

# **SERVICE MANUAL**

**WPB4\_WPB4 700-900-1100 H**  
Washers-extractors

04201016\_GB

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# 1. Safety rules

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## **Precautions for use**

- The machine should not be used by children.
- The machine is designed for "water washing" of textile only.
- This machine is for professional use and must be used exclusively by qualified personnel.
- It is forbidden to wash textiles soaked with solvents.
- In case of a gas heated machine, do not assemble the machine on premises containing a dry cleaning machines or other similar machines.
- Make sure not to over load the machine.
- If your machine has two compartment with the same linen load to prevent unbalances.
- Please wash only items offering appropriate distribution inside the drum. Do not wash items such as mattresses or shoes. Call our technical departments before washing non-standard items. Non compliance with these instructions may void the manufacturer's guarantee in case of abuse of the washer-extractor.

## **Preliminary instructions**

- The identification plate is placed on the loading side of the machine.
- In order to prevent any risk of fire or explosion, flammable products should never be used to clean the machine.
- Disconnect all the sources of energy before any intervention on the machine.
- Never try to open the drum door before the complete stop of the cage.
- The safety devices of the cage door(s) should in no case be made inoperative.
- The machines comply with the European Directive EMC (Electromagnetic Compatibility). They have been tested in laboratory and approved as such. It is so prohibited to add wires or non shielded electric cables in the cabinets, strands or cables' troughs.
- Considering that the volume of the cage is superior to 150 liters, the standard kept for the electric part is the IN 60204.

## **Locking and tagging procedure**

A red insert at the beginning of this instruction handbook schematically shows the locking and tagging procedure described below. If you wish, you can detach this insert and display it close to the machine to remind maintenance personnel of the safety instructions.

1

1. Safety rules

**1**



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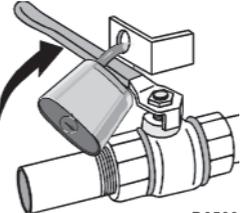
Always respect items 2, 3 and 4 carefully before doing any repair or maintenance work on the machine.

**2**



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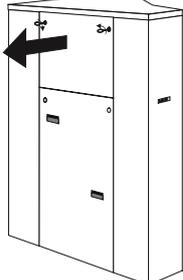
Put the main switch to Off and lock the handle with a padlock in one of the three holes provided for this purpose.



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Close the stop valves for the other supplies (steam, thermal fluid, compressed air) to stop and lock their handle with a padlock.

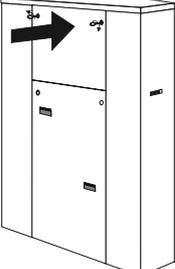
**3**



Open the fixed protectors (casings, doors) with the key provided or a special tool.

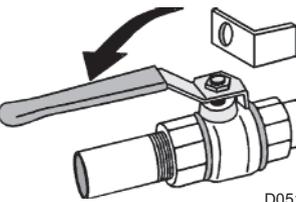


Do the maintenance.

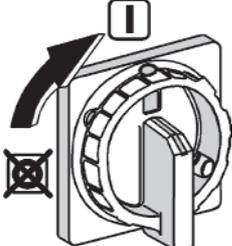


Close and carefully lock the fixed protectors.

**4**



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D0513

Unlock the stop valves and the main switch.

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## 2. Technical characteristics

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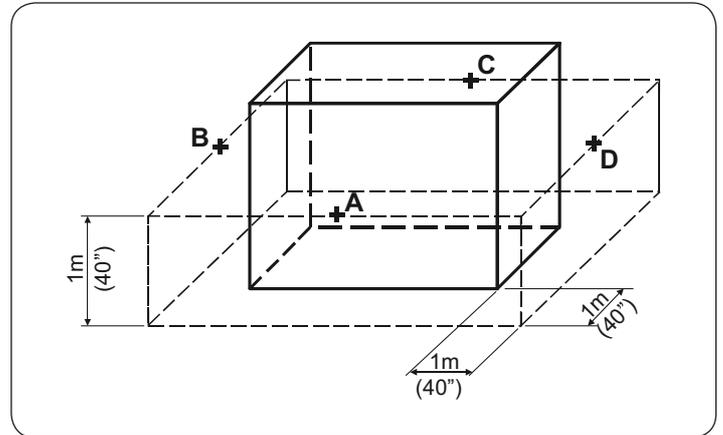
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Sound level

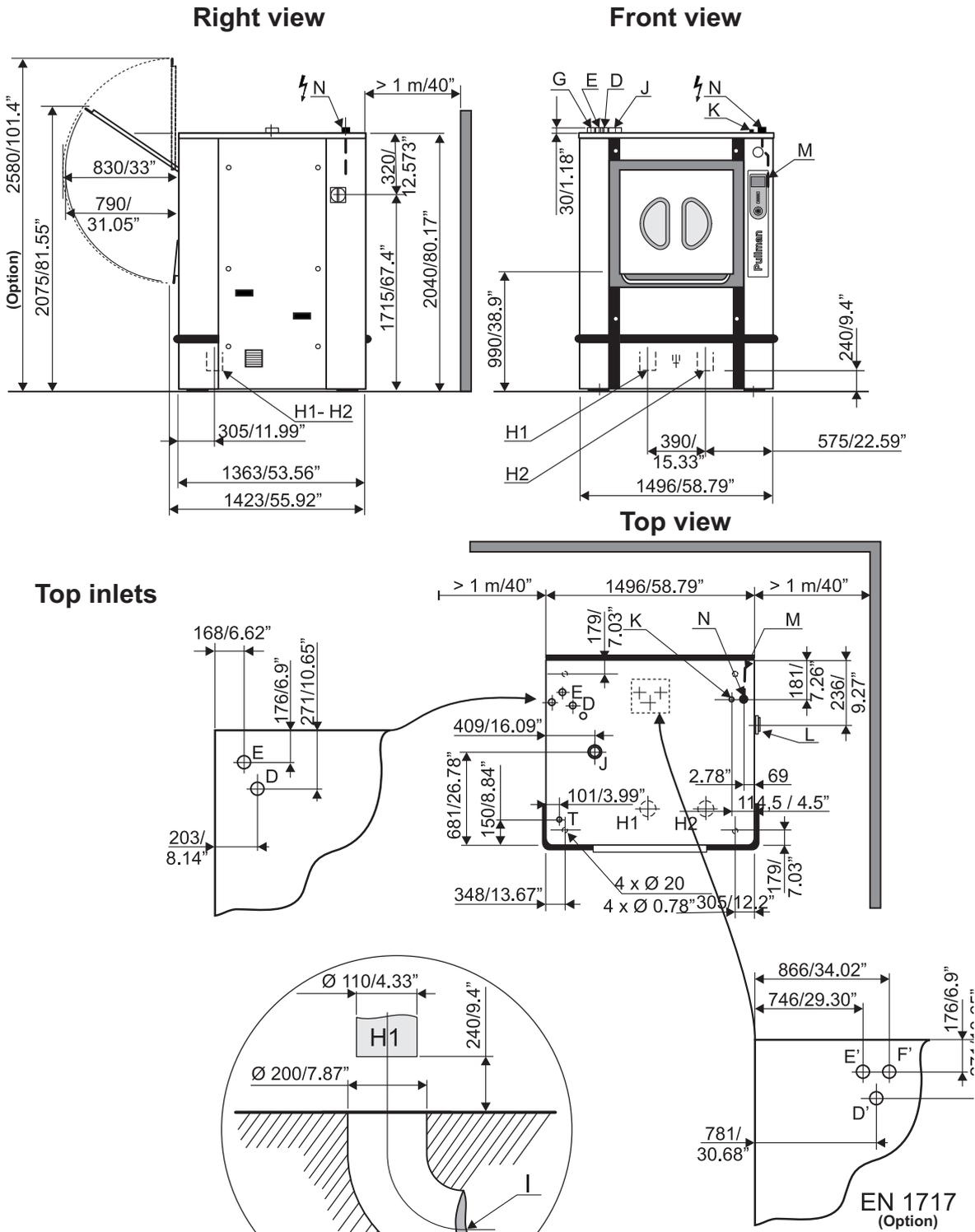
Airborne noise emitted by the machine (values established from measurements made on machine at points A, B, C, and D).



Weighted sound pressure level (A) in dB (A)

	Washer 700		Washer 900		Washer 1100	
	washing	high spin extraction	washing	high spin extraction	washing	high spin extraction
	<b>(without insulation)</b>		<b>(without insulation)</b>		<b>(without insulation)</b>	
<b>A</b>	63,5	82,2	63,5	82	66	81,5
<b>B</b>	64	81,3	64,2	81	66	81,5
<b>C</b>	63	83,9	63,8	83	67	83
<b>D</b>	64	82,7	64,2	83	67	83
	<b>(with insulation)</b>		<b>(with insulation)</b>		<b>(with insulation)</b>	
<b>A</b>	63,5	72,2	63,5	79	66	79
<b>B</b>	64	77	64,2	79	66	79
<b>C</b>	63	79,5	63,8	79	67	78
<b>D</b>	64	75,8	64,2	78	67	77

Washer extractor type 700 standard



07100140

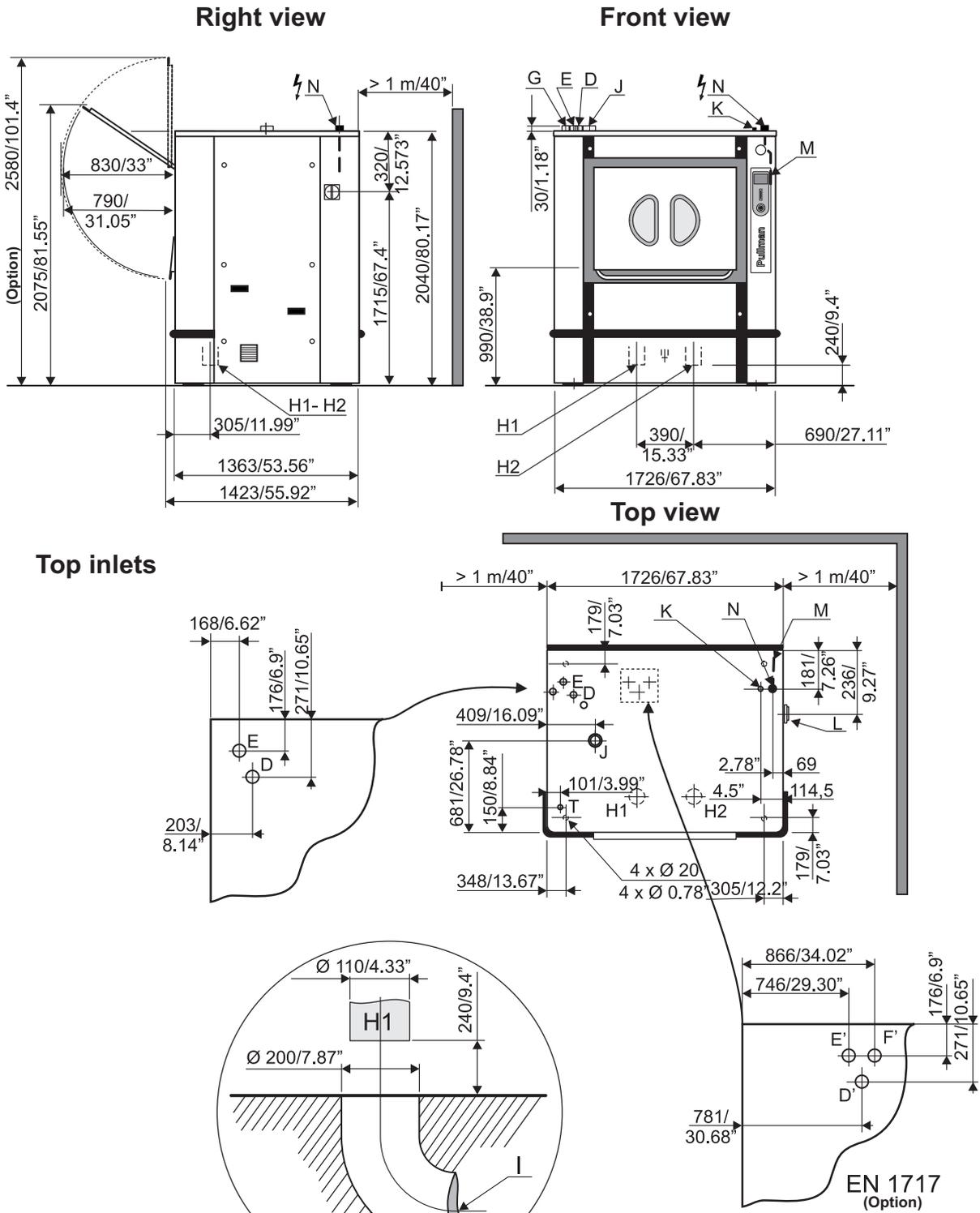
Washer extractor type 700 standard

Diagram No. 07100140

	Heating	Electric	Steam	Thermic fluid
<b>Characteristics</b>	Ø drum ----- 1050 mm - 41.33" -----			
	Drum length ----- 794 mm - 31.26" -----			
	Opening drum door (LxH) ----- 670x490 mm - 26.37x19.3" -----			
	Opening cage door (LxH) ----- 728x698 mm - 28.65x27.49" -----			
	Drum volume ----- 685 dm <sup>3</sup> - 685 l -----			
	Specific load 1/10 ----- 68,5 kg - 151.52 lb ----- (dry linen, ISO 9398-4)			
<b>Floor area</b>	----- 2,04 m <sup>2</sup> - 21.95 sq. ft -----			
<b>Contact surface with floor</b>	----- 0,25 m <sup>2</sup> - 388.55 sq. in -----			
<b>Net weight</b>	----- 2600 daN - 5735 lb -----			
<b>Weight loaded (high level)</b>	----- 3090 daN - 6815 lb -----			
<b>Water consumption, washing, low level</b>	185 l		185 l	185 l
<b>Water consumption, washing, high level</b>	370 l		370 l	370 l
<b>Spin efficiency</b>		300 G	300 G	300 G
<b>Max. unbalance</b>		15 kg (33 lb)	15 kg (33 lb)	15 kg (33 lb)
<b>L Main switch to connect main cable</b>				
<b>M/M' Electric cable (section)</b>		4 x 25 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>
<b>N/N' Stuffing box for main cable</b>				
<b>Supply voltage</b>	----- 380 / 415 V 3+E ~ 50/60 Hz -----			
<b>Installed electric power</b>		65,7 kW	11,7 kW	11,7 kW
<b>Installed heating power</b>		54 kW	-	-
<b>Electric consumption for a normal cycle*</b>		17,8 kWh/h	1,8 kWh/h	1,8 kWh/h
<b>Heat loss</b>	----- 3 % of installed heating power -----			
<b>G/G' Steam inlet</b>			DN 25 - 1" BSP	
	- Maximum supply pressure		600 kPa - 87 psi	
	- Steam instantaneous flow rate at 600 kPa		240 kg/h	
	- Steam consumption for a normal cycle*		24 kg/h	
<b>D/D' Hot water connection / flow</b>	----- DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi) -----			
<b>E/E' Cold hard water connection / flow</b>	----- DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi) -----			
<b>F/F' Cold soft water connection / flow (option)</b>	----- DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi) -----			
<b>Water supply minimum pressure</b>	----- 50 kPa - 7.25 psi -----			
<b>Water supply maximum pressure</b>	----- 600 kPa - 43.5 psi -----			
<b>Water consumption for a normal cycle*</b>	----- 990 l -----			
<b>H1 1st drain connection</b>	----- Ø 110 mm - 4.33" -----			
<b>H2 2nd drain connection (option)</b>	----- Ø 110 mm - 4.33" -----			
<b>Maximum drain flow rate</b>	----- 380 l/min -----			
<b>I Waste water collector</b>	----- DN 200 mm - 8" BSP -----			
	(3 cm/m (3 %) minimum slope)			
<b>J Air vent hole</b>	----- Ø 80 mm - 3.15" -----			
<b>V Thermic fluid inlet</b>			DN 20 - 3/4" BSP	
<b>W Thermic fluid return</b>			DN 20 - 3/4" BSP	
	- Maximum supply pressure		400 kPa	
	- Inner volume thermic fluid exchanger		8 l	
<b>K/K' Compressed air inlet</b>	----- Ø 6/8 mm - 1/4" -----			
	- Min./max. compress air pressure	----- 5,5/7 bar - 80/100 psi -----		
	- Consumption	----- 50 l/h -----		
<b>T/T' Liquid detergents connection</b>	----- Ø 25 mm - 0.99" -----			

\*normal cycle : prewash 3 min at 35 °C, drain 2 min, main wash 4 min at 65 °C, drain 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 10 min (cold water supply at 15 °C).

Washer extractor type 900 standard



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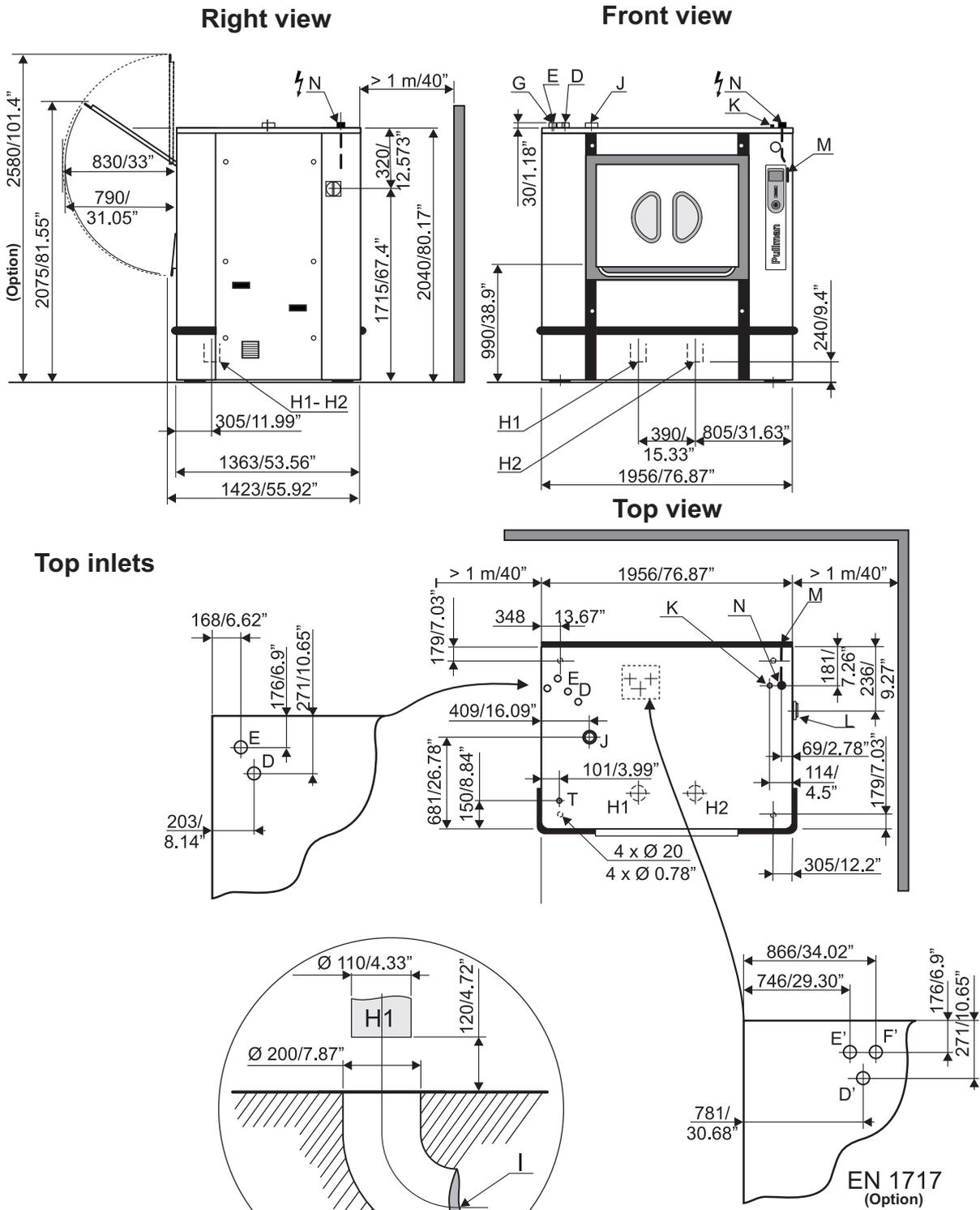
Washer extractor type 900 standard

Diagram No. 07100138

	Heating	Electric	Steam	Thermic fluid
<b>Characteristics</b>				
Ø drum	1050 mm - 41.33"			
Drum length	1026 mm - 40.39"			
Opening drum door (LxH)	900x490 mm - 35.43x19.3"			
Opening cage door (LxH)	958x698 mm - 37.71x27.49"			
Drum volume	885 dm <sup>3</sup> - 885 l			
Specific load 1/10 (dry linen, ISO 9398-4)	88,5 kg - 195.2 lb			
<b>Floor area</b>	2,35 m <sup>2</sup> - 25.29 sq. ft			
<b>Contact surface with floor</b>	0,25 m <sup>2</sup> - 388.55 sq. in			
<b>Net weight</b>	2800 daN - 6176 lb			
<b>Weight loaded (high level)</b>	3430 daN - 7565 lb			
<b>Water consumption, washing, low level</b>	220 l		220 l	220 l
<b>Water consumption, washing, high level</b>	440 l		440 l	440 l
<b>Spin efficiency</b>		300 G	300 G	300 G
<b>Max. unbalance</b>		15 kg (33 lb)	15 kg (33 lb)	15 kg (33 lb)
<b>L Main switch to connect main cable</b>				
<b>M/M' Electric cable (section)</b>		4 x 25 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>
<b>N/N' Stuffing box for main cable</b>				
<b>Supply voltage</b>	380 / 415 V 3+E ~ 50/60 Hz			
<b>Installed electric power</b>		87,7 kW	15,7 kW	15,7 kW
<b>Installed heating power</b>		72 kW	-	-
<b>Electric consumption for a normal cycle*</b>		26,5 kWh/h	2,3 kWh/h	2,3 kWh/h
<b>Heat loss</b>	3 % of installed heating power			
<b>G/G' Steam inlet</b>			DN 25 - 1" BSP	
- Maximum supply pressure			600 kPa - 87 psi	
- Steam instantaneous flow rate at 600 kPa			240 kg/h	
- Steam consumption for a normal cycle*			32 kg/h	
<b>D/D' Hot water connection / flow</b>	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)			
<b>E/E' Cold hard water connection / flow</b>	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)			
<b>F/F' Cold soft water connection / flow (option)</b>	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)			
<b>Water supply minimum pressure</b>	50 kPa - 7.25 psi			
<b>Water supply maximum pressure</b>	600 kPa - 43.5 psi			
<b>Water consumption for a normal cycle*</b>	1190 l			
<b>H1 1st drain connection</b>	Ø 110 mm - 4.33"			
<b>H2 2nd drain connection (option)</b>	Ø 110 mm - 4.33"			
<b>Maximum drain flow rate</b>	380 l/min			
<b>I Waste water collector</b> (3 cm/m (3 %) minimum slope)	DN 200 mm - 8" BSP			
<b>J Air vent hole</b>	Ø 80 mm - 3.15"			
<b>V Thermic fluid inlet</b>			DN 20 - 3/4" BSP	
<b>W Thermic fluid return</b>			DN 20 - 3/4" BSP	
- Maximum supply pressure			400 kPa	
- Inner volume thermic fluid exchanger			9 l	
<b>K/K' Compressed air inlet</b>	Ø 6/8 mm - 1/4"			
- Min./max. compress air pressure	5,5/7 bar - 80/100 psi			
- Consumption	50 l/h			
<b>T/T' Liquid detergents connection</b>	Ø 25 mm - 0.99"			

\*normal cycle : prewash 3 min at 35 °C, drain 2 min, main wash 4 min at 65 °C, drain 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 10 min (cold water supply at 15 °C).

Washer extractor type 1100 standard



07100136

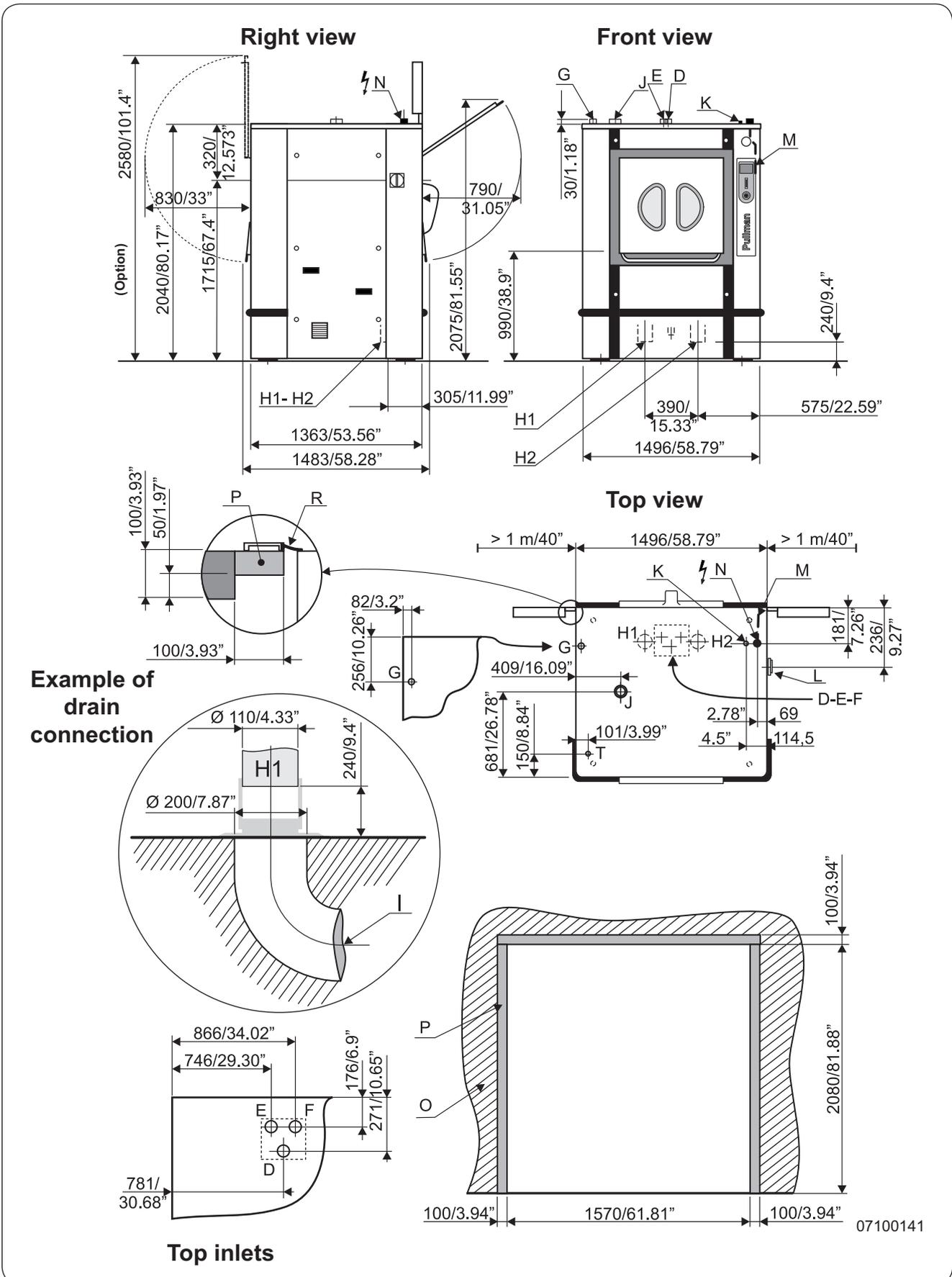
Washer extractor type 1100 standard

Diagram No. 07100136

	Heating	Electric	Steam	Thermic fluid
<b>Characteristics</b>				
Ø drum	1050 mm - 41.33"			
Drum length	1256 mm - 49.45"			
Opening drum door (LxH)	900x490 mm - 35.43x19.3"			
Opening cage door (LxH)	958x698 mm - 37.71x27.49"			
Drum volume	1083 dm <sup>3</sup> - 1083 l			
Specific load 1/10 (dry linen, ISO 9398-4)	108,3 kg - 238.87 lb			
<b>Floor area</b>	2,67 m <sup>2</sup> - 28.73 sq. ft			
<b>Contact surface with floor</b>	0,25 m <sup>2</sup> - 388.55 sq. in			
<b>Net weight</b>	2900 daN - 6395 lb			
<b>Weight loaded (high level)</b>	3670 daN - 8093 lb			
<b>Water consumption, washing, low level</b>	300 l		300 l	300 l
<b>Water consumption, washing, high level</b>	600 l		600 l	515 l
<b>Spin efficiency</b>		300 G	300 G	300 G
<b>Max. unbalance</b>		15 kg (33 lb)	15 kg (33 lb)	15 kg (33 lb)
<b>L Main switch to connect main cable</b>				
<b>M/M' Electric cable (section)</b>		4 x 25 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>
<b>N/N' Stuffing box for main cable</b>				
<b>Supply voltage</b>	380 / 415 V 3+E ~ 50/60 Hz			
<b>Installed electric power</b>		91 kW	19 kW	19 kW
<b>Installed heating power</b>		72 kW	-	-
<b>Electric consumption for a normal cycle*</b>		31,9 kWh/h	2,4 kWh/h	2,4 kWh/h
<b>Heat loss</b>	3 % of installed heating power			
<b>G/G' Steam inlet</b>			DN 25 - 1" BSP	
- Maximum supply pressure			600 kPa - 87 psi	
- Steam instantaneous flow rate at 600 kPa			240 kg/h	
- Steam consumption for a normal cycle*			36 kg/h	
<b>D/D' Hot water connection / flow</b>	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)			
<b>E/E' Cold hard water connection / flow</b>	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)			
<b>F/F' Cold soft water connection / flow (option)</b>	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)			
<b>Water supply minimum pressure</b>	50 kPa - 7.25 psi			
<b>Water supply maximum pressure</b>	600 kPa - 43.5 psi			
<b>Water consumption for a normal cycle*</b>	1490 l			
<b>H1 1st drain connection</b>	Ø 110 mm - 4.33"			
<b>H2 2nd drain connection (option)</b>	Ø 110 mm - 4.33"			
<b>Maximum drain flow rate</b>	380 l/min			
<b>I Waste water collector</b> (3 cm/m (3 %) minimum slope)	DN 200 mm - 8" BSP			
<b>J Air vent hole</b>	Ø 80 mm - 3.15"			
<b>V Thermic fluid inlet</b>			DN 20 - 3/4" BSP	
<b>W Thermic fluid return</b>			DN 20 - 3/4" BSP	
- Maximum supply pressure			400 kPa	
- Inner volume thermic fluid exchanger			10 l	
<b>K/K' Compressed air inlet</b>	Ø 6/8 mm - 1/4"			
- Min./max. compress air pressure	5,5/7 bar - 80/100 psi			
- Consumption	50 l/h			
<b>T/T' Liquid detergents connection</b>	Ø 25 mm - 0.99"			

\*normal cycle : prewash 3 min at 35 °C, drain 2 min, main wash 4 min at 65 °C, drain 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 10 min (cold water supply at 15 °C).

Washer extractor type 700 barrier



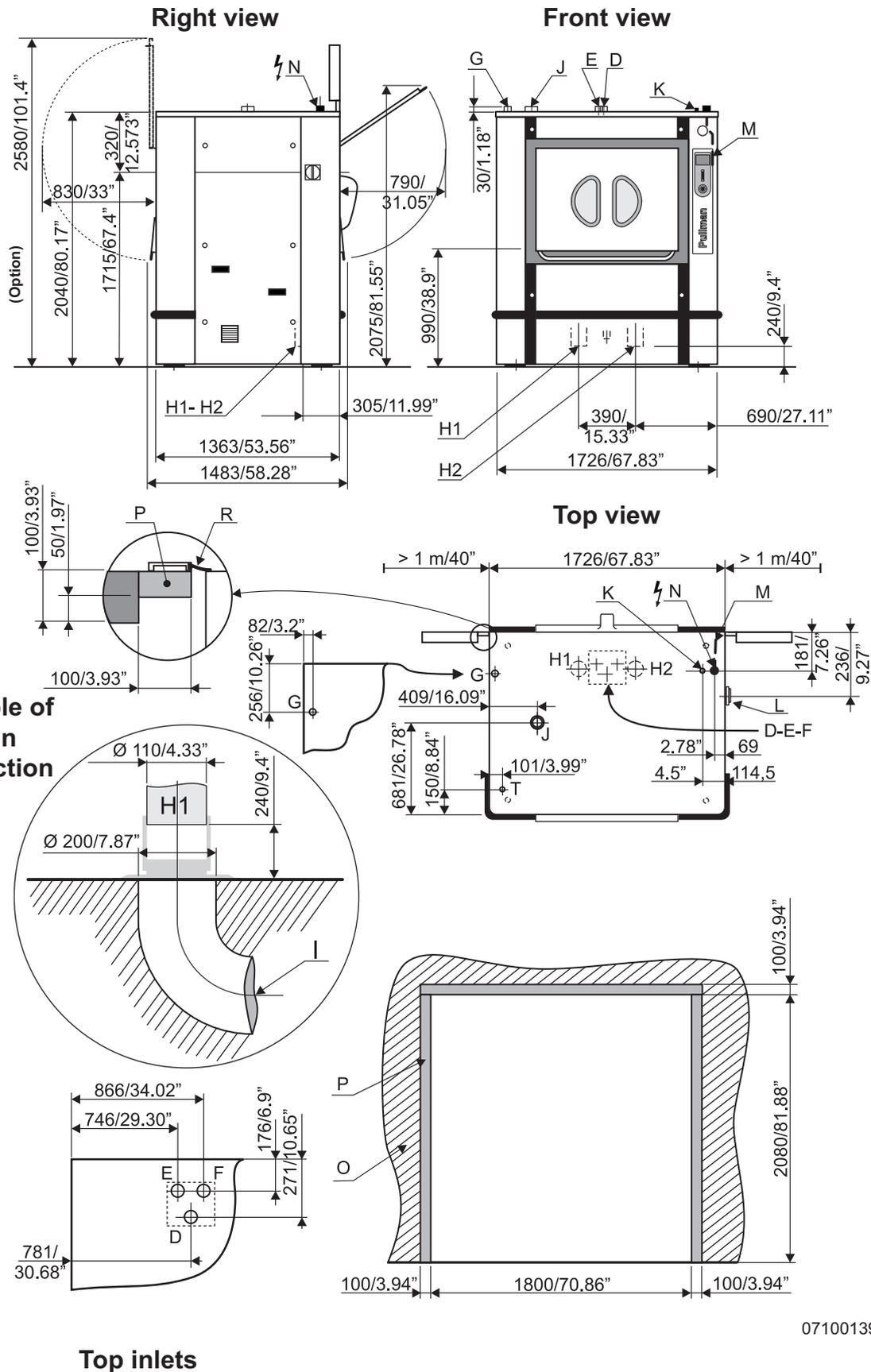
Washer extractor type 700 barrier

Diagram No. 07100141

	Heating	Electric	Steam	Thermic fluid
<b>Characteristics</b>	Ø drum -----	1050 mm - 41.33" -----		
	Drum length -----	794 mm - 31.26" -----		
	Opening drum door (LxH) -----	670x490 mm - 26.37x19.3" -----		
	Opening cage door (LxH) -----	728x698 mm - 28.65x27.49" -----		
	Drum volume -----	685 dm <sup>3</sup> - 685 l -----		
	Specific load 1/10 -----	68,5 kg - 151.52 lb -----		
	(dry linen, ISO 9398-4)			
<b>Floor area</b>	-----	2,04 m <sup>2</sup> - 21.95 sq. ft -----		
<b>Contact surface with floor</b>	-----	0,25 m <sup>2</sup> - 388.55 sq. in -----		
<b>Net weight</b>	-----	2600 daN - 5735 lb -----		
<b>Weight loaded (high level)</b>	-----	3090 daN - 6815 lb -----		
<b>Water consumption, washing, low level</b>		185 l	185 l	185 l
<b>Water consumption, washing, high level</b>		370 l	370 l	370 l
<b>Frequency of the dynamic force</b>		0,xx Hz	0,xx Hz	0,xx Hz
<b>Spin efficiency</b>		300 G	300 G	300 G
<b>Max. unbalance</b>		15 kg - 33 lb	15 kg - 33 lb	15 kg - 33 lb
<b>L Main switch to connect main cable</b>				
<b>M/M' Electric cable (section)</b>		4 x 25 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>
<b>N/N' Stuffing box for main cable</b>				
<b>Supply voltage</b>	-----	380 / 415 V 3+E ~ 50/60 Hz -----		
<b>Installed electric power</b>		65,7 kW	11,7 kW	11,7 kW
<b>Installed heating power</b>		54 kW	-	-
<b>Electric consumption for a normal cycle*</b>		17,8 kWh/h	1,8 kWh/h	1,8 kWh/h
<b>Heat loss</b>	-----	3 % of installed heating power -----		
<b>G/G' Steam inlet</b>			DN 25 - 1" BSP	
	- Maximum supply pressure		600 kPa - 87 psi	
	- Steam instantaneous flow rate at 600 kPa		240 kg/h	
	- Steam consumption for a normal cycle*		24 kg/h	
<b>D/D' Hot water connection / flow</b>	-----	DN 32 (1 <sup>1</sup> / <sub>4</sub> BSP) - 200 l/min at 250 kPa (37 psi)		
<b>E/E' Cold hard water connection / flow</b>	-----	DN 32 (1 <sup>1</sup> / <sub>4</sub> BSP) - 200 l/min at 250 kPa (37 psi)		
<b>F/F' Cold soft water connection / flow (option)</b>	-----	DN 32 (1 <sup>1</sup> / <sub>4</sub> BSP) - 200 l/min at 250 kPa (37 psi)		
<b>Water supply minimum pressure</b>	-----	50 kPa - 7.25 psi -----		
<b>Water supply maximum pressure</b>	-----	600 kPa - 87 psi -----		
<b>Water consumption or a normal cycle*</b>	-----	990 l -----		
<b>H1 1st drain connection</b>	-----	Ø 110 mm - 4.33" -----		
<b>H2 2nd drain connection (option)</b>	-----	Ø 110 mm - 4.33" -----		
<b>Maximum drain flow rate</b>	-----	380 l/min -----		
<b>I Waste water collector</b>	-----	DN 200 mm - 8" BSP -----		
	(3 cm/m (3 %) minimum slope)			
<b>J Air vent hole</b>	-----	Ø 80 mm - 3.15" -----		
<b>V Thermic fluid inlet</b>			DN 20 - 3/4" BSP	
<b>W Thermic fluid return</b>			DN 20 - 3/4" BSP	
	- Maximum supply pressure		400 kPa	
	- Inner volume thermic fluid exchanger		8 l	
<b>O Barrier partition (provided by customer)</b>				
<b>P Frame 60x100 mm - 2x4" maximum (provided by customer)</b>				
<b>R Aseptis seal</b>				
<b>K/K' Compressed air inlet</b>	-----	Ø 6/8 mm - 1/4" -----		
	- Min./max. compress air pressure -----	5,5/7 bar - 80/100 psi -----		
	- Consumption -----	50 l/h -----		
<b>T/T' Liquid detergents connection</b>	-----	Ø 25 mm - 0.99" -----		

\*normal cycle : prewash 3 min at 35 °C, drain 2 min, main wash 4 min at 65 °C, drain 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 10 min (cold water supply at 15 °C).

Washer extractor type 900 barrier



07100139

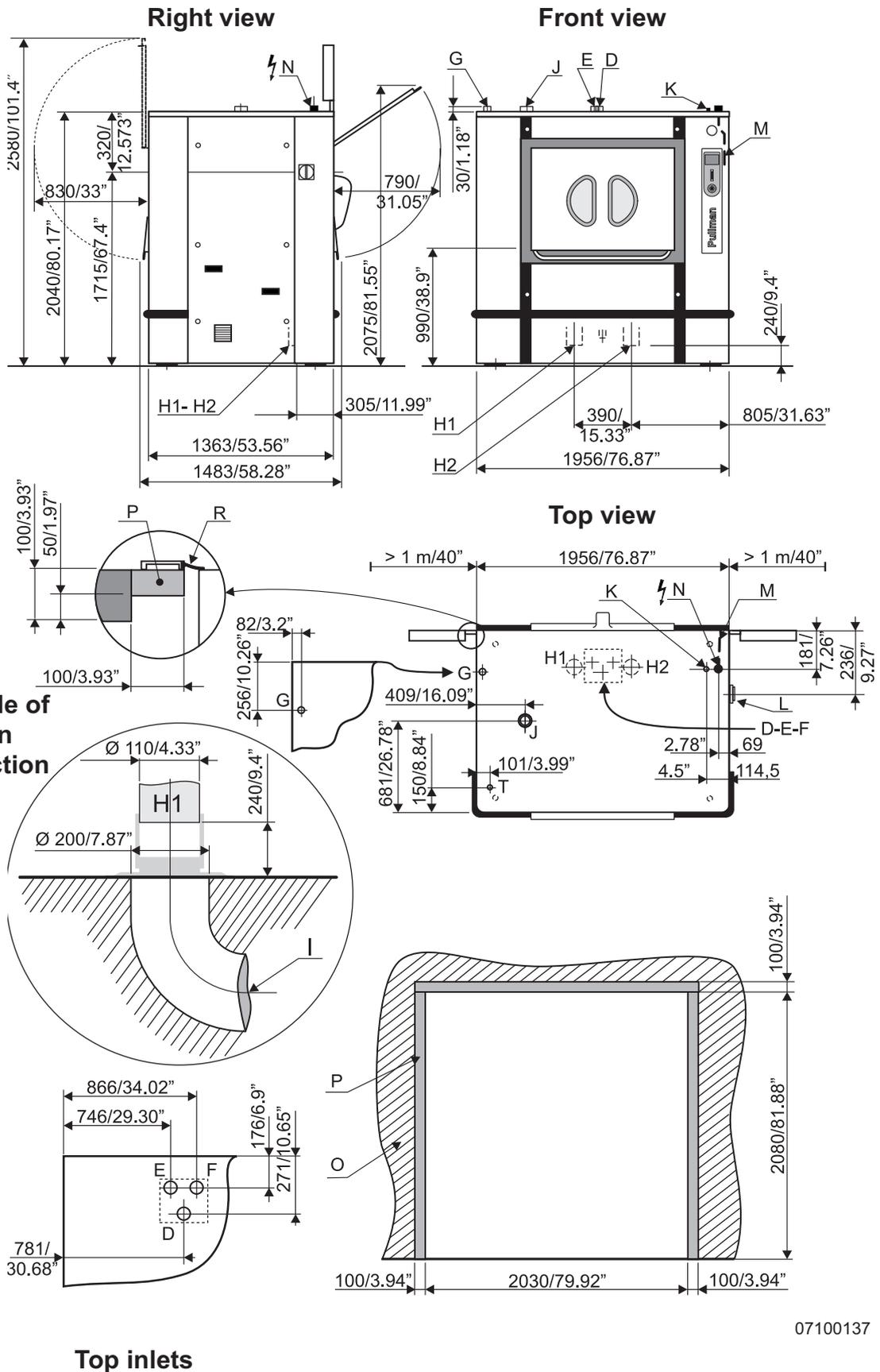
Washer extractor type 900 barrier

Diagram No. 07100139

	Heating	Electric	Steam	Thermic fluid
<b>Characteristics</b>	Ø drum -----	1050 mm - 41.33" -----		
	Drum length -----	1026 mm - 40.39" -----		
	Opening drum door (LxH) -----	900x490 mm - 35.43x19.3" -----		
	Opening cage door (LxH) -----	958x698 mm - 37.71x27.49" -----		
	Drum volume -----	885 dm <sup>3</sup> - 885 l -----		
	Specific load 1/10 ----- (dry linen, ISO 9398-4)	88,5 kg - 195.2 lb -----		
<b>Floor area</b>	-----	2,35 m <sup>2</sup> - 25.29 sq. ft -----		
<b>Contact surface with floor</b>	-----	0,25 m <sup>2</sup> - 388.55 sq. in -----		
<b>Net weight</b>	-----	2800 daN - 6176 lb -----		
<b>Weight loaded (high level)</b>	-----	3430 daN - 7565 lb -----		
<b>Water consumption, washing, low level</b>		220 l	220 l	220 l
<b>Water consumption, washing, high level</b>		440 l	440 l	440 l
<b>Spin efficiency</b>		300 G	300 G	300 G
<b>Max. unbalance</b>		15 kg - 33 lb	15 kg - 33 lb	15 kg - 33 lb
<b>L Main switch to connect main cable</b>				
<b>M/M' Electric cable (section)</b>		4 x 25 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>
<b>N/N' Stuffing box for main cable</b>				
<b>Supply voltage</b>	-----	380 / 415 V 3+E ~ 50/60 Hz -----		
<b>Installed electric power</b>		87,7 kW	15,7 kW	15,7 kW
<b>Installed heating power</b>		72 kW	-	-
<b>Electric consumption for a normal cycle*</b>		26,5 kWh/h	2,3 kWh/h	2,3 kWh/h
<b>Heat loss</b>	-----	3 % of installed heating power -----		
<b>G/G' Steam inlet</b>		DN 25 - 1" BSP		
	- Maximum supply pressure	600 kPa - 87 psi		
	- Steam instantaneous flow rate at 600 kPa	240 kg/h		
	- Steam consumption for a normal cycle*	32 kg/h		
<b>D/D' Hot water connection / flow</b>	-----	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)		
<b>E/E' Cold hard water connection / flow</b>	-----	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)		
<b>F/F' Cold soft water connection / flow (option)</b>	-----	DN 32 (1"¼ BSP) - 200 l/min at 250 kPa (37 psi)		
<b>Water supply minimum pressure</b>	-----	50 kPa - 7.25 psi -----		
<b>Water supply maximum pressure</b>	-----	600 kPa - 87 psi -----		
<b>Water consumption or a normal cycle*</b>	-----	1190 l -----		
<b>H1 1st drain connection</b>	-----	Ø 110 mm - 4.33" -----		
<b>H2 2nd drain connection (option)</b>	-----	Ø 110 mm - 4.33" -----		
<b>Maximum drain flow rate</b>	-----	380 l/min -----		
<b>I Waste water collector</b>	-----	DN 200 mm - 8" BSP -----		
	(3 cm/m (3 %) minimum slope)			
<b>J Air vent hole</b>	-----	Ø 80 mm - 3.15" -----		
<b>V Thermic fluid inlet</b>			DN 20 - 3/4" BSP	
<b>W Thermic fluid return</b>			DN 20 - 3/4" BSP	
	- Maximum supply pressure		400 kPa	
	- Inner volume thermic fluid exchanger		9 l	
<b>O Barrier partition (provided by customer)</b>				
<b>P Frame 60x100 mm - 2x4" maximum (provided by customer)</b>				
<b>R Aseptis seal</b>				
<b>K/K' Compressed air inlet</b>	-----	Ø 6/8 mm - 1/4" -----		
	- Min./max. compress air pressure -----	5,5/7 bar - 80/100 psi -----		
	- Consumption -----	50 l/h -----		
<b>T/T' Liquid detergents connection</b>	-----	Ø 25 mm - 0.99" -----		

\*normal cycle : prewash 3 min at 35 °C, drain 2 min, main wash 4 min at 65 °C, drain 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 10 min (cold water supply at 15 °C).

Washer extractor type 1100 barrier



07100137

Washer extractor type 1100 barrier

Diagram No. 07100137

	Heating	Electric	Steam	Thermic fluid
<b>Characteristics</b>	Ø drum -----	1050 mm - 41.33" -----		
	Drum length -----	1256 mm - 49.45" -----		
	Opening drum door (LxH) -----	900x490 mm - 35.43x19.3" -----		
	Opening cage door (LxH) -----	958x698 mm - 37.71x27.49" -----		
	Drum volume -----	1083 dm <sup>3</sup> - 1083 l -----		
	Specific load 1/10 ----- (dry linen, ISO 9398-4)	108,3 kg - 238.87 lb -----		
<b>Floor area</b>	-----	2,67 m <sup>2</sup> - 28.73 sq. ft -----		
<b>Contact surface with floor</b>	-----	0,25 m <sup>2</sup> - 388.55 sq. in -----		
<b>Net weight</b>	-----	2900 daN - 6395 lb -----		
<b>Weight loaded (high level)</b>	-----	3670 daN - 8093 lb -----		
<b>Water consumption, washing, low level</b>		300 l	300 l	300 l
<b>Water consumption, washing, high level</b>		600 l	600 l	515 l
<b>Spin efficiency</b>		300 G	300 G	300 G
<b>Max. unbalance</b>		15 kg - 33 lb	15 kg - 33 lb	15 kg - 33 lb
<b>L Main switch to connect main cable</b>				
<b>M/M' Electric cable (section)</b>		4 x 25 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>	4 x 6 mm <sup>2</sup>
<b>N/N' Stuffing box for main cable</b>				
<b>Supply voltage</b>	-----	380 / 415 V 3+E ~ 50/60 Hz -----		
<b>Installed electric power</b>		91 kW	19 kW	19 kW
<b>Installed heating power</b>		72 kW	-	-
<b>Electric consumption for a normal cycle*</b>		31,9 kWh/h	2,4 kWh/h	2,4 kWh/h
<b>Heat loss</b>	-----	3 % of installed heating power -----		
<b>G/G' Steam inlet</b>			DN 25 - 1" BSP	
	- Maximum supply pressure		600 kPa - 87 psi	
	- Steam instantaneous flow rate at 600 kPa		240 kg/h	
	- Steam consumption for a normal cycle*		36 kg/h	
<b>D/D' Hot water connection / flow</b>	-----	DN 32 (1 <sup>1</sup> / <sub>4</sub> BSP) - 200 l/min at 250 kPa (37 psi)		
<b>E/E' Cold hard water connection / flow</b>	-----	DN 32 (1 <sup>1</sup> / <sub>4</sub> BSP) - 200 l/min at 250 kPa (37 psi)		
<b>F/F' Cold soft water connection / flow (option)</b>	-----	DN 32 (1 <sup>1</sup> / <sub>4</sub> BSP) - 200 l/min at 250 kPa (37 psi)		
<b>Water supply minimum pressure</b>	-----	50 kPa - 7.25 psi -----		
<b>Water supply maximum pressure</b>	-----	600 kPa - 87 psi -----		
<b>Water consumption or a normal cycle*</b>	-----	1490 l -----		
<b>H1 1st drain connection</b>	-----	Ø 110 mm - 4.33" -----		
<b>H2 2nd drain connection (option)</b>	-----	Ø 110 mm - 4.33" -----		
<b>Maximum drain flow rate</b>	-----	380 l/min -----		
<b>I Waste water collector</b>	-----	DN 200 mm - 8" BSP -----		
	(3 cm/m (3 %) minimum slope)			
<b>J Air vent hole</b>	-----	Ø 80 mm - 3.15" -----		
<b>V Thermic fluid inlet</b>			DN 20 - 3/4" BSP	
<b>W Thermic fluid return</b>			DN 20 - 3/4" BSP	
	- Maximum supply pressure		400 kPa	
	- Inner volume thermic fluid exchanger		10 l	
<b>O Barrier partition (provided by customer)</b>				
<b>P Frame 60x100 mm - 2x4" maximum (provided by customer)</b>				
<b>R Aseptis seal</b>				
<b>K/K' Compressed air inlet</b>	-----	Ø 6/8 mm - 1/4" -----		
	- Min./max. compress air pressure -----	5,5/7 bar - 80/100 psi -----		
	- Consumption -----	50 l/h -----		
<b>T/T' Liquid detergents connection</b>	-----	Ø 25 mm - 0.99" -----		

\*normal cycle : prewash 3 min at 35 °C, drain 2 min, main wash 4 min at 65 °C, drain 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 2 min, rinse 2 min, extract 10 min (cold water supply at 15 °C).

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### 3. Description of principal components

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## Description

This washer extractor is controlled by a microprocessor-based program control unit placed on the loading side. There are many advantages to this equipment, including :

- Timing, levels and temperatures are controlled with great precision and flexibility.
- The large display screen means that detailed information on wash programs, machine status and operations, wash times and temperatures can be accessed in plain language.
- It is possible for the user to create new wash programs, and to adapt programs with great precision, on the basis of experience and to suit various types of textile, degrees of soiling etc.
- A very high level of machine safety through continuous monitoring and built-in safety interlocks.
- The program control unit has a reader for "smart cards". These are cards the size of a credit card which contain a memory chip. Smart cards allow the user to :
  - transfer wash programs between a PC and the washer extractor, or from one washer extractor to another;
  - run programs straight from a card.
- Great flexibility during program operation :
  - rapid advance both forwards and backwards in the program;
  - the user can change temperatures, program module lengths and extraction speeds directly, during program operation;
  - change to running a different wash program, at any time during program operation of the washer extractor.

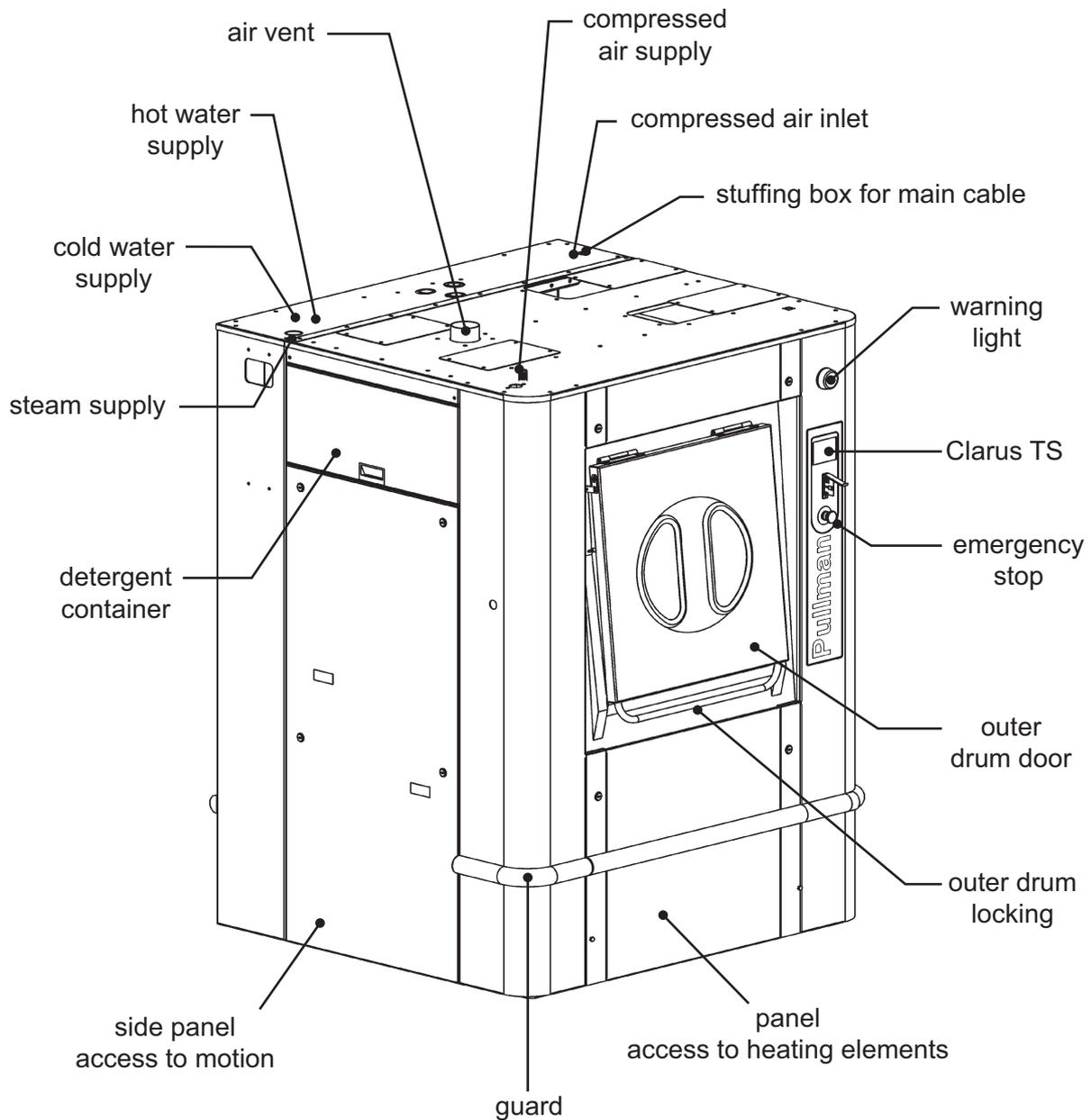
A very high working safety level of the machine is achieved thanks to a continuous monitoring and built-in safety devices.

Even the compound textile fabrics can be washed at a high temperature with no crumpling risk thanks to a special cooling process before the rinsing cycle.

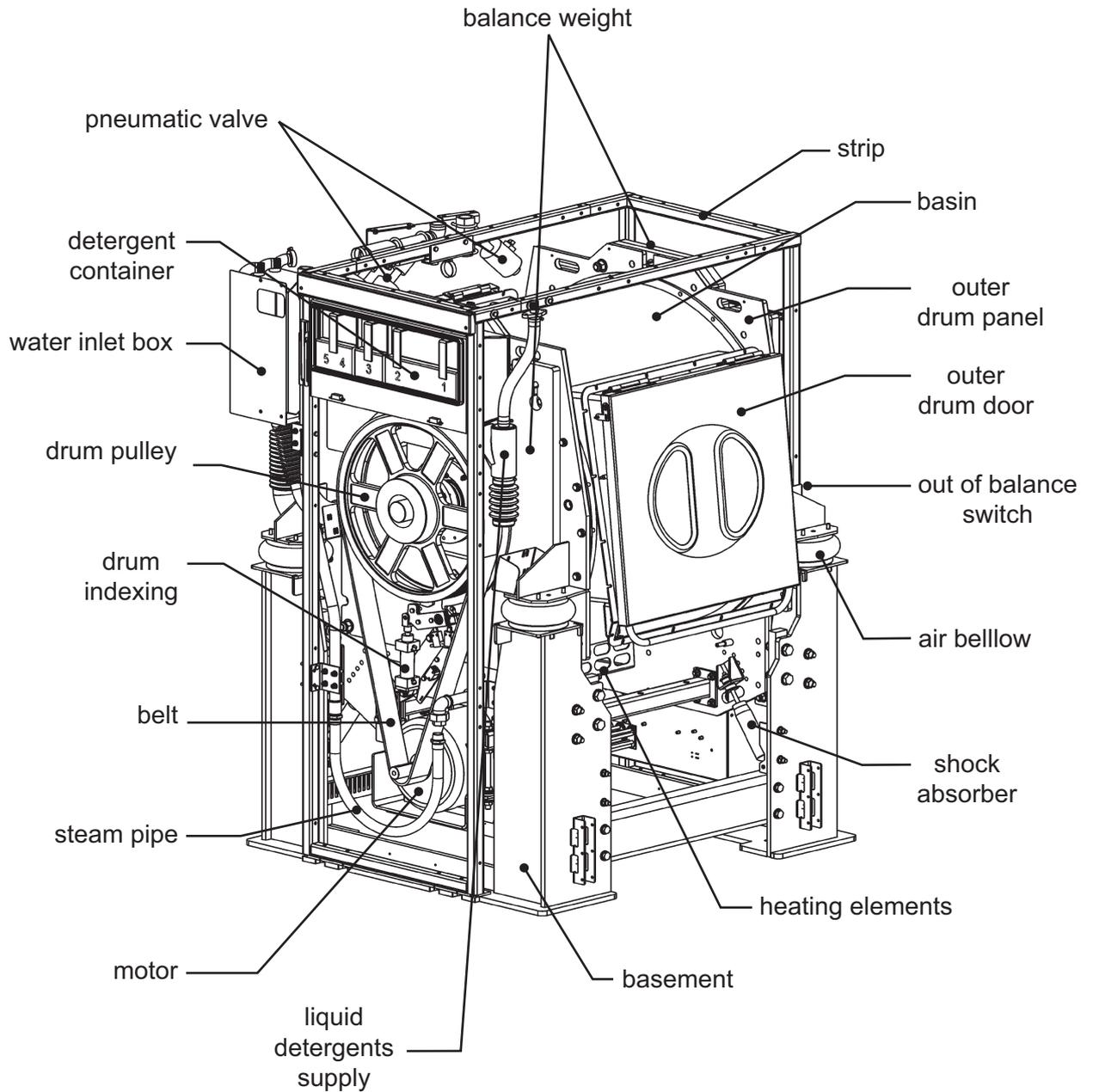
In order to avoid an excessive mechanical fatigue during the hydro-extraction process, the machine is equipped with an unbalance detector. If the latter detects the least unbalance of the load, the hydro-extraction cycle is interrupted and the machine fills with water to make a new distribution of the linen possible.

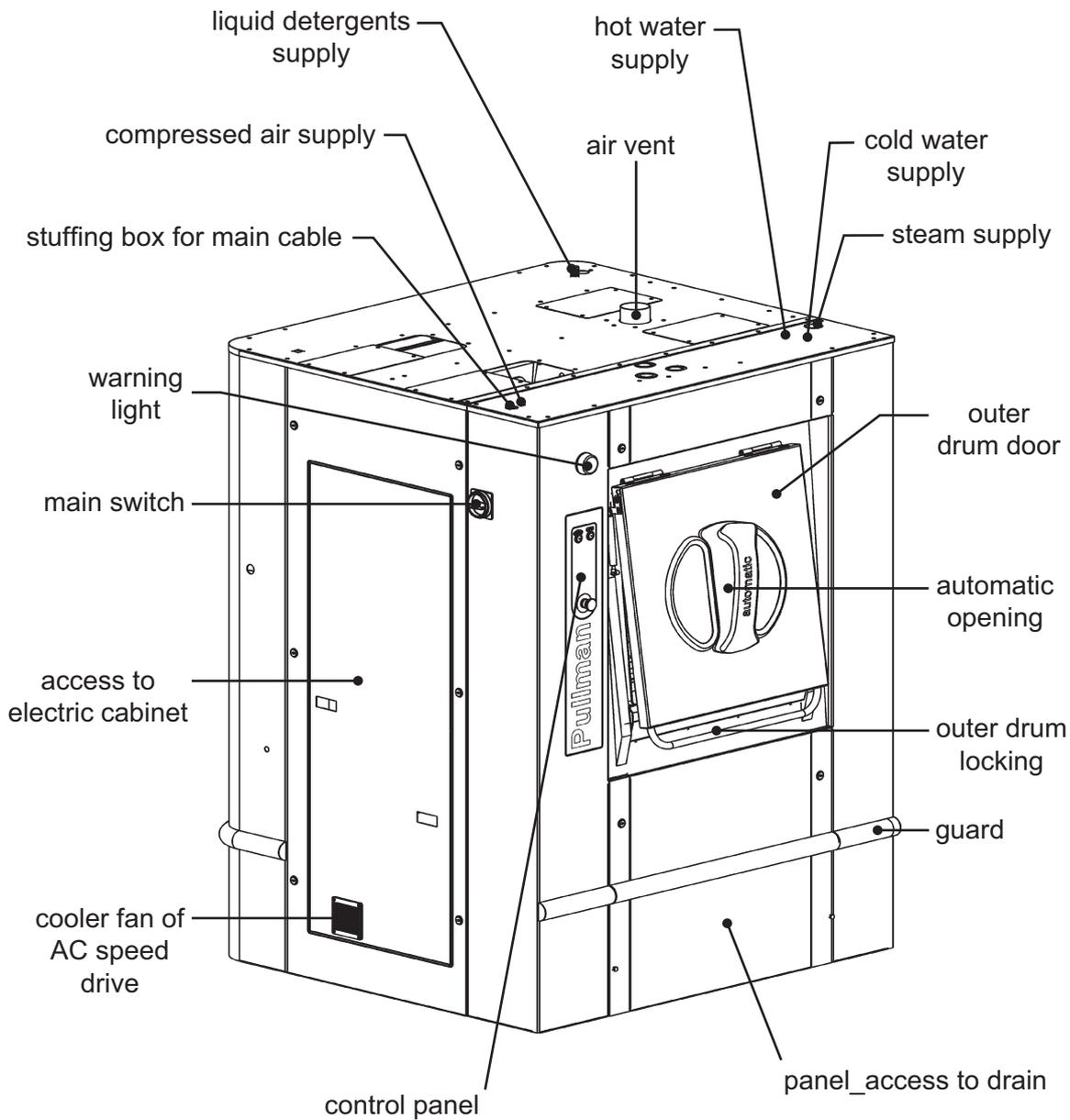
The machine then resumes the distribution speed and another hydro-extraction cycle begins.

The machine can also be controlled sequence by sequence and is equipped with a tactile display for the manual control of certain functions.

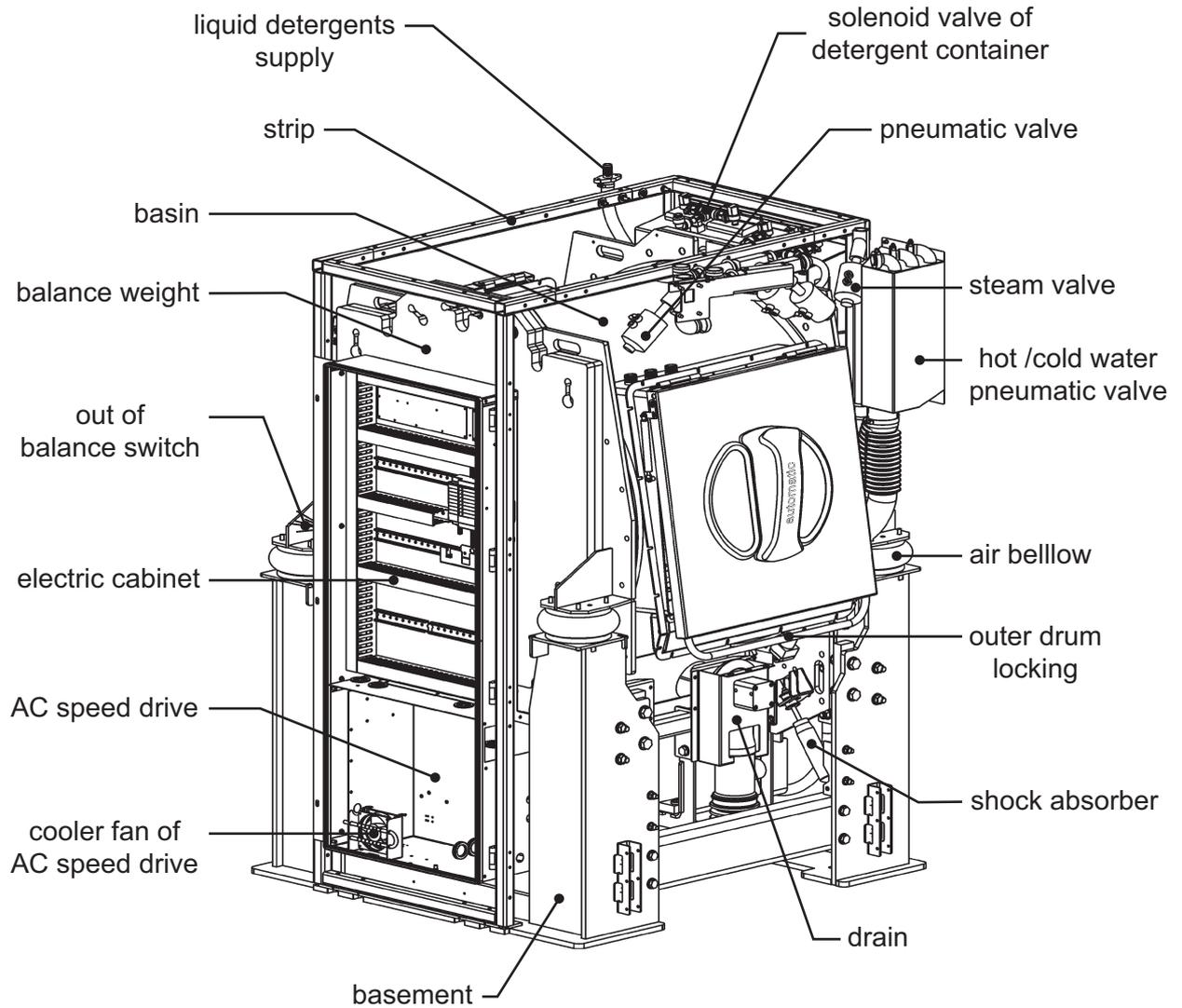
**Loading side**

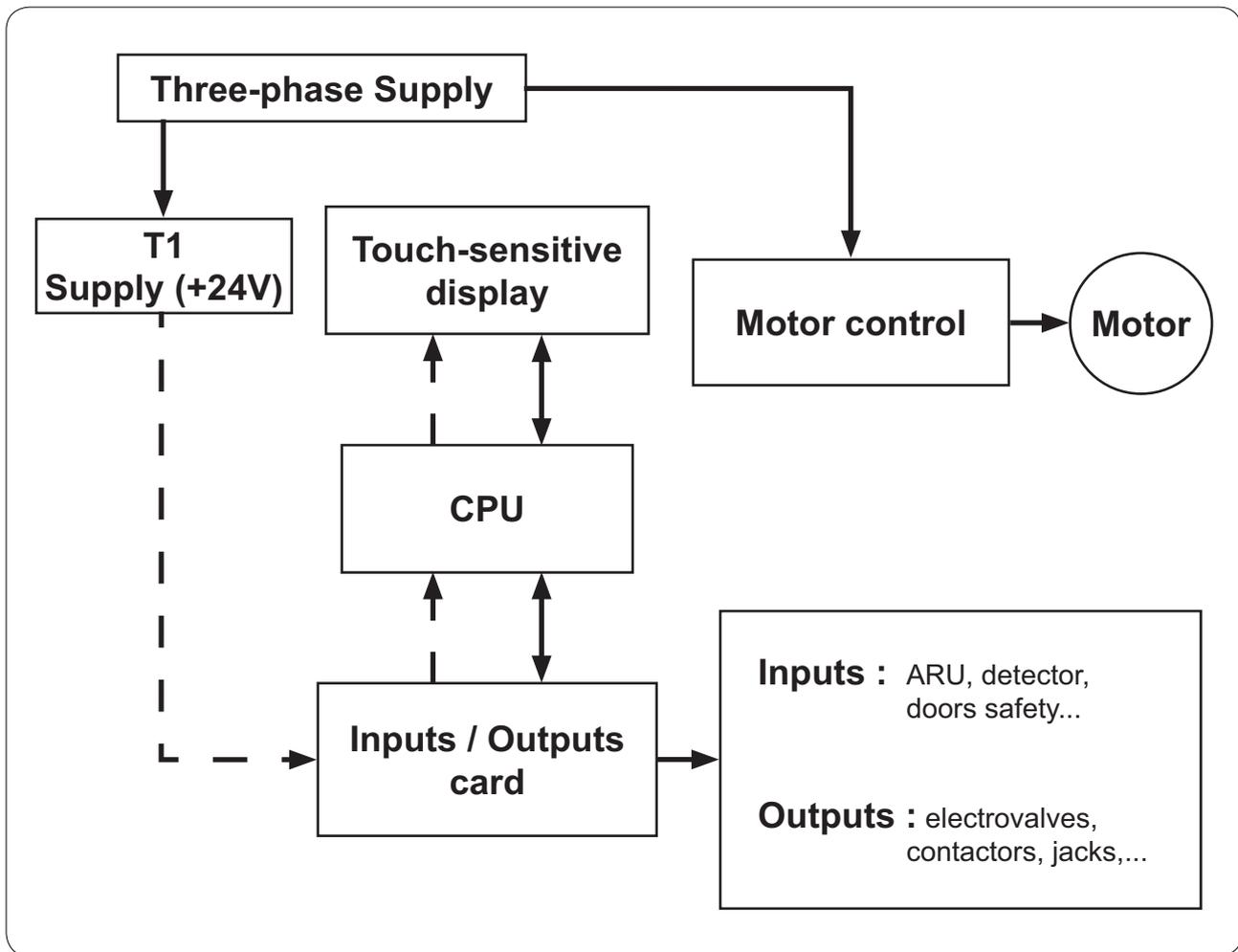
**Loading side**



**Unloading side**

### Unloading side



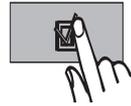


## Safety

- **Restarting the machine**

After any stoppage of the machine, either due to power failure, emergency stop or motor safety, the machine can only be restarted after having pressed "**Validation**" key.

'Validation' key



- **Drum doors**

All of the different parts of the machine stop working automatically as soon as one of the drum doors is opened. The doors can only be opened if the cage is at a complete standstill and the programmer on end of cycle.

The drum door is kept opened by gas jacks.

On barrier machines, the loading and unloading doors cannot be opened at the same time. For barrier machines, the unloading door opening is possible only if the wash program has been completely achieved. This guarantee the barrier process for a decontamination wash program in particular (time, temperature, water levels and detergents' inputs have been respected).

- **Motor protection**

The motors driving our machines are of asynchronous rotor type with short circuit. They are protected by a frequency converter. A circuit breaker protect the frequency converter.

- **Level**

Our machines are equipped with a pressure switch which controls the level of water in the machine according to the different programmes, prevents heating from taking place in the absence of water (minimum water level authorized : 10 units), and prevents from opening the door if the water level is higher than low level.

- **Unbalance safety device**

A safety device stops the machine if the load is unbalanced (uneven distribution of linen at start of extraction).

- **Cage doors**

If the cage doors are opened, the revolving drum is blocked mechanically.

- **Drum doors**

Drum doors are equipped with "securit" type small windows, make of 2 tempered glasses separated by a plastic film, avoiding glass projection in case of thermic or physical shock.

- **Emergency stop**

An emergency stop button is provided on the loading and unloading sides of the barrier machines.

- **Accessibility**

All of the casings can be dismantled by means of a specially designed tool.

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# 10. Installation

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## Warning

The machines comply with the European Directive EMC (Electromagnetic Compatibility).

Considering that the volume of the cage is superior to 150 liters, the standard kept for the electric part is the IN 60204.

They have been tested in laboratory and approved as such. It is so prohibited to add wires or non shielded electric cables in the cabinets, strands or cables' troughs.

Disconnect all the sources of energy before any repair or servicing work on the machine.

Never try to open the drum door before the complete stop of the cage.

The safety devices of the cage door(s) should in no case be made inoperative.

This machine should be installed in conformance to the health and safety regulations, and only used in a sufficiently aerated area.

Do not use the machine unless it is plugged into a correctly earthed power socket complying with standards in force.

## Installation

When there are not local codes and regulations, the installation **must be comply** with European standards applicable.

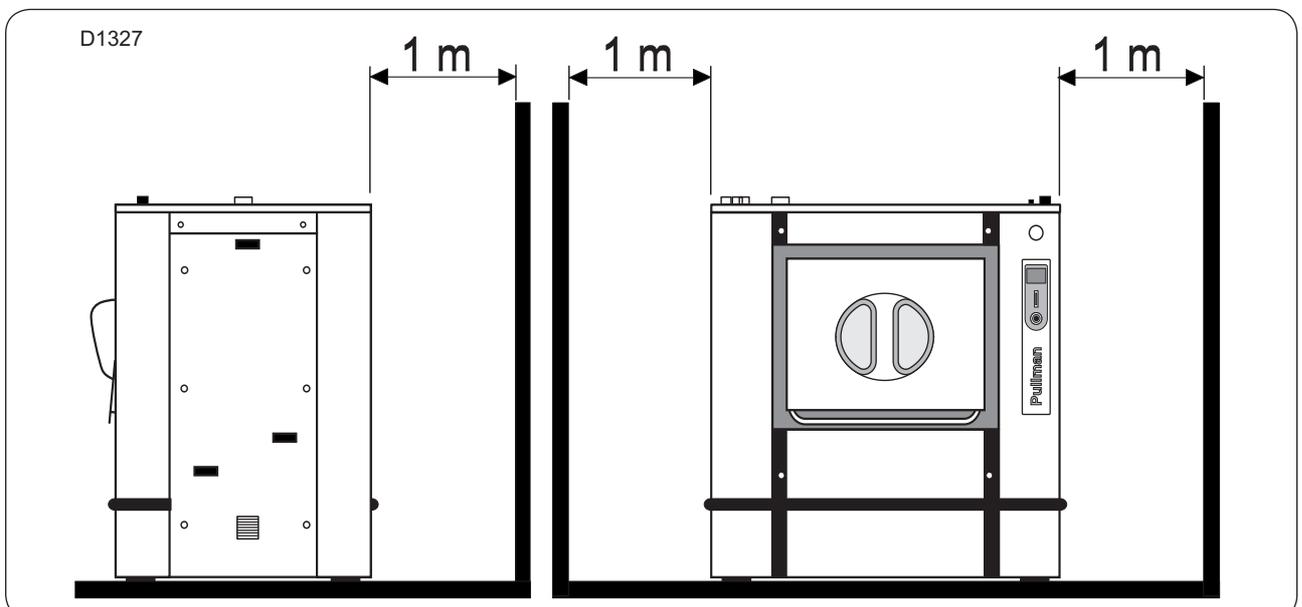
The machine must be installed on a perfectly even surface, strong and horizontal, capable resisting to the efforts shown in the technical characteristics.

Adjustment of the machine by addition of level plate should be avoided.

Control the horizontal level using a water level placed on the machine's sole.

Place the washer extractor so that it is easy for the user and the service technician to do their work.

Leave at least 1 m (40") (**according to the recommendation in standard EN 60204**) between the machine, a wall or any other machine at the sides.



**Installation of barrier partition**

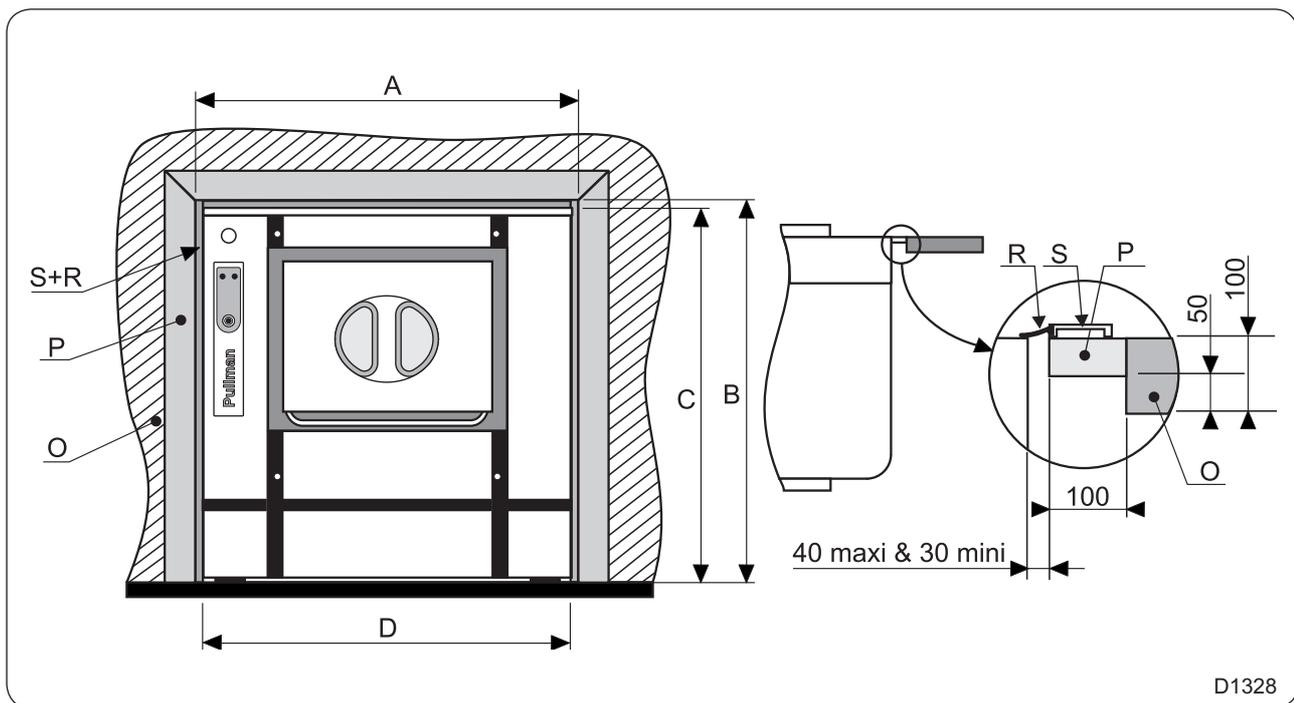
The barrier partition (O) (provided by customer) should be assembled before the installation of the machine.

