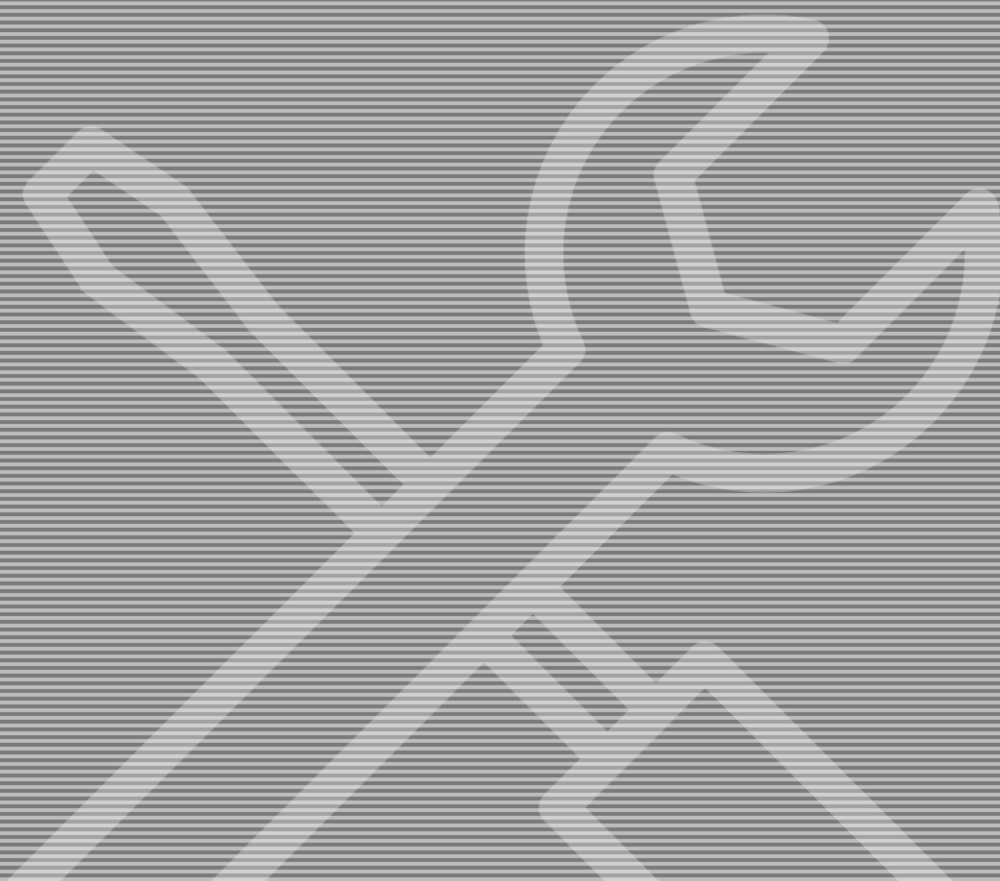


Service Manual



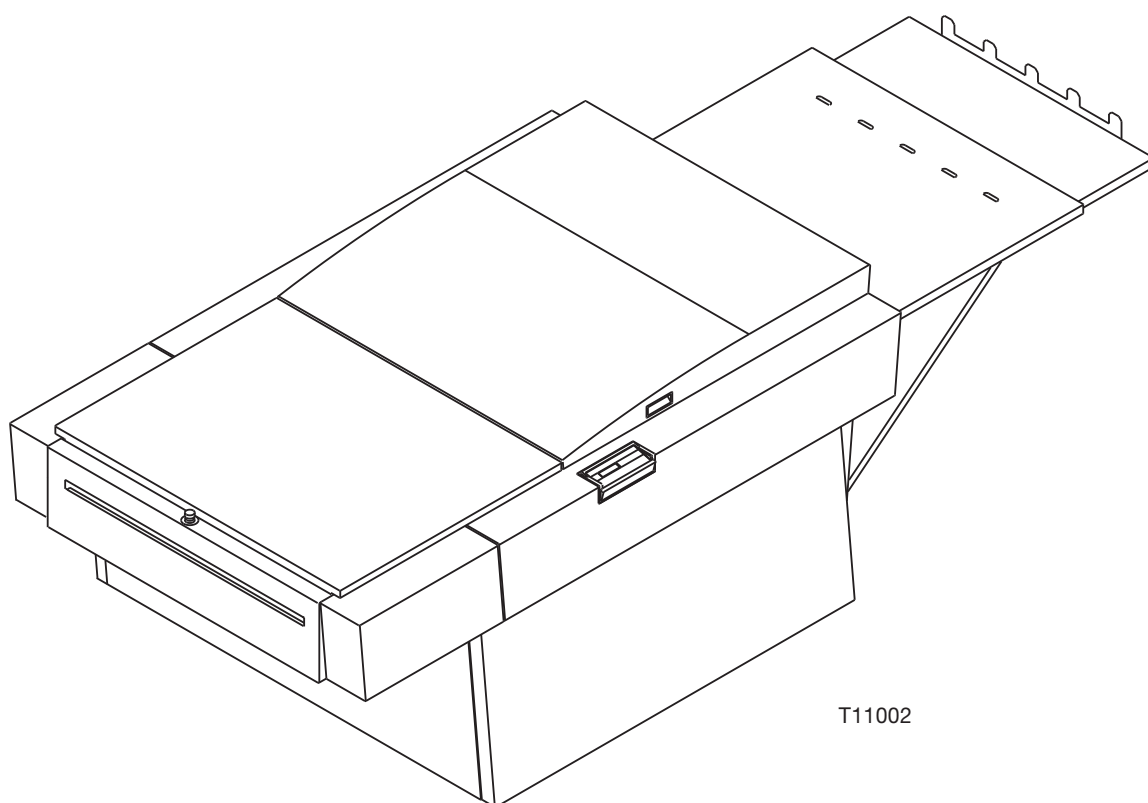
Raptor Polymer 68/85

GLUNZ & JENSEN 

GLUNZ & JENSEN

Service Manual

Raptor Polymer 68/85



T11002

Part 0: General information

This manual

Products covered

This manual is valid for: **Raptor Polymer 68** from serial nos **92610-0559** and **92903-0198**.
Raptor Polymer 85 from serial nos **92460-0200** and **92989-0096**.

The serial number is specified on the processor name plate located on the rear end of the tank on the left side (when standing behind the processor).



This manual is for Service Technicians only.

The directions given must not be followed by unauthorized personnel.

Always read the *Safety Instruction Manual part No 21741* before installing or operating the equipment.

This manual is published by: **GLUNZ & JENSEN A/S**
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Reservations

- This manual was written and illustrated using the best possible information available at the time of publication.
- Any differences between this 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.

Other manuals

A description of manuals available for this machine is made later in this chapter.

Chemicals

It is the responsibility of the owner of this equipment that data is available concerning possible health risk from the chemicals used with the equipment.

Problems

If help is needed to correct any problem with the equipment, please contact your supplier.

"End of lifetime" disposal

The equipment is designed for easy disassembling.

All disposal of parts from the machine must be made according to local regulations with special regards to following parts:

- For recycling purposes all polymeric components with a minimum weight of 20 g (0.7 oz), are marked with material specification according to the ISO 11469 standard.
- Polyurethane, tank etc., must be incinerated at a suitable incinerating plant with a temperature of combustion of min. 900° C (1652° F).
- PVC, tank etc., must be sent to a waste deposit with recycling in view. Alternatively the PVC can be incinerated at a suitable incinerating plant.
- PCB's and other electric equipment must be sent to a suitable waste deposit.

Important

- **Approvals:**

- Approvals will appear from the labels attached to the processor name plate or the frame part of the processor.

- **Unintended use of the equipment:**

Glunz & Jensen A/S do not take any responsibility for any damage or accidents caused by unintended use of the equipment:

- As the equipment is certified by accredited test laboratory (UL International Demko A/S) it is absolutely prohibited to make any modifications, electrical nor mechanical, of the equipment. If however this prohibition is disregarded, Glunz & Jensen's warranty will no longer apply and the certification labels for UL, C-UL, and CE certification of the equipment shall be removed as the certification will no longer apply to the equipment.

- **Intended use of the equipment:**

- Development of photographic materials as specified in "Technical specifications" in Part 1 of this manual.

- **Installation:**

- Never install the processor in explosive environments.
- It is the responsibility of the owner and operator/s of this processor, that the installation is made in accordance with local regulations, and by engineers authorized to carry out plumbing and electrical installations.
- Installation, service and repair must be performed only by service technicians who are trained in servicing the equipment.
The installation procedure is described in the separate "INSTALLATION MANUAL".
The manufacturer cannot be held responsible for any damage caused by incorrect installation of this processor.

- **Technical data:**

- Observe technical data from the processor name plate located on the rear panel of the processor.

Warnings, cautions, and notes !

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



Always replace a fuse with one of the same size and rating as the old one.

Explanation:

Symbol	Meaning	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.

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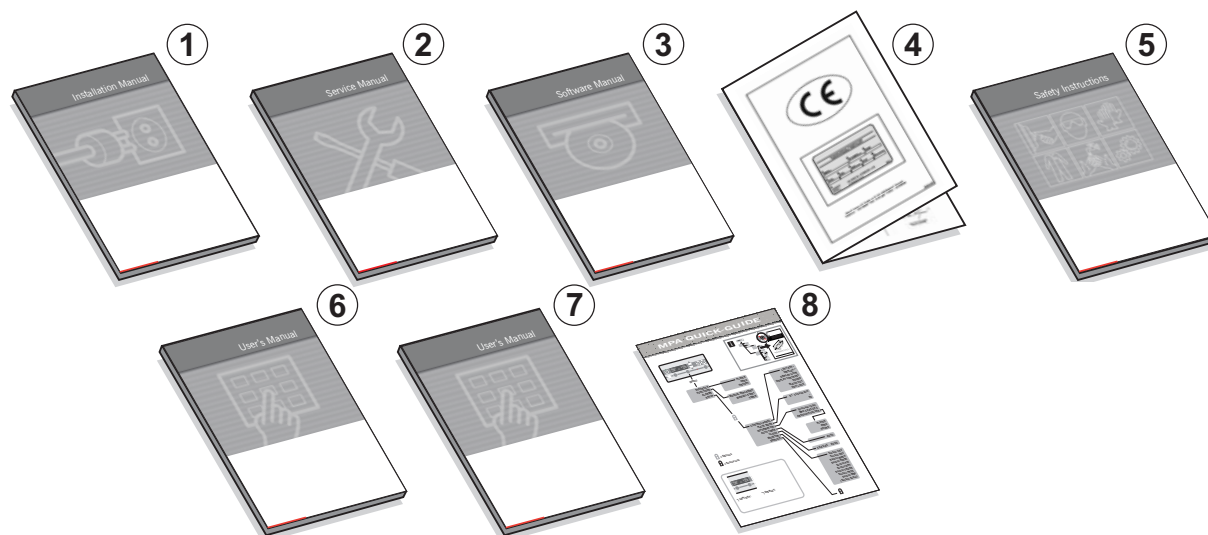
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Manuals

A complete set of manuals consists of the following:



Service manuals

The manuals listed below are for service technicians only. In addition the service technicians will need the manuals listed opposite as "User Manuals".

Processor Installation Manual (1)

Language: English
Contents: Installation of the processor

Processor Service Manual (2)

Language: English
Contents: Technical specifications
Functional description
Maintenance
Trouble shooting
Spare parts
Electrical diagrams

MPT Service Information (3)

Language: English
Contents: Menu structure (service menus)
Control Panel, Service Information
Calibration Procedures

User manuals

User manuals available for the equipment:

CE Declaration of Conformity (4)

Languages: Various

Contents: Survey of the directives to which the equipment conform

Safety Instruction Manual (5)

Languages: 28

Contents: General Safety Information

User's Manual, Processor (6)

Languages: 14

Contents: Operating and cleaning procedures.

User's Manual, MPT Control Panel (7)

Languages: 4

Contents: Functional description
Menu structure (user available)
Operation and programming
Alarm list

MPT Quick Guide (8)

Languages: 4

Contents: Quick guide to Control Panel user functions

Keep the manuals with the machine for reference at all times.

Part 1: Technical specifications

General environmental information

The processor does not contain

- Ozone depleting substances according to Montreal protocol,
- Asbestos,
- Polychlorinated biphenyl or Poly- Cyclohexylenedimethylene Terephthalate,
- Mercury,
- Cadmium,
- Lead as additive to plastic parts.

Plastic parts

Plastic parts >50g are marked according to ISO 11469.

Batteries

No batteries in this equipment.

End of life

Estimated product life:	10 years
Spare parts and service period:	7 years after last sales.

Recycling

The processor should be disposed at a certified appliance recycling centre or processing centre.
Recycling Passport with specifications of components and materials used in this processor is available on www.glunz-jensen.com/support.

Packaging

Plastic packaging materials are marked according to ISO 11469.

Noise emission

Acoustical noise according to ISO 11201:1996

Sound pressure level	
Operational mode:	64 dB
Stand-by mode:	51 dB

Chemical emissions

Ozone:	0 mg/m ³
Dust:	0 mg/m ³
Styrene:	0 mg/m ³

Heat emission

EUR and US:

Stand-by:	2000 W (approx. 6824 BTU/hour)
Process:	5400 W (approx. 16968 BTU/hour)

JAPAN:

Stand-by:	1500 W (approx. 5120 BTU/hour)
Process:	4100 W (approx. 14000 BTU/hour)

Mechanical specifications

Performance

	68	85
Plate types	polymer offset plates	
Plate width min.- max.	200 - 675 mm (7.9 - 26.6")	200 - 850 mm (7.9 - 33.5")
Plate length min.- max.	290 - 1100 mm (11.4 - 43.3")	290 - 1100 mm (11.4 - 43.3")
Plate thickness min.- max.	0.15 - 0.30 mm (0.006 - 0.012")	0.15 - 0.30 mm (0.006 - 0.012")
Plate speed	40 - 120 cm/min (15.7 - 47.2"/min)	40 - 120 cm/min (15.7 - 47.2"/min)
Brush speed at 50 Hz at 60 Hz	60 - 150 rpm	

Tank capacities

	68	85
Developer, total ex. filter, pumps etc.	17.0 l (4.5 US gal.)	22.0 l (5.8 US gal.)
Wash ex. filter, pumps etc.	11.0 l (2.9 US gal.)	13.5 l (3.6 US gal.)

Noise emission

	68	85
Noise emission max.	64dB	

Temperatures

	68	85
Pre-heat min. - max.	70 - 140 °C (158 - 284 °F)	
Developer min. - max.	20 - 40 °C (68 - 104 °F)	
Dryer, process min. - max.	35 - 55 °C (95 - 131 °F)	

Water requirements

	68	85
Pressure min. - max.	2 - 6 bar (29 - 87 psi)	

Water consumption

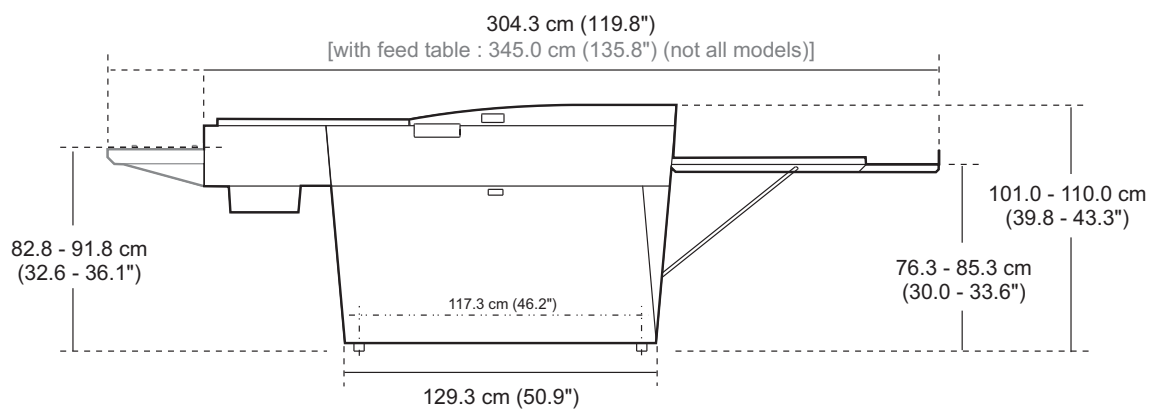
	68	85
Operation (if no wash recirculation)	28 l/min (7.4 US gal/min)	32 l/min (8.4 US gal/min)
Stand-by (if no wash recirculation)	0.0 l/min (0.0 US gal/min)	0.0 l/min (0.0 US gal/min)

Weights

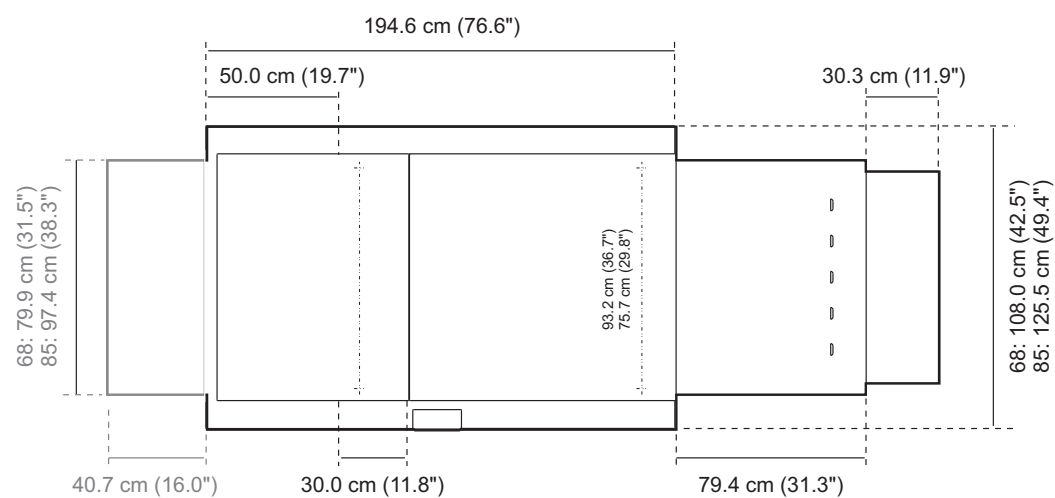
	68	85
Weight, empty	265 kg (584 lb)	307 kg (677 lb)
Weight, shipping	370 kg (816 lb)	430 kg (948 lb)
Weight, with liquids	approx. 300 kg (650 lb)	approx. 350 kg (750 lb)

Dimensions

Side view



Top view



T31561

Electrical specifications

Power supply



The requirements below are specifications for preparing the installation protection. It is important to prepare the fuses/circuit breakers with adequate capacity as specified here.



Specifications on the processor's name plate is the actual input current and will thus not be identical to below mentioned.

	68	85
EUR-models	3W + N + PE, ~400V / 3x12 Amps, 50-60 Hz	3W + N + PE, ~400V / 3x12 Amps, 50-60 Hz
US-models	Single phase, 2W + PE, 230V / 2x23 Amps, 50-60 Hz 3 phases, 3W + PE, 230V / 3x17 Amps, 50-60 Hz	Single phase, 2W + PE, 230V / 2x23 Amps, 50-60 Hz 3 phases, 3W + PE, 230V / 3x17 Amps, 50-60 Hz
JAP-models	Single phase, 2W + PE, 200V / 2x20 Amps, 50-60 Hz 3 phases, 3W + PE, 200V / 3x15 Amps, 50-60 Hz	Single phase, 2W + PE, 200V / 2x20 Amps, 50-60 Hz 3 phases, 3W + PE, 200V / 3x15 Amps, 50-60 Hz

Voltage tolerances

	68	85
Voltage tolerances	$\pm 10 \%$	

Power consumption

	68	85
EUR/US-models max.	5400 Watts	5400 Watts
JAP-models max.	4100 Watts	4100 Watts

Part 2: Functional description

General

(See illustration below)

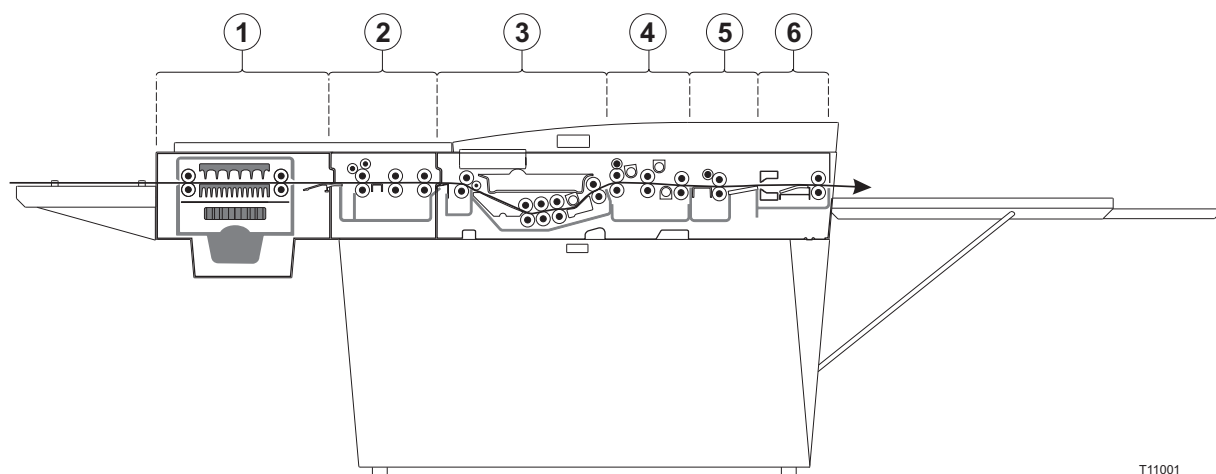
The basis processor contains six major sections:

1	Pre-heat	Hardening of the emulsion of the exposed plate by circulation of hot air.
2	Pre-wash	Washing and brushing off the PVA-coating from the plate.
3	Developer	Developing of the plate and removing of the remaining unexposed/exposed emulsion.
4	Wash	Washing off the developer chemicals from the developed plate.
5	Gum	Application of a thin layer of gum onto the developed and washed plate to protect it from oxidation, dirt, fingerprints etc.
6	Dryer	Drying of the plate to ensure immediate handling of the plate. The processor sections are described in detail on the following pages.

The control panel functions are described in the MPT Control Panel manual.

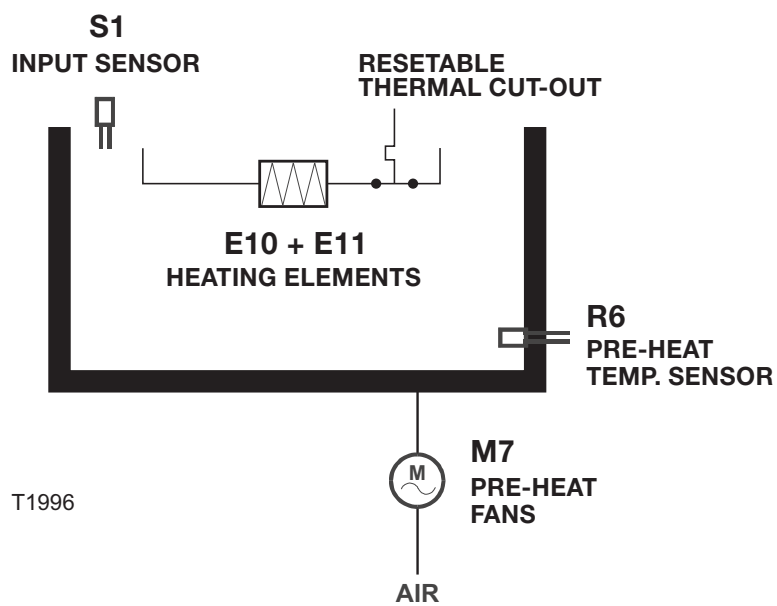
Control panel

Processor functions, settings and alarms are controlled from the control panel placed on the right side of the processor. The processor sections are described in detail on the following pages.



T11001

PRE-HEAT



Pre-heat

The plate enters the processor in the pre-heat section.

The input sensors in the section start the processor.

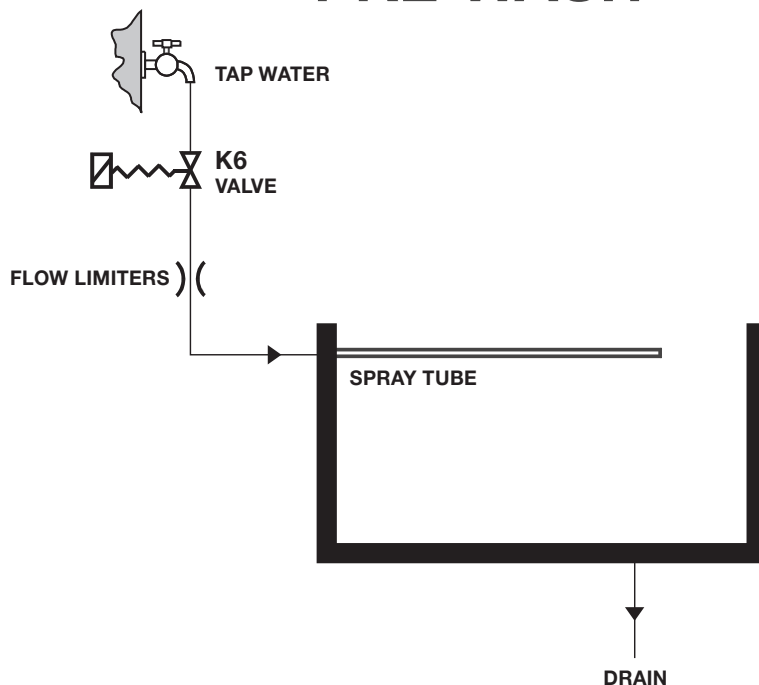
In the pre-heat section the emulsion of the exposed plate is hardened by means of circulated hot air.

The built-in fan ensures a uniform temperature in the oven.

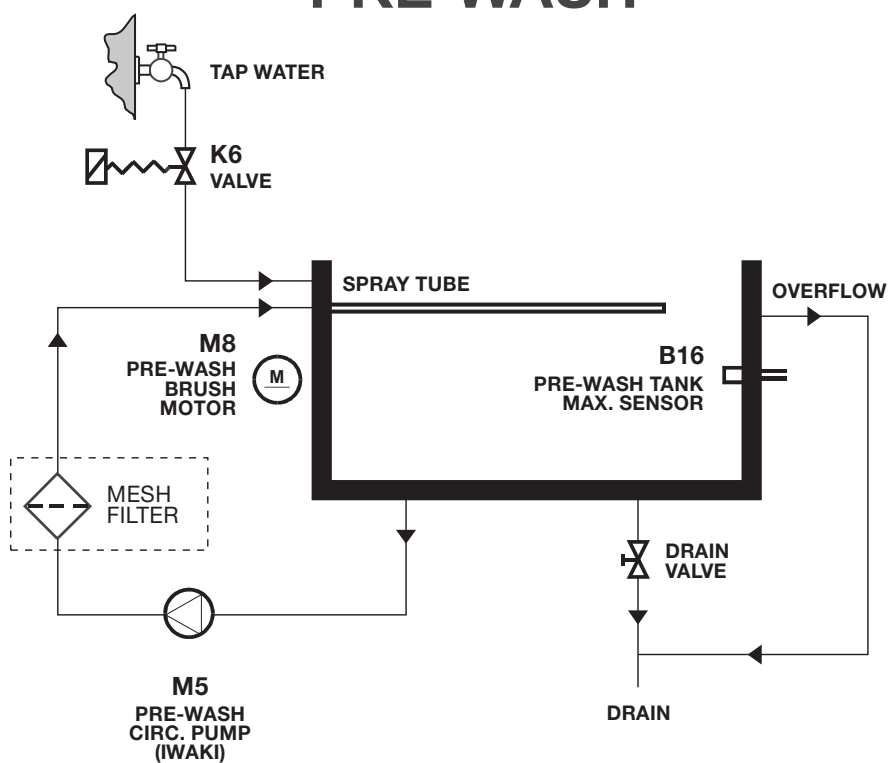


See the "MPT Service Information" manual if the pre-heat section is used for plate transport only.

TAP WATER PRE-WASH



CIRCULATION WATER PRE-WASH



T1997

Pre-wash

In the pre-wash section the PVA-coating is washed and brushed off the plate.

Circulation

When the plates pass through the section a circulation pump pumps the water onto both sides of the plate through 3 spray tubes, 2 above and 1 underneath the plate. A filter in the circulation system keeps the solution clean.

