



# Service Manual

## Washing machine

### Frontloader

### AWM 312/3

<b>Model Version</b>		<b>Page</b>
	AWM 312/3	
	8570 312 53010	
	Technical data	2 - 3
	Spare part list	4 - 5
	Exploded view	6 - 7
	Wiring diagram	8
	Circuit diagram	9
	Program diagram	10 - 12
	Text/Legend	13 - 14
	Family	2B

## Technical data

### Dimensions

Height	85	cm
Width	59.5	cm
Depth	55	cm

### Weight

Without packing	73	kg
-----------------	----	----

### Main connection

Voltage	230	V
Frequency	50	Hz
Power consumption	2.3	kW
Fuse rating	10	A

### Drum

Volume	48	l
Wash spin	54	rpm
Ramp spin	110	rpm
Speed spinning max.	1200	rpm

### Capacity of dry laundry

Cotton/coloured laundry	5	kg
Cotton rapid	3	kg
Easy care	2.5	kg
Easy care rapid	1.5	kg
Delicate	1.5	kg
Wool	1	kg

### Pressostat

#### Quantity of water washing

Cotton/coloured laundry	9.5	l
Easy care	9.5	l
Delicate	14	l
Wool	16.5	l
Overflow	30	l

#### Quantity of water rinse

Cotton/coloured laundry	12	l
Easy care	11.5	l
Delicate	15	l
Wool	17	l
Overflow	30	l

### Nominal current

#### Contacts:

11 - 12	4 (4)	A
11 - 14	16 (4)	A
11 - 16	1 (1)	A

#### Contactsystem:

11-12-14	jump contacts
11 - 16	slow action contacts

### Door lock

Lock time	3" - 6"	( 20°C )
Unlock time	60" - 90"	
Nominal voltage	230	V
Nominal current:		
contact 4 - 5	1	mA
contact 11 - 14	16 (4)	A

### Heating element

Kind of heating	Tubular heating element with NTC-sensor	
Nominal voltage	230	V
Nominal power	2050	W
Heat conductor resistance	28.09	Ω
Resistance NTC:		
0°C	35.9	kΩ
30°C	9.8	kΩ
40°C	6.6	kΩ
50°C	4.6	kΩ
60°C	3.2	kΩ
70°C	2.3	kΩ
95°C	1.1	kΩ

### Inlet valve (cold)

Water temperature max.	60	°C
Rated flow < 1 bar	4	l/min
Pressure range	0.5-10	bar
Nominal voltage	220-240	V
Frequency	50	Hz
Starting voltage < 6 bar	160	V
6-10 bar	170	V
Nominal current	35	mA
Nominal power	6	VA
Nominal resistor (20°C)	4060	kΩ

### Inlet valve (hot)

Water temperature max.	90	°C
Rated flow < 1 bar	4	l/min
Pressure range	0.5-10	bar
Nominal voltage	220-240	V
Frequency	50	Hz
Starting voltage < 6 bar	160	V
6-10 bar	170	V
Nominal current	35	mA
Nominal power	6	VA
Nominal resistor (20°C)	4060	kΩ

## Technical data

### Drain pump (synchronous)

Nominal voltage	230	V
Nominal current	0.3	A
Nominal consumption	34	W
Frequency	50	Hz
Resistor (coil)	155 ±7%	Ω
Motor protection	no	
Capacity (1.25m height)	15 2	l/min

### Program timer

Type	Hybridtimer with integrated electronic	
Fab.	EC 4475 (Timer 2b)	
Nominal voltage	230	V
Frequency	50	Hz
Total positions	60	
Pre wash	pos.	01 - 09
Main wash	pos.	10 - 31
Rinse	pos.	32 - 49
Spin	pos.	50 - 55
Error	pos.	56 - 58
Stop	pos.	59 - 60

### Motor

Type	MCA 52/64 - 148 t.f./ WHE0 i = 1 : 13.5	
------	--	--

#### Resistance contacts:

1 - 2	68.7	±7% Ω
Collector directly	2.15	±7% Ω
5 - 6	1.46	±7% Ω
5 - 7	0.65	±7% Ω

### Radio interference supression

Type	Friburg 26161 C42	
Nominal voltage	230	V
Nominal capacity	1FX1+2x22nFY	
Nominal inductance	2 x 1	mH
Nominal resistance	470	kΩ

### Temperature switch

Positions	7	
Nominal voltage	5	V
Value of resistors:		
1 - 2 - 3	internal shunt	
4 - 6	internal shunt	
5 - 6	pos.1	10 Ω
	pos.2	0.68 5% kΩ
	pos.3	1.10 5% kΩ
	pos.4	1.80 5% kΩ
	pos.5	2.70 5% kΩ
	pos.6	3.60 5% kΩ
	pos.7	4.70 5% kΩ

### Spin selector switch

Positions	7	
Nominal voltage	5	V
Value of resistors:		
1 - 2 - 3	internal shunt	
4 - 6	internal shunt	
5 - 6	pos.1	10 Ω
	pos.2	0.68 5% kΩ
	pos.3	1.10 5% kΩ
	pos.4	1.80 5% kΩ
	pos.5	2.70 5% kΩ
	pos.6	3.60 5% kΩ
	pos.7	4.70 5% kΩ

### Push button switch

Start switch	SST
eco	SEC
Rapid	SR
Pre wash	SPW
Rinse intensive	SRI
Half load	SHL
Rinse stop	SRS

