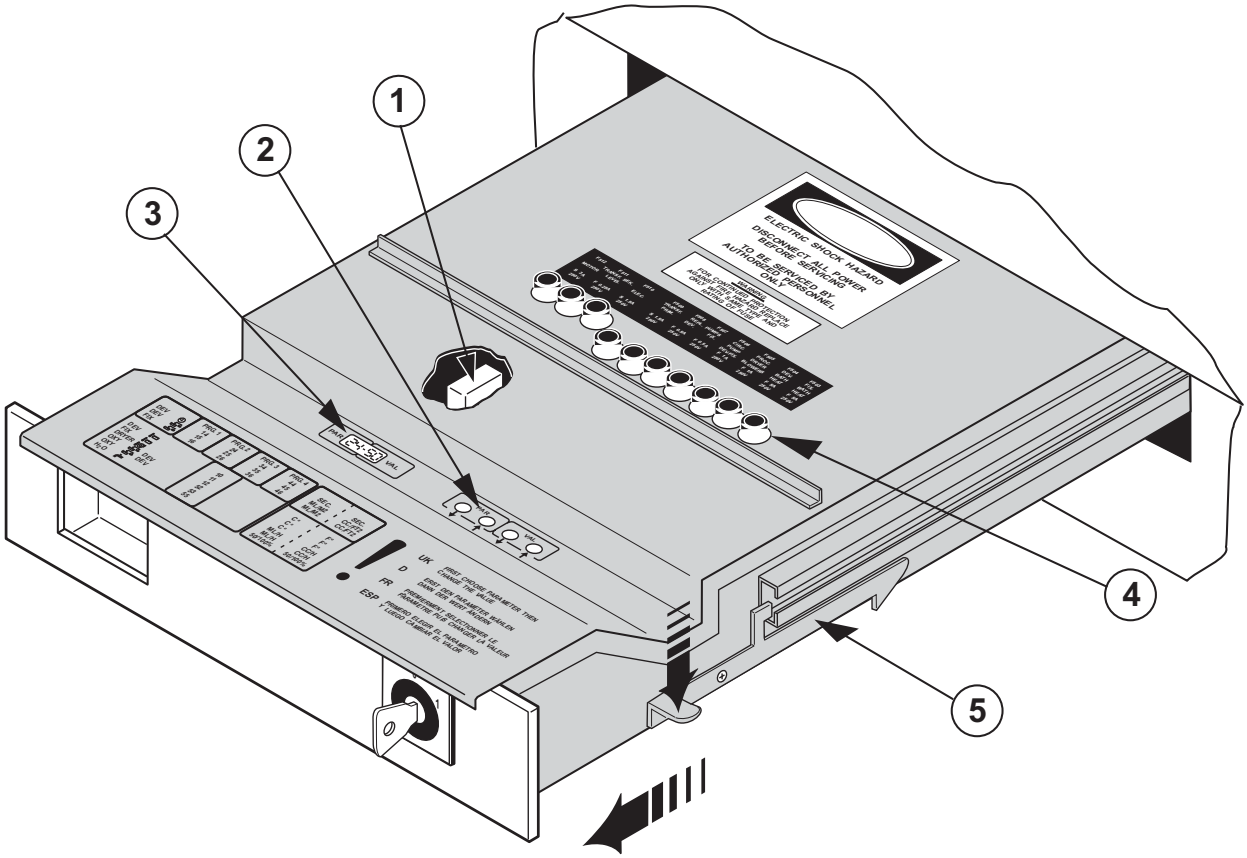
DAYLIGHT AND REWASH LAMPS (18)

The daylight and rewash lamps are not included with the standard processor.
The lamps are lit when daylight or rewash slots are opened.
See detailed description in chapter 5 - “DAYLIGHT AND REWASH LAMPS”.

DRYER COVER (20)

FILM BASKET (21)

When leaving the machine the film material lands in the film basket.


1
2
3
4
5
ELECTRIC SHOCK HAZARD
DISCONNECT ALL POWER
BEFORE SERVICING
TO BE SERVICED BY
AUTHORIZED PERSONNEL
ONLY

T 2503

ELECTRONIC CONTROL

MAINBOARD PCB GCB

The processor is electronically controlled by the Mainboard PCB **GCB** placed in the electronics drawer underneath a cover (see illustration opposite).
The PCB is fitted with a start-up relay **(1)** and a number of small triacs which issue the commands from the low voltage section to the high voltage section of the processor. The PCB also communicates with the Control Box (see description in chapter 5).
The PCB has two sets of buttons **(2)** for making adjustments and a display **(3)** showing the set values. The procedure of making adjustments on the **GCB** is described in chapter 4 - “MAKING ADJUSTMENTS”.

The PCB **GCB** comprises the following circuits:

- 1 Power supply for the electronics.
- 3 Low level detectors.
- 1 Heater thermostat for the developer.
- 1 Heater thermostat for the dryer.
- 1 Heater thermostat for the fixer.
- 1 Motor speed control for the main motor.
- 1 Power supply for the main motor control.
- 2 Replenishment circuits, one for developer, one for fixer
- 2 Oxidation replenishment circuits. One for developer and one for fixer.
- 2 Input detector circuits.
- 1 Timing circuit for the start and stop of process time.

FUSES

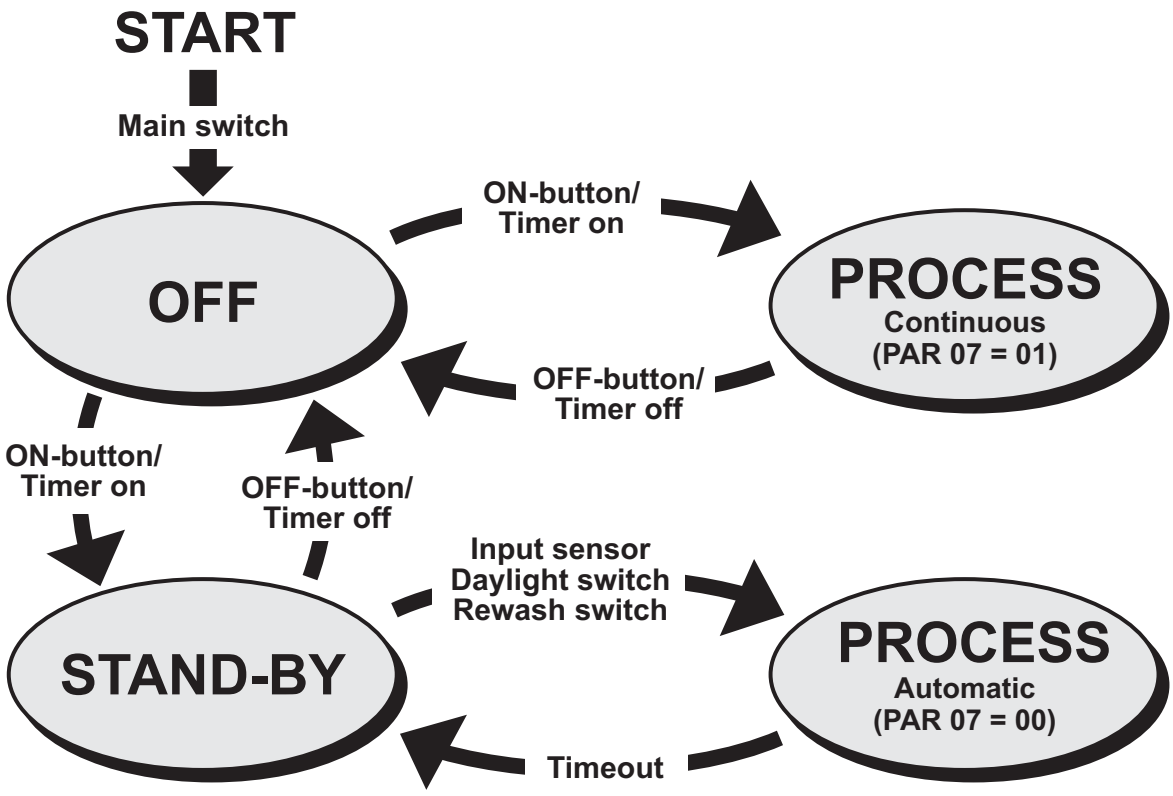
All fuses **(4)** for the heaters, pumps and motors etc. are placed on the PCB **GCB** through the drawer cover. The fuses F101 through F106 are placed on a PCB at the bottom of the box. The fuses F102, F104, and F106 are only used for installations without neutral wire (in USA).
The fuses are listed in “FUSES” later in this chapter.

CAUTION! Disconnect all power to the machine before changing a fuse.

DRAWER LOCK

The electronics drawer is fitted with a lock **(7)** in the right side. The lock stops the drawer when pulled halfway out.
If it becomes necessary to pull out the drawer completely (e.g. for servicing purposes) push down the lock while pulling the drawer out.

NOTE! Never leave the drawer open. This is to protect the electronics from chemicals, if spilled.


START
Main switch
OFF
ON-button/
Timer on
PROCESS
Continuous
(PAR 07 = 01)
OFF-button/
Timer off
ON-button/
Timer on
OFF-button/
Timer off
Input sensor
Daylight switch
Rewash switch
STAND-BY
PROCESS
Automatic
(PAR 07 = 00)
Timeout

T 2212

OPERATING MODES

The processor can be in one of 3 modes (see illustration opposite):
"OFF" mode, **"STAND-BY"** mode and **"PROCES"** mode.

Please refer to chapter 5 for more detailed descriptions of the various lamps and buttons mentioned in the following.

"OFF" MODE

When the main switch is switched on, the processor is automatically in **"OFF"** mode:

- All pumps, motors, and temperature controls are off.
- Panel on Control Box is off.
- Inner dryer fans and exhaust fan run.

"STAND-BY" MODE

Pushing the **"ON"** button on the Control Panel switches the processor into **"STAND-BY"** mode:

- Developer and Fixer temperature controls are on.
- The dryer heaters work to keep the temperature whitin a fixed range (see APPENDIX A, PAR 12 and 13).
- The **"ON"** lamp and one of the program lamps on the Control Box are lit.
- The transport mechanism operates at min. speed, (app. 32 cm per minute) in order to avoid crystallization of chemicals on rollers and guides.
- Oxy time-replenishment runs.
- The wash water solenoid valve is closed.

The processor automatically goes into **"STAND-BY"** mode 15-30 seconds after the film has left the dryer section (when in **Automatic** mode - see **"PROCES"** MODE).

"PROCES" MODE

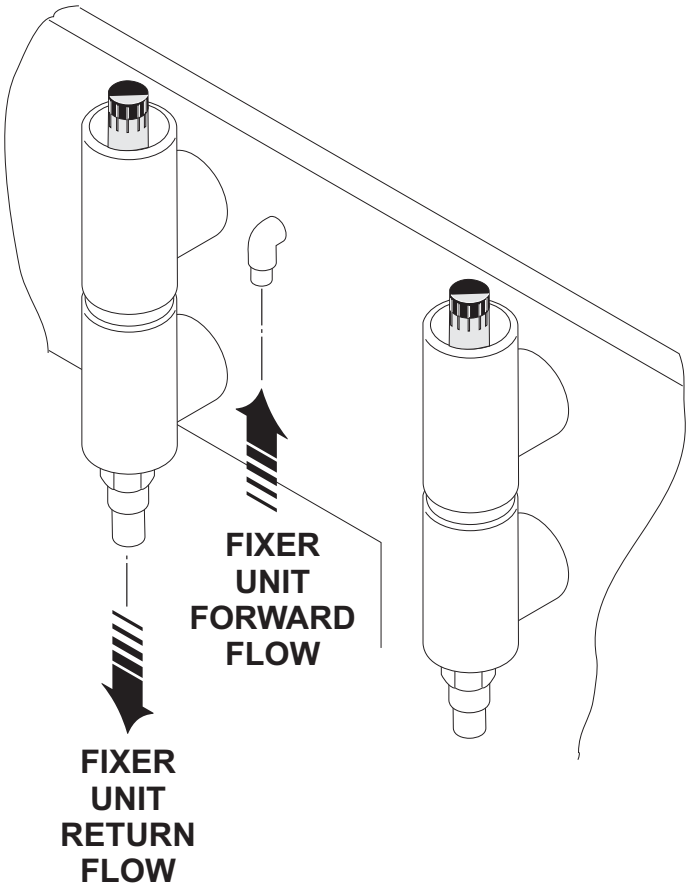
Processing is made in one of two modes: **Automatic** or **Continuous**.

The processor is running in **Automatic** mode unless otherwise is chosen.
(To switch from **Automatic** mode to **Continuous** mode, change parameter 07 from 00 to 01 - see APPENDIX A.

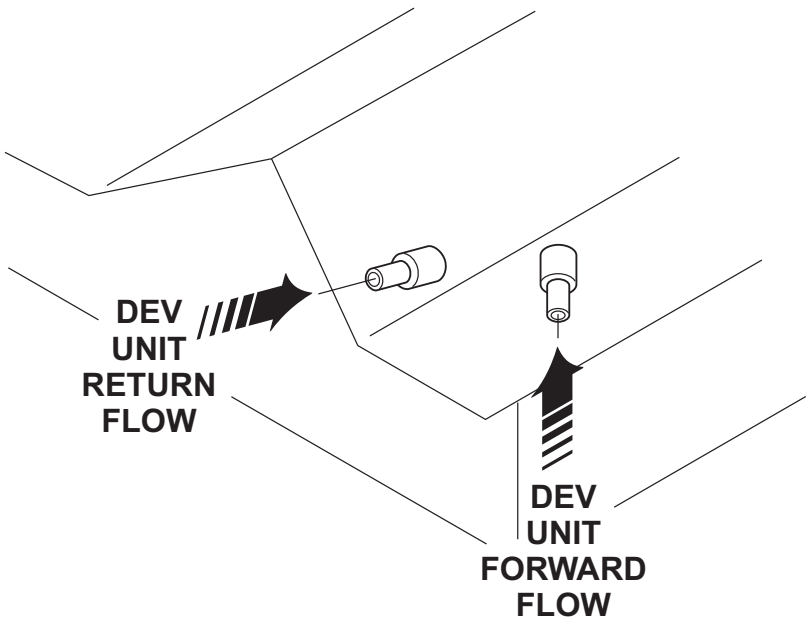
Automatic mode:
When film is fed, the input sensors start the machine and:

- The transport mechanism starts to run with the speed specified in the selected program.
- The wash water solenoid valve opens to let in water.
- The temperature in the dryer is controlled and regulated by the dryer temperature control.
- When the film has left the dryer section, the machine returns to **"STAND-BY"** mode after 15-30 seconds. (This depends on film speed).
-

Continuous mode:
The processor functions exactly as in **Automatic** mode except that it never enters the **"STAND-BY"** mode.


FIXER
UNIT
FORWARD
FLOW
FIXER
UNIT
RETURN
FLOW

T 3858


DEV
UNIT
RETURN
FLOW
DEV
UNIT
FORWARD
FLOW

ECOLOGY EQUIPMENT

The processor is prepared for connections to ecology units for the DEV and FIX (see illustration opposite).

FIXER UNIT

The typical fixer unit is a combined silver recovery and filter unit.
The fitting for the forward flow connection from a fixer unit is situated at the left side processor tank wall between the FIX and WASH drain outlets.
Typically the return flow will be connected to the drain outlet tube.

DEVELOPER UNIT

A typical developer unit is a filter system.
The connection fittings for the developer unit is situated underneath the processor developer tank.
Some processors are equipped with a developer filter. Functional description of the developer filter is specified in a separate manual delivered with the processor.

INSTALLATION

The installation of the ecology units to the processor is described in the respective manuals.

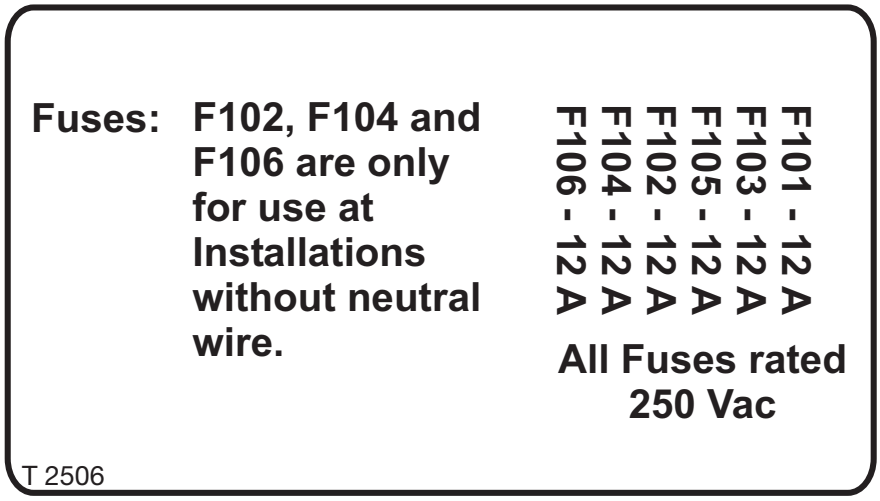
Ask your local dealer for more information about the ecological units.

FUSES

The fuses below are located on the Mainboard PCB GCB

Fuse	Fuse for...	Type/Dimension	Part No
F503 FIX. BATH HEAT F 7A 250V	Heater, fixer bath	7A, 6.3 x 32 mm, fast	16379
F504 DEV. BATH HEAT F 7A 250V	Heater, developer bath	7A, 6.3 x 32 mm, fast	16379
F505 PROC. DRYER BLOWERS F 1A 250V	Blowers, dryer section	1A, 6.3 x 32 mm, fast	5671
F506 CIRC. PUMP DEV.FIX. F 1A 250V	Circulation pumps	1A, 6.3 x 32 mm, fast	5671
F507 PUMPS FIX. F 0.5A 250V	Replenishment pump, FIX	0.5A, 6.3 x 32 mm, fast	5535
F508 REPL. DEV. F 0.5A 250V	Replenishment pump, DEV	0.5A, 6.3 x 32 mm, fast	5535
F509 TRANSF. PRIM. T/S 1.5A 250V	Transformer Low voltage power supply for the control electronics.	1.5A, 6.3 x 32 mm, slow	16029
F510 ELEC. T/S 1.5A 250V	18 V AC supply for the control electronics.	1.5A, 6.3 x 32 mm, slow	16029
F511 TRANSF. SEK. LEVEL F 0.25A 250V	24 V AC for level detectors	0.25A, 6.3 x 32 mm, fast	5530
F512 MOTOR T/S 3A 250V	Power supply for the main motor speed control.	3A, 6.3 x 32 mm, slow	16014

The fuses below are located in the electronics box under a transparent lid. The fuses F102 - F104 - F106 are used for USA only (for installations without neutral wire).



Fuse	Fuse for...	Type/Dimension	Part No
F101	Electronics control, DEV/FIX heaters etc.	12A, 10,3x33mm, fast	26577
F102	Only used for installations without neutral wire	12A,10,3x33mm, fast	26577
F103	Heater, dryer	12A, 10,3x33mm, fast	26577
F104	Only used for installations without neutral wire	12A, 10,3x33mm, fast	26577
F105	Heater, dryer	12A, 10,3x33mm, fast	26577
F106	Only used for installations without neutral wire	12A, 10,3x33mm, fast	26577

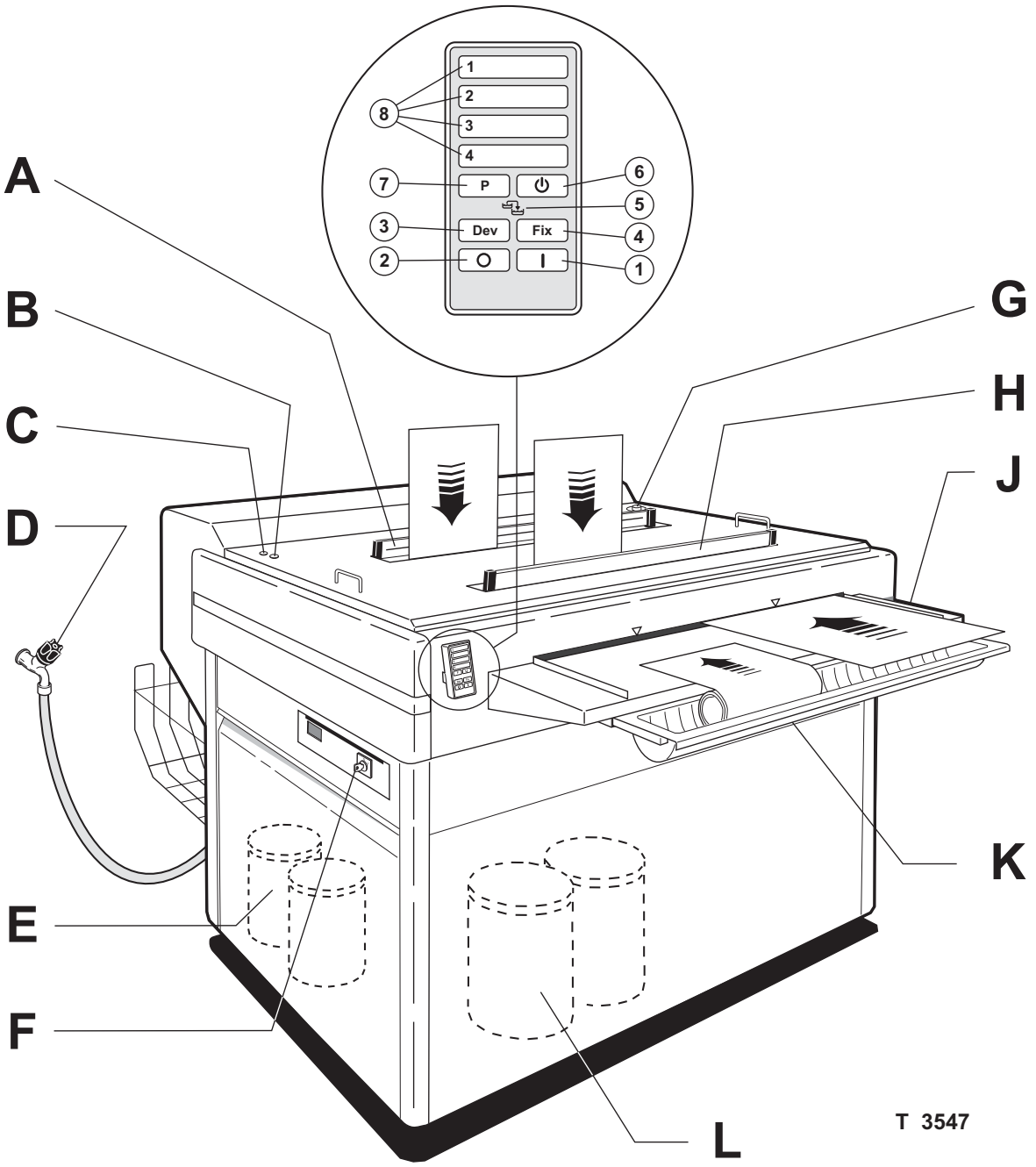
ELECTRICAL DIAGRAM

The electrical diagrams for the processors are behind the appendices.

CHAPTER 4

OPERATING PROCEDURES

On the following pages the different operating procedures as well as the various adjusting procedures are described.


A
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C
D
E
F
G
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J
K
L
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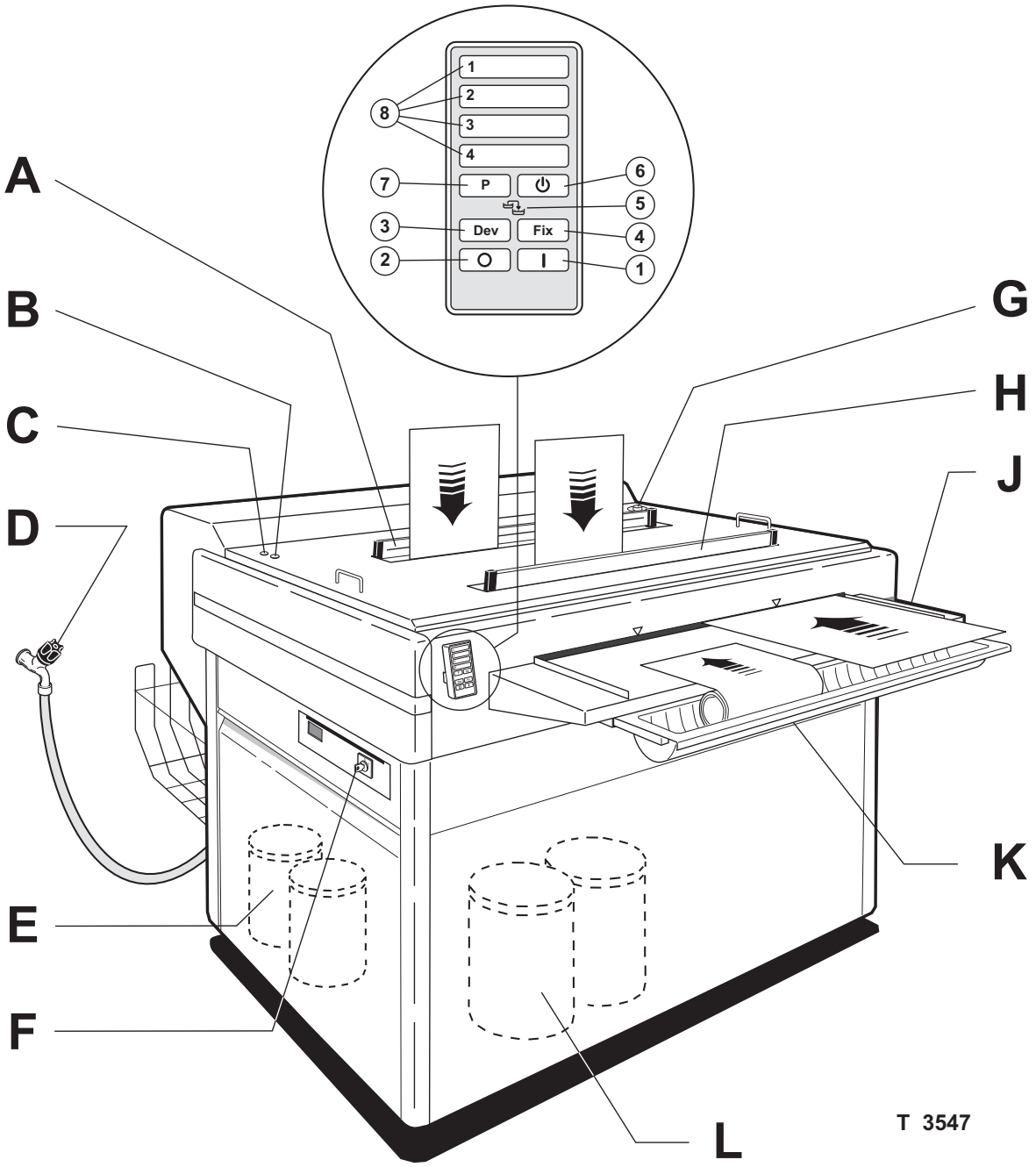
P
Dev
Fix
O
I
T 3547

INITIAL START-UP

(See also illustration opposite).

- Remove top cover, dryer cover and oxidation lids.
- Remove the rollers (see chapter 6) and guides and inspect them for impurities etc.
- Open all tank drain-tubes **(G)** by turning them 90° counterclockwise. Vacuum clean all tanks if required.
- Carefully rinse all tanks, rollers and film guides with water (use a hose) to get all impurities out of the tanks.
- Let the tanks run dry then close the drain-tubes. **(G)**.
- Fill the replenishment containers **(E)** and make sure that the hoses are installed correctly: ***SEE "APPENDIX B" !***
- Fill the developer and fixer tanks **(fixer first)** with ready mixed solution. Be careful not to get fixer into the developer section and opposite.
- Reinstall the rollers and guides (see chapter 2 and 6 for references). Be very careful to insert the correct rollers in the correct baths.
- Reinstall oxidation lids, the top cover and dryer cover. Make sure that the covers are placed correctly in order to activate the interlock safety-switches. Otherwise you will not be able to start the processor.
- Insert power plug into wall socket.
- Open external water supply valve **(D)**.
- Turn the MAIN SWITCH (F) on.
- Push the ON-button **(1)**. The indicator lamp **(8)** for the latest employed program will light up. If the ON-button is pushed immediatly after the machine is turned on by the MAIN SWITCH, it takes approx. 10 seconds before the machine starts.
- If the WAIT-lamp **(6)** and Daylight- and Rewash lamps **(B and C)** flashes, the developer or fixer temperature have not yet reached the correct termperature.
  Wait until the WAIT-lamp turns off.
  Normal warm-up time will be approx. 30 min.
- Run some sheets of film through the machine to clear the rollers of impurities.
- The machine is now ready for processing.


A
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P
Dev
Fix
T 3547

SETTING OF THE PROGRAMS

The electronics holds 4 programs (1, 2, 3 and 4) in which you can set 4 different developing speeds and replenishment rates for different types of processing jobs.
When the daylight lid is opened the processor automatically switches to program 4. This program should therefor be dedicated to daylight jobs.
Setting of the program values are described later in this chapter and in APPENDIX A.

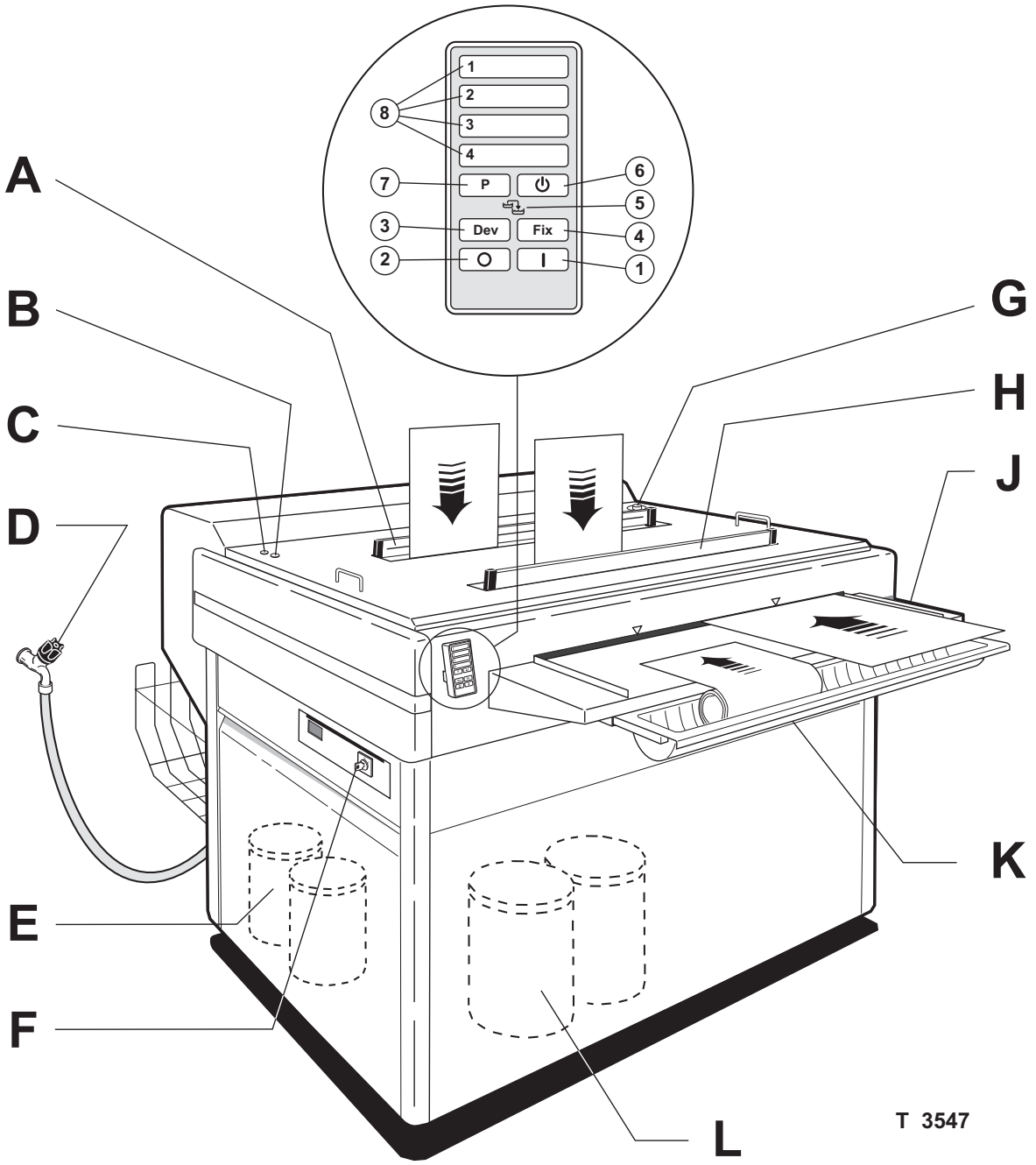
DAILY START-UP

(See illustration opposite)

- Check that the replenishment containers **(E)** are sufficiently filled and that the containers for waste chemicals **(L)** are empty.
- Remove the top cover and oxidation lids and check the level of the developer and fixer baths. Add chemicals if required.
- Before starting the machine, wipe clean all top rollers and crossover guides.
- Open external water supply valve **(D)**.

NOTE! Make certain that the wash tank drain tube (G) is closed. Do not operate the processor with an empty wash tank.

