WASHING MACHINE SERVICE MANUAL

⚠️ CAUTION  
READ THIS MANUAL CAREFULLY TO DIAGNOSE PROBLEMS CORRECTLY BEFORE SERVICING THE UNIT.

MODEL: WM2455H* / WM2301H*
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## 1. SPECIFICATIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>WM2455H* / WM2301H*</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLOR</td>
<td>W:BLUE WHITE, G:PEARLY GRAY, R:CANDY APPLE RED</td>
</tr>
<tr>
<td>POWER SUPPLY</td>
<td>AC 120 V, 60 Hz</td>
</tr>
<tr>
<td>PRODUCT WEIGHT</td>
<td>192 lbs (87kg)</td>
</tr>
<tr>
<td>ELECTRIC POWER CONSUMTION</td>
<td></td>
</tr>
<tr>
<td>WASHING</td>
<td>280 W</td>
</tr>
<tr>
<td>DRAIN MOTOR</td>
<td>80 W</td>
</tr>
<tr>
<td>WASH HEATER</td>
<td>1000 W</td>
</tr>
<tr>
<td>REVOLUTION SPEED</td>
<td></td>
</tr>
<tr>
<td>WASH</td>
<td>46 rpm</td>
</tr>
<tr>
<td>SPIN</td>
<td>0-1200 rpm</td>
</tr>
<tr>
<td>CYCLES</td>
<td>9</td>
</tr>
<tr>
<td>WASH/RINSE TEMPERATURES</td>
<td>5</td>
</tr>
<tr>
<td>SPIN SPEEDS</td>
<td>4</td>
</tr>
<tr>
<td>OPTIONS</td>
<td>Prewash, Rinse+Spin, Extra Rinse, Water Plus, Stain Cycle</td>
</tr>
<tr>
<td>WATER CIRCULATION</td>
<td>_</td>
</tr>
<tr>
<td>OPERATIONAL WATER PRESSURE</td>
<td>14.5–116 psi (100-800 kPa)</td>
</tr>
<tr>
<td>CONTROL TYPE</td>
<td>Electronic</td>
</tr>
<tr>
<td>WASH CAPACITY [cu.ft]</td>
<td>3.63 (4.2 IEC)</td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td>27” (W) X 29 3/4” (D) X 38 11/16” (H), 50 13/16” (D, door open)</td>
</tr>
<tr>
<td>DELAY WASH</td>
<td>up to 19 hours</td>
</tr>
<tr>
<td>DOOR SWITCH TYPE</td>
<td>PTC + Solenoid</td>
</tr>
<tr>
<td>WATER LEVEL</td>
<td>10 steps (by sensor)</td>
</tr>
<tr>
<td>LAUNDRY LOAD SENSING</td>
<td>Incorporated</td>
</tr>
<tr>
<td>ERROR DIAGNOSIS</td>
<td>Incorporated</td>
</tr>
<tr>
<td>AUTO POWER OFF</td>
<td>Incorporated</td>
</tr>
<tr>
<td>CHILD LOCK</td>
<td>Incorporated</td>
</tr>
<tr>
<td>RLM ENABLE</td>
<td>_</td>
</tr>
<tr>
<td>STEAM</td>
<td>_</td>
</tr>
</tbody>
</table>
2. FEATURES & TECHNICAL EXPLANATION

2-1. FEATURES

- **Ultra Capacity**
  The Larger drum enables not just higher head drop and stronger centrifugal force, but also less tangling and wrinkling of the laundry. Heavier loads, such as king size comforters, blankets, and curtains, can be washed.

- **Direct Drive System**
  The advanced Brushless DC motor directly drives the drum without belt and pulley.

- **Tilted Drum and Extra Large Door Opening**
  Tilted drum and extra large opening make it possible to load and unload clothing more easily.

- **RollerJets**
  Washing ball enhances the wash performance and reduces damage to the clothing. The jets spray and help tumble clothes to enhance washing performance while maintaining fabric care.

- **Automatic Wash Load Detection**
  Automatically detects the load and optimizes the washing time.

- **Built-in Heater**
  Internal heater helps to maintain water temperature at its optimum level for selected cycles.

- **Child Lock**
  The Child lock prevents children from pressing any button to change the settings during operation.
2-2. NEURO FUZZY WASHING TIME OPTIMIZATION

To get the best washing performance, optimal time is determined by the water temperature, the selected washing temperature, and the size of the load.

2-3. WATER LEVEL CONTROL

- This model incorporates a pressure sensor which can sense the water level in the tub.
- The water supply is stopped when the water level reaches the preset level, the washing program then proceeds.
- Spinning does not proceed until the water in the tub drains to a certain level.

2-4. DOOR CONTROL

- The door can be opened by pulling the door handle whenever washer is not in operation.
- When the cycle is completed, the DOOR LOCKED light will turn off.
- If a power failure has occurred while in operation, the door will unlock after 5 minutes.
- Clicking sounds can be heard when the door is locked/unlocked.
2-5. THE DOOR CAN NOT BE OPENED
  ● While program is operating.
  ● When a power failed and power plug is taken out in operation.
  ● While Door Lock lights turn on.
  ● While the motor is in the process of inertial rotating, through the operation is paused.

2-6. DOOR LOCKED LAMP LIGHTS
  ● When the frequency of water level is lower than 22.9 kHz
    (It can be canceled when the frequency is more than 23.8 kHz)
  ● When the temperature inside the tub is higher than 45 °C and water level is not 25.5 kHz
    (It can be canceled when the water level is 25.5 kHz or the temperature inside the tub is lower
    than 40 °C)

2-7. CHILD LOCK
  ● Use this option to prevent unwanted use of the washer. Press and hold PRE WASH button for 3
    seconds to lock/unlock control.
  ● When child lock is set, CHILD LOCK lights and all buttons are disabled except the Power button.
    You can lock the controls of the wash while washing.
3. PARTS IDENTIFICATION

Shipping Bolts

Power Plug
- If the supply cord is damaged, it must be replaced by the manufacturer or its authorized service technician in order to avoid a hazard.