**Spare part list**

**Model** AWM 312/3  
**Service No.** 857031253010  
**Version** 857031253010

Pos. No.	12NC Code	Description
001 0	<b>4819 440 19716</b>	Cabinet
011 0	<b>4819 462 48472</b>	Foot
021 0	<b>4819 440 19715</b>	Front
021 1	<b>4812 440 19343</b>	Flap
024 0	<b>4812 440 18998</b>	Panel, rear
025 0	<b>4812 440 19346</b>	Holder Control Device
030 0	<b>4812 310 18396</b>	Cover plate
040 0	<b>4812 417 18787</b>	Hinge
053 0	<b>4819 440 19791</b>	Plinth
061 0	<b>4812 466 88458</b>	Counter weight upper
061 1	<b>4812 466 88459</b>	Counter weight front
080 0	<b>4812 529 18038</b>	Shock absorber 800-1000
084 0	<b>4812 466 58001</b>	Silent bloc
086 2	<b>4812 401 18412</b>	Stopper
110 0	<b>4812 498 18139</b>	Handle,door white
130 0	<b>4812 417 28046</b>	Lock Door
130 1	<b>4812 417 28045</b>	Pin Door Lock
131 0	<b>4812 417 28047</b>	Plate Door lock
131 1	<b>4812 417 28048</b>	Plate Doorlock Lower
141 0	<b>4812 450 68219</b>	Door glass
143 0	<b>4819 532 28286</b>	Glassdoor frame
144 0	<b>4812 459 28043</b>	Frame,door glas
144 1	<b>4812 498 18137</b>	Knob Door safety
144 2	<b>4812 492 58023</b>	Spring Door Safety
144 3	<b>4812 290 68153</b>	Holder,adjust. Door Safety
190 0	<b>4812 460 68527</b>	Door bellow
190 1	<b>4812 492 18017</b>	Strap
190 2	<b>4819 530 58059</b>	Ring
200 1	<b>4812 418 18226</b>	Tub
200 2	<b>4819 418 18352</b>	Tub
200 3	<b>4812 520 18065</b>	Hub 1200,48L
200 4	<b>4812 290 88054</b>	Clamp for tub WH
220 0	<b>4812 418 18191</b>	Drum 1200 0,5MM
271 0	<b>4812 358 18056</b>	V-ribbed belt WH 1250 J5
272 0	<b>4812 528 58027</b>	Pulley DIAM.298
292 0	<b>4812 530 58101</b>	Gasket Tub
301 0	<b>4812 452 19261</b>	Control panel
303 0	<b>4812 498 18147</b>	Handle, drawer WH-HIGH
322 0	<b>4812 452 19949</b>	Insert panel
331 0	<b>4812 413 48275</b>	Knob,timer 2b WH-REFRESH
331 1	<b>4812 413 18198</b>	Adapter Button
332 0	<b>4812 410 28562</b>	Push button
335 0	<b>4819 412 58742</b>	Knob thermostat
337 0	<b>4819 412 58762</b>	Knob,potentiom.
341 0	<b>4812 413 78484</b>	Index,programm WH-REFRESH
354 1	<b>4819 134 48497</b>	Pilot lamp
401 0	<b>4812 361 58094</b>	Motor 1200-MCA52/WHEO
421 0	<b>4812 121 18142</b>	Interf.filter 1,00 uF
430 0	<b>4812 360 18384</b>	Pump
451 0	<b>4812 259 28672</b>	Heating element 240 V
490 0	<b>4819 321 18161</b>	Cable,mains
490 1	<b>4812 321 28367</b>	Strain relief
504 0	<b>4812 310 18445</b>	Timer kit 2Bmask6
511 0	<b>4812 413 48279</b>	Selector,switch Temp./Spin
571 0	<b>4812 281 28382</b>	Valve,magnet cold

Pos. No.	12NC Code	Description
571 1	<b>4812 281 28383</b>	Valve,magnet hot
581 0	<b>4812 271 28381</b>	Pressostat EATON
620 1	<b>4819 410 28998</b>	Switch options
621 0	<b>4819 276 18366</b>	Switch
630 0	<b>4812 280 58019</b>	Door lock
701 0	<b>4819 530 28848</b>	Hose, inlet
701 1	<b>4819 466 69704</b>	Gasket and filter
701 2	<b>4812 530 28869</b>	Hose inlet hot
702 0	<b>4819 530 29019</b>	Hose intern
707 0	<b>4812 526 48031</b>	Nozzle Distribution
707 1	<b>4812 526 48028</b>	Nozzle
708 0	<b>4819 530 28971</b>	Hose, inlet intern
708 1	<b>4812 530 48143</b>	Bend
711 0	<b>4819 418 79434</b>	Dispenser
712 0	<b>4812 418 88029</b>	Drawer Detergent
713 0	<b>4812 418 88019</b>	Flap Detergent Container
717 0	<b>4819 321 28092</b>	Bowden cable
717 1	<b>4812 321 38013</b>	Lever, Nozzle
717 2	<b>4812 321 38012</b>	Holder,adjust.
717 3	<b>4812 278 88007</b>	Slide
717 5	<b>4812 310 18381</b>	Cam
718 0	<b>4812 526 48027</b>	Siphon 3 - Chamber
718 1	<b>4812 418 88018</b>	Accessory
753 1	<b>4819 418 68234</b>	Chamber,air
754 0	<b>4812 530 28826</b>	Drainhose
754 1	<b>4812 530 28832</b>	Lock eco
754 2	<b>4812 530 28829</b>	Flange eco
760 0	<b>4812 480 58075</b>	Filter Set Pump
760 1	<b>4812 418 68138</b>	Gasket Sieve / Rough
781 0	<b>4819 530 28847</b>	Hose,draining
783 0	<b>4812 530 28827</b>	Hose Pressostat
787 0	<b>4812 530 28813</b>	Hose
794 5	<b>4812 530 58095</b>	Gasket Air trap
901 0	<b>4812 401 18415</b>	Clamp,hose Tub
901 2	<b>4819 401 18868</b>	Clamp,hose
901 3	<b>4812 401 18414</b>	Clamp,hose
902 0	<b>4812 290 88049</b>	Bracket
902 1	<b>4812 255 18204</b>	Holder Hose outlet
903 0	<b>4812 255 18205</b>	Holder Pressostat
903 5	<b>4812 290 88048</b>	Cable clamp
903 7	<b>4819 401 18823</b>	Clamp
903 8	<b>4819 404 78449</b>	Support
903 9	<b>4812 290 88046</b>	Cable clamp
910 0	<b>4812 502 18379</b>	Screw M 8 x 25
910 1	<b>4812 505 18368</b>	Nut M10
911 7	<b>4812 903 08014</b>	Screw M5x12
923 0	<b>4812 532 18024</b>	Washer
931 0	<b>4819 492 38139</b>	Spring Suspension
932 3	<b>4812 492 58022</b>	Spring Door Lock
932 5	<b>4812 492 38359</b>	Spring, Nozzle
941 0	<b>4819 520 28004</b>	Part not avail.
941 1	<b>4812 520 28066</b>	Bearing,ball 6204
941 5	<b>4812 520 18067</b>	Hub Bearing
953 0	<b>4812 530 58099</b>	Shaft seal 1200
953 1	<b>4812 530 58096</b>	O-Ring Bearing

