Dishwasher
DW-9900R series training
2018

Basic model	**DW80R9950UG**
Model Name	**DW80R9***Series**
Model Code	**DW80R9950UG/AA** **DW80R9950US/AA**

Project : DW9900R-PJT

9950UG

9950US

Dishwasher R&D Lab.

SAMSUNG Electronics

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Contents

Agenda

General Specification

Dishwasher Features

DW80R9950UG

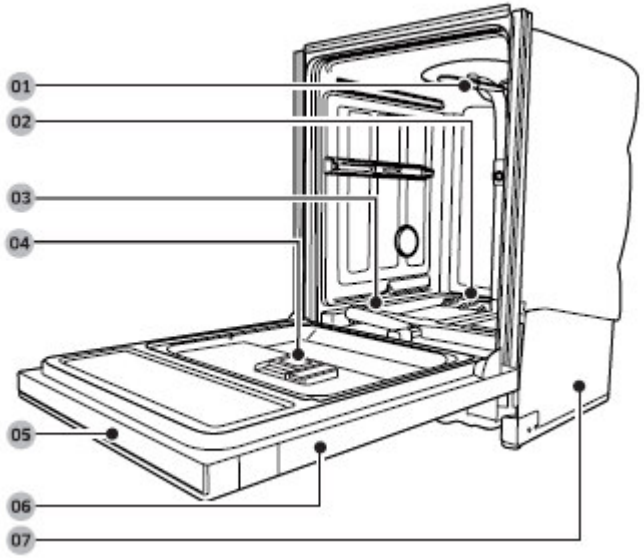
DW80R9950US

Main Features	▪ Capacity: 15 place settings ▪ Control panel design - Hidden control type + Touch operation, Front Display ▪ Dimension (W x D x H) : 23-7/8 x 25 x 33-7/8 inch (605 x 636 x 860 mm)
Sales Point	▪ World First Water Wall™ Washing system ▪ New 3rd Rack Design called 'Flex Deck' ▪ Sleek & Informative Design ▪ 39dB Noise level ▪ Wifi SmartThings

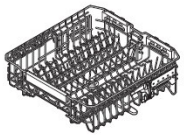
Dishwasher Features

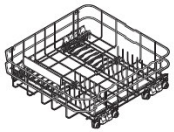
Features	Description	Remarks
Water wall linear wash system	New Water wall cleaning system gets dishes sparkling every time • High pressure, consistent wall of water cleans hard to reach places • No need to pre-rinse • Available on full or half cycle	
Target zone washing	Targeted wash for hard to clean pots and pans • Control water pressure, temperature and time • Select right or 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	
Flexible 3rd Rack ™	Adjustable Flex deck for easy unloading • Flex Deck can adjust, perfect for oversized or hard to fit items • Silverware lays flat for better cleaning	
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	

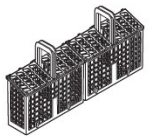
Dishwasher composition

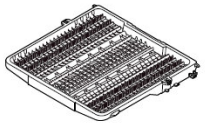


01 Top nozzle	**02** Lower nozzle	**03** Water reflector
04 Dispenser	**05** Control panel	**06** Door
07 Base		


Upper rack


Lower rack

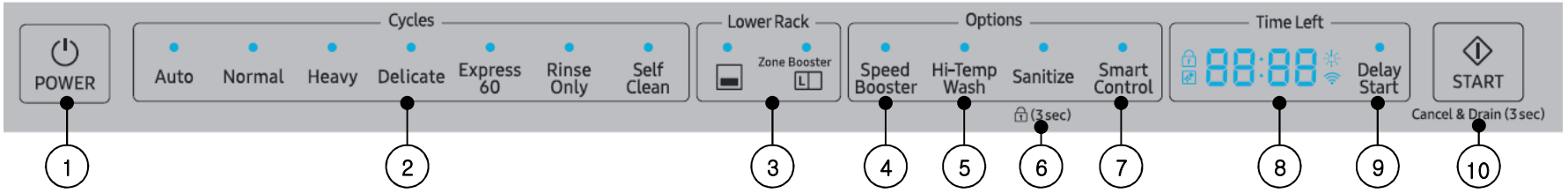

Cutlery rack


3rd rack

* Accessory parts - User/Installation manual, Installation Kit, Kick Plate

Control Panel – DW80R9**0 Series

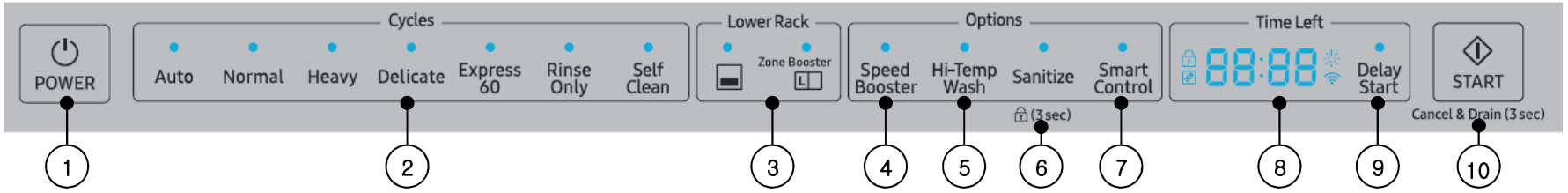
DW80R90 Series**



1. Power	When you press the **Power** button, the Cycle on light of the most recently started cycle turns on. When the selected cycle is complete, the dishwasher powers off automatically.
2. CYCLE SELECTOR	– Select the appropriate wash cycle depending on the soil level of your dishes. After you select a cycle, the Cycle On light for that cycle lights. – If you want to change the cycle once it has started, press the **Power** button. Then, turn on the dishwasher again and select a new cycle.
3. Lower Rack	– When you select **Lower Rack**, only the lower rack nozzle is activated. The upper nozzle will not operate. – Use this feature to wash a small load of dishes or glasses placed in the lower rack. – When you select **Lower Rack**, place items, glasses, etc. in the lower rack only. The dishwasher will not wash items placed in the upper rack. – Selecting **Lower Rack** reduces both the cycle time and the amount of electricity consumed. Note: If you want to wash heavily soiled items such as pots and pans, select the **Zone Booster** option. (This option consumes slightly more water and energy.) Selecting a **Zone Booster** option does not turn off the Upper Nozzle.
4. Speed Booster	Select this option to reduce washing time.
5. Hi-Temp Wash	Raises the main wash temperature to improve cleaning for loads containing tough, baked-on food.

Control Panel – DW80R9**0 Series

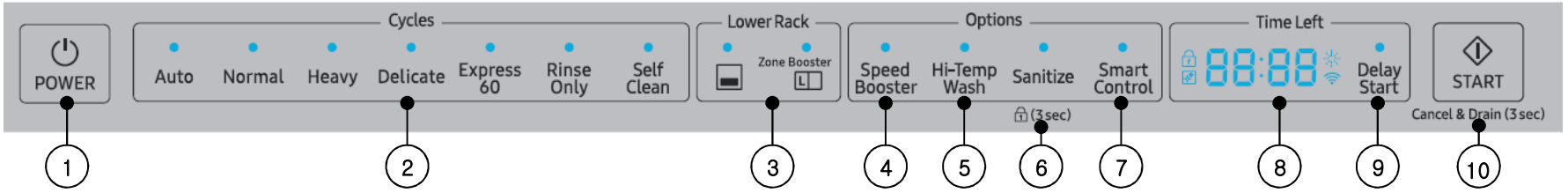
DW80R90 Series**



6. Sanitize/(3sec) (Control Lock)	– With the Sanitize option selected, the water temperature is increased to 163 °F (73 °C) in the final rinse cycle for high temperature sanitization. – If you select the Sanitize option, the "Sanitize" lamp blinks when the water temperature reaches the sanitary temperature (over 155 °F (68 °C)), and then remains illuminated until the Sanitize option ends. When you open the door or press the Power button, the "Sanitize" lamp turns off. Note: The Sanitize feature operates in accordance with NSF/ANSI Standard 184 for Residential Dishwashers. Certified residential dishwashers are not intended for licensed food establishments. Your dishwasher is NSF Certified. Only Heavy cycle with the Sanitize option has been designed to meet the requirements of 6 for soil removal and sanitization efficacy in NSF 184. – Control Lock allows you to lock the buttons on the control panel so children cannot accidently start the dishwasher by pressing the buttons on the panel. – To lock and unlock the buttons on the control panel, hold the Sanitize button down for three (3) seconds when power is On.
7. Smart Control	You can monitor and control the dishwasher remotely through a Wi-Fi connection. To connect the dishwasher to your smart phone for the first time, press and hold Smart Control. For more information, see the SmartThings section.
8. Display	Displays information of the current cycle including the cycle time, remaining time, Delay Start settings, and other cycle-specific information. If a problem occurs during operation, an information code appears with a warning sound. Refer to the information codes page.

Control Panel – DW80R9**0 Series

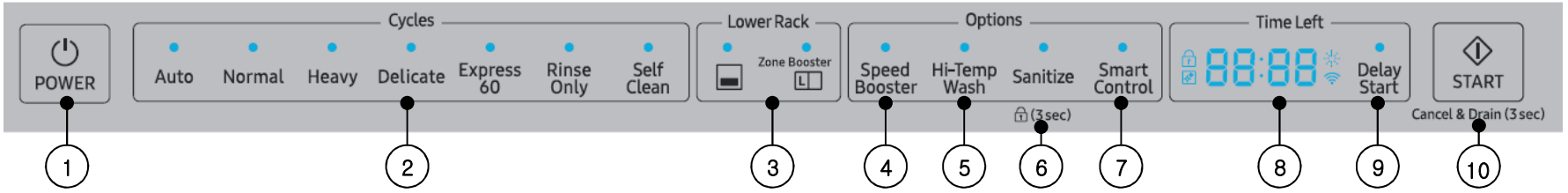
DW80R9**0 Series



9. Delay Start	Delay a cycle for up to 24 hours in one-hour increments. To increase the delay start time, press or hold the **Delay Start** button. The hour displayed indicates the time at which the wash will be started. - After setting the delay time, press the **Start button**, and then close the door to start the cycle. - If you want to change the delay time once the dishwasher has started, press the **Cancel** button and turn off the dishwasher. Then, turn on the dishwasher again and select a new cycle with a new delay setting.
10. Start	To start a cycle, press the **Start** button before closing the door. *Cancel & Drain : To cancel a currently running cycle and drain the dishwasher, press and hold the **Start** button for three (3) seconds. Once the dishwasher is reset, select a cycle and option, and then press **Start** to restart the dishwasher.

