

WASHING MACHINE SERVICE MANUAL

A CAUTION

Read the safety precautions in the manual before servicing the washer.

MODEL WT4801CW

SAFETY PRECAUTION!

IMPORTANT SAFETY NOTICE!

This service information is intended for individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair this appliance may result in personal injury or property damage. The manufacturer or seller can not be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

AWARNING: To reduce the risk of fire, electric shock, or personal injury when using this appliance, follow basic precautions, including the following:

- Wear gloves when working.
 Failure to do this can result in serious injury.
- The appliance is heavy. Two or more people is required when moving the appliance.
 There is a risk of serious back injury or other injuries.
- Certain internal parts are intentionally not grounded and may present a risk of electric shock only during servicing. Service personnel -Do not contact the following parts while the appliance is energized.
 - : Pump bracket, rotor and heater

- Disconnect this appliance from the power supply before servicing. Turning the controls to the off position does not disconnect this appliance from the power supply.
 Failure to do this can result in shock.
- Reconnect all grounded devices after servicing. Failure to do this can result in shock.

To reduce the risk of fire, electric shock, or personal injury when using this appliance, follow basic precautions, including the following.

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1. SPECIFICATIONS

Model	WT4801CW
Electrical	120VAC@60Hz.
Inner Tub	Stainless
Inlet Water Pressure	14.5 ~ 116 PSI (100 ~ 800 kPa)
Rating of Fuse	125V, 12A for 100~127V/60Hz
Spin Speed	Max. spin speed 1,000
Weight	145.5 lbs (58kg)
Cycles	Cotton/Normal, Heavy Duty, Bulky/Bedding, Tub Clean, Perm Press
Cycles	Casual, Delicates, Speed Wash, Rinse+Spin
Time Delay	1-24Hr
Lid Interlock Switch	Magnet Sensor
Child Lock	Yes
Softener Dispenser	Yes
Detergent Dispenser	Yes
Bleach Inlet	Yes
Auto Power Off	Yes
Smart Rinse™ with Jet Spray	Yes

2. INSTALLATION INSTRUCTIONS

2-1. HOW TO ADJUST LEVEL

Installation area
Install the washer on a firm, flat surface.
If the washer is installed on an unsuitable floor, it could make considerable noise and vibrate.

Checking level

Open the lid, check if the washer is correctly leveled by looking down from the top. If a gap is seen between the tub and drum, the washer is not level.

2 Set Leveling feet

• Loosen the locknuts on 2 front leveling feet until you can turn the feet with the included wrench. Turn clockwise to raise the washer or counterclockwise to lower it.

Checking slope

If installation surface is tilted, the washer will vibrate. Do not install on a sloping floor.

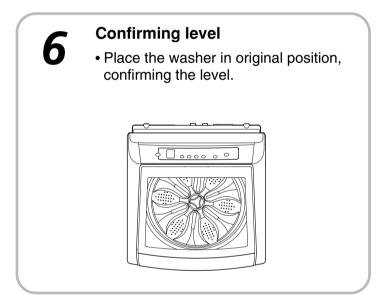
No shims. It would be dangerous. If the floor is that far from being level, it is a floor problem and not a washer problem.

ACAUTION

- The ventilating openings in the base area must not be obstructed by carpeting.
- Install the washing machine on a level and firm surface, and tilt should be less than 1°
- Wooden floors may need reinforcing to prevent the normal vibration which occurs with an unbalanced load.
- Do not install the washer on an inclined floor.
 Improper installation of the washer may cause noise and malfunctioning.

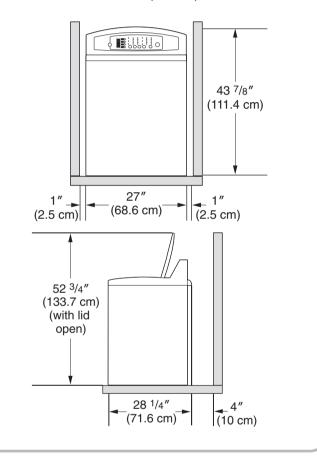
Horizontal setting
 Lift the front of the washer and adjust level by turnings the adjustable legs clockwise or using the adjusting plate.

Lower Raise



Distance between the drain hose and the wall

 Distance between the drain hose and the wall should be more than 4 inches (10 cm), and the distance between any other part and the wall should be more than 1 inches (2.5 cm)



■ Do not install the washer in the following places.

- Where the washer is exposed to direct sunlight.
- Near a heater or heating appliance.
- Where the washer is exposed to freezing temperatures.
- In damp environments such as bathrooms or harmful environments.

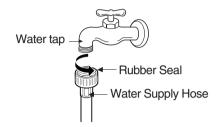
2-2. CONNECTING WATER SUPPLY HOSE

Before connecting the Water Supply Hose to the water tap, check the hose type and then choose the correct instruction here under.

Screw Type

1 Attach the water supply hose to the tap.

Push the water supply hose up so that the rubber packing within the hose can adhere completely to the tap.



2 Connect the water supply hose to the tap.

Connect the water supply hose to the tap and then tighten it by screwing it to the right.



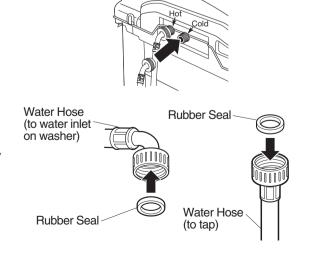
3 Check water leakage.

After connecting the hose, open the tap to check for any water leakage.



Connecting Water Supply Hose to the machine

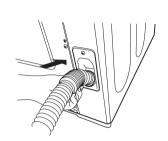
- Connect the water supply hose to inlet valve of the washing machine, and then lock it by turning the hose connecting part.
- Check to see if there is a rubber seal inside the connector.
- A nwe washing machine should be instailed with new hoses. The old hoses shuld not be reused.

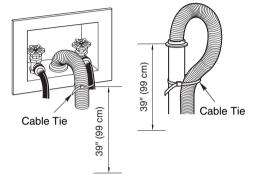


2-3. CONNECT THE DRAIN HOSE

- Connect the drain hose to the outlet of the drain pump located at the rear of the washing machine.
- Attach the clip to the drain hose.
 And then push it toward the body of the washing machine as indicated by the arrow.
- Check that the drain hose is hung up over the edge of the laundry tub.
- Do not use an extension hose.







NOTE: • The drain hose should always be properly secured. Failure to properly secure the drain hose can result in flooding and property damage.

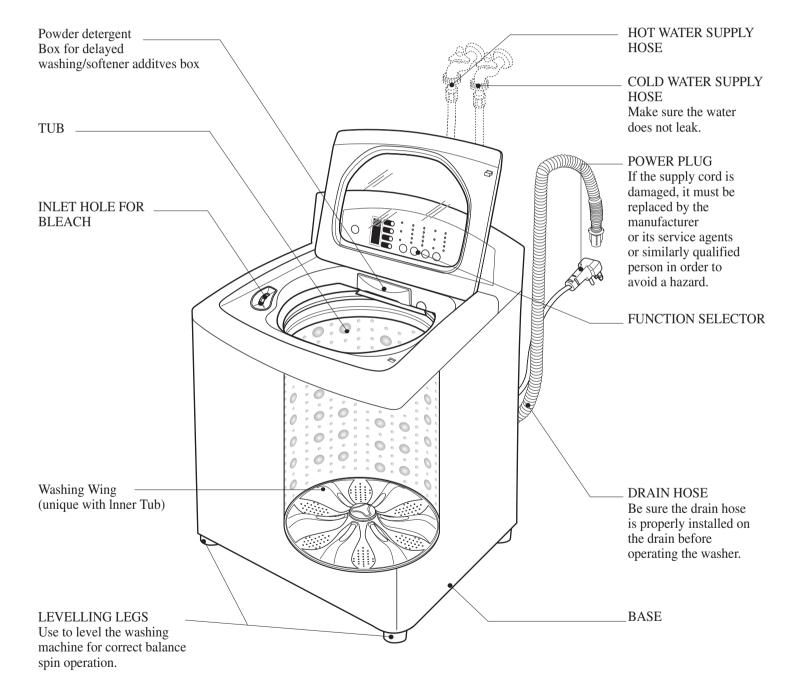
- The end of the drain hose should be placed 39" (99 cm) from the floor.
- The drain must be installed in accordance with any applicable local codes and regulations.
- Make sure that the water lines are not stretched, pinched, crushed, or kinked.
- Do not insert the drain hose more than 12" (30 cm) into the drain pipe to avoid siphoning and odor build-up.

