

DISHWASHERS

SERVICE MANUAL



SOGEDIS

ELECTROMENAGER

I SERIES

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TOOLS FOR DISASSEMBLE



Phillips screwdriver

- *All kinds of star-head screws,
- *in the phillips screws of the internal components,



Plier

- *It is used to bend all kinds of sheet metal ends.



Multimeter

- *Resistance values of all kinds of internal components,
- *Electronic card resistors,
- *It is used to measure the resistance of display cards.



Flat Screwdriver

It is used to remove all kinds of aesthetic parts (side panels, front panels and external aesthetic parts of the machine).



Side Cutter

It is used to cut cables of internal components or any hard part.



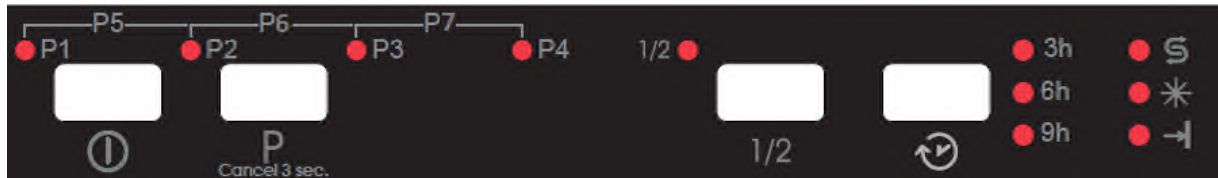
Chargeable Drill

It is the most important tool used to remove and install all kinds of screws in the machine.

1. USER INTERFACES

1.1 I1 SERIES W/O DISPLAY

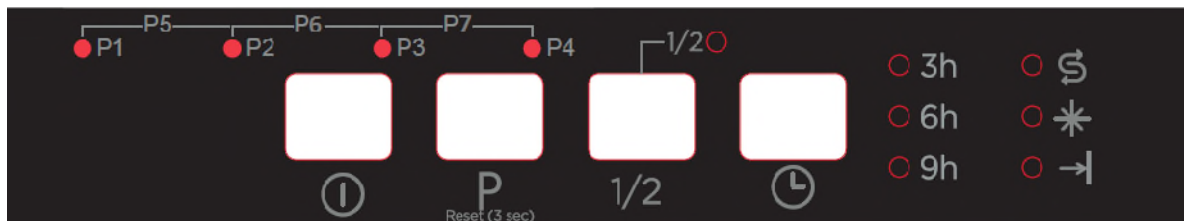
I16-I15-I14-I13-I12-I11 60 cm



The user interface includes:

- On/Off button
- Program button with 4 leds
- Half Load button with 1 led
- Delay button (3-6-9 h)
- 3h, 6h, 9h leds
- Salt, Rinse aid, End leds

I16-I15-I14-I13-I12-I11 45 cm



The user interface includes:

- On/Off button
- Program button with 4 leds
- Half Load button with 1 led
- Delay button with 3-6-9 h leds
- Salt, Rinse aid, End leds

1.2 I1 SERIES W DISPLAY

I1G-I1F-I1E-I1D-I1C-I1B-I1A(w/o front display); I1R-I1P-I1O-I1N-I1M-I1L-I1K(w front display) 60 cm

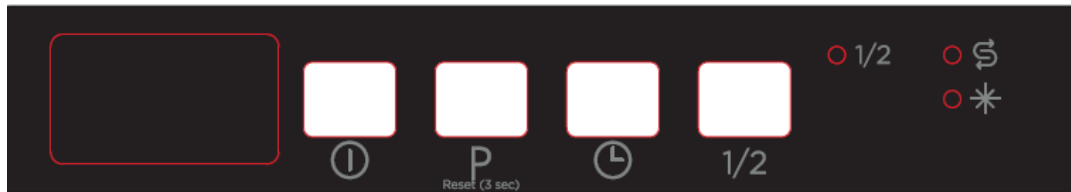


The user interface includes:

- 188 Digit Display
- On/Off button
- Program button
- Delay button (19 h)

- Half Load button with 1/2 led
- Salt, Rinse aid leds

I1G-I1F-I1E-I1D-I1C-I1B-I1A; I1R-I1P-I1O-I1N-I1M-I1L-I1K(with front display) 45 cm



The user interface includes:

- 188 Digit Display
- On/Off button
- Program button
- Delay button (19 h)
- Half Load button with 1/2 led
- Salt, Rinse aid leds

1.3 I2 SERIES W ASYNCHRONOUS MOTOR

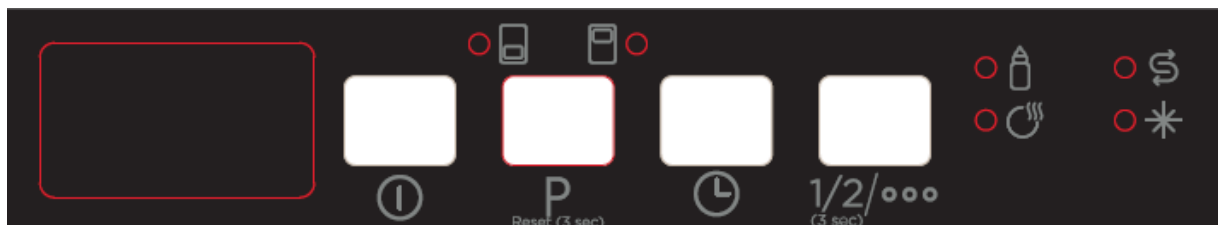
I23-I22-I21; I2M-I2L-I2K(with front display) 60 cm



The user interface includes:

- 188 Digit Display
- On/Off button
- Program button
- Half Load button with Upper/ Lower basket leds
- Delay button (19 h)
- Options button with Hygiene and Dry leds
- Salt, Rinse aid leds

I23-I22-I21 45 cm



The user interface includes:

- 188 Digit Display
- On/Off button
- Program button

- Delay button (19 h)
- Half Load(3s) / Options button
- Upper / Lower basket, Hygiene, Dry leds
- Salt, Rinse aid leds

1.4 I2 SERIES W BLDC MOTOR

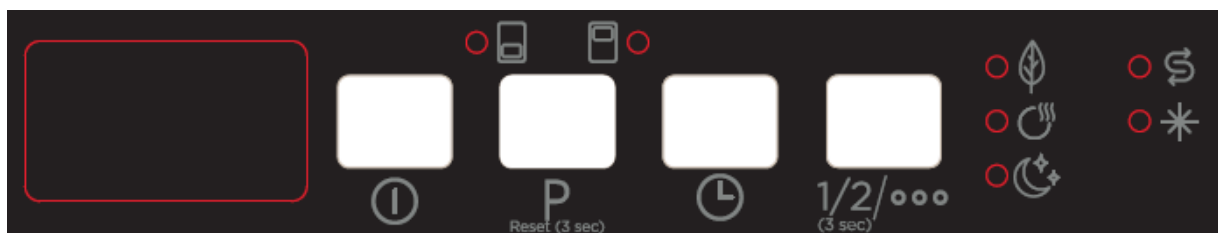
I24 – I2N(with front display) 60 cm



The user interface includes:

- 188 Digit Display
- On/Off button
- Program button
- Half Load button with Upper, Lower basket leds
- Delay button (19 h)
- Options button with Energy Save, Dry, Silent leds
- Salt, Rinse aid leds

I24 45 cm



The user interface includes:

- 188 Digit Display
- On/Off button
- Program button
- Delay button (19 h)
- Half Load(3s) / Options button
- Upper / Lower basket, Energy Save, Dry, Silent leds
- Salt, Rinse aid leds

I25 – I2O(with front display) 60 cm



The user interface includes:

- 188 Digit Display

- On/Off button
- Program button
- Half Load button with Upper, Lower basket leds
- Delay button (19 h)
- Options button with Energy Save, Dry, Silent leds
- Salt, Rinse aid leds

I29-I28-I27-I26; I2T-I2S-I2R-I2P(with front display) 60 cm



The user interface includes:

- 188 Digit Display
- On/Off button
- Program button
- Half Load button with Upper, Lower basket leds
- Delay button (19 h)
- Options button with Silent, Dry, Fast leds
- Salt, Rinse aid leds

1.5 I5 SERIES (TOUCH CONTROL)

I51 60 cm, 45 cm



The user interface includes:

- On/Off button
- Program button
- 188 Digit Display
- Delay button(19 h) with 1 led
- Extra Dry button with 1 led
- Half Load button with 1 led

I53-I52 60 cm, 45cm



The user interface includes:

- On/Off button
- Program button
- 188 Digit Display
- Delay button(19 h) with 1 led
- Dry / Rinse button with 2 leds
- Upper/Lower basket button with 2 leds

I54 60 cm, 45 cm



The user interface includes:

- On/Off button
- Program button
- 188 Digit Display
- Delay(19 h) button with 1 led
- Dry / Energy save button with 2 leds
- Upper/Lower Basket button with 2 leds
- Extra Silent / Fast button with 2 leds

I55 60 cm



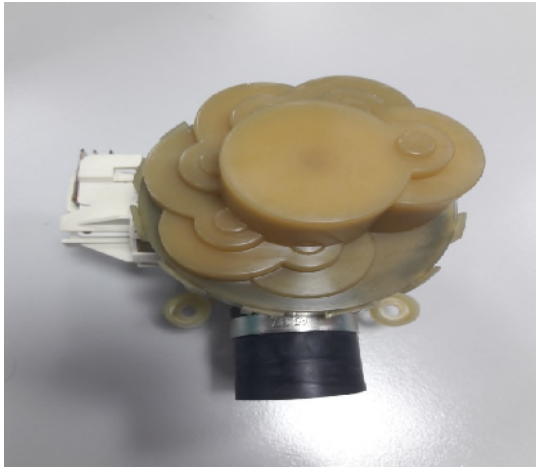
The user interface includes:

- On/Off button
- Program button
- 188 Digit Display
- Delay(19 h) button with 1 led
- Dry / Energy save button with 2 leds
- Upper/Lower Basket button with 2 leds
- Extra Silent / Fast button with 2 leds

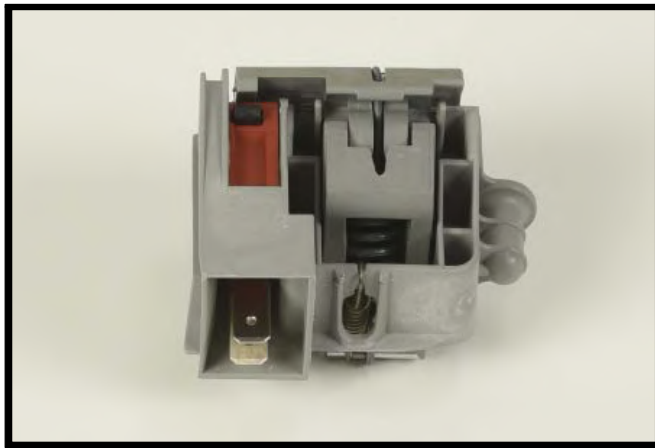
I59, I58, I57, I56 60 cm



ELECTRICAL COMPONENTS



AQUAZONE



DOOR LOCK

It is a mechanical lock/release system that is closing the door, supplying the connection of electrical parts in the machine and cutting off the connection.

Currency 16 (4) A

CIRCULATION PUMP

Voltage	220/240
Frequency	50HZ
Total Power	90W
Coil Isolation Class	F
Thermal Protector	150°C
Pump Outlet Pressure	300mbar
Pump Flowrate	60 lt/min

Measurement of the primary windings of the washing pump.
(118.2-135.9 Ω)

Measurement of the secondary windings of the washing pump (white cable – blue cable)(117.9-135.6 Ω)

Single direction, single phase, asynchronus and two pole.

It turns opposite clock direction.

It is assambled to the basement with rubber hangers.



FLOATER



CAPACITOR

2,5 μ F - 450 V class S2

Capacitor is permanently connected to the circulation pump coils.



DRAIN PUMP

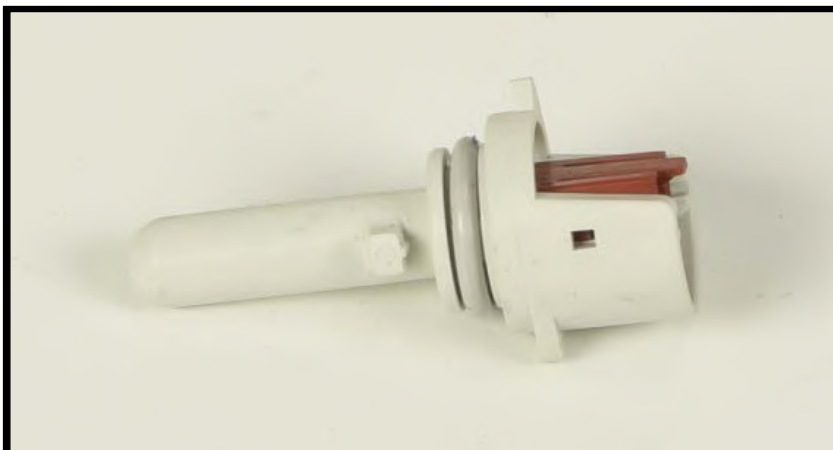
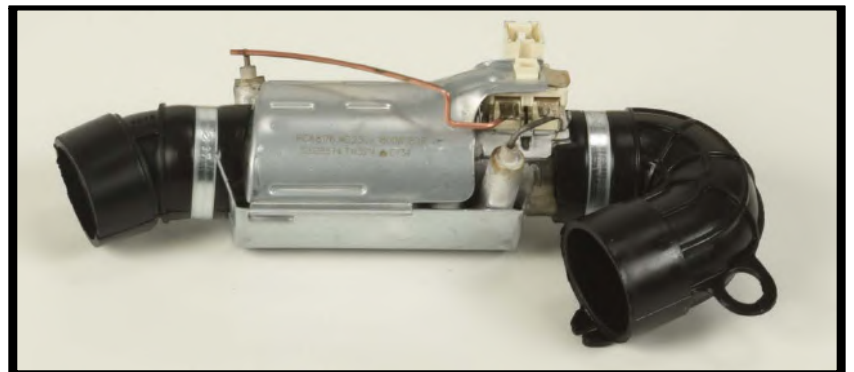


Voltage	220/240 volt
Frequency	50Hz
Flowrate	30W
Coil Resistance / Hanyu	220 Ω % $\pm$ 7
Coil Resistance / Leili	141 Ω % $\pm$ 7
Coil Isolation Class	F
Thermal Protector	120°C

HEATER

Voltage 220/240 volt
Total power 1800W

27.6-30.6 ohm



NTC

+25°C	-	47.200	±	850 Ω
+30°C	-	37.500	±	675 Ω
+40°C	-	24.900	±	349 Ω
+50°C	-	17.000	±	170 Ω
+60°C	-	11.700	±	117 Ω
+70°C	-	8.280	±	108 Ω
+80°C	-	5.945	±	101 Ω

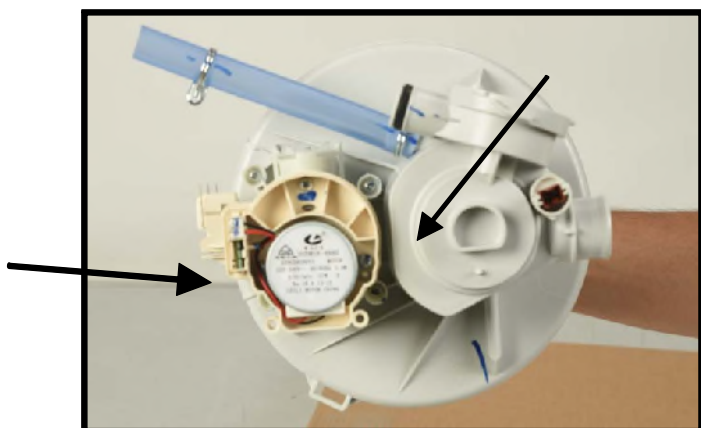
	C		T		
PRESSURE SWITCH	CN2.10 - CN2.2	0 Ω $\infty\Omega$	KN2.9 - KN2.10	0 Ω $\infty\Omega$	WATER NO WATER

PRESSURE SWITCH

Voltage 220/240 v

Frequency 50/60 Hz

16 A - 3 Pins



DIVERTER

There is diverter at A15 and A23 models It is assembled to the heater Casing Group.

Voltage	220/240 V
Frequency	50 Hz
Power	8W
Resistance	10500 $\pm$ %5 Ω

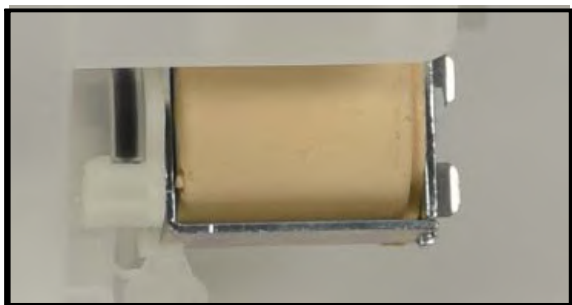
WATER INLET VALVE

Single inlet and single outlet standard single coil selenoid valve.

Voltage	220 - 240
Total Power	6W
Flowrate	2,5 $\pm$ % 15 lt/dk
Coil Isolation Class	H
Resistance	4200 $\pm$ %10

It is assembled to the basement and connect to the airbreak by hose.





REGENERATION VALVE

Voltage	220/240 V
Frequency	50/60 Hz
Total power	6 W
Resistance	$3560 \pm \% 10 \Omega^{\circ}\text{C}$

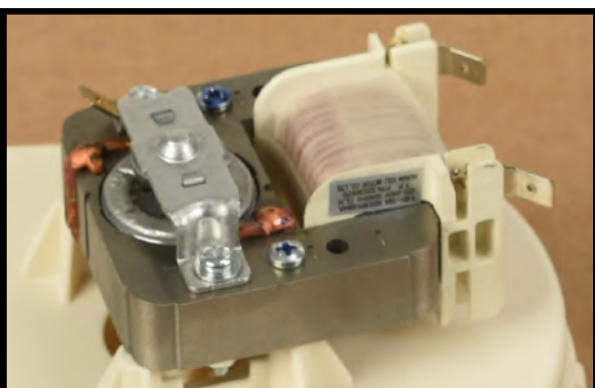
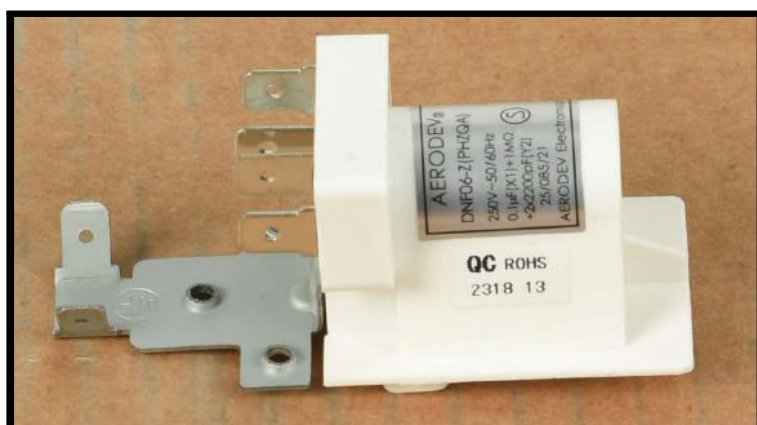
Regeneration valve is assembled on the water softener.

