**Model
Version**

Service Manual

Dishwasher

ADP 931/1 WH

| | |
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| | |
|--------|----|
| Family | A3 |
|--------|----|

Technical data

Dimension

| | | |
|--------|------|----|
| Height | 85,0 | cm |
| Width | 59,5 | cm |
| Depth | 60,0 | cm |
| Weight | 56,7 | kg |

Decor plate

| | | |
|---------------|-----|----|
| Thicknes max. | 4 | mm |
| Width | 584 | mm |
| Height | 595 | mm |
| Weight max. | 1,8 | kg |

Specification (normal program)

| | | |
|---------------------------|------|----------------------|
| Capacity | 12 | standard setting pl. |
| Water consumption | 22 | l |
| Energy consumption | 1,5 | kWh |
| Program time | ~ 82 | min |
| Noise level | 52 | db (A) |
| Detergent consumption | 25 | ml |
| Salt consumption by 2 l/h | ~ 20 | g |
| Hot water connect. up to | 60 | °C |

Alarms

Water leakage

Program information

Start indicator
 Net indicator

Volume (normal)

| Water | Volume | Level |
|----------------------|--------|--------|
| Regeneration | 0,3 l | 15 mm |
| Back rinse 3x | 1,0 l | 68 mm |
| Prewash | 5,0 l | 125 mm |
| Main wash | 6,0 l | 129 mm |
| Intermediate rinse 1 | 5,0 l | 125 mm |
| Clear rinse | 5,0 l | 125 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 hight of the water level.

Detergent max.

| | | |
|-----------------------|-------|-----------------|
| Pre-wash | 10 | cm ³ |
| Main-wash | 45 | cm ³ |
| Rinse aid | 125 | cm ³ |
| 5 Dosage steps | 1 - 5 | cm ³ |
| Water softener | | |
| Saltcontainer | 2 | kg |
| Resin container | 900 | cm ³ |
| Regeneration dosage | 300 | cm ³ |

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 |

Flow rates / Inlet volume

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

Water distribution

| | | |
|----------------------------|------|---|
| Fine sieve | 100 | % |
| Self cleaning micro filter | ~ 32 | % |

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Technical data

Electrical data

Base data

| | | |
|-------------|-----|----|
| Voltage | 230 | V |
| Frequency | 50 | Hz |
| Total power | ~ 3 | kW |
| Fuse | 16 | A |

Motor

Spray pump motor

| | | |
|-------------------|---------|----------|
| Voltage | 220/230 | V |
| Power consumption | ~190 | W |
| HI | 69 | Ω |
| HA | 36,2 | Ω |
| Capacitor | 4 | μ F |

Drain pump motor

| | | |
|------------|---------|----------|
| Voltage | 220/240 | V |
| Resistance | 146 | Ω |

Heating

1 Element system

| | | |
|-------------------------------------|-----------|------------------|
| Voltage | 230 | V |
| Power consumption | 2800 | W |
| Resistance | 8,6 - 9,5 | Ω |
| 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 Ω |
| Position 1 | 4,3 | k Ω |
| Position 2 | 9,0 | k Ω |
| Position 3 | 13,3 | k Ω |
| Position 4 | 17,5 | k Ω |
| Position 5 | 22,2 | k Ω |
| Position 6 | 24,2 | k Ω |

Water valves

Inlet valve

| | | |
|------------|---------|------------|
| Voltage | 220/240 | V |
| Frequency | 50/60 | Hz |
| Resistance | 3,67 | k Ω |

Valve of sieve

| | | |
|------------|-------|------------|
| Voltage | 220 | V |
| Frequency | 50/60 | Hz |
| Resistance | 3,83 | k Ω |

Regenerating valve

| | | |
|------------|---------|------------|
| Voltage | 220/240 | V |
| Frequency | 50/60 | Hz |
| Resistance | 3,13 | k Ω |

Coil of dispenser

| | | |
|------------|---------|------------|
| Voltage | 220/240 | V |
| Frequency | 50/60 | Hz |
| Resistance | 3,5 | k Ω |

Relay

Heating relay

| | | |
|------------|---------|------------|
| Voltage | 220/240 | V |
| Frequency | 50/60 | Hz |
| Resistance | 5,5 | k Ω |

Reedcontact

Flowmeter

NTC

| | |
|-----------------|---------------|
| 15 $^{\circ}$ C | 75 k Ω |
| 20 $^{\circ}$ C | 62 k Ω |
| 30 $^{\circ}$ C | 43 k Ω |
| 40 $^{\circ}$ C | 28 k Ω |
| 50 $^{\circ}$ C | 19 k Ω |
| 60 $^{\circ}$ C | 13 k Ω |
| 70 $^{\circ}$ C | 9 k Ω |
| 80 $^{\circ}$ C | 6 k Ω |
| 85 $^{\circ}$ C | 5 k Ω |

