Commercial Automatic Washer

Metered and Nonmetered

Refer to Page 6 for Model Numbers
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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.

⚠️ WARNING

- 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.
- 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.
- 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.
**Safety Information**

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<th>WARNING</th>
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<td><strong>WARNING</strong></td>
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| 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. |

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<th>WARNING</th>
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<td><strong>WARNING</strong></td>
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<td>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.</td>
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<td>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.</td>
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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 the number listed below:

(920) 748-3121 Ripon, Wisconsin

Nameplate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on nameplate(s) as shown.
Introduction

Model Identification

Information in this manual is applicable to these washers.

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<th>Washer Model</th>
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<th>Coin Drop Ready</th>
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<th>Card Reader Ready</th>
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* Add Letter To Designate Color.  L – Almond  W – White  Q – Bisque

Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washhtub, S = Stainless Steel Washhtub
<table>
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<tr>
<th>Washer Model</th>
<th>Non-metered</th>
<th>Metered</th>
<th>Electronic Control</th>
<th>Coin Slide Ready</th>
<th>Coin Drop Ready</th>
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* Add Letter To Designate Color.  L – Almond  W – White  Q – Bisque
Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washtub, S = Stainless Steel Washtub
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* Add Letter To Designate Color. L – Almond  W – White  Q – Bisque

Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washtub, S = Stainless Steel Washtub
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Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washtub, S = Stainless Steel Washtub
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* Add Letter To Designate Color. L – Almond  W – White  Q – Bisque

Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washtub, S = Stainless Steel Washtub
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Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washtub, S = Stainless Steel Washtub
<table>
<thead>
<tr>
<th>Washer Model</th>
<th>Non-metered</th>
<th>Metered</th>
<th>Electronic Control</th>
<th>Coin Slide Ready</th>
<th>Coin Drop Ready</th>
<th>Coin Drop Installed</th>
<th>Card Reader Ready</th>
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<th>Motor Speed</th>
<th>Washhtub</th>
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Key: 1 = 1 Speed Motor, 2 = 2 Speed Motor, P = Porcelain Washtub, S = Stainless Steel Washtub
The cycle begins with a wash fill. The water temperature is determined by the temperature selected. While water fills the washtub, a column of air is trapped in a pressure bulb and hose. The air pressure continues to increase as the washtub fills with water until it is great enough to activate the pressure switch. The pressure switch then causes the wash fill to stop and wash agitation to begin. However, the lid must be closed for the washer to agitate or spin.

The washer uses a reversing type motor, a special drive belt and an idler assembly. The idler assembly applies tension to the outside of the drive belt.

During agitation, the motor runs in the counterclockwise direction. The spring tension on the
idler pulley applies the tension required to reduce the slack on the drive belt and maintain maximum belt to motor pulley contact. This eliminates belt slippage and ensures an efficient wash action, even with extra large loads.

The belt drives the transmission drive pulley in the counterclockwise direction. The pulley drives the helix which is splined to the input shaft of the transmission. This causes the input shaft to turn inside of a roller clutch which is pressed into the transmission cover. This roller clutch acts as a bearing in the counterclockwise direction allowing the transmission gears to operate. The transmission’s rack and pinion gear design produces a 210 degree agitation stroke at the output shaft of the transmission which drives the agitator. The brake assembly remains locked during the agitation mode since no pressure is applied to it by the transmission drive pulley.

After the wash agitation is completed, the timer advances into the first spin. During spin, the motor reverses turning in the clockwise direction to spin the water out of the washtub. The combination of water, washtub and load weight cause the drive belt tension on the idler side of the belt to overtake the idler spring pressure allowing the belt to become slack on the opposite side. This reduces the belt to pulley contact and allows slipping between the belt and pulley.

As water is removed by the pump and the momentum of the washtub increases, the idler spring tension gradually overcomes the belt tension removing the belt slack. This eventually increases the belt to pulley contact until maximum spin speed is achieved.

The drive pulley turns clockwise riding up the ramps of the helix, exerting pressure on the brake and forcing it to release from brake pads. The helix drives the input shaft of the transmission, and when the input shaft turns in the clockwise direction the roller clutch locks onto the shaft causing the entire transmission assembly to turn. None of the gears in the transmission are operating at this time. The hub of the washtub is splined to the transmission tube and rotates with the transmission assembly. The centrifugal force created by the spinning washtub causes water to be extracted from the clothes.

Water is introduced during the first spin to “SPRAY” the garments and remove suds from them. The initial spin is followed by rinse agitation to rinse away any detergent residue. The washer fills and then agitates like the wash portion of the cycle. Following rinse agitation, a final spin extracts the rinse water from the clothes preparing them for the dryer.
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.

IMPORTANT: Refer to appropriate model wiring diagram for aid in testing washer components.

1. Clicking Noise During Operation on NEWLY Installed Units

If a clicking noise is heard when first starting up a new topload washer, the noise is related to the belt taking a temporary “set” around the idler pulley. The set causes a slight bump in the belt which in turn causes the idler lever to tap the motor bracket making the clicking noise. THE BELT DOES NOT NEED TO BE REPLACED.

To correct this condition please perform the following break-in procedure:

1. After installing the unit start a fill cycle to make sure the seals have been lubricated.

2. Stop the fill cycle and place the unit into a spin cycle.

3. Run the cycle for several minutes until the belt has warmed up. This will remove the “set.”

4. Normal use will keep the belt from resetting.

5. For extended periods of non-use (three to four weeks), this procedure might need to be repeated.
General Troubleshooting

2. Motor Hums

A topload washer exhibiting a humming motor in agitation or spin may require the timer or motor to be replaced. Refer to flow chart to determine if the motor or timer needs to be replaced.
3. No Hot Water

There is no hot water.

- Is the water supply faucet closed? Yes → Open faucet.
  No

- Is the water supply cold? Yes → Check water heater.
  No

- Is the hot water fill hose kinked? Yes → Straighten or replace hose.
  No

- Is the mixing valve screen or screen in outer end of fill hose nearest water supply faucet clogged? Yes → Disconnect hot fill hose and clean or replace screen.
  No

- Is the hot water mixing valve solenoid inoperative? Yes → Test solenoid and replace if necessary.
  No

- Is the timer/control inoperative? Yes → Test timer/control and replace if inoperative.
  No

- Is temperature switch (if present) inoperative? Yes → Test switch (if present) and replace if inoperative.
  No

- Is pressure switch inoperative? Yes → Test switch and replace if inoperative.
  No

- Is pressure hose clogged? Yes → Remove and clean or replace hose.
  No

- Is there broken, loose or incorrect wiring? Yes → Refer to appropriate wiring diagram.
  No
4. No Cold Water

There is no cold water.

Is the water supply faucet closed?
Yes → Open faucet.
No

Is the cold water fill hose kinked?
Yes → Straighten or replace hose.
No

Is the mixing valve screen or screen in outer end of fill hose nearest water supply faucet clogged?
Yes → Disconnect cold fill hose and clean or replace screen.
No

Is cold water mixing valve solenoid inoperative?
Yes → Test solenoid and replace if necessary.
No

Is timer/control inoperative?
Yes → Test timer/control and replace if inoperative.
No

Is temperature switch (if present) inoperative?
Yes → Test switch (if present) and replace if inoperative.
No

Is pressure switch inoperative?
Yes → Test switch and replace if inoperative.
No

Is pressure hose clogged?
Yes → Remove and clean or replace hose.
No

Is there broken, loose or incorrect wiring?
Yes → Refer to appropriate wiring diagram.
No
5. No Warm Water

There is no warm water.

Is there no hot water?

Yes ➔ Refer to No Hot Water paragraph

No ➔

Is there no cold water?

Yes ➔ Refer to No Cold Water paragraph

TLW362S
General Troubleshooting

6. Water Fill Does Not Stop At Proper Level

Water fill does not stop at proper level.

Is pressure switch inoperative?

Yes: Test switch and replace if inoperative.

No

Is there an air leak in pressure hose?

Yes: Replace hose.

No

Is mixing valve inoperative?

Yes: Test valve and replace if inoperative.

No

Was there a siphoning action started in washer causing water to be siphoned from washer during cycle due to end of drain hose being lower than cabinet top of washer?

Yes: Install 562P3 Siphon Break Kit.

No

Does drain hose fit tight in standpipe or drain?

Yes: Provide an air gap around drain hose and drain receptacle.

No

Is there water in pressure hose?

Yes: Blow air through hose to remove water.

No

Is there broken, loose, shorted or incorrect wiring?

Yes: Refer to appropriate wiring diagram.

No
7. Timer Does Not Advance (Models with Timer Only)

Timer does not advance.

Is pause part of normal operation?

No

Is lid open?

No

Washer will not fill?

No

Is timer motor lead wire off timer terminal?

No

Is there broken, loose or incorrect wiring?

No

Yes

Refer to appropriate wiring diagram.

Yes

Refer to appropriate wiring diagram and reattach wire.

Has washer drive motor over loaded and motor thermal overload been tripped?

No

Is circuit breaker to washer tripped, disconnecting power to washer?

No

Washer will not fill?

Yes

Timer is designed to pause when going from spin into rinse to allow the washtub to stop spinning before filling. Make sure timer has advanced into fill portion of rinse cycle.

Yes

Reset circuit breaker.

Yes

Timer is designed to stop under these conditions. Motor thermal proctor reset time may vary depending upon the reason for the washer overload, however, it should reset within 15 minutes. Check to ensure that washer was not overloaded with clothes.

Yes

Test timer and replace if inoperative.

Close lid. Lid MUST be closed any time the washer is set to fill, agitate or spin.

Timer pauses until pressure switch is satisfied.

Refer to diagram for information on time required.

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes
General Troubleshooting

8. Motor Does Not Run

Motor does not run.

Is electrical power off, fuse blown or power cord not plugged in?
- Yes: Check laundry room for blown or loose fuse(s) or open circuit breakers. (Washer itself does not have an electrical fuse.)
- No: Is lid open or lid switch inoperative?
  - Yes: Close lid or test switch and replace if inoperative.
  - No: Is timer/control improperly set?
    - Yes: Reset timer/control or try another cycle.
    - No: Test timer/control and replace if inoperative.

Are motor starting functions inoperative; no start or motor hums only?
- Yes: Refer to Motor Test Procedure section to check start switch and start windings.
- No: Is motor dead, won’t run?
  - Yes: Refer to Motor Test Procedure section to check switch and windings.
  - No: Has motor overload protector cycled?
    - Yes: Wait two or three minutes for overload protector to reset. If protector cycles repeatedly, refer to Washer Overheats, Cycles On Motor Thermal Protector, Switch Actuator Kicks In and Out paragraph.
    - No: Is there a bind in upper or lower motor bearing?
      - Yes: Remove belt and determine if motor shaft will spin. Replace motor if shaft is locked up.
      - No: Is there broken, loose or incorrect wiring?
        - Yes: Refer to appropriate wiring diagram.
        - No: Is power cord miswired?
          - Yes: Refer to appropriate wiring diagram for correct wiring.
          - No: Is timer/control inoperative?
            - Yes: Test timer/control and replace if inoperative.
            - No: Is motor starting functions inoperative; no start or motor hums only?
              - Yes: Refer to Motor Test Procedure section to check start switch and start windings.
              - No: Is lid open or lid switch inoperative?
9. No Agitation

No agitation.

Is timer/control inoperative?

Yes
Test timer/control and replace if inoperative.

No

Is action switch (fabric selector), if present, inoperative?

Yes
Test switch and replace if inoperative.

No

Motor won’t run?

Yes
Test switch and replace if inoperative.

No

Is pressure switch inoperative?

Yes
Test switch and replace if inoperative.

No

Is there a bind in pump?

Yes
Replace pump.

No

Is lid open or lid switch inoperative?

Yes
Close lid or test switch and replace if inoperative.

No

Is there broken, loose or incorrect wiring?

Yes
Refer to appropriate wiring diagram.

No

Is drive belt broken?

Yes
Replace belt.

No

Is transmission assembly inoperative?

Yes
Replace transmission assembly.

No

Is motor pulley roll pin sheared (through Serial No. 00113645)?

Yes
Remove drive motor and replace roll pin and any other damaged parts.

No

Has drive motor overload protector cycled?

Yes
Refer to 'Washer Overheats, Cycles On Motor Thermal Protector, Switch Actuator Kicks In and Out' paragraph.

No

Is there broken, loose or incorrect wiring?

Yes
Refer to Motor Test Procedure section to check switch and windings.

No

Is pressure switch inoperative?