PARASITE FILTER

Voltage	220/240
Frequency	50/60 Hz

$0,1 \mu\text{F} (\text{X1}) + 2 \times 2,2 \mu\text{F} (\text{Y2}) + 1\text{M}\Omega$

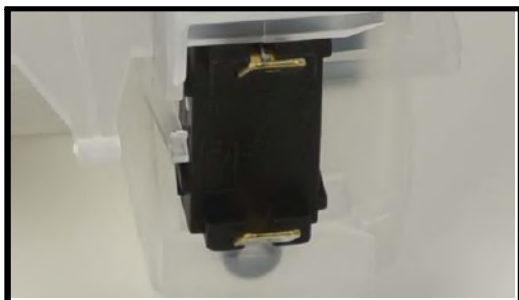
It is used to prevent parasites from the main supply. It has been assembled to basement.



TURBO FAN MOTOR

There is a thermal protector shaded pole motor, two pole temperature is between $-40-150^{\circ}\text{C}$

There is turbo fan motor only at A models.



SALT SENSOR

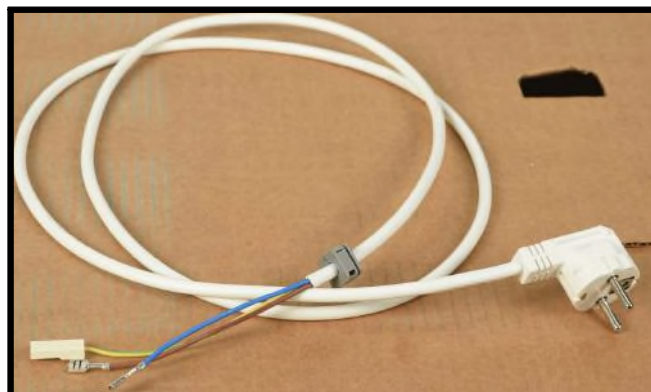
Voltage	250 V
Current	50 mA



It is assembled to the water softener. It warns if the salt is less than requested quantity.

POWER CORD

Type	Euro 3-lü 1mm ² , copper conducting
Isolation	TS 9760 HO 5VV - F
Plug	TS - IEC 60884 - 1 PVC injected
Length	1650 mm



DRAIN HOSE



Drain hose maximum height	110 cm
Drain hose minimum height	50 cm
Drain hose maximum length	400 cm
Total Power	15 W
Voltage	220/240 V
Frequency	50 Hz
Resistance	238.6± %5 Ω

The user interface includes:

- On/Off button
- Program button
- 188 Digit Display
- Delay(19 h) button with 1 led
- Dry button with 1 led
- Upper/Lower Basket button with 2 leds
- Extra Silent / Fast button with 2 leds

2. WASHING PROGRAM

2.1 WASHING PROGRAM SEQUENCES

2.1.1 60 cm Models Program Sequences

I series 60cm	Total Prg #	P1	P2	P3	P4	P5	P6	P7	P8	P9
I11	2	Eco	Intensive 65°C / Auto							
I1A	2	Eco	Intensive 65°C or Auto							
I1K	2	Eco	Intensive 65°C or Auto							
I12	3	Eco	Intensive 65°C or Auto	Super 50' 65°C						
I1B	3	Eco	Intensive 65°C or Auto	Super 50' 65°C						
I1L	3	Eco	Intensive 65°C or Auto	Super 50' 65°C						
I13	4	Eco	Intensive 65°C or Auto	Super 50' 65°C	Prewash					
I1C	4	Eco	Intensive 65°C or Auto	Super 50' 65°C	Prewash					
I1M	4	Eco	Intensive 65°C or Auto	Super 50' 65°C	Prewash					
I14	5	Eco	Intensive 65°C or Auto	Super 50' 65°C	Quick 30' 40°C	Prewash				
I1D	5	Eco	Intensive 65°C or Auto	Super 50' 65°C	Quick 30' 40°C	Prewash				

I1N	5	Eco	Intensive 65°C or Auto	Super 50' 65°C	Quick 30' 40°C	Prewash				
I15	6	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Quick 30' 40°C	Prewash			
I1E	6	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Quick 30' 40°C	Prewash			
I1O	6	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Quick 30' 40°C	Prewash			
I16	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I1F	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I1P	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I1G	8	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash	
I1R	8	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash	
I21	7	Eco	Intensive 65°C or Auto	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I2K	7	Eco	Intensive 65°C or Auto	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I22	8	Eco	Intensive 65°C or Auto	Super 50' 65°C	Easy Care 60°C	Clean+ 55°C	Delicate 40°C	Quick 30' 40°C	Prewash	
I2L	8	Eco	Intensive 65°C or Auto	Super 50' 65°C	Easy Care 60°C	Clean+ 55°C	Delicate 40°C	Quick 30' 40°C	Prewash	
I23	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash
I2M	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash
I26	6	Eco	Smart 60°C - 70°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C			
I2P	6	Eco	Smart 60°C - 70°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C			
I27	7	Eco	Smart 60°C - 70°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C		
I2R	7	Eco	Smart 60°C - 70°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C		
I28	8	Eco	Smart 60°C - 70°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'	

I2S	8	Eco	Smart 60°C - 70°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'	
I29	9	Eco	Smart 50°C - 70°C	Smart 30°C - 50°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I2T	9	Eco	Smart 50°C - 70°C	Smart 30°C - 50°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I24	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I2N	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I25	9	Eco	Smart 50°C - 70°C	Smart 30°C - 50°C	Hygiene 70°C	Save+ 5.4 lt	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I2O	9	Eco	Smart 50°C - 70°C	Smart 30°C - 50°C	Hygiene 70°C	Save+ 5.4 lt	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I51	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Mini 14'		
I52	8	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Mini 14'	
I53	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Mini 14'
I56	6	Eco	Smart 60°C - 70°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C			
I57	7	Eco	Smart 60°C - 70°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C		
I58	8	Eco	Smart 60°C - 70°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'	
I59	9	Eco	Smart 50°C - 70°C	Smart 30°C - 50°C	Steam Wash	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I54	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I55	9	Eco	Smart 50°C - 70°C	Smart 30°C - 50°C	Hygiene 70°C	Save+ 5.4 lt	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'

2.1.2 45 cm Models Program Sequences

I series 45cm	Total Progr ams #	P1	P2	P3	P4	P5	P6	P7	P8	P9
I11	2	Eco	Intensive 65°C / Auto							
I1A	2	Eco	Intensive 65°C or Auto							
I12	3	Eco	Intensive 65°C or Auto	Super 50' 65°C						
I1B	3	Eco	Intensive 65°C or Auto	Super 50' 65°C						
I13	4	Eco	Intensive 65°C or Auto	Super 50' 65°C	Prewash					

I1C	4	Eco	Intensive 65°C or Auto	Super 50' 65°C	Prewash					
I14	5	Eco	Intensive 65°C or Auto	Super 50' 65°C	Quick 30' 40°C	Prewash				
I1D	5	Eco	Intensive 65°C or Auto	Super 50' 65°C	Quick 30' 40°C	Prewash				
I15	6	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Quick 30' 40°C	Prewash			
I1E	6	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Quick 30' 40°C	Prewash			
I16	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I1F	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I1G	8	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash	
I21	7	Eco	Intensive 65°C or Auto	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash		
I22	8	Eco	Intensive 65°C or Auto	Super 50' 65°C	Easy Care 60°C	Clean+ 55°C	Delicate 40°C	Quick 30' 40°C	Prewash	
I23	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Prewash
I24	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'
I51	7	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Mini 14'		
I52	8	Eco	Intensive 65°C or Auto	Hygiene 70°C	Super 50' 65°C	Easy Care 60°C	Delicate 40°C	Quick 30' 40°C	Mini 14'	
I53	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Delicate 40°C	Quick 30' 40°C	Mini 14'
I54	9	Eco	Smart 60°C - 70°C	Smart 50°C - 60°C	Smart 30°C - 50°C	Hygiene 70°C	Super 50' 65°C	Dual Pro Wash 60°C	Quick 30' 40°C	Mini 14'

3. WASHING SPECIFICATIONS AND PROGRAMS

3.1 SELECTING AND STARTING PROGRAM AT POWER ON(BEFORE PROGRAM STARTS)

COMMANDS	Top Display	End
Switch on	--	OFF
Select program	Duration of program / Program number	OFF
Door closed	None	OFF

Note: When machine is switched on, 3 short beeps are heard. When it is turned off, buzzer gives long sound.

3.2 OPENING AND CLOSING DOOR(BEFORE PROGRAM STARTS)

COMMANDS	Top Display	End
Door open	--	OFF

Door closed	None	OFF
-------------	------	-----

3.3 OPENING AND CLOSING DOOR DURING PROGRAM(NOT IN DRY STEPS)

During the program if the door is opened and re-closed without any modifications on the program button the program continues. Washing program re-starts after 8" if the measured temperature is equal or more than 45°C.

COMMANDS	Top Display	End
Door open	Duration of program / Program number	OFF
Door closed	None	OFF

3.4 OPENING AND CLOSING DOOR DURING PROGRAM(IN DRY STEPS)

During dry step: if the door is opened and re-closed, the program ends.

COMMANDS	Top Display	End
Door open	Duration of program / Program number	OFF
Door closed	None	ON

3.5 OPENING AND CLOSING DOOR DURING PROGRAM(IN REGENERATION FIRST STEP)

During regeneration and resin washing step: if the door is opened and re-closed, the program continues.

COMMANDS	Top Display	End
Door open	Duration of program / Program number	OFF
Door closed	None	OFF

3.6 TERMINATION OF A PROGRAM(END OF PROGRAM)

COMMANDS	Top Display	End
At the end of the program	"_ _"	ON

- When the program is completed, End led will be on and the buzzer will be activated (1sec sound, 4sec wait untill total time 21sec is completed [total 5 bip sound]) If the door is not opened by the user the activation of the buzzer will continue until 15 min passed which means that in first 5min : (1sec sound + 4sec wait) x5) signal / In the second 5min: (1sec sound + 4sec wait) x5) signals and in the last 5min: (1sec sound + 4sec wait)x5) signals, then the routine is stopped.
- If there is no user intervention during 15 minutes after program has ended, machine turns off completely, and switch off buzzer is activated.

3.7 CANCELLING OF A PROGRAM(DURING PROGRAM)

COMMANDS	Top Display	End
Door open	Duration of program / Program number	OFF
Press 3" program button	Duration of program / Program number	OFF
At the end of the 3"	" 1"	Blink
Door closed	" 1"	OFF
During canceling	" 1"	OFF
At the end of the canceling	"--"	ON

3.8 SELECTING AND STARTING PROGRAM AT POWER ON WITH START DELAY

COMMANDS	Top Display	End
Switch on	--	OFF
Select program	Duration of program / Program number	OFF
Select delay (press delay button)	Duration of program / Program number / Delay time	OFF
Door closed	None	OFF
During the delay time	None	OFF
End of delay time	None	OFF

3.9 MODIFICATION OF A PROGRAM WITHOUT RESET

The program continues with the flow program but with the parameters (temperature, times) of the new program. In heating step: If temperature is over than the new desired temperature, cut off heating step and go on with the next step with new parameters.

If temperature is lower than the new desired temperature heat up water to the desired temperature level.

In washing step: If the washing duration is over than the washing duration of new program, cut off washing step and go on with next step of new program.

If the washing duration is lower than the washing duration of new program, go on with washing step.

When new program is selected, display duration is changed to same step of new program.

COMMANDS	Top Display	End
Washing cycle is in progress	None	OFF
Door open	Duration of program / Program number	OFF
Select new program	Duration of new program / Program number	OFF
Door closed	None	OFF

3.10 SWITCH OFF THE MACHINE DURING DELAY TIME

When delay timer is selected, if machine switch off and on again by ON/OFF button, delay timer is cancelled and machine goes to ready state.

If Power off-on occurs (power cut); delay time resumes, does not start again.

4. POWER FAIL

- **During a Delay Start:** At the power on, program consumes the remaining time.
- **During a Drain + Fill step:** At the power on the program restarts the step to the beginning (with the drain).
- **During a Wash step:** At the power on the program consumes the remaining time.
- **During a Heating step:** At the power on the program continues heating up to the desired temperature. The time out for the heating restart to the beginning (water could be cold again).
- **During a Dry step:** At the power on the program ends.
- **During the first two step of a salt regeneration cycle (60" REGVALVE = ON or 60" REGVALVE+DRAIN ON):** At the power on washing program will continue.
- **During the washing resin step at regeneration cycle:** At the power on the program ends.

It is possible that the power fail occurred when a regeneration cycle is requested. If it occurs:

- During the first two step of a salt regeneration cycle (60" REGVALVE = ON or 60" REGVALVE+DRAIN ON): at the power on washing program will continue.
- After the first two step of a salt regeneration cycle: at the power on the washing program will end and the resin wash will be performed at the beginning of the next washing cycle.

After a Power Fail washing program re-starts without any delay if temp. is less than 45° C.

After a Power Fail washing program **wait 8"** before re-starts program if temp. is equal or more than 45° C.

5. OPTIONS

5.1 OPTIONS & MODELS

Model	Size	Motor Type	Electrical Diverter	Delay timer option		Half load		Tablet	Extra Hygiene	Extra Rinse	Extra Drying	Extra Silent	Extra Fast	Energy Save
				3,6,9hr	1-2-...-19hr	1 mode	3 modes							
I11	60cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1A	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1K	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I12	60cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1B	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1L	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I13	60cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-

I1C	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1M	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I14	60cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1D	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1N	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I15	60cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1E	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1O	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I16	60cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1F	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1P	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1G	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1R	60cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I21	60cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I2K	60cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I22	60cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I2L	60cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I23	60cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I2M	60cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I26	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I2P	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I27	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I2R	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I28	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I2S	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I29	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I2T	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I24	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	-	Yes
I2N	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	-	Yes
I25	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	-	Yes
I2O	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	-	Yes
I51	60cm	Async.	-	-	Yes	Yes	-	-	-	-	Yes	-	-	-
I52	60cm	Async.	Yes	-	Yes	-	Yes	-	-	Yes	Yes	-	-	-
I53	60cm	Async.	Yes	-	Yes	-	Yes	-	-	Yes	Yes	-	-	-
I56	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I57	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I58	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I59	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	-
I54	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	Yes
I55	60cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	Yes
I11	45cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1A	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I12	45cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-

I1B	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I13	45cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1C	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I14	45cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1D	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I15	45cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1E	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I16	45cm	Async.	-	Yes	-	Yes	-	-	-	-	-	-	-	-
I1F	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I1G	45cm	Async.	-	-	Yes	Yes	-	-	-	-	-	-	-	-
I21	45cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I22	45cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I23	45cm	Async.	Yes	-	Yes	-	Yes	-	Yes	-	Yes	-	-	-
I24	45cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	-	Yes
I51	45cm	Async.	-	-	Yes	Yes	-	-	-	-	Yes	-	-	-
I52	45cm	Async.	Yes	-	Yes	-	Yes	-	-	Yes	Yes	-	-	-
I53	45cm	Async.	Yes	-	Yes	-	Yes	-	-	Yes	Yes	-	-	-
I54	45cm	BLDC	Yes	-	Yes	-	Yes	-	-	-	Yes	Yes	Yes	Yes

5.2 COMPATIBILITY BETWEEN OPTIONS & PROGRAMS

I Series	Programs vs. Options								
	Energy Save	Extra Fast	Half Load	Triple & Direct	Extra Silent	Ext Dry	Ext Hygiene	Tablet	Ext Rinse
Eco	OK	OK	OK	OK	OK	OK	OK	OK	OK
Smart Programs	OK		OK	OK		OK	OK	OK	OK
Intensive / Auto	OK		OK	OK		OK	OK	OK	OK
Hygiene	OK		OK	OK		OK		OK	OK
Steam Wash	OK		OK	OK		OK	OK	OK	OK
Save+ 5.4 lt	OK	OK	OK	OK	OK	OK	OK	OK	OK
Dual Prowash	OK	OK	OK	OK	OK	OK	OK	OK	OK
Delicate	OK		OK	OK		OK	OK	OK	OK
Easy Care	OK		OK	OK		OK	OK	OK	OK
Super	OK		OK	OK		OK	OK	OK	OK
Quick	OK		OK	OK		OK	OK	OK	OK
Mini 14'	OK		OK						
Prewash			OK	OK					

5.3 COMPATIBILITY BETWEEN OPTIONS

Options	Energy Save	Extra Fast	Half Load	Triple & Direct	Extra Silent	Extra Dry	Ext Hygiene	Tablet	Extra Rinse
---------	-------------	------------	-----------	-----------------	--------------	-----------	-------------	--------	-------------

Energy Save		OK	OK	OK	OK	OK	OK	OK	OK
Extra Fast	OK		OK	OK		OK		OK	
Half Load	OK	OK			OK	OK	OK	OK	OK
Triple & Direct	OK	OK			OK	OK	OK	OK	OK
Extra Silent	OK		OK	OK		OK		OK	
Extra Dry	OK	OK	OK	OK	OK			OK	OK
Ext Hygiene	OK		OK	OK				OK	OK
Tablet	OK	OK	OK	OK	OK	OK	OK		OK
Extra Rinse	OK		OK	OK		OK	OK	OK	

5.4 OPTION DEFINITION

Option	Short description
Delay Timer	Program starts with a delay
Half Load(3 modes)	The wash is executed with upper spray, lower spray or both in half load mode.
Energy Save	At the end of the drying process, the dishwasher door automatically opens to allow steam to escape and cool air to circulate.
Extra Fast	Reduces the duration of the washing
Extra Silent	Reduces the sound pressure level of the washing

5.4.1 Delay Timer

The delay timer option is selected by pressing the regarding option button before the program starts. It is possible to select the delay before selecting the program.

Before program is started, all indicator leds and delay led are OFF.

Before starting the program,

- Delay is selected by consecutive pressures of the button. The required delay value is chosen
- At each pressure, the display shows one step of increment (from 1h to 19h); having been reaching its maximum value (19h)
- The next pressure clears the delay and shows "0h".
- Before closing the door, selected program and delay durations are shown on the display alternately in 2" interval.
- After closing the door, the program with delay will be in operation.

Cancelling the delay start is possible during the delay time.

- Open the door
- Press the delay button, until the delay time is "0h"

- Press Start/Start button and the washing program will start.

-Erteleme zamanının ortasında / içinde erteleme süresini değiştirmeden program değişir yada ops ekleme çıkarma yapıldığında erteleme süresi kaldığı yerden devam etmektedir. Fakat Erteleme süresi değişirse yeni seçilen erteleme zamanı baştan başlar.