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Technical data

Regeneration

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

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Spare part list

Model **ADP 931/1 WH**
Service No. **854293101110**
Version **854293101110**

| Pos. No. | 12NC Code | Description |
|----------|-----------------------|--------------------------------|
| 003 0 | 4812 440 19382 | Traverse |
| 004 0 | 4812 440 18952 | Drip tray assy |
| 004 1 | 4812 401 18402 | Holder |
| 011 0 | 4812 505 18357 | Foot short |
| 022 0 | 4812 440 18951 | Side panel left |
| 022 1 | 4812 440 18949 | Side panel right |
| 022 2 | 4812 440 18953 | Spacer |
| 024 0 | 4812 440 18948 | Panel, rear to 97/07 |
| 024 0 | 4812 440 19401 | Panel, rear from 97/07 |
| 030 0 | 4812 310 18303 | Table top WH |
| 034 0 | 4812 404 78237 | Spacer |
| 034 1 | 4812 404 78236 | Fastener |
| 040 1 | 4812 417 18774 | Hinge left |
| 040 2 | 4812 417 18773 | Hinge right |
| 044 0 | 4812 492 38358 | Spring f.door |
| 044 1 | 4812 492 38364 | Spring f.cap |
| 047 0 | 4812 404 48591 | Brake f.door |
| 047 1 | 4812 401 18397 | Band,brake |
| 047 2 | 4812 404 68023 | Hook |
| 053 0 | 4812 440 88107 | Plinth WH |
| 061 0 | 4812 466 88461 | Counter weight |
| 103 0 | 4812 440 18978 | Door outer |
| 120 0 | 4812 440 18961 | Door,inner |
| 121 0 | 4812 440 18955 | Bar |
| 130 0 | 4812 417 58361 | Tilt lock |
| 131 0 | 4812 401 18416 | Hook lock |
| 191 0 | 4812 466 68534 | Gasket door |
| 192 0 | 4812 466 68467 | Gasket, door lower |
| 200 0 | 4812 418 18175 | Container |
| 241 0 | 4812 458 18276 | Basket upper straight |
| 241 1 | 4812 458 18324 | Holder cups righth white |
| 241 3 | 4812 528 88068 | Wheel,basket upper (set) |
| 241 8 | 4812 466 68482 | Spacer cap set |
| 242 0 | 4812 458 18274 | Basket lower cpl. |
| 242 1 | 4812 528 88069 | Wheel,basket lower |
| 242 2 | 4812 458 18262 | Plate,support f.basket lower |
| 242 3 | 4812 458 18275 | Plate,support f.basket lower |
| 243 0 | 4812 458 18272 | Basket cutlery |
| 261 0 | 4819 462 38271 | Rail telescope, inner |
| 261 1 | 4819 404 48819 | Cap rail |
| 261 2 | 4812 462 78995 | Cap rail ahead |
| 263 0 | 4819 520 18013 | Ball cage cpl. |
| 263 1 | 4812 520 48001 | Ball Niro 8 D |
| 265 0 | 4812 404 48599 | Basket adjustm. cpl. |
| 265 2 | 4812 404 48589 | Grip basket adjustment |
| 301 0 | 4812 453 79538 | Control panel WH |
| 303 1 | 4812 417 58364 | Child-prooflock cpl. WH |
| 305 0 | 4812 440 18964 | Batten WH |
| 322 0 | 4812 453 79865 | Insert panel WH |
| 331 0 | 4812 413 58863 | Knob program cpl. WH |
| 332 0 | 4812 410 28528 | Push button cap WH |
| 351 1 | 4812 381 28021 | Guide,light |
| 400 0 | 4812 361 58119 | Motor + spraypump cpl.220/240V |
| 405 0 | 4812 360 18358 | Spray pump |
| 405 1 | 4819 515 28158 | Gasket |

| Pos. No. | 12NC Code | Description |
|----------|-----------------------|---------------------------|
| 420 0 | 4812 121 18132 | Capacitor |
| 421 0 | 4812 121 18156 | Interf.filter from 97/07 |
| 430 0 | 4812 360 18357 | Pump,draining |
| 430 1 | 4812 466 68506 | Ring,sealing |
| 450 0 | 4812 259 28653 | Heating element |
| 480 0 | 4812 321 28364 | Cable harness set |
| 480 1 | 4812 321 28371 | Cable |
| 480 3 | 4812 401 18418 | Protector f.wiring |
| 490 0 | 4812 321 18026 | Cable,mains 3m to 97/07 |
| 490 0 | 4819 321 18136 | Cable,mains 2m from 97/07 |
| 490 1 | 4812 321 28367 | Strain relief from 97/07 |
| 521 0 | 4812 214 78171 | Control board (CB) |
| 531 0 | 4812 273 18054 | Switch waterhardness |
| 531 1 | 4812 273 18053 | Wheel,fingertip |
| 571 0 | 4812 281 28365 | Valve inlet |
| 571 2 | 4812 281 28362 | Sieve valve |
| 575 0 | 4812 281 28361 | Regen.valve |
| 583 0 | 4812 271 28355 | Switch diaphragm |
| 612 0 | 4812 280 58025 | Relay heating |
| 620 0 | 4812 218 38035 | User board (UB) |
| 623 0 | 4812 271 38356 | Microswitch |
| 633 0 | 4812 271 38355 | Microswitch |
| 680 0 | 4812 418 68133 | Combidosage |
| 680 1 | 4812 466 68495 | Gasket |
| 681 1 | 4812 466 68497 | Gasket |
| 681 2 | 4812 440 18975 | Flap |
| 682 0 | 4812 466 68496 | Gasket |
| 691 0 | 4812 282 68012 | Feeler NTC |
| 701 0 | 4812 530 28081 | Hose, inlet 3/8Z cpl. 5m |
| 701 0 | 4812 530 28082 | Hose, inlet 3/8Z cpl. 3m |
| 701 0 | 4819 530 28283 | Hose, inlet 2m |
| 701 1 | 4812 310 18302 | Yoke |
| 701 2 | 4822 480 50159 | Sieve inlet |
| 710 0 | 4812 418 68128 | Monoblock |
| 710 2 | 4819 310 38536 | Nut threaded ring set |
| 710 3 | 4819 466 69562 | Gasket set |
| 714 0 | 4812 462 79643 | Threaded cap |
| 714 2 | 4812 440 18963 | Cabinet non-return flap |
| 716 0 | 4812 418 68147 | Reg.dosage |
| 716 1 | 4812 466 68475 | Gasket |
| 716 2 | 4812 462 78994 | Cover |
| 721 0 | 4812 360 68043 | Hub lower cpl. |
| 721 1 | 4812 360 68047 | Arm,spray lower cpl. |
| 721 2 | 4812 466 68491 | Gasket 25x2,3B |
| 721 3 | 4812 466 68489 | Gasket 76x2,5 |
| 721 4 | 4812 418 18176 | Cabinet |
| 722 0 | 4812 360 68044 | Arm,spray upper |
| 722 2 | 4812 360 68056 | Hub upper straight cpl. |
| 723 0 | 4812 360 68049 | Arm,spray |
| 723 1 | 4812 466 68483 | Gasket |
| 723 2 | 4812 404 48597 | Clip,fix sprayarm |
| 723 3 | 4812 505 18362 | Connect,gaspipe |
| 726 0 | 4812 530 28786 | Tube |
| 726 1 | 4812 530 28787 | Tube |
| 726 2 | 4812 505 18358 | Nut |

