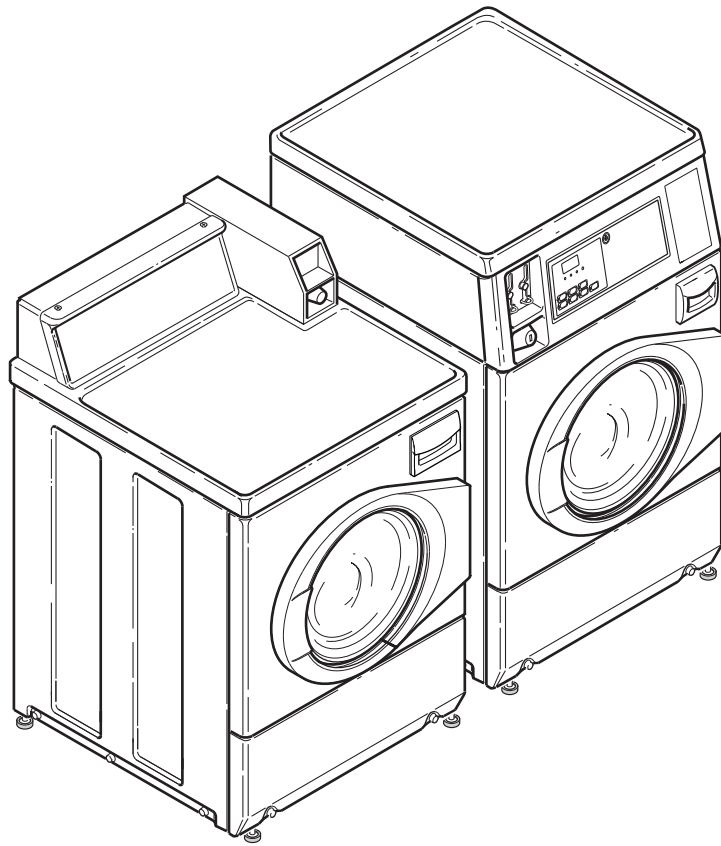


# Commercial Frontload Washers

Refer to Page 5 for Model Numbers



FLW1551C

— Troubleshooting —

[www.groupdynamics-laundry.com](http://www.groupdynamics-laundry.com)  
[sales@groupdynamics.lv](mailto:sales@groupdynamics.lv)

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# Section 1

## Safety Information

Throughout this manual and on machine decals, you will find precautionary statements (“CAUTION,” “WARNING” and “DANGER”) followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer, and those maintaining the machine.

### **▲ DANGER**

Danger indicates an imminently hazardous situation that, if not avoided, will cause severe personal injury or death.

### **▲ WARNING**

Warning indicates a hazardous situation that, if not avoided, could cause severe personal injury or death.

### **▲ CAUTION**

Caution indicates a hazardous situation that, if not avoided, may cause minor or moderate personal injury or property damage.

Additional precautionary statements (“IMPORTANT” and “NOTE”) are followed by specific instructions.


### **IMPORTANT**

The word “IMPORTANT” is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

### **NOTE**

The word “NOTE” is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.

In the interest of safety, some general precautions relating to the operation of this machine follow.

	<b>WARNING</b>
<ul style="list-style-type: none"><li>• <b>Failure to install, maintain and/or operate this product according to the manufacturer’s instructions may result in conditions which can produce serious injury, death and/or property damage.</b></li><li>• <b>Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and unless you understand and have the skills to carry out the servicing.</b></li><li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury or death.</b></li></ul>	
<small>W006R2</small>	



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

W485



## WARNING

Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you, or the inexperienced person making such repairs, to the risk of serious injury, electrical shock, or death.

W007



## WARNING

If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.

W008

**NOTE: The WARNINGS and IMPORTANT INSTRUCTIONS appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when installing, maintaining or operating the washer.**

Always contact your dealer, distributor, service agent or the manufacturer about any problems or conditions you do not understand.

### Locating an Authorized Servicer

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

Warranty service must be performed by an authorized technician, using authorized factory parts. If service is required after the warranty expires, Alliance Laundry Systems also recommends contacting an authorized technician and using authorized factory parts.

# Section 2

## Introduction

### Customer Service

If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name and address of the nearest authorized parts distributor.

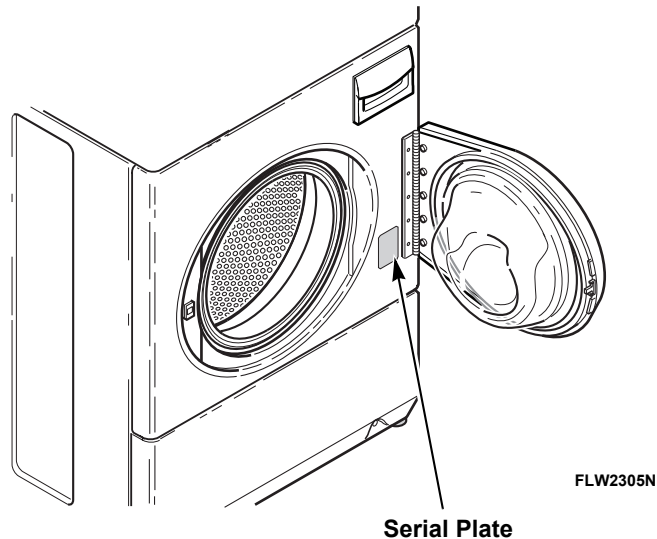
For technical assistance, call either of the numbers listed below:

(920) 748-3121 Ripon, Wisconsin

+32 56 41 20 54 Wevelgem, Belgium

### Serial Plate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on Serial Plate as shown.



## Model Identification

Information in this manual is applicable to these washers.

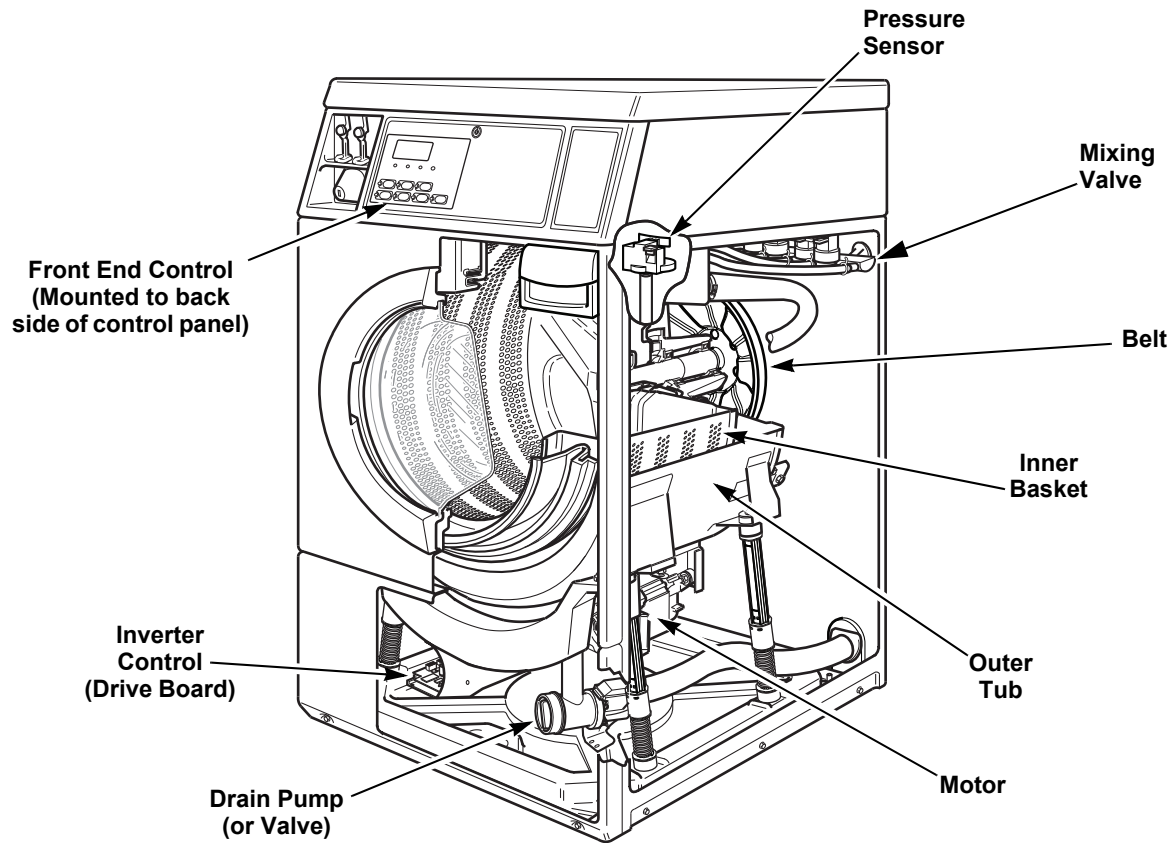
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**Introduction**

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PF3JXASG403UG06	SFNBXASP123DW01	SFNNYASP113TN01	STEWYASP173TW01
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## Theory of Operation



FLW1829S

### General

This frontload washer provides some of the same principles of operation as the typical topload washers. It senses water level, it dispenses the desired laundry detergent, agitates the clothes for good cleaning action, removes the water out of the washer and spins the clothing in preparation for the dryer.

The difference in operation is primarily the rotational washing agitation created for the horizontal basket and drum. This agitation tumbles the clothes in a clockwise, pause, and counter-clockwise direction. This reversing tumbling action provides an efficient washing process and requires less laundry detergent and less water.

The cycle begins by locking the loading door after the vend is satisfied. The type of cycle and water temperature are determined by the appropriate pads on the electronic control.

The inner basket starts agitating during the wash water fill. A column of air is trapped in a pressure bulb and hose. The air pressure continues to increase as the inner basket fills with water with the pressure sensor monitoring the water level.

The agitate step tumbles the clothing in a clockwise direction for a period of time, pauses for a period of time and then tumbles the clothing in a counterclockwise direction for a period of time. This agitation continues until the end of the wash cycle. The machine then stops agitating and turns on the pump or drain valve which removes the wash water.

Upon completion of the wash cycle, the machine goes into a rinse cycle. Fresh cold water is brought into the inner basket via the mixing valve until the fill level is satisfied. The rinse cycle consists of agitation for a predetermined amount of time then a spin mode with the pump running where the machine goes into a series of spins.

After all the rinse cycles have been completed, the washer goes into a final spin cycle to extract as much water as possible from the clothing to prepare them for the dryer. The spin speeds and duration of this final spin cycle are determined by the type of wash cycle selected.

## Introduction

**NOTE: Washer may not reach 1200 RPM because of an out-of-balance condition. Control may limit speed to 1000, 800, 650 or 500 RPM depending on severity of out-of-balance condition.**

## Technical

The basic operational system of this washer consists of the electronic control, the inverter control, pressure sensor, water valves, electric pump (or drain valve) and A.C. motor.

The electronic control performs all control and timing functions. The electronic control sends simple speed and output commands to the inverter control via serial communication. The drive control powers the door lock, pump (or drain valve), motor, water valves and heater (if equipped).

The drive control powers the A.C. motor and performs all motor control functions. The drive control also powers the water valves, dispenser valves and door lock. The drive control is powered through the door switch and electronic control. The drive control also alerts the electronic control to any errors in the motor.

Before entering any spin step the drive control measures out-of-balance. The drive control will try to redistribute the clothes if an out-of-balance condition exists by limiting the spin speed to several speeds depending on the severity of the out-of-balance condition. If the out-of-balance condition is severe enough the drive control will limit speed to 90 RPM and will not spin.

**NOTE: An additional out-of-balance switch is used to detect any out-of-balance condition during spins. If this switch opens during a spin step, the drive control immediately stops and then restarts the spin.**

# Section 3

## General Troubleshooting



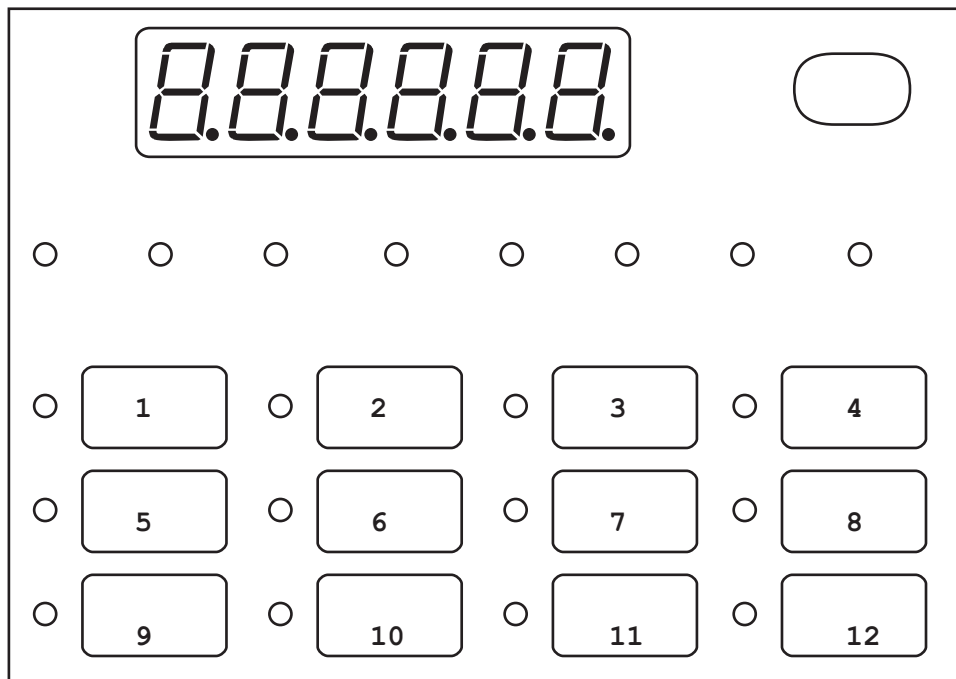
### WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.


W485

### 1. Keypad Combinations



FLW1796S

Figure 1

	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
W485	

Manual Programming and Test Mode Keys			
4 <sup>th</sup> character of the model number	“J”, “N”, “W”, “X”	“K”	“B”
Factory Test	Keypads 3 and 9	Keypads 3 and 9	Keypads 7 and 9
Clear Vend	Keypads 2 and 5	Keypads 2 and 5	Not Available
Audit Mode	Keypad 12 and Coin Vault Open	Keypad 8 and Coin Vault Open	Keypad 11 and Coin Vault Open
Manual Mode Keypads	Keypads 1 and 5	Keypads 1 and 5	Keypads 5 and 9
Break-in Key #1 Default	Keypad 2	Not Available	Not Available
Break-in Key #2 Default	Keypad 6	Not Available	Not Available
Drop Off Sequence Default	Keypad 1,2,3,5, 12	Not Available	Not Available
Drop Off Cancel Cycle keys	Keypad 5 and 6	Not Available	Not Available
Lock Out Sequence Default	Keypad 1,2,3,5, 12	Not Available	Not Available
OPL Cancel Keys	Keypad 5 and 6	Keypad 5 and 6	Keypad 5 and 6
Clear Fatal Error keys if enabled.	Keypad 5 and 6	Keypad 5 and 6	Keypad 5 and 6
Network Node Hold key	Keypad 6	Not Available	Not Available

Table 1

## 2. Dip Switch Settings

Dip switches are located on the top edge of control. Refer to *Figure 2*.

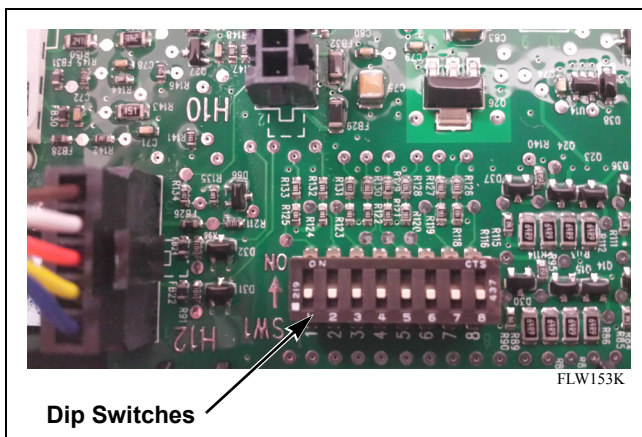



Figure 2

Switch No.	ON	OFF
1	240 Volt Operation	120 Volt Operation
3	Vended	Non-vended or OPL
7	Equipped with Electric Water Heater	No Heater Model
8	Gravity Drain Valve	Electric Drain Pump

Table 2

	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
W485	

### 3. Factory Test Procedure

It is helpful to run the Factor Test Procedure first to diagnose the machine's issue. This procedure tests all machine features and operations.

#### To Enter Factory Test Procedure

1. Be certain control is in Ready Mode or Start Mode and access panel or coin vault is open.
2. Enter Manual Mode. Refer to *Table 1*.

3. When the control enters the Factory Test Procedure, it will display the first test step, Machine Type.
4. The control will advance through the sequence of test steps whenever START (enter) is pressed, with the exception of the Keypad Test. Refer to *Table 3* for all tests in the Factory Test Procedure.

#### To Exit Factory Test Procedure

To exit a test step, press START (enter) unless otherwise noted in *Table 3*.

#### Factory Test Procedure Quick Reference Chart

Display	Test Mode	Comments
<i>FL</i>	Control Type	<i>FL</i> is the control type.
<i>SHHH</i>	Software Version Number	<i>HHH</i> is the control version number.
<i>RH</i>	Control Level	The control will display the control level where <i>H</i> is the level's number.
<i>drR</i> or <i>PURP</i>	Drain Type	The control will show <i>drR</i> if it is configured for a gravity drain. It will show <i>PURP</i> if it is configured as an electric pump machine. The control will remain in this mode until the Start keypad is pressed.
<i>HEAT</i>	Heater Installed	The control will show <i>HEAT</i> if it is configured for a Water Heater. The control will skip this step if it is not configured for a Water Heater. The control will remain in this mode until the Start keypad is pressed.
<i>u oP</i> or <i>u CL</i>	Coin Vault Test	<i>u oP</i> is displayed when coin vault switch is open. <i>u CL</i> is displayed when coin vault switch is closed.
<i>S oP</i> or <i>S CL</i>	Service Door Switch Test	<i>S oP</i> is displayed when service door switch is open. <i>S CL</i> is displayed when service door switch is closed.
<i>[H][H]</i>	Coin Drop Test	<i>H</i> is the number of coins entered. Coin drop #1 is shown on the left of the display and coin drop #2 is shown on the right of the display.

Table 3 (continued)


	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
W485	

Table 3 (continued)

Display	Test Mode	Comments
<i>CArd, LC5U or 5U</i>	Card Reader Test	<i>CArd</i> is displayed when a card reader is completed but not driving the display. <i>LC5U</i> is displayed when a programming/setup card is needed. <i>5U</i> is displayed when a programming/setup card was successful.
<i>PAHH</i>	Keypad Test	<i>HH</i> is the number of the keypad being pressed. You need to press all keypads to advance to the next step.
<i>BBBBBB</i>	Display Test	All LEDs and display segments will light.
<i>drOP or drCL</i>	Door Switch Test	<i>drOP</i> is displayed when loading door is open. <i>drCL</i> is displayed when loading door is closed.
<i>dbHH</i>	Driver Type and Driver Version Number	Driver board version display when <i>HH</i> is the driver software version number.
<i>drLO or drUL</i>	Door Lock Test	When step is entered, control will lock door and will then check to make sure door is locked. <i>drLO</i> is displayed if door is locked. <i>drUL</i> is displayed if door is unlocked.
<i>CLdE</i>	Cold/Detergent Fill	Cold Water Fill valve and Detergent/ Bleach valve are turned on.
<i>HoSF</i>	Hot/Softener Fill	Hot Water Fill valve and Softener valve are turned on.
<i>PrSr</i>	Pressure Sensor Fill	This step checks the water level input. The cold and hot water valves are on. When the Water Fill Level is satisfied, the water valves are turned off. If the Start key is pressed and the Water Fill level is not satisfied, the control will not advance to the next cycle step.
<i>oFLo</i>	Overflow Test	All water and dispenser valves are turned on. When the overflow level is reached the water valves are turned off. If the START (enter) key is pressed and the Water Fill level is not satisfied, the control will not advance to the next cycle step.
<i>LoAG</i>	Low Agitate	Machine enters low agitate.
<i>rEAG</i>	Regular Agitate	Machine enters regular agitate.
<i>PUnP or drA i</i>	Pump/Gravity Drain Test	Pump is turned on or gravity drain is opened. The control will not advance to next step until drum is empty.
RPM speed displayed <i>HHHH</i>	Spin Test	Machine will attempt to spin up to 1200 RPMs.

Table 3 (continued)


	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
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Table 3 (continued)

Display	Test Mode	Comments
<i>brAY</i>	Breakaway	Motor runs at Breakaway Agitate speed. When door unlocks, open door to exit test. Start keypad must be pressed three times to advance to next step. First press turns off water, second press stops motor and third press unlocks the door.
<i>Pd</i>	Power Down	This is the final step of Factory Test. The control will display <i>Pd</i> to signify that factory test has been completed and that the user can safely unplug the machine. Cycling power to the machine is the only way to resume normal operation and the control will stay in this state indefinitely until that time.

Table 3



## WARNING

- To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the washer before servicing.**
  - **Never start the washer with any guards/panels removed.**
  - **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
  - **Motor not grounded! Disconnect electric power before servicing motor.**

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### 4. Diagnostic Tests

This feature allows the owner to run diagnostic tests on various washer operations without servicing the washer. Refer to *Table 4*.

#### How to Enter Testing Feature

1. Control must be in Manual Mode. Refer to *How to Enter the Manual Mode*.
2. Press the up arrow keypad (  $\wedge$  ) or the down arrow keypad (  $\vee$  ) to scroll through the programmable options until *d1 P9* appears in the display.
3. Press the START (enter) keypad. Display will change to *d 1* indicating the control software version number test.

4. Press the up arrow keypad (  $\wedge$  ) or the down arrow keypad (  $\vee$  ) to scroll through the diagnostic test options.

#### How to Start Tests

1. To start a diagnostic test, refer to the quick reference chart below.
2. Press the START (enter) keypad when the desired test number is displayed. For detailed information on each test, read the appropriate description.

#### How to Exit Testing Feature

Press the back arrow (  $\leftarrow$  ) keypad until the display returns to the previous mode of operation.

#### Diagnostic (Testing) Mode – Quick Reference Chart

Test Number	Diagnostic Mode	Display
<i>d 1</i>	Control Software Version # Test	<i>S HHH</i>
<i>d 3</i>	Driver Board #1 Software Version Test	<i>db HHH</i>
<i>d 7</i>	Water Level Trim Test	<i>tr iHHH</i>
<i>d 8</i>	Service Door Opening Test	<i>S oP</i> or <i>S [L</i>
<i>d 9</i>	Coin Vault Opening Test	<i>u oP</i> or <i>u [L</i>
<i>d 10</i>	Coin Drop #1 Input Test	<i>[1 HH</i>
<i>d 11</i>	Coin Drop #2 Input Test	<i>[2 HH</i>
<i>d 12</i>	Vend Header Present Status Test	<i>[H oP</i> (Open) or <i>[H [L</i> (Closed)
<i>d 13</i>	Start Pulse Test	<i>St HH</i>
<i>d 15</i>	Door Switch Input Test	<i>dr oP</i> , <i>dr [L</i>
<i>d 16</i>	Door Lock Input Test	<i>[LoSE door</i>
<i>d 17</i>	Show Fill Time Test	<i>FL HHH</i>
<i>d 18</i>	Show Drain Time Test	<i>dr HHH</i>
<i>d 19</i>	Temperature Sensor Display Test	<i>HHHF</i> , <i>HHHL</i> , <i>SHort</i> or <i>oPEn</i>

Table 4 (continued)




	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
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Table 4 (continued)

Test Number	Diagnostic Mode	Display
d 22	Out of Balance Switch Input Test	bA aP or bA CL
d 23	External Output Test	ES H or ES Hon
d 24	Water Purge Test	CLoSE, door, PURGE or FLUSH
d 25	Water Leak Detection Test	PASS, E Ld, E LF or Ld CLoSE_ door
d 26	Water Level Test	L HHH or L HHH.
d 27	DC Bus Voltage Test	HHH.H
d 28	AC Mains Voltage Test	HHH.H
d 29	Machine Configuration #1 Display Test	A HHH
d 30	Machine Configuration #2 Display Test	b HHH
d 31	Machine Configuration #3 Display Test	C HHH
d 32	Machine Configuration #4 Display Test	d HHH
d 33	Machine Configuration #5 Display Test	E HHH

Table 4

## Diagnostic Test Descriptions

### Control Software Version Number Test d 1

This option displays the control software version number. To start test, control must be in the testing mode. Refer to *How to Enter the Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show 5 HHH where HH is the software version number.

To exit the Software Version Number Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Drive Board #1 Software Version Test d 3

This option displays the drive board software version number. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show db HHH where HH is the software version number.

To exit the Drive Board #1 Version Test, press the back arrow (<) keypad. The control will return to the Testing Mode.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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### Water Level Trim Test $d \ 7$

This test checks the water level trim value. To start test, control must be in the Testing Mode.

Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $E \ \text{---} \ \text{HH}$  where  $\text{HH}$  is the trim value in 0.1 inch precision where a value of 05 would equal 0.5 inches.

If the right most decimal point is lit, the trim value is negative.

To exit the Water Level Trim Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Service Door Opening Test $d \ 8$

This option tests the service door switch. To start test, control must be in the Testing Mode.

Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $5 \ \text{---} \ \text{HH}$  when the service door switch is open and  $5 \ \text{---} \ \text{LL}$  when the service door switch is closed.

The service door switch has to be closed for at least one second and opened for at least one second for the display to change. This test will add a count to the service door opening counter for the audit and save the date/time for each opening.

To exit the Service Door Opening Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Coin Vault Opening Test $d \ 9$

This option tests the coin vault switch. To start test, the control must be in the Testing Mode.

Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $\text{---} \ \text{---} \ \text{P}$  when the coin vault switch is open and  $\text{---} \ \text{---} \ \text{L}$  when the coin vault switch is closed.

The coin vault switch has to be closed for at least one second and opened for at least one second for the display to change. This test will add a count to the coin vault opening counter for the audit and save the time/date for each opening.

To exit the Coin Vault Opening Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Coin Drop 1 Input Test $d \ 10$

This option tests coin drop #1. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $\text{---} \ \text{---} \ \text{HH}$ . The  $\text{HH}$  will show the number of coins entered and will increment one for each coin entered in coin drop #1.

**NOTE: Coins entered in test mode will not increment the total # of coins counter that is accessed in the audit feature.**

To exit the Coin Drop #1 Input Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Coin Drop 2 Input Test $d \ 11$

This option tests coin drop #2. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $\text{---} \ \text{---} \ \text{HH}$ . The  $\text{HH}$  will show the number of coins entered and will increment one for each coin entered in coin drop #2.