- When delay timer is selected, if machine switch off and on again by ON/OFF button, delay timer is cancelled and machine goes to ready state.
- If Power off-on occurs (power cut); delay time resumes, does not start again.

5.4.2 Half Load

The wash is executed with upper spray, Lower spray or both in half load mode. Half Load option is selected at any time (during program or before starting program) by pressing the regarding option button.

First Press: Upper spray led is ON and lower spray led is OFF. Wash is executed only with upper spray arm.

Second Press: upper spray led is OFF and lower spray led is ON. Wash is executed only with lower spray arm.

Third Press: Upper spray led is ON and lower spray led is ON → Half Load washing.

Fourth Press: Upper spray led is OFF and lower spray led is OFF → Normal washing.

If user presses half load button for 1,8", Energy save option is activated and its led becomes on. This option can be deactivated by pressing half load button for 1,8" again.

5.4.3 Extra Options

Extra option is selected before program start by pressing "Option" button and regarding led is ON. When Option button is pressed;

First time: Extra Fast led is ON, Extra Silent led is OFF. Wash is executed with the following steps with "Fast" functions instead of the normal.

Second time: Extra Silent led is ON, Extra Fast led is OFF. Wash is executed with the following steps with "Silent" functions instead of the normal.

Last time: Extra Fast and Silent leds are OFF. Normal wash is executed.

Note: Fast and Silent options cannot be selected together.

6. SOFTWARE REQUIREMENTS

6.1 HEATER

Heating relay must be switched with un-supplied Heater.

- Stop Circulation Pump.
- Wait for pressure switch certainly open.
- Open/Close Heater Relay
- Wait (Heater relay certainly close);
- Start Circulation Pump.

If Tablet is selected, heating steps must be < 55°C for steps before last rinse.

6.2 WATER FILL

Water Load is obtained by flow meter signals. When a fixed quantity of water is loaded, the reaching water level is checked by the activation of circulation pump. When the pressure is high enough, the pressure switch is activated.

At the start program a drain 30" + empty is executed before fill.

When Inlet valve is ON, if there aren't flow meter impulses, failure routine of "absence of flow meter impulses routine" works (see on failure chapter).

If pressure sensing switch turns OFF during the wash, after a drain +20", another water load is executed (also see "return empty level" failure in failure chapter).

Water fill must work;

- Pressure > 0,8l: all OK
- $0,3 < \text{pressure} < 0,8\text{l}$: OK with time out
- Pressure < 0,3l: stop cycle.

Water fill is performed spray arms start.

6.3 WATER DRAIN

Water drain starts with drain pump ON for 33". After 30", circulation pump ON. When empty level is recognized (by pressure switch signal), the circulation pump stops and the machine continues for the request steps.

If pressure switch level doesn't switch in Empty level (during circulation pump on), failure of Water drain works (see 8.failure routines).

Water drain is performed with lower spray arm

Detergent dispenser step

After wash+heating step is started 3 seconds, Dispenser is activated during 5 seconds. If power fail or opening door or pushing Start/Stop or switching OFF is happened, Detergent dispenser step is started again.

Note: For the detergent step 2' of upper spray arm are performed.

Rinse aid dispenser step

Dispenser is activated 25 seconds during rinse aid dispenser step twice. There is 5 seconds between two activation. If power fail or opening door or pushing Start/Stop or switching OFF is happened, Dispenser is activated one more time 25 seconds

If the door is opened and re-closed during washing program, without a re-start program, detergent dispenser must return in Rinse aid distribution state.

Y2: for the rinse aid step 2' of upper spray arm is performed.

6.4 REGENERATION CYCLE

When it occurs the regeneration valve works after last rinse and during the drying steps. There are 6 hardness levels.

Water Hardness level	Litres
Level 1	Never
Level 2	116 lt
Level 3	64 lt

Level 4	52 lt
Level 5	46 lt
Level 6	16 lt

The consumed liters are counted by flow meter impulses.

In case of flow meter broken, the liters corresponding at the flow meter time out are used

If user cancels a program during regeneration or after regeneration and before resin wash, at the beginning of the next program the dishwasher performs the resin wash to remove the salty water from the resin chamber. The resin wash will be: load 2 lt of water with drain pump on. During the resin wash the circulation Pump must be off.

Regeneration is not performed at prewash program

If water hardness level is changed from lower to higher, regeneration cycle is performed at the end of the first program

If water hardness level is changed from higher to lower, regeneration cycle is not performed at the end of the first program. Regeneration is performed after water level reach to value of level

- If Water hardness level is 5 or 6
 - First regeneration step is performed 0,2lt water
- If Water hardness level is 2 or 3 or 4
 - First regeneration step is performed 0,1lt water
- If Water hardness level is 1
 - Regeneration step is not performed

-The consumed liters are counted by FLM(flow meter) impulses.

-In case of FLM broken, the liters corresponding at the FLM time out are used. (2,1 lt + 2,5 lt).

-In case of "Tablet" option is ON;

- *If the level set is less than L4: the regeneration cycle is not performed, but the quantity of consumed water is counted. When the target value is reached, at the first cycle without the "Tablet" ,the regeneration cycle is performed.
- *If the level set is equal or more than L5: the regeneration cycle is performed when the quantity target is reached.

-If the washing program is a "prewash program", the regeneration cycle is not performed.

-If user cancels a program during regeneration or after regeneration and before resin wash, at the beginning of the next program the dishwasher performs the resin wash to remove the salty water from the resin chamber. The resin wash will be: load 2 lt of water with drain pump on.

-During the resin wash, the circulation Pump must be OFF.

-If the level of regeneration step is incremented, (for ex: from level3 to level 6) ,at the end of the next washing cycle, it must perform resin wash.

-If the regeneration level is decremented, (for ex: from level4 to level 3); checked how much water used until then and according to new level, how much water will be used more for resin wash is calculated.(level 3=64 lt- used liters until then).

-During waiting step of regeneration process, end user open/close the door or Power OFF /ON condition, program goes to END, but next step of washing cycle starts with resin wash, so that water level resets to zero and re-counts down from corresponding water level.

- When there is no flowmeter connection (by removing flowmeter cable), Electronic card saves the water as 4,58 lt per step.

-If there occurs regeneration step after the programs without drying step or programs having less than 15min drying step, at the end of the program (before reg cycle) the duration must be corrected from 0:01 to 0:15 and recount down during reg step.

6.5 FEATURE OF TIME PHASE

- At the beginning of the main wash of eco program, If temperature of water < 30C , Time phase is not activated at the main wash of eco program
- At the beginning of the main wash of eco program, If temperature of water > 30C , Time phase is activated at the main wash of eco program
- These two rules cover only eco programs.

6.6 VOLTAGE SENSING CONTROL

When main supply voltage is below 145VAC, voltage sensing circuit detect low voltage and program is stopped by software.

Take memory failure code of low voltage to show at the beginning of service test.

After main supply voltage is above 155VAC, program is started again

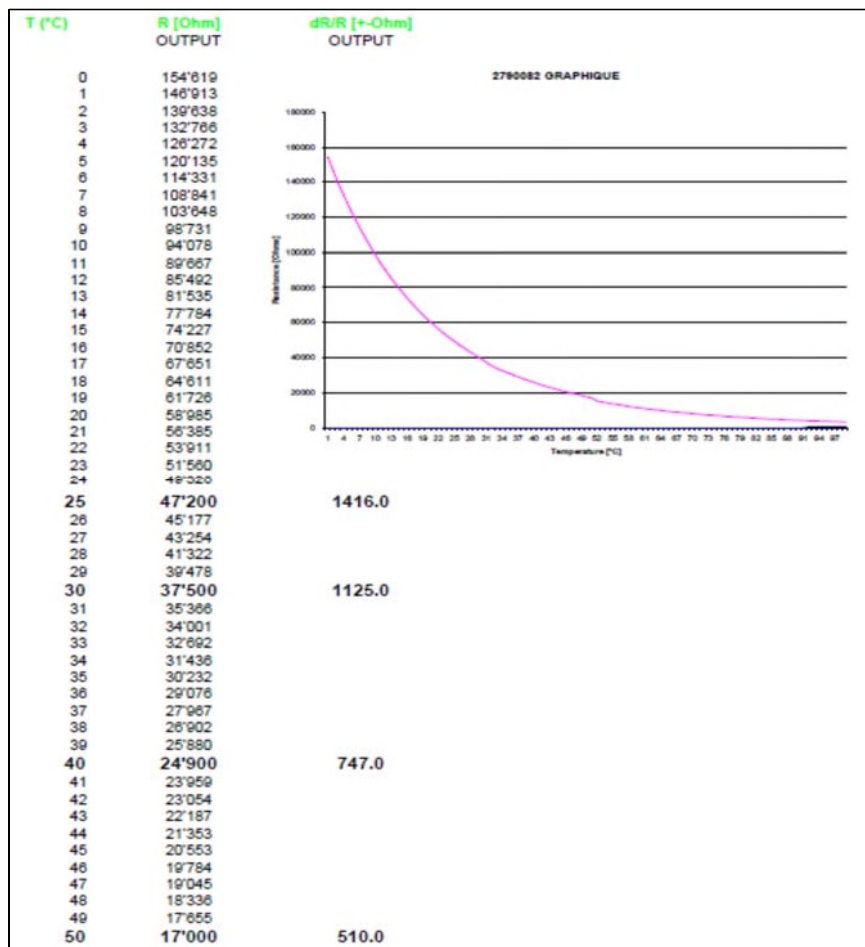
When main supply voltage is above 285VAC, voltage sensing circuit detect high voltage and program is stopped by software.

Take memory failure code of high voltage to show at the beginning of service test.

After main supply voltage is below 275VAC, program is started again

- If voltage is low or high during 3 hours or more, at the end of the 3 hours:
 - Program go to failure routine without draining, Failure code of low voltage is shown to user
 - Program go to failure routine without draining , Failure code of high voltage is shown to user

6.7 NTC VALUES



T (°C)	R (Ohm)	dR/R (+-%)
51	16'371	
52	15'766	
53	15'185	
54	14'626	
55	14'090	
56	13'573	
57	13'077	
58	12'600	
59	12'141	
60	11'700	351.0
61	11'295	
62	10'905	
63	10'531	
64	10'171	
65	9'824	
66	9'491	
67	9'171	
68	8'862	
69	8'566	
70	8'280	248.0
71	8'005	
72	7'740	
73	7'485	
74	7'240	
75	7'004	
76	6'776	
77	6'557	
78	6'345	
79	6'141	
80	5'945	178.0
81	5'756	
82	5'573	
83	5'397	
84	5'227	
85	5'064	
86	4'906	
87	4'753	
88	4'606	
89	4'464	
90	4'327	
91	4'195	
92	4'067	
93	3'944	
94	3'825	
95	3'709	
96	3'598	
97	3'491	
98	3'387	
99	3'287	
100	3'190	

6.8 WATER HARDNESS SET

Only service can execute this procedure. This procedure erases the cycle counter.

- While the door is open and the machine is switched OFF.
- By pressing the **Program** Button, Switch ON the Machine.
- Continue to press the **Program** Button for 3".
- If "Hardness Set" is recognized, "S" and "L" will be shown sequentially in the display for 2sec. And the last setted Level will be shown in the display.

Level	Display
1	L1
2	L2
3	L3
4	L4
5	L5
6	L6

Note: if it is the first hardness set, hardness level is level 3; firstly "3" will be on 1sec, than "L" will be on 0.5sec and they will be shown sequentially in the display.

Level 1: firstly "1" will be on 1sec, than "L" will be on 0.5sec and they will be shown sequentially in the display.

Level 2: firstly "2" will be on 1sec, than "L" will be on 0.5sec and they will be shown sequentially in the display.

Level 3: firstly “3” will be on 1sec, than “L” will be on 0.5sec and they will be shown sequentially in the display.

Level 4 firstly “4” will be on 1sec, than “L” will be on 0.5sec and they will be shown sequentially in the display.

Level 5 firstly “5” will be on 1sec, than “L” will be on 0.5sec and they will be shown sequentially in the display.

Level 6: firstly “6” will be on 1sec, than “L” will be on 0.5sec and they will be shown sequentially in the display.

6.9 RINSE AID SET

- While the door is open and the machine is switched OFF.
- By pressing the **Program** Button, Switch ON the Machine.
- Continue to press the **Program** Button for 5”.
 - For models without display: when rinse aid set is recognized, all leds blink twice
 - For models with one digit display: when rinse aid set is recognized, “r” and “A” will be shown sequentially in the display for 2sec. And the last setted Level will be shown in the display.
 - For models with 2,5 digit display: when rinse aid set is recognized, “rA” will be shown in the display for 2sec.
- Release program button. The last setting level is viewed*.
- If it is the first rinse aid set, Default rinse aid level is 4 which corresponds to 4,5 cc.
- At any pressure of **Program** button Rinse aid level is incremented. Rinse aid level 1 returns after level 5.

For models with display;

Level	Display
1(0cc)	r1
2(1,5cc)	r2
3(3cc)	r3
4(4,5cc)	r4
5(6cc)	r5

For models with one digit display;

Level 1: firstly “1” will be on 1sec, than “r” will be on 0.5sec and they will be shown sequentially in the display.

Level 2: firstly “2” will be on 1sec, than “r” will be on 0.5sec and they will be shown sequentially in the display

Level 3: firstly “3” will be on 1sec, than “r” will be on 0.5sec and they will be shown sequentially in the display

Level 4 firstly “4” will be on 1sec, than “r” will be on 0.5sec and they will be shown sequentially in the display

Level 5 firstly “5” will be on 1sec, than “r” will be on 0.5sec and they will be shown sequentially in the display

If the rinse aid tank is empty and user sets rinse aid level as 1(0cc), "lack of rinse aid" warning is not shown.

Sliding dispenser dosages are shown below in detail.

1 rinse aid dosage is performed when dispenser is ON during 8" and OFF during 8". =>1,5cc

2 rinse aid dosages are performed 8" ON-8" OFF-8" ON-8" OFF=>3cc

3 rinse aid dosages are performed 8" ON-8" OFF-8" ON-8" OFF-8" ON-8" OFF=>4,5cc

4 rinse aid dosages are performed 8" ON-8" OFF-8" ON-8" OFF-8" ON-8" OFF-8" ON-8" OFF =>6cc

Action		Old		New(Sliding dispenser)	
Detergent cover opening:		5"		0.3"	
Rinse aid dose:	Dose setting:	Manual in the dispenser		Automatic in the software	
	Dose quantity and time to delivery	1 - 1cc	25"ON; 2"OFF; 25"ON For each setting from 1 to 6	1 - 0cc	OFF
		2 - 2cc		2 - 1.5cc	8"ON; 8"OFF
		3 - 3cc		3 - 3cc	8"ON; 8"OFF
		4 - 4cc		4 - 4.5cc	8"ON; 8"OFF
		5 - 5cc		5 - 6cc	8"ON; OFF
		6 - 6cc		n/a	n/a
	Standard dose of rinse aid setting by manufacturer	3 (set by manually)		(4-4,5cc set by software)	

6.10 INNER LIGHT

Machine must be ON position during activation and deactivation of inner light modes. Open the door of the machine.



How to change from "ECO MODE" to "NORMAL MODE" for Inner Light option

First energize the machine via On/Off button. (if it is in OFF position).

Press "Option" and "delay" buttons simultaneously for 3 seconds.

"IL0" will be shown in the display (top and front) for 2 seconds to show the "Normal Mode" is selected for inner light option.

After "Normal Mode" is selected, the inner light will be ON as long as the machine is energized and machine door is open.

For :Z21_7 and Z21_2: only shows 'I'.

How to change from "NORMAL MODE" to "ECO MODE" for Inner Light option

First energize the machine via On/Off button. (if it is in OFF position).

Press "Option" and "delay" buttons simultaneously for 3 seconds.

"IL1" will be shown in the digit display for 2 seconds to show the "Eco Mode" is selected for inner light option.

Also inner light turns OFF and ON again (blinks momentarily) to show this selection is activated.

After "Eco Mode" is selected, the inner light will be ON for 4min after machine door is opened and then turns OFF. Then display returns its usual position. (Ex:3" Pn, 1" time).

If any user intervention occurs such as pressing buttons, Eco Mode cycle starts from beginning (inner light is ON for 4min and then becomes OFF again)

Factory setting for inner light is set to "IL1".

For : z21_7 and Z21_2: only shows '0'.

Inner light for I1G_7:

Press "program" and "tablet/half load" buttons simultaneously for 3 seconds for active/deactive inner light.

6.11 IONIZER

Ionizer function can be activated/deactivated with specified button combinations. Also, when machine is turned off and then on, ionizer function is cancelled.

Ionizer cycle is as follow: 5' ON, 55' OFF, 5' ON, 55' OFF,.. After 24 hours is completed, ionizer function is deactivated automatically by software.

During 5' ON; ionizer component and mini fan work together. During 55", they do not work.

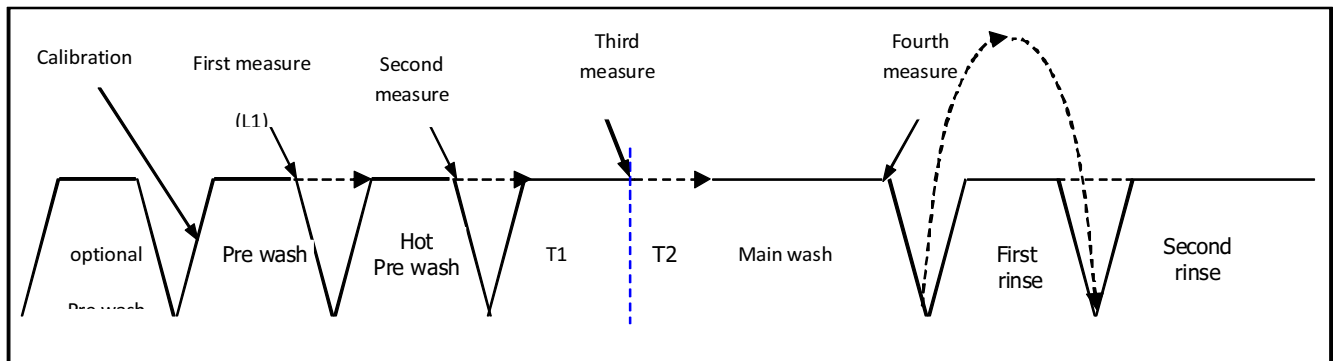
Ionizer must not work within a program.

When the door is opened, ionizer+mini fan stops. They do not work. Ionizer cycle pauses. To continue, the door must be closed.

Ion led and inner light are on when the door is opened. Ion led lights up like dimming.

6.12 AUTOMATIC PROGRAM(TURBIDITY SENSOR)

Turbidity sensor is performed in the "auto delicate", "auto normal" and "auto intensive" programs.