Yes
Test switch and replace if inoperative.

No

Is drive belt broken?

Yes
Replace belt.

No

Is lid open or lid switch inoperative?

Yes
Close lid or test switch and replace if inoperative.

No

Has drive motor overload protector cycled?

Yes
Refer to 'Washer Overheats, Cycles On Motor Thermal Protector, Switch Actuator Kicks In and Out' paragraph.

No

Is there broken, loose or incorrect wiring?

Yes
Refer to appropriate wiring diagram.

No

Is drive belt broken?

Yes
Replace belt.

No

Is pressure switch inoperative?

Yes
Test switch and replace if inoperative.

No

Is drive belt broken?

Yes
Replace belt.

No
General Troubleshooting

10. Constant Agitation

Constant agitation.

Is timer/control inoperative?

Yes: Test timer/control and replace if inoperative.

No:

Is there shorted or incorrect wiring?

Yes: Refer to appropriate wiring diagram.

No:

Is transmission assembly inoperative?

Yes: Repair or replace transmission assembly.

TLW333S
11. Washer Overheats, Cycles On Motor Thermal Protector, Switch Actuator Kicks In and Out

Washer overheats, cycles on motor thermal protector, switch actuator kicks in and out.

Is belt tacky, not allowing proper slip?  
- Yes: Check belt and replace if defective.
- No

Is belt tension too great, not allowing proper slip?  
- Yes: Make sure idler spring is properly connected.
- No

Is timer/control inoperative?  
- Yes: Test timer/control and replace if inoperative.
- No

Are motor switch functions inoperative?  
- Yes: Refer to Motor Test Procedure section to check switch functions.
- No

Is there a bind in water pump?  
- Yes: Replace pump.
- No

Are brake pads or brake assembly binding?  
- Yes: Free binding pads, or replace pads and brake assembly.
- No

Have bearings, transmission or motor locked up and will not turn?  
- Yes: Check that all these components are able to move freely. Correct binding component.
- No

Is voltage incorrect?  
- Yes: Contact local utility company, or have a qualified electrician check power supply.
- No
12. Slow Spin Or No Spin

**Slow spin or no spin.**

- **Is timer/control inoperative?**
  - Yes: Test timer/control and replace if inoperative.
  - No:
    - **Is lid open or lid switch inoperative?**
      - Yes: Close lid or test switch and replace if inoperative.
      - No:
        - **Is there a bind in pump?**
          - Yes: Replace pump.
          - No:
            - **Is drive belt broken or worn?**
              - Yes: Replace belt.
              - No:
                - **Motor won't run?**
                  - Yes: Refer to Motor Test Procedure section to check switch and windings.
                  - No:
                    - **Is there no clearance between brake pads and discs?**
                      - Yes: Replace pads and brake assembly.
                      - No:
                        - **Is there no clearance between brake pads and discs?**
                          - Yes: Refer to appropriate wiring diagram.
                          - No:
                            - **Is transmission assembly inoperative?**
                              - Yes: Repair or replace transmission assembly.
                              - No:
                                - **Has drive motor overload protector cycled?**
                                  - Yes: Wait two or three minutes for overload protector to reset. If protector cycles repeatedly, refer to Washer Overheats, Cycles On Motor Thermal Protector, Switch Actuator Kicks In and Out paragraph.
                                  - No:
                                    - **Is there a bind in pump?**
                                      - Yes: Replace pump.
                                      - No:
                                        - **Is drive belt broken or worn?**
                                          - Yes: Replace belt.
                                          - No:
                                            - **Motor won't run?**
                                              - Yes: Refer to Motor Test Procedure section to check switch and windings.
                                              - No:
13. Constant Spin

Constant spin.

Is timer/control inoperative?

Yes

Test timer/control and replace if inoperative.

No

Washtub does not stop spinning within seven seconds after lid is opened.

Yes

Replace brake pads and brake assembly.

No

Is there excessive wear on brake pads or missing brake pads?

Yes

Replace brake pads and brake assembly.

No

Is there shorted or incorrect wiring?

Yes

Refer to appropriate wiring diagram.

No

Yes
14. Washer Stops In Cycle; Quits After A Couple Loads; Is Intermittent

Washer stops in cycle, quits after a couple loads or is intermittent.

Is belt tacky, not allowing proper slip?
  Yes: Check belt and replace if defective.
  No:

Is belt tension too great, not allowing proper slip?
  Yes: Make sure idler spring is properly connected.
  No:

Is timer/control inoperative?
  Yes: Test timer/control and replace if inoperative.
  No:

Is there broken, loose or incorrect wiring?
  Yes: Refer to appropriate wiring diagram.
  No:

Has motor overload protector cycled?
  Yes:
  No:

Are motor switch functions inoperative?
  Yes: Refer to Motor Test Procedure section to check switch functions.
  No:

Has brake, transmission or motor locked up and will not turn?
  Yes: Check that all these components are able to move freely.
  No:

Wait two or three minutes for overload protector to reset. If protector cycles repeatedly, refer to Washer Overheats, Cycles On Motor Thermal Protector, Switch Actuator Kicks In and Out paragraph.
15. Washer Is Locked Up Or Binding

Washer is locked up or binding.

- Is there excessive belt tension? Yes → Replace belt and/or idler spring.
  No →

- Is there a bind in upper or lower bearing? Yes → Replace bearing.
  No →

- Is there a bind in water pump? Yes → Replace pump.
  No →

- Is there a bind in transmission? Yes → Repair or replace transmission.
  No →

- Are brake pads binding? Yes → Free binding pads or replace pads.
  No →

- Is voltage incorrect? Yes → Contact local utility company or have a qualified electrician check power supply.
  No →

TLW938S
16. Outer Tub Does Not Empty

Outer tub does not empty.

Is drain hose kinked? 

- Yes: Straighten hose.
- No

Is drain hose out of hose retainer clip in back of cabinet?

- Yes: Remove washer front panel and install drain hose into hose retainer clip in back of cabinet.
- No

Is water pump inoperative?

- Yes: Replace pump.
- No

Is there an obstruction in outer tub outlet hose?

- Yes: Remove obstruction.
- No
17. Excessive Vibration

Excessive vibration.

Is there an unbalanced load in tub?
- Yes: Stop washer, redistribute load, then restart washer.
- No:
  - Is there a broken or disconnected module spring(s)?
    - Yes: Connect or replace module spring(s).
    - No:
      - Is washer unleveled?
        - Yes: Adjust leveling legs.
        - No:
          - Is washer installed on weak, “spongy”, carpeted or built-up floor?
            - Yes: Relocate washer or support floor to eliminate weak or “spongy” condition.
            - No:
              - Are cabinet screws incorrect or loose?
                - Yes: Replace with correct screws or tighten.
                - No: No

Is base damaged (washer was dropped)?
- Yes: Replace base assembly.
- No:
  - Is friction ring broken?
    - Yes: Replace friction ring.
    - No: No
18. Water Leaking From Outer Tub

Water leaking from outer tub.

Is water seal in outer tub leaking? Yes
Replace hub and seal kit assembly.

No

Is there a hole in outer tub? Yes
Replace outer tub.

No

Is pressure hose or accumulator leaking? Yes
Replace pressure hose and/or accumulator.

No

Is outer tub cover gasket leaking? Yes
Replace gasket.

No

Is there an obstruction in drain causing water to come over top of outer tub cover? Yes
Remove obstruction.

No

Is tub-to-pump hose leaking at clamp? Yes
Tighten clamp.
19. 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 the following page. Refer to Figure 1 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 1](image-url)
General Troubleshooting

Troubleshooting Coin Drop

- **Is proper electrical power supplied to coin drop?**
  - No: Refer to wiring diagram for proper connections.
  - Yes: Proceed to next step.

- **Is machine level?**
  - No: Refer to Installation Instructions for instructions on leveling machine.
  - Yes: Proceed to next step.

- **Is coin drop clean?**
  - No: Refer to Adjustments section for instructions on cleaning drop.
  - Yes: Proceed to next step.

- **Do coins fall freely through drop?**
  - No: Replace coin drop.
  - Yes: Replace coin drop sensor.
b. Electronic Coin Drops:
If coin drop is not accepting coins, perform the following:
   (1) Clean coin drop. Refer to Paragraph 62.
   (2) On electronic coin drops with an old-style tension spring (shown in Figure 2 and Figure 4), test and replace tension spring using the following instructions.

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 2.
   (2) Manually hold down coin drop cover and insert coin. Refer to Figure 3.

(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 4.
   (2) Open cover for coin drop.
   (3) Place a small flathead screwdriver under right side of tension spring and lift up. Refer to Figure 5.
   (4) Use screwdriver to move spring approximately 3 mm to left.
   (5) Lift spring over left tab. Refer to Figure 5.
General Troubleshooting

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

(7) Use screwdriver to remove spring from center tab. Refer to Figure 6.
(8) Lift spring, with attached clip, off drop.
(9) Remove clip from spring. Refer to Figure 7.

(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 8.

(12) Use a small flathead screwdriver to push spring under center tab. Refer to Figure 9.

(13) Lift spring gently to place in position under left tab.
(14) Push spring to right until it snaps into position. Refer to Figure 5.
(15) Close coin drop cover.
(16) Move tension spring over cover catch. Refer to Figure 4.

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.
Troubleshooting
Coin Slide Operated and Non-Metered Models with “8”, “9”, “M” or “S” in the 4th Character of the Model Number

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>To reduce the risk of electric shock, fire, explosion, serious injury or death:</td>
</tr>
<tr>
<td>• Disconnect electric power to the washer before servicing.</td>
</tr>
<tr>
<td>• Never start the washer with any guards/panels removed.</td>
</tr>
<tr>
<td>• Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer is properly grounded.</td>
</tr>
</tbody>
</table>

20. Error Mode

In Error Mode, the IN USE LED flashes to display fill and drain errors (refer to paragraphs below). Error Mode can only be exited by powering down washer.

**Fill Error**
A Fill Error will occur if the tub does not fill within 62 minutes of the start of the cycle. A Fill Error is indicated by the control repeatedly flashing the IN USE LED twice separated by a one and a half second pause until the control is powered down. If Error Mode is turned off, the fill error will not occur and the control will continue to wait for the fill level to be reached.

**Drain Error**
A Drain Error will occur if the tub is not empty after a spin cycle. A Drain Error is indicated by the control repeatedly flashing the IN USE LED three times separated by a one and a half second pause until the control is powered down. If Error Mode is turned off, the drain error will not occur and the machine cycle will advance to the next cycle step as though the water had been pumped out.
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

21. Coin Slide Can Not Fully Insert

- Coin slide can't be fully inserted.
  - Make sure switch activation lever is off switch when installing coin slide.
    - Are wires and/or shield from control board interfering with coin slide movement?
      - Yes → Reposition wires and/or shield.
      - No → Refer to Installation manual. Make sure all four mount screws are engaged into meter case opening. Tighten extension rod correctly.

No TLW1836B
22. Coin Slide Fully Inserts, Switch Does Not Activate

Switch isn't activated when coin slide is fully inserted.

- Was the wrong extension lever setup used?
  - Yes: Make sure one or two stars, depending on type of coin slide, face down. Refer to Installation manual.
  - No:
    - Is the switch activation lever bent or out of position?
      - Yes: Correct lever or replace switch mount assembly.
      - No:
        - Are coin slide extension lever and flat washers (shims) installed correctly?
          - Yes:
            - Switch activation lever doesn't rotate under the force of the coin slide extension lever?
              - Yes: Friction wave washer in switch mount assembly is too tight. Compress wave washer slightly and retest, or replace switch mount assembly.
              - No:
                - Is wiring connected correctly?
                  - Yes: Examine wiring and terminals for proper connections. Refer to wiring diagram.
                  - No: No

- No:
  - Is the switch activation lever bent or out of position?
    - Yes: Correct lever or replace switch mount assembly.
    - No:
      - Are coin slide extension lever and flat washers (shims) installed correctly?
        - Yes:
          - Switch activation lever doesn't rotate under the force of the coin slide extension lever?
            - Yes: Friction wave washer in switch mount assembly is too tight. Compress wave washer slightly and retest, or replace switch mount assembly.
            - No:
              - Is wiring connected correctly?
                - Yes: Examine wiring and terminals for proper connections. Refer to wiring diagram.
                - No: No
23. Switch Is Activated Too Soon

Switch is activated too soon.

Is the switch activation lever bent or out of position?

Yes
Correct lever or replace switch mount assembly.

No

Does the switch activation lever rotate freely?

Yes
Replace switch mount assembly.