Drum Light

Door Seal

Hose retainer

Hot/Cold (1 each)

Hose

Wrench
- for removing shipping bolts and leveling the washer

Tie strap
- to secure drain hose to standpipe, inlet hose, or laundry tub

Cap (4 each)
- to cover the holes created after removing the shipping bolts

Control Panel

Drum Light

Back of Washer

Drum

Cold Water Inlet

Air Vent for Safety

Hot Water Inlet

Lower Cover Cap

Drain Plug

Drain Pump Filter

Drain Hose

Dispenser

Door

Adjustable Feet

ACCESSORIES
4. INSTALLATION & TEST

1. Before servicing, ask the customer what the trouble is.
2. Check the setup (power supply is 120V, remove the transit bolts, level the washer...)
3. Check with the troubleshooting guide.
4. Plan your service method by referring to the disassembly instructions.
5. Service the unit.
6. After servicing, operate the appliance to see whether it functions correctly.

STANDARD INSTALLATION

The appliance should be installed as follows:

<table>
<thead>
<tr>
<th>REMOVE THE SHIPPING BOLTS</th>
<th>INSTALL THE APPLIANCE ON A FLAT AND FIRM SURFACE</th>
<th>ADJUST THE LEVELING</th>
</tr>
</thead>
</table>
| • Remove the 4 shipping bolts with the supplied wrench.  
  ◦ Do first lower side to remove easily. | • Turn the leveling feet to adjust the appliance.  
  ◦ Keep the shipping bolts and spanner for future use.  
  ◦ Insert the 4 caps (provided) into the hole. | • Turn clockwise to raise; counterclockwise to lower. |
HOW TO CONNECT THE INLET HOSE

- Verify that the rubber washer is inside of the valve connector.
- Tighten the inlet hose securely to prevent leaks.

CONNECT THE DRAIN HOSE

- Make sure that the hose is not twisted.
- Avoid submerging the end of the hose.

※ The end of the drain hose should be placed less than 96” from the floor.

CONNECT POWER PLUG

- Connect the power plug to the wall outlet.
- Avoid connecting several electric devices, as doing so may cause a fire.
TEST OPERATION

1. Preparation for washing.
   - Connect the power plug to the outlet.
   - Connect the inlet hose.

2. Press the POWER button.

3. Press the Start/Pause button.
   - Listen for a click to determine if the door has locked.

4. Check the water supply.
   - Check if water is supplied through the detergent dispenser.

5. Check the automatic reverse rotation.
   - Check if the drum rotates clockwise and counterclockwise.

6. Check the water heating function.
   - Press the WASH/RINSE button and the present temperature will be displayed.

7. Check the drain and spin functions.
   - Power off and the power on.
   - Press the SPIN SPEED button.
   - Press the START/PAUSE button.
   - Check the spin and drain functions.

8. Press the START/PAUSE button.
   - Listen for a click to determine if the door is unlocking.

   - If SERVICE is needed during check, remove the remaining water by pulling out the hose cap.
5. OPERATION

5-1. CONTROL PANEL FEATURES

WM2455H* / WM2301H*
**Delay Wash, CUSTOM PROGRAM**
- Delay Wash allows the start of any cycle to be delayed for 1~19 hours.
- CUSTOM PROGRAM allows you to store a customized wash cycle for future use.

**EST. TIME REMAINING**
- This display shows:
  a) the estimated time remaining in the cycle when operation.
  b) an error code when an error has been detected.

**DOOR LOCKED lamp**
- Light whenever the door of the washer is locked.
- The door can be unlocked by pressing the Start/Pause button to stop the washer.

**POWER button**
- Use this button to turn power On/Off.

**START/PAUSE button**
- Use this button to start/stop the washer.

**OPTION button**
- **Prewash**: Use this option for loads that need pretreatment. It adds 16 minutes prewash and drain.
- **Rinse + Spin**: Use this option to rinse and then spin.
- **EXTRA RINSE**: Select this option to rinse and spin a load separately from a regular cycle.
- **Stain Cycle**: Add time to the wash and rinse for better stain removal. Automatically provide a rinse.
- **WATER PLUS**: Select this option to add extra water to the wash and rinse cycles for superior results, especially with large or bulky items.

**CYCLE SELECTOR**
- Rotate the cycle selector knob to select the cycle designed for different types of fabric and soil level.

**Wash, Rinse temp., Spin speed, Soil Level**
- Select a water temperature based on the type of load you are washing.
- To change the spin speed, press the Spin Speed button repeatedly to cycle through available options.
- To change the soil level, press the Soil Level button repeatedly until the desired setting is on.
### 5-2. CYCLE GUIDE

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

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Fabric type</th>
<th>Wash/Rinse Temp.</th>
<th>Spin Speed</th>
<th>Soil Level</th>
<th>Pre-Wash</th>
<th>Rinse + Spin</th>
<th>Extra Rinse</th>
<th>Stain Cycle</th>
<th>Water Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sanitary</strong></td>
<td>Heavily soiled underwear, work clothes, diapers, etc.</td>
<td>Extra Hot/Cold</td>
<td>High(==)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Bulky/Large</strong></td>
<td>Large items such as blankets and comforters</td>
<td>Warm/Cold</td>
<td>Low (---)</td>
<td>Heavy Light</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Cotton/Normal</strong></td>
<td>Cotton, linen, towels, shirts, sheets, jeans, mixed loads</td>
<td>Warm/Cold</td>
<td>High(==)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Perm. Press</strong></td>
<td>Dress shirts/pants, wrinkle free clothing, poly/cotton blend clothing, tablecloths</td>
<td>Warm/Cold</td>
<td>Medium(---)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Baby Wear</strong></td>
<td>Lightly soiled baby wear</td>
<td>Hot/Cold</td>
<td>High(==)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Delicates</strong></td>
<td>Dress shirts/blouses nylon, sheer or lacy garments</td>
<td>Cold/Cold</td>
<td>Medium(---)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Hand Wash/Wool</strong></td>
<td>Items labeled “hand washable”</td>
<td>Cold/Cold</td>
<td>Low(---)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Speed Wash</strong></td>
<td>Lightly soiled clothing and small loads</td>
<td>Warm/Cold</td>
<td>No Spin (-)</td>
<td>Normal</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><strong>Drain + Spin</strong></td>
<td>Drain, Spin Only</td>
<td>High(==)</td>
<td></td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

**NOTE:** To protect your garments, not every wash/rinse temperature, spin speed, soil level, or option is available with every cycle.
5-3. SPECIAL FUNCTIONS

The option buttons also activate special functions, including CHILD LOCK, LOAD SIZE, TUB CLEAN, and SPIN SENSE. Press and hold the option button marked with the special function for 3 seconds to activate.

**CHILD LOCK**

Use this option to prevent unwanted use of the washer or to keep cycle settings from being changed while the washer is operating. Press and hold the PREWASH button for 3 seconds to activate or deactivate CHILD LOCK. CHILD LOCK will be shown in the display, and all controls are disabled except the ON/OFF button. The washer can be locked during a cycle.