- 1) The calibration is executed after reaching P1 level in the first filling step.
- 2) The first measure is executed at the end of pre-wash.
 - If turbidity is $\leq$ TURBIDITY-LEVEL 1: drain is skipped.
 - If turbidity is $>$ TURBIDITY-LEVEL 1: drain is skipped.
- 3) The second measure is executed at the end of hot pre-wash.
 - If turbidity is $\leq$ TURBIDITY-LEVEL 2: Drain is skipped.
 - If turbidity is $>$ TURBIDITY-LEVEL 2: Drain is skipped.
- 3) The third measure is executed after the first heating step in the main wash.
 - If turbidity is $\leq$ TURBIDITY-LEVEL 3: The second heating step is skipped
 - If turbidity is $>$ TURBIDITY-LEVEL 3: The second heating step is performed (T24_7 is performed)
- 4) The fourth measure is executed at the beginning of rinses.

- If turbidity is $\leq$ TURBIDITY-LEVEL 4: First rinse is skipped.
- If turbidity is $>$ TURBIDITY-LEVEL 4: First rinse is executed.

The levels :

TURBIDITY-LEVEL 1 = 3,0V

TURBIDITY-LEVEL 2 = 3,4V

TURBIDITY-LEVEL 3 = 3,7V

TURBIDITY-LEVEL 4 = 3,8V

In case of break of turbidity sensor, the Automatic cycle is entirely executed. The fault is not reported.

6.13 AUTODOOR OPEN SYTEM

Energy save option is not selectable at any time. During program, energy save option cannot be cancelled or cannot be added. If user presses energy save button during program, the buzzer gives a long sound that is activated to warn that this is not a valid command.

Energy save option is enable by firstly pressure of Extra button (Energy save led lights up) before starting the program.

Energy save option is disabled by pressing Extra button until Energy save led turns off.

- When option is selected, The door is opened by the Door Open System at the end of washing program.
- Program in the 1 (Last 1 minute before program finishing)
 - Start to count 2 minutes in the memory
 - TY4 triac is driven by microcontroller and door open system is energized
 - The buzzer gives sound (1"ON + 4"OFF) until auto door mechanism open the door
 - There is 1 on the display during this time.
- When Auto door mechanism open the door
 - TY4 triac is not driven by microcontroller
 - There is 0 on the display.
 - Stop to count 2 minutes in the memory
- If Auto door is not opened in 2 minutes
 - TY4 triac is not driven by microcontroller
 - There is 0 on the display.
 - FC failure code is saved to memory

Machine must be ON position during activation and deactivation of door open system. Position of the door (open/close) is not important to activate/deactivate the system. But during washing cycle, it is not enabled to activate /deactivate to this feature.

- How the system works:
 - The unlocked door goes down.
 - TY4 triac are used to control of auto door mechanism.
 - The mechanism stops the door at 10 cm opening.
- Benefits:
 - At hot rinse step, the water is heated up to reasonable values and A class drying is provided by letting the steam flow away to air from the dishwasher.
 - Some of required heating energy for drying is saved at hot rinse step.

Factory setting for auto door open system is set to "OFF" except Eco program

Factory setting for Eco program is set to "ON".

Auto door option button is illuminated (ON) when user selects at only Eco program by each pressing program selection button.

In Eco program, Auto door must be opened in every cycle until the end user unselect the Energy save option for Eco program. That is to say, In first cycle of Eco or other cycles, Auto door system must be performed (ON) until end user deactivate Auto door system.

Due to Eco design requirements, each energized of the machine (by pressing ON/OFF) Eco program must be fixed as default, energy save option led must be ON(only valid for Eco) and the options that are chosen before will be cancelled.

For ex: when user power OFF/ON→ Eco program is fixed as default, energy save option led is ON.

Then if user press again program button, in this case machine passes to Dual pro wash, but energy save option led must become OFF.

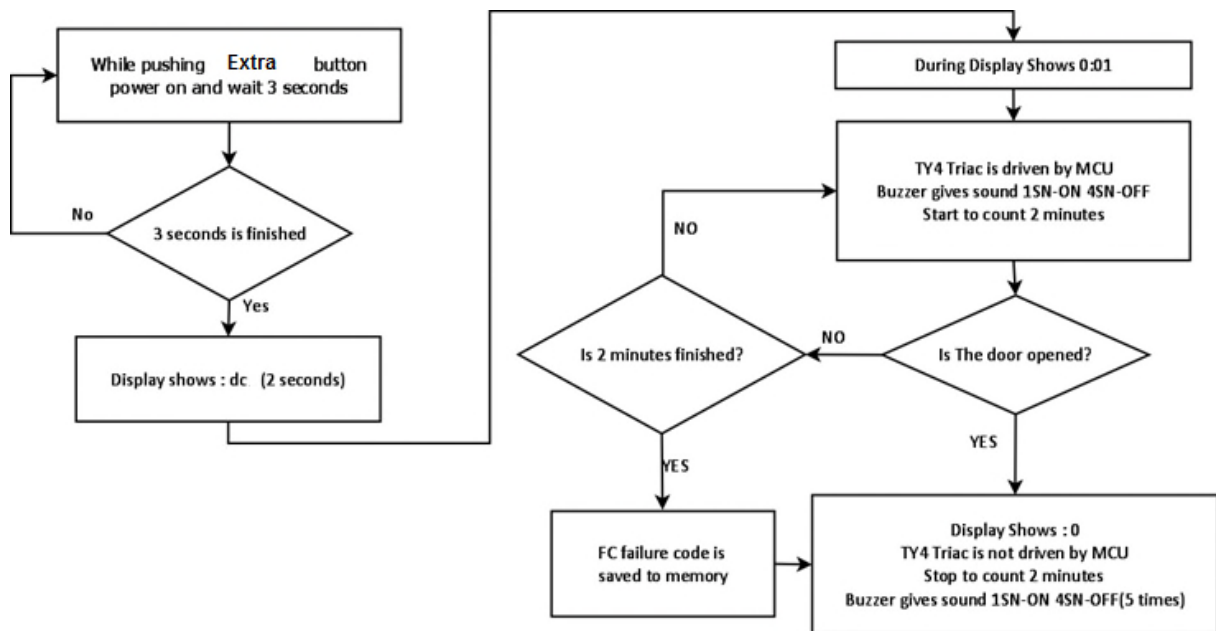
6.14 AUTODOOR CONTROL TEST

Open the door of the machine. Switch-on the dishwasher. Press Option button for 3'' After 3'', display shows "dc" (means that Door control) characters during 2 sec, then "1" characters appear. Then close the door.



- Program in the "1" (Last 1 minute before program finishing)
 - Start to count 2 minutes in the memory
 - TY4 triac is driven by microcontroller and door open system is energized
 - The buzzer gives sound (1"ON + 4"OFF) until auto door mechanism open the door
 - There is 1 on the display during this time.
- When Auto door mechanism open the door
 - TY4 triac is not driven by microcontroller
 - There is 0 on the display.
 - Stop to count 2 minutes in the memory
- If Auto door is not opened in 2 minutes
 - TY4 triac is not driven by microcontroller
 - There is 0 on the display.
 - FC failure code is saved to memory

-Test can be finished by pressing On/Off button.



6.15 BLDC MOTOR CONTROL TEST

Switch-on the dishwasher. Press “Half Load” and “Options” button simultaneously for 3”. After 3”, display shows “Pc” (means that Pump control) characters during 2 sec, then “20” characters appear and BLDC motor start performing with 2000 rpm.



Rpm values can be raised or decreased one by one.

Press “Program” button to raise RPM values from 2000 to 3400.(20,21,22,...,34)

Press “Options “ button to decrease RPM values by hundred from 3400 to 2000.(34,33,32,...,20)

-Test can be finished by pressing On/Off button.

6.16 VOICE CONTROL TEST

First energize the machine via main switch (if it is in OFF position).

Press of “Delay” and “Half load” buttons for 3”.

If voice controlling is done first time, at the end of 3 seconds, “S3” is shown in the display and Buzzer gives a long sound. (level of 3) (Factory setting is set to “S3”)

User can increase or decrease the voice level with “Delay” and “Half load“ buttons. The characters must be as follow;

By each pressing “Half Load“button,

- Display screen changes S0 to S3
- Level of sound increases step by step

By each pressing “Delay” button

- Display screen changes from S3 to S0
- Level of sound decreases
- “S0” level that means all voices are off

Machine's power must be off to exit voice control mode
The last voice level that user determined before must be stored in memory.

For only Z21_7 and Z21_2: 'S' is shown then alternatively voice level from 0,1,2,3.

For I1G_7:

- Press both "program(decrease)" and "delay(increase)" buttons for 3" at the same time.

After program finished, buzzer sounds for 3 times 5min intervals. This process repeat 3 times.

6.17 INFOLEDS

Infoled 1.0

Infoled provides user to understand program state(working/ended) and see warnings when error occurs.

- While program is running and door is closed, digits are on(188 is on).
- When the door is opened 188 will be off and instead, program duration/number will be shown as ready position.
- When the program ends, digits are off(188 is off)
- If an error occurs during program, warning occurs such that 188 will blink at 0.5 second intervals. (188 is on during 0.5", 188 is off 0.5", 188 is on during 0.5",...)
- If program is cancelled by user, during cancellation process 188 will blink at 1 second intervals. At the end of cancelling, 188 is off. This behaviour will not be performed in Empty+20" steps in the program. This will occur only if program is cancelled.

Infoled 2.1 Davranışı

Tüm ankastre modellerde (60-45cm) :

- Program çalışırken kırmızı led sürekli yanar. Program bittiğinde yeşil led sürekli yanar.
- Bitti durumda müdahale edilmezse 15 dk sonra oto off ile birlikte yeşil led söner. Bu süre zarfında makinede herhangi bir butona basılırsa makine hazır konuma geçer, yeşil led söner.
- İptal işlemi sırasında kırmızı led 1 sn aralıklarla yanıp söner.
- Hata durumunda kırmızı led 0.5 sn aralıklarla yanıp söner.
- Kapı açıldığında infoledler söner, sadece bitti durumdayken kapı açıldığında yeşil led yanmaya devam eder.

InfoLED 2.1	Hazır konumda	Prg. çalışırken veya ion aktifken	Prg. çalışırken kapı açıldığında	İon aktifken kapı açıldığında	İptal sırasında	Hata durumunda	Bitti durumunda / Bitti durumunda kapı açıldığında	End Test1	End Test2	End Test3	Servis Programı çalışırken
Kırmızı	yanmaz	yanar	yanmaz	Nefes şeklinde yanıp söner	1 sn aralıklarla yanıp söner	0.5 sn aralıklarla yanıp söner	yanmaz	1 sn aralıklarla dönüşümlü yanıp söner	yanmaz	1 sn aralıklarla dönüşümlü yanıp söner	yanar
Yeşil	yanmaz	yanmaz	yanmaz	yanmaz	yanmaz	yanmaz	yanar	1 sn aralıklarla dönüşümlü yanıp söner	yanmaz	1 sn aralıklarla dönüşümlü yanıp söner	yanmaz

- IL2.1 servis testi sırasında program çalışmasıyla aynı davranışı gösterir, servis testi bitti durumunda yeşil led yanar.
- İon bittiğinde makine hazır konuma geçer, infoledler söner.
- End test 1 bitti durumunda sadece yeşil led yanar, End test 2 bitti durumunda infoledler yanmaz.
- Servis testi sırasında makine hataya geçerse kırmızı led 0.5 sn aralıklarla yanar.

BM05 Infoled 2.0 ve Infoled 2.1 çıkışları		
CN11.2	7V	İon Led+Infoled2.0 (Infoled kartı üzerinden çoklanıyor)
CN8.2	GND	Infoled2.0 GND
CN8.3	Rinse read	Infoled 2.1 anahtarlama
CN9.2	-5V	Infoled2.1 besleme

Infoled 2.1 BM05-CN8.3'ten sürülecek. Şu an ürün ağacında dizili değil.

7. SERVICE TEST

Only service can execute this procedure.

- Open the door. Power ON by pressing On/Off button
- Press Program button for 8"
- When "Service test" is recognized

All leds are ON, SP is visualized on display and service test starts. During the first 6" of test, if a failure code is stored in memory, its codification blinks. If there is no error" —" is shown on the display. Also at the end of the test if an error occurs its error code blinks.

-Close the door .Then service program will start automatically. (After showing the last error code for 6sec like in the freestanding models- "SP" will be shown until the end of test program)

During the test, SP is shown.

- Also at the end of the test if an error does not occur during service test and completes the cycle without error, any codification is never shown. The last failure code is never shown anymore. Actually, last failure code is erased after completing the test successfully.

Step		Time	Tested Load
0	Show code	6"	Before start, the code of last error is visualized (see below)
1	Drain	6"	Drain pump.
2	Fill (3l/2,5l)*	~ 1'	Flow meter; Inlet Valve;
3/□	Turb. Calibration		Turbidity Calibration
4	Fill + Wash (0,5/1lt)**		Flow meter; Inlet Valve; Pressure Switch;
5	Wash	1'	Circulation pump; detergent dispenser. "Deterjan dispanseri tam 1 dk değil; Step 5 in 10. saniyesinde sadece 5 sn boyunca aktif olması yeterlidir.
6	Wash + Heat ***	5'	Heater (PSW); NTC; diverter (position).
8 9	Reg. Valve + Turbo Fan	1'	Regeneration Valve + Turbo Fan
10	(Resin wash) water inlet valve + drain pump	~1' 20"	Water inlet valve (3 lt)+drain pump;to wash resin and to drain out any possible salt from the machine.
11	Drain	20"	Drain pump + circulation pump (until pressure switch empty level)

* 2,5lt in Z

** 1lt in Z

*** In service test, the unsuccessful heating failure routine works with reduced time of recognize (first measure at 2'00", second measure (4'40"))

If during the service test, the door is opened, "SP" is shown.

To reset the service test, press On/Off button or plug out and then plug in.

Also at the end of the test, if an error does not occur, "—"is visualized. Machine will be standby position.

Note: If user did not set water hardness level before service test, "SE" is shown at the beginning and end of service test.

7.1 SERVICE FAILURE CODES

Name	All Leds	DISPLAY	Notes
Overflow	Blink	F0	In the normal work this failure is not visualized.
Leakage	Blink	F1	
Draining time out	Blink	F2	
Presence of Flow meter impulses	Blink	F3	
Absence of Flow meter	Blink	F4	In the normal work this failure is not visualized.
Empty Level	Blink	F5	
Re-Fill time out	Blink	F5	
NTC ca/cc	Blink	F6	
Overheating	Blink	F7	
Unsuccessful heating	Blink	F8	
Diverter opened	Blink	F9	
Turbidity Sensor	Blink	FA	In the normal work this failure is not visualized.
Parameter set salt incorrect	Blink	SE	In the normal work this failure is not visualized.
CK Parameter	Blink	FE	
High Voltage	Blink	HI	In the normal work this failure is not visualized.
Low Voltage	Blink	LO	In the normal work this failure is not visualized.

Note: When water tap is closed, FF failure code will be shown in USA models.

8. FAILURE ROUTINES

N°	Name	Exit of failure state	Service Call
1	Switch door open	Door closing	NO
2	Delay after door closing	7" delay before restart prg in heating step	NO
3	Overflow	Overflow signal gets off	NO
	Leakage	OFF/ON	YES
4	Draining time out	OFF/ON	YES
5	Presence of Flow meter impulses	Flow Meter signal gets off.	NO
		OFF/ON.	YES

6	Absence of Flow meter impulses	Pressure switch on Full. Pressure switch on Empty. OFF/ON	NO* NO/YES
7	Level Empty	Level doesn't reach full	NO/YES
8	Re-Fill	3 Re – fill in the same washing step	NO/YES
8	NTC ca/cc	OFF/ON	YES
8	Overheating	OFF/ON	YES
10	Unsuccessful heating	OFF/ON	YES
11	Diverter opened	OFF/ON	YES
12	CK Parameters	OFF/ON	YES
13	High Voltage Failure	OFF/ON	YES
14	Low Voltage Failure	OFF/ON	YES

*Cycle could be executed with a filling time.

Failure Routine

If a failure is recognized:

- Stop all devices
- Stop program flow.
- Drain Empty + 30" with circulation pump on

If the failure requires the termination of the washing program:

- Stop all the devices.
- Start to visualize the failure code.

If the failure doesn't require the termination of the washing program:

- Stop all the devices.
- Re-Start the washing program.

If it is necessary it performs the *Re-Fill routine*

Re-Fill Routine

After a forced drain (ex: a failure routine) if the dishwasher was in wash before the drain it performs the re-fill routine:

- Inlet Valve ON + circulation pump OFF to load 3l (time out 420")
- When the first load step is finished, Inlet Valve ON + circulation pump ON to load 1l (time out 100")
- Return to the washing cycle

8.1 DESCRIPTION OF FAILURES

Opened door switch

Recognize: if door is opened with a started program
Action: Wait
Exit: Closing door.
Service: No

Delay in re-start program

Recognize: if door is opened and re-closed in a heating step.
Action: Wait 5" before restart program.
Exit: Closing door.
Service: No

Overflow/Leakage

Recognize: 5" with overflow pressure sensing = on.
Action: Go to Failure routine.
Exit: If overflow signal gets off until failure routine finishes (cause is overflow): washing program restarts.

Service It re-fills water according to Re-Fill routine and it continues to wash.
 If overflow signal persists until failure routine (cause is leakage): OFF/ON.
 NO if overflow. YES if leakage

Only for leakage

Model		Display
Z	All leds blink	F1

Draining timeout

Recognize: 180" with drain pump ON and circulation pump ON with pressure sensing in full level position.
 Action Go to Failure routine
 Exit OFF/ON
 Service YES

Model		Display
Z	All leds blink	F2

Presence of Flow Meter impulses and inlet valve switched OFF

Recognize: When the triac valve is OFF and flowmeter gives some impulses (more than 500cl) >
 Enter in the failure routine and drain all water (WIV 12secOFF/12sec ON)
 Try to load again correct amount of water inside the machine > if failure persists: drain all water (WIV 12secOFF/12secON)
 Show failure code (End of routine)
 If impulses still persist > Drain Pump is OFF 100sec >
 Drain pump is ON 60sec > Drain Pump is OFF 100sec → → ↓
 ↑↑↑←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←
 Continue this loop untill the flowmeter pulses stop.
 Action **Go to Failure routine**
 Exit OFF/ON
 Service YES

Model		Display
Z	All leds blink	F3

Absence of Flow Meter impulses

Recognize: After 50" (time out) of load without impulses by the flow meter, circulation pump starts. If pressure
 Action -
 Exit -
 Service NO

Model		Display
Z	All leds blink	F4

Level Empty without Flow meter impulses (perhaps Tap close)

Recognize: After water load starts, if pressure switch doesn't go to full level in 150".
 Action Go to Failure routine.
 Exit OFF/ON
 Service NO if tap is closed. YES in the other cases.

Model		Display
Z	All leds blink	F5

Rarely flow meter impulses (perhaps low water pressure)

Recognize: With rarely flow meter impulses (time out of absence of flow meter impulses doesn't expire) it doesn't reach the first quantity of required water (2,5l) within the time out (420")

Action Go to Failure routine.

Exit OFF/ON

Service Not necessary if the reason is a momentary. YES in the other cases.