**NOTE: Coins entered in test mode will not increment the total # of coins counter that is accessed in the audit feature.**

To exit the Coin Drop #2 Input Test, press the back arrow (<) keypad. The control will return to the Testing Mode.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
- **Motor not grounded! Disconnect electric power before servicing motor.**

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### Vend Connection Header Present Test d 12

This option tests the vend header connection. To start test, control must be in Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $\square H \square P$  when the wiring connection is open and  $\square H \square L$  when the connection is closed.

To exit Vend Connection Header Present Test, press the back arrow (<) keypad. The control will return to the Testing

### Start Pulse Test d 13

This option tests the Start Pulse. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $5E \ HH$ . The  $HH$  will show the number of pulses entered. This test to Collecting Audit Information.

To exit the Start Pulse Test, press the back arrow (<) keypad.

The control will return to the Testing Mode.

### Door Switch Input Test d 15

This test will display whether the washer door is open or closed.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. If the door is closed, the display will show  $d r \square L$ . If the door is open, the display will show  $d r \square P$ .

To exit the test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Door Lock Input Test d 16

This test will display whether the door is locked or unlocked.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, close the door and press the START (enter) keypad.

The control will lock the door. If the door is open, the display will show  $\square L \square 5E$  and door. The door must be closed to enter test.

If the door is unlocked, the display will show  $d r \square L$ . After the door is locked, the display shows  $d r \square L$  and 5 seconds later the door will unlock. This sequence is repeated every time the START (enter) keypad is pressed.

To exit the test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Show Fill Time Test d 17

This test will display the average fill time. This average will be calculated by taking the average of the last 10 fill times.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $F L \ H H H$ . The  $HHH$  will be the average fill time in seconds.

To exit the Show Fill Time Test, press the back arrow (<) keypad. The control will return to the Testing Mode.



## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**

- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
- **Motor not grounded! Disconnect electric power before servicing motor.**

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### Show Drain Time Test d 18

This test will display the average drain time. This average will be calculated by taking the average of the last 10 drain times.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show *d- HHH*. The *HHH* will be the average fill time in seconds.

To exit the Show Drain Time Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Temperature Sensor Display Test d 19

This test displays the temperature sensed at the thermistor. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show *HHHF* or *HHHC* where *HHH* is the temperature displayed in either Fahrenheit or Celsius.

If the control senses a shorted thermistor, *SHoRt* will be displayed.

If the control senses an open thermistor, *oPEn* will be displayed.

To exit the Temperature Sensor Display Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Out of Balance Switch Test d 22

This test displays whether the out of balance switch is open or closed. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show *bA oP* if the switch is open or *bA CL* if the switch is closed.

To exit the Out of Balance Switch Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### External Outputs Test d 23

This test will allow any one of the external outputs to be selected.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show *E5 H* where *H* is the output number. Press the up arrow keypad (Λ) or the down arrow keypad (V) to scroll through the outputs.

Press the START (enter) keypad to energize the selected external output. *E5 HoN* will be displayed. Press the START (enter) again or the back arrow (<) keypad to turn off the selected external output.

To exit the External Outputs Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

### Water Purge Test d 24

This test allows the user to test water removal from the machine.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show *PURGE* and the START (enter) keypad LED will flash. Begin the test by pressing START (enter). If the door is open, *CL oSE*, door will be displayed to prompt the user to close the loading door. When the START (enter) pad is pressed with the door closed, the door will lock and *FLUSH* will be displayed.

The control will energize all water valves and supply outputs while keeping the drain valves open or the pump energized. Press any keypad to end the test. The test will end automatically after 2 minutes. The door will unlock and the control will display *PURGE*.

To exit the Water Purge Test, press the back arrow (<) keypad.

The control will return to the Testing Mode.



## WARNING

**To reduce the risk of electric shock, fire, explosion, serious injury or death:**

- **Disconnect electric power to the washer before servicing.**
- **Never start the washer with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
- **Motor not grounded! Disconnect electric power before servicing motor.**

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### Water Leak Detection Test d 25

This test allows the user to check for water leaking from the machine.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $Ld$  and the START (enter) keypad LED will flash. Begin the test by pressing START (enter). If the door is open,  $LdSE$ , door will be displayed to prompt the user to close the loading door.

When the START (enter) pad is pressed with the door closed, the door will lock and the test will begin. With the drain valve closed or the pump off, the cold water valve will turn on until the Low water level is reached.

After a 10 second pause to allow the water pressure to stabilize, the control will record the current water level from the electronic water level sensing input and continue to monitor the water level for two minutes. The display will show a sequence of horizontal LED segments to indicate it is monitoring the water level.

After two minutes, the control will compare the ending water level with the level at the start. If the water level has dropped or raised, the display will show  $E Ld$  to signify a drain leak or  $E LF$  to signify a fill leak. If the water level has not dropped or raised, the display will show  $PASS$ .

Then the drain will open or the pump will turn on. When the water has been drained or pumped out of the machine, the control will unlock the door and display the result message. The error message is an indication to the machine owner that there should be service attention devoted to the fill valve or drain valve/pump on the machine to diagnose where the water leak is originating.

To stop the test while it is running, press the START (enter) keypad.

The test will stop, the machine will drain the water, unlock the door, and the control will go back to the beginning of the test sequence.

To exit the Water Leak Detection Test, press the back arrow ( $\leftarrow$ ) keypad. The control will return to the Testing Mode.

### Water Level Test d 26

This test displays the water level as determined by the water level sensor. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $L HHH$  where  $HHH$  is the water level in 0.1 inch precision where a value of 05 equals 0.5 inches. If the rightmost decimal point is lit, the value is negative.

To exit the Water Level Test, press the back arrow ( $\leftarrow$ ) keypad.

The control will return to the Testing Mode.

### DC Bus Voltage Test d 27

This will display the DC Bus Voltage. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $HHH.H$  which is the voltage in 0.1 Volt precision.

To exit the DC Bus Voltage Test, press the back arrow ( $\leftarrow$ ) keypad. The control will return to the Testing Mode.

### AC Mains Voltage Test d 28

This will display the AC Mains Voltage. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. The display will show  $HHH.H$  which is the voltage in 0.1 Volt precision.

To exit the AC Mains Voltage Test, press the back arrow ( $\leftarrow$ ) keypad. The control will return to the Testing Mode.



## WARNING

- To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the washer before servicing.**
  - **Never start the washer with any guards/panels removed.**
  - **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
  - **Motor not grounded! Disconnect electric power before servicing motor.**

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### Configuration 1 Display Test d 29

This option shows the machine configuration values. To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To enter, press the START (enter) keypad. For configuration value #1, the display will show *R HHH*. *HH* is a number corresponding to whether or not coin drops are connected, a card reader or network board are connected, or whether the life-test jumper is present. Refer to *Table 5*.

To exit a Configuration Display Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

Each column of the table below contains a unique combination of the words “YES” and “NO” that indicates if that column’s connection is present.

Configuration Value	Life Test Jumper Present	Comm Board "B" Header Present	Comm Board "A" Header Present	Vend Connection Present	Coin Drop #2 Present	Coin Drop #1 Present
0	NO	NO	NO	NO	NO	NO
1	NO	NO	NO	NO	NO	YES
2	NO	NO	NO	NO	YES	NO
3	NO	NO	NO	NO	YES	YES
4	NO	NO	NO	YES	NO	NO
5	NO	NO	NO	YES	NO	YES
6	NO	NO	NO	YES	YES	NO
7	NO	NO	NO	YES	YES	YES
8	NO	NO	YES	NO	NO	NO
9	NO	NO	YES	NO	NO	YES
10	NO	NO	YES	NO	YES	NO
11	NO	NO	YES	NO	YES	YES
12	NO	NO	YES	YES	NO	NO
13	NO	NO	YES	YES	NO	YES
14	NO	NO	YES	YES	YES	NO
15	NO	NO	YES	YES	YES	YES
16	NO	YES	NO	NO	NO	NO
17	NO	YES	NO	NO	NO	YES

Table 5 (continued)


	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
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Table 5 (continued)

Configuration Value	Life Test Jumper Present	Comm Board "B" Header Present	Comm Board "A" Header Present	Vend Connection Present	Coin Drop #2 Present	Coin Drop #1 Present
18	NO	YES	NO	NO	YES	NO
19	NO	YES	NO	NO	YES	YES
20	NO	YES	NO	YES	NO	NO
21	NO	YES	NO	YES	NO	YES
22	NO	YES	NO	YES	YES	NO
23	NO	YES	NO	YES	YES	YES
24	NO	YES	YES	NO	NO	NO
25	NO	YES	YES	NO	NO	YES
26	NO	YES	YES	NO	YES	NO
27	NO	YES	YES	NO	YES	YES
28	NO	YES	YES	YES	NO	NO
29	NO	YES	YES	YES	NO	YES
30	NO	YES	YES	YES	YES	NO
31	NO	YES	YES	YES	YES	YES
32	YES	NO	NO	NO	NO	NO
33	YES	NO	NO	NO	NO	YES
34	YES	NO	NO	NO	YES	NO
35	YES	NO	NO	NO	YES	YES
36	YES	NO	NO	YES	NO	NO
37	YES	NO	NO	YES	NO	YES
38	YES	NO	NO	YES	YES	NO
39	YES	NO	NO	YES	YES	YES
40	YES	NO	YES	NO	NO	NO
41	YES	NO	YES	NO	NO	YES
42	YES	NO	YES	NO	YES	NO
43	YES	NO	YES	NO	YES	YES

Table 5 (continued)



## WARNING

- To reduce the risk of electric shock, fire, explosion, serious injury or death:**
- **Disconnect electric power to the washer before servicing.**
  - **Never start the washer with any guards/panels removed.**
  - **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
  - **Motor not grounded! Disconnect electric power before servicing motor.**

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Table 5 (continued)

Configuration Value	Life Test Jumper Present	Comm Board "B" Header Present	Comm Board "A" Header Present	Vend Connection Present	Coin Drop #2 Present	Coin Drop #1 Present
44	YES	NO	YES	YES	NO	NO
45	YES	NO	YES	YES	NO	YES
46	YES	NO	YES	YES	YES	NO
47	YES	NO	YES	YES	YES	YES
48	YES	YES	NO	NO	NO	NO
49	YES	YES	NO	NO	NO	YES
50	YES	YES	NO	NO	YES	NO
51	YES	YES	NO	NO	YES	YES
52	YES	YES	NO	YES	NO	NO
53	YES	YES	NO	YES	NO	YES
54	YES	YES	NO	YES	YES	NO
55	YES	YES	NO	YES	YES	YES
56	YES	YES	YES	NO	NO	NO
57	YES	YES	YES	NO	NO	YES
58	YES	YES	YES	NO	YES	NO
60	YES	YES	YES	YES	NO	NO
59	YES	YES	YES	NO	YES	YES
61	YES	YES	YES	YES	NO	YES
62	YES	YES	YES	YES	YES	NO
63	YES	YES	YES	YES	YES	YES

Table 5


### Configuration 2 Display Test d 30

This option is not used on this model.

### Configuration 3 Display Test d 31

This option is not used on this model.



	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
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### Configuration 4 Display Test

This option shows the user which dipswitches are set on the control.

To start test, control must be in the Testing Mode. Refer to *How to Enter Testing Feature* at the beginning of this section.

To Enter, press the START (enter) keypad. The display will show *d HHH* with *HHH* representing a configuration value as shown in *Table 6*.

If supply voltage is 100-127 Volt per phase, the voltage configuration should be 120 Volt.

If supply voltage is 200-240 Volt per phase, the voltage configuration should be 240 Volt.

To exit Machine Configuration 4 Display Test, press the back arrow (<) keypad. The control will return to the Testing Mode.

Each column in the table below contains a unique combination of the words “ON” and “OFF” that indicates if that column’s dip-switch is set on or off when the value is displayed.

Configuration Value	Dipswitch 8 Pump (OFF) Gravity Drain (ON)	Dipswitch 7 Heater Disabled (OFF) Heater Enabled (ON)	Dipswitch 3 Payment System Not Present (OFF) Payment System Present (ON)	Dipswitch 2 Energy Cycle	Dipswitch 1 120 Volt Supply (OFF) 240 Volt Supply (ON)
0	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	ON	ON
4	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	ON	OFF	ON
6	OFF	OFF	ON	ON	OFF
7	OFF	OFF	ON	ON	ON
64	OFF	ON	OFF	OFF	OFF
65	OFF	ON	OFF	OFF	ON
66	OFF	ON	OFF	ON	OFF
67	OFF	ON	OFF	ON	ON
68	OFF	ON	ON	OFF	OFF
69	OFF	ON	ON	OFF	ON
70	OFF	ON	ON	ON	OFF
71	OFF	ON	ON	ON	ON
128	ON	OFF	OFF	OFF	OFF

Table 6 (continued)



## WARNING

- To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer before servicing.**
  - **Never start the washer with any guards/panels removed.**
  - **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.**
  - **Motor not grounded! Disconnect electric power before servicing motor.**

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Table 6 (continued)

Configuration Value	Dipswitch 8 Pump (OFF) Gravity Drain (ON)	Dipswitch 7 Heater Disabled (OFF) Heater Enabled (ON)	Dipswitch 3 Payment System Not Present (OFF) Payment System Present (ON)	Dipswitch 2 Energy Cycle	Dipswitch 1 120 Volt Supply (OFF) 240 Volt Supply (ON)
129	ON	OFF	OFF	OFF	ON
130	ON	OFF	OFF	ON	OFF
131	ON	OFF	OFF	ON	ON
132	ON	OFF	ON	OFF	OFF
133	ON	OFF	ON	OFF	ON
134	ON	OFF	ON	ON	OFF
135	ON	OFF	ON	ON	ON
192	ON	ON	OFF	OFF	OFF
193	ON	ON	OFF	OFF	ON
194	ON	ON	OFF	ON	OFF
195	ON	ON	OFF	ON	ON
196	ON	ON	ON	OFF	OFF
197	ON	ON	ON	OFF	ON
198	ON	ON	ON	ON	OFF
199	ON	ON	ON	ON	ON

Table 6

### Configuration 5 Display Test $\llcorner$ $\llcorner$

This option is not used on this model.



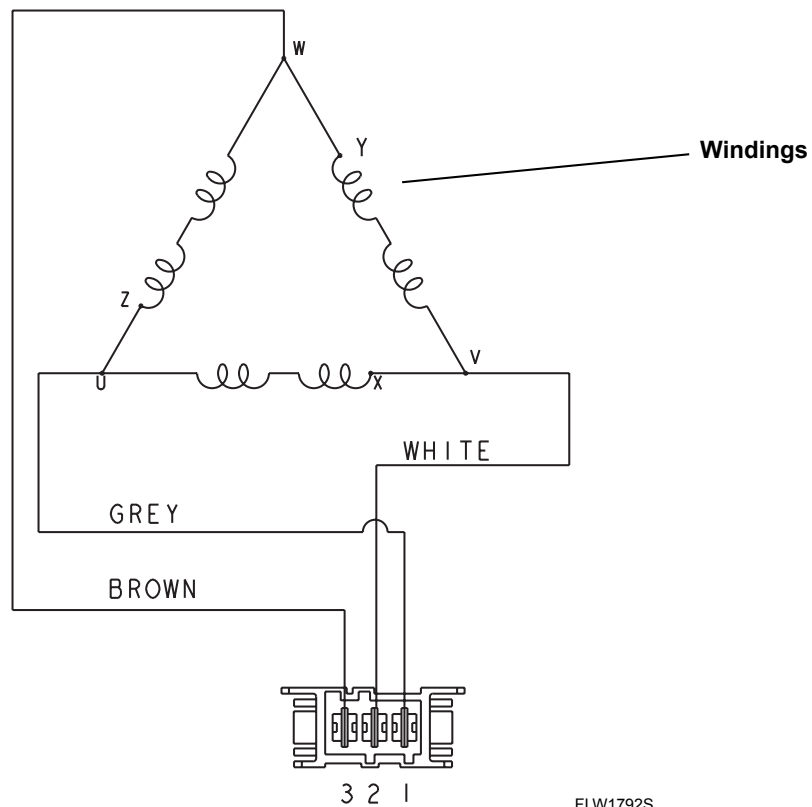
## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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## 5. Motor Circuit



### Windings Resistance:

Approx. 3.38 ohms



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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## 6. Troubleshooting Knocking Noise

If a frontload washer produces a noise similar to a knock on a door, it might be due to a flat spot on the belt. The knocking sound is made when the flat spot hits the pulley. The knocking may occur during a ramp spin and fade after reaching a higher RPM.

To correct this condition, replace the belt.

## 7. Troubleshooting Coin Drop

### a. Non-Electronic Coin Drops:

When coin is placed into coin slot, the coin should roll down drop and be heard dropping into coin vault. If coin does not fall into coin vault or if coin drop sensor does not register that coin has been entered, follow troubleshooting instructions on following page. Refer to *Figure 3* for path that coin follows when working properly.

**IMPORTANT:** Never use oil to correct coin drop problems. Oil residue will prevent coins from rolling properly.

**IMPORTANT:** Do not bend or damage mechanical parts within coin drop.

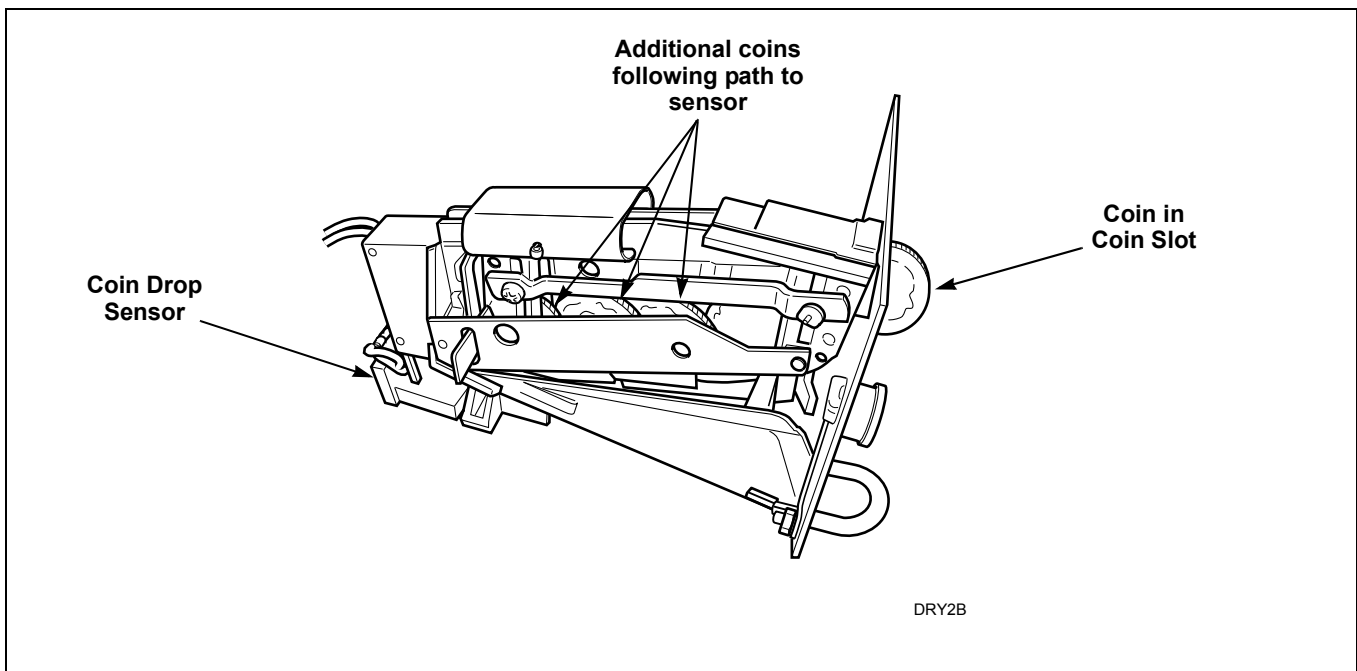


Figure 3



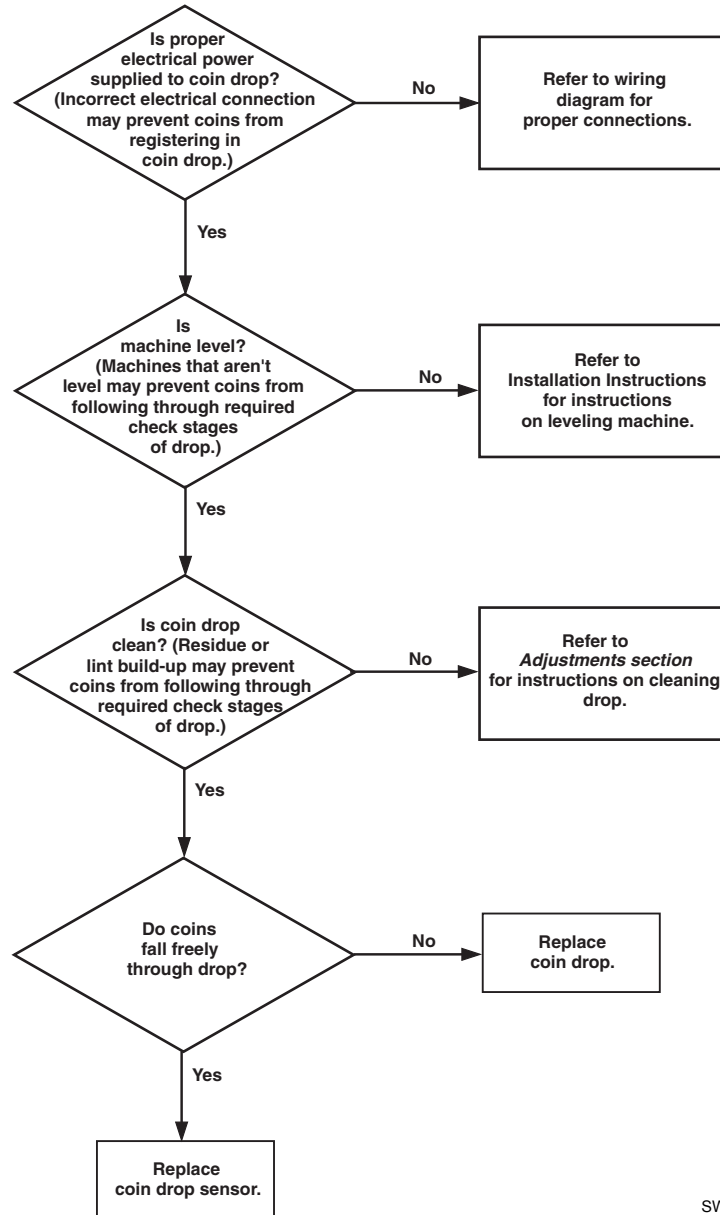
## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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## 7. Troubleshooting Coin Drop (continued)



SWD1714S

### b. Electronic Coin Drops:

If coin drop is not accepting coins, perform the following:

- (1) Clean coin drop. Refer to *Paragraph 32*.

- (2) On electronic coin drops with an old-style tension spring (shown in *Figure 4* and *Figure 6*), test and replace tension spring using the following instructions.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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### Remove Coin Drop From Machine

- (1) Disconnect electrical power to machine and drop.
- (2) Remove coin drop from machine.

### Test Tension Spring

- (1) Push coin return button to open and close coin drop cover to clear possible coin jams. Refer to *Figure 4*.

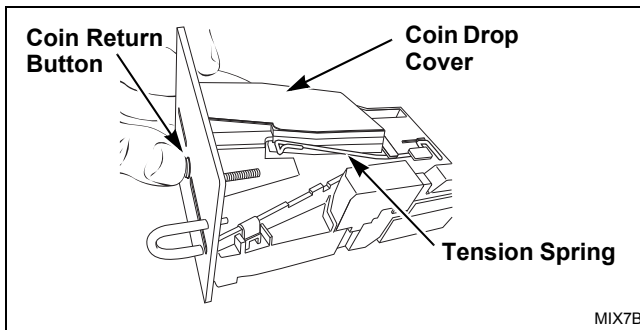


Figure 4

- (2) Manually hold down coin drop cover and insert coin. Refer to *Figure 5*.

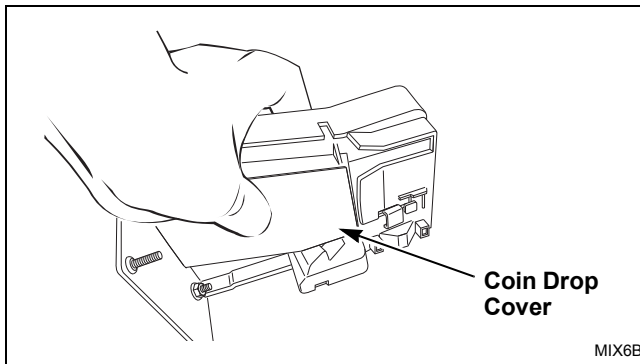


Figure 5

- (3) If coin drop now operates properly, replace tension spring using instructions on following pages.

### Replace Tension Spring

- (1) Move tension spring downward until cover catch is free. Refer to *Figure 6*.

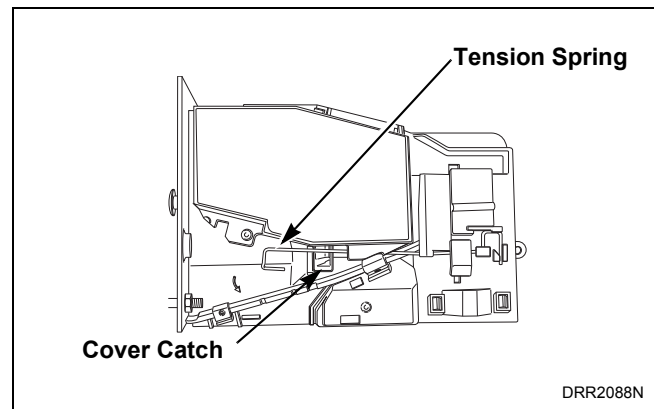


Figure 6

- (2) Open cover for coin drop.
- (3) Place a small flathead screwdriver under right side of tension spring and lift up. Refer to *Figure 7*.

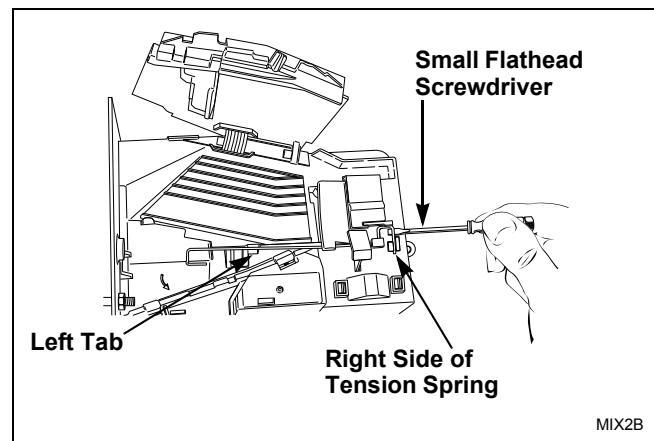


Figure 7

- (4) Use screwdriver to move spring approximately 3 mm to left.
- (5) Lift spring over left tab. Refer to *Figure 7*.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

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- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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- (6) Rotate spring clockwise, 40 to 60 degrees, until it is free from right tabs. Refer to *Figure 8*.

