

# Service Manual

## Dishwasher integratable ADG 957 M

**Model  
Version**ADG 957 M  
8542 957 38010

Page

Technical data

2 - 4

Spare part list

5 - 6

Exploded view

7 - 8

Circuit diagram

9

Program diagram

10

Text/Legend

11 - 19

Family

A5

**Technical data**

**Dimension**

Height	82,0-87,0	cm
Width	59,5	cm
Depth	57,0	cm
Weight	55,0	kg

**Wooden door (for 22 mm thickness)**

Thickness min..	16	mm
Thickness max.	25	mm
Width min.	592	mm
Width max.	595	mm
Height min.	628	mm
Height max.	718	mm
Weight min.	2,5	kg
Weight max.	6,5	kg
Max. stick out over lower edge of appliance door	90	mm
Height of plinth min.	93	mm

**Specification (normal program)**

Capacity	12	standard setting pl.
Water consumption	19	l
Energy consumption	1,4	kWh
Program time	~ 78	min
Noise level	49	db (A)
Detergent consumption	25	ml
Salt consumption by 21° dh	<20	g
Hot water connect. up to	60	°C

**Alarms**

- Refill rinse aid
- Refill salt
- Water leakage

**Options**

- Zone washing

**Program information (acoustic)**

- End

**Volume (normal program)**

Water	Volume	Level
Regeneration	0,3 l	15 mm
Back rinse 3x	1,0 l	68 mm
Prewash	5,0 l	125 mm
Prewash/Zone washing	4,0 l	120 mm
Main wash	5,0 l	125 mm
Main wash/Zone washing	3,8 l	119 mm
Intermediate rinse 1	4,5 l	123 mm
Intermediate rinse 1/ Zone washing	3,8 l	119 mm
Intermediate rinse 2	4,5 l	123 mm
Intermediate rinse 2/ Zone washing	3,8 l	119 mm
Clear rinse	4,5 l	123 mm
Clear rinse/Zone washing	3,8 l	119 mm
Safety / overflow	8,5 l	141 mm

**Measuring the level**

Remove the coarse sieve, put in a measuring meter into the sump, measure the height of the water level.

**Detergent max.**

Pre-wash	10	cm <sup>3</sup>
Main-wash	45	cm <sup>3</sup>
Rinse aid	125	cm <sup>3</sup>
6 Dosage steps	1 - 6	cm <sup>3</sup>

**Water softener**

Saltcontainer	2	kg
Resin container	900	cm <sup>3</sup>
Regeneration dosage	300	cm <sup>3</sup>

**Water pressure**

Inlet pressure	0,3-10	bar
Spray pump pressure	0,4	bar

**Rotations**

Spray pump motor	2800	RPM
Drain pump motor	2800	RPM
Spray arm lower	~ 30	RPM
Spray arm upper	~ 35	RPM
Ceiling rotor	~ 60	RPM

## Technical data

### Flow rates / Inlet volume

Flow meter (at 0,3 bar = quantity 1,1 l/min)	208	Imp/l
Spray pump	~ 70	l/min
Drain pump	16	l/min
Pump height max.	1,3	m
Inlet valve	4,5	l/min
Valve for Zone washing	30	l/min
Valve for sieve	8	l/min
Spray arm lower	33	l/min
Sprayarm upper	30	l/min
Ceiling rotor	8	l/min

### Water distribution

Fine sieve	100	%
Self cleaning micro filter	~ 32	%

### Electrical data

#### Base data

Voltage	230	V
Frequency	50	Hz
Total power	~ 2,5	kW
Fuse	13	A

### Motor

#### Spray pump motor

Voltage	220/230	V
Power consumption	~190	W
HI	69	$\Omega$
HA	36,2	$\Omega$
Capacitor	4	$\mu$ F

#### Drain pump motor

Voltage	220/240	V
Resistance	146	$\Omega$

### Heating

#### 1 Element system

Voltage	230	V
Power consumption	2350	W
Resistance	18,66	$\Omega$
Heating speed	~ 2,5	$^{\circ}$ C/min
Temperature on surface	~ 115	$^{\circ}$ C
Double safety thermostat self reset	85	$^{\circ}$ C

### Potentiometer

Position 0	2,0	k $\Omega$
Position 1	4,3	k $\Omega$
Position 2	9,0	k $\Omega$
Position 3	13,3	k $\Omega$
Position 4	17,5	k $\Omega$
Position 5	22,2	k $\Omega$
Position 6	24,2	k $\Omega$

### Water valves

#### Single valve

Voltage	220/240	V
Frequency	50/60	Hz
Resistance	2,06	k $\Omega$

#### Regenerating valve

Voltage	220/240	V
Frequency	50/60	Hz
Resistance	3,13	k $\Omega$

#### Valve for zone washing

Voltage	220-240	V
Frequency	50/60	Hz
Resistance	3,71	k $\Omega$

#### Valve for sieve

Voltage	220/240	V
Frequency	50/60	Hz
Resistance	3,83	k $\Omega$

#### Coil of dispenser

Voltage	220/240	V
Frequency	50/60	Hz
Resistance	1,43	k $\Omega$

### Relay

#### Heating relay

Voltage	220/240	V
Frequency	50/60	Hz
Resistance	5,5	k $\Omega$

**Technical data**

**Reedcontact**

flow meter  
 salt control  
 rinse aid control

**NTC**

15 °C	75	kΩ
20 °C	62	kΩ
30 °C	43	kΩ
40 °C	28	kΩ
50 °C	19	kΩ
60 °C	13	kΩ
70 °C	9	kΩ
80 °C	6	kΩ
85 °C	5	kΩ