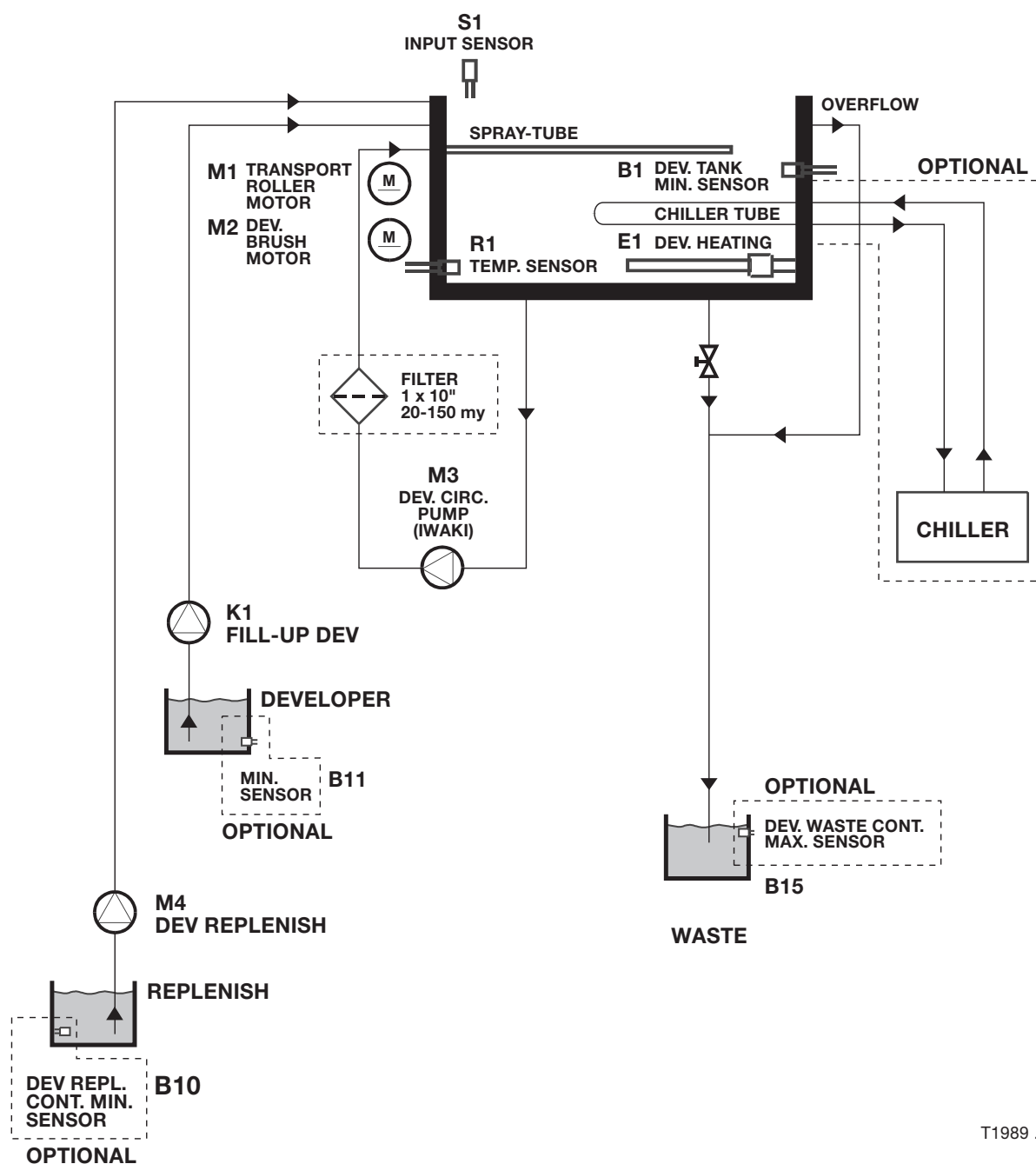
Level control

The pre-wash bath is equipped with a max. level detector circuit.

Replenishment system

The replenishment system automatically adds fresh water to the pre-wash section to compensate for water expended during processing. The processor measures the plate size to determine the correct amount of replenisher for each plate.

DEVELOPER



T1989 ...

Developer section

(See illustration opposite).

In the developer section the plate is developed.

Circulation

A circulation pump recirculates the developer in the section.

Level control/temperature

The developer bath is equipped with a min. level detector circuit, and to keep the temperature in range, a heater, a thermostat and for some models an external chiller unit. The chiller unit is a closed system in which water is cooled and circulated through the developer bath.

Replenishment/anti-oxidation system

The replenishment system automatically adds fresh developer to the developer section to compensate for chemicals expended during processing and for lost activity caused by plate development.

The processor measures the plate size to determine the correct amount of replenisher for each plate.



Plate sizes must be entered in the "PLATE SIZES" menu in order to obtain exact calculation of replenishment.

Top-up replenishment

The top-up function can be set up to add fresh developer from the fill container to the developer section based on m^2 (ft^2) of plates processed. Also the developer top-up function automatically adds fresh developer to the developer section when low level is detected.

Time replenishment

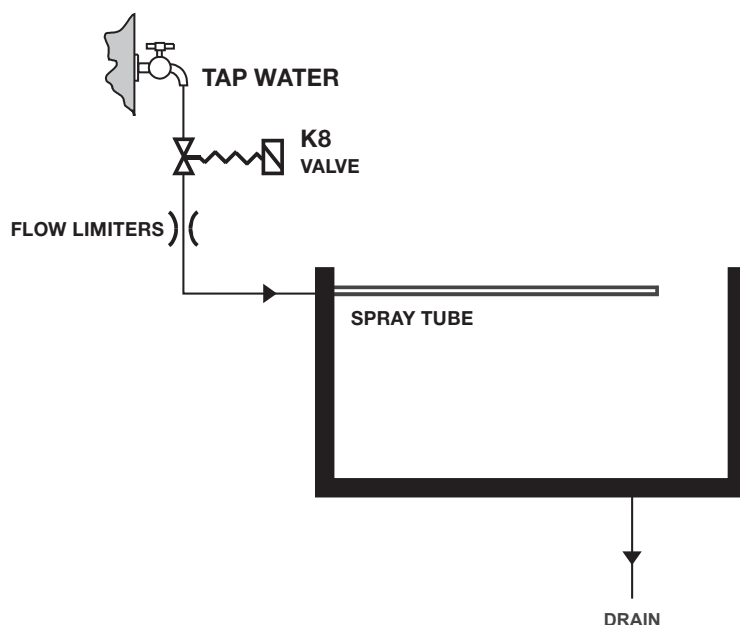
The time replenishment system adds fresh developer or replenish concentrate to the developer section to compensate for lost activity caused by oxidation and evaporation. The replenish amounts can be set individually for stand-by mode and off mode.

Off replenishment

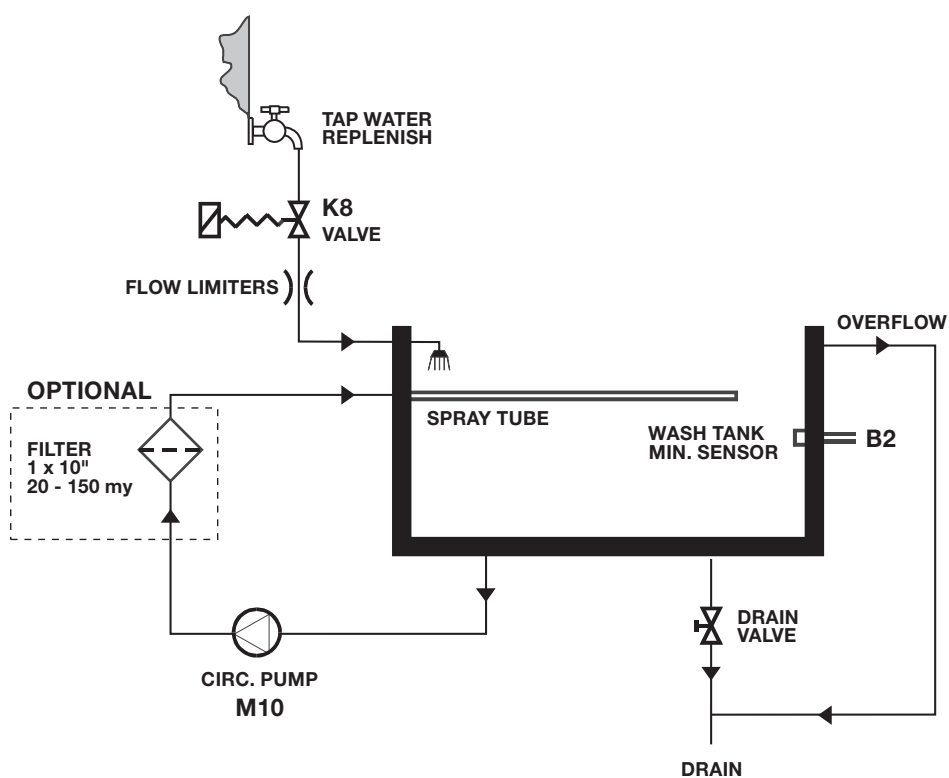
The replenishment system also features an "off replenishment" function which adds an amount of developer into the developer bath when the processor is turned on after being off for a long period.

The replenishment/anti-oxidation developer is added to the section by means of a pump.

TAP WATER WASH



CIRCULATION WATER WASH



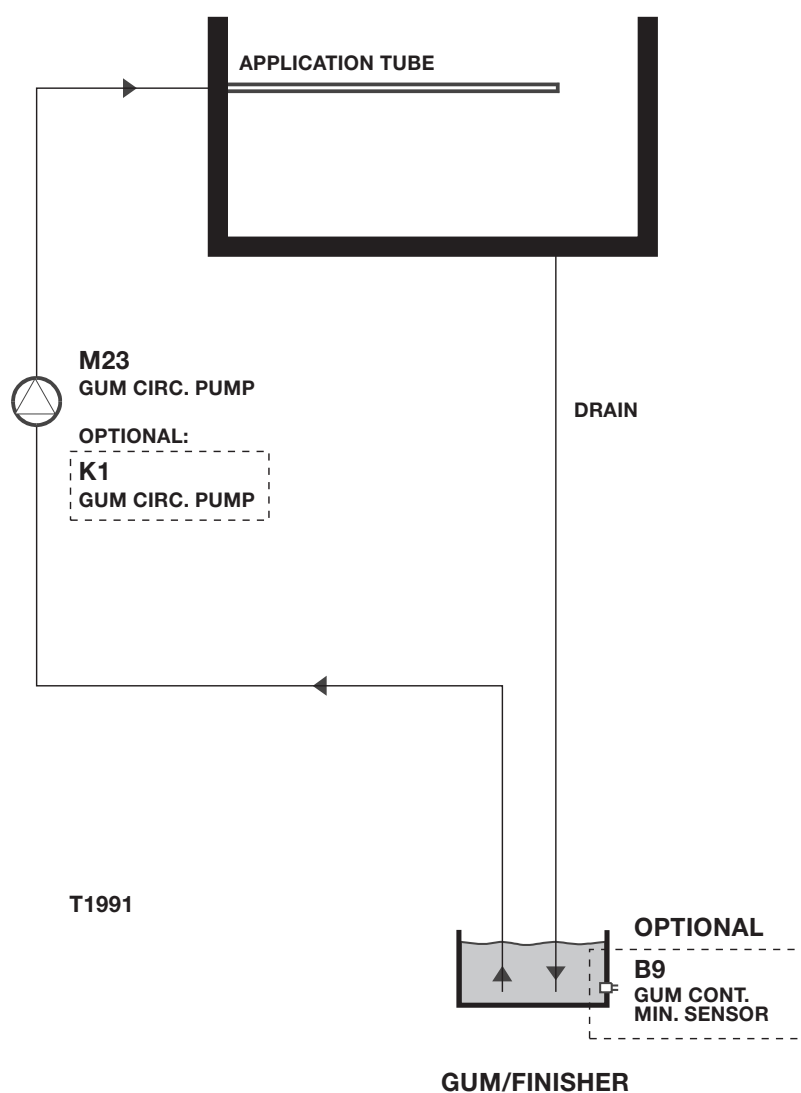
T1990

Wash section

In the wash section the developer solution is washed off the developed plate.

The water is applied to the plate through a spray-tube above the plate.

GUM



Gum

(See illustration opposite).

In the GUM section a thin layer of gum is applied to the developed and washed plate to protect it from oxydation, dirt, fingerprints etc.

Later, when the plate is fixed in the printing machine, the layer will be rinsed off.

If the plate has been corrected or if it has to be used again on a later occasion you should rewash and regum the plate (optional feature).

(See how in the Processor User Manual).

Circulation

The gum solution is pumped from the gum container into a distributing tube and onto the plate. The gum section, pump and container are connected in a closed system, so the gum runs back from the section into the container and keeps recycling.

Gum-clean

The processor features an automatic gum-clean program which automatically cleans the gum section rollers at start-up and shut-down.

(when parameter "GUM CLEAN" in the configuration menu is set to "ON").

It is possible to select processing program and change program settings during the cleaning process.

By start-up

The gum clean cyclus starts when the stand-by key is pressed (display shows "STARTING GUM").

The gum pump will apply gum for a specified period without the rollers turning. After this period the rollers turn shortly backwards followed by a period turning forwards.

The procedure takes approx. 20 min. and ensures a uniform gum layer on the first plate to be processed.



The gum-clean process does not apply any water to the gum solution. When needed add extra water to the gum manually according to the gum manufacturers recommendations.

By shut-down

The gum clean cyclus starts when the stand-by key is pressed (display shows "STOPPING GUM"). The rollers will turn for a specified period without any gum applied (approx. 10 min.). The gum cyclus however can be stopped any time by pressing "STOP".

The processor automatically switch into off-mode after finishing the cyclus.



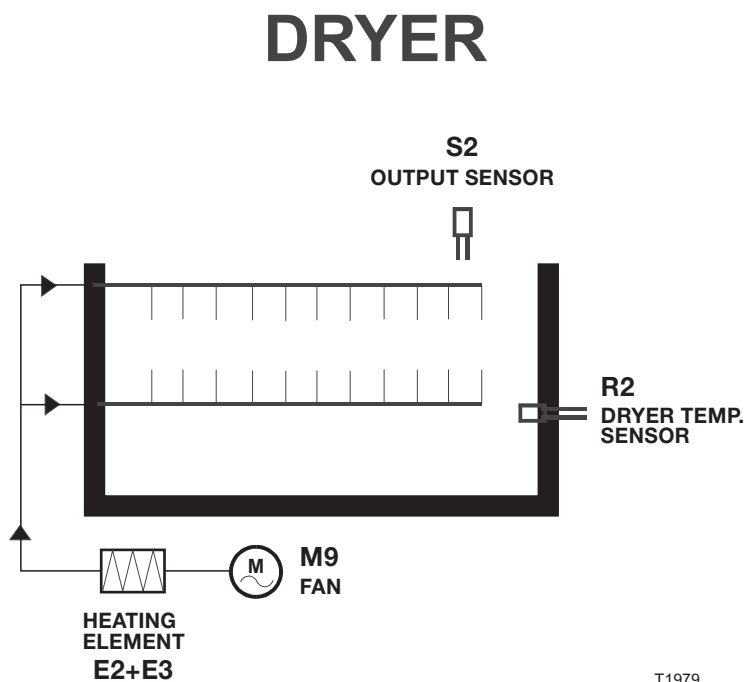
The gum cleaning cyclus can be stopped any time by pressing "STOP".

Dryer section

(See illustration below).

In the dryer section the plate is dried, and so further handling of the plate is possible immediately after it exits the processor.

A fan blows hot air through a pair of air tubes and dries the plate on both sides.



Transport system

(See illustration below).

The plate is transported through the processor by a series of rollers and roller guides. The rollers are driven by a drive motor and a worm gear drive system.

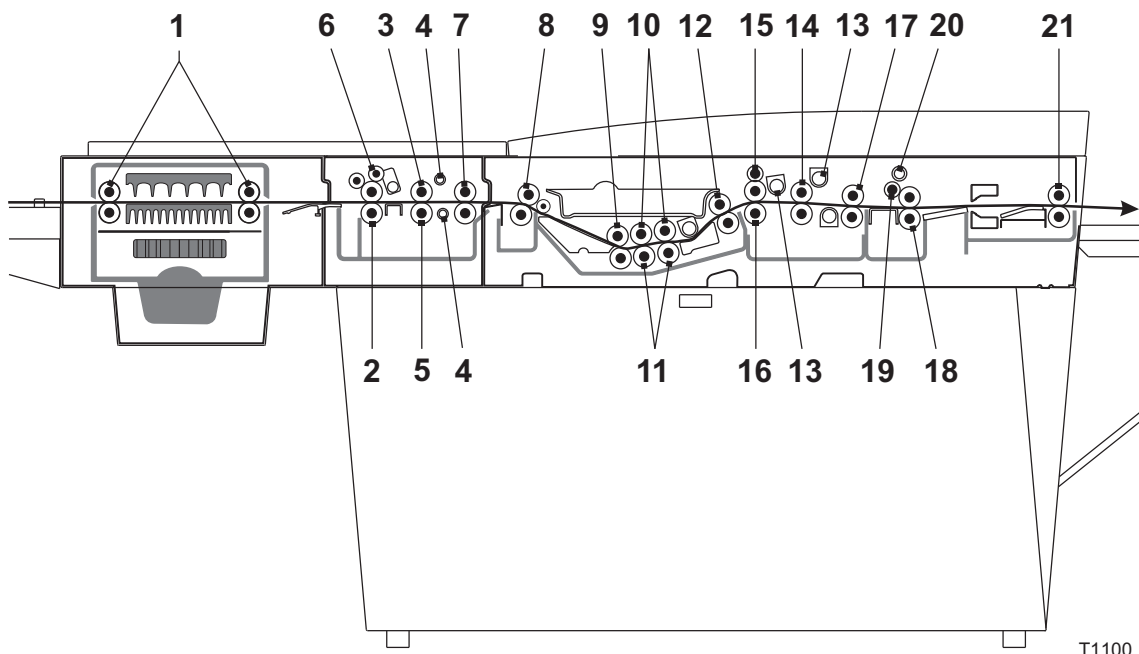
The pre-heat section rollers (1) transport the plate through the pre-heat section.

The first roller pair (2) in the pre-wash section leads the plate underneath the brush (3) (optional) and the spray tubes (4) wash the plate on both sides. The roller (5) makes sure of proper contact between brush and plate. The stop-roller (6) ensures that water does not run back into the pre-heat section. The rollers (7) at the section exit squeeze any residual water off the plate.

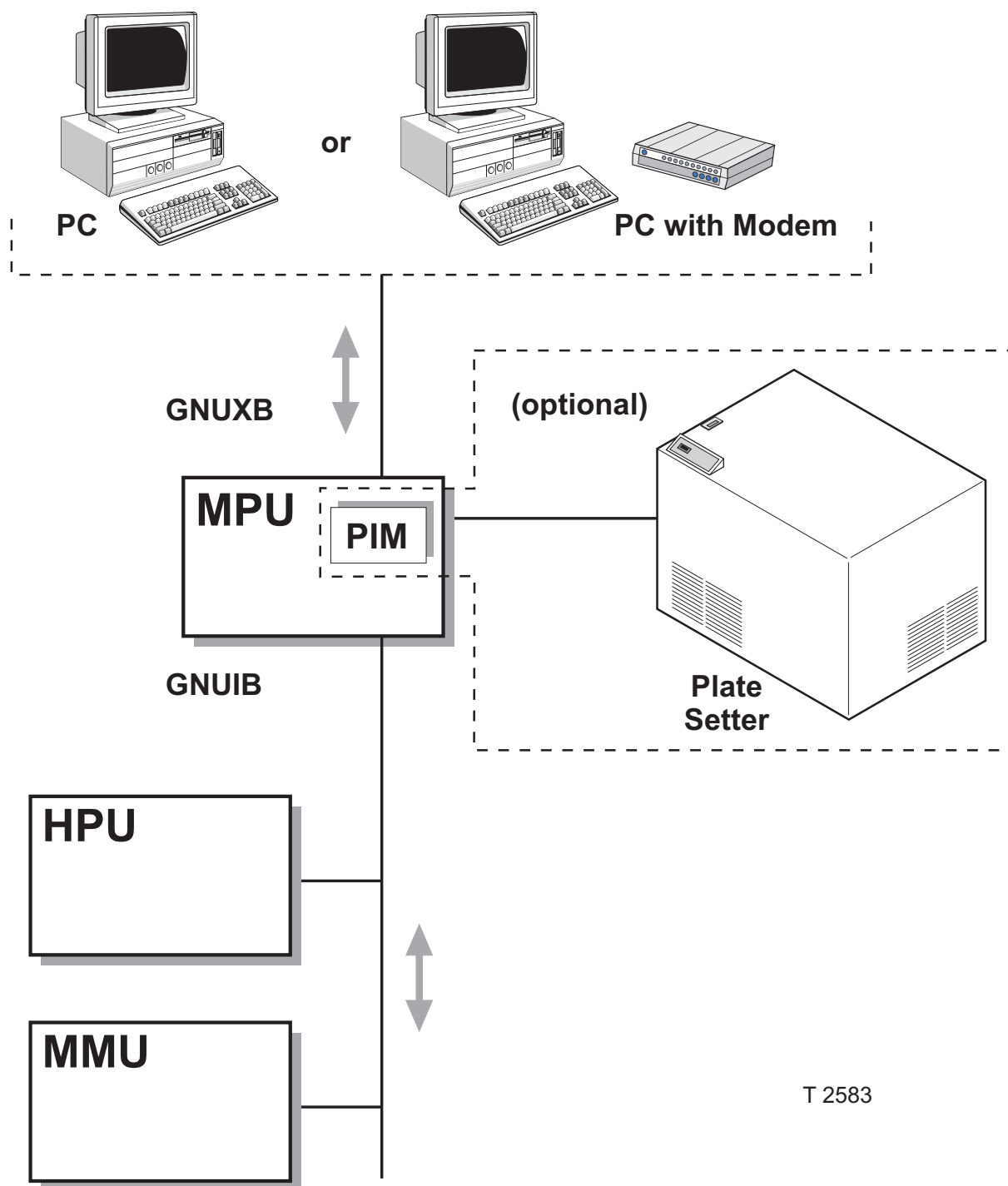
The rubber rollers (8) at the developer section entrance always run dry to ensure a homogeneous development. The rollers (9) ensure that the plate is transported correctly underneath the brushes (10) and the rollers (11) make sure of proper contact between brushes and plate.

The rollers (12) at the developer tank exit squeeze any residual chemicals off the plate. In the wash section the plate is washed on both sides by means of the spray tubes (13) and brushed on the upper side by means of the brush (14) (optional). The stop-roller (15) on top of the entrance rollers (16) prevents that the wash water runs back into the developer section, and water is squeezed off the plate by the section exit rollers (17). The gum section contains one roller pair (18) and a smaller roller (19) situated close to the upper roller. The gum solution from the application tube (20) forms a small bath between these two rollers and a thin layer of finisher is applied to the plate while the extra finisher is forced backwards.

The exit roller pair (21) takes the plate when dry and leads it out of the processor.



Remote surveillance



Electronic control

(See illustration opposite).

The electronics consists of:

Master processor unit (MPU)

The whole electronic system is controlled by the MPU-board.

It has two separate communication lines (buses): **GNUIB** for all internal communication in the processor.

GNUXB for external communication between the processor and a PC or modem.

Option: The MPU-board can be equipped with a PIM (Plate setter Interface Module) for the communication between the processor and a plate setter in case of an online installation.

High power unit (hpu)

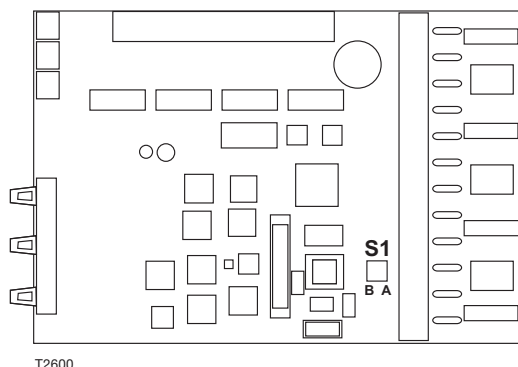
The HPU-board holds all the high voltage in- and outputs for the control of heaters, motors etc.

On the HPU-board is a switch S1 for HPU settings. The setting should be as illustrated below.

Man machine interface unit (MMU)

The MMU-board is the Control Panel board from which the user operates the processor.

If necessary it is possible to add extra MMU-modules.



Switch S1 A : Not used

Switch S1 B : OFF = HPU

ON = Not used

Part 3: Maintenance

General

This chapter holds the special service information such as adjusting procedures, cleaning of pumps etc. For software related service information please refer to the separate "MPT Service Information" manual. For user related maintenance and cleaning procedures refer to the Plate Processor User Manual.

WARNING!

Please note that where this label appears on the processor electrical shock hazard still exists when main switch is turned off.



WARNING!

When performing any service, maintenance, calibration, or trouble shooting etc. it may be necessary to override the function of the processor's interlock switches. In these cases please be aware, that the processor's JOG-function is still active, making the drive system run idle at intervals.

There will be NO advice when the JOG function starts.

Safety checks



The described safety checks should be performed at least once a year.

Electrical

(Refer to the electrical diagrams in the back of this manual).

- **Check proper function of:**
 - Lid switch. Processor must stop when the switch is deactivated. The "COVER OPEN" message must appear in the control panel display.
 - Main switch. Processor must turn off when set to "0".
 - Emergency stop. The processor must turn off when activated.

Mechanical

- **Check proper function/location of:**
 - Side fenders, left/right. Make sure the fenders are properly secured with 2 screws each.
 - Lower side panels, left/right.
 - Top covers, front/rear.
 - Inner covers.
 - Covers, electronics boxes. Make sure covers are secured by screws.

Fuses

Fuses for motors are placed on the motors behind the left fender.

Other fuses for the various functions are located in the electronics cabinet behind the upper right fender. The fuses are placed on the fuse PCB behind the cover.

A fuse label on the inside of the cover for the wiring box shows the position and rate of the fuses.



When changing a fuse, first switch off all power to the machine.

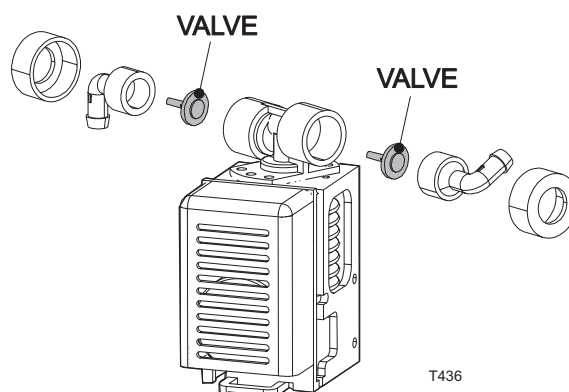
Always ensure that the new fuse is of the correct rating according to the label.

Cleaning

Cleaning of valves in the replenish pumps

If a replenishment pump ceases to function properly, run it with some warm water in order to clear the pump of chemicals.

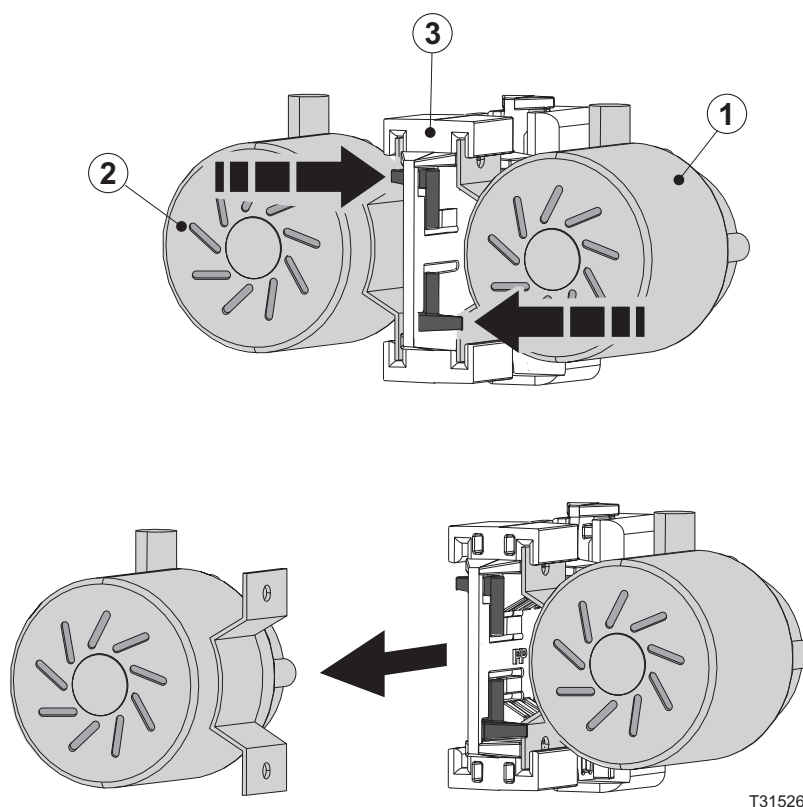
If this does not help, take the pump apart and clean both of the small valves in warm water.



