

SAMSUNG

DISHWASHER

Model Name : DW80M9*** Series

Model Code : DW80M9960US/AA
DW80M9550US/AA
DW80M9960UG/AA
DW80M9550UG/AA
DW80M9960US/AC
DW80M9960UG/AC
DW80M9550US/AC
DW80M9990US/AA
DW80M9990UM/AA

SERVICE Manual

DISHWASHER



CONTENTS

1. Safety Instructions
2. Features and Specifications
3. Disassembly and Reassembly
4. Troubleshooting
5. PCB Diagram
6. Wiring Diagram
7. Reference

CONTENTS

1. Safety Instructions	1
1-1. Safety Instructions for Service Engineers	1
2. Features and Specifications	5
2-1. Features	5
2-2. Specifications	6
2-3. Comparing Specifications with Existing Models	7
2-4. Options Specifications	8
3. Disassembly and Reassembly	9
3-1. Tools for Removal and Reassembly	9
3-2. Preparation for parts replacement	10
3-3. Removing The Upper Rack	10
3-4. Checkpoints after Finishing Service	33
4. Troubleshooting	34
4-1. Preparation	34
4-2. Service Inspection Mode	39
4-3. Check code trouble shooting	45
5. PCB Diagram	54
5-1. Main PCB	54
5-2. PCB Diagram	55
6. Wiring Diagram	56
6-1. WIRING DIAGRAM	56
7. Reference	58
7-1. Model Number Naming Rules	58
7-2. Terminology	59

1. SAFETY INSTRUCTIONS

1-1. SAFETY INSTRUCTIONS FOR SERVICE ENGINEERS

- ▶ Make sure to observe the following instructions to operate the product correctly and safely and prevent possible accidents and hazards while servicing.
- ▶ Two types of safety symbols, Warning and Caution, are used in the safety instructions.



Warning Hazards or unsafe practices that may result in severe personal injury or death.



Caution Hazards or unsafe practices that may result in minor personal injury or property damage.

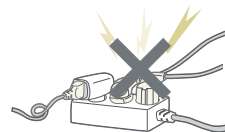


Warning

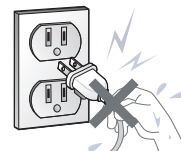
Before Servicing

- (When servicing electrical parts or harnesses) Make sure to disconnect the circuit breaker or power cable before servicing.
 - Failure to do so may result in a risk of electric shock.

- Do not allow consumers to connect several appliances to a single power outlet at the same time.
 - There is a risk of fire due to overheating.



- When removing the power cord, make sure to hold the power plug when pulling the plug from the outlet.
 - Failure to do so may damage the plug and result in fire or electric shock.



- When the dishwasher is not being used, make sure to disconnect the circuit breaker or power cable from the power outlet.
 - Failure to do so may result in electric shock or fire due to lightning.



- Do not place or use gasoline, thinners, alcohol, or other flammable or explosive substances near the dishwasher.
 - There is a risk of explosion and fire caused from electric sparks.

While Servicing

- Check if the power cable is damaged, flattened, cut or otherwise degraded.
 - If faulty, replace it immediately. Failure to do so may result in electric shock or fire.
- Completely remove any dust or foreign material from the housing, wiring and connection parts.
 - This will prevent a risk of fire due to arcing and short circuits in advance.
- When connecting wires, make sure to connect them using the correct connectors and check that they are completely connected.
 - If tape is used instead of the connectors, it may cause fire due to arcing.
- Make sure to disconnect the PBA power terminals before starting the service.
 - Failing to do so may result in a high voltage electric shock.

After Servicing

- Check for any water leakage.
 - Perform a test using the standard(normal) cycle and check whether there is any water leakage through the floor section or the pipes.

- Do not allow consumers to repair or service any part of the dishwasher themselves.
 - This may result in personal injury and shorten the product life.



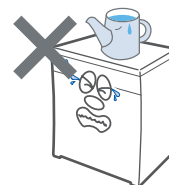
- If it seems that grounding is needed due to water or moisture, make sure to run grounding wires.
 - Failure to do so may result in electric shock due to electric leakage.

 Caution

Before Servicing

- Do not sprinkle water onto the dishwasher directly when cleaning it.
 - This may result in electric shock or fire, and may shorten the product life.

- Do not place any containers with water on the dishwasher.
 - If the water is spilled, it may result in electric shock or fire. This will also shorten the product life.



- Do not install the dishwasher in a location exposed to snow or rain.
 - This may result in electric shock or fire, and shorten the product life.



- Do not press a control button using a sharp tool or object.
 - This may result in electric shock or damage to the product.

During Servicing

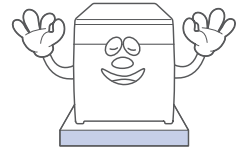
- When connecting a wiring harness, make sure to seal it completely so no liquid can enter.
 - Make sure that the connections are secured by slightly pulling on them.

- Check if there is any evidence that liquid has entered electric components or connections.
 - If any liquid has entered into a part, replace it or completely remove any remaining moisture from it.

- If you need to place the dishwasher on its back for servicing purposes, place a support(s) on the floor and lay it down carefully so the back is on the floor.
 - Do not lay it down on its front or side. This may result in scratches to the surface or damage to the parts.

After Servicing

- Check the assembled status of the parts.
 - They must be the same as before servicing.
- Check whether the product is level with the floor and secured to the cabinet and under the counter.
 - Vibrations can shorten the life of the product.



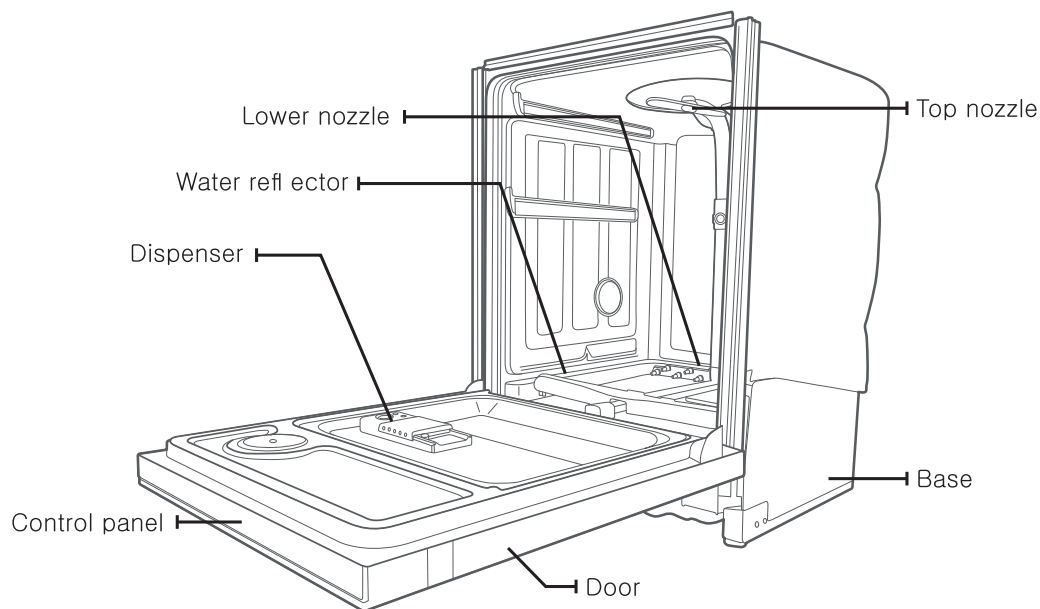
2. FEATURES AND SPECIFICATIONS

2-1. FEATURES

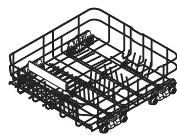
Features	Description	Remarks
Waterwall linear wash system	New Waterwall cleaning system gets dishes sparkling everytime • High pressure, consistent wall of water cleans hard to reach places • No need to pre-rinse • Available on full or half cycle	
Target zone washing	Targeted wash for hard to clean pots and pans • Control water pressure, temperature and time • Select left target zone	
Half load cycle: upper and lower	Wash smaller loads without wasting water • No need to wait until you have a full load • Choose either upper or lower rack • Saves on energy	
Third rack with flex tray	Removable roll-up silverware tray for easy unloading • Silverware lays flat for better cleaning • Perfect for oversized or hard to fit items • Easily roll up and remove for easy unloading	
Adjustable racking system	Flexible design for more space • Frees up more space on the top rack for tall and oversized items	
Speed boost	Wash your dishes in less time • Increased water pressure reduces wash time • Perfect for everyday family dishes	
Digital leakage sensor	Worry-free dishwashing • Can sense a leak of only 1 1/2 ounces • Shuts itself off before water can escape and cause floor damage • Protects against water-related damage and provides peace of mind	

2-2. SPECIFICATIONS

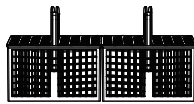
Wash capacity	15 place settings
Type	Dishwasher
Power	Single-phased alternating current of 60Hz, 15A at 120V
Used water pressure	20 ~ 120 psi (140 ~ 830 kPa)
Wash type	Waterwall Linear Wash & Rotating nozzle spray
Dry type	Air diffusion condensing dry system
Power usage	Main Pump : 96w (Waterwall operating), Heater : 1100w
Standard amount of used water	6.34 ~ 2.85 gallon (24 ~ 10.8 ℓ), Normal Cycle
Size (W×D×H)	23 7/8" x 25" x 33 7/8" inch (605 x 636 x 860 mm)



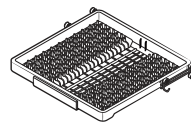
Upper rack



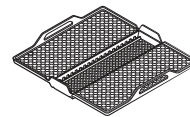
Lower rack



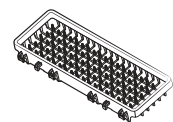
Cutlery rack



3rd rack
(for some models)



3rd rack PAD
(for some models)



Easy Caddy
(for some models)



Accessory parts : User/Installation manual, Installation Kit, Kick Plate

2-3. COMPARING SPECIFICATIONS WITH EXISTING MODELS

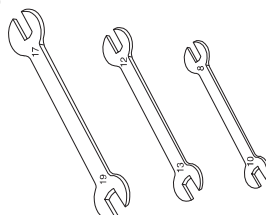
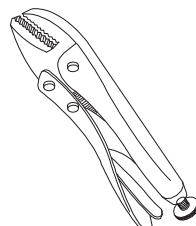
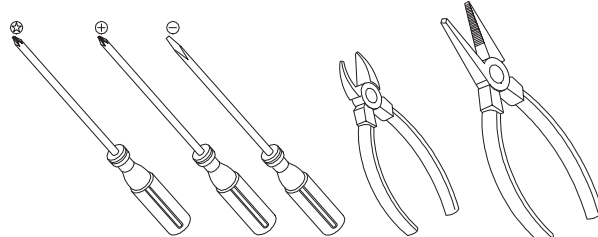
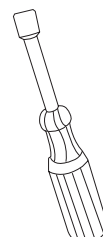
Model	New model			Model			
	DW80M9550US/UG	DW80M9960US/UG	DW80M9990UM/US	DW80J9945US	DW80J7550US/UW/UG	DW80F800UWS	DW80F600UTS/UTB/UTW
Photo							
Design Specifications							
Panel Control	Silver/Black	Silver/Black	Silver/Black	Silver	Silver/Black/White	Silver	Silver/Black/White
Control Type	Touch	Touch	Touch	Touch	Touch	Touch	Touch
Wine Rack	X	X	X	O	X	X	X
Handle Type	Pocket	Pocket	Pocket	Pocket	Pocket	Bar	Bar/Pocket/Pocket
Basket Handle	Blue + STS	Blue + STS	Blue + STS	Blue + STS	Gray	Gray + STS	Gray
Function Specifications							
Soil Detection Sensors	O	O	O	O	O	O	O
Drying method	AutoRelease system					Air diffusion condensing	
Basket Height Adjustment	One-touch					One-touch	2-stage
Leakage Sensor	O	O	O	O	O	O	O
Rail Type	"C" Rail	"C" Rail	"C" Rail	Soft Rail	"C" Rail	"C" Rail	"C" Rail
Programs	7 (Auto, Normal, Heavy, Delicate, Express60" Rinse only Self Clean)	7 (Auto, Normal, Heavy, Delicate, Express60" Rinse only Self Clean)	6 (Auto, Normal, Heavy, Delicate, Express60, Self Clean, Chef)	5 (Auto, Normal, Heavy, Delicate, Express60")	5 (Auto, Normal, Heavy, Delicate, Express60")	6 (Normal, Heavy, Delicate, Pot & Pans, Quick+, Smart Auto)	4 (Normal, Heavy, Delicate, Smart Auto)
Options	7 (Half load, Zone Booster, Speed Booster, Hi-Temp Wash, Sanitize, Delay Start, Control Lock)	8 (Half load, Zone Booster, Speed Booster, Hi-Temp Wash, Sanitize, Delay Start, Control Lock, Smart Control)	8 (Half load, Zone Booster, Speed Booster, Hi-Temp Wash, Sanitize, Delay Start, Control Lock, Smart Control)	5 (Half Load wash, Targeted zone, Sanitize, Dry+, Delay start)	5 (Half Load wash, Targeted zone, Sanitize, Dry+, Delay start)	6 (Delay Start, Sanitize, Half Load, Storm Wash, Child Lock, Start & Drain)	4 (Sanitize, Child Lock, Delay Start, Start & Drain)

2-4. OPTIONS SPECIFICATIONS

Photo	Item	Code	QTY	Remarks
	ASSY PACKING PARTS	DD98-01019A	1	Provided with the dishwasher
	90° FITTING (3/4")	-	1	Sold separately
	WATER SUPPLY LINE (Flexible STS supply line is recommend)	-	1	
	AIR GAP	-	1	
	RUBBER CONNECTOR	-	1	
	HOSE CLAMP	-	1	
	STRAIN RELIEF	-	1	

3. DISASSEMBLY AND REASSEMBLY

3-1. TOOLS FOR REMOVAL AND REASSEMBLY

Tool image	1		2		3	
						
	4				5	
						
No.	Tool	Type	Remarks			
☐	Adjustable Wrench					
☐	Open-end Wrench	1-7/16"	Leg			
☐	Vice pliers					
☐	Others (screwdriver, nipper, long nose pliers)		Common tools for servicing Screwdriver - Philips, flat, Torx T20, Small flat			
☐	Nut Driver	10mm	Heater bracket Nut			

* Preparation for parts replacement

1. Take out the residual water inside the product.
(Drain the water by operating the drain pump)
2. Close the water supply valve.
3. Turn off the power & disconnect power cable.
You must turn off the circuit breaker connected to the product.
4. Pull out the unit from the sink and lay it on the floor.
Be careful of the drain hose when pulling out the unit.