Centre and align the washer-extractor with the frame (P) 60 x 100 mm (2x4") maximum (provided by customer).

Place the rubber seal (R) inside the aluminium extruded section (S).

Srew the aluminium extruded section (S) on the frame or on the optional plates (P).

Machine type	700	900	1100
Size A (mm / inch)	1570 / 61.81	1800 / 70.86	2030 / 79.92
Size B (mm / inch)	2080 / 81.89	2080 / 81.89	2080 / 81.89
Size C (mm / inch)	2040 / 80.31	2040 / 80.31	2040 / 80.31
Size D (mm / inch)	1490 / 58.66	1720 / 67.71	1950 / 76.77



**Working place lighting**

The lighting should be designed so as to avoid eye strain for the operator; it should be uniform without any glare, and should be sufficient to detect any hazards.

The average lighting value on the working place recommended by the clothing industry for inspecting linen is **500 lux**.

Whenever possible, the working place should be illuminated by daylight.

**Water connections**

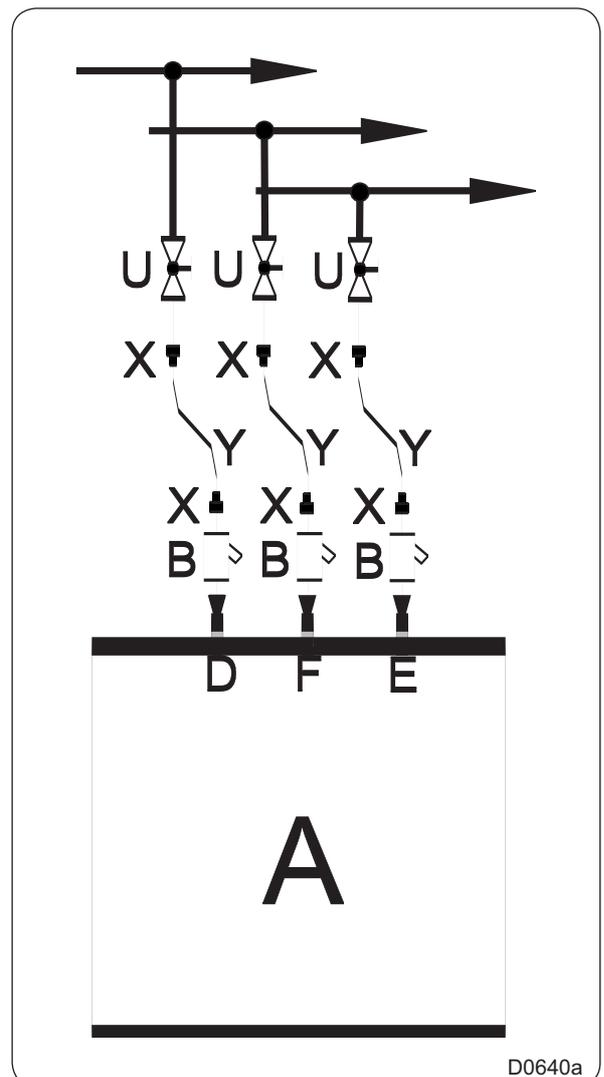
Washer extractors are assembled in standard execution with two waters inlet : one hot water and one hard water.

On option, a third water inlet (soft) is possible.

Water supply pressure :            **mini = 50 kPa (7.25 psi)**  
                                                 **maxi = 300 kPa (43.5 psi)**

The here under example sketch shows the connection of the machine to the different inlets.

- U    Manual stop valve DN 32 (1"¼ BSP)
- X    Nipple 1"¼
- Y    Flexible pipe DN 32 length : 80 cm
- D    Hot water inlet DN 32 (1"¼ BSP female)
- E    Hard water inlet DN 32 (1"¼ BSP femele)
- F    Cold soft water inlet (option) DN 32 (1"¼ BSP female)
- B    Water filter
- A    Washer-extractor



**Steam connection**

The inlet pipe to the machine has to be fit with a manual stopping valve to ease installation and maintenance and a flexible steam supply pipe to allow reliable running of automatic weighting system.

Here under values apply to the steam pressure :

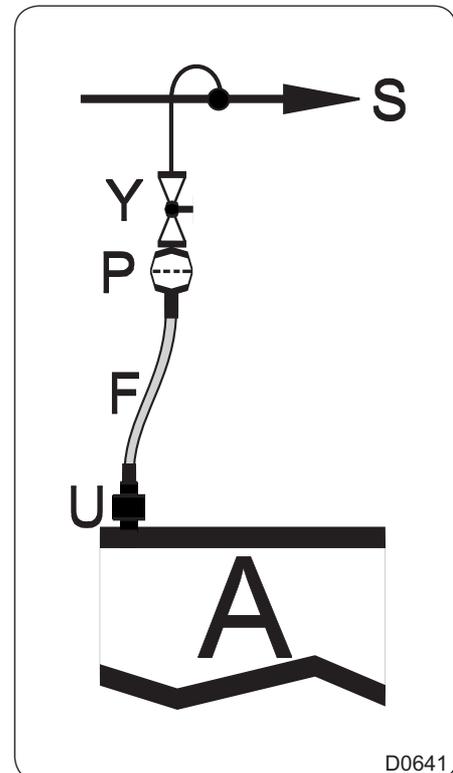
Recommended pressure : **300-600 kPa (3 à 6 kg/cm<sup>2</sup>)**

Limiting of values : **mini = 100 kPa (1 kg/cm<sup>2</sup>)**  
**maxi = 600 kPa (6 kg/cm<sup>2</sup>)**

Connection size : **DN 25 (1" BSP male)**

Connect the steam installation on the top of the machine (see example sketch).

- A Washer-extractor
- S Steam inlet
- Y Manual stop wheel valvee DN 25 (1" BSP)
- P Steam filter DN 25 (1" BSP)
- F Steam flexible pipe DN 25 (1" BSP)  
length : 70 cm
- U Pipe union (male / female) DN 25 (1" BSP)



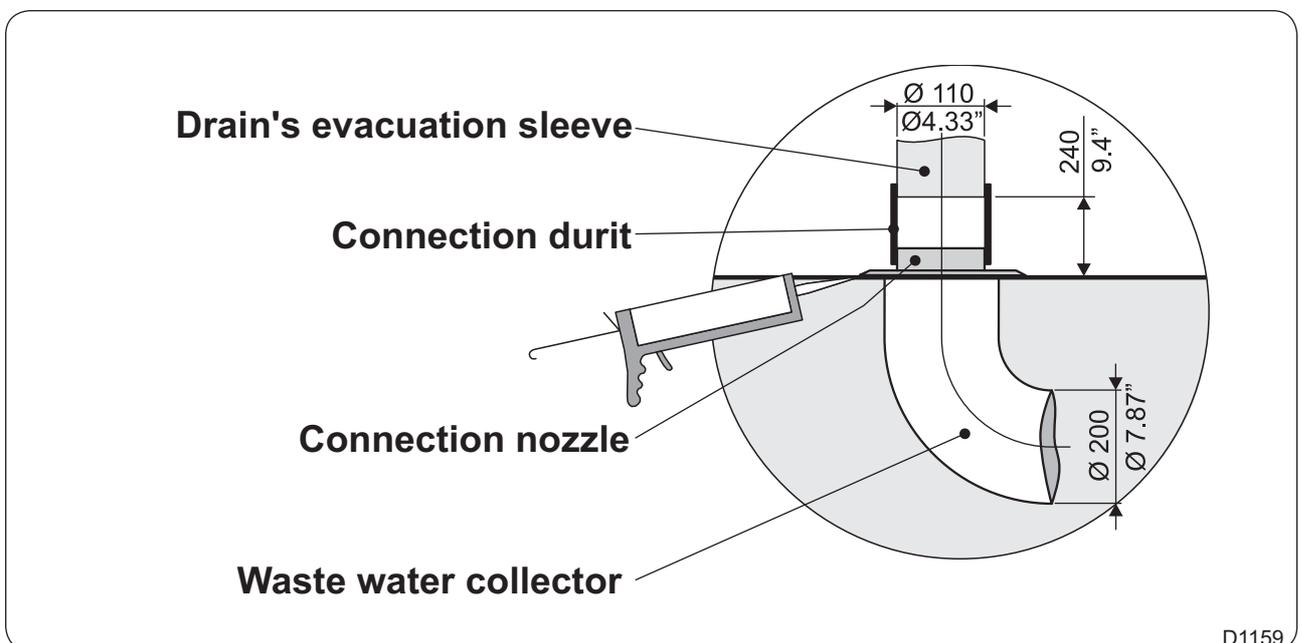
**Drain connection**

The machine's exhaust sleeve is outside diameter 110 mm (4.33"). It is located underneath the machine.

The waste water collector diameter 200 mm (7.87") (manufactured by customer) should have a 3 cm/m (3 %) slope and resist to a temperature of 90°C (194°F). It should be connected to the waste water general network in accordance with local codes and regulations.

Adapt and connect the machine's exhaust sleeve to the waste waters' collector (rubber bend and connection nozzle are supplied in the machine with collars).

Drawing of drain connection to waste water's collector :



**Air vent connection**

The air vent of the drum opens on the top of the machine. Connect the bent hose to this opening.

Connect the air vent, to the outside of the laundry in accordance with tte legislation.

The air vent should resist to 100°C (212°F) temperature and allow the condensates to return to the machine.

**Electric connection**

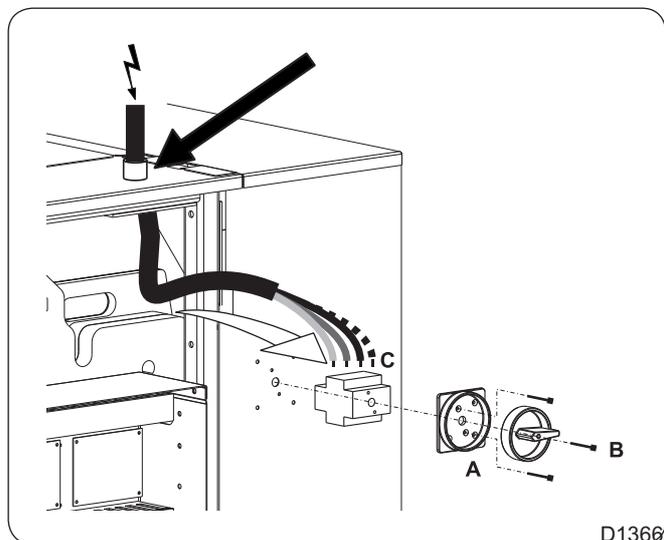
The washer-extractor should be plugged into a correctly earthed power socket complying with the standards in force.

The use of power electronics (variator or filter for example) may lead to unexpeted release of breakers with 30 mA differential current device.

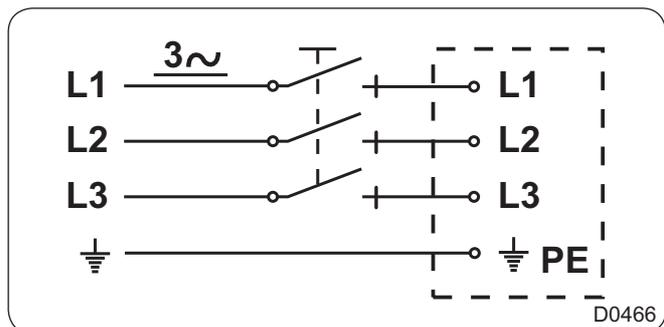
To avoid these untimely activations, you ought to use differential protecting systems with residual current only, having a high level of immunity as regards leakage transient current.

This type of breaker should thus be avoided, or a value of **300 mA** maximum should be observed according to standard NFC 15100 paragraph 532.2.6.

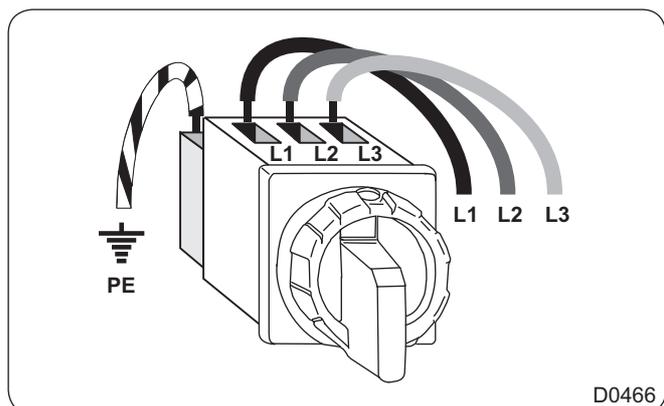
Caution : in order to have easy access to the connection terminals the main switch must be removed.



For each machine, install a fixed multipole circuit breaker (or fuses protector) in the laundry main cabinet.

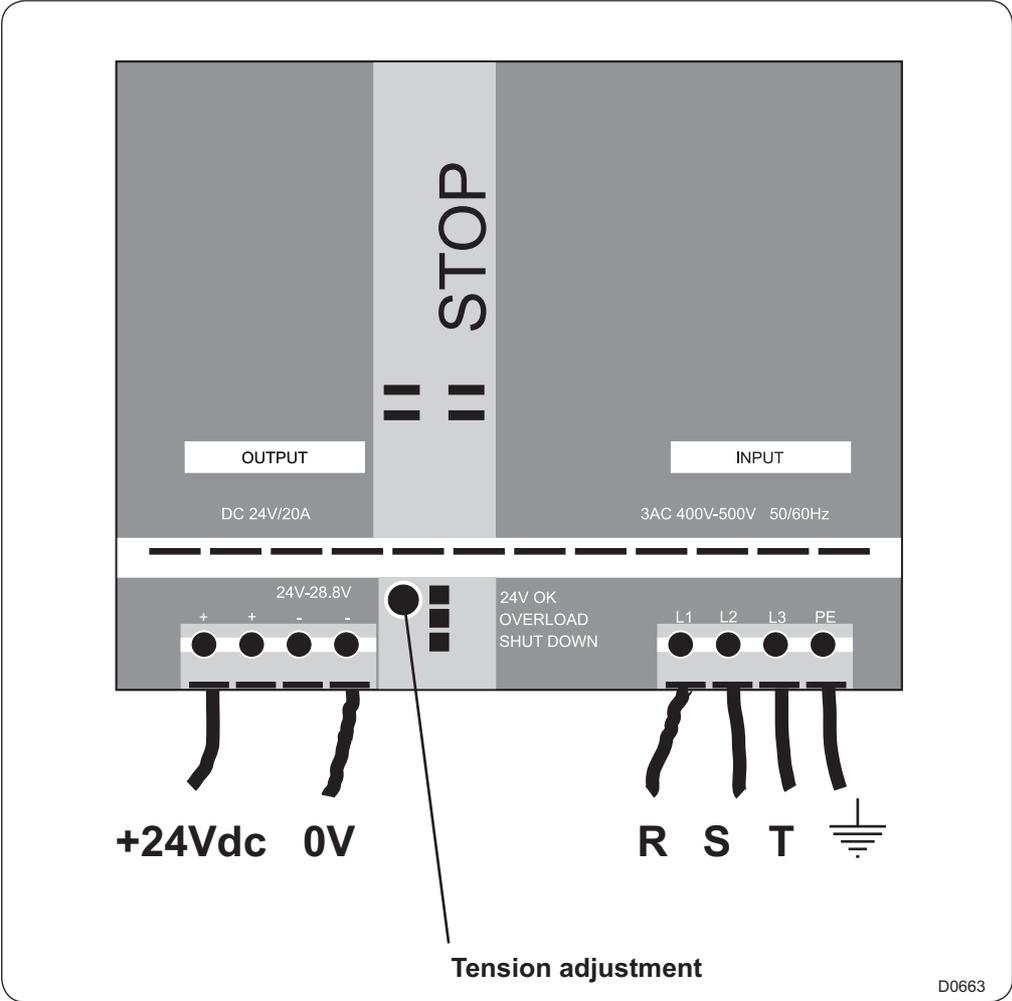


Connect the 3 phases on the main switch (see marks L1, L2, L3) and connect the earth wire on the earth terminal (PE) of this main switch.



Connection diagrams for the control circuit power supply (T1)

The tension of the control circuit delivered by the power supply must be 24 volts dc. The supply tension for your machine is normally of 400 volts between phases, this tension can however be different. The potentiometer allows to adjust the tension.



The feeder cable sections mentioned in our literature are given **only as a guide**.

To obtain a value perfectly suited to your own application and which takes account of the different correction factors in respect of your plant, refer to the tables below.

**Table 1 (in according with EN Standard 60204-1)**

Values given for :

- Cable with copper conductors.
- Cable with PVC insulation (for others insulations, see table 3).
- Ambient temperature 40°C max (for others see table 2).
- Three-phase cable under load without including starting currents.
- B2/C/E cable layout.

Maximum admissible current			
Cable section	Seated in cable duct or cable trough	Wall fixinf	Cable tray
	B2	C	E
3 x 1,5 mm <sup>2</sup>	12,2 A	15,2 A	16,1 A
3 x 2,5 mm <sup>2</sup>	16,5 A	21 A	22 A
3 x 4 mm <sup>2</sup>	23 A	28 A	30 A
3 x 6 mm <sup>2</sup>	29 A	36 A	37 A
3 x 10 mm <sup>2</sup>	40 A	50 A	52 A
3 x 16 mm <sup>2</sup>	53 A	66 A	70 A
3 x 25 mm <sup>2</sup>	67 A	84 A	88 A
3 x 35 mm <sup>2</sup>	83 A	104 A	114 A
3 x 50 mm <sup>2</sup>	-	123 A	123 A
3 x 70 mm <sup>2</sup>	-	155 A	155 A

**Table 2 (correction factors for different ambient temperatures)**

Ambient temperature	Correction factor
30 °C	1,15
35 °C	1,08
40 °C	1,00
45 °C	0,91
50 °C	0,82
55 °C	0,71
60 °C	0,58

Table 3 (correction factors for different cable insulating materials)

Insulating material	Max. working temperature range	Correction factor
PVC	70 °C	1,00
Natural or synthetic rubber	60 °C	0,92
Silicone rubber	120 °C	1,60

Table 4 (B2, C and E correction factors for cable grouping)

Number of cables	B2 Seated in cable duct	C Wall fixing or cable trough	E Cable tray
1	1,00	1,00	1,00
2	0,80	0,85	0,87
4	0,65	0,75	0,78
6	0,57	0,72	0,75
9	0,50	0,70	0,73

The total current included for using Table 1 should be the maximum rated current for the machine divided by the product of the different correction factors.

Other correction factors may also be applied ; consult the cable manufacturers.

Calculation : Example :

- The machine has a rated current of 60 A.
- The ambient temperature is 45 °C ; Table 2 gives a correction factor of 0.91.
- Rubber cable insulant : Table 3 gives a correction factor of 0.92.
- The cable is fixed directly to the wall (Column C), with 2 cables side by side. Table 4 gives a correction factor of 0.85.

$$\text{Total current : } \frac{60 \text{ A}}{0,91 \times 0,92 \times 0,85} = 84 \text{ A}$$

Taking Column C in Table 1 (wall fixing), we obtain a minimum cable section of : **3 x 25 mm<sup>2</sup>**.

Machine type	Heating type	Supply voltage	Installed power	Rated intensity	Main switch	Connection cable section	Fuse
<b>700</b> <b>700</b>	Steam/F.T Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	11,7 kW 65,7 kW	27 A 100,5 A	3 x 40 A 3 x 125 A	4 x 10 mm <sup>2</sup> 4 x 35 mm <sup>2</sup>	3 x 32 A 3 x 125 A
<b>900</b> <b>900</b>	Steam/F.T Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	15,7 kW 87,7 kW	33 A 135 A	3 x 40 A 3 x 160 A	4 x 10 mm <sup>2</sup> 4 x 35 mm <sup>2</sup>	3 x 40 A 3 x 160 A
<b>1100</b> <b>1100</b>	Steam/F.T Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	19 kW 91 kW	42 A 140 A	3 x 50 A 3 x 160 A	4 x 10 mm <sup>2</sup> 4 x 50 mm <sup>2</sup>	3 x 50 A 3 x 160 A

### Note about the A.C power

According to the EN 60204-1:1997 standard, the machine is provided for AC supplies corresponding to the extracted characteristics below :

#### 4.3.2 AC supplies

- Voltage : Steady state voltage : 0,9...1,1 of nominal voltage.
- Frequency : 0,99...1,01 of nominal frequency continuously.  
0,98...1,02 short time.
- Harmonics : Harmonic distortion not to exceed 10% of the total r.m.s. voltage between live conductors for the sum of the second through to the fifth harmonic. An additional 2% of the total r.m.s. voltage between live conductors for the sum of the sixth through to the 30th harmonic is permissible.
- Voltage unbalance : Neither the voltage of the negative sequence component nor the voltage of the zero sequence component in three-phase supplies shall exceed 2% of the positive sequence component.
- Voltage interruption : Supply interrupted or at zero voltage for not more than 3ms at any random time in the supply cycle. There shall be more than 1s between successive interruptions.
- Voltage dips : Voltage dips shall not exceed 20% of the peak voltage of the supply for more than one cycle. There shall be more than 1s between successive dips.

### Compressed air connection

The customer should arrange the installation of filter / lubricator device, as well as a pressure regulator (manometer) on the machine's compressed air supply.

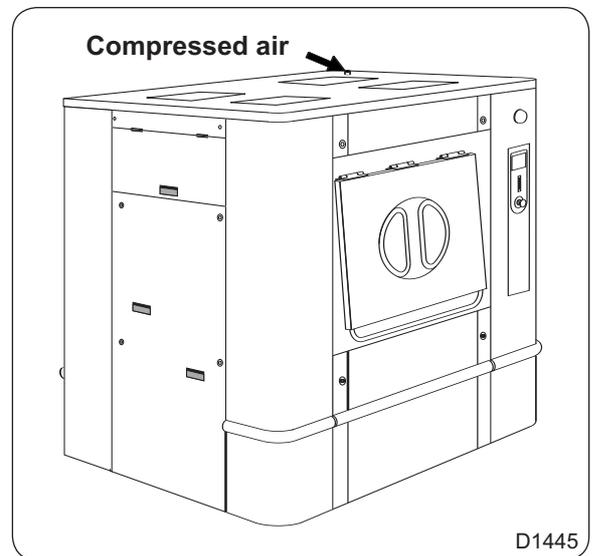
The manual stopping valve lockable in closed position (provided by customer) should be installed on the machine's compressed air supply.

The supply pipe should accept a pressure of at least 1 Mpa (10 bar) (145 psi).

- Connection diameter : rapid action hose coupling **DN 6** (0.24") for hose **Ø 6/8 mm**.

**Nota : to avoid too big head losses, the compressed air supply pipe should be bigger in diameter than the coupling diameter (DN 8 for example); in this case, put a 6/8-8/10 adapter.**

- Advised pressure : **550-700 kPa (5,5-7 bar) (80-102 psi)**.
- Minimum pressure: **550 kPa (5,5 bar) (80 psi)**.
- Maximum pressure : **700 kPa (7 bar) (102 psi)**.
- Consumption : **50 l/h**.

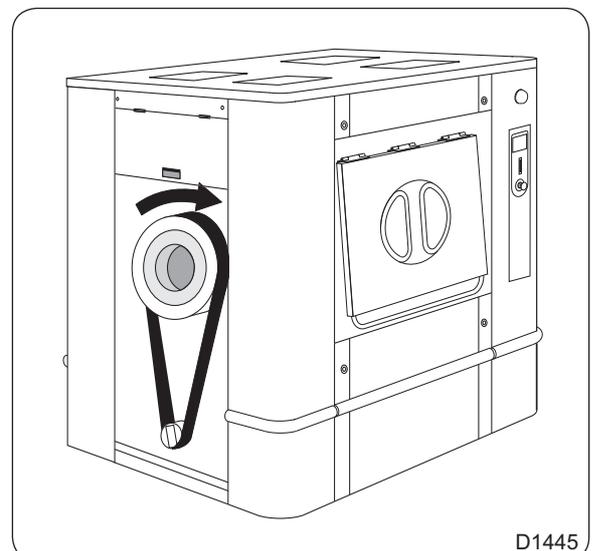


### Operating inspection

Before putting the machine into service, carry out the working tests.

The operating inspection must be done by an approved technician.

### Washer-extractor barrier types



## Operating inspection (next)

### Manual operation

The procedure for operating the various machine functions manually is described in the chapter "Machine operation" under the heading "Manual operation".

- Switch on the machine's main switch and check the voltage on the three phases (3 x 400 volts).
- Check the direction of rotation of the **cage during spinning**. The cage should rotate as shown by the arrow on the hereby drawing. Check this point especially if you have changed the machine's motor or frequency converter.
- Check the direction of rotation of the motion motor fan (see arrow stuck on the fan). Switch off the current and shift two phases on the main switch of the machine if the fan rotates in the wrong direction.
- Check that the cage is empty.
- Open the manual valves controlling the water and steam supplies.
- Operate the machine manually to fill with cold water, then hot water. Check that these water supplies are connected as they should be.
- Start the machine on wash action, and check that the motor is revolving alternately in the both ways, as normal for wash action.
- Start heating by programming a final temperature. Check that the steam valve opens or the heating element relay reacts, as appropriate.
- Check that the detergents container is working as they should.
- Check the water and steam connections and the drain valve for signs of any leakages.
- Empty the water from the machine and open its door.

### Automatic operation

- Check that the external switch or switches are switched on and that the manual valves for water and steam are open.
- Run one of the machine's built-in (standard) with heating.
- Check that the program proceeds normally, and the water filling, detergent filling, heating and motor action are all working in accordance with the program display on the display screen.

### Final checking

If all function checks have been satisfactory, reassemble all protection casings.

LUBRIFICATION TABLE

USES	Rolling bearings Bearings	Rolling bearings Bearings high temperature	Assemblypaste (fretting corrosion)	Bare gears Chains shafts Thread Slides	Flange joints Union pipes Steam circuits	Reducers with wheels and screws	Reducers with gears	Circuits and pneumatic devices	
<b>TYPES OF LUBRICANTS AND STANDARDIZATION</b>	Lithium soap grease	Lithium soap grease + silicone oil	Lithium soap paste + mineral oil + mineral solid greases	Lithium soap grease with MO S2 additive	Graphite grease mini 60% graphite special leakproof	Extreme high pressure oil	Extreme high pressure oil	Inhibited oil SAE5	
	Grade ISO NLGI 2	Grade ISO NLGI 3	Grade ISO NLGI 1	Grade ISO NLGI 2	Grade ISO NLGI 2	Grade ISO VG 150	Grade ISO VG 220	Grade ISO VG 22	
<b>TEMPERATURE LIMIT RANGE</b>	- 20 °C + 140 °C	- 40 °C + 200 °C	- 20 °C + 150 °C	- 20 °C + 135 °C	- 30 °C + 700 °C	0 °C + 100 °C	0 °C + 120 °C	- 10 °C + 65 °C	
<b>RECOMMENDED</b>	ALVANIA R2	NTN SH 44 M	ALTEMP Q.NB.50	MI-SETRAL 43N	GRACO AF 309	REDUCTELF SP150	REDUCTELF SP200	LUBRA K ATLSAE 5W	
<b>CODE PRODUCT</b>	96011008	-	96011014	96011000	96011004	96010001	96010004	96010030	
<b>C O R R E S P O N D A N C E</b>	<b>ANTAR</b>	ROLEXA 2	-	-	EPOXA MO 2	-	EPONA Z 150	EPONA Z 220	MISOLA AH
	<b>BP</b>	LS EP2	-	-	-	-	ENERGOL CRXP 150	ENERGOL CRXP 220	SHF 22
	<b>CASTROL</b>	SPEEROL EP 2	-	-	-	-	ALPHA SP 150	ALPHA SP 220	-
	<b>ELF</b>	EP2	-	-	STATERMA MO 10	-	REDUCTELF SP 150	REDUCTELF SP 220	SPINEF 22
	<b>ESSO</b>	BEACON EP2	-	-	MULTI PURPOSE GREASE MOLY	-	SPARTAN EP 150	SPARTAN EP 220	SPINESSO 22
	<b>FINA</b>	MARSON EP2	-	-	-	-	GIRAN SR 150	GIRAN SP 220	-
	<b>GBSA</b>	-	-	-	-	BELLEVILLE N	-	-	-
	<b>GRAFOIL</b>	-	-	-	-	GRACO AF 309	-	-	-
	<b>KLUBER</b>	CENTOPLEX 2	UNISILKON L50Z	ALTEMP Q.NB.50	UNIMOLY GL 82	WOLFRA- COAT C	LAMORA 150	LAMORA 220	CRUCOLAN 22
	<b>MOBIL</b>	MOBILUX	-	-	-	-	MOBILGEAR 629	MOBILGEAR 630	DTE 24
	<b>KERNITE</b>	LUBRA K LC	-	-	LUBRA K MP	-	TOP BLENB ISO 80W90	TOP BLEND ISO 220	LUBRA K ATL SAE 5W
	<b>SETRAL</b>	-	-	-	MI-SETRAL 43N	-	-	-	-
	<b>SHELL</b>	ALVANIA R2	-	-	RETINA AM	-	OMALA 150	OMALA 220	TELLUS 22
	<b>TOTAL</b>	MULTISS EP2	-	-	-	-	CARTER EP 150	CARTER EP 220	EQUIVIS 22
	<b>MOLYKOTE</b>	-	MOLYCOTE 44	PATE DX	-	-	-	-	-
	<b>OPAL</b>	GEVAIR SP	-	-	SUPER MOS 2	-	GEAROPAL GM 65 ISO 150	GEAROPAL GM75 ISO 220	HYDROPAL HO 110 HM ++22
	<b>ITECMA</b>	GRL-ULTRA	VULCAIN	-	GMO	LHT-C	DURAGEAR 80 W 140		AEROSYN
<b>DOW CORNING</b>		SH 44 N							

**Explanation of washing symbols**  
(norme ISO 3758:2005)

To overcome language barriers, the following are symbols used internationally to give you guidance and recommendations when washing different textiles.

**WASHING :** (the tub symbolizes washing)

	Max. washing temperature in °C	Mechanical action
	95	normal
	95	mild
	70	normal
	60	normal
	60	mild
	50	normal
	50	mild
	40	normal
	40	mild
	40	very mild
	30	normal
	30	mild
	30	very mild
	40	Wash by hand
		Do not wash

**BLEACHING :**  
(the triangle symbolizes bleaching)

	Bleaching allowed (chlorine or oxygen).
	Bleaching allowed (only oxygen).
	Do not bleaching.

**DY OR WATER CLEANING :**  
(the cercle symbolizes dry or water cleaning)

	Normal dry cleaning with perchloroethyl, solvent of hydrocarb.
	Mild dry cleaning with perchloroethyl, solvent of hydrocarb.
	Normal dry cleaning with solvaent of hydrocarb.
	Mild dry cleaning with solvent of hydrocarb.
	Do not dry clean.
	Normal water cleaning.
	Mild water cleaning.
	Very mild water cleaning.

**DRYING :**  
(the circle in a square symbolizes tumble drying)

	Can be put in tumble dryer. Normal temperature.
	Can be put in a tumble dryer. Lower temperature.
	Do not put in a tumber dryer.

**IRONING :**  
(the iron symbolizes the domestic ironing and pressing process)

	Max. temperature 200°C.
	Max. temperature 150°C.
	Max. temperature 110°C. The steam can cause irreversible damages.
	Do not iron.

## Conversion of measurement units

The following is a list of correspondences of the main frequently used units, to avoid the need to use measurement unit conversion tables.

- **bar** : 1 bar = 100 000 Pa  
1 bar = 1,019 7 kg/cm<sup>2</sup>  
1 bar = 750,06 mm Hg  
1 bar = 10 197 mm H<sub>2</sub>O  
1 bar = 14,504 psi
- **british thermal unit** : 1 Btu = 1 055,06 J  
1 Btu = 0,252 1 kcal
- **calorie** : 1 cal = 4,185 5 J  
1 cal = 10<sup>-6</sup> th  
1 kcal = 3,967 Btu  
1 cal/h = 0,001 163 W  
1 kcal/h = 1,163 W
- **continental horse power** :  
1 ch = 0,735 5 kW  
1 ch = 0,987 0 HP
- **cubic foot** : 1 cu ft = 28,316 8 dm<sup>3</sup>  
1 cu ft = 1 728 cu in
- **cubic inch** : 1 cu in = 16,387 1 dm<sup>3</sup>
- **foot** : 1 ft = 304,8 mm  
1 ft = 12 in
- **gallon (U.K.)** : 1 gal = 4.545 96 dm<sup>3</sup> or l  
1 gal = 277.41 cu in
- **gallon (U.S.A.)** : 1 gal = 3.785 33 dm<sup>3</sup> or l  
1 gal = 231 cu in
- **horse power** : 1 HP = 0,745 7 kW  
1 HP = 1,013 9 ch
- **inch** : 1 in = 25,4 mm
- **joule** : 1 in = 25,4 mm
- **kilogramme** : 1 J = 0.000 277 8 Wh  
1 J = 0.238 92 ca
- **kg / cm<sup>2</sup>** : 1 kg/cm<sup>2</sup> = 98 066,5 Pa  
1 kg/cm<sup>2</sup> = 0,980 665 bar  
1 kg/cm<sup>2</sup> = 10 000 mm H<sub>2</sub>O  
1 kg/cm<sup>2</sup> = 735,557 6 mm Hg
- **pound** : 1 lb = 453,592 37 g
- **meter** : 1 m = 1,093 61 yd  
1 m = 3,280 83 ft  
1 m = 39,37 in
- **cube meter** : 1 m<sup>3</sup> = 1 000 dm<sup>3</sup>  
1 m<sup>3</sup> = 35,314 7 cu ft  
1 dm<sup>3</sup> = 61,024 cu in  
1 dm<sup>3</sup> = 0,035 3 cu ft
- **pascal** : 1 Pa = 1 N/m<sup>2</sup>  
1 Pa = 0,007 500 6 mm Hg  
1 Pa = 0,101 97 mm H<sub>2</sub>O  
1 Pa = 0,010 197 g/cm<sup>2</sup>  
1 Pa = 0,000 145 psi  
1 MPa = 10 bar
- **psi** : 1 psi = 0,068 947 6 bar
- **thermie** : 1 th = 1 000 kcal  
1 th = 106 cal  
1 th = 4,185 5 x 106 J  
1 th = 1,162 6 kWh  
1 th = 3 967 Btu
- **watt** : 1 W = 1 J/s  
1 W = 0,860 11 kcal/h
- **watt-hour** : 1 Wh = 3600 J  
1 kWh = 860 kcal
- **yard** : 1 yd = 0,914 4 m  
1 yd = 3 ft  
1 yd = 36 in
- **temperature degrees** :  
0 °K = -273,16 °C  
0 °C = 273,16 °K  
t °C = 5/9 (t °F - 32)  
t °F = 1,8 t °C + 32

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# 11. Preventive maintenance

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Advices



**CAUTION**

To ensure that your machine gives the very best service, please take care that maintenance is carried strict accordance with the instructions above mentioned.



**FRictionAL ELECTRICITy**

Some textiles may generate frictional electricity causing damages when calendering. In most cases, this can be avoided by using at the last rinse a softener with an antistatic agent.

Example :

**Colgate Palmolive : Soupline Absolue, Program Pro Soft, Program Pro DNA**

**Ecolab : gamme BOSIT, gamme ELPA, gamme SOFTENIT, turbo neutrasoft (CEE)**

**Johnson Diversey : CLAX soft, CLAX kombi citric, CLAX Bactisoft, Delingyl, DIVERTEx 6AL1 JONPRO Soft, JONPRO Soft hygiène Cajoline**



**CHLORINE**

Chlorine introduced in a rinsing bath at a temperature of more than 40°C (104°F) affects stainless steel.

The chlorometric degree should be between 47° and 50°.

(1° chlorometric degree corresponds to 3.17 g (0.11 oz) of active chlorine).

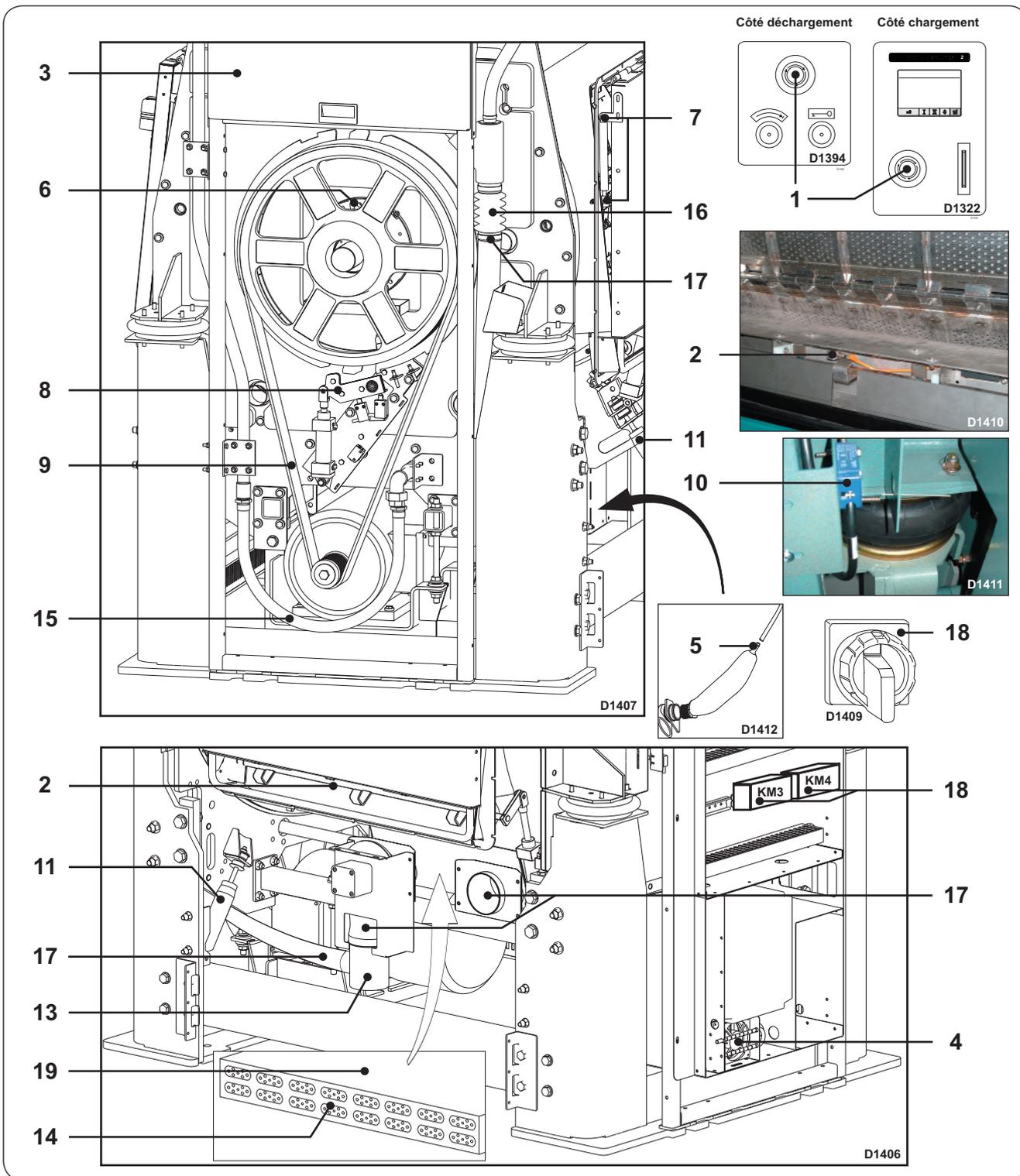
The chlorine concentration should not exceed the ratio indicated, or the stainless steel may be affected. Check the concentration ratio of your products.

The javellization should be of 10 to 15 cm<sup>3</sup> / kg (0.28 to 0.42 cu in/lb) of linen.



**COLORANTS**

Do not input colorant in the machine with very hot water. Very hot water react with the colorant, which creates a very corrosive solution. The colorants must be input with cold water or warm water which temperature doesn't exceed 50°C (122°F).



**CAUTION**

Complete the washing cycle, unload the machine and shut off the power supplies (water, electricity, steam, compressed air) before any maintenance or repair intervention is carried out.

**DAILY (8 H.)**

- ① Check that the "emergency stop button" works properly.
- ② Check that the opening safety devices of the drum doors and of the outer doors are working correctly.
- ③ Clean the soap box (operate the rinse electrovalve : machines without detergent box).

**WEEKLY (40 H.)**

- ④ Extract flush or remove the filter of the converter and clean it, and the unfilling tube (slotted bended tube). Increase the cleaning times frequency to the dirtying.

**MONTHLY (170 H.)**

- ⑤ Clean the water level and connections on the drain valve (do not blow in the pipe towards the CPU).
- ⑥ In the absence of centralised lubrication, grease the drum bearings (two greasing points on per bearing). Use an appropriate pump and grease, avoid brutal injections. Use lithium soap grease, drop point 190 °C (374 °F) and penetration 250 / 300 (see lubrication table in the following pages).
- ⑦ Lubricate gas suspension door hinges with aerosol spray-on grease.
- ⑧ Lubricate the drum wheel locking lever notches.
- ⑨ Check that the belts are clean and tightened. Clean the drum pulley.

**EVERY THREE MONTHS (500 H.)**

- ⑩ Check that the unbalance switch works correctly : the machine should stop when the switch is manually driven.
- ⑪ Visually check the shock absorbers.
- ⑫ Check that the screws of the blocking device for drum doors are well tightened.
- ⑬ Remove and clean the drain.

**EVERY SIX MONTHS (1000 H.)**

- ⑭ Check the connections of the heating elements (for electric heating).
- ⑮ Check the steam heating pipes: aspect and connecting points. Clean the filter (for steam heating).
- ⑯ Check the water inlet pipes : aspect and connecting points. Clean the valve filters.
- ⑰ Check the bellows : aspects and choke collar.
- ⑱ Check that the electrical connection are correctly tightened as well on the main switch than on the electric elements contactor.
- ⑲ Remove the scale of the heating elements using the right chemical. Adapt this operation according to your need (water hardness).

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## 21. Control unit

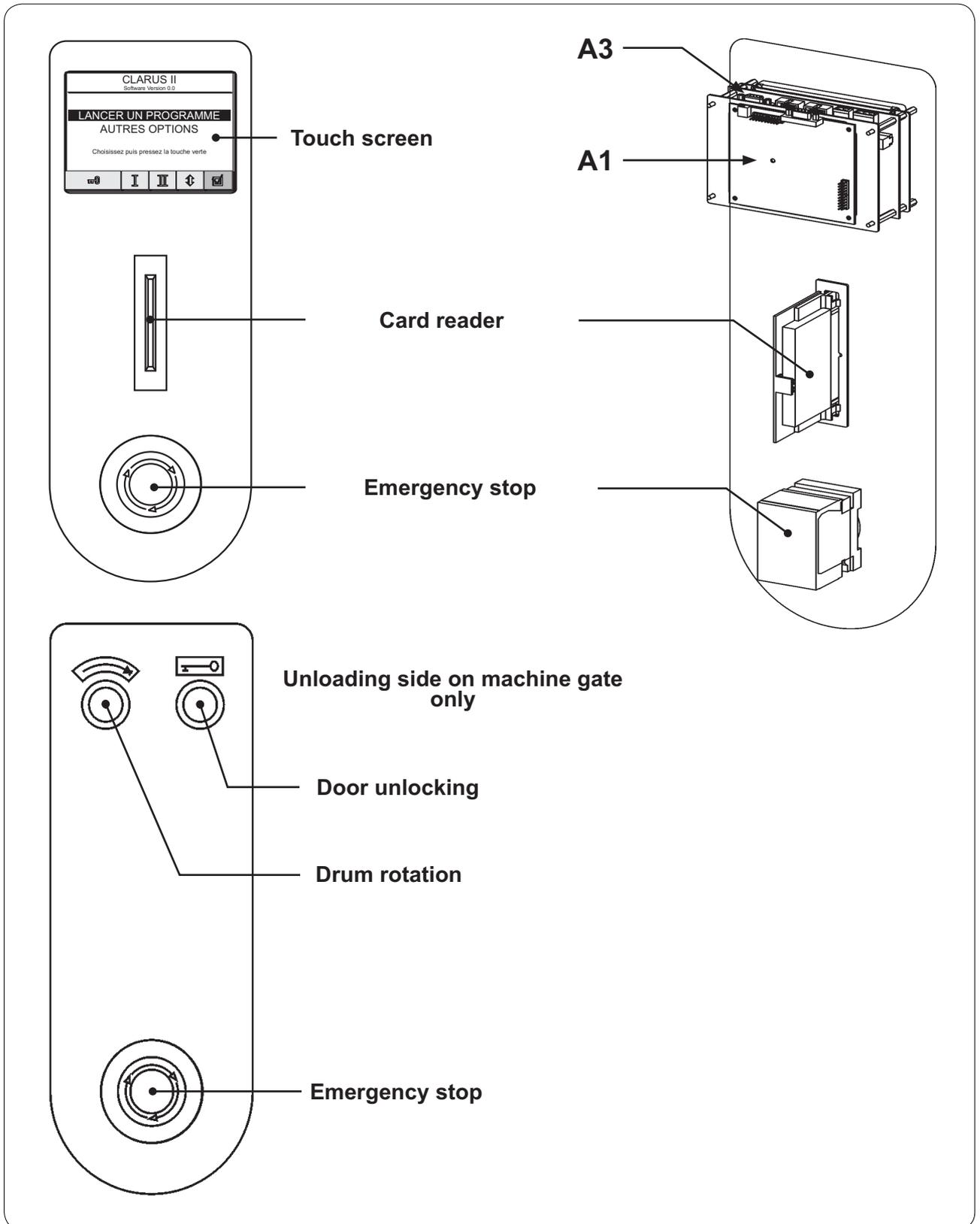
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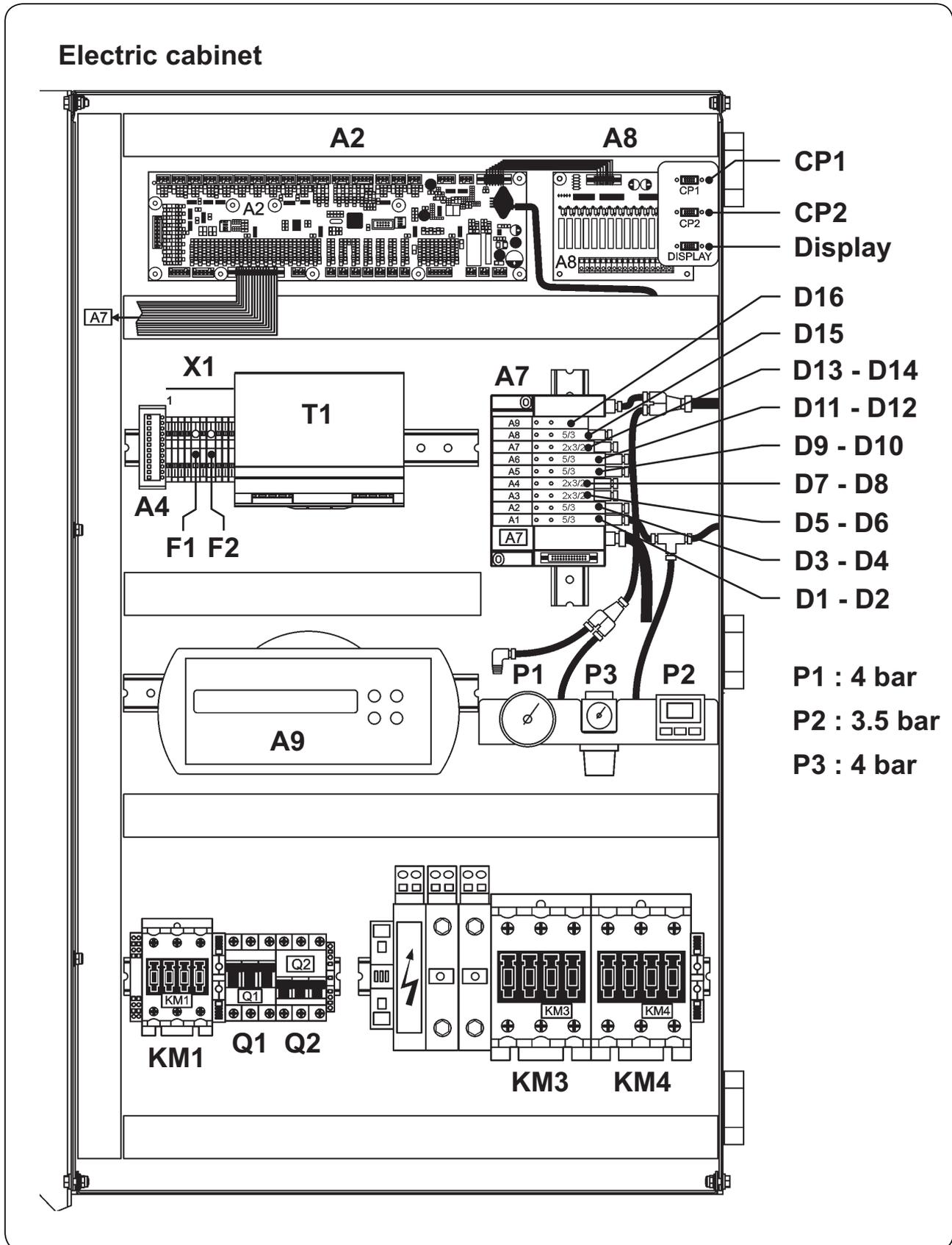
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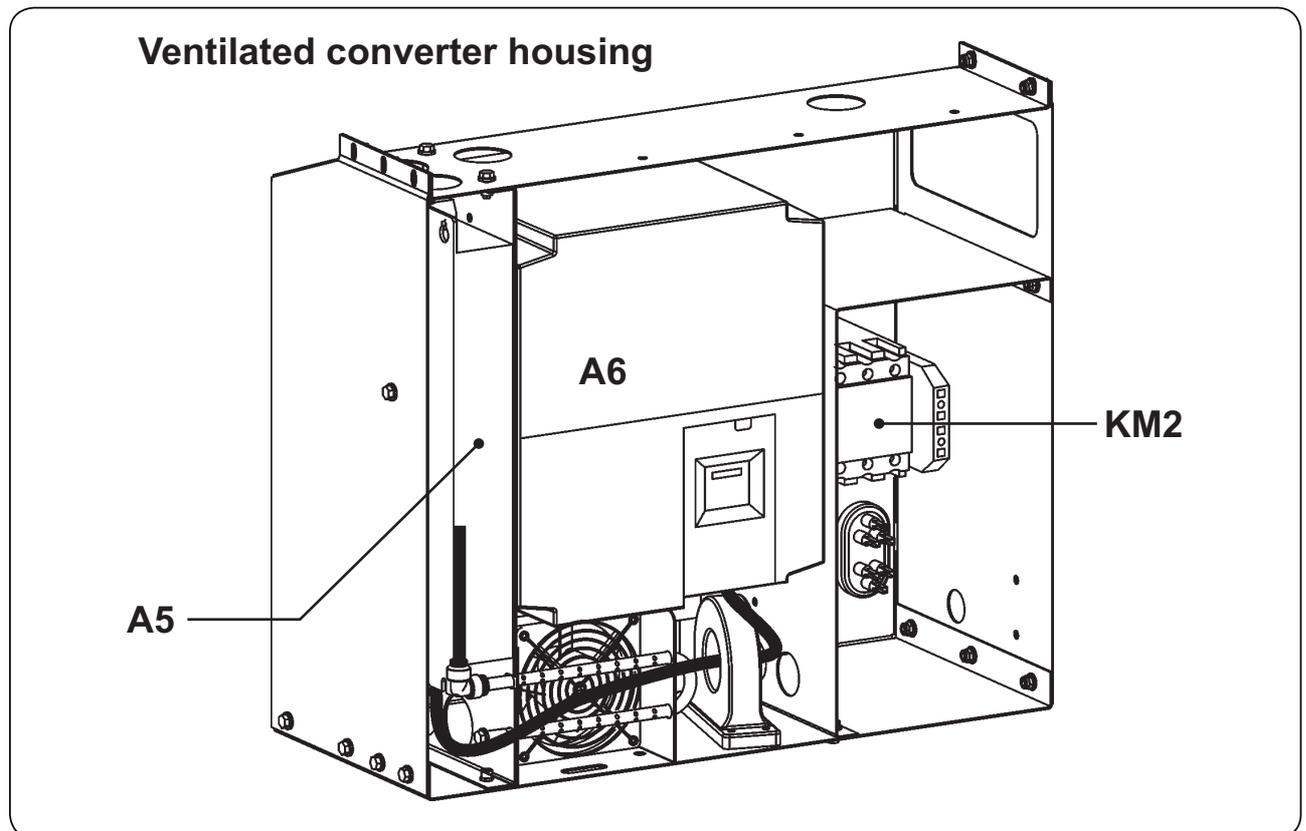
CLARUS TS



- A1 CPU card
- A3 Display card

Automatic command module





<b>A2</b>	I/O (Inputs/Outputs) card	<b>D11</b>	'Unlock unloading door' air pilot valve
<b>A4</b>	Door safety	<b>D12</b>	'Lock unloading door' air pilot valve
<b>A5</b>	Suppression filter	<b>D13</b>	Unblocking fan
<b>A6</b>	Frequency dimmer (AC speed drive)	<b>D14</b>	Soft water air pilot valve (option)
<b>A7</b>	Pneumatic block	<b>D15</b>	Drain air pilot valve (option)
<b>A8</b>	Relay card	<b>F1</b>	Command fuse 24B (+24V)
<b>A9</b>	Control weight box	<b>F2</b>	Command fuse 24A (+24V)
<b>CP1</b>	CPU connection	<b>KM1</b>	Frequency dimmer contactor
<b>CP2</b>	CPU connection	<b>KM2</b>	Motion contactor
<b>Display</b>	CPU connection	<b>KM3</b>	Heating elements 1 contactor
<b>D1</b>	'Inflation' air pilot valve	<b>KM4</b>	Heating elements 2 contactor
<b>D2</b>	'Deflation' air pilot valve	<b>P1</b>	Air presence pressostat
<b>D3</b>	'Drum indexing' air pilot valve	<b>P2</b>	Pneumatic valve pressostat
<b>D4</b>	'Drum deindexing' air pilot valve	<b>P3</b>	Pneumatic valve pressostat
<b>D5</b>	'Cold water' air pilot valve	<b>Q1</b>	Power breaker
<b>D6</b>	'Hot water' air pilot valve	<b>Q2</b>	Control breaker
<b>D7</b>	'Steam' air pilot valve	<b>T1</b>	Control power supply 400/24VDC 20A
<b>D8</b>	'Drain 1' air pilot valve	<b>X1</b>	Terminal block
<b>D9</b>	'Unlock loading door' air pilot valve		
<b>D10</b>	'Lock loading door' air pilot valve		

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## 22. CLARUS CONTROL TS

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### Contents

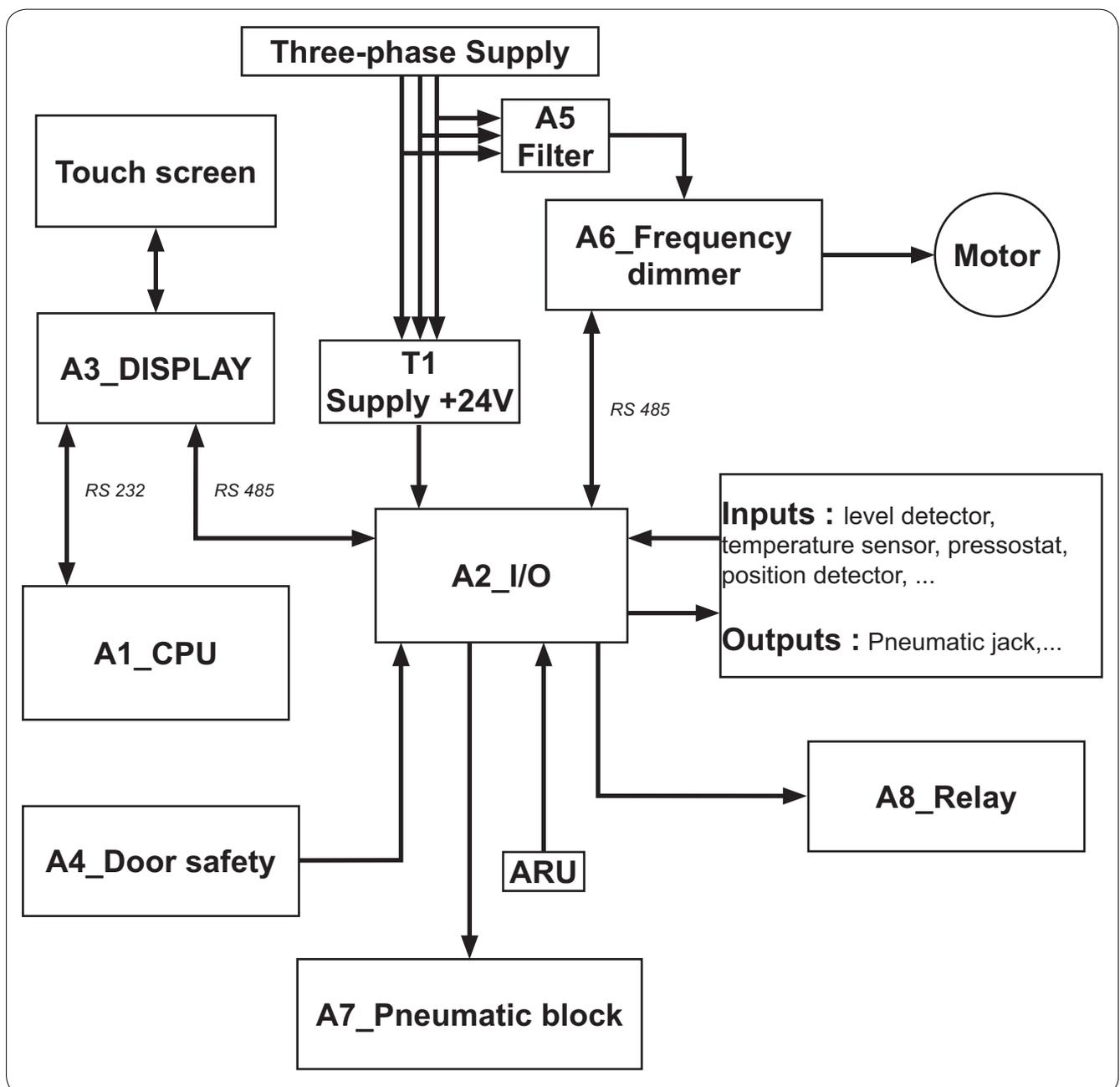
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## Description

The CLARUS TS includes the following elements :

- **A1\_CPU card** : the artificial intelligence of the machine.
- **A2\_I/O interconnection card** : the communication interface between the CLARUS TS and the different elements of the machine.
- **A3\_Display card** : the graphic interface allowing the CLARUS TS to communicate with the operator.



---

**Designations**

<b>A1</b>	CPU card
<b>A2</b>	I/O card (Inputs/Outputs)
<b>A3</b>	Display control card
<b>A4</b>	Door safety
<b>A5</b>	Suppression filter
<b>A6</b>	Frequency dimmer (AC speed drive)
<b>A7</b>	Pneumatic block
<b>A8</b>	Relay card
<b>A9</b>	Control weight box
<b>B1</b>	Water debimeter
<b>B2</b>	Water debimeter
<b>B3</b>	Water debimeter
<b>B5</b>	PH-metre sensor
<b>B201</b>	Level pressure pressostat
<b>BP1</b>	'Door open' push button
<b>BP2</b>	'Positioning' push button
<b>D1</b>	Inflation air pilot valve
<b>D2</b>	Deflation air pilot valve
<b>D3</b>	Drum indexing air pilot valve
<b>D4</b>	Drum de-indexing air pilot valve
<b>D5</b>	Cold hard water air pilot valve
<b>D6</b>	Hot water air pilot valve
<b>D7</b>	Steam air pilot valve
<b>D8</b>	Drain air pilot valve
<b>D9</b>	Loading door unlocking air pilot valve
<b>D10</b>	Loading door locking air pilot valve
<b>D11</b>	Unloading door unlocking air pilot valve
<b>D12</b>	Unloading door locking air pilot valve
<b>D13</b>	Unblocking fan
<b>D14</b>	Soft water air pilot valve
<b>D15</b>	Unloading drum door opening air pilot valve
<b>D16</b>	Drain 2 air pilot valve (option)
<b>DP1</b>	1st encoder detector
<b>DP2</b>	2nd encoder detector
<b>DP3</b>	3rd encoder detector
<b>DP4</b>	Loading door closed detector
<b>DP5</b>	Unloading door closed detector
<b>DP6</b>	Opening tappet of the unloading door detector
<b>EY1</b>	Solenoid valve of 1 compartment
<b>EY2</b>	Solenoid valve of 2 compartment
<b>EY3</b>	Solenoid valve of 3 compartment

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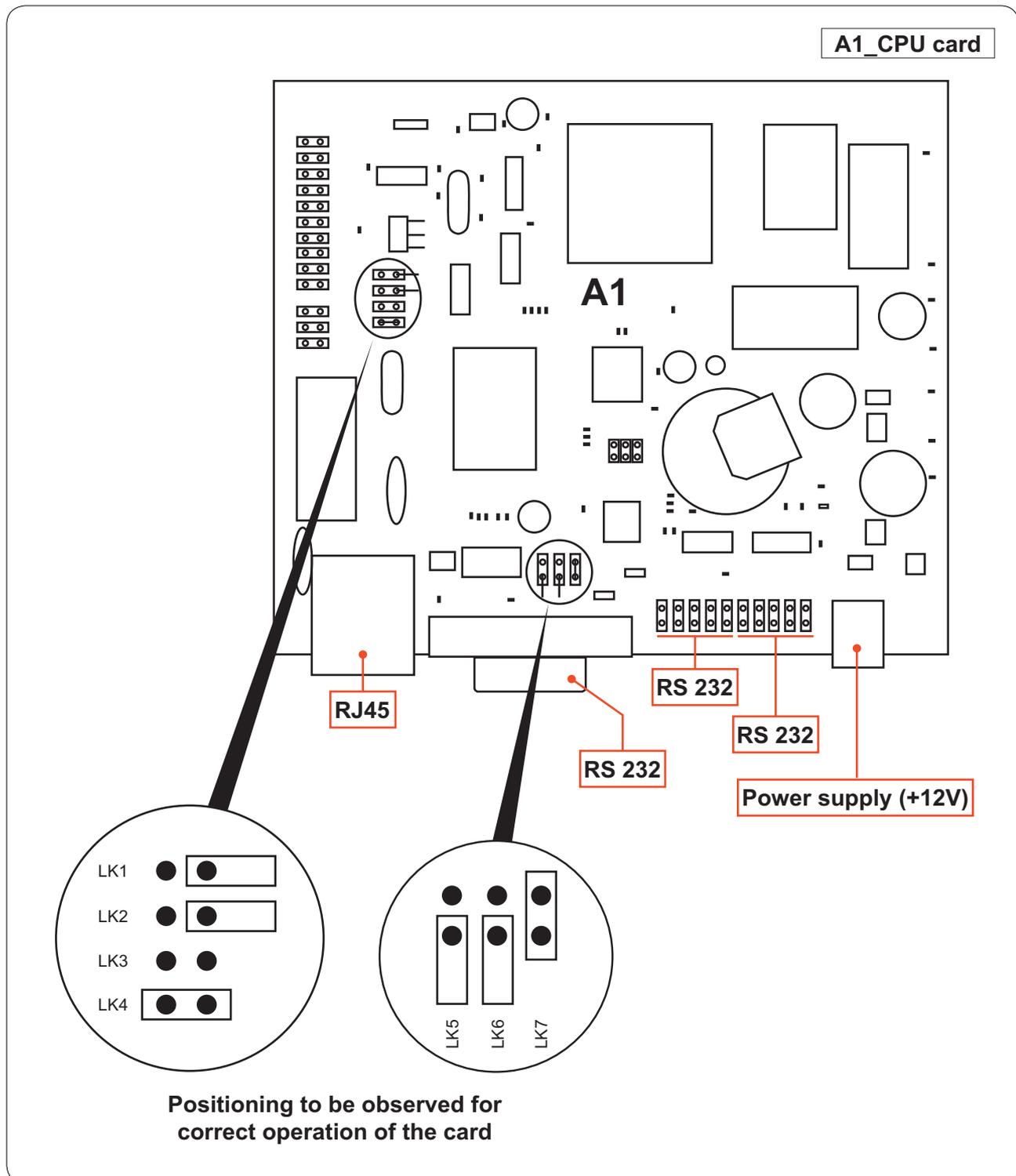
**Designations**

<b>EY4</b>	Solenoid valve of 4 compartment
<b>EY5</b>	Solenoid valve of 5 compartment
<b>F1</b>	Fuse (24B)
<b>F2</b>	Fuse (24A)
<b>FC1</b>	Drum indexing position switch
<b>FC2</b>	Drum de-indexing position switch
<b>H1</b>	Opening indicator
<b>H2</b>	Positioning indicator
<b>H3</b>	Loading signal Indicator
<b>H4</b>	Unloading signal Indicator
<b>H5</b>	Unloading buzzer
<b>KM1</b>	Frequency dimmer contactor
<b>KM2</b>	Motion contactor
<b>KM3</b>	Heating elements 1 contactor
<b>KM4</b>	Heating elements 2 contactor
<b>KM5</b>	PH pump contactor
<b>M1</b>	Motion motor
<b>M2</b>	Motion fan motor
<b>M4</b>	Frequency dimmer fan motor
<b>P1</b>	Air presence pressostat
<b>P2</b>	Pneumatic valve pressostat
<b>Q0</b>	Main switch three-pole
<b>Q1</b>	Power breaker
<b>Q2</b>	Control breaker
<b>R1</b>	Heating elements
<b>S1</b>	Unloading emergency stop
<b>S2</b>	Loading emergency stop
<b>S3</b>	Unbalance position switch
<b>S4</b>	Unbalance position switch
<b>T1</b>	Control power supply 400/24VDC 20A

### A1\_CPU card

The CPU card controls all the functions of the machine using different programs stored in the memory and communicates with the other cards by means of serial links.

Note that the A1\_CPU card contains no disconnecting components. If one of the components has to be replaced, a standard change of the card must be carried out (pre-programmed in the factory).



A1\_CPU card

Connector	Pin	Wire n°	Designation / Function	
RJ45				Link RJ45
RS 232			J303	A3_Display
Supply	0		J302	A3_Display
	12*			

\* 12 = power supply (+12V)

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## A2\_I/O card (Inputs/Outputs)

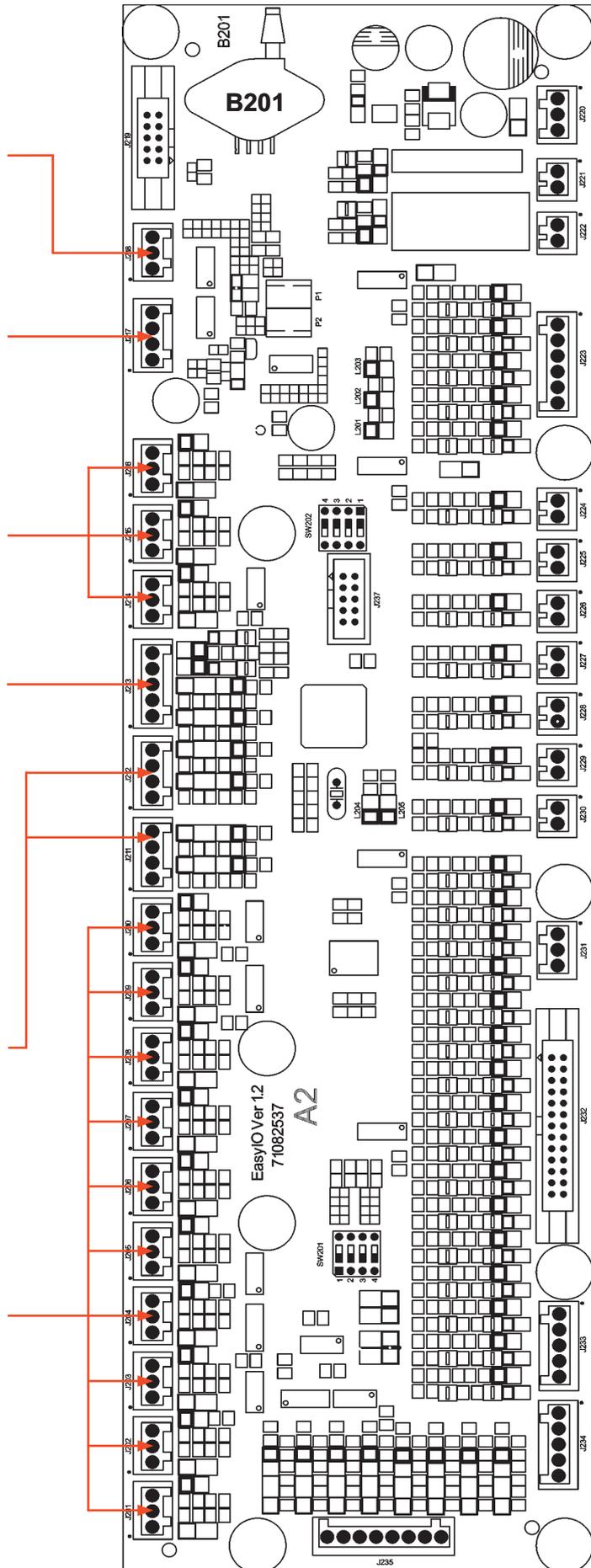
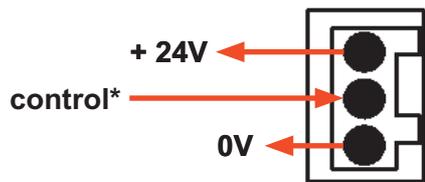
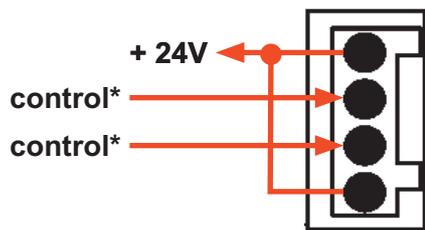
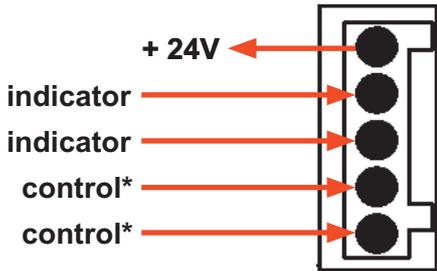
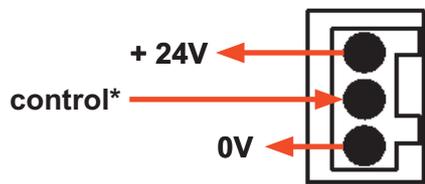
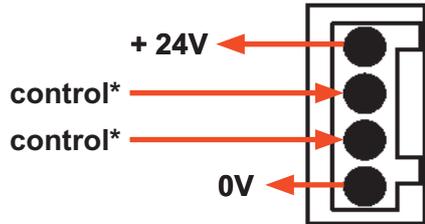
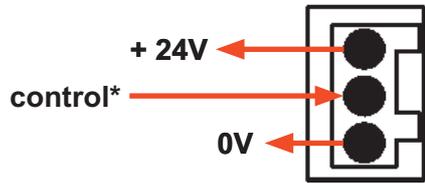
Control via a serial link by the A1\_CPU card, the A2\_I/O card serves as the connection interface to the CLARUS TS to control the different organs of the machine (drain, door locking/unlocking system...) and capture the information (heating temperature, water level, end of run of mechanical organs...) required for the correct functioning of the wash programs.

The A2\_I/O card also includes indicators showing the status of its inputs and outputs in order to facilitate repair by the after-sales service.

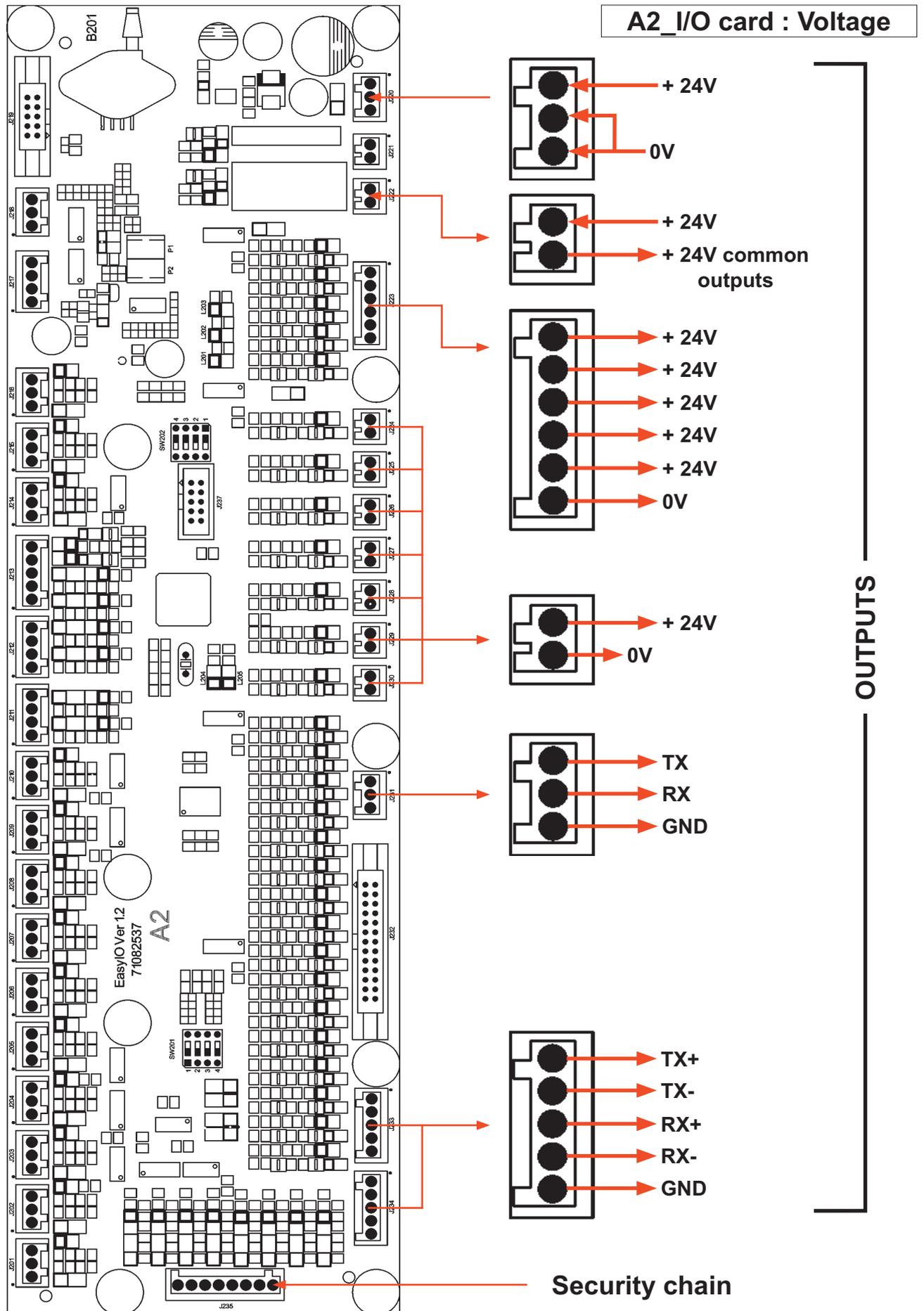
Note that the A2\_I/O card contains no disconnecting components. If one of the components has to be replaced, a standard change of the card must be carried out (card pre-programmed in the factory).

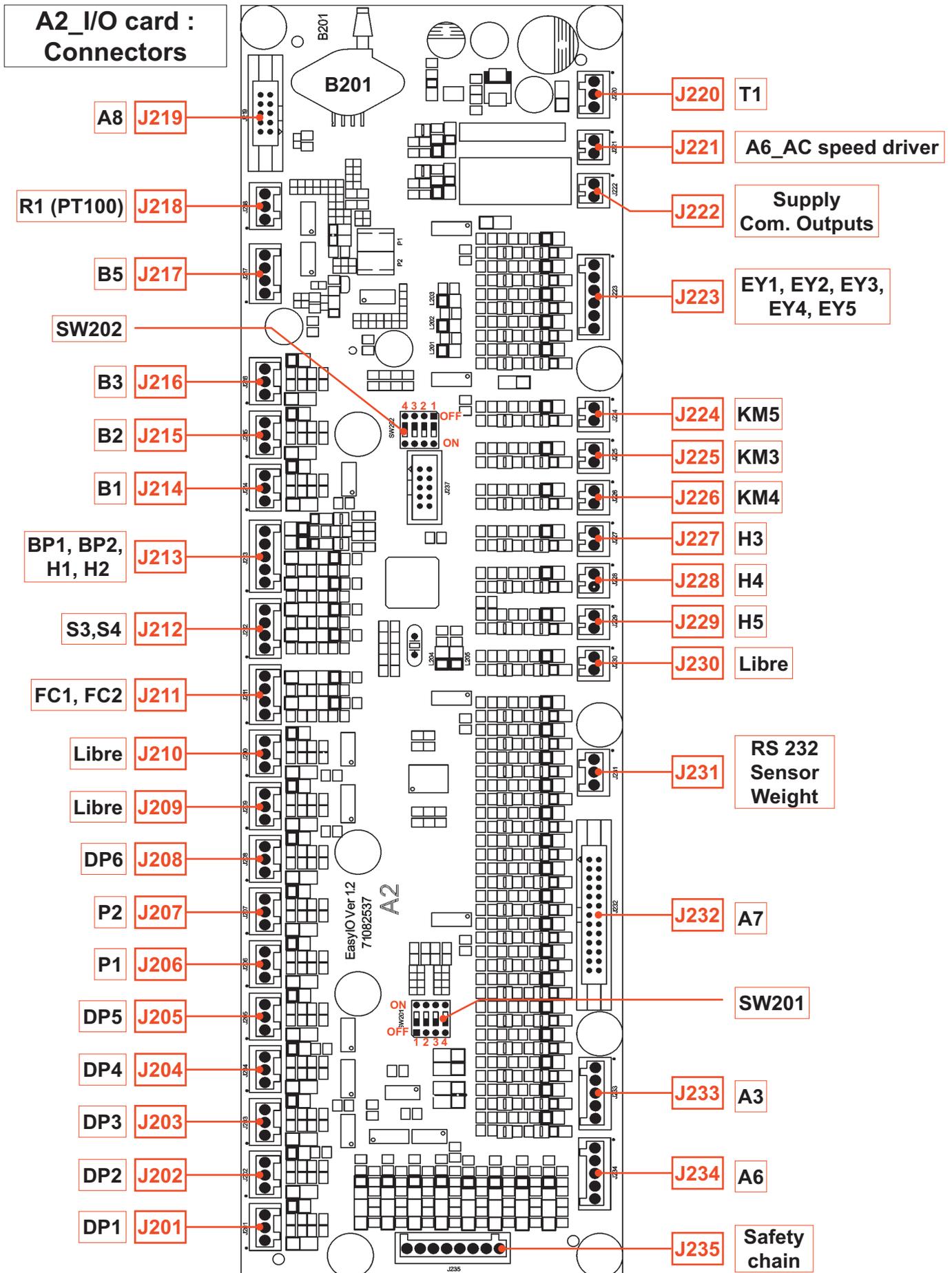
A2\_I/O card : Voltage

INPUTS



\* control (+ 24 volts) : inductives detectors, position switch, pressostat, ...





