

# Laundry

## Top-loading WASHING MACHINE Service Manual



Models:  
NS-TWM45W1

### **CAUTION**

READ THIS MANUAL CAREFULLY TO DIAGNOSE TROUBLES CORRECTLY BEFORE OFFERING SERVICE.

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# 1. PRECAUTION

## 1.1 Safety precaution

- To prevent injury to the user or property damage, the following instructions must be followed.
- Incorrect operation due to ignoring instruction will cause harm or damage.
- Before servicing unit, be sure to read this service manual at first.

## 1.2 Warning

- Read all instructions before using the appliance.
- Use this appliance only for its intended purpose as described in this owner's Manual.
- Before use, the washer must be properly installed as described in this manual.
- ALWAYS follow the fabric care instructions supplied by the garment manufacturer.
- Do not wash or dry articles that have been previously cleaned in, washed in, soaked in, or spotted with gasoline, dry-cleaning solvents, other flammable or explosive substances as they give off vapors that could ignite or explode.
- Do not allow children to play on or in the appliance.
- Close supervision of children is necessary when the appliance is used near children.
- Before the appliance is removed from service or discarded, remove the lid of the washing or drying compartment.
- Do not reach into the appliance if the basket is moving.
- Do not install or store this appliance where it will be exposed to the weather or freezing temperatures.
- Do not tamper with the controls.
- Do not repair or replace any part of the appliance or attempt any servicing unless it is specifically recommended in the user-maintenance instructions or in published user-repair instructions that you understand and have the skills to carry out.
- Do not add gasoline, dry-cleaning solvents, or other flammable or explosive substances to the wash water. These substances give off vapors that could ignite or explode.
- Under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for 2 weeks or more.
- HYDROGEN GAS IS EXPLOSIVE. If the hot water system has not been used for 2 weeks or more, before using a washer or combination washer-dryer, turn on all hot water faucets and let the water flow from each for several minutes. This will release any accumulated hydrogen gas. As the gas is flammable, do not smoke or use an open flame during this time.
- Keep the area underneath and around your appliances free of combustible materials (lint, paper, rags, etc.), gasoline, chemicals and other flammable vapors and liquids.
- Do not place items exposed to cooking oil in your washer. Items contaminated with cooking oils may contribute to a chemical reaction that could cause a load to catch fire.
- This washer is not designed for maritime use or for mobile installations such as in RVs, aircraft, etc.
- Turn off the water faucets and unplug the washer if the machine is to be left for an

- extended period of time, such as during vacations.
- Packaging material can be dangerous for children. There is a risk of suffocation! Keep all package away from children.
  - Always check the inside of the washer for foreign objects before loading laundry. Keep the lid closed when not in use.
  - Plug the power cord into an AC 120V/60Hz wall socket rated at 15amps or higher. Use the socket for this washer only.
  - Do not use an extension cord.
    - Sharing a wall socket with other appliance, using a power strip, or extending the power cord may result in electric shock or fire.
    - Do not use an electric transformer. It may result in electric shock or fire.
    - Ensure that the power voltage, frequency, and current match the product's specifications. Failing to do so may result in electric shock or fire.
  - Have this appliance installed by a qualified technician or service company.
    - Failing to do so may result in electric shock, fire, explosion, problems with the product, or injury.
  - Remove all foreign substances such as dust or water from the power plug terminals and contact points using a dry cloth on a regular basis.
    - Unplug the power plug and clean it with a dry cloth.
    - Failing to do so may result in electric shock or fire.
  - Plug the power plug into the wall socket in the right direction so that the cord runs towards the floor.
    - If you plug the power plug into the socket in the opposite direction, the electric wires within the cable may be damaged and this may result in electric shock or fire.
  - Plug the power plug into the wall socket firmly. Do not use a damaged power plug, or loosen wall socket.
    - This may result in electric shock or fire.
  - Do not pull or excessively bend the power cord.
  - Do not twist or tie the power cord.
  - Do not hook the power cord over a metal object, place a heavy object on the power cord, insert the power cord between objects, or push the power cord into the space behind the appliance.
    - This may result in electric shock or fire.
  - Do not pull the power cord when unplugging the power plug.
    - Unplug the power plug by holding the plug.
    - Failing to do so may result in electric shock or fire. If the power plug or power cord are damaged, contact your nearest service center.
  - This appliance must be properly grounded.
  - Do not ground the appliance to a gas pipe, plastic water pipe, or telephone line.
    - Improper grounding may result in electric shock, fire, explosion, or problems with the product.
    - Never plug the power cord into a socket that is not grounded correctly. Make sure the socket you use is grounded in accordance with local and national codes.
  - Do not install this appliance near a heater or inflammable material.
  - Do not install this appliance in a humid, oily, or dusty location, or in a location exposed to direct sunlight or water (rain drops).
  - Do not install this appliance in a location where gas may leak.
    - This may result in electric shock or fire. If the washer is moved to a new location, have it checked and re-installed by a qualified service technician.
    - Failing to follow this warning may result in electric shock or fire.
  - If the appliance is flooded, cut the power immediately and contact your nearest service center.

- If the appliance emits a strange noise, a burning smell, or smoke, unplug the power plug immediately and contact your nearest service center.
  - Failing to do so may result in electric shock or fire.
- In the event of a gas leak (such as propane gas, LP gas, etc.), ventilate the area immediately. Do not turn any appliance or light on or off.
  - Do not use a ventilating fan.
  - A spark may result in an explosion or fire.
- Do not wash items contaminated with gasoline, kerosene, benzene, paint thinner, alcohol, dry cleaning detergent or other flammable or explosive substances.
  - This may result in electric shock, fire, or an explosion.
- Do not force the washer lid open while the washer is operating (high-temperature washing / drying / spinning).
  - Water flowing out of the washer may cause burns or cause the floor to be slippery. This may result in injury.
  - Forcing the lid open can damage the product or cause injury.
- Make sure to remove the packaging (sponge, styrofoam) attached to the bottom of the washer before using it.
- Do not insert your hand or a metal object under the washer.
  - This may result in injury.
- Do not attempt to operate this appliance if it is damaged, malfunctioning, partially disassembled, or has missing or broken parts, including a damaged cord or plug.
  - This may result in electric shock, fire or death.
- Do not touch the power plug with wet hands.
  - This may result in electric shock.
- Do not turn the appliance off by unplugging the power plug while the washer is in operation.
  - Plugging the power plug into the wall socket again may cause a spark and result in electric shock or fire.
- Keep all packaging material well out of the reach of children, as packaging materials can be dangerous to children.
  - If a child places a bag over its head, it may suffocate.
- Do not let children or infirm persons use this washer unsupervised.
  - Failing to do so may result in electric shock, burns or injury.
- Do not attempt to repair, disassemble, or modify the appliance yourself.
  - Do not use any fuse (such as cooper, steel wire, etc.) other than the standard fuse.
  - If you need to repair or reinstall the appliance, contact your nearest service center.
    - Failing to do so may result in electric shock, fire, problems with the product, or injury.
- If any foreign substance such as water enters the appliance in any area other than the tub, unplug the power plug and contact your nearest service center.
  - Failing to do so may result in electric shock or fire.
- If the water supply hose comes loose from the faucet and floods the appliance, unplug the power plug.
  - Failing to do so may result in electric shock or fire.
- Do not mix chlorine bleach with ammonia or acids such as vinegar.
  - Incorrect usage can produce poisonous gas, result in serious injury.
- Do not reach into the washer while parts are moving. Before loading, unloading, or adding items, press the START/PAUSE button and allow the basket to come to complete stop before reaching inside.
  - Failing to do so may result in electric shock, injury or fire.

- Do not allow children to play on or in the washer. Close supervision of children is necessary when the washer is used near children. As children grow, teach them the proper, safe use of all appliances.
  - Failing to do so may result in serious injury to persons.
- Keep laundry products out of children's reach. Observe all warnings on product labels and follow to do.
  - Failing to do so may result in serious injury to persons.
- Disconnect this appliance from the power supply before attempting any user maintenance. Turning the controls to the OFF position does not disconnect this appliance from the power supply.
  - Failing to do so may result in electric shock, injury or fire.
- Do not clean the appliance by spraying water directly onto it.
- Do not use benzene, thinner, or alcohol to clean the appliance.
  - This may result in discoloration deformation, damage, electric shock or fire.

### 1.3 Caution

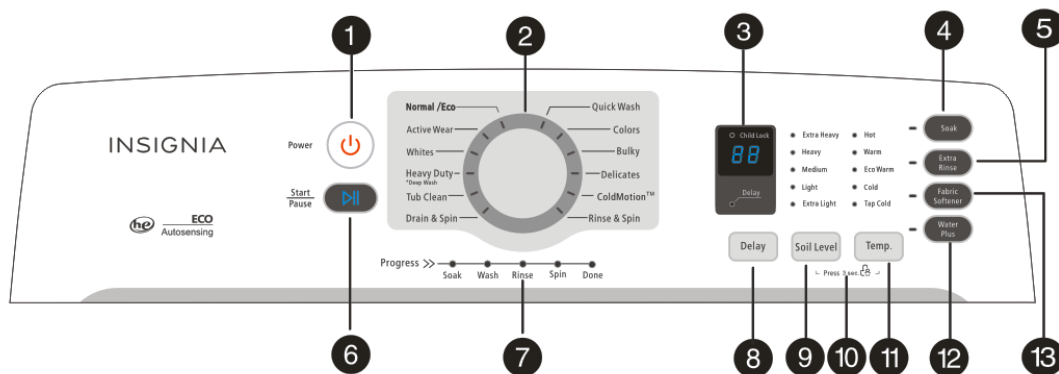
- Do not install on carpet. Install washer on a level and solid floor that can support its weight.
  - Failing to do so may result in abnormal vibrations, noise, or problems with the product.
- The washer is heavy. Two or more people may be needed to install and move the appliance.
  - Failing to do so may result in bodily or other injuries.
- Store and install the washer where it will not be exposed to temperatures below freezing or exposed to outdoor weather conditions.
  - Failing to do so may result in serious leak damage.
- Position the appliance so that the power plug is easily accessible.
  - Failing to do so may result in electric shock or fire due to electric leakage.
- To reduce the risk of injury to persons, adhere to all industry recommended safety glasses.
  - Failing to follow all of the safety warnings in this manual may result in property damage, or injury to persons.
- Unplug the power plug when the appliance is not being used for long periods of time or during a thunder/lightning storm.
  - Failing to do so may result in electric shock or fire.
- Keep hands and foreign objects clear of the lid and latch area when closing the lid.
  - Failing to do so may result in personal injury.
- If the washer is contaminated by a foreign substance such as detergent, dirt, food waste, etc., unplug the power plug and clean the washer with a damp, soft cloth.
  - Failing to do so may result in discoloration, deformation, damage or rust.
- The clear portion of the lid can be broken by a strong impact. Take care when using the washer.
  - If the clear portion is cracked or broken, it may result in injury.
- After a water supply failure or when reconnecting the water supply hose, open the faucet slowly.
- Open the faucet slowly after a long period of non-use.