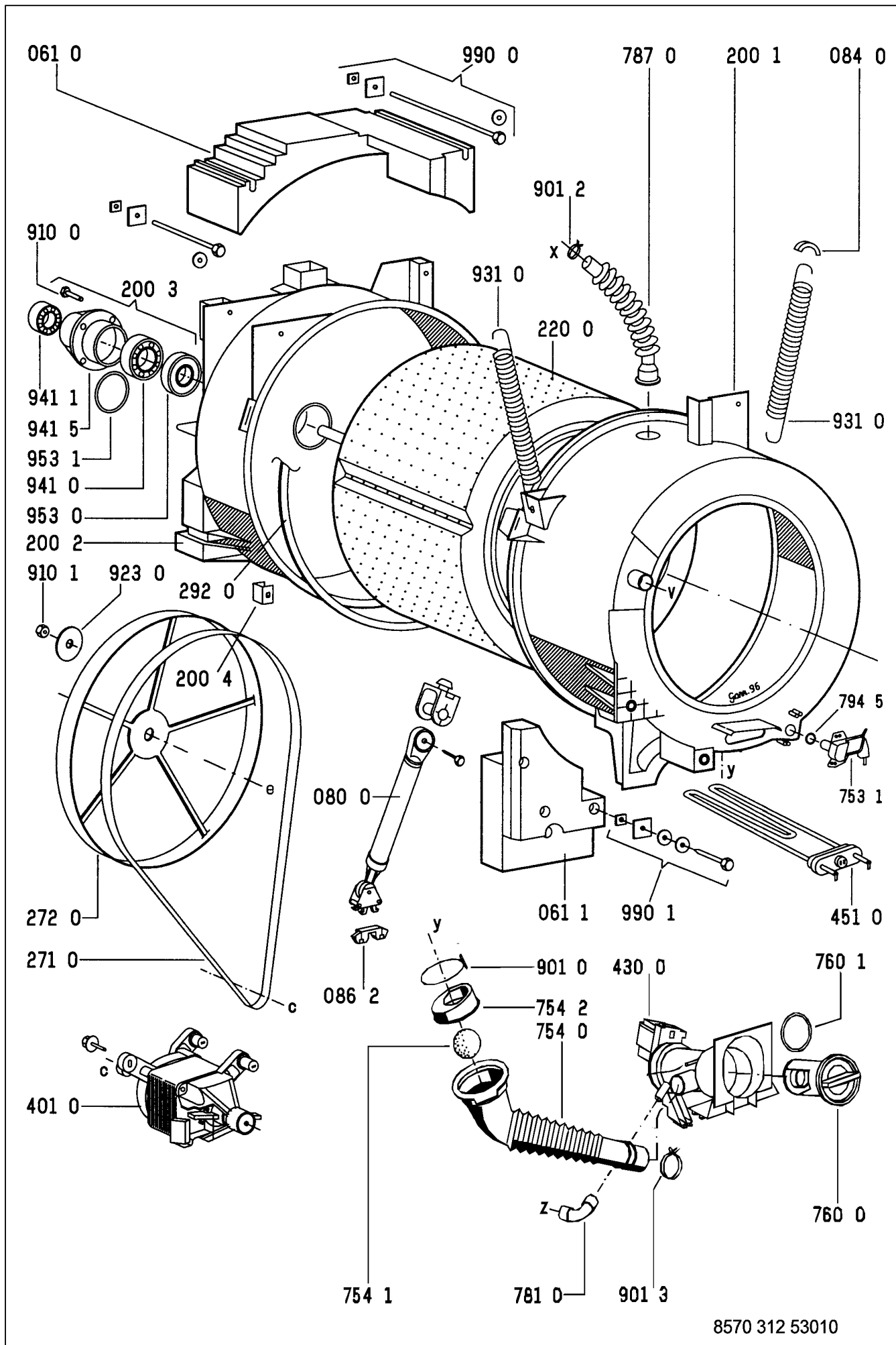
## Spare part list

<b>Model</b>	<b>AWM 312/3</b>
<b>Service No.</b>	<b>857031253010</b>
<b>Version</b>	<b>857031253010</b>