No

Was the wrong extension lever setup used?

Yes
Make sure one or two stars, depending on type of coin slide, face down. Refer to Installation manual.

No

TLW1838B
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, "M" or "S" in 4th Character of Model No.)

24. Coin Slide Does Not Return Freely

Coin slide doesn't freely return.

Consult coin slide manufacturer instructions, clean and lubricate coin slide, double check that return springs are present.

Was the wrong extension lever setup used?

Yes

Make sure one or two stars, depending on type of coin slide, face down. Refer to Installation manual.

No

Are coin slide switch and extension assemblies equipped with updated parts?

Yes

Replace with assemblies that have nitrocarburized (black-coated) brackets and lighter spring with open hooks.

No

Review extension lever for proper free rotation.

Is there a burr present on extension lever or switch bracket?

Yes

Remove burr, lubricate and retest.

No
25. No Cycle Start When the Coin Slide is Activated

Cycle won't start after the coin slide is activated.

Is the "In Use" light lit?

Yes  Refer to Washer Will Not Fill paragraph.

No

Is the H8 connection properly seated on the control board?

Yes

Is coin slide switch activated when slide is pushed in?

Yes

Is there continuity through switch and switch wires when activated?

Yes Replace control.

No Replace control harness.

No

Replace or repair slide extension assembly.

No

Is there continuity through switch when activated?

Yes

Replace switch.

No

1

2

3
No Cycle Start When the Coin Slide is Activated
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

26. Washer Will Not Fill (Pressure Switch Diagnostic)

Note: Assuming water is turned on.

Is the lid closed?

Yes

No

Close lid and check switch for continuity.

Is there 120 volts AC between terminal 1 and neutral?

Yes

No

Check wiring between pressure switch and lid switch.

Is there 120 volts AC between pressure switch terminal 2 and neutral?

Yes

No

Check for proper function of pressure switch, pressure hose and accumulator. Replace if necessary.

Is there 120 volts AC between terminal “H3-5” on the control and neutral?

Yes

No

Check wiring between control board and pressure switch.

Refer to Washer will not fill (mixing valve diagnostics).
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

Washer Will Not Fill (Pressure Switch Diagnostic)

**Schematic Diagram**

- **1. LED Switch**
- **2. Pressure Switch**
- **3. Wiring Valve**
- **4. Control Transformer 24 VAC**
- **5. Machine Configuration DIP Switches**
- **6. LED Switch Sense, Motor Direction and Control and Timing Circuit**
- **7. Machine Control Assembly**
- **8. Motor Speed**
- **9. Motor Start Capacitor (Note 1)**
- **10. 2 Speed Motor**

**6 Position Fabric/Cycle Switch**
- **Normal** L1-2
- **Perm. Press/Warm** L1-1-3
- **Delicate/Cold** L1-1
- **Perm. Press/Warm** L1-1-3
- **Normal/Hot** L1-1-2
- **Normal/Hot** L1-2-5

**Error Code Table**
- Diagnostic LED Error Indicator on Control and Power Switch ON.
- If machine control senses a fault, LED will flash error code followed by a 1.5 second pause.

**Error Code 2 (Two Flashes):** Fill Error Code 3 Three Flashes. Drain Error (Disconnect Power to Machine to Clear Error Codes) (See Installation Manual for Error Details)

**Part No. 201733R2**
27. Washer Will Not Fill (Mixing Valve Diagnostic)

Note: Assuming No Fill (pressure switch diagnostics) checks out okay, and cycle is started and "In Use" light is lit.

(1) Is there voltage from either "H3-4" or "H3-1" (based on temperature selection) to the Neutral wire?
   - No: Replace control.
   - Yes:
     (2) Is there voltage across either the hot or cold coil to neutral?
        - No: Correct wiring between mixing valve and control.
        - Yes:
          (3) Is there 120 volts AC across the coil of either the hot or cold valve?
             - Yes: Does water flow through the mixing valve?
                - No: Replace mixing valve.
                - Yes: Unit operates properly.
             - No: Correct wiring between motor and neutral wire.
          - (4) Is there 120 volts AC between either the hot or cold coil to terminal 4 on the motor?
             - No: Correct wiring between terminal 8 of the motor and neutral side of the hot/cold coil.
             - Yes:
               (5) Is there 120 volts AC between either the hot or cold coil to terminal 8 on the motor?
                  - Yes: Correct wiring between terminal 8 of the motor and neutral side of the hot/cold coil.
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

Washer Will Not Fill (Mixing Valve Diagnostic)

SCHEMATIC DIAGRAM

PART NO. 201733R2
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

28. Washer Over Fills (Pressure Switch Open)

With power disconnected, does the unit still over flow?

Yes

Replace mixing valve.

No

Reconnect power.

(1)

Is there voltage on either the orange wire of the hot valve or gray wire of the cold valve to neutral?

Yes

Check for incorrect or damaged wiring between water valve and L1

No

Unit works properly.
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

Washer Over Fills (Pressure Switch Open)

SCHEMATIC DIAGRAM

Part No. 201733R2
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

29. No Agitation – Low and High Speed

- **Yes**
  - **High speed**
    - **(1)** Is there voltage between “H6-1” on control to terminal 4 on the motor?
      - No
        - Check operation of lid switch, check wiring to control.
      - Yes
        - **High speed**
          - **(2)** Is there voltage between “H6-6” and terminal 4 on the motor?
            - No
              - Replace control
            - Yes
              - **High speed**
                - **(3)** Is there voltage across terminals 3 & 4 on the motor?
                  - No
                    - Correct wiring between control and motor.
                  - Yes
                    - **High speed**
                      - **(4)** Is there voltage across terminals 3 & 8 on the motor?
                        - No
                          - Correct wiring between control and motor.
                        - Yes
                          - **High speed**
                            - **(5)** Is there voltage at “H6-4” on the control to terminal 8 on the motor?
                              - No
                                - Replace control.
                              - Yes
                                - **High speed**
                                  - **(6)** Is there voltage across terminal 1 & 8 of the motor?
                                    - No
                                      - Correct wiring between control and motor. Check capacitor, replace if necessary.
                                    - Yes
                                      - **High speed**
                                        - **(7)** Is there voltage between terminal 1 of the motor and “H6-2” on the control?
                                          - No
                                            - Correct wiring between motor terminal 8 and control.
                                          - Yes
                                            - **High speed**
                                              - **(8)** Is there voltage between “H6-3” on control to terminal 1 on the motor?
                                                - No
                                                  - Replace control.
                                                - Yes
                                                  - Replace motor.
No Agitation – Low and High Speed

Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

SCHEMATIC DIAGRAM

PART NO. 201733R2
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

30. Washer Will Not Spin – Low Speed

(1) Is there voltage across “H6-1” on the control and terminal 4 on the motor?
   - Yes
   - No
     Check lid switch for proper operation. Check wiring from control to lid switch to supply.

(2) Is there voltage across “H6-6” on the control and terminal 4 on the motor?
   - Yes
   - No
     Replace control.

(3) Is there voltage across terminals 3 & 4 on the motor?
   - Yes
   - No
     Correct wiring between motor and control.

(4) Is there voltage across terminals 3 & 8 of the motor?
   - Yes
   - No
     Check operation of motor thermal protector. Replace motor if necessary.

(5) Is there voltage across “H6-3” on control to terminal 8 of the motor?
   - Yes
   - No
     Replace the control.

(6) Is there voltage across terminals 6 & 8 of the motor?
   - Yes
   - No
     Correct wiring to the motor.

(7) Is there voltage from “H6-2” on control to terminal 6 of the motor?
   - Yes
   - No
     Replace control.

(8) Is there voltage from “H6-4” on control to terminal 1 of the motor?
   - Yes
   - No

Unit should operate properly.
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

Washer Will Not Spin – Low Speed

SCHEMATIC DIAGRAM

See equipment serial plate for correct voltage and frequency.

6 POSITION WARM TEMPERATURE SWITCH
NORMAL L1-2
PERM PRESS L2-3 L1-2
DELEGATE L2-2

(2 SPEED MODELS ONLY)

ERROR CODE TABLE

DIAGNOSTIC LED ERROR INDICATOR ON CONTROL AND
MACHINE SHUTDOWN WILL FLASH AN ERROR CODE IF
MACHINE CONTROL SENSES A FAULT
LED WILL FLASH ERROR CODE
FOLLOWED BY A 1.5 SECOND PAUSE.

ERROR CODE 2 (TWO FLASHES): FILL ERROR
CODE 3 (THREE FLASHES): DELEGATE ERROR
(DISCONNECT POWER TO MACHINE TO CLEAR ERROR CODES)
(SEE INSTALLATION MANUAL FOR ERROR DETAILS)

PART NO. 201733R2
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

31. Washer Will Not Spin – High Speed

(1) Is there voltage across “H6-1” on the control and terminal 4 on the motor?
   - Yes → Check lid switch for proper operation. Check wiring from control to lid switch to supply.
   - No → Is there voltage across terminals 7 & 8 of the motor?

(2) Is there voltage across “H6-5” on the control and terminal 4 on the motor?
   - Yes → Replace control.
   - No → Replace control.

(3) Is there voltage across terminals 7 & 4 on the motor?
   - Yes → Correct wiring between motor and control.
   - No → Correct wiring between motor and control.

(4) Is there voltage across terminals 7 & 8 of the motor?
   - Yes → Check operation of motor thermal protector. Replace motor if necessary.
   - No → Check operation of motor thermal protector. Replace motor if necessary.

(5) Is there voltage across “H6-3” on control to terminal 8 of the motor?
   - Yes → Unit should operate properly.
   - No → Correct wiring to the motor.

(6) Is there voltage across terminals 6 & 8 of the motor?
   - Yes → Correct wiring to the motor.
   - No → Correct wiring to the motor.

(7) Is there voltage from “H6-2” on control to terminal 6 of the motor?
   - Yes → Replace the control.
   - No → Replace the control.

(8) Is there voltage from “H6-4” on control to terminal 1 of the motor?
   - Yes → Replace the control.
   - No → Replace the control.
Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, “M” or “S” in 4th Character of Model No.)

Washer Will Not Spin – High Speed

<table>
<thead>
<tr>
<th>E20</th>
<th>L1</th>
<th>R2</th>
<th>C2</th>
<th>L4</th>
<th>R4</th>
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<td>12</td>
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</tbody>
</table>

SCHEMATIC DIAGRAM

SEE EQUIPMENT SERIAL PLATE FOR CORRECT VOLTAGE AND FREQUENCY

ERROR CODE TABLE

DIAGNOSTIC LED ERROR INDICATION ON CONTROL AND/or LIGHTING PANEL – If machine control senses a fault, LEDs will flash an error code followed by a 1.5 second pause.

ERROR CODE 2 (TWO FLASHES): FILL ERROR (DECONNECT POWER TO MACHINE TO CLEAR ERROR CODES) (SEE INSTALLATION MANUAL FOR ERROR DETAILS)

PART NO. 201733R2

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Troubleshooting (Coin Slide Operated/Non-Metered Models with “8”, “9”, "M" or "S" in 4th Character of Model No.)

Notes
Troubleshooting
EDC Models

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.

32. EDC Error Code Listing

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>E:00</td>
<td>General Error</td>
<td></td>
</tr>
<tr>
<td>E:01</td>
<td>Proximity Error</td>
<td>Micro-wand IIIe is improperly aimed at infrared communicator (angle or distance): Re-aim Micro-wand IIIe.</td>
</tr>
<tr>
<td>E:02</td>
<td>IR Communications Disconnection</td>
<td>Micro-wand IIIe prematurely pulled away from electronic control during infrared communication: Maintain infrared connection between Micro-wand IIIe and electronic control during communication.</td>
</tr>
<tr>
<td>E:05</td>
<td>Invalid Value Communication</td>
<td>Invalid code downloaded from Micro-wand IIIe to electronic control.</td>
</tr>
<tr>
<td>E:07</td>
<td>Inoperative Control</td>
<td>Replace electronic control.</td>
</tr>
<tr>
<td>E:08</td>
<td>Inoperative Control</td>
<td>Replace electronic control.</td>
</tr>
<tr>
<td>E:09</td>
<td>Proximity Error</td>
<td>Micro-wand IIIe is improperly aimed at infrared communicator (angle or distance): Re-aim Micro-wand IIIe.</td>
</tr>
<tr>
<td>E:0A</td>
<td>Proximity Error</td>
<td>Micro-wand IIIe is improperly aimed at infrared communicator (angle or distance): Re-aim Micro-wand IIIe.</td>
</tr>
<tr>
<td>E:0B</td>
<td>IR Communication Disconnection</td>
<td>Micro-wand IIIe prematurely pulled away from electronic control during infrared communication: Maintain infrared connection between Micro-wand IIIe and electronic control during communication.</td>
</tr>
<tr>
<td>E:0C</td>
<td>IR Communication Disconnection</td>
<td>Micro-wand IIIe prematurely pulled away from electronic control during infrared communication: Maintain infrared connection between Micro-wand IIIe and electronic control during communication.</td>
</tr>
<tr>
<td>E:0d</td>
<td>Pressure Switch Error</td>
<td>1. Check fill and drain hoses for improper installation and kinks. 2. Check fill electrical circuit: Replace inoperative switches or wires.</td>
</tr>
<tr>
<td>E:0F</td>
<td>IR Communicator Programmed Off</td>
<td>Reprogram infrared communicator on.</td>
</tr>
<tr>
<td>Err</td>
<td>Coin Error</td>
<td>1. Inoperative coin sensor: Run the Coin Drop Diagnostic test. 2. Coin drop obstruction: Check coin drop area and remove any obstructions. 3. Customer tampering: Evaluate security procedures.</td>
</tr>
</tbody>
</table>

NOTE: Disconnecting power to the unit may clear the error display.