- The air pressure in the water supply hose or the water pipe may result in damage to a part or in water leakage.
- If a drain error occurs during an operation, check if there is a draining problem.
  - If the washer is used when it is flooded because of a draining problem, it may result in electric shock or fire due to electric leakage.
- Do not insert your hand or a metal object under the washer.
  - This may result in injury.
- Insert the laundry into the washer completely so that laundry does not get caught in the lid.
  - If laundry gets caught in the lid, it may result in damage to the laundry or the washer, or result in water leakage.
- Ensure that the faucet is turned off when the washer is not being used.
  - Ensure that the water supply hose connectors are properly tightened.
  - Failing to do so may result in property damage or injury.
- Open the faucet and check if the water supply hose connector is firmly tightened and that there is no water leaking before using the product.
  - If the water supply hose connectors are loose, it may result in water leakage.
- Do not stand on top of the appliance or place objects (such as laundry, lighted candles, lighted cigarettes, dishes, chemicals, metal objects, etc.) on the appliance.
  - This may result in electric shock, fire, problems with the product, or injury.
- Do not operate the appliance with wet hands.
  - This may result in electric shock.
- Do not spray volatile material such as insecticide onto the surface of the appliance.
- As well as being harmful to humans, it may also result in electric shock, fire, or problems with the product.
- Do not place an object that generates an electromagnetic field near the washer.
  - This may result in injury due to a malfunction.
- Since the water drained during a high temperature wash or drying cycle is hot, do not touch the water.
  - This may result in burns or injury.
- Do not wash, spin, or dry water-proof seats, mats, or clothing.
  - Do not wash thick, hard mats even if the washer mark is on the care label.
- This may result in injury or damage to the washer, walls, floor, or clothing due to abnormal vibrations.
- Do not operate the washer when detergent dispenser is removed.
  - This may result in electric shock or injury due to water leakage.
- Do not insert your hand into the detergent dispenser after opening it.
  - This may result in injury as your hand may be caught.
- Do not place any non-laundry objects, such as shoes, food waste, or animals into the washer.
  - This can cause abnormal vibrations that can damage the washer, and, in the case of pets, cause severe injury or death.
- Do not press the buttons using sharp objects such as pins, knives, fingernails, etc.
  - This may result in electric shock or injury.
- Do not wash laundry contaminated by oils, creams, or lotions usually found in skincare shops or massage clinics.
  - This may result in the rubber seal becoming deformed and water leakage.
- Ensure that the water inlet pipe is connected and the tap is opened before washing clothes.

- Do not leave metal objects (safety pins, hair pins, etc.) or bleach in the tub for long periods of time.
  - This may cause the tub to rust.
  - If rust appears on the surface of the tub, apply a neutral cleansing agent to the surface and use a sponge to clean it. Never use a metal brush.
- Do not use hot water from water cooling/heating devices.
  - This may result in problems with the washer.
- Do not use natural hand-washing soap in the washer.
  - If it hardens and accumulates inside the washer, it may cause problems with the product, discoloration, rust, or bad odors.
- Do not wash large laundry items such as bedding in the washing net.
  - Failing to do so may result in injury due to abnormal vibrations.
  - Place smaller items, such as lace socks and lingerie in the washing net.
- Do not use hardened detergent.
  - If it accumulates inside the washer, it may result in water leakage.
- Do not wash throw rugs or doormats.
  - If you wash throw rugs or doormats, the sand will accumulate inside the washer. It may result in error such as no draining.

## 2. How to use

### 2.1 Controls and function



#### 1. Power button

Press once to turn your washer on. Press again to turn your washer off. If the washer is left on for more than 10 minutes without **Start/Pause** button being pressed, the power will automatically turn off.

#### 2. Cycle selector

Select the appropriate cycle for the type of load. The cycle you select determines the tub pattern for the cycle.

#### 3. Digital display



The LED digital display will show your remaining time for cycle selected. The initial display will be “--” for some selected cycles. The LED will show selected delay time when setting the delay time.

#### **4. Soak button**

Press once to select soak function. Press again to cancel selection. This function is especially for heavy soiled garments to remove stains more thoroughly by specifying additional time.

#### **5. Extra rinse button**

Press once to add an extra rinse into the washing program. Press again to cancel selection.

#### **6. Start/pause button**

Press once to start the program. Press again to pause the program. You can't change any setting except add a garment. Press again to restart the program.

#### **7. Cycle status lights**

The relative light will be lighted when the washer is in its washing program, say the soak will light when the washer is operating in soak process. When the whole program is finished, the Done light will flash.

#### **8. Delay button**

Delay the start of any cycle for up to 24 hours in one-hour increments. Displayed hour indicates the time the wash will be started.

#### **9. Soil level button**

Press the button to select the soil level. Different soil level will result in different washing time.

#### **10. Child lock**

Press the “**Soil level**” and “**Temp**” buttons simultaneous for over 3 seconds to activate this function. Press again for another 3 seconds to deactivate the function. All selection except the “Power” will be out of function.

#### **11. Temp button**

Press the button to select the washing water temperature. The rinsing water temperature will always keep in Tap Cold.

**Hot** - Whites and heavily soiled, colorfast items.

**Warm** - Colorfast items.

**Eco Warm** - Moderately soiled, colorfast items; most wrinkle-free items

**Cold** - Brightly colored, very lightly soiled items.

**Tap cold** - Cold water with no warm water added.

#### **12. Water Plus**

Press the button, increase one water level. And press again to cancel the function.

This option is not available on the Normal/Eco cycle.

For chosen ,the cycle will change to the Heavy Duty.

#### **13. Fabric Softener**

If you are using fabric softener, Press this button to set dispenser to automatically add liquid fabric softener to the load at the correct time.

## 2.2 Cycle guide with option settings

Cycle	Fabric type	Soil Level	Temp	Delay	Soak	Extra Rinse	Fabric Softener	Water Plus
Normal	Cotton, linen, towels, shirts, sheets, jeans, mixed loads	Extra Heavy	Hot	●	●	●	●	Deep Wash
		Heavy	Warm					
		Medium	Eco w arm					
		Light	Cold					
		Extra light	Tap cold					
Active Wear	Active Wear		Hot	●	●	●	●	●
		Heavy	Warm					
		Medium	Eco w arm					
		Light	Cold					
		Extra light	Tap cold					
Whites	White fabrics		Hot	●	●	●	●	●
			Warm					
		Medium	Eco w arm					
		Light	Cold					
		Extra light	Tap cold					
Heavy Duty	Heavily soiled cotton fabrics	Extra Heavy	Hot	●	●	●	●	●
		Heavy	Warm					
		Medium	Eco w arm					
		Light	Cold					
			Tap cold					
Tub Clean		Extra Heavy	Hot	●				
Drain&spin				●				
Rinse&spin			Tap cold	●		●		●
coldmotion				●				●
		Medium						
		Light						
Delicates	Dress shirts/blouses, nylons, sheer or lacy garments		Hot	●	●	●	●	●
		Heavy	Warm					
		Medium	Eco w arm					
		Light	Cold					
		Extra light	Tap cold					
Bulky	Large items such as blankets and comforters	Extra Heavy	Hot	●	●	●	●	●
		Heavy	Warm					
		Medium	Eco w arm					
		Light	Cold					
		Extra light	Tap cold					
Colors	Cotton, linen, towels, shirts, sheets, jeans, mixed	Heavy		●	●	●	●	●
		Medium						
		Light						
		Extra light	Tap cold					
Quick Wash	Lightly soiled and small loads		Hot	●	●	●	●	●
			Warm					
		Medium	Eco w arm					
		Light	Cold					
		Extra light	Tap cold					

\* Table in grey is an initial setting. Dots are all optional functions you can select.

## 2.3 Detergent

### Loading the liquid detergent compartment



- 1 Pour the recommended amount of laundry detergent directly into the compartment before starting your washer.
- 2 If you are using color-safe bleach, add it with the detergent to the detergent compartment.
  - When adding color-safe bleach with detergent, both laundry products should be in the same form (liquid).
  - If no detergent compartment, you should add the detergent into the tub.
  - If you are using powder, add it into the tub directly.



- Loading the Bleach compartment (Liquid chlorine bleach only)
  1. Add chlorine bleach to the bleach compartment.
  2. **DO NOT** exceed the bleach compartment.
  3. As no water inlet to bleach dispenser, the bleach will directly load into the tub when you pour in.
    - Avoid splashing or over-filling the compartment.



Never pour undiluted liquid chlorine bleach directly onto the load or into the tub. It is a powerful chemical and can cause fabric damage, such as weakening of the fibers or color loss, if not used properly.

If you prefer to use color-safe, non-chlorine bleach, add it to the appropriate detergent compartment.  
**DO NOT** pour color-safe bleach into the Bleach compartment.



- Loading the Fabric softener compartment
  1. Pour the recommended amount of liquid fabric softener into the softener compartment.
  2. The dispenser automatically releases liquid fabric softener at the proper time during the rinse cycle.
  3. If using fabric softener on **NORMAL** cycles, please make sure to press the **FABRIC SOFTENER** button on.