Caution

When pulling out or laying the dishwasher down for service, it may be necessary to lower the height of the adjustable legs to provide the clearance for the removal of the unit, prevent breaking the legs, or damaging the base of the unit.

3-2. PREPARATION FOR PARTS REPLACEMENT

1. Take out the residual water inside the product. (Drain the water by operating the drain pump)
2. Close the water supply valve.
3. Turn off the power. You must turn off the circuit breaker connected to the product.
4. Pull out the unit from the sink and lay it on the floor. Be careful of the drain hose when pulling out the unit.

Warning

Always turn off the electric power supply & water supply before servicing any electrical component, making ohmmeter checks, or replacing any parts.

Caution

Before moving the unit, laying it down for service, or removing any parts for service be sure to drain as much of the water from the unit as possible. Use a protective mat or towel to prevent damage to the floor or having any of the remaining water spill on the floor.

-  All voltage checks should be made with a voltmeter having a full scale range of 250 volts or higher. After service is completed, be sure all safety grounding circuits are complete, all electrical connections are secure, and all access panels are in place.

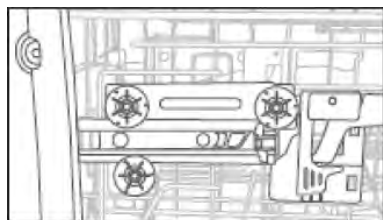
Before servicing, make sure to remove all items from inside of the dishwasher, including the wash racks.

3-3. REMOVING THE UPPER RACK

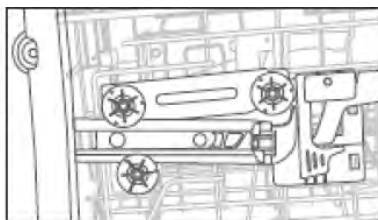
Pull the upper rack towards the front and then remove it by lifting it up slightly and pulling it towards the front. See the illustrations below.

Caution

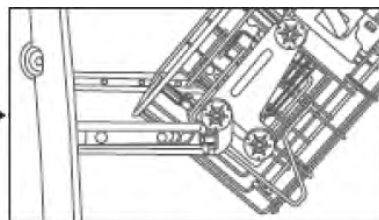
While the upper rack is removable, it must be installed for the dishwasher to operate properly. If you attempt to operate the dishwasher without the rack, noise will occur and the dishwasher will perform poorly.



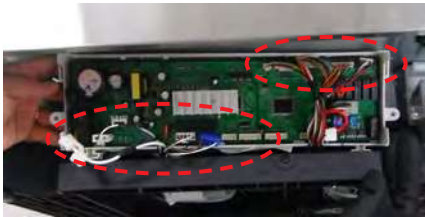
Step 1.

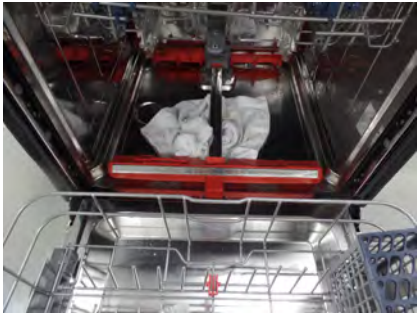
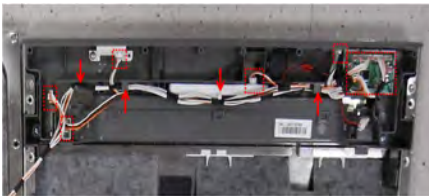


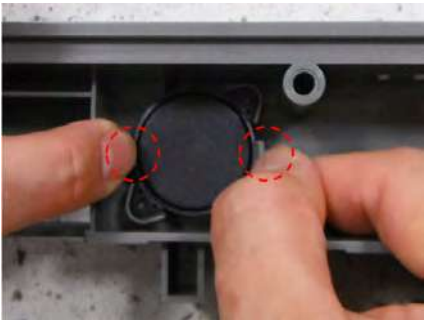
Step 2.

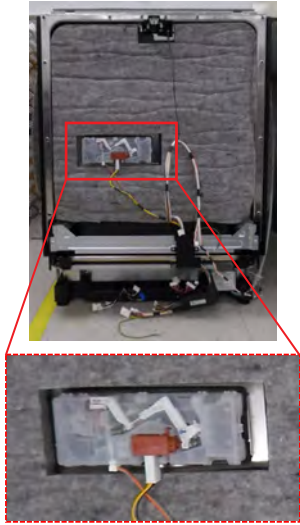
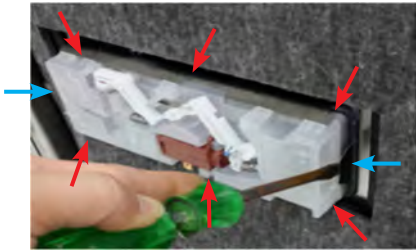
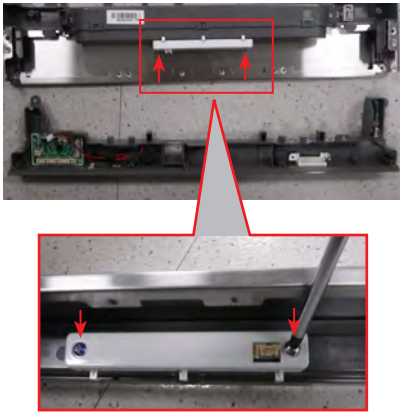


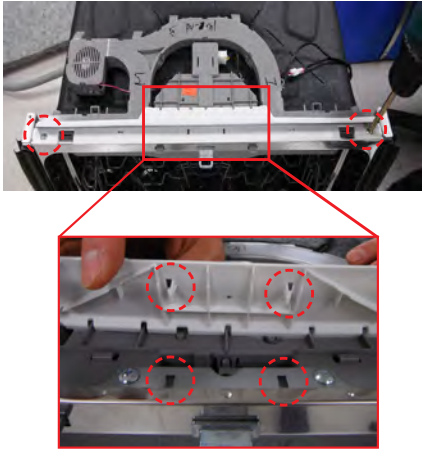
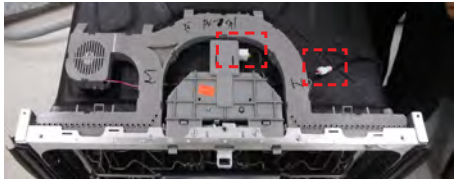
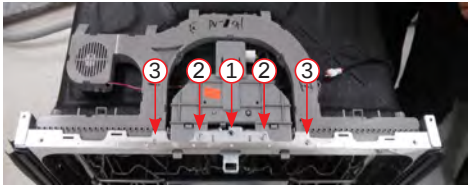
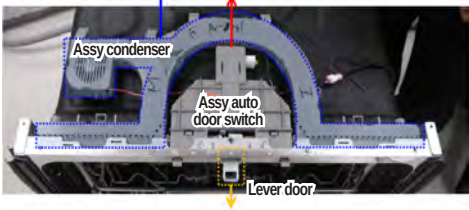
Step 3.

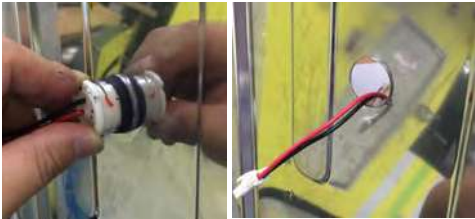
Part	Figure	Description
Main PBA		Preparation: - Make sure to disconnect the power. - Find Main PBA case below the door. - Remove two screws on the left and right.
		Remove the cover from the Main PBA.
		- Remove the all wire connectors from Main PBA. - DW80M9960US/UG : 8 wire connectors - DW80M9550US/UG : 7 wire connectors
		- Remove the two screws from the top left and right of the main PBA. - Carefully put a screw driver in the gap. Carefully angle the screwdriver to depress the locking tabs that secure the Main PBA to the housing and gently pull the Main PBA from the housing. ☑ When removing the Main PBA, lift the Main PBA board up carefully.

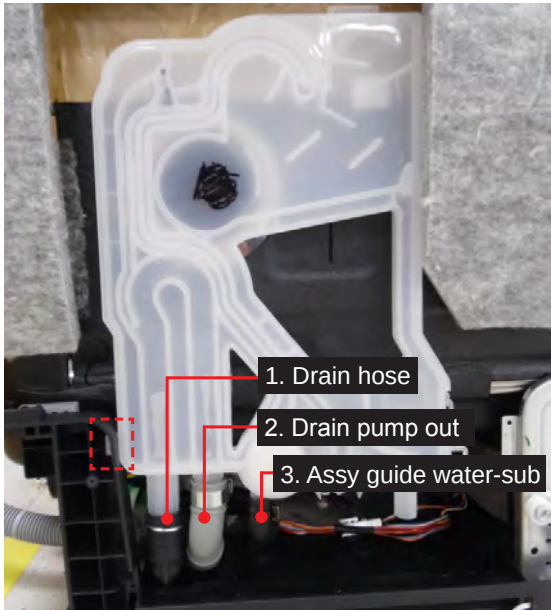
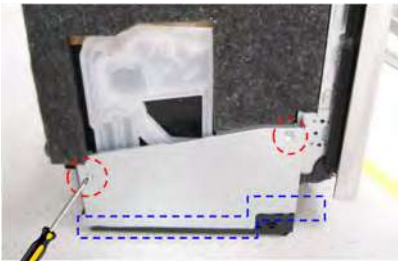
Part	Figure	Description
Door outer		Preparation: • Make sure to disconnect the power. • Remove the lower basket in the dishwasher. • Cover the Assy sump with a towel to prevent losing screws.
		1. Open the door completely to prevent losing screws. ☑ Before removing the parts, place a cushioned mat on the floor to prevent the parts from being scratched. 2. Remove the 12 screws (short one 8 pieces, long one 4 pieces) which holding the door outer and control panel in place. ☑ After removing screws, make sure to hold the door outer using your hand. This will prevent the door from closing suddenly and harming you. ⚠ Caution Do not place the removed screws on the door inner. They may fall into the sump Assy.
		3. Pull out the door outer carefully.
		4. Separate wire connectors indicated by the red arrows in the picture to the left and separate the Wire from the Hook shown with red arrow. - DW80M9960US/UG : 10 wire connectors - DW80M9550US/UG : 8 wire connectors 5. Lay a mat on the floor to protect the Door and put down the Assy door outer.

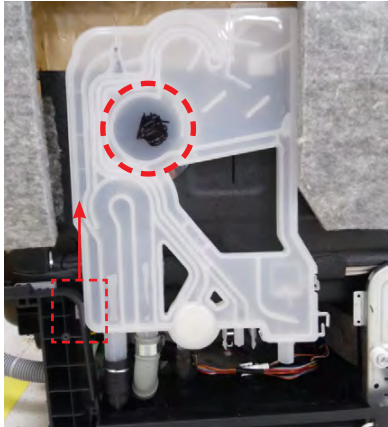
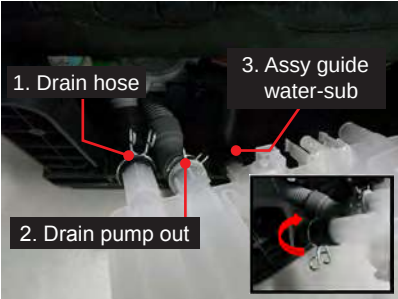
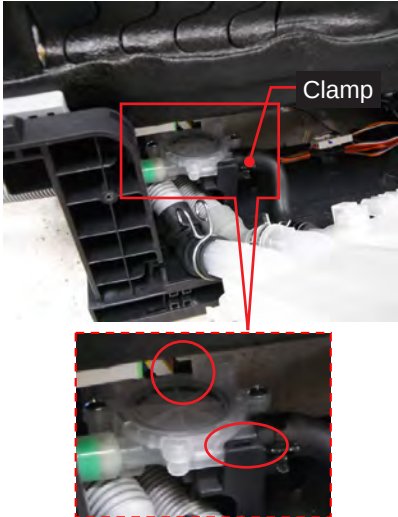
Part	Figure	Description
Panel control		Preparation: Disassemble the Assy door outer. 1. Remove the two (2) screws from Assy Door outer.
		2. Remove Sub PCB from panel control. There is two hooks.
		3. Remove the Buzzer.
		4. WIFI Module is fixed to the panel control with hook. Bend this hook than remove WIFI module.

Part	Figure	Description
Dispenser - slide		Preparation: Disassemble the door outer. - Refer to the “door outer” disassembly section to separate the door outer. 1. Remove the two(2) connectors from the dispenser. ⚠ Caution Be careful not to break them during disassembly.
		2. The dispenser-slide is fixed to the door inner with several tabs. Use a flat tip screwdriver to gently pry the tabs.
		3. Push it to the inside carefully. ⚠ Be careful as the tub front is sharp.
Assy Module (Pocket Light Module)		Preparation: Disassemble the Panel control. - Refer to the “Panel control” disassembly section to separate Panel control until step 1. 1. Remove Two (2) Screws which pointed by red arrows from Assy window panel.
		2. Disassemble Holder display PCB from Assy panel control.

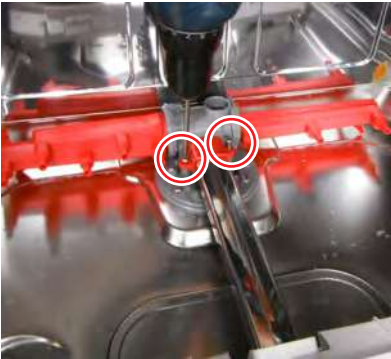
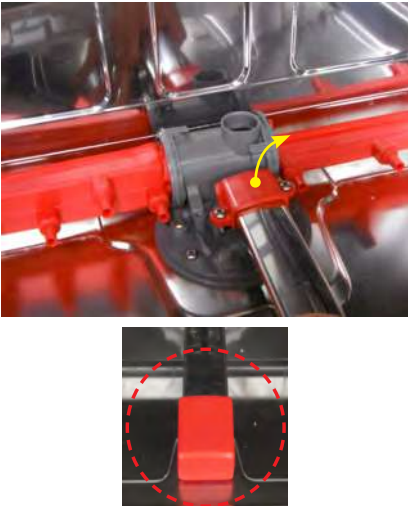
Part	Figure	Description
Lever door Assy cover door switch Assy condenser		1. Remove the two(2) screws holding the trim-up to the assy-tub. 2. Check and separate 2 hook of trim.
		3. Separate two wire connector.
		4. If you want to separate the Lever door from Assy tub, remove the screw labelled ① in the picture to the left. If you want to separate Assy auto door switch from Assy tub, remove the screws labelled ② on the picture to the left. If you want to separate Assy condenser from Assy tub, remove the screws labelled ③ in the picture on the left.
		5. Refer to the picture on the left to remove the parts.