Control Panel – DW80R9**0 Series

DW80R9**0 Series



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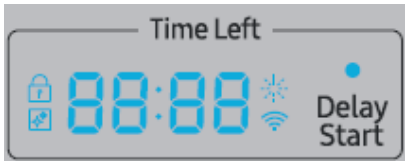
Control Panel – DW80R9**0 Series

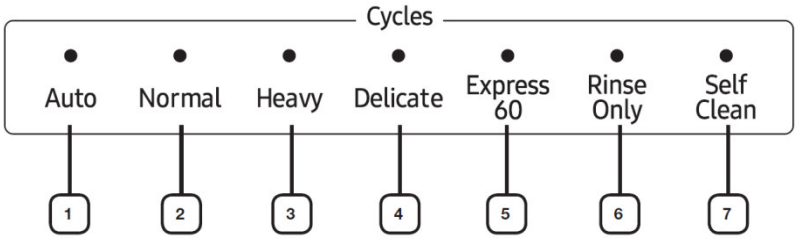
DW80R90 Series**



Control Lock Indicator		Lights up if Control Lock is activated, and blinks if any button except for the POWER button is pressed.
Self Clean Indicator		Lights up if Self Clean is activated, and blinks for 5 seconds every 20–22 cycles. The cycle counter disappears when the Self Clean cycle is complete, or the dishwasher reaches the 23rd cycle.
Rinse Refill Indicator		Lights up if the dishwasher runs out of rinse aid.
Smart Control		Lights up if SmartThings is activated.

Control Panel – DW80R9**0 Series

DW80R90 Series**



1. Auto	This cycle detects the level of soil and automatically initiates the optimal cycle after a few minutes if operation.
2. Normal	Use this cycle for normally soiled dishes. The energy-usage label is based on this cycle.
3. Heavy	Use this cycle for heavily soiled dishes.
4. Delicate	Use this cycles for soiled, fragile items such as fine glassware and crystal glass (wine glass). Do not use the cycle for other glassware because clouding or etching may occur. The Zone Booster and Sanitize options are not available with this cycle.
5. Express 60	Use this cycle when you need to wash dishes quickly. It takes about 1 hour. The Speed Booster and Zone Booster options are not available with this cycle.
6. Rinse Only	Use for rinsing dishes, glasses, and silverware that will not be washed right away. Do not use detergent.
7. Self Clean	Use the Self Clean function to clean the dishwasher's tub. If the dishwasher needs self cleaning, the Self Clean indicator will blink for 5 seconds when you turn the power on. If you start the dishwasher when the indicator is blinking, the indicator will turn off automatically. Always run the Self Clean cycle with the dishwasher empty. Never use it as a Normal cycle to clean dishes.

Product Main Specification

MODEL name	DW80R9950UG/ DW80R9950US Series
Power supply	Single-phased alternating current of 60Hz, 15A at 120V
Water pressure	140 ~ 830 kPa (20 ~ 120 psi)
Wash method	Water Wall washing system + Rotating nozzle spray type
Dry method	Air Vent dry system
Power	Circulation Motor : BLDC 70~100W Heater : 1100W Drain Pump : 32W Fan Motor : 4.2W
Water consumption	2.3~6.0 gallon (8.8~22.6L) _Normal

Specification

Model	NEW MODEL		MODEL				
	DW80R9950UG	DW80R9950US	DW80M9550US/UG	DW80M9960US/UG	DW80H9930US	DW80J9945US	DW80J7550US/UW/UG
							
	Design Specifications						
Panel Control	Black	Silver	Silver	Silver	Silver	Silver	Silver/Black/White
Control Type	Touch	Touch	Touch	Touch	Touch	Touch	Touch
Wine Rack	X	X	X	X	X	O	X
Handle Type	Tilted	Tilted	Pocket				
Basket Handle	Gray + STS	Gray + STS	Blue + STS				Gray
	Function Specifications						
Soil Detection Sensors	o	o	o	o	o	o	o
Drying method	AutoRelease system						
Basket Height Adjustment	One-touch						
Leakage Sensor	o	o	o	o	o	o	o
Rail Type	Soft Rail	Soft Rail	“C” Rail				
Programs	**7** (Auto, Normal, Heavy, Delicate, Express60, Rinse Only, Self Clean)	**7** (Auto, Normal, Heavy, Delicate, Express60, Rinse Only, Self Clean)	**7** (Auto, Normal, Heavy, Delicate, Express60” Self Clean)	**7** (Auto, Normal, Heavy, Delicate, Express60” Self Clean)	**5** (Auto, Normal, Heavy, Delicate, Express60”)	**5** (Auto, Normal, Heavy, Delicate, Express60”)	**5** (Auto, Normal, Heavy, Delicate, Express60”)
Options	**8** (Half Load, Zone Booster, Speed Booster, Hi-Temp wash, Sanitize, Delay start, Control Lock, Smart	**8** (Half Load, Zone Booster, Speed Booster, Hi-Temp wash, Sanitize, Delay start, Control Lock,	**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,	**5** (Half Load wash, Targeted zone, Sanitize, Dry+, Delay start)	**5** (Half Load wash, Targeted zone, Sanitize, Dry+, Delay start)	**5** (Half Load wash, Targeted zone, Sanitize, Dry+, Delay start)

Schematic

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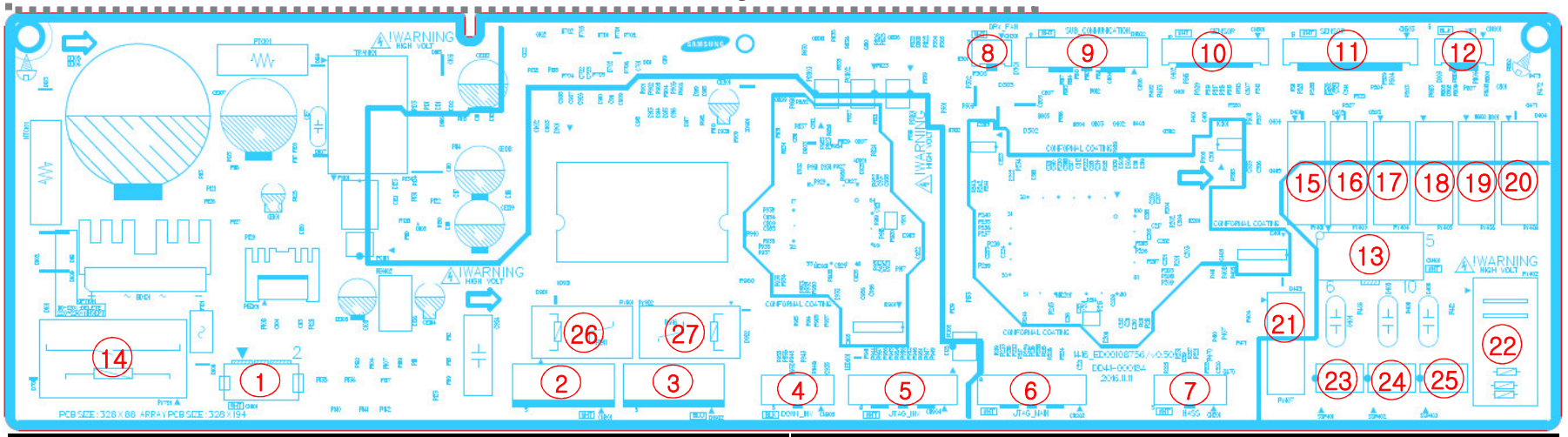
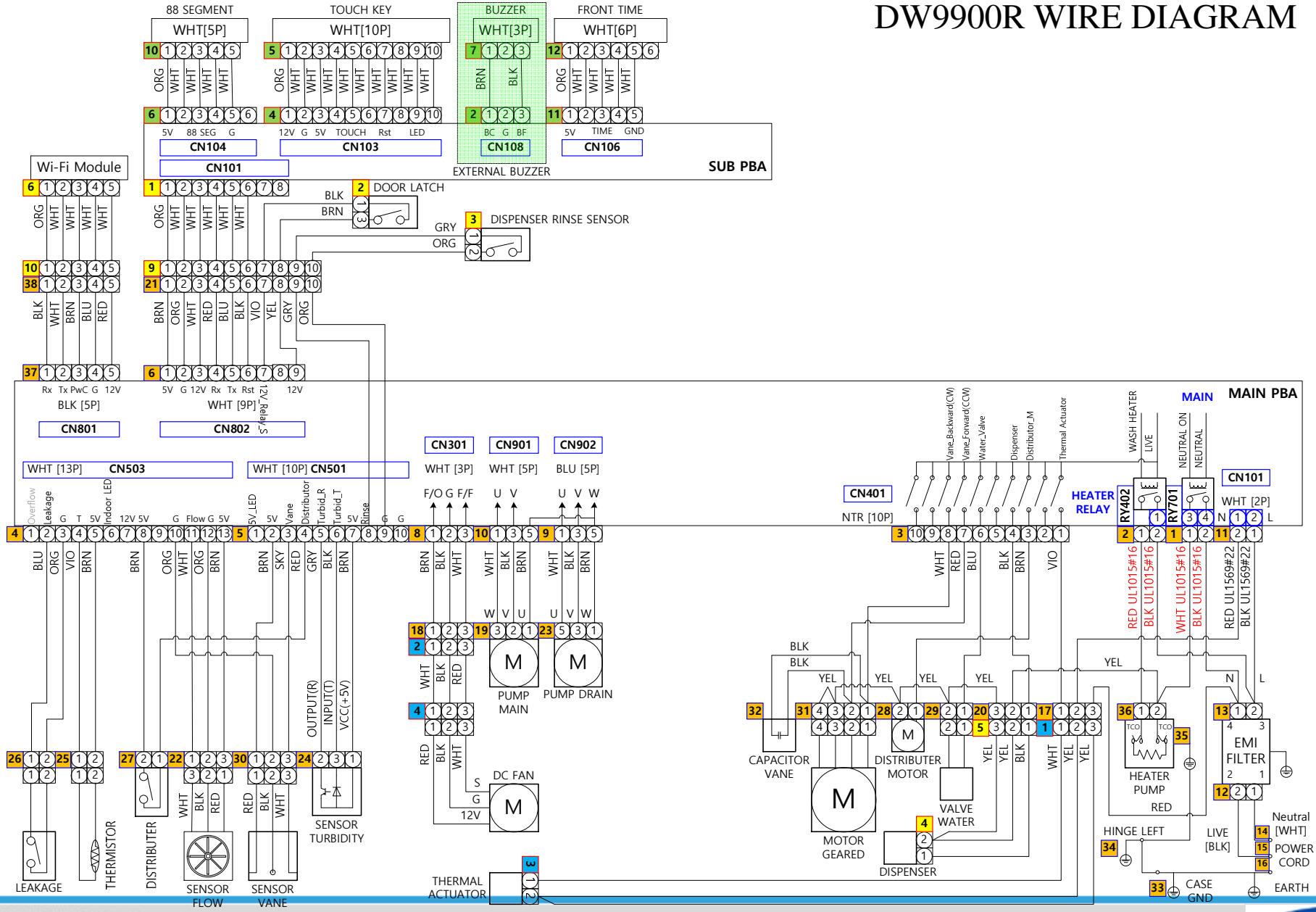