AWARNING:

- The washer should never be installed or stored in a location subject to freezing temperatures. If the
 washer was exposed to freezing temperatures prior to installation, allow it to stand at room
 temperature for several hours before use Damage to the water lines and internal mechanisms of
 the washer can result.
- Water supply pressure must be between 14.5 psi and 116 psi (100 ~ 800kPa) If the water supply pressure is more than 116 psi, a pressure reducing valve must be installed. If you have uncontrolled water temperature and pressure you should fit a temperature and pressure relief valve to ensure that wate temperature and water pressure remain within the safe limits. Consult a plumber or electrician if you are unable to adjust water temperature and or pressure. Failure to do so can result in damage to the machine.
- Plug the power cord of washer into a properly grounded outlet. Failure to do this can result in shock or serious injury.

3. OPERATING INSTRUCTION

3-1. IDENTIFICATION OF PARTS



3-2. BEFORE STARTING TO WASH

Care Labels

• Look for a care label on your clothes.

This will tell you about the fabric content of your garment and how it should be washed. Sort clothes into loads that can be washed with the same wash cycle, water temperature, and spin speed.



Sorting

To get the best results, different fabrics need to be washed in different ways.

• **SOIL** (Heavy, Normal, Light) Separate clothes according to the type and amount of soil.

COLOR (Whites, Lights, Darks)
 LINT (Lint producers, Collectors)
 Lint Producers
 Separate white fabrics from colored fabrics.
 Separate lint producers and lint collectors.
 Terry cloth, Chenille, Towels, Diapers

Lint Collectors Synthetics, Corduroy, Permanent Press, Socks



Check before Loading

- Check all pockets to make sure that they are empty. Things such as nails, hairclips, matches, pens, coins, and keys can damage both your washer and your clothes.
- Mend any torn garments or loose buttons. Tears or holes may become larger during washing.
- Remove belts, underwires, etc. to prevent damage to the machine or your clothes.
- Pretreat any dirt and stains.
- Make sure the clothes are washable in water.
- · Check the washing instructions.
- Remove any paper or tissue in the pockets.
- WIRE

Pretreatment on stains or heavy soil

- Pretreat shirt collars and cuffs with a pre-wash product or liquid Detergent when placing them in the washer. Before washing treat special stains with bar soaps, liquid detergent or a paste of water and granular detergent.
- Use a pretreat soil and stain remover.

Treat stains AS SOON AS POSSIBLE. The longer they are left, the harder they are to remove.

(For more detail refer to page 13)

Loading

Do not wash fabrics containing flammable materials(waxes, cleaning fluids, etc.). Load Size

The WATER LEVEL should just cover the clothes. Adjust the load size accordingly. Loosely load clothes no higher than the top row of holes in the washer tub. To add items after washer has started, press the Start button and submerge additional items. Close the lid and press the Start button again to restart.

Do not wash waterproofed fabrics (such as skiing outfits, diapers, or nappy auto seat covers.)

WARNING

Fire Hazard

Never place items in the washer that are dampened with gasoline or other flammable fluids.

No washer can completely remove oil. Do not dry anything that has ever had any type of oil on it (including cooking oils).

Doing so can result in death, explosion, or fire.

Light and Large-sized clothing

Clothes like downs and woollens are light weight, large and float easily. Use a nylon net and wash them in a small amount of water. If the laundry floats during the wash cycle, it may become damaged. Use dissolved detergent to prevent the detergent from clumping.

* Do not wash water-proof textilles (Skling outfit, baby diaper, nappy automobile seat covers.)

Long laundry items

Use nylon bag nets for long, **DELICATES** items. For laundry with long strings or long length, a bag will prevent tangling during washing. **Fasten zippers**, **hooks**, **and strings** to make sure that these items don't snag on other clothes.







Using Water

Water Temperature

• The machine sets the appropriate temperature automatically according to the wash program . You can override the preset selection by pressing the **WASH/RINSE temperature**. button.

- The temperature of the water impacts the effectiveness of all laundry additives and therefore, the cleaning results.
- We recommend temperatures of:

- HOT 120°F (120-140°F) White items, diapers, underclothing and heavily soiled, colorfast items.

- WARM 90°F (85-105°F) Most items

- COLD 66°F (65-75°F) Only very bright colors with light soil.

- When washing in COLD water additional steps may be needed:
- Adjust Detergent amount and pre-dissolve Detergent in WARM water
- Pretreat spots and stains
- Soak heavily soiled items
- Use appropriate bleach
- * Temperature below 18°C (65°F) will not activate laundry additives and may cause lint, residue, poor cleaning, etc. In addition, detergent manufactures and care labels define COLD water as 26~29°C...(80-85°F). If the temperature of the water in the tub is too cold for your hands, the detergent will not activate and clean effectively.

Note

If iron is present in the water the clothes may become an all-over yellow or they may be stained with brown or orange spots or streaks. Iron is not always visible. Installation of water softener or an iron filter may be necessary for severe cases.

Using detergent/fabric softener

Recommended detergent

Make sure to use HE (High-Efficiency) detergent for Top loading washing machines. HE detergents dissolve more efficiently and produce fewer suds to ensure efficient washing and rinsing. Use the correct amount of detergent as indicated on the label of the detergent packaging.



Designed specially to use only HE (High-Efficiency) detergent

Note

- Only use HE detergents, since using a regular detergent may produce excessive suds.
- HE detergents produce fewer suds, dissolve more efficiently to improve washing and rinsing performance, and help to keep the interior of your washer clean.
- Use less detergent for soft water.
- Wipe up any spills immediately, as liquids could damage the finish and the control panel of the washing machine.
- Using too much detergent can cause a build-up in the tub resulting in unsatisfactory performance and machine malfunction.
- If you use a detergent that does not dissolve easily or a detergent with high viscosity, it will leave a residue on the tub, which may not rinse properly.

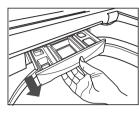
Loading the dispenser

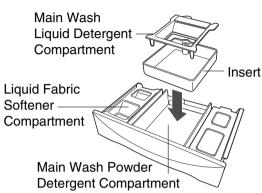
The detergent dispenser drawer of the washing machine has a dispenser compartment for each detergent type. Add the appropriate detergents into its respective compartments.

1 Pull out the detergent dispenser drawer.



- If you use a liquid detergent, check if the liquid detergent cup is in place.
- If you use a powdered detergent, remove the liquid detergent cup and put the powder in the main wash detergent compartment.
- 3 Close the detergent dispenser drawer slowly.
- Slamming the detergent dispenser drawer may result in the detergent overflowing into another compartment or pouring into the tub earlier than programmed.





Note

• It is normal for a small amount of water to remain in the dispenser compartments at the end of the cycle

Main Wash Detergent Compartment

This compartment holds laundry detergent for the main wash cycle, which is added to the load at the beginning of the cycle. Always use HE (High-Efficiency) detergent with your washing machine.

Never exceed the manufacturer's recommendations when adding detergent. Using too much detergent can result in detergent buildup in clothing and the washer. Either powdered or liquid detergent may be used.

Note

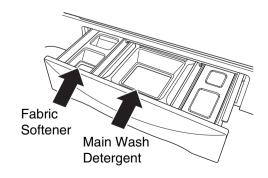
- Liquid or powdered color-safe bleach may be added to the main wash compartment with detergent of the same type.
- When using liquid detergent, make sure the liquid detergent cup and insert are in place. Do not exceed the maximum fill line.
- When using powdered detergent, remove the insert and liquid detergent cup from the compartment. Powdered detergent will not dispense with the liquid detergent cup and insert in place.

Fabric Softener Compartment

This compartment holds liquid fabric softener, which will be automatically dispensed during the final rinse cycle.

Note

- Always follow the manufacturer's recommendations when adding fabric softener. Do not exceed the maximum fill line. Using too much fabric softener may result in stained clothes.
- Dilute concentrated fabric softeners with warm water. Do not exceed the maximum fill line.
- Never pour fabric softener directly onto the load or into the drum.



Liquid Bleach Compartment

This compartment holds liquid chlorine bleach, which will be dispensed automatically at the proper time during the wash cycle. Avoid overfilling or splashing when adding bleach to the dispenser. The maximum capacity of the bleach dispenser is one cup of bleach per wash cycle. Overfilling could result in premature dispensing of bleach, which will result in fabric damage.

Note

- Do not add powdered or liquid color-safe bleach to this compartment.
- Always follow the manufacturer's recommendations when adding bleach. Do not exceed the maximum fill line. Using too much bleach can damage fabrics.
- Never pour undiluted liquid chlorine bleach directly onto the load or into the drum. Fabric damage can occur.