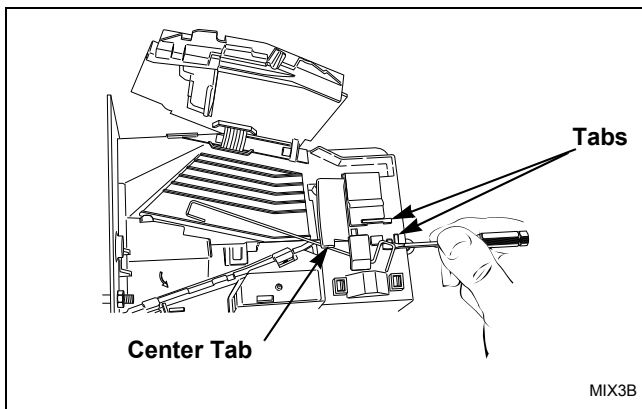


Figure 8

- (7) Use screwdriver to remove spring from center tab. Refer to *Figure 8*.  
(8) Lift spring, with attached clip, off drop.  
(9) Remove clip from spring. Refer to *Figure 9*.

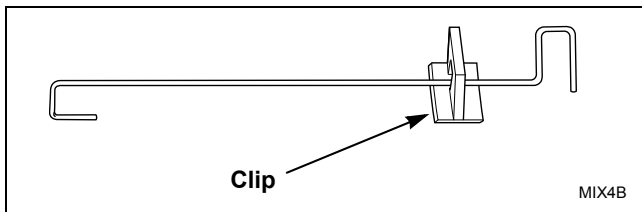


Figure 9

- (10) Attach clip to new tension spring, Part No. 209/00598/02.  
(11) Place clip, installed on spring, in slot on coin drop. Refer to *Figure 10*.

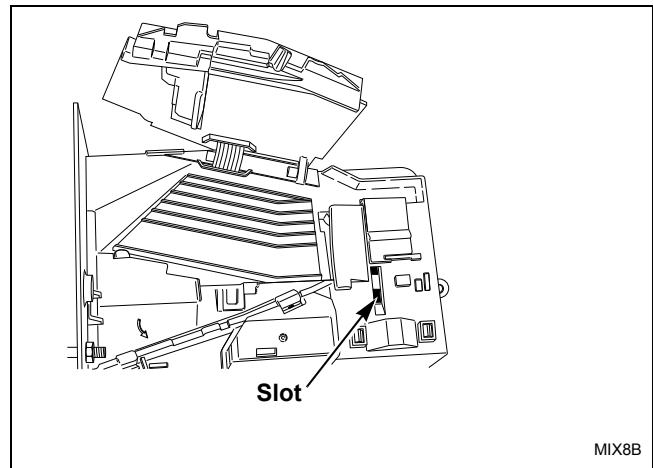


Figure 10

- (12) Use a small flathead screwdriver to push spring under center tab. Refer to *Figure 11*.

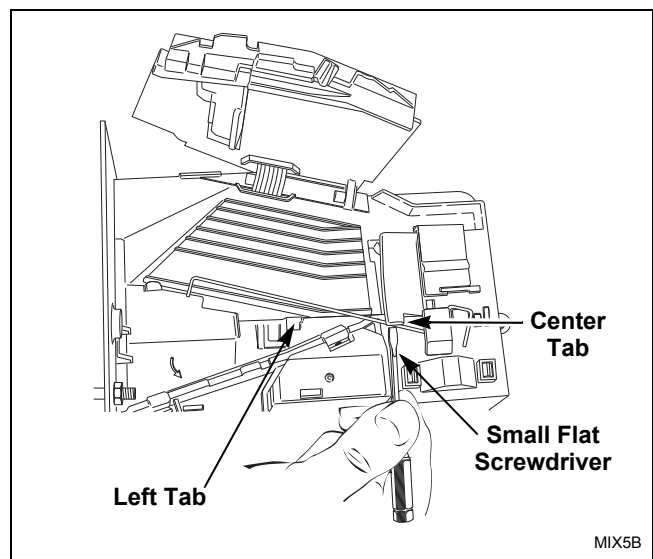


Figure 11

- (13) Lift spring gently to place in position under left tab.  
(14) Push spring to right until it snaps into position. Refer to *Figure 7*.  
(15) Close coin drop cover.  
(16) Move tension spring over cover catch. Refer to *Figure 6*.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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### Reinstall Coin Drop Into Machine

- (1) Reinstall coin drop into machine.
- (2) Reconnect electrical power to machine and drop.
- (3) Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

### 8. Explanation of LEDs on Drive Control

There are four LEDs on the control to assist with troubleshooting (refer to *Figure 12*):

1. Green LED on constant = 5VDC power supply present
2. Green LED flashing one second on/one second off = drive control is active
3. Red LED flashing = drive control is communicating with front end control
4. Red LED on constant = DC Bus Charged

**NOTE: Drive is only powered when door is closed and front end control turns it on.**

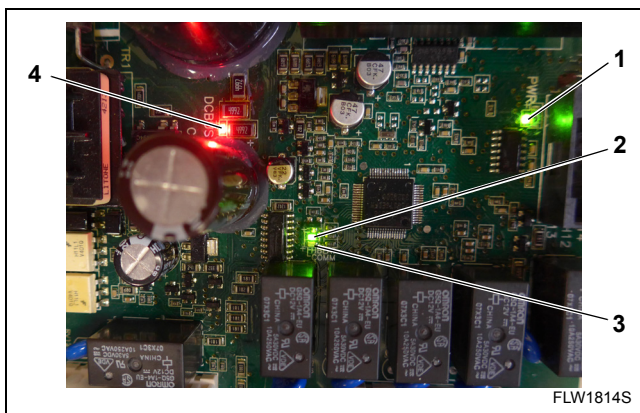


Figure 12

### 9. Door Fails to Unlock at End of Cycle

If the door won't unlock at the end of the cycle and the cycle time is flashing in the display, the water might be too hot to drain. Add a cool-down step to the cycle to make sure the water will be cooled.

### 10. No Spin

A no spin condition is not caused by intermittent operation of the motor or motor control (inverter assembly). **DO NOT** replace these components for no spin complaints if the unit passes the following procedure:





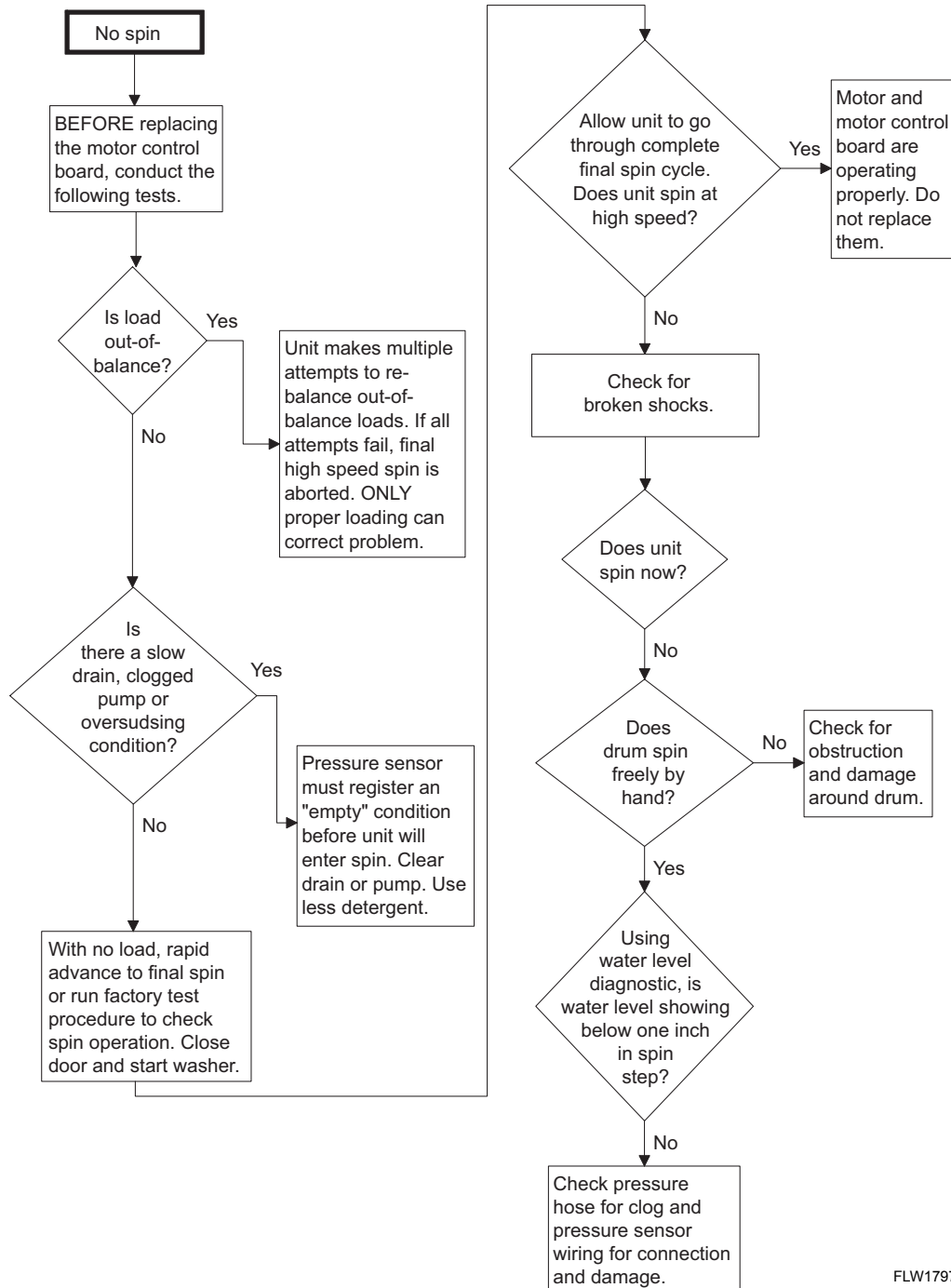
## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:


- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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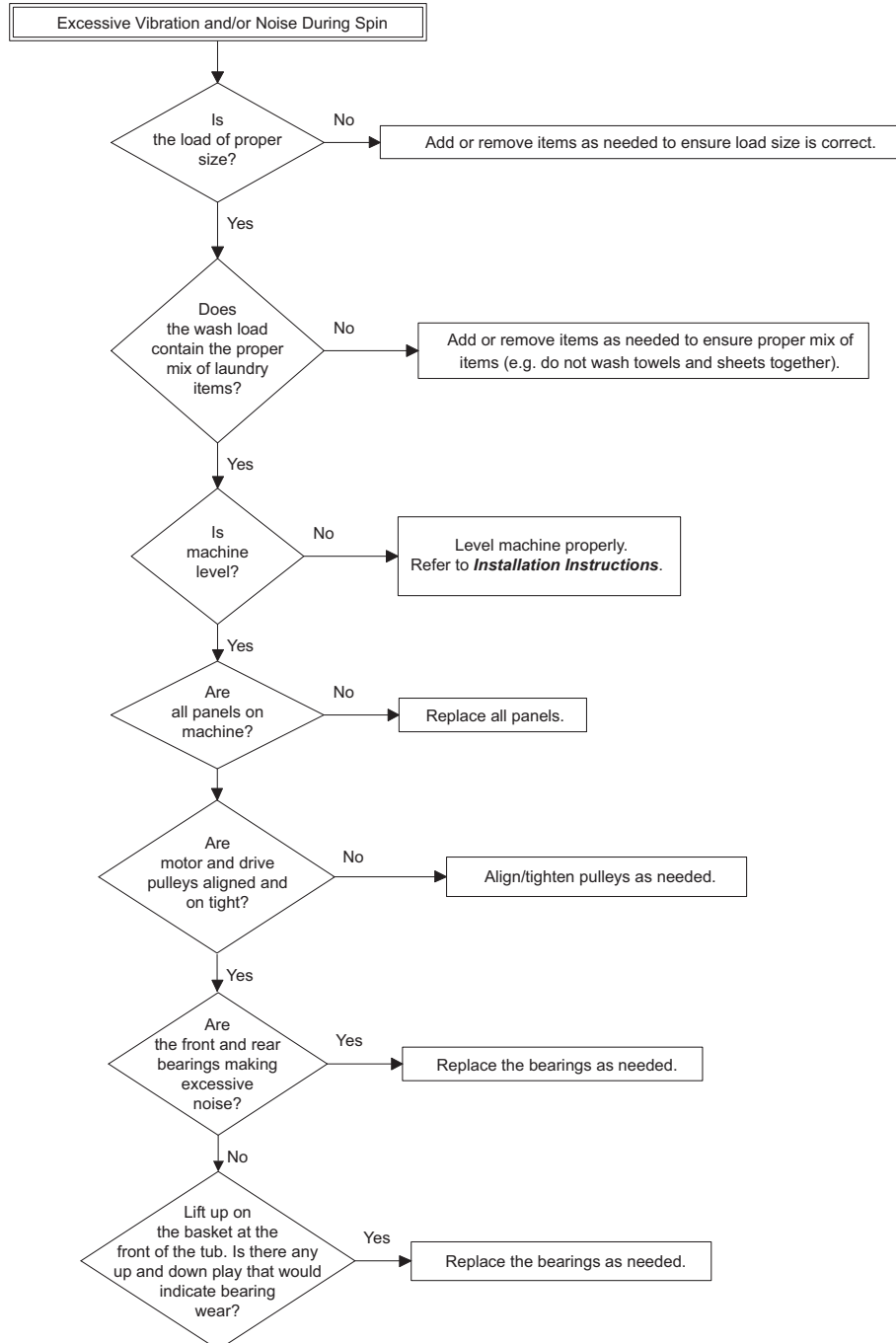
### 10. No Spin (continued)



FLW1797S

	WARNING
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"> <li>• <b>Disconnect electric power to the washer before servicing.</b></li> <li>• <b>Never start the washer with any guards/panels removed.</b></li> <li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li> <li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li> </ul>	
W485	

## 11. Excessive Vibration and/or Noise During Spin



FLW1809S



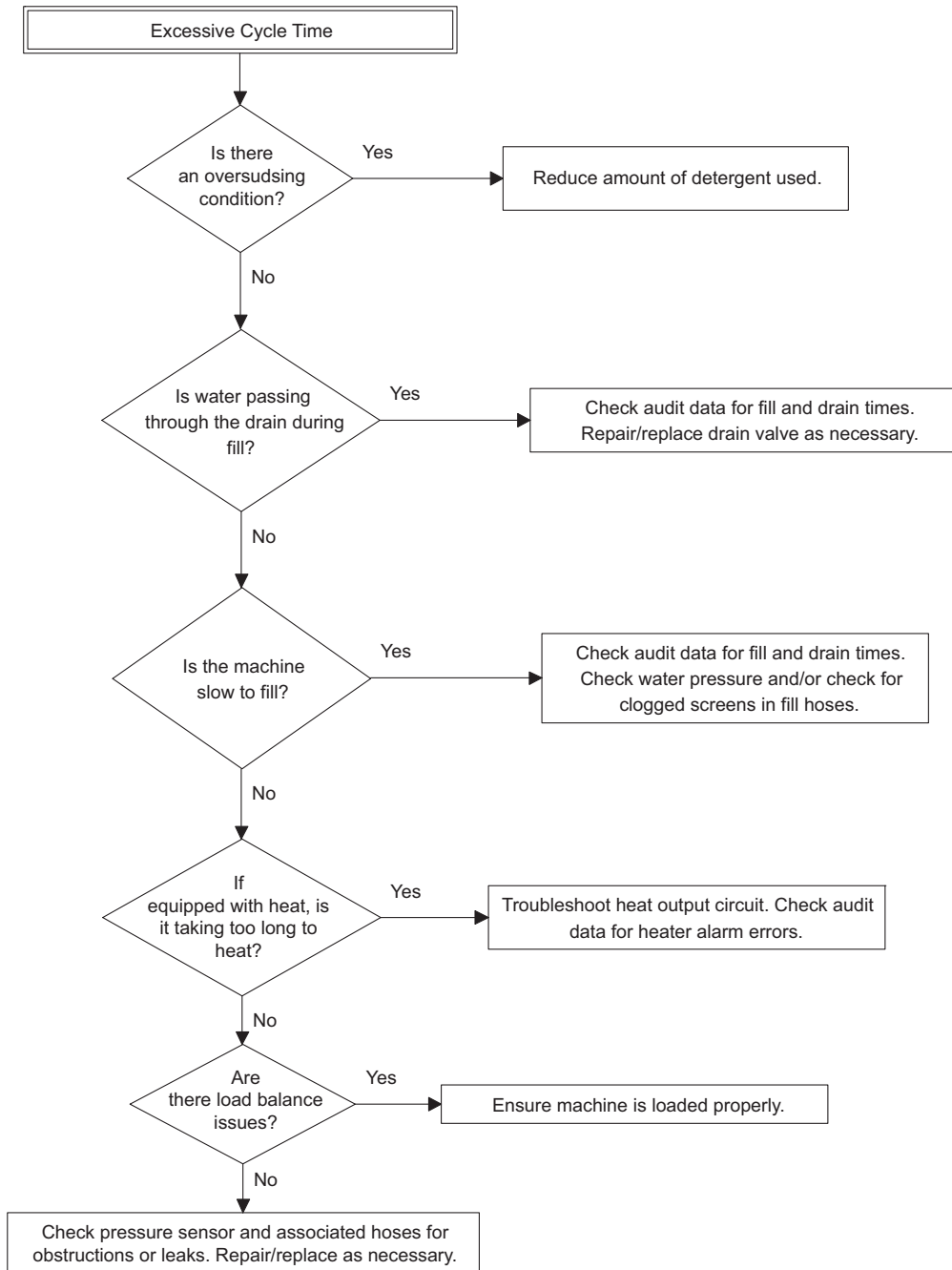
## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

W485


## 12. Excessive Cycle Time



FLW1810S

# Section 4

## Electronic Control Troubleshooting

	WARNING
<p>To reduce the risk of electric shock, fire, explosion, serious injury or death:</p> <ul style="list-style-type: none"> <li>• Disconnect electric power to the washer before servicing.</li> <li>• Never start the washer with any guards/panels removed.</li> <li>• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</li> <li>• Motor not grounded! Disconnect electric power before servicing motor.</li> </ul>	
W485	

### 13. Error Codes

Following is a list of possible error codes for an electronic control. Errors beginning with *E 1* refer to external device Infra-red communication errors. Errors beginning with *EC* refer to card reader errors. All other errors refer to machine errors.

**NOTE: Fatal Errors will show Out of Order along with the error on the display.**

Display	Description	Cause/Corrective Action
<i>E 101</i>	Transmission Failure	Communication failure. Re-aim external device and try again.
<i>E 102</i>	Time-out Error	Communication failure. Re-aim external device and try again.
<i>E 103</i>	Invalid Command Code	Communication successful, but the command was not valid for this machine type, or the control could not perform the command in its current mode of operation. Ensure data is for current machine type and control is in correct mode.
<i>E 104</i>	Expecting Upload Request	Communication failure. Re-aim external device and try again.
<i>E 105</i>	Invalid or Out-of-Range Data	The value in at least one of the programming options is invalid or out of range. Recheck the programming option's value and try again.
<i>E 109</i>	CRC-16 Error	Communication failure. Re-aim external device and try again.
<i>E 10A</i>	Framing Error	Communication error. Re-aim external device and try again.
<i>E 10C</i>	Time-out Exceeded	Communication error. Re-aim external device and try again.
<i>E 10E</i>	Encryption Error	Communication error. Re-aim external device and try again. If the problem persists, check that the security code is correct.

Table 7 (continued)

Table 7 (continued)

Display	Description	Cause/Corrective Action
<i>E 10F</i>	Infra-red Disabled	Communication failure or infra-red is disabled. Manually enable infra-red on control or re-aim external device and try again.
<i>EE02</i>	Time-out Error	Communication failure. Try card again.
<i>EE03</i>	Invalid Command Code	Communication successful, but the command was not valid for this machine type, or the control could not perform the command in its current mode of operation. Ensure data is for current machine type and control is in correct mode.
<i>EE05</i>	Invalid or Out-of-Range Data	The value in at least one of the programming options is invalid or out of range. Recheck the programming option's value and try again.
<i>EE 11</i>	No Card Reader Initialization	Communication is valid, but there is no card reader initialization. Power down, power up and try again.
<i>EE 18</i>	No Communication	Card reader is initialized, communication lost. Power down, power up and try again. If error persists, replace control or card reader.
<i>EE 19</i>	No Card Reader Communication	Communication failure. Power down, power up and try again. If error persists, replace control or card reader.
Right most decimal point Lit	Network Communication Error	Communication problem. Wait for 1.5 minutes for error to clear. If error doesn't clear, power down and power up the machine. If error persists, replace control or network board.
Right most decimal point Lit	Water Leak Detection Error or Slow Drain Detection Error	Water leak test has detected a water leak during a cycle. May be a water fill or drain leak where either the water valves are stuck open or water is leaking from the machine in some way. On gravity drain machines it is usually a stuck gravity drain valve. If it's a slow drain, water is not draining as quickly as expected in any cycle step that drains water during the cycle. The decimal point will remain lit after the error display has expired. Clear the decimal point by pressing the START keypad three times within five seconds or by cycling the power to the machine.
Right most decimal point blinking	Machine ID Error	Machine ID is no longer communicating with the control. Check Machine ID connection.
<i>ALArn</i>	Break-in Alarm Error	Check the service door and coin vault switches.
<i>aFF</i>	Break-in Alarm Shutdown Error	Check the service door and coin vault switches.

Table 7 (continued)

Table 7 (continued)

<b>Display</b>	<b>Description</b>	<b>Cause/Corrective Action</b>
<i>E FL</i>	Fill Error	Fill level is not reached within 30 minutes (or other programmed length of time) in any fill step. Check for water pressure at inlets, water valves for operation, clog in water line, plugged filter screen on water hose, and the pressure sensor hose for air leak to determine cause of error. May also be caused by programming too short of a programmed Fill Time for the water level and water pressure of the machine.
<i>E dL</i>	Door Lock Fatal Error	Door is unlocked during a running cycle. To clear this error, cycle power to the machine. Check door lock and door latch for damage and replace if error continues. Also check door lock wire harness for damage or for disconnection.
<i>E dL 1</i>	Door Lock Non-Fatal Error	If the door fails to lock in 20 seconds in Door Locking Mode after the drive has been enabled, the control will turn off all outputs and show the error <i>E dL 1</i> . To clear this error the door must either open or lock. Overloading the machine or broken shocks may keep door from properly closing. First check that door is fully closed. If door still fails to lock, check door lock and latch for damage. Check door lock wire harness for damage or disconnection.
<i>E dL 2</i>	Door Unlock Non-Fatal Error	If the door fails to unlock 20 seconds after the drum has stopped spinning with a solenoid type door lock and all other outputs have been turned off, the control will show error <i>E dL 2</i> . To clear this error the door must unlock or open. Removing power for 3 minutes will automatically allow door lock to unlock. Make sure to press on door and then pull to unlock the door as pressure on door lock/latch will prevent door from unlocking. Possible causes of this issue are broken shocks or clothes load causing pressure on door and door latch/lock preventing it from unlocking. If it still fails to unlock, check door lock and latch for damage. Also check door lock wire harness for damage or disconnection.
<i>E door</i>	Door Opened During A Running Cycle	Control detects door open during a cycle. This can be caused by pulling on door while locked or about to lock. Correct inoperative door locking system. Check door switch and harness for damage or disconnection. Unpower machine to clear error.

Table 7 (continued)

Table 7 (continued)

Display	Description	Cause/Corrective Action
<i>E Ub1</i>	Non-Fatal Unbalance Error	Washer is unable to balance load. Redistribute load and run cycle. If running a small load or one large item, add more items to help machine balance the load better. If items are rubber or other water resistant type material, load may never reach full spin speed. Ensure machine is properly leveled and check for broken shocks. Increase "Number of Balance Attempts" parameter to allow more retries if error occurs often. Refer to programming manual.
<i>E Ub2</i>	Fatal Unbalance Error	Wires to unbalance switch are broken or not connected, unbalance switch may be stuck closed or a shock may be broken. Unpower to clear error.
<i>CLoSE door</i>	Door Open Indicator	Door needs to be closed to start cycle. If door is closed, check for improper wiring or faulty door switch.
<i>Co in Error</i>	Coin Error	Invalid coin pulse or inoperative coin sensor. Check coin drop area and remove obstructions. If error persists, tampering may have occurred. Evaluate security procedures.
<i>E id</i>	Board ID	Incorrect replacement control. Replace user control or drive board with the correct part.
<i>E d5</i>	Brownout/Voltage Configuration	Unexpected supply voltage. Check the harness connections between the front end control and the drive board. If the front end control was replaced, set dip switch #1 to the same setting as the previous control. If reworking the machine to use a different voltage supply, the dip switch #1 setting may need to be changed. If the dip switch #1 setting is changed, power down, power up and try again. Also check Pin H2-7 on the front end control to ensure good connection between front end control and drive board.
<i>E nr</i>	Drive Board Not Ready	Hardware failure. Try cycling power to machine before replacing drive board.
<i>E b5</i>	Drive Board Shorted	Hardware failure. Try cycling power to machine before replacing drive board.
<i>E n</i>	Machine ID Errors	
<i>E n 31</i>	Product Byte #1 Mis-Match	Product family does not match between the Machine ID Control and Front End Control. Replace Machine ID Control with one meant for current Front End Control platform.

Table 7 (continued)

Table 7 (continued)

<b>Display</b>	<b>Description</b>	<b>Cause/Corrective Action</b>
<i>E<sub>n</sub> 32</i>	Product Byte #2 Mis-Match	Machine type does not match between the Machine ID Control and Front End Control (frontload washer vs. dryer). Replace Machine ID Control and/or front end control with one meant for current machine type.
<i>E<sub>n</sub> 33</i>	Product Byte #3 Mis-Match	Control level does not match between the Machine ID Control and Front End Control (A4 vs. A2). Replace Machine ID Control with a properly configured A level for the control being attached. Use Factory Test Procedure to determine front end control's control level.
<i>E<sub>n</sub> 39</i>	Corrupted Data on Machine ID Control	Try cycling power to machine. If error continues, check for damage to Machine ID Control and harness and/or replace Machine ID Control with a correctly configured Machine ID Control.
<i>E<sub>n</sub> 3E</i>	Machine control cannot be configured with the Machine ID Control in the machine	Try cycling power to machine. If error continues, check for damage to Machine ID Control and harness and/or replace Machine ID Control with a correctly configured Machine ID Control.
<i>E<sub>n</sub> 3F</i>	Cannot communicate with the Machine ID Control	Try cycling power to machine. If error continues, check for damage to Machine ID Control and harness and/or replace Machine ID Control with a correctly configured Machine ID Control.
<i>E C0</i>	Drive Board Communication Error	Communication failure. Power down, power up and try again. If error persists, check connection between front end control and drive board, or try replacing the front end control or the drive board. Many times a loose pin or wire is at fault for this error.
<i>E dr</i>	Drain Error	If the control has the drain error enabled, the control will enter Machine Error Mode when the water height is not below the empty level, after attempting to drain for the programmable time (default 5 minutes). In the event of a drain error, the control will turn off all outputs and turn on the Machine Error Tone for 15 seconds. Check wiring to drain and that power is present at drain. Check for objects stuck in drain hose or in pump on electric pump units. Ensure that drain hose meets drain height restrictions. Increase programmable drain error time if pump is working but not able to pump out quickly enough. Unpower to clear error.