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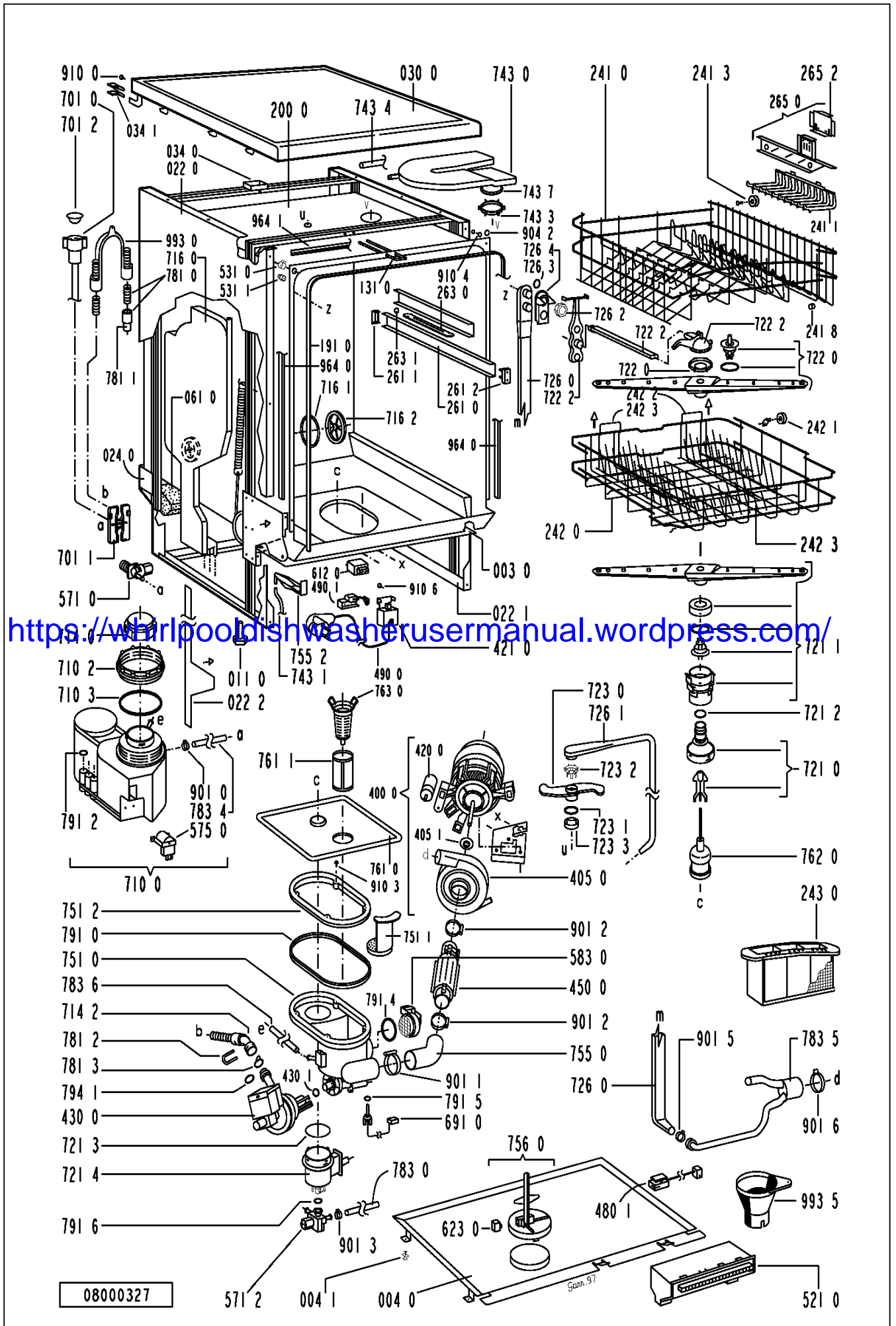
Spare part list

