

# *Advanced Laundry Control System*

## *Installation & Operation Manual*



Retain this manual for installation, operation, programming, and servicing information.



37179/0404/0707

Copyright Ecolab Inc. 2007

9258-2021

**This page intentionally left blank.**

# Contents

1.0	System Introduction .....	5
1.1	Preface .....	5
1.2	System Features .....	6
1.3	Principle of Operation .....	6
1.4	Controller Description .....	9
2.0	Specifications .....	10
2.1	Pump Module Assembly .....	10
2.2	Controller .....	10
2.3	Machine Interface .....	11
2.4	Utilities .....	11
2.4.1	Electrical Supply .....	11
2.5	Communication Cables.....	11
2.6	General and Environmental Specifications .....	12
3.0	Installation .....	12
3.1	Preplanning the Installation .....	12
3.2	Materials Ordered Separately .....	12
3.3	Pump Module Installation .....	13
3.4	Controller Installation .....	14
3.4.1	Mounting on Vertical Surfaces (Preferred) .....	14
3.4.2	Mounting on Horizontal Surfaces .....	14
3.4.3	Mounting to Machine Wall .....	15
3.5	Machine Interface Installation .....	16
3.5.1	Mounting Machine Interface .....	16
3.5.2	Signal Voltage .....	16
3.5.3	Supply Trigger Wiring .....	16
3.5.4	Chart Stop Wiring .....	17
3.5.5	Event Mode Wiring .....	17
3.5.6	MicroMode Signal Wiring.....	18
3.6	Communication Cables.....	18
3.7	Supply Tubing Installation.....	18
4.0	Programming.....	19
4.1	General Information .....	19
4.1.1	Definitions and Conventions.....	19
4.1.2	Icon Descriptions .....	19
4.1.3	Pump Lockout .....	20
4.1.4	Flush Logic .....	20
4.1.5	Formula Load Counter.....	21
4.2	Program Mode.....	21
4.2.1	Enter Program Mode .....	21
4.2.2	Program Mode Navigation .....	21
4.3	QUICKSTART – See Figure 4 – 2 .....	23
4.4	ACCT SETUP – See Figure 4 – 3 .....	25
4.5	WASHER SETUP – See Figure 4 – 4 .....	27


4.6	FORMULA PROG – See Figure 4 – 5 .....	29
4.7	EVENT MODE – See Figure 4 – 6 .....	32
4.8	RECORDS – See Figure 4 – 7 .....	33
4.9	PRIME MODE – See Figure 4 – 8 .....	35
4.10	TIME CALIB – See Figure 4 – 9 .....	36
4.11	DIAGNOSTIC – See Figure 4 – 10 .....	38
4.12	Exit Program Mode .....	40
5.0	Optional Equipment.....	41
5.1	50' (15.24 meter) Communication Cable .....	41
5.2	Flush Manifold .....	41
6.0	Account Features .....	42
6.1	Idle Screen / Formula Selection.....	42
6.2	Total Load Counts .....	42
6.3	Pumps Running .....	43
6.4	User Prime.....	43
7.0	Set-Up and Operation .....	44
7.1	Product/Wash Signal Check.....	44
7.2	Dispensed Quantity Check .....	44
8.0	Troubleshooting .....	45
9.0	Replacement Parts.....	47
9.1	Pump Module .....	47
9.2	Controller .....	48
9.3	Machine Interface .....	48
9.4	Optional Parts .....	49
10.0	Maintenance.....	49
10.1	Periodic Cleaning .....	49
10.2	Pump Tube Replacement.....	49
10.3	Tube Lubrication.....	49
10.4	Service.....	50
10.4.1	Pump Module Disassembly .....	50
10.4.2	Pump Module Disassembly .....	50
10.4.3	Power Wiring .....	51

# 1.0 System Introduction

## 1.1 Preface

This manual has been written and illustrated to present the basic installation, operation and servicing instructions of the Advanced Laundry Control System. This manual applies to current units. Future versions may have additional features; check unit packing for the latest revision.


Guidelines will be suggested in reference to the preferred method of installation. However, the variety of equipment and the surrounding environment will dictate the actual installation of the Advanced Laundry Control System.


<b>WARNING</b> 	These installation, operation and servicing instructions are for use by qualified personnel only. The Advanced Laundry Control System is intended to be installed by an experienced, qualified technician, in accordance with all applicable NEC/CEC (National Electrical Code/Canadian Electrical Code) requirements and with local building, electrical and plumbing codes. All laundry machine and dispenser power must be disconnected during installation and/or any time the dispenser cabinet is opened.
---	---


All safety instructions and important remarks must be followed at all times!

## Important Remarks

The remarks **WARNING**, **CAUTION** and **NOTE** have the following meanings in this manual.

<b>WARNING</b> 	This heading is used when injuries or accidents could result if operating procedures, service procedures, etc., are not correctly observed or are ignored.
---	--

<b>CAUTION</b> 	This heading is used when the unit could be damaged if operating procedures, service procedures, etc., are not correctly observed or are ignored.
---	---

<b>NOTE</b> 	This heading is used when a particular piece of information needs to be highlighted.
--	--

## 1.2 System Features

The Advanced Laundry Control System consists of three components. The Machine Interface module accepts the washer signals and converts them to safe low-voltage inputs. The Controller provides a timesaving menu display system to aid program setup. The Pump Module provides heavy duty, high capacity peristaltic pumps for product transfer. An optional Flush Manifold is available for water flush chemical transfer applications.

- Front-mounted keypad for adjusting all functions.
- LCD readout provides clear menus and advice on status.
- Formula programming allows programming/selecting up to 16 different chemical formulas.
- Product levels – up to three different product levels may be programmed for each product within each formula.
- Product volumes – enter the desired product amounts directly in ounces (or milliliters).
- Chart Stop times may be programmed for any pump and formula.
- Machine Interface automatically adjusts for 24 to 240VAC and 22 to 26VDC signals.
- Machine Interface provides a contact closure output for Chart Stop.
- MicroMode feature provides automatic formula control from the washer.
- Automatic recording – the number of times each formula has been used.
- Selectable operating logic allows the unit to be used with all washers.
- Pumps have approximate output capacity of 10 - 14 ounces/minute (296 - 414 mls/minute) for fast and efficient transfer of the chemical product dosage. Actual delivery rate depends on product viscosity, length of pickup tubing and tees, etc.
- Flush output available for use with optional Flush Manifold.

## 1.3 Principle of Operation

The Advanced Laundry Control System “**Controller**” is connected to the “**Machine Interface**”. The Machine Interface communicates a “supply signal” from the laundry machine to the Controller. Once a signal is received, the Advanced Laundry Control System will pump products based on how you have programmed it.

The Advanced Laundry Control System is designed for laundry machines having a load capacity of 15 to 600 lbs. (clean dry weight). Products are pumped by the dispenser from their shipping containers to the laundry machine. Each product injection may be delayed up to 999 seconds and programmed for amounts up to 333.3 ounces (999 milliliters). Up to 16 formulas may be programmed and selected from the Controller.

The “**Machine Interface**”, installed inside the laundry machine control wiring area receives the laundry machine “supply signals”. It automatically adjusts for supply signal voltages ranging from 24 to 240VAC or 22 to 24VDC. Chart Stop output wiring connections are available at the “Machine Interface”.

The “**Pump Module**” operates on 115 VAC/60HZ, 208VAC/60HZ. It is wired into the appropriate voltage power supply. It also supplies low voltage power to the “Controller” and provides the interface to the optional “Flush Manifold”.

The “**Controller**” will indicate when pumps are running and which formula is currently selected. The laundry operator can change formulas to match the load unless MicroMode automatic selection has been programmed. *Formula Load Counter: Formula load count and formula reset occurs from a pump 3 request signal. Even if pump 3 product is not required for the selected formula the signal must occur for the formula to reset and be counted. In this case set the product 3 amount to 0.*

The “**Optional Flush Manifold**” — not shown— provides an alternative means of chemical transfer to the laundry machine. In flush configuration, the Advanced Laundry Control System is a complete integrated water flush chemical dispensing system – complete with flow sensor and system alarm.

Figure 1-1

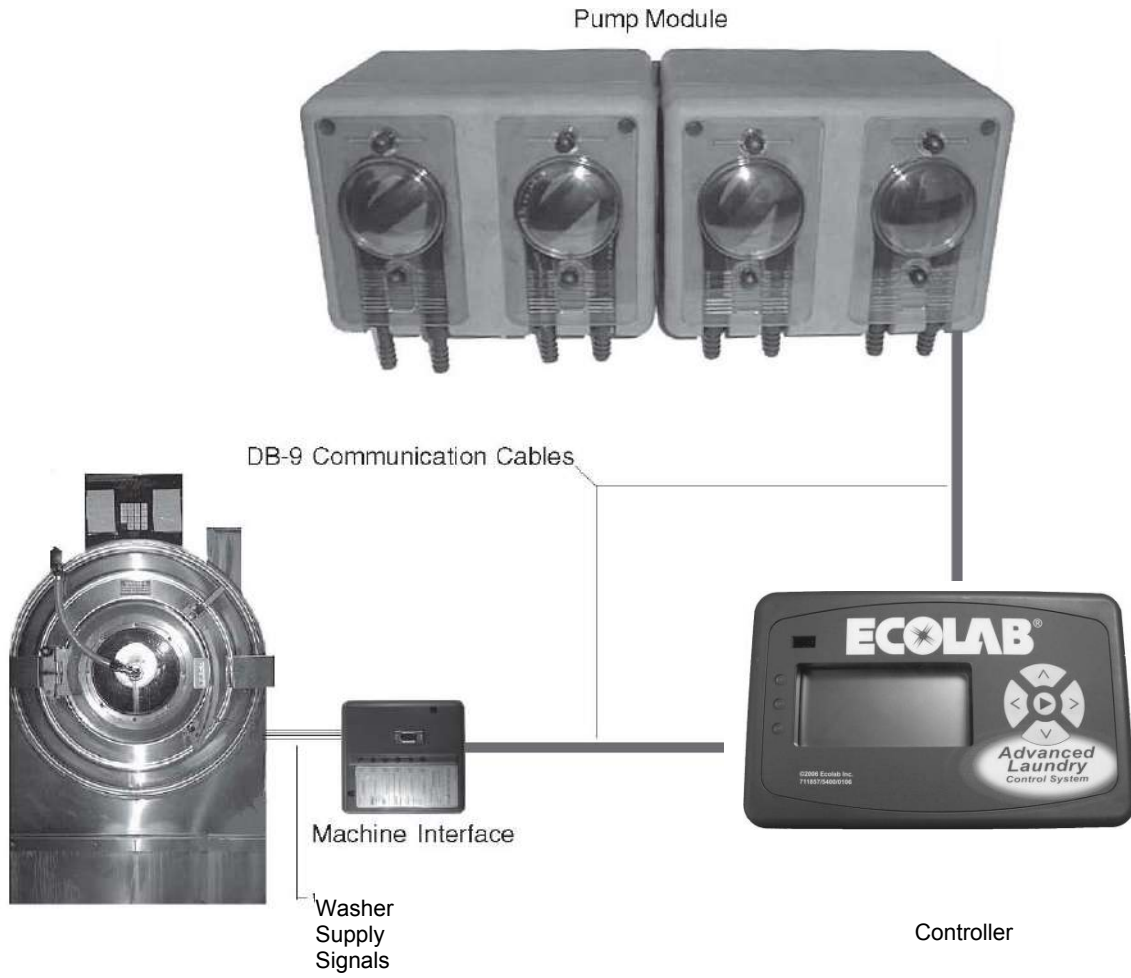
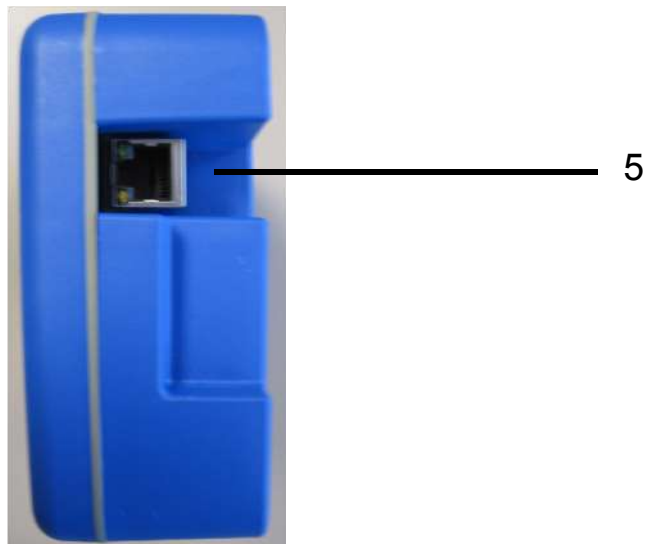


Figure 1-2

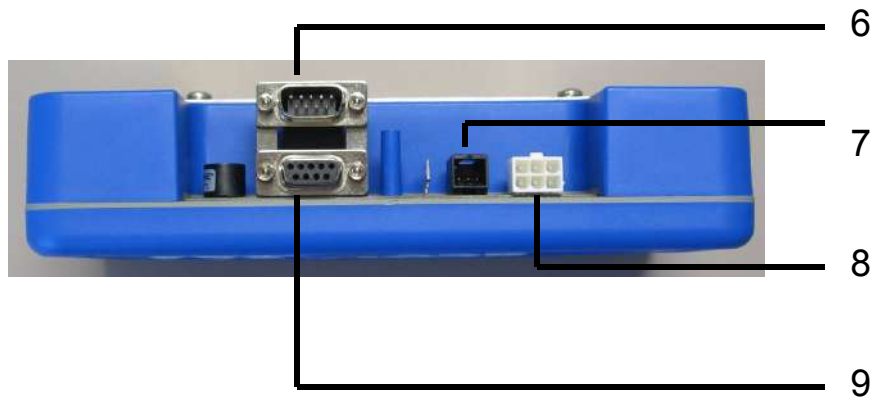
Front View



Right Side View



Bottom View





## 1.4 Controller Description

**NOTE:** Paragraph numbers below refer to numbered items in Figure 1–2.

1. **LED lights:** The lights indicate the following:

Green light – Controller has power.  
Yellow light – Controller is returning to default settings.  
Red light – not currently used.

2. **Infrared Communication Port:** For future use.

3. **Key pad:** These keys provide a means for selecting/reviewing/programming:

**Middle/NEXT key:**

Run Mode: password and prime prompt.  
Program Mode: menu advance.

**Up arrow key:**

Run Mode: scroll/select formula.  
Program Mode: scroll options, increment displayed value, and activate (turn on) selection.