Table 7 (continued)



Table 7 (continued)

<b>Display</b>	<b>Description</b>	<b>Cause/Corrective Action</b>
E 5d	Slow Drain Error	Water is not draining as quickly as expected in any cycle step that drains water during the cycle. The machine control will light the right-most decimal point even after the drain error display has cleared. The decimal point will remain illuminated after the slow drain error display has expired to draw the attention of the owner or attendant. The decimal point can be cleared by pressing the START keypad 3 times in a period of 5 seconds or by cycling the power to the machine.
E Ht	Heater Error	If the heater is enabled and the water temperature has not reached the desired temperature selection within the programmable time, the control will indicate a heater error. If this error occurs, the heater output will be turned off and the cycle will continue. This error will be cleared when the door is opened or any key is pressed. Possible causes include wire harness to heater elements are damaged, heater elements are damaged, corrosion of wires/connectors, or programmable heater error time is too short for the programmed heat temperature and amount of water in machine.
E tE	Max Temperature Exceeded Error	The control will continuously monitor the Machine Status for an indication that the maximum water temperature is exceeded. When the cycle has been completed and if the control has saved a Max Temperature Exceeded Error, the control shows the error for one minute after the door is opened or a key is pressed. Check for stuck heater relay/contactor.
E oP	Open Temperature/Thermistor Sensor Error	The drive board will flag an Open Thermistor Error any time it senses a temperature less than 0°C (32°F). The heater output is turned off for the remainder of the cycle. At the end of the cycle, error code will be shown. It clears after one minute or with any key press. Check wiring to heater elements and thermistor for damage.
E 5H	Shorted Temperature/Thermistor Sensor Error	The drive board will flag a Shorted Thermistor any time it senses a temperature greater than 100°C (212°F). The heater output is turned off for the remainder of the cycle. At the end of the cycle, error code will be shown. It clears after one minute or with any key press. Check wiring to heat elements and thermistor for damage.

Table 7 (continued)

Table 7 (continued)

Display	Description	Cause/Corrective Action
<i>E SudS</i>	Suds Lock Error	<p>In the spin steps, if the control determines that there are suds in the machine after running all Suds Removal Routines programmed to run, it will display a Suds Lock Error at the end of the cycle after the door is opened. The control will continue showing <i>E SudS</i> for one minute or until any key has been pressed.</p> <p>To prevent error, reduce detergent used, increase Suds Removal Routines allowed, check for draining issues, check that drum spins freely, and make sure no small items are lodged between drum and outer tub.</p>
<i>E Hd</i>	Too Hot To Drain Error	<p>If water is detected to be too hot to drain safely, this error will occur. It is advised to add a cool down step to the cycle after every heating step to avoid this error. Another possible cause of this error is that the heater contactor/relay is stuck on. Error will display after door is opened in End of Cycle Mode. It will clear after 1 minute.</p>
<i>E Ld</i>	Water Leak Drain Error	<p>If there is a leak during the water leak detection of the cycle when programmed on, an error will display after the door is opened at the end of cycle for 1 minute. It will clear after 1 minute or until a key is pressed. If the water level has dropped more than an acceptable amount during a water leak drain check, the control will save a water leak drain error status and will continue the machine cycle. Immediately upon detecting the error the rightmost decimal point will be lit. This lit decimal point can be cleared by pressing the START keypad 3 times in a period of 5 seconds or by cycling the power to the machine.</p> <p>The cause of this error may be the drain hose leaking or a stuck gravity drain valve on gravity drain machines.</p>
<i>E SEHE</i>	Slow To Heat Error	<p>Non-Fatal Error that will appear during the running cycle without affecting the cycle. Machine error code is turned on for 15 seconds. It will clear after a key is pressed. Possible cause of error is one of the heater elements may be broken/disconnected, heater elements may need to be cleaned of lint, or programmable slow to heat error time needs to be increased for the load size and water amount being heated. Refer to Heater Error for other possible causes.</p>

Table 7 (continued)

Table 7 (continued)

Display	Description	Cause/Corrective Action
E nFLd	No Water Flow Error	If the control does not reach a water level of 4 inches within the programmed time it may mean the hose to the pressure sensor has a leak, is disconnected or clogged, the water inlet hose is clogged, the water inlet screens are clogged, or no water is flowing into the machine. The programmed error time may also need to be increased if there is low water pressure to the machine. The control will enter Machine Error mode when the error is set. The control will first drain for 90 seconds and then turn off all outputs and turn on the Machine Error Tone for 15 seconds. Unpower to clear error.
E oF	Overflow Error	This error is triggered when an unsafe high water level is detected in the machine and water is unable to drain. The water valve may be stuck open, pump may be stuck, or the drain may be clogged. Typically a small item is lodged in the propeller of the pump on pump machines. The door may be open/unlocked with water sitting in the machine to cause this error. Unpower to clear error.
E PS	Pressure Sensor Error	If the control does not detect a valid water level sensor input for 30 seconds, or if the Max (Overflow) Fill Level in the control is set to 0 while in Run Mode, Factory Test Mode, or Overflow Mode, the control will enter Machine Error Mode. Check harness from user control to pressure sensor for damage and replace if necessary. Replace pressure sensor or user control if error persists. The control will first drain for 30 seconds to get out any water and then unlock the door. Unpower to clear error.
E bELt	Broken Belt Error	If a broken belt is detected by the control, the control will show error E bELt. Unpower the machine and check the belt and pulleys for issues.

Table 7 (continued)

Table 7 (continued)

<b>Display</b>	<b>Description</b>	<b>Cause/Corrective Action</b>
<i>E LF</i>	Water Leak Fill Error	If there is a leak during the water leak detection of the cycle when programmed on, an error will display after the door is opened at the end of cycle for 1 minute. It will clear after 1 minute or when a keypad is pressed. If the water level has increased more than an acceptable amount during a water leak drain check, the control will save a water leak drain error status and will continue the machine cycle. Immediately upon detecting the error the rightmost decimal point will be lit. This lit decimal point can be cleared by pressing the START keypad 3 times in a period of 5 seconds or by cycling the power to the machine. There may be a water valve stuck open due to debris or a failed water valve.
Display is dim		Look for loose pins and damaged wires on harness from user control to drive board.
<i>E d</i>	Drive Board Errors	
<i>E d 10</i>	Voltage Select Error	Wrong Input Voltage seen at drive board 120V vs 240V. Dip switch 1 on FEC set wrong, or possibly water on drive board (let drive dry out and determine cause of water). Unpower to clear error. Replace drive board if error persists.
<i>E d 12</i>	Over Voltage AC-Main Input Error	Machine voltage is too high, check supply voltage to the machine and verify that it is within machine specifications. Unpower to clear error. Replace drive board if error persists.
<i>E d 13</i>	Power Fail Dangerous Error	The Neutral Line power input to the machine was seen out of range. Unpower to clear error. Check for damage in the power supply harness. Replace power supply harness or drive board if error persists.
<i>E d 21</i>	Over Voltage DC Bus Error	Unpower to clear error. Check voltage input to machine. If it happens only at start of spin, replace motor. Replace drive board if error persists.

Table 7 (continued)

Table 7 (continued)

Display	Description	Cause/Corrective Action
E d 22	Over Motor Temperature Error	Motor temperature is detected to be too high. Check that drum spins freely when empty. Check for overloading of machine. Check motor harness for damage. Reduce agitation time and duty cycle if rotate/pause times are very short and programmable. Unpower to clear error. Replace drive board if error persists.
E d 23	Fatal IPM Over Current Shunt Error	Check that drum and motor spins freely. Unpower to clear error. Check the motor phase windings. Continuity should be uniform between phases L1 and L2, L2 and L3, L1 and L3. Replace motor if not uniform. Replace drive board if error persists.
E d 24	Fatal I2T Hardware Over Current Error	Check that drum and motor spins freely. Rotor may be locked up. Check the motor phase windings. Continuity should be uniform between phases L1 and L2, L2 and L3, L1 and L3. Replace motor if not uniform. Unpower to clear error. Replace drive board if error persists.
E d 25	IPM Over Temperature Error	IPM temperature is detected to be too high. Check that drum spins freely when empty, check for overloading of machine, reduce agitation time, and duty cycle if rotate/pause times are very short and programmable. Unpower to clear error. Check for lint build-up on heat sink on drive board. Replace drive board if error persists.
E d 29	Motor Not Connected Error	The motor or one of its electrical phases is not connected. Check that the harness from the motor to the drive board is fully plugged in on both ends and that there is no damage to the motor harness. Make sure to push in the motor harness on both ends just in case it is a little loose and not fully inserted. If the harness looks fine and the error still occurs, try replacing the drive board or harness. Unpower to clear error.
E d 44	Overcurrent Shunt Detection Circuit Fail Error	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 45	Door Lock Pin HW On/Off Fail Error	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 46	Heater Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 47	Hot Valve Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 48	Cold Valve Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 49	Detergent Valve Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.

Table 7 (continued)

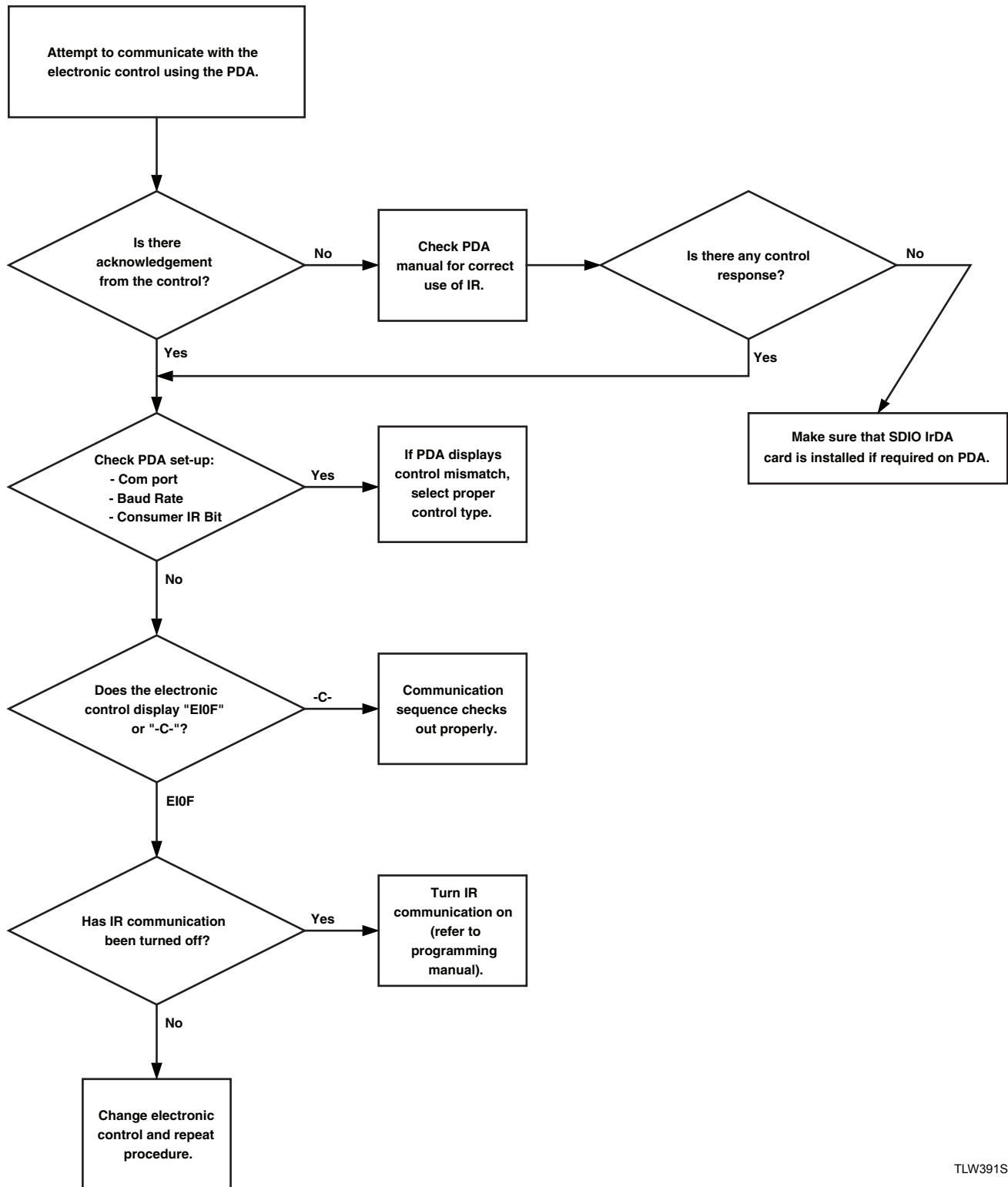
Table 7 (continued)

<b>Display</b>	<b>Description</b>	<b>Cause/Corrective Action</b>
E d 50	Softener Valve Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 51	Inrush Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 52	Voltage Doubler Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 53	Door Lock Select Voltage Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 54	Pump Pin HW On/Off Fail	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 55	Fatal NTC Short Error	Check heater thermistor and thermistor wiring for damage. Unpower to clear error. Replace drive board if error persists.
E d 56	Fatal NTC Open Error	Check heater thermistor and thermistor wiring for damage. Unpower to clear error. Replace drive board if error persists.
E d 63	Fatal IPM Temperature Short Error	Hardware failure. Unpower to clear error. Replace drive board if error persists.
E d 64	Fatal IPM Temperature Open Error	Hardware failure. Unpower to clear error. Replace drive board if error persists.

Table 7

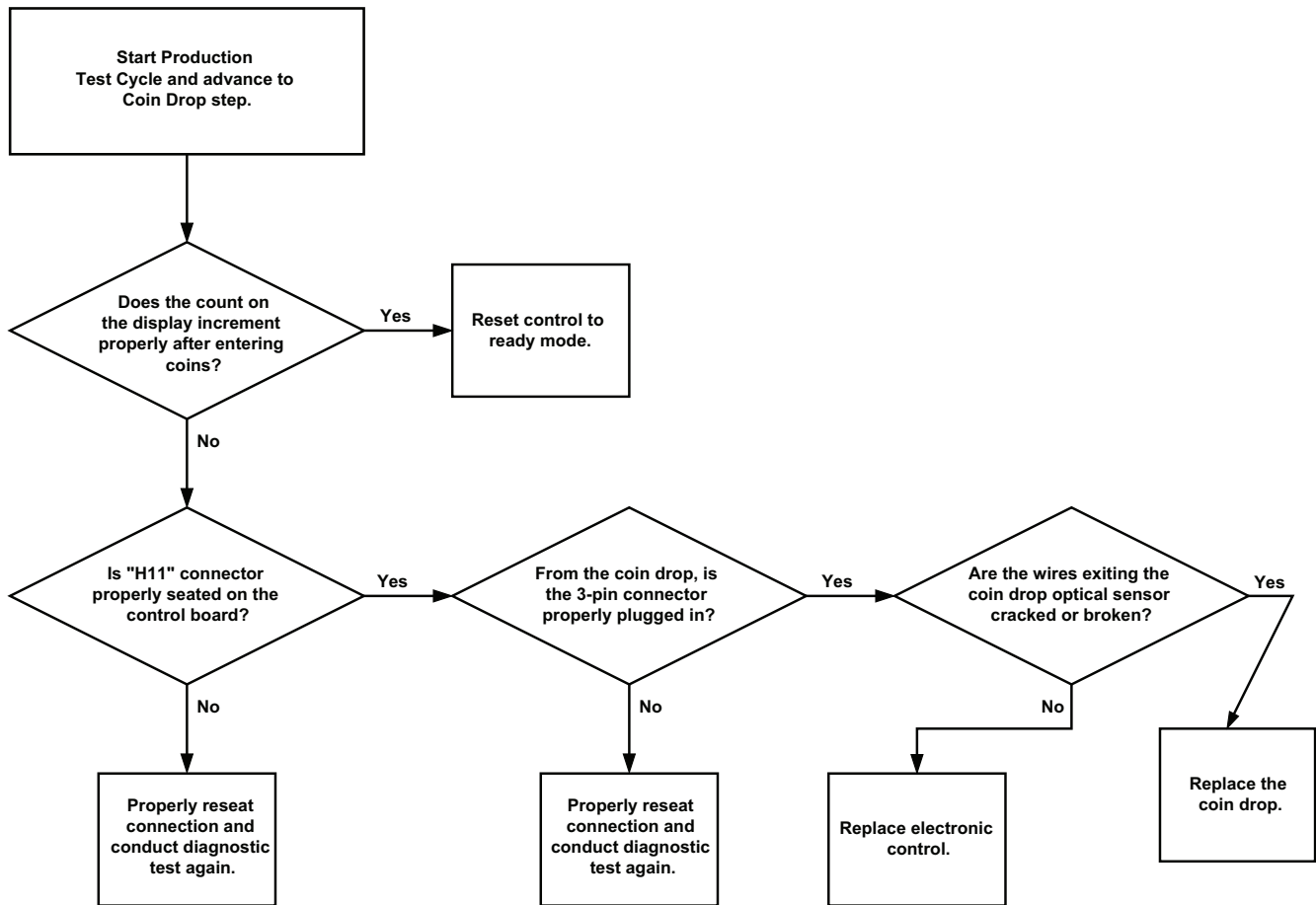
All errors can also be cleared by pressing the Clear Fatal Error Keys or by sending the Clear Fatal Error Network command. Refer to *Figure 7*. Some errors may appear to not clear due to the error condition still being present. These errors will require the machine to be unpowered and the failure condition fixed to clear and continue normal machine operation.

## 14. PDA Does Not Communicate With Control



TLW391S

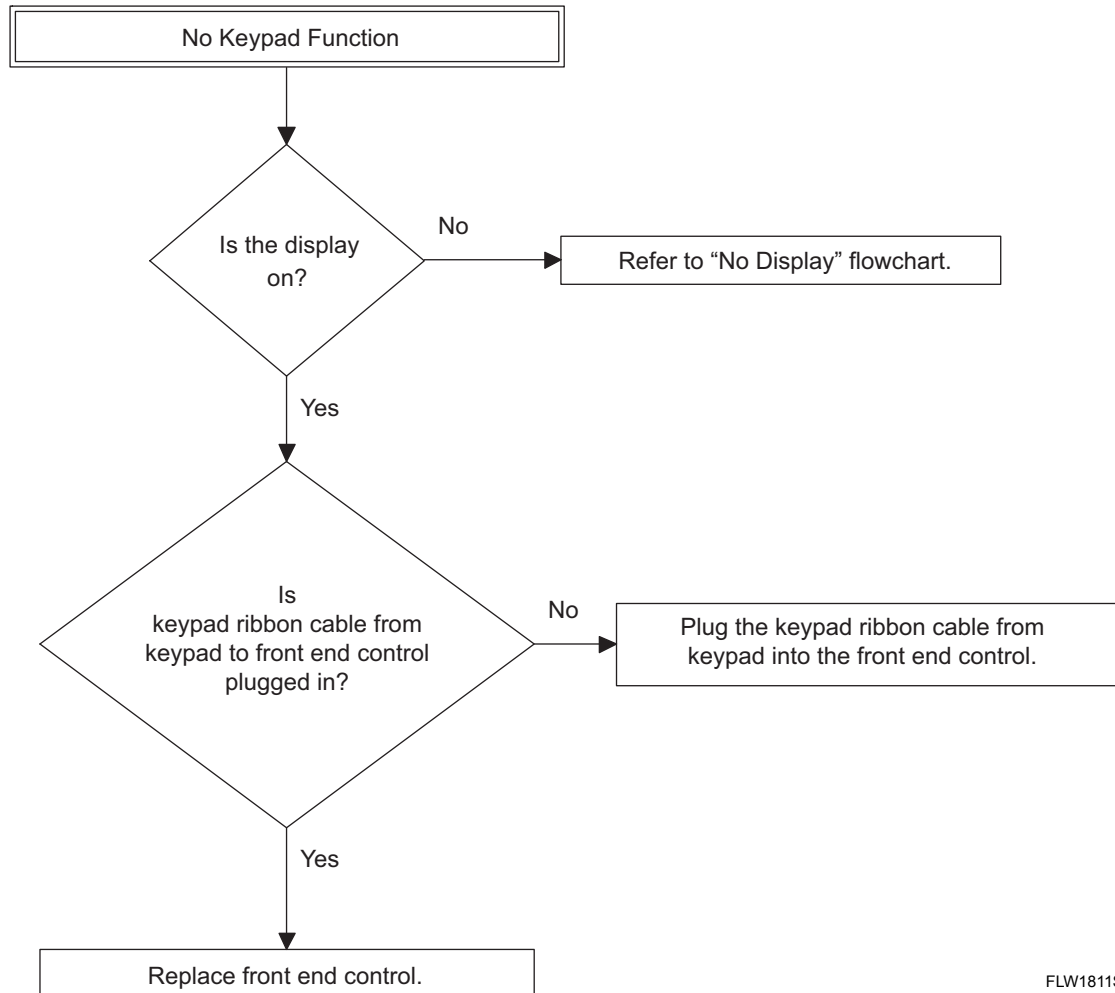
## 15. Coins Ignored When Entered



FLW1793S

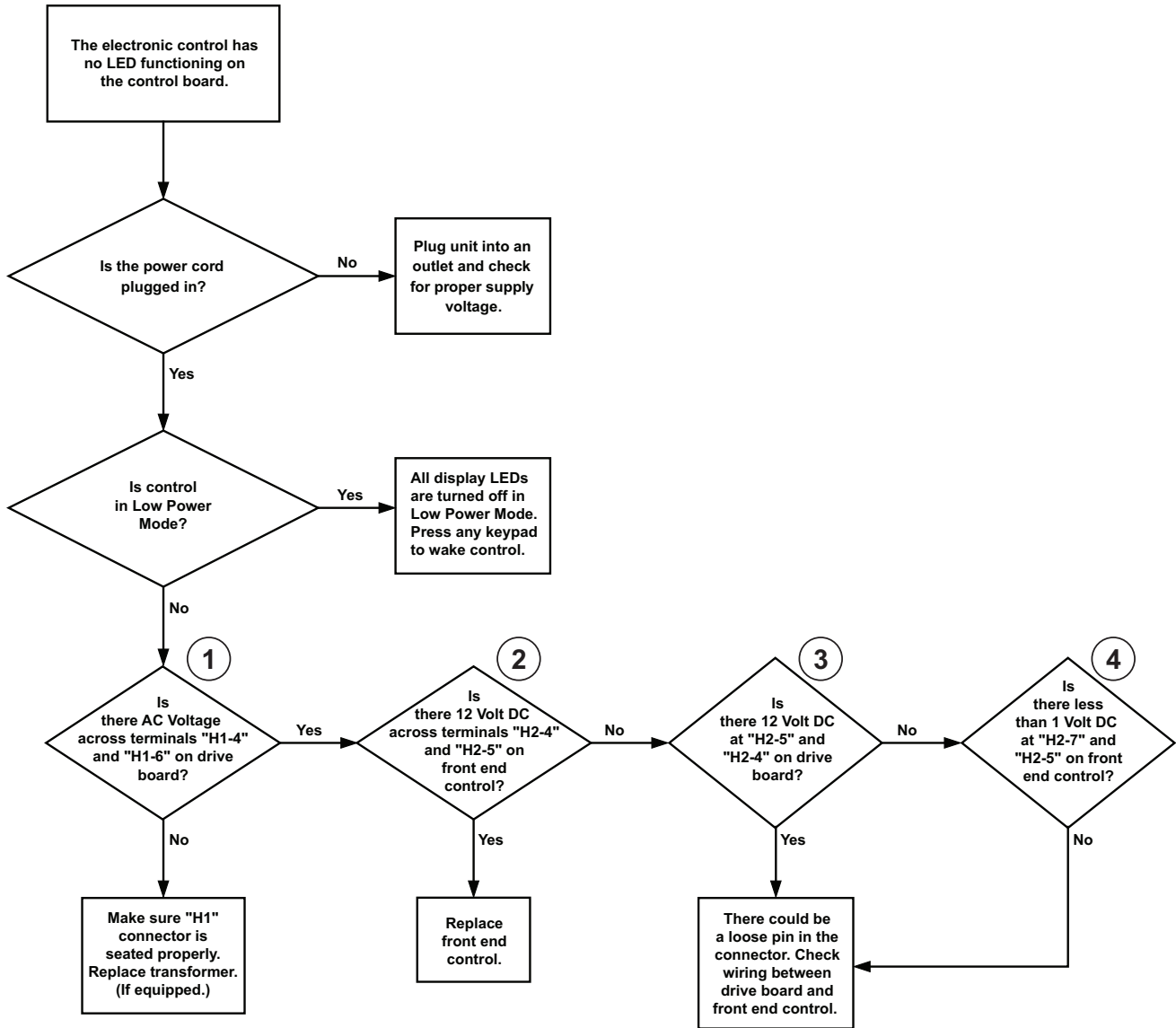


## 16. No keypad Function



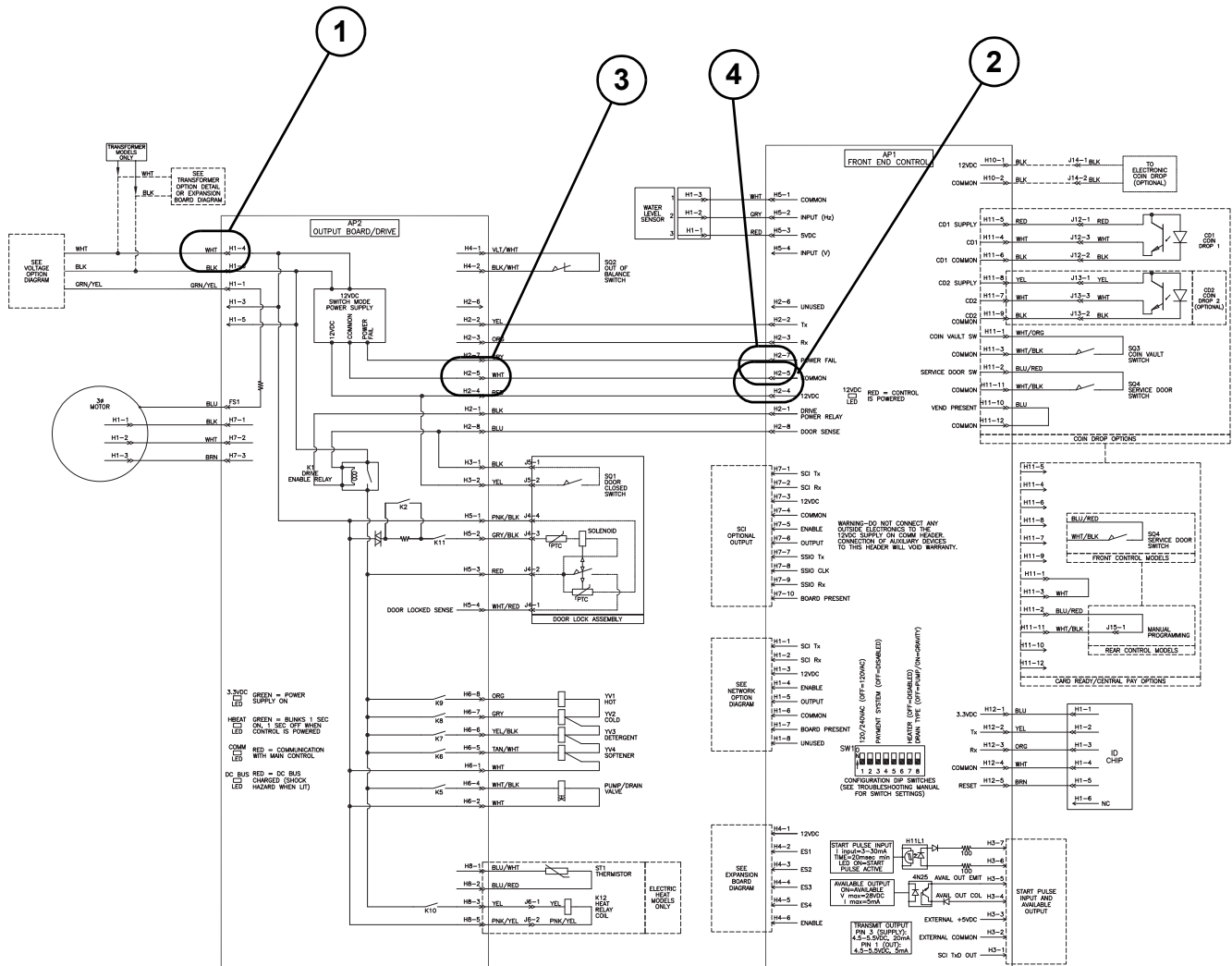
FLW1811S

## 17. No Visible Display on Control



FLW1798S

# No Visible Display on Control



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL: DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