Dismounting small circulation pumps

Dismounting of the rinse (1) and finisher (2) circulation pumps from the pump bracket (3) is made without use of tools. Simply press the snap locks and release the pumps.

Cleaning of the circulation pumps is described on the next page.

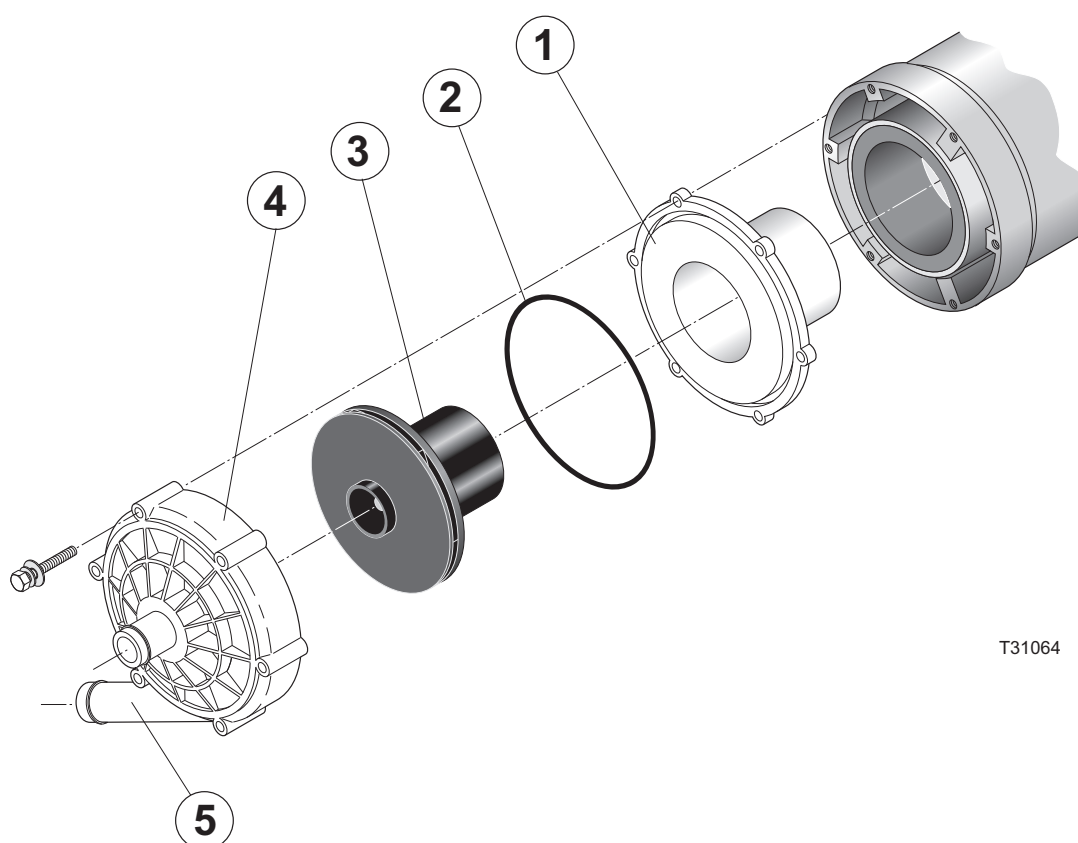


Cleaning of the circulation pumps

(See illustrations opposite)

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

- Cut off the power to the unit by removing the top cover.
- Empty the tank section.
- Dismount the hoses from the pump. Be careful not to spill the chemicals on the floor.
- Note the position of the outlet nozzle (5).
- Dismount the pump.
- Dismount the cover (4) and pull out the impeller (3) and the impeller housing (1).
- Clean the inside of the cover, the impeller and the impeller housing in warm water.
- Reinstall in reverse order, observing that the outlet nozzle (5) of the cover is placed as it was before dismounting it, and that the O-ring (2) is placed correctly in the groove of the impeller housing (1).



T31064

Adjustment of spray tubes

The pressure in the spray tubes can be adjusted to obtain the best possible application of water to the plate. Pressure is adjusted as shown on the illustration below.

The valve is fully open from the factory. Normally no adjustments are necessary.

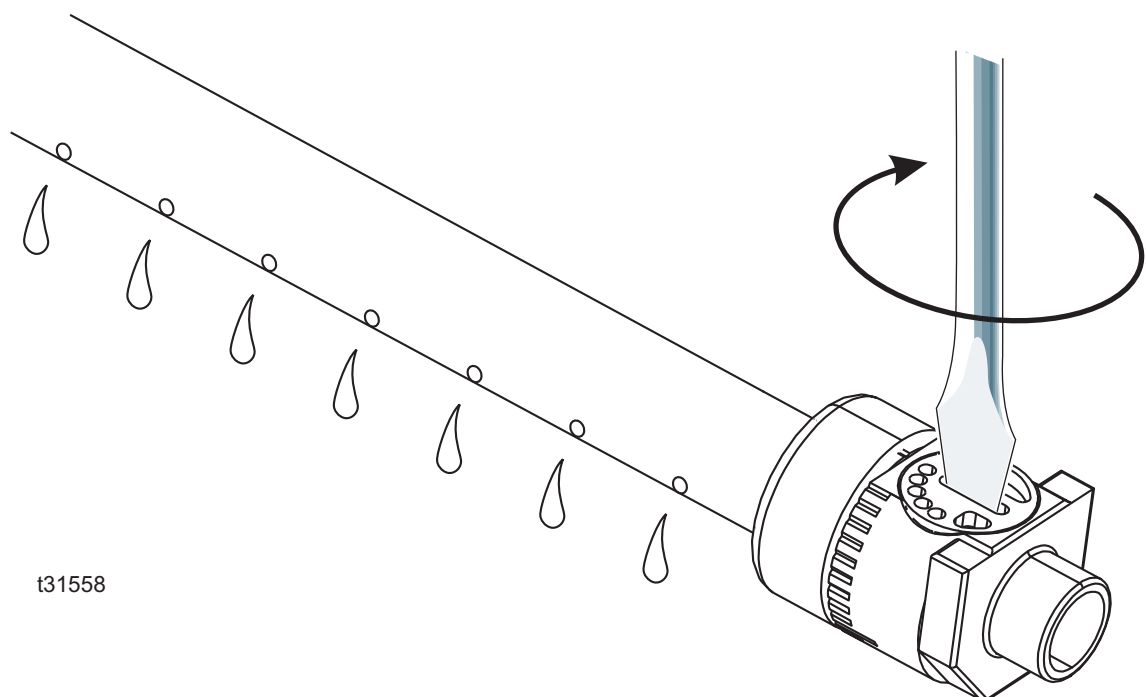
Cleaning of spray tubes

Developer section

Clean the spray tubes in the developer section with hot water to remove potential blocking of the holes.

Wash section

Clean the spray tubes in the wash section with hot water to remove potential blocking of the holes. Occasionally, depending on the local water quality, it may be necessary to use a drill bit to clean the holes and remove sediments mechanically.



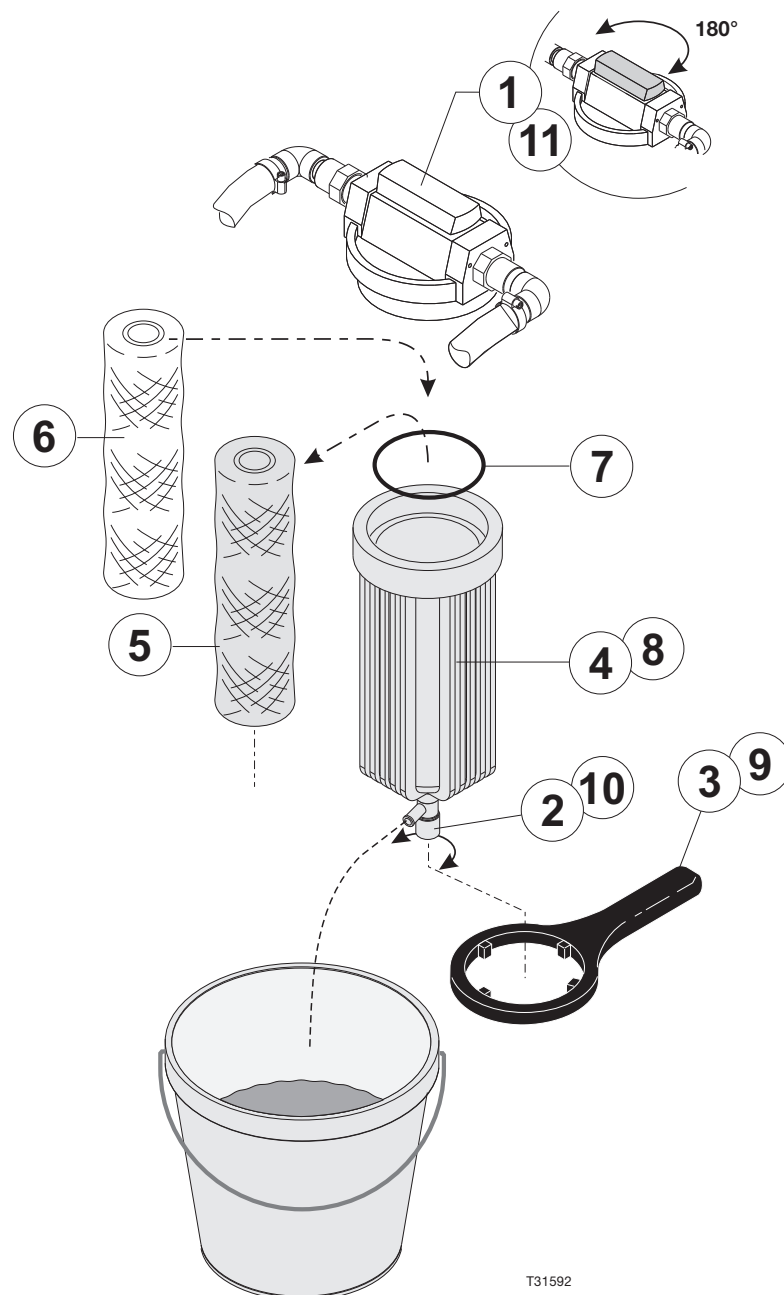
t31558

Changing filters

(Some models only)

Clean the filter(s) regularly as described below:

- Close the valve (1).
- Open the drain valve (2) to empty the filter vessel (3) of chemicals.
- Loosen the filter vessel (3) by means of the filter key (4) and unscrew the vessel.
- Take the filter element (5) out and clean it in water or change it whatever is necessary.
- Install the filter element (5) again.
- Mount filter vessel (3) and make sure the O-ring (6) fits properly into the groove in the filter vessel. Tighten with the filter key (4).
- Open the valve (1).

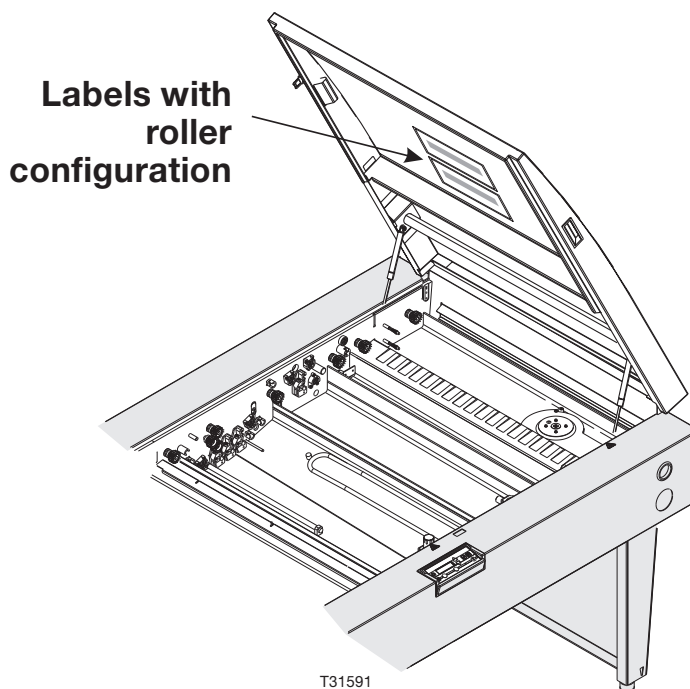


T31592

Rollers and brush rollers

General

Inside the top cover is mounted a label showing the roller configuration. Each brush/roller is marked with a small number (see instruction on the label). Install the rollers by referring to the roller numbers on the label.

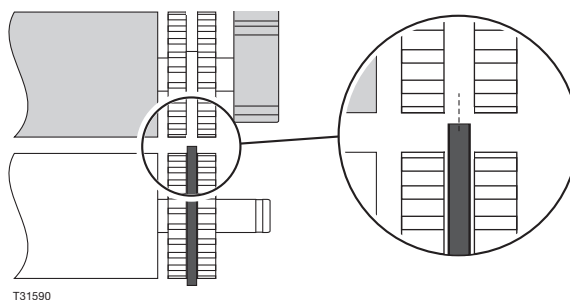


Installation of rollers

See illustration below.



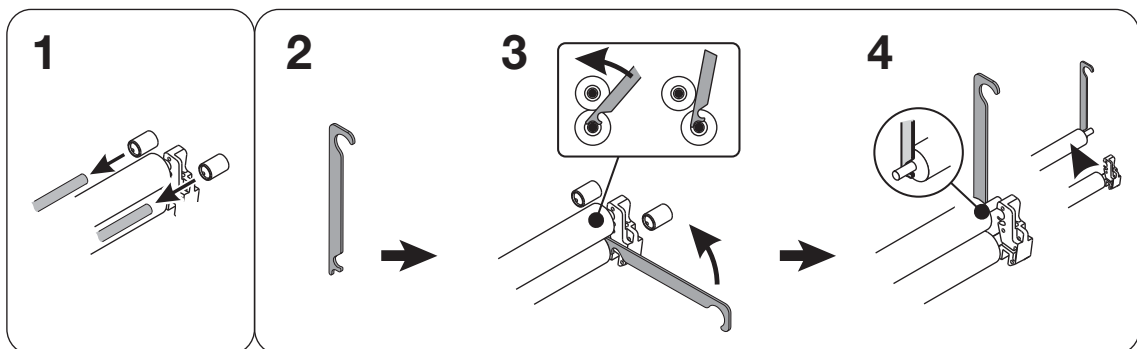
Make sure to align the gears on the upper and lower rollers.
The gear on the lower rollers has a plate/guide that must fit into the gear of the upper rollers.



Removing brush rollers

Follow the instruction below:

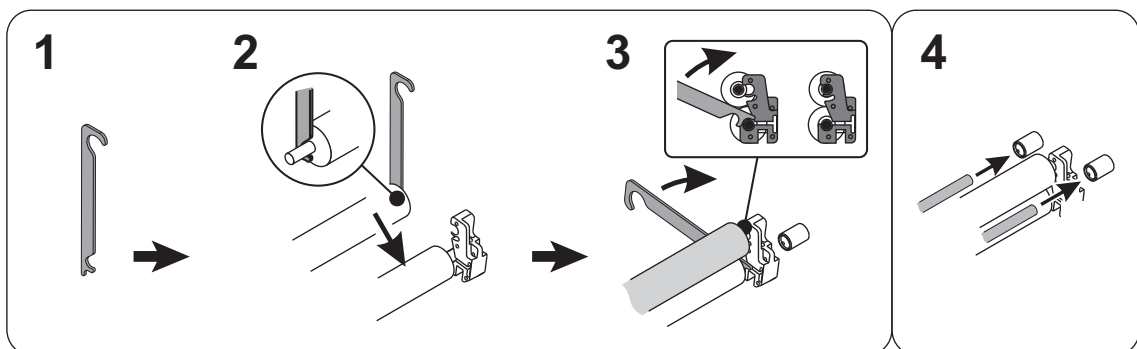
- Stand to the right of the processor.
- Remove the spray tubes from the developer section (1).
- Use the special tool (2) delivered with the processor when removing brush rollers.
- Insert the roller key between the upper brush roller and the lower support roller as shown (3).
- Lift up the roller key and force the upper brush roller out of the bearing.
- Use the roller key to lift up the brush roller end (4) out of the bath/tank.
- Repeat (3) and (4) for the gear end of the brush roller.



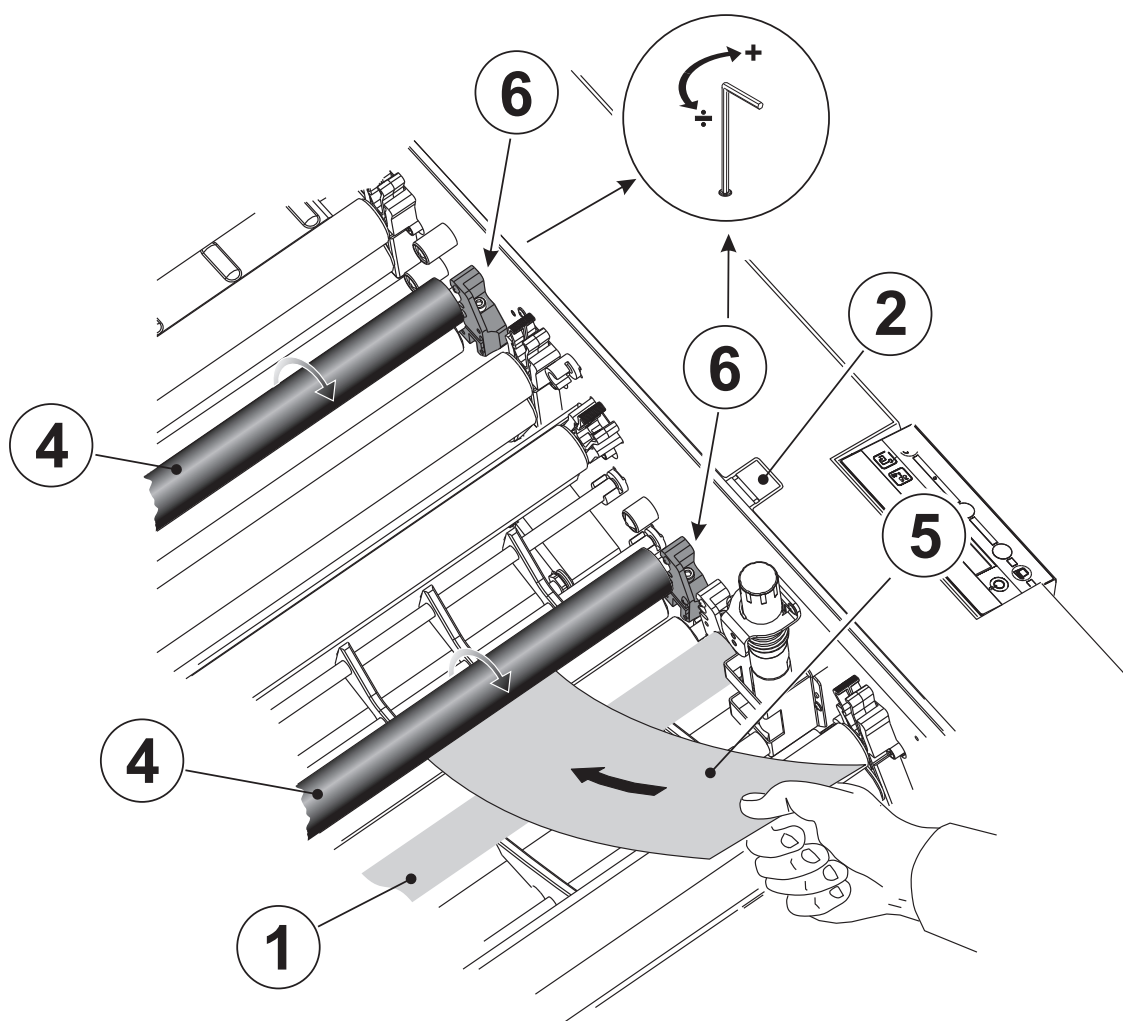
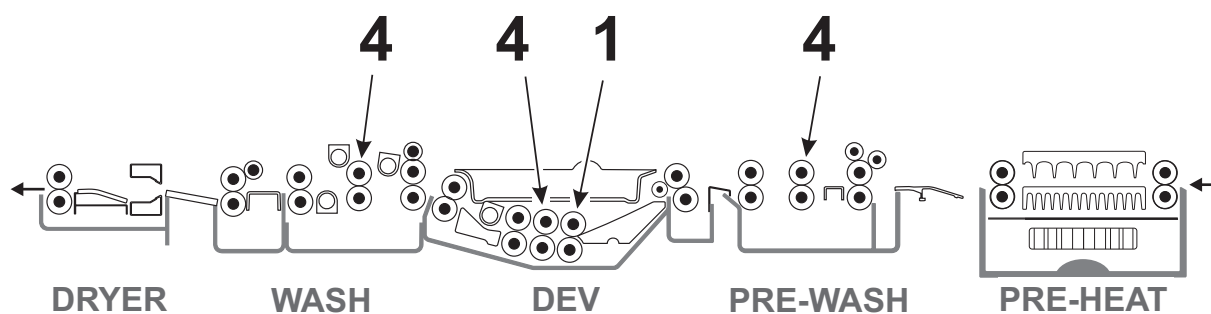
T31578

Installing brush rollers

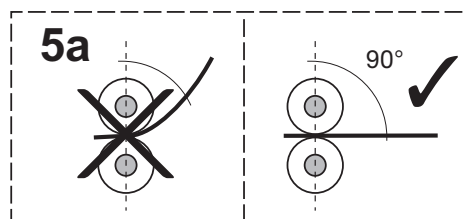
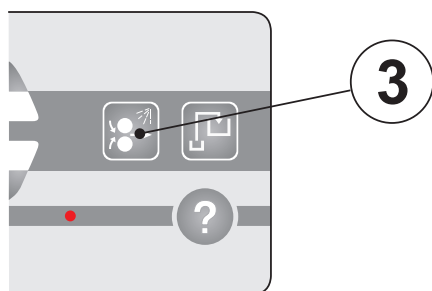
- Inside the top cover is mounted a label showing the position of the rollers (page 3-4).
- Stand on the right side of the processor and hold the brush roller with both hands.
- Place the gear end of the brush roller on the gear of the support roller in the left side of the tank wall.
- Use the roller key (1) to lower the right end of the rollers into the bath/tank (2).
- When mounting upper roller insert the roller key between the upper roller and the lower roller as shown (3).
- Press the upper roller into the bearing by pressing the roller key upwards (3).
- Repeat (2) and (3) for the gear end of the brush roller.
- Mount the spray tubes (4).



T31579



T31559



Adjusting the brushes

General

The following describes a standard adjustment for the brushes.
The brush adjustment can vary from one processor to another as it must apply to the specific plate and chemistry type etc.

(See illustration opposite).

Tools:

- 5 mm allen key with ball end, and
- Test plate 100x200x0.3 mm (developed).

Processor conditions

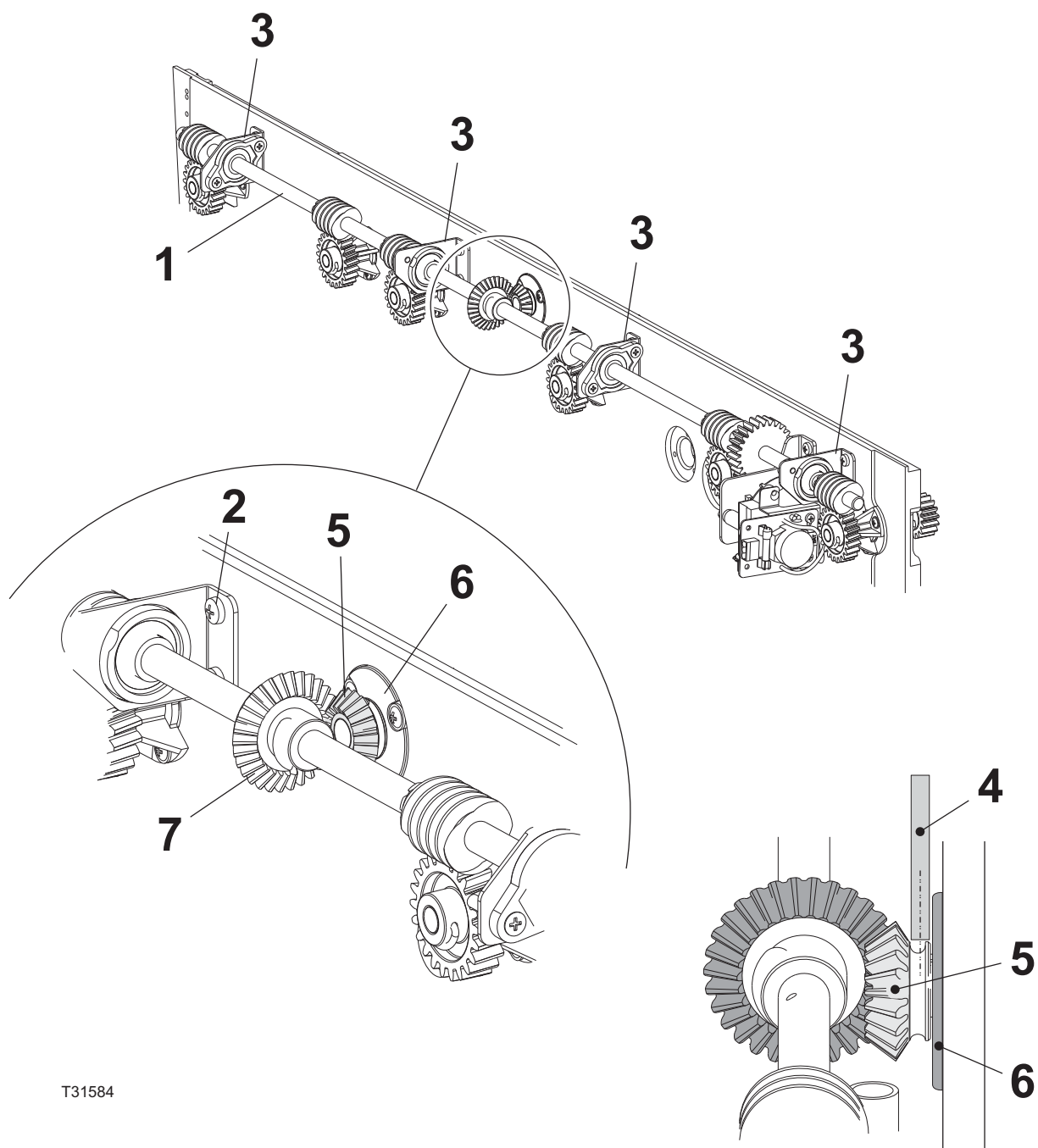
The processor must be started up and ready to process.
Set developer brush speed according to recommendations from the plate manufacturer.

Preparations

- Open the processor top cover.
- Remove the upper roller **(1)** in the developer section before adjusting.
- Activate the interlock switch **(2)**.
- Press the manual start key **(3)**.

Adjusting

- While the brush **(4)** runs use the test plate **(5)** to test the brush pressure in both sides and in the middle. Make sure that the test plate **(5)** is entered at right angles **(5a)** to the rollers.
- Adjust the brush pressure on the screws **(6)** (clockwise = tighten) until you feel a slight grip ("kiss'n touch").
Make sure that you obtain a uniform grip in both sides and in the middle.
- From this point turn the screws **(6)** 1/4 turn clockwise in each side. 1/4 turn is a common pressure which will work in most occasions. Please refer to plate manufacturers specifications.



T31584

Adjustment of gears for wash brush

Important!



When the main drive shaft has been dismantled/remounted due to change of parts, service checks, etc. it is very important to make a final adjustment according to the description below.

Procedure of adjustment

See illustration opposite.

- Mount the main drive shaft (1) on the tank wall and tighten the 2 screws (2) on each of the 4 brackets (3) holding the shaft.
- Loosen the screws (2) on each bracket (3) 1/4 turn.
- Place a 0.5 mm feeler gauge (4) between the gear (5) and the bearing (6).
Alternatively use pieces of offset plate equal to 0.4 mm - 0.6 mm (e.g. 2 x 0.3 mm offset plate).
- Turn the gear (7) manually to adjust the space gap between the gear (5) and the bearing (6) to fit the feeler gauge (4).
- Tighten the screws (2) on the brackets (3) for the main drive shaft.
- Remove the feeler gauge (4).
- Finally make sure that the adjustment has left a small gap between the gears (5) and (7).