Special Guide for Stain Removal

M WARNING

- Do not use or mix liquid chlorine bleach with other household chemicals such as toilet cleaners, rust removers, acid, or products containing ammonia. These mixtures can produce dangerous fumes which can cause serious injury or death.
- To reduce the risk of fire or serious injury to persons or property, comply with the basic warnings listed below:
 - Read and comply with all instructions on stain removal products.
 - Keep stain removal products in their original labeled containers and out of children's reach.
 - Thoroughly wash any utensil used.
 - Do not combine stain removal products, especially ammonia and chlorine bleach. Dangerous fumes may result.
 - Never wash items which have been previously cleaned in, washed in, soaked in or spotted with gasoline, dry cleaning solvents, or
 other flammable or explosive substances because they give off vapors that could ignite or explode.
 - Never use highly flammable solvents, such as gasoline, inside the home. Vapors can explode on contact with flames or sparks.

For successful stain removal:

- · Remove stains promptly.
- Determine the kind of stain, then follow the recommended treatment in the stain removal chart below.
- To pretreat stains, use a prewash product, liquid detergent, or a paste made from granular detergent and water.
- Use COLD water on unknown stains because HOT water can set stains.
- Check care label instructions for treatments to avoid on specific fabrics.
- Check for colorfastness by testing stain remover on an inside seam.
- Rinse and wash items after stain removal.



Stain Removal				
STAIN	TREATMENT			
Adhesive tape, chewing gum, rubber cement	Apply ice. Scrape off excess. Place stain face down on paper towels. Saturate with prewash stain remover or nonflammable dry cleaning fluid.			
Baby formula, dairy products, egg	Use product containing enzymes to pretreat or soak stains.			
Beverages (coffee, tea, soda, juice,alcoholic beverages)	Pretreat stain. Wash using COLD water and bleach safe for fabric.			
Blood	Soak the item in a bowl of COLD water for at least 30 minutes. Then launder as usual.			
Candle wax, crayon	Remove all surface wax. Put the garment in the freezer for a couple of hours, then remove and break away as much wax as possible. Try a commercial removal product like Goo-Gone, Goop, or Go-Jo cleaner for the remaining wax stains. DO NOT ATTEMPT TO REMOVE WITH HEAT!			
Chocolate	Pretreat or soak in WARM water using product containing enzymes. Wash using bleach safe for fabric.			
Collar or cuff soil, cosmetics	Pretreat with prewash stain remover or rub with bar soap.			
Dye transfer on white fabric	Use packaged color remover. Wash using bleach safe for fabric.			
Grass	Pretreat or soak in WARM water using product containing enzymes. Wash using bleach safe for fabric.			
Grease, oil, tar (butter, fats, salad, dressing, cooking oils, car grease, motor oils)	Scrape residue from fabric. Pretreat. Wash using hottest water safe for fabric. For heavy stains and tar, apply nonflammable dry cleaning fluid to back of stain. Replace towels under stain frequently. Rinse throughly. Wash using hottest water safe for fabric.			
Ink	Some inks may be impossible to remove. Washing may set some inks. Use prewash stain remover, denatured alcohol, or nonflammable dry cleaning fluid.			
Mildew, scorch	Wash with chlorine bleach if safe for fabric. Or, soak in oxygen bleach and HOT water before washing. Badly mildewed fabrics may be permanently damaged.			
Mud	Brush off dry mud. Pretreat or soak with product containing enzymes.			
Mustard, tomato	Pretreat with prewash stain remover. Wash using bleach safe for fabric.			
Nail polish	May be impossible to remove. Place stain face down on paper towels. Apply nail polish remover to back of stain. Repeat, replacing paper towels frequently. Do not use on acetate fabrics.			
Paint, varnish	WATER BASED Rinse fabric in cool water while stain is wet. Wash. Once paint is dry, it cannot be removed, OIL BASED AND VARNISH Use solvent recommended on can label. Rinse throughly before washing.			
Rust, brown or yellow discoloration	For spots, use rust remover safe for fabric. For discoloration of an entire load, use phosphate Detergent and nonchlorine bleach. Do not use chlorine bleach because it may intensify discoloration.			
Shoe polish	LIQUID Pretreat with a paste of granular detergent and water. Paste scrape residue from fabric. Pretreat with prewash stain remover or nonflammable dry cleaning fluid. Rub detergent into dampened area. Wash using bleach safe for fabric.			

3-3. FUNCTION OF EACH BUTTON

POWER

- Power on.
- Push again, power goes off
- Power goes off automatically after the wash is finished.
- After turning the power on, the unit will automatically turn off if nothing is selected.

LOAD SENSING

- It operates in all program.
- During being detected by the sensor, the LOAD SENSING LED flashes.
- It automatically sensing the quantity of laundries.
- During this step, the washing machine select optimized washing algorithm.

DELAY WASH (Selection) BUTTON

- Delayed finishing time.
- The time increases when the button is pushed.
- The following settings are indicated as the button is pushed 1 ▶ 2 ▶ 3 ▶ 4 ▶ ... 24 ▶
 - ▶ Reservation off ▶ 1 ...
- To cancel delay time, turn the power switch off or push DELAY WASH button until off.

SOAK

· Gives additional soak time.

DELAYWASH SOAK EST. TIME REMAINING LIAND SPINAN EXTRA RINSE WASH RINSE CUSTOM PROGRAM SPIN LINVERTER DIRECTORIVE

EXTRA RINSE BUTTON

 This includes an extra rinse cycle for a better rinsing action.

Custom Program BUTTON

 This button allows you to store a customized wash cycle for future use.

WASH / TEMP.

- Select to select Water (Wash/Rinse) Temperature.
- Pressing the button allows The selection of COLD/COLD ►
 WARM/COLD ►

WARM/WARM ▶HOT/COLD

► EXTRA HOT/COLD respectively. Default setting is Warm/Cold.

Note

The time shown on the display is the estimated cycle time. If the sensors and microprocessor elect to make changes during the cycle, the display will be adjusted accordingly.



 Causes the dispensing of fabric softener in the final rinse cycle.

START/ PAUSE BUTTON

- Use to start or pause the wash cycle.
 Changes while be made to the wash settings while the machine is paused.
- Repeats start and pause by pushing the button.

CYCLE BUTTON

- Use for selecting wash program.
- This button allows the selection of 10 different programs for different kinds of laundry and dirtiness.
- Program selections light up in sequence as follows: Cotton/Normal ► Heavy Duty ► Bulky/Bedding ► Tub Clean ► Perm PressCasual ► Delicates ► Speed Wash ► Rinse+Spin Select the desired program by ressing the button.

● ADD GARMENT ● EXTRA HIGH ● LID LOCK ● COTTON/NORMAL ● PERM. PRESS/CASUAL • нот ■ WARM FARRIC SOFTENER HIGH ■ CHILD LOCK ■ HEAVY DUTY ■ DELICATES HIGH ● BULKY/BEDDING ● SPEED WASH MEDIUM NORMAL • LOW LOW ● TUB CLEAN ● RINSE+SPIN COLD LIGHT NO SPIN OFF CYCLES START/PAUSE **?** True**Balance**™

SOIL LEVEL

- Allows a selection to be make for the strength of the wash action.
- Power option selections light up in sequence as follows Normal ► Heavy ► Light ► Normal as the button is pushed. This can be selected for any program.
- Adjustment can be made while washing.
- Default SOIL LEVEL is Normal.

SPIN SPEED

 Spin speed can be selected from No Spin to Extra high. Default is Low.

SIGNAL BUTTON

- The beeper sounds at the end of the cycle. The clothing should be removed at that time to prevent the setting of wrinkles.
- Touch the SIGNAL button to cycle through the volume settings between OFF and high.

CHILD LOCK FUNCTION

- Use to lock or unlock the control buttons to prevent settings from being changed by a child.
- To actuate or release the CHILD LOCK, press and hold the SIGNAL button until the lock is turned ON or OFF.

3-4. WASHING PROGRAMS

The cycle guide below shows the options and recommended fabric types for each cycle.