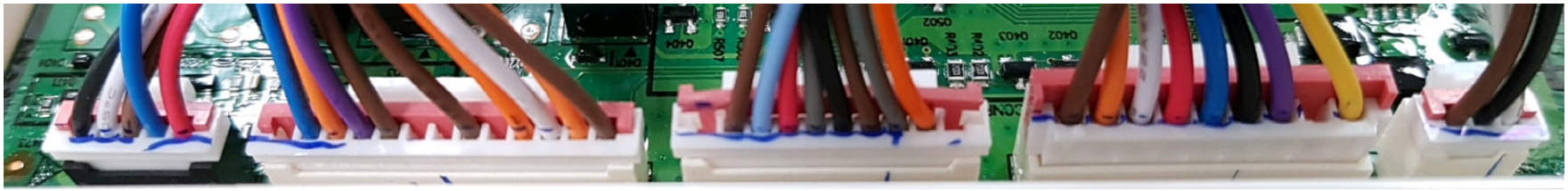
No.	Location	Description
1	CN101	Connector for PBA AC input power
2	CN901	Connector for BLDC Pump
3	CN902	Connector for BLDC Drain
4	CN903	Connector for Flash Write of Inverter MICOM
5	CN904	Connector for JTAG of Inverter MICOM
6	CN202	Connector for JTAG of Main MICOM
7	CN201	Connector for HASS / Flash 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

No.	Location	Description
14	RY701	Source Relay
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

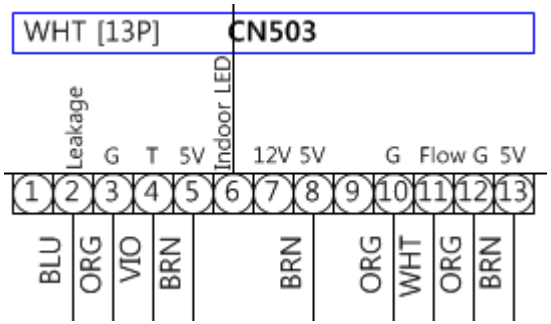
DW9900R WIRE DIAGRAM



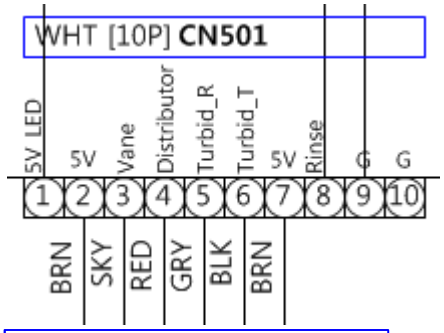
DC POWER (12V, 5V)



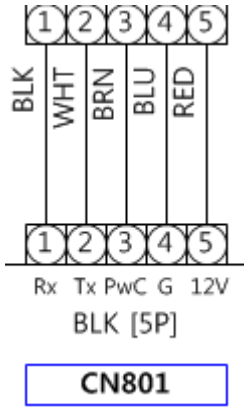
CN801 CN503 CN501 CN802 CN301



Leakage, Thermistor, Distributer, Flow sensor



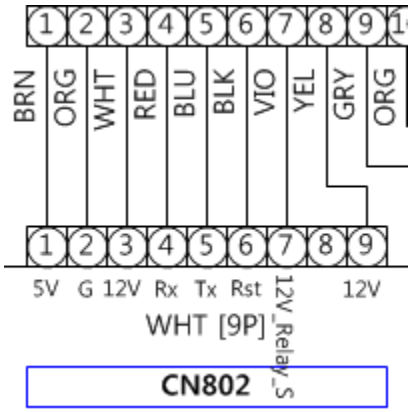
Vane sensor, Rinse sensor, Turbidity sensor



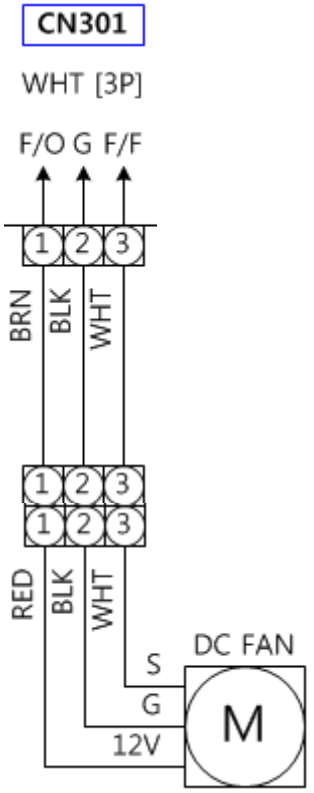
CN801

Wi-Fi

SUB PBA, DOOR LATCH



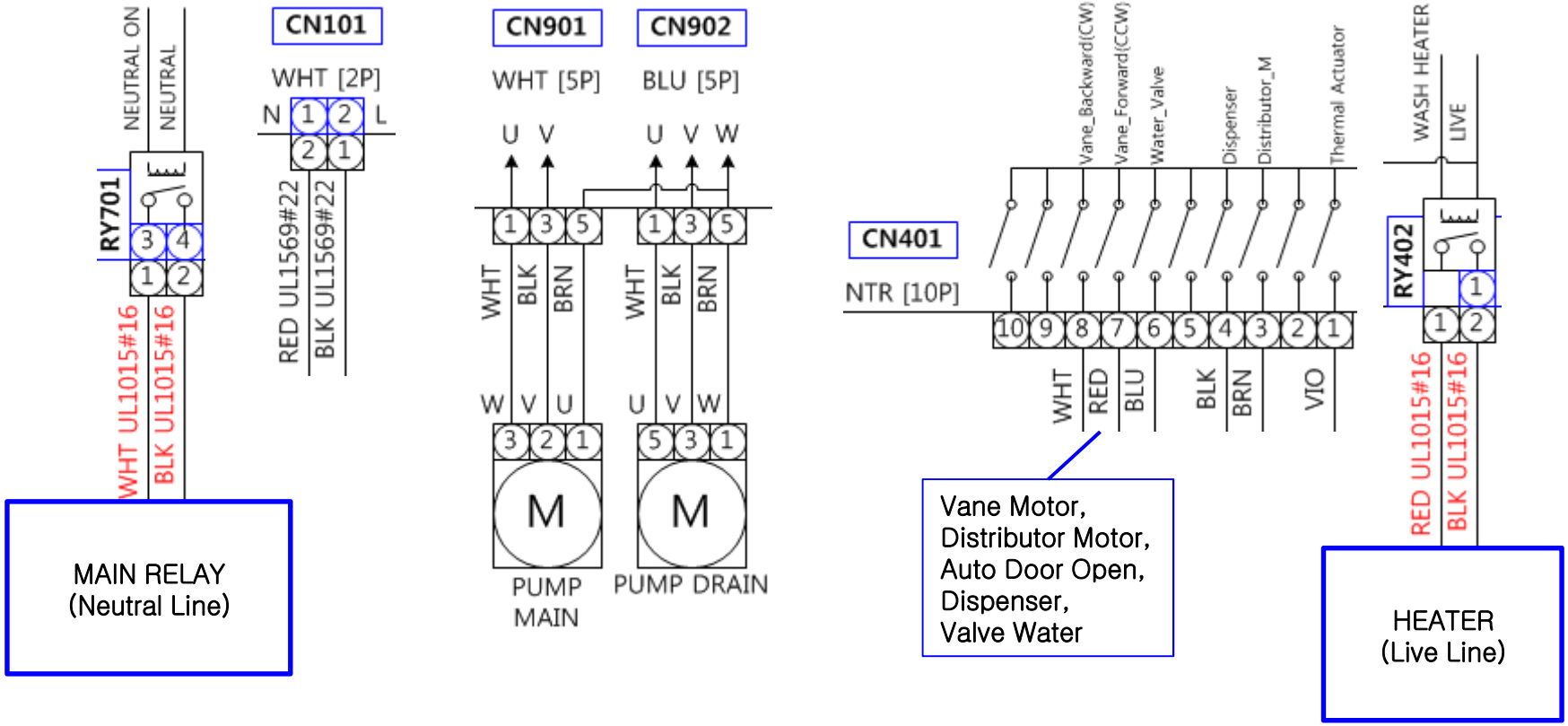
CN802



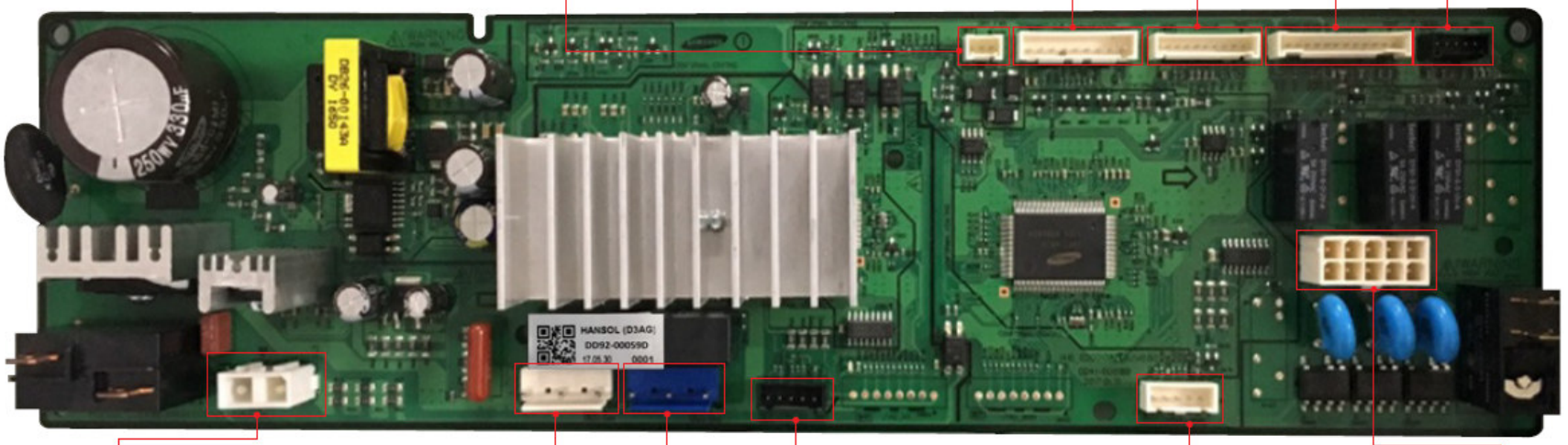
12V DC FAN

AC POWER + DC LINK FOR BLDC MOTOR

RY701 CN101 CN901 CN902 CN401 RY402



PCB Diagram



► CN301
1) 12V
2) GND
3) FAN FAULT

► CN802
1) 5V
2) GND
3) 12V
4) SUB RX
5) SUB TX
6) SUB RESET
7) RELAY SOURCE +12V
8) NC
9) 12V

► CN501
1) SENSOR OPTION 1
2) 5V
3) LOWER VANE RESET SENSOR
4) DISTRIBUTOR SENSOR
5) TURMIDITY RECIEVE
6) TURBIDITY TRANSMIT
7) 5V
8) RINSEAID SHORTAGE SENSOR
9) GND
10) GND

► CN503
1) OVERFLOW IN
2) LEAKAGE IN
3) GND
4) WATER THERMISTOR
5) SNS+5V
6) INDOOR LED
7) 12V
8) SNS+5V
9) SALT SHORTAGE SENSOR
10) GND
11) FLOWMETER SENSOR
12) GND
13) SNS+5V

► CN801
1) WIFI RX
2) WIFI TX
3) WIFI POWER CONTROL
4) GND
5) 12V

► CN101
1) NEUTRAL
2) LIVE

► CN901
1) PUMP MOTOR U
2) NC
3) PUMP MOTOR V
4) NC
5) PUMP MOTOR W

► CN902
1) DRAIN MOTOR U
2) NC
3) DRAIN MOTOR V
4) NC
5) DRAIN MOTOR W

► CN903
1) 5V
2) RX FLASH INVERTER
3) TX FLASH INVERTER
4) GND
5) BOOT FLASH INVERTER

► CN201
1) 5V
2) RX FROM TEST
3) TX TO TEST
4) GND
5) BOOT MAIN

► CN401
1) AUTO DOOR
2) DRAIN PUMP
3) DISTRIBUTOR MOTOR
4) DISPENSER
5) DRY ACTUATOR
6) WATER VALVE OUT
7) LOWER VANE FORWARD
8) LOWER VANE BACKWARD
9) WATER SOFTNER
10) DRY FAN MOTOR AC

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 braker or power cable before servicing.** ➢ Failing 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.** ➢ Failing 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 braker or power cable from the power outlet.** ➢ Failing 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.