Part 4: Trouble shooting

General

If the processor does not work properly, refer to the following pages to find the paragraph that comes closest to your problem.

The trouble shooting guide is divided into 2 sections:

A. Problems with the processor

B. Problems with processed material

For information about alarm messages see the "MPT Control Panel" manual.

For cleaning and maintenance subjects see the processor user manual.

Use the "TEST FUNCTIONS" parameters on the control panel to test individual components. See the "MPT Service Information" manual.

The electrical diagrams are located in Appendix B.



To change a fuse, switch off all power to the machine first.

Always ensure that the new fuse is of the correct rating according to the diagram.

WARNING!

When performing any service, maintenance, calibration, or trouble shooting etc. it may be necessary to override the function of the processor's interlock switches.

In these cases please be aware, that the processor's JOG-function may still be active, making the drive system run idle at intervals. There will be no "bip advise" or display message when the processor is in stand-by mode or process mode!

Before starting trouble shooting

Important!

Plates and chemicals are very sensitive materials and correct storage is vital to obtain a satisfactory production result. Incorrect storage may very well result in unsatisfactory processing quality etc.

Contact your local supplier for information about storage requirements for plates and chemicals.



Before making adjustments of the equipment make sure that incorrect storage of plates and chemicals can be excluded.

Problems with the processor

SYMPTOM	PROBABLE CAUSE	REMEDY
<i>NO FUNCTION ACTIVE</i>	<ul style="list-style-type: none"> • Mains switch turned off or power cable not connected to main power outlet. • Fuse(s) blown. 	<ul style="list-style-type: none"> • Connect cable to main power outlet and/or turn main switch on. • Replace fuse.
<i>PROCESSOR CANNOT INITIALIZE</i>	<ul style="list-style-type: none"> • Configuration error. (If main power has been cut off temporarily the processor switches to off mode - green led flashes). • Defective PCB. • Cables not properly connected. 	<ul style="list-style-type: none"> • Reload software. • Replace PCB. • Check cables and make proper connections.
<i>MACHINE WILL NOT START UP</i>	<ul style="list-style-type: none"> • MMU-PCB defective. 	<ul style="list-style-type: none"> • Replace defective part.
<i>MACHINE DOES NOT START WHEN A PLATE IS INSERTED</i>	<ul style="list-style-type: none"> • Input sensor(s) defective. 	<ul style="list-style-type: none"> • Replace defective sensor.
<i>NO WASH WATER ALTHOUGH MACHINE IS IN "PROCESS" MODE</i>	<ul style="list-style-type: none"> • Water tap closed. • Water solenoid valve defective. • Water solenoid valve filter clogged. • Processor with filter: Filter valve closed. • Processor with level sensor: Level sensor in wash dirty or defective. • Electronics defective. 	<ul style="list-style-type: none"> • Open water tap. • Replace valve. • Clean filter. • Open valve. • Check sensors and clean/-replace whatever is necessary. • Replace defective electronics.

SYMPTOM	PROBABLE CAUSE	REMEDY
DRYER BLOWER WORK, HEATER DOES NOT	<ul style="list-style-type: none"> • Fuse(s) blown. • Temperature sensor defective. • Heating element defective. • Electronics defective. 	<ul style="list-style-type: none"> • Replace fuse. • Replace temperature sensor. • Replace heating element. • Replace defective electronics.
DRYER BLOWER DOES NOT WORK	<ul style="list-style-type: none"> • Fuse(s) blown. • Blower defective. • Electronics defective. 	<ul style="list-style-type: none"> • Replace fuse. • Replace blower. • Replace defective electronics.
NO GUM ALTHOUGH MACHINE IS IN "PROCESS" MODE	<ul style="list-style-type: none"> • Gum container empty. • Gum hose blocked. • Pump valves blocked or defective. • Pump defective. • Fuse(s) blown. • Electronics defective. 	<ul style="list-style-type: none"> • Refill container. • Clean hose. • Clean or replace valve. • Replace pump. • Replace fuse. • Replace defective electronics.
GUM PUMP RUNS BUT NO FINISHER (NO ALARMS)	<ul style="list-style-type: none"> • Gum hose blocked. • Pump valves blocked or defective. 	<ul style="list-style-type: none"> • Clean hose. • Clean or replace valve.
DEVELOPER REPLENISHMENT PUMP DOES NOT WORK	<ul style="list-style-type: none"> • Fuse(s) blown. • Pump defective. • Electronics defective. 	<ul style="list-style-type: none"> • Replace fuse. • Replace pump. • Replace defective electronics.
DEVELOPER REPLENISHMENT PUMP RUNS BUT NO REPLENISHMENT	<ul style="list-style-type: none"> • Replenishment hose blocked. • Pump valves blocked or defective. • Replenish container empty. 	<ul style="list-style-type: none"> • Clean hose. • Clean or replace valves. • Refill container.
REPLENISHMENT SYSTEM DOES NOT WORK ALTHOUGH THE MACHINE IS IN "PROCESS" MODE	<ul style="list-style-type: none"> • Replenishment parameters settings not correct. • Electronics defective. 	<ul style="list-style-type: none"> • Make correct settings. • Replace defective electronics.
NO DEVELOPER CIRCULATION	<ul style="list-style-type: none"> • Replenish container empty. • Fuse(s) blown. • Processors with filter: Filter clogged. • Processors with filter: Filter valve closed. • Developer circulation pump defective. 	<ul style="list-style-type: none"> • Fill replenish container. • Replace fuse. • Replace filter insert. • Open valve. • Replace pump.

SYMPTOM	PROBABLE CAUSE	REMEDY
<i>NO WATER CIRCULATION</i>	<ul style="list-style-type: none"> • Pump defective or clogged. • Water filter clogged. • Water spray bar clogged. • Fuse blown. • Level sensor in wash dirty or defective. 	<ul style="list-style-type: none"> • Clean and/or repair pump. • Replace filters. • Clean spray bar. See Part 3. • Replace fuse. • Check sensor and clean/-replace whatever is necessary.
<i>ROLLER DRIVE MOTOR RUNS, BUT NO PLATE TRANSPORT</i>	<ul style="list-style-type: none"> • Drive gears and/or worms defective. 	<ul style="list-style-type: none"> • Check all gears and worms gears on rollers, and make sure they move freely. Replace any defective part.

Problems with processed material

SYMPTOM	PROBABLE CAUSE	REMEDY
<i>PLATE IS NOT COMPLETELY DRY</i>	<ul style="list-style-type: none"> • Dryer temperature is set too low. • Gum section applying too much gum. • Dryer section is malfunctioning. 	<ul style="list-style-type: none"> • Set dryer temperature a little higher. • Check gum section. • Check dryer section.
<i>PLATE HAS STRIPES LENGTH-WISE OR CROSSWISE</i>	<ul style="list-style-type: none"> • Defective or dirty rollers or guides. • Wash spray tubes clogged. 	<ul style="list-style-type: none"> • Take rollers and/or guides out, inspect and wash them. Rollers with dents or other marks must be changed. • Clean the spray tubes. See Part 3.
<i>WASHING NOT SUFFICIENT</i>	<ul style="list-style-type: none"> • Spray tube clogged. • Brush not turning. • Brush pressure not sufficient. • Water circulation pump does not run. • Rollers dirty in wash section. 	<ul style="list-style-type: none"> • See earlier in this chapter. Clean spray tube. • Check the brush and fix the problem. • Adjust brush pressure. • See "Cleaning of the pumps" in Part 4. • Clean rollers.
<i>PLATE HAS AN UNEVEN GUM</i>	<ul style="list-style-type: none"> • Gum container nearly empty. • Gum rollers dirty. • Gum distributing roller not in place. • Gum pump clogged. 	<ul style="list-style-type: none"> • Refill container. • Take rollers out and clean them. • Correct the placement of the roller. • Take pump apart and clean valves.

Part 5: Spare parts

General

Spare parts kit

A small kit consisting of the most needed spare parts is delivered with the processor. For further need of spare parts please refer to the spare part lists in this chapter with iso-metric drawings, descriptions and part numbers.

Ordering spare parts

When ordering spare parts:

Please state carefully the spare part number, the specification and the number of items wanted.

Special spare parts

Some of the spare parts (covers, panels etc.) are available in different colors. In these cases please refer to Appendix A "ADDITIONAL SPARE PARTS" for the correct numbers for your specific processor.

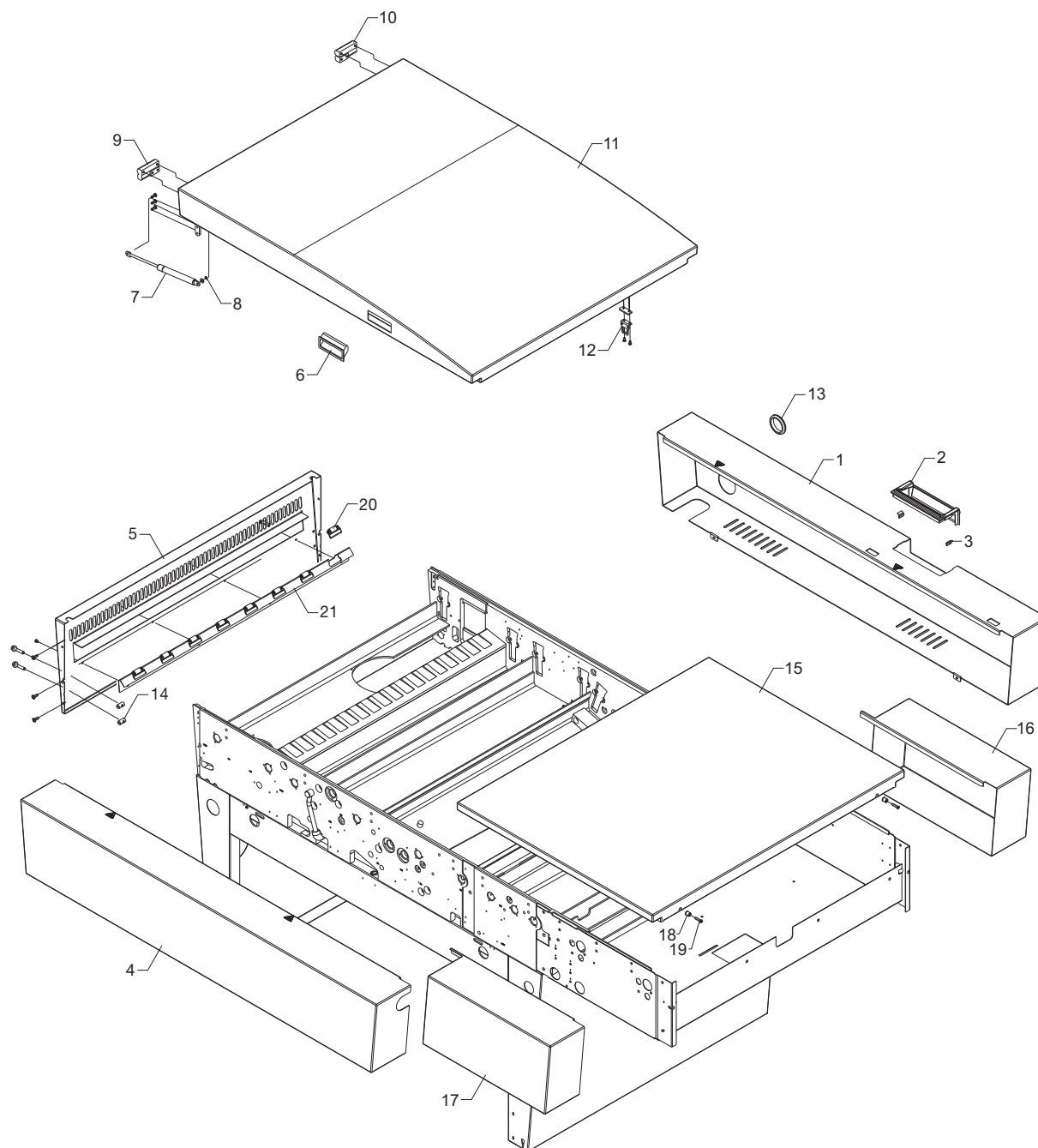
Pcb's and software

Important!

All spare part PCB's with software prompts will be delivered *without software installed*. The Service Technician must download software from a CD.

See "Electrical" in this chapter for Software CD spare part number.

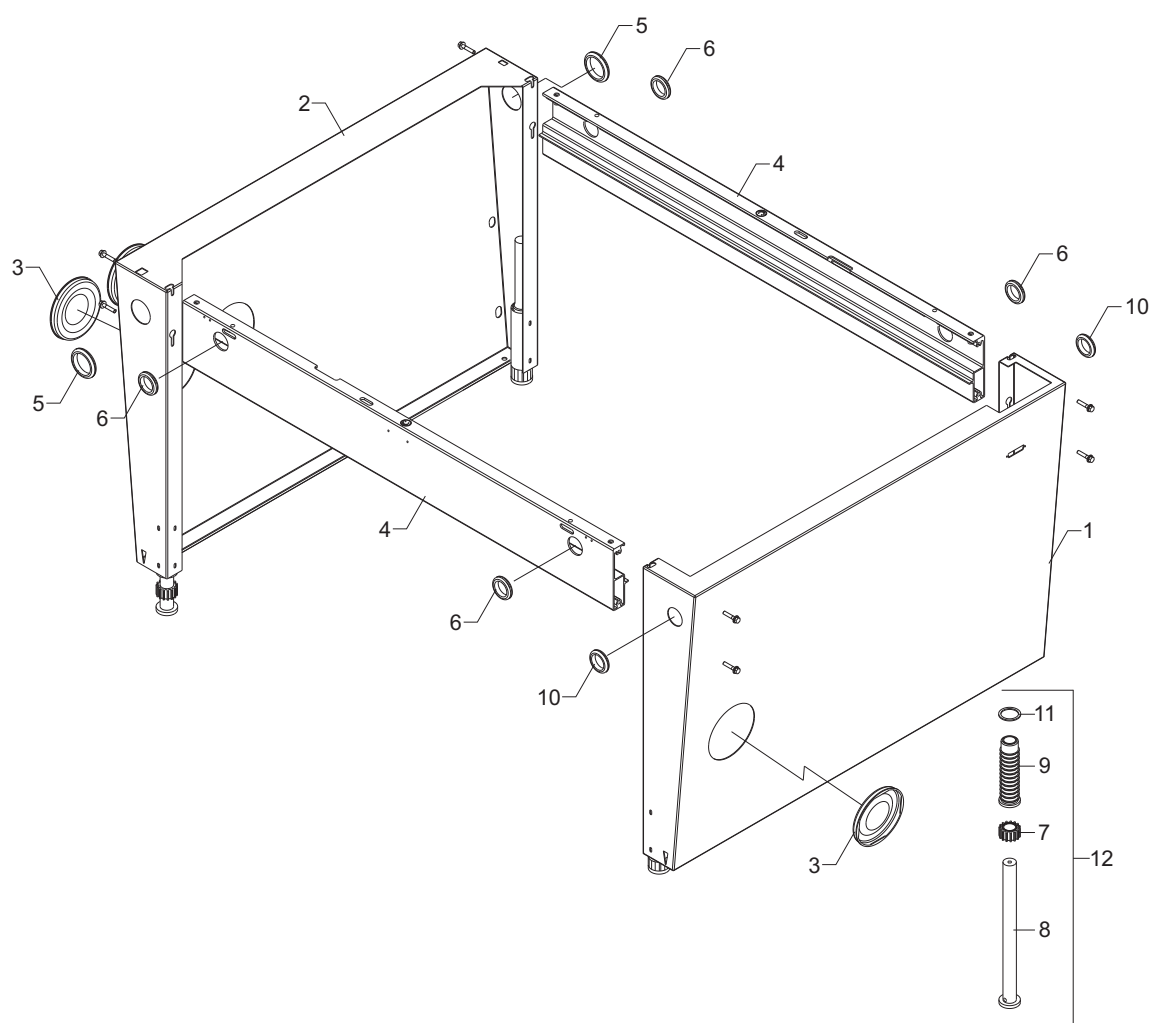
Instructions for downloading and upgrading software are stored on the software CD.

**PANELS**

T8492

Panels

Pos. No	68	85	Specification
1			SEE APPENDIX A
2	22859	22859	PANEL, SHADOW
3	35369	35369	CLIPS, PANEL, Z3239.5010
4			SEE APPENDIX A
5			SEE APPENDIX A
6	35362	35362	HANDLE, SOUTHCO TP. P2-44
7	10008119		SPRING, GAS, 200N, 265,5/100, 7321PI,DAMPED
		10008120	SPRING, GAS, 250N, 265.5/100, 2698TP,DAMPED
8	25823	25823	CIRCLIP D4X0.7 RA-4-411-ME DIN 6799
9	45927	45927	HINGE, SOUTHCO, 96-50-520-50
10	45926	45926	HINGE, SOUTHCO, 96-50-510-50
11			SEE APPENDIX A
12	45891	45891	ACTUATOR, SAFETY, SWITCH, AZ17/170-B5
13	45865	45865	BUSHING, 258-68, D45/50X1.6
14	15262	15262	NUT M6/D10X18
15			SEE APPENDIX A
16			SEE APPENDIX A
17			SEE APPENDIX A
18	10007756	10007756	STUD, LID, PREHEAT/WASH
19	15328	15328	SCR M4X20 CR C FL4
20	87571	87571	ROLLER, W/HOLDER
21	10012806	10011480	GUIDE, EXIT, ROLLER
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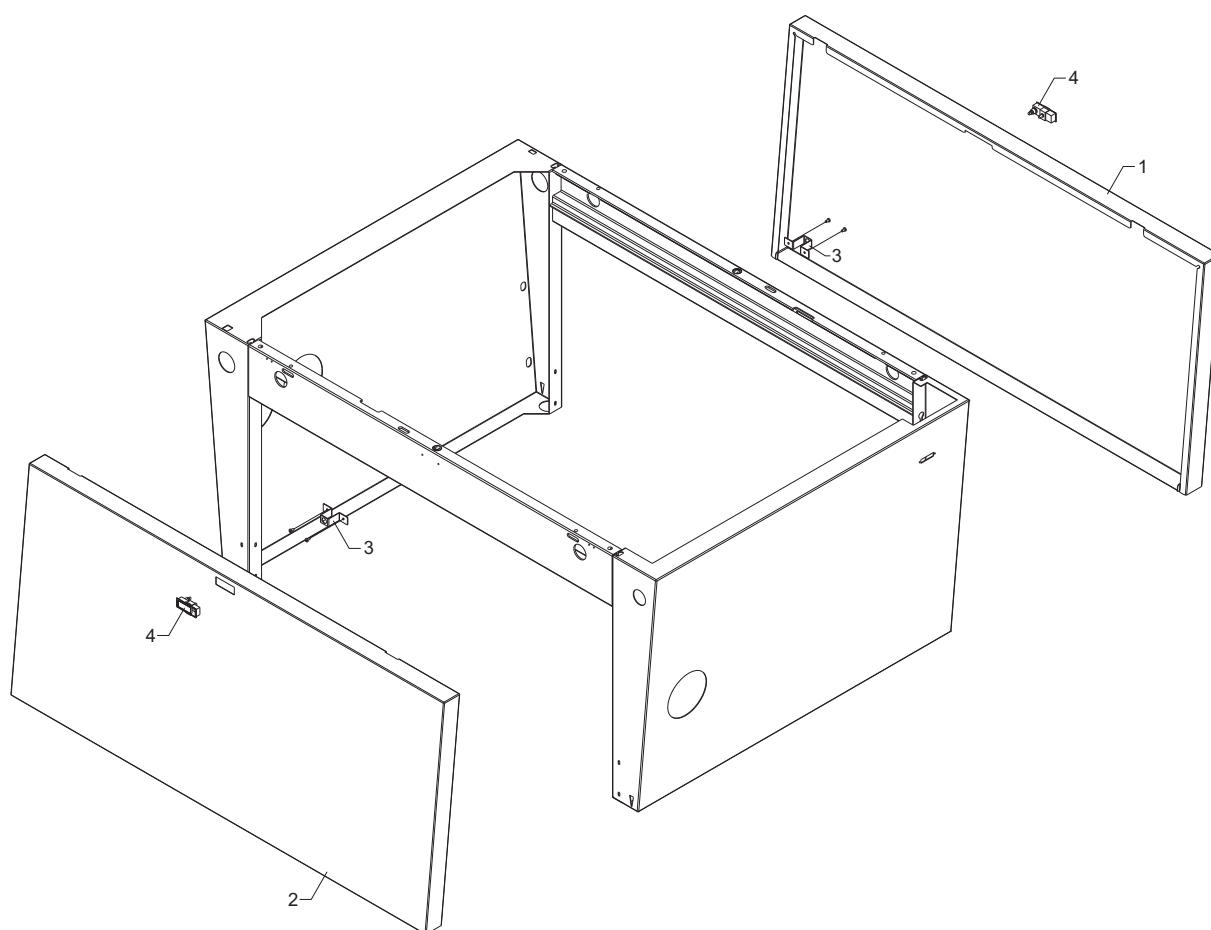


STAND

T8493

Stand

Pos. No	68	85	Specification
1			SEE APPENDIX A
2			SEE APPENDIX A
3	1388	1388	STOPPER D120X10
4			SEE APPENDIX A
5	45865	45865	BUSHING, 258-68, D45/50X1.6
6	45864	45864	BUSHING, 258-67, D32/38X3
7	35360	35360	NUT, LEG, ADJ.TRAPEZOID 36-KM 1
8	35359	35359	LEG, TRAPEZOID, D40, METAL
9	35358	35358	BUSHING, TRAPEZOID, D40X2
10	0063966	0063966	BUSHING 258-66
11	10009615	10009615	GASKET, D41/33/2
12	57173	57173	LEG, TRAPEZOID
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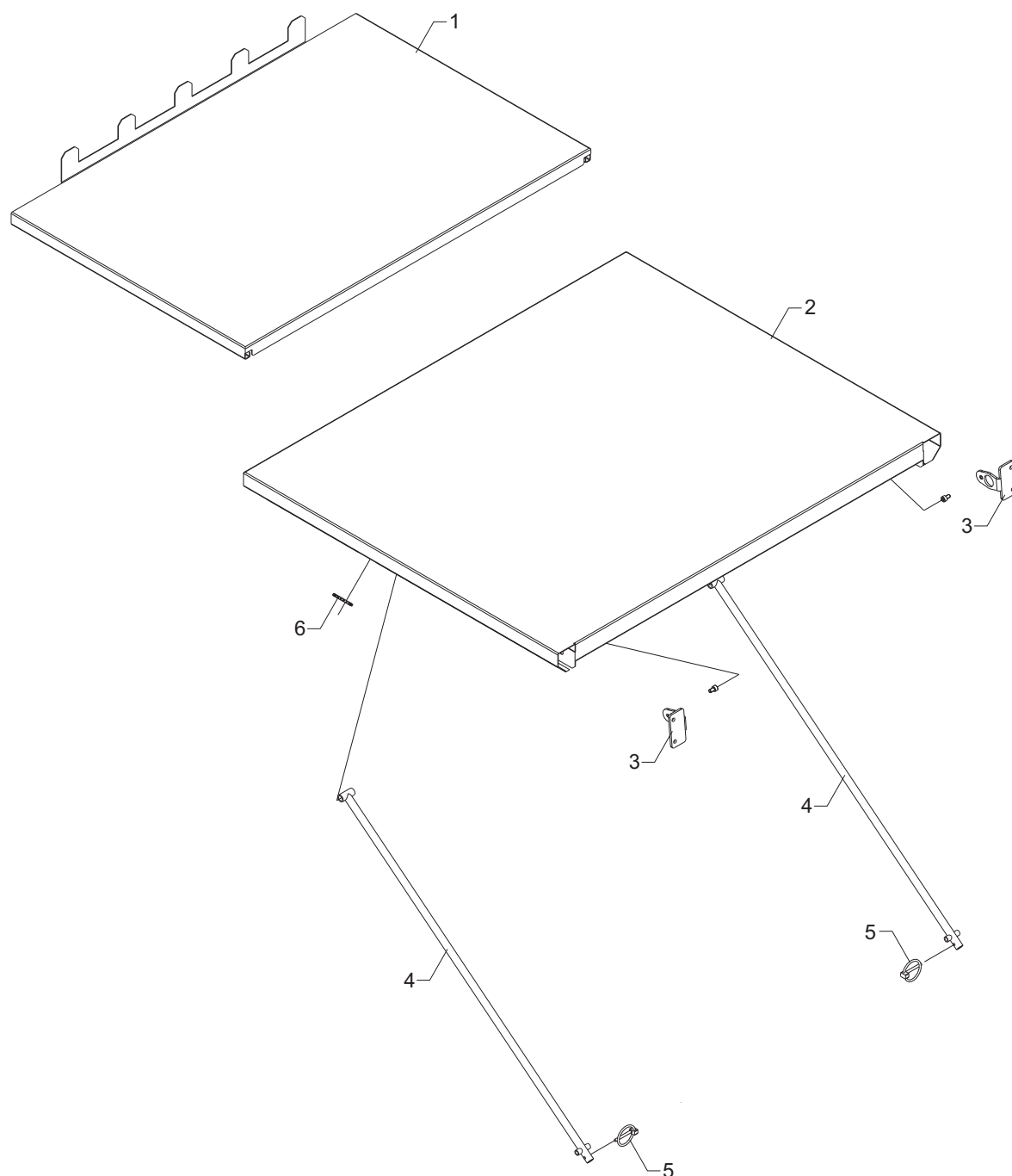


STAND CLOSED

T8494

Stand, closed

Pos. No	68	85	Specification
1			SEE APPENDIX A
2			SEE APPENDIX A
3	50946	50946	BRACKET, LATCH
4	35279	35279	LATCH, SWELL FOR PANEL, SIDE, STAND
5			
6			
7			
8			
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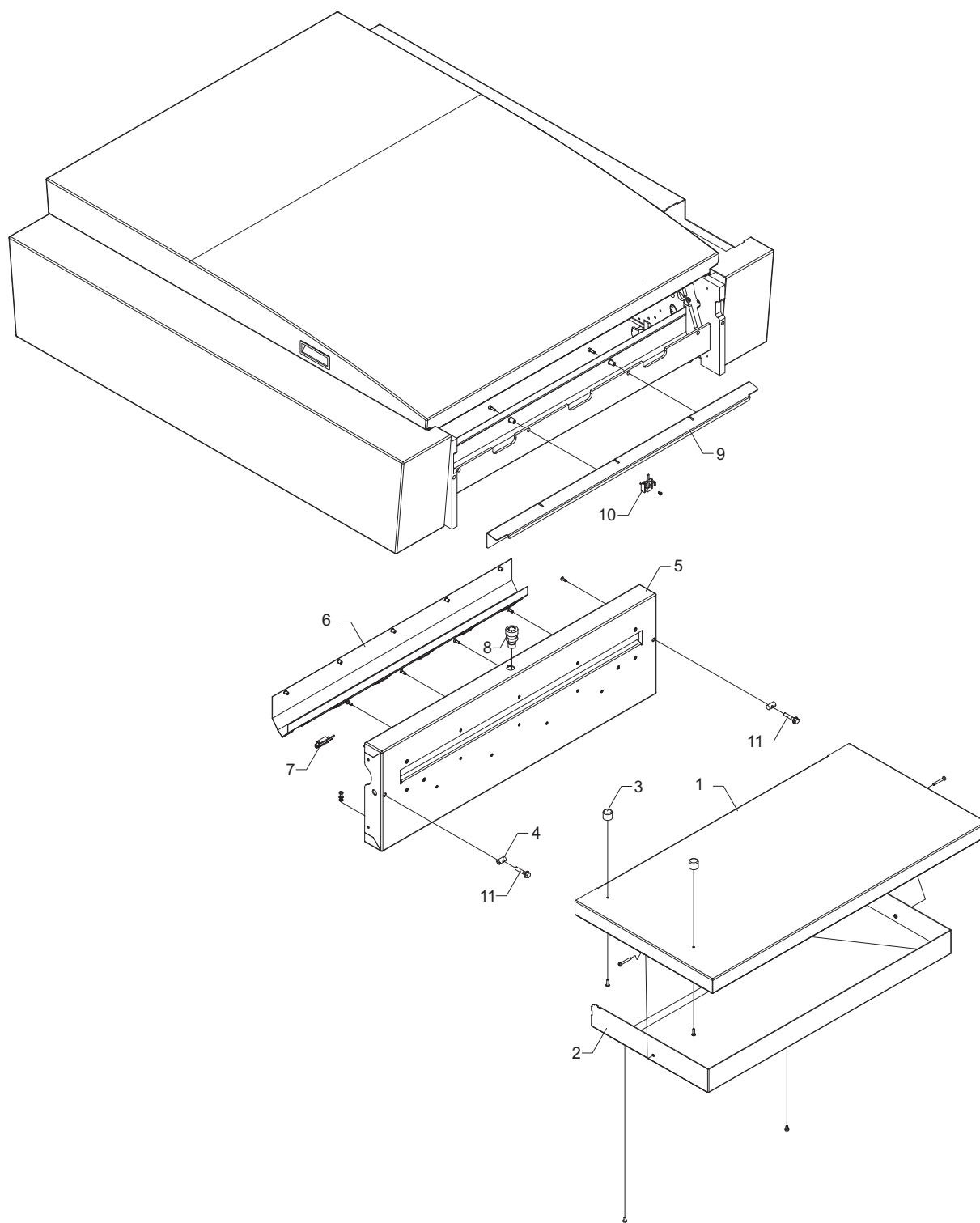