Model		Display
Z	All leds blink	F5

Level Empty and rarely Flow meter impulses

Recognize: With rarely flow meter impulses (time out of absence of flow meter impulses doesn't expire) it doesn't reach the second quantity of required water related to the washing cycle) within the time out (100")

Action Go to Failure routine.

Exit OFF/ON

Service Not necessary if the reason is a momentary. YES in the other cases.

Model		Display
Z	All leds blink	F5

Level Empty and regular/rarely Flow meter impulses

Recognize: With flow meter impulses (time out of absence of flow meter impulses doesn't expire) it reaches the second quantity of required water related to the washing cycle) but it doesn't reach the full level within the time out (30")

Action Go to Failure routine.

Exit OFF/ON

Service Not necessary if the reason is a momentary. YES in the other cases.

Model		Display
Z	All leds blink	F5

Re-Fill

Recognize: During a washing step, if pressure switch goes from full level to empty level Failure routine start.
Wash restarts with the Re-Fill routine (3l+1l).
If pressure switch goes from full level to empty level for 3 times during the same washing step failure is recognized.

Action Go to Failure routine.

Exit OFF/ON

Service Not necessary if the reason is a momentary (ex. an upside down pot). YES in other situations.

Model		Display
Z	All leds blink	F5

NTC open or short-circuit

Recognize: Recognition of open or short-circuit NTC (-20°C/86°C). Test is executed during all the program flow.

Action Go to Failure routine.

Exit OFF/ON

Service YES

Model		Display
Z	All leds blink	F6

Overheating

Recognize: Water temperature $\geq 77^{\circ}\text{C}$. The test is done during all the cycle.
 Action Go to Failure routine.
 Exit OFF/ON
 Service YES

Model		Display
Z	All leds blink	F7

Unsuccessful heating

Recognize: During the heating phases, after the first 420", if water temperature increases less than 2°C or if it is less than 0° . The first valid value to check is read after 120" from the beginning of the heating step.
 The test is executed only if the measured temperature is lower than 60° . After door opened and reclosed during heating, temperature and time value which are read before door is opened must be cleared. Also, the control routine will start from beginning of failure routine.
 Action Skip the heating step. The test is repeated in all the heating steps. If in a following step, the heating is OK the failure is cleared. The failure is shown at the end of the program.
 Exit OFF/ON
 Service YES

Model		Display
Z	All leds blink	F8

Diverter Open Circuit(only Y2)

Recognize: 30" with motor of diverter valve ON and diverter sensing doesn't change
 Action Go to Failure routine.
 Exit OFF/ON
 Service YES

Model		Display
Z	All leds blink	F9

Turbidity

Model		Display
Z	All leds blink	FA

Voltage failure

Recognize: If the card detect high or low voltage level from main supply
 Action Stop the program . After 3 hours Go to Failure Rutine and show failure code.
 Exit OFF/ON
 Service YES

High Voltage Failure: When high voltage (Above 285V, then 275-285VAC) detected during 3 hours

Model		Display
Z	All leds blink	HI

Low Voltage Failure: When low voltage (blow 145V, then 145-155VAC) detected during 3 hours

Model		Display
Z	All leds blink	LO

Parameters Set Salt Incorrect

Recognize: When parameter Set Salt is uncorrected
 Action Go to Failure routine.
 Exit OFF/ON
 Service NO

Model		Display
Z	All leds blink	SE

Parameters Check Sum

Recognize: When parameter Check sum is uncorrected
 Action Go to Failure routine.
 Exit OFF/ON
 Service The problem would disappear after switch OFF/ON of the dishwasher. If it doesn't disappear YES.

Model		Display
Z	All leds blink	FE

Auto Door Failure

Recognize: When auto door mechanism is activated, the door is not opened
 Action Go to Failure routine.
 Exit OFF/ON
 Service NO

Model		Display
Z	All leds blink	FC

8.2 FAILURE CODES

Coding failure for models with display:

N°	Name	NORMAL		SERVICE	
		All leds	Display	All leds	Display
1	Door open	-	-		-
2	Delay before Door closing	-			-
3	Overflow	-	-	Blink	F0
	Leakage	Blink	F1	Blink	F1
4	Drain time out	Blink	F2	Blink	F2
5	Re-Fill time out	Blink	F5	Blink	F5
6	Presence Flow meter imp.	Blink	F3	Blink	F3
7	Absence Flow meter imp. With Full			Blink	F4
	Absence Flow meter imp. Without Full	Blink	F5	Blink	F5
8	NTC ca/cc	Blink	F6	Blink	F6
8	Overheating	Blink	F7	Blink	F7
10	Unsuccessful heating*	Blink	F8	Blink	F8
11	Diverter opened	Blink	F9	Blink	F9
12	CK Parameters	Blink	FE	Blink	FE
13	Parameter set salt incorrect			Blink	SE
14	Turbidity Sensing			Blink	FA
15	Auto Door Failure			Blink	FC

FAILURE CODES (Possible Problems)

F1 (ALARM IS ACTIVE FOR OVERFLOW)

FLOATER

- Floater switch can be out of order or have a problem with the cable connection.

TUB

- There can be a water leakage from the tub

ELECTRONIC CARD

- Electronic card can be out of order.

F2 (THE WASTE WATER IN THE MACHINE CANNOT BE DISCHARGED)

Drain hose

- Water outlet hose is clogged
- Check of the water outlet hose position.

Drain pump

- Check the drain pump resistance and power values
- There can be a problem with cable connection of the drain

Pressure switch

- Pressure switch of the heater casing group can have a mechanical or cable connection problem.

F3 (ERROR OF CONTINUOUS WATER INPUT)

Water inlet valve

- Water inlet valve can be out of order or can not be closed.

Electronic card

- Electronic card can be out of order.

F4 (FLOWMETER FAULTY)

Flowmeter

- Flowmeter can be out of order.
- Cable connection of flowmeter can be faulty.

Electronic card

- Electronic card can be out of order.

F5 (INADEQUATE WATER SUPPLY)

Water tap

- Make sure the water input tap is totally open and that there is no water cut.

Water inlet hose

- Close the water input tap, separate the water input hose from the tap and clean the filter at the connection end of the hose.

Water inlet valve

- Water inlet valve filter can be clogged.
- Water inlet valve can be out of order. There can be a problem with the cable connection of water inlet valve.

Floater

- Floater switch can be out of order or have a problem with the cable connection.

Pressure switch

- Pressure switch of the heater can have a mechanical or cable connection problem.

Circulation pump

- Circulation pump can be out of order or have a problem with the cable connection. External part can be blocked to the circulation pump.

F6 (NTC FAULTY)

Ntc

- Ntc can be out of order.
- Ntc cable connection can be faulty. Ntc can be short or open circuit.

Electronic card

- Check the power and resistance value of heater.
- Check the cable connection of the heater.
- There may be an explosion in the NTC triac region on the electronic card.
- The electronic card may be deformed.

CABLE HARNESS

- There may be a problem caused by the disconnection between the cable tree, NTC and electronic board.

NOTE: If the NTC part is faulty, it will not resist in any way.

COMPONENT VALUES MEASUREMENT

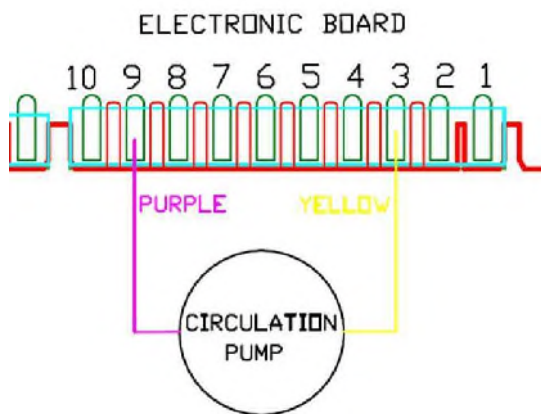
Precaution: Always remove the plug from the power socket before touching internal components.

WASHING PUMP:

From the electronic card:

You can only measure the primary winding value from the electronic card. Resistance value of the primary winding must be

	C	T	
CIRCULATION PUMP	CN2.3 - CN2.9	KN2.3 - KN 2.8	Primary winding Secondary winding (from the component)



Above sketch show the connectors of the washing pump on the electronic card. Probes of the tester should be applied on to the related connectors.

From the component:



Measurement of the primary windings of the washing pump.(118.2-135.9 Ω)



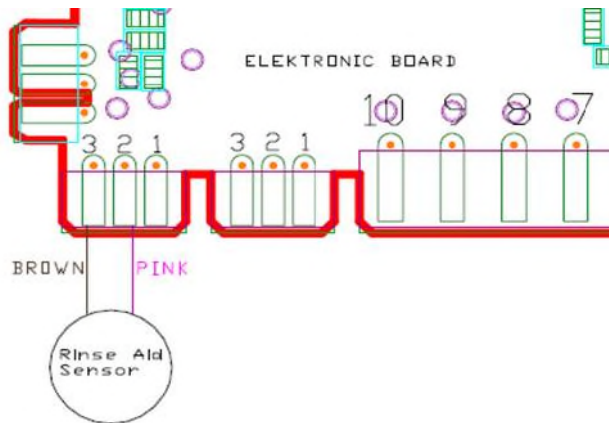
Measurement of the secondary windings of the washing pump (white cable – blue cable) (117.9-135.6 Ω)

Probes of the tester should be applied on to the related connectors as shown on the pictures.

RINSE AID SENSOR

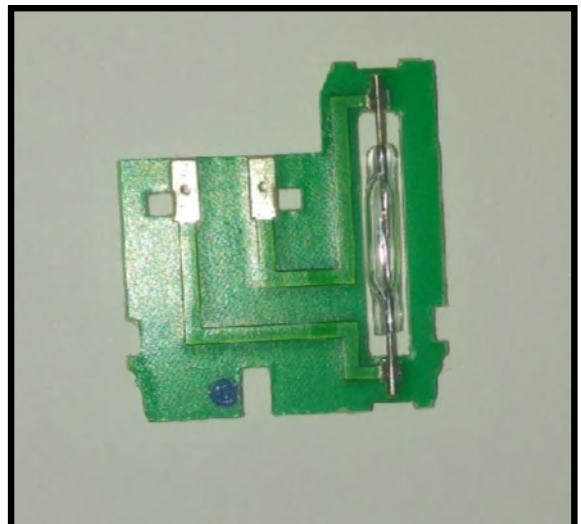
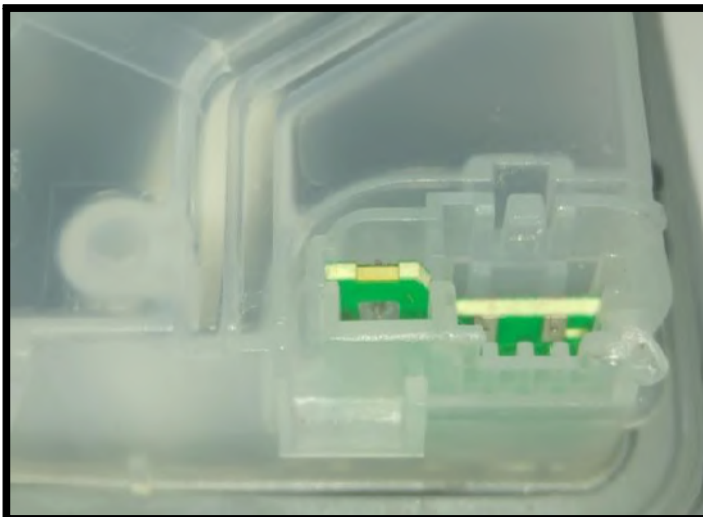
From the electronical card:

		C		T	
RINSE AID SENSOR	CN 5.3 - CN 5.2	0 Ω NO RINSE AID $\infty \Omega$ THERE IS RINSE AID	KN 50.8 - KN 50.9	0 Ω NO RINSE AID $\infty \Omega$ THERE IS RINSE AID	Rinse aid off Rinse aid on



Above sketch shows the connectors of the rinse aid sensor on the electronic card.

From the component:

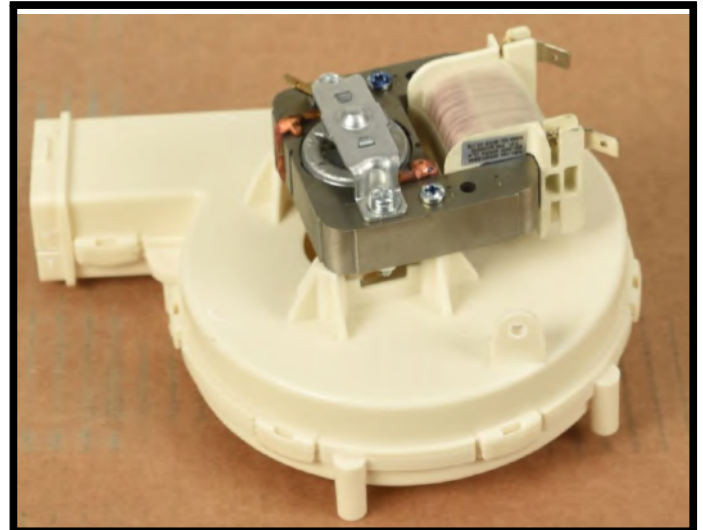
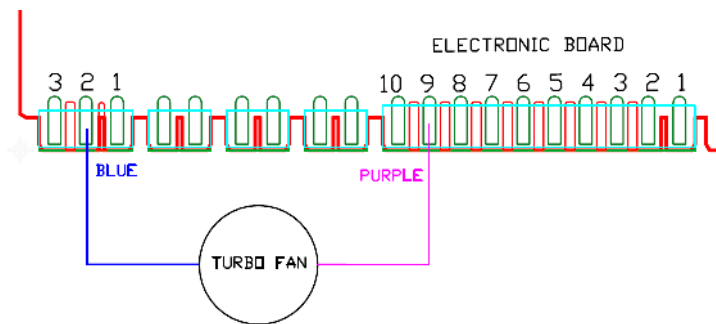


Probes of the tester should be applied on to the relatde connectors as shown on the pictures.

FAN MOTOR

From the electronical card:

	C	T
FAN MOTOR	CN 6.2 - CN 2.9	KN 6.2 - KN 2.8



Above sketch shows the connectors of the fan motor on the electronic card.

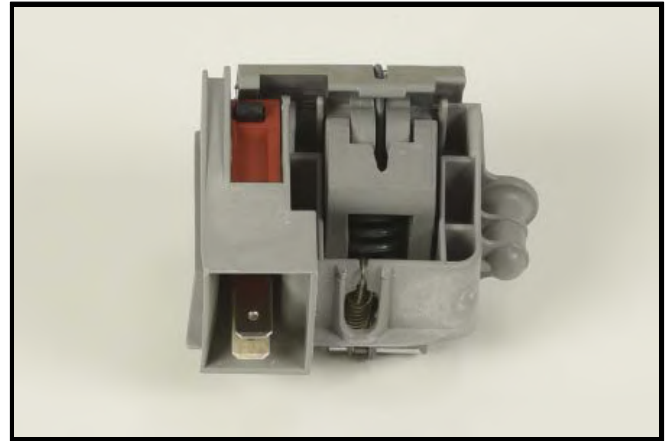
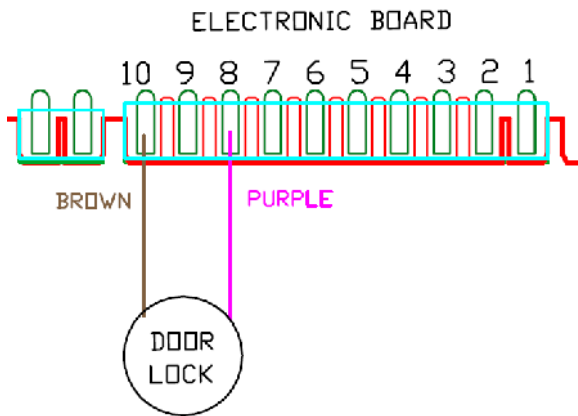
From the component:



Turbo fan resistance value: $265 \pm \%10 \Omega$ (The resistance of the turbo fan is measured with the resistor switch).

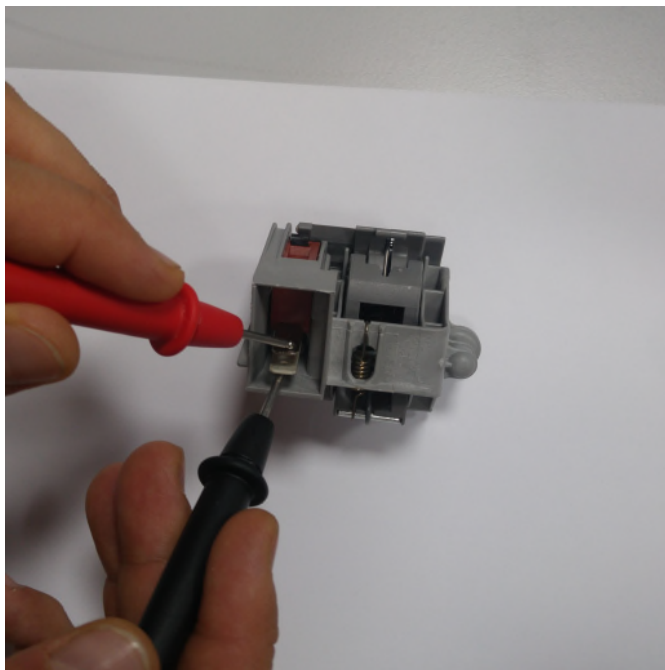
DOOR SWITCH

From the electronical card:



Above sketch show the connectors of the door switch on the electronical card.

From the compoonent:

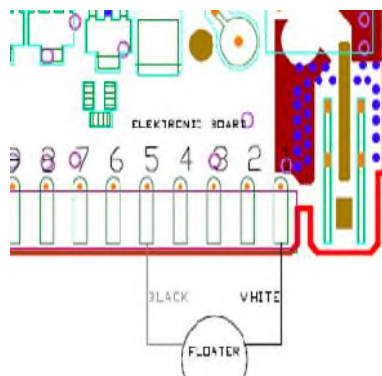
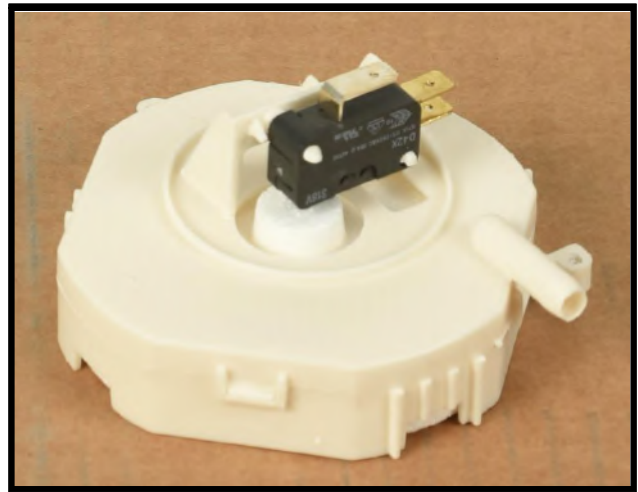
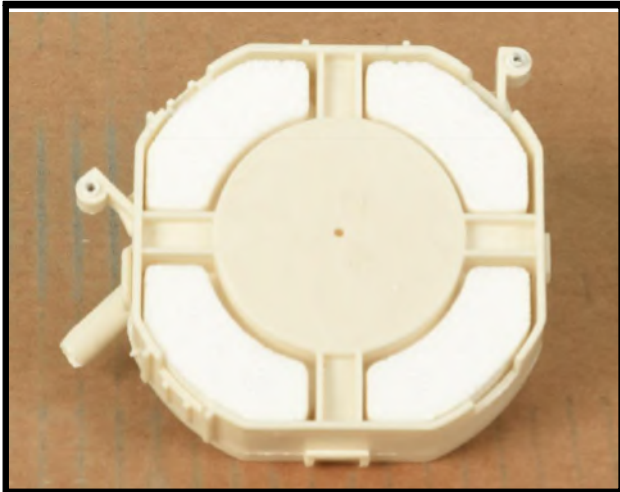


Probes of the tester should be applied on to the related connectors as shown on the pictures.

