

## FOR SERVICE TECHNICIAN ONLY—DO NOT REMOVE OR DESTROY

### "L" WASHER

#### **WARNING**



#### **Electrical Shock Hazard**

Death or serious injury can result from failure to follow these instructions.

- Service by a qualified service technician only.
- Disconnect power before servicing this product.
- Reconnect all grounding devices after service.
- Replace all parts and panels before operating.

#### **AVERTISSEMENT**



#### **Risque de choc électrique**

Vous pouvez être tué ou gravement blessé si vous ne suivez pas ces instructions.

- Réparations seulement par un technicien qualifié.
- Débranchez l'alimentation électrique avant la réparation.
- Rebranchez tous les dispositifs de mise à la terre après la réparation.
- Remettez toutes les pièces et panneaux en place avant d'utiliser l'appareil.

#### **ADVERTENCIA**



#### **Riesgo de Descarga Eléctrica**

Usted puede morir o sufrir lesiones graves si no siguen estas instrucciones.

- El servicio técnico sólo debe ser realizado por un técnico calificado.
- Desconecte el suministro de corriente antes de realizar el servicio técnico.
- Luego del servicio técnico, vuelva a conectar todos los dispositivos de conexión a tierra.
- Reemplace todas las piezas y paneles antes de utilizar.

#### **IMPORTANT**

##### **Electric Discharge (ESD) Sensitive Electronics**

ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an anti-static wrist strap. Connect wrist strap to ground connection point or unpainted metal in the appliance.

—OR—

Touch your finger repeatedly to ground connection point or unpainted metal in the appliance.

- Before removing the part from its package, touch the anti-static bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contact; handle electronic control assembly by edges only.
- When repackaging failed electronic control assembly in anti-static bag, observe above-mentioned precautions.

#### **DIAGNOSTIC GUIDE**

Before testing washer operation, check the following:

- Is the power cord firmly plugged into a live circuit?
- Has a household fuse blown or circuit breaker tripped? Time delay fuse?
- Are both hot and cold water faucets open and water supply hoses unobstructed?

Before opening the unit make sure the washer is unplugged from power outlet.

- Check all connections before replacing components. Look for broken or loose wires, failed terminals, or wires not pressed into connections far enough.
- The most common cause for control failure is corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- Connectors: Look at top of connector. Check for broken or loose wires. Check for wires not pressed into connector far enough to engage metal barbs.
- Resistance check must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.

#### **Programming the Control Board**

- The replacement control board will always enter into test mode t01 on initial power-up.
- If replacing the control board, the washer will not function until the replacement control board has been programmed.

##### **To program the replacement control board:**

1. Reconnect power to the washer. (The display will now show "----", which means no model has been selected.)
2. Rotate the cycle knob until the correct model number is displayed:

For GFWN1100 and GFWH1200 models

Display "1" = GFWN1100

Display "2" = GFWH1200

For GFWN1300J model

Display "1" = GFWN1300J

For GFWN1600J model

Display "1" = GFWN1600J

For GFWS1700(5) model

Display "2" = GFWS1700, GFWS1705

3. Press and hold the Start key for 3 seconds (or until a second beep is sounded).

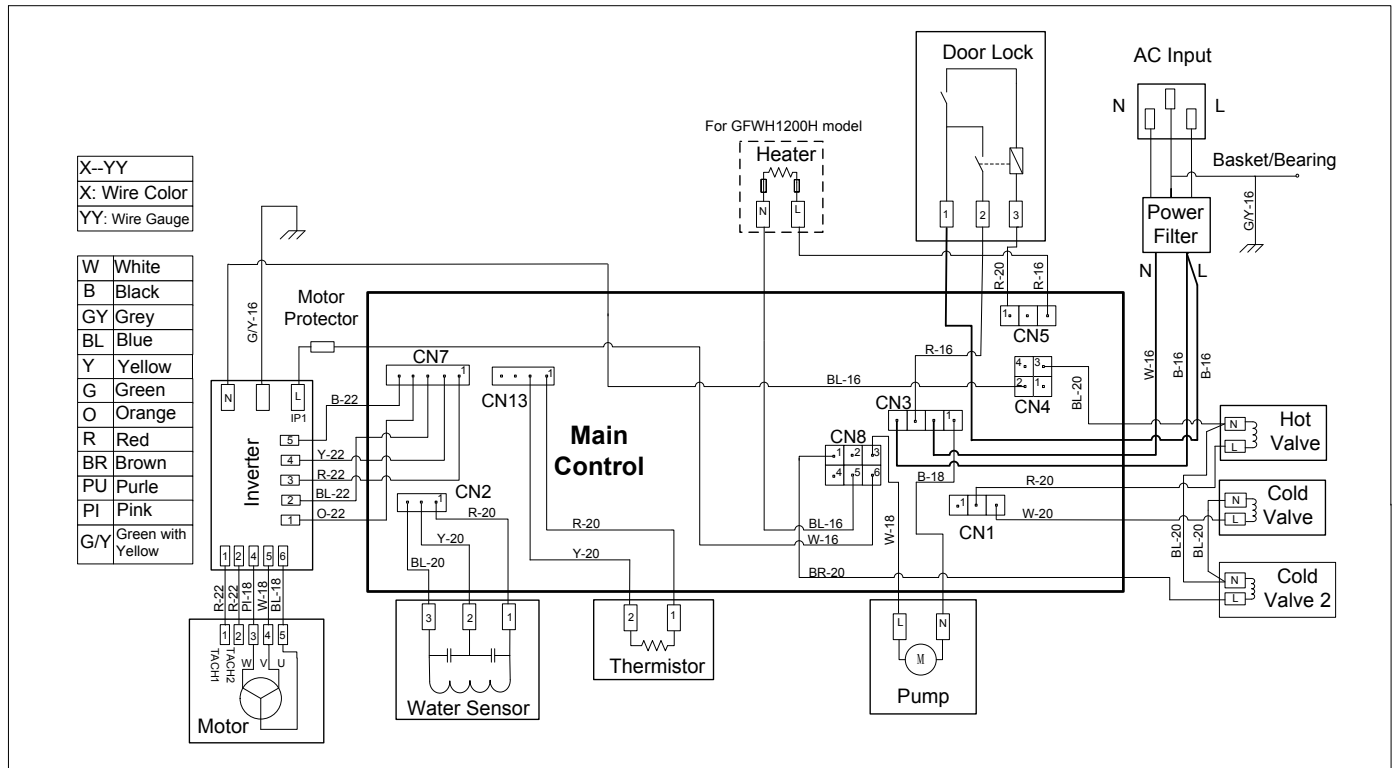
4. Press the Power key to reset the control.

**Note:** If an error is made in programming the control, enter test mode and select t01. Then repeat steps 2 through 4.

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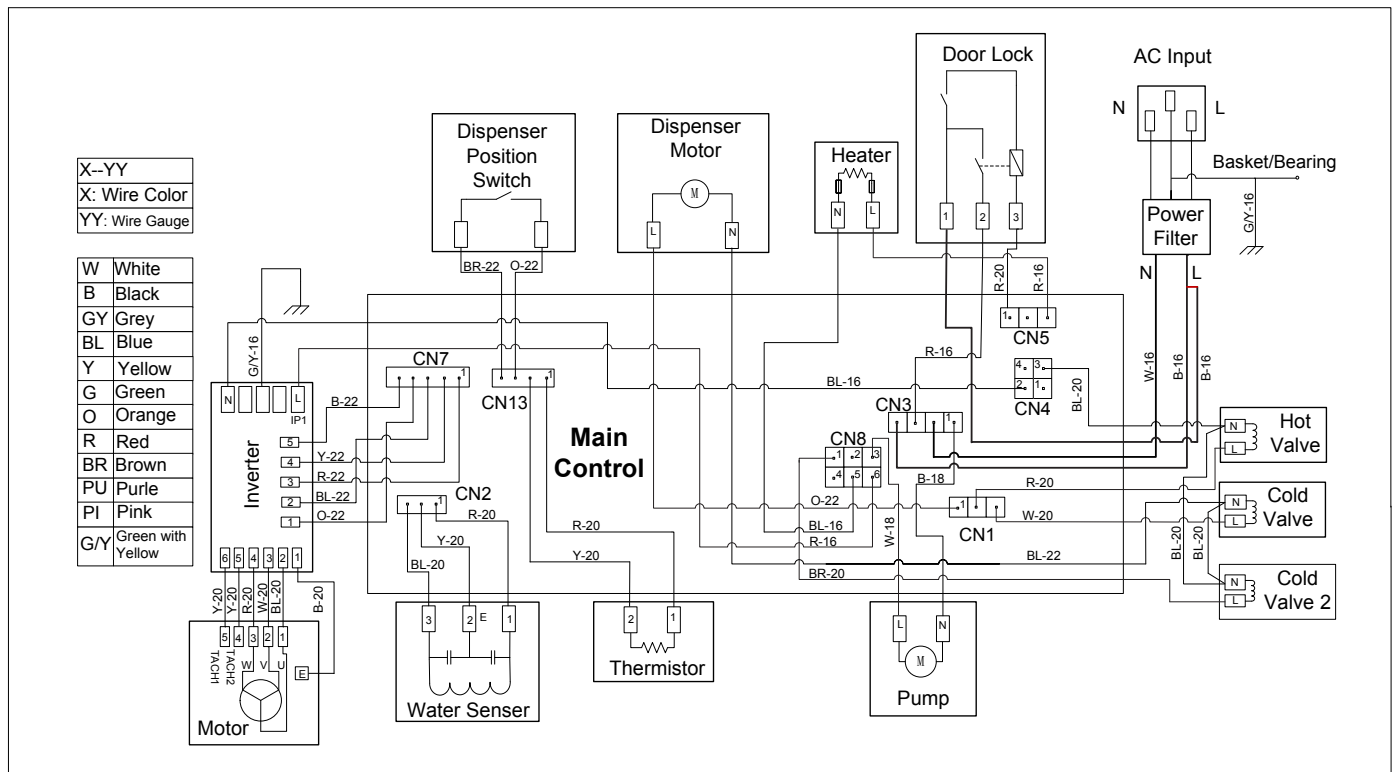
## WIRE DRAWING