=Default setting

Cycle	Fabric Type	Wash Temp.	Soil Level	Spin Speed	Delay Wash	Soak	Extra Rinse	Fabric Softener
Cotton/Normal	Cotton, linen, towels, shirts, sheets, jeans, mixed loads	Warm Hot Eco Warm Cold Tap Cold	Normal ★ Heavy Light	High Extra High Medium ★Low No Spin	•	•	•	•
	★ "Low" Spin Speed se	election available c	only with "Heavy"	Soil Level selection	on.			
Heavy Duty	Heavy soiled cotton fabrics	Warm Hot Eco Warm Cold Tap Cold	Heavy Normal Light	High Extra High Medium Low No Spin	•	•	•	•
Bulky/Bedding	Large items such as blankets and comforters	Warm Hot Eco Warm Cold Tap Cold	Normal Heavy Light	Medium Extra High High Low No Spin	•	•	•	•
	* Use the Bulky/Beddin ONLY WASH SMALL together; do not mix la the clothing or to the	ĽOÁDS to make si arge bulky items w	ure there is plenty	of room for the lo	oad to move	during washi	ing. Keep like	e items
Tub Clean	Refer to page 27.			High	•			
Perm.Press/Ca- sual	Dress shirts/pants, wrinkle-free clothing, poly/cotton blend clothing, tablecloths	Warm Eco Warm Cold Tap Cold	Normal Heavy Light	High Medium No Spin	•	•	•	•
Delicates	Dress shirts/blouses nylons, sheer or lacy garments (less than 8 lbs).	Cold Warm Eco Warm Tap Cold	Light Heavy Normal	Low Medium No Spin	•	•	•	•
Speed Wash	Lightly soiled and small loads	Warm Eco Warm Cold Tap Cold	Light Heavy Normal	High Extra High Medium Low No Spin	•	•	•	•
Rinse+Spin		Tap Cold		High Extra High Medium Low No Spin	•			•

NOTE: To protect your garments, not every Wash Temp., Spin Speed, Soil Level, or Option is available with every cycle.

3-5. CARE AND MAINTENANCE

When there is the possibility of freezing temperatures

- Close the water taps and remove the water supply hoses.
- Remove the water which remains in the water supply.
- Lower the drain hose and drain the water in the sump and the drain hose by running a spin cycle.

If frozen

- Remove the water supply hose and immerse it in HOT water. (40° C or 104° F).
- Pour approximately 2 liters (4½ pounds) of HOT water (40° C or 104° F) into the sump and allow it ti stand for at least 10 minutes.
- Connect the water supply hose to the water tap run a SPEED WASH cycle to confirm that the machine fills, drains, and operates properly.

Wash Inner-Tub Leave the lid open after washing to allow moisture to evaporate. If you

want to clean the inner-tub use a clean soft cloth dampened with liquid

detergent, then rinse. (Do not use harsh or gritty cleaners.)

Inlet Hoses Hoses connecting washer to faucet should be replaced every 5 years.

Immediately wipe off any spills. Wipe with damp cloth. Avoid hitting surface with sharp objects. **Exterior Long Vacations**

Be sure water supply is shut off at faucets. Drain all water from hoses if weather will be

below freezing.

Cleaning the inside of your washer

If you use fabric softener or do regular COLD water washing, it is very important that you clean the inside of your washer occasionally as described below.

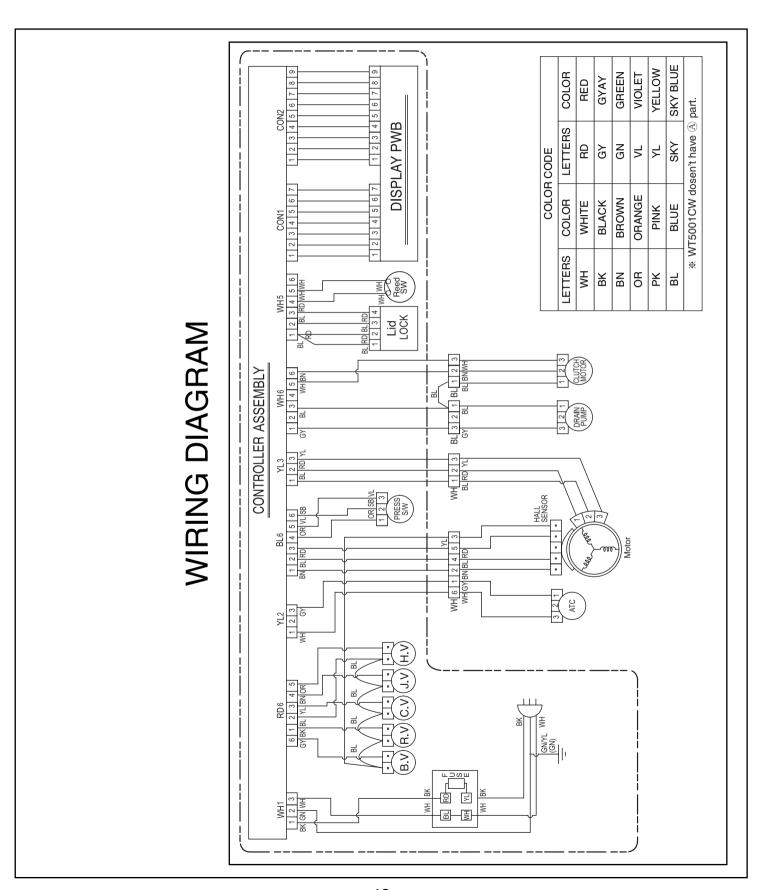
- Fill your washer with HOT water.
- Add 1 cup of bleach.
- Let it operate for several minutes.
- Stop the washer, open the lid, and leave it to soak overnight.
- After soaking, drain the washer and run it through a normal cycle.

Products that might damage your washing machine

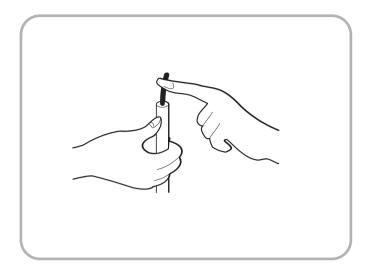
- · Concentrated bleaches and diaper sanitizer will cause damage to the paintwork and components of your washer.
- Hydrocarbon solvents, i.e. petrol, paint thinners and lacquer thinners, etc. can dissolve plastic and blister paint.
- (Be careful when washing garments stained with these solvents as they are flammable, DO NOT put them in washer or dryer.)
- Some pretreatment sprays or liquids can damage your washer's control panel.
- Use of dyes in your washer may cause staining of the plastic components. The dye will not damage the machine but we suggest you thoroughly clean your washer afterwards. We do not recommend the use of dye strippers in your washer.
- Do not use your washer lid as a work surface.

4. SERVICE INFORMATION

4-1. WIRING DIAGRAM



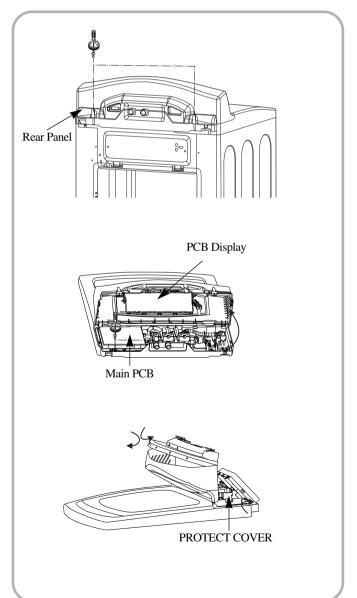
4-2. DISASSEMBLY INSTRUCION



▶ Be sure to unplug the power to repair and replace electric parts.

CAUTION FOR ELECTROSATICS

Be sure to make earth connection for trouble diagnosis and parts replacement. If impossible, touch earth wire on the body to remove electric deviation between the body and product before work.

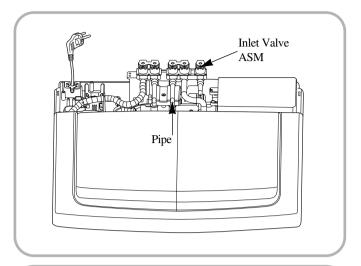


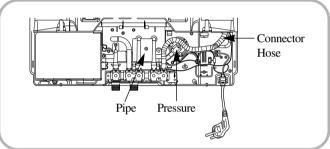
1) Disassembly of Front Panel & PCB (Main+Display) Assembly

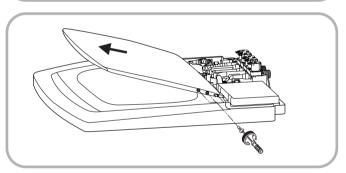
1) Remove two Panel fixing screws on the back side.

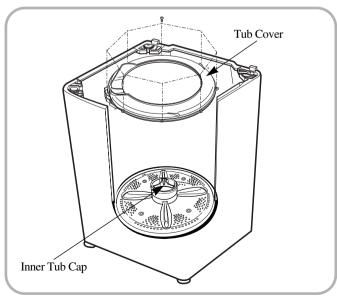
- 2 Pull the control panel forward.
- 3 Remove two screws on Main PCB.

- 4 Disassemble the protect cover.
- 5 Disconnect the leads from the controller.
- 6 Disassemble the rear Frame.
- ① Unscrew 6 screws on the PCB Display.