NOTE: If replacing an inoperative electronic control due to burnt pin(s) on the 6-pin wire harness connector block, it may be due to damaged terminals in the harness connector. Damaged terminals in the harness connector will appear burnt or show signs of heat discoloration on the connector block. Replace the control wire harness with the control to avoid repeated damage.
33. Cannot Perform Infrared Communication

Attempt to communicate with the electronic control from the Micro-wand.

Is there any acknowledgement of any kind from the electronic control?

- Yes
  - Communication sequence checks out.
  - Check the following:
    - (IR) disabled by manual prog.
    - Is the (IR) on the control covered or blocked?
    - If needed, change electronic control board.

- No
  - Aim Micro-wand closer and try again.

Is there any control response?

- Yes
  - Check the following:
    - Low battery on Micro-wand.
    - If needed, replace electronic control board.
    - Is the (IR) cap properly attached to the Micro-wand?
    - Is the (IR) on the control covered or blocked?

- No
  - Check the following:
    - (IR) disabled by manual prog.
    - Is the (IR) on the control covered or blocked?
    - If needed, replace electronic control board.
34. Coins Ignored When Entered

NOTE: For instructions on performing tests, refer to programming manual.

Start coin drop diagnostic test. Enter several coins.

Does the electronic control display coin counter increment properly?

YES

Make sure the control is reset properly and prompting for a vend.

NO

NOTE: In this section, bring the control out of the diagnostic mode. Also, make sure the control is not in a free vend mode.

Open control panel

Is connection “H2” firmly seated in its receptacle on the control?

YES

Check coin drop

Is the 3-pin connector plug firmly seated in its receptacle?

YES

Are wires exiting the coin drop optical sensor cracked or broken?

YES

Replace coin drop.

NO

NO

NO

No

Reconnect and run test again.

Reconnect and run test again.

Retest again, if not successful the following is the problem:

– Replace coin drop.

If the problem still exists:

– Replace electronic control.
35. Electronic Control Has No Visible Display

- Open control panel
- Is there voltage at "FS1" black to "FS2" white?
  - NO: Disconnect power and check for broken, loose, or incorrect wiring from the electrical outlet to the electronic control.
  - YES: Replace electronic control.
- Is the power cord plugged in?
  - NO: Plug electronic control unit into electrical outlet.
  - YES: Replace electronic control.

**NOTE:** This voltage check confirms that main power is present to the control.
36. No Fill Analysis

Washer is not filling.

Is the display on?

YES

Are the water lines turned on?

YES

Is the coin counter counting down as coins are entered in the drop?

YES

Check voltage at the lid switch pnk/blu "COM" to "H3-3", is there voltage?

YES

Check voltage at control "H3-1" to "H3-3", is there voltage?

YES

Open control panel

YES

Voltage check off electronic control board hot - ORG "H5-1" to "H3-3" cold - GREY, "H5-4" to "H3-3" warm - "H5-1" and "H5-4" to "H3-3", is there voltage?

YES

Replace inoperative control board.

NO

Replace inoperative wiring.

NO

Replace pressure switch or pressure hose.

NO

Replace inoperative wiring.

NO

Replace inoperative coin drop.

After checking for correct wiring, replace inoperative lid switch.

Is the display on?

NO

Replace inoperative wiring.

Turn on water.

If the problem still exists, refer to these other troubleshooting guides:

"Electronic control has no visible display", or "Coins ignored when entered".

Check voltage at the pressure switch "1" PNK/BLU and to "H3-3", is there voltage?

YES

Replace inoperative wiring.

NO

Check voltage at the pressure switch "2" BLU/WHT and to "H3-3", is there voltage?

YES

When checking voltage to neutral, check between source and "H3-3" since neutral for mixing values is through the thermal protect on the motor.

NO

Check voltage at control "H3-1" to "H3-3", is there voltage?

YES

Replace inoperative wiring.

NO

Check voltage at control "H3-3" to "H3-3", is there voltage?

YES

Open control panel

YES

Temps listed are determined by what water temps have been selected

NO

Temp set are determined by what water temps have been selected

On mixing valve check and replace:

- Inlet screens.
- Wiring and connections.
- Replace coils or mixing valve.
- Check thermal protect and wiring from thermal protect to "H3-3"
Troubleshooting (EDC Models)

No Fill Analysis

1. 120/240 VOLT 60/50 HERTZ  
(Refer to machine serial plate.)

2. LID AND UNBALANCE SWITCH

3. ELECTRONIC CONTROL
   - PRESSURE SWITCH AND WATER CIRCUIT
   - LID SWITCH SENSE, MOTOR DIRECTION AND CONTROL, AND TIMING CIRCUIT
   - MOTOR MASTER
   - MOTOR START/DIRECTION
   - AVAILABLE OUTPUT TRANSISTOR IS "OFF" WHEN MACHINE IS RUNNING

4. PRESSURE SWITCH

5. MIXING VALVE
   - COLD
   - HOT

6. MOTOR START/SPIN

SCHEMATIC

TLW314S
37. No Motor Run — Agitate Analysis

The wash tub has been filled and there is no motor run for agitate.

Is the washer lid closed?

YES

Is the washer lid closed?

NO

Close washer lid.

Open control panel

Check voltage at electronic control board
BLU "H3-4" to "H3-2"
RED "H3-6" to BRN
"H3-2" is there voltage?

YES

After checking for correct wiring, refer to Motor Test Procedure section or Motor Does Not Run paragraph.

NO

Replace electronic control board.

(1) Numbers next to voltage checks correspond to the locations marked on the wiring schematic.

NOTE: All checks in this flow chart are based on the assumption a high speed agitate and spin cycle have been selected.
Troubleshooting (EDC Models)

No Motor Run — Agitate Analysis

120/240 VOLT 60/50 HERTZ
(Refer to machine serial plate.)

SCHEMATIC
38. No Motor Run — Spin Analysis

The washer will not spin.

Is the "unbalance" indicator flashing on the electronic control?

YES

1) Open lid and close to reset switch.
2) Check lid/unbalance switch correct wiring.
3) Possible thermal overload on motor.

NO

Open control panel

Check voltage at electronic control board
BLU "H3-4" to "H3-6"
BRN "H3-2" to "H3-6", is there voltage?

YES

After checking for correct wiring, refer to Motor Test Procedure section or Motor Does Not Run paragraph.

NO

Replace electronic control board.

(#) Numbers next to voltage checks correspond to the locations marked on the wiring schematic.

NOTE: All checks in this flow chart are based on the assumption a high speed agitate and spin cycle have been selected.

NOTE: All check in this flow chart are based on the assumption a high speed agitate and spin cycle have been selected.
Troubleshooting (EDC Models)

No Motor Run — Spin Analysis

120/240 VOLT 60/50 HERTZ
(Refer to machine serial plate.)

SCHEMATIC

TLW316S
39. Overflow Analysis

Washer has overflowed.

Open control panel

(1)

Check voltage at pressure switch BLU/WHT "2" to "H3-3" when wash tub is full, is there voltage?

YES

After checking for correct wiring, replace pressure switch or pressure hose.

NO

Check for a locked open mixing valve.

(#) Numbers next to voltage checks correspond to the locations marked on the wiring schematic.

NOTE: The diaphragms on the mixing valve may lock open. The way to test this problem is to unplug the washer and see whether the mixing valve allows water to come in. If this happens, replace the mixing valve.
Troubleshooting (EDC Models)

Overflow Analysis

120/240 VOLT 60/50 HERTZ
(Refer to machine serial plate.)

Electronic Control

Pressure Switch and Water Circuit

Lid Switch Sense, Motor Direction and Control, and Timing Circuit

Motor Speed

Motor Start/Direction

Audit Control Circuit

Available Output Transistor is "OFF" When Machine is Running

Service Door

Coin Vault

Coin Drop Sensor

Schematic

TLW317S
40. Audit Switch Function Analysis

NOTE: For instructions on performing tests, refer to programming manual.

NOTE: Usually review two consecutive audit reports before sending service personnel to investigate. Remember, the audit system may be detecting tampering of the EC unit.

In audit report analysis, the EC computer operator will have to determine, from the audit reports, what the servicer should examine on the EC units. If the servicer cannot find a particular problem, consult the appropriate audit reports for further analysis.

Incorrect audit counts:
- Coin drop.
- Service door.
- Coin vault.
- Cycle.

Exit diagnostic test
The audit coin count will not advance in the diagnostic cycle.

Micro-wand or manual EC control audit will have to be accessed to determine whether audit counters are advancing.

Is the audit coin counter advancing?
YES
Investigate
- Tampering.
- Service door and machine cycle var reports.

NO
Check for proper wiring and connections.
After wiring has been confirmed correct, replace electronic control board.

Coin drop diagnostic test
"Coin Drop Input Test" does the drop pass the test?
YES
Check wiring and connections. Replace coin drop.

NO
Exit diagnostic test

Service door diagnostic test
"Service Door Opening Test" does the door pass the test?
YES
Check wirinig and connections. Replace service door switch.

NO
Investigate
- Tampering.
- Service door and machine cycle var reports.

Coin vault diagnostic test
"Coin Vault Opening Test" does the vault pass the test?
YES
Check wiring and connections. Replace coin vault switch.

NO
Investigate
- Tampering.
- Coin vault and collection reports.

Cycle test
Run a complete wash cycle and review the manual audit or Micro-wand "Display Counts" does the cycle counter advance?
YES
Replace electronic control board.

NO
Investigate
- Tampering.
- Service door and machine cycle var reports.

NOTE: In the cycle audit test, the cycle count will not advance on a "rapid advance" cycle. The manual control audit or Micro-wand "show counts" will have to be accessed to determine whether audit counters are advancing. Also, the cycle count does not activate until the end of the cycle.
41. MDC Error Code Listing

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E:dr</td>
<td>Maximum drain time exceeded or water sensed at the end of a spin step.</td>
</tr>
<tr>
<td>E:FL</td>
<td>Maximum fill time exceeded.</td>
</tr>
</tbody>
</table>

**Card Reader Machines:** (In addition to the above errors)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC:19</td>
<td>Indicates no card reader communication. The control and the card reader cannot communicate. Check card reader, control and harness.</td>
</tr>
</tbody>
</table>

**NOTE:** For all other card reader errors, consult the card reader manufacturer.
42. No Visible Display on Control

Note: Assuming the unit is plugged into a live outlet

(1) Is there voltage at the primary side of the transformer?  
   No: Check wiring to transformer. Check supply voltage to unit.  
   Yes: 

(2) Is there 24 volts at the secondary side of the transformer?  
   No: Replace transformer.  
   Yes: 

(3) Is there 24 volts AC across terminals "H1-1" & "H1-3" on the control board?  
   No: Check wiring between control and transformer.  
   Yes: Replace control.
Troubleshooting (MDC Models)

No Visible Display on Control

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

1

2

3

CONTROL TRANSFORMER
(SEE CONNECTION DIAGRAM DETAIL FOR OPTIONAL CARD READY AND CARD READY TRANSFORMER WIRING).

AVAILABLE OUTPUT
OPTOCUT WHEN MACHINE RUNNING
VMAX = 33 VDC
IMAX = 5MA

START PULSE INPUT
INPUT LED ENERGIZED = START PULSE ACTIVE
1 HZ = 3-30 ms TIME = 30 msactive ms.