Model ADP 931/1 WH
Service No. 854293101110
Version 854293101110

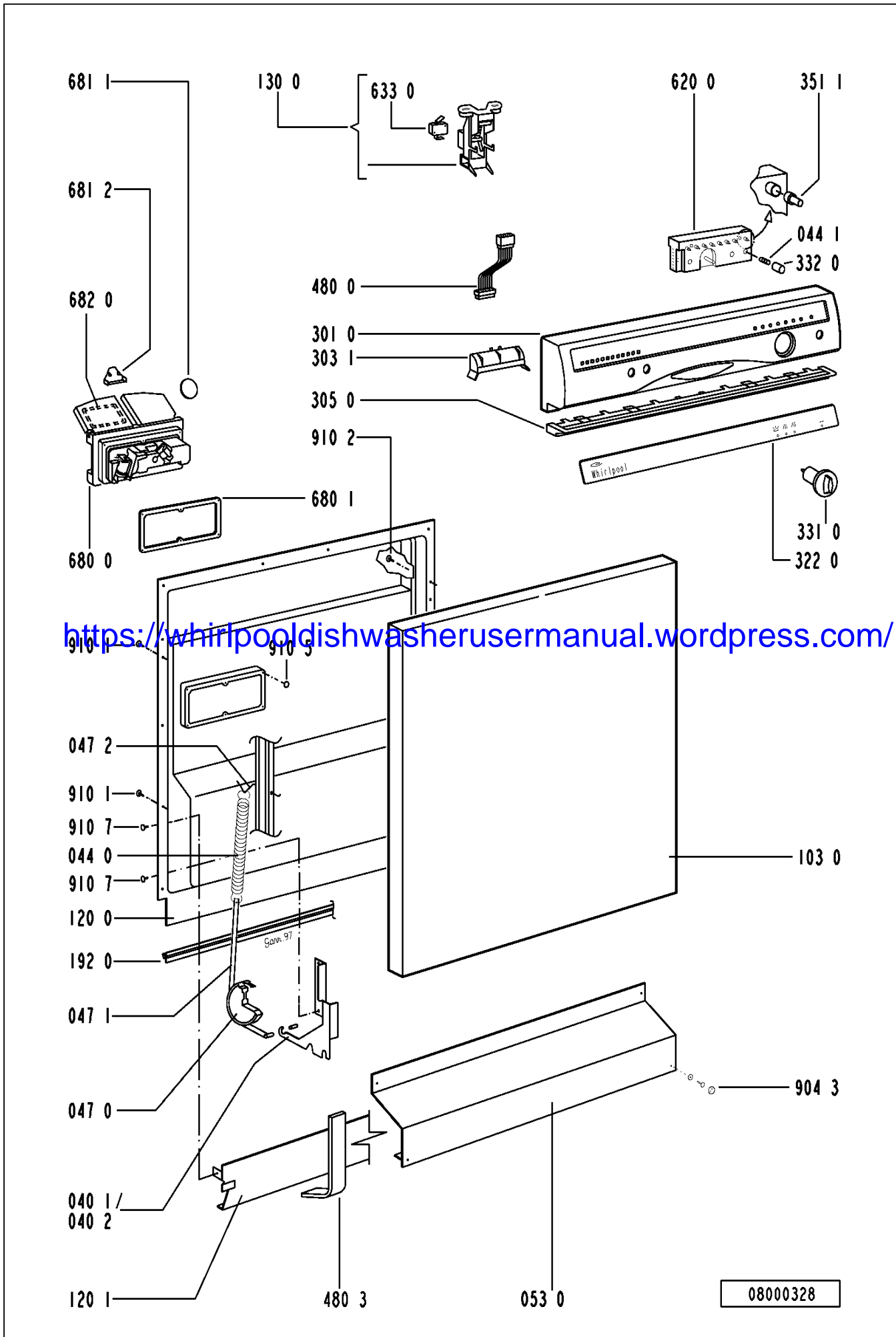
| Pos. No. | 12NC Code | Description |
|----------|----------------|-------------------------|
| 726 3 | 4812 466 68512 | Gasket |
| 726 4 | 4812 462 79633 | Centering |
| 743 0 | 4812 511 48171 | Capacitor |
| 743 1 | 4812 530 28102 | Hose, inlet |
| 743 3 | 4812 505 18364 | Nut |
| 743 4 | 4812 530 28807 | Hose 9x1,5x270+10 |
| 743 7 | 4812 466 68514 | Gasket |
| 751 0 | 4812 418 18169 | Water collector |
| 751 1 | 4812 418 18171 | Water guide |
| 751 2 | 4812 440 18954 | Fastener frame |
| 755 0 | 4812 530 28785 | Bend |
| 755 2 | 4812 530 48148 | Tray,leak |
| 756 0 | 4812 360 58099 | Floater |
| 761 0 | 4812 480 58061 | Sieve fine |
| 761 1 | 4812 480 58072 | Sieve insert |
| 762 0 | 4812 480 58065 | Microfilter |
| 763 0 | 4812 480 58057 | Sieve coarse |
| 781 0 | 4812 530 28737 | Hose,draining |
| 781 1 | 4819 530 28286 | Sleeve hose |
| 781 2 | 4819 492 68405 | Clip f.non-return valve |
| 781 3 | 4812 281 28364 | Flap non-return |
| 783 0 | 4812 530 28792 | Hose 11,5x3x200 |
| 783 4 | 4812 530 28793 | Hose 10x3x230 |
| 783 5 | 4812 530 28797 | Distributor |
| 783 6 | 4812 530 28796 | Hose 10x3x180+10 |
| 791 0 | 4812 532 68067 | Gasket |
| 791 2 | 4812 530 58093 | Gasket |
| 791 4 | 4812 466 68503 | Gasket |
| 791 5 | 4812 466 68504 | Gasket |
| 791 6 | 4812 466 68505 | Gasket |
| 794 1 | 4819 530 58032 | Gasket 20x2,5 |
| 901 0 | 4812 401 18191 | Strap 017,8 |
| 901 1 | 4812 401 18396 | Strap |
| 901 2 | 4812 401 18401 | Strap |
| 901 3 | 4812 401 18404 | Strap 019,8-708Z |
| 901 5 | 4812 401 18406 | Strap 028,6-708Z |
| 901 6 | 4812 401 18408 | Strap 038,1-708Z |
| 902 0 | 4812 401 18195 | Clip |
| 904 2 | 4812 462 79635 | Cover WH 3,5x5 |
| 904 3 | 4812 462 79636 | Cover WH 3,5x4 |
| 910 0 | 4812 502 18384 | Screw 4x35-H |
| 910 1 | 4812 502 18019 | Screw |
| 910 2 | 4812 502 18363 | Screw 4,0x12-H |
| 910 3 | 4812 502 18364 | Screw 5x20-TORX |
| 910 4 | 4812 502 18386 | Screw M3,5x8 TORX T15 |
| 910 5 | 4812 502 18367 | Screw 3,5x8-TORX T15 |
| 910 6 | 4812 502 18369 | Screw A2F M4x6 |
| 910 7 | 4812 502 38132 | Screw DIN 965 |
| 964 0 | 4812 466 68536 | Gasket housing ri/le |
| 964 1 | 4812 466 68469 | Gasket housing upper |
| 993 0 | 4812 530 48149 | Bow |
| 993 5 | 4822 532 80216 | Funnel salt |

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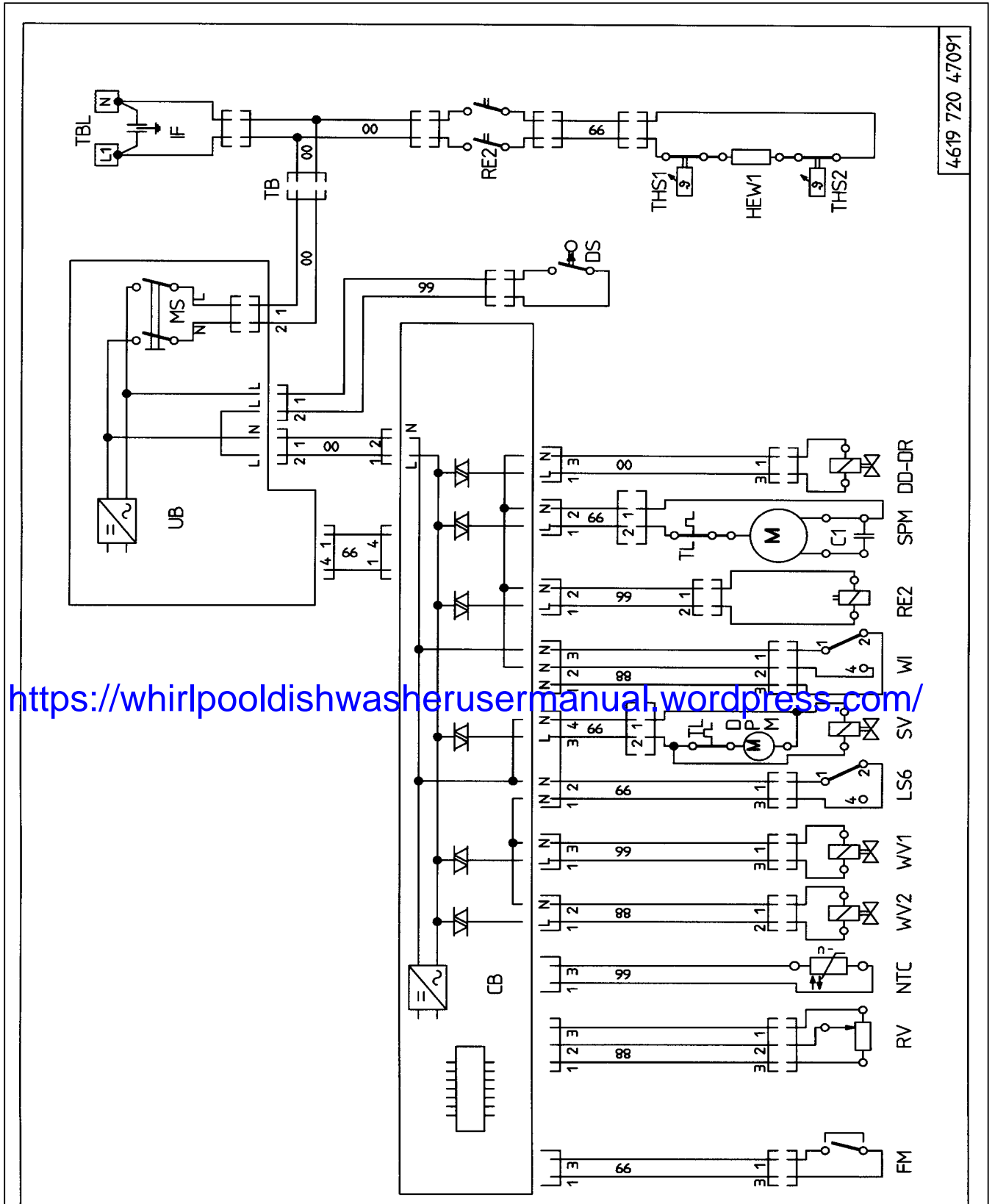
Exploded view