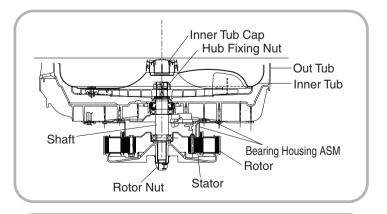


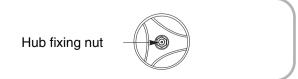
2) Disassembly of Power Cord, Inlet Valve ASM, D.T Housing ASM and Pressure Switch.

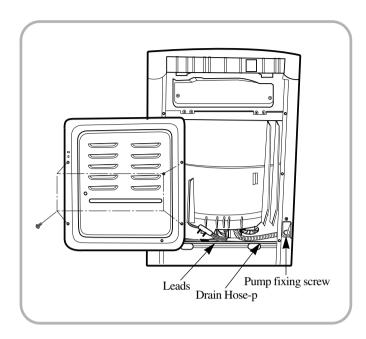
- 1 Disassemble back panel.
- ② Disconnect three connectors and disassemble the power cord.
- 3 Remove two pipe fixing screws and three inlet valve screws.
- 4) Disconnect the leads from the inlet valve.
- (5) Separate the pipe and the connector hose from the inlet valve.
- 6 Remove the inlet Valve.
- ① Disconnect the leads & pressure tube from the BP sensor.

3) Disassembly of Lid Assembly, Top Cover, Tub Cover, Pulsator & Inner Tub

- Remove three lid fixing screws.
- 2 Disassemble the Lid Assembly in arrow direction.
- 3 Remove two top cover fixig screws in the rear then disassemble the top cover.
- 4 Remove the tub cover fixing screws then disassemble tub cover.
- ⑤ Remove the pulsator fixing screws then disassemble the pulsator.
- 6 Remove the hub fixing nut by a special tool.
- (7) Disassemble the inner tub.

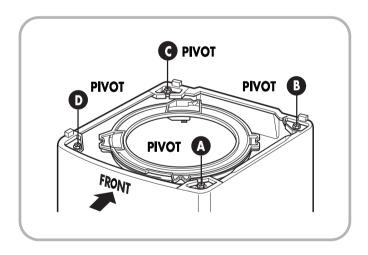






4) Disassembly of Back cover, Drain Pump.

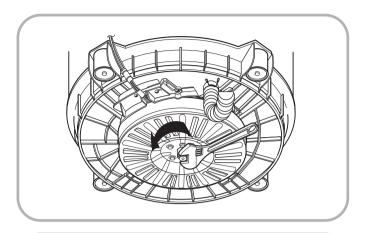
- ① Remove back cover fixing screws then disassemble the back cover.
- ② Disconnect the leads and the drain hose-p from the drain pump.
- ③ Remove the pump fixing screws and the connector hose disassemble the drain pump.



5) Replacement of Damper asm

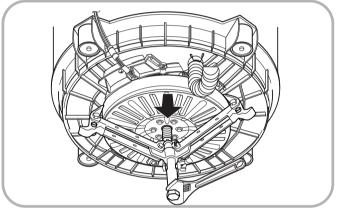
- ① Separate top cover from washing machine.
- ② As in the fig, lift snubber bar and take it out of out case with out tub.
- ③ Damper assembly shall not be disassembled. Replace damper as assembly.
- 4 For assembly, keep the following.(Location & color)

Location	P/No.	PIVOT(Color)
(A),(B)	A102	MIDDLE BLUE
©,D	A101	WHITE

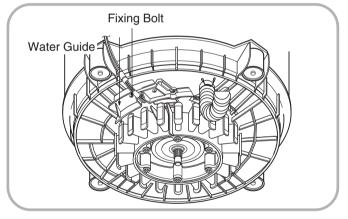


6) Replacement of Rotor & Stator

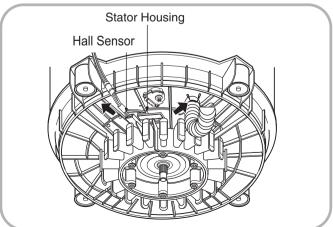
① Disassemble rotor nut with boxer(M18) or spaner. (In assembled, the force is over than 200kgf.cm)



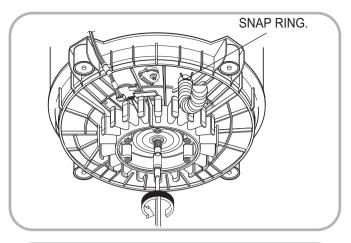
② Disassemble rotor, pull out the rotor as shown the figure.



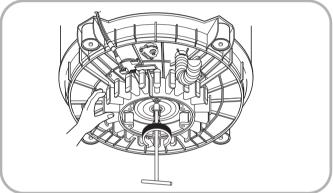
3 Disconnect fixing screw and disassemble the water guide.



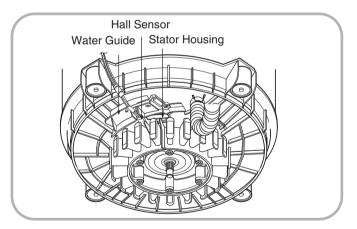
4 Before disassemble stator, disconnect the hall sensor and stator housing.



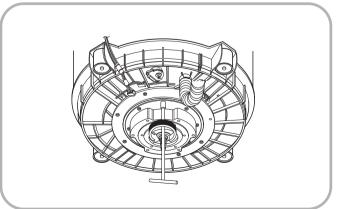
- ⑤ Loosen the 6 fixing screws on the stator.(Lower → upper position screws)
- 6 Check the direction of SNAP RING.(The handle of snap ring is toward to rotor and stator.)



? Preventing fallen the stator, tighten with one hand and then loosen the last screw.



® For assembly take care lead wire's state, it produce a noise and cut attach the rotor.



7) Replacement of Bearing housing asm

① Loosen 14 Fixing screws on the Bearing Housing ASM and pull up it.

4-3. TEST RUNNING WITHOUT WATER

1) SAFETY CAUTION

- The main power board assembly has exposed live 120 VAC and live DC voltages. Use care when disconnecting connectors during troubleshooting and testing. (Wear electrostatic discharge gloves when handling the board.
- · Unplug the power when handling the board assembly. (Wear electrostatic discharge gloves when handling the board. Store the board in an ESD [ElectroStatic Discharge] plastic bag.)

2) QC TEST MODE

- · The washer must be empty and the controls must be in the off state.
- · Press and hold the WASH / RINSE and SOIL LEVEL buttons; then press the POWER button. The buzzer will sound twice.
- · Press the Start/Pause button to advance to the subsequent test mode step.

Number of times the START/PAUSE button is pressed	Check Pont	Display Status
None	Turns on all LED	T1 and Main Program Version
1 time	Button Check	T2 and Display Program Version
2 time	None	Т3
3 time	Inlet valve for Bleach Detergent turns on. (Cold Water)	A and Water level frequency (1~10 Level)
4 time	※ On :67~33(26.7kHz~23.3kHz) Inlet valve for Softener Dispenser turns on. (Hot Water)	* The meaning of 67~33 number is 26.7kHz~23.3kHz really B and Water level frequency (1~10Level)
5 time	Inlet valve for J-Dispenser turns on. (Cold Water)	C and Water level frequency (1~10Level)
6 time	Heater check	T4 and the coefficient of flood sensing
7 time	Wave force check	T5 and the coefficient of load sensing
8 time	Drain pump check	T6 and Water level frequency
9 time	Pulsator operates for 3 minutes.	T7 and the coefficient of load sensing
10 time	High speed spin	T8 and RPM
11 time	Off . Unlocks the door . Turns off all LED	None

4-4. TROUBLESHOOTING BY COMMON WASHING PROBLEMS

Many washing problems involve poor soil and stain removal, residues of lint and scum, and fabric damage. For satisfactory washing results, follow these instructions.

NOTE: NEVER use bar soap in the washing machine.

