SERVICE MANUAL NO:1

SERVICE MANUAL FOR RETRO CONTROL SYSTEM WASHING MACHINE

2. Contents

3. Safety Warnings

This section contains safety instructions that will help protect from risk of personal injury or property damage. Failure to follow these instructions shall void any warranty.

3.1 General safety

- This washing machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge unless they have been given supervision or instruction concerning the use of the washing machine by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the washing machine.
- Never place the washing machine on a carpeted floor. Lack of airflow beneath the machine could cause overheating.
- In case of a malfunction or maintenance work, disconnect the washing machine from the electrical mains immediately. Repairs must only be made by a qualified technician.
- Before washing, check all clothes for loose buttons and tears. Check pockets for coins, pins or other small articles. Close zips and fasteners. Ash small articles inside a pillow case.
- Do not wash clothes stained with or soaked in petrol, thinners, kerosene, vegetable oil or any other flammable liquids. Nor should any of these liquids be added to the wash water as they constitute a fire hazard or there may be a risk of an explosion.
- Only use the machine for washing fabrics. Do not attempt to wash plastic leather or fibreglass. Sort and separate clothes by fabric, color and degree of dirt.
- Use detergents, softeners and supplements suitable for top loading automatic washing machines only.
- Always unplug the machine from the wall socket when it requires cleaning or service. Only permit qualified persons to repair or install parts in the washer.
- Do not use water which is hotter than 60 degrees Celsius as this may deform plastic parts of the machine. It could cause be in injury, electric shock or water leakage.
- The water supply and draining hoses must be securely fastened and remain undamaged to prevent water leakage.
- By turning on the water before washing and ensure there is no water leakage.
- Follow the instructions on the textile tags and on the detergent package.
- Installation and repairing procedures must be carried out by an Authorized Service Agent. Repairs carried out by incompetent persons create a user risk: There may be a risk of accidental fire. If the washer operates abnormally, it may cause an injury. The Manufacturer shall not be held liable for damages that may arise from procedures carried out by unauthorized persons.
- Do not expose the machine to any type of flame or put cigarettes or any volatile substances on the machine top. The machine may catch fire or the machine may be deformed due to its large number of plastic components.
- Do not install the machine in a bathroom or very humid place.
- Doing so may cause a malfunction or result in a short circuit and there is a risk of an electric shock.
- Never wash the machine by spreading or pouring water onto it! Avoid spraying water on to the control panel and back of the machine. There is the risk of an electric shock, and it may cause the machine to malfunction.

3.2 Intended Use

- This product has been designed for domestic use. It is not suitable for commercial use and it must not be used out of its intended use.
- The product should only be used to wash and rinse the textile products bearing the eligible sign.
- The manufacturer waives any responsibility arisen from incorrect usage or transportation.
- The service life of your product is 10 years. During this period, original spare parts will be available to operate the appliance properly.

3.3 Children's Safety

- Packaging materials are dangerous to children. Keep packaging materials in a safe place away from reach of the children.
- Electrical products are dangerous for the children. Keep children away from the product when it is in use. Do not let them to tamper with the product. Use child lock to prevent children from intervening with the product.
- Do not forget to close the loading door when leaving the room where the product is located.
- Store all detergents and additives in a safe place away from the reach of the children by closing the cover of the detergent container or sealing the detergent package.

3.4 Compliance with the EEE Directive

- This product does not contain harmful and forbidden materials described in the "Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment" (EEE) issued by the T.R. Ministry of Environment and Forest.
- Complies with the EEE Directive.

3.5 Packaging Information

Packaging materials of the product are manufactured from recyclable materials in accordance with our National Environment Regulations.

Do not dispose of the packaging materials together with the domestic or other wastes. Take them to the packaging material collection points designated by the local authorities.

3.6 Disposing of the waste product

This product has been manufactured with high quality parts and materials which can be reused and are suitable for recycling.

Therefore, do not dispose the product with normal domestic waste at the end of its service life. Take it to a collection point for the recycling of electrical and electronic equipment. Please consult your local authorities to learn the nearest collection point. Help protect the environment and natural resources by recycling used products. For children's safety, cut the power cable and break the locking mechanism of the loading door so that it will be non-functional before disposing of the product.

3.7 Points to be Considered when Delivering the Product to Service

- Make sure that the cables which are to be mounted to the electronic card during the panel installation are not jammed between the bracket sheets. Make sure that all of the sockets on the electronic card are seated well.
- For the cable group installation, the cable should be checked to see if it is damaged or not. Stripped or damaged cables should not be installed.
  Cable route should be controlled during the installation, the contact of the cable to sharp surfaces and its jamming should be prevented.
- It should be made sure that the sockets of all serviceable components are well seated. Arc may occur in case of half contact.
- It should be checked that the serviceable product is connected to a properly grounded outlet protected by a fuse complying with appropriate values. Connections should not be made with extension cables or multi-plugs. Moreover, no extensions should be made to the mains cable and the interior cables.
- Place the serviceable product to a stabile surface, not on a long hairy carpet or a similar surface. Otherwise, lack of airflow beneath the machine may cause electrical parts to overheat.
- Never stack up the mains cable or any other cable of the serviceable product.
- If you are to unplug the serviceable product, never unplug by pulling on the power cord, always pull out by grabbing the plug.

- Check the mains cable and the plug of the serviceable product. If the power cord or the plug is damaged, replace the entire mains cable group. Please take special importance not to use shortened, snapped, stripped or hardened cables and the broken, cracked, oxidized and loosened plug terminals.
- Check the outlet which the serviceable product is plugged in. No connection should be made to the outlets which are loosened, dislocated, broken or in contact with water, dusted, dirty, oiled.
- Please make sure that the section of the mains cable running from the outlet to the machine does not come under or behind a heat source, cupboard, device, etc.
- While providing service, do not work on the machine with the heat sources such as soldering iron or welding machine. Do not leave these devices on the machine.
- While providing service, do not wipe the machine with thinner, alcohol, etc. flammable and combustible substances.
- After you complete the service, make sure you don't forget any material within the machine, such as service slip, brochure, etc.

IMPORTANT:
Transport security bolts should be attached if the machine is to be serviced being tilted to the front.

This is necessary in order not to damage the components at the front of the machine.

4. Technical Specifications

4.1. Product Definition

4.1.1. Manufacturer:			Beko Changzhou Plant
4.1.2. Model			: Retro
4.1.3. VDE types	(xx - indicates spin speed)		: **9916x**x HW PD (Hot & Cold water)
4.1.4. Dry Washing Capacity		(Kg)	: 6/6.5
4.1.5. Number of programs		(Quantity)	: 8

4.2. External Dimensions

4.3.1. Height	(mm)	: 850
4.3.2. Width	(mm)	: 530
4.3.3. Depth	(mm)	: 555
4.3.4. Water Intake Hose Length	(mm)	: 1200
4.3.5. Water Discharge Hose Length	(mm)	: 1400

4.3. Packaging

4.3.1. Material		
4.3.1.1. External Package		: Corrugated Boxes
4.3.1.2. Reinforcement		: Polystyrene
4.3.2. Dimensions		
4.3.2.1. Height	(mm)	: 888
4.3.2.2. Width	(mm)	: 571
4.3.2.3. Depth	(mm)	: 590

4.4. Weight

4.4.1. With package	(Kg)	: 34
4.4.2. Without package	(Kg)	: 32

4.5. General Technical Values

4.5.1. Tension/Frequency	(V/Hz)	: 220-240 / 50
4.5.2. Total Input Power	(W)	: 380
4.5.3. Fuse Current	(A)	: 5

4.6. Mains Cable

4.6.1. Type		: 3*0.75 mm2 profile, copper conductive
4.6.2. Insulation		: HAR; TS 9760 / TS9758
4.6.3. Plug		: Earthed, PVC injection
4.6.4. Length	(mm)	: 1700

4.7. Engine

4.7.1. Type		: Two-phase, Induction, sinusoidal control
4.7.2. Input Power* (Spin)	(W)	: 280
4.7.3. Current* (Spin)	(A)	: 1.8
4.7.4. Release		: Without speed Control

4.8. Pump

4.8.1. Drain Pump		
4.8.1.1. Power	(W)	: 25
4.8.1.2. Flow	(l/min)	: 15.5
4.8.1.3. Pump Head	(m)	: 1

4.9. Water Inlet : Hot/Cold and Cold

4.10. Body

4.11.1. Material	: DKP Split
4.11.2. Last Operation	: Dust paint

4.11. Drum

4.12.1. Material		: Stainless sheet
4.12.2. Volume	(l)	: 46
4.12.4. Spin Speed	(rpm)	: 750

4.12. Tub

4.13.1. Material :PPK10

4.13. Suspension System

4.14.1. Hanger (Pcs) : 4

4.14. Control Components

4.15.1. Electronic Main Board		: 220/240 V, 50/60 Hz.
4.15.2. Solenoid Valve	Operating Pressure	: 0.2-10 Bars
4.15.3. Water Level Sensor		: Frequency outlet sensor
4.15.4. Auxiliary Function	(Pcs)	: Max. 3
4.15.5.1. Temperature		: Cold/ Warm/Hot
4.15.5.2. Process		
4.15.5.3. Air-Turbo		No Spin/3Min/6Mins
4.15.5.4. Favorite (memory)		: It is not an auxiliary function, however it comes under the auxiliary functions if selected.

5. Product Installation / Installation Rules / Settings

Refer to the nearest Authorized Service Agent for installation of the product. To make the product ready for use, review the information in the user manual and make sure that the electricity, tap water supply and water drainage systems are appropriate before calling the Authorized Service Agent. If they are not, call a qualified technician and plumber to have any necessary arrangements carried out.

	Preparation of the location and electrical, tap water and waste water installations at the place of installation is under customer's responsibility.
	Installation and electrical connections of the product must be carried out by the Authorized Service Agent. Manufacturer shall not be held liable for damages that may arise from procedures carried out by unauthorized persons.
	**WARNING:** Prior to installation, visually check if the product has any defects on it. If so, do not have it installed. Damaged products cause risks for your safety.
	**WARNING:** Prior to installation, visually check if the product has any defects on it. If so, do not have it installed. Damaged products cause risks for your safety.

5.1. Proper Location for Installation

- Place the machine on a rigid floor. Do not place it on a long pile rug or similar surfaces.
- Total weight of the washing machine and the dryer -with full load- when they are placed on top of each other reaches to approx. 100 kilograms. Place the product on a solid and flat floor that has sufficient load carrying capacity!
- Do not place the product on the power cable.
- Do not install the product at places where temperature may fall below 0ºC.
- Place the product at least 1 cm away from the edges of other furniture.

5.2. Removing Packaging Reinforcement

Tilt the machine backwards to remove the packaging reinforcement.

Figure 5.1

	Keep the transportation safety bolts in a safe place to reuse when the washing machine needs to be moved again in the future.
	Never move the product without the transportation safety bolts properly fixed in place!

5.3. Connecting water supply

	The water supply pressure required to run the product is between 1 to 10 bars (0.1 – 10 MPa). It is necessary to have 10 – -80 liters of water flowing from the fully open tap in 1 minute to have your machine run smoothly. Attach a pressure reducing valve if water pressure is higher.
	If you are going to use the double water-inlet product as a single **(cold)** water-inlet unit, you must install the supplied stopper to the hot water valve before operating the product. (Applies for the products supplied with a blind stopper group.)
	WARNING: Models with a single water inlet should not be connected to the hot water tap. In such a case the laundry will get damaged or the product will switch to protection mode and will not operate.
	WARNING: Do not use old or used water inlet hoses on the new product. It may cause stains on your laundry.

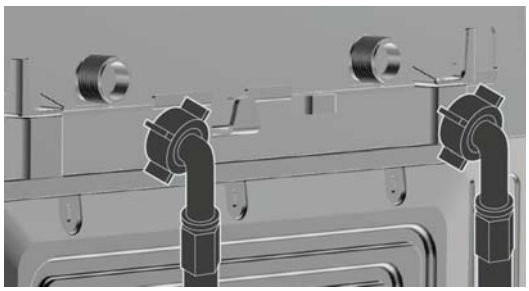


Figure 5.2

1. Connect the special hoses supplied with the product to the water inlets on the product. “Hot” label (left) (max. 90 ºC) is for hot water inlet, “Cool” label hose (right) (max. 25 ºC) is for cold water inlet.

WARNING: Ensure that the cold and hot water connections are made correctly when installing the product. Otherwise, your laundry will come out hot at the end of the washing process and wear out.

2. Tighten all hose nuts by hand. Never use a tool when tightening the nuts.

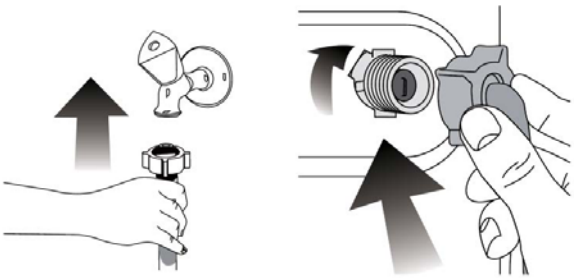


Figure 5.3

3. Open the taps completely after making the hose connection to check for water leaks at the connection points. If any leak occurs,

Turn off the tap and remove the nut. Retighten the nut carefully after checking the seal. To prevent water leakages and damages caused by them, keep the taps closed when the machine is not in use.

5.4. Connecting to the drain

- The end of the drain hose must be directly connected to the wastewater drain or to the washbasin.

⚠ WARNING: Your house will be flooded if the hose comes out of its housing during water discharge. Moreover, there is risk of scalding due to high washing temperatures! To prevent such situations and to ensure smooth water intake and discharge of the machine, fix the end of the discharge hose tightly so that it cannot come out.

•• The hose should be attached to a height of at least 65 cm, and 100 cm at most.

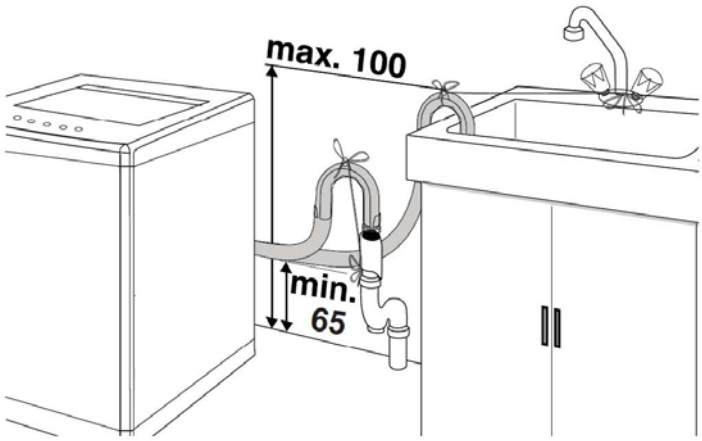


Figure 5.4

- In case the hose is elevated after laying it on the floor level or close to the ground (less than 65 cm above the ground), water discharge becomes more difficult and the laundry may come out excessively wet. Therefore, follow the heights described in the figure.
- To prevent flowing of dirty water back into the machine and to allow for easy discharge, do not immerse the hose end into the dirty water or do not drive it in the drain more than 15cm. If it is too long, cut it short.
- The end of the hose should not be bent, it should not be stepped on and the hose
- must not be pinched between the drain and the machine.
- If the length of the hose is too short, use it by adding an original extension hose. Length of the hose may not be longer than 3.2m. To avoid water leak failures, the connection between the extension hose and the drain hose of the product must be fitted well with an appropriate clamp as not to come off and leak.
-

5.5. Adjusting the feet

⚠	**WARNING:** In order to ensure that the product operates more silently and vibration-free, it must stand level and balanced on its feet. Balance the machine by adjusting the feet. Otherwise, the product may move from its place and cause crushing and vibration problems.

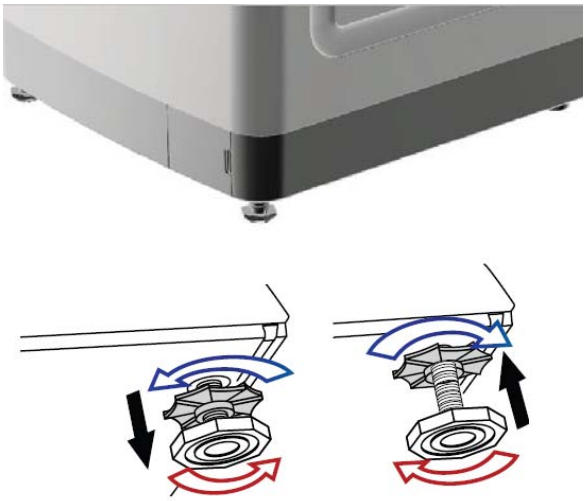


Figure 5.5

1. Loosen the lock nuts on the feet by hand.

Figure 5.6

2. Adjust the feet until the product stands level and balanced.

5.6. Electrical connection

Connect the product to a grounded outlet protected by over 6 A fuse. Our company will not be liable for any damages that will arise when the product is used without grounding in accordance with the local regulations.

- Connection must comply with national regulations.
- Power cable plug must be within easy reach after installation.
- If the current value of the fuse or breaker in the house is less than 6 Amps, have a qualified electrician install a 6 Amp fuse.
- The voltage specified in the "Technical specifications" section must be equal to your mains voltage.
- Do not make connections via extension cables or multi-plugs.

WARNING: Damaged power cables must be replaced by the Authorized Service Agents.

5.7. Transportation of the product

1. Unplug the product before transporting it.
2. Remove water drain and water supply connections.
3. Drain all water that has remained in the product.
4. Install transportation safety parts in the reverse order of removal procedure.

Never move the product without the transportation safety parts properly fixed in place!

WARNING: Packaging materials are dangerous to children. Keep packaging materials in a safe place away from reach of the children.

6. Use of Product and By-Products

6.1. Preparation

6.1.1. Sorting the laundry

- Sort laundry according to type of fabric, color, and degree of soiling and allowable water temperature.
- Always obey the instructions given on the garment tags.

LAUNDRY WASH SYMBOLS

WASH	Machine Wash Symbols	Normal wash	No Iron	Sensitive-Delicate wash	Hand wash	Not washable	No Spin	
	Water Temperatures	Maximum	95°C	70°C	60°C	50°C	40°C	30°C
		Symbol(s)	●●● ●●●	●●● ●●	●● ●●	●●●	●●	●
DRYING	Drying Symbols	Suitable for dryer	No Iron	Sensitive / Delicate dry	Do not dry with dryer	Do not dry	Do not dry-clean	
	Drying Settings	At any temperature	At high temperature	At medium temperature	At low temperature	Without heating	Hang to dry	Lay to dry
		Hang wet to dry	Lay in shadow to dry	Dry-cleanable				
IRON	Iron -		Iron at high temperature	Iron at medium temperature	Iron at low temperature	Do not iron	Iron without steam	
	Dry or Steam							
	Maximum temperature		200 °C	150 °C	110 °C			
BLEACH		All bleaches are allowed		Bleach (sodium hypochlorite) can be used	Bleach is not allowed	Only bleaches without chlorine are allowed		

Figure 6.1 Laundry Wash Symbols

6.1.2. Preparing laundry for washing

- Laundry items with metal attachments such as, underwired bras, belt buckles or metal buttons will damage the machine. Remove the metal pieces or wash the clothes by putting them in a laundry bag or pillow case.

Figure 6.2

- Take out all substances in the pockets such as coins, pens and paper clips, and turn pockets inside out and brush. Such objects may damage the product or cause noise problem.
- Put small size clothes such as infant's socks and nylon stockings in a laundry bag or pillow case.
- Place curtains in without compressing them. Remove curtain attachment items.
- Fasten zippers, sew loose buttons and mend rips and tears.
- Wash “machine washable” or “hand washable” labeled products only with an appropriate programme.
- Do not wash colors and whites together. New, dark colored cottons release a lot of dye. Wash them separately.
- Tough stains must be treated properly before washing. If unsure, check with a dry cleaner.
- Use only dyes/color changers and limescale removers suitable for machine wash. Always follow the instructions on the package.
- Wash trousers and delicate laundry turned inside out.
- Laundry that are subjected to materials such as flour, lime dust, milk powder, etc.
- intensely must be shaken off before placing into the machine. Such dusts and powders on the laundry may build up on the inner parts of the machine in time and can cause damage.

6.1.3. Things to be done for energy saving

- Following information will help you use the product in an ecological and energy-efficient manner.
- Operate the product in the highest capacity allowed by the programme you have selected, but do not overload; see, "Programme and consumption table".
- Always follow the instructions on the detergent packaging.
- Wash slightly soiled laundry at low temperatures.
- Uses shorten programme for small quantities of lightly soiled laundry.
- Do not add soaking step for laundry that is not heavily soiled or stained.
- If you plan to dry your laundry in a dryer, select the longest spin duration recommended during washing process.
- Do not use detergent in excess of the amount recommended on the detergent package.