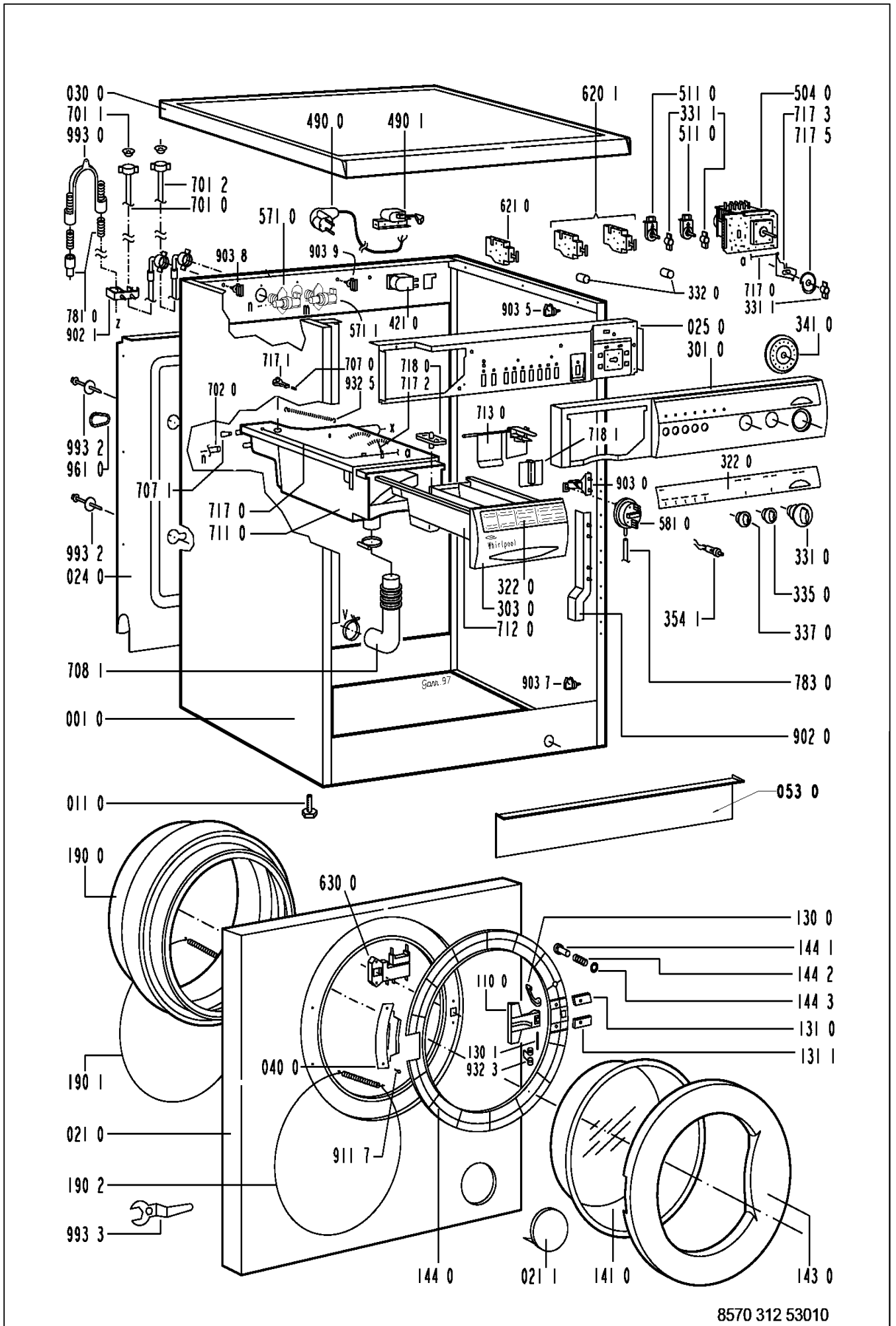
---

<b>Pos. No.</b>	<b>12NC Code</b>	<b>Description</b>
961 0	<b>4812 321 48004</b>	Cover
990 0	<b>4819 310 39227</b>	Mounting kit Weight top
990 1	<b>4819 310 39228</b>	Mounting kit Weight bottom
993 0	<b>4812 530 48017</b>	Bow
993 2	<b>4812 268 18015</b>	Lever,security
993 3	<b>4812 395 58004</b>	Tool