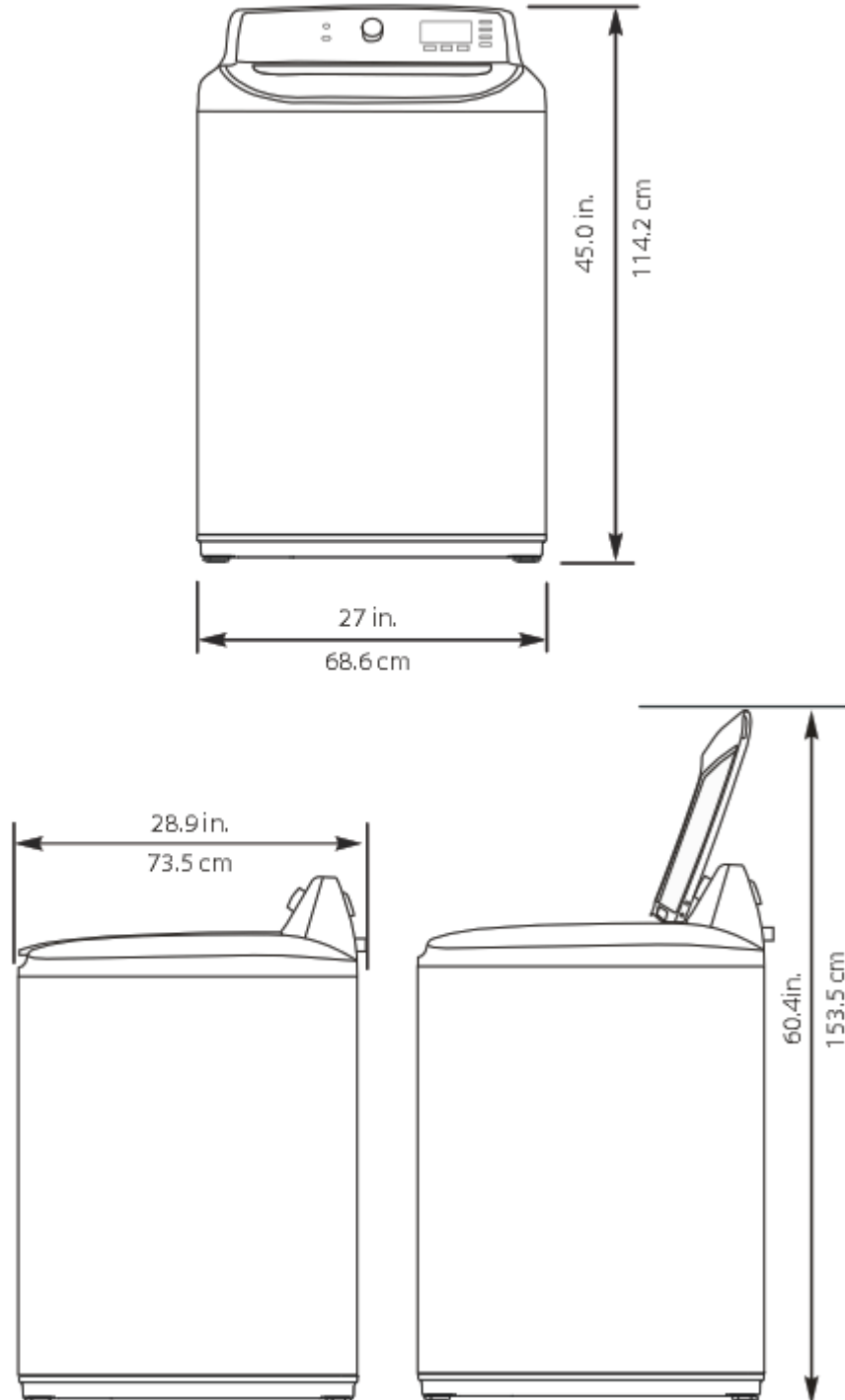


Use the softener compartment **ONLY** for liquid fabric softeners. **DO NOT** use the Downy Ball in the fabric softener compartment with this washer. It will not add fabric softener at the appropriate time. Use the detergent compartment.  
Do not use liquid fabric softener that is too sticky as it may not mix with the water sufficiently.

## 3. DIMENSION and INSTALLATION

### 3.1 Unit dimension

Washer dimensions and installation measurements



## 3.2 Installation



These instructions should be retained for future reference.  
Follow the followings STEP by STEP to ensure a successful installation.

### • STEP 1: Select a location

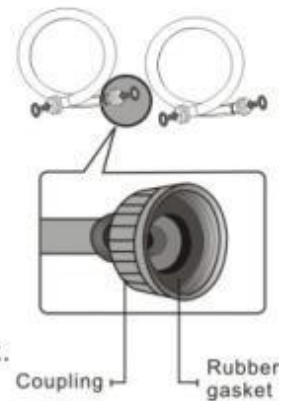
Before you install the washer, make sure the location:

- Has a hard, level surface without carpeting or flooring that may obstruct ventilation.
- Is away from direct sunlight.
- Has adequate ventilation.
- Is not exposed to freezing temperatures (temperature under 32 °F or 0 °C).
- Is away from heat sources such as oil or gas.
- Has enough space so that the washer doesn't rest on its power cord.

### • STEP 2: Connect the water hose



The water supply hoses are not supplied with your washer and must be purchased separately. Before installing the water supply hoses, make sure there are rubber gaskets inside the fittings at both ends of each new water hose. Installing the water supply hoses without rubber gaskets can cause water leakage. When you initially install the washer, be sure to use new hoses. Failing to do so may result in a water leakage or overflow and may damage your property. Do not connect multiple water supply hoses together to increase the length of the supply hose. Hoses connected this way can leak and the leakage can cause electrical shock. If a hose is too short, replace the hose with a longer, high pressure hose.

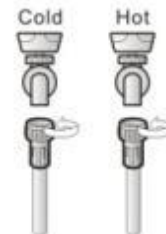


1. Connect the ends of the water supply hoses to the HOT and COLD faucets.
2. Tighten the fittings by hand until they are snug, and then tighten them an additional two-thirds of a turn with a wrench.



When you fasten the fittings, do not fasten them too tightly or apply tape or sealant to the faucets or water supply intakes. This can damage the fittings.

After you have connected the water supply hoses to the faucets, ensure that they are connected correctly by pulling the water supply hoses downwards.



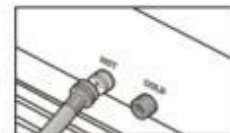
3. Place the unconnected ends of the hoses into a bucket and open the faucets connected to the two water supply hoses for 10 or 15 seconds to remove any foreign substances from the hoses. Close the faucets before continuing.



4. Connect the ends of the water supply hoses to the water supply intake connections at the back of the washer.



The water supply hose connected to the HOT faucet must be connected to the hot water supply intake and the water hose connected to the COLD faucet must be connected to the cold water supply intake.



5. Tighten the fittings by hand until they are snug, and then tighten them an additional two-thirds of a turn with a wrench.



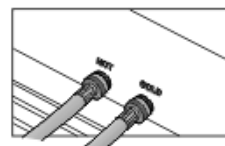
Confirm that the water supply hoses are not twisted or bent. If the hoses are twisted or bent, the hoses can leak and cause electric shock due to the water leakage.





To ensure the correct water usage, connect both the HOT and COLD water faucets. If either or both are not connected, an error code can occur.

If you do not want to use the HOT water supply hose, insert the water intake cap into the HOT water supply intake hole. In this case, you must select the Tap Cold option for the water temperature.



6. Turn on the HOT and COLD water supplies and check all the water supply intake connections and the faucets for water leaks.

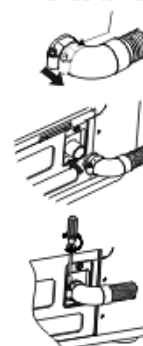
• **STEP 3: Connect the drain hose**

1. Connect the drain pipe onto your washer.  
The drain pipe is attached as accessory with your washer.

- A. Find the clamp on one end of the drain hose. Move the clamp forward as shown in right figure.
- B. Insert the drain hose onto the washer until it contact the pump outlet. Then move the clamp near the pump outlet.
- C. Screw the clamp tightly with a flat screwdriver clockwise.
- D. Find the clamber-hose, and socket them to the marked place of drain, then fasten them to the frame with screw by phillips screwdriver.

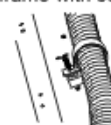


Slide to here.



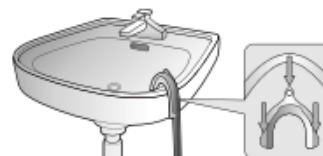
Fail to slide the drain hose over the sewer completely may result in water leakage.  
Fail to move the hoop back will result in water leakage.

Fasten the Hose clamp to the frame with screw



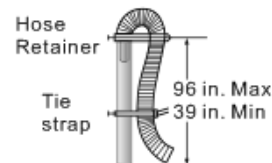
2. Position the other end of the drain hose.  
It can be positioned in three ways.

- A. Over the edge of a wash basin  
Secure the guide to the side of the basin wall with a hook or to the tap with a piece of string to prevent the drain hose from moving.

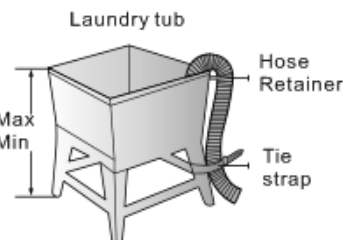


Standpipe

- B. In a standpipe  
The standpipe must be no shorter than 39 in. (99cm) and no longer than 96 in. (245cm).



- C. in a laundry tub.  
The laundry tub must be no shorter than 39 in. (99cm) and no higher than 96 in. (245cm).



Make sure that the connection between the drain hose and the wash basin, or standpipe, or laundry tub is not airtight.

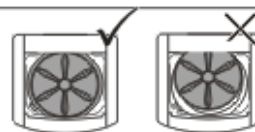
## Installation

### Installation Steps

#### ● STEP 4: Leveling your washer

See if the washer is level by checking the position of the tub or using a leveling gauge.

1. Slide the washer into position.
2. Open the lid of the washer, and pour the water into the tub to just below the agitator level.

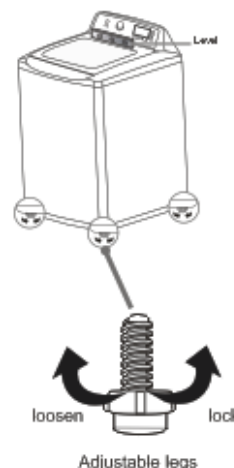


3. If the washer is level, the pulsator is positioned at the center of the washer as shown in the figure right. If not, level your washer by turning the front leveling feet clockwise or counterclockwise as necessary.



DO NOT use the washing machine without leveling. It may result in malfunction caused by the production of excess vibration and noise.

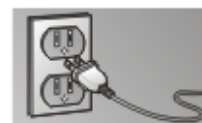
Use the leveling feet only when you level the washing machine. If you raise the leveling feet unnecessarily, it may cause abnormal vibration of the washing machine.



#### ● STEP 5: Powering your washer

Plug the power cord into a 3-prong, well grounded 120Volt 60Hz approved electrical outlet protected by a 15-amp fuse or comparable circuit breaker.

Your washer is grounded through the third prong of the power cord when plugged into a 3-prong grounded electrical outlet.



#### ● STEP 6: Run a test cycle

Run a test cycle as following to check if your washer is properly installed.

1. Load about 6 pounds of laundry into the tub.
2. Press the **Power** button to turn on your washer.
3. Select the **Rinse&Spin** cycle by turning the **Cycle Selector**.
4. Press the **Start/Pause** button to start the test cycle.
5. The washer should not rock or vibrate excessively when water is supplied or when washing or spinning, and should drain well during the spin cycle.



If water leaks while water is being supplied or drained, check the water connections. Refer to the "**Connect the water hose**" and "**Connect the drain hose**" section for instructions.

If the washer rocks and vibrates excessively, level your washer again. Refer to the "**Leveling your washer**" section for instructions.

**Notice:** The electrical valve, retractor, motor and drain pump of this appliance are intentionally not grounded and may present a risk of electric shock during serving. Do not contact these electronic devices while the appliance is energized.

## 4. TROUBLE SHOOTING

### 4.1 Test mode by Control

**Note:** Before entering the test mode, you should empty the machine so that there is no water left in the drum. You can run a spin cycle or open the service panel from the front of the unit to get all water out. Then make sure all parts are in their original position for check running.



To enter the test mode, press button Soak, button Extra Rinse button and button Power together at the same time.