- Turn MAIN SWITCH **(F)** on. The exhaust blower will start, and the replenishment pumps may also run for a few moments.
- Push the ON-button **(1)** and verify that the built-in lamp is lit.
  If the ON-button is pushed immediatly after the machine is turned on by the MAIN SWITCH, it takes approx. 10 seconds before the machine starts.
- When switched on, the processor automatically fills the water tank.
- The processor is programmed for **Automatic** mode from the factory. If you want to use **Continuos** <M%-2>mode, please refer to the APPENDIX A.
- Press the PROGRAM SELECTION-button **(7)** until the lamp **(8)** for the desired program number is lit.
- If WAIT-lamp **(6)** is lit and LOW LEVEL-lamp **(5)** flashes, low level is detected in either the DEV or FIX bath. Press both of the REPLENISHMENT-buttons **(3)** and **(4)**. The electronics automatically detects the bath with low level and the respective pump starts to “top up” the level in the section.
  While the pump runs the lamp **(5)** is lit constantly. Wait until the lamp turns off.
  If the level is still not correct after 20 minutes the pump stops and the LOW LEVEL-lamp starts to flash again.
- If the WAIT-lamp **(6)** and Daylight- and Rewash lamps **(B and C)** flashes, the temperature in either the developer or the fixer bath is too low. Wait until the lamp turns off. Normal warm-up time will be app. 30 minutes.
- Feed some sheets of film through the machine to clean it.
- Your machine is now ready for processing.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PROCESSING FROM THE FEED TABLE

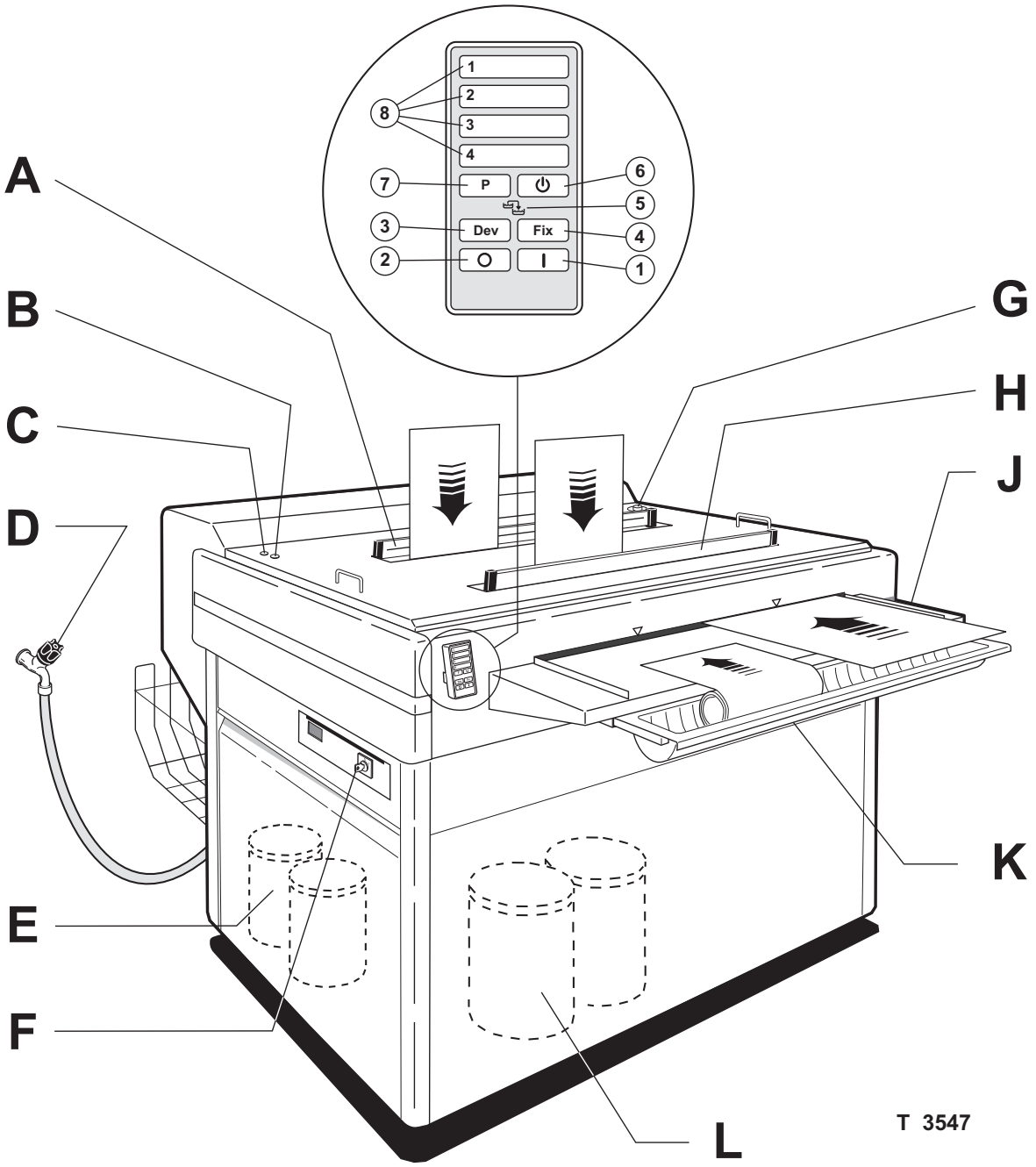
(See illustration opposite).

- Select the program suitable for the processing material by means of the PROGRAM SELECTION- button **(7)**. The lamp **(8)** shows which program is active at any time.
- Slowly enter the film (with the emulsion side up) into the processor using the film feed guide **(J)** until it engages the drive system. Activating the input sensors will start the machine at the speed specified in the selected program.
- Verify that the WAIT-lamp **(6)** is lit indicating that film is being fed into the machine.
  Wait until the WAIT-lamp turns off before you insert another film.
- When the film exits, verify that the processor goes into **"STAND-BY"** mode after 15-30 seconds.
  (When in **Automatic** mode).

PROCESSING FROM THE ROLL FILM TRAY

(See illustration opposite).

- Select the program suitable for the processing material by means of the PROGRAM SELECTION- button **(7)**. The lamp **(8)** shows which program is active at any time.
- Pull out the tray **(K)** underneath the feed table and place the film roll in it.
- Slowly enter the film (with the emulsion side up) into the processor until it engages the drive system. Activating the input sensors will start the machine at the speed specified in the selected program.
- Verify that the WAIT-lamp **(6)** is lit indicating that film is being fed into the machine.
  Wait until the WAIT-lamp turns off before you insert another film.
- When the film exits, verify that the processor goes into **"STAND-BY"** mode after 15-30 seconds.
  (When in **Automatic** mode).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T 3547

PROCESSING PTS CASSETTES FROM THE DAYLIGHT CASSETTE

(See illustration opposite and Fig. 4/1 below).

- Verify that the processor is not busy (WAIT-lamp **(6)** not lit).
- Open the cassette cover **(9)**.
- Adjust the shelf **(10)** to fit the cassette size or remove it, whatever is necessary.
- Select processing program by means of the PROGRAM SELECTION-button **(7)**. The lamp **(8)** shows which program is active at any time.
- Place the cassette **(11)** on the shelf and enter the film/paper **(12)** into the processor until it engages the drive system. The input roller **(13)** ensures that the material enters the machine without scratches. When the input sensors are activated, the processor starts and the WAIT-lamp **(6)** is lit.
- Close the cassette cover **(9)** and **do not open until the WAIT-lamp (6) turns off!**
- When the WAIT-lamp turns off, the machine is ready to process another cassette.

The shelf **(10)** can also be used as feed table. In that case adjust the shelf to upper position and follow the procedure described in “PROCESSING FROM THE FEED TABLE”. Feed paper between the white marks on the shelf.

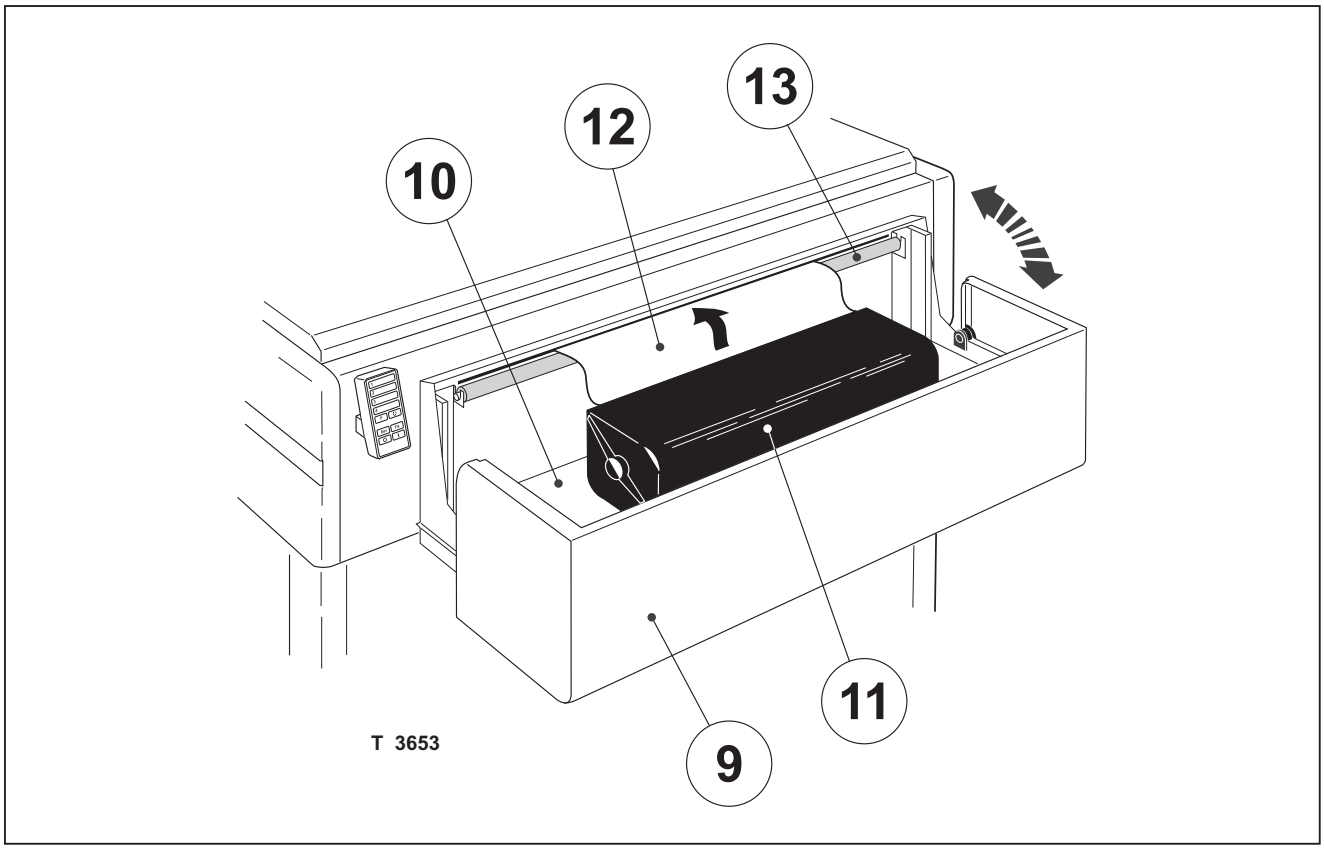
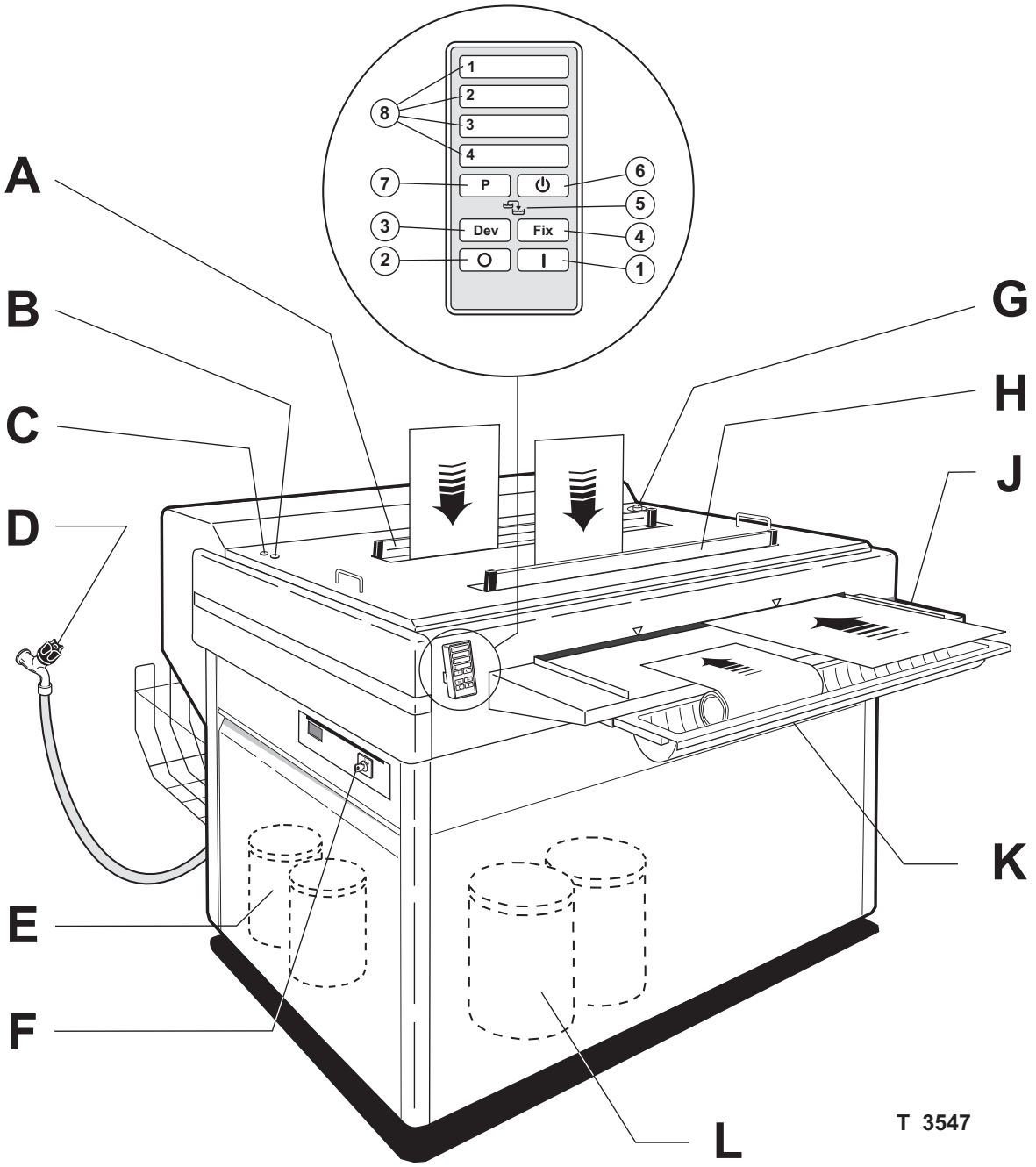


Fig. 4/1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T 3547

PROCESSING FROM THE DAYLIGHT SLOT

The daylight slot is not part of the standard delivery.

(See illustration opposite).

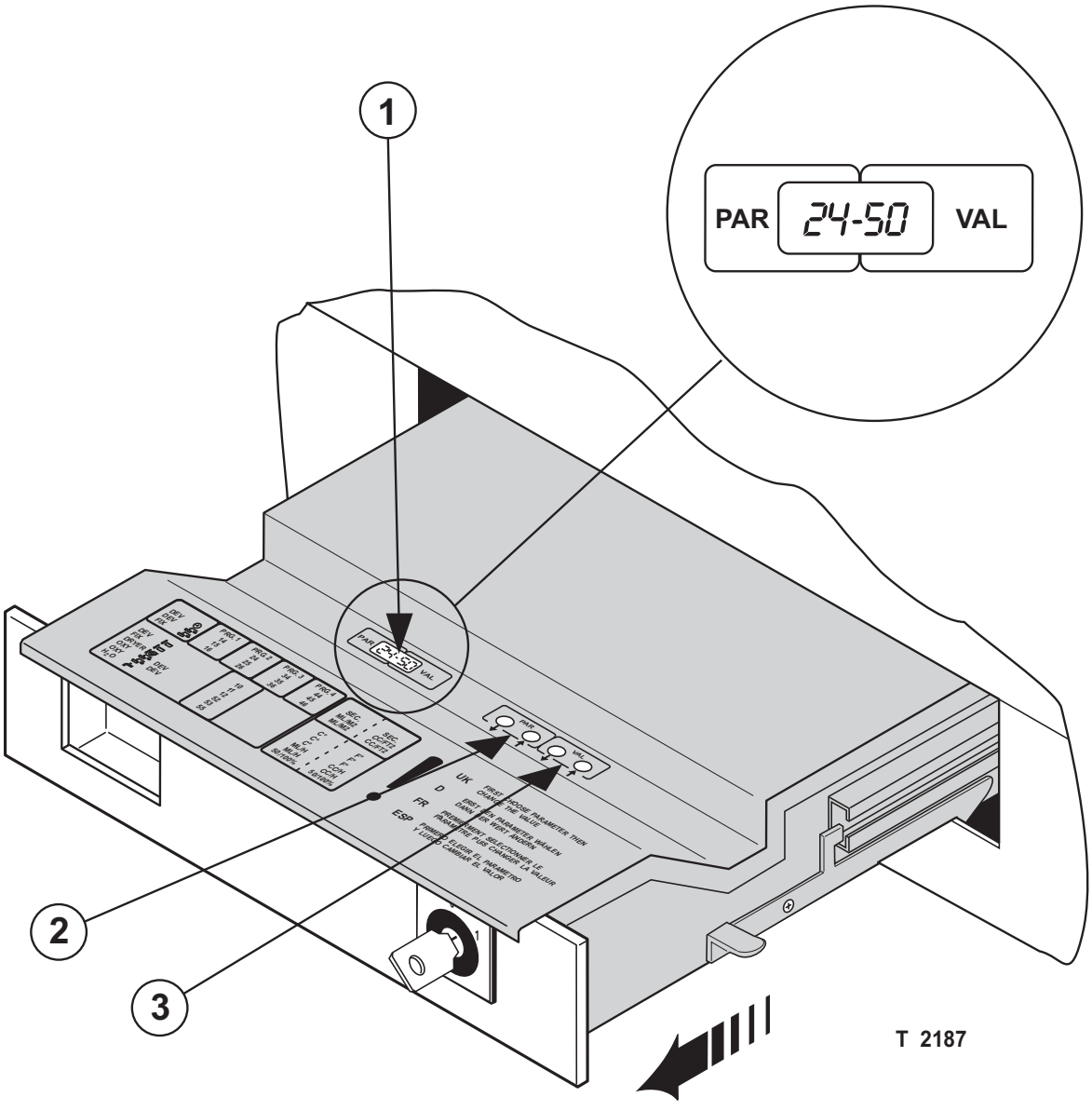
- Verify that the processor is not busy (DAYLIGHT-**(B)** and REWASH-lamps **(C)** not lit).
- Open the DAYLIGHT slot **(H)**. The processor automatically changes to program 4 and starts up. The WAIT-lamp **(6)**, the DAYLIGHT-lamp **(B)** and the REWASH-lamp **(C)** are lit. (The replenishment control circuit starts).
- Feed paper into the processor and close the DAYLIGHT slot **(H)**. (WAIT-lamp turns off).
- When the DAYLIGHT lamp **(B)** turns off, the processor is ready to receive another film through the DAYLIGHT slot **(H)**.
- If no film is entered the processor goes into **"STAND-BY"** mode after 15-30 seconds. (When in **Automatic** mode).

USING THE REWASH SLOT

The rewash slot is not part of the standard delivery.

(See illustration opposite).

- Verify that the processor is not busy (DAYLIGHT-(B) and REWASH-lamps **(C)** not lit).
- Open the REWASH slot **(A)**. The processor starts, the WAIT-lamp **(6)**, the DAYLIGHT-lamp **(B)** and the REWASH-lamp **(C)** are lit.
- Feed paper into the processor and close the REWASH slot **(A)**. (WAIT-lamp and DAYLIGHT-lamp turn off).
- When the REWASH lamp **(C)** turns off, the processor is ready to receive another film through the REWASH slot **(A)**.
- If no film is entered the processor goes into **"STAND-BY"** mode after 15-30 seconds. (When in **Automatic** mode).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T 2187

ADJUSTMENTS

NOTE! ADJUSTMENTS SHOULD ONLY BE CARRIED OUT BY AUTHORIZED PERSONNEL

It is possible to adjust the settings of the speed, temperature and replenishment values.
When pulling out the electronics drawer, the panel shown on the illustration opposite appears.
On the panel is a list of the 18 different parameters you are able to adjust.
The 18 parameters and their adjusting ranges are as listed below. (PAR = Parameter , VAL = Value).

NOTE! Even though the drawer is fitted with a cover to protect the electronics from chemicals spills, always remember to close the drawer after adjustments have been made.

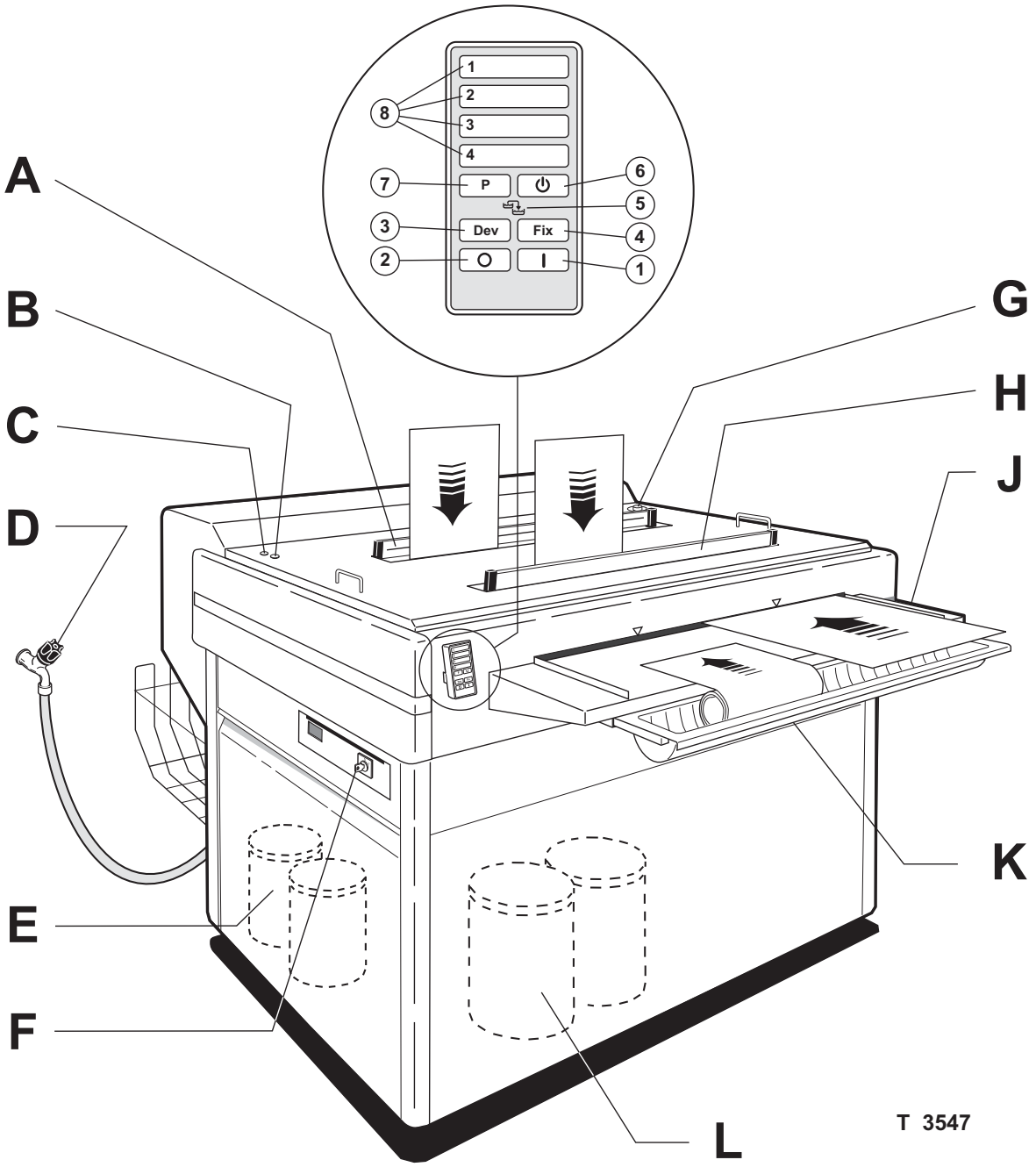
MAKING ADJUSTMENTS

(See illustration opposite).

- Pull out the electronics drawer until it locks.
- Use the red selection buttons **(2)** (PAR) to choose the parameter in which you want to change the setting.
  The parameter number is indicated on the left side of the display **(1)** and the current value is indicated on the right side. As an example the illustration opposite shows that the value for parameter 24 is currently **50 sec**.
- Then use the green selection buttons **(3)** (VAL) to change the value. The values are changed in steps as indicated in the list below.

NOTE! Values can be changed at any time during operation.
Once selected, the values are retained in memory by the electronic control even when the processor is switched off.

PAR	ADJUSTMENT OF...	VAL	STEP
10	DEVELOPER TEMPERATURE	20-40°C (68-104°F)	1 °C (1-2°F)
11	FIXER TEMPERATURE	20-40°C (68-104°F)	1 °C (1-2°F)
12	DRYER TEMPERATURE	20-70°C (68-158°F)	5 °C (9°F)
14	DEV. TIME, PROGRAM 1	15-60 sec.	1 sec.
15	DEV. REPL. RATE, PROGRAM 1	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
16	FIX REPL. RATE, PROGRAM 1	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
24	DEV. TIME, PROGRAM 2	15-60 sec.	1 sec.
25	DEV. REPL. RATE, PROGRAM 2	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
26	FIX REPL. RATE, PROGRAM 2	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
34	DEV. TIME, PROGRAM 3	15-60 sec.	1 sec.
35	DEV. REPL. RATE, PROGRAM 3	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
36	FIX REPL. RATE, PROGRAM 3	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
44	DEV. TIME, PROGRAM 4	15-60 sec.	1 sec.
45	DEV. REPL. RATE, PROGRAM 4	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
46	FIX REPL. RATE, PROGRAM 4	0-990 ml/m2 (0-92.07 cc/ft2).	10 ml (0.93 cc)
52	DEV OXI TIME-REPLENISHMENT	0-600 ml/h (cc/h)	20 ml (20 cc)
53	FIX OXI TIME-REPLENISHMENT	0-600 ml/h (cc/h)	20 ml (20 cc)
55	WASH WATER	50 or 100%	50%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SHUT-DOWN PROCEDURE

(See illustration opposite).

- Push the OFF-button **(2)**. The processor will switch to **"OFF"** mode (see description in chapter 3).
- To shut down the machine completely turn the MAIN SWITCH **(F)** off.
  (If time- replenishment is wanted - do **NOT** set the main switch to OFF position.)
- Close the external water supply valve **(D)**.
- Open the wash tank drain tube **(G)** by turning it 90° counterclockwise.

NOTE! If the processor will not be operated for 6 hours or more, the wash tank should be drained. This prevents growth of algea and thereby a consequent reduction in processing quality. It is recommended to drain the wash tank at least once every 24 hours.

NOTE! If the processor is placed in a room together with a typesetter or other sensitive equipment, the chemical vapours from the processor should be removed by means of an external exhaust system (see chapter 2) as the vapours can ruin the equipment.

CHAPTER 5

THE CONTROL BOX

GENERAL

The operation of the processor is handled by the Control Box (Fig. 5/1). The Control Box is fitted on the front panel left of the feed table and is connected to the electronics in the drawer.

DIMENSIONS

The Control Box has the dimensions 110 x 55 x 15 mm (4.3"x2.2"x0.6").

FEATURES

The Control Box has the following features:

- ON-button (lamp built-in).
- OFF-button (lamp built-in).
- Buttons for manual operation of the DEV/FIX replenishment pumps.
- Indicator for LOW LEVEL/REPLENISHMENT.
- Indicator for “WAIT”.
- Selection of 4 different programs (different dev. times and replenishment rates).
- Indicator for selected program.

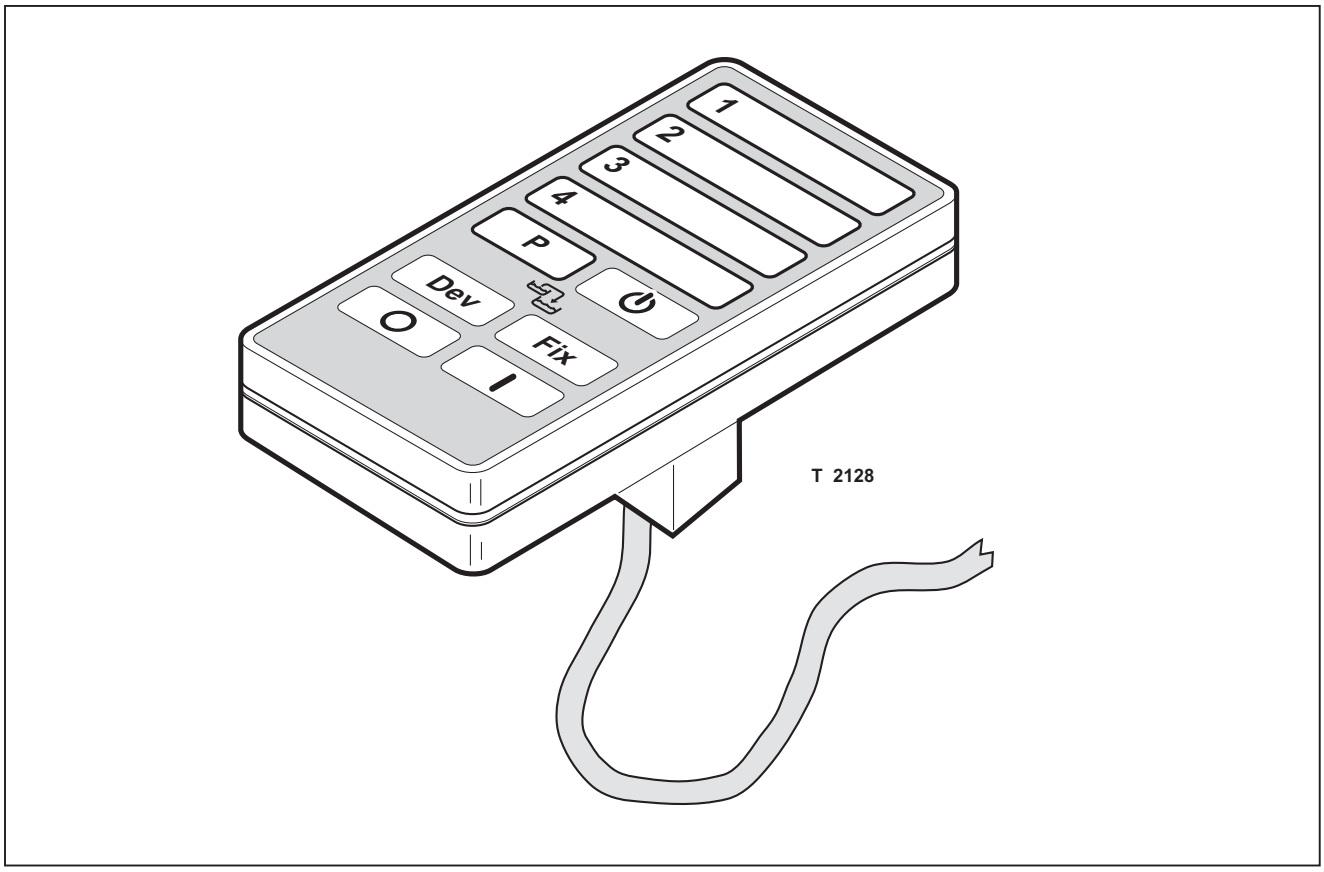
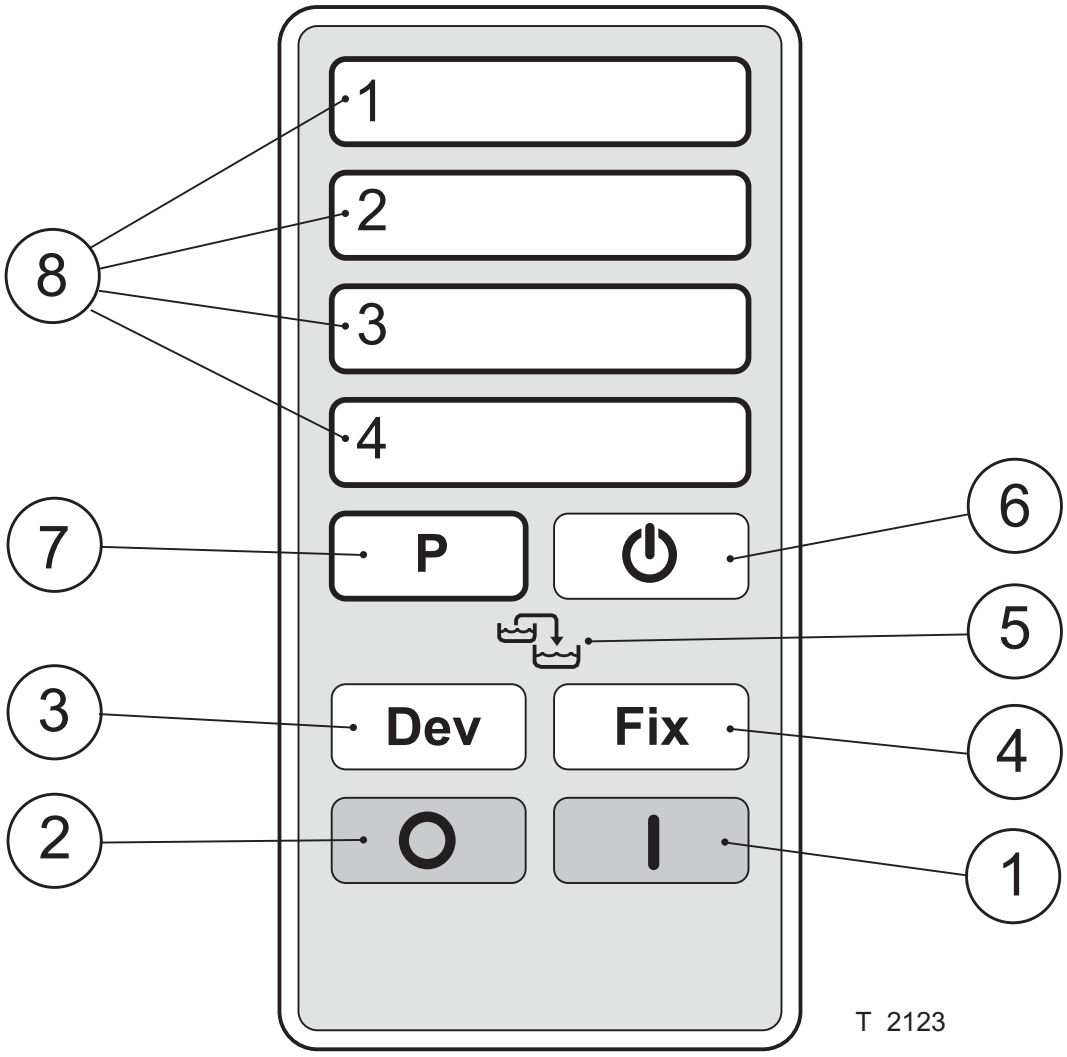


Fig. 5/1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FUNCTIONAL DESCRIPTION

ON-BUTTON (1)
Starts the machine provided the MAIN-switch is set to “ON”(I). When the ON-button has been pushed, the built-in lamp is lit.
If the ON-button is pushed immediately after the machine is turned on by the MAIN-switch, it takes approx. 10 seconds before the machine starts.

OFF-BUTTON (2)
This button switches the machine to off. At this stage only the time-replenishment circuits and the exhaust fan work (all lamps on Control Panel off).