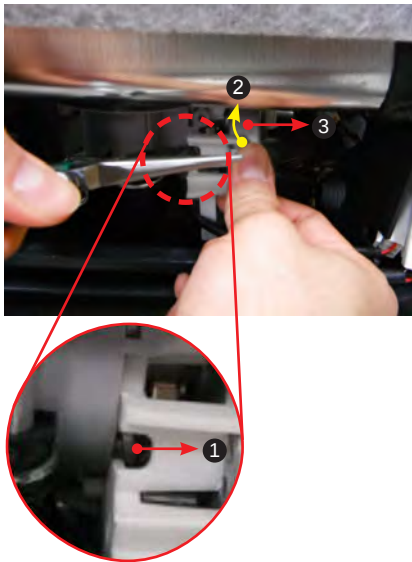
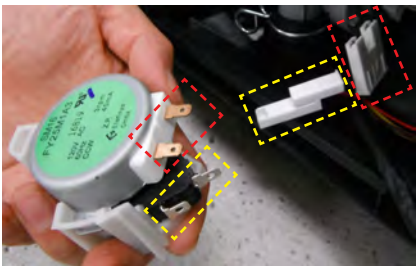
Part	Figure	Description
Assy Lamp LED (for DW80M9990 Series)		1. Remove Holder-tub light by rotating. (counterclockwise)
		2. Pull the Assy lamp LED to inside of tub.

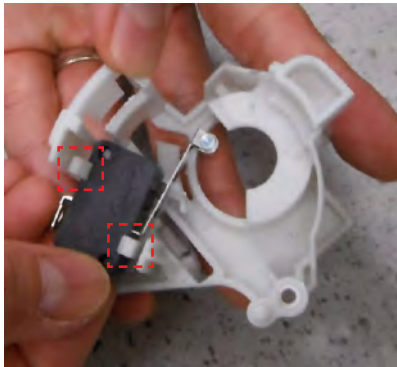
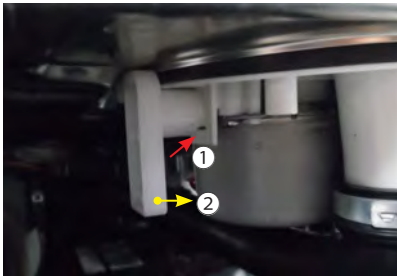
Part	Figure	Description
Assy Case Brake		
		Preparation: • Make sure to disconnect the power, water supply, and drain hose connections. • Remove the upper, lower baskets and 3rd rack in the dishwasher. • Pull out the dishwasher carefully. 1. Remove the two(2) screws of the Housing Left. 2. Remove the housing left and make sure not to damage the hooks on the bottom, outlined in the blue box in the picture on the left. ⚠ Caution Make sure to wear gloves when removing it. Be careful as the steel plate is sharp and may cut you.
		3. Remove cover brake by rotating.(counterclockwise) Use a jig. If you do not have a jig, you can use needle nose pliers. (Be careful when removing the cover as it is easily damaged.)

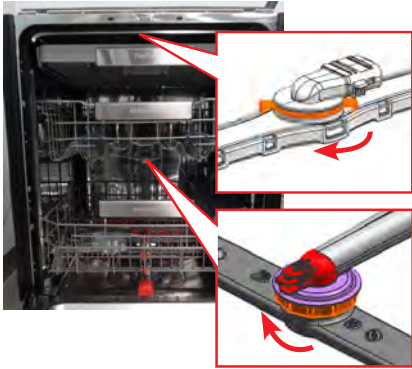
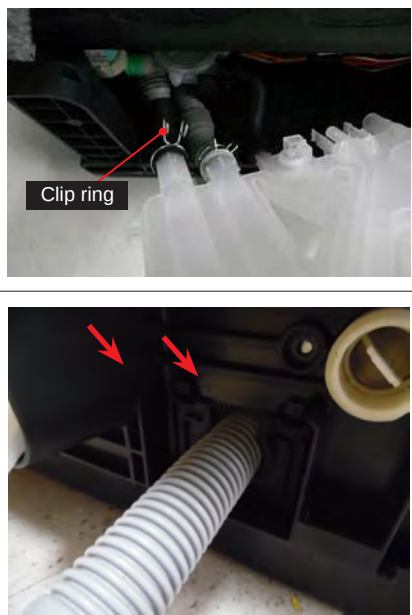
Part	Figure	Description
Assy Case Brake		4. Separate connection parts in red circle from tub and pull out the Case brake by lifting up the hook in red square.
		4. Loosen the three (3) clamps and release the three (3) hoses from the Assy case brake. ⚠ Caution Water remaining in the Assy case sensor and Assy case break will come out. Lay a towel on the floor to absorb any water that may come out. 🔧 When reassembling, the holder of the clamp must be pointing toward the inside of the dishwasher.
Assy guide water-sub		Preparation: - Disassemble the Assy Case Brake. - Refer to the "Assy Case Brake" disassembly section to separate Assy case brake until step 4. 1. Separate the Assy guide water-sub from base by bending two fixed hook. 2. Separate the Assy guide water-sub from connected hose by disassembling the clamp.

Part	Figure	Description
Water valve		
		1. Disassemble two fixed screw.
		2. Pull out the Water valve,

Part	Figure	Description
Assy duct main		Preparation: • Make sure to disconnect the power, water supply, and drain hose connection and remove the water in each nozzle. • Remove the upper, lower baskets and 3rd rack in the dish washer. • Pull out the dishwasher carefully. 1. Use a flat tip screw driver to gently pry the stainless steel tabs that secure the Assy duct main to the tub. Refer to the arrows in the picture on the left. 2. Separate the duct while making sure not to damage the connection point marked in the red circle.
Assy Rail		Preparation: Disassemble the Assy duct main. - Refer to the "Assy duct main" disassembly section to separate Assy duct main. 1. Remove the cover distributor like the picture to the left. ☑ Check and separate the hook on both sides of the front part of Cover distributor & the rear part of Cover distributor.
		2. Remove the screw in red circle in the picture.
		3. If you move assy rail up follow following the yellow arrows while holding a fixed part in red circle, assy rail separates.

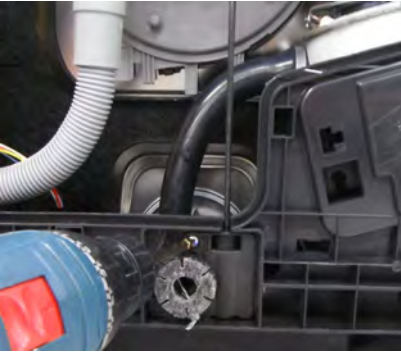
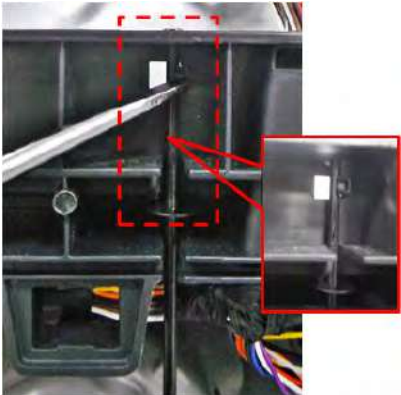
Part	Figure	Description
Assy guide water		Preparation: - Disassemble the Assy rail. - Refer to the "Assy rail" disassembly section to separate Assy rail. - Separate 3 screw shown with red arrow.
		- Lift up the front parts of Housing carefully like the picture and be careful of the hook on the back side of the Cover nozzle. ⚠ Caution - Be careful not to lose the gear. There are two gears in total. - Gear Upper : Small, attached with Housing. - Gear Lower : Big, inside the cover nozzle. - Be careful not to break the Hook on rear.
Assy motor holder		Remove two (2) screw then open the plate back.
		Insert needle nose pliers into the gap and press the tab. Then rotate the assy motor holder up to remove.
		Remove two (2) wire connectors.

Part	Figure	Description
Motor AC drive		Preparation: - Disassemble the Assy rail. - Refer to the "Assy rail" disassembly section to separate Assy rail. - Remove one (1) screw. - Remove Motor AC drive
Switch micro		Preparation: - Disassemble the Motor AC drive. - Refer to the "Motor AC drive" disassembly section to separate Motor AC drive. - Pull out the micro switch by lifting up the hook in red square.
Bracket lower - right		Preparation: - Disassemble the Assy motor holder. - Refer to the "Assy motor holder" disassembly section to separate Assy motor holder until step 2. - Turn The Bracket lower right in the direction of Yellow arrow ② in state that the Hook is not hanged in Cover nozzle by pushing the hook in the direction of the Red arrow ①.
Assy Cover nozzle		Preparation: - Disassemble the assy guide water/ assy holder motor / bracket lower-right. - Refer to the "Assy guide water", "Assy holder motor", "bracket lower-right" disassembly sections to separate Assy guide water/ assy holder motor / bracket lower-right. - Disassemble the Cover nozzle by pushing it down. ⚠ Caution - Be careful not to lose the gear. - There are two gears in total. - Gear Upper : Small, attached with Housing. - Gear Lower : Big, inside the cover nozzle. - Be careful not to break the Hook on rear. - Do not break the hole parts of Tub.

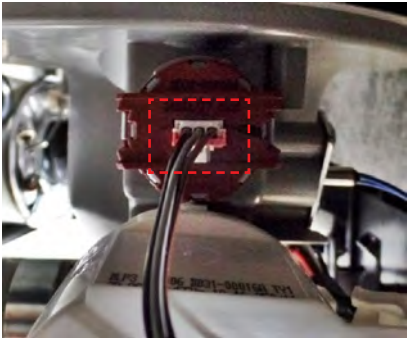
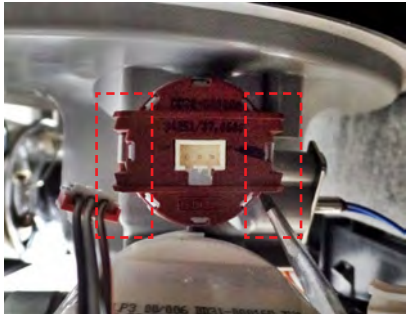
Part	Figure	Description
Upper nozzle / Lower nozzle		Preparation: - Remove the lower basket in the dishwasher. - Make sure to remove the water in each nozzle. - Upper Nozzle : Remove it by rotating the holder. (counterclockwise) - Middle Nozzle : Remove it by rotating the holder from upper basket. (counterclockwise)
Hose drain		Preparation: - Disassemble the Assy Case Brake. - Refer to the "Assy Case Brake" disassembly section to separate Assy case brake until step 4. - Disassemble Clip ring - Disassemble hose drain from Assy case brake. - Disassemble Holder Hose by press two (2) hooks to the direction of red arrow. - Disassemble Drain hose.

Part	Figure	Description
Assy cover base		Preparation: • Make sure to disconnect the power, water supply, and drain hose connections. • Remove the upper, lower and 3rd baskets in the dishwasher. • Pull out the dishwasher carefully. 1. Lay the dishwasher down on its back. Release the one(1) screw securing the base and cover base in place.
	 	2. Pull out the cover base and release the leakage sensor connector.
	 	3. Remove the leakage sensor from the shutter by unfastening the one(1) screw.

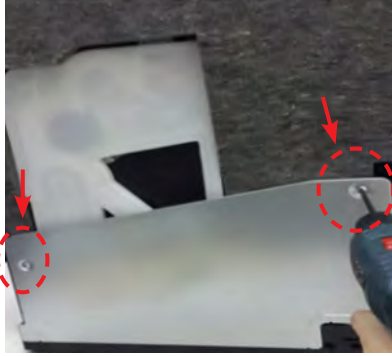
Part	Figure	Description
Door Spring		Preparation: - Disassemble the housing-left & right. - Refer to the "Assy Case Brake" disassembly section to separate housing left & right until step 2.
		Remove the spring etc door front the assy-base by using a needle nose pliers. ☑ Use a tool such as a needle nose pliers. Remove it carefully so that you are not injured from the spring etc door.
		Remove the bracket spring and holder rope door from the spring door.

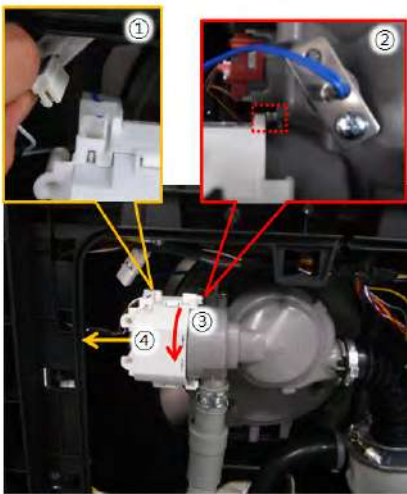
Part	Figure	Description
Case gear & Foot & Gear worm & Gear helical & Shaft rod adjuster foot		Preparation: • Make sure to disconnect the power, water supply, and drain hose connections. • Remove the upper & lower baskets in the dishwasher. • Pull out the dishwasher & lay the dishwasher down on its back. • Remove the Assy cover base. - Refer to the "Assy cover base" disassembly section to separate Assy cover base until step 2. 1. Remove the screw which is holding the case gear to the base.
	  	2. By disconnecting the hook in red box using the flat screw driver, Remove the Case gear.
		3. By disconnecting the hook in red box using the flat screw driver, Disassemble the shaft rod adjuster foot and Gear worm from Base.

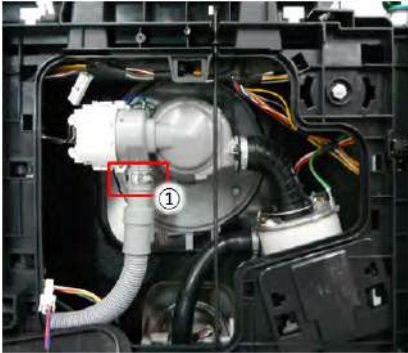
Part	Figure	Description
Thermistor	 	Preparation : • Make sure to disconnect the power, water supply. • Remove the Upper & Lower, 3rd baskets in the dishwasher. • Pull out the dishwasher then lay the dishwasher down on its back. • Remove the Assy cover base. - Refer to the "Assy cover base" disassembly section to separate Assy cover base until step 2. • Remove Assy cover PCB. - Refer to the "Main PBA" disassembly section to separate Assy cover PCB until step 2. 1. Remove the two (2) screw using screw driver which has long tip through the hole on frame front. 2. Disconnect the wire Terminal connected to the thermistor. 3. Pull it out.