**Regeneration**

Volume	300	cm <sup>3</sup>
Position 0 after wash cycles	--	
water hardness	0-5	°dh
	0-0,9	mmol/l
	0-9	°Fh
Position 1 after wash cycles	6-8	
water hardness	6-10	°dh
	1-1,8	mmol/l
	10-18	°Fh
Position 2 after wash cycles	5-6	
water hardness	11-15	°dh
	1,9-2,7	mmol/l
	19-27	°Fh
Position 3 after wash cycles	4	
water hardness	16-21	°dh
	2,8-3,7	mmol/l
	28.37	°Fh
Position 4 after wash cycles	3	
water hardness	22-28	°dh
	3,8-5,0	mmol/l
	38-50	°Fh
Position 5 after wash cycles	2	
water hardness	29-35	°dh
	5,1-6,3	mmol/l
	51-63	°Fh
Position 6 after wash cycles	1	
water hardness	36-60	°dh
	6,4-10,7	mmol/l
	64-107	°Fh
Salt consumption for regeneration	77	g
Number of cycles with 2 kg salt	26	

## Spare part list

Model **ADG 957/M**  
Service No. **854295738010**  
Version **854295738010**

Pos. No.	12NC Code	Description
003 0	<b>4812 440 19382</b>	Traverse
004 0	<b>4812 440 18952</b>	Drip tray assy
004 1	<b>4812 401 18402</b>	Holder
011 0	<b>4812 505 18369</b>	Foot long
011 1	<b>4812 528 98002</b>	Shaft flexible
011 2	<b>4812 528 78032</b>	Slide disc f.foot
011 3	<b>4812 535 98048</b>	Gear
011 4	<b>4812 528 98001</b>	Roll f.foot
022 0	<b>4812 440 19398</b>	Side panel left
022 1	<b>4812 440 19397</b>	Side panel right
022 2	<b>4812 440 18953</b>	Spacer
024 0	<b>4812 440 18948</b>	Panel, rear 07.10.1996
024 0	<b>4812 440 19401</b>	Panel, rear 07.10.1996
040 1	<b>4812 417 18774</b>	Hinge left
040 2	<b>4812 417 18773</b>	Hinge right
044 0	<b>4812 492 38362</b>	Spring f.door
047 0	<b>4812 404 48591</b>	Brake f.door
047 1	<b>4812 401 18397</b>	Band,brake
047 2	<b>4812 404 68023</b>	Hook
053 0	<b>4812 440 88106</b>	Plinth 22.07.1996
053 0	<b>4812 440 88875</b>	Plinth 22.07.1996
103 0	<b>4812 440 18986</b>	Door outer
105 0	<b>4812 404 48611</b>	Fastener door
105 2	<b>4812 505 68004</b>	Clip
105 3	<b>4812 404 48633</b>	Fastener
120 0	<b>4812 440 18961</b>	Door,inner
120 1	<b>4812 440 18955</b>	Batten
130 0	<b>4812 417 58361</b>	Tilt lock
131 0	<b>4812 401 18416</b>	Hook lock
175 3	<b>4812 466 68532</b>	Batten
191 0	<b>4812 466 68534</b>	Gasket door
192 0	<b>4812 466 68467</b>	Gasket, door lower
200 0	<b>4812 418 18183</b>	Container cpl.
241 0	<b>4812 458 18276</b>	Basket upper straight
241 1	<b>4812 458 18324</b>	Holder cups righth white
241 2	<b>4812 535 78033</b>	Bearing cupholder
241 3	<b>4812 528 88068</b>	Wheel,basket upper (set)
241 4	<b>4812 458 18288</b>	Cutlerycomp. WH
241 5	<b>4812 458 18269</b>	Holder cutlery compartment
241 6	<b>4812 458 18287</b>	Holder cups left WH
241 7	<b>4812 404 48605</b>	Hoop
241 8	<b>4812 466 68482</b>	Spacer cap set
242 0	<b>4812 458 18274</b>	Basket lower cpl.
242 1	<b>4812 528 88069</b>	Wheel,basket lower
242 2	<b>4812 458 18262</b>	Plate,support f.basket lower
242 3	<b>4812 458 18275</b>	Plate,support f.basket lower
243 0	<b>4812 458 18272</b>	Basket cutlery
243 4	<b>4812 458 18317</b>	Bracket
261 0	<b>4819 462 38271</b>	Rail telescope, inner
261 1	<b>4819 404 48819</b>	Cap rail
261 2	<b>4812 462 78995</b>	Cap rail ahead
263 0	<b>4819 520 18013</b>	Ball cage cpl.
263 1	<b>4812 520 48001</b>	Ball Niro 8 D
265 0	<b>4812 404 48599</b>	Basket adjustm. cpl.
265 2	<b>4812 404 48589</b>	Grip basket adjustment