A2\_I/O card (Connectors)

Connector	Pin	Wire n°	Designation / Function
J201	1	0	Blue
	2	201-2	Black
	3	24A	Brown
DP1_1st drum position encoder			
J202	1	0	Blue
	2	202-2	Black
	3	24A	Brown
DP2_2nd drum position encoder			
J203	1	0	Blue
	2	203-2	Black
	3	24A	Brown
DP3__3rd drum position encoder			
J204	1	0	Blue
	2	204-2	Black
	3	24A	Brown
DP4_Loading door closed			
J205	1	0	Blue
	2	205-2	Black
	3	24A	Brown
DP5_Unloading door closed			
J206	1		
	2	206-2	Black
	3	24A	Brown
Free			
P1_Air presence			
J207	1	0	Blue
	2	207-2	Black
	3	24A	Brown
P2_Pneuride pressure > 3,5 bar			
J208	1	1	Blue
	2	319.3	Black
	3	35B	Brown
DP6_Unloading drum door opening detector			
J209			
Free			
J2010			
Free			

\* 24A = power supply (+24V)  
24B = power supply (+24V)

## A2\_I/O card (Connectors)

Connector	Pin	Wire n°	Designation / Function
J211	1	24A	Blue
	2	211-2	Brown
	3	211-3	Blue
	4	24A	Brown
FC1_Non-indexed drum			
FC2_Indexed drum			
J212	1	24A	Black
	2	212-2	Black / White
	3	211-3	Black / White
	4	24A	Black
S3_Unbalance position switch 1			
S4_Unbalance position switch 2			
J213	1	213-1	14
	2	213-2	14
	3	213-3	X2
	4	213-4	X2
	5	24A	11, X1
BP1_Opening button			
BP2_Positioning button			
H1_Opening indicator			
H2_Positioning indicator			
Comm. BP1, BP2, H1 and H2			
J214	1		
	2	214-2	2
	3	24A	1
Free			
B1_Debimeter 1 (option)			
J215	1		
	2	215-2	2
	3	24A	1
Free			
B2_Debimeter 2 (option)			
J216	1		
	2	216-2	2
	3	24A	1
Free			
B3_Debimeter 3 (option)			
J217	1		
	2	217-2	1
	3	217-3	2
	4	24A	3
Free			
B5_PH meter in 1/10 mA (option)			
J218	1		
	2	Red	2
	3	White	1
Free			
R1_PT100 temperature sensor (in °C)			
J219		J219	J801
A8_Relay			

## A2\_I/O card (Connectors)

Connector	Pin	Wire n°	Designation / Function	
J220	1	24A*	X1-7	X1_Terminal block
	2	0	X1-9	X1_Terminal block
	3			
J221	1	221-1		A6_Frequency dimmer
	2	221-2		
J222	1	100	X1-3	X1_Terminal block
	2	101	X1-2	
J223	1	223-1		EY1_Solenoid valve product compartment 1
	2	223-2	1	EY2_Solenoid valve product compartment 2
	3	223-3	1	EY3_Solenoid valve product compartment 3
	4	223-4	1	EY4_Solenoid valve product compartment 4
	5	223-5	1	EY5_Solenoid valve product compartment 5
	6	0		Comm. EY1, EY2, EY3, EY4 and EY5
J224	1	224-1	A1	KM5_Pump PH (option)
	2	0	A2	
J225	1	225-1	A1	KM3_Elec heating 1
	2	0	A2	
J226	1	226-1	A1	KM4_Elec heating 2
	2	0	A2	
J227	1	227-1	X1	H3_Loading flash
	2	0	X2	
J228	1	228-1	X1	H4_Unloading flash
	2	0	X2	
J229	1	229-1	1	H5_Unloading buzzer
	2	0	2	
J230				Free

\* 24A = power supply (+24V)

## A2\_I/O card (Connectors)

Connector	Pin	Wire n°	Designation / Function
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J231	1	RS 232		Sensor weight
	2			
	3			

J232	1	232-1	J700-1	A7	D1_Inflation
	2	232-2	J700-2		D2_Deflation
	3	232-3	J700-3		D3_Drum indexing
	4	232-4	J700-4		D4_Drum de-indexing
	5	232-5	J700-5		D5_Cold water
	6	232-6	J700-6		D6_Hot water
	7	232-7	J700-7		D7_Steam
	8	232-8	J700-8		D8_Drain 1
	9	232-9	J700-9		D9>Loading door unlocking
	10	232-10	J700-10		D10>Loading door locking
	11	232-11	J700-11		D11_Unloading door unlocking
	12	232-12	J700-12		D12_Unloading door locking
	13	232-13	J700-13		D13_Unblocking fan
	14	232-14	J700-14		D14_Soft water (option)
	15	232-15	J700-15		D15_Unloading drum door opening
	16	232-16	J700-16		D16_Drain 2 (option)
	17			Free	
	18			Free	
	19	0	J700-19	A7	Comm. D1 to D15
	20		J700-20		
	21			Free	
	22				
	23				
	24				
	25	0	J700-25	A7	Comm. D1 to D15
	26		J700-26		

J233	1	RS 485	J305-1	A3_Display
	2		J305-2	
	3		J305-3	
	4		J305-4	
	5		J305-5	

A2\_I/O card (Connectors)

Connector	Pin	Wire n°	Designation / Function
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J234	1	KEB	A6_Bus Mode frequency dimmer dimmer link
	2		
	3		
	4		
	5		

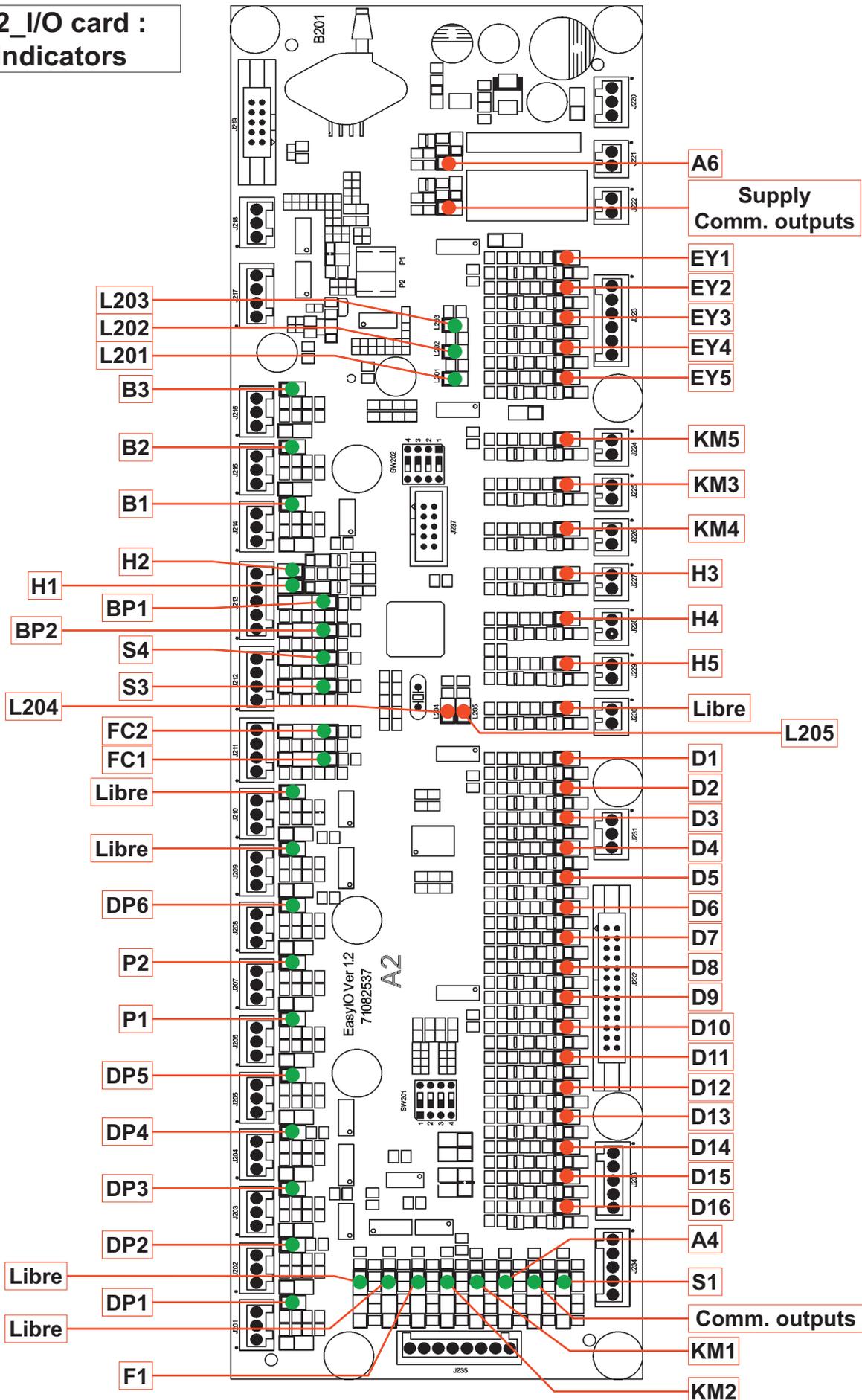
J235	1	100	X1-3	X1_Terminal block
	2	101	X1-2	
	3	103	X1-1	
	4	104	14	KM1_Frequency dimmer contactor
	5	105	14	KM2_Motor contactor
	6	24B	X1-5	X1_Terminal block
	7			Free
	8			

Switch	Pin	Etat	Function
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SW201	1	ON	Position test	<b>By default, the switches are all in the OFF position</b>
		OFF	Standard position	
	2	ON	Position test	
		OFF	Standard position	
	3	ON	Position test	
		OFF	Standard position	
	4	ON	Position test	
		OFF	Standard position	

SW202	1	ON	Position test	<b>By default, the switches are all in the OFF position</b>
		OFF	Standard position	
	2	ON	Position test	
		OFF	Standard position	
	3	ON	Position test	
		OFF	Standard position	
	4	ON	Position test	
		OFF	Standard position	

A2\_I/O card :  
Indicators



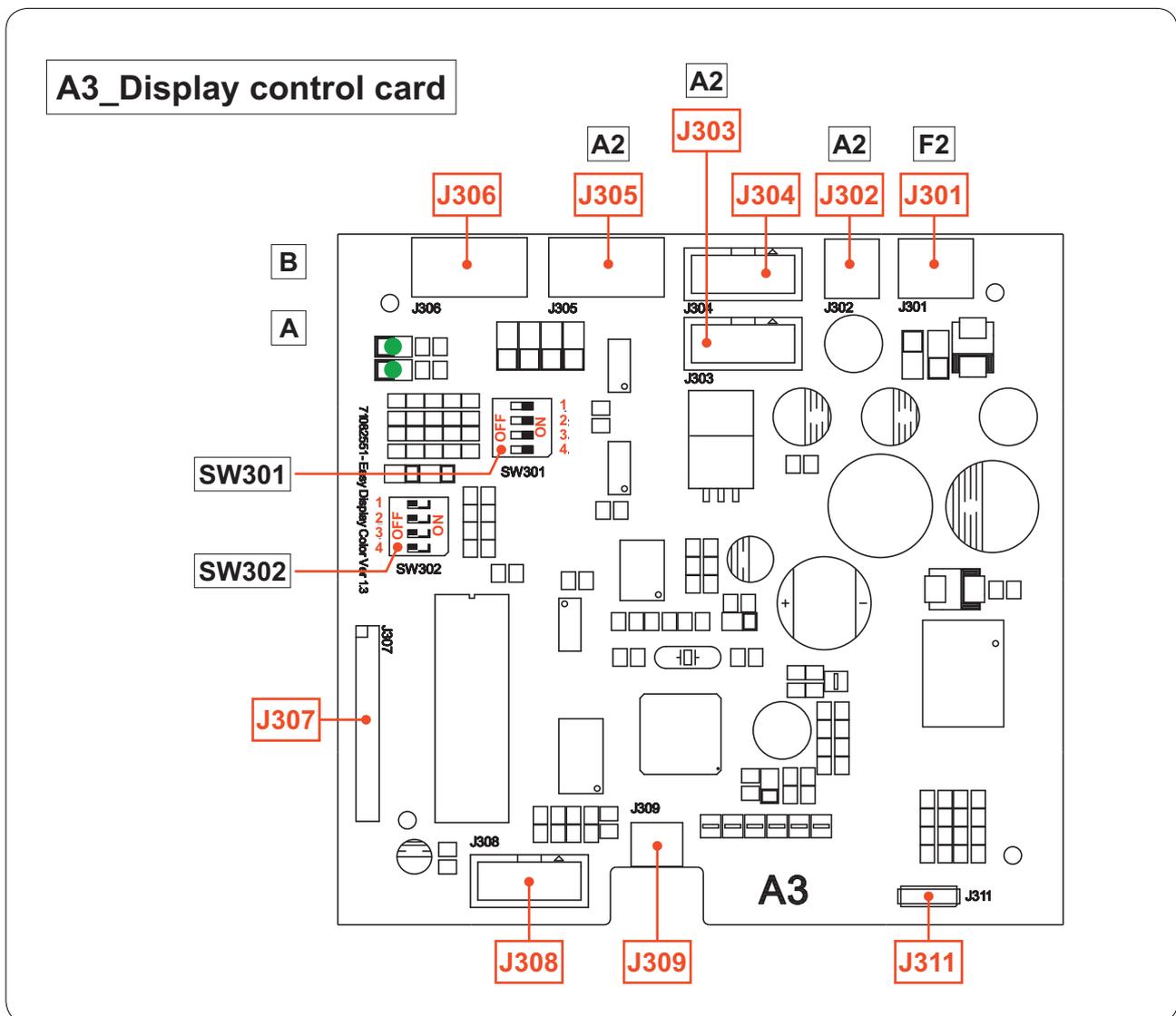
**A2\_I/O card (Indicators)**

Indicator	Status	Function
Green indicator (Input)		
A6, B1, B2, B3, BP1, BP2, DP1, DP2, DP3, DP4, DP5, DP6, FC1, FC2, P1, P2, S3, S4, Supply. Comm. sorties	ON	Input activated
	OFF	Input deactivated
Green indicator (Safety chain)		
A4, F1, KM1, KM2, S1 and Com. sorties	ON	Input activated
	OFF	Input deactivated
Red indicator (Output)		
EY1, EY2, EY3, EY4, EY5, KM5, KM3, KM4, H1, H2, H3, H4, D1 to D16	ON	Output activated
	OFF	Output deactivated
L201	ON	Comm. supply of output (+24V) OK
	OFF	No comm.output supply
L202	ON	Activated output
	OFF	Deactivated output
L203	ON	Card power supply (+24V) OK
	OFF	No card power supply
L204	ON	Bus mode communication 'card ↔ CPU' activated
	Flashing	No bus mode communication 'card ↔ CPU'
L205	ON	Optional card detected and communication OK
	OFF	No optional card connected
	Flashing	Optional card connected but communication problem

### A3\_Display control card

Connect via a serial interface to the A1\_CPU card, the A3\_DISPLAY card allows CLARUS TS to communicate with the operator in the form of a graphic interface with touch keys.

Note that the A3\_DISPLAY card contains no disconnecting components. If one of the components has to be replaced, a standard change of the card must be carried out (card pre-programmed in the factory).



A3\_Display control card

Connector	Pin	Wire n°	Designation / Function	
J301	1	24A*	X1-7	X1_Terminal block
	2	0	X1-9	
	3			Free
J302	0		0	A1_CPU
	12		12*	
J303		RS232		A1_CPU
J304				Free
J305	1	RS 485	J233-1	A2_I/O
	2		J233-2	
	3		J233-3	
	4		J233-4	
	5		J233-5	
J306				Free
J307				Free
J308				Free
J309				Free
J310				Free
J311				Libre

\* 24A = power supply (+24V) ; 12 = power supply (+12V)

**A3\_Display control card**

Switch	Pin	Status	Function
--------	-----	--------	----------

SW301	1	ON	Position test	<b><i>By default, the switches are all in the OFF position</i></b>
		OFF	Standard position	
	2	ON	Position test	
		OFF	Standard position	
	3	ON	Position test	
		OFF	Standard position	
	4	ON	Position test	
		OFF	Standard position	

SW302	1	ON	Position test	<b><i>By default, the switches are all in the ON position</i></b>
		OFF	Standard position	
	2	ON	Position test	
		OFF	Standard position	
	3	ON	Position test	
		OFF	Standard position	
	4	ON	Position test	
		OFF	Standard position	

Indicator	Status	Function
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A	ON	Bus mode communication activated
	Flashing	No bus mode communication
	OFF	Supply fault and/or Card fault

A + B	Flashing alternately A and B	Soft loading
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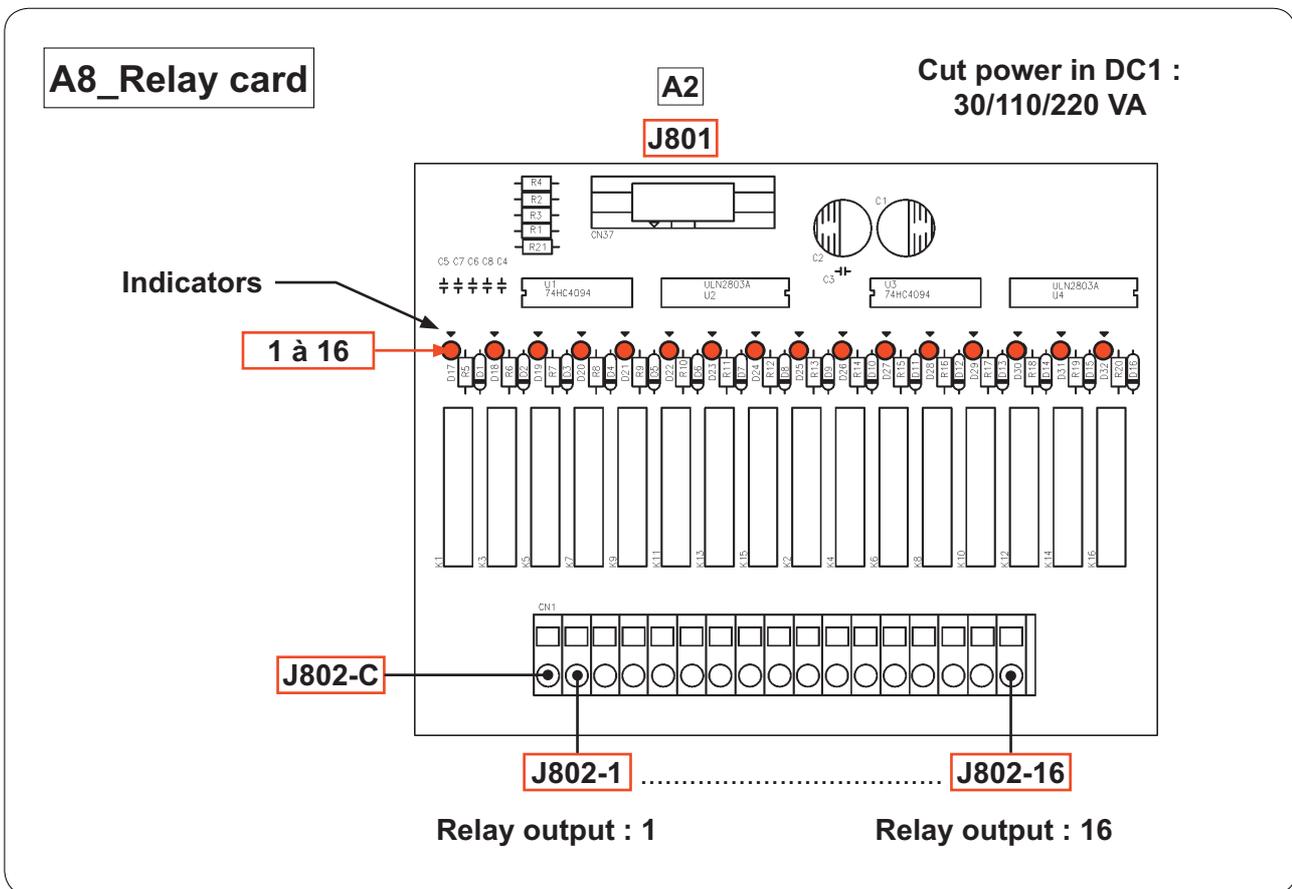
B	ON	Valid chip card detected
	OFF	No chip card detected

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A8\_Relay card

Controlled by the CLARUS TS, by means of the A2\_I/O card terminal J219, the A8\_Relay card, with indicators showing the status of each relay, allows the control of up to 16 auxiliary inputs with a cut power in DC1 of 30/110/220 VA.

Note that the A8\_Relay card contains no disconnecting components. If one of the components has to be replaced, a standard change of the card must be carried out.



A8\_Relay card

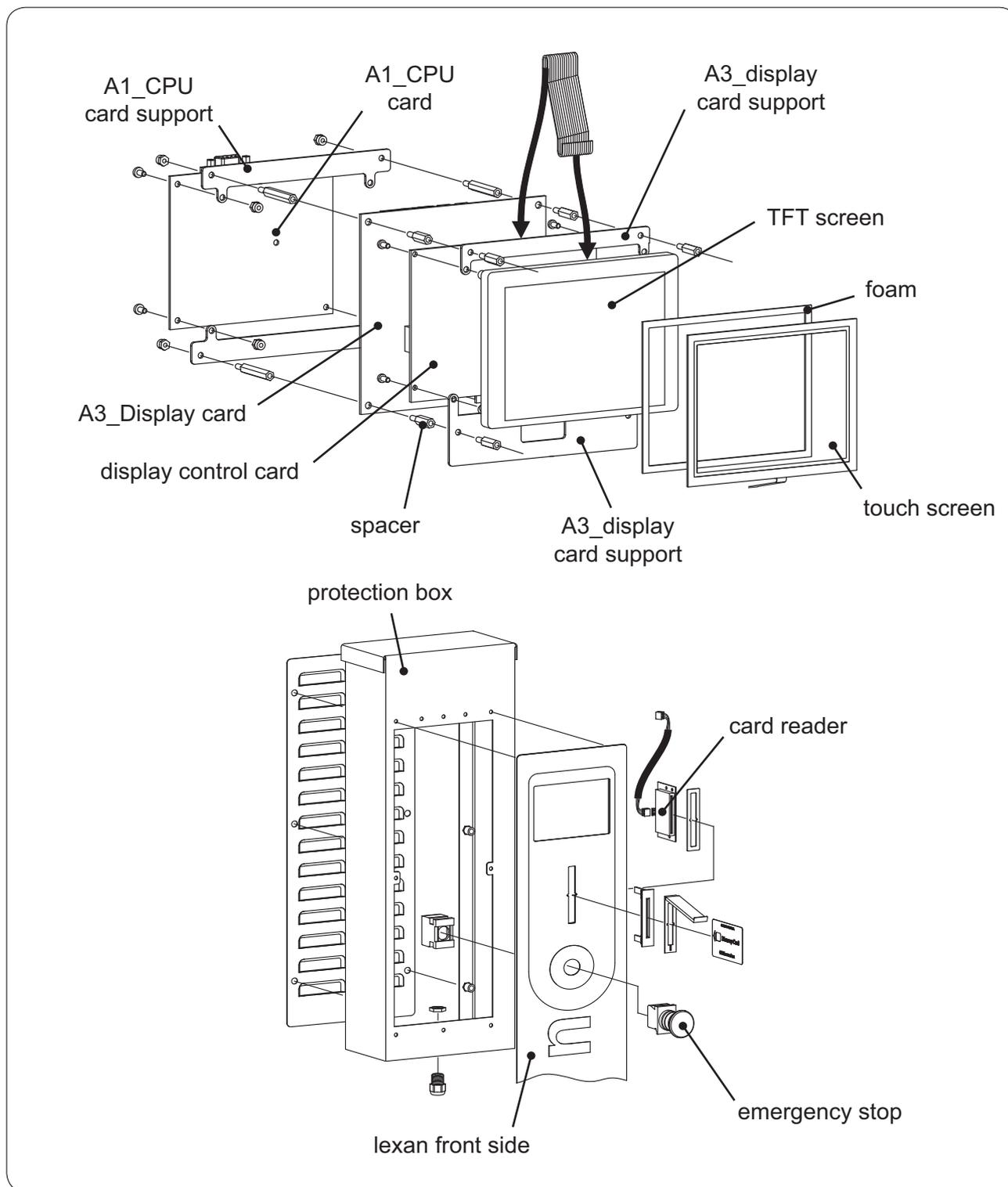
Indicator	Status	Function
1 to 16	ON	Output activated
	OFF	Output activated

A8\_Relay card

Connector	Pin	Wire n°	Designation / Function
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J801	1	J219	A2_I/O
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J802	C		
	1		Liquid 1_liquid product relay output
	2		Liquid 2_liquid product relay output
	3		Liquid 3_liquid product relay output
	4		Liquid 4_liquid product relay output
	5		Liquid 5_liquid product relay output
	6		Liquid 6_liquid product relay output
	7		Liquid 7_liquid product relay output
	8		Liquid 8_liquid product relay output
	9		Liquid 9_liquid product relay output
	10		Liquid 10_liquid product relay output
	11		Liquid 11_liquid product relay output
	12		Liquid 12_liquid product relay output
	13		Liquid 13_liquid product relay output
	14		Liquid 14_liquid product relay output
	15		Liquid 15_liquid product relay output
16		Liquid 16_liquid product relay output	



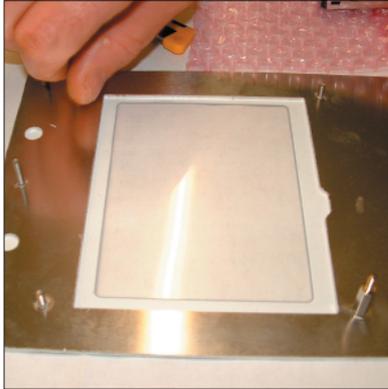
## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

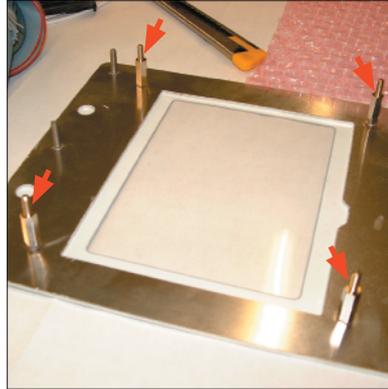
When a breakdown is detected on one of the A1\_CPU, A2\_I/O or A3\_DISPLAY cards, a standard change of card will be carried out, as the cards contain no disconnecting components.

Repair

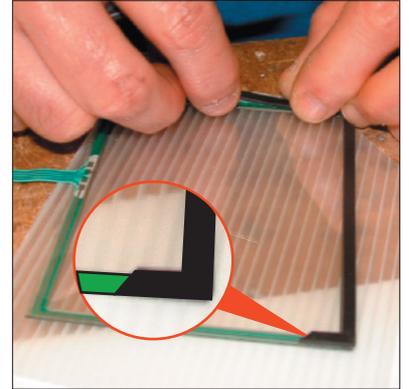
Assembly of the CLARUS TS :



1



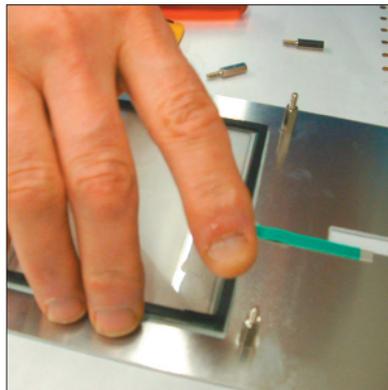
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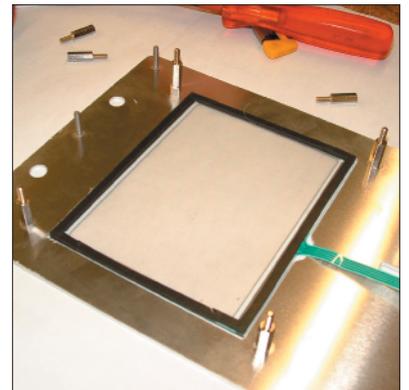
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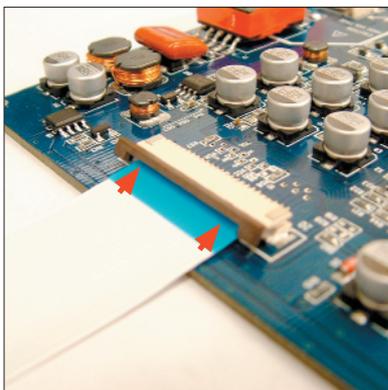
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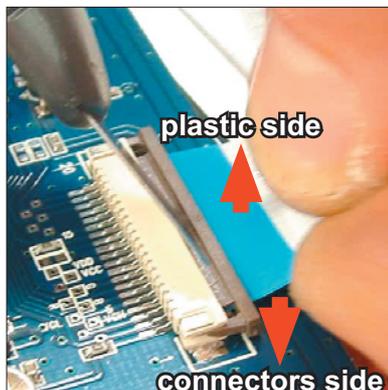
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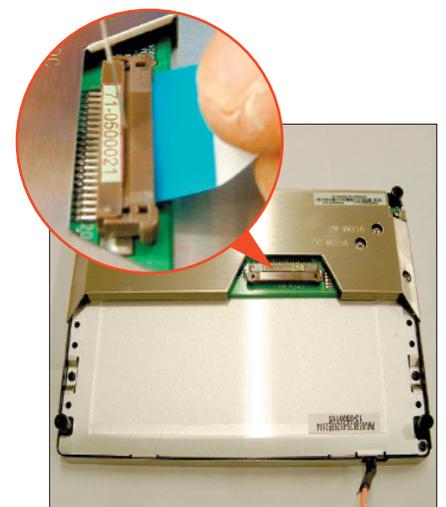
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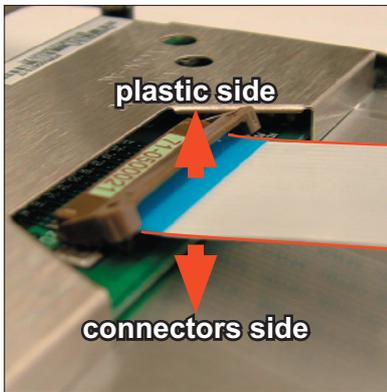
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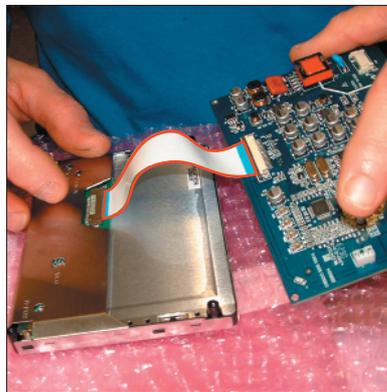
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Repair

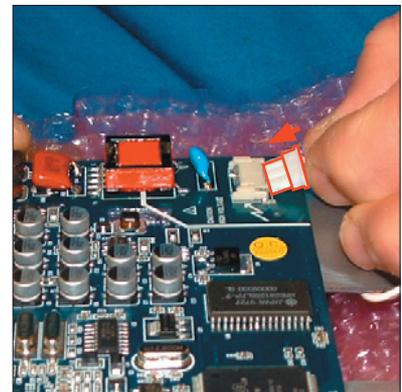
Assembly of the CLARUS TS (next) :



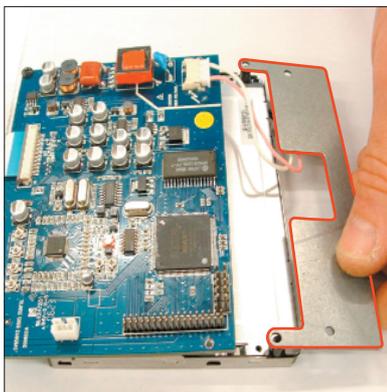
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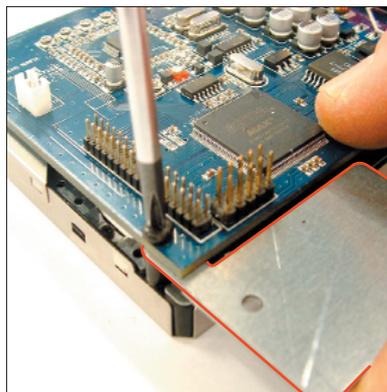
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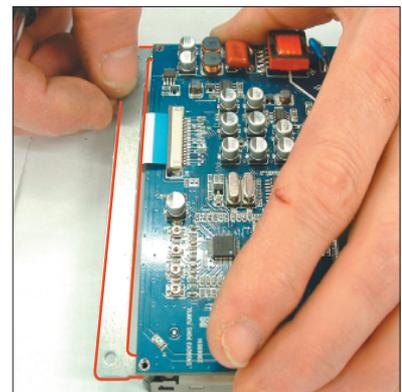
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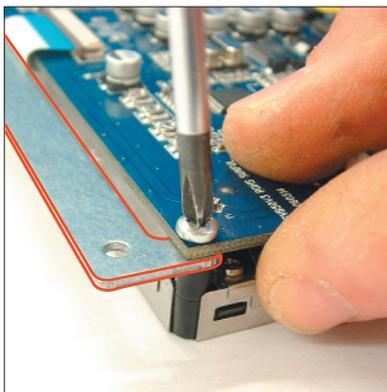
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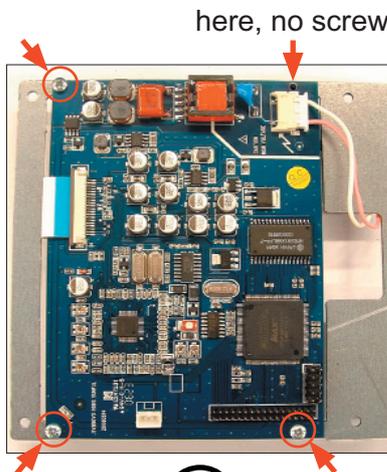
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16



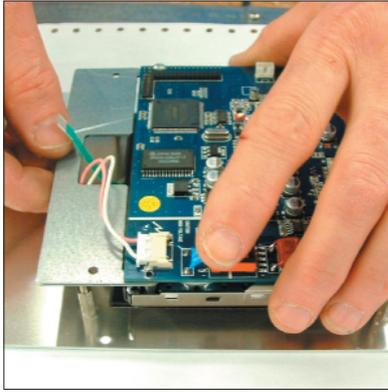
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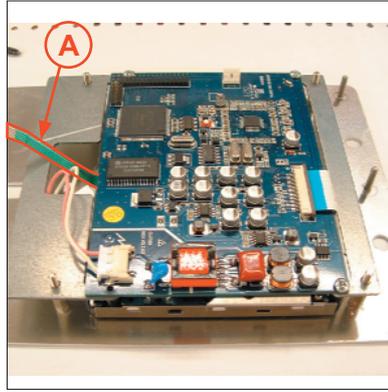
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Repair

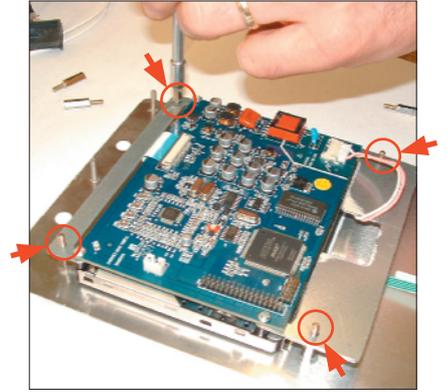
Assembly of the CLARUS TS (next) :



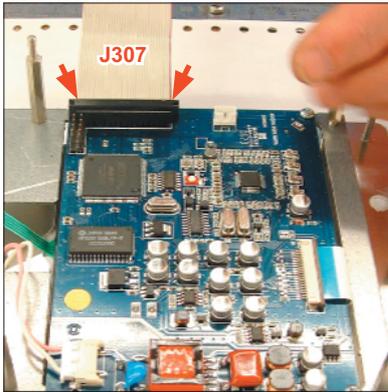
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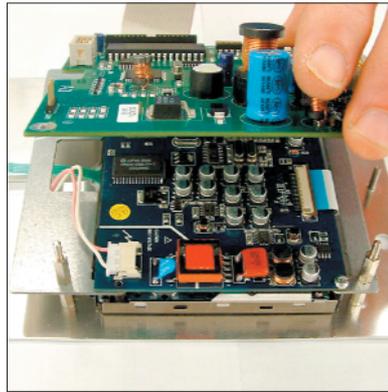
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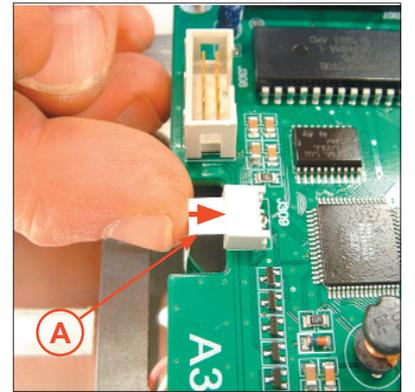
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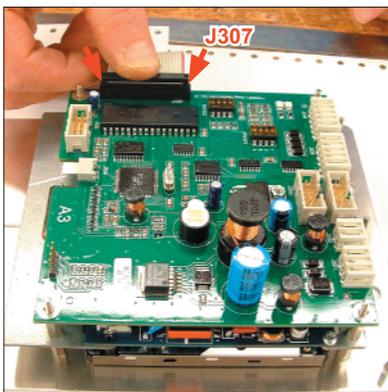
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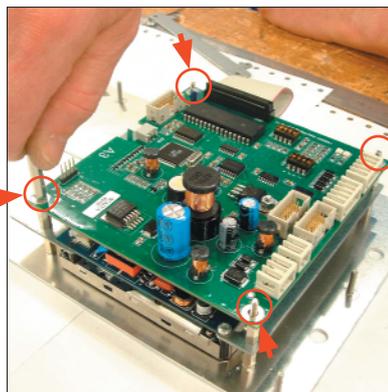
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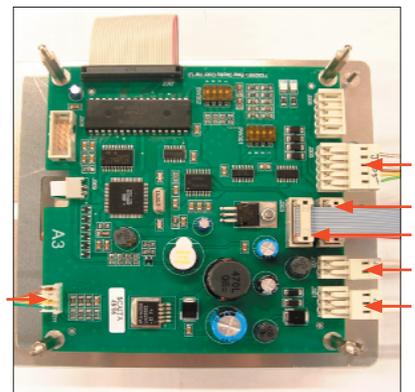
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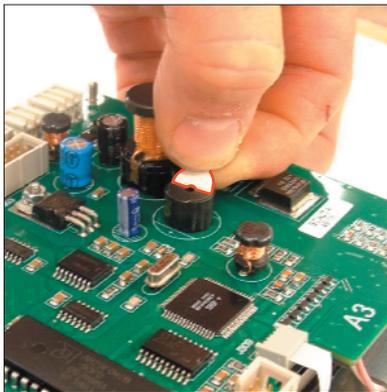
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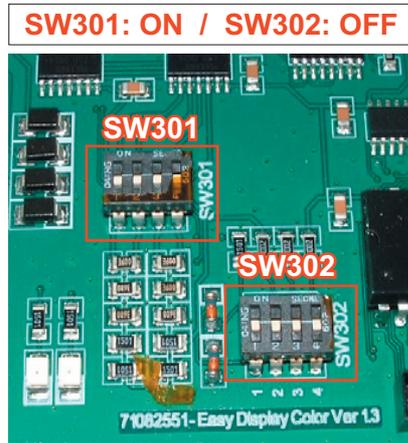
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Repair

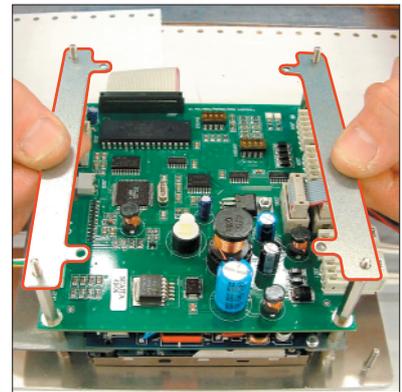
Assembly of the CLARUS TS (next) :



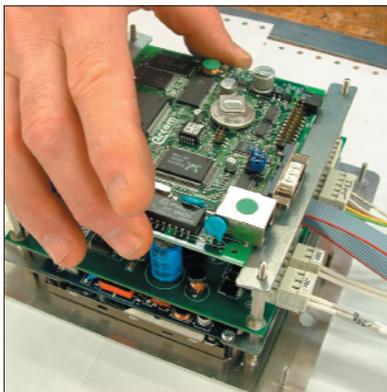
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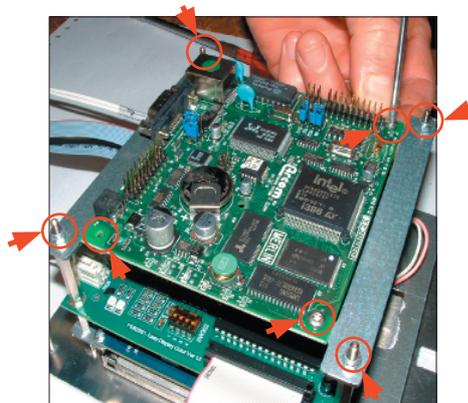
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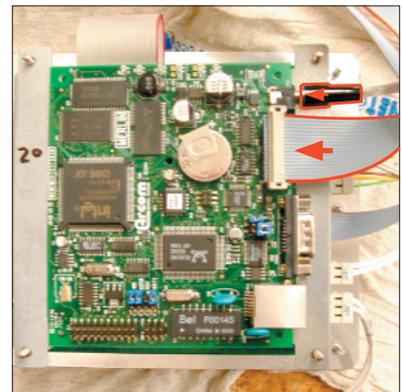
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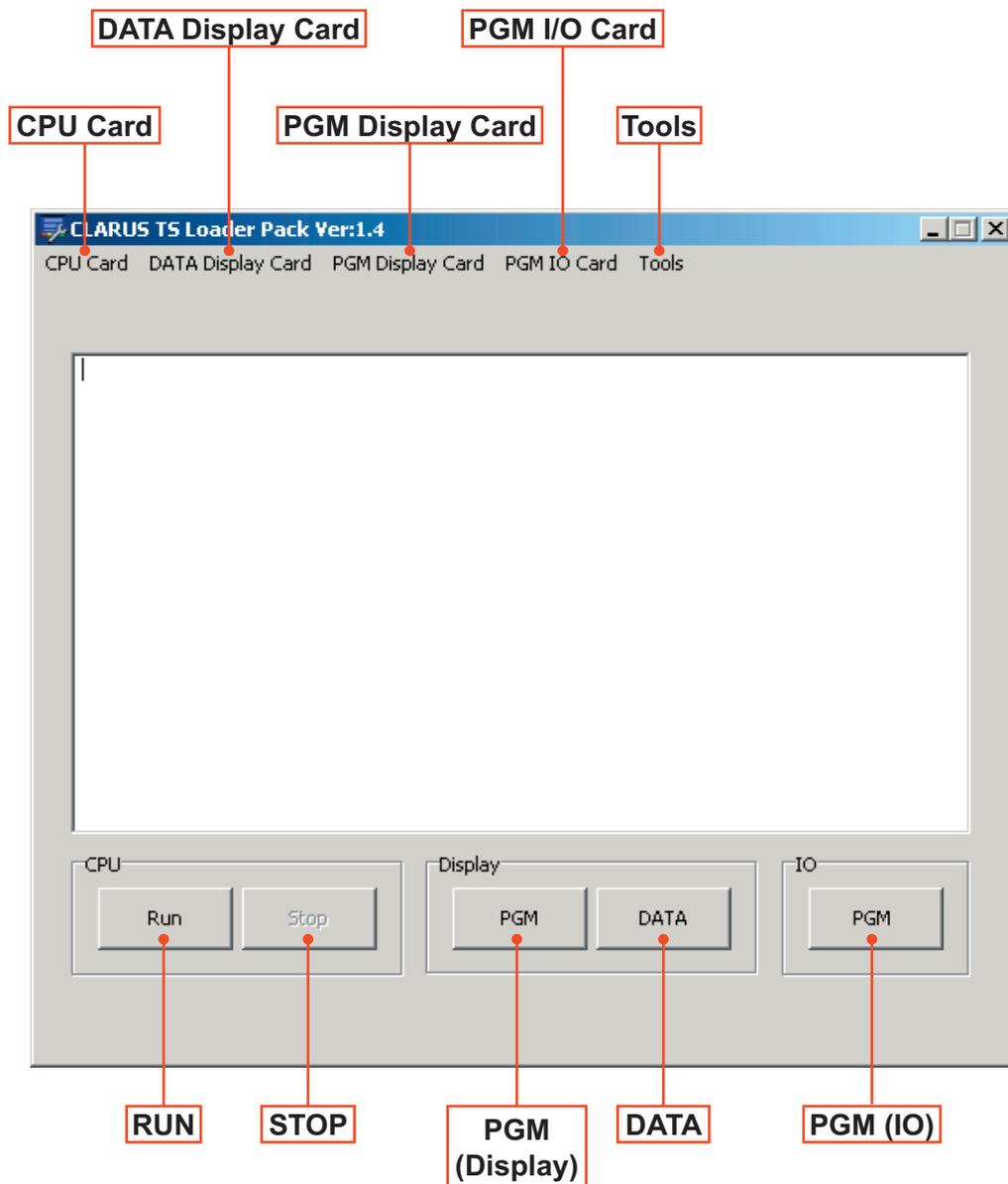


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«CLARUS TS LOADER PACK» SOFTWARE

Description :



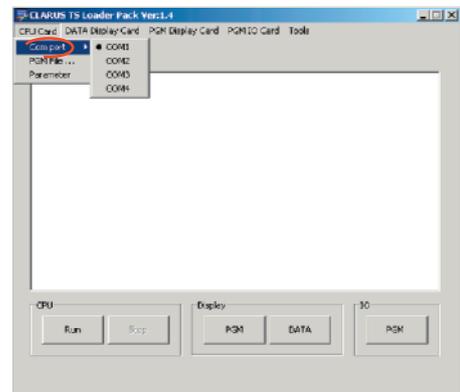
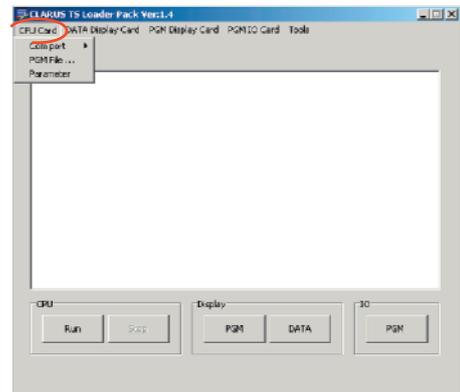
Description : (next)

Menu : CPU card

The «CPU Card» menu includes 3 submenus : Com port, PGM File and Parameter.

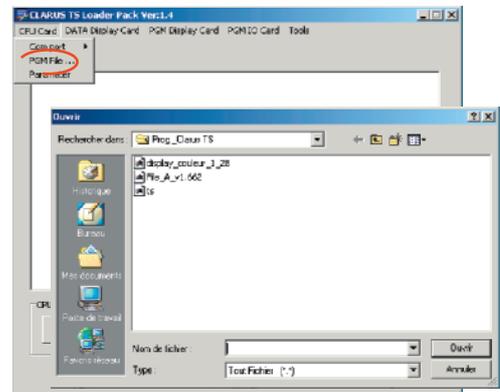
• Com port :

Allow to configure the port (COM1 to COM4) on which the loading of the program goes carried out. By default, the «Com port» is configured on «COM1».



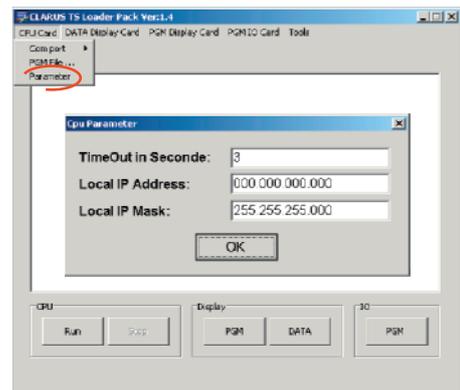
• PGM File... :

Allow to define the link to reach the programme to load towards the CLARUS TS.



• Parameter :

This submenu is only using by the factory. Don't change the values.



Description : (next)

Menu : DATA Display card

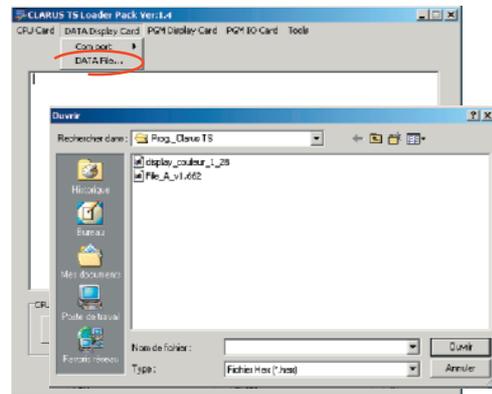
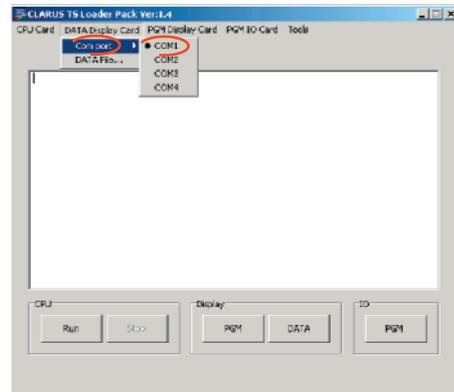
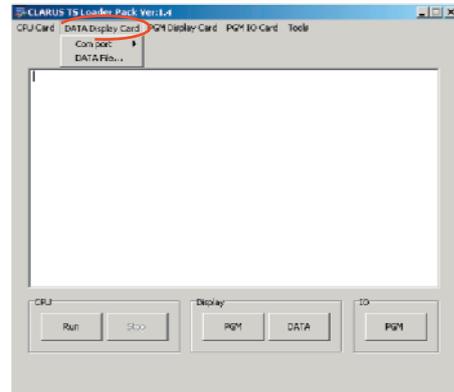
The «DATA Display Card» menu includes 2 submenus : Com port and PGM File.

• Com port :

Allow to configure the port (COM1 to COM4) on which the loading of the program goes carried out. By default, the «Com port» is configured on «COM1».

• PGM File... :

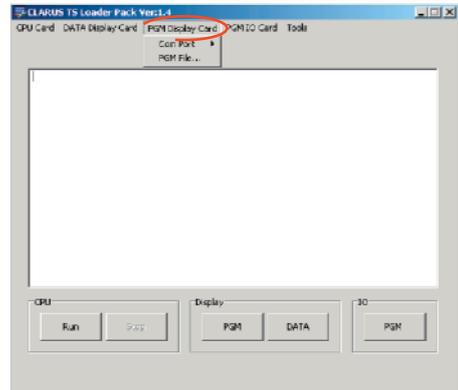
Allow to define the link to reach the programme to load towards the CLARUS TS.



Description : (next)

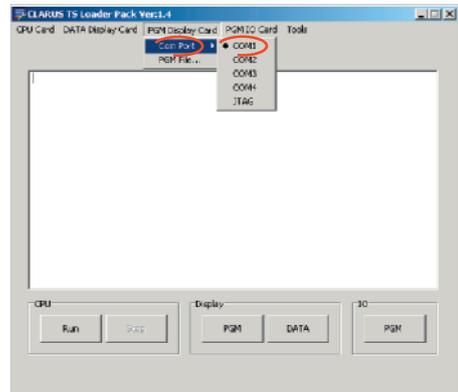
**Menu : PGM Display card**

The «PGM Display Card» menu includes 2 submenus : Com port and PGM File.



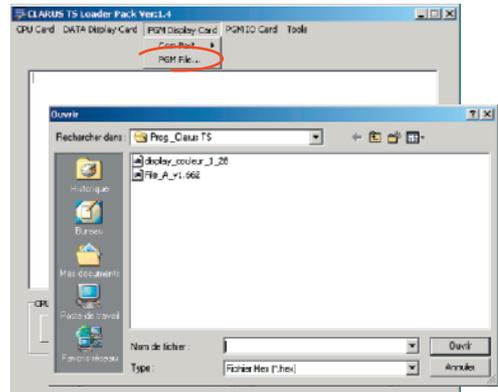
• **Com port :**

Allow to configure the port (COM1 to COM4 and JTAG) on which the loading of the programme goes carried out. By default, the «Com port» is configured on «COM1».



• **PGM File... :**

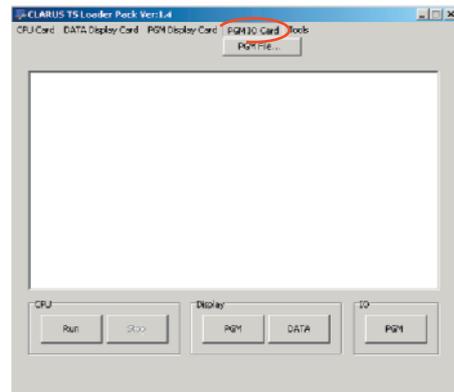
Allow to define the link to reach the programme to load towards the CLARUS TS.



Description : (next)

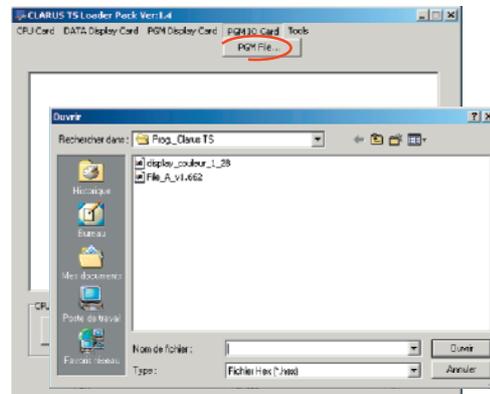
### Menu : PGM IO card

The «PGM IO Card» menu includes only on submenu : PGM File.



#### • PGM File... :

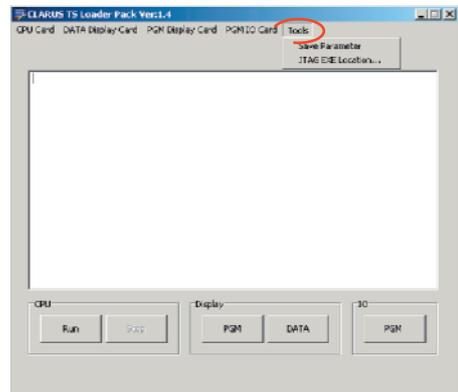
Allow to define the link to reach the programme to load towards the CLARUS TS.



Description : (next)

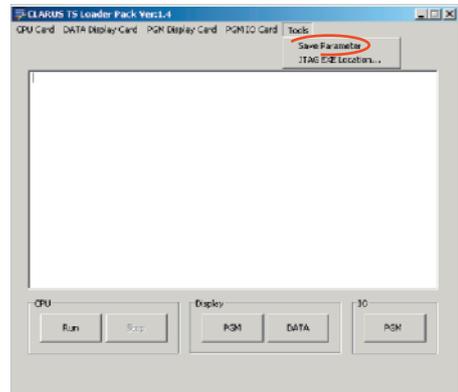
**Menu : Tools**

The «Tools» menu includes 2 submenus :  
Save Parameter and JTAG EXE Location.



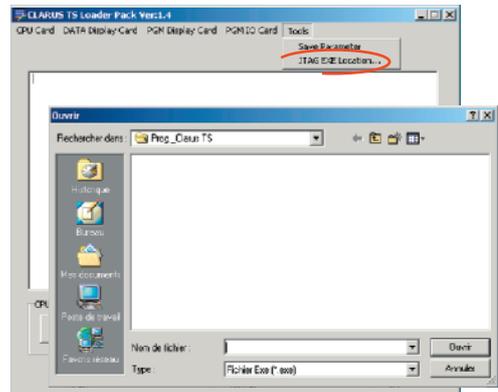
• **Save Parameter :**

Allow to save the parameter setting configured on each menus and submenus.



• **JTAG EXE Location :**

Allow to define the link to reach the driver '.exe' of JTAG box.

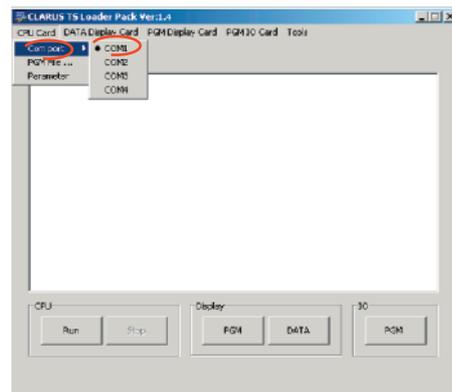


## Setting of the software :

- Define in each menus the port on which the loading of the program goes carried out. By default, use the «**COM1**» port.
- Define in each menus the link to reach the programme to load .
- Save the new parameters settings configured in each menus and submenus.

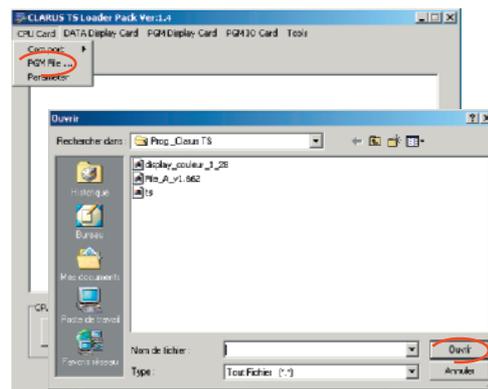
### 1 Setting of the com port : (example for the «CPU Card» menu)

- Click on «**CPU Card**»
- Click on «**Com port**»
- Select «**COM1**»



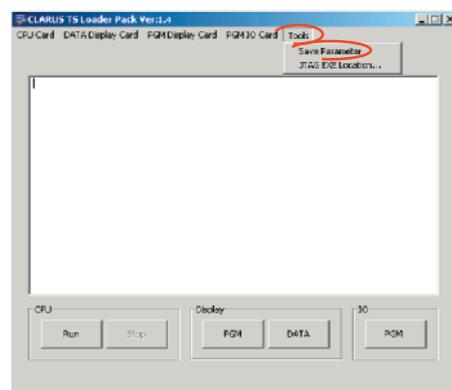
### 2 Setting of the link to reach the program to load : (example for the «CPU Card» menu)

- Click on «**CPU Card**»
- Click on «**PGM File ...**»
- Click on the program to load and click on «**Open**».



### 3 Saving of the new parameters :

Once the new parameters are installed in the all menus and submenus, click on «**Tools**» menu and then «**Save Parameter**» to save the parameters setting in memory.



**Loading of programs :**

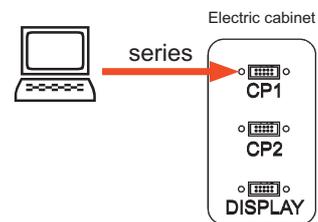
Before all loading of programs, the software must be to configure according the instructions of the paragraph «**Configuration of the software**».

**CPU Card :**

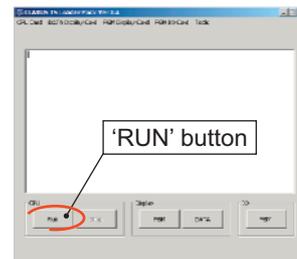
- 1 Stop the machine by turning the main interrupter to position 0.



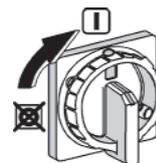
- 2 Connect the PC to the CLARUS TS, using a series cable on the CP1 connector.



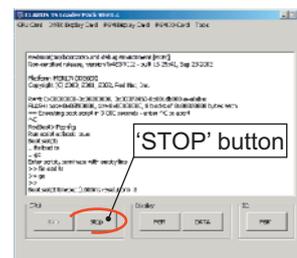
- 3 Click on «**Run**» button.



- 4 Put on the machine, by turning the main interrupter to position I. The installation of the programs run.



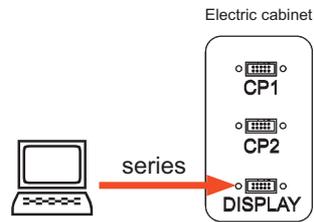
- 5 When the installation is finished, click on «**STOP**» button.



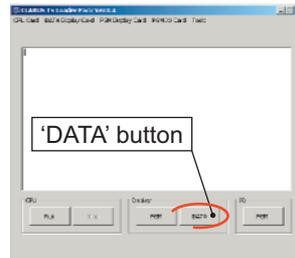
Loading of programs : (next)

DATA Display Card : with a series cable

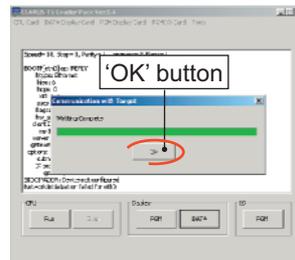
- 1 Connect the PC to the CLARUS TS, using a series cable on the DISPLAY connector.



- 2 Click on «DATA» button (Display). The installation of the program run.



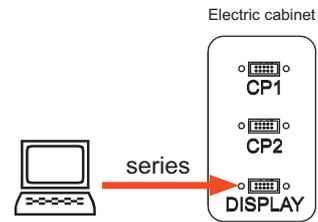
- 3 When the installation is finished, click on «OK» button.



Loading of programs : (next)

PGM Display Card : with a series cable

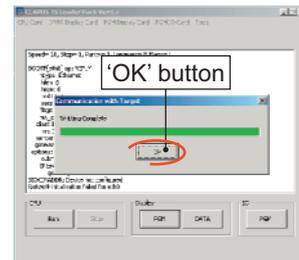
- 1 Connect the PC to the CLARUS TS, using series cable on the DISPLAY connector.



- 2 Click on «**PGM**» button (Display). The installation of the program run.



- 3 When the installation is finished, click on «**OK**» button.



This page is left blank on purpose.

## 23. CLARUS TS Screen

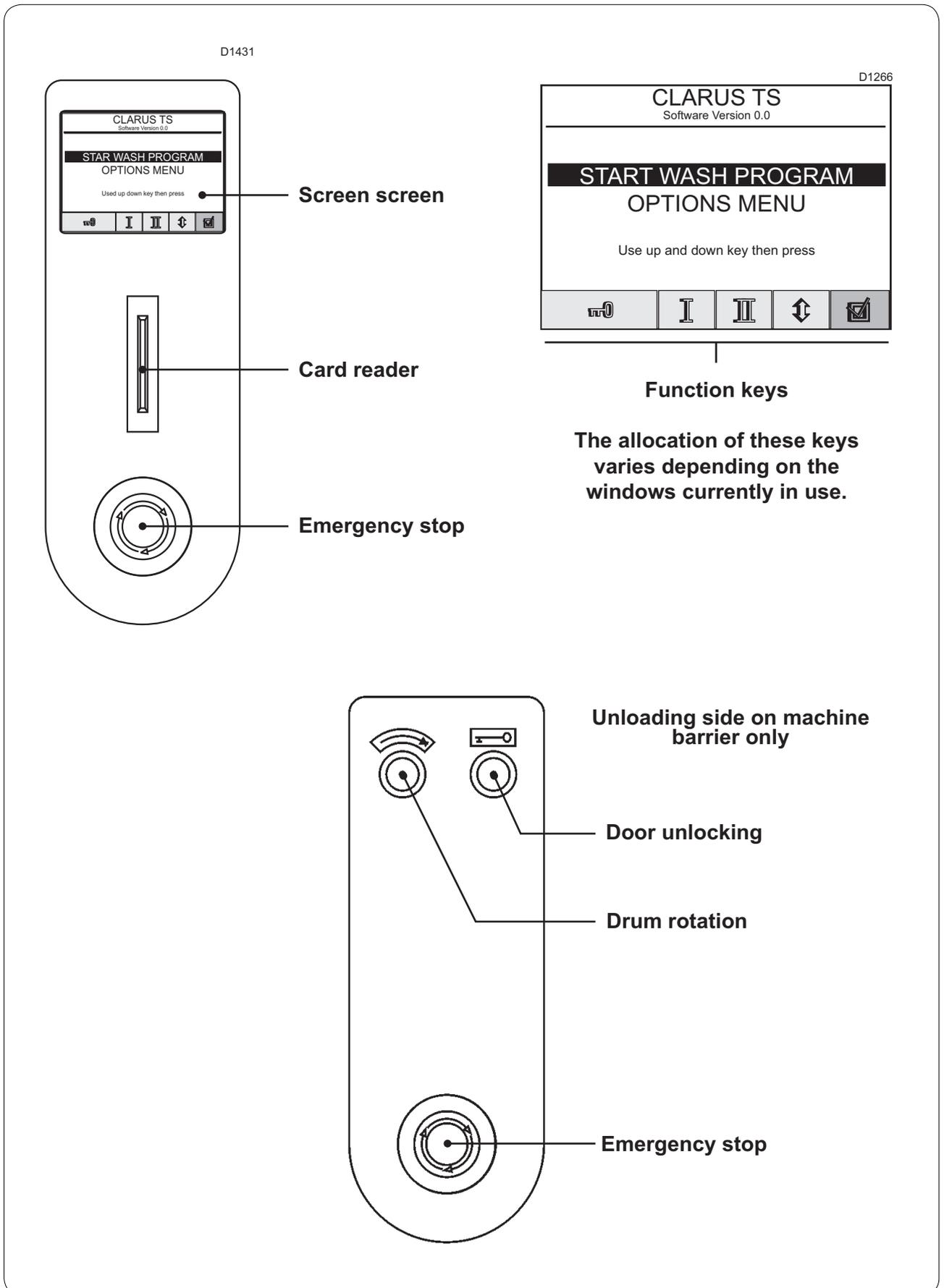
---

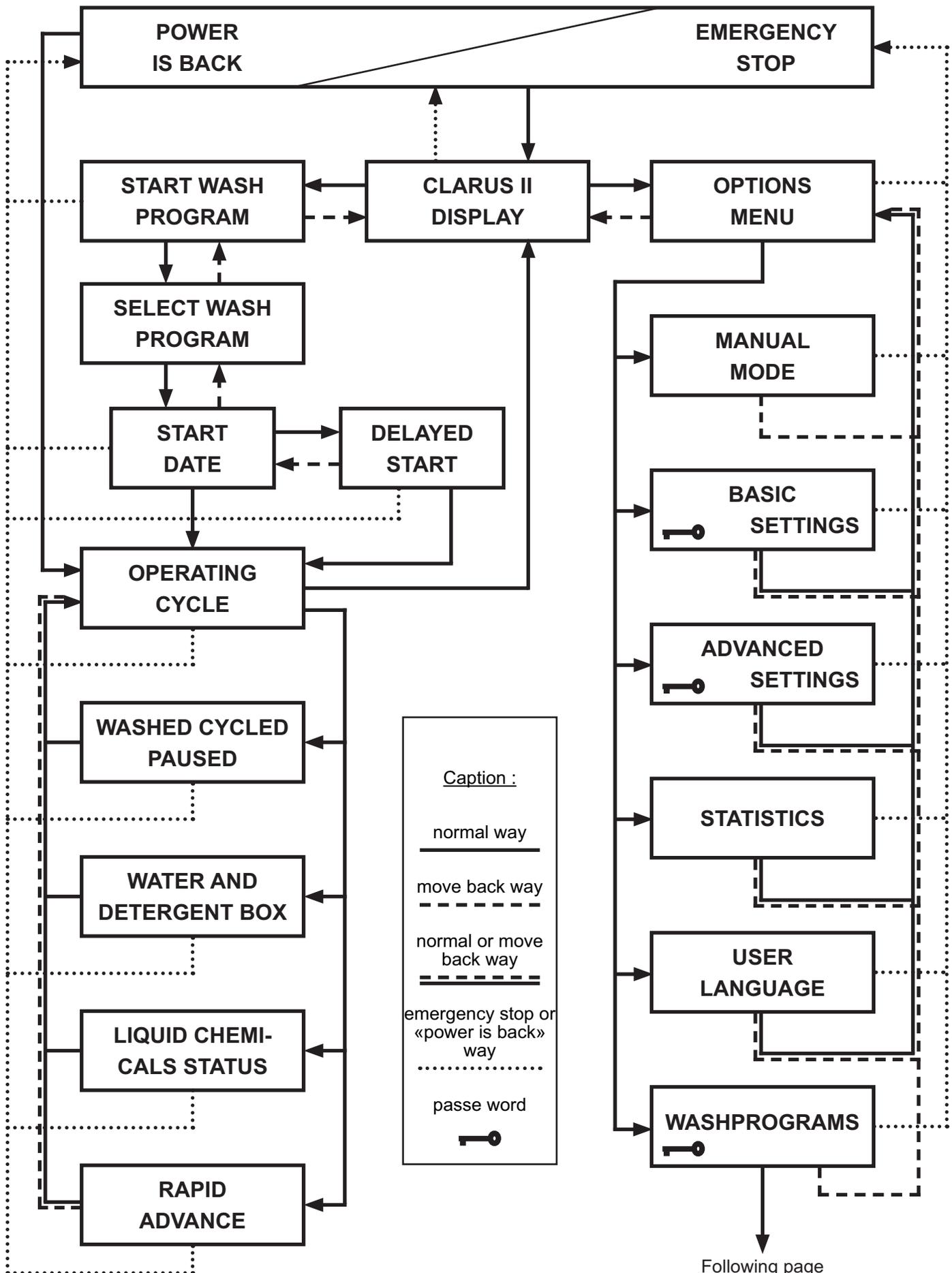
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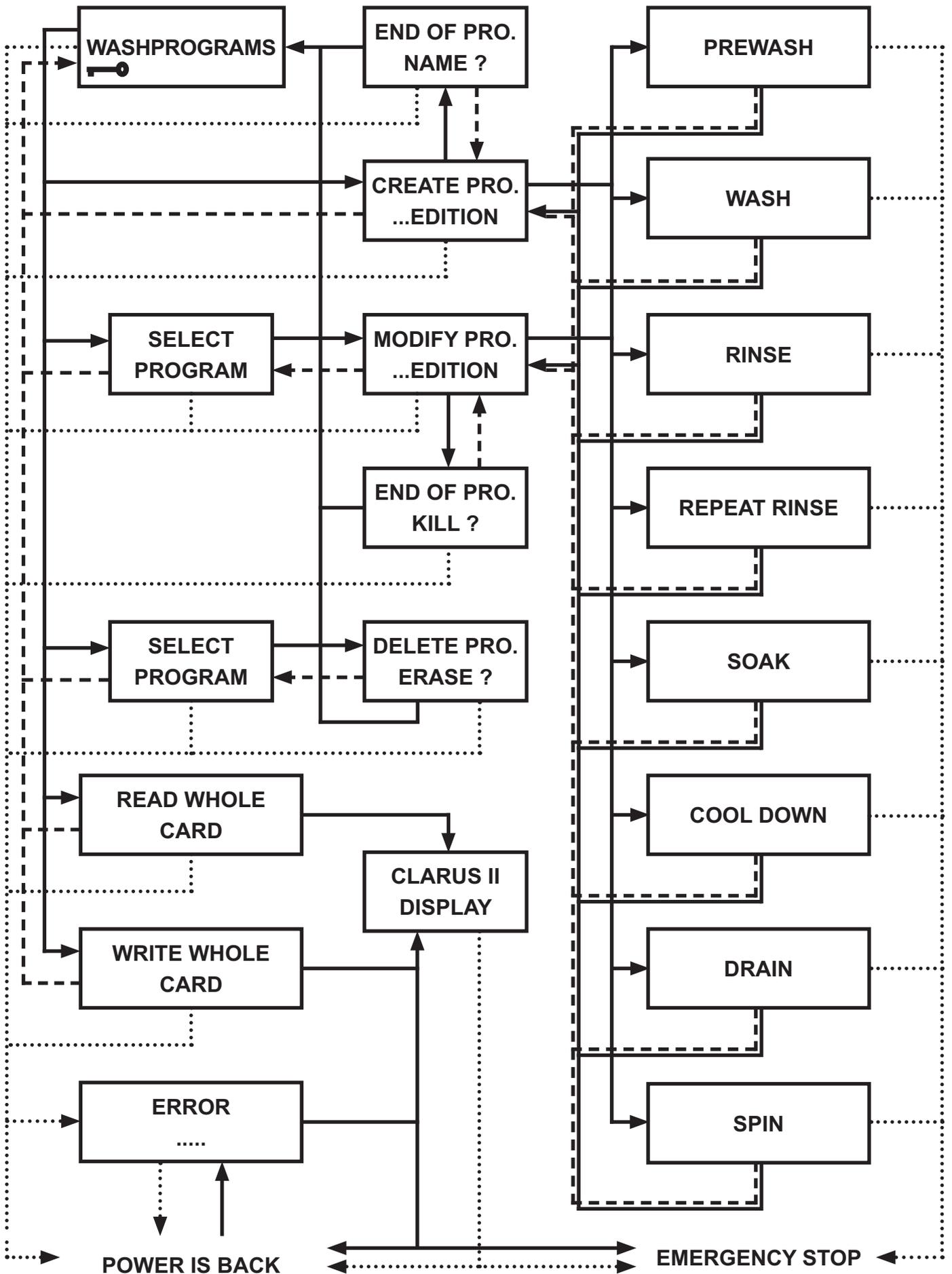
This page is left blank on purpose.

CLARUS TS

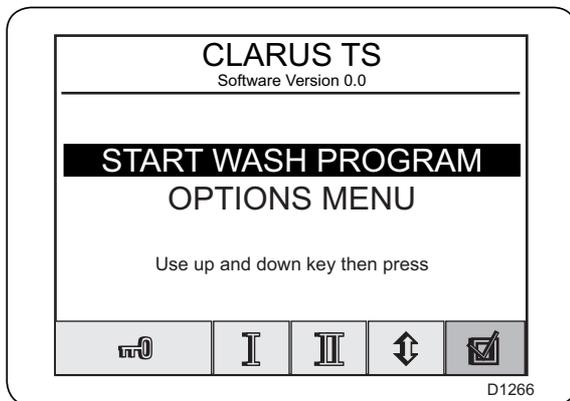




Following page

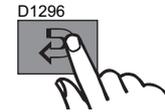


## Screen : CLARUS TS



Every time the machine is placed under charge or in the case of repeated pressing of the

«Move back» key



The «CLARUS TS» screen appears as opposite.

## Connection of keys :

D1299



To unlock the door.

D1300



To position the first compartment of the drum.

D1301



To position the second compartment of the drum.

D1298

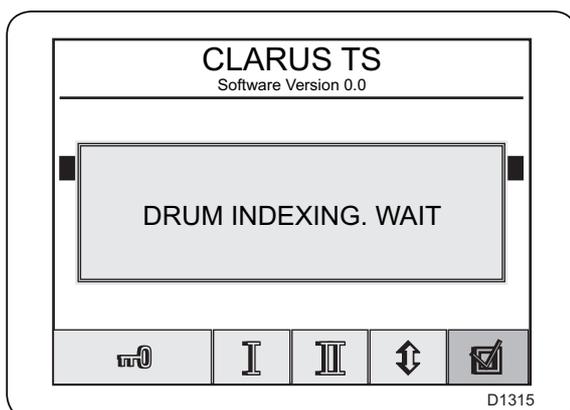


To select the menu.

D1297



To validate the menu selected.

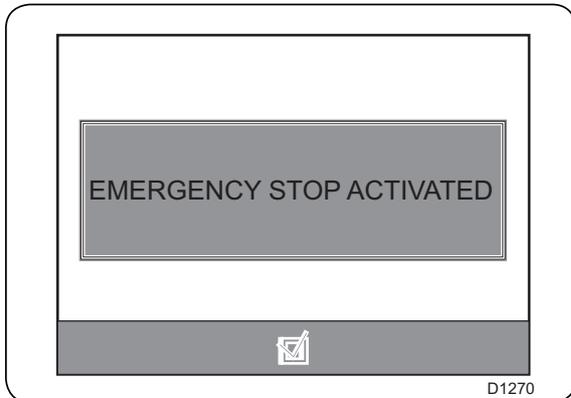


In the case of a positioning request from compartment 1 or 2 of the drum, the touch screen keys become completely inactive and the "POSITIONINING IN PROGRESS" window is displayed.

Once the operation is complete, the window will disappear.

In the event that one of the two doors is not closed, the machine will not be able to start and the screen will remain inactive.

**Screen : EMERGENCY STOP**



After the emergency stop button(s) is/are pressed, the screen opposite appears.



If, for any reason, abnormal or dangerous functioning, the machine must be stopped quickly by pressing the emergency stop button.

Only reset the emergency stop button after checking the reason for this stop, by turning it clockwise.

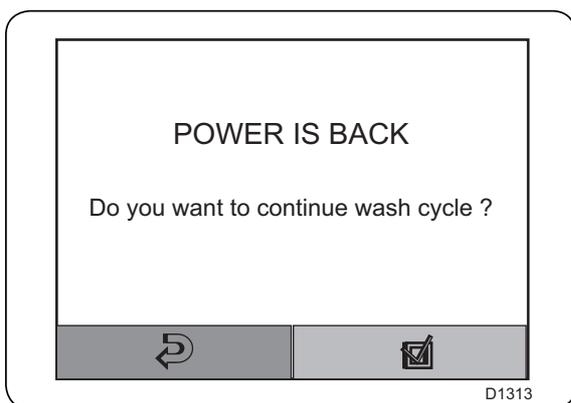
**Connection of key :**



To shut the «EMERGENCY STOP» screen once the emergency stop button(s) is/are unlocked.

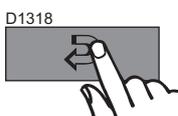
- ▶ **CLARUS TS** screen (previous page).

**Screen : POWER IS BACK**



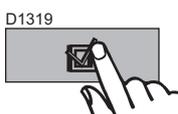
If there is a power cut or the general interrupter is in the “stop” position while a program is being executed, the screen opposite will appear after the power returns or the general interrupter is reset to the “go” position.

**Connection of keys :**



To cancel the program.

- ▶ **CLARUS TS** screen (previous page).

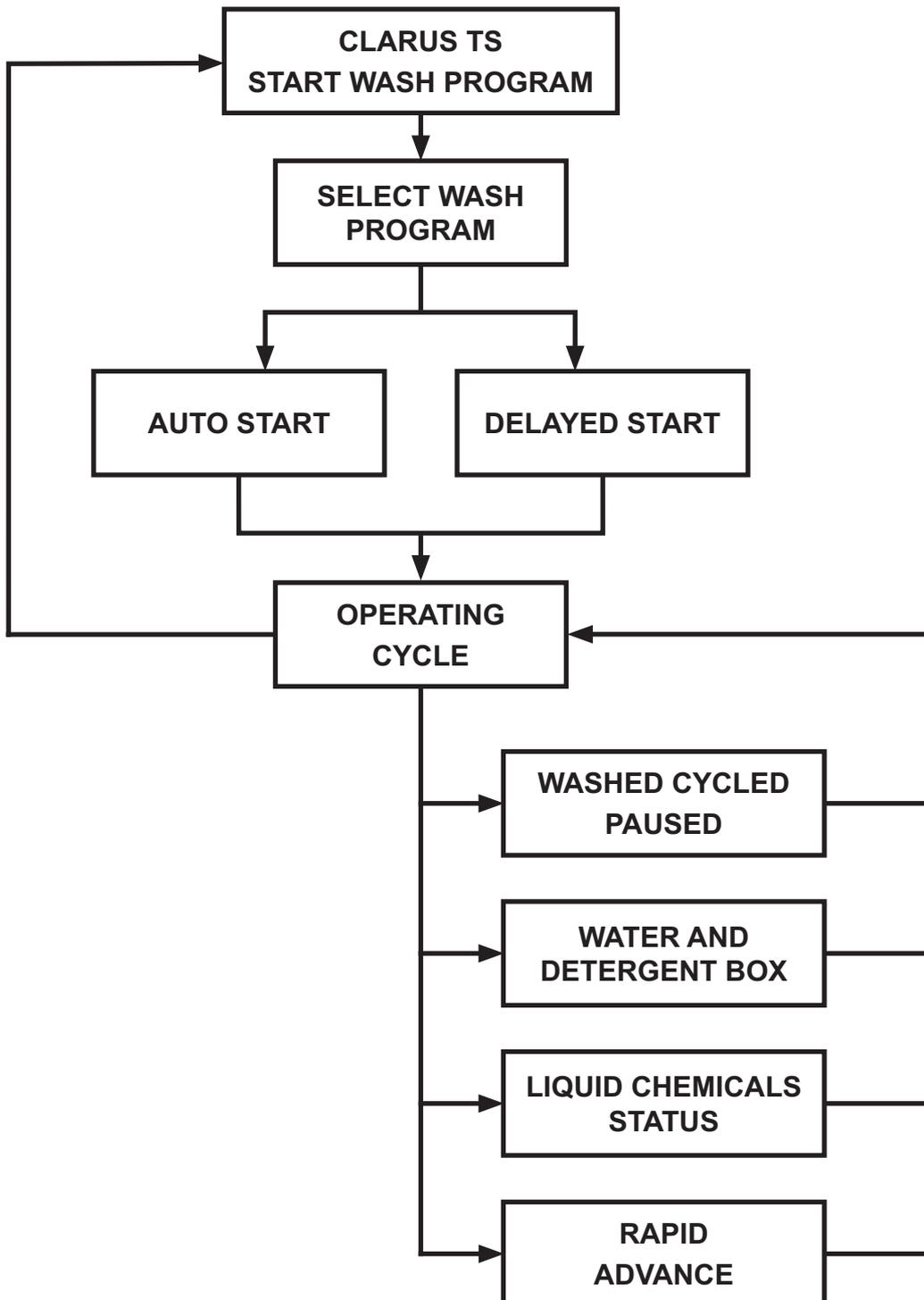


To resume the program.

