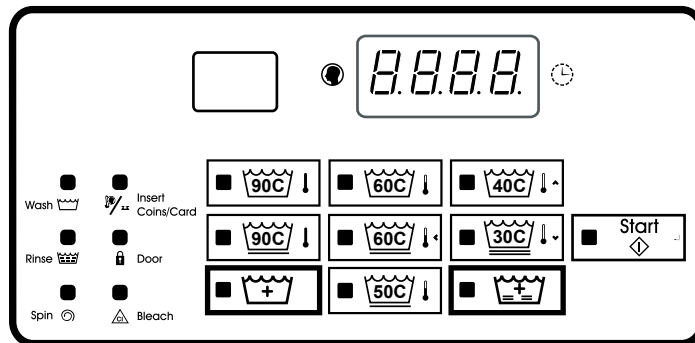


# Washer-Extractor

Refer to Page 8 for Model Numbers



CHM1778C\_SVG

**Original Instructions**

**Keep These Instructions for Future Reference.**

(If this machine changes ownership, this manual must accompany machine.)





## WARNING

Machine installations must comply with minimum specifications and requirements stated in the applicable Installation Manual, any applicable municipal building codes, water supply requirements, electrical wiring regulations and any other relevant statutory regulations. Due to varied requirements and applicable local codes, this machine must be installed, adjusted, and serviced by qualified maintenance personnel familiar with applicable local codes and the construction and operation of this type of machinery. They must also be familiar with the potential hazards involved. Failure to observe this warning may result in personal injury, property damage, and/or equipment damage, and will void the warranty.

W820

**NOTE:** The **WARNINGS** and **IMPORTANT SAFETY 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 machine.

Any problems or conditions not understood should be reported to the dealer, distributor, service agent or the manufacturer.

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# Model Identification

Information in this manual is applicable to these models:

Models					
20 Pound [9 Kg]	HCH020KCF HCH020KCV HCH020KDF HCH020KDV HCH020KEF HCH020KEV HCH020KXV HCH020ZCF HCH020ZCV HCH020ZDF	HCH020ZDV HCH020ZEF HCH020ZEV HCH020ZXV HCL020KCF HCL020KCV HCL020KD2 HCL020KDF HCL020KDV HCL020KEF	HCL020KEV HCL020KXV HCL020ZCF HCL020ZCV HCL020ZDF HCL020ZDV HCL020ZEF HCL020ZEV HCL020ZXV HCU020KCF	HCU020KCV HCU020KE2 HCU020KEV HCU020KL2 HCU020KLF HCU020KLV HCU020KXV HCU020KY2 HCU020KYF HCU020KYV	HCU020ZCV HCU020ZEV HCU020ZLF HCU020ZLV HCU020ZXV HCU020ZYF HCU020ZYV
30 Pound [13.6 Kg]	HCH030KCF HCH030KCV HCH030KDF HCH030KDV HCH030KEF HCH030KEV HCH030KXV HCH030KYF HCH030ZCF HCH030ZCV	HCH030ZDF HCH030ZDV HCH030ZEF HCH030ZEV HCH030ZXV HCH030ZYF HCL030KCF HCL030KCV HCL030KD2 HCL030KDF	HCL030KDV HCL030KEF HCL030KEV HCL030KXV HCL030KYF HCL030ZCF HCL030ZCV HCL030ZDF HCL030ZDV HCL030ZEF	HCL030ZEV HCL030ZXV HCL030ZYF HCU030KCF HCU030KCV HCU030KE2 HCU030KEV HCU030KLV HCU030KXV HCU030KY2	HCU030KYF HCU030KYV HCU030ZCF HCU030ZCV HCU030ZEV HCU030ZLV HCU030ZXV HCU030ZYF HCU030ZYV
40 Pound [18.1 Kg]	HCB040KCF HCB040KCV HCB040KEF HCB040KEV HCB040KLV HCB040KXF HCB040KYF HCB040KYV HCH040KCF HCH040KCV HCH040KDF HCH040KDV	HCH040KEF HCH040KEV HCH040KXV HCH040ZCF HCH040ZCV HCH040ZDF HCH040ZDV HCH040ZEF HCH040ZEV HCH040ZXV HCL040KCF HCL040KCV	HCL040KD2 HCL040KDF HCL040KDV HCL040KEV HCL040KXV HCL040ZCF HCL040ZCV HCL040ZDF HCL040ZDV HCL040ZEF HCL040ZEV HCL040ZXV	HCU040KCF HCU040KCV HCU040KE2 HCU040KEV HCU040KLF HCU040KLV HCU040KXF HCU040KXV HCU040KY2 HCU040KYF HCU040KYV HCU040ZCF	HCU040ZCV HCU040ZEV HCU040ZLF HCU040ZLV HCU040ZXF HCU040ZXV HCU040ZYF HCU040ZYV
60 Pound [27.2 Kg]	HCH060KCF HCH060KCV HCH060KDF HCH060KDV HCH060KEF HCH060KEV HCH060KXV HCH060ZCF HCH060ZCV	HCH060ZDF HCH060ZDV HCH060ZEF HCH060ZEV HCH060ZXV HCL060KCF HCL060KCV HCL060KD2 HCL060KDF	HCL060KDV HCL060KEF HCL060KEV HCL060KXV HCL060ZCF HCL060ZCV HCL060ZDF HCL060ZDV HCL060ZEF	HCL060ZEV HCL060ZXV HCU060KCF HCU060KCV HCU060KEV HCU060KLF HCU060KLV HCU060KY2 HCU060KYF	HCU060KYV HCU060ZCF HCU060ZCV HCU060ZEV HCU060ZLF HCU060ZLV HCU060ZYF HCU060ZYV
80 Pound [36.3 Kg]	HCH080KDF HCH080KDV HCH080ZDF HCH080ZDV	HCL080KDF HCL080KDV HCL080ZDF HCL080ZDV	HCU080KCF HCU080KCV HCU080KYF HCU080KYV	HCU080ZCF HCU080ZCV	HCU080ZYF HCU080ZYV

