

Service manual

WS3_WSB3 230-340-470-670 H

WS4_WSB4 250-350-500-650 H

Washers-Extractors

Thinking of you

 **Electrolux**

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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

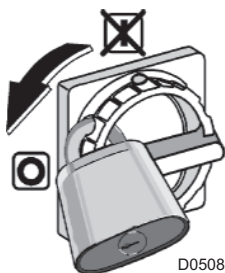
A red insert at the beginning of this instruction handbook schematically shows the locking and tagging procedure described below. If you wish, you can detach this insert and display it close to the machine to remind maintenance personnel of the safety instructions.

1

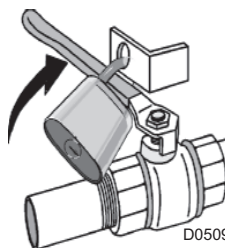


Always respect items 2, 3 and 4 carefully before doing any repair or maintenance work on the machine.

2



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

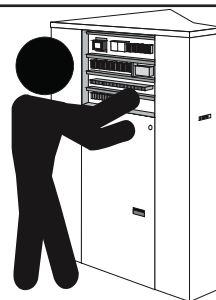


Close the stop valves for the other supplies (steam, thermal fluid, compressed air) to stop and lock their handle with a padlock.

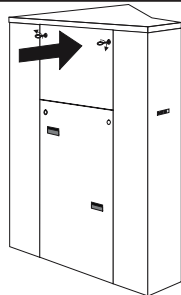
3



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

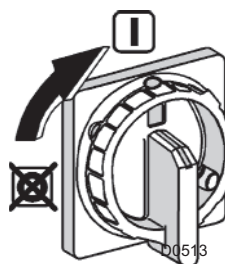
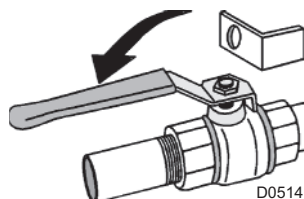


Do the maintenance.



Close and carefully lock the fixed protectors.

4



Unlock the stop valves and the main switch.

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2. Technical characteristics

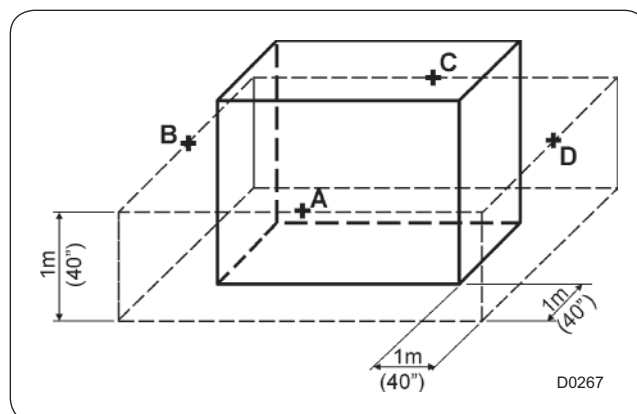
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Sound level

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 250		Washer 350		Washer 500		Washer 650	
	washing	spinning	washing	spinning	washing	spinning	washing	spinning
A	61,5	73,5	60	71,5	61	72	61	72
B	62,5	76	60	75,5	62	74	60	75
C	61,5	73,5	61	75,5	61	72	61	73
D	62,5	76	61,5	72,5	62	74	62	74

Label of energetic performance (gas heating only)

The global output hg of the gas heated washer-extractor is determined according to a standardised method and shall not be lower than 50 %.

This output minimal level is indicated on the machine's marking by the symbol ★.

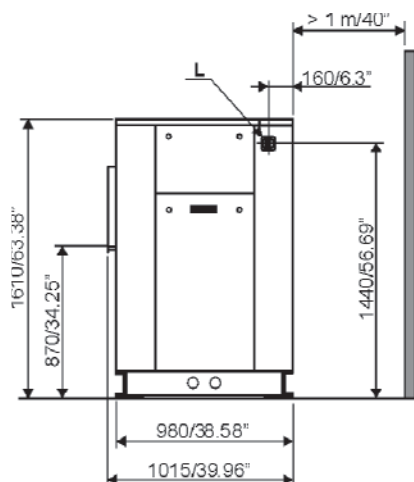
Beyond the output minimal level here above specified, a label of energetic performance is given to the machine according to its global output hg and according to the hereunder chart.

Symbolisation of the label	Value of the output hg
★ ★	$50 \% \leq hg < 65 \%$
★ ★ ★	$65 \% \leq hg < 80 \%$
★ ★ ★ ★	$hg \geq 80 \%$

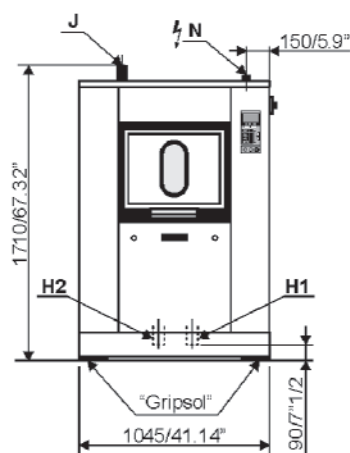
The indication of the energetic performance of this washer-extractor is of ★ ★ ★ ★ .

Washer extractor type 250 standard

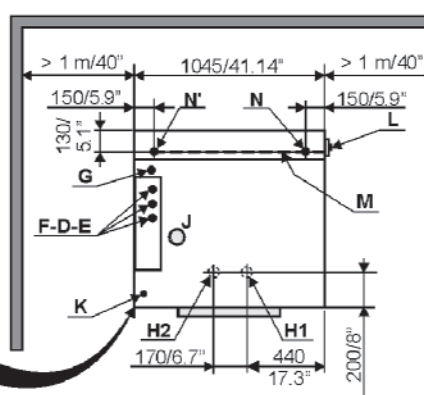
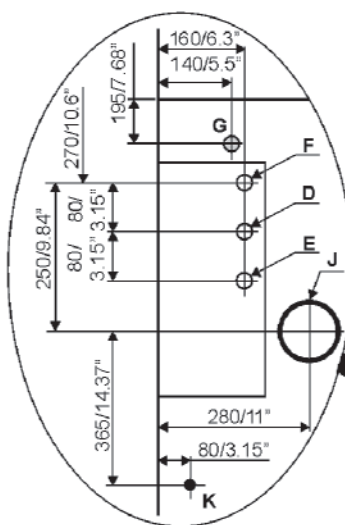
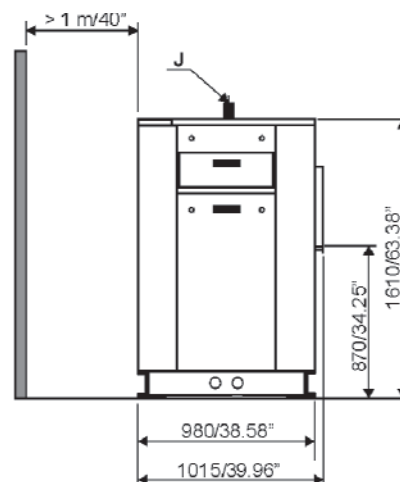
Right view



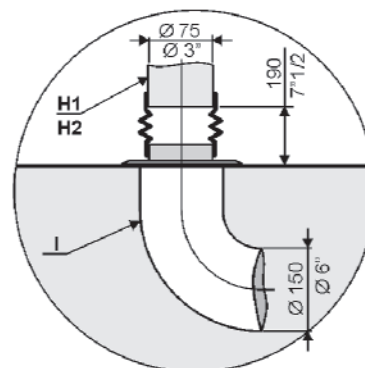
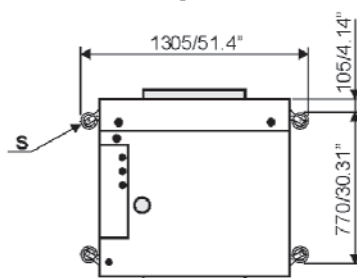
Front view



Left view



Top view



Drain connection

07100081B

* 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, extrac. 10 min (cold water supply at 15 °C).

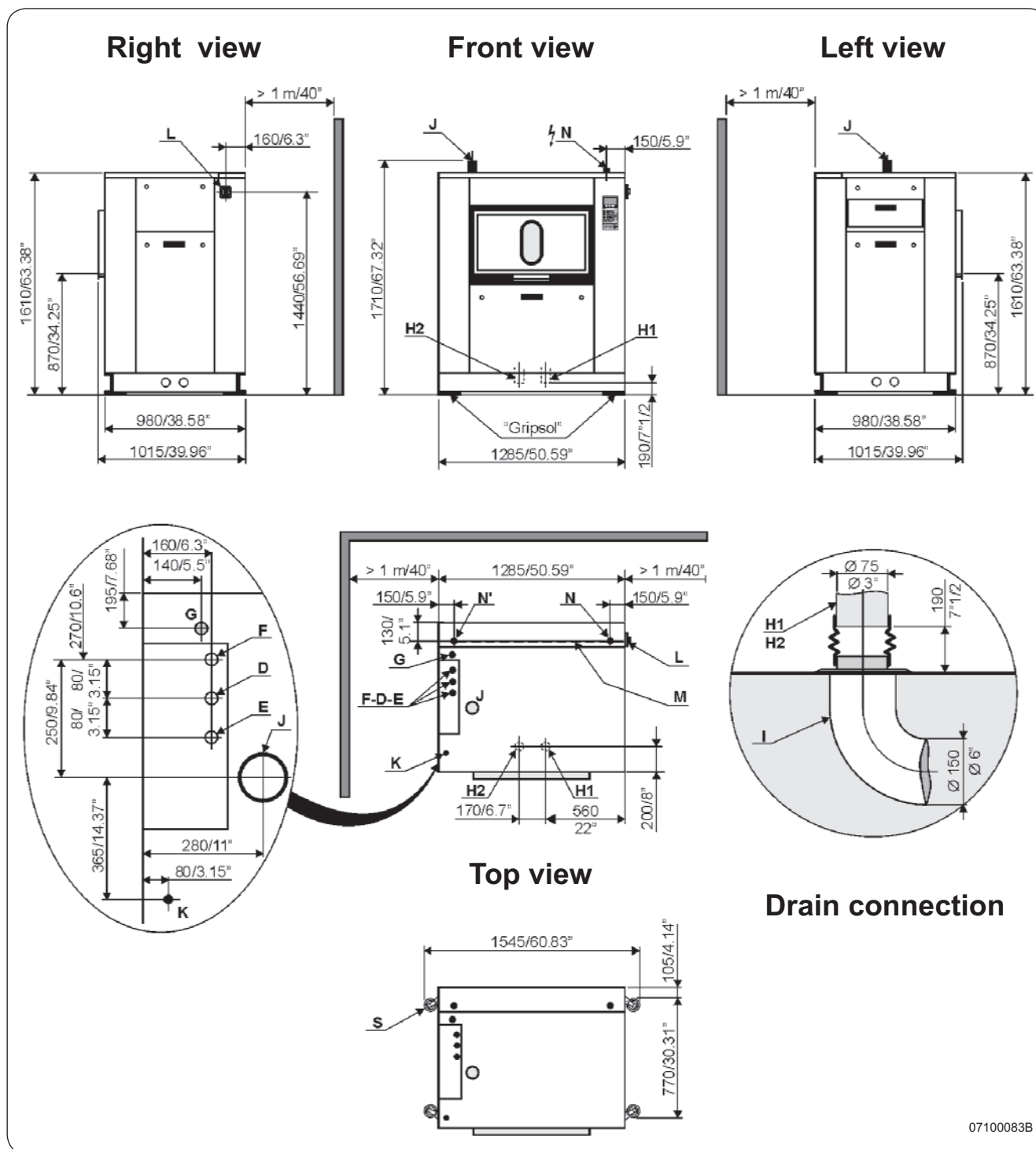
** ECO cycle : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 250 standard

Diagram no. 07100081B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics	Ø cage	----- 770 mm (30.31") -----		
	Cage length	----- 520 mm (20.47") -----		
	Cage volume	----- 229 dm ³ (229 l) -----		
	Specific load 1/10 (dry linen, ISO 9398-4)	----- 22.9 kg (50.5 lb) -----		
	Opening cage doors (L x H)	----- 450 x 400 mm (17.71x15.74") -----		
	Opening drum door (L x H)	----- 466 x 525 mm (18.34x20.67") -----		
Floor area		----- 1 m ² (10.76 sq. ft) -----		
Net weight		----- 670 daN (1478 lb) -----		
Weight loaded (high level)		----- 830 daN (1830 lb) -----		
Water volume, washing, low level	68 l	68 l	68 l	68 l
Water volume, washing, high level	137 l	137 l	137 l	137 l
Max dynamic load		----- F = 101 daN (222 lb) -----		
Max transmitted floor load		----- 814 daN (1795 lb) -----		
Max pressure transmitted to floor		----- 100 kPa -----		
Spin efficiency		----- 350 G -----		
Max. unbalance		----- 3.6 kg (7.94 lb) -----		
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x6 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage		----- 380 / 415 V 3+E ~ 50/60 Hz -----		
Installed electric power	3.7 kW	21.7 kW	3.7 kW	3.7 kW
Installed heating power	40 kW	18 kW	-	-
Electric consumption for a normal cycle*	0.8 kWh/h	6 kWh/h	0.6 kWh/h	0.6 kWh/h
Heat loss		----- 3 % of installed heating power -----		
(G) Steam inlet			DN 20 (3/4" BSP)	
	- Maximum supply pressure		600 kPa (87 psi)	
	- Steam instantaneous flow rate at 600 kPa		72 kg/h	
	- Steam consumption for a normal cycle*		12 kg/h at 600 kPa (87 psi)	
(D) Hot water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(E) Cold hard water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(F) Cold soft water connection / flow (option)		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
Water supply minimum pressure		----- 50 kPa (7.25 psi) -----		
Water supply maximum pressure		----- 300 kPa (43.5 psi) -----		
Water consumption for a normal cycle*	360 l	340 l	340 l	340 l
Water consumption for an ECO cycle**	282 l	260 l	260 l	260 l
(K) Liquid detergents inlet		DN 20 (3/4" BSP)		
(H1) Drain connection		----- Ø 75 mm (3") -----		
(H2) Double drain connection		----- Ø 75 mm (3") -----		
Maximum flow rate		----- 240 l/min -----		
(I) Waste water collector		----- DN 150 mm (6" BSP) -----		
(3 cm/m (3%) minimum slope)				
(J) Air vent hole		----- Ø 60 mm (2.36 ") -----		
(N') Thermic fluid inlet or indirect steam heating			DN 15 (1/2" BSP)	
(G) Thermic fluid return or indirect steam heating			DN 15 (1/2" BSP)	
	- Maximum supply pressure		600 kPa	
	- Installed calorific power		34400 kcal	
	- Average calorific consumption		11500 kcal/h	
	- Inner volume thermic fluid exchanger		2,62 l	
Gas inlet		DN 20 (3/4" BSP)		
Combustion products evacuation		Ø 125 mm (5")		
(S) Weighing equipment (optional)				
Compressed air inlet		----- Ø 4/6 mm -----		
	- Min./max. compress air pressure	----- 5,5/7 bar -----		
	- Consumption	----- 10 l/h -----		

Washer extractor type 350 standard



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* **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, extrac. 10 min (cold water supply at 15 °C).

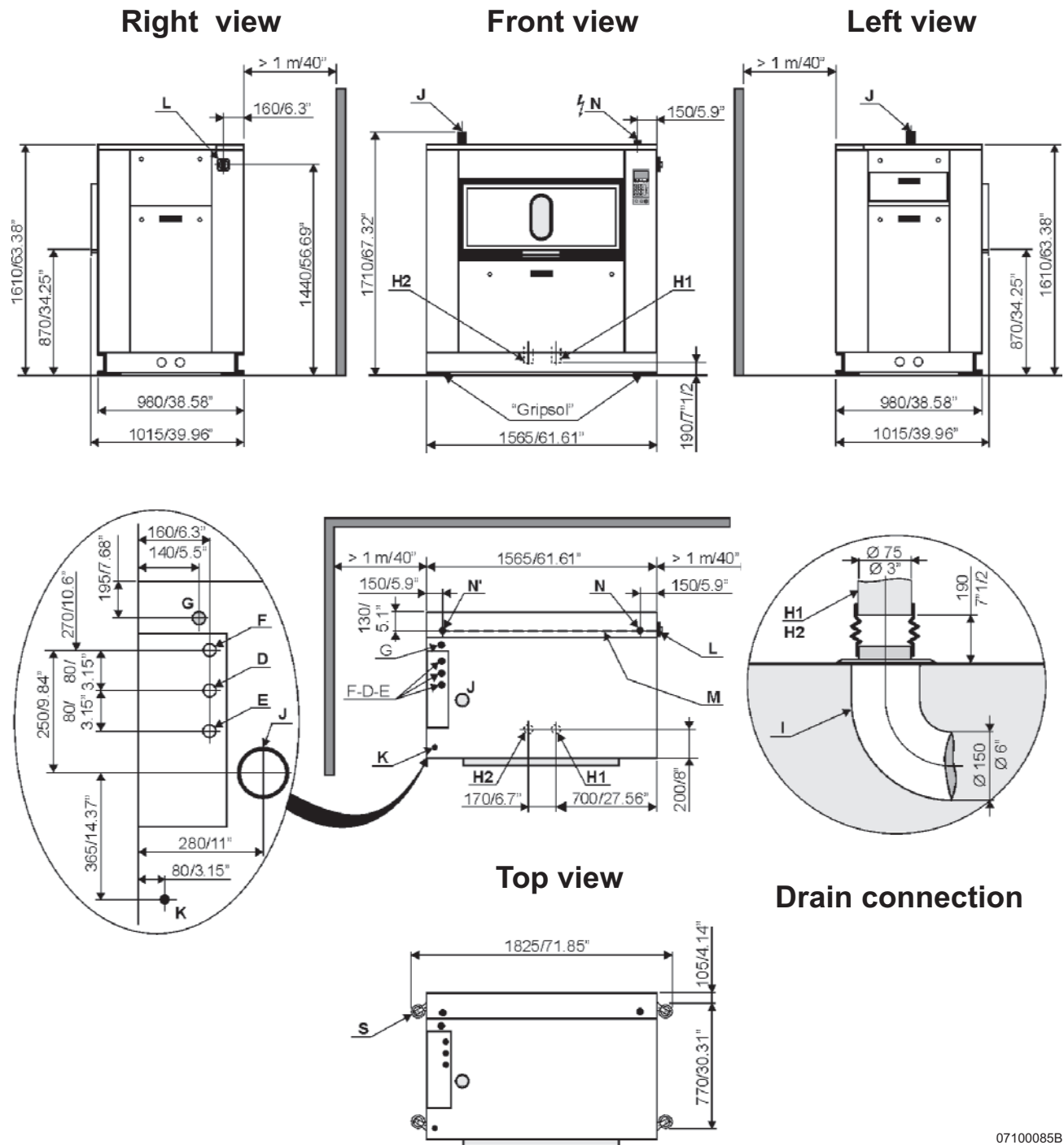
** **ECO cycle** : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 350 standard

Diagram n°. 07100083B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics				
Ø cage	-----	770 mm (30.31")	-----	-----
Cage length	-----	760 mm (30")	-----	-----
Cage volume	-----	338 dm ³ (338 l)	-----	-----
Specific load 1/10 (dry linen, ISO 9398-4)	-----	33.8 kg (74.55 lb)	-----	-----
Opening cage doors (L x H)	-----	600 x 400 mm (23.62x15.74")	-----	-----
Opening drum door (L x H)	-----	616 x 525 mm (24.25x20.67")	-----	-----
Floor area	-----	1.25 m ² (13.45 sq. ft)	-----	-----
Net weight	-----	760 daN (1676 lb)	-----	-----
Weight loaded (high level)	-----	996 daN (2195 lb)	-----	-----
Water, washing, low level	101 l	101 l	101 l	101 l
Water, washing, high level	202 l	202 l	202 l	202 l
Max dynamic load	-----	F = 155 daN (342 lb)	-----	-----
Max transmitted floor load	-----	800 daN (1764 lb)	-----	-----
Max pressure transmitted to floor	-----	120 kPa	-----	-----
Spin efficiency	-----	350 G	-----	-----
Max. unbalance	-----	4.8 kg (10.58 lb)	-----	-----
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x16 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage	----- 380 / 415 V 3+E ~ 50/60 Hz -----			
Installed electric power	4.8 kW	32 kW	4.8 kW	4.8 kW
Installed heating power	40 kW	27 kW	-	-
Electrical consumption for a normal cycle*	1.2 kWh/h	9.2 kWh/h	1 kWh/h	1 kWh/h
Heat loss	----- 3 % of installed heating power -----			
(G) Steam inlet				
- Maximum supply pressure	DN 20 (3/4" BSP) 600 kPa (87 psi)			
- Steam instantaneous flow rate at 600 kPa	108 kg/h			
- Steam consumption for a normal cycle*	18 kg/h at 600 kPa (87 psi)			
(D) Hot water connection / flow	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
(E) Cold hard water connection / flow	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
(F) Cold soft water connection / flow (option)	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
Water supply minimum pressure	----- 50 kPa (7.25 psi) -----			
Water supply maximum pressure	----- 300 kPa (43.5 psi) -----			
Water consumption for a normal cycle*	495 l	470 l	470 l	470 l
Water consumption for a ECO cycle**	415 l	395 l	395 l	395 l
(K) Liquid detergents inlet	DN 20 (3/4" BSP)			
(H1) Drain connection	----- Ø 75 mm (3") -----			
(H2) Double drain connection	----- Ø 75 mm (3") -----			
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector	----- DN 150 mm (6" BSP) -----			
(3 cm/m (3 %) minimum slope)				
(J) Air vent hole	----- Ø 60 mm (2.36 ") -----			
(N') Thermic fluid inlet or indirect steam heating	DN 15 (1/2" BSP)			
(G) Thermic fluid return or indirect steam heating	DN 15 (1/2" BSP)			
- Maximum supply pressure.	600 kPa			
- Installed calorific power	34400 kcal			
- Average calorific consumption	12500 kcal/h			
- Inner volume thermic fluid	2,62 l			
Gas inlet	DN 20 (3/4" BSP)			
Combustion products evacuation	Ø 125 mm (5")			
(S) Weighing equipment (optional)				
Compressed air inlet	----- Ø 4/6 mm -----			
- Min./max. compress air pressure	----- 5,5/7 bar -----			
- Consumption	----- 10 l/h -----			

Washer extractor type 500 standard



07100085B

* 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, extrac. 10 min (cold water supply at 15 °C).

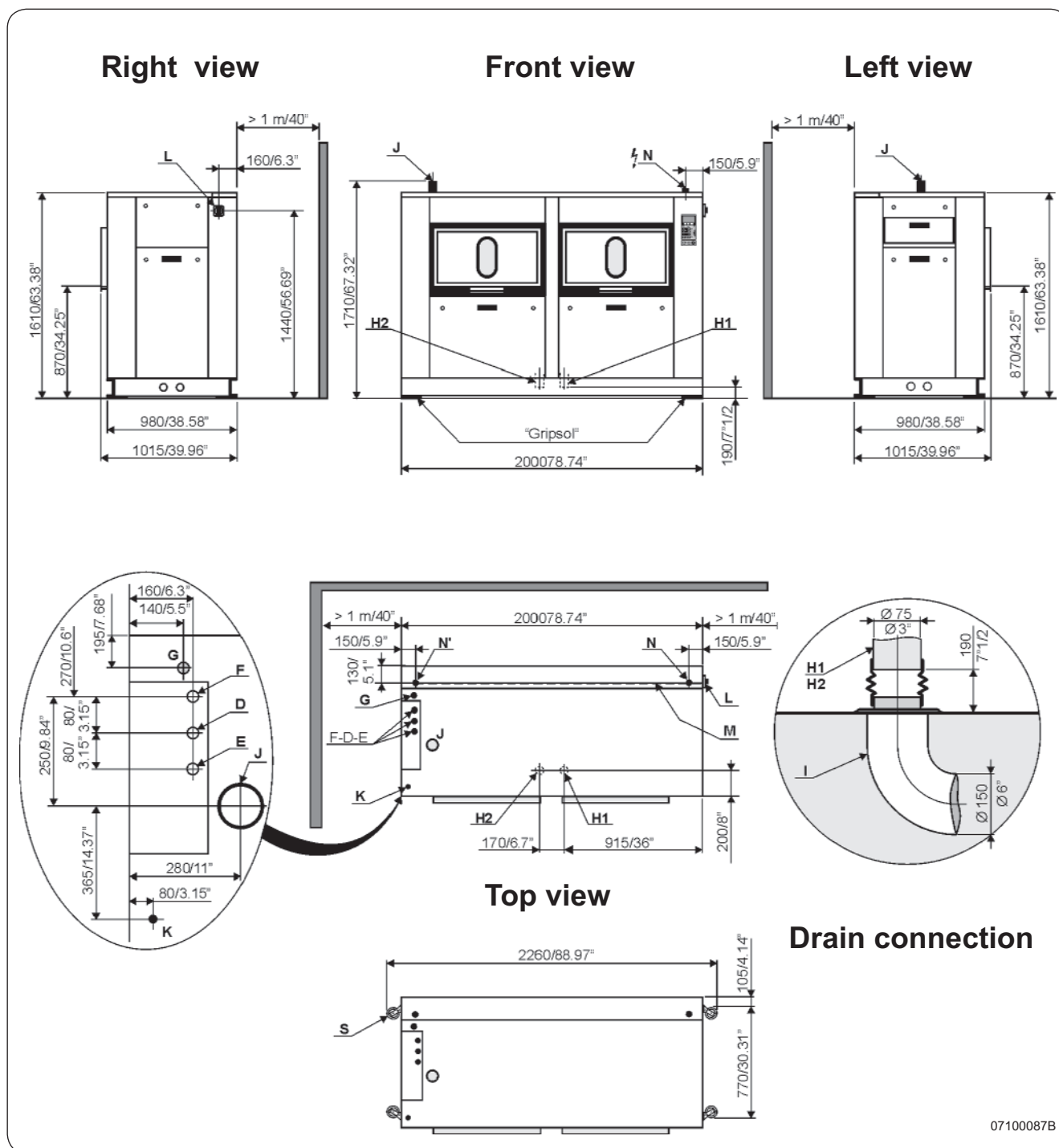
**** ECO cycle** : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 500 standard

Diagram no. 07100085B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics	Ø cage	----- 770 mm (30.31") -----		
	Cage length	----- 1040 mm (41") -----		
	Cage volume	----- 467 dm ³ (467 l) -----		
	Specific load 1/10 (dry linen, ISO 9398-4)	----- 46.7 kg (103 lb) -----		
	Opening cage doors (L x H)	----- 2x450 x 400 mm (17.71x15.74") -----		
	Opening drum door (L x H)	----- 935 x 527 mm (36.81x20.74") -----		
Floor area		----- 1.52 m ² (16.36 sq. ft) -----		
Net weight		----- 920 daN (2028 lb) -----		
Weight loaded (high level)		----- 1247 daN (2750 lb) -----		
Water, washing, low level	140 l	140 l	140 l	140 l
Water, washing, high level	180 l	180 l	180 l	180 l
Max dynamic load		----- F = 275 daN (606 lb) -----		
Max transmitted floor load		----- 830 daN (1830 lb) -----		
Max pressure transmitted to floor		----- 150 kPa -----		
Spin efficiency		----- 350 G -----		
Max. unbalance		----- 5.5 kg (12.13 lb) -----		
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x25 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage		----- 380 / 415 V 3+E ~ 50/60 Hz -----		
Installed electric power	5.8 kW	42 kW	5.8 kW	5.8 kW
Installed heating power	40 kW	36 kW	-	-
Electrical consumption for a normal cycle*	1.5 kWh/h	11 kWh/h	1.2 kWh/h	1.2 kWh/h
Heat loss		----- 3 % of installed heating power -----		
(G) Steam inlet			DN 20 (3/4" BSP)	
	- Maximum supply pressure		600 kPa (87 psi)	
	- Steam instantaneous flow rate at 600 kPa		144 kg/h	
	- Steam consumption for a normal cycle*		24.5 kg/h at 600 kPa (87 psi)	
(D) Hot water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(E) Cold hard water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(F) Cold soft water connection / flow (option)		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
Water supply minimum pressure		----- 50 kPa (7.25 psi) -----		
Water supply maximum pressure		----- 300 kPa (43.5 psi) -----		
Water consumption for a normal cycle*	638 l	610 l	610 l	610 l
Water consumption for an ECO cycle**	558 l	530 l	530 l	530 l
(K) Liquid detergents inlet		DN 20 (3/4" BSP)		
(H1) Drain connection		----- Ø 75 mm (3") -----		
(H2) Double drain connection		----- Ø 75 mm (3") -----		
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector		----- DN 150 mm (6" BSP) -----		
(3 cm/m (3 %) minimum slope)				
(J) Air vent hole		----- Ø 60 mm (2.36 ") -----		
(N') Thermic fluid inlet or indirect steam heating			DN 15 (1/2" BSP)	
(G) Thermic fluid return or indirect steam heating			DN 15 (1/2" BSP)	
	- Maximum supply pressure		600 kPa	
	- Installed calorific power		47300 kcal	
	- Average calorific consumption		13800 kcal/h	
	- Inner volume thermic fluid		5,33 l	
Gas inlet		DN 20 (3/4" BSP)		
Combustion products evacuation		Ø 125 mm (5")		
(S) Weighing equipment (optional)				
Compressed air inlet		----- Ø 4/6 mm -----		
	- Min./max. compress air pressure	----- 5,5/7 bar -----		
	- Consumption	----- 10 l/h -----		

Washer extractor type 650 standard



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* 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, extrac. 10 min (cold water supply at 15 °C).

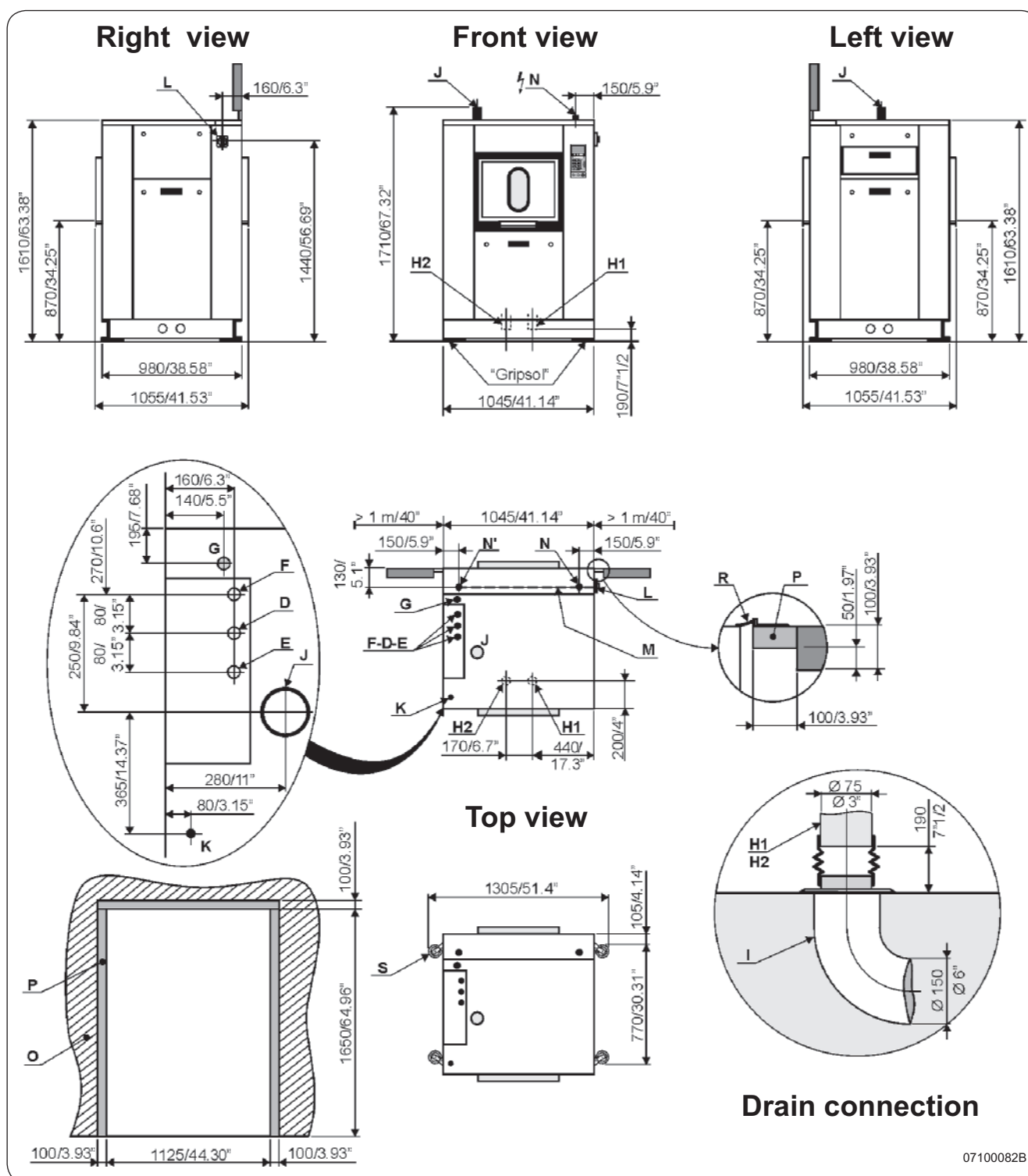
** ECO cycle : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 650 standard

Diagram no. 07100087B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics	Ø cage	----- 770 mm (30.31") -----		
	Cage length	----- 1500 mm (59") -----		
	Cage volume	----- 668 dm ³ (668 l) -----		
	Specific load 1/10 (dry linen, ISO 9398-4)	----- 66.8 kg (147.33 lb) -----		
	Opening cage doors (L x H)	----- 2x600 x 400 mm (23.62x15.74") -----		
	Opening drum door (L x H)	----- 2x616 x 525 mm (24.25x20.66") -----		
Floor area		----- 2 m ² (21.53 sq. ft) -----		
Net weight		----- 1080 daN (2381 lb) -----		
Weight loaded (high level)		----- 1547 daN (3410 lb) -----		
Water, washing, low level	200 l	200 l	200 l	200 l
Water, washing, high level	400 l	400 l	400 l	400 l
Max dynamic load		----- F = 466 daN (1028 lb) -----		
Max transmitted floor load		----- 811 daN (1788 lb) -----		
Max pressure transmitted to floor		----- 187 kPa -----		
Spin efficiency		----- 350 G -----		
Max. unbalance		----- 8 kg (17.65 lb) -----		
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x35 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage		----- 380 / 415 V 3+E ~ 50/60 Hz -----		
Installed electric power	7.8 kW	61.5 kW	7.8 kW	7.8 kW
Installed heating power	40 kW	54 kW	-	-
Electrical consumption for a normal cycle*	2 kWh/h	23 kWh/h	2 kWh/h	2 kWh/h
Heat loss		----- 3 % of installed heating power -----		
(G) Steam inlet			DN 20 (3/4" BSP)	
	- Maximum supply pressure		600 kPa (87 psi)	
	- Steam instantaneous flow rate at 600 kPa		216 kg/h	
	- Steam consumption for a normal cycle*		24.5 kg/h at 600 kPa (87 psi)	
(D) Hot water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(E) Cold hard water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(F) Cold soft water connection / flow (option)		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
Water supply minimum pressure		----- 50 kPa (7.25 psi) -----		
Water supply maximum pressure		----- 300 kPa (43.5 psi) -----		
Water consumption for a normal cycle*	977 l	977 l	977 l	977 l
Water consumption for an ECO cycle**	782 l	782 l	782 l	782 l
(K) Liquid detergents inlet		DN 20 (3/4" BSP)		
(H1) Drain connection		----- Ø 75 mm (3") -----		
(H2) Double drain connection		----- Ø 75 mm (3") -----		
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector		----- DN 150 mm (6" BSP) -----		
(3 cm/m (3 %) minimum slope)				
(J) Air vent hole		----- Ø 60 mm (2.36 ") -----		
(N') Thermic fluid inlet or indirect steam heating			DN 15 (1/2" BSP)	
(G) Thermic fluid return or indirect steam heating			DN 15 (1/2" BSP)	
	- Maximum supply pressure		600 kPa	
	- Installed calorific power		47300 kcal	
	- Average calorific consumption		15800 kcal/h	
	- Inner volume thermic fluid		5,33 l	
Gas inlet		DN 20 (3/4" BSP)		
Combustion products evacuation		Ø 125 mm (5")		
(S) Weighing equipment (optional)				
Compressed air inlet		----- Ø 4/6 mm -----		
	- Min./max. compress air pressure	----- 5,5/7 bar -----		
	- Consumption	----- 10 l/h -----		

Washer extractor type 250 barrier



* 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, extrac. 10 min (cold water supply at 15 °C).

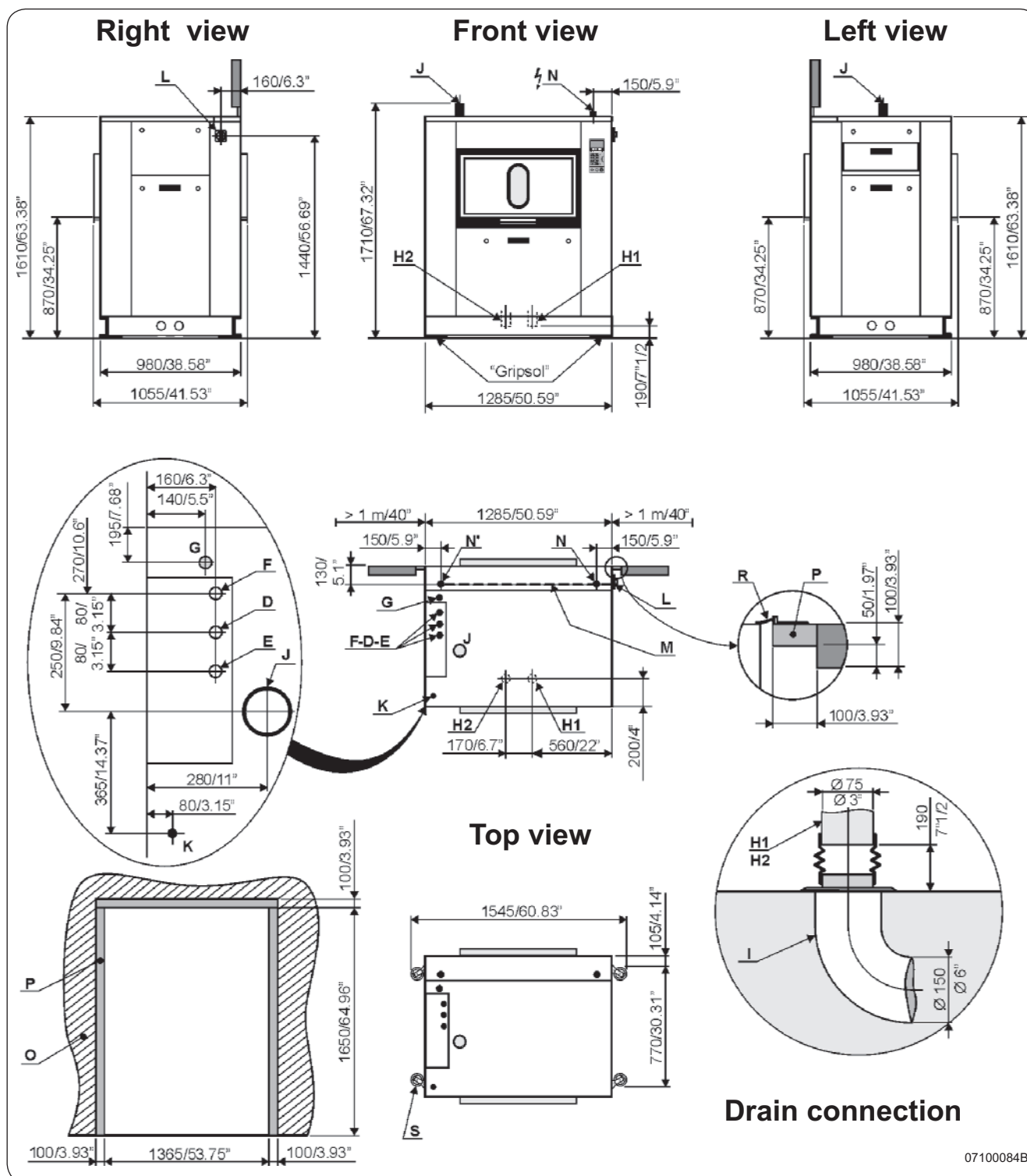
**** ECO cycle** : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 250 barrier

Diagram no. 07100082B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics				
Ø cage	-----	770 mm (30.31")	-----	-----
Cage length	-----	520 mm (20.47")	-----	-----
Cage volume	-----	229 dm ³ (229 l)	-----	-----
Specific load 1/10 (dry linen, ISO 9398-4)	-----	22.9 kg (50.5 lb)	-----	-----
Opening cage doors (L x H)	-----	450 x 400 mm (17.71x15.74")	-----	-----
Opening drum door (L x H)	-----	466 x 525 mm (18.34x20.67")	-----	-----
Floor area	-----	1 m ² (10.76 sq. ft)	-----	-----
Net weight	-----	670 daN (1478 lb)	-----	-----
Weight loaded (high level)	-----	830 daN (1830 lb)	-----	-----
Water, washing, low level	68 l	68 l	68 l	68 l
Water, washing, high level	137 l	137 l	137 l	137 l
Max dynamic load	-----	F = 101 daN (222 lb)	-----	-----
Max transmitted floor load	-----	814 daN (1795 lb)	-----	-----
Max pressure transmitted to floor	-----	100 kPa	-----	-----
Spin efficiency	-----	350 G	-----	-----
Max. unbalance	-----	3.6 kg (7.94 lb)	-----	-----
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x6 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage	-----	380 / 415 V 3+E ~ 50/60 Hz	-----	-----
Installed electric power	3.7 kW	21.70 kW	3.7 kW	3.7 kW
Installed heating power	40 kW	18 kW	-	-
Electrical consumption for a normal cycle*	0.8 kWh/h	5.3 kWh/h	0.6 kWh/h	0.6 kWh/h
Heat loss	-----	3 % of installed heating power	-----	-----
(G) Steam inlet			DN 20 (3/4" BSP) (87 psi)	
- Maximum supply pressure			600 kPa	
- Steam instantaneous flow rate at 600 kPa			72 kg/h	
- Steam consumption for a normal cycle*			12 kg/h at 600 kPa (87 psi)	
(D) Hot water connection / flow			DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)	
(E) Cold hard water connection / flow			DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)	
(F) Cold soft water connection / flow (option)			DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)	
Water supply minimum pressure	-----	50 kPa (7.25 psi)	-----	-----
Water supply maximum pressure	-----	300 kPa (43.5 psi)	-----	-----
Water consumption for a normal cycle*	360 l	340 l	340 l	340 l
Water consumption for an ECO cycle**	282 l	260 l	260 l	260 l
(K) Liquid detergents inlet			DN 20 (3/4" BSP)	
(H1) Drain connection	-----	Ø 75 mm (3")	-----	-----
(H2) Double drain connection	-----	Ø 75 mm (3")	-----	-----
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector	-----	DN 150 mm (6" BSP)	-----	-----
(3 cm/m (3 %) minimum slope)				
(J) Air vent hole	-----	Ø 60 mm (2.36")	-----	-----
(N') Thermic fluid inlet or indirect steam heating			DN 15 (1/2" BSP)	
(G) Thermic fluid return or indirect steam heating			DN 15 (1/2" BSP)	
- Maximum supply pressure			600 kPa	
- Installed calorific power			34400 kcal	
- Average calorific consumption			11500 kcal/h	
- Inner volume thermic fluid			2,62 l	
Gas inlet		DN 20 (3/4" BSP)		
Combustion products evacuation		Ø 125 mm (5")		
(O) Barrier partition (provided by customer)				
(P) Frame 60x100 mm maxi (provided by customer)				
(R) Aseptis seal				
(S) Weighing equipment (optional)				
Compressed air inlet	-----	Ø 4/6 mm	-----	-----
- Min./max. compress air pressure	-----	5,5/7 bar	-----	-----
- Consumption	-----	10 l/h	-----	-----

Washer extractor type 350 barrier



07100084B

* 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, extrac. 10 min (cold water supply at 15 °C).

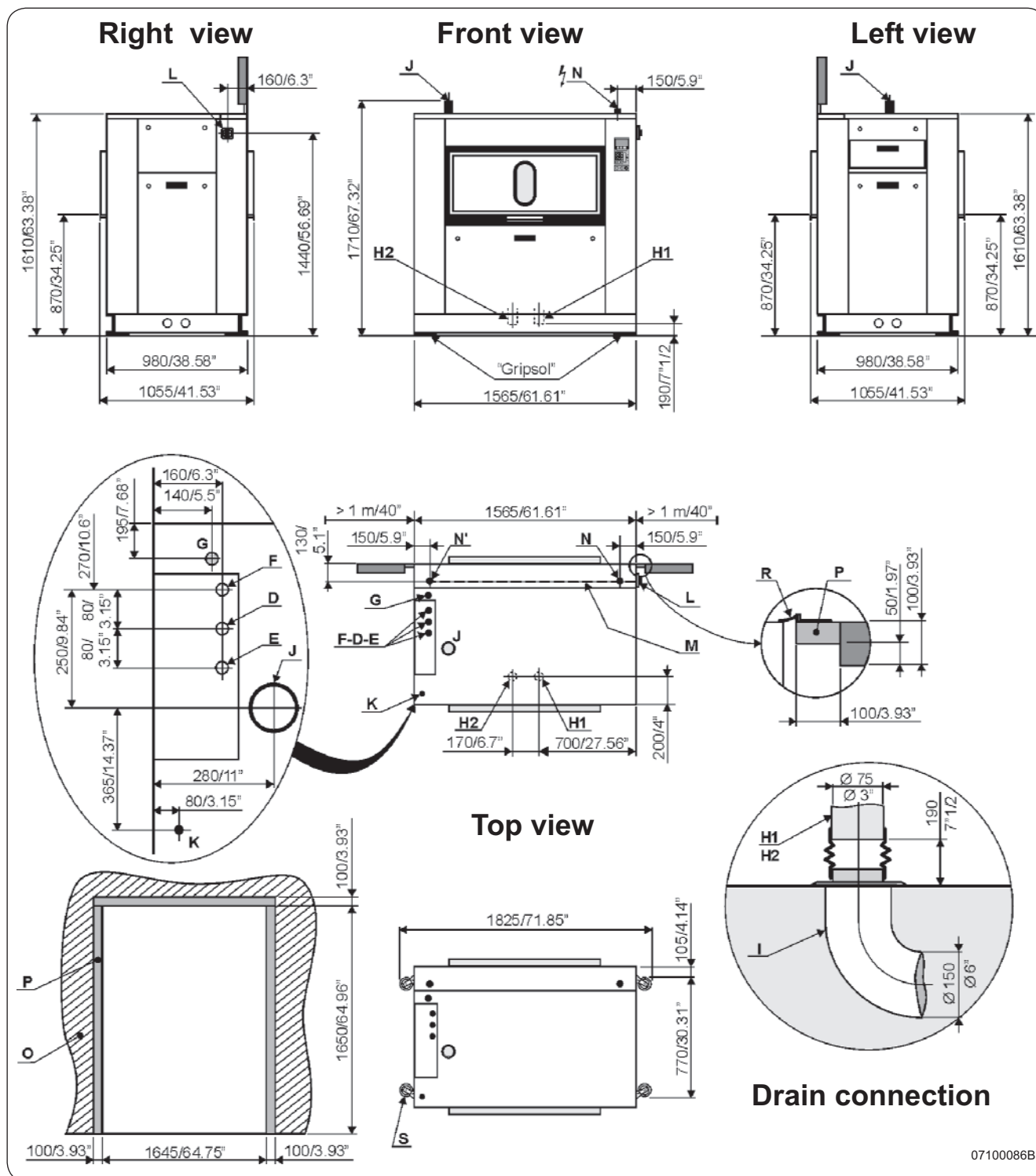
**** ECO cycle** : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 350 barrier

Diagram no. 07100084B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics				
Ø cage	----- 770 mm (30.31") -----			
Cage length	----- 760 mm (30") -----			
Cage volume	----- 338 dm ³ (338 l) -----			
Specific load 1/10 (dry linen, ISO 9398-4)	----- 33.8 kg (74.55 lb) -----			
Opening cage doors (L x H)	----- 600 x 400 mm (23.62x15.74") -----			
Opening drum door (L x H)	----- 616 x 525 mm (24.25x20.67") -----			
Floor area	----- 1.25 m ² (13.45 sq. ft) -----			
Net weight	----- 760 daN (1676 lb) -----			
Weight loaded (high level)	----- 996 daN (2195 lb) -----			
Water, washing, low level	101 l	93 l	101 l	101 l
Water, washing, high level	202 l	202 l	202 l	202 l
Max dynamic load	----- F = 155 daN (342 lb) -----			
Max transmitted floor load	----- 800 daN (1764 lb) -----			
Max pressure transmitted to floor	----- 120 kPa -----			
Spin efficiency	----- 350 G -----			
Max. unbalance	----- 4.8 kg (10.58 lb) -----			
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x16 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage	----- 380 / 415 V 3+E ~ 50/60 Hz -----			
Installed electric power	4.8 kW	32 kW	4.8 kW	4.8 kW
Installed heating power	40 kW	27 kW	-	-
Electrical consumption for a normal cycle*	1.2 kWh/h	9.2 kWh/h	1 kWh/h	1 kWh/h
Heat loss	----- 3 % of installed heating power -----			
(G) Steam inlet				
- Maximum supply pressure	DN 20 (3/4" BSP) (87 psi) 600 kPa			
- Steam instantaneous flow rate at 600 kPa	108 kg/h			
- Steam consumption for a normal cycle*	18 kg/h at 600 kPa (87 psi)			
(D) Hot water connection / flow	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
(E) Cold hard water connection / flow	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
(F) Cold soft water connection / flow (option)	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
Water supply minimum pressure	----- 50 kPa (7.25 psi) -----			
Water supply maximum pressure	----- 300 kPa (43.5 psi) -----			
Water consumption for a normal cycle*	495 l	470 l	470 l	470 l
Water consumption for an ECO cycle**	315 l	395 l	395 l	395 l
(K) Liquid detergents inlet	DN 20 (3/4" BSP)			
(H1) Drain connection	----- Ø 75 mm (3") -----			
(H2) Double drain connection	----- Ø 75 mm (3") -----			
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector (3 cm/m (3 %) minimum slope)	----- DN 150 mm (6" BSP) -----			
(J) Air vent hole	----- Ø 60 mm (2.36") -----			
(N') Thermic fluid inlet or indirect steam heating	DN 15 (1/2" BSP)			
(G) Thermic fluid return or indirect steam heating	DN 15 (1/2" BSP)			
- Maximum supply pressure	600 kPa			
- Installed calorific power	34400 kcal			
- Average calorific consumption	12500 kcal/h			
- Inner volume thermic fluid	2,62 l			
Gas inlet	DN 20 (3/4" BSP)			
Combustion products evacuation	Ø 125 mm (5")			
(O) Barrier partition (provided by customer)				
(P) Frame 60x100 mm maxi (provided by customer)				
(R) Aseptis seal				
(S) Weighing equipment (optional)				
Compressed air inlet	----- Ø 4/6 mm -----			
- Min./max. compress air pressure	----- 5,5/7 bar -----			
- Consumption	----- 10 l/h -----			

Washer extractor type 500 barrier



* 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, extrac. 10 min (cold water supply at 15 °C).

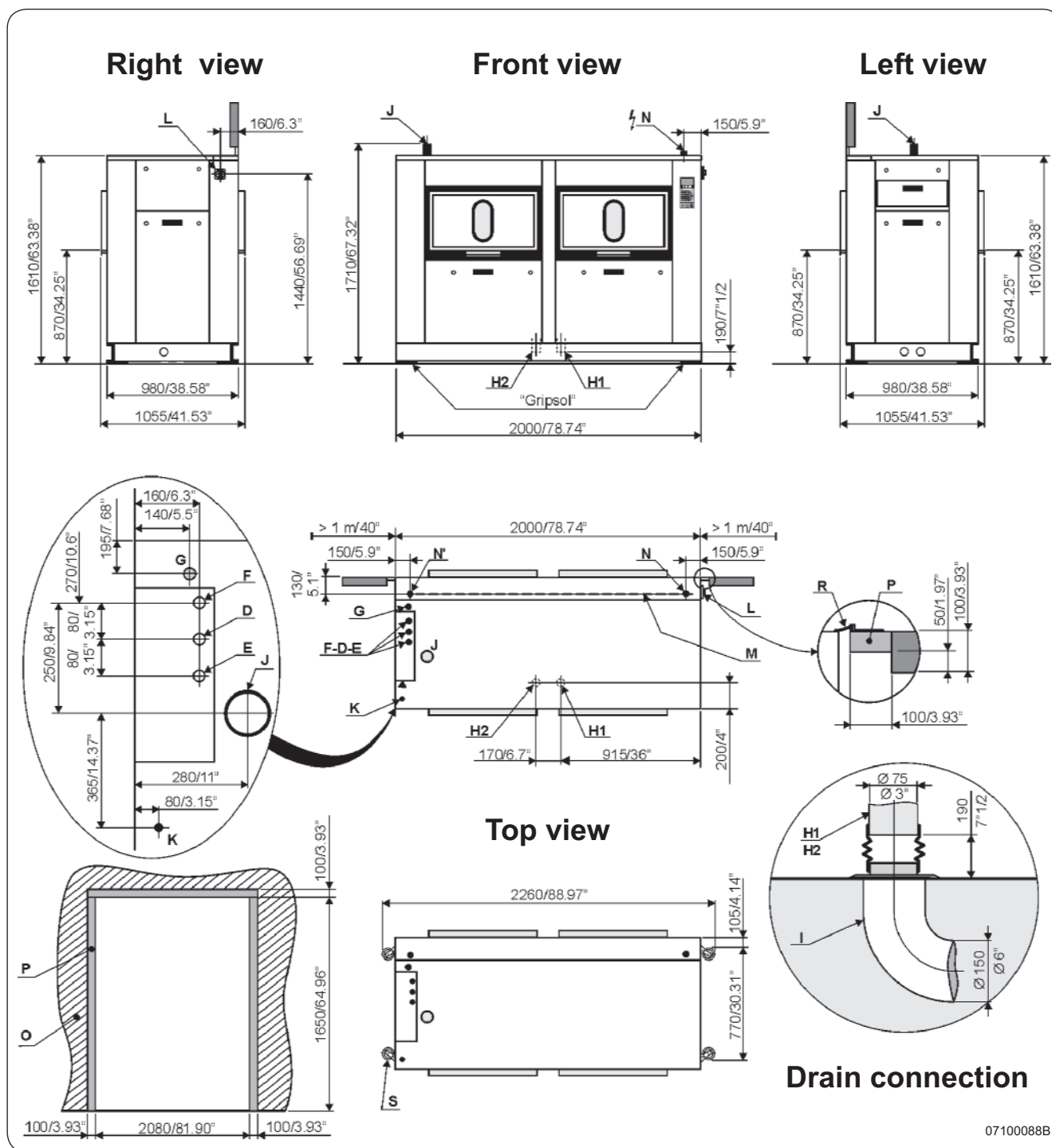
**** ECO cycle** : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 500 barrier

Diagram no. 07100086B

Heating fluid	Gas	Electric	Steam	Thermic
Characteristics				
Ø cage	----- 770 mm (30.31") -----			
Cage length	----- 1040 mm (41") -----			
Cage volume	----- 467 dm ³ (467 l) -----			
Specific load 1/10 (dry linen, ISO 9398-4)	----- 46.7 kg (103 lb) -----			
Opening cage doors (L x H)	----- 2x450 x 400 mm (17.71x15.74") -----			
Opening drum door (L x H)	----- 935 x 527 mm (36.81x20.74") -----			
Floor area	----- 1.52 m ² (16.36 sq. ft) -----			
Net weight	----- 920 daN (2028 lb) -----			
Weight loaded (high level)	----- 1247 daN (2750 lb) -----			
Water, washing, low level	140 l	140 l	140 l	140 l
Water, washing, high level	280 l	280 l	280 l	255 l
Max dynamic load	----- F = 275 daN (606 lb) -----			
Max transmitted floor load	----- 830 daN (1830 lb) -----			
Max pressure transmitted to floor	----- 150 kPa -----			
Spin efficiency	----- 350 G -----			
Max. unbalance	----- 5.5 kg (12.13 lb) -----			
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x25 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage	----- 380 / 415 V 3+E ~ 50/60 Hz -----			
Installed electric power	5.8 kW	42 kW	5.8 kW	5.8 kW
Installed heating power	40 kW	36 kW	-	-
Electrical consumption for a normal cycle*	1.5 kWh/h	11 kWh/h	1.2 kWh/h	1.2 kWh/h
Heat loss	----- 3 % of installed heating power -----			
(G) Steam inlet				
- Maximum supply pressure	DN 20 (3/4" BSP) 600 kPa (87 psi)			
- Steam instantaneous flow rate at 600 kPa	144 kg/h			
- Steam consumption for a normal cycle*	24.5 kg/h at 600 kPa (87 psi)			
(D) Hot water connection / flow	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
(E) Cold hard water connection / flow	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
(F) Cold soft water connection / flow (option)	DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)			
Water supply minimum pressure	----- 50 kPa (7.25 psi) -----			
Water supply maximum pressure	----- 300 kPa (43.5 psi) -----			
Water consumption for a normal cycle*	638 l	610 l	610 l	610 l
Water consumption for an ECO cycle**	558 l	530 l	530 l	530 l
(K) Liquid detergents inlet	DN 20 (3/4" BSP)			
(H1) Drain connection	----- Ø 75 mm (3") -----			
(H2) Double drain connection	----- Ø 75 mm (3") -----			
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector	----- DN 150 mm (6" BSP) -----			
(3 cm/m (3 %) minimum slope)				
(J) Air vent hole	----- Ø 60 mm (2.36") -----			
(N') Thermic fluid inlet or indirect steam heating	DN 15 (1/2" BSP)			
(G) Thermic fluid return or indirect steam heating	DN 15 (1/2" BSP)			
- Maximum supply pressure	600 kPa			
- Installed calorific power	47300 kcal			
- Average calorific consumption	13800 kcal/h			
- Inner volume thermic fluid	5,33 l			
Gas inlet	DN 20 (3/4" BSP)			
Combustion products evacuation	Ø 125 mm (5")			
(O) Barrier partition (provided by customer)				
(P) Frame 60x100 mm maxi (provided by customer)				
(R) Aseptis seal				
(S) Weighing equipment (optional)				
Compressed air inlet	----- Ø 4/6 mm -----			
- Min./max. compress air pressure	----- 5,5/7 bar -----			
- Consumption	----- 10 l/h -----			

Washer extractor type 650 barrier



* 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, extrac. 10 min (cold water supply at 15 °C).

**** ECO cycle** : normal cycle with rinse 5 l/kg instead of 6 l/kg dry linen.

Washer extractor type 650 barrier

Diagram no. 07100088B

Heating	Gas	Electric	Steam	Thermic fluid
Characteristics	Ø cage	----- 770 mm (30.31") -----		
	Cage length	----- 1550 mm (59") -----		
	Cage volume	----- 668 dm ³ (668 l) -----		
	Specific load 1/10 (dry linen, ISO 9398-4)	----- 66.8 kg (147.33 lb) -----		
	Opening cage doors (L x H)	----- 2x600 x 400 mm (23.62x15.74") -----		
	Opening drum door (L x H)	----- 2x616 x 525 mm (24.25x20.66") -----		
Floor area		----- 2 m ² (21.53 sq. ft) -----		
Net weight		----- 1080 daN (2380 lb) -----		
Weight loaded (high level)		----- 1247 daN (2750 lb) -----		
Water, washing, low level	200 l	200 l	200 l	200 l
Water, washing, high level	400 l	400 l	365 l	400 l
Max dynamic load		----- F = 466 daN (1028 lb) -----		
Max transmitted floor load		----- 811 daN (1788 lb) -----		
Max pressure transmitted to floor		----- 186 kPa -----		
Spin efficiency		----- 350 G -----		
Max. unbalance		----- 8 kg (17.65 lb) -----		
(L) Main switch to connect main cable				
(M) Electric cable (section)	4x2.5 mm ²	4x35 mm ²	4x2.5 mm ²	4x2.5 mm ²
(N) or (N') Stuffing box for main cable				
Supply voltage		----- 380 / 415 V 3+E ~ 50/60 Hz -----		
Installed electric power	7.8 kW	61.5 kW	7.8 kW	7.8 kW
Installed heating power	40 kW	54 kW	-	-
Electrical consumption for a normal cycle*	2 kWh/h	23 kWh/h	2 kWh/h	2 kWh/h
Heat loss		----- 3 % of installed heating power -----		
(G) Steam inlet			DN 20 (3/4" BSP)	
	- Maximum supply pressure		600 kPa (87 psi)	
	- Steam instantaneous flow rate at 600 kPa		216 kg/h	
	- Steam consumption for a normal cycle*		24.5 kg/h at 600 kPa (87 psi)	
(D) Hot water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(E) Cold hard water connection / flow		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
(F) Cold soft water connection / flow (option)		DN 20 (3/4" BSP) - 70 l/min at 250 kPa (36 psi)		
Water supply minimum pressure		----- 50 kPa (7.25 psi) -----		
Water supply maximum pressure		----- 300 kPa (43.5 psi) -----		
Water consumption for a normal cycle*	977 l	977 l	977 l	977 l
Water consumption for an ECO cycle**	782 l	782 l	782 l	782 l
(K) Liquid detergents inlet		DN 20 (3/4" BSP)		
(H1) Drain connection		----- Ø 75 mm (3") -----		
(H2) Double drain connection		----- Ø 75 mm (3") -----		
Maximum drain flow rate	240 l/min	240 l/min	240 l/min	240 l/min
(I) Waste water collector		----- DN 150 mm (6" BSP) -----		
(3 cm/m (3 %) minimum slope)				
(J) Air vent hole		----- Ø 60 mm (2.36") -----		
(N') Thermic fluid inlet or indirect steam heating			DN 15 (1/2" BSP)	
(G) Thermic fluid return or indirect steam heating			DN 15 (1/2" BSP)	
	- Maximum supply pressure		600 kPa	
	- Installed calorific power		47300 kcal	
	- Average calorific consumption		15800 kcal/h	
	- Inner volume thermic fluid		5,33 l	
Gas inlet		DN 20 (3/4" BSP)		
Combustion products evacuation		Ø 125 mm (5")		
(O) Barrier partition (provided by customer)				
(P) Frame 60x100 mm maxi (provided by customer)				
(R) Aseptis seal				
(S) Weighing equipment (optional)				
Compressed air inlet		----- Ø 4/6 mm -----		
	- Min./max. compress air pressure	----- 5,5/7 bar -----		
	- Consumption	----- 10 l/h -----		

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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 accessible 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.

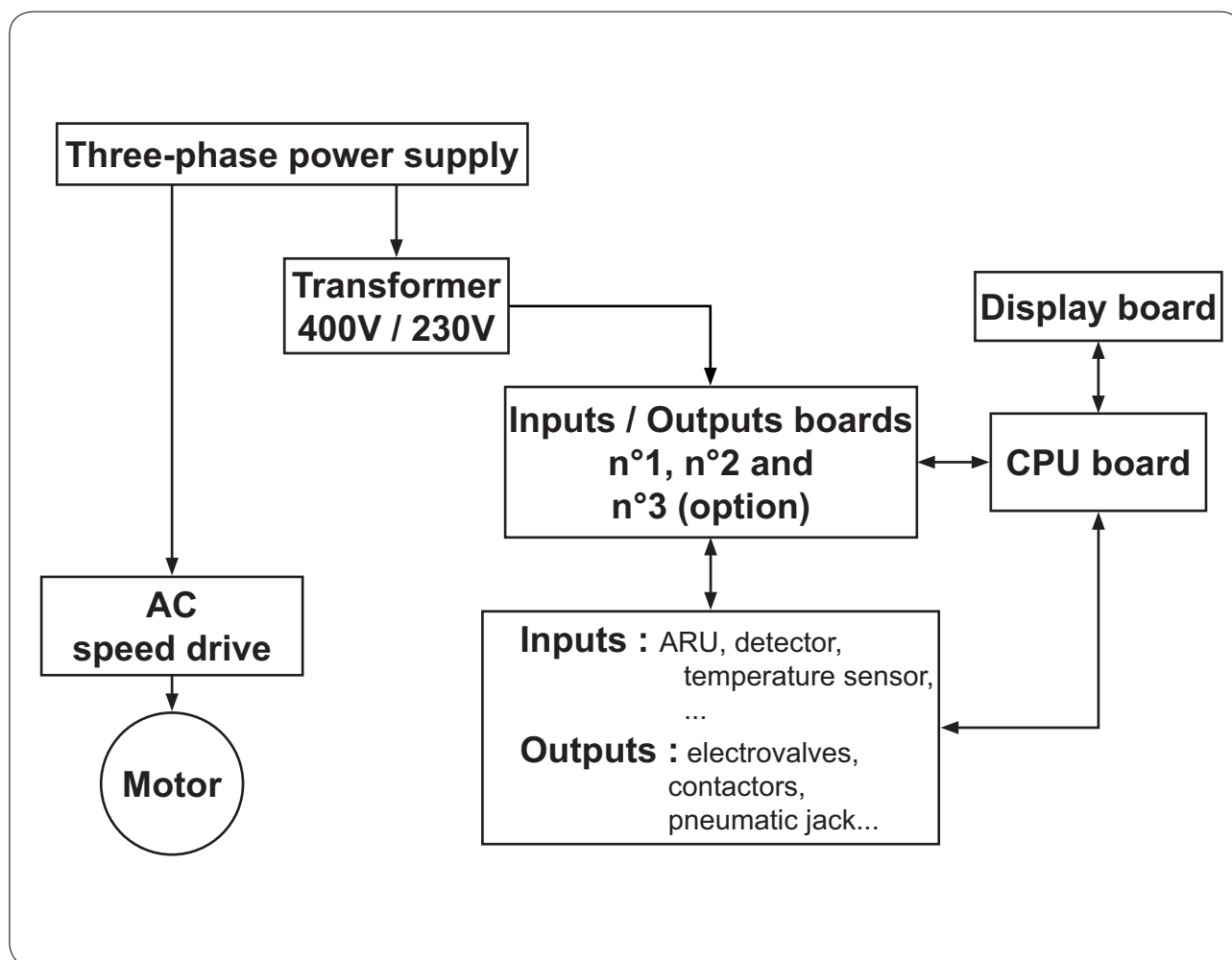
A very high working safety level of the machine is achieved thanks to a continuous monitoring and built-in safety devices.