When unit is powered ON, you can turn it OFF by pressing the button Power anytime.

### 4.2 Test modes

Before starting test mode, the water level sensor should be installed. Otherwise, the unit will alarm and stop running test mode.

**Test 1:** Anytime you enter the test mode, all lights and digital will be ON and then flash with 6 beeps. If any light is not ON, replace the PCB. If the digital in not 88 displayed, replace the PCB. If you can't hear the beep, replace the PCB.

**Test 2:** Washing test, to check the motor and rotate directions.

In 9 seconds after entered test mode, press button Soil Level to enter Washing test.

The Normal cycle light, Wash procedure light will be ON in Washing test.

The digital time will display 3 indicating that the remaining time is 3 minutes.

The motor and impeller will rotate in two-directions in turn.

The test mode will end with 6 beeps and Done light flashing after 3 minutes' operation. All lights will be OFF when the lid is opened.

**Test 3:** Spinning test, to check clutch and pump.

In 9 seconds after entered test mode, press button Temp to enter Spinning test.

The Normal cycle light, Spin procedure light will be ON in Spinning test.

The digital time will display 3 indicating that the remaining time is 3 minutes.

The pump will start in 8 seconds. Another 2 seconds later, the unit will start Spinning test.



The test mode will end with 6 beeps and Done light flashing after 3 minutes' operation. All lights will be OFF when the lid is opened.

**Test 4: Inlet valve test, Software version check**

In 9 seconds after entered test mode, press button Fabric Softener to enter Inlet valve test.

The inlet valve test will start. The valves will be ON and water can enter the unit. Check the detergent compartment, softener compartment and the basket water filling to check every valve.

Close the cold water faucet to see if the hot water valve is working or not.

At the same time, the digital display will show the software version. There are two software versions: one is for display PCB displayed with "U-" and two digital followed; the other one is for power PCB displayed with "B-" and two digital followed.

The test mode will end with 6 beeps and Done light flashing after 1 minute's operation. All lights will be OFF when the lid is opened.

**Test 5: Auto-sensing check**

In 9 seconds after entered test mode, press button Delay to enter auto-sensing test.

The unit will check the auto-sensing function in this test mode.

The digital will display test result if this function is right.

Replace the Power PCB if there isn't any display on the digital after the test in 3 seconds.

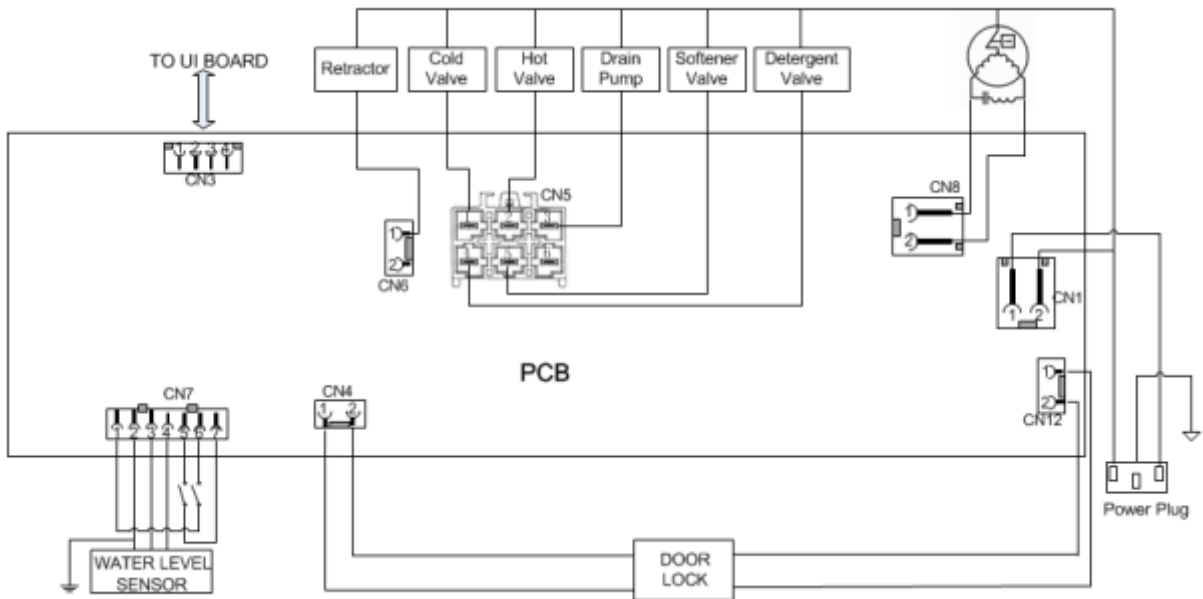
The test mode will end with 6 beeps and Done light flashing. All lights will be OFF when the lid is opened.

### 4.3 Error codes

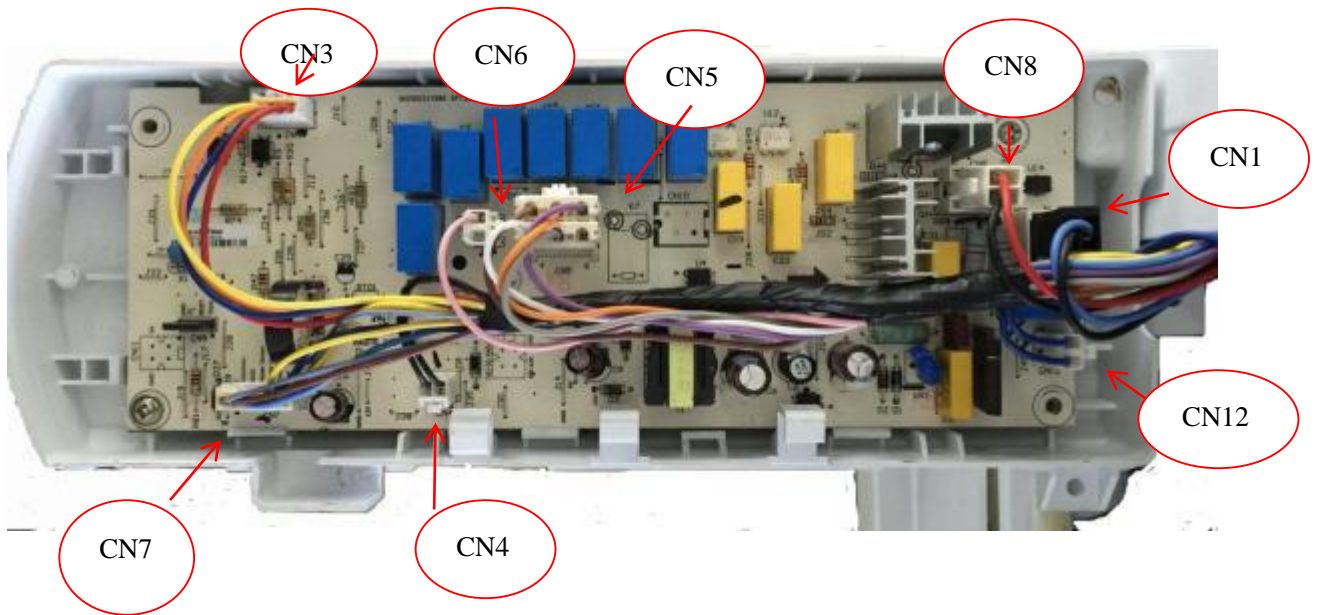
Error Code	Possible Cause	Solution
E1	Alarm for abnormal water intaking .	Check if the lid is open. Turn both faucets on fully. Check if the water pressure is in the range. Straighten the water inlet hoses. Disconnect hoses and clean the screens. Hose filter screens may be clogged.
E2	Alarm for water drain has not Finished.	Check the fuse or reset the circuit breaker. Straighten the drain hoses. Eliminate kinked hoses. If there is a drain restriction, call for service. Close the lid and press the Start/Pause button. For your safety, your washer will not spin unless the lid is closed. Check the height of drain hose end.
E3	The lid is open.	Close the lid. The door lock or PCB is failed. Refer to 4.5 trouble shooting.

E4	The unit is out of balance in spin operation.	<p>Make sure your washer is set on a level surface. If the surface is not level, adjust your washer's feet to level the appliance.</p> <p>Make sure your washer is not touching any other object.</p> <p>Make sure the laundry load is balanced.</p> <p>During the spin process, if clothes are piled at one side of basket, it will stop due to imbalance. The unit will try to solve the problem automatically. If the washer can't solve the problem in three trials, you should replace the clothes and make it as even as possible manually.</p>
F2	The PCB failed	Replace the PCBs.
F8	Water leveling sensor failed	Refer to 4.5 Trouble shooting.
Fd	Door lock failed	Refer to 4.5 Trouble shooting.
C9	The PCB failed	Replace the PCBs.
CL	The door opened over 20 seconds with Child Lock function activated.	<p>Press the /Power button to turn off your washer.</p> <p>Turn off the Child Lock function.</p>

## 4.4 Wiring diagram and terminals






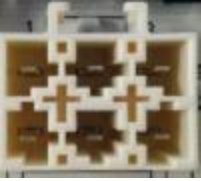




Wiring diagram Picture 1



Wiring diagram Picture 2

**Port definition** (Detail pin definition refer to Wiring diagram Picture 1)

Port	Name on PCB	Definition
CN1		Pin 1: Live line Pin 2: Null line

CN3		PIN1: TXD PIN2: RXD PIN3: GND PIN4: +5V
CN4		Door Lock status detection
CN5		PIN1: Cold valve PIN2: Hot valve PIN3: Drain pump PIN4: Detergent valve PIN5: Softener valve PIN6: NC
CN6		PIN1: Retractor PIN2: NC
CN7		PIN1: Common PIN2: GND PIN3: Water level sensor PIN4: Water level sensor PIN5: Reed switch PIN6: Out of Balance Switch PIN7: 12V
CN8		PIN1: Negative rotation control PIN2: Positive rotation control
CN12		Door lock control

## 4.5 Trouble shooting

You can check for a quick solution as following table.