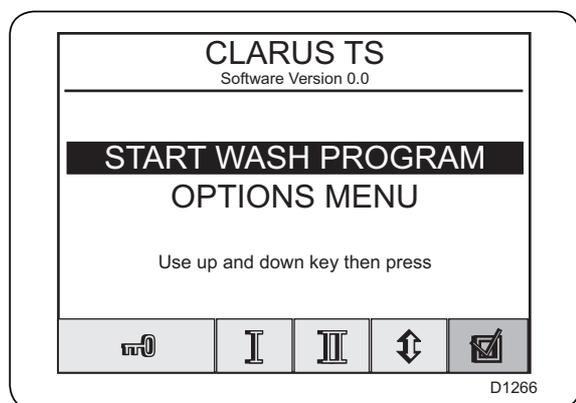
- ▶ **OPERATING CYCLE** screen (next page).

Menu : START WASH PROGRAM

Description of «START WASH PROGRAM» menu

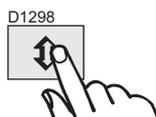




**Screen : START WASH PROGRAM**

From the CLARUS TS screen, if the «OPTIONS MENU» indication is highlighted,

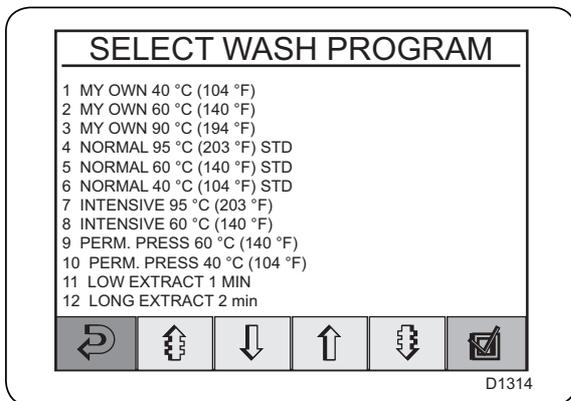
press the following keys :



Then validate.

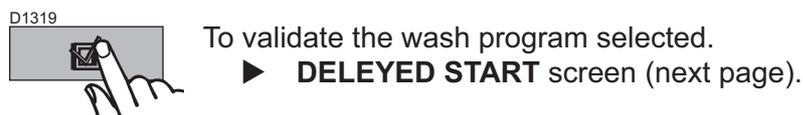
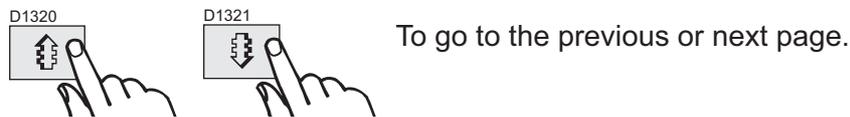
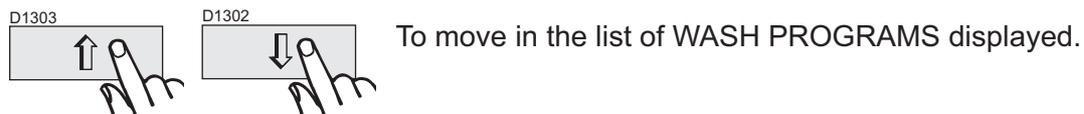
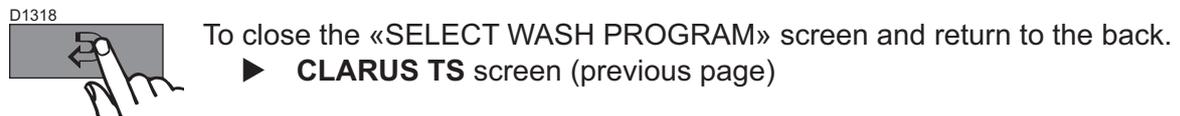
► **SELECT WASH PROGRAM** screen  
(next page).

Screen : SELECT WASH PROGRAM

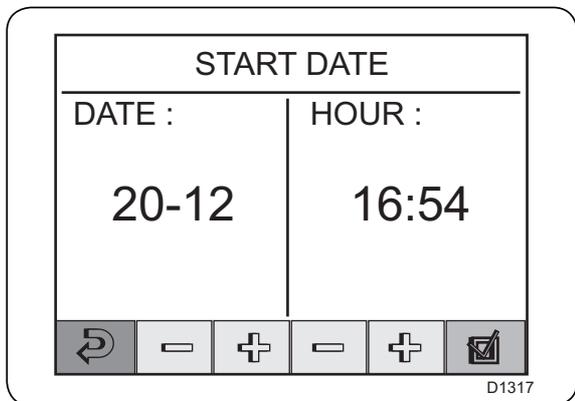


The library of programs contains all the wash programs available, i.e. the standard wash programs and the user-defined wash programs, with their identification numbers and their descriptions.

Connection of key:



**Screen : DELAYED START**



The delayed start function allows the machine to program the execution of a wash program, for example, to take advantage of a reduced night-time electricity tariff or to organise the machine for the next day (masked time production).

**Connection of keys :**

D1318



To cancel the delayed start program and return to the back.  
 ► **SELECT WASH PROGRAM** screen (previous page)

DATE :  
21- 12



To set the delayed start date.

HEURE :  
8:30



To set the delayed start time (in intervals of 30 minutes).

D1319



To validate the delayed start programd previously.  
 ► **DELYED START** screen (next page).

**Immediate start case :** To start immediately, simply press the “**Validation**” key.

D1319

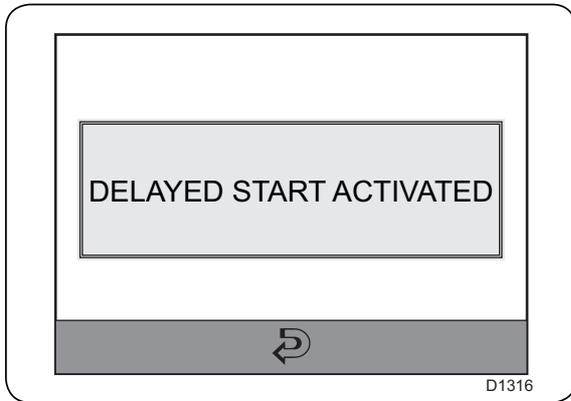


To activate the immediate start.  
 ► **OPERATING CYCLE** screen (next page).

---

**Screen : DELAYED START**

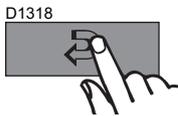
---



Once the delayed start is programmed and validated, the waiting screen is displayed waiting for the programmed date and time.

- ▶ **OPERATING CYCLE** screen (next page).

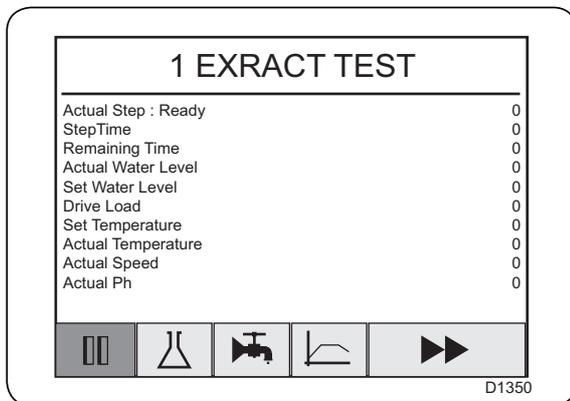
**Connection of key:**



To cancel the programmed delayed start and return to the back.

- ▶ **CLARUS TS** screen (previous page).

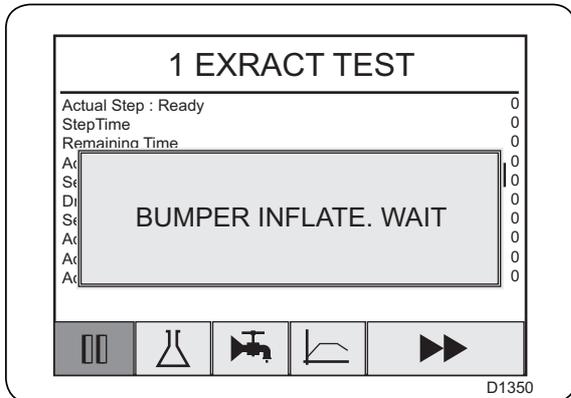
## Screen : OPERATING CYCLE



During the execution of a wash program, the screen displays the different cycles of the wash program in progress and information on the levels, times, temperatures etc.

- **Current stage : Ready :**
- **Time :**  
Display the total time of wash program
- **Remaining time :**  
Display the remaining time before the end of wash program
- **Current level :**  
Display the water level
- **Level required :**  
Display the water level requested according to the wash program selected
- **Frequency dimmer load :**  
Display the charge of the frequency dimmer
- **Temperature required :**  
Display the temperature requested according the wash program slected
- **Current temperature :**  
Display the current temperature during the heating
- **Drum rotation speed :**  
Display the dum rotation speed
- **Current Ph :**  
Display the rate of PH

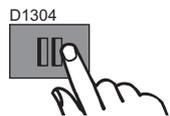
Screen : OPERATING CYCLE



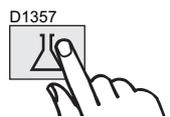
On starting a wash program, the "BUMPER INFLATE. WAIT" window is displayed on the screen, as opposite. During the inflation phase, the screen keys become completely inactive.

The "BUMPER INFLATE. WAIT" window will disappear and the keys will be reactivated once the inflation phase has finished.

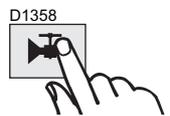
Connection of keys :



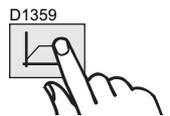
To pause the machine.  
▶ **WASH CYCLE PAUSED** screen (next page).



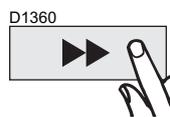
To visualise the status of the solenoid water valves, the products box compartments and the heating.  
▶ **WATER AND DETERGENT BOX** screen (next page).



To visualise the status of the distributor or external product feed system solenoid valves.  
▶ **LIQUID CHEMICALS STATUS** screen (next page).

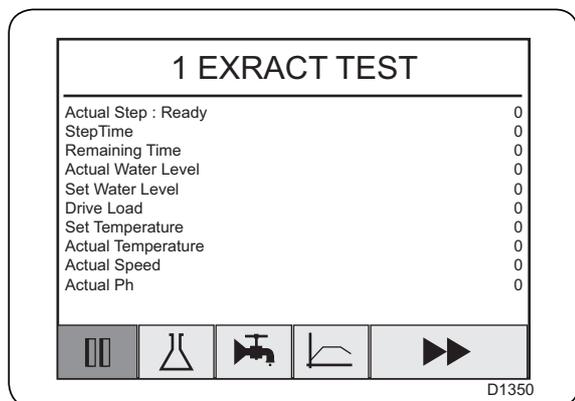


Currently unused.



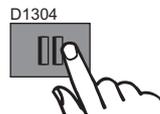
To omit or repeat one or more cycles in the course of the wash program.  
▶ **RAPID ADVANCE** Screen (next page).

## Screen : WASH CYCLE PAUSED

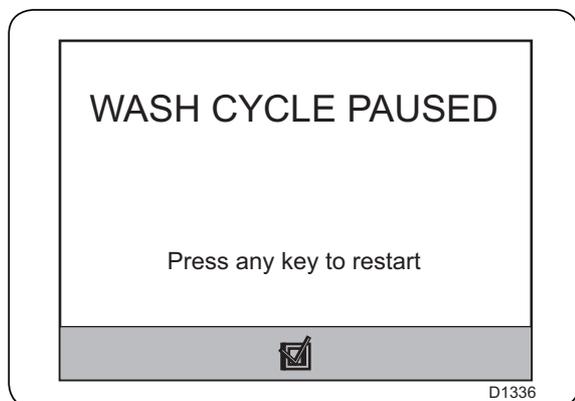


From the "OPERATING CYCLE" screen,

Press



► **WASH CYCLE PAUSED** screen.



When the machine is paused :

- The execution of the program is momentarily suspended,
- The filling is suspended (if it is taking place),
- The heating process is interrupted (if it is taking place),
- The motor is stopped,
- The drain valves remain closed,
- The door remains locked.

### Connection of key :

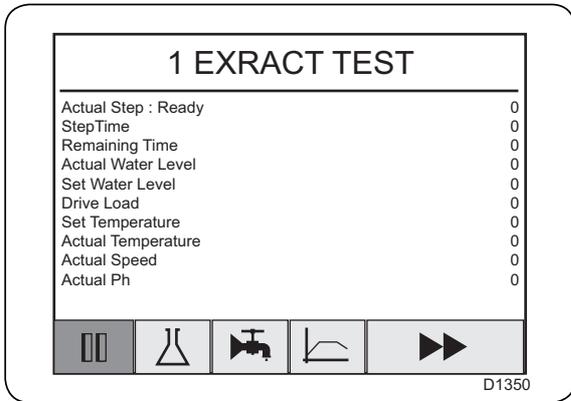
D1297



To deactivate the «WASH CYCLE PAUSED» function.

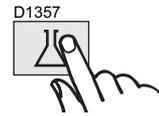
► **OPERATING CYCLE** screen (previous page).

Screen : WATER AND DETERGENT BOX

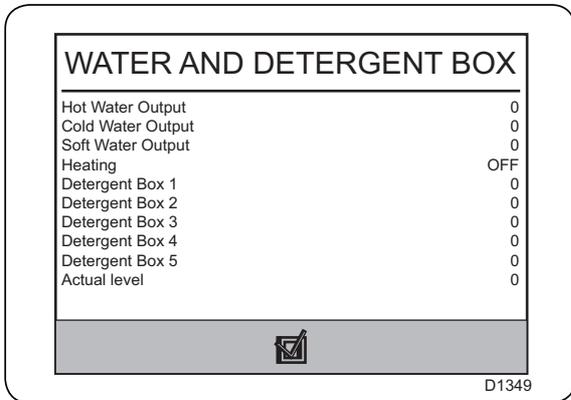


From the "OPERATING CYCLE" screen,

Press



► **WATER AND DETERGENT BOX** screen.



The «WATER AND DETERGENT BOX» screen allows visualisation of the status of the water feed, solenoid and the product box compartments valves, the drain and the heating.

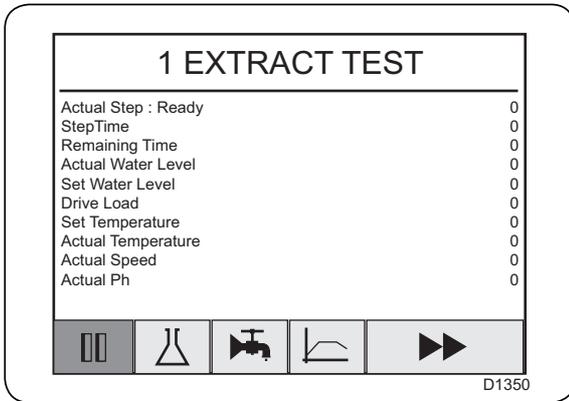
Connection of key :



To close the «WATER AND DETERGENT BOX» screen.

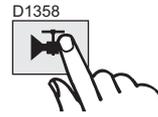
► **OPERATING CYCLE** screen (previous page).

**Screen : LIQUID CHEMICALS STATUS**

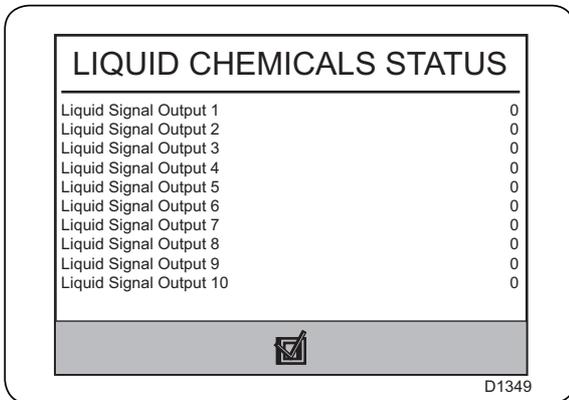


From the "OPERATING CYCLE" screen,

Press



► **LIQUID CHEMICALS STATUS** screen.



The "STATUS OF LIQUID PRODUCTS" screen allows visualisation of the status of the distributor or external product feed system solenoid valves.

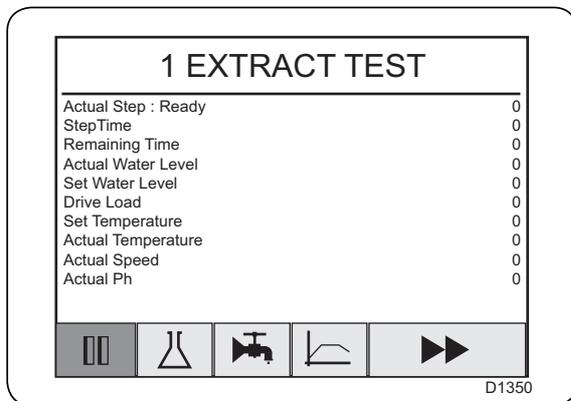
**Connection of key :**



To close the «LIQUID CHEMICALS STATUS» screen.

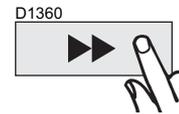
► **OPERATING CYCLE** screen (previous page).

Screen : RAPID ADVANCE

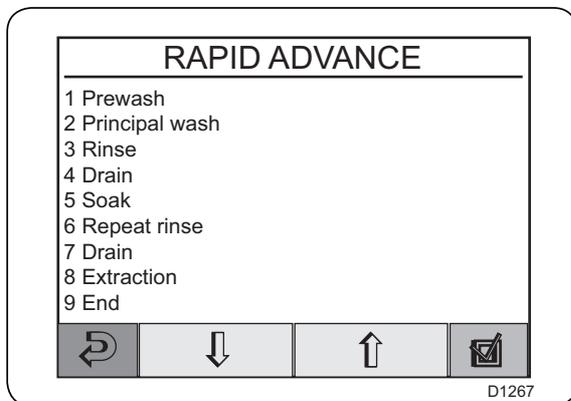


From the "OPERATING CYCLE",

Press



► **RAPID ADVANCE** screen.

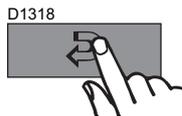


The « RAPIDE ADVANCE » screen allows to make a advance or reversal of the course of the wash program.

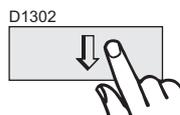
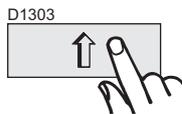
The forward rapid advance allows omission of one or more cycles of the wash program that is running.

The backward rapid advance allows repetition of one or more cycles of the wash program that is running.

Connection of keys :



To close the «RAPID ADVANCE» screen and return to the back.  
► **OPERATING CYCLE** screen (previous page).



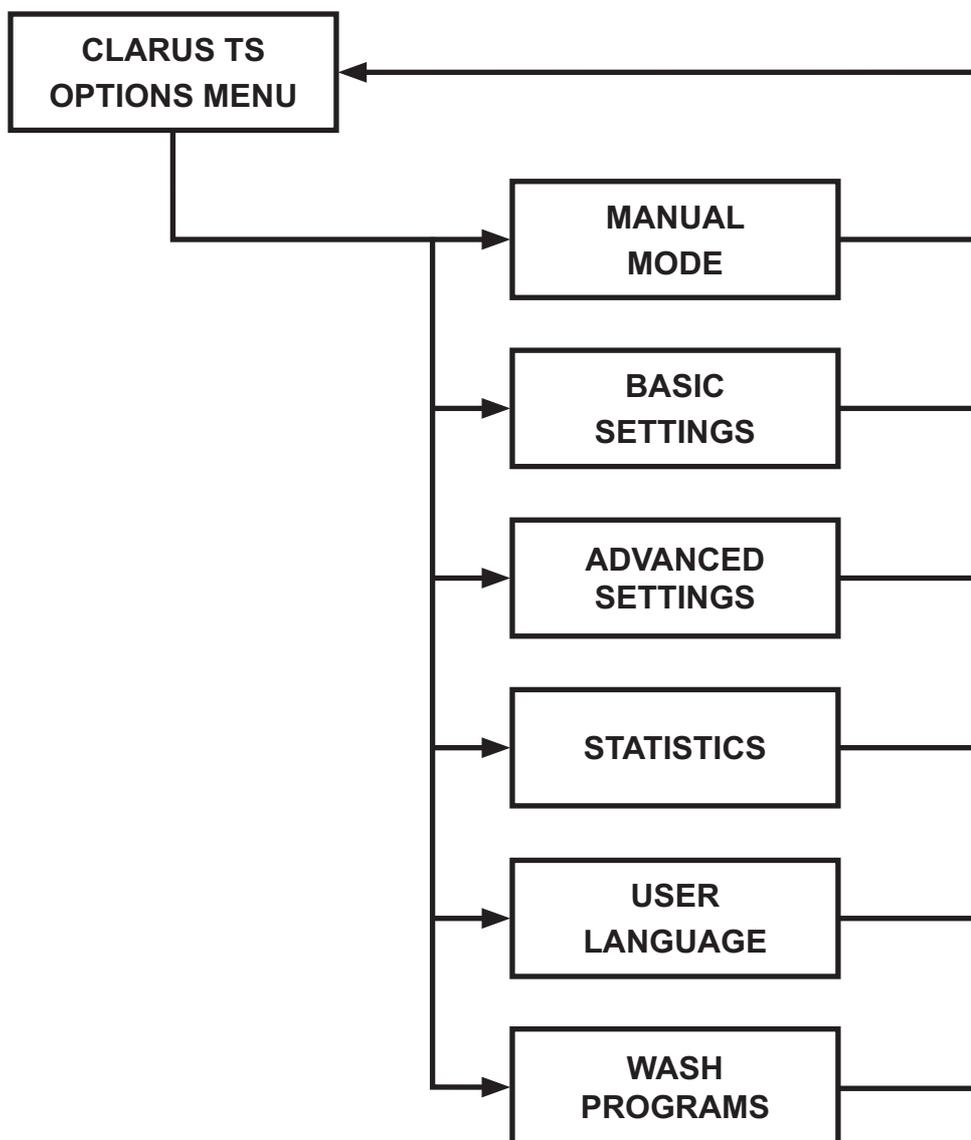
To move in the list of wash cycles displayed.



To validate the fast forward or rewind of the cycle selected.  
► **OPERATING CYCLE** screen (previous page).

Menu : OPTIONS MENU

Description of «OPTIONS MENU» menu



**OPTIONS MENU**

**MANUEL MODE**

- Drain valve 1
- Drain valve 2
- Hot water valve
- Cold water valve
- Soft water valve
- Motor action
- Detergent box pocket 1
- Detergent box pocket 2
- Detergent box pocket 3
- Detergent box pocket 4
- Detergent box pocket 5
- Heating
- Liquid signal 1
- Liquid signal 2
- Liquid signal 3
- Liquid signal 4
- Liquid signal 5
- Liquid signal 6
- Liquid signal 7
- Liquid signal 8
- Liquid signal 9
- Liquid signal 10
- Liquid signal 11
- Liquid signal 12
- Liquid signal 13
- Liquid signal 15
- Liquid signal 16
  
- Water level at mm
- Water temperature

**BASIC SETTINGS**

- Rapid advance allowed
- Water reduction allowed
- Number of auto restart
- Temperature units in Celsius
- Quick level cool down
- Out of balance level
- Low water level
- Medium water level
- High water level
- Middle cool down temperature
- Moto on time
- Motor off time
- Flush deley time
- Flush duration time
- Maximum filling time
- Maximum heating time

**ADVANCED SETTING**

- Level machine empty
- Level machine full
- Temperature hysteresis
- Cool down rate
- Default low extract time
- Default medium extract time
- Default high extract time
- Default drain time
- Default distribution time
- Start extract time
- Rollout time
- Maximum number of umbalances
- Drain time when overflow
- Delay heating relay 2
- Oil lubrication hours
- Pulse lubrication time
- Maximum drain time
- Maximum pause duration

(Continued on next page)

**OPTIONS MENU**

(Continued from previous page)

**ADVANCED SETTINGS**  
(next)

- Temperature increase
- Door opening pulse
- Maximum extract speed
- Drum positioning speed
- Default wash speed
- Default distribution speed
- Default low extraction speed
- Default medium extraction speed
- Default high extraction speed
- Start extract speed
- Wash acceleration
- Extract acceleration
- Distribution acceleration
- Start extract acceleration
- Extract retardation
- Maximum speed during filling
- Door lock pulse
- Barrier machine
- Gear ratio
- Number of motor poles
- Default boost
- Boost while positioning
- Default switching frequency
- switching frequency while positioning

**STATISTICS**

- Total running hours
- Hours since last maintenance

**USER LANGUAGE**

- English
- French
- German
- Spanish
- Italian
- Swedish

**WASH PROGRAMS**

Create wash program

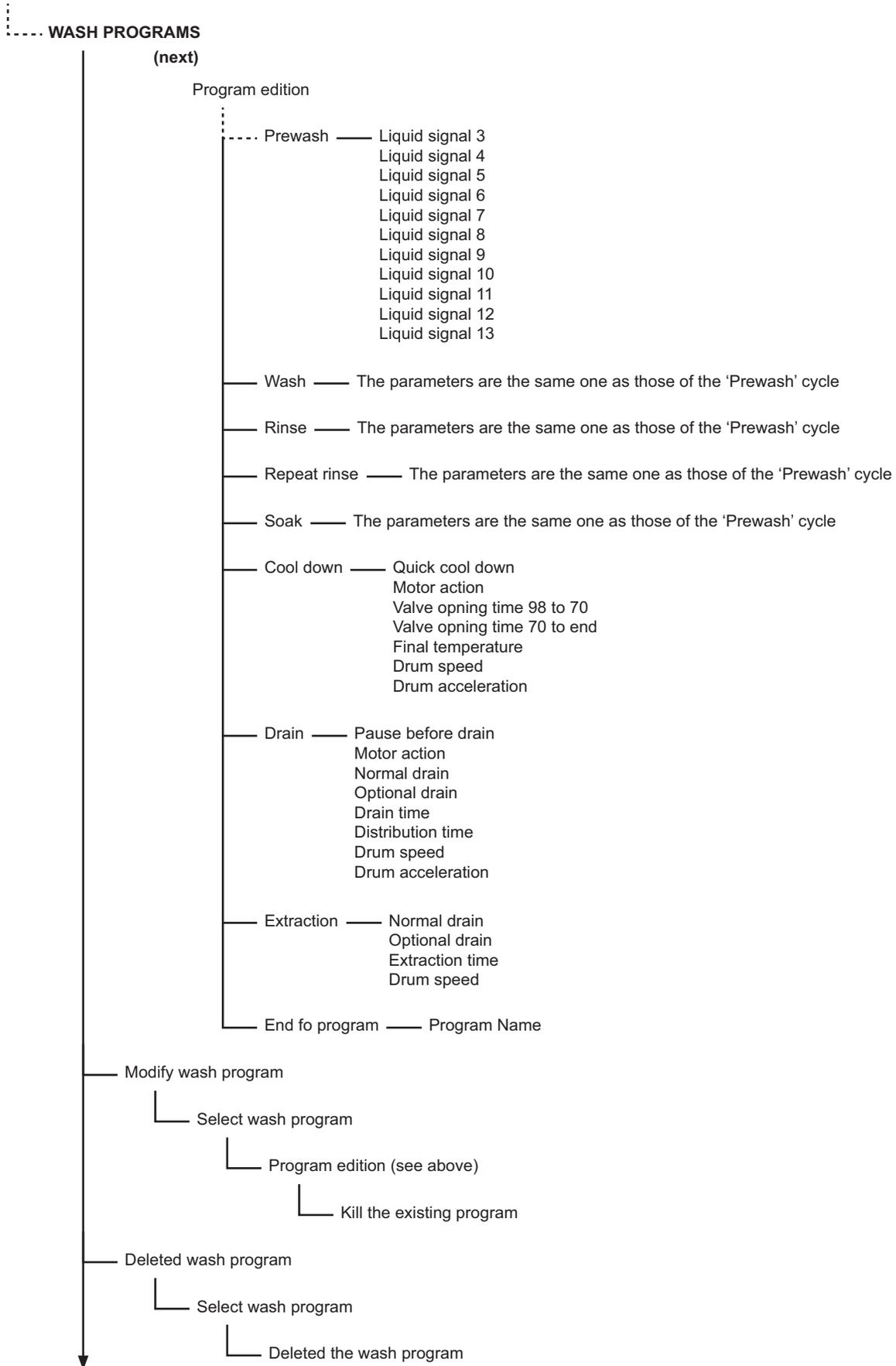
Program edition

Prewash

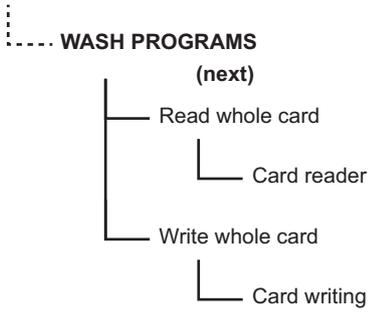
- Pause with buzzer
- Time
- Temperature
- Temperature hysteresis
- Mini temperature increment
- First water level
- Second water level
- Level hysteresis
- Soft water
- Hot water
- Cold hard water
- Tank 1
- Tank 2
- Motor action during heating
- Motor action during washing
- Drum speed during heating
- Drum speed during washing
- Acceleration during wasing
- Detergent box compartment 1
- Detergent box compartment 2
- Detergent box compartment 3
- Detergent box compartment 4
- Detergent box compartment 5
- Liquid signal 1
- Liquid signal 2

(Continued on next page) (Continued on next page)

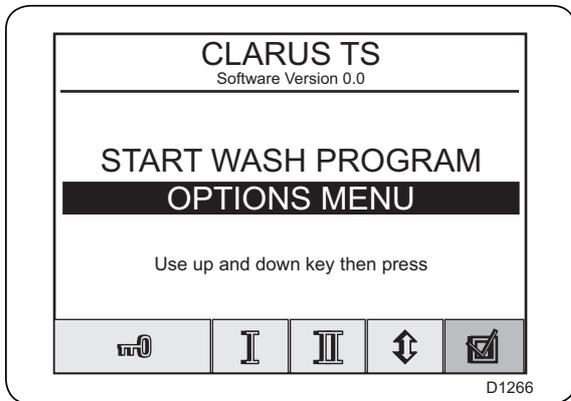
**AUTRES OPTIONS**



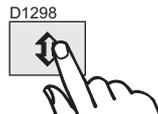
OPTIONS MENU



Screen : OPTIONS MENU

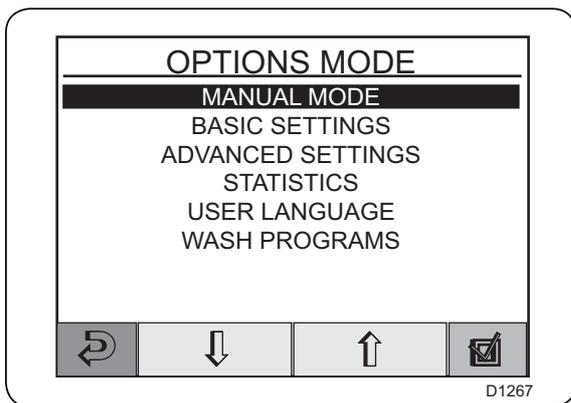


From the "CLARUS TS" screen, if the «START WASH PROGRAM» indication is highlighted, press the following keys :



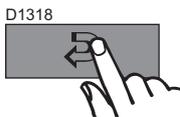
Then validate.

► **OPTIONS MENU** screen.

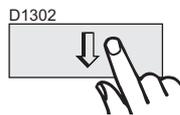
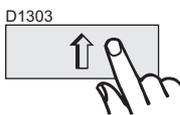


The «OPTIONS MENU» screen allows access to the different parameters of the machine.

Connection of keys :



To close the «OPTIONS MENU» screen and return to the back.  
► **CLARUS TS** screen.

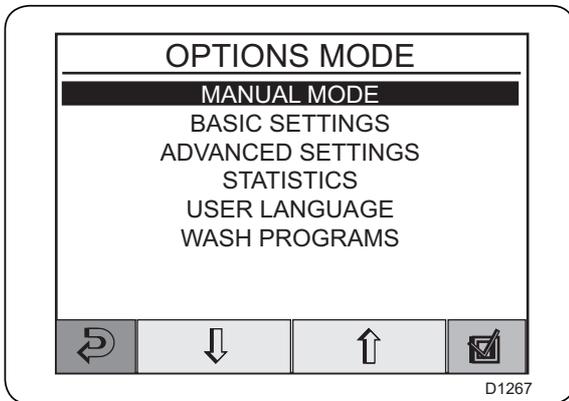


To move in the list of screens displayed.

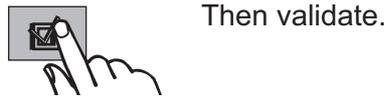
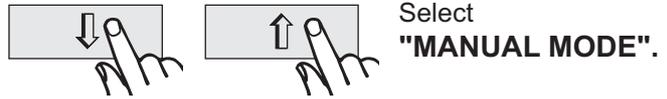


To validate the screen selected.

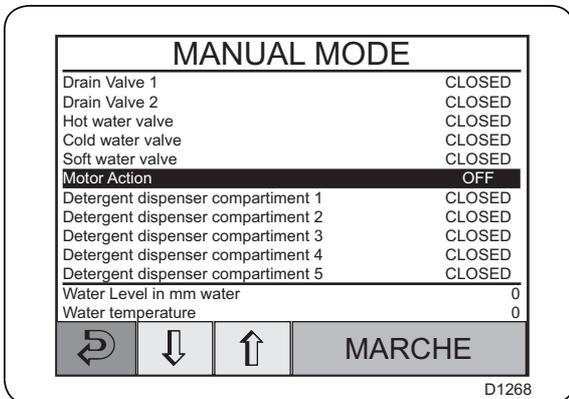
Screen : **MANUAL MODE**



From the "OPTIONS MENU" screen,

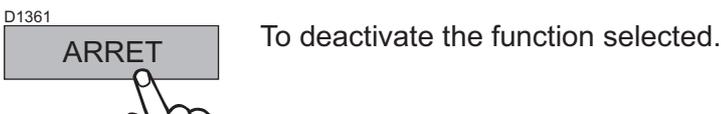
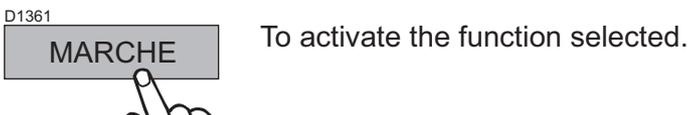
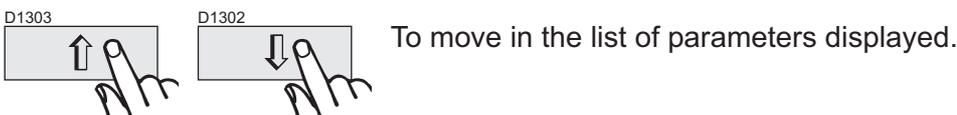


► **MANUAL MODE** screen.



The «MANUAL MODE» screen allows to control manually the adjustment of the differents functions and parameters of the machine.

**Connection of keys :**



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**Screen : MANUAL MODE**

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**Important information:**

All the parameters defined manually in manual mode (door, motor, temperature and drain) are automatically cancelled when this mode is exited.

The door is unlocked, the motor stops, the drain valve opens, the heating is cut and the temperature is reset to zero.

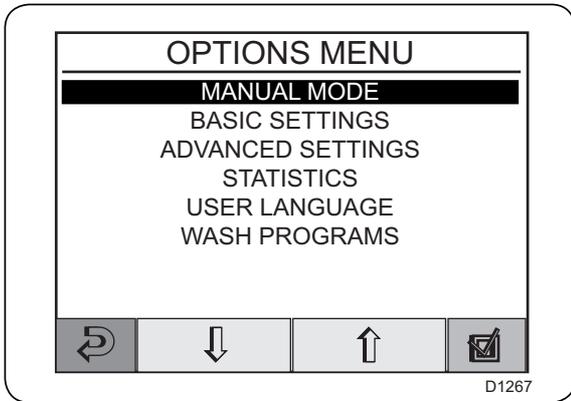
**WARNING :**

- **Never program a temperature above to 90 °C (195 °F).**
- **If you happen to make your own program, you must not input cold water in the cage while this later has a washing bath at 85 °C (185 °F), with the cage stopped. It is compulsory that the cage turns while letting in cold water. A bad programming can, in this particular case, be the cause of the breakage of the doors' windows.**

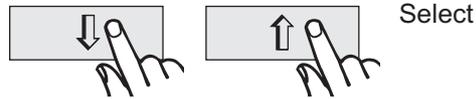
**The different functions of the “MANUAL MODE” screen :**

- **Water/Drain :**  
Allows manual operation of all water valves and the drain valve #1 (drain #2 is an OPTIONS).
- **Drum Rotation :**  
Motor on/off after program has ended.
- **Soap box compartment :**  
This function will either :
  - a) use water to dispense detergent from machine compartments or;
  - b) dispense detergent from an external system. The number of valves present will vary according to the machine type.
- **Heating :**  
Allows you to heat the water at the required temperature.
- **Detergent valves :**  
Allows you to control all valves in the detergent compartment or in external detergent supply system.

Screen : NUMERIC KEYBOARD



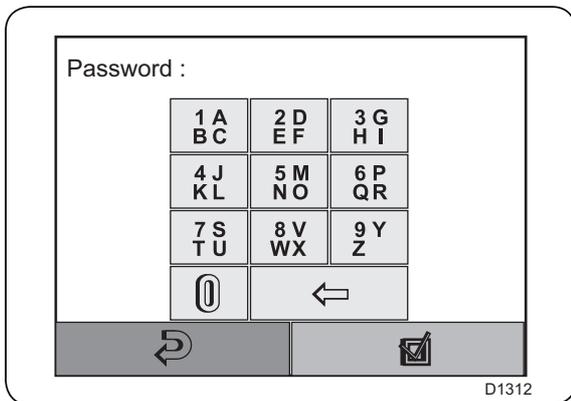
From the "OPTIONS MENU" screen,



**"BASIC SETTINGS" or "REGLAGES AVANCES" or "WASH PROGRAMS".**

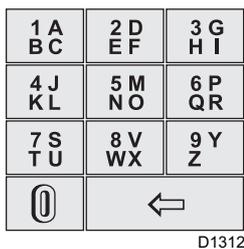


► **NUMERIC KEYBOARD** screen.



The «NUMERIC KEYBOARD» screen allows locking of the access to the «BASIC SETTINGS», «ADVANCED SETTINGS» and «WASH PROGRAMS», screens and only permitting suitable persons to modify the parameters of the machine by accessing them via a four-figure code.

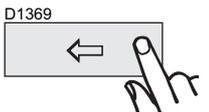
**Connection of keys :**



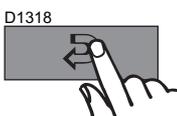
To enter the code.

- *Default codes :*    **1664 = BASIC SETTINGS**
- xxxx = ADVANCED SETTINGS**
- 1234 = WASH PROGRAMS**

*(please contact the factory for advanced setting code)*



To correct a typing error.



To close the «NUMERIC KEYBOARD» screen and return to back.

► **OPTIONS MENU** screen (previous page).

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**Screen PAUVIRICOUYBESARDMERIQUES**

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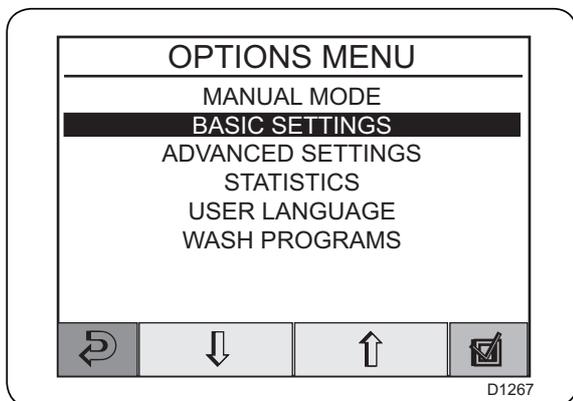


To validate the code.

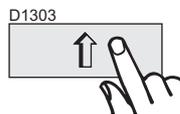
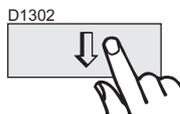
- ▶ **BASIC SETTING** screen
- ▶ **ADVANCED SETTING** screen
- ▶ **WASH PROGRAMS** screen

} according to the menu selected on  
the «OPTIONS MENU» screen

Screen : BASIC SETTINGS



From the "OPTIONS MENU" screen,

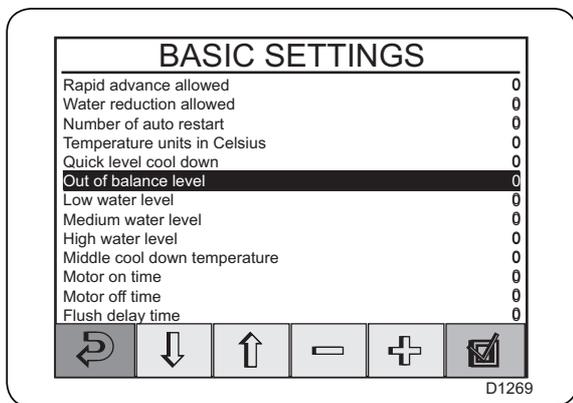


Select "BASIC SETTINGS".



Then validate.

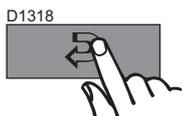
► **NUMERIC KEYBOARD** screen  
(See previous page) ↪ Default code : **1664**



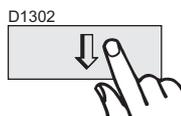
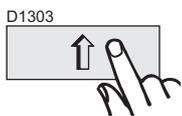
The «BASIC SETTINGS» screen allows to control and to change the machine parameters.

**ATTENTION : all modifications of parameters on this screen can only executed by a qualified and informed person.**

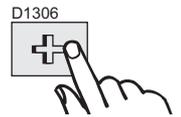
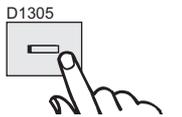
Connection of keys :



To close the «BASIC SETTINGSS» screen and return to back.  
► **OPTIONS MENU** screen (previous page).



To move in the list of parameters displayed.



To increase or decrease the value of the parameter selected.



To validate the modification of the parameter selected.

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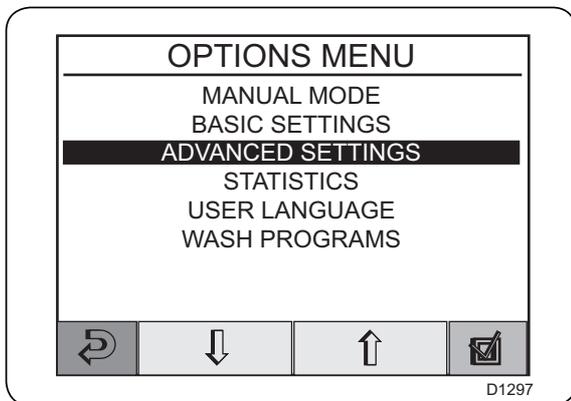
## Screen : BASIC SETTINGS

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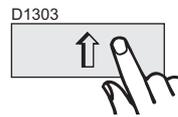
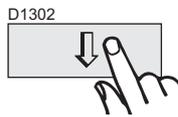
The different functions of the «REGLAGES DE BASE»screen

- **Rapid advance allowed :**  
Allows the rapid advance function.
- **Water reduction allowed :**  
Allows the water reduction function.
- **Restart allowed :**  
Allows to repeat the same program one or more time. The program will restart immediately, and the door will remain locked.
- **Temperature units in ° Celsius :**  
Allows to change the temperature scale used for all temperature Screened.
- **Quick level cool down :**  
Adjust the level for cool water admission.
- **Out of balance level :**  
Adjust the level after out of balance.
- **Low water level :**  
Adjust the low level in the cage.
- **Medium water level :**  
Adjust the medium level in the cage.
- **High water level :**  
Adjust the high water level in the cage.
- **Middle cool down temperature :**  
Adjust the intermediate temperature of cool down.
- **Motor on time :**  
Adjust the motor on time in standard pace.
- **Motor off time :**  
Adjust the motor off time in standard pace.
- **Flush delay time :**  
Adjust the flush delay time of the soap box.
- **Flush duration time :**  
Adjust the flush duration time.
- **Maximum fill time :**  
Adjust the maximum fill time.
- **Maximum heating time :**  
Adjust the maximum heating time.

Screen : **ADVANCED SETTINGS**



From the "OPTIONS MENU" screen,

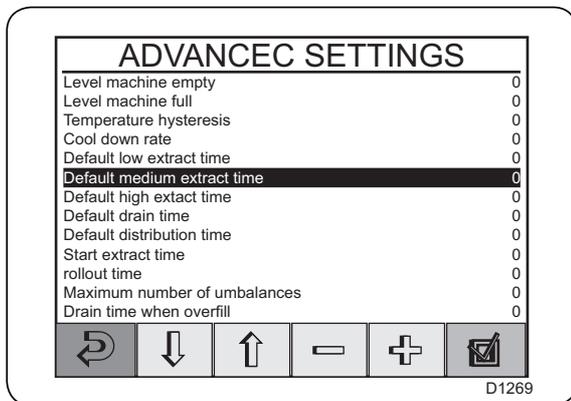


Select "ADVANCED SETTINGS".



Then validate.

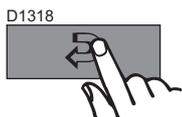
► **NUMERIC KEYBOARD** screen  
(See previous page).



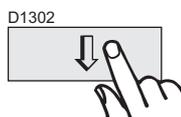
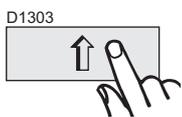
The «ADVANCED SETTINGS» screen allows to control and to change the machine advanced parameters.

**ATTENTION : this screen is only used by the factory and all modifications of parameters can involve a dysfunction of the machine.**

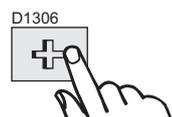
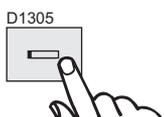
**Connection of keys :**



To close the «ADVANCED SETTINGS» screen and return to back.  
► **OPTIONS MENU** screen (previous page).



To move in the list of parameters displayed.



To increase or decrease the value of the parameter selected.



To validate the modification of the parameter selected.

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**Screen : ADVANCED SETTINGS**

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The different functions of the «ADVANCED SETTINGS» screen

- **Level machine empty :**  
Adjust the level machine empty..
- **Level machine full :**  
Adjust the level machine full.
- **Temperature hysteresis :**  
Temperature hysteresis is the number of degrees between the wash temperature and the temperature at which heating needs to restart.
- **Cool down rate :**  
Adjust the maximum temperature reduction per minute during the first cool down phase.
- **Default low extract time :**  
Adjust the low extract time.
- **Default medium extract time :**  
Adjust the medium extract time.
- **Default high extract time :**  
Adjust the medium extract timee.
- **Default drain time :**  
Adjust the default drain time.
- **Default distribution time :**  
Adjust the default distribution time.
- **Start extract time :**  
Actually out of service.
- **Rollout time :**  
Adjust the fill time after extract.
- **Maximum number of umbalances :**  
Adjust the out of balance max. number..
- **Drain time when overfill :**  
Adjust the drain time after overfill.
- **Delay heating relay 2 :**  
Actually out of service.
- **Oil lubrication hours :**  
Actually out of service.

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**Screen : ADVANCED SETTINGS**

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- **Pulse lubrication time :**  
Actually out of service.
- **Maximum drain time :**  
Adjust the maximum drain time.
- **Maximum pause time :**  
Adjust the maximum pause time.
- **Temperature increase:**  
Adjust the minimal temperature increase for the heating.
- **Door opening pulse :**  
Actually out of service.
- **Maximum extract speed :**  
Adjust the maximum extraction speed.
- **Drum positioning speed :**  
Adjust the drum indexing speed.
- **Default wash speed :**  
Adjust the standard wash speed.
- **Default distribution speed :**  
Adjust the distribution speed.
- **Default low extraction speed :**  
Adjust the std low extract speed.
- **Default medium extraction speed :**  
Adjust std medium extract speed.
- **Default high extraction speed :**  
Adjust the standard fast Extraction speed.
- **Start extract speed :**  
Adjust the initial extract speed.
- **Wash acceleration :**  
Adjust the wash acceleration.
- **Extract acceleration :**  
Adjust the extract acceleration.
- **Distribution acceleration :**  
Adjust the distribution acceleration.

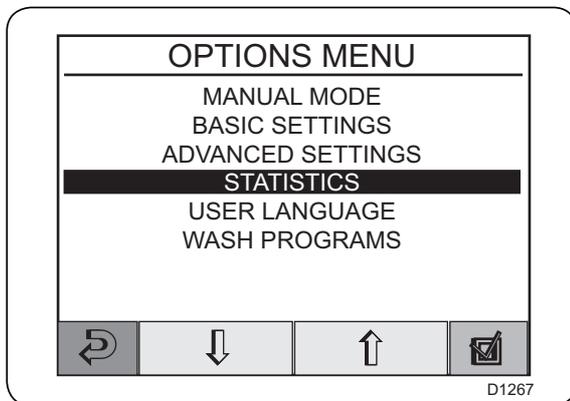
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**Screen : ADVANCED SETTINGS**

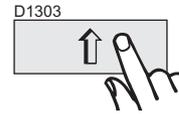
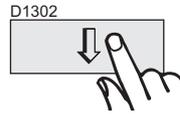
---

- **Start extract acceleration :**  
Adjust the 1st extract acceleration.
- **Extract retardation :**  
Adjust the extract deceleration.
- **Maximum speed during filling :**  
Adjust the maximum speed during filling.
- **Door lock pulse :**  
Actually out of service.
- **Barrier machine :**  
Define if the machine is barrier.
- **Gear ratio :**  
Adjusts the gear ratio.
- **Number of motor poles :**  
Adjusts the number of motor poles
- **default boost :**  
Adjusts the default boost.
- **Boost while positioning :**  
Adjusts the boost while positioning.
- **Default switching frequency :**  
Adjusts the default switching frequency.
- **Switching frequency while positioning :**  
Adjusts the switching frequency while positioning.

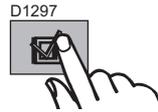
## Screen : STATISTICS



From the "OPTIONS MENU" screen,

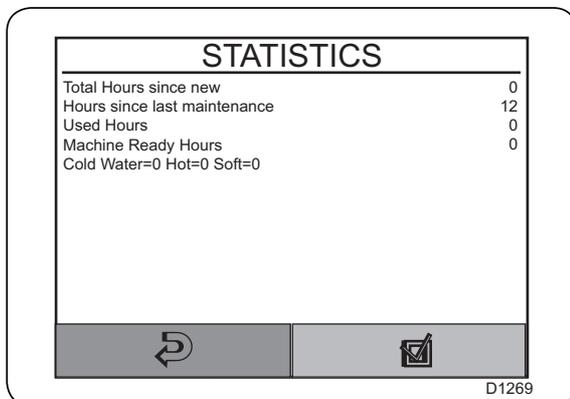


Select  
"STATISTICS".



Then validate.

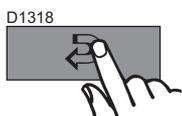
► **STATISTICS** screen.



L'écran « STATISTIQUES » permet d'accéder aux informations suivantes :

- Total hours since new : Shows the total operating time for the machine since it was installed.
- Hours since last maintenance : This register shows the time elapsed since the last service. The register can also be used to generate a signal on the display to show when service is needed (see the section «Advanced settings» in the manual).
- Used hours :
- Machine ready hours :

## Connection of keys :



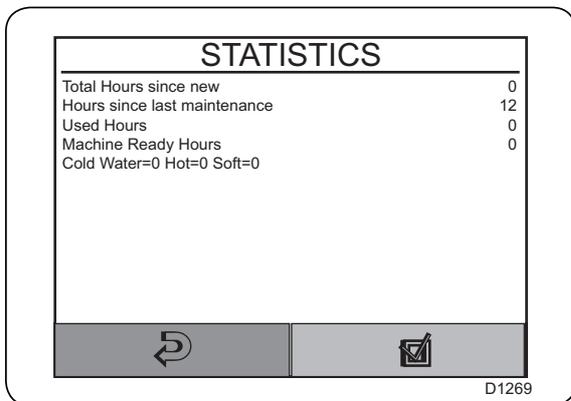
To close the «STATISTICS» screen and return to back.

► **OPTIONS MENU** screen (previous page)



► **WASH HISTORIC** screen (next page).

Screen : WASH HISTORIC

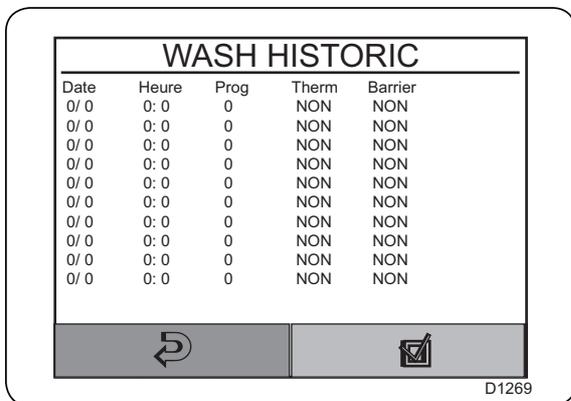


From the "STATISTICS" screen,



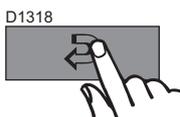
Then validate.

► **WASH HISTORIC** screen.



The « WASH HISTORIC» allow to reach the list of all wash programs carried out since the first startup of the day oif the machine.

Connection of keys :



To close the «WASH HISTORIC» screen and return to back.

► **OPTIONS MENU** screen (previous page)



► **ERROR HISTORIC** screen (next page).

## Screen : ERROR HISTORIC

WASH HISTORIC				
Date	Heure	Prog	Therm	Barrier
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON
0/0	0:0	0	NON	NON

D1269

From then "WASH HISTORIC" screen,



Then validate.

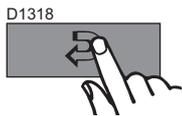
► **ERROR HISTORIC** screen.

ERROR HISTORIC			
Date	Heure	Prog	Message
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE
0/0	0:0	0	0-MACHINE STOPPEE

D1269

The « ERROR HISTORIC» allow to reach the list of all errors met since the first startup of the day oif the machine.

## Connection of keys :



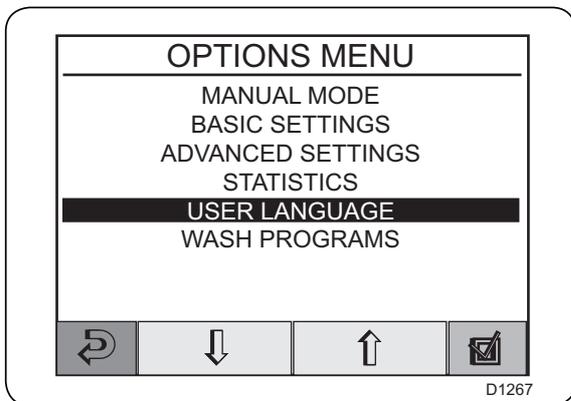
To close the «ERROR HISTORIC» screen and return to back.

► **OPTIONS MENU** screen (previous page).

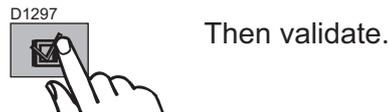


► **STATISTICS** screen (previous page).

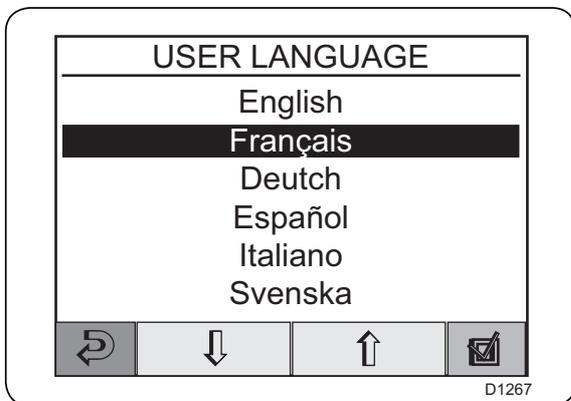
Screen : USER LANGUAGE



From the "OPTIONS MENU" screen,

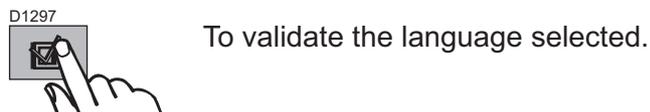
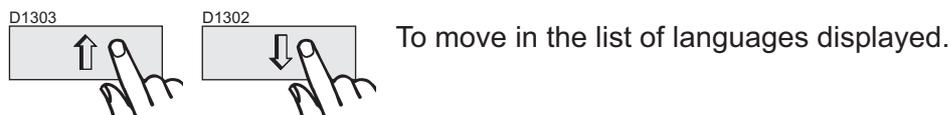


► **USER LANGUAGE** screen.

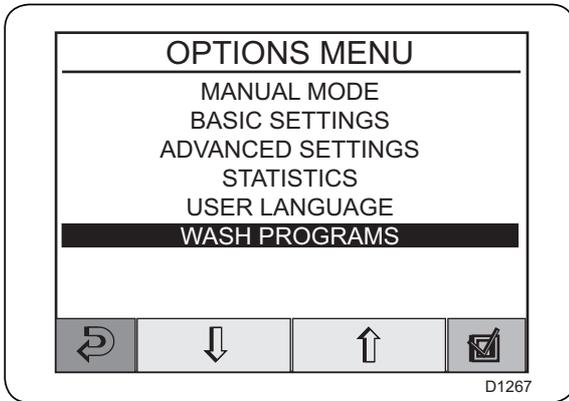


The «USER LANGUAGE» screen allows the translation of the Clarus TS text into different languages that are pre-programd in the factory, such as English, French, German, ...

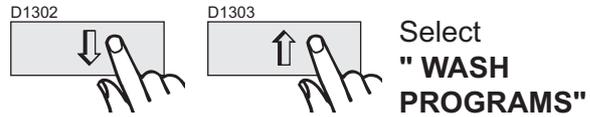
Connection of keys :



Screen : WASH PROGRAMS



From the "OPTIONS MENU" screen,

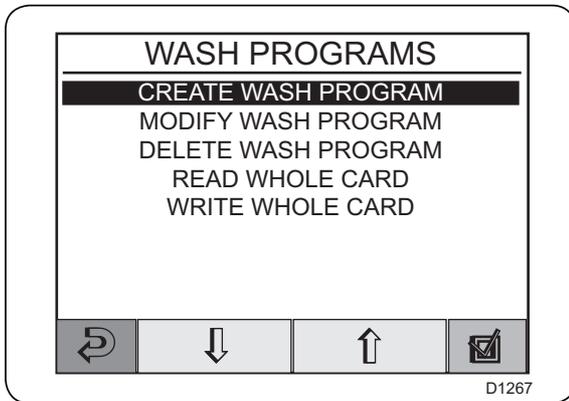


Select "WASH PROGRAMS"



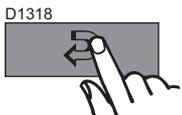
Then validate.

► **NUMERIC KEYBOARD** screen  
(See previous page) ↪ Default code : **1234**

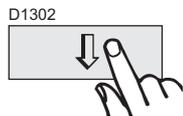
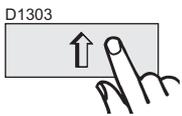


The «WASH PROGRAMS» screen allows the creation of its own wash programs, the modification of an existing program, or even the change/movement of one or more programs using a chip card the size of a credit card.

Connection of keys :



To close the «WASH PROGRAMS» screen and return to back.  
► **OPTIONS MENU** screen (previous page).

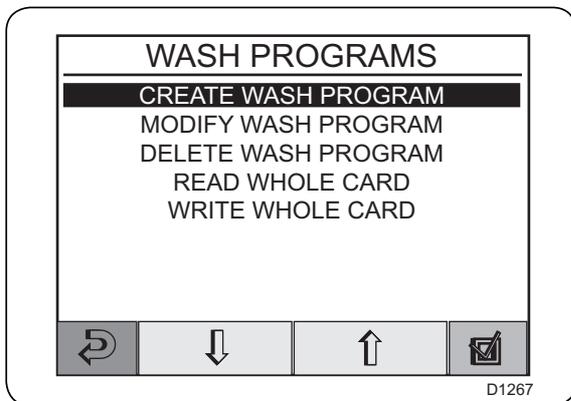


To move in the list of screens displayed.

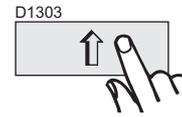
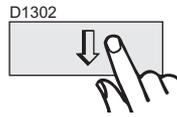


To validate the screen selected.

Screen : PROGRAM EDITION



From the "WASH PROGRAMS" screen,

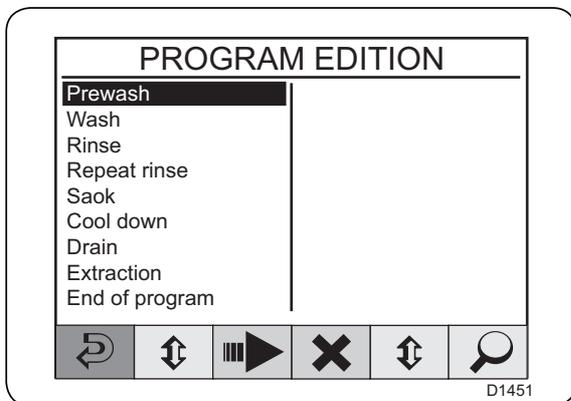


Select  
**"CREATE WASH PROGRAM"**.



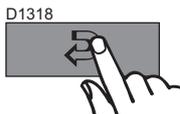
Then validate.

► **PROGRAM EDITION** screen.

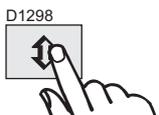


The «PROGRAM EDITION » screen allows the creation of its own wash program, by selection of the different wash cycles (prewash, wash, rinse...) offered.

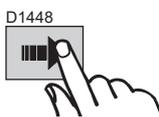
Connection of keys :



To close the «PROGRAM EDITION» screen and return to back.  
► **WASH PROGRAMS** screen (previous page).



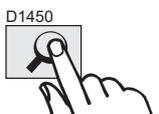
To move in the list of different wash cycles displayed.



To validate the wash cycle selected.

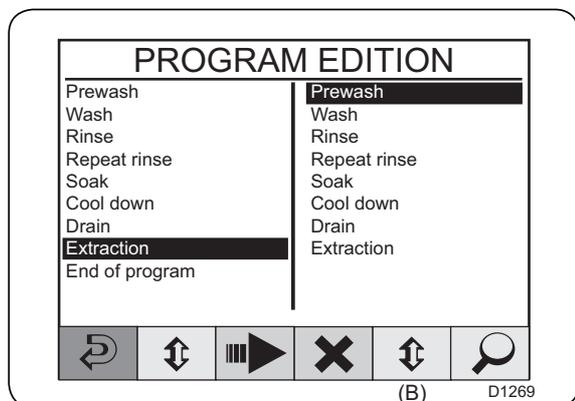


To delete the wash cycle selected.



To access the different parameters of the wash cycle selected.

Screen : PREWASH

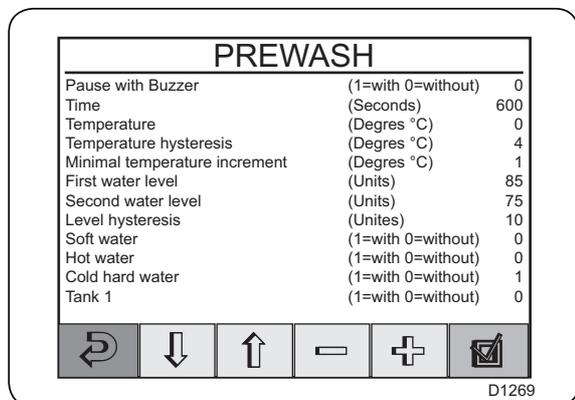


From the "PROGRAM EDITION " screen,

D1298 (B) Select "**PREWASH**".

D1450 And valid.

► **PREWASH** screen.



The «PREWASH» screen allows modification of the different parameters of the 'PREWASH' cycle.

Connection of keys :

D1318 To close the «PREWASH» screen and return to back.  
 ► **PROGRAM EDITION** screen (previous page).

D1303 D1302 To move in the list of parameters displayed.

D1305 D1306 To increase or decrease the value of the parameter selected.

D1297 To validate the modification of the parameter selected.

---

**Screen : PREWASH**

---

**The different parameters of the “PREWASH” screen****• Pause with buzzer :**

On 1 (with), the washer extractor will stop and emit an audio signal before starting the program module; on 0 (without), the module will start without pausing and without emitting an audio signal.

**• Time :**

Adjusts the prewash time (0 to 9999 seconds).

**• Temperature :**

Adjusts the prewash temperature (0 to 99°C).

**• Temperature hysteresis :**

The temperature hysteresis represents the margin between the wash temperature and the threshold at which the heating process will recommence (from 1 to 9°C).

**• Minimal temperature incrementation :**

This parameter, expressed in degrees per minute, is used to determine the rate at which the water may be heated to wash temperature (from 0 to 10°C).

If you program a too fast temperature increase which is too fast for the machine, the heating will be made without any interruptions.

**• First water level :**

After water is first added to a drum containing a dry load, the level always falls slightly because the load absorbs water.

For this reason you are able to program a «first level» (i.e. the initial filling level) which is slightly higher than the level used during the rest of the wash, to avoid a situation where the water has to be topped up repeatedly during the first part of the wash (from 0 to 200 units).

**• Second water level :**

The «fill level» is measured in «scale units», which correspond to different water levels for different machines (from 0 to 200 units).

**• Level hysteresis :**

As soon as the drum fills with water, the system monitors the water level during all phases of heating and washing. If the level falls below a certain threshold (which you will determine when programming this parameter), the system will trigger a water intake up to the level required. The level hysteresis represents the margin expressed in “scale units” between the set level and the threshold that will trigger a water intake on the part of the system (from 0 to 20 units).

**• Soft water :**

On 1 (with), the drum will fill with soft water up to the required level; on 0 (without), no filling with soft water.

---

**Screen : PREWASH**

---

**The different parameters of the “PREWASH” screen****• Hot water**

On 1 (with), the drum will fill with hot water up to the required level. If the water temperature exceeds the value programmed and only the hot water admission solenoid valve is open, the cold water solenoid valve will open automatically to adjust the temperature to the level required. On 0 (without), no filling with hot water.

**• Cold water :**

On 1 (with), the drum will fill with cold water up to the level required; on 0 (without), no filling with cold water.

**• Tank 1/2 :**

On 1 (with), the drum will fill from the reservoir served by the pump specified (reservoir of recycled water or containing special adjuvants); on 0 (without), filling will only be carried out from these sources.

**• Motor action during heating :**

Adjusts the rate in heating (1=slow, 2=normal).

**• Motor action during washing :**

Adjusts the rate in wash (1=slow, 2=normal).

**• Drum speed during heating :**

Adjusts the speed in heating (10 to 50 rpm).

**• Drum speed during washing :**

Adjusts the speed in wash (10 to 50 rpm).

**• Acceleration during washing :**

Allows regulation of the drum acceleration factor, i.e. the elevation of the authorised number of revolutions per minute before it reaches the programmed speed (from 2 to 100 rpm/min).

**• Detergent box compartment 1/2/3/4/5 :**

Allows ascertainment of the time of the water admission sequence in each distributor box (from 0 to 251 seconds).

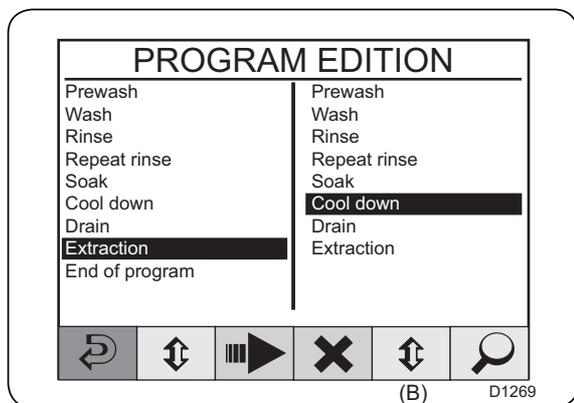
**• Liquid signal 1/2/3/4/5.....11/12/13 :**

For the machines connected to an external washing product distribution system, thirteen command signals are available to command the opening for a time specified by the admission solenoid valves of this system. The solenoid valves open for the time specified as soon as water filling from the drum is completed (0 to 251 seconds).

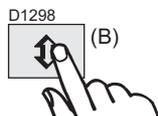
**THE DIFFERENT PARAMETERS OF THE «WASH», «RINSE», «RE-RINSE» AND «SOAK» SCREENS ARE IDENTICAL TO THE «PREWASH» SCREEN.**

This page is left blank on purpose.

Screen : COOL DOWN



From the "PROGRAM EDITION " screen,

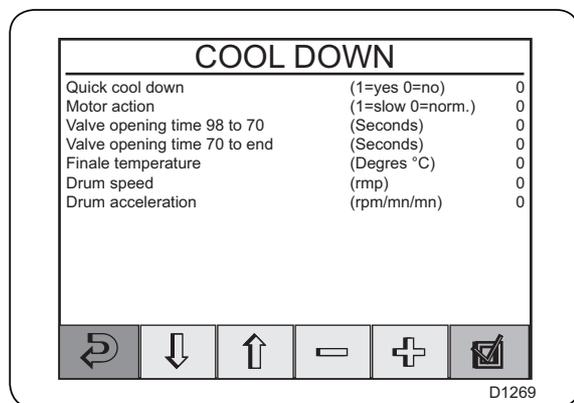


Select "**COOL DOWN**".



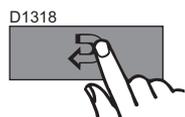
Then validate.

► **COOL DOWN** screen.



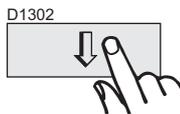
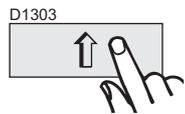
The «COOL DOWN» screen allows modification of the different parameters of the 'COOL DOWN' cycle.

Connection of keys :

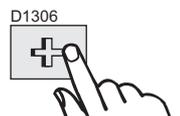
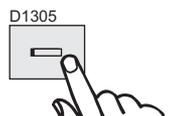


To close the «COOL DOWN» screen and return to back.

► **PROGRAM EDITION** screen (previous page).



To move in the list of parameters displayed.



To increase or decrease the value of the parameter selected.



To validate the modification of the parameter selected.

---

**Screen : COOL DOWN**

---

**The different parameters of the «COOL DOWN» screen****• Quick cool down :**

If you answer 1 (yes) :

The machine will fill with cold water to a fixed higher level. The machine does not monitor the drop in temperature of the wash water. This function is used mainly for reducing the temperature of the water before it is discharged.

Do not use this function to prevent creasing of the wash load.

If you answer 0 (no) :

The machine makes a controlled cool down as described earlier.

**• Moteur action :**

Allows you to determine drum action during cool-down (1=slow, 2=normal).

**• Valve opening time 98 to 70 :**

You program the length of time during which the cold water valve opens every 30 seconds, but the machine monitors constantly to ensure that the cool-down rate does not exceed the limit value, which is 4°C/minute when the machine is delivered. If the limit value is exceeded, no water will be added until the mean value is acceptable again (from 1 to 30 seconds).

**• Valve opening time 70 to end :**

You program the length of time during which the cold water valve opens every 30 seconds. The rate of cool-down is not monitored during this stage. The valve opens and closes depending on the programming mode (from 1 to 30 seconds).

**• Finale temperature :**

Enter the temperature you require for the water at the end of cool-down (from 1 to 90°C).

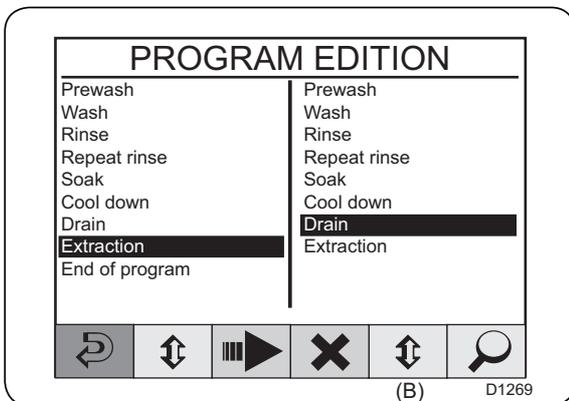
**• Drum speed :**

You can determine the drum speed during cool-down (from 10 to 50 t/mn).

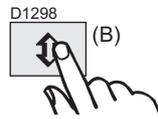
**• Drum acceleration :**

This function allows you to determine the rate of acceleration for the drum, i.e. the rpm per second at which its speed should increase until it reaches the speed you set in the last function (from 2 to 10 t/mn/mn).

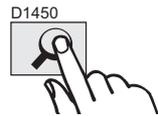
Screen : DRAIN



From the "PROGRAM EDITION " screen,

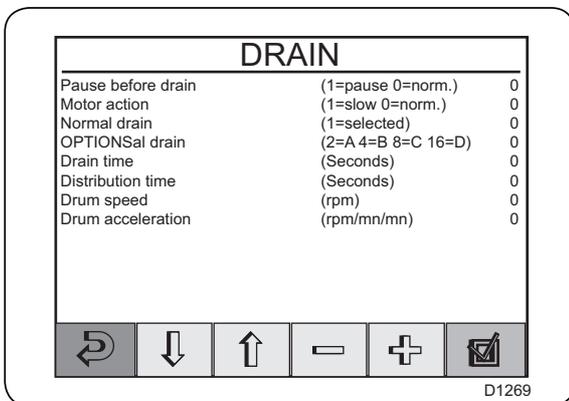


Select "**DRAIN**".



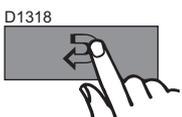
Then validate.

► **DRAIN** screen.

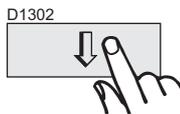
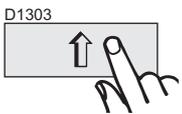


The «DRAIN» screen allows modification of the different parameters of the 'DRAIN' cycle.

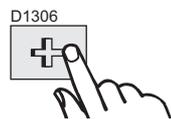
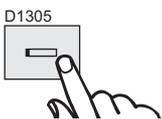
Connection of keys :



To close the «DRAIN» screen and return to back.  
 ► **PROGRAM EDITION** screen (previous page).



To move in the list of parameters displayed.



To increase or decrease the value of the parameter selected.



To validate the modification of the parameter selected.

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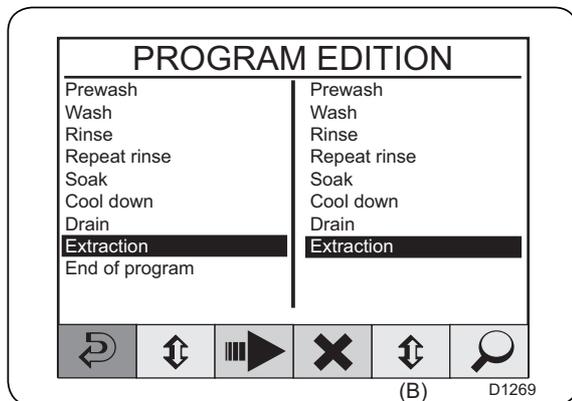
## Screen : DRAIN

---

### The different parameters of the «DRAIN» screen

- **Pause before drain :**  
If you answer 1=pause : The washer extractor will stop and the buzzer will sound before the drain opens.  
If you answer 0=normal : The program module starts, with no pause.
- **Moteur action :**  
Allows you to determine drum action during drain (1=slow, 2=normal).
- **Normal drain :**  
The drain will be open. The motor may be at a standstill, on gentle action. During this time the drum water will be discharged (1=selected).
- **OPTIONSal drain :**  
Actually out of service (2=A 4=B 8=C 16=D).
- **Drain time :**  
Here you can determine the drain time (from 0 to 250 seconds).
- **Distribution time :**  
Here you can determine the length of time the drum operates at distribution speed (from 0 to 250 seconds).
- **Drum speed :**  
Here you can determine the drum action during the time programmed for the drain cycle (from 10 to 50 t/mn).
- **Drum acceleration :**  
This function allows you to determine the rate of acceleration for the drum, i.e. the rpm per second at which its speed should increase until it reaches the speed you set in the last function (from 2 to 10 t/mn/mn).

Screen : EXTRACTION

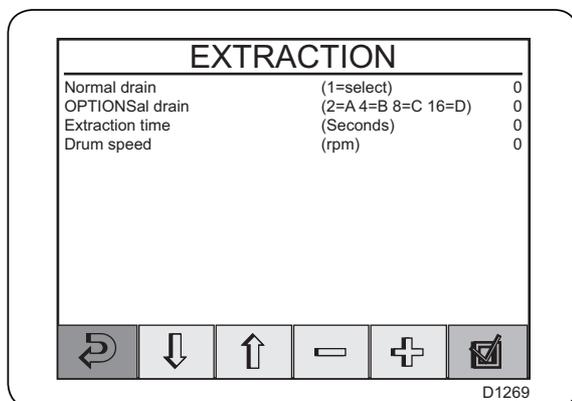


From the "PROGRAM EDITION " screen,

D1298 (B) Select "**Extraction**".

D1450 Then validate.

► **Extraction** screen.



The «Extraction» screen allows modification of the different parameters of the 'EXTRACTION' cycle.

Connection of keys :

D1318 To close the «EXTRACTION» screen and return to back.  
 ► **PROGRAM EDITION** screen (previous page).

D1303 D1302 To move in the list of parameters displayed.

D1305 D1306 To increase or decrease the value of the parameter selected.

D1297 To validate the modification of the parameter selected.

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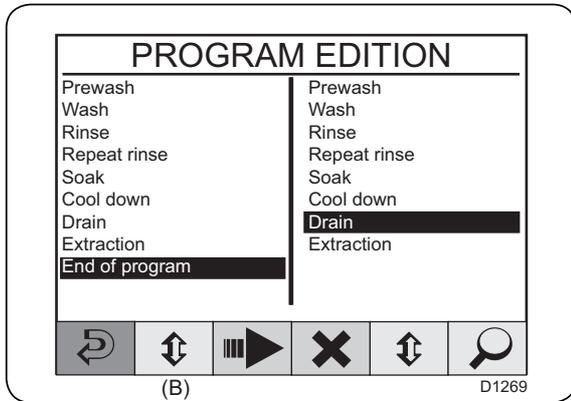
## Screen : EXTRACTION

---

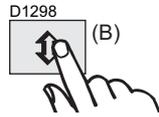
### The different parameters of the «EXTRACTION» screen

- **Normal drain :**  
The drain will be open. The motor may be at a standstill, on gentle action. During this time the drum water will be discharged (1=selected).
- **Optional drain :**  
Actually out of service.
- **Extraction time :**  
The period during which the drum is reaching its correct speed is not included in the extraction time (from 0 to 480 seconds).
- **Drum speed:**  
Here you can determine the drum action during the time programmed for the spin cycle (from 127 to 800 t/mn).