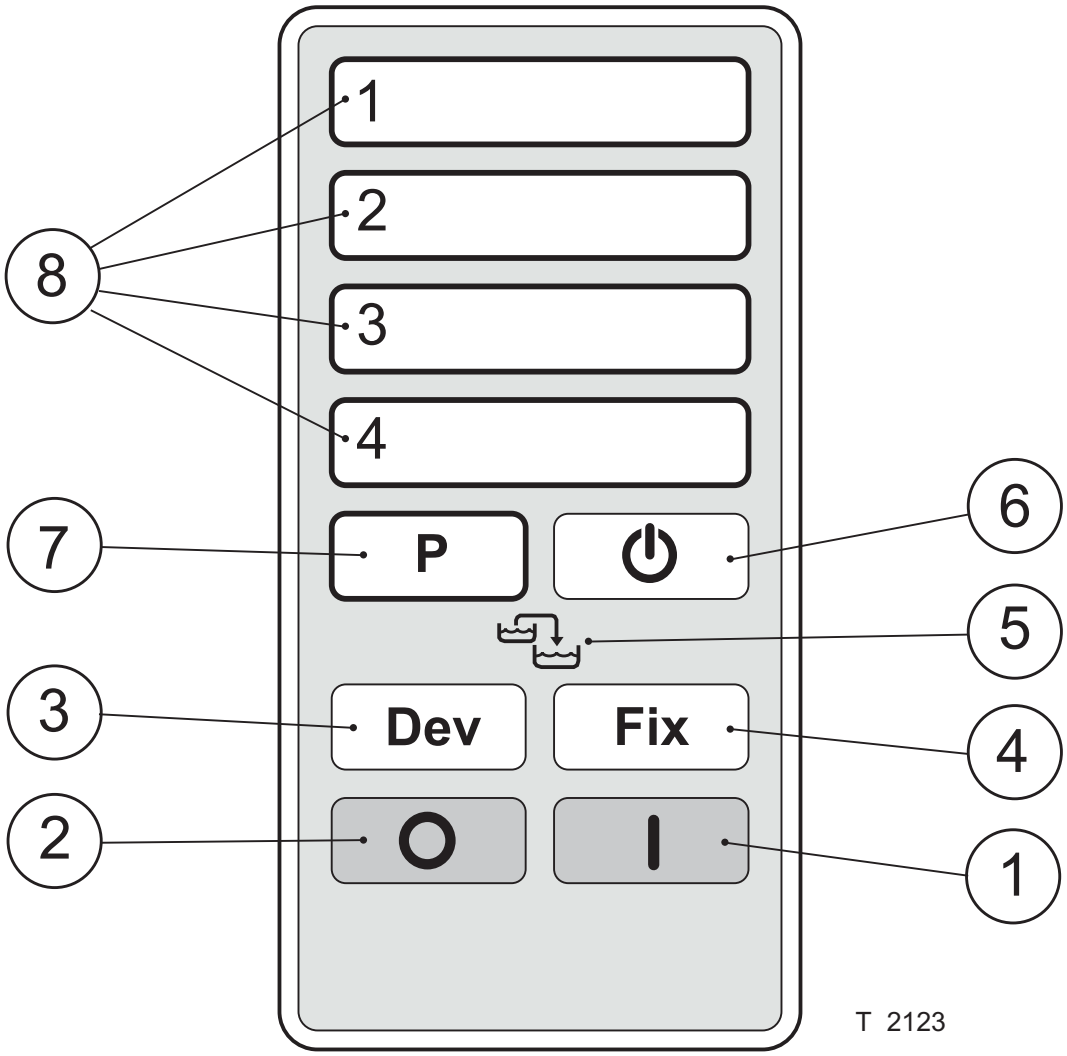
DEV/FIX BUTTONS (3) & (4)
The buttons activate the corresponding replenishment pumps. They can be used to top up the tanks manually.
If low level is detected in the DEV or FIX section, the WAIT-lamp (6) is lit and the LOW LEVEL/REPLENISHMENT-lamp (5) flashes.
In this case push one or both of the REPLENISHMENT-buttons. The electronics automatically detects the bath with low level and the corresponding pump starts to reestablish the correct level.
In case of low level in the WASH bath (no indication), check that the external water supply valve and the solenoid valve is open and that the drain tube is closed (see chapter 3).

NOTE! When the tanks are empty and have to be filled, do this from suitable containers, as it is quite time-consuming to fill the whole tank using the pumps.

LOW LEVEL/REPLENISHMENT LAMP (5)
If low level is detected in the DEV or FIX section the lamp flashes. In this case the WAIT-lamp **(6)** is also lit. When one or both of the replenishment pumps run to reestablish the correct level, the lamp is lit constantly and it turns off when the correct level is reached.
If the correct level has not been reestablished within 20 minutes the pump stops and the lamp starts to flash again.
See also explanation for item **(3)** and **(4)**.

WAIT-LAMP (6)
This lamp is lit if any of the following situations occur:

- If one or both film feed sensors are activated.
- If low level is detected in either DEV or FIX bath. In this case also the LOW LEVEL/REPLENISHMENT-lamp **(5)** flashes.
- The WAIT-lamp flashes if the temperature in the DEV section deviates with more than **1.5°C (2.7°F)** from the preset value or if temperature in FIX section is more than **X°C** lower than the preset value (the X-value is adjustable - see APPENDIX A, PAR 51).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PROGRAM SELECTION BUTTON (7)

The electronics facilitates programming of 4 different programs with different developing times and DEV and FIX replenishment rates. The built-in lamp is lit when the machine is switched on by the ON-button **(1)**. By pressing the PROGRAM SELECTION-button the suitable program (1, 2, 3 or 4) for the present job can be selected and the matching lamp **(8)** is lit.

The processor automatically switches to program 4 when the daylight lid is opened.

If the operator attempts to change processing program within the first half of the running program the indicator lamps for all 4 programs will flash twice to indicate that a change of program is not possible.

PROGRAM INDICATOR LAMPS (8)

See explanation for PROGRAM SELECTION-button **(7)**. When the machine is turned on by the ON-button **(1)** the lamp for the latest employed program will be lit.

The values for the different programs can be written on the panel to the right of the indicator lamps using a spirit marker.

DAYLIGHT AND REWASH LAMPS

(See Fig. 5/2).
The DAYLIGHT and REWASH lamps are not part of the standard equipment.
When the processor is installed in a "Through-the-wall" installation (see chapter 2), the lamps inform the operator working outside the darkroom of whether the processor is ready (not lit) or busy **(lit)**.

The DAYLIGHT and REWASH-lamps are **lit** at the same time:

- When low level is detected in DEV or FIX bath. The lamps will turn off when correct level is reestablished.
- When the daylight slot **(B)** is opened.
- When film is inserted from the feed table **(A)**.

NOTE! Do not insert film from the daylight and rewash slots when the lamps are lit.

The daylight lamp **(D)** will turn off, when film has passed halfway through the fixer section.

Only the REWASH-lamp is lit:

- When the rewash slot **(C)** is opened.
- When film inserted from the daylight slot **(B)** has passed halfway through the fixer section. The processor is then ready to receive another film from the daylight feeding slot **(B)**.

Do not insert film from the rewash slot when the lamp is lit.

The REWASH-lamp will turn off when the film has passed the dryer section.

The DAYLIGHT and REWASH-lamps are flashing:

- If temperature is out of range in DEV or FIX bath. The lamps will turn off when correct temperature is reestablished.

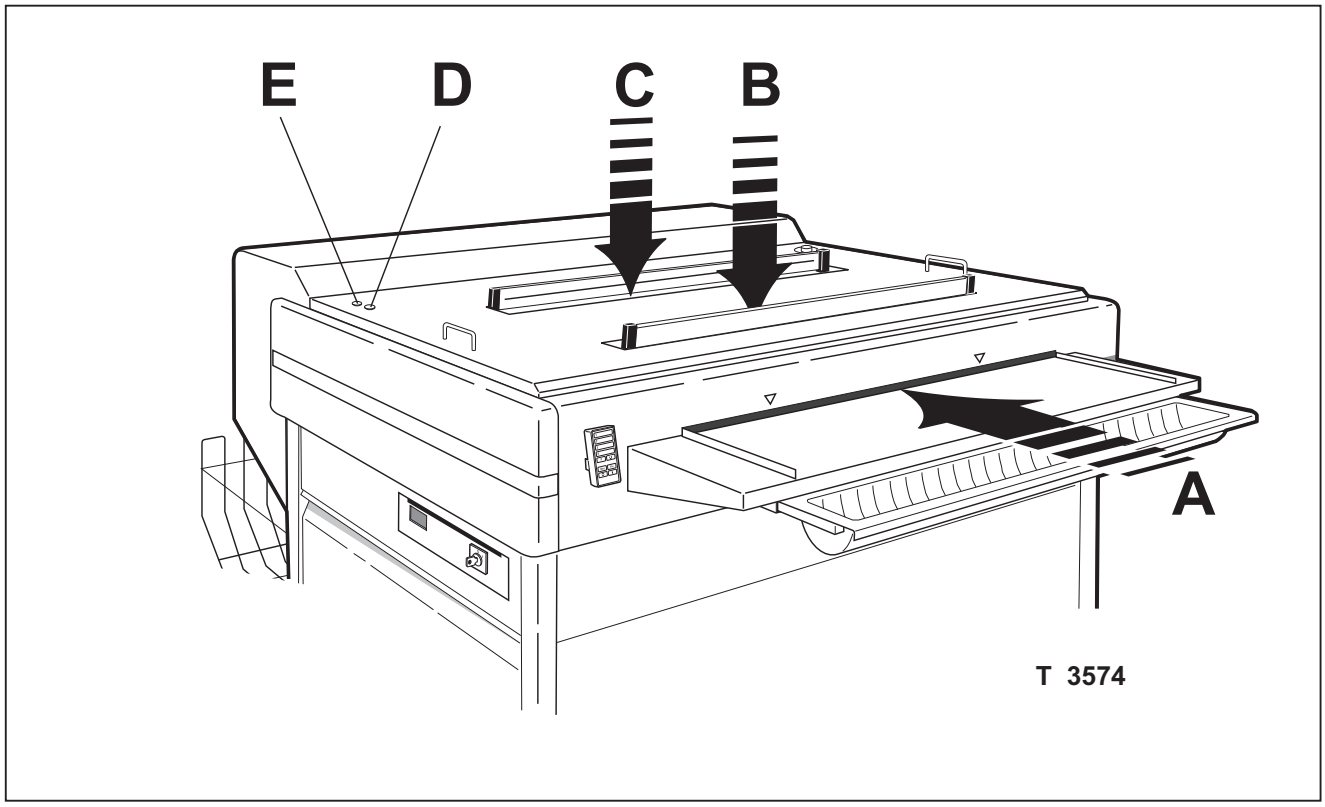


Fig. 5/2

CHAPTER 6

CLEANING AND MAINTENANCE

GENERAL

Performing maintenance on a scheduled basis reduces the possibility of equipment failure and the loss of processing quality.

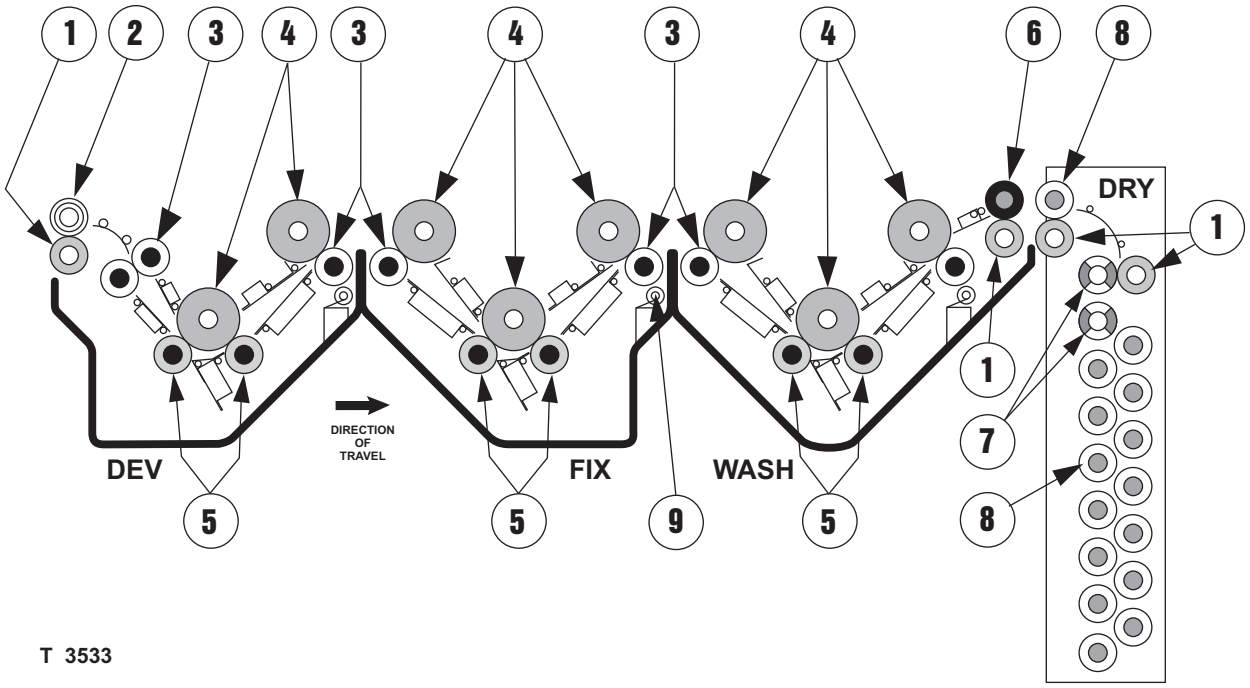
Only one person should be responsible for performing the preventive maintenance program. That person should be familiar with the equipment as well as its operational characteristics and maintenance requirements.

A periodic major clean-up of the equipment is important to maintain the processing quality and reliability of the machine.
This clean-up should be performed either monthly or after processing app. 1000m2 (10.000 ft2) of film.

The major clean-up procedure can be performed in 2 to 4 hours depending on the condition of the machine and on the proficiency of the person cleaning it.

NOTE! Personnel performing any maintenance or clean-up must familiarize themselves with the SAFETY INSTRUCTIONS and ENVIRONMENTAL PROTECTION in Chapter 0 before attempting any of these procedures.

NOTE! BE SURE TO DISCONNECT ELECTRICAL POWER BEFORE PERFORMING ANY CLEANING OR MAINTENANCE.



T 3533

POS.	QTY.	PART NO MODEL 950/1250/1550 DESCRIPTION	POS.	QTY.	PART NO MODEL 950/1250/1550 DESCRIPTION
1	4 pcs.	33383/33384/33385 RUBBER, D30 SHORT TAP	6	1 pc.	33525/33526/33527 PUR, D30 HEAVY, SHORT TAP
2	1 pc.	24597/24598/24599 + 33908/33908/33908 SHAFT, ROLLER + ROLLER, POM, ROLLER, ENTRANCE	7	2 pcs.	3497/3498/3499 PUR/TEFLON, D30 LONG TAP
3	7 pcs.	13204/13206/23445 PUR, D30, MATTED HEAVY, SHORT TAP	8	15 pcs.	3400/3490/3401 PUR/TEFLON, D30 SHORT TAP
4	8 pcs.	3574/3575/3576 PUR, D50, MATTED SHORT TAP	9	3 pcs.	44000 RUBBER D14 X 174
5	6 pcs.	7344/7345/7346 PUR, D30, MATTED LIGHT, SHORT TAP			

ROLLERS AND GEARS

When rollers and/or gears have been removed from the sections for cleaning or servicing purposes it is very important for the correct function of the machine that they are reinstalled in their correct positions.

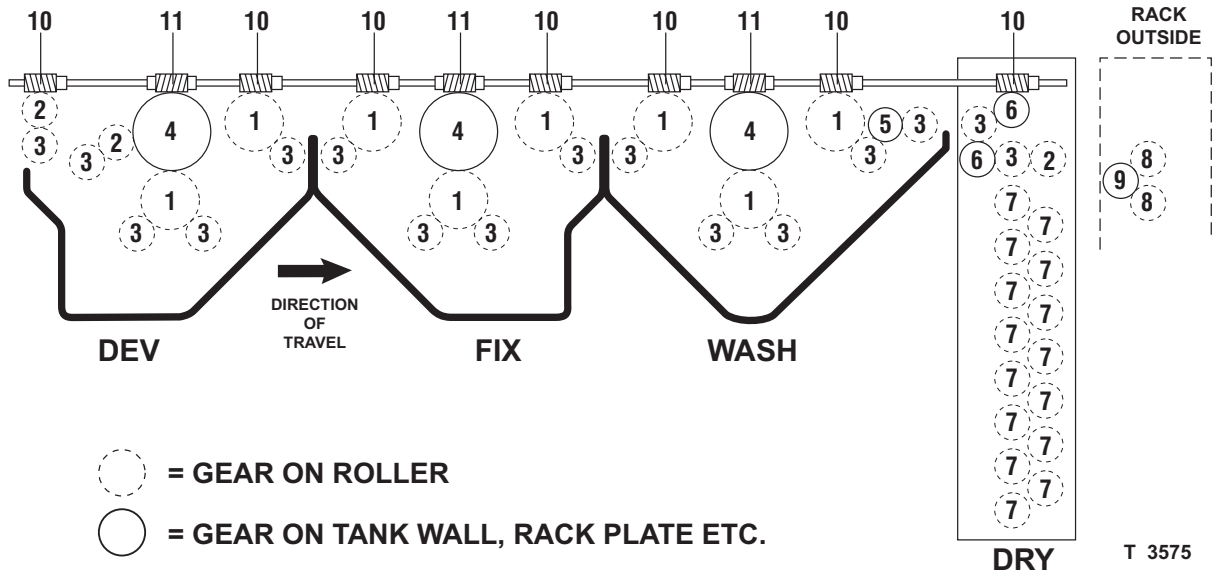
ROLLERS

The illustration opposite shows the type, part No and correct position of each roller in the processor. The correct installation sequences are described in chapter 2 - “INSTALLATION OF ROLLERS AND GUIDES”.

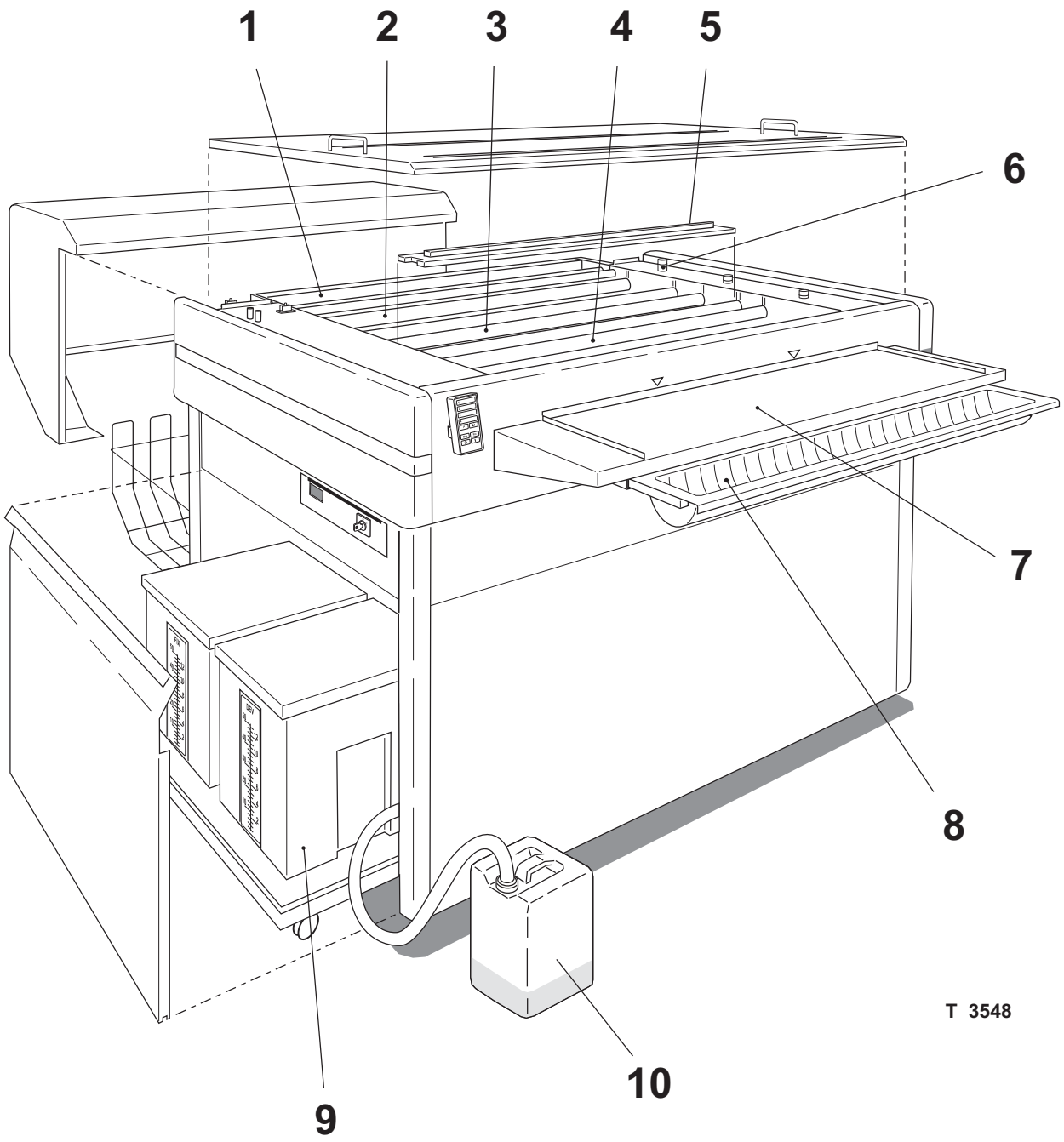
GEARS

As there are both right-handed and left-handed gears it is very important for the correct function of the processor that each gear is placed correctly.

The illustration below shows the type, part No and correct position of each gear.



POS.	QTY.	PART NO DESCRIPTION	POS.	QTY.	PART NO DESCRIPTION	POS.	QTY.	PART NO DESCRIPTION
1	8 pcs.	28299 GEAR, R. Z 50 W/SCREW	5	1 pc.	34208 GEAR, R. Z 24	9	1 pc.	17688 GEAR, Z 30 W/SCREW
2	3 pcs.	28298 GEAR, R. Z 30 W/SCREW	6	2 pcs.	34230 GEAR, R. Z 30	10	7 pcs.	18965 GEAR, WORM, R. W/CLIP
3	16 pcs.	28297 GEAR, L. Z 30 W/SCREW	7	15 pcs.	17685 GEAR, Z 34 W/SCREW	11	3 pcs.	18966 GEAR, WORM, L W/CLIP
4	3 pcs.	34207 GEAR, L. Z 70	8	2 pcs.	27351 GEAR, Z 30 W/SCREW			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T 3548

CLEANING

GENERAL

When using water for cleaning purposes, use warm water 35 - 40°C (95 - 104°F).

NOTE! Do not use abrasive materials on the processor.

NOTE! Never cover the machine with a cloth or piece of plastic to protect it from dust, as this prevents free circulation around the machine and can lead to overheating and increased condensation.

NOTE! Never use any hard tool or abrasive materials when handling and cleaning the rollers.

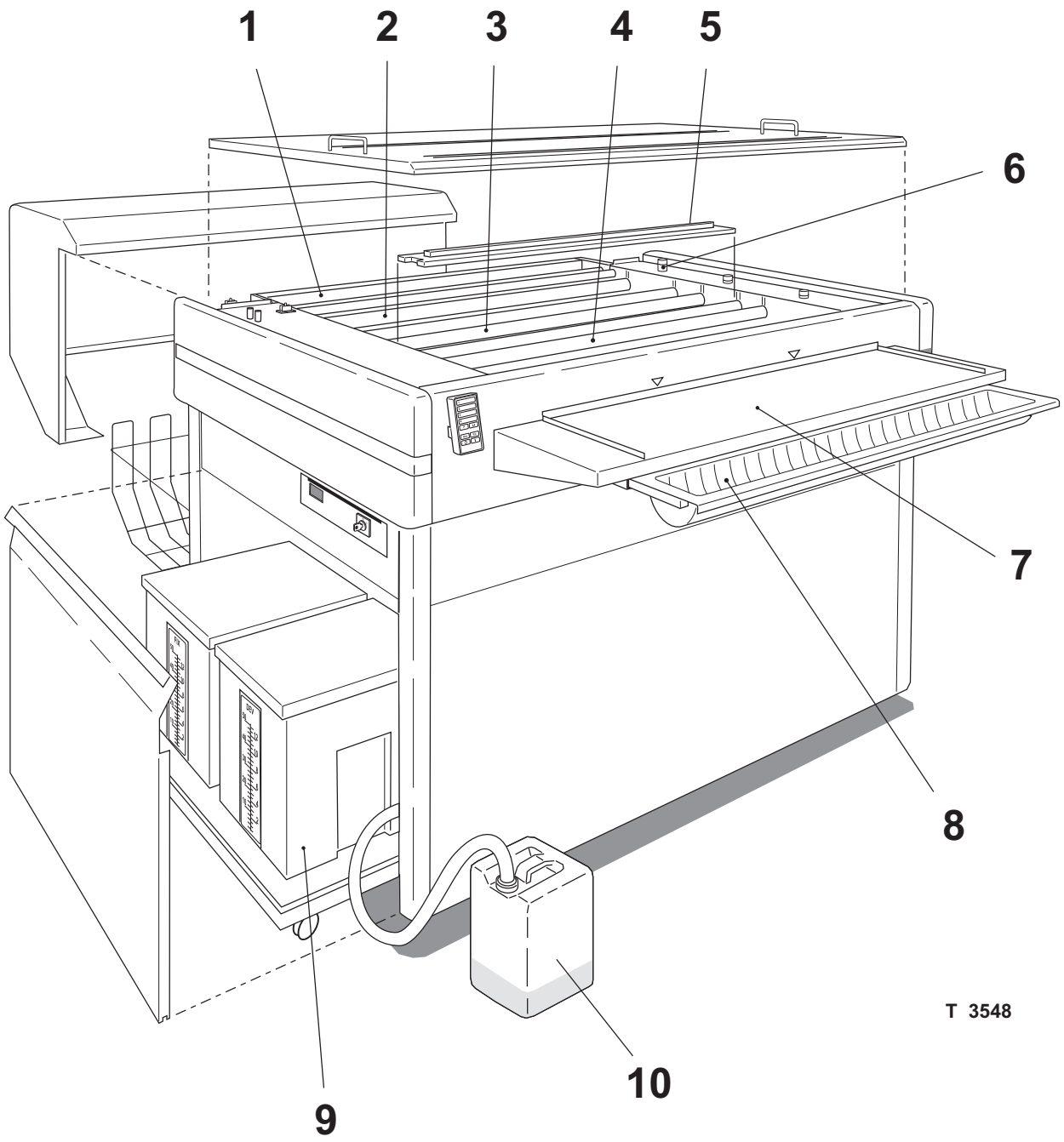
DAILY CLEANING

It is recommended to clean the processor each day before you start processing. Follow the procedure below:

- Clean the feed table **(7)** and the roll film tray **(8)** with a moist cloth.
- Drain the wash tank **(2)** and close the drain-tube **(6)** at the end of each shift.
- Check the level in the replenishment containers **(9)** and refill if needed.
- Empty the waste-chemicals containers **(10)**.

WEEKLY CLEANING

- Carefully lift the rollers out of the developer tank **(4)** and rinse them with water. Be sure to rinse off possible crystallization on film guides.
- When needed, empty the tank and clean both tank and rollers with tank-cleaner. Ask you dealer of chemicals for advice. Be careful not to get any of this cleaner into the fixer section **(3)**. It is important to get all of the cleaner out of the developer tank after cleaning and to rinse the rack in plenty of water.
- Carefully lift the rollers out of the wash tank **(2)** and rinse it with water.
- Empty the wash water tank and clear off algae.
- Cleaning of fixer section **(3)** is described in “MONTHLY CLEANING”.
- Remove the oxidation lids **(5)** from the developer and fixer tank and rinse the lids with water.
- When refilling the developer tank **(4)**, be very careful not to get developer into the fixer section **(3)**.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MONTHLY CLEANING

- Carefully lift the rollers out of the fixer section **(3)** and rinse it with water. Be sure to rinse off possible crystallization on film guides.
- Remove dryer rack **(1)** and rinse rubber rollers with water.
- Remove and inspect all worm gears and bearings for excessive wear. Replace any worn or damaged part.
  Clean the components of any residual chemicals.
- Locate the water solenoid valve under the machine. Disconnect the hose from the valve by unscrewing the union nut, and remove the water filter with a pair of pliers (see Fig. 6/1).
  Clean the filter and reinstall it.
- Clean the blades and inner housing of the scavenger fan with a moist cloth to prevent chemical build up. Make sure that the fan spins freely.

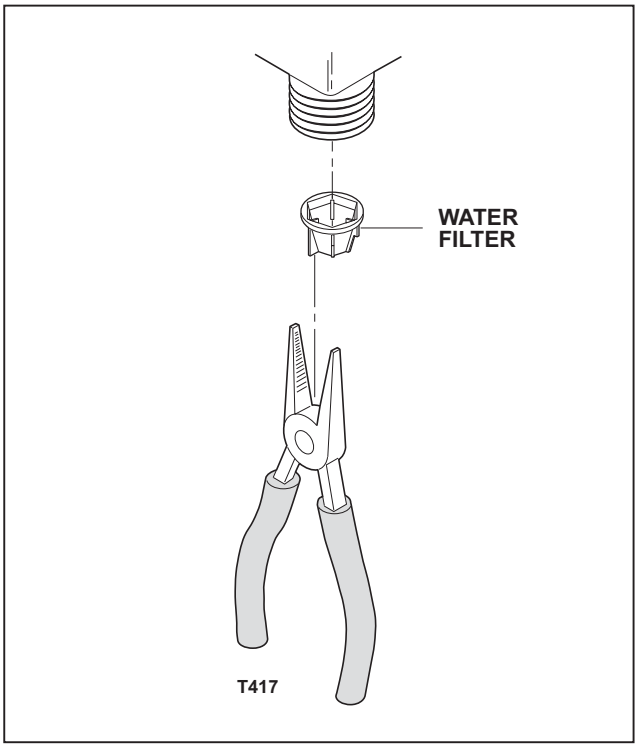


Fig. 6/1

CLEANING OF VALVES IN THE REPLENISHMENT PUMPS

SERVICE TECHNICIANS ONLY

If a replenishment pump ceases to function properly, let it suck some water in order to clear the valves of chemicals.
If this does not help, take the pump apart and clean both of the small valves in water (see Fig. 6/2).
Reinstall the valves and make sure, that they are placed correctly for free, unobstructed flow.

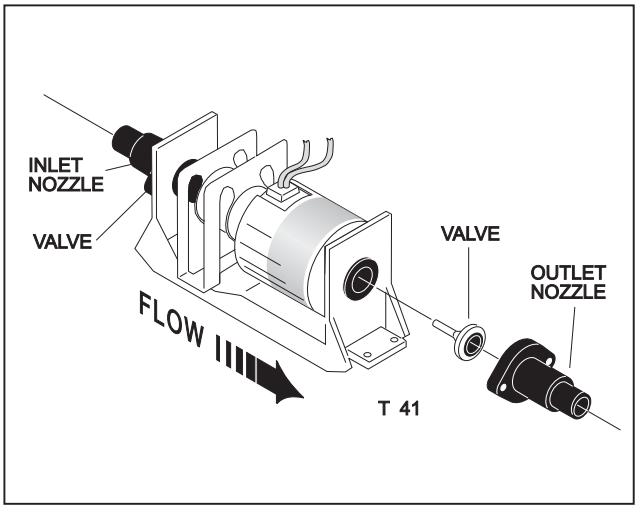


Fig. 6/2

DEVELOPER FILTER

Some processors are equipped with a developer filter. Cleaning of the developer filter is described in a separate manual delivered with the processor.

CLEANING OF THE CIRCULATION PUMP

SERVICE TECHNICIANS ONLY

If the circulation pump ceases to function properly clean the pump following the description below.

See Fig. 6/3.

- Turn the MAIN-switch off.
- Remove top cover.
- Remove the cover to the right of the wet sections.
- Drain the developer and fixer tanks.
- Dismount the circulation pump being careful not to spill any chemicals.
- Dismount the covers **(4)** and pull out the impellers **(3)** and the impeller housings **(1)**.
- Clean the inside of the covers, the impellers and the impeller housings in warm water.
- Reinstall in reverse order, observing that the outlet nozzles **(5)** of the covers are placed where they were before dismounting them, and that the O-rings **(2)** and placed correctly in the grooves of the impeller housings **(1)**.

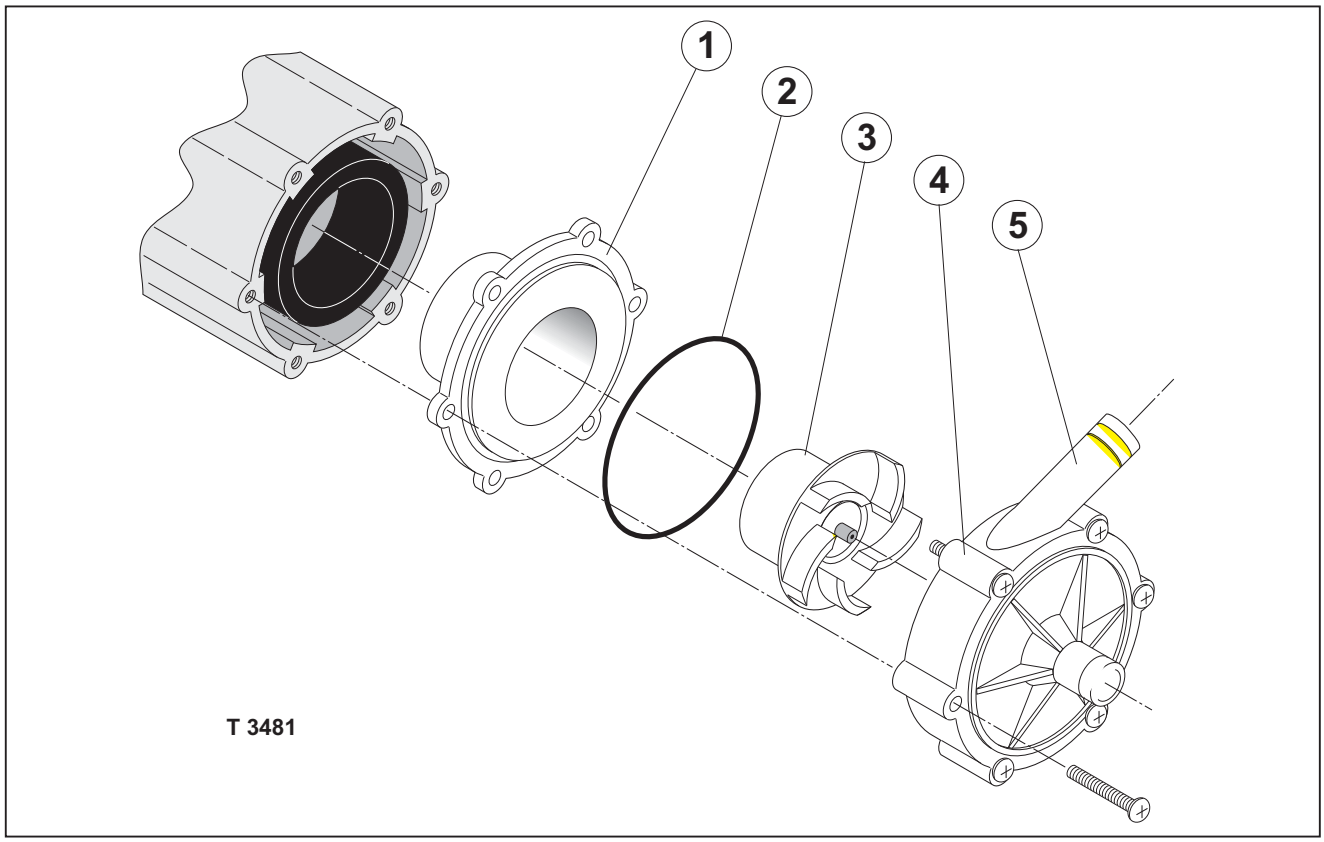


Fig. 6/3

MAINTENANCE

REPLACING A FUSE

AUTHORIZED PERSONNEL ONLY

All fuses for the heaters, pumps and motors etc. are placed on the PCB GCB, except for the dryer heater fuses F4 and F5 and the fuses F1 - F3 for installations without neutral wire (US-models only). These fuses are placed through the bottom panel in the left side of the drawer. See chapter 3, “ELECTRONIC CONTROL”.
The fuses are listed in tables in chapter 3, “FUSES”.