Exploded view



Circuit diagram



4619 720 47091

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| | |
|-----|----------------------------|
| C1 | Capacitor |
| CB | Control board |
| DB | Display board |
| DBM | Drain pump motor |
| DD | Cleaning agent dosage |
| DR | Final rinse dosage |
| DS | Door switch |
| EM | Electro magnet |
| FM | Flow meter |
| HEW | Heating |
| IF | Interference filter |
| LS6 | Water leakage switch |
| L | Line |
| MS | Main switch |
| NTC | Thermostat |
| N | Neutral |
| RV | Water hardness switch |
| RE2 | Heating relay |
| RR2 | Reed relay salt |
| RR3 | Reed relay rinsaid |
| SAB | Sprayarm blocked |
| SV | Sieve valve |
| SPM | Sprayarm motor |
| THS | Safety thermostat |
| TB | Plug coupler |
| TBL | Power supply terminal |
| TL | Winding protective contact |
| UB | User board |
| VM | Fan ventilator |
| WV1 | Water inlet valve |
| WV2 | Water regenerating valve |
| WI | Water indicator |
| ZW | Zone washing |
| 00 | black |
| 66 | blue |
| 88 | grey |
| 99 | white |

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 waterindicator is low

function of the machine

| function of the machine | | contacts | | | | | | | | | | program table | | | | |
|----------------------------------|----|----------|----|-------|-----|-----|----|----|-----|-----|-----|---------------|--|--|--|----|
| | | VM | ZW | DD-DR | SPM | RE2 | WI | SV | DPM | WV2 | WV1 | | | | | |
| Startposition for all Progr. | | | | | | | | | | | | | | | | |
| draining | 1 | | | | | | | | | | | t3+30 s | | | | 1 |
| filling | 2 | | | | | | | | | | | FM...L | | | | 2 |
| draining | 3 | | | | | | | | | | | t3+10 s | | | | 3 |
| filling | 4 | | | | | | | | | | | FM...L | | | | 4 |
| draining | 5 | | | | | | | | | | | t3+10 s | | | | 5 |
| filling | 6 | | | | | | | | | | | FM...L | | | | 6 |
| draining | 7 | | | | | | | | | | | t3+10 s | | | | 7 |
| filling - rinsing | 8 | | | | | | | | | | | FM...L | | | | 8 |
| rinsing - heating | 9 | | | | | | | | | | | t2 = °C | | | | 9 |
| rinsing | 10 | | | | | | | | | | | min | | | | 10 |
| rinsing - draining | 11 | | | | | | | | | | | t3+30 s | | | | 11 |
| filling - rinsing | 12 | | | | | | | | | | | FM...L | | | | 12 |
| rinsing - dos. detergent | 13 | | | | | | | | | | | 3 s | | | | 13 |
| rinsing - heating | 14 | | | | | | | | | | | t2 = °C | | | | 14 |
| rinsing | 15 | | | | | | | | | | | min | | | | 15 |
| rinsing - heating | 16 | | | | | | | | | | | t2 = °C | | | | 16 |
| rinsing | 17 | | | | | | | | | | | min | | | | 17 |
| rinsing - heating | 18 | | | | | | | | | | | t2 = °C | | | | 18 |
| filling - rinsing | 19 | | | | | | | | | | | t3+30 s | | | | 19 |
| filling - rinsing | 20 | | | | | | | | | | | FM...L | | | | 20 |
| rinsing | 21 | | | | | | | | | | | 6.5 min | | | | 21 |
| rinsing - draining | 22 | | | | | | | | | | | t3+30 s | | | | 22 |
| filling - rinsing | 23 | | | | | | | | | | | FM...L | | | | 23 |
| rinsing | 24 | | | | | | | | | | | min | | | | 24 |
| rinsing - draining | 25 | | | | | | | | | | | t3+30 s | | | | 25 |
| filling - rinsing | 26 | | | | | | | | | | | FM...L | | | | 26 |
| rinsing - heating | 27 | | | | | | | | | | | t2 = °C | | | | 27 |
| rinsing - dos. rinse aid | 28 | | | | | | | | | | | 1 min | | | | 28 |
| rinsing | 29 | | | | | | | | | | | 3 s | | | | 29 |
| rinsing - dos. rinse aid | 30 | | | | | | | | | | | 1.5 min | | | | 30 |
| rinsing - heating | 31 | | | | | | | | | | | t2 = °C | | | | 31 |
| rinsing | 32 | | | | | | | | | | | 1 min | | | | 32 |
| draining | 33 | | | | | | | | | | | t3+30 s | | | | 33 |
| drying - without Fan | 34 | | | | | | | | | | | 2 min | | | | 34 |
| drying - regenerating | 35 | | | | | | | | | | | 1 min | | | | 35 |
| drying - regenerating - draining | 36 | | | | | | | | | | | t3+30 s | | | | 36 |
| drying - regenerating | 37 | | | | | | | | | | | 1 min | | | | 37 |
| drying - regenerating - filling | 38 | | | | | | | | | | | 1 s | | | | 38 |
| drying - regenerating | 39 | | | | | | | | | | | 3 s | | | | 39 |
| drying - regenerating - filling | 40 | | | | | | | | | | | 1 s | | | | 40 |
| drying - draining | 41 | | | | | | | | | | | t3+30 s | | | | 41 |
| drying | 42 | | | | | | | | | | | 9 min | | | | 42 |
| drying - draining | 43 | | | | | | | | | | | t3+30 s | | | | 43 |
| End | 44 | | | | | | | | | | | End | | | | 44 |