WASHING PROBLEM

Problems	Possible Causes	Solutions and Preventive Measures
Poor soil removal	 Insufficient detergent Wash water temperature too low Incorrect wash cycle Laundry missorted Stains not properly pretreated 	 Use correct amount of detergent for load size, amount of soil and water hardness. Use WARM or HOT water for normal soil. Different Water Temperature may be required according to soil type. (refer to page 12) Reduce load size. Wash with Heavy or Soak & Heavy wash cycle for heavy soiled laundry. Separate heavily soiled items from lightly soiled ones. Pretreat stain and heavy soil according to directions shown on page 11.
Blue Stains	Undiluted fabric softener dispensed directly onto fabric	 Pretreat the stain with detergent or a stain removal agent. Do not overfill fabric softener dispenser and do not pour liquid fabric softener directly onto fabric. See page 14 for more instructions.
Black or gray marks on clothes	 A buildup caused by the interaction of fabric softener and detergent can flake off and mark clothes Not enough detergent 	 Keep the recommendations against Scrud (waxy buildup). Use correct amount of detergent for load size, soil level, and water Hardness.
Yellow or brown rust stains	 Iron or manganese in water supply, water pipes, or water heater 	 To restore discolored load of whites, use rust remover safe for fabric. Install nonprecipitating water softener or an iron filter in your water supply system for an ongoing problem. Before washing, run water for a few minutes to clear lines.
Lint	Incorrect sortingTissues left in pocketOverloading the washer	 Wash lint-producing items, like flannel sheets, towels, and the like separately from dark fabrics and fabrics that tend to collect lint. Remove all items, including tissues and papers, from the pockets of items to be washed. See page 11 for sorting information. Do not overload the washer
Residue or Detergent	Overloading the washerUndissolved detergentExcessive detergent	 Do not overload the washer. Some detergents need to be pre-dissolved, check the detergent instructions. Try pre-dissolving the detergent. Increase Water Temperature using HOT water safe for fabric. Use proper amount of detergent.
Holes, tears, or snags	 Incorrect use of chlorine bleach. Unfastened zippers, hooks, buckles Ribs, tears and broken threads Overloading the washer Degradation of fabric 	 Never pour chlorine bleach directly on fabric. See page 13 for adding liquid bleach. Fasten zippers, hooks, and buckles. Remove objects in pockets. See page 11 for caring before loading. Do not overload the washer.

4-5. TROUBLE SHOOTING METHODS ACCORDING TO ERROR MESSAGE

▶ For more detailed information for trouble shooting refer to page 42 to 51.

ERROR	ERROR DECISION BASIS	CAUSE FOR ERROR OCCURRENCE	REMEDY
WATER SUPPLY	WATER LEVEL dose not rise to the set level in within 30 minutes. NO INLET lamp blinks	 Water faucet is closed? Water supply is interrupted. Inlet V/V is clogged with dirts. Connector has bad contact to the inlet valve. BLUE 6-pin connector has a bad connection at the main board. 	 Open water faucet. Wait until water supply is resumed. Clean or replace filter. Correct the connector contact. Same as above.
DRAINAGE	· Water is not completely within 12 minutes.	 Is the drain hose located properly? Drain hose is folded or clogged due to freeze or dirt. Defective drain pump or the BLUE 3-pin connector to the main board has a bad connection. 	 Drain hose properly positioned at 0.9 ~ 1.2 m (36 ~ 48 inches) above the floor. Make sure the drain hose is not plugged with a foreign object. Check drain pump motor contact. Replace the pump if necessary.
UNBALANCE	· Laundry unbalance during spin.	Laundry in the INNER TUB is filled unevenly.Washer is tilted.	Load the washer as evenly as possible.Adjust the leg.
LID OPEN	LID is opened in the course of intermittent spin, normal spin or processing reservation.	 Lid is opened during intermittent spin or normal spin? Lid is opened while processing reservation? Check the connections to the lid switch and at the WHITE 6-pin connector at the main board. 	 Close the lid. Close the lid. Check the connections. If the connection is good, check the lead wire and replace it if necessary.

ERROR	ERROR DECISION BASIS	CAUSE FOR ERROR OCCURRENCE	REMEDY
PRESSURE SENSOR	Pressure switch has a bad connection or the switch has failed.	 Check the connections at the pressure switch and at the BLUE 4-pin connector at the main board. Test the pressure switch in TEST MODE. If the initial reading is less than 60 or more than 104, the switch has failed and must be replaced. 	Reseat the connector.Replace the switch.
OVER FLOW ERROR	FE	 Check the valves to be sure there is no input leakage. Then check the drain hose and make sure the drain pipe is between 0.9 ~ 1.2 m (36 and 48 inches) above the floor. Check for blockages and leaks in the air hose between the tub and the pressure switch. Check and repair any air leakages at the air hose connector on the outer tub and at any connecting parts. 	 Install the drain hose between 0.9 ~ 1.2 m (36 and 48 inches) above the floor. Replace pressure sensor switch Remove the foreign objects in pressure sensor switch air hose.
MOTOR ERROR		 Check the connections at the hall sensor and at the WHITE 6-pin connector on the main board. Check the connections at the stator and at the yellow 3-pin or WHITE 6-pin connector on the main board. Test the stator to determine it is not defective. Test hall sensor to determine it is not defective. Turn the drum to verify the bearings are not locked. 	 Replace the stator if necessary. Replace the hall sensor if necessary. Replace the bearings if necessary.

4-6. HOW TO DIAGNOSE AND REPAIR BY SYMPTOM

1) Washer is not energized.

Where, what, and how to check	Result of Check	Possible Cause	How to repair
Household Power supply			
Check the cord, plug, and outlet.	Poor	Electrical defect.	Repair or replace as necessary.
2. Measure the voltage at the outlet.	120 VAC ± 10%	No defect	
	0 V	Defect of household power supply	Call for power supply company
Wiring of the Washer			
Measure resistance between both ends of the power supply cord with both the plug pins short-circuited.	Less than 1 Ω	No defect	
piug pii is si ort-circuiteu.	$\infty \Omega$	Open circult of the power supply cord	Change the power supply cord.
Check every connector for a loose connection.	Male & female connectors separated	Poor connection	Unplug and re-insert the connector.
Check resistance of every wire to find out a open wire.	$\infty \Omega$	Wire is opened.	Change the lead wire
Electrical component	Less than 0.5Ω	No defect	
Check resistance with power relay switch turned on	More than 1.0 Ω	Poor contact	Change the AUTO OFF Switch
2. Check the secondary voltage of the	10~14 V	No defect	
transfomer.	0 V	Coil is open	Replace the transformer.
3. Check for blown fuse.	Open	Blown fuse Note: US appliances are 120 VAC except for stoves, ranges, ovens, cooktops, and certain air conditioners.	Change the fuse. CAUTION Check the fuse rating. 125 VAC 12 AMPS
Controller If all the components test good, the defect is likely the main control board.	Over 120% voltage than rating check		Replace the main board if all the electrical components test good.

2) Defects on displaying funcion

When, what, and how to check	Result of Check	Possible Cause	How to repair
Main voltage 1. Measure voltage at wall outlet.	Expect 120 VAC ± 10%. If below 108 VAC, consult an electrician or your local power provider.	Low voltage	If incoming line voltage is below 108 VAC, consult an electrician or your local power provider.
Controller 1. Defective LED. 2. Defective LED driver circuit. 3. Defective Microprocessor.		Defective main board.	Replace the main board.

3) Reset During operation

When, what, and how to check	Result of Check	Possible Cause	How to repair
Main voltage			
Measure voltage of the outlet that the washer is plugged into during wash and spin.	Less than 90% of the rating.	Input voltage is too low or the house wiring is insufficient for the load.	Consult an electrician.
The reset event occurs at about the same time every day.		Noise or spurious signals are introduced to the controller through the power input.	This could be caused by something outside the home. It is possible that a surge protector / line filter would help reduce the incidence.
Check for line noise sources inside the house.			Explain it is a problem of electric supply environment.
Controller			
If the input voltage is correct and the pump works properly, the main board is probably defective.			Replace the main board.

4) Water doesn't come into the wash tub.

When, what, and how to check	Result of Check	Possible Cause	How to repair
Inlet Valve			
If you hear the valve noise but get no water, check to see if the water is turned off outside the house.	No water coming from taps.	Water main turned off.	Explain.
2) Check to see if taps are opened.	Tap is closed.	User error.	Turn on the tap.
3) Hot and cold hoses are reversed.	Incorrect installation.	Incorrect installation.	Reconnect hoses to correct taps.
Incorrect water temperature selected.	Select correct temp.	User error.	Read and understand manual.
5) If items above check out OK, turn off the water, remove the hoses, and check the grit filters.	Grit, sand, and foreign substances plugging filter.	Normal sediment in water supply.	Remove the filters, clean them with a small brush, and replace them.
6) If everything checks out this far, check the vent hole in the pressure switch for blockage and make sure the plunger can move freely.		Water inlet valve(s) defective.	Replace the inlet valves.
If the inlet valve fails (no clicking or buzzing) when the washer should be filling, check the connectors on each valve and at the main board.	Loose connection.	Loose connection.	Remove and replace the connector(s).
2) Check resistance of the inlet valve.	$\infty \Omega$	Coil is open	Replace the valve.
Pressure Switch			
Does the display show a PE error code?	PE Error displayed.	Connector is loose, wire is broken, or the pressure switch is defective.	Remove and replace the connector. If this does not resolve the issue, replace the pressure switch.
Use TEST MODE to read the frequency of the pressure switch while filling an empty washer.	Less then 26.2 kHz	Pressure switch is defective.	Replace the pressure switch.
Controller 1. If the pressure switch and inlet valves test good, the problem is probably a defective main board.			Replace the main board.