Part	Figure	Description
Turbidity sensor		Preparation : • Make sure to disconnect the power, water supply. • Remove the Upper & Lower, 3rd baskets in the dishwasher. • Pull out the dishwasher then lay the dishwasher down on its back. • Remove the Housing left. - Refer to the “Assy Case Brake” disassembly section to separate Assy case brake until step 2. • Remove the Assy cover base. - Refer to the “Assy cover base” disassembly section to separate Assy cover base until step 2. 1. Locate the Turbidity sensor through the Dish washer’s leftside. Disconnect the wire terminal in red box.
		2. Gently pry up the tabs on th turbidity sensor with a flat screw driver from the bottom.
		⚠ Caution Carefully use a flat tip screwdriver to pry the tabs on the sensor as the tabs are fragile and can be damaged easily. 🔍 Inspect the “O” ring seal around the sensor. If it is damaged in anyway, replace the “O” ring seal.

Part	Figure	Description
Circulation pump	 Ground wire Heater wire Pump wire Damper BLDC	Preparation: - Remove the Assy cover base. - Refer to the "Assy cover base" disassembly section to separate Assy cover base until step 2. - Remove the Plate back. - Refer to the "Assy motor holder" disassembly section to separate Plate back until step 2. - Disconnect the Circulation pump connectors. - Three (3) wires. (Heater wire, ground wire, motor wire) - Release Damper BLDC from Base by Disconnecting the two tabs. ⚠ Caution Remove all water from the sump assembly before removing the pump. Failure to do so will cause the water to be released onto the floor. Make sure to use a towel to cover the PBA Case & Electric parts to prevent water damage to these parts.
		Remove the Clamp in red box then disassemble the Hose from Sump. ✍ Prepare new Clamp. This clamp can't use again. Request service part.
		- Access the hose through the back cover. - Move the Clamp to the pump following the hose. - Disconnect Hoses from Cover nozzle. - Pull out the Circulation pump.

Part	Figure	Description
Assy Base		Preparation: - Disassemble the housing L/R and assy-case brake. - Refer to each disassembly section.
		1. Remove the two(2) screws on the plate base both-sides. (in Red circle) 2. Carefully lay the dishwasher down on its back. 3. Remove the cover assy-cover pcb and assy-cover pcb-inverter and disconnect the wire connectors.
		4. Disconnect the wire connectors from Assy Sump. 5. Pull out the plate base slightly. 6. Remove other parts as needed to remove the base. Ex . Frame front, Cover harness etc.

Part	Figure	Description
Drain pump		Preparation: - Remove the Assy cover base. - Refer to the "Assy cover base" disassembly section to separate Assy cover base until step 2. - Disconnect the wire connector. - Push the locking hook like the red box. - Turn the Drain pump completely to the direction of red arrow. - Drag the Drain pump to the direction of yellow arrow.
Motor geared (Vane motor)		Preparation : - Remove the case gear. - Refer to the "Case gear etc" disassembly section to separate Assy cover base until step 3. - Remove the Assy cover base. - Refer to the "Assy cover base" disassembly section to separate Assy cover base until step 2. - Remove one screws through the window of Assy cover base. - Remove one screws through the hole of base which was under the cover gear. - Disconnect the wire connector. - Pull the motor geared out.
Sensor-vane		Preparation : - Remove the Assy cover base. - Refer to the "Assy cover base" disassembly section to separate Assy cover base until step 2. - By releasing the hook, disassemble the sensor.

Part	Figure	Description
Assy sump		Preparation: - Remove the Assy cover base. - Refer to the “Assy cover base” disassembly section to separate Assy cover base until step 2. - Remove the case gear. - Refer to the “Case gear etc” disassembly section to separate Assy cover base until step 3. - Remove the Circulation pump. - Refer to the “Circulation pump” disassembly section to separate Assy cover base until step 7. - Remove the Drain pump. - Refer to the “Drain pump” disassembly section to separate Assy cover base until step 4. 1. Release Clamp. ⚠ Caution Remove all water from the sump assembly before removing the pump. Failure to do so will cause the water to be released onto the floor. Make sure to use a towel to cover the PBA Case & Electric parts to prevent water damage to these parts.
		2. Remove the flat filter. 3. Remove the four (4) Screws.

3-4. CHECKPOINTS AFTER FINISHING SERVICE

1. Check the safety device

Check the operation of the door lock switch. Make sure that it is locked while the dishwasher is running and that the dishwasher stops running when the door is unlocked.

2. Use authentic Samsung replacement parts only

If any part is not authentic, replace it with an authentic Samsung replacement part.

3. Handling wires

Check if any wires are loose or too tight, if they are connected correctly, if they are well bound with tape, and if they are properly clamped.

4. The state of screws and nuts

Check if the screws and nuts are fastened correctly.

Check whether they are fastened with the specified torque.

5. Remove foreign material

Check whether any foreign material such as soil, wire scraps and screws are in the dishwasher. (Check whether any foreign material is entering through the sump into the disposer.)

6. Check for water leakage

Check whether there is water leakage from the hose connector, door, case sump (drain motor, circulation motor, heater, thermistor, turbidity sensor, distributor motor), and the water supply/drain hoses.

7. Check the power cable

Check if there is any damage to the power cable or power outlet. Check that the voltages are correct.

8. Check leveling

Check to make sure the dishwasher is level.

9. Check the installation location

Check whether the installation location is flat and stable.

4. TROUBLESHOOTING

4-1. PREPARATION

4-1-1. Check Code

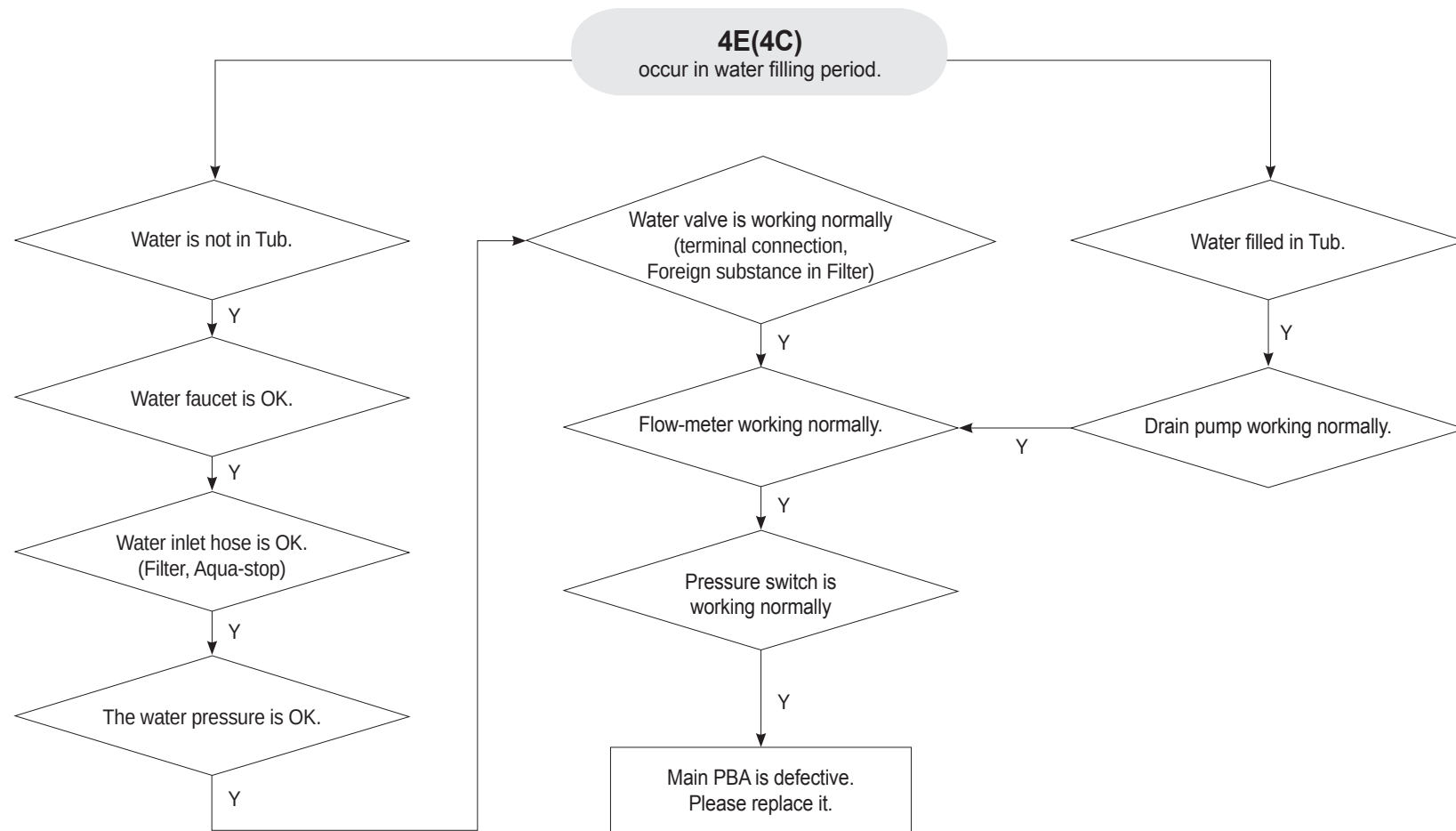
Check code Display	Check code Recall	When occur	Symptom	Possible Causes
4C	4C	Conditions for error to occur: Condition 1) If the number of water supply pulses increases to fewer than 10 within 20 seconds after water is supplied. (If it increases to fewer than 10 within 10 seconds, turn the water supply valve 'OFF' for 1 second and then re-supply.) Condition 2) If 20 seconds after water is supplied (in other words, if Condition 1 is satisfied) and water supply Pulse is checked every minute, it does not increase by more than 30 compared to before. Condition 3) If the TargetPulse is not reached within 60 minutes after water is supplied.	Condition 1) Water supply valve OFF Condition 2) If draining is performed for 3 minutes while water supply valve is OFF. (20 seconds ON/ 5 seconds OFF) Condition 3) If draining is performed for 3 minutes while water supply valve is OFF. (20 seconds ON/ 5 seconds OFF)	- The water supply pressure is low. - The water supply valve is closed. - The aqua stop is out of order. - The case brake fails to detect the pulse.
No display (The drain is clogged.)	5C	- In case of drainage clogging.	- Keep going remained cycle.	- A foreign object has entered the drain pump and the pump is stuck. - The drain pump is out of order. -The Main PBA is out of order. - The Inverter PBA is out of order.
5C	5C1~5C6	- Drain pump check code occurred 11 times, 5minutes pause and retry. when pause condition is occurred 3times.	- The driving parts stops. - Retry until 2nd time, and then 3rd time display check code.	
No display	PC	- When the location is not detected for 2 minutes after the synchronous motor operation. (after 1minute, Synchronous stop. and then after 1sec retry with c-pump also stopped condition)	- Vane move to reset location and keep going remained cycle with heater off condition.	- The synchronous motor is out of order. - The location in the cam is incorrect.
No display	tC	- When the temperature sensor data output is equal to or greater than approximately 4.5V or is equal to or less than approximately 0.2V - When the water temperature is detected as equal to or less than -3℃ for 30 seconds in succession during the cleaning the heater operation.	- Heater off and keep going remained cycle. - No Rinse aid during rinse cycle - if C-pump RPM target 3000, change to 3000rpm.	- The thermistor is out of order.

Check code Display	Check code Recall	When occur	Symptom	Possible Causes
No display	HC1	- The start temperature is saved 30 seconds after heating starts. Thereafter, if the temperature change is equal to or less than 4℃ for 10 minutes, the heater relay is turned off for 1 second and then restarts heating. Then, if the temperature change is equal to or less than 4℃ for 10 minutes again, an HC1 check code occurs.	- Keep going remained cycle with heater off condition.	- The heater is out of order. - The heater is improperly connected.
HC	HC	- When the temperature is measured as equal to or greater than 80℃ for 3 seconds.	- The driving part stops and the main relay is turned off.	- The heater is out of order. - The thermistor is out of order.
No display	bC2	- When the button is pressed and held for 30 continuous seconds or longer.	- Keep going remained cycle	- The touch button is out of order. - An object is on the touch button.
No display	bC3	- When IC communications between the Sub PBA and the touch button fails.	- Keep going remained cycle	- The touch button is out of order. - The sub PBA or touch button PBA is not properly connected.
No display	AC	- When communications between the main PBA and the sub PBA fails for 24 seconds. (In Test Mode, communication fails for 6 seconds.)	- Keep going remained cycle	- The main PBA or sub PBA is out of order. - The communications connection for the main PBA or sub PBA is not properly connected.
No display, change to pause	AC6	- When the response is not received from inverter PBA for 3 seconds, Inverter RELAY OFF for 2 minutes. After repeated 3 times, display the check code	- Inverter Relay 2min off, 3sec on(until find response) - Display change to pause	- The main PBA or Inverter PBA is out of order. - The communications connection for the main PBA or Inverter PBA is not properly connected.
LC	LC	- When the water leakage sensor data is equal to or less than 3V for 3 seconds.	- Main relay off. - If sensor data over 3V is detected after draining (20 seconds on/5 seconds off) is performed for 3 minutes, the drain pump is turned off. If data over 3V is detected, draining is performed for 3 minutes and then the sensed data is checked again.	- There is a water leak.
OC	OC	- When the overflow sensor data is equal to or less than 3V for 5 seconds.	- If check code has occurred when set operating, 3times '3min drain' retry, and display "OC" (No operating condition, display "OC" without retry) - During retry 3times, display 'pause'	- The case brake fails to detect the pulse. - The valve water is out of order.