| | | VM | ZW | DD-DR | SPM | RE2 | WI | SV | DPM | WV2 | WV1 | LEDs | | | | | |
|------------------------------|----|----|----|-------|-----|-----|----|----|-----|-----|-----|---------|-----|-----|-----|----|--|
| | | | | | | | | | | | | PS1 | PS2 | PS3 | PS4 | ZW | |
| draining | 1 | | | | | | | | | | | t3+30 s | | | | | |
| filling | 2 | | | | | | | | | | | FM...L | | | | | |
| draining | 3 | | | | | | | | | | | t3+10 s | | | | | |
| filling | 4 | | | | | | | | | | | FM...L | | | | | |
| draining | 5 | | | | | | | | | | | t3+10 s | | | | | |
| filling | 6 | | | | | | | | | | | FM...L | | | | | |
| draining | 7 | | | | | | | | | | | t3+10 s | | | | | |
| filling - rinsing | 8 | | | | | | | | | | | FM...L | | | | | |
| pause - dos. detergent | 9 | | | | | | | | | | | 3 s | | | | | |
| rinsing - heating | 10 | | | | | | | | | | | 6.5 °C | | | | | |
| regenerating | 11 | | | | | | | | | | | 30 s | | | | | |
| regenerating - draining | 12 | | | | | | | | | | | t3 | | | | | |
| drying-regenerating-draining | 13 | | | | | | | | | | | 30 s | | | | | |
| End | 14 | | | | | | | | | | | End | | | | | |

4619 720 72421-1

Text/Legend

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Test procedure for SERVICE-TEST-PROGRAM DOLPHIN dishwashers

1. Start the test program.
If there is a defective component indicated, open the plinth and take out the control board.
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 correct, check the cables to the component and check the component itself.
3. Check the control board.
4. Only if there is no reaction when pushing a push button or turning the rotary switch, then test with the test points.
5. At the end of the repair start the test program again to see that the failure is solved.

More details: s. 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 circuits 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.

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Text/Legend

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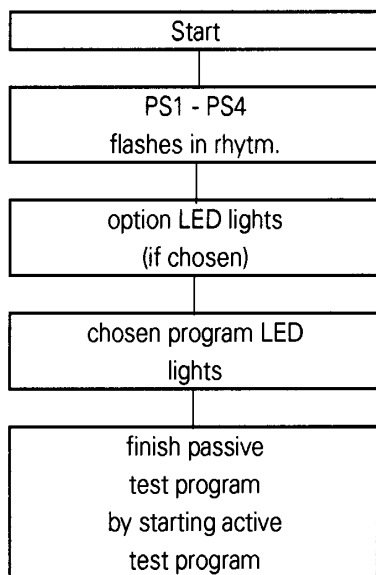
Indication of failure and alarms

Whirlpool and Ignis appliances and also Bauknecht Flat panel appliances

| failure | failure no. | indication | indication within test program |
|-----------------------------|-------------|-------------------|--------------------------------|
| NTC - break | F1 | start LED flashes | PS1 flashes |
| water leakage failure | F2 | start LED flashes | PS2 flashes |
| heating system failure | F3 | start LED flashes | PS3 flashes |
| draining failure | F4 | start LED flashes | PS4 flashes |
| spray arm blocked | F5 | PS1 flashes | PS1 + PS4 flash |
| water tap closed | F6 | start LED flashes | PS2 + PS4 flash |
| flow meter failure | F7 | start LED flashes | PS3 + PS4 flash |
| water level failure | F8 | start LED flashes | PS2 + PS3 flash |
| water inlet continuously on | F9 | start LED flashes | PS1 + PS3 flash |
| salt | | alarm LED on | alarm LED on |
| rinse agent | | alarm LED on | alarm LED on |

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Passive test program



The passive test program shows the stored failure.
 If there is no failure the passive test program runs normal.

Start procedure

1. Switch off the appliance
2. Push start button and hold it and
 select program BIO-ECO 50 °C (d) or Rapid (c)
3. Finish pushing the start button when the start LED flashes
4. Failure indication

Program sequence LED

| | | |
|-----|------------|---|
| PS1 | 1. LED | backrinsing prewash |
| PS2 | 2. LED | mainwash intermediate rinse final rinse |
| PS3 | 3. LED | drying |
| PS4 | 4. LED end | goes off if any button is pushed |
| | | goes off after 30 min. progr. is finished |

Text/Legend

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Indication of failure and alarms

Bauknecht appliances low and high version

| failure | failure no. | indication without digits | indication with digits | indication within test program |
|-----------------------------|-------------|---------------------------------|-----------------------------------|---------------------------------|
| NTC - break | F1 | start LED flashes | F1 at digits | PS1 flashes F1 at digits |
| water leakage failure | F2 | start LED flashes and alarm LED | alarm LED flashes | PS2 flashes F2 at digits |
| heating system failure | F3 | start LED flashes | F3 at digits | PS3 flashes F3 at digits |
| draining failure | F4 | start LED flashes | F4 at digits | PS4 flashes F4 at digits |
| spray arm blocked | F5 | PS1 flashes | alarm LED flashes | PS1 + PS4 flash F5 at digits |
| water tap closed | F6 | start LED flashes | alarm LED flashes | PS2 + PS4 flash F6 at digits |
| flow meter failure | F7 | start LED flashes | F7 at digits | PS3 + PS4 flash F7 at digits |
| water level failure | F8 | start LED flashes | F8 at digits | PS2 + PS3 flash F8 at digits |
| water inlet continuously on | F9 | start LED flashes | alarm LED flashes (water leakage) | PS1 + PS3 flash F2 at digits |
| salt | | alarm LED on | alarm LED on | alarm LED on |
| rinse agent | | alarm LED on | alarm LED on | alarm LED on |

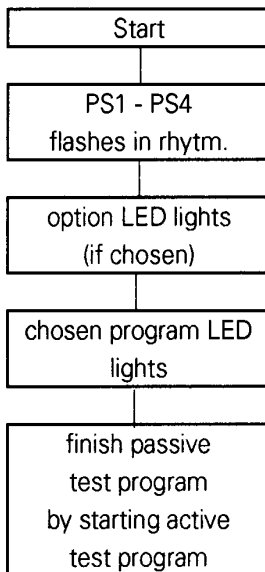
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With the passive test program all LEDs and buttons can be tested.