**LOAD SIZE**

At the beginning of the cycle, the washer tumbles the load and detects the weight of the clothes. The display will indicate the approximate load size in the LOAD SIZE display. This allows you to adjust the amount of detergent and other additives for best results and improved efficiency.

**TUB CLEAN**

A buildup of detergent residue can occur in the wash tub over time and can lead to a mildew or musty smell. The TUB CLEAN cycle is specially designed to remove this buildup. Press and hold the EXTRA RINSE button for 3 seconds to activate this cycle. The display will show a message to add liquid bleach to the dispenser. After the cycle has ended, open the door and allow the drum interior to dry completely.

**NOTE**: Do NOT use this cycle with clothes, and do NOT add detergent or fabric softener.

**SPIN SENSE**

To activate SPINSENSE:

While the washing machine is running in any cycle, press and hold the STAIN CYCLE button for 3 seconds. The SPIN SPEED button light will blink while the washer is running to show that SPINSENSE is active. The SPINSENSE function will remain active for every cycle, even after a power failure.

To cancel SPINSENSE:

Press and hold the STAIN CYCLE button for 3 seconds to turn off the SPINSENSE function.

**BEEPER ON/OFF**

You may turn the end-of-cycle beeper on or off with the WATER PLUS button during the cycle. Press and hold the WATER PLUS button for 3 seconds to turn the beeper off. Press and hold the WATER PLUS button again for 3 seconds to turn the beeper back on.
### 5-4. EXPLANATION OF EACH PROCESS

<table>
<thead>
<tr>
<th>No.</th>
<th>Process</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| 1.  | Stay    | • Electrical power is supplied  
      • Washer is ready to work and the micom is in the active mode. |
| 2.  | Water supply | • After loading laundry and selecting a course and a cycle, water is supplied and drum rotates.  
      • When a user selects Pre-wash course, water is supplied through pre wash valve. |
| 3.  | Soaking & washing laundry | • To get laundry wet, drum rotates clockwise and counterclockwise.  
      • If water amount is insufficient at this time, the Inlet valve will supply water again. |
| 4.  | Heating & washing | • The heater heats the water in drum to the selected water temperature and drum rotates for washing. |
| 5.  | Washing & heating / washing | • When the water temperature reaches to the selected temperature, the heating stops and only the drum rotates.  
      • If water temperature becomes lower than selected because of re-supplied water, the heating starts again. |
| 6.  | Washing | • Fuzzy Logic decides washing time according to the laundry load, water temperature, and other factors. |
| 7.  | Drainage | • A pump motor drains the water from the drum.  
      • After sensing drained water amount by water level frequency, spin starts.  
      • When a heating course is selected, stay cooling process is performed to decrease the water temperature gradually to prevent laundry from being damaged and for safety reasons. |
| 8.  | Untangling (Sensing eccentricity) | • It balances laundry load and senses the eccentricity of the load, to only allow spinning without vibration  
      • If the eccentricity is worse than the allowed level, it repeats the disentangling process. When the repeated time is more than allowed level, it displays UE.  
      • If the eccentricity is good, the intermittent spin starts.  
      • During this process, the drain pump works for drainage intermittently. |
<table>
<thead>
<tr>
<th>No.</th>
<th>Process</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| A.  | Intermittent spin        | • To reach the correct set speed, the motor rotates clockwise and counterclockwise directions after spin process starts.  
  • If the water level frequency is lower than 23.0 kHz, a washer senses suds and starts suds removal process. |
| B.  | Rinse spin               | • In this process, the remaining water during washing process is extracted and the selected speed is kept.  
  • Removing suds process is in active mode at this cycle. |
| C.  | Remaining spin           | • After spin finishes, the drum rotates by remaining spin power until it stops.  
  • Motor power is off.  
  • This process is overlapped with next process. |
| D.  | Rinse water supply       | • Water supply for rinse process                                                                                                                                 |
| E.  | Rinse                    | • Rinsing process.                                                                                                                                 |
| F.  | Last drainage            | • After spin finishes and power is not supplied to motor, the drum rotates by remaining spin power  
  • If rinse hold is selected, the drainage is not proceeded after rinse finishes. |
| G.  | Disentangling            | • The same as item 9.                                                                                                                                 |
| H.  | Intermittent spin        | • The same as item A.                                                                                                                                 |
| I.  | Main spin1               | • The same as item B.                                                                                                                                 |
| J.  | Main spin2               | • At the end of a main spin, the spin speed will reach the selected rpm.                                                                                      |
| K.  | Remaining spin           | • The same with item C.                                                                                                                                 |
| L.  | Disentangling            | • After spin finishes, disentangling starts to remove unbalanced laundry.                                                                                     |
| M.  | End                      | • After 'end' signal is displayed, it stays for 8 seconds and power is automatically turned off. (Auto type door switch)  
  • After door switch is off, end signal is displayed in the case of manual type and it takes around 2 minute to turn off door switch. |
6. WIRING DIAGRAM/PROGRAM CHART
<table>
<thead>
<tr>
<th>Program Chart</th>
<th>Wash</th>
<th>Rinse</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Main</td>
</tr>
<tr>
<td></td>
<td>Wash</td>
<td>Cool-down</td>
</tr>
<tr>
<td>Sanitary</td>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>Cotton /Normal</td>
<td>5</td>
<td>130</td>
</tr>
<tr>
<td>Bulky /Large</td>
<td>5</td>
<td>140</td>
</tr>
<tr>
<td>Perm Press</td>
<td>5</td>
<td>150</td>
</tr>
<tr>
<td>Delicates</td>
<td>5</td>
<td>160</td>
</tr>
<tr>
<td>Baby Wear</td>
<td>5</td>
<td>170</td>
</tr>
<tr>
<td>Hand Wash /Wool</td>
<td>5</td>
<td>180</td>
</tr>
<tr>
<td>Speed Wash</td>
<td>5</td>
<td>190</td>
</tr>
<tr>
<td>Drain + Spin</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>Wash + Rinse</td>
<td>5</td>
<td>180</td>
</tr>
<tr>
<td>Rinse + Spin</td>
<td>5</td>
<td>180</td>
</tr>
</tbody>
</table>

* Wash time is in minutes.
** The total working time will vary with the load size, water temperature and ambient temperature.