In order to change a fuse, do the following:

- Turn the MAIN-switch off.
- Push the OFF-button on the control panel.
- Pull the drawer halfway out until it locks. Release the lock by pushing it downwards, then pull the drawer out until the fuses mounted through the drawer cover appear.
- Turn the fuseholder 90° counterclockwise and pull it out.
- Change the fuse with a new fuse of the correct rating according to the fuselists in chapter 3.
- Replace the fuseholder and close the drawer.

NOTE! Remember to close the drawer when the fuse has been changed, in order to protect the electronics from chemicals, if spilled.

REPLACING THE RELAY

SERVICE TECHNICIANS ONLY

The relay is placed underneath the cover in the electronics drawer. In order to change the relay, do the following:

- Turn the MAIN-switch off.
- Push the OFF-button on the control panel.
- Pull the drawer halfway out until it locks. Release the lock by pushing it downwards, then pull the drawer all the way out.
- Remove the two screws holding the cover. One in each side of the drawer, mounted from below.
- Locate the relay and replace it with a new.
- Reinstall the cover and close the drawer.

NOTE! Remember to close the drawer when the relay has been changed, in order to protect the electronics from chemicals, if spilled.

CHECK OF DEVELOPER REPLENISHMENT

The effectivity of the developer can either be checked with a testing strip (ask your dealer of chemicals) or you can use a well exposed and well processed film as reference. If, after a week's work, the density of your film has decreased the replenishment has probably been too low and a higher setting of the DEV REPLENISHMENT RATE (PAR 15, 25, 35 and 45 - see chapter 4 and APPENDIX A) should be selected. If, however, the density is good, the replenishment is sufficient. If desired, a lower setting can then be tried, until it is established which setting of the control is enough for satisfactory replenishment.

CHECK OF FIXER REPLENISHMENT

While the processor is working at its normal temperature and speed, feed an unexposed film into the processor. The film should be absolutely transparent and without whitish spots or areas spread at random over the film when it comes out of the processor, otherwise the effectivity of the fixer is too low and a higher setting of the FIX REPLENISHMENT RATE (PAR 16, 26, 36 and 46 - see chapter 4 and APPENDIX A) should be selected.

The effectivity of the fixer and the silver contents of the fixer can also be tested with a special testing strip. Ask your local specialist for application of testing strip.

CHECK OF OXIDATION REPLENISHMENT

If the processor is left in stand by for longer periods, this feature can be used. At the start of a new working period, check the effectivity of the developer as described above, and adjust the OXY TIME REPLENISHMENT RATE correspondingly. (FIX = PAR 53, DEV = PAR 52, See APPENDIX A and chapter 4).

CHAPTER 7

TROUBLE SHOOTING

GENERAL

If the machine does not work according to the description in this book or does not process the material correctly, the following pages are meant as a help for you.
Read them carefully and find the paragraph that corresponds to your problem.

CONDITIONS BEFORE STARTING TROUBLE SHOOTING

The machine must be switched on by the MAIN SWITCH and the ON-button on the Control Box.

For references see chapter 6 “CLEANING AND MAINTENANCE” and chapter 3 with list of “FUSES” and “ELECTRICAL DIAGRAMS” on the blue fold out page.

WARNING! When changing a fuse, first switch off all power to the machine. Always ensure that the new fuse is of the correct rating according to the fuselists in chapter 3.
Causes demanding for repair jobs or checks which preferably should be carried out by a servicer technician, are marked with an asterisk (*).

Please turn over to the next page for the trouble shooting chart.

PROBLEMS WITH THE PROCESSOR

SYMPTOM	PROBABLE CAUSE	REMEDY
MACHINE WILL NOT TURN ON.	One or both interlock switches deactivated. Power cable not connected to mains. MAIN SWITCH off. Fuse **F509** blown.	Put back top cover and/or dryer cover. Connect cable. Turn MAIN SWITCH on. Replace fuse.
MACHINE WILL NOT START UP.	One or both interlock switches deactivated. Fuse **F510** blown. *Relay **K50**1 defective.	Put back top cover and/or dryer cover. Replace fuse. Replace relay.
MACHINE STARTS UP BUT RUNS IN CONT. MODE, WHEN SHOULD BE IN AUTO. MODE	Sensor-elbow for daylight or rewash slot misplaced. *Input sensors defective.	Mount elbow. Replace defective sensors.
LOW LEVEL-LAMPS FOR DEV/FIX FLASH. WAIT-LAMP IS LIT.	Level in DEV or FIX tank too low.	Check that drain tubes are closed Check the level in the replenishment containers. Push replenishment buttons (see chapter 5).
LOW LEVEL-LAMP FOR WASH FLASHES. WAIT-LAMP IS LIT.	Level in WASH tank too low. Water solenoid valve defective or filter in valve clogged.	Check that drain tube is closed Check that water supply valve is opened. Clean the filter in the water solenoid valve (see chapter 6) or replace water solenoid valve.
MACHINE DOES NOT START WHEN FILM IS INSERTED.	*One or both input sensors defective. *PCB defective.	Replace defective sensor (see chapter 6). **Call Service Technician.**
MACHINE WILL NOT GO TO STAND-BY AFTER END OF PROCESSING CYCLE.	Machine in CONT mode (PAR 07 = 01). *Input sensors defective. *Electronics defective.	Change PAR 07 from 01 to 00 (see APPENDIX A). Replace defective sensors (see chapter 6). Call Service Technician.
MACHINE WILL NOT GO TO STAND-BY AFTER END OF PROCESSING CYCLE USING DAYLIGHT AND REWASH SLOTS	Machine in CONT mode (PAR 07 = 01). *Daylight and/or rewash sensors defective. *Electronics defective	Change PAR 07 from 01 to 00 (see APPENDIX A). Replace defective sensors (see chapter 6). Call Service Technician.

PROBLEMS WITH THE PROCESSOR

SYMPTOM	PROBABLE CAUSE	REMEDY
NO WASH WATER.	External water supply valve closed Water solenoid valve defective or filter in valve clogged.	Open external water supply valve. Replace defective valve or rinse filter (see chapter 6).
DRYER BLOWER WORKS, HEATER DOES NOT.	Parameter for dryer heating set too low. *Electronics defective. Fuse **F105** or **F103** blown.	Set PAR 12 to correct temperature (see APPENDIX A). **Call Service Technician.** Replace fuse.
DRYER BLOWER AND HEATER DO NOT WORK.	Fuse **F105, F103** and/or **F505** blown. *Electronics defective.	Replace fuse. **Call Service Technician.**
DEVELOPER AND/OR FIXER REPLENISHMENT PUMPS WORK BUT NO REPLENISHMENT.	Replenishment container empty. Replenishment hoses blocked. *Pump valves clogged or defective.	Refill containers. Clean hoses. Clean or replacevalves (see chapter 6).
DEV REPLENISHMENT PUMP DOES NOT WORK.	*Pump defective. Fuse **F508** blown.	Replace defective parts. Replace fuse.
FIX REPLENISHMENT PUMP DOES NOT WORK.	*Pump defective Fuse **F507** blown.	Replace defective parts. Replace fuse.
PUMPS WORK BUT ONLY IN MANUAL.	*Electronics defective.	**Call Service Technician.**
REPLENISHMENT SYSTEM WORKS ALTHOUGH NO MATERIAL IS PASSING THE SENSORS. MACHINE IS IN AUTOMATIC MODE.	The daylight slot is open. Time-replenishment circuits are ON. *Input sensor defective. *PCB defective.	Closed the daylight slot. Change PAR 57 to 00 (see APPENDIX A). Replace defective sensor (see chapter 6). **Call Service Technician.**
DEVELOPER IS NOT HEATED. WAIT-LAMP AND LEVEL INDICATOR LAMP NOT LIT.	Fuse **F504** blown. Parameter for DEV heating set too low. *Heater element defective. *Temperature sensor defective. *Electronics defective.	Replace fuse. Set PAR 10 to correct value (see APPENDIX A). Replace heater element. Replace temperature sensor. **Call Service Technician.**

PROBLEMS WITH THE PROCESSOR

SYMPTOM	PROBABLE CAUSE	REMEDY
DEVELOPER OVERHEATS.	Parameter for DEV heating set too high. *Temperature sensor defective. *Electronics defective.	Lower PAR 10 to correct value (see APPENDIX A). Replace defective sensor. **Call Service Technician.**
FIXER IS NOT HEATED. ***LEVEL LAMP NOT LIT.***	Fuse **F503** blown. Parameter for FIX heating set too low. *Heater element defective. *Temperature sensor defective. *Electronics defective.	Replace fuse. Set PAR 11 to correct value (see APPENDIX A). Replace heater element. Replace temperature sensor. **Call Service Technician.**
FIXER OVERHEATS.	Parameter for FIX heating set too high. *Temperature sensor defective. *Electronics defective.	Lower PAR 11 to correct value (see APPENDIX A). Replace defective sensor. **Call Service Technician.**
DRIVE MOTOR DOES NOT RUN NEITHER IN AUTO NOR IN CONT MODE.	Fuse **F512** blown. *Drive motor defective. *Electronics defective.	Replace fuse. Replace defective motor (see chapter 6). **Call Service Technician.**
DRIVE MOTOR RUNS, BUT NO FILM TRANSPORT.	Defective gear on drive motor, rollers or drive shaft. Film jammed inside the machine.	Replace any defective worm or gear (see chapter 6). Check that all rollers move freely and that no films are jammed in the sections.
DEVELOPER AND/OR FIXER CIRCULATION PUMP DOES NOT RUN.	Fuse **F506** blown. Low level in DEV and/or FIX section. *Pump defective.	Replace fuse. Push replenishment buttons (see chapter 5). Replace defective pump.
DEVELOPER AND/OR FIXER CIRCULATION PUMPS RUN BUT NO CIRCULATION	*Pump defective. *Pump inlet blocked. *Circulation hose blocked.	Replace defective pump. Clean circulation pump (see chapter 6). Clean circulation hose (see chapter 6).

PROBLEMS WITH PROCESSED MATERIAL

SYMPTOM	PROBABLE CAUSE	REMEDY
FILM IS NOT COMPLETELY DRY.	Dryer temperature set too low. Fixer needs hardener. Dryer section malfunctioning. Machine runs too fast.	Set value in PAR 12 a little higher. Add hardener to the fixer. See page 7/3. Try a programme with longer dev. time.
THE FILM LOOKS MILKY I.E. WHITISH AREAS AT RANDOM OVER THE FILM	The fixing is insufficient. Fixer too old or weak. Fixer too cold. Water runs from the wash setion into the fixer section where it cools and dilutes the fixer.	Use high speed fixer. Set value in PAR 16, 26, 36, 46 or 53 a little higher (see APPENDIX A). Change fixer. Set value in PAR 11 a little higher (see APPENDIX A). Check fixer heater function. Check that the water drain hose is not clogged or forms a water trap.
THE FILM HAS TOO LOW DENSITY ALTHOUGH EXPOSURE IS CORRECT AND FILM NOT TOO OLD.	Developer is exhausted. Developer is too cold. Developing time is too short. Replenishment insufficient. Circulation pump in developer does not run.	Change developer. Set value in PAR 10 a little higher (see APPENDIX A). Check developer heater function. Try a program with longer dev. time. Set value in PAR 15, 25, 35 or 45 a little higher (see APPENDIX A). See “PROBLEMS WITH THE PROCESSOR”.
FILM HAS STRIPES LENGTHWISE OR CROSSWISE.	Defective or dirty rollers or guides.	Take the rollers and guides out, inspect and wash them. Rollers and guides with dents or other marks must be changed (see chapter 6).

PROBLEMS WITH PROCESSED MATERIAL

SYMPTOM	PROBABLE CAUSE	REMEDY
FILM HAS A TENDENCY TO STICK IN THE WET OR DRY SECTION.	Rollers or guides out of position or dirty. Fixer exhausted. Fixer needs hardener. Fixer too old.	Check rollers and guides for correct position (see chapter 6). Set value in PAR 16, 26, 36, 46 or 53 a little higher (see APPENDIX A). Add hardener. Change fixer.
FILM HAS A GREY FOG.	Fixer in developer.	Clean the developer tank and change the developer.
FILM HAS A DICHROIC FOG.	Developer is drawn into fixer. Fuse **F506** blown. *Pump defective. *Pump inlet blocked. *Circulation hose blocked.	Clean the fixer tank, fixer rollers and change the fixer. Replace fuse (see chapter 6). Replace defective pump. Clean circulation pump (see chapter 6). Clean circulation hose (see chapter 6).

CHAPTER 8

SPAREPARTS

PARTS DELIVERED

In APPENDIX B is a list of the parts delivered with the machine as well as a list of the Installation Kit and the Spareparts Kit.

ORDERING SPAREPARTS

NOTE ! If a certain sparepart is not specified in this chapter, please see the APPENDIX B "ADDITIONAL SPAREPARTS".

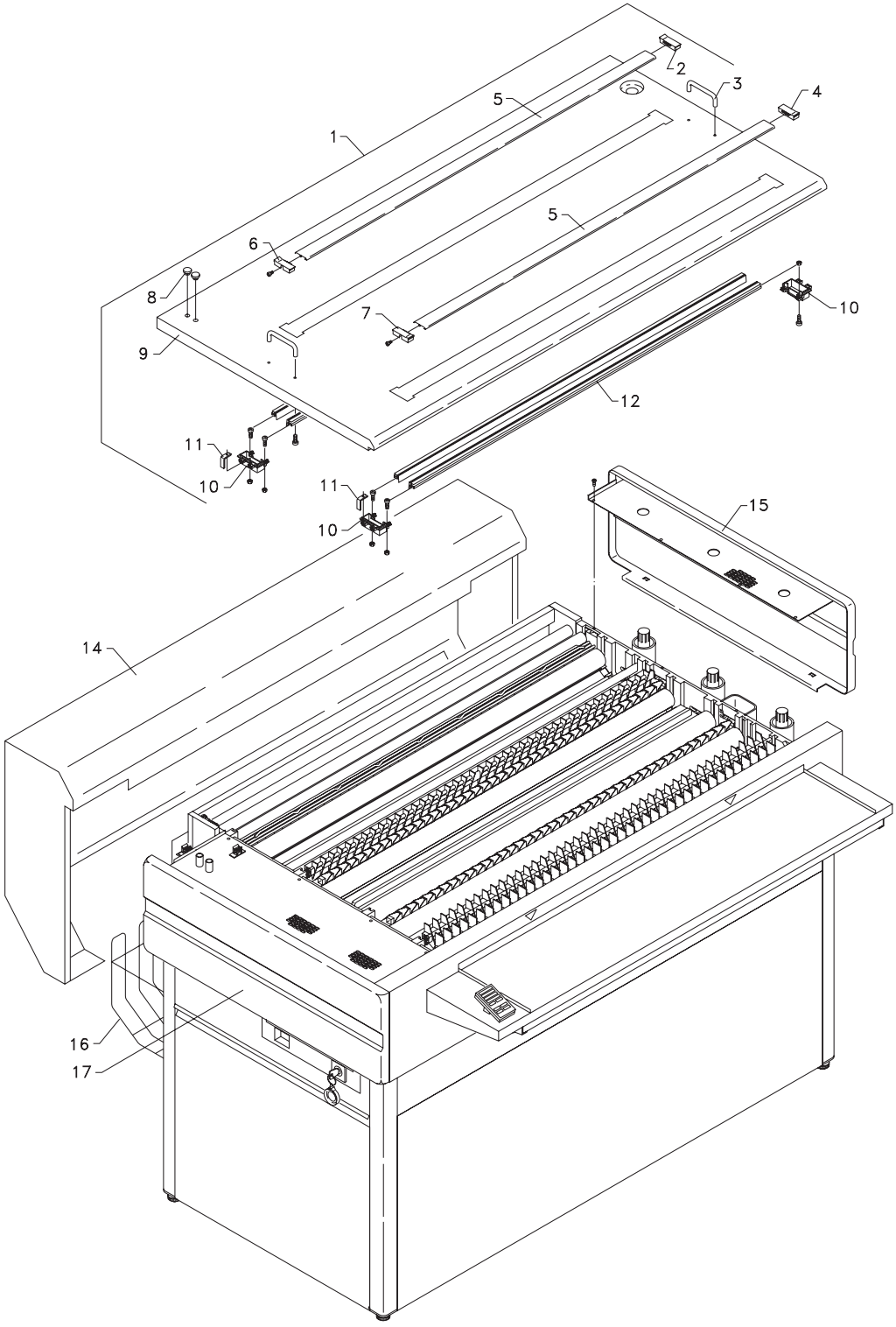
When ordering spareparts please state carefully the sparepart number, the specification and the number of items wanted. Send your order to your local dealer.

NOTE! If the processor is part of an OnLine installation some partnumbers may be different from those mentioned in this manual. Please see OnLine manual for additional and/or changed partnumbers.

CROSS REFERENCE LIST

NOTE! If your manual has a Cross Reference List in APPENDIX B, please use the part numbers listed in the cross reference list when ordering spareparts.

ON THE FOLLOWING PAGES ARE THE ISO-METRIC DRAWINGS WITH SPAREPARTS AND PART NUMBERS



COMPLETE MACHINE

COMPLETE MACHINE

Pos.	950	1250	1550	Specifications	
1				***SEE APPENDIX B***	
				SEE APPENDIX B	
2	22007	22007	22007	HANDLE, R. DAYL/REW.	IF DL/RW
3	20213	20213	20213	HANDLE D10X96	IF DL/RW
4	22027	22027	22027	HANDLE, L. DAYL/REW.	IF DL/RW
5				***SEE APPENDIX B***	
6	44017	44017	44017	HANDLE, LEFT, MAGNET	IF DL/RW
7	44018	44018	44018	HANDLE, RIGHT, MAGNET	IF DL/RW
8	16646	16646	16646	CAP, KNOB D24 RED	IF DL/RW
9				***SEE APPENDIX B***	
10	22008	22008	22008	PLATE, HANDLE	IF DL/RW
11	30461	30461	30461	BRACKET, REEDSWITCH/MAGNET	IF DL/RW
12				***SEE APPENDIX B***	
13					
14				***SEE APPENDIX B***	
15				***SEE APPENDIX B***	
16				***SEE APPENDIX B***	
17				***SEE APPENDIX B***	
	(Not illustrated)			LOGOS AND STRIPES - ***SEE APPENDIX B***	
19					
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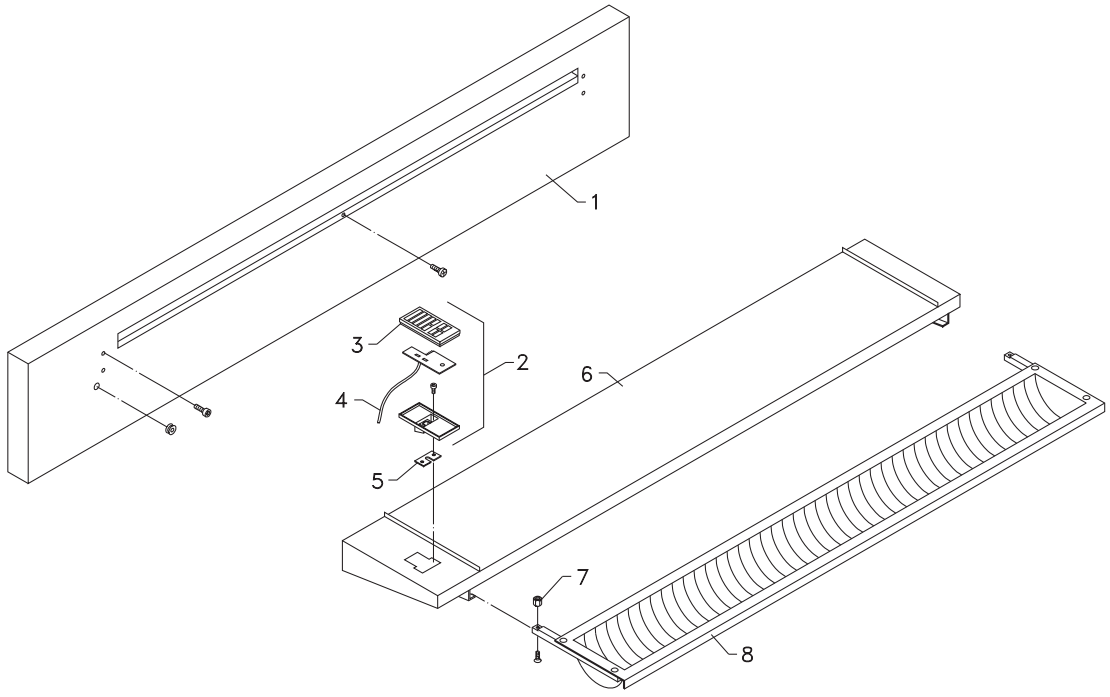

FEED TABLE

FEED TABLE

Pos.	950	1250	1550	Specifications
1				***SEE APPENDIX B***
2				***SEE APPENDIX B***
3				***SEE APPENDIX B***
4	27714	27714	27714	PCB GTB 04
5				
6				***SEE APPENDIX B***
7	25082	25082	25082	SPACER 10XM4 TP DI 651
8	21014	11594	11582	TRAY, FEED
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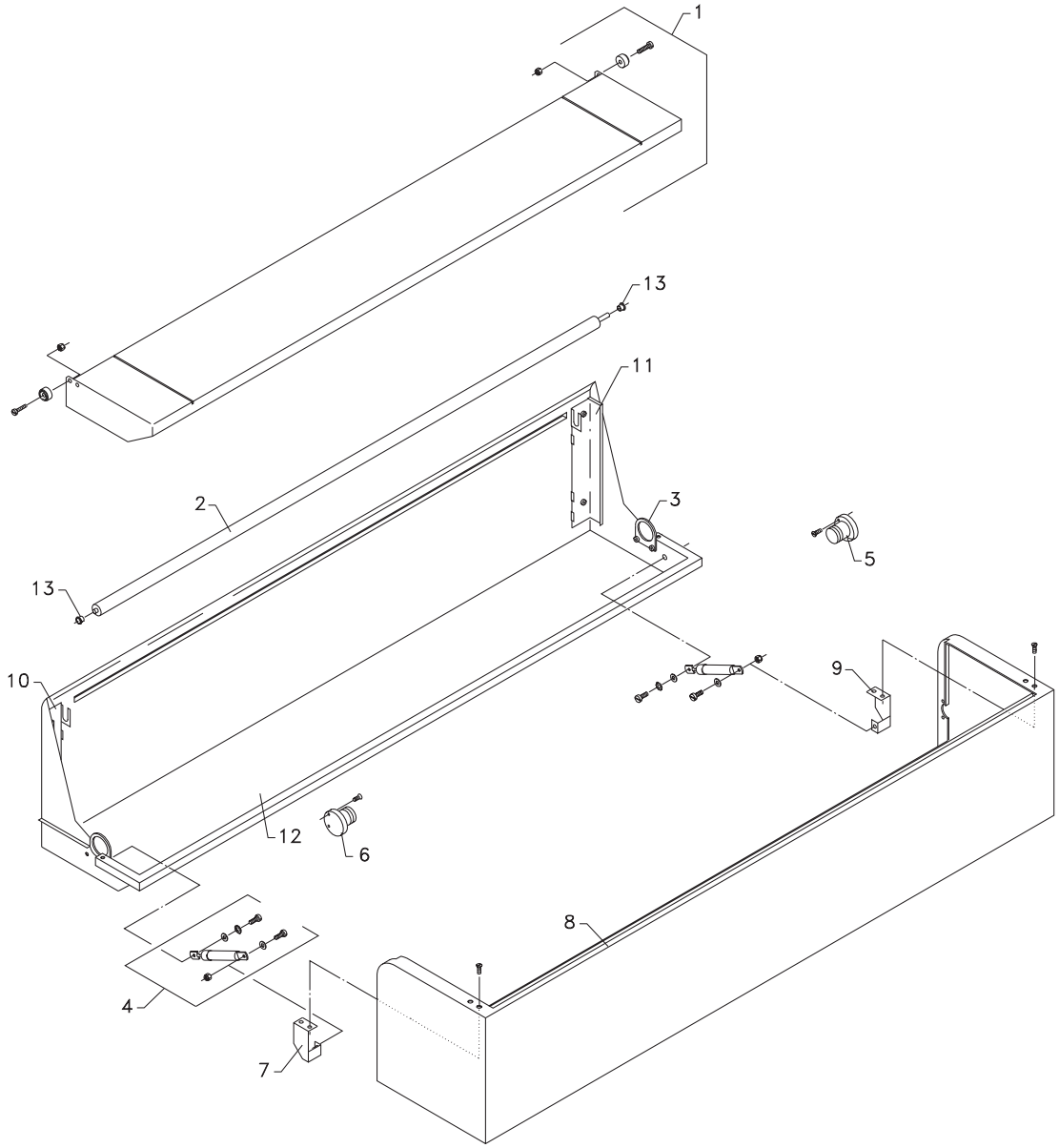

DAYLIGHT CASSETTE (OPTION)

DAYLIGHT CASSETTE (OPTION)

Pos.	950	1250	1550	Specification
				SEE APPENDIX B
1	28593	28594	28595	TABLE, ADJUSTABLE, CASSETTE
2	33525	33526	33527	ROLLER, PUR D30 H, SHT
3	20639	20639	20639	BRACKET, HINGE, CASS. 45X40X4
4	28039	28039	28039	SPRING, GAS, COMPLETE
5	34377	34377	34377	BUSHING, R. HINGE, CASS. D24/40X28
6	34378	34378	34378	BUSHING, L. HINGE, CASS. D24/40X28
7	20640	20640	20640	BRACKET, SPRING, CASS.
8				***SEE APPENDIX B***
9	30653	30653	30653	BRACKET, R. SPRING, CASS.
10	30651	30651	30651	BRACKET, LEFT, TABLE, CASSETTE
11	30652	30652	30652	BRACKET, RIGHT, TABLE, CASSETTE
12	30645	30646	30647	PANEL, BOTTOM, CASSETTE
13	4123	4123	4123	BEARING, D10.4/14.2/17.5X8/10
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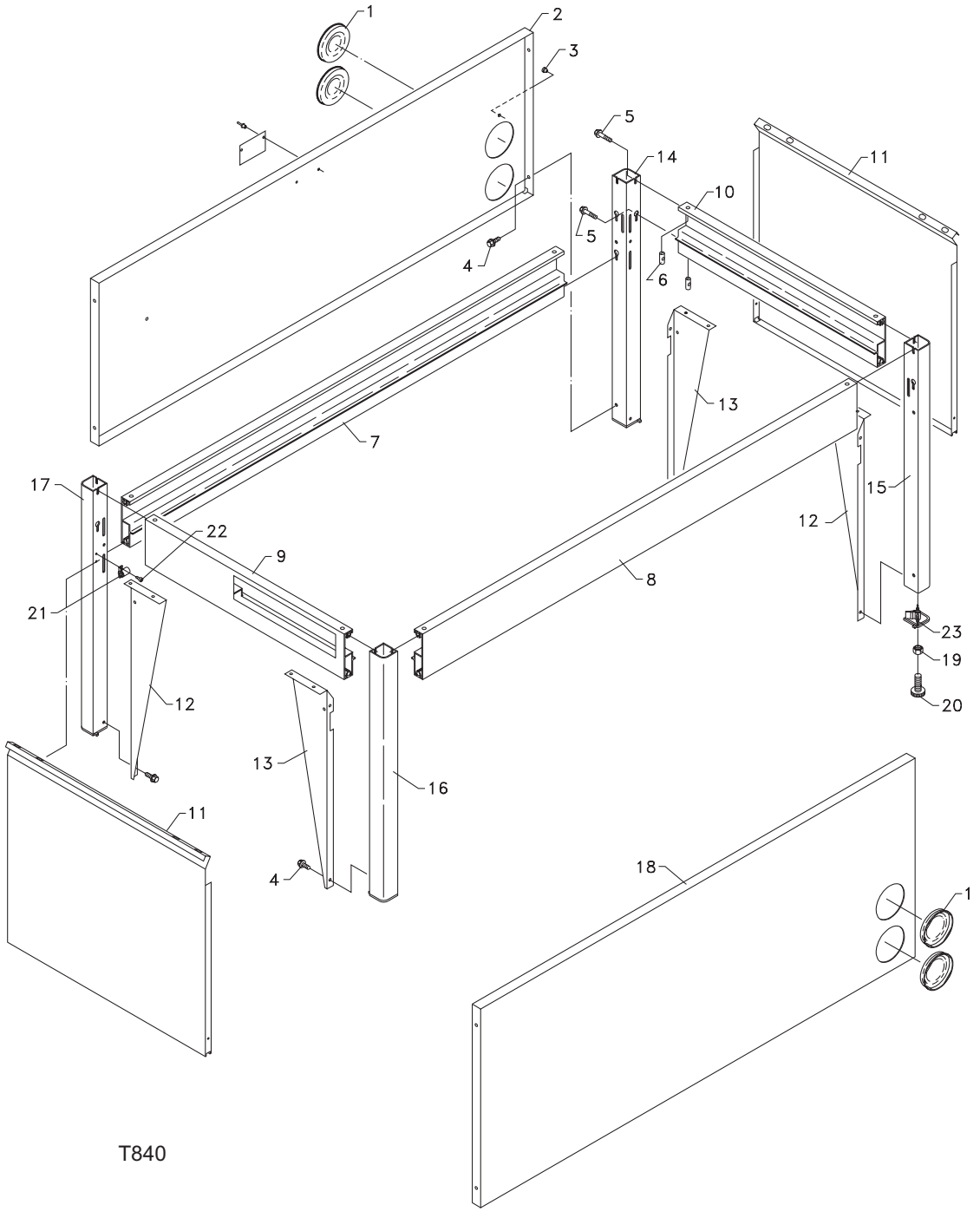
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T840