⚠ Warning

While Servicing
• **Check if the power cable is damaged, flattened, cut or otherwise degraded.** ➢ If faulty, replace it immediately. Failing 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 tracking and shorts in advance.
• **When connecting wires, make sure to connect them using the relevant connectors and check that they are completely connected.** ➢ If tape is used instead of the connectors, it may cause fire due to tracking.
• **Make sure to discharge the PBA power and capacitor terminals before starting the service.** ➢ Failing to do so may result in a high voltage electric shock.
• **When replacing the heater, make sure to fasten the holder heater after ensuring that it is inserted into the bracket-heater.** ➢ Ensure the heater is fitted into the bracket - heater correctly.

Safety Instructions

⚠ Warning

After Servicing
• **Check for any water leakage.** ➢ Perform a test run for the dishwasher using the standard(Eco) 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 lifetime. 

⚠ 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 lifetime.
• **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 lifetime. 
•**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 lifetime. 
• **Do not press a control button using a sharp tool or object.** ➢ This may result in electric shock or damage to the product.

Safety Instructions

⚠ Caution

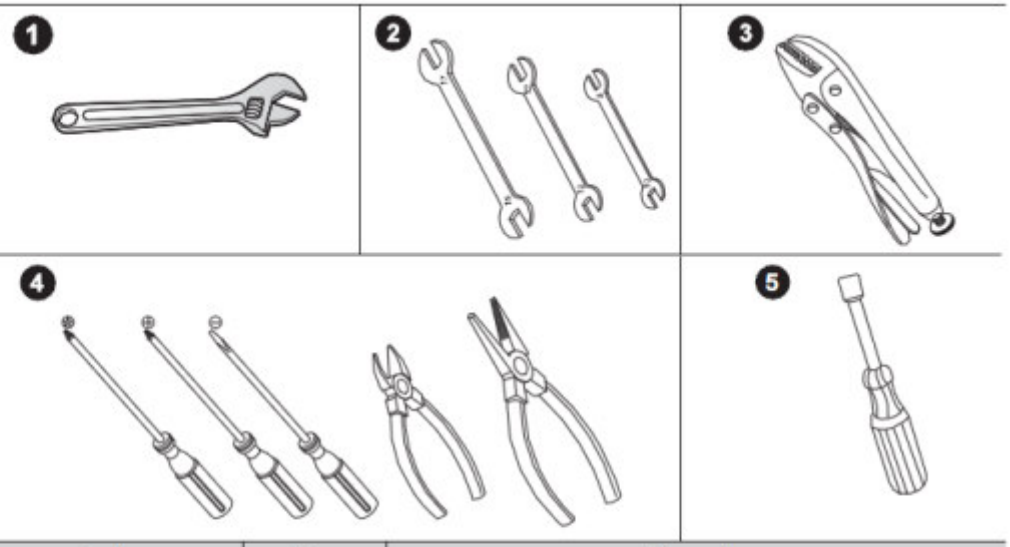
During Servicing
• **When wiring a harness, make sure to seal it completely so no liquid can enter.** ➢ Make sure that they do not break when force is exerted.
•Check if there is any residue that shows that liquid entered the electric parts or harnesses. ➢ If any liquid has entered into a part, replace 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.

⚠ Caution

After Servicing
• **Check the assembled status of the parts.** ➢ They must be the same as before servicing.
• **Check the insulation resistance.** ➢ Disconnect the circuit braker or power cable from the power outlet and measure the insulation resistance between the power wires and the grounding wire of the dishwasher. The value must be greater than 10MΩ when measured with a 500V DC Megger.
•Check whether the product is level with the floor. Check if there are any deformations in the sink. Check that the dishwasher is firmly installed to the sink. ➢ Vibrations can shorten the lifetime of the product.

Disassembly and Reassembly

* Tools for disassembly and reassembly

Tool image			
			
No.	Tool	Type	Remarks
❶	Adjustable Wrench		
❷	Open-end Wrench	1-7/16"	Leg
❸	Vice pliers		
❹	Others (screwdriver, nipper, long nose pliers)		Common tools for servicing Screwdriver - Philips, flat, Torx T20
❺	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 braker 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.

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 braker 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.

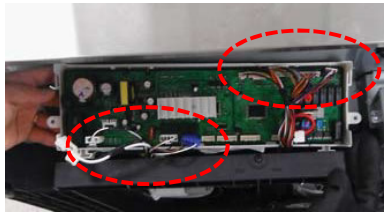
Caution : Before moving the unit, laying it down for service, or removing any parts for service be sure to drain as much of the water from the unit as possible. Use a protective mat or towel to prevent damage to the floor or having any of the remaining water spill on the floor.

Note: 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.

Disassembly

Main PBA

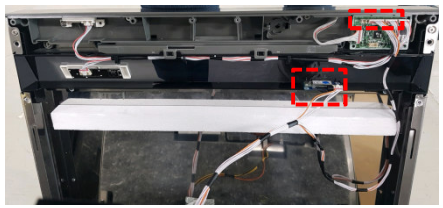
Photo	Description
	**Preparation:** Make sure to disconnect the power. 1. Find Main PBA case below a door. 2. Remove two screws like a picture.
 	3. Be sure to check the Hook in red circle and separates Assy Cover PBA from Base. 4. Separates the cover of Assy cover PBA.
	5. Remove the all wire connectors from Main PBA - DW80M9960US/UG : 8wire connectors - DW80M9550US/UG: 7wire connectors
	6. Separate two screws that are marked as arrow. 7. Put screw driver into the marked gap. after release and fixes the housing on the upper hook by bending using the PBA for support the PBA, releases the hook that is fixed to the lower hook. **NOTE** : When removing the Main PBA, lift the Main PBA board up carefully.

Disassembly

Door outer (DW80R9***)

Photo	Description
	**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. Note: 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.

Door outer (DW80R9***)

Photo	Description
	3. Pull out the door outer carefully.
	4. Separate wire connectors in red square in state holding the door and separate the Wire from the Hook shown. 5. Lay a newspaper on the floor for protecting the Door and put down the Assy door outer.

Disassembly

Panel control and Handle door (DW80R9***)

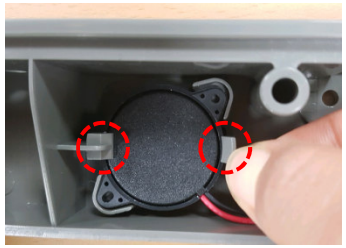
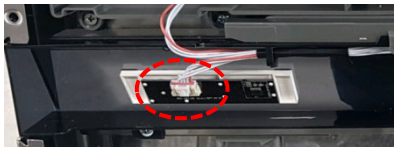
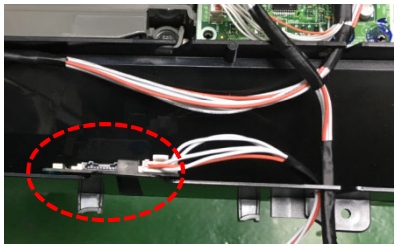
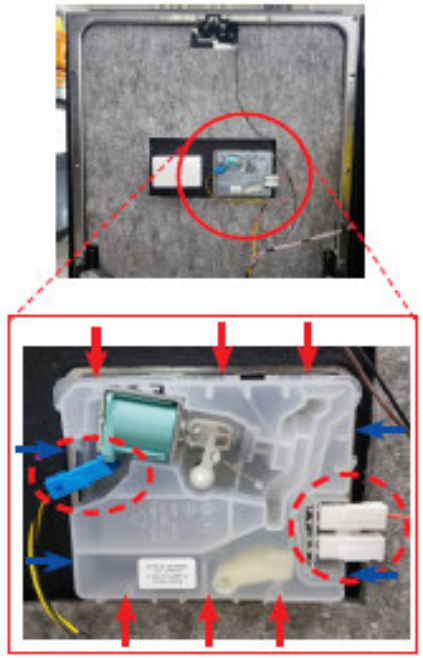
Photo	Description
	Preparation: • Disassemble the Assy door outer. Separate wire connectors in red square 1. Remove the screws from Door Handle.
	2. Remove Sub PCB from panel control. There is One hooks.
	3. Remove the Buzzer. There is two hooks.

Photo	Description
	4. Remove the LED Display Hook.
	5. WIFI Module is fixed to the panel control with hook. Bending this hook than remove WIFI module.

Disassembly

Dispenser - slide

Photo	Description
	**Preparation:** * Disassemble the door outer - Refer 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. **Caution** : Be careful as the tub front is sharp.

Switch door

Photo	Description
	**Preparation:** * Disassemble the door outer. 1. Remove the one(1) wire connector from Panel control.
	**2.** Remove the two(2) screws holding the door inner.

Assy cover door / Assy condenser system / lever door

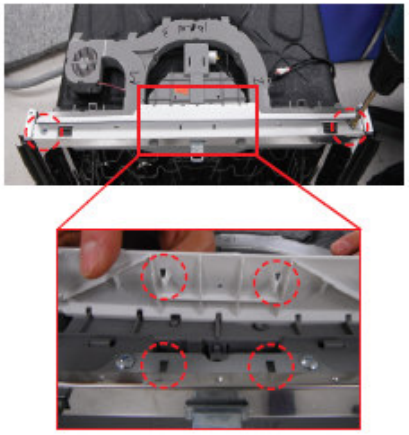
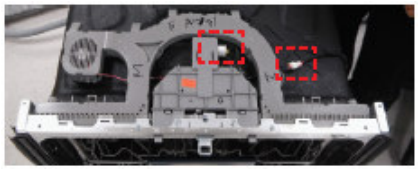
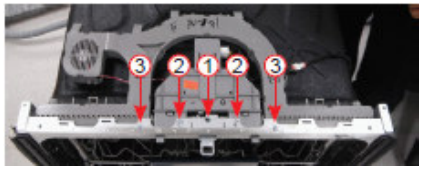
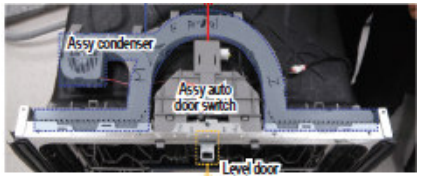
Photo	Description
	1. Remove the two(2) screws holding the trim-up to the assy-tub. 2. Check and separate 2 hook of trim.
	3. Separate two wire connector.

Photo	Description
	4. If you want to separate level door from Assy tub, disassembles ① screw. If you want to separate Assy auto door switch from Assy tub, disassembles ② screw. If you want to separate Assy condenser from Assy tub, disassembles ③ screw.
	5. Remove the part which you want from assy tub like the picture.