Check code Display	Check code Recall	When occur	Symptom	Possible Causes
No display	dC3	- In case the Auto Door Open device operates, When the door opening is not sensed. (Auto Door Open device action retry 3 times)	- Keep going remained cycle.	- The touch button is out of order. - The sub PBA or touch button PBA is not properly connected.
	FC	- When Fan Motor Rpm is measured less than 3000rpm. (Fan motor action retry 6 times)	- Keep going remained cycle.	
3C	3C, 3C1~ 3C6	Condition 1) When Main receives the Circulation pump check code from the inverter, stop the drive the motor and restart again. If Main receive the motor check code 11 times, turn off the motor for 5 minutes. At the third rest time, check code occurs. (When check code occurs, Heater is stopped immediately. And Heater ON after operating the circulating motor 10 seconds.) Condition 2) Washing(Rinsing) area : When Target rpm is 2200rpm or more and Circulation pump speed is 2000rpm or less continuously for three seconds, the operation is stopped. Retry 2 times in 3 seconds. When sensing 3 times, Inverter is turned off and retry in 5 minutes. At the third rest time, check code occurs. (If the condition of Low level water sensing, this check code is ignored.)	- The driving part stops. - Retry until 2nd time, and 3rd display check code.	- A foreign object has entered the Circulation pump and the pump is stuck. - The Circulation pump is out of order. - The Main PBA is out of order. - The Inverter PBA is out of order.
No display	4C5	- When the number of detected water supply pulses are 200 at the Non-water supply mode. → Repeats water valve on(1seconds) / off(1seconds) 2 times	- Keep going remained cycle	- The water valve out of water.
No (Display, change to pause)	9C1 / 9C2	If blackout or DC Link voltage is high or low voltage conditions, switches to stop mode (abnormal voltage).	- The driving part stops. - Display change to pause	- High or Low voltage is supplied
No display	7C	Case1) When the reset position sensing for 10 seconds, vane motor 1 sec Off and re-operation. Check code occurs after retry three times Case2) When the reset position sensing for 25 seconds. Check code occurs after retry three times. Case3) Vane position is the time from initial position to initial position in 21 seconds or less, the check code occurs.	- Distribute change Middle + top and then keep going remained cycle. - If while Distribute motor driving, detect the Vane check code, Stop C-pump and then keep going remained cycle. - During Remained cycle, no operating Vane anymore.	- Motor gear is out of order. - Sensor vane is out of order. - When the vane is blocked.

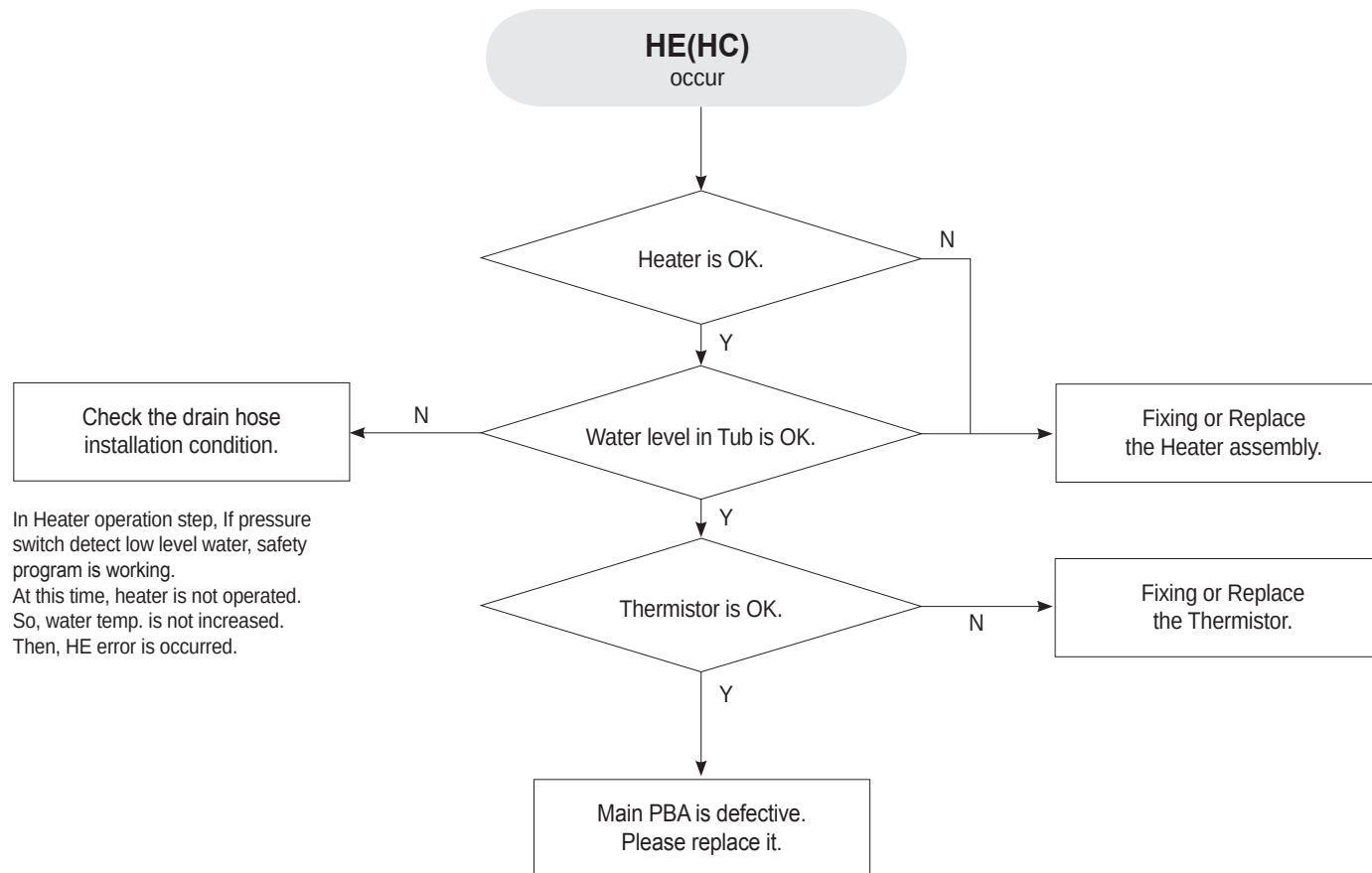
Resolution by symptom

- **4E(4C)** : When water supply is not working



Resolution by symptom

- **HE(HC)** : When heater is not working



4-2. SERVICE INSPECTION MODE

■ SVC Test mode

Item	Related Parts	Symptoms	Description
Enable Smart Install Mode			1) Set the timer for 17h with Power On. 2) Press Hi-Temp Wash Key for at least 7 seconds.
Disable Smart Install Mode			- When Power Key is pressed, it is disabled with Power Off.
Smart Install Mode Configuration			- There are Auto Mode and Manual Mode. When Smart Install Mode is enabled, it is set to Auto Mode by default. - Mode change KEY : Changing modes can be done by entering the Auto Key while on standby or when the operation of each mode has been completed. (AS → Manual mode STEP[1] → Manual mode STEP[2] → ... Manual mode STEP[7] → AS → ... (Circulation)) - Entering the mode change KEY when the Door Open check code occurs will cancel the check code and go to the state where mode change can be performed.
Smart Install Mode Display			- Displays "AS" before Auto Mode is enabled. - If Rinse Aid is not sufficient, Rinse Aid ICON turns on. - During Auto Mode, the current Step No. blinks as an indication.
Auto Mode Configuration			- Closing the Door within 3.7 seconds after entering the Start Key will automatically run Step 1 through to Step 6. ※ dC1 will occur if Door Open information is detected only in Inverter Micom. – If the Door opens during operation, it will stop and the Door Open check code "dC(dC1)" will be displayed. However, this does not apply once Auto Door Open is activated. – When the Door Open check code "dC(dC1)" is displayed, pressing the Start Key will turn the check code display off and it will re-run from the initial AS. 1. During Auto Mode, all keys except Power Key are deactivated. During Auto Mode, Sub Mode cannot be changed manually. 2. [Auto Mode STEP 1: check drainage and vane.] 3. Turn on the drain pump. (Use the following steps/ no drain error detection.) - Drain pump on for 14 seconds → drain pump off for 2 seconds → drain pump on for 14 seconds → off for 5 seconds → complete 4. Move the vane back and forth while draining step is in progress. (※ Applicable to models with a vane only.) 5. Once the draining step completes and the vane operates normally, proceed to [STEP 2].

Item	Related Parts	Symptoms	Description
Auto Mode Configuration			6. [Auto Mode STEP 2: check water supply] 1) Supply 4.5L of water. ※ Water supply error : detected in the same way as normal water supply error but if water is not fully supplied for a maximum of 5 minutes, the water supply inspection code is activated. 2) Water supply operates (including the internal pressure calibration) according to the development model specifications. 3) Once the water supply, internal pressure calibration and alternating motor operation completes, proceed to [STEP3]. 7. [Auto Mode STEP 3: check nozzle] 1) Operate the circulation pump. (BLDC: 2400RPM, AC Pump: LOW (default)/HI Setting) 2) Operates the alternating motor in the order of the locations where alternation takes place during the water supply step. Skip any unused alternation. Operate for 10 seconds each time after it reaches the target alternation location. ex) Location #1: 10 seconds, Location #2: 10 seconds , Location #3: 10 seconds, ... Location #6: (10 seconds) Location #1: 10 seconds ※ For models with AC circulation pump, operate in the order of LOW (starting alternation → HI → LOW → for each alternation location. When the last alternation completes, the circulation pump operates from LOW (starting alternation) again. ※ For models with a Vane, move the Vane back and forth once when operating the bottom. For Vane operation alternations, detect the Vane reset position and then operate the relevant alternation while moving it back and forth once. 3) Operate the Dispenser Actuator for 130 seconds. 4) [STEP3] Operate the heater 10 seconds after operating. 5) If after 1 Cycle is run for each alternating position and the temperature has increased by more than 2 degrees over the initially saved temperature (the initial temperature saving point is saved 30 seconds after running [STEP3]), or if more than 73 degrees is detected when operating the heater, turn the heater OFF and judge it as normal operations of the heater. 6) Go to [STEP4] when more than 1 Cycle is run for each alternating position until the last alternation, the heater operation is judged to be normal, and then the Dispenser is operated for 130 seconds. ※ However, for models with a Vane, go to [STEP4] after moving the Vane from the Vane Reset position to the front for 1.0 second. 7) HC1 error will occur if the heater operation is not judged to be normal after 10 minutes have passed. 8. [Auto Mode STEP 4: check drain] 1) Operate the drain pump. 2) Follow the same steps as PreDrain. 3) If low water level is not detected in the first cycle after draining starts, the drain inspection code is activated. 4) For models without low water level detection, proceed to the next step after draining without the drain inspection code.

Item	Related Parts	Symptoms	Description
Auto Mode Configuration			9. [Auto Mode STEP 5: check drying] 1) Operate Auto Door Open Actuator. - If the Door does not open within 3 minutes after the Auto Door Open Actuator is run, it will Retry once (10 seconds Off, 3 minutes On). - If the Door does not open after the retry, a DC3 check code will occur. 2) If the door open is detected after Auto Door Open, operate for additional 30 seconds from the time the door opens and complete the Auto Door Open step. 3) Operate the Fan Motor and Dry Actuator for 30 seconds. (Only for models with the relevant part) 4) Once the above 1), 2) and 3) are complete, proceed to [STEP 6]. 10. [Auto Mode STEP 6: complete the Auto Mode operation] 1) "OK" displays. 2) At the time Auto Mode operation completes, Smart Install Auto Mode Completion is saved to EEPROM.
Manual Mode Configuration			- Each time Auto Key is pressed, the Manual Mode step changes indicating Step No. - After Max Step No. is selected, it is automatically changed to Auto Mode "AS". - Start Key must be pressed to start the Manual Mode steps. - The Step of the manual mode will operate only when the Door is closed within 3.7 seconds after entering the Start Key. - If the Door opens during operation, it will stop and the Door Open check code "dC(dC1)" will be displayed. - If the Door is left open for 3.7 seconds after the Start Key is entered, the Door Open check code "dC(dC1)" will be displayed. ※ dC1 will occur if Door Open information is detected only in Inverter Micom. - During manual mode operations, if the relevant Step number blinks and the relevant Step operation has been completed, the Display will indicate the relevant Step number. - Once this Manual Mode step is complete, the Step No. stays turned on in the display. - If the Door opens during operation, it will stop and the Door Open check code "dC(dC1)" will be displayed. (However, Auto Door Open Mode is an exception. The operation is resumed as it detects the door is open.) - When the Door open check code "dC(dC1)" is displayed, pressing the Start Key will turn the check code display off and it will restart. - When restarting, the mode starts from the beginning. - For models with a vane, the vane must be always positioned at parking when the bottom nozzle starts spraying (to prevent leakage). 1. [Manual Mode STEP 1: drain / supply of water] 1) Perform Auto Mode STEP 4 (drainage) and STEP 2 (water supply). 2. [Manual Mode STEP 2: check the nozzle] - Each time Normal Course Key is pressed, the setting changes by 100rpm (it can be set to 1201~3500RPM). - Delicate Key: 2400 (default RPM) → 2300 → 2200 → 2100 → (Change to RPM decreasing direction) AC circulation pump model: change to Low (default) → Hi → Low → Hi → ... (When the key is pressed, the RPM displays for 2 seconds.) - Each time Heavy Course Key is pressed, the alternation nozzle position can be set and it starts from its default position. Unused alternation cannot be set. No. 1 (default: the default position varies by model → No. 2 → No. 3 → No. 4 → No. 5 → No. 6 (max. alternation target position: varies by model) → No. 1 → Please refer to [Dish Washer-Washing Performance Specifications-Distributor Control] for the specifications of alternation position by model. (When the key is pressed, the current target alternation position displays for 2 seconds.)