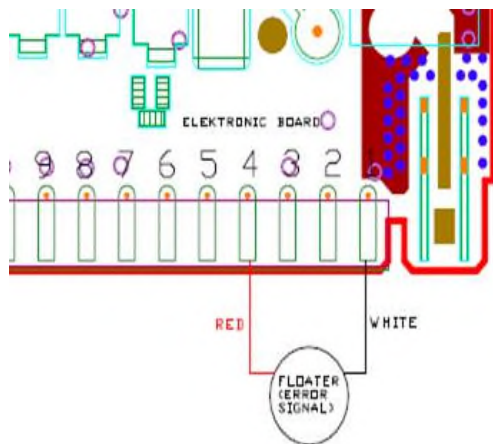
FLOATER

From the electronical card:

	C		T		
FLOATER (MICROSWITCH)	CN2.1 - CN 2.5 CN2.1 - CN 2.4	0 Ω $\infty \Omega$	KN2.5 - KN 2.10 KN2.4 - KN 2.5	0 Ω $\infty \Omega$	Microswitch is inactive (no water) microswitch is active (there is water)



Position 1 : You can check the floater by controlling the specified value intervals.

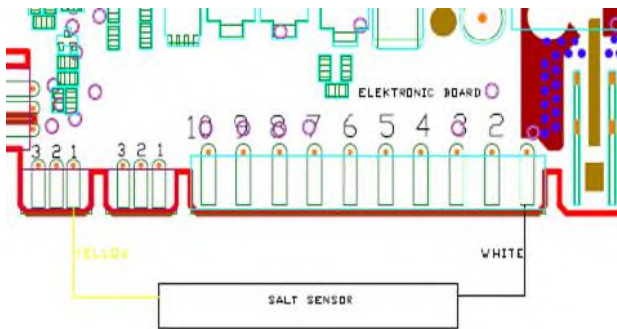


Position 2 : If failure code is occurred related with the floater within control the above values: You can figure out whether leakage occurs or not.

SALT SENSOR

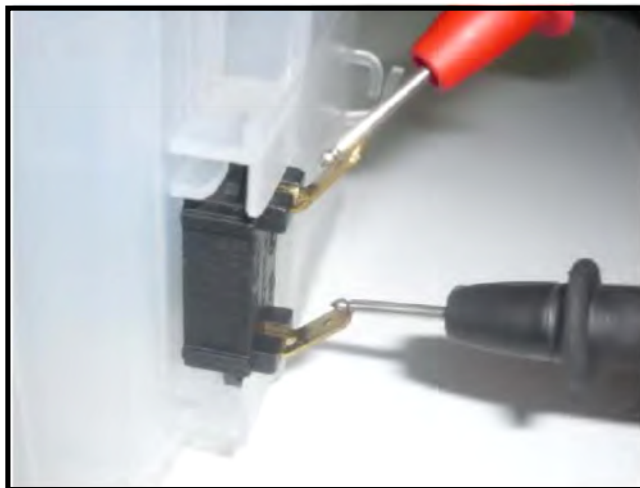
From the electronical card:

		C	T	
SALT SENSOR	CN5.1 - CN5.2	0 Ω NO SALT $\infty \Omega$ THERE IS SALT	KN50.10 - KN 50.11	0 Ω NO SALT $\infty \Omega$ THERE IS SALT
				Measure just on the electronic



Sketch above show the connectors of the salt sensor on the electronic card. Probes of the tester should be applied on the related connectors.

From the component:



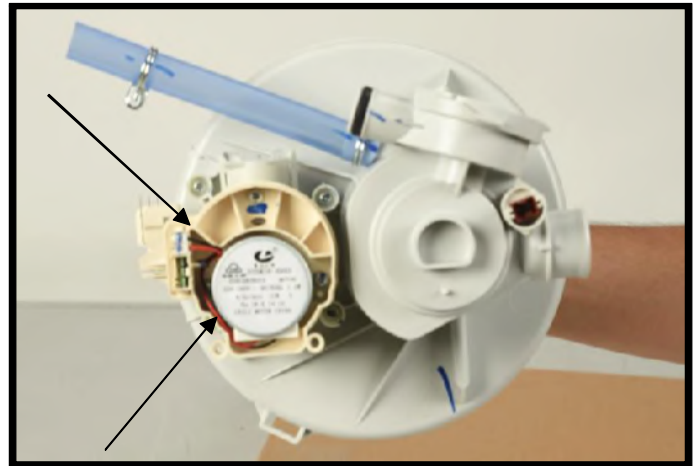
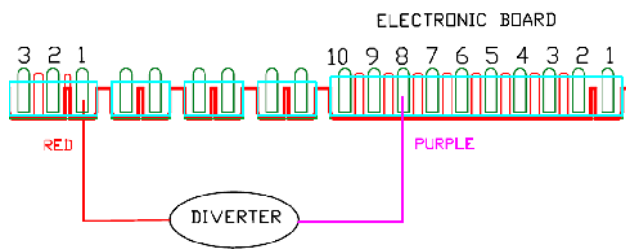
salt sensor can also be measured from the water softener when the salt sensor is assembled on the water softener.

Probes of the tester should be applied on to the related connectors as shown on the pictures.

DIVERTER

From the electronical Card:

	C	T
DIVERTER	CN 6.1 - CN 2.9 10500 $\pm$ %7 Ω	KN 6.1 - KN 2.8 10500 $\pm$ %7 Ω



Sketch above show the connectors of the diverter on the electronic card. Probes of the tester should be applied on to the related connectors.

From the component:

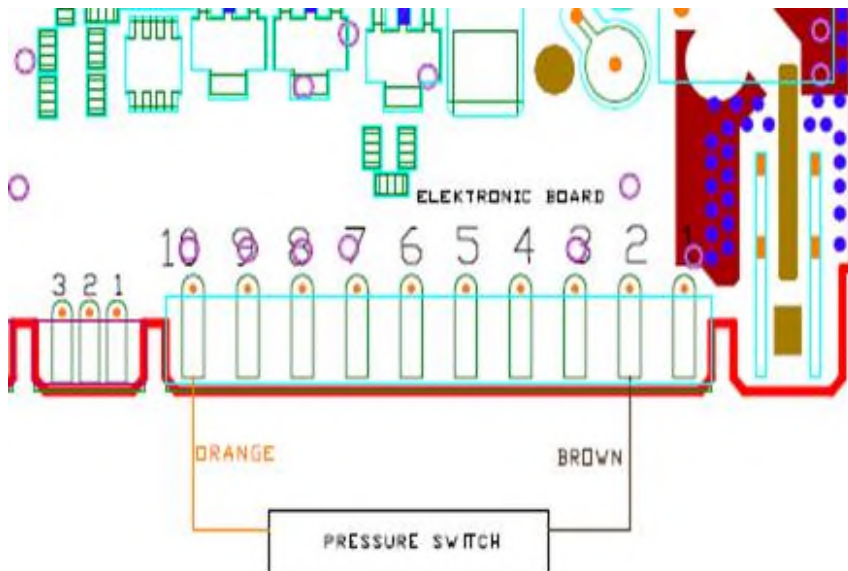


Probes of the tester should be applied on to the related connectors as shown on the pictures.

PRESSURE SWITCH

From the electrical card:

	C		T		
PRESSURE SWITCH	CN2.10 - CN2.2	0 Ω $\infty \Omega$	KN2.9 - KN2.10	0 Ω $\infty \Omega$	Full fill water no water



From the component:

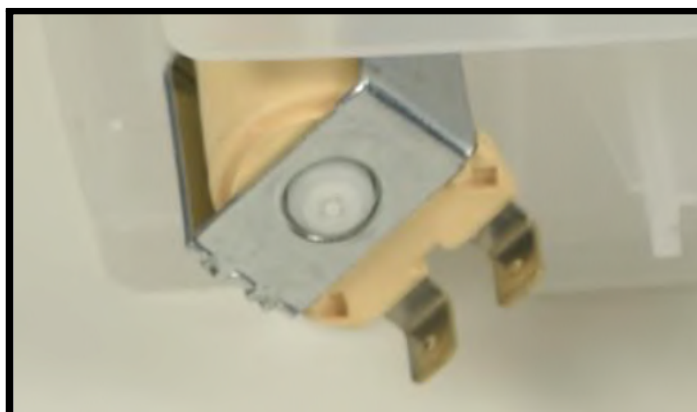
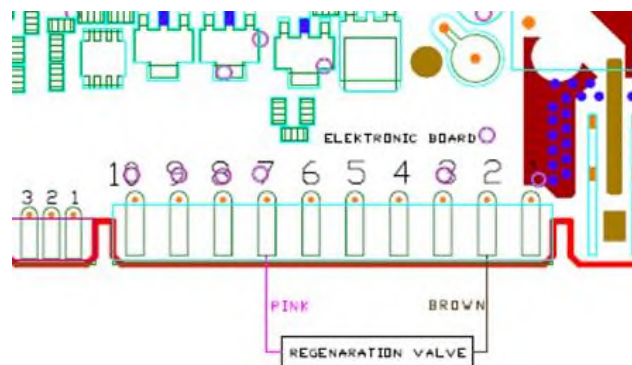


Probes of the tester should be applied on to the related connectors as shown in the picture above.

REGENERATION VALVE

From the electrical Card:

	C	T
REGENERATION VALVE	CN2.2 - CN2.7 3560 $\Omega \pm \%10(25^{\circ}\text{C})$	KN2.2 - KN2.10 3560 $\Omega \pm \%10(25^{\circ}\text{C})$



Above sketch show the connectors of the regeneration valve on the electronic card. Probes of the tester should be applied on to the related connectors.

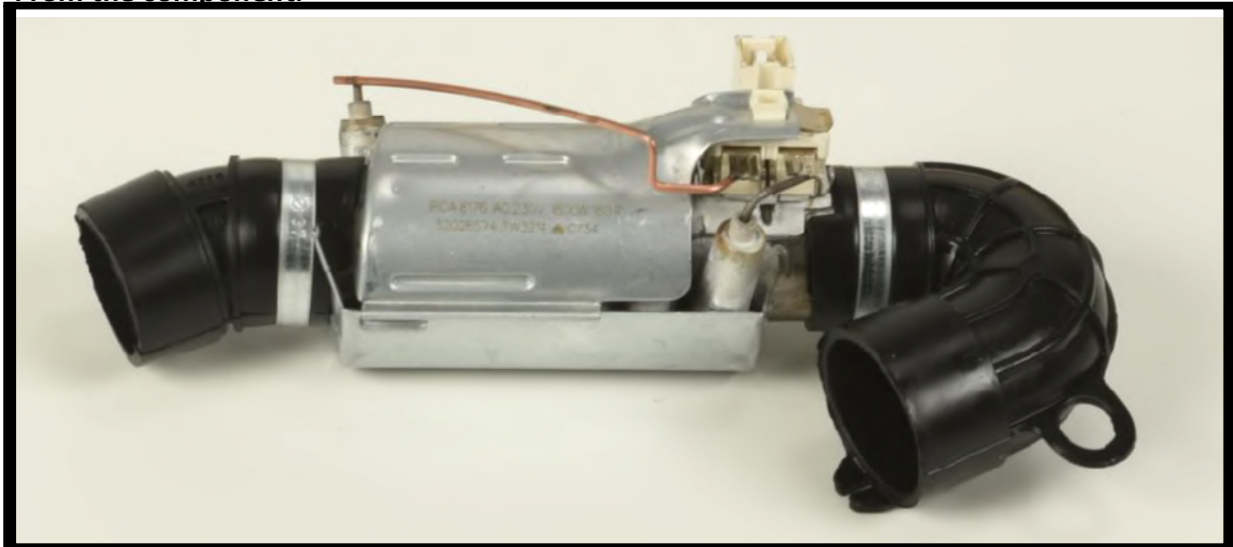
From the component:



HEATER

It can't be measured from the electrical card.

From the component:

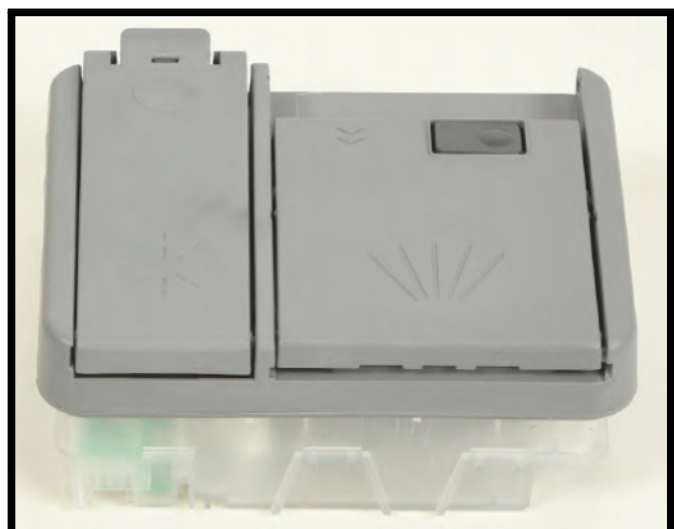


DETERGENT DISPENSER

It can't be measured from the electrical card:

	C	T
DETERGENT DISPENSER	$2300\ \Omega \pm 10\%$ (25 C°)	$2300\ \Omega \pm 10\%$ (25 C°)

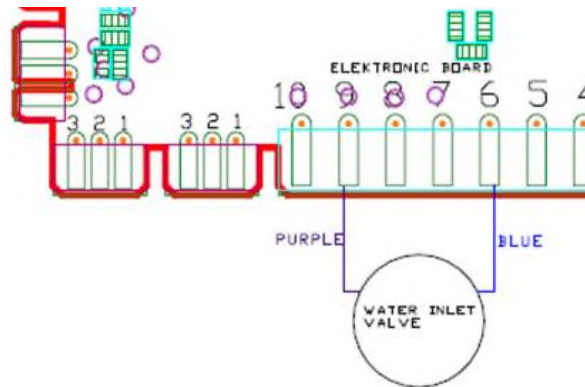
From the component:



WATER INLET VALVE

From the electronical Card:

	C	T
WATER INLET VALVE	CN2.6 - CN2.9 $4200 \Omega \pm \%10 (20^{\circ}\text{C})$	KN2.6 - KN2.8 $4200 \Omega \pm \%10 (20^{\circ}\text{C})$



Above sketch show the connectors of the water inlet valve on the electronical card. Probes of the tester should be applies on to the related connectors.

From the component:

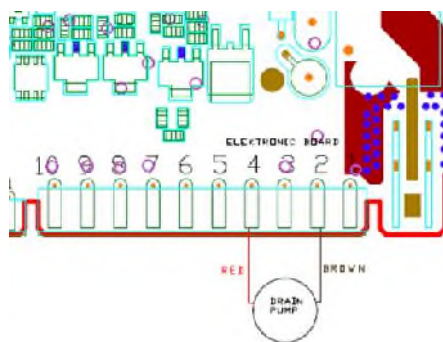


Probes of the tester should be applied on to the related connectors as shown on the pictures.

DRAIN PUMP

From the electrical Card:

	C	T
DRAIN PUMP / HANYU	CN2.2 - CN2.4 $220 \Omega \% \pm 10$	KN2.4 - KN2.
DRAIN PUMP / LEIU	CN2.2 - CN2.4 $141 \Omega \% \pm 10$	KN2.4 - KN2.



Above sketch show the connectors of the drain pump on the electrical card. Probes of the tester should be applied on to the related connectors.

From the component:



Probes of the tester should be applied on the related connectors as shown on the pictures.

F7 (EXTREME HEATING UP FAULTY)

Ntc

- If the water temperature inside machine higher than 77°C, ntc can be out of order.

Electronic card

- Electronic card can be out of order.

F8 (INADEQUATE HEAT)

Heater

- Check the power and resistance values.
- Check the cable connection of the heater.

Electronic card

- Check the electronic card

F9 (DIVERTER POSITION PROBLEM)

Diverter

- Check the values of the diverter.
- Check the cable connection of the diverter.

Electronic card

- Check the electronic card

FA (TURBIDITY SENSOR FAULTY)

Turbidity sensor

- There can be some soil around the turbidity sensor.
- Check the cable connection of the turbidity sensor.

Electronic card

- Check the electronic card.

16	High Voltage Failure	Blink	HI	Blink	HI
17	Low Voltage Failure	Blink	LO	Blink	LO

Z21_7 and z21_2:

5.1 D21_45cm					
N°	Name	NORMAL		SERVICE	
		All leds	Display	All leds	*Display
	Overflow	-	-	Blink	FO
	Leakage	Blink	F1	Blink	F1
	Drain time out	Blink	F2	Blink	F2
	Re-Fill time out	Blink	F5	Blink	F5
	Presence Flow meter imp.	Blink	F3	Blink	F3
	Absence of flowmeter impulses with full	-	-	Blink	F4
	Absence of flowmeter impulses with empty	Blink	F5	Blink	F5
	NTC ca/cc	Blink	F6	Blink	F6
	Overheating	Blink	F7	Blink	F7
	Unsuccessful heating*	Blink	F8	Blink	F8
	Diverter opened	Blink	F9	Blink	F9
	Turbidity Error	-	-	Blink	FA
	Salt Parameter incorrect	-	-	Blink	SE
	CK Parameters	Blink	FE	Blink	FE

* XY: firstly "X" will be on 1sec, than "Y" will be on 0.5sec and they will be shown sequentially in the display

	High voltage/Low voltage	Blink	LO/HI	Blink	LO/HI
--	--------------------------	-------	-------	-------	-------

9. END TEST

End test is divided in two parts: end test 1 (functionally test) and end test 2 (heating and leakage test).

9.1 End test 1:

Vestel receives the electronic cards ready to start "end test 1". In any case, it's possible, re-start the end test 1 with a manual manoeuvre.

- While the door is closed.
- Switch ON the machine.
- Press the Program Button for 3 sec. (For ZB7T by pressing Program button switch on the machine and continue press Program button for 8")
- All leds will blink once. Hear the beeping.
- The End test will start automatically.