6.1.4. Correct load capacity

The maximum load capacity depends on the type of laundry, the degree of soiling and the washing programme desired.

The machine automatically adjusts the amount of water in fuzzy programs according to the weight of the loaded laundry.

⚠	WARNING: Follow the information in the “Programme and consumption table”. When overloaded, machine's washing performance will drop. Moreover, noise and vibration problems may occur.

Laundry type	Weight (gr)
Bathrobe	1200
Napkin	100
Duvet cover	700
Bed Sheet	500
Pillowcase	200
Tablecloth	250
Towel	200
Hand towel	100
Evening gown	200
Underclothing	100
Men’s overalls	600
Men’s shirt	200
Men’s pajamas	500
Blouses	100

Figure 6.3 Laundry Weights

6.1.5. Loading the laundry

1. Open the loading door.
2. Place laundry items loosely into the machine.
3. Push the loading door to close. Ensure that no items are caught in the door.

	You can check the status while washing, but the machine will stop while you open the door in spin phase.
	WARNING: Machine will stop in urgent while spin, please don't open the door while spin, it will reduce your machine life time.
	WARNING: In case of misplacing the laundry, noise and vibration problems may occur in the machine.

6.1.6. Using detergent and softener

	When using detergent, softener, starch, fabric dye, bleach or limescale remover read the manufacturer's instructions on the package carefully and follows the suggested dosage values. Use measuring cup if available.

DETERGENT DRAWER TYPE1

The detergent drawer is composed of two compartments:
- (1) For laundry detergent
- (2) For softener
- (3) For bleach

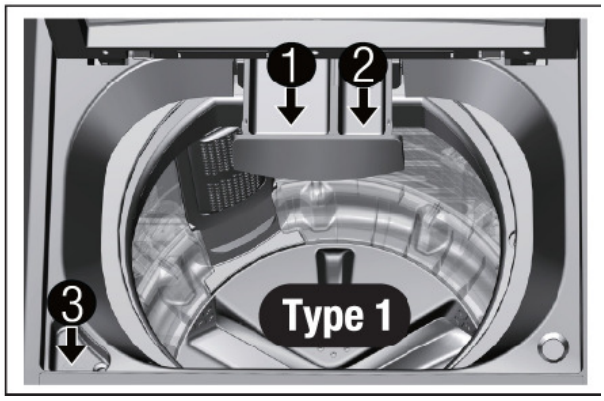


Figure 6.3 Detergent drawer compartments

DETERGENT DRAWER TYPE2

The detergent drawer is composed of one compartment:
- (1) For laundry detergent
- (2) For softener
- (3) For bleach

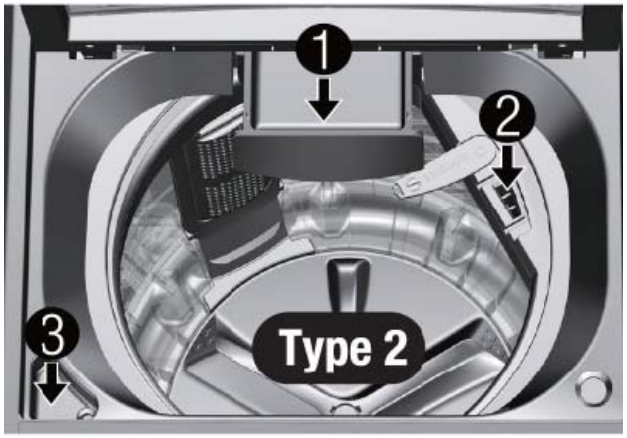


Figure 6.4 Detergent drawer compartments

DETERGENT DRAWER TYPE3

The detergent drawer is composed of one compartment:
- (1) Put detergent into drum directly
- (2) For softener
- (3) For bleach

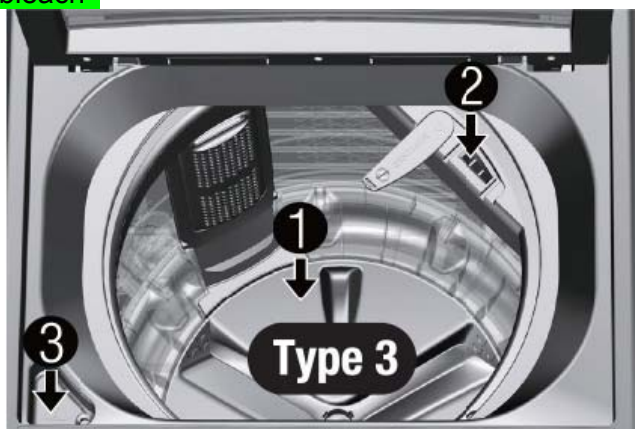


Figure 6.5 Detergent drawer compartments

DETERGENT, SOFTENER AND OTHER CLEANING AGENTS

- Add detergent and softener before starting the washing programme.
- Never leave the detergent drawer open while the washing programme is running!
- Do not select a programme with soaking if you are using a detergent bag or dispensing ball. Place the detergent bag or the dispensing ball directly among the laundry in the machine.
- If you are using liquid detergent, do not forget to place the liquid detergent cup into the main wash compartment.

CHOOSING THE DETERGENT TYPE

The type of detergent to be used depends on the type and colour of the fabric.

- Use different detergents for coloured and white laundry.
- Wash your delicate clothes only with special detergents (liquid detergent, wool shampoo, etc.) used solely for delicate clothes.

When washing dark coloured clothes and quilts, it is recommended to use liquid detergent.

⚠	WARNING: Use only detergents manufactured specifically for washing machines.
⚠	WARNING: Do not use soap powder.

ADJUSTING DETERGENT AMOUNT

The amount of washing detergent to be used depends on the amount of laundry, the degree of soiling and water hardness.

- Do not use amounts exceeding the dosage quantities recommended on the detergent package to avoid problems of excessive foam, poor rinsing, financial savings and finally, environmental protection.
- Use lesser detergent for small amounts or lightly soiled clothes.

USING SOFTENERS

Pour the softener into the softener compartment of the detergent drawer.

- Do not exceed the (>max<) level marking in the softener compartment.
- If the softener has lost its fluidity, dilute it with water before putting it in the detergent drawer.

USE OF LIQUID DETERGENT

If the product does not contain a liquid detergent cup:

- Liquid detergent stains your clothes when used with Delayed Start function. If you are going to use the Delayed Start function, do not use liquid detergent.

Using gel and tablet detergent

Apply the following instructions when using tablet, gel and similar detergents.

- If the gel detergent thickness is fluidal and your machine does not contain a special liquid detergent cup, put the gel detergent into the main wash detergent compartment during first water intake. If your machine contains a liquid detergent cup, fill the detergent into this cup before starting the programme.
- If the gel detergent thickness is not fluidal or in the shape of capsule liquid tablet, put it directly into the drum before washing.
- Put tablet detergents into the laundry detergent or directly into the drum before washing.

ⓘ	Tablet detergents may leave residues in the detergent compartment. If you encounter such a case, place the tablet detergent between the laundry, close to the lower part of the drum in future washings.

Using starch

- Add liquid starch, powder starch or the fabric dye into the softener compartment.
- Do not use softener and starch together in a washing cycle.
- Wipe the inside of the machine with a damp and clean cloth after using starch.

Using bleaches

- Select a programme with soaking and add the bleaching agent at the beginning of the soaking. Do not put detergent in the compartment. As an alternative application, select a programme with extra rinse and add the bleaching agent while the machine is taking water from the detergent compartment during first rinsing step.
- Do not use bleaching agent and detergent by mixing them.
- Use just a little amount (approx. 50 mi) of bleaching agent and rinse the clothes very well as it causes skin irritation. Do not pour the bleaching agent onto the clothes and do not use it for coloured clothes.
- When using oxygen based bleaches, select a programme that washes at without hot water selection.
- Oxygen based bleaches can be used together with detergents; however, if its thickness is not the same with the detergent, put the detergent first into the laundry detergent draw and wait until the detergent flows while the machine is taking in water. Add the bleaching agent from the same compartment while the machine is still taking in water.

Using limescale remover

- • When required, use limescale removers manufactured specifically for washing machines only.

6.1.7 First use

- Before starting to use the product, make sure that all preparations are made in accordance with the instructions in sections "Important safety instructions" and "Installation".
- To prepare the product for washing laundry, perform first operation in Drum Cleaning programme. If your machine does not have a Drum Cleaning programme, To prepare the product for washing laundry, perform the Initial Use procedure in accordance with the methods described under "7.2 Cleaning the loading door and the drum" section.

	Use an anti-limescale suitable for the washing machines.
	Some water might have remained in the product due to the quality control processes in the production. It is not harmful for the product.

4.1.8. Tips for efficient washing

	Light colour and whites	Colors	Dark colour	Delicate/Woolens/Silks
Heavily Soiled (difficult stains such as grass, coffee, fruits and blood.)	(Recommended temperature range based on soiling level: warm and hot)	(Recommended temperature range based on soiling level: cold/warm)	(Recommended temperature range based on soiling level: cold/warm)	(Recommended temperature range based on soiling level: cold/warm)
	It may be necessary to pre-treat the stains or perform soaking. Powder and liquid detergents recommended for whites can be used at dosages recommended for heavily soiled clothes. It is recommended to use powder detergents to clean clay and soil stains and the stains that are sensitive to bleaches.	Powder and liquid detergents recommended for colour can be used at dosages recommended for heavily soiled clothes. It is recommended to use powder detergents to clean clay and soil stains and the stains that are sensitive to bleaches. Use detergents without bleach.	Liquid detergents suitable for colour and dark colour can be used at dosages recommended for heavily soiled clothes.	Prefer liquid detergents produced for delicate clothes. Woolen and silk clothes must be washed with special woolen detergents.
Normally Soiled (For example, stains caused by body on collars and cuffs)	Powder and liquid detergents recommended for whites can be used at dosages recommended for normally soiled clothes.	Powder and liquid detergents recommended for colour can be used at dosages recommended for normally soiled clothes. Use detergents without bleach.	Liquid detergents suitable for colour and dark colour can be used at dosages recommended for normally soiled clothes.	Prefer liquid detergents produced for delicate clothes. Woolen and silk clothes must be washed with special woolen detergents.
Lightly Soiled (No visible stains exist.)	Powder and liquid detergents recommended for whites can be used at dosages recommended for lightly soiled clothes.	Powder and liquid detergents recommended for colour can be used at dosages recommended for lightly soiled clothes. Use detergents without bleach.	Liquid detergents suitable for colour and dark colour can be used at dosages recommended for lightly soiled clothes.	Prefer liquid detergents produced for delicate clothes. Woolen and silk clothes must be washed with special woolen detergents.

Table 6.1 Tips for efficient washing

6.2. Control panel

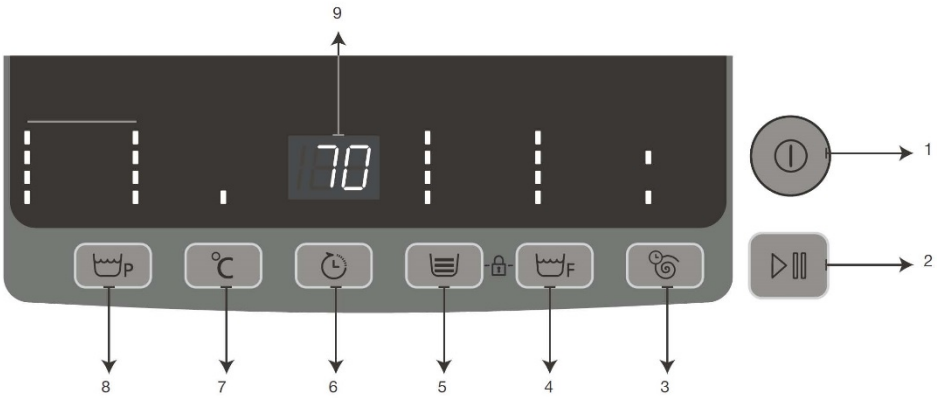


Figure 6.6 Control Panel

1 -On / Off button
2 -Start / Pause button
3 -Air Turbo button
4 -Auxiliary Function button
5 -Water Level button
6 -Delayed Start Time button
7 -Water Supply button
8 -Function button / Programme select
9 -Remaining Time / Delay Start Time / Error Display

6.3. Preparing the machine

1. Make sure that the hoses are connected tightly.
2. Plug in your machine.
3. Turn the tap on completely.
4. Place the laundry in the machine.
5. Add detergent and fabric softener.

6.4. Programme selection

1.Select the programme suitable for the type, quantity and soiling level of the laundry in accordance with the "Programme and consumption table".

2. Select the desired programme with the **Programme Selection** button.

	When selecting a programme, always consider the type of fabric, colour, and degree of soiling and permissible water temperature.
	Always select the lowest required water intake. Higher temperature means higher power consumption.
	For further programme details, see “Programme and consumption table”

6.5. Main programmes

Depending on the type of fabric, use the following main programmes.

• Blanket

This programme is suitable for washing bulky laundry items such as blankets and bed sheets. Fold bulky items in a suitable manner before placing them in the washing machine. Do not overload. (Max 1I2 of full capacity).

• Eco

This programme is suitable for washing a lesser amount of lightly daily soiled laundry in a short time using minimum amount of water. (Max 1I3 of full capacity).

• Tub Clean

Use this programme on a regular basis (e.g. once in a month) to sanitize and clean your machine and to prevent unwanted odours. Do not place any items or laundry in the machine when you use this programme, it must be operated when the washer is empty otherwise laundry or washer might be damaged. You can add a special purpose detergent suitable for cleaning machines. High water and 3 min air turbo options are set automatically in this wash course.

•Wool

Use this programme for washing machine washable delicate (cotton, blended and wool) items such as sweaters, jumpers and cardigans. Hot water and soaking options can not be selected in this wash course. It is recommended to use special purpose detergents suitable for washing delicate laundry. Loading recommendation: max 1/3 of the full capacity.

•Standard

This programme is suitable for washing up to a full capacity of normally soiled durable cotton and blended clothes.

•Light

This programme is suitable for washing up to a full capacity of lightly/daily soiled durable cotton and blended clothes.

•Heavy

This programme is suitable for washing up to a full capacity of heavily soiled durable cotton and blended clothes. Soaking and hot water functions are set automatically in this wash course.

.

• Fuzzy

Use this programme to wash your frequently washable cotton, synthetic or blended (cotton synthetic) clothes. Programme detects the quantity of the laundry to automatically adjust water consumption and programme time.

* Knitted clothes can easily shrink or stretch, crooked or pilled due to their elastic fabrics. Deformations on knitted fabrics are related with the quality of the cloth, and do not arise from washing programmes (Fuzzy or other washing programmes). Use "Sportswear" washing programme for knitted clothes.

6.6. Special programmes

For specific applications, select any of the following programmes.

•Soaking

Select this function if you like to wash your laundry by soaking. Soaking is recommended for heavily soiled laundry items. You can add your normal amount of detergent and start the wash programme by selecting this function. Soaking is not selectable in Eco, Fuzzy, Tub clean and Wool programmes.

•Rinse

Use this programme when you want to rinse or starch separately.

•Spin

Use this programme to apply an additional spin cycle for your laundry or to drain the water in the machine.

6.7. Water Supply Button (Depends on model)

Each time this button is pressed, the water temperature is selected as follows: Cold/Hot/ Warm
Cold: No light Warm: Red light Hot: Flashing red light.

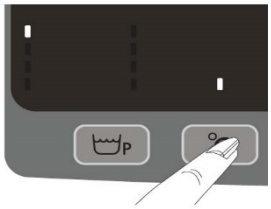


Figure 6.7 Temperature selection

Press the **Water Supply** button to select the water supply.

	Water Supply button may unavailable for some programmer such as Wool, Tub clean.

6.8. Air Turbo Button

Use for speed up dry laundry. It only can be selected while the spin phrase is included.

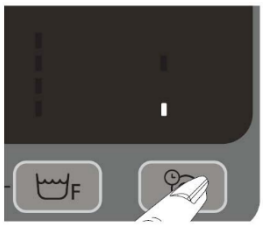
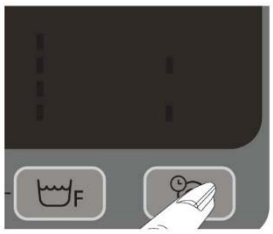


Figure 6.8 Air Turbo selections

You can select the spin time before press Start/Pause button.
You can change your mind before final spin while machine started running from press Start/Pause button. You just need to press Start/Pause button again back to work after you finished setting.

If you are not going to unload your laundry immediately after the programme completes, you can deselect any spin function in order to prevent them from getting wrinkled when there is spin.

This function pumps the water in the machine and then holding there.



6.9. Water level selection

Whenever a new programme is selected, the water level is automatically adjusted. The water level can still be selected manually by pressing this button. Displays selected programmes default water level: Eco I Low I Medium I High.

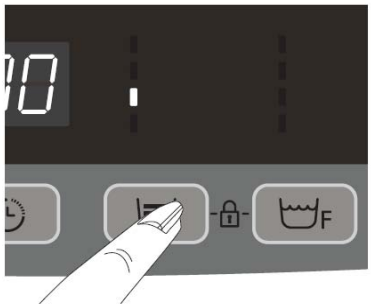


Figure 6.9 Water Level selections

6.10. Programme and consumption table

EN			Auxiliary functions								
Program	Max. Load (kg)	Water level	Functions						Air turbo		Duration (Mins)
			S/W/R/S	W/R/S	S	R/S	WR	W	3Mins	6Mins	
Blanket	6	High	●	●	●	●	●	●	●	●	45
Blanket	6	Middle	●	●	●	●	●	●	●	●	45
Blanket	3	Few	●	●	●	●	●	●	●	●	45
Blanket	3	Low	●	●	●	●	●	●	●	●	45
Energy Pro	2	Few		●	●	●	●	●	●	●	27
Energy Pro	2	Low		●	●	●	●	●	●	●	27
Fuzzy	6	Middle		●			●	●	●	●	--
Heavy	6	High	●	●	●	●	●	●	●	●	74
Heavy	6	Middle	●	●	●	●	●	●	●	●	74
Heavy	3	Few	●	●	●	●	●	●	●	●	74
Heavy	3	Low	●	●	●	●	●	●	●	●	74
Light	3	High	●	●	●	●	●	●	●	●	38
Light	3	Middle	●	●	●	●	●	●	●	●	46
Light	3	Few	●	●	●	●	●	●	●	●	38
Light	3	Low	●	●	●	●	●	●	●	●	38
Standard	6	High	●	●	●	●	●	●	●	●	43
Standard	6	Middle	●	●	●	●	●	●	●	●	43
Standard**	3	Few	●	●	●	●	●	●	●	●	43
Standard*	3	Low	●	●	●	●	●	●	●	●	43
Tub Clean	--	High						o	●	●	42
Wool	3	High		●			●	●	●	●	27
Wool	3	Middle		●			●	●	●	●	27
Wool	3	Few		●			●	●	●	●	27
Wool	3	Low		●			●	●	●	●	27

• : Selectable
o : Automatically selected, no canceling.
*** : Energy Label programme for half load(EN 60456 Ed.3)**
**** : Energy Label programme for full load (EN 60456 Ed.3)**

Table 6.2 Programme and consumption table

The auxiliary functions in the table may vary according to the model of your machine.

Water and power consumption may vary subject to the changes in water pressure, water hardness and temperature, ambient temperature, type and amount of laundry, selection of auxiliary functions and spin time, and changes in electric voltage.

You can see the washing time of the programme you have selected on the display of the machine. It is normal that small differences may occur between the time shown on the display and the real washing time.

6.11. Time display

Remaining time for the completion of the programme while it is running is displayed as ":32" in hours and minutes format.

ⓘ	Programme time may differ from the values in the "Programme and consumption table" depending on the water pressure, amount and the type of laundry, auxiliary functions selected and the changes at the mains voltage.

6.12. Delay

With the **Delay** function, the startup of the programme may be delayed up to 18 hours. After pressing **Delay** button, the programme's estimated delaying time is displayed. If the **Delay** time is adjusted, **Delay Time** indicator is illuminated. "**Delay Setting**" appears on the display.