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 keyboard for the manual control of certain functions.



Safety

Restarting the machine

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

Outer doors

All of the different parts of the machine stop working automatically as soon as one of the 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.

Washing-extraction

A safety device ensured by a electronic temporized relay adjusted at 40 seconds prevents the drum doors from being opened after its complete stop. This safety device is doubled by a rotation detector checking the total stop of the cage.

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 drum 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.

Drain

A 'hold to run" switch allows the manual opening of the drain to empty the machine if needed (open the loading side casing to get to it)

Accessibility

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

Safety : Gas heating

The gas burners are ignited and the flame controlled by an electronic control box which ensures perfect security in the case of bad draught, disruption of gas flow, power cuts, etc.

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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.

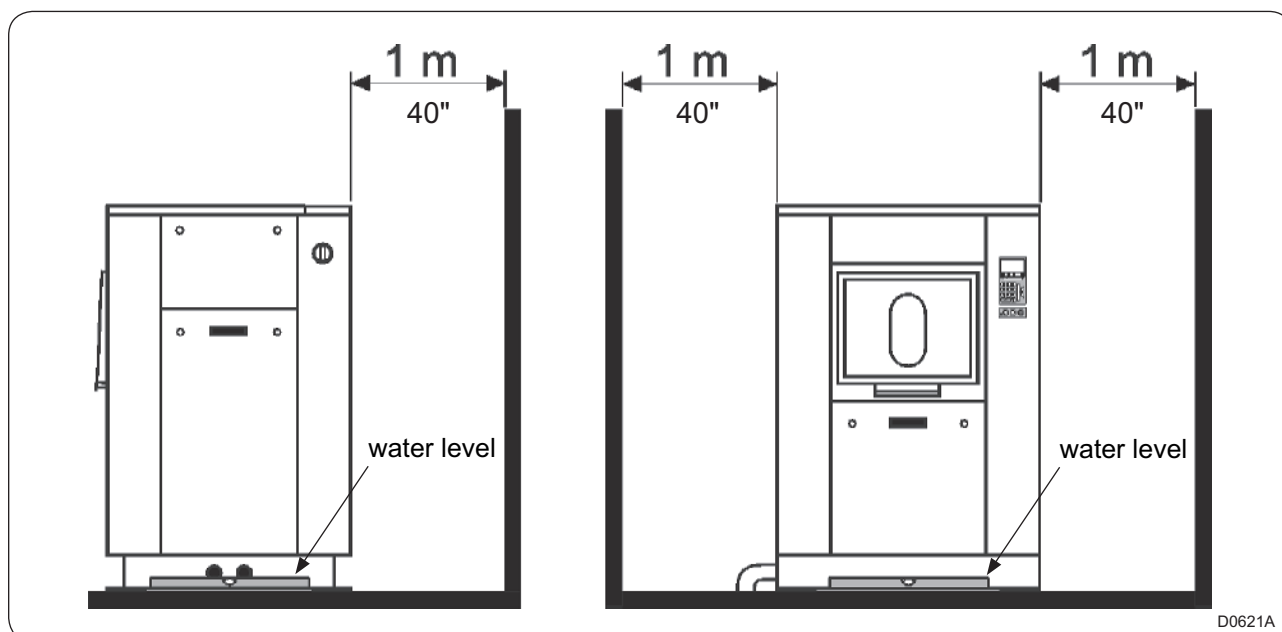
The machine must be installed on a perfectly even surface, strong and horizontal, capable resisting to the efforts shown in the technical characteristics.

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



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Installation of barrier partition

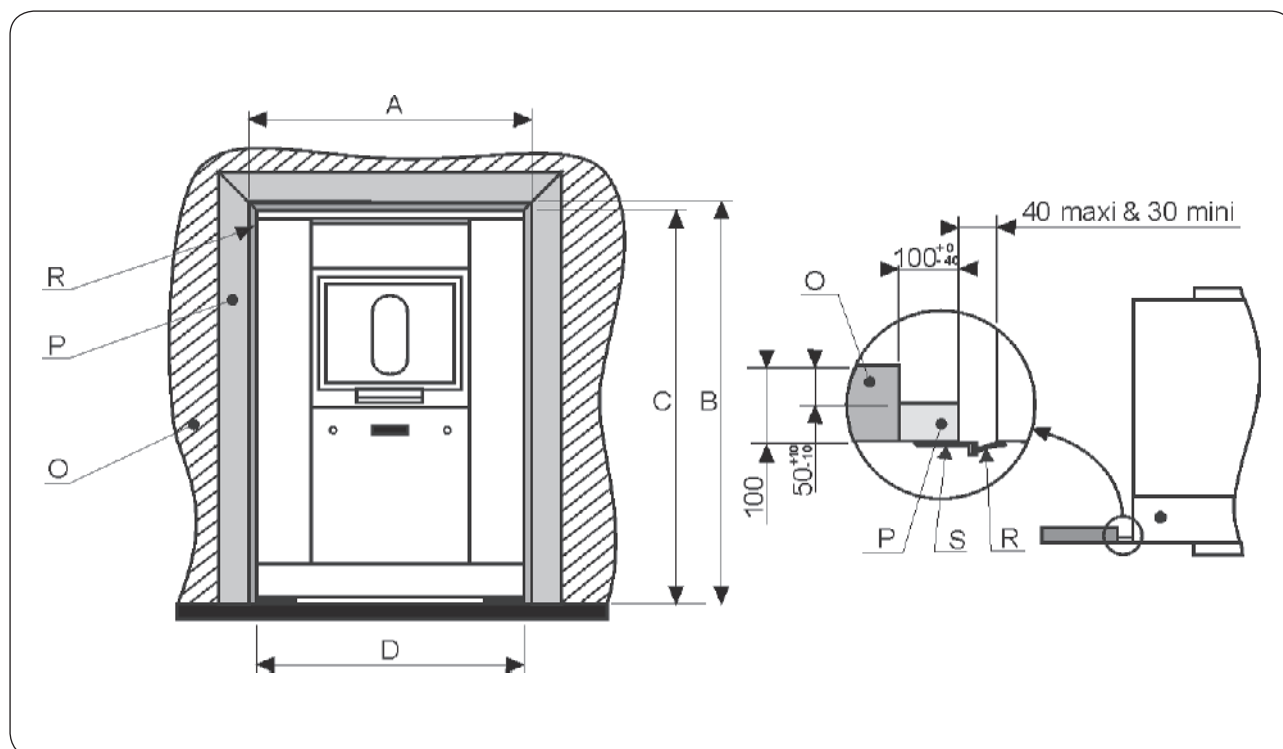
The barrier partition (O) (provided by customer) should be assembled before the installation of the machine.

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

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

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

Machine type	250	350	500	650
Cotes A (mm)	1125 / 44.29	1365 / 53.74	1645 / 64.76	2080 / 81.89
Cotes B (mm)	1650 / 64.96	1650 / 64.96	1650 / 64.96	1650 / 64.96
Cotes C (mm)	1610 / 63.38	1610 / 63.38	1610 / 63.38	1610 / 63.38
Cotes D (mm)	1045 / 41.14	1285 / 50.39	1565 / 61.61	2000 / 78.74



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

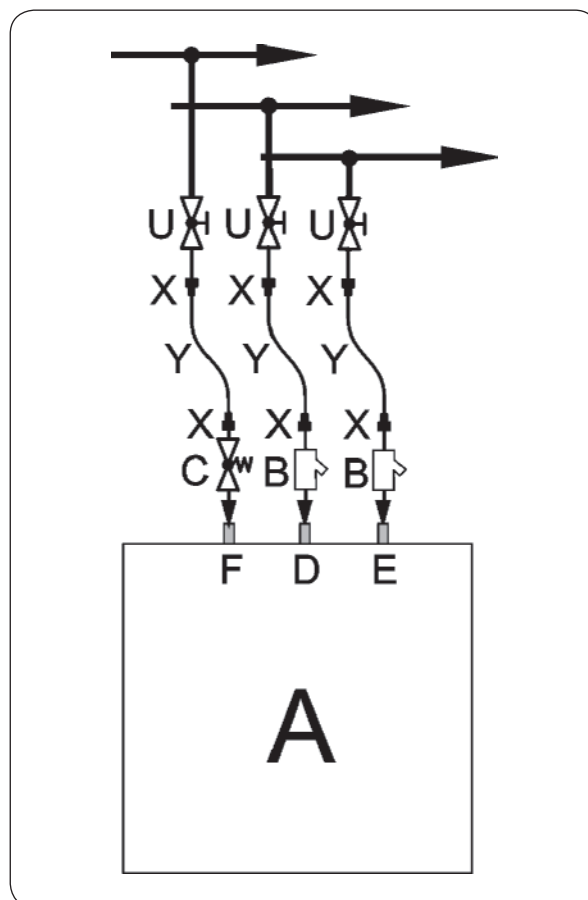
Washer extractors are assembled in standard execution with two waters inlet : one hot water and one hard water.

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 20 (3/4" BSP) (not provided)
- X Nipple (male) 3/4" (provided)
- Y Flexible pipe DN 20 (3/4" BSP) (provided)
- D Hot water inlet DN 20 (3/4" BSP) (1"1/4" BSP female)
- E Hard water inlet DN 20 (3/4" BSP)
- F Cold soft water inlet (option) DN 20 (3/4" BSP)
- C Steam electrovalve DN20 (3/4" BSP) (provided)
- B Water filter (provided)
- A Washer-extractor



Steam connection

For transport reasons, the steam electrovalve is dismantled and placed in the cardboard box supplies.

The inlet pipe to the machine has to be fit with a manual stopping valve to ease installation and maintenance.

Assemble the set (P.G.F.V.U) between the machine and steam piping.

Here under values apply to the steam pressure :

Recommended pressure :

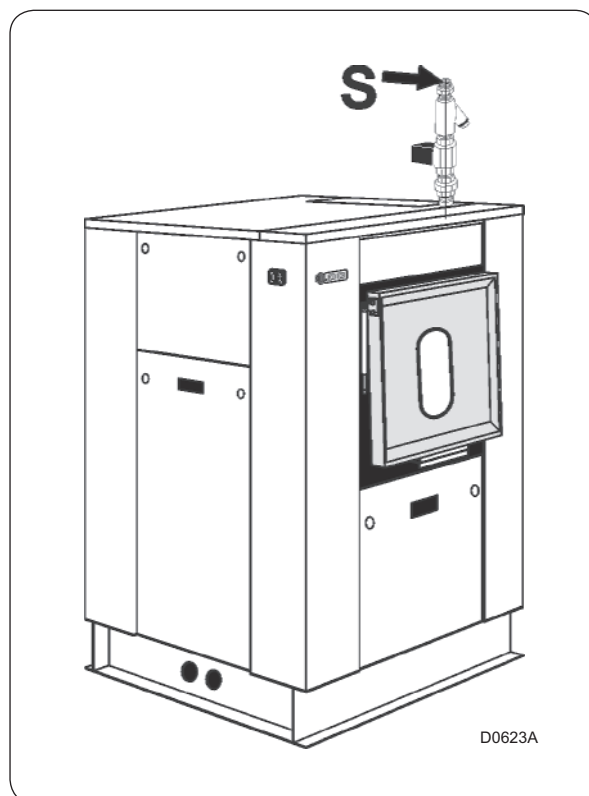
300-600 kPa (3 to 6 kg/cm²) (43.5-87 psi)

Limiting of values :

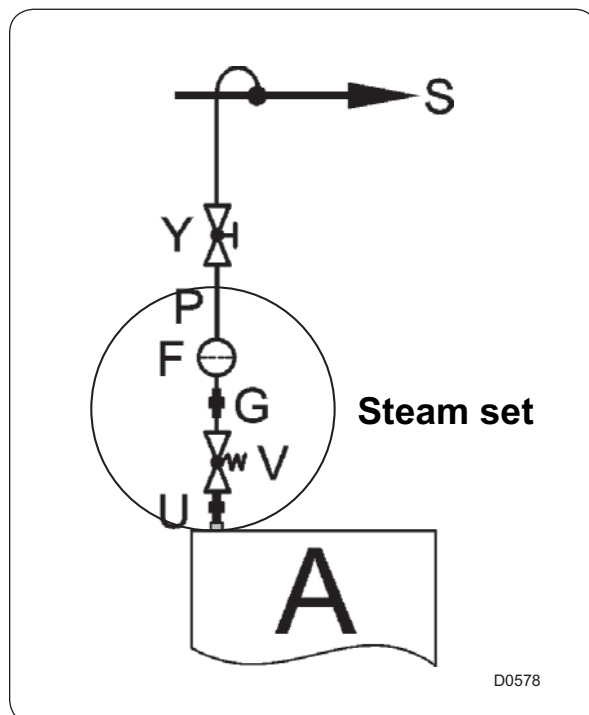
Mini. = 100 kPa (1 kg/cm²) (14.5 psi)

Maxi. = 600 kPa (6 kg/cm²) (87 psi)

Connection size : **DN 20 (3/4" BSP)**



- A** Washer-extractor
- S** Steam inlet
- Y** Manual stop wheel valve DN 20 (3/4" BSP) (provided by customer)
- P** Steam special flexible pipe DN 20 (3/4" BSP) (provided)
- F** Steam filter DN 20 (3/4" BSP) (provided)
- G** Nipple DN 20 (3/4" BSP) (provided by customer)
- V** Steam electrovalve DN 20 (3/4" BSP) (provided)
- U** Pipe union DN 20 (3/4" BSP) (provided)



Indirect steam heating connection

The customer must install a line purge, a manually closing valve with handwheel lockable in off position (do not use a 1/4 turn valve) and a filter on the supply side of the washer-extractor.

Here under values apply to the steam pressure :

Recommended pressure : **300-600 kPa (3 at 6 kg/cm²) (43.5 at 87 psi)**

Limiting of values : **Mini. = 100 kPa (1 kg/cm²) (14.5 psi)**
Maxi. = 600 kPa (6 kg/cm²) (87psi)

Connection size : **DN 15 (1/2" BSP)**

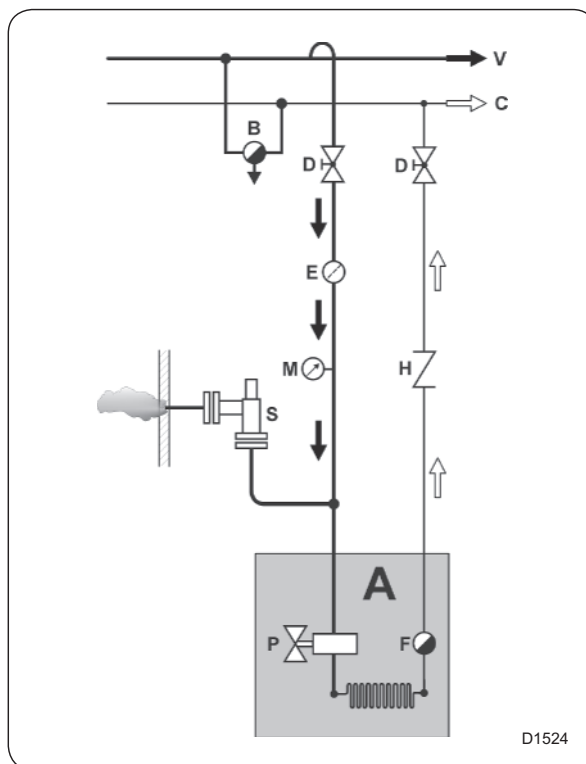
Condensate connection

The customer must install a purge valve with float closed with an incondensibles drainage device and a steam trap, a by-pass, a non-return valve and a manual closing valve lockable in off position (do not use a 1/4 turn valve).

Connection size : **DN 15 (1/2" BSP)**

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

- A** Washer-extractor
- B** Line trap (provided by customer)
- C** Return of condensates
- D** Manual stop wheel valve (provided by customer)
- E** Steam filter (provided by customer)
- F** Steam trap (provided)
- G** By-pass (provided by customer)
- H** Non-return valve (provided by customer)
- M** Pressure gauge (provided by customer)
- N** Thermal insulation for the pipe work (provided by customer)
- P** Steam electrovalve (provided)
- S** Safety valve (provided by customer)
- V** Steam inlet



Drain connection

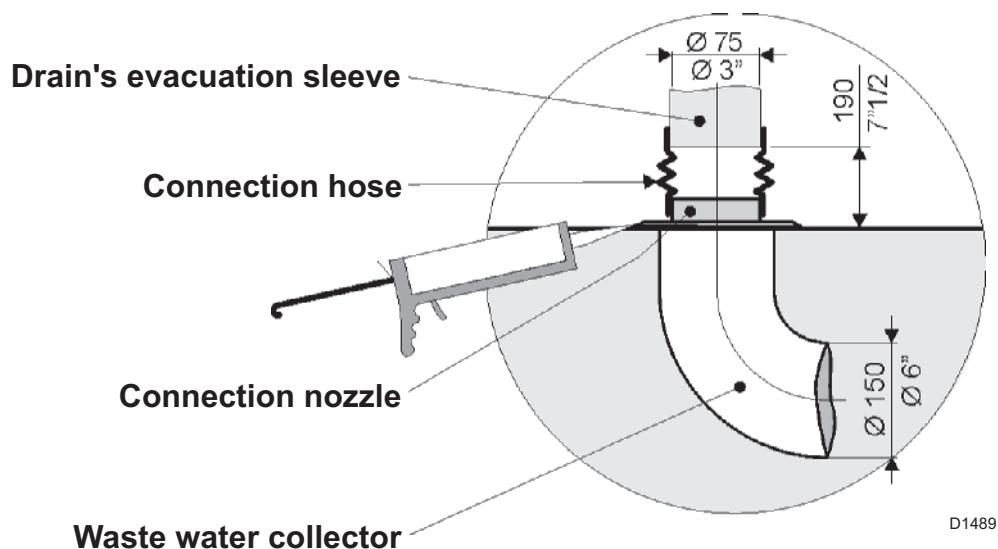
The machine's exhaust sleeve outside diameter is of 75 mm (3"). It is located underneath the machine.

The waste water collector diameter 150 mm (6") (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 waters' collector :

- Connect the hose to the connect nozzle.
- Seal and fix the nozzle using 2 screws.
- Then connect the hose to the drain's evacuation sleeve.

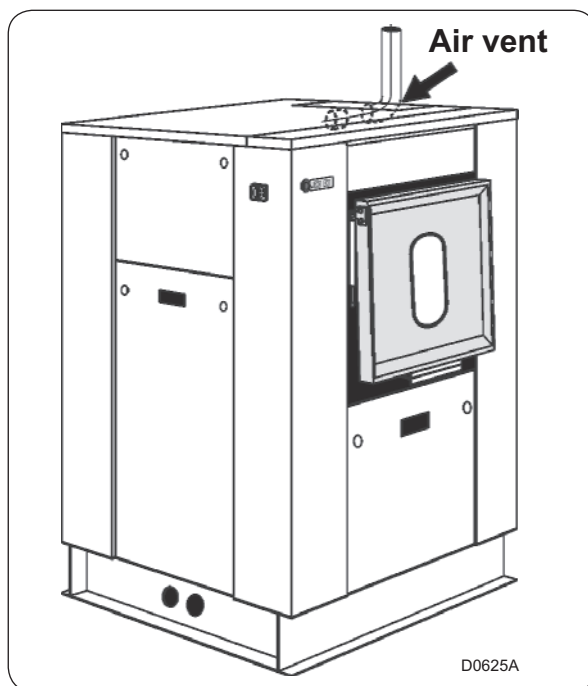


Air vent connection

The air vent of the drum opens on the top of the machine. Remove the upper casing protecting the water inlets to reach the air intake sleeve, then connect the bent hose to this opening.

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

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



Electric connection

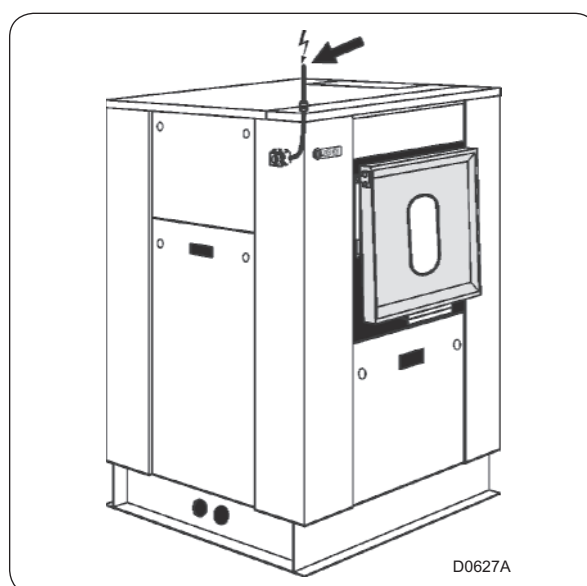
The washer-extractor should be plugged into a correctly earthed power socket complying with the standards in force.

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

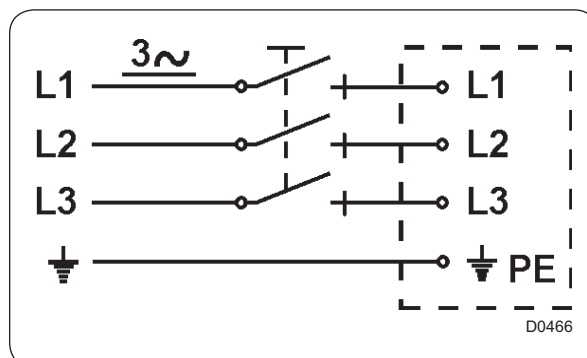
To avoid these untimely activations, you ought to use differential protecting systems with residual current only, having a high level of immunity as regards leakage transient current.

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.

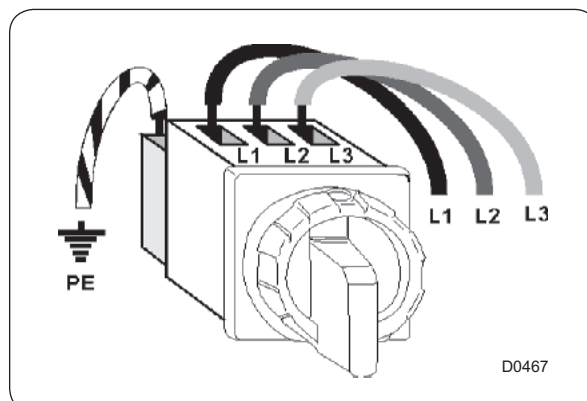
Pass the power supply cable of the machine through the stuffing box on the top of the machine.



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



Connect the power supply cable on the machine main switch.
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. (check operation, see chapter no. 10).



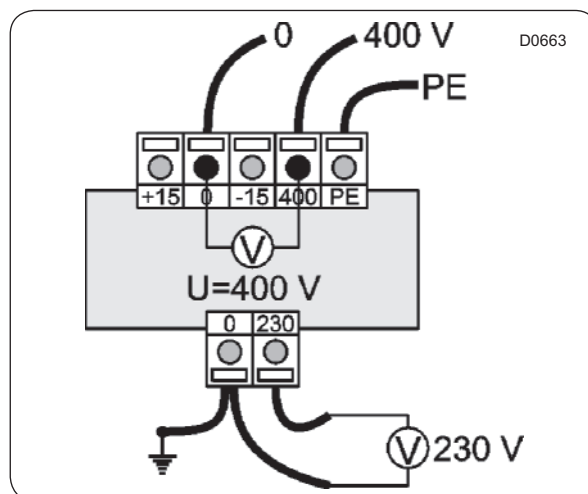
Connection diagrams for the control circuit power supply transformer (T1) as a function of the various customer power supply voltages :

The tension of the control circuit delivered by the transformer must be 230 volts, single-phase.

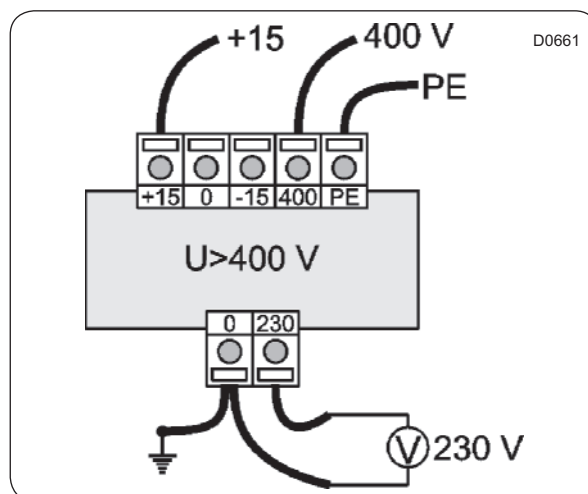
The supply tension for your machine is normally of 400 volts between 2 phases, this tension can however be different. The following schemes show how to adjust the tension at the secondary of the transformer.

Measure the power supply voltage at the transformer primary with a voltmeter between the transformer 0 and 400 volts terminals.

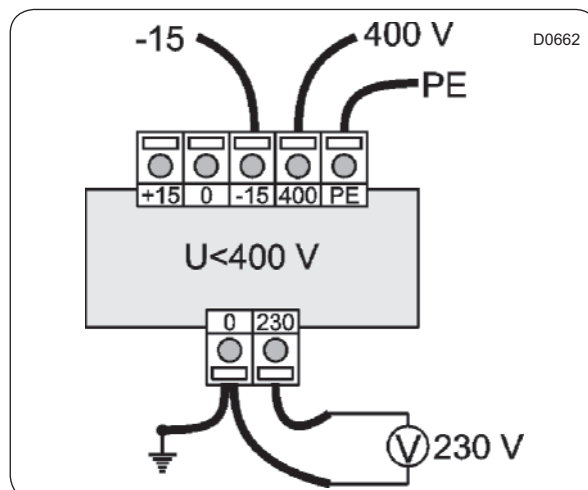
- If the voltage is equal to 400 volts, do not touch the transformer connection which must be as shown in the adjacent figure.



- If the voltage is > 400 volts (for example: 420 or 430 volts), connect the wires to the transformer as shown in the adjacent figure.



- If the voltage is significantly < 400 volts (for example : 370 or 380 volts), connect the wires to the transformer as shown in the adjacent figure.



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 fixing	Cable tray
	B2	C	E
3 x 1,5 mm ²	12,2 A	15,2 A	16,1 A
3 x 2,5 mm ²	16,5 A	21 A	22 A
3 x 4 mm ²	23 A	28 A	30 A
3 x 6 mm ²	29 A	36 A	37 A
3 x 10 mm ²	40 A	50 A	52 A
3 x 16 mm ²	53 A	66 A	70 A
3 x 25 mm ²	67 A	84 A	88 A
3 x 35 mm ²	83 A	104 A	114 A
3 x 50 mm ²	-	123 A	123 A
3 x 70 mm ²	-	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 insulating : 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 mm²**.

Machine Type	Heating	Supply voltage	Installed Power	Rated Intensity	Main Switch	Connection Cable Section	Fuse
250 250	Gas/Steam/T.F Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	3,7 kW 21,7 kW	8,5 A 33,5 A	3 x 16 A 3 x 40 A	4 x 2,5 mm ² 4 x 6 mm ²	3 x 16 A 3 x 40 A
350 350	Gas/Steam/T.F Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	4,8 kW 32 kW	11 A 50 A	3 x 16 A 3 x 63 A	4 x 2,5 mm ² 4 x 16 mm ²	3 x 16 A 3 x 63 A
500 500	Gas/Steam/T.F Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	5,8 kW 42 kW	12,5 A 64,5 A	3 x 16 A 3 x 80 A	4 x 2,5 mm ² 4 x 25 mm ²	3 x 16 A 3 x 80 A
650 650	Gas/Steam/T.F Electric	380/415 V 3+T ~ 50/60Hz 380/415 V 3+T ~ 50/60Hz	7,8 kW 61,5 kW	16 A 94 A	3 x 20 A 3 x 100 A	4 x 2,5 mm ² 4 x 35 mm ²	3 x 20 A 3x100 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 3 ms at any random time in the supply cycle. There shall be more than 1 s 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 1 s between successive dips.

Installation of the gas exchanger

The gas exchanger can be installed indifferently on the left or on the right of the machine according to the available place. Holes are provided on the sole of the machine on the two sides.



CAUTION

The machine should be installed in conformity with the regulations and standards enforced and situated in a correctly ventilated room.



SAFETY

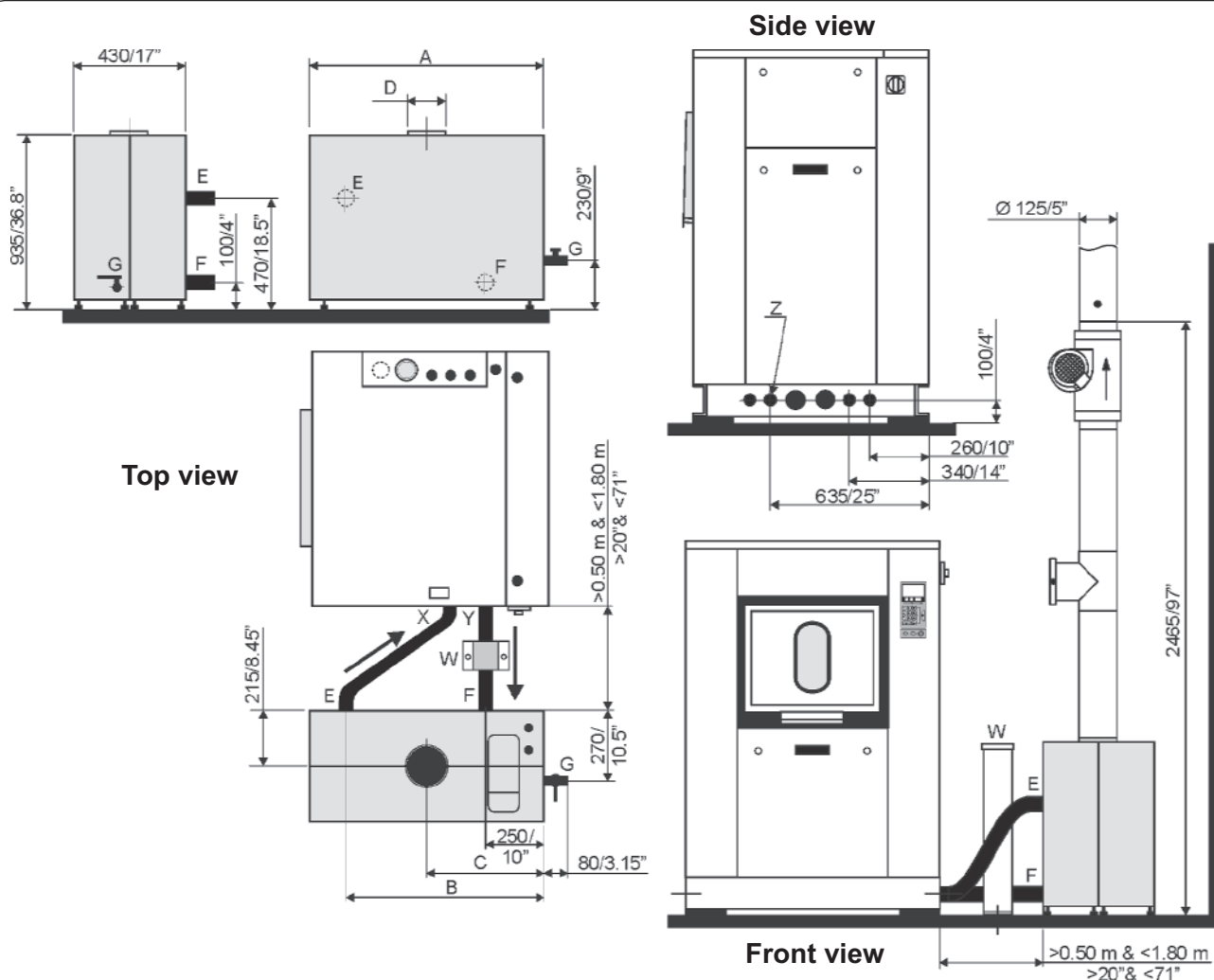
Any repairing or maintenance operation should be carried out by a specialist.



The gas exchanger pump must always be connected to the lower plug on the tank.

Machine type

		Units	
A	Length of exchanger	mm/inch	1110/43.7"
B	Dimension of output exchanger	mm/inch	1040/41"
C	Dimension of evacuation pipe	mm/inch	645/25.39"
D	Evacuation of burn gas	mm/inch	Ø 125/5"
E	Exchanger bottom output	mm/inch	Ø 36/40 (1"1/2)
F	Exchanger bottom input	mm/inch	Ø 36/40 (1"1/2)
G	Gas connection	mm/inch	DN 20 (3/4" BSP)
W	Filter		
X	Input machine / exchanger (higher plug on the tank)		
Y	Output machine / exchanger (lower plug on the tank)		
Z	Hole for electric cable to gas exchanger		



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Connection of the evacuation pipe of the gas exchanger.**Fresh air inlet**

To allow the gas exchanger to work at its best, it is important that the laundry air inlet passes through an opening from the outside.

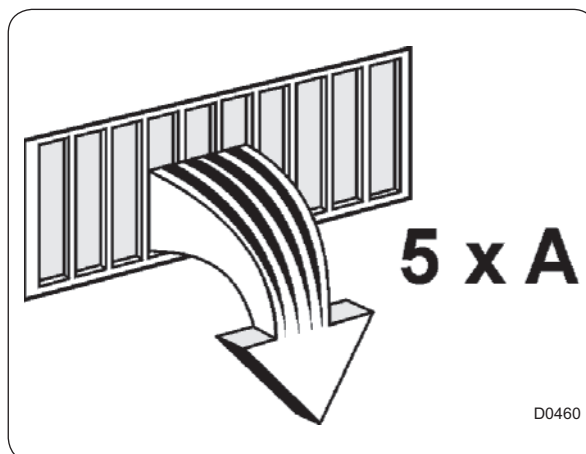
The fresh air arrival must be equivalent to the volume of evacuated air.

In order to prevent drafts in the room, the best solution is to place the air inlet behind the machine.

It is essential that the rooms should be ventilated.

The free section of the air inlet must be five times greater than the section of the evacuation pipe.

Do not forget to allow for the fact that grills often occupy half the total area of the free air opening.

**Evacuation duct**

It is recommended that a separate smoothwalled evacuation duct should be connected to each machine, providing the least possible resistance to air.

Check that the shaft flow is at least twice the capacity of the gas exchanger draught accelerator.

- Draught accelerator maximum flow rate with no pressure : 260 m³/h (152 cfm).
- Maximum pressure available with no flow : 27 mm H₂O (1" H₂O).
- Maximum admissible head loss on evacuation : 15 mm H₂O (0.6 " H₂O) at point (P).
- Average temperature of exhaust coming out of the gas exchanger : 140°C (284°F).

Provided an upper **ventilation of 7 dm² (1.1 sq. ft)** and a **lower one of 14 dm² (1.5 sq. ft)** in your laundry.

These conditions are absolutely essential for the correct working of the machine.

For gas heating, the required combustion fresh air supply should be not less than 2 m³/h (1.17 cfm) per kW, either 80 m³/h (47 cfm) minimum.

NOTE : if the flow is insufficient due to an excessive pressure loss, a safety pressure switch will automatically switch the heating off.

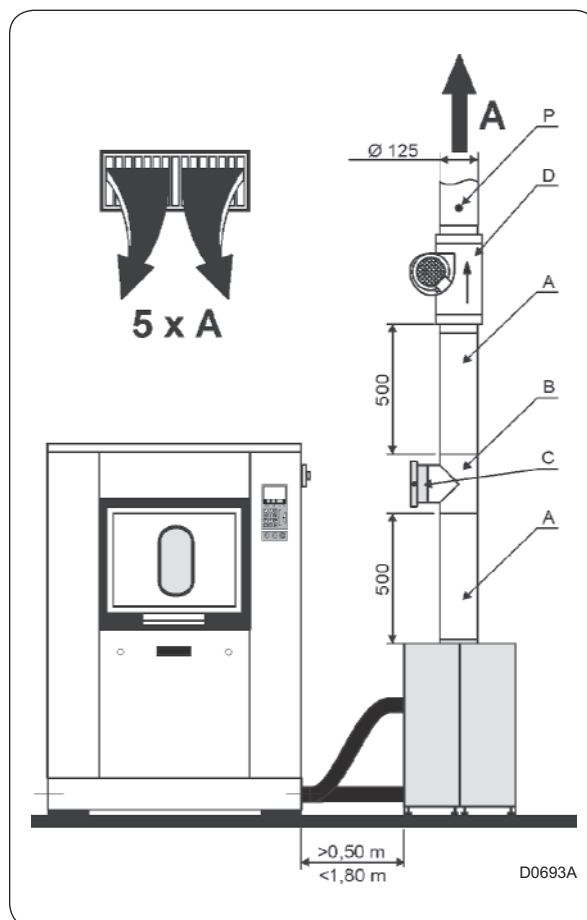
Installation of the exhaust of burn gas

Connect the whole set of pipes on your chimney pipe, that is to say :

- 1 aluminium pipe (A) length 500 mm (20") on the exchanger.
- 1 T-square (B) pipe + 1 regulator (C).
- 1 aluminium pipe (A) length 500 mm (20").
- 1 draught accelerator (D).



It is necessary to install the gas exchanger at the ground level.

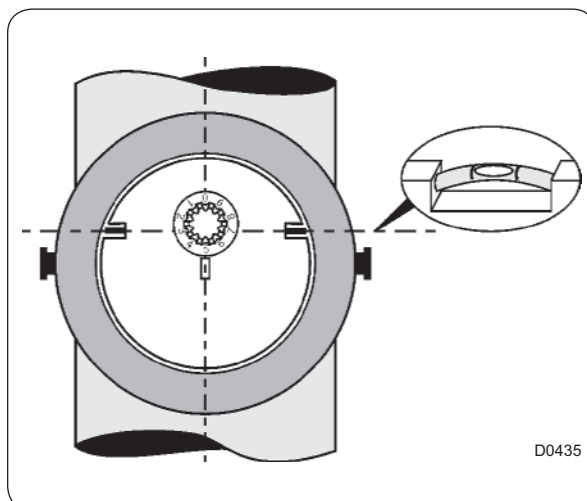


Evacuation of burn gas from a machine with gas heating must never be connected to the evacuation used for a dry cleaning machine or other machine of the same type.

Installation of the chimney regulator

For a correct running of the installation, this chimney regulator must always have its axle of rotation of his flap perfectly horizontal.

The adjustment toothed wheel has to be positioned on the mark no 7.



Gas connection



CAUTION

The installation, connection and gas arrival adjustments for the machine must be done by qualified personnel only.

The customer must install a filter and a manual stop valve on the supply side of the machine if **NATURAL GAS** is used.

For **BUTANE 28-30 mbar** or **PROPANE 37 or 50 mbar**, the customer must install a filter, a manual closing valve and a pressure reducer.

Check that the diameter of injectors is adequate for the king of gas of your installation (see table). The machine is delivered with extra injectors in a plastic envelope. There is also a sheet metal plate with a cork joint or an adjusting head to feed the machine with another gas.

Connect the installation at the exchanger : DN 20 (3/4" BSP).

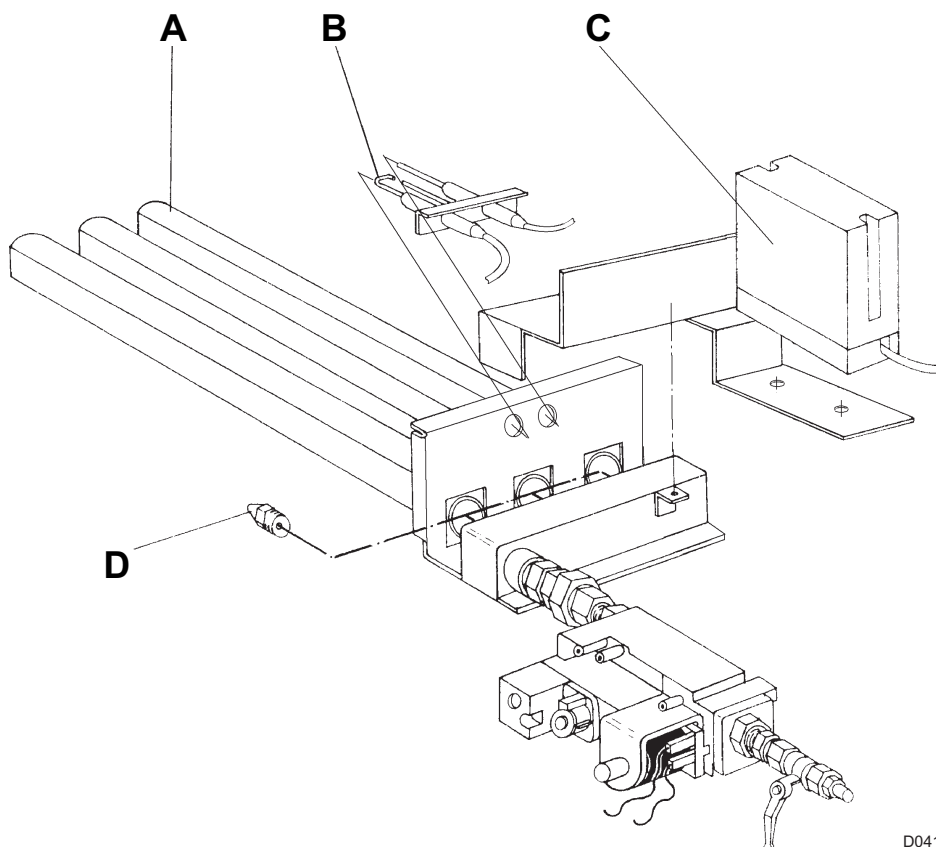
A : gas burner

B : ignition and control electrodes

C : ignitor

D : injectors

E : gas admission



The gas exchanger is adjusted at the plant to be suitable for the kind of gas specified on the order. If you have to supply your machine with gas in a family different from the gas for which your machine was adjusted, proceed as follows.

Testing pressures

According to the EN 437 standard, the values of the testing pressures mentioned in our various documents are values for static pressure taken at the gas inlet connection of the machine ; the heating of the machine being on.

Changing to a gas in the same family (type H or L)

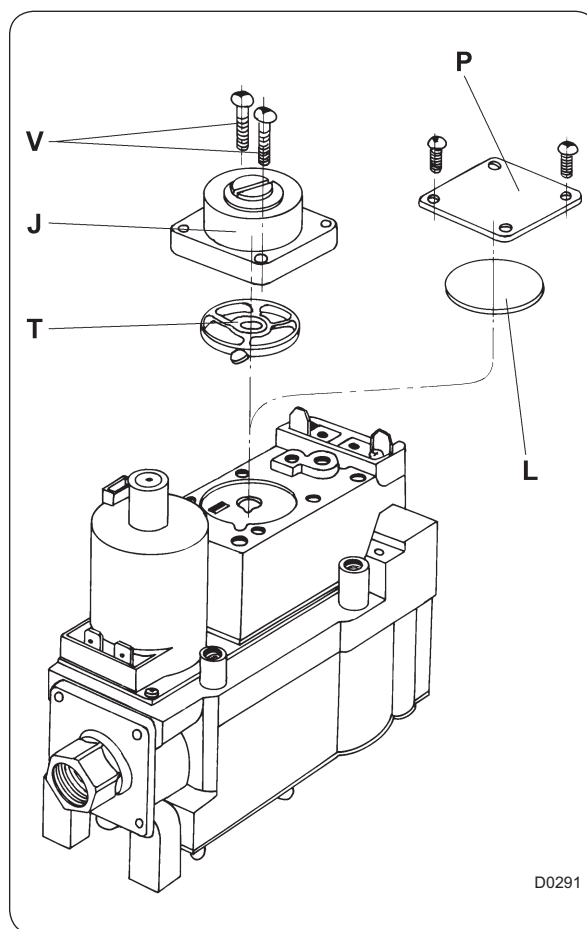
- Change the 3 injectors with joints (see tables of correspondences).

Changing to a gas in a different family (from type H or L to butane or propane)

- Change the 3 injectors with joints (see tables of correspondences)
- Unscrews the fixing screws (V) and remove the adjusting head (J) as well as its cork (T), keep these parts in case a change would be necessary.
- Replace it by the cork (L) and the plate (P).
- Screw the two screws and block.

Changing a gas from one family to another (from butane or propane to type H or L)

- Change the 3 injectors with joints (see tables of correspondences)
- Unscrews the fixing screws (V) and remove the plate (P) as well as the cork (L), keep these parts in case a change would be necessary.
- Set the cork (T) and the adjustment head (J).
- Screw the two screws and block.





IMPORTANT

Adjustments should be made by qualified personnel only.

Adjustment and checking of the outlet pressure

The gas outlet pressure of the electrovalve is adjusted at the factory. If you have to make another adjustment, proceed as follows.

A	Inlet
B	Outlet
D	Outlet pressure regulator adjustment screw plug.
E	Inlet pressure tapping
F	Outlet pressure tapping
T	Head regulation

1. Close the gas inlet and remove the binding screw from the pressure tapping (F) and connect the manometer tube.

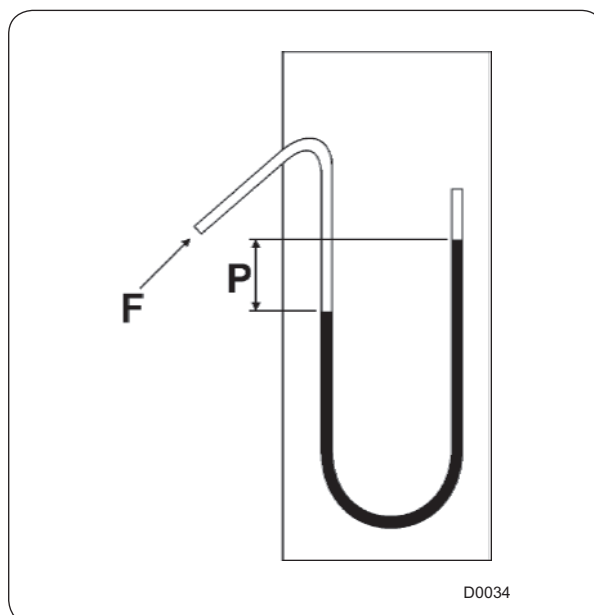
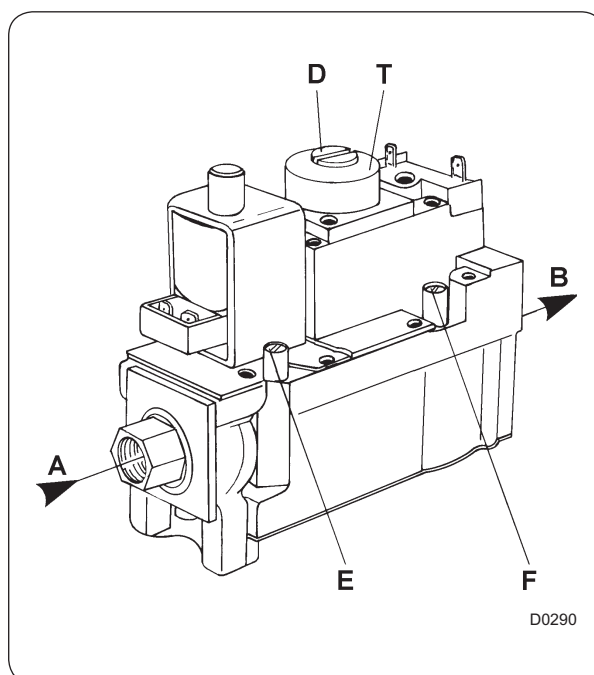
2. The electricity supply must be energized otherwise gas will not be supplied to the burner.

3. Open and check the gas inlet main burner using the manometer on the pressure tapping (F).

4. Remove the pressure regulator cap (D).

5. Using a screwdriver, slowly turn the adjustment screw until the required pressure (P) is indicated on manometer (see tables on the following pages). Turn the adjustment screw clockwise to increase and counter-clockwise to decrease gas pressure.

6. Reset the pressure regulator cap, close off the gas inlet, remove the manometer tube and put the binding screw back in (F).



Legend of symbols used

- I: machine working with only one gas family
 II: machine working with two gas families
 1: 1st family : coal gas or town gas (for information : not used here)
 2: 2nd family : natural gas
 3: 3th family : liquefied petroleum gas (LPG)
 H: natural gas with high calorific value (type G20)
 L: natural gas with low calorific value (type G25)
 E: natural gas with high and low calorific value (type G20)
 LL: natural gas with low calorific value (type G25)
 Esi: natural gas with high and low calorific value with adjustment (type G20)
 B: butane gas (type G30)
 P: propane gas (type G31)
 B/P: butane and propane gas (type G30 and G31)
 3+: butane / propane gas with couple of pressure 30/37 (type G30 and G31)

AT : Austria
 BE : Belgium
 CH : Suisse
 DK : Danemark
 DE : Allemagne
 ES : Espagne

FI : Finland
 FR : France
 GB : Royaume-Uni
 GR : Grèce
 IE : Irlande
 IT : Italie

LU : Luxembourg
 NL : Pays-Bas
 NO : Norvège
 PT : Portugal
 SE : Suède

Qn (Hi) : nominal heat emission express in relation to the net calorific value

Mn : nominal mass (for butane/propane gas)

Vn : nominal volume (for naturel gas)

For safety reasons use only original spare parts.

Electrolux

TYPE : _____
 SERIAL N° : _____
 QC N° : _____
 PROD. N° : _____
 CAPACITY : _____ l ; _____ kg
 P. MAX. : _____ W
 (M) _____ kW ISOL. CLAS : _____
 _____ W
 _____ V ~ _____ Hz
 _____ A

Qn (Hi) : _____ kW
 G : _____ mbar
 Mn/Vn : _____ / _____
 Type : _____
 G20 - _____ mbar
 G25 - _____ mbar
 G30 - _____ mbar
 G31 - _____ mbar
 η : _____
 P. max. : _____ kPa

CE _____ IP 4

32101642

ELECTROLUX LAUNDRY
 SYSTEMS FRANCE
 10430 Rosières-près-Troyes
 FRANCE
 Made in FRANCE

Country	Category	Gas	Pressure (mbar)
AT	I2H	G20	20
DE	I2E I3P	G20 G31	20 50
BE	I2E(S)B I3P	G20/G25 G31	20/25 37
DA-FI-SE-IT	I2H	G20	20
FR	II2ESI3P	G20/G25 G31	20/25 37/50
ES-GR-IE	II2H3P	G20	20
PT-CH-GB		G31	37
ES-CH	II2H3P	G20 G31	20 50
NL	II2L3P	G25 G31	25 50
LU	I2E	G20	20

TABLE OF CORRESPONDENCES - Washer-Extractor 250

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø des injectors in mm	Pressure at injectors in mm H ₂ O	Heat emission Qn en kW (Hi)	Consumption Mn in kg/h (Hi)**	Consumption Vn in m³/h**
*2E, 2H, 2ESI	G 20	20	34,02 MJ/m³	2,90	153	40	-	0,90
2L, 2ESI	G25	25	29,25 MJ/m³	3,20	154	40	-	1,05
3 P	G31	37	46,34 MJ/kg	1,85	regulator out of operation	40	0,66	-
3 P	G31	50	46,34 MJ/kg	1,70	regulator out of operation	40	0,66	-
* For Belgium, no work is allowed between G20 and G25.								

** 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, extrac. 10 min (cold water supply at 15 °C).

TABLE OF CORRESPONDENCES - Washer-Extractor 350

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø des injectors in mm	Pressure at injectors in mm H ₂ O	Heat emission Qn en kW (Hi)	Consumption Mn in kg/h (Hi)**	Consumption Vn in m³/h**
*2E, 2H, 2ESI	G 20	20	34,02 MJ/m³	2,90	153	40	-	1,30
2L, 2ESI	G25	25	29,25 MJ/m³	3,20	154	40	-	1,50
3 P	G31	37	46,34 MJ/kg	1,85	regulator out of operation	40	0,95	-
3 P	G31	50	46,34 MJ/kg	1,70	regulator out of operation	40	0,95	-
* For Belgium, no work is allowed between G20 and G25.								

** 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, extrac. 10 min (cold water supply at 15 °C).

Note : G20 (H) = natural gas, Lacq type (20 mbar)
 G25 (L) = natural gas, Groningue type (20 or 25 mbar)
 G31 = propane gas (28/30, 37, 50 mbar)

20 mbar = 0.29 psi
 25 mbar = 0.36 psi
 28 mbar = 0.41 psi
 30 mbar = 0.43 psi
 50 mbar = 0.72 psi

TABLE OF CORRESPONDENCES - Washer-Extractor 500

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø des injectors in mm	Pressure at injectors in mm H ₂ O	Heat emission Qn en kW (Hi)	Consumption Mn in kg/h (Hi)**	Consumption Vn in m³/h**
*2E, 2H, 2ESI	G 20	20	34,02 MJ/m³	2,90	153	40	-	1,90
2L, 2ESI	G25	25	29,25 MJ/m³	3,20	154	40	-	2,10
3 P	G31	37	46,34 MJ/kg	1,85	regulator out of operation	40	1,40	-
3 P	G31	50	46,34 MJ/kg	1,70	regulator out of operation	40	1,40	-

* For Belgium, no work is allowed between G20 and G25.

** 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, extrac. 10 min (cold water supply at 15 °C).

TABLE OF CORRESPONDENCES - Washer-Extractor 650

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø des injectors in mm	Pressure at injectors in mm H ₂ O	Heat emission Qn en kW (Hi)	Consumption Mn in kg/h (Hi)**	Consumption Vn in m³/h**
*2E, 2H, 2ESI	G 20	20	34,02 MJ/m³	2,90	153	40	-	2,80
2L, 2ESI	G25	25	29,25 MJ/m³	3,20	154	40	-	3,30
3 P	G31	37	46,34 MJ/kg	1,85	regulator out of operation	40	2,05	-
3 P	G31	50	46,34 MJ/kg	1,70	regulator out of operation	40	2,05	-

* For Belgium, no work is allowed between G20 and G25.

** 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, extrac. 10 min (cold water supply at 15 °C).

Note : G20 (H) = natural gas, Lacq type (20 mbar)
 G25 (L) = natural gas, Groningue type (20 or 25 mbar)
 G31 = propane gas (28/30, 37, 50 mbar)

20 mbar = 0.29 psi
 25 mbar = 0.36 psi
 28 mbar = 0.41 psi
 30 mbar = 0.43 psi
 50 mbar = 0.72 psi



IMPORTANT

Tightness test after installation, the gas leak test is performed as follows:

- Paint pipe joints, pilot gas tubing connections and inspect outlets with rich soap and water solution ; do not use an aggressive soap.
- Put the machine into service. Bubbles indicate a gas leak.
- Eliminate this leak.



NOTE:

After all intervention, re-seal (red varnish) the regulator of pressure.

In case of changing of gas, the stick for the adjustment has to be modified.



Check-out

Before leaving, put the appliance into operation and allow to run a complete cycle. Watch to ensure that all burner system components function correctly.

Liquid detergents connection

**CAUTION**

Liquid detergents are particularly aggressive.

We advise you to use only products with pH lower than 9 in order to avoid the machine's rubbers from being attacked.

Dilute imperatively all of your detergents before letting them flow into the machine.

**ADVISE IF USING LIQUID DETERGENTS**

After use, there is always chemical remaining in the liquid detergents' dosing pipes.

When the machine is not running, this detergent may slowly drip and so, quickly corrode the parts in contact with.

In order to avoid (ex. corrosion of the drum or by bleach), we advise you to forecast a device to drain every night the distribution pipes of the liquid detergents..

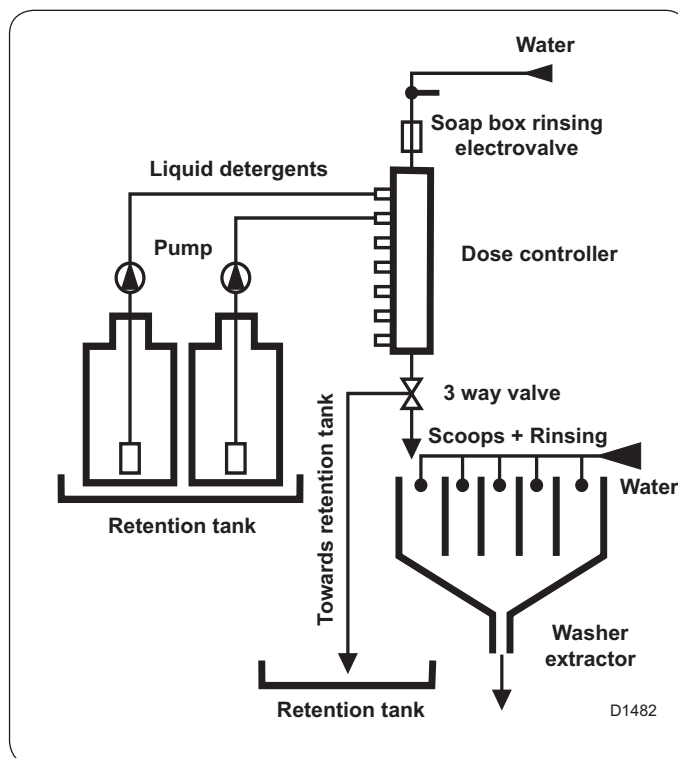
**CAUTION**

The running of detergents must be independent from the running of the machine.

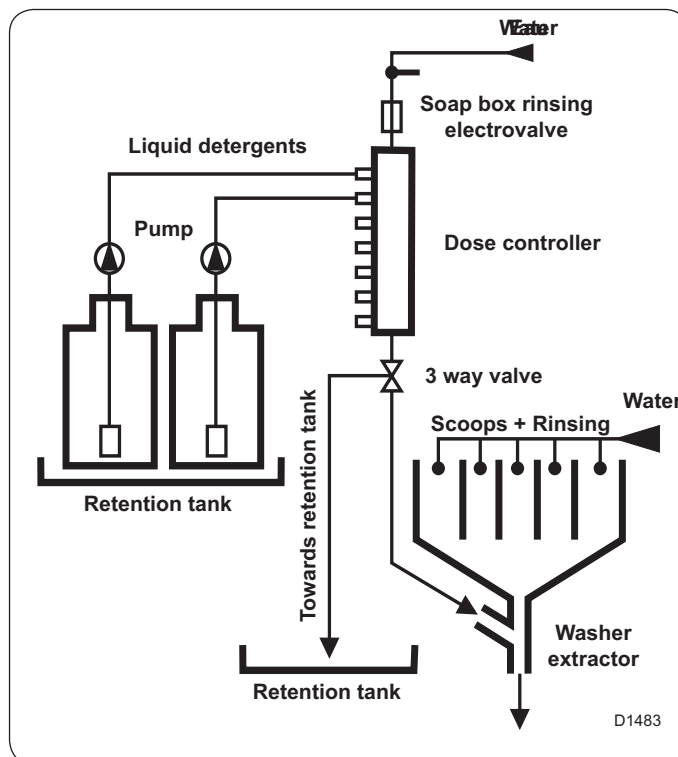
The control information of detergents must imperatively be relayed.

Connection scheme of liquid detergents

We advise you to use one of the two systems shown hereby to connect your liquid detergents.
Single inlet dose controller with a compulsory rinsing device.



Multi inlet dose controller with a compulsory rinsing device.



Electrical liquid detergents' connection

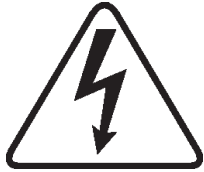
If your machine have 1 I/O card, you have to use signal of detergent box.

Connectors card I/O no 1 :	Powder	1	IO1-X9-4
	Powder	2	IO1-X9-5
	Liquid	1	IO1-X14-1
	Liquid	2	IO1-X14-2
	Liquid	3	IO1-X14-3
	Common		IO1-X9-8

If your machine have 2 I/O cards, use signal 4 to 13.

Connectors card I/O no 2 :	Liquid	4	IO2-X9-3
	Liquid	5	IO2-X9-4
	Liquid	6	IO2-X9-5
	Liquid	7	IO2-X9-6
	Liquid	8	IO2-X9-7
	Common		IO2-X9-8
	Liquid	9	IO2-X14-1
	Liquid	10	IO2-X14-2
	Liquid	11	IO2-X14-3
	Liquid	12	IO2-X14-4
	Common		IO2-X14-5
	Liquid	13	IO2-X8-1
	Common		IO2-X8-2

Washer-extractor electricity power supply



CAUTION

Prior to use, the washer-extractor should be plugged into a correctly earthed power socket complying with the standards in force.



SAFETY

The electrical installation of the machine must be undertaken by qualified personnel.



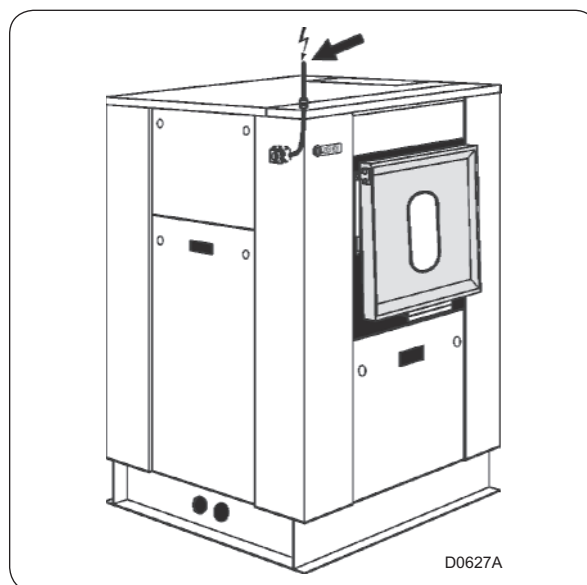
CAUTION

Ensure that the electrical voltage is correct and that the power of your supply is sufficient, before connecting the machine.

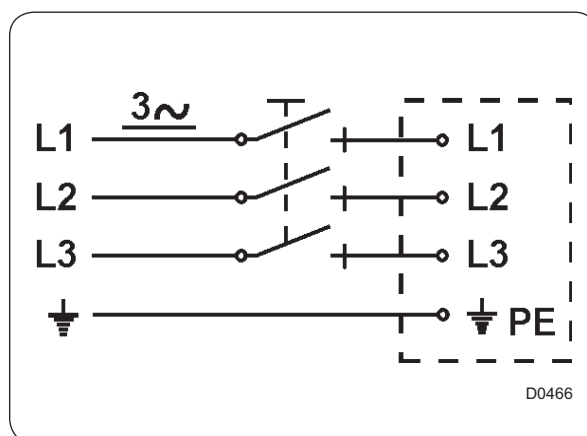
The use of power electronics (variator or filter for example) may lead to untimely release of breakers with 30 mA differential current device.

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.

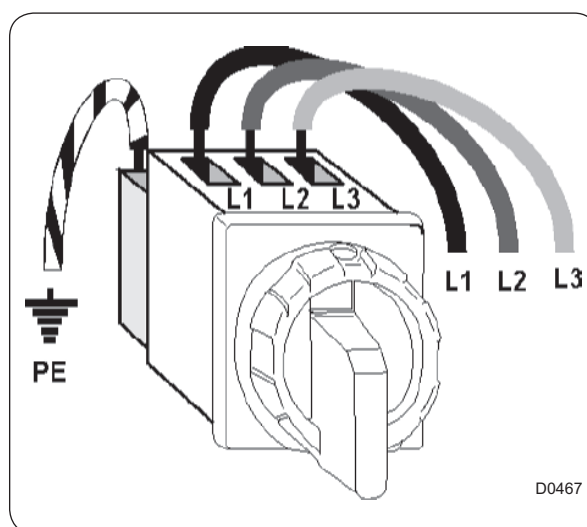
Pass the power supply cable of the machine through the stuffing box on the top of the machine.



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



Connect the power supply cable on the machine main switch.
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. (check operation, see chapter no. 10).

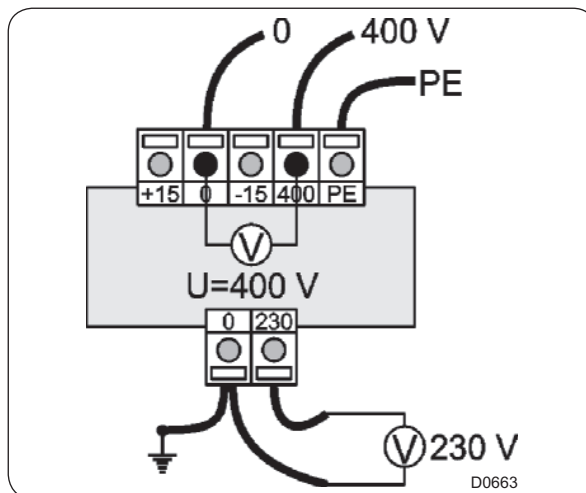


Connection diagrams for the control circuit power supply transformer (T1) as a function of the various customer power supply voltages.

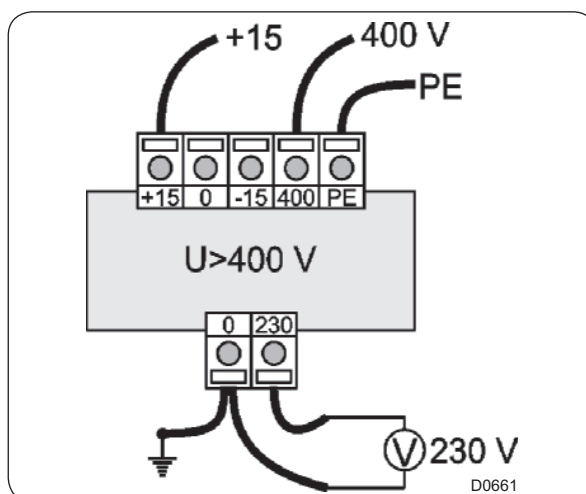
The tension of the control circuit delivered by the transformer must be 230 volts, single-phase. The supply tension for your machine is normally of 400 volts between 2 phases, this tension can however be different. The following schemes show how to adjust the tension at the secondary of the transformer.

Measure the power supply voltage at the transformer primary with a voltmeter between the transformer 0 and 400 volts terminals.