Table continues...

Model Identification

<b>Models</b>					
100 Pound [45.4 Kg]	HCH100KDF HCH100KDV	HCH100ZDF HCH100ZDV	HCL100KDF HCL100KDV	HCL100ZDF	HCL100ZDV



# Introduction

## Replacement Parts

If literature or replacement parts are required, contact the source from which the machine was purchased or contact Alliance Laundry Systems at +1 (920) 748-3950 for the name and address of the nearest authorized parts distributor.

## Customer Service

For technical assistance, contact your local distributor or contact:

Alliance Laundry Systems

Shepard Street

P.O. Box 990

Ripon, WI 54971-0990

U.S.A.

[www.alliancelaundry.com](http://www.alliancelaundry.com)

Phone: +1 (920) 748-3121 Ripon, Wisconsin

# Preliminary Information

## About the Control

This control is an advanced, programmable computer that allows the owner to control most machine features by pressing a sequence of keypads.

The control allows the owner to program custom cycles, set vend prices, retrieve audit information, run diagnostic tests, program special vend features and other programmable features. Refer to *Programming the Control* for a list of features. Machines shipped from the factory have a default cycle built in, however, the owner can change the default cycle, or any cycle, as needs permit.

The default cycle is PERM PRESS/ 60C.

**IMPORTANT: In the event of a power failure, the control will not have to be reprogrammed. It is designed with a memory system that will remember how it was programmed until the electrical power is restored.**

**IMPORTANT: It is extremely important that the machine has a good ground connection and that all mechanical and electrical connections to the control are made before applying power to or operating the machine.**

## Glossary of Terms

The following are a few terms and abbreviations to learn. These are referred to throughout the instructions.

Display – This term refers to the window area of the control that displays words and values.

LED (Light Emitting Diode) – This term refers to the lights next to the keypads and status words of the control.

## Power Failure Recovery

This feature allows the cycle status to be saved in memory in the event of a power failure.

If the power failure lasted less than two (2) minutes, the cycle will resume without requiring the user to press the START (enter) keypad to restart.

If the power failure lasted longer than two (2) minutes, the START (enter) keypad will flash until it is pressed and the cycle will restart from the point it left off.

## Communications

The control may be programmed manually, by infra-red communication with an external device or by the network. A limited number of features can be programmed by a card reader.

## Infra-red Communications (Optional)

An external device, such as a PDA, allows the owner to program and retrieve information from the control without touching the keypad. An external device greatly expands the programming options available to the owner. However, the external device is not required to program and operate the machine. The operation of an external device and the advanced features available are covered separately in the instructions included with the external device software. Contact Alliance Laundry Systems for a list of approved PDAs and other external devices.