Passive test program

If there is no failure, the passive test program runs normal.

Start procedure



ROTARY VERSION

1. Switch off the appliance
2. Select program BIO/ECO (d)
3. Push start button and hold it and switch on the main switch
4. When start LED flashes, then release start button

PUSH BUTTON VERSION

1. Switch off the appliance
2. Push start button hold it and switch on the main switch
3. Release the start button when the start LED flashes
4. Select program BIO/ECO (d)

Program sequence LED

| | | |
|-----|------------|--|
| PS1 | 1. LED | backrinsing prewash |
| PS2 | 2. LED | main wash intermediate rinse final rinse |
| PS3 | 3. LED | drying |
| PS4 | 4. LED end | goes off if any button is pushed |
| | | goes off after 30 min. progr. is fin. |

Text/Legend

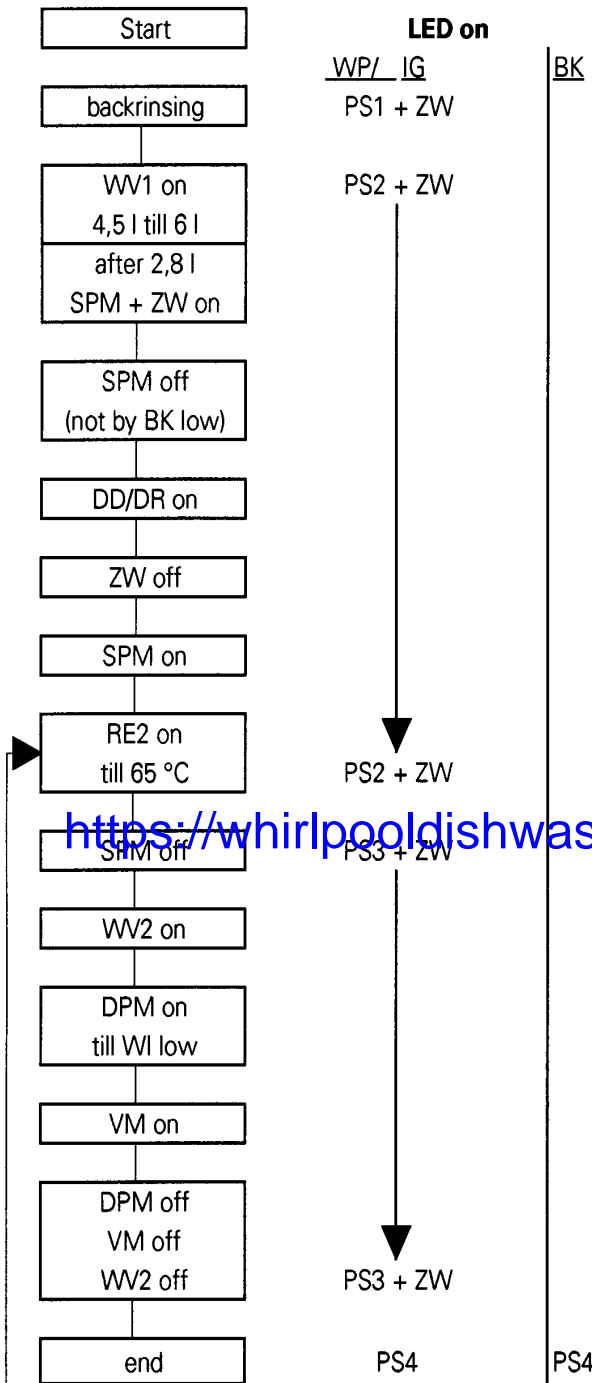
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Active test program

All appliances Bauknecht, Whirlpool and Ignis

Test procedure
 1. passive test program O. K.?
 no: repair failure
 yes: push start button shorter than 3 sec.
 2. active test program starts



Remarks
 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.
 Too less salt or too less rinse aid leads not to the stop of the appliance.
 The function of the zone wash valve can only be checked optically.
 A defect 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.

only on this step can be jumped to the next step by short pushing the start button again

Appliances which have no program sequence LED/digits cannot show the failure.
 On these appliances the failure can only be found by starting the test program and following this by using the program chart.
 The steps of the test program are as normal.

The failure position is indicated:
 On WP and IG appliances by switching off the flashing start LED.
 On BK appliances the flashing start LED lights continuously.

Text/Legend

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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

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

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- too less heating speed (lower 1,5 degr. in 20 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

Text/Legend

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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

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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.

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| | | | Programs | | | | | | | | | | | | |
|------------|-----------|-----------|----------|---|---|---------|---------|---------|---------|---|---|---|---|---|---|
| BK | IG | WH | a | b | c | d BK | d WI | e BK | e WI | f | g | h | i | j | k |
| A3 | | | X | | | X | | | | X | | | | | |
| | A3 | A3 | X | | X | | ⊗ | | | X | | | | | |
| A4 | | | X | | | X | | X | | X | | | | | |
| | A4 | A4 | X | | X | | ⊗ | | X | X | | | | | |
| | A5 | A5 | X | | X | | ⊗ | | X | X | X | | | | |
| | A6 | A6 | X | | X | | X | | X | X | X | | | | |
| | A7 | | X | X | X | | X | | X | X | X | | | | |
| B4 | | | X | | | X | | X | | X | | | | | |
| B5 | | | X | | | X | | X | | X | X | | | | |
| | | B5 | X | | X | | | | X | X | X | | | | |
| B6 | | | X | | X | X | | X | | X | X | | | | |
| | | B6 | X | | X | | X | | X | X | X | | | | |
| | | B7 | X | X | X | | X | | X | X | X | | | | |
| C5 | | | X | | | X | | X | | X | X | | | | |
| C6 | | | X | | X | X | | X | | X | X | | | | |
| C7 | | | X | X | X | X | | X | | X | X | | | | |
| C11 | | | X | X | X | X | | X | | X | X | X | X | X | X |

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 ⊗ only for IG instead of program c

- a prewash
- b glass 40°C
- c rapid 50°C
- d bio/eco 50°C (BK without prewash, WH-IG with cold prewash)
- e bio/normal 50°C BK (with cold prewash)
- e daily 65°C (only WH-IG without prewash)
- f normal 65°C (with cold prewash)
- g intensive 70°C (with prewash 40°C)
- h -d- bio/eco 50°C (BK without prewash) + e-button
- i -e- bio/normal 50°C BK (with cold prewash) + e-button
- j -f- normal 65°C (with cold prewash) + e-button
- k -g- intensive 70°C (with prewash 40°C) + e-button

After starting a program this program is locked. That means neither by unplugging/switching of the appliance nor by setting an other program, the first setted program can be changed. Chancing of the program is only possible by pushing the start button again for longer than 3 sec..