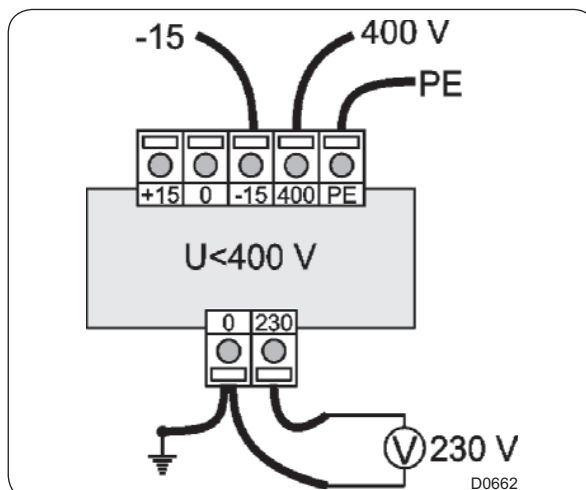
- If the voltage is equal to 400 volts, do not touch the transformer connection which must be as shown in the adjacent figure.



- If the voltage is > 400 volts (for example : 420 or 430 volts), connect the wires to the transformer as shown in the adjacent figure.



- If the voltage is significantly < 400 volts (for example : 370 or 380 volts), connect the wires to the transformer as shown in the adjacent figure.



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.

Values given for :

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

Maximum Admissible Current

Tableau 1 (in accordance with EN Standard 60204-1)			
Cable section	Seated in Cable Duct or Cable Trough B2	Wall Fixing C	Cable Tray E
3 x 1,5 mm ²	12,2 A	15,2 A	16,1 A
3 x 2,5 mm ²	16,5 A	21 A	22 A
3 x 4 mm ²	23 A	28 A	30 A
3 x 6 mm ²	29 A	36 A	37 A
3 x 10 mm ²	40 A	50 A	52 A
3 x 16 mm ²	53 A	66 A	70 A
3 x 25 mm ²	67 A	84 A	88 A
3 x 35 mm ²	83 A	104 A	114 A
3 x 50 mm ²	-	123 A	123 A
3 x 70 mm ²	-	155 A	155 A

Table 2 (correction factors for different ambient temperatures)	
Ambient Temperature	Correction Factor
30 °C (86°F)	1,15
35 °C (95°F)	1,08
40 °C (104°F)	1,00
45 °C (113°F)	0,91
50 °C (122°F)	0,82
55 °C (131°F)	0,71
60 °C (140°F)	0,58

Tableau 3 (correction factors for different cable insulating materials)		
Insulating material	Max. Working Temperature range	Correction factor
PVC	70 °C (158°F)	1,00
Natural or Synthetic Rubber	60 °C (140°F)	0,92
Silicone Rubber	120 °C (248°F)	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 :

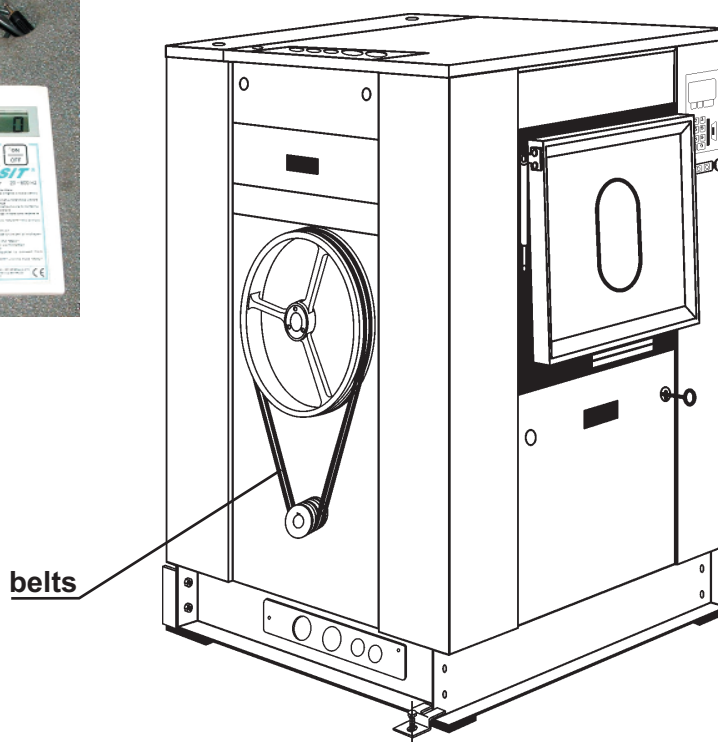
- The machine has a rated current of 60 A.
- The ambient temperature is 45 °C ; Table 2 gives a correction factor of 0.91.
- Rubber cable insulating : Table 3 gives a correction factor of 0.92.
- The cable is fixed directly to the wall (Column C), with 2 cables side by side. Table 4 gives a correction 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 mm²**.

Machine type	Heating	Supply Voltage	Installed Power	Rated Intensity	Main Switch	Cable Section	Fuse
250	Gas/steam/T.F	380/415 V 3+E ~ 50/60 Hz	3,7 kW	8,5 A	3 x 16 A	4 x 2,5 mm ²	3 x 16 A
250	Electric	380/415 V 3+E ~ 50/60 Hz	21,7 kW	33,5 A	3 x 40 A	4 x 6 mm ²	3 x 40 A
350	Gas/steam/T.F	380/415 V 3+E ~ 50/60 Hz	4,8 kW	11 A	3 x 16 A	4 x 2,5 mm ²	3 x 16 A
350	Electric	380/415 V 3+E ~ 50/60 Hz	32 kW	50 A	3 x 63 A	4 x 16 mm ²	3 x 63 A
500	Gas/steam/T.F	380/415 V 3+E ~ 50/60 Hz	5,8 kW	12,5 A	3 x 16 A	4 x 2,5 mm ²	3 x 16 A
500	Electric	380/415 V 3+E ~ 50/60 Hz	42 kW	64,5 A	3 x 80 A	4 x 25 mm ²	3 x 80 A
650	Gas/steam/T.F	380/415 V 3+E ~ 50/60 Hz	7,8 kW	16 A	3 x 20 A	4 x 2,5 mm ²	3 x 20 A
650	Electric	380/415 V 3+E ~ 50/60 Hz	61,5 kW	94 A	3 x 100 A	4 x 35 mm ²	3x100 A

Tensiometer Ten-Sit
part no. - 94081008



TEXROPE belts - Supplier recommendation

Machine type	250	350	500	650
Tension of new belts after test	57 - 60 Hz	64 - 67 Hz	62 - 65 Hz	58 - 61 Hz
Tension of used belts	55 - 58 Hz	63 - 65 Hz	60 - 63 Hz	55 - 59 Hz

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11. Preventive maintenance

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Monthly (170 H.).....	3
Every three months (500 H.)	3
Every six months (1000 H.)	3

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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.



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 cm³ / kg (0.28 to 0.42 cu in/lb) of linen.



Colorants

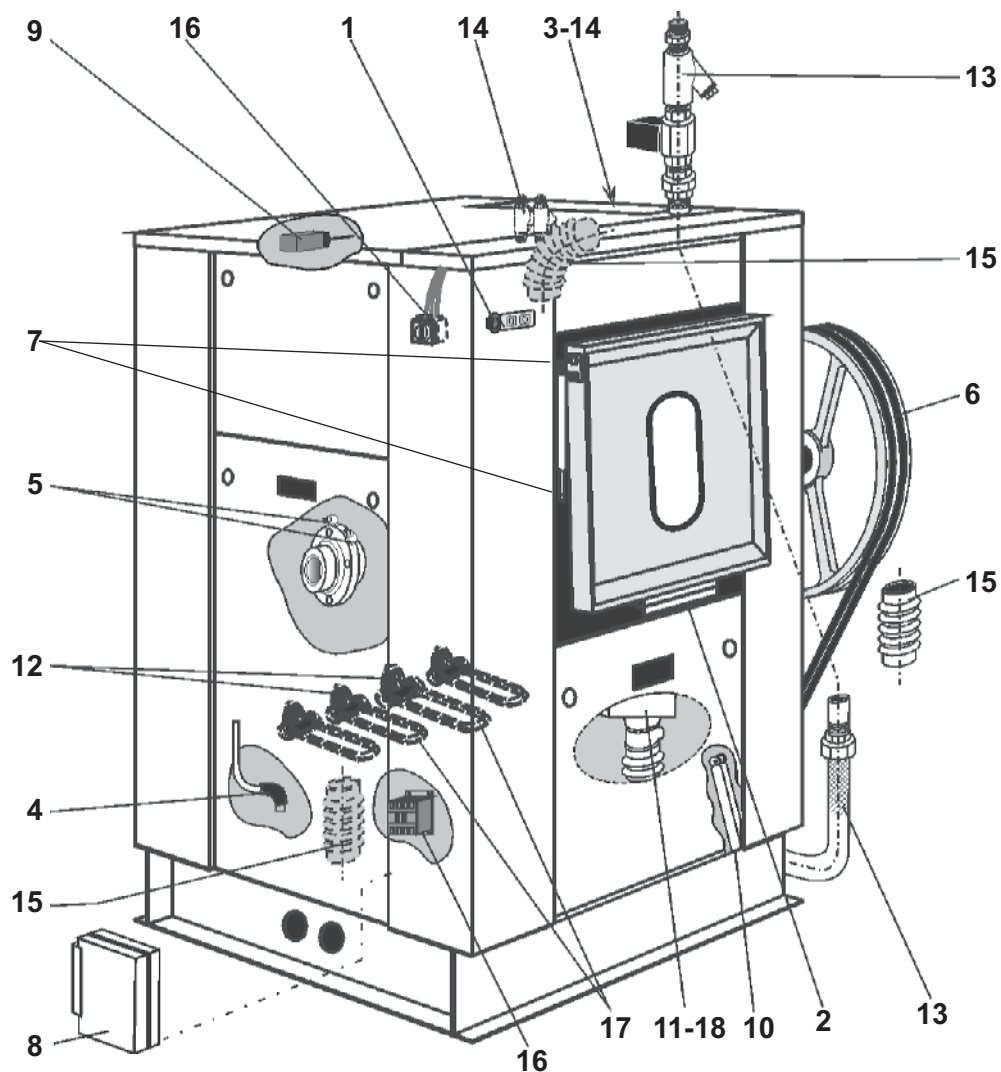
Do not input colorant in the machine with very hot water. Very hot water react with the colorant, which creates a very corrosive solution. The colorants must be input with cold water or warm water which temperature doesn't exceed 50°C (122°F).



CAUTION

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

Entretien



D0629B

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 of soap box).

Monthly (170 H.)

- ④ Clean the water level and connections on the drain valve (do not blow in the pipe towards the CPU).
- ⑤ 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).
- ⑥ Check that the belts are clean and tightened. Clean the drum pulley.
- ⑦ Lubricate gas suspension door hinges with aerosol spray-on grease.
- ⑧ Clean the converter air vent with suction device. Increase the cleaning times frequency to the dirtying.

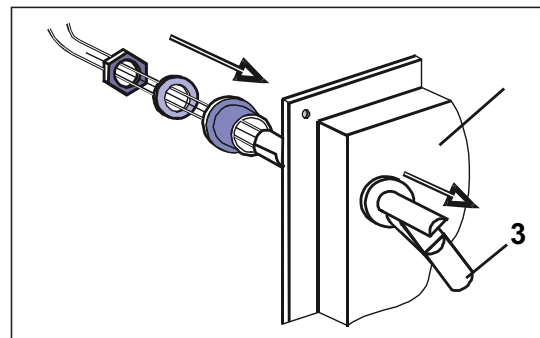
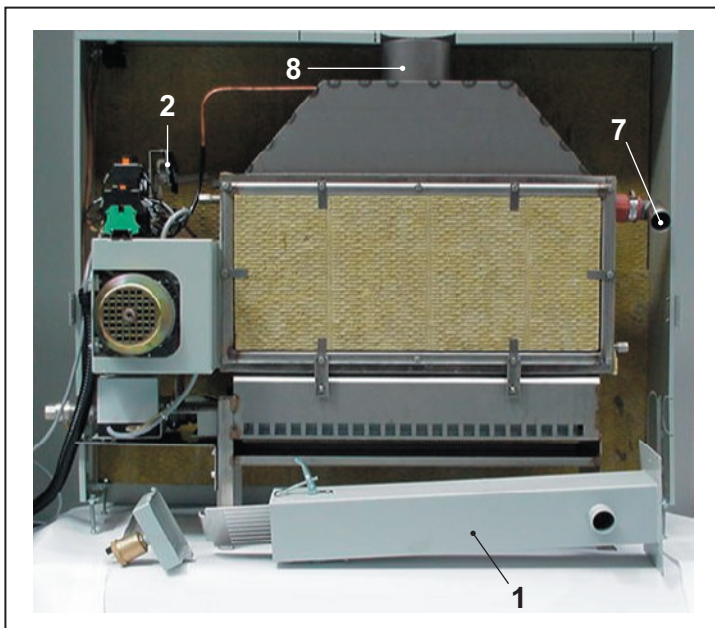
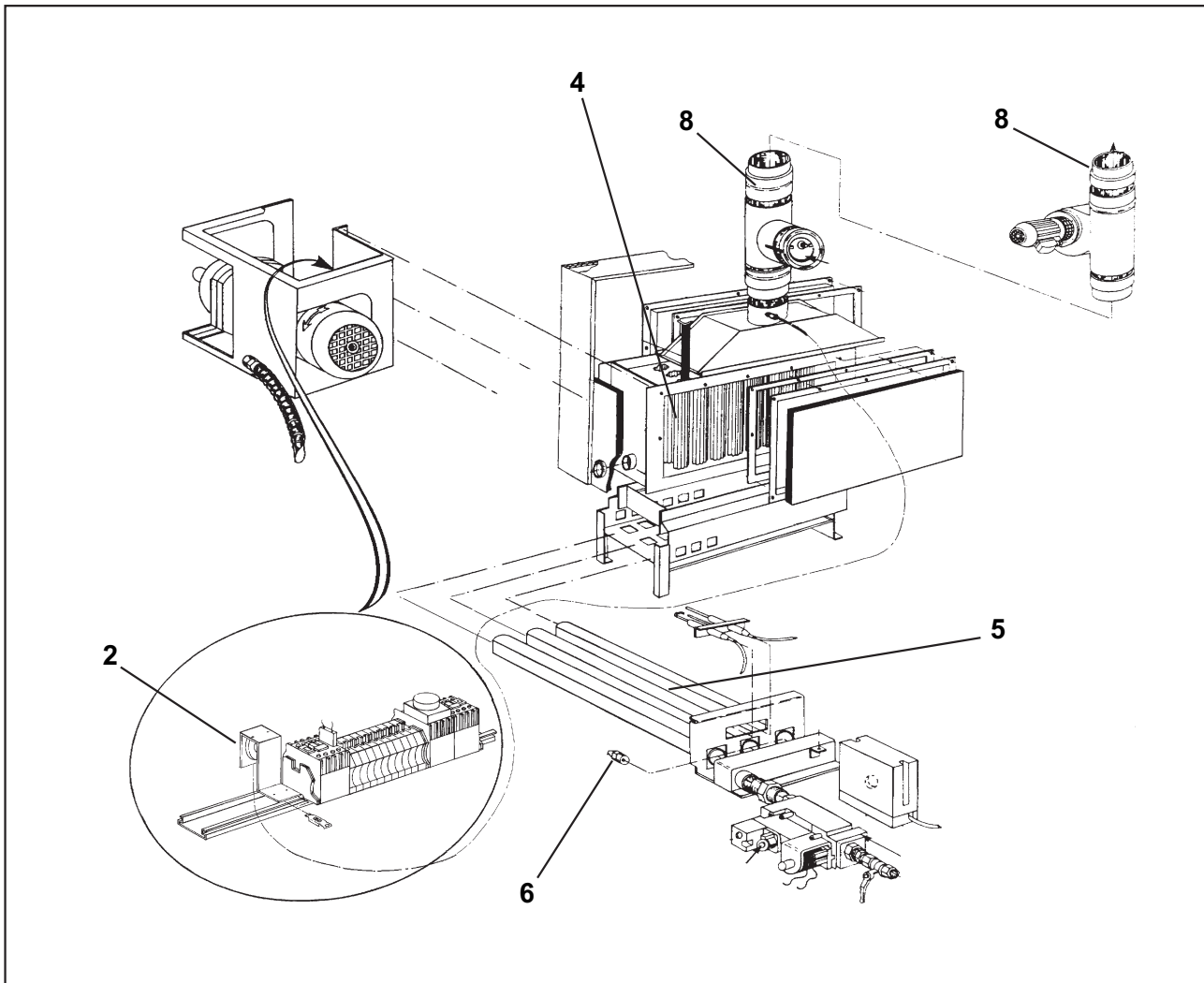
Every three months (500 H.)

- ⑨ Check that the unbalance switch works correctly: the machine should stop when the switch is manually driven.
- ⑩ Visually check the shock absorbers.
- ⑪ Remove and clean the drain.

Every six months (1000 H.)

- ⑫ Check the connections of the heating elements (for electric heating).
- ⑬ Check the steam heating pipes: aspect and connecting points. Clean the filter (for steam heating).
- ⑭ Check the water inlet pipes: aspect and connecting points. Clean the valve filters.
- ⑮ Check the bellows: aspects and choke collar.
- ⑯ Check that the electrical connection are correctly tightened as well on the main switch than on the electric elements contactor.
- ⑰ Remove the scale of the heating elements using the right chemical. Adapt this operation according to your need (water hardness).
- ⑱ Grease the thread of the thrust cone on the drain and the return spring.

Gas exchanger



Daily (8 H.)

- ① Clean the pump filter of the heating box on the gas exchanger.

Weekly (40 H.)

- ① Clean the fluff filter with suction device. Clean the cover filter with suction device.

Monthly (170 H.)

- ② Check the pressure switch.
- ③ Check that the water level detector properly operates.
- ④ Check the pipes of the heating rack. Clean if necessary. The frequency of your visits should depend on the degree of deposits.

Nota: the gas exchanger never completely drains from its water ; because the position of the machine's connections are higher than the exchanger's.

Every month, it is then necessary to run a special scaling program (antiliming) with a rinse making sure that the circulation pump runs, i.e. : with a scheduled temperature.

Maintenance of the gas exchanger

- a) Carry out a scaling cycle : the dosage will depend on product used.

Example : Horolith C

- dose : 5 % per litre of water
- cycle length : 5-10 min at washing speed at 60°C (140°F)

- b) Carry out 2 cold rinses for 5 minutes at high level.

Every six months (1000 H.)

- ⑤ Clean the pipe burners.
- ⑥ Check the gas pressure on injectors.
- ⑦ Check the condition of the pipes between the gas exchanger and the washer.

Every year (2000 H.)

- ⑧ Sweep the smoke tubes of the heating box and the exhaust pipes of burnt gas.

LUBRIFICATION TABLE

USES		Rolling bearings Bearings	Rolling bearings Bearings high temperature	Assembly paste (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
TYPES OF LUBRICANTS AND STANDARDIZATION		Lithium soap grease	Lithium soap grease + silicone oil	Lithium soap paste + min- eral 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
TEMPERATURE LIMIT RANGE		- 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
RECOMMENDED		ALVANIA R2	NTN SH 44 M	ALTEMP Q.NB.50	MI-SETRAL 43N	GRACO AF 309	REDUCTELF SP150	REDUCTELF SP200	LUBRA K ATLSAE 5W
CODE PRODUCT		96011008	-	96011014	96011000	96011004	96010001	96010004	96010030
C O R R E S P O N D A N C E	ANTAR	ROLEXA 2	-	-	EPOXA MO 2	-	EPONA Z 150	EPONA Z 220	MISOLA AH
	BP	LS EP2	-	-	-	-	ENERGOL CRXP 150	ENERGOL CRXP 220	SHF 22
	CASTROL	SPEEROL EP 2	-	-	-	-	ALPHA SP 150	ALPHA SP 220	-
	ELF	EP2	-	-	STATERMA MO 10	-	REDUCTELF SP 150	REDUCTELF SP 220	SPINEF 22
	ESSO	BEACON EP2	-	-	MULTI PUR- POSE GREASE MOLY	-	SPARTAN EP 150	SPARTAN EP 220	SPINESSO 22
	FINA	MARSON EP2	-	-	-	-	GIRAN SR 150	GIRAN SP 220	-
	GBSA	-	-	-	-	BELLEVILLE N	-	-	-
	GRAFOIL	-	-	-	-	GRACO AF 309	-	-	-
	KLUBER	CENTOPLEX 2	UNISILKON L50Z	ALTEMP Q.NB.50	UNIMOLY GL 82	WOLFRA- COAT C	LAMORA 150	LAMORA 220	CRUCOLAN 22
	MOBIL	MOBILUX	-	-	-	-	MOBILGEAR 629	MOBILGEAR 630	DTE 24
	KERNITE	LUBRA K LC	-	-	LUBRA K MP	-	TOP BLENB ISO 80W90	TOP BLEND ISO 220	LUBRA K ATL SAE 5W
	SETRAL	-	-	-	MI-SETRAL 43N	-	-	-	-
	SHELL	ALVANIA R2	-	-	RETINA AM	-	OMALA 150	OMALA 220	TELLUS 22
	TOTAL	MULTISS EP2	-	-	-	-	CARTER EP 150	CARTER EP 220	EQUIVIS 22
	MOLYKOTE	-	MOLYCOTE 44	PATE DX	-	-	-	-	-
	OPAL	GEVAIR SP	-	-	SUPER MOS 2	-	GEAROPAL GM 65 ISO 150	GEAROPAL GM75 ISO 220	HYDROPAL HO 110 HM ++22
	ITECMA	GRL-ULTRA	VULCAIN	-	GMO	LHT-C	DURAGEAR 80 W 140		AEROSYN
	DOW CORNING		SH 44 N						

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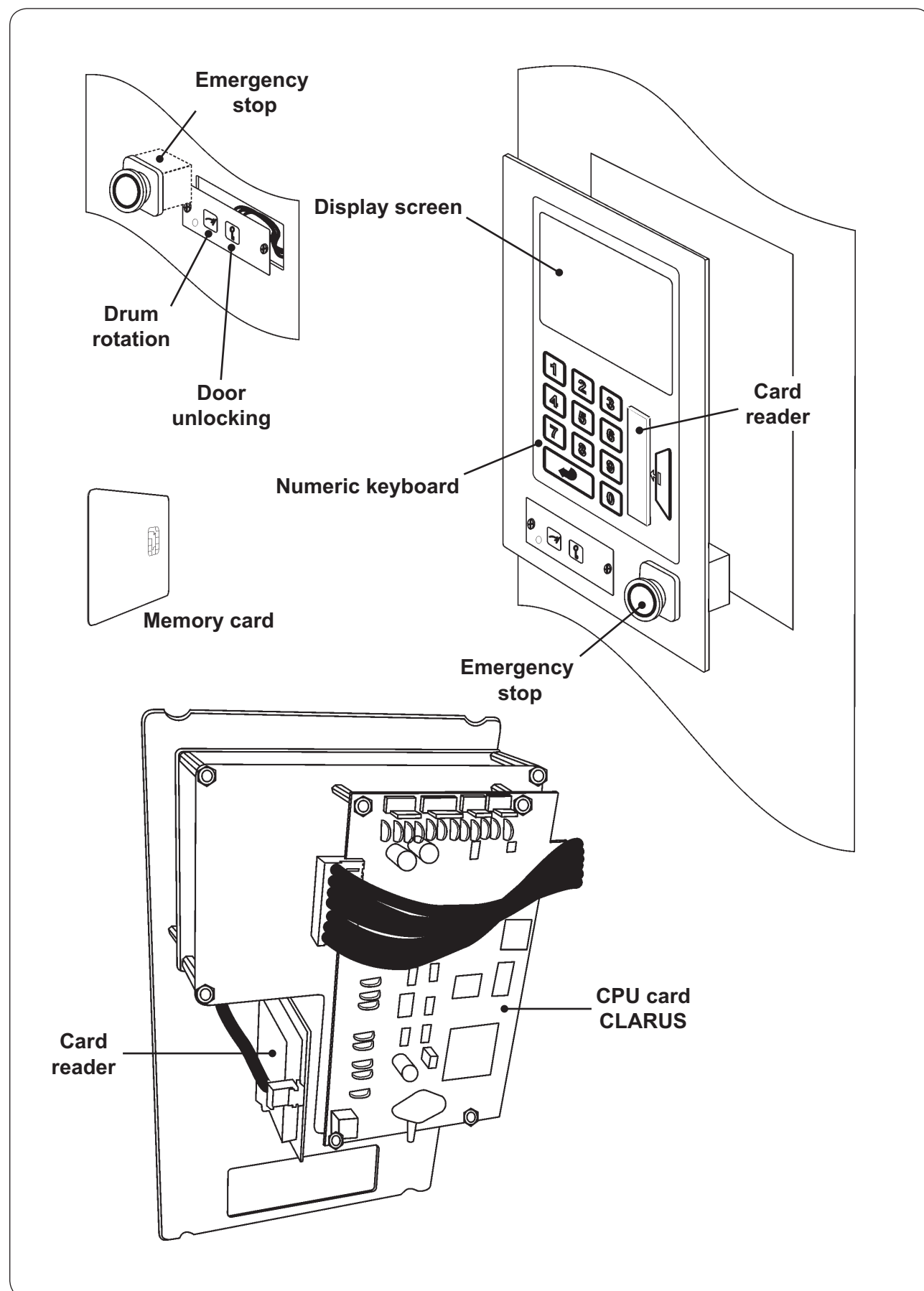
21. Control unit

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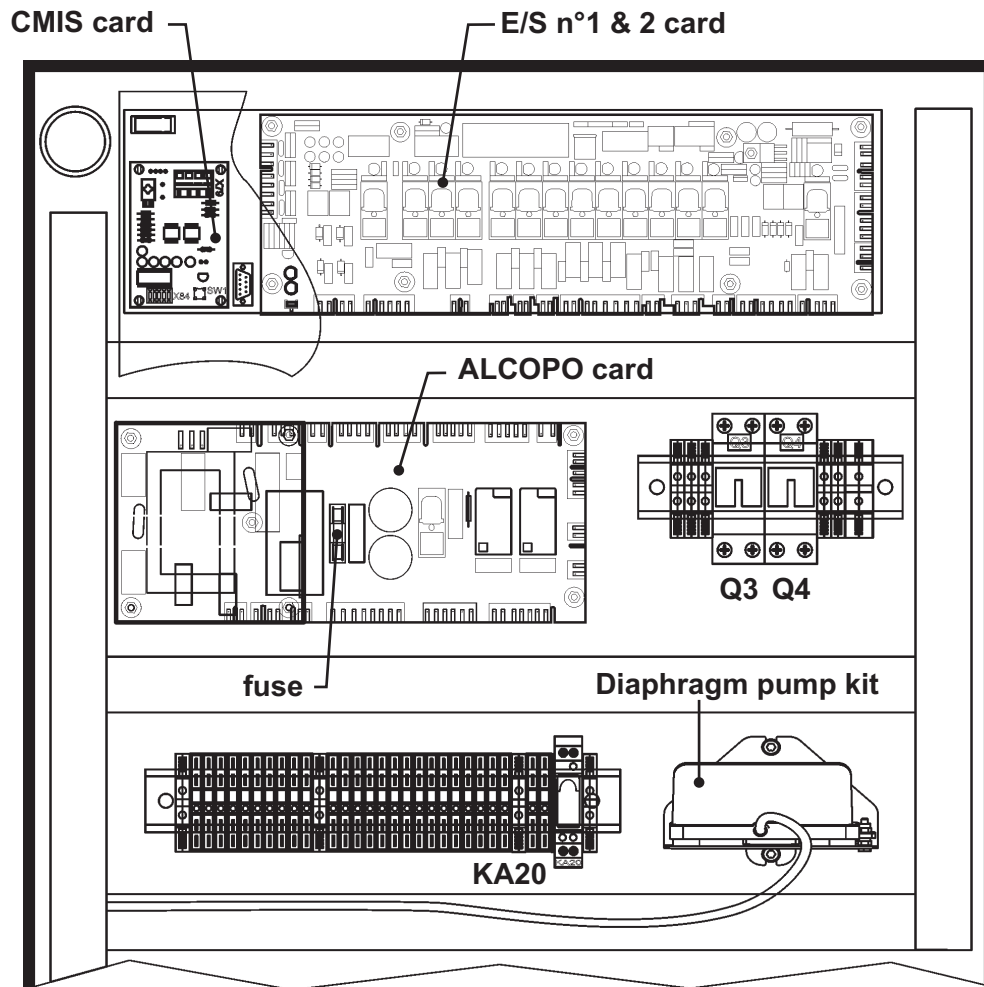
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Clarus Control



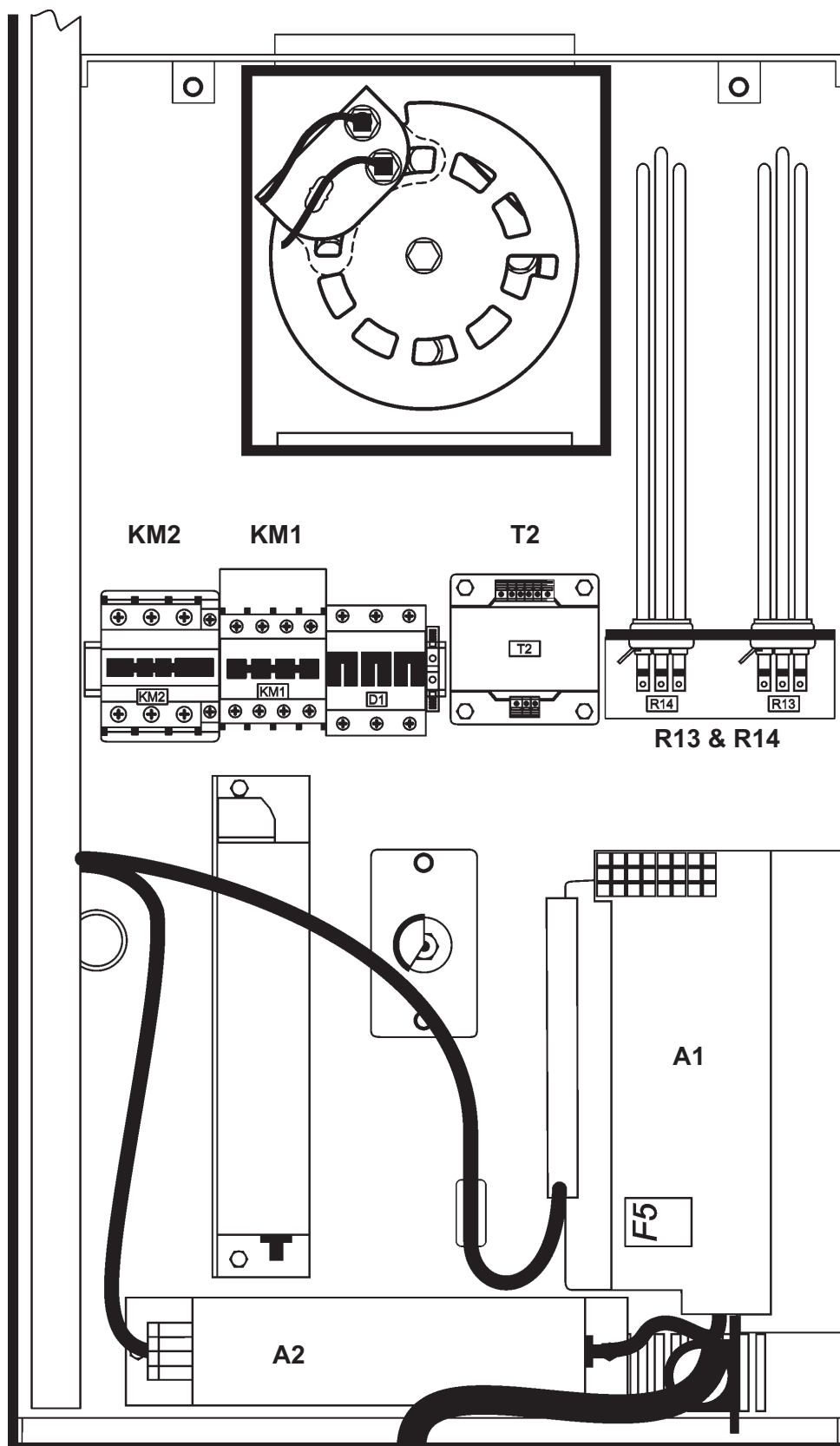
Automatic command module

Electric cabinet upper part



A1	AC speed drive
A2	Filter
KM1	Contactor
KM2	Contactor
T2	Transformer (fuse = 1.25 A-T)
R13 & R14	Heating element

Electric cabinet lower part



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22. CLARUS CONTROL

CONTENTS

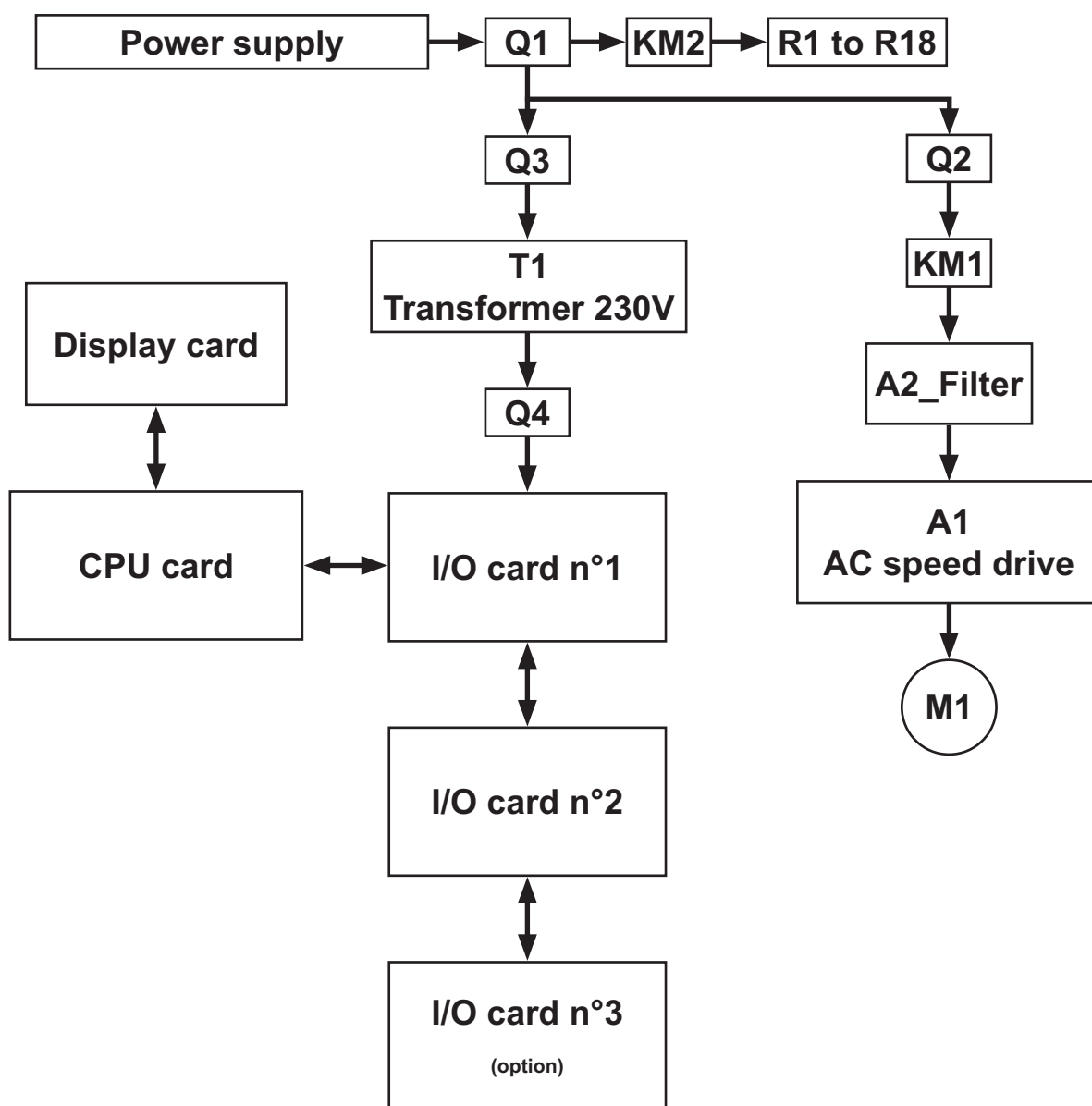
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Description

The CLARUS CONTROL includes the following parts:

- **CPU card**: the artificial intelligence of the machine.
- **I/O card** (Inputs / Outputs): the communication interface between the CLARUS CONTROL and the different parts of the machine.
- **Display card**: the graphical interface which allow the CLARUS CONTROL to communicate with the operator.



Designations

A1	Frequency converter
A2	Interference fi lter
A3	Ignitor of gas exchanger
B1	Products of combustion pressure switch (do not change the adjustments)
C1	Water level detector
CDC	Frequency converter failure safty contact (if necessary)
E1	Ignitor electrode
E2	Checking electrode
F	Frequency converter interference fi lter
H1	Voltage indicator
H2	Possible unloading indicator (barrier machine only)
H5	Safety heating gas burner indicator
H6	Heating indicator On
H7	Water default indicator
i14	Circulating pump ipso
KA1	Loading door lock relay
KA2	Unloading door lock relay
KA3	Unloading indicator relay
KA15	Depression safety relay
KA16	Positive security thermostat relay
KM1	Motion contactor
KM2	Heating contactor
KM3	Circulating pump contactor
M1	Motion motor
M2	Fan motor
M3	Circulating pump motor
M4	Draught accelerator motor
NTC1	Temperature probe
Q1	Main switch
Q2	Motor breaker
Q3	Primary breaker
Q4	Secondary breaker
R1-R2-R7-R8-R13-R14	Heating element (250 kg)
R3-R9-R15	Heating element (350 kg)
R4-R10-R16	Heating element (500 kg)
R5-R6-R11-R12-R17-R18	Heating element (650 kg)
R13	Braking resistor
RT1	Relais temporisé 5 secondes
S1	Loading side emergency stop pushbutton
S2	Unloading side emergency stop pushbutton
S3	Loading side door switch

S4	Loading side door switch, only 650 kg
S5	Unloading side door switch
S6	Unloading side door switch, only 650 kg
S7	Loading side cage positioning pushbutton
S8	Unloading side cage positioning pushbutton
S9	Loading door opening pushbutton
S10	Unloading door opening pushbutton
S14	Left side unbalance switch
S15	Right side unbalance switch
S16	Cage stop control proximity detector
S17	Manual drain pushbutton control
S18	Manual drain switch control (optional)
T1	Control circuit transformer
T2	Low-voltage transformer (fuse = 1,25 A-T)
TH1	Positive security thermostat
Y1	Unloading door lock
Y1'	Unloading door lock, only 650 kg
Y2	Drain electrovalve
Y3	Soft cold water electrovalve (optional)
Y5	Hard cold water electrovalve
Y6	Hot water electrovalve
Y8	Loading door lock
Y8'	Loading door lock, only 650 kg
Y9	Powder product no. 1 electrovalve
Y10	Liquid product no. 2 electrovalve
Y11	Liquid product no. 1 electrovalve
Y12	Liquid product no. 3 electrovalve
Y13	Powder product no. 2 electrovalve
Y14	Recycling water no. 1 electrovalve
Y15	Recycling water no. 2 electrovalve
Y16	Liquid product no. 4 electrovalve
Y17	Liquid product no. 5 electrovalve
Y18	Liquid product no. 6 electrovalve
Y19	Liquid product no. 7 electrovalve
Y20	Liquid product no. 8 electrovalve
Y21	Liquid product no. 9 electrovalve
Y22	Liquid product no. 10 electrovalve
Y23	Liquid product no. 11 electrovalve
Y24	Liquid product no. 12 electrovalve
Y25	Liquid product no. 13 electrovalve
Y26	Recycling water drain electrovalve (optional)
Y27	Detergents container rinsing electrovalve
Y30	Steam electrovalve

CPU card

The CPU card controls all the functions of the washer extractor by means of the various control programs stored in the CPU card program memory.

The CPU card communicates with the I/O card(s), display card and motor control unit via serial interfaces.

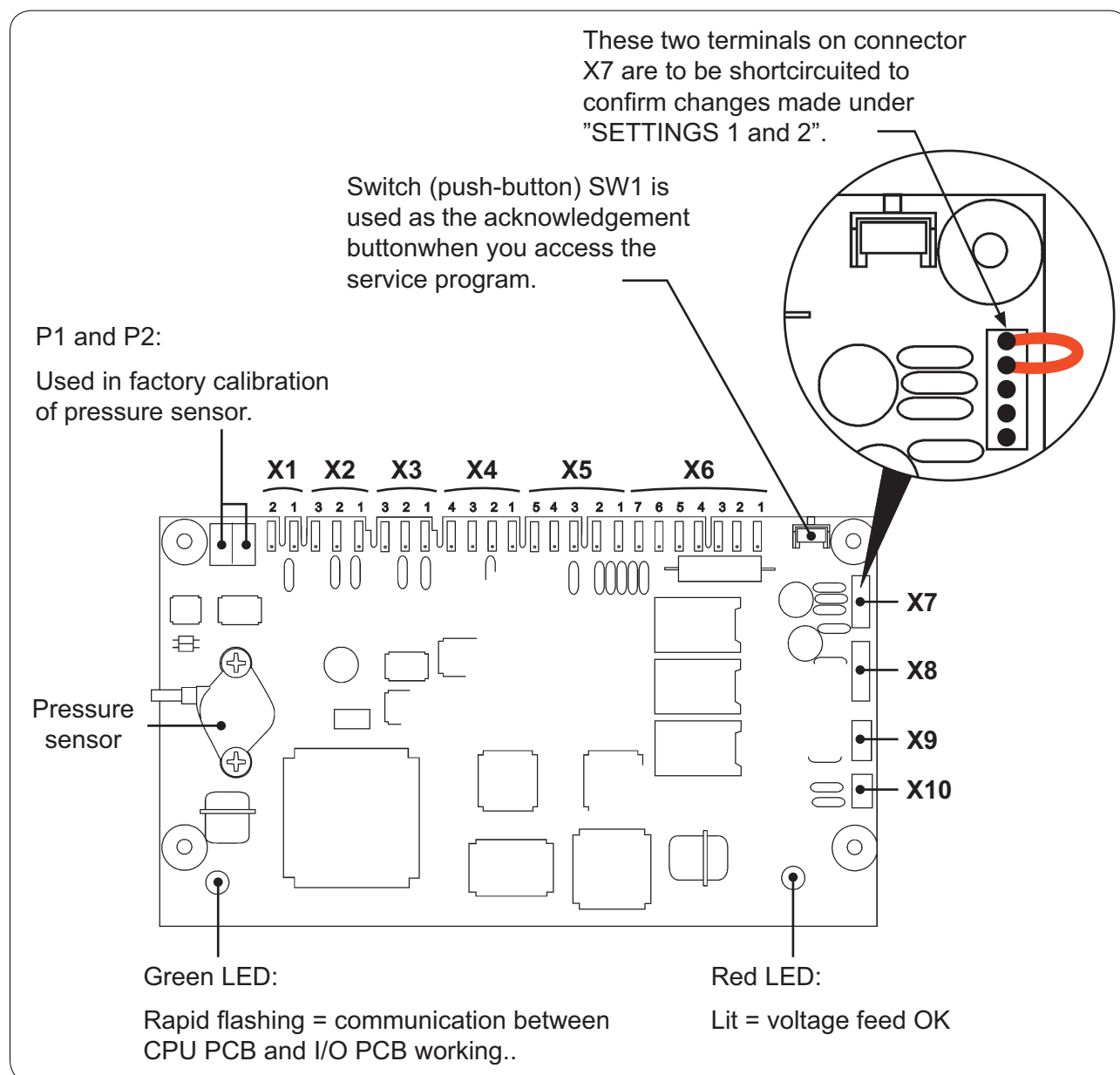
These are the control possibilities:

- The CPU card controls water valves, detergent dispensing, draining and heating with the aid of one, two or three I/O cards. The number of I/O cards varies from one washer extractor to another, depending on how many functions there are to control.
- The CPU card controls the alphanumeric display on the display card.
- The CPU card controls the motor via a motor control unit.

To receive information on the various activities of the washer extractor, there are the following inputs:

- on the CPU card there are inputs for temperature sensors, external water metering devices and the speed sensor on the motor shaft.
- the CPU card receives information from inputs on the I/O cards, about the status of the door lock, external switches (e.g. Start/Stop and Pause) where relevant, and of safety switches and controls for machine tilt where relevant.
- on the CPU card there is a pressure sensor to which a tube for measuring the water level in the drum can be connected.
- the CPU card receives information from the display card on which buttons/keys have been pressed.

Please note that the CPU card does not have any removable memory chips. If the CPU card should need to be replaced, the correct software for that particular washer extractor will have to be loaded onto the new card using a portable PC with special software, see the section "To replace the CPU card". Wash programs created by the user can be transferred by means of a memory card.



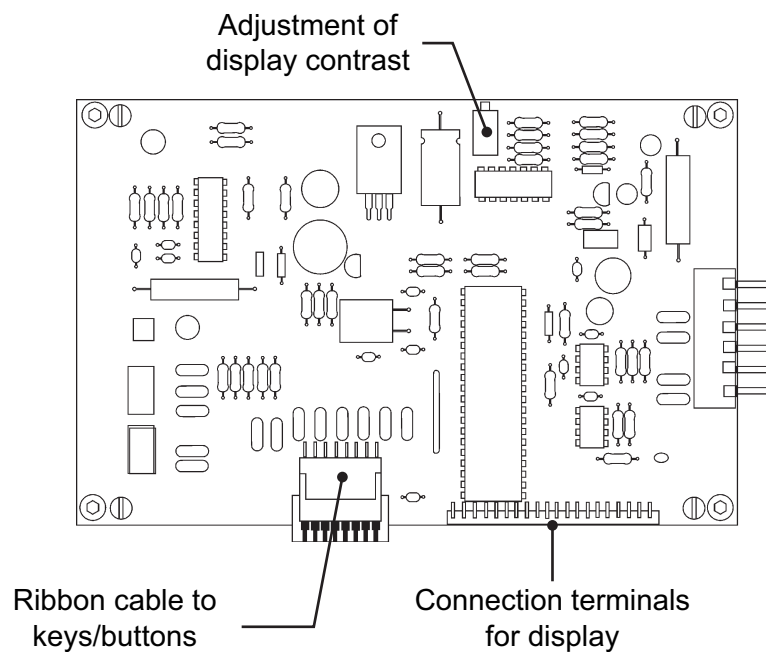
PCB connector		Fonction
X1		Input from water temperature sensor
X2		Input from water metering device
X3		Input from speed sensor on motor
X4		Output to motor control unit
X5	1-3	Serial communication with I/O PCB 1
	4-5	Voltage feed from I/O PCB 1
X6	1-5	Serial communication with display PCB
	6-7	Voltage feed to display PCB
X7		Interface with PC
X8		Motor communication
X9		IDAS communication
X10		Internal communication

Display card

The display card communicates with the CPU card via a serial interface.

The CPU card sends signals to tell what needs to be shown on the display, and the display card converts these signals into data which controls the alphanumeric display.

The display card also detects which buttons/keys on the control panel have been pressed and communicates that information to the CPU card.



PCB connector		Function
X1		Not used
X2		Communication with memory card reader
X3		Not used
X6	1-2	Voltage feed from CPU card
	3-7	Serial interface with CPU card

Inputs/Outputs card

The I/O circuit cards are controlled by the CPU card, and communication is via a serial interface. A single program control unit may have 1, 2 or 3 I/O cards, depending on the inputs and outputs it needs.

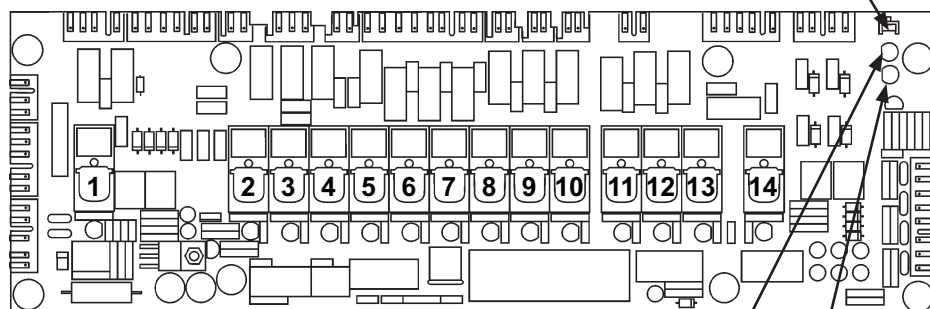
On the I/O cards there are inputs from the door lock, external switches (e.g. Start/Stop and Pause) where relevant, and safety switches and controls for machine tilt where relevant. These input signals are sent to the CPU card.

The I/O cards have outputs for controlling water valves, detergent dispensing, draining and heating, and the tilt function where relevant.

The voltage feed to the CPU card and I/O card(s) goes via I/O card 1 which supplies the voltage feed to both the CPU card and, where relevant, to any other I/O cards.

Please note that if there is more than one I/O card in the program control unit and one of the I/O cards should need to be replaced, special programming will have to be done. Using a portable PC with special software, you have to program in information concerning which I/O card (1, 2 or 3) the new card is, see the section "To replace an I/O card".

Switch (push-button) SW1: used as acknowledgement button when programming the internal order for I/O cards (see the section "To replace an I/O card")



Green LED: —
Rapid flashing = communication between
I/O PCB and CPU PCB working

Red LED: —
Lit (red), no flashing = voltage feed OK

Inputs/Outputs card (next)

Connectors	I/O card n°1	I/O card n°2	I/O card n°3
------------	--------------	--------------	--------------

SERIAL INTERFACE AND VOLTAGE FEED

X1	1-3		Serial interface to I/O card n°2	Serial interface to I/O card n°3	-
	4		Feed 16V + to I/O card n°2	Feed 12V + to I/O card n°3	-
	5		Feed 0V - to I/O card n°2	Feed 12V - to I/O card n°3	-
X2	1		Feed 0V - to CPU card	Feed 12V - from I/O card n°1	Feed 12V - from I/O card n°2
	2		Feed 16V + to CPU card	Feed 12V + from I/O card n°1	Feed 12V + from I/O card n°2
	3-5		Serial interface to CPU card	Serial interface to I/O card n°1	Serial interface to I/O card n°2
X3	1		Feed 16V + to T10	-	-
	2		Feed 0V + from T10	-	-
X6	1		Feed 230V from emerg. stop, phase	Direct feed 230V, phase	-
	2		Feed 230V from emerg. stop, neutral	Direct feed 230V, neutral	-
X10	1		Interlock signal to MCU, phase	Feed relays from I/O card n°1, phase	Program signal for acknowledge, phase
	2		Interlock signal to MCU, neutral	Feed relays from I/O card n°1, neutral	Program signal for acknowledge, neutral
X11	1		Feed to relays I/O card n°2, phase	Feed to relays I/O card n°3, phase	Feed relays from I/O card n°2, phase
	2		Feed to relays I/O card n°2, neutral	Feed to relays I/O card n°3, neutral	Feed relays from I/O card n°2, neutral
X12	1		To X13: feed relay 11-14, phase	To X13: feed relay 11-14, phase	-
	2		To X13: feed relay 11-14, neutral	To X13: feed relay 11-14, neutral	-
X13	1		Feed relay 11-14, neutral	Feed relay 11-14, neutral	Feed relay 11-14, neutral
	2		Feed relay 11-14, phase	Feed relay 11-14, phase	Feed relay 11-14, phase (from S25, door open and secured)

OUTPUTS

X4	1	1	Relay door lock	-	-
	2	1	Relay door lock	Flashlight, phase	Oil lubrication E20
	3-4	1	Feed to I/O card X6: 1-2	-	-
X7	1	2	Drain 1 (Y1), phase (normally open)	Drain 2 (Y2), phase (normally open)	Vidange 3 (Y3), phase (norm. ouvert)
	2		Common neutral	Common neutral	Neutral
	3	2	Drain 1 (Y1), phase (normally closed)	Drain 2 (Y2), phase (normally closed)	-
X8	1-2	3	Heating relay (K21)	Heating relay 2 (K22)	Drain 4 (Y4)
X9	1	9	Detergent powder 1 (Y11)	Detergent powder 5 (Y21)	Detergent powder 6
	2	8	Detergent powder 2 (Y12)	Detergent liquid 5 (Y65)	Detergent powder 7
	3	10	Detergent powder 3 (Y13)	Detergent liquid 10 (Y75)	Detergent liquid 12
	4	7	Cold water (Y14)	Detergent liquid 11 (spray)	Detergent liquid 13
	5	6	Rinsing 1 (Y15)	Drain blocking (Y1b)	Rinsing powder (Y16)
	6	5	Detergent powder 4 (Y22)	Tank 1 water (Y44)	Oil lubrication (programmable)
	7	4	Hot water	Cold hard water (Y34)	Tank 2 water (Y54)
	8		N (common neutral)	N (common neutral)	N (common neutral)

Connectors	I/O card n°1	I/O card n°2	I/O card n°3
------------	--------------	--------------	--------------

OUTPUTS (next)

X14	1	14	Detergent liquid 1 (Y61)	Detergent liquid 6 (Y66)	Tilt forward (Y9a)
	2	12	Detergent liquid 2 (Y62)	Detergent liquid 7 (Y67)	Tilt back (Y10a)
	3	13	Detergent liquid 3 (Y63)	Detergent liquid 8 (Y68)	Tilt to neutral pos. (Y9b+Y10b)
	4	11	Detergent liquid 4 (Y64)	Detergent liquid 9 (Y69)	Tilt interlock (K72)
	5		N (common neutral)	N (common neutral)	N (common neutral)

INPUTS

X5	1		Door lock microswitch S4/N	Flashlight, neutral	-
	2		Door lock microswitch S4/N	-	-
	3-4		Door status microswitch S3/N	-	-
	5-6		Door lock microswitch S4/Phase	-	-
X15	1		External start/stop signal, phase	Machine tilted forward (B9), phase	Hopper secured (S29), phase
	2		External start/stop signal, neutral	Machine tilted forward (B9), neutral	Hopper secured (S29), neutral
	3		External pause signal or PC5 connection, phase	Machine tilted back (B8), phase	Door secured open (S25), phase
	4		External pause signal or PC5 connection, neutral	Machine tilted back (B8), neutral	Door secured open (S25), neutral
X16	1-2		Acknowledgement, emergency stop (S2)	-	Motor clockwise
	3-4		Repeat rinse	-	Motor counterclockwise
	5-6		Low oil level	-	Tilt back
	7-8		Phase fault	-	Tilt forward

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23. CLARUS CONTROL: PROGRAMMING

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An introduction to programming

The machine's program control unit (PCU) has nine standard programs, numbered 991 to 999. If these programs are insufficient for your requirements, you can also program your own wash programs and save them under other unique program numbers.

There are two possible approaches to programming:

- You can create a completely new wash program by programming a number of individual "program modules" which are arranged in a logical order to form a new program.
- You can create a new program on the basis of an existing one by modifying, adding and deleting program modules, then saving the program created under a new program number.

There are also two different levels (modes) available for programming:

- In Standard mode you can enter all the basic data required for a wash program. Other variables are set automatically using tried-and-tested standard values, which in most cases work without any problem.
- In Advanced mode you have a higher degree of control over all aspects of the program. Using advanced mode does, however, call for a detailed knowledge of the way in which wash programs work, to ensure that all the possibilities available are used correctly.

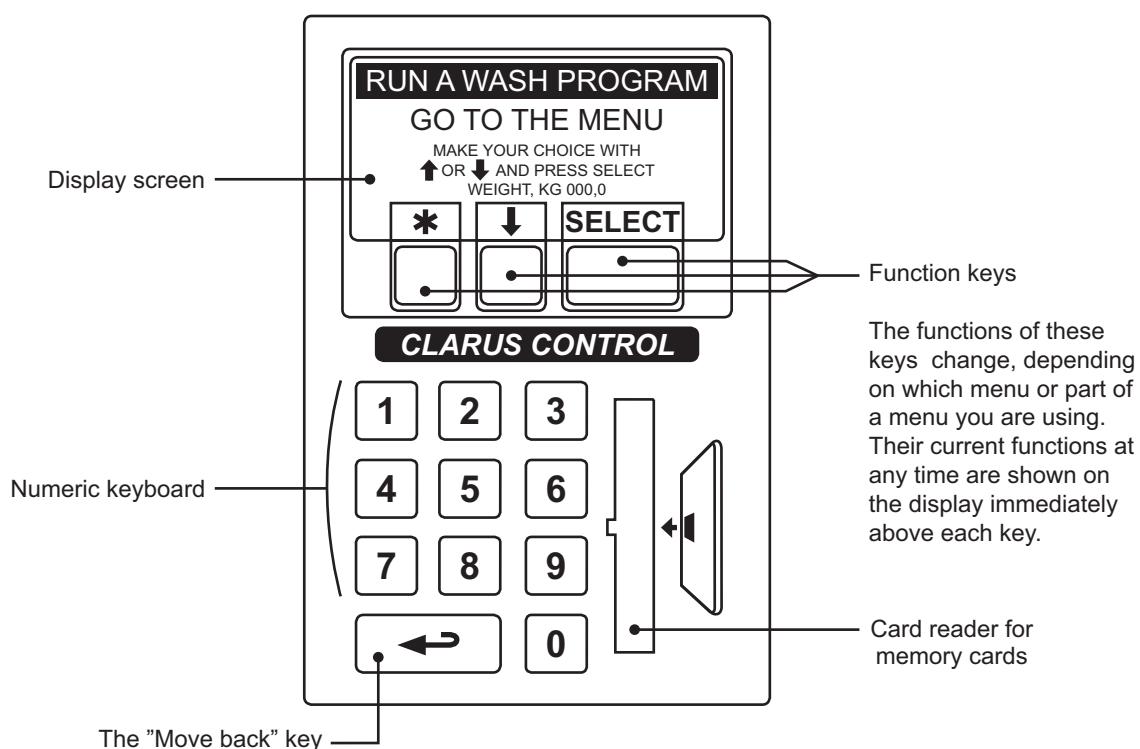
It is for you to decide which mode you wish to program in.

Wash programs can be programmed directly on the machine, via the PCU control panel, which is the method described in this manual.

Wash programs can also be written on a personal computer and later transferred to the machine's PCU using a memory card.

This option is described in a separate manual.

Description of CLARUS CONTROL

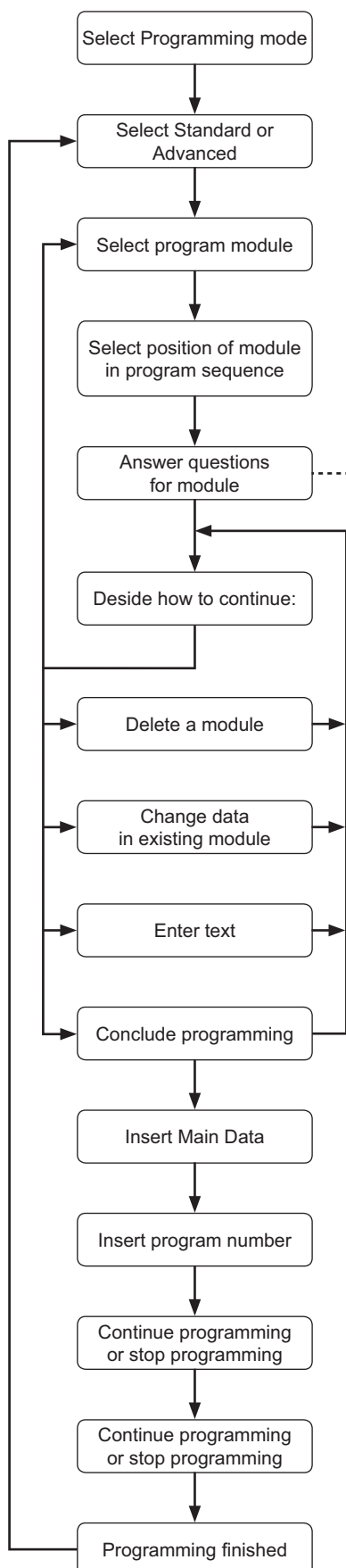


The functions of these keys change, depending on which menu or part of a menu you are using. Their current functions at any time are shown on the display immediately above each key.

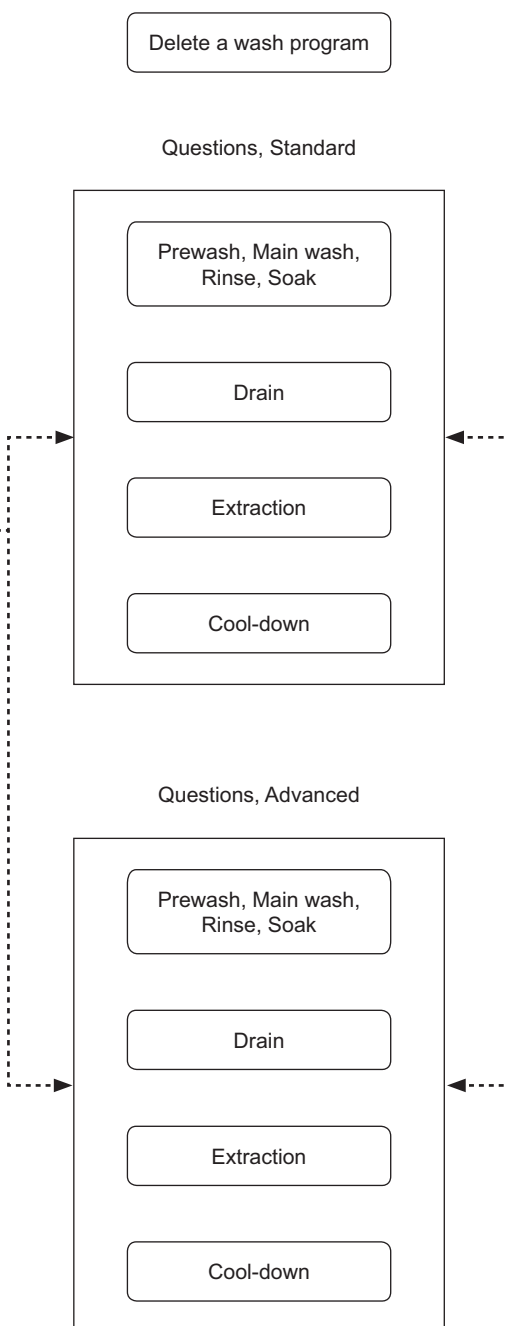
By pressing this key repeatedly you can move backwards through the menus you have navigated through.

This will always bring you back to the menu illustrated here.

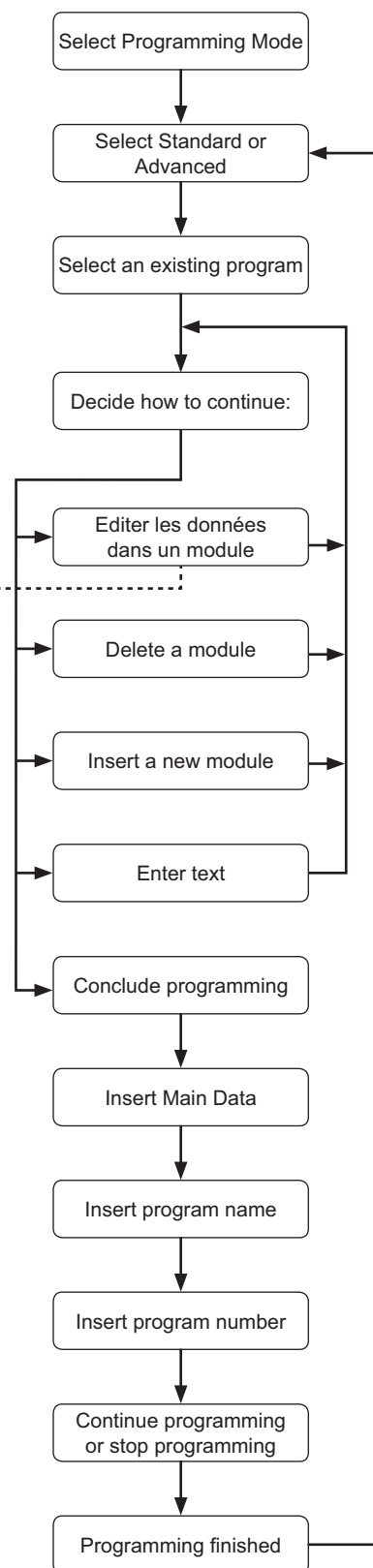
To create an entirely new program

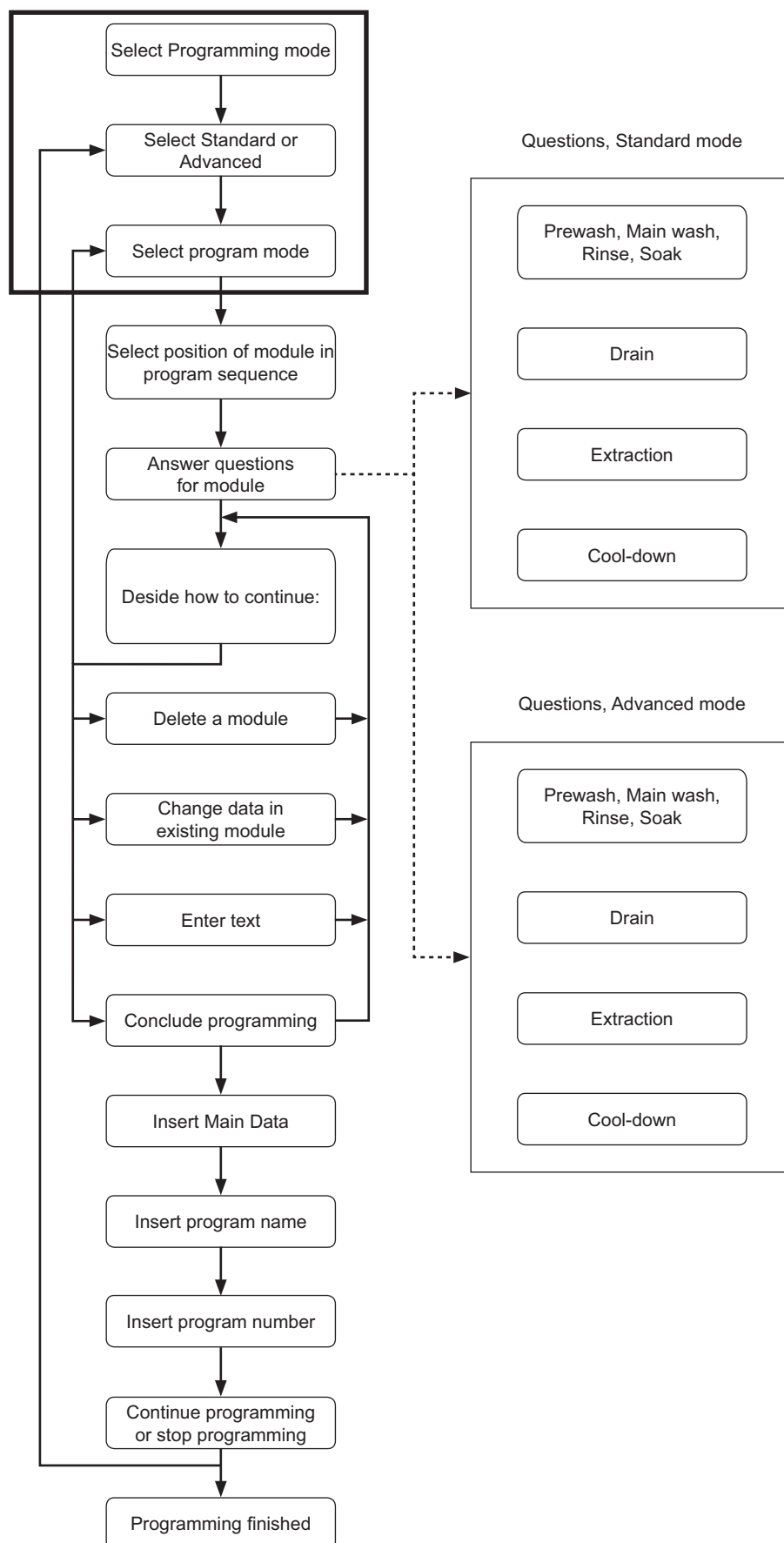


To delete a wash program



To program on the basis of an existing program





To create and write an entirely new program

This is described in detail in Chapter «To create and write an entirely new program». The questions asked to help you construct each program module are described in Chapters «Program modules, Standard mode» and «Program modules, Advanced mode». The relevant section numbers are shown to the left of each description of the steps below.