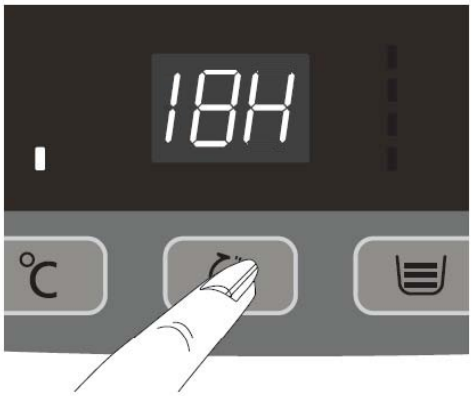


Figure 6.10 Delay

In order for the delay Time function is activated and the programme is started at the end of the specified time, you must press **Start/Pause** button after adjusting the time. "Delay Enabled" appears on the display when you press the button. remains illuminated continuously.

6.13. Starting the programme

1. Press **Start/Pause** button to start the programme.
2. The **LEDs** of function which was flashing starts to illuminate steadily now, indicating that the programme has started.

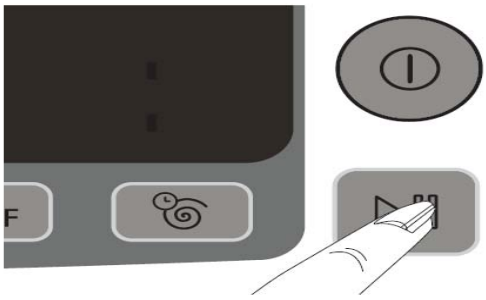


Figure 6.11 Stand-by

6.14. Changing the selections after programme has started

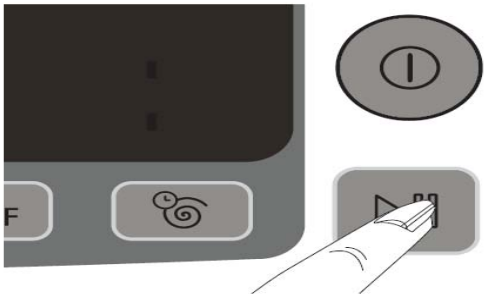
Adding laundry after the programme has started:

You can add laundry directly if the water level in the machine is suitable. Opening door directly while the machine is work out of spin phase.

If the water level in the machine is not suitable while you opened the door. Press Start/Pause button to pause the machine and then adjust the water level according to your request. Then press Start/Pause button again after you finished water level adjustment.

Switching the machine to pause mode:

Press the **Start/Pause** button to switch the machine to pause mode. The LED in function column will stop flashing.



Changing the auxiliary function, speed and temperature

Depending on the step the programme has reached, you can cancel or activate the auxiliary functions; see, "Auxiliary function selection".

You can also change the temperature settings; see "Temperature selection".

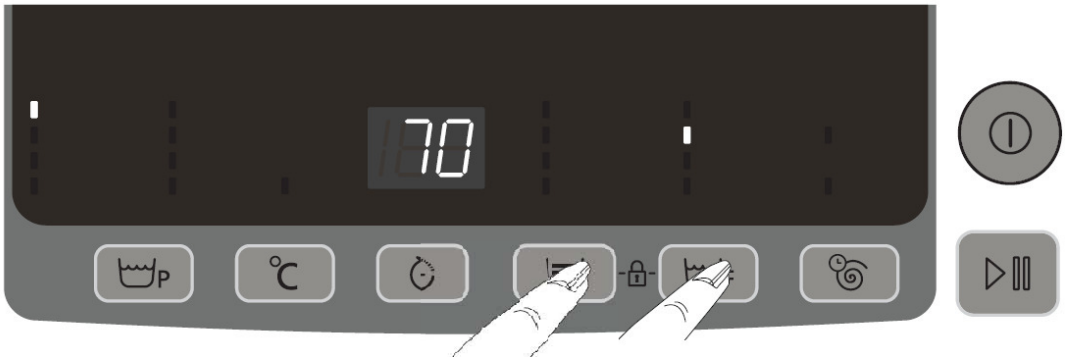
6.15. Child Lock

Use Child Lock function to prevent children from tampering with the machine. Thus you can avoid any changes in a running programme.

	You can switch on and off the machine with **On/Off** button when the Child Lock is active. When you switch on the machine again, programme will start with default setting.
	If the buttons are pressed while the child lock is active, it gives audio warning.

To activate the Child Lock:

Press the “Water level" button and "'Function" button at the same time for 3 seconds after machine started running. While the child lock function be activated, "'CL" will appear in the display for 3 seconds.



To deactivate the Child-Lock:

Press both the "water level" and "Function" buttons at the same time to deactivate.

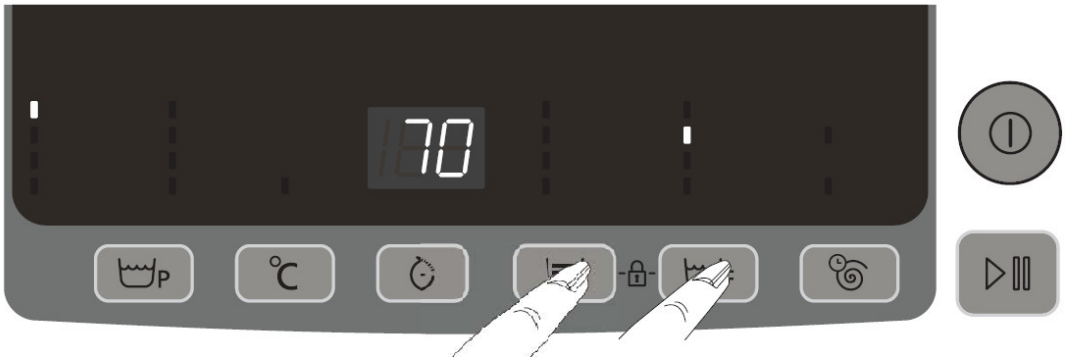


Figure 6.12 Child Lock

6.16. End of programme

":00" appears on the display when the programme is completed.

If you do not press any button for 10 minutes, the machine will switch to off mode. Display and all indicators are turned off.

6.17. Favorite program setting

You can create a favorite programme by saving frequently used programme and other settings. Use this function when you want to select quickly the same settings you use for the laundry that you wash regularly.

Favorite programme will remain at the factory set programme until you make a new favorite programme setting.

To store a new favorite programme:

1. Select the desired programme, temperature; water level, function and Air-turbo.
2. Press 5th and 6th buttons together for 3 seconds.
3. Program LED will flashing showing your setting are storing.

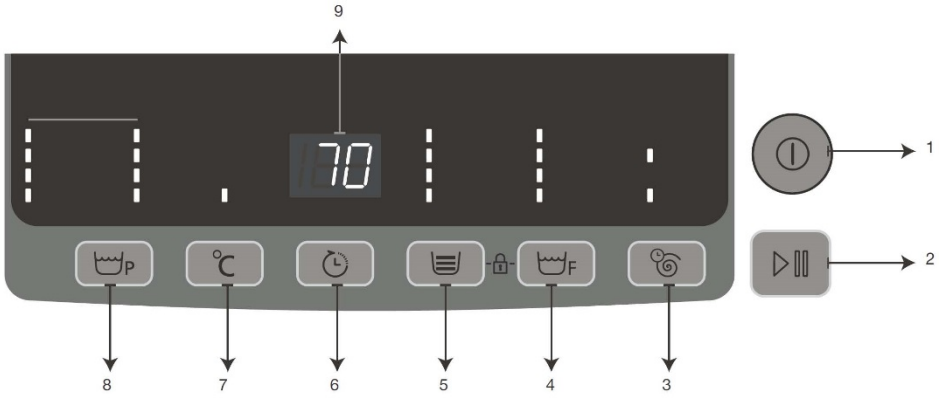


Figure 6.13 Storing Favorite

To select a favorite programme:

1. Press **Program** button till to select this program.
2. Programme and other settings saved as favorite appear.
3. Press **Start/Pause** button to start the Favorite programme.

7. Maintenance and cleaning

Service life of the product extends and frequently faced problems decrease if cleaned at regular intervals.

7.1. Cleaning the detergent drawer

Clean the detergent drawer at regular intervals (every 4-5 washing cycles) as shown below in order to prevent accumulation of powder detergent in time.

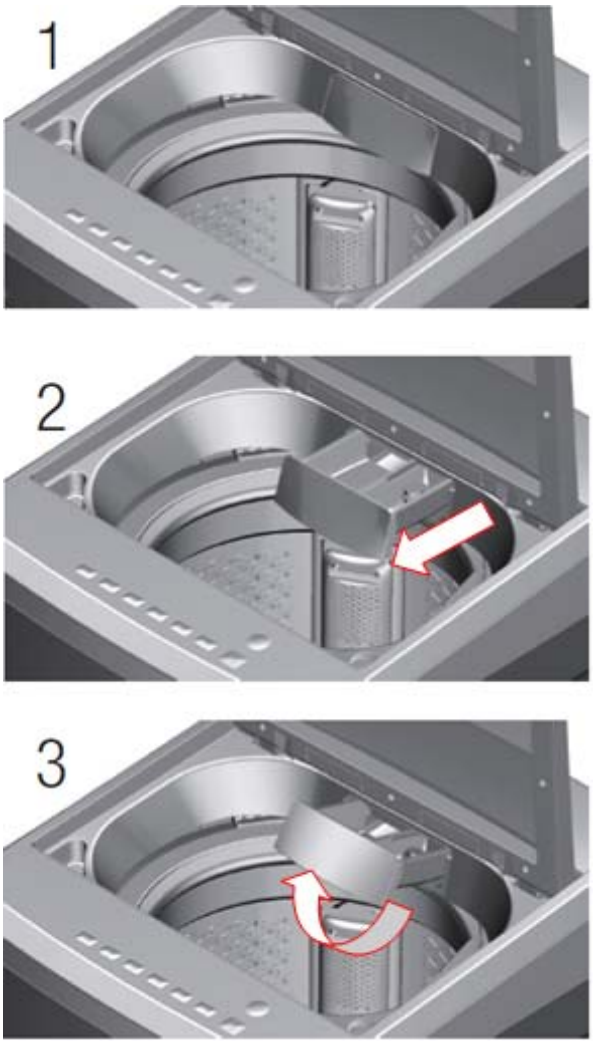


Figure 7.1 Clean the detergent drawer

1. Detergent drawer is closed.
2. Pulling detergent drawer to the front side.
3. Turning detergent drawer to upper side and taking drawer out.

Insert the drawer back into its place after cleaning and make sure that it is seated well.

7.2. Cleaning the fluff filter

Clean the fluff filter at regular intervals (every 4-5 washing cycles)

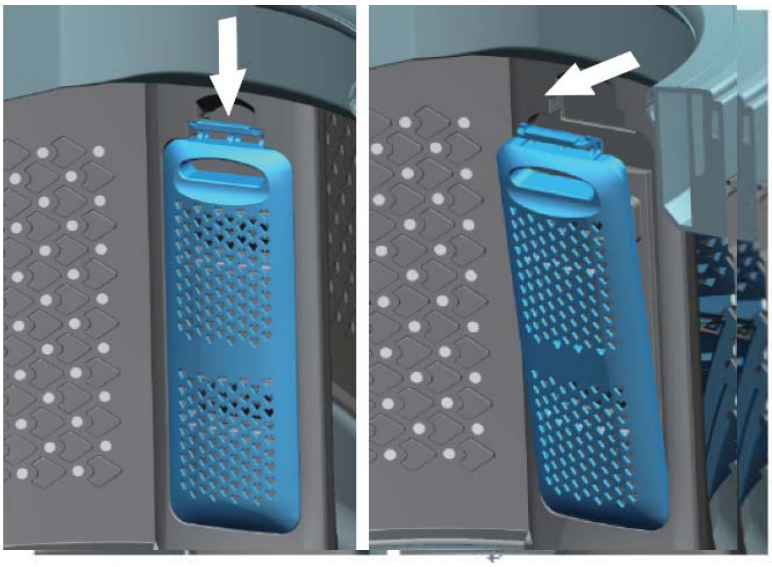


Figure 7.2 Clean the Fluff Filter-1

Figure 7.3 Clean the Fluff Filter-2

1. Press the rib and take the fluff group out of the drum.
2. Put the filter bag out of the fluff group and clean the bags.
3. Insert the bag into its place after cleaning and make sure that it is seated well.

7.3. Cleaning the body and control panel

Wipe the body of the machine with soapy water or non-corrosive mild gel detergents as necessary, and dry with a soft cloth.

Use only a soft and damp cloth to clean the control panel.

7.4. Cleaning the water intake filters

There is a filter at the end of each water intake valve at the rear of the machine and also at the end of each water intake hose where they are connected to the tap. These filters prevent foreign substances and dirt in the water to enter the washing machine. Filters should be cleaned as they do get dirty.

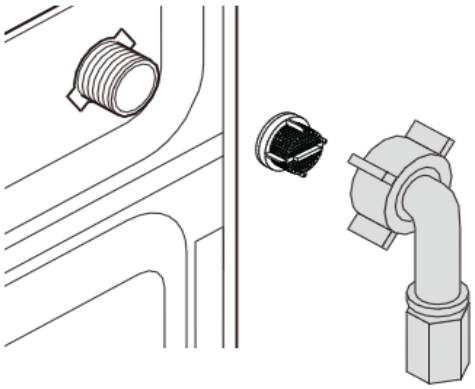


Figure 7.4

1. Close the taps.
2. Remove the nuts of the water intake hoses to access the filters on the water intake valves. Clean them with an appropriate brush. If the filters are too dirty, take them out by means of pliers and clean them.
3. Take out the filters on the flat ends of the water intake hoses together with the gaskets and clean thoroughly under running water.
4. Replace the gaskets and filters carefully in their places and tighten the hose nuts by hand.

7.5. Draining remaining water and cleaning the pump filter

The filter system in your machine prevents solid items such as buttons, coins and fabric fibers clogging the pump impeller during discharge of washing water. Thus, the water will be discharged without any problem and the service life of the pump will extend.

If the machine fails to drain water, the pump filter is clogged. Filter must be cleaned whenever it is clogged or in every 3 months. Water must be drained off first to clean the pump filter.

In addition, prior to transporting the machine (e.g., when moving to another house) and in case of freezing of the water, water may have to be drained completely.

⚠	WARNING: Foreign substances left in the pump filter may damage your machine or may cause noise problem.
⚠	WARNING: For all kinds of freezing possibility in the region where the product is located, if it is not in use, the valve should be closed and the mains hose should be removed and the water in the machine should be drained.
⚠	WARNING: After each use, close the valve to which the mains hose of the product is connected.

In order to clean the dirty filter and discharge the water:

1. Unplug the machine to cut off the supply power.

⚠	WARNING: Temperature of the water inside the machine may rise up to 90 °C. To avoid burning risk, filter must be cleaned after the water in the machine cools down.

2. Open the filter cover.

Press the tab on the filter cap leftwards and pull the piece out towards yourself.

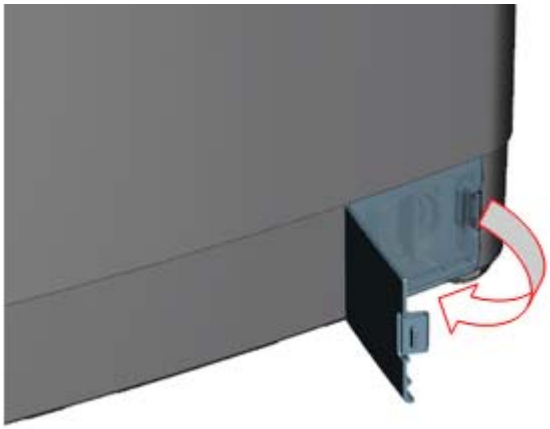


Figure 7.5 Filter cleaning -1

ⓘ	You can remove the filter cover by slightly pushing leftwards with a thin plastic tipped tool, through the gap above the filter cover. Do not use metal tipped tools to remove the cover.

3. Discharging the water follow the steps below to discharge the water.

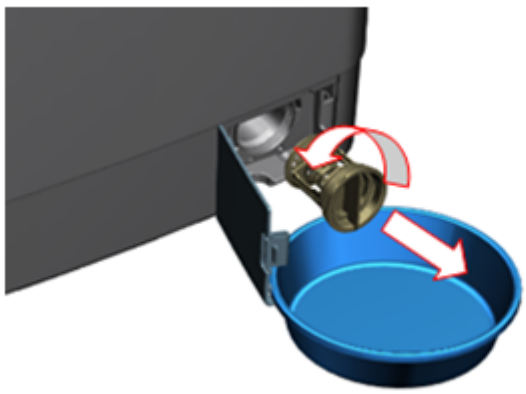


Figure 7.6 Filter cleaning - 2

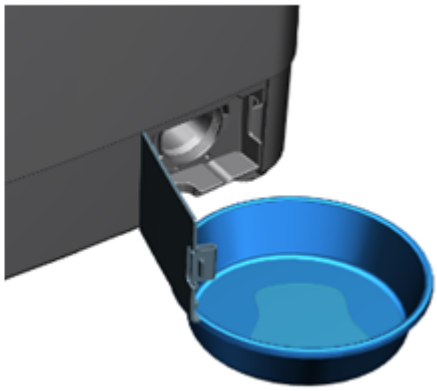


Figure 7.7 Filter cleaning - 3

a. Place a large container in front of the filter to catch water from the filter.

b. Loosen pump filter (anticlockwise) until water starts to flow. Fill the flowing water into the container you have placed in front of the filter. Always keep a piece of cloth handy to absorb any spilled water.

c. When the water inside the machine is finished, take out the filter completely by turning it.

4. Clean any residues inside the filter as well as fibers, if any, around the pump impeller region.

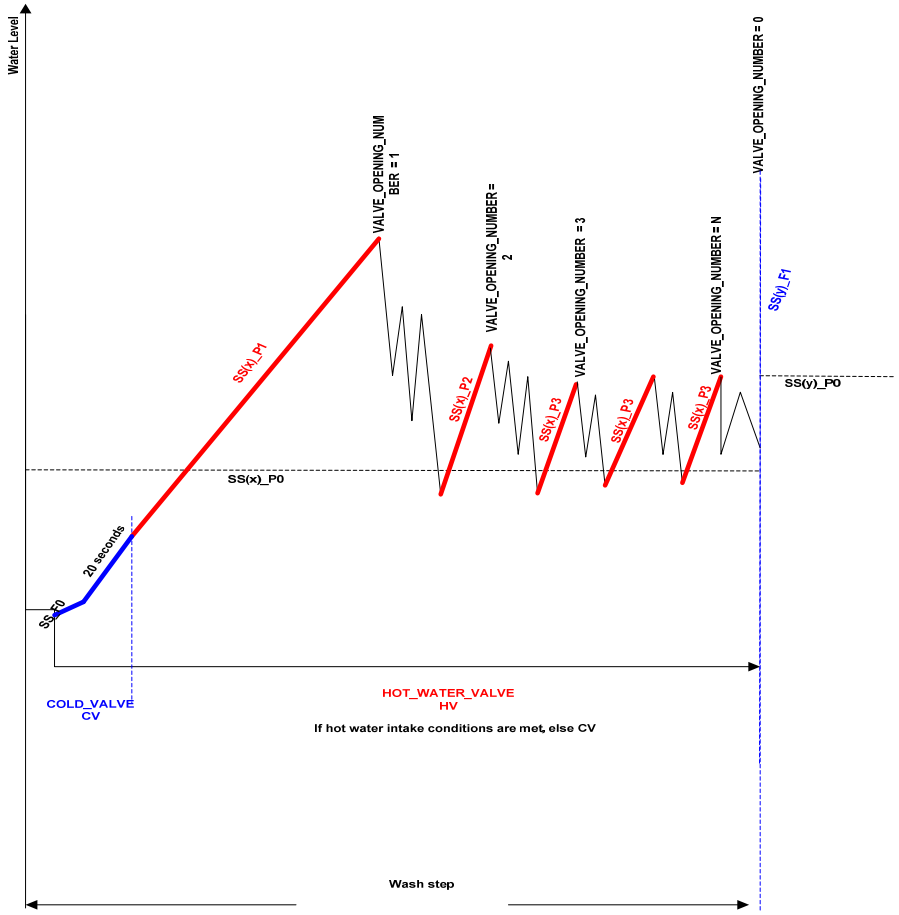
5. Install the filter.

⚠ WARNING: If your product has a water jet feature, be sure to fit the filter into its housing in the pump. Never force the filter while installing it into its housing. Seat the filter into its place completely. Otherwise, water may leak from the filter cap.

8. General Operation Principle

8.1. Water Intake Profile

RETRO WATER INTAKE ALGORITHM – Graphical Representation



NOTE:
Hot water intake is defined only for Hot Water is choosen by the user
For all programmes, the value for N is collected from variable file.