On appliances with seperate On-Off button the last used program is stored. That means if the customer wants to use the same program again he has only to press the On-button and the Start-button.

Text/Legend

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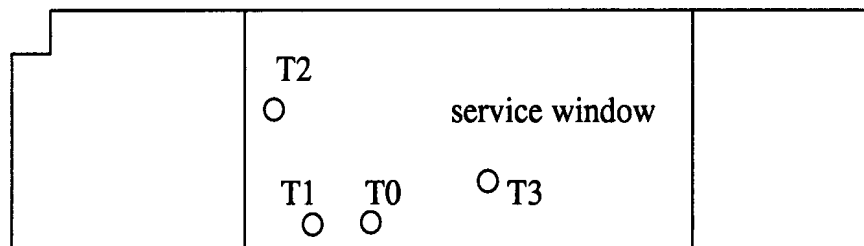
Test points on the control board for Whirlpool and Ignis appliances

With these test points the function of the buttons and the rotary switch 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



control board

Check: test point T0 to T1

Communication between Control board and Display board

| pushed button | voltage | from | to |
|------------------|--------------------|---------------|---------------|
| start button | appr. 0,00 V (DC) | control board | display board |
| ZW | appr. -3,69 V (DC) | display board | control board |
| delay start | appr. -2,33 V (DC) | display board | control board |
| ZW + delay start | appr. -1,85 V (DC) | display board | control board |

Check: test point T0 to T2

Communication between Control board and User board

| rotary switch | voltage | from | to |
|---------------|--------------------|------------|---------------|
| progr. a | appr. -1,54 V (DC) | user board | control board |
| progr. b | appr. -2,06 V (DC) | user board | control board |
| progr. c | appr. -2,57 V (DC) | user board | control board |
| progr. d | appr. -3,42 V (DC) | user board | control board |
| progr. e | appr. -3,96 V (DC) | user board | control board |
| progr. f | appr. -4,47 V (DC) | user board | control board |
| progr. g | appr. -5,00 V (DC) | user board | control board |
| start button | appr. 0,00 V (DC) | user board | control board |

Check: test point T0 to T3

Communication between Control board and Display Board

multiplexing appr. -3,18 V (DC)

How exact the data are, depends on the measure equipment.

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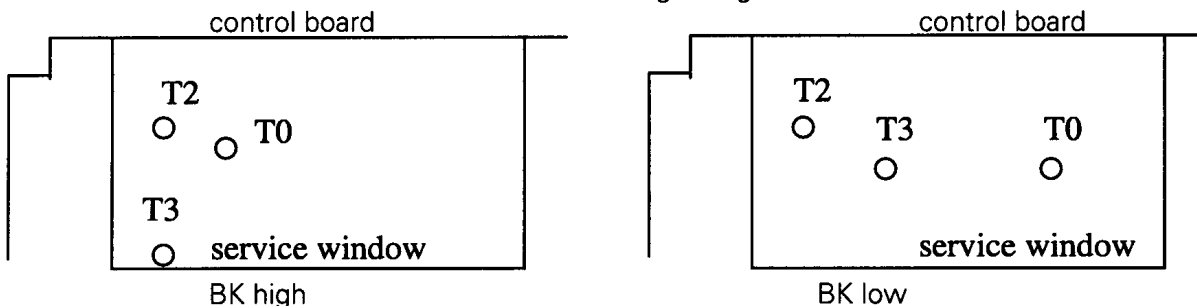
Test points on the control board for Bauknecht appliances

With these test points the function of the buttons and the rotary switch 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 T3 high = serial link
 T3 low = digital signal



Check: test point T0 to T2 high range (see control board: BK-CB -H)

Communication between Control board and User board or Control- and Display board

| pushed button or rotary switch | voltage | from | to |
|--------------------------------------|-------------------|---------------|---------------|
| off | appr. -5,0 V (DC) | control board | user board |
| progr. a | appr. -1,0 V (DC) | user board | control board |
| progr. b | appr. -1,5 V (DC) | user board | control board |
| progr. c | appr. -2,0 V (DC) | user board | control board |
| progr. d (h) | appr. -2,5 V (DC) | user board | control board |
| progr. e (i) | appr. -3,0 V (DC) | user board | control board |
| progr. f (j) | appr. -3,5 V (DC) | user board | control board |
| progr. g (k) | appr. -4,0 V (DC) | user board | control board |
| start button | appr. -0,6 V (DC) | user board | control board |
| option- , gentle- or delay button | appr. -5,0 V (DC) | control board | display board |

Check: test point T0 to T2 low range (see control board: BK-CB -L)

Communication between Control board and User board or Control- and Display board

| pushed button or rotary switch | voltage | from | to |
|-----------------------------------|---------------------------|---------------|---------------|
| off | appr. -5,0 V (DC) | control board | user board |
| progr. a | appr. -1,0 V (DC) | user board | control board |
| progr. b | do not exist on low range | | |
| progr. c | appr. -1,5 V (DC) | user board | control board |
| progr. d | appr. -2,0 V (DC) | user board | control board |
| progr. e | appr. -2,5 V (DC) | user board | control board |
| progr. f | appr. -3,0 V (DC) | user board | control board |
| progr. g | appr. -3,5 V (DC) | user board | control board |
| start button | appr. -0,6 V (DC) | user board | control board |
| eco-dry button | appr. -4,0 V (DC) | control board | display board |
| delay button | appr. -4,5 V (DC) | control board | display board |

Check: test point T0 to T3 high range

| | | | |
|-------------------------|------------------|---------------|---------------|
| no program running | -0,8/-1,0 V (DC) | control board | display board |
| program bio/eco running | -0,3/-0,8 V (DC) | control board | display board |

Check: test point T0 to T3 low range

| | | | |
|------------------|-------------|---------------|---------------|
| multiplex signal | -2,5 V (DC) | control board | display board |
|------------------|-------------|---------------|---------------|

How exact the data are, depends on the measure equipment.