STAND

STAND

Pos.	950	1250	1550	Specifications
1	25153	25153	25153	STOPPER D104
2				***SEE APPENDIX B***
3	15897	15897	15897	SPACER D4.2X6X2
4	15284	15284	15284	SCREW D6.3X16 HE CO T ELZ
5	15263	15263	15263	SCREW M6X30 HE ELZ
6	15262	15262	15262	NUT, CYLINDER, M6/D19X20 ELZ
7				***SEE APPENDIX B***
8				***SEE APPENDIX B***
9				***SEE APPENDIX B***
10				***SEE APPENDIX B***
11				***SEE APPENDIX B***
12				***SEE APPENDIX B***
13				***SEE APPENDIX B***
14				***SEE APPENDIX B***
15				***SEE APPENDIX B***
16				***SEE APPENDIX B***
17				***SEE APPENDIX B***
18				***SEE APPENDIX B***
19	1504	1504	1504	NUT M10
20	6051	6051	6051	LEG, ADJUSTABLE M10X40
21	25276	25276	25276	LOCK, MAGNETIC
22	15285	15285	15285	SCREW D2.9X10 CR T
23	14466	14466	14466	FOOT, LEG, STAND
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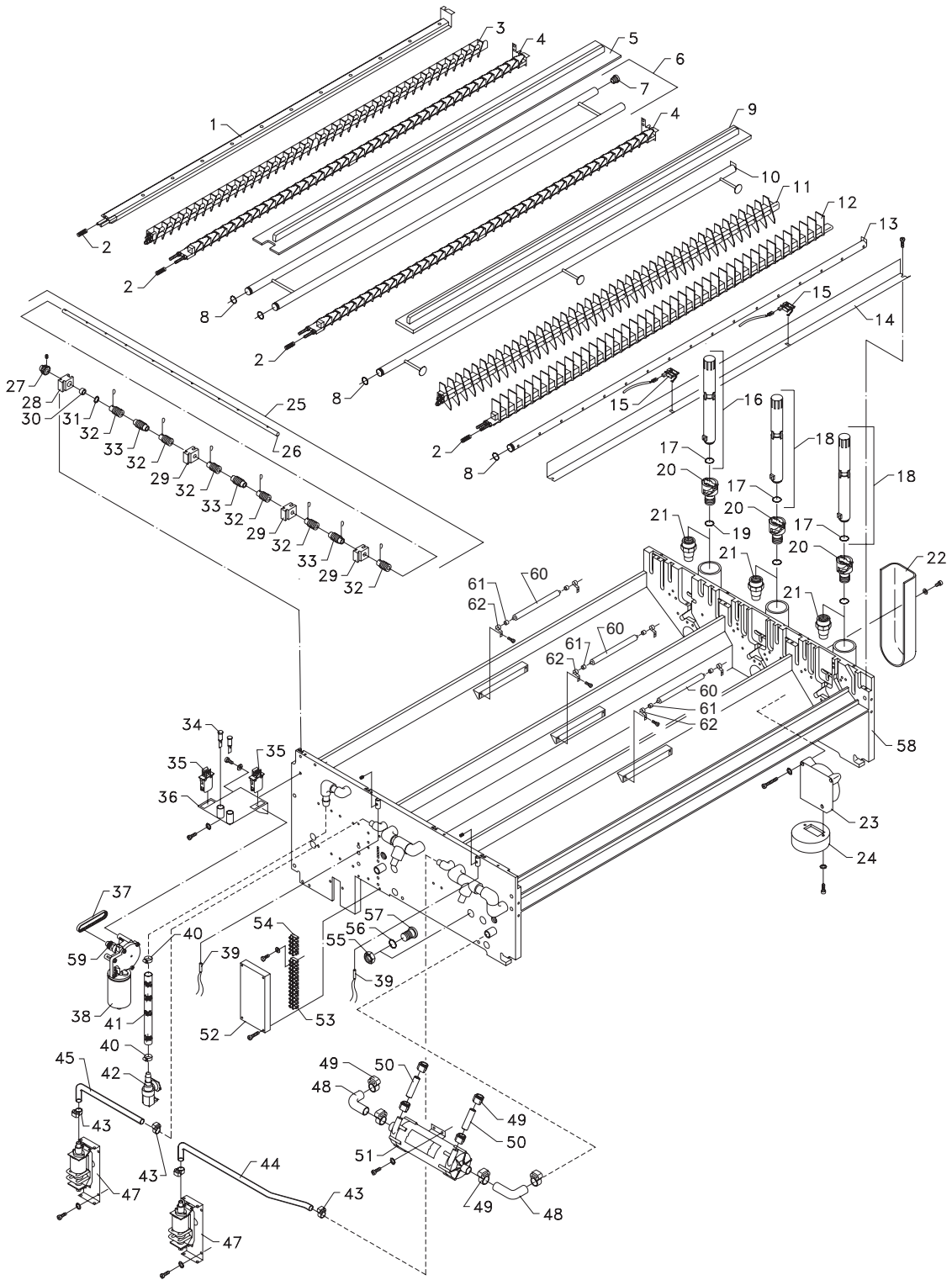
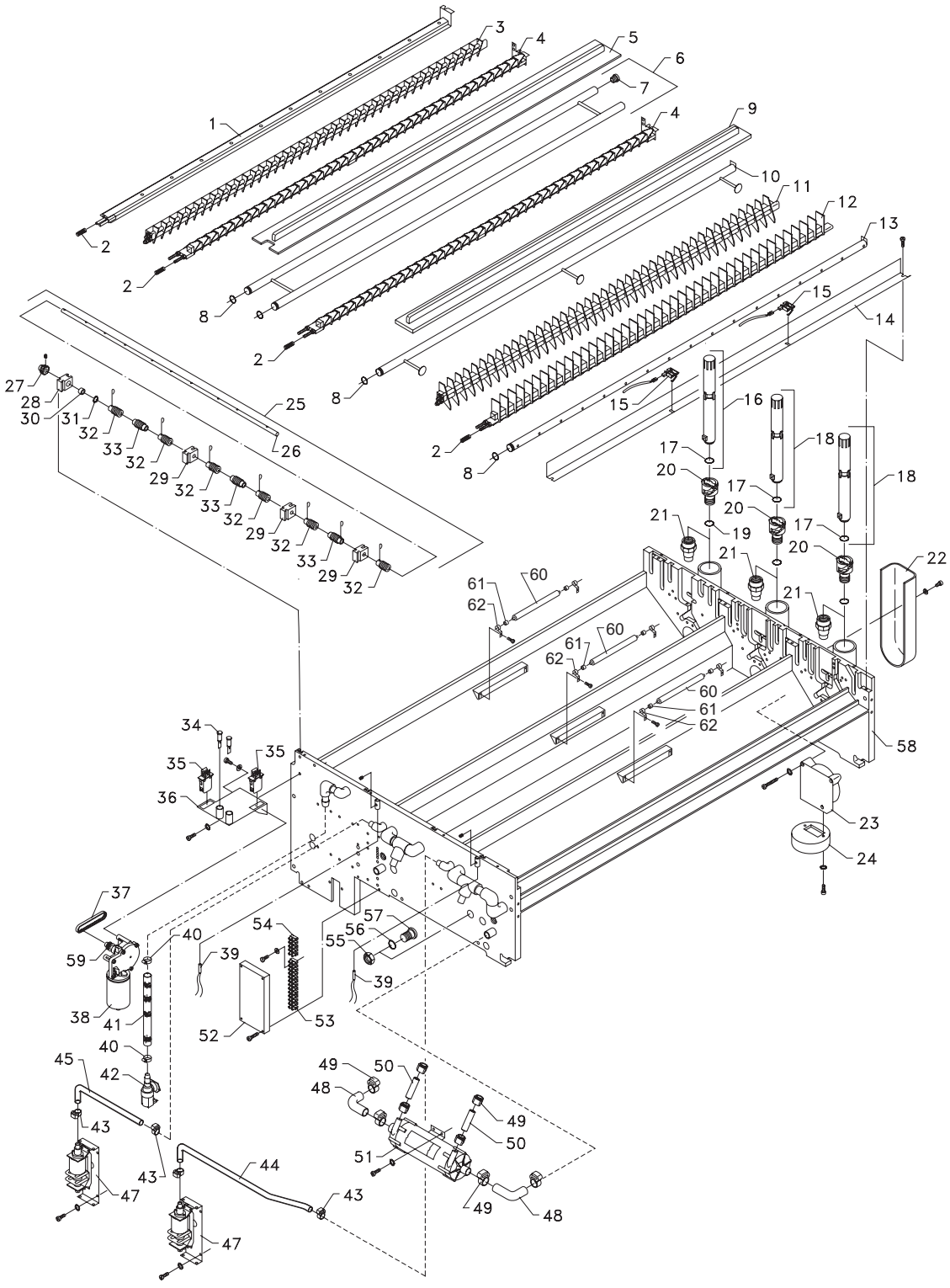


TANK SECTION

TANK SECTION

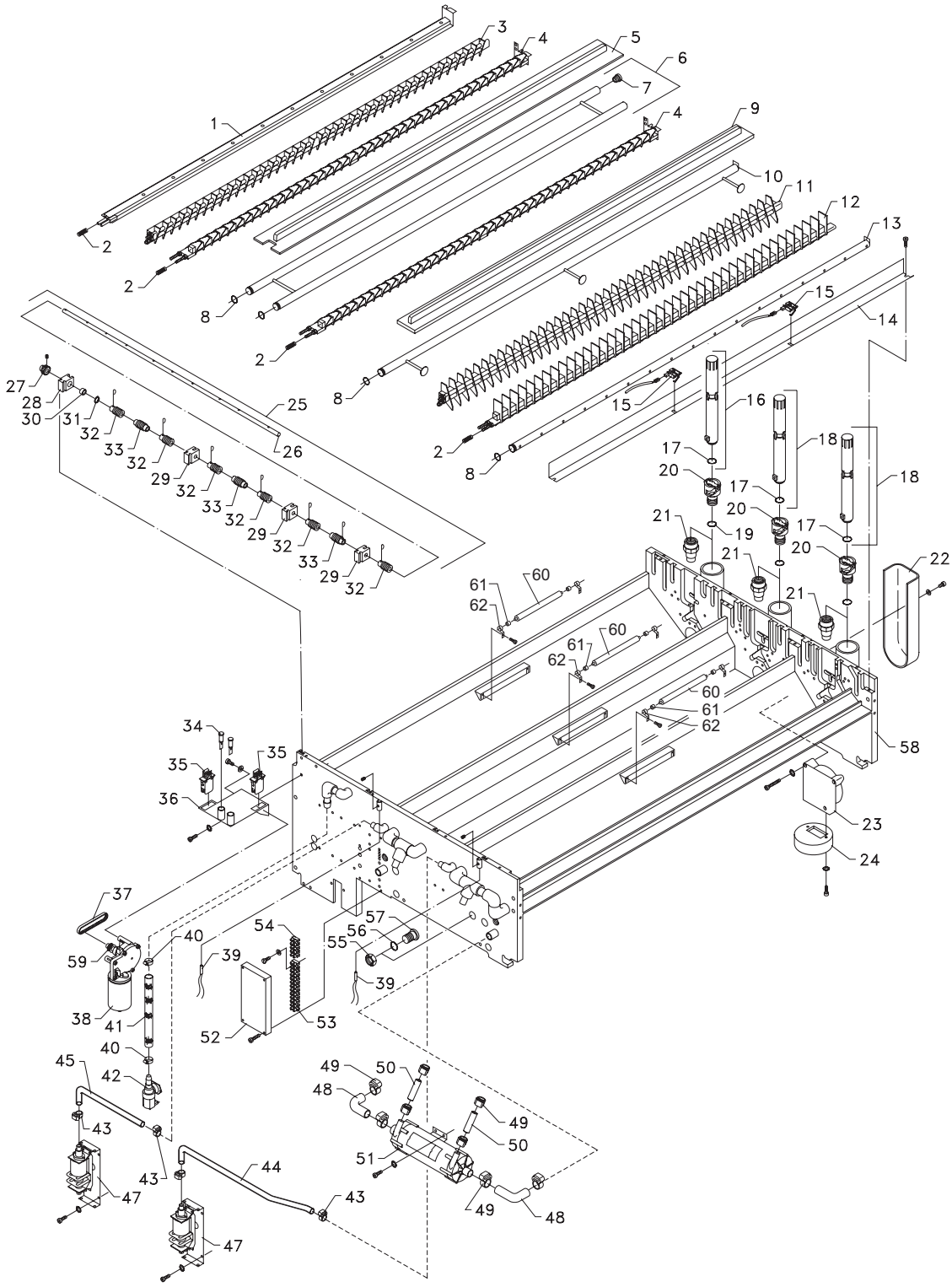
Pos.	950	1250	1550	Specifications	
1	30464	30463	30465	GUIDE, EXIT, WASH	
2	8372	8372	8372	SPRING, CONICAL D10X32.5	
3	28494	28495	28496	GUIDE, FINGER, REWASH	IF DL/RW
4	28488	28489	28490	GUIDE, FINGER, CROSSOVER	
5	33522	33523	33524	COVER, FIX	
6	28541	28542	28543	TUBE, SPRAY, FIX	
7	6291	6291	6291	STOPPER D20X12	
8	6302	6302	6302	O-RING D17.1X1.6	
9	33067	33059	33068	COVER, DEV	
10	18820	18821	18822	TUBE, SPRAY, DEV, RALI	
11	28491	28492	28493	GUIDE, FINGER, DAYLIGHT	IF DL/RW
12	28485	28486	28487	GUIDE, FINGER, ENTRANCE	
13	28507	28508	28509	TUBE, SPRAY, LOWER, DEV	
14	30439	30362	30440	BRACKET, REEDSWITCH	
15	16286	16286	16286	SWITCH, REED, SENSOR	
16	28500	28500	28500	TUBE, OVERFLOW, WASH	
17	6169	6169	6169	O-RING D20X2	
18	18927	18927	18927	TUBE, OVERFLOW	
19	25415	25415	25415	O-RING D28.17X3.53	
20	34204	34204	34204	FITTING, OVERFLOW, MODIFIED	
21	34870	34870	34870	FITTING, DRAIN	
22	22111	22111	22111	BOX, SUCTION 280.5X92.52	
23	28497	28497	28497	FAN, SCAVENGER	
24	33060	33060	33060	FLANGE, EXHAUST D100X36	
25	28027	28027	28027	SHAFT, DRIVE, COMPLETE	
26	33054	33054	33054	SHAFT, DRIVE, D9.98X780	
27	33506	33506	33506	PULLEY Z=15/T5	
28	34163	34163	34163	BLOCK, BEARING 37.5X31X23	
29	34169	34169	34169	BLOCK, BEARING 42.5X31X20	
30	25729	25729	25729	BEARING D22/10X6	



TANK SECTION

TANK SECTION

Pos.	950	1250	1550	Specifications	
31	6064	6064	6064	CIRCLIP D10	
32	18965	18965	18965	GEAR, WORM, RIGHT W/CLIP	
33	18966	18966	18966	GEAR, WORM, LEFT W/CLIP	
34	5916	5916	5916	LAMP 24V PM RED	***IF DL/RW***
35	16864	16864	16864	SWITCH, LID, 2 CONT.	
36	30369	30369	30369	BRACKET, MOTOR	
37	6362	6362	6362	BELT 6 T5/225 Z=45	
38	34458	34458	34458	MOTOR, SWF 403.933 MODIFIED	
39	34297	34297	34297	SWITCH, REED, DAYL/REW.	***IF DL/RW***
40	6019	6019	6019	CLAMP, HOSE D12-22	
41	6080	6080	6080	HOSE, REINF. 1/2" (PER M)	
42	25700	25700	25700	VALVE, SOLENOID ES 90/88 3.3 L/MIN.	
43	6079	6079	6079	CLAMP, HOSE D15-16.8	
44	54864	54864	54864	HOSE, ELBOW, REPLENISH, DEV	
45	54863	54863	54863	HOSE, ELBOW, REPLENISH, FIX	
46					
47	1415	1415	1415	PUMP, OSC. TP. 14825-562	
48	24675	24675	24675	HOSE, ELBOW 90° D19/23	
49	25253	25253	25253	CLAMP, HOSE D22-25.4	
50	24676	24676	24676	HOSE, D19/23X60	
51	6231	6231	6231	PUMP, IWAKI TP. 2MD-15RU	
52	33052	33052	33052	COVER, TERMINAL 180X80X22.5	
53	16421	16421	16421	TERMINAL 6E/12	
54	16420	16420	16420	TERMINAL 6E/5	
55	15015	15015	15015	NUT M22X1.5 A4	
56	6105	6105	6105	O-RING D20.2X3	
57	24418	24418	24418	STOPPER, TANK	
58	21015	11672	21016	TANK, COMPLETE	
59	34643	34643	34643	PULLEY Z12	
60	44000	44000	44000	ROLLER, RUBBER, SUPPORT	



TANK SECTION

TANK SECTION

Pos.	950	1250	1550	Specifications
61	14841	14841	14841	SPACER, GUIDE
62	44077	44077	44077	SPRING, ROLLER, SUPPORT
63	Not illustrated			DEVELOPER FILTER. SEE SEPARATE MANUAL
64				
65				
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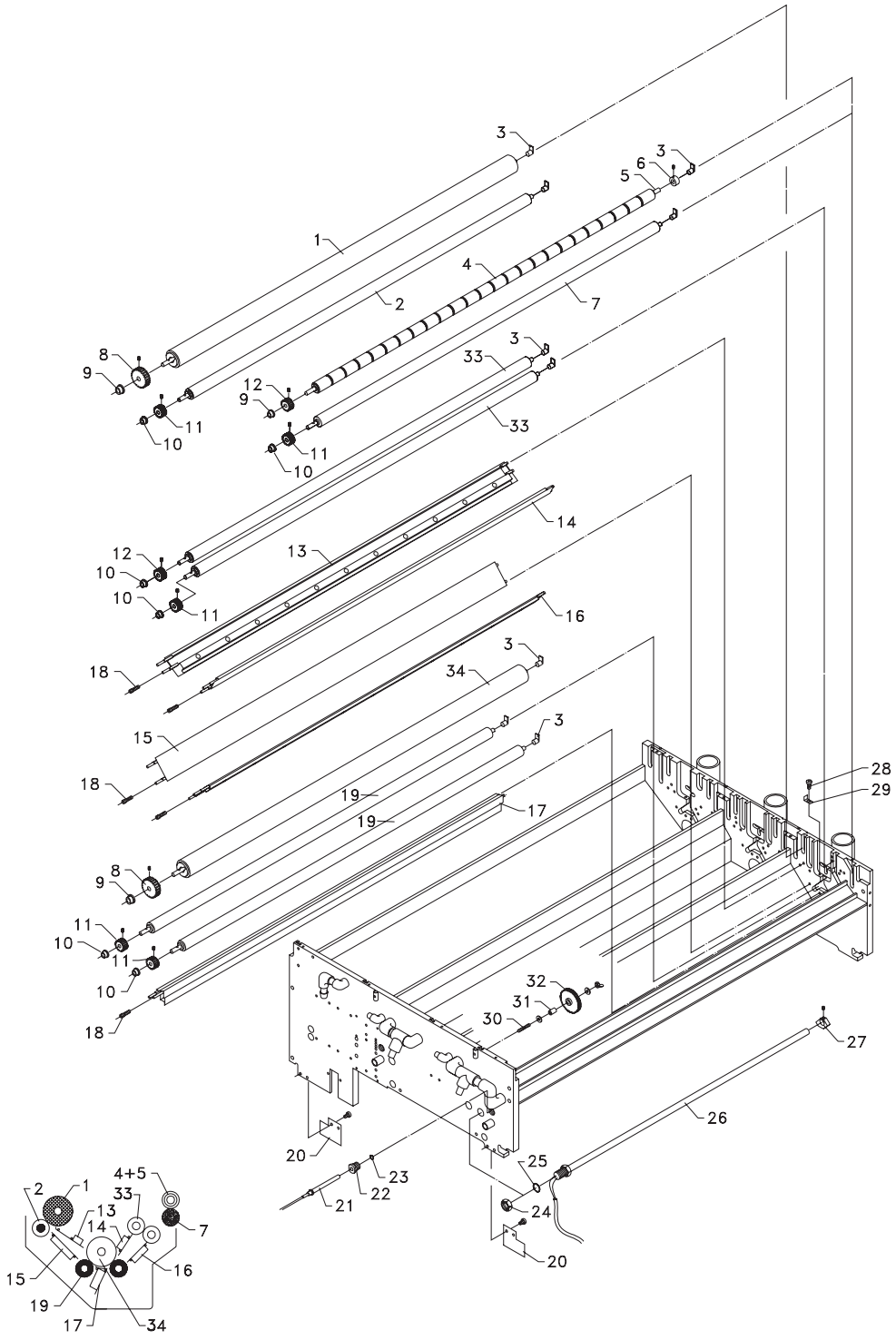
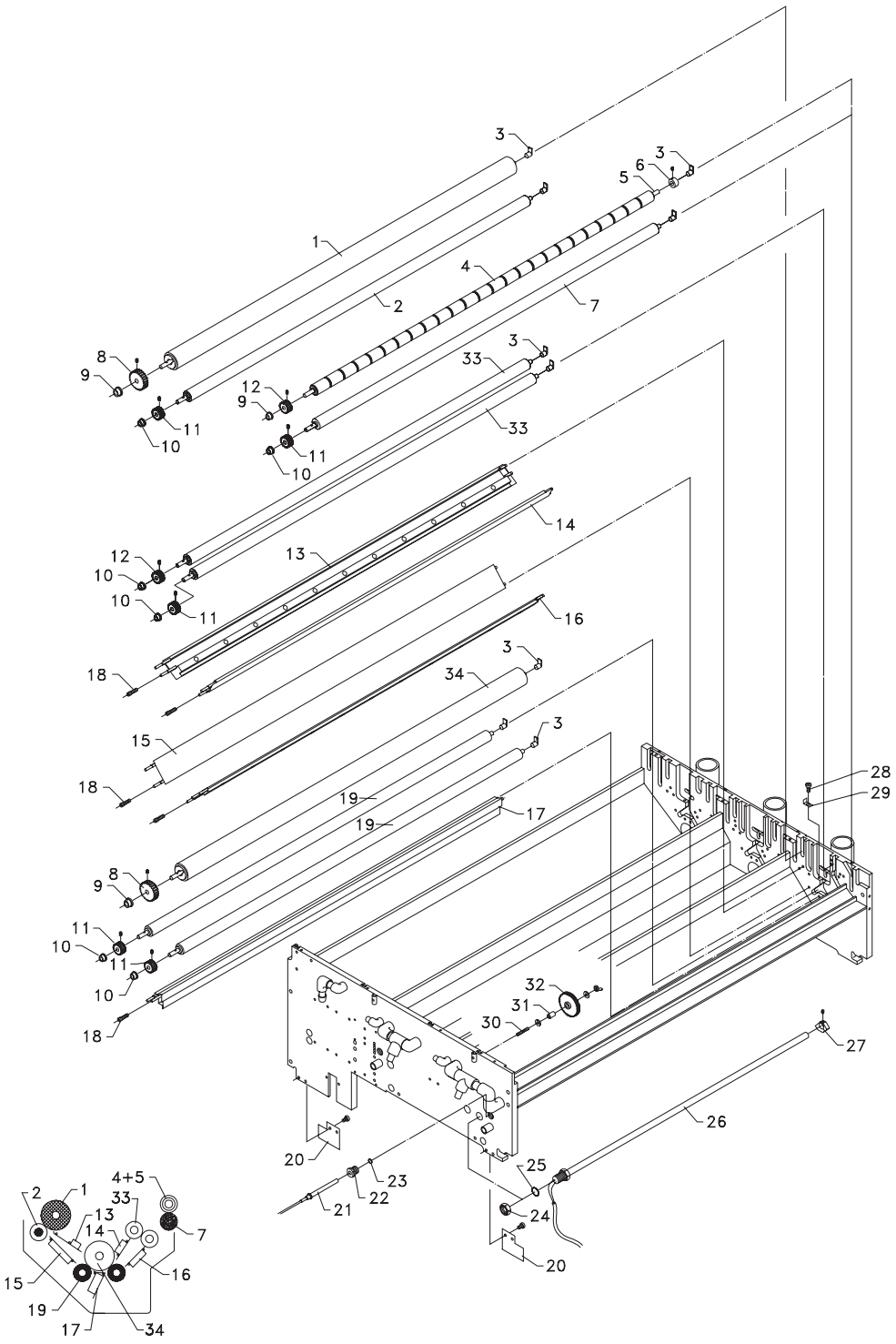


TANK SECTION, DEVELOPER

TANK SECTION, DEVELOPER

Pos.	950	1250	1550	Specifications
1				***SEE APPENDIX B***
2				***SEE APPENDIX B***
3	4247	4247	4247	BEARING D10.2/12X15
4	24613	24613	24613	ROLLER, PVC, ROLLER, EN.
5	24597	24598	24599	SHAFT, ROLLER D16
6	24602	24602	24602	STOP RING, ROLLER D22/10X12
7	33383	33384	33385	ROLLER, RUBBER, SHORT TAP D30.05
8	28299	28299	28299	GEAR, R. Z50 W/SCREW
9	4146	4146	4146	BEARING, OVAL D10/14X10
10	4123	4123	4123	BEARING D10.4/14.2/17.5X8/10
11	28297	28297	28297	GEAR, L. Z30 W/SCREW
12	28298	28298	28298	GEAR, R. Z30 W/SCREW
13	4988	4989	4990	GUIDE, SIDE, UP. EXIT
14	23440	23439	23438	GUIDE, SIDE, UPPER, ENTR.
15				***SEE APPENDIX B***
16	23436	23435	23437	GUIDE, SIDE, LOWER, ENTR.
17	4567	8005	8004	GUIDE, BOTTOM
18	8372	8372	8372	SPRING, CONICAL D10X32.5
19				***SEE APPENDIX B***
20	30368	30368	30368	PLATE, LOCK, TANK 65X26X4
21	16546	16546	16546	SENSOR, KTY, BATH
22	14284	14284	14284	FIT. BUSHING 1/2"
23	15534	15534	15534	O-RING 9.13X2.62
24	15015	15015	15015	NUT M22X1.5 A4
25	6105	6105	6105	O-RING S20.2X3
26	27774	27774	27774	HEATER 220V, 1000W
27	4649	4649	4649	SPACER, HEATER 35X25.5X10
28	15270	15270	15270	SCREW M4X10 CR P
29	8693	8693	8693	BRACKET, LOCKING 12.5X12.5X22.5
30	5126	5126	5126	SCREW M6X40 HE SO



TANK SECTION, DEVELOPER

TANK SECTION, DEVELOPER

Pos.	950	1250	1550	Specifications
31	4695	4695	4695	BUSHING, GEAR D6/10X16.7
32	34207	34207	34207	GEAR, L. Z70 D10/71.7X16.5 M=1
33				***SEE APPENDIX B***
34				***SEE APPENDIX B***
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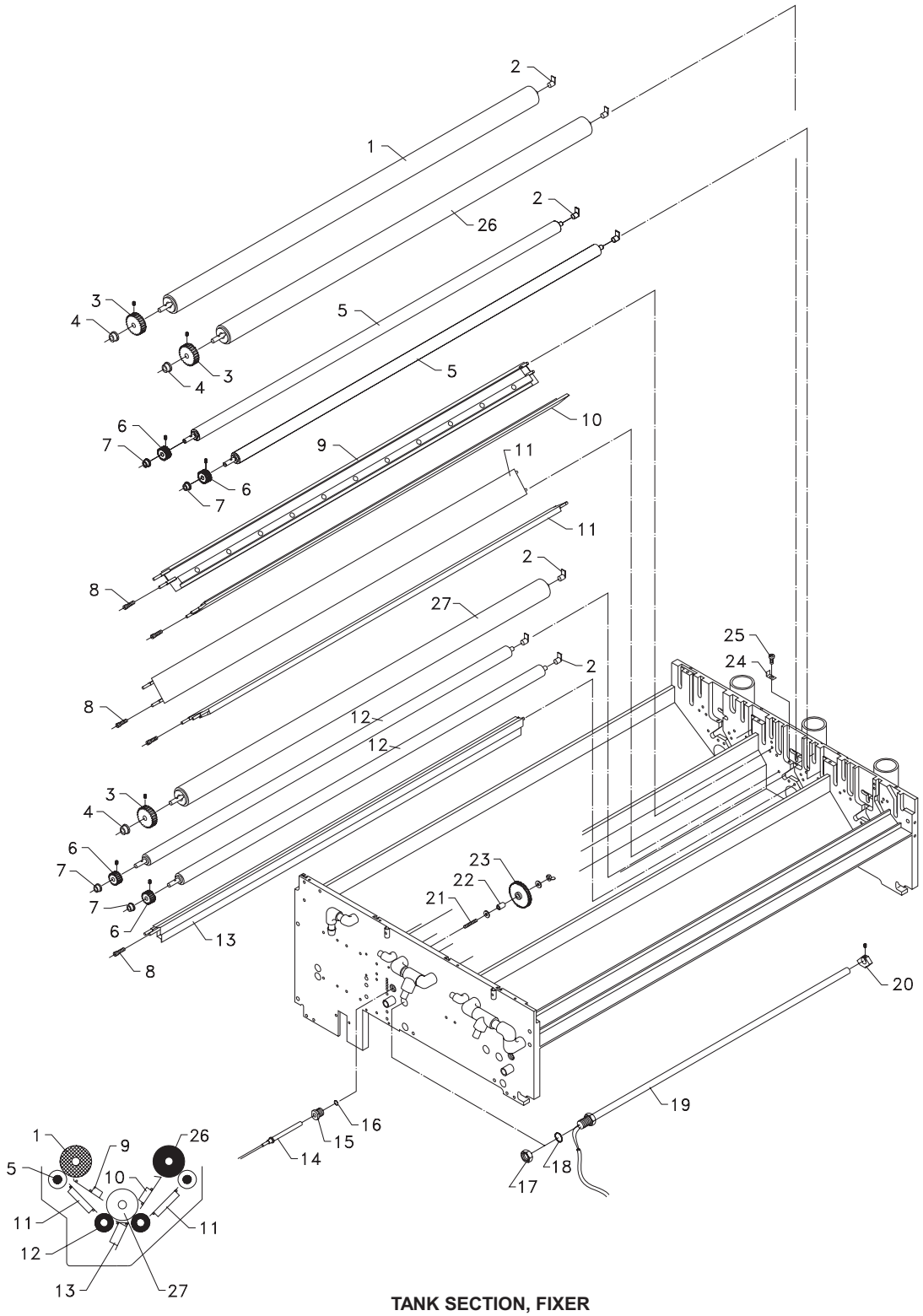
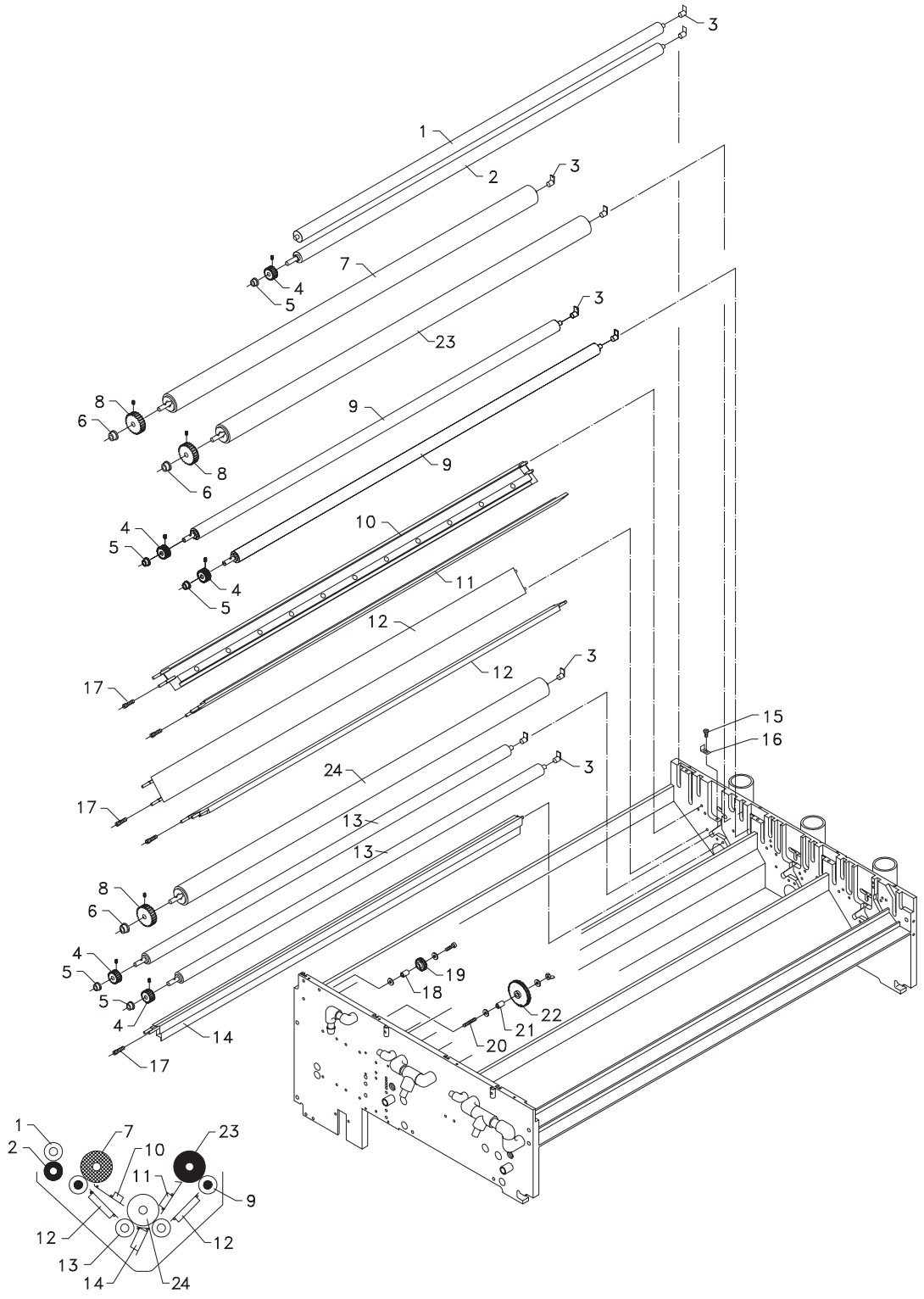


TANK SECTION, FIXER

TANK SECTION, FIX

Pos.	950	1250	1550	Specifications
1				***SEE APPENDIX B***
2	4247	4247	4247	BEARING D10.2/12X15
3	28299	28299	28299	GEAR, R. Z50 W/SCREW
4	4146	4146	4146	BEARING, OVAL D10/14X10
5				***SEE APPENDIX B***
6	28297	28297	28297	GEAR, L. Z30 W/SCREW
7	4123	4123	4123	BEARING D10.4./14.2/17.5X8/10
8	8372	8372	8372	SPRING, CONICAL D10X32.5
9	4988	4989	4990	GUIDE, SIDE, UP. EXIT
10	4568	8011	8012	GUIDE, SIDE, UP. EN.
11	4569	8009	8010	GUIDE, SIDE, LW.
12				***SEE APPENDIX B***
13	4567	8005	8004	GUIDE, BOTTOM
14	16546	16546	16546	SENSOR, KTY, BATH
15	14284	14284	14284	FIT. BUSHING 1/2"
16	15534	15534	15534	O-RING 9.13X2.62
17	15015	15015	15015	NUT M22X1.5 A4
18	6105	6105	6105	O-RING D20.2X3
19	27774	27774	27774	HEATER, 220V, 1000W
20	4649	4649	4649	SPACER, HEATER 35X25.5X10
21	5126	5126	5126	SCREW M6X40 HE SO
22	4695	4695	4695	BUSHING, GEAR D6/10X16.7
23	34207	34207	34207	GEAR, L. Z70 D10/71.7X16.5 M=1
24	8693	8693	8693	BRACKET, LOCKING 12.5X12.5X22.5
25	15270	15270	15270	SCREW M4X10 CR P
26				***SEE APPENDIX B***
27				***SEE APPENDIX B***
28				
29				
30				