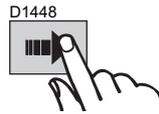
Screen : PROGRAM NAME



From the "PROGRAM EDITION " screen,

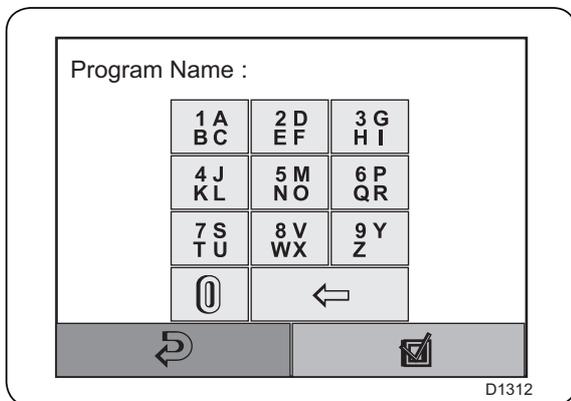


Select "**End fo program**".



Then validate.

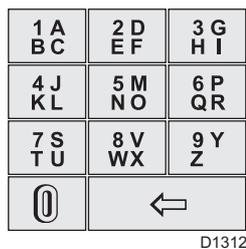
► **PROGRAM NAME** screen.



The «PROGRAM NAME» screen allows to name the program created previously using the numericals keys according to the following assignment :

- |         |         |         |
|---------|---------|---------|
| 1 : abc | 2 : def | 3 : ghi |
| 4 : jkl | 5 : mno | 6 : pqr |
| 7 : stu | 8 : vwx | 9 : yz  |
| 0 :     |         |         |

Connection of keys :

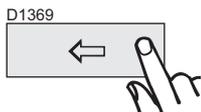


To enter the name.

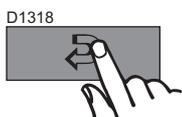
The first time you press a given key, the first character available through that key will appear on the display. One press on **1** produces **A**. One press on **2** produces **D**.

Simply press the relevant key the required number of times until the character you want appears on the display. For example, to insert the letter **C**, press key **1** three times. To insert **F**, press **2** three times.

When the character you want is on the display, wait a minute the cursor sets after.



To correct a typing error.



To close the «PROGRAM NAME» screen and return to back.

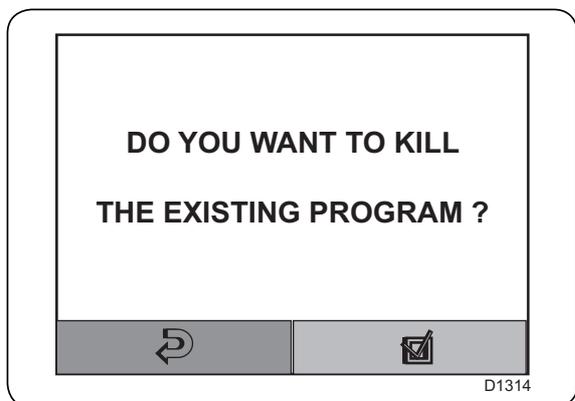
► **WASH PROGRAMS** screen (previous page).



To validate the name.

► **WASH PROGRAMS** screen.

Screen : KILL THE EXISTING PROGRAM



The «KIL THE EXISTING PROGRAM» screen allows to save a modification of a wash program by crushing the old version by the new.

Connection of keys :



To close the «KIL THE EXISTING PROGRAM» screen and return to back.  
▶ **PROGRAM EDITION** screen (previous page).



To confirm the crushing of previous wash program by that modified previously.  
▶ **WASH PROGRAMS** screen (previous page).

---

**Screen : DELETED WASH PROGRAM**

---



The «DELETED WASH PROGRAM» screen allows to delete definitively a wash program.

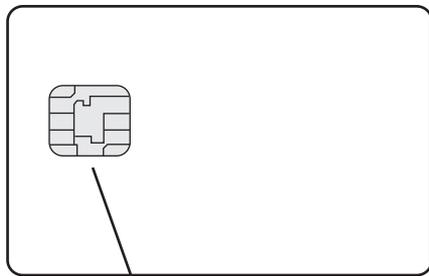
**Connection of keys :**

To close the «DELETED WASH PROGRAM» screen and return to back.  
▶ **SELECT WASH PROGRAM** screen (previous page).



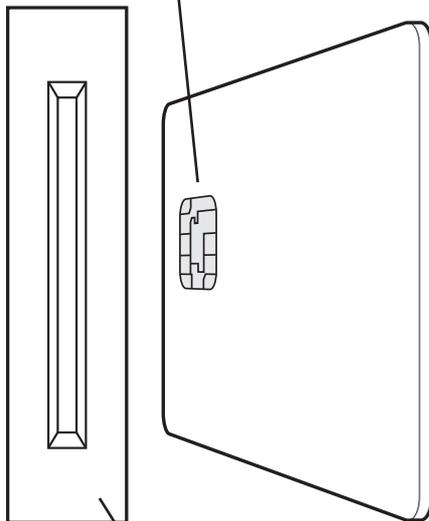
To validate the deletion of wash program.  
▶ **WASH PROGRAMS** screen.

## Memory card



3605

Memory chip



D1399

Card reader

A «memory card» is a plastic card, the size of a credit card, with an electronic memory chip inside it. This memory card is capable of storing 10 to 15 wash programs of normal size..

If the programs are mostly small ones, more of them can be stored, whereas larger programs will reduce the number which can be held by the memory card

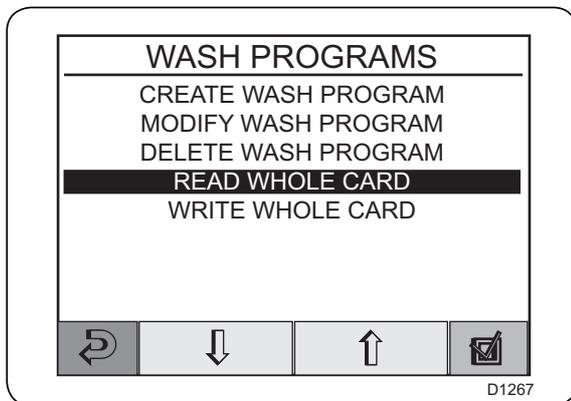
Memory cards of this type can be used to :

- Transfer wash programs from a PC to a memory card and from a memory card to a PC.
- Transfer wash programs from a memory card to a machine and from a machine to a memory card

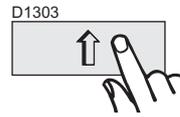
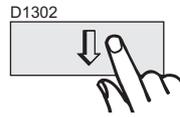
Turn the memory card so its memory chip is at the far end and on the left of the card...

...then insert the memory card into the program control unit

## Screen : CARD READER



From the "WASH PROGRAMS",

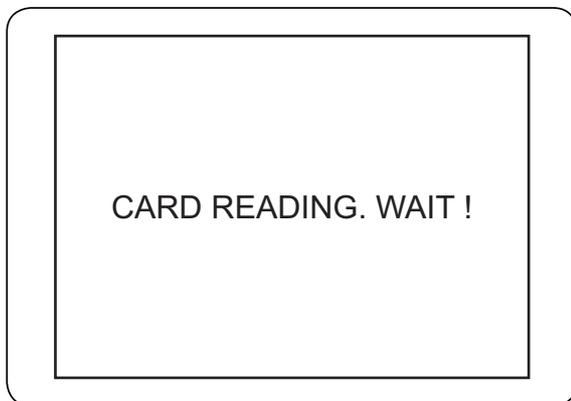


Select  
"READ WHOLE CARD"



Then validate.

► **CARD READER** screen.



Both the memory card and the program control unit have memory chips capable of storing wash programs.

The chip on the card can hold about 10 to 15 programs of normal size, while the chip in the program control unit has a capacity of several hundred programs.

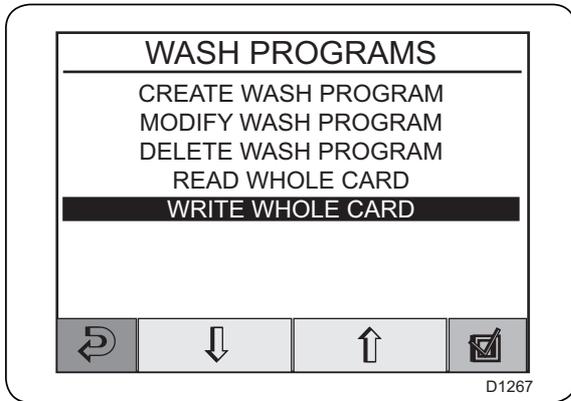
When a program is copied from a memory card to the machine's program control unit, it is copied, not moved (not deleted from the card). A copy is transferred from the chip on the memory card to the storage chip of the machine program control unit.

The program remains on the memory card, but another copy of it has now been stored in the program control unit.

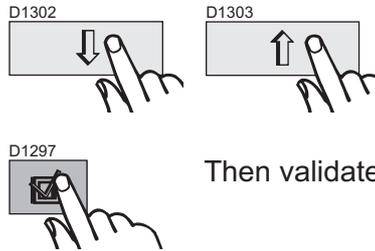
The «CARD READING. WAIT !» windows will disappear once the copy of programmes of the card has finished.

► **WASH PROGRAMS** screen.

Screen : CARD WRITING



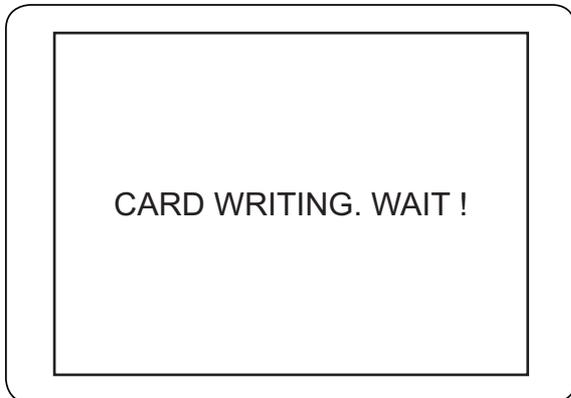
From the "WASH PROGRAMS",



Select "WRITE WHOLE CARD".

Then validate.

► **CARD WRITING** screen.



Both the memory card and the program control unit have memory chips capable of storing wash programs.

The chip on the card can hold about 10 to 15 programs of normal size, while the chip in the program control unit has a capacity of several hundred programs.

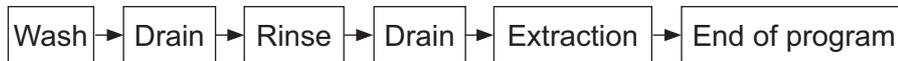
When a program is copied from a memory card to the machine's program control unit, it is copied, not moved (not deleted from the card). A copy is transferred from the chip on the memory card to the storage chip of the machine program control unit.

The program remains on the memory card, but another copy of it has now been stored in the program control unit.

The «CARD WRITING. WAIT !» windows will disappear once the writing program of the CPU has finished.

► **CLARUS TS** screen.

CREATE A NEW WASH PROGRAM



1

From the "CLARUS TS" screen.

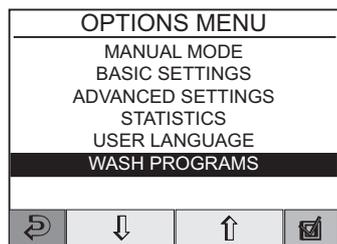


Select "OPTIONS MENU".



Then validate.

▶ **OPTIONS MENU** screen.



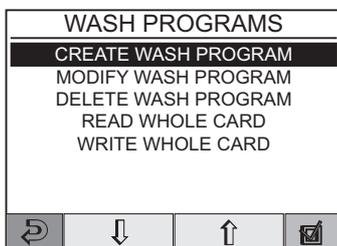
2

Select "WASH PROGRAMS".



Then validate.

▶ **WASH PROGRAMS** screen.



3

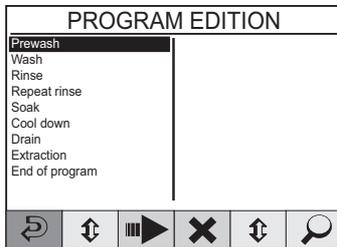
Select "CREATE WASH PROGRAM".



Then validate.

▶ **PROGRAM EDITION** screen.

CREATE A NEW WASH PROGRAM (next)



4

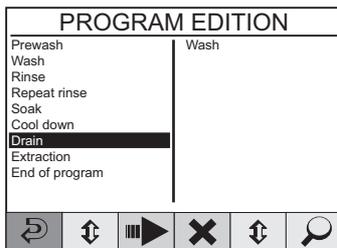


Select "Wash".



Then validate.

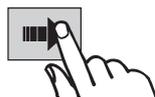
The "Wash" cycle is registered on the colone of the right side.



5



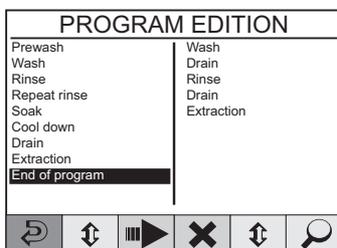
Select "Drain".



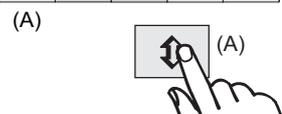
Then validate.

The "Drain" cycle is registered on the colone of the right side.

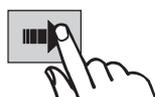
To proceed in the same way as above for "Rinse", "Drain" and "Extraction" cycles.



6



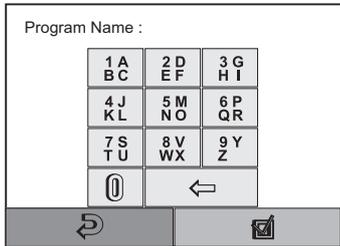
Select "End of program" cycle to finish the program.



Then validate.

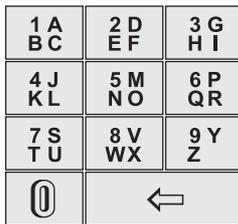
▶ PROGRAM NAME screen.

CREATE A NEW WASH PROGRAM (next)



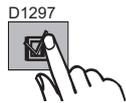
D1312

7



D1312

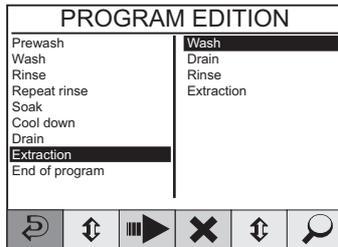
Simply press the relevant key the required number of times until the character you want appears on the display (see page 41).



To validate the name.  
▶ **WASH PROGRAMS** screen.

**CREATE A NEW WASH PROGRAM (next)**

**Correct the program in the process of creation :**



(B)

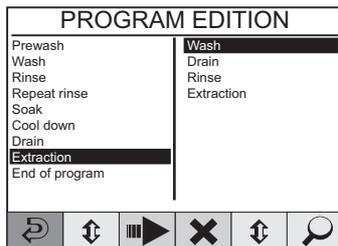


(B) To select the cycle to be removed.



To remove the cycle selected.

**Modify the parameters of a program cycle in the process of creation :**



(B)



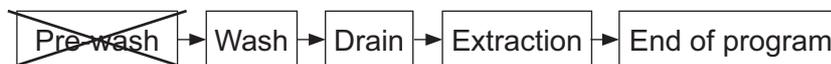
(B) To select the cycle to be modified.



To access the parameters of the cycle selected.  
▶ according to the selected cycle.

**MODIFY A EXISTING WASH PROGRAM**

To remove the "Pre-Wash" cycle



1

From the "CLARUS TS" screen.

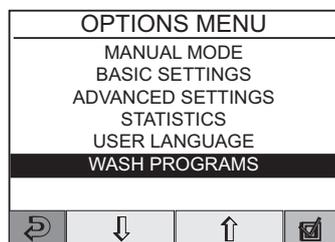


Select "OPTIONS MENU".



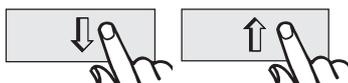
Then validate.

▶ **OPTIONS MENU** screen.



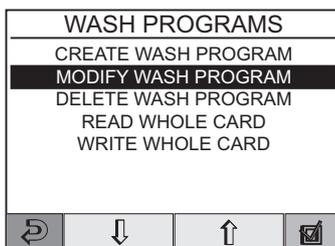
2

Select "WASH PROGRAMS".



Then validate.

▶ **WASH PROGRAMS** screen.



3

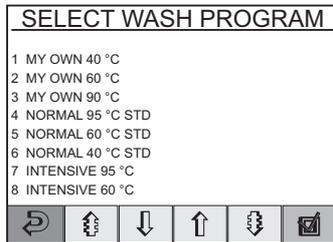
Select "MODIFY WASH PROGRAM".



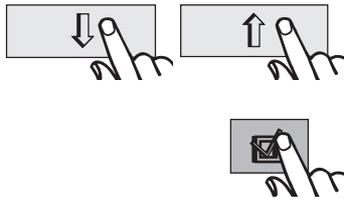
Then validate.

▶ **SELECT WASH PROGRAM** screen.

**MODIFY A EXISTING WASH PROGRAM (next)**

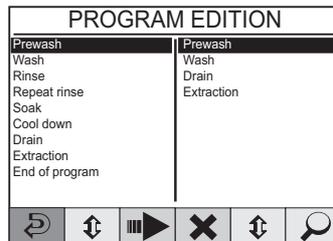


4



Select the program to be modified.

Then validate.  
▶ **PROGRAM EDITION** screen.



5

(B)

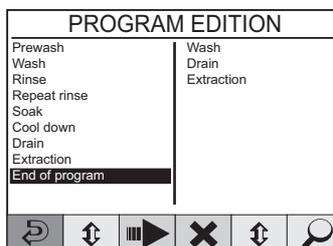


(B)

Select the cycle of wash program to be deleted : "Prewash".



Then validate.  
The "Prewash" cycle is removed.

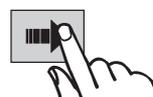


6

(A)



Select the "End of program" cycle to finish the wash program.

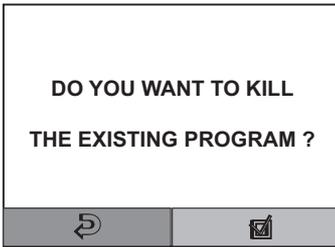


Then validate.  
▶ **KIL THE EXISTING PROGRAM** screen.

---

**MODIFY A EXISTING WASH PROGRAM (next)**

---



7



Then validate.

▶ **WASH PROGRAMS** screen (previous page).

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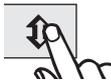
## REMOVE A EXISTING WASH PROGRAM



①

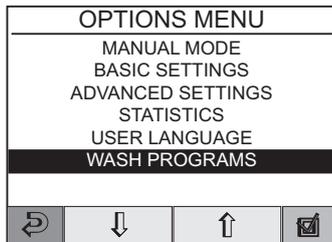
From the "CLARUS TS".

Select "OPTIONS MENU".



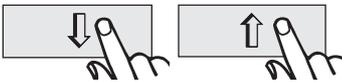
Then validate.

► **OPTIONS MENU** screen.



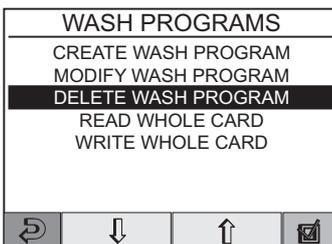
②

Select "WASH PROGRAMS".



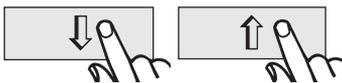
Then validate.

► Screen : **WASH PROGRAMS**.



③

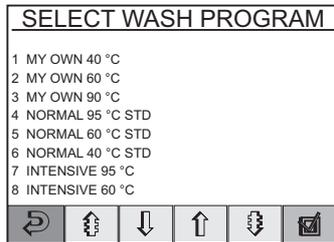
Select "DELETE WASH PROGRAM".



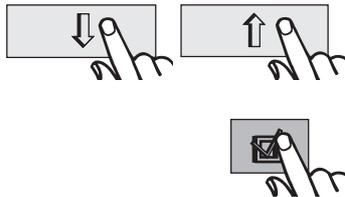
Then validate.

► **SELECT WASH PROGRAM** screen.

REMOVE A EXISTING WASH PROGRAM (next)



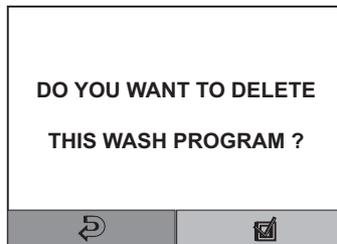
4



Select the wash program to be removed.

Then validate.

▶ **DELETE THE WASH PORGRAM** screen.



5



Then validate.

▶ **WASH PROGRAMS** screen (see previous page).

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## 24. Drum door

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### Contents

Description.....	1
Opening loading side drum doors.....	1
Opening unloading side drum doors .....	3

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Description

Opening loading side drum doors :

- 1 Push on the **POSITION I** key (fig.1).



The drum rotates to bring the first compartment in loading position. During the rotation, the window "DRUM INDEXING. WAIT" is displayed. It disappears when the drum is in position.

- 2 Push on the **DOOR UNLOCKING** key (fig.1).



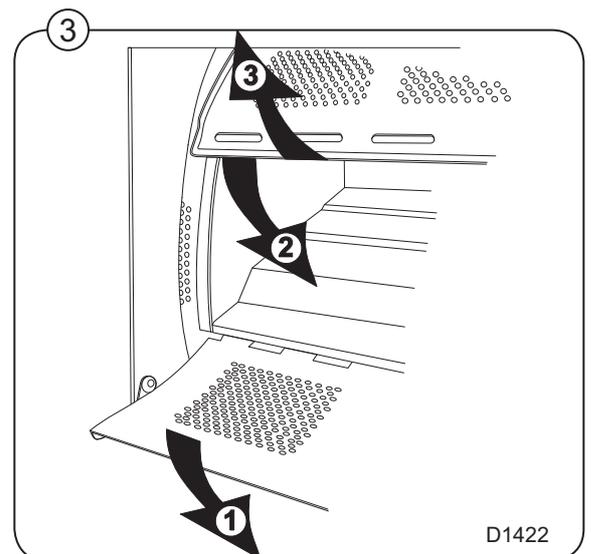
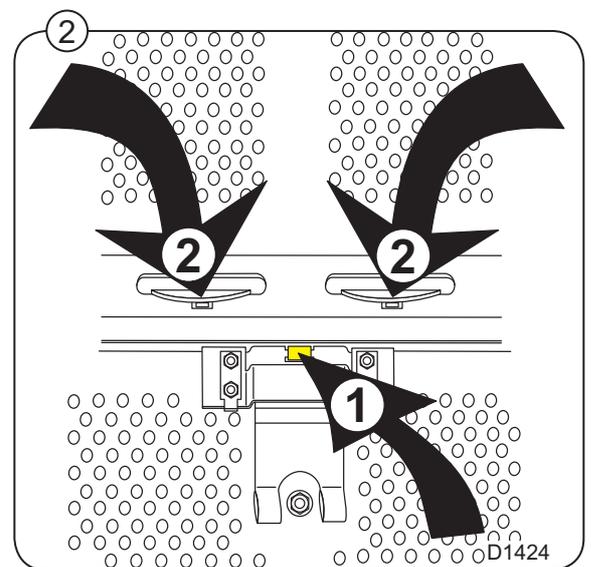
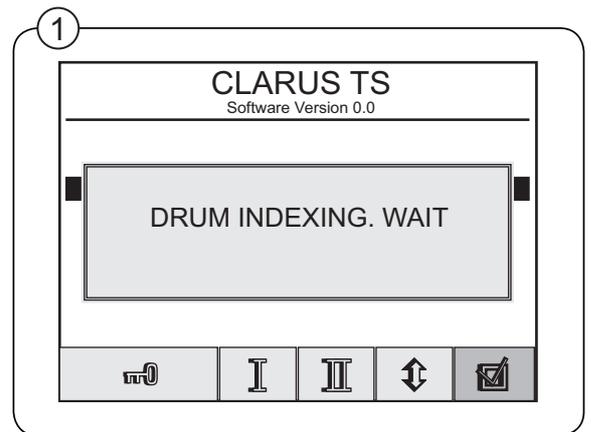
The door unlock.

- 3 Open the loading door using the handle.

- 4 Press on the safety lock and on upper and lower doors at the same time with both hands (fig. 2).

- 5 Open the lower drum door and push on the upper door, to lock it with the upper blocking plate to open it completely (fig. 3).

- 6 Load the linen into the drum making sure of its correct distribution.



**ATTENTION**

**Risk of jamming when opening the lower door for unloading and make sure not to overload the machine.**

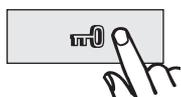
Opening loading side drum doors (next):

- 7 Close the lower drum door. Push on the lower door so that it is hooked in the lower door holes. Let the door go of (fig. 4).
- 8 Check that the mechanical safety is properly closed and push on drum doors, if doors are not properly closed, they might open during a washing cycle and strongly damage the machine (fig. 5).
- 9 Close the drum door for locking.
- 10 Push on the **POSITION II** key to bring the second compartment in loading position (fig.1).



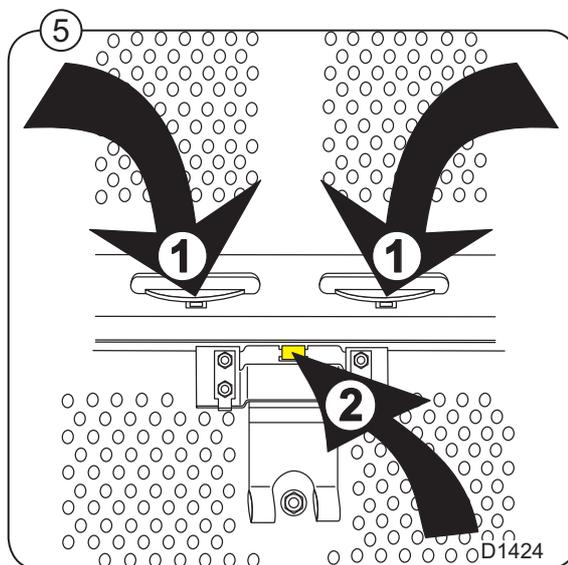
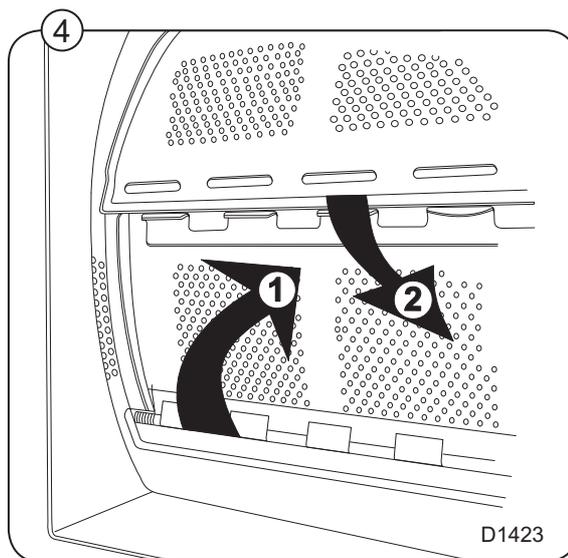
The cage rotates to bring the second compartment in loading position. During this rotation, the window **Positioning on hand"** is displayed. It disappears when the drum is in position.

- 11 Push on the **DOOR UNLOCKING** keyE (fig.1).



The door unlocks.

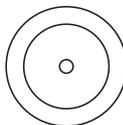
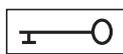
- 12 Open the loading door with the handle.
- 13 Open the drum doors like before and load the linen into the second compartment making sure of its correct distribution.
- 14 Close the drum doors like before (check the good running of the mechanical safety lock by push on the drum doors).



**Opening unloading side drum doors (only barrier machine):**

At the end of the washing cycle, one of the two compartments of the drum is automatically positioned to be unloaded. The warning light flashes.

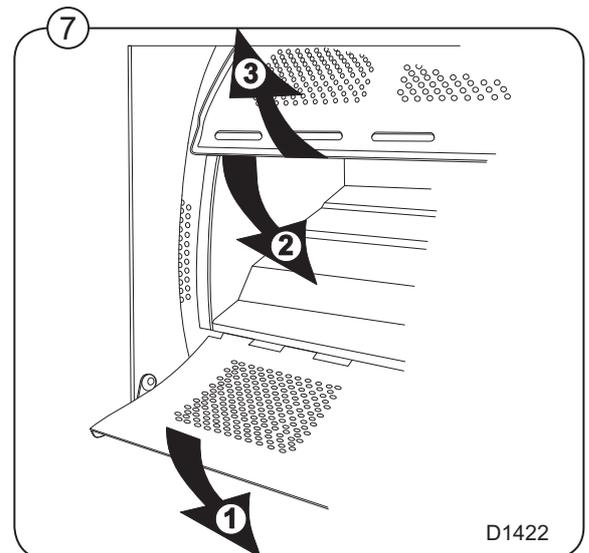
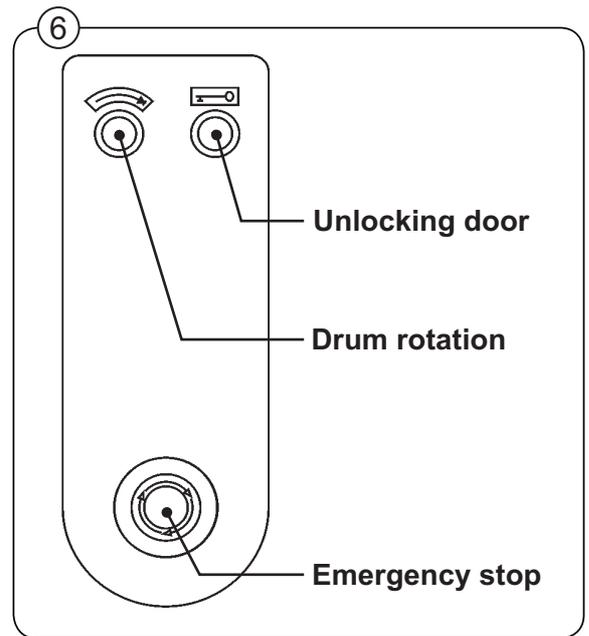
- 1 Push on the **DOOR UNLOCKING** button (fig. 6).



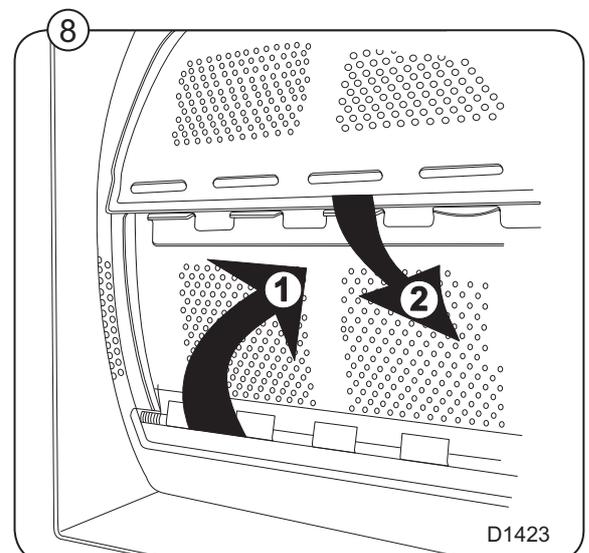
D1396

The door unlocks.

- 2 Open the unloading door with the handle.
- 3 Open the lower drum door and push on the upper door, to lock it with the upper blocking plate to open it completely (fig. 7).  
  
Attention : automatic unlock of the cage doors and drum doors.
- 4 Unload the linen from the first compartment.
- 5 Close the lower drum door. Push on the lower door so that it is hooked in the lower door holes. Let the door go of (fig. 8).
- 6 Check that the mechanical safety is properly closed and push on drum doors (if doors are not properly closed, they might open during a washing cycle and strongly damage the machine) (fig. 5).
- 7 Close the drum door for locking.



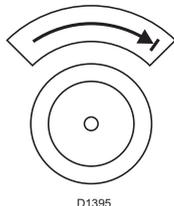
D1422



D1423

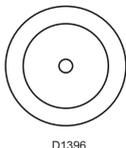
## Opening unloading side drum doors (suite) :

- 8 Push on the **DRUM ROTATION** button



to bring the second compartment in unloading position

- 9 Push on the **DOOR UNLOCKING** button



Attention : automatic unlock of the cage doors and drum doors

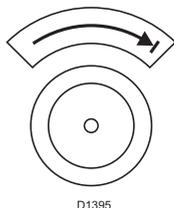
- 10 Open the doors like above.

- 11 Unload the linen from the second compartment.

- 12 Close the drum doors like above (check the good running of the mechanical safety lock by pushing on the drum doors).

- 13 Close the cage door (automatic lock of the cage door).

- 14 Push on the **DRUM ROTATION** button



The drum slightly rotates to bring a compartment in loading position.

- 15 Loading side : The warning light flashes, the machine is now ready for the launching of a new washing cycle.

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## 25. Inner drum bearings

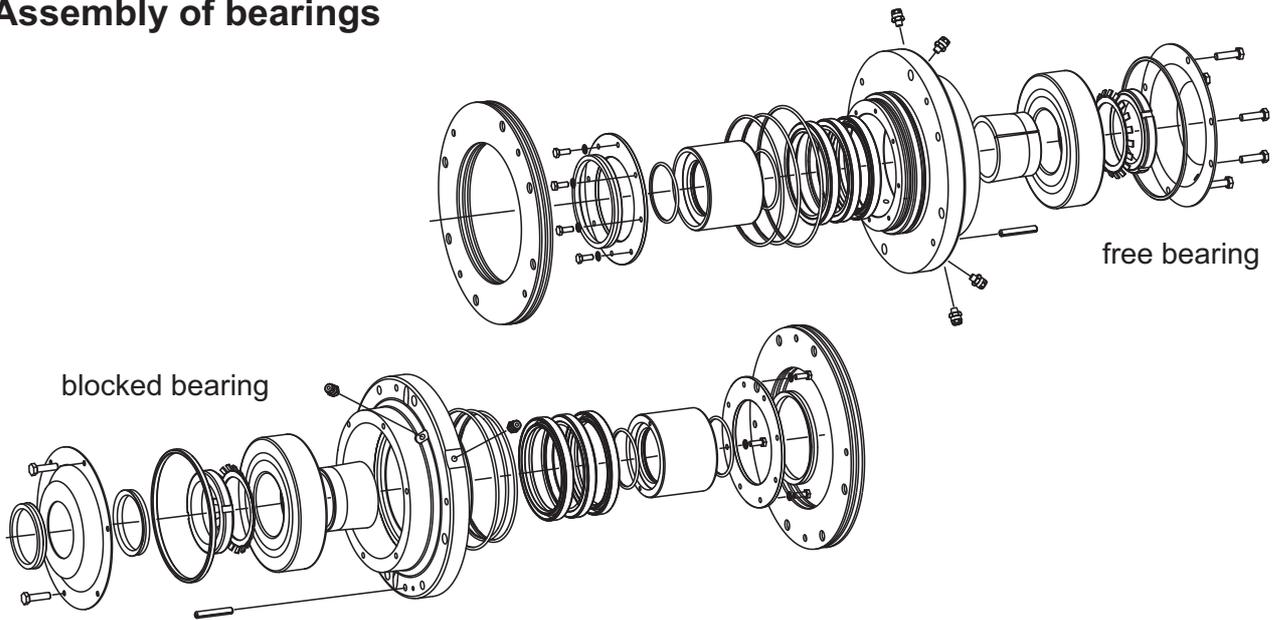
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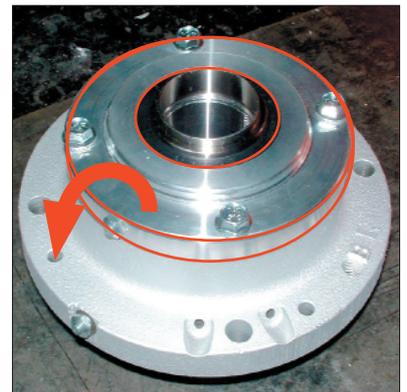
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Assembly of bearings



blocked bearing

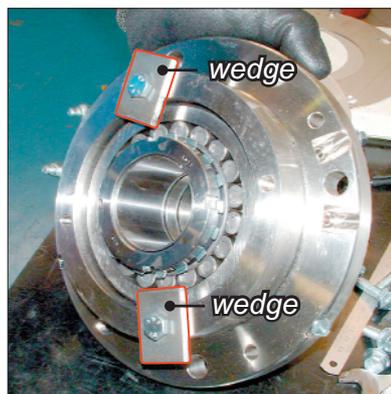
free bearing



1



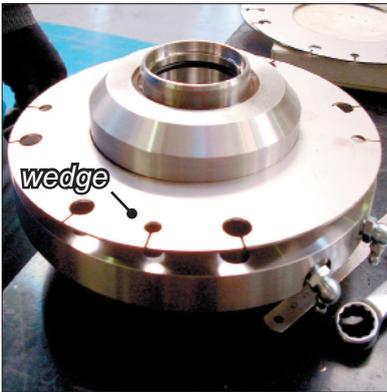
2



3



4



5



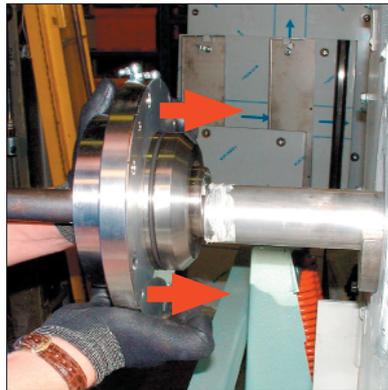
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7



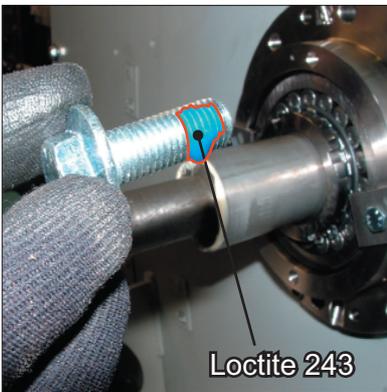
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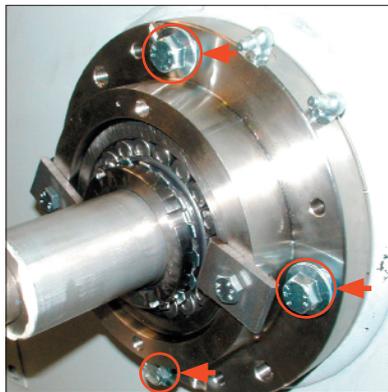
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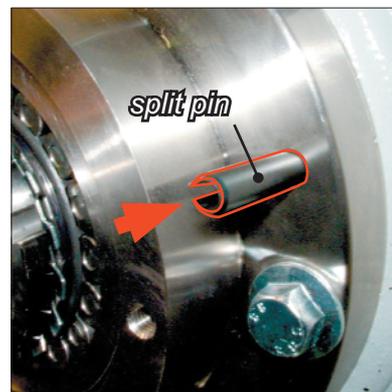
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11



12



13



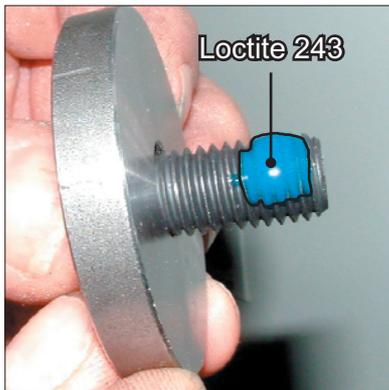
14



15



16



17



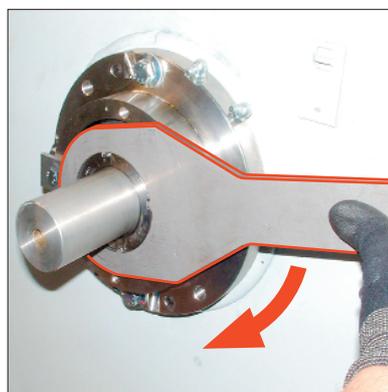
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19



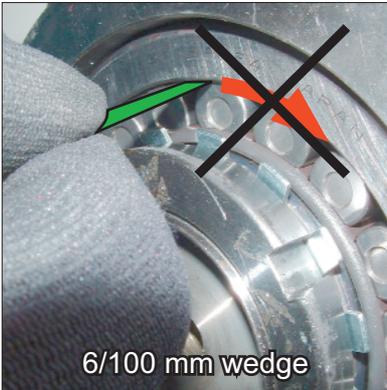
20



21

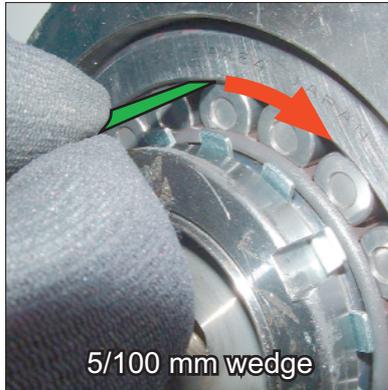


22



6/100 mm wedge

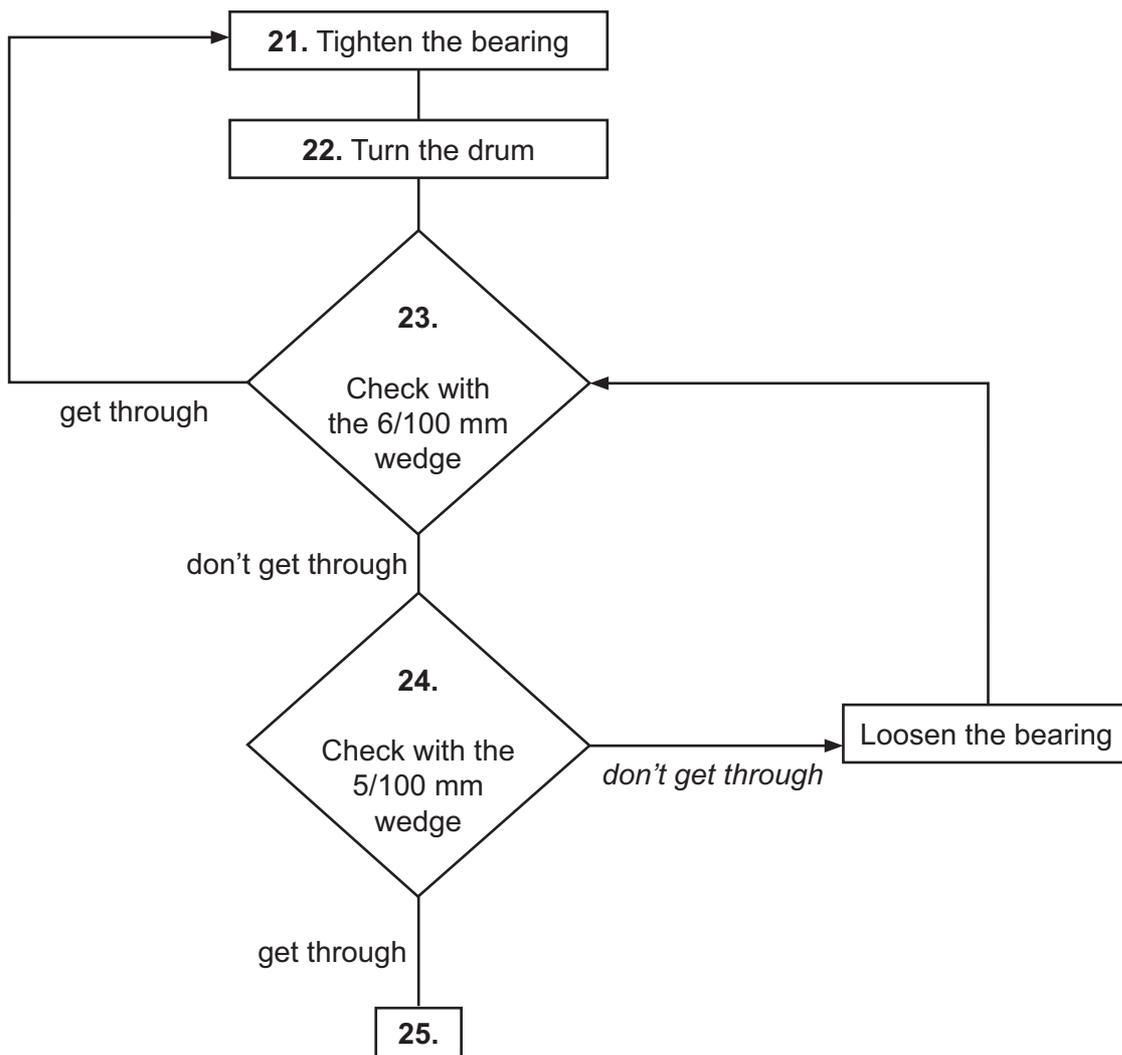
23

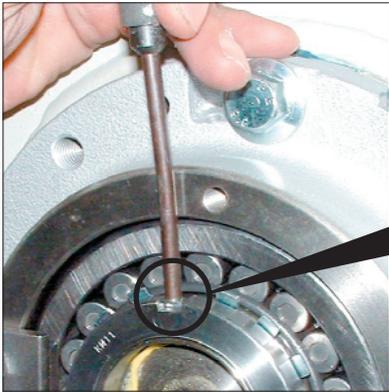


5/100 mm wedge

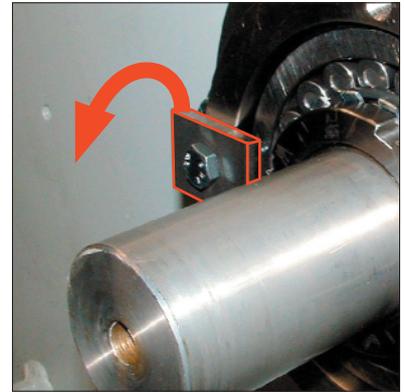
24

Do this control in several points of the bearing

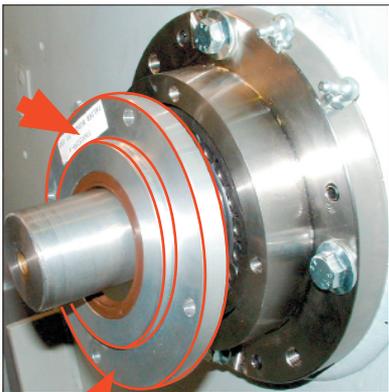




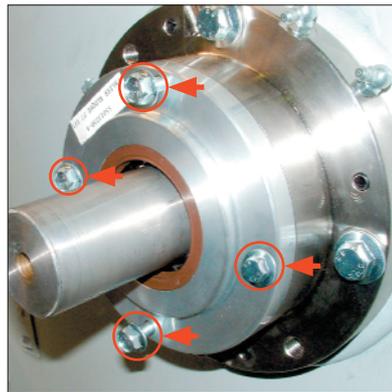
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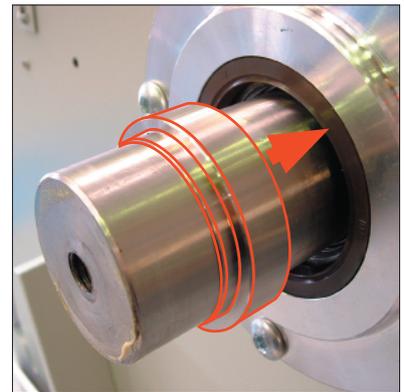
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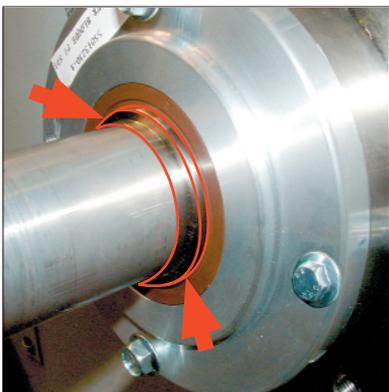
27



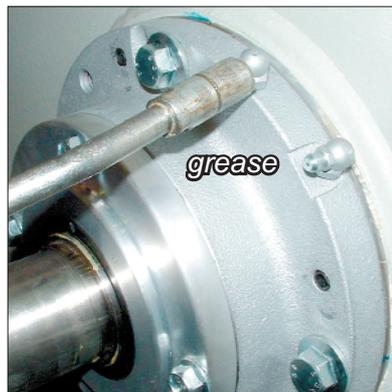
28



29



30



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## 26. Compressed air system

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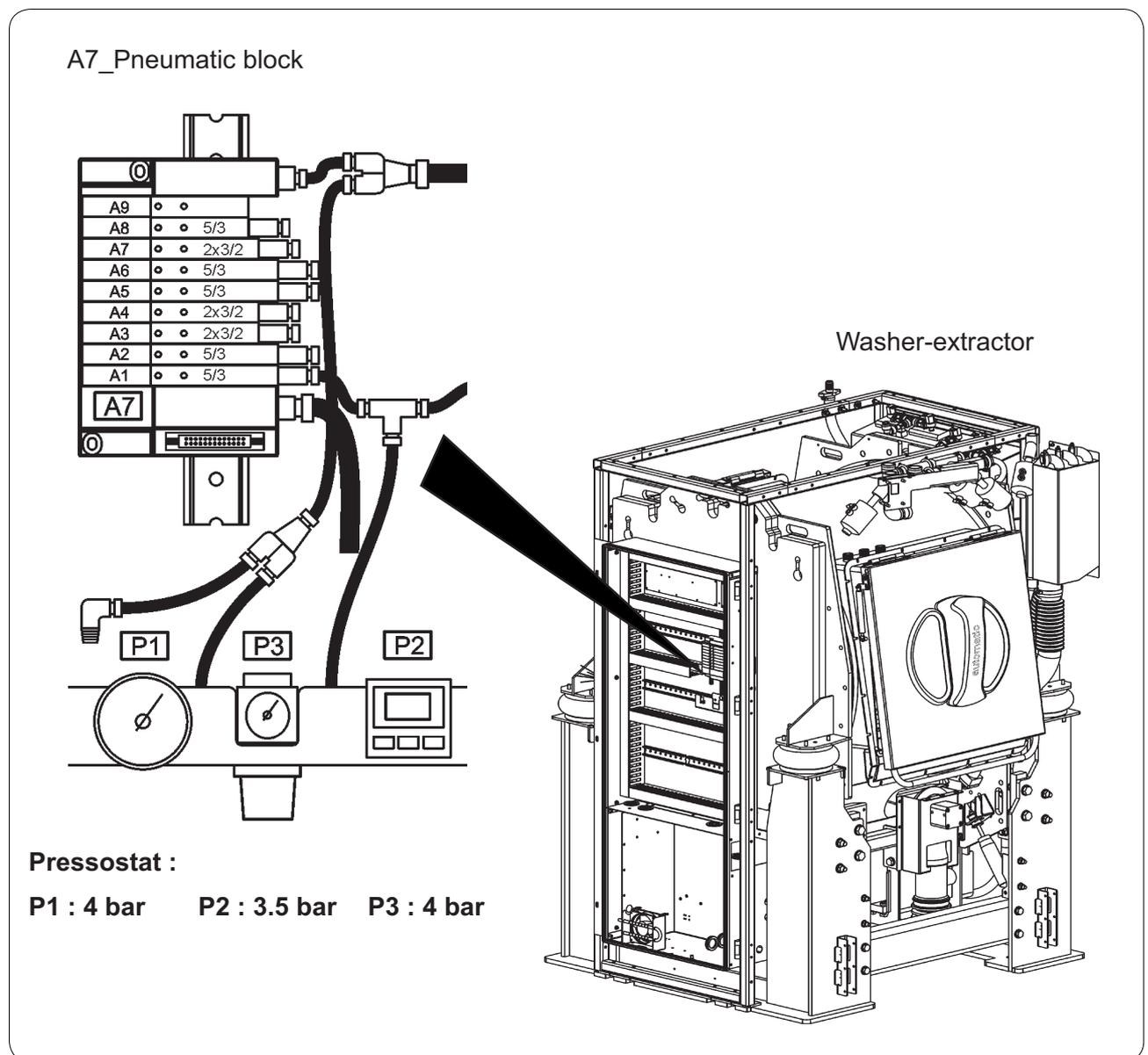
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## Description

Fitted in the electrical cabinet, the compressed air system can be accessed by removing the side panel (electrical cabinet side) of the machine.

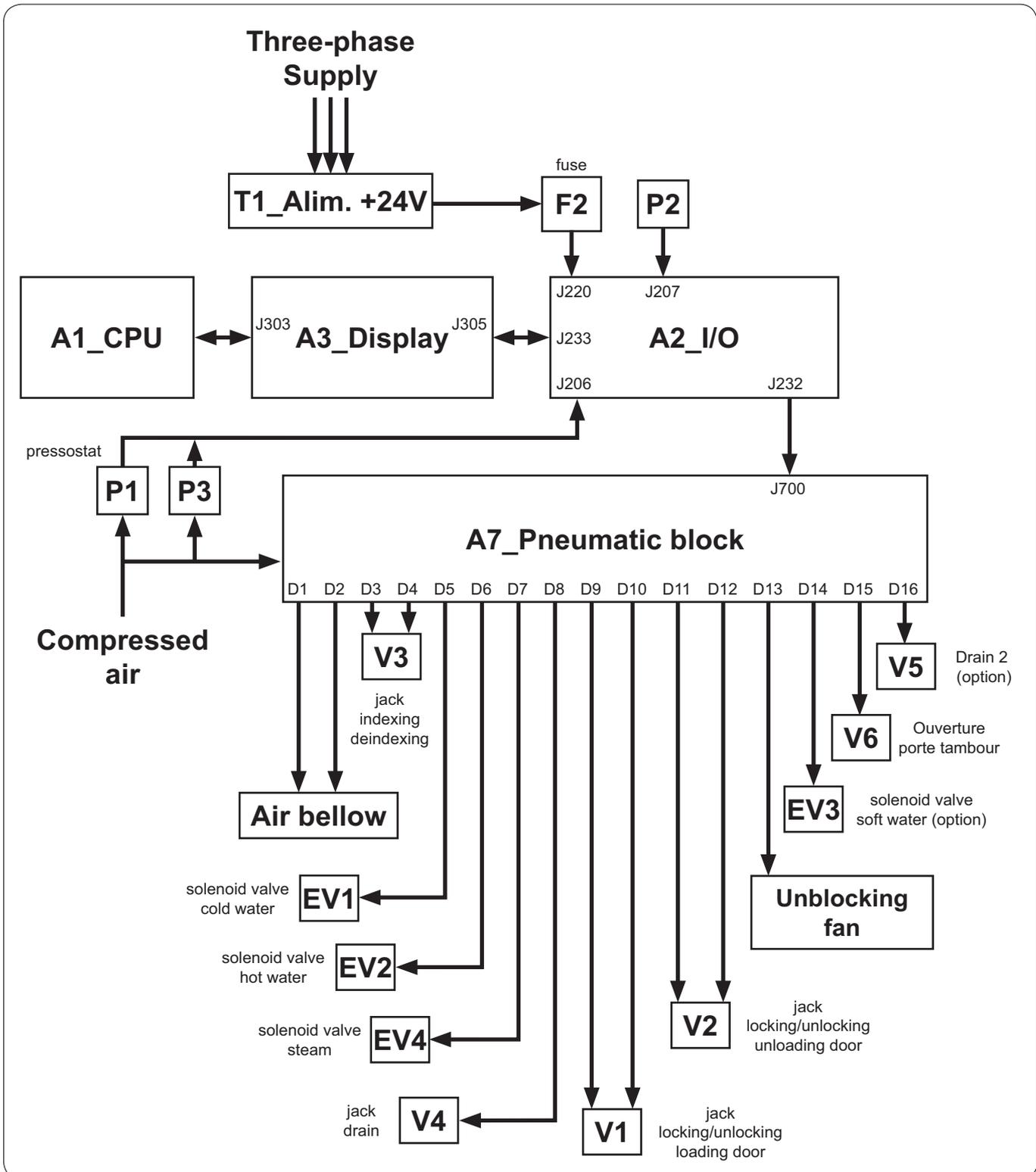
It comprises the following elements :

- 1 pneumatic block (A7) made up of several distributors to control the compressed air supply.
- 3 pressostats (P1, P2 et P3) to control the pressure of compressed air of the machine.

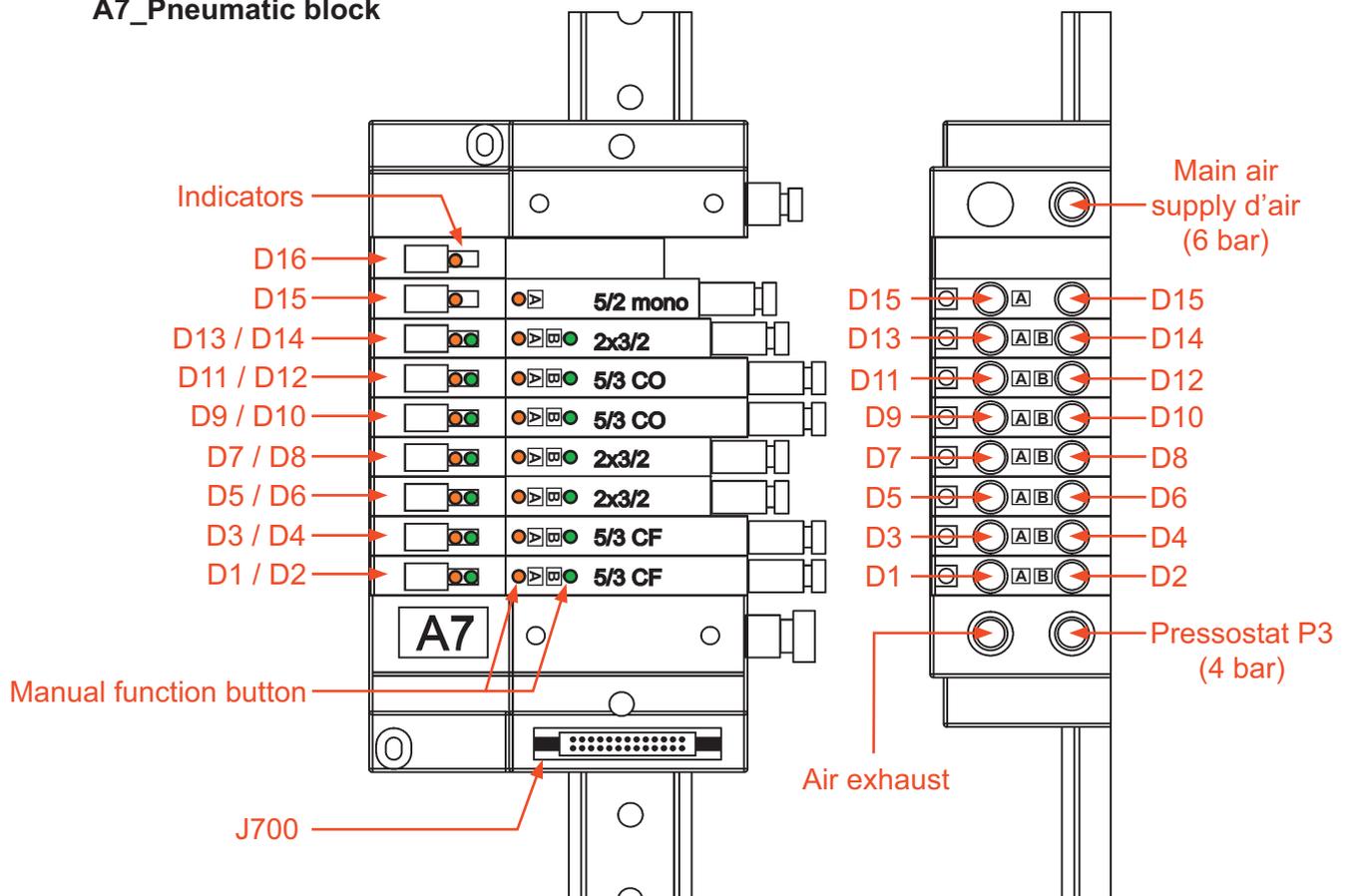


Functioning

Controlled by the CLARUS TS, the pneumatic block activates deactivates the mechanical functions (jack, solenoid valve...) of the machine using compressed air. Each air pilot valves have two buttons (A and B), which allow by manually action to control mechanical parts.



A7\_Pneumatic block



A7 :Pneumatic block

Connector	Pin	Line n°	Designation / Function	
J700	1 to 26	W232	J232-1 to J232-26	A2_I/O

Button	Status	Function
A	Press	Manual activation of air distributor A
B	Press	Manual activation of air distributor B

Indicator	Status	Function
A	ON	Air pilot valve activated
	OFF	Air pilot valve deactivated
B	ON	Air pilot valve activated
	OFF	Air pilot valve deactivated

Marker	Designation	Function
D1	Bellows jack control	Inflation
D2	Bellows jack control	Deflation
D3	Indexing/deindexing drum control	Indexing
D4	Indexing/deindexing controldrums	Deindexing
D5	Water control	Cold hard water
D6	Water control	Hot water
D7	Steam control	Steam
D8	Drain 1 control	Drain 1
D9	Locking/Unlocking control loading side door	Unlocking door
D10	Locking/Unlocking control loading side door	Locking door
D11	Lock/Unl. control Unloading side door	Unlocking door
D12	Lock/Unl. control Unloading side door	Locking door
D13	Unblocking fan control	Unblocking
D14	Soft water control	Soft water (option)
D15	Unloading drum door opening control	Drum door opening
D16	Drain 2 control	Drain 2 (option)



Can only be executed by a qualified person



## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

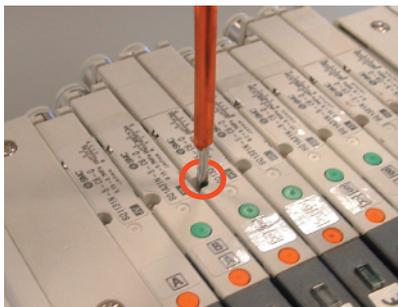
### The compressed air system is not working or is working incorrectly :

- Check the compressed air supply of the machine.
- Check the air pressure system of the machine ( $\pm 6$  bars) using the P1 pressostat.
- Check the status of the D1 to D16 of the A2\_I/O card (see Chapter 22\_ page16).
- Check the functioning of each distributors of the A7 pneumatic bloc (see previous page).

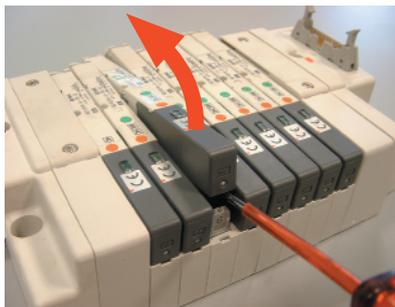
### Replacement of the pressostat

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Close the compressed air supply.
3. Remove the machine electrical cabinet side panel.
4. Disconnect the air compressed pipe and the cabling of the defective pressostat.
5. Remove the defective pressostat and remplace it with a new one.
6. Reconnect the cabling, the air compressed pipe and reassemble the pane.

### Replacement of the air distributor



1



2



3

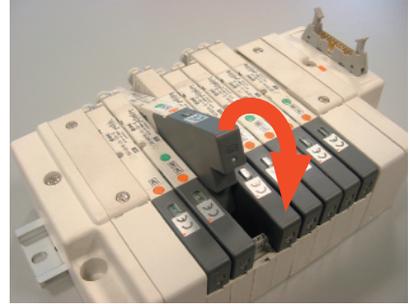
Replacement of the air distributor (next)



4



5



6



7

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## 27. Tank door locking / unlocking system

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A4_Door safety.....	3
Repair .....	6

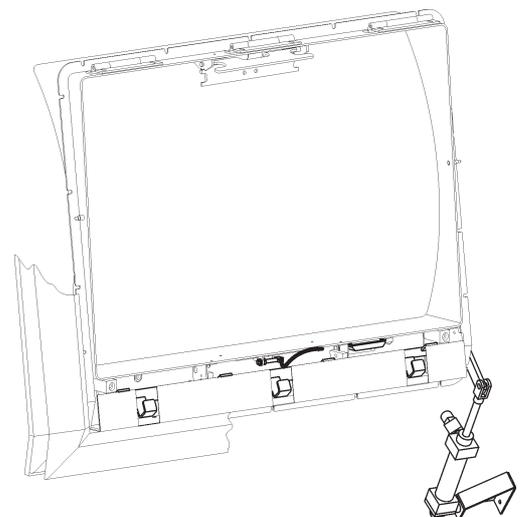
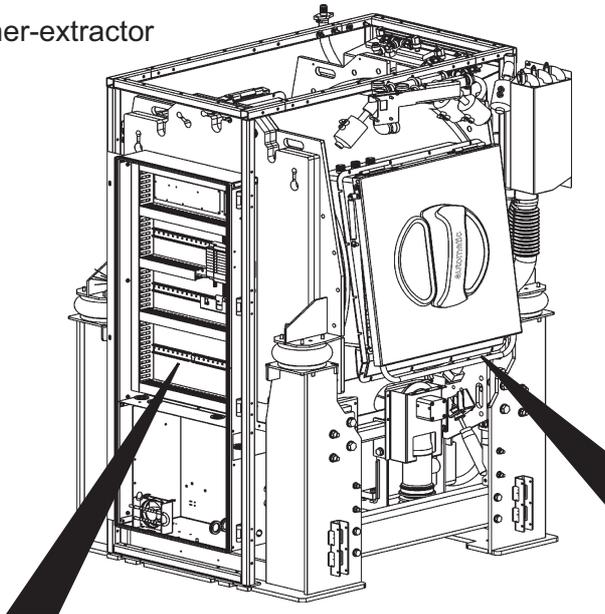
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## Description

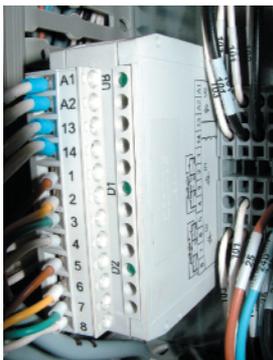
The automatic tank door locking / unlocking system comprises the following elements :

- 1 jack on each side of the machine to lock and unlock the tank doors.
  - V1 : loading side
  - V2 : unloading side
- 2 detectors on each side of the machine, one magnetic and the other inductive to inform the CLARUS TS of the presence of doors in the closed position.
  - Inductive detectors: DP4 : loading side  
and DP5 : unloading side
  - Magnetic detectors (A4\_door safety) : D1 : loading side  
and D2 : unloading side
- 4 air pilot valves, to feed the two jacks, V1 and V2 :
  - D9-D10 : control V1
  - D11-D12 : control V2

Washer-extractor



Door  
Locking / Unlocking



A4\_Door safety

Functioning

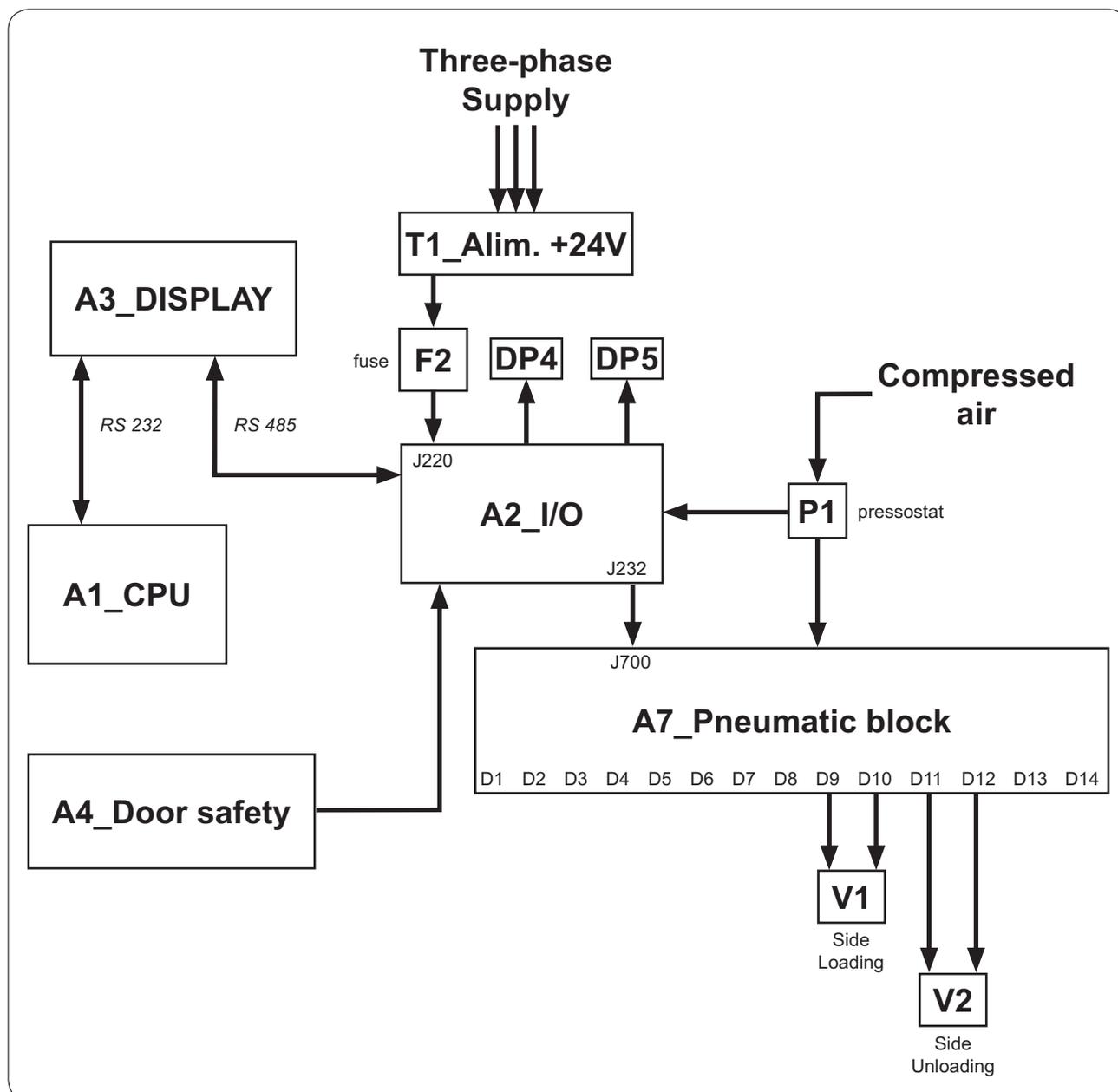
The tank door locking/unlocking system is linked to a magnetic detection (A4\_door safety) and inductive (DP4 and DP5) safety device.

Locking position:

Controlled by the CLARUS TS by means of air pilot valves D9-D10 and D11-D12, jacks V1 and V2 enter to trigger the locking shaft on the tank doors. Locking can only be carried out if the door is closed and DP4 and D1 or DP5 and D2 are activated.

Unlocking position:

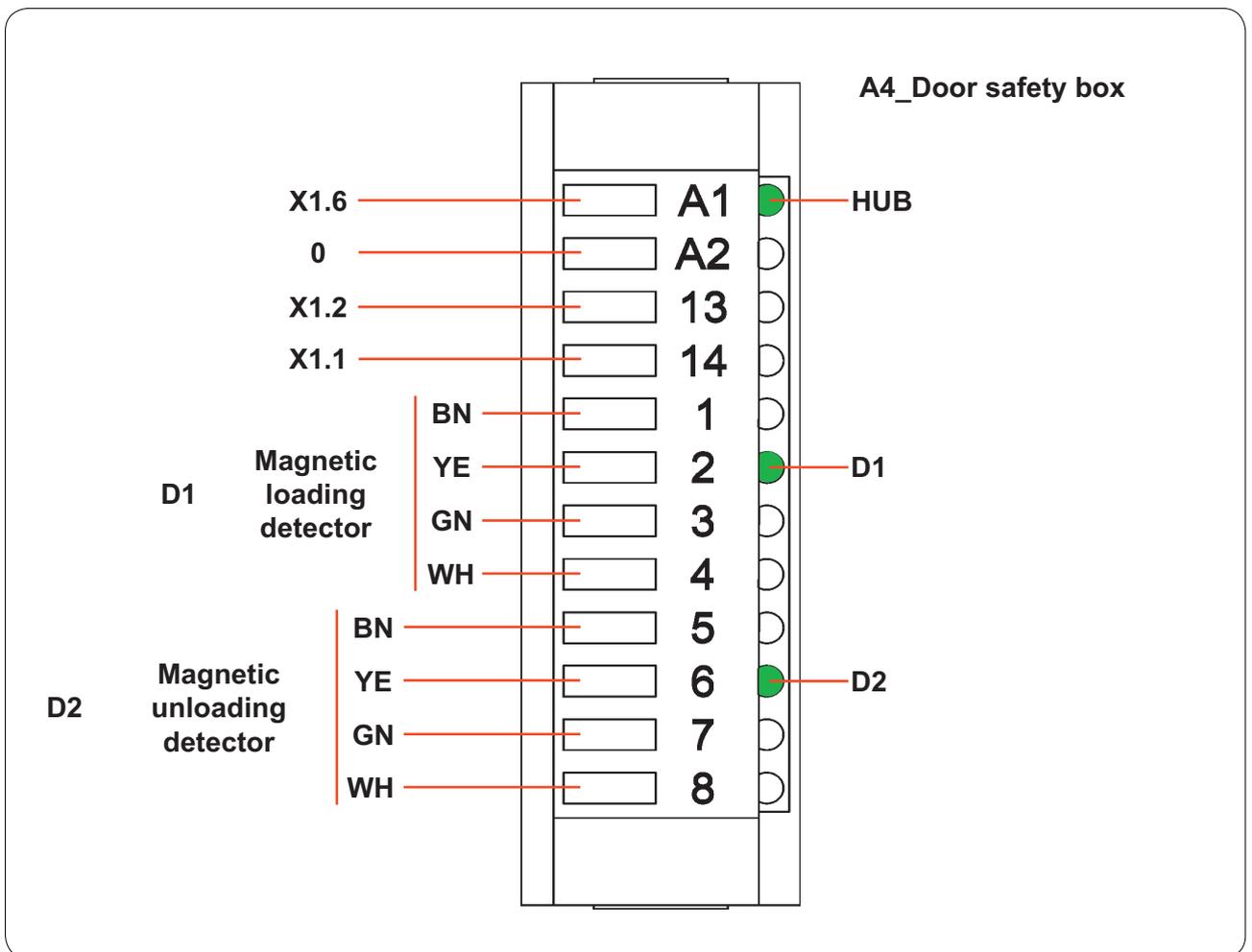
Controlled by the CLARUS TS by means of air pilot valves D9-D10 and D11-D12, jacks V1 and V2 withdraw the locking shaft on the tank doors. Unlocking can only be carried out if the door is closed, detectors DP4 and D1 or DP5 and D2 are activated, the drum is stopped, and there is no remaining water in the drum.



A4\_Door safety

The door safety box ensures the safety of the operator on the level of closing and opening the tank doors of the machine.

By means of magnetic detectors mounted on the level of the door locking, it transmits the “close” or “open” information to the CLARUS TS when the same requests opening or closing of the doors.



Connector	Pin	N°Wire	Designation / Function
A1	1	24B	X1-6 X1_Terminal block
A2	1	0	X1-8 X1_Terminal block

\* 24B = power supply (+24V)

**A4\_Door safety**

Connector	Pin	N°Wire	Designation / Function	
-----------	-----	--------	------------------------	--

D1	1	W401	Brown	Loding side magnetic detector
	2		Yellow	
	3		Green	
	4		White	

D2	5	W402	Brown	Unloding side magnetic detector
	6		Yellow	
	7		Green	
	8		White	

	13	101	X1-2	X1_Terminal block
--	----	-----	------	-------------------

	14	103	X1-1	X1_Terminal block
--	----	-----	------	-------------------

Light	Status	Function
-------	--------	----------

HUB	ON	Drum safety Activated
	OFF	Drum safety Deactivated

D1	ON	Loading side magnetic detector activated
	OFF	Loading side magnetic detector deactivated
D2	ON	Unloading side magnetic detector activated
	OFF	Unloading side magnetic detector deactivated





Can only be executed by a qualified person



## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### The locking / unlocking system is not working or is working incorrectly :

- Check the air pressure ( $\pm 6$  bar) of the machine by means of pressostat P1.
- Check the functioning of DP4 inductive detectors , DP5 and magnetic detectors D1 and D2.
- Check the functioning of A4 safety door by means of its indicators.
- Check the status of indicators D9, D10, D11 and D12 of the A2\_I/O card (see chapter 22\_ page16)
- Check the functioning of V1 and/or V2 jack by manually activating air pilot valves D9-D10 and/or D11/D12.

### Replacement of detectors

1. Stop the machine electrical feed by turning the main switch to position 0.
2. Remove the second from bottom panel of the machine and the protective housing.
3. Dismantle and disconnect the defective detector and replace it with a new one.
4. Reassemble the parts in reverse order

### Replacement of A4\_door safety box

1. Stop the machine electrical feed by turning the main switch to position 0.
2. Remove the machine electrical cabinet side panel.
3. Disconnect the wiring from the box.
4. Dismantle the defective box and replace it with a new one.
5. Reconnect the wiring and reassemble the panel.

## Repair

Replacement of the air pilot valve

(See *chapter 26*)

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## 28. Drum indexing / de-indexing system

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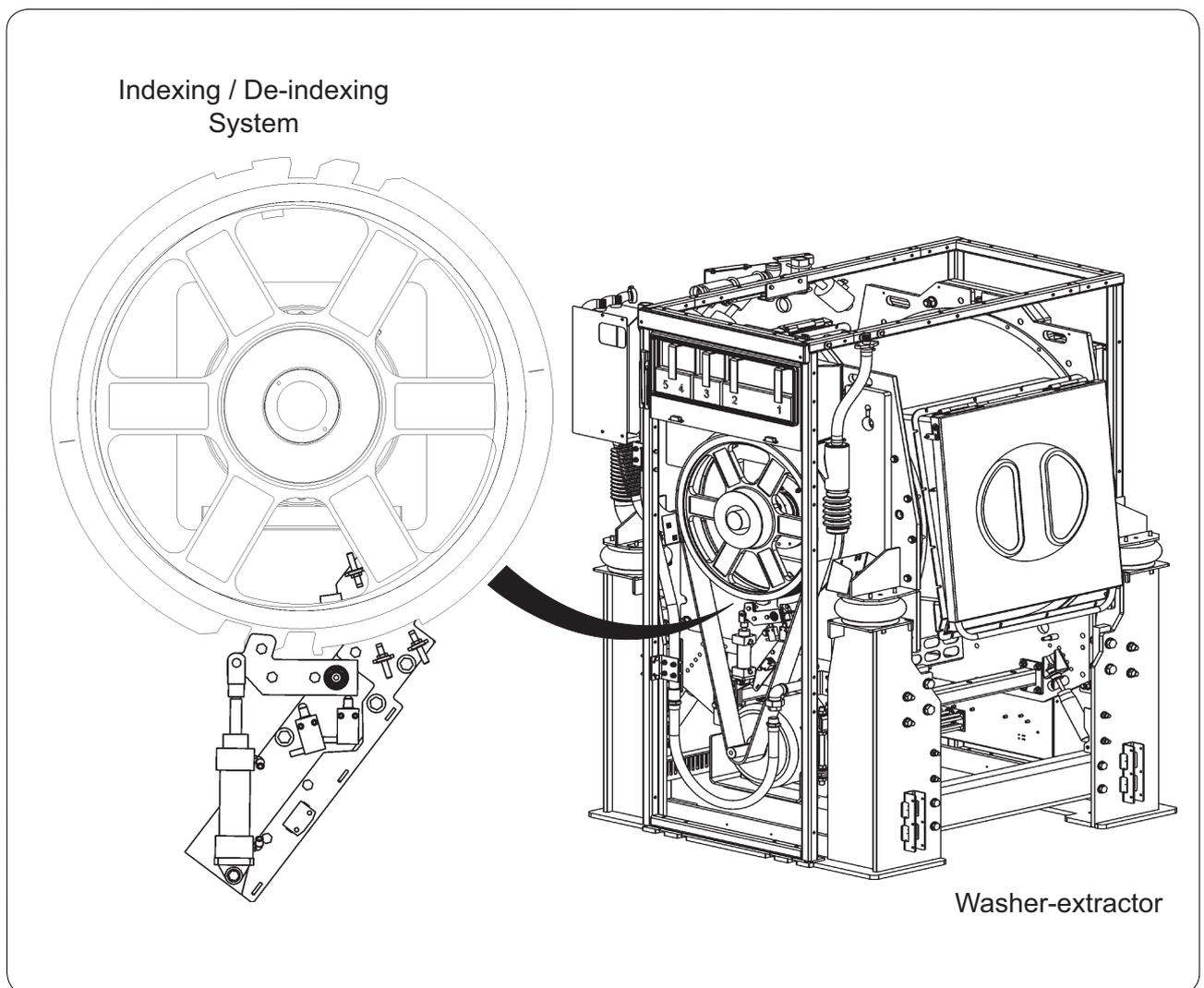
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## Description

Mounted under the drum pulley of the machine, the indexing / de-indexing system of the drum is accessible by removing the side panel (motion side) of the machine.