PRESSE SWITCH

MIXING VALVE

MDC CONTROL ASSEMBLY

SCHEMATIC

VEND APPLICATIONS DETAILS

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39201
Troubleshooting (MDC Models)

43. Coins Ignored When Entered

Enter Production Test Cycle, Coin Drop Test. Refer to programming manual.

Does the count on the display increment properly after entering coins?

Yes

Reset control to ready mode.

No

(1) Is "H3" connector properly seated on the control board?

Yes

Properly seat connection and conduct test cycle again.

No

(2) From the coin drop, is the 3-pin plug properly connected?

Yes

Are the wires exiting the coin drop optical sensor cracked or broken?

Yes

Replace the coin drop.

No

Properly reseat connection and conduct test cycle again.

No

Replace electronic control.

(3)

TLW300S
Troubleshooting (MDC Models)

Coins Ignored When Entered

Connection Diagram

Transformer Detail
(Card Ready and Coin Ready Models Only)

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.

This machine manufactured under one or more of the following patents:
- United States No. 3,253,874
- 3,316,790
- 3,540,742
- Canadian No. 1,001,528

Other patents pending.
44. Washer Will Not Fill (Pressure Switch Diagnostic)

```
(1) Is the lid closed?
   Yes
   (2) Is there 120 or 240* volts AC between pressure switch terminal 1 and neutral?
       Yes
       (3) Is there 120 or 240* volts AC between pressure switch terminal 2 and neutral?
           Yes
           (4) Is there 120 or 240* volts AC between terminal "H4-5" on the control and neutral?
               Yes
               Refer to Washer will not fill (mixing valve diagnostics)
       No
         Check for proper function of pressure switch, pressure hose and accumulator. Replace if necessary.
   No
     Check wiring between pressure switch and lid switch.
```

*Refer to machine serial plate for correct voltage.

TLW303S
Troubleshooting (MDC Models)

Washer Will Not Fill (Pressure Switch Diagnostic)

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER
OCX CONNECTION DIAGRAM DETAIL
FOR OPTIONAL CARD READY AND COIN READY TRANSFORMER WIRING.

PRESSURE SWITCH

MDC CONTROL ASSEMBLY

SCHEMATIC

SEE VEND APPLICATION DETAILS

VEND APPLICATIONS DETAILS
45. Washer Will Not Fill (Mixing Valve Diagnostic)

Note: Assuming No Fill (pressure switch diagnostics) checks out okay.

(1) Is there voltage from either "H4-4" or "H4-1" to the Neutral wire?
   - No: Replace control.
   - Yes:

(2) Is there voltage across either the hot or cold coil to neutral?
   - No: Correct wiring between mixing valve and control.
   - Yes:

(3) Is there 120 or 240* volts AC across the coil of either the hot or cold valve?
   - Yes: Does water flow through the mixing valve?
     - No: Replace mixing valve.
     - Yes: Unit operates properly.
   - No:

(4) Is there 120 or 240* volts AC between either the hot or cold coil to terminal 4 on the motor?
   - Yes: Correct wiring between motor and neutral wire.
   - No:

(5) Is there 120 or 240* volts AC between either the hot or cold coil to terminal 8 on the motor?
   - Yes: Correct wiring between terminal 8 of the motor and neutral side of the hot/cold coil.

*Refer to machine serial plate for correct voltage.
Troubleshooting (MDC Models)

Washer Will Not Fill (Mixing Valve Diagnostic)

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER
SIDE CONNECTION DIAGRAM DETAIL
FOR OPTIONAL CARD READER AND COIN READY TRANSFORMER WIRING.

AVAILABLE OUTPUT
OPTO OFF WHEN MACHINE RUNNING
Wiper = ZOC
Input = ZOC

START PULSE INPUT
Input LED ENHANCED = START PULSE ACTIVE
1 in = 0-30 ms
1 pulse = 20 ms minimum

PRESSURE SWITCH
WATER CIRCUIT

MIXING VALVE

MDC CONTROL ASSEMBLY

VEND APPLICATION DETAILS

VEND APPLICATIONS DETAILS

PLEASE CONTACT CUSTOMER SERVICE FOR PART NUMBERS TO CONVERSE.
46. Washer Over Fills (Pressure Switch Open)

With power disconnected, does the unit still overflow?

Yes → Replace mixing valve.

No → Reconnect power.

(1)

Is there voltage on either the orange wire of the hot valve or gray wire of the cold valve to neutral?

Yes → Check for incorrect or damaged wiring between water valve and L1

No → Unit works properly.
Troubleshooting (MDC Models)

Washer Over Fills (Pressure Switch Open)

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER
(See connection diagram details for optional card ready and coin ready transformer wiring.)

PRESURE SWITCH

MDC CONTROL ASSEMBLY

VEND APPLICATIONS DETAILS

NOTE: See application details for card ready option.

MIXING VALVE

TUB BLEND

MOTOR

CAPACITOR

MOTOR SPEED

LID SWITCH SENSE, MOTOR repression, and TIMING CIRCUIT

LID SWITCH

24 VAC RELAY

PRESSURE SWITCH AND WATER CIRCUIT

CONTROL POWER SUPPLY

24 VAC INPUT

INPUT LED ENERGIZED = START PULSE ACTIVE
1 in = 3-30 ms 1ms = 20 more kHz.

1

SCHEMATIC
47. No Agitation – Low and High Speed

(1) Is there voltage between "H6-1" on control to terminal 4 on the motor?
   No... 
   Yes
   High speed
   Low speed

(2a) Is there voltage between "H6-5" and terminal 4 on the motor?
   Yes
   No

(2b) Is there voltage between "H6-5" and terminal 4 on the motor?
   No
   Yes

(3) Is there voltage across terminals 7 & 4 on the motor?
   Yes
   No
   High speed
   Low speed

(4a) Is there voltage across terminals 8 & 7 on the motor?
   Yes
   No

(4) Is there voltage across terminals 3 & 4 on the motor?
   Yes
   No
   High speed
   Low speed

(5) Is there voltage at "H6-4" on the control to terminal 8 on the motor?
   No... 
   Yes

(6) Is there voltage across terminal 1 & 8 of the motor?
   No... 
   Yes

(7) Is there voltage between terminal 1 of the motor and "H6-2" on the control?
   Yes
   No

(8) Is there voltage between "H6-3" on control to terminal 1 on the motor?
   Yes
   No
   Replace control.
Troubleshooting (MDC Models)

No Agitation – Low and High Speed

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER
POE CONNECTION DIAGRAM DETAILED FOR OPTIONAL GOWD READY AND COLD READY TRANSFORMER VRA04.)

AVAILABLE OUTPUT
OPT OFF WHEN MACHINE RUNNING
Input = DC 12 V
Output = DC 24 V

START PULSE INPUT
Input = DC 12 V
Output = DC 24 V

PRESSURE SWITCH
WATER CIRCUIT

MDC CONTROL ASSEMBLY

SEE VEND APPLICATION DETAILS

VEND APPLICATION DETAILS

PLS Please consult connected equipment manuals for proper connections to control.
48. Washer Will Not Spin – High Speed

1. Is there voltage across “H6-1” on the control and terminal 4 on the motor?  
   - Yes: Check lid switch for proper operation. Check wiring from control to lid switch to supply.  
   - No: Replace control.

2. Is there voltage across “H6-5” on the control and terminal 4 on the motor?  
   - Yes:  
     - Is there voltage across terminals 7 & 4 on the motor?  
       - Yes: Replace control.  
       - No: Correct wiring between motor and control.  
   - No: Replace control.

3. Is there voltage across terminals 7 & 4 on the motor?  
   - Yes:  
     - Is there voltage across “H6-3” on control to terminal 8 of the motor?  
       - Yes: Replace the control.  
       - No: Correct wiring to the motor.  
   - No: Replace control.

4. Is there voltage across terminals 7 & 8 of the motor?  
   - Yes:  
     - Is there voltage from “H6-2” on control to terminal 6 of the motor?  
       - Yes: Replace control.  
       - No: Replace control.  
   - No: Replace control.

5. Is there voltage across “H6-3” on control to terminal 8 of the motor?  
   - Yes: Unit should operate properly.

6. Is there voltage across terminals 6 & 8 of the motor?  
   - Yes:  
     - Is there voltage from “H6-4” on control to terminal 1 of the motor?  
       - Yes: Replace control.  
       - No: Replace control.  
   - No: Replace control.
Troubleshooting (MDC Models)

Washer Will Not Spin – High Speed

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER
IDEAL CONNECTION DIAGRAM SCOPE FOR OPTIONAL CARD READY AND COIN READY TRANSFORMER WINDING.

AVAILABLE OUTPUT
OPTO CIRCUIT MACHINE RUNNING
VAC = 250V
IPM = 5A

START PULSE INPUT
INPUT LED ENERGIZED = START PULSE ACTIVE
1 in = 3-30 ms
Tall = 30 max min.

24 VAC

PRESSURE SWITCH
RED WATER CIRCUIT

MDC CONTROL ASSEMBLY

1

2

3

4

5

6

7

8

Schematic

Motor Speed

Motor Direction

Capacitor

Motor

Scematic

Vend Applications Details

Please consult instructions manual for proper machine connection to controls.

Coin Group Option

Card Ready Option

Coin Group Option

DINCOLE COIN, (DUAL COIN, COIN READY)

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49. Washer Will Not Spin – Low Speed

(1) Is there voltage across “H6-1” on the control and terminal 4 on the motor?
   - Yes
   - No

(2) Is there voltage across “H6-6” on the control and terminal 4 on the motor?
   - Yes
   - No

(3) Is there voltage across terminals 3 & 4 on the motor?
   - Yes
   - No

(4) Is there voltage across terminals 3 & 8 of the motor?
   - Yes
   - No

(5) Is there voltage across “H6-3” on control to terminal 8 of the motor?
   - Yes
   - No

(6) Is there voltage across terminals 6 & 8 of the motor?
   - Yes
   - No

(7) Is there voltage from “H6-2” on control to terminal 6 of the motor?
   - Yes
   - No

(8) Is there voltage from “H6-4” on control to terminal 1 of the motor?
   - Yes
   - No

- Check lid switch for proper operation. Check wiring from control to lid switch to supply.
- Replace control.
- Correct wiring between motor and control.
- Replace the control.
- Correct wiring to the motor.
- Replace control.
- Check operation of motor thermal protector. Replace motor if necessary.
- Replace control.

Unit should operate properly.
Troubleshooting (MDC Models)

**Washer Will Not Spin – Low Speed**

1. **120/240 VOLT 60/50 HERTZ** (Refer to machine serial plate.)