For models GFWN1100, GFWH1200, GFWN1300J and GFWN1600J



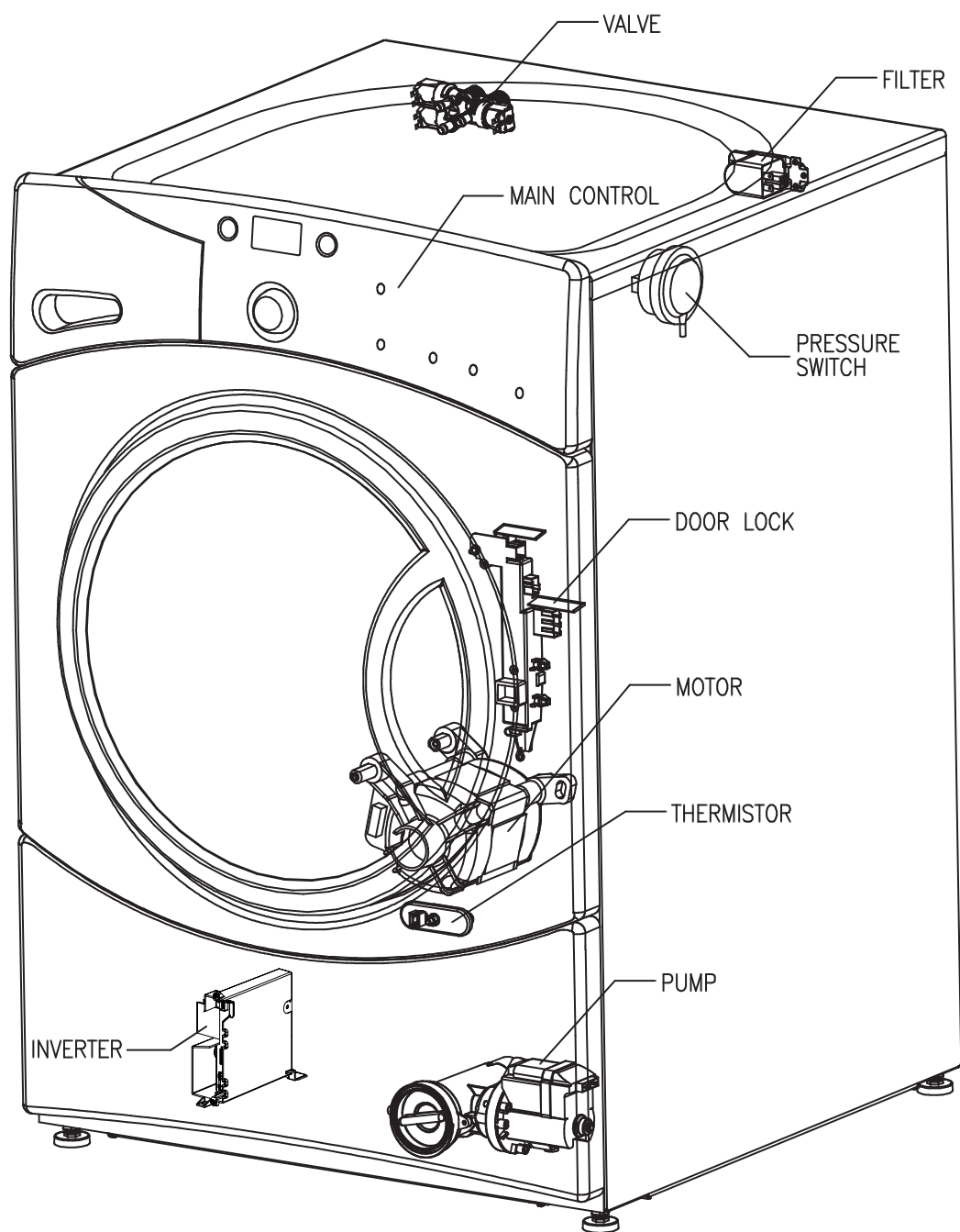
## WIRE DRAWING

For models GFWS1700 and GFWS1705



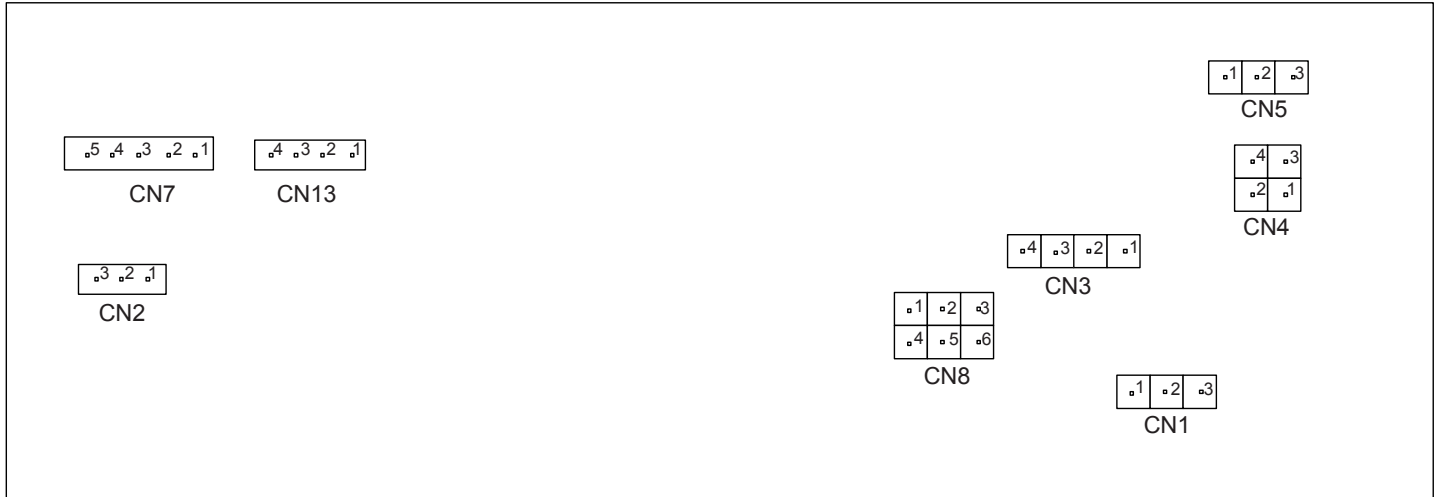
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SYSTEM DRAWING



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### CONTROL BOARD CONNECTOR LOCATIONS



### SERVICE MODE

**To Enter:** Alternately press **Temp - Delay Wash** (within 30 seconds of plugging in washer).

**To Exit:** Repeat press **Power**.

### TEST LIST

- "t01"** **Model ID**  
Verifies (or sets on new board) the proper model id
- "t02"** **Error Codes**  
Lists up to 10 control-detected problems
- "t03"** **Software ID**  
Verifies using latest UL code - control - inverter software
- "t04"** **Exercise LCD/LEDs**  
Verifies that all the displays and buttons work
- "t05"** **Pump Test**  
Test drain-out pump
- "t06"** **Water Level Sensor Test**  
Fills to all 3 levels, then pumps out water
- "t07"** **Thermistor/Heater Test**  
Verifies that both the thermistor and heater work
- "t08"** **Steam Test**  
Verifies steam function
- "t09"** **Spray Rinse Test**  
Verifies spray rinse valve
- "t10"** **Tumble Test**  
Verifies washer tumbles (i.e. **Wash** cycle)
- "t11"** **Spin Test**  
Verifies washer spins
- "t12"** **Dispenser Test**  
Verifies dispenser fill works—for all four fill modes
- "t13"** **EOL Test**  
Performs end-of-line test sequence