Pos. No.	12NC Code	Description
301 0	<b>4812 453 79762</b>	Control panel WH
322 0	<b>4812 453 79772</b>	Insert panel
332 5	<b>4812 410 28556</b>	Cap f.beater
400 0	<b>4812 259 28654</b>	Motor with spray pump cpl.
405 0	<b>4812 360 18358</b>	Spray pump
405 1	<b>4819 515 28158</b>	Gasket
420 0	<b>4812 121 18132</b>	Capacitor
421 0	<b>4812 121 18156</b>	Interf.filter 07.10.1996
430 0	<b>4812 360 18357</b>	Pump,draining
430 1	<b>4812 466 68506</b>	Shaft seal
450 0	<b>4812 259 28655</b>	Heating element
480 0	<b>4812 321 28364</b>	Cable harness set
480 1	<b>4812 321 28371</b>	Cable
490 0	<b>4812 321 18026</b>	Cable,mains 3m 07.10.1996
490 0	<b>4819 321 18136</b>	Cable,mains 2m 07.10.1996
490 1	<b>4812 321 28367</b>	Strain relief 07.10.1996
521 0	<b>4812 214 78165</b>	Control board (CB) kit
531 0	<b>4812 273 18051</b>	Switch waterhardness
531 1	<b>4812 273 18052</b>	Wheel,fingertip
571 2	<b>4812 281 28362</b>	Sieve valve
571 3	<b>4812 281 28363</b>	Valve f.zone-washing
575 0	<b>4812 281 28361</b>	Regen.valve
583 0	<b>4812 271 28355</b>	Switch diaphragm
612 0	<b>4812 280 58025</b>	Relay heating
616 0	<b>4812 281 18047</b>	Contact,reed salt
616 1	<b>4812 271 58161</b>	Contact,reed rinsing agent
620 0	<b>4812 218 38031</b>	User board (UCB)
623 0	<b>4812 271 38356</b>	Microswitch
633 0	<b>4812 271 38355</b>	Microswitch
680 0	<b>4812 418 68133</b>	Combidosage
680 1	<b>4812 466 68495</b>	Gasket
681 1	<b>4812 466 68497</b>	Gasket
681 2	<b>4812 440 18975</b>	Flap
682 0	<b>4812 466 68496</b>	Gasket
691 0	<b>4812 282 68012</b>	Feeler NTC
700 0	<b>4812 530 28788</b>	Hose, inlet aqua stop 2m
700 0	<b>4812 530 28804</b>	Hose, inlet aqua stop 4,2m
700 1	<b>4812 480 48019</b>	Sieve
700 2	<b>4812 520 58002</b>	Gasket set
701 1	<b>4812 310 18153</b>	Yoke clamp set
701 2	<b>4819 401 18423</b>	Holder
710 0	<b>4812 418 68128</b>	Monoblock
710 2	<b>4819 310 38536</b>	Nut threaded ring set
710 3	<b>4819 466 69562</b>	Gasket set
714 0	<b>4812 462 78993</b>	Threaded cap
714 2	<b>4812 440 18963</b>	Cabinet non-return flap
716 0	<b>4812 418 68146</b>	Reg.dosage
716 1	<b>4812 466 68475</b>	Gasket
716 2	<b>4812 462 78994</b>	Cover
721 0	<b>4812 360 68043</b>	Hub lower cpl.
721 1	<b>4812 360 68047</b>	Arm,spray lower cpl.
721 2	<b>4812 466 68491</b>	Gasket 25x2,3B
721 3	<b>4812 466 68489</b>	Gasket 76x2,5
721 4	<b>4812 418 18176</b>	Cabinet
722 0	<b>4812 360 68044</b>	Arm,spray upper