7. TEST MODE

7-1. SAFETY CAUTION
- There’s built-in AC 120V and DC power in output terminal of PWB assembly in common. Be careful electric shock when disconnecting parts while trouble shooting. (Wear Electro Static Discharge gloves when working.)
- After cutting off the power when changing PWB assembly, disconnect or assemble.
- Be careful static when handling PWB assembly, and use Electro Static Discharge plastic pack when delivering or keeping it.

7-2. LOAD TEST MODE
The washer must be empty and the controls must be in the off state.
1. Press the WASH/RINSE and SPIN SPEED buttons simultaneously.
2. Press the Power button, while the above condition. Then buzzer will sound twice.
3. Press the Start/Pause button repeatedly to cycle through the test modes.

<table>
<thead>
<tr>
<th>Number of times the Start/Pause button is pressed</th>
<th>Check Point</th>
<th>Display Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Tumble on all lamps and locks the door.</td>
<td>rpm (42~50)</td>
</tr>
<tr>
<td>1 time</td>
<td>Tumble clockwise.</td>
<td>rpm (55~65)</td>
</tr>
<tr>
<td>2 times</td>
<td>Low speed Spin.</td>
<td>rpm (105~115)</td>
</tr>
<tr>
<td>3 times</td>
<td>High speed Spin.</td>
<td>Inlet valve for prewash turns on.</td>
</tr>
<tr>
<td>4 times</td>
<td>Low speed Spin.</td>
<td>Water level frequency (225~265)</td>
</tr>
<tr>
<td>5 times</td>
<td>Inlet valve for main wash turns on.</td>
<td>Water level frequency (225~265)</td>
</tr>
<tr>
<td>6 times</td>
<td>Inlet valve for hot water turns on.</td>
<td>Water level frequency (225~265)</td>
</tr>
<tr>
<td>7 times</td>
<td>Inlet valve for bleach turns on.</td>
<td>Water level frequency (225~265)</td>
</tr>
<tr>
<td>8 times</td>
<td>Tumble counterclockwise.</td>
<td>Water level frequency (225~265)</td>
</tr>
<tr>
<td>9 times</td>
<td>Water Temperature (Thermistor)</td>
<td>Water temperature [°C]</td>
</tr>
<tr>
<td>10 times</td>
<td>Drain pump turns on.</td>
<td>Water level frequency (225~265)</td>
</tr>
<tr>
<td>11 times</td>
<td>Off</td>
<td></td>
</tr>
</tbody>
</table>

7-3. HOW TO CHECK THE WATER LEVEL FREQUENCY
* Press the CUSTOM and PRE-WASH buttons simultaneously.

The digits indicate the water level frequency.

For example, if the display indicate 41, the water level frequency is 20+(41X0.1) = 24.1 kHz.
8. TROUBLESHOOTING

8-1. SAFETY CAUTION

■ There’s built-in AC 120V and DC power in output terminal of PWB assembly in common. Be careful electric shock when disconnecting parts while trouble shooting. (Wear Electro Static Discharge gloves when working.)
■ After cutting off the power when changing PWB assembly, disconnect or assemble.
■ Be careful static when handling PWB assembly, and use Electro Static Discharge plastic pack when delivering or keeping it.

8-2. ERROR MODE SUMMERY

• If you press the START/PAUSE button when an error is displayed, any error except \[ FE \] will disappear and the machine will go into the pause status.
• In case of \[ FE \], \[ EE \], \[ DE \] if the error is not resolved within 20 seconds, or the in case of other errors, if the error is not resolved within 4 minutes, power will be turned off automatically and the error code will blink. But in the case of \[ FE \], power will not be turned off.

<table>
<thead>
<tr>
<th>ERROR</th>
<th>SYMPTOM</th>
<th>CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 WATER INLET ERROR</td>
<td>[IE]</td>
<td>• Correct water level (246) is not reached within 8 minutes after water is supplied or it does not reach the preset water level within 25 minutes.</td>
</tr>
<tr>
<td>2 IMBALANCE ERROR</td>
<td>[UE]</td>
<td>• The load is too small.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The appliance is tilted.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Laundry is gathered to one side.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Non distributable things are put into the drum.</td>
</tr>
<tr>
<td>3 DRAIN ERROR</td>
<td>[DE]</td>
<td>• Not fully drained within 10 minutes.</td>
</tr>
<tr>
<td>4 OVER FLOW ERROR</td>
<td>[FE]</td>
<td>• Water is overflowing (water level frequency is over 213).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If [ FE ] is displayed, the drain pump will operate to drain the water automatically.</td>
</tr>
<tr>
<td>5 PRESSURE SENOR ERROR</td>
<td>[PE]</td>
<td>• The SENSOR SWITCH ASSEMBLY is out of order.</td>
</tr>
<tr>
<td>6 DOOR OPEN ERROR</td>
<td>[DE]</td>
<td>• Door not all the way closed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Loose electrical connections at Door switch and PWB Assembly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The DOOR SWITCH ASSEMBLY is out of order.</td>
</tr>
<tr>
<td>7 HEATING ERROR</td>
<td>[BE]</td>
<td>• The THERMISTOR is out order.</td>
</tr>
<tr>
<td>ERROR</td>
<td>SYMPTOM</td>
<td>CAUSE</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8</td>
<td>![LE]</td>
<td>• The connector (3-pin, male, white) in the MOTOR HARNESS is not connected to the connector (3-pin, female, white) of STATOR ASSEMBLY.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The electric contact between the connectors (3-pin, male, white) in the MOTOR HARNESS and 4-pin, female, white connector in the MAIN PWB ASSEMBLY is bad or unstable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The MOTOR HARNESS between the STATOR ASSEMBLY and MAIN PWB ASSEMBLY is cut (open circuited).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The hall sensor is out of order/defective.</td>
</tr>
<tr>
<td>9</td>
<td>![EE]</td>
<td>• EEPROM is out of order.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Displayed only when the START/PAUSE button is first pressed in the Load Test Mode.</td>
</tr>
<tr>
<td>10</td>
<td>![PF]</td>
<td>• After the power supply is stopped while washing machine is working, the power is supplied rapidly</td>
</tr>
</tbody>
</table>
### 8-3. TROUBLESHOOTING SUMMARY

#### Remark Result (tolerance 5%)

<table>
<thead>
<tr>
<th>Temperature (°F)</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>86</td>
<td>39.5 kΩ</td>
</tr>
<tr>
<td>104</td>
<td>26.1 kΩ</td>
</tr>
<tr>
<td>140</td>
<td>12.1 kΩ</td>
</tr>
<tr>
<td>158</td>
<td>8.5 kΩ</td>
</tr>
<tr>
<td>203</td>
<td>3.8 kΩ</td>
</tr>
<tr>
<td>221</td>
<td>2.8 kΩ</td>
</tr>
</tbody>
</table>