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## DETAILS FUNCTION

	Requirement		Sequence
t01	none	<b>Start</b>	Displays “---” if new board (to set model id, rotate knob until desired id is displayed, press and hold <b>Start</b> key to program this model)
		<b>Power</b>	Returns to “t01”
t02	none	<b>Start</b>	Displays most recent error code (E00=none)
		<b>Rotate the knob</b>	Displays previous error code (up to previous 10)
		<b>Hold start</b>	Clear all error codes (and then displays E00)
		<b>Power</b>	Returns to “t02”
t03	none	<b>Start</b>	Alternate “UL” and UL software version
		<b>Start</b>	Alternate “cod” and Control Software version
		<b>Start</b>	Alternate “Inv” and Inverter Software version
		<b>Power</b>	Returns to “t03”
t04	none	<b>Start</b>	Loops on lighting LED’s, LCD, and cycle ids
		<b>Any button</b>	Beeps when depressed
		<b>Power</b>	Returns to “t04”
t05	none	<b>Start</b>	Displays “P” and pump for 60 seconds
		<b>Power</b>	Returns to “t05”
t06	none	<b>Start</b>	The control will display “water level frequency”. The water level frequency continues updating on the 7-segment display until reaches wash 1 level.
		<b>Start</b>	Fill, until reaches wash 2 level
		<b>Start</b>	Fill, until reaches overflow level
		<b>Power</b>	Returns to “t06”
t07	water pressure sensor must work	<b>Start</b>	For GFWN1100, GFWN1300J and GFWN1600J models only: Displays temperature in °F, turns on cold water until the wash 1 level is reached. For GFWH1200, GFWS1700 and GFWS1705 models: Displays temperature in °F, turns on cold water and fills the tub until the wash 1 level is reached. Then turns on heater for a maximum of 5 minutes.
		<b>Power</b>	Pumps out water and returns to “t07”
t08	none	<b>Start</b>	Displays “StE”. The control will turn on the steam water valve and fill the tub until the wash 1 level is reached. The heater will then be turned on for a maximum of 1 minute (only for GFWS1700 and GFWS1705 models).
		<b>Power</b>	Turns off the heater and returns to “t08”
t09	none	<b>Start</b>	For GFWS1700 and GFWS1705 models only: Displays “SPr”. The control will turn on the spray water valve and drain pump, and spin at 92 RPM for 3 minutes.
		<b>Power</b>	For GFWS1700 and GFWS1705 models only: Turns off the spray water valve and drain pump, stops spinning and back to T09.
t10	none	<b>Start</b>	Displays “tt” and tumbles tub alternating the direction every 5 seconds
		<b>Power</b>	Stops tumbling and returns to “t10”
t11	none	<b>Start</b>	Spins to 400 RPM displaying increasing RPM
		<b>Start</b>	For GFWN1100, GFWH1200, GFWN1300J and GFWN1600J models only: Spins to 1100RPM (displays “B00”) For GFWS1700 and GFWS1705 models only: Spins to 1300RPM (displays “D00”)
		<b>Power</b>	Stops spinning and returns to “t11” until it stops
t12	none	<b>Start</b>	For GFWN1100, GFWH1200, GFWN1300J and GFWN1600J models only: Start - Displays “ddt” and turns on HV to fill detergent compartment. Start - Displays “bdt” and turns on CV2 to fill bleach compartment Start - Displays “Fdt” and turns on CV1 and CV2 to fill softener compartment Start - Displays “Hct” and turns on CV1 and HV to fill detergent compartment
		<b>Start</b>	For GFWS1700 and GFWS1705 models only: Start - Displays “pdt” and turns on HV to fill pre-wash compartment. Start - Displays “ddt” and turns on HV to fill main dispensing compartment Start - Displays “bdt” and turns on CV to fill bleach compartment Start - Displays “Fdt” and turns on CV to fill softener compartment
		<b>Power</b>	Pumps out water and returns to “t12”
t13	none	<b>Start</b>	Starts EOL test sequence (NOT used in repair)
		<b>Power</b>	Returns to “t13”