To create a new program you must start by selecting programming mode.

Next you decide whether you wish to write the whole program in Standard or Advanced mode.

Standard mode allows you to include all the basic data required, while Advanced mode gives you a higher degree of control over all aspects of the program.

Here you select which program module you want to program. You can choose from the following modules:

Prewash:

Used for prewash and brief soaking.

Main wash:

Used as the main wash module, with heating and detergent dispensing.

Rinse:

Rinsing the wash load.

Drain:

Drain stage after wash and rinse stages.

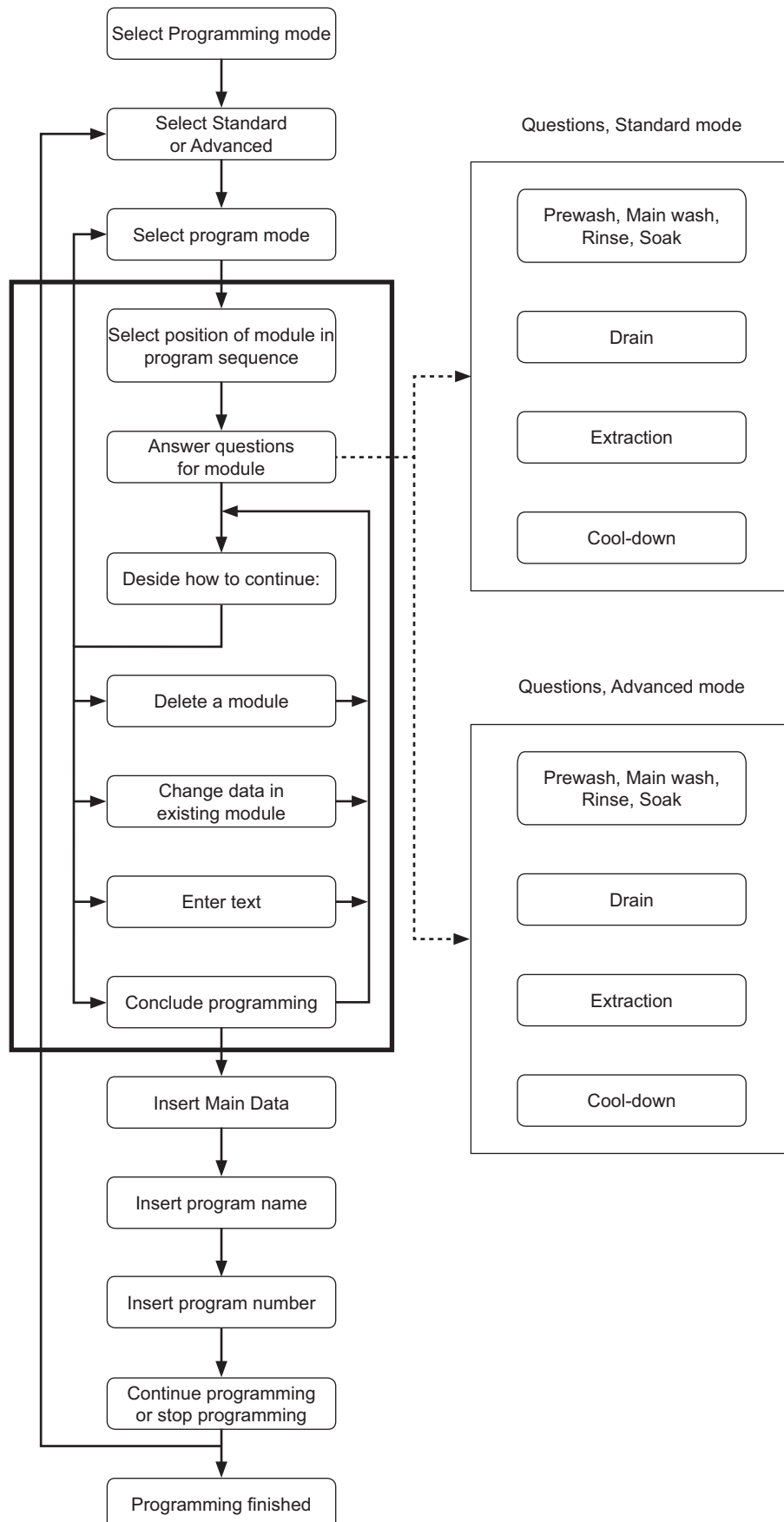
Extract:

Cool-down:

Used for controlled cooling of the wash water to prevent creasing of the wash load.

Soak:

Used for longer soak stages.



To create and write an entirely new program (next)

Here you determine the position of the module (which you are about to program) in the program sequence.

Once you reach the list of questions in the module, you have to answer a series of questions to determine factors such as times, speeds, temperatures, water and detergent options, and so on. Detailed explanations of each question can be found in these chapters:

Ces aspects font l'objet d'explications détaillées dans les chapitres suivants:

- Program modules, Standard mode.
- Program modules, Advanced mode.

When you have completed the first program module, you can decide how you wish to continue:

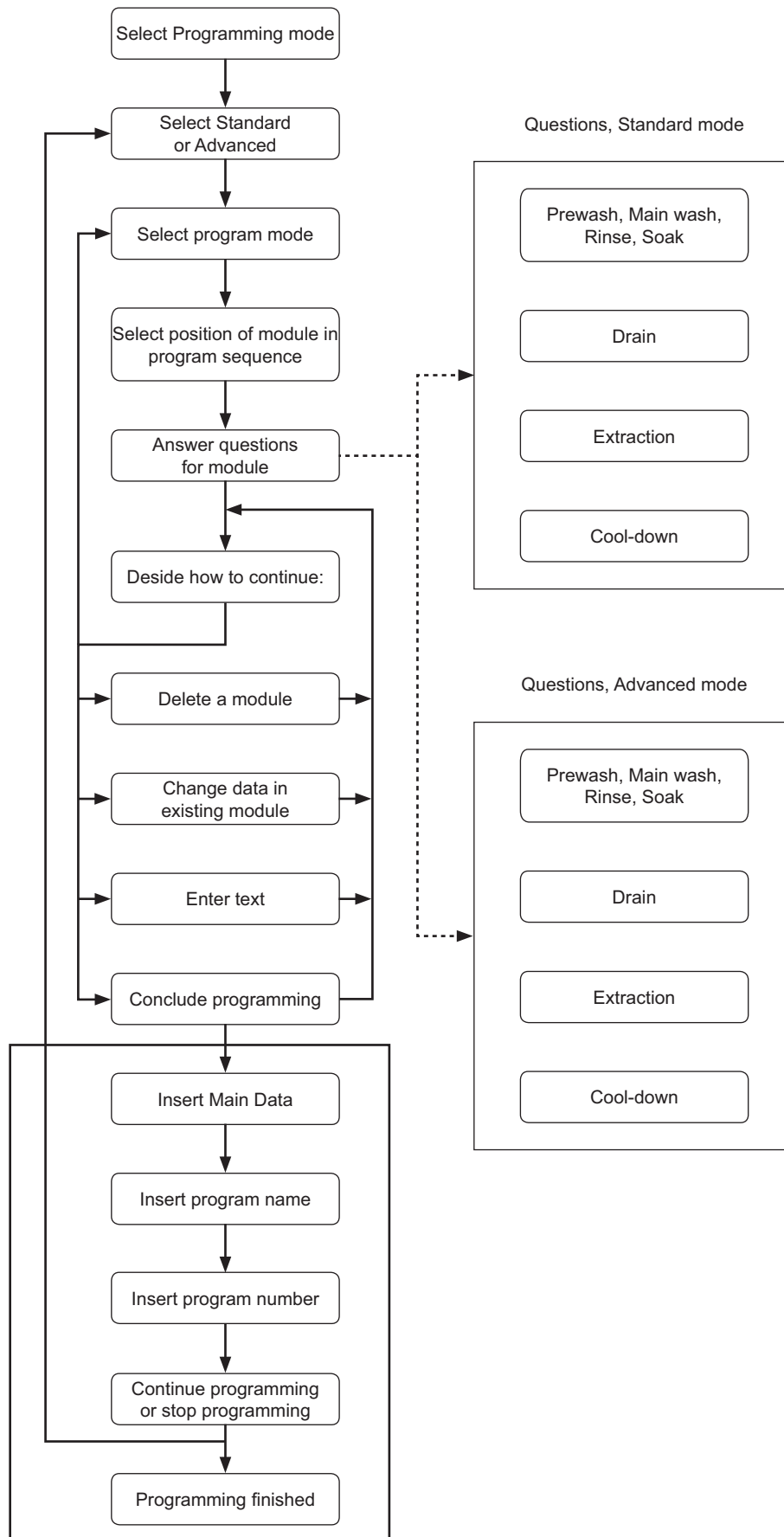
- Program more modules. Once these are finished and in a suitable order they will become a new wash program.
- Modify a module you have programmed already.
- Delete a module you have programmed already.
- Enter explanatory text.
- Stop programming.

How to delete an existing program module is described in chapter «To program on the basis of an existing program», section «To delete a module».

How to modify an existing program module is described in chapter «To program on the basis of an existing program», section «To change data in a program module».

This is where you enter text to explain what the program is used for. The text will be displayed when the program is used. No more than 155 characters.

When you have decided to conclude programming, you have to enter the program's "main data", and to give it a name and number. These steps are described in the next three points.



To create and write an entirely new program (next)

"Main data" is the name given to various functions which apply to the program as a whole.

In Standard mode you can control the functions "buzzer at program end", "start program with extraction", and "calculate weight of load".

In Advanced mode you can also program the cycle times for gentle action and normal action.

The program name may be up to 80 characters long.

You can give the wash program a new program number between 1 and 990. You can also replace an existing wash program by giving the new program the same number as the existing program. Note that the standard programs supplied with the machine (numbered 991 to 999) cannot be deleted or changed.

When the program has been fully programmed, you can choose either to go on and program another wash program, or to exit programming mode.

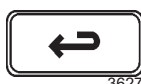
To create and write an entirely new program (next)

• The « Move back » key

If you find you are in the wrong place, or if you want to undo earlier key presses:

- Press the "Move back" key one or more times:

« Move back »



3627

The « Move back » function

Each press of the "Move back" key moves you back one menu, in reverse order. By pressing this key repeatedly you can return to this menu at any time:




• Select programming mode



3589

If this menu is not currently displayed:

Press  a repeatedly.

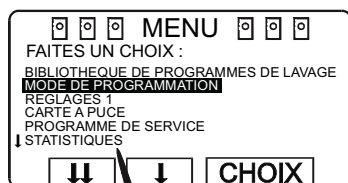
Press  to highlight "GO TO THE MENU".

Press SELECT.

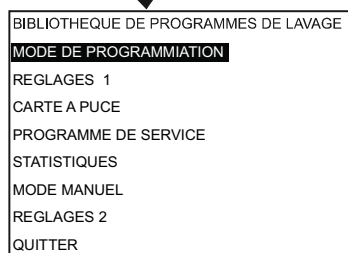
Password protection of programming function

If required you can implement password protection for the functions PROGRAMMING and SETTINGS 1. Once you have chosen a password (a four-digit number), both functions will be protected, and accessed using the same password.

Programming the password is done via the function SETTINGS 1, which is described in the section "Settings 1" of the Clarus Control Service manual.



3924

**CHOIX**

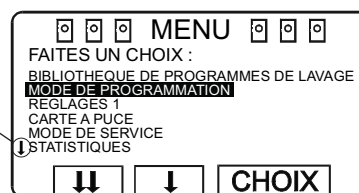
Press ↓ to highlight
DELETE PROGRAM
and ↓↓ to scroll quickly
through menus.

Press SELECT.

**Using ↓↓ and ↑↑ to scroll quickly
through menus**

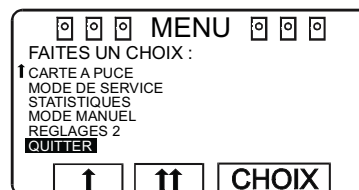
When the top item in a menu is highlighted, you have the option of scrolling down through the menu faster (this works in the same way in all menus where not all items can be displayed at once):

This arrow indicates
that there are more
items available



4050

If you press ↓↓, the next portion of the programming menu will be displayed. The last item in that portion of the menu will be highlighted:



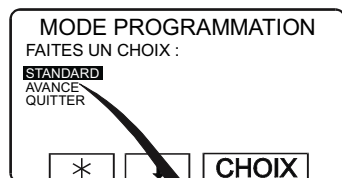
4051

Using this feature, you avoid having to press ↓ repeatedly to move through the menu item by item.

Similarly you can use ↑↑ whenever the last item on a portion of the menu is highlighted, to move quickly upwards through the menu.

To create and write an entirely new program (next)

• Select STANDARD or ADVANCED mode



Use ↓ to highlight
STANDARD or
ADVANCED.

Press SELECT.

STANDARD or ADVANCED mode ?

There are two distinct levels (modes) for programming

In Standard mode you can enter all the basic data required for a wash program. Other variables are set automatically using tried-and-tested standard values, which in most cases work without any problem.

In Advanced mode you have a higher degree of control over all aspects of the program.

Using Advanced mode does, however, call for a detailed knowledge of the way in which wash programs work, to ensure that all the possibilities available are used correctly.

An example:

Via the modules Prewash, Main wash, Rinse and Soak, when using Standard mode you have control of the following functions:

Wash time, temperature, fill level, five water intake options, type of drum action during filling - heating - wash, detergent supply from one of five alternatives, ten signals for liquid supply, flushing cold/hot, spray signal.

In Advanced mode you also have control of the following functions:

Temperature hysteresis, max. temperature increase per minute, level hysteresis, drum speeds during filling - heating - wash, and maximum drum acceleration rate.

If you have selected STANDARD mode

All Standard mode modules are described in detail in chapter «Program modules, Standard mode».

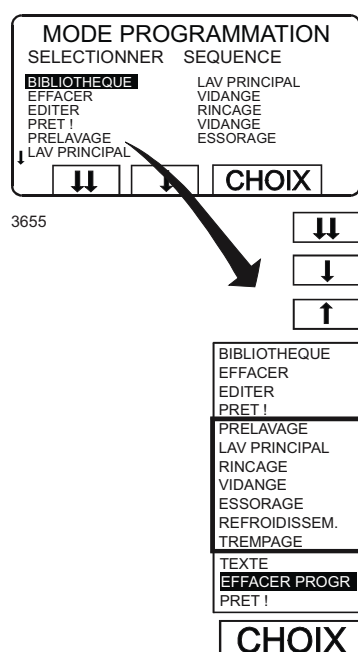
Even if you have selected Standard mode for programming, you still have the option of using Advanced mode for programming any given module. Each time you access a different module to work through the questions there, you can choose either Advanced or Standard mode.

If you have selected *ADVANCED* mode

All Advanced mode modules are described in detail in chapter «Program modules, Advanced mode».

If you selected Advanced mode at the start of programming, all programming will continue in Advanced mode. You cannot switch back to Standard mode for some modules only.

• Select program module



Use the cursor keys to highlight one of the seven program modules which go to make up a wash program.

(In this example we will choose "PREWASH").

Press SELECT..

The wash program modules

The way in which programs are structured, using modules in sequence, is described in detail in chapter «An introduction to programming».

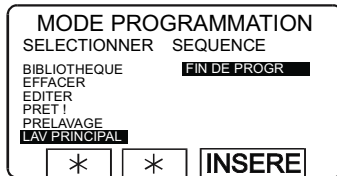
The modules can be programmed in either Standard or Advanced mode.

Standard mode is described in chapter «Program modules, Standard mode», and Advanced mode in chapter «Program modules, Advanced mode».

Prewash	: Used for prewash and brief soaking.
Main wash	: Used as the main wash module, with heating and detergent dispensing.
Rinse	:
Drain	: Drain stage after wash and rinse stages.
Extract	:
Cool-down	: Used for controlled cooling of the wash water to prevent creasing of the wash load.
Soak	: Used for longer soak stages.

To create and write an entirely new program (next)

• Select position of module in program sequence



3889

INSERE

Because this is the first module in the new wash program, you do not need to select its position in the program sequence.

Press INSERT.

Position of module in wash program sequence

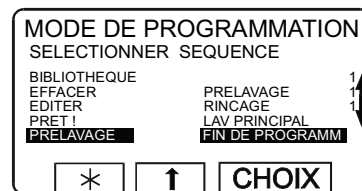
Obviously, when you are about to program the first module in a wash program, you have no choice of position in the sequence.

When you program subsequent modules, however, you can use these keys: ↓ and ↑ to determine the position of the module in the program sequence.

Once you have selected the position, press INSERT.

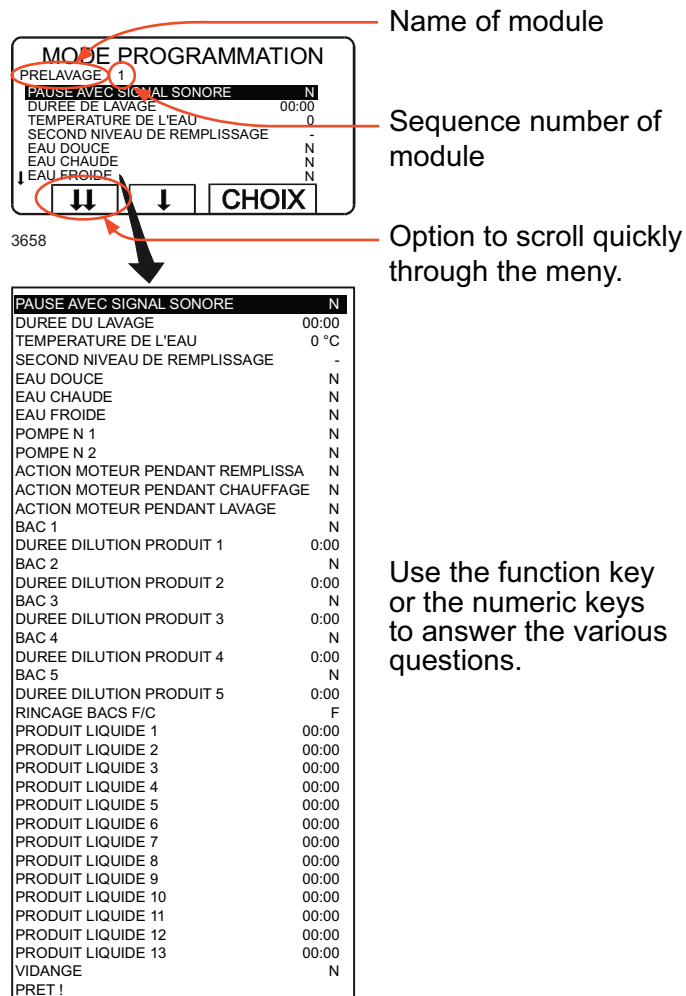
Note that the new module will be inserted above (before) the position highlighted in the list on the right of the display.

If you want the module to be last in the sequence, press INSERT when END OF PROGRAM is highlighted.



3890

• Answer the questions for the module



Name of module

Sequence number of
moduleOption to scroll quickly
through the menu.Use the function key
or the numeric keys
to answer the various
questions.**Program module sequence
numbering**

All wash program modules are automatically given sequence numbers to help distinguish them. The first time a module is used it is given the number 1, the second time 2, and so on.

For example:

Prewash	1	Rinse	1
Drain	1	Drain	1
Main wash	1	Rinse	3
Cool-down	1	Drain	2
Drain	2	Extract	4
Extract	2		

O/N

Yes/No questions.

-/D/N

Drum action.

F/C

Cold or hot water.

B/M/H

Water level - standard mode.

1 2 3

4 5 6

7 8 9

0

Times, temperatures, levels - advanced mode.

↓

Press ↓ to move on to the next question.

↑

You can go back and change a question you have answered already by pressing ↑ repeatedly.

To create and write an entirely new program (next)

• Answer the questions for the module (next)



3658

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

O/N

-/D/N

F/C

B/M/H

1 2 3

4 5 6

7 8 9

0

↓

↑

Different types of question

The questions in the various modules are of four different types, and to be answered in different ways:

Yes/No questions:

The function key display shows Y/N, which is a toggle function (the letter to the right of the highlighted question toggles between N and Y each time it is pressed). All Yes/No questions start with No (N) as the default value.

Drum action questions:

The function key display shows -/G/N, which is a toggle function (the letter to the right of the highlighted question toggles from - to G to N and so on, each time it is pressed).

- = drum at a standstill,
- G = gentle action,
- N = normal action

Toutes les questions de ce type sont assignées par défaut à la réponse N (action normale).

Cold/hot water:

Selection of water temp. for flushing detergent compartment.

Water level questions - standard mode:

The function key display shows L/M/H and is a toggle function (the letter to the right of the highlighted question toggles from -, to L, M to H, each time it is pressed).

- = No water filling;
- L = Low water level;
- M = Medium water level;
- H = High water level.

All questions of this type have No water filling (-) as a preprogrammed value.

Times, temperatures, levels - advanced mode:

To answer these questions, use the numeric keys.
The number of digits required will vary.

If you make a mistake while entering digits, press ERASE one or several times.

MODE PROGRAMMATION

PRELAVAGE 1
↑ PRODUIT LIQUIDE 7 00:00
PRODUIT LIQUIDE 8 00:00
PRODUIT LIQUIDE 9 00:00
PRODUIT LIQUIDE 10 00:00
VIDANGE N
PRET !

↑ ↑ **CHOIX**

3665 ↓

PAUSE AVEC SIGNAL SONORE N
DUREE DU LAVAGE 00:00
TEMPERATURE DE L'EAU 0 °C
SECOND NIVEAU DE REMPLISSAGE -
EAU DOUCE N
EAU CHAUDE N
EAU FROIDE DOUCE N
POMPE N 1 N
POMPE N 2 N
ACTION MOTEUR PENDANT REMPLISSA N
ACTION MOTEUR PENDANT CHAUFFAGE N
ACTION MOTEUR PENDANT LAVAGE N
BAC 1 N
DUREE DILUTION PRODUIT 1 0:00
BAC 2 N
DUREE DILUTION PRODUIT 2 0:00
BAC 3 N
DUREE DILUTION PRODUIT 3 0:00
BAC 4 N
DUREE DILUTION PRODUIT 4 0:00
BAC 5 N
DUREE DILUTION PRODUIT 5 0:00
RINCAGE BACS F/C F
PRODUIT LIQUIDE 1 00:00
PRODUIT LIQUIDE 2 00:00
PRODUIT LIQUIDE 3 00:00
PRODUIT LIQUIDE 4 00:00
PRODUIT LIQUIDE 5 00:00
PRODUIT LIQUIDE 6 00:00
PRODUIT LIQUIDE 7 00:00
PRODUIT LIQUIDE 8 00:00
PRODUIT LIQUIDE 9 00:00
PRODUIT LIQUIDE 10 00:00
PRODUIT LIQUIDE 11 00:00
PRODUIT LIQUIDE 12 00:00
PRODUIT LIQUIDE 13 00:00
VIDANGE N
PRET !

CHOIX

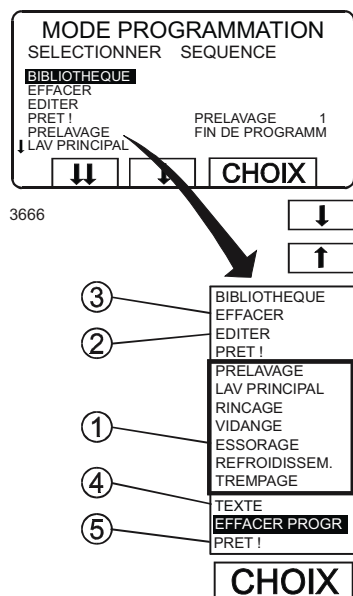
Once you have finished entering all the values:

Press ↓ to highlight "EXIT".

Press SELECT.

To create and write an entirely new program (next)

• Decide how you wish to continue programming



Choose 1, 2, 3, 4 or 5:

- ① Continue programming new program modules:
 - Highlight one of the seven program modules.
 - Press SELECT.
 - Continue answering questions as described earlier.
- ② Modify an existing module:
 - Highlight EDIT and press SELECT.

Then follow the instructions in chapter «To program on the basis of an existing program» section «To change data in a program module».
- ③ Delete a module:
 - Highlight DELETE and press SELECT.

Then follow the instructions in chapter «To program on the basis of an existing program» section «To delete a module».
- ④ Enter text about the program:
 - Highlight TEXT and then press SELECT.

Then follow the instructions in section «Enter text about the program».
- ⑤ Conclude programming:
 - Follow the instructions in section «Conclude programming».

«TEXT» means more information

Before you run a wash program, by pressing TEXT, the display can show a text which gives more information about the program.

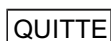
This can be helpfull to be able to choose correct wash program. The same text can also be shown during the wash cycle.

The text which can be used can consist of max. 150 digits and can be programmed in this function.

• Programming text



3922



Enter text (no more than approx. 150 characters) to accompany the program, with the aid of the functions described below.

The cursor shows where the letter/digit/character will be inserted.

The function keys have these functions:

Delete text.

One press:

Enter next letter/digit/character.

Two presses:

Insert space between words.

Visible when the cursor is not at the far left of a line: Use this to move the cursor to a new line.

Use the numeric keys to enter letters/digits/characters.

Visible when the cursor is at the far left of a line:

Use this to exit (conclude) entering text.

How to enter letters/digits/other characters

Letters, digits and other characters can be inserted using the numeric keypad. Each of the numeric keys gives access to several characters (3-5 per key), as follows:

1 ABCDE	2 FGHIJ	3 KLMNO
4 PQRST	5 UVWXY	6 ZÄÄÖ
7 01234	8 56789	9 = ()
	0 ° + - .	

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 9 produces =.

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:) (i.e. the end bracket), press 9 three times.

When the character you want is on the display, press ⇨ to insert the next character.

To insert a space between words, simply press ⇨ a second time.

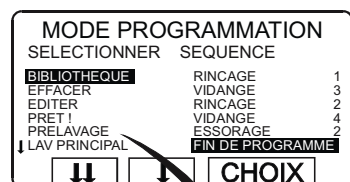
To delete a character, press ⇐, Press it repeatedly to delete several characters.

To start a new line press ↓.

To end entering text, press ↓ to bring the cursor to the far left of a new line. Then press EXIT.

To create and write an entirely new program (next)

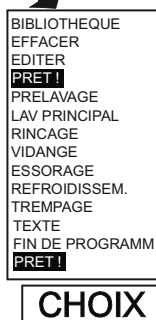
• Conclude programming



3667

Once you have completed programming of all modules in the program:

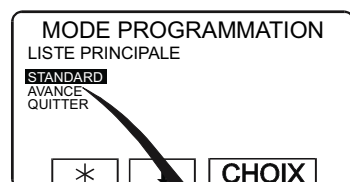
Press ↓.



... to highlight either of the two "EXIT" options.

Press SELECT.

• Insert main data



3668

This option is presented only if you selected Standard mode at step «Select standard or advanced mode».

Highlight STANDARD or ADVANCED.

Press SELECT.

What is Main Data?

"Main Data" is the name given to various functions which influence the entire wash program.

STANDARD or ADVANCED mode?

Using Standard mode (see section Main data, standard mode) you can control the following functions:

Buzzer at program end, start program with extraction, calculate weight of load.

Using Advanced mode (see section Main data, advanced mode) you can also control the following functions:

Cycle times for gentle action and normal action.

• Main data, STANDARD mode

MODE PROGRAMMATION	
LISTE PRINCIPALE	
SIGNAL SONORE EN FIN DE PROGR	N
COMMENCER ESSORAGE	N
PRET !	N
<div>* ↓ CHOIX</div>	

3669

SIGNAL SONORE EN FIN DE PROGR	N
COMMENCER ESSORAGE	N
PRET !	N

O/N

Answer Yes (Y) or No (N)
then press ↓.

SIGNAL SONORE EN FIN DE PROGR	N
COMMENCER ESSORAGE	N
PRET !	N

3670

O/N

Answer Yes (Y) or No (N)
then press ↓.

SIGNAL SONORE EN FIN DE PROGR	N
COMMENCER ESSORAGE	N
PRET !	N

3672

CHOIX

Once you have answered all the questions, highlight READY, then:

Press SELECT.

Buzzer at end

If you answer Yes (Y):

The buzzer will sound when the program ends.

The buzzer signal can be turned off by pressing the button with crossed buzzer-symbol.

If you answer No (N):

No buzzer at program end.

Start extract (start with extraction)

If you answer Yes (Y):

The machine will start with a short extraction cycle when the program begins. This helps the load to soak up water, and the machine does not require so much extra filling (repeated topping up).

If you answer No (N):

No extraction when the program begins.

To create and write an entirely new program (next)

• Main data, **ADVANCED** mode

The first three questions of Advanced mode are the same as in Standard mode, see section «Main data, standard mode».

SIGNAL SONORE EN FIN DE PROGRAM	N
COMMENCER ESSORAGE	N
PESER	N
REDUIT, MARCHE EN SEC	3
REDUIT, ARRET EN SEC	12
NORMALE, MARCHE EN SEC	12
NORMALE, ARRET EN SEC	3
PRET !	

3892

1	2	3
4	5	6
7	8	9
0		



Use the machine key to enter the required value.

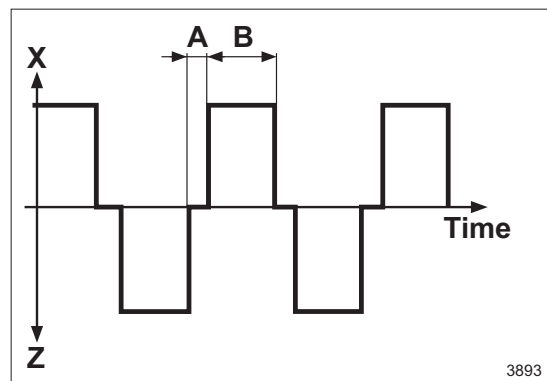
Press ERASE., if wrong digits are given.

When ready, press ↓

Drum action "on-times" and "off-times"

Here you can determine the precise structure of drum action (both "gentle" and "normal" action), by setting the individual lengths of time the drum is to rotate ("on-time") and be at a standstill ("off-time").

The values displayed initially are those recommended by supplier.



3893

A = Off-time

B = On-time

X = Drum action, righthand rotation

Z = Drum action, lefthand rotation

SIGNAL SONORE EN FIN DE PROGRAM	N
COMMENCER ESSORAGE	N
PESER	N
REDUIT, MARCHE EN SEC	3
REDUIT, ARRET EN SEC	12
NORMALE, MARCHE EN SEC	12
NORMALE, ARRET EN SEC	3
PRET !	

3894

CHOIX

Once you have answered all the questions, highlight READY, then:

Press SELECT.

• Insert the program name



4215



Enter program name (no more than approx. 150 characters) to accompany the program, with the aid of the functions described below.

The cursor shows where the letter/digit/character will be inserted.

The function keys have these functions:

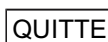


Delete text.

- One press: Enter next letter/digit/character.
- Two presses: Insert space between words.



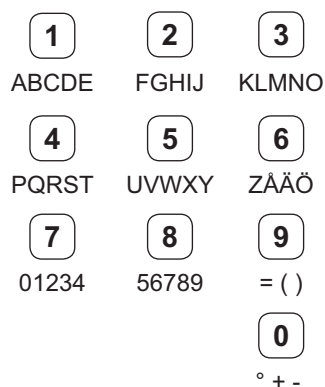
Use the numeric keys to enter letters/digits/characters.



Use this to exit (conclude) entering text.

How to enter letters/digits/other characters

Letters, digits and other characters can be inserted using the numeric keypad. Each of the numeric keys gives access to several characters (3-5 per key), as follows:



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 9 produces =.

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:) (i.e. the end bracket), press 9 three times.

When the character you want is on the display, press ⇒ to insert the next character.

To insert a space between words, simply press ⇒ a second time.

To delete a character, press ⇐, Press it repeatedly to delete several characters.

To start a new line press ↵.

To end entering text, press ↵ to bring the cursor to the far left of a new line. Then press EXIT.

To create and write an entirely new program (next)

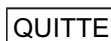
• Insert the program number



3675



Use the numeric keys to enter the program number.



Press EXIT.

Allowed program numbers for new programs

The standard programs supplied with machine have No. 991 - 999.

New programs can have numbers 001 - 990.



3675



The new program will now be stored in the control unit EEPROM..

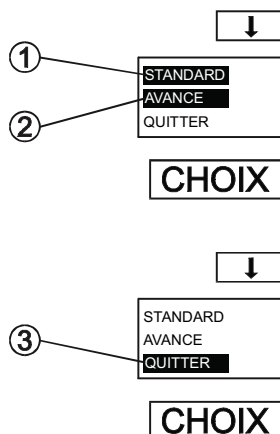
Once the program has been stored ("loaded"), a process which takes only a matter of seconds, the display will look like this (illustration, left).

Press any key.

• Continue programming or stop programming



3677



Choose 1, 2 or 3:

- ① Continue programming in Standard mode:
Highlight STANDARD and press SELECT.
- ② Continue programming in Advanced mode:
Highlight ADVANCED and press SELECT.
- ③ Stop programming:
Highlight EXIT and press SELECT.

This page is left blank on purpose.


To delete a wash program



3589



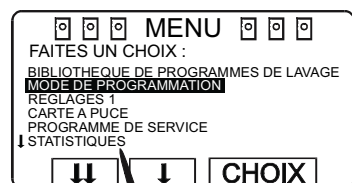
If this menu is not currently displayed, Press , repeatedly.

Press  to highlight "GO TO THE MENU".


LANCER PROG LAVAGE
MENU DES OPTIONS

CHOIX

Press SELECT.



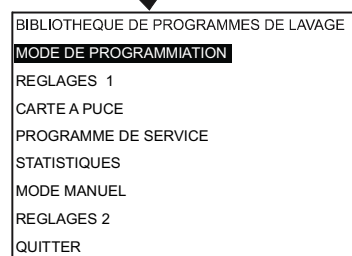
3663

Press  once to highlight PROGRAMMING MODE.

Password protection of programming function

If required you can implement password protection for the functions PROGRAMMING and SETTINGS 1. Once you have chosen a password (a four-digit number), both functions will be protected, and accessed using the same password.

Programming the password is done via the function SETTINGS 1, which is described in the section "Settings 1" of the Clarus Control Service manual.



CHOIX

Press SELECT.



3652

Check that STANDARD is highlighted.

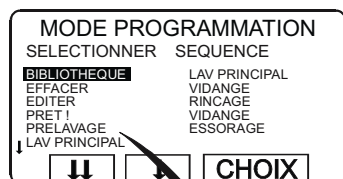
STANDARD or ADVANCED mode?

This function is relevant only when you are creating or modifying a program. When you are deleting an entire program, it makes no difference to the result. You can let STANDARD (the default option) remain highlighted.

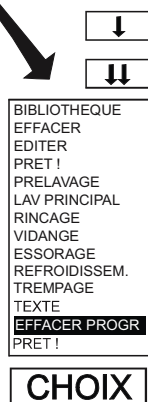
STANDARD
AVANCE
QUITTER

CHOIX

Press SELECT.



3924



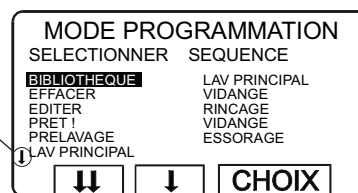
Press ↓ to highlight
DELETE PROGRAM and
press ↓↓ to scroll quickly
down through the menu.

Press SELECT.

Using ↓↓ and ↑↑ to scroll quickly through menus

When the top item in a menu is highlighted, you have the option of scrolling down through the menu faster (this works in the same way in all menus where not all items can be displayed at once):

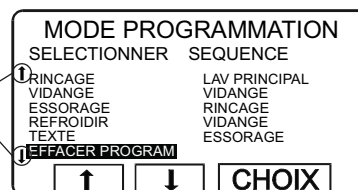
This arrow indicates that there are more items available in the menu.



4047

If you press ↓↓, the next portion of the programming menu will be displayed. The last item in that portion of the menu will be highlighted:

These arrows indicate that there are more items available, above and below those currently displayed.



4048

Using this feature, you avoid having to press ↓ repeatedly to move through the menu item by item.

Similarly you can use ↑↑ whenever the last item on a portion of the menu is highlighted, to move quickly upwards through the menu.

To delete a wash program (next)

MODE PROGRAMMATION
BIBLIOTHEQUE DE PROGRAMMES
NO. PR. NOM

1	INTENSIF SPECIAL 90 °C
2	INTENSIF SPECIAL 60 °C
991	NORMAL 95 °C STD
992	NORMAL 60 °C STD
993	NORMAL 40 °C STD
994	INTENSIF 95 °C

3925

⇓ ⇓ CHOIX

Standard programs can not be deleted

The nine standard programs 991-999 supplied with the machine can not be deleted.

If necessary, use ⇓ or ⇓⇓ to highlight the program to be deleted.

1	INTENSIF SPECIAL 90 °C
2	INTENSIF SPECIAL 60 °C
991	NORMAL 95 °C STD
992	NORMAL 60 °C STD
993	NORMAL 40 °C STD
994	INTENSIF 95 °C
995	INTENSIF 60 °C
996	SANS REPASSAGE 60 °C
997	SANS REPASSAGE 40 °C
998	ESSORAGE COURT 1 MIN
999	ESSORAGE LONG 5 MIN
	QUITTER

CHOIX

Press SELECT.

MODE PROGRAMMATION
EFFACER NUMERO DE PROGRAM : 2

ETES-VOUS SUR ?

APPUY SUR CHOIX OU TOUTE AUTRE TOUCHE

↑ ⇓ CHOIX

If you change your mind and no longer wish to delete this program:
Press any key other than SELECT.

CHOIX

If you do wish to delete this program, Press SELECT.

1	INTENSIF SPECIAL 90 °C
991	NORMAL 95 °C STD
992	NORMAL 60 °C STD
993	NORMAL 40 °C STD
994	INTENSIF 95 °C
995	INTENSIF 60 °C
996	SANS REPASSAGE 60 °C
997	SANS REPASSAGE 40 °C
998	ESSORAGE COURT 1 MIN
999	ESSORAGE LONG 5 MIN
	QUITTER

Choose 1 or 2:

① To delete more programs:

- Use ⇓ and ⇑ to highlight another program to delete, then press SELECT.

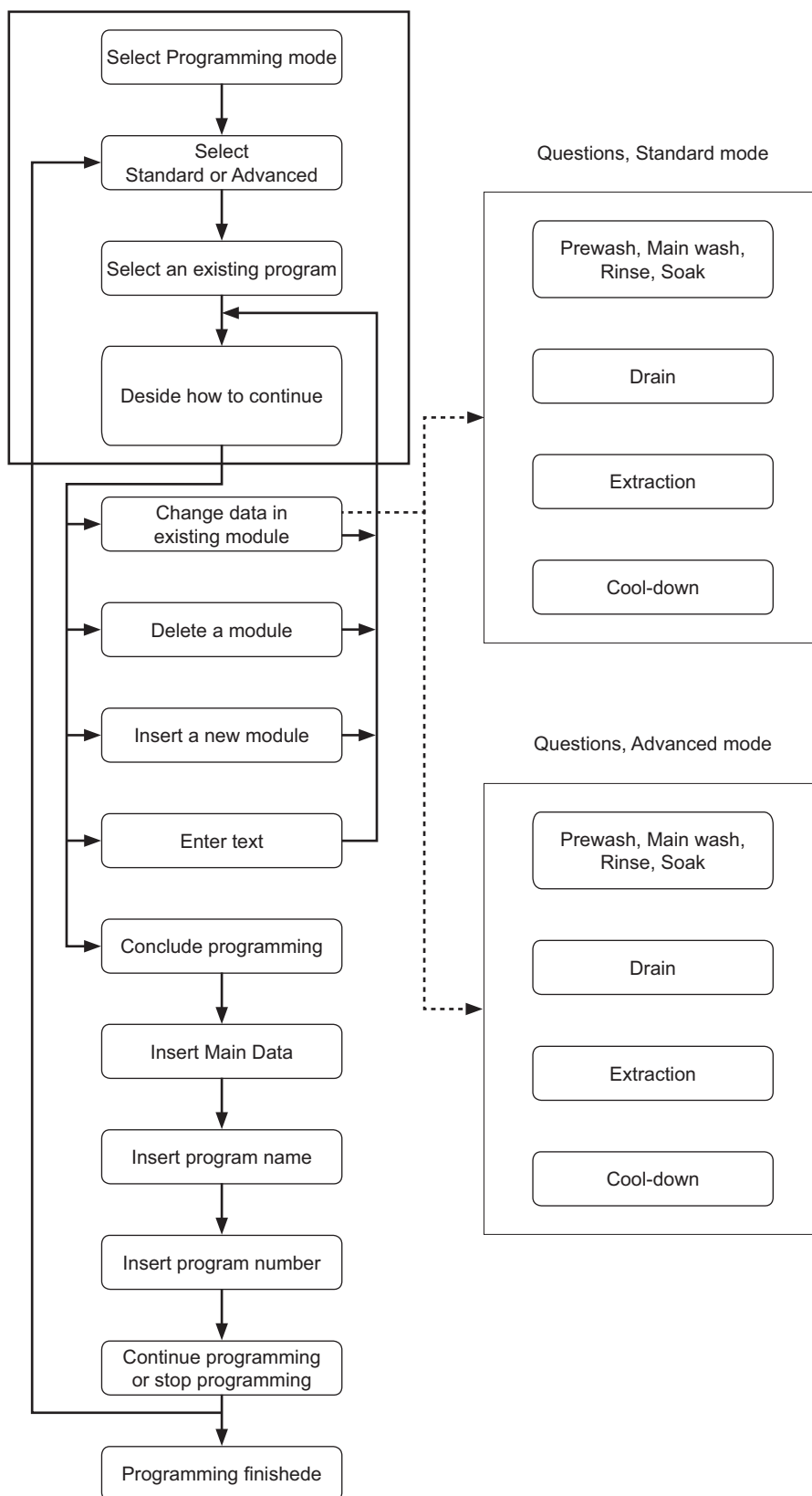
② To stop deleting programs:

- Press ⇓ to highlight EXIT.

CHOIX

Press SELECT.

Cette page est restée volontairement blanche.



To program on the basis of an existing program

This is described in detail in Chapter «To program on the basis of an existing program». The "questions" asked to help you construct each program module are described in Chapters «Program modules, Standard mode» and «Program modules, Advanced mode». The relevant section numbers are shown to the left of each description of the steps below.

Next you decide whether you wish to write the whole program in Standard or Advanced mode.

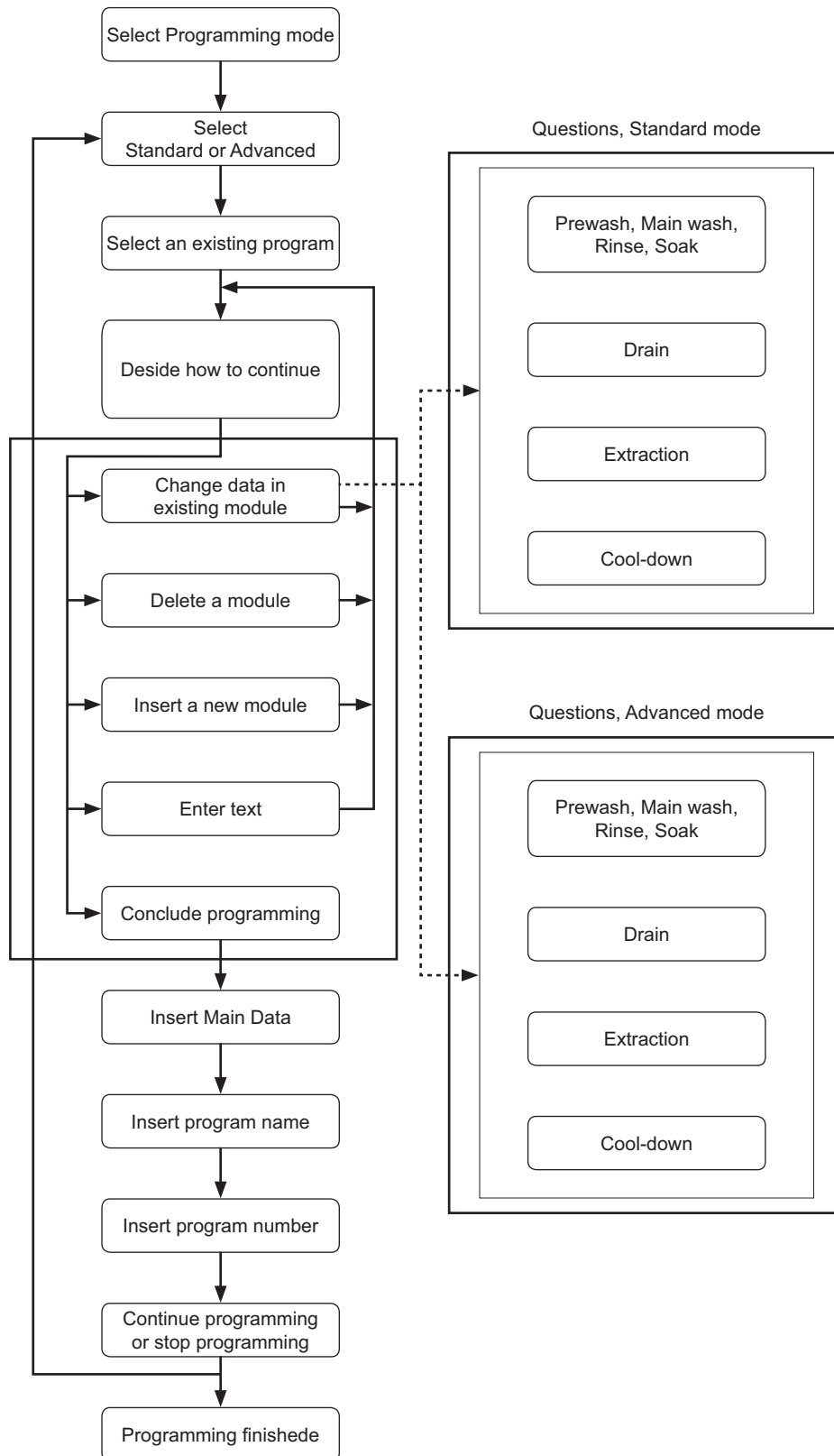
Standard mode allows you to include all the basic data required, while Advanced mode gives you a higher degree of control over all aspects of the program.

From the machine's program library you select the program you want to serve as the basis for your new program. You can choose any of the standard programs (numbered 991 to 999) supplied with the machine, or another program you have created in the past.

Now you can choose how to change the existing program:

Change parameters in one of the program modules in the existing program.

- Delete one or more modules in the existing wash program.
- Add new program modules and program them.
- Enter new explanatory text.
- Stop programming.



To program on the basis of an existing program (next)

You can alter any of the parameters in any module. The questions help you to determine factors such as times, speeds, temperatures, water and detergent options, and so on. Detailed explanations of each question can be found in these chapters:

- Program modules, Standard mode
- Program modules, Advanced mode

Here you are shown how to delete modules you do not require in your new wash program.

You can insert any suitable module wherever you wish in the program. You can choose from the following modules:

Prewash:

Used for prewash and brief soaking.

Main wash:

Used as the main wash module, with heating and detergent dispensing.

Rinse:

Rinsing the wash load.

Drain:

Drain stage after wash and rinse stages.

Extract:

Cool-down:

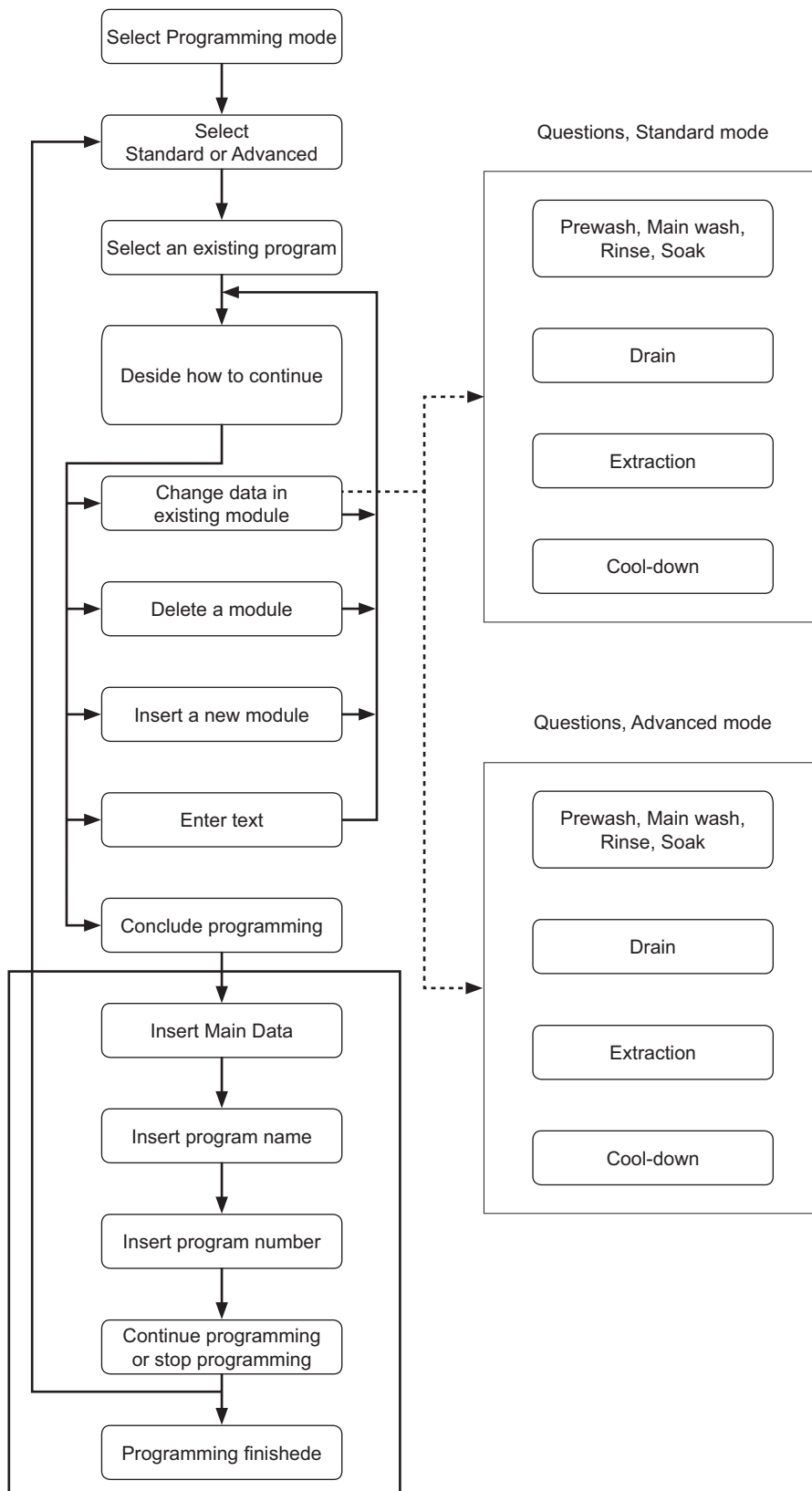
Used for controlled cooling of the wash water to prevent creasing of the wash load.

Soak:

Used for longer soak stages.

This is where you enter the new text to explain what the program is used for. The text will be displayed when the program is used. No more than 155 characters.

When you have decided to conclude programming, you have to enter the program's "main data", and to give it a new name and number. These steps are described in the next three points.



To program on the basis of an existing program (next)

"Main data" is the name given to various functions which apply to the program as a whole. In Standard mode you can control the functions "buzzer at program end", "start program with extraction", and "calculate weight of load". In Advanced mode you can also program the cycle times for gentle action and normal action.

The program name may be up to 80 characters long.

You can give the wash program a new program number between 1 and 990. You can also replace an existing wash program by giving the new program the same number as the existing program. Note that the standard programs supplied with the machine (numbered 991 to 999) cannot be deleted or changed.

When the program has been fully programmed, you can choose either to go on and program another wash program, or to exit programming mode.

To program on the basis of an existing program (next)

• The «Move back» key

If you find you are in the wrong place, or if you want to undo earlier key presses:

Press the "Move back" key one or more times:



3627

The «Move back» function

Each press of the "Move back" key moves you back one menu, in reverse order. By pressing this key repeatedly you can return to this menu at any time:



• Select programming mode



3589



Press  repeatedly.

If this menu is not currently displayed.

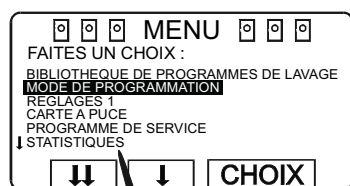
Press ↓ to highlight:
"GO TO THE MENU".

Press SELECT.

Password protection of programming function

If required you can implement password protection for the functions PROGRAMMING and SETTINGS 1. Once you have chosen a password (a four-digit number), both functions will be protected, and accessed using the same password.

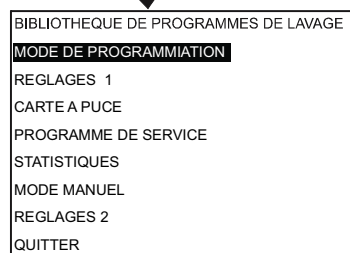
Programming the password is done via the function SETTINGS 1, which is described in the section "Settings 1" of the Clarus Control Service manual.



Press \downarrow to highlight
PROGRAMMING MODE
and $\downarrow\downarrow$ to scroll quickly
down through the menu.

**Using $\downarrow\downarrow$ and $\uparrow\uparrow$ to scroll quickly
through menus**

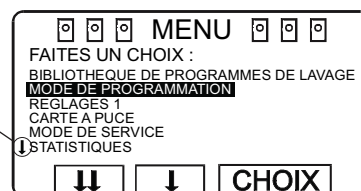
When the top item in a menu is highlighted,
you have the option of scrolling down
through the menu faster (this works in the
same way in all menus where not all items
can be displayed at once):



Press SELECT.

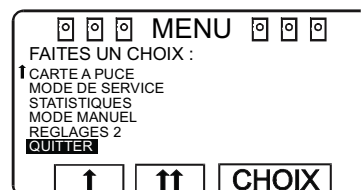
Press SELECT.

This arrow indicates that
there are more items
available



If you press $\downarrow\downarrow$, the next portion of the programming menu will be displayed.

The last item in that portion of the menu will be highlighted:



Using this feature, you avoid having to press \downarrow repeatedly to move through the menu item by item.

Similarly you can use $\uparrow\uparrow$ whenever the last item on a portion of the menu is highlighted, to move quickly upwards through the menu.

To program on the basis of an existing program (next)


• Select STANDARD or ADVANCED mode



3652

Press  repeatedly.

If this menu is not currently displayed.

Press  to highlight STANDARD or ADVANCED..

Press SELECT.

STANDARD or ADVANCED mode?

There are two distinct modes for programming.

In Standard mode you can enter all the basic data required for a wash program. Other variables are set automatically using tried-and-tested standard values, which in most cases work without any problem.

In Advanced mode you have a higher

degree of control over all aspects of the program. Using Advanced mode does, however, call for a detailed knowledge of the way in which wash programs work, to ensure that all the possibilities available are used correctly.

An example:

Via the modules Prewash, Main wash, Rinse and Soak, when using Standard mode you have control of the following functions:

Wash time, temperature, fill level, five water intake options during filling, type of drum action during filling - heating - wash, detergent supply from one of five alternatives, ten signals for liquid supply, flushing cold/hot, spray signal.

In Advanced mode you also have control of the following functions:

Temperature hysteresis, max. temperature increase per minute, level hysteresis, drum speeds during filling - heating - wash, and maximum drum acceleration rate. du tambour.

If you have selected STANDARD mode

All Standard mode modules are described in detail in chapter «Program modules, Standard mode».

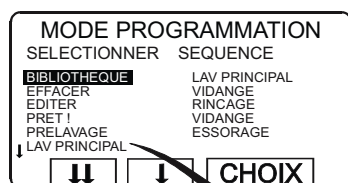
Even if you have selected Standard mode for programming, you still have the option of using Advanced mode for programming any given module. Each time you access a different module to work through the questions there, you can choose either Advanced or Standard mode.

If you have selected ADVANCED mode

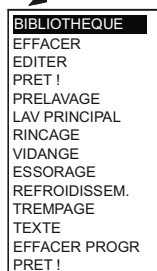
All Advanced mode modules are described in detail in chapter «Program modules, Advanced mode».

If you selected Advanced mode at the start of programming, all programming will continue in Advanced mode. You cannot switch back to Standard mode for some modules only.

• Select the existing program to adapt



3895



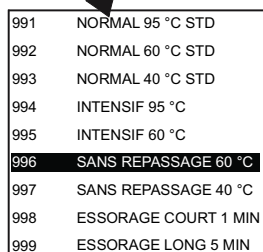
Check that PROGRAM
LIBRARY is highlighted...

CHOIX

Press SELECT..



3896



Use ↓ to highlight the
program you want to adapt
(such as 996 PERM.
PRESS 60°C).

CHOIX

• Press SELECT.

What is the program library?

The program library lists all wash programs, both user and standard programs, showing their program numbers and names, for example:

1	OWN PROG. 40 DEGREES
2	OWN PROG. 60 DEGREES
3	OWN PROG 90 DEGREES
991	OWN PROG 95 DEGREES
992	OWN PROG 60 DEGREES
993	OWN PROG 40 DEGREES
994	INTENSIVE 95 DEGREES
995	INTENSIVE 60 DEGREES
996	PERM.PRESS 60 DEGREES
997	PERM.PRESS 40 DEGREES
998	EXTRACT LOW 1 MIN
999	EXTRACT LOW 5 MIN

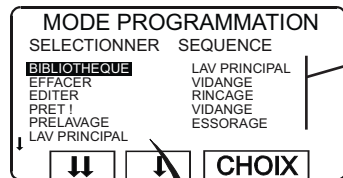
Each time a new program is stored in the machine program memory, its number and name will also be inserted automatically into the program library.

The program library can be used:

- When programming an existing program, which shall be modified.
- When programming a new program with an old as background.
- When choosing a suitable wash program.

To program on the basis of an existing program (next)

• To change data in a program module

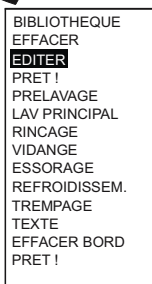


The modules of the program selected will be shown on the right-hand side of the display.

3897

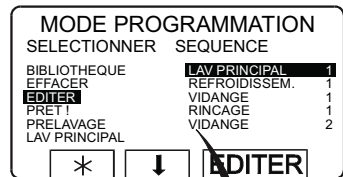


Use ↓ to highlight EDIT..



CHOIX

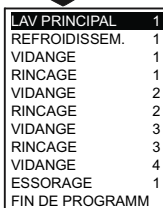
Press SELECT.



3898



If you want to edit some module other than the first (MAIN WASH 1), press ↓ repeatedly to highlight the right one.



EDITOR

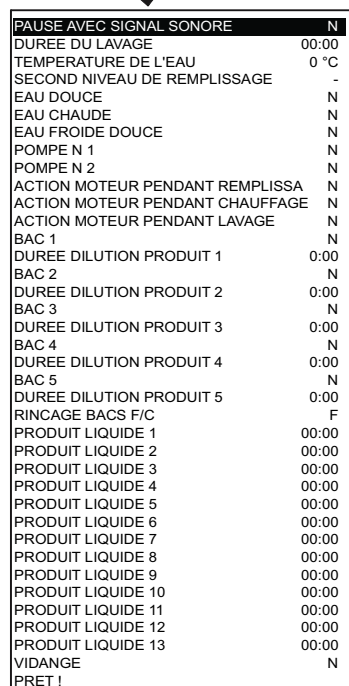
Press EDIT.

Program module sequence numbering

All wash program modules are automatically given sequence numbers to help distinguish them. The first time a module is used it is given the number 1, the second time 2, and so on.



3899



O/N

Yes/No questions.

-/D/N

Drum action.

F/C

Cold or hot water.

B/M/A

Water level - standard mode.

1 2 3

4 5 6

7 8 9

0

Times, temperatures, levels - advanced mode.

↓

Press ↓ to move on to the next question.

↑

You can go back and change a question you have answered already by pressing ↑ repeatedly.

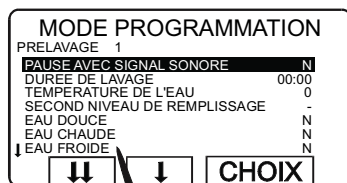
The wash program modules

All modules and module questions are described in the chapters:

- Program modules, standard mode.
- Program modules, advanced mode.

Use the function key or the numeric keys to alter the answers to the various questions.

To program on the basis of an existing program (next)



3658

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

O/N

-/D/N

F/C

B/M/H

1	2	3
4	5	6
7	8	9
0		

↓

↑

Different types of questions

The questions in the various modules are of four different types, and to be answered in a different way:

Yes/No questions:

The function key display shows Y/N, which is a toggle function (the letter to the right of the highlighted question toggles between N and Y each time it is pressed). All Yes/No questions start with No (N) as the default value.

Drum action questions:

The function key display shows -/G/N, which is a toggle function (the letter to the right of the highlighted question toggles from - to G to N and so on, each time it is pressed).

- = drum at a standstill

G = gentle action

N = normal action

All questions of this type start with normal action (N) as the default value.

Cold/hot water:

Selection of water temp. for flushing detergent compartment.

Water level questions - standard mode:

The function key display shows L/M/H and is a toggle function (the letter to the right of the highlighted question toggles from L, M to H each time it is pressed).

L = Low water level

M = Medium water level

H = High water level

All questions of this type have Low level (L) as a preprogrammed value.

Times, temperatures, levels -advanced mode:

To answer these questions, use the numeric keys.

The number of digits required will vary.

If you pressed wrong digits: Press ERASE once or several times.

↓

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE DOUCE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

3900

CHOIX

Once you have finished modifying values as required:
Press ↓ to highlight "READY".

Press SELECT.

• To delete a module

MODE PROGRAMMATION	
SELECTIONNER	SEQUENCE
BIBLIOTHEQUE	LAV PRINCIPAL 1
EFFACER	REFROIDISSEM. 1
EDITER	VIDANGE 1
PRET !	RINCAGE 1
PRELAVAGE	VIDANGE 2
LAV PRINCIPAL	

↓

↕

↓

CHOIX

3907

↓

BIBLIOTHEQUE
EFFACER
EDITER
PRET !
PRELAVAGE
LAV PRINCIPAL
RINCAGE
VIDANGE
ESSORAGE
REFROIDISSEM.
TREMPAGE
TEXTE
EFFACER PROGR
PRET !

CHOIX

After you have chosen DELETE, the first five program modules will be displayed. The first module will be highlighted.

Press SELECT.

To program on the basis of an existing program (next)

MODE PROGRAMMATION	
SELECTIONNER	SEQUENCE
BIBLIOTHEQUE	LAV PRINCIPAL 1
EFFACER	REFROIDISSEM. 1
EDITER	VIDANGE 1
PRET1	RINCAGE 1
PRELAVAGE	VIDANGE 2
LAV PRINCIPAL	
⇕	
⇕	CHOIX

3908

LAV PRINCIPAL	1
REFROIDISSEM.	1
VIDANGE	1
RINCAGE	1
VIDANGE	2
RINCAGE	2
VIDANGE	3
RINCAGE	3
VIDANGE	4
ESSORAGE	1
FIN DE PROGRAMM	

If necessary press ⇓ to highlight the module you want to delete (e.g COOLDOWN 1).

EFFACE

Press DELETE.

LAV PRINCIPAL	1
VIDANGE	1
RINCAGE	1
VIDANGE	2
RINCAGE	2
VIDANGE	3
RINCAGE	3
VIDANGE	4
ESSORAGE	1
FIN DE PROGRAMM	

3909

The module will now have been deleted.
Choose 1 or 2:

① Delete more modules:.

Use ⇑ or ⇓ to highlight another module.

EFFACE

Press DELETE.

LAV PRINCIPALE	1
VIDANGE	1
RINCAGE	1
VIDANGE	2
RINCAGE	2
VIDANGE	3
RINCAGE	3
VIDANGE	4
ESSORAGE	1
FIN DE PROGRAMME	

3910

② Stop deleting:

Press ⇓ to highlight END OF PROGRAM.

QUITTE

Press EXIT.

• To insert a new module

MODE PROGRAMMATION

SELECTIONNER	SEQUENCE
BIBLIOTHEQUE	LAV PRINCIPAL 1
EFFACER	REFROIDISSEM. 1
EDITER	VIDANGE 1
PRET !	RINCAGE 1
PRELAVAGE	VIDANGE 2
LAV PRINCIPAL	

3912

↓

CHOIX

Use ↓ or ↑ ...

... to highlight one of the seven possible wash program modules (e.g. COOL-DOWN).

BIBLIOTHEQUE

EFFACER

EDITER

PRET !