Description	Solution
The unit doesn't start.	<ul style="list-style-type: none"> <li>- Make sure your washer is plugged in.</li> <li>- Make sure the lid is closed.</li> <li>- Make sure the water source faucets are open.</li> <li>- Make sure to press the Start/Pause button to start your washer.</li> <li>- Make sure Child Lock is not activated.</li> <li>- Check if a Delay Start is set.</li> <li>- Before your washer starts to fill, it will make a series of clicking noises to check the lid lock and go a quick drain.</li> </ul>
No water or not enough water. Detergent / Softener remains in its box after the wash cycle is completed.	<ul style="list-style-type: none"> <li>- Turn both faucets on fully.</li> <li>- Check if the water pressure is in the range .</li> <li>- Straighten the water inlet hoses.</li> <li>- Disconnect hoses and clean the screens. Hose filter screens may be clogged.</li> </ul>
Vibrates or is too noisy.	<ul style="list-style-type: none"> <li>- Make sure your washer is set on a level surface. If the surface is not level, adjust your washer's feet to level the appliance.</li> <li>- Make sure your washer is not touching any other object.</li> <li>- Make sure the laundry load is balanced.</li> </ul> <p>During the spin process, if clothes are piled at one side of basket, it will stop due to imbalance. The unit will try to solve the problem automatically. If the washer can't solve the problem in three trials, you should replace the clothes and make it as even as possible manually.</p>
Stops	<ul style="list-style-type: none"> <li>- Plug the power cord into a live electrical outlet. Check the fuse or reset the circuit breaker.</li> <li>- Close the lid and press the Start/Pause button to start your washer. For your safety, your washer will not spin unless the lid is closed.</li> <li>- Before your washer starts to fill, it will make s series of clicking noises to check the lid lock and do a quick drain.</li> <li>- There may be a pause or sock period in the cycle. Wait and it may start.</li> <li>- Check the screens on the inlet noses at the faucets for obstructions. Clean the screens periodically.</li> </ul>

<p>Lid locked or will not open.</p>	<p>Press the Start/Pause button to stop your washer. It may take a few moments for the lid lock to disengage.</p>
<p>Does not drain or spin.</p>	<p>Straighten the drain hoses. Eliminate kinked hoses. If there is a drain restriction, call for service.</p> <ul style="list-style-type: none"> <li>- Close the lid and press the Start/Pause button. For your safety your washer will not spin unless the lid is closed.</li> <li>- Check the height of drain hose end.</li> </ul>
<p>Fills with wrong temperature water.</p>	<ul style="list-style-type: none"> <li>- Turn both faucets fully.</li> <li>- Make sure the temperature selection is correct.</li> <li>- Make sure the hoses are connected to the correct faucets.</li> </ul> <p>Flush water lines.</p> <ul style="list-style-type: none"> <li>- Disconnect the hoses and clean the screens. The hose filter screens may be clogged.</li> </ul>
<p>Load is too wet at the end of the cycle.</p>	<ul style="list-style-type: none"> <li>- Use high efficiency detergent to reduce over-sudsing.</li> <li>- The load is too small. Very small loads (one or two items) may become unbalanced and not spin out completely.</li> </ul>
<p>Leaks water.</p>	<ul style="list-style-type: none"> <li>- Make sure all hose connections are tight.</li> <li>- Make sure the end of the drain hose is correctly inserted and secured to the drainage system.</li> <li>- Avoid overloading.</li> <li>- Use high efficiency detergent to prevent over-sudsing .</li> </ul>

<p>Has excessive suds.</p>	<ul style="list-style-type: none"><li>- Use high efficiency detergent to prevent over-sudsing.</li><li>- Reduce the detergent amount for soft water, small or lightly soiled loads.</li><li>- Non-HE detergent is NOT recommended.</li></ul>
<p>Has an odor.</p>	<ul style="list-style-type: none"><li>- Run a Tub Clean cycle to clean the tub and basket periodically.</li><li>- Check your detergent. Excessive suds collect in nooks and crannies and cause mold.</li><li>- Dry the interior of your washer after the total cycle has finished.</li></ul>

A. Water inlet time over 60 minutes (E1)

Whether the Drain Hose is hung up beyond the height of 100cm

The drain hose end should be over 100cm height from the bottom of the unit.



Check the faucet for fully open.  
Check the water pressure.

The water pressure should be in range from 0.05MPa to 1MPa.



Check the drainage hose.

If the unit is draining water at the same time, check the pump for failure.



Whether the inlet filter net is blocked



Clean the water filter if blocked.



Check the wire connection.  
Check the wires for open cycled.

If the wires are open cycled, replace the harness.



Check the inlet valve. Replace if failure.



The resistance on coil should be between 0.7-1.2KΩ.



Check the water level sensor



Test the electric capacity between terminal 1 and terminal 2, terminal 2 and terminal 3. If the capacity is not in range from 40nF to 50nF, replace the water level sensor.





Replace the PCBs



Test the resistance between terminal 1 and terminal 3. If the resistance is not in range from 20 to 40 Ohms, replace the water level sensor.

B. Water drainage time over 10 minutes (E2)

Check the wire connection.  
Check the wires for open  
cycled.

If the wires are open cycled, replace the harness.



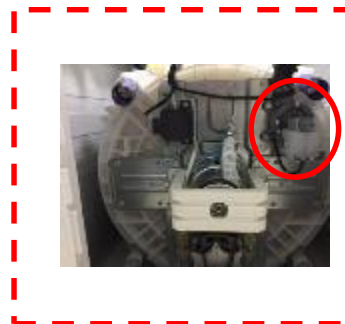
Check the pump.



The resistance of coil should be in  
range from **10 to 20 Ω**.



Check pump block or not.



Disassemble the pump and check  
if there is any foreign subject in it.  
Clean if any.



Replace the PCBs.

C. Lid open (E3)

Check if the top lid is open.  
Close the lid if opened.



Move a magnetic-iron close to the panel as figure right to check if the Error Code disappeared.



Check the wires connecting the magnetic switch.



Check the magnetic switch.



Check the resistance of the magnetic switch. Replace if short-circuit. short-circuit.  
Place a magnetic iron close to the magnetic switch. Check the resistance again. Replace if open-circuit.

D. Unbalance (E4)

Make the clothes in the basket even.



Check the legs of the washer.  
Re-adjust them if not in level position.



Check the impact switch.



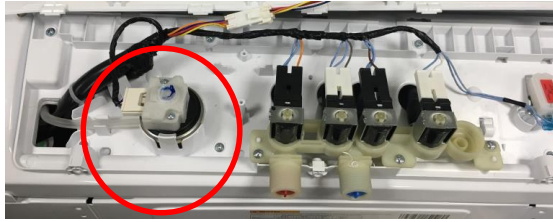
Replace the PCB.



Check the resistance of the switch. Replace it if open-circuit. Push the bar to another position and check the resistance again. Replace it if short-circuit.

E. Water leveling sensor Failure (F8)

Check the water leveling sensor.



Test the electric capacity between terminal 1 and terminal 2, terminal 2 and terminal 3. If the capacity is not in range from 40nF to 50nF, replace the water level sensor.



Test the resistance between terminal 1 and terminal 3. If the resistance is not in range from 20 to 40 Ohms, replace the water level sensor.



Check the harness and connections.



Replace the PCBs.

F. Door Lock failure (Fd)

Check the harness and connections.



Check the Door Locker.



Check the resistance between two blue lines of the Door Locker. Replace it if the read is not in range from 50 to 80 Ohms.



Check the resistance between the two black lines. If it is open-circuit while the locker bar long, or if it is short-circuit while the locker bar short, replace it.



Replace the PCBs.

G. Water Leakage.

Verify the water inlet pipe connection and check for leakaging.



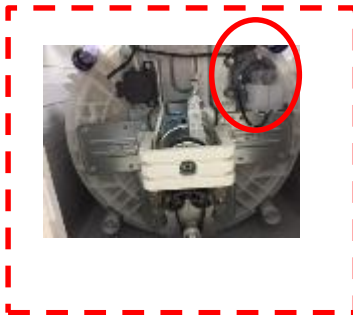
Check the drainage pipe and connection for leakaging.



Check the connection of inlet pipes.



Check the pump for leakaging.

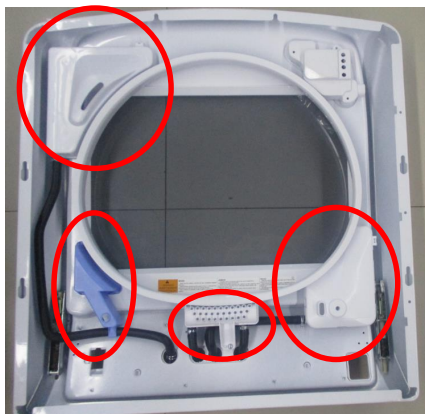


Check the water level sensor pipe.




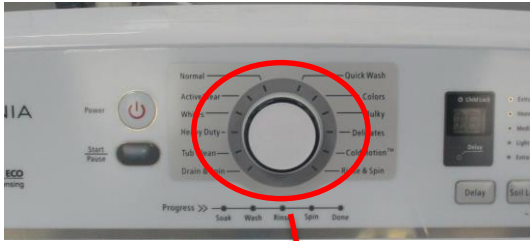
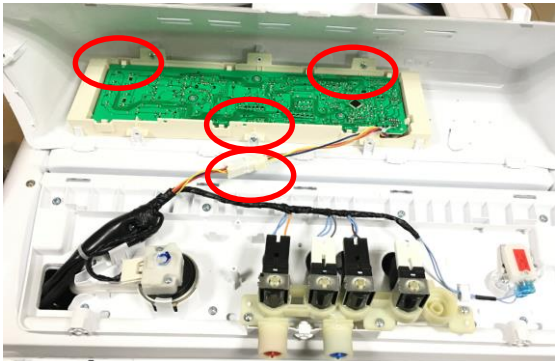



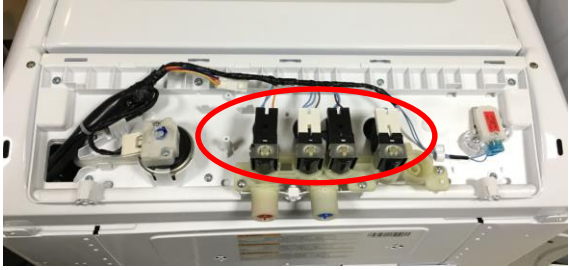


Check the detergent box, bleach box, softener box and the center water inlet connection.