5) Water fills continuously of intermittently

When, what, and how to check	Result of Check	Possible Cause	How to repair
Wrong Installation/Leakage			
Check to see that the drain hose is properly installed in a standpipe.	Drain hose is fallen and lying on the floor.	Incorrect installation.	Install the drain hose in a standpipe that is between 36 ~ 46 inches (0.9 ~ 1.2 m) from the floor.
2. Figure where the leak is starting.	Water leaks from a part.	Defective part.	Repair or replace the part.
Pressure Switch 1. Verify the pulsator is rotating while water is filling the tub.	No rotation.	Water level is not detected.	Check the pressure switch tube to verify it is not kinked, bent, blocked, or cut. Repair it as necessary.
If the pressure switch tests good, verify the vent hols on the tub's air chamber is not blocked.	Blocked.	Detergent buildup or a foreign object is blocking airflow.	Unstop it.
Inlet Valve 1. Water comes in though the inlet valve even when the washer is unplugged.	Water fills.	Inlet valve is defective.	Replace the valve.
Controller 1. Water fills the washer immediately when the washer is turned on, even before pushing the START button.		The triac has failed on the main board.	Replace the main board.

6) Display "LE" message and doesn't work

When, what, and how to check	Result of Check	Possible Cause	How to repair
 LE error code appears. Check the hall sensor, as shown. 			
Hall sensor assembly	Gray-White DC 15V	Correct reading.	
Brown DC 15V (Ground)	OV	Defective	Replace the main board.
in PCB assembly	Gray - Red -Blue DC 12V	Correct reading.	
	OV	Defective	Replace the main board.
2) Check resistance of the motor.	Infinite resistance.	The motor has an open coil.	Replace the motor.
	Normal Resistance	Normal condition.	Motor is good.

7) Water does not drain.

When, what, and how to check	Result of Check	Possible Cause	How to repair
Drain Pump 1. Can you hear the drain pump running?	Yes	Drain pump is blocked by foreign objects.	NOTE: There is no place to do this. Please include the correct pump information for this machine. This is useless.
Check resistance between terminals if there is no working sound of the drain pump.	$\infty \Omega$	The motor is open.	Replace the pump.
If the motor tests good, check the connector.	LEAVE BLANK	Defective connector.	Replace the main board.
	LEAVE BLANK	Connector OK.	Replace the main control board.
Drain Hose 1. Verify the drain hose is not pinched, kinked, or mashed.	Pinched, kinked, or mashed.	Incorrect installation.	Reinstall correctly.
Verify the drain hose is not clogged or obstructed.	LEAVE BLANK	Blocked hose.	Unstop the hose and reinstall it so it is not kinked, pinched, or mashed.

8) Water drains, but at the wrong time

When, what, and how to check	Result of Check	Possible Cause	How to repair
PV asm 1. If water runs back into the machine after the drain cycle, inspect the pump's	Blockage in pump housing or drain bellows.		Remove the blockage or foreign objects.
check valve to verify it is not obstructed by lint or foreign material.	Check valve and / or drain bellows deformed or damaged.	LEAVE BLANK	Replace the check valve and / or the bellows. These soft rubber parts may swell if contacted by petroleumbased products.
Controller 1. Check to see if the drain pump or drain motor runs at power up (before the POWER button is pressed.	The pump runs.	Defective triac on main board.	Replace the main board.

8) Water drains when it should not

When, what, and how to check	Result of Check	Possible Cause	How to repair
Drain Hose 1. Verify the drain hose is inserted in a standpipe or drain that is 0.9 ~ 1.2 m (36 ~ 46 inches) above the floor.	Discharge height incorrect.	Incorrect installation.	Insert the drain hose in a standpipe or drain that is 0.9 ~ 1.2 m (36 ~ 46 inches) above the floor.

9) Drain error (DE) is displayed even when water drains normally

When, what, and how to check	Result of Check	Possible Cause	How to repair
Pressure Switch 1. In TEST MODE, check the pressure switch frequency with the tub empty.	Below 26.3 kHz	Defective pressure switch	Replace the pressure switch.
	Between 26.3 and 27.1 kHz	Defective main board	Replace the main board.

10) Machine spins even with lid open

When, what, and how to check	Result of Check	Possible Cause	How to repair
Lid Switch 1. Check resistance between both terminals on the lid switch with the lid open.	0~9 Ω	Contacts of switch are welded.	Change the lead wire assembly.
	$\infty \Omega$	Defective main board.	Replace the main board.

11) Vibration, Noise or Unbalance Error happens during spin.

When, what, and how to check	Result of Check	Possible Cause	How to repair	
Using conditions such as installation etc.				
	Not leveled.	Incorrect installation.	Level the washer.	
Verify the load is not unbalanced, causing vibration and noise.	Laundry is unbalanced.		Rearrange items in the tub for a more even distribution.	
	The pulsator rotates initially, then the inner tub rotates.	Defective clutch.	Replace the clutch spring ot the clutch assembly, as necessary.	
Suspension 1. Does the outer tub strike the top cover during a spin cycle when the washer is running empty?	Yes	Oneor more of the suspension rods is defective.	Replace all four suspension rods as a set. Be sure to get the rods in the correct positions.	
It is very important to determine the cause of any noise or defect in order to repair the problem correctly the first time.				

^{*} It is very important to determine the cause of any noise or defect in order to repair the problem correctly the first time.

12) Power turns ON or OFF by itself.

When, what, and how to check	Result of Check	Possible Cause	How to repair
Input voltage 1. This is usually caused by a spike or surge on the main power input to the house.		Noise on the power line.	If the issue persists, contact the local power provider.

12) Power is automatically turned off during operation or immediately turning on the power button.

When, what, and how to check	Result of Check	Possible Cause	How to repair & settle
Auto Power Relay or Controller 1. It would be defect of the controller if	Automatically tumed		Change the controller.
power is automatically turned off immediately when turning on the power switch even though there is no defects in the power switch.	off		

13) Sensor

(1) Sensor failure

Problems	Result of Check	Possible Cause		
Installation of a non-calibrated main board.	If the value is not within 1~26 by checking the controller group.	Recalibrate or replace the controller.		
② Short	Check the value of the sensor electrode by using TEST MODE during the operation of a normal operation *washing, rinsing, spinning, etc.) If the value shows no change, the sensor is defective.	One of these should repair this. Clean the electrode of the sensor. Reset the sensor by entering and exiting the test mode. Check the wiring hamess and connectors to the sensor.		
The sensor is contaminated with a film of detergent, laundry additives, hard water scale, etc.	The difference between the sensing value measured from the supplied water by a jig and the sensor value of the product is 5 or more.	One of these should repair this. Clean the electrode of the sensor. Reset the sensor by entering and exiting the test mode. Replace the sensor.		
4 Sensor is out of order	tE - Temperature Sensor Fault Verify the operation of the temperature sensor in the QC test mode.	Check the wiring harness. Replace the sensor. Replace the main board.		

(2) Sensor inaccuracy

Problems	Result of Check	How to repair
Contamination on the sensor causes inaccurate readings.	The difference between the sensing value measured from the supplied water by a jig and the sensor value of the product is 5 or more	One of these should repair this. Clean the electrode of the sensor. Reset the sensor by entering and exiting the test mode. Replace the sensor.
② Inaccurate sensor readings.	If the value measured from the jig is normal but the consumer is not satisfied with	Reset the sensor by entering and exiting the test mode.

**

(3) Changing the controller group

Press and hold CUSTOM PROGRAM and DELAY WASH, then press the POWER button.