**Down arrow key:**

Run Mode: scroll/select formula.  
Program Mode: scroll options, decrement displayed value, and deactivate (turn off) selection.

**Left arrow key:**

Run Mode: view/scroll load counts.  
Program Mode: step back within program menus.

**Right arrow Key:**

Run Mode: view/scroll load counts.  
Program Mode: step forward within program menus and select options/enter.

4. **LCD Display:**

Run mode: Current formula number/name display, pump run status, load counts, and user prime.  
Program mode: Data entry request/menu/settings display.

5. **Communications port:** For future use.

6. **“Pump Module” (DB-9 male) connector:** This provides the communication link between the Controller and the Pump Module and supplies power to the Controller. Attach the female end of the 20' cable here.

**NOTE:** You may also use an optional 50' cable if necessary.


7. **Gnet connector:** For future use.

8. **System expansion port:** For future use.

9. **“Machine Interface” (DB-9 female) connector:** This provides the communication link between the Controller and the Machine Interface. Attach the 10' cable here.

## 2.0 Specifications

### 2.1 Pump Module Assembly

<b>Note</b> 	Specifications subject to change without notice.
--	--

#### Pump Module Assembly

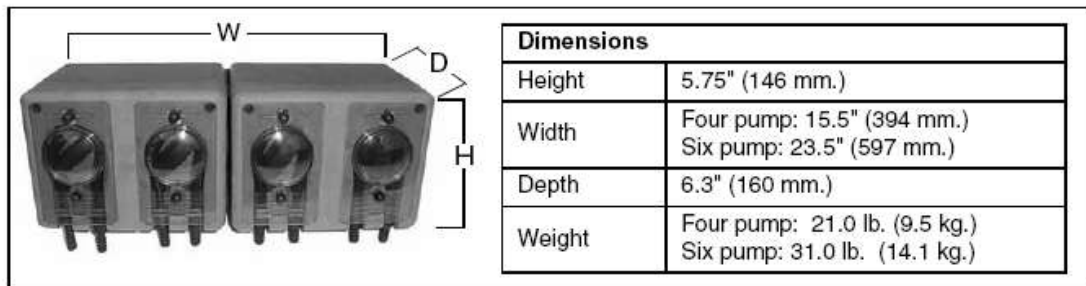



Figure 2-1 Pump Module Assembly Dimensions

#### Service Access

<b>WARNING</b> 	Turn off all power to the Pump Cabinet before servicing!
---	--

Access to Pump Cabinet Printed Circuit Board (PCB), On/Off Toggle Switch, Communication Cable Plug, and Optional Pump Wiring Harnesses are all located in the left portion of the Pump Cabinet (pumps 1 and 2, or 1, 2, and 3). The front of each Cabinet is secured with four (or six) screws located behind the Pump Front Plates. Remove the Pump Front Plate to access to squeeze tube and roller.

### 2.2 Controller



Figure 2-2 Controller Dimensions

## 2.3 Machine Interface

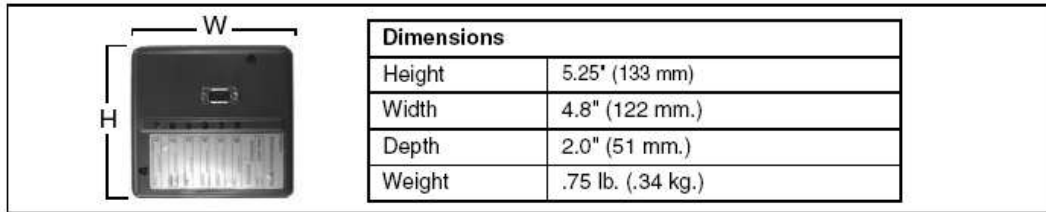


Figure 2-3 Machine Interface Dimensions

## 2.4 Utilities

### 2.4.1 Electrical Supply

- A constant 115VAC/60 Hz or 208VAC/60 Hz (check serial number label for voltage, wall outlet power supply is required. A 7-foot power cord is provided with the 115VAC unit.
- The power must be on whenever the laundry machine is operating.
- Maximum amperage draw for each pump running during operation is:
  - 115VAC (+/-10%), 60 HZ .....2.4 amps;
  - 208VAC (+/-10%), 60 HZ .....1.3 amps;
- A 10 amp circuit breaker is fitted to the 115VAC Pump Module.
- A 6 amp circuit breaker is fitted to 208 VAC/60 Hz Pump Modules.

## 2.5 Communication Cables

- Two cables are supplied with male and female DB-9 connectors.
- The internal connections – of the cables – are identical.
- The matching connectors are reversed to eliminate cross connection.
- The 10' (3.05 meter) cable is intended for the Machine Interface to Controller connection.
- The 20' (6.10 meter) cable is intended for the Pump Module to Controller connection.
- An optional 50' (15.24 meter) cable is also available.

## 2.6 General and Environmental Specifications

Number of pumps allowed to run at the same time	Non-Flush = all; Flush = 1 at a time (pumps queue when more than 1 is triggered at a time)
Maximum Duty Cycle	3 minutes on, 27 minutes off
Maximum Pump Amount	995 mls
Maximum Pump Delay Time	999 seconds
Maximum Flush Time	999 seconds
Maximum Pump Prime (/Motor Run) Time	5 minutes
Maximum J1 Cable Length	22.86 meters
Pollution Category	2
Installation Category	II
Temperature	5° - 40° C.
Humidity	80% maximum for temp up to 31° C, decreasing linearly to 50% max at 40° C
Indoor Installation	Approved for indoor use only. Do not install outdoors.
Altitude	2000 m. maximum

## 3.0 Installation

### 3.1 Preplanning the Installation


There is no substitute for planning the installation prior to beginning the work. Several minutes in planning may save an hour or more during the installation. The following is a list of the factors to consider:

- Location of Pump Module must be within 50' of the laundry machine.
- Locate the Pump Module at a convenient height for pump tube servicing.
- Allow room underneath the Pump Module for the optional Flush Manifold when planning flush installations.
- The Pump Module must be mounted to a solid surface , e.g., drywall, masonry, wood, cement, cinder block, etc. Use appropriate hardware for each mounting surface, e.g. metal anchors in cement or cinder block.
- Verify access to the appropriate power source for the unit. A separate power supply is desirable , but you may have to use the laundry washer power. If an external switch or circuit breaker is used, it should be located as close as possible to the Pump Module.
- The outlet supply tubing run should not exceed 50' (15.24 meters). The total input and output tubing runs should be kept to less than 60' (18.3 meters) or tubing durability will be affected.
- The Controller must be mounted securely to the laundry washer or other convenient location so that the operator can easily see the screen and operate the buttons. Allow space on the right side and bottom of the controller for cable connections and future cable access.

### 3.2 Materials Ordered Separately

- Product pickup and output supply tubing, and probes.
- For long Controller to Pump Module distances, a 50' (15.24 meter) cable may be ordered.
- Optional Flush Manifold.
- Optional controller swivel mount bracket.

### 3.3 Pump Module Installation


<b>WARNING</b> 	All laundry machine, controller and pump module power must be disconnected during installation and/or any time the dispenser (pump module) cabinet is opened!
---	---

Review the pre-planning information before installation.

1. Locate the pump module close to your product containers and close to AC power. A vertical wall behind the washer at a 4 to 5 foot (1.22 to 1.52 meter) height is usually suitable.
2. Install the Pump Module wall mount bracket with hardware provided.
3. Hang the pump module on the wall mount bracket, pressing downwards until the Pump Module locks in place.
4. Connect the power cable to an appropriate wall outlet or hard wire to the laundry machine. For permanently connected equipment, the power cable should be run through conduit (flexible preferred). Electrical connections must be made to screw terminals.

<b>Note</b> 	Steps 5 - 7 apply only to flush installations.
--	--

5. Cut the tie-wrap to remove the Flush Jumper Plug. Remove the Flush Jumper Plug from the flush connector on the underside of the Pump Module. **IMPORTANT: Retain the Flush Jumper Plug for future use.**
6. Connect Flush Manifold cable to flush connector on the Pump Module.

<b>Note</b> 	The Pump Module has a resettable circuit breaker on the bottom left of the cabinet.
--	---

**Pump Module Mounting Bracket**



**Flush Connector Detail**




Low Level Power Connector (24 VAC)  
Flush Connector


**Flush Jumper**



Remove when installing a flush manifold.

**Figure 3-1 Pump Module Mounting and Flush Connector Detail**

<b>Note</b> 	The Flush Connector (with water flow in the Flush manifold) or the Flush Jumper Plug must be installed to enable pumps to operate.
--	--

<b>NOTE</b> 	<p>The Pump Module should be located close to your product containers and placed such that the output tubing runs are short. The total input and output tubing runs should not exceed 60' (18.3 meters) or tubing durability will be affected.</p>
--	--

## 3.4 Controller Installation

### 3.4.1 Mounting on Vertical Surfaces (Preferred)

1. Find a suitable location for the Controller either on or close to the washer. The keypad should be readily accessible and the display easily visible to the user.
2. Connect communication cables, Pump Module connector and Machine Signal Interface connector, to Controller bottom. Secure cables at the Controller with tie wraps.
3. Clean the surface of the vertical mounting location with alcohol or similar to provide best adhesion of the Dual Lock™ strips.
4. Cut two 3" x 1" Dual Lock™ strips. Remove the adhesive backing paper and affix both strips vertically on the back of the controller enclosure.



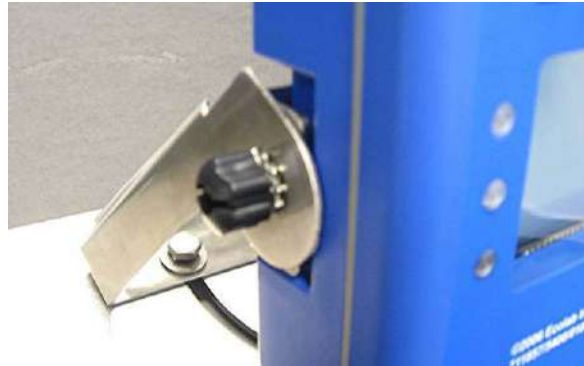
5. Cut two additional 3" x 1" Dual Lock™ strips and fasten to the strips located on the back of the controller. Remove the adhesive backing paper and affix the Controller in the desired mounting surface location.
6. Connect communication cables, Pump Module connector and Machine Signal Interface connector, to Controller bottom. Secure cables at the Controller with tie wraps.

### 3.4.2 Mounting on Horizontal Surfaces

1. Find a suitable location for the Controller either on or close to the washer. The keypad should be readily accessible and the display easily visible to the user.
2. Use the optional mounting bracket for installation on horizontal surfaces.
3. Attach the stainless steel mounting plate on the back of the controller with provided screws.
4. Line up the holes of stand with the holes on the side of the plate.



5. Tighten the provided thumbscrews through washers and stand to controller plate.
6. Screw stand to washer or other horizontal surface.



7. Connect communication cables, Pump Module connector and Machine Signal Interface connector, to Controller bottom. Secure cables at the Controller with tie wraps.

### 3.4.3 Mounting to Machine Wall

1. Find a suitable location for the Controller on either side of the washer. The keypad should be readily accessible and the display easily visible to the user.
2. Complete steps 2-5 in section 3.4.2 – *Mounting on Horizontal Surfaces*.
3. Mount the “L” bracket using the four provided mounting screws.




4. Attach the base of the optional mounting bracket to the “L” bracket using the two provided nut/bolt assemblies.




5. Connect communication cables, Pump Module connector and Machine Signal Interface connector, to Controller bottom. Secure cables at the Controller with tie wraps.

### 3.5 Machine Interface Installation

<b>WARNING</b> 	Make sure to disconnect all power to the wash machine before proceeding.
---	--

#### 3.5.1 Mounting Machine Interface

1. Fasten machine interface to washer chassis within the wiring area. Keep machine interface and communication cable away from high voltage wires and relays. Never parallel the cable with high voltage lines.
2. Electrical connections between the MI and the wash machine must be made with screw terminals.

<b>Note</b> 	The Machine Interface may be externally mounted to an external (“four square”) electrical junction box with flexible conduit. Two mounting screw holes are present for securing to the junction box. Electrical wiring junctions for supply triggers and Chart Stop must be done inside the junction box (with screw terminals), prior to securing the MI.
--	--

3. Route the 10' communication cable into the washer signal wiring area through a rear knock-out.
4. Plug the 10' communication cable into the Machine Interface Module.
5. Bundle excess cable outside the washer rear. The other end of this cable will be plugged into the “Machine Interface” connector on the Controller.

#### 3.5.2 Signal Voltage

The Machine Interface will work with any signal voltage between 24 – 240 VAC or 22 - 24VDC. With DC signals, polarity must be observed. Common is negative. The signals should be positive voltages.

#### 3.5.3 Supply Trigger Wiring

1. Identify the washer supply signals. Check with technical service or with the washer manufacturer if you are not sure of the connections.
2. Electrical connections between the MI and signal wires must be made with screw terminals. Use the following color codes for both “Timer” and “Relay” modes – see section 4.1.1 for mode explanations:

	Supply Signal	Signal Common	Pump Number
<b>Signal 1</b>	Black wire	White/Black	Pump 1
<b>Signal 2</b>	Brown wire	White/Brown	Pump 2
<b>Signal 3</b>	Red wire	White/Red	Pump 3
<b>Signal 4</b>	Orange wire	White/Orange	Pump 4
<b>Signal 5</b>	Yellow wire	White/Yellow	Pump 5
<b>Signal 6</b>	Blue wire	White/Blue	Pump 6



**Wiring Notes:**

- Individually wire-nut unused wires. If the washer has a single common, wire-nut all of the commons together.
- If one or more pump signals are not used they do not need to be connected.
- If you are triggering more than one pump from a single signal then connect all of the Machine Interface pump signal wires for those pumps to that signal.
- Each of the 6 LEDs on the Machine Interface will light when a valid signal is received at the respective input.

**3.5.4 Chart Stop Wiring**

Two grey wires are present for Chart Stop connections. These wires provide a normally-closed contact closure that opens when the Controller calls for Chart Stop. This provides an interruption of the washer timer motor for the programmed Chart Stop time.


1. Disconnect one wire from the machine timer motor and connect it to a screw terminal.
2. Add a supplemental wire (18g., 300V rated) from the timer motor, where the wire was removed in step 1. Connect the other end of this supplemental wire to the screw terminal.
3. Connect the two grey wires from the Machine Interface to the screw terminals in positions corresponding to the motor timer wires.
4. Program the Controller for desired Chart Stop times for each pump and formula.