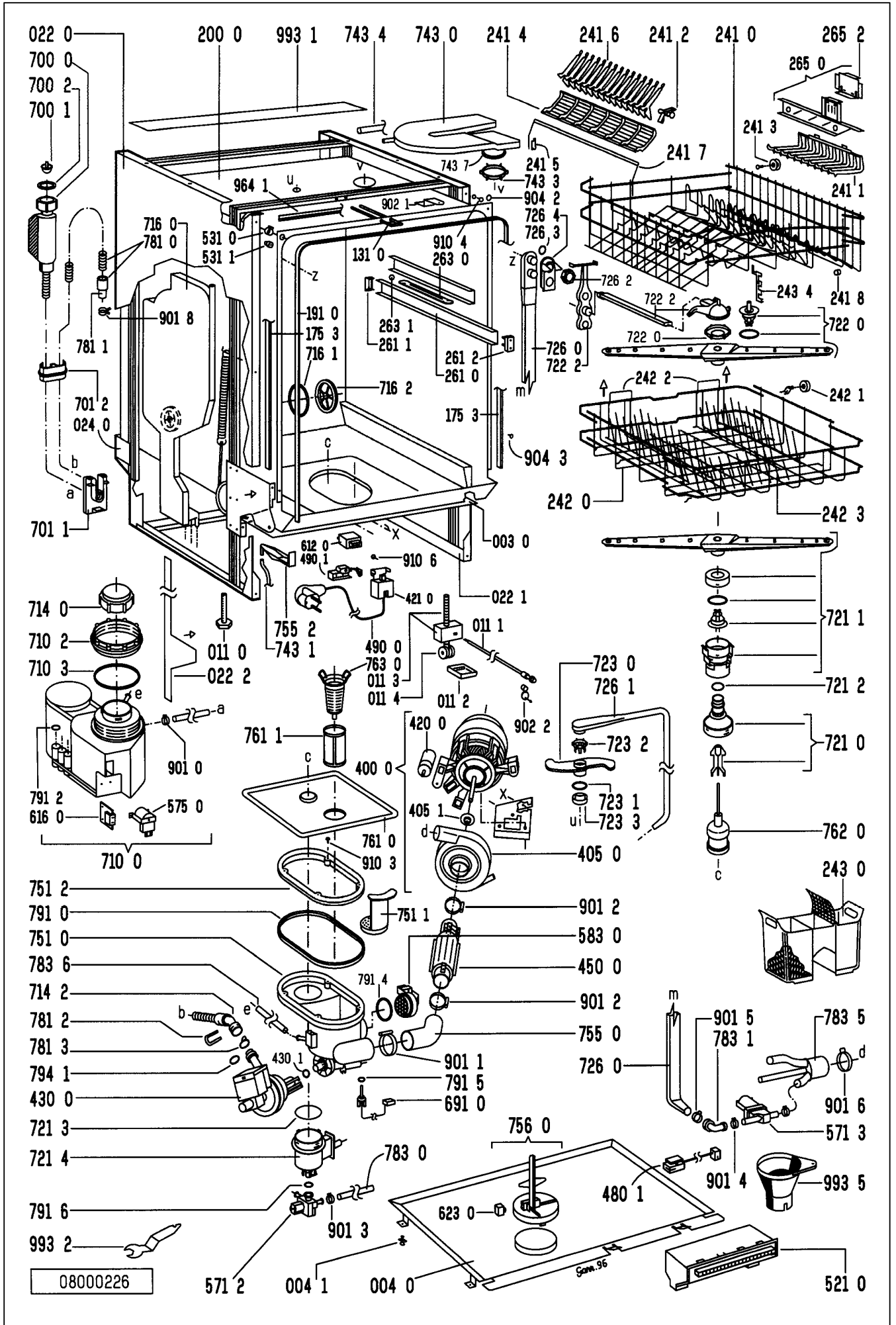
## Spare part list

**Model** ADG 957/M  
**Service No.** 854295738010  
**Version** 854295738010

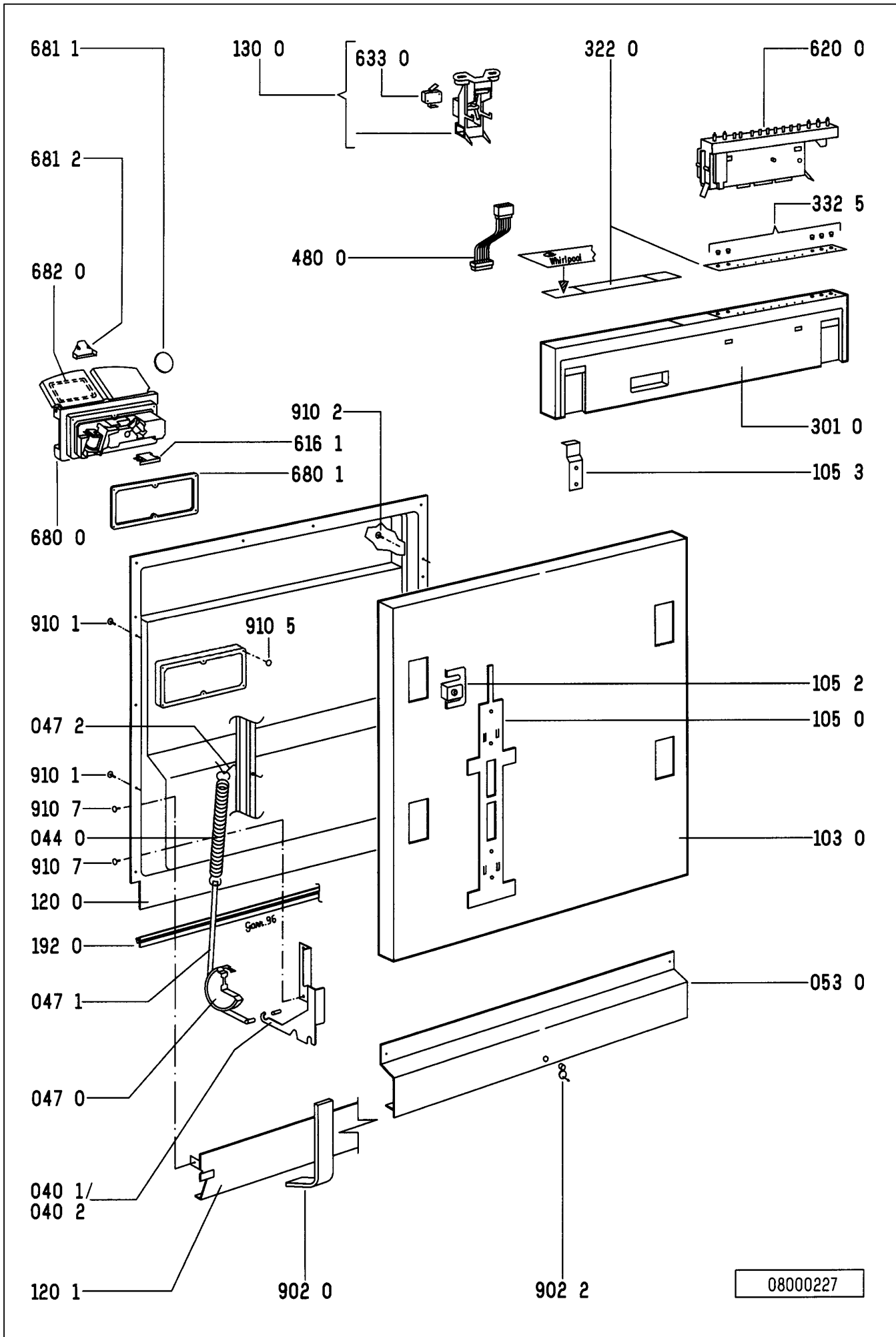
Pos. No.	12NC Code	Description
722 2	<b>4812 360 68048</b>	Hub upper straight cpl.
723 0	<b>4812 360 68049</b>	Arm,spray ceiling
723 1	<b>4812 466 68483</b>	Gasket
723 2	<b>4812 404 48597</b>	Clip,fix sprayarm
723 3	<b>4812 505 18362</b>	Connect,gaspipe
726 0	<b>4812 530 28786</b>	Tube
726 1	<b>4812 530 28787</b>	Tube
726 2	<b>4812 505 18358</b>	Nut
726 3	<b>4812 466 68512</b>	Gasket
726 4	<b>4812 462 79633</b>	Centering
743 0	<b>4812 511 48171</b>	Capacitor
743 1	<b>4812 530 28102</b>	Hose, inlet
743 3	<b>4812 505 18364</b>	Nut
743 4	<b>4812 530 28807</b>	Hose 9x1,5x270+10
743 7	<b>4812 466 68514</b>	Gasket
751 0	<b>4812 418 18169</b>	Water collector
751 1	<b>4812 418 18171</b>	Water guide
751 2	<b>4812 440 18954</b>	Fastener frame
755 0	<b>4812 530 28785</b>	Bend
755 2	<b>4812 530 48148</b>	Tray,leak
756 0	<b>4812 360 58099</b>	Floater
761 0	<b>4812 480 58061</b>	Sieve fine
761 1	<b>4812 480 58072</b>	Sieve insert
762 0	<b>4812 480 58065</b>	Microfilter
763 0	<b>4812 480 58057</b>	Sieve coarse
781 0	<b>4812 530 28737</b>	Hose,draining
781 1	<b>4819 530 28286</b>	Sleeve hose
781 2	<b>4819 492 68405</b>	Clip f.non-return valve
781 3	<b>4812 281 28364</b>	Flap non-return
783 0	<b>4812 530 28792</b>	Hose 11,5x3x200
783 1	<b>4812 530 28806</b>	Hose connection
783 5	<b>4812 530 28789</b>	Distributor
783 6	<b>4812 530 28796</b>	Hose 10x3x180+10
791 0	<b>4812 532 68067</b>	Gasket
791 2	<b>4812 530 58093</b>	Gasket
791 4	<b>4812 466 68503</b>	Gasket
791 5	<b>4812 466 68504</b>	Gasket
791 6	<b>4812 466 68505</b>	Gasket
794 1	<b>4819 530 58032</b>	Gasket 20x2,5
901 0	<b>4812 401 18191</b>	Strap 017,8
901 1	<b>4812 401 18396</b>	Strap
901 2	<b>4812 401 18401</b>	Strap
901 3	<b>4812 401 18404</b>	Strap 019,8-708Z
901 4	<b>4812 401 18405</b>	Strap 025,6-708Z
901 5	<b>4812 401 18406</b>	Strap 028,6-708Z
901 6	<b>4812 401 18408</b>	Strap 038,1-708Z
901 8	<b>4812 401 18393</b>	Strap 20-32/9
902 0	<b>4812 401 18418</b>	Protector f.wiring
902 1	<b>4812 466 78361</b>	Fastener f.buildt-in models
902 2	<b>4812 404 78239</b>	Holder
904 2	<b>4812 462 79635</b>	Cover WH 3,5x5
904 3	<b>4812 462 79636</b>	Cover WH 3,5x4
910 1	<b>4812 502 18019</b>	Screw
910 2	<b>4812 502 18363</b>	Screw 4,0x12-H
910 3	<b>4812 502 18364</b>	Screw 5x20-TORX