## Serial Card Reader Communications (Card Models Only)

The control will accept communication with a serial card reader in order to perform vending transactions when a card is inserted to pay for cycles. The card reader can also allow the owner to program a limited number of features and collect audit information.

For detailed information on serial card reader communications, refer to instructions included with card reader.

## Network Communications

The control will also accept communication with a network interface board which allows the control to be linked to a personal computer. This network link allows an owner to program, collect data and run diagnostics on any machine.

For detailed information on network communications, refer to the network instructions.

# Control Identification

## Select Cycle Keypads

(Refer to *Figure 1*)

Select Cycle pads are used to select the specific machine cycle. These pads include NORMAL/ 90C, NORMAL/ 60C, NORMAL/ 40C, PERM PRESS/ 90C, PERM PRESS/ 60C and DELICATE/ 30C and PERM PRESS/ 50C and allow the user to select a cycle other than the default cycle (PERM PRESS/ 60C). The Select Cycle keypads are not active after the first Fill step of the cycle. The selected cycle is indicated by the light (LED) on the pad. Pressing the flashing START (enter) keypad will confirm the selection and the cycle will begin. When the card reader is used, pressing the START (enter) pad will start the cycle and deduct the vend price from the card.

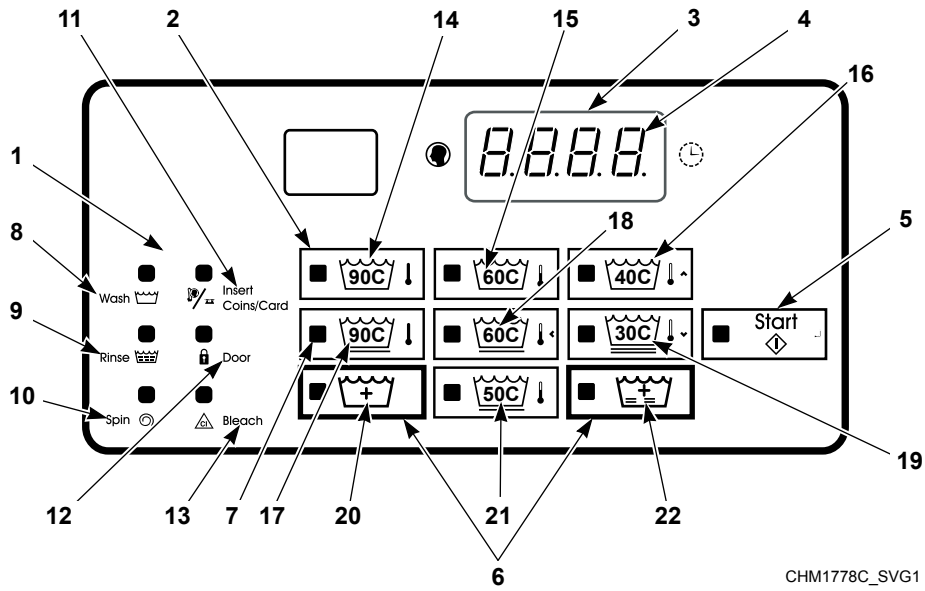
## Select Modify Cycle Keypads

(Refer to *Figure 1*)

Select Modify Cycle pads are used to select an extra wash segment and/or an extra rinse segment within a cycle. These pads include EXTRA WASH and EXTRA RINSE.

The Select Modify Cycle pads are active in Ready Mode, Partial Vend Mode, Start Mode and during the first fill step of the cycle. The selected extra cycle is indicated by the light (LED) on the pad.

The Select Cycle pads and Select Modify Cycle pads are used in various combinations for programming cycles, retrieving audit information, running diagnostic tests, and other operations. These instructions cover the manual programming and data retrieval options.



- 1. LED Status Lights
- 2. Select Cycle keypads
- 3. Display
- 4. Four 7-Segment Digits
- 5. START (enter)
- 6. Modify Cycle pads
- 7. LED Light
- 8. Wash
- 9. Rinse
- 10. Spin
- 11. Insert Coins/Card
- 12. Door
- 13. Bleach
- 14. NORMAL/ 90C
- 15. NORMAL/ 60C
- 16. NORMAL/ 40C
- 17. PERM PRESS/ 90C
- 18. PERM PRESS/ 60C
- 19. DELICATE/ 30C
- 20. EXTRA WASH
- 21. PERM PRESS/ 50C
- 22. EXTRA RINSE

Figure 1

# Display Identification

## Light Emitting Diodes (LEDs)

(Refer to *Figure 1*)

Light Emitting Diodes (LEDs) are used to indicate the chosen cycle, cycle status, if vend is needed, when the bleach compartment is dispensing, and door lock information. See below for information on each LED.