**3.5.5 Event Mode Wiring**

In event mode, the dispenser sequences itself to the laundry machine cycle. It may be programmed to add product on certain "events" or fills of the machine. Regular supply signals are not needed.

Electrical connections between the washer and signal wires must be made with screw terminals. Event mode wiring connections below:


	<b>Supply Signal</b>	<b>Signal Common</b>
<b>On Light</b>	Black wire	White/Black
<b>Hot Fill</b>	Brown wire	White/Brown
<b>Cold Fill</b>	Red wire	White/Red
<b>Drain</b>	Orange wire	White/Orange
<b>n/c</b>	Yellow wire	White/Yellow
<b>n/c</b>	Blue wire	White/Blue

<b>NOTE</b> 	See Section 4.7 "Event Mode" for further programming detail.
--	--

### 3.5.6 MicroMode Signal Wiring

MicroMode allows formula selection to be performed automatically by the washer controller. The washer controller must be microprocessor controlled and able to program supply trigger signal timed to the second.

1. Connect any available (not used for pump activation) supply signal input to MicroMode signal from the washing machine.
2. Electrical connections between the washer and signal wires must be made with screw terminals. Assign the signal input you choose to MicroMode in section 4-3 (QUICKSTART) or section 4-5 (WASHER SETUP) of Program Mode.

<b>Note</b> 	The Micro Mode supply trigger signal may not be used for pump activation. Micro Mode is not available when all six pumps are being used in a six pump system.
--	---

3. Program the washer controller MicroMode supply trigger signal for ( 2 seconds \* formula # + 1 ). See examples below.


**EXAMPLE:**

- To auto-select formula 1, program a 3 second signal.
- To auto-select formula 2, program a 5 second signal.
- To auto-select formula 3, program a 7 second signal.
- To auto-select formula 4, program a 9 second signal.
- Etc... all the way to formula 16.
- To auto-select formula 16, program a 33 second signal.

### 3.6 Communication Cables

1. Plug the 20' communication cable (from the Pump Module) into the connector labeled "Pump Module" on the bottom of the Controller.
2. Plug the 10' communication cable (female DB-9 on cable) into the connector labeled "Machine Interface" on the bottom of the Controller.

### 3.7 Supply Tubing Installation

<b>Note</b> 	For flush installations, the following procedure applies only to sour product transfer. All other products will pump into the manifold check valves—refer to Flush Manifold Installation & Operation manual.
--	--

1. Minimize supply tubing length. We recommend that you do not exceed 60' total—pump inlet and exit lengths combined. Do not exceed a 12' maximum vertical rise.
2. Use the supplied barbed fittings to connect the supply tubing to each pump tube. Use hose clamps on the pump tubing connections to ensure a leak-free assembly.
3. Use a standard pickup probe on the supply tubing to prevent the tube from curling out of the liquid in the product container.
4. Minimize product drip at the washer by sloping the supply tube upwards to the washer entry point. If this ideal situation cannot be realized then form a loop in the supply tube as close as possible to the washer entry point. This will minimize drip at the injection point at the washer.
5. Bring supply tubes into the washer via the washer's built-in powder supply compartment, or through a side entry port, if available. The latter option may be preferred since it usually adds chemical to the water, not on top of the load. If you add product through top-mounted compartments use the delay feature of the Advanced Laundry Control System to allow the washer to fill before adding chemical.
6. Use tie wraps or hose clamps to ensure that the tubes are secured at the washer entry point.

## 4.0 Programming

### 4.1 General Information

The information provided will take you step-by-step through the programming of the Advanced Laundry Control System Controller. Refer to figures 4-1 through 4-10 to help you access the various screens.

#### 4.1.1 Definitions and Conventions

- Menu – a selection of action choices presented on the single-line LCD display.
- Scroll – to move through menu selections by pressing the UP arrow or DOWN arrow keys.
- Advance – to advance to other programming menus by pressing the NEXT key.
- Enter – to press the RIGHT arrow key on the keypad.
- Programming – to set up the values, operating methods, and messages that are available for change.
- Default – factory programmed values. These can be changed by you.
- Parameters – values and limits that you set during programming.
- Run Mode – the operator can select formulas and read total loads. The dispenser will operate automatically as it receives supply signals.
- User Menu – the screen display when the Controller is in run mode.
- Program Mode – accessible only with password, allows construction of formulas and review/edit of all operating parameters.
- Timer Mode – the dispenser runs pumps and adds the programmed quantities of product when it is triggered by the application of supply signals from the laundry machine.
- Relay Mode – the dispenser runs each pump for as long as the applicable supply signal is present. The pump stops when the signal is removed.
- Event Mode – the dispenser sequences itself to the laundry machine cycle. It may be programmed to add product on certain “events” or fills of the machine. Regular supply signals are not needed.
- MicroMode – the formula selection is automatically performed via an accurately-timed supply signal input from a fully-programmable microprocessor-controlled washing machine.
- Auto Key Repeat – a feature that allows you to press and hold keys instead of repeating key strokes.

#### 4.1.2 Icon Descriptions

The controller display includes icons. The icons displayed at the top of the screen indicate which programming mode is active. Following are descriptions for the programming icons:



Wrench Icon – indicates QUICKSTART and ACCT SETUP programming modes



Machine Icon – indicates WASHER SETUP programming mode



Flask Icon – indicates FORMULA PROG programming mode



File Cabinet Icon – indicates RECORDS programming mode



Hand and Button Icon – indicates PRIME programming mode



Screwdriver Icon – indicates TIME CALIB programming mode



Cross Icon – indicates DIAGNOSTIC programming mode

Additional icons are displayed at the bottom of the controller screen. These icons include the following:



Pump Icon – indicates that you are programming a pump or that a pump is running. The letter designation beneath the pump (A-B-C) indicates which level you are programming.



Clock Icon – indicates that you are programming chart stop or that chart stop is activated.



Laundry cart icon – indicates that you are viewing load counts.


### 4.1.3 Pump Lockout

**Pumps two and three will not run simultaneously. Do not wire signals or program the dispenser in such a way that pumps two and three would run at the same time.**

### 4.1.4 Flush Logic

The following applies only when using the optional Flush Manifold.

- A two second pre-flush begins before any pump runs.
- Flush remains on while the pumps run.
- Post-flush begins after ALL pumps stop.
- Post-flush time is programmable (5 to 999 seconds).

<b>NOTE</b> 	In cases where multiple pumps run at the same time, post-flush time begins after the last pump stops.
--	---

- If water flow falls below 0.65 GPM during manifold operation, all pumps will stop and, after a two second delay, an alarm will activate.

## 4.1.5 Formula Load Counter

Formula load count and formula reset occurs from a pump 3 request signal. Even if pump 3 product is not required for the selected formula the signal must occur for the formula to reset and be counted. In this case set the product 3 amount to 0.

## 4.2 Program Mode

### 4.2.1 Enter Program Mode

To enter program mode, press the NEXT key once, and you will be prompted to enter the password. Then press the UP arrow key, LEFT arrow key, RIGHT arrow key, and DOWN arrow key.



The password sequence allows user to access Quickstart, Account Setup, Washer Setup, Formula Programming, Records, Prime Mode, Time Calibration, and Diagnostic menus.

### 4.2.2 Program Mode Navigation

- Refer to Figure 4 –1 for overview of programming menus.
- Program Mode menus are linked to display icons.
- Program modes may be accessed incrementally, by pressing the NEXT key.
- Press and hold keys to use the "auto key repeat" feature for faster scrolling.


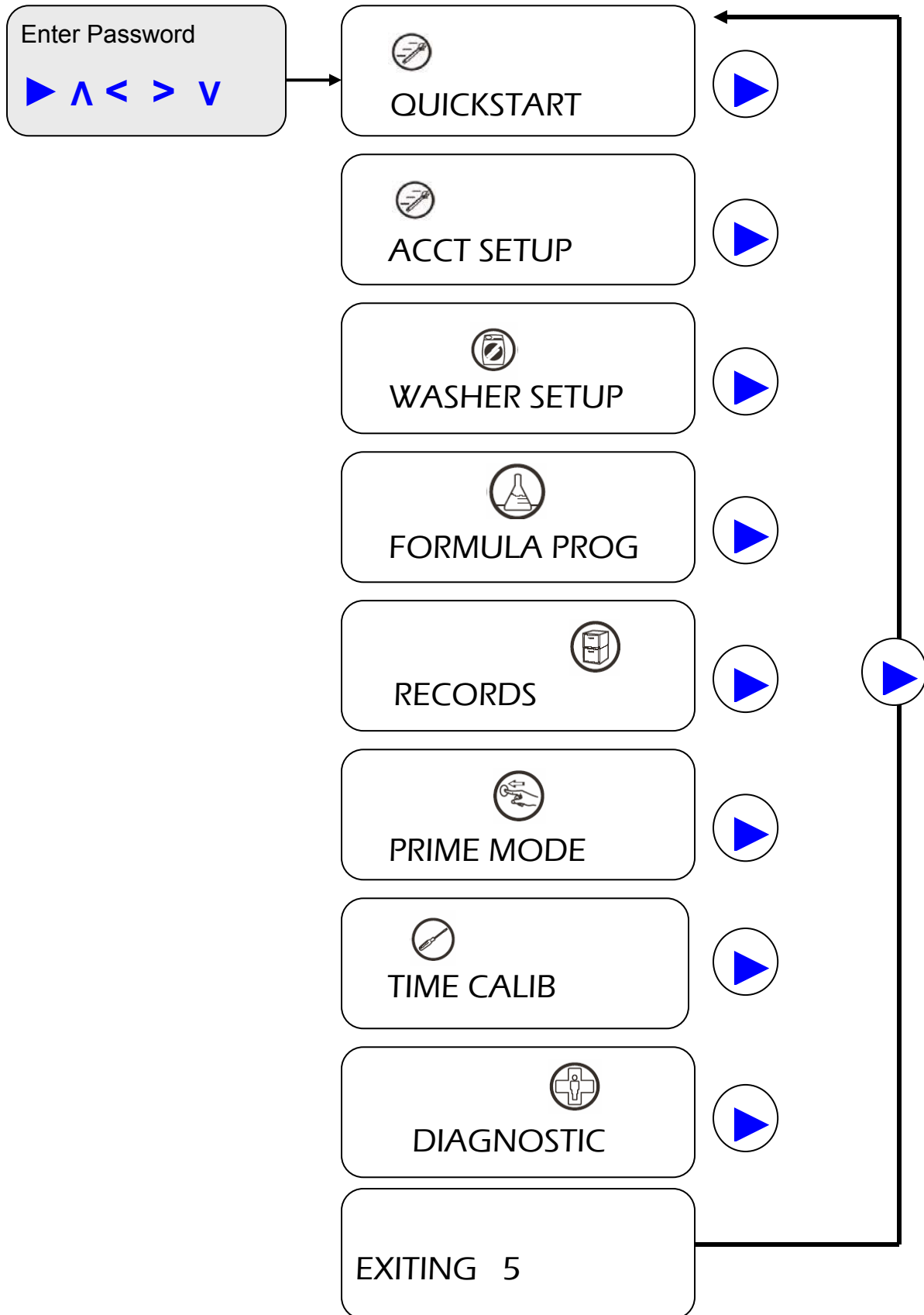
<b>NOTE</b> 	The only way to "undo" changes is to edit the entry.
--	--