T8478

EXIT TABLE

Exit, table

Pos. No	68	85	Specification
1			SEE APPENDIX A
2			SEE APPENDIX A
3			SEE APPENDIX A
4			SEE APPENDIX A
5	45804	45804	LINCH PIN D41X4.5, PLATED YELLOW
6	74616	74616	EDGE, PROFILE, TABLE, EXIT
7			
8			
9			
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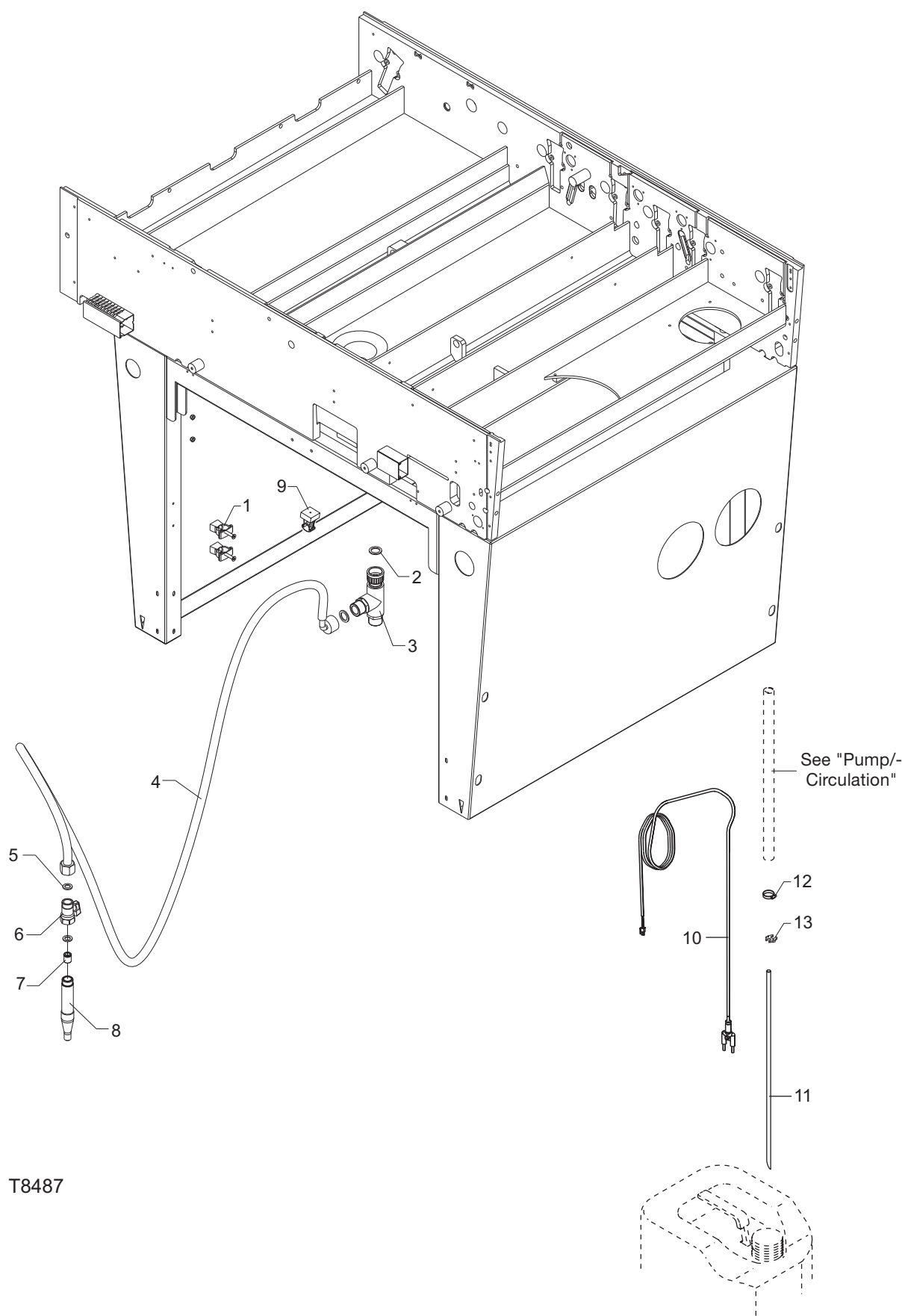


T8479

FEED TABLE

Feed table

Pos. No	68	85	Specification	
1			SEE APPENDIX A	
2			SEE APPENDIX A	
3	54381	54381	PIN, GUIDE, TABLE, FEED	
4	15262	15262	NUT M6/D10X18	
5			SEE APPENDIX A	
6	85271	98116	GUIDE, ENT, UP	
7	87571	87571	ROLLER, W/HOLDER	
8	98026	98026	STOP, EMERGENCY	
9	85242	98048	BRACKET, SENSOR, INPUT	
10	16787	16787	SWITCH, ASSY 10-59220-010	
11	15263	15263	SCR M6X30 HE ELZ	ONLY PRE-WASH
	10001424	10001424	SCREW, M6X16, HE, HFC8007	IF PRE-HEAT
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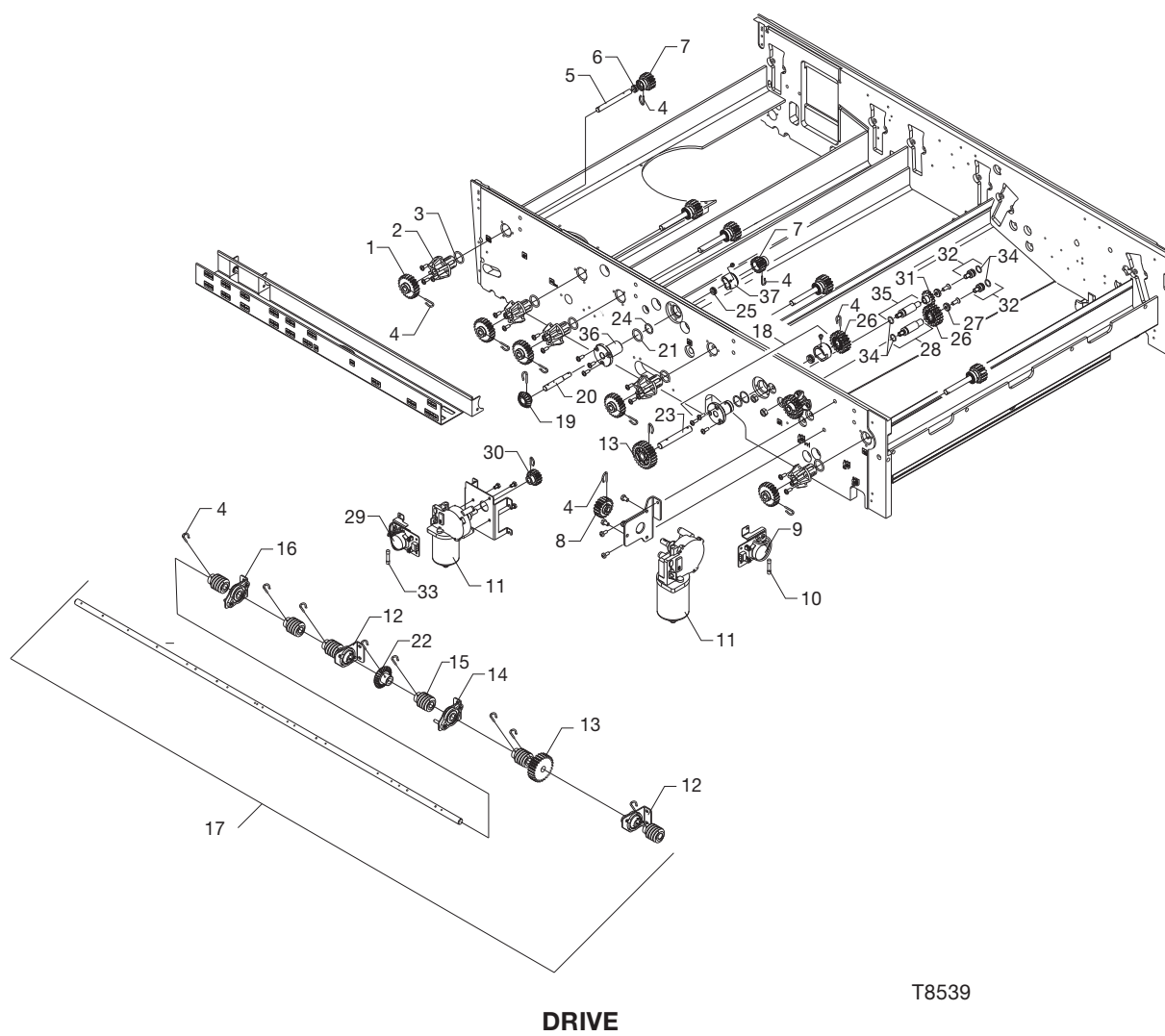


T8487

HANDSHOWER AND CONTAINER LEVEL SENSORS

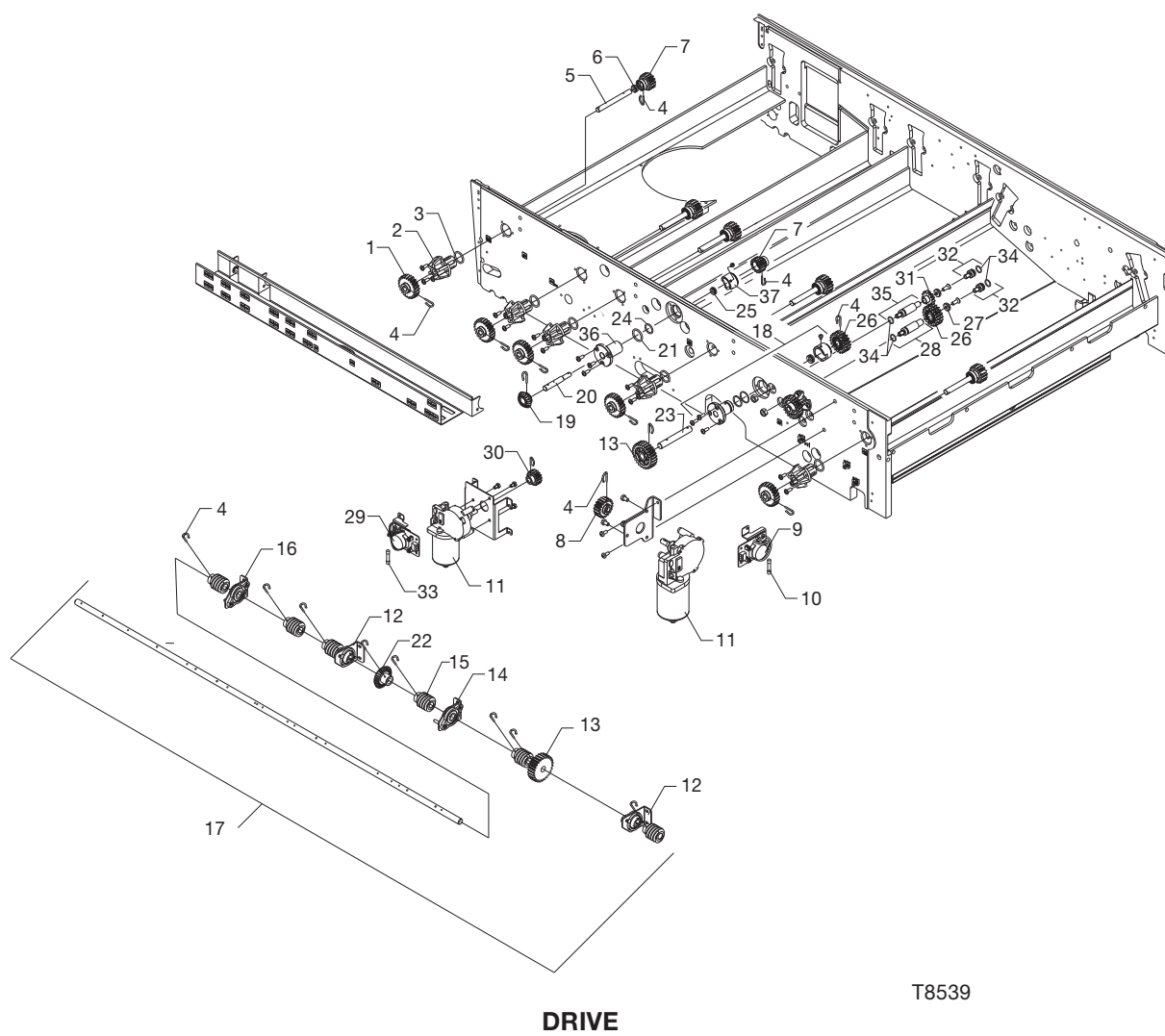
Handshower and level sensors

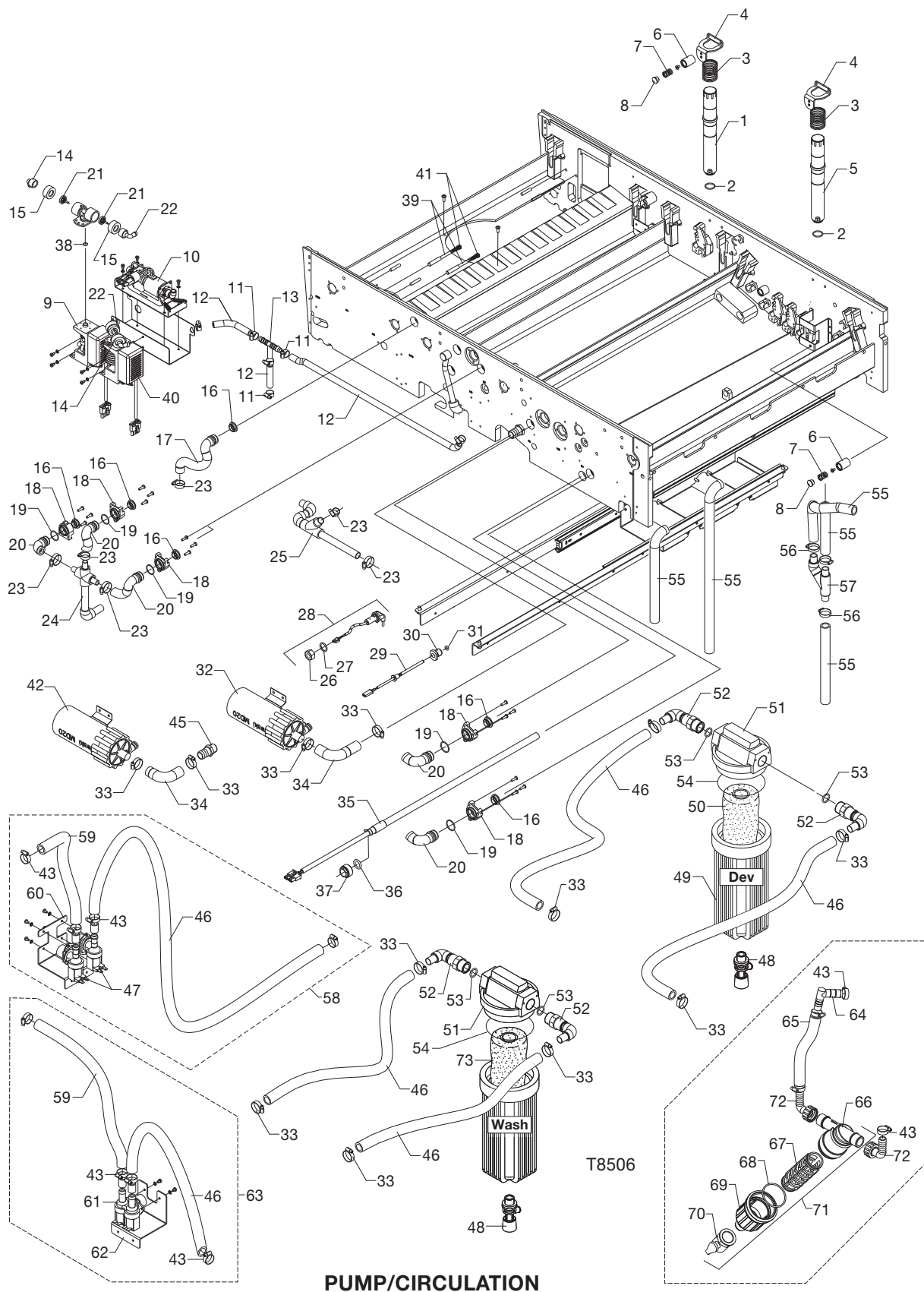
Pos. No	68	85	Specification
1	35315	35315	HOLDER, PIPE D20
2	74388	74388	GASKET, EPDM, SHORE70, 24X17X2
3	10002936	10002936	FITTING, HANDSHOWER
4	10003060	10003060	HOSE, 1/2"X3/4"RGX2.5M
5	45911	45911	GASKET, FIBER, 1/2", D18X12.5X2
6	0011361	0011361	FIT. VALVE, BALL 1/2" MA/FE
7	10003029	10003029	CHECKVALVE, DW14/DN10GF
8	73901	73901	JET, SHOWER, RAPTOR
9	45932	45932	HOLDER, PIPE, D16, W.LOCK
10	10002724	10002724	SENSOR, LEVEL, 2-PIN, REPLENISH/WASTE
11	10003282	10003282	TUBE, SUCTION, REPLENISH
12	6323	6323	CLAMP, HOSE D13-27
13	54208	54208	BRACKET, SENSOR, LEVEL, REPLENISH
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Drive

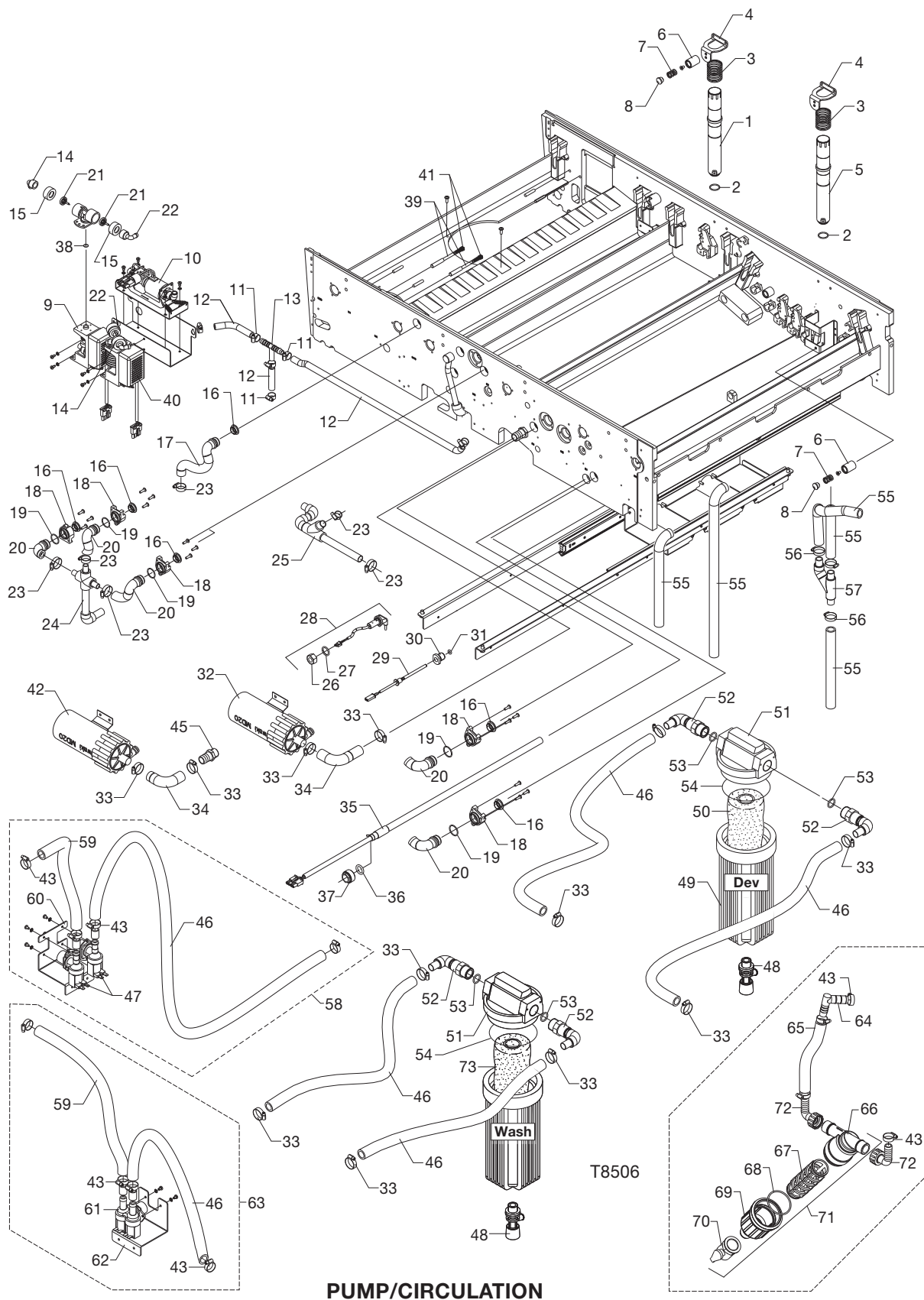
Pos. No	68	85	Specification
1	73209	73209	GEAR, Z22, M2, LEFT
2	10002910	10002910	BEARING, DRIVE
3	10002994	10002994	O-RING D21X1.5 EPDM
4	73241	73241	CLIPS, R-SHAPE, D2.5X20
5	73242	73242	SHAFT, GEAR
6	6520	6520	GROMMET, V-SEAL
7	73240	73240	GEAR, Z16, M2
8	73246	73246	GEAR, Z18, M2
9	98170	98170	FILTER, MOTOR
10	5659	5659	FUSE 5.0A, 6.3X32, S/B
11	10020012	10020012	MOTOR, AF 103.606 24V W. SENSOR
12	88102	88102	BEARING, BRACKET (See instruction in chapter 3)
13	100016983	10016983	GEAR, Z26, M2, D12 (See instruction in chapter 3)
14	85569	85569	BRACKET, BEARING (See instruction in chapter 3)
15	73250	73250	WORM, LEFT, Z2, M2, D12 (See instruc. in ch. 3)
16	98936	98936	BRACKET, BEARING (See instruction in chapter 3)
17	85886	85886	DRIVE, MAIN (See instruction in chapter 3)
18	10022265	10022265	BEARING, DRIVE, BRUSH, COMPLETE
19	10002653	10002653	GEAR, CONICAL, Z20,M1.5,D12
20	10002651	10002651	SHAFT, DRIVE, BRUSH,WASH
21	6169	6169	O-RING D20.24X2.62 EPDM
22	63991	63991	GEAR, CONICAL, Z30(20), M1.5 (See instr. in ch. 3)
23	10002034	10002034	SHAFT, DRIVE, BRUSH, DEV
24	6302	6302	O-RING, D17.1x1.6
25	10016917	10016917	GROMMET, V-SEAL VA-0012RUB
26	73262	73262	GEAR, Z19, M2, D12
27	22905418	22905418	END, STOP, O16 NOT ALL MODELS
28	10052623	10052623	SHAFT, GEAR, BRUSH, W. O-RING NOT ALL MODELS
29	10003438	10003438	FILTER, MOTOR
30	10002642	10002642	GEAR, Z16, M2, D12





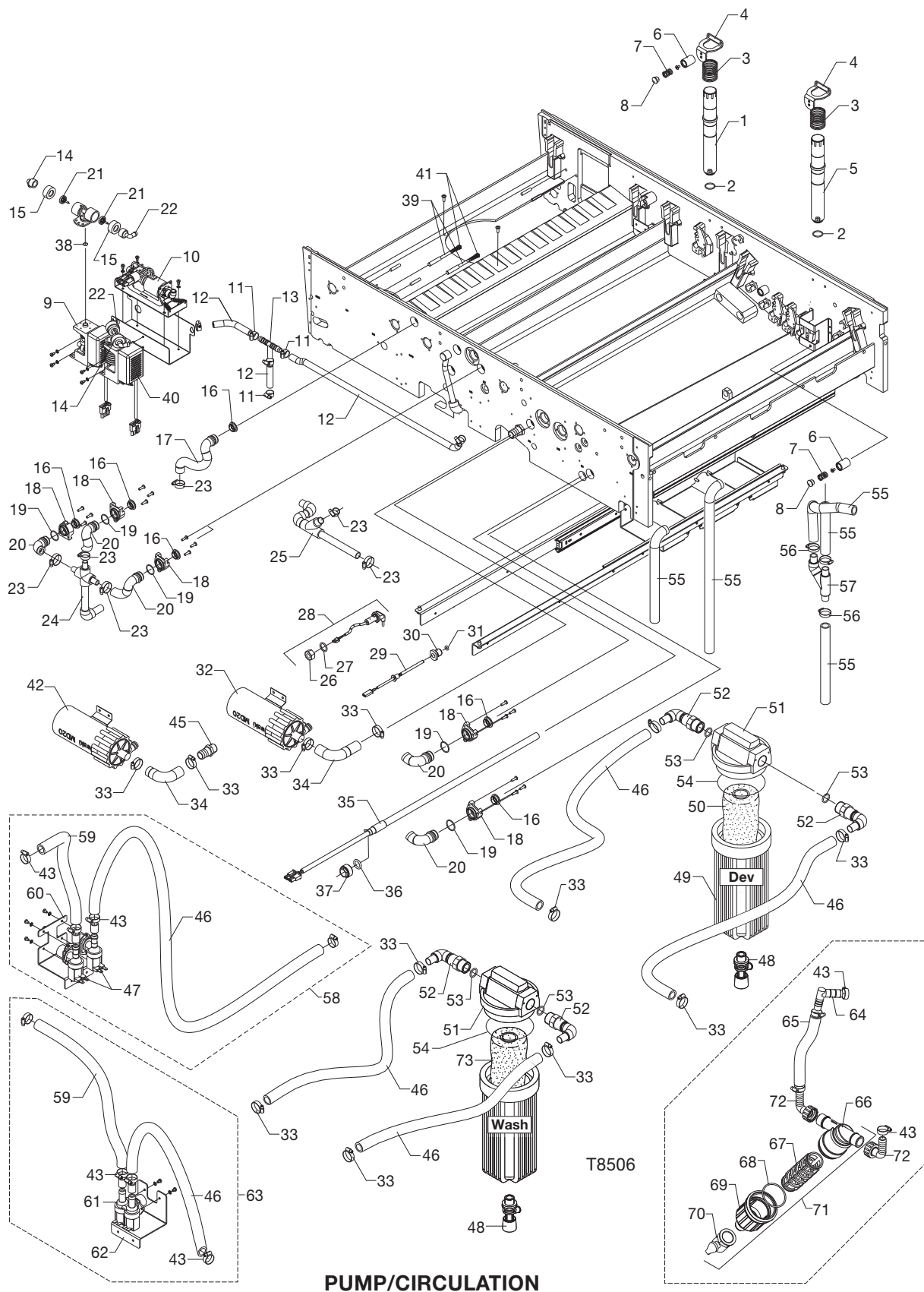
Pump / circulation

Pos. No	68	85	Specification
1	98274	98274	STANDPIPE
2	6169	6169	O-RING D20X2
3	14458	14458	SPRING, STANDPIPE D30X25
4	73016	73016	BRACKET, DRAIN, OVERFLOW
5	88500	88500	STANDPIPE, DEV
6	10009485	10009485	BUSHING, SPRING
7	74226	74226	SPRING, D12.5, T1.6, L19, K12.3
8	10003357	10003357	SPRING, SILICONE, SPRAY
9	10011348	10011348	PUMP, BELLOW, KBR-2XAUM, W. PLUG
10	10003120	10003120	PUMP, OSC.
11	15510	15510	CLAMP, HOSE D10-16
12	10001635	10001635	HOSE, PVC, 9X13, RED (PER M)
13	25852	25852	FIT. TEE, HOSE D10X90' TS10
14	36342	36342	FITTING, OUTLET, PUMP, KBR
15	36343	36343	FITTING, NUT, PUMP, KBR
16	73195	73195	BUSHING, TUBE
17	32796	32796	TUBE, CIRCULATION
18	73193	73193	BUSHING, SUPPORT, TUBE
19	25344	25344	O-RING D22.1X1.6
20	32796	32796	TUBE,CIRCULATION (PER M)
21	10003917	10003917	VALVE, POPPET, ASSY., PUMP, BELLOW
22	36341	36341	FITTING, INLET, PUMP, KBR
23	6019	6019	CLAMP, HOSE D8-22
24	10003130	10003130	FITTING, MANIFOLD, SPRAY, WASH
25	10003168	10003168	FITTING, MANIFOLD, SPRAYBAR, DEV
26	10037727	10037727	NUT, M12, POLYAMID, 6.6
27	35386	35386	O-RING D16.3X2.4 FPM
28	87520	87520	SENSOR, LEVEL, 2-PIN, 90 DEGREE, COMPLETE
29	43724	43724	SENSOR, TEMP NTC (90mm CABLE)
30	74070	74070	FITTING, BUSHING, 3/8"RGXD6