Assy Case Brake

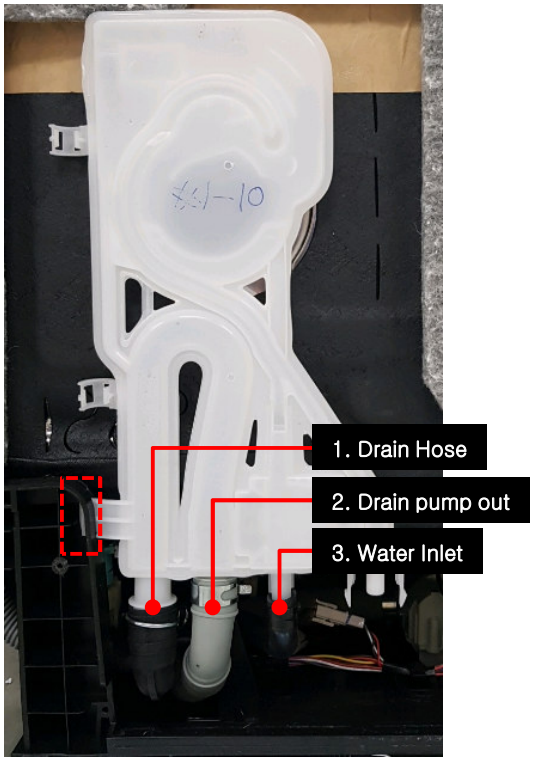
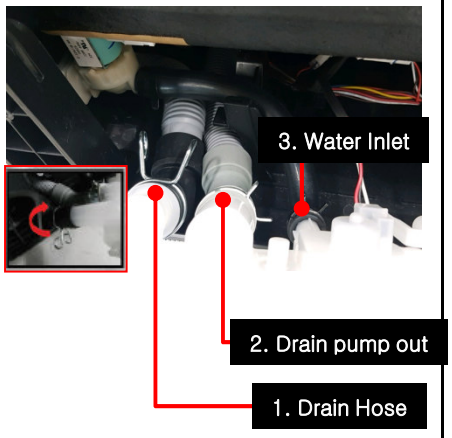


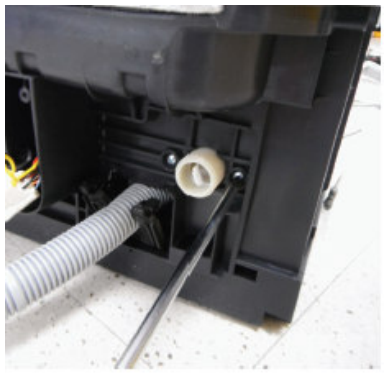
Photo	Description
	**Preparation:** * Make sure to disconnect the power, water supply, and drain hose connections. * Remove the upper, lower baskets and 3rd rack in the dishwasher. * Pull out the dishwasher carefully. 1. Remove the two (2) screws of the housing left. 2. Remove the housing left.
	**Caution** : 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 a needle nose pliers. (Be careful when removing the cover as it is easily damage d.)

Assy Case Brake

Photo	Description	Photo	Description
	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. Housing does not assemble.		

Disassembly

Water Valve

Photo	Description
	Preparation: • Disassemble the Assy Case Brake. section to separate Assy Case Brake until step 1.
	1. Disassemble two fixed screw.
	2. Pull out the Water valve,

Assy Duct main

Photo	Description
	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. Pry several tep shown with arrow by using flat tip screwdriver. 2. Separate the duct while checking connection in red circle.

Assy rail

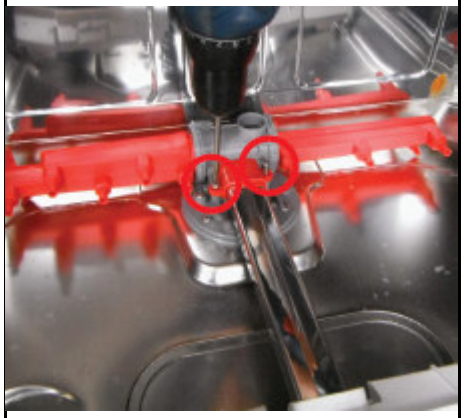
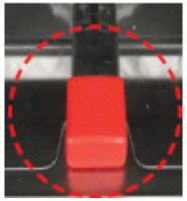
Photo	Description
	Preparation: Disasssemble the Assy duct main. - Refer to the “Assy duct main” disassembly section to separate Assy duct main. 1. Remove Cover distributer like a picture. Note: Check and separate the hook on both sides of the front part of Cover distributer & the rear part of Cover distributer.
	2. Remove the screw in yellow circle of picture.

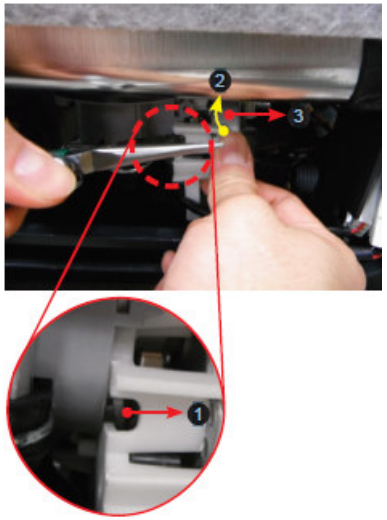
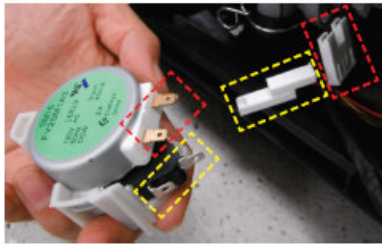
Photo	Description
 	3. If you move assy rail up follow following the yellow arrows while holding a fixed part in red circle, assy rail separates.

Disassembly

Assy Guide Water

Photo	Description
	Preparation: • Disasssemble the Assy rail. – Refer to the “Assy rail” disassembly section to separate Assy rail. 1. Separate 3 screw shown with red arrow.
	2. Lift up the front parts of Housing carefully like a picture not to break the hook of Cover nozzle in backside. 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

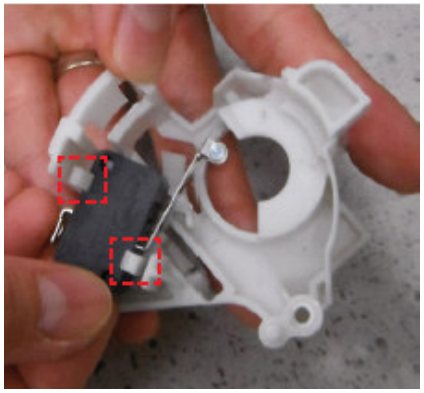
Photo	Description
	1. Remove two (2) screw than open the plate back. 2. Remove Open the plate back.
	3. ② Trun the Assy motor holder in the direction of arrow ① in state that the Hook is not hanged in Cover nozzle by Inserting the long nose pliers into gap and pushing the Hook in the direction of the red arrow. ③ And disassemble it by pulling to the right.
	4. Remove two (2) wire connectors.

Disassembly

Motor AC drive

Photo	Description
	Preparation: • Disasssemble the Assy rail. – Refer to the “Assy rail” disassembly section to separate Assy rail. 1. Remove one (1) screw. 2. Remove Motor AC drive

Switch micro

Photo	Description
	Preparation: • Disassemble the Motor AC drive. – Refer to the “Motor AC drive” disassembly section to separate Motor AC drive. 1. Pull out the Case brake by lifting up the hook in red square..

Bracket lower - right

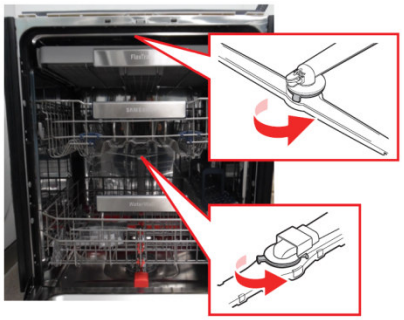
Photo	Description
	Preparation: • Disassemble the Assy motor holder. – Refer to the “Assy motor holder ” disassembly section to separate Assy motor holder until step 2. 1. Disassemble the Bracket lower right with turining it.

Assy cover Nozzle

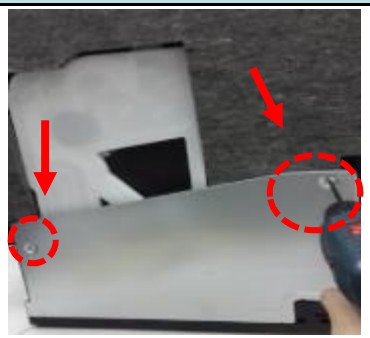
Photo	Description
 	Preparation: • Disassemble the assy guide water/ assy holder motor / bracket lower-right. – Refer to the “Assy guide water”, “Assy holder motor”, “bracket lower-right” disassembly sections to separate Assy guide water/ assy holder motor / bracket lower-right. – Disassemble the Cover 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.

Disassembly

Upper Nozzle / Lower Nozzle

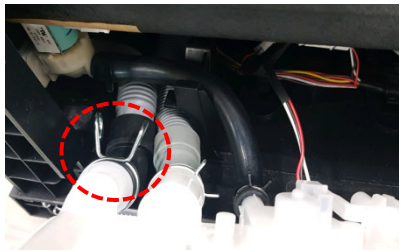
Photo	Description
	Preparation: • Remove the lower basket in the dishwasher. • Make sure to remove the water in each nozzle. 1. Upper Nozzle : Remove it by rotating the holder. (counterclockwise) 2. Middle Nozzle : Remove it by rotating the holder from upper basket. (counterclockwise)

Base

Photo	Description
	**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.

Disassembly

Drain Hose

Photo	Description
	**Preparation:** *Disassemble the Assy case break. 1. Disassemble Clip ring
	1. Disassemble holder drain hose

Cover base

Photo	Description
 	**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.
	

Door Spring

Photo	Description
	**Preparation:** * Disassemble the housing-left & right.
	1. Remove the spring etc door front the Assy-base by using a needle nose pliers. **NOTE** : use a tool such as a needle nose pliers. Remove it carefully so that you are not damaged from the spring etc door.
	2. Remove the bracket spring and holder rope door from the spring etc door.

Rear Leg + Adjust bar

Photo	Description
	**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.
	1. Turn the rear leg adjusting screw clockwise until the rear adjusting leg is fully extended.
	2. Remove the screw that is holding the case gear to the unit.
	3. The case gear is made up of a worm gear and helical gear. Pull out the worm gear first. 4. Grab the adjusting bar and pull it out while pushing the helical gear from the backside. **Note :** The adjusting leg bar is attached to the base by a hook, which is indicated in the red circle in the image to the left.

Disassembly

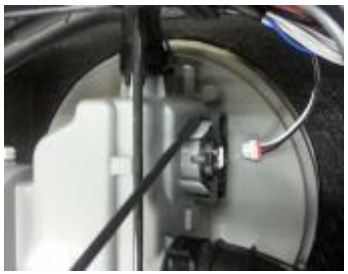
Rear Leg + Adjust bar

Photo	Description
	**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.
	1. Turn the rear leg adjusting screw clockwise until the rear adjusting leg is fully extended.
	2. Remove the screw that is holding the case gear to the unit.
	3. The case gear is made up of a worm gear and helical gear. Pull out the worm gear first.
	4. Grab the adjusting bar and pull it out while pushing the helical gear from the backside. **Note :** The adjusting leg bar is attached to the base by a hook, which is indicated in the red circle in the image to the left.