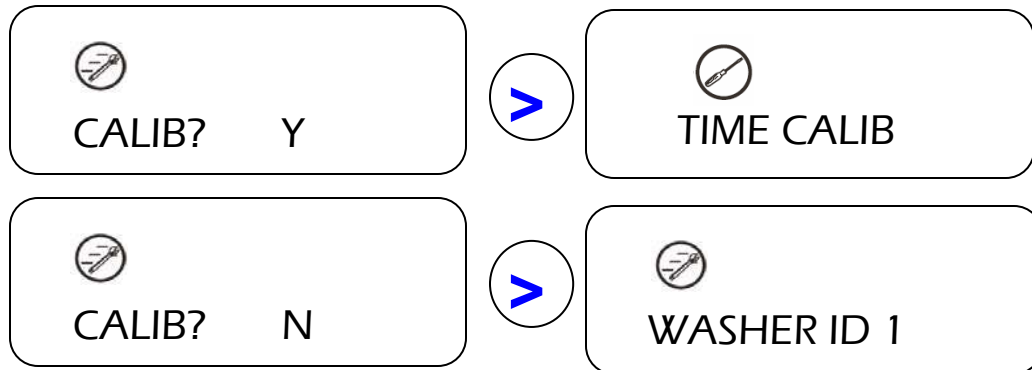
Figure 4-1



### 4.3 QUICKSTART – See Figure 4 – 2

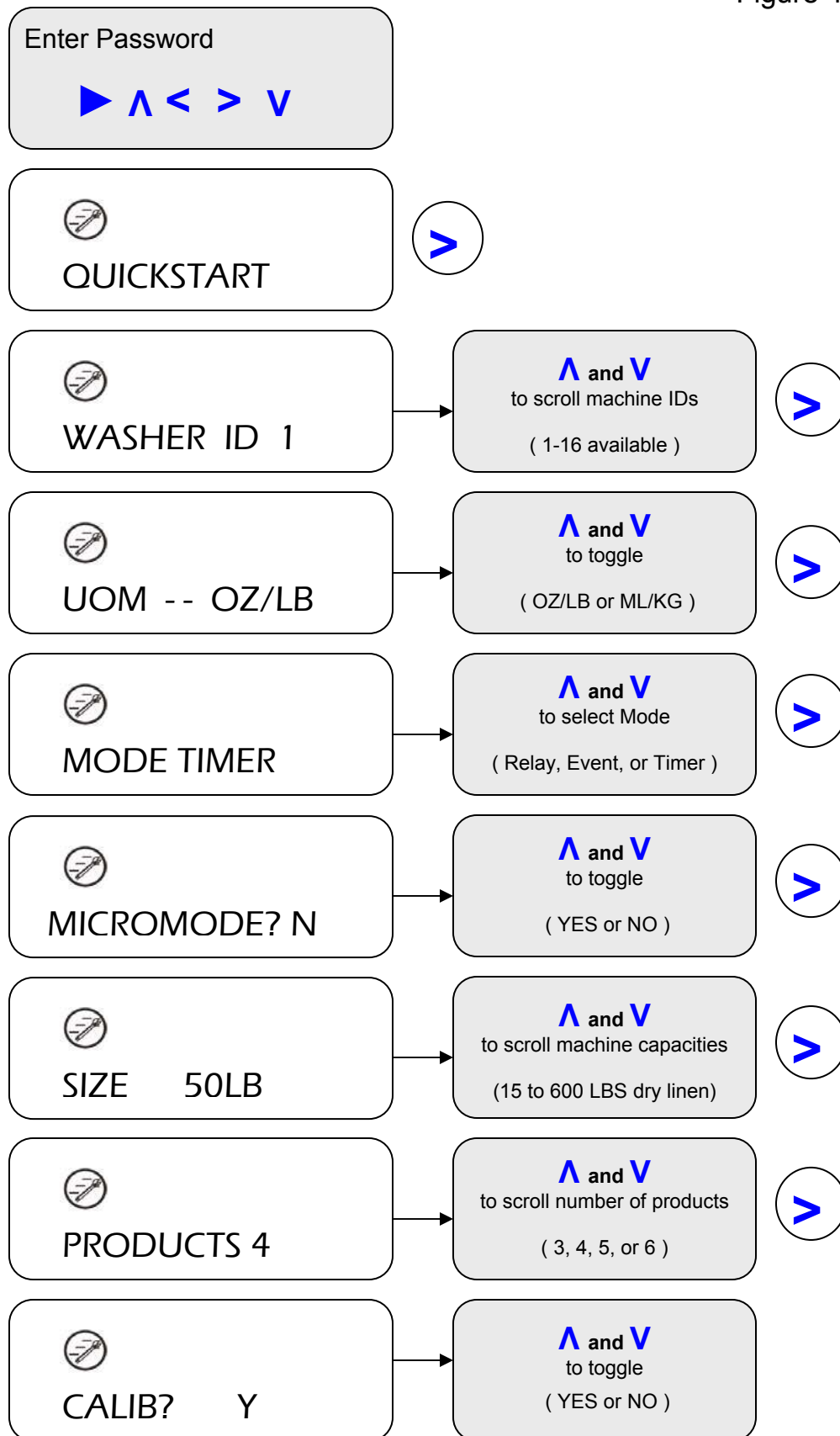
A wrench icon (located at the top left of the screen) is displayed on all QUICKSTART screens. The QUICKSTART programming allows for a quick initial set-up. The programming is basic. However, it is sufficient to setup an account and can be refined at a later date. Once QUICKSTART is displayed, you can press the RIGHT arrow key to step through the available screens.

1. **WASHER ID** – Use the UP/DOWN arrow keys to select the washer ID number (numbers 1-16 are available). Press the RIGHT arrow key to save displayed ID number.
2. **UOM** – Use the UP/DOWN arrow keys to toggle between OZ/LB and ML/KG. Press the RIGHT arrow key to save displayed unit of measure (UOM).
3. **MODE** – Use the UP/DOWN arrow keys to select the appropriate mode (Relay mode, Event mode, or Timer mode). See section 4.1.1 – for additional information on modes. Press the RIGHT arrow key to save displayed mode.
4. **MICROMODE?** – Use the UP/DOWN arrow keys to toggle between YES and NO. If you select YES, you will be asked to indicate which signal is dedicated to MicroMode. Use the UP/DOWN arrow keys to scroll signal numbers (4-6 available). Press the RIGHT arrow key to save displayed response.
5. **SIZE** – Use the UP/DOWN arrow keys to select the appropriate washer size (15 – 600 LB dry linen weight). Press the RIGHT arrow key to save displayed machine capacity.
6. **PRODUCTS** – Use the UP/DOWN arrow keys to select the appropriate number of products (3 – 6 products available). Press the RIGHT arrow key to save displayed product number.
7. **CALIB?** – Use the UP/DOWN arrow keys to toggle between YES and NO. In the QUICKSTART menu, Calibration defaults to “Yes” because the calibration of pumps is recommended.
  - a. If you select YES and press the RIGHT arrow key, you will automatically enter TIME CALIB programming (see Section 4.9 for information on calibrating pumps).
  - b. If you select NO and press the RIGHT arrow key, you will move to the WASHER ID screen.



<b>NOTE</b> 	To exit QUICKSTART menu and advance to the ACCT SETUP menu, press the NEXT key. 
--	---

Figure 4-2

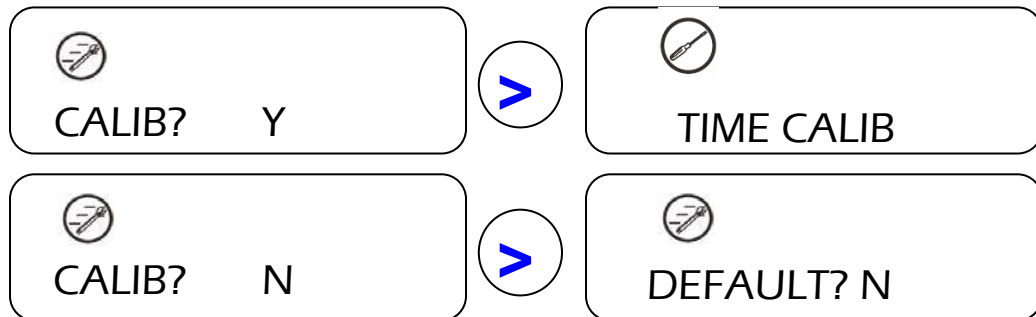




## 4.4 ACCT SETUP – See Figure 4 – 3

The LCD displays a wrench icon on all Account Setup screens. Account Setup programming is recommended. It is important for gathering account data, establishing date/time for time stamps of tube changes, and enabling/disabling prime option. Once ACCT SETUP is displayed, you can press the RIGHT arrow key to step through the available screens.

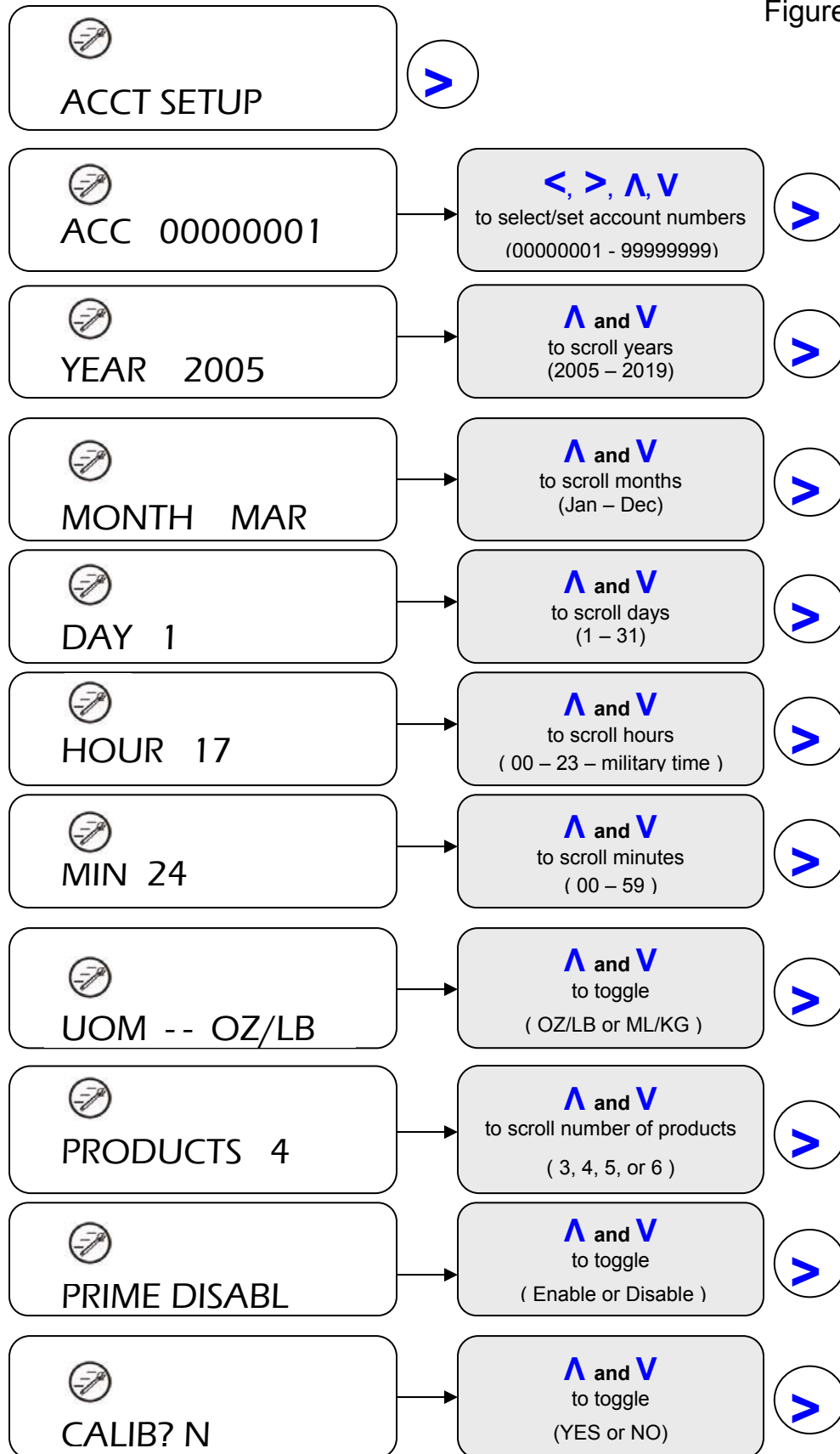
1. **ACCT** – Use the LEFT/RIGHT arrow keys to select the digit to edit. Use the UP/DOWN arrow keys to set the number (0 – 9 are available). Press the RIGHT arrow key after setting the last digit to save displayed account number.
2. **YEAR** – Use the UP/DOWN arrow keys to scroll through years (2005 – 2019 available). Press the RIGHT arrow key to save displayed year.
3. **MONTH** – Use the UP/DOWN arrow keys to scroll through months (January - December available). Press the RIGHT arrow key to save displayed month.
4. **DAY** – Use the UP/DOWN arrow keys to scroll through days (01 - 31 available). Press the RIGHT arrow key to save displayed day.
5. **HOUR** – Use the UP/DOWN arrow keys to scroll through hours in military time (00 – 23 available). Press the RIGHT arrow key to save displayed hour.
6. **MIN** – Use the UP/DOWN arrow keys to scroll through minutes (00 – 59 available). Press the RIGHT arrow key to save displayed minute.
7. **UOM** – Use the UP/DOWN arrow keys to toggle between OZ/LB and ML/KG. Press the RIGHT arrow key to save displayed unit of measure (UOM).
8. **PRODUCTS** – Use the UP/DOWN arrow keys to select the appropriate number of products (3 – 6 available). Press the RIGHT arrow key to save displayed product number.
9. **CALIB?** – Use the UP/DOWN arrow keys to toggle between YES and NO. In the ACCT SETUP menu, Calibration defaults to “No” because you may have already calibrated under QUICKSTART.
  - a. If you select YES and press the RIGHT arrow key, you will automatically enter TIME CALIB programming (see Section 4.9 for information on calibrating pumps).
  - b. If you select NO and press the RIGHT arrow key, you will move to the DEFAULT screen.



10. **DEFAULT?** – Use the UP/DOWN arrow keys to toggle between YES and NO.
  - a. If you select YES and press the RIGHT arrow key, a new screen “R U SURE” is displayed. Use the UP/DOWN arrow keys to toggle between YES and NO. **If you select YES and press the RIGHT arrow key, all programming will revert to factory default and you will lose all programming.** The yellow LED will flash, indicating the change is occurring. The yellow LED will stop flashing when the default settings are complete. This takes approximately 90 seconds.
  - b. If you select NO and press the RIGHT arrow key, you will move to the ACCT NUMBER screen.

<b>NOTE</b> 	To exit ACCT SETUP menu and advance to WASHER SETUP menu, press the NEXT key. 
--	---


Figure 4-3



## 4.5 WASHER SETUP – See Figure 4 – 4

A wash machine icon (located at the top of the screen) indicates that you are in a WASHER SETUP screen. WASHER SETUP includes programming options for washer ID, machine capacity, mode type, MicroMode, signal length, and flush time.

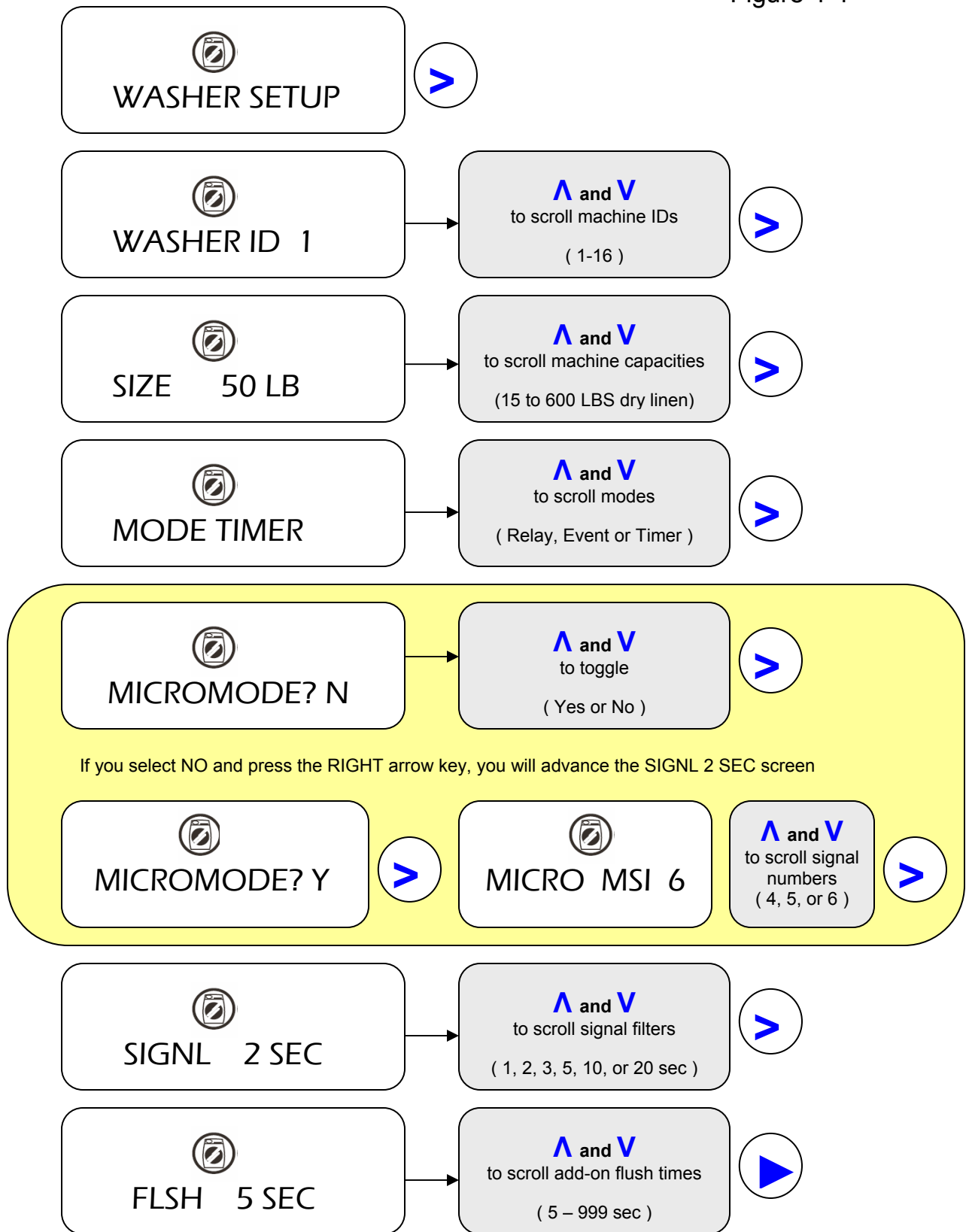
1. **WASHER ID** – Use the UP/DOWN arrow keys to scroll washer ID options (1 – 16 are available). Press the RIGHT arrow key to save displayed Washer ID.
2. **SIZE** – Use the UP/DOWN arrow keys to scroll machine capacity options (15 – 600 LBS available). Press the RIGHT arrow key to save displayed machine capacity (dry linen weights).
3. **MODE** – Use the UP/DOWN arrow keys to select the appropriate mode (Relay mode, Event mode, or Timer mode). See section 4.1.1, for additional information on mode types. Press the RIGHT arrow key to save displayed mode.
4. **MICROMODE** – Use the UP/DOWN arrow keys to toggle between YES and NO. Press the RIGHT arrow key to accept the displayed response.
  - a. If you select NO and press the RIGHT arrow key, you will advance to the Signal Filter screen.
  - b. If you select YES and press the RIGHT arrow key, you will be prompted to select the designated supply signal trigger for MicroMode (4, 5, or 6). Once selected, press the RIGHT arrow key to advance to the signal filter screen.