Note: To skip the End test, open door and press program button for 3" to perform the reset option and close door. After resetting, the machine is ready for use.

-After end test starts, All digits and all leds should be on together at the beginning of the end test-1 (display also show 188) during first 3 seconds.

- At the end of end test 1, switch OFF the dishwasher.

- End Test 1 de Power on/off da End Test 1 baştan başlayacak, End Test 2 de Power on/off yapılırsa kaldığı adımdan devam edecek şekilde olmalıdır. Power on/off haricindeki butonlara basıldığında ise (Örn; Az Bulaşık), normal programlarda da olduğu gibi o butonu (Az Bulaşık) algılamayacak şekilde olmalıdır. End Test 2 bitiminde ise makine direkt hazır duruma geçmelidir. Şayet iptal edildi ise, iptal işlemi sonrasında bittiye (END) geçmelidir.

Diverter failure: Stop circulation pump just after detergent dispenser activation at step 41 until the end of program if electronic card cannot detect diverter position during end test 1.

Turbidity failure: Start circulation pump just after turbidity sensor check (at step 92) for 6 sec, if electronic card realize Turbidity sensor failure during turbidity test.

If we open/close the door during end test, End test continues from the point on which we open/close the door. End test combinations keep performing.

-Salt indicator and rinse aid indicator is ON if reed sensors are short cut during end test END TEST 1 or END TEST2.

-Salt indicator and rinse aid indicator is OFF if reed sensors are not short cut during end test END TEST 1 or END TEST.

Note: In cases where the machine is energized, Power led is ON. In model codification and during end test Power led is on, but in the other test(BLDC, AutoDoor,Service, etc.) Power led is off.

9.2 End test 2

When the electronic card is switched on after the end test 1, end test 2 starts.

- 4" of pause
- Heating to reach 62°C with 13' of time out
- Only circulation pump is on for 10" sec
- Drain + Regeneration valve is on 20"
- End test 2 is finished.

During this phase, failure routine of unsuccessful heating and failure routine of NTC works. If the water temperature doesn't increase, at the end of 15', the drain pump will be on.

When the electronic card is switched on after end test 2, it will be in washing mode.

At the end of end test 2, machine turns to standby position(Eco program is shown as default).

Note: During check of Turbidity and Diverter position in the End Test1, if there occurs error, electronic card will save these errors and will go to the failure routine at the beginning of END test 2 (as NTC failure recognition)

9.3 End test 3

When the electronic card is switched on after the end test 2, end test 3 starts.

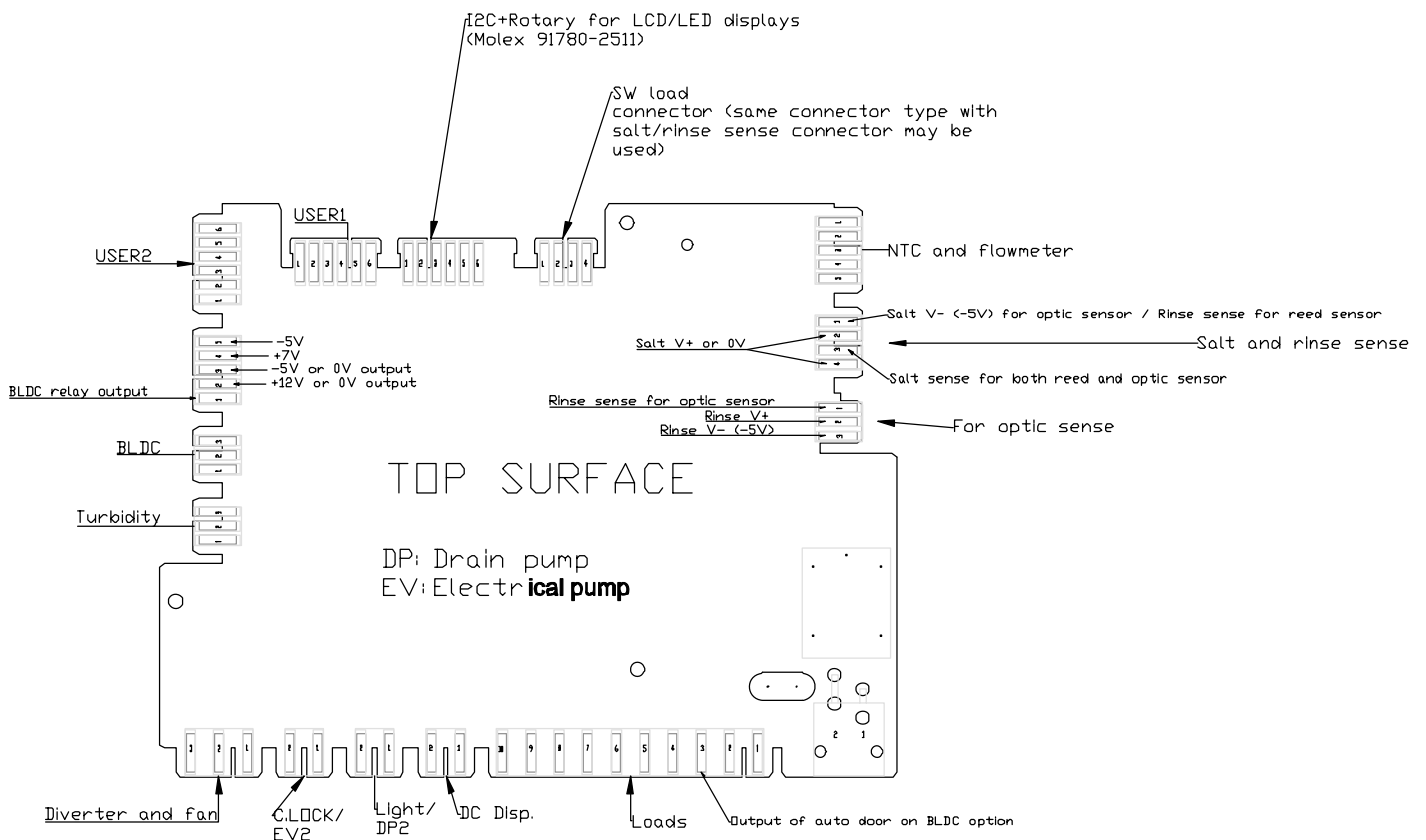
During ET3 all leds on the display illuminate.

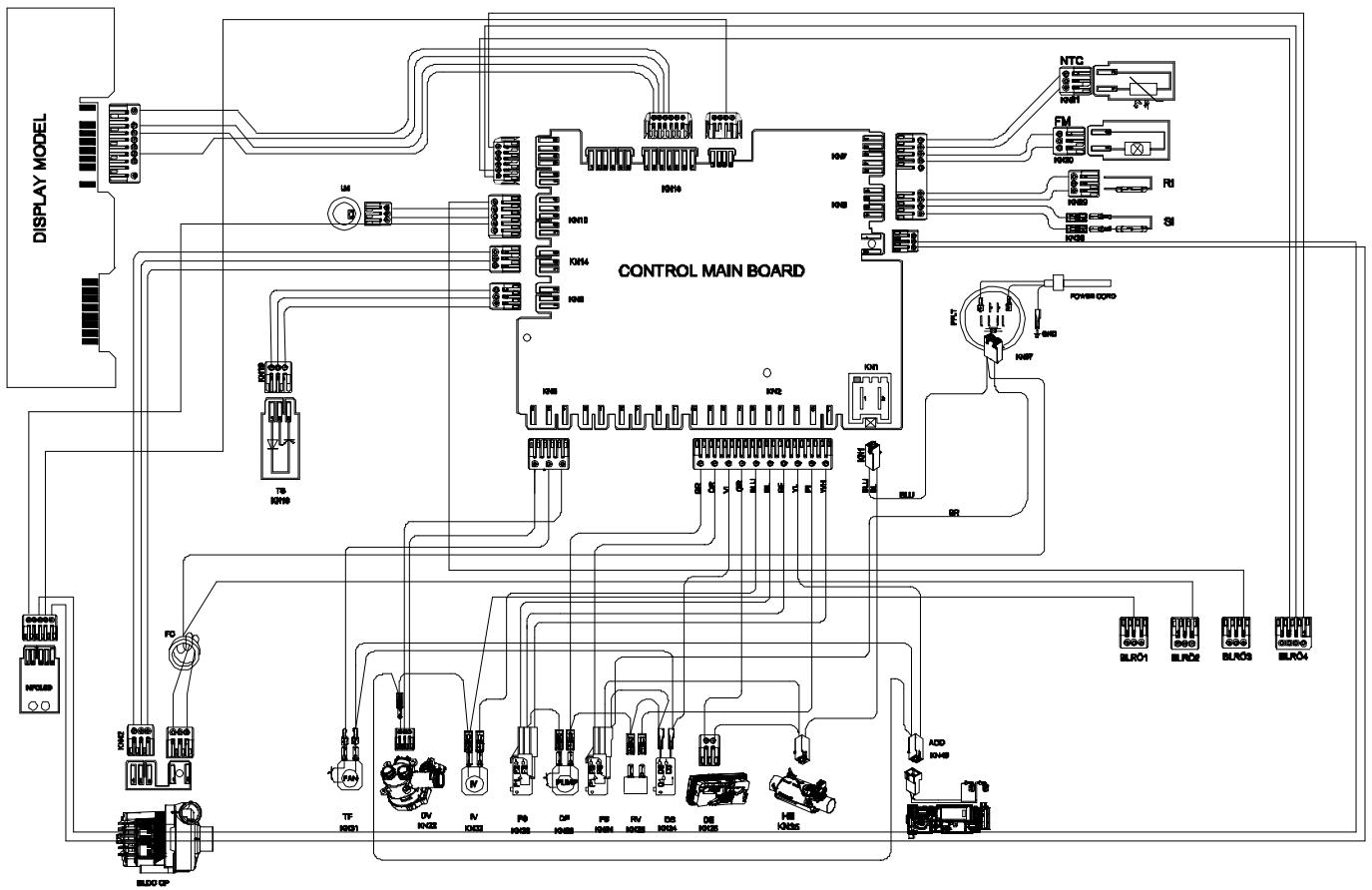
During End Test 3, red and yellow InfoLEDs (IL 2.1) turns on and off alternately with 1 seconds intervals.

When machine is switched off and on or mains power off and on, machine will start as ready state.

10.HARDWARE CONTROLS

10.1 BM05 TYPE MAINBOARD





PIN	PIN OUT	COMPONENT
CN9.1	+7V transistor	Ionizer mini fan, dc main fan, uv led
CN9.2	+7V transistor	Ionizer led, infoled 2 led 1
CN9.3	+7V transistor	Dc lightening
CN9.4	-5V	Common ground
CN9.5	+7V	Sto motor

11. MODIFICATION HISTORY OF DOCUMENT

DATE	PART	MODIFICATION	WHO
20.02.2020	6.17	Infoled 2.1 bölümü düzenlendi.	M. Çalmaz
20.02.2020	9.3	End Test 3 bölümü düzenlendi.	M. Çalmaz
25.02.2020	10	Hardware Controls bölümü eklendi.	M. Çalmaz

DISASSEMBLY

CAUTION!: REMOVE ELECTRIC PLUG FROM THE SOCKET DURING THE DISASSEMBLY

Top Plate

- a) Remove two screws that fix the top plate at the back.
- b) Push the top-plate back and pull it up.



Plastic Kick Plate

- a) Remove two screws fixing plastic kick plate.

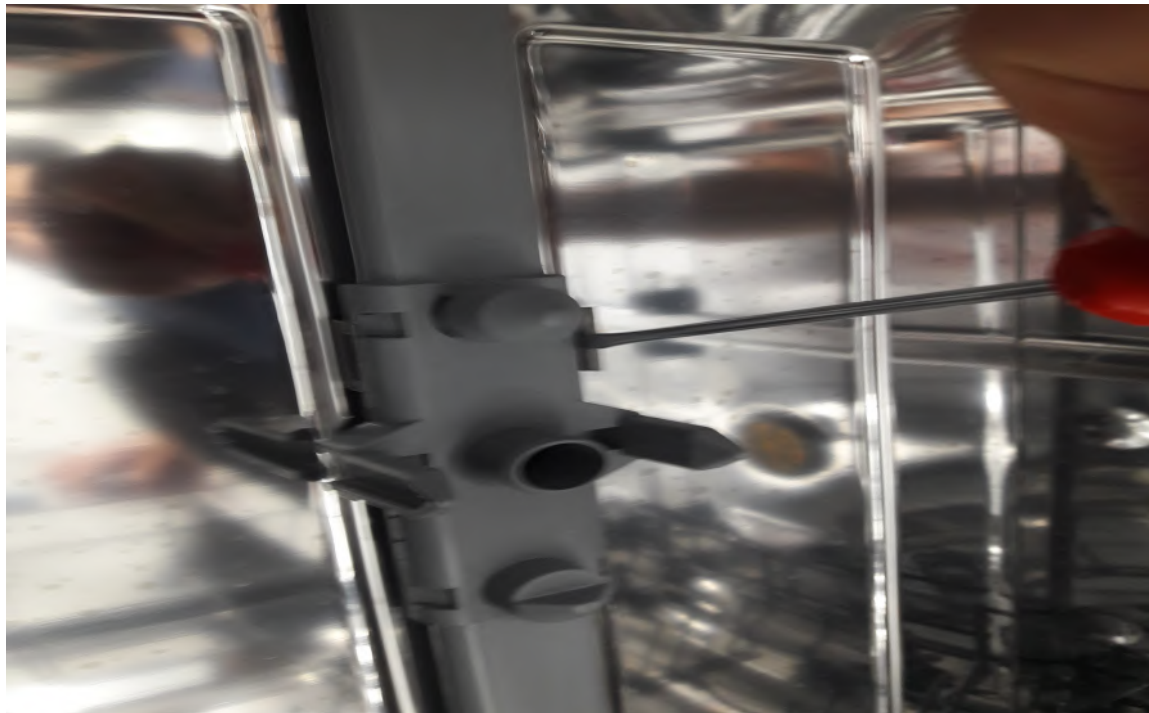


- b) Remove the plastic kick plate as it is shown in the picture.



INTERNAL FEEDING TUBES AND SPRAY ARMS REMOVAL

1) Unscrew the feed channel tabs with the help of a screwdriver



2) To assemble, manually narrow the feed channel replacement and insert it into the tabs

3) Pull out the top spray channel by turning it clockwise

4) Turn it counterclockwise to reinstall it



5) To remove the lower spray arm, kindly pull it up



The components that are inside the tub course, micro and metal filters

- a) Open the door.
- b) Remove lower basket
- c) To remove microfilter group rotate them in the direction of counter clockwise and pull them up as it is shown in the picture



- d) To remove microfilter group (course filter and micro filter) pull them as it is shown in the picture.



- e) To remove the metal filter pull it up as it shown in the picture.



Draining hose



- a) Remove the hose connection plastic.
- b) Remove lower cover.
- c) Remove the clamp that fixes draining hose to the pump
- d) Remove draining hose

Lower basket



- a) Open machine's door.
- b) Pull the basket to yourself.

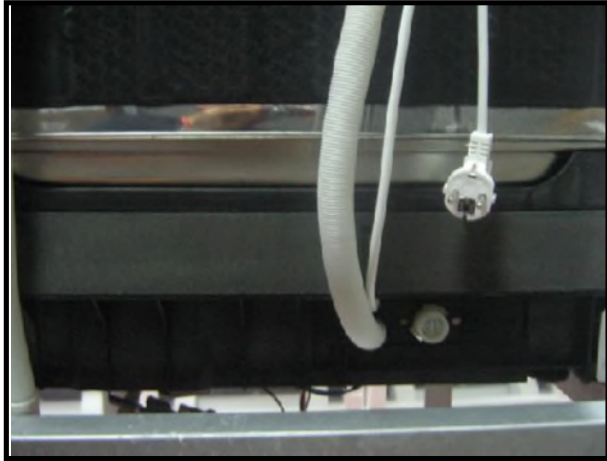
Upper basket



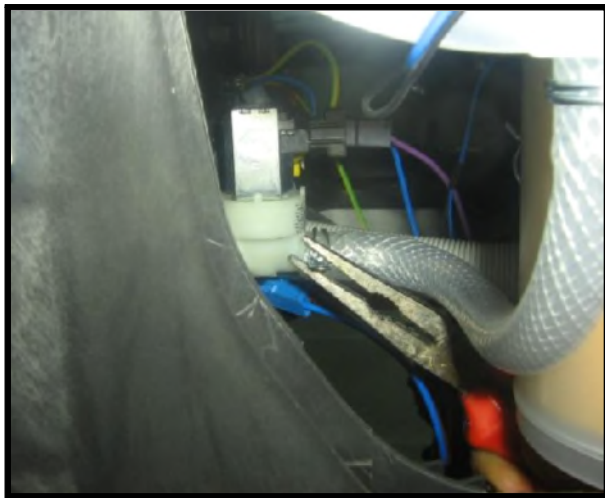
- a) Open upper basket rail lock front.
- b) Pull the basket to yourself and remove it.



Water Inlet valve



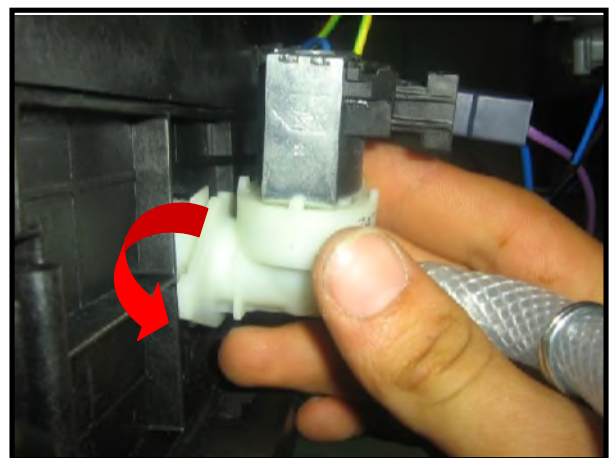
a) Remove lower cover.



b) Remove the wire that is connected to the water inlet valve.

c) Remove the clamp that connects water inlet valve and air-break as it is shown in the picture

To remove water inlet valve pull it back as it is shown in the direction of picture then release water inlet valve from the pins that is connecte to and rotate it in the direction of counterclockwise.



TURBO FAN REMOVAL INSTRUCTIONS

1)Remove top tray



3)Disconnect the condensate unit from the turbo fan.