Pos. No.	12NC Code	Description
910 4	<b>4812 502 18365</b>	Screw 3,5x5,5-TORX
910 5	<b>4812 502 18367</b>	Screw 3,5x8-TORX T15
910 6	<b>4812 502 18369</b>	Screw A2F M4x6
910 7	<b>4812 502 38132</b>	Screw DIN 965
964 1	<b>4812 466 68511</b>	Gasket housing upper
993 1	<b>4812 466 78018</b>	Foil protection
993 2	<b>4812 404 48609</b>	Socket wrencg foot
993 5	<b>4822 532 80216</b>	Funnel salt

## Exploded view



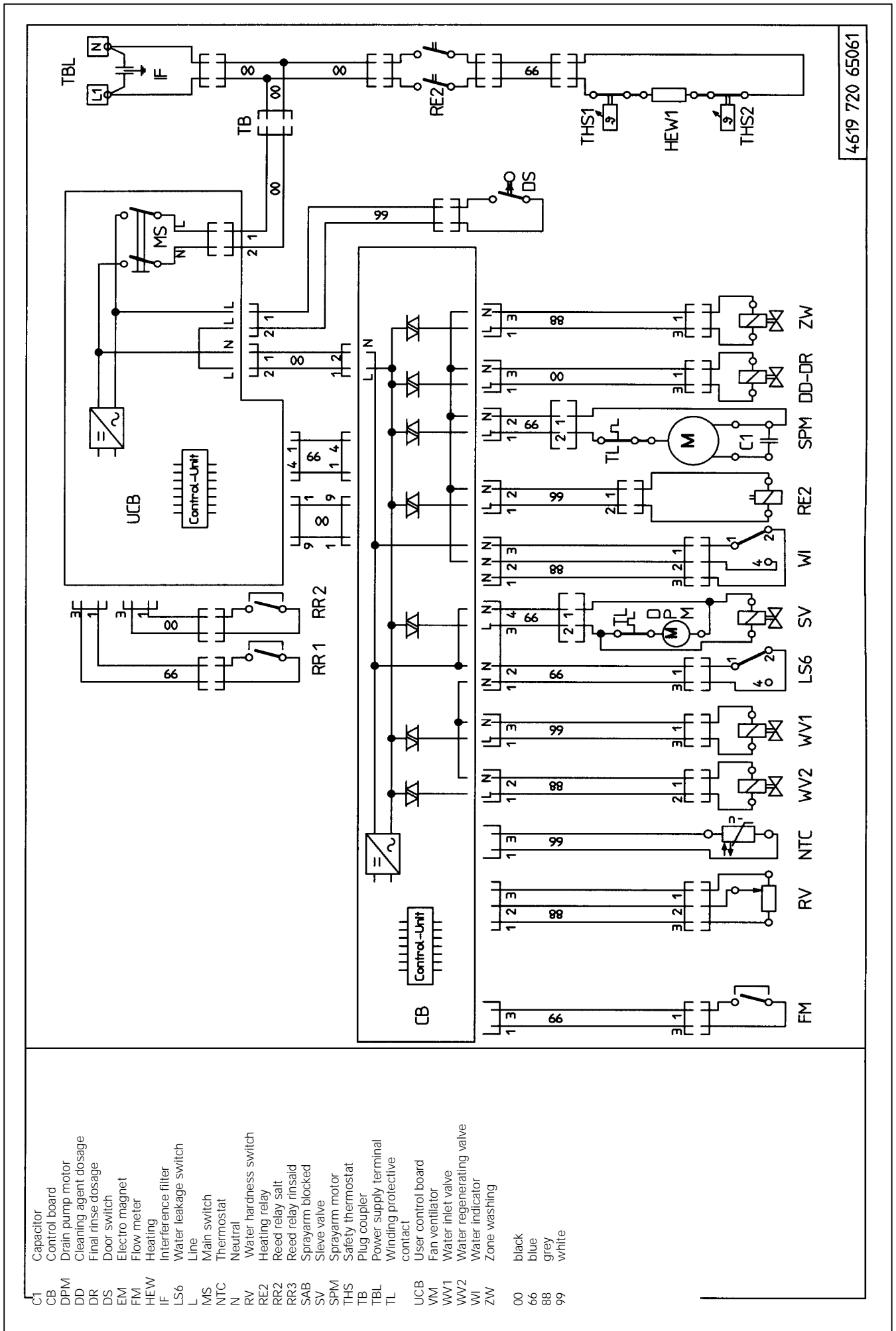
**Exploded view**



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Circuit diagram



**Program diagram**

no program function

contact or triac closed

FM amount of water

t2 heating time up to temp.