8.2. Balanced-Unbalanced Load Detection Algorithm

In the classis unbalanced load algorithm, only the unbalanced load in the machine is measured and the decision to perform spin or not is taken according to this result.

Error risk is high in the results of the unbalance measurement results which occurred in the load which is distributed to the inside of the machine in a balanced manner.

The detection get from the signal of safety switch on off time.

Machine will consider it get unbalance while the safety switches off time between 40ms to 200ms.

For example,

- While the machine detected the safety switch off time over than 40 ms, and it will waiting till to close time. If the duration of off time between 40 ms to 200 ms. The machine will increase the unbalance detection count till to the count >=2.
- While the machine detected unbalance, machine will shift to the nearest rinse step.

The machine will get E3 error while it still get unbalance after two times tried.

How to eliminate E3 error?

If there are real big unbalance in side of your machine, to prevent your been damaged. You need to open the door to balance the load. Then close the lip. Machine will continue running from stopped step.

Programme Steps	Standard	Blanket	Energy Pro	Fuzzy	Heavy	Jeans	Light	Normal Standard	Tub Clean	Wool
Level Check	√	√	√	√	√	√	√	√	√	√
Drain	√	√	√	√	√	√	√	√	√	√
Soaking	√	√	√	√	√	√	√	√	√	√
Soaking	√	√	√	√	√	√	√	√	√	√
Soaking	√	√	√	√	√	√	√	√	√	√
Soaking	√	√	√	√	√	√	√	√	√	√
Soaking	√	√	√	√	√	√	√	√	√	√
Soaking	√	√	√	√	√	√	√	√	√	√
Fill + Wash	√	√	√	√	√	√	√	√	√	√
Loosening	√	√	√	√	√	√	√	√	√	√
Drain	√	√	√	√	√	√	√	√	√	√
Spin Start	√	√	√	√	√	√	√	√	√	√
Int. Spin	√	√	√	√	√	√	√	√	√	√
Deceleration time	√	√	√	√	√	√	√	√	√	√
Rinse 1	√	√	√	√	√	√	√	√	√	√
Loosening	√	√	√	√	√	√	√	√	√	√
Drain	√	√	√	√	√	√	√	√	√	√
Spin Start	√	√	√	√	√	√	√	√	√	√
Int. Spin	√	√	√	√	√	√	√	√	√	√
Deceleration time	√	√	√	√	√	√	√	√	√	√
Rinse 2	☒	☒	☒	√	☒	√	☒	☒	☒	☒
Loosening	☒	☒	☒	√	☒	√	☒	☒	☒	☒
Drain	☒	☒	☒	√	☒	√	☒	☒	☒	☒
Spin Start	☒	☒	☒	√	☒	√	☒	☒	☒	☒
Int. Spin	☒	☒	☒	√	☒	√	☒	☒	☒	☒
Deceleration time	√	√	√	√	√	√	√	√	√	√
Rinse 3	√	√	√	√	√	√	√	√	√	√
Loosening	√	√	√	√	√	√	√	√	√	√
Drain	√	√	√	√	√	√	√	√	√	√
Spin Start	√	√	√	√	√	√	√	√	√	√
Final Spin	√	√	√	√	√	√	√	√	√	√
Deceleration time	√	√	√	√	√	√	√	√	√	√
END	√	√	√	√	√	√	√	√	√	√

Table 8.1

9. Component Operation Principles
9.1. Electronic Card Group

Picture 9.1 Electronic card group

Electronic card group is composed of main board, card holder parts.

There are tack switch used for program selection the main board.

Wash programs, wash and spin engine profiles which are written on the microprocessor built onto the main board and components (motor, pump, valves, safety switch, pressure sensor, spin time /temperature selection) are controlled

9.2. Water inlet Valve

It is used to take water inside the machine at the desired amounts when necessary.

Picture 9.2 Water Intake valve

Operating Voltage	: 220 / 240VAC 50-60 Hz
Rated Power	: 5-8 W
Flow (V1)	: 15.5 l/min
Flow (V2)	: 5 l/min
Operating Temperatures	: T85°C
Coil Resistance	: 3375 - 4125Ω

- 2-valve for the models with single water inlet and softener.

Valves are related with the triacs which are located on the electronic card.
Both valves are released at the same time in the softener. Water is come into softener compartment of the detergent box.

9.3. Single inlet Valve

It provides water to the steam generator for steam application.

Picture 9.3 Single inlet valve

Operating Voltage	: 220 / 240VAC 50-60 Hz
Rated Power	: 5-8 W
Flow (V1)	: 15.5 l/min
Operating Temperatures	: T85°C
Coil Resistance	: 3375 - 4125Ω

9.4. Water Level Sensor

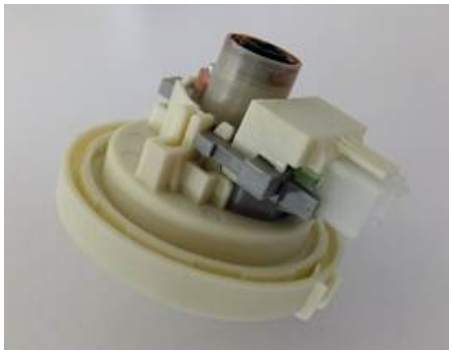
An analog water level sensor which is fed by 5V power is used. This sensor ensures that the water level is determined instantly with the frequency values it generates against the pressure created. There are frequency values corresponding to these pressure values. An infinite number of levels can be determined in the analog water level sensor. Water levels may vary depending on the selected program, temperature and the auxiliary functions and the wash criteria of the designed program.

Analog water level sensors are pressure-displacement converter elements in the broadest sense.

Analog water level sensors generate frequency modulation as output.

They are basically composed of 2 capacitors, 1 coil and a converter circuit located on the sensor itself or on the control system it is connected to.
Pressure increment pushes a ferrite piece in the sensor to the inside of the coil. Therefore L (inductance) value of the coil winding changes and the output value of the sensor – converter circuit system changes. Therefore the pressure can be measured in an analog way.

The task of the water level sensor is to perform the basic controls such as deciding to take water again, controlling the safety level. Moreover, if there is an error with the connections, water is taken with the water level sensor.



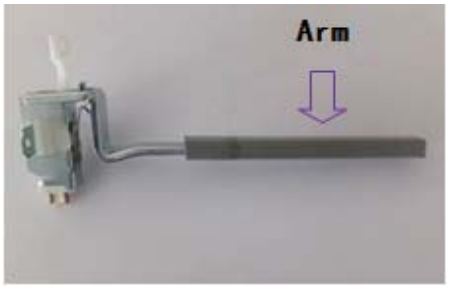
Cable input : 5VDC / Data / GND.
Operating Voltage : 5VDC

25.5+0. 3/-0.0 KHz should be read from the Data and GND terminals as a frequency when it is idle.

Picture 9.4 Water Level Sensor

9.5. Safety Switch

Safety switch is use for detecting door status while machine running and using for detecting unbalance while spin phase.
The mechanical structure including two pins, these two pins should be conductive while door closed and they should be open while door open.
Those two pins can be opened while door closed from press the arm, it's use for detect the unbalance from the opening time during the tub heating the safety switch.



Cable input : 5VDC / Data / GND.
Operating Voltage : 5VDC

25.5+0. 3/-0.0 KHz should be read from the Data and GND terminals as a frequency when it is idle.

Picture 9.5 Safety Switch

9.6. Motor

Picture 9.6 Motor

Operating Voltage : 220V - 50Hz
Rated Power : 300W
Rated Speed : 1350±50rpm
Matching Capacitor : 11uF

Motor controlled by main board according to procedure fixed in microcontroller.

Induction motor is used. Stator of the motor is composed of magnets in the rotor. The stator windings are energized by main board.

Thermostat is used for the protection of the engine from overheating in abnormal conditions (such as rotor's permanently being locked).

9.7. Capacitor

Operating Voltage : 450VAC
Capacity : 11uF±5%
Safety Class : P2

Picture 9.7 Capacitor
Capacitor is use for motor starting and running.
It's a P2 class capacitor, the cover will disconnect with main capacitor while it's working under abnormal voltage.

9.8. Drain Pump

In the draining stage, it is released by a triac which is mounted onto the electronic card. It is impedance-protected against the situations when it operates uninterruptedly and the rotor is blocked.

The draining pump discharges the water in the drum.

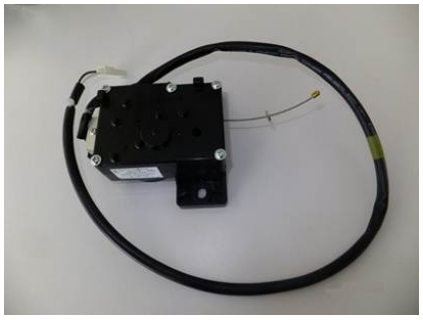
Rated Voltage	: 220-240 V 50Hz
Resistance	: 223 ohm
Current	:< 0.3A
Flow	:> 15 l/min
Start performance	:< =4s (170V)

Picture 9.8 Drain Pump

9.9. Traction Motor

Traction motor is use for draining stage.

It is released by a triac which is mounted onto the electronic card. It is impedance-protected against the situations when it operates uninterruptedly.



Rated Voltage	220-240 V 50Hz
Resistance	5600-6240 ohm
Current	<0.2A

Picture 9.9Traction Motor

The traction motor change the drum spins speed from dragging the operating rod of clutch. It's start to work in draining phase, and holding the operating arm of clutch while spin phase.

It's use for dragging the drain valve of non-pump machines.

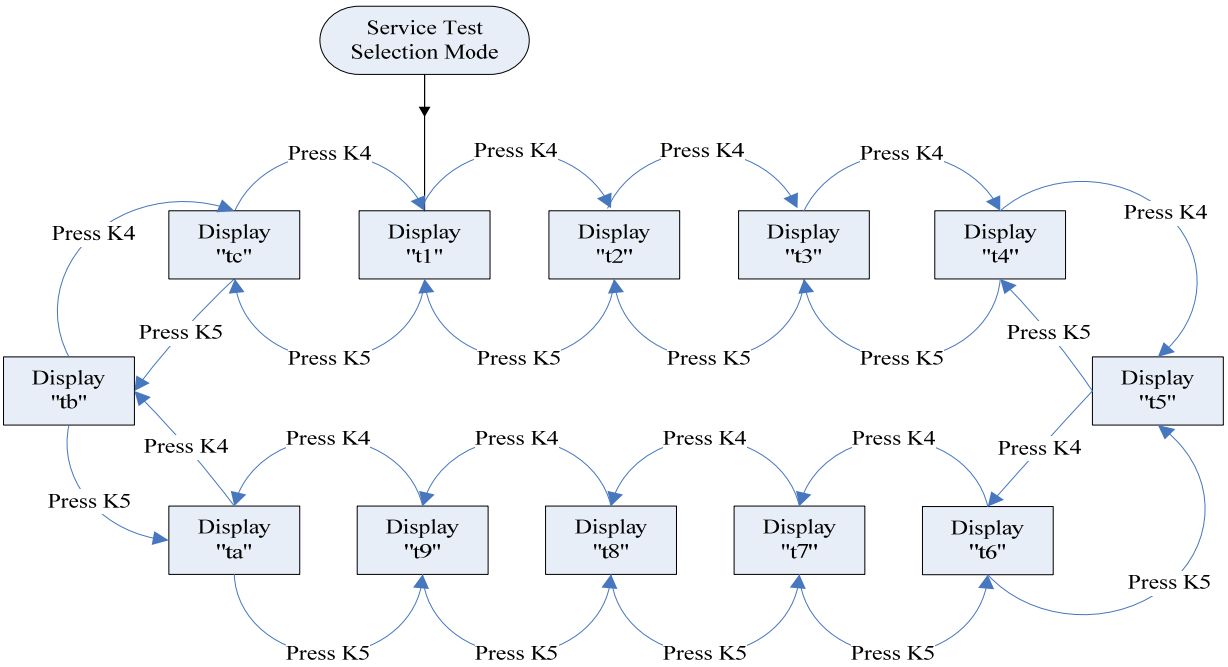
10. Service Function Test

Enter service mode: pressing and holding K8 and K6 buttons for 3 sec.

Key	Description
K8	Program
K7	Temperature
K6	Delay
K5	Water Level
K4	Function
K3	Spin Time (Air turbo)
K2	Start/Pause
K1	Power on/off

Service mode shall be able to run each component (or subsystem) at a time to test the subsystem without taking apart the system. In addition to that, the controller shall provide diagnostic codes using the 7-segment display; each test item should be operated when door is closed.

Upon entering the test selection mode, Control will display the first test number (t1). Pressing K4 will increase the test number in the 7segments, while pressing K5 will decrease the test number, current numbers is from t1 to tc. The following sequence shows one example for the progression:



The test number shall be selected for the first time to press [Start/Pause]. The selected test shall be started for the second time to press [Start/Pause]. Be back to the test selection mode for the third time to press [Start/Pause].

Upon exiting the service mode, the control will turn off all loads, pump for 30 seconds, and enter consumer mode.

During service mode, no flood or unsafe condition shall be allowed.

10.1 Reconfiguration of UI model (t1)

This is distributing the different modes with digital number (01-02-03…) on the display, this feature is just for future project, current project don't have model configure.

On entry, the control shall display "UI".
Press [Start] key, the control will show current UI model. Default model is 01 before shipping out from control manufactory.

Press [K4] key to select desired model number which is shown on the 7 segment display. Now control just has 01 and 02 UI model, once the last number is reached, the next available number shall be back to first available number.

10.2 Display Error Codes Test (t2)

The display error codes test allows the service technician to examine and clear the fault log.
On entry, the control shall display "Er".

Press [Start] key, Er code shall be displayed on the 7-segment display.
Press [Start] key again,the control shall display the most recent error in the fault log upon entry into the display error codes test. If there are no errors in the fault log, the "No Error" code shall be displayed on the 7-segment display.

Press the key "K4" to display the next fault log until the bottom fault log and press the key "K4" to display the previous fault log until the top fault log.

The control shall log the last 10 error codes in the non-volatile memory stored in a circular list.
The control shall avoid logging multiple instances of the same error code.

The error code shall be displayed on the 7-segment display as "EX", where "X" is the code number given in TABLE 9.

Press the key "start/pause" will be back to display t2.
E0 indicates the "No Error" code.

10.3 Software Version Number Test (t3)

The software version number test displays the software version number and the non-volatile memory version number. This test is used to find the software version of the main control, the EEPROM version of the main control and inverter code version. It should show EEPROM version unless there have an EEPROM.

Press [Start] key,, the control shall display "St".

Press [Start] key again, the control will display 'Pr" (i.e. Software code version) will be displayed for one second, and then a 2.5 digit code version will be displayed for 2 sec. This display will alternate between the two displays.

Retro project number is 10; display will show those two numbers.

Once the key "K4" is pressed, the control will display 'Co" (i.e. Software code version) will be displayed for one second, and then a 2.5 digit code version will be displayed for 2 sec. This display will alternate between the two displays.

For Pre-production or test version code the first digit will contain an alpha-character.
For production code the numbering will start at 10 and move up from there.

Once the key “K4” is pressed, the control will display “EE” (i.e. EEPROM Version) will be displayed for one second, then a 2.5 digit code version will be displayed for 2 sec. This display will alternate between the two displays. Some main parameters in the software or step combinations for all cycles will be stored in the ROM of MCU, doesn’t stored in the EEPROM, so you can consider that control will show that version indicating EE version, because software code is not changed, just modify the ROM in the ROM constant space.
For Pre-production or test version code the first digit will contain an alpha-character.

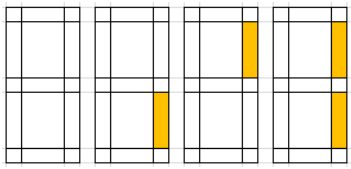
For production code the numbering will start at 01 and move up from there If the system has the inverter, once the key “K4” is pressed, the control will display ‘Inu” (i.e. Inverter Version) will be displayed for one second, and then a 2.5 digit code version will be displayed for 2 sec. This display will alternate between the two displays.

Press the key “start/pause” will be back to t display t3.

10.4 User Interface Test (t4)

Press [Start] key, all the leds will turn on for three seconds, then following the steps in pre second:
The leds in just column will illuminate in turn one by one from bottom to top cicely.

The numbers “11, 22, 33, 44, 55, 66, 77, 88, 99, 00” will illuminate in turn on tail two leds.
The first letter in turn like the picture attached here.



Then turn back to t4 or Press the key “start/pause” will be back to display t4.

10.5 V1 cool valve and V2 softener valve Test (t5)

Press [Start] key, the control shall display “CF”.
Press [Start] key again, the control shall check the water level in all procedure. If the water level below the overflow level the test will continue. Otherwise the control should pump water for 4 minutes.

Press the key [Start] to inlet water from V1 (cool valve) for 10 seconds, the display shows “Cd” if water level is low than full level; display shows ‘Fu’ if water level is over the over level.

Then the control will inlet water from V 2 (flashing valve) for 10 seconds, the display shows “FL” if water level is low than full level; display shows ‘Fu’ if water level is over the over level.

After that the V1 (cool valve) and V2 will working together for 10 seconds, the display shows “Cd” and “FL” alternant if water level is low than full level; display shows ‘Fu’ if water level is over the over level.

Then will be back to display t5.

10.6 Valve3 hot valve Test (t6)

Press [Start] key, the control shall display “hu”.
Press [Start] key again, the control shall check the water level in all procedure. If the water level below the overflow level test will be continue.

Press the key [Start] to inlet for 20 seconds, the display shows “Ht” if water level is low than full level; display shows ‘Fu’ if water level is over the over level.

The control applies power to inlet water for 20s, then back to test selection mode; if drum is full, it will inlet for max 5 seconds, then back to test selection.

Then will be back to display t6.

10.7 Traction Motor Test (t7)

Press [Start] key, the control shall display “tr”.the control shall check the door status, if it closed the following procedure can be continue.

Press the key [Start] again, If drum is full, display will show “FL”; if it is empty, display will show “EP”. Then pump the water to empty, the control will waiting for 11 seconds, then power on the traction motor.

After the traction motor been completely draw opened, then the motor will working in spin procedure for 5 minutes then back to t7.

The test will pause if the door opened during the test.

Press the key “start/pause” will be back to display t7.

10.8 Pump Test (t8)

Press [Start] key, the control shall display “Pt” on the 7-segment display.

Press the key [Start] to pump the water to empty, the display shows “EP” if water level reached empty level; display shows ‘Fu’ if water level is not empty.

The control applies power to pump for max 5 minutes with 30 on and 30s off profile, then back to test selection mode; if tank is empty, it will pump for max 30 seconds, then back to display t8 or Press the key “start/pause” will be back.

10.9 Pressure Sensor Test (ta)

Press [Start] key, the control shall display water level state on the 7-Segment display.

If drum is full, display will show “FL”; if it is empty, display will show “EP”.

When drum is full, press [Start] button to turn on the pump for max 10 min with 30 minutes on and 30 minutes off profile, then back to display ta; if water level is empty or pump water to empty, it will pump for max 20 seconds, then back to display ta.

10.10 Motor Test (tb)

Press [Start] key, the control shall display “tt” on the 7-segment display during the Motor test. Press [Start] key, the impeller shall rotate in the drum.

The test rotation profile shall be as follow: 5 seconds in the CW direction, 5 second off, and 5 seconds in the CCW direction, 5 second off.

The motor rotation test is max 5 minutes, then back to test selection mode.

Press the key “start” will be back to display tb..

10.11 Reliability Life Times Recording (tc)

This item will be used when EEPROM is available in the hardware.

Press [Start] key, the control shall display ‘rL’ on the 7-segment display.

Press [Start] key again, the control will display the life test times of reliability test, control will show higher 2bits with Hxx format for 3 seconds, then show lower 2bits with Lxx format for another 3 seconds, this display will alternate between higher 2bits and lower 2bits，’xx’ number will be used Hex format.

Press and hold [K4] for 10 seconds, control will reset the lift test times to 0.

Press the key “start” will be back to display tc.