#### Pin Descriptions
- **Thermistor Pin 4:** Wash thermistor
- **Motor Hall Sensor RD Pin 1:** U
- **Pin 2:** V
- **Pin 3:** W
- **NA Pin 1:** +
- **Pin 2:** Hb
- **Pin 3:** Ha
- **Pin 4:** GND
- **Door Switch NA Pin 1:** PTC
- **Pin 2:** PTC
- **Inlet Valve NA_Pin 3:** Main wash
- **BL3 BL4 Pin 1:** Common
- **Pin 2:** Pre wash
- **Pin 3:** Bleach
- **Pin 4:** Hot valve
- **Steam Generator WH_Pin 1 ~ RD Pin 3:**
- **WH_Pin 3 ~ RD Pin 1:**
- **Heater:**
  - Pin 1 to Pin 2: 0.8~1.2 Ω
  - Pin 1: Vac (input)
  - Pin 2: Wash heater
  - Pin 1 to Pin 2: 0.8~1.2 Ω
- **Pump BL4 Pin 1:** Drain pump
- **Pump:**
  - 1. Pump running: 120V
  - 2. Stopped Motor/Pump: 0~1V
- **Voltage Input:**
  - 77 °F (25 °C): 8~12 kΩ
  - 77 °F (25 °C): 10~15 Vdc
- **Pulsing Signal:**
  - Pin 1 ~ Pin 2
  - Pin 1 ~ Pin 3
  - Pin 1 ~ Pin 4
  - Pin 2 ~ Pin 4
  - Pin 3 ~ Pin 4

#### Result Test Points

<table>
<thead>
<tr>
<th>Resistance (Ω)</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>700-1500</td>
<td>120 Vac</td>
</tr>
<tr>
<td>60-90</td>
<td>Infinity</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Voltage Input

- **Pin 2 ~ Pin 4:**
- **Pin 3 ~ Pin 4:**
- **Pin 4 ~ Pin 5:**
- **Pin 2 ~ Pin 4:**

#### Vacuum (Vac)"
8-4. TROUBLESHOOTING WITH ERROR

**INLET VALVE ERROR**

Is 'E' displayed?

- **Yes**
  - When you press both **CUSTOM** button and **PRE-WASH** button simultaneously, is the water level frequency below 24.6 kHz? (Refer to 7-3.)
  - Check the AIR CHAMBER and the tube (clogged).

- **No**
  - Is filter inlet valve clogged with foreign material?
    - **Yes**
      - Clean or replace the filter.
    - **No**
      - Is the connector connected to inlet valve assembly disconnected or disassembled?
        - **Yes**
          - Reconnect or repair the connector.
        - **No**
          - Is resistance between each terminal of INLET VALVE ASSEMBLY 0.8-1.2 kΩ? (Refer to 9-5 inlet valve assembly)
            - **Yes**
              - Replace the INLET VALVE ASSEMBLY.
            - **No**
              - Replace the MAIN PWB ASSEMBLY.

- **Yes**
  - Is the connector connected to MAIN PWB assembly disconnected or disassembled? (NA4, BL3, BL4)
    - **Yes**
      - Reconnect or repair the connector.
    - **No**
      - Is Electrical connection correct? (Refer to 9-5 wiring diagram)
        - **Yes**
          - Replace the MAIN HARNESS.
        - **No**
          - After checking connector, is the water level frequency below 24.6 kHz? (Refer to 7-3)
            - **Yes**
              - Check the PRESSURE SWITCH.
            - **No**
              - Replace the MAIN PWB ASSEMBLY.

**[Note] Environmental safety check list**
1) No water tap leakage
2) No water tap freeze
3) No entanglement of water supply hose
4) No water shortage
5) No shrinkage on water supply hose due to a possible misuse of hot and cold water
6) No water supply hose leakage
DRAIN ERROR

Is DRAIN ERROR displayed?

Yes

Is the connector connected to pump motor assembly disconnected or disassembled?

Yes

Reconnect or repair the connector.

No

Drain pump

Connection connector

When you press both CUSTOM button and PRE-WASH button simultaneously, is the water level frequency below 26.0 kHz?

(Refer to 7-3)

Yes

Check the AIR CHAMBER, the tube (clogged), and press switch

No

Is the coil of the drain pump too high or low?

(Resistance of the coil is 10-20Ω)

(Refer to 9-4 Pump motor assembly)

Yes

Replace the DRAIN PUMP ASSEMBLY.

No

Is the voltage between connectors out of range?

(BL4 pin1 - BL3 pin1)

- After remove Terminal Position Assurance (TPA) of connector, check as follows.

- And if you finish to measure the valve, You should put TPA as original form.

Yes

Replace the MAIN PWB ASSEMBLY.

No

- Pump running: 120V±5%

- Stopped Motor/Pump: 0-1V Method

1. Press the Power button, while the SPIN SPEED button and WASH/RINSES button is pressed simultaneously.

2. Press Start/Pause button:

   : 1 time → Pump slow-speed running
   : 2 times → Pump mid-speed running
   : 3 times → Pump high-speed running
   : 4 times → Stop the Motor/Pump

[Note] Environmental check list

1) The drainage hose must not stay in a lower position.

2) The drainage hose must not be bent or clogged in any way due to the surrounding physical configuration.

3) The drainage hose must not get frozen at all times.

4) The drainage pump must not have any improper substance or material inside that may cause a machine breakdown.
HEATING ERROR

Is \[\text{HEATING ERROR}\] displayed?

Yes

Is the connector connected to heater disconnected or disassembled?

Reconnect or repair the connector

Yes

Wash heater

No

Check heater resistance out of range? (about 39.5 kΩ at 30°C)
(Refer to 9-6 Heater assembly.)

Yes

Replace the THERMISTOR ASSEMBLY

No

Wash thermistor

Is thermistor resistance out of range?

Yes

Replace the THERMISTOR ASSEMBLY

No

Check the trans of water infiltration into thermistor terminal.
- Does the water infiltrate thermistor terminal?

Yes

Replace the THERMISTOR ASSEMBLY

No

[Note] Chances that the cause occurs from the main controller are very little.
Sensing part of the circuit (TE) consists of only resistors and capacitors.
LOCKED MOTOR ERROR

Is \[ L \] displayed?