The indexing / de-indexing system of the drum comprises the following elements :

- 1 jack (V3) to block the drum in the event of an indexing request by the CLARUS TS.
- 2 ends of run (FC1 and FC2) to inform the CLARUS TS of the position of the indexing or de-indexing level.
- 3 inductive detectors (DP1, DP2 and DP3) to detect the moment where the indexing lever has activated.
- 2 air pilot valves (D3 and D4) to control the V3 jack.



Functioning

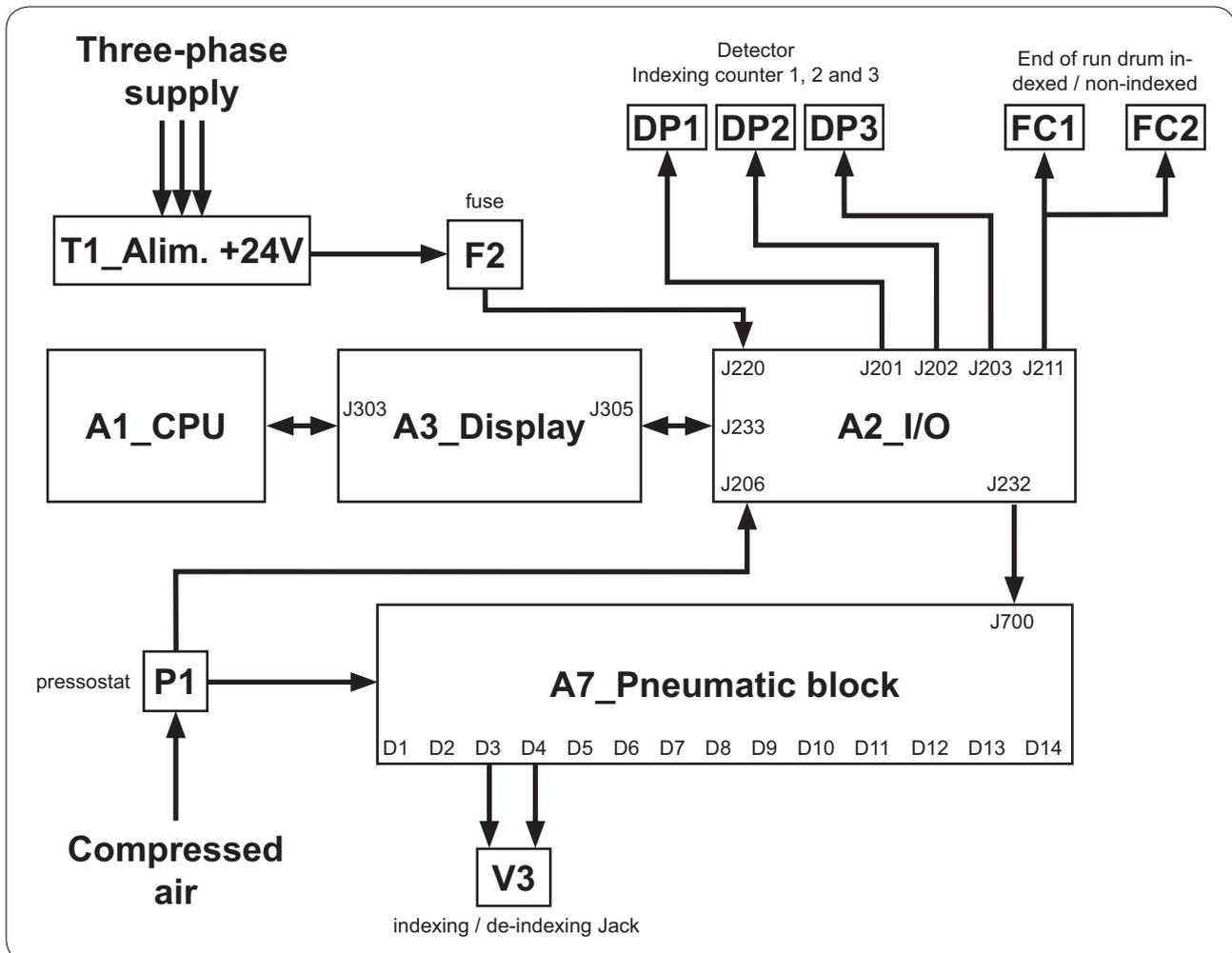
The indexing and de-indexing of the drum are carried out using DP1, DP2, DP3 inductive detectors, which indicate the positioning of the drum, and the FC1 and FC2 end of course which detect the position of the arm of indexing.

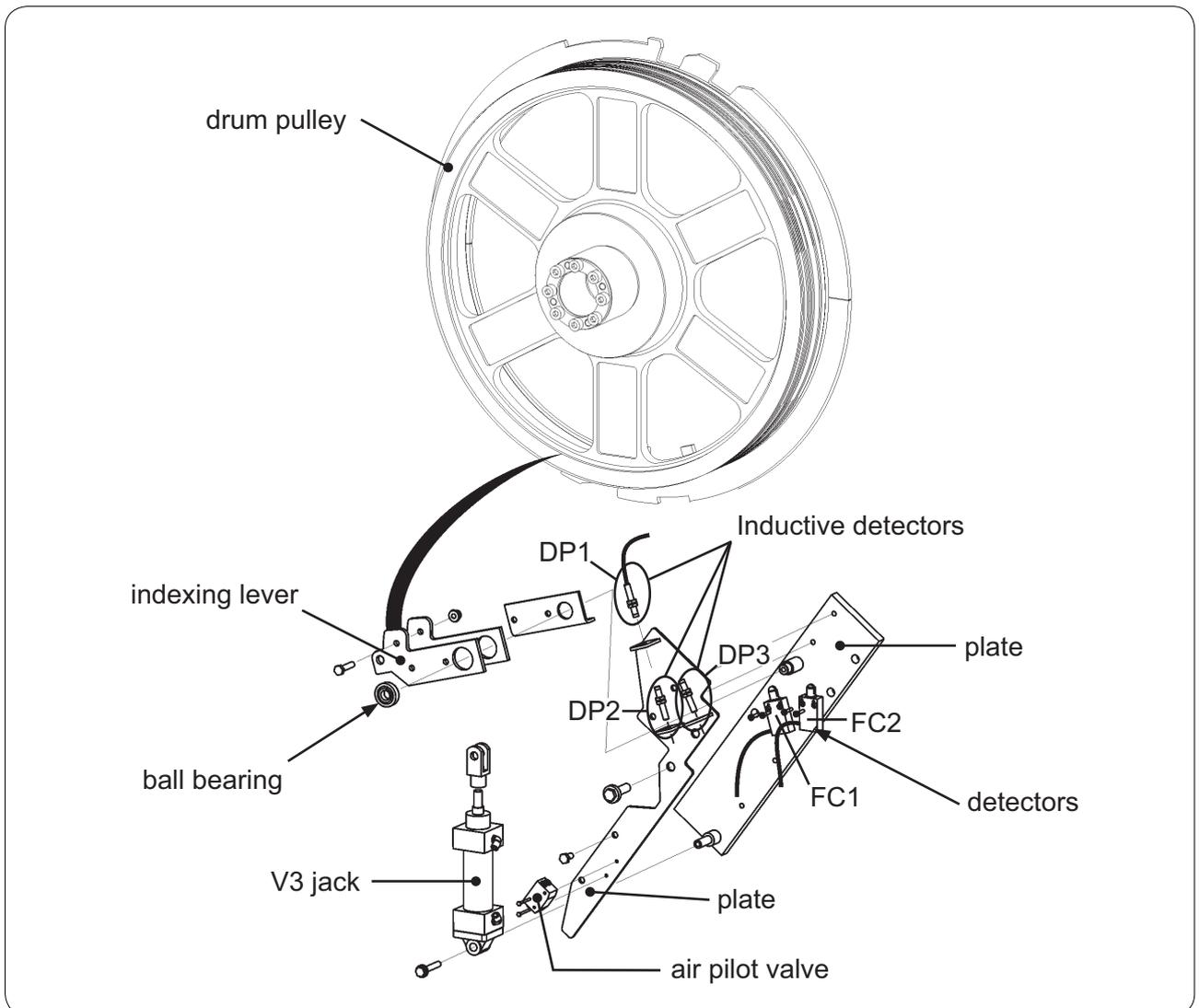
States of the DP1, DP2 and DP3 inductive detectors according to the position of the compartment of the drum :

	Loading side		Unloading side	
	compartment 1	compartment 2	compartment 1	compartment 2
DP1	1	1	1	1
DP2	0	1	1	0
DP3	0	0	1	1

States the end of course FC1 and FC2 according the position of the arm of indexing :

	indexing	de-indexing
FC1	off	on
FC2	on	off





Can only be executed by a qualified person



## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### The indexing or de-indexing is not working or is working incorrectly :

- Check the functioning of the DP1, DP2, DP3 detectors by activating them manually.
- Check the functioning of the FC1 and FC2 ends of run by activating them manually.
- Check the functioning of the V3 jack by manually actionning air pilot valves D3-D4.
- Check the air pressure ( $\pm 6$  bar) of the machine using the P1 pressostat.

## Repair

**The indexing or de-indexing is not working or is working incorrectly (next) :**

- Check the distribution of the laundry in the drum.
- Check the status of the D3, D4, DP2, DP2, DP3 and FC2 indicators of the A2\_I/O card (see Chapter 22\_ page16).

### Replacement of the detectors and end of run

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the bottom left hand panel of the machine.
3. Disconnect the cabling from the defective detector or end of run of the A2\_I/O card.
4. Dismantle the defective detector or end of run from its support and replace it with a new one.
5. Reassemble the parts in reverse order

### Replacement of jack

1. Cut the electrical feed by turning the main switch to position 0 and the feed to compressed air from the machine.
2. Remove the bottom left hand panel of the machine.
3. Disconnect the compressed air feed cable.
4. Dismantle the defective jack from the indexing lever and the plate.
5. Replace the defective jack with a new one.
6. Reassemble the parts in reverse order

### Replacement of the air pilot valve

(See *chapter 26*)

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## 29. Motor

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**Description**

**Motor**

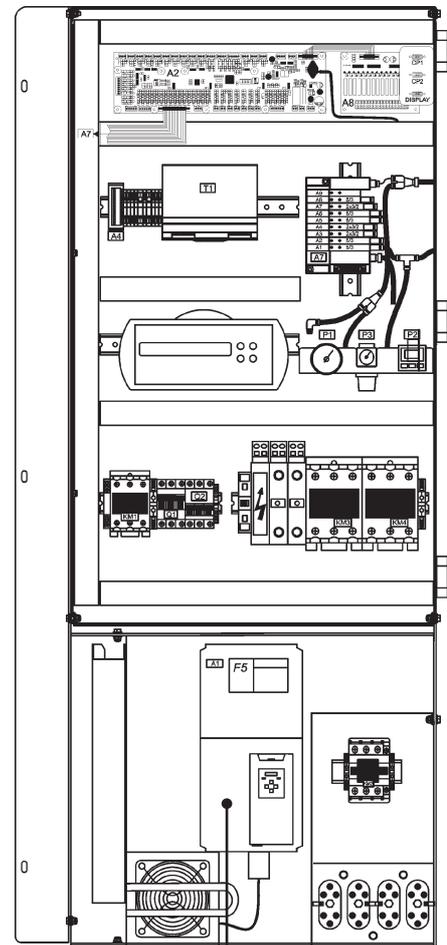
Mounted on a support located under the machine, the motor drives the drum by means of a belt.

The motor is on variable frequency controlled by a frequency dimmer (A6\_frequency dimmer). The different speeds in normal mode, the distribution and spin speeds and the acceleration and deceleration can be controlled with very great precision.

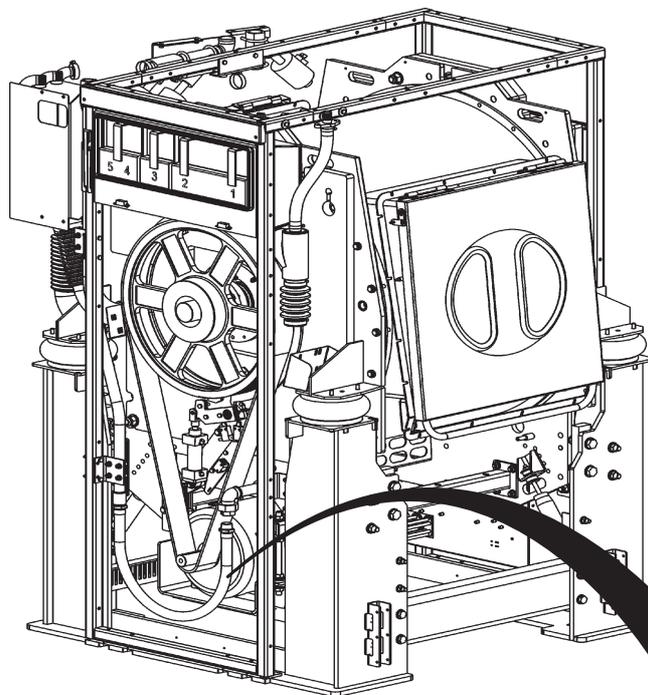
**Motor control**

The motor is controlled by an A6 frequency dimmer, which is mounted in the machine electrical cabinet and can be accessed by removing the side panel (electric cabinet side).

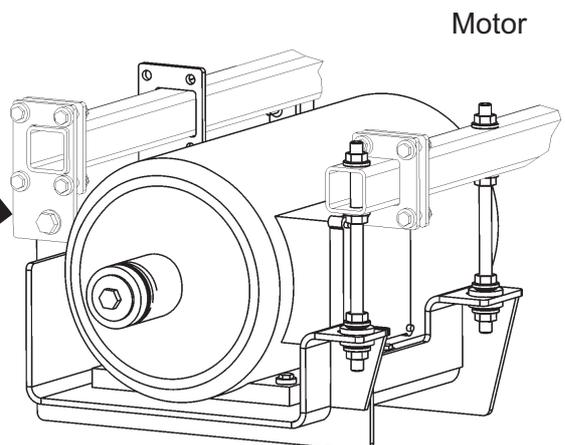
**Electric cabinet**



**A6\_frequency dimmer**



**Washer-extractor**



**Motor**



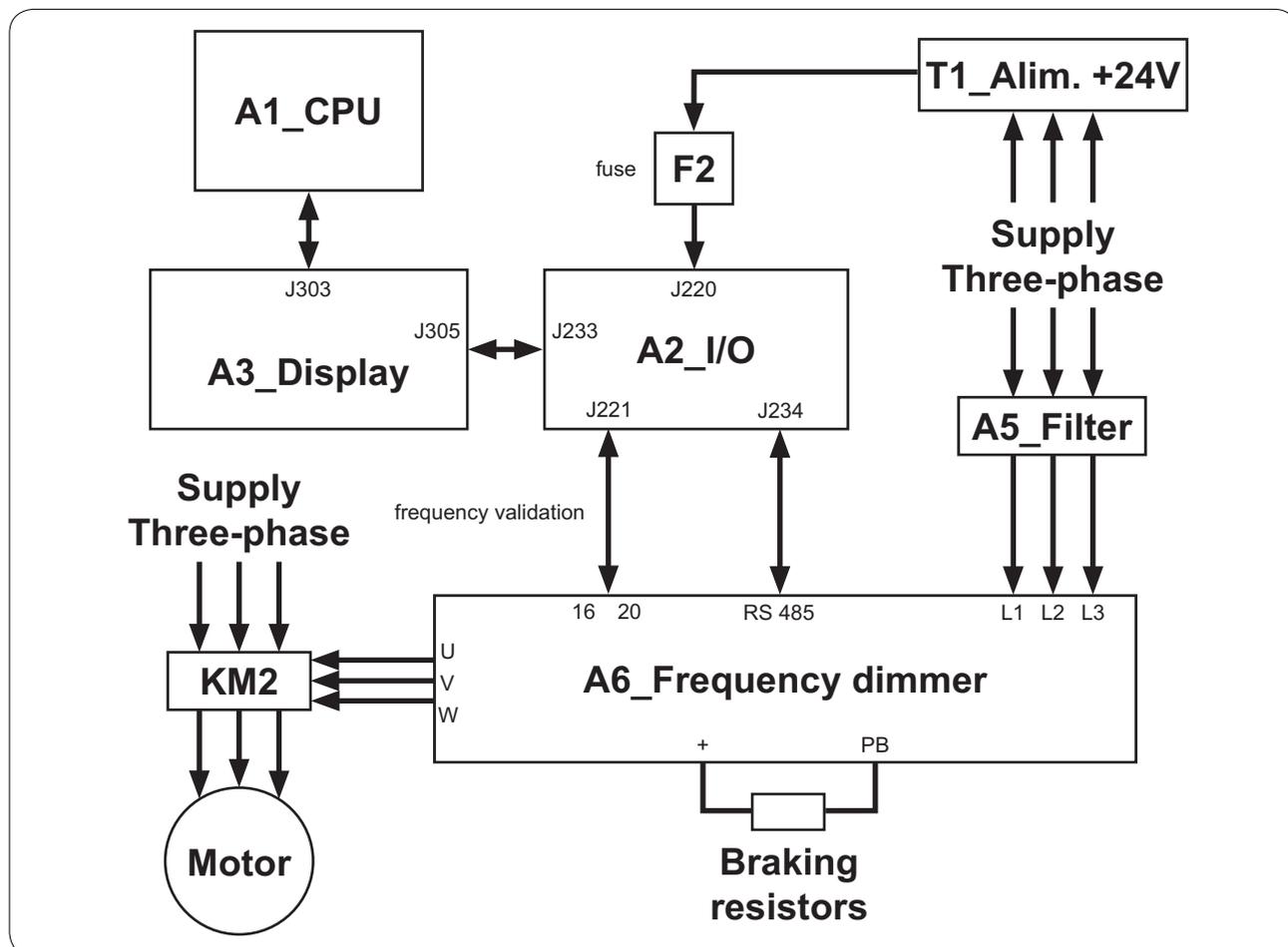
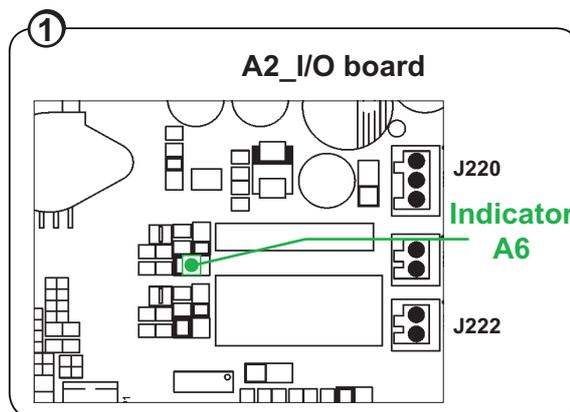
**WARNING**

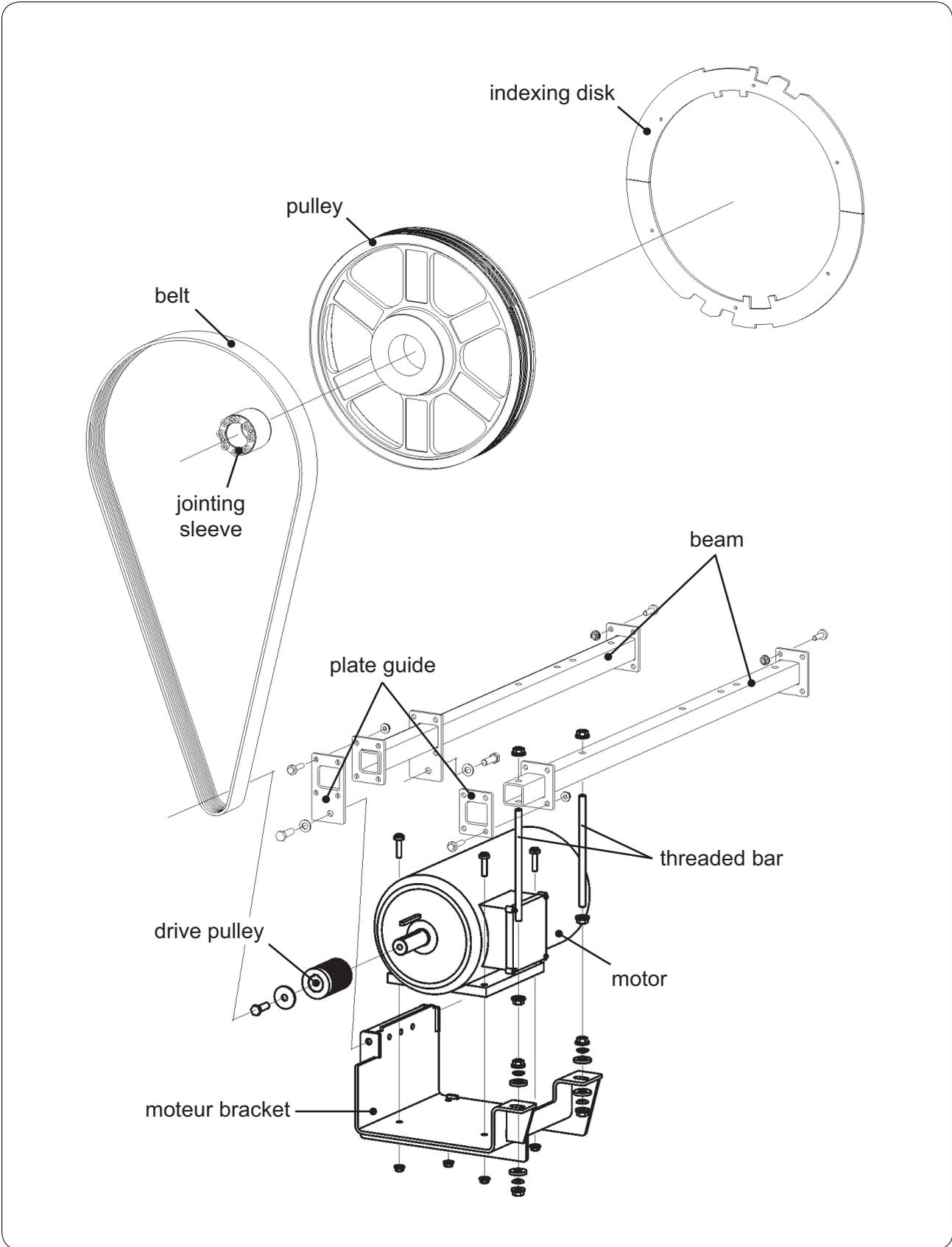


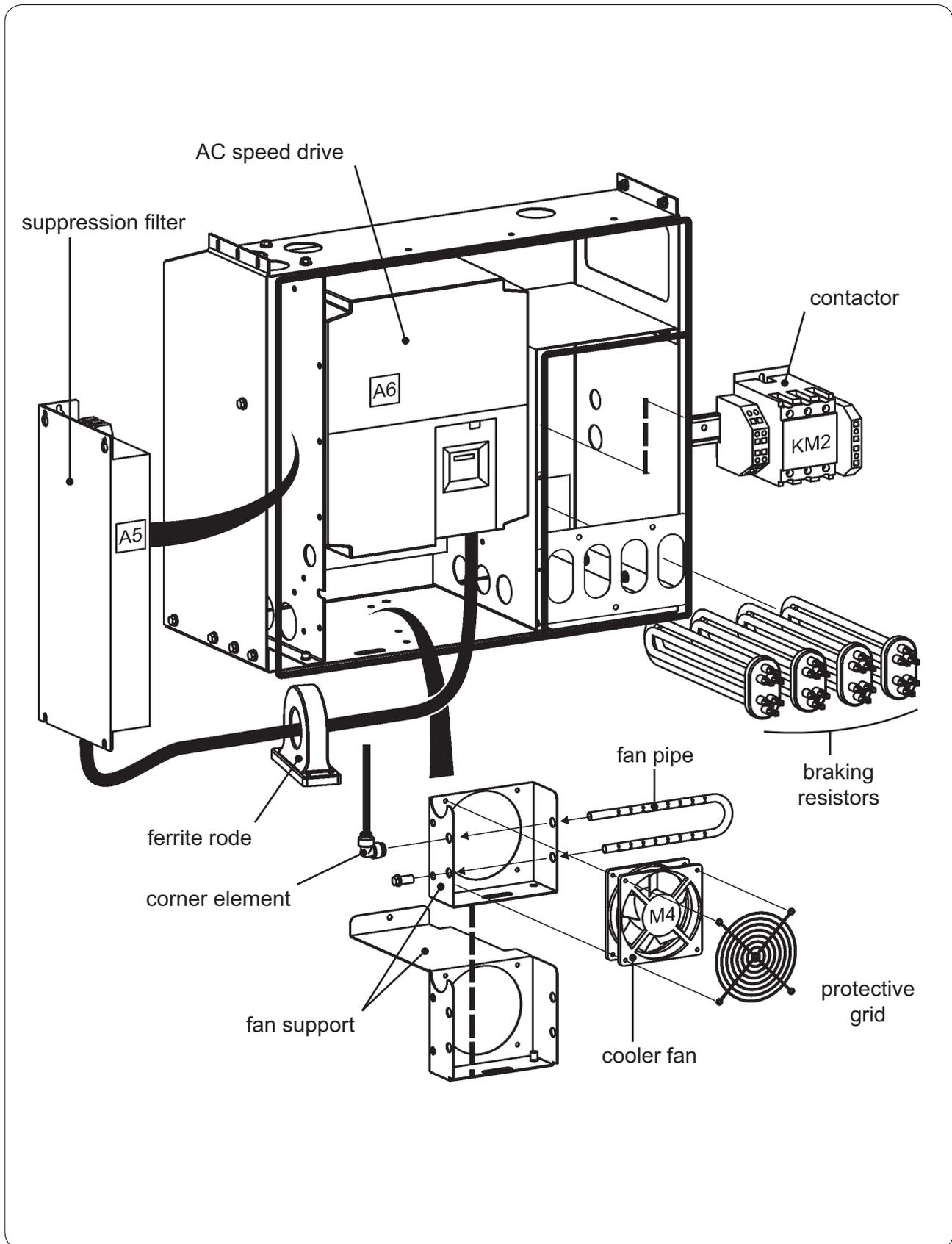
Take all precautions in the event of measures on the electrical components of the motor unit. All the components have a potential difference of around 300V relative to the protective earth wire and the neutral wire. When green LED A6 (fig.1) on the A2\_I/O card is on, the voltage of the components is at a dangerous level. The frequency dimmer loses its entire voltage around 10 to 30 seconds after the voltage is cut and the motor stopped.

**Functioning**

The A6 frequency dimmer communicates with the A1\_CPU card by the intermediary of the A2\_I/O card. By means of the A6 frequency dimmer, the A1\_CPU card can control not only the speed of the motor at a given moment, but also its acceleration and its deceleration with great precision, in order to achieve the desired speed. The frequency dimmer is constantly responding by providing information concerning the current functioning to the A1\_CPU card and transmitting reports in the case of errors.









Can only be executed by a qualified person

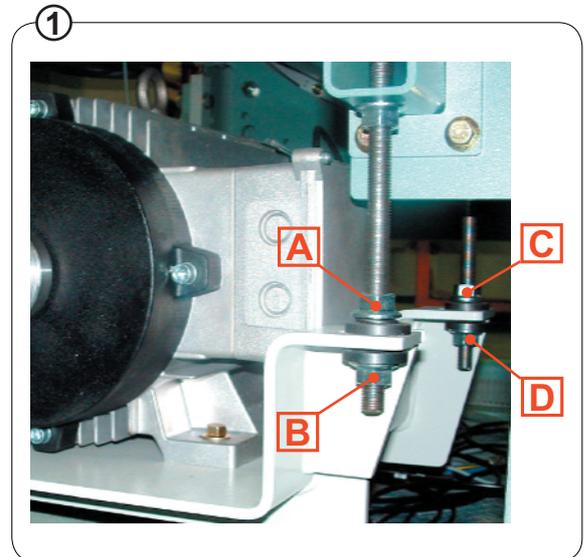


## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

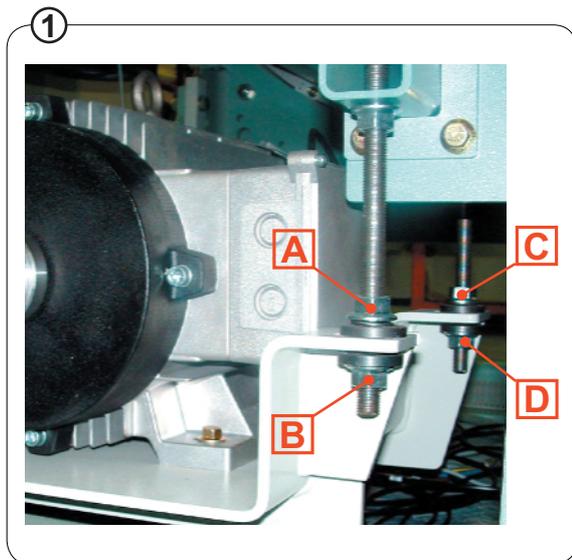
### Replacement of the motor

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the bottom left hand panel and the bottom front panel from the machine.
3. Disconnect the earth and the feed cable from the motor.
4. Release the transmission belt by undoing nuts A, B, C and D. (fig.1)
5. Remove the transmission belt by pulling it towards you whilst turning the drum manually.
6. Adjust nuts A, B, C and D such that the motor is as accessible as possible. (fig.1)
7. Dismantle the motor from its support and carry out the same steps in the reverse order with the new motor.
8. Adjust the belt to 50 Hz using a tensiometer, in accordance with paragraph "belt tension" on the next page.



### Replacement of the transmission belt

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the bottom left hand panel from the machine.
3. Release the transmission belt by undoing nuts A, B, C and D. (fig.1)
4. Remove the transmission belt by pulling it towards you whilst turning the drum manually.
5. Insert the new transmission belt.
6. Adjust the belt to 50 Hz using a tensiometer, in accordance with paragraph "belt tension" below.

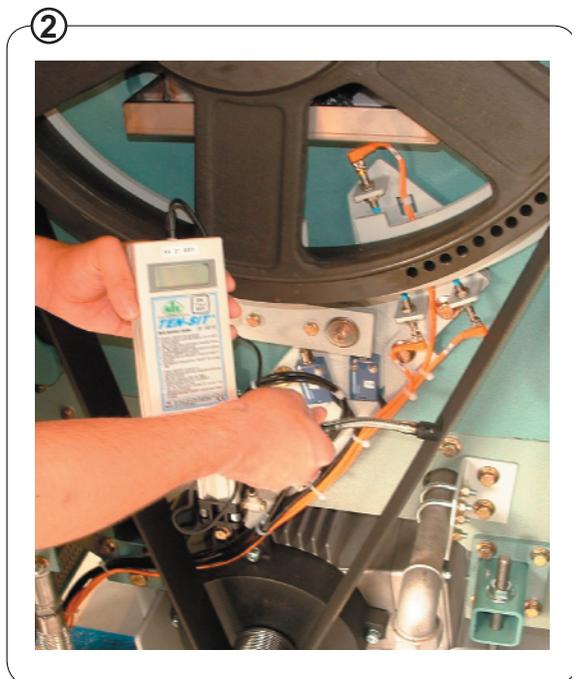


### Belt tension

The belt tension on new machines is pre-adjusted in the factory.

To check the belt tension or to adjust after a belt replacement, follow the following instructions :

1. Gently tighten the belt using nuts A, B, C and D, then turn the drum 6 times. The belt is now correctly in position.
2. Progressively tighten the belt to an installation tension of 50 Hz, checked by means of a tensiometer (fig.2). These phases must be completed quickly.
3. Rotate the drum again 6 times, recheck and retighten if necessary to 50 Hz. Once the belt is tightened to 50 Hz,
4. Tighten nuts A, B, C and D (fig.1).
5. Start a wash program with a nominal load for 20 min.
6. Recheck and retighten to 50 Hz if necessary.



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## 30. Detergent container

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## Description

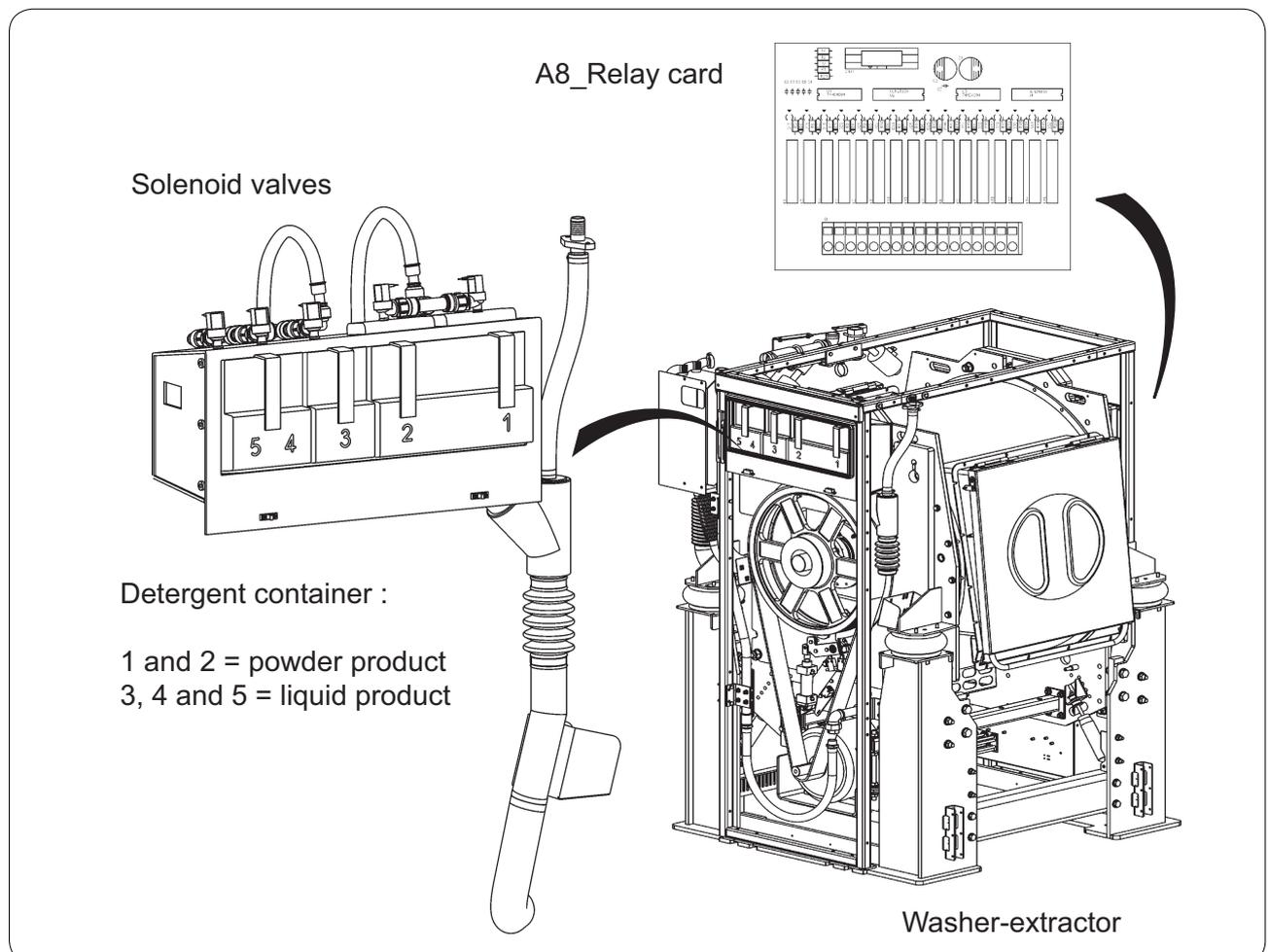
### Detergent container

Mounted on the left hand side (movement side) of the machine, the detergent container has 5 compartments. The filling of the compartments with water is carried out by means of the EY1, EY2, EY3 and EY4 solenoid valves. These solenoid valves are fitted on the detergent container and can be accessed by removing the top panel from the machine. A separate cleaning function connected to the cold water (water rinsing) is also available for all the compartments of the washing product distributor. The cleaning may be less effective if the water pressure is weak (less than 1 bar). In this case, the rinsing time is increased in order to obtain an optimum result.

### A8\_Relay card

The A8\_Relay card is fitted in the electrical cabinet of the machine and can be accessed by removing the side panel (electric cabinet side). It can control up to 16 auxiliary inputs such as a washing product distributor.

Note that the A8\_Relay card contains no disconnecting components. If one of the components has to be replaced, a standard exchange of the A8\_Relay card must be carried out.



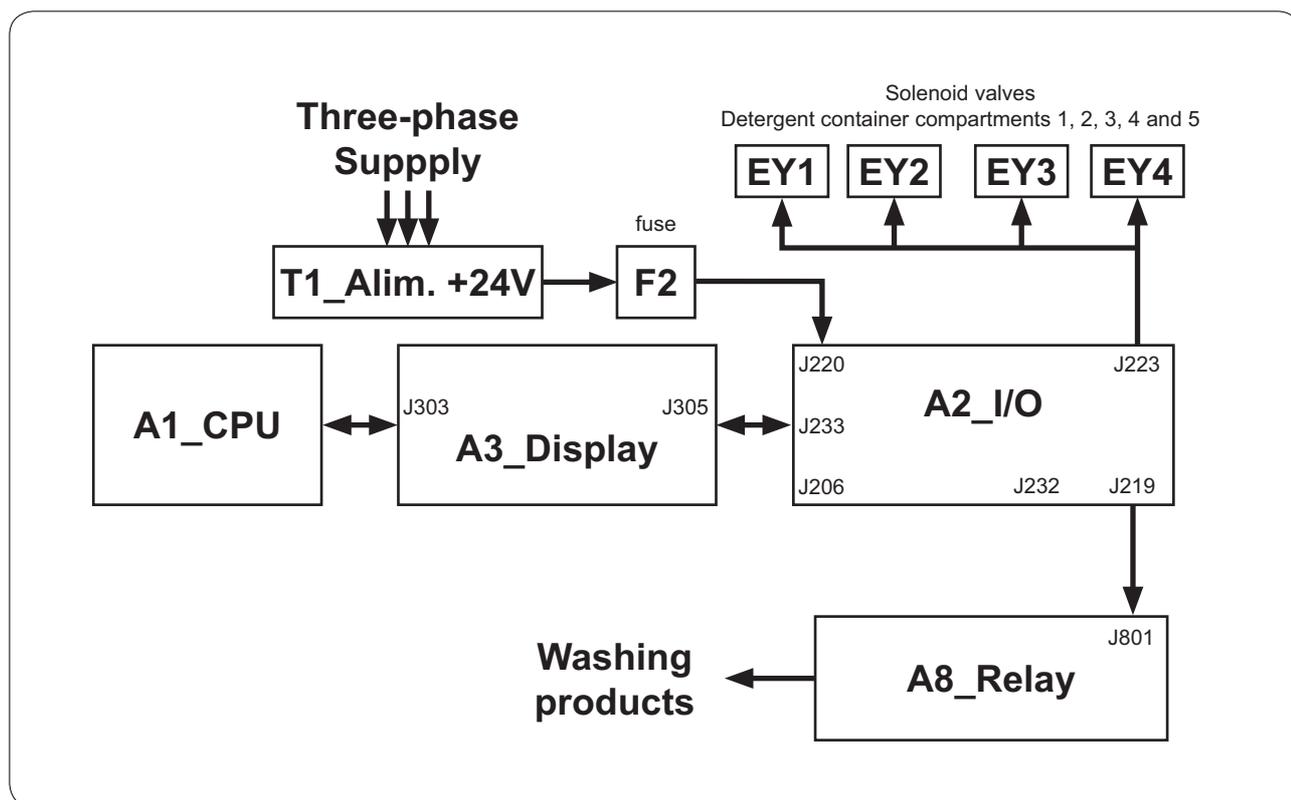
Functioning

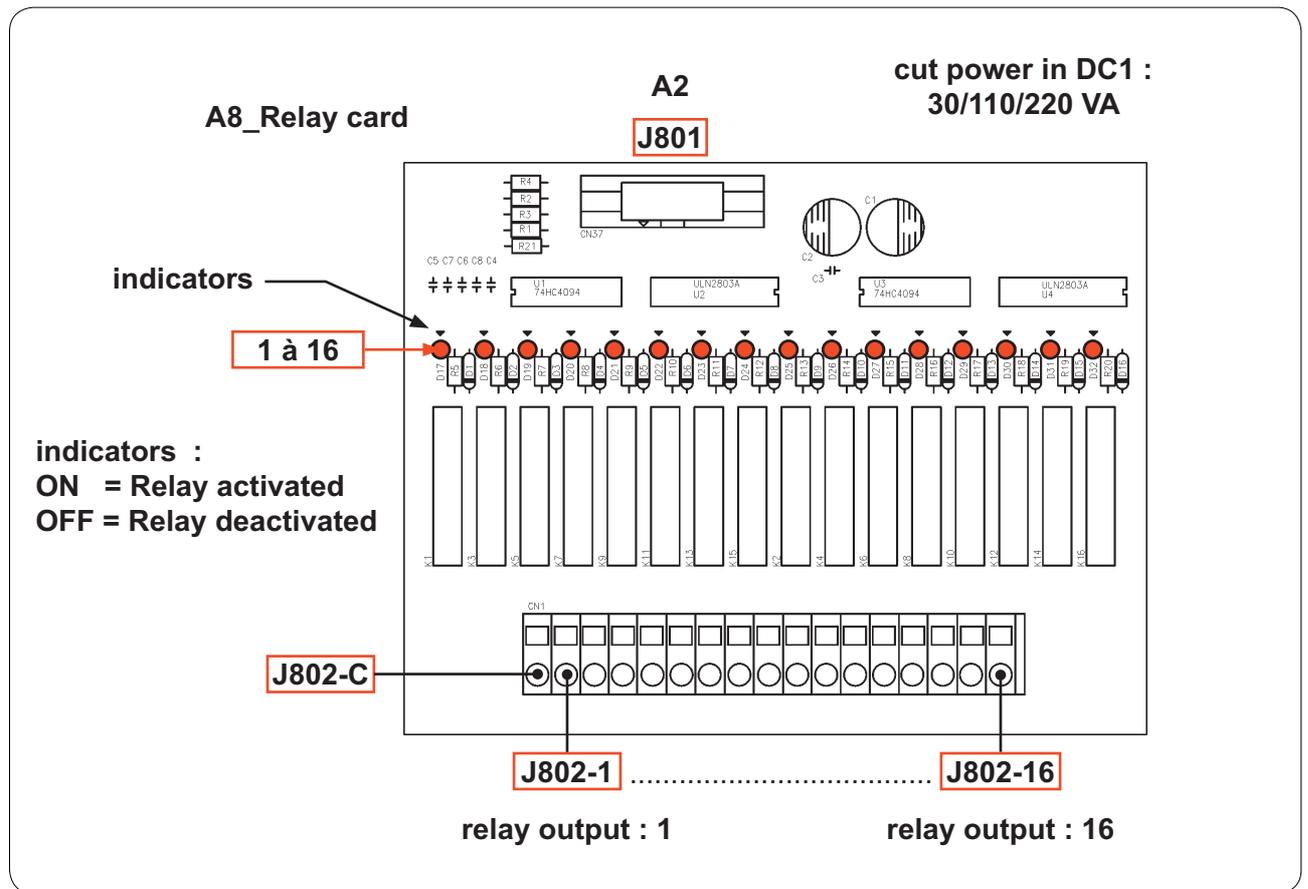
Detergent container

Activated by the CLARUS TS, by means of the A2\_I/O card terminal J223, the EY1, EY2, EY3 and EY4 solenoid valves allow to fill the detergent container compartments with water.

A8\_Relay card

Controlled by the CLARUS TS, by means of the A2\_I/O card terminal J219, the A8\_Relay card, with indicators showing the status of each relay, allows the control of up to 16 auxiliary inputs with a cut power in DC1 of 30/110/220 VA.

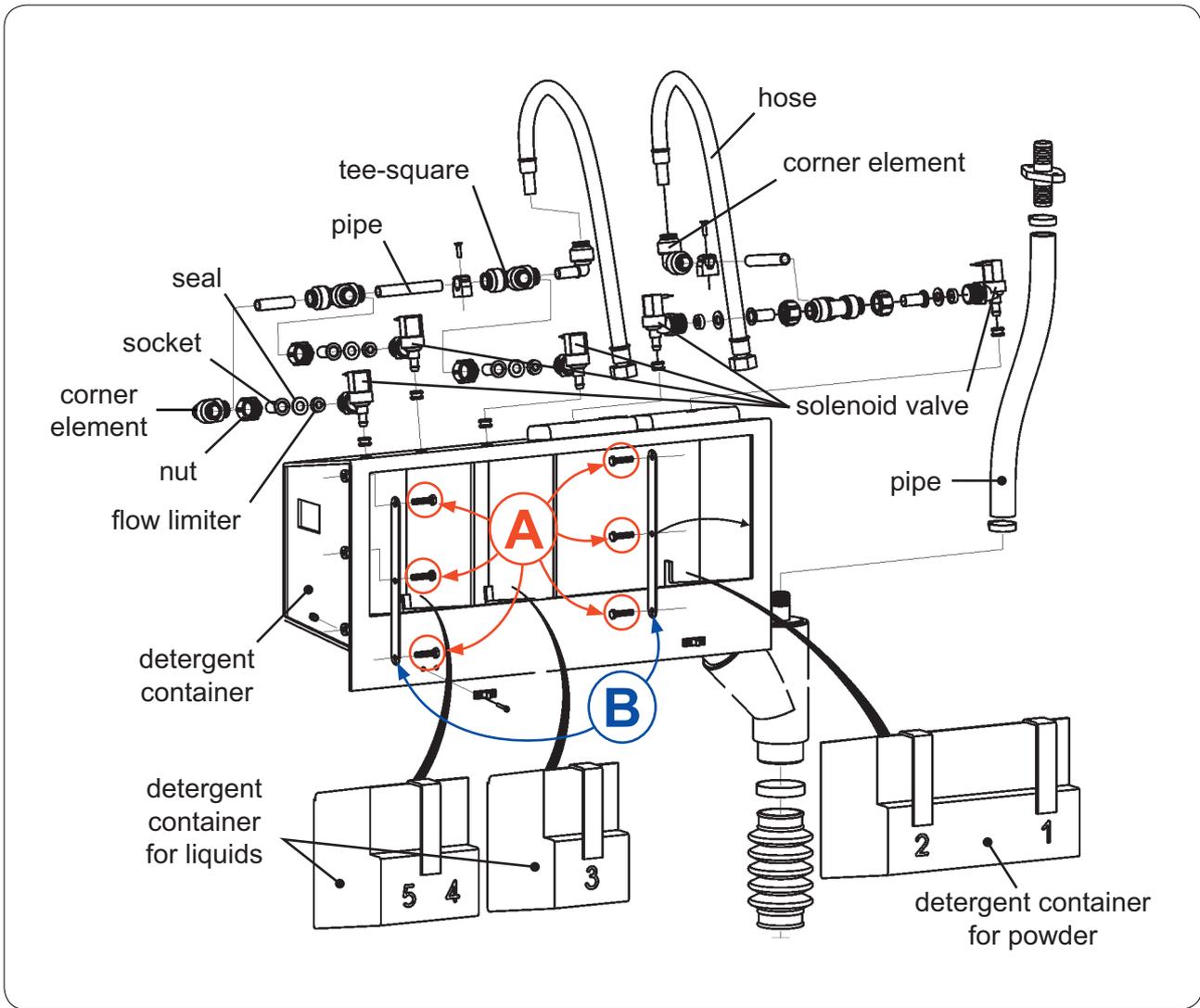




Connector	Pin	Wire n°	Designation / Function
-----------	-----	---------	------------------------

J801	1	J219	A2_I/O
------	---	------	--------

J802	C		
	1		Liquid 1_liquid product relay output
	2		Liquid 2_liquid product relay output
	3		Liquid 3_liquid product relay output
	4		Liquid 4_liquid product relay output
	5		Liquid 5_liquid product relay output
	6		Liquid 6_liquid product relay output
	7		Liquid 7_liquid product relay output
	8		Liquid 8_liquid product relay output
	9		Liquid 9_liquid product relay output
	10		Liquid 10_liquid product relay output
	11		Liquid 11_liquid product relay output
	12		Liquid 12_liquid product relay output
	13		Liquid 13_liquid product relay output
	14		Liquid 14_liquid product relay output
	15		Liquid 15_liquid product relay output
16		Liquid 16_liquid product relay output	




 Do not open the cover when the water valves are rinsing the detergent distributors with water. Take care when adding washing products. The powder or liquids left in the compartments may be corrosive.
 


 Can only be executed by a qualified person
 

## **Repair**

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### **The machine water filling is not working or is working incorrectly :**

- Check the hose from level pressure pressostat B201.
- Check the status of indicators D5 and D6 of the A2\_I/O card (see Chapter 22 page16).
- Check the status of water solenoid valves EV1 and EV2 by manually activating air pilot valves D5 and D6.

### **Replacement of the detergent container**

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Cut the machine water feed.
3. Disconnect the water inlets.
4. Remove the pots from the detergent container.
5. Unscrew the 6 screws 'A' and remove the 2 struts 'B' (see previous page).
6. Take out the detergent container and replace it with a new one.
7. Reassemble the parts in reverse order

### **Replacement of the solenoid valves**

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Cut the machine water feed.
3. Remove the top panel from the machine above the door (unloading side).
4. Disconnect the wires of the defective solenoid valve.
5. Dismantle the defective solenoid valve and replace it with a new one.
6. Reassemble the parts in reverse order.

---

## Repair

### Replacement of the A8\_Relay card

The A8\_Relay card contains no disconnecting components. If one of the components has to be replaced, a standard change of the card must be carried out.

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the right panel from the machine (electric cabinet side).
3. Disconnect the wires of the defective card.
4. Unscrew the nuts at each end of the card.
5. Dismantle the defective card valve and replace it with a new one.
6. Reassemble the parts in reverse order.

### Replacement of the air pilot valve

(see Chapitre 26)

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## 31. Waters inlet

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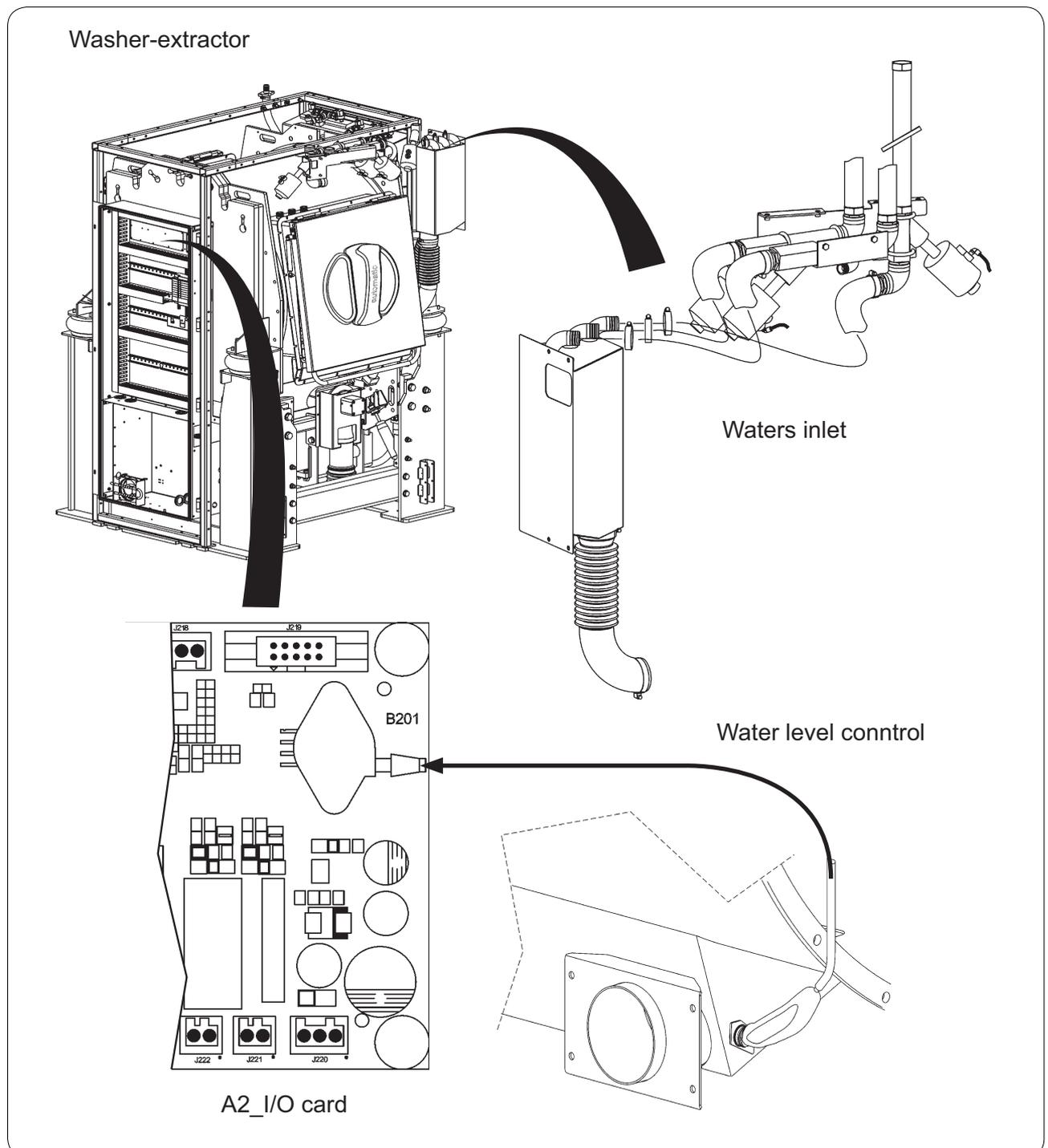
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## Description

The water supply of the machine is carry out by the EV1 and EV2 pneumatic valves wich are accessible by removing the top panel of the unloading door.

This system comprises the following elements :

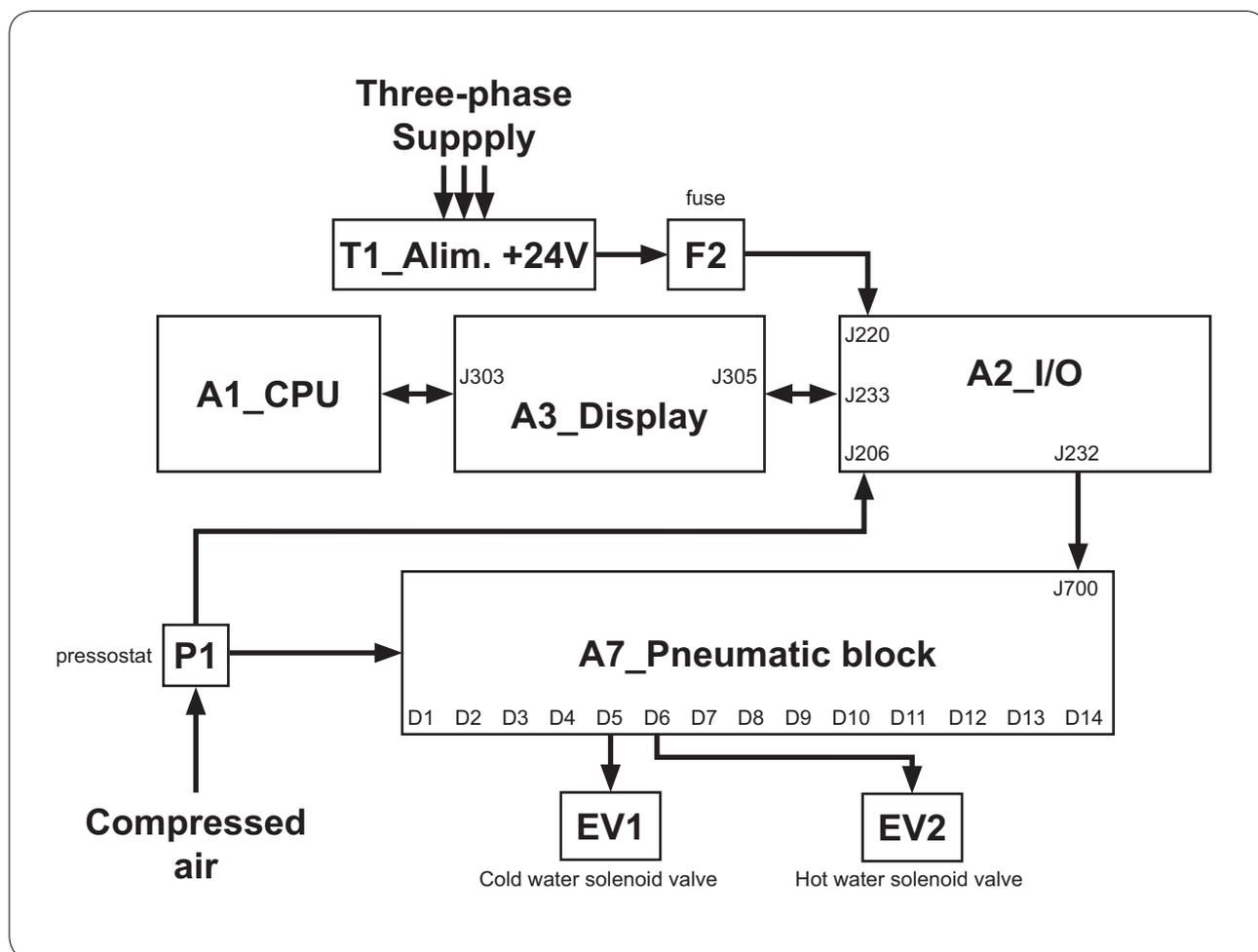
- 2 pneumatic valves «cold water» (EV1) and «hot water» (EV2) to supply the machine with cold and hot water. And a third pneumatic valve for soft water (EV3) is also available in option.
- 1 pressostat (B201, fixed on the A2\_I/O card) to control the water level of the basin.

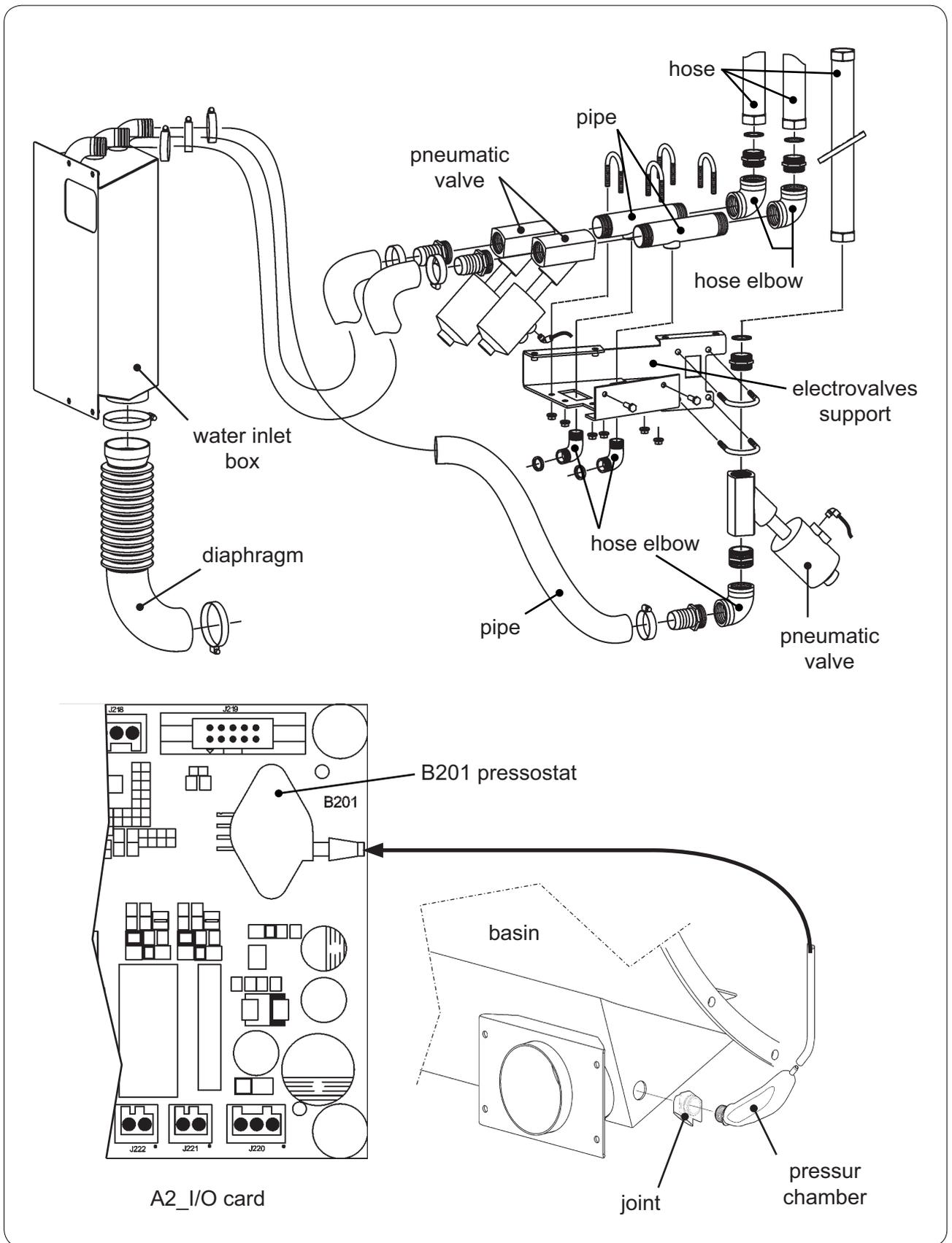


Functioning

Controlled by the CLARUS TS, by means of distributors D5 and D6 of A7\_Pneumatic block, the EV1 and EV2 solenoid valves allow to fill the machine with water in accordance with the level required for correct functioning of the wash program selected by the operator.

Using the B201 pressostat, the CLARUS TS can check the level of water in the basin and stop the water supply.





Can only be executed by a qualified person



## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### The machine water filling is not working or is working incorrectly :

- Check the hose from level pressure pressostat B201.
- Check that the pressure chamber from level pressure pressostat B201 isn't blocked by fibre or other.
- Check the machine air pressure ( $\pm 6$  bar) using pressostat P1.
- Check the status of water solenoid valves EV1 and EV2 by manually activating air pilot valves D5 and D6.
- Check the status of indicators D5 and D6 of the A2\_I/O card (see Chapter 22 page 16)

### Replacement of the pneumatic valve

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Cut the machine water feed
3. Remove the top panel from the machine above the door (loading side).
4. Disconnect the wires of the defective pneumatic valve.
5. Dismantle the defective pneumatic valve and replace it with a new one.
6. Reassemble the parts in reverse order.

### Replacement of the air pilot valve

(see Chapitre 26)

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## 32. Out of balance switch

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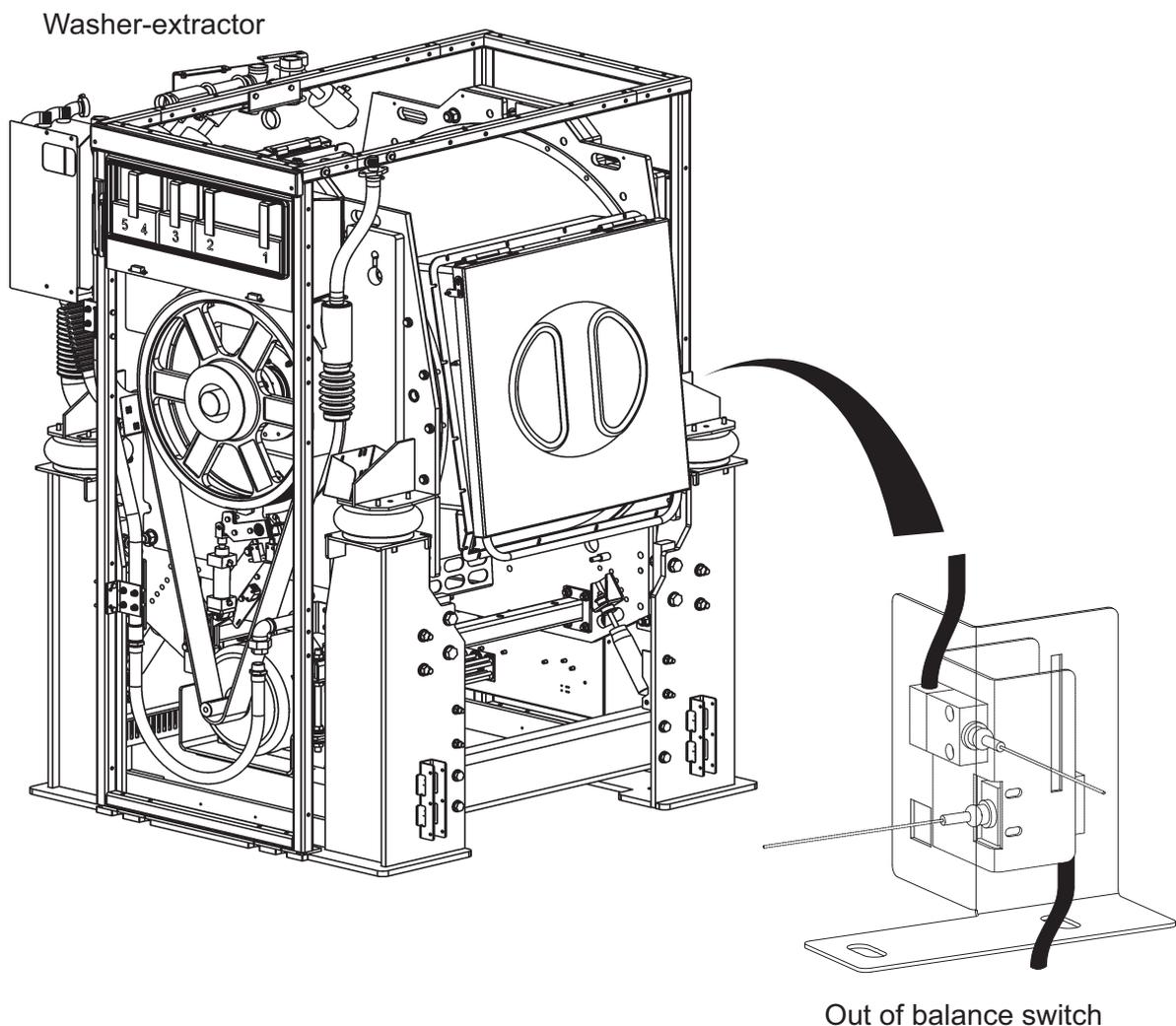
## Description

The out of balance switch allows the protection of the machine against any deterioration that may occur during the spin phase of the machine, due to a laundry load imbalance in the drum.

Fixed on the frame of the machine the switches and the unbalance detector are accessed by removing the side panel (electric cabinet side) of the machine.

This safety comprises the following elements :

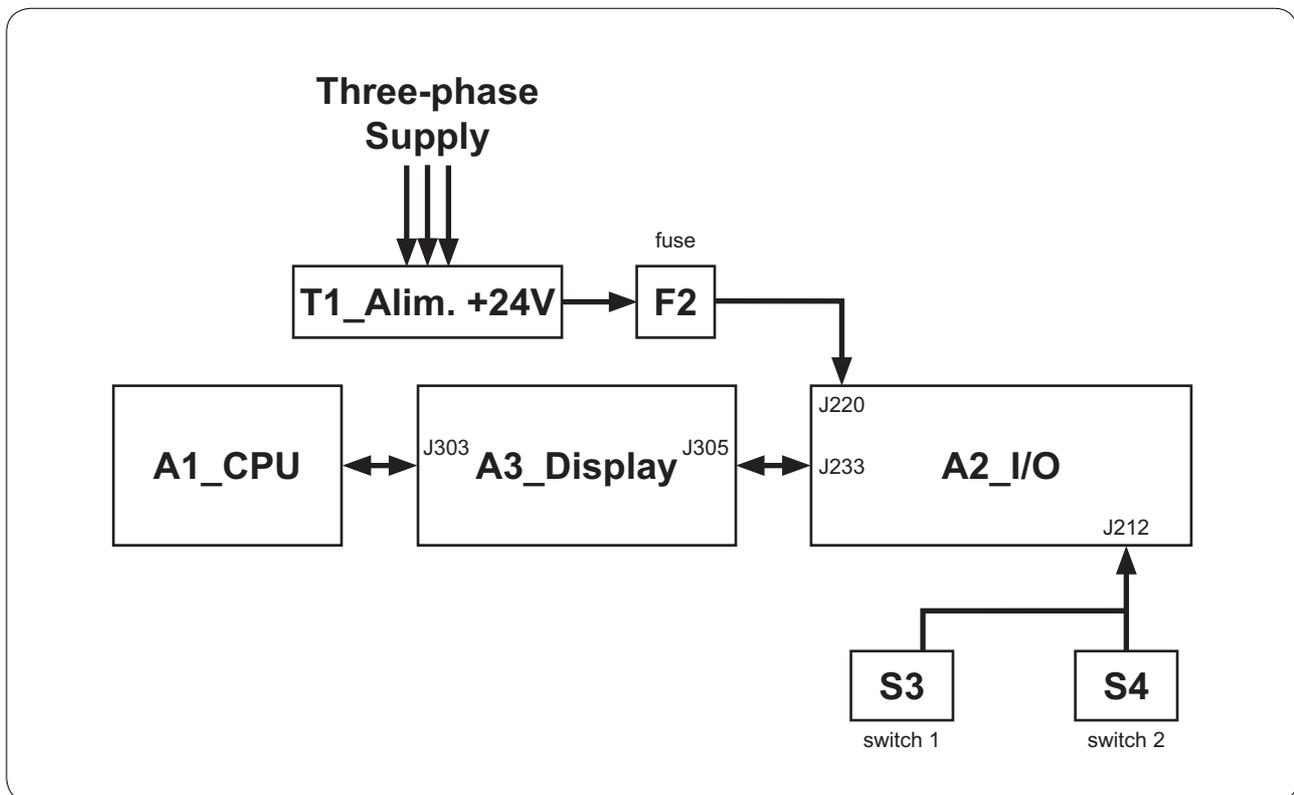
- 2 switches (S3 et S4) to inform the Clarus TS that the machine is out of balance.
- 1 unbalance detector to define the out of balance zone.
- 1 support to fix the two switches.



**Functioning**

If the out of balance switch detect the slightest imbalance in the laundry load, the extraction is interrupted and the machine fills with water to allow redistribution of the laundry.

Then the machine restarts the distribution speed and a new extraction cycle starts.





Can only be executed by a qualified person

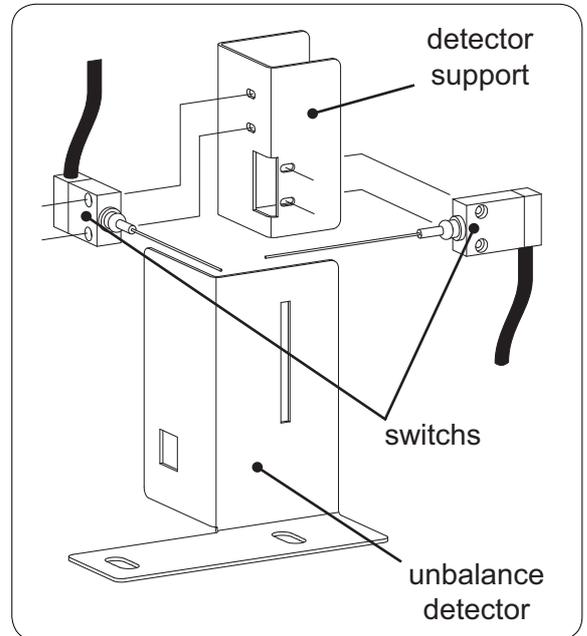


## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### If the switch is triggered several times consecutively :

- Check the laundry loads and remove if necessary.
- Check the adjustment and the status of the switches.
- Check the water level in the basin and drain if necessary.



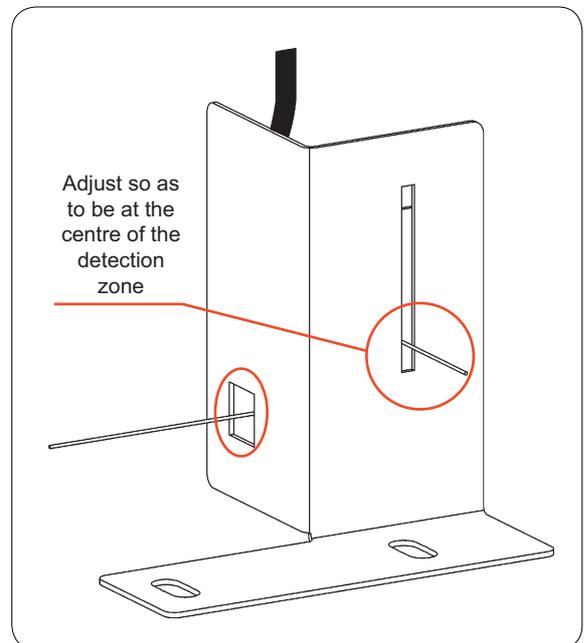
### Replacement of switch

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the side panel (electric cabinet side) of the machine.
3. Disconnect the cabling of the defective switch (J212 of A2\_I/O card).
4. Remove the defective switch from its support and replace it with a new one.
5. Reassemble the parts in reverse order

### Adjustment of the switches

Adjustment is to be carried out only when the machine is empty.

1. Loosen the screws fixing the switch to the machine frame.
2. Move the switch sideways so as to centre the interrupter shanks in the middle of their detection zone.
3. Retighten the screws once the adjustment has been carried out.



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## 33. Drain

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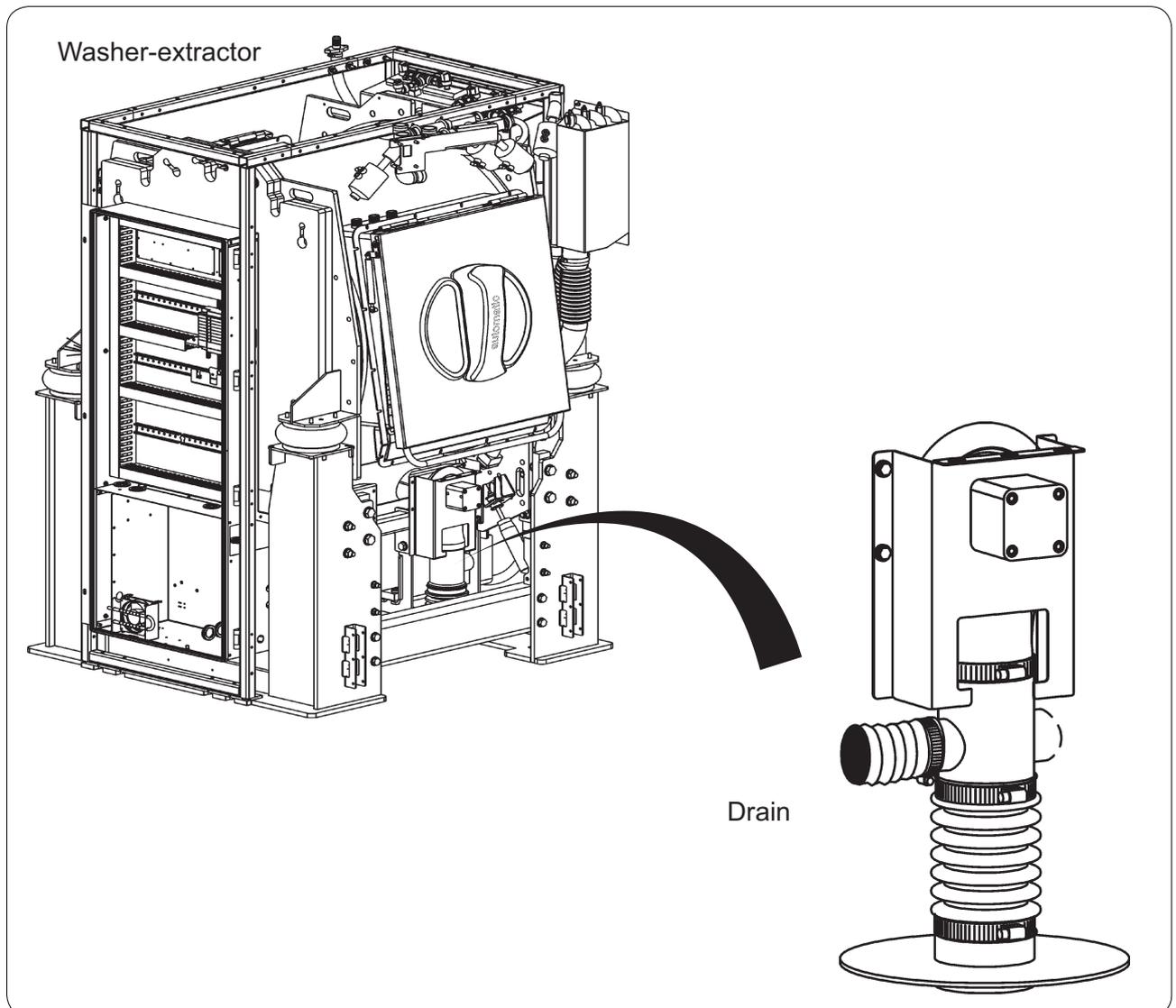
## Description

Fitted under the basin of the machine, the drain is accessed by removing the bottom panel on the unloading side.

The drain comprises the following elements:

- 1 jack (V4) to open or close the drain in accordance with the data from the CLARUS TS.
- 1 air pilot valve (D8) to control the air jack.

The D8 air pilot valve is fitted on the A7 pneumatic control block in the electrical cabinet and is accessed by removing the right hand panel from the machine.