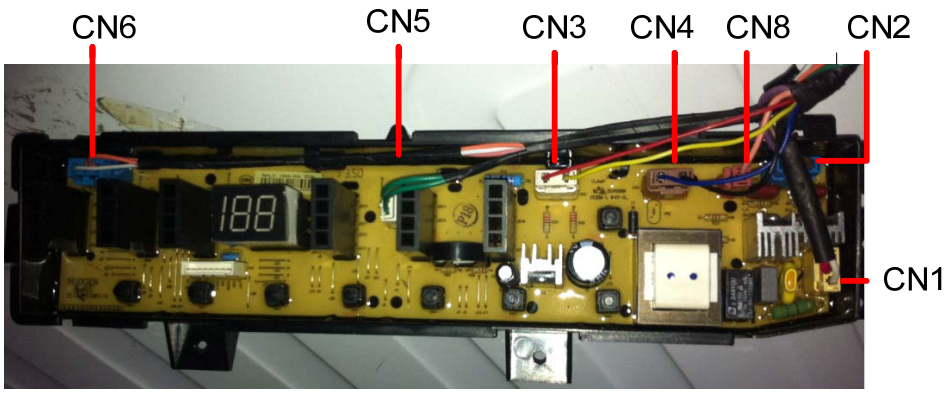
11. Failure/Error Codes

Service mode error code	ERROR DEFINITION
E1	*Valve triac short circuit or * Valve triac diode error
E2	*Pump triac open circuit or *Pump blocked or *Pump triac diode or *Pump rotor locked and does not rotate error
E3	*Unbalance error
E4	*Over flow error
E5	* Water level sensor reading error
E6	* Safety switch opening

Table 11.1 Error definition

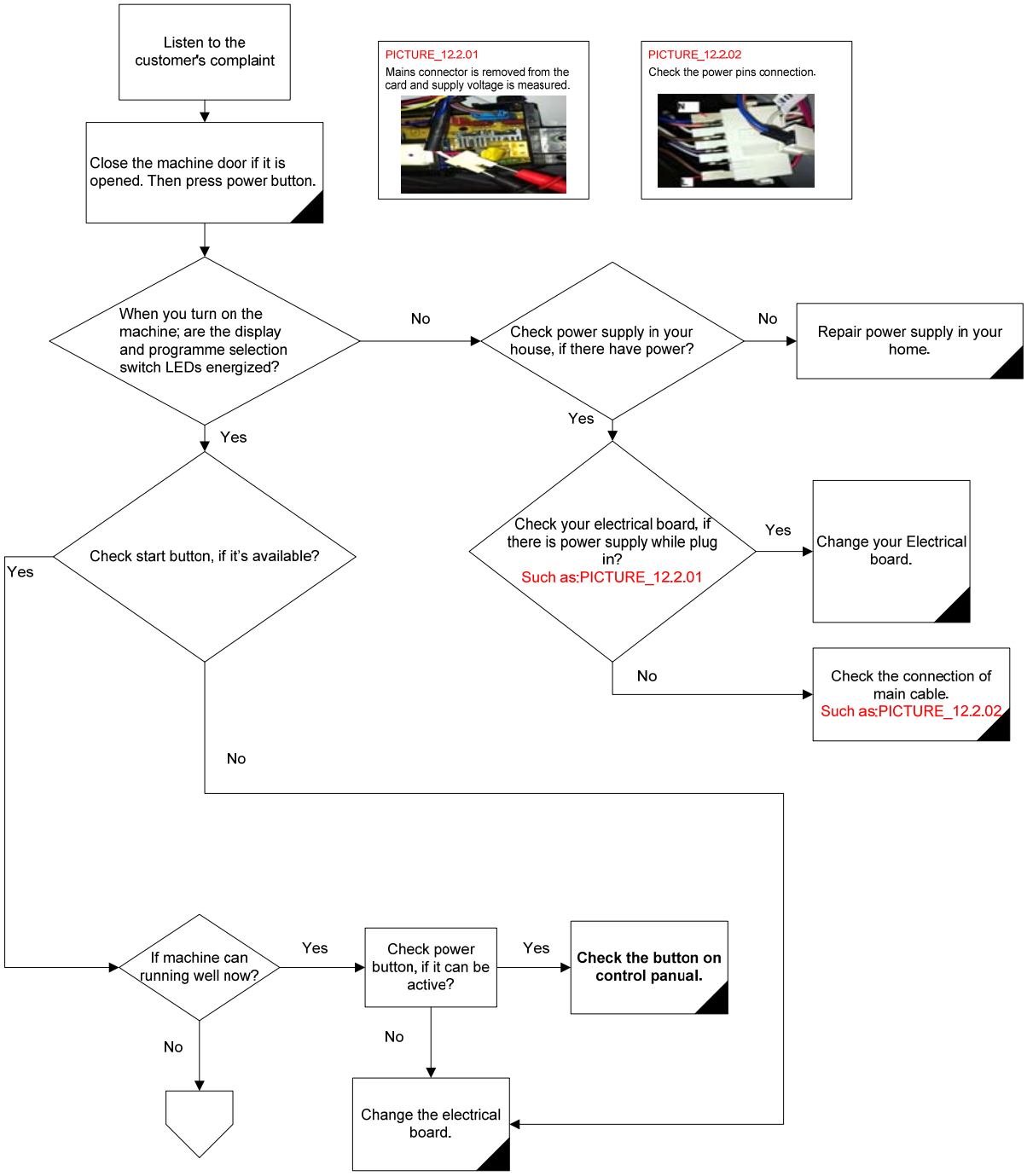
12. Fault Flow / Troubleshooting Diagrams

12.1. Electronic Card Sockets

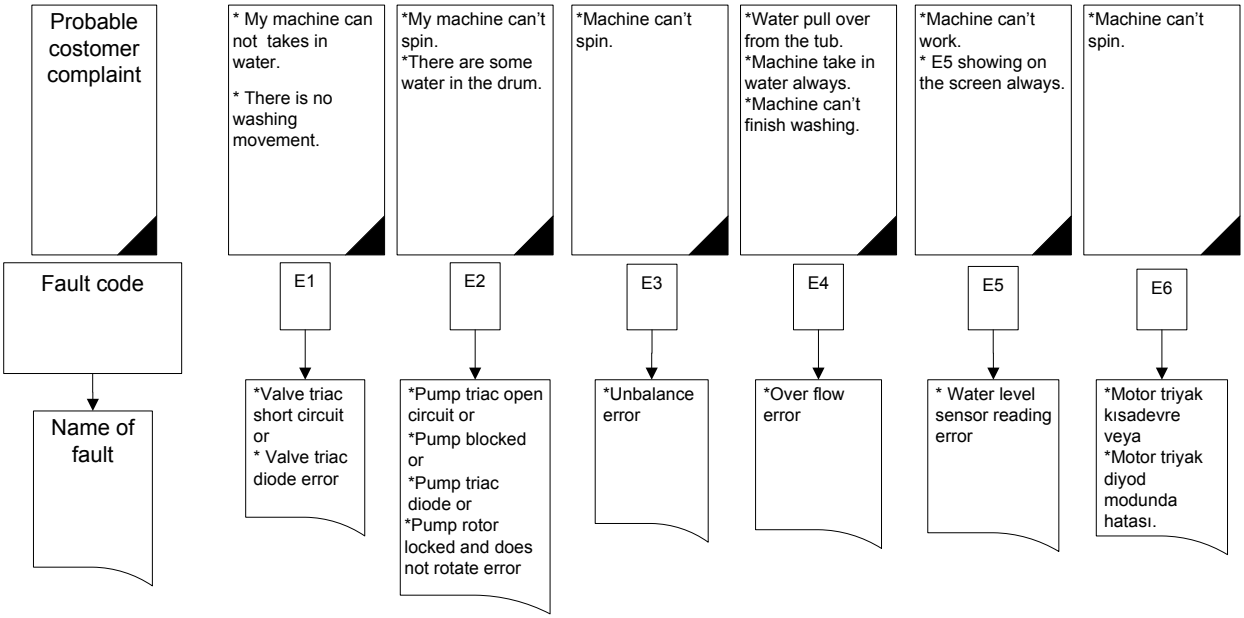


Order No.	Pin Type	Definition	Order No.	Pin Type	Definition
CN1	CDW2.1-2(Yellow)	Power Supply	CN5	CDW1.2-2(White)	Door Switch
CN2	CDW2.1-2(Blue)	Motor	CN6	CDW2.1-3(Blue)	Pressure sensor
CN3	CDW2.1-2(White)	Warm & Flushing Valve	CN8	CDW2.1-1(Red)	Pump
CN4	CDW2.1-2(Brown)	Traction Motor and Cool valve			

12.2. Machine does not start



12.3. Error Codes and Possible Customer Complaints



Important Note:

Error codes given do not always mean that the error has arisen from the components.

Socket and cable connections must be checked in the first place.

Make sure that the problems do not arise from loose contact.

12.3.1. E1

* My machine can not takes in water.
* There is no washing movement.

E1

*Valve triac short circuit or
* Valve triac diode error

Is there any E1?

Yes

Press the start button, if there any water intake from valves?

Yes

Finished

No

Check the water tap, if there is any water?

No

Solved the water intake and try again.

Yes

Measure the valve resistance, if the resistance according to valve specification?
Such as: Picture 12.3.1.01

No

Change the valve

Yes

Check the valve connection, if the connections are ok?
Such as: Picture 12.3.1.02

No

Change the cable

Change the electical board

Picture 12.3.1.01
Measure the valve resistance as below picture.

Picture 12.3.1.02
Check the cable connects for the valves.

12.3.2. E2

*My machine can't spin.
*There are some water in the drum.

E2

*Pump triac open circuit or
*Pump blocked or
*Pump triac diode or
*Pump rotor locked and does not rotate error

Is there any ...

Yes

Check the pump filter accord to steps on right side. If the pump been blocked.

Yes

Discharging the water when the machine does not have an emergency draining hose:

a. Place a large container in front of the filter to catch water from the filter.
b. Loosen pump filter (anticlockwise) until water starts to flow. Fill the flowing water into the container you have placed in front of the filter. Always keep a piece of cloth handy to absorb any spilled water.

No

Check the resistance of the pump from electrical board side. If the resistance correct or not? Such as Picture 12.3.2.01

Picture 12.3.2.01
Check the resistance of the pump resistance from electrical board side.

Yes

Change the resistance of the traction motor. If the resistance correct? Such as Picture 12.3.2.04

Yes

No

Change the main cable.

No

Check the resistance of pump from the main connect side. If the resistance ok or not? Such as Picture 12.3.2.02

Yes

Picture 12.3.2.02
Check the resistance of the pump resistance from electrical board side.

No

Change the resistance of the traction motor from electrical board side. If the resistance correct? Such as Picture 12.3.2.04

No

Yes

Change the electrical board.

Check the resistance from pump side. If the resistance correct? Such as Picture 12.3.2.03

No

Change the pump.

Yes

Change the cable of pump and main cable connect

Picture 12.3.2.04
Check the resistance of the pump resistance from pump side.

Picture 12.3.2.03
Check the resistance of the pump resistance from pump side.

12.3.3. E3

*Machine can't spin.

E3

*Unbalance error

Is there any E3 error?

Check laundry in your machine if they were tangling together?

Yes

Loosing your laundry.

No

Check machine while spinning. If the drum running able?

No

否

Check the traction motor from main connector side. If it work well?
Such as Picture 12.3.3.01

No

Change the traction motor.

Yes

Check the traction motor from electrical board side. If it work well?
Such as Picture 12.3.3.02

是

No

Change the main cable

Yes

Change the main electrical board.

Important Note:
E3 error mostly cause by loading in side drum. Strong water imbibitions loads more easy to lead to unbalance.

Put suitable loads will helpful to reduce the issue.

If machine giving E3 error still after you done above steps, you should call after sales servers.

Picture 12.3.3.01
Check the resistance of the traction motor from main cable connector side.

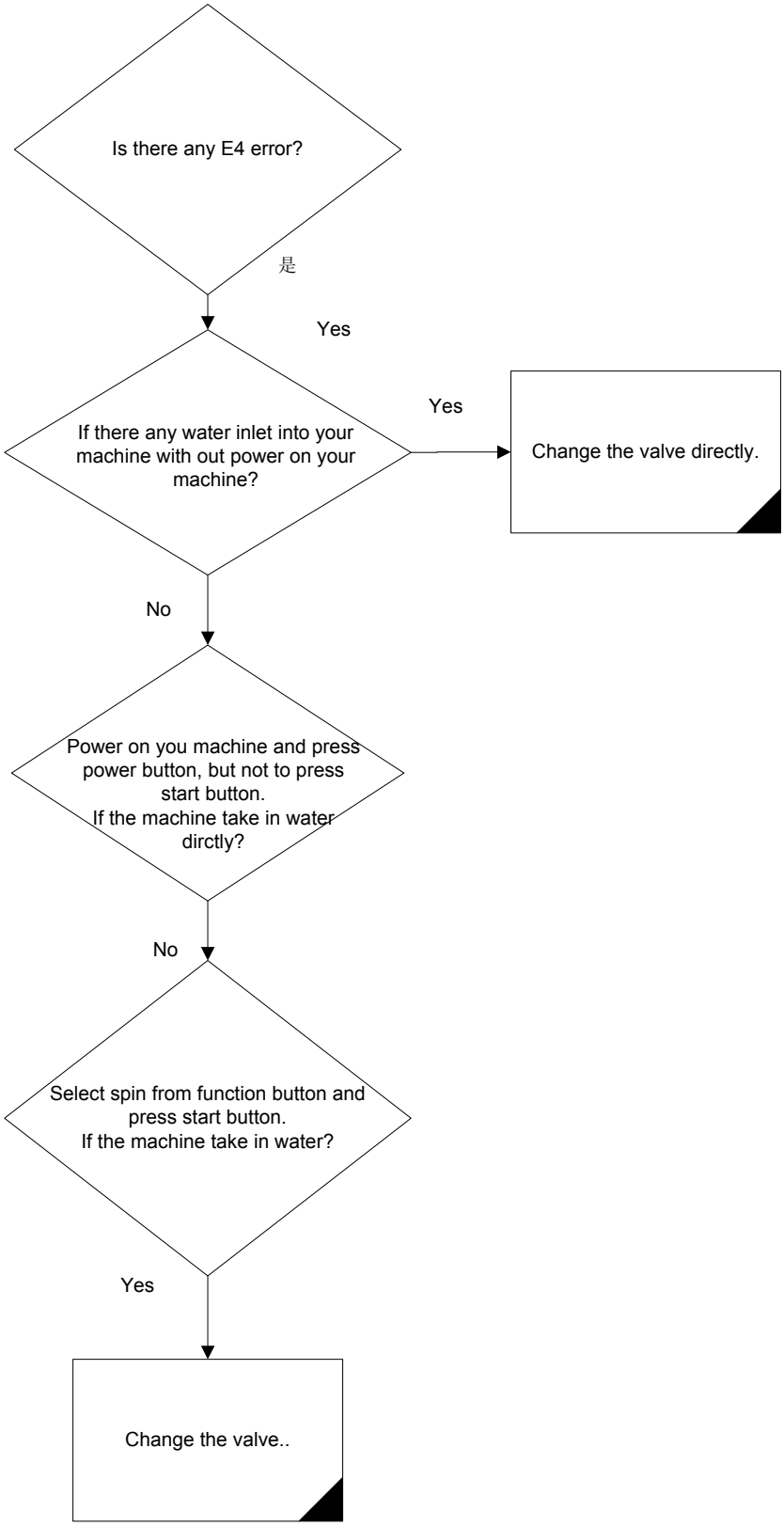
Picture 12.3.3.02
Check the resistance of the traction motor from electrical board side.

12.3.4. E4

*Water pull over from the tub.
*Machine take in water always.
*Machine can't start to spin.

E4

*Over flow error



12.3.5. E5

*Machine can't work.
* E5 showing on the screen always.

E5

* Water level sensor reading error

Is there any E5 error?

Yes

Check the cable connect from electrical board side.
If the resistance according to Picture 12.3.5.01?

Yes

Check the capacitor of the pressure sensor pins from the connector of electrical board.
If the capacitor according to?
Such as Picture 12.3.5.02

Yes

Change the electrical board.

No

No

Check the connection of the cable and pressure sensor.
If there is any abnormal?
Such as Picture 12.3.5.03

Remove the abnormal affectation and repower machine again.

No

Check the connection of the cable.
If the cables are in good contact?
Such as Picture 12.3.5.04

No

Change main cable

是

Yes

Change the pressure sensor.

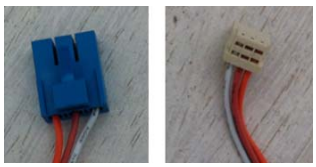
Picture 12.3.5.01
Check the resistance of pressure sensor from electrical board side.

Picture 12.3.5.02
Check the capacitor of the pressure sensor pins from the connector of electrical board.

* Capacitor of white cable and red same with red and orange.

Picture 12.3.5.03
Check the capacitor of the pressure sensor pins from the connector of electrical board.

Picture 12.3.5.04
Check the connection of the pressure sensor cable one by one..



12.3.6. E6

*Machine can't spin.

E6

*Safety switch broken.
*Safety switch cable broken.
*Electrical board broken.

Is there any E6 error?

Yes

Close door.
If the E6 error still there?

Yes

Check if the connection well while door open.
If the connection well.
Such as Picture 12.3.6.01

No

Change the safety switch

Yes

Check the cable connection.
If the cables connection well?
Such as Picture 12.3.6.02

No

Change the main cable

Yes

Change the electrical board

Picture 12.3.6.01
Check if the connection well while door open.
Please un-plug the power while checking.

Picture 12.3.6.02
Check the cable connection.

12.3.7. Water Intake from Wrong Compartment

Takes in water from the wrong detergent compartment

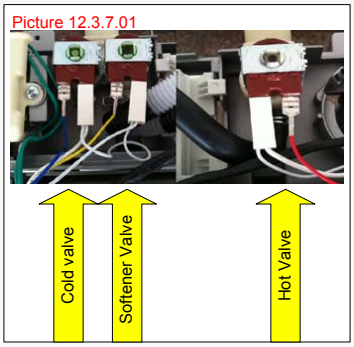
Important Note:
Water intake from wrong component just suit for those machine with additional valves. For example, softener valve, hot valve.

Valves,
CN4.1- Cold Valve (Blue cable)
CN3.1- Soften Valve (Yellow cable)
CN3.2- Hot Valve (Red cable)
Picture 12.3.7.01 ends connector?

No

Correct the connections. Check through a function test.

Picture 12.3.7.01



Yes

Perform a function test on the machine to check compartments of the detergent box. Check to see if there is 220V AC on the relevant valve during the test steps Correct the connections. Check through a function test.

Is there 220VAC voltage on the relevant valve during water intake from each compartment?

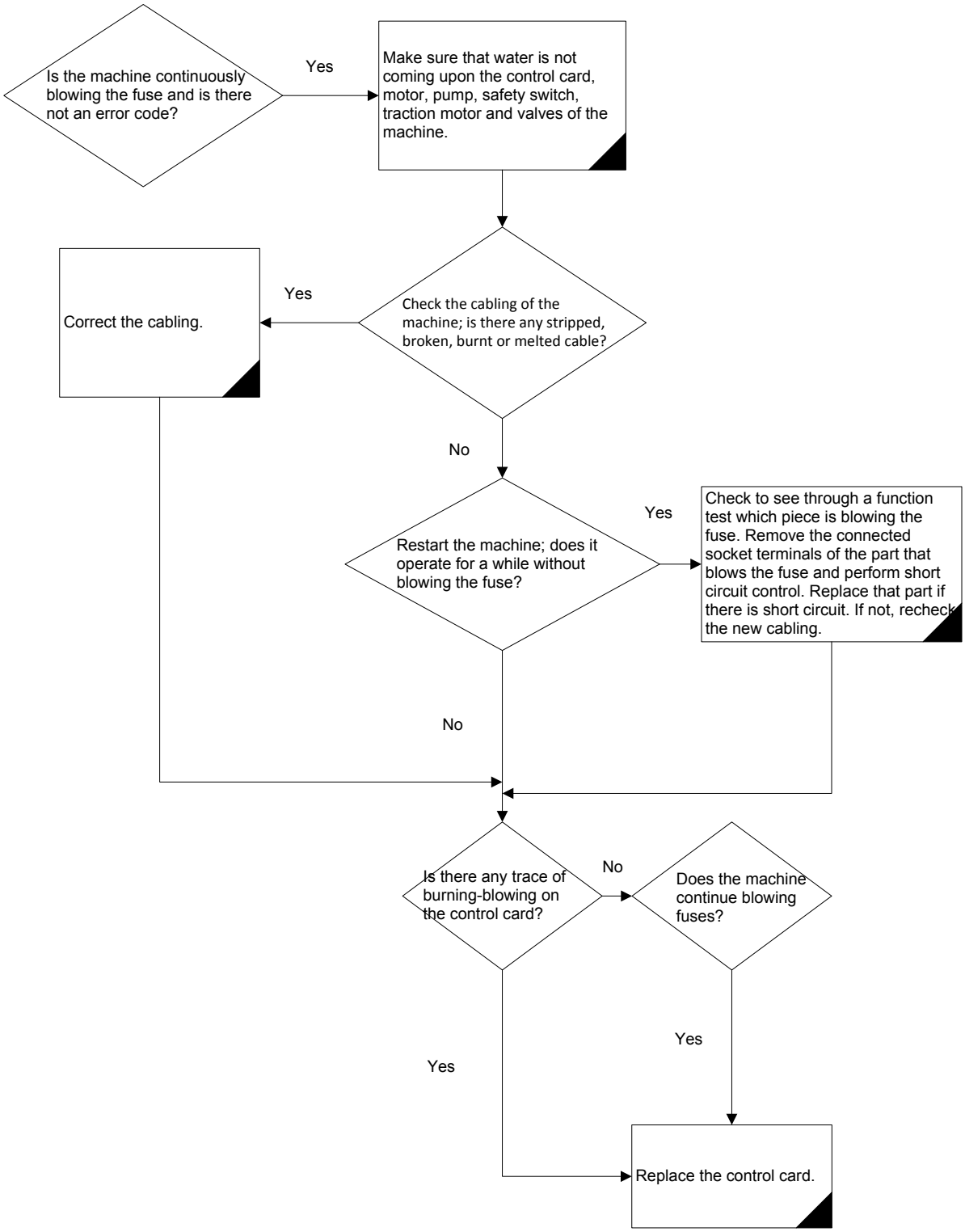
Yes

Replace the valve.