2. **CONTROL TRANSFORMER**
   - **INPUT LED ENERGIZED = START PULSE ACTIVE**
   - **T = 5-30 ms**
   - **TIME = 30 micro sec.**

3. **PRESSURE Switch**

4. **MIXING VALVE**

5. **SCHEMATIC**

6. **MDC CONTROL ASSEMBLY**

7. **VEND APPLICATIONS DETAILS**

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# Troubleshooting
## NetMaster Models

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Cause/Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI:00</td>
<td>General Communications Error</td>
<td>Communication problem. Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>EI:03</td>
<td>Invalid Command Code</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
</tr>
<tr>
<td>EI:05</td>
<td>Invalid or Out-of-Range Data</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
</tr>
<tr>
<td>EI:06</td>
<td>Invalid Data Code</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
</tr>
<tr>
<td>EI:07</td>
<td>Error Writing to RTC</td>
<td>Control failure. Control may need to be replaced.</td>
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<tr>
<td>EI:08</td>
<td>Error Writing to EEPROM</td>
<td>Control failure. Control may need to be replaced.</td>
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<td>EI:0A</td>
<td>Invalid Machine Type</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
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<td>EI:0F</td>
<td>Invalid Wakeup or IR Disabled</td>
<td>Communication problem or IR is disabled. Manually enable IR on control/Re-aim Micro-wand and try again.</td>
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<tr>
<td>EC:00</td>
<td>General Communication Error</td>
<td>Communication problem. Try card again.</td>
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<td>EC:02</td>
<td>Timeout Error</td>
<td>Communication problem. Try card again.</td>
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<td>EC:03</td>
<td>Invalid Command Code</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
</tr>
<tr>
<td>EC:05</td>
<td>Invalid or Out-of-Range Data</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
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<tr>
<td>EC:06</td>
<td>Invalid Data Code</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
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<tr>
<td>EC:09</td>
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<td>Invalid Machine Type</td>
<td>Wrong machine type. Before downloading, ensure data is for current machine type.</td>
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<tr>
<td>EC:19</td>
<td>No Card Reader Communication</td>
<td>Communication problem. Power down, power up and try again. If error persists, control or reader is bad.</td>
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<td>Unreadable Card</td>
<td>Bad card/ dirty contact. Clean chip on card or card reader contacts. Try card again.</td>
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<td>Security ID Mismatch</td>
<td>Wrong card. Use card with correct security code.</td>
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<td>EC:22</td>
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<td>Wrong card. Use card with correct site code.</td>
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<td>EC:23</td>
<td>Card Maximum Value Exceeded</td>
<td>Value on card over max. Use a card which does not exceed maximum value.</td>
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<td>EC:24</td>
<td>Insufficient Memory on Card</td>
<td>Card memory is full. Download card contents to PC and clear card for re-use.</td>
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<td>EC:25</td>
<td>Card Reader Malfunction</td>
<td>Bad Card Reader. Card Reader may need to be replaced.</td>
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<td>Bad Card Reader. Card Reader may need to be replaced.</td>
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<td>Diagnostic Test Card Interface Failure</td>
<td>Bad Card Reader. Card Reader may need to be replaced.</td>
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<td>Diagnostic Test Flash Checksum Failure</td>
<td>Bad Card Reader. Card Reader may need to be replaced.</td>
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<tr>
<td>EC:2C</td>
<td>Bad Biberon or Non-biberon Device</td>
<td>Bad Card Reader. Card Reader may need to be replaced.</td>
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<td>EC:2d</td>
<td>Firmware Update Failed, S/W (Software) Intact</td>
<td>Firmware load failed. Card Reader may need to be replaced.</td>
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## Troubleshooting (NetMaster Models)

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<td>Firmware Update Failed, S/W Not Intact</td>
<td>Bad firmware in reader. Card Reader may need to be replaced.</td>
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<tr>
<td>EC:2F</td>
<td>Firmware Updated, S/W Not Intact</td>
<td>Bad firmware in reader. Card Reader may need to be replaced.</td>
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<td>EC:31</td>
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<tr>
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<td>Loyalty Purse Read Error</td>
<td>Try card again. If error persists, card may be bad.</td>
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<td>EC:56</td>
<td>Loyalty Purse Write Error</td>
<td>Try card again. If error persists, card may be bad.</td>
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<tr>
<td>ER:0A</td>
<td>Proximity Error</td>
<td>Micro-wand is improperly aimed at infrared communicator (angle or distance). Re-aim Micro-wand and try again.</td>
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<tr>
<td>E:FL</td>
<td>Network Communication Error</td>
<td>Communication problem. Wait for 1.5 minutes for error to clear. If it doesn’t, power-down and power-up the machine. If error persists, control or Network Board may need to be replaced.</td>
</tr>
<tr>
<td>Err</td>
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<td>Break-in Alarm Error</td>
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<td>E:FL</td>
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<td>Pressure switch fails to open in 30 minutes in any fill agitate cycle.</td>
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<td>E:dr</td>
<td>Drain Error</td>
<td>Maximum drain time exceeded or water sensed at end of spin step.</td>
</tr>
<tr>
<td>E:00</td>
<td>General Error</td>
<td>Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>E:01</td>
<td>Proximity Error</td>
<td>Micro-wand is improperly aimed at infrared communicator (angle or distance). Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>E:02</td>
<td>IR Communication Disconnection</td>
<td>Micro-wand removed before communication complete. Re-aim micro-wand and try again.</td>
</tr>
<tr>
<td>E:05</td>
<td>Invalid Value Communication</td>
<td>Invalid code downloaded from Micro-wand to Electronic Control. Before downloading, ensure data is for current machine type.</td>
</tr>
<tr>
<td>E:07</td>
<td>Inoperative Control</td>
<td>Replace control.</td>
</tr>
<tr>
<td>E:08</td>
<td>Inoperative Control</td>
<td>Replace control.</td>
</tr>
<tr>
<td>E:09</td>
<td>Proximity Error</td>
<td>Micro-wand is improperly aimed at infrared communicator (angle or distance). Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>E1:0A</td>
<td>Proximity Error</td>
<td>Micro-wand is improperly aimed at infrared communicator (angle or distance). Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>Display</td>
<td>Description</td>
<td>Cause/Corrective Action</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>E:0B</td>
<td>IR Communication Disconnection</td>
<td>Micro-wand removed before communication complete. Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>E:0C</td>
<td>IR Communication Disconnection</td>
<td>Micro-wand removed before communication complete. Re-aim Micro-wand and try again.</td>
</tr>
<tr>
<td>E:0d</td>
<td>Pressure Switch Error</td>
<td>Check fill and drain hoses for improper installation and kinks. Check fill electrical circuit. Replace inoperative switches or wires.</td>
</tr>
<tr>
<td>E:0F</td>
<td>IR Communicator Programmed Off</td>
<td>Reprogram infrared communicator on. Manually enable IR on control/Re-aim micro-wand and try again.</td>
</tr>
<tr>
<td>Err</td>
<td>Coin Error</td>
<td>Inoperative coin sensor. Check coin drop area and remove obstructions. Possible tampering. Evaluate security procedures.</td>
</tr>
</tbody>
</table>
51. Microwand Does Not Communicate With Control

Attempt to communicate with the electronic control from the Microwand.

Is there acknowledgement of any kind from the control?

No

Aim the Microwand closer and try again.

Is there any control response?

No

Yes

Does the Microwand prompt: Control Mismatch error?

Yes

Make sure Microwand selection was for the proper machine type and control generation type.

No

Does the electronic control display "E:OF" or "-C-"?

-C-

Communication sequence checks out properly.

E:OF

Has IR communication been turned off?

Yes

Turn IR communication on (refer to programming manual).

No

Change electronic control and repeat procedure.

Check the following:
- Microwand battery voltage
- Blockage of IR window on control
- Attachment of IR cup to Microwand.
52. No Visible Display on Control

Note: Assuming the unit is plugged into a live outlet

(1) Is there voltage at the primary side of the transformer?  
No → Check wiring to transformer. Check supply voltage to unit.
Yes → (2)

(2) Is there 24 volts at the secondary side of the transformer?  
No → Replace transformer.
Yes → (3)

(3) Is there 24 volts AC across terminals “H1-1” & “H1-3” on the control board?  
No → Check wiring between control and transformer.
Yes → Replace control.
53. Coins Ignored When Entered

Start Coin Drop Diagnostic Test. Refer to programming manual.

Does the count on the display increment properly after entering coins? 

Yes
Reset control to ready mode.

No

(1) Is "H7" connector properly seated on the control board? 

Yes

(2) From the coin drop, is the 3-pin plug properly connected? 

Yes
Are the wires exiting the coin drop optical sensor cracked or broken? 

Yes
Replace the coin drop.

No

No

(3) Are the wires exiting the coin drop optical sensor cracked or broken? 

Yes

No

No

Yes

No

Properly seat connection and conduct diagnostic test again.

Properly reseat connection and conduct diagnostic test again.

Replace electronic control.
54. Washer Will Not Fill (Pressure Switch Diagnostic)

1. Is the lid closed?
   - Yes
   - No
     - Close lid and check switch for continuity.

2. Is there 120 or 240* volts AC between pressure switch terminal 1 and neutral?
   - Yes
   - No
     - Check wiring between pressure switch and lid switch.

3. Is there 120 or 240* volts AC between pressure switch terminal 2 and neutral?
   - Yes
   - No
     - Check for proper function of pressure switch, pressure hose and accumulator. Replace if necessary.

4. Is there 120 or 240* volts AC between terminal “H4-5” on the control and neutral?
   - Yes
   - No
     - Check wiring between control board and pressure switch.

Refer to Washer will not fill (mixing valve diagnostics)

*Refer to machine serial plate for correct voltage.
Troubleshooting (NetMaster Models)

Washer Will Not Fill (Pressure Switch Diagnostic)

1. L1 120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

2. CONTROL TRANSFORMER

3. PRESSURE SWITCH

4. MOTOR CIRCUIT

VEND APPLICATIONS DETAILS

SMART CARD VEND OPTION

COIN DROP VEND OPTIONS

CARTRIDGE VEND OPTIONS

SMART CARD VEND OPTION

COIN DROP VEND OPTIONS

CARTRIDGE VEND OPTIONS

PLEASE CONSIDER CONVERSION INSTALLED - NEEDED FOR PROPER FUNCTIONING OF THE CONVEYOR SYSTEM.

TLW319S
Troubleshooting (NetMaster Models)

55. Washer Will Not Fill (Mixing Valve Diagnostic)

Note: Assuming No Fill (pressure switch diagnostics) checks out okay.

1. Is there voltage from either "H4-4" or "H4-1" to the Neutral wire?
   - No: Replace control.
   - Yes:
     2. Is there voltage across either the hot or cold coil to neutral?
        - No: Correct wiring between mixing valve and control.
        - Yes:
          3. Is there 120 or 240* volts AC across the coil of either the hot or cold valve?
             - Yes: Does water flow through the mixing valve?
                 - No: Replace mixing valve.
                 - Yes: Unit operates properly.
             - No:
               4. Is there 120 or 240* volts AC between either the hot or cold coil to terminal 4 on the motor?
                  - No: Correct wiring between motor and neutral wire.
                  - Yes:
                    5. Is there 120 or 240* volts AC between either the hot or cold coil to terminal 8 on the motor?
                       - Yes: Correct wiring between terminal 8 of the motor and neutral side of the hot/cold coil.

*Refer to machine serial plate for correct voltage.

TLV304S
56. Washer Over Fills

With power disconnected, does the unit still over flow?

Yes
Replace mixing valve.

No
Reconnect power. (1)

Is there voltage on either the orange wire of the hot valve or gray wire of the cold valve to neutral?

Yes
Check for incorrect or damaged wiring between water valve and L1

No
Unit works properly.

(1)
57. No Agitation – Low and High Speed

(1) Is there voltage between "H6-1" on control to terminal 4 on the motor?
   - No: Check operation of lid switch, check wiring to control.
   - Yes: Is there voltage between "H6-5" and terminal 4 on the motor?
     - Yes: Is there voltage across terminal 1 & 8 of the motor?
       - Yes: Replace control.
       - No: Correct wiring between control and motor.
     - No: Check operation of thermal protector in the motor. Replace motor if necessary.
   - No: High speed

(2a) Low speed
(2b) Is there voltage between terminal 4 on the motor?
   - Yes: High speed
   - No: Replace control.

(3a) Is there voltage across terminals 7 & 4 on the motor?
   - Yes: Correct wiring between motor terminal 8 and control.
   - No: Is there voltage across terminals 7 & 7 on the motor?
     - Yes: Correct wiring between motor terminal 8 and control.
     - No: Replace control.

(4a) Is there voltage across terminals 3 & 4 on the motor?
   - No: Correct wiring between control and motor. Check capacitor, replace if necessary.
   - Yes: High speed

(4) Low speed

(5) Is there voltage at "H6-4" on the control to terminal 8 on the motor?
   - No: Replace control.
   - Yes: Replace motor.

(6) Is there voltage across terminal 1 & 8 of the motor?
   - No: Correct wiring between control and motor. Check capacitor, replace if necessary.
   - Yes: Replace motor.
No Agitation – Low and High Speed

Troubleshooting (NetMaster Models)

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER

SEE CONNECTION DIAGRAM DETAIL FOR OPTIONAL CARD READY AND COIN READY TRANSFORMER WIRING.

LID SWITCH

AVAILABLE OUTPUT

OFF TO DRY WHEN MACHINE RUNNING

ON = 24VDC

ON = 5mA

START PULSE INPUT

INPUT LES ENERGIZED = START PULSE ACTIVE

15 to 30 ms

TIME = 45 min.

24 VAC RETURN

PRESSURE SWITCH

PRESSURE SWITCH AND WATER CIRCUIT

LID SWITCH SENSE, MOTOR DIRECTION, AND CONTROL AND TIMING CIRCUIT

NETMASTER CONTROL ASSEMBLY

VEND APPLICATIONS DETAILS

SMART CARD VEND OPTION

COIN DROP VEND OPTION

CARD READY VEND OPTION
58. Washer Will Not Spin – High Speed

1. Is there voltage across “H6-1” on the control and terminal 4 on the motor?
   - Yes
   - No

   Yes: Check lid switch for proper operation. Check wiring from control to lid switch to supply.

   No: Replace control.