**Functioning**

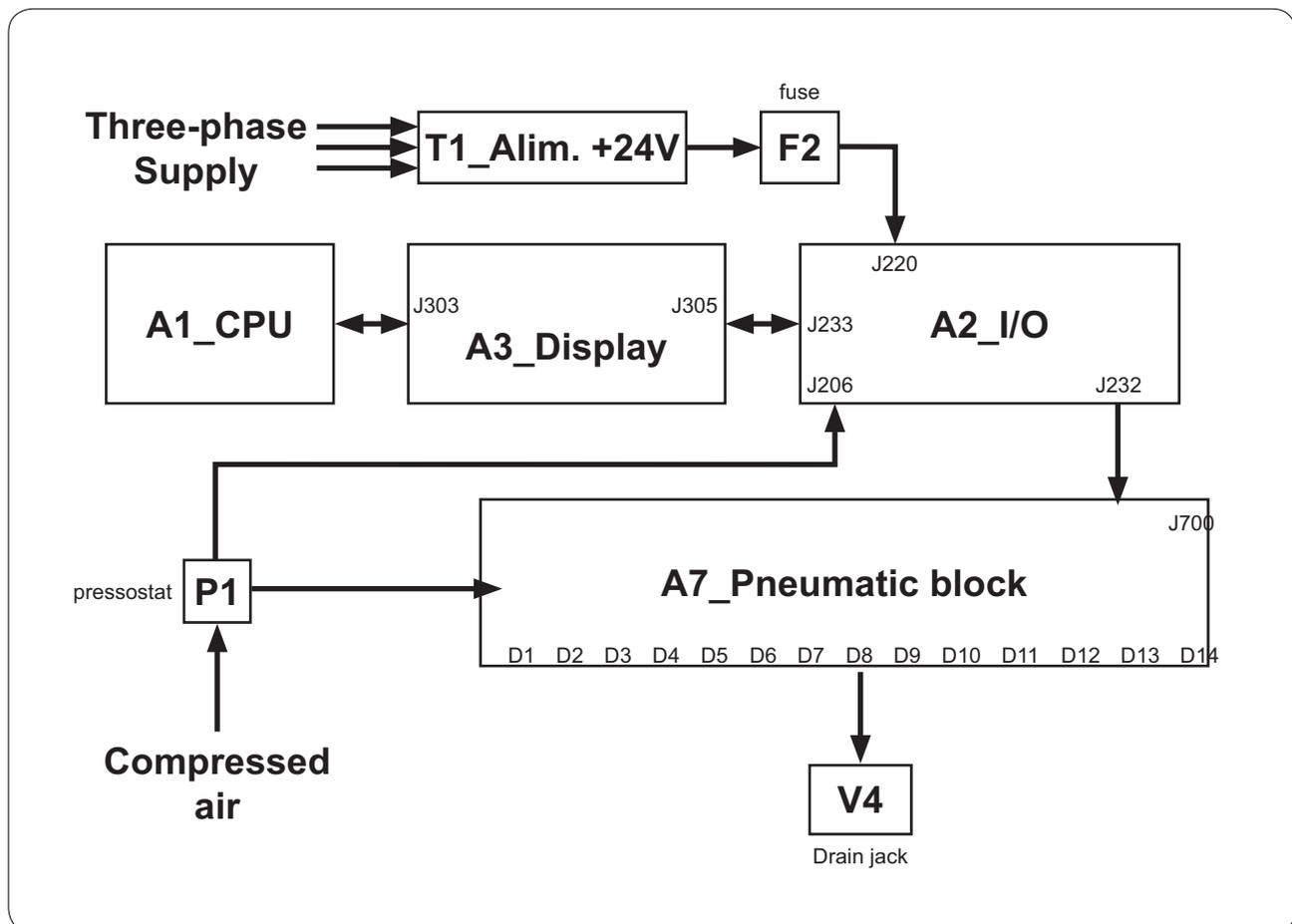
Actionned by compressed air, the drain valve opens and closes by means of a piston, which comes to compress or release a rubber membrane.

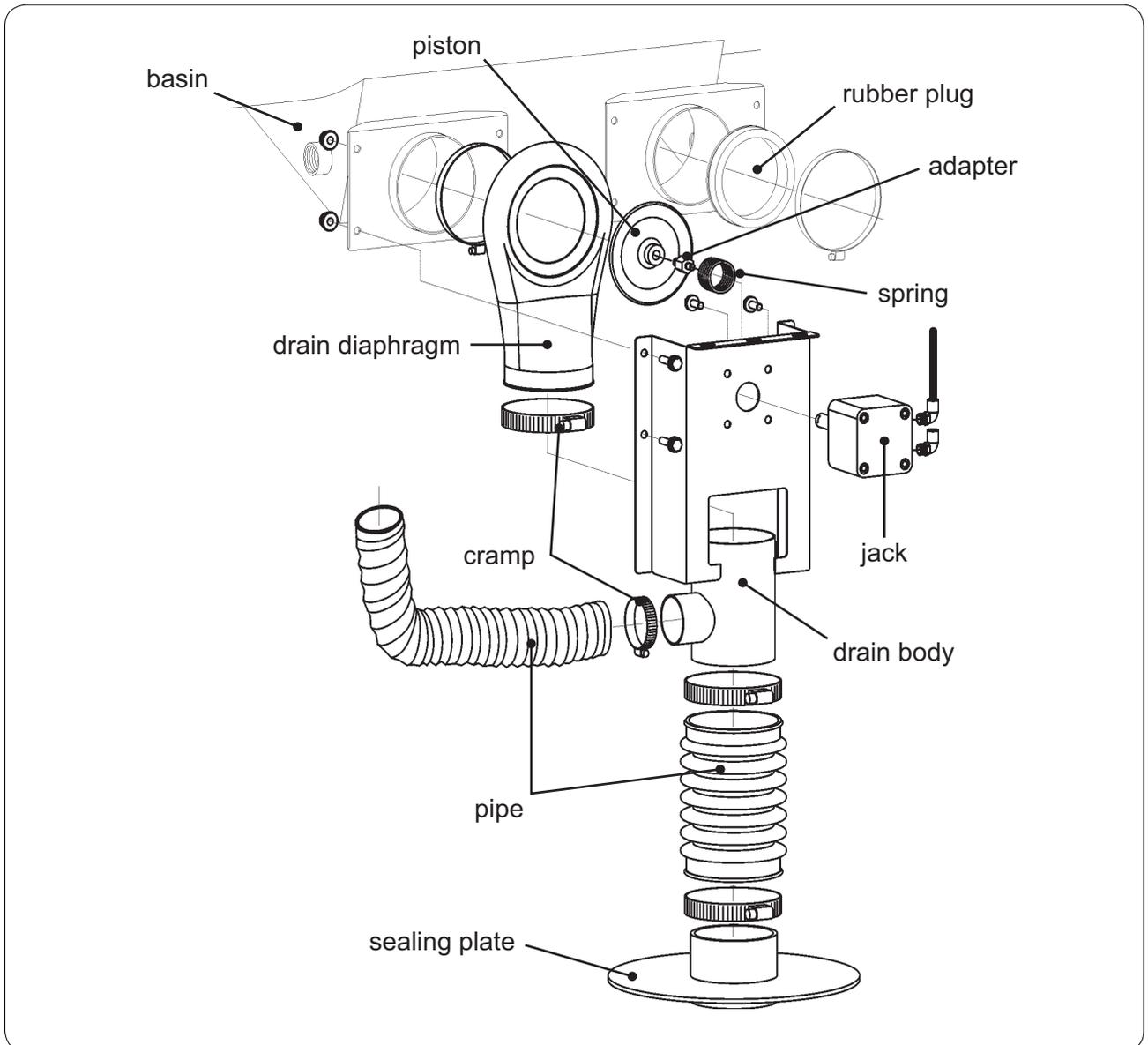
Drain position :

Controlled by the CLARUS TS by the action of D8 air pilot valve (A7\_pneumatic control block), V4 jack releases the drain membrane in order to evacuate the water from the basin.

Non-drain position :

Controlled by the CLARUS TS by the action of D8 air pilot valve (A7\_pneumatic block), jack V4 comes to compress the drain membrane in order to retain the water in the basin.





Can only be executed by a qualified person



## Repair

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### The drain is not working or is not working properly :

- Check the function of the V4 jack by manually activating the D8 air pilot valve (see Chapter 26).
- Check the air pressure ( $\pm 6$  bar) of the machine using the P1 pressostat (see Chapter 26).
- Check that the drain is not blocked.

## Repair

**The drain is not working or is not working properly (next) :**

- Check the status of the drain membrane.
- Check the status of the D8 indicator of the A2\_I/O card (see Chapter 22 page16).

### Dismantling the drain

1. Cut the machine electrical feed by turning the general switch to position 0.
2. Remove the bottom panel (unloading side) of the machine.
3. Disconnect the connecting bellows from the drain.
4. Dismantle the drain body from the basin.
5. Remove the drain membrane from the basin.
6. Replace the entire drain or the defective pieces.
7. Reassemble the parts in reverse order

### Replacement of the air pilot valve

(see Chapter 26)

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## 34. Heating

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## Description

### Electric heating

The electric heating comprises the following elements :

- 12 or 16 heating elements (R1 to R16) according the load capacity of the machine to heat the water in the basin.
- 2 contactors (KM3 & KM4) to control the heating elements.
- 1 PT100 temperature sensor (R1) to inform the A1\_CPU card of the water temperature in the basin.

The heating elements are fixed on the lower of the basin and are accessed by removing the lower panel (loading side) of the machine. According to the capacity of the machine, the heating elements are counted as follow :

WP4\_WPB4 750H : 12 heating elements x 4500W = 54KW  
WP4\_WPB4 900H : 16 heating elements x 4500W = 72KW  
WP4\_WPB4 1100H : 16 heating elements x 4500W = 72KW

The temperature sensor is fixed on the right outer drum panel of the machine behind the electrical cabinet and is connected on terminals J218-2 and J218-3 of the A2\_I/O card. It is accessed by removing the right side panel of the machine.

The contactors are fixed on the electric cabinet and are accessed by removing the right panel of the machine.

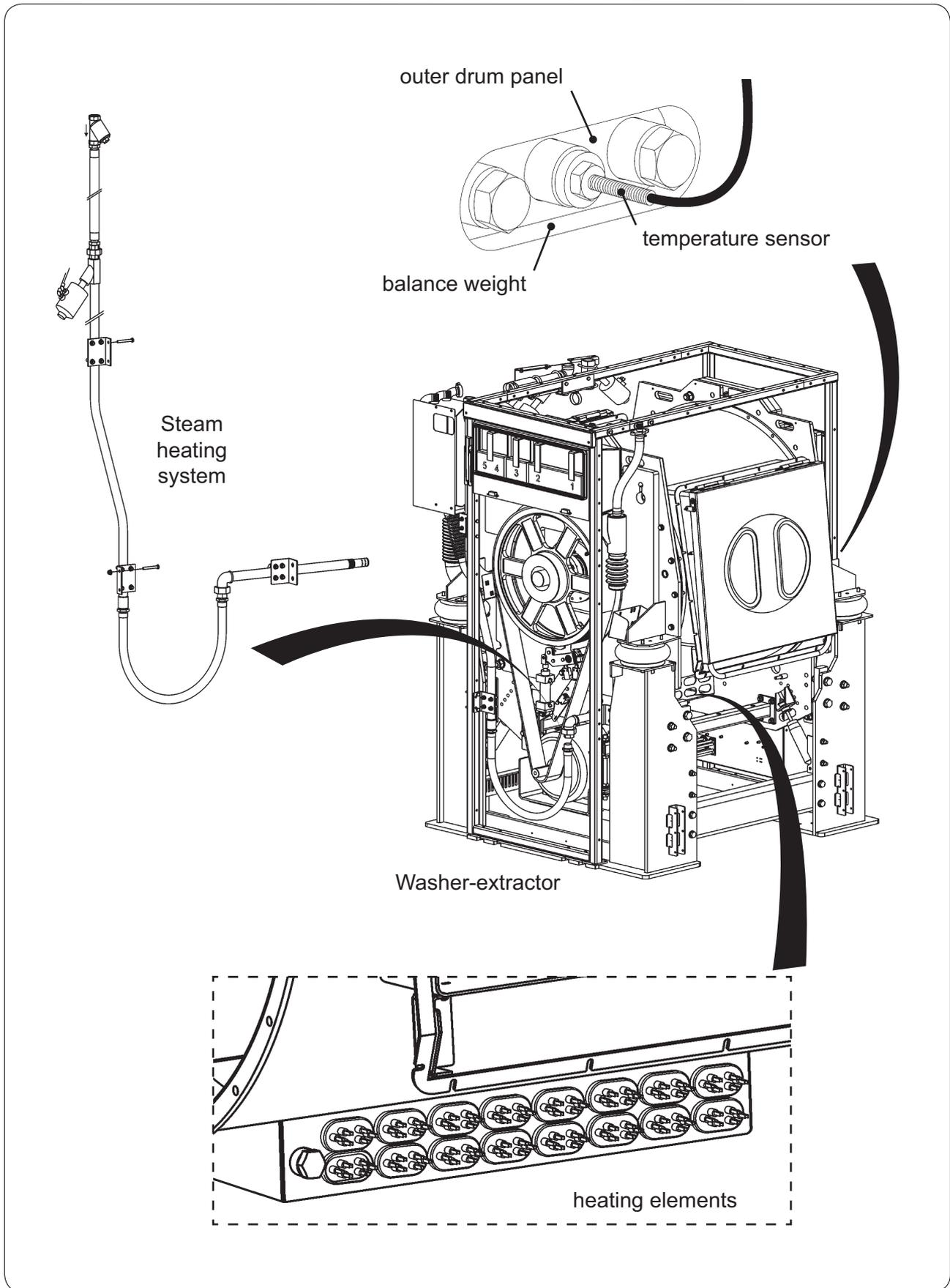
### Steam heating

The steam heating system comprises the following elements :

- 1 solenoid valve (EV4) to feed the machine with steam.
- 1 temperature sensor (R1) to inform the A1\_CPU card of the water temperature in the basin.
- 1 air pilot valve (D7) to control the EV4 solenoid valve with air.

The steam solenoid valve is fixed on top of the basin. It is accessed by removing the top panel and the front band from the machine.

Fitted on the A7 pneumatic control block in the electrical cabinet, the D7 air pilotvalve can be accessed by removing the side panel (electric cabinet side) from the machine.



Functioning

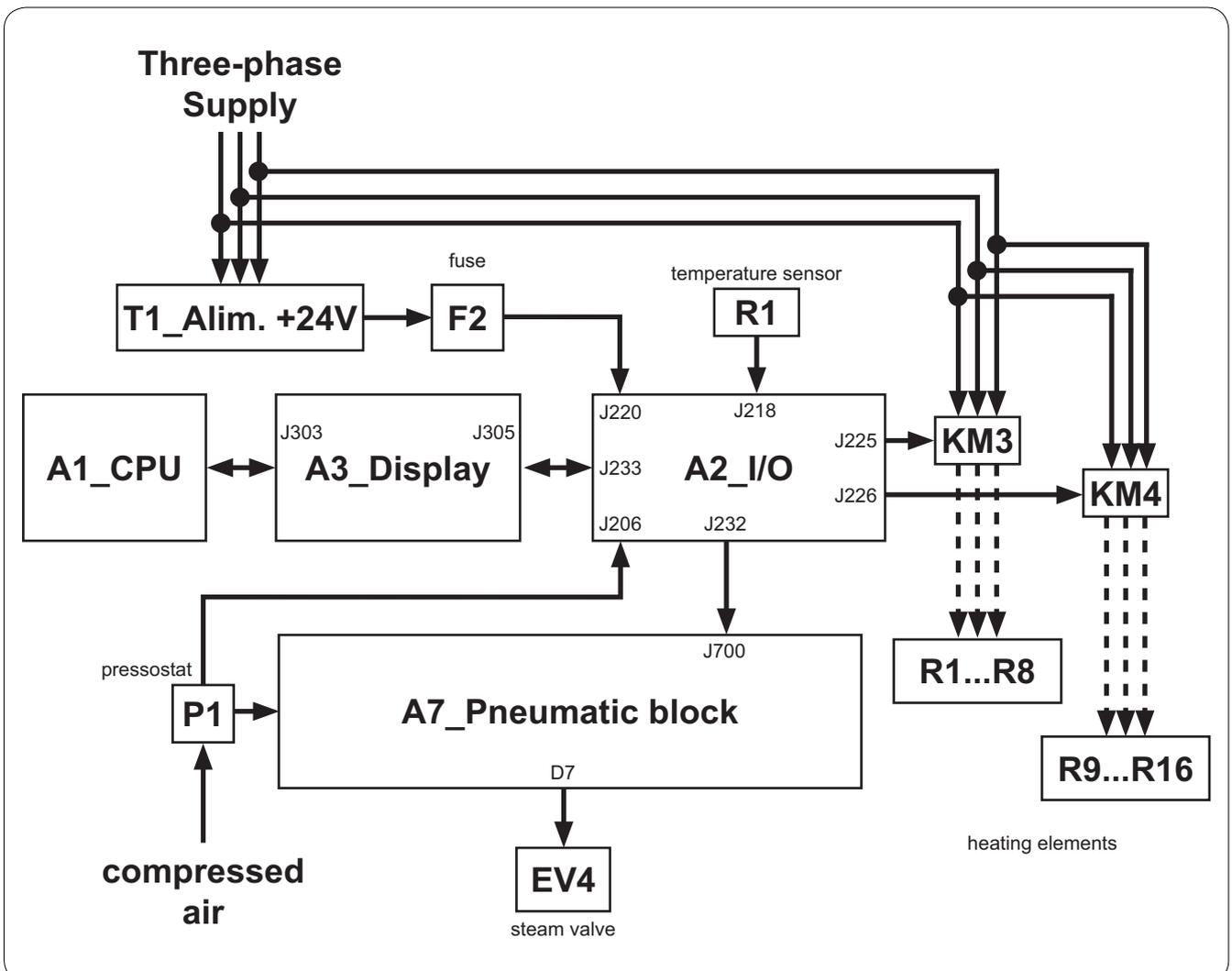
Electric heating

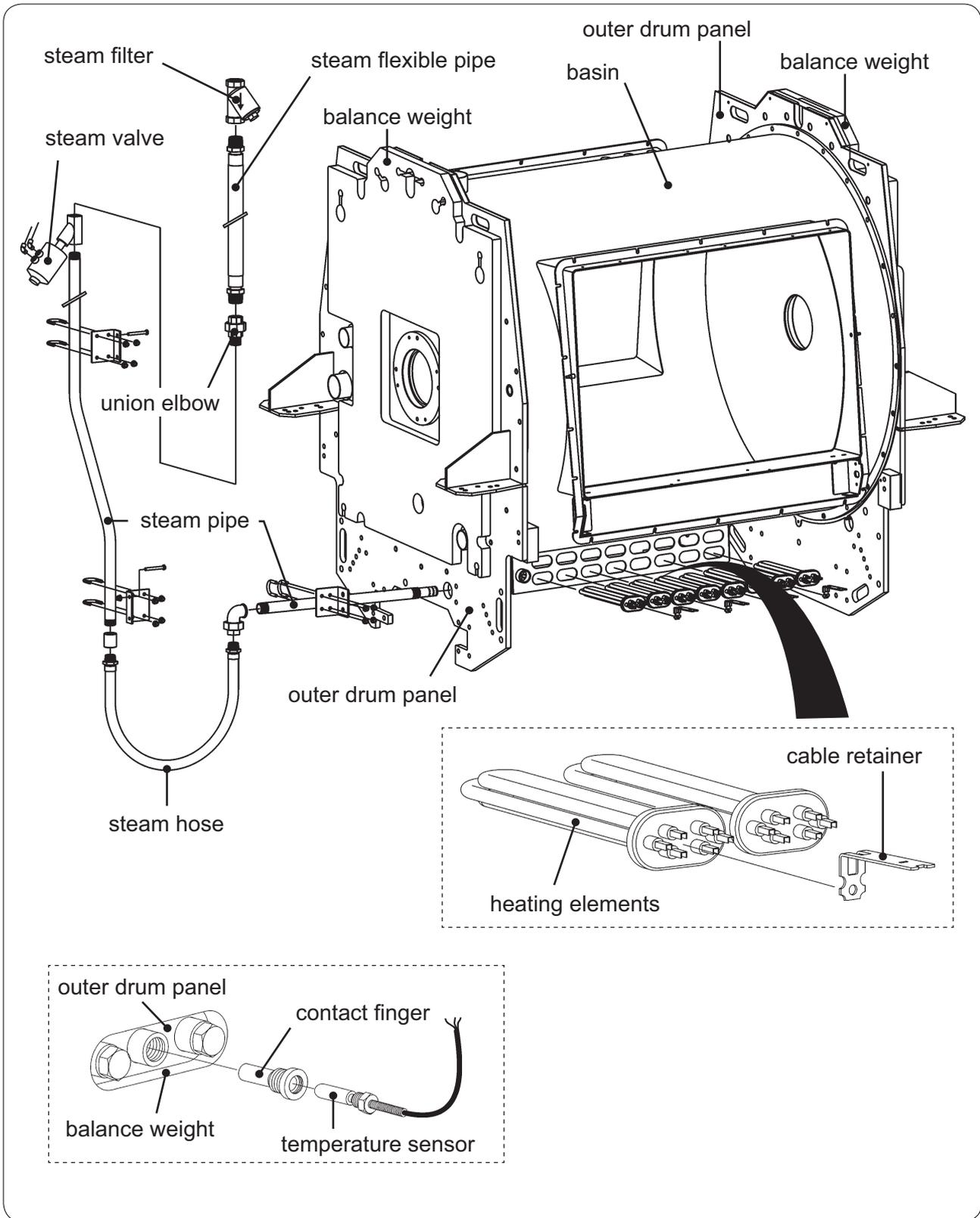
Controlled by the CLARUS TS by means of the KM3 and KM4 contactors (connected on the A2\_I/O card, terminals J225 and J226), the heating elements allow to heat the water of the basin in order to have the water temperature regulated for the wash program in progress. The powering and the not under tension of heating elements is checked with the information received by the CLARUS TS in the form of an analogue signal emitted by the R1 temperature sensor.

Steam heating

Controlled by the CLARUS TS by means of compressed air pilot valve D7 (A7\_Pneumatic block), the EV4 steam solenoid valve feeds the machine with steam in order to have the water temperature regulated for the wash program in progress. The opening and closing of the EV4 solenoid valve is checked with the information received by the CLARUS TS in the form of an analogue signal emitted by the R1 temperature sensor.

In the absence of water in the basin, the CLARUS TS prevents the heating from starting up.





Can only be executed by a qualified person



## **Repair**

Before any intervention, it is essential that all machine feeds be cut (electricity, steam, water, compressed air...).

### **Electric heating**

#### **The heating system is not working :**

- Check the functioning of KM3 and KM4 contactors by manually activating.
- Check the functioning of heating element by checking the ohmic value of each resistors with a ohmmeter. If the ohmic value is equal to 0, it means that the resistor is faulty.
- Check the status of KM3 and KM4 indicators of the A2\_I/O card (see Chapter 22 page16).
- Check the status and the functioning of the R1 temperature sensor.

#### **Replacement of the heating element**

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the bottom panel on the loading side of the machine.
3. Disconnect the wires of defective heating elements.
4. Unscrew the nut between the connections of the defective heating elements and disconnect the whole of the basin of the machine.
5. Remove the defective heating elements and replace it with a new one.
6. Reassemble the parts in reverse order.

#### **Replacement of the temperature sensor**

1. Cut the machine electrical feed by turning the main switch to position 0.
2. Remove the right side panel of the machine.
3. Disconnect the wires of the temperature sensor (J218-2 and J218-3 of A2\_I/O card).
4. Remove the defective temperature sensor and replace it with a new on.
5. Reassemble the parts in reverse order.

### Steam heating

#### The heating system is not working :

- Check the machine steam intake.
- Check the machine air pressure ( $\pm 6$  bar) using the P1 pressostat (see Chapter 26).
- Check the functioning of the EV4 steam solenoid valve by manually activating the A7 air pilot valve (see Chapter 26).
- Check the status of the D7 indicator of the A2\_I/O card (see Chapter 22 page16).
- Check the status and the functioning of the R1 temperature sensor.

#### Replacement of the steam solenoid valve

1. Cut the machine electrical feed by turning the main switch to position 0 and the feed to steam.
2. Remove the left hand panel and the top panel on the clean side of the machine.
3. Disconnect the client steam arrival from the machine.
4. Remove the defective steam solenoid valve and replace it with a new one.
5. Reassemble the parts in reverse order

#### Replacement of the temperature sensor

(see previous page)

#### Replacement of the air pilot valve

(see Chapter 26)

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## 45. Troubleshooting

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## **General information about troubleshooting**

The troubleshooting section is used to pinpoint a fault on the machine to a specific defective component or unit.

### **Precautions**

Only authorized personnel is allowed to troubleshoot the machine.

If the power is on, be very careful when working on the the machine.

### **Measures**

For information about measurement points, components and voltages, please refer to the wiring diagrams of the machine.

## Display principle for an anomaly message

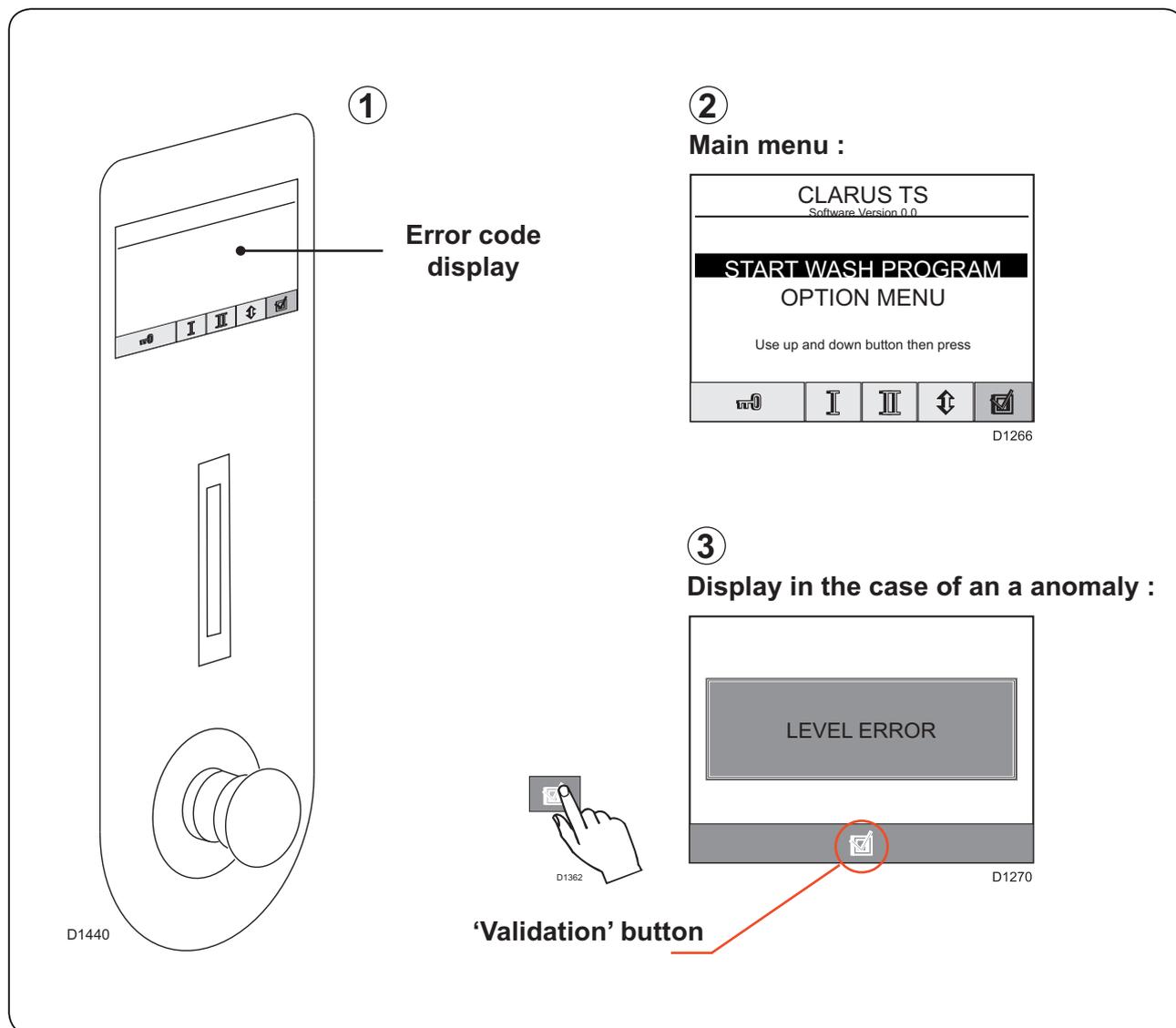
- Anomalies with no error codes

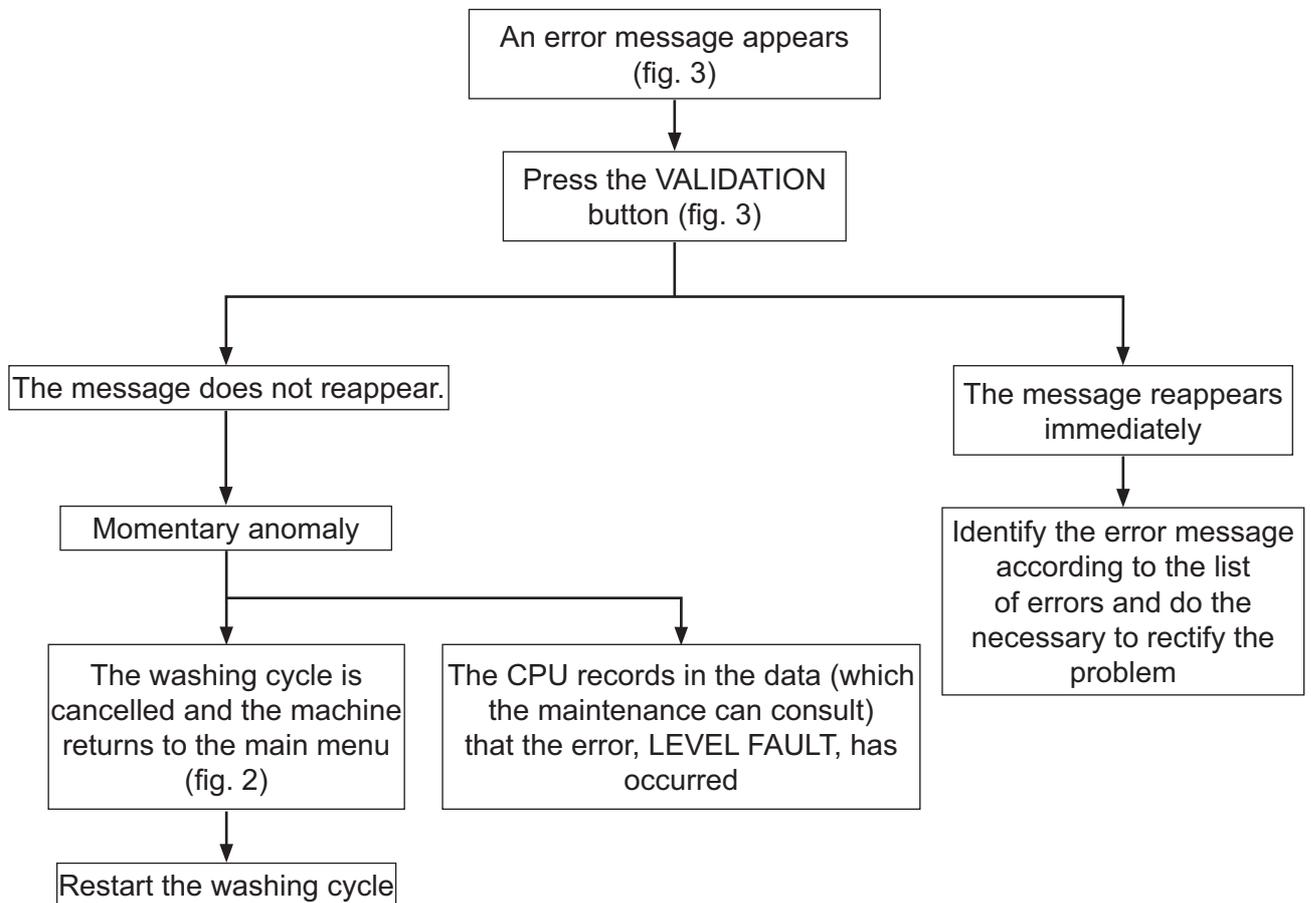
This section includes troubleshooting charts for errors which no error code is generated.

- Anomalies with error codes

### Errors code

Program or machine errors are indicated by an alarm message on the screen (Fig 1).





**Important information:**

- After each anomaly detection, it is essential that the washing cycle be restarted again, as it is automatically cancelled.
- The CPU records all the anomalies (with anomaly code) which have occurred during operation of the machine.

## List of errors with appropriate error messages

Error message displayed	Cause / Solution
MACHINE HALTED	c: This error appears each time the machine is placed under charge. s: Press the "Validation" button.
EMERG. STOP ACTIVE	c: The emergency stop button(s) is/are operated. s: Rectify the problem that has triggered the emergency stop and reset the button.
NO AIR PRESSURE	c: A fleeting drop in air pressure is detected. s: Check air pressure of the machine network.
WAGO I/O COMM ERROR	c: The link between card A2_I/O and card A3_Display is defective or interrupted. s: Successively switch the machine off and on using the general selector or program start.
KEB COMM ERROR	c: The link between card A2_I/O and frequency dimmer A6 is defective or interrupted. s: Successively switch the machine off and on using the general selector or program start.
DISPLAY COMM ERROR	c: The link between card A1_CPU and card A3_Display is defective or interrupted. s: Successively switch the machine off and on using the general selector or program start.
NO AIR BUMPERS	c: A fleeting drop is detected in the air pressure of the jacks. s: Check air pressure of the machine network.
DRUM LOCKED	c: The delay position of the drum indexing lever is not detected. s: Check the air pressure and the detectors.
DRUM NOT LOCKED	c: The indexing lever has not lodged itself in its housing (tooth wheel). s: Check the air pressure, The air distributor and the detectors.
DRUM INDEX NOT FOUND	c: The position of the indexing lever is incorrect. s: Check the detectors.
NO WATER	c: The water level has not reached the required level during the set time. s: Check the solenoid water valves, the pressure of the air and the air distributor.
LOADING DOOR IS OPEN	c: The door on the loading side in the locked position is open. s: Check the air pressure, the air distributor, the detectors.
UNLOAD DOOR IS OPEN	c: The door on the unloading side in the locked position is open. s: Check the air pressure, the air distributor, the detectors.

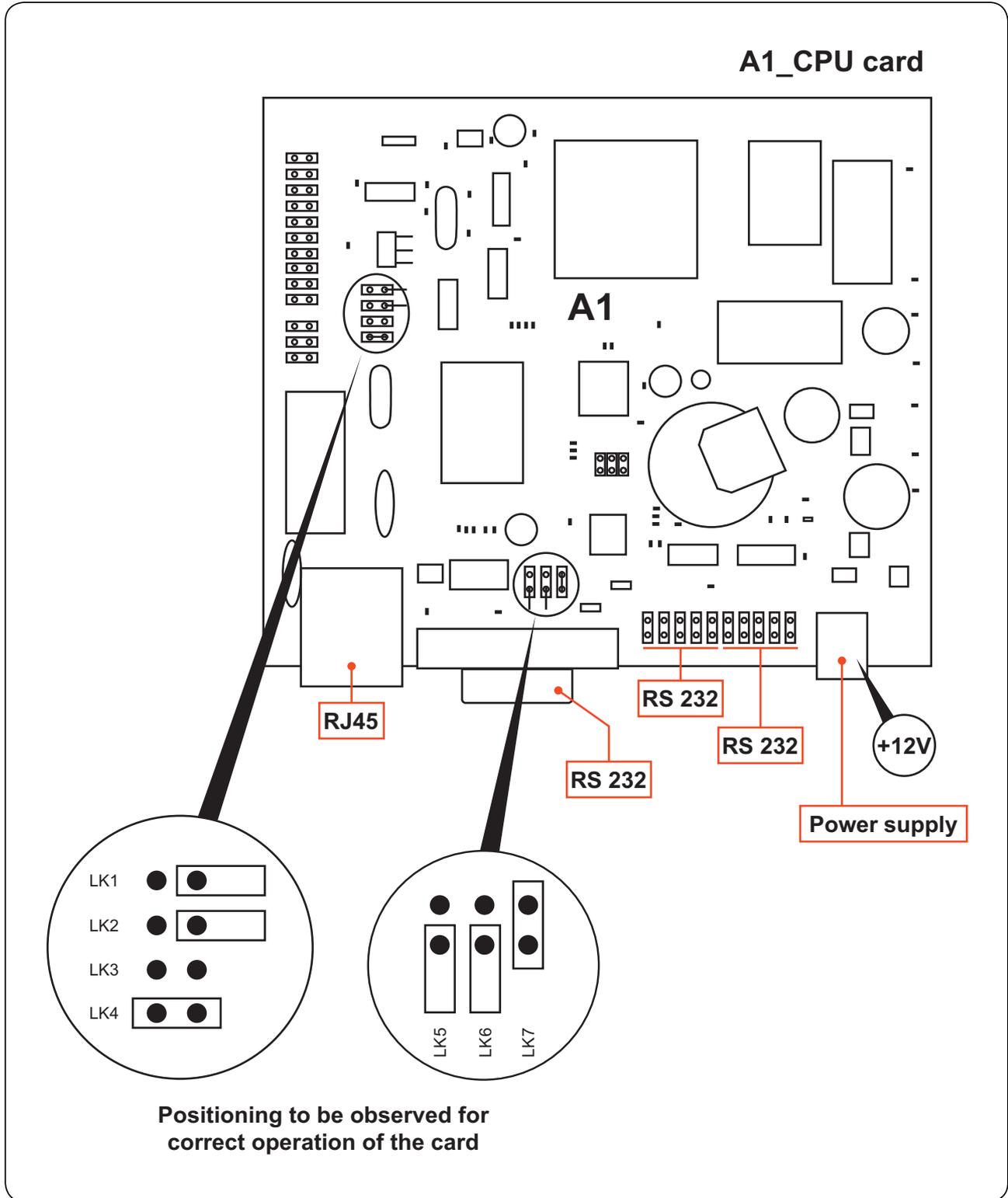
Error message displayed	Cause / Solution
DOORS NOT LOCKED	<p>c: The safety door has not detected locking of the loading/unloading doors. s: Check the air pressure, the air distributor, the detectors.</p>
TEMP SENSOR LOW TEMP	<p>c: The water temperature is too low relative to the min. authorised value. s: Check the temperature sensor.</p>
TEMP SENSOR HI TEMP	<p>c: The water temperature is too high relative to the max. authorised value. s: Check the temperature sensor.</p>
MACHINE OVERFILLED	<p>c: The water level in the tank is too high relative to the max. authorised level. s: Check the level pressostat, the level pressostat flexible and the program water level.</p>
NO HEATING	<p>c: Heating temperature has not reached the required value during the set time. s: Check the resistances and the (electrical) heating contactors, the steam solenoid valve, the air pressure and the air distributor.</p>
NOT DRAINED	<p>c: The tank did not drain during the set time. s: Check the level pressostat, the level pressostat flexible and the correct operation of the drain valve.</p>
UNBAL SENSOR FAULT	<p>c: The detectors have started up. s: Check the detectors and remove some laundry from the machine.</p>
PROGRAM CRC ERROR	<p>c: Card A1_CPU is defective. s: Contact the factory after-sales service.</p>
SDRAM CRC ERROR	<p>c: Card A1_CPU is defective and there is a risk of losing data from the CPU. s: Contact the factory after-sales service.</p>
LEVEL ERROR	<p>c: An incoherence in the detection of the water level (e.g. negative level) s: Check the level pressostat, the level pressostat flexible and the correct operation of the drainage.</p>
UNBALANCE	<p>c: Same error as UNBAL SENSOR FAULT</p>
DRUM NOT DRAINED	<p>c: The drainage has not completed correctly during the set time. s: Check that the correct operation of drainage.</p>
SENSOR DP6 MISSING	<p>c: The tappet has not correctly come back and this can product dangerous running s : Check wiring, the operation of the detector and change it if necessary.</p>

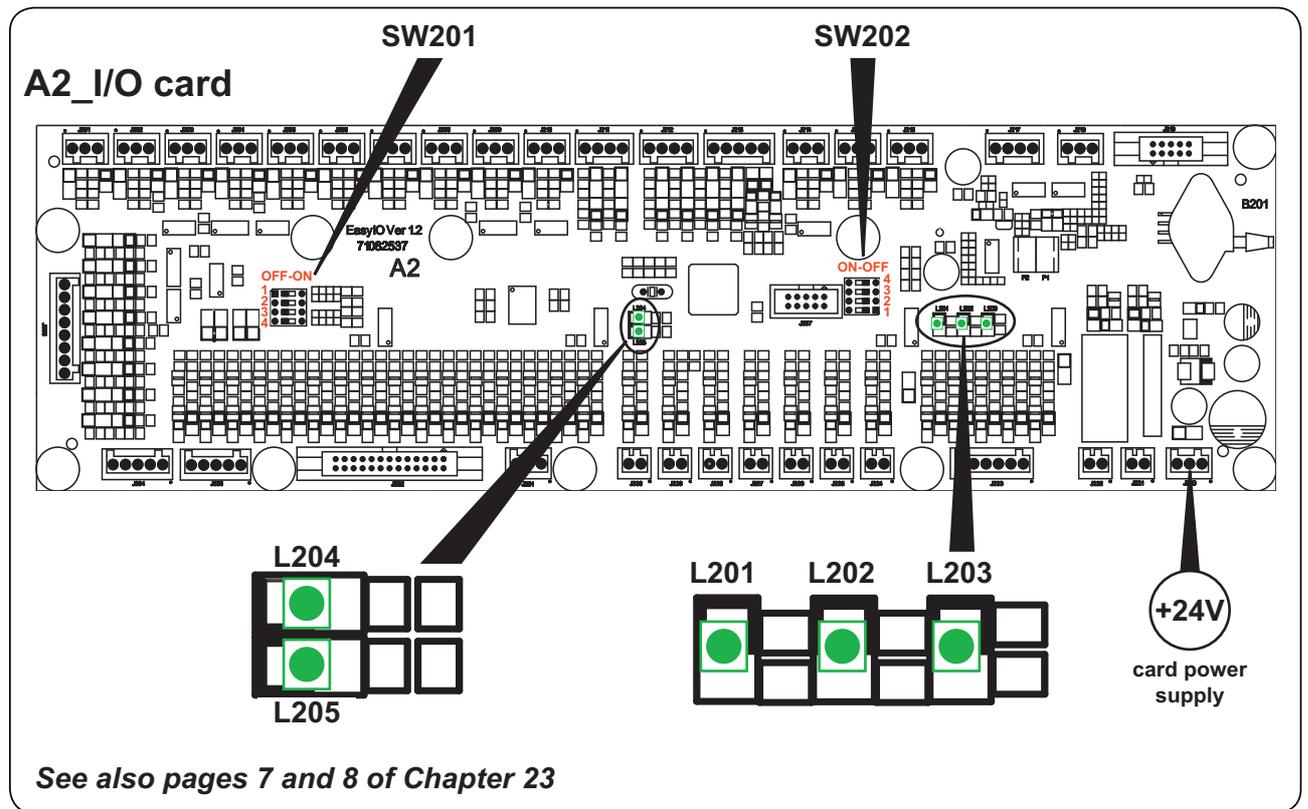
## List of errors with appropriate error messages

Error message displayed	Cause / Solution
WAITING COM	c: The connection between card A3_Display and card A1_CPU is defective. s: Restart the machine.
WAITING COM PAGE	c: The connection between card A3_Display and card A1_CPU is correct but it doesn't have a loading of page. s: Restart the machine.
LOW GREASE LEVEL	c:
KEB ERREUR 01 EOP	c : The DC voltage value of the secondary circuit has exceeded the authorised value
KEB ERREUR 02 E.UP	c : A sub-voltage fault (DC voltage) has been detected
KEB ERREUR 03 E.UPh	c : A phase disconnection fault in input has been detected.
KEB ERREUR 04 EOC	c : An overload has been detected.
KEB ERREUR 06 EOHl	c : Internal heating has been detected.
KEB ERREUR 07 EnOHl	c : No remaining internal heating E.OHl, the internal temperature has dropped by 3°C.
KEB ERREUR 08 EOH	c : Overheating of power modules.
KEB ERREUR 09 EdOH	c : Overheating of the CTP motor. s : Can be only be reset at EndOH, CTP must be connected between T1 and T2 of the terminal else put a shunt.
KEB ERREUR 11 EndOH	c : No remaining heating of the CTP motor, the CTP has resumed a weak resistance value.
KEB ERREUR 12 EPu	c : The power circuit is presenting a general fault.
KEB ERREUR 14 EPUIN	c : An incompatibility between software of the power and command cards.
KEB ERREUR 15 ELSF	c : The load resistance short circuit relay is not mounted.
KEB ERREUR 16 EOL	c : An excessive overload with a time in excess of the authorised time.
KEB ERREUR 17 EnOL	c : No remaining overload, the OL counter has returned to 0%.
KEB ERREUR 18 EBUS	c : The check time (watchdog) for the communication between the PC and the operator has been exceeded.
KEB ERREUR 19 E.OL2	c : An overload has been detected.
KEB ERREUR 20 EnOL2	c : No remaining overload, cooling phase finished.
KEB ERREUR 22 EPUCO	c : The parameters cannot be written to the power circuit.

Error message displayed	Cause / Solution
KEB ERREUR 23 ESbuS	c : The synchro bus is defective.
KEB ERREUR 30 EOH2	c : The electronic motor protection has been triggered.
KEB ERREUR 31 E.EF	c : An external fault has been triggered.
KEB ERREUR 32 EnC1	c : A disconnection of the resolver or incremental encoder cable has occurred.
KEB ERREUR 33 EPFC	c : The power factor check is defective.
KEB ERREUR 36 EnOH	c : No remaining heating of power module.
KEB ERREUR 39 ESEt	c : A play fault has been detected: a locked parameters play has been called.
KEB ERREUR 46 EPrF	c : The clockwise rotation direction has locked up.
KEB ERREUR 47 EPrr	c : The anti-clockwise rotation direction has locked up.
KEB ERREUR 49 EPuci	c : The power circuit initialisation is invalid.
KEB ERREUR 50 EPuch	c : The power circuit identification has changed.
KEB ERREUR 51 Edri	c : The relay at the power circuit outputs is not fixed to the dimmer validation.
KEB ERREUR 52 EHyB	c : The interface identification is invalid.
KEB ERREUR 53 EiEd	c : A hardware fault has been detected during the start/ stop phase.
KEB ERREUR 54 ECo1	c : The count on channel encoder 1 has been exceeded.
KEB ERREUR 55 ECo2	c : The count on channel encoder 2 has been exceeded.
KEB ERREUR 56 EBR	c : The charge is less than the threshold on start-up or in the absence of a motor phase when the break function is activated.
KEB ERREUR 57 EiNi	c : The MFC has not been reset.
KEB ERREUR 58 EOS	c : The top real speed has exceeded the max. output speed.
KEB ERREUR 59 EHyBC	c : The identification of the encoder interface has changed, it must be confirmed in ec.0 or ec.10.
KEB ERREUR 60 ECDD	c : The motor calculation whilst measurement of the motor stator resistance is defective.

Anomalies with no indication in the display window

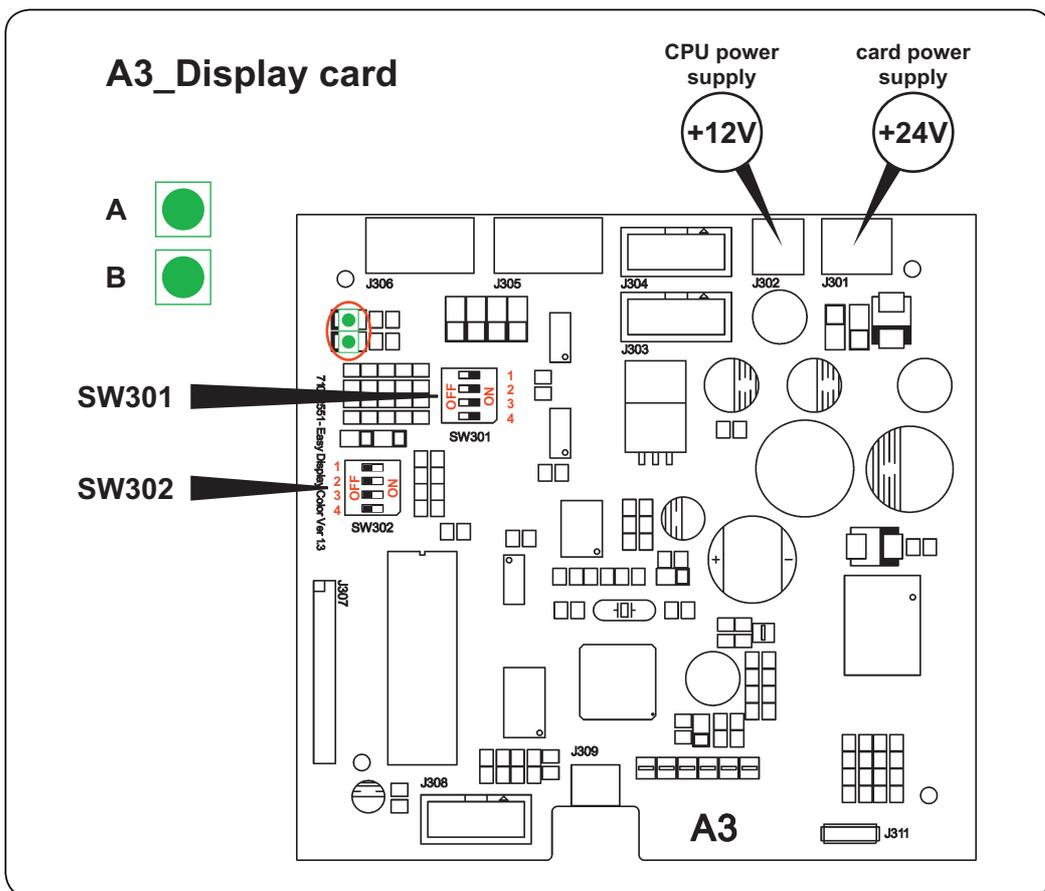




Indicator	Status	Meaning
L201	ON	Common of outputs = +24V
	OFF	Common of outputs = 0V
L202	ON	+24V after ARU
	OFF	
L203	ON	Card supply* = OK
	OFF	Card supply* = Out of order
L204	ON	Bus mode communication activated
	Flashing	Bus mode communication deactivated
L205	ON	Additional card connected and OK
	OFF	Additional card not connected
	Flashing	Additional card connected but no communication

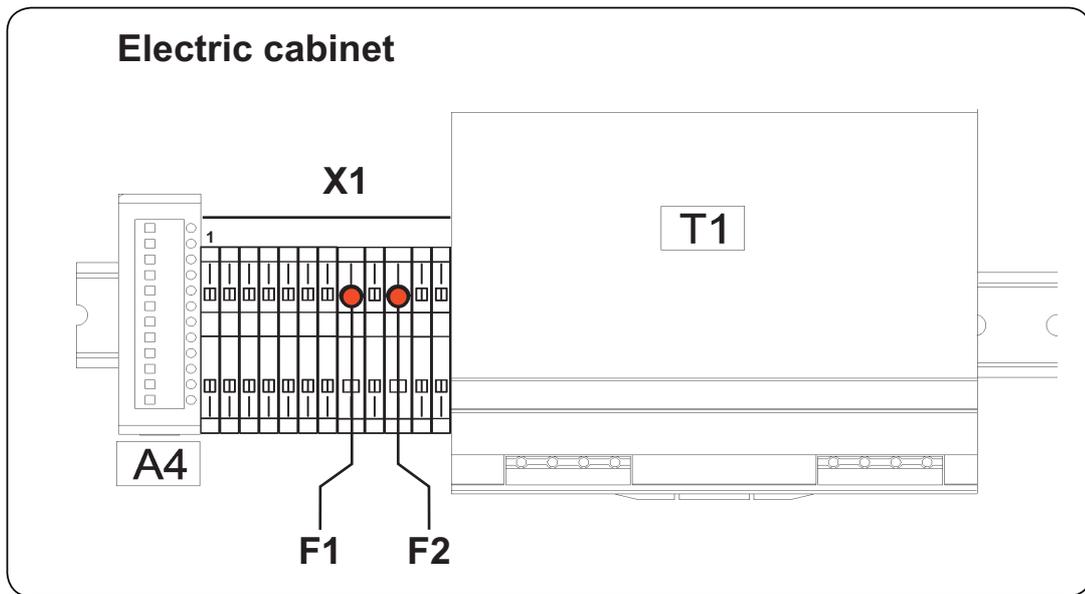
\* By default, all WS201 and SW202 switches are OFF

\* Power supply 0-24 Volts



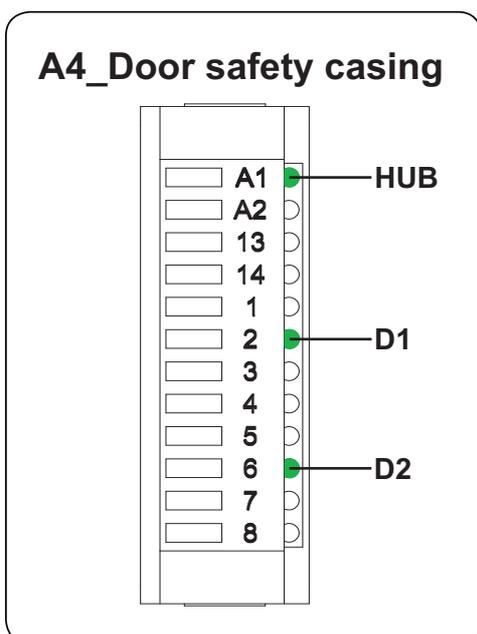
Indicator	Status	Function
A	ON	Bus mode communication activated
	OFF	Supply fault and/or card fault
	Flashing	No bus mode communication
A + B	Flashing alternate A and B	Soft loading
B	ON	Valid chip card detected
	OFF	No chip card detected

\* By default : SW301 switches are OFF and SW302 switches are ON



Indicator	Status	Meaning
F1 (5A)	ON	Fuse = out of order
	OFF	Fuse = OK
F2 (5A)	ON	Fuse = out of order
	OFF	Fuse = OK

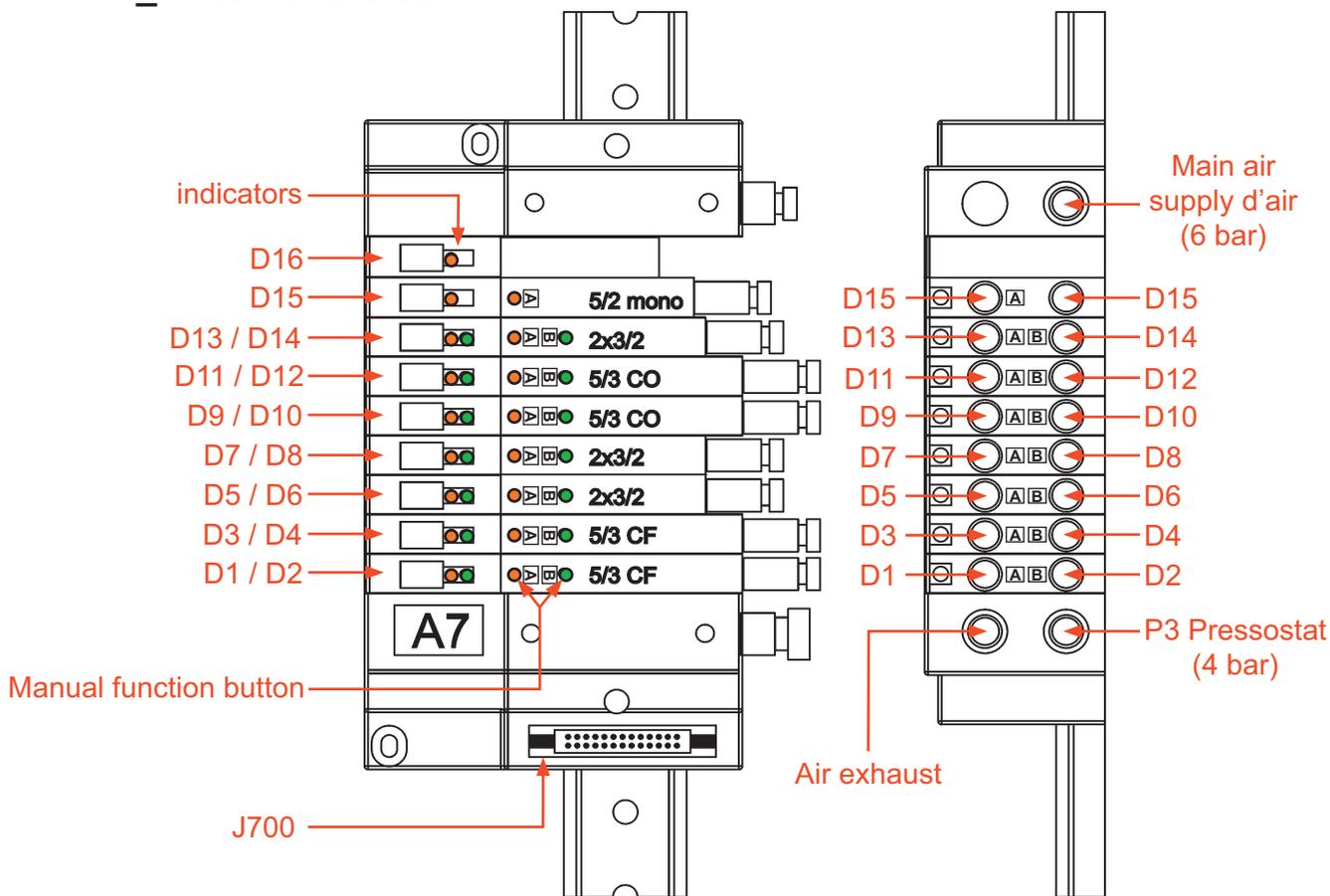
\* 5 Amp fuse



Indicator	Status	Meaning
HUB	ON	Casing supply* = OK
	OFF	Casing supply* = Out of order
D1	ON	Loading side detector activated
	OFF	Loading side detector deactivated
D2	ON	Unloading side detector activated
	OFF	Unloading side detector deactivated

\* Power supply 24 Volts

A7\_Pneumatic block



- D1 = Bellows jack inflation
- D2 = Bellows jack deflation
- D3 = Drum Indexing
- D4 = Drum deindexing
- D5 = Cold water
- D6 = Hot water
- D7 = Steam
- D8 = Drain 1
- D9 = Unlocking door (loading side)
- D10 = Locking door (loading side)
- D11 = Unlocking door (unloading side)
- D12 = Locking door (unloading side)
- D13 = Unblocking
- D14 = Soft water (option)
- D15 = Unloading drum door opening
- D16 = Drain 2 (option)

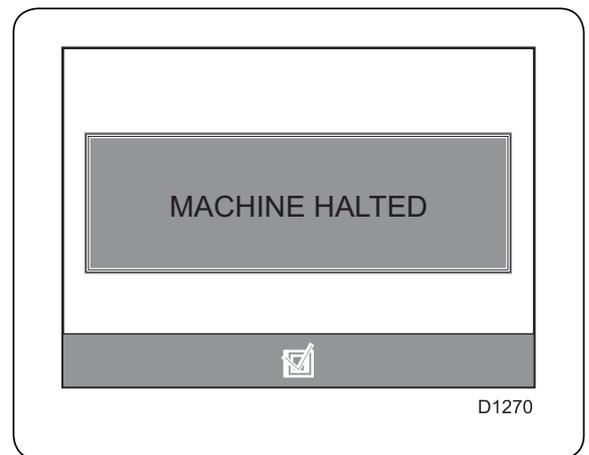
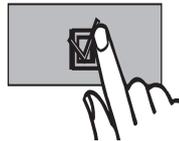
Indicator	Status	Meaning
A	ON	Air pilot valve activated
	OFF	Air pilot valve deactivated
B	ON	Air pilot valve activated
	OFF	Air pilot valve deactivated

## Anomalies with indication in the display window

### MACHINE HALTED

This error appears every time the machine is placed under charge.

Press the button '**Validation**' to use the machine.



### EMERG. STOP ACTIVE

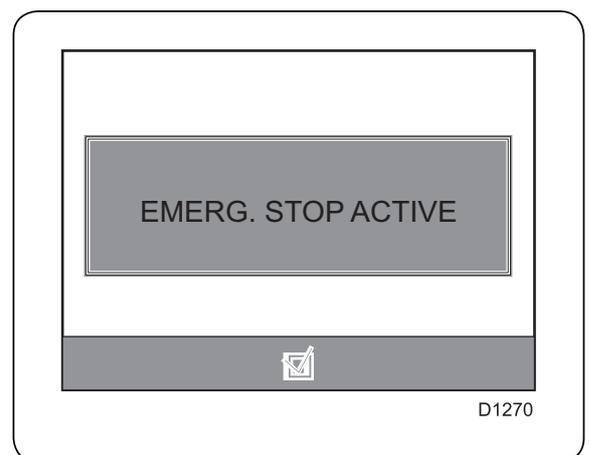
The emergency stop button has been activated by the operator for whatever reason.

Check :

- The reason why the emergency stop was activated as such and only rearm the emergency stop button afterwards.

Once the reason is defined, proceed as follows :

1. Carry out the required corrective actions.
2. Reset the emergency stop button(s) by turning it/them anti-clockwise.
3. Press '**Validation**' to restart the machine.



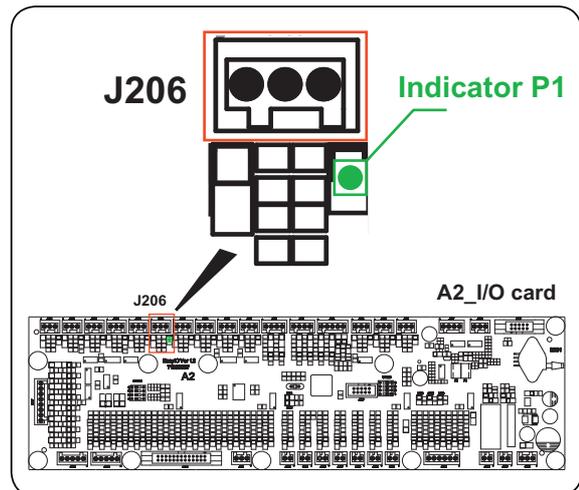
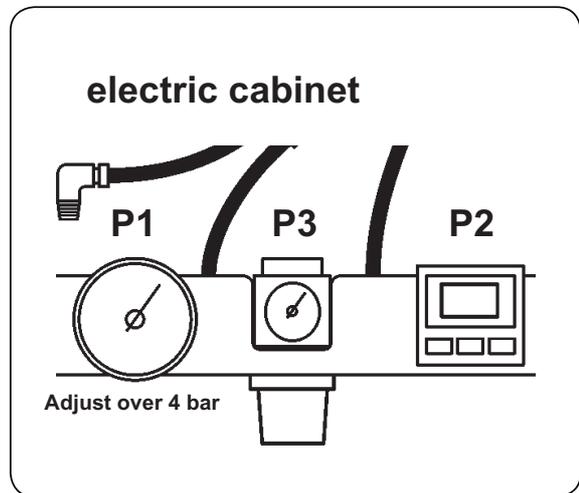
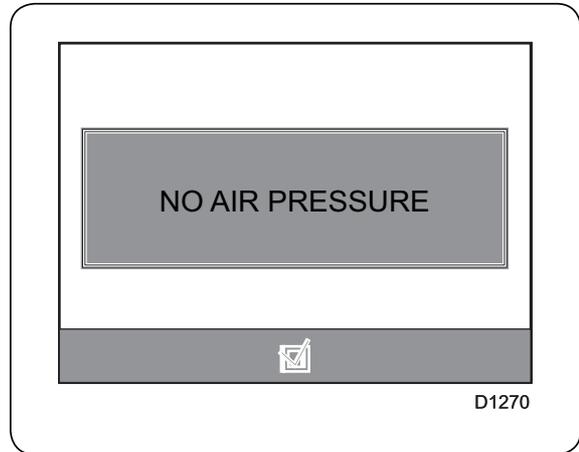
**NO AIR PRESSURE**

The CPU detects a fleeting drop in the air pressure.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- If the machine is supplied correctly with compressed air.
- If there is a pressure of 4 bar on the level of release pressostat P1.
- The status of the compressed air circuit pipes.



**1. Press the 'Validation' button**

*the anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

**2. Check the pressure at the level of the pressostat P1 (adjusted over 4 bar)**

= 4 bar

< 4 bar

Check the compressed air arrival from the client and the distribution of air from the machine.

**3. Check the status of indicator P1 of card A2\_I/O (J206)**

ON

OFF

Reconnect the cable from P1 and check the air network flexibles

Card A2\_I/O is probably defective

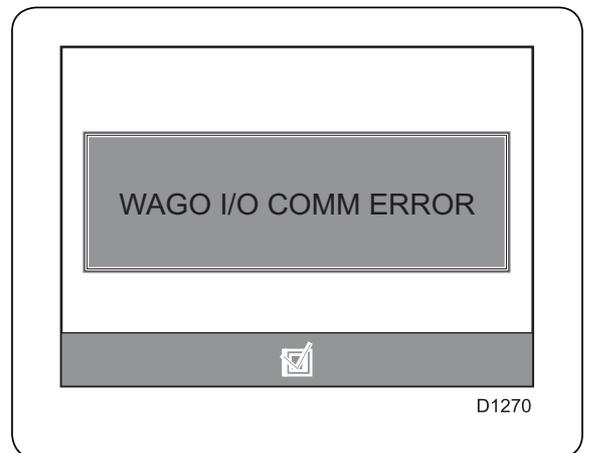
**WAGO I/O COMM ERROR**

The connection between card A2\_I/O and card A3\_Display is defective or interrupted.

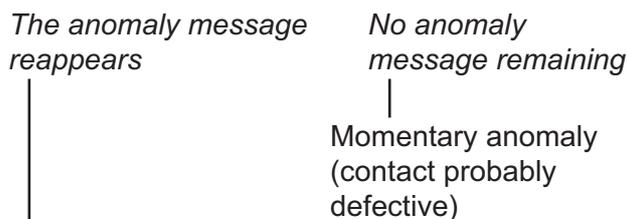
Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

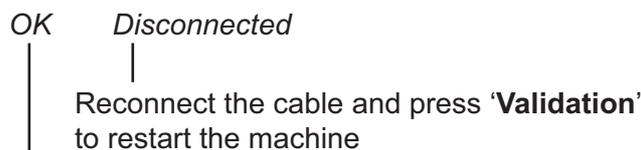
- Connecting cable RS 485 between card A2\_I/O and card A3\_Display.
- The position of switches SW201 and SW202.



**1. Press the 'Validation' button**



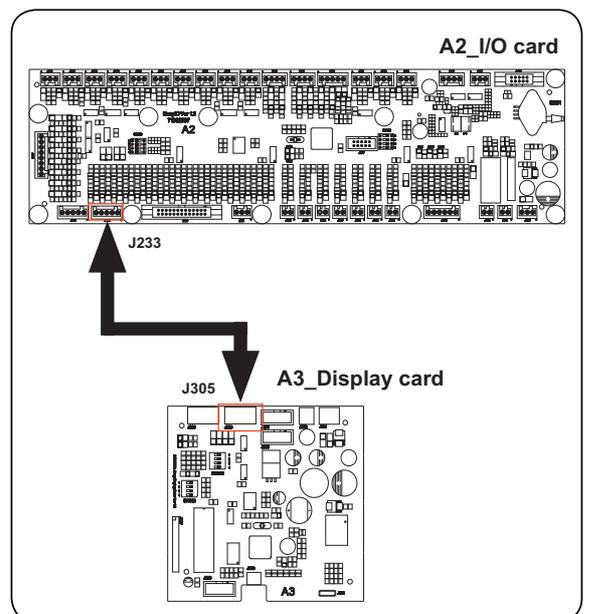
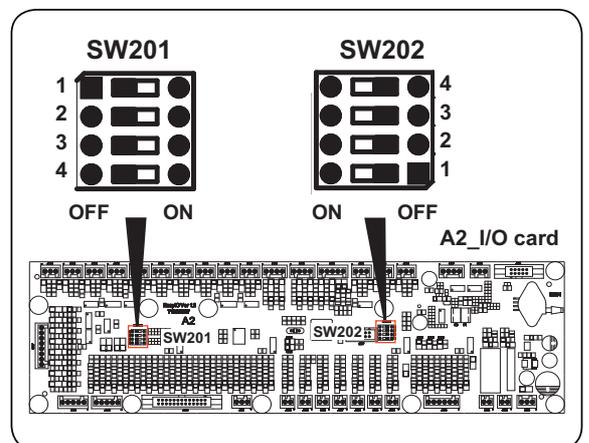
**2. Check the connection cable (RS 485) between card A2\_I/O and card A3\_Display**



**3. Check the position of switch SW201 and SW202 of card A2\_I/O**



Card A2\_I/O or the connection cable (RS 485) is probably defective



**By default, all WS201 and SW202 switches are OFF.**

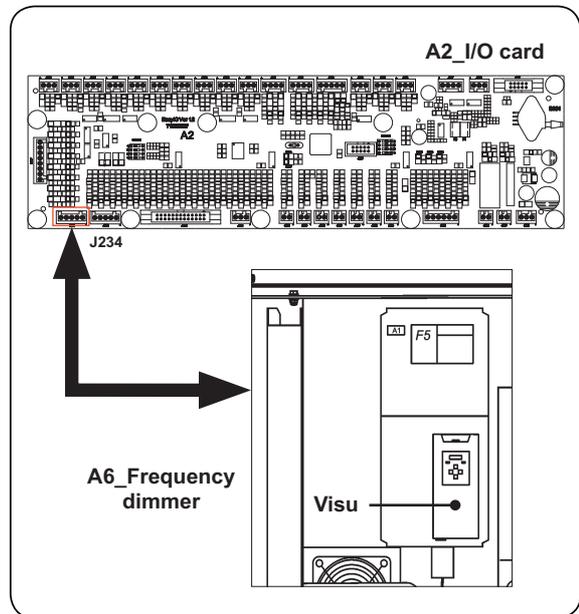
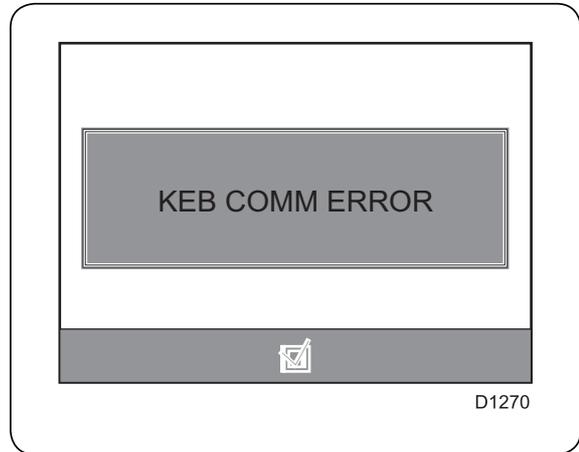
**KEB COM ERROR**

The link between card A2\_I/O and frequency dimmer A6 is defective or interrupted.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- The cable (RS 485) between card A2\_I/O and the frequency dimmer.
- The configuration of the frequency dimmer.
- The connection between the visu-frequency dimmer and the frequency dimmer.



**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

**2. Check connection RS 485 between card A2 I/O and the frequency dimmer**

OK    *Disconnected*

Reconnect the cable and press 'Validation' to restart the machine

**3. Check the connection between the frequency dimmer and its visu**

OK    *Disconnected*

Reconnect the visu to the frequency dimmer and press 'Validation' to restart the machine

Card A2\_I/O or the connection cable (RS 485) is probably defective

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## DISPLAY COMM ERROR

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The link between the A1\_CPU card and the A3\_Display card is defective or interrupted.

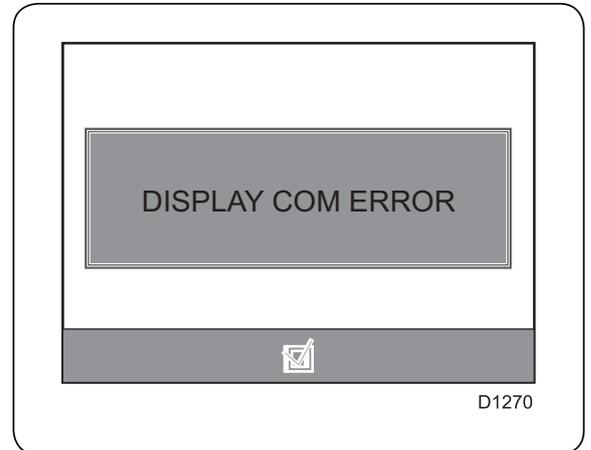
### 1. Press the 'Validation' button

*The anomaly message  
reappears*

*No anomaly  
message remaining*

|  
Momentary anomaly  
(contact probably  
defective)

|  
Contact the factory after-sales service



**NO AIR IN BUMPERS**

A fleeting drop is detected in the air pressure of the jacks.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- If there is a pressure of 4 bar on the level of release pressostat P1.
- If the machine is properly supplied with compressed air (compressed air valve open).
- D1-D2 air pilot valves.
- The compressed air pipe.

**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

**2. Check the pressure of release pressostat P1 (adjusted to 4 bar)**

= 4 bars

< 4 bars

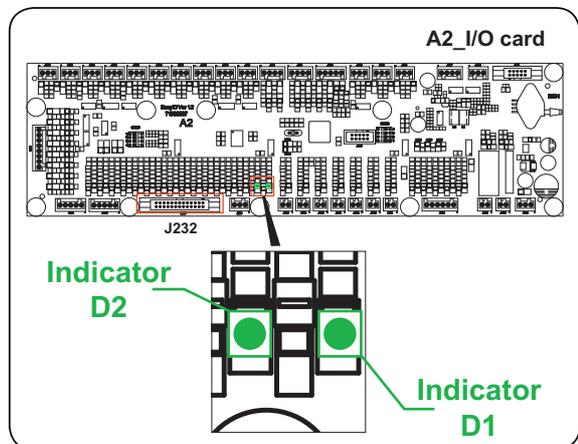
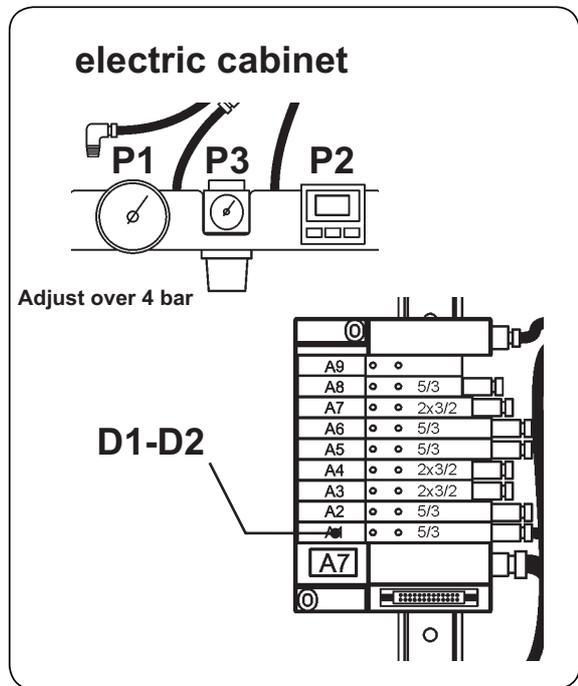
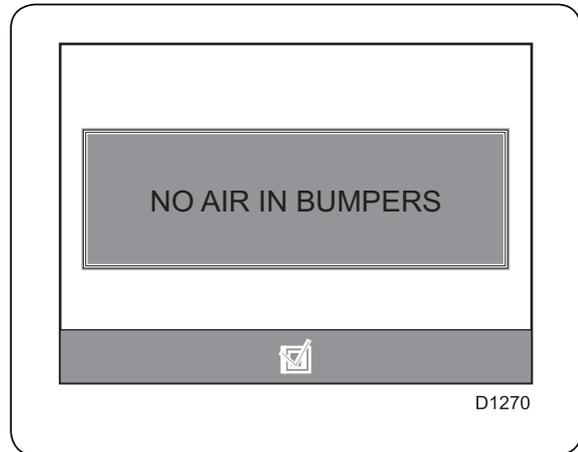
Check the compressed air arrival and the air distribution network from the machine and press 'Validation' to restart the machine

**3. Check the status of indicators D1 and D2 of card A2\_I/O**

OFF

ON

Card A2\_I/O is probably defective



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## NO AIR IN BUMPERS

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Continued from previous page

|

### 4. Check D1-D2 air pilot valves and its connection on A2\_I/O (J232)

OK

OUT

|      |  
Replace the **air pilot valves** and press '**Validation**' to restart the machine

|  
Card A2\_I/O is probably defective

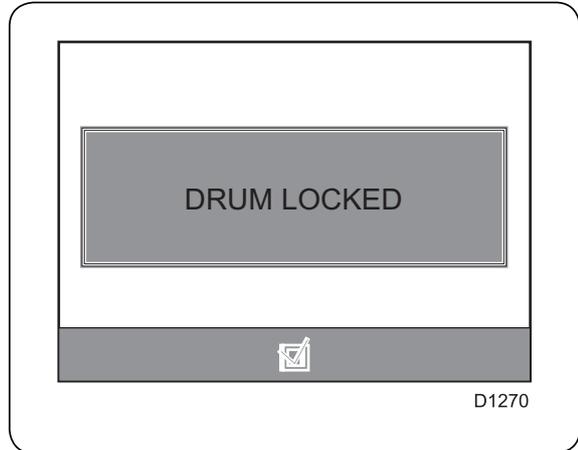
**DRUM LOCKED**

The reverse position of the drum indexing lever is not detected.

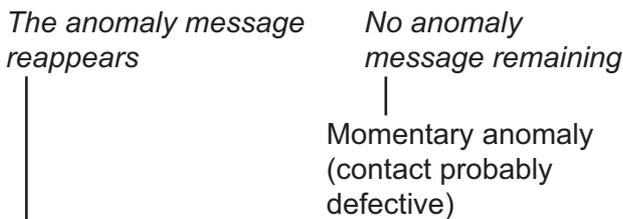
Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

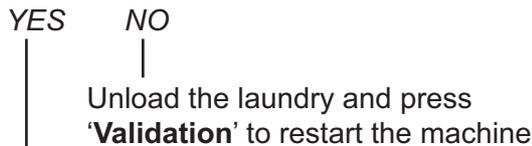
- The distribution of the laundry in the drum.
- The correct operation of the end of run FC2.
- The compressed air feed from the indexing jack.



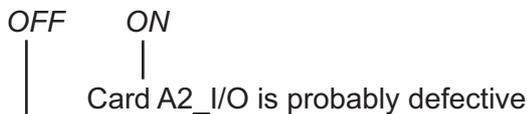
**1. Press the 'Validation' button**



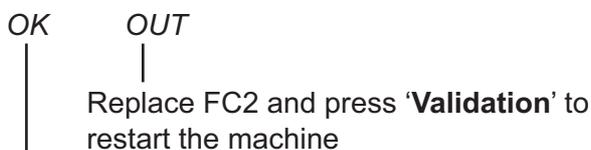
**2. Check that the laundry is properly distributed in the drum**



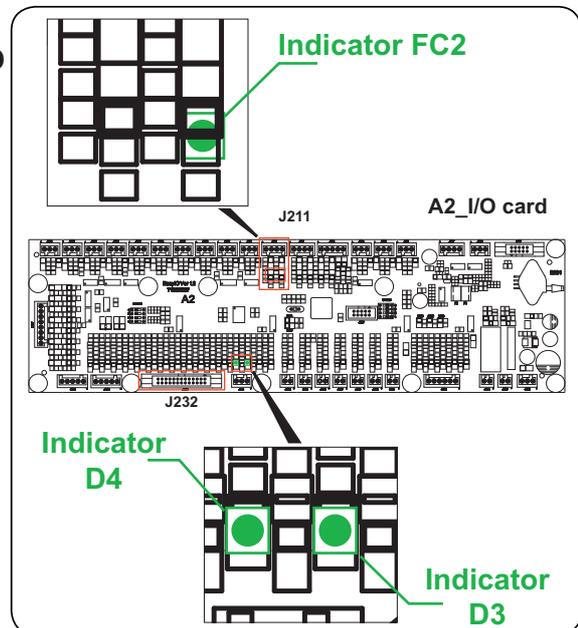
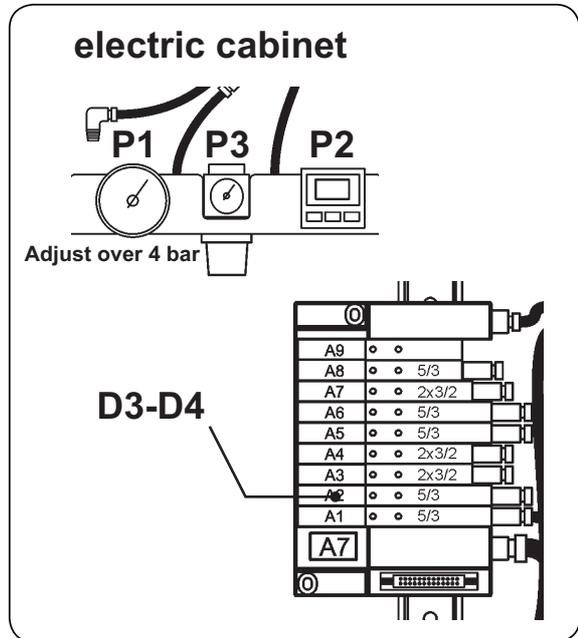
**3. Check the status of indicator FC2 of card A2\_I/O**



**4. Check the end of run FC2 and its connection on A2\_I/O (J211)**



Continued on next page



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## DRUM LOCKED

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Continued from previous page

5. Check the pressure of relief pressostat P1 (adjusted to 4 bar)

= 4 bar

< 4 bar

Check the compressed air arrival and the air distribution network from the machine and press **'Validation'** to restart the machine

6. Check the status of indicators D3 and D4 of card A2\_I/O

OFF

ON

Card A2\_I/O is probably defective

7. Check D3-D4 distributor and its connection on A2\_I/O (J232)

OK

Out

Replace air pilot valves D3-D4 and press **'Validation'** to restart the machine

Card A2\_I/O is probably defective

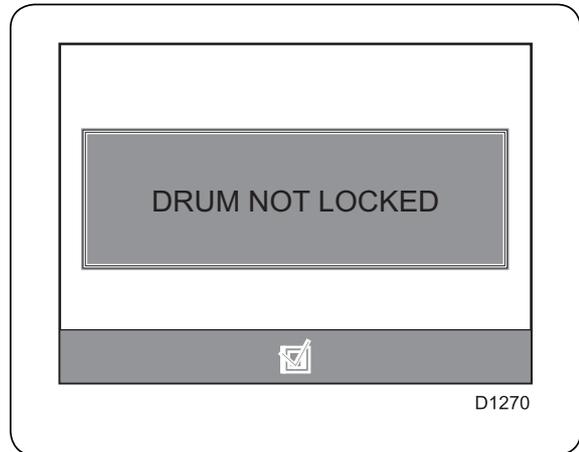
**DRUM NOT LOCKED**

The indexing lever has not lodged itself in its housing.