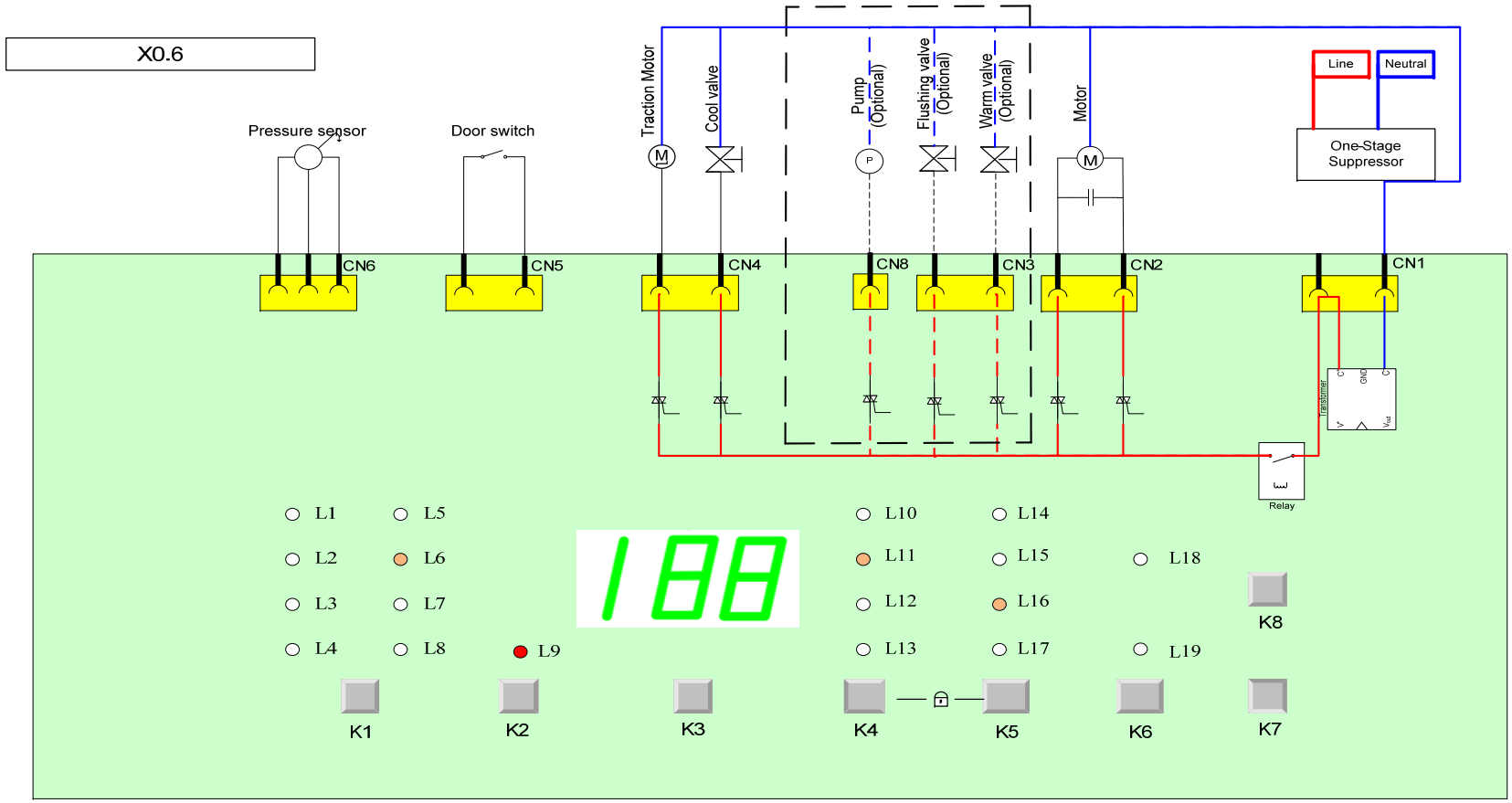
No

Replace the control card.

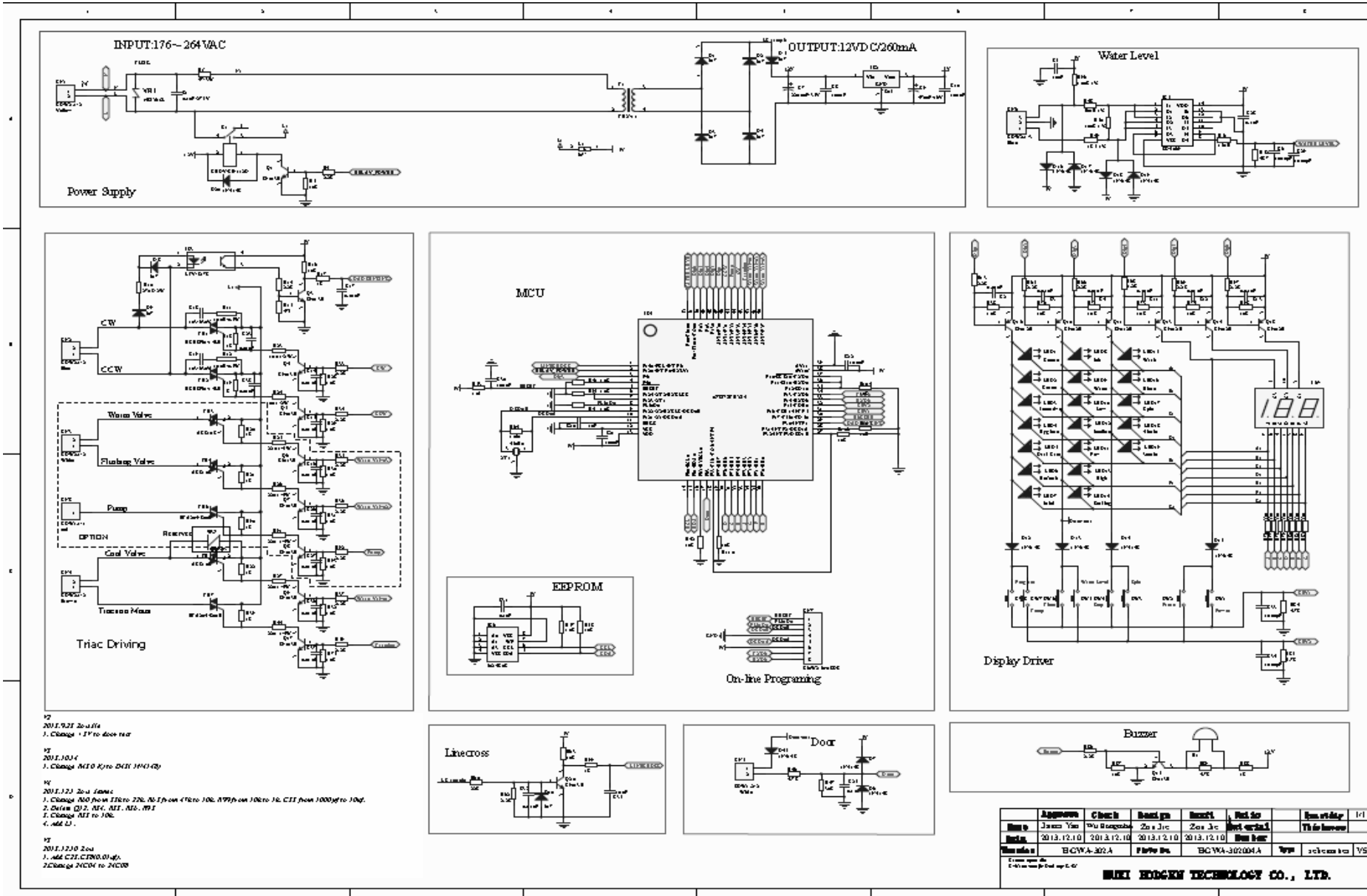
12.3.8. The machine is blowing the fuse



13. Electric Circuit / Connection / E-Card Diagrams



Order No.	Pin Type	Definition	Order No.	Pin Type	Definition
CN1	CDW2.1-2(Yellow)	Power Supply	CN5	CDW1.2-2(White)	Door Switch
CN2	CDW2.1-2(Blue)	Motor	CN6	CDW2.1-3(Blue)	Pressure sensor
CN3	CDW2.1-2(White)	Warm & Flushing Valve	CN8	CDW2.1-1(Red)	Pump
CN4	CDW2.1-2(Brown)	Traction Motor and Cool valve			


INPUT:176~264VAC
OUTPUT:12VDC/260mA
Power Supply
Water Level
CW
CCW
Water Valve
Flushing Valve
Pump
OPTION
Reserved
Cool Valve
Triacon Moto
Triac Driving
MCU
EEPROM
On-line Programing
Display Driver
Linecross
Door
Buzzer
BEKO HUGEN TECHNOLOGY CO., LTD.

14.Component Installation/Removal

Picture 14.1 Overview

Front view of the machine is given in Picture 14.1.

14.1. Rear Panel Installation / Removal

14.1.1. Installation

Picture 14.2 Rear panel installation - 1

As illustrated in the Picture 14.2, rear panel is downward to install the rear of the machine to make sure that rear panel surface are aligned with the top cover and all hooks are really.

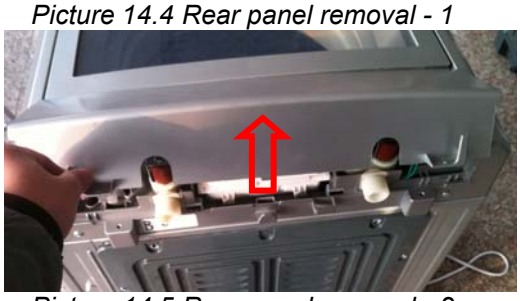
Picture 14.3 Rear panel installation - 2

Then, rear panel screws (2pcs) are installed as illustrated in Picture 14.3.

14.1.2. Removal

Picture 14.4 Rear panel removal - 1

Rear panel screws (2pcs) are removed as illustrated in Picture 14.4.

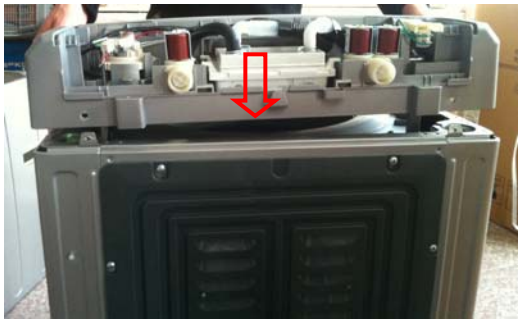


Picture 14.5 Rear panel removal - 2

Upward the rear panel as illustrated in Picture 14.5.

14.2. Top Cover Installation/Removal

14.2.1. Installation



Picture 14.6 Top cover installation - 1

As illustrated in the Picture 14.6, top cover group is downward to install the machine to make sure that top cover hooks are fixed to the front corner on the cabinet as illustrated in the Picture 14.7.

Picture 14.7 Top cover installation - 2

Picture 14.8 Top cover installation – 3

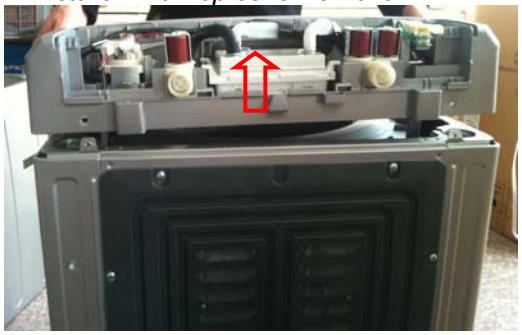
Then, top cover group screws (2pcs) are installed as illustrated in Picture 14.8.

Before installing the top cover, control board installation must be completed.

14.2.2. Removal

Picture 14.9 Top cover removal - 1

Top cover screws (2pcs) are removed as illustrated in Picture 14.9.



Picture 14.10 Top cover removal - 2

Upward the top cover group as illustrated in Picture 14.10.

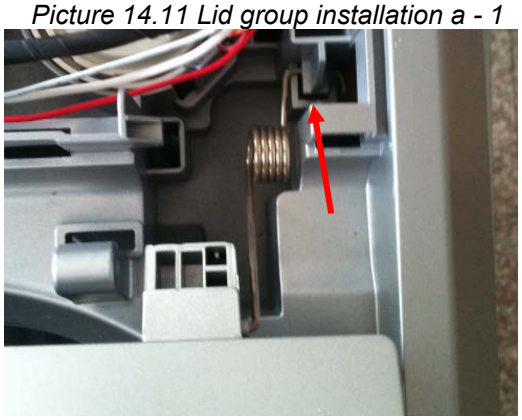
14.3. Lid Group Installation/Removal

14.3.1. Installation

a.

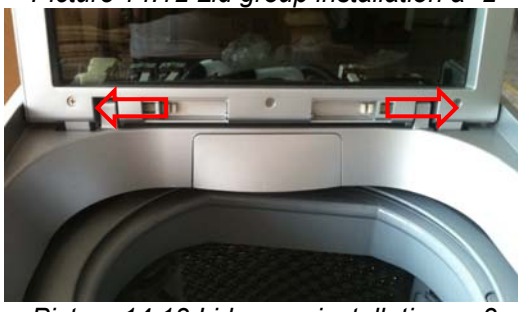
Picture 14.11 Lid group installation a - 1

Take the torque-spring to the top lid group as illustrated in Picture 14.11.



Picture 14.12 Lid group installation a- 2

Then, take it to top cover group as illustrated in Picture 14.12.



Picture 14.13 Lid group installation a- 3

Install the Pin follow the arrow into the place of the top cover as illustrated in Picture 14.13. Then, take the pin cover to the lid as picture 14.14.

Picture 14.14 Lid group installation a- 4

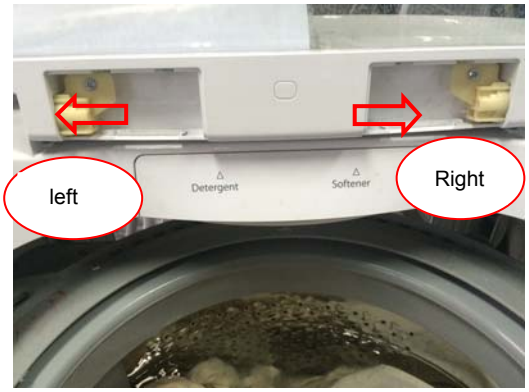
b

Picture 14.15 Lid group installation b - 1

Assemble the dampers into the holders to get a pair of locking pin.notice that the outer surface of the left locking pin is white and the right one is black as showed in picture 14.15

Picture 14.16 Lid group installation b - 2

Assemble the locking pin along the arrow direction into the place of the top cover illustrated as showed in picture 14.16. notice that the left locking pin is to the left , the right one is to the right .



Picture 14.17 Lid group installation b– 3

Install the screws as showed in picture 14.17. then take the pin cover to the lid as showed in picture 14.18 .

Picture 14.18 Lid group installation b– 4

14.3.2. Removal

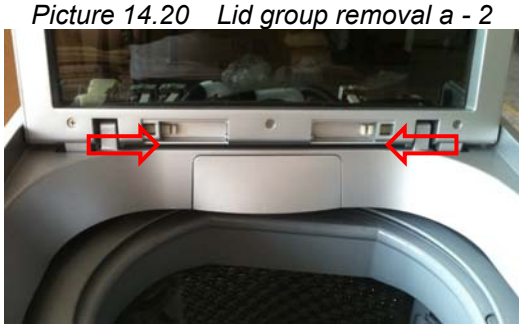
a

Picture 14.19 Lid group removal a- 1

Remove the pin cover from the lid as illustrated in Picture 14.19.

Picture 14.20 Lid group removal a - 2

Use the tool to remove the hook of the pin as illustrated in Picture 14.20.



Picture 14.21 Lid group removal a - 3

Fellow arrow to remove the pin as illustrated in Picture 14.21, and lid group will be taken out of the machine.

b

Picture 14.22 Lid group removal b- 1

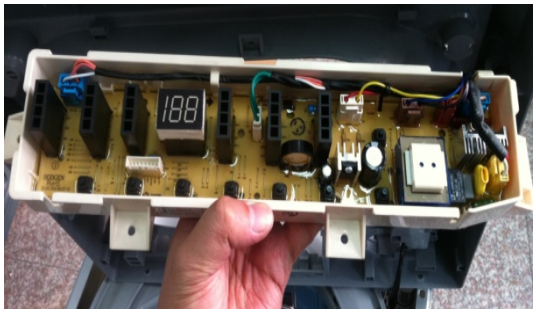
Remove the pin cover from the lid as illustrated in Picture 14.22.

Picture 14.23 Lid group removal b- 2

Remove the screws , then use the tool to remove the hook of the pin as illustrated in Picture 14.23.

14.4. Control Board Installation/Removal

14.4.1. Installation



Picture 14.24 Control board installation - 1

All plugs are connected to the board and rotate it to install the top cover as the Picture 14.24 and Picture 14.25.

Picture 14.25 Control board installation - 2

Picture 14.26 Control board installation – 3

Then, Control board screws (5pcs) are installed as illustrated in Picture 14.26.

14.4.2. Removal

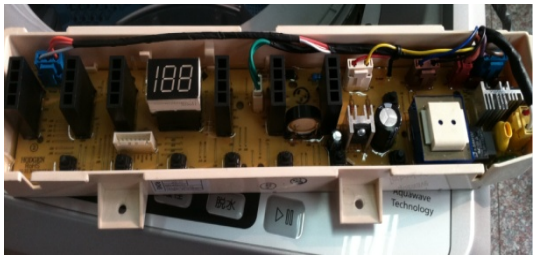
Before removal the control board, top cover removal must be completed.

Picture 14.27 Control board removal - 1

Control board screws (5pcs) are removed as illustrated in Picture 14.27.

Picture 14.28 Control board removal - 2

Fellow the arrow to rotate the Control board and take it out from the top cover as illustrated in Picture 14.28 and Picture 14.29.



Picture 14.29 Control board removal - 3

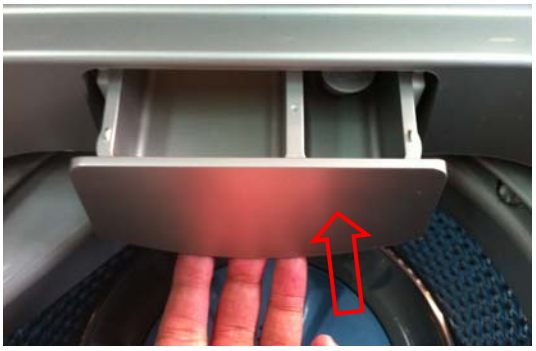
14.5. Detergent Box Installation/Removal

14.5.1. Installation

Picture 14.30 Detergent box installation - 1

Follow the arrow to install detergent box until the hooks in the right position as illustrated in Picture 14.30 and Picture 14.31.

Picture 14.31 Detergent box installation - 2



Picture 14.32 Detergent box installation - 3

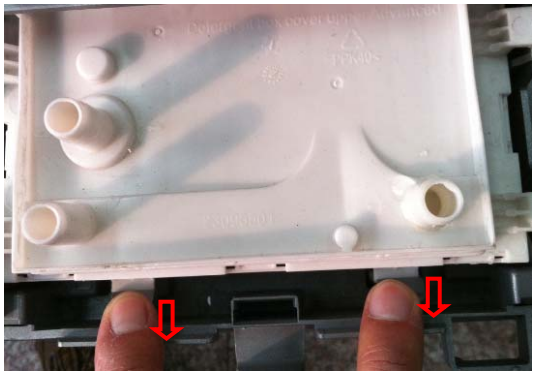
Then, Take the drawer into the detergent box as illustrated in Picture 14.32.