Yes

Check the connectors below. Is the connector disconnected or disassembled?
(motor hall sensor connector, motor drive connector)
- part of main PWB assembly (RD4, NA1)

Reconnect the connector. (connector / wire / motor)

Yes

Motor

Is rotor magnet cracked?

Yes

Replace the ROTOR

No

Replace the STATOR

Is the resistance values in the range of 5 to 15 \( \Omega \)?
(U-V, V-W, W-V: U=1, V=2, W=3)
- After pull out the RD4 connector, check the terminal of the connector in wire. (Red 3P, male)

No

Replace the Hall sensor

Replace the MAIN PWB ASSEMBLY

Motor Drive (RD4)

Hall sensor (NA1)

- part of wire
DOOR OPEN ERROR

Is \( \boxed{\text{DE}} \) displayed?

Yes

Is the connector connected to door switch or main PWB disconnected?

No

Reconnect or repair the connector

Yes

Is there clicking sound once or twice when the START/PAUSE button is pressed to start the cycle?

No

Replace the PCB ASSEMBLY.

Yes

Is DOOR SWITCH ASSEMBLY broken?

No

Replace the DOOR SWITCH ASSEMBLY.

Yes

Does the spring of Latch Hook actuate?

No

Replace Door Assembly

Yes

[Note] Environmental check list
1) The machine must operate with all the doors completely closed and locked.
2) The washing area must operate with a water temperature not higher than 45 Celsius and must not have more amount of supplied water than it should.
**UNBALANCE ERROR**

- Is \( U \) displayed? Yes
- Does the laundry lean toward one side, not evenly put in the DRUM assembly? Yes
- Put laundry evenly in the DRUM assembly
- No
- Is the washing machine installed at an angle? Yes
- Adjust the height of washing machine to be kept horizontally
- No

**OVER FLOW ERROR**

- Is \( F \) displayed? Yes
- No
- Check the AIR CHAMBER and the tube (clogged).

When you press both CUSTOM button and PRE-WASH button simultaneously, is the water level frequency over 21.3kHz? (Refer to 7-3)

- Yes
- No

Does the inlet valve work when the power is not applied? Yes
- Replace the INLET VALVE ASSEMBLY
- No

If the inlet valve work continuously when the power is applied, Replace the MAIN PWB ASSEMBLY

[Note] Environmental check list
1) Removal of transportation-based fixed bolt.
2) Confirmation on the material to see if it is capable of handling two different types of blanket materials.
PRESSURE SENSOR ERROR

Is (PE) displayed?

Yes

Is the connector connected to pressure sensor disconnected or disassembled?

Reconnect or repair the connector

No

Is the resistance of the pressure sensor out of range?
(pin 1 - pin 3)
(21~23 Ω ±10%)

Replace the pressure switch

No

Is the AIR CHAMBER and the tube clogged?

Fix the air chamber and remove the foreign material.

No

Replace the MAIN PWB assembly.
8-5. TROUBLESHOOTING ELSE

**CAUTION**

1. Be careful of electric shock if disconnecting parts while troubleshooting.
2. First of all, check the connection of each electrical terminal with the wiring diagram.
3. If you replace the MAIN PWB ASSEMBLY, reinsert the connectors correctly.

**NO POWER**

- **Is the supplied voltage 120V AC? (+10%, -15%)**
  - Yes
  - No

- **Check the fuse or reset the circuit breaker**

- **Is the current rating of multi-outlet power strip enough?**
  - Yes
  - No
  - Alternate with explanation

- **Is the connector connected to PCB/Noise filter disconnected or disassembled?**
  - Yes
  - No

- **Reconnect or repair the connector**

- **Is LED on while the power is on?**
  - Yes
  - No

- **Replace the MAIN PWB ASSEMBLY**

- **Is three pin wire of display PWB broken?**
  - Yes
  - No

- **Replace the DISPLAY PWB ASSEMBLY**

- **Connecting connector MAIN PWB ~ Display PWB**
BUTTÓN DOESN’T WORK

Is the connector connected to Main PWB / Display PWB disconnected or disassembled?

Yes
Reconnect or Repair the connector

No

Is the display PCB broken? (check the buzzer sound and LED light while push the button.)

Yes
Replace the DISPLAY PWB ASSEMBLY

No

Is the button of panel stuck?

Yes
Repair the button

No
VIBRATION & NOISE IN SPIN

Have all the transit bolts and base packing been removed? **NO**
- Remove the transit bolts and base packing.

Is the washer installed on a solidly constructed floor? **NO**
- Move the washer or reinforce the floor.

Check if the washer is perfectly level as follows:

Check the leveling of the washer with a level and check that the washer is stable.

Put an unbalance part (rubber) inside of drum and start QC test mode and run in high spin (Refer to section 7-2).
- When the machine is spinning in high speed, verify that it is stable.

If you do not have the unbalance part, put 4.5 to 6.5 lbs (2 to 3 kg) of clothing. Once loaded, press power, Rinse+Spin and the start/pause button in sequence.
- When the machine is spinning in high speed, verify that it is stable.

If it is not stable, adjust feet accordingly. After the washer is level, tighten the lock nuts up against of the base of the washer. All lock nuts must be tightened.
DETERGENT DOES NOT FLOW IN

Is water supplied?  YES → Refer to NO WATER SUPPLY  NO

Are receptacles correctly connected to the terminals of the INLET VALVE ASSEMBLY?  YES → Check the wiring.  NO

Has detergent been put in the correct compartment of the dispenser?  YES → Put the detergent in the correct place.  NO

Is the detergent caked or hardened?  YES → Clean the dispenser.
LIQUID DETERGENT/SOFTENER/BLEACH DOES NOT FLOW IN

Is water supplied? **YES**

Are the plugs correctly connected to the terminals of the INLET VALVE ASSEMBLY? **NO**

Check the wiring on the dispenser.

Is liquid detergent/softener/bleach put in the correct compartment of the drawer? **NO**

Put it in the correct compartment.

Is the liquid detergent/softener/bleach cap clogged? **YES**

Clean the cap and container.

ABNORMAL SOUND

Is the motor bolt loosened? **YES**

Secure the bolt.

Is there friction noise coming from the motor? **YES**

Check hall sensor. Replace if defective. Then check stator. Replace if necessary. Check rotor for broken magnets. Replace rotor if necessary.

Is there friction noise coming from the motor? **NO**

Check hall sensor. Replace if defective. Then check stator. Replace if necessary. Check rotor for broken magnets. Replace rotor if necessary.
9. COMPONENT TESTING INFORMATION

▲ WARNING When Resistance (Ohm) checking the Component, be sure to turn the power off, and do voltage discharge sufficiently.