TANK SECTION, WASH

TANK SECTION, WASH

Pos.	950	1250	1550	Specifications
1	33525	33526	33527	ROLLER, PUR, HEAVY, SHORT TAP D30
2	33383	33384	33385	ROLLER, RUBBER, SHORT TAP D30.05
3	4247	4247	4247	BEARING D10.2/12X15
4	28297	28297	28297	GEAR, L. Z30 W/SCREW
5	4123	4123	4123	BEARING D10.4./14.2/17.5X8/10
6	4146	4146	4146	BEARING, OVAL D10/14X10
7				***SEE APPENDIX B***
8	28299	28299	28299	GEAR, R. Z50 W/SCREW
9				***SEE APPENDIX B***
10	4988	4989	4990	GUIDE, SIDE, UP. EXIT
11	4568	8011	8012	GUIDE, SIDE, UP. EN.
12	4569	8009	8010	GUIDE, SIDE, LW.
13				***SEE APPENDIX B***
14	4567	8005	8004	GUIDE, BOTTOM
15	15270	15270	15270	SCREW M4X10 CR P
16	8693	8693	8693	BRACKET, LOCKING 12.5X12.5X22.5
17	8372	8372	8372	SPRING, CONICAL D10X32.5
18	4670	4670	4670	BUSHING D6/9.8X15.3
19	34208	34208	34208	GEAR, R. Z24
20	5126	5126	5126	SCREW M6X40 HE SO
21	4695	4695	4695	BUSHING, GEAR D6/10X16.7
22	34207	34207	34207	GEAR, L. Z70 D10/71.7X16.5 M=1
23				***SEE APPENDIX B***
24				***SEE APPENDIX B***
25				
26				
27				
28				
29				
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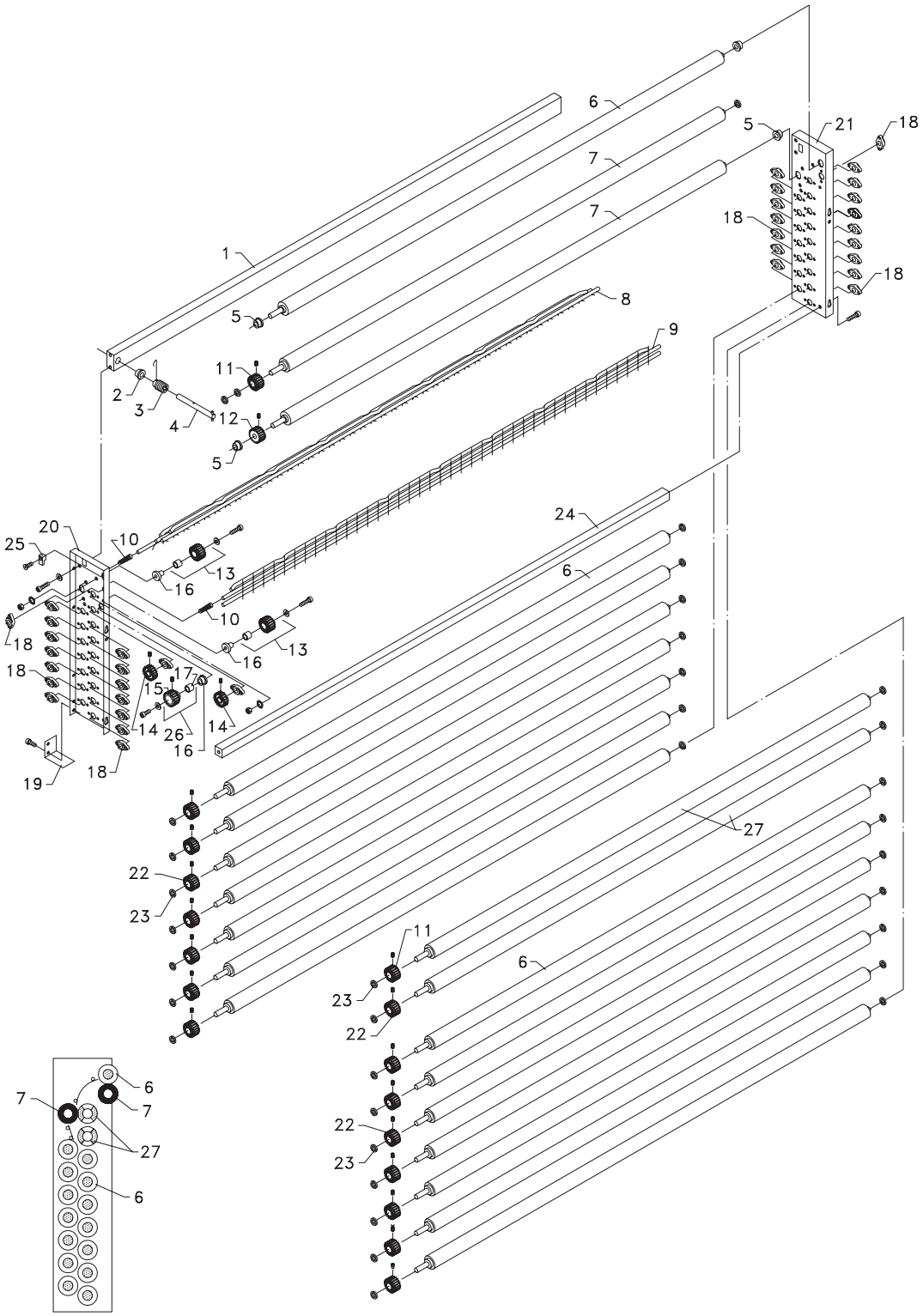
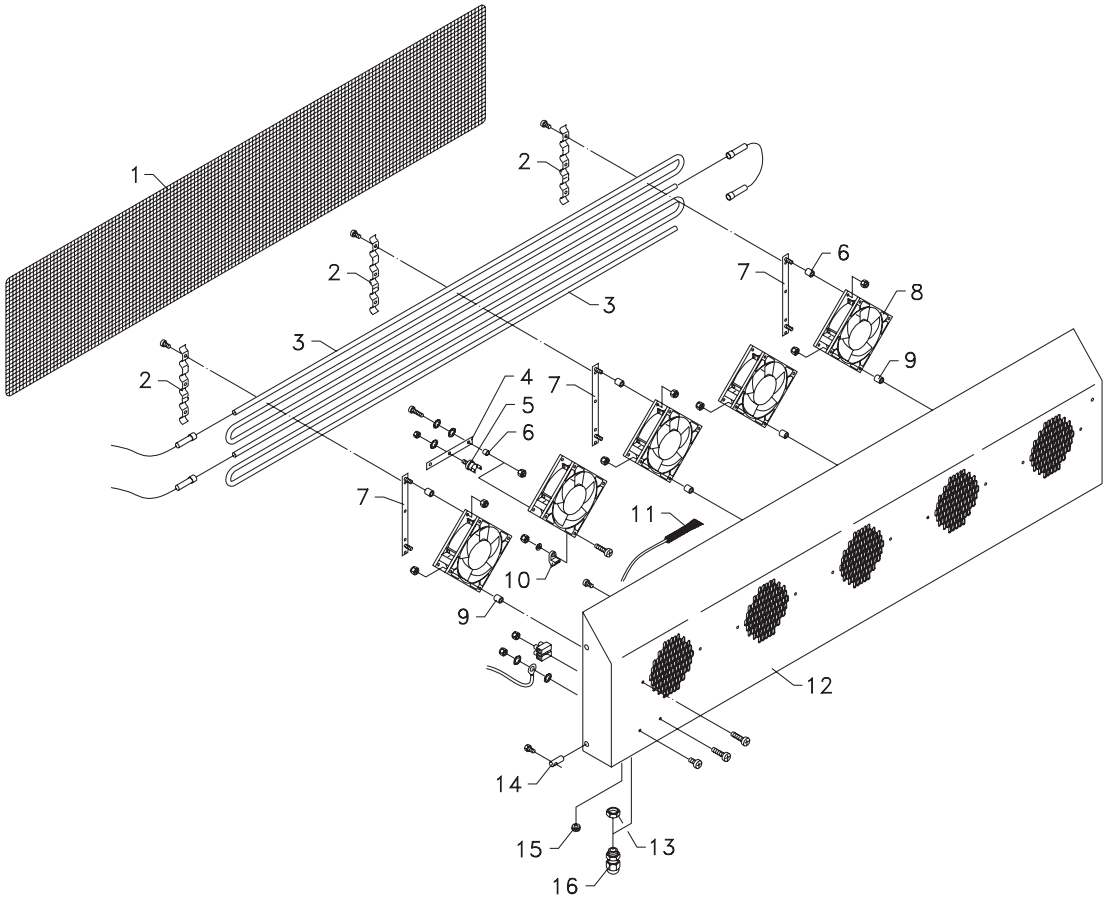


DRYER RACK

DRYER RACK

Pos.	950	1250	1550	Specifications
1	34228	34210	34229	TUBE, SPACER
2	15739	15739	15739	BEARING W/COLLAR D10/12X6
3	18965	18965	18965	GEAR, WORM, R. W/CLIP
4	34214	34214	34214	SHAFT, DRIVE D9.98X105
5	4146	4146	4146	BEARING, OVAL D10/14X10
6				***SEE APPENDIX B***
7	33383	33384	33385	ROLLER, RUBBER, SHORT TAP D30.05
8	8058	8059	8033	GUIDE, DRYER, EN.
9	8218	8249	8250	GUIDE, WIRE, SIDE, DRYER
10	8372	8372	8372	SPRING, CONICAL D10X32.5
11	28297	28297	28297	GEAR, L. Z30 W/SCREW
12	28298	28298	28298	GEAR, R. Z30 W/SCREW
13	28564	28564	28564	GEAR, R. Z30 COMPLETE
14	27351	27351	27351	GEAR, Z30 W/SCREW
15	17688	17688	17688	GEAR, Z30 W/SCREW
16	4024	4024	4024	BUSHING W/COLLAR D6/10/20X17
17	6006	6006	6006	BEARING, NEEDLE D13/19X12
18	6309	6309	6309	BEARING, NEEDLE FHK 1010
19	30582	30582	30582	BRACKET, GEAR 85X40X39
20	30361	30361	30361	PLATE, SIDE, LEFT
21	30360	30360	30360	PLATE, SIDE, RIGHT
22	17685	17685	17685	GEAR, Z34 W/SCREW
23	4870	4870	4870	WASHER, SPACER, RED D10/15X2
24	4661	4663	4665	TUBE, SPACER 25X25
25	34913	34913	34913	BLOCK, STOP, ROLLER 30X15X15
26	28565	28565	28565	GEAR, Z30 COMPLETE
27				***SEE APPENDIX B***
28				
29				
30				



HEATER BOX, INNER

HEATER BOX, INNER

Pos.	950	1250	1550	Specifications
1	30428	30363	30429	GRID, DRYER, INNER
2	3099	3099	3099	BRACKET, HEATER 174X15X2
3	33356	33355	33354	HEATER
4	8984	8984	8984	BRACKET, THERMOSTATE
5	5551	5551	5551	THERMOSTATE 80°C
6	24609	24609	24609	SPACER D/75X7
7	3100	3100	3100	BRACKET, HEATER 174X15X1
8	26054	26054	26054	FAN, SUNON DP200A 2123XBT
9	4114	4114	4114	SPACER D5/10X11
10	6279	6279	6279	HOLDER, CABLE-TIES
11	16545	16545	16545	SENSOR, KTY, DRYER
12	30168	20983	30169	CABINET, DRYER, INNER/OUTER
13	5180	5180	5180	NUT, BUSHING PG 11
14	30372	30372	30372	NUT D10X37
15	6295	6295	6295	GROMMET D6/9X1.5
16	5181	5181	5181	BUSHING, CABLE PG 11
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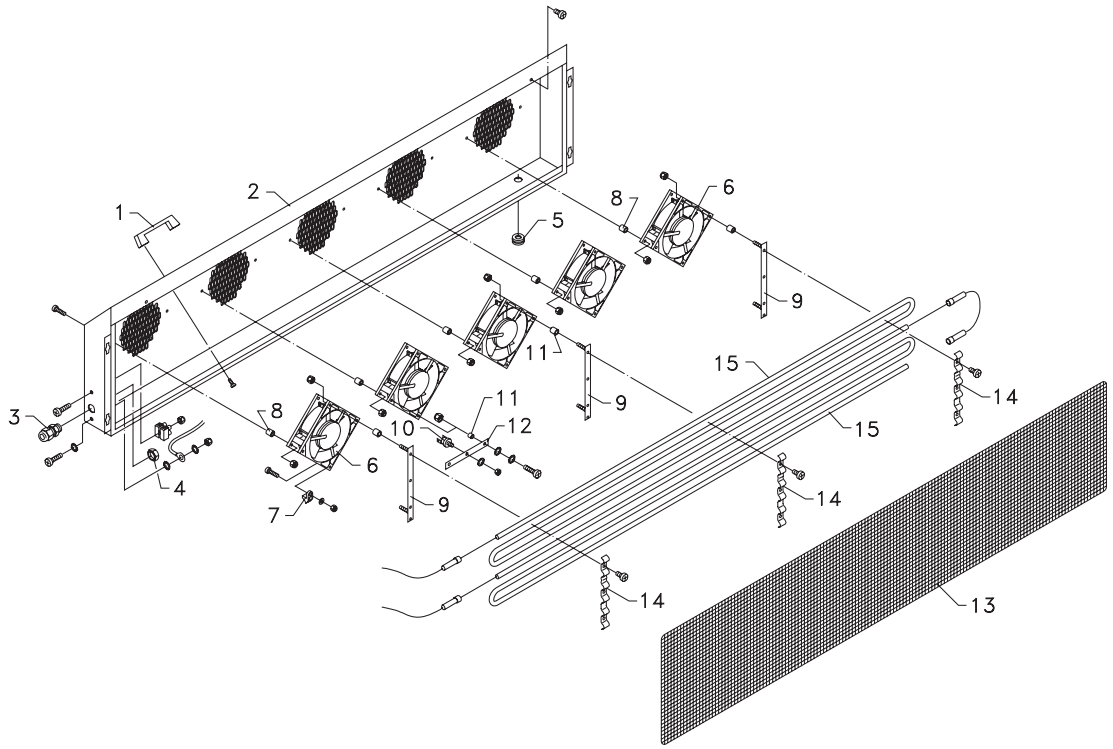

HEATER BOX, OUTER

HEATER BOX, OUTER

Pos.	950	1250	1550	Specifications
1	6185	6185	6185	HANDLE, 107X24X12 GR PL
2	30168	20983	30169	CABINET, DRYER, INNER/OUTER
3	5181	5181	5181	BUSHING, CABLE PG 11
4	5180	5180	5180	NUT, BUSHING PG 11
5	6329	6329	6329	GROMMET, MEMBRANE D18
6	26054	26054	26054	FAN, SUNON DP200A 2123XBT
7	6279	6279	6279	HOLDER, CABLE-TIES
8	4114	4114	4114	SPACER D5/10X11
9	3100	3100	3100	BRACKET, HEATER 174X15X1
10	5551	5551	5551	THERMOSTATE 80°C
11	24609	24609	24609	SPACER D/75X7
12	8984	8984	8984	BRACKET, THERMOSTATE
13	30428	30363	30429	GRID, DRYER, INNER
14	3099	3099	3099	BRACKET, HEATER 174X15X2
15	33356	33355	33354	HEATER
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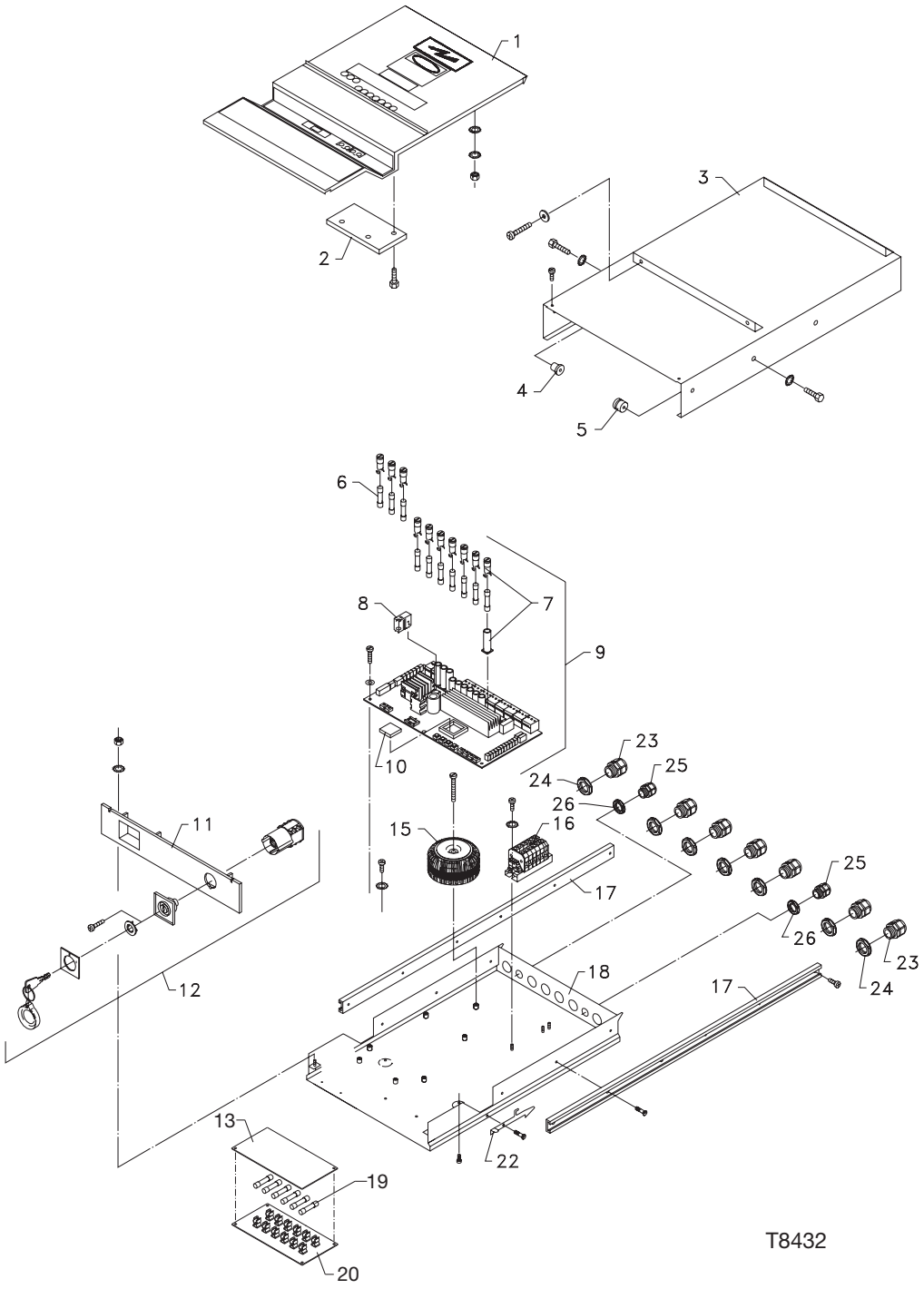
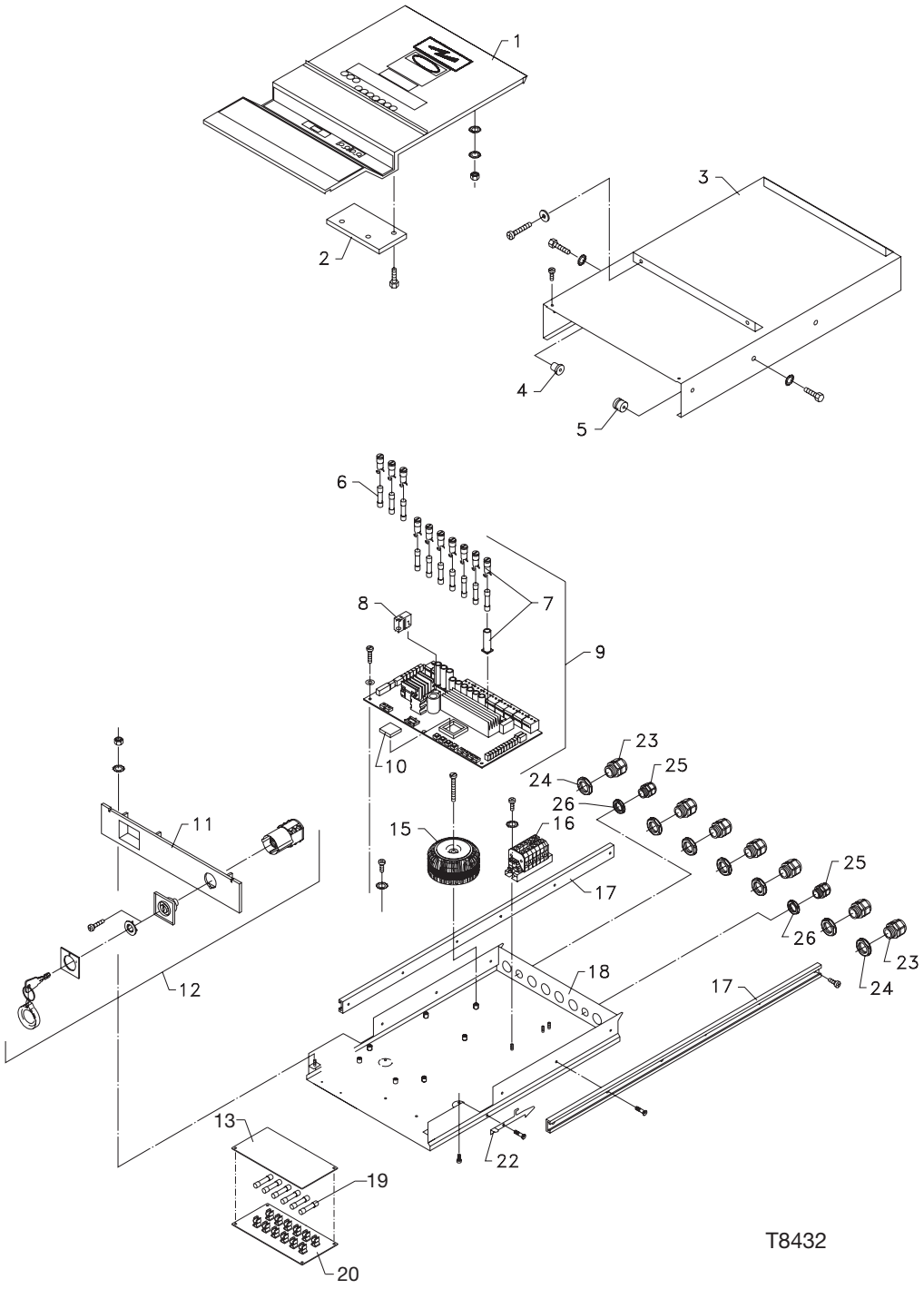


ELECTRONICS DRAWER

ELECTRONICS DRAWER

Pos.	950	1250	1550	Specifications
1	28547	28547	28547	LID, CABINET, EL
2	33516	33516	33516	BLOCK, TERMINAL, TRANSMISSION
3	20993	20993	20993	COVER, CABINET, EL 570X355X94
4	34639	34639	34639	BLOCK, SLIDE, ELBOX D19.8/12.5X17.15
5	54402	54402	54402	BLOCK, SLIDE, ELBOX D19.8/12.5X17.7
6	54402	54402	54402	FUSE, 0.25 A, 6.3X32 MM, FAST
	5535	5535	5535	FUSE, 0.5 A, 6.3X32 MM, FAST
	5671	5671	5671	FUSE, 1 A, 6.3X32 MM, FAST
	16014	16014	16014	FUSE, 3 A, 6.3X32 MM, S/B
	16029	16029	16029	FUSE, 1.5 A, 6.3X32 MM, S/B
	16379	16379	16379	FUSE, 7 A, 6.3X32 MM, FAST
7	25187	25187	25187	FUSEHOLDER, COMPLETE
8	16541	16541	16541	RELAY 24V DC 16A
9				***SEE APPENDIX B***
10				***SEE APPENDIX B***
11				***SEE APPENDIX B***
12	6314	6314	6314	SWITCH, MAIN, KEY 6P
13	64231	64231	64231	COVER, PANEL, FUSE
14	8064	8064	8064	TERMINAL, CHANGEOVER
15	16439	16439	16439	TRANSFORMER 182426 121VA
16	8017	8017	8017	TERMINAL, CONNECTION SAKS6
17	30412	30412	30412	BAR, ELBOX
18	30411	30411	30411	CABINET, EL
19	26577	26577	26577	FUSE, CODE, 12A
20	56137	56137	56137	PCB, FUSEPANEL
21				
22	30413	30413	30413	BRACKET, LOCK, ELBOX
23	5186	5186	5186	BUSHING, CABLE PG 16
24	5185	5185	5185	NUT, BUSHING PG 16
25	5181	5181	5181	BUSHING, CABLE PG 11



ELECTRONICS DRAWER

ELECTRONICS DRAWER

Pos.	950	1250	1550	Specifications
26	5180	5180	5180	NUT, BUSHING PG11
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APPENDIX A

SERVICE INFORMATION

PARAMETER LEVELS, PCB GCB

The program parameters are divided into 3 levels:

Level - 1 contains the parameters which are normally adjusted now and then by the operator during daily operation.

Level - 2 contains special parameters which should be adjusted only by authorized personnel who are familiar with all of the processor functions. This level of parameters becomes available by changing the value for PAR 09 from 00 to 01.

On the pages 9.2 - 9.5 are lists of the **Level - 1** and **Level - 2** parameters (EUR and USA parameters respectively). The **Level - 1** parameters are marked with a bullet (•).

On the PCB the parameters are selected using the PAR UP and PAR DOWN keys and the values are adjusted using the VAL UP and VAL DOWN keys. (See chapter 5)

WARNING! SERVICE PERSONNEL ONLY.

Level - 3 contains a number of test programs. These programs should only be operated by authorized personnel.
The test programs becomes available by changing the value in PAR 04 from 00 to 01.
(See “TEST-PROGRAM” later in this chapter for further information).

NOTE! Make sure to mount the covers for the electronics when adjustments have been made. Electronics must be protected from chemicals spills.

Parameters marked with an asterisk (*) will not change when initializing.

PARAMETERS (EUR)

(PAR=Parameter, VAL=Value, DEF=Default)

VALID FOR SOFTWARE FROM: GRAP V03 R28

PAR	DESCRIPTION	VAL	UNIT	STEP	DEF
00	DEFAULT START-UP PARAMETER	00 - 99		1	10
• 01	REGENERATION AT LOW LEVEL	00 = OFF, 01 = ON			00
• 02	LIGHT, DISPLAY/LAMPS, PROG. 01	00 = OFF, 01 = ON			01
03	MOTOR STAND-BY REST TIMER	0 - 20	MIN.	2	20
NOTE! PARAMETER 04 IS FOR AUTHORIZED PERSONNEL ONLY!					
04	MODE (NORMAL OR TEST)	00 = NORMAL, 01 = TEST			00
05	STAND-BY SPEED (DEV. TIME)	15 - 60	SEC.	1	60
06	PROGRAM	01 - 04		1	01
07	MODE (AUTO OR CONT)	00 = AUTO, 01 = CONT			00
08	FILM COUNTER	00 = OFF, 01 = ON			00
• 09	SERVICE PARAMETERS	00 = OFF, 01 = ON			00
• 10	TEMP. SETTING, DEV-BATH	20 - 40	°C	1	33
• 11	TEMP. SETTING, FIX-BATH	20 - 40	°C	1	30
• 12	TEMP. SETTING, DRYER SECTION	20 - 70	°C	5	55
13	MIN. DRYER TEMP. SETTING (ST.BY)	20 - 70	°C	5	30
• 14	SPEED (DEV.TIME) PROGRAM 01	15 - 60	SEC.	1	20
• 15	REPL. RATE, DEV, PROGRAM 01	0 - 990	ML/M^2	10	250
• 16	REPL. RATE, FIX, PROGRAM 01	0 - 990	ML/M^2	10	250
17	START DEV. REPL. CALIBRATION	00 = OFF, 01 = ON			00
• 18	DEV. REPL. CALIBRATION VALUE	60 - 999	ML	1	350
19	START FIX. REPL. CALIBRATION	00 = OFF, 01 = ON			00
• 20	FIX. REPL. CALIBRATION VALUE	60 - 999	ML	1	350
• 21	OPEN VALVE AT LOW LEVEL	00 = OFF, 01 = ON			00
• 22	DISPLAY TURNAROUND	00 = NORMAL, 01 = TURN			00
• 24	SPEED (DEV.TIME) PROGRAM 02	15 - 60	SEC.	1	25
• 25	REPL. RATE, DEV, PROGRAM 02	0 - 990	ML/M^2	10	250
• 26	REPL. RATE, FIX, PROGRAM 02	0 - 990	ML/M^2	10	250

VALID FOR SOFTWARE FROM: GRAP V03 R28

PAR	DESCRIPTION	VAL	UNIT	STEP	DEF
• 34	SPEED (DEV.TIME) PROGRAM 03	15 - 60	SEC.	1	30
• 35	REPL. RATE, DEV, PROGRAM 03	0 - 990	ML/M^2	10	250
• 36	REPL. RATE, FIX, PROGRAM 03	0 - 990	ML/M^2	10	250
• 44	SPEED (DEV.TIME) PROGRAM 04	15 - 60	SEC.	1	40
• 45	REPL. RATE, DEV, PROGRAM 04	0 - 990	ML/M^2	10	250
• 46	REPL. RATE, FIX, PROGRAM 04	0 - 990	ML/M^2	10	250
• 47	POWER SHARING	00 = OFF, 01/02 = ON			00
• 48	LEVEL INDIC. ON CONTROL PANEL	00 = 1, 01 = 3			01
• 49	BUSY SIGNAL, INPUT SENSORS	00 = OFF, 01 = ON			01
• 50	DAYL./REW. FILM JAM ALARM	00 = OFF, 01 = ON			00
51	LOW TEMPERATURE ALARM, FIXER	02 - 20	°C	1	02
• 52	OXY DEV. TIME-REPLENISHMENT	00 - 600	ML/H	20	00
• 53	OXY FIX. TIME-REPLENISHMENT	00 - 600	ML/H	20	00
54	REPL. PULSE WIDTH (TIME)	01 - 06	SEC.	1/2	01
• 55	WASH DUTY CYCLE	50 - 100	%	50	100
• 56	PROCESSOR SIZE 400 PROCESSOR 550 PROCESSOR 720 PROCESSOR 80 PROCESSOR 860 PROCESSOR 950 PROCESSOR HYBRID (SHORT RACKS) 1250 PROCESSOR HYBRID (LONG RACKS) 1550 PROCESSOR 51 PROCESSOR	01 - 10	 01 03 04 05 05 06 06 07 07 08 09	1	 **)
• 57	OXY REPLENISHMENT IN PROCES	00 = OFF, 01 = ON			01
• 59	UNITS	00 = °C - ML/M^2 01 = °F - CC/FT^2 02 = °F - CC/INCH^2			00
63	CURRENT SOFTWARE VERSION	(FOR INFO ONLY)			
64	ACTUAL TEMP., DEV-BATH	20 - 70	°C	0.1	
65	ACTUAL TEMP., FIX-BATH	20 - 70	°C	0.1	
66	ACTUAL TEMP., DRYER SECTION	20 - 70	°C	0.1	

**) Set parameter according to the current processor type.

PARAMETERS (USA)

(PAR=Parameter, VAL=Value, DEF=Default)

VALID FOR SOFTWARE FROM: GRAP V03 R28

PAR	DESCRIPTION	VAL	UNIT	STEP	DEF
00	DEFAULT START-UP PARAMETER	00 - 99		1	10
• 01	REGENERATION AT LOW LEVEL	00 = OFF, 01 = ON			00
• 02	LIGHT, DISPLAY/LAMPS, PROG. 01	00 = OFF, 01 = ON			01
03	MOTOR STAND-BY REST TIMER	0 - 20	MIN.	2	20
NOTE! PARAMETER 04 IS FOR AUTHORIZED PERSONNEL ONLY!					
04	MODE (NORMAL OR TEST)	00 = NORMAL, 01 = TEST			00
05	STAND-BY SPEED (DEV. TIME)	15 - 60	SEC.	1	60
06	PROGRAM	01 - 04		1	01
07	MODE (AUTO OR CONT)	00 = AUTO, 01 = CONT			00
08	FILM COUNTER	00 = OFF, 01 = ON			00
• 09	SERVICE PARAMETERS	00 = OFF, 01 = ON			00
• 10	TEMP. SETTING, DEV-BATH	68 - 104	°F	1-2	91
• 11	TEMP. SETTING, FIX-BATH	68 - 104	°F	1-2	86
• 12	TEMP. SETTING, DRYER SECTION	68 - 158	°F	1-2	131
13	MIN. DRYER TEMP. SETTING (ST.BY)	68 - 158	°F	1-2	86
• 14	SPEED (DEV.TIME) PROGRAM 01	15 - 60	SEC.	1	20
• 15	REPL. RATE, DEV, PROGRAM 01	0 - 92.07	CC/FT^2	0.93	23.25
• 16	REPL. RATE, FIX, PROGRAM 01	0 - 92.07	CC/FT^2	0.93	23.25
17	START DEV. REPL. CALIBRATION	00 = OFF, 01 = ON			00
• 18	DEV. REPL. CALIBRATION VALUE	60 - 999	CC	1	350
19	START FIX. REPL. CALIBRATION	00 = OFF, 01 = ON			00
• 20	FIX. REPL. CALIBRATION VALUE	60 - 999	CC	1	350
• 21	OPEN VALVE AT LOW LEVEL	00 = OFF, 01 = ON			00
• 22	DISPLAY TURNAROUND	00 = NORMAL, 01 = TURN			00
• 24	SPEED (DEV.TIME) PROGRAM 02	15 - 60	SEC.	1	25
• 25	REPL. RATE, DEV, PROGRAM 02	0 - 92.07	CC/FT^2	0.93	23.25
• 26	REPL. RATE, FIX, PROGRAM 02	0 - 92.07	CC/FT^2	0.93	23.25

VALID FOR SOFTWARE FROM: GRAP V03 R28

PAR	DESCRIPTION	VAL	UNIT	STEP	DEF
• 34	SPEED (DEV.TIME) PROGRAM 03	15 - 60	SEC.	1	30
• 35	REPL. RATE, DEV, PROGRAM 03	0 - 92.07	CC/FT^2	0.93	250
• 36	REPL. RATE, FIX, PROGRAM 03	0 - 92.07	CC/FT^2	0.93	250
• 44	SPEED (DEV.TIME) PROGRAM 04	15 - 60	SEC.	1	40
• 45	REPL. RATE, DEV, PROGRAM 04	0 - 92.07	CC/FT^2	0.93	250
• 46	REPL. RATE, FIX, PROGRAM 04	0 - 92.07	CC/FT^2	0.93	250
• 47	POWER SHARING	00 = OFF, 01/02 = ON			00
• 48	LEVEL INDIC. ON CONTROL PANEL	00 = 1, 01 = 3			01
• 49	BUSY SIGNAL, INPUT SENSORS	00 = OFF, 01 = ON			01
• 50	DAYL./REW. FILM JAM ALARM	00 = OFF, 01 = ON			00
51	LOW TEMPERATURE ALARM, FIXER	04 - 36	°F	1-2	02
• 52	OXY DEV. TIME-REPLENISHMENT	00 - 600	CC/H	20	00
• 53	OXY FIX. TIME-REPLENISHMENT	00 - 600	CC/H	20	00
54	REPL. PULSE WIDTH (TIME)	01 - 06	SEC.	1/2	01
• 55	WASH DUTY CYCLE	50 - 100	%	50	100
• 56	PROCESSOR SIZE 400 PROCESSOR 550 PROCESSOR 720 PROCESSOR 80 PROCESSOR 860 PROCESSOR 950 PROCESSOR HYBRID (SHORT RACKS) 1250 PROCESSOR HYBRID (LONG RACKS) 1550 PROCESSOR 51 PROCESSOR	01 - 10	 01 03 04 05 05 06 06 07 07 08 09	1	 **)
• 57	OXY REPLENISHMENT IN PROCES	00 = OFF, 01 = ON			01
• 59	UNITS	00 = °C - ML/M^2 01 = °F - CC/FT^2 02 = °F - $CC/INCH^2$			00
63	CURRENT SOFTWARE VERSION	(FOR INFO ONLY)			
64	ACTUAL TEMP., DEV-BATH	68 - 158	°F		
65	ACTUAL TEMP., FIX-BATH	68 - 158	°F		
66	ACTUAL TEMP., DRYER SECTION	68 - 158	°F		

**) Set parameter according to the current processor type.

EXPLANATION, PARAMETERS

SOFTWARE INFORMATION
When the machine is turned on, the display will first show the software edition (ex. 204 = Version 2 release 4) for a few seconds, then it shows the date for the latest revision (ex. 4591 = Week 45, 1991) and then it changes to show the default parameter as specified in PAR 00.