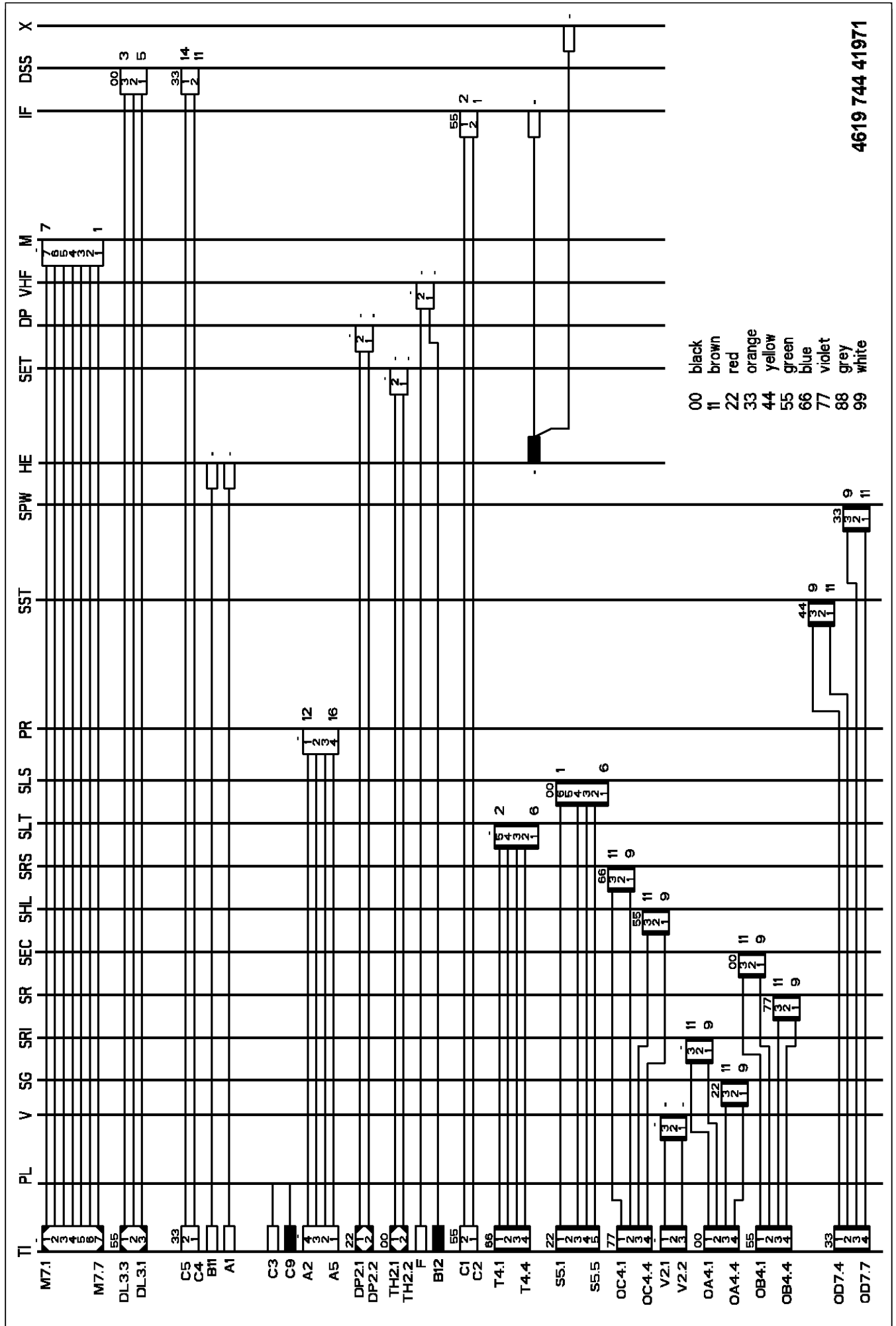
**Exploded view**



## Exploded view

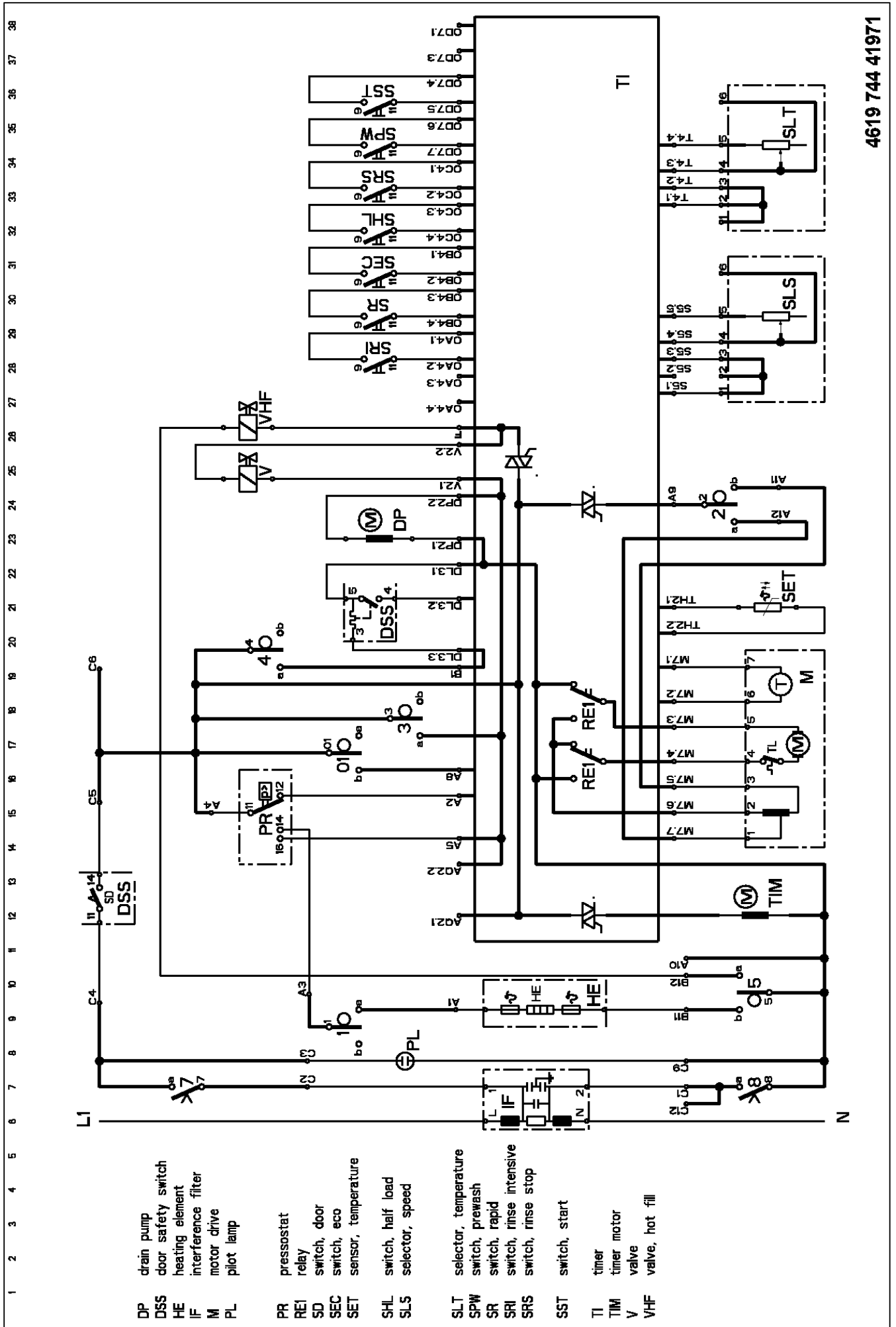


**Wiring diagram**





## Circuit diagram