14.5.2. Removal

Before remove the detergent box, rear cover removal must be completed. All hoses have moved from the detergent box.

Picture 14.33 Detergent box removal - 1

Take the drawer out of the detergent box as illustrated in Picture 14.33.

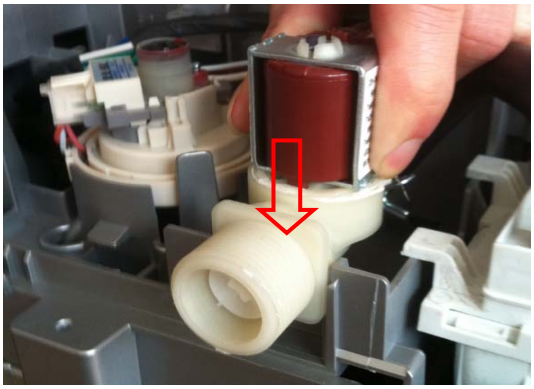


Picture 14.34 Detergent box removal - 2

Picture 14.35 Detergent box removal - 3

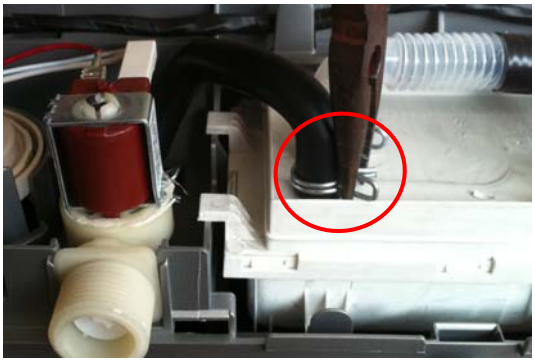
Press the hooks backward and take the detergent box out of the top cover as illustrated in Picture 14.34 and Picture 14.35.

14.6. Single Valve Installation/Removal



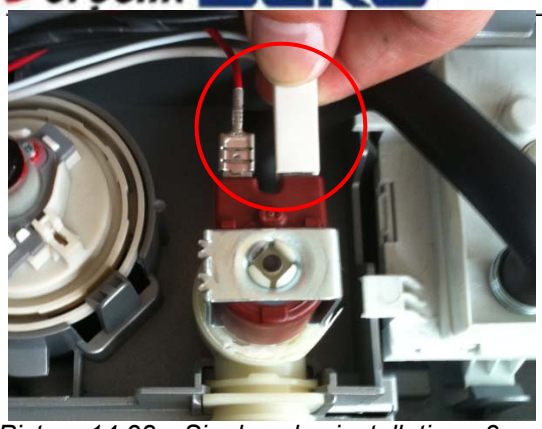
Picture 14.36 Single valve installation - 1

Downward to install the single valve make sure it in the ribs as illustrated in Picture 14.36.



Picture 14.37 Single valve installation - 2

Use the tools to fix the hose card as illustrated in Picture 14.37.

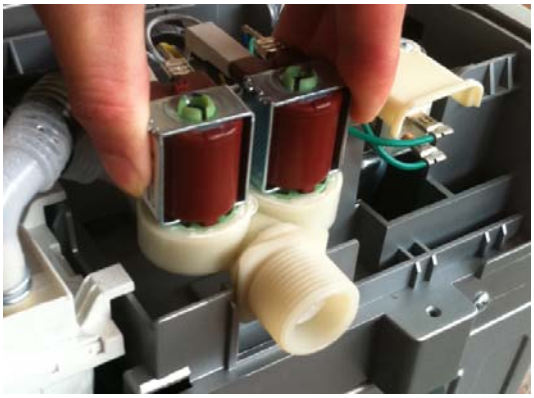


Picture 14.38 Single valve installation - 3

Then, Insert the plugs into the single valve as illustrated in Picture 14.38.

Remove the single valve as the reverse sequence.

14.7. Double- Valve Installation/Removal

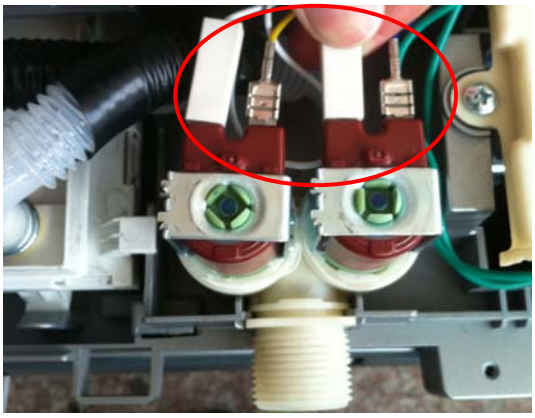


Picture 14.39 Double-valve installation - 1

Downward to install the double-valve make sure it in the ribs as illustrated in Picture 14.39.

Picture 14.40 Double-valve installation - 2

Use the tools to fix the hose card as illustrated in Picture 14.40.

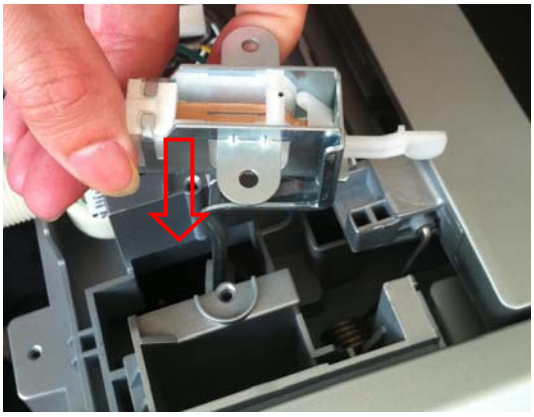


Picture 14.41 Double-valve installation - 3

Then, Insert the plugs into the double-valve as illustrated in Picture 14.41.

Remove the double-valve as the reverse sequence.

14.8. Safety Switch Installation/Removal

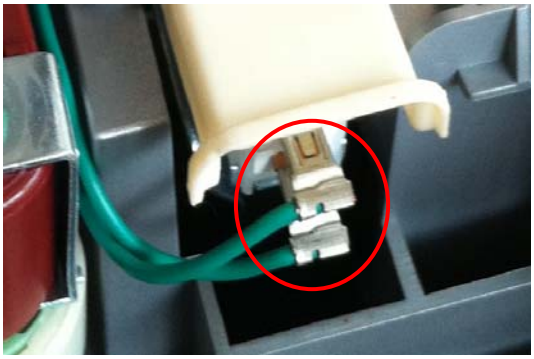


Picture 14.42 Safety switch installation - 1

Safety switch is downward to install the top cover as illustrated in the Picture 14.42.

Picture 14.43 Safety switch installation - 2

Safety switch screws (2pcs) are installed as illustrated in Picture 14.43.

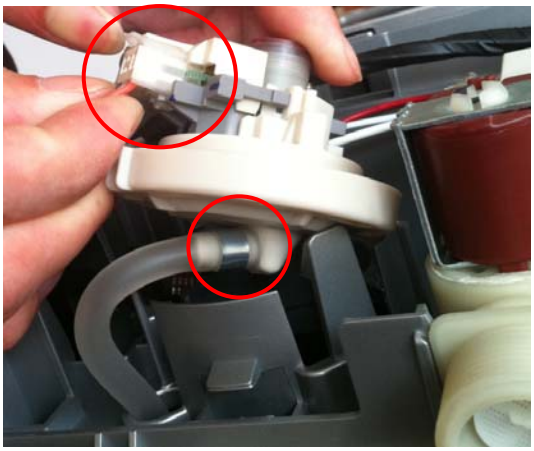


Picture 14.44 Safety switch installation - 3

Then, Insert the plugs into the safety switch as illustrated in Picture 14.44.

Remove the safety switch as the reverse sequence.

14.9. Water Sensor Installation/Removal



Picture 14.45 Water sensor installation– 1

Insert the plug and fix the hose card as illustrated in Picture 14.45.

Picture 14.46 Water sensor installation – 2

Insert the water sensor to the top cover as illustrated in Picture 14.46.

Remove the water sensor as the reverse sequence.

14.10. Rear Cover Installation/Removal

Picture 14.47 Rear cover installation – 1

Rear cover screws (8pcs) are installed as illustrated in Picture 14.47.

14.11. Power Cable Installation/Removal

Picture 14.48 Power Cable installation - 1

Put the power cable downward in to the slot as illustrated in Picture 14.48.

Picture 14.49 Power Cable installation - 2

Tigenten the cover by screws (2pcs) as illustrated in Picture 14.49.

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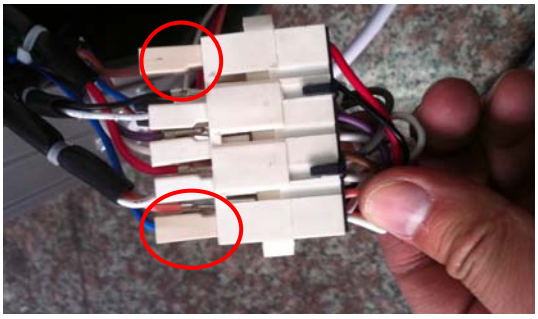


Insert the plugs to the connector as illustrated i
Picture 14.50.

Picture 14.50 Power Cable installation - 3

Insert the ground wire plug to the cord as illustrated in Picture 14.51.

Picture 14.51 Power Cable installation - 4

Pack the Cable joint with two insulative bags as showed in picture 14.52

Picture 14.52 Power Cable installation - 5

Use one insulative aluminum foil to cover the Cable joint with two insulative bags as showed in picture 14.53 ,the tighten them with a tie .notice that the aluminum foil and insulative bags must be put in the machine because of their protecting function .

Remove the power cable as the reverse sequence.

Picture 14.53 Power Cable installation - 6

14.12. Capacitor Installation/Removal

Picture 14.54 Capacitance installation – 1

Rotate the capacitor to the right side into the capacitor card as illustrated in Picture 14.54.

Picture 14.55 Capacitance installation – 2

Then,thak them downward to install to the body as illustrated in Picture 14.55.

Remove the capacitor as the reverse sequence.

14.13. Tub Cover Installation/Removal

14.13.1. Installation

Picture 14.56 Tub cover installation – 1

As illustrated in the Picture 14.56, tub cover is downward to install the top of tub group to make sure that hooks around the tub are all fixed.

Picture 14.57 Tub cover installation – 2

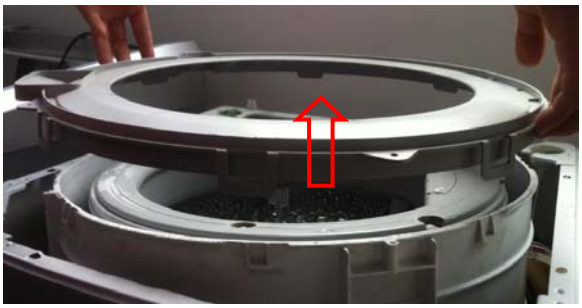
Then, Tub cover screws (4pcs) are installed as illustrated in Picture 14.57.

14.13.2. Removal

Before remove tub cover, please make sure the top cover have removed .

Tub cover screws (4pcs) are removed as illustrated in Picture 14.58.

Picture 14.58 Tub cover removal – 1



Take the tub cover upward out of the tub as illustrated in Picture 14.59.

Picture 14.59 Tub cover removal – 2

14.14. Drum Group Installation/Removal

14.14.1.Installation

Before install the drum group, Balance ring, drum bottom, bottom flange, baffles, must be installed.

Take the Drum group downward into the tub as illustrated in Picture 14.60.

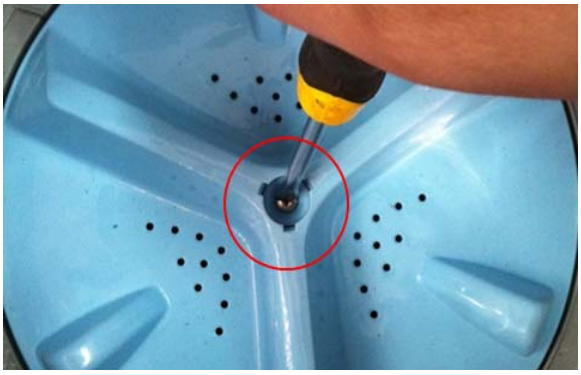
Picture 14.60 Drum group installation – 1

Then, tighten the nut with 120N.m as illustrated in Picture 14.61.

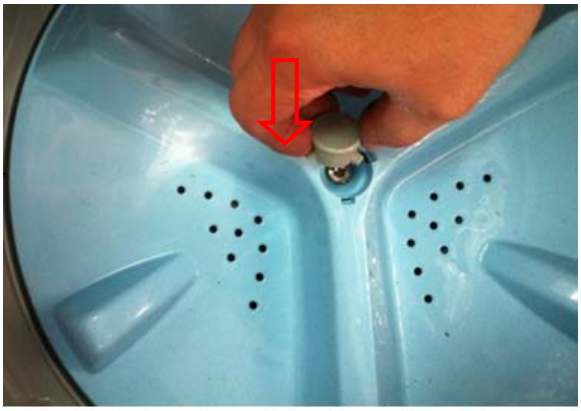
Picture 14.61 Drum group installation – 2

Take the impeller into the drum and tighten it by screw as illustrated in Picture 14.62 and Picture 14.63.

Picture 14.62 Drum group installation – 3



Picture 14.63 Drum group installation – 4

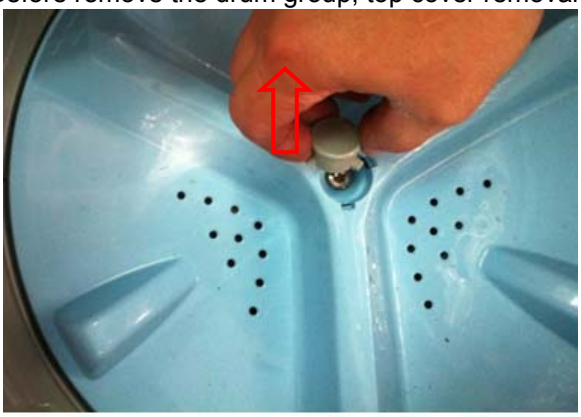


Impeller cover is downward to install on the impeller as illustrated in Picture 14.64.

Picture 14.64 Drum group installation – 5

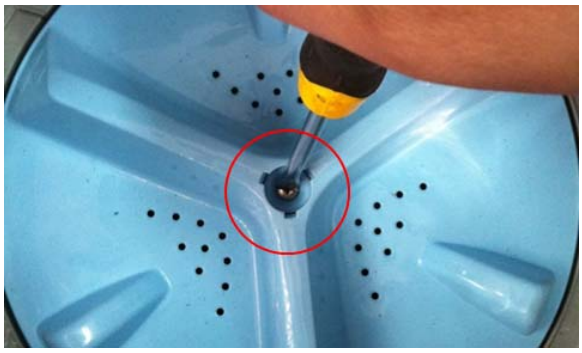
14.14.2. Removal

Before remove the drum group, top cover removal must be completed.



Take the impeller upward out of the tub as illustrated in Picture 14.65.

Picture 14.65 Drum group removal – 1



Picture 14.66 Drum group removal – 2

Picture 14.67 Drum group removal – 3

Remove the screw and take the impeller out of the drum as illustrated in Picture 14.66and Picture 14.67.

Picture 14.68 Drum group removal – 4

Loosen the nut and take the drum out of the tub as illustrated in Picture 14.68 and Picture 14.69.

Picture 14.69 Drum group removal – 5

14.15. Tub Group Installation/Removal

14.15.1.Installation

Picture 14.70 Tub group installation – 1

Before install the drum group, motor clutch bracket group and traction motor are all installed.

Picture 14.71 Tub group installation – 2

For some certain machines ,a hole holder should be put where the joint lies as showed in picyure 14.71.

Picture 14.72 Tub group installation – 3

Take the tub group downward into the cabinet, and make sure all as illustrated in Picture 14.70 and Picture 14.72.

14.15.2. Removal

Picture 14.73 Tub group removal – 1

Before remove the tub group, the hose card must be removed from the drain pump.

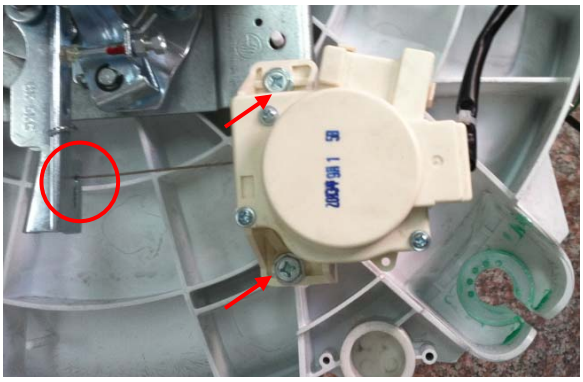
Picture 14.74 Tub group removal – 2

Take the tub group upward out of the cabinet as illustrated in Pictur14.74.

Picture 14.75 Tub group removal – 3

For some certain machines ,a hole holder should be removed from the place where the joint lies as showed in picyure 14.75.

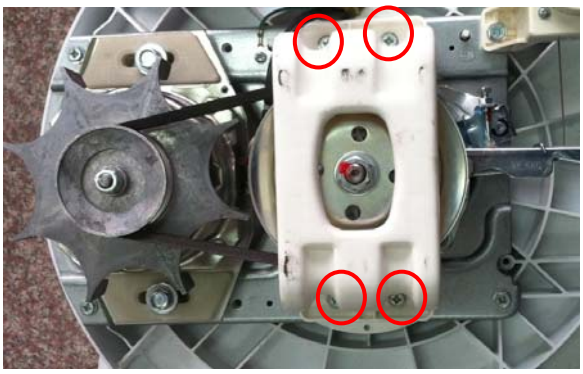
14.16. Traction Motor Installation/Removal



Picture 14.76 Traction motor installation – 1

Take the traction line into the clutch corresponding place and tighten two screws to fix traction motor with the tub as illustrated in Picture 14.76.
Remove the traction motor with loosen two screws.

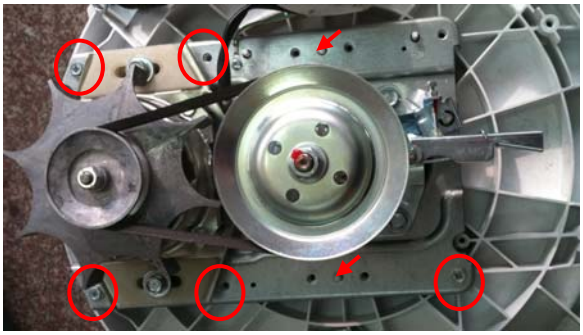
14.17. Motor bracket Installation/Removal



Picture 14.77 Motor Bracket installation – 1

Tighten screws (4pcs) to fix the motor bracket as illustrated in Picture 14.77.
Loosen screws (4pcs) to remove the motor bracket.

14.18. Motor clutch Group Installation/Removal



Picture 14.78 Motor Clutch Group installation – 1

Take the motor clutch group to the right position and tighten screws (5pcs) to fix it with the tub as illustrated in Picture 14.78.
Before remove the group, top cover, drum group, tub group and traction motor must be removed.
Remove the motor clutch group with loosen screws (5pcs) and take it out.

14.19. Drain Pump Installation/Removal

Picture 14.79 Drain pump installation – 1

Take the pump into the hole in the bottom and rotate the pump right side as illustrated in Picture 14.79.