2. Is there voltage across “H6-5” on the control and terminal 4 on the motor?
   - Yes
   - No

   Yes: Replace control.

   No: Correct wiring to the motor.

3. Is there voltage across terminals 7 & 4 on the motor?
   - Yes
   - No

   Yes: Replace control.

   No: Correct wiring between motor and control.

4. Is there voltage across terminals 7 & 8 of the motor?
   - Yes
   - No

   Yes: Replace control.

   No: Check operation of motor thermal protector. Replace motor if necessary.

5. Is there voltage across “H6-3” on control to terminal 8 of the motor?
   - Yes
   - No

   Yes: Correct wiring to the motor.

   No: Replace the control.

6. Is there voltage from “H6-4” on control to terminal 1 of the motor?
   - Yes
   - No

   Yes: Replace control.

   No: Replace control.

Unit should operate properly.
Troubleshooting (NetMaster Models)

Washer Will Not Spin – High Speed

120/240 VOLT 60/50 HERTZ (Refer to machine serial plate.)

CONTROL TRANSFORMER

(See CONNECTION DIAGRAM DETAIL FOR OPTIONAL CARD READY AND COIN READY TRANSFORMER WIRING.)

AVAILABLE OUTPUT: OPTO-OFF WHEN MACHINE RUNNING

START PULSE INPUT

INPUT LED ENERGIZED = START PULSE ACTIVE

INPUT LED OFF = START PULSE ACTIVE

24 VAC RETURN

CONTROL POWER

SUPPLY

PRESSURE SWITCH

AND WATER CIRCUIT

PUMP

MOTOR

CAPACITOR

WHT

BLK

RED

PNK

BRN

24 VAC

PRESSURE SWITCH

AND CONTROL, AND

MOTOR DIRECTION

TIMING CIRCUIT

VEND APPLICATION

DROP

COIN VAULT

(OPTIONAL)

MANUAL FOR PROPER

HEAD DIRECTION

AND CONTROL, AND

SINGLE COIN,

DUAL COIN

COIN READY)

VEND APPLICATIONS DETAILS

PROGRAMMING

ENGLISH

DEUTSCH

ITALIANO

FRANCAIS

ESPANOL

SUPPORT

SMART CARD

VEND OPTION

COIN DROP

OPTIONS

CARD READY

VEND OPTION

CARTRIDGE

PROGRAMMING

(Tweeny, Single Coin, Dual Coin

Coin Ready)

TLW323S

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59. Washer Will Not Spin – Low Speed

(1) Is there voltage across “H6-1” on the control and terminal 4 on the motor?  
Yes → Check lid switch for proper operation. Check wiring from control to lid switch to supply.  
No → Is there voltage across “H6-6” on the control and terminal 4 on the motor?  
Yes → Replace control.  
No → Replace the control.

(2) Is there voltage across “H6-6” on the control and terminal 4 on the motor?  
Yes → Correct wiring between motor and control.  
No → Replace control.

(3) Is there voltage across terminals 3 & 4 on the motor?  
Yes → Is there voltage across terminals 6 & 8 of the motor?  
Yes → Replace control.  
No → Correct wiring to the motor.

(4) Is there voltage across terminals 3 & 8 of the motor?  
Yes → Is there voltage from “H6-2” on control to terminal 6 of the motor?  
Yes → Is there voltage from “H6-4” on control to terminal 1 of the motor?  
Yes → Unit should operate properly.  
No → Replace control.

No → Is there voltage across “H6-3” on control to terminal 8 of the motor?  
Yes → Replace control.  
No → Correct wiring to the motor.

(5) Is there voltage across “H6-3” on control to terminal 8 of the motor?  
Yes → Replace control.  
No → Correct wiring to the motor.

(6) Is there voltage across terminals 6 & 8 of the motor?  
Yes → Replace control.  
No → Replace control.

(7) Is there voltage from “H6-2” on control to terminal 6 of the motor?  
Yes → Replace control.  
No → Replace control.

(8) Is there voltage from “H6-4” on control to terminal 1 of the motor?  
Yes → Replace control.  
No → Replace control.
Washer Will Not Spin – Low Speed

Troubleshooting (NetMaster Models)

1. **L1 N**
   - **120VAC 24VAC RETURN**

2. **CONTROL TRANSFORMER**
   - (See Connection Diagram Detail for Optional Card Ready and Coin Ready Transformer Wiring)

3. **AVAILABLE OUTPUT**
   - Opto out when machine running
   - Input DC 36VDC
   - Input AC 115VAC

4. **START PULSE INPUT**
   - Input LED energized = start pulse active
   - Time = 45 ms
   - Time = 45 ms

5. **VEND APPLICATION DETAIL**
   - **CARDREADER OPTION**
   - For Network Application Supplemental Network Diagram
   - **SLEEVE SUPPLEMENTAL NETWORK DIAGRAM**

6. **SLEEVE SWING AND WATER CIRCUIT**

7. **LID SWITCH SENSE, MOTOR DIRECTION AND CONTROL, AND TIMING CIRCUIT**

8. **NETMASTER CONTROL ASSEMBLY**

9. **VEND APPLICATION DETAILS**
   - **SMART CARD VEND OPTION**
   - **CARD DROP VEND OPTIONS**
   - **CARD READY VEND OPTION**

10. **NETMASTER SCHEMATIC**
    - **HOT, COLD, WASH, DRAIN, FILL, RINSE, BLEACH, SALT, DETERGENT, DUAL COIN (OPTIONAL), SINGLE COIN (OPTIONAL)**
    - **COIN VAULT SERVICE DOOR**
    - **PROGRAMMING**
    - **CONTROL FOR OPTIONAL CARD READY AND COIN DROP (OPTIONAL)**
    - **COIN VAULT (OPTIONAL)**
    - **WATER CIRCUIT**
    - **WASHING CYCLE**
    - **ADJUST SPIN**

11. **INPUT LED ENERGIZED = TRUE PULSE RETURN**

12. **24 VAC RETURN**

13. **PRESSURE SWITCH**

14. **PRESSURE SWITCH AND WATER CIRCUIT**

15. **CONTROL POWERED SUPPLY**

16. **PRESSURE SWITCH**

17. **MOTOR SPEED**

18. **MOTOR DIRECTION**

19. **CAPACITOR**

20. **START 4 PIN**

21. **MIXING VALVE**

22. **COLD**

23. **WHT/RED, WHT/BLUE, WHT/ORGANIC, WHT/BLACK, WHT/WHITE, WHT/RED, WHT/BLUE, WHT/WHITE**

24. **PUMP**

25. **HOT**

26. **SLEEVE READY TRAN**

27. **PLUG READY TRAN**

28. **FOR OPTIONAL CARD READY AND COIN DROP (OPTIONAL)**

29. **9 VDC**

30. **IMAX = 45 ms**

31. **OPTO OFF WHEN MACHINE RUNNING**

32. **ADJUSTMENT (SINGLE COIN, DUAL COIN, COIN READY)**

33. **100 OHM 1/4 WATT**

34. **4N25 4N25**

35. **WHT/RED WHT/BLUE WHT/WHITE WHT/RED WHT/BLUE WHT/WHITE**

36. **PNK/YEL GRY/YEL WHT/ORG WHT/BLACK WHT/WHITE**

37. **RED CW**

38. **RED HW**

39. **RED SS**

40. **24 VAC RETURN**

41. **120/240 VOLT 60/50 HERTZ (Refer to machine plate.)

42. **39201 NLX**

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44. **TLW324S**
Section 4
Adjustments

60. Leveling Legs
Refer to Figure 10.

a. Place rubber feet on all four leveling legs.
b. Place washer in position on a clean, dry, and reasonably firm floor.
c. Loosen locknuts and adjust two front leveling legs. Once adjusted, tilt washer forward on front legs and lower back down into position to set the rear self-leveling legs.
d. Washer must not rock. After washer is at desired height, tighten locknuts securely against bottom of washer base. If these locknuts are not tight, washer will not remain stationary during operation.

NOTE: Install rear extension leg kit, No. 566P3, (optional equipment at extra cost) to raise height of washer.

NOTE: Improper installation, installation on carpet or flexing of a weak floor will cause excessive vibration.

IMPORTANT: Do not slide washer across floor once leveling legs have been extended, as legs and base could become damaged.
**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.

---

**61. Pressure Switch**

Refer to *Figure 11*.

Most washers are equipped with a variable water level pressure switch (located inside the control hood) which allows the owner to adjust the water fill level height in the washtub from 10, 11 or 13 inches.

**IMPORTANT:** Water fill heights less than 10 inches are not recommended. When average to large size clothes loads are expected, damage to the clothes and/or the washer may result.

When the washer leaves the factory, the pressure switch is set for approximately 11 inches of water.

To adjust the pressure switch, proceed as follows:

a. Remove the two control panel attaching screws and lift the assembly up and out of the slots in the cabinet top.

b. Lay the control panel face down (on protective padding) on top of the washer.

c. Rotate the cam on the pressure switch **clockwise to lower** the water fill height, or **counterclockwise to raise** the height. Refer to *Figure 11*.

**IMPORTANT:** The cam has three settings. The setting on the left raises the water level to 10 inches. Middle setting raises the water level to 11 inches. The setting on the right raises the water level to 13 inches.

d. Carefully reinstall the control panel.

e. Reconnect the electrical power to the washer.

f. Run the washer through a cycle and observe the water fill level.

---

**62. Belt (Agitate and Spin)**

No belt adjustment is required.

---

**63. Cleaning Non-Electronic Coin Drop**

a. Disconnect electrical power to machine and drop.

b. Remove coin drop from machine.

c. If lint is preventing coins from rolling through coin drop, blow compressed air though coin entry and along the side of the coin drop. Refer to *Figure 12*.

d. Insert a coin through the coin drop. If coin does not roll through drop, continue with the following.
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.

h. 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 14.

i. 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 15.

j. Check coin drop sensor for dust or dirt on eyes. Wipe eyes with dry cotton swab. Refer to Figure 16.
Adjustments

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.

k. Reinstall coin return on to coin drop frame.
l. Reinstall metal clip and slide towards coin insert slot. All cotter pin holes must line up.
m. Reinstall cotter pin.
n. 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.
o. Reinstall coin drop into machine.
p. Reconnect electrical power to machine and drop.
q. 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.

64. 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.

a. Disconnect electrical power to machine and drop.
b. Remove coin drop from machine.
c. Move spring downward until cover catch is free. Refer to Figure 17.

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

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

d. Open cover for coin drop. Refer to Figure 18.

e. Clean the coin path with a soft brush and wipe exposed surfaces with an alcohol moistened cloth. Refer to Figure 19.

f. Clean residue from coin rail with an alcohol moistened cloth. Refer to Figure 20.
Adjustments

**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.

---

g. Clean light sensors with a soft brush or air spray duster. Refer to *Figure 21*.

---

h. Close cover for coin drop.
i. Move spring back over cover catch.
j. Reinstall coin drop into machine.
k. Reconnect electrical power to machine and drop.
l. Add a coin to drop to verify that coin drop is operating properly and that electrical connection is working properly.

---

**Figure 21**
Section 5
Motor Test 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.

IMPORTANT: Disconnect base wire harness plug from motor.

WARNING

Disconnect electric power to washer before performing the following steps:

Motor test procedures using an Ohm meter.

NOTE: Resistance readings slightly out of given ranges may be due to meter conditions. These readings DO NOT necessarily indicate motor failure.

<table>
<thead>
<tr>
<th>Meter Connections</th>
<th>Reading Should Be</th>
<th>If Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Ground to Each Other Terminal</td>
<td>Open</td>
<td>Terminal shorted to ground.</td>
</tr>
<tr>
<td>7. White to Yellow</td>
<td>Closed</td>
<td>Open thermal overload.</td>
</tr>
<tr>
<td>8. Red to Brown</td>
<td>2-8 Ohms</td>
<td>Start winding open or resistance too high or too low.</td>
</tr>
<tr>
<td>9. Blue to White</td>
<td>1-2 Ohms</td>
<td>High speed winding (4 pole) open or resistance too high or too low.</td>
</tr>
<tr>
<td>10. Violet to White (2-speed motor)</td>
<td>2.5 Ohms (approximate)</td>
<td>Low winding open; High speed winding open; or resistance too high or too low.</td>
</tr>
<tr>
<td>11. “R” to Red</td>
<td>Closed</td>
<td>Open start (auxiliary) switch.</td>
</tr>
<tr>
<td>12. “P” to Blue (2-speed motor)</td>
<td>Closed</td>
<td>Open start switch 4 pole winding.</td>
</tr>
</tbody>
</table>

NOTE: Steps 8, 9 and 10 are with motor centrifugal mechanism in the run position.