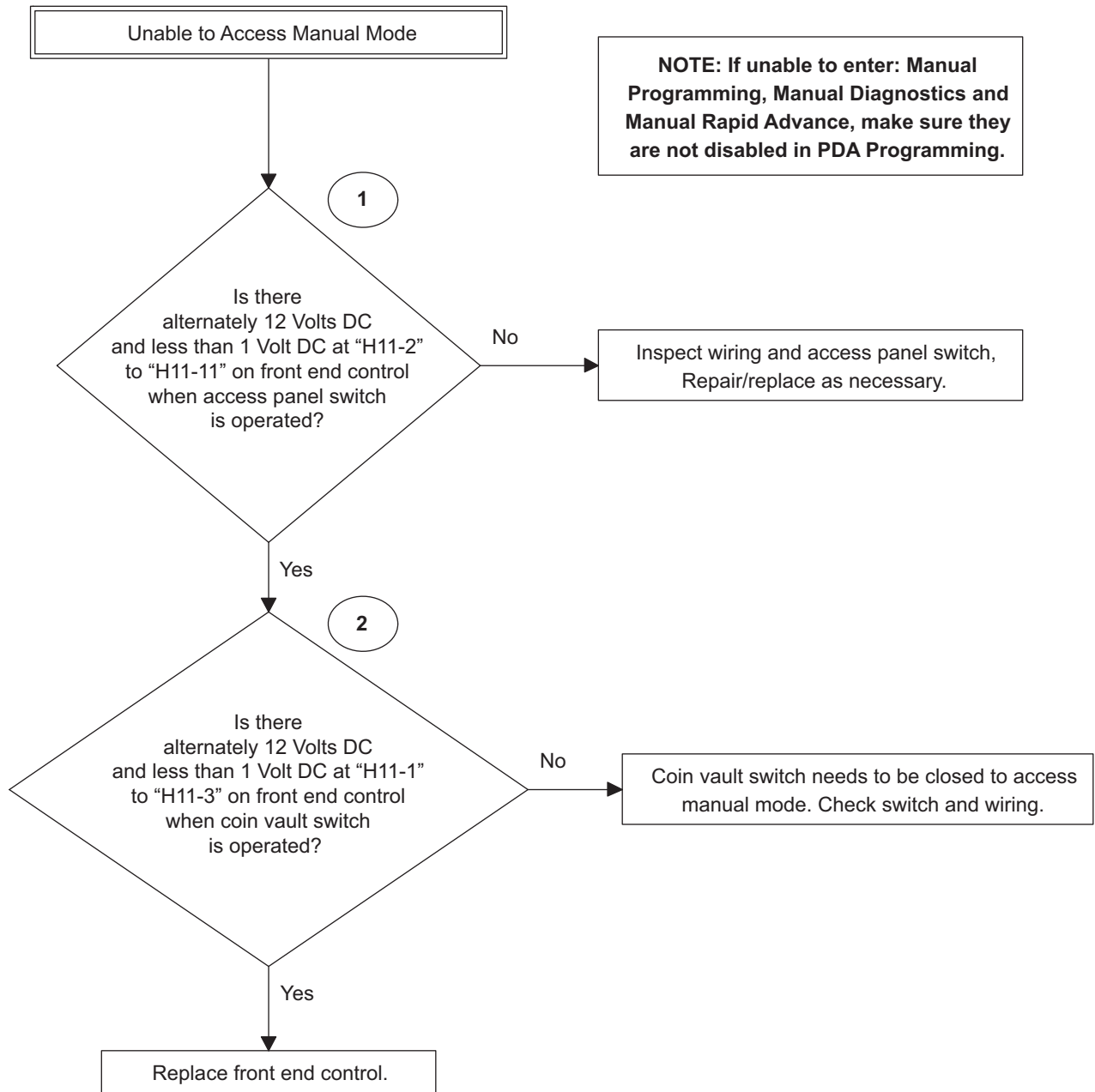
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certains pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

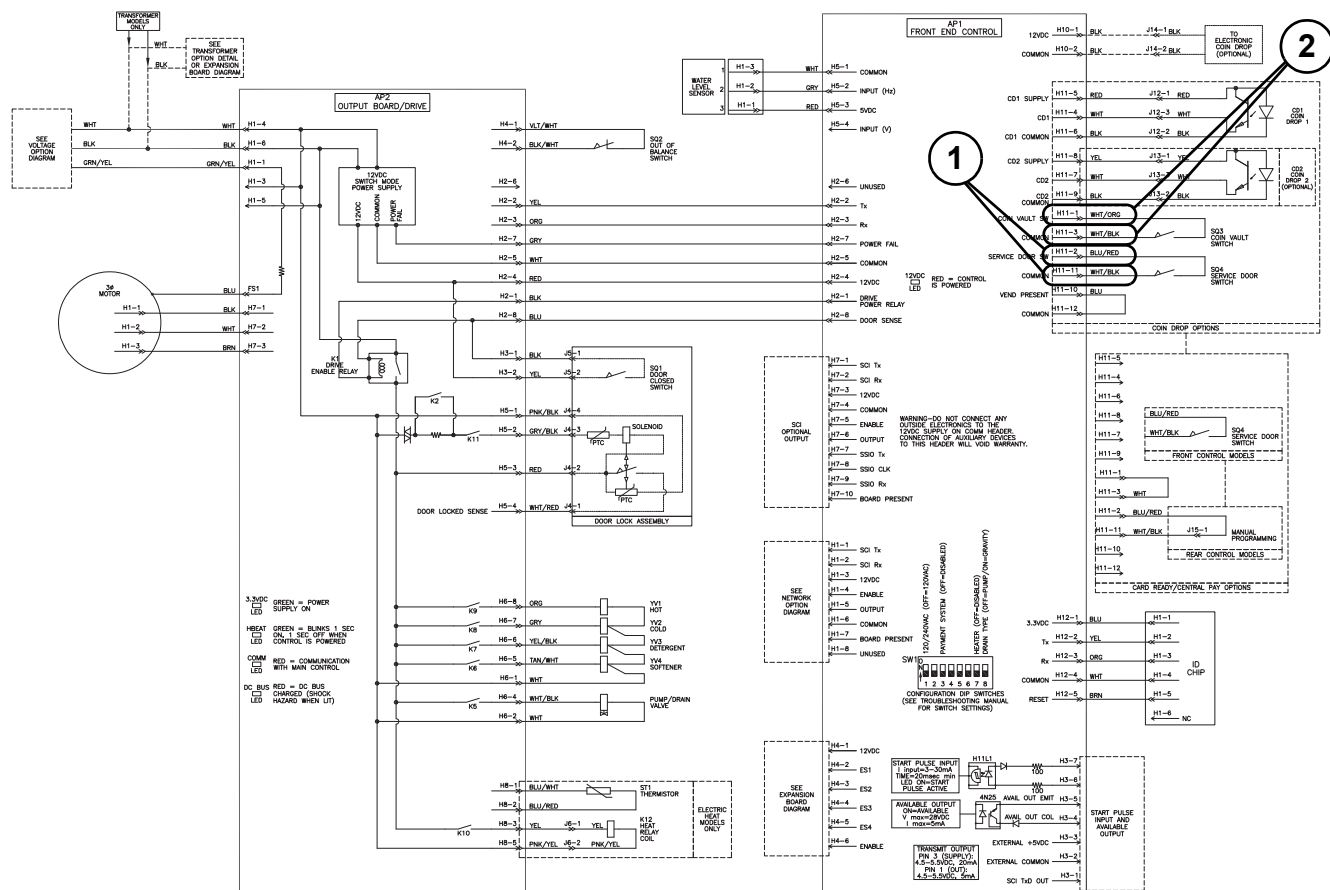
**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

### 18. Unable to Access Manual Mode



FLW1812S

## Unable to Access Manual Mode



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

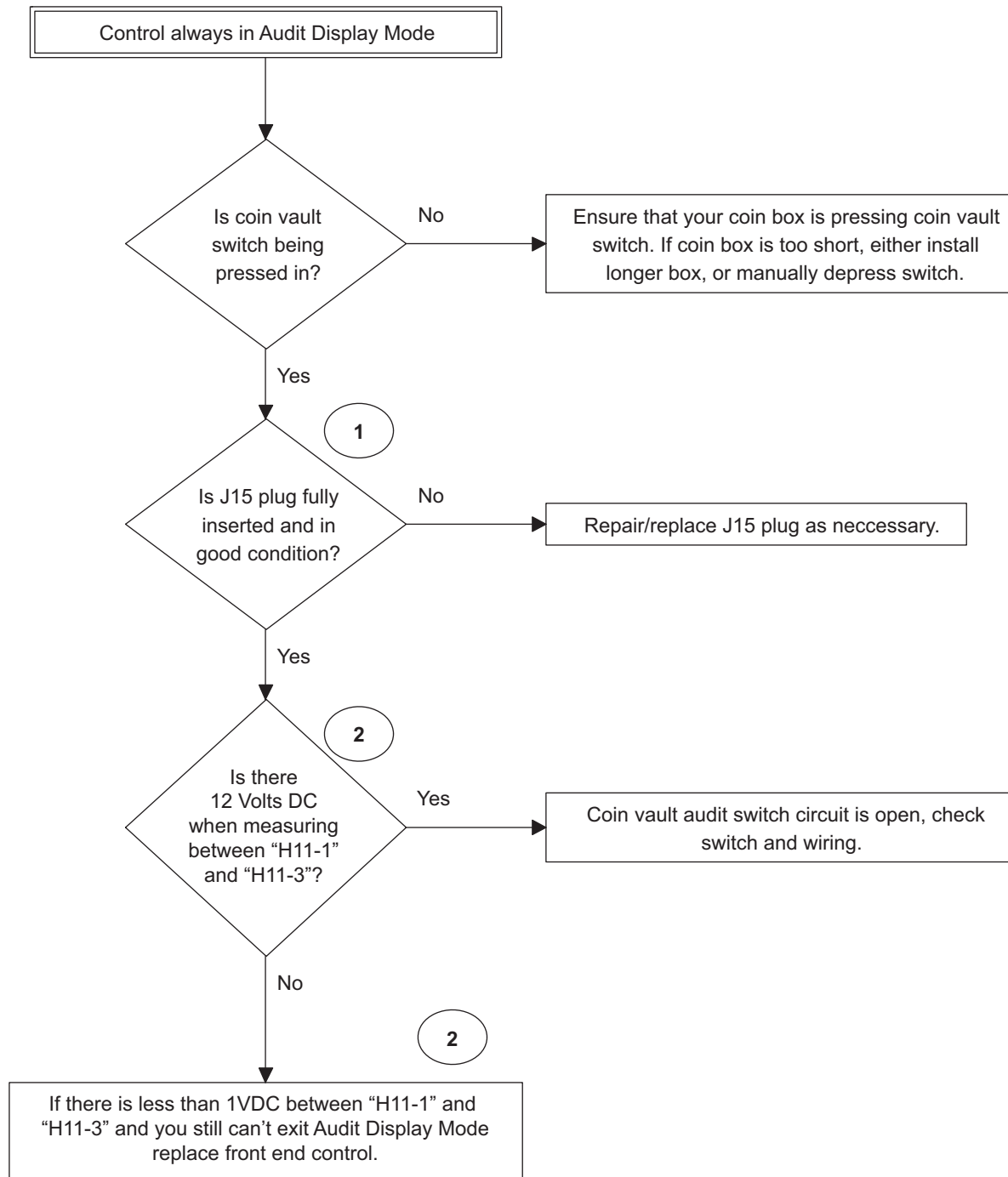
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certains pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

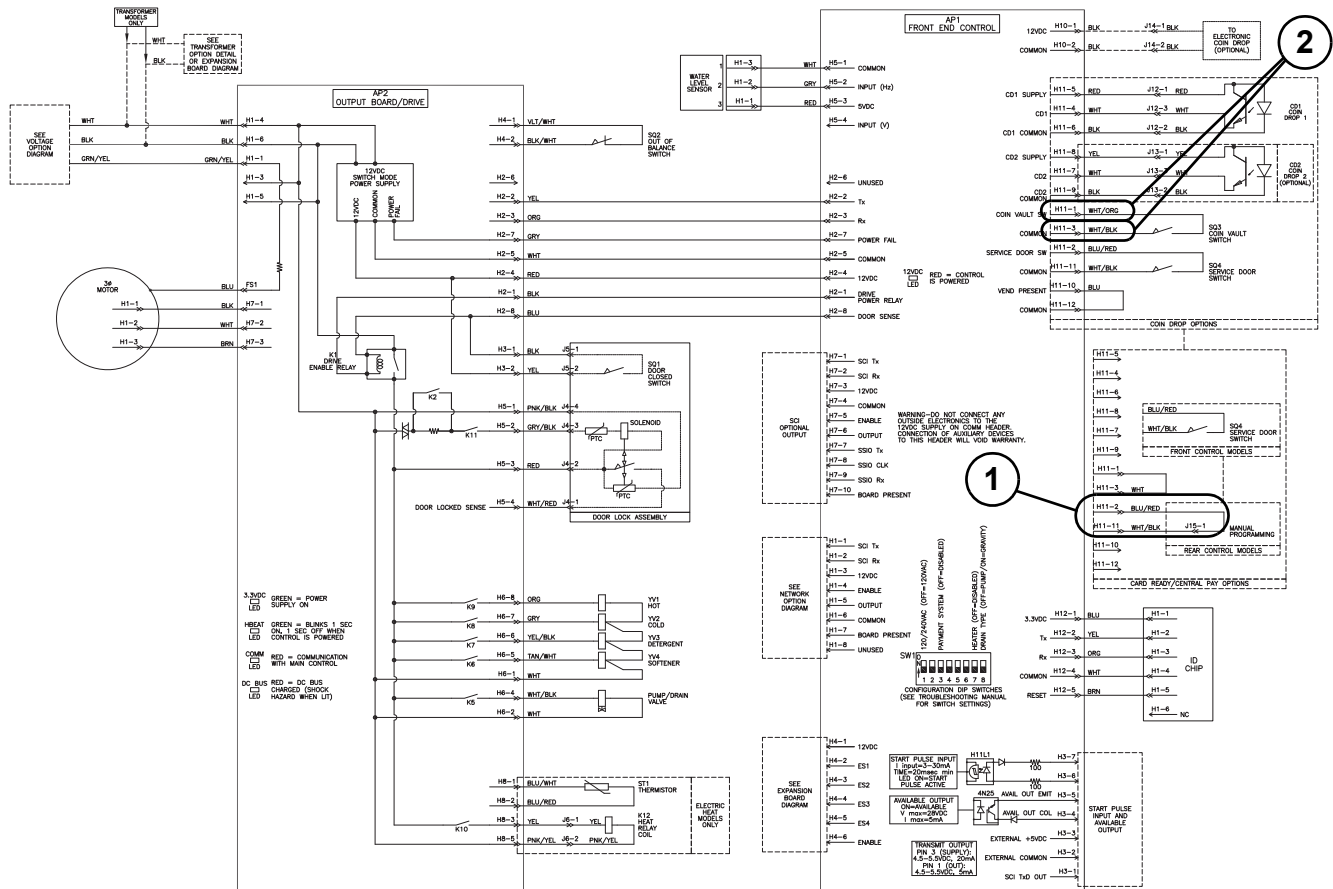
**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

## 19. Control Always in Audit Display Mode



FLW1813S

## Control Always in Audit Display Mode



**WARNING**  
 Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
 Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

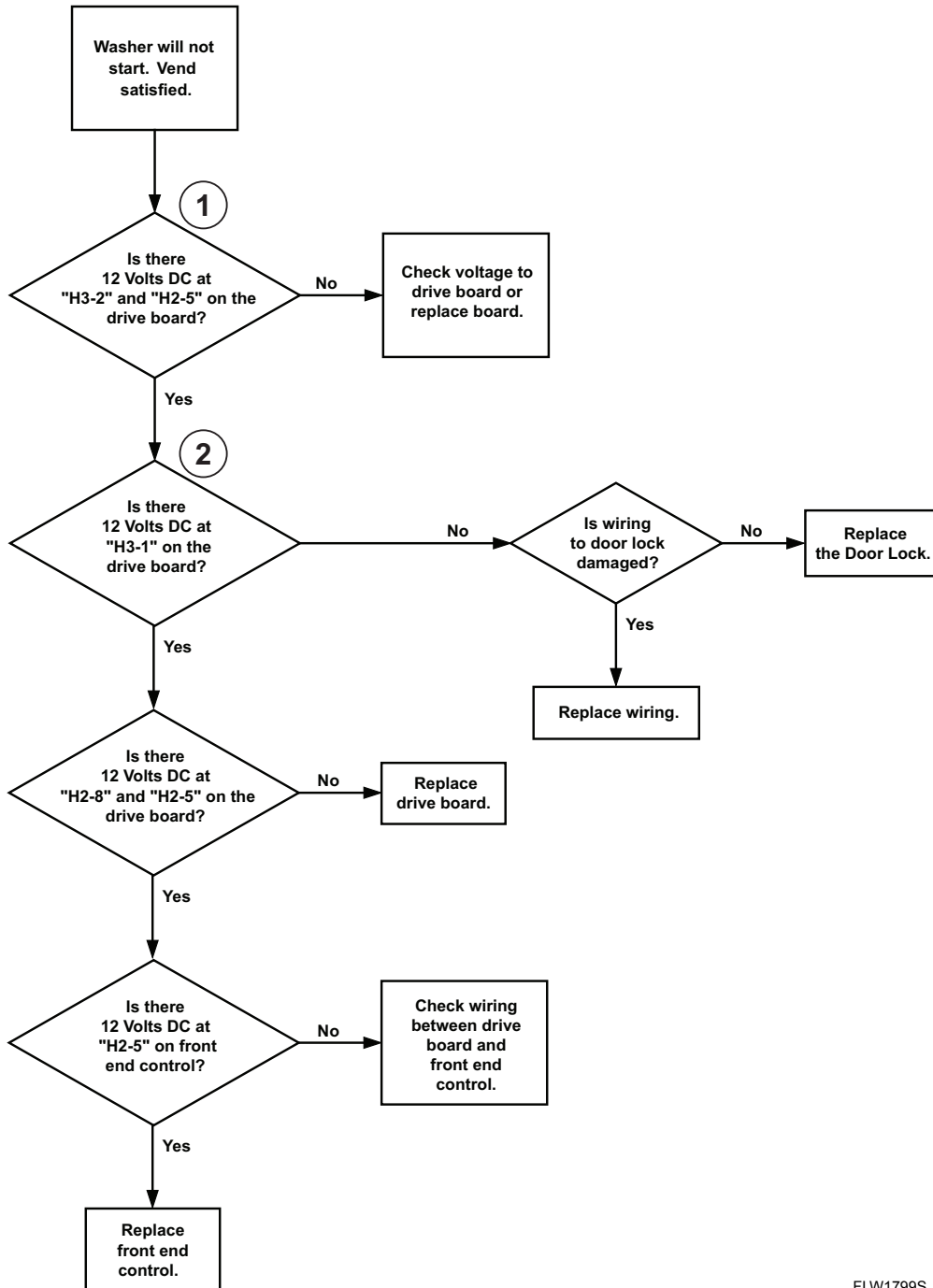
**NOTE**  
 POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
 Certaines pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
 Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

**REMARQUE**  
 Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

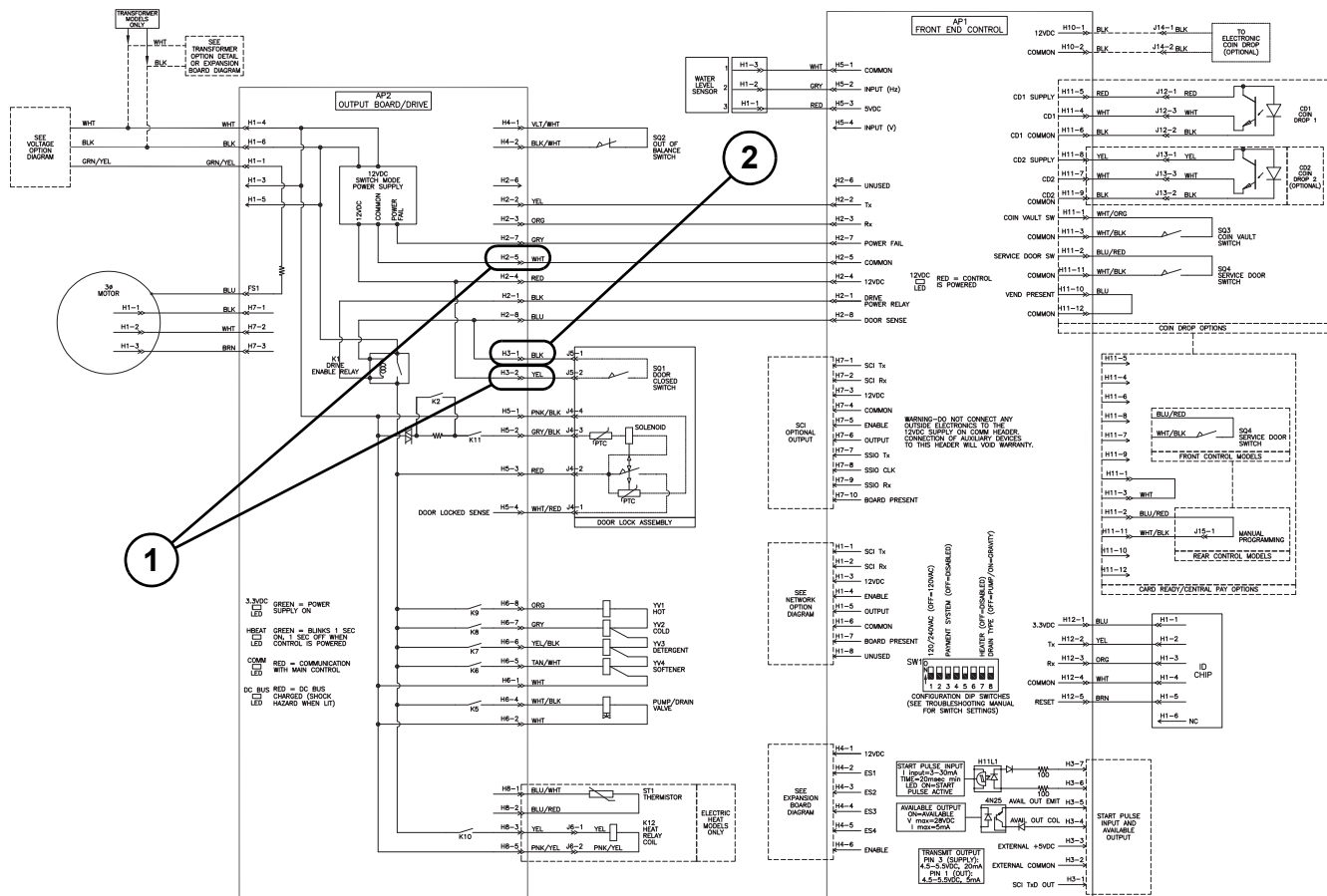
## 20. Washer Will Not Start – “CLOSE”, “door” Displayed



FLW1799S



## Washer Will Not Start – “CLOSe”, “door” Displayed



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

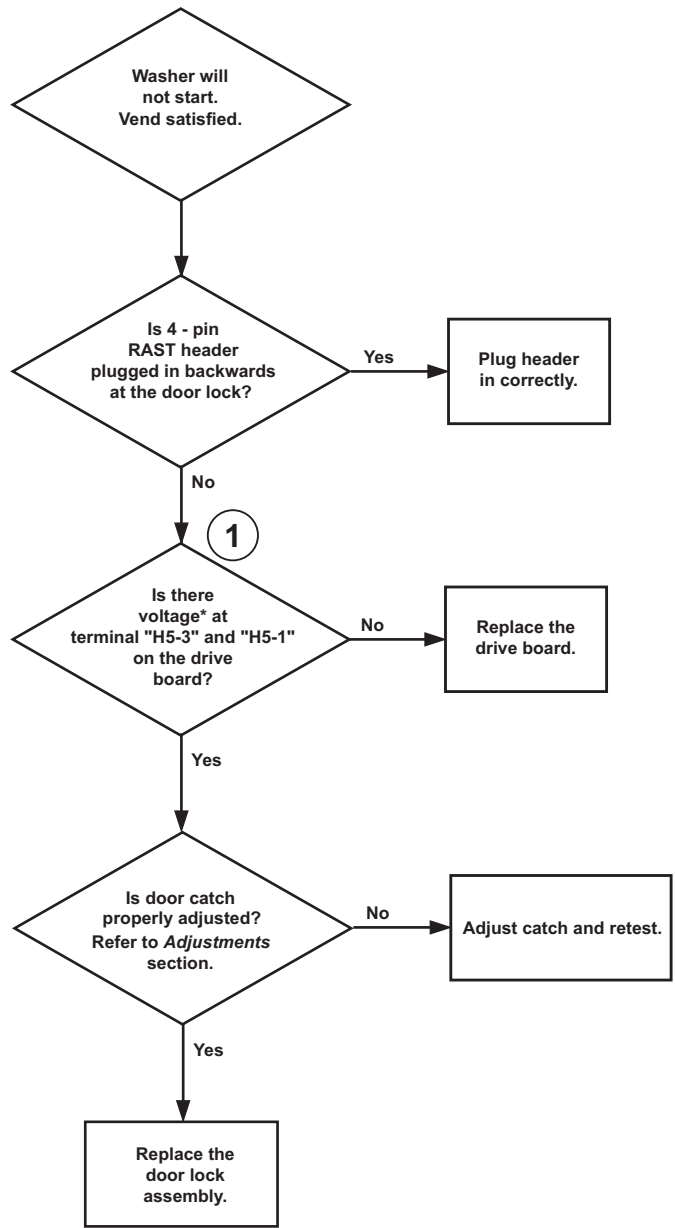
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certains pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