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### TROUBLESHOOTING CHART

Code(s)	Description	Action
22, 23	Fill problems	<ul style="list-style-type: none"> <li>• Ensure manual water valves are fully open.</li> <li>• Check if water strainers on solenoid valve assembly are clogged.</li> <li>• Check for obstructions inside inlet water hoses.</li> <li>• Ensure solenoid valves do not leak when the valves are de-energized and the washer is powered down.</li> <li>• Measure coil resistance for both valves; if outside range (1000–1250 ohms at room temp.), replace solenoid valve assembly.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM, OR FOR ERROR CODE 23:</p> <ul style="list-style-type: none"> <li>• Replace solenoid valve assembly.</li> </ul>
31	Drain problems	<ul style="list-style-type: none"> <li>• Ensure pump strainer is clean and free of debris.</li> <li>• Check for obstruction inside the drain hose.</li> <li>• Check pump impeller blades and bearing; if evidence of blade damage or seized bearings are present, replace the pump.</li> <li>• Check electrical connections at the pump motor and harness.</li> <li>• Measure pump motor resistance; if outside range (9–14 ohms at room temp.) replace the pump.</li> </ul>
38, 39	Dispenser problems	<ul style="list-style-type: none"> <li>• Check for obstruction in dispenser mechanism and linkages.</li> <li>• Check electrical connections at dispenser motor feedback switch and in the harness.</li> <li>• Check electrical connections of water valves in the harness.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM:</p> <ul style="list-style-type: none"> <li>• Replace dispenser motor assembly.</li> </ul>
42, 45, 46, 47, 48	Motor Drive operation above design limits	<ul style="list-style-type: none"> <li>• Ensure all 4 shipping bolts have been properly removed.</li> <li>• Remove all foreign objects that may be lodged between inner and outer basket.</li> <li>• Look for signs of seized bearing(s) on basket and drum motor, replace components as necessary.</li> <li>• Inspect condition and mounting of door gasket, replace and re-mount as necessary.</li> <li>• Ensure inner basket (drum) can rotate freely.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM:</p> <ul style="list-style-type: none"> <li>• Replace motor drive or drum motor.</li> </ul>
4A, 4B, 4C, 50, 52, 54	Motor Drive internal problems	<ul style="list-style-type: none"> <li>• Measure AC outlet voltage, ensure correct range (102V to 132V AC).</li> <li>• Check electrical connections at the drum motor, motor drive.</li> <li>• Check harness integrity between main control and motor drive.</li> <li>• Unplug the unit, wait 30 seconds, restart the unit.</li> <li>• If the fault persists and re-appears – replace the motor drive.</li> </ul>
56	Main Control internal problems	<ul style="list-style-type: none"> <li>• Replace the main control.</li> </ul>
57, 58,	Main Control internal problems	<ul style="list-style-type: none"> <li>• Unplug the unit, wait 30 seconds, re-start the unit.</li> <li>• If the fault persists and re-appears – replace the main control.</li> </ul>
60, 61 63, 64,	DOOR LOCK assembly problems	<ul style="list-style-type: none"> <li>• Check integrity of wiring and connections between main control and DOOR LOCK mechanism.</li> <li>• Investigate DOOR LOCK mechanism, check door microswitch operation, lock and unlock solenoid continuity, contact integrity; replace DOOR LOCK mechanism if necessary.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM:</p> <ul style="list-style-type: none"> <li>• Replace the main control.</li> </ul>
65	Water Level Sensor problems	<ul style="list-style-type: none"> <li>• Check integrity of wiring and connections between main control and Water Level Sensor.</li> <li>• Check integrity of Water Level Sensor, replace if necessary.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM:</p> <ul style="list-style-type: none"> <li>• Replace the main control.</li> </ul>
66, 67	Water Temperature Sensor problems	<ul style="list-style-type: none"> <li>• Check integrity of wiring and connections between main control and Thermistor Assembly.</li> <li>• Using ohmmeter, measure Thermistor resistance; if outside expected range, replace Thermistor Assembly.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM:</p> <ul style="list-style-type: none"> <li>• Replace the main control.</li> </ul>
62	System Contact Failure	<ul style="list-style-type: none"> <li>• Check integrity of wiring and connections, look for insulation breakdown and short circuit conditions on the harness, replace harness if necessary.</li> <li>• Check integrity and electrical connections of all loads (heater, pump, pressure switch, door lock, solenoid valves, dispenser motor), replace respective components if necessary.</li> </ul> <p>IF ABOVE STEPS DO NOT CLEAR THE PROBLEM:</p> <ul style="list-style-type: none"> <li>• Replace the main control.</li> </ul>

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**MODEL NUMBERS**

GFWN1100

GFWH1200

GFWN1300

GFWN1600

GFWS1700

GFWS1705

**31-16873-1**

04-15 GE

*Printed in China*