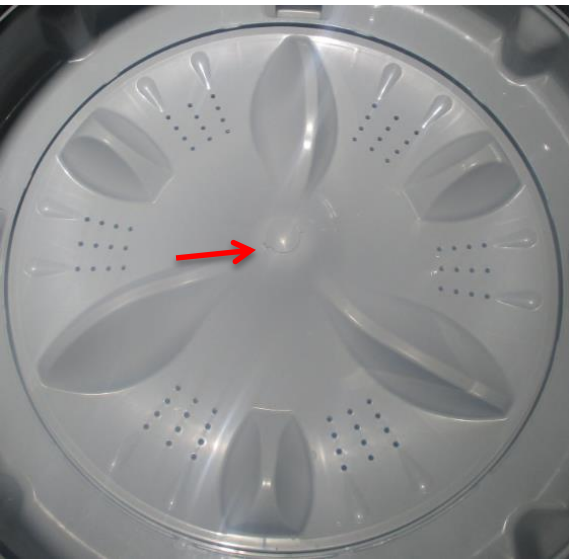
## 5. HOW TO DISASSEMBLY THE UNIT


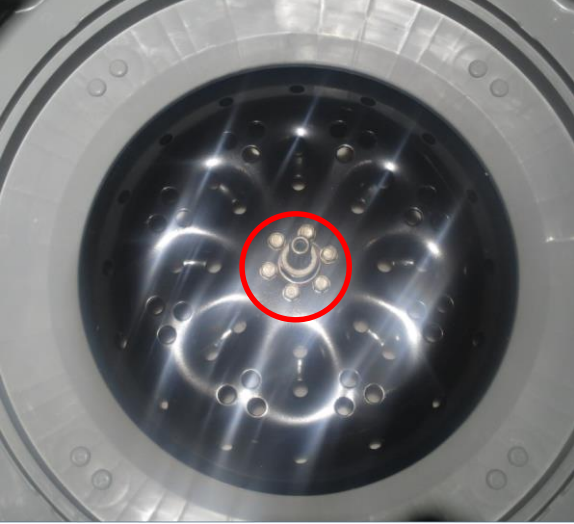

What's for	Steps	Description	Tools needed
Check and Replace the PCB(LV) Water inlet valves, Water Level Switch, Impact switch	1.1 Remove the Control Panel Assembly	 Disassemble the three screws fixing the control panel Assembly on the back of the unit. Push the control panel front to open.	Phillip screwdriver
	1.2 Remove the Knob Assembly	 Pull the knob out.	No tools needed
	1.3 Disassemble the PCB(LV)	 Disassemble the six screws and Housing.	Phillip screwdriver
	1.4 Check water level sensor	 	Phillip screwdriver

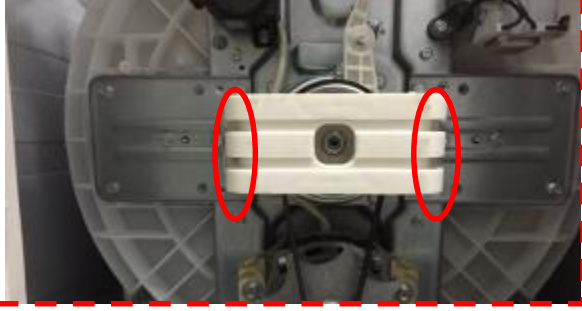
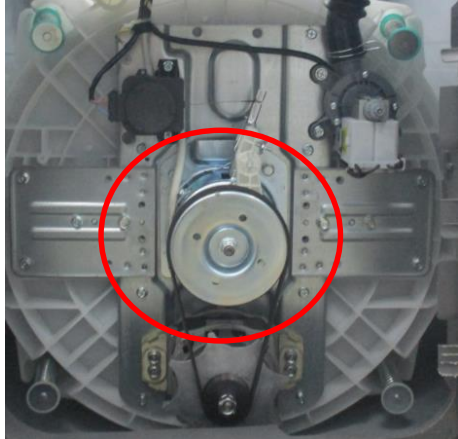
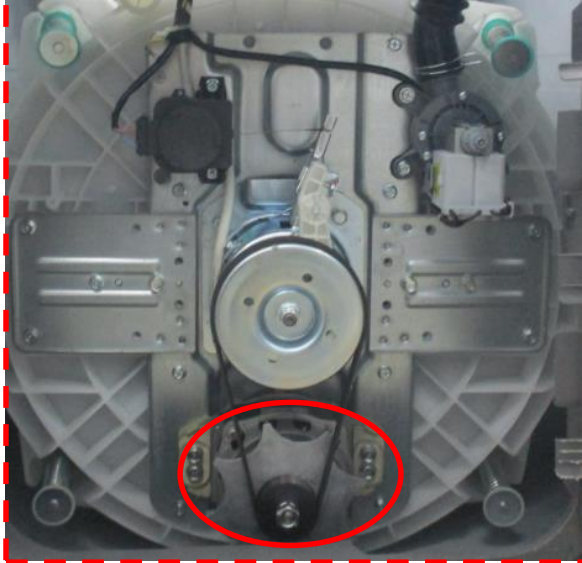
	<p>1.5 Check the water inlet valve</p>		<p>Phillip screwdriver</p>
	<p>1.6 Check the Impact switch</p>		<p>Phillip screwdriver</p>
<p>Check and Replace the Door lock</p>	<p>2.1 Remove the Top Cover Assembly</p>	 <p>Disassemble the two screws push top cover from back side</p>	<p>Phillip screwdriver</p>
	<p>2.2 Open the top cover assembly</p>		<p>No tools needed</p>

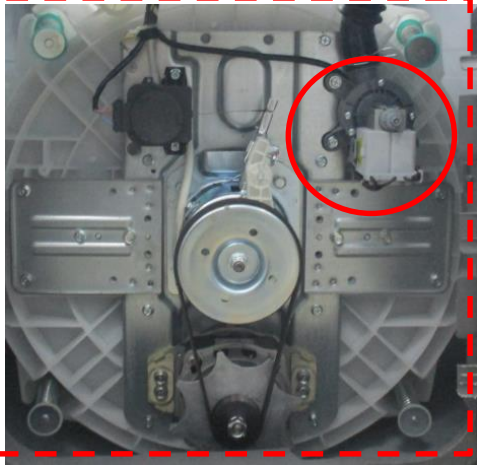
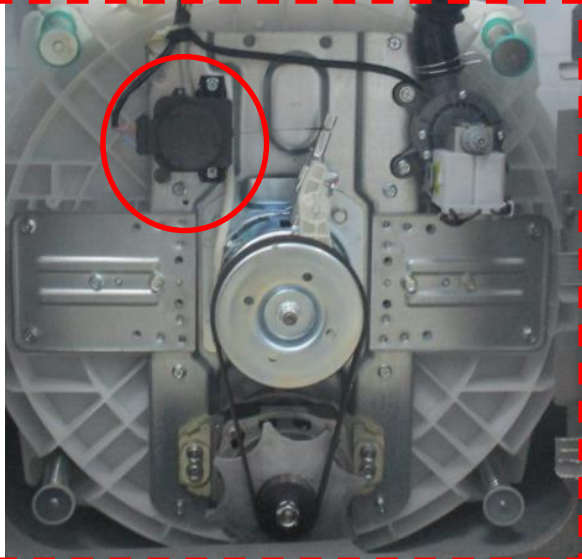

		 <p>Open the top cover assembly sidelong but be careful for impact switch no brake.</p>	
2.3 Open the Lock box		 <p>Disassemble the three screws and open the lock box</p>	Phillip screwdriver
2.4 Check the Door lock			Phillip screwdriver

Check and Replace the Electrical PCB	3.1 Remove the Rear cover	 <p>Disassemble the six rear cover screws and four Electrical Box screws.</p>	Phillip screwdriver
	3.2 Remove the Electrical Box	 <p>Take the Electrical Box out of cabinet</p>	No tools needed

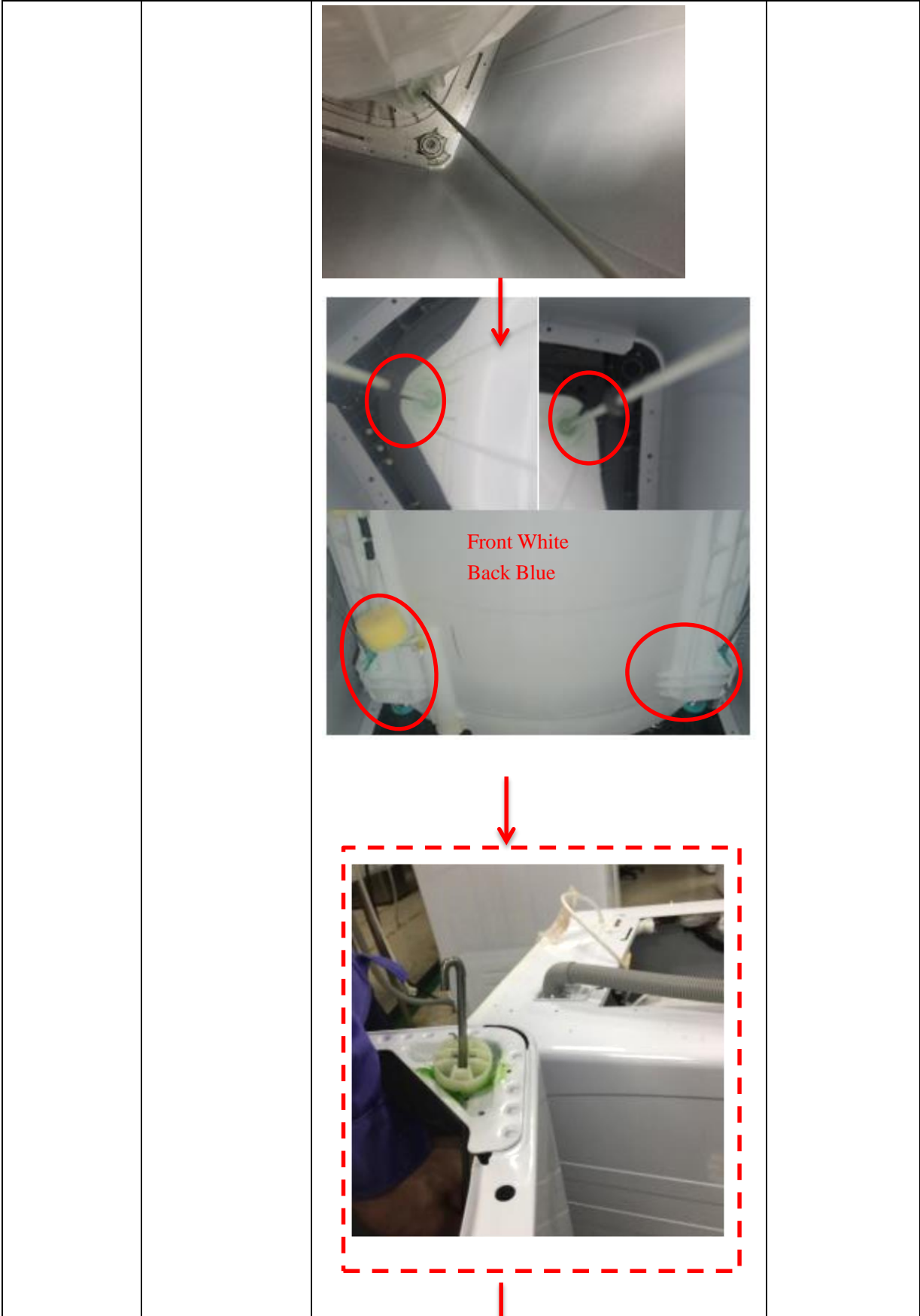
	<p>3.3 Open the Electrical Box</p>	 <p>Disassemble the two screws and open the electrical box.</p>	<p>Phillip screwdriver</p>
	<p>3.4 Check the Electrical PCB</p>		<p>No tools needed</p>
<p>Check and Replace the Clutch , Motor, Drain pump, Retractor</p>	<p>4.1 Remove the Muddler Cover</p>		<p>No tools needed</p>