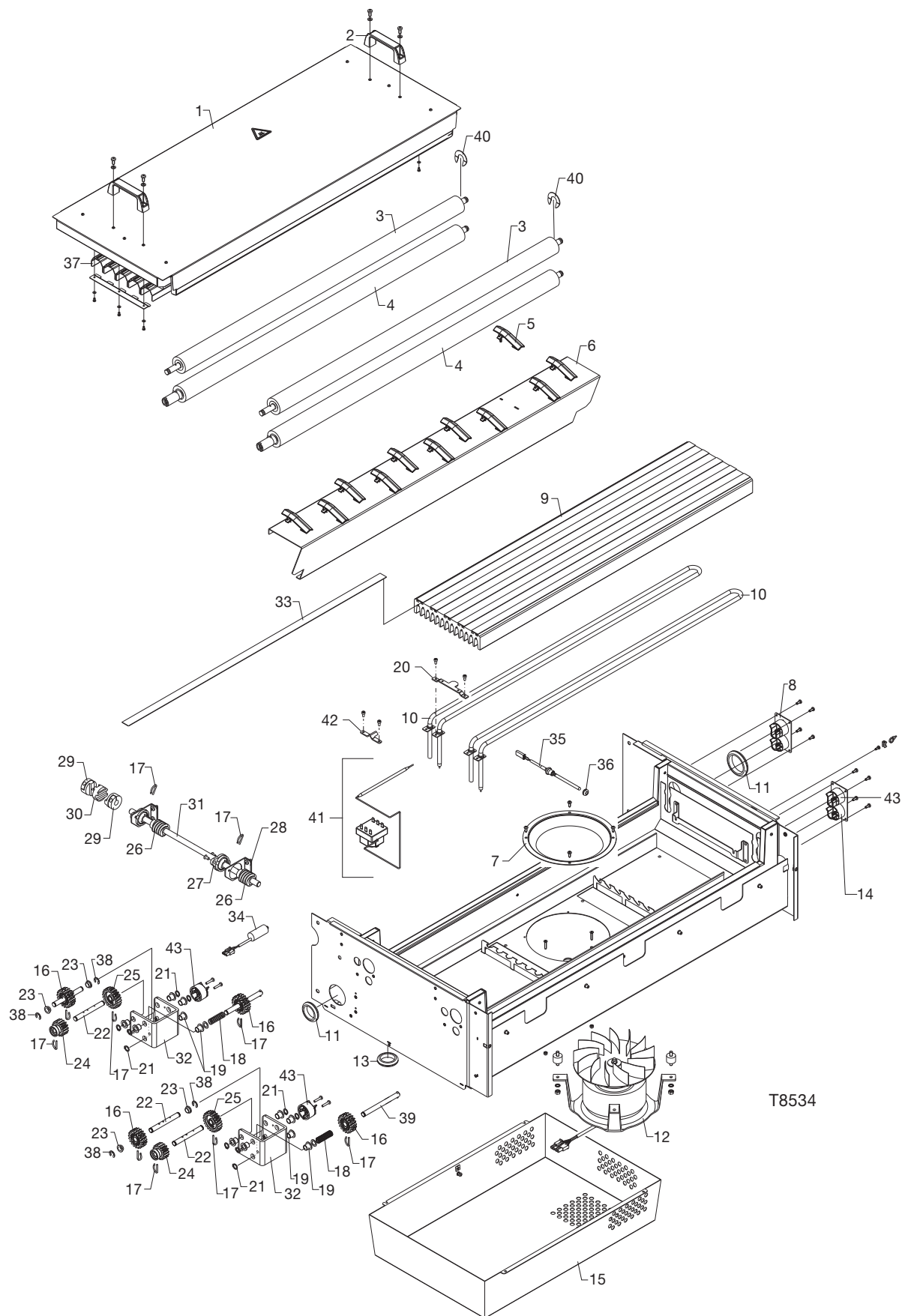
Pump / circulation

Pos. No	68	85	Specification
31	35355	35355	O-RING D5.0X2.5 EPDM
32	10060371	10060371	PUMP, CIRCULATION, MEDIUM
33	6323	6323	CLAMP, HOSE D13-27
34	10004622	10004622	HOSE, ELBOW 90, MODIFIED
35	45789	45789	CARTRIDGE, HEATER, 1000W, W CABLE
36	8181X000700	8181X000700	O-RING, 15.88 X 2.62
37	74492	74492	NUT, UNION, MALE, 3/4"RG X 16.3
38	10004402	10004402	O-RING, ASSEMBLY, PUMP, BELLOW
39	74399	74399	PIN, CYLINDRE, D8/D6 FOR SPRING
40	73305	73305	PUMP, BELLOW, KBR-3X, W.PLUG
41	8372	8372	SPRING, CONICAL
42	10060371	10060371	PUMP, CIRCULATION, MEDIUM, or <i>FOR WASH FILTER</i>
	10003389	10003389	PUMP, MD-15 <i>IF NO WASH FILTER</i>
43	6019	6019	CLAMP, HOSE D8-22
44			
45	85706	85706	FITTING, HOSE, 1/2"-D20, MODIFIED
46	10006998	10006998	HOSE, D16 MM, REINF. (PER M)
47	10003403	10003403	VALVE, SOLENOID, D13.5, 15L <i>FOR TAP WATER</i>
48	7077	7077	DRAIN VALVE ½"
49	35879	35879	FILTER, BOTTOM.
50			SEE APPENDIX A
51	35878	35878	FILTER, TOP
52	10004710	10004710	FITTING, ELBOW, SWIVEL, ¾"
53	25380	25380	O-RING D24.99X3.53
54	0012153	0012153	O-RING FOR FILTER CARTRIDGE
55	10008509	10008509	HOSE, RUBBER, 19X27, 1MM, EPDM, BLACK
56	6042	6042	CLAMP, HOSE D20-32
57	10008698	10008698	FITTING, WASTE
58	10007001	10007001	VALVE, SOLENOID, COMPLETE <i>FOR TAP WATER</i>
59	10003177	10003177	HOSE, VALVE



Pump / circulation

Pos. No	68	85	Specification
60	10007000	10007000	BRACKET, VALVE, SOLENOID
61	10005592	10005592	VALVE,SOLENOID, D13.5, 3,3L <i>RECIRCULATION</i>
62	10002474	10002474	BRACKET, WATER VALVE
63	10006997	10006997	VALVE, SOLENOID, COMPLETE <i>RECIRCULATION</i>
64	7364X161621	7364X161621	90 ELBOW, HOSE CONNECTION
65	10011304	10011304	HOSE, CIRCULATION, PREWASH, W.FILTER
66	73391	73391	FILTER, 3/4", HOUSING, UPPER
67	10011298	10011298	FILTER, INSERT, AMIAD, 100 MICRON
68	0180546	0180546	O-RING D50.47X2.62
69	73392	73392	FILTER, 3/4", HOUSING, LOWER
70	10007923	10007923	VALVE 3/4"
71	10010556	10010556	FILTER 3/4" W/VALVE, AMAID 100 MICRON <i>OPTION</i>
72	35283	35283	FIT.HOSE W.NUT 3/4"-D16 90°
73	15770	15770	INSERT, FILTER 50MY
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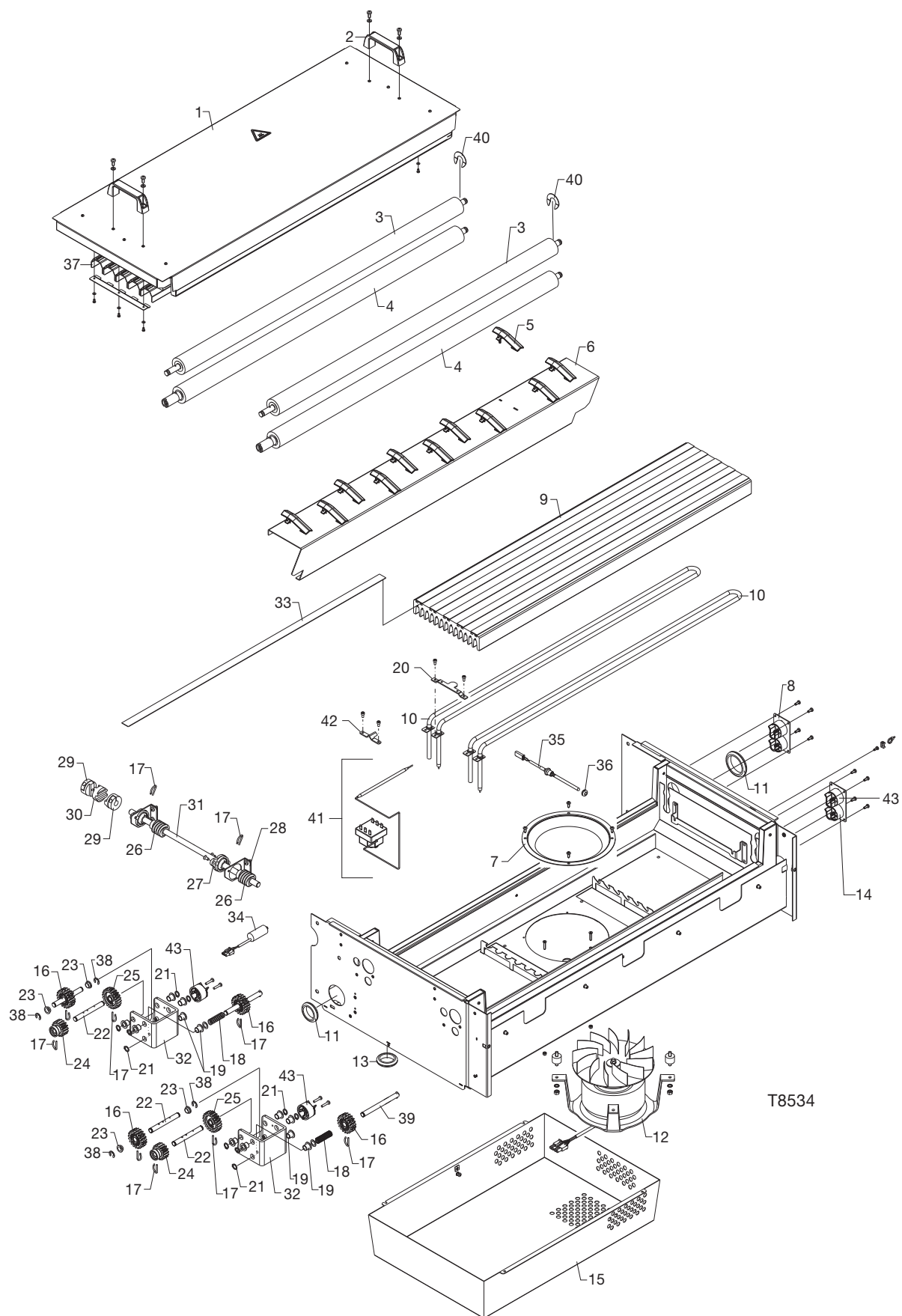


T8534

PRE-HEAT

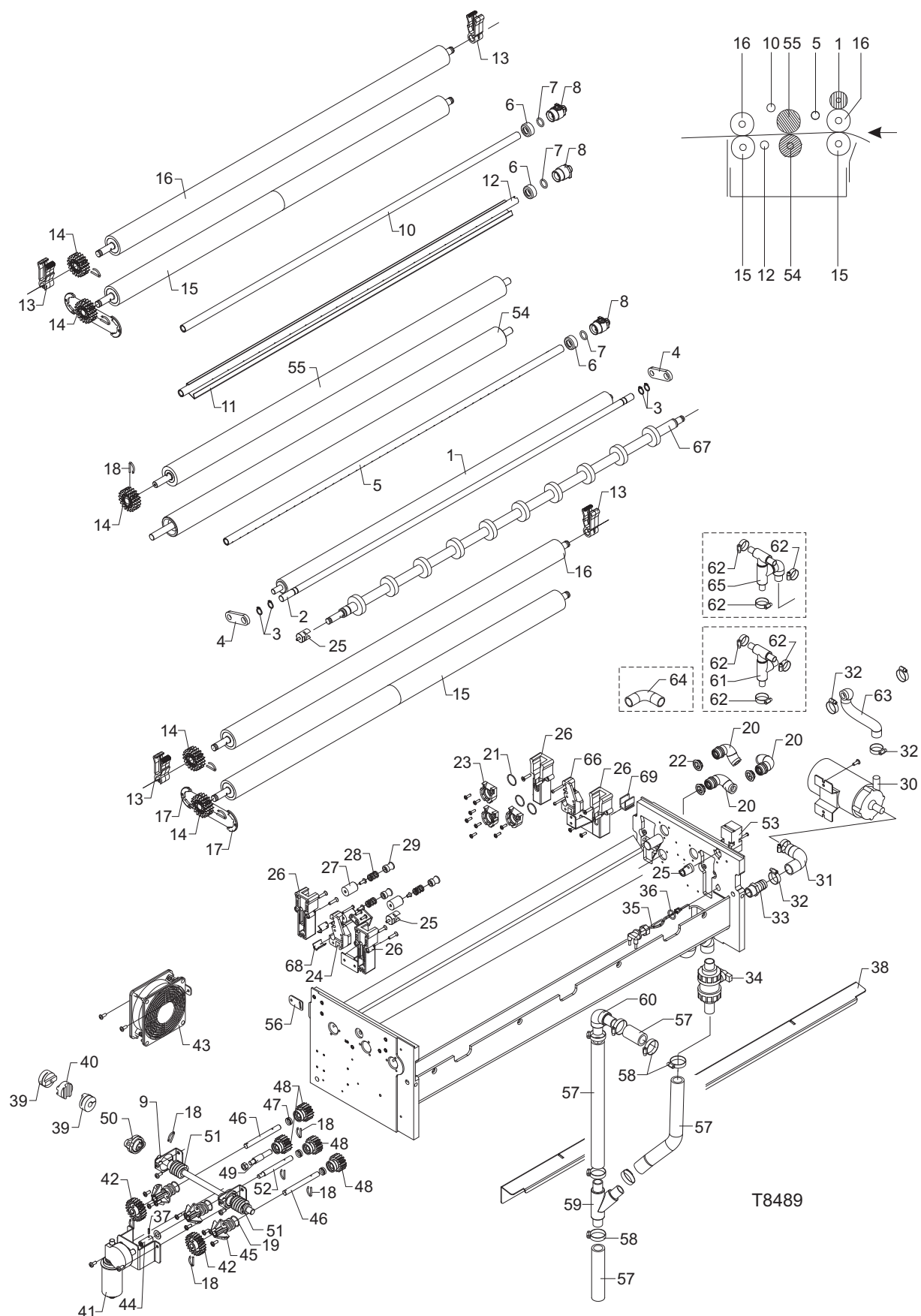
Pre-heat

Pos. No	68	85	Specification
1	10010252	10009653	LID, PREHEAT II
2	45887	45887	HANDLE
3	10050430		ROLLER, D40X695, SILICONE 5155
		10047420	ROLLER, D40X870, SILICONE 5155
4	10005049	10007565	ROLLER, PREHEAT
5	32332	32332	GUIDE, DRYER
6	10010273	10042964	GUIDE, COOLINGZONE, PREHEAT II
7	10010016	10010016	INLET CONE, FAN, 2DTRU45 18032R
8	10009651	10009651	BEARING, PREHEAT II, COMPLETE
9	10007353	10007564	SECTION, PREHEAT, COMPLETE
10	10014120	10014119	HEATER, 1350W, PREHEAT II
11	45865	45865	BUSHING, 258-68, D45/50X1.6
12	10011273	10011273	FAN, 2DTRu45-180x32R, (D06-A7)
13	0063966	0063966	BUSHING 258-66
14	10009360	10009360	BEARING, ROLLER, PREHEAT
15	10010260	10009663	GUARD, FAN, PREHEAT II
16	73262	73262	GEAR, Z19, M2, D12
17	73241	73241	CLIPS, R-SHAPE, D2.5X20
18	54316	54316	SPRING, D12.6/1.2, L=42
19	45692	45692	BUSHING, SKF, PPMF 101212
20	10013904	10013904	BRACKET, SENSOR, CAPILLARY
21	6064	6064	CIRCLIP D10
22	10001983	10001983	SHAFT, WORM, DRIVE, PREHEAT
23	35399	35399	BEARING, D12/D12X6, NYLON
24	73240	73240	GEAR, Z16, M2
25	73209	73209	GEAR, Z22, M2, LEFT
26	73250	73250	WORM, LEFT, Z2, M2, D12
27	35040	35040	BEARING W.HOUSING D12, ASAHI UFL001
28	63773	63773	BRACKET, BEARING
29	10001629	10001629	COUPLING, D12/33.3, HUCO 245.33.35



T8534

PRE-HEAT



PRE-WASH

Pre-wash

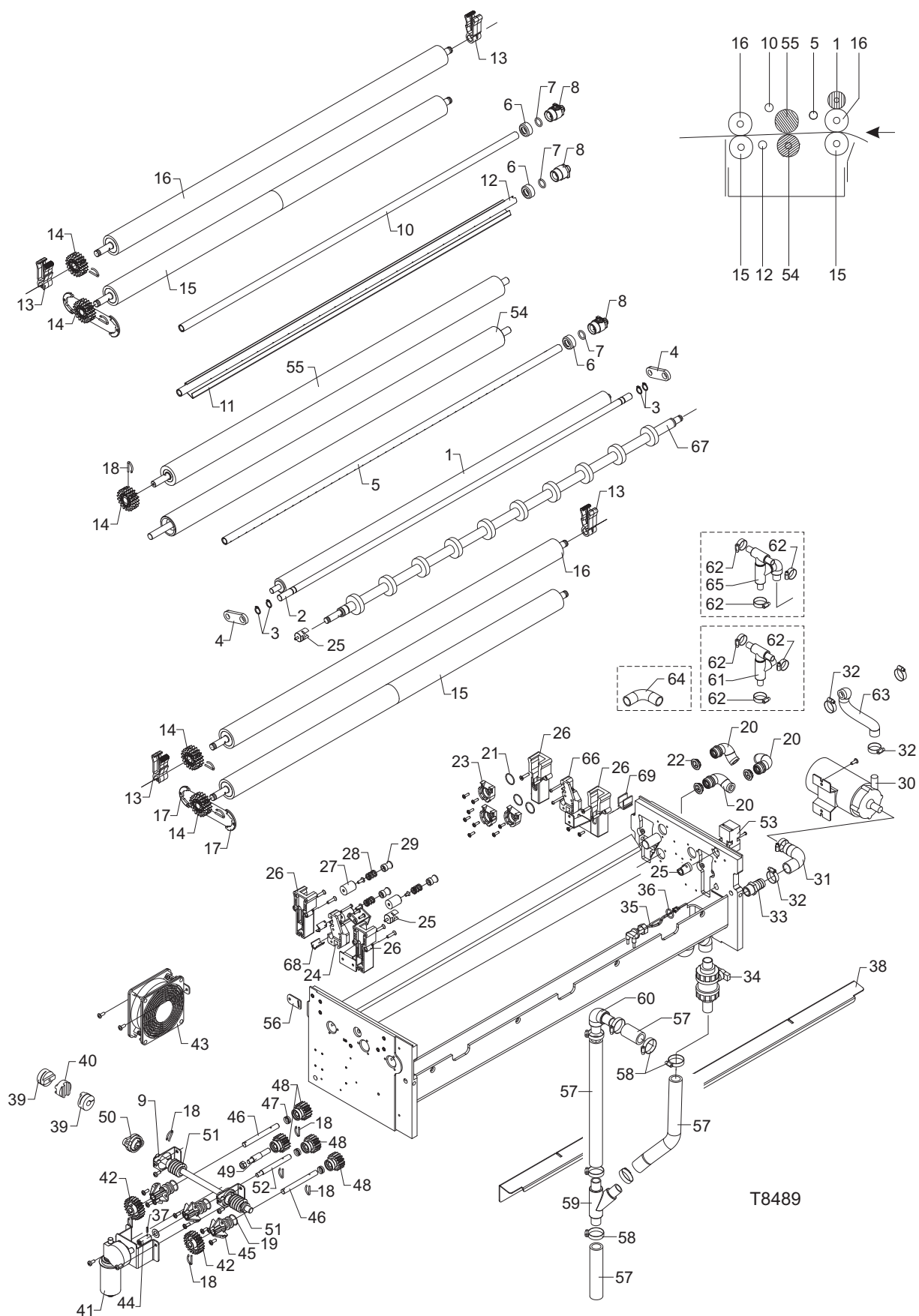
Pos. No	68	85	Specification
1	10002348	10002328	ROLLER, PUR, D30, HEAVY, ST
2	10002598	10002585	SHAFT, ROLLER, D12
3	0061432	0061432	CIRCLIP, A12-411, DIN471 A2
4	10015420	10015420	BRACKET, ROLLER
5			SEE APPENDIX A
6	10006668	10006668	NUT, M22
7	35434	35434	O-RING 13.3x2.4 EPDM
8	10006670	10006670	VALVE, TUBE, SPRAY
9	63773	63773	BRACKET, BEARING
10	100004543	10004524	TUBE, SPRAY, PREWASH, COMPLETE
11	10002409	10002404	GUIDE, SPRAY, WASH
12	85752	85426	TUBE, SPRAY, PREWASH, REAR, COMPLETE
13	43600	43600	BEARING, ROLLER, SNAP, BLACK
14	73262	73262	GEAR, Z19, M2, D12
15	88960	88959	ROLLER, SH40, WITH GEAR
16	88958	98233	ROLLER, SH30, WITH GEAR
17	74038	74038	GUIDE, PLATE, GEAR
18	73241	73241	CLIPS, R-SHAPE, D2.5X20
19	10002994	10002994	O-RING, 21X1.5, EPDM
20	32796	32796	TUBE, CIRCULATION
21	25344	25344	O-RING D22.1X1.6
22	73195	73195	BUSHING, TUBE
23	73193	73193	BUSHING, SUPPORT, TUBE
24	10011406	10011406	BEARING, BRUSH, LEFT, COMPLETE
25	10009459	10009459	BEARING, ROLLER, GUIDE
26	10011020	10011020	BEARING, ROLLER, BLACK, 20 KG, COMPLETE
27	10009485	10009485	BUSHING, SPRING
28	74226	74226	SPRING, D12.5, T1.6, L19, K12.3
29	54151	54151	SPRING, SILICONE, TUBE, SPRAY
30	53350	53350	PUMP, IWAKI, MD15
	10010875	10010875	PUMP, IWAKI, MD20

NOT ALL MODELS**NOT ALL MODELS**



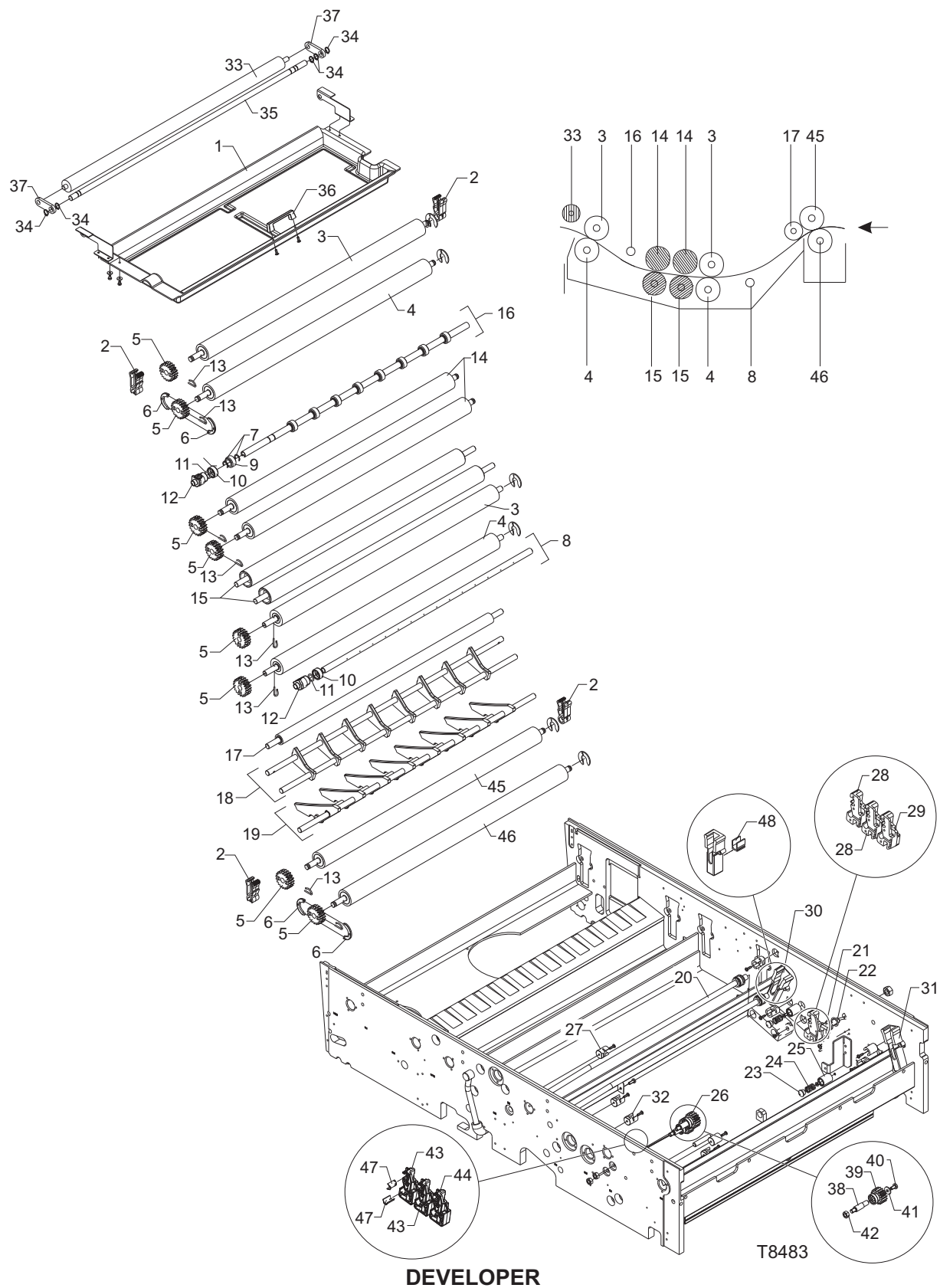
Pre-wash

Pos. No	68	85	Specification	
31	85704	85704	HOSE, ELBOW 90, MODIFIED	<i>IF POS 30 = MD15</i>
32	6323	6323	CLAMP, HOSE D13-27	
33	85706	85706	FITTING, HOSE, 1/2"-D20, MODIFIED	
34	10060727	10060727	VALVE, BALL, D20	
35	87520	87520	SENSOR, LEVEL, 90°, COMPLETE	<i>NOT ALL MODELS</i>
36	35386	35386	O-RING D16.3X2.4 FPM	<i>NOT ALL MODELS</i>
37	35329	35329	PIN, LOCKING D3X12 A2 DIN 1481	
38	10006932	10007610	BRACKET, SENSOR, INPUT	
39	10001629	10001629	COUPLING, D12/33.3, HUCO 245.33.35	
40	10001630	10001630	COUPLING, TORQUE DISC, HUCO 236.33	
41	10038880	10038880	MOTOR, BRUSH	<i>NOT ALL MODELS</i>
42	73209	73209	GEAR, Z22, M2, LEFT	<i>NOT ALL MODELS</i>
43	10002644	10002644	FAN, ELBOX	
44	10038871	10038871	BUSHING, COUPLING	<i>NOT ALL MODELS</i>
45	10002910	10002910	BEARING, DRIVE	
46	73242	73242	SHAFT, GEAR	
47	6520	6520	GROMMET, V-SEAL	
48	73240	73240	GEAR, Z16, M2	
49	10012035	10012035	SHAFT, PREWASH, POLYMER	
50	35040	35040	BEARING W.HOUSING D12, ASAHI UFL001	
51	73250	73250	WORM, LEFT, Z2, M2, D12	
52	10005566	10005566	SHAFT, MOTOR, BRUSH	<i>NOT ALL MODELS</i>
53	26602	26602	SWITCH, INTERLOCK, SCHMERSAL	
54	73921	63751	ROLLER, PUR, TUBE, D40	
55	10001483	10001482	BRUSH, D40, WITH GEAR (BLACK BRUSH)	
56	10007102	10007102	BRACKET, CONNECTOR, MODULE	
57	10008509	10008509	HOSE, RUBBER, 19X27, 1MM, EPDM, BLACK	
58	6042	6042	CLAMP, HOSE D20-32	
59	74806	74806	FITTING, TEE, D20x45', GF	
60	10008753	10008753	FITTING, DRAIN, DEVELOPER	