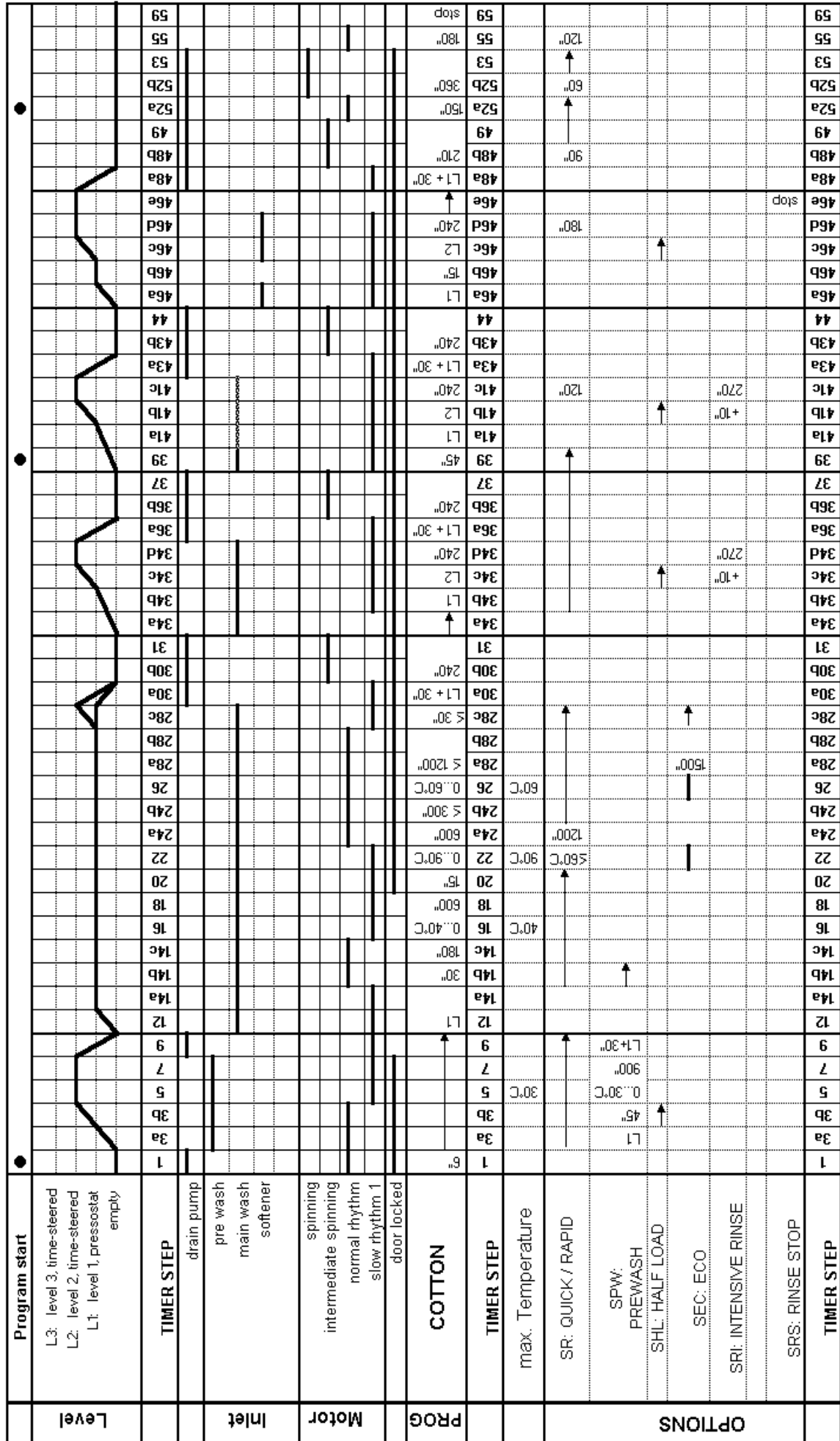


**Program diagram**

4619 744 60211

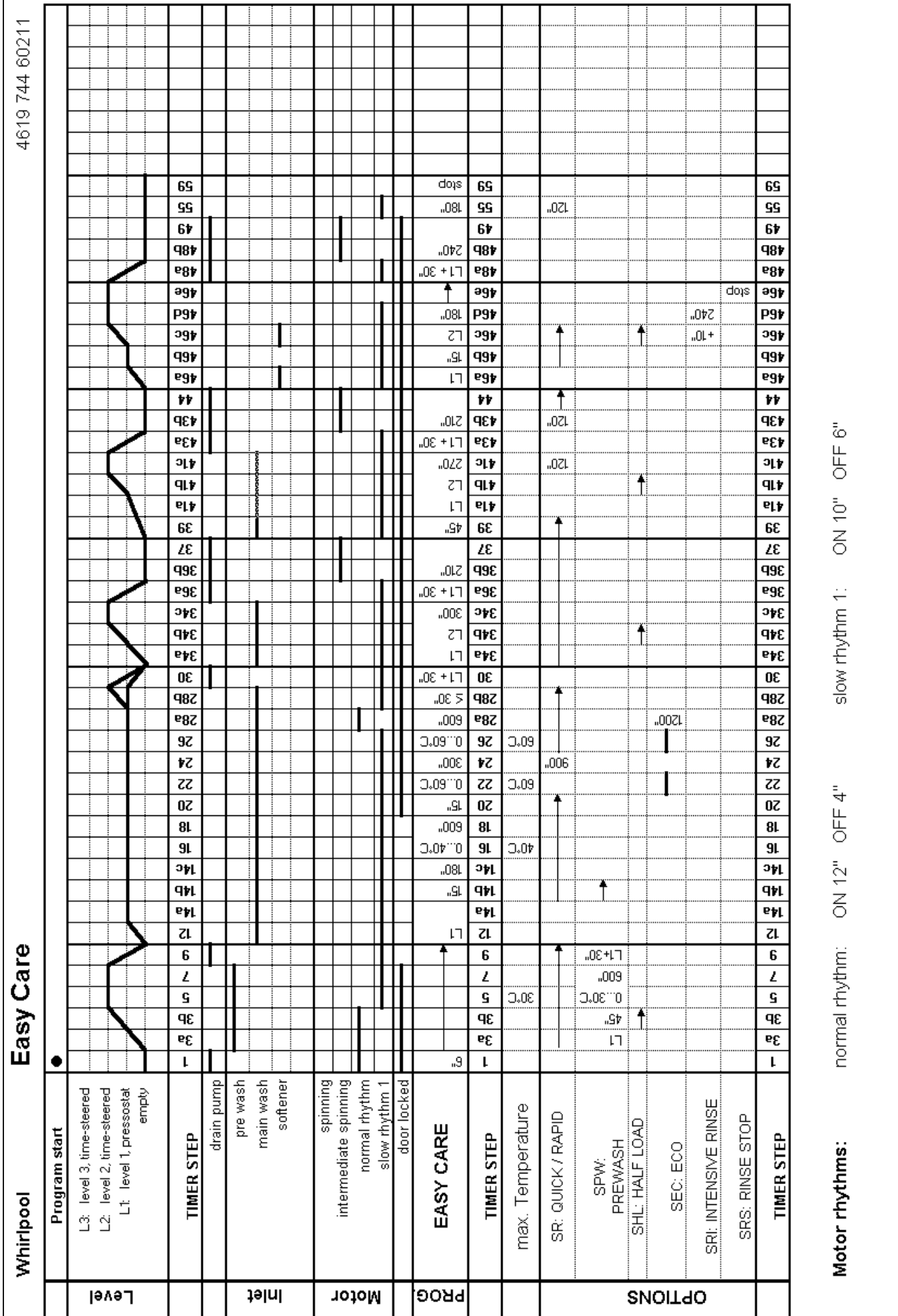
Whirlpool  
**Cotton**  
Soap dispenser: 3 chambers