t3 draining time up to the water indicator is low

function of the machine	contacts									program table									
	VM	ZW	DD-DR	SPM	RE2	WI	SV	DPM	WV2	WV1	a	b	c	d	e	f	g	Program Sequence LEDs	
Start position for all Progr.																			
draining											t3+30 s								PS1
filling											FM								
draining											t3+10 s								
filling											FM								
draining											t3+10 s								
filling											FM								
draining											t3+10 s								
filling - rinsing											FM								
rinsing - heating											t2 = °C						40		
rinsing											min						8 8 8 5		
rinsing - draining											t3+30 s								
filling - rinsing											FM								PS2
rinsing - dos. detergent											3 s								
rinsing - heating											t2 = °C						40 50 50 65 65 70		
rinsing											min						4 4 10 14 14 14		
rinsing - heating											t2 = °C						55 55		
rinsing											min						5 5		
rinsing - draining											t3+30 s								
filling - rinsing											FM								
rinsing											6,5 min								
rinsing - draining											t3+30 s								
filling - rinsing											FM								
rinsing											3,5 min								
rinsing - draining											t3+30 s								
filling - rinsing											FM								
rinsing - heating											t2 = °C						55 55 55 55 55 55		
rinsing - dos. rinse aid											1 min								
rinsing											3 s								
rinsing - dos. rinse aid											1,5 min								
rinsing - heating											t2 = °C						68 68 68 68		
rinsing											1 min								
draining											t3+30 s								
drying - without Fan											2 min								
drying - regenerating											1 min								PS3
drying - regenerating - draining											t3+30 s								
drying - regenerating											1 min								
drying - regenerating - filling											1 s								
drying - regenerating											3 s								
drying - regenerating - filling											1 s								
drying - draining											t3+30 s								
drying											9 min								
drying - draining											t3+30 s								
End											End								PS4

function of the machine	contacts									LEDs					
	VM	ZW	DD-DR	SPM	RE2	WI	SV	DPM	WV2	WV1	PS1	PS2	PS3	PS4	ZW
draining											t3+30 s				
filling											FM				
draining											t3+10 s				
filling											FM				
draining											t3+10 s				
filling											FM				
draining											t3+10 s				
filling - rinsing											FM				
pause - dos. detergent											3 s				
rinsing - heating											65 °C				
regenerating											30 s				
regenerating - draining											t3				
drying-regenerating-draining											30 s				
End											End				

Text/Legend

### **Test procedure for SERVICE-TEST-PROGRAM DOLPHIN full-door dishwashers**

If there is a failure on the appliance, the customer will note it by open the door and the rapidly flashing start LED.

1. Open the door. When the start LED flashes rapidly, a failure is indicated. Then finish the program by pushing the start button until the start LED goes off.

If no more failure is indicated, start service test program.  
Watch the function in accordance with the functional diagram.

2. Check the component.  
Unplug the indicated component from the control board and check it by using an Ohm-measure equipment.  
If the ohms are not correct, check the cables to the component and check the component itself.
3. Only if there is no reaction when pushing a push button, then test with the test points.
4. At the end of the repair start the test program again to see that the failure is solved.

More details: see chapter test program for service.

#### **Attention:**

First unplug the appliance, then set the connection clamps of the volt measurement on the test points.

Danger for short circuit.

More details see chapter test point.

Short dircuits on components can damage the control board.

If electronic boards are wet, do not switch the appliance on.

The failures F1 NTC break  
F2 water leakage  
F9 continuous water inlet

are checked and indicated immediately after start of the program.

Therefore these failures have to be solved before starting the test program.

When these failures are not solved, the test program does not run.

The electrical components get their voltage via triac from the control board. For testing the volume of voltage the volt meter must be parallel to the component (the component must be plugged on). If the component is plugged off, then on the plug the measured voltage is reduced.

#### **Handling of failures**

F1. NTC break

- temperature out of the normal value (-10 degr. till +85 degr. C)

Possible failures

- heating higher than +85 degr. C
- NTC defective
- dishwasher is frozen, less than -10 degr. C

Text/Legend

F2. water leakage

- water is in the drip tray  
floater (LS6) switches off the WV1 and the electronic switches on the DPM till  
WI reports empty

F3. heating system defective

- too less heating speed (lower 1,5 degr. in 3 min.)
- heating (HEW) defective
- relais (RE2) defective

F4. draining failure

- drain pump starts and after 4 min. the WI detects not empty
- drain pump (DPM) defective
  - syphon closed
  - control board (CB) defective
  - water indicator (WI) defective (is switched on)

F5. spray arm blocked (leads not to stop the appliance)

- SAB sensor sends less than 10 impulses/min.
- spray arm blocked or not fixed well
  - selfcleaning microfilter blocked
  - spray pump (SPM) does not work well
  - SAB sensor defective

F6. water tap closed

- water valve (WV1) is switched on but flow meter (FM) sends no impulses (less than 10 imp. in 10 sec.) and the water indicator (WI) is at low level
- water tap closed
  - water inlet hose blocked
  - water inlet valve (WV1) defective
  - flow meter (FM) defective (leads to FM failure)

F7. flow meter failure

- water inlet valve is switched on and the water indicator (WI) is switched on high level
- flow meter (FM) sends to less impulses  
(less than 10 imp. in 10 sec.)
  - water tap closed
  - water inlet hose blocked
  - water inlet valve (WV1) defective
  - flow meter (FM) defective
  - water indicator (WI) is defective

Text/Legend

F8. water level failure

failure monitored during spray pump is on and the water indicator switches back more than 10 times in 2 min.

- water indicator defective
- sieve blocked
- water strongly foams
- pot has turned off and is filled with spray water
- no stable spray pump (SPM) working

F9. continuous water inlet

water inlet valve (WV1) is switched off, water indicator (WI) on,  
flow meter (FM) sends impulses more than 10 imp. in 10 sec.