Item	Related Parts	Symptoms	Description
Manual Mode Configuration			※ When performing this STEP without performing STEP 1 as it has been already performed, calibrate the pressure in the tub when restarting or operating the nozzle for the first time. ※ If STEP 1 has not been performed before, perform STEP 1 first. (STEP 1 is not recognized as having been performed if STEP 1 is re-operated, STEP 6 has been performed or Auto Mode has been enabled.) ※ For models with vane, the vane must move back and forth when the bottom alternation is in progress. 3. [Manual Mode STEP 3: inspect the heater] - Set the alternation to the default position. - Circulation pump: operate BDLC Model at 2400RPM, and AC model at LOW Power setting. - Operate the heater after operating the circulation pump for 10 seconds. - Turn the heater off when the max. temperature reaches 73 degrees or the max. operation time passes 10 minutes. - During operation, the display alternates between the temperature of the heater and the current Step No. ※ When performing this STEP without performing STEP 1 as it has been already performed, calibrate the pressure in the tub when restarting or operating the nozzle for the first time. ※ If STEP 1 has not been performed before, perform STEP 1 first. Only "3" blinks during STEP 1 operation (no display of temperature). (STEP 1 is not recognized as having been performed if STEP 1 is re-operated, STEP 6 has been performed or Auto Mode has been enabled.) 4. [Manual Mode STEP 4: operate the dispenser] - Operate the dispenser for 130 seconds. 5. [Manual Mode STEP 5: operate the fan] 1) Operate the Fan Motor and Dry Actuator for 30 seconds. (Only for models with the relevant part) 6. [Manual Mode STEP 6: drain] 1) Operate the drain pump. 2) Follow the same steps as PreDrain. 3) If water level is not detected after draining, the drain inspection code is activated. 4) For models without low water level detection, proceed to the next step after draining without the drain inspection code. 7. [Manual Mode STEP 7: operate Auto Door Open Actuator] 1) Operate Auto Door Open Actuator. - If the Door does not open within 3 minutes after the Auto Door Open Actuator is run, it will Retry once (10 seconds Off, 3 minutes On). - If the Door does not open after the retry, a DC3 check code will occur. Before the DC3 check code occurs, operate the Auto Door Open Actuator for an additional 30 seconds during Door open detection.
Information Display			Each time Hi-Temp Wash Key is pressed while "AS" displays, it makes [SOUND_KEYPUSH] sound and changes in the following order: n1 → n2 → n3 → n4 → n5 → n1 → n2 → n3...changes in a loop - When Auto Key is pressed while the information display mode is on, it makes [SOUND_KEYPUSH] sound and returns to Auto Mode.

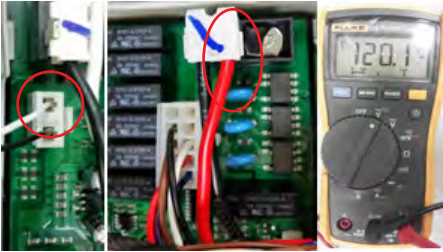
Item	Related Parts	Symptoms	Description
n1: Version Display			When holding the following keys, the version displays alternating with "n1": - Normal Course Key: Sub PBA Version Display - Heavy Course Key: Sub PBA Touch IC SW Version Display - Delicate Course Key: Model Option Display - Express (Quick) Key: Inverter PBA SW Version Display - Rinse Key: WiFi Module Version Display (Only for WiFi models; before receiving the version data, display "---"; display version if version information is received)
n2: Inspection Code Display			- Each time Normal (Europe: Eco) Key is pressed, the code on display changes in a loop starting from the last saved code : C00 → C10 → C20 → C30 → C40 → C50 → C60 → C00 → ... - Up to 7 inspection codes can be saved, any additional code overwrites the oldest code. ※ Inspection codes are saved according to [Dish Washer - Inspection Mode - Inspection Recall Mode]. 1. Each time Heavy Key is pressed while inspection code is on display, the information about the condition which triggers the inspection code displays in sequence. ex : When C00 displays, it changes as follows: C00 → C01 → C02 → C03 → C04 → C05 → C06 → ... When C10 displays, it changes as follows: C10 → C11 → C12 → C13 → C14 → C15 → C10 → ... ※ CX1: X indicates the order of inspection code on display. C01: indicates the code ID which occurs most recently. 2. When the operation button is held for 7 seconds with the inspection code on display, it clears all the inspection data.
n3: Smart Install Auto Mode Result Display			It determines based on the data saved in EEPROM. - Smart Install Auto Mode is successfully completed: it is indicated by "OK" - Smart Install Auto Mode is not successfully completed or not performed: it is indicated by "nG"
n4: Operation Cycle Display			- The max. value is 9999 and it does not go any higher. - When the finishing session is entered, Cycle Cnt increases unless Cancel & Drain has been enabled.

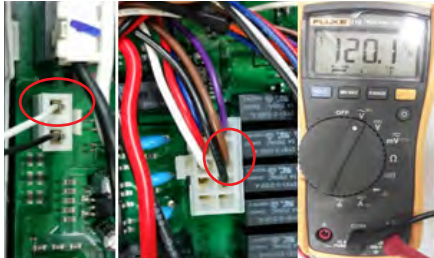
Item	Related Parts	Symptoms	Description
n5: Setting Dry Increase Option by Default			1) If Dry+ (or Sanitize) option is set to On by default, it indicates as "d1". 2) If Dry+ (or Sanitize) option is not set to On by default, it indicates as "d0". 1. To set Dry+ (Sanitize) option to On by default, use the Dry+ (Sanitize) option button to switch it On/Off [n5: Setting Dry Increase Option by Default mode only]. - When Dry+ (Sanitize) button is pressed, Dry+ (Sanitize) is set to On or Off by default. ※ For models without Dry+, the Sanitize button can be used to set the Sanitize option to On by default.  About This Option This option is designed to increase the drying performance by default in case there are consumer complaints. - If Dry+ (Sanitize) option can be set to On by default, it powers on and sets the Dry+ (Sanitize) option to On by default. - If the course does not support Dry+ (Sanitize) option setting, it is not set to On by default. - Even if the course is completed without using Dry+ (Sanitize) option, the last used course is set to On by the course save feature on its next power-on and Dry+ (Sanitize) option is set automatically depending on the default setting as long as Dry+ (Sanitize) option is set to On by default. - Even if Dry+ (Sanitize) option is automatically set by the default setting, it can be switched on/off by pressing Dry+ (Sanitize) Key.

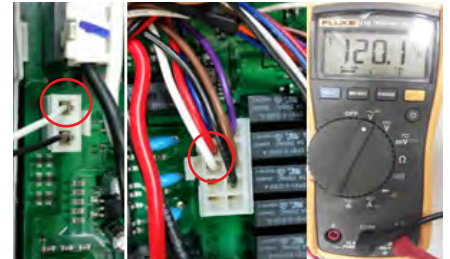
4-3. CHECK CODE TROUBLE SHOOTING

Check type	Check code	Checking method	Corrective actions
Water supply check	4C	1. Check whether the faucet is open.	- Open the faucet.
		2. Check whether the water supply has been cut off.	- After wait until the water supply resumes and turn off the power. - After the water supply resumes, turn on the power.
		3. Check whether any foreign material is in the Water Supply Line and the Water Valve filter.	- Remove the foreign material, clean the filter in Water Valve with a brush.
		4. Check the connection for the Water Valve connector.	- Reconnect the Water Valve connector.
		5. Check whether the coil in Water Valve is conductive. (Remove the connector before measuring.) ▶ Normal: Approx. $990\Omega \pm 10\%$ ($890\Omega \sim 1089\Omega$)	- Faulty: Replace the Water Valve. 
		6. Check whether the water supply stops, after water is supplied for 20 seconds.	- Faulty: Replace the Water Valve and Assy guide water-sub.
		7. Check whether the water supply stops after water is supplied for 60minutes.	- Check the water supply pressure. ($> 0.5\text{bar}$) - Faulty: Replace the Water Valve and Assy guide water-sub.
		8. Check whether the Water Valve is operating normally in the Main PBA. - Check the Water Valve Relay in Main PBA. : Check the voltage between the Blue wire (Number6) of the CN401 and the White wire of the CN101 connector. ▶ Normal: 110 ~120V (while operating)	- Faulty: Replace the Main PBA Assy. - Normal: Replace the Water Valve. 
		9. Check the Power Relay.	- See the "Power Relay check code".

Check type	Check code	Checking method	Corrective actions
Drain check code	5C	1. Check whether there is any foreign material in the Drain Hose and Drain Pump.	- Remove the foreign material in the Drain Hose and Drain Pump.
		2. Check the connections for the Drain Pump connector.	- Reconnect the Drain Pump connector.
		3. Check whether the Drain Pump coil is conductive. (Remove the connector before measuring.) ▶ Normal: Approx. $88\Omega \pm 7\%$ (81.8~84.2)	- Faulty : Replace the Drain Pump. 
		4. Check the operating LED(red) of the MAIN PBA. ▶ Normal: Fully turn-on (while operating)	- Faulty : Replace the Inverter PBA Assy.  
Key input check code	bE-2 (bC-2) bE-3 (bC-3)	Check whether there is condensation on the PBA. - CN103 of Display Control Module connector - CON100 TOUCH Module connector ▶ Normal: No condensation	- Faulty : Remove any condensation and moisture. - Normal : Replace the Control Panel Assy. (Display Control Module, Touch Module, Sub Wire)
Circulation Pump Check	3C	1. Check whether there is any foreign material in the Circulation Hose and Circulation Pump.	- Remove the foreign material in the Circulation Hose and Circulation Pump. - Reconnect the Circulation Pump connector. - Faulty: Replace the Circulation Pump. - Faulty: Replace the Main PBA Assy
		2. Check the connections for the Circulation Pump connector.	
		3. Check whether the Circulation Pump coil is conductive. (Remove the connector before measuring.) ▶ Normal: Approx. $5.8\Omega \pm 10\%$	
		4. Check the operating LED(red) of the MAIN PBA ▶ Normal: Fully turn-on (while operating)	- Faulty: Replace the MAIN PBA Assy. 

Check type	Check code	Checking method	Corrective actions
Heater Check	HC1	1. Check the connections of the Heater connectors.	- Reconnect the Heater connectors.
		2. Check the resistance between both ends of the Heater. : Check the resistance between both ends of the Heater directly, or check the resistance between the red wire of the Heater Relay and the black and yellow wires of the Power Relay, respectively. ▶ Normal: Approx. 12.14 ~ 14.16Ω ▶ Check after disconnect circuit brake or power cable.	- Faulty: Replace the Heater. 
		3. Check the connections of the Heater Relay in Main PBA. : Check the voltage between the Red wire of the Heater Relay on the base and the White wire of the CN101 connector. ▶ Normal: 110 ~ 120V (while operating)	- Reconnect the Heater Relay connectors. 
Heater Overheat Check	HC	1. Check the operation of the Thermistor. 2. Check the Heater Relay.	- See the "tC" Check Code. - See the "HC-1" Check Code.
Leakage check	LC	Check whether there is any trace of water leakage in the shutter. ▶ Normal: No water leakage trace	- Faulty: Check the leakage location. - Replace the faulty part.

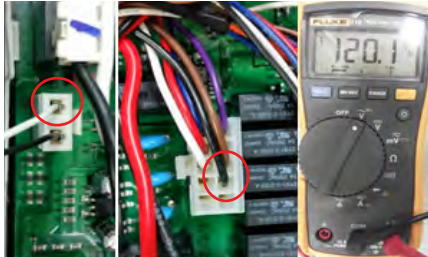
Check type	Check code	Checking method	Corrective actions
Half load check	PC	1. Check the connections for the Distributor Motor and Micro Switch connectors.	- Reconnect the Distributor Motor and Micro Switch connectors. 
		2. Check whether the coil in Distributor Motor is conductive. : Remove the connectors before measuring. ▶ Normal: Approx. 3.6 ~ 4.0kΩ	- Faulty: Replace the Distributor Motor.
		3. Check the position sensing operations when turning the Micro Switch on and off.(Use n5 Service test mode.) Check the conduction between the brown wire and the Violet wire. ▶ Micro switch On: Short ▶ Micro switch Off: Open - Micro Switch sign alters in ON/OFF state. - It is NG if keep in ON or OFF state for 120 seconds. * Do not supply with water and test.	- Faulty: Replace the Micro Switch for sensing positions. - Normal: Replace the valve distributor and CAM switch. 
		4. Adjust Cam Assy and Find the faulty.	- Faulty: Replace Cam Assy.
		5. Check whether half load is operating normally. - Check the half load operation ▶ Normal: 110 ~ 120V - Check the operation of Distributor Motor Relay. : Check the operating voltage between the 3pin(Brown) wire of the Main PBA CN401 connector and the 1pin(White) wire of the Main PBA CN101 connector. ▶ Normal: 110 ~ 120V (while operating)	- Faulty: Replace the Main PBA Assy. 
		6. Check the Power Relay.	- See the "Power Relay check code".

Check type	Check code	Checking method	Corrective actions
Motor vane check	7C	1. Check the connections for the Motor vane and Sensor vane connectors.	- Reconnect the Distributor Motor and Micro Switch connectors.
		2. Check whether the coil in Motor vane is conductive. Check the resistance between the Red and Black wire(CCW) Check the resistance between the White and Black wire(CW). : Remove the connectors before measuring. ▶ Normal: Approx. 1.625 ~ 1.796kΩ	- Faulty: Replace the Motor vane. 
		3. Check the position sensing operations when moving the Sensor vane on and off.(Use n5 Service test mode.) Check the conduction between the Brown wire and the Black wire. ▶ Sensor On: 0V ▶ Sensor Off: 5V	- Faulty: Replace the Sensor vane for sensing positions. - Normal: Replace the Motor vane and Sensor vane. 
		4. Adjust Motion Assy and Find the faulty.	- Faulty: Replace Motion Assy.
		5. Check whether Motor vane is operating normally. - Check the Motor vane operation ▶ Normal: 110 ~ 120V - Check the operation of Motor vane Relay. - CCW: Check the operating voltage between the 8pin(Red) wire of the Main PBA CN401 connector and the White wire of the Main PBA CN101 connector CW: Check the operating voltage between the 7pin(White) wire of the Main PBA CN401 connector and the White wire of the Main PBA CN101 connector. ▶ Normal: 110 ~ 120V (while operating)	- Faulty: Replace the Main PBA Assy. 
		6. Check the Power Relay.	- See the "Power Relay check code".