9-1. FILTER ASSEMBLY (LINE FILTER)

<table>
<thead>
<tr>
<th>Wiring diagram</th>
<th>Circuit in the MAIN PWB / Wiring Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test points and Result</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Points</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>WH (1) to RD (3)</td>
<td>0 Ω</td>
</tr>
<tr>
<td>WH (3) to RD (1)</td>
<td>0 Ω</td>
</tr>
</tbody>
</table>
The Door Lock Switch Assembly consists of a Heating PTC, a Bimetal, a Protection PTC, and a Solenoid. It locks the door during a wash cycle.

1. Operation for door closing
   - After the system turns on, PTC heating starts up through terminal 2–4’s authorizing the power on.
   - After PTC heating starts up and before solenoid operation is driven, force the system to the off position through CAM.
   ⇒ Door close
   - Authorizing one impulse through terminal 3–4 (PTC & solenoid) will make the door locked.
   - Door lock is detected when switches in terminal 4–5 are set closed.
   ⇒ CAM rotation will forcibly clear off the connection.
   - The maximum, allowable number of impulse authorizations is 2.
   - Upon the third authorization of the impulse, the position of CAM goes back to the door-open position.
   - Authorizing the impulse occurs in 4.5 seconds upon input for max performance and two authorization processes are allowed at most.
   ⇒ Normal operation period of PTC heating: 1.5 – 5 seconds.
   (Defects from the development process.)

2. Operation for door opening
   - With a temporary stop, door automatically opens by CAM rotations after authorizing the impulse from the terminal 3 – 4 and the power turns off – maximum of 3 times of the authorizing period.
   - Upon the fourth authorization of the impulse, the position of CAM goes back to the door-close position.
### Test Points

![Image of test points](image)

<table>
<thead>
<tr>
<th>Test Points</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) to (4)</td>
<td>700-1500 Ω</td>
<td>At 77°F (25°C)</td>
</tr>
<tr>
<td>(3) to (4)</td>
<td>60-90 Ω</td>
<td>At 77°F (25°C)</td>
</tr>
<tr>
<td>(4) to (5)</td>
<td>Infinity</td>
<td></td>
</tr>
<tr>
<td>(2) to (4)</td>
<td>120 Vac</td>
<td>Voltage Input</td>
</tr>
</tbody>
</table>
9-3. STATOR ASSEMBLY

### Function
The DD motor can be driven from stopped to maximum speed in infinite steps in either direction. There are 36 poles on the stator; 12 permanent magnets spaced around the rotor. There are no brushes to wear out. Unlike a more traditional brushless motor, the rotor surrounds the stator rather than being attached to it.

### Test points (Windings)

![Image of test points](image.png)

**HALL SENSOR**

- (1) to (2) 5-15 Ω
- (2) to (3) 5-15 Ω
- (3) to (1) 5-15 Ω

### Result (Windings)

<table>
<thead>
<tr>
<th>Test Points</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) to (2)</td>
<td>5-15 Ω</td>
</tr>
<tr>
<td>(2) to (3)</td>
<td>5-15 Ω</td>
</tr>
<tr>
<td>(3) to (1)</td>
<td>5-15 Ω</td>
</tr>
</tbody>
</table>
The hall sensor determines the speed and direction of the motor. It also can read that the load is off balance when the drum speed fluctuates.

<table>
<thead>
<tr>
<th>Test point and Result (Hall Sensor)</th>
<th>- Voltage Testing Hall Sensor at Stator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Image of Hall Sensor Test]</td>
</tr>
</tbody>
</table>

If measuring voltage from the Main PCB Assembly to the Hall Sensor, use the following steps:
1. Unplug power cord.
2. Remove rear washer panel.
3. Locate Hall sensor connector on the stator behind the rotor.
4. Place meter leads on terminals 5 to 4, white to gray.
5. Plug in power cord, close door, and press power button. DO NOT PRESS START!
6. You should measure 10 to 15 Vdc. If 10 to 15 Vdc is present, control board, white wire, and gray wire are OK! If not follow testing output voltages on control board in next section.
1. Unplug power cord.
2. Remove rear panel.
3. Remove Washer Top.
4. Remove Main PCB Assembly cover as shown in Figure below.
5. Locate the white Hall Sensor 4 wire connector using wiring diagram wire colors as your guide.
6. Plug in power cord, close door, and press power button. DO NOT PRESS START!
7. Place meter leads on White & Gray wires. You should read 10 to 15 Vdc output from the Main PCB Assembly to the Hall sensor. If no 10 to 15 Vdc is measured the control board is defective.
8. Place meters leads on Blue to Gray. Turn motor rotor slowly by hand. You should measure a pulsing 10 Vdc. Place meter leads on Red to Gray. Turn motor rotor slowly by hand. You should measure a pulsing 10 Vdc. If both tests measure a pulsing 10 Vdc, hall sensor and harness OK. If either or both tests measures 9 to 10 Vdc without changing (no pulsing) the hall sensor is likely defective. Disconnect power by unplugging washer and ohm check hall sensor to verify failure of the hall sensor.

7. To measure output signal voltage from the hall sensor, carefully move test leads to terminals 1 to 4, blue and gray. Slowly rotate motor rotor by hand. You should read a pulsing 10 Vdc. If 10 Vdc is measured from 1 to 4, move lead on blue wire to red wire, terminal 2. Repeat rotating motor rotor by hand. You should read a pulsing 10 Vdc from red to gray.
8. If pulsing 10 Vdc is measured from 1 to 4 and 2 to 4, hall sensor is OK! If either test netted only 9 to 10 Vdc without changing (no pulsing) the hall sensor is likely defective. Disconnect power by unplugging washer and ohm check hall sensor to verify failure of the hall sensor.

<table>
<thead>
<tr>
<th>Test Points</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) to (2)</td>
<td>8-12 kΩ</td>
<td></td>
</tr>
<tr>
<td>(1) to (3)</td>
<td>8-12 kΩ</td>
<td></td>
</tr>
<tr>
<td>(1) to (4)</td>
<td>10-15 Vdc</td>
<td>Voltage Input</td>
</tr>
<tr>
<td>(2) to (4)</td>
<td>10 Vdc</td>
<td>Pulsing Signal</td>
</tr>
<tr>
<td>(3) to (4)</td>
<td>10 Vdc</td>
<td>Pulsing Signal</td>
</tr>
</tbody>
</table>
9-4. PUMP MOTOR ASSEMBLY

**Wiring diagram**

Circuit in the MAIN PWB

Wiring Diagram

* Each circuits of loads in wiring diagram are all same.