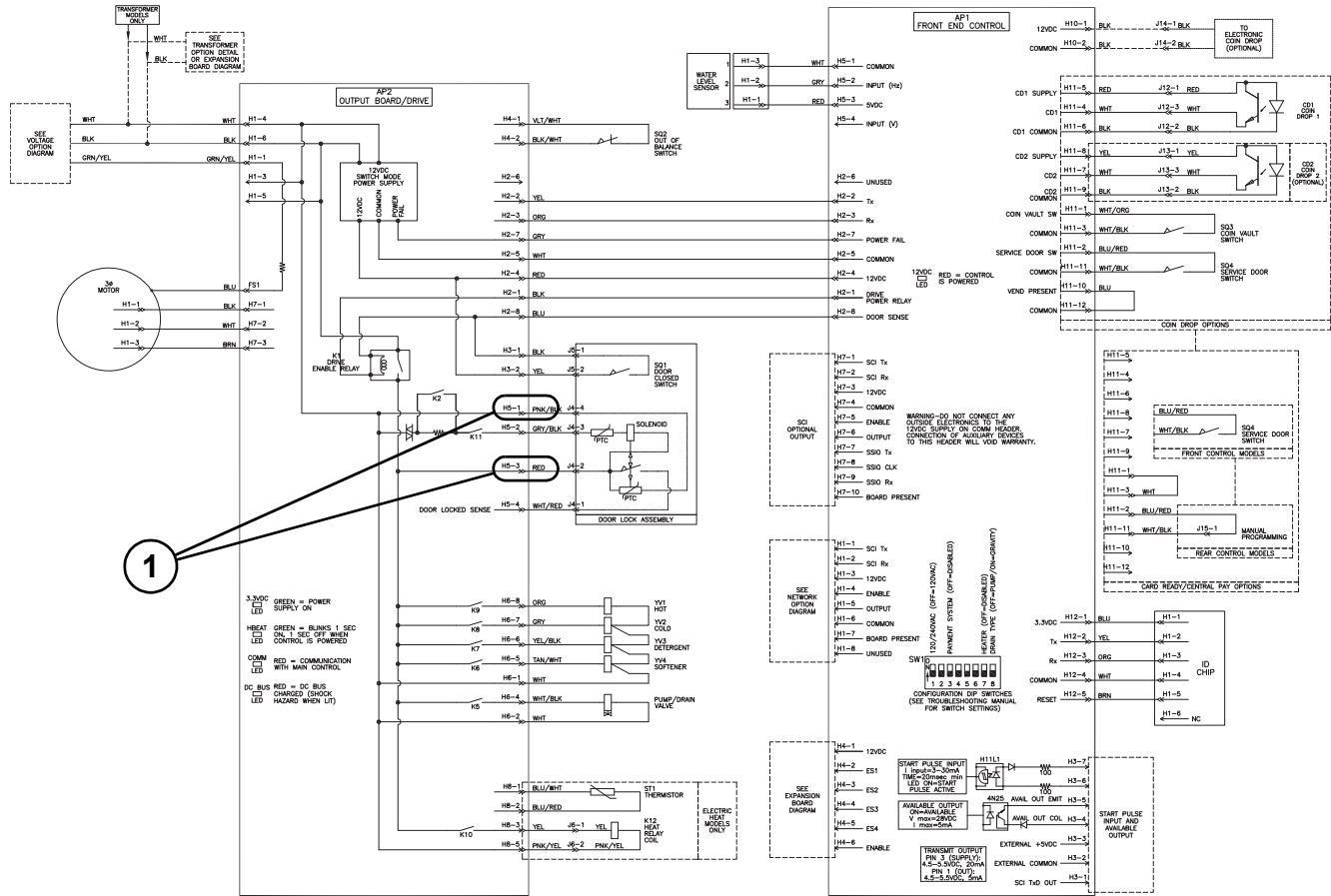
## 21. Washer Will Not Start – “E dL1” on Display



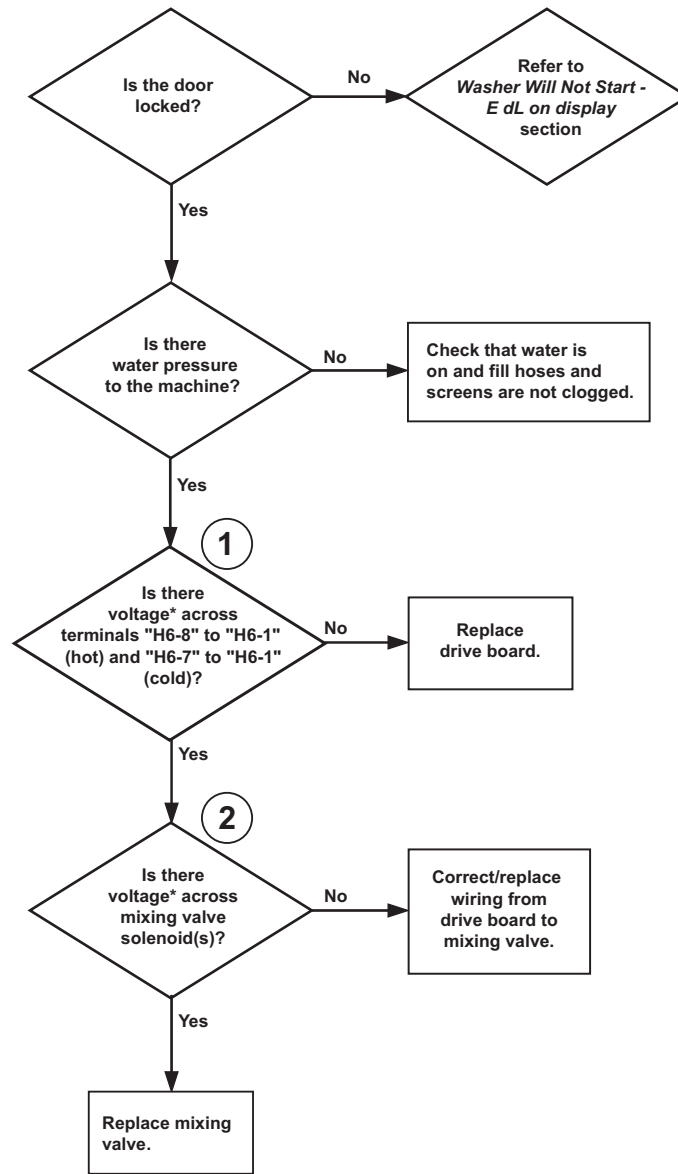
\*Refer to machine serial plate for correct voltage.

FLW1800S

## Washer Will Not Start – “E dL1” on Display



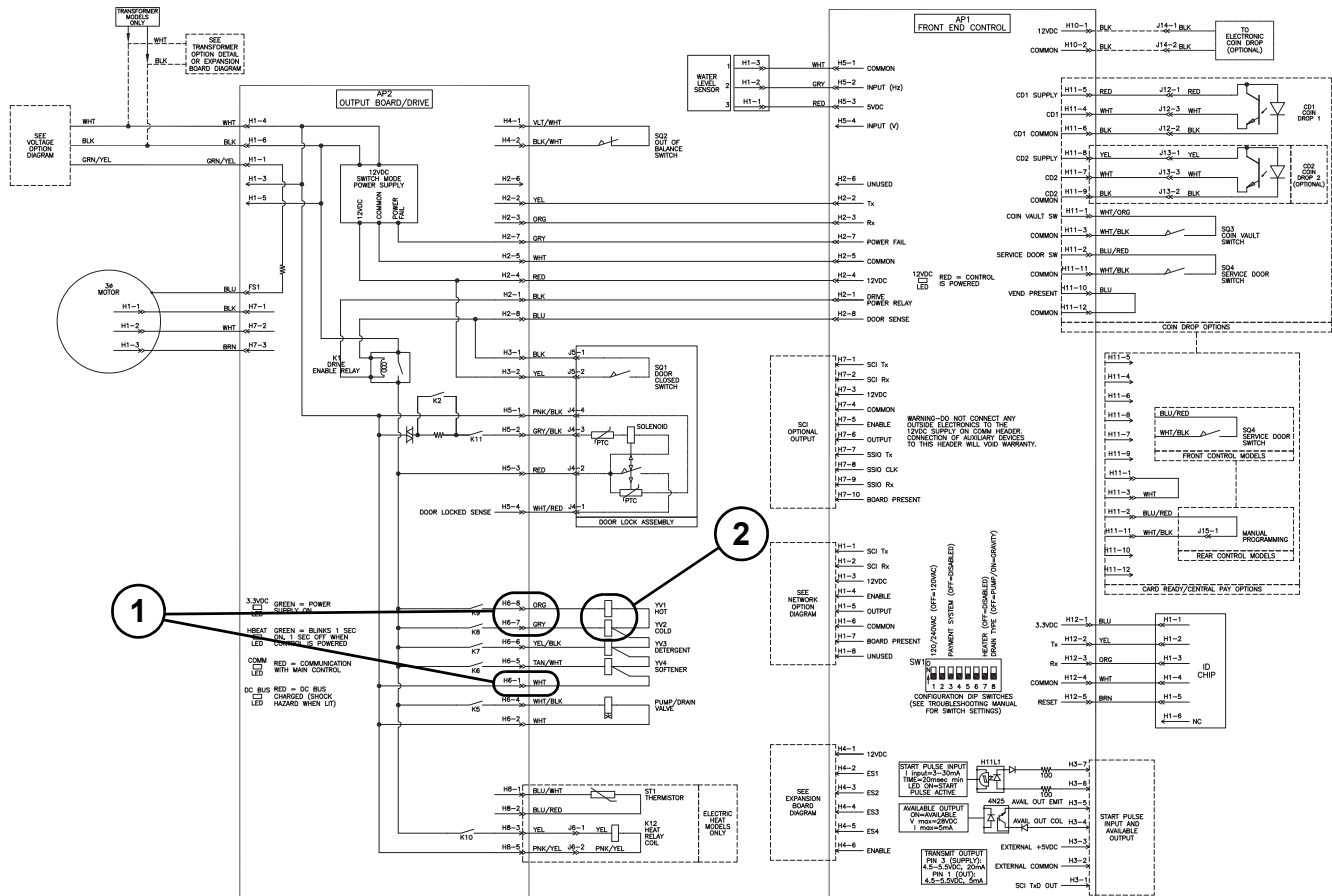
## 22. Washer Will Not Fill (Machine Empty, No “E PS” on Display)



\*Refer to machine serial plate for correct voltage.

FLW1801S

## Washer Will Not Fill (Machine empty, No "E PS" on Display)



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

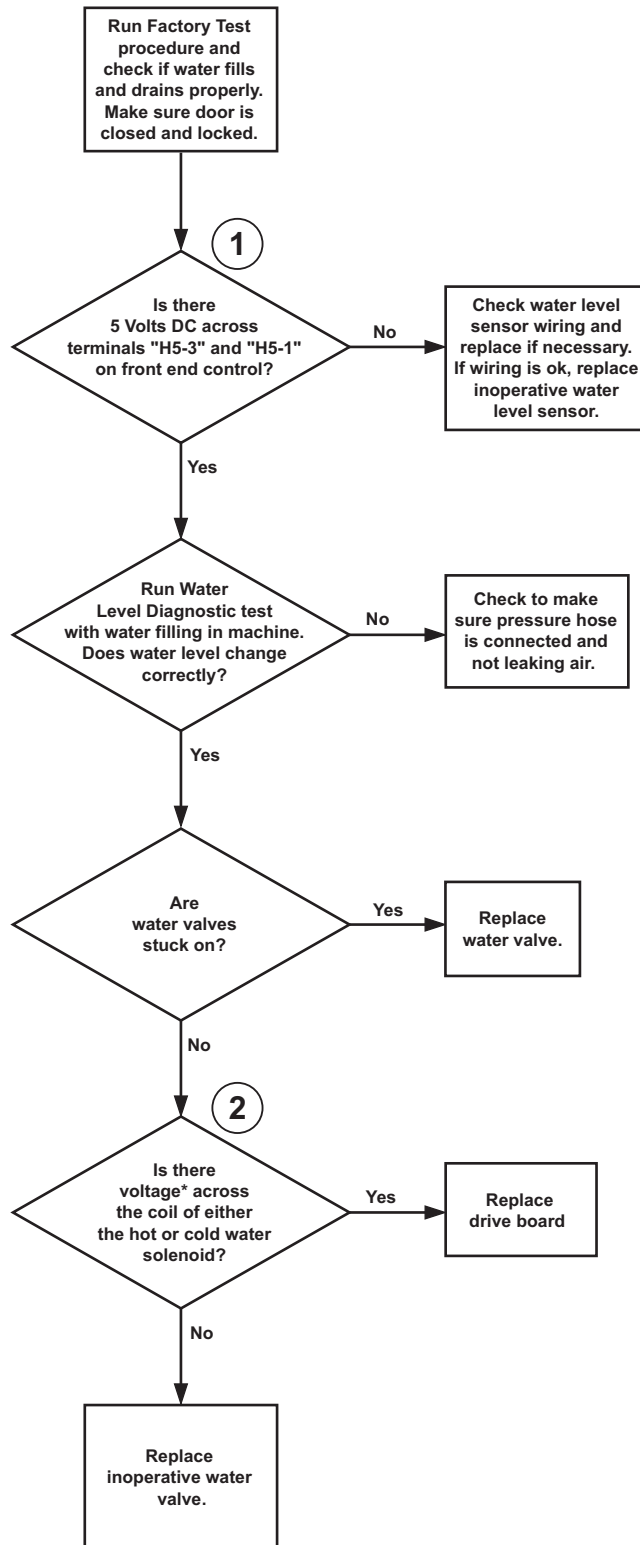
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certaines pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

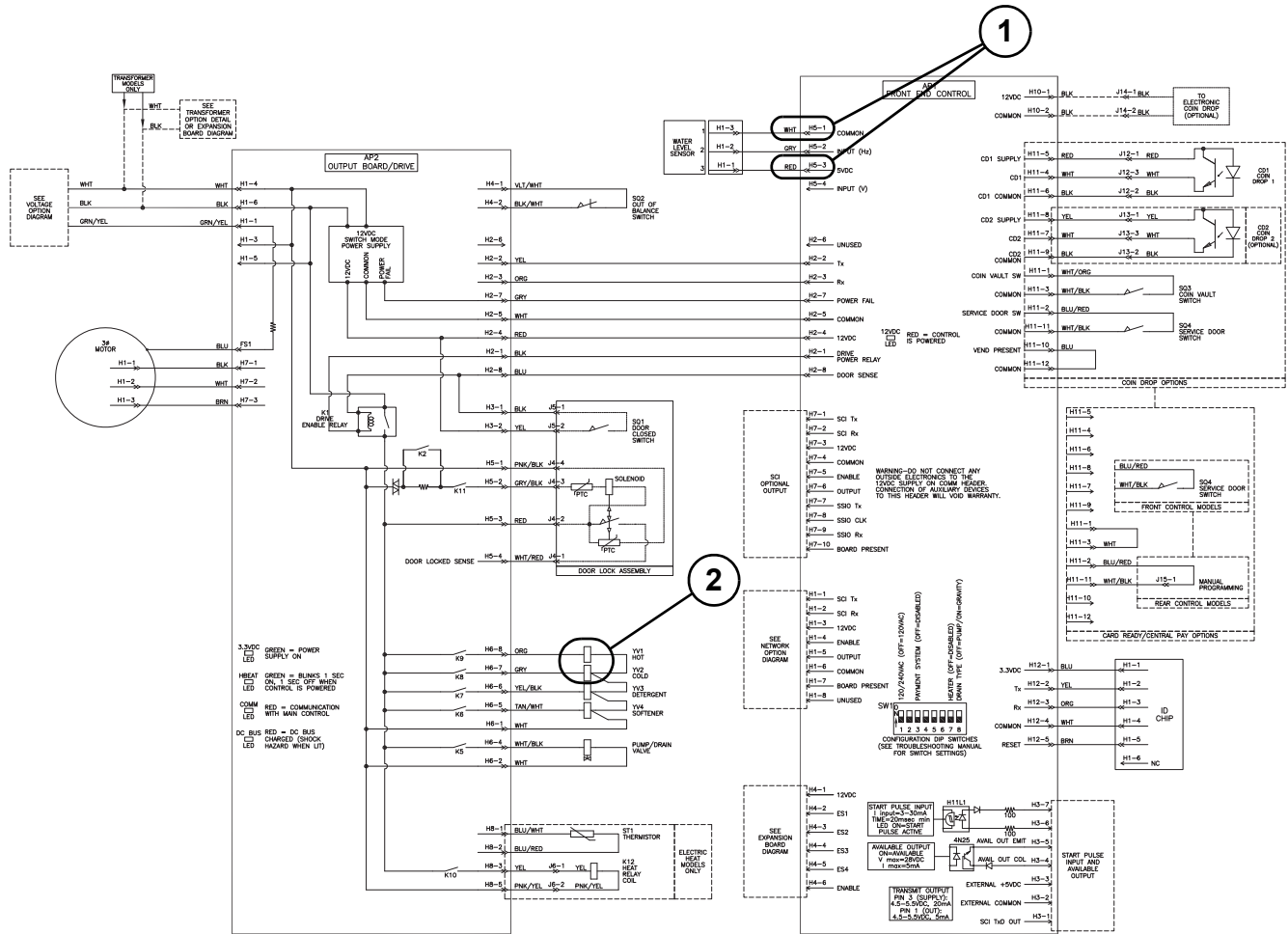
## 23. Washer Overflows



\*Refer to machine serial plate for correct voltage.

FLW1802S

Washer Overflows



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

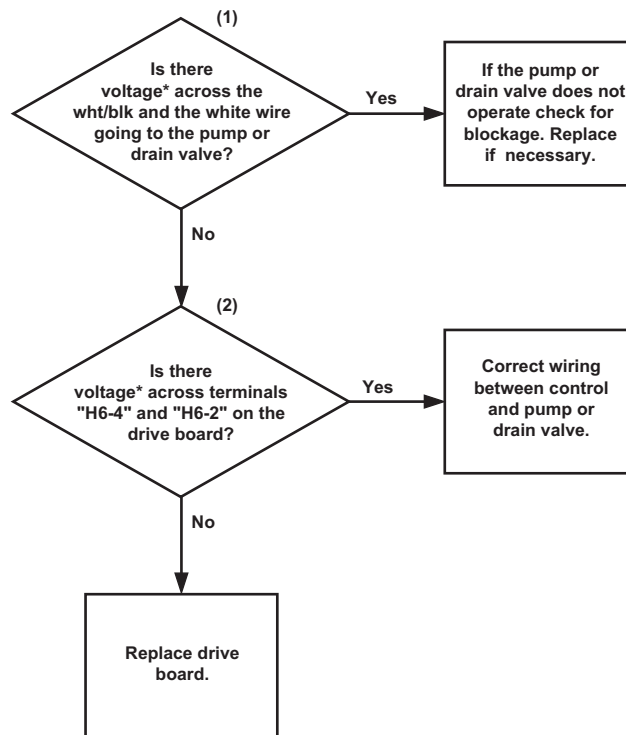
**ATTENTION**  
Certains pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

## 24. Pump or Drain Valve Does Not Operate

**NOTE: Check at beginning of spin/drain portion of cycle.**

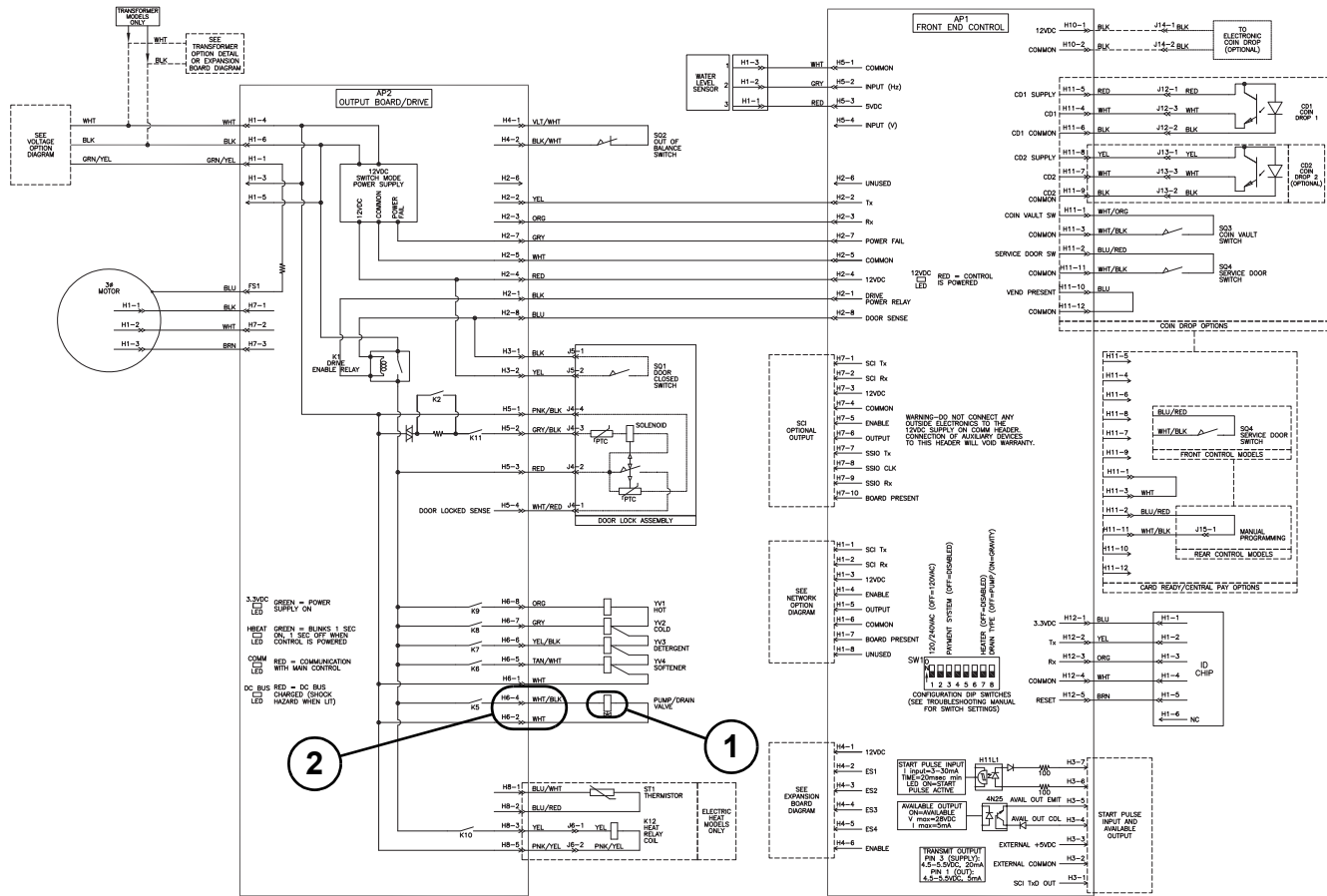


\*Refer to machine serial plate for correct voltage.