Check type	Check code	Checking method	Corrective actions																														
Thermistor check	tC	1. Check the connections for the Thermistor connector	- Reconnect the Thermistor connector.																														
		2. Check whether the Thermistor is operating normally. - Measure the voltage between both ends of the Thermistor. ▶ Normal: 0.05 to 4.95V - Measure the resistance between both ends of the Thermistor. : Remove the connector before measuring. (See the Table right.) <table><tr><th colspan="2">Thermistor table</th></tr><tr><th>Temp(℃)</th><th>Resistance(kΩ)</th></tr><tr><td>5</td><td>125.814</td></tr><tr><td>10</td><td>98.36</td></tr><tr><td>15</td><td>77.48</td></tr><tr><td>20</td><td>61.477</td></tr><tr><td>25</td><td>49.12</td></tr><tr><td>30</td><td>39.51</td></tr><tr><td>35</td><td>31.985</td></tr><tr><td>40</td><td>26.053</td></tr><tr><td>45</td><td>21.347</td></tr><tr><td>50</td><td>17.59</td></tr><tr><td>55</td><td>14.573</td></tr><tr><td>60</td><td>12.136</td></tr><tr><td>65</td><td>10.157</td></tr><tr><td>70</td><td>8.541</td></tr></table>	Thermistor table		Temp(℃)	Resistance(kΩ)	5	125.814	10	98.36	15	77.48	20	61.477	25	49.12	30	39.51	35	31.985	40	26.053	45	21.347	50	17.59	55	14.573	60	12.136	65	10.157	70
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Main-Sub PBA Communication check	AC	1. Check the connections between MAIN PBA CN802 connector and Display Control Module CN101 connector.	- Reconnect the MAIN PBA CN802 connector and SUB PBA CN101 connector.																														
		2. That check code is produced continuously after method 1 confirmation.	- Replace: Sub-Wire																														
		3. That check code is produced continuously after method 2 confirmation.	- Replace: Sub-PBA																														
		4. That check code is produced continuously after method 2 confirmation.	- Replace: Main-PBA																														

Check type	Check code	Checking method	Corrective actions
No Power check	None	1. Check the connections for the power plug.	- Reconnect the power plug.
		2. Check the voltage of the power outlet. ▶ Normal : 120V	- Connect to a 120V power source.
		3. Check Power Key on state.	- Try to touch the Power key.
		4. Check the connections for the Sub PBA and Touch PBA connector parts.	- Reconnect the Sub PBA and Touch PBA connectors.
		5. Check the connection of the Main PBA connector CN101	- Reconnect CN101
		6. Check the connections for the Sub PBA and Main PBA connector parts.	- Reconnect the Sub PBA and Main PBA connectors.
		7. Check whether there is condensation on the PBA. - CN103 of Display Control Module connector. - CN100 TOUCH Module connector. ▶ Normal: No condensation	- Faulty: Remove any condensation and moisture. - Normal: Replace the Control Panel Assy.
		8. Check the DC voltage of the Main PBA.	- See "Main PBA DC voltage check code".
		9. In case of is No Power after Method 1~10 action	- Replace the Control Panel Assy. (Sub, Touch, wire)
		10. In case of is No Power after Method 1~11 action	- Replace the Main PBA.
Display check	None	1. Check the connections for the Display LED connector part.	- Reconnect the connectors for Display LED.
		2. Check the Display LED.	- Faulty: Replace the Display LED and Sub PBA.
Dry check	None	1. Check the wire connections for the Fan Motor.	- Reconnect the Fan Motor connectors.
		2. Check the resistance of the Fan Motor coil. (Remove the connector before measuring.) ▶ Normal: Approx. 150Ω	- Faulty: Replace the Fan Motor Assy.
		3. Check the resistance of the Thermal Actuator. (Remove the connector before measuring.) ▶ Normal: Approx. 1.45kΩ	- Faulty: Replace the Thermal Actuator.



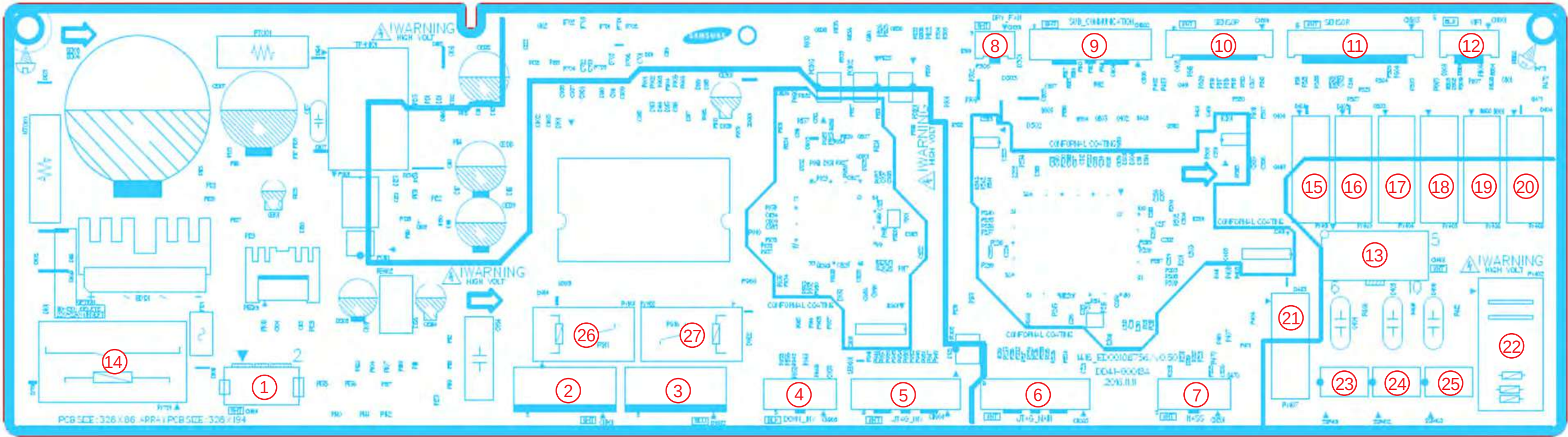
Check type	Check code	Checking method	Corrective actions
Detergent is not dispensed	None	1. Check whether detergent is inserted into the dispenser.	- Check whether there is detergent in the Dispenser.
		2. Check the connections for the Dispenser connector.	- Reconnect the Dispenser connector.
		3. Check the resistance of the Dispenser. (Remove the connector before measuring.) ▶ Normal: Approx. 0.7 ~ 3kΩ	- Faulty: Replace the Dispenser. 
		4. Check the operation of the Dispenser Relay : Check the operating voltage between the Black wire of the CN401 connector and the White wire of the CN101 connector. ▶ Normal: 110V ~ 120V (while operating)	- Faulty: Replace the Main PBA Assy. 
No washing	None	1. Check the filter	- Faulty: Replace filter
		2. Check Rotors and ducts and vane	- Faulty: Replace Rotors and ducts
		3. Check the operation of the half load.	- See "PC check code".
		4. Check the operation of the Dispenser	- See "Dispenser is not dispensed".
The cycle does not start.	None	1. Check the connections for the Door Sensing Switch : Check the white wire and the switch connected to the white wire. ▶ Normal: 10.5 to 13V (when the door is open) ▶ Normal: < 1V (when the door is closed)	- Reconnect the Door Sensing Switch Connector
		2. Check the connection for the Door Sensing Switch.	- Reconnect the Door Sensing Switch Connector
		3. Check the operation of the Door Sensing Switch. (Remove the connector before measuring.) : Check the blue wire and the switch connected to the blue wire. ▶ Normal: SHORT(when the door is open) ▶ Normal: OPEN (when the door is closed)	- Faulty : Replace the Door Sensing Switch.
		4. Check the operation of the Power Relay.	- Normal : Replace the Main PBA Assy.

Check type	Check code	Checking method	Corrective actions
Power Relay check code	None	1. Check the connections for the Power Relay connector : Start the cycle by pressing the Power key. when measure the operating voltage between the wires of the Power Relay and pin 1 wires of the CN101. ⚠ Caution Check the pin of the wires of the Power Relay and the Heater Relay. ► Normal: 110V ~ 120V	- Reconnect the Power Relay.
		2. Check the door switch. : Check the white wire and the switch connected to the white wire. ► When the door is open: The Door Switch is OFF. ► When the door is closed: The Door Switch is ON. The Power Relay and the Heater Relay use a 12V line. If the switch is out of order, the Power Relay and the Heater Relay will not operate.	- Faulty: Replace the Door Switch.
		3. Check the driving signals for the power relay : Measure the voltage between pin 7 and pin 2 of the CN402 connector on the main PBA. ► When the door is open or before the cycle starts. Normal: 1 V ► After the cycle has started by closing the door and pressing the Power key. ". Normal : 10.5 to 13 V	- Faulty: Replace the main PBA Assy.
		4. Check the operation of the Power Relay. : Start the cycle by pressing the Power Key. Measure the operation voltage between the terminal of the Power Relay (pin 3) and pin 1 of CN101. ⚠ Caution Check pin the Power Relay and pin 1 of CN101 ► Normal: 110V ~ 120V	- Faulty: Replace the main PBA Assy.

5. PCB DIAGRAM

5-1. MAIN PCB

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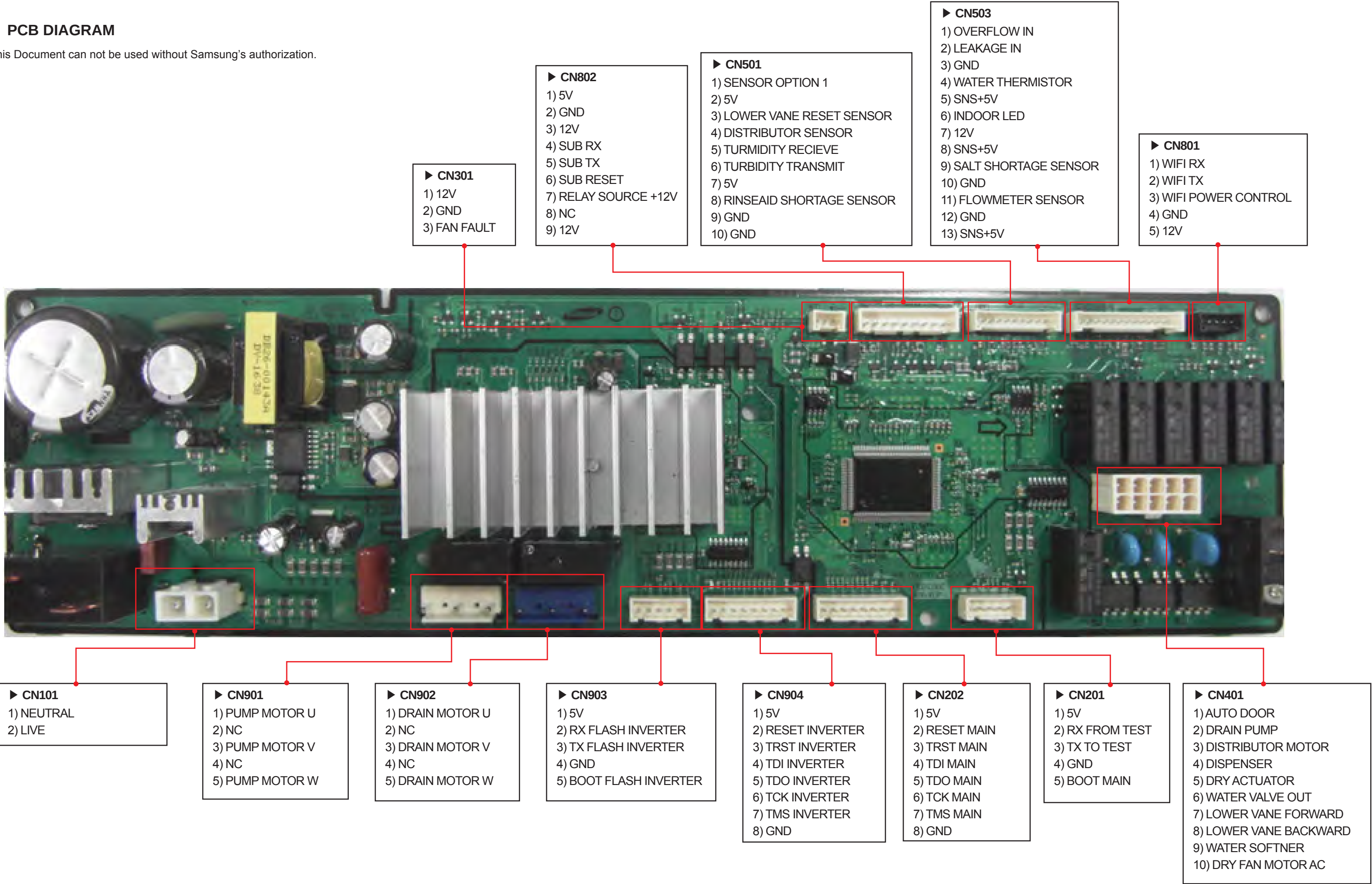


No.	Location	Description
1	CN101	Connector for PBA AC input power
2	CN901	Connector for BLDC Pump
3	CN902	Connector for BLDC Drain
4	CN903	Connector for Flash Write of Inverter MICOM
5	CN904	Connector for JTAG of Inverter MICOM
6	CN202	Connector for JTAG of Main MICOM
7	CN201	Connector for HASS / Flash Write of Main MICOM
8	CN301	Connector for BLDC Fan for Dry
9	CN802	Connector for Sub Communication
10	CN501	Sensing Connector (refer to next page for details)
11	CN503	Sensing Connector (refer to next page for details)
12	CN801	Connector for WIFI Communication
13	CN401	Connector for Relay Auto Door, AC Drain Pump, Distributor Motor, Dispenser, Dry Actuator, Water Valve, Vane Motor, Water Softer, AC Dry Fan Motor
14	RY701	Source Relay

No.	Location	Description
15	RY401	Auto Door Relay
16	RY403	AC Drain Pump Relay
17	RY404	Distributor Motor Relay
18	RY405	Dispenser Relay
19	RY406	Dry Actuator Relay
20	RY408	AC Dry Fan Motor Relay
21	RY407	Water Softer Relay
22	RY402	Wash Heater Relay
23	SSR401	Water Valve Relay
24	SSR402	Lower Vane Forward Relay
25	SSR403	Lower Vane Backward Relay
26	RY901	BLDC Pump Relay
27	RY902	BLDC Drain Relay