<b>NOTE</b> 	The designated supply trigger must be a spare - not used for any pumps - washer signal that is programmed to the second. Refer to section 3.5.6 for MicroMode washer controller programming information.
--	--

5. **SIGNL** – Use the UP/DOWN arrow keys to scroll signal filters (1, 2, 3, 5, 10, or 20 seconds). The value selected is the minimum signal length required before controller deems it a valid signal. It is important to select a reasonable filter time (i.e. if filter time is too short, stray voltage could register as a valid signal). Press the RIGHT arrow key to save displayed signal filter.
6. **FLSH** – Use the UP/DOWN arrow keys to scroll add-on flush times (5 – 999 seconds available). The value is the time (in seconds) that the Flush Manifold will continue to flush after the pump stops running. Press the RIGHT arrow key to save displayed flush time.

<b>NOTE</b> 	To exit the WASHER SETUP menu and advance to FORMULA PROG menu, press the Next key. 
--	--


Figure 4-4





## 4.6 FORMULA PROG – See Figure 4 – 5




A chemical flask icon (located at the top center of the display) indicates that you are in a FORMULA PROG screen. Formula Program options include programming 16 Formulas, up to 6 products, pump delays, up to 3 dosage levels for each pump, and Chart Stop.

1. **Formula Number** – the left-most number on the display indicates formula number.
2. **Pump Number** – the next displayed number follows a “P”. It indicates the pump number.
3. **LEVEL ( A-B-C )** – a pump icon (with a letter indicator) is displayed in the bottom left corner to indicate which level you are programming. You have the option of programming three different injections for each pump within a formula. The first time a valid signal for a pump is received, the programmed volume for level A will dispense; the second time a valid signal for a pump is received, the programmed volume for level B will dispense; the third time a valid signal for a pump is received, the programmed volume for level C will dispense.
4. **DLY** – Use the UP/DOWN arrow keys to scroll pump delay times (2 – 999 seconds available). Press the RIGHT arrow key to save displayed delay for the noted formula/pump/level.
5. **OZ** – Use the UP/DOWN arrow keys to scroll volumes (0 – 333.3 ounces or 999 milliliters available). Press the RIGHT arrow key to save displayed volume for the noted formula/pump/level.

<b>NOTE</b> 	While the controller displays the selected volume, you can confirm delivered volume by pressing BOTH the NEXT key and the UP arrow key. The displayed pump should deliver the programmed volume. If the measured volume is not the same as the programmed volume, recalibrate the pump.
--	---

6. **CHART STOP** – a clock icon (located at the bottom of the display) indicates that you are programming Chart Stop parameters. Chart Stop values are in MINUTES only.
  - a. The Chart Stop screen that includes (MN) in the display is for programming the time (in MINUTES) that Chart Stop should activate while running the displayed formula AND when there is a valid signal for the displayed pump. Use the UP/DOWN arrow keys to scroll run times (00 – 99 MINUTES available). Press the RIGHT arrow key to save displayed run time for the noted formula/pump.
  - b. The next Chart Stop screen is for programming a Chart Stop delay (in MINUTES) for the displayed formula and pump. Use the UP/DOWN arrow keys to scroll Chart Stop delay times (00 – 99 MINUTES available). Press the RIGHT arrow key to save displayed Chart Stop delay for the noted formula/pump.

<b>NOTE</b> 	Hold the right arrow key down to quickly scroll through FORMULA PROG screens. 
--	---

<b>NOTE</b> 	Press BOTH the NEXT and the RIGHT arrow keys to skip to the next formula.  + 
--	---



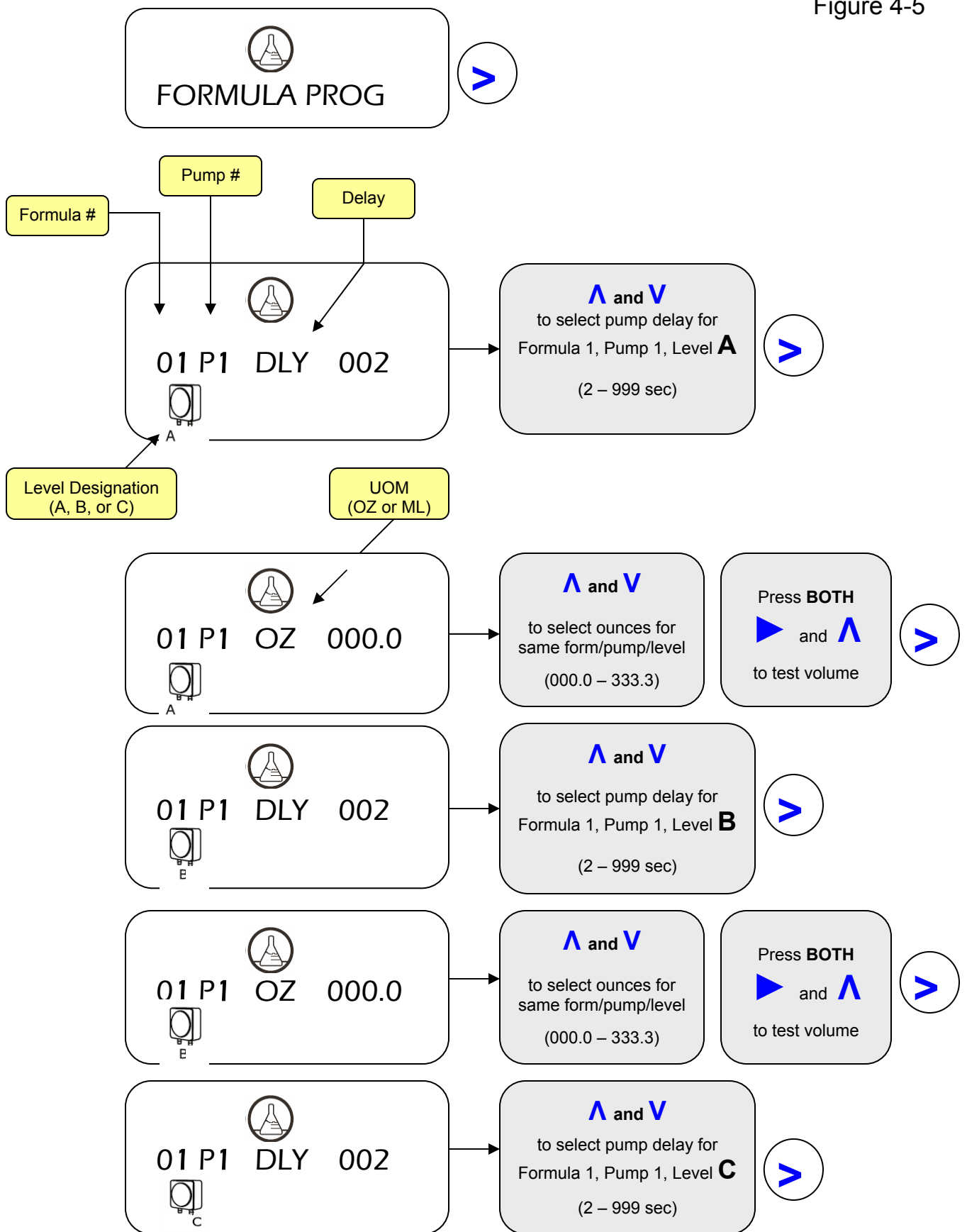
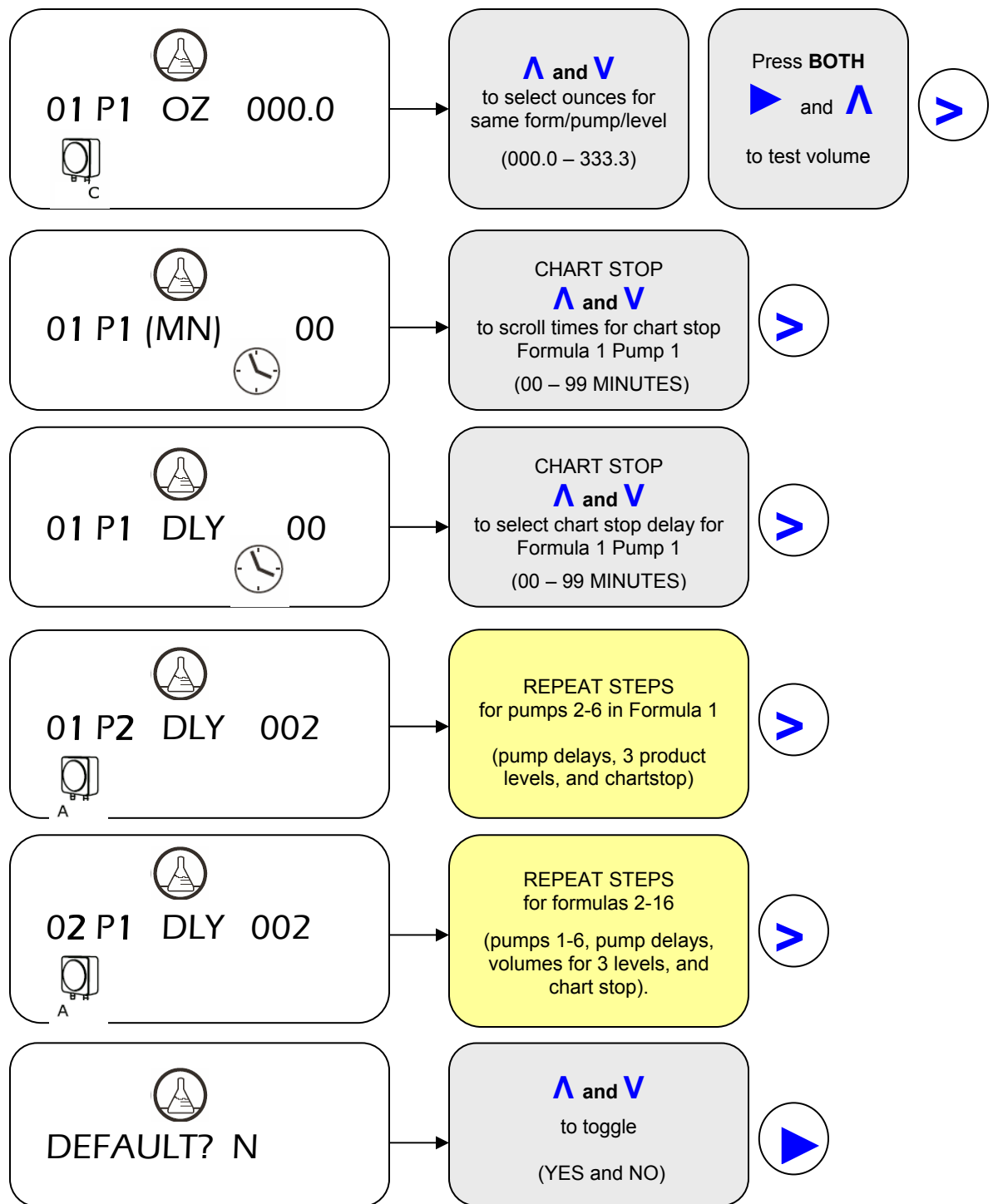
<b>NOTE</b> 	To EXIT FORMULA PROG menu and advance to the RECORDS menu, press and HOLD the NEXT key for approximately 2 seconds. 
--	---








Figure 4-5



NOTE: Figure 4-5 is continued on the next page.