FLW1803S



## Pump or Drain Valve Does Not Operate



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

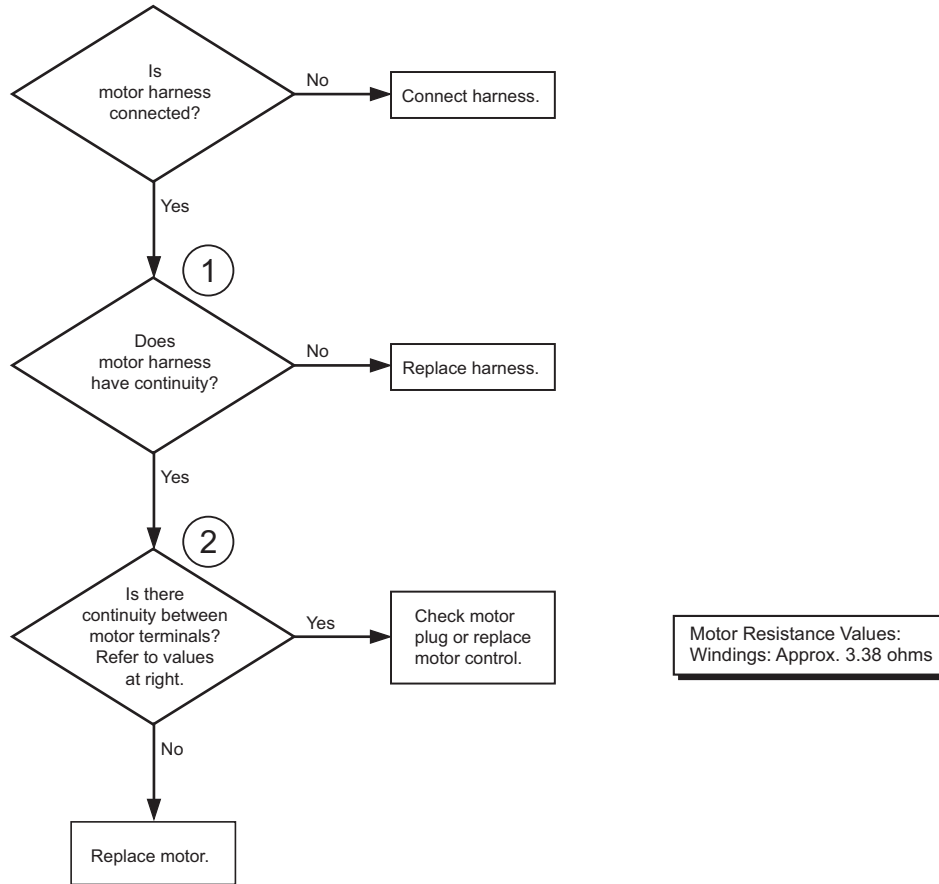
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certains pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

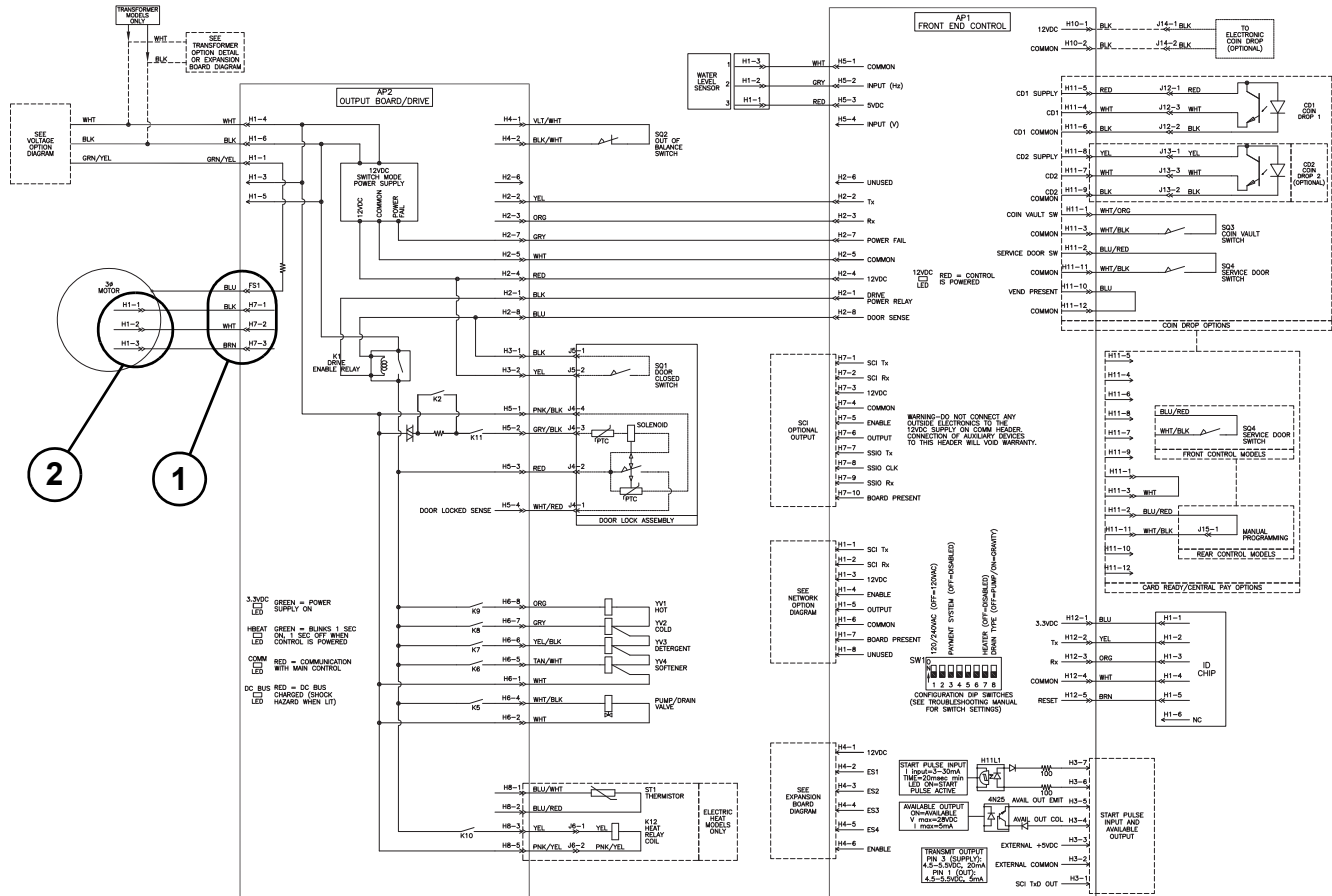
**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

## 25. Motor Does Not Run (“E d29” on Display)



FLW1804S

## Motor Does Not Run ("E d29" on Display)



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

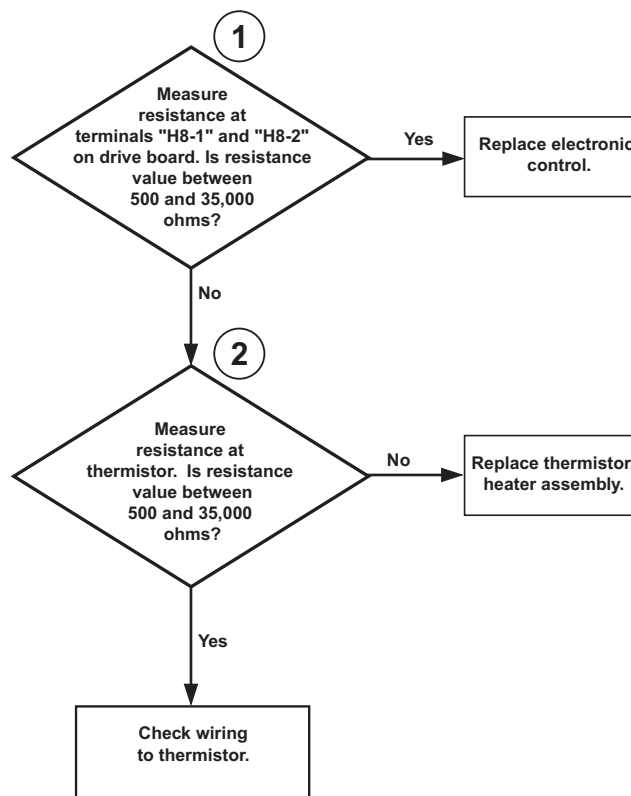
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certains pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôleur moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

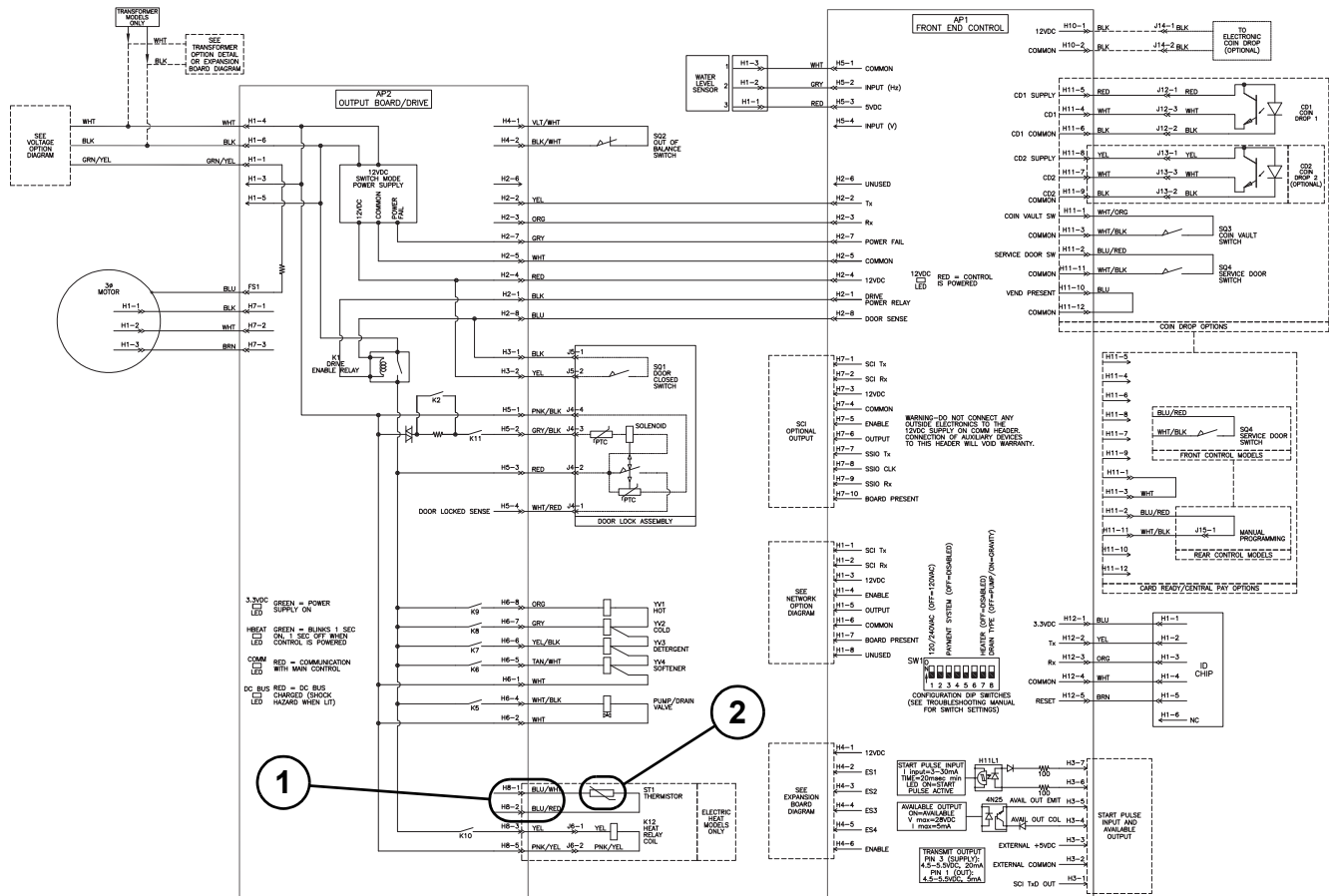
**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

## 26. Washer Will Not Heat (Models Equipped with Heater) (“E oP” or “E SH” Displayed)



FLW1805S

# Washer Will Not Heat (Models Equipped with Heater) ("E oP" or "E SH" Displayed)



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

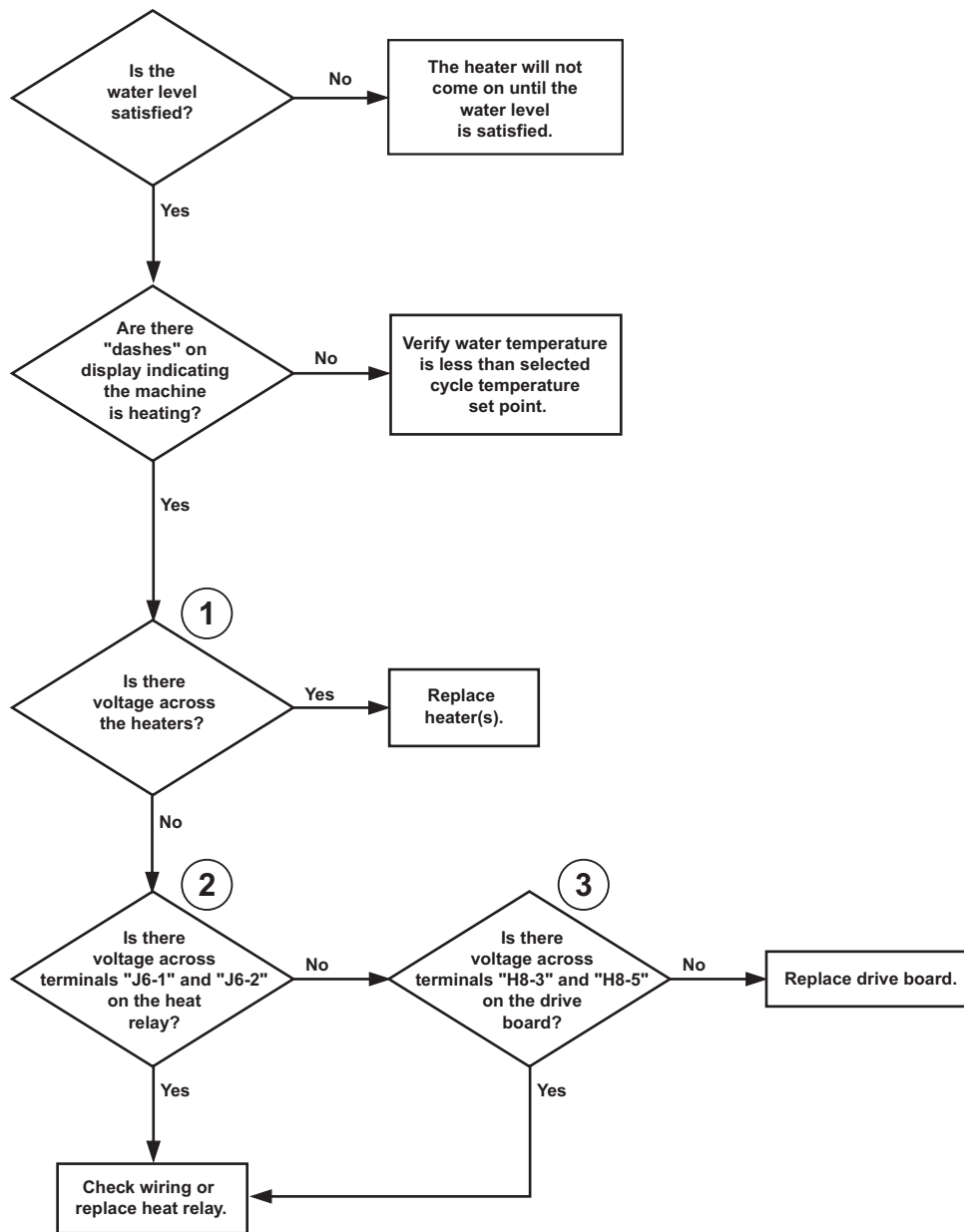
**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certaines pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

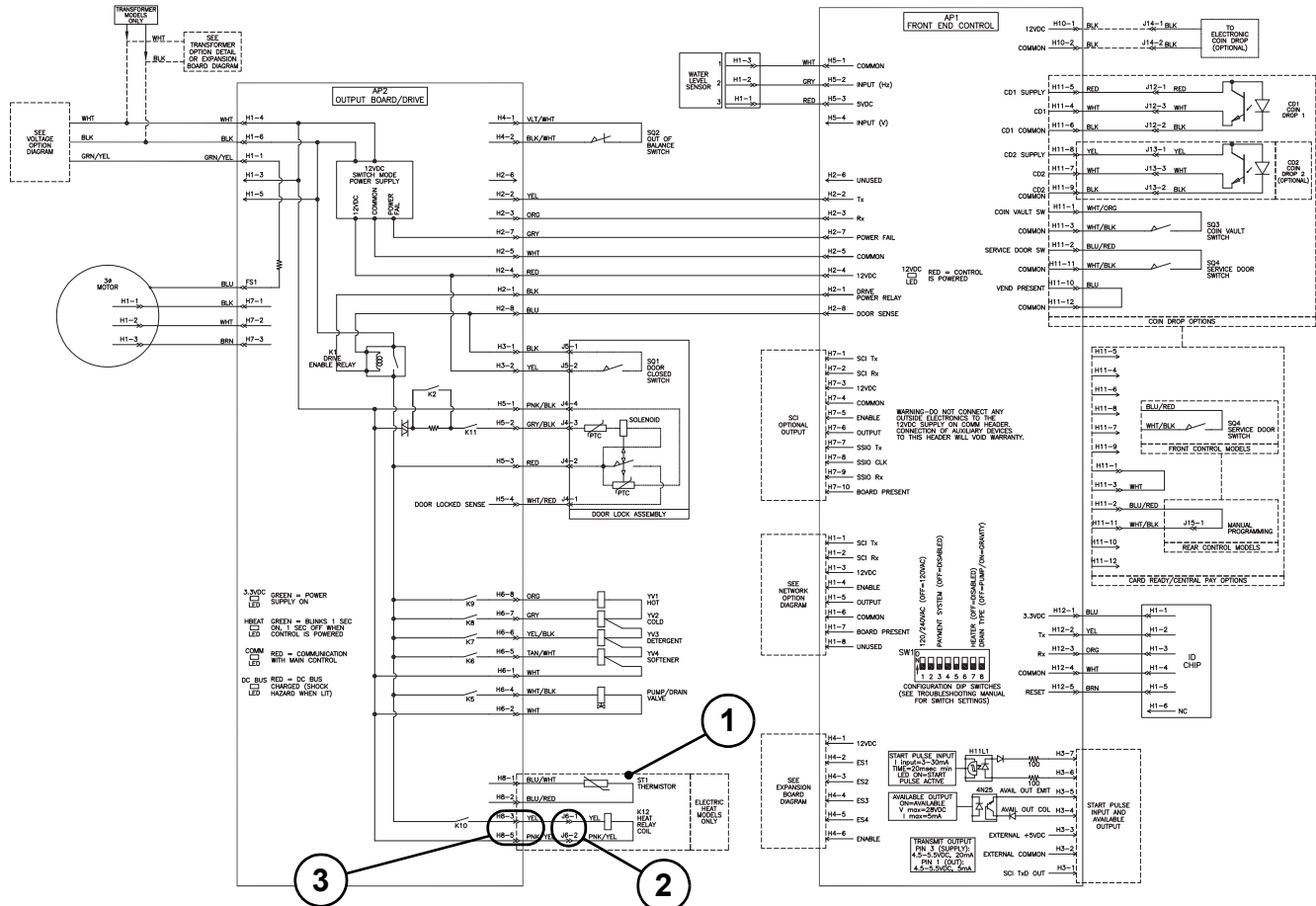
## 27. Washer Will Not Heat (Models Equipped with Heater)



**NOTE:** Resistance of heater element terminals when not connected should be greater than 0 (Zero) ohms and less 500 ohms.

FLW1806S

## Washer Will Not Heat (Models Equipped with Heater)



**WARNING**  
Some internal parts are not grounded and may present a risk of electrical shock when servicing. SERVICE PERSONNEL, DO NOT contact the motor, motor control, or drain valve when the machine is plugged in.

**WARNING**  
Failure to install, maintain, and/or operate this machine according to manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.


**NOTE**  
POWER SUPPLY WIRING MUST HAVE CORRECT POLARITY AND GROUNDING FOR THE UNIT TO OPERATE CORRECTLY.

**ATTENTION**  
Certaines pièces internes ne sont pas fondées et peuvent présenter un risque de choc électrique lors de l'entretien. Personnel de service, de ne pas contacter le moteur, le contrôle moteur, ou le robinet de vidange lorsque l'appareil est branché.

**AVERTISSEMENT**  
Si vous n'installez pas et/ou n'effectuez pas les opérations d'entretien et/ou ne faites pas fonctionner cette machine conformément aux instructions du fabricant, vous favorisez les situations dangereuses tant au niveau de blessures corporelles que celle de dommages à la propriété qui pourraient en résulter.

**REMARQUE**  
Le câblage d'alimentation électrique doit être correctement polarisé et mis à la terre pour que l'appareil fonctionne correctement.

# Section 5 Adjustments

	<b>WARNING</b>
<p><b>To reduce the risk of electric shock, fire, explosion, serious injury or death:</b></p> <ul style="list-style-type: none"><li>• <b>Disconnect electric power to the washer before servicing.</b></li><li>• <b>Never start the washer with any guards/panels removed.</b></li><li>• <b>Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</b></li><li>• <b>Motor not grounded! Disconnect electric power before servicing motor.</b></li></ul>	
<small>W485</small>	

**IMPORTANT:** When reference is made to directions (right or left) in this manual, it is from operator's position facing front of washer.


## 28. Cabinet Leveling Legs


- Place washer in position on a solid, sturdy and level floor. Installing the washer on any type of carpeting, soft tile, a platform, or other weak support structures is not recommended.
- Place level on washer, refer to *Figure 13*, and check if washer is level from side to side and front to back.

**NOTE:** Level must rest on raised portion of top panel. Refer to *Figure 13*.

- If washer is not level, tilt washer to access front and rear leveling legs. For easier access to leveling legs, prop up washer with wooden block. Refer to *Figure 13*.
- Loosen locknuts and adjust the leveling legs until the washer is level from side to side and front to back (using a level). **Make sure washer does not rock.** Refer to *Figure 13*.

- Tighten the locknuts securely against the washer base. If the locknuts are not tight, washer will move out of position during operation.

	<b>CAUTION</b>
<p><b>DO NOT slide washer across floor if the leveling legs have been extended, as legs and base could become damaged.</b></p>	
<small>W248</small>	

	<b>CAUTION</b>
<p><b>Use of the dispenser drawer or washer door as a handle in the transportation of the washer may cause damage to the dispenser or door.</b></p>	
<small>W185</small>	

- Place rubber feet on all four leveling legs. Refer to *Figure 13*.
- Verify that washer doesn't rock.





## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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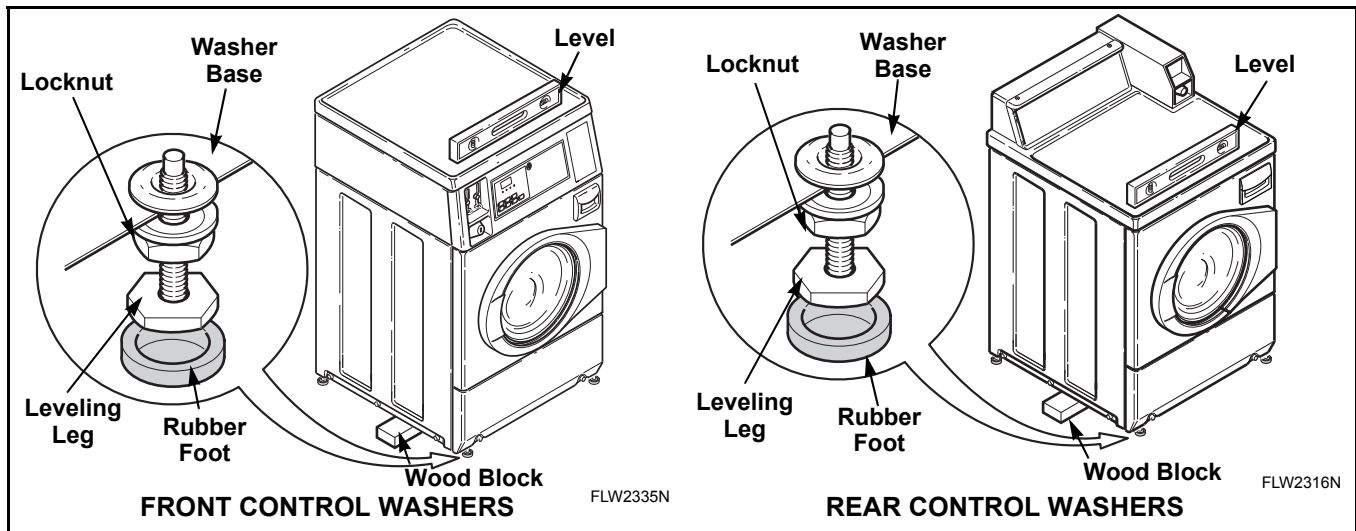


Figure 13



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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## 29. Loading Door

- a. Open loading door.
- b. The loading door can be adjusted up or down somewhat by loosening screws holding door hinge to front panel, then raise or lower door before retightening screws. Refer to *Figure 14*.

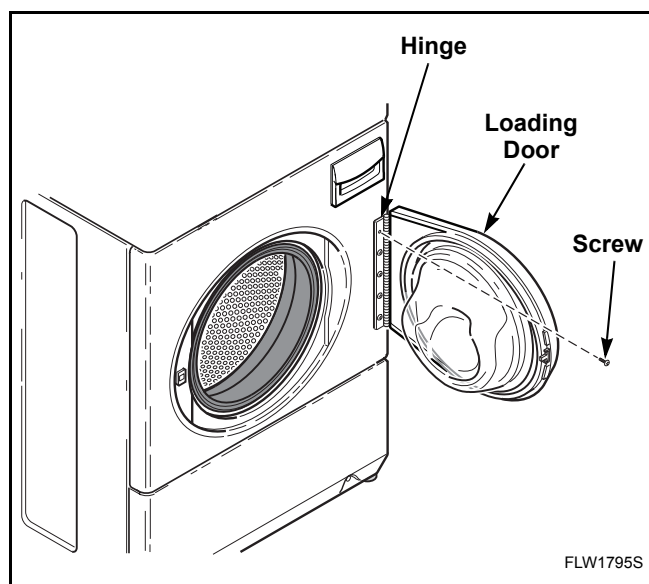


Figure 14



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

W485

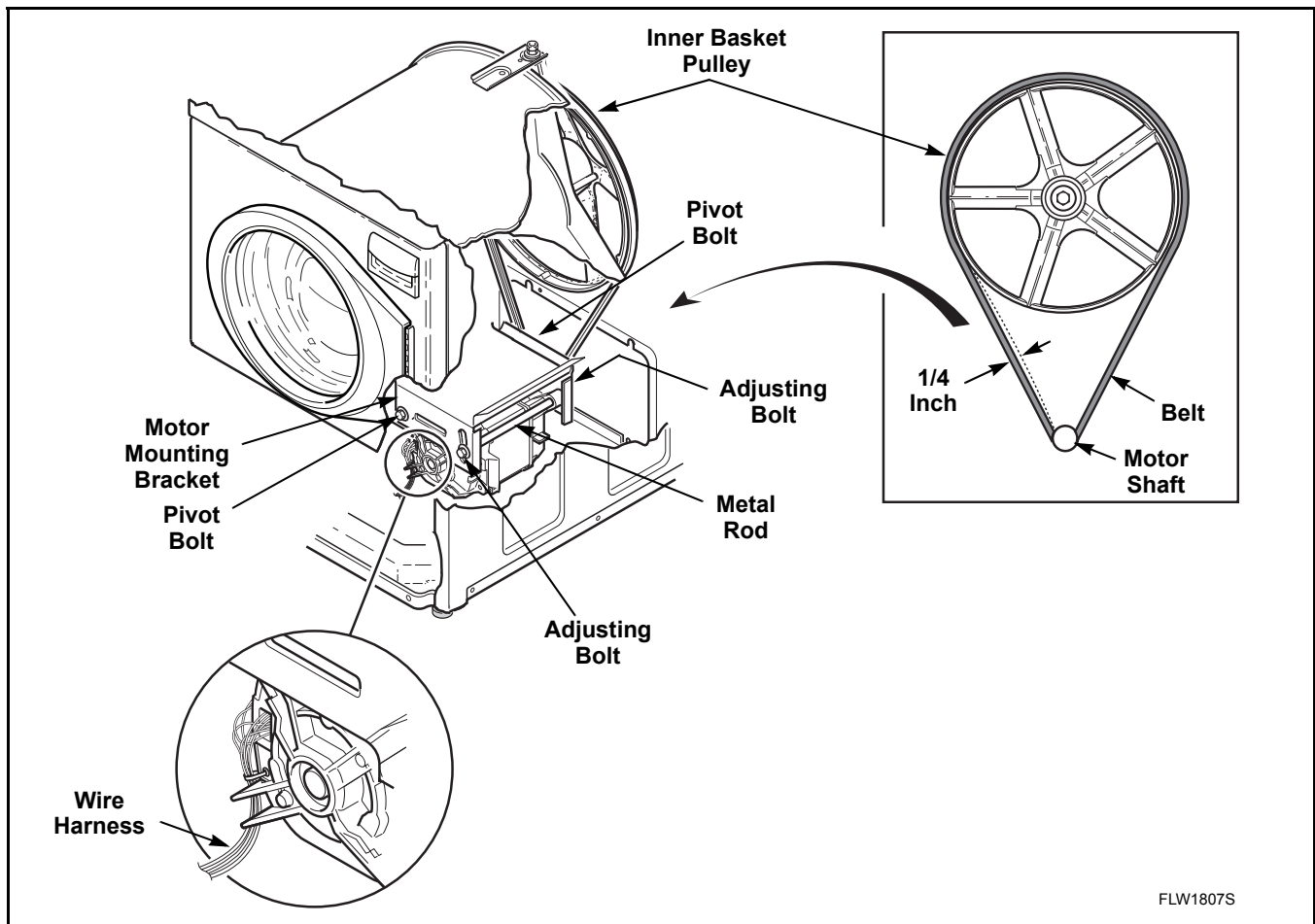
## 30. Motor Belt Tension

**NOTE:** Belt adjustment procedures are done through front of washer, however, as an option, washer can be moved from its location and belt adjustment can be done through lower access panel opening at rear of washer.