PRELAVAGE

LAV PRINCIPAL

RINCAGE

VIDANGE

ESSORAGE

REFROIDISSEM.

TREMPAGE

TEXTE

EFFACER PROGR

PRET !

CHOIX

Press SELECT.

MODE PROGRAMMATION

SELECTIONNER	SEQUENCE
VIDANGE	VIDANGE 3
ESSORAGE	RINCAGE 3
REFROIDISSEM.	VIDANGE 4
TREMPAGE	ESSORAGE 1
TEXTE	FIN DE PROGRAM

3911

↓

INSERE

Now the last four modules will be displayed. END OF PROGRAM will be highlighted.

Press ↑ to determine where the new module will be inserted in the program sequence.

The module will be inserted above the module you highlight.

To insert the module last in the program, you should highlight END OF PROGRAM.

LAV PRINCIPAL 1

VIDANGE 1

RINCAGE 1

VIDANGE 2

RINCAGE 2

VIDANGE 3

RINCAGE 3

VIDANGE 4

ESSORAGE 1

FIN DE PROGRAMME

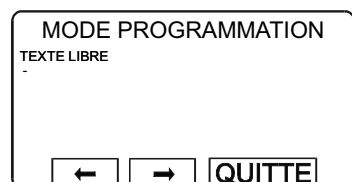
INSERE

Press INSERT..

Now you can answer the questions as described in chapter «To create and write an entirely new program », section «Select position of module in program sequence» and following sections.

To program on the basis of an existing program (next)

• Programming text



3922



Enter text (no more than approx. 150 characters) to accompany the program, with the aid of the functions described below.

The cursor shows where the letter/digit/character will be inserted.

The function keys have these functions:

- Delete text.
- One press: Enter next letter/digit/character.
- Two presses: Insert space between words.

Visible when the cursor is not at the far left of a line: Use this to move the cursor to a new line.

Use the numeric keys to enter letters/digits/characters.

Visible when the cursor is at the far left of a line:

Use this to exit (conclude) entering text.

How to enter letters/digits/other characters

Letters, digits and other characters can be inserted using the numeric keypad. Each of the numeric keys gives access to several characters (3-5 per key), as follows:

1 ABCDE	2 FGHIJ	3 KLMNO
4 PQRST	5 UVWXY	6 ZÄÄÖ
7 01234	8 56789	9 = ()
	0 ° + -.	

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 9 produces =.

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:) (i.e. the end bracket), press 9 three times. When the character you want is on the display, press ⇨ to insert the next character.

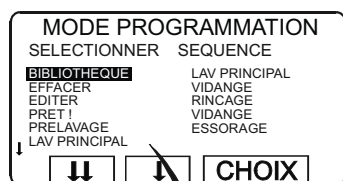
To insert a space between words, simply press ⇨ a second time.

To delete a character, press ⇐, Press it repeatedly to delete several characters.

To start a new line press ↓.

To end entering text, press ↓ to bring the cursor to the far left of a new line. Then press EXIT.

• Conclude programming

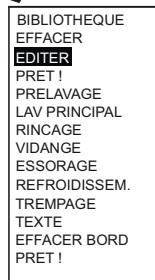


3913



Once you have completed programming

Press ↓...



... to highlight either of the two "EXIT".



Press SELECT.

To program on the basis of an existing program (next)

• Main data, standard mode

MODE PROGRAMMATION

LISTE PRINCIPALE

SIGNAL SONORE EN FIN DE PROGRAM	O
COMMENCER ESSORAGE	O
PESER	N
PRET !	

* ↓ CHOIX

3915

SIGNAL SONORE EN FIN DE PROGRAM	O
COMMENCER ESSORAGE	O
PESER	N
PRET !	

Answer Yes (Y) or No (N).

O/N



Press ↓.

What is Main Data?

"Main Data" is the name given to various functions which influence the entire wash program.

Buzzer at end

If you answer Yes (Y):

The buzzer will sound when the program ends.

The buzzer signal can be turned off by pressing the crossed buzzer-symbol.

If you answer No (N):

No buzzer at program end.

SIGNAL SONORE EN FIN DE PROGR	N
COMMENCER ESSORAGE	N
PRET !	N

3670

O/N



Appuyer sur ↓.

Start extract (start with extraction)

If you answer Yes (Y):

The machine will start with a short extraction cycle when the program begins. This helps the load to soak up water, and the machine does not require so much extra filling (repeated topping up).

If you answer No (N):

No extraction when the program begins.

SIGNAL SONORE EN FIN DE PROGR	N
COMMENCER ESSORAGE	N
PRET !	

3672

CHOIX

Once you have answered all the questions, highlight READY, then:
Press SELECT..

• Main data, ADVANCED mode

The first three questions of Advanced mode are the same as in Standard mode, see section «Main data, standard mode».

SIGNAL SONORE EN FIN DE PROGRAM	N
COMMENCER ESSORAGE	N
PESER	N
REDUIT, MARCHE EN SEC	3
REDUIT, ARRET EN SEC	12
NORMALE, MARCHE EN SEC	12
NORMALE, ARRET EN SEC	3
PRET !	

3892



Use the machine key to enter the required value.

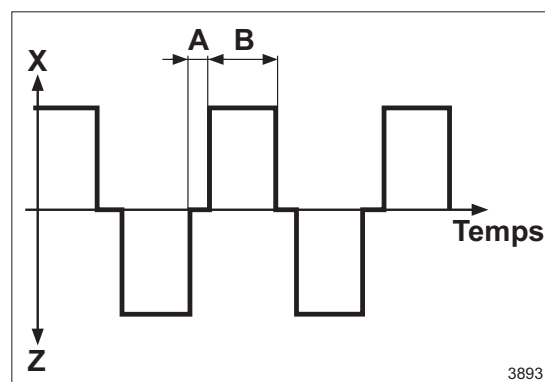
Press ERASE, If wrong digits are given.

• Press ↓, When ready.

Temps de marche et d'arrêt de l'action du tambour

Here you can determine the precise structure of drum action (both "gentle" and "normal" action), by setting the individual lengths of time the drum is to rotate ("on-time") and be at a standstill ("off-time").

The values displayed initially are those recommended by supplier.



3893

A = On-time

B = Off-time

X = Drum action, right-hand rotation

Z = Drum action, left-hand rotation

SIGNAL SONORE EN FIN DE PROGRAM	N
COMMENCER ESSORAGE	N
PESER	N
REDUIT, MARCHE EN SEC	3
REDUIT, ARRET EN SEC	12
NORMALE, MARCHE EN SEC	12
NORMALE, ARRET EN SEC	3
PRET !	

3894

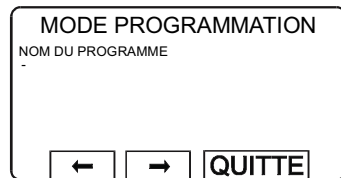
CHOIX

Once you have answered all the questions, highlight READY, then:

Press SELECT.

To program on the basis of an existing program (next)

• Insert the program name



4215



Entrez le nom qui désignera le programme (maximum 14 caractères) en utilisant les fonctions décrites ci-après.

The cursor shows where the letter/digit/character will be inserted.

The function keys have these functions:

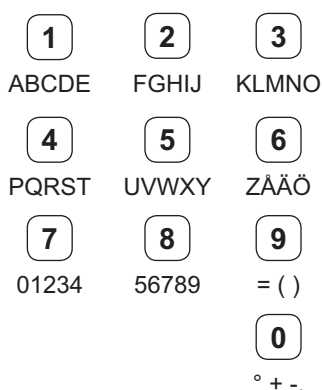
- Delete text..
- One press: Enter next letter/digit/character.
- Two presses: Insert space between words.

Use the numeric keys to enter letters/digits/ characters.

Use this to exit (conclude) entering text.

How to enter letters/digits/other characters

Letters, digits and other characters can be inserted using the numeric keypad. Each of the numeric keys gives access to several characters (3-5 per key), as follows:



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 9 produces =.

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:) (i.e. the end bracket), press 9 three times.

When the character you want is on the display, press ⇨ to insert the next character.

To insert a space between words, simply press ⇨ a second time.

To delete a character, press ⇐, Press it repeatedly to delete several characters.

To start a new line press ↵.

To end entering text, press ↵ to bring the cursor to the far left of a new line. Then press EXIT.

• Insert the program number

MODE PROGRAMMATION
NUMERO PROGRAMME ?

* * QUITTE

3918

1 2 3
4 5 6
7 8 9
0

Use the numeric keys to enter the new program number.

QUITTE

Press EXIT.

Allowed program numbers for new programs

The standard programs supplied with machine have No. 991 - 999.

New programs can have numbers 001 - 990.

MODE PROGRAMMATION
PROGRAMME CHARGE
APPUYEZ SUR UNE TOUCHE POUR CONTINUER

* * *

3676

1 2 3
4 5 6
7 8 9
← 0

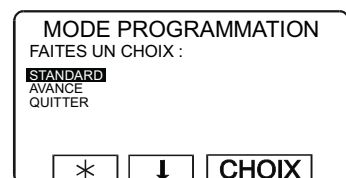
The new program will now be stored in the control unit EEPROM.

Once the program has been stored ("loaded"), a process which takes only a matter of seconds, the display will look like this (illustration, left).

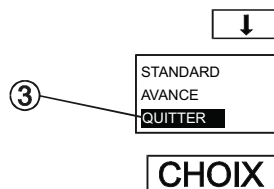
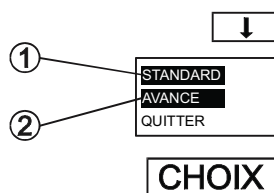
Press any key.

To program on the basis of an existing program (next)

- Continue programming or stop programming



3677



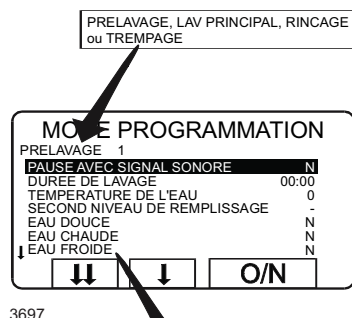
Choose 1, 2 or 3:

- ① Continue programming in STANDARD mode:
Highlight STANDARD and press SELECT.
- ② Continue programming in ADVANCED mode:
Highlight ADVANCED and press SELECT.
- ③ Stop programming:
Highlight EXIT and press SELECT.

This page is left blank on purpose.

Program modules, STANDARD mode

• The Prewash, Main wash, Rinse and Soak, Standard mode



3697

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE DOUCE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINÇAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

Pour accéder à cette fonction, reportez-vous au chapitre « Création et composition d'un nouveau programme à partir de zéro ».

Answer the various questions. Press ↓ to move on to the next question.

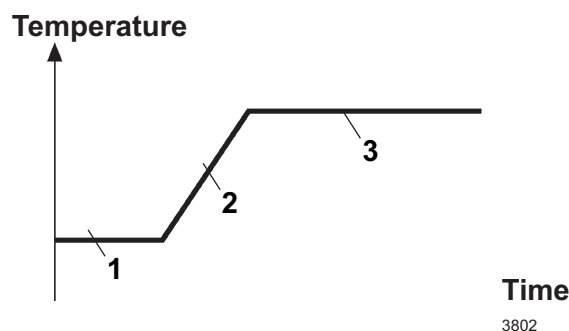
You can go back and change questions already answered by pressing ↑ repeatedly.

The module structure

The questions are identical for the Prewash, Main wash and Rinse modules.

Soak can be programmed for a longer time (up to 27 hours and 46 min.) Other modules are max 1 hour.

The module consists of three different parts:



1. Water filling :

The motor may be at a standstill, on gentle action or normal action. Detergent may be dispensed.

2. Water heating:

The motor may be at a standstill, on gentle action or normal action. If heating is not programmed the program advances to normal action.

3. Motor action at correct temperature and water level :

The motor may be at a standstill, on gentle action or normal action. Temperature and water level are monitored and can be adjusted when necessary.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3698

O/N



Answer Yes (Y) or No (N).

Press ↓.

Pause with buzzer

If you answer Yes (Y):

The washer extractor will stop and the buzzer will sound before the program module starts.

Turn off the buzzer by pressing the button with crossed buzzer-symbol. Start the program by pressing START.

If you answer No (N):

The program module will start without pause or buzzer.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3699

1 2 3
4 5 6
7 8 9
0



Use the numeric keys to enter the required value.

If wrong digits are given:
Press ERASE.

Press ↓.

Wash time

Prewash, Main wash and Rinse:

The maximum wash time is 59 minutes and 59 seconds, in increments of 1 second.

Soak:

The maximum wash time is 27 hours and 46 minutes in steps of 1 minute.

Time taken for filling and heating water is not included in the programmed time.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3700

1 2 3
4 5 6
7 8 9
0



Use the numeric keys to enter the required value.

If wrong digits are given:
Press ERASE.

Press ↓.

Température

Choose a temperature between 0 - 98°C or 0 - 208°F (whole degrees, no decimals).

To change temperature scale °C/°F

You can change the temperature scale using the "SETTINGS" function, which is described in the Service Manual.

Program modules, STANDARD mode (next)

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3775

B/M/H



Answer:

- = No water filling

L = Low water level

M = Medium water level

H = High water level

Press ↓.

Fill level

The function key display shows L/M/H and is a toggle function ((the letter to the right of the highlighted question toggles from L, M to H each time it is pressed).

- = No water filling;

L = Low water level;

M = Medium water level;

H = High water level;

L, M and H are standard levels, properly tested for each type of machine.

Valeurs de REGLAGEs (FAS/FASA 607-807):

L = Low

(45 units or 3 l/kg at washing)

M = Medium

(85 units or 5 l/kg at rinse)*

H = High

(85 units or 6 l/kg at rinse)

* We recommend you to use the level M (cycle ECO) for your programs.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3799

O/N



Answer Yes (Y) or No (N).

Press ↓.

Cold water

If you answer Yes (Y):

The drum will fill with cold water until the correct water level is reached.

If you answer No (N):

No cold water filling.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3800

O/N



Answer Yes (Y) or No (N)..

Press ↓.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3814

Hot water

If you answer Yes (Y):

The drum will fill with hot water until the correct water level is reached.

If only hot water valve is open and the water temperature is higher than the programmed, the cold water valve will automatically open to adjust the temperature.

If you answer No (N):

No hot water filling.

Cold and hot water - correct temperature on intake

If you answer Yes (Y) to both of these questions, both the cold water and the hot water valves will open when the machine is filling.

If the set temperature limit is exceeded, the hot water valve will be closed. When the temperature has fallen 4°C below the set temperature limit, the hot water valve will open again.

In this way you can achieve the correct water temperature even in an unheated washer extractor.

Note, however, that the water valves will close when the correct water level is reached, regardless of whether the correct temperature has been reached.

Program modules, STANDARD mode (next)

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

4211

O/N

Answer Yes (Y) or No (N).



Press ↓.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
SECOND NIVEAU DE REMPLISSAGE	-
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

4212

O/N

Answer Yes (Y) or No (N).



Press ↓.

Cold hard water

If you answer Yes (Y):

The drum will fill with cold hard water until the correct water level is reached.

If you answer No (N):

No cold hard water filling.

Tank water

If you answer Yes (Y):

The drum will be filled from the specified tank (e.g. a tank for reuse of water or a special laundry product).

If you answer No (N):

No filling from these sources.

ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00

3801

-D/N



Options:

- = Drum at standstill

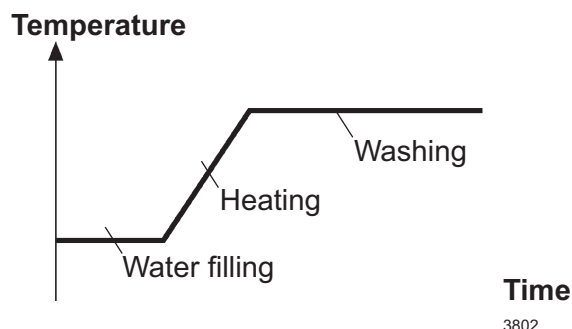
G = Gentle action

N = Normal action

Press ↓.

Drum action at different stages

The program module consists of three different stages:



3802

During each of these stages you can determine whether the drum is to be at a standstill, on gentle action or normal action.

Options for each question:

- = Drum at standstill

G = Gentle action

N = Normal action

You can set the drum "on-times" and "off-times" for gentle action and normal action when programming via "Insert Main Data, Advanced mode", see the section "Main Data".

ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	00:00
BAC 2	N
DUREE DILUTION PRODUIT 2	00:00
BAC 3	N
DUREE DILUTION PRODUIT 3	00:00
BAC 4	N
DUREE DILUTION PRODUIT 4	00:00
BAC 5	N
DUREE DILUTION PRODUIT 5	00:00

3804

O/N

Answer Yes (Y) or No (N).



Press ↓.

Detergent options for machines with detergent dispensers

For machines with integral detergent dispensers there are five options for detergent dispensing.

If you insert Yes (Y), water will flush through that compartment throughout the time that the drum is filling with water at the beginning of the program module.

Program modules, STANDARD mode (next)

ACTION MOTEUR PENDANT LAVAGE	N
BAC 1	N
DUREE DILUTION PRODUIT 1	00:00
BAC 2	N
DUREE DILUTION PRODUIT 2	00:00
BAC 3	N
DUREE DILUTION PRODUIT 3	00:00
BAC 4	N
DUREE DILUTION PRODUIT 4	00:00
BAC 5	N
DUREE DILUTION PRODUIT 5	00:00

4830

1	2	3
4	5	6
7	8	9
0		



BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00

4213

F/C



Specify cold (C) or hot (H) water.

Press ↓.

RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

3805

1	2	3
4	5	6
7	8	9
0		



Use the numeric keys to enter the required value.

If wrong digits are given:
Press ERASE.

Press ↓.

Detergent dispensing in machines with detergent compartments

Here you can determine the length of time water will be flushed through each individual compartment.

Water for flushing detergent compartment

Every time detergent is supplied from a detergent compartment, the compartment is flushed through to remove residues of detergent. Here you can specify if the compartment is to be flushed clean using cold or hot water.

Water for flushing detergent compartment

For machines with an external detergent supply system there are ten control signals which can open external supply valves for a specified time.

The valves open for the time set, starting from when the drum has stopped filling. The maximum time is 4 minutes and 10 seconds, in increments of 1 second.

The supply lines are flushed clean automatically.

PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

4082

O/N

Answer Yes (Y) or No (N).



Press ↓.

Drain

A streamlined means of programming the drain stage.

If you require times and settings different from those listed below you must answer No (N), then program a separate drain module immediately after this module, see the section "Drain, advanced mode".

If you answer Yes (Y):

The program module will end with a drain sequence with these settings:

No pause before drain..

Drain plus normal speed 50 sec.

Distribution time 40 sec.

(These times are default values, but can be altered through the function SETTINGS 2, see service manual.)

If you answer No (N):

No drain.

PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

3813

CHOIX

Once you have answered all the questions, highlight READY, then:

Press SELECT to exit the program module.

Program modules, STANDARD mode (next)

• Drain, STANDARD mode

MODE DE PROGRAMMATION	
VIDANGE 1	
PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
PRET !	
<div> <div>*</div> <div>↓</div> <div>O/N</div> </div>	

3803

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
PRET !	

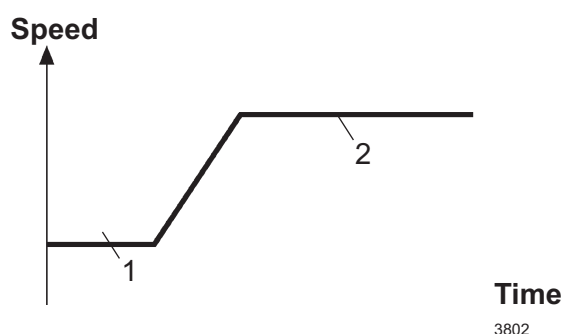
To access this function, see chapter «To create and write an entirely new program».

Answer the various questions in the module. Press ↓ to move on to the next question.

You can go back and change questions already answered by pressing ↑ repeatedly.

The module structure

Drain module can consist of part 1 or 2, or both 1 and 2 depending on how one wants the program:



3802

1. Drain time:

The drain will be open. The motor may be at a standstill, on gentle action or normal action. During this time the drum water will be discharged. If this time is set to 0 the drain module will only consist of distribution time.

2. Distribution time:

The drain will be open. The motor runs at distribution speed. During this time the wash load will be distributed evenly around the walls of the inner drum. If this time is set to 0 the drain module will only consist of draining time.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:40
DUREE DE REPARTITION	0:50
PRET !	

3808

O/N

Answer Yes (Y) or No (N).



Press ↓.

Pause before drain

If you answer Yes (Y):

The washer extractor will stop and the buzzer will sound before the drain opens.

Turn off the buzzer by pressing the button with crossed buzzer-symbol. Start the program by pressing START.

If you answer No (N):

The program module will open, with no pause.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:40
DUREE DE REPARTITION	0:50
PRET !	

3806

-/D/N

Options:

- = Drum at standstill

G = Gentle action

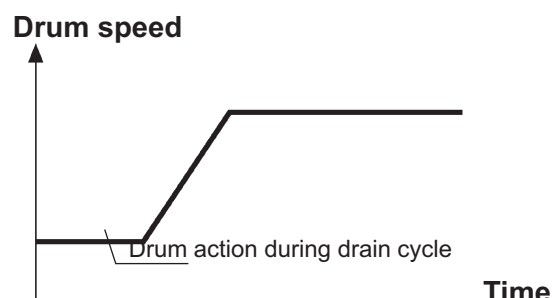
N = Normal action



Press ↓.

Drum action during drain cycle

Here you can determine the drum action during the time programmed for the drain cycle:



3811

Options:

- = Drum at standstill

G = Gentle action

N = Normal action

Program modules, STANDARD mode (next)

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:40
DUREE DE REPARTITION	0:50
PRET !	

4223

O/N

Answer Yes (Y) or No (N)



Press ↓.

Choose drain valve

If the machine has two drain valves (for example to allow water to be reused during some wash sequences) here you can specify which drain valve is to open.

If you answer Yes (Y):

The machine's normal drain will remain closed during the drain sequence. The drain valve for water recovery will open instead.

If you answer No (N):

The machine's normal drain will open during the drain sequence. The drain valve for water recovery will remain closed.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:40
DUREE DE REPARTITION	0:50
PRET !	

3807

1	2	3
4	5	6
7	8	9
0		



Press ↓

Use the numeric keys to enter the required value.

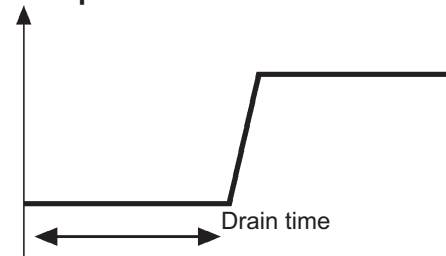
If wrong digits are given: Press ERASE.

Drain time

Here you can determine the drain time:

The maximum time is 42 minutes and 30 seconds, in increments of 10 seconds.

Drum speed



Time

3812

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:40
DUREE DE REPARTITION	0:50
PRET !	

3809



Use the numeric keys to enter the required value.

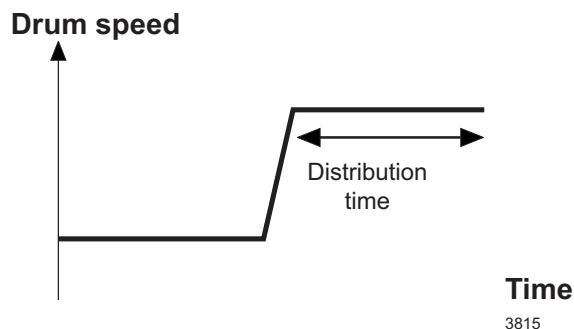
If wrong digits are given:
Press ERASE.

Press ↓.

Distribution time

Here you can determine the length of time the drum operates at distribution speed:

The maximum time is 42 minutes and 30 seconds, in increments of 10 seconds.



PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
DUREE DE VIDANGE	0:40
DUREE DE REPARTITION	0:50
PRET !	

3810

CHOIX

Once you have answered all the questions, highlight READY, then:
Press SELECT to exit the program module.

Program modules, STANDARD mode (next)

• Extraction, Standard mode



3818



To access this function, see sections «To start a wash program from the program library» - «Pause».

Answer the various questions in the module. Press ↓ to move on to the next question.

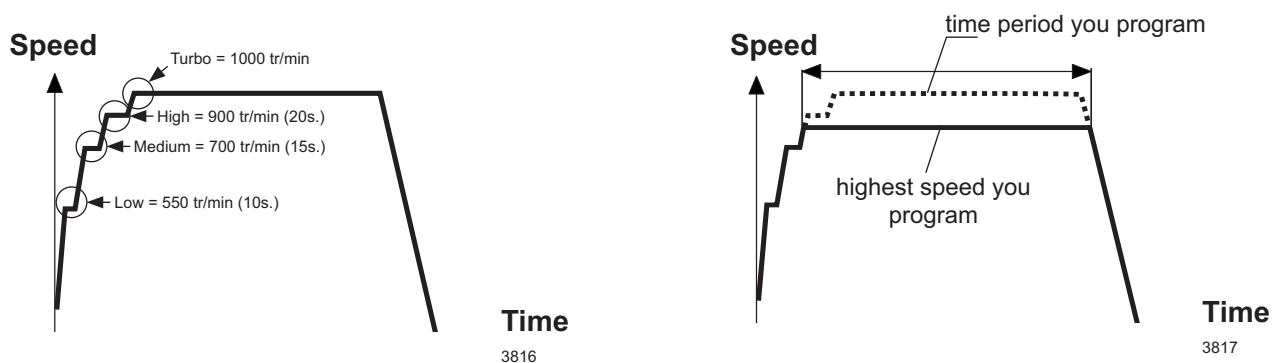
You can go back and change questions already answered by pressing ↑ repeatedly.

The module structure

For machines with frequency-controlled motors:

The extraction time module consists of a single extraction period, for which you can determine extraction time and speed.

The machine does not accelerate to its highest speed immediately, however. Instead it accelerates in several steps, because some of the water needs to be extracted at lower speeds. Shown below are the standard values the machine has when delivered:



If you program a low (maximum) extraction speed, the number of acceleration steps at the beginning of extraction may be reduced.

The time you program is the period the machine will run at its highest speed.

For machines without frequency-controlled motors you must choose one of the extraction speed options shown on the display.



3822

DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

3819

1	2	3
4	5	6
7	8	9
0		



Use the numeric keys to enter the required value.

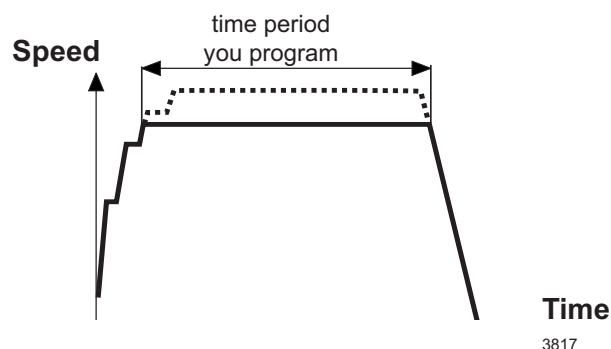
If wrong digits are given: Press ERASE.

Press ↓

Extraction time

The maximum extraction time is 59 minutes and 59 seconds, in increments of 1 second.

The period during which the drum is reaching its correct speed is not included in the "extraction time".



DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

3820

1	2	3
4	5	6
7	8	9
0		



Use the numeric keys to enter the required value.

If wrong digits are given: Press ERASE.

Press ↓.

Extraction speed

For machines with frequency-controlled motors:

Enter the extraction speed you require. The maximum speed varies from one machine to another.

If you enter a value which is too high, the value will be changed to the maximum allowed when you press ↓.

For machines without frequency-controlled motors:

If the machine does not have a frequencycontrolled motor, the available extraction speed options will be shown on the display.

Enter one of these values. Note that no other values are allowed.

DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

3821

CHOIX

Once you have answered all the questions, highlight READY, then:

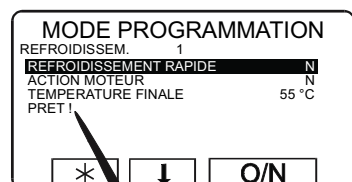
Press SELECT to exit the program module.

DUREE D'ESSORAGE	00:00
VITESSE (B=400 H=1000) TRS/MIN	0
PRET !	

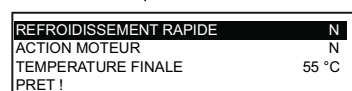
3822

Program modules, STANDARD mode (next)

• Cool-down, Standard mode



3824



To access this function, see chapter «To create and write an entirely new program».

Answer the various questions in the module.

Press ↓ to move on to the next question.

You can go back and change questions already answered by pressing ↑ repeatedly.

Structure du module

The cool-down module is used to achieve controlled cooling of the wash water.

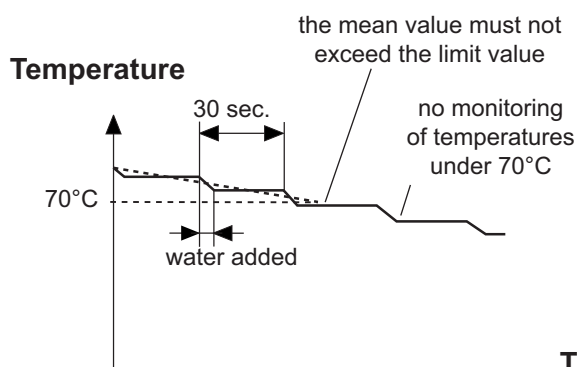
This helps prevent creasing of the wash load.

During the cool-down sequence cold water is added for a brief period at 30 second intervals.

When temperature is over 70°C the cool down is monitored so that the limit value (4°C/min) is not exceeded.

If the limit value is exceeded, no water will be added until the mean value is acceptable again.

If temperature is under 70°C no monitoring is done.



3846

REFROIDISSEMENT RAPIDE	N
ACTION MOTEUR	N
TEMPERATURE FINALE	55 °C
PRET !	

3825

O/N

Answer Yes (Y) or No (N).

↓

Press ↓.

REFROIDISSEMENT RAPIDE	N
ACTION MOTEUR	N
TEMPERATURE FINALE	55 °C
PRET !	

3843

-/D/N

Options:

- = Drum at standstill

G = Gentle action

N = Normal action

↓

Press ↓.

REFROIDISSEMENT RAPIDE	N
ACTION MOTEUR	N
TEMPERATURE FINALE	55 °C
PRET !	

3844

1 2 3
4 5 6
7 8 9
0

Use the numeric keys to enter the required value.

If wrong digits are given:
Press ERASE.

↓

Press ↓.

Quick cool-down

If you answer Yes (Y):

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 No (N):

The machine makes a controlled cool-down as described earlier.

Drum action during cool-down

Allows you to determine drum action during cooldown.

Options:

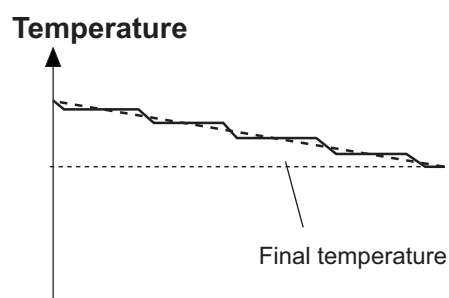
- = Drum at standstill

D = Gentle action

N = Normal action

Final temperature

Enter the temperature you require for the water when cool-down has ended.



Times

3847

Program modules, STANDARD mode (next)

REFROIDISSEMENT RAPIDE	N
ACTION MOTEUR	N
TEMPERATURE FINALE	55 °C
PRET !	

3845

Once you have answered all the questions, highlight READY, then:

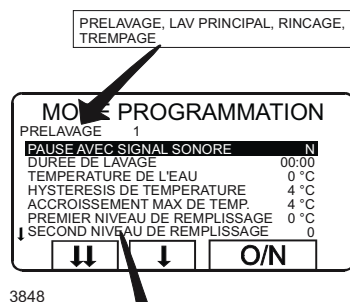
CHOIX

Press SELECT to exit the program module.

This page is left blank on purpose.

Program modules, ADVANCED mode

• The Prewash, Main wash, Rinse and Soak, ADVANCED mode



3848

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE DOUCE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSAGE	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
VIT MOT PENDANT REMPLIS TRS/MIN	48
VIT MOT PENDANT CHAUFFA TRS/MIN	48
VIT MOT PENDANT LAVAGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

To access this function, see chapter «To create and write an entirely new program».

Answer the various questions in the module. Press ↓ to move on to the next question.

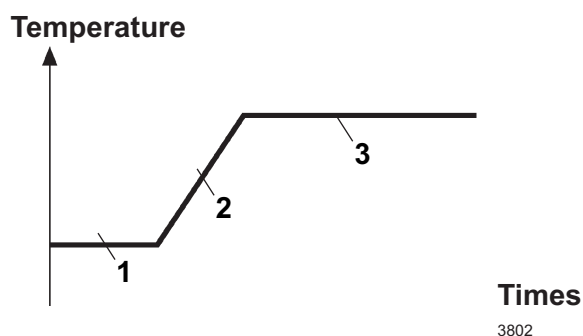
You can go back and change questions already answered by pressing ↑ repeatedly.

The module structure

The questions are identical for the Prewash, Main wash, Rinse and Rinse repeat modules.

Soak can be programmed for a longer time (up to 27 hours and 46 min.) Other modules are max 1 hour.

The module consists normally of three different parts:



1. Water filling:

The motor may be at a standstill, on gentle action or normal action. Detergent may be dispensed.

2. Chauffage de l'eau:

The motor may be at a standstill, on gentle action or normal action.

If heating is not programmed the program advances to normal action.

3. Motor action at correct temperature and water level:

The motor may be at a standstill, on gentle action or normal action. Temperature and water level are monitored and adjusted.

Usable default values

When you are programming a new program module, some of the questions will already have usable default values in place. These are the standard values which are used if you program in Standard mode.

You can naturally change these values, but they are there to provide an indication of settings which normally work well.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N

3849

O/N

Answer Yes (Y) or No (N).



Press ↓.

Pause with buzzer

If you answer Yes (Y):

The washer extractor will stop and the buzzer will sound before the program module starts.

Turn off the buzzer by pressing the button with crossed buzzer-symbol. Start the program by pressing START.

If you answer No (N):

The program module will start without pause or buzzer.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N

3850

1 2 3

4 5 6

7 8 9

0



Use the numeric keys to enter the required value.

If wrong digits are given:

Press ERASE.

Press ↓.

Wash time

Prewash, Main wash and Rinse:

The maximum wash time is 59 minutes and 59 seconds, in steps of 1 second.

Soak:

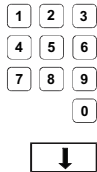
The maximum wash time is 27 hours and 46 minutes, in steps of 1 minute.

Time taken for filling and heating water is not included in the programmed time.

Program modules, ADVANCED mode (next)

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N

3851



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

PAUSE AVEC SIGNAL SONORE	N
DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N

3852



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Temperature

Choose a temperature between 0 - 98°C or 0 - 208°F (whole degrees, no decimals).

To change temperature scale °C/°F

You can change the temperature scale using the "SETTINGS" function, which is described in the Service Manual.

Temperature hysteresis

Once the drum has filled with water to the right level, it is heated to the wash temperature you have programmed. During the wash the water will cool down somewhat. When the water temperature has reached a lower limit (which you determine using this function), heating restarts and the water temperature is brought back up to the correct level.

Temperature hysteresis is the number of degrees between the wash temperature and the temperature at which heating needs to restart.

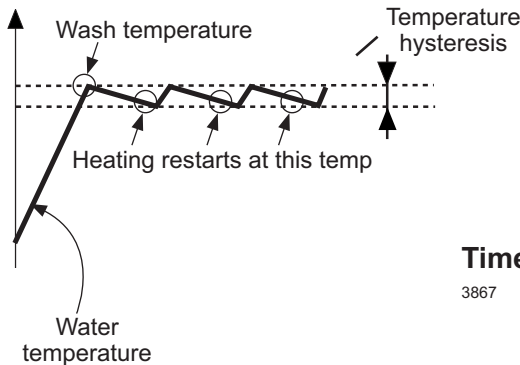
An example:

An example : 60°C

Temperature hysteresis : 4°C

The water is initially heated to 60°C. When the temperature has fallen to 56°C, heating restarts and the water temperature is brought back up to 60°C.

Temperature



Times
3867

DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE L'EAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N°1	N
POMPE N°2	N

3853



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

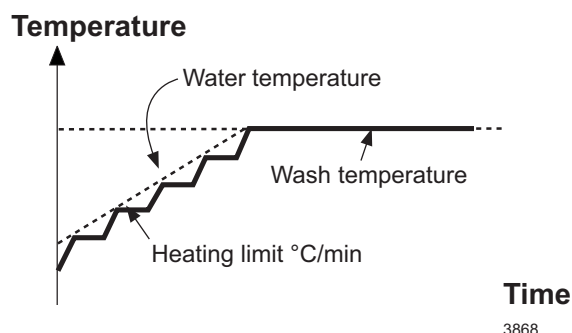
Press ↓.

Maximum rate of temperature increase

This parameter, expressed in degrees per minute, is used to determine the rate at which the water may be heated to wash temperature.

An example:

Say you were to set this parameter to allow a maximum temperature increase rate of 3°C per minute. If we assume that the machine heats the water 3°C in 20 seconds,, then heating would be switched off after 20 seconds and would remain off for 40 seconds. The same pattern would continue throughout the heating period, so that the average rate of temperature increase would never exceed 3°C per minute.



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

If the value is set to 0 the function is not activated and the heating is done without any interruptions.

Program modules, ADVANCED mode (next)

DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N

3854



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

First level

For the relevant water level data, see the next function, "FILL 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.

If the parameter on this line is 0, this function will not be used. Instead the drum will fill to the "FILL LEVEL" set.

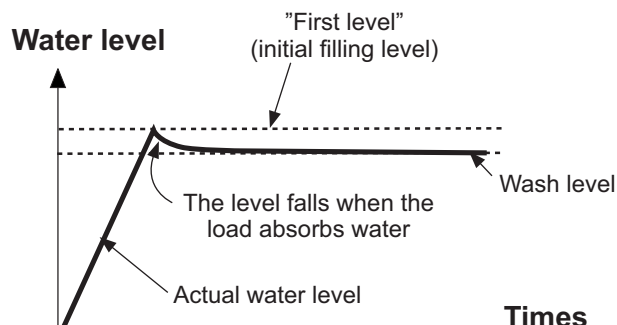
Valeurs de REGLAGE (FAS/FASA 607 & 807):

L = Low (45 units or 3 l/kg with washing)

M = Medium (85 units or 5 l/kg with rinsing)*

H = High (105 units or 6 l/kg with rinsing)

* We recommend you to use the level M (85 units) in the first filling level.



3869

DUREE DU LAVAGE	00:00
TEMPERATURE DE L'EAU	0 °C
HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N

3855



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Fill level

Enter a water filling level from 0 - 255, whole numbers only.

The "Fill level" is measured in "scale units", which correspond to different water levels for different machines. Printed below is a conversion table for this machine.

* We recommend you to use the filling level (45 units) in second.

Ajustement du volume d'eau en fonction du poids de la charge (uniquement sur les machines équipées de moteurs à variation de fréquence)

Lors de la programmation des données principales (reportez-vous au chapitre « Entrée des données principales »), vous avez la possibilité d'activer une fonction de pesée de la charge.

Lorsque cette fonction est activée, la machine exécute un bref cycle au moment du lancement du programme pour déterminer le poids de la charge.

Cette valeur est ensuite utilisée pour le remplissage d'eau qui s'effectue dans ce cas en fonction du poids de la charge.

Pour cette raison, le niveau que vous programmerez ici pourra varier en fonction du poids de la charge.

Program modules, ADVANCED mode (next)

237 Machine <i>Conversion table, water level</i>		
Scale units	Quantity of water (litres)	Water level* (mm)
75	11	9
85	-	-
90	23	50
95	26	65
100	33	90
105	36	100
110	43	116
115	48	128
120	-	-
125	58	160
130	66	180
135	73	195
140	78	206
145	84	220
150	93	242
155	10	258
160	108	272
165	113	285
170	123	308
175	131	325
180	139	3.8
185	144	376
190	157	376
195	164	385

*Distance above bottom of inner drum.

230/250 Machine <i>Conversion table, water level</i>		
Scale units	Quantity of water (litres)	Water level* (mm)
70	11	0
75	13	6
85	16	40
90	21	55
95	25	65
100	29	77
105	35	100
110	39	115
115	45	135
125	56	155
130	63	180
135	70	195
140	77	215
145	82	228
150	90	240
155	97	260
160	105	278
165	114	296
170	122	315
175	130	328

*Distance above bottom of inner drum.

337 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
25	5	0
35	5	0
45	5	0
55	5	0
60	5	0
65	5	0
75	14	8
85	23	35
95	34	65
100	40	75
105	49	96
110	58	118
115	66	132
125	72	165
130	82	182
135	103	197
140	112	220
145	122	235
150	132	249
155	143	266
160	155	285
165	168	305
170	-	-
175	-	-

*Distance above bottom of inner drum.

340/350 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
75	15	6
85	25	40
90	29	55
95	34	65
100	43	77
105	49	100
110	59	115
115	66	135
125	80	155
130	87	180
135	92	195
140	112	215
145	120	225
150	128	140
155	142	260
160	150	278
165	160	296
170	170	315
175	186	328
200	246	400

*Distance above bottom of inner drum.

Program modules, ADVANCED mode (next)

467 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
25	8	0
35	8	0
45	8	0
55	8	0
60	8	0
65	8	0
75	24	16
85	45	54
95	56	73
100	62	84
105	87	119
110	92	130
115	102	145
125	140	190
130	142	192
135	158	226
140	178	240
145	190	265
150	200	270
155	220	280
160	245	300
165	262	330
170	-	-
175	-	-

*Distance above bottom of inner drum.

470/500 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
70	16	0
75	18	6
85	33	40
90	40	55
95	51	65
100	54	77
105	70	100
110	79	115
115	89	135
125	104	155
130	123	180
135	138	195
140	148	215
145	161	228
150	169	240
155	192	260
160	202	278
165	219	296
170	237	315
175	248	328
200	320	400

*Distance above bottom of inner drum.

677 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
25	8	0
35	7	0
45	8	0
55	8	0
60	8	0
65	8	0
75	8	0
85	36	12
95	58	55
100	72	62
105	95	70
110	105	100
115	113	115
125	133	135
130	165	166
135	179	178
140	185	190
145	199	194
150	237	233
155	261	252
160	270	264
165	278	275
170	-	-
172	-	-

*Distance above bottom of inner drum.

670/650 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
75	29	6
85	53	40
90	61	55
95	74	65
100	89	77
105	94	100
110	121	115
115	138	135
125	170	155
130	194	180
135	200	192
140	229	215
145	245	228
150	266	240
155	289	260
160	308	278
165	334	296
170	346	315
175	382	328
200	500	400

*Distance above bottom of inner drum.

Program modules, ADVANCED mode (next)

607 Machine <i>Conversion table, water level</i>		
Scale units	Quantity of water (litres)	Water level* (mm)
10	22	-
15	26	10
20	34	30
25	39	45
30	41	50
35	50	63
40	63	85
45	65	95
50	78	115
55	84	123
60	88	130
65	92	150
70	115	170
75	121	182
80	129	192
85	140	205
90	158	235
95	167	245
100	180	261
105	195	275
110	203	290
115	217	305
120	231	320
125	242	335
130	256	350

*Distance above bottom of inner drum.

690 Machine <i>Conversion table, water level</i>		
Scale units	Quantity of water (litres)	Water level* (mm)
20	29	10
30	40	40
40	51	65
50	70	90
60	86	126
65	99	147
75	118	176
85	143	207
95	161	230
100	170	244
105	185	265
110	200	279
115	215	294
125	245	317
130	260	338
135	280	350
140	294	372
145	311	387
150	325	401
155	346	418
160	Niveau débordement	

*Distance above bottom of inner drum.

807 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
10	28	-
15	32	5
20	41	22
25	43	30
30	48	45
35	59	68
40	69	75
45	82	90
50	90	109
55	102	122
60	116	132
65	125	150
70	136	162
75	154	182
80	164	195
85	179	205
90	191	225
95	207	242
100	216	251
105	231	260
110	251	280
115	271	295
120	287	312
125	308	330
130	328	340
135	342	355
140	361	370
150	397	400
160	435	430

*Distance above bottom of inner drum.

890 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
25	-	-
30	43	-
40	61	62
50	83	89
60	108	123
65	120	139
75	148	170
85	173	199
95	208	230
100	218	238
105	236	258
110	253	275
115	271	289
125	310	317
130	332	334
135	352	349
140	376	364
145	397	384
150	419	395
155	433	408
160	Niveau débordement	

*Distance above bottom of inner drum.

Program modules, ADVANCED mode (next)

1107/1080 Machine Conversion table, water level		
Scale units	Quantity of water (litres)	Water level* (mm)
20	35	-
30	50	35
40	74	65
50	94	84
60	121	120
65	138	125
75	168	166
85	202	200
95	230	226
100	255	242
105	275	257
110	293	272
115	317	285
125	363	315
130	390	332
135	413	347
140	434	358
145	461	378
150	482	390
155	510	404
160	Niveau débordement	

*Distance above bottom of inner drum.

HYSTERESIS DE TEMPERATURE	4 °C
ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N

3856



Use the numeric keys to enter the required value.

• Press ERASE, if wrong digits are given.

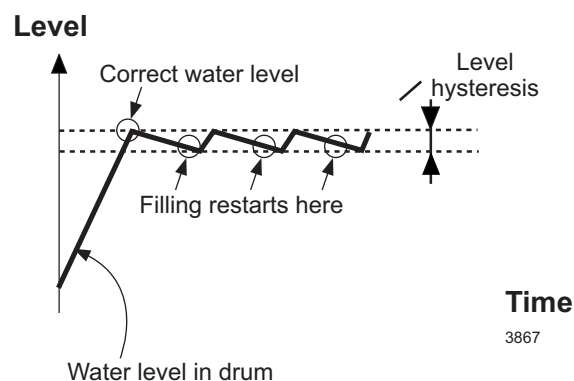
• Press ↓.

Level hysteresis

Once the drum has filled with water, the water level is monitored during both heating and washing.

If the water level falls below a certain level (which you determine using this function), more water will be added to achieve the correct level.

Level hysteresis is the number of "scale units" between the current water level set and the level at which filling (topping up) restarts.



An example (levels expressed in "scale units"):

Water level : 150

Water hysteresis : 20

The drum is initially filled to level 150. If the level falls below 130, filling restarts to bring the level back to 150.

Si le niveau descend en dessous de 130, le système déclenche un appoint d'eau jusqu'au niveau 150.

The hysteresis value can be programmed from 0 to 255, in increments of 1.

Program modules, ADVANCED mode (next)

ACCROISSEMENT MAX DE TEMP.	0 °C
PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N

3857

O/N

Answer Yes (Y) or No (N).



Press ↓.

PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N

3858

O/N

Répondre par Oui (O) ou
par Non (N).

Appuyer sur ↓.

PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N

3866

Cold water

If you answer Yes (Y):

The drum will fill with cold water until
the correct water level is reached.

If you answer No (N):

No cold water filling.

Hot water

If you answer Yes (Y):

The drum will fill with hot water until
the correct water level is reached.If only hot water valve is open and
the water temperature is higher than
the programmed, the cold water valve
will automatically open to adjust the
temperature.

If you answer No (N):

No hot water filling.

**Cold and hot water -
correct temperature on intake**If you answer Yes (Y) to both of these
questions, both the cold water and the
hot water valves will open when the
machine is filling.

If the set temperature limit is exceeded, the hot water valve will be closed. When the temperature has fallen 4°C below the set temperature limit, the hot water valve will open again. In this way you can achieve the correct water temperature even in an unheated washer extractor.

Note, however, that the water valves will close when the correct water level is reached, regardless of whether the correct temperature has been reached.

PREMIER NIVEAU DE REMPLISSAGE	0
SECOND NIVEAU DE REMPLISSAGE	0
HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N

3859

O/N

Only machines with hard water connection.

Answer Yes (Y) or No (N).



Press ↓.

Cold hard water

If you answer Yes (Y):

The drum will fill with cold hard water until the correct water level is reached.

If you answer No (N):

Cold hard water will not be added.

HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
VIT MOT PENDANT REMPLIS TRS/MIN	48
VIT MOT PENDANT CHAUFFA TRS/MIN	48

3860

O/N

Applies only to certain machines.

Answer Yes (Y) or No (N).



Press ↓.

Water from tank

If you answer Yes (Y):

The drum will be filled from the specified tank (e.g. a tank for reuse of water or a special laundry product).

If you answer No (N):

No filling from these source.

HYSTERESIS DE NIVEAU	20
EAU DOUCE	N
EAU CHAUDE	N
EAU FROIDE	N
POMPE N 1	N
POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
VIT MOT PENDANT REMPLIS TRS/MIN	48
VIT MOT PENDANT CHAUFFA TRS/MIN	48

3861

-/D/N

Options:

- = Drum at standstill

G = Gentle action

N = Normal action

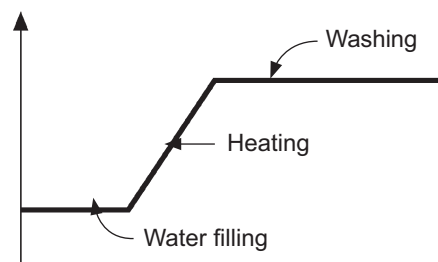


Press ↓.

Drum action at different stages

The program module consists of three different stages:

Temperature



Time

3802

During each of these stages you can determine whether the drum is to be at a standstill, on gentle action or normal action.

Options for each question:

- = Drum at standstill ; G = Gentle action ; N = Normal action

You can set the drum action "on-times" and "off-times" for gentle action and normal action when using "Insert Main Data, Advanced mode", see section «Main data, advanced».

Program modules, ADVANCED mode (next)

POMPE N 2	N
ACTION MOTEUR PENDANT REMPLISSA	N
ACTION MOTEUR PENDANT CHAUFFAGE	N
ACTION MOTEUR PENDANT LAVAGE	N
VIT MOT PENDANT REMPLIS TRS/MIN	48
VIT MOT PENDANT CHAUFFA TRS/MIN	48
VIT MOT PENDANT LAVAGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N

3862



Only for machines with frequency controlled motor.

Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Individual drum speeds for various stages

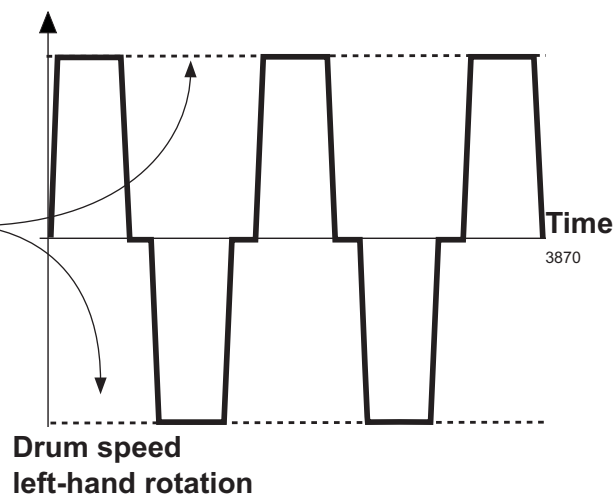
The program module consists of three different stages:

Water filling, heating and washing.

You can determine the drum speed individually for each of these stages.

This function allows you to set this level (the same for both right-hand and left-hand rotation)

Drum speed
right-hand rotation



Drum speed
left-hand rotation

ACTION MOTEUR PENDANT LAVAGE	N
VIT MOT PENDANT REMPLIS TRS/MIN	48
VIT MOT PENDANT CHAUFFA TRS/MIN	48
VIT MOT PENDANT LAVAGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
BAC 1	N
DUREE DILUTION PRODUIT 1	0:00
BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00

3863



Only for machines with
frequence controlled
motor.

Use the numeric keys to
enter the required value.

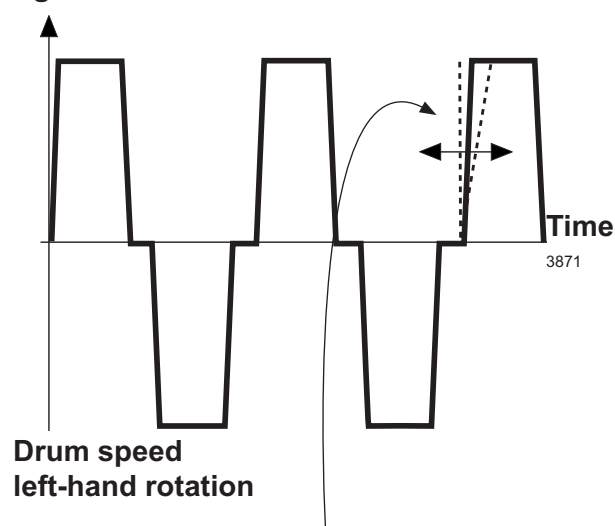
Press ERASE, if wrong
digits are given.

Press ↓..

Acceleration rate

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(s) you set in the function above. This setting will apply to both normal action and gentle action.

Drum speed
right-hand rotation



Drum speed
left-hand rotation

In this function you determine how steep this
part of the curve will be.

Program modules, ADVANCED mode (next)

ACCELERATION TRS/MIN/SEC	20
BAC 1	N
DUREE DILUTION PRODUIT 1	00:00
BAC 2	N
DUREE DILUTION PRODUIT 2	00:00
BAC 3	N
DUREE DILUTION PRODUIT 3	00:00
BAC 4	N
DUREE DILUTION PRODUIT 4	00:00
BAC 5	N
DUREE DILUTION PRODUIT 5	00:00

3864

O/N

Answer Yes (Y) or No (N).



Press ↓.

ACCELERATION TRS/MIN/SEC	N
BAC 1	N
DUREE DILUTION PRODUIT 1	00:00
BAC 2	N
DUREE DILUTION PRODUIT 2	00:00
BAC 3	N
DUREE DILUTION PRODUIT 3	00:00
BAC 4	N
DUREE DILUTION PRODUIT 4	00:00
BAC 5	N
DUREE DILUTION PRODUIT 5	00:00

4831

1	2	3
4	5	6
7	8	9
0		



BAC 2	N
DUREE DILUTION PRODUIT 2	0:00
BAC 3	N
DUREE DILUTION PRODUIT 3	0:00
BAC 4	N
DUREE DILUTION PRODUIT 4	0:00
BAC 5	N
DUREE DILUTION PRODUIT 5	0:00
RINAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00

4213

F/C

***Water for flushing detergent compartment***

Every time detergent is supplied from a detergent compartment, the compartment is flushed out to remove residues of detergent. Here you can specify if the compartment is to be flushed clean using cold or hot water.

Detergent dispensing in machines with detergent compartments

Here you can determine the length of time water will be flushed through each individual compartment.

Water for flushing detergent compartment

Every time detergent is supplied from a detergent compartment, the compartment is flushed through to remove residues of detergent. Here you can specify if the compartment is to be flushed clean using cold or hot water.

RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

3805



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET !	

O/N

Answer Yes (Y) or No (N).



Press ↓.

Dispensing liquid detergent from external system

For machines with an external detergent supply system there are ten control signals which can open external supply valves for a specified time.

The valves open for the time set, starting from when the drum has stopped filling.

The maximum time is 4 minutes and 10 seconds, in increments of 1 second.

The supply lines are flushed clean automatically.

Drain

A streamlined means of programming the drain stage. If you require times and settings different from those listed below you must answer No (N), then program a separate drain module immediately after this module, see the section "Drain, advanced mode".

If you answer Yes (Y):

The program module will end with a drain sequence with these settings:

No pause before drain..

Drain plus normal speed 50 sec.

Distribution time 40 sec.

(These times are default values, but can be altered through the function SETTINGS 2, see service manual).

If you answer No (N):

No drain.

Program modules, ADVANCED mode (next)

RINCAGE BACS F/C	F
PRODUIT LIQUIDE 1	00:00
PRODUIT LIQUIDE 2	00:00
PRODUIT LIQUIDE 3	00:00
PRODUIT LIQUIDE 4	00:00
PRODUIT LIQUIDE 5	00:00
PRODUIT LIQUIDE 6	00:00
PRODUIT LIQUIDE 7	00:00
PRODUIT LIQUIDE 8	00:00
PRODUIT LIQUIDE 9	00:00
PRODUIT LIQUIDE 10	00:00
PRODUIT LIQUIDE 11	00:00
PRODUIT LIQUIDE 12	00:00
PRODUIT LIQUIDE 13	00:00
VIDANGE	N
PRET!	

Once you have answered
all the questions, highlight
READY, then:

3919

CHOIX

Press SELECT to exit the
program module.

• Drain, ADVANCED mode

MODE PROGRAMMATION	
VIDANGE 1	N
PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N

3872

* ↓ O/N

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

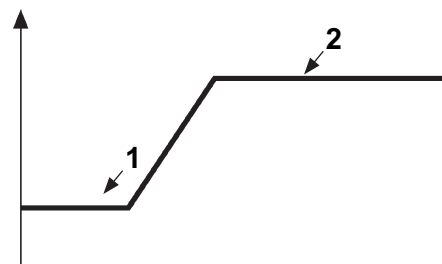
To access this function, see chapter «To create and write an entirely new program».

Answer the various questions in the module. Press ↓ to move on to the next question.

You can go back and change questions already answered by pressing ↑ repeatedly.

The module structure

Drain module can consist of part 1 or 2, or both 1 and 2 depending on how one wants the program:

Speed**Time**

3811

1. Drain time:

The drain will be open. The motor may be at a standstill, on gentle action or normal action. During this time the drum water will be discharged. If this time is set to 0 the drain module will only consist of distribution time.

2. Distribution time:

The drain will be open. The motor runs at distribution speed. During this time the wash load will be distributed evenly around the walls of the inner drum. If this time is set to 0 the drain module will only consist of draining time.

Usable default values

When you are programming a new program module, some of the questions will already have usable default values in place. These are the standard values which are used if you program in Standard mode.

You can naturally change these values, but they are there to provide an indication of settings which normally work well.

Program modules, ADVANCED mode (next)

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3873

O/N

Answer Yes (Y) or No (N).



Press ↓.

Pause before drain

If you answer Yes (Y):

The washer extractor will stop and the buzzer will sound before the drain opens.

Turn off the buzzer by pressing the button with crossed buzzer-symbol.

Start the program by pressing START.

If you answer No (N):

The program module starts, with no pause.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3874

-D/N

Options:

- = Drum at standstill

G = Gentle action

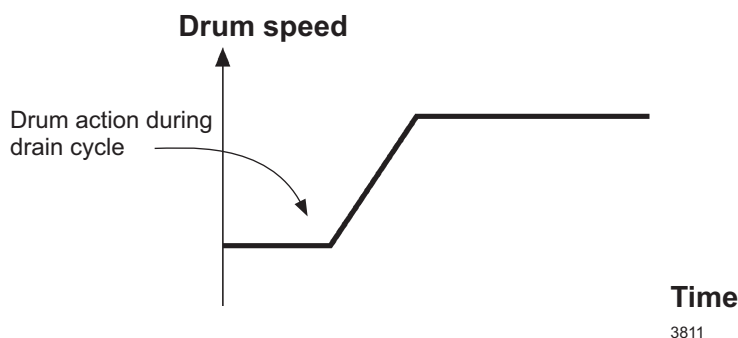
N = Normal action



Press ↓.

Drum action during drain cycle

Here you can determine the drum action during the time programmed for the drain cycle:



Options:

- = Drum at standstill

G = Gentle action

N = Normal action

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

4225

O/N

Answer Yes (Y) or No (N).



Press ↓.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

4226

O/N

Answer Yes (Y) or No (N).



Press ↓.

Choose drain valve

If the machine has two drain valves (for example to allow water to be reused during some wash sequences) here you can specify which drain valve is to open.

If you answer Yes (Y):

The machine's normal drain will remain closed during the drain sequence. The drain valve for water recovery will open instead.

If you answer No (N):

The machine's normal drain will open during the drain sequence. The drain valve for water recovery will remain closed.

Extra drain valves

Here you can control a further three drain valves in addition to the two in the previous function. These drain valves will open and close without affecting the two drains in the previous function.

If you answer Yes (Y):

The specified drain will open throughout the drain sequence.

If you answer No (N):

The drain will remain closed.

Program modules, ADVANCED mode (next)

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3875



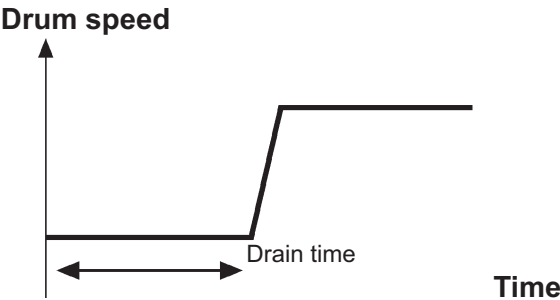
Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Drain time

Here you can determine the drain time:



3811

The maximum time is 42 minutes and 30 seconds, in increments of 10 seconds.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3876



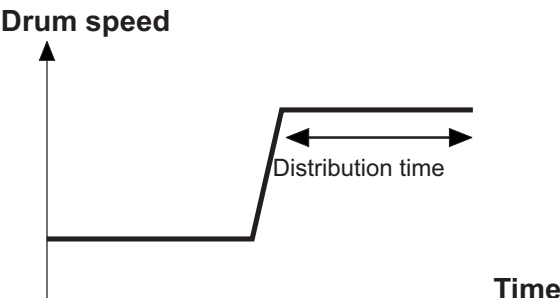
Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Distribution time

Here you can determine the length of time the drum operates at distribution speed:



3811

The maximum time is 42 minutes and 30 seconds, in increments of 10 seconds.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3877



Only for machines with frequency controlled motor.

Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given en cas de faute de frappe.

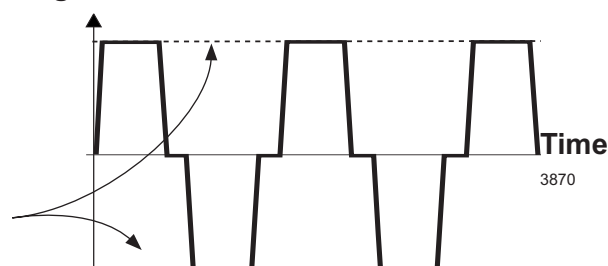
Press ↓.

This function allows you to set this level (the same for both right-hand and left-hand rotation)

Drum speed during drain

This function allows you to determine drum speed during the drain stage. The speed will apply to both normal action and gentle action.

Drum speed
right-hand rotation



Drum speed
left-hand rotation

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3878



Only for machines with frequency controlled motor.

Use the numeric keys to enter the required value.

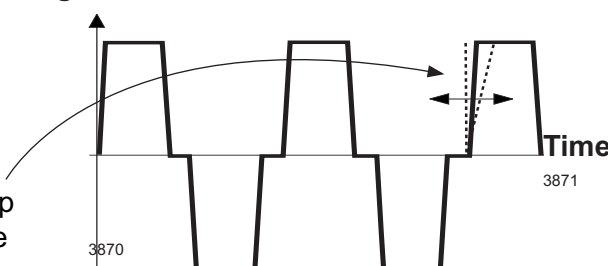
Press ERASE, if wrong digits are given.

Press ↓.

Acceleration rate during drain

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(s) you set in the last function. This setting will apply to both normal action and gentle action.

Drum speed
right-hand rotation



Drum speed
left-hand rotation

In this function you determine how steep this part of the curve will be.

PAUSE AVANT VIDANGE	N
ACTION MOTEUR	N
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE DE VIDANGE	0:50
DUREE DE REPARTITION	0:40
VIT MOT PENDANT VIDANGE TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3879



CHOIX

Once you have answered all the questions, highlight READY, then:
Press SELECT to exit the program module.

Program modules, ADVANCED mode (next)

• Extraction, ADVANCED mode

MODE PROGRAMMATION

ESSORAGE	1
VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

4662

VIDANGE A

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

To access this function, see chapter «To create and write an entirely new program».

Answer the various questions in the module. Press \downarrow to move on to the next question.

You can go back and change questions already answered by pressing \uparrow repeatedly.

The module structure

For machines with frequency-controlled motors:

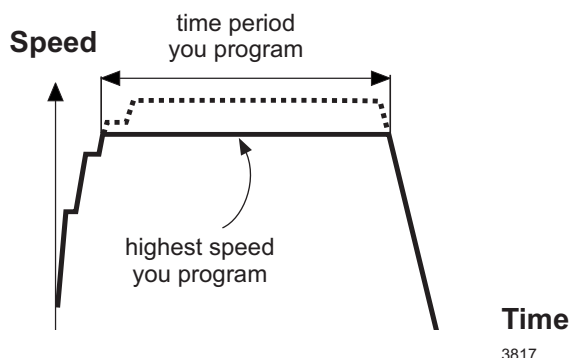
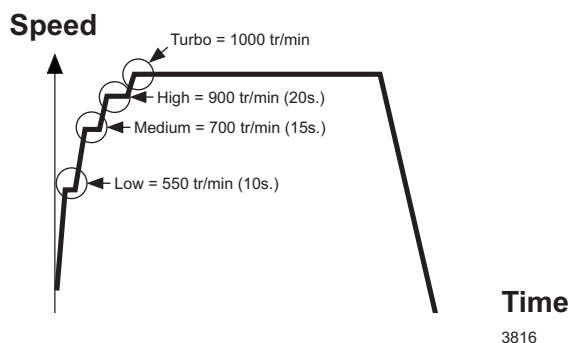
The extraction time module consists of a single extraction period, for which you can determine extraction time and speed.

The machine does not accelerate to its highest speed immediately, however.

Instead it accelerates in several steps, because some of the water needs to be extracted at lower speeds. Shown below are the standard values the machine has when delivered:

If you program a low (maximum) extraction speed, the number of acceleration steps at the beginning of extraction may be reduced.

The time you program is the period the machine will run at its highest speed.



For machines without frequency-controlled motors you must choose one of the extraction speed options shown on the display.

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D'ESSORAGE	00:00
VITESSE (B=400 H=1000) TRS/MIN	0
PRET !	

4669

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

4664

Answer Yes (Y) or No (N).



Press ↓.

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D'ESSORAGE	00:00
VIT FINALE D'ESSORAGE TRS/MIN	0
PRET !	

4665

Answer Yes (Y) or No (N).



Press ↓.

Choose drain valve

If the machine has two drain valves (for example to allow water to be reused during some wash sequences) here you can specify which drain valve is to open.