**Object**

For Drain

**Function**

Two pump motors are used to drain the tub and to circulate the water / detergent solution.

**Test points**

Drain Pump

(1)(2)

**Result**

Drain Pump

<table>
<thead>
<tr>
<th>Test Points</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) to (2)</td>
<td>10-20 Ω</td>
</tr>
</tbody>
</table>
9-5. INLET VALVE ASSEMBLY

### Function
Depending on the cycle and water temperature, the controller will energize the hot or cold water valve solenoids to meet the selected water temperature.

### Test points and Result
After pull out the connector of defective valve, check the resistance.

<table>
<thead>
<tr>
<th>Test points</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)-(2)</td>
<td>0.8-1.2 kΩ</td>
</tr>
</tbody>
</table>
9-6. HEATER ASSEMBLY

**Wiring diagram**

Circuit in the MAIN PWB

- [Diagram of wiring connections]

Wiring diagram

- [Diagram showing connections]

* Each circuits of loads in wiring diagram are all same.

**Function**

1. The Wash Heater is designed to raise the wash water to the desired temperature selection during certain wash cycles.
2. The Steam generator heater is designed to make the water to the steam during steam cycles.

**Test points**

- [Image of test points]

**Result**

<table>
<thead>
<tr>
<th>Wash Heater</th>
<th>Test Points</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) to (2)</td>
<td>12-18 Ω</td>
<td></td>
</tr>
</tbody>
</table>
9-7. THERMISTOR ASSEMBLY

**Wiring diagram**

**Circuit in the MAIN PWB / Wiring Diagram**

**Function**

The thermistor (temperature sensor) is used to monitor water temperature in the tub or Steam Generator.

**Test points & Result**

<table>
<thead>
<tr>
<th>Test Points</th>
<th>Result (tolerance ±5%)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) to (2)</td>
<td>39.5 kΩ</td>
<td>At 86°F (30°C)</td>
</tr>
<tr>
<td></td>
<td>26.1 kΩ</td>
<td>At 104°F (40°C)</td>
</tr>
<tr>
<td></td>
<td>12.1 kΩ</td>
<td>At 140°F (60°C)</td>
</tr>
<tr>
<td></td>
<td>8.5 kΩ</td>
<td>At 158°F (70°C)</td>
</tr>
<tr>
<td></td>
<td>3.8 kΩ</td>
<td>At 203°F (95°C)</td>
</tr>
<tr>
<td></td>
<td>2.8 kΩ</td>
<td>At 221°F (105°C)</td>
</tr>
</tbody>
</table>
10. DISASSEMBLY INSTRUCTIONS

* Be sure to unplug the machine before disassembling and repairing the parts.

**CONTROL PANEL ASSEMBLY**

1. Unscrew 2 screws on the back of the top plate.
2. Pull the top plate backward and upward as shown.
3. Disconnect the Display PWB assembly connector from trans cable.
4. Pull out the drawer and unscrew 2 screws.
5. Remove one screw.
6. Lift the side the control panel assembly and pull it out.
7. Unscrew the 8 screws from the control panel assembly.
8. Disassemble the Display PWB Assembly.
1. Disconnect the POWER connector and SENSOR SWITCH ASSEMBLY.
2. Remove the Protective cover.

3. Disconnect the connectors.

4. Unscrew 1 screw on the back.
5. Remove the Main PWB.
1. Disassemble the top plate assembly.
2. Pull out the drawer.
3. Push out the DISPENSER ASSEMBLY after unscrewing 2 screws.
4. Unscrew the Clamp nut at the lower part of the dispenser.
5. Disassemble the 4 connectors from the valves.

※ Wire Color
① Blue Housing (YL-BK)
② White Housing (WH-BK)
③ Blue Housing (GY-BK)
④ Red Housing (BL-BK)
6. Unscrew 2 screws from the back of the cabinet.
7. Disassemble two (or three) connectors from the NOISE FILTER.
8. Unscrew a screw from the TOP BRACKET.
1 Unscrew the 5 screws from upper of the cabinet cover.
2 Unscrew the screw from filter cover.

3 Put a flat ( - ) screwdriver or putty knife into the hinge slots at the bottom of the cover and pry it out.

4 Unscrew the screw from the lower side of the cabinet cover.
5 Open the door.
6 Disassemble the clamp assembly.

7 Tilt the cabinet cover.
8 Disconnect the door switch connector.

NOTE: When assembling the CABINET COVER, connect the door switch connector.

9 Lift and separate the cabinet cover.

10 Disassemble the clamp assembly.
11 Disassemble the gasket.
**MOTOR/DAMPER**

1. Disassemble the back cover.
2. Remove the bolt.
3. Pull out the Rotor.

1. Unscrew the 2 screws from the tub bracket.
2. Remove the 6 bolts on the stator.
3. Unplug the 2 connectors from the stator.

1. Disassemble the damper hinges from the tub and base.

**NOTE**
If you pull the dampers apart, they must be replaced. If you do not separate them, they can be re-used.
**11. EXPLODED VIEW**

**11-1. CABINET & CONTROL PANEL ASSEMBLY**

<table>
<thead>
<tr>
<th>Printed materials</th>
<th>Description</th>
<th>Loc No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Owner's Manual</em></td>
<td>G001</td>
<td></td>
</tr>
<tr>
<td><em>Energy Label</em></td>
<td>G002</td>
<td></td>
</tr>
<tr>
<td><em>Service Manual</em></td>
<td>G003</td>
<td></td>
</tr>
<tr>
<td><em>Wiring Diagram</em></td>
<td>G004</td>
<td></td>
</tr>
<tr>
<td><em>Quick Start Guides</em></td>
<td>G005</td>
<td></td>
</tr>
<tr>
<td><em>Installation Sheet</em></td>
<td>G006</td>
<td></td>
</tr>
</tbody>
</table>

*The following parts are not illustrated*
※ In case of replacing THERMISTOR of HEATER ASSEMBLY(K320), replace HEATER ASSEMBLY(K320), HEATER ASSEMBLY(K320) includes THERMISTOR.
※ In case of replacing BEARING,BALL(K121,K122) and GASKET(K125), replace TUB ASSEMBLY,OUTER(K105), TUB ASSEMBLY,OUTER(K105) includes BEARING,BALL(K121,K122) and GASKET(K125).
※ Part Assembly(K142) includes 10 screws.
11-3. DISPENSER ASSEMBLY