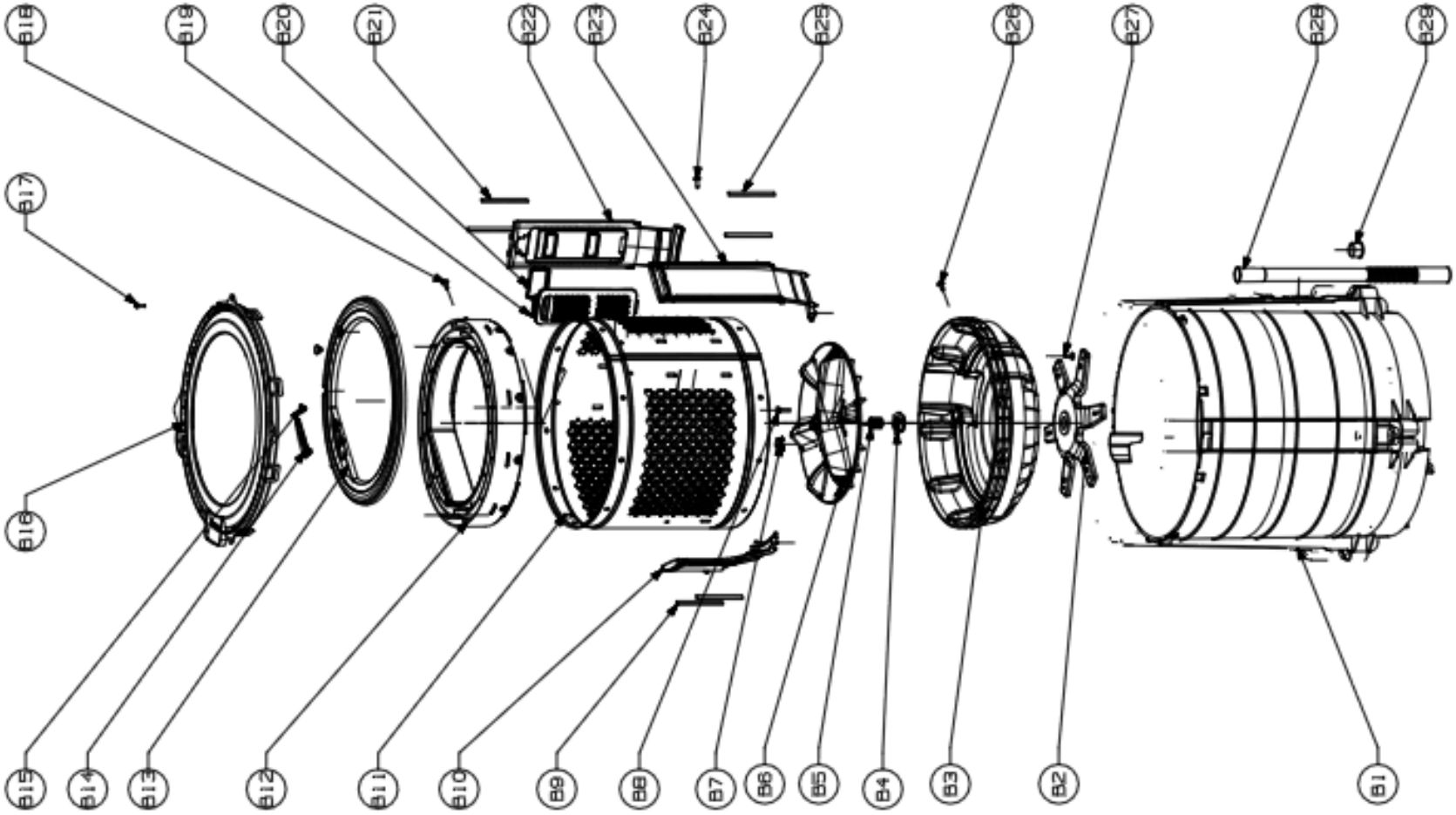
Picture 14.80 Drain pump installation – 2

Tighten the pump and bottom with screws (3pcs) as illustrated in Picture 14.80.
Remove the drain pump with loosen screws (3pcs).

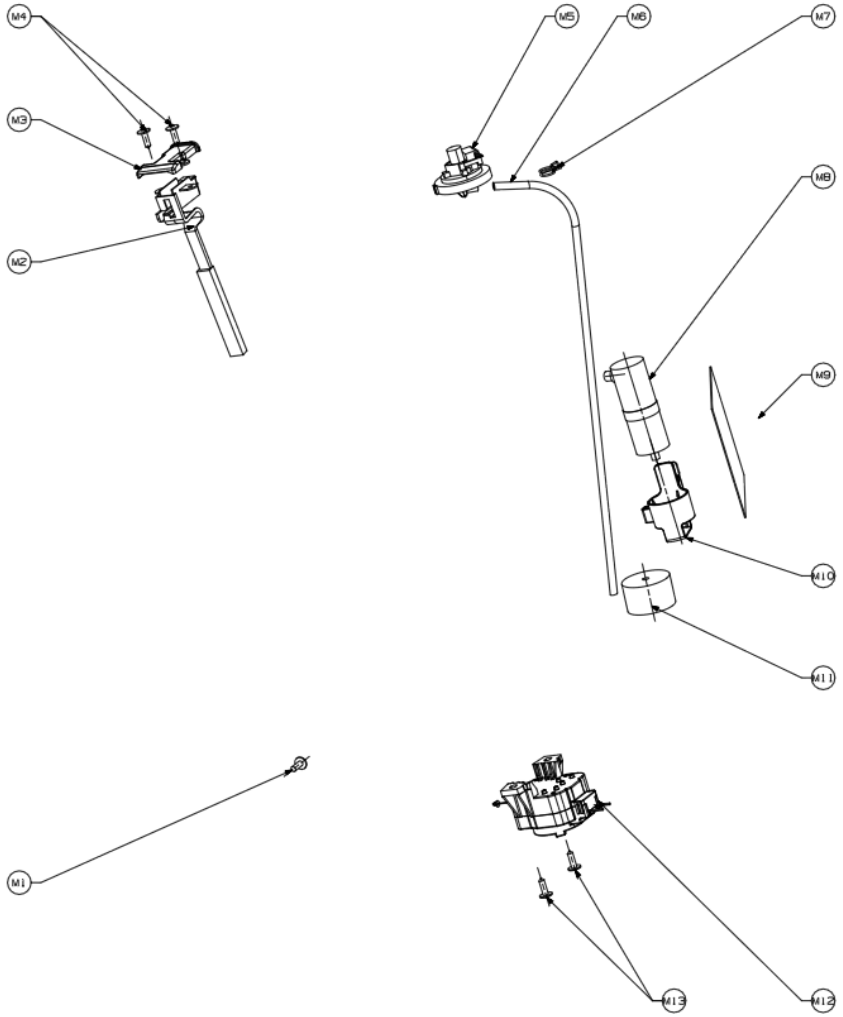
15. Exploded Drawings

-The exploded *view* refers to different models vithin product ranga.
Some of the parts shown here may not be in the bill of matarial (part list or BOM).
For this reason, this view must be used together with the *stock* no. and the BOM of the product.
-Patlatılmış resim ürün ga mındaki farklı modeller için hazırlandığından burada gösterilen parçaların bazıları parça listenizde olmayabilir. Bu nedenle, bu resim urun stok nosu ve parça listesiyle birlikte kullanılmalıdır.

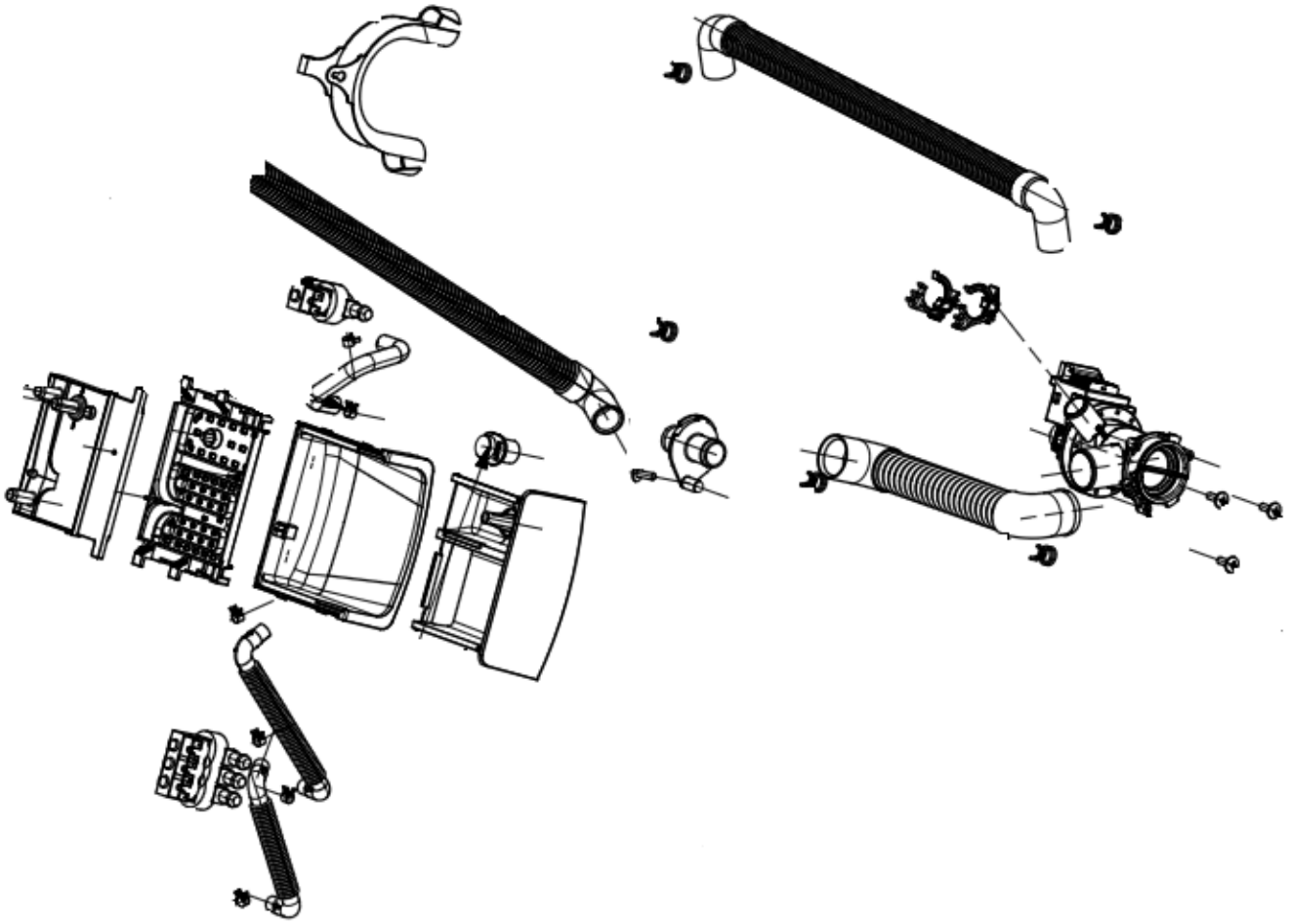
15.1. Tub and Drum Group



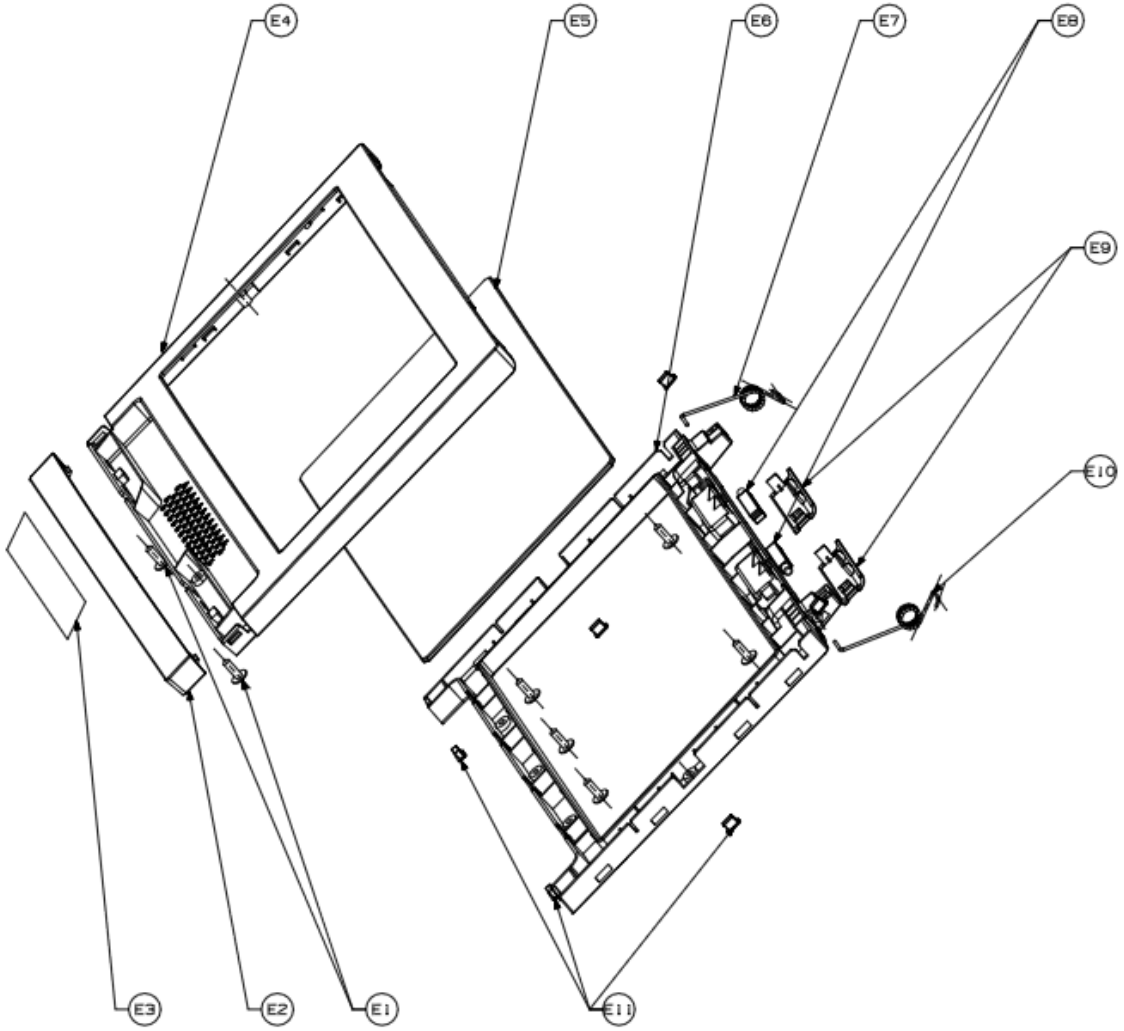
15.2. Control Group



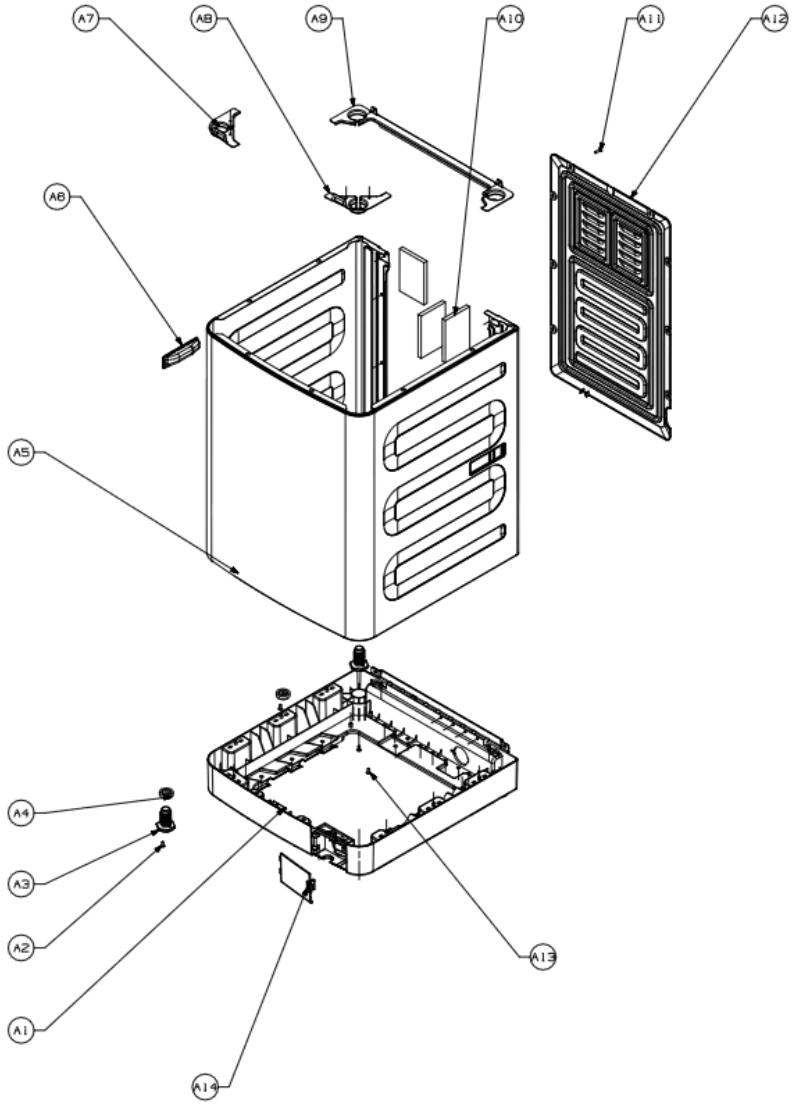
15.3. Water System Group



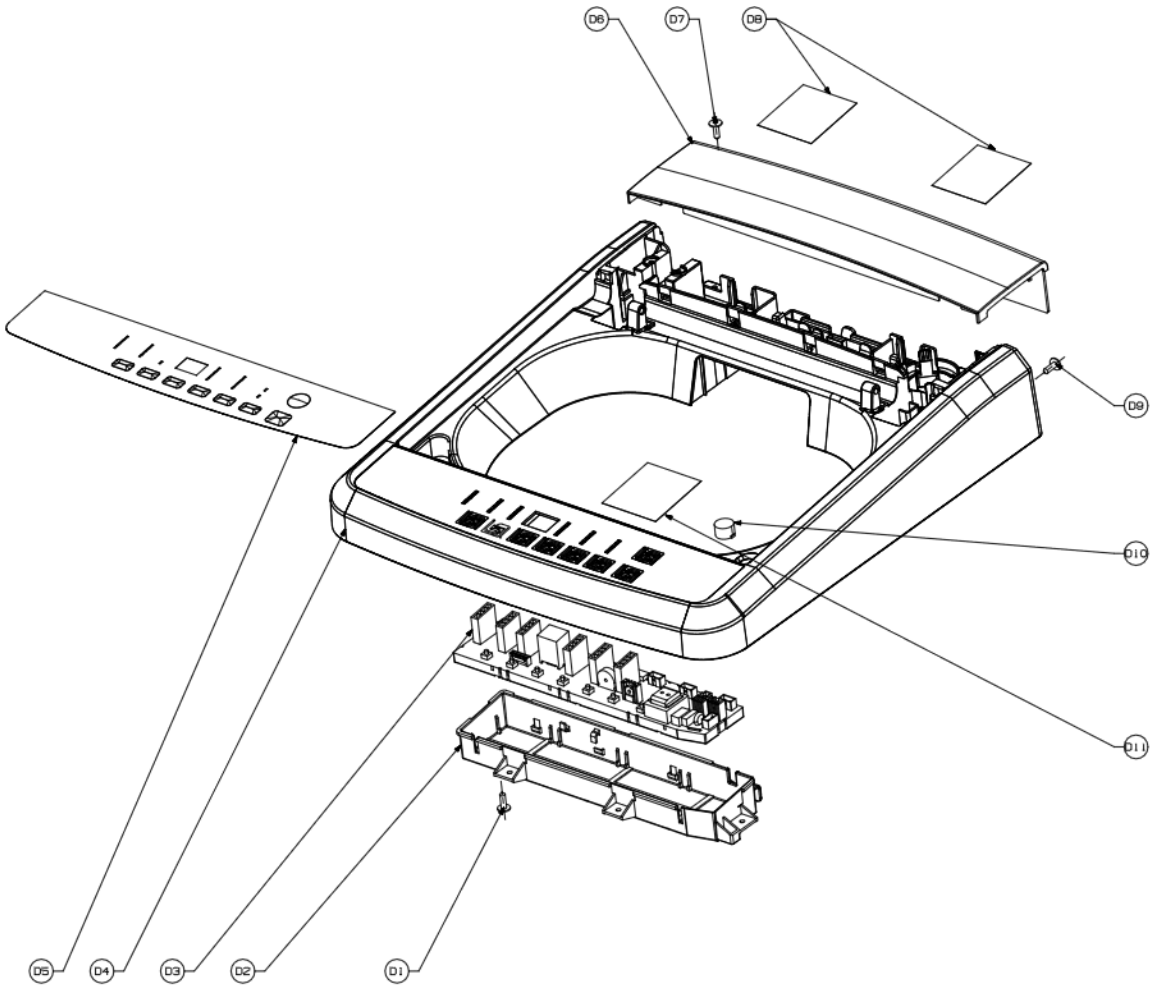
15.4. Lid Group



15.5. Body Group



15.6. Top Cover Group



16. List of Components

SAP must be referred for the part list.

17.List of Figures and Pictures

19. LIST OF TABLES