If you answer Yes (Y):

The machine's normal drain will remain closed during the drain sequence.

The drain valve for water recovery will open instead.

If you answer No (N):

The machine's normal drain will open during the drain sequence. The drain valve for water recovery will remain closed.

Extra drain valves

Here you can control a further three drain valves in addition to the two in the previous function.

These drain valves will open and close without affecting the two drains in the previous function.

If you answer Yes (Y):

The specified drain will open throughout the drain sequence.

If you answer No (N):

The drain will remain closed.

Program modules, **ADVANCED** mode (next)

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D ESSORAGE	00:00
DUREE FINALE D ESSORAGE TRS/MIN	0
PRET !	

4666



Use the numeric keys to enter the required value.

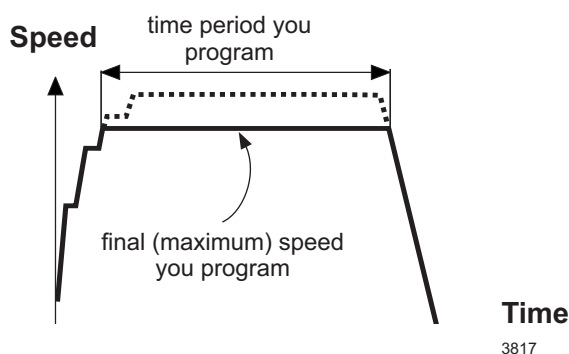
Press ERASE, if wrong digits are given.

Press ↓.

Extraction time

The maximum extraction time is 59 minutes and 59 seconds, in increments of 1 second.

The period during which the drum is reaching its correct speed is not included in the "extraction time".



3817

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D ESSORAGE	00:00
DUREE FINALE D ESSORAGE TRS/MIN	0
PRET !	

4667



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Extraction speed

For machines with frequency-controlled motors:

Enter the extraction speed you require. The maximum speed varies from one machine to another.

If you enter a value which is too high, the value will be changed to the maximum allowed when you press ↓.

For machines without frequency-controlled motors:

If the machine does not have a frequencycontrolled motor, the available extraction speed options will be shown on the display.

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D ESSORAGE	00:00
VIT FINALE D ESSORAGE TRS/MIN	0
PRET !	

4668

CHOIX

Once you have finished, Check that **READY** is highlighted :

Press **SELECT** to exit the program module.

VIDANGE A	N
VIDANGE B	N
VIDANGE C	N
VIDANGE D	N
DUREE D'ESSORAGE	00:00
VITESSE (B=400 H=1000) TRS/MIN	0
PRET !	

4669

Enter one of these values. Note that no other values are allowed.

• Cool-down, ADVANCED mode

MODE PROGRAMMATION	
REFROIDISSEM.	1
REFROIDISSEMENT RAPIDE	0
ACTION MOTEUR	N
VANNE OUVERTURE EN SEC 100 A 70°C	3
VANNE OUVERTURE EN SEC APRES 70°C	5
TEMPERATURE FINALE	55°C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
* ↓ CHOIX	

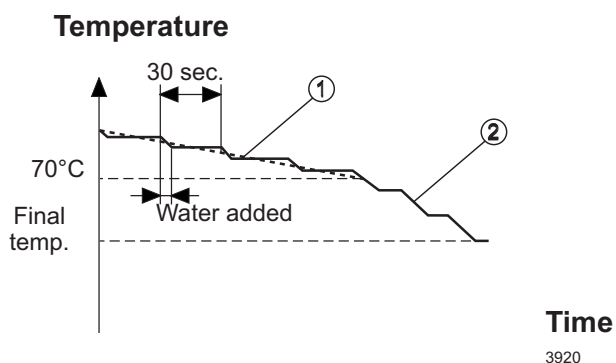
3880

REFROIDISSEMENT RAPIDE	
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

To access this function, see chapter «To create and write an entirely new program».

Answer the various questions in the module. Press ↓ to move on to the next question.

You can go back and change questions already answered by pressing ↑ repeatedly..



3920

Structure du module

The cool-down module is used to achieve controlled cooling of the wash water. This helps prevent creasing of the wash load.

During the cool-down sequence cold water is added for a brief period at 30 second intervals. The sequence is divided into two distinct sections:

1. «98°-70°C»:

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.

2. «70°C» température finale:

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.

Usable default values

Lorsque vous programmez un nouveau module de programme, certaines des questions posées par le système sont déjà assignées à des valeurs par défaut, qui sont celles en vigueur en mode Standard. These are the standard values which are used if you program in Standard mode.

You can naturally change these values, but they are there to provide an indication of settings which normally work well.

Program modules, ADVANCED mode (next)

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3881

O/N

Answer Yes (Y) or No (N).

↓

Press ↓.

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3882

-D/N

Options:

- = Drum at standstill

G = Gentle action

N = Normal action

↓

Press ↓.

Quick cool-down

If you answer Yes (Y):

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 No (N):

The machine makes a controlled cool down as described earlier.

Drum action during cool-down

Allows you to determine drum action during cool-down.

Options:.

- = Drum at standstill

G = Gentle action

N = Normal action

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

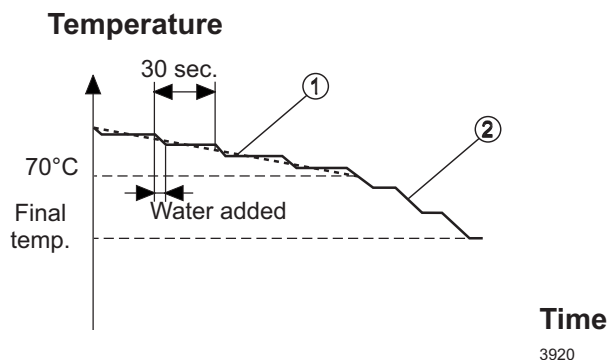
3883



Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.



Valve on-time in seconds

The cool-down sequence is divided into two stages according to the water temperature:

1. 100 to 70°:

Here the machine monitors the sequence to ensure that the average cool-down rate does not exceed a set rate (normally 4°C per minute). If the rate set is exceeded, no water will be added until the mean value is acceptable again.

2. 70° to final temperature:

The rate of cool-down is not monitored during this stage. The valve opens and closes depending on the programming mode.

During the cool-down sequence cold water will be added for a fixed period at intervals of 30 seconds. It is this period (the valve "on-time") which you can determine here. You can program different "on-times" for the two temperature ranges described above.

Program modules, ADVANCED mode (next)

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3885

1	2	3
4	5	6
7	8	9
0		



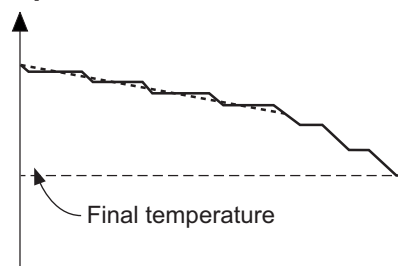
Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

Final temperature

Enter the temperature you require for the water at the end of cool-down.

Temperature**Time**

3921

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3886

1	2	3
4	5	6
7	8	9
0		



Only for machines with frequency controlled motor.

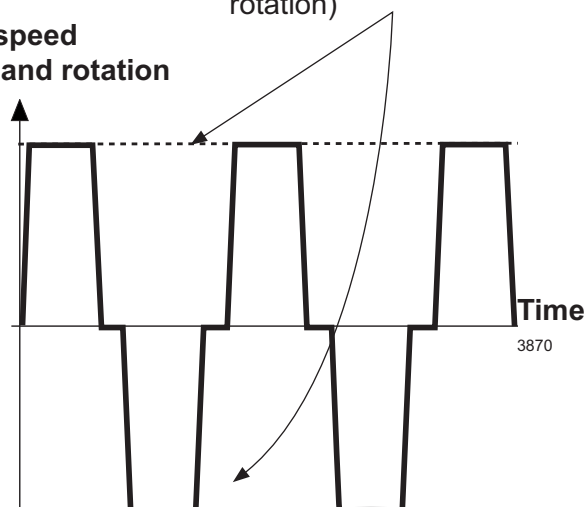
Use the numeric keys to enter the required value.

Press ERASE, if wrong digits are given.

Press ↓.

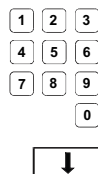
Drum speed during cool-down

You can determine the drum speed during cool-down. The speed will apply to both normal action and gentle action.

Drum speed right-hand rotation**Drum speed left-hand rotation**

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3887



Only for machines with
frequence controlled
motor.

Use the numeric keys to
enter the required value.

Press ERASE, if wrong
digits are given.

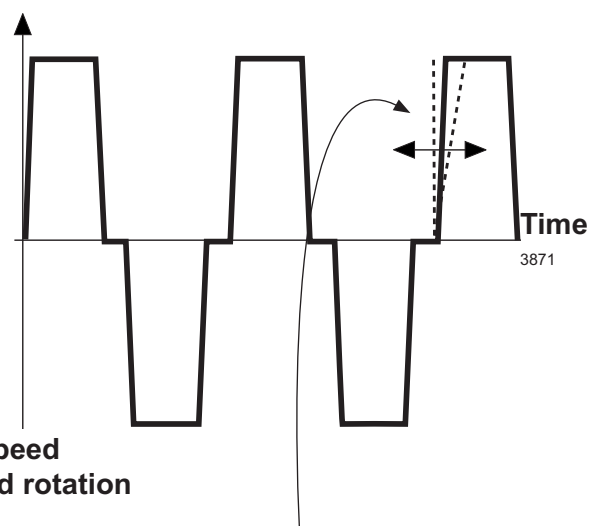
Press ↓.

Acceleration rate during drain stage

This function allows you to determine
the rate of acceleration for the drum, i.e.
therpm per second at which its speed
should increase until it reaches the
speed you set in the last function. This
setting will apply to both normal action

Drum speed
right-hand rotation

Drum speed
left-hand rotation



In this function you determine how steep this
part of the curve will be.

REFROIDISSEMENT RAPIDE	O
ACTION MOTEUR	N
VANNE OUVERTE EN SEC 100 A 70 °C	3
VANNE OUVERTE EN SEC APRES 70 °C	5
TEMPERATURE FINALE	55 °C
VITESSE MOTEUR TRS/MIN	48
ACCELERATION TRS/MIN/SEC	20
PRET !	

3888

CHOIX

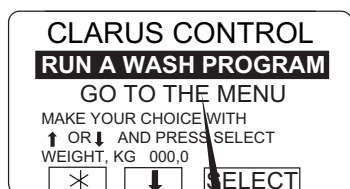
Once you have finished:

Check that READY is
highlighted:

Press SELECT to exit the
program module.

The service program

• To select the "Service Program" function



RUN A WASH PROGRAM
GO TO THE MENU

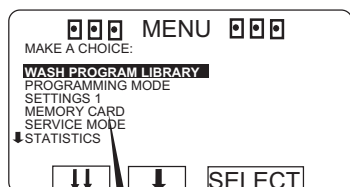
SELECT

If this menu is not currently displayed:

Press repeatedly.

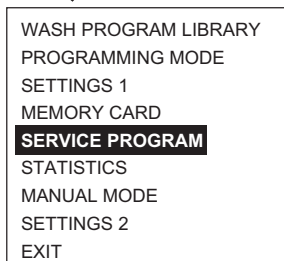
Press to highlight:
"GO TO THE MENU".

Press SELECT.



Press five times ...

... to highlight:
"SERVICE PROGRAM".



SELECT

Press SELECT.

The service program

The service program makes fault-finding on the machine easier, as it allows you to control the various machine functions individually:

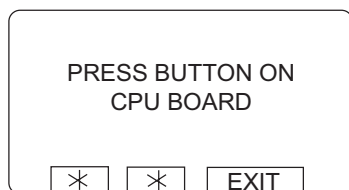
- water filling
- detergent flushing
- motor rotation, clockwise and counterclockwise
- motor action, distribution and extraction
- drain
- door lock
- heating
- buzzer

You can also check which input signals to the PCU are activated:

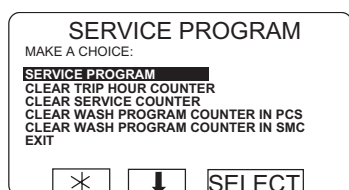
- emergency stop
- remote start
- oil lubrication
- temporary pause
- repeat rinse
- phase check
- door locked
- door closed
- imbalance

The following values will also be displayed at all times:

- water level in machine
- water temperature
- motor speed
- whether drain is open or closed



Press the button on the CPU circuit board.



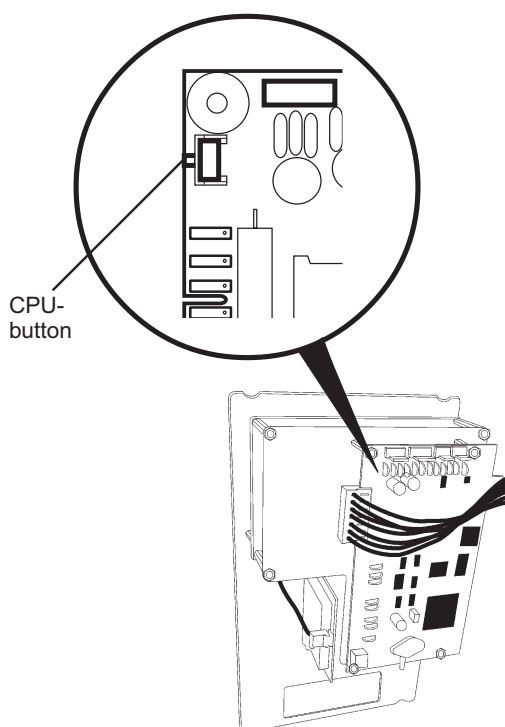
SELECT

To access the service program:

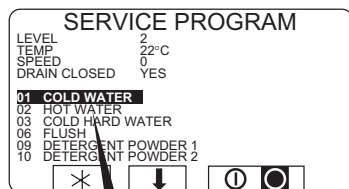
Press Select.

To prevent unauthorised or accidental use

Unauthorised or accidental use of the service program is prevented by requiring the user to locate and press the button on CPU board. The CPU board is located behind the control panel. Two screws must be undone to open the control panel.



The service program (next)



01 COLD WATER
 02 HOT WATER
 03 COLD HARD WATER
 04 TANK 1 WATER
 05 TANK 2 WATER
 06 FLUSH
 07 FLUSH COLD WATER
 08 FLUSH HOT WATER
 09 DETERGENT POWDER 1
 10 DETERGENT POWDER 2
 11 DETERGENT POWDER 3
 12 DETERGENT POWDER 4
 13 DETERGENT POWDER 5
 16 LIQUID DETERGENT 1
 17 LIQUID DETERGENT 2
 18 LIQUID DETERGENT 3
 19 LIQUID DETERGENT 4
 20 LIQUID DETERGENT 5
 21 LIQUID DETERGENT 6
 22 LIQUID DETERGENT 7
 23 LIQUID DETERGENT 8
 24 LIQUID DETERGENT 9
 25 LIQUID DETERGENT 10
 26 LIQUID DETERGENT 11
 27 LIQUID DETERGENT 12
 28 LIQUID DETERGENT 13
 32 MOTOR CLOCKWISE
 33 MOTOR COUNTERCLOCKWISE
 34 DISTRIBUTION
 35 LOW EXTRACT
 36 MEDIUM EXTRACT
 37 HIGH EXTRACT
 38 TURBO EXTRACT
 39 NORMAL DRAIN
 40 DRAIN BLOCKING
 41 RECYCLE DRAIN 1
 42 RECYCLE DRAIN 2
 43 RECYCLE DRAIN 3
 48 OIL (PULS)
 50 DOOR LOCK/AUTOMATIC LUBRIC.
 54 HEAT
 55 HEAT 2
 57 TILT INTERLOCK
 58 TILT BACKWARDS
 59 TILT NEUTRAL
 60 TILT FORWARDS
 63 BUZZER/FLASHLIGHT
 EXIT

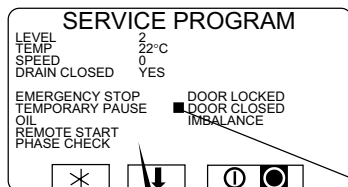
To activate the various machine functions:

Use ↓ or ↑ to highlight the function.

Press  to switch the function on and off.

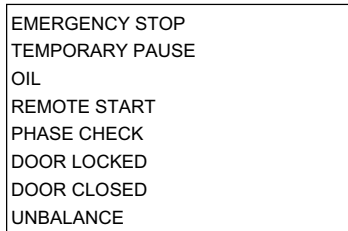
• Inputs from sensors and external controls

1 Press 1.



A black square in front of the name indicates that the input is active.

I/O-PCB 1

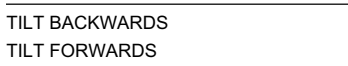


Press any key to go back to the previous display.

If the washer extractor has more than one I/O board, you can check the input signals of the other board(s) too:

2 Press 2 to inspect the inputs from I/O board 2.

I/O-PCB 2



Press any key to go back to the previous display.

3 Press 3 again to inspect the inputs from I/O board 3.

I/O-PCB 3



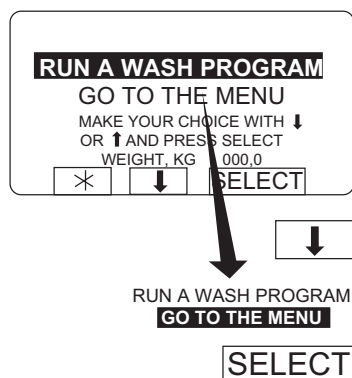
Press any key to go back to the previous display.

SETTING 1 and SETTING 2

"Settings 1" gives you access to a set of variables which you can change without needing to obtain a special password from the supplier. "Settings 2" contains variables which, if changed without sufficient care or knowledge on the part of the person changing them, could jeopardise the machine's safety system(s) or its reliability. For this reason, the variables in "Settings 2" are protected by a password system. Every time you access "Settings 2" you have to obtain a new password from the supplier.


SETTING 1

- To select the «SETTINGS 1» function



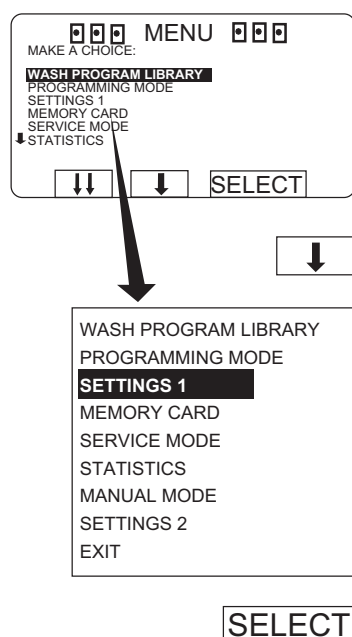
If this menu is not currently displayed:


Press  repeatedly.

Press  to highlight

"GO TO THE MENU"

Press SELECT.



Press  twice ...

... to highlight

«SETTINGS 1»

Press SELECT.



• Password: To open the function without a password

SETTINGS 1

ENTER NEW PASSWORD: 0

* * SELECT

SELECT

Press SELECT.

Password protection or not?

It is for you to decide whether or not the functions SETTINGS 1 and PROGRAMMING will be password-protected. Please note that if you do decide to implement password protection for either of them, then access to both these functions will be by means of the same password.

The password consists of any four digits, chosen by you.

At any time you can change this password, or remove password protection from these functions.

• Password: To enter a password the first time

SETTINGS 1

ENTER NEW PASSWORD: 0

* * SELECT

1 2 3
4 5 6
7 8 9
0

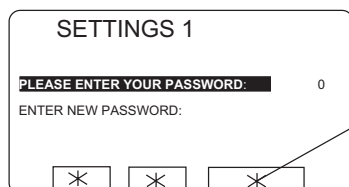
Enter a password
consisting of any four
digits.

SELECT

Press SELECT.

SETTING 1 (next)

• Password: To open the function using a password



If the function has already been password-protected, you will see an asterisk here instead of the word SELECT.




Use the numeric keys to enter your four-digit password.

SELECT

Once the correct password has been entered, the display will show ↓ and SELECT.

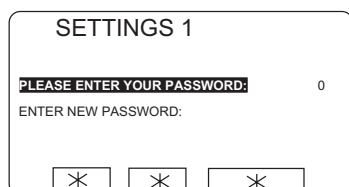
Press SELECT.

Three attempts only

If you enter the wrong password, you have only two more attempts left. If the third password entered is incorrect too, you will have to exit the "SETTINGS 1" function by pressing .

Each time you access "SETTINGS 1" you can have three attempts only at entering the correct password.

• Password: To change the password



Enter your four-digit password.



Once the correct password has been entered, the display will show ↓ and SELECT.



Press ↓



Enter the new four-digit password.

SELECT

Press SELECT.

• Password: To remove the password protection

SETTINGS 1

PLEASE ENTER YOUR PASSWORD: 0

ENTER NEW PASSWORD:

*

*

SELECT

Enter your four-digit password.

1 2 3

4 5 6

7 8 9

0

Once the correct password has been entered, the display will show ↓ and SELECT.



Press ↓

1 2 3

4 5 6

7 8 9

0

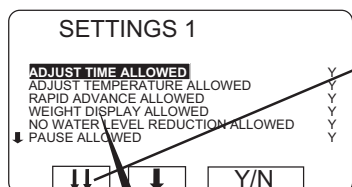
Enter four noughts (0000).

SELECT

Press SELECT.

SETTING 1 (next)

• Variables under «SETTINGS 1»



When the top line of a menu is highlighted you have the option of scrolling down through the menu faster by pressing ↓↓.

When you do, the next portion of the menu is displayed, with its last line highlighted.

ADJUST TIME ALLOWED	Y
ADJUST TEMPERATURE ALLOWED	Y
RAPID ADVANCE ALLOWED	Y
WEIGHT DISPLAY ALLOWED	Y
NO WATER LEVEL REDUCTION ALLOWED	Y
PAUSE ALLOWED	Y
MANUAL FUNCTIONS ALLOWED	Y
FREE TEXT ALLOWED	Y
CHANGE WASH PROGRAM ALLOWED	Y
AUTO RESTART ALLOWED	Y
ADJUST SPIN SPEED ALLOWED.	Y
DISPLAY REMAINING TIME	Y
DISPLAY ACTUAL TEMPERATURE	Y
DISPLAY ACTUAL SPEED	Y
MACHINE NOT HEATED	N
TEMPERATURE CONTROL OF WATER	Y
TEMPERATURE IN °C	Y
.....	
.....	

Different types of question

The questions in the various modules are of two different types, each of which needs to be answered in a different way:

Yes/No questions:

The function key display shows Y/N, which is a toggle function (the letter to the right of the highlighted question toggles between N and Y each time it is pressed).

Times, temperatures, water levels:

To answer these questions, use the numeric keys. The number of digits required will vary. If you make a mistake while entering digits, delete it by pressing ERASE one or more times.

No confirmation of value entered:

Once you have entered the right value, you simply move on to the next by pressing ↓. Il n'y a pas lieu d'appuyer sur une touche « enter » ou « return » pour confirmer chaque valeur.

To alter the value for a question you have already answered:

Press ↑ to highlight the question you want, then simply change the value.

.....

REPEAT PROG. MODE QUESTION	N
LOCKED STANDARD WASH PROGRAMS	N
LEVEL QUICK COOL-DOWN	175
LEVEL IMBALANCE	0
LEVEL LOW	135
LEVEL MEDIUM	150
LEVEL HIGH	175
MIDDEL TEMPERATURE COOL-DOWN	70° C
DEFAULT MOTOR ON TIME	0:12
DEFAULT MOTOR OFF TIME	0:03
FLUSH DELAY TIME	0:06
FLUSH ON TIME	0:10
BUZZER ON BUTTON	Y
MAX FILLING TIME	10:00
MAX HEATING TIME	10:00
TIME FOR WEIGHT DISPLAY	0:20
PCS INTERLOCK, HEATING	N
PCS INTERLOCK, EXTRACTION	Y
READY	

Y/N

Yes/No question

1 2 3
 4 5 6
 7 8 9
 0

Times, temperatures,
 levels



Press ↓ to move on to
 the next question.



You can go back and
 change a question you
 have answered already
 by pressing ↑ repeatedly.

Then simply change the
 value in the normal way.

Your changes can affect program operation

If you have answered any of the first nine variables in the menu with N (No), and later during program operation you attempt to activate one of these, a message equivalent to «FUNCTION NOT ALLOWED» will appear on the display.

You can then press any key to return to normal program operation.

Confirm changes before you exit Settings 1

If you have changed any of the variables, this change must be confirmed when you exit Settings 1.

To do this you have to use a strap to short-circuit two terminals on the CPU board, see section headed «To conclude making changes in variables under SETTINGS 1».

SETTING 1 (next)

Version logicielle	Version 2.0
Mot de passe	1234

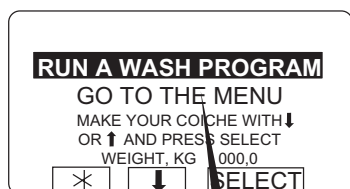
VARIABLES**VALUE BY DEFAULT**

ADJUST TIME ALLOWED	N
ADJUST TEMPERATURE ALLOWED	N
RAPID ADVANCE ALLOWED	0
WEIGHT DISPLAY ALLOWED	N
NO WATER LEVEL REDUCTION ALLOWEDY	N
PAUSE ALLOWED	0
MANUAL FUNCTIONS ALLOWED	0
FREE TEXT ALLOWED	0
CHANGE WASH PROGRAM ALLOWED	N
AUTO RESTART ALLOWED	N
ADJUST SPIN SPEED ALLOWED	0
DISPLAY REMAINING TIME	0
DISPLAY ACTUAL TEMPERATURE	0
DISPLAY ACTUAL SPEED	0
MACHINE NOT HEATED	N
TEMPERATURE CONTROL OF WATER	0
TEMPERATURE IN °C	0
REPEAT PROG. MODE QUESTION	N
LOCKED STANDARD WASH PROGRAMS	N
LEVEL QUICK COOL- DOWN	160
LEVEL IMBALANCE	140
LEVEL LOW	95
LEVEL MEDIUM	140
LEVEL HIGH	160
MIDDLE TEMPERATURE COOL-DOWN	70 °C
DEFAULT MOTOR ON TIME	12 s
DEFAULT MOTOR OFF TIME	4 s
RINSE DELAY TIME	6 s
RINSE ON TIME	10 s
BUZZER ON BUTTON	0
MAX FILLING TIME	10 mn
MAX HEATING TIME	6 mn
MAX TIME OF DRAIN AT THE BEGINNING	30 s
DRAIN TIME BEFORE DOOR OPENNING	30 s
TIME FOR WEIGHT DISPLAY	5 s
CMIS ADDRESSING MACHINE	0
READY	

For the definition of each variables, see the «**Service Manual Clarus Control**»
code - 4389050-01/02, page 23 to 38

SETTING 2

• To select the "SETTINGS 2" function



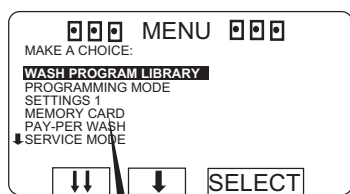
If this menu is not currently displayed:

Press repeatedly.

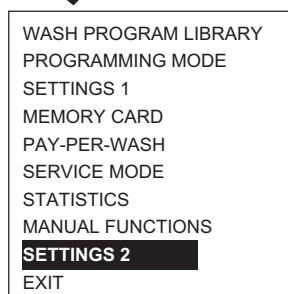
Press to highlight

«GO TO THE MENU».

Press SELECT.

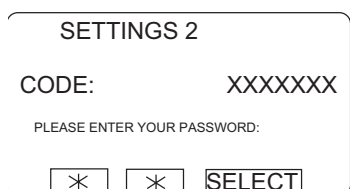


Press several times...



... to highlight
«SETTINGS 2»

Press SELECT.



Enter the four-digit code
supplied by the supplier.



Press SELECT.

Changes in "SETTINGS 2" must be approved by the supplier

The variables which you can change via "SETTINGS 2" belong to a category which, if they are changed carelessly or incorrectly, could jeopardise the machine's safety system(s) or its reliability.

For this reason SETTINGS 2 is protected by a code/ password system. Every time you access SETTINGS 2 you have to obtain a new password from the supplier.

The system works like this:

- When you open SETTINGS 2, you will see an eight-digit code. This code will be different each time you open SETTINGS 2.
- You need to tell the supplier, Sweden exactly what this code was. Using a special computer program, they will then ascertain the four-digit password which unlocks this code, and give it to you. This password will work only with the eight-digit code you have noted this time.
- Once you have entered the password, you have access to SETTINGS 2, and can change functions as required.

SETTING 2 (next)

• Variables in SETTING 2»

SETTINGS 2	
HEATING RELAY ON WHEN NOT HEATED	Y
TEMPERATURE INCREASE ALLOWED	Y
LEVEL EMPTY	90
LEVEL OVERFILL	200
PAUSE TEST LEVEL	0
PAUSE TEST TEMPERATURE	-18 °C
↓ ↓ ↓ Y/N	

When the top line of a menu is highlighted you have the option of scrolling down through the menu faster by pressing ↓ ↓ .

When you do, the next portion of the menu is displayed, with its last line highlighted.

HEATING RELAY ON WHEN NOT HEATED	
TEMPERATURE INCREASE ALLOWED	Y
LEVEL EMPTY	90
LEVEL OVERFILL	200
PAUSE TEST LEVEL	0
PAUSE TEST TEMPERATURE	-18 °C
DEFAULT TEMPERATURE HYSTERIS	4 °C
TEMPERATURE STEP IN COOL-DOWN	4 °C
DEFAULT LOW EXTRACT TIME	00:00
DEFAULT MEDIUM EXTRACT TIME	00:00
DEFAULT HIGH EXTRACT TIME	00:00
DEFAULT DRAIN TIME	00:00
DEFAULT DISTR. TIME	00:00
DO IMBALANCE MEASUREMENT	N
DRAIN OPEN DELAY	0:13
START EXTRACT TIME	00:30
ROLLOUT TIME	00:01
PAY PER WASH ALARM	0
SERVICE ALARM HOURS	0
MAX IMBALANCES	3
LOCK TEST DELAY	0:10
DRAIN TIME WHEN OVERFILL	0:05
DELAY HEATING RELAY 2	0:02
OIL LUBRICATION HOURS	100
PULSE TIME OIL LUBR. SEC	0:01
AMOUNT OF I/O MODULES (1-3)	1
BUZZER TIMEOUT AT END	0:20
BUZZER TIMEOUT IN PAUSE	0:10
DELAY CLEAR DOOR TEXT	04:00
MAX DRAIN TIME	4:00
TIMEOUT DURING PAUSE	0:00
MINIMUM TEMPERATURE INCREASE	5 °C
DOOR OPEN DELAY FOR MOTOR LOST	1:00

Different types of question

The questions in the various modules are of two different types, each of which needs to be answered in a different way:

Yes/No questions:

The function key display shows Y/N, which is a toggle function (the letter to the right of the highlighted question toggles between N and Y each time it is pressed).

Times, temperatures, water levels:

To answer these questions, use the numeric keys. The number of digits required will vary. If you make a mistake while entering digits, delete it by pressing ERASE one or more times.

No confirmation of value entered:

Once you have entered the right value, you simply move on to the next by pressing ↓. Il n'y a pas lieu d'appuyer sur une touche « enter » ou « return » pour confirmer chaque valeur.

To alter the value for a question you have already answered:

Press ↑ to highlight the question you want, then simply change the value.

.....
.....

ERROR, NO WATER	Y
ERROR, OPEN DOOR	Y
ERROR, DOOR LOCK	Y
ERROR, LOW TEMPERATURE	Y
ERROR HIGH TEMPERATURE	Y
ERROR, WATER IN MACHINE	Y
ERROR, OVER FILLED	Y
ERROR, NO HEAT	Y
ERROR, REMAINING WATER	Y
ERROR, IMBALANCE SWITCH	Y
ERROR, MOTOR COMMUNICATION	Y
ERROR, LEVEL ADJUST	Y
ERROR, EMERGENCY STOP	Y
ERROR, DOOR LOCK SWITCH	Y
ERROR, EWD INTERLOCK	Y
ERROR, I/O COMMUNICATION	Y
ERROR, LOW OIL LEVEL	Y
ERROR, LOW OR HIGH VOLTAGE	Y
ERROR, ERROR CODES FROM MOTOR	Y
ERROR, PRESS. SENSOR TILT	Y
ERROR, PRESS. SENSOR TIMEOUT	Y
ERROR, DOOR SWITCH TILT	Y
TIME DELAY BEFORE DOOR OPENING	0:30
UPPER TEMPERATURE FOR ERROR	98°C
LOWER TEMPERATURE FOR ERROR	-9 °C
MAX ADJUST TEMPERATURE	97 °C
MAXIMUM EXTRACT SPEED	1200
DEFAULT WASH SPEED	48
DISTRIBUTION SPEED	90
DEFAULT LOW EXTRACT RPM	550
DEFAULT MEDIUM EXTRACT RPM	700
DEFAULT HIGH EXTRACT RPM	900
START EXTRACT SPEED	1000
DEFAULT WASH ACCELERATION	20
DISTRIBUTION ACCELERATION	9
EXTRACT ACCELERATION	40
START EXTRACT ACCELERATION	40
EXTRACT RETARDATION	50
MAX SPEED DURING FILLING	100
READY	

**Confirm changes before you exit
Settings 2**

If you have changed any of the variables, this change must be confirmed when you exit Settings 2.

To do this you have to use a strap to short-circuit two terminals on the CPU board, see section headed «To conclude making changes in variables under SETTINGS 2».

SETTING 2 (next)

Soft version	Version 2.0
Password 1-2-3-4	1234

VARIABLES**DEFAULT VALUES**

HEATING RELAY ON WHEN NOT HEATED	0
TEMPERATURE INCREASE ALLOWED	N
LEVEL EMPTY	70
LEVEL OVERFILL	200
PAUSE TEST LEVEL	0
PAUSE TEST TEMPERATURE	0
DEFAULT TEMPERATURE HYSTERESIS	4
TEMPERATURE STEP IN COOL DOWN	4
DEFAULT LOW EXTRACT. TIME	0
DEFAULT MEDIUM EXTRACT. TIME	0
DEFAULT HIGH EXTRACT. TIME	0
DEFAULT DRAIN TIME	0
DEFAULT DISTRIBUTION TIME	60 s
DRAIN OPEN DELAY	0
START EXTRACT. TIME	30
ROLLOUT TIME (DELAY AFTER EXTRACTION)	0
PAY PER WASH ALARM	0
SERVICE ALARM HOURS	0
MAX UNBALANCE	3
DRAIN TIME WHEN OVERFILL	5 s
DELAY HEATING RELAY 2	00:02:00
OIL LUBRIFICATION HOURS (HOURS)	0
PULSE TIME OIL LUBRIFICATION (SEC.)	00:02:00
AMOUNT OF I/O MODULES (1-3)	1
BUZZER TIMEOUT AT END	20 s
BUZZER TIMEOUT IN PAUSE	10 s
MAX DRAIN TIME	4 mn
TIMEOUT DURING PAUSE	10 mn
MINIMUM TEMPERATURE INCREASE	1
ERROR, NO WATER	0
ERROR, OPEN DOOR	0
ERROR, LOW TEMPERATURE	0
ERROR, HIGH TEMPERATURE	0
ERROR, WATER IN MACHINE	0
ERROR, OVER FILLED	N
ERROR, NO HEAT	0
ERROR, REMAINING WATER	0
ERROR, UNBALANCE SWITCH	0
ERROR, MOTOR COMMUNICATION	0
ERROR, LEVEL ADJUST	0

VARIABLES	DEFAULT VALUES
ERROR, EMERGENCY STOP	0
ERROR, MIS NOT ALLOWED TO START	0
ERROR, MIS COMMUNICATION	0
ERROR, TACHO	0
ERROR, IO COMMUNICATION	0
ERROR, LOW OIL LEVEL	0
ERROR, PHASE	0
ERROR, ERROR CODES FROM MOTOR	0
ERROR, PRESSURE SENSOR TILT	0
ERROR, PRESSURE SENSOR TIMEOUT	0
ERROR, DOOR SWITCH TILT	0
ERROR, NO LEVEL	N
TIME DELAY BEFORE DOOR OPENING	30 s
UPPER TEMPERATURE FOR ERROR	98 °C
LOWER TEMPERATURE FOR ERROR	1 °C
MAX ADJUST TEMPERATURE	95 °C
MAX EXTRACT SPEED	910
POSITIONING SPEED	10
DEFAULT WASH SPEED	45
DISTRIBUTION SPEED	80
DEFAULT LOW EXTRACT. SPEED	425
DEFAULT MEDIUM EXTRACT. SPEED	625
DEFAULT HIGH EXTRACT SPEED	710
START EXTRACT. SPEED	710
DEFAULT WASH ACCELERATION	22
DISTRIBUTION ACCELERATION	5
EXTRACT. ACCELERATION	6
START EXTRACT. ACCELERATION	6
EXTRACT. RETARDATION	30
MAX SPEED DURING FILLING	100
DOOR OPENING TIME	0.5
MAX LEVEL OFFSET FOR OUT OF CALIBRATION	6
TIME BETWEEN LEVEL CHECK	28
DELAY MOTOR STOP FOR LEVEL CHECK	4
BARRIER MACHINE	0

For the definition of each variables, see the «Service Manual Clarus Control»
code - 4389050-01/02, page 41 to 65

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24. CLARUS CONTROL: CMM SOFTWARE

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24. CLARUS CONTROL: CMM SOFTWARE

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Foreword

CLARUS Maintenance Manager (CMM) is a PC-based tool for servicing and troubleshooting washer extractors equipped with CLARUS CONTROL. CMM gives you full control of all the CLARUS CONTROL service and fault-finding functions.

CMM version 1.0 is fully compatible from version 3.x and later in CLARUS CONTROL software.

CMM version 1.1 has got some new functions that are partly compatible with version 3.1x but fully compatible from version 3.2x and later in CLARUS CONTROL software.

CMM replaces earlier DOS software, CLS Down and CLS Service.

CLS Down and CLS Service are still recommended for version 2.x of CLARUS CONTROL software.

For latest information see LASTINFO.TXT in CMM

Functions

CMM has the following functions:

- Downloading new software (to a washer extractor)
- Configuring I/O boards
- Display testing
- System data
- Change / Read Password to settings 1
- Checking inputs and outputs
- EEPROM testing
- Displaying weight
- Calibrating load cells
- Statistics

System requirements

For best possible performance when using CMM, check that your computer meets the following minimum requirements:

- IBM-compatible PC, 486/66 MHz, 16 MB RAM and at least 3 MB of space available on the hard disk. One free serial port (RS232) for communication with CLARUS CONTROL. Windows NT/Windows 95 or compatible operating system.
- SVGA monitor and video adapter set for at least 256 colours, at least 800x600 pixels and 'small fonts'.
- A serial cable, EW Part No. 471 7468-03, for the interface between the PC and the CLARUS CONTROL system.

Note !! Read, for last-minute information, the content of the file LASTINFO.TXT in the directory you chose for installing the program files.



On laptop computers with no diskette drive connected, a Windows time-out will delay start-up of the CMM program because CMM will be trying to locate a diskette drive which isn't there.

Using Windows 95 the time-out will last approx. 20 seconds, with Windows NT4 it will be about 60 seconds.



Necessary tools:

- 1 PC Laptop:
 - with 9-pin male serial port.
 - with Windows 2000 or XP.
- 1 serial cable code - 471 7468-02 to set and make revision of the machine.
- 1 serial cable code - 471 7468-03 to upgrade the CLARUS CONTROL software.

Installation

To install the CMM software:

- 1 Insert the diskette into drive A.
- 2 Select 'Run' from the Windows Start menu and follow the instructions on the screen.
- 3 Click on the CMM icon from the Windows Start menu or click on the short-cut:



Description

(Fig.1)

When you start the program, you will first come to a Welcome menu, then a System Requirements screen.

To access the Main Menu click on:



(Fig.2)

The Main Menu has options leading to three sub menus:

- Downloading Software (upgrade of CLARUS CONTROL software).
- Service (access to the different functions of the machine).
- System Setup (Setting of communication).

Fig.1

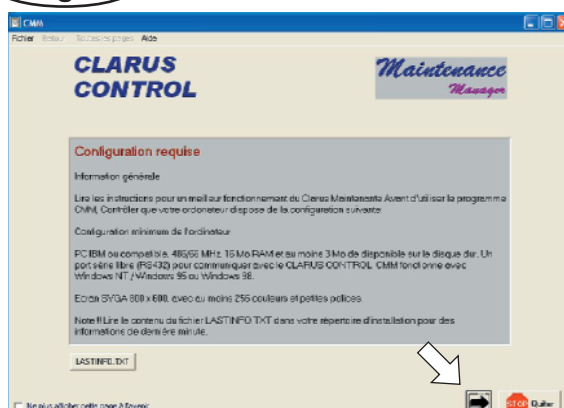



Fig.2



System setup

Before you can start using the program you need to set the COM port you are using for the interface

- 1 Launch the CMM and in the 'Main Menu' select 'System Setup': 

(Fig.3)


In the middle of the screen there will be a field which describes which port is selected.

(Fig.3)

The default is COM port 1.

- 2 Under the field, a message is displayed according to the selection of the COM port. If this message shows that the selected COM port is not available, then use the cursor keys to select a other COM port.

(Fig.4)

- 3 Once the setting is completed, click on  to come back on 'Main Menu'.

Two different serial cable are used to connect the Laptop to the CLARUS CONTROL.

The first cable 471 7468-02 is used to set and make revision of the machine and the second cable 471 7468-03 to load program (to upgrade the CLARUS CONTROL software).

- (Fig.5) The cable 471 7468-03 can be also used for others application when the CMM is used. One of these extremity must be connected on the X7 connector of the CPU card.

Note that the CLARUS CONTROL must be on the main screen before to be connected to the PC. When the communication between the PC and the CLARUS CONTROL is activated, the 'SERVICE PROGRAM' page is displayed on the screen.

Fig.3

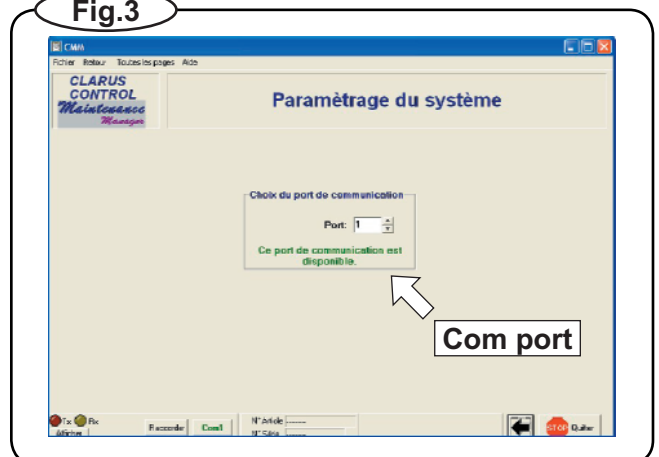


Fig.4

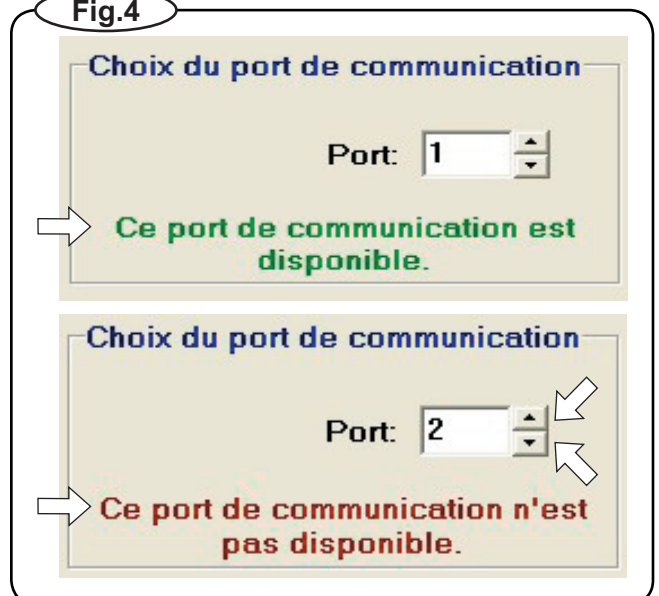
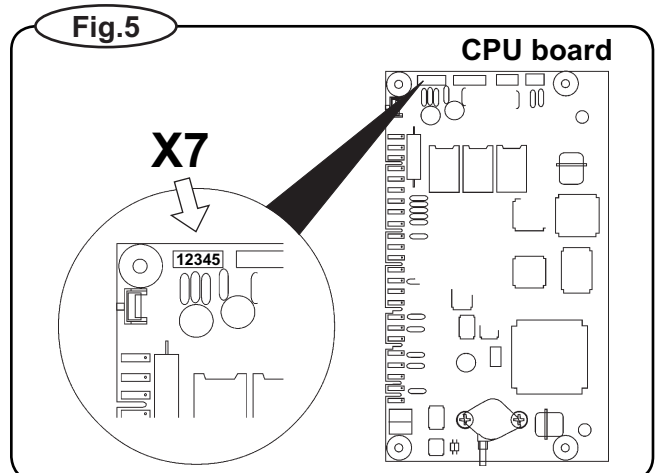


Fig.5



Loading of the software

Before all loading, check that you have the floppy disk or the CD-ROM with the file to load.

- 1 Switch off the machine.
- 2 Connect the cable code 471 7468-03 (upgrade cable) between the X7 connector and the COM port of the Laptop.

- 3 In the 'Main Menu', click on

(Fig.2)

'Downloading Software'



- 4 Click on 'Browse' to select the file to load, or enter manually the name of the file.

(Fig.6)

Once CMM has located the required file, the 'Proceed' button will be activated.

- 5 Click on 'Proceed' to start the loading.

(Fig.6)

You will see another reminder that the CLARUS CONTROL system needs to have been started and that interface cable 471 7468-03 needs to be connected to X7.

- 6 Now switch on the power supply to the washer extractor. The display on the machine should light but be completely blank.

- 7 Confirm the download by clicking on OK.

First in the software download process, all the files are copied to the hard disk. Next the files are prepared for downloading and then the actual software download to the CLARUS CONTROL system takes place.

(Fig.7)

During the download the red (TX) and yellow (RX) LEDs indicating CMM communication will flash alternately

Fig.6

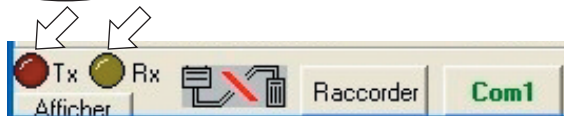


ATTENTION



It is important to ensure that the *.txt file is in the same directory as other program files you want to download to the CLARUS CONTROL.

Fig.7



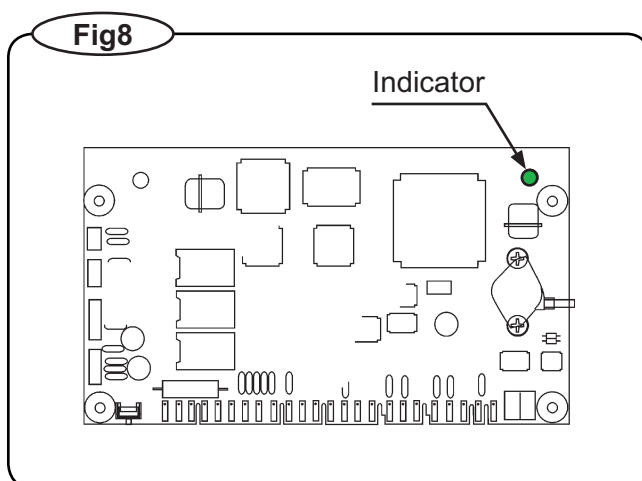
(Fig.8)


At the same time the green LED on the CLARUS CONTROL CPU circuit board will flash at a faster rate to show that downloading is in progress.

When the downloading is completed successfully, a confirmed message shows on the screen.

On the other hand if the downloading is not successful, start the downloading procedure again from the beginning.

The washer extractor has to be restarted before the change can take effect.



- 8 Switch off the machine.
- 9 Disconnect the cable connected to X7 (CPU board).
- 10 Switch on the machine.
- 11 Once the downloading is completed, click on  to come back on 'Main Menu'.

Service-Menu

When this function 'Service-Menu' is used, it is necessary to connect the PC to the CLARUS CONTROL.

If the cable code 471 7468-03 is used again, the cable must not be connected to X7 when the power supply to the washer extractor is switched on, because this would cause the CLARUS CONTROL system to switch to the mode where it awaits a software download. Switch on the power supply to the machine and then connect the cable to connector X7.

If the cable code 471 7468-02 is used, this is also to be connected to X7, but it can also be connected before the power supply to the machine is switched on.

Activate the 'Service-Menu' by clicking on

the button



from the 'Main Menu'.

(Fig.10)

The PC will start communicating with the program control system, and will retrieve the 'article number' of the software and the serial number of the program control system.

(Fig.11)

Le 'Service-Menu' groups several functions,

- Check inputs and outputs,
- Set I/O Board Address,
- EEPROM test,
- Display test,
- Display weight,
- Calibrate load cells,
- System Data,
- Password Settings 1,
- Statistics,

which are described in more detail later in this manual.

At the bottom there is a menu line which shows the comes status.

Fig.10

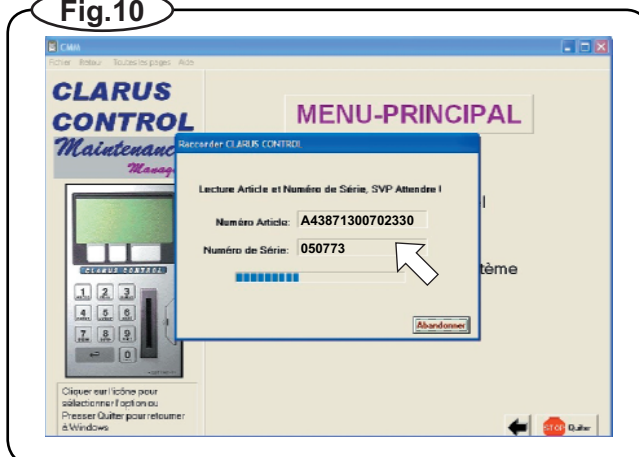


Fig.11



Check inputs and outputs

(Fig.12) This menu shows all the service functions available on a washer extractor which has the full complement of three I/O boards. On machines with fewer than three, the functions are shown, but on inputs/outputs will be activated.

For detailed information on which inputs/outputs are used on the various I/O boards, see the CLARUS CONTROL manual.

Access 'Check inputs and outputs' in the 'Service Menu' by clicking on the following



Inputs

(Fig.13) For all inputs, an active input is indicated by a green LED, while an inactive input is grey.

Water level

(Fig.13) This window shows the current water level, U stands for 'scale units'.

Temperature

(Fig.13) The current temperature is shown. The °C/°F button lets you choose either Celsius or Fahrenheit as the display unit.

Motor

(Fig.13) The motor status indicator will be green when the motor is rotating. The indicator will go out when the motor is at a standstill.

Unbalance

(Fig.13) The imbalance indicator will be green when the imbalance input is activated. This indicator will not normally be lit.

Fig.12

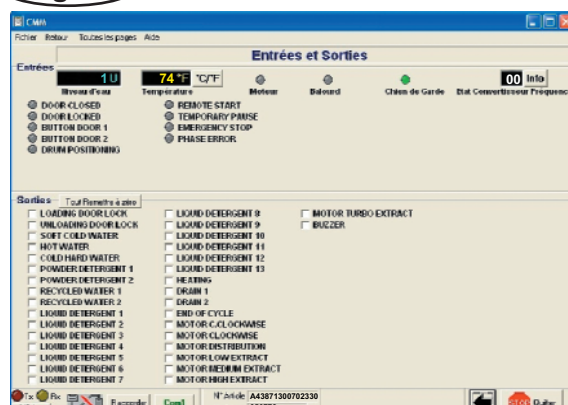
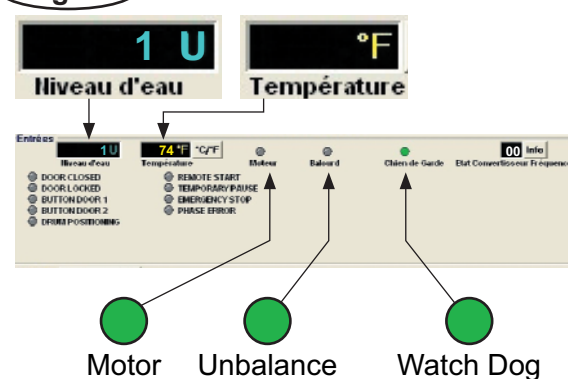


Fig.13



Watch dog

(Fig.13)

The watchdog is an internal safety function in the program control system which prevents incorrect program execution with incorrect function.

The watchdog indicator should be active at all times (LED lit). If the watchdog indicator is inactive, the CPU board will need to be replaced.

Status frequency converter

(Fig.14)

The Frequency Converter Status display is continually updated with information about the status of the motor control unit. This display supplements the information revealed by the MCU error indication LED.

(Fig.15)

If you click on the Info button you can read status information in plain text.

Other Inputs

For detailed information on inputs/ outputs which are used on the various I/O boards, see the CLARUS CONTROL manual.

(Fig.17)

Outputs

Outputs are activated one by one, by clicking on the required box. The program has a built-in limit for activating motor rotation – it will not allow you to activate more than one box for motor rotation at a time, to prevent potential hazards.

The others functions are not concerned. In theory all functions can be activated simultaneously, but in order to avoid overload tension on electronic components, only five relays by I/O card must be activated at the same time.

Note that before to activate all signals of the I/O card, the doors of the machine must be closed an locked.

Fig.14



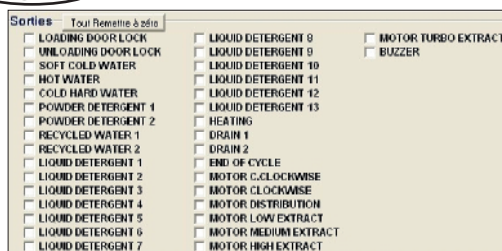
Fig.15



Fig.16



Fig.17



Set I/O board address

All I/O boards have to be configured and allocated an address. If a replacement I/O board is fitted, the correct address will have to be set for the new board before it can be used

(Fig.18) This function 'Set I/O Board Address' allow to allocate the correct address to the new board.

- ① Switch off the machine.
- ② Replace the faulty I/O board.
- ③ Switch on the machine.
- ④ Connect the cable 471 7468-02 between the X7 connector and the laptop.
- ⑤ Start the CMM program and access 'Set I/O Board Address' in the 'Service Menu' by

clicking on the following button:



- ⑥ Specify the address of the I/O board you wish to configure by clicking on the relevant function key.
- ⑦ To complete configuration of the I/O board you have to press the service button on the relevant board.

The procedure will now be completed, and this is confirmed by a message.

Fig.18

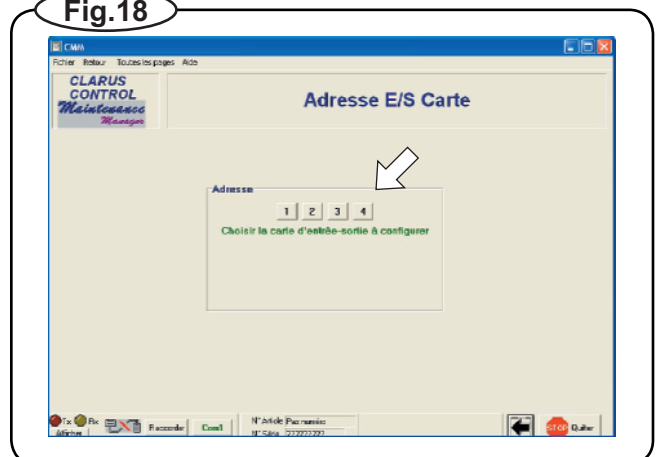
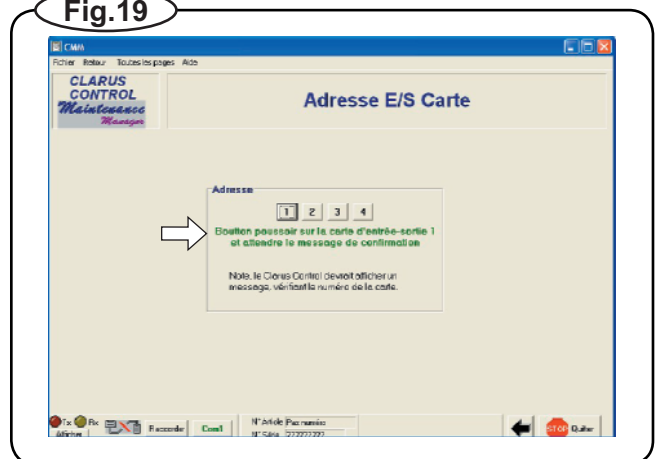


Fig.19



EEPROM test

(Fig.22) This function allow to test and reset (factory setting) the EEPROM of CLARUS CONTROL .

Access 'EEPROM test' in the 'Service Menu' by clicking on the following button:



Note, however, that testing the EEPROM in this way will cause certain information to be lost, because the EEPROM will be reset to its factory default settings.

If you do not wish to lose information of this

type, cancel by clicking on



To start the test, click on

Départ

This EEPROM test will always reset the following parameters:

- Operating time. Total hours and 'trip counter'.
- The last five error codes.
- Password(s) for programming and Settings 1.
- Time recorded so far towards next service call. (Applies to the memory cell used to record time elapsed towards next service call, interval as set in Settings'. If this is reset, the time recorded will be lost and the counter will start again).
- Time recorded so far towards next oil lubrication. (Applies to the memory cell used to record time elapsed towards the next lubrication, interval as set in 'Settings'. If this is reset, the time recorded will be lost and the counter will start again).
- Counter for total number of errors flagged.
- Counter for total number of imbalance stops.
- Mode setting for MIS (communication active).

When the test is finished, the result will be confirmed.

To exit, click on



Fig.20



Display test

(Fig.21) This function allow to control the state of the display, by activating '0' on all lines of the display, to reveal if any pixels or lines of pixels are absent

Access 'Display test' in the 'Service Menu'

by clicking on the following button:



To start the test, click on

Départ

and to exit, click on



Display weight

(Fig.22) This function allow to show the actual weight of machines equipped with weight sensors.

Access 'Display weight' in the 'Service Menu'

by clicking on the following button:



To exit, click on



Calibrate load cells

(Fig.23) This function allow, on machines with weight sensor, to calibrate the weighing system.

To calibrate the system, follow the instructions on the screen after to click on

the following button



in the 'Service Menu'.

All panels need to be put back onto the machine before you start calibration, so its total weight is correct.

For detailed information on how the load cells function, refer to the CLARUS CONTROL manual.

To exit, click on:



Fig.21

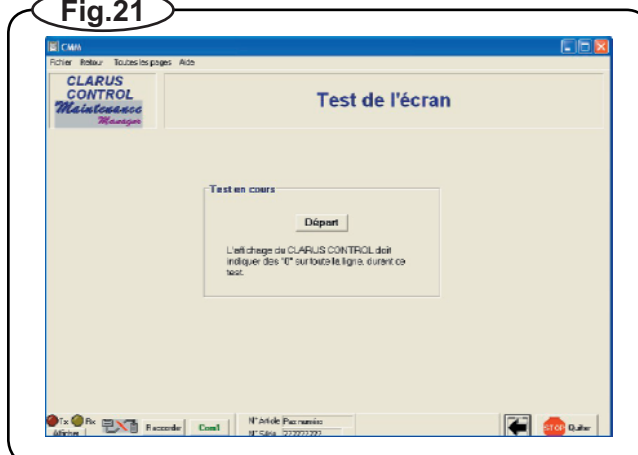


Fig.22

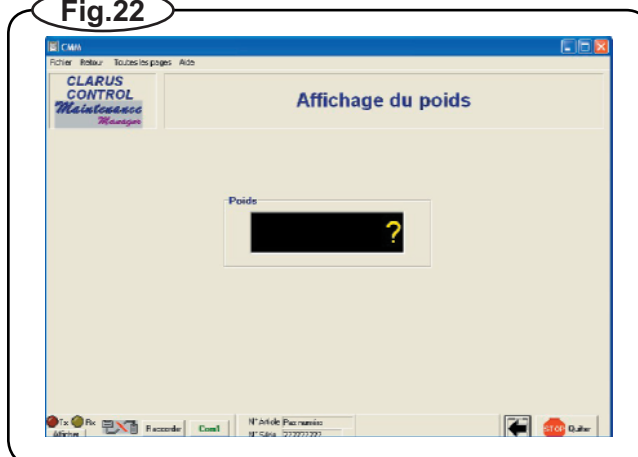
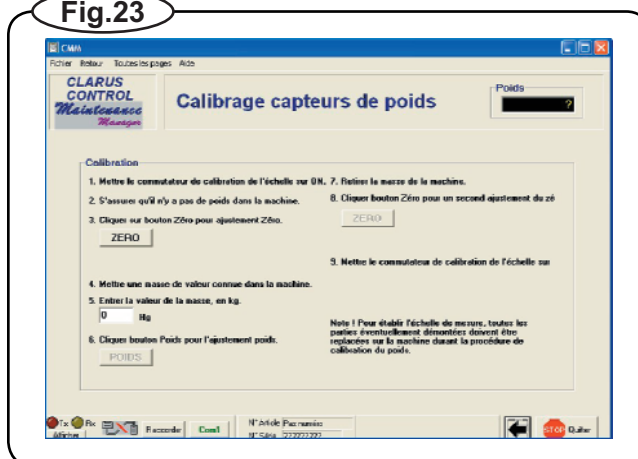


Fig.23



Data system

(Fig.24) This function 'System Data' allow to import/export system data in Clarus Control.

This function requires version 3.x or later in CLARUS CONTROL software.

This function is mainly used for back up of existing SYS-data in the washer extractor but could also be used to transport an existing configuration from one washer extractor to another.

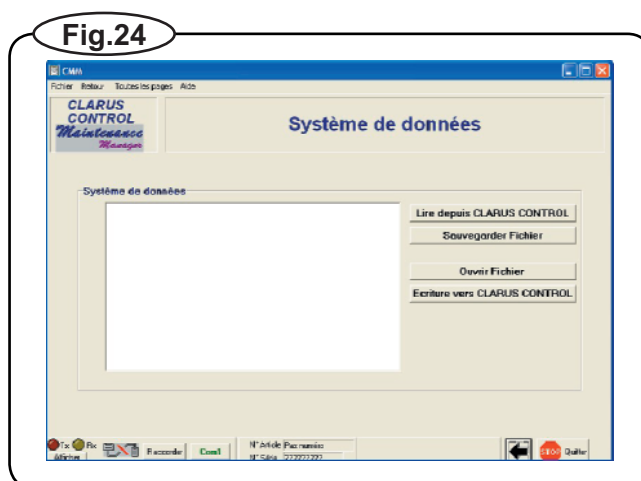
ATTENTION: that it is not allowed to move information between washer extractors with different versions in CLARUS CONTROL software. This will cause malfunction or loss of data in the machine.

Access 'Display test' in the 'Service Menu'

by clicking on the following button:



To exit, click on



Password settings 1

(Fig.25) This function allow to read and/or to change an existing password in CLARUS CONTROL.

This function requires version 3.x or later in CLARUS CONTROL software.

When the menu is activated by clicking on



existing password in CLARUS CONTROL is read into the menu.

To change the password the new password is typed into CMM and by pressing the button SET it is transferred to CLARUS CONTROL.

'0000' removes the password.

To exit, click on



Statistics

The function is divided in three party:

- Run times
- Statistics
- Last 5 error codes

Please note that all statistics will be cleared during an EEPROM-test.

Access 'Statistics' in the 'Service Menu'

by clicking on the following button:



To exit, click on



Run times:

(Fig.28)

This function makes it possible to make a back up copy of the run times, which could be useful in case of replacing the CPU-board or before executing an EEPROM-test on the washer extractor. The run times could be saved to a floppy disk and then restored to the washer extractor again later.

This function requires version 3.1x or later in CLARUS CONTROL software.

Statistics:

(Fig.29)

This function makes it possible to read out some statistics from CLARUS CONTROL which could be a help while diagnosing the washer extractor.

- Hour since last service
- Hour between oil pulses
- Total number of errors
- Total number of unbalances

All functions require version 3.1x or later in CLARUS CONTROL software.

Hour between oil pulses requires version 3.2x or later in CLARUS CONTROL.

Fig.28



Fig.29



(Fig.30)

Last 5 error codes:

It is possible to view the last five error codes in CLARUS CONTROL together with the program that has been running and when the error has occurred.

This function requires version 3.1x or later in CLARUS CONTROL software.

To exit, click on:



Fig.30

Cinq derniers codes d'erreur			
	Code erreur	Programme	Heures
Dernière erreur:			
Erreur 2:			
Erreur 3:			
Erreur 4:			
Erreur 5:			

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25. CLARUS CONTROL: KEB

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Stage 5: Set the speed of communication of the converter on 2400 Bauds	12
Stage 6: Lock the converter	13
Diagnostic of KEB converter / Historic of defaults	17

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Process of loading a program in the converter KEB F4

The different stages to follow in order to make a transfer of program from a PC to the KEB converter:

Stage 1: Unlock the converter

Stage 2: Set the communication speed of converter at 9600 Bauds

Stage 3: Save the program of the converter in the PC

Stage 4: Load the new program of the PC to the converter

Stage 5: Set the communication speed of the converter at 2400 Bauds

Stage 6: Lock the converter

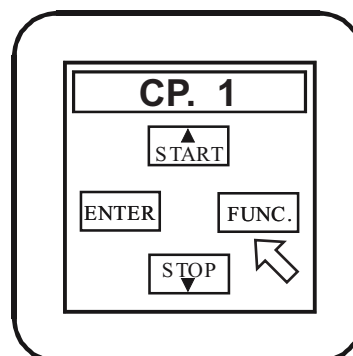
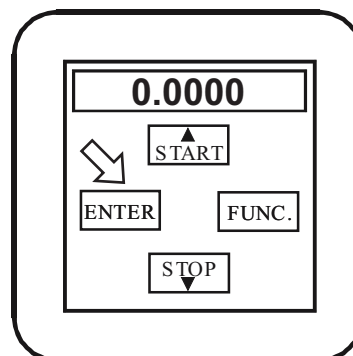
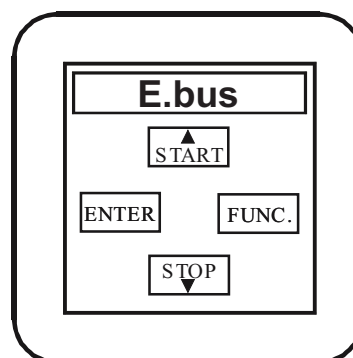
- Required material:
- 1 connecting wire for KEB converter
 - 1 Interface box
 - 1 KEB Combivis programming software

Stage 1: Unlock the converter

- Plug KEB wire in your PC and the converter.
Switch on the converter.