Figure 4-5 (Continued)



<b>NOTE</b> 	Hold the RIGHT arrow key down to quickly scroll through programming. <div style="text-align: center; margin-top: 10px;">  </div>
<b>NOTE</b> 	Press BOTH the NEXT and the RIGHT arrow keys to skip to the next formula. <div style="text-align: center; margin-top: 10px;">  +  </div>
<b>NOTE</b> 	To EXIT FORMULA PROG menu and advance to the RECORDS menu, press and HOLD the NEXT key for approximately 2 seconds. <div style="text-align: center; margin-top: 10px;">  </div>

## 4.7 EVENT MODE – See Figure 4 – 6

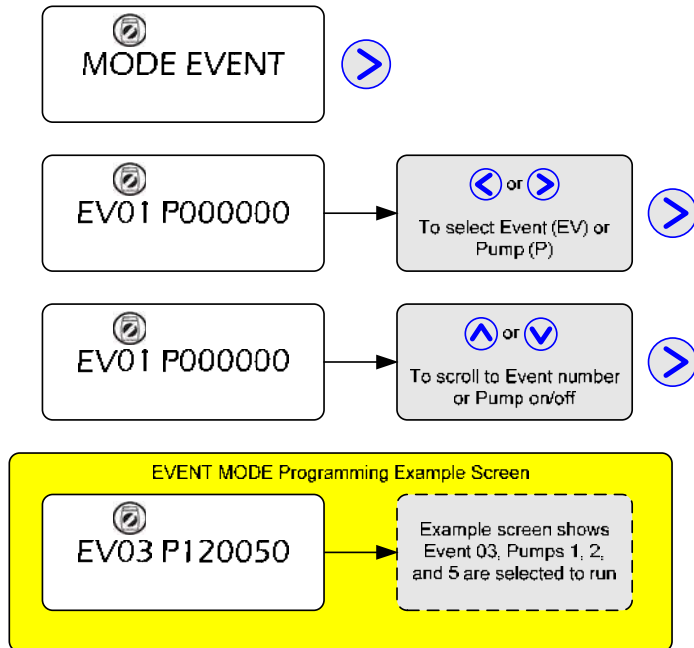
Event Mode is a selection in both the WASHER SETUP and QUICKSTART menus. The wrench icon is displayed in the QUICKSTART menu and the Washer icon is displayed in the Washer Setup menu. Event mode is typically used when a washer does not have chemical supply terminals available and another means of requesting chemicals is needed.

Event mode uses a sequence of signals to step through “events” on the controller. Each event can be programmed to run a single pump or a group of pumps to deliver the required chemical for each washer cycle. An “event” consists of signal 1 (power light or door signal) coming on, signal 4 coming on (drain valve closing), and either/or signal 2 or 3 (hot and cold water valves) coming on. The event is terminated by the water valves turning off and the drain valve turning off (opening). The controller can be programmed for 16 separate events. The formula is terminated and counted by the power or door signal turning off. If no chemical is required for a specific event, leave all the pump settings at 0 (off). See section 3.5.5 EVENT MODE WIRING, for machine signal input wiring instructions.

1. **MODE** – Use the UP/DOWN arrow keys to select the appropriate mode (Relay mode, Event mode, or Timer mode). See section 4.1.1, for additional information on mode types. Press the RIGHT arrow key to save displayed mode.
2. **EV01** – Use the UP/DOWN keys to select which event (1-16) you wish to program.
3. Use the RIGHT arrow key to move to the pump selection area of the screen.
4. **P000000** – Use the UP/DOWN keys to set the selected pump on or off.
5. Use the LEFT arrow key to move back to the event selection area of the screen to select the next event to program.
6. Use the RIGHT arrow key to move completely off the screen to save the Event Mode program and move to the next Washer Setup screen.

Figure 4-6





## 4.8 RECORDS – See Figure 4 – 7

A file cabinet icon (located in the top right of the display) indicates that you are in a RECORDS screen. The RECORDS programming menu includes software revision information, tube change histories/stamping, pump run times, and clearing options (i.e. tube changes, run times, and load counts).

1. **SOFTWARE** – the display will indicate software revision number. Press the RIGHT arrow key to advance to the next screen.
2. **P1 0000 0000** through **P6 0000 0000** – these screens indicate the last time a squeeze tube was changed. The display format is MMDD HHMM (i.e. Month, Day, Hour, Minutes).
  - a. Press the UP arrow key to time-stamp a new tube change.
  - b. Press the DOWN arrow key to undo a NEW time-stamp.
  - c. Press the RIGHT arrow key to save the new time stamp and advance to the next screen.
3. **CLEAR LOG?** – Use the UP/DOWN arrow keys to toggle between YES and NO. If you select YES, all tube change histories will be cleared. Press the RIGHT arrow key to accept the displayed response and advance to the next screen.
4. **P1 TIME 0000** through **P6 TIME 0000** – these screens indicate cumulative run times (in hours) for each pump. Press the RIGHT arrow key to advance to the next screen.
5. **CLEAR TIM?** – Use the UP/DOWN arrow keys to toggle between YES and NO. If you select YES, all cumulative run times will be cleared. Press the RIGHT arrow key to accept the displayed response and advance to the next screen.
6. **CLEAR CNT?** – Use the UP/DOWN arrow keys to toggle between YES and NO. If you select YES, all load counts will be cleared. Press the RIGHT arrow key to accept the displayed response and advance to the next screen.



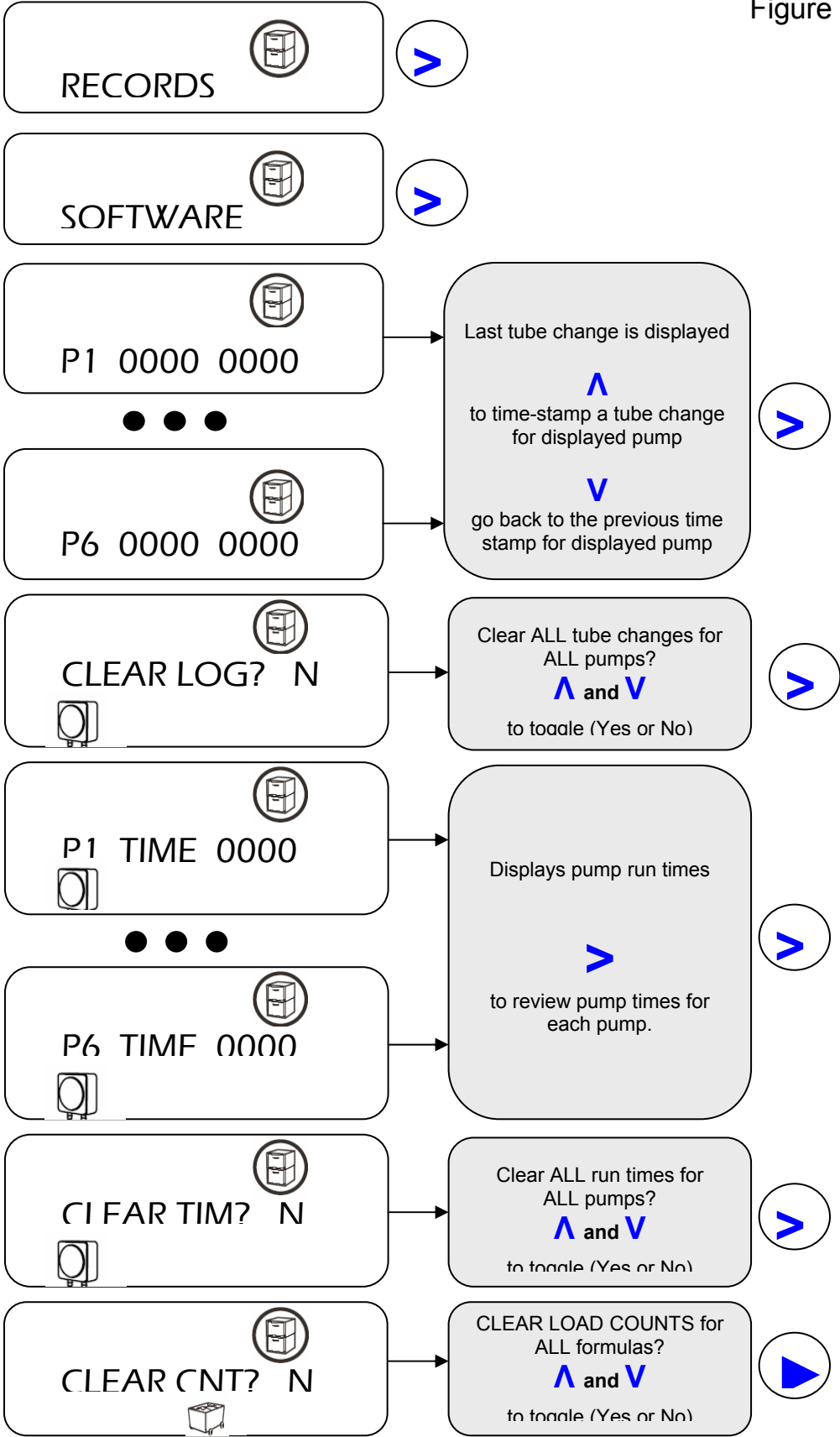
<b>NOTE</b> 	To exit the RECORDS menu and advance to the PRIME MODE menu, press the NEXT key. 
--	--

Figure 4-7



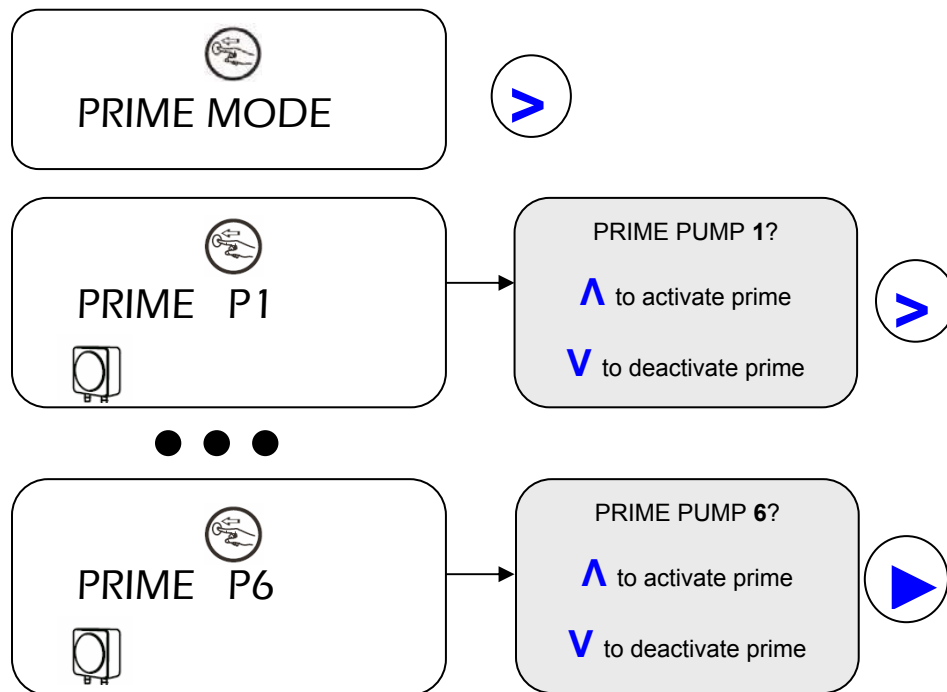
## 4.9 PRIME MODE – See Figure 4 – 8

An icon of a hand pressing a button (located at the top of the screen) indicates that you are in PRIME MODE. The PRIME PROGRAMMING menu allows you to run a selected pump until the product pick-up tube is primed.

1. Press the UP arrow key to activate prime for the displayed pump.
2. Press the DOWN arrow key to deactivate the prime.
3. Press the RIGHT arrow key to advance to the next pump.

<b>NOTE</b> 	To exit the PRIME MODE menu and advance to the TIME CALIB menu, press the NEXT key. 
--	---

Figure 4-8



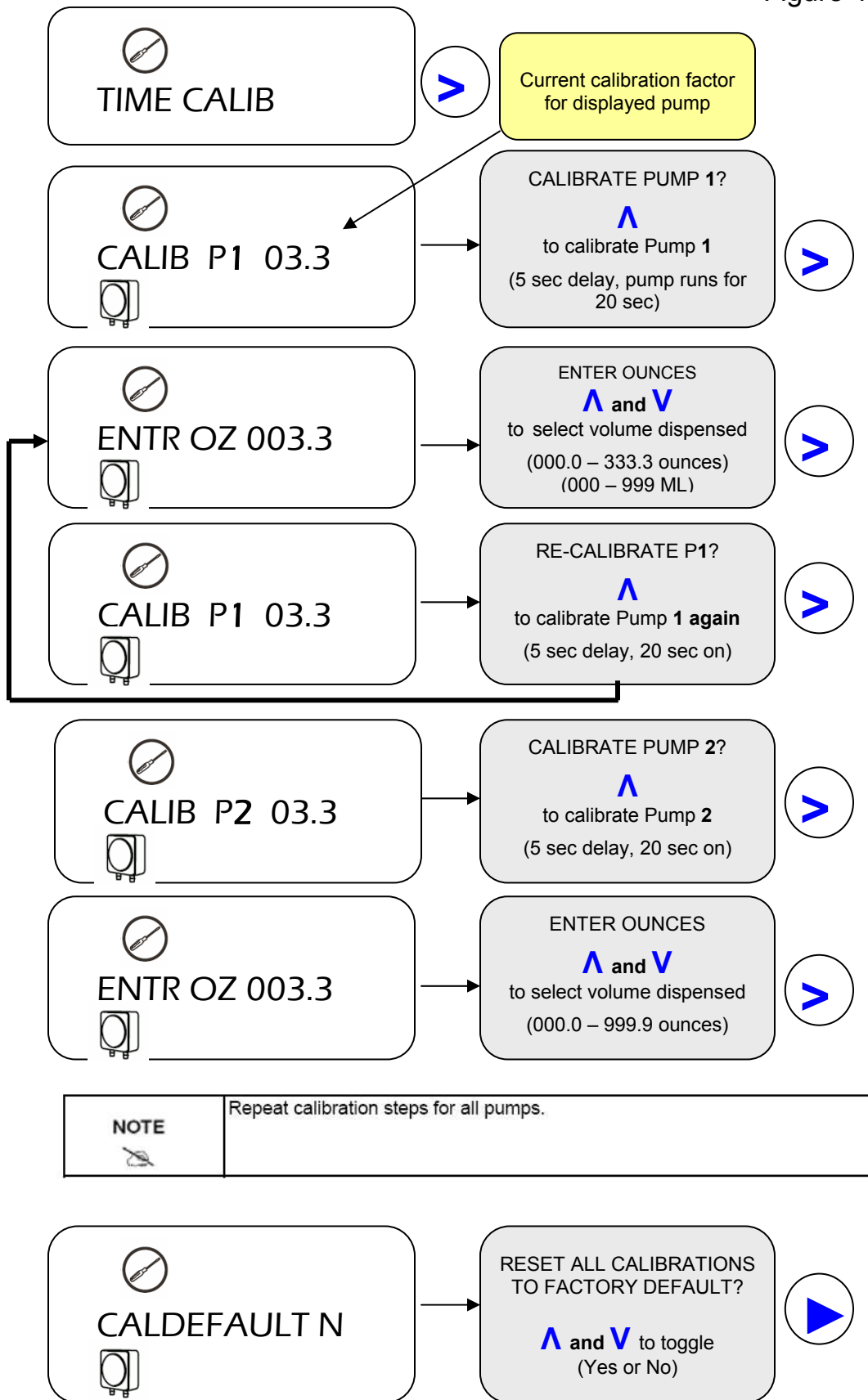
## 4.10 TIME CALIB – See Figure 4 – 9

A screwdriver icon (located at the top of the display) indicates that you are in a TIME CALIB screen. Time calibration is an easy way to calibrate the pumps. Once activated, there will be a 5 second delay, then the pump will run for 20 seconds, and finally you will be prompted to input the amount dispensed.