- water inlet valve (WV1) mechanically not closed
- triac (CB) for WV1 is closed

reaction: interval 30 sec. draining / 20 sec. tracing

For salt, rinse aid, zone wash valve, sieve valve failure see active test program.

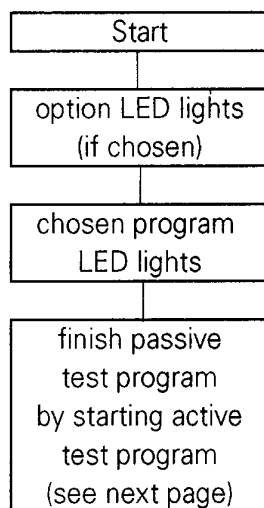


Text/Legend

**Indication of failures and alarms on appliances produced until September 1996**

failure	failure no.	indication	indication within test program
NTC - break	F1	start LED flashes	start LED flashes
water leakage failure	F2	start LED flashes	start LED flashes
heating system failure	F3	start LED flashes	start LED flashes
draining failure	F4	start LED flashes	"beep" in one sec. rythm (only with door closed)
water tap closed inlet valve defect	F6	start LED flashes till tap will be opened	"beep" in one sec. rythm (only with door closed)
flow meter failure	F7	start LED flashes	"beep" in one sec. rythm (only with door closed)
water level failure	F8	start LED flashes	start LED flashes
water inlet continuously on	F9	start LED flashes	start LED flashes
salt		alarm LED on	alarm LED on
rinse agent		alarm LED on	alarm LED on

**Passive test program**



The failures are indicated by fast flashing start LED or "beep".

**Start procedure:**

1. If a program is running, finish it by pushing the start button (door is opened) until the start LED goes off (more than 3 sec.).
2. Close the door, so that the program can finish. (beep!)
3. Open the door again, choose program Bio Eco 50 °C (d).
4. Switch the appliance off.
5. Push start button and hold it pushed.
6. Switch the appliance on.
7. Release the start button when start LED flashes (after approx. 5 sec.) (the start LED flashes in a slow rythm - 1,5 sec. on/0,5 sec. off). If the start LED flashes immediately in a fast rythm - 0,5 sec. on/0,5 sec. off, then mostly one of the failures F1, F2 or F9 occur. These failures always have to be solved before test program can be started.
8. Passive test program is ready to start: Check the LEDs by pushing the buttons.

**Remark:**

**If a wrong program is switched on when starting the test program, this will be indicated by a twice short acoustic signal. Then start again as before.**

Text/Legend

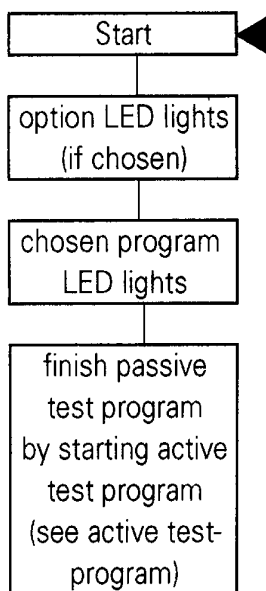
**Indication of failures and alarms on appliances produced from October 1996 on**

failure	failure no.	indication	indication within test program	indication within test program by using the display board
NTC - break	F1	start LED flashes	one long "beep"3 sec.	PS 1 flashes
water leakage failure	F2	start LED flashes	one long "beep"3 sec.	PS 2 flashes
heating system failure	F3	start LED flashes	one long "beep"3 sec.	PS 3 flashes
draining failure	F4	start LED flashes	"beep" in one sec. rythm (only with door closed)	PS 4 flashes
water tap closed inlet valve defect	F6	start LED flashes till tap will be opened	"beep" in one sec. rythm (only with door closed)	PS 2+PS 4 flashes
flow meter failure	F7	start LED flashes	"beep" in one sec. rythm (only with door closed)	PS 3+PS 4 flashes
water level failure	F8	start LED flashes	one long "beep"3 sec.	PS 2+PS 3 flashes
water inlet continuously on	F9	start LED flashes	one long "beep"3 sec.	PS 1+PS 3 flashes
salt		alarm LED on	alarm LED on	alarm LED on
rinse agent		alarm LED on	alarm LED on	alarm LED on

The failures are indicated by acoustic signal "beep" or program sequence LED .

**Passive test program**

**Start procedure:**



1. If a program is running, finish it by pushing the start button (door is opened) until the start LED goes off (more than 3 sec.).
2. Close the door, so that the program can finish. (beep!)
3. Open the door again, choose program Bio Eco 50 °C (d).
4. Switch the appliance off.
5. Push start button and hold it pushed.
6. Switch the appliance on.
7. Release the start button when start LED flashes (after approx. 5 sec.) (the start LED flashes in a slow rhythm - 1,5 sec. on/0,5 sec. off). If the start LED flashes immediately in a fast rhythm - 0,5 sec. on/ 0,5 sec. off, then mostly one of the failures F1, F2 or F9 occur. These failures always have to be solved before test program can be started.
8. Passive test program is ready to start: Check the LEDs by pushing the buttons.

**Clearer failure indication in the test program by using of a display board in addition (see next page)**

Text/Legend

### **Clearer failure indication in the test program by using of a display board in addition**

- A Start passive and active test program as usual.
- B When failure indication occurs (beep in 1 sec.rythm or one long beep 3 sec.):
  - unplug the appliance
  - open the door
  - open the control panel and disconnect the 9-poles cable from the electronics
  - connect the 9-poles cable to the display board
  - plug in the appliance
  - close the door with opened control panel (door switch must be switched on)
- C The failure is indicated by the program sequence LEDs of the display board

**Attention.** The display board is not included the appliance.It can be ordered by the Spare Part Centres and used to help the Service.If there is no display board valid then the failure has to be found by following the program chart of the test program.