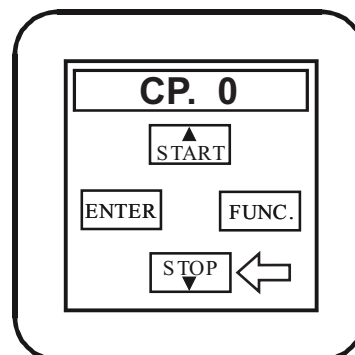
- Push on « ENTER ».

- Push on « FUNC ».

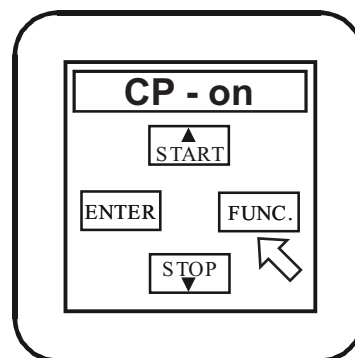


D0851

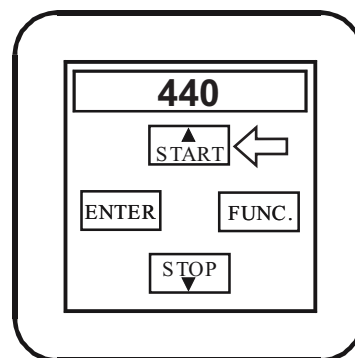
- Push on « STOP ».



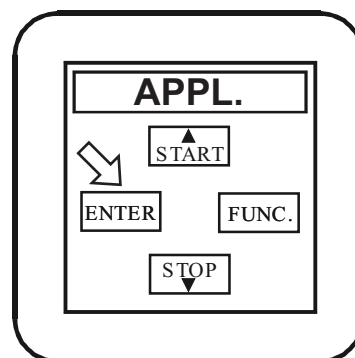
- Push on « FUNC ».



- Push on « START » to have the counter increase to 440.

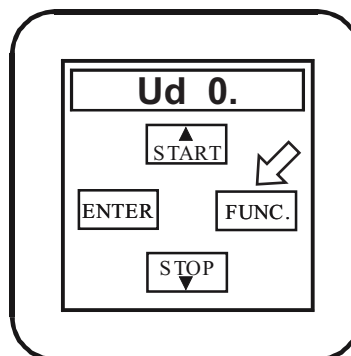


- Push on « ENTER ».

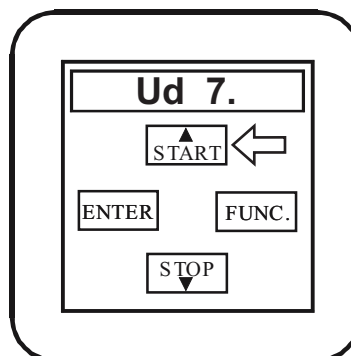


Stage 2:**Set the speed of communication of the converter on 9600Bauds**

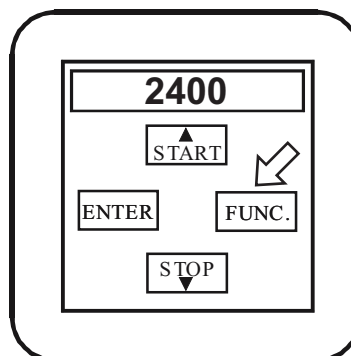
- Push on « FUNC ».



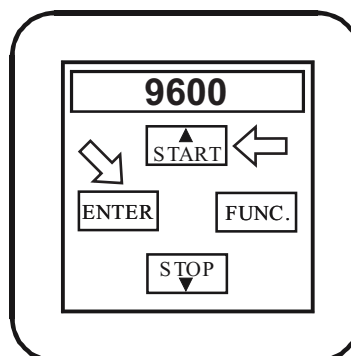
- Push on « START » to reach Ud 7.



- Push on « FUNC ».



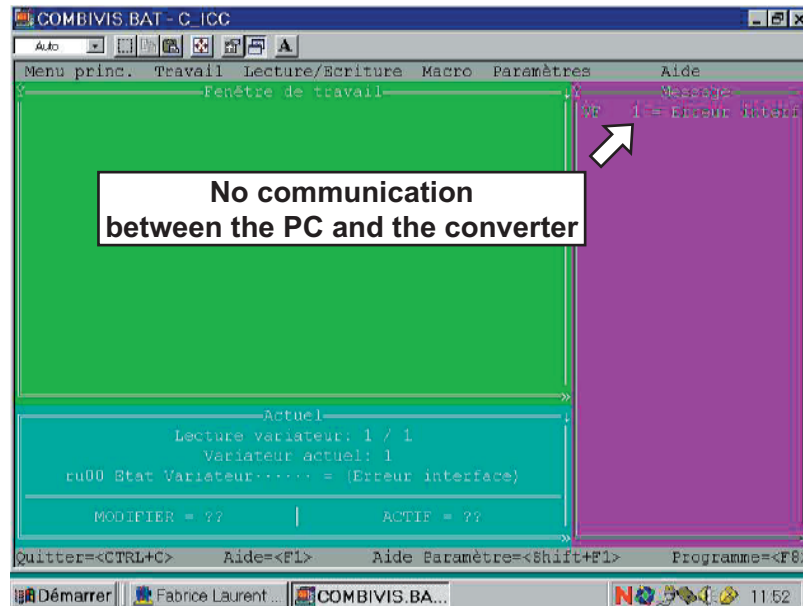
- Push on « START » to increase to 9600 Bauds and push on « ENTER » to valid.



Stage 3:

Sauve le programme de la converter on the PC

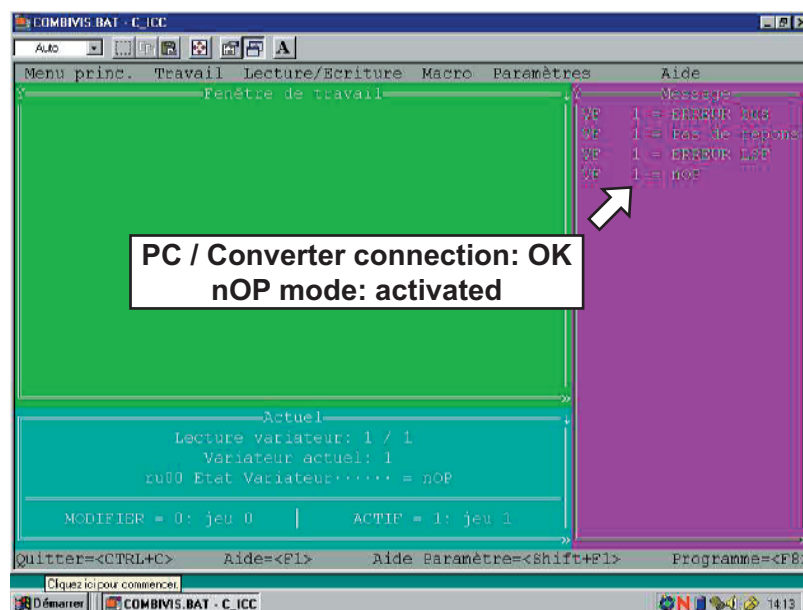
- Launch Combivis program.



KEB03

The converter is not communicating with your PC.

- Switch off converter and wait for the pocket screen becoming blank. Then switch on.

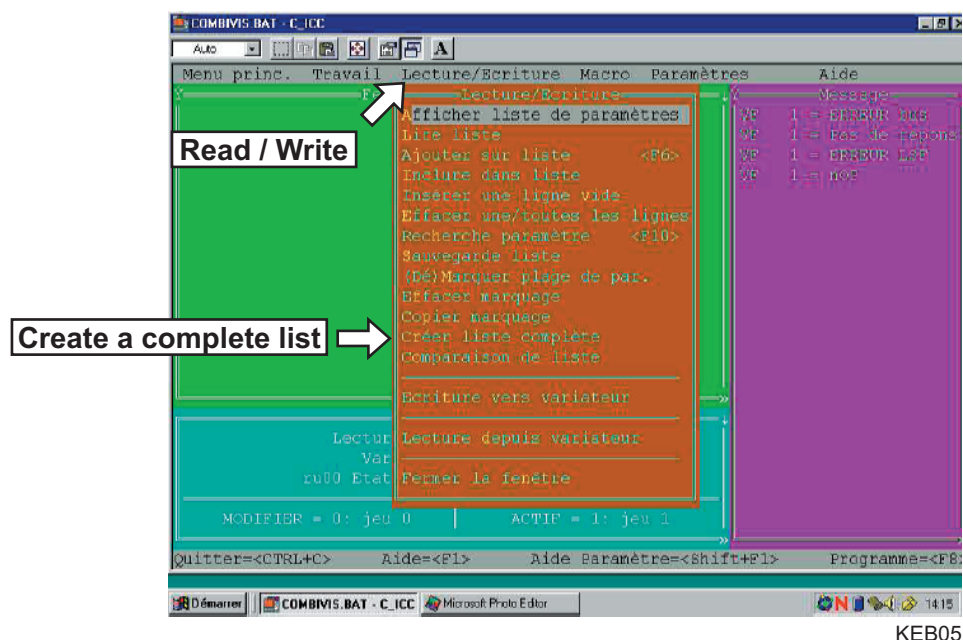


KEB04

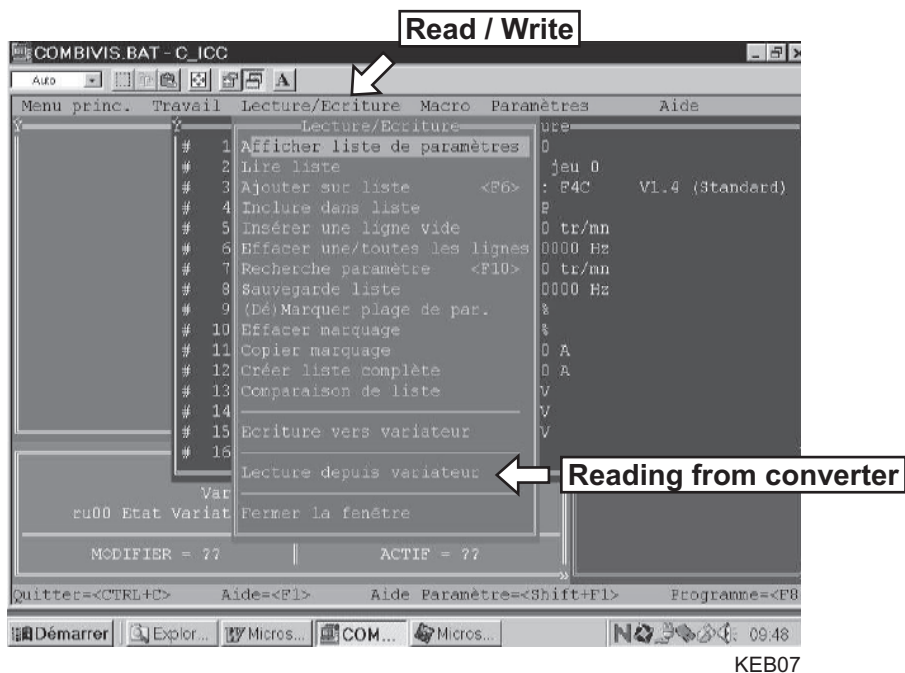
The PC is on nOP mode and the pocket also displays noP.

Stage 3: (next)

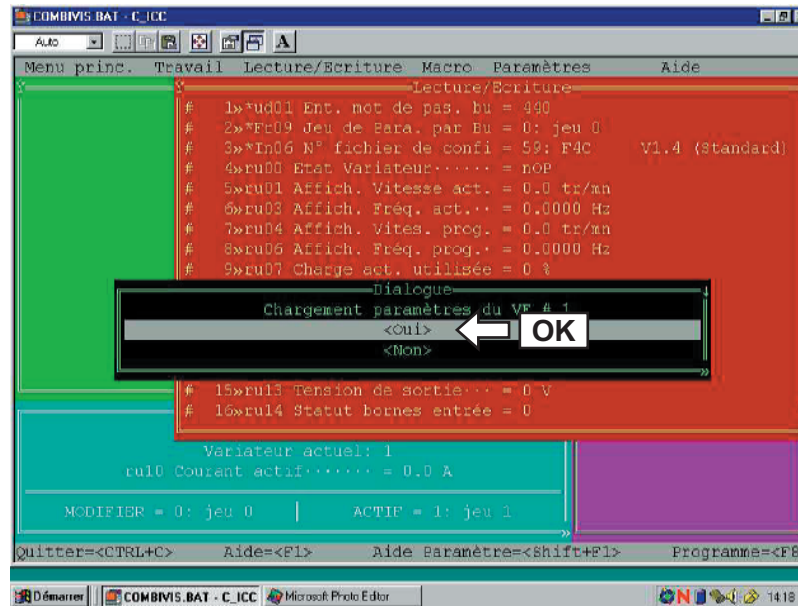
- Click on « Read / Write » then on « Create a complete list ».



- Click on « Read / Write » then on « Reading from converter ».

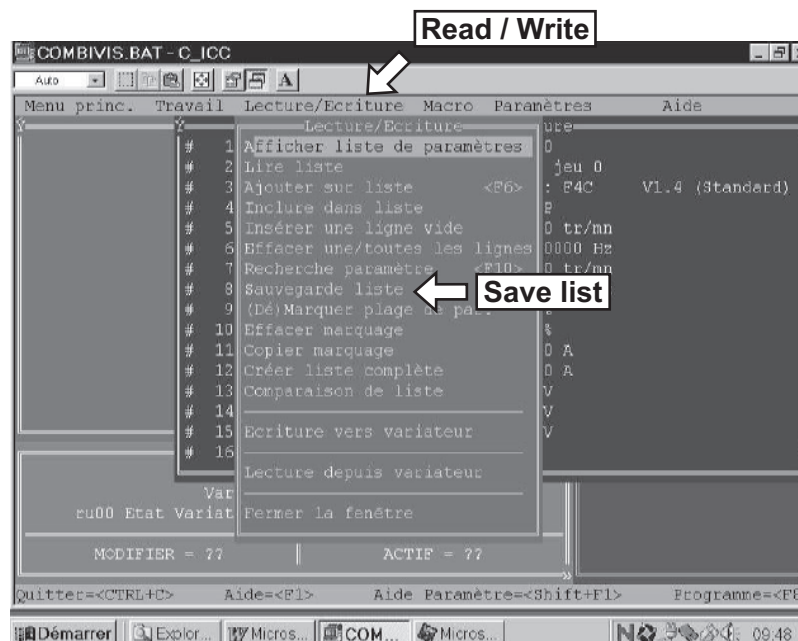


- Click on « OK » to load the program of the converter into the PC.



KEB06

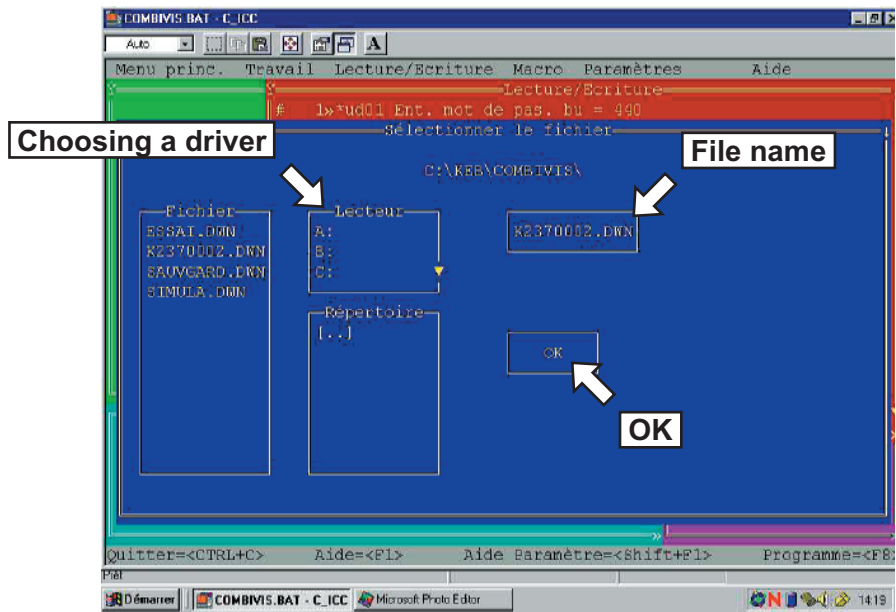
- Click on « Read / Write » then on « Save list » to save the program into the PC.



KEB07

Stage 3: (next)

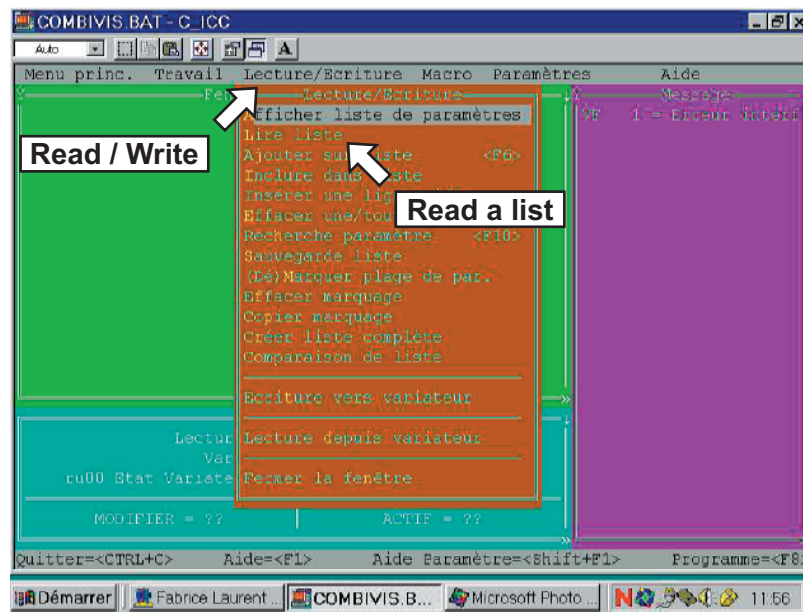
- Choose a driver where the saving will be store «Choosing a driver », give a file name « File name » and click on « OK » to validate.



KEB08

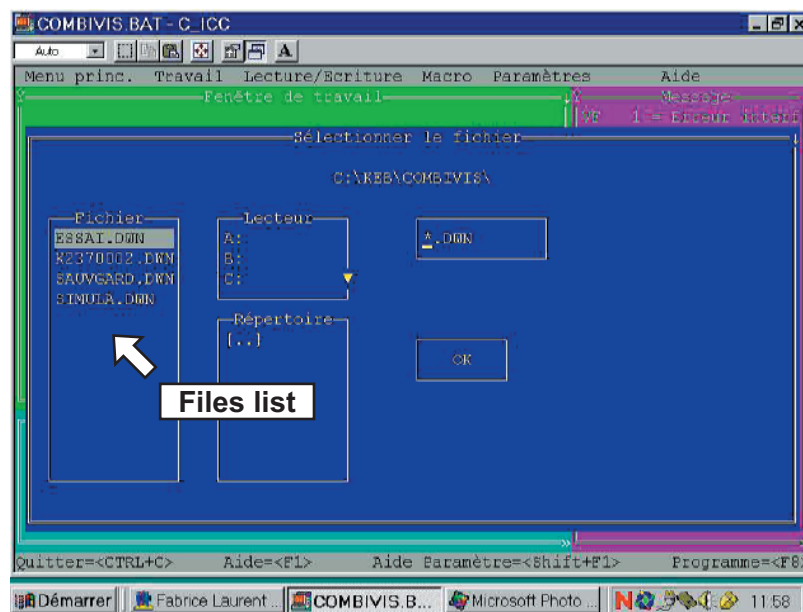
Stage 4:**Load the new program of the PC to the converter**

- Click on « Read / Write » then on « Read a list » to open the new program.



KEB09

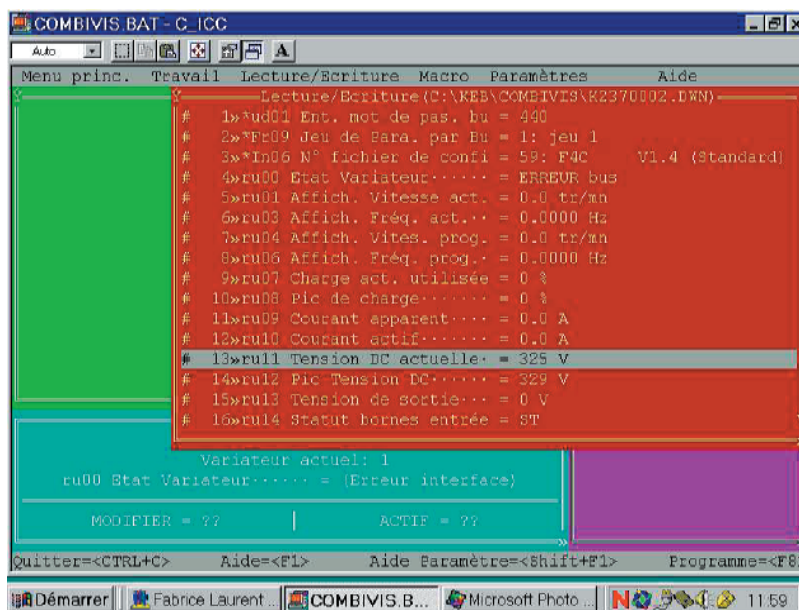
- Click twice on the name of the new programme at the files list.



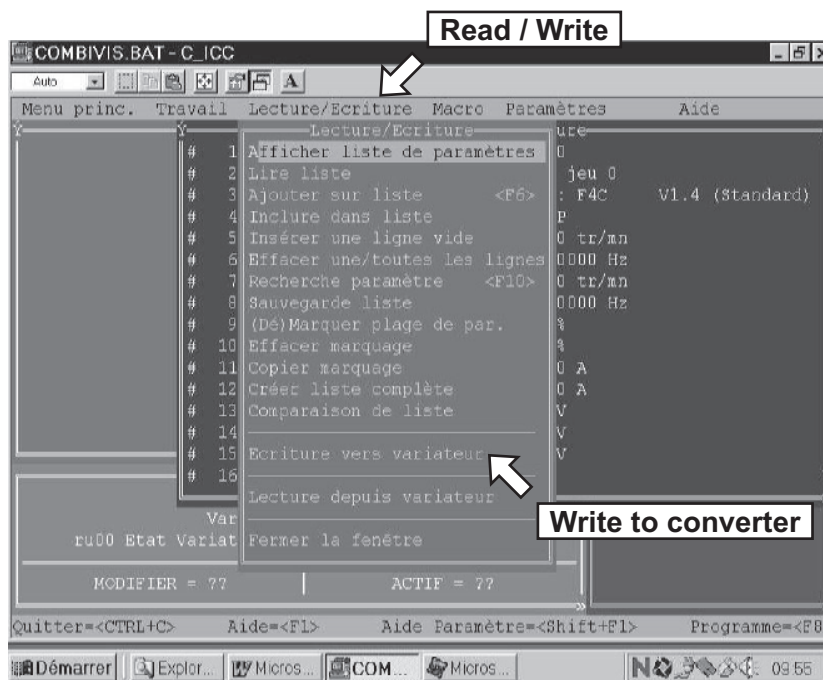
KEB10

Stage 4: (next)

The programme content is displayed on the screen.

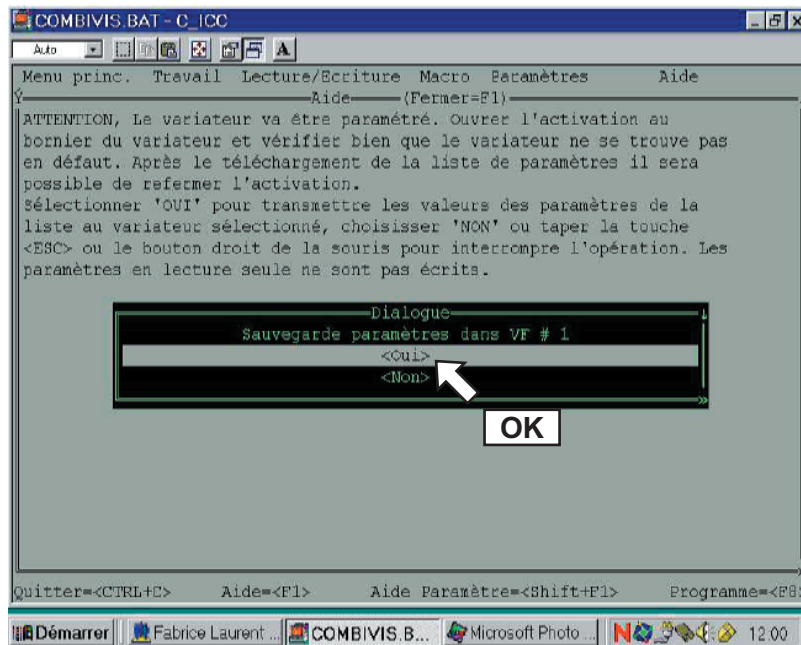


- Click on « Read / Write » then on « Write to convert ».



KEB12

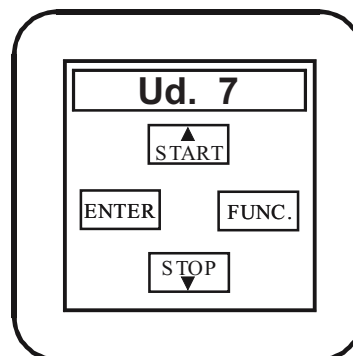
- Click on « OK » to validate the loading.



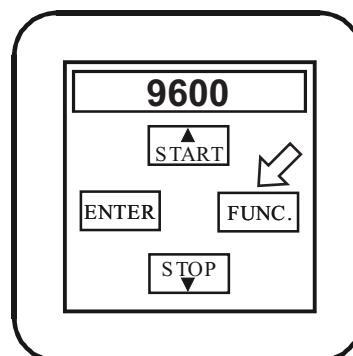
KEB13

Stage 5:**Set the speed of communication of the converter on 2400Bauds**

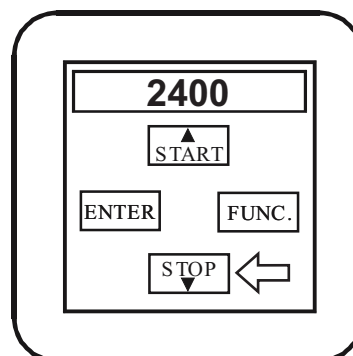
- Check that you are in parameter Ud 7.



- Push on « FUNC ».

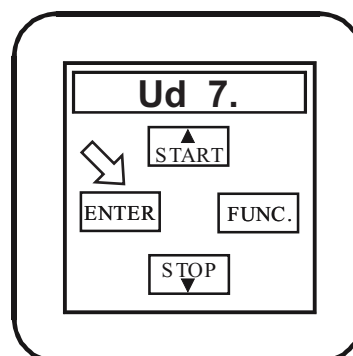


- Push on « STOP » to come back to 2400 Bauds.



- Push on « ENTER » to confirm this change, the converter now can communicate with CLARUS.

- Push on « FUNC ».



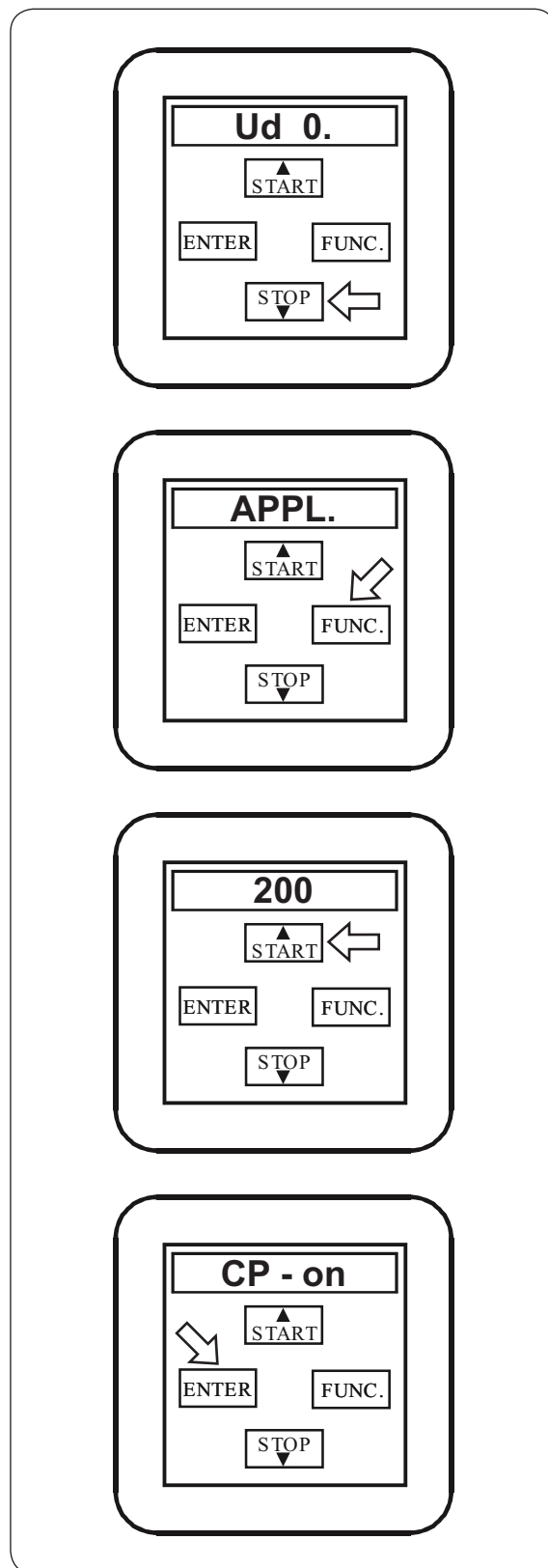
Stage 6: Lock the converter

- Push on « STOP » to reach the function Ud 0.

- Push on « FONC ».

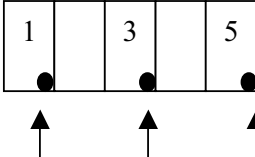
- Push on « START » until the pocket displays 200.

- Push on « ENTER ».



How to use the remove operator on KEB F4 converter

- Switch on the machine E.bus
- Push on ENTER 0.0000
- Push on FUNC
- Two screens can be displayed:

CP.1 display	a other screen displayed
Push on ▼: CP.0	 <p>Whatever the Display should be, please see where the flashing led is located.</p> <p>If the led flashes under digit 1 or 5 please move:</p> <ul style="list-style-type: none"> • It under digit 3 thanks to the ENTER key, • Then Push on ▲ to display ud.0 • Push on FUNC: APPL • Push on ▲ jusqu'à 200 • Push on ENTRER: CP-On • Push on FUNC: CP.0

To control the communication between the converter and CLARUS CONTROL:

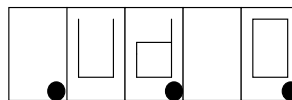
- Push on ▲ jusqu'à **CP.3** (parameter to check information provided by CLARUS CONTROL)
- Push on FUNC: the screen must show the values according to the order given by Clarus

i.e:	forward rotation	9.7155] values for information only
	backward rotation	-9.7155	
	stop	0.0000	

- Push on FUNC: **CP.3**
- Push on ▼ jusqu'à **CP.1**
(Actual frequency Display)
- Push on FUNC: the value of the converter actual frequency is displayed
- Push on FUNC: **CP.1**
- Push on ▼: **CP.0**
- Push on FUNC: **CP-On**

To alter parameters the converter must be unlocked.

- Push on ▲ up to **440**
- Push on ENTER: **APPL**
- Push on FUNC: **Ud.0**



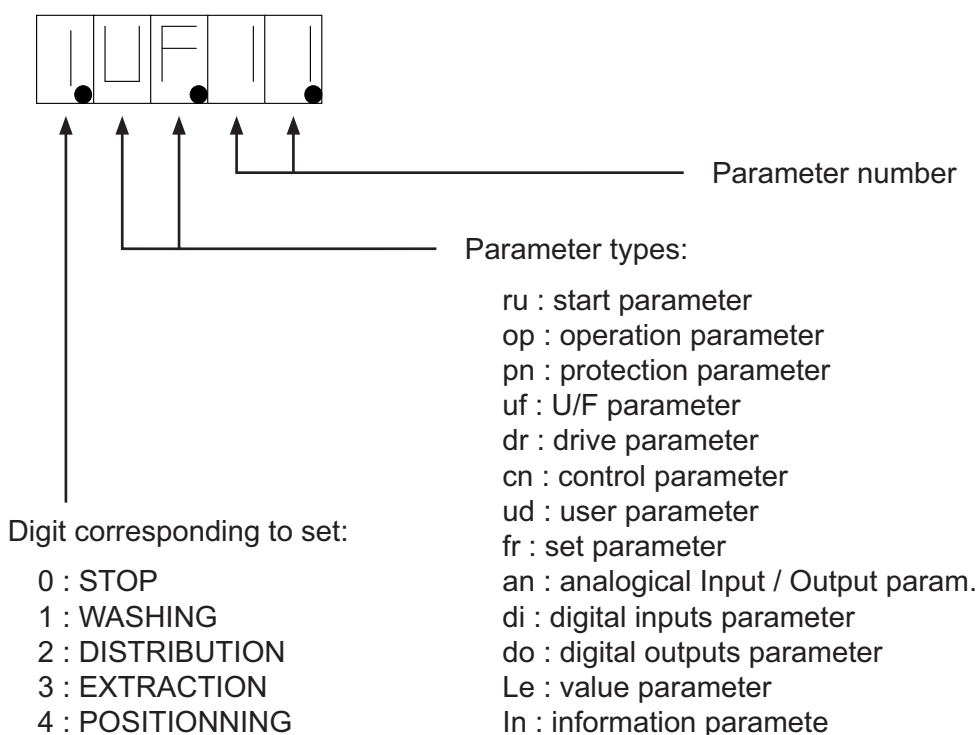
Check the position of the flashing poin

By this step the keys have the following functions : ▲ or ▼ o increase or decrease the value of the parameter ENTER to move the flashing point and to store the adjusted value FUNC to enter or to exit a parameter.

For example :

- Push on ▲ or ▼ to reach parameter Ud.7 Then push on FUNC the enter the parameter value.
- Push on ▲ or ▼ to increase or decrease this value. Then push on ENTER to store the new value.
- Push on FUNC to exit the value and to come back to parameter Ud.7

To alter another value push on the key ENTER to move the flashing point and to fix the value to be altered.



Once modifications are archived, select Ud.0 (F4) or Ud.1 (F5) parameter:

- Push on FUNC : APPL
- Push on ▲ up to 200
- Push on ENTER : CP-On

Some viewing parameters :

In 40 :	last mistake
In 41 :	OC overcurrent
In 42 :	Compteur OL (surcharge)
In 43 :	OP overvoltage
In 44 :	OH overheat
In 45 :	Bus communication error
Ru 24 :	Motor overload
Ru 29 :	Converter temperature

How to use the remove operator on KEB F4 converter (next)

Some modification parameters:

Uf01: Boost

(to be altered if Ru24 is too high in the set: must be under 100)

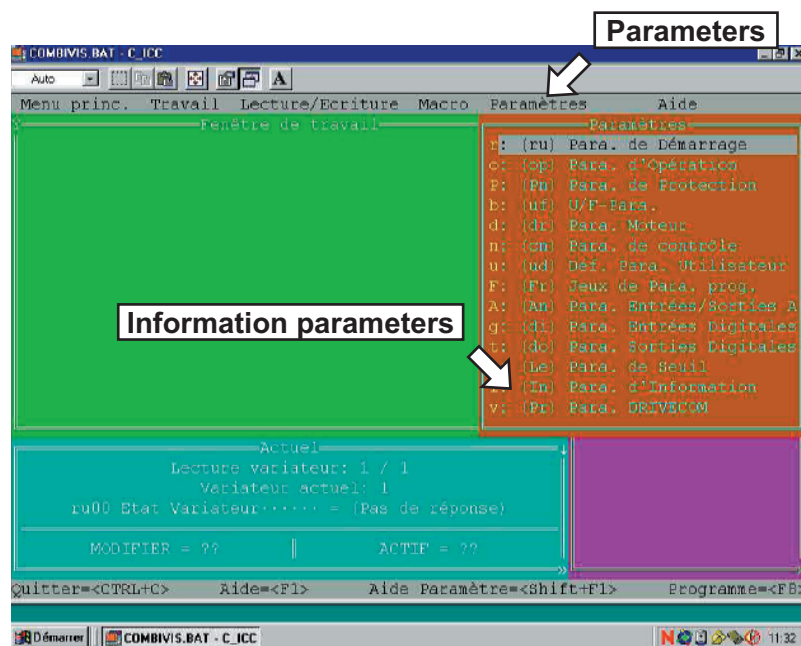
Uf11: Quenching frequency

(when the converter is overheating)

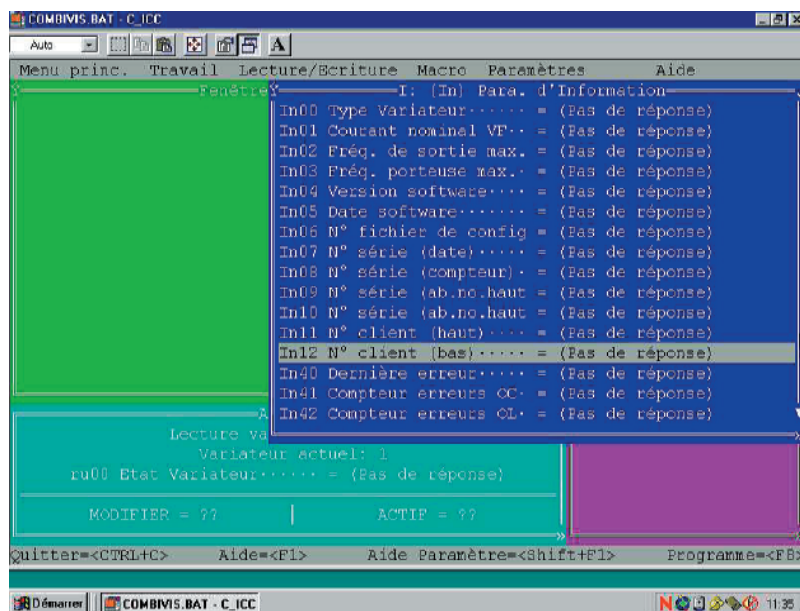
DIAGNOSIS ON KEB CONVERTERS / RECORD OF DEFECTS

To Display the defects, please change the transmission speed down to 9600 Bauds (please see previous page).

- Click on "Parameters" for starting.
- Click on "Information parameters".



KEB01



KEB02

Key of "defect account":

- IN 41 Defect account OC : overstrength
- IN 42 Defect account OL : overcharge
- IN 43 Defect account OP : overvoltage
- IN 44 Defect account OH : internal overheat

List errors with suitable error message KEB

See chapter «050_Troubleshooting» page 8 to 12

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35. Automatic weighing system

CONTENTS

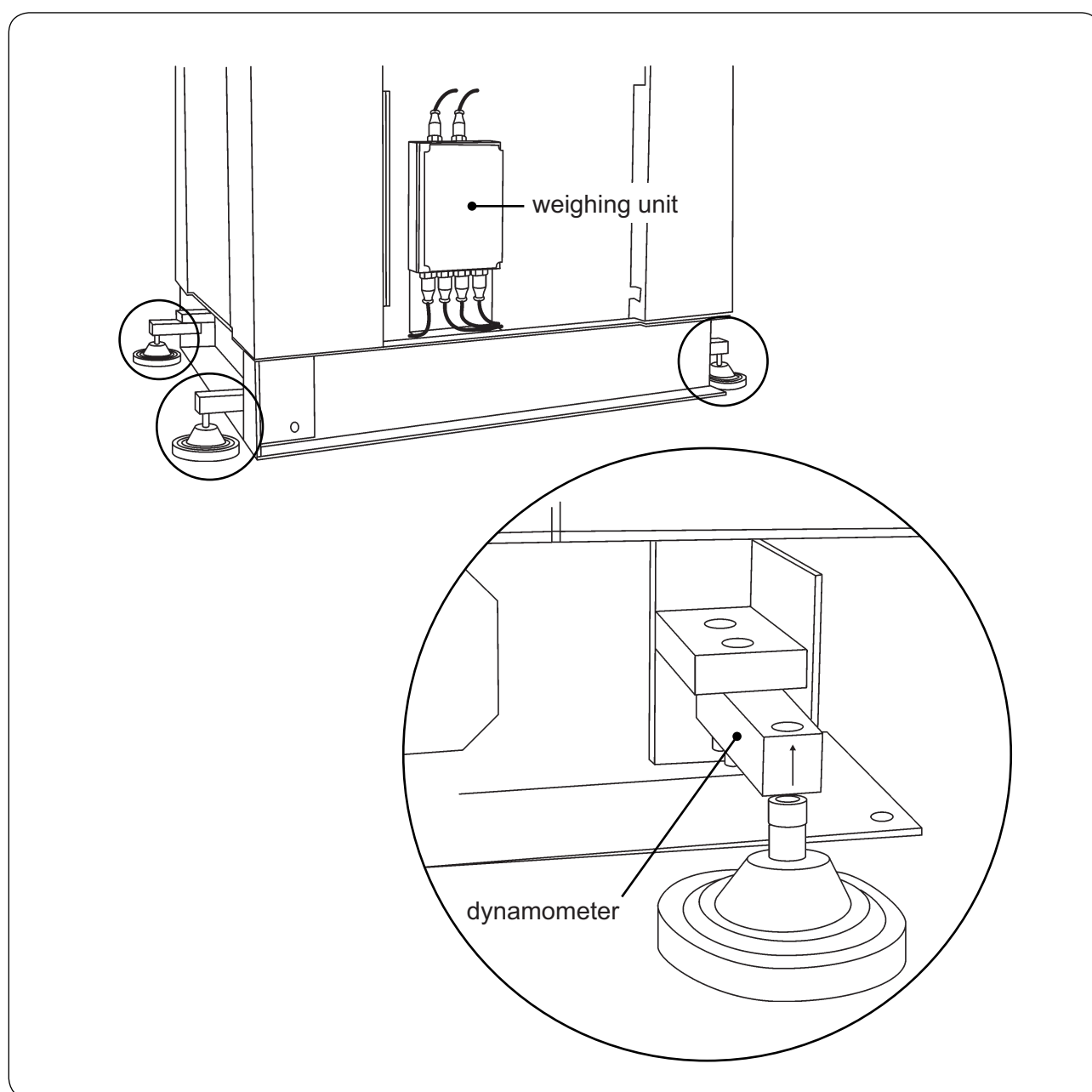
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Description

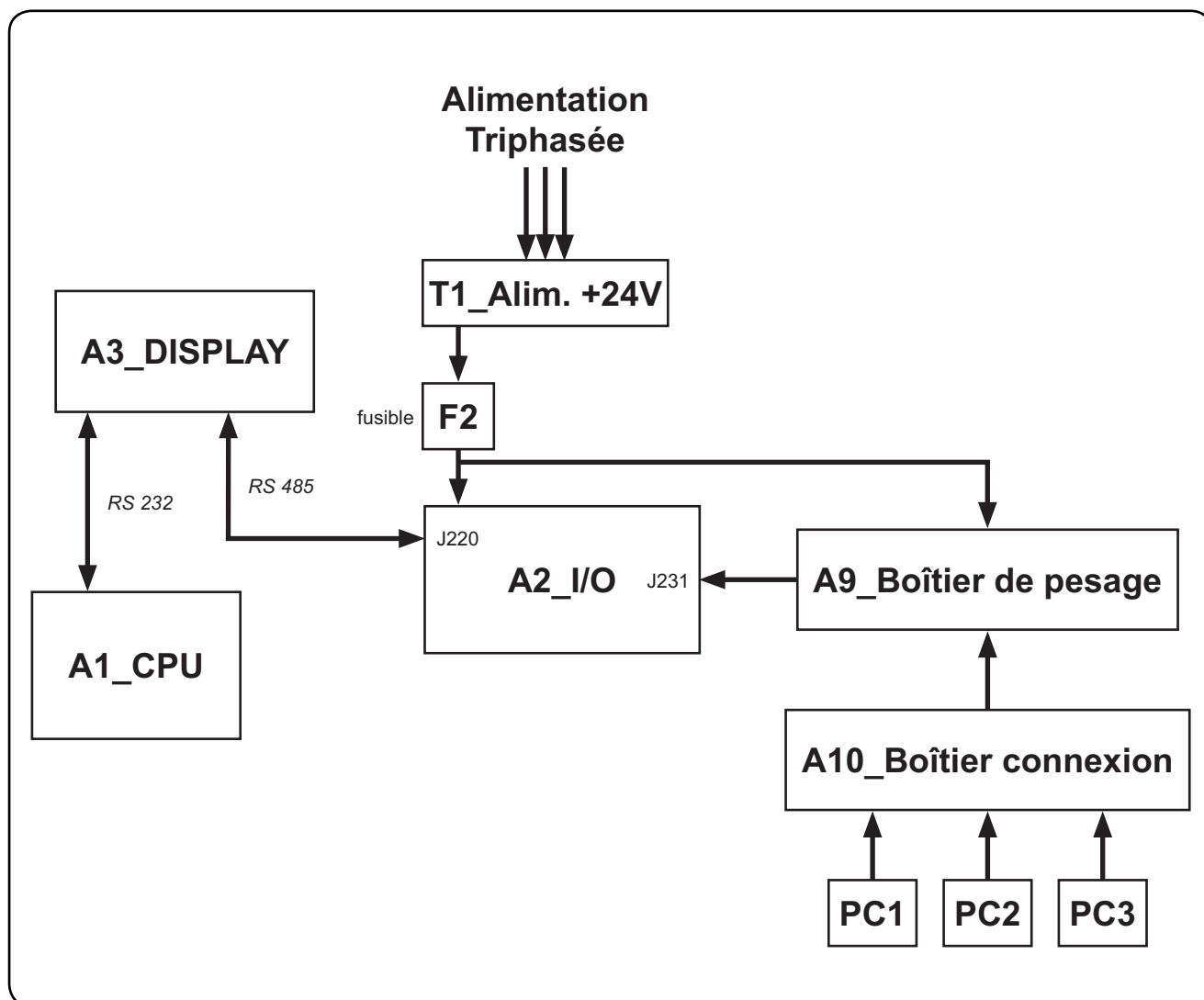
The automatic weighing system contains the following parts :

- 1 weighing unit.
- 4 dynamometers assembled to the four corner of the machine to allow the CLARUS to record the value of the load introduced into the tank.
- wiring.



Functioning

The weight of the wash load is registered by the four load cells, which send analogue signals to the scale unit. In the scale unit the signals are processed and converted to a weight value in an analogue-digital converter. The weight value is transmitted via a serial interface to the CPU board. The weight is then shown on the display.



Safety rules

The weighing equipment is a precision measuring device and must be treated as such.

Never spray water directly onto the load cells and scale unit.

The load cells are vulnerable to impact.

The load cells are potentially vulnerable if welding is carried out. If welding has to be done on the washer extractor, attach the earth cable clamp as close as possible to the welding site.

After a power-cut

When the supply is restored after a power-cut, the weight display will show "0" if the load inside the drum is less than 6.25 kg. If the load weighs more than 6.25 kg, the true weight of the load will be shown.

Water level reduction


To achieve optimum load volumes, the weight of the load can be seen on the display while the machine is being loaded. If the machine does not have a full load, the water level will be reduced according to a water-level reduction table. The water level can never be any lower than the safety level plus the hysteresis.

Actual weight display

Fig. ① The Clarus control unit automatically detects if weighing equipment is connected, and the actual (current) weight is shown on the display, on one line of the menu (normal display mode).

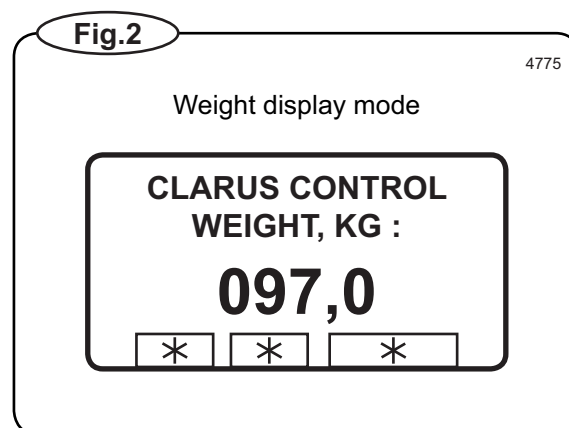
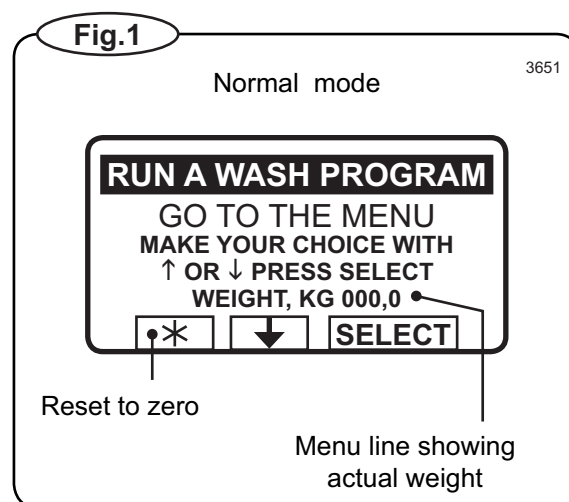
Fig. ② When the machine starts to be loaded, the display switches to showing the actual weight in large numerals (weight display mode).

Normal display mode is resumed :

- If a new program number is entered using the numeric keys.
- If  is pressed.
- Automatically after the time set via "Settings 1" under "Time for weight display".

While a wash program is running, you can switch to weight display mode by selecting "Show weight", see the section "Show weight" under "Machine operation".

The weight shown on the display will always be the net weight (achieved because the weighing equipment has been "tared"). A slight delay is built in to prevent the display from flickering.



Resetting the weighing equipment

If the display does not show the weight (in an empty machine) as zero after a program, the weighing equipment can be reset to zero using the TAR key.

For a description of the functions used to set and check the tare value, see the section headed "Scale adjustments" under "Machine operation".

Calibration the weighing equipment

The "Zero calibration" function is used to increase the accuracy of the weighing equipment. This should be done once a month. See the section headed "Zero calibration" under "Machine operation".

If a new scale unit is installed, it must be calibrated as described in the section "Calibrate the scale" under "Machine operation".

Checking accuracy of weighing equipment display

Twice a year you need to check that the weighing equipment is displaying the accurate weight, with the aid of an object of known weight. If the weighing equipment does not show the real weight of this object, you will need to follow the "Zero calibration" procedure, a function in the Clarus software. Follow the instructions under "Zero calibration" in the "Machine operation" section of the manual. If this is unsuccessful, the weighing equipment will have to be re calibrated using the "Calibrate the scale" function, as described under "Machine operation".

If the weighing equipment has a fault

Follow the troubleshooting procedure under the heading "Fault-finding, weighing equipment".

If you cannot rectify the problem with the help of that section, make a note of the weighing equipment version number before you contact the service department.

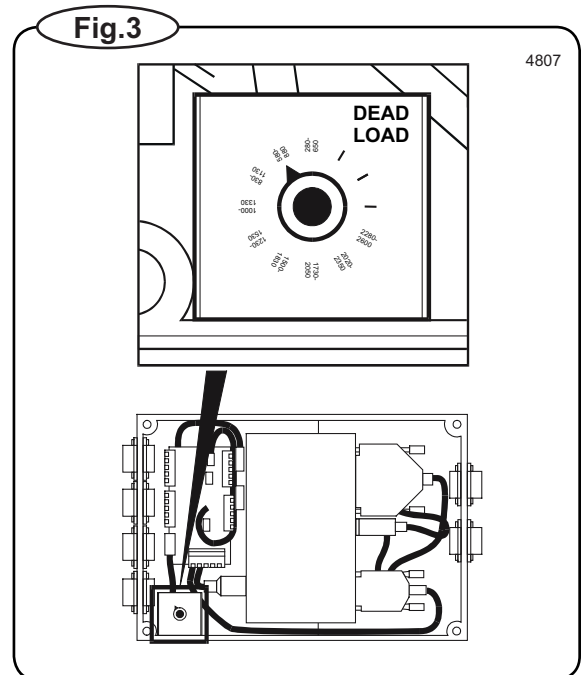
To find the weighing equipment version number, access the service program, select "Scale adjustments", then "Read version number".

The dead load selector

Fig. ③ The dead load selector, located in the scale unit, is used for setting the machine's "dead load".

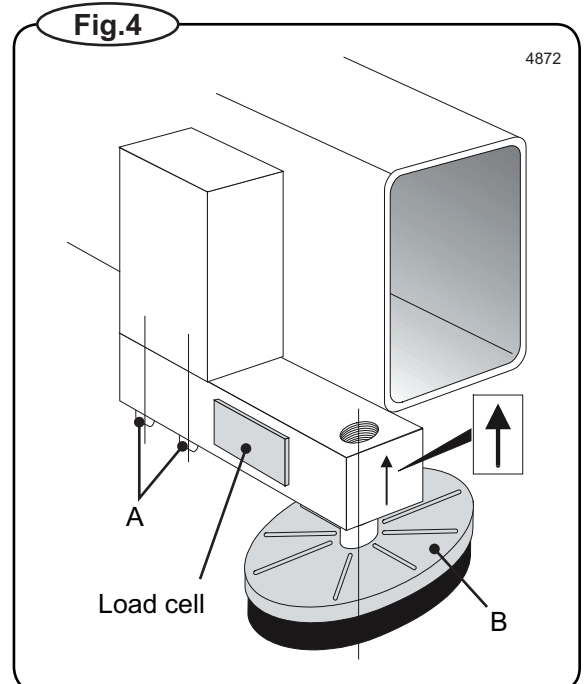
The dead load is the load (weight) to which the load cells are subjected before any load is placed in the wash drum. The dead load selector is set before the machine leaves the factory, and its setting should not normally be changed. The selector should be set to **580-880 kg** (machines 250-350-500) or **830-1130 kg** (machine 650).

If calibration of the weighing equipment should fail, one possible cause can be that this selector is incorrectly set.



To replace a load cell

- Fig. ④
- Use a suitable jack to lift under the frame at the corner where the load cell is to be replaced.
 - Insert a suitable object as a chock beneath the frame, to remove risk of injury and machine damage.
 - Disconnect the load cell cable at the scale unit.
 - Remove the screws (A).
 - Remove (B).
 - Remove the faulty load cell and fit the new, assembly is reverse of disassembly.



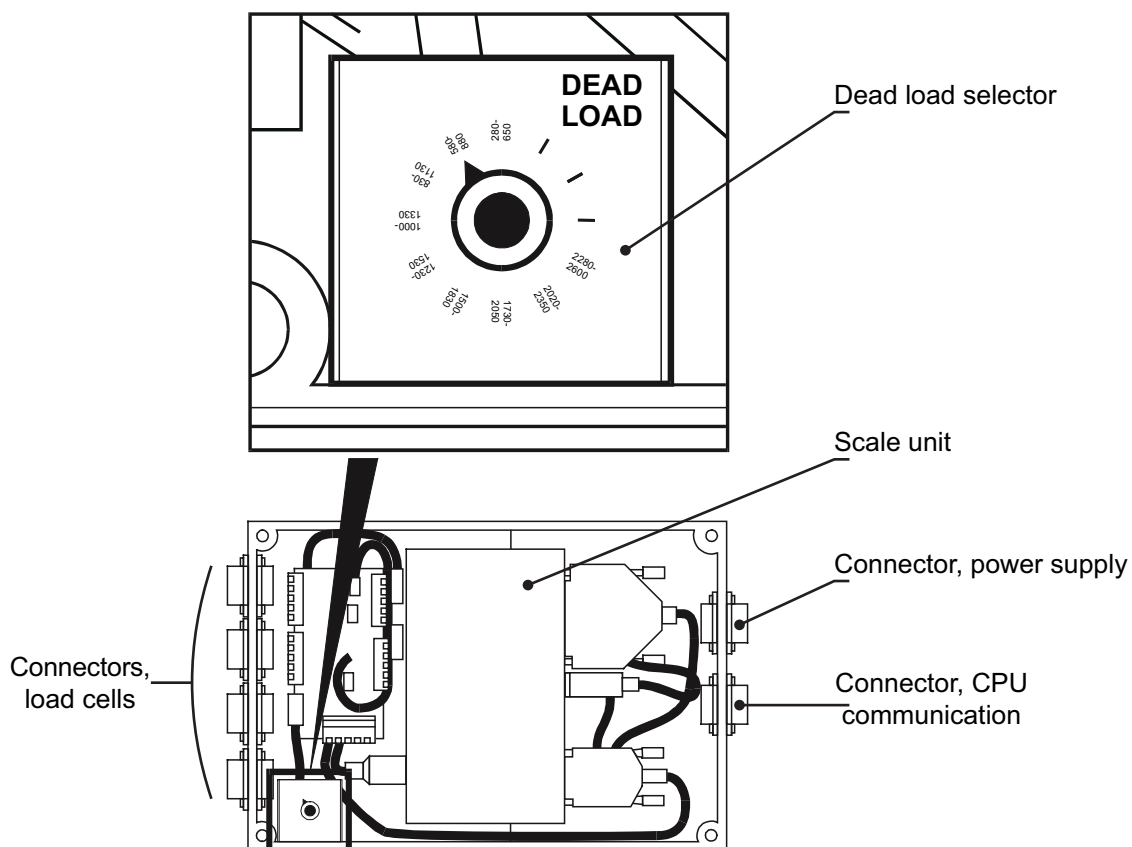
Install the new load cell as indicated by arrow on side of load cell !



To replace the scale unit

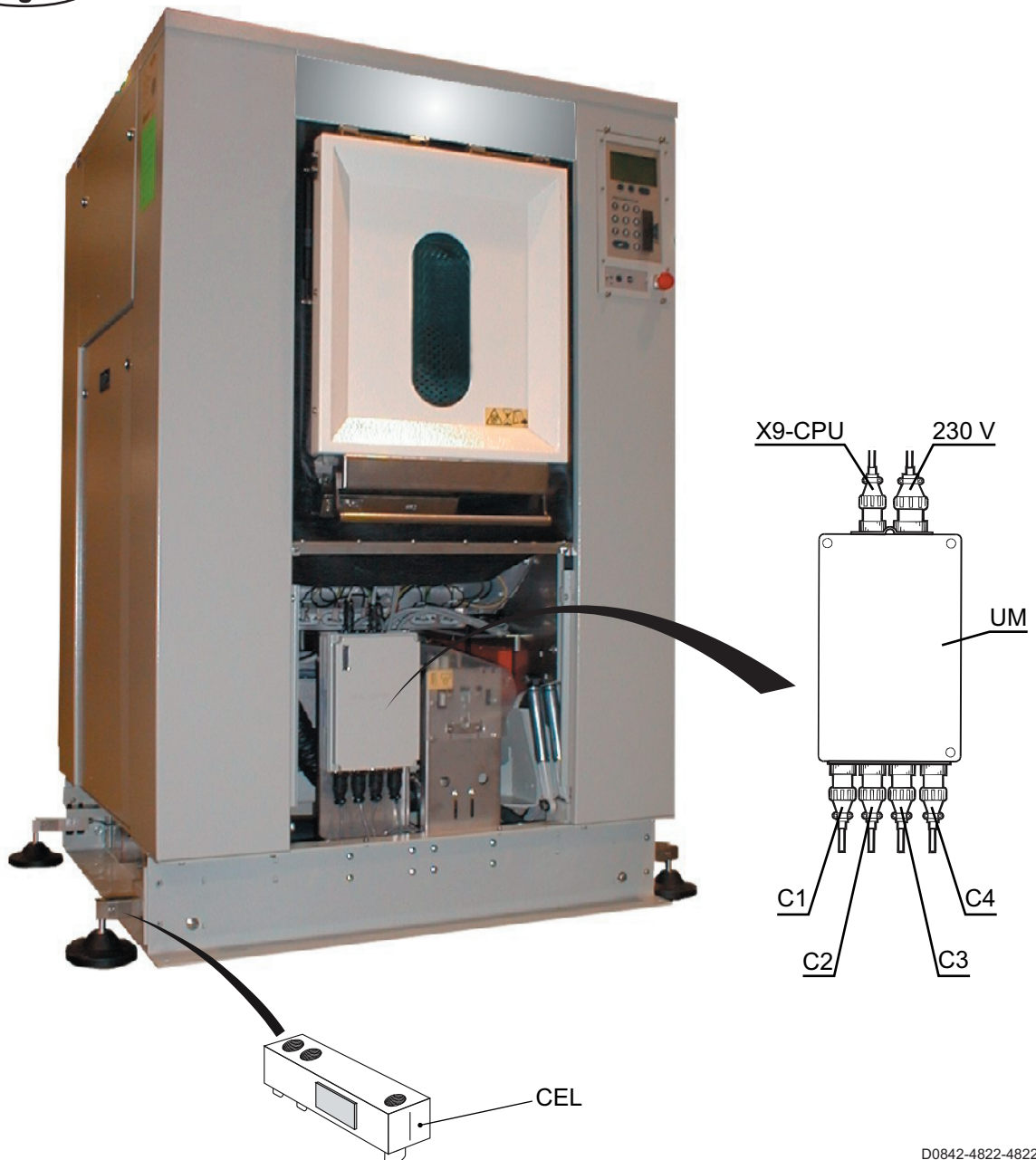
- Fig. ⑤ • Remove the machine's side panel.
- Disconnect the six connectors to the scale unit.
 - Remove the scale unit.
 - Install the new scale unit, assembly in reverse order of disassembly.
 - Check that the dead load selector is set to **580-880 kg** (machines 250-350-500) or **830-1130 kg** (machine 650).
 - Calibrate the weighing equipment, see "Calibrate the scale" under "Machine operation".

Fig.5



Component locations

Fig.6



D0842-4822-4822bis

UM

Scale unit

CEL

Load cells

Connectors

230 V

Voltage feed

X9-CPU

Communication with CPU board

C1-C4

Load cells

Fault-finding, weighing equipment

Error message on display :

Weight, in kg : 999,0 or -999,9

Probable cause :

Fig. ⑦

The weighing equipment is overloaded/ "underloaded", i.e. the load cells are sending a signal which is too high/low to the scale unit. One or more load cells faulty.

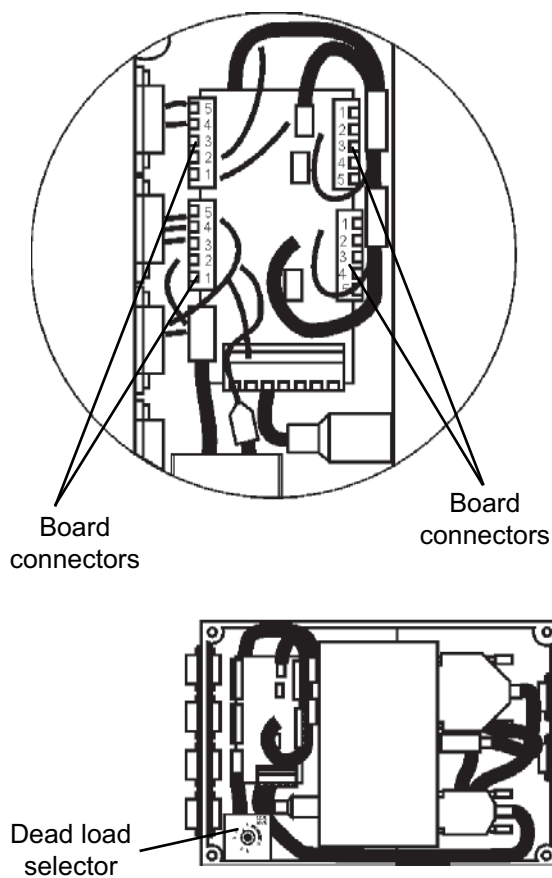
The dead load selector may be on the wrong setting. The machine may be incorrectly installed.

Fault-finding procedure :

- Check that all connections to the machine are flexible.
- Remove the side panel. Check that the dead load selector is set to 580-880 kg (machines 250-350-500) or 830-1130 kg (machine 650). If it is not, set it correctly and calibrate the weighing equipment according to "Calibrate the scale" under "Machine operation".
- If the weight displayed is -999.9, try following the "Zero calibration" procedure (described under "Zero calibration" in the "Machine operation" chapter).
- Remove the side panels and check that the load cells are unobstructed. Remove any mechanical obstructions.
- Taking the load cell cables one at a time, disconnect the cable connecting each load cell to the scale unit. Continue one by one until a stable weight parameter is displayed (but not 999.9). When this stable parameter is displayed you will know which of the load cells must be faulty.
- If more than one load cell is faulty, the faulty cells can be identified using a multimeter on the scale unit weight-totalling board to check each cell in turn, as follows :
 - Remove the four screws on the scale unit cover.
 - Check that the four load cell cables are connected to the scale unit.
 - Measure the voltage at the connectors on the weight-totalling board, between terminal 2 and 3 for each load cell. The normal value for an unladen machine is approx. 3-5 mV (DC). A value different from this indicates that the load cell is faulty.
 - Replace the faulty load cell(s) as described under "To replace a load cell".

Fig.7

Weight-totalling board



Error message on display :

Menu line which should show actual weight not displayed.

Possible causes :

The option "DISPLAY WEIGHT ALLOWED" may be switched off (have the answer "No" alongside) in "Settings 1". Possible fault in communication with CPU board or display. The fault can also be in the scale unit.

Fault-finding procedure :

- Check in "Settings 1" that the option "DISPLAY WEIGHT ALLOWED" has "Yes" alongside.
- Check that the cables/wiring for CPU communication and power supply are connected to the scale unit and in good condition.
- If the washer extractor appears to be working normally apart from the absence of weight parameter display, try replacing the scale unit as described under "To replace the scale unit".

Error message on display :

If you suspect that the weighing equipment is not displaying accurate weight value.

Probable cause :

Probably a faulty load cell.

Fault-finding procedure :

- Place an object of known weight at one corner on top of the washer extractor. Check the weight shown on the display. Move the weight to each of the other corners of the machine in turn, checking the display each time. If one corner is different from the others, this will reveal which load cell is faulty.
- Check that the load cell in question is mechanically unobstructed, free of anything which could affect its normal functioning.
- Replace the load cell as described under "To replace a load cell".

Error message on display :

Failed. Press SELECT.