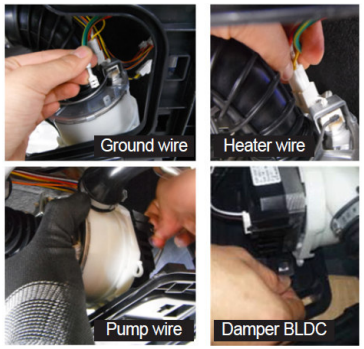
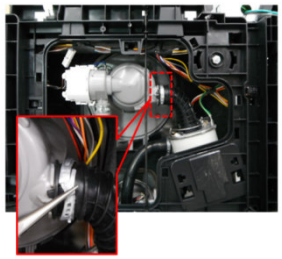
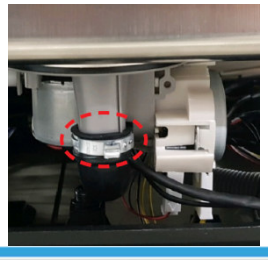
Thermistor

Photo	Description
	**Preparation:** * Disassemble the frame front. - Refer disassembly frame front. 1. Release the two(2) screws of thermistor
	2. Disconnect the wire terminal connected to the thermistor
	3. Pull out it carefully. **NOTE** : The thermistor has a seal .

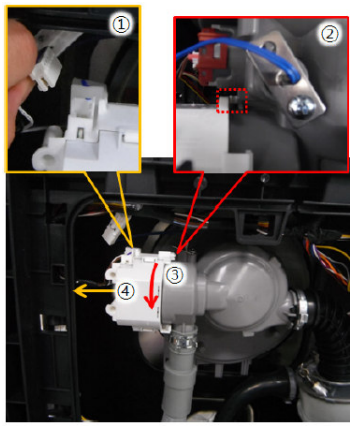
Turbidity sensor

Photo	Description
	**Preparation:** * Disassemble the frame front. - Refer disassembly 'Assy cover base'. 1. Disconnect the wire terminal connected to the turbidity sensor
	2. Gently pry up the tabs on the turbidity sensor and pull it out of the sump assembly. **Caution** : Carefully use a flat tip screwdriver to pry the tabs on the sensor as the tabs are fragile and can be damaged easily. **NOTE** : Inspect the "O" ring seal around the sensor. If it is damaged in anyway, replace the "O" ring seal.
	

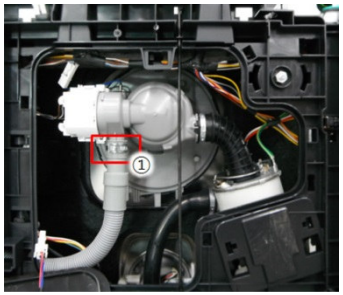
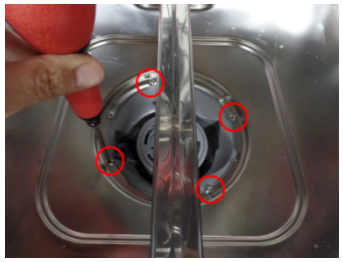
Circulation pump

Photo	Description
	**Preparation:** * Disassemble the 'cover base' and 'Plate back'. 1. Disconnect the Circulation pump connector. - (3)wires. Heater wire, ground wire, motor wire. 2. Release Damper BLDC from base using by '-' driver or hand. **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 a water. --- 3. Remove the clamp in red box then disassemble the Hose from Sump. - Prepare new clamp. This clamp can't use again. Request service part. --- 4. Access the hose through the back cover. 5. Move the clamp to the pump following the hose. 6. Disconnoect Hoses from Cover nozzle. 7. Pull out the Circulation Pump.
---  --- 	

Drain pump

Photo	Description
	Preparation: • Disassemble the 'cover base'. – Refer to the 'Cover base' disassembly section. 1. Disconnect the wire connector. 2. Push the locking hook like the red box. 3. Turn the Drain pump completely to the direction of red arrow. 4. Drag the Drain pump to the direction of yellow arrow. 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.

Sump

Photo	Description
	**Preparation:** * Disassemble, 'Assy cover base', 'Case gear', 'Circulation pump', 'Drain pump' 1. Release Clamp(1) **Caution** : Remove all water from the sump assembly before removing the pump. It might cause the water to be released onto the floor. Make sure to use a towel to cover the PBA and Electric parts to prevent water damage to these parts.
	2. Remove the flat filter 3. Remove the four screws.

Trouble Shooting - Preparation

DW9900R SERIES

Item	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	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	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	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.

Trouble Shooting - Preparation

Item	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 C	- 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	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.

Trouble Shooting 1/3

Check code Display	Check code Recall	When occur	Symptom	Possible Causes
4C	4C	-When the number of detected water supply pulses is less than 10 within 20 seconds after water is supplied. -- When the target water level is not reached within 60minutes after water is supplied.	- If an error has occurred when the number of detected water supply pulses is less than 10 within 20 seconds after water is supplied, the water supply valve is turned on once and waits. - All driving parts except for the drain part are turned off and draining (20 seconds ON/ 5 seconds OFF) is performed for 3 minutes.	- 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.
5C	5C	- when drain pump power consumption average value is detected over than limit in drain step (15W at 3400rpm, 13W at 2800rpm)	- keep going remained cycle without supply water. - Drainage clogging is occurred when last drain is performed, display check code.	- 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.
	5C1~5C5	-drain pump error 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 -3oC 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.
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 4oC for 10 minutes again, an HE-1 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 80oC 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.

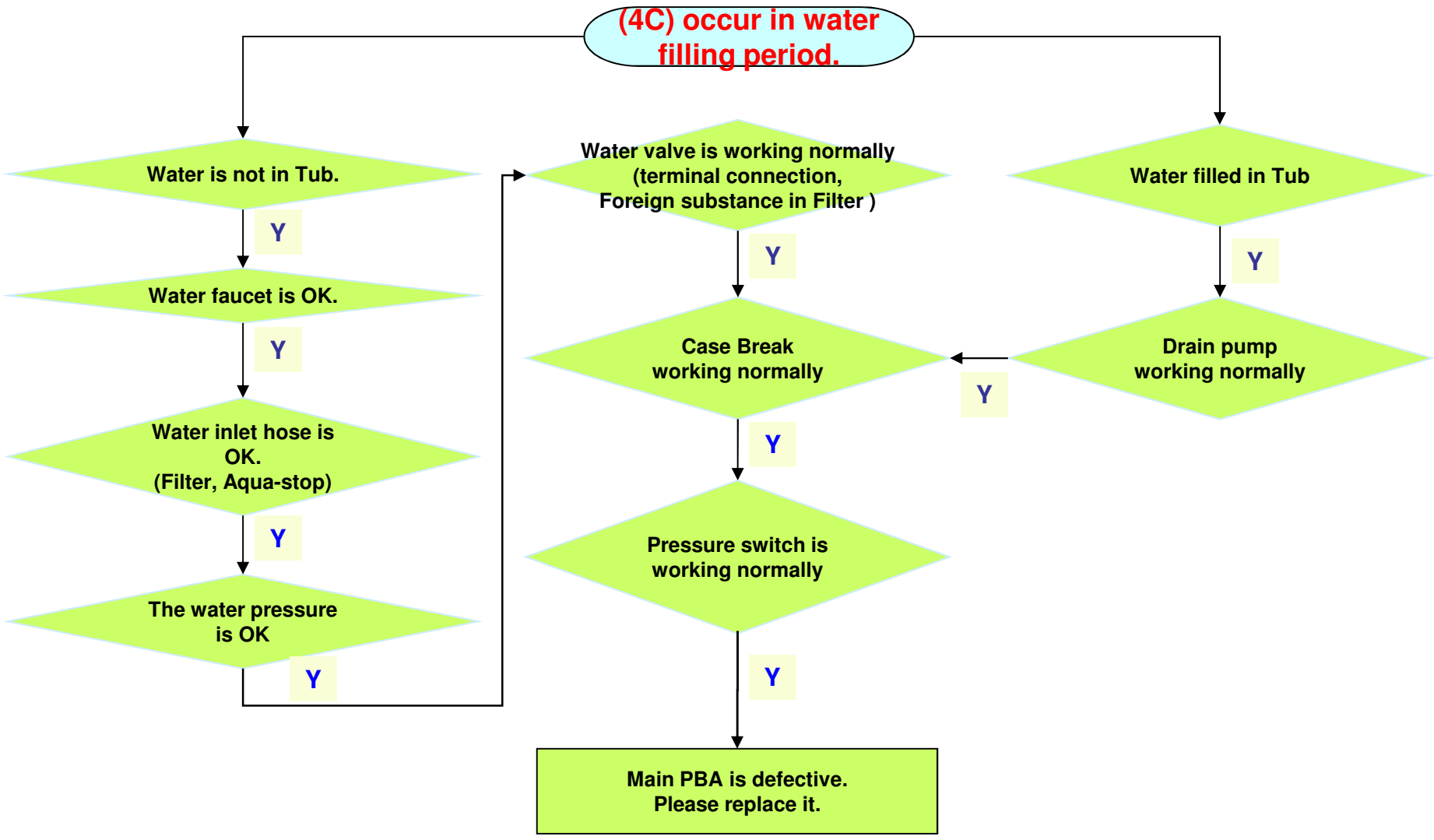
Trouble Shooting 2/3

Check code display	Check code Recall	When occur	Symptom	Possible Causes
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 error 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. - Alarm sound is occurred 1 time, and display 'LC'	- There is a water leak.
OC	**OC**	- When the overflow sensor data is equal to or less than 3V for 5 seconds.	-If an error 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.
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.	
No display	**DC**	- In case the Smart Install mode operates, when the Door opening is sensed.	- Display 'DC' code and Stop cycle.	- Door is opened. - Door latch is out of order.