1. **CALIB P1 03.3** through **CALIB P6 03.3** – these screens indicate which pump will be calibrated. Press the RIGHT arrow key if you do not want to calibrate the displayed pump, and you will advance to the next pump. Use the UP arrow key to calibrate the indicated pump.
2. **ENTR OZ 003.3** – this screen requires input of the volume that was collected during calibration. Enter volume and press the RIGHT arrow key. The corrected volume will appear on the screen. If you want to recalibrate the pump, press the UP arrow key. If you are satisfied with the calibration, press the RIGHT arrow key.
3. **CALDEFAULT** – this screen is for clearing all entered values and returning to factory settings. Use the UP/DOWN arrow keys to toggle between YES and NO. If you select YES, all calibration volumes will be cleared. Press the RIGHT arrow key to accept the displayed response and advance to the next screen.

<b>NOTE</b> 	To exit the TIME CALIB menu and advance to the DIAGNOSTIC menu, press the NEXT key. 
--	---

Figure 4-9



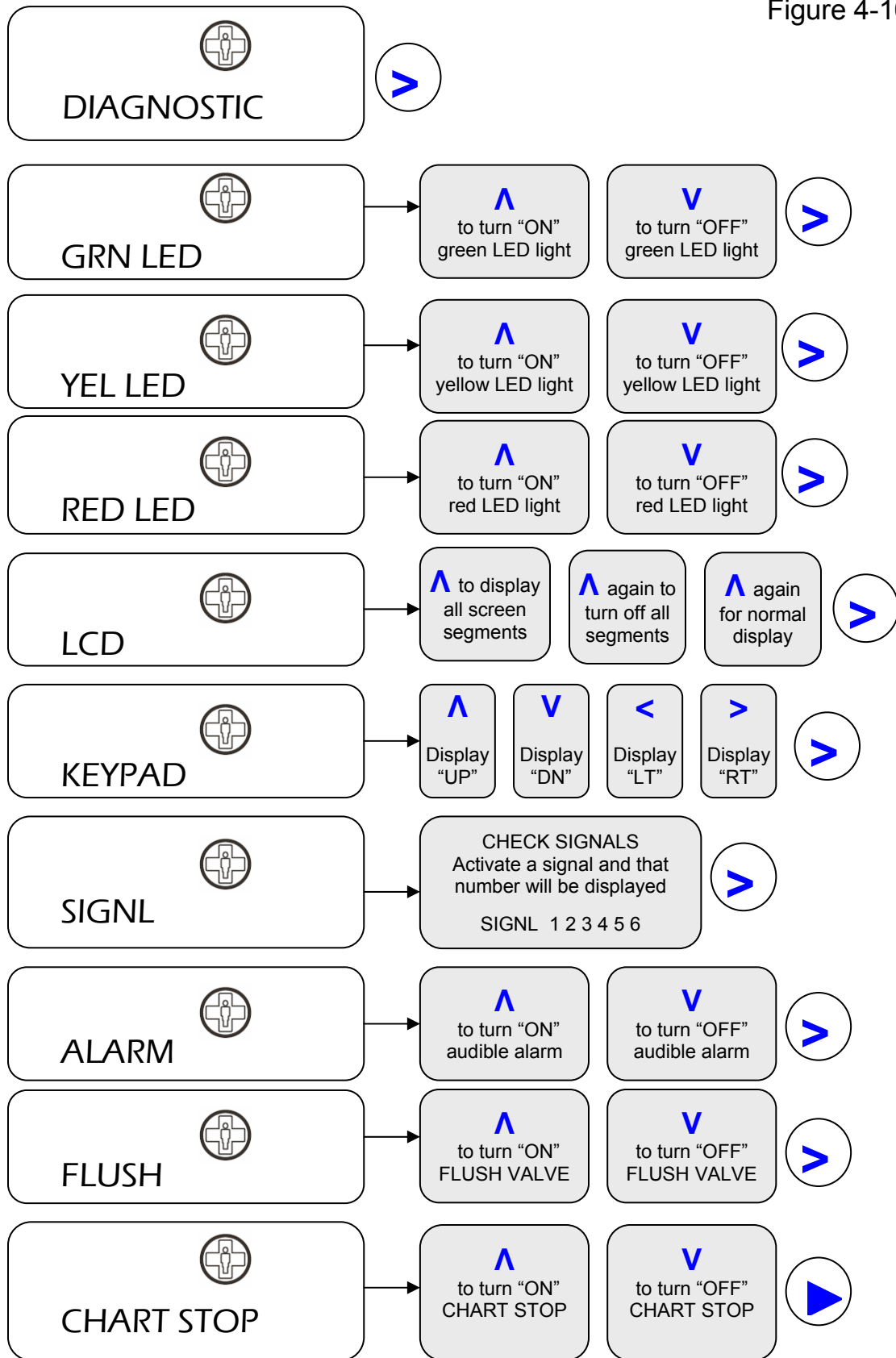
## 4.11 DIAGNOSTIC – See Figure 4 – 10

A medical cross icon (located at the top of the display) indicates that you are in a DIAGNOSTIC screen. All functions in the DIAGNOSTIC menu are meant solely to test the controller.

1. **GRN LED / YEL LED / RED LED** – these screens are to confirm that the LED lights are functioning. Press the UP arrow key to turn ON the LED light. Press the DOWN arrow key to turn OFF the LED light. Press the RIGHT arrow key to advance to the next screen.
2. **LCD** – this screen is to confirm that all areas of the display function.
  - a. Press the UP arrow key to turn on ALL segments of the LCD display.
  - b. Press the UP arrow key again to turn off ALL segments of the LCD display.
  - c. Press the UP arrow key a third time for normal display.
  - d. Press the RIGHT arrow key to advance to the next screen.
3. **KEYPAD** – this screen is to confirm that the keypad is functioning.
  - a. Press the UP arrow key to display “UP”.
  - b. Press the DOWN arrow key to display “DN”.
  - c. Press the LEFT arrow key to display “LT”.
  - d. Press the RIGHT arrow key to display “RT”.
  - e. Press the RIGHT arrow key again to advance to the next screen.
4. **SIGNL** – this screen is to confirm that signals are received/processed correctly. When a valid signal is presented, the signal number will be displayed. The time required for the signal number to display is equal the signal setting in washer setup (see section 4.5). Press the RIGHT arrow key to advance to the next screen.
5. **ALARM** – this screen is used to confirm that the audible alarm functions. Press the UP arrow key to activate the alarm and the DOWN arrow key to deactivate the alarm. Press the RIGHT arrow key to advance to the next screen.
6. **FLUSH** – this screen is used to confirm that the Flush Manifold water valve activates. Press the UP arrow key to activate the flush valve and the DOWN arrow key to deactivate the flush valve. Press the RIGHT arrow key to advance to the next screen.
7. **CHART STOP** – this screen is used to confirm that the Chart Stop activates. Press the UP arrow key to activate Chart Stop and the DOWN arrow key to deactivate Chart Stop.

<b>NOTE</b> 	To exit the DIAGNOSTIC menu and advance to other menu options, press the NEXT key. 
--	--

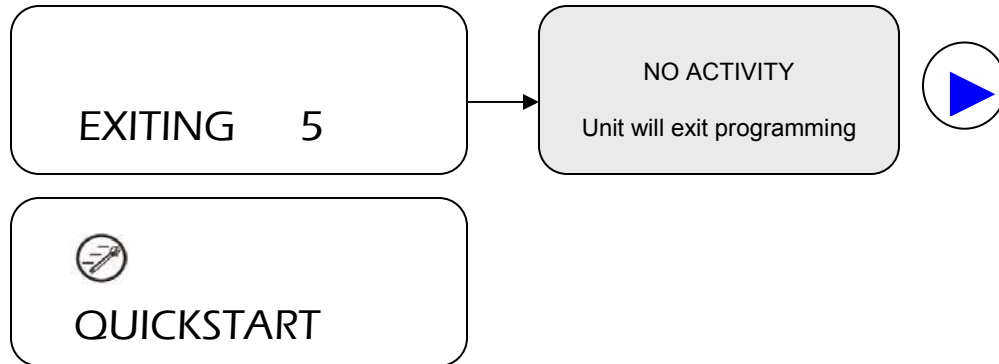
Figure 4-10




## 4.12 Exit Program Mode

The EXITING screen displays a countdown (in seconds) indicating that you are about to exit programming mode.

1. If there is no key activity, the controller will countdown for five seconds and the idle screen will be displayed.
2. If you press the NEXT key prior to timing out, you will advance to the QUICKSTART menu.




<b>NOTE</b> 	To avoid exiting the programming menus, press the NEXT key. 
---	---



## 5.0 Optional Equipment


### 5.1 50' (15.24 meter) Communication Cable

An extension cable is available for installations where a longer cable is required for long Controller to Pump Module distances.

<b>CAUTION</b> 	Do not exceed 50 ft. maximum distance or Controller-to-Pump Module communication may be impaired. Do not interconnect two Communication Cables together to obtain a longer cable!
---	--

### 5.2 Flush Manifold

An optional Flush Manifold kit is available for water flush chemical transfer. When using the Advanced Laundry Control system with the optional Flush Manifold Kit, water flow is sensed whenever the Controller calls for water flush. If no flow is sensed, or water flow falls below 0.65 GPM, all pumps will be shut down and a system alarm – located on the Flush Manifold enclosure – will activate. This provides a safety interlock for no water pressure or other water flush system failures. *Refer to the Flush Manifold Installation & Operation Manual for more information regarding the Flush Manifold option.*

<b>NOTE</b> 	A short plug is present at the flush connector on the Pump Module. For flush operation, this plug is removed and the Flush Manifold Interface Cable is connected in its place. Retain the shorting connector for future use. Pumps will not run without either the shorting plug or a functioning Flush Manifold connected.
--	---

## 6.0 Account Features


The Controller display will provide account management and employees with the following screen displays and user options.

- Idle Screen / Formula Selection;
- Total Load Counts.;
- Pump Running Status;
- User Prime menu selection, when enabled.

### 6.1 Idle Screen / Formula Selection

This screen displays the 16 programmable formulas available for use. To select a formula, use the UP and DOWN arrow keys. The displayed formula is the formula that will be used when the washing machine runs.

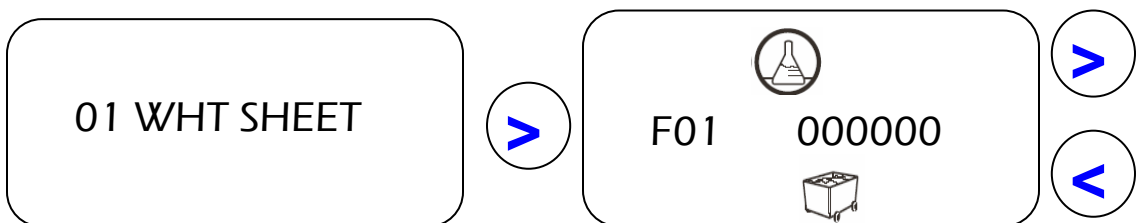


<b>NOTE</b> 	When using RELAY mode, the idle screen display will read ECOLAB. When in RELAY mode, you cannot select formulas from the idle screen.
--	---

### 6.2 Total Load Counts

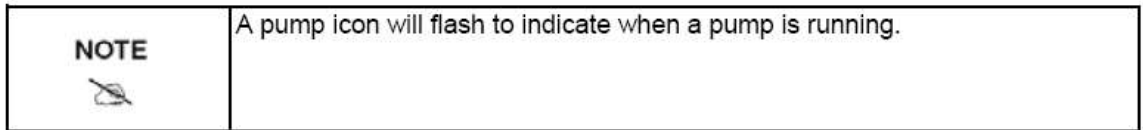
**Formula Load Counter:** Formula load count and formula reset occurs from a pump 3 request signal. Even if pump 3 product is not required for the selected formula the signal must occur for the formula to reset and be counted. In this case set the product 3 amount to 0

From the idle screen, the Total Load Counts can be reviewed. Use the LEFT and RIGHT arrow keys to review load counts for all 16 formulas. The chemical flask icon indicates that a formula number is displayed, and the laundry cart icon indicates that the displayed number refers to load counts.



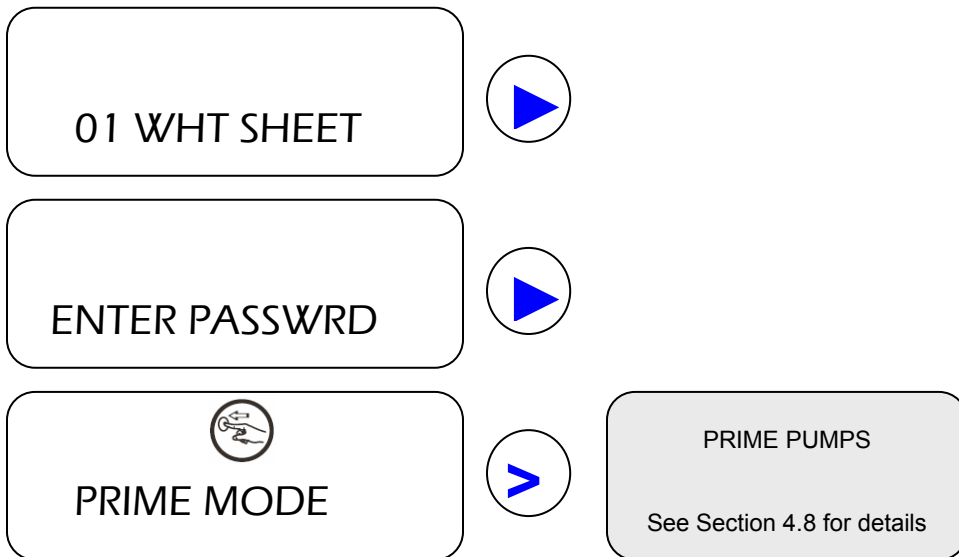
## 6.3 Pumps Running

The idle screen displays the pump icon and dose level whenever a pump is running.