2)Remove the side panel rear and front screws



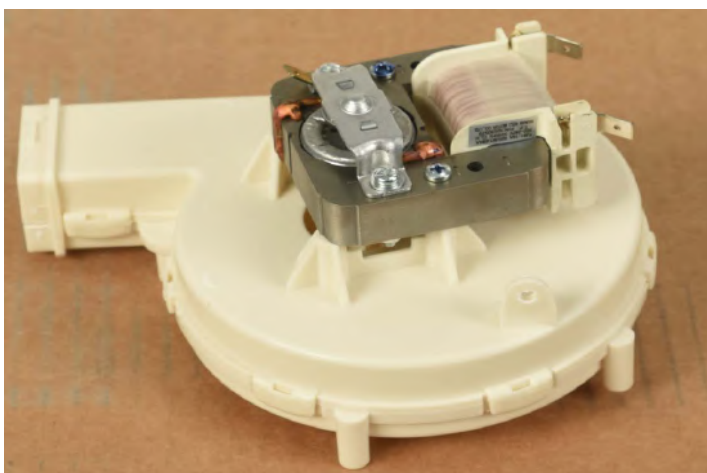
side panel rear screw

4)Remove the turbo fan screws



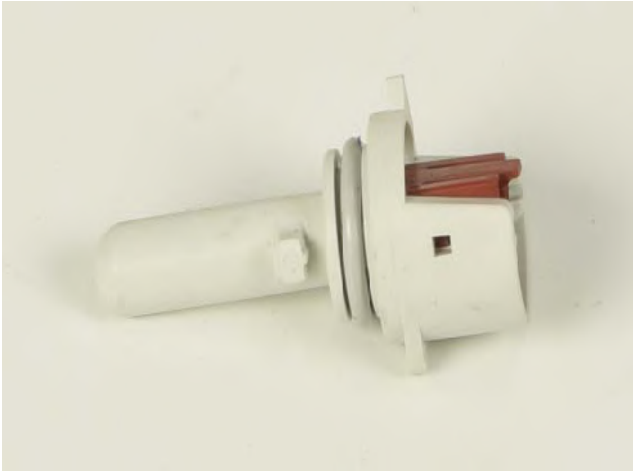
turbo fan screws

5)Disconnect turbo fan cables



6)Remove the turbo fan from its replacement + to reassemble, Before connect the cables, Install the screws, install the condensate unit

5)Disconnect ntc cables



NTC

6)Disconnect heater hose

7)Unscrew eco or diverter part(it is changeable) screws

8)Then get the sump



To assemble, connect the cables and screws in same way.

SUMP GROUP REMOVAL INSTRUCTIONS

1) Remove 2 screws on top



sump screws

2) Remove the drain pump



drain pump

3) Remove the drain hose



drain hose

4) Remove the blue hose from the water softener to the pool group



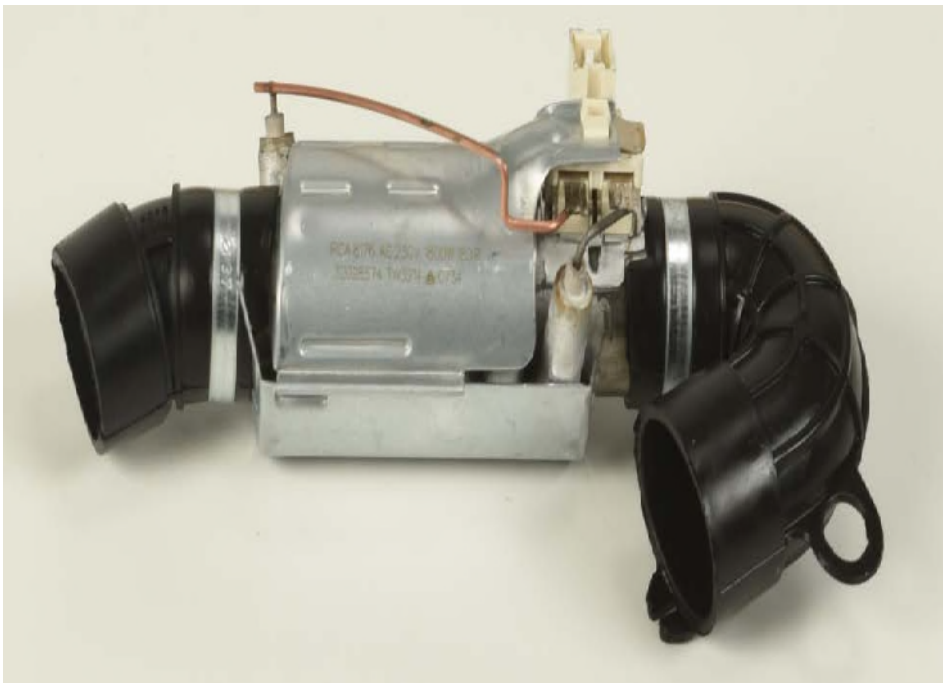
blue hose

HEATER REMOVAL INSTRUCTIONS

1) Remove 2 clamps



2) Disconnect cable connections and get the heater



3) To assemble, the cables are connected first and the screws are attached.

Floater



a) Remove lower cover.



b) Remove two screws that fix floater as it is shown in the picture.



c) Remove the two floater hoses.

d) Remove the wire that is connected to the floater.

Water softener



a) To remove salt cup cover, rotate it in the direction of counterclockwise

b) To remove salt cup nut, rotate it in the direction of counterclockwise.

c) Remove left side panel.

d) Derach the connections which are between water softener and air-break.

e) Remove lower cover.



f) Remove the hose that is between sump and salt camp.

Parasite filter



a) Remove lower cover.

b) Remove one screw fixing parasite filter.

c) Remove wires.

d) Push parasite filter and remove it.

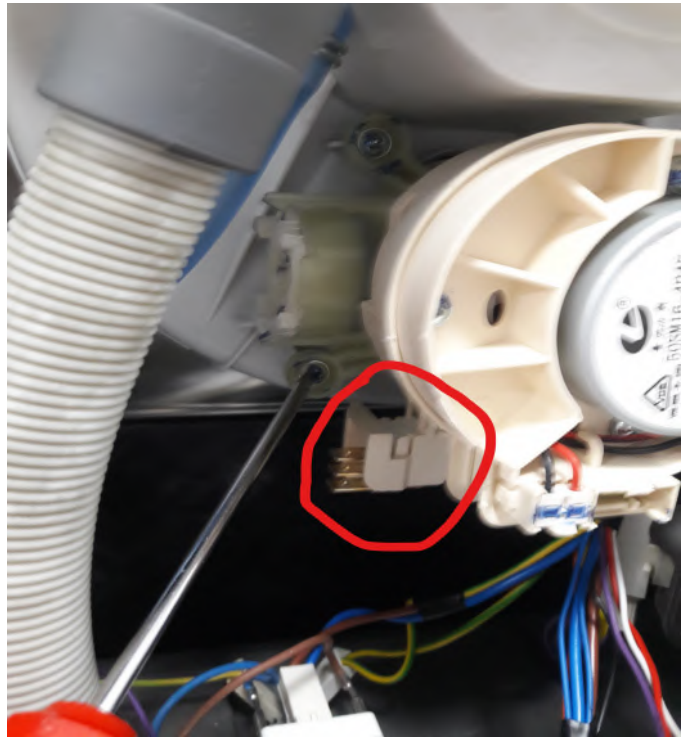
DIVERTER REMOVAL INSTRUCTIONS

1)Disconnect the diverter cables



diverter cables

2)Disconnect pressure switch cables



pressure switch

3)Disconnect turbidity sensor cables(if the machine has)

4)Unscrew the diverter screws

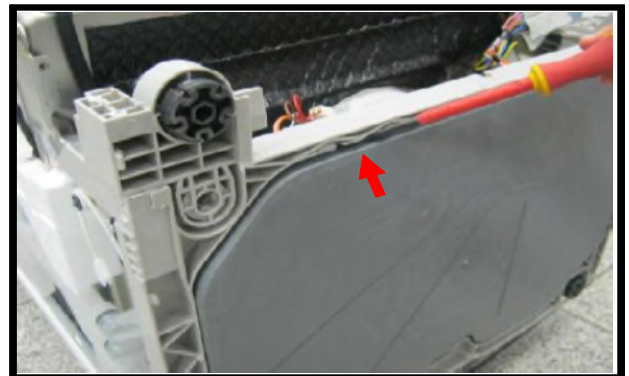
5)Pull the clamps with pliers (Diverter clamp is next to the circulation pump's clamp. you can see in the circulation pump removal instruction page).

Access the components from the lower cover

a) Lay the appliance on the rear panel.



b) Remove lower cover from the places that are shown in the picture.



CIRCULATION PUMP REMOVAL INSTRUCTIONS

1) There are 2 clamps.

3) remove the straps from both sides

2) Push the 2 clamps upwards.



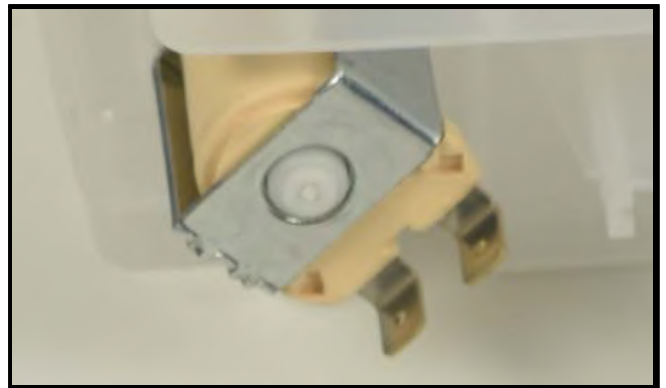
pushing the clamps upwards

To access the components from in Front of the Machine



- a) Remove plastic kick plate iron sheet and basement front cover

Regeneration valve



- a) Remove plastic kick plate and kick plate iron sheet.
- b) Remove the wires
- c) To remove regeneration Valve rotate counterclockwise and pull it as it is shown in the picture.

Drain pump



- a) Remove plastic kick plate and kick plate iron sheet
- b) Remove the wires.
- c) To remove the drain pump that fixes to the sump, rotate it in the direction of counterclockwise and pull.

Power cord

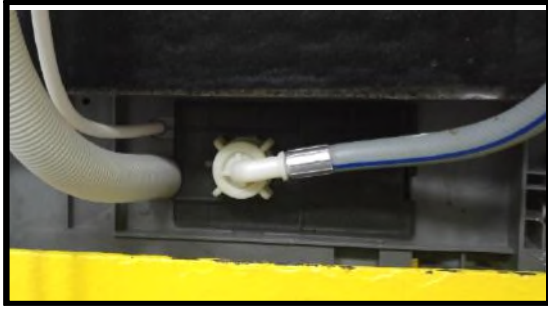
- a) Remove hose connection plastic.



- b) Remove the lower cover.
- c) Remove the wires that is between power cord and parasite filter.
- d) Remove the power cord.



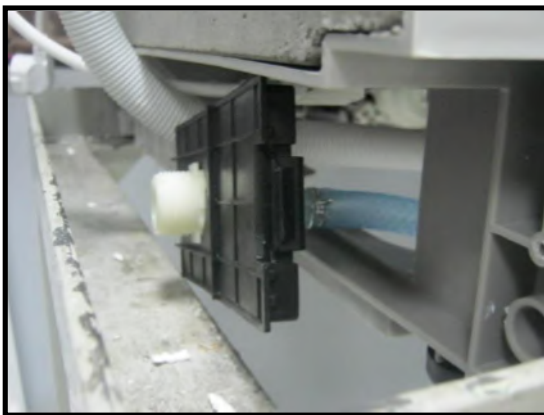
Hose connection plastic



a) Remove left side panel.



b) By using flat tip screwdriver remove hose connection plastic's hinge from the basement as it shown in the picture



c) Push the hose connection plastic.

Warning: If you do not obey instructions while disassembly of the hose connection plastic it can be broken.

Air - break



a) Remove the left side panel of the machine.

b) Open machine's door

c) Rotate counterclockwise air-break nut and remove it.

d) Remove air-break's connections with salt cap as it is shown in the picture. (be careful about plastic hinges)



Door Inside

- a) Remove side panels.
- b) Remove Hinge Spring.



Door spring

- c) Pull the door inside up as It is shown in the picture.
- d) Remove two screws that fix hinge movement sheet iron to the door inside.



KNOB REMOVAL INSTRUCTIONS



- 1) Remove control panel,
- 2) Remove the pcb box,
- 3) Remove the plastic tabs around the knob by flexing them.

DISPANSER REMOVAL INSTRUCTIONS

1)Remove front panel

2)Disconnect the dispenser cable harness



Dispanser cables

4)Then the dispenser will drop in



dispanser is free

3)Remove the metal tabs on the top, bottom and sides to disengage the dispenser.



metal tabs on the top

5)To assemble, tighten the metal tabs with a pliers

6) After applying silicone oil or liquid soap to dispenser, press down and engage dispenser.

pressing to the dispanser down



DOOR LOCK REMOVAL INSTRUCTIONS

1) Remove control panel screws



2) Disconnect cable connections with door lock



3) Remove two door lock screws



ELECTRONIC CARD REMOVAL INSTRUCTIONS

1) Remove top tray



3) Remove side panel



3) Remove side panel support styrofoam

4) Pull up the pcb box



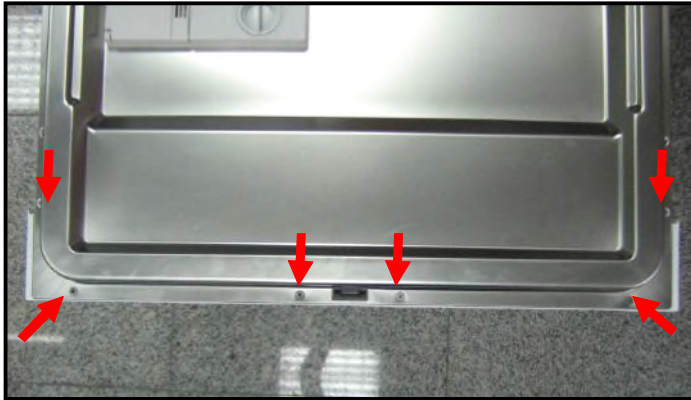
5) Disconnect cable connections from cable harness

6) Remove the tabs and take the electronic card

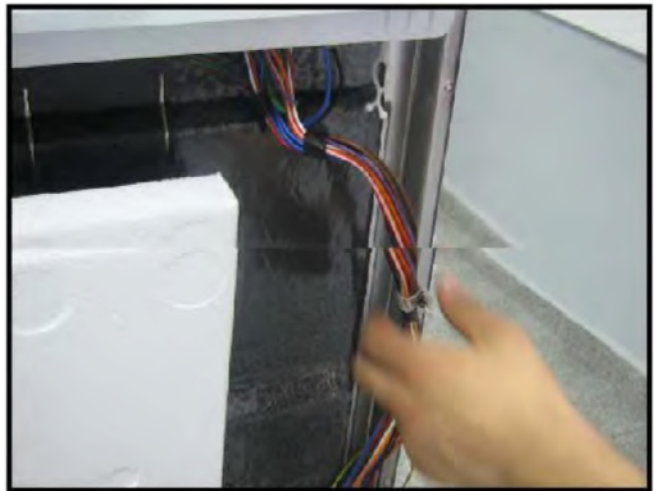
7) To assemble, reinsert the pcb box into the tabs.

Control Panel

- a) Remove 6 screws that fix control panel to the door inside sheet iron.
- b) Remove the control panel group carefully as shown in the picture

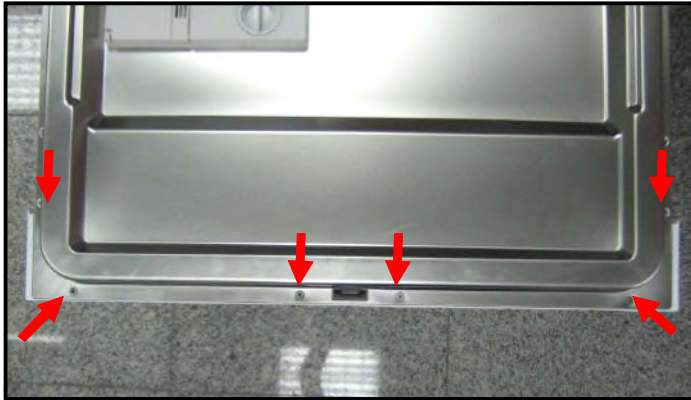


- c) Remove the cable connection plastic which fix cable harness to the control panel as shown in the picture.
- d) Remove the wires that are connected to control panel group.

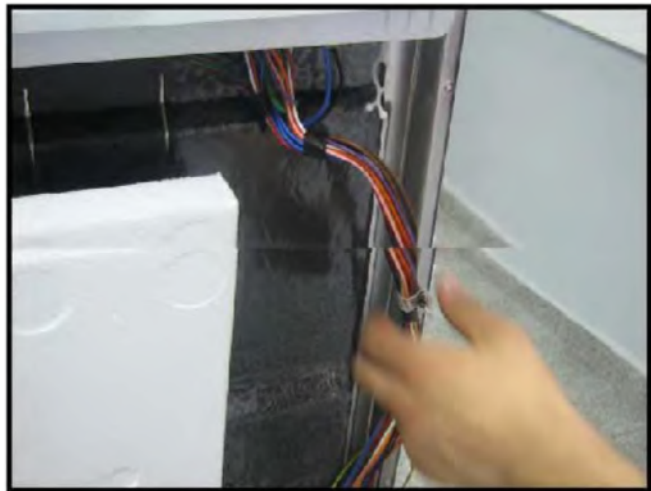


Control Panel

- a) Remove 6 screws that fix control panel to the door inside sheet iron.
- b) Remove the control panel group carefully as shown in the picture



- c) Remove the cable connection plastic which fix cable harness to the control panel as shown in the picture.
- d) Remove the wires that are connected to control panel group.



Kick Plate Sheet Iron

- a) Remove top plate, plastic kick plate and side panels.
- b) Remove the screws (4 screws) that fix the kick plate sheet iron.
- c) Pull it down as shown in the picture.



- To remove the side panel, remove the upper plastic hinge and then the above one and pull it up.

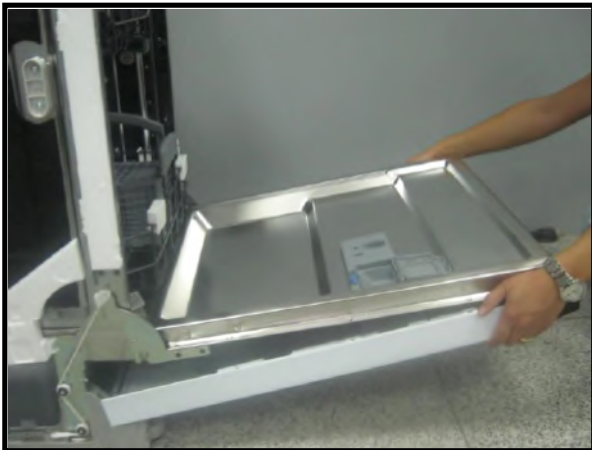


Front Panel

a) Remove the screws as it shown in the picture.



b) Pull down the front panel after removing the screws.



Side panels removal instructions

1) Remove top table screws



Top Tray screws

2) Remove the side panel rear screws



Side panel rear screws

3) Remove the kick plate plastic after removing the front panel



Plastic kick plate screw

4) Remove the side panel front screws



side panel front screws

5) remove the side panel rear tabs



6) Remove the side panel front tabs