▶ Initial Test mode display: All LEDs are off, except I-SENSOR LED

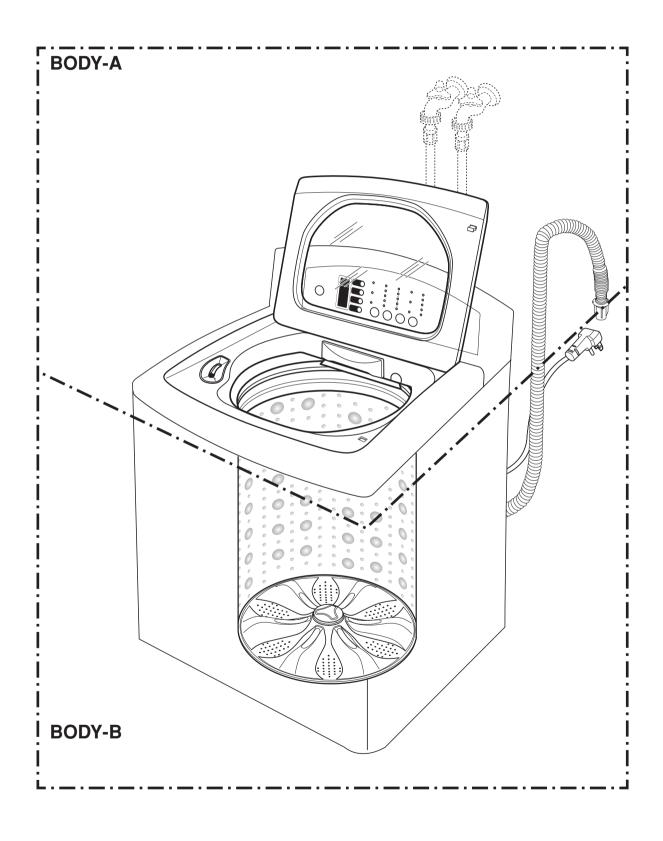
Display the number of TR calibration times: Display \mathcal{Q} means not calibrated, / for the first time and so on.

- 1. Press PROGRAM once. It will display the current controller group. (1 ~ 26) Press PROGRAM again to decrease the controller group by 1.
- 2. Press START / PAUSE once. It will display the current controller group. (1 \sim 26) Press START / PAUSE again to increase the controller group by 1.

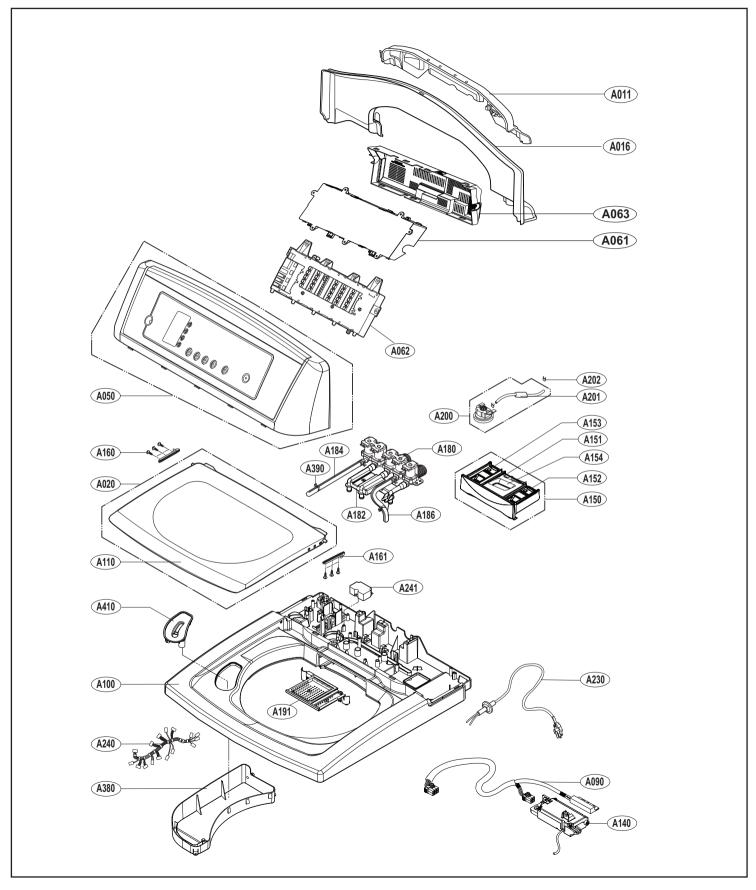
⁻ To set the sensor to detect a higher detergent level, increase the sensor group by 1 or 2 steps.

⁻ To set the sensor to detect a lower detergent level, decrease the sensor group by 1 or 2 steps. (See below.)

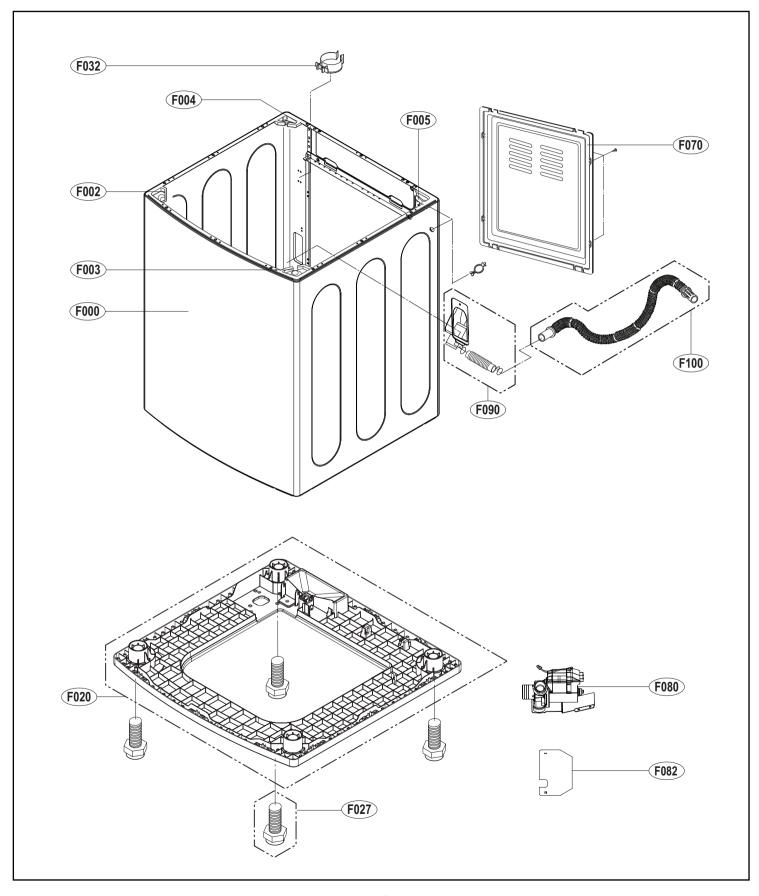
^{*} The buzzer sounds if there is no controller group.



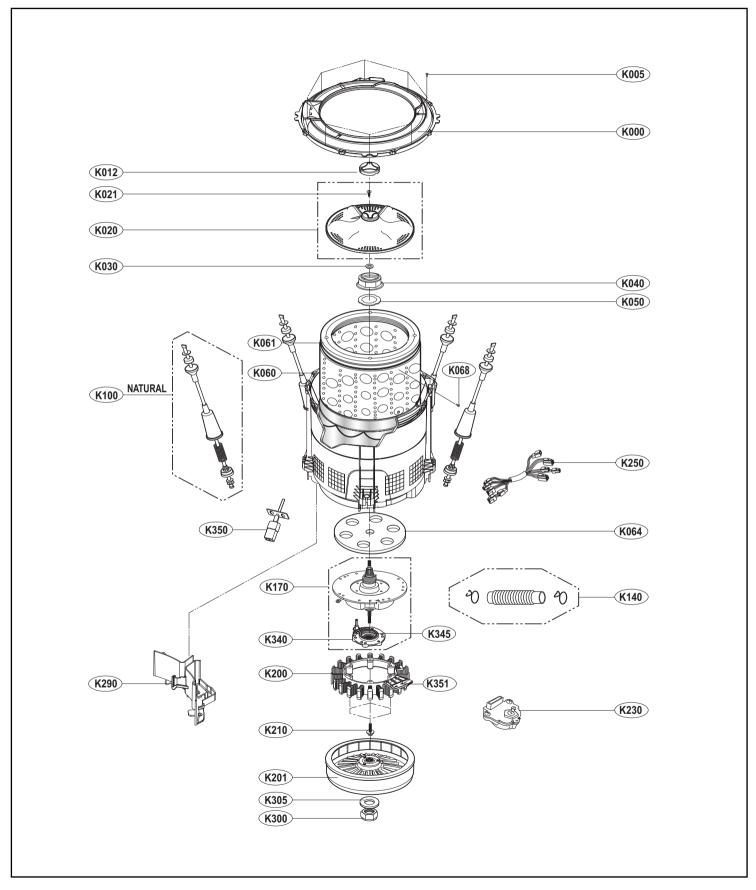
5-1. EXPLODED VIEW OF TOP COVER ASSEMBLY



5-2. EXPLODED VIEW OF OUT CASE ASSEMBLY



5-3. EXPLODED VIEW OF TUB ASSEMBLY



6. REPLACEMENT PART LIST



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