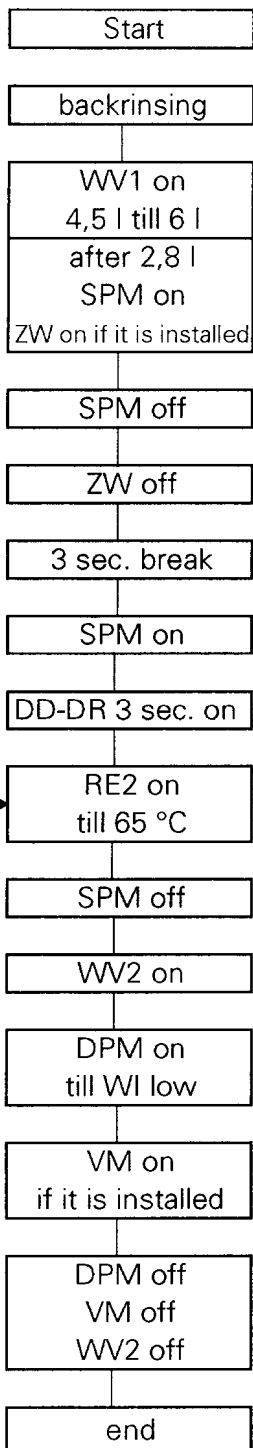
**Display boards to use** Generally can be used all kind of display boards.

**as a Service help:** Some order numbers: 4812 276 58036  
4812 276 58037

**Remark:** **If a wrong program is switched on when starting the test program, this will be indicated by a twice short acoustic signal.  
Then start again as before.**

Text/Legend

### Active test program



LED on  
 ZW  
 (if it is installed)

Test procedure  
 1. passive test program O. K.?  
 no: repair failure  
 yes: push start button shorter than 3 sec. with door opened  
**(acoustic signal: beep)**  
 2. active test program starts  
**after closing the door**

**Remarks**

**On these appliances the failure can only be found by starting the test program and following this by using the program chart. The failure indicate by fast flashing the start LED, or by "beep" in one sec. rythm (see indication of failures and alarms).**  
 The active test program runs to the failure position and stops or, if there is no failure, to the end.

To leave the test progr. push start button for longer than 3 sec.  
 2 sec. after closing the door the drain pump runs till end of the program.

Too less salt or too less rinse aid leads not to the stop of the appliance.

The function of the zone wash valve (ZW on) can only be checked optically.

A defect (not closing) leads to an instable SPM pressure.

The function of the sieve valve can only be checked optically.

In case of defect the housing of the selfcleaning microfilter is not empty on the end of the program.

acoustic signal beep:  
 3 times short  
 1 time long

only on this step the time can be moved to the next step by pushing the start button - beep -

**Note:**

**ZW on means:  
 ZW is activated**  
 - no water comes to the upper spray arm -  
**ZW off means:  
 ZW is not activated**  
 - upper spray arm is turning -



Text/Legend

			<b>Programs</b>						
BK	IG	WP	a	b	c	d	e	f	g
	A3	A3	X			X		X	
		A5	X			X	X	X	X
B5			X			X	X	X	X
B7			X	X	X	X	X	X	X

- a**      prewash cold
- b**      glass 40 degr.
- c**      rapid 50 degr.
- d**      bio eco 50 degr. (with prewash)
- e**      daily 65 degr. (without prewash)
- f**      normal 65 degr. (with prewash cold)
- g**      intensive 70 degr. (with prewash 40 degr.)

After having started a program this program is locked. That means that neither by unplugging/switching off the appliance nor by setting an other program, the first program set can be changed. Changing the program is only possible by pushing the start button again for longer than 3 sec.

The last program used is always stored. That means if the customer wants to use the same program again, the on-button and the start button have to be pressed.

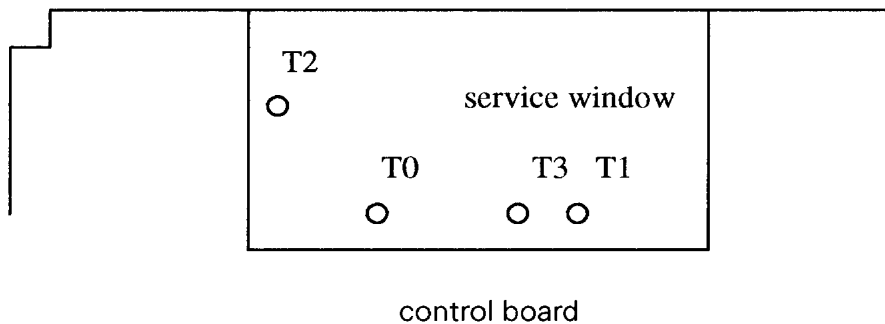
Text/Legend

### Test points on the control board

With these test points the function of the buttons can be checked.  
 The test points are in the service window on the control board.  
 For the test fine clamps, cables and volt meter with high input resistance are necessary.

**Before setting the clamps on the test points, switch off the appliance.**

Test points: T0 = common line    T2 = analogue value  
 T1 = analogue value    T3 = digital signal



When the door is opened and the appliance is switched on, then the connection between user control board and control board is interrupted and in all following tests the measured value is zero voltage.

#### Check: test point T0 to T1

After closing the door, the voltage is always -6 V.  
 It doesn't matter which button is pushed or not.  
 This value is also valid after program start.

#### Check: test point T0 to T2

	voltage	from	to
progr. a	appr. -1,54 V (DC)	user control board	control board
progr. b	appr. -2,06 V (DC)	user control board	control board
progr. c	appr. -2,57 V (DC)	user control board	control board
progr. d	appr. -3,42 V (DC)	user control board	control board
progr. e	appr. -3,96 V (DC)	user control board	control board
progr. f	appr. -4,47 V (DC)	user control board	control board
progr. g	appr. -5,00 V (DC)	user control board	control board

#### Test the start button

Choose a program and push the start button (start LED goes on).  
 Close the door:  
 value like the chosen program see list before.  
 Short time after closing the door the value decreases to 0 V (start signal) for 3 sec.  
 and then goes back to the voltage value before.

#### Check: test point T0 to T3

Communication between User-Control board and Controlboard  
 multiplexing                      appr. -3,18 V (DC)  
 How exact the data are depends on the measure equipment.