- While supporting lower front access panel, remove two screws from bottom edge of access panel and remove panel.
- Working through the lower front access door opening, place a locking pliers on the metal rod and loosen the two adjusting bolts.

Refer to *Figure 15*. Repeat procedure to loosen the two pivot bolts. Refer to *Figure 15*.

- Pull down on motor to increase belt tension. Use a Burroughs belt gauge to obtain proper tension. Proper belt tension is obtained when belt can be deflected approximately 1/4 inch (6.35 mm) from normal position when moderate pressure 50 to 60 pounds (22.68 to 27.22 Kg) is applied to a point midway between pulleys. Refer to *Figure 15*.
- After proper belt tension has been obtained, tighten belt adjusting bolts firmly, then tighten pivot bolts. Refer to *Figure 15*.



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Figure 15



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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## 31. Door Catch

**NOTE: When repairing a broken or inoperative No. 802803 Door Catch, proceed as follows:**

- a. Open loading door.
- b. Remove 11 T-20 Torx head screws holding outer door bezel to inner door bezel. Refer to *Figure 16*.
- c. Pull hinge side of outer bezel away from door and slide forward. Refer to *Figure 16*.
- d. Remove two screws and nuts holding door catch to door and remove door catch.
- e. Install new door catch and tighten screws and nuts to the point of being snug.
- f. Adjust door catch so the outside edge is aligned with the edge of the lock. Refer to *Figure 17*.

- g. Visually check that the door catch properly engages the funnel of the door latch/switch assembly. Refer to *Figure 17*.
- h. Recheck the alignment in Step f. Adjust if needed.
- i. Torque the two nuts to approximately 20 inch pounds (2.25 Nm).
- j. Reinstall outer door bezel by aligning outer bezel tabs with cut aways on inner bezel and sliding outer bezel into position. Refer to *Figure 16*.
- k. Replace 11 screws holding outer door bezel to inner door bezel.

**IMPORTANT: Do not overtighten screws or bezel holes will strip.**

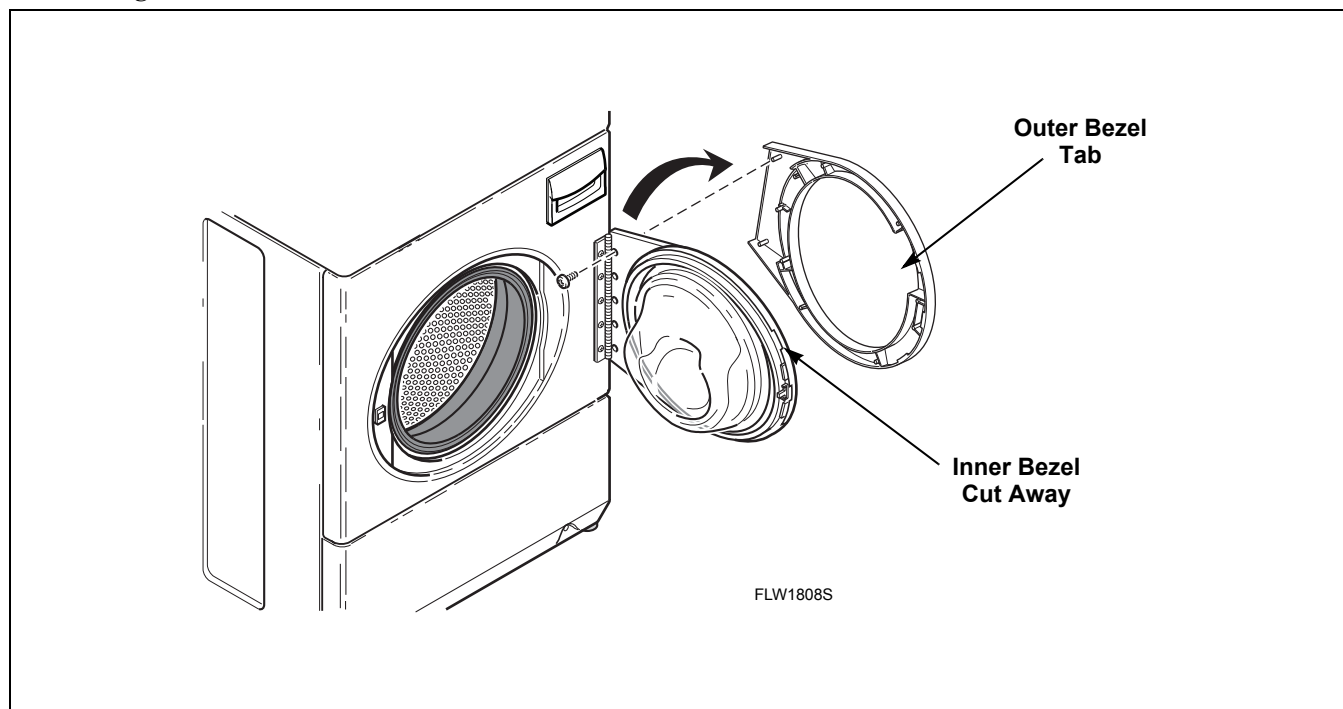


Figure 16



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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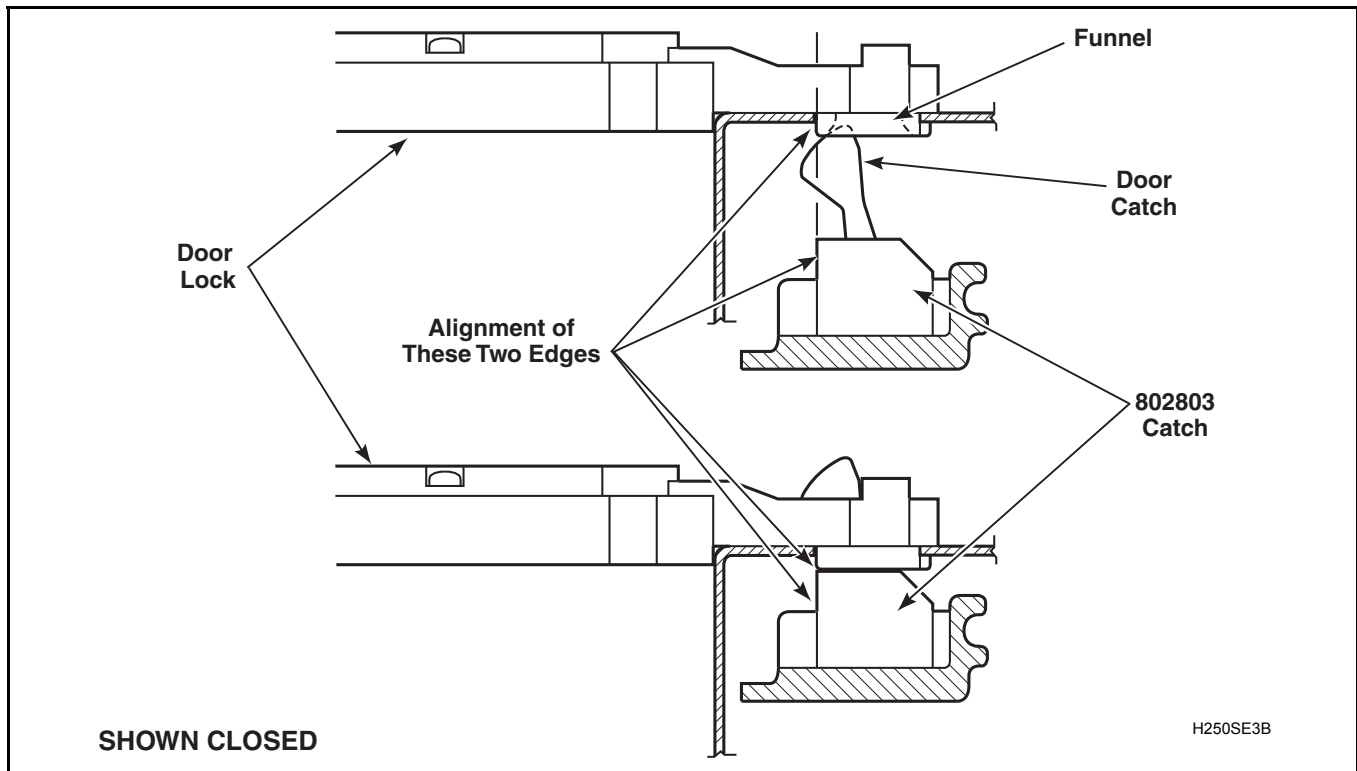


Figure 17



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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## 32. Cleaning Non-Electronic Coin Drop

- Disconnect electrical power to machine and drop.
- Remove coin drop from machine.
- If lint is preventing coins from rolling through coin drop, blow compressed air through coin drop, and along the side of the coin drop. Refer to *Figure 18*.

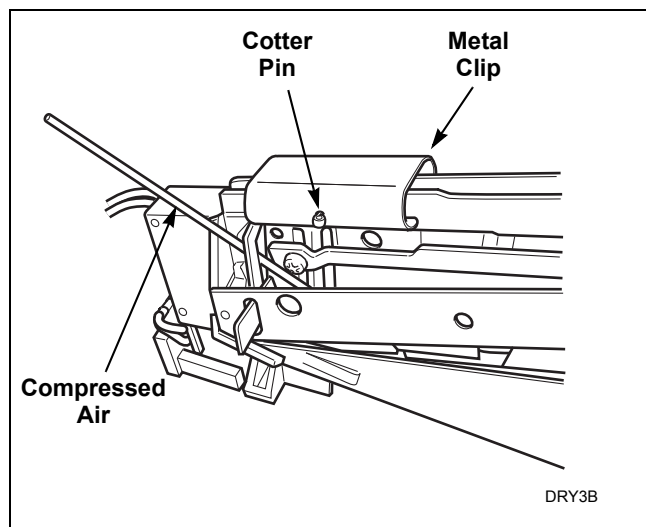


Figure 18

- Insert a coin through the coin drop. If coin does not roll through drop, continue with the following.
- Remove cotter pin from top of drop. Refer to *Figure 18*. Save pin for reinstallation when cleaning is complete.
- Move metal clip closer to sensor so that it comes off frame. Refer to *Figure 18*.

- Remove coin return from coin drop frame. Refer to *Figure 19*.

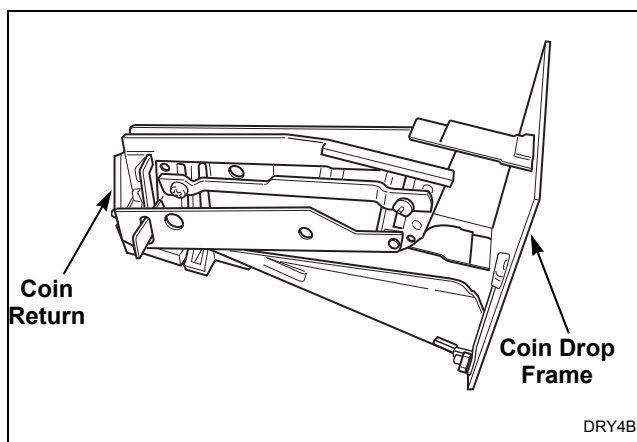


Figure 19

- Check coin path in coin drop for lint and residue. If lint or light residues are present, use a cotton swab to remove. If heavy residue is present, it may be necessary to first scrape off excessive residue and then use a cotton swab dipped in water or isopropyl alcohol (rubbing alcohol) to remove remainder of residue. Refer to *Figure 20*.

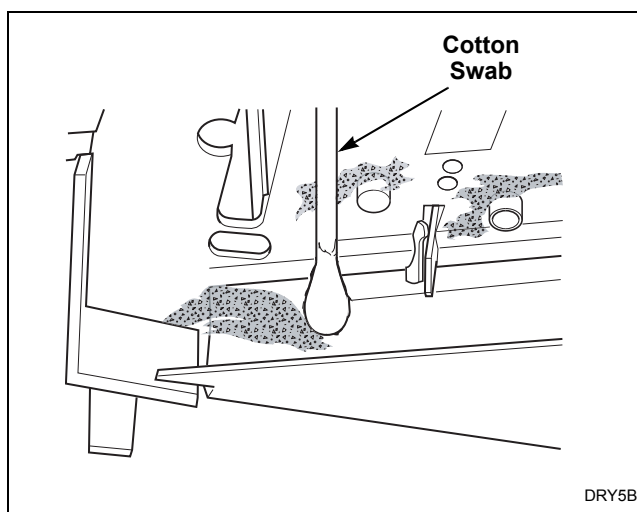


Figure 20



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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- Check coin return pendulum to verify it swings freely. If pendulum does not swing freely, spray pendulum pivot point with Teflon based lubricant and move pendulum back and forth two to three times. An additional application of Teflon based lubricant may be necessary to ensure that pendulum swings freely. Refer to *Figure 21*.

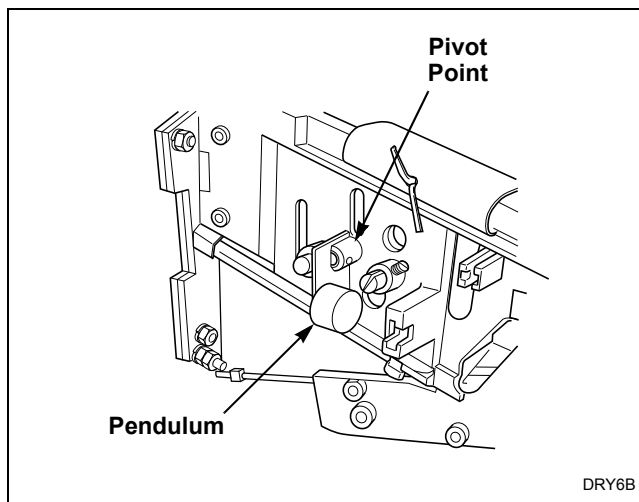


Figure 21

- Check coin drop sensor for dust or dirt on eyes. Wipe eyes with dry cotton swab. Refer to *Figure 22*.

**IMPORTANT: DO NOT use isopropyl alcohol to clean electronic sensor or eyes.**

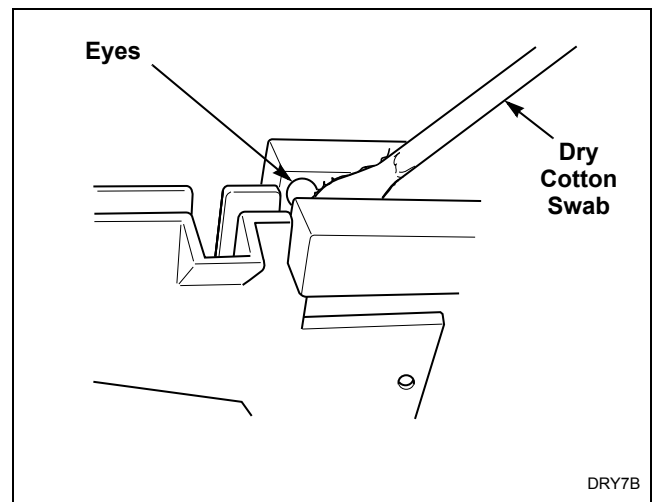


Figure 22

- Reinstall coin return on to coin drop frame.
- Reinstall metal clip and slide towards coin insert slot. All cotter pin holes must line up.
- Reinstall cotter pin.
- Place drop on level surface to verify that coins follow correct path in drop. It may be necessary to lift drop to allow coin to follow through sensor.
- Reinstall coin drop into machine.
- Reconnect electrical power to machine and drop.
- Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

**NOTE: If coin drop does not operate properly after above steps have been completed, corrosion of metal or vandalized components within coin drop may be preventing the coin drop from functioning correctly. Replace coin drop.**



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

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### 33. Cleaning Electronic Coin Drop

**NOTE:** The electronic coin drop should be cleaned once a year. Clean the drop more often if it is exposed to high levels of residue or lint build-up.

- Disconnect electrical power to machine and drop.
- Remove coin drop from machine.
- Check the spring style of coin drop.

**Coin Drops with Old-Style Spring (refer to Figure 23):**

- Move spring downward until cover catch is free. Refer to *Figure 23*.

**NOTE:** Do not lift or overbend the spring in any direction.

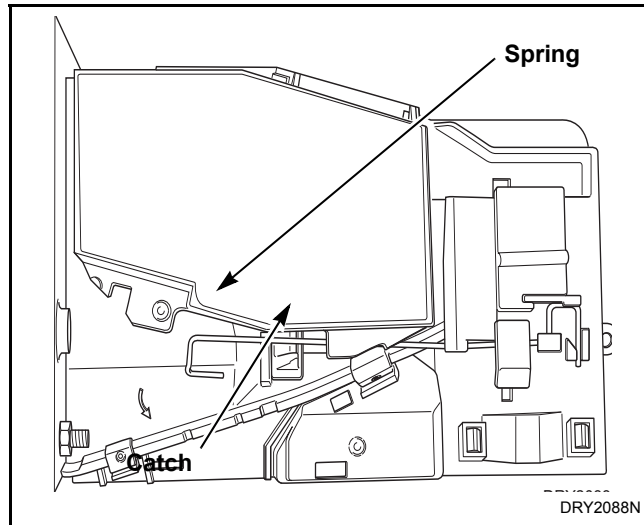


Figure 23

- Open cover for coin drop. Refer to *Figure 24*.

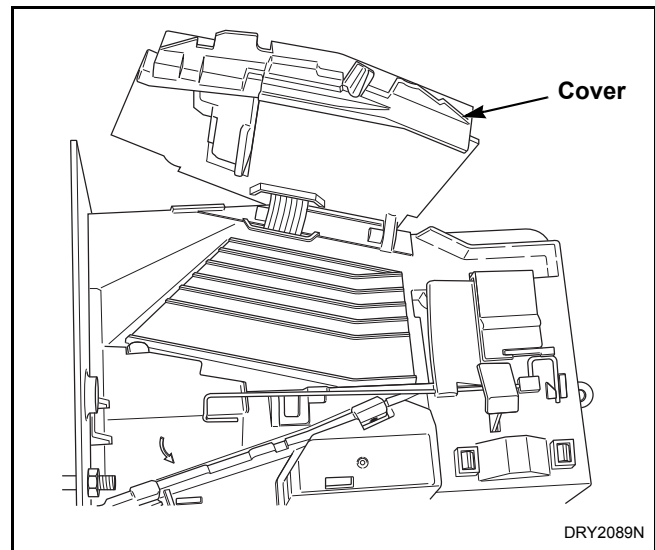


Figure 24

**Coin Drops with New-Style Spring (refer to Figure 25):**

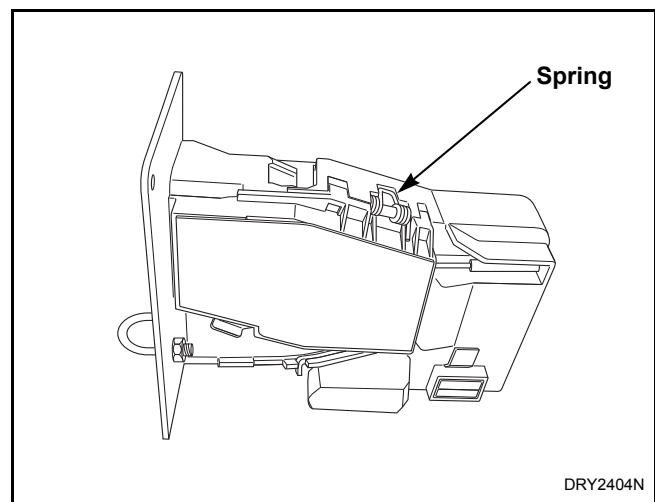


Figure 25

- Open cover of coin drop. Refer to *Figure 26*.





## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

W485

**NOTE:** Do not overbend the spring by opening cover too far.

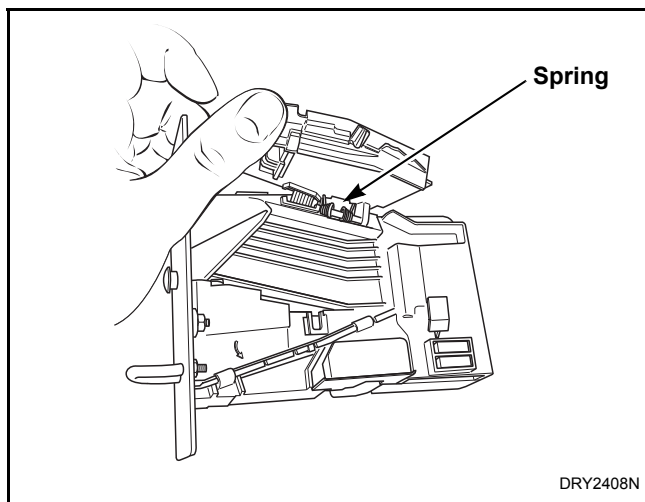


Figure 26

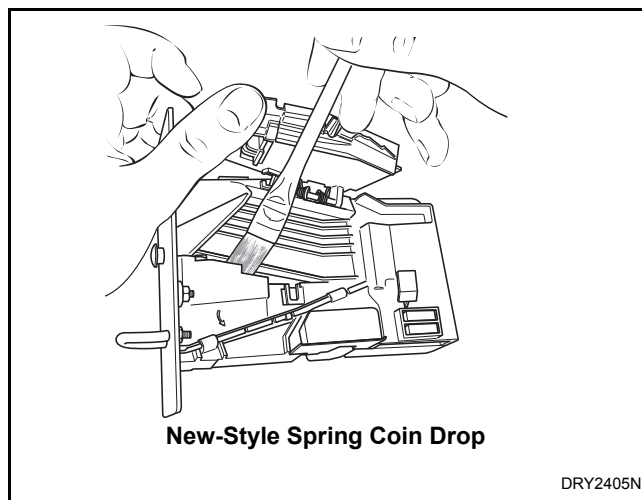


Figure 28

- d. Clean the coin path with a soft brush and wipe exposed surfaces with an alcohol moistened cloth. Refer to *Figure 27* or *Figure 28*.

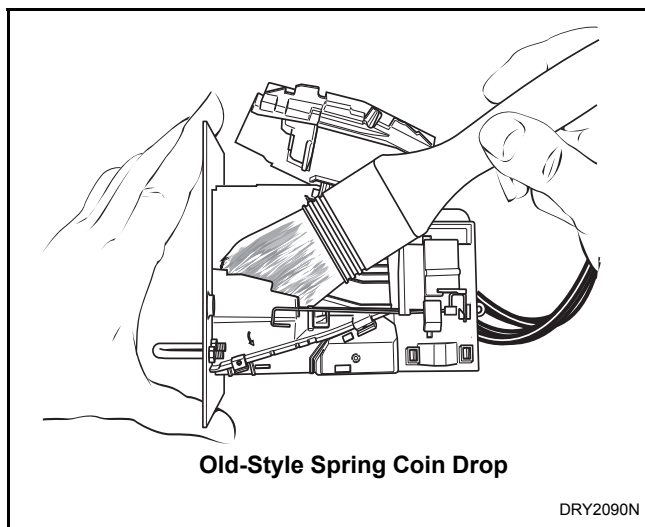


Figure 27

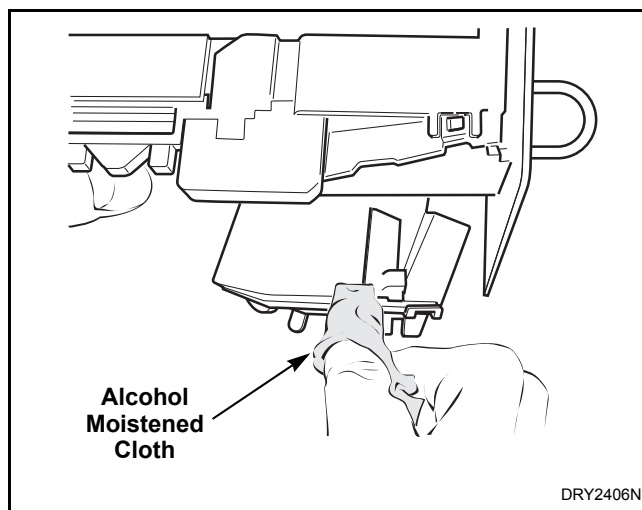


Figure 29

- e. Clean residue from coin rail with an alcohol moistened cloth. Refer to *Figure 29*.



## WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:

- Disconnect electric power to the washer before servicing.
- Never start the washer with any guards/panels removed.
- Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.
- Motor not grounded! Disconnect electric power before servicing motor.

W485

- f. Clean light sensors with a soft brush or air spray duster. Refer to *Figure 30*.

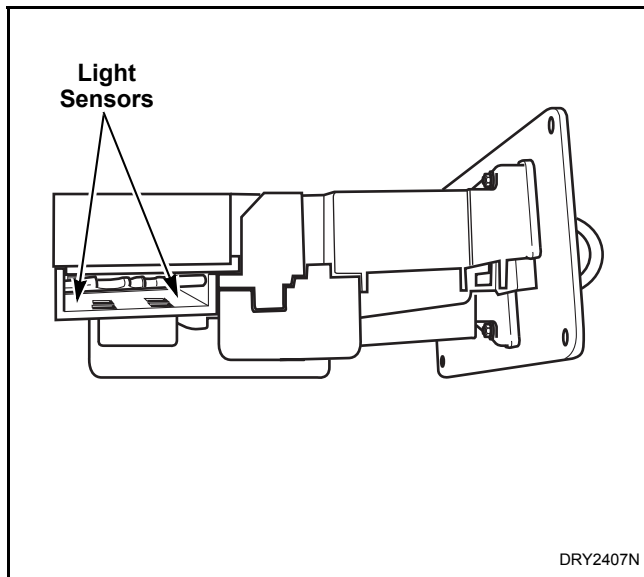


Figure 30

- g. Close cover for coin drop.
- h. **Coin Drops with OLD-Style Spring** - Move spring back over cover catch.
- i. Reinstall coin drop into machine.
- j. Reconnect electrical power to machine and drop.
- k. Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

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