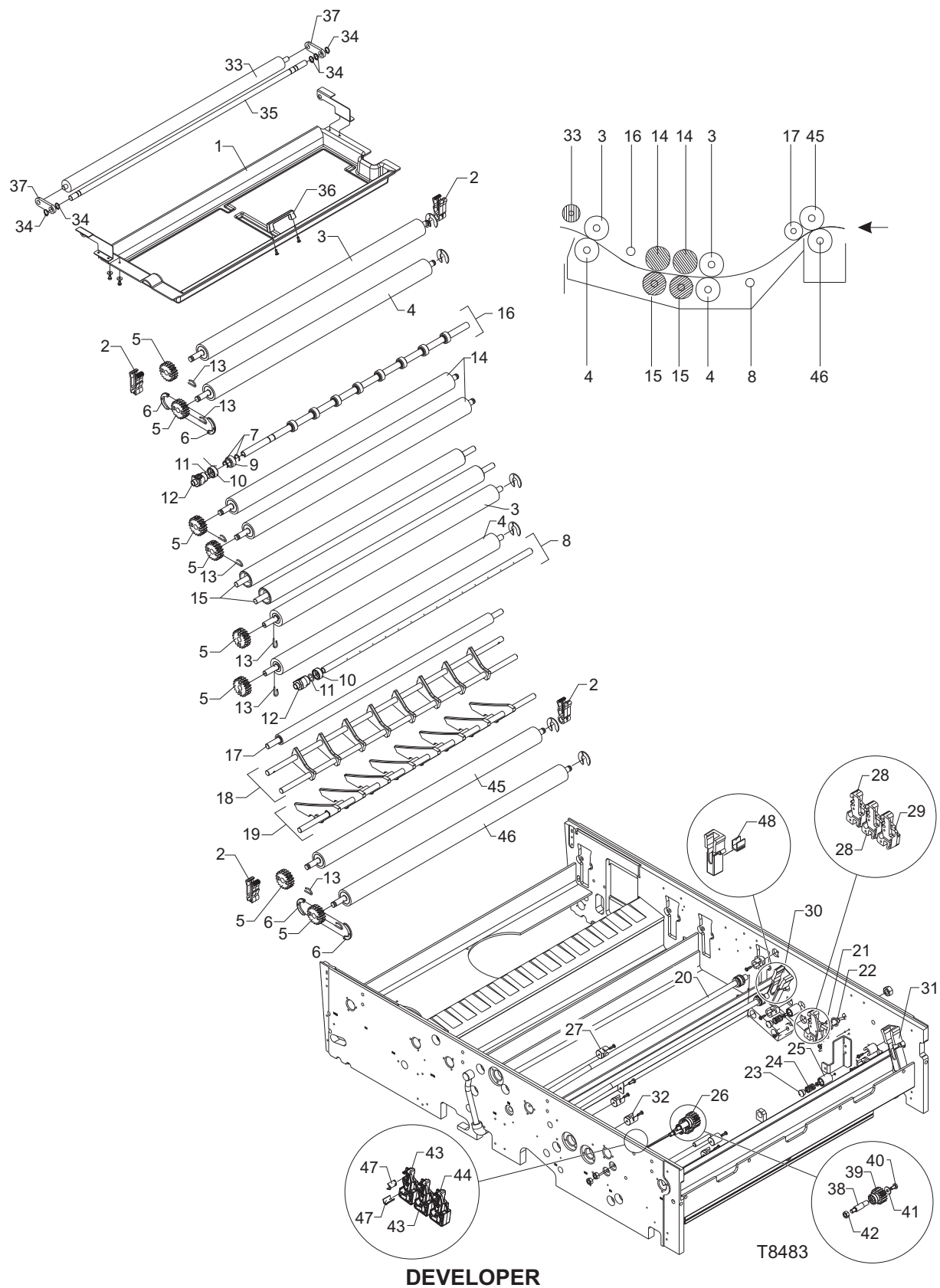
Pre-wash

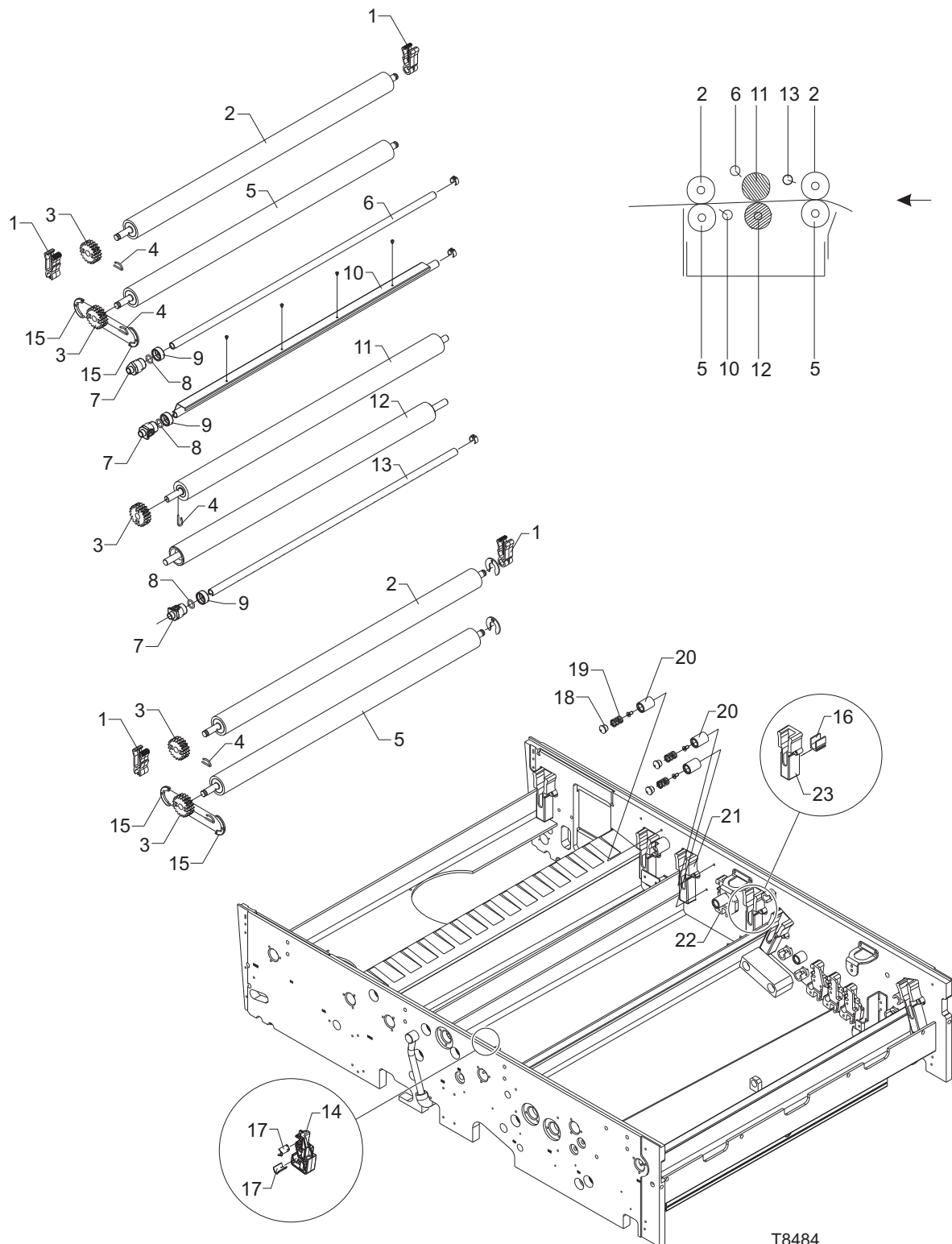
Pos. No	68	85	Specification	
61	10002908	10002908	FITTING, SPRAY, PREWASH	<i>IF CIRC. WATER</i>
62	6019	6019	CLAMP, HOSE D8-22	
63	10007003	10007003	TUBE, CIRCULATION, MODIFIED	
64	10019304	10019304	HOSE, ELBOW, 90, MODIFIED	<i>IF POS 30 = MD20</i>
65	10008235	10008235	FITTING, PREWASH, TAPWATER	<i>IF TAP WATER</i>
66	10008713	10008713	BEARING, BRUSH, RIGHT, COMPLETE	
67	10016637	10016638	GUIDE, ROLLER, COMPLETE	<i>NOT ALL MODELS</i>
68	10008621	10008621	SHELL, BEARING	
69	54430	54430	BEARING, ROLLER, LOWER, SPRINGLOAD	
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Developer

Pos. No	68	85	Specification
1	10004081	10002207	LID, CONDENSATION, DEV
2	43600	43600	BEARING, ROLLER, SNAP, BLACK
3	88958	98233	ROLLER, SH30, STRAIGHT, WITH GEAR
4	88960	88959	ROLLER, SH40, WITH GEAR
5	73262	73262	GEAR, Z19, M2, D12, B15
6	74038	74038	GUIDE, PLATE, GEAR
7	315FJ0055	315FJ0055	CIRCLIP, STAINLESS
8	SEE APPENDIX A		
9	10004646	10004646	GUIDE, SILICONE, D25
10	10006668	10006668	NUT, M22
11	35434	35434	O-RING 13.3x2.4 EPDM
12	10006670	10006670	VALVE, TUBE, SPRAY
13	73241	73241	CLIPS, R-SHAPE, D2.5X20
14	SEE APPENDIX A		
15	73921	63751	ROLLER, PUR, D40
16	SEE APPENDIX A		
17	10002485	10002482	ROLLER, RUBBER, D25
18	10009794	10009779	GUIDE, DEV, REAR
19	10009793	10009763	GUIDE, DEV, FRONT
20	10002764	10002764	TUBE, COOLING
21	32383	32383	SENSOR, LEVEL, 2-PIN, 90 DEGREE
22	35386	35386	O-RING D16.3X2.4 FPM
23	10003357	10003357	SPRING, SILICONE, SPRAY
24	74226	74226	SPRING, D12.5, T1.6, L19, K12.3
25	10009485	10009485	BUSHING, SPRING
26	73822	73822	DRIVE, FREE WHEEL
27	10009459	10009459	BEARING, ROLLER, GUIDE
28	10008713	10008713	BEARING, BRUSH, RIGHT, COMPLETE
29	10011407	10011407	BEARING, ROLLER, RIGHT, COMPLETE
30	10011020	10011020	BEARING, ROLLER, BLACK, 20 KG, COMPLETE

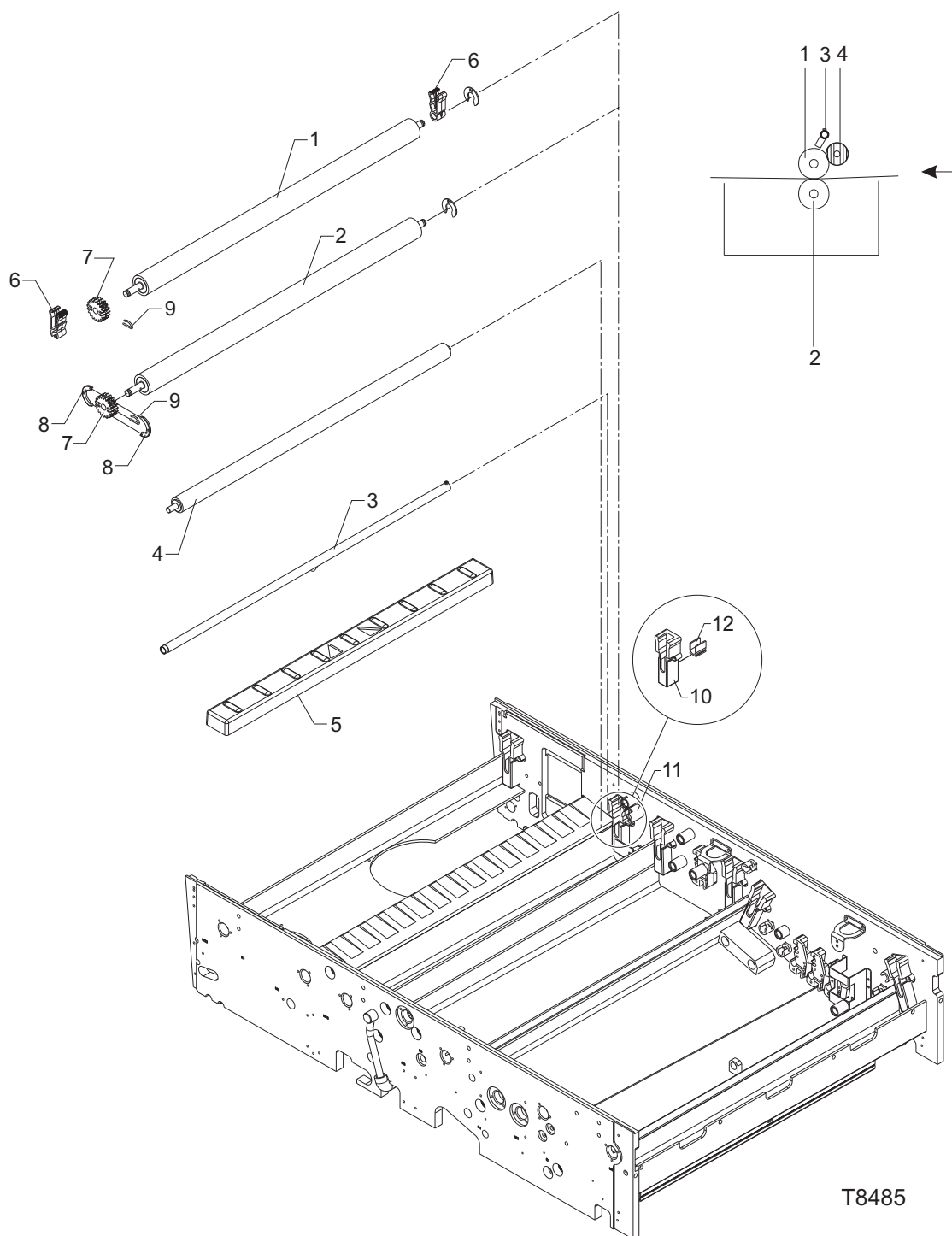




WASH

Wash

Pos. No	68	85	Specification
1	43600	43600	BEARING, ROLLER, SNAP, BLACK
2	88958	98233	ROLLER, SH30, STRAIGHT, WITH GEAR
3	73262	73262	GEAR, Z19, M2, D12, B15
4	73241	73241	CLIPS, R-SHAPE, D2.5X20
5	88960	88959	ROLLER, SH40, WITH GEAR
6	10004406	10004336	TUBE, SPRAY, WASH, COMPLETE
7	10006670	10006670	VALVE, TUBE, SPRAY
8	35434	35434	O-RING 13.3x2.4 EPDM
9	10006668	10006668	NUT, M22
10	10004634	10004626	TUBE, SPRAY, WASH, REAR, COMPLETE
11	10001483	10001482	BRUSH, D40, WITH GEAR (BLACK BRUSH)
12	73921	63751	ROLLER, PUR, TUBE, D40
13	10004422	10004367	TUBE, SPRAY, WASH, FRONT, COMPLETE
14	10011406	10011406	BEARING, BRUSH, LEFT, COMPLETE
15	74038	74038	GUIDE, PLATE, GEAR
16	54430	54430	BEARING, ROLLER, LOWER, SPRINGLOAD
17	10008621	10008621	SHELL, BEARING
18	10003357	10003357	SPRING, SILICONE, SPRAY
19	74226	74226	SPRING, D12.5, T1.6, L19, K12.3
20	10009485	10009485	BUSHING, SPRING
21	10011020	10011020	BEARING, ROLLER, BLACK, 20 KG, COMPLETE
22	10008713	10008713	BEARING, BRUSH, RIGHT, COMPLETE
23	10011013	10011013	BEARING, ROLLER, WHITE, 13 KG, COMPLETE
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GUM

Gum

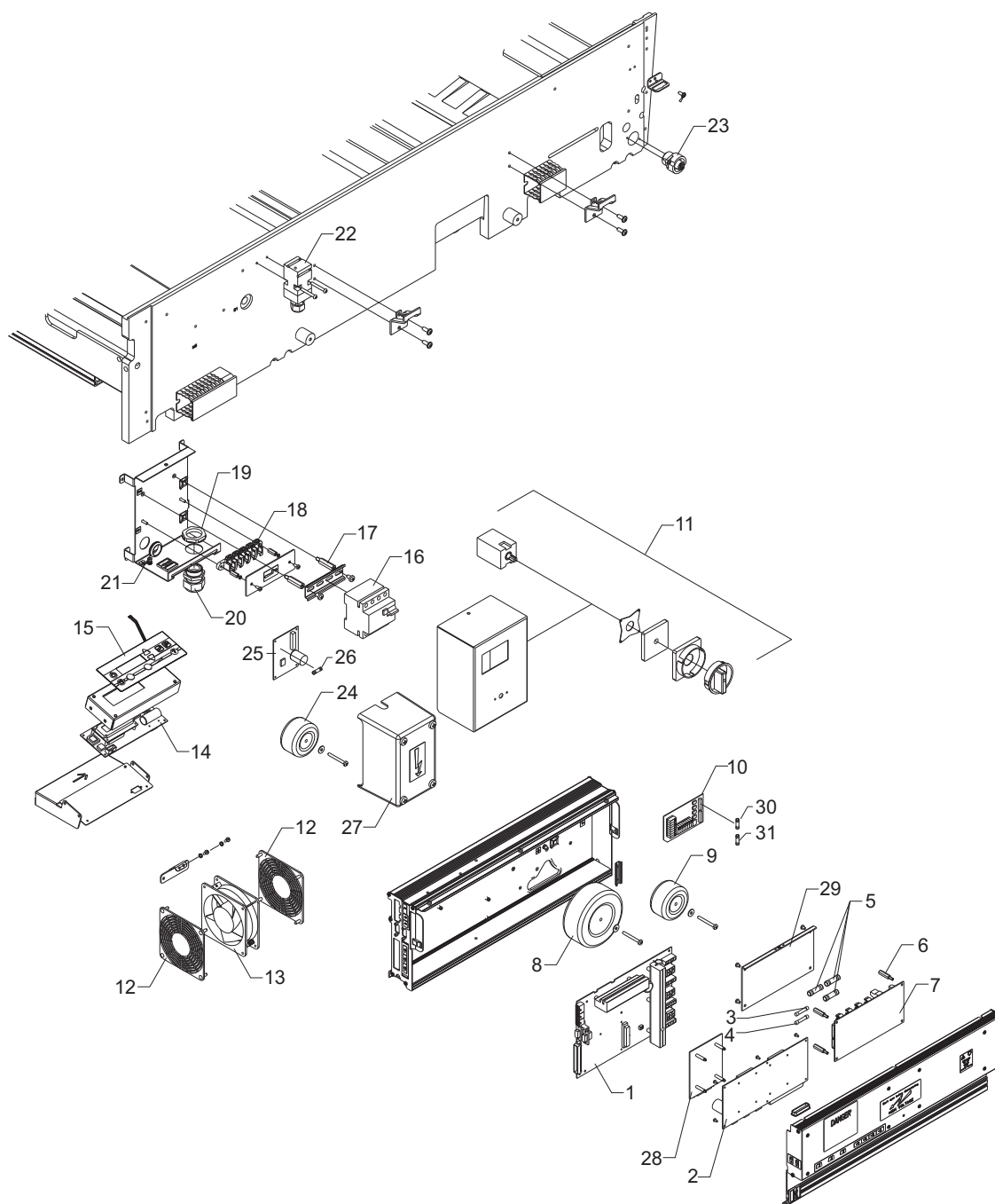
Pos. No	68	85	Specification
1	88958	98233	ROLLER, SH30, STRAIGHT, WITH GEAR
2	88960	10045639	ROLLER, SH40, WITH GEAR
3	10014796	10014797	TUBE, GUM
4	10002348	10002328	ROLLER, PUR, D30
5	10002374	10002373	GUIDE, GUM
6	43600	43600	BEARING, ROLLER, SNAP, BLACK
7	73262	73262	GEAR, Z19, M2, D12,B15
8	74038	74038	GUIDE, PLATE, GEAR
9	73241	73241	CLIPS, R-SHAPE, D2.5X20
10	10011020	-	BEARING, ROLLER, BLACK, 20 KG, COMPLETE
	-	10011013	BEARING, ROLLER, WHITE, 13 KG, COMPLETE
11	10007515	10007515	BEARING, ROLLER, DISTR., GUM
12	54430	54430	BEARING, ROLLER, LOWER, SPRINGLOAD
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DRYER

Dryer

Pos. No	68	85	Specification
1	10002845	10002845	HOUSING, FAN/HEATER
2	54563	54563	CAPACITOR, 2uF
3	73982	73982	FAN, 2TRE15 W PLUG
4	63043	63043	HEATER 2x750W W.PLUG
5	10003381	10003381	COVER, FAN, HEATER
6	73262	73262	GEAR, Z19, M2, D12, B15
7	86083	86082	COVER, DRYER, COMPLETE
8	73241	73241	CLIPS, R-SHAPE, D2.5X20
9	10013520	10013520	BEARING, ROLLER, SNAP
10	10002826	10002826	WHEEL, RUBBER, D40
11	10003013	10003010	GUIDE, ROLLER, D40
12	10003014	10003011	GUIDE, ROLLER, D40
13	10008065	10006012	AIRDUCT, UPPER
14	10008070	10006023	AIRDUCT, LOWER
15	0151083	0151083	GRID, FAN INCL.TAP
16	41554	41258	BRACKET, GUIDE, HEATER
17	32332	32332	GUIDE, DRYER
18	26385	26385	SENSOR, TEMP THERMISTOR,PLASTIC
19	16787	16787	SWITCH, ASSY 10-59220-010
20	74500	74500	BRUSH, ANTISTATIC
21	10011006	10011006	BEARING, ROLLER, DARK GREY, 6 KG, COMPLETE
22	54430	54430	BEARING, ROLLER, LOWER, SPRINGLOAD
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T8495

ELETRICAL

Electrical

Pos. No	68	85	Specification
Not ill.	10017976	10017976	CD W.SOFTWARE (Please also see page 5.1)
1	10035096	10035096	PCB, HPU-V (NOTE: Without software - see page 5.1)
2	10031624	10031624	PCB, MPU (NOTE: Without software - see page 5.1)
3	6716	6716	FUSE 2A, 6.3X32 MM, S/B
4	6896	6896	FUSE 4A, 6.3X32 MM
5	26508	26508	FUSE 15A SC15
6	35016	35016	SPACER M4X8+25 TP.DI654
7	36563	36563	PCB, FUSE, F. SINGLE HPU, W. VARISTOR
8	36311	36311	TRAFO, RTD300-230
9	36312	36312	TRAFO, RTD060-224
10	10030889	10030889	PCB, FILTER, 2xTRANSFORMER, 4A-PTC-RESISTOR
11	16414	16414	SWITCH, L2-16, 66.5X66.5
12	0151083	0151083	GRID, FAN INCL.TAP
13	26054	26054	FAN, SUNON DP200A 2123XBT
14	10025327	10025327	PCB, MMU (NOTE: Without software - see page 5.1)
15	88129	88129	MMI, CONTROLBOX
16	10030625	10030625	RELAY, GFCI 40A/30mA 400V 4-POL
17	45512	45512	SPACER, M6X35+10, TP.DI659
18	3111X000800	3111X000800	STRIP, TERMINAL
19	36501	36501	LOCKNUT FOR CABLE GLAND M32x1,5
20	36500	36500	GLAND,CABLE,ST-M 32x1.5
21	0180216	0180216	NIPPEL, RUBBER RM 10419
22	10061083	10061083	SWITCH, INTERLOCK, S8
23	57971	57971	CONNECTOR,CHILLER
24	10006556	10006556	TRAFO, PREWASH, RAPTOR
25	10030887	10030887	PCB,RRM, W.RECTIFIER & RELAY, ROHS
26	5566	5566	FUSE 2A, 5X20, S/B
27	10006284	10006284	COVER, PCB, GRB
28	10001713	10001713	PIM, MK2
29	53794	53794	COVER, PANEL, FUSE
30	10040265	10040265	FUSE, 5x20 mm, 0.63 AT (F17)
31	10011111	10011111	FUSE, 5x20 mm, 3.15 AT (F18)

NOT ALL MODELS

Appendix A: Additional spare parts

Some of the spare parts shown on the ISO-metric drawings in chapter 5 have no spare part number and specification. The spare part numbers and specification for those parts are listed below. The page and position numbers refer to the page and position numbers used in chapter 5.

Please also refer to the ISO-metric drawings in chapter 5.

When ordering spare parts please state carefully the spare part number, the specification and the number of items wanted before you send your order.

Pos.No	68	85	Specification
--------	----	----	---------------

Page 5/3 (PANELS):

1	85490	85490	FENDER, PANEL, RIGHT
4	60954	60954	FENDER, LEFT
5	10012803	10011567	COVER, DRYER
11	70302	70295	PANEL, TOP, HINGED
15	10007765	10004771	COVER, PREHEAT/PREWASH, COMPLETE
16	10006931	10006931	FENDER, RIGHT, PREHEAT, RAPTOR
17	10006929	10006929	FENDER, LEFT, PREHEAT, RAPTOR

Page 5/5 (STAND):

1	10001308	86136	PANEL, FRONT, STAND
2	10001311	86140	PANEL, REAR, STAND
4	60955	60955	RAIL, STAND

Page 5/7 (STAND, CLOSED):

1	85493	85493	PANEL, RIGHT, STAND
2	85492	85492	PANEL, SIDE, LEFT, STAND

continues

Pos.No	68	85	Specification
--------	----	----	---------------

Page 5/9 (EXIT, TABLE):

1	10005921	10002433	EXTENSION, TABLE, EXIT
2	10005918	10002432	TABLE, EXIT
3	10002429	10002429	BRACKET, TABLE, EXIT
4	60881	60881	SUPPORT, TABLE, EXIT

Page 5/11 (FEED, TABLE):

1	10009059	10009048	TABLE, FEED
2	10009056	10009042	SUPPORT, TABLE, FEED
5	10060310	10060111	PANEL, FRONT, COMMON

Page 5/21 (PUMP/CIRCULATION):

50	15770	15770	INSERT, FILTER 50MY
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Page 5/29 (PRE-WASH):

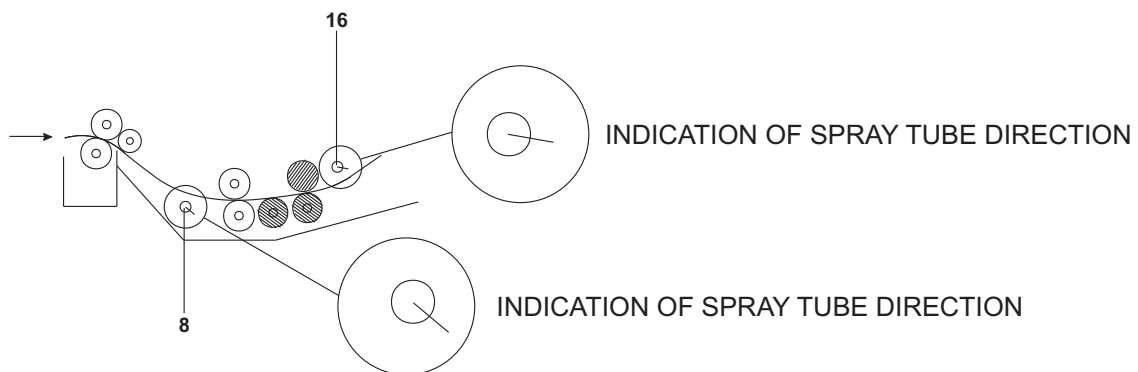
5	85751	10004556	TUBE, SPRAY, PREWASH, FRONT, COMPLETE
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continues...