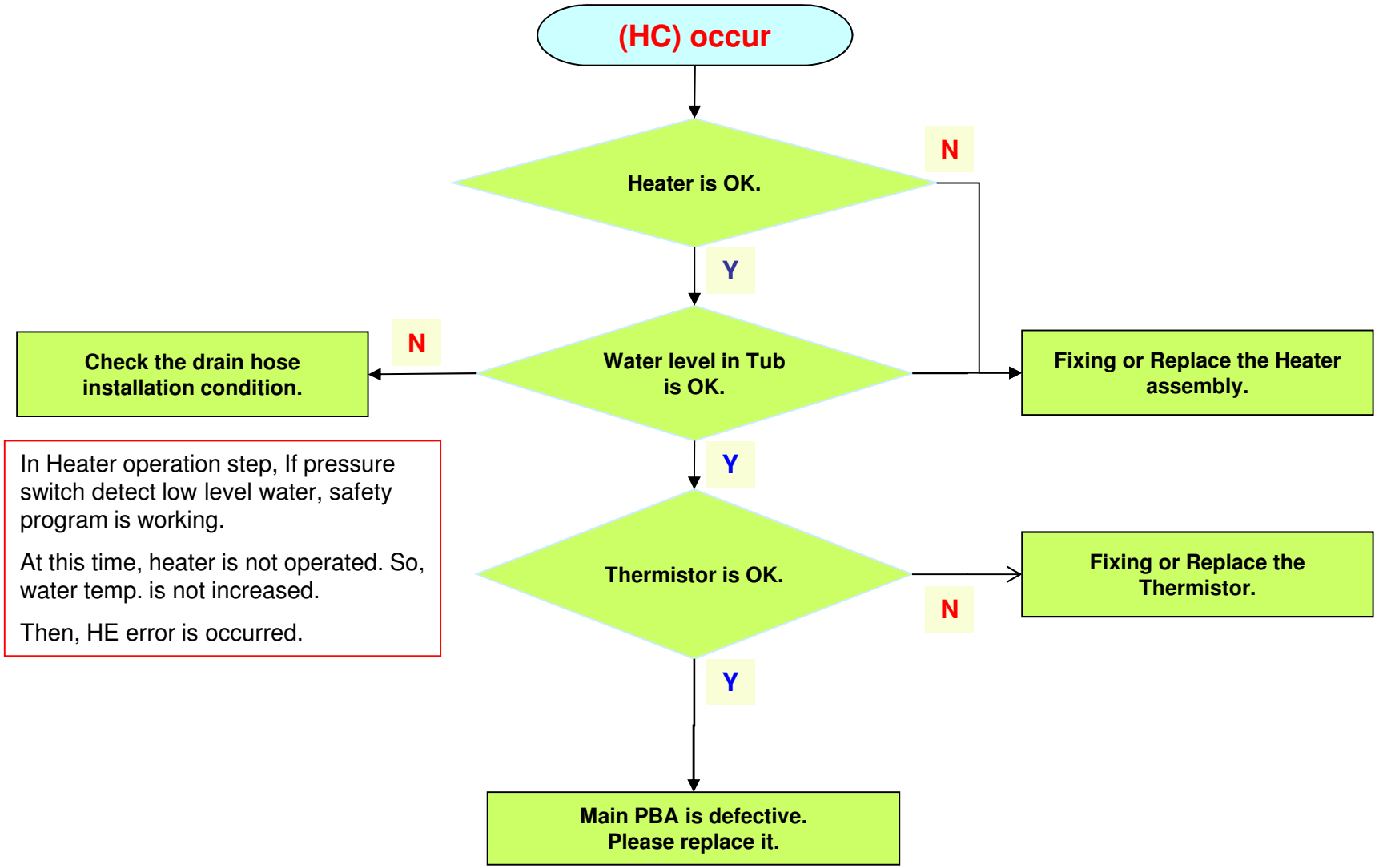
Trouble Shooting 3/3

Check code Display	Check code Recall	When occur	Symptom	Possible Causes
3C	3C, 3C1~ 3C5	Condition 1) When Main receives the Circulation pump error from the inverter, stop the drive the motor and restart again. If Main receive the motor error 11 times, turn off the motor for 5 minutes. At the third rest time, Error occurs. (When an error occurs, Heater is stopped immediately. And Heater ON after operating the circulating motor 10 seconds.) Condition 2) Washing(Rinsing) area : When Target rpm is 2600rpm or more and Circulation pump speed is 2400rpm 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, Error occurs. (If the condition of Low level water sensing, this error 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 error, 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

(4C) : When water supply is not working



(HC) : When heater is not working



In Heater operation step, If pressure switch detect low level water, safety program is working.

At this time, heater is not operated. So, water temp. is not increased.

Then, HE error is occurred.

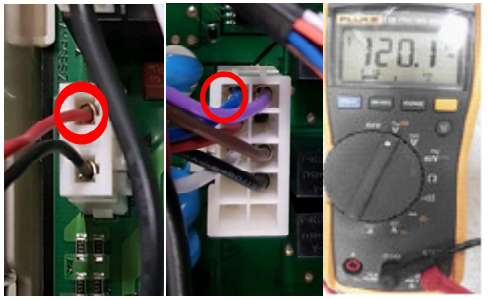
Trouble Shooting – Cycle chart

Cycle chart

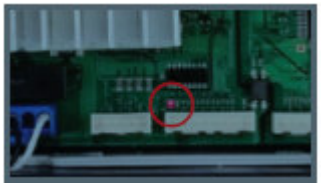
		Auto	Normal	Heavy	Delicate	Express 60	Rinse only
Cycle sequence		Prewash ▶ Main wash ▶ Rinse ▶ Hot Rinse ▶ Dry ▶ End	Prewash ▶ Main wash ▶ Rinse ▶ Hot Rinse ▶ Dry ▶ End	Prewash ▶ Main wash ▶ Rinse ▶ Hot Rinse ▶ Dry ▶ End	Prewash ▶ Main wash ▶ Rinse ▶ Hot Rinse ▶ Dry ▶ End	Main wash ▶ Rinse ▶ Hot Rinse ▶ Dry ▶ End	Rinse ▶ End
Temp [℉(℃)]	**Main wash**	122-140 (50-60)	113-144 (45-62)	149 (65)	122 (50)	126 (52)	
	Hot Rinse *Sanitize 163℉(73℃)	145-154 (63-68)	129-149 (54-65)	154 (68)	149 (65)	140 (60)	104 (40)
Water consumption [gal(ℓ)]		4.1-5.3 (15.6-19.9)	2.5-5.7 (9.6-21.4)	5.6 (21.3)	4.5 (17.0)	2.9 (11.1)	1.1 (4.1)
Cycle time (min)		110-136	130-148	155	112	60	14
Available Options	**Lower Rack**	○	○	○	○	○	○
	Speed booster	○	○	○	○	X	X
	Zone booster	○	○	○	X	○	X
	Hi temp Wash	○	○	○	X	○	X
	Sanitize	○	○	○	X	○	X
	Delay start	○	○	○	○	○	○

- The numbers in parentheses in the Last Rinse column represent the temperature when you select Sanitize.
- When you select the **Auto** or **Normal** cycle, you can eliminate the (flexible) steps depending on the soil level of the dishes.
- The water consumption and wash time varies depending on the steps or options you add, and on the pressure and temperature of the supplied water.
- When the Rinse Aid is empty, wash time and Last Rinse temperature can increase a little.

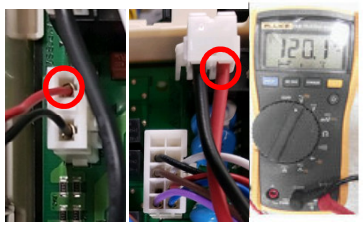
Trouble Shooting – Error trouble shooting

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. 990Ω ± 10% (890Ω~1089Ω)	-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 Flow Meter.
		7. Check whether the water supply stops after water is supplied for 60minutes.	- Check the water supply pressure. (> 0.5bar) - Faulty: Replace the Water Valve and Flow Meter.
		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(Number 6) of the CN401 and the Red 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 error”.

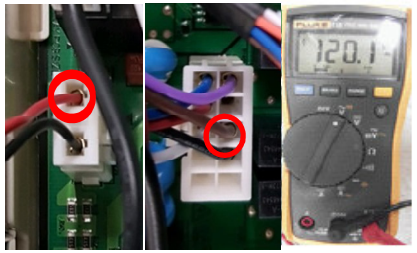
Trouble Shooting

Check Type	Check code	Checking method	Corrective actions
Drain error	**5E(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. 88Ω ±7% (81.8~84.2)	-Faulty: Replace the Drain Pump. 
		4. Check the operation of the Inverter PBA	
		4-1.Check the operating AC voltage of the Inverter PBA CN5 connector ▶ Normal: 110V ~ 120V (while operating)	-Faulty: Replace the Main PBA Assy 
Key input error	**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. 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. 5.8Ω ±10% 4. Check the operating LED(red) of the MAIN PBA ‣ Normal: Fully turn-on (while operating)	- Faulty: Replace the MAIN PBA Assy. 

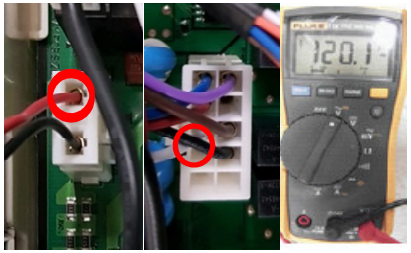
Trouble Shooting

Check type	Check code	Checking method	Corrective actions
Heater Check	**HC-1**	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 Red 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.	- See the “(tC)” check code.
		2. Check the Heater Relay.	- 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.

Trouble Shooting

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 8pin(Brown) wire of the Main PBA CN401 connector and the 1pin(Red) 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 error”.

Trouble Shooting

Check type	Check code	Checking method	Corrective actions
Motor vane check	7E (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(White) wire of the Main PBA CN401 connector and the Red 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 error”.

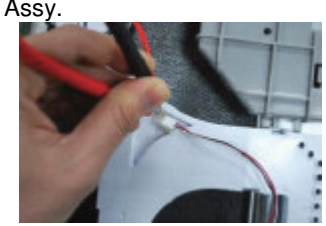
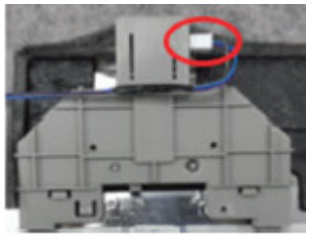
Trouble Shooting

<table>
<tr><th>Check type</th><th>Check code</th><th>Checking method</th><th>Corrective actions</th></tr>
<tr><td rowspan="2">Thermistor check</td><td rowspan="2">tC</td><td>1. Check the connections for the Thermistor connector</td><td>- Reconnect the Thermistor connector.</td></tr>
<tr><td>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>98.360</td></tr><tr><td>15</td><td>77.480</td></tr><tr><td>20</td><td>61.477</td></tr><tr><td>25</td><td>49.120</td></tr><tr><td>30</td><td>39.510</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>17.590</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></td><td>- Faulty: Replace the Thermistor.
-Normal: Replace the Main PBA Assy.
  </td></tr>
</table>

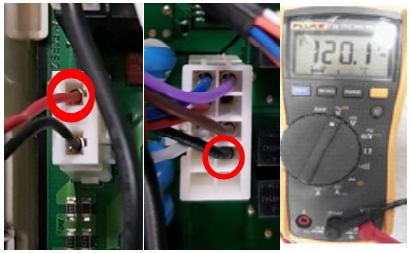
Trouble Shooting

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 and	- Reconnect the Sub PBA and Main PBA connectors.
		7. 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.
		8. Check whether the fuse is broken.	- Replace the fuse (15A).
		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.

Trouble Shooting

Check type	Check code	Checking method	Corrective actions
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 Main PBA Assy. 

Trouble Shooting

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. 0.5 ~ 0.7kΩ	- 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 Red 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 Error”.
		4. Check the operation of the Dispenser	- See “Dispenser is not dispensed”.

Trouble Shooting

Check type	Check code	Checking method	Corrective actions
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.	- See "Replace the Main PBA Assy.

Trouble Shooting

Check type	Check code	Checking method	Corrective actions
Power Relay error	**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.