<table>
<thead>
<tr>
<th></th>
<th>Reading Should Be</th>
<th>If Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. “P” to Blue (2-speed motor)</td>
<td>3 Ohms (approximate)</td>
<td>Refer to Blue to White and Violet to White.</td>
</tr>
<tr>
<td>15. “P” to Violet (2-speed motor)</td>
<td>Closed</td>
<td>Open low (6 pole) winding run switch.</td>
</tr>
</tbody>
</table>
## Section 6
### Cycle Sequence Charts

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>IN USE LIGHT</th>
<th>RINSE LIGHT</th>
<th>SPIN LIGHT</th>
<th>WATER TEMP.</th>
<th>CYCLE &amp; MOTOR SPEED*</th>
<th>TIME (Min. &amp; Sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASH</td>
<td>X</td>
<td></td>
<td></td>
<td>H, W, C</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>10:33</td>
</tr>
<tr>
<td>PAUSE</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:05</td>
</tr>
<tr>
<td>SPIN</td>
<td>X</td>
<td>X</td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>1:56</td>
</tr>
<tr>
<td>SPIN AND SPRAY</td>
<td>X</td>
<td>X</td>
<td>COLD</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>:31</td>
</tr>
<tr>
<td>SPIN</td>
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<td>X</td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>:36</td>
</tr>
<tr>
<td>SPIN AND SPRAY</td>
<td>X</td>
<td>X</td>
<td>COLD</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>:07</td>
</tr>
<tr>
<td>SPIN</td>
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<td>X</td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
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<td>1:07</td>
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<td>PAUSE</td>
<td>X</td>
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<td></td>
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</tr>
<tr>
<td>RINSE</td>
<td>X</td>
<td>X</td>
<td></td>
<td>COLD</td>
<td></td>
<td>:36</td>
</tr>
<tr>
<td>PAUSE OR FILL</td>
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<td>X</td>
<td>COLD</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>:02</td>
</tr>
<tr>
<td>RINSE, AGITATE OR FILL</td>
<td>X</td>
<td>X</td>
<td>COLD</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>3:03</td>
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<td>PAUSE</td>
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<td></td>
<td></td>
<td></td>
<td>:06</td>
</tr>
<tr>
<td>SPIN</td>
<td>X</td>
<td>X</td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
<td></td>
<td>10:32</td>
</tr>
</tbody>
</table>

**Timer No. 28716P and 28719 Cycle Sequence**

*On single speed models, all speeds are fast.*

**KEY:**
- H = HOT
- PP = PERMANENT PRESS CYCLE
- W = WARM
- D = DELICATE CYCLE
- C = COLD
- X = INDICATOR LIGHT GLOWS
- N = NORMAL CYCLE

**TOTAL**

30:00
### Cycle Sequence Charts

<table>
<thead>
<tr>
<th>Function</th>
<th>In Use Light</th>
<th>Rinse Light</th>
<th>Spin Light</th>
<th>Water Temp.</th>
<th>Cycle &amp; Motor Speed*</th>
<th>Eaton Time (Min. &amp; Sec.)</th>
<th>Mallory Time (Min. &amp; Sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash</td>
<td>X</td>
<td>H, W, C</td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>:57</td>
<td>1:00</td>
</tr>
<tr>
<td>Coin Slide Starting Stroke</td>
<td>X</td>
<td>H, W, C</td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>7:00</td>
<td>7:00</td>
</tr>
<tr>
<td>AGITATE OR VARIABLE FILL</td>
<td>X</td>
<td>H, W, C</td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>1:15</td>
<td>1:15</td>
</tr>
<tr>
<td>Pause</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:04</td>
<td>:04</td>
</tr>
<tr>
<td>Spin</td>
<td>X</td>
<td></td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>1:25</td>
<td>1:25</td>
</tr>
<tr>
<td>Spin and Spray</td>
<td>X</td>
<td>COLD</td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>:45</td>
<td>:45</td>
</tr>
<tr>
<td>Spin</td>
<td>X</td>
<td></td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>1:15</td>
<td>1:15</td>
</tr>
<tr>
<td>Pause</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:04</td>
<td>:04</td>
</tr>
<tr>
<td>Rinse (Timer Motor Runs)</td>
<td>X</td>
<td>COLD</td>
<td></td>
<td></td>
<td></td>
<td>1:01</td>
<td>1:54</td>
</tr>
<tr>
<td>AGITATE OR VARIABLE FILL</td>
<td>X</td>
<td></td>
<td>COLD</td>
<td>N = FAST</td>
<td></td>
<td>:09</td>
<td>:16</td>
</tr>
<tr>
<td>Pause</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:14</td>
<td>:16</td>
</tr>
<tr>
<td>Spin</td>
<td>X</td>
<td></td>
<td></td>
<td>N = FAST</td>
<td></td>
<td>6:00</td>
<td>6:00</td>
</tr>
<tr>
<td>Pause</td>
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<td></td>
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<td></td>
<td></td>
<td>:06</td>
<td>:03</td>
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<td>Off</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>:22</td>
<td>:19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20:17</td>
<td>20:21</td>
</tr>
</tbody>
</table>

*On single speed models, all speeds are fast.

**KEY:**
- H = HOT
- PP = PERMANENT PRESS CYCLE
- W = WARM
- D = DELICATE CYCLE
- C = COLD
- X = INDICATOR LIGHT GLOWS
- N = NORMAL CYCLE

**Timer No. 3111P, 31504P and 35368P Cycle Sequence**
# Cycle Sequence Charts

<table>
<thead>
<tr>
<th>Function</th>
<th>In Use Light</th>
<th>Rinse Light</th>
<th>Spin Light</th>
<th>Water Temp.</th>
<th>Cycle &amp; Motor Speed*</th>
<th>Eaton Time (Min. &amp; Sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash</td>
<td>X</td>
<td></td>
<td>H, W, C</td>
<td></td>
<td>Fast or Slow</td>
<td>:57</td>
</tr>
<tr>
<td>Wash, Fill, or Agitate</td>
<td>X</td>
<td></td>
<td>H, W, C</td>
<td></td>
<td>Fast or Slow</td>
<td>7:00</td>
</tr>
<tr>
<td>Pause</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:21</td>
</tr>
<tr>
<td>Spin</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Fast or Slow</td>
<td>1:25</td>
</tr>
<tr>
<td>Spin and Spray</td>
<td>X</td>
<td></td>
<td>COLD</td>
<td></td>
<td>Fast or Slow</td>
<td>:45</td>
</tr>
<tr>
<td>Spin</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Fast or Slow</td>
<td>1:15</td>
</tr>
<tr>
<td>Pause</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:04</td>
</tr>
<tr>
<td>Rinse</td>
<td>X</td>
<td></td>
<td></td>
<td>COLD</td>
<td></td>
<td>:13</td>
</tr>
<tr>
<td>Pause or Fill</td>
<td>X</td>
<td>X</td>
<td>COLD</td>
<td></td>
<td></td>
<td>:13</td>
</tr>
<tr>
<td>Rinse</td>
<td>X</td>
<td>X</td>
<td>COLD</td>
<td></td>
<td>Fast or Slow</td>
<td>1:01</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td></td>
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<td>:09</td>
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<tr>
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<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>Fast</td>
<td>6:00</td>
</tr>
<tr>
<td>Pause</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>:04</td>
</tr>
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<td></td>
<td></td>
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<td><strong>Total 20:17</strong></td>
</tr>
</tbody>
</table>

*On single speed models, all speeds are fast.

**Key:**
- **H** = Hot
- **W** = Warm
- **C** = Cold
- **X** = Indicator light glows

**Timer No. 36986 Cycle Sequence**
## Cycle Sequence Charts

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>IN USE</th>
<th>RINSE LIGHT</th>
<th>SPIN LIGHT</th>
<th>WATER TEMP.</th>
<th>CYCLE &amp; MOTOR SPEED*</th>
<th>TIME (Min. &amp; Sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COIN SLIDE STARTING STROKE 16.84° (Eaton)</td>
<td>X</td>
<td>H, W, C</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>1:23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGITATE OR VARIABLE FILL</td>
<td>X</td>
<td>H, W, C</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>10:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAUSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>:34</td>
<td></td>
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<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIN</td>
<td>X</td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>1:32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIN AND SPRAY</td>
<td>X</td>
<td>COLD</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>:30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIN</td>
<td>X</td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>1:29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAUSE</td>
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</tr>
<tr>
<td>RINSE</td>
<td></td>
<td>COLD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILL (Timer Motor Runs)</td>
<td>X</td>
<td>COLD</td>
<td></td>
<td>:06</td>
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<td></td>
</tr>
<tr>
<td>PAUSE OR FILL</td>
<td>X</td>
<td>X</td>
<td>COLD</td>
<td>:20</td>
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<tr>
<td>AGITATE OR VARIABLE FILL</td>
<td></td>
<td>X</td>
<td>COLD</td>
<td>3:19</td>
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<td></td>
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<tr>
<td></td>
<td>X</td>
<td>COLD</td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>:24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAUSE</td>
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<tr>
<td>SPIN</td>
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<td>:10</td>
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<tr>
<td>SPIN</td>
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<td>X</td>
<td>N = FAST PP = FAST D = SLOW</td>
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<tr>
<td>OFF</td>
<td></td>
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<td>:13</td>
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<td>29:39</td>
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</tr>
</tbody>
</table>

*On single speed models, all speeds are fast.

**KEY:**
- H = HOT
- PP = PERMANENT PRESS CYCLE
- W = WARM
- D = DELICATE CYCLE
- C = COLD
- X = INDICATOR LIGHT GLOWS
- N = NORMAL CYCLE

**Timer No. 34601P, 34603P, 34604 and 36987 Cycle Sequence**
# Cycle Sequence Charts

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>IN USE</th>
<th>RINSE</th>
<th>SPIN</th>
<th>WATER TEMP.</th>
<th>CYCLE &amp; MOTOR SPEED*</th>
<th>EATON TIME (Min. &amp; Sec.)</th>
<th>MALLORY TIME (Min. &amp; Sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N = FAST PP = FAST D = SLOW</td>
<td>1:23</td>
<td>1:31</td>
</tr>
<tr>
<td></td>
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*On single speed models, all speeds are fast.

**KEY:**
- H = HOT
- W = WARM
- C = COLD
- N = NORMAL CYCLE
- PP = PERMANENT PRESS CYCLE
- D = DELICATE CYCLE
- X = INDICATOR LIGHT GLOWS

Timer No. 34602P Cycle Sequence
## Cycle Sequence Charts

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TOTAL 20:28

*On single speed models, all speeds are fast.

**KEY:**

- **H = HOT**
- **PP = PERMANENT PRESS CYCLE**
- **W = WARM**
- **D = DELICATE CYCLE**
- **C = COLD**
- **X = INDICATOR LIGHT GLOWS**
- **N = NORMAL CYCLE**

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**Timer No. 200914 Cycle Sequence**
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*On single speed models, all speeds are fast.

**KEY:**
- H = HOT
- PP = PERMANENT PRESS CYCLE
- W = WARM
- D = DELICATE CYCLE
- C = COLD
- X = INDICATOR LIGHT GLOWS
- N = NORMAL CYCLE

*Timer No. 201066 Cycle Sequence*
## Cycle Sequence Charts

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<td></td>
<td></td>
<td>:10</td>
<td></td>
</tr>
<tr>
<td><strong>SPIN</strong></td>
<td>SPIN</td>
<td>X</td>
<td>X</td>
<td>FAST</td>
<td>:30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AND SPRAY</td>
<td>X</td>
<td>X</td>
<td>C</td>
<td>:00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAST</td>
<td>:30</td>
<td></td>
</tr>
<tr>
<td><strong>FINAL</strong></td>
<td>SPIN</td>
<td>X</td>
<td>X</td>
<td>FAST</td>
<td>7:00</td>
<td></td>
</tr>
</tbody>
</table>

*On single speed models, all speeds are fast.*

**KEY:**
- **H** = HOT
- **W** = WARM
- **C** = COLD
- **N** = NORMAL CYCLE
- **PP** = PERMANENT PRESS CYCLE
- **D** = DELICATE CYCLE
- **X** = INDICATOR LIGHT GLOWS

### Cycle Sequence For Coin Slide Operated and Non-Metered Models With “8”, “9”, “M” or “S” in the 4th Character of the Model Number