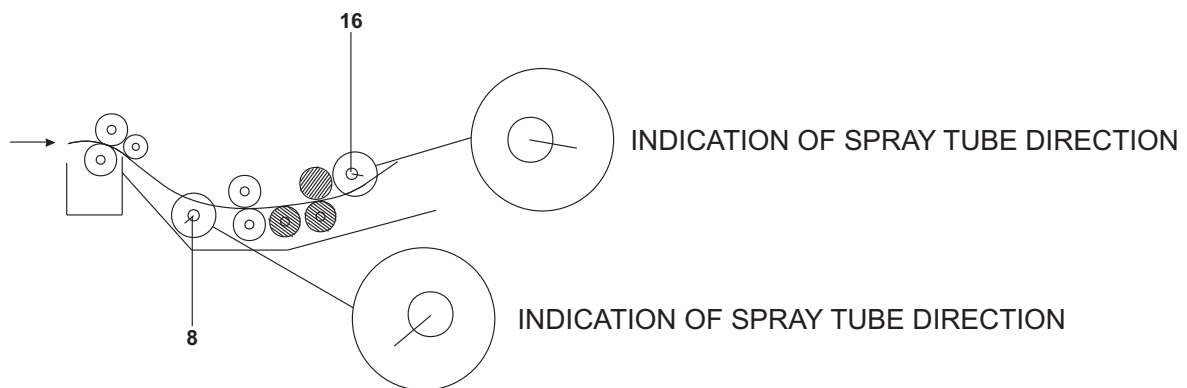
Pos.No	68	85	Specification
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Page 5/35 (DEVELOPER):

8	85749	88145	TUBE, SPRAY, DEV, FRONT, COMPLETE
14	85745	85296	BRUSH, D40, WITH GEAR, PP 0.10 (WHITE BRUSH)
	10001483	10001482	BRUSH, D40, WITH GEAR, PP 0.075 (BLACK BRUSH)
16	10008009	10007894	TUBE, SPRAY, DEV, REAR, COMPLETE



8	10007602	10007601	TUBE, SPRAY, DEV, FRONT, COMPLETE
16	10008009	10007894	TUBE, SPRAY, DEV, REAR, COMPLETE



Page 5/37 (DEVELOPER):

45	88958	98233	ROLLER, EPDM RUBBER, SH30, GREY, WITH GEAR
	10013821	10013824	ROLLER, SILICONE, SH40, BLACK, WITH GEAR
46	88960	88959	ROLLER, EPDM RUBBER, SH40, BLACK, WITH GEAR
	10013820	10013823	ROLLER, SILICONE, SH40, BLACK, WITH GEAR

Appendix B: Electrical diagrams

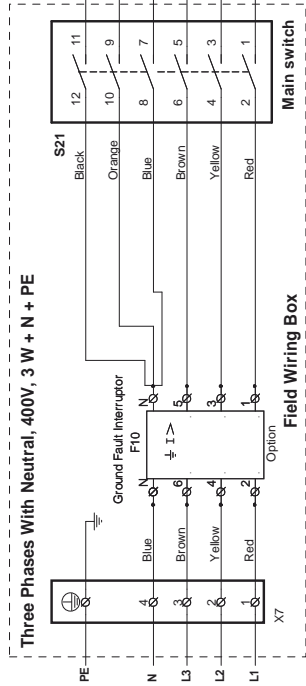
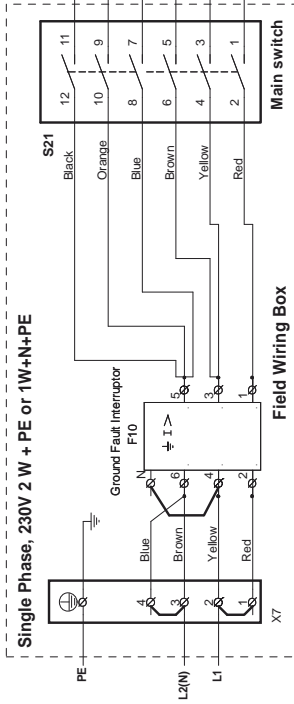
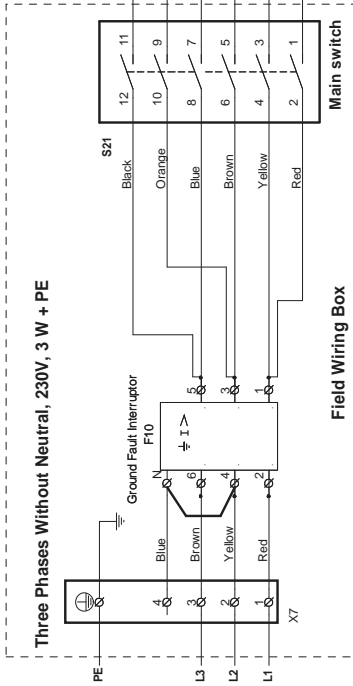
This chapter includes all electrical diagrams for the processor.

The diagrams (6 pages) cover:

- Page 1 of 6:
Main power distribution
Fuse panel and interlocks
- Page 2 of 6:
High voltage wiring I
230V AC, control devices, HPU
- Page 3 of 6:
High voltage wiring II
230V AC components
- Page 4 of 6:
High voltage wiring III
230V AC, control devices, LPM
- Page 5 of 6:
Low voltage wiring
Sensors and control devices
- Page 6 of 6:
Motors and internal bus wiring
8, 24 and 35V AC distribution

Main power distribution

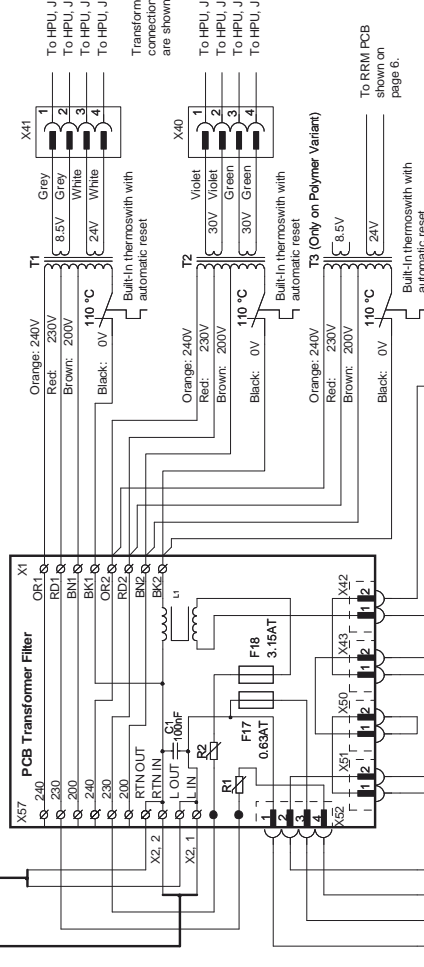
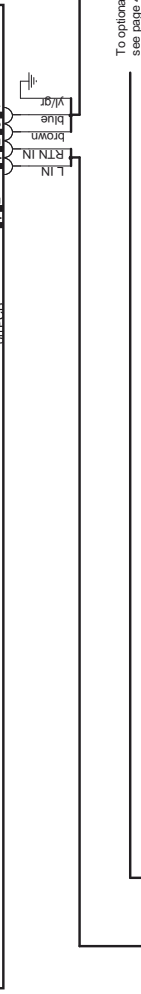
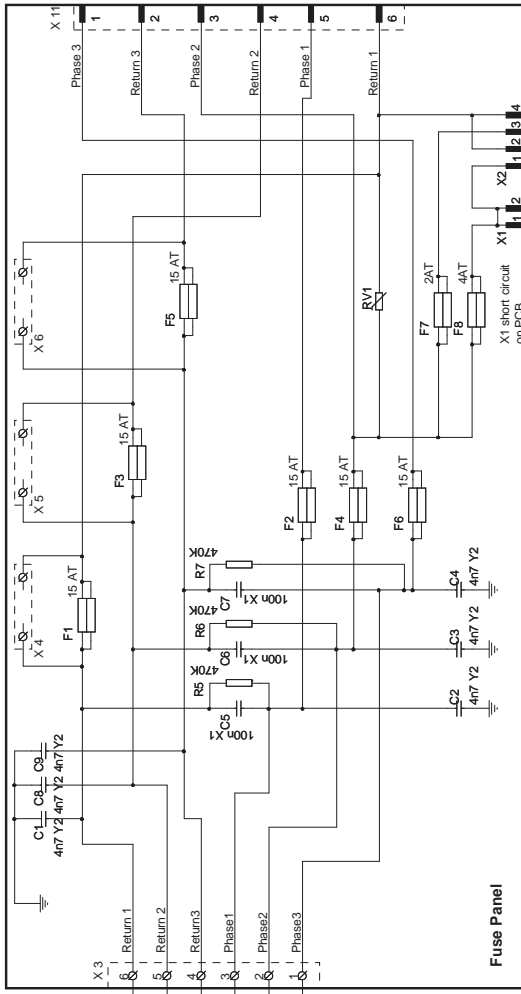
Fuse panel and interlocks



IMPORTANT
Check wiring at Main Terminal X7. Ground Fault Interruptor F10 and Main Switch S21 before the power supply is switched on. Rewire if necessary accordingly to attached column on schematics. Also set jumpers as shown in table below.

Jumper Settings :

Line Voltage:	Terminal Strip, X7	Fuse PCB	GFCI
Three Phases Without Neutral, 230V, L1, L2, L3 + PE	No jumpers !	X4, X5 and X6 open	Jumper between N and 4
Single Phase, Without Neutral 230V, L1, L2 + PE	Jumpers between 1 and 2 Jumpers between 3 and 4	X4, X5 and X6 open	Jumper between N and 4
Single Phase, With Neutral 230V, L1, N + PE	Jumpers between 1 and 2 Jumpers between 3 and 4	X4, X5 and X6 closed	Jumper between N and 4
Three Phases With Neutral, 400V, L1, L2, L3, N + PE	No jumpers !	X4, X5 and X6 closed	No jumper !



Date: Monday, January 14, 2008

Constructor: JW

Approval:

Pages: 1 Of: 6

Main Power Distribution

Fuse Panel And Interlocks

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Rev.: M

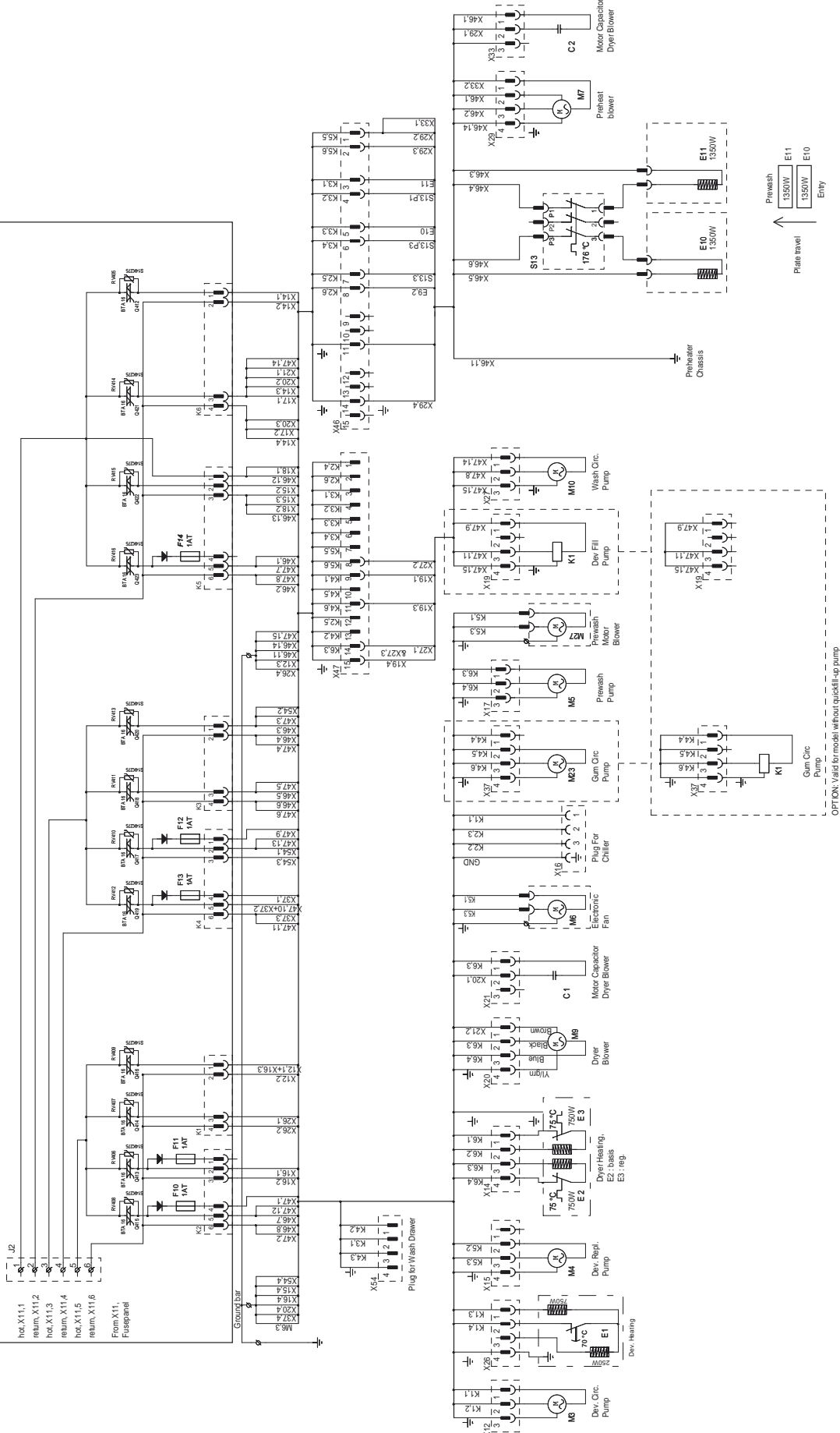
Doc.: Rev.: 1

OC/AD

High voltage wiring I

230V AC, control devices, HPU

High Power Unit, HPU



THIS DIAGRAM IS VALID FOR THE MODELS MENTIONED IN THE TABLE BELOW

Power components mounted on :

Variant	HPU	K1.1+2	K1.3+4	K2.12+3	K2.5+6	K3.1+2	K3.3+4	K4.12+3	K4.5+6	K5.1+3	K5.2+3	K6.1+2	K6.3+4
Thermal Standard		M3	E1	Chiller	None	None	None	K1	M23	M6	M4	None	M9+10
Polymer with prewash		M3	E1	Chiller	E9	E11	E10	K1	M23	M6	M4	M7	M5+9+10
Production without quickfill-up pump		M3	E1	Chiller	E9	E11	E10	None	K1	M6	M4	M7	M5+9+10
Production with quickfill-up pump		M3	E1	Chiller	E9	E11	E10	None	K1	M6	M4	M7	M5+9+10

SPECIAL MODEL

High Voltage wiring I

230 VAC Control Devices, HPU

Date: Monday, January 14, 2008

Concurrence: TCU

Approuvé:

Page: 2 of 6

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TRANSFORMERS AND ELECTRICAL POWER SUPPLIES

TRANSFORMERS AND ELECTRICAL POWER SUPPLIES

TRANSFORMERS AND ELECTRICAL POWER SUPPLIES

Model: 63864

Doc. No.:

Doc. No.:

Doc. No.:

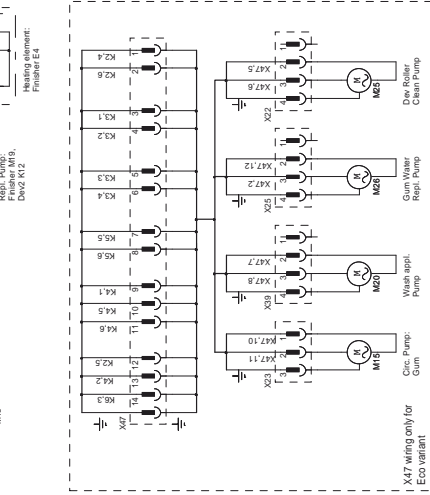
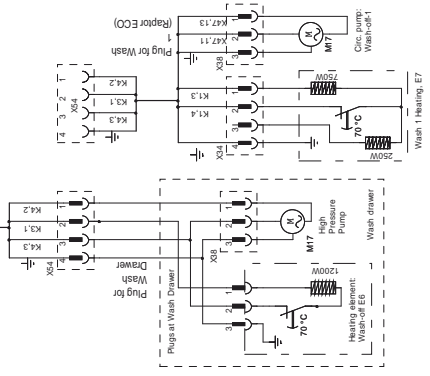
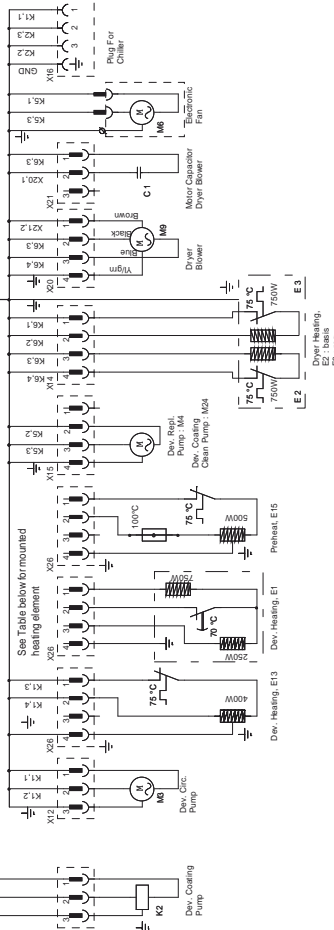
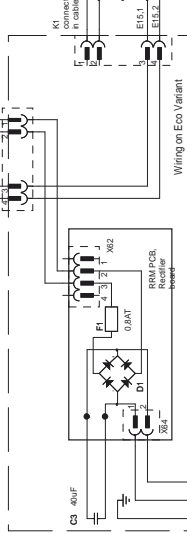
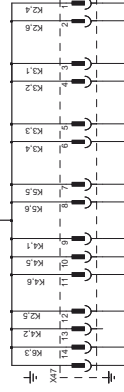
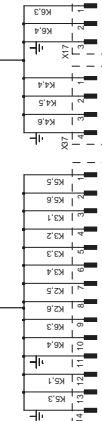
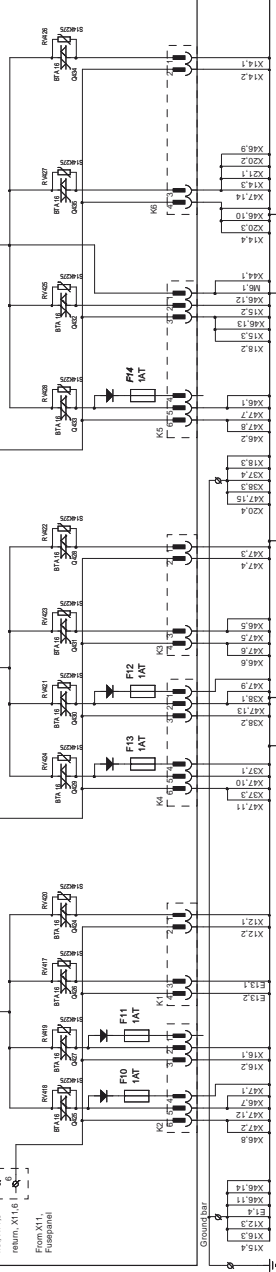
Doc. No.:

High voltage wiring II

230V AC components

High Power Unit, HPU

1 2
 hot, XT1.1
 3 4
 return, XT1.2
 5 6
 hot, XT1.3
 7 8
 return, XT1.4
 9 10
 hot, XT1.5
 11 12
 return, XT1.6
 13 14
 From XT1, Fusepanel



Components mounted on:

Variant	K1,1+2	K3,3+4	K2,1/2+3	K4,1/2+3	K5,1+3	K5,4/5+6	K6,1+2	K6,3+4
Silver	M3, Chiller	E13	Chiller	M19	M18	M4	E3	M8-E2
Eco	K2	E15	None	M28	M25	M6	E3	M8-E2

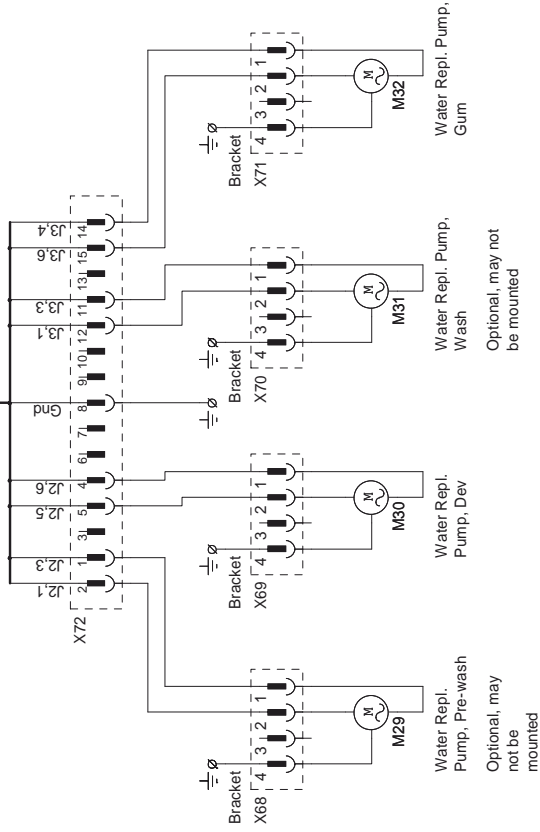
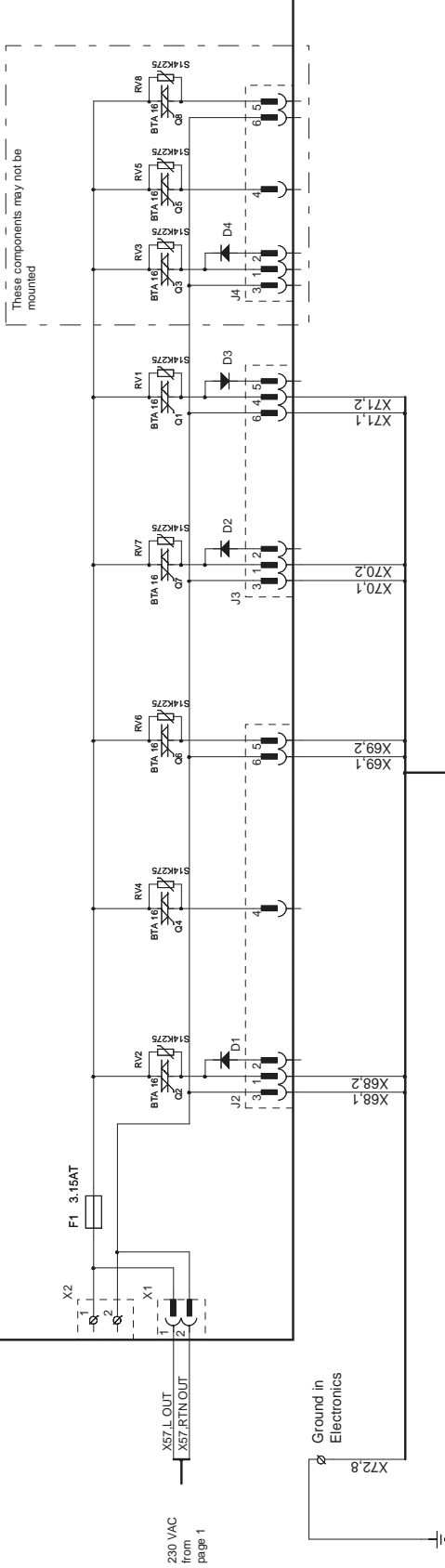
Date: Monday, January 14, 2008
 Contractor: TCJ
 Approval:


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 ELECTRONIC AND MECHANICAL ENGINEERS
 63664

High voltage wiring III

230V AC, control devices, LPM

Low Power Module, LPM (Optional, not on all Models)

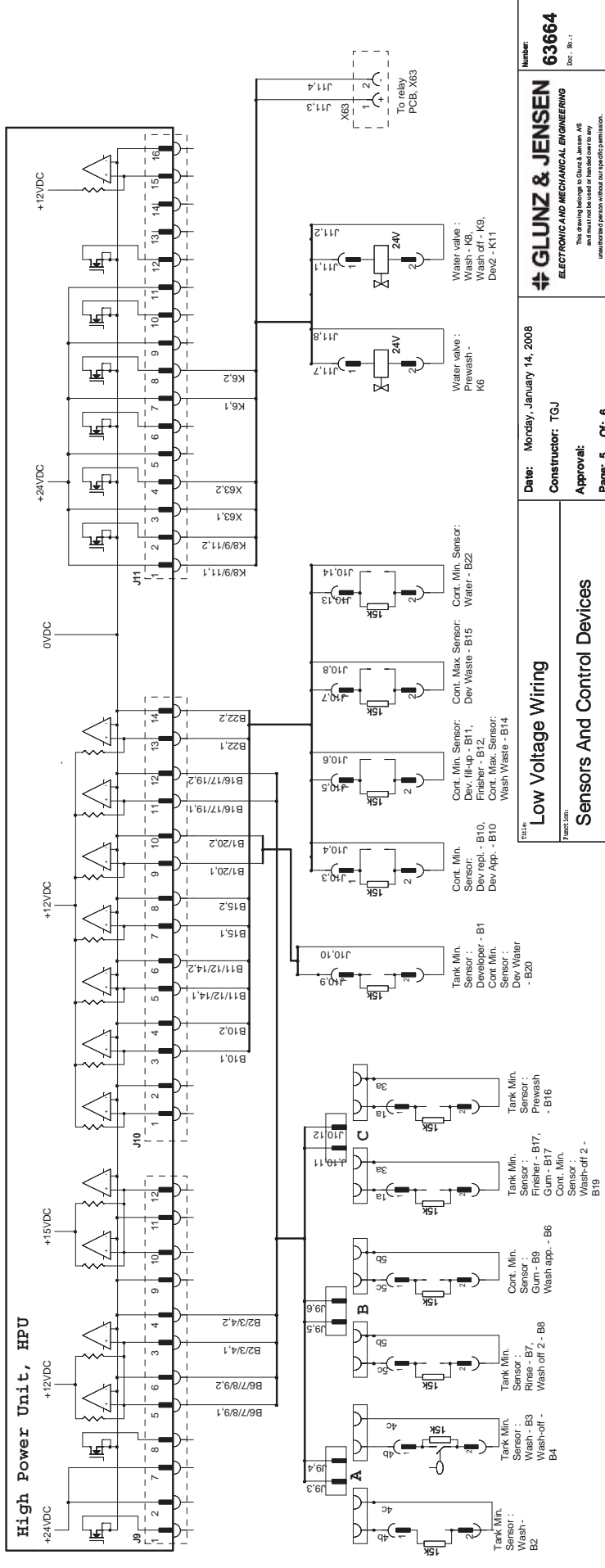


High Voltage Wiring		Date: Monday, January 14, 2008	 GLUNZ & JENSEN ELECTRONIC AND MECHANICAL ENGINEERING <small>This drawing belongs to Glunz & Jensen AG and must not be used or handed over to any unauthorized person without our specific permission.</small>	Number: 63664	Rev.: M
230 VAC Control Devices, LPM		Constructor: JW			
		Approval:			
		Pages: 4 Of: 6	OPCAD		

Low voltage wiring

Sensors and control devices

J1
Processor Interface
Module. PIM



Motors and internal bus wiring

8, 24 and 35V AC distribution