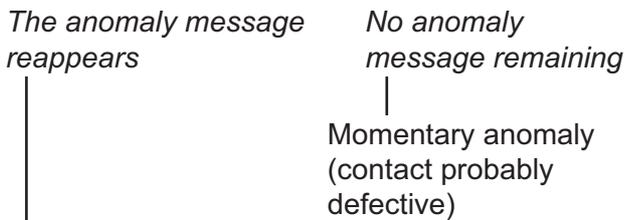
Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

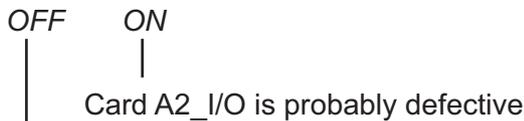
- The correct operation of the end of run FC2.
- The compressed air supply from the indexing jack.



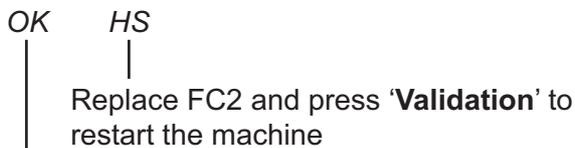
**1. Press the 'Validation' button**



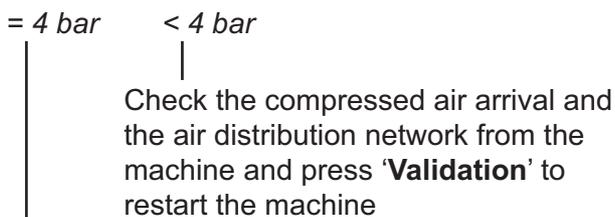
**2. Check the status of indicator FC2 of card A2\_I/O**



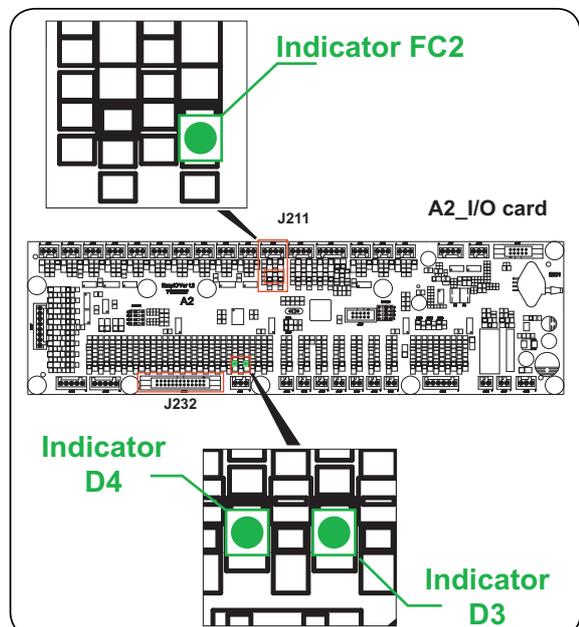
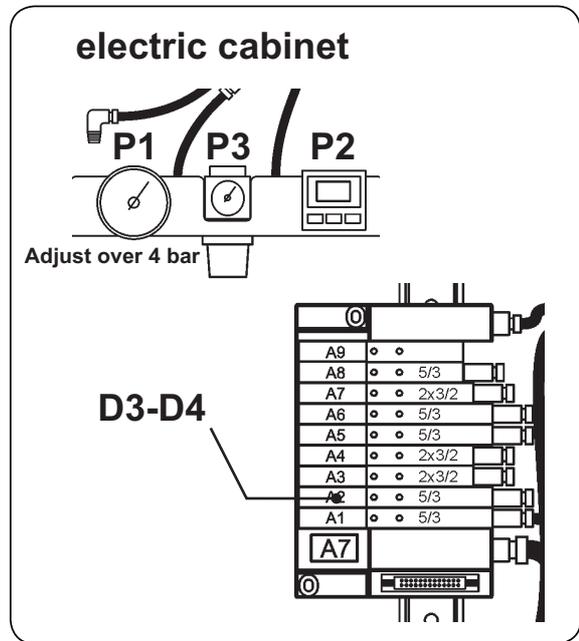
**4. Check the end of run FC2 and its connection on A2\_I/O (J211)**



**4. Check the pressure of relief pressostat P1 (adjusted to 4 bar)**



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## DRUM NOT LOCKED

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Continued from previous page

|

### 5 .Check the status of indicators D3 and D4 of card A2\_I/O

OFF

ON

|

Card A2\_I/O is probably defective

### 6. Check D3-D4 air pilot valves and its connection on A2\_I/O (J232)

OK

OUT

|

Replace air pilot valves D3-D4 and press '**Validation**' to restart the machine

Card A2\_I/O is probably defective

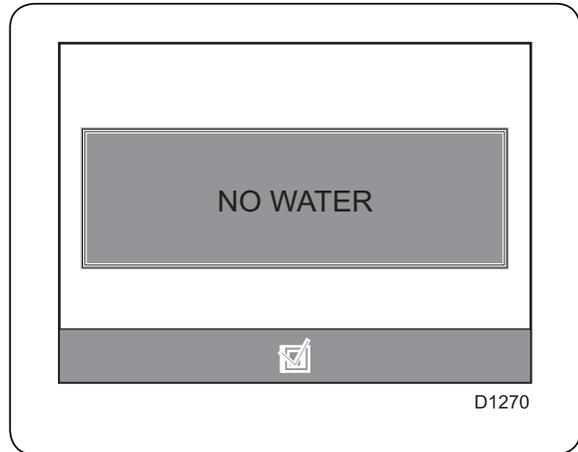
**NO WATER**

The water level has not reached the required level during the set time.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- The arrival of water from the machine.
- The air pressure



**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

**2. Check the machine water feed**

*Open*

*Closed*

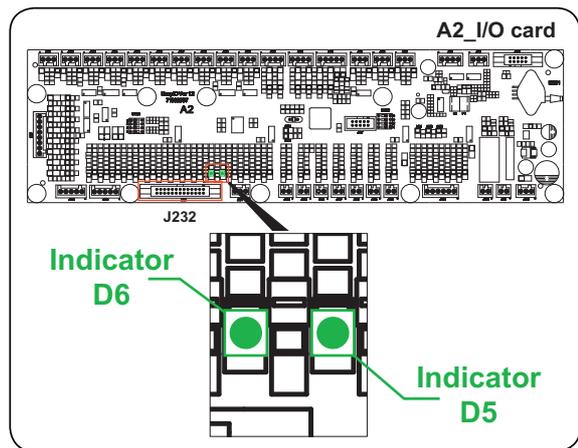
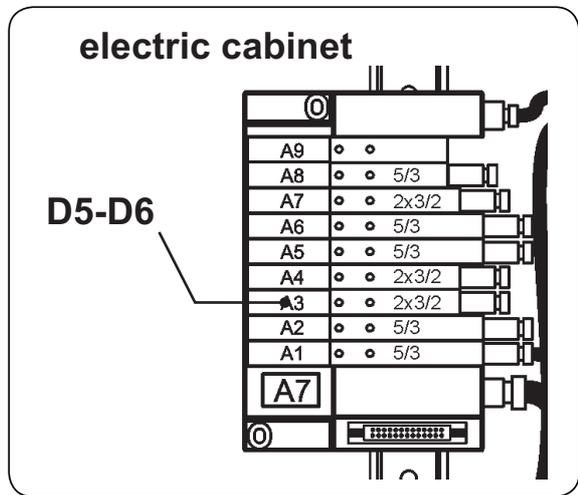
Open the machine water feed and press 'Validation' to restart the machine

**3. Check the pressure of relief pressostat P1 (adjusted to 4 bar)**

*= 4 bar*

*< 4 bar*

Check the compressed air arrival and the air distribution network from the machine and press 'Validation' to restart the machine



Continued on next page



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**DRUM INDEX NOT FOUND**

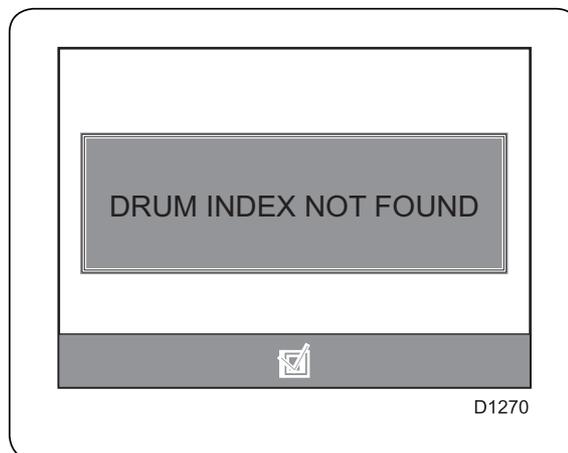
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The position of the indexing lever is incorrect.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- The correct operation of detector DP1, DP2, DP3 and change if necessary.



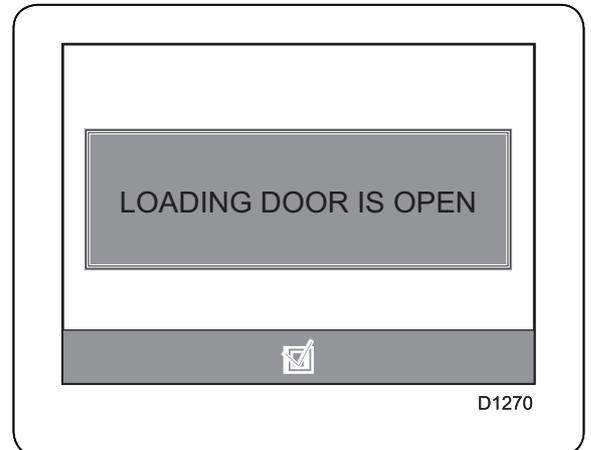
**LOADING DOOR IS OPEN**

The door on the loading side in the locked position is open

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- That the door is reclosed.
- Detector DP4 and its connection on card A2\_I/O (J204).



**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

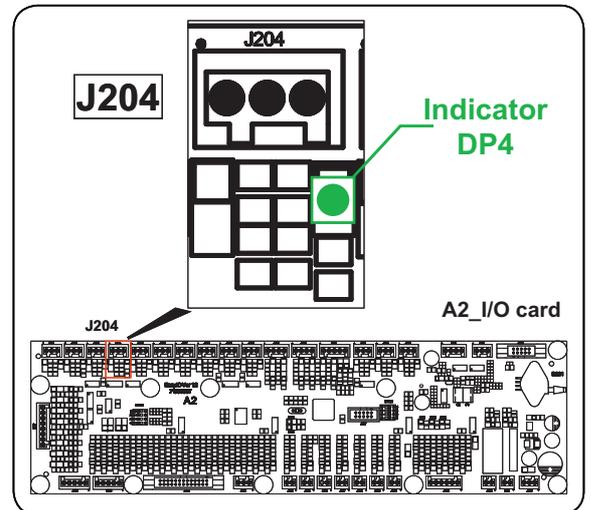
Momentary anomaly (contact probably defective)

**2. Check detector DP4 and its connection on A2\_I/O (J204)**

OK      OUT

Replace the detector and press 'Validation' to restart the machine

A2\_I/O card is probably defective.



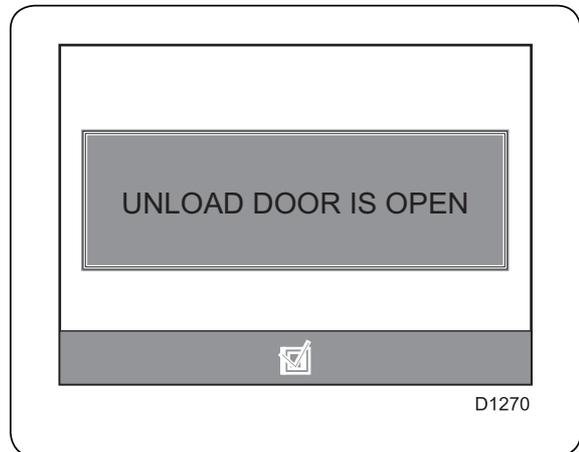
**UNLOAD DOOR IS OPEN**

The door on the loading side in the locked position is open.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- That the door is reclosed.
- Detector DP4 and its connection on card A2\_I/O (J204).



**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

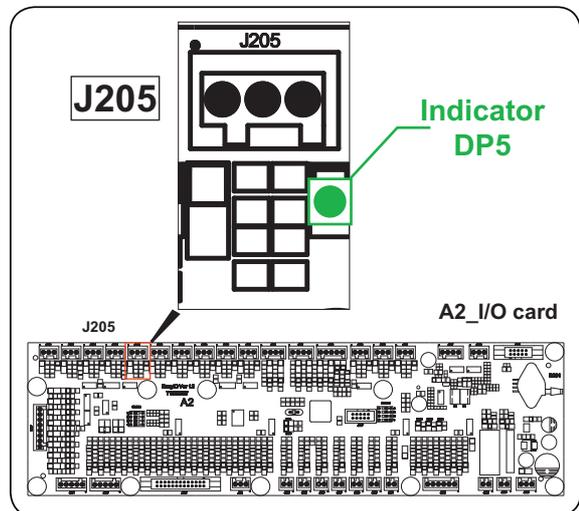
Momentary anomaly (contact probably defective)

**2. Check detector DP4 and its connection on A2\_I/O (J204)**

OK      OUT

Replace the detector and press 'Validation' to restart the machine

Card A2\_I/O is probably defective



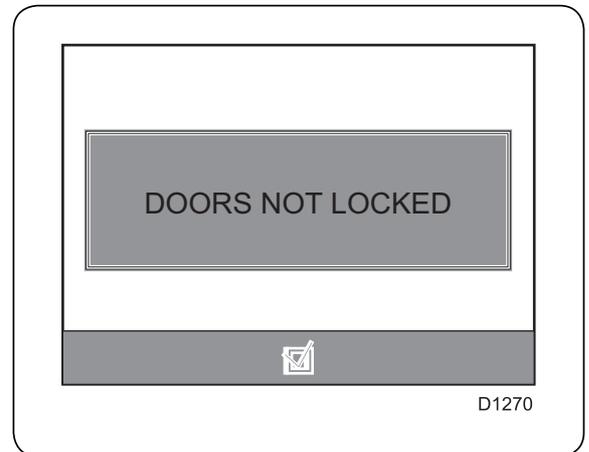
## DOORS NOT LOCKED

The safety door did not detect the locking of the loading and unloading doors.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- The magnetic detectors of each door.
- Door safety casing A4.



### 1. Press the 'Validation' button

*The anomaly message  
reappears*

*No anomaly  
message remaining*

|  
Momentary anomaly  
(contact probably  
defective)

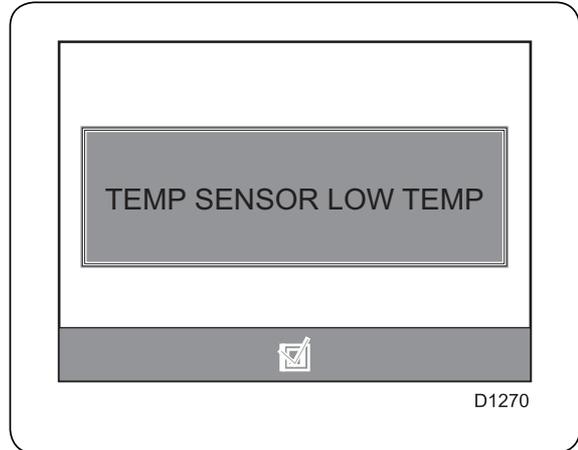
**TEMP SENSOR LOW TEMP**

The water temperature is too low relative to the min. authorised value.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- Temperature sensor R1 (PT100) and its connection on card A2\_I/O (J218).



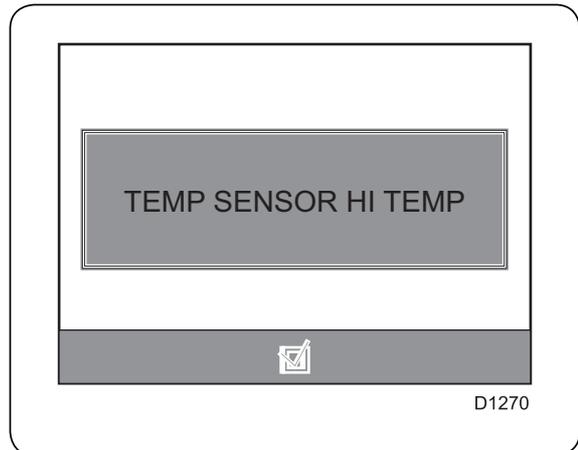
**TEMP SENSOR HI TEMP**

The water temperature is too high relative to the max. authorised value.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- Temperature sensor R1 (PT100) and its connection on card A2\_I/O (J218).

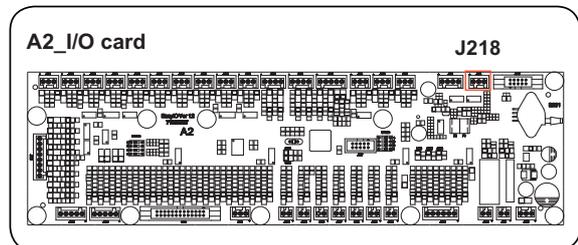


**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

Temporary error (probably defective contact)



**2. Using an ohmmeter, check the ohmic value, temperature sensor R1 and its connection on A2\_I/O (J218), at ambient temperature, the ohmic value of R1 must be between 107.79 and 108.57 ohms**

OK

OUT

Change the sensor and press 'Validation' to restart the machine

Card A2\_I/O is probably defective

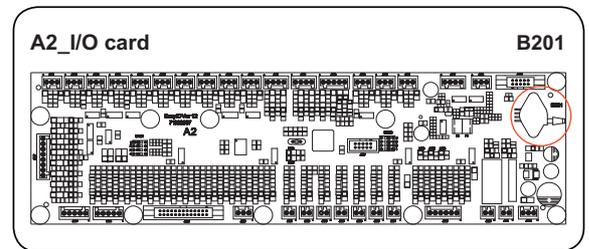
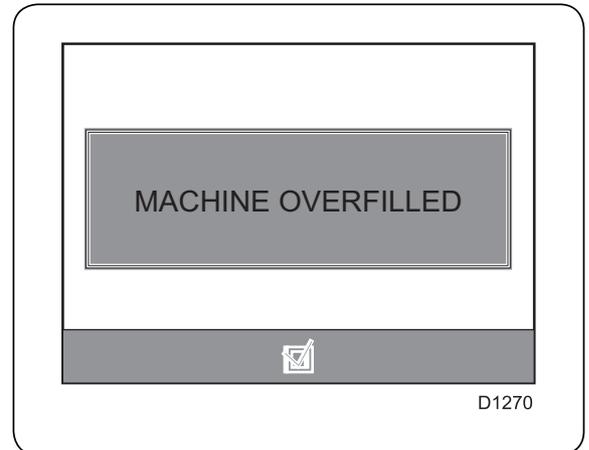
## MACHINE OVERFILLED

The level of water in the tank is too high relative to the max. authorised value.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- The value of the water level written in the washing program.
- The flexible from the pressure pressostat of level B201
- The pressure pressostat of level B201.



### 1. Press the 'Validation' button

*The anomaly message reappears*

*No anomaly message remaining*

Temporary error (probably defective contact)

### 2. Check the level of water in the machine

*No excess*

*Excess*

Stop and empty the machine manually and press '**Validation**' to restart the machine

### 3. Check whether the level changes if the flexible is removed from the pressure pressostat

*No Variation*

*Variation*

Clean or replace the flexible and press '**Validation**' to restart the machine

Pressostat B201 of card A2\_I/O is probably defective, change card A2\_I/O

---

**NO HEATING**

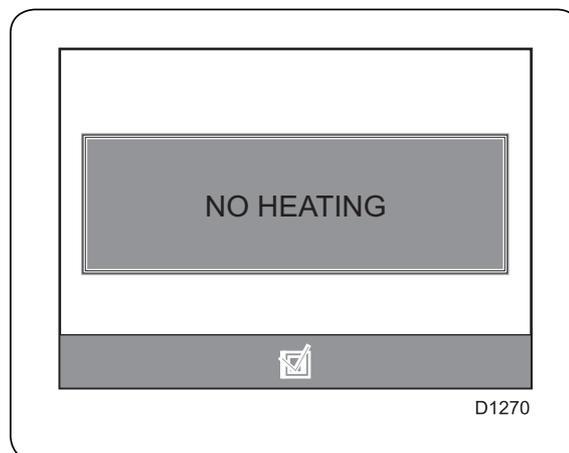
---

The heating temperature does not reach the required value during the set time.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- The steam arrival (steam heating)
- Heating contactors KM3, KM4 (electrical heating)



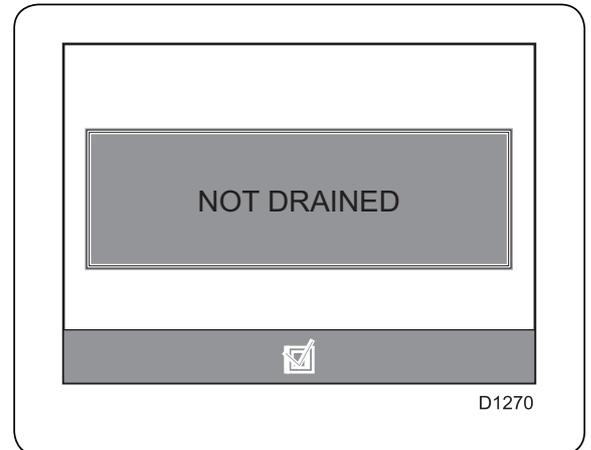
## NOT DRAINED

The tank is not emptied during the set time.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- The water discharge
- The drain jack by operating it manually



### 1. Press the 'Validation' button

*The anomaly message reappears*

*No anomaly message remaining*

Temporary error (probably defective contact)

### 2. Check the water discharge

*OK*

*Obstructed*

Does as necessary and press '**Validation**' to restart the machine

### 3. Check the drain jack by operating it manually

*OK*

*OUT*

#### 4. Check the pressure of relief pressostat P1 (adjusted to 4 bar)

*= 4 bar*

*< 4 bar*

Check the compressed air arrival and the air distribution network from the machine and press '**Validation**' to restart the machine

#### 5. Check air pilot valve D8 and its connection on A2\_I/O (J232)

*OK*

*OUT*

Replace air pilot valve D8 and press '**Validation**' to restart the machine

Card A2\_I/O is probably defective

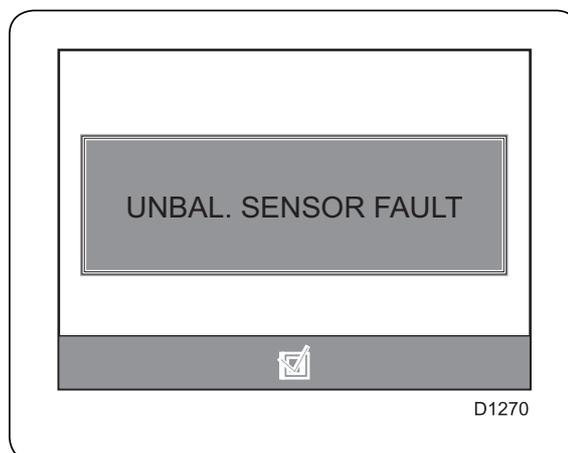
## UNBAL. SENSOR FAULT

An instability of the machine activated the pin sensors.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code :

- Empty the machine if necessary
- Remove the laundry from the machine
- Check the drain jack



### 1. Press the 'Validation' button

*The anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

### 2. Check that the laundry is properly distributed in the drum

*YES*

*NO*

Unload the laundry and press '**Validation**' to restart the machine

### 3. Check the water discharge

*OK*

*Obstructed*

Does as necessary and press '**Validation**' to restart the machine

### 4. Check the drain jack by operating it manually

*OK*

*OUT*

#### 5. Check the pressure of relief pressostat P1 (adjusted to 4 bar)

*= 4 bar*

*< 4 bar*

Check the compressed air arrival and the air distribution network from the machine and press '**Validation**' to restart the machine

#### 6. Check air pilot valve D8 and its connection on A2\_I/O (J232)

*OK*

*OUT*

Replace air pilot valve D8 and press '**Validation**' to restart the machine

Card A2\_I/O is probably defective

---

**PROGRAM CRC ERROR**

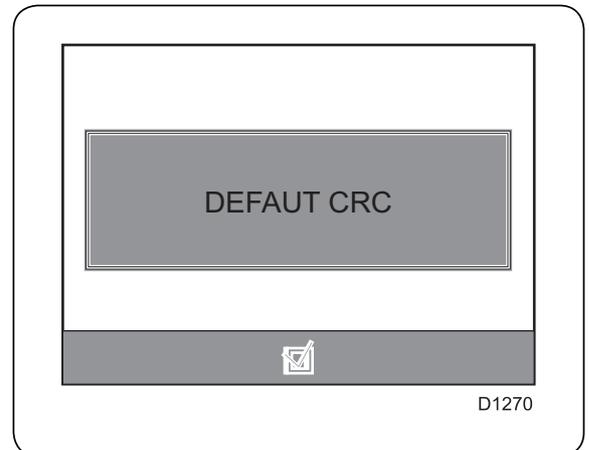
---

Card A1\_CPU is defective.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- Contact the factory after-sales service



---

**SDRAM CRC ERROR**

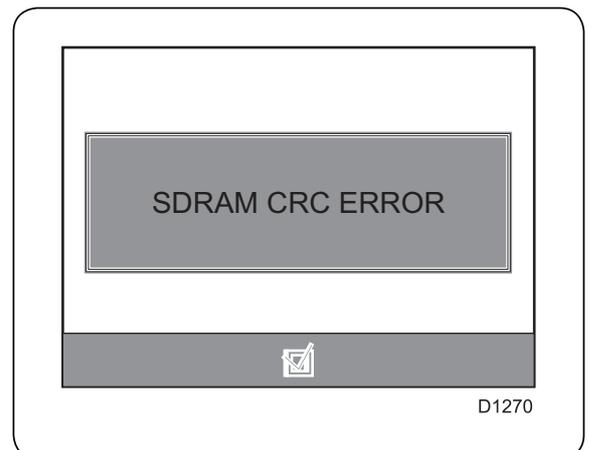
---

Card A1\_CPU is defective, with a risk of losing data from the CPU.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- Contact the factory after-sales service



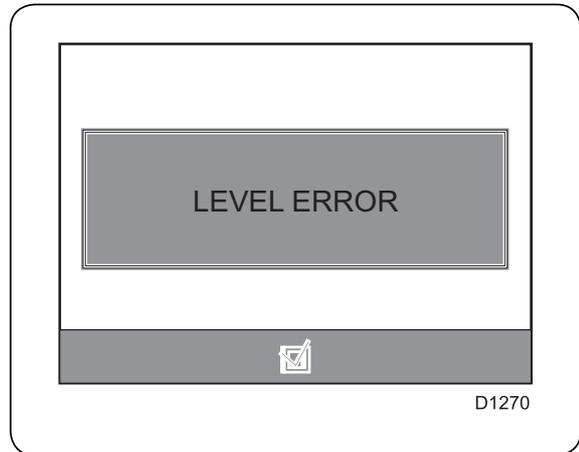
**LEVEL ERROR**

An incoherence in the detection of the water level.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- The pipe from the pressure pressostat of level B201
- The correct operation of the drain and its discharge



**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

**2. Check the level of water in the machine**

*No excess*

*Excess*

Stop and empty the machine manually

**3. Check whether the level changes if the flexible is removed from the pressure pressostat B201**

*No Variation*

*Variation*

Clean the pipe or replace it and press '**Validation**' to restart the machine

Pressostat B201 of card A2\_I/O is probably defective, change card A2\_I/O

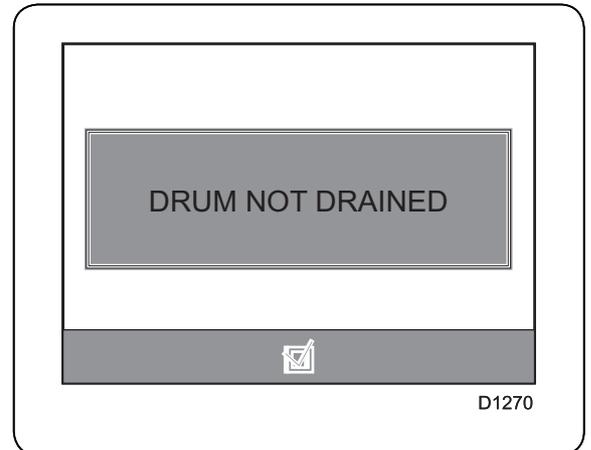
**DRUM NOT DRAINED**

The drain did not complete correctly during the set time.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- The correct operation of the drain and its discharge



**1. Press the 'Validation' button**

*The anomaly message reappears*

*No anomaly message remaining*

Momentary anomaly (contact probably defective)

**2. Check the level of water in the machine**

*Water in the drum*

*Absence of water in the drum*

**3. Check whether the level changes if the pipe is removed from the pressure pressostat B201**

*No Variation*

*Variation*

Clean the pipe or replace it and press '**Validation**' to restart the machine

Pressostat B201 of card A2\_I/O is probably defective, change card A2\_I/O

**4. Check the drain jack by operating it manually**

*OK*

*OUT*

**5. Check the pressure of relief pressostat P1 (adjusted to 4 bar)**

*= 4 bar*

*< 4 bar*

Check the compressed air arrival and the air distribution network from the machine and press '**Validation**' to restart the machine

Continued on next page

---

**DRUM NOT DRAINED**

---

Continued from previous page

6. Check air pilot valve D8 and its connection on A2\_I/O (J232)

OK

OUT

Replace air pilot valve D8 and press '**Validation**' to restart the machine

Card A2\_I/O is probably defective

## WAITING COM.

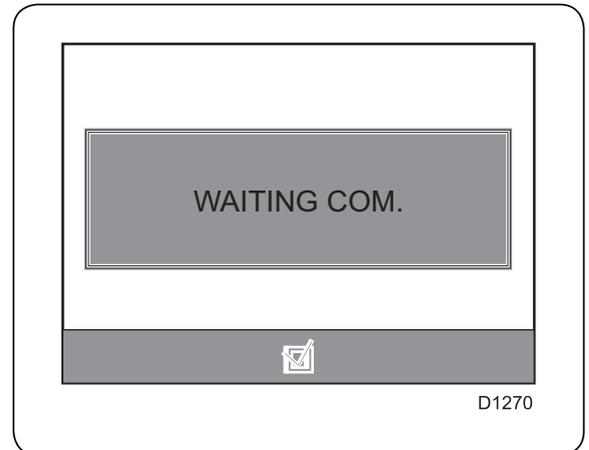
The link between card A3\_display and card A1\_CPU is working but there is no page loading.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- Restart the machine.

If the error continues, contact the factory after-sales service



## WAITING COM. PAGE

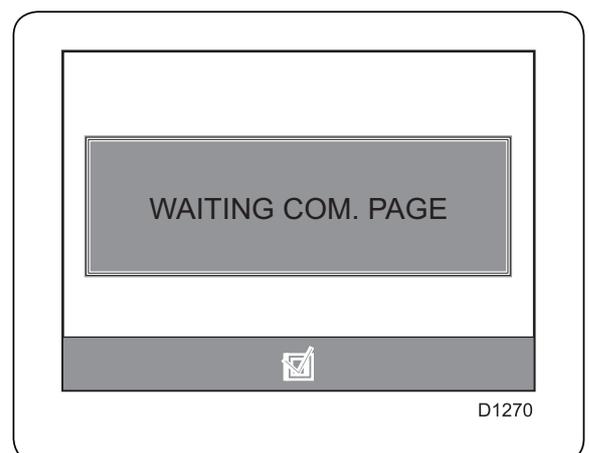
The link between card A3\_display and card A1\_CPU is working but  
mais il y n'a pas de chargement de page.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- Restart the machine.

If the error continues, contact the factory after-sales service



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**SENSOR DP6 MISSING**

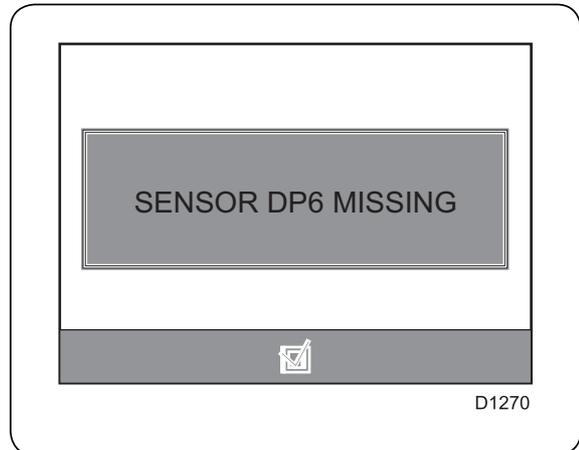
---

The DP6 detector is detected as out of order.

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button.

The same anomaly reappears after erasure of the anomaly code, check :

- The wire of the detector.
- The correct operation of the detector



---

**LOW GREASE LEVEL**

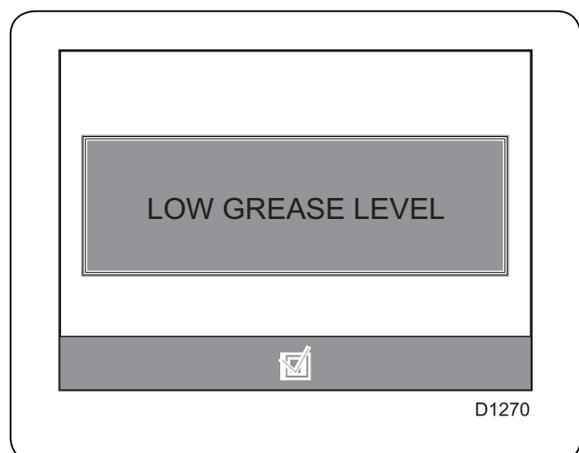
---

XXXXX

Try to restart the machine (i.e. reset the error code) by pressing 'Validation' button..

The same anomaly reappears after erasure of the anomaly code, check :

- XXXXXXXX



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## 51. Electric diagram

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### Contents

Power.....	Folio 01
Control.....	Folio 02
I/O card_Inputs .....	Folio 03
I/O card_Inputs .....	Folio 05
Esasy Relays card_Inputs .....	Folio 07
SMC Distributor .....	Folio 09
Rep, Libelle, Folio.....	Folio 12
I/O card_Connectors .....	Folio 15
I/O card_Indicators .....	Folio 16

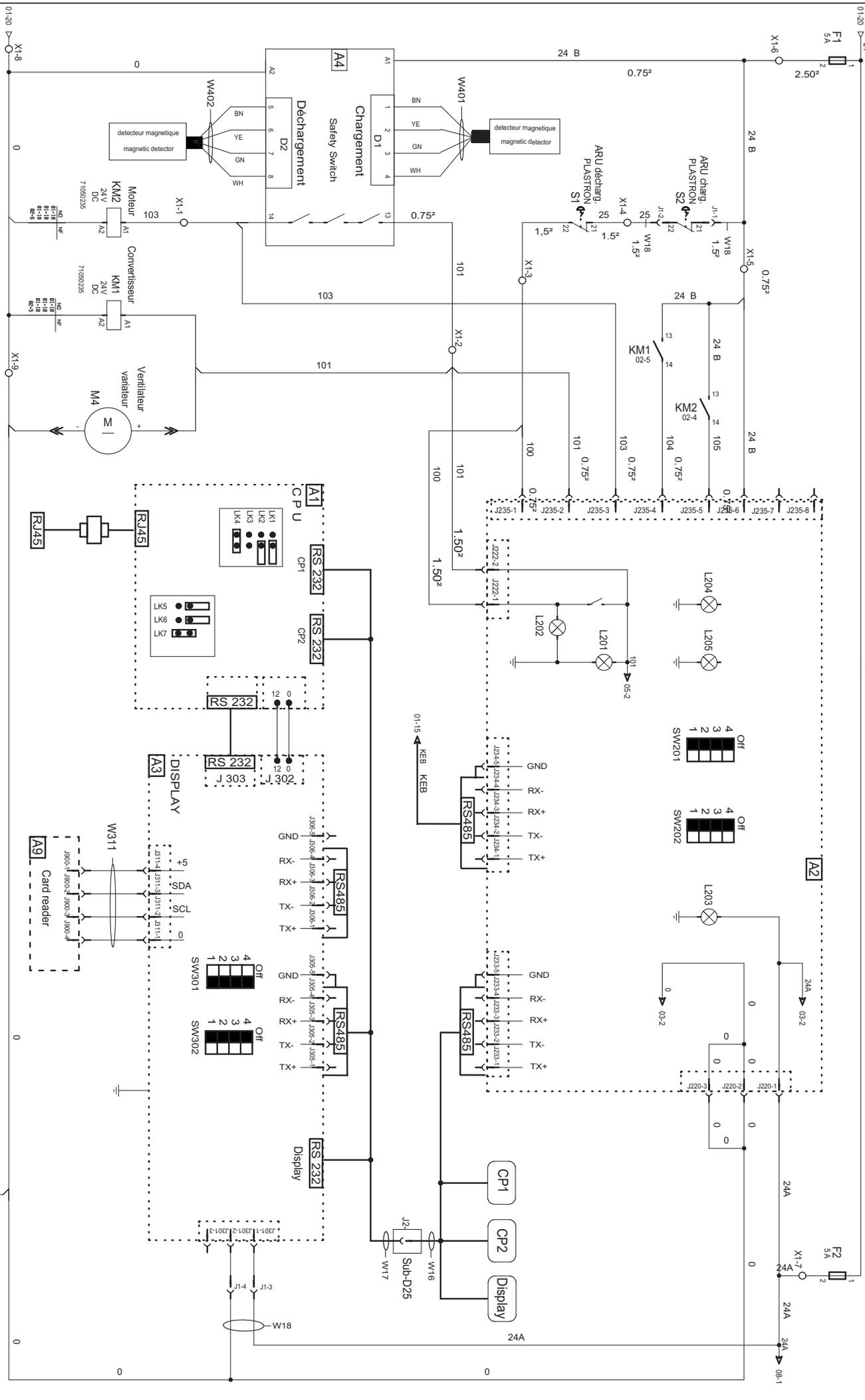




2.50²

24

08-1



**Electrolux**  
 ELECTROLUX LAUNDRY SYSTEMS

DESIGNÉ	GUBLIN
VÉRIFIÉ	GUBLIN
DATE DE CRÉATION	06/09/2005
PROJÉ	A
DATE	
Approuvé	
MODIFICATION	

Commande

MARQUERSIP/ANSELEC/WBP G4000/31104156 G4000 V1

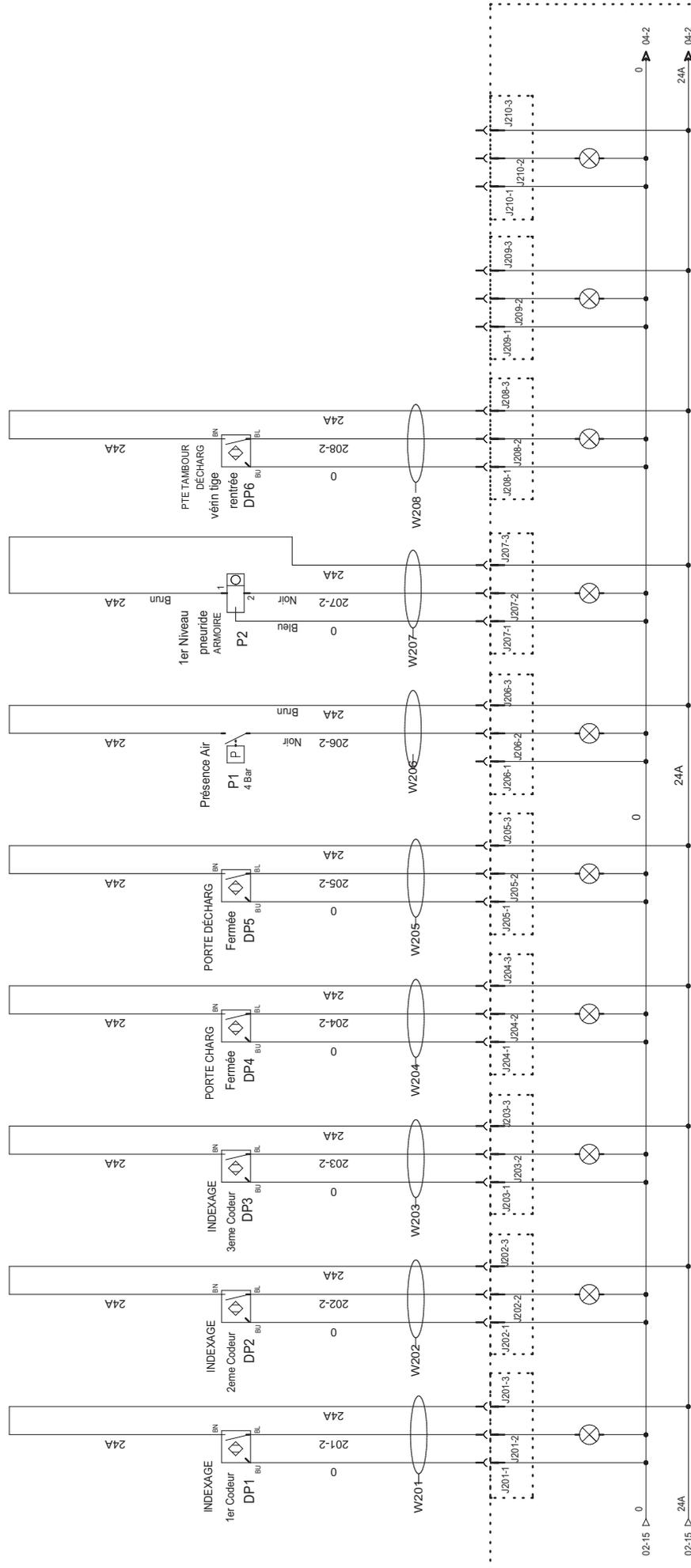
control

WPB4 700 900 1100

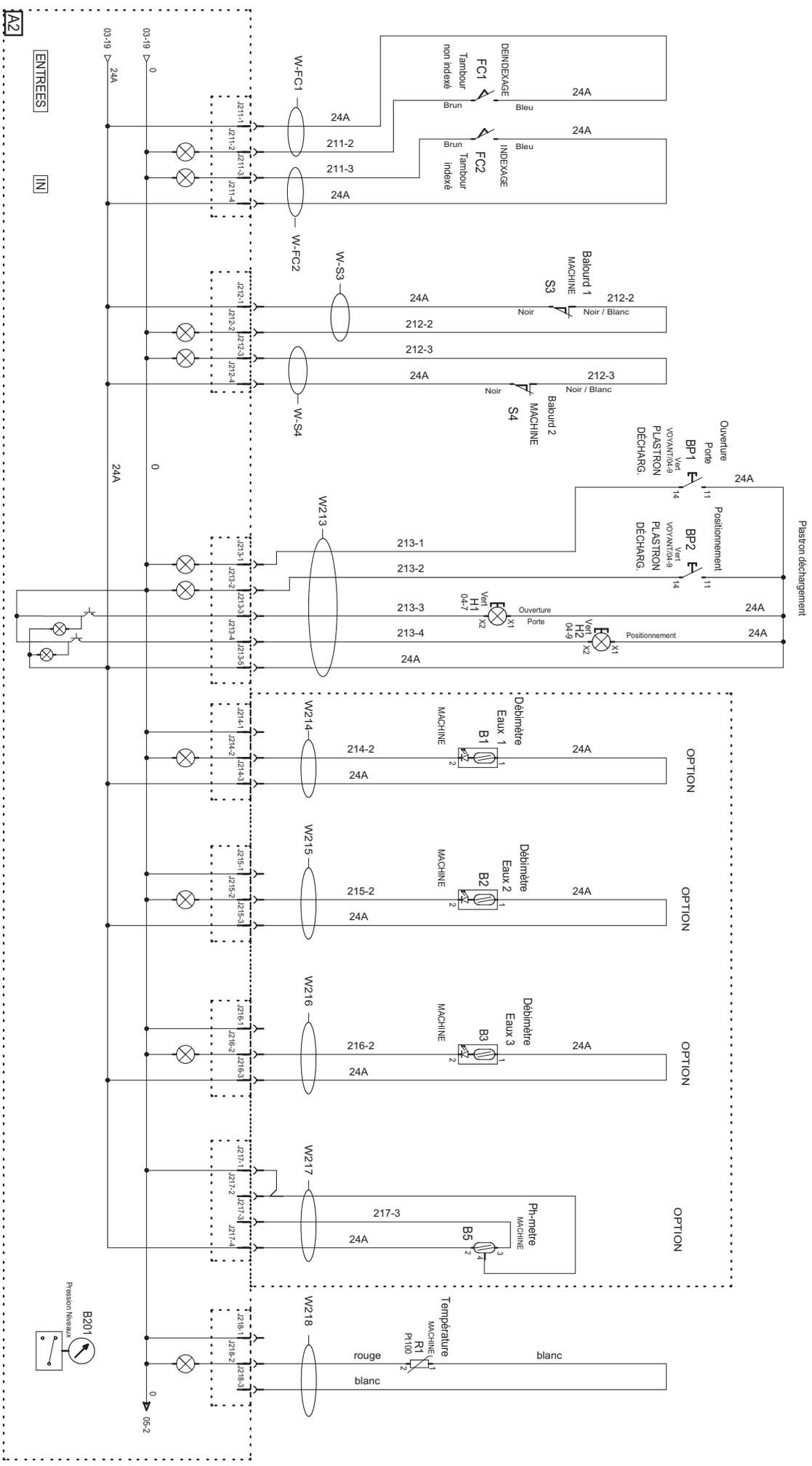
31104156

FOLIO 02

Logiciel SEE v. 300



A2 ENTREES IN



**Electrolux**

DATE DE CÉLÉBRATION: 06/09/2005

VERIFIER: GUBLIN

INDEX: A

DATE: / /

Langues: /

MODIFICATION: /

**ENTREES / IN**

MARQUE: WFB4 700 900 1100

31104156

DESIGNÉ: GUBLIN

DATE DE CÉLÉBRATION: 06/09/2005

INDEX: A

DATE: / /

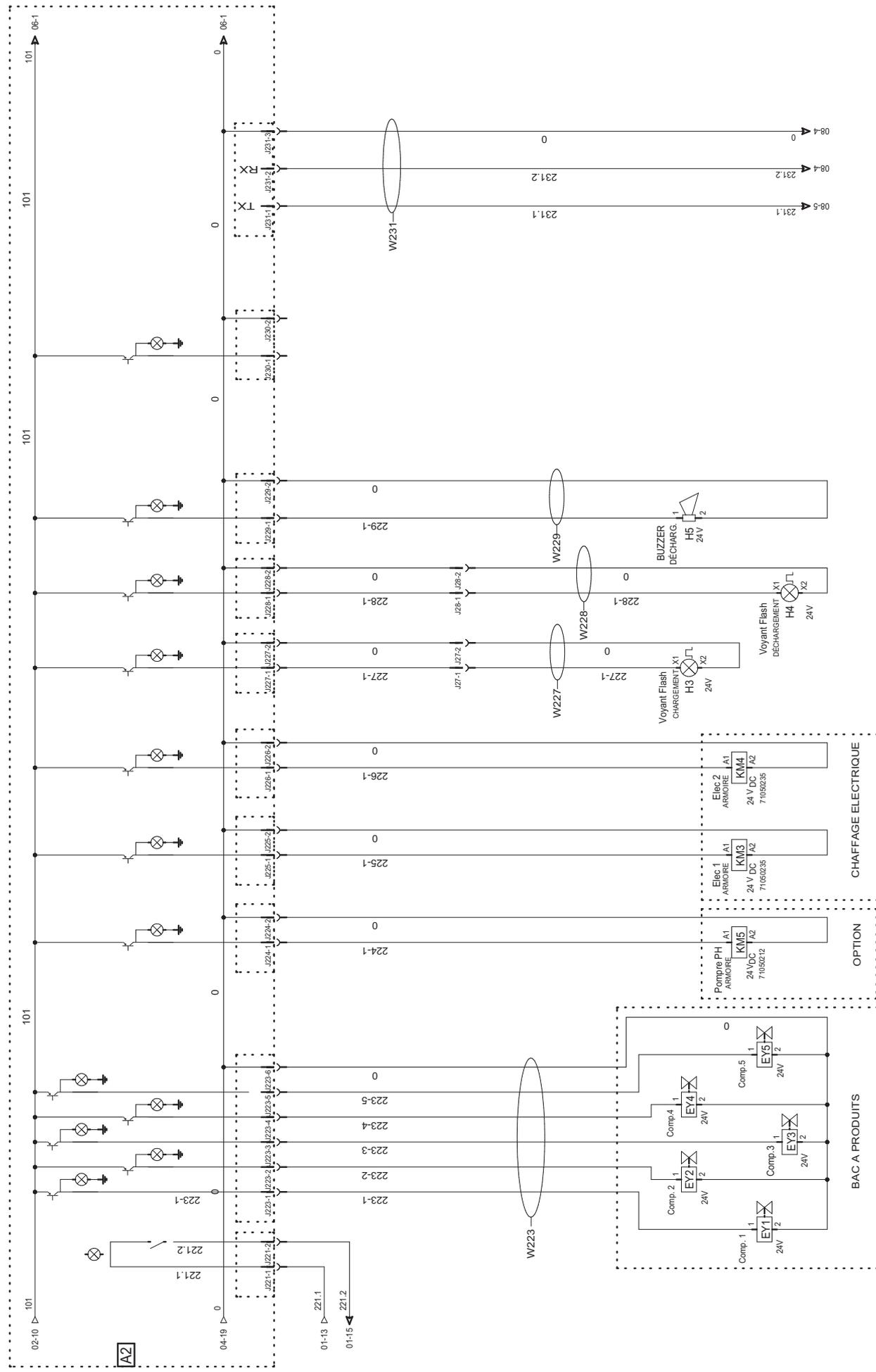
Langues: /

MODIFICATION: /

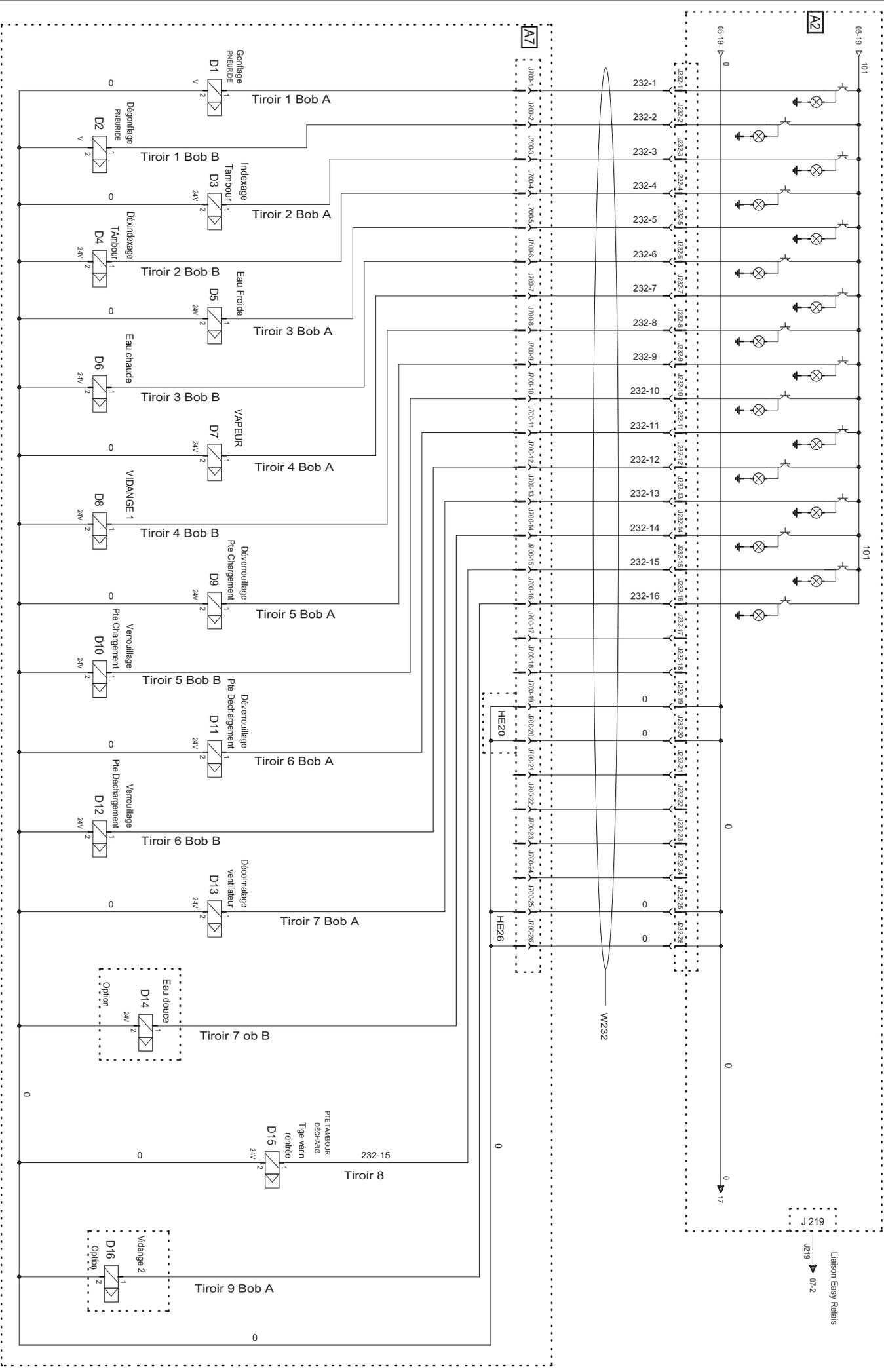
Electrolux LAUNDRY SYSTEMS

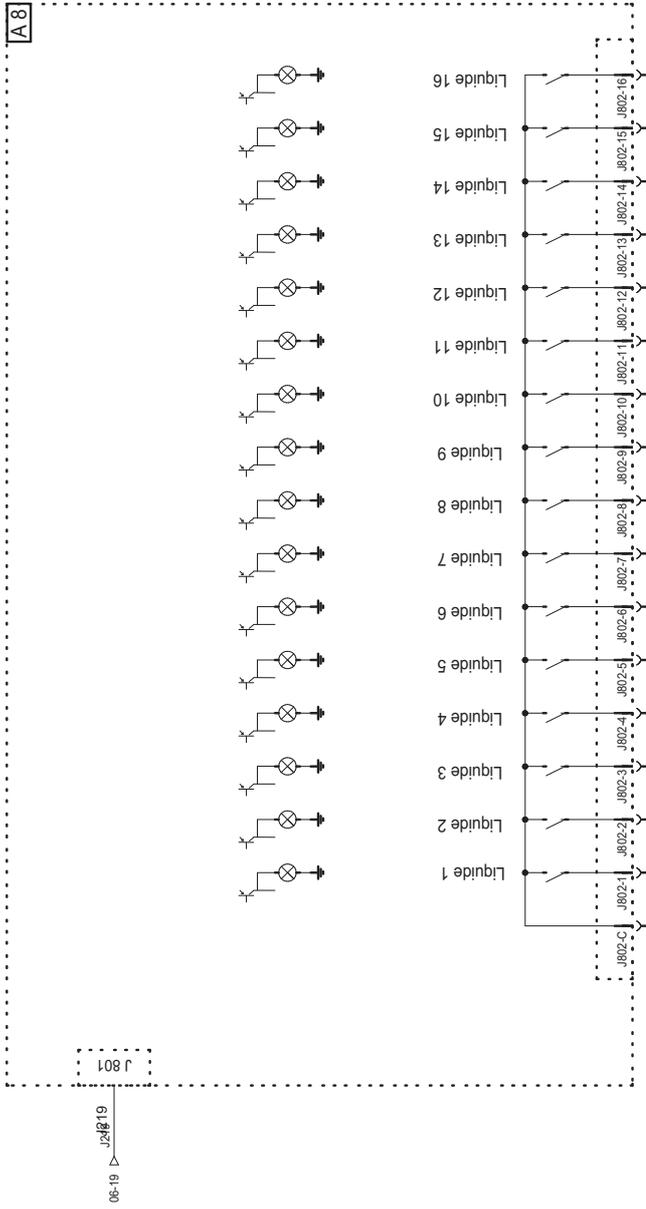
FOLIO 04

Logiciel SEE v. 300



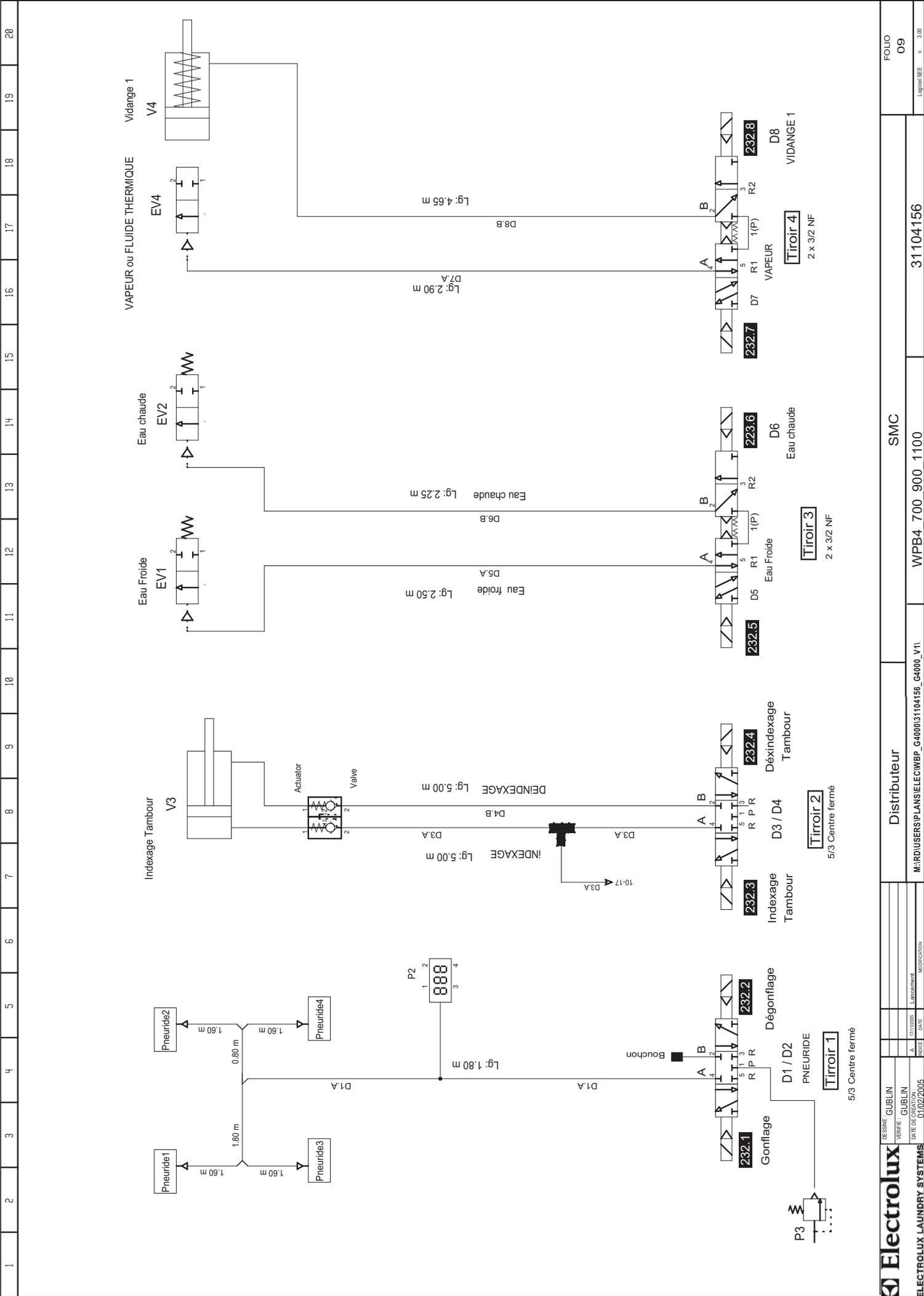
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81-1	81-4	81-5	81-6
81-2	81-3	81-7	81-8



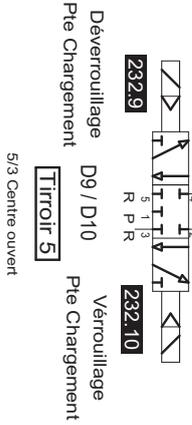
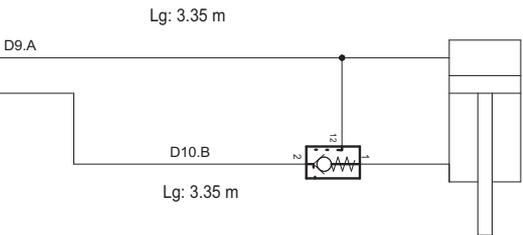


06-19 Jx819  
J 801



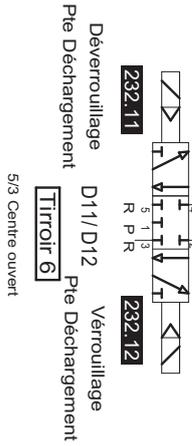
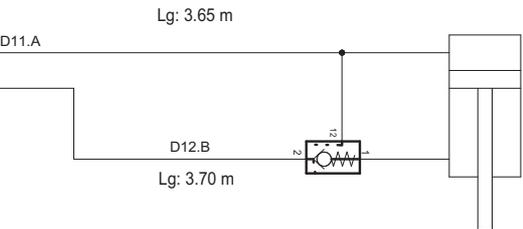


PORTE CHARGEMENT  
V1



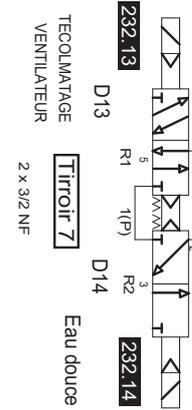
5/3 Centre ouvert

PORTE DECHARGEMENT  
V2

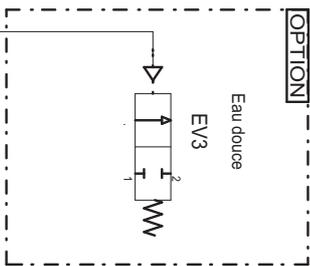


5/3 Centre ouvert

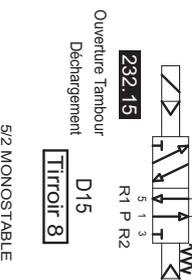
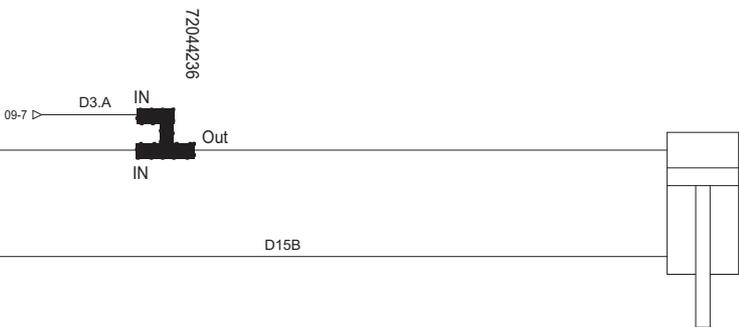
DECOLMATAGE  
VENTILATEUR



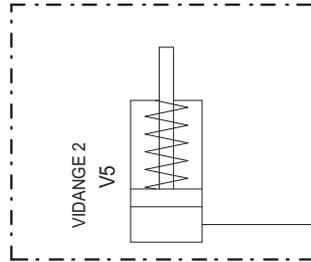
2 x 3/2 NF



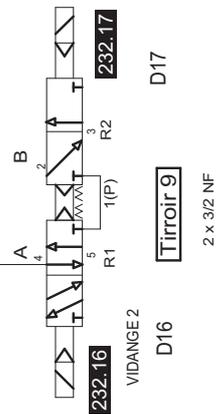
Verin Ouverture  
Tambour  
V6



5/2 MONOSTABLE



D16A



REPERE	DESIGNATION	FONCTION	FOLIO	REFERENCE
A1	CARTE / BOARD	CPU / CPU	02	
A2	CARTE / BOARD	ENTREES/SORTIES / INPUT / OUTPUT	02	
A3	CARTE / BOARD	DISPLAY / DISPLAY	02	
A4	BOÎTIER SÉCURITÉ / SWITCH SAFETY	SÉCURITÉ PORTE / DOOR SAFETY	02	
A5	FILTRE / FILTER	VARIATEUR / CONVERTER	01	
A6	VARIATEUR / CONVERTER	MOUVEMENT / MOTION	01	
A7	BLOC PNEUMATIQUE / PNEUMATIC BLOC	COMMANDE / POWER	06	
A8	CARTE / BOARD	SORTIE RELAIS / OUT RELAY	07	
B1	DÉBIMÈTRE	EAUX 1	04	
B2	DÉBIMÈTRE	EAUX 2	04	
B3	DÉBIMÈTRE	EAUX 3	04	
B5	SONDE /	PH-mètre	04	
B201	PRESSOSTAT/CONTROL LEVER	PRESSION NIVEAUX / LEVEL PRESSURE	04	
BP1	BONTON POUSSOIR / PUSH BUTTON	OUVERTURE PORTE / DOOR OPEN	04	
BP2	BONTON POUSSOIR / PUSH BUTTON	POSITIONNEMENT /	04	
D1	DISTRIBUTEUR / DISPENSER	Gonflage	06	
D2	DISTRIBUTEUR / DISPENSER	Dégonflage	06	
D3	DISTRIBUTEUR / DISPENSER	INDEXAGE TAMBOUR	06	
D4	DISTRIBUTEUR / DISPENSER	DÉINDEXAGE TAMBOUR	06	
D5	DISTRIBUTEUR / DISPENSER	Eau Froide	06	
D6	DISTRIBUTEUR / DISPENSER	Eau chaude	06	
D7	DISTRIBUTEUR / DISPENSER	VAPEUR	06	
D8	DISTRIBUTEUR / DISPENSER	VIDANGE 1	06	
D9	DISTRIBUTEUR / DISPENSER	DÉVERROUILLAGE PTE CHARGEMENT	06	
D10	DISTRIBUTEUR / DISPENSER	VERROUILLAGE PTE CHARGEMENT	06	
D11	DISTRIBUTEUR / DISPENSER	DÉVERROUILLAGE PTE DÉCHARGEMENT	06	
D12	DISTRIBUTEUR / DISPENSER	VERROUILLAGE PTE DÉCHARGEMENT	06	
D13	DISTRIBUTEUR / DISPENSER	Décolmatage ventilateur	06	
D14	DISTRIBUTEUR / DISPENSER	Eau douce	06	
D15	DISTRIBUTEUR / DISPENSER	Ouverture tambour	06	
D16	DISTRIBUTEUR / DISPENSER	Vidange 2	06	
DP1	DÉTECTEUR / DETECTOR	1er Codeur	03	

 <b>Electrolux</b> ELECTROLUX LAUNDRY SYSTEMS	Dessine: _____ Vérifié: _____ Date de création: 22/09/2006	A 001 16/11/2005 23/03/2011	Lancement Modification	<b>Nomenclature</b>	<b>Rep/Libelle/Fonction/Folio/Code</b>	M:RDUERSPLANSIELECIWPB_G4000131104156_G4000_Y11 NOMENCLATURE	G4000	FOLIO 12
	Logiciel SEE v. 3.00							

REPERE	DESIGNATION	FONCTION	FOLIO	REFERENCE
DP2	DÉTECTEUR / DETECTOR	2eme Codeur	03	
DP3	DÉTECTEUR / DETECTOR	3eme Codeur	03	
DP4	DÉTECTEUR / DETECTOR	PTE CHARG.FERMÉE /	03	
DP5	DÉTECTEUR / DETECTOR	PTE DÉCHARG.FERMÉE /	03	
DP6	DÉTECTEUR / DETECTOR	Vérin porte tambour déchargement	03	
EY1	ELECTROVANNE / SOLENOID VALVE	COMP. 1 / COMPARTMENT 1	05	
EY2	ELECTROVANNE / SOLENOID VALVE	COMP. 2 / COMPARTMENT 2	05	
EY3	ELECTROVANNE / SOLENOID VALVE	COMP.3 / COMPARTMENT 3	05	
EY4	ELECTROVANNE / SOLENOID VALVE	COMP.4 / COMPARTMENT 4	05	
EY5	ELECTROVANNE / SOLENOID VALVE	COMP.5 / COMPARTMENT 5	05	
F1	FUSIBLE / CIRCUIT BREAKER	COMMANDE / POWER 24B	02	
F2	FUSIBLE / CIRCUIT BREAKER	COMMANDE / POWER 24A	02	
FC1	DÉTECTEUR FIN DE COURSE / POSITION SWITCH	INDEXAGE / DRUM INDEX	04	
H3	VOYANT / SIGNAL LIGHT	FLASH CHARGEMENT / LOADING	05	
H4	VOYANT / SIGNAL LIGHT	FLASH DECHARGEMENT / UNLOADING	05	
H5	BUZZER / BUZZER	DÉCHARGEMENT / UNLOADING	05	71085028
KM1	CONTACTEUR / CONTACTOR	CONVERTISSEUR / CONVERTER	02	71050235
KM2	CONTACTEUR / CONTACTOR	MOTEUR / MOTION	02	71050235
KM3	CONTACTEUR / CONTACTOR	Elec 1	05	71050235
KM4	CONTACTEUR / CONTACTOR	Elec 2	05	71050235
KM5	CONTACTEUR / CONTACTOR	Pompre PH	05	71050212
M1	MOTEUR / MOTOR	MOUVEMENT / MOTION	01	
M2	MOTEUR / MOTOR	VENTILATION / MOTION FAN	01	
M4	MOTEUR / MOTOR	VENTILATEUR VARIATEUR / CONVERTER FAN	02	
P1	PRESSOSTAT / PRESSURE	PRÉSENCE AIR / AIR PRESENCE	03	
P2	PRESSOSTAT / PRESSURE	NIVEAU PNEURIDE / PNEUMATIC VALVE	03	
Q0	INTERRUPTEUR SECTIONNEUR / THREE-POLE SWITCH	SECTIONNEUR / MAIN SWITCH	01	71054168
Q1	DISJONCTEUR / BREAKER	PUISSANCE / POWER	01	71082351
Q2	DISJONCTEUR / BREAKER	COMMANDE / CONTROL	01	71082143
R1	RESISTANCES / ELEMENTS	TEMPÉRATURE / HEATING	04	
S1	COUP DE POING / EMERGENCY STOP	ARU DÉCHARGEMENT / UNLOADING E. STOP	02	
S2	COUP DE POING / EMERGENCY STOP	ARU CHARGEMENT / LOADING E. STOP	02	



**ELECTROLUX LAUNDRY SYSTEMS**

DESSINE :  
VERIFIE :  
DATE DE CREATION : 22/03/2006

A 18/11/2005  
0001 2303/2001  
INDICE DATE

Lancement  
MODIFICATION

Nomenclature

Rep/Libelle/Fonction/Folio/Code

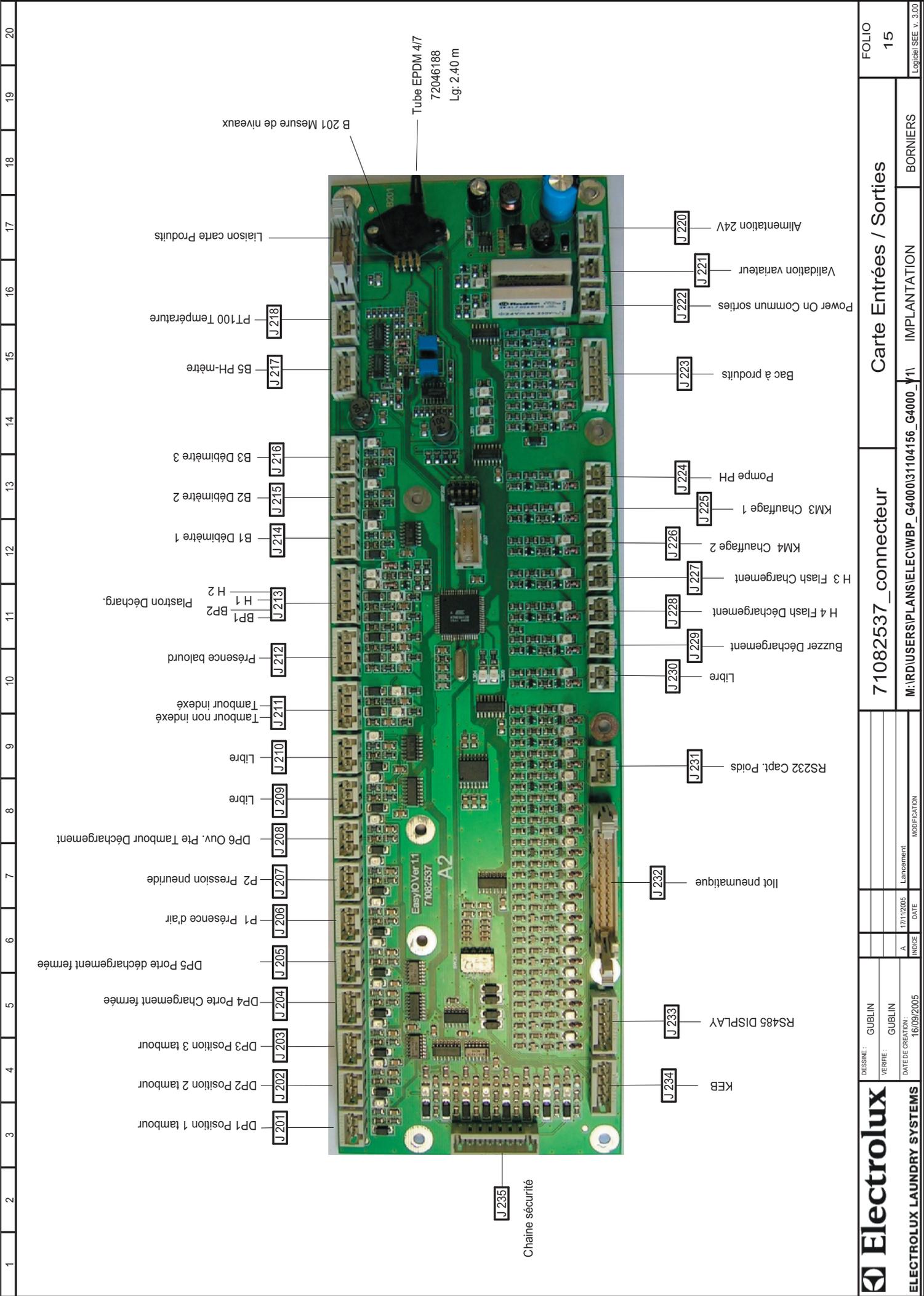
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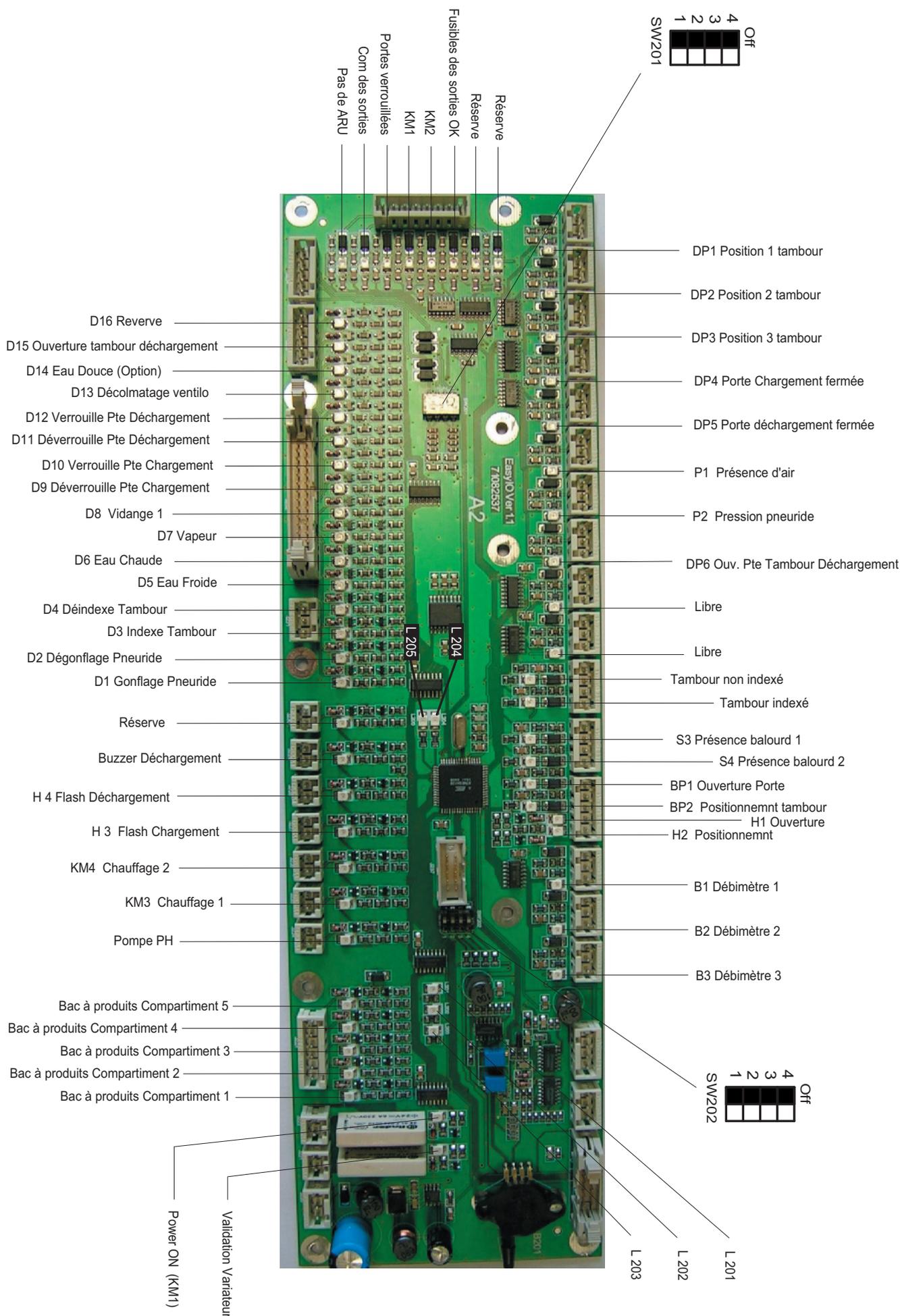
FOLIO

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