00 DEFAULT START-UP PARAMETER
The display shows this parameter each time the processor is turned ON.

01 REGENERATION AT LOW LEVEL
If low level is detected in one of the chemical baths, the respective pump automatically starts to reestablish the correct level.
If correct level has not been established within 20 minutes the pump stops. Check level in replenishment containers and refill if needed. Then reset the electronics by turning the processor OFF/ON on the Control Box.

02 LIGHT, DISPLAY/LAMPS, PROGRAM 01
When processing very light sensitive material, all lights in the Control Box display and daylight/rewash lamps can be turned off in Program 01.

03 MOTOR STAND-BY REST TIMER
To reduce condensation from the baths, the motor can be stopped during stand-by. But to avoid crystallization of fixer/stabilizer on the rollers it should run at least once every 20 minutes. It is possible to make the motor run idle for 1 minute at fixed intervals (2 - 20 min.). When value is 0 the motor runs constantly.

04 MODE (NORMAL OR TEST)

WARNING! SERVICE PERSONNEL ONLY.

With this parameter you are able to enter the TEST-PROGRAMS described later in this chapter.

05 STAND-BY SPEED (DEV.TIME)
The stand-by speed can be changed if necessary.

06 PROGRAM 01, 02, 03 OR 04
The different programs (dev. times and replenish rates) can either be selected on the Control Box display or with this parameter.

07 MODE (AUTO OR CONT)
The processor operates in 2 different modes: Automatic or Continuous.
In Automatic mode the processor starts up from stand-by mode when a film is entered and shortly after the film exits, the machine returns to stand-by.
In Continuous mode the machine is started up constantly.

08 FILM TRANSPORT CONTROL

CAUTION! Do not change this parameter to 01 as the processor is NOT equipped with an output sensor.

09 SERVICE PARAMETERS
If you change the status of this parameter from 00 to 01, the Level - 2 parameters (parameters not marked with a bullet in the lists) becomes available.

10 TEMP. SETTING, DEV-BATH
11 TEMP. SETTING, FIX- BATH
12 TEMP. SETTING, DRYER SECTION

NOTE! If value in PAR 13 is the same or higher than the value in PAR 12 the dryer heater will not turn on.

13 MIN. DRYER TEMP. SETTING (STAND-BY)
In stand-by the processor will keep the dryer temperature between the value set in this parameter and the value set in PAR 12.
When the dryer reaches the value set in PAR 12 is stops and starts again when temperature has dropped to the value set in PAR 13.

14 SPEED (DEV.TIME) PROGRAM 01
24 SPEED (DEV.TIME) PROGRAM 02
34 SPEED (DEV.TIME) PROGRAM 03
44 SPEED (DEV.TIME) PROGRAM 04

NOTE! The preset values of the parameters 15, 16, 25, 26, 35, 36, 45, 46 , 52 and 53 are only correctly obtained if the actual pumping volumes are known by the software.
See also explanation for PAR 17, 18, 19, 20 and 56.

15 REPL. RATE, DEV-BATH, PROGRAM 01
25 REPL. RATE, DEV-BATH, PROGRAM 02
35 REPL. RATE, DEV-BATH, PROGRAM 03
45 REPL. RATE, DEV-BATH, PROGRAM 04
See explanation for PAR 16, 26, 36 and 46.

16 REPL. RATE, FIX-BATH, PROGRAM 01
26 REPL. RATE, FIX-BATH, PROGRAM 02
36 REPL. RATE, FIX-BATH, PROGRAM 03
46 REPL. RATE, FIX-BATH, PROGRAM 04
The automatic replenishment system adds developer/activator and fixer/stabilizer to the tanks to compensate for chemicals expended during processing. On the basis of the preset dev. time and the number of input sensors activated, the electronics calculates the length of the pause periods between each pumping cycle to obtain the correct amount of replenishment. (See also PAR 54)
See “CALCULATING THE REPLENISHMENT” later in this chapter for determination of the correct replenishment settings.

17 START DEV. REPL. CALIBRATION
18 DEV. REPL. CALIBRATION VALUE
Use these parameters to calibrate the electronics to the actual pumping volume:
- Let the pump suck from a graduate containing min. 1 liter.
- Change value in PAR 17 from 00 to 01 to make the developer/activator replenishment pump run. The pump will give 20 pump cycles in 1 minute. In a cycle the pump will pump for 1 sec. and pause for 2 sec. The pump can be stopped within this period by changing value from 01 to 00.
- Check the volume of liquid pumped from the graduate and change the value in PAR 18 to this value.

19 START FIX. REPL. CALIBRATION
20 FIX. REPL. CALIBRATION VALUE
Use these parameters to calibrate the electronics to the actual pumping volume:
- Let the pump suck from a graduate containing min. 1 liter.
- Change value in PAR 19 from 00 to 01 to make the fixer/stabilizer replenishment pump run. The pump will give 20 pump cycles in 1 minute. In a cycle the pump will pump for 1 sec. and pause for 2 sec. The pump can be stopped within this period by changing value from 01 to 00.
- Check the volume of liquid pumped from the graduate and change the value in PAR 20 to this value.

21 OPEN VALVE AT LOW LEVEL
In case the wash level sensor is used as level sensor in the replenishment containers the water valve can be switch off in this parameter.

22 DISPLAY TURNAROUND
In cases where the GCB-board is placed upside down it is possible to turn around the text in the display by changing the value to 01.

47 POWER SHARING
Use this parameter to give priority to the various section heaters in order to reduce the processor's peak current.
When setting is 00 there is no power sharing.
When setting is 01 the heating of the developer/-activator and fixer/stabilizer section is given a higher priority than heating of the dryer section.
When setting is 02 the heating of the developer/-activator and fixer/stabilizer section is given a higher priority than heating of the dryer section when starting up and the heating of the developer/-activator and dryer section is given a higher priority than heating of the fixer/stabilizer section during processing.

48 LEVEL INDICATORS ON CONTROL PANEL
Select whether the control panel is equipped with 1 or 3 level indicators.

49 BUSY SIGNAL, INPUT SENSORS
With this parameter the busy signal (on X803 on GCB-board) caused by activation of the processor input sensors can be either enabled or disabled.
When disabled (PAR 49 = 00) the busy signal can still appear when caused by low level, temp. out of range etc.

CAUTION! Change of setting will influence on error signals in OnLine systems.

50 DAYL./REW. FILM JAM ALARM
When the processor is equipped with a film output sensor (mainly OnLine processors) the film jam alarm will turn on if a daylight- or rewash slot is opened by mistake.
To turn off this function set value to 01.
If value in PAR 08 is 01 the "FILM TRANSPORT CONTROL" function will still be active.

51 LOW TEMPERATURE ALARM, FIXER
Adjust this parameter to set the desired "window" for the fixer/stabilizer low temperature alarm.
Ex. If the fixer/stabilizer temperature is preset to 40°C and "window" is set to 8°C the fixer/stabilizer temperature alarm will not turn on until the temperature is below 32°C.

52 OXY DEV. TIME-REPLENISHMENT
53 OXY FIX TIME-REPLENISHMENT
The time-replenishment circuits adds chemicals to the baths in fixed intervals to retain the chemical activity and thereby the processing quality of the machine.
The circuits are activated constantly. If the value in PAR 57 is changed to 00 the circuits are only activated in stand-by periods.

54 REPL. PULSE WIDTH (TIME)
This value indicates the duration of each pumping period.

NOTE! If this value is changed the settings of the replenishment parameters might not be correctly obtained.

55 WASH DUTY CYCLE
When the setting is 50% the water solenoid valve opens just before the film enters the wash section, and in this case it only opens for 30 seconds per minute.
When the setting is 100% the valve opens when the input sensor is activated and closes when the processor returns to stand-by mode.

56 PROCESSOR SIZE 01 - 08
By varying processor sizes this value is changed to obtain the correct outputs as set in PAR 15, 16, 25, 26, 35, 36, 45, 46.

57 OXY REPLENISHMENT IN PROCESS
This parameter enables you to select whether the time-replenishment circuits (PAR 52-53) should be ON constantly or only in **stand-by** mode.

59 UNITS
Select the set of units in which you want the values to be displayed.
The EUR-setting 00 will display the values in C° and ml/m.
The US-setting 01 will display the values in F° and cc/ft.
The US-setting 02 will display the values in F° and cc/inch.

63 CURRENT SOFTWARE VERSION
Displays the current software version and is for service information only.

64 ACTUAL TEMP. DEV-BATH
65 ACTUAL TEMP. FIX-BATH
66 ACTUAL TEMP. DRYER SECTION
Display the actual temperatures in the respective sections.

DISPLAY FORMAT IN NORMAL MODE

XX – YY

Parameter XX is preset to value YY.
(Values < 100).

XX YYY

Parameter XX is preset to value YY.
(Values > 100. Values < 100 in USA-mode are displayed with 1 decimal).

XX YYY

(Flashing)
Parameter XX currently has the the value YYY.
(PAR 64, 65 and 66. Values < 100 are displayed with 1 decimal)
e.g. 43.3 is displayed 433

ml/m²	cc/ft²	Display	cc/inch²	Display	ml/m²	cc/ft²	Display	cc/inch²	Display
0	0	00	0	00	500	46.50	465	0.320	320
10	0.93	09	0.006	06	510	47.43	474	0.326	326
20	1.86	18	0.012	12	520	48.36	483	0.332	332
30	2.79	27	0.019	19	530	49.29	492	0.339	339
40	3.72	37	0.025	25	540	50.22	502	0.345	345
50	4.65	46	0.032	32	550	51.15	511	0.352	352
60	5.58	55	0.038	38	560	52.08	520	0.358	358
70	6.51	65	0.044	44	570	53.01	530	0.364	364
80	7.44	74	0.051	51	580	53.94	539	0.371	371
90	8.37	83	0.057	57	590	54.87	548	0.377	377
100	9.30	93	0.064	64	600	55.80	558	0.384	384
110	10.23	102	0.070	70	610	56.73	567	0.390	390
120	11.16	111	0.076	76	620	57.66	576	0.396	396
130	12.09	120	0.083	83	630	58.59	585	0.403	403
140	13.02	130	0.089	89	640	59.52	595	0.409	409
150	13.95	139	0.096	96	650	60.45	604	0.416	416
160	14.88	148	0.102	102	660	61.38	613	0.422	422
170	15.81	158	0.108	108	670	62.31	623	0.428	428
180	16.74	167	0.115	115	680	63.24	632	0.435	435
190	17.67	176	0.121	121	690	64.17	641	0.441	441
200	18.60	186	0.128	128	700	65.10	651	0.448	448
210	19.53	195	0.134	134	710	66.03	660	0.454	454
220	20.46	204	0.140	140	720	66.96	669	0.460	460
230	21.39	213	0.147	147	730	67.89	678	0.467	467
240	22.32	223	0.153	153	740	68.82	688	0.473	473
250	23.25	232	0.160	160	750	69.75	697	0.480	480
260	24.18	241	0.166	166	760	70.68	706	0.486	486
270	25.11	251	0.172	172	770	71.61	716	0.492	492
280	26.04	260	0.179	179	780	72.54	725	0.499	499
290	26.97	269	0.185	185	790	73.47	734	0.505	505
300	27.90	279	0.192	192	800	74.40	744	0.512	512
310	28.83	288	0.198	198	810	75.33	753	0.518	518
320	29.76	297	0.204	204	820	76.26	762	0.524	524
330	30.69	306	0.211	211	830	77.19	771	0.531	531
340	31.62	316	0.217	217	840	78.12	781	0.537	537
350	32.55	325	0.224	224	850	79.05	790	0.544	544
360	33.48	334	0.230	230	860	79.98	799	0.550	550
370	34.41	344	0.236	236	870	80.91	809	0.556	556
380	35.34	353	0.243	243	880	81.84	818	0.563	563
390	36.27	362	0.249	249	890	82.77	827	0.569	569
400	37.20	372	0.256	256	900	83.70	837	0.576	576
410	38.13	381	0.262	262	910	84.63	846	0.582	582
420	39.06	390	0.268	268	920	85.56	855	0.588	588
430	39.99	399	0.275	275	930	86.49	864	0.595	595
440	40.92	409	0.281	281	940	87.42	874	0.601	601
450	41.85	418	0.288	288	950	88.35	883	0.608	608
460	42.78	427	0.294	294	960	89.28	892	0.614	614
470	43.71	437	0.300	300	970	90.21	902	0.620	620
480	44.64	446	0.307	307	980	91.14	911	0.627	627
490	45.57	455	0.313	313	990	92.07	920	0.633	633

CALCULATING THE REPLENISHMENT

GENERAL

The processor is equipped with 2 input sensors which amongst others control the replenishment per film input.
To obtain the best possible replenishment it is important to know if one ore both of the input sensors are activated when using the most significant film width.

The recommended replenishment are typically expressed in ml/m2 processed film area. The recommendations will vary from one type of chemistry to another and from one type of film to another and in some cases it is expressed as a function of the average exposed area.

CALCULATION

Calculate the replenishment using the following formula:

$$Rs = Rr * \left(\frac{Wf}{Wp}\right) * \left(\frac{2}{IS}\right)$$

where

Rs = Replenishment set value (in ml/m).
Rr = Replenishment (in ml/m) as recommended by the supplier based on the average exposed area and chemistry and film type.
Wf = Current film width (in mm).
Wp = Processor width (in mm).
IS = Number of input sensors activated.

The calculated replenishment settings are set in the parameters 15, 16, 25, 26, 35, 36, 45 and 46.

DISPLAY OF REPLENISHMENT VALUES

The diagram opposite shows the connection between the actual replenishment values and the read out on the display.

TEST-PROGRAM

WARNING! SERVICE PERSONNEL ONLY.

The PCB GCB is equipped with a number of test-programs for servicing purposes.
See list of Sub-test programs later in this chapter.

ENTERING TEST-MODE

- Change value in PAR 09 to 01 to enter **Level - 2** parameters.
- Step back to parameter 04.
  The display will show

  04 – 00

- Enter Test-mode with the VAL-UP button.
  The display will show

  04 – 01

  and then it changes to

  – 00

  which is the Test-mode format.

- Sub-test now can be chosen with PAR-UP and PAR-DOWN buttons.

DISPLAY FORMAT IN TEST-MODE

– XX – –

Sub-test program XX not implemented.

– XX

Sub-test program XX is activated.

– XX 0

Sub-test program XX has status 0.
Output is OFF/input non-active.

– XX 1

Sub-test program XX has status 1.
Output is ON/Input active.

XX YYY

Sub-test XX shows the temperature YYY in 1/10 degrees.

LEAVING TEST MODE

- Step back to Sub-test program 00 using the PAR-DOWN button.
  The display will show

  – 00

- Exit Test-mode by pressing the VAL-DOWN button.
  The display will show

  04 – 00

- The processor is now in **Level-2** mode.

- Step forward to PAR 09 and change value to 00.

- Now the machine has returned to **Level-1** mode.

SUB-TEST PROGRAMS

NO.	DESCRIPTION	TEST OF...	DESCRIPTION
00	END TEST-PROG.		VAL-DOWN = END
01	DISPLAY TEST		VAL-UP = STEP THROUGH TEST
02	EEPROM TEST		VAL-UP = ACTIVATE TEST
03	MOTOR TEST		VAL-UP = MAX. SPEED, VAL-DOWN = MIN. SPEED
04	POWER MONIT./OFF		VAL-DOWN = POWER OFF
NOTE! DO NOT TURN DRY-HEAT (PAR 11) TO "ON" UNLESS DRY-FAN (PAR 14) IS "ON".			
11	DRY-HEAT	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
NOTE! DO NOT TURN FIX-HEAT (PAR 12) OG DEV-HEAT (PAR 13) TO "ON" UNLESS TANKS ARE			
12	FIX-HEAT	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
13	DEV-HEAT	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
14	DRY-FAN	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
15	CIRC-PUMP	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
16	FIX-REPL.	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
17	DEV-REPL.	RELAY	VAL-UP = RELAY ON, VAL-DOWN = RELAY OFF
22	WASH	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
32	SENSOR, RIGHT	INPUT	DISPLAY SHOWS STATUS 0 = OFF, 1 = ON
33	SENSOR, LEFT	INPUT	DISPLAY SHOWS STATUS 0 = OFF, 1 = ON
40	LEVEL, WASH	INPUT	DISPLAY SHOWS STATUS 0 = OK, 1 = LOW
41	LEVEL, FIX	INPUT	DISPLAY SHOWS STATUS 0 = OK, 1 = LOW
42	LEVEL, DEV	INPUT	DISPLAY SHOWS STATUS 0 = OK, 1 = LOW
50	TEMP., DEV	INPUT	DISPLAY SHOWS TEMPERATURE IN 1/10 DEGREES
51	TEMP., FIX	INPUT	DISPLAY SHOWS TEMPERATURE IN 1/10 DEGREES
52	TEMP., DRY	INPUT	DISPLAY SHOWS TEMPERATURE IN 1/10 DEGREES

THE TABLE CONTINUES ON THE NEXT PAGE.

CONTINUED

NO.	DESCRIPTION	TEST OF...	DESCRIPTION
70	GTB ON	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
71	GTB LOW FIX	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
72	GTB LOW LEVEL	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
73	GTB LOW DEV	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
74	GTB WAIT	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
75	GTB PROGRAM D	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
76	GTB PROGRAM C	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
77	GTB PROGRAM B	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
78	GTB PROGRAM A	OUTPUT	VAL-UP = OUTPUT ON, VAL-DOWN = OUTPUT OFF
79	GTB FIX-BUTTON	INPUT	DISPLAY SHOWS STATUS 0 = “OFF”, 1 = ON
80	GTB DEV-BUTTON	INPUT	DISPLAY SHOWS STATUS 0 = “OFF”, 1 = ON
81	GTB PRG-BUTTON	INPUT	DISPLAY SHOWS STATUS 0 = “OFF”, 1 = ON

ADJUSTING OF THE PCB GCB

NOTE! SERVICE TECHNICIANS ONLY.

If the PCB GCB is replaced with an other, some adjustments have to be made to adapt the new electronics to the conditions of the processor.

See the figure below.

- All parameters and values are displayed on the digital display.
- Step to **PAR 14, 24, 34** or **44** using the **PAR UP/PAR DOWN** buttons.
- Set value to max. speed (min. dev. time) (**15** sec.) using the **VAL UP/VAL DOWN** buttons.
- Feed film through the processor to check the film speed and adjust on the potentiometer **R303**. Check with another film.
- In the same parameter set value to min. speed (max. dev. time) (**60** sec.). Adjust on potentiometer **R302**. Check speed as for max.speed.
- Check max. speed again.
- Insert an accurate thermometer in developer bath. Step to **PAR 64** (Actual temp., developer). On the display the actual temperature is displayed i 1/10 °C, ex. 25.4°C is displayed as 254.
  Adjust value on display to thermometer read out using potentiometer **R4**.
- Step to **PAR 65** (Actual temp., fixer). Repeat procedure as for developer using potentiometer **R16**.
- Step to **PAR 66** (Actual temp., dryer section). Repeat procedure as for developer and fixer using potentiometer **R28**.

NOTE! The potentiometer R40 is for adjustment of wash water temperature and is not in use.

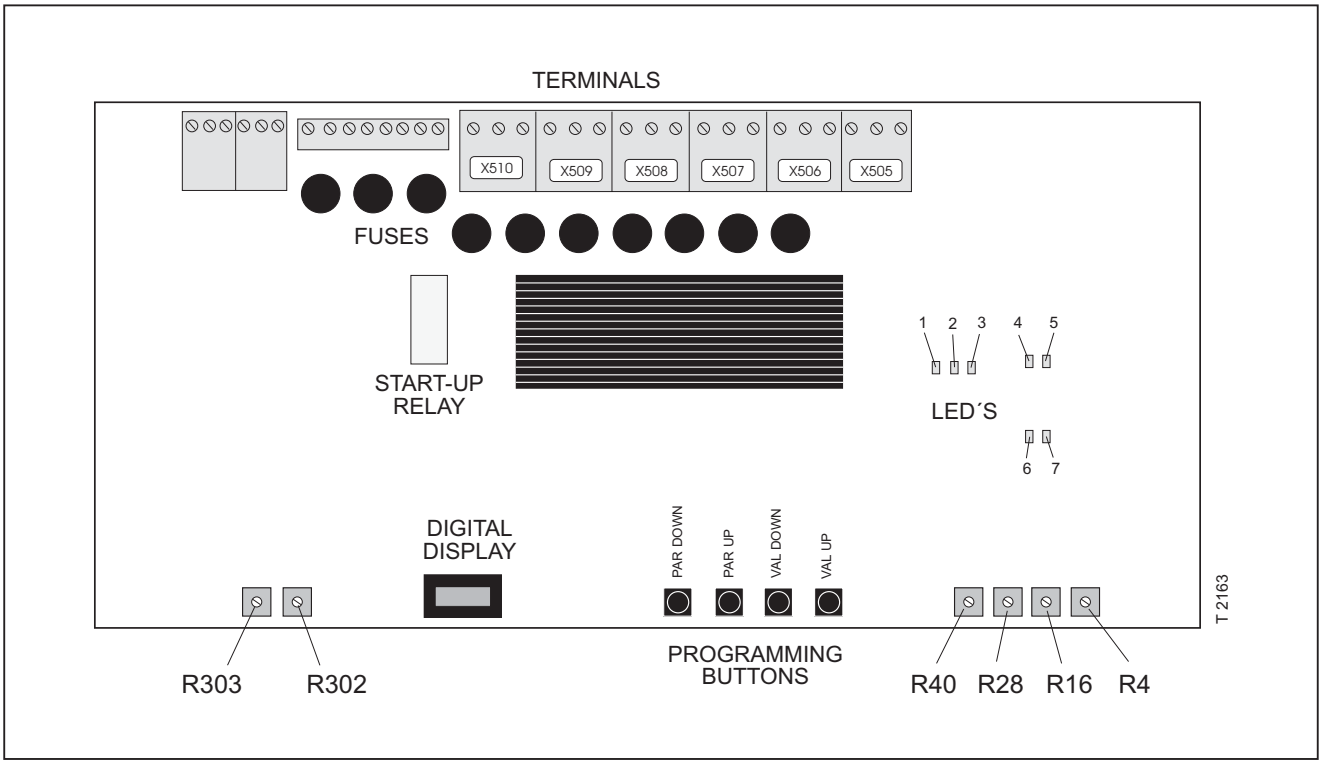


Fig. 9/1 PCB GCB

LED DESCRIPTION

The PCB GCB is equipped with 7 LED's (see the figure opposite).
The LED's indicate the following situations:

1 Low level, WASH (not in use).
2 Low level, FIX.
3 Low level, DEV.
4 Rewash lid open (only in use on processors with rewash lid).
5 Daylight lid open (only in use on processors with daylight lid).
6 Left input sensor activated.
7 Right input sensor activated.

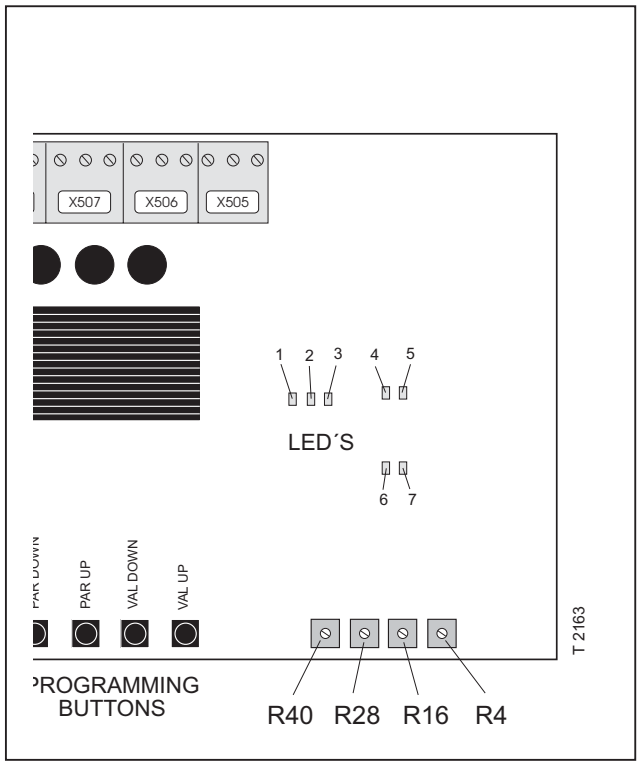
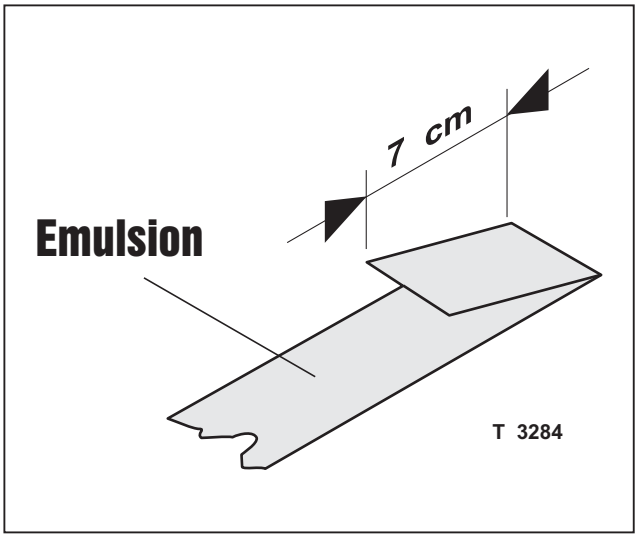


Fig. 9/2 LED's on PCB GCB

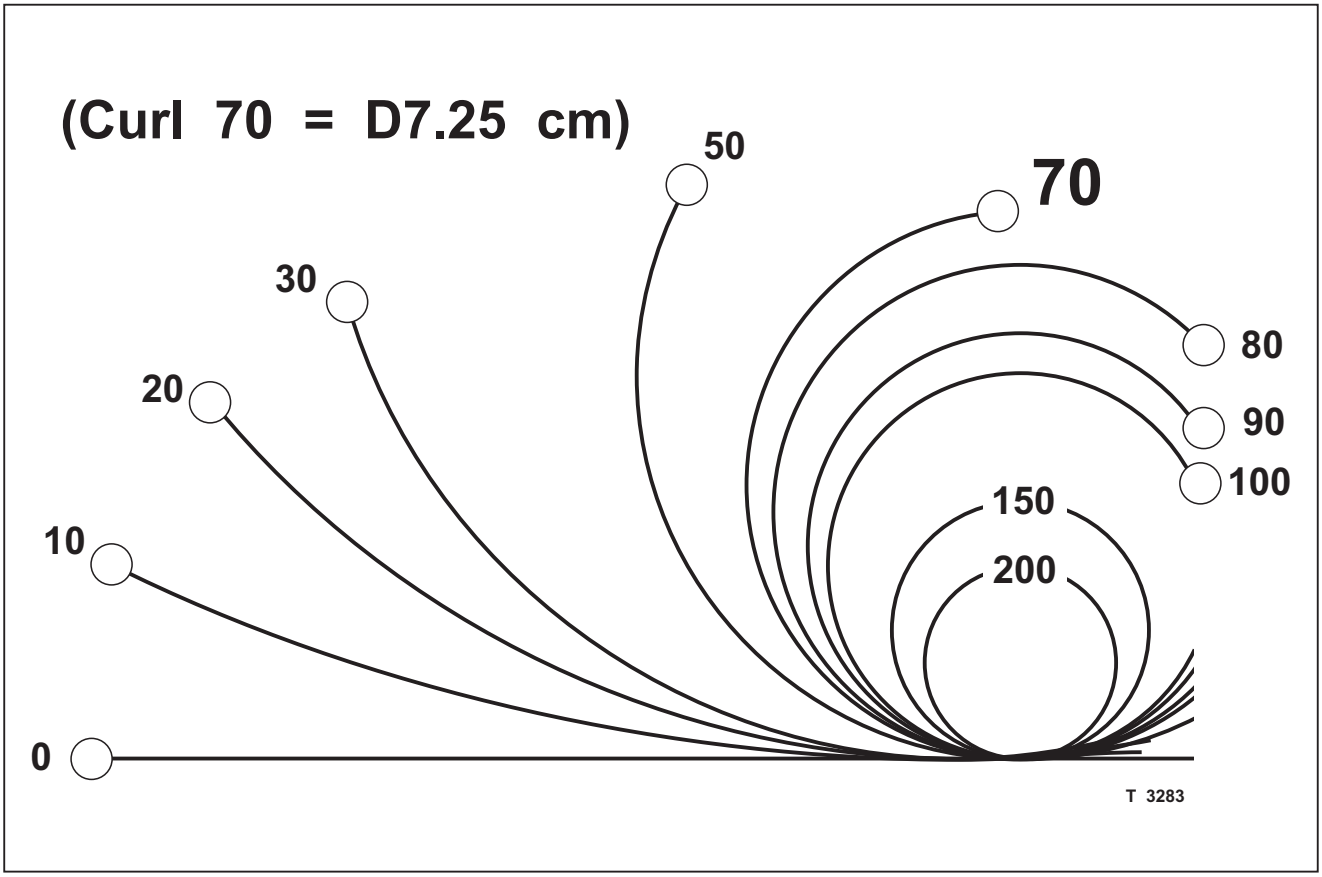
CURL-TEST

The film processor is capable of processing film or paper with a curl up to 70.



TEST METHOD

- Cut off 50 cm of film/paper directly from the supply roll.
- Let it make a natural curl.
- Place the test-piece on the end on top of the curves in the figure opposite for comparison.
- Film or paper with a curl larger than 70 must have a bend as shown in the figure below.



APPENDIX B

ADDITIONAL INFORMATION FOR MULTILINE 950/37, 1250/49, 1550/61

In this appendix is specified additional information covering the processor models mentioned above.

Parts delivered ...
are specified on a packing list delivered with the processor.

Installation kit ...
is delivered with the processor in a cardboard box. The kit consists of different parts needed for the installation. The parts are specified on a separate list included.

Spareparts kit ...
is delivered in a small red box. Inside is a label with list of enclosed spareparts, numbers of each sparepart and sparepart order numbers.

Make sure that all parts are present and in good condition.

ORDERING SPAREPARTS

Some of the spareparts shown on the iso-metric drawings in chapter 8 have no sparepart number and specification. The sparepart numbers and specification for those parts are listed below. The page and position numbers refer to the page and position numbers used in chapter 8.
Please also refer to the iso-metric drawings in chapter 8.
When ordering spareparts please state carefully the sparepart number, the specification and the number of items wanted. Send your order to your local dealer.

Pos.	950/37	1250/49	1550/61	Specification	
Page 8/3:					
1	28501	28502	28503	PANEL, TOP	
	28510	28511	28512	PANEL, TOP, DAYL./REW.	IF DL/RW
5	30145	30141	30149	LID, PANEL, DAYL./REW.	IF DL/RW
9	30173	30164	30179	PANEL, TOP, DAYL./REW.	IF DL/RW
12	30147	30143	30151	HINGE, LID, DAYL./REW.	IF DL/RW
14	28504	28505	28506	PANEL, DRYER	
15	28499	28499	28499	PANEL, FENDER, RIGHT, W. STRIPE	
16	30124	20938	30126	BASKET	
17	28498	28498	28498	PANEL, FENDER, LEFT, W. STRIPE	
	(Not ill.) 239832398323983			LOGO, GLUNZ & JENSEN, PANEL, DRYER	
	(Not ill.) 223292211422330			LOGO, MULTILINE XXX, PANEL, DRYER	
	(Not ill.) 335323305733533			LOGO, MULTILINE XXX, PANEL, TOP	
	(Not ill.) 145531455314533			STRIPE, RED, FENDERS	
Page 8/5:					
1	30137	20933	30139	PANEL, FRONT, UPPER	
2	18858	18858	18858	BOX, CONTROL	
3	16829	16829	16829	SWITCH, ULTRA	
6	30133	20955	30135	TABLE, FEED	IF FEED TABLE
Page 8/7:					
	19452	19453	19454	CASSETTE, DAYLIGHT, COMPL.	IF DAYL.CASS.
8	30639	30641	30643	PANEL, LID, CASSETTE	IF DAYL.CASS.