	<p>4.2 Remove impeller screw</p>	 <p>Disassemble the one screw and take impeller out .</p>	<p>Phillip screwdriver</p>
	<p>4.3 Disassemble six screw of clutch</p>	 <p>Disassemble six screw of clutch</p>	<p>Socket head screw wrench CR-V 5mm</p>
	<p>4.4 Place upside down of laundry</p>		<p>No tools needed</p>

	<p>4.5 Disassemble the bracket</p>	 <p>Disassemble four screw of bracket</p>	<p>Ten sleeve</p>
	<p>4.6 Check the clutch body subassembly</p>		<p>No.10 Sleeve</p>
	<p>4.7 Check the Motor</p>		<p>No.14 Sleeve</p>

	<p>4.8 Check the Drain Pump</p>		<p>No.10 Sleeve</p>
	<p>4.9 Check the Retractor</p>		<p>No.10 Sleeve</p>
<p>Check and Replace the suspend system</p>	<p>5.1 Remove the Top Cover Assembly</p>	<p>Same as 2.1</p>	<p>Phillip screwdriver</p>
	<p>5.2 Open the top cover assembly</p>	<p>Same as 2.2</p>	<p>No tools needed</p>
	<p>5.3 Remove the suspend out with Outer Tub</p>		<p>No tools needed</p>