Program flow Timer 2b



Motor rhythms: slow rhythm 1: ON 10" OFF 6" normal rhythm: ON 12" OFF 4"

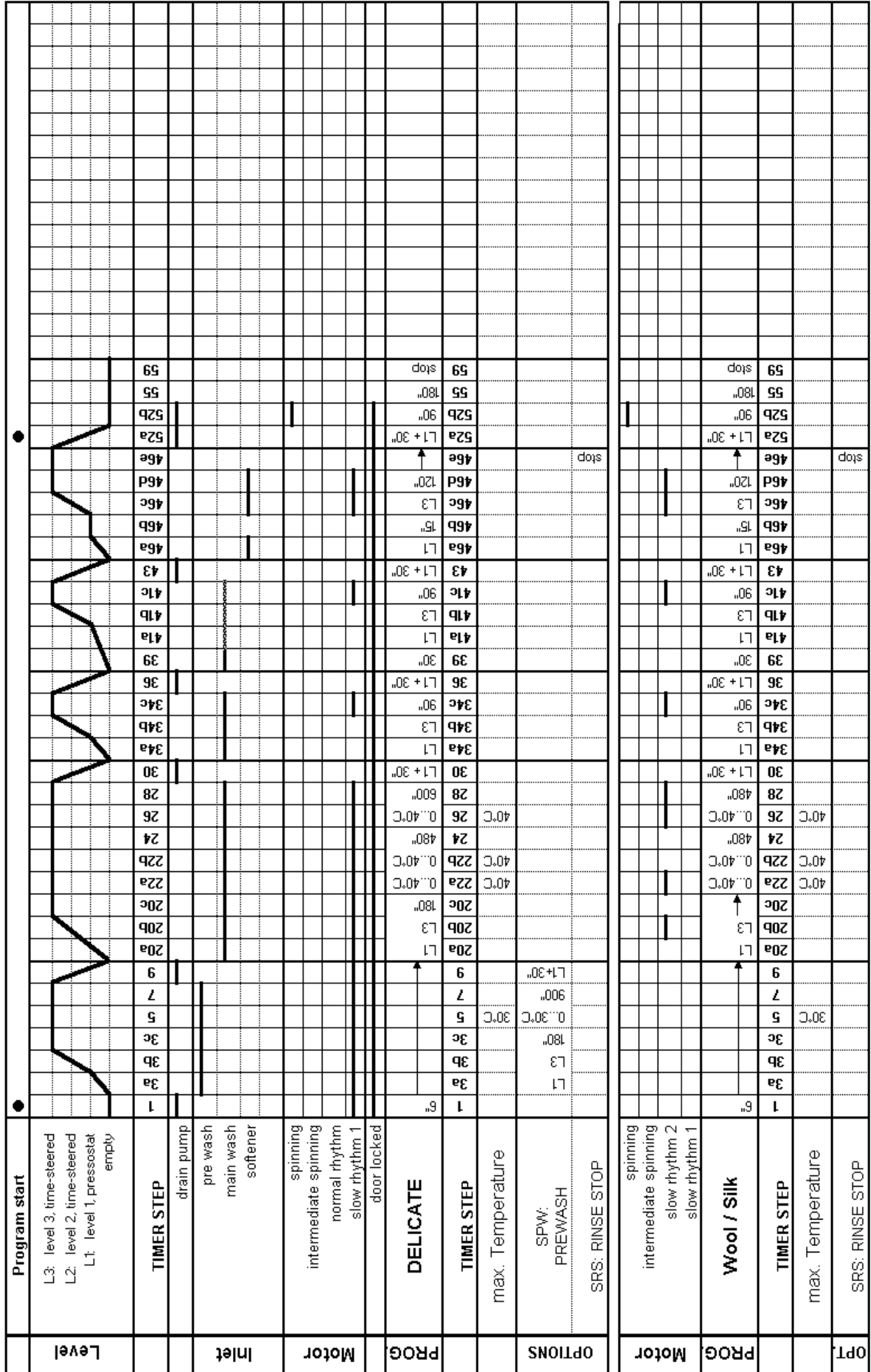
## Program diagram



**Program diagram**

4619 744 60211

**Delicate / Wool / Silk**



**Motor rhythms:** normal rhythm: ON 12" OFF 4" slow rhythm 1: ON 10" OFF 6" slow rhythm 2: ON 2.5" OFF 13.5"

Text/Legend

**Test flow timer 2b mask 5 4619 710 15364**  
**mask 6 4619 710 15365**  
**60 Hz 4619 710 4163 1**

- 1. Select program drain  
Clean the timer push start button > 5 sec  
select off
- 2. Select program drain  
temperature max.  
spin speed max.
- 3. Start test program push pre wash button max 5 sec  
pull pre wash button max 5 sec  
push pre wash button max 5 sec  
pull pre wash button  
timer goes to step 1
- 4. Go to the next step push pre wash button  
pull pre wash button  
or push and pull a other option button related  
to the test step, see test flow