Possible causes :

Dead load selector or calibration switch incorrectly set. An incorrect calibration weight has been used for calibration.

Fault-finding procedure :

- Check that the dead load selector is set correctly. It should be set to **580-880 kg** (machines 250-350-500) or **830-1130 kg** (machine 650).
- If you are or have recently been calibrating the weighing equipment, the calibration switch may be incorrectly set, or an incorrect calibration weight may have been used for calibration.

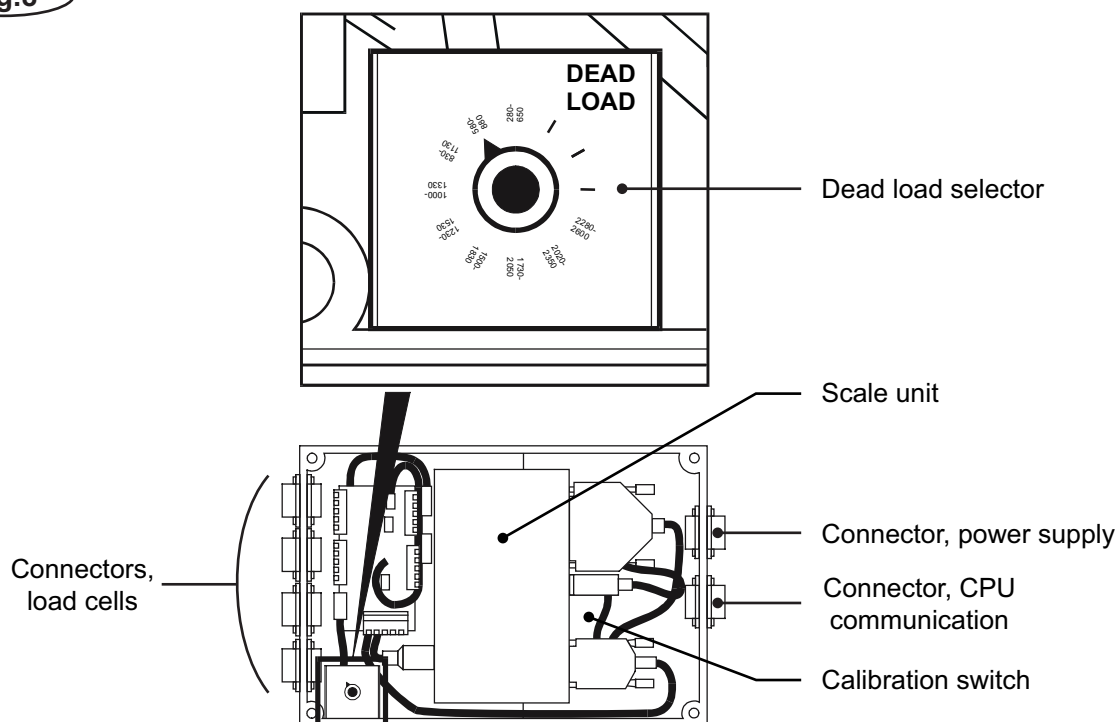
Check that the calibration switch is set correctly. It should normally be set to NORM (normal). During calibration the switch should be set to CAL (calibrage).

The calibration weight should be between 40 and 400 kg.

If relevant/necessary, calibrate the weighing equipment, or follow the "Calibrate the scale" procedure under "Machine operation".

- Check that all cables/wiring to the scale unit are sound and correctly connected.

Fig.8



4807

Information in display :

Function no allowed.

Probable cause :

A function has been selected in the program which cannot be carried out.

Fault-finding procedure :

- Check that the function in question is switched on under "Settings".
- Check that the cables for CPU communication, power supply and load cells are connected.
- Check that these cables are all in good condition.
- If any cable is faulty, replace it.

Information in display service program :

Weighing equipment not connected.

Probable cause :

CPU board not communicating with scale unit.

Fault-finding procedure :

- Check that the connectors for CPU communication, power supply and load cells are connected on the scale unit.
- Check that their cables are all in good condition.
- If any cable is faulty, replace it.

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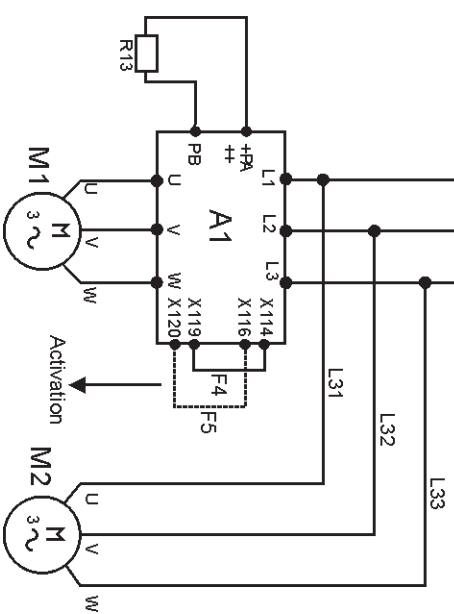
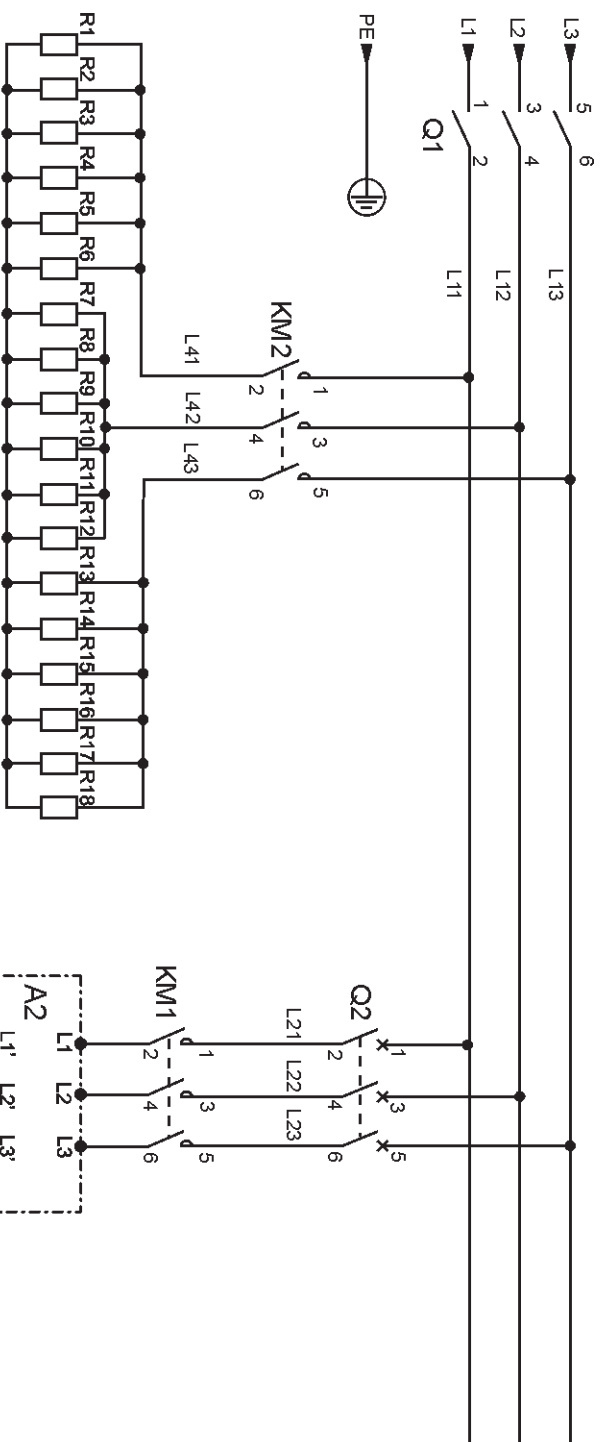
36. Electric diagram

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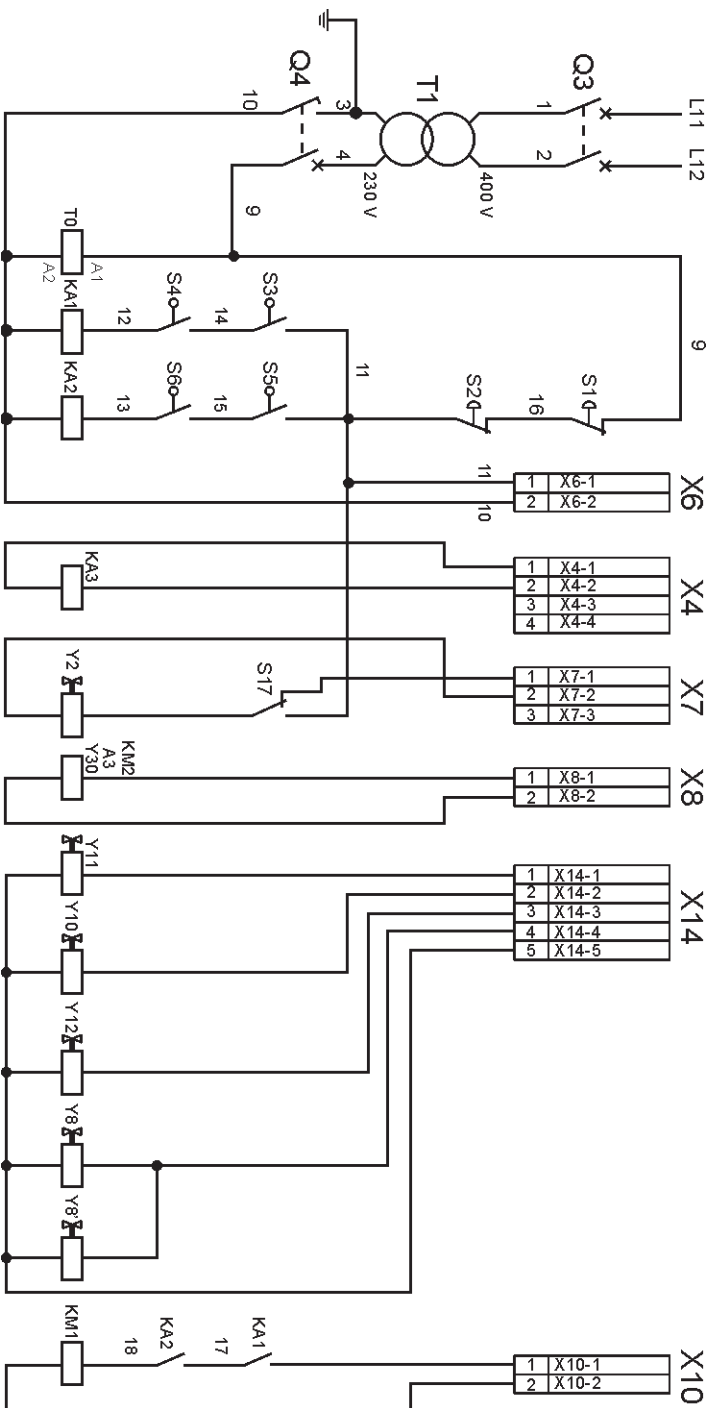


POWER CIRCUIT

All washer-extractor

Diagram no. 31100331

A1	Frequency converter
A2	Interference filter
Q1	Main switch
Q2	Motor breaker
KM1	Motion contactor
KM2	Heating contactor
R1-R2-R7-R8-R13-R14	Heating element (250)
R3-R9-R15	Heating element (350)
R4-R10-R16	Heating element (500)
R5-R6-R11-R12-R17-R18	Heating element (650)
R13	Braking resistor
M1	Motion motor
M2	Fan motor

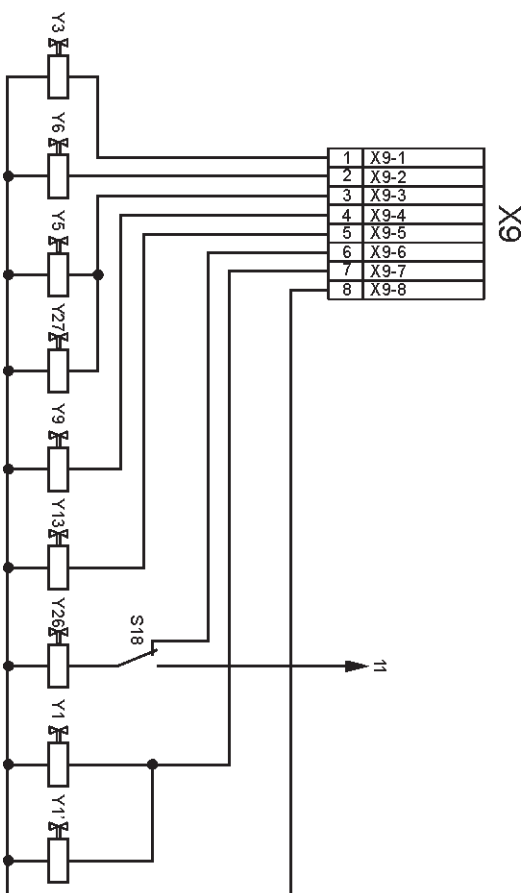


POWER CIRCUIT - PROGRAMMER OUTPUTS

All washer-extractor barrier types

Diagram no. 31100332-1

A3	Ignitor of gas exchanger
KA1	Unloading door lock relay
KA2	Loading door lock relay
KA3	Unloading indicator relay
KM1	Motion contactor
KM2	Heating contactor
Q3	Primary breaker
Q4	Secondary breaker
S1	Loading side emergency stop pushbutton
S2	Unloading side emergency stop pushbutton
S3	Loading side door switch
S4	Loading side door switch (650)
S5	Unloading side door switch
S6	Unloading side door switch (650)
S17	Manual drain pushbutton control
T1	Control circuit transformer
X4	End of cycle connector
X6	230 V supply connector
X7	Drain connector
X8	Heating connector
X10	Motion connector
X14	Products connector
X14	Loading door lock connector
Y2	Drain electrovalve
Y8	Loading door lock
Y8'	Loading door lock (650)
Y10	Liquid product no. 2 electrovalve
Y11	Liquid product no. 1 electrovalve
Y12	Liquid product no. 3 electrovalve
Y30	Steam electrovalve

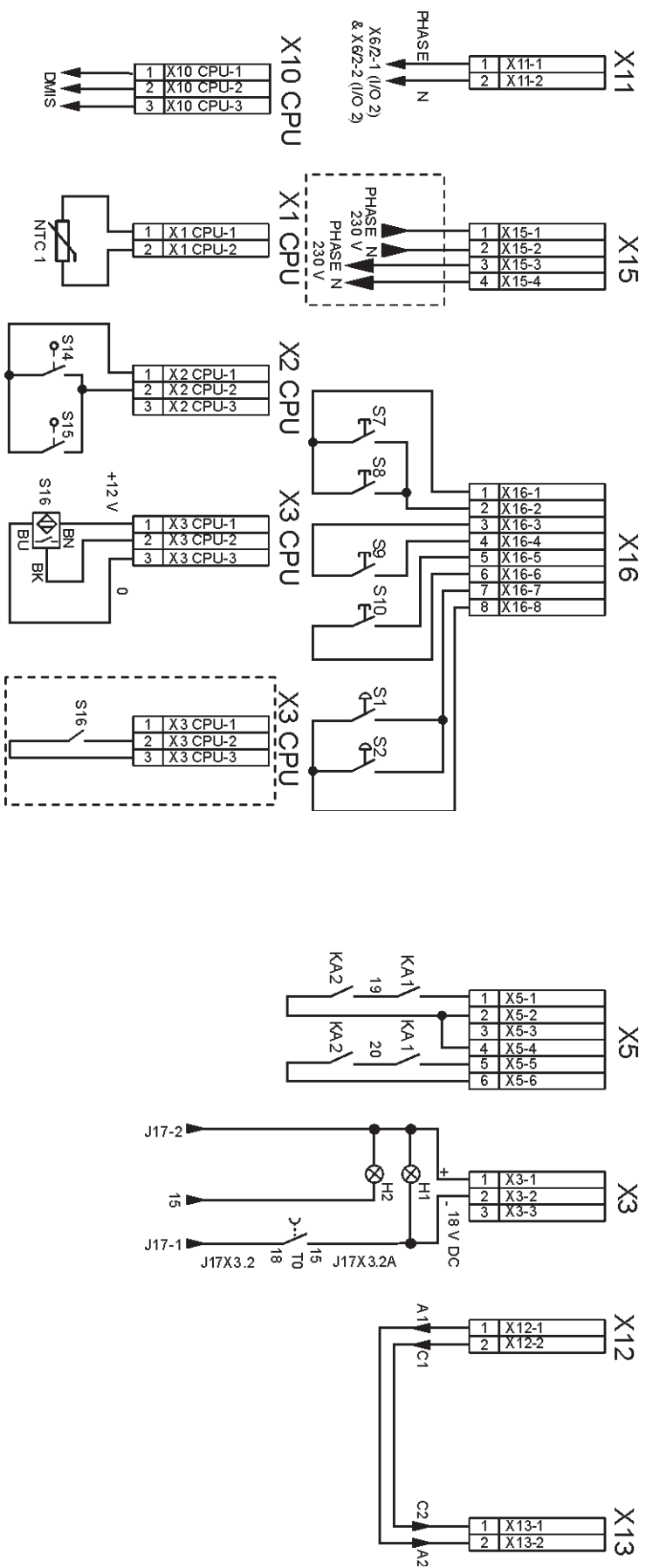


CONTROL CIRCUIT - PROGRAMMER OUTPUTS

All washer-extractor barrier types

Diagram no. 31100332-2

S18	Manual drain switch control (optional)
X9	Waters connector
X9	Unloading door lock connector
X9	Products connector
X9	Drain connector
Y1	Unloading door lock
Y1'	Unloading door lock (650)
Y26	Recycling water drain electrovalve (optional)
Y27	Detergents container rinsing electrovalve
Y3	Soft cold water electrovalve (optional)
Y5	Hard cold water electrovalve
Y6	Hot water electrovalve
Y9	Powder product no. 1 electrovalve
Y13	Powder product no. 2 electrovalve

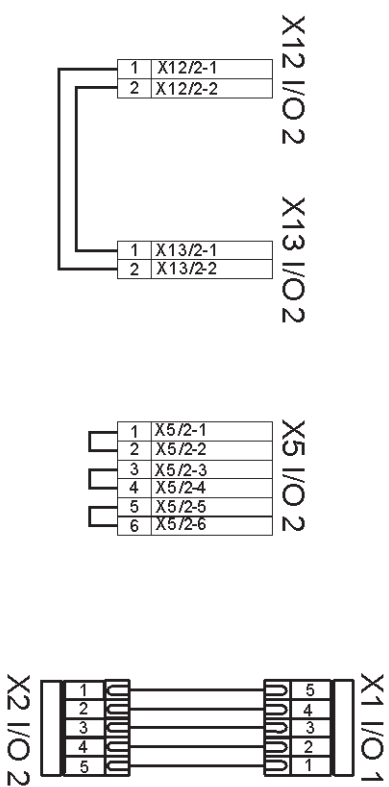
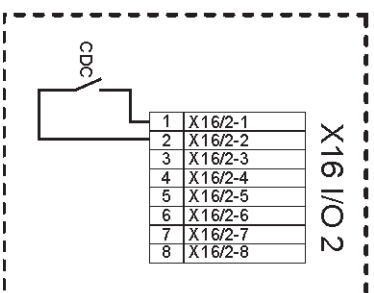
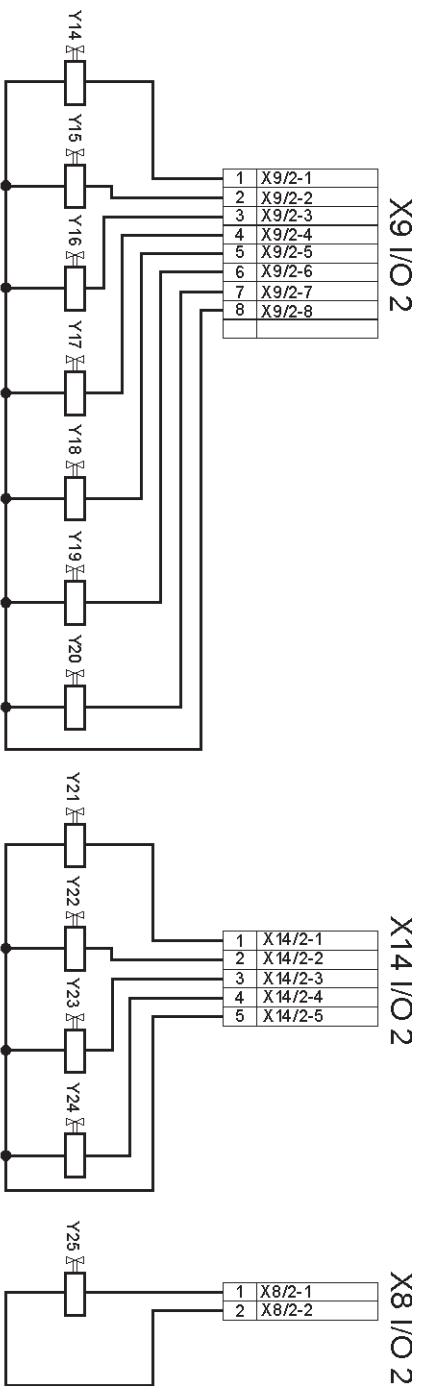


CONTROL CIRCUIT - PROGRAMMER INPUTS/OUTPUTS

All washer-extractor barrier types

Diagram no. 31100333-1 & 2

F	Frequency converter interference filter
H1	Voltage indicator
H2	Possible unloading indicator
KA1	Loading door lock relay
KA2	Unloading door lock relay
KA3	Unloading indicator relay
NTC 1	Temperature probe
S1	Loading side emergency stop pushbutton
S2	Unloading side emergency stop pushbutton
S7	Loading side cage positioning pushbutton
S8	Unloading side cage positioning pushbutton
S9	Loading door opening pushbutton
S10	Unloading door opening pushbutton
S14	Left side unbalance switch
S15	Right side unbalance switch
S16	Cage stop control proximity detector
T2	Low-voltage transformer (fuse = 1,25 A-T)
X3	240 V supply connector
X5	Door connector
X11	Optional card no. 2 connector
X12	Shunt connector
X13	Shunt connector
X15	Connector to putting into service and pause by exterior signals (optional) X15-1 and X15-2 putting into service by servo-control X15-3 and X15-4 heating is halted
X16	Inputs connector : opening door pushbutton
X16	Inputs connector : cage positioning pushbutton
X16	Inputs connector : emergency stop pushbutton
X1 CPU	Inputs connector : temperature probe
X2 CPU	Inputs connector : unbalance
X3 CPU	Inputs connector : cage turn control
X10 CPU	Input connector : (DMIS) detergent proportioning system

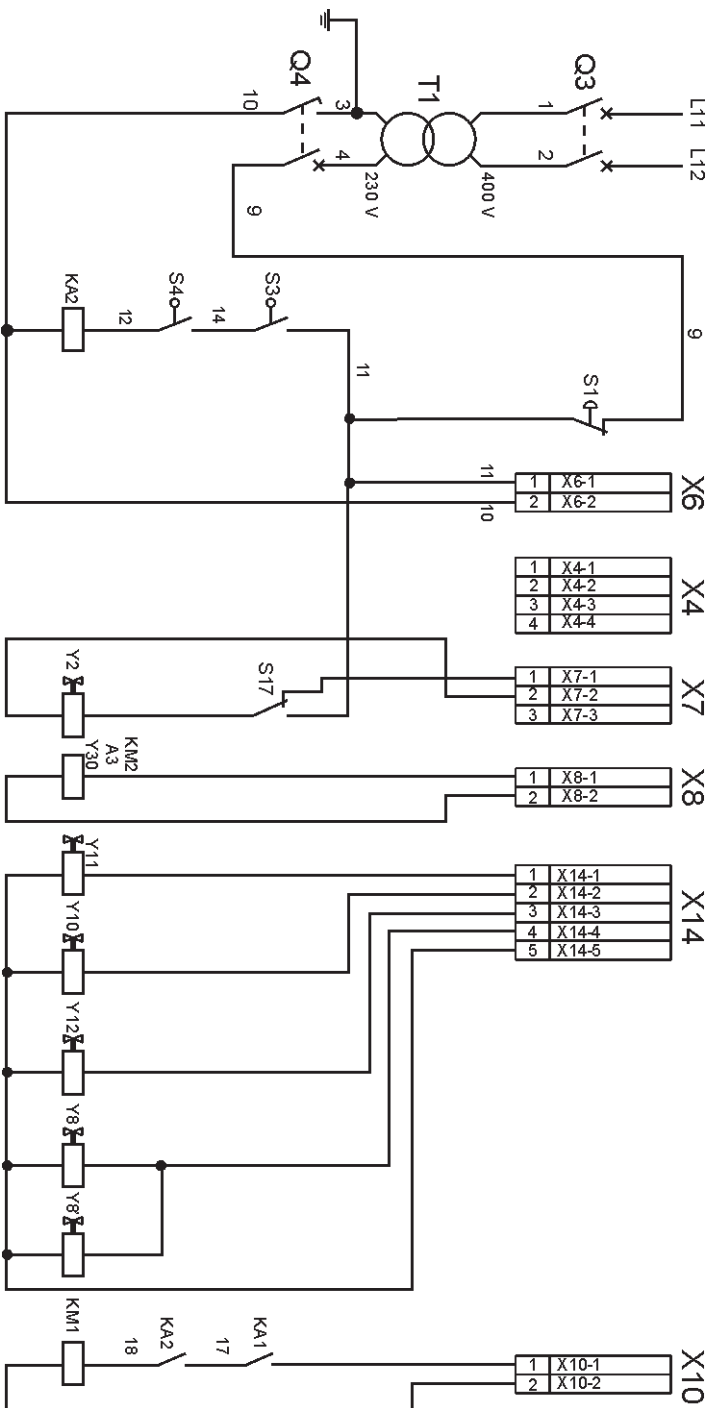


INPUTS / OUTPUTS CARD No. 2 (OPTIONAL)

All washer-extractor

Diagram no. 31100341

CDC	Frequency converter failure safety contact (if necessary)
X1 I/O 1 - X2 I/O 2	Card 1 & 2 connector
X5 I/O 2	Shunt connector
X8 I/O 2	Liquid products no. 13 electrovalve connector
X9 I/O 2	Liquid products no. 4 to 8 electrovalve connector and recycling water
X12 I/O 2	Shunt connector
X13 I/O 2	Shunt connector
X14 I/O 2	Liquid products no. 9 to 12 electrovalve connector
X16 I/O 2	Frequency converter failure safety contact connector (if necessary)
Y14	Recycling water no. 1 electrovalve
Y15	Recycling water no. 2 electrovalve
Y16	Liquid product no. 4 electrovalve
Y17	Liquid product no. 5 electrovalve
Y18	Liquid product no. 6 electrovalve
Y19	Liquid product no. 7 electrovalve
Y20	Liquid product no. 8 electrovalve
Y21	Liquid product no. 9 electrovalve
Y22	Liquid product no. 10 electrovalve
Y23	Liquid product no. 11 electrovalve
Y24	Liquid product no. 12 electrovalve
Y25	Liquid product no. 13 electrovalve

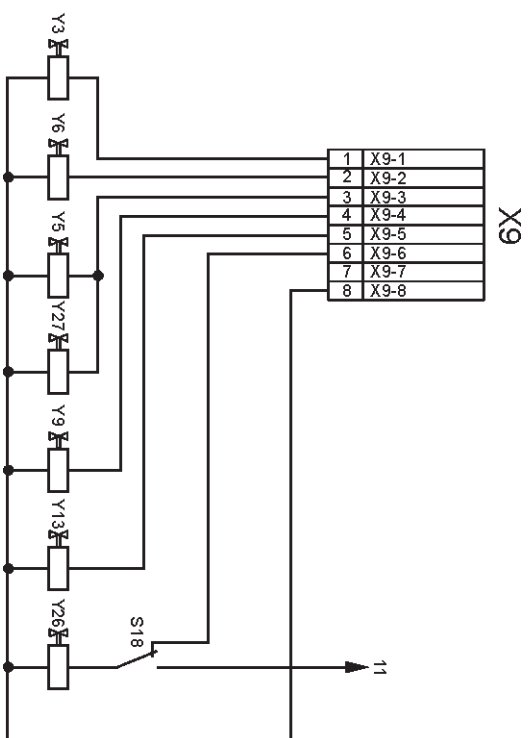


POWER CIRCUIT - PROGRAMMER OUTPUTS

All washer-extractor standard types

Diagram no. 31101334-1

A3	Ignitor of gas exchanger
KA1	Unloading door lock relay
KA2	Loading door lock relay
KM1	Motion contactor
KM2	Heating contactor
Q3	Primary breaker
Q4	Secondary breaker
S1	Loading side emergency stop pushbutton
S3	Loading side door switch
S4	Loading side door switch (650)
S17	Manual drain pushbutton control
T1	Control circuit transformer
X4	End of cycle connector
X6	230 V supply connector
X7	Drain connector
X8	Heating connector
X10	Motion connector
X14	Products connector
X14	Loading door lock connector
Y2	Drain electrovalve
Y8	Loading door lock
Y8'	Loading door lock (650)
Y10	Liquid product no. 2 electrovalve
Y11	Liquid product no. 1 electrovalve
Y12	Liquid product no. 3 electrovalve
Y30	Steam electrovalve

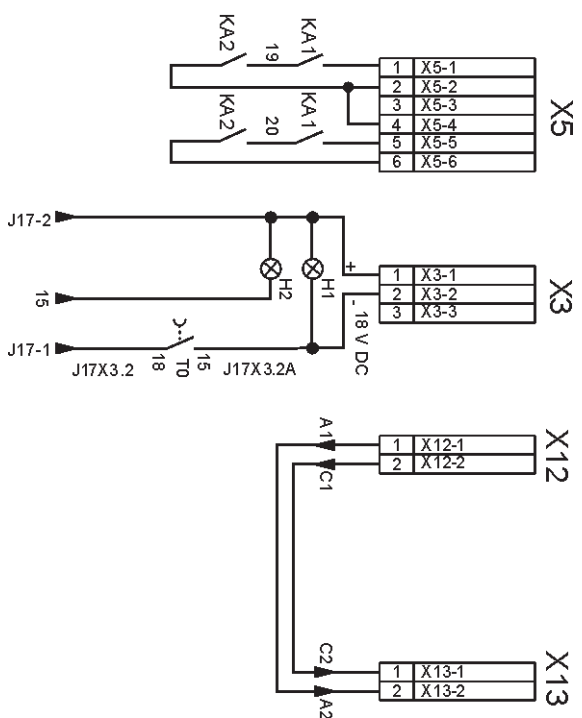
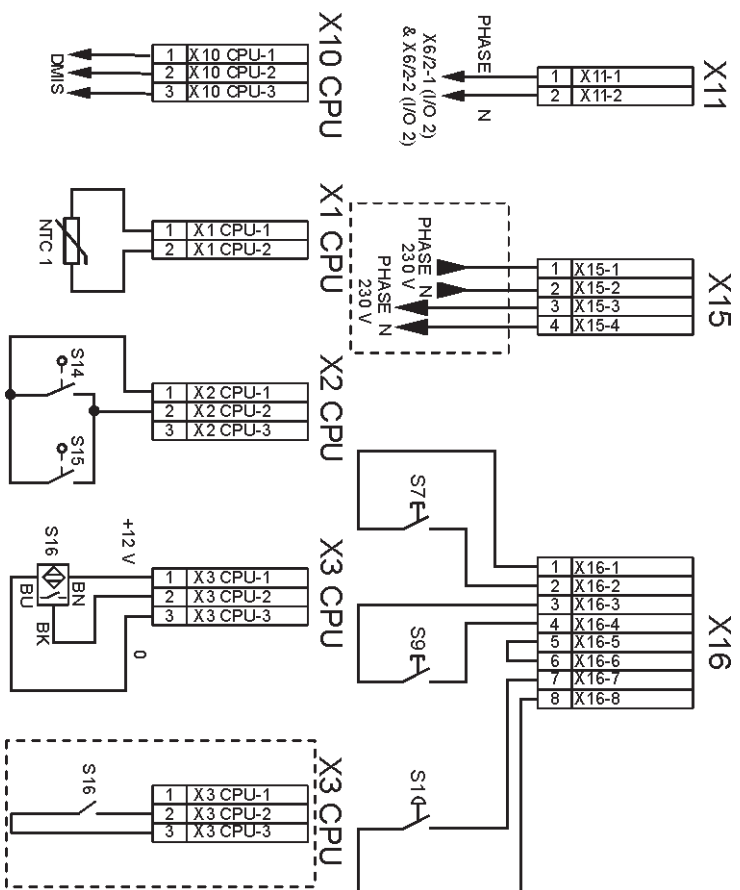


CONTROL CIRCUIT - PROGRAMMER OUTPUTS

All washer-extractor standard types

Diagram no. 31101334-2

S18	Manual drain switch control (optional)
X9	Waters connector
X9	Unloading door lock connector
X9	Products connector
X9	Drain connector
Y26	Recycling water drain electrovalve (optional)
Y27	Detergents container rinsing electrovalve
Y3	Soft cold water electrovalve (optional)
Y5	Hard cold water electrovalve
Y6	Hot water electrovalve
Y9	Powder product no. 1 electrovalve
Y13	Powder product no. 2 electrovalve

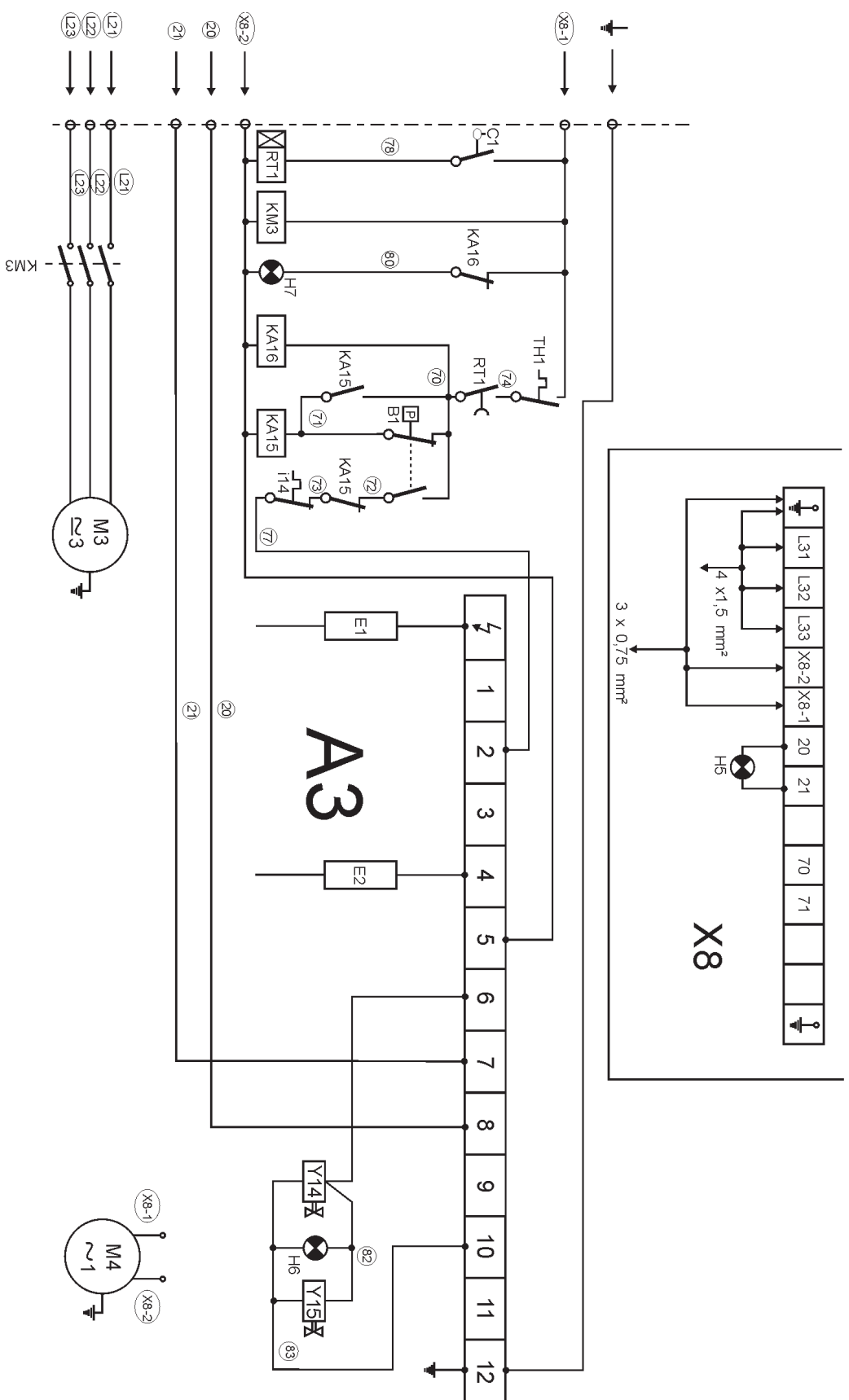


CONTROL CIRCUIT - PROGRAMMER INPUTS/OUTPUTS

All washer-extractor standard types

Diagram no. 31100333-1 & no. 31101340

F	Frequency converter interference filter
H1	Voltage indicator
H2	Possible unloading indicator (barrier machine only)
KA1	Loading door lock relay
KA2	Unloading door lock relay
KA3	Unloading indicator relay (barrier machine only)
NTC 1	Temperature probe
S1	Loading side emergency stop pushbutton
S7	Loading side cage positioning pushbutton
S9	Loading door opening pushbutton
S14	Left side unbalance switch
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T2	Low-voltage transformer (fuse = 1,25 A-T)
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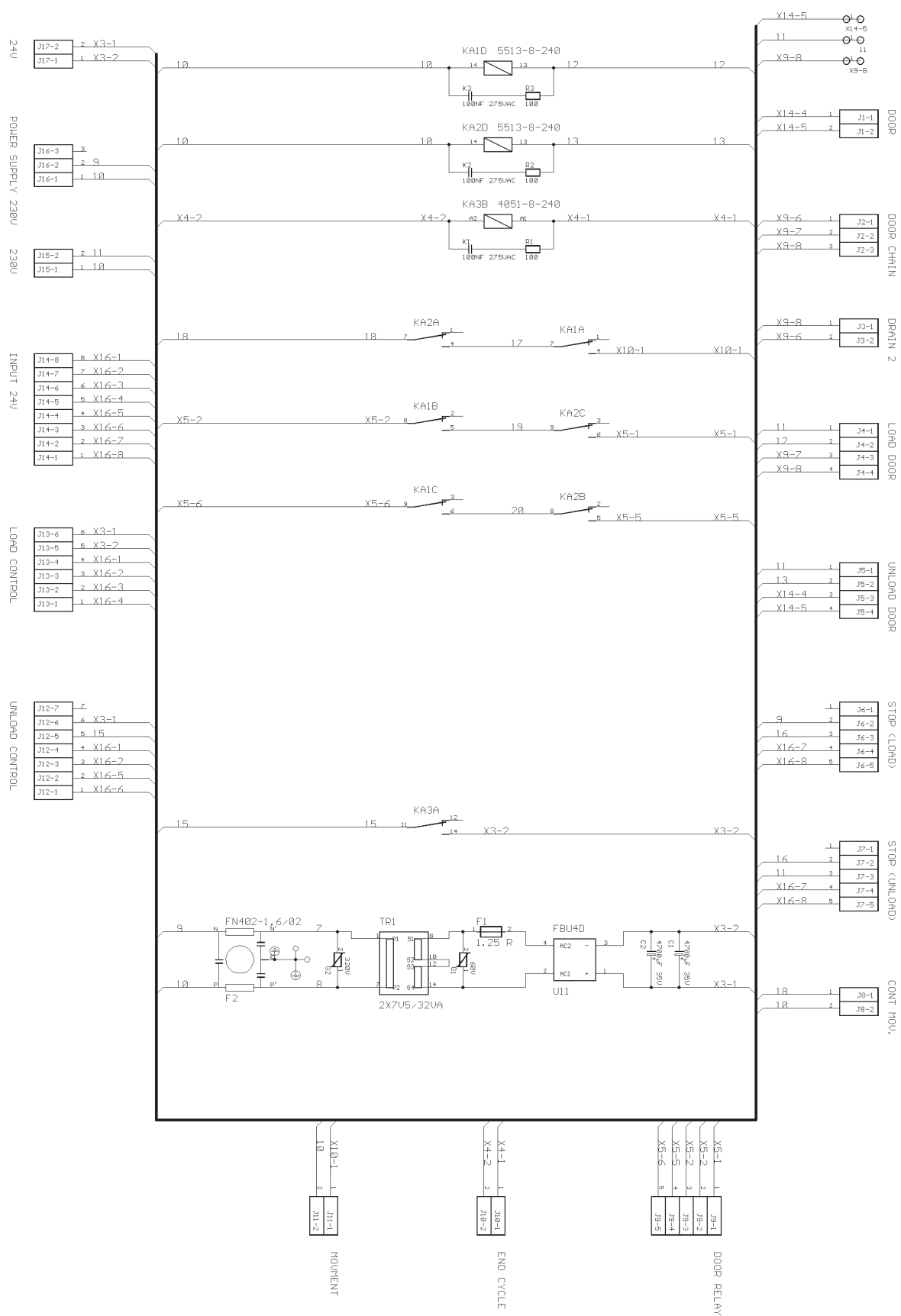


GAS HEATING - CONNECTING DIAGRAM

All washer-extractor

Diagram no. 31101285B

A3	Ignitor and checking box
B1	Products of combustion pressure switch (do not change the adjustments)
C1	Water level detector
E1	Ignitor electrode
E2	Checking electrode
H5	Safety heating gas burner indicator
H6	Heating indicator On
H7	Water default indicator
i14	Circulating pump ipso
KA15	Depression safety relay
KA16	Positive security thermostat relay
KM3	Circulating pump contactor
M3	Circulating pump motor
M4	Draught accelerator motor
RT1	Time relais 5 sec.
TH1	Positive security thermostat
X8	Gas exchanger terminal
Y14	Gas electrovalve
Y15	Gas electrovalve



Configuration of variator KEB type 5

list of CP parameters

Code Function :

CP. 0	Password input
CP. 1	Inverter status display
CP. 2	Utilization
CP. 3	Actual frequency display
CP. 4	Peak of load
CP. 5	Variator temperature
CP. 6	Apparent current
CP. 7	Active set
CP. 8	Transmission speed
CP. 9	Last error
CP.10	Overcurrent
CP.11	Overload
CP.12	Overvoltage
CP.13	Overtemperature
CP.14	Max. constant current set 0
CP.15	Max. ramp current set 0
CP.16	Boost stop set 0
CP.17	Max. constant current wash set 1
CP.18	Max. ramp current wash set 1
CP.19	Regulator of proportional speed wash set 1
CP.20	Regulator of integral speed wash set 1
CP.21	Boost wash set 1
CP.22	Autoboost wash set 1
CP.23	Max. constant current distribution set 2
CP.24	Max. ramp current distribution set 2
CP.25	Regulator of proportional speed distribution set 2
CP.26	Regulator of integral speed distribution set 2
CP.27	Boost distribution set 2
CP.28	Autoboost distribution set 2
CP.29	Max. constant current extraction set 3
CP.30	Max. ramp current extraction set 3
CP.31	Overmodulation extraction set 3
CP.32	Max. constant current positioning set 4
CP.33	Max. ramp current positioning set 4
CP.34	Boost positioning set 4
CP.35	Autoboost positioning set 4

NOTA :

After parameterizing it is compulsory to barr the unit against access. Enter the value 100 in CP.0 after loading the programme in the inverter.

In after sales you can enable the access to CP parameters by entering the value 200 in CP.0

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50. Troubleshooting

CONTENTS

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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.

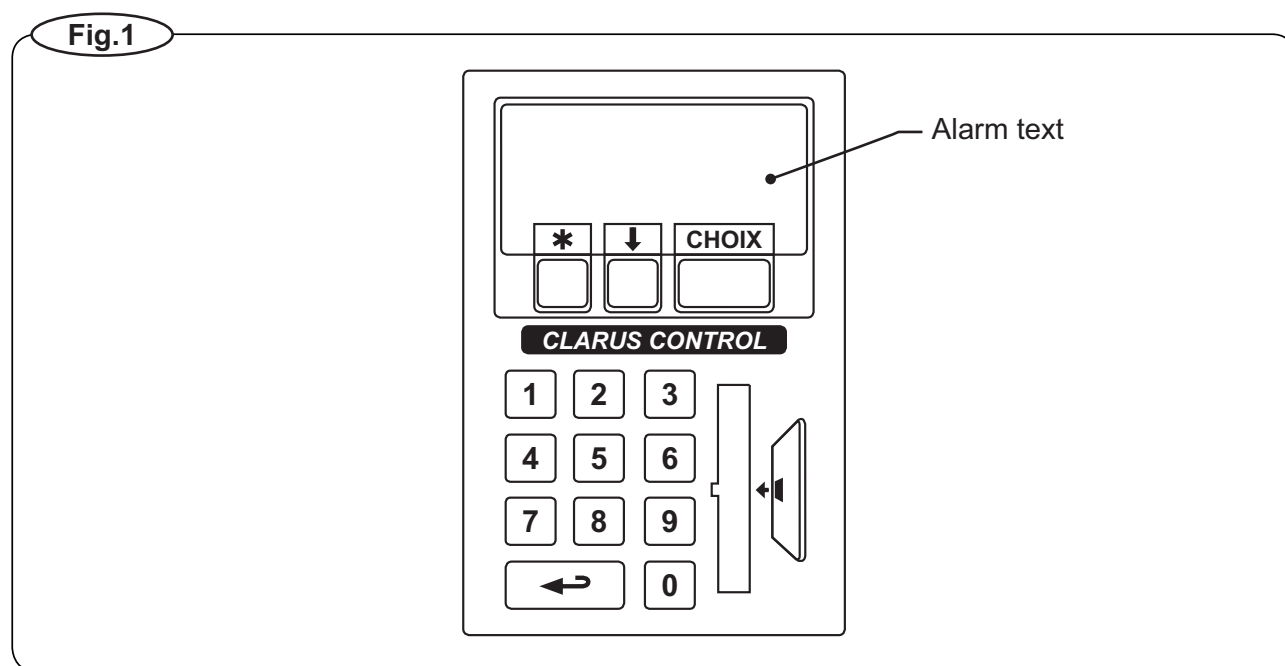
Display principale for an anomaly message

Errors with no error codes

Programme or machine errors are indicated by an alarm text in the display window. Resetting an error indication Error indications can be reset in two different ways.

Errors with error codes

(Fig.1) Programme or machine errors are indicated by an alarm text in the display window.

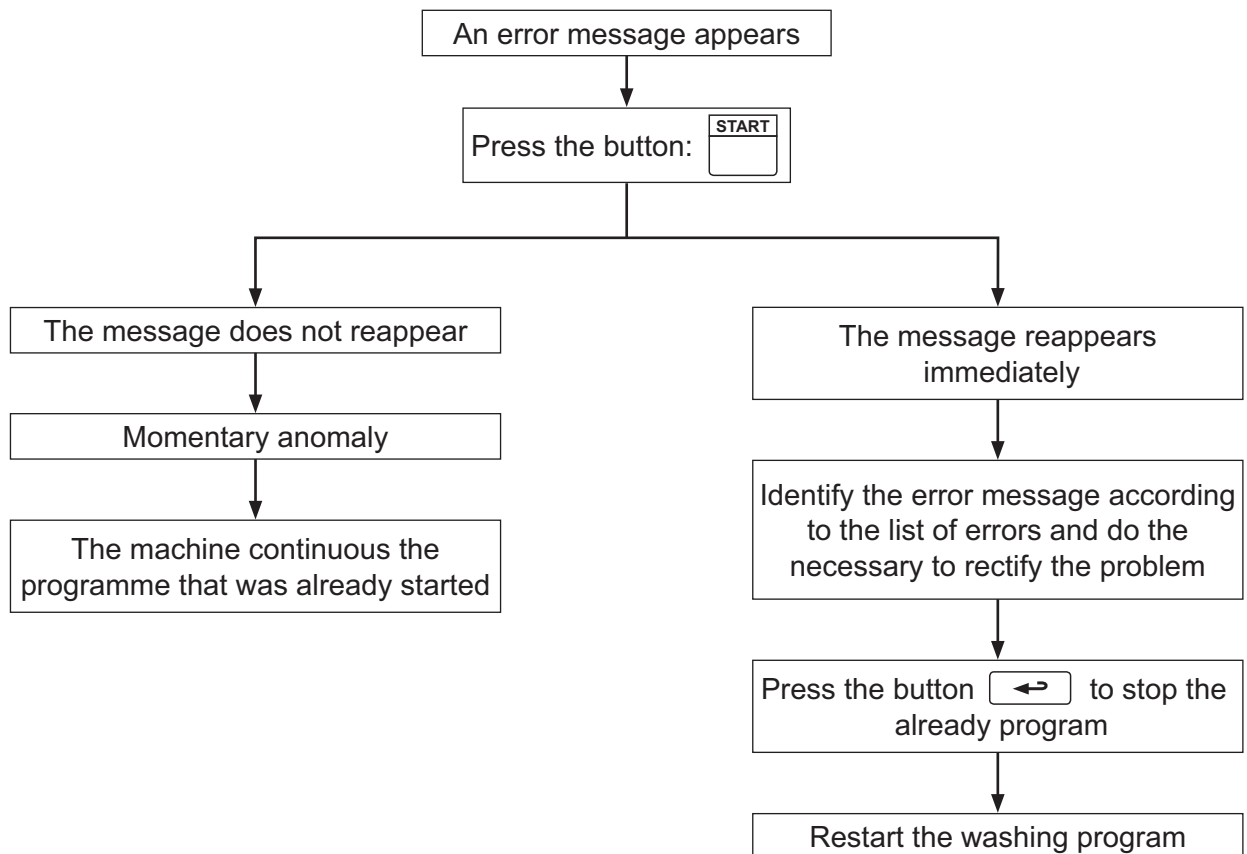


Resetting an error indication Error indications can be reset in two different ways:

- (Fig.1)
- By pressing START, the error may be temporarily reset. The machine then continues the programme that was already started. If the error code remains, the error will come back at once.
 - By pressing the error is reset and the started programme is cancelled.

Error codes:

A brief summary of all error codes and the possible cause for each error is presented below. Troubleshooting charts for all errors.



List errors with suitable error message

Error/Function	Cause	Action
Error 1: <div>NO WATER</div> Water level has not reached set level within set time.	Electrovalve's filters are blocked. No water in main supply. Manual water valves (taps) are closed. Electrovalves are faulty. Drain valve is open. Level tube is faulty or not come loose from mother board. Level detection function on CPU PCB faulty.	Clean electrovalve's filters. Check water in main supply. Open taps. Check function of electrovalves. Check function of drain valve. Check that level tube is sound and its joint. Replace PCB.
Error 2: <div>DOOR OPEN</div> Error 3: <div>DOOR UNLOCKED</div> Signal from micro-switch which detects when the door is locked absent at program start.	Door not locked. Fault in door lock switch or in wiring faulty. The PCB is faulty.	Test whether door really locked. Open the door and switch off power to machine. Wait a minute or so, switch on power supply, close door again and try restarting. Check wiring or replace door lock as appropriate. Replace PCB.
Error 4: <div>NTC LOW TEMP.</div> Temperature sensor indicating a temperature below lowest allowable value.	This suggests open circuit (continuity fault) in sensor or wiring. Temperature sensor faulty. Fault in temperature sensing device on CPU PCB.	Check the wiring temperature sensor and replace as appropriate. Replace temperature sensor. Replace PCB.
Error 5: <div>NTC HIGH TEMP.</div> Temperature sensor indicating a temperature above highest allowable value.	This suggests short-circuit in sensor or wiring. Temperature sensor faulty. Temperature detection function on CPU PCB faulty.	Check the wiring temperature sensor and replace as appropriate. Replace temperature sensor. Replace PCB.
Error 6: <div>WATER IN DRUM</div> The water level is higher than the EMPTY level at start of program.	Waste water collector might be blocked. Drain valve or wiring faulty. Level tube probably blocked. Level detection function on CPU PCB faulty. Air vent blocked.	Clean waste water collector. Check drain valve functioning. Clean or replace level tube. Clean connection of the water level control device. Replace PCB. Clean air vent.

List errors with suitable error message

Error/Function	Cause	Action
<p>Error 7:</p> <div>MACHINE OVERFILLED</div> <p>The water level is above the set safety level during program operation or manual operation.</p>	<p>Transient fault or water has been added manually.</p> <p>Electrovalves are faulty.</p> <p>Level detection function on CPU PCB faulty.</p>	<p>Drain machine then restart a program or change the level in the manual program.</p> <p>Check function of electrovalves.</p> <p>Replace PCB.</p>
<p>Error 8:</p> <div>NO HEATING</div> <p>Rate of temperature increase in water slower than minimum value allowed.</p>	<p>Bad water seal of the drain valve.</p> <p>Elements faulty.</p> <p>Leak at water supply.</p> <p>Fault in wiring between contactor and element(s) or heating contactor faulty.</p> <p>Temperature detection function on CPU PCB faulty.</p>	<p>Check water seal of the drain valve.</p> <p>Switch off power supply at wall switch. Measure resistance of elements to see if any element is faulty (open circuit). Replace faulty element.</p> <p>Check seals of water electrovalves.</p> <p>Check wiring and replace the heating contactor.</p> <p>Replace PCB.</p>
<p>Error 10:</p> <div>NOT DRAINED</div> <p>The water level is higher than the EMPTY level after drain sequence.</p>	<p>Programmed drain time too short.</p> <p>Level tube probably blocked.</p> <p>Drain valve or wiring faulty.</p> <p>Level detection function on CPU PCB faulty.</p>	<p>Increase drain time.</p> <p>Clean or replace level tube. Clean connection of the water level control device.</p> <p>Check drain valve functioning.</p> <p>Replace PCB</p>
<p>Error 11:</p> <div>UNBAL SENSOR FAULT</div> <p>The unbalance safety device has been activated before spinning.</p>	<p>The unbalance safety contact has been activated for at least 5 seconds during washing before a distribution.</p> <p>The unbalance safety contact faulty or a suspension spring is broken.</p> <p>Bad loading of machine.</p>	<p>Turn the machine's wall switch off and check unbalance safety contact.</p> <p>Check suspension.</p> <p>Correctly load the drum or put linen in several nets.</p>
<p>Error 13:</p> <div>NO INVERTER COMM.</div> <p>Communication between PCU and frequency converter interrupted or disturbed.</p>	<p>Transient fault. No action required.</p> <p>Frequency converter faulty.</p>	<p>Turn the machine's wall switch off and on again. Start a program.</p> <p>Check the frequency converter.</p>

List errors with suitable error message

Error/Function	Cause	Action
<p>Error 14:</p> <div>LEVEL CALIBRATION</div> <p>The water level system has not been correctly calibrated.</p>	<p>If the level system has not been calibrated at the factory the error message will appear for five seconds immediately after every program start-up. The machine can be operated, but the levels will be slightly wrong, mostly too low.</p>	<p>Carry out programming anew and make sure the calibration values are within the allowed limits.</p>
<p>Error 15:</p> <div>EMERGENCY STOP</div> <p>The emergency stop button has been pressed.</p>	<p>Abnormal or dangerous running of the machine.</p>	<p>After the problem which caused the emergency stop has been put right, reset the emergency stop button by turning it until it pops back out. Check wiring.</p>
<p>Error 17:</p> <div>DOOR LOCK</div> <p>signal absent from door status switch, although door is locked.</p>	<p>Transient fault. No action required.</p>	<p>Check if the door is locked. Open the door and switch off power to machine. Wait a minute or so, switch on power supply, close door again and try restarting.</p>
	<p>Fault in door lock switch or in wiring faulty.</p>	<p>Check wiring or replace door lock as appropriate.</p>
	<p>The PCB is faulty.</p>	<p>Replace PCB.</p>
<p>Error 18:</p> <div>START NOT ALLOWED</div> <p>The network does not allow start of the washing programme.</p>		<p>Try to reset the error code. If the error remains, contact the responsible person for the network and have the error fixed.</p>
<p>Error 19:</p> <div>CMIS COMMUNICATION</div> <p>Machine has lost contact with network.</p>	<p>Communication between the programme unit card A1 and the network has been interrupted.</p>	<p>Verify that the cable between the network and X7 on programme unit card A1 is connected. If the cable is properly connected, contact the person responsible for the network.</p>
<p>Error 20:</p> <div>TACHO</div> <p>The motor controller does not receiving an interlock signal during programme operation.</p>	<p>Fault in MCU receiving circuitry for lock acknowledgement signal. The test of the MCU-interlock circuits proceeds in the following way: Before the locking of the door lock a speed command is sent from the timer to the MCU (=0 Hz). Then the timer checks that the value of the apparent current (ru 15) and output (ru 20) is below the value 5, which is a condition for locking the door. When the door is locked the timer again command running at 0 Hz and this time the apparent current and the output voltage shall have a value above 5.</p>	<p>Switch off the machine for at least 30 seconds to ensure the motor controller has been completely reset. Then try to start the machine again.</p>

List errors with suitable error message

Error/Function	Cause	Action
<p>Error 21:</p> <div>I/O COMM ERROR</div> <p>Communication between the CPU board and one of the I/O boards disturbed or lost.</p>	<p>Transient fault. No action required.</p>	<p>Turn the machine's wall switch off and on again. Start a program.</p>
	<p>The PCB is faulty.</p>	<p>Replace PCB.</p>
<p>Error 23:</p> <div>PHASE</div> <p>Incorrect input voltage to external equipment.</p>	<p>An input on I/O card 1 (X16:7-8) can be connected to external equipment that monitors received mains signals in terms of voltage levels, loss of phase, etc. If this input goes high, the error message is displayed.</p>	<p>Find out the reason for the error indication by inspecting the mains monitoring equipment.</p>
<p>Error 27:</p> <div>LEVEL OFFSET</div> <p>The pressure sensor for the water level signals a value that is so different from the empty machine state that the automatic level calibration cannot adjust the level system.</p>		<p>Try to restart the machine (i.e. reset the error code) by pressing START.</p>
<p>Error 40:</p> <div>MOTOR TOO HOT</div> <p>The frequency converter has detected a high temperature of the motor.</p>	<p>The motor's fan does not cool down any more.</p>	<p>Check the direction of rotation of the fan. Clean the grid of the fan. Replace the fan.</p>
	<p>Internal fault in motor causing high temperature.</p>	<p>Replace the motor.</p>
<div>TANGLING OF THE LINEN</div> <p>The mechanical action during washing can lead to the tangling of large pieces such as bed sheets or table cloths.</p>	<p>Bad programming options can be responsible of this matter :</p> <ul style="list-style-type: none"> • too long washing cycle • washing without detergents • exaggerated time of programming • too many rinses • heating time at low level too long • rotation with no water (levels control too long) • washing at reduced speed or too long rotation cadence • textile embedded with limestone or detergent 	<ul style="list-style-type: none"> • Avoid mechanical action with no water. • Avoid fillings and drain at no rotation. • Use a softener at last rinse. • Optimize programming. • Verify incrustation rate of linen.

KEB list errors with suitable error message

Error/Function	Meaning	Possible cause
<div>KEB ERROR 31 EOP</div> Error overvoltage.	Voltage in the DC-link circuit too high..	Poor controller adjustment (overshooting), input voltage too high, interference voltages at the input, deceleration ramp too short, braking resistor defective or too small.
<div>KEB ERROR 32 EUP</div> Error under potential.	Occurs, if DC-link voltage falls below the permissible value.	Input voltage too low or instable, inverter rating too small, voltage losses through wrong cabling, the supply voltage through generator / transformer breaks down at very short ramps, E.UP is also displayed if no communication takes place between power circuit and control card, jump factor (Pn.56) too small, if a digital input was programmed as external error input with error message E.UP (Pn.65).
<div>KEB ERROR 33 EUPH</div> Error phase failure.	One phase of the input voltage is missing (ripple detection).	
<div>KEB ERROR 34 EOC</div> Error overcurrent.	Occurs, if the specified peak current is exceeded.	Acceleration ramps too short, the load is too big at turned off acceleration stop and turned off constant current limit, short-circuit at the output, ground fault, deceleration ramp too short, motor cable too long, EMC, DC brake at high ratings active.
<div>KEB ERROR 36 EOHl</div> Error overheat internal.	Overheating in the interior : error can only be reset at E.nOHI, if the interior temperature has dropped by at least 3°C.	
<div>KEB ERROR 37 ENOHI</div> No Error overheat internal.	No longer overheating in the interior E.OHI, interior temperature has fallen by at least 3°C.	
<div>KEB ERROR 38 EOH</div> Error overheat power module.	Over temperature of power module. Error can only be reset at E.nOH.	Insufficient air flow at the heat sink (soiled), ambient temperature too high, ventilator clogged.
<div>KEB ERROR 39 EDOH</div> Error drive overheat.	Over temperature of motor PTC. Error can only be reset at E.ndOH, if PTC is again low-resistance.	Resistance at the terminals T1/T2>1650 Ohm, motor overloaded, line breakage to the temperature sensor.
<div>KEB ERROR 41 ENDOH</div> No Error drive overheat.	Motor temperature switch or PTC at the terminals T1/T2 is again in the normal operating range. The error can be reset now.	

KEB list errors with suitable error message

Error/Function	Cause	Action
<div>KEB ERROR 42 EPU</div> Error power unit.	General power circuit fault.	
<div>KEB ERROR 44 EPUIN</div> Error power unit invalid.	Software version for power circuit and control card are different. Error cannot be reset.	
<div>KEB ERROR 45 ELSF</div> Error load shunt fault.	Load-shunt relay has not picked up, occurs for a short time during the switch-on phase, but must automatically be reset immediately.	Load-shunt defective, input voltage wrong or too low, high losses in the supply cable, braking resistor wrongly connected or damaged, braking module defective.
<div>KEB ERROR 46 EOL</div> Error overload.	Overload error can only be reset at E.nOL, if OL-counter reaches 0% again. Occurs, if an excessive load is applied longer than for the permissible time.	Poor control adjustment (overshooting), mechanical fault or overload in the application, inverter not correctly dimensioned, motor wrongly wired, encoder damaged.
<div>KEB ERROR 47 ENOL</div> No Error overload.	No more overload, OL-counter has reached 0%. After the error E.OL, a cooling phase must elapse. This message appears upon completion of the cooling phase. The error can be reset. The inverter must remain switched on during the cooling phase.	
<div>KEB ERROR 48 EBUS</div> Error bus.	Adjusted monitoring time (watchdog) of communication between operator and PC / operator and inverter has been exceeded.	
<div>KEB ERROR 49 EOL2</div> Error overload 2.	Occurs if the standstill constant current is exceeded. The error can only be reset if the cooling time has elapsed and E.nOL2 is displayed.	
<div>KEB ERROR 50 ENOL2</div> No Error overload 2.	The cooling time has elapsed. The error can be reset.	
<div>KEB ERROR 51 EEEP</div> Error EEPROM defective.	After reset the operation is again possible (without storage in the EEPROM).	
<div>KEB ERROR 52 EPUCO</div> Error power unit commun.	Parameter value could not be written to the power circuit. Acknowledgement from PC<>OK.	

KEB list errors with suitable error message

Error/Function	Cause	Action
<div>KEB ERROR 53 SBUS</div> Error bus synchron.	Synchronization over sercos-bus not possible. Programmed response : «Error, restart after reset».	
<div>KEB ERROR 60 EOH2</div> Error motor protection.	Electronic motor protective relay has tripped.	
<div>KEB ERROR 61 EEF</div> Error external fault.	External error. Is triggered, if a digital input is being programmed as external error input and trips.	
<div>KEB ERROR 62 ENC</div> Error encoder.	Cable breakage of encoder at encoder interface.	Encoder temperature is too high, speed is too high, encoder signals are out of specification, encoder has an internal error.
<div>KEB ERROR 63 EPFC</div> Error power factor control.	Error in the power factor control.	
<div>KEB ERROR 66 ENOH</div> No Error over heat power module.	Temperature of the heat sink is again in the permissible operating range. The error can be reset now.	
<div>KEB ERROR 69 ESET</div> Error set.	It has been attempted to select a locked parameter set. Programmed response: «Error, restart after reset».	
<div>KEB ERROR 76 EPRF</div> Error prot. rotation for.	The drive has driven onto the right limit switch. Programmed response: «Error, restart after reset».	
<div>KEB ERROR 77 EPRR</div> Error prot. rotation rev.	The drive has driven onto the left limit switch. Programmed response: «Error, restart after reset».	
<div>KEB ERROR 79 EPUCI</div> Error power unit code invalid.	During the initialization the power circuit could not be recognized or was identified as invalid.	

KEB list errors with suitable error message

Error/Function	Cause	Action
<div>KEB ERROR 80 PUCH</div> <div>Error power unit changed.</div>	Power circuit identification was changed. With a valid power circuit this error can be reset by writing to SY.3. If the value displayed in SY.3 is written, only the power-circuit dependent parameters are re initialized. If any other value is written, then the default set is loaded. On some systems after writing SY.3 a Power-On-Reset is necessary.	
<div>KEB ERROR 81 EDRI</div> <div>Error driver relay.</div>	Relay for driver voltage on power circuit has not picked up even though control release was given.	
<div>KEB ERROR 82 EHYB</div> <div>Error hybrid.</div>	Invalid encoder interface identifier.	
<div>KEB ERROR 83 EIED</div> <div>Error input error detect.</div>	Error at PNP / NPN switching or input failure.	
<div>KEB ERROR 84 ECO1</div> <div>Error counter overrun 1.</div>	Counter overflow encoder channel 1.	
<div>KEB ERROR 85 ECO2</div> <div>Error counter overrun 2.</div>	Counter overflow encoder channel 2.	
<div>KEB ERROR 86 EBR</div> <div>Error brake.</div>	This error can occur in the case of switched on brake control.	The load is below the minimum load level (Pn.43) at start up or the absence of an engine phase was detected. The load is too high and the hardware current limit is reached.
<div>KEB ERROR 87 EINI</div> <div>Error initialisation MFC.</div>	MFC not booted.	
<div>KEB ERROR 88 EOS</div> <div>Error over speed.</div>	Real speed is bigger than the max. output speed.	

KEB list errors with suitable error message

Error/Function	Cause	Action
<div>KEB ERROR 89 EHYBC</div> <div>Error hybrid changed.</div>	Encoder interface identifier has changed, it must be confirmed over ec.0 or ec.10.	
<div>KEB ERROR 90 ECCD</div> <div>Error drive data calculation.</div>	During the automatic motor stator resistance measurement.	

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