Trouble Shooting

Category	PROBLEM	POSSIBLE CAUSE	SOLUTION
Will not start	**Power is On, but Will not start.**	The door is not closed completely.	Check that the door is latched and closed completely.
		No cycle is selected.	Select a proper cycle.
		The water supply does not work.	Check that the water supply valve is open.
		Control panel is locked.	Unlock the child lock, (See user manual.)
Not Dry	**Does not dry dishes well.**	There is no rinse aid in the dispenser.	Check the dispenser and add the rinse aid. Use the liquid type rinse aid for automatic dishwasher.
		Too many dishes have been loaded.	Proper loading of items can affect drying. Load your dishes as recommended.
		Are the plastics wet?	Plastic dishes often need towel drying.
		Water is dropt to lower basket from the upside.	After the cycle finishes, empty the lower rack first and then the upper rack. This will prevent water from dripping from the upper rack onto the dishes in the lower rack.
		Glasses and cups with concave bottoms hold water. This water may spill onto other items when unloading.	After finishing the cycle, empty the lower rack first and then the upper rack, this will avoid water dripping from the upper rack onto the dishes in the lower rack.
Odor	**Has a bad odor.**	There is water left over when the last cycle is not completed.	Insert detergent without loading dishes, and run the Eco cycle to clean the dishwasher.
		Drain Hose is obstructed.	Contact a qualified service technician to remove any obstruction from the drain hose.
		The dishwasher is not used daily or Soiled dishes left in unit too long.	With the dishwasher empty and no detergent, place a glass with 1 or 2 cups(8~16 ounces) of white vinegar upright into the lower rack, and then run a Normal cycle.

Trouble Shooting

Category	PROBLEM	POSSIBLE CAUSE	SOLUTION
Not Clean	**There are food particles remaining on dishes. (Not cleaning properly.)**	An inappropriate cycle has been selected.	Did you choose the cycle that describes the most difficult soil in your dishwasher? If you have some items with heavier soils, use a heavier cycle. Select a cycle according to the number and soil level of the dishes, as directed in this manual.
		The dishes are improperly loaded. Too many dishes have been loaded.	Rearrange the dishes so they do not **interfere with the nozzle rotation and the detergent dispenser's cover operation**. Load only an appropriate number of dishes. Load your dishes as recommended. (See user manual.)
		Low water pressure.	The water pressure should be between 0.04 ~ 1.0 Mpa.
		The water is too hard.	Use a commercial dishwasher cleaner. Use a high-quality and fresh detergent with rinse aid.
		Dishwasher detergent was not used.	Use a automatic dishwasher detergent. Recommend the powder or gel type dishwasher detergent.
		The amount of detergent was inappropriate.	Use the appropriate amount of automatic dishwasher detergent.
		Detergent remains in the dispenser.	Check the position of dishware such as cookie sheets, cutting boards, or large containers, etc. that maybe blocking the detergent dispenser from opening properly. Rearrange the dishes so they do not **interfere with the detergent dispenser opening**.
		There is no rinse aid.	Check the dispenser and add the rinse aid. Use the liquid type rinse aid.
		A nozzle is clogged.	Is the pump or spray nozzle clogged by labels from bottles and cans? Or Check the spray nozzle clogged by little food lump. Clean the nozzle as recommended by user manual.

Trouble Shooting

Category	PROBLEM	POSSIBLE CAUSE	SOLUTION
Not Clean	**Spots and filming on glasses and flatware**	Did you use the correct amount of effective detergent?	Use recommended dishwasher detergents only. Refer to the “Detergent Dispenser” section. Detergent must be fresh to be effective. Store detergent in a cool, dry area. Heavy soil and/or hard water generally require extra detergent.
		NOTE: To remove spots and film from dishes, try a white vinegar rinse. This procedure is intended for occasional use only. Vinegar is an acid, and using it too often could damage your dishwasher. 1. Wash and rinse dishes. Do not use sanitize option. Remove all silverware or metal items. 2. Put 2 cups [500 ml] white vinegar in a glass or dishwasher-safe measuring cup on the bottom rack. 3. Run the dishwasher through a complete washing cycle. Do not use detergent. Vinegar will mix with the wash water.	
		Extremely hard water Old or damp powder detergent Too little detergent	The harder your water, the more detergent a load needs.
			To prevent the common hard-water problem of spotting and to help dishes dry better, we recommend that you add a rinse aid.
			If you see white residue inside your dishwasher, you can occasionally try to dissolve it with distilled white vinegar(or Lemi juice & White vinegar mixture). Instead of using detergent, place a container with 2 cups of vinegar(or 1 cup of Lime juice & 1 cup of white vinegar) in the bottom rack and run a Eco cycle.
			Make sure detergent is fresh.

Trouble Shooting

Category	PROBLEM	POSSIBLE CAUSE	SOLUTION
Not Clean	**Leaves glasses with a dim polish. (Cloudiness on glassware.)**	The water supplied is soft and too much detergent was used.	. Underload the dishwasher and use a rinse aid to minimize this. . This is called etching and is permanent. To prevent this from happening, use less detergent if you have soft water. Wash glassware in the shortest cycle that will get them clean.
		Silica film or etching (silica film is a milky, rainbow-colored deposit; etching is a cloudy film)	Sometimes there is a water/chemical reaction with certain types of glassware. This is usually caused by some combination of soft or softened water, alkaline washing solutions, insufficient rinsing, and overloading the dishwasher. It might not be possible to prevent the problem, except by hand washing. To slow this process use a minimum amount of detergent but not less than 1 tb (15 g) per load. Use a liquid rinse aid and underload the dishwasher to allow thorough rinsing. Silica film and etching are permanent and cannot be removed.
		Water temperature entering the dishwasher exceeds 150°F	This could be etching. Lower the water heater temperature.
	Black or gray marks on dishes	Aluminum dishes were included in the wash load.	Disposable aluminum items can break down in the dishwasher and cause marking. Hand wash these items. Remove aluminum markings by using a mild abrasive cleaner.

Trouble Shooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
Will not start.	The door is not closed completely.	Check that the door is latched and closed completely.
	No cycle is selected.	Select a proper cycle.
	The power cable is not connected.	Connect the power cable properly.
	The water supply does not work.	Check that the water supply valve is open.
	Control panel is locked.	Unlock the child lock.
	A circuit braker is open.	Reset the circuit braker.
There are food particles remaining on dishes. (Not cleaning properly.)	You selected an inappropriate cycle.	Select a cycle according to the number and soil level of the dishes, as directed in user manual.
	The water temperature is low.	Connect the water supply line to a hot water supply. For best performance, the temperature of the supplied water should be 120 ˚F (49 ˚C).
	Low water pressure.	The water pressure should be between 20 and 120 psi (140 ~ 830kPa).
	The water is too hard.	Use a commercial dishwasher cleaner. Use a high-quality and fresh detergent with rinse aid.
	Dishwasher detergent was not used.	Use automatic dishwasher detergent. We recommend a powder or gel type dishwasher detergent.
	The amount of detergent was inappropriate.	Use the appropriate amount of automatic dishwasher detergent.
	Detergent remains in the dispenser.	Make sure large items such as cookie sheets, cutting boards, or containers, etc. are not blocking the detergent dispenser and preventing it from opening properly. Rearrange the dishes so they do not interfere with detergent dispenser operation.
	There is no rinse aid.	Check the dispenser and add the rinse aid. Use the liquid type rinse aid.
	A nozzle is clogged.	Clean the nozzle.
	The dishes are improperly loaded. Too many dishes have been loaded.	Rearrange the dishes so they do not interfere with the nozzle rotation and the detergent dispenser operation. Load only an appropriate number of dishes. Load your dishes as recommended.

Trouble Shooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
It's taking too long with an operation or cycle.	Cold water is being supplied.	Check that the water supply line is connected to a hot water supply. (Additional time is required to heat cold water.)
Leaves glasses with a dim polish.	The water supplied is soft and too much detergent was used.	Underload the dishwasher and use a rinse aid to minimize this.
	Aluminum dishes were included in the wash load.	Remove the marks on the dishes using a low sensitivity cleaner.
Leaves a yellow or brown film on the inside of the dishwasher.	This is caused by coffee and tea soils.	Remove the soils using a spot cleaner.
Does not dry dishes well.	There is no rinse aid in the dispenser.	Check the dispenser and add the rinse aid. Use the liquid type rinse aid.
	The temperature of the water is low when the dishwasher is running.	Connect the water supply line to a hot water supply. Use rinse aid with the Sanitize option.
	Too many dishes have been loaded.	Proper loading of items can affect drying. Load your dishes as recommended.
	Glasses and cups with concave bottoms hold water. This water may spill onto other items when unloading.	After finishing the cycle, empty the lower rack first and then the upper rack, this will avoid water dripping from the upper rack onto the dishes in the lower rack.
Has a bad odor.	There is water left over when the last cycle is not completed.	Insert detergent without loading dishes, and run the Normal cycle to clean the dishwasher.
	Drain Hose is obstructed.	Contact a qualified service technician to remove any obstruction from the drain hose.
	The dishwasher is not used daily or Soiled dishes left in unit too long.	With the dishwasher empty and no detergent, place a glass with 8 ounces of vinegar upright into the lower rack, and then run a Normal cycle.

Trouble Shooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
Is too noisy.	Sound is generated when the dispenser cover is open and the drain pump is operating in an early stage.	This is normal operation.
	The dishwasher is not level.	Ensure the dishwasher is level.
	Foreign material(Screw, Plastic piece) is in pump chamber.	Contact a qualified service technician to remove foreign material from the pump chamber.
	There is a ‘chopping’ sound because a nozzle is bumping against the dishes.	Rearrange the dishes.
Does not have a smoothly rotating nozzle.	The nozzle hole is clogged with food particles.	Clean the nozzle hole.
	The nozzle is blocked by a dish or pot and cannot rotate.	After placing the dishes into the racks, rotate the nozzles by hand to check whether any of the dishes will interfere with them.
Water won't pump out of the dishwasher.	Drain is clogged.	Contact a qualified service technician to remove any obstruction from the drain hose and check the drain pump operation.
Has a bent upper rack after loading dishes.	The dishes are not loaded properly.	Load your dishes as recommended.

Checkpoints after service request

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 it is unlocked when the dishwasher stops.

2. Use authenticated parts only

If any part is not authenticated, replace it with an authenticated 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 power capacity is appropriate.

8. Check leveling

Check whether the dishwasher is level.

9. Check the installation location

Check whether the installation location is flat and stable.

Model Number Naming Rules

DW	80	R	9	9	5	0	U	G

DW : Dishwasher

80	Tall (24" T)
60	Standard (24")
50	Slim (18")
30	Counter Top

F : 2013
H : 2014
J : 2015
M : 2016
R : 2018

9	Premium	9	Linear, Luxury
8	Premium	5	Linear
7	Best	0	Rotary
5	Better		
3	Good		
1	Value		

9	Luxury	0	Basic
7	Chef or Plus	1	Exclusive
6	Premium plus		
5	Best/premium		
3	Better		
2	Good		

U	Built Under	S : STSS
B	Fully Built-In	B : Black
S	Semi Built-In	W : White
F	Free Standing	V : Silver
C	Counter-top	A : ALF
		G : Black Caviar
		T : Truffle Grey

Thanks