If failure occurs in each step timer stays in next safety step  
valve off; pump off; motor off  
If timer step = heating; timer goes to next step  
If timer step = pumping; timer goes to next step  
Each second step is almost a safety step

**Attention: Use the test program only without laundry!**

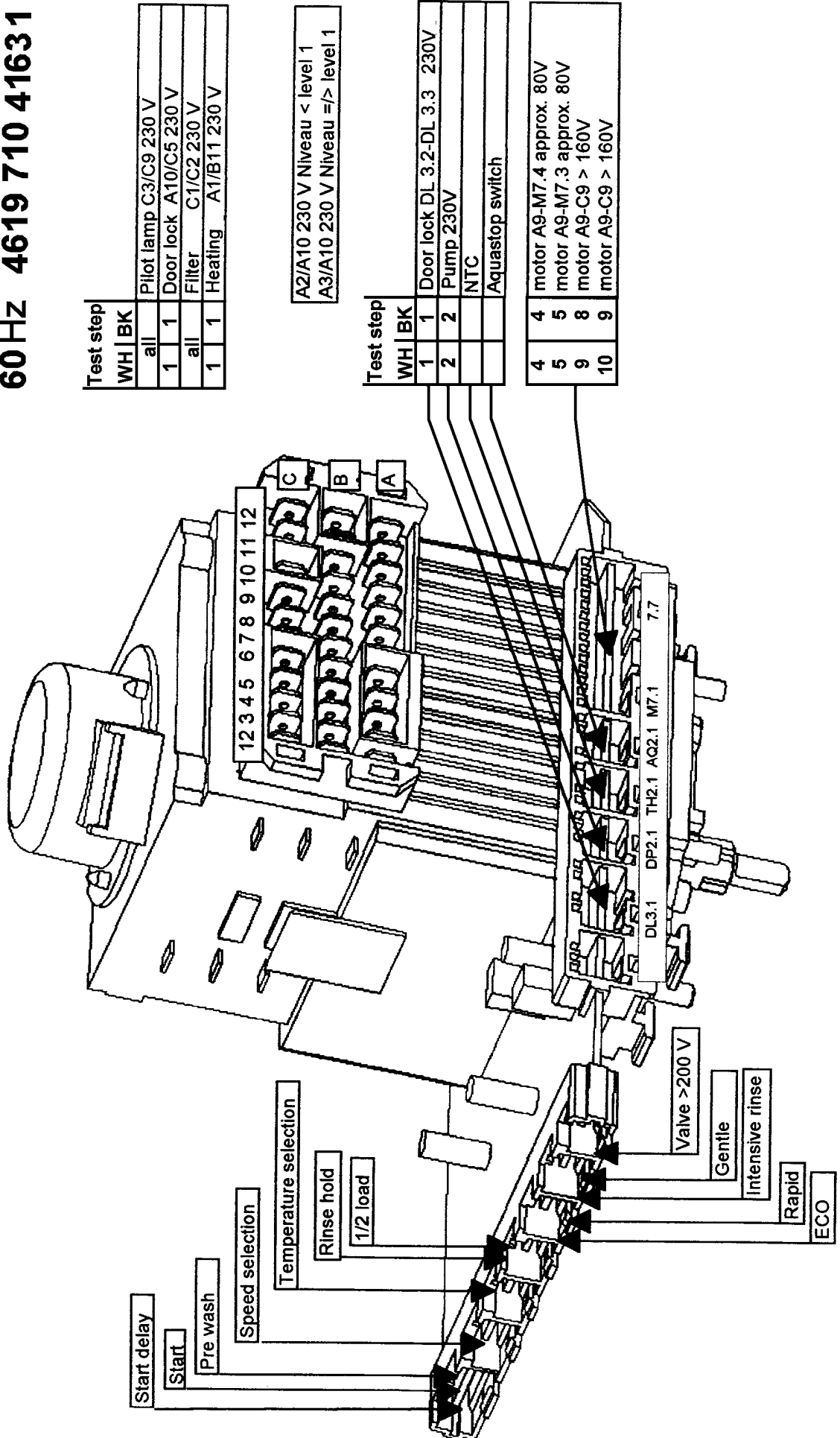
step	function	duration	checked	next step with button
1. step	fill,pre wash heat up	level 1' 30° /55'	NTC	pre wash/rinse hold pre wash/temp. sel.
2. step	pump	level1+30"		pre wash/intensive rinse
3. step	fill,main wash heat up	level1 90° /55'	NTC	pre wash/short pre wash/temp. sel.
4. step	drum rev.left	300 sec	motor	pre wash/short
5. step	drum rev.right	level1+30"	motor	prewash/half load
6. step	fill,softening	level1+30"	motor	pre wash/eco
7. step	pump pump/spin	level1+30" 30 sec.		pre wash (650 rpm)
8. step	pump/spin	90 sec	door lock	pre wash (1000 rpm)
9. step	tapped field	210 sec	motor	pre wash (max. rpm)
10. step	normal rhytm	120 sec	motor	pre wash
11. step	stop	endless if all fuctions OK !		

3. step is cold and hot fill

Text/Legend

**Timer 2b, EC 4475**

**mask 5 4619 710 15364**  
**mask 6 4619 710 15365**  
**60 Hz 4619 710 41631**



Test step	WH	BK	
	all		Pilot lamp C3/C9 230 V
1	1		Door lock A10/C5 230 V
	all		Filter C1/C2 230 V
1	1		Heating A1/B11 230 V

A2/A10 230 V Niveau < level 1  
 A3/A10 230 V Niveau =/> level 1

Test step	WH	BK	
1	1		Door lock DL 3.2-DL 3.3 230V
2	2		Pump 230V
			NTC
			Aquastop switch

4	4		motor A9-M7.4 approx. 80V
5	5		motor A9-M7.3 approx. 80V
9	8		motor A9-C9 > 160V
10	9		motor A9-C9 > 160V