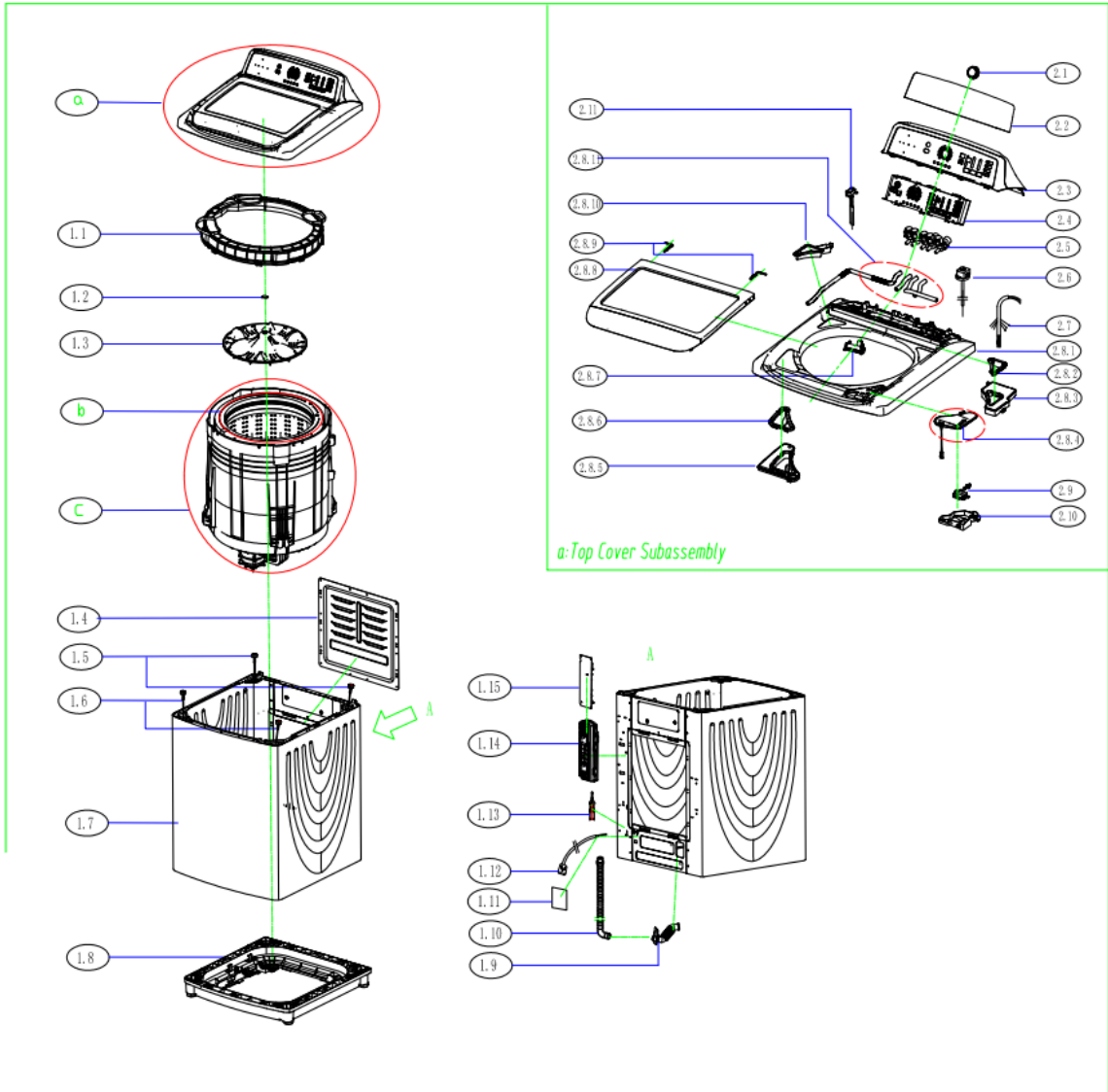




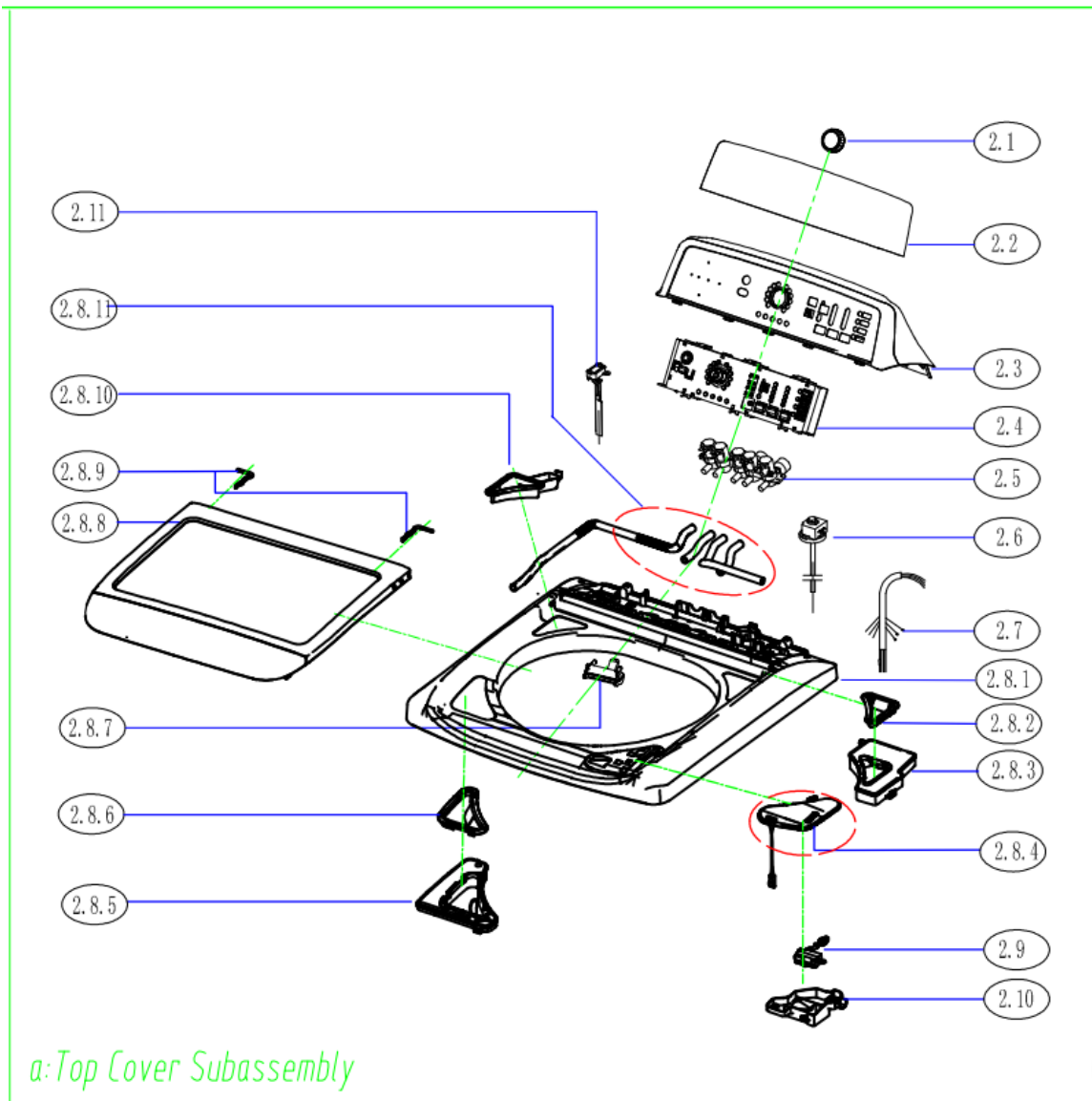
			
	<p>5.4 Remove the suspend out with Cabinet</p>		<p>No tools needed</p>

# 6. EXPLODED VIEW

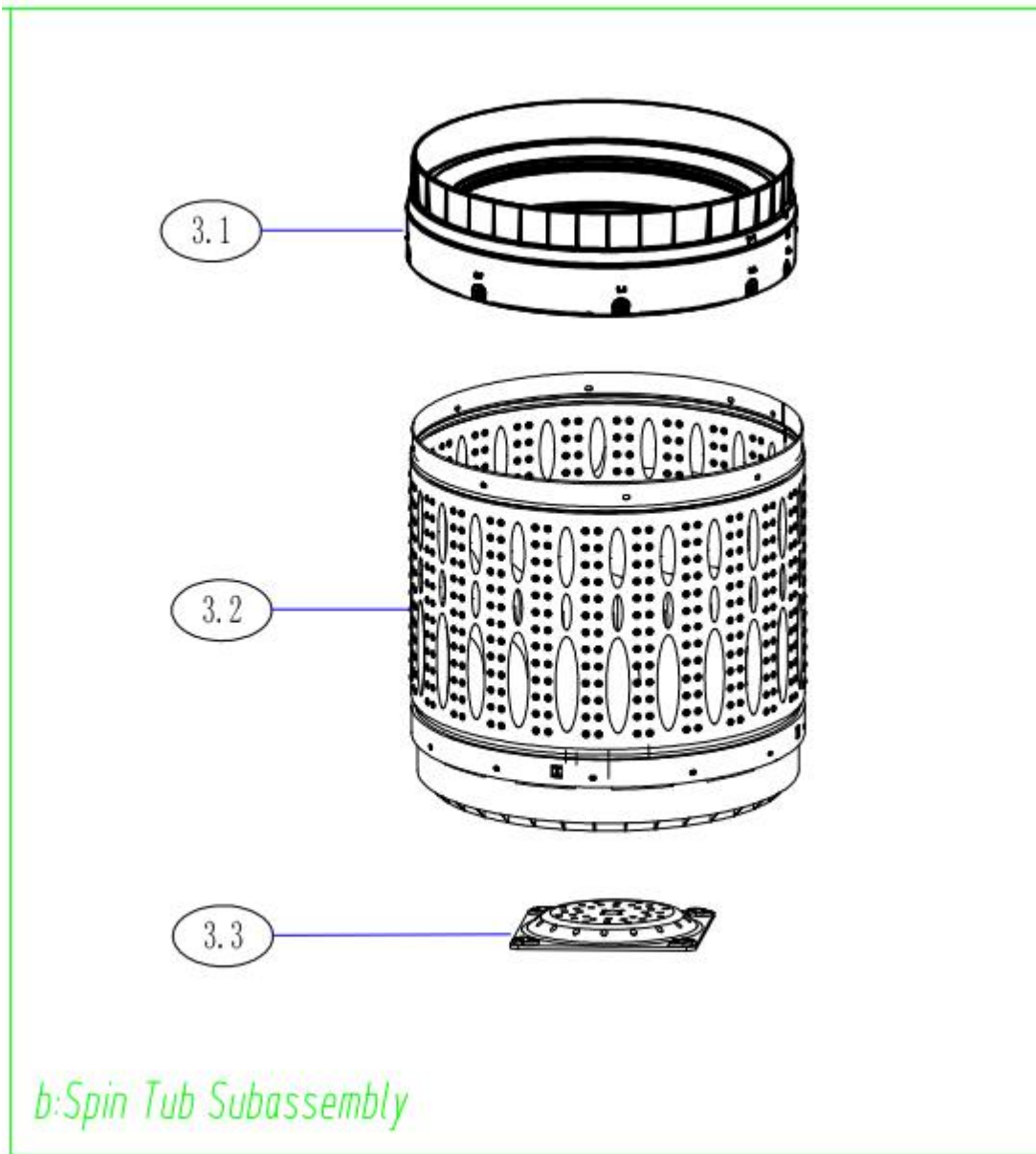
## GENERAL SUBASSEMBLY



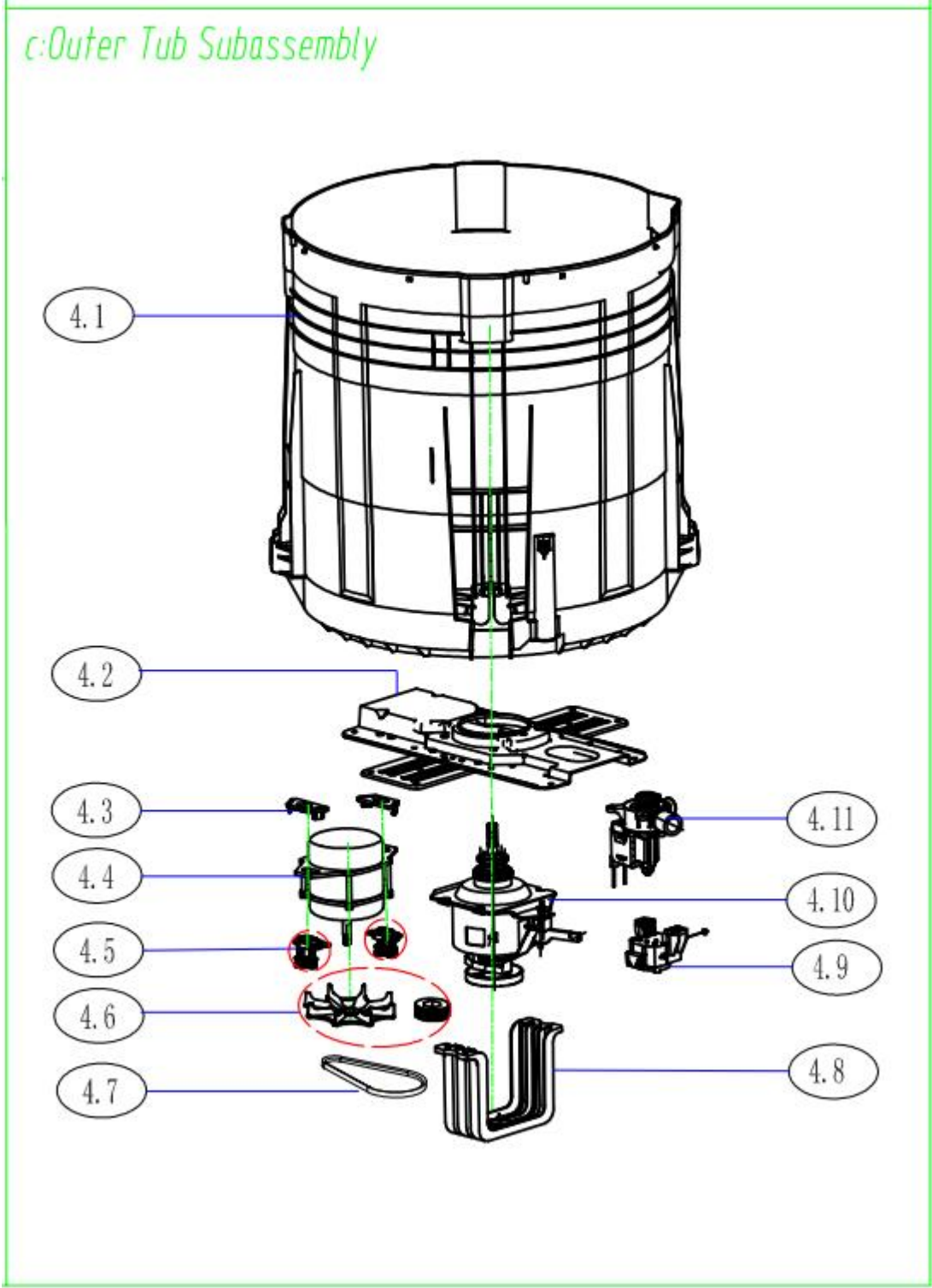
a、WORKTABLE PARTS



## b. SPIN TUB PARTS



### c. OUTER TUB PARTS









2.1	旋钮组件	Knob Assembly	1.0	12138200003681
2.2	控制面板贴膜	Control Panel Sticker	1.0	16038000027504
2.3	控制面板组件	Control Panel Assembly	1.0	12138000036801
2.4	电脑板	PCB	1.0	17138000027403
2.5	进水阀	Water Inlet Valve	1.0	17438000000588
2.6	水位传感器组件	Water Level Sensor Assembly	1.0	17438000001373
2.7	导线组件	Internal Wire Assembly	1.0	17438000001224
2.8	工作台门盖组件	Top Cover And Door Cover Assembly	1.0	12238000009401
2.8.1	工作台组件	Top Cover Assembly	1.0	P0000001526763
2.8.2	洗涤剂盒盖	Detergent Cover	1.0	P0000000338484
2.8.3	洗涤剂盒组件	Detergent Box Assembly	1.0	P0000001651108
2.8.4	通用组件分类塑料件	Assembly	1.0	P0000000923885
2.8.5	洗涤剂盒组件	Detergent Box Assembly	1.0	P0000000338572
2.8.6	洗涤剂盒盖	Detergent Cover	1.0	P0000000338476
2.8.7	喷头体组件	Nozzle Assembly	1.0	P0000000751206
2.8.8	门盖组件	Cover Assembly	1.0	P0000001526747
2.8.9	轴	Shaft	2.0	P0000000802430
2.8.10	洗涤剂盒盖	Detergent Cover	1.0	P0000001041720
2.8.11	进水软管组件	Water Inlet Pipe Assembly	1.0	P0000000338558
2.9	门锁	Door Lock	1.0	17438000001615
2.10	门锁盒	Lock Box	1.0	12138000009283
2.11	撞桶开关	Impact Switch	1.0	17438000001302
3.1	平衡圈组件	Balance Ring Assembly	1.0	12138000055362
3.2	不锈钢内桶组件	Stainless Tub Assembly	1.0	12238000000231
3.3	连接盘	Coupling Plate	1.0	12238000000259
4.1	盛水桶组件	Outer Tub Subordinate Assembly	1.0	12138000010071
4.2	底板组件	Base Plate Assembly	1.0	12238000000505
4.3	电机下绝缘垫	Lower Cushion	2.0	12138000002868
4.4	单相异步电机	Single phase asynchronous motor	1.0	11002012000022
4.5	电机上绝缘垫	Upper Cushion	2.0	12138000036963
4.6	电机皮带轮组件	Motor Pulley Assembly	1.0	12338000000421
4.7	多楔带	Ribbed Belt	1.0	12638000001161
4.8	固定架	Bracket	1.0	12138000031502

4.9	马达牵引器	Retractor	1.0	1743800000343
4.10	离合器部装	Clutch Body Subassembly	1.0	12938000001941

## 8. SPECIFICATION

Power Supply	120V/60hz
Capacity (Cuft)	4.5
IMEF (Cuft/kWh/cycle)	$\geq 1.57$
IWF (gallons/cycle/cuft)	$\leq 6.5$
Energy Star	NO
Certification, safety	UL
pulsator type	Impeller
input power(watts)	$\leq 680W$
Cycle selection	12
Cycles	Normal, Whites, Heavy Duty, Active Wear, Bulky, Colors, Quick Wash, Delicates, coldmotion, Drain&Spin, Tub Clean, Rinse&Spin
Options	Delay, Soil Level, Temp, Soak, Extra Rinse, Fabric Softener, Water Plus
Water level control	Auto
water level selection	Auto
Temperature selection	5
Soil level selection	5
Max Spin speed	$680 \pm 40$
digital display	Yes
cycle status lights	Yes
Remaining time display	Yes
Look through lid	Yes
End of cycle signal	Yes
delay start	Yes, up to 24 hours
Memory of power interrupt	Yes
magic filter	No
adjustable leg	Yes,4
detergent dispenser	Detergent, Bleach, Softener
Portable roller	No
Color	White
Part Material	
control panel	ABS
top lid	Glass
pulsator	PP
inner tub	Stainless Steel
cabinet	Painted Steel
basement	PP

Special feature	
child lock	Yes
Lid switch, magnetism	Yes
Lid lock	Yes
error alarm	Yes
auto unbalancing detection	Yes
auto-power off	Yes
closed rat-proof base	No
noise(dB)	Wash noise ≤63dB, Spin noise ≤77 dB
Dimensions & loading	
Width, body, Inch	27
Depth, body, Inch	28.94
Height, body, Inch	44.96
Width, body, mm	686
Depth, body, mm	735
Height, body, mm	1142
Width, package, Inch	28.94
Depth, package, Inch	30.20
Height, package, Inch	47.72
Width, package, mm	735
Depth, package, mm	767
Height, package, mm	1212
Net, lbs	136.69
Gross, lbs	149.91
Net, Kg	62.5
Gross, Kg	68
1*20FT	/
1*40' FT	45
1*40' HQ	90