Pos.	950/37	1250/49	1550/61	Specification
Page 8/9:				
2	30116	20928	30120	PANEL, REAR, STAND
7	30110	20953	30114	RAIL, REAR, STAND
8	30108	20922	30112	RAIL, FRONT, STAND
9	20996	20996	20996	RAIL, LEFT, STAND
10	20924	20924	20924	RAIL, RIGHT, STAND
11	20929	20929	20929	PANEL, SIDE
12	30103	30103	30103	SUPPORT, LEFT, FRAME 610X125X45
13	30101	30101	30101	SUPPORT, RIGHT, FRAME 610X125X45
14	20926	20926	20926	PROFILE, LEG, RIGHT, REAR, STAND
15	30104	30104	30104	PROFILE, LEG, RIGHT, FRONT, STAND
16	30106	30106	30106	PROFILE, LEG, LEFT, FRONT, STAND
17	20925	20925	20925	PROFILE, LEG, LEFT, REAR, STAND
18	30118	20927	30122	PANEL, FRONT, STAND
Page 8/17:				
1	3574	3575	3576	ROLLER, PUR D50 MT, SHT
2	13204	13206	23445	ROLLER, PUR D30 MT, H, SHT
15	4569	8009	8010	GUIDE, SIDE, LW.
19	7344	7345	7346	ROLLER, PUR D30 MT, LI, SHT
Page 8/19:				
33	13204	13206	23445	ROLLER, PUR D30 MT, H, SHT
34	3574	3575	3576	ROLLER, PUR D50 MT, SHT
Page 8/21:				
1	3574	3575	3576	ROLLER, PUR D50 MT, SHT
5	13204	13206	23445	ROLLER, PUR D30 MT, H, SHT
12	7344	7345	7346	ROLLER, PUR D30 MT, LI, SHT
26	3574	3575	3576	ROLLER, PUR D50 MT, SHT
27	3574	3575	3576	ROLLER, PUR D50 MT, SHT

Pos.	ML950	ML1250	ML1550	Specification
Page 8/23:				
7	3574	3575	3576	ROLLER, PUR D50 MT, SHT
9	13204	13206	23445	ROLLER, PUR D30 MT, H, SHT
13	7344	7345	7346	ROLLER, PUR D30 MT, LI, SHT
23	3574	3575	3576	ROLLER, PUR D50 MT, SHT
24	3574	3575	3576	ROLLER, PUR D50 MT, SHT
Page 8/25:				
6	3400	3490	3401	ROLLER, PUR/TEFLON D30 MT, SHT
27	3497	3498	3499	ROLLER, PUR/TEFLON D30 MT, LT
Page 8/29:				
9	16424	16424	16424	PCB, GCB WITH SOFTWARE
10	16365	16365	16465	SOFTWARE
11	20602	20602	20602	PANEL, FRONT, CABINET, EL, KEYSW.
23	-	-	-	NOT AVAILABLE

ADDITIONAL SPECIFICATIONS

WEIGHT *:

Model 950:		
Empty:	186 kg	(410 lbs)
Shipping:	370 kg	(816 lbs)
Model 1250:		
Empty:	244 kg	(538 lbs)
Shipping:	445 kg	(981 lbs)
Model 1550:		
Empty:	302 kg	(666 lbs)
Shipping:	520 kg	(1146 lbs)

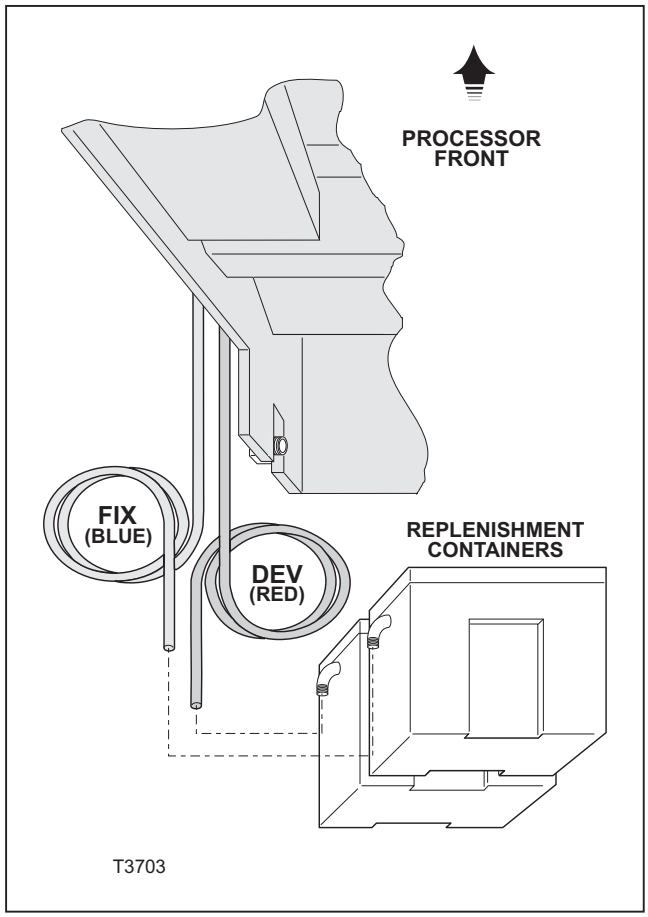
*) Standard version with closed stand and feed table.

REPLENISHMENT HOSES

The replenishment hoses are located underneath the machine as well.

Connect the replenishment hoses as shown on the figure opposite:

RED HOSE TO DEVELOPER.
BLUE HOSE TO FIXER.

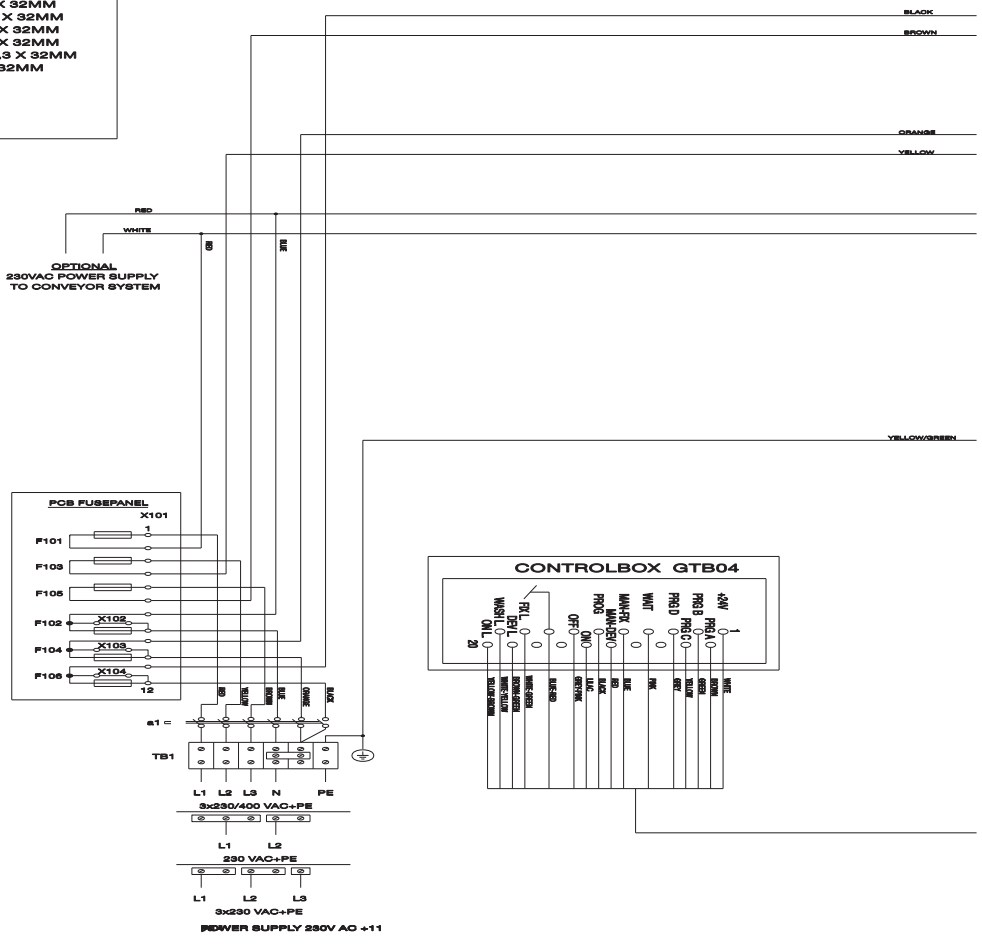


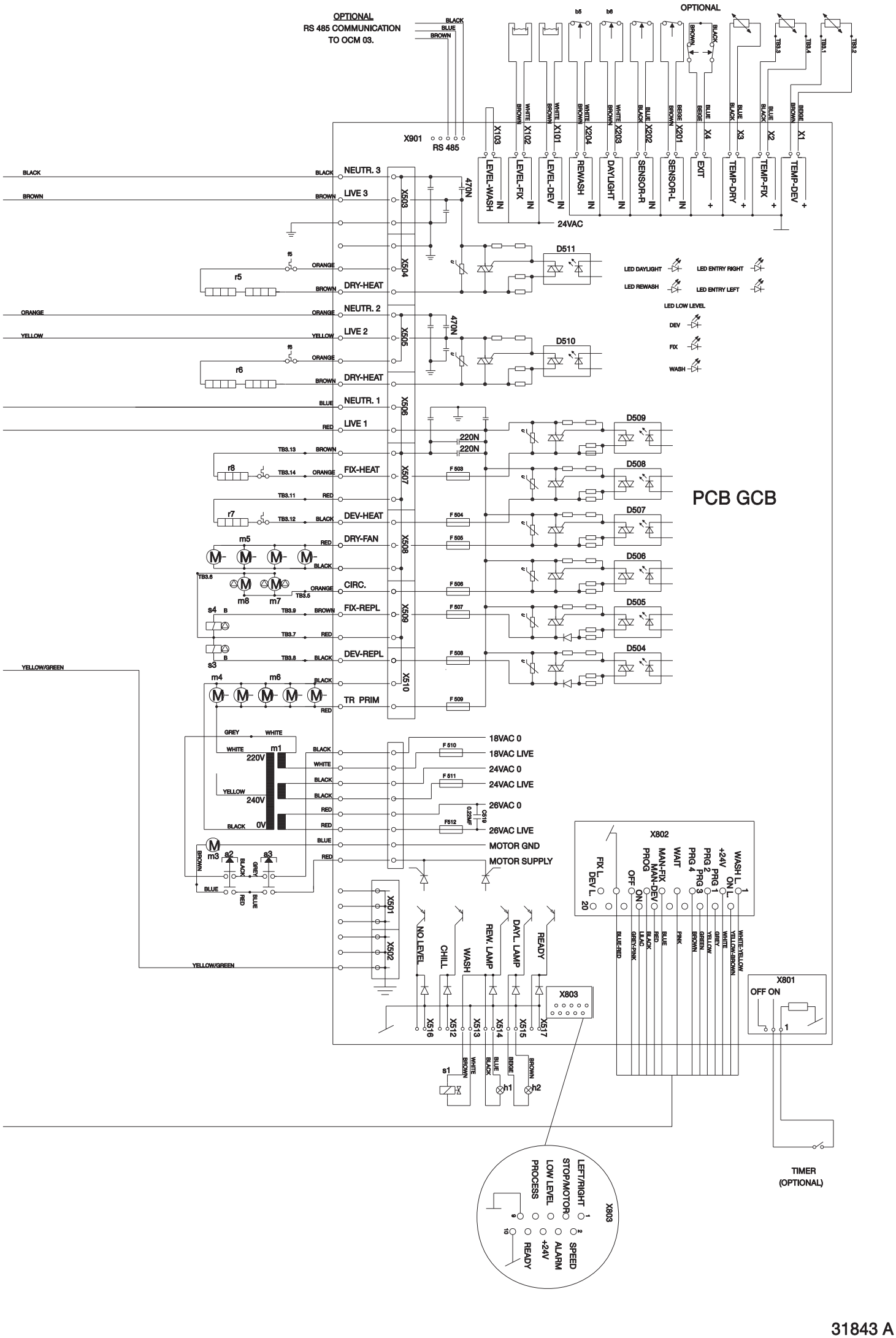
APPENDIX C

ELECTRICAL DIAGRAMS

The electrical diagrams for the processors are on the next pages.

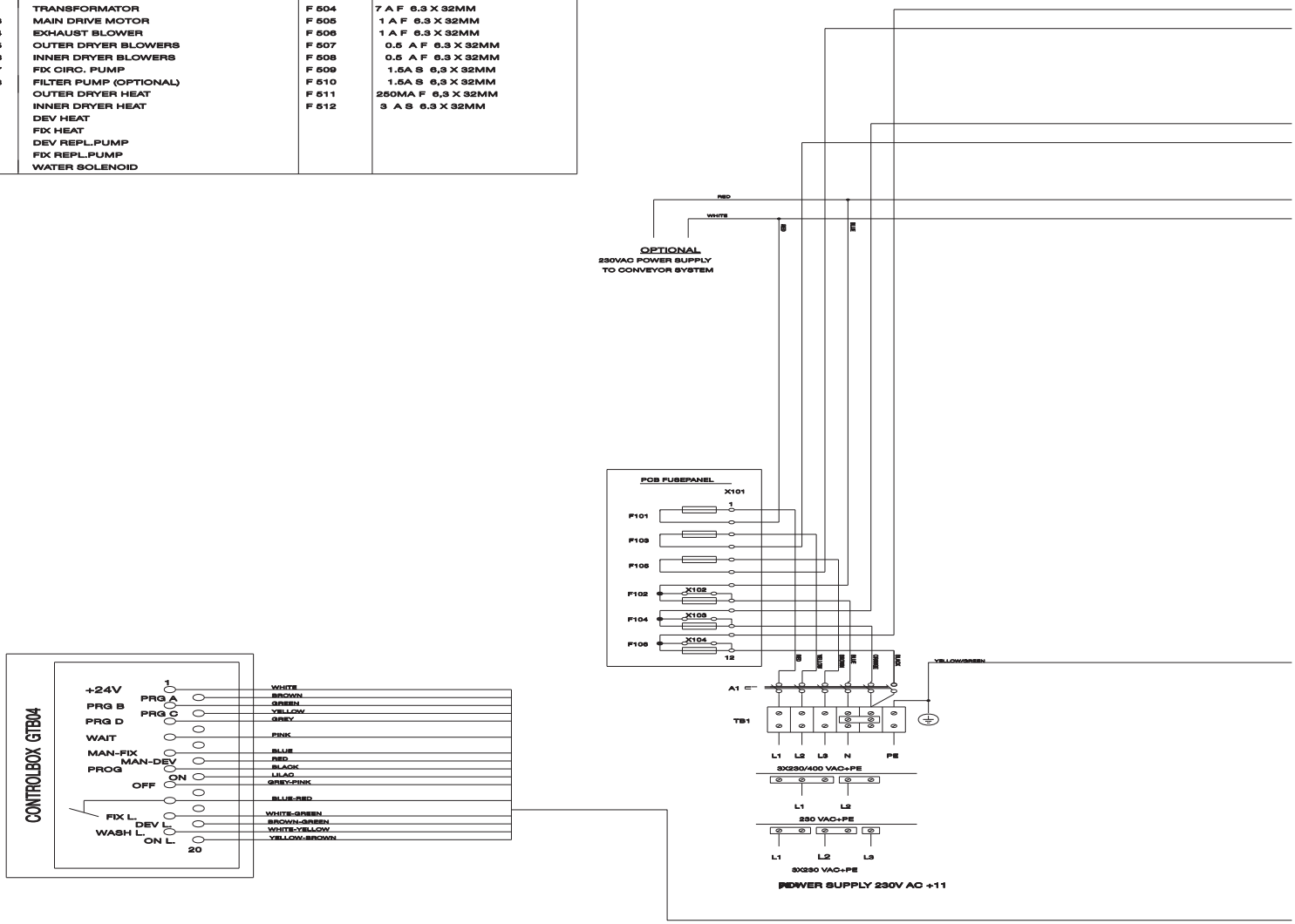
PART	SPECIFICATION	PART	FUSES
a 1	MAIN SWITCH	F 101	12 A F 10,3 X 33,5MM
a 2	LID SWITCHES, DRYER	F 102	12 A F 10,3 X 33,5MM
a 3	LID SWITCHES, BATH	F 103	12 A F 10,3 X 33,5MM
b 5	REWASH SWITCH	F 104	12 A F 10,3 X 33,5MM
b 6	DAYLIGHT SWITCH	F 105	12 A F 10,3 X 33,5MM
h 1	REWASH LAMP	F 106	12 A F 10,3 X 33,5MM
h 2	DAYLIGHT LAMP	F 503	7 A F 6.3 X 32MM
m 1	TRANSFORMATOR	F 504	7 A F 6.3 X 32MM
m 3	MAIN DRIVE MOTOR	F 505	1 A F 6.3 X 32MM
m 4	EXHAUST BLOWER	F 506	1 A F 6.3 X 32MM
m 5	OUTER DRYER BLOWERS	F 507	0.5 A F 6.3 X 32MM
m 6	INNER DRYER BLOWERS	F 508	0.5 A F 6.3 X 32MM
m 7	FIX CIRC. PUMP	F 509	1.5A S 6,3 X 32MM
m 8	FILTER PUMP (OPTIONAL)	F 510	1.5A S 6,3 X 32MM
r 5	OUTER DRYER HEAT	F 511	250mA F 6,3 X 32MM
r 6	INNER DRYER HEAT	F 512	3 A S 6.3 X 32MM
r 7	DEV HEAT		
r 8	FIX HEAT		
s 3	DEV REPL.PUMP		
s 4	FIX REPL.PUMP		
s 1	WATER SOLENOID		

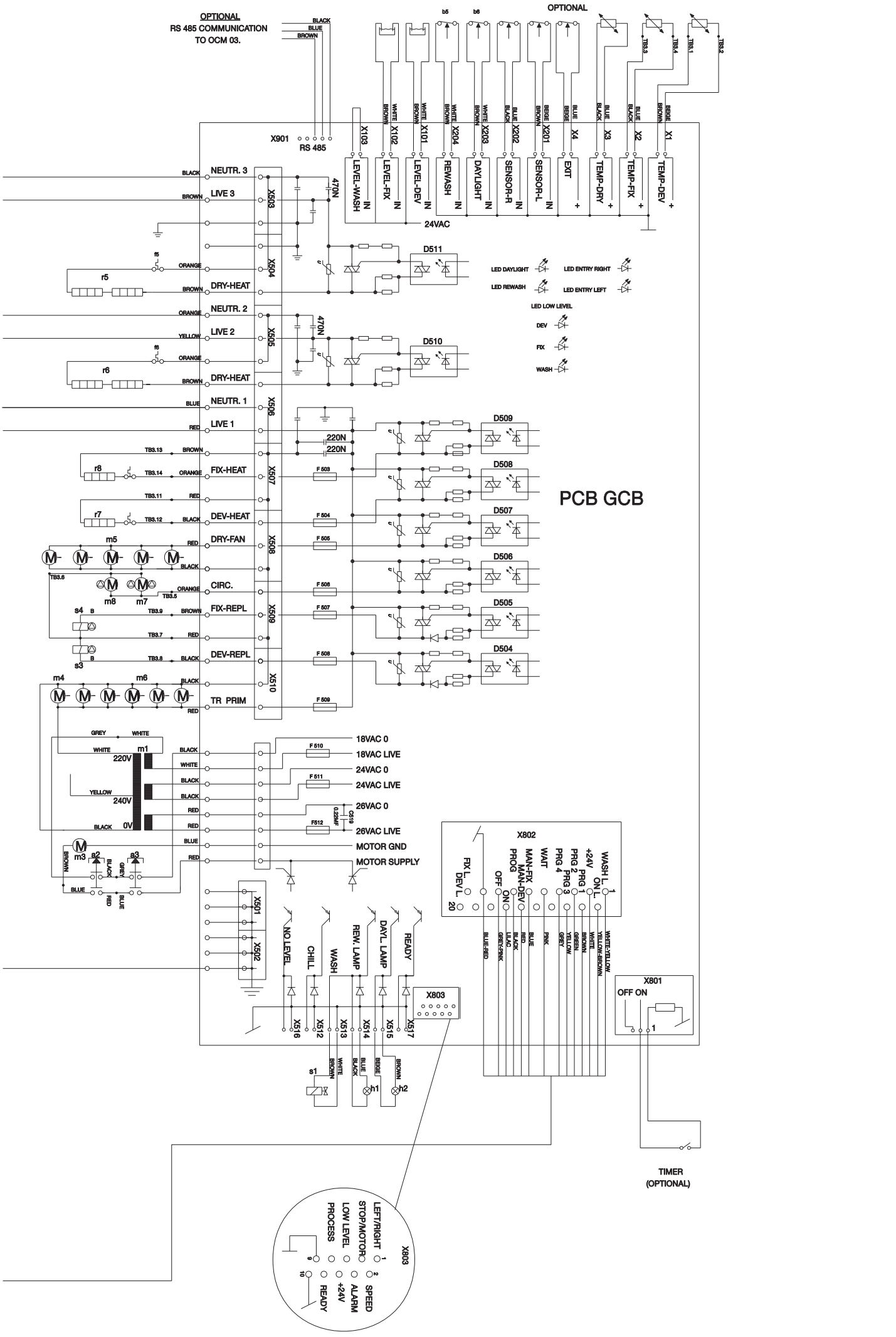



OPTIONAL
RS 485 COMMUNICATION
TO OCM 03.
BLACK
BLUE
BROWN
X901
RS 485
OPTIONAL
TB3.3
TB3.4
TB3.1
TB3.2
X103
X102
X101
X204
X203
X202
X201
X4
X3
X2
X1
LEVEL-WASH
LEVEL-FIX
LEVEL-DEV
REWASH
DAYLIGHT
SENSOR-R
SENSOR-L
EXIT
TEMP-DRY
TEMP-FIX
TEMP-DEV
IN
+
24VAC
NEUTR. 3
LIVE 3
NEUTR. 2
LIVE 2
NEUTR. 1
LIVE 1
DRY-HEAT
FIX-HEAT
DEV-HEAT
DRY-FAN
CIRC.
FIX-REPL
DEV-REPL
TR PRIM
X503
X504
X505
X506
X507
X508
X509
X510
470N
220N
r5
r6
r8
r7
D511
D510
D509
D508
D507
D506
D505
D504
LED DAYLIGHT
LED REWASH
LED ENTRY RIGHT
LED ENTRY LEFT
LED LOW LEVEL
DEV
FIX
WASH
PCB GCB
F 503
F 504
F 505
F 506
F 507
F 508
F 509
m1
220V
240V
0V
m2
m3
m4
m5
m6
m7
m8
s1
s2
s3
s4
h1
h2
18VAC 0
18VAC LIVE
24VAC 0
24VAC LIVE
26VAC 0
26VAC LIVE
MOTOR GND
MOTOR SUPPLY
F 510
F 511
F512
C519
0.22MF
X501
X502
X516
X512
X513
X514
X515
X517
X803
NO LEVEL
CHILL
WASH
REW. LAMP
DAYL. LAMP
READY
X802
FIX L.
DEV L.
20
OFF
ON
MAN-FIX
PROG
MAN-DEV
WAIT
PRG 4
PRG 3
PRG 2
PRG 1
+24V
WASH L.
ON L.
X801
OFF ON
LEFT/RIGHT
STOP/MOTOR
LOW LEVEL
PROCESS
SPEED
ALARM
+24V
READY
TIMER
(OPTIONAL)

31843 A

PART	SPECIFICATION	PART	FUSES
a 1	MAIN SWITCH	F 101	12 A F 10,3 X 33,5MM
A 2	LID SWITCHES, DRYER	F 102	12 A F 10,3 X 33,5MM
A 3	LID SWITCHES, BATH	F 103	12 A F 10,3 X 33,5MM
B 5	REWASH SWITCH	F 104	12 A F 10,3 X 33,5MM
B 6	DAYLIGHT SWITCH	F 105	12 A F 10,3 X 33,5MM
H 1	REWASH LAMP	F 106	12 A F 10,3 X 33,5MM
H 2	DAYLIGHT LAMP	F 503	7 A F 6.3 X 32MM
M 1	TRANSFORMATOR	F 504	7 A F 6.3 X 32MM
M 3	MAIN DRIVE MOTOR	F 505	1 A F 6.3 X 32MM
M 4	EXHAUST BLOWER	F 506	1 A F 6.3 X 32MM
M 5	OUTER DRYER BLOWERS	F 507	0.5 A F 6.3 X 32MM
M 6	INNER DRYER BLOWERS	F 508	0.5 A F 6.3 X 32MM
M 7	FIX CIRC. PUMP	F 509	1.5A S 6,3 X 32MM
M 8	FILTER PUMP (OPTIONAL)	F 510	1.5A S 6,3 X 32MM
R 5	OUTER DRYER HEAT	F 511	250MA F 6,3 X 32MM
R 6	INNER DRYER HEAT	F 512	3 A S 6.3 X 32MM
R 7	DEV HEAT		
R 8	FIX HEAT		
S 3	DEV REPL.PUMP		
S 4	FIX REPL.PUMP		
S 1	WATER SOLENOID		




OPTIONAL
RS 485 COMMUNICATION
TO OCM 03.
BLACK
BLUE
BROWN
X901
RS 485
OPTIONAL
b5
b6
TB3.3
TB3.4
TB3.1
TB3.2
X103 LEVEL-WASH IN
X102 LEVEL-FIX IN
X101 LEVEL-DEV IN
X204 REWASH IN
X203 DAYLIGHT IN
X202 SENSOR-R IN
X201 SENSOR-L IN
X4 EXIT +
X3 TEMP-DRY +
X2 TEMP-FIX +
X1 TEMP-DEV +
24VAC
NEUTR. 3
LIVE 3
X503
470N
D511
f5
r5
DRY-HEAT
X504
LED DAYLIGHT
LED REWASH
LED ENTRY RIGHT
LED ENTRY LEFT
LED LOW LEVEL
DEV
FIX
WASH
NEUTR. 2
LIVE 2
X505
470N
D510
f6
r6
DRY-HEAT
NEUTR. 1
LIVE 1
X506
220N
220N
D509
TB3.13
r8
TB3.14
FIX-HEAT
X507
F 503
D508
TB3.11
r7
TB3.12
DEV-HEAT
F 504
D507
m5
DRY-FAN
X508
F 505
D506
TB3.6
m8
m7
TB3.5
CIRC.
F 506
s4
TB3.9
FIX-REPL
X509
F 507
D505
TB3.7
s3
TB3.8
DEV-REPL
F 508
D504
m4
m6
TR PRIM
X510
F 509
PCB GCB
GREY
WHITE
m1
220V
240V
0V
F 510
18VAC 0
18VAC LIVE
F 511
24VAC 0
24VAC LIVE
C519
0.22MF
F512
26VAC 0
26VAC LIVE
MOTOR GND
MOTOR SUPPLY
m3
s2
s3
X501
X502
NO LEVEL
CHILL
WASH
REW. LAMP
DAYL. LAMP
READY
X516
X512
X513
X514
X515
X517
X803
s1
h1
h2
X802
FIX L.
DEV L.
20
OFF
ON
PROG
MAN-FIX
MAN-DEV
WAIT
PRG 4
PRG 3
PRG 2
PRG 1
+24V
WASH L.
ON L.
1
BLUE-RED
GREY-PINK
LILAC
BLACK
RED
BLUE
PINK
GREY
YELLOW
GREEN
BROWN
WHITE
YELLOW-BROWN
WHITE-YELLOW
X801
OFF ON
1
TIMER
(OPTIONAL)
X803
LEFT/RIGHT
STOP/MOTOR
LOW LEVEL
PROCESS
SPEED
ALARM
+24V
READY

31831 A

PART	SPECIFICATION	PART	FUSES
a 1	MAIN SWITCH	F 101	12 A F 10,3 X 33,5MM
a 2	LID SWITCHES, DRYER	F 102	12 A F 10,3 X 33,5MM
a 3	LID SWITCHES, BATH	F 103	12 A F 10,3 X 33,5MM
b 5	REWASH SWITCH	F 104	12 A F 10,3 X 33,5MM
b 6	DAYLIGHT SWITCH	F 105	12 A F 10,3 X 33,5MM
h 1	REWASH LAMP	F 106	12 A F 10,3 X 33,5MM
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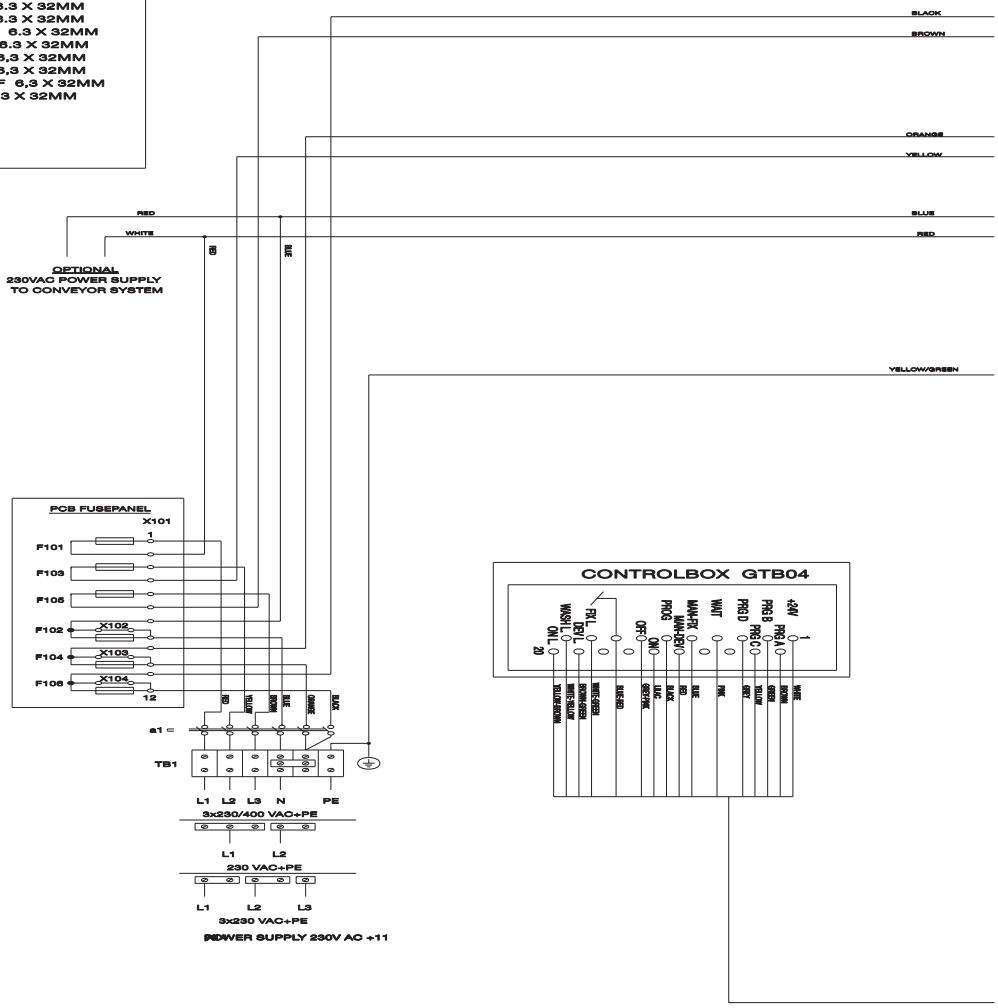
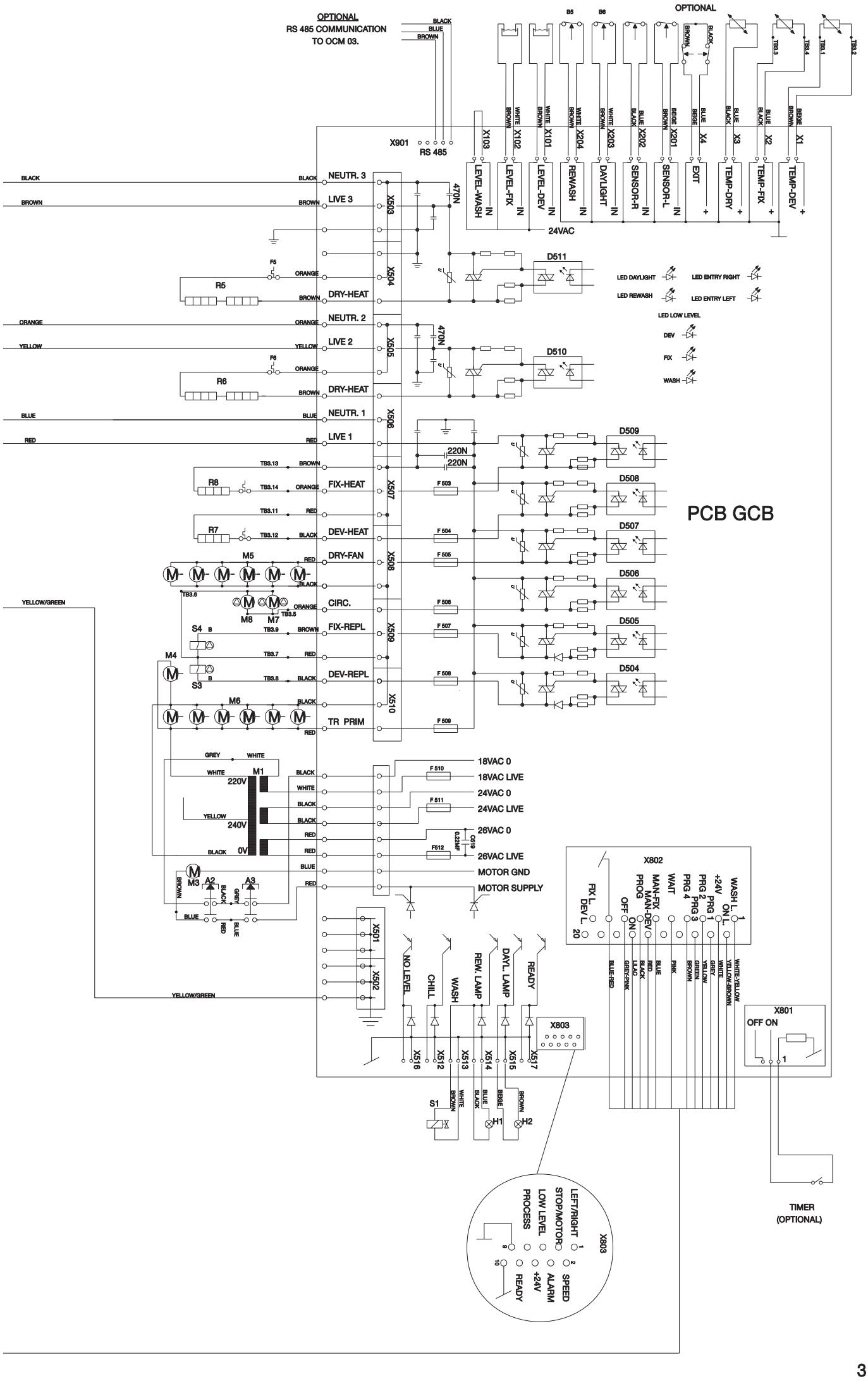
m 7	FIX CIRC. PUMP	F 509	1.5A S 6,3 X 32MM
m 8	FILTER PUMP (OPTIONAL)	F 510	1.5A S 6,3 X 32MM
r 5	OUTER DRYER HEAT	F 511	250mA F 6,3 X 32MM
r 6	INNER DRYER HEAT	F 512	3 A S 6.3 X 32MM
r 7	DEV HEAT		
r 8	FIX HEAT		
s 3	DEV REPL.PUMP		
s 4	FIX REPL.PUMP		
s 1	WATER SOLENOID		




OPTIONAL
RS 485 COMMUNICATION
TO OCM 03.
OPTIONAL
X901
RS 485
X103 LEVEL-WASH IN
X102 LEVEL-FIX IN
X101 LEVEL-DEV IN
X204 REWASH IN
X203 DAYLIGHT IN
X202 SENSOR-R IN
X201 SENSOR-L IN
X4 EXIT +
X3 TEMP-DRY +
X2 TEMP-FIX +
X1 TEMP-DEV +
24VAC
NEUTR. 3
LIVE 3
DRY-HEAT
NEUTR. 2
LIVE 2
DRY-HEAT
NEUTR. 1
LIVE 1
FIX-HEAT
DEV-HEAT
DRY-FAN
CIRC.
FIX-REPL
DEV-REPL
TR PRIM
470N
220N
220N
D511
D510
D509
D508
D507
D506
D505
D504
LED DAYLIGHT
LED ENTRY RIGHT
LED REWASH
LED ENTRY LEFT
LED LOW LEVEL
DEV
FIX
WASH
PCB GCB
18VAC 0
18VAC LIVE
24VAC 0
24VAC LIVE
26VAC 0
26VAC LIVE
MOTOR GND
MOTOR SUPPLY
X802
X801
X803
NO LEVEL
CHILL
WASH
REW. LAMP
DAYL. LAMP
READY
TIMER
(OPTIONAL)
LEFT/RIGHT
STOP/MOTOR
LOW LEVEL
PROCESS
SPEED
ALARM
+24V
READY

31833 A