## 6.4 User Prime

The user may prime pumps when "User Prime" is enabled in the Account Set Up section of the programming menus – see section 4.4 for information on enabling prime. From the idle screen, press the NEXT key twice to advance to the PRIME MODE screen.



## 7.0 Set-Up and Operation

The following procedures are designed to check out the system to ensure that everything is operating correctly. It is assumed that these steps have been completed.


1. The Pump Module has been wired into the appropriate power supply.
2. The laundry machine supply signals have been wired to the Machine Interface.
3. The communications cables have been plugged in.
4. Chemical formulas have been programmed into the Controller.
5. All pumps in use have been primed and calibrated.

### 7.1 Product/Wash Signal Check

1. Select a formula and run the laundry machine through a complete cycle.
2. The pumps should run as programmed. The screen will display when a pump is running.
3. If pumps do not run as programmed check the signal LEDs on the Machine Interface. If they do not light then re-check the trigger wiring.

### 7.2 Dispensed Quantity Check

1. Enter program mode, select the FORMULA PROG menu, and using the right arrow key move to the pump and quantity that you want to check.
2. While viewing the pump and quantity on the screen, press both the NEXT key and the UP arrow key.
3. The pump will run as if triggered by the machine and will dispense the programmed amount.
4. Collect the output in a measuring cup to verify accuracy.

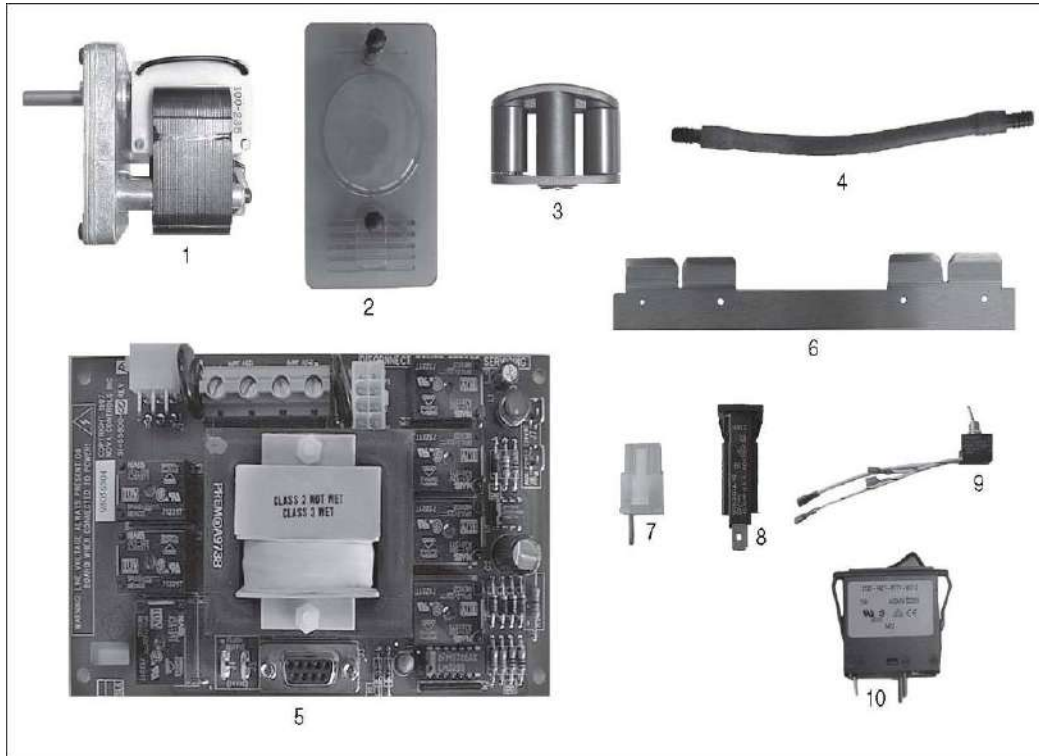
<b>NOTE</b> 	If any problems are found, consult section 8.0 - Troubleshooting.
--	---

## 8.0 Troubleshooting

Symptom	Possible Solution	Action
No display on Control Module.	1. Check AC power source.	1. Restore AC power.
	2. Check if circuit breaker on Pump Module is tripped.	2. Reset circuit breaker.
	3. Check Control Module to Pump Module wiring.	3. Reconnect or replace cable.
	4. Possible defective Pump Module PCB.	4. Replace Pump Module PCB.
Pump does not run on prime.	1. Check Pump Module internal wiring.	1. Reconnect wiring harness.
	2. Check Control Module to Pump Module wiring.	2. Reconnect or replace cable.
	3. Check if motor is overheated, may be in thermal shutdown.	3. Allow motor to cool.
	4. Switch pump leads with another pump motor and retry priming suspect pump with new number.	4a. If suspect pump now primes, replace Pump Module PCB.
4b. If suspect pump still won't prime, replace pump motor.		
Pump runs on prime, but not when signaled.	1. Check Machine Interface to Controller cable.	1. Reconnect or replace cable.
	2. Check controller programming: Event Mode? Pumps calibrated? Formula calls for non-zero qty? Formula calls for delays?	2. Reprogram controller to timer mode.
	3. Verify if valid signal is present by watching Machine Interface LEDs during washer operation. If LEDs light, check Controller /Machine Interface communication by using the "Signal Display" under diagnostics.	3a. Confirm signal lasts longer than the programmed signal filter.
		3b. If no signal displayed, check Machine Interface to Controller cable. If good, replace Controller.
		3c. If signals displayed, replace Controller.
	4. Verify if valid signal is present by watching Machine Interface LEDs during washer operation. If no LEDs, verify presence of valid supply signal with voltmeter.	4a. Check supply trigger wiring.
		4b. Troubleshoot washer for no signals.
		4c. If signals are good, replace the Machine Interface.

<b>Symptom</b>	<b>Possible Solution</b>	<b>Action</b>
Pump runs, but no product pumped.	1. Check pump tube.	1. Change pump tube.
	2. Check for input tube air leaks.	2. Change input tube or fittings.
	3. Check if product is too viscous and/or if tubing run is too long.	3. Remedy this condition.
	4. Check for clogged pickup tube.	4. Clear clog.
Pumps do not run and Flush Manifold valve does not activate.	1. Check that water is supplied to flush manifold.	1. Correct water flow situation.
	2. Check that the Flush Manifold Interface cable is connected.	2. Connect the Flush Manifold Interface cable.
Not counting formulas.	1. Check if pump 3 washer signal received.	1. Correct signal or programming error.

## 9.0 Replacement Parts



### 9.1 Pump Module

Ref. No.	Part No.	Description
1	9259-3144	115VAC/60HZ Motor
2	9259-3151	208VAC/60HZ Motor
3	9259-3169	230VAC/50HZ Motor
4	9259-3110	Pump Cover with screws
5	9259-3128	Pump Spinner
6	9259-3136	Pump Tube (EPDM)
7	9259-3177	Pump Interface Printed Wiring Board (PWB)
8	9258-1018	3 Pump Module Wall Mount Bracket Kit
9	9258-1019	4 Pump Module Wall Mount Bracket Kit
10	9258-1020	5 Pump Module Wall Mount Bracket Kit
11	9258-1021	6 Pump Module Wall Mount Bracket Kit
12	9259-3193	Flush Jumper Connector
13	8390-7477	Circuit Breaker, 10 amp.
14	8302-0743	On/Off Switch, 115VAC Version
15	8390-7001	On/Off Switch/Circuit Breaker, 208VAC / 230VAC Versions



## 9.2 Controller

Ref. No.	Part No.	Description
1	9258-1015	Advanced Laundry Control System Controller (Replacement)
2	8999-2201	Dual-Lock™ Mount



## 9.3 Machine Interface

Ref. No.	Part No.	Description
1	9258-2303	10 ft. DB-9 Communication Cable
2	9258-3681	Machine Interface



## 9.4 Optional Parts


Ref. No.	Part No.	Description
1	9258-2311	20' DB-9 Communications Cable
2	9258-2493	50' DB-9 Communications Cable
3	9258-2568	Machine Interface Module Enclosure
4	9259-1262	Flush Manifold Kit
5	9258-1017	Controller Swivel Mount Bracket Kit

## 10.0 Maintenance

### 10.1 Periodic Cleaning

1. Wipe soil or chemical product from unit with a damp cloth. Do not allow soil to accumulate on unit.

### 10.2 Pump Tube Replacement

<b>WARNING</b> 	Use caution when removing any pump cover. Exposed moving parts may cause operator injury.
---	--

Pump tubes should be replaced at regular maintenance visits, base on your judgment and experience of tube life with your products. Initially, some trial and error may be required. Factors that effect tube life include chemical compatibility, pumping pressures (size of supply tubes and distances pumped), and time. It is best to replace pump tubes prior to failure to avoid product leaking into pump housing.


1. Loosen 2 captive thumbscrews and remove pump faceplate.
2. Remove old pump tube. Clean any chemical residue with a damp cloth if tube was ruptured.
3. Position the spinner so that the rollers are at 1:00 o'clock & 7:00 o'clock position.
4. Starting on the left side of the pump, place the pump tube into the pump. Rotate the spinner clockwise as you push the tube into the pump. This will aid the insertion of stiff or large tubes.
5. Lubricate the new tube and replace the pump faceplate and tighten captive thumbscrews.

### 10.3 Tube Lubrication

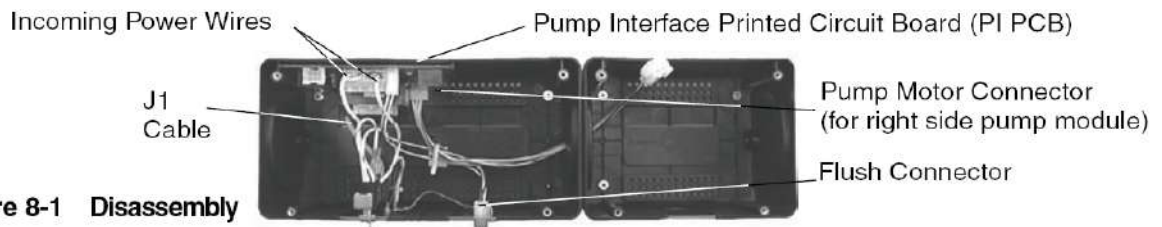
1. Lightly lubricate new pump tubes with the following lubricants. Excessive and/or incorrect lubricants can cause premature pump tube failure.
  - a. For **Santoprene** and **EPDM** pump tubes use **Silicone lube**
  - b. For **Silicone** and **Viton** pump tubes use **Vaseline type lube**

## 10.4 Service

### 10.4.1 Pump Module Disassembly

<b>CAUTION</b> 	Disconnect all power to unit prior to opening unit!
---	---

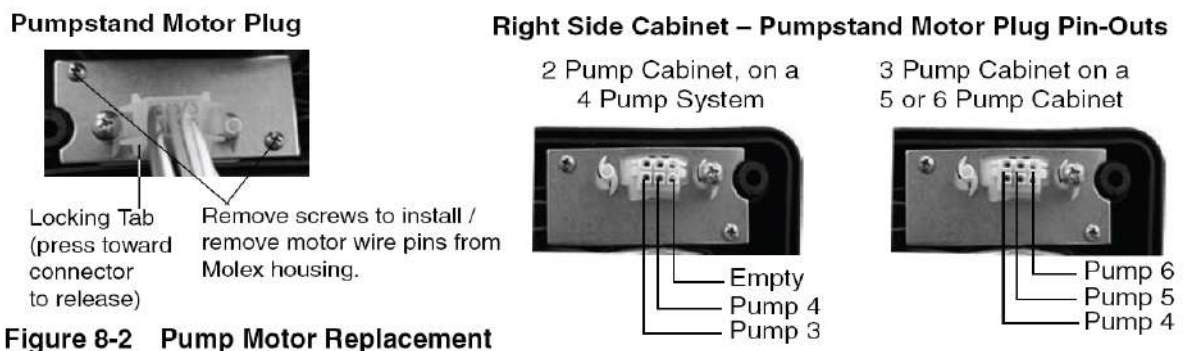
1. After disconnecting all power to unit, remove pump faceplates by removing two captive thumbscrews per pump front. Remove pump tube. Remove pump spinner (pulls off, friction fit).
2. Remove cabinet front by removing four phillips head screws, one at each corner (bottom two located under pump tube), and lifting away.
3. Remove Pump Interface (PI) printed circuit board by sliding it out.
4. Remove 2 Molex type wiring connectors by depressing the locking tabs.
5. Remove power wiring by loosening the power terminal screws.
6. Remove J1 Cable by depressing locking tab. Make note of all connections.



### 10.4.2 Pump Module Disassembly

When working with the Molex connectors, we highly recommend use of a Molex Pin Removal tool, Molex P/N 11-03-0044. Without this tool, it is best to leave the wires connected to the plug and splice new motor wires in when replacing a motor. When adding a motor, no tool is required.

Pump motors are secured to the cabinet front by four phillips head screws. To add new motor (add a pump to an empty pump location), plug the motor wires into the appropriate locations in the Molex motor plug for that pump position.



### 10.4.3 Power Wiring

Incoming power wiring from the Wiring Harness Plate Assembly connects to the Pump Interface PCB terminal block, terminals 1 and 4. For **115 VAC power**, the hot leg goes to terminal 1 and the neutral leg goes to terminal 4.

The jumper configuration on the power terminal block determines the input voltage setting:  
**115 VAC:** Jumper wire from terminal 1 to terminal 2; jumper wire from terminal 3 to terminal 4.  
**208 VAC:** Jumper wire from terminal 2 to terminal 3.

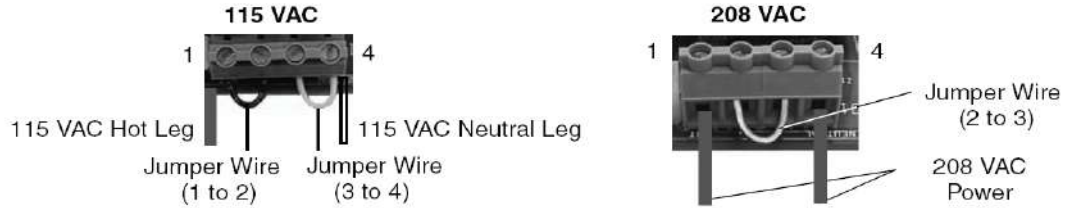



Figure 8-3 Pump Interface PCB Power Connector Terminal Block

<b>CAUTION</b> 	Motor voltage rating of installed motors <b>MUST</b> match power wiring configuration!
---	--