5-2. PCB DIAGRAM

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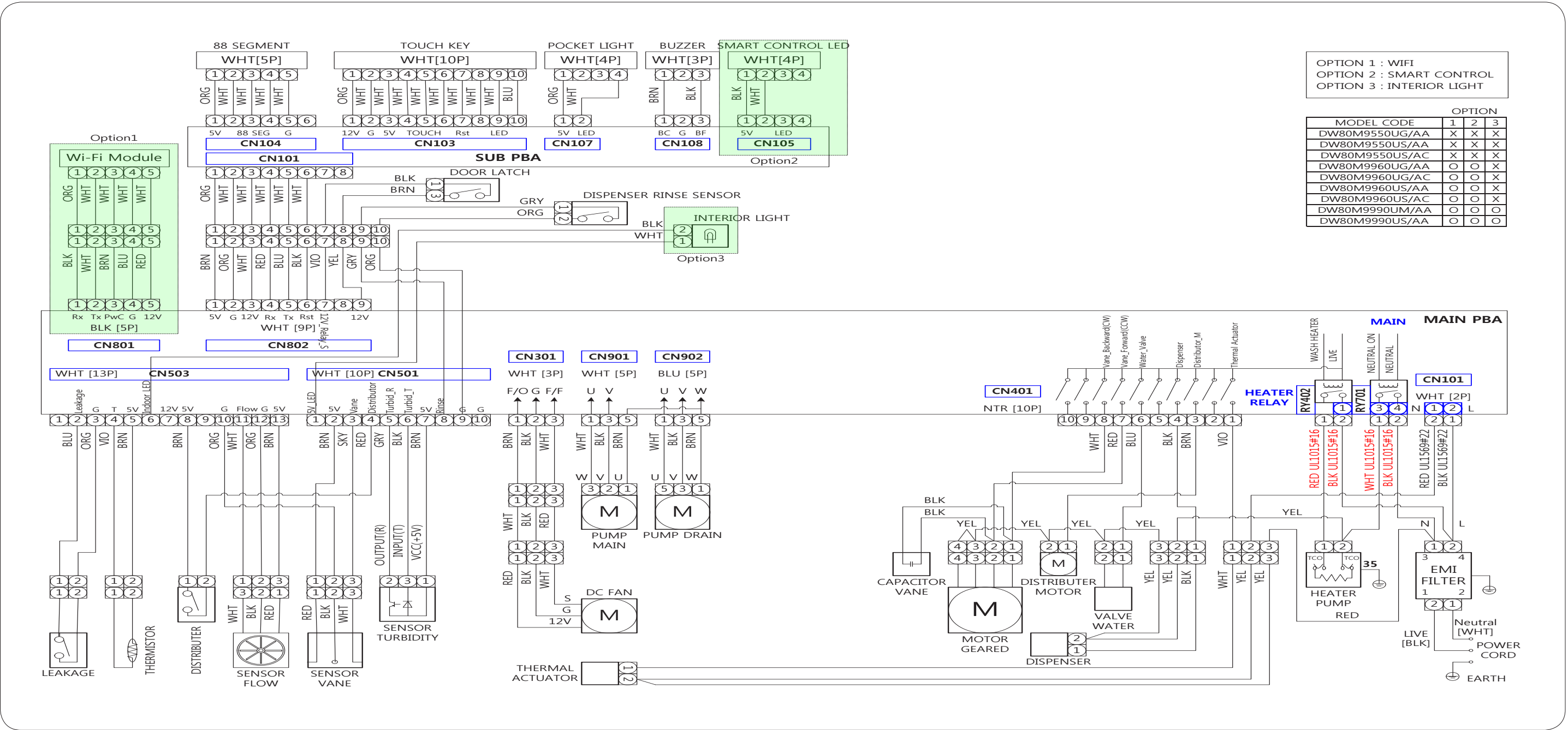
6. WIRING DIAGRAM

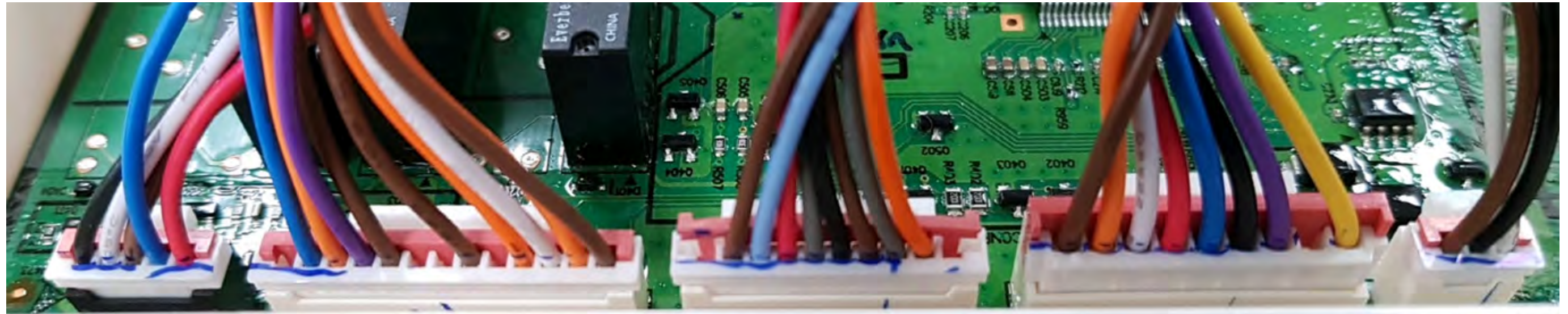
6-1. WIRING DIAGRAM

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Reference Information

Abbreviated word	Meaning	Abbreviated word	Meaning
GRY	GRAY	BLK	BLACK
ORG	ORANGE	RED	RED
VIO	VIOLET	SKY	SKY BLUE
PNK	PINK	BLU	BLUE
YEL	YELLOW	Y/G	YELLOW / GREEN
BRN	BROWN	NTR	COLORLESS
WHT	WHITE		





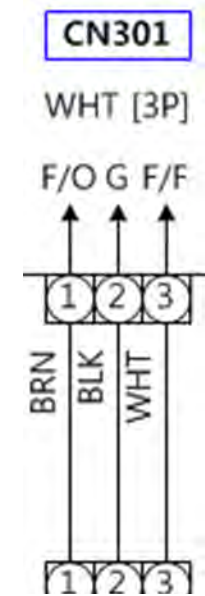
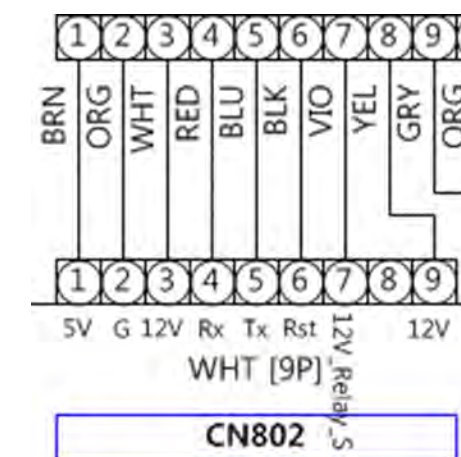
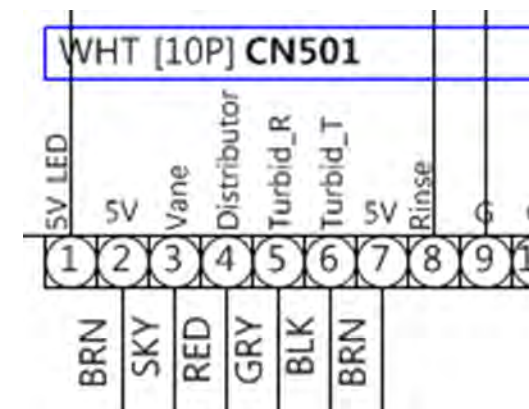
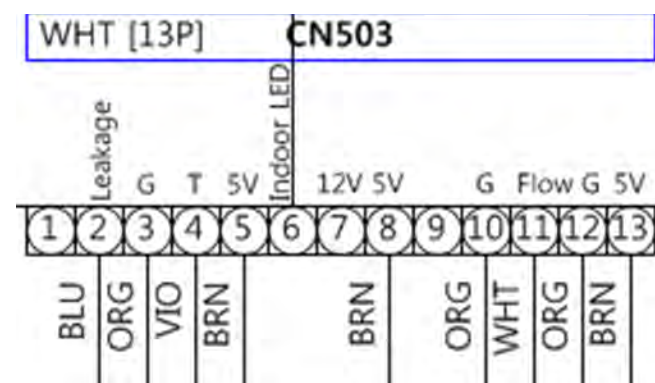
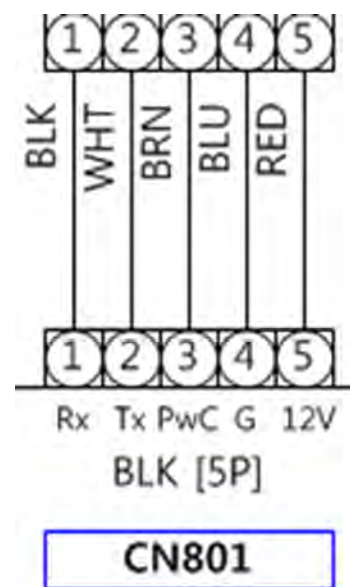
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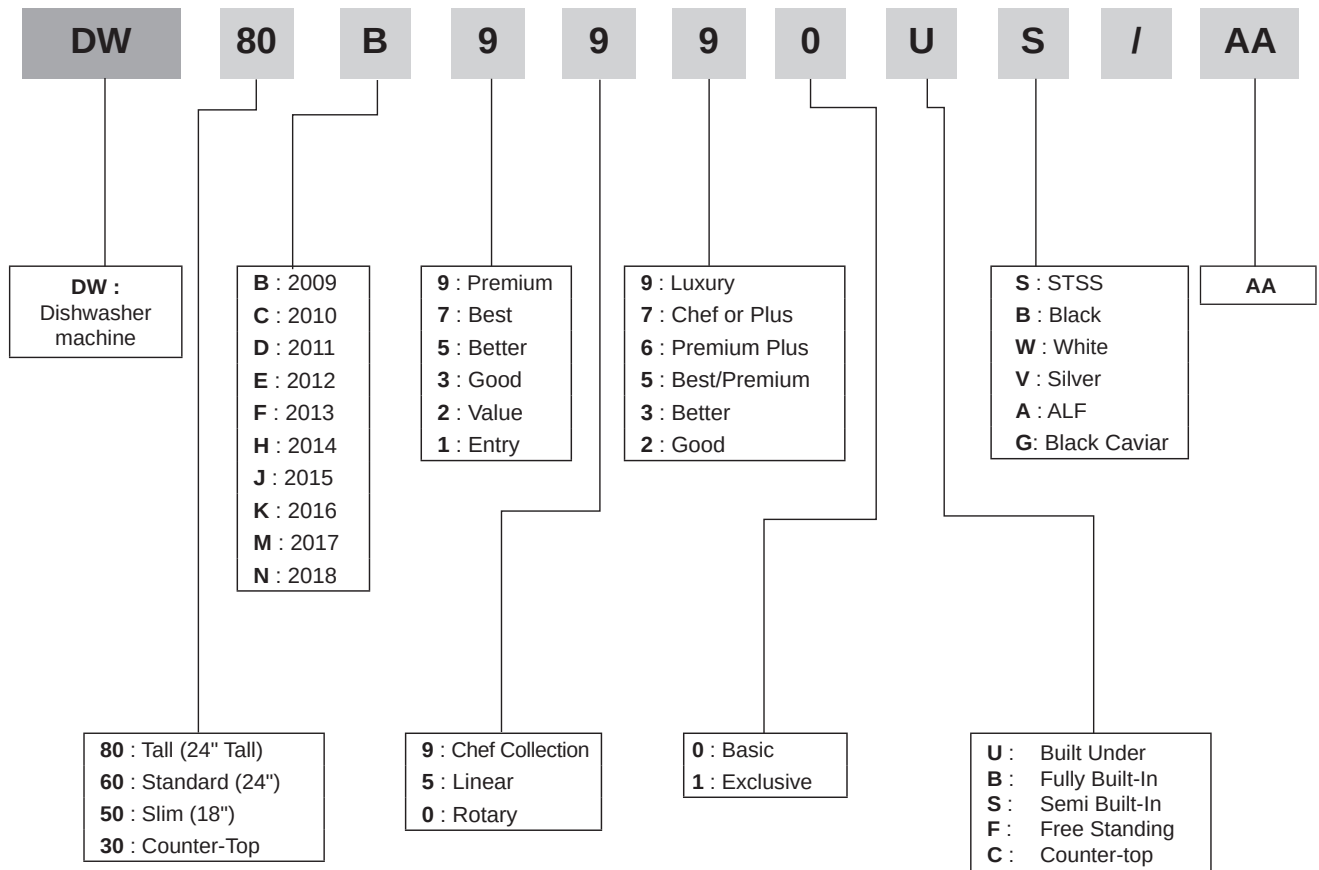
CN802

CN301



7. REFERENCE

7-1. MODEL NUMBER NAMING RULES



7-2. TERMINOLOGY

1. **Circulation Motor**
A motor that sucks the water remaining on the floor of the dishwasher and injects water using high pressure through the internal water passages to the top, middle and lower nozzles.
2. **Drain Pump**
The pump that drains the polluted water from the dishwasher generated while the dishwasher is running.
3. **Heater**
The heater is located on the water passages inside the dishwasher.
It heats the flowing water to increase wash efficiency.
4. **Vent Fan**
Drains high temperature moisture out of the dishwasher during the drying cycle (drying the dishes).
5. **Assy guide water-sub**
Measures the amount of supplied water by counting the pulses of the hall IC located at the next of the Inlet valve.
6. **Distributor**
Located at the output end of the sump inside the dishwasher. It turns the flow of the water that goes to the bottom part of the dishwasher on or off.
7. **Dispenser**
The location where the detergent and rinse aids are stored so they can be used by the dishwasher.
The dispenser automatically supplies detergent and rinse aids to the inside of the dishwasher when they are needed.
8. **Tub Assy**
An internal case made of stainless steel that makes up the basic framework of the dishwasher.
9. **Sump Assy**
The place inside the dishwasher where water is collected. The injected water gathers here after circulation.
The sump Assy is connected to the circulation motor, drain pump, and distributor motor.
10. **Tub Front Assy**
An internal case made of stainless steel that makes up the internal part of the front door.
11. **Base Assy**
A plastic part that makes up the basic bottom framework.
12. **Basket Assy**
The upper and lower racks where dishes can be loaded.
13. **Top/Middle/Lower Nozzles**
Washes dishes by rotating and injecting the supplied water through the water passages at high pressure.
14. **Case Brake**
A passage that adjusts the air pressure by connecting the pressure of the inside air which is expanded at high temperature during the wash and rinse cycles and the outside air pressure.
15. **Door Lock Switch**
Detects whether the door of the dishwasher is open or closed. If the door is open while the dishwasher is running, the cycle is temporary stopped.
16. **Child Lock/Unlock**
This function is used to prevent a child from operating the dishwasher while it is running.



GSPN (GLOBAL SERVICE PARTNER NETWORK)

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