### CYCLE LED

(NORMAL/ 90C, NORMAL/ 60C, NORMAL/ 40C, PERM PRESS/ 90C, PERM PRESS/ 60C, DELICATE/ 30C, PERM PRESS/ 50C)

Cycle LED will remain lit the entire cycle.

### MODIFY CYCLE LED (EXTRA WASH or EXTRA RINSE )

EXTRA WASH LED or EXTRA RINSE LED will remain lit the entire cycle.

### WASH LED

Wash LED is lit at the beginning of a wash portion of the cycle and will remain lit until the wash is complete.

### RINSE LED

Rinse LED is lit at the beginning of a rinse portion of the cycle and will remain lit until the rinse is complete.

### SPIN LED

Spin LED is lit during the final spin portion of the cycle.

### COINS/CARD LED

Coins/Card LED prompts the user for coins or a card to satisfy the vend price. Four (4) digits show the vend price remaining to be satisfied. The vend price displayed will decrease with each coin inserted. If new options are selected during the first Fill step of the wash cycle and it requires additional vend, the Coins/Card light will flash one (1) second on and one (1) second off, and the display will show the vend price remaining to be satisfied.

### DOOR LED

Door LED is lit whenever the door is locked. The door can't be opened when this LED is lit.

## BLEACH LED

Bleach LED is lit when bleach compartment is dispensing for the first time in the cycle.

## Four 7-Segment Digits

The 7-Segment Digits are used to display the time remaining in a cycle, vend price, error messages and descriptive codes. During diagnostic testing or manual programming of the control, these digits will display descriptive codes and values (as described in *Entering the Manual Mode*).

# Machine Operation

## Start Up

When power is applied to the machine, the control becomes active and will display its software version as **5HH** (**HH** is the version number) for one (1) second. If the control was not powered down during a running cycle, it will enter the Ready Mode, Partial Vend Mode or Start Mode.

## Ready Mode

In this mode of operation the control indicates the current selected cycle and current selected modifiers by lighting the LEDs. The full current vend price for the cycle appears in the display. The Insert Coins/Card LED is lit.

To start the cycle, the user must satisfy the vend price and then press the START (enter) keypad.

The user will be able to select a different cycle by pressing a cycle keypad when the machine is in Ready Mode.

## Partial Vend Mode

The control enters this mode when part of the vend price has been entered, but not enough vend is entered to satisfy the vend price. The control will display the remaining vend price needed to start the cycle and the Insert Coins/Card LED is lit.

The user will be able to select a different cycle by pressing a cycle keypad when the machine is in Partial Vend Mode.

## Additional Vend Mode

The control enters this mode if a higher priced cycle or a cycle modifier is selected while the machine is in Start Mode or Run Mode, but before the first Fill step has completed. If the vend price is not satisfied within one (1) minute, the control will go back to the first selection and the cycle will continue if it was paused. After the first Fill step, all key presses will be ignored, allowing the machine to go through the complete cycle.

## Door Locking Mode

The control enters this mode after the START (enter) keypad is pressed in Start Mode. The control stays in Door Locking Mode until it confirms the door is closed and locked.

## Start Mode

The control enters this mode when the full vend price is satisfied, the vend price is zero (0) or the control is in OPL Mode. START (enter) keypad LED will flash one (1) second on and one (1) second off. If Start Mode is entered because the vend price is satisfied or the control is in OPL Mode, the display will show **PUSH**

for one (1) second, **5E-E** for one (1) second and the current cycle time for one (1) second. If Start Mode is entered because the vend price is zero (0), the display will show **F-EE**. When first entering Start Mode, a signal will sound for one (1) second on and one (1) second off for 10 seconds if Signal for Start is enabled.

After pressing the START (enter) keypad, the door will lock and the cycle will begin.

## End of Cycle Mode

When a cycle is complete, the control will display **00** until the machine door is opened, a key is pressed, or a coin/card is entered. The display will revert back to Ready Mode if door is opened or keypad is pressed. If vend is entered, the control will change to Partial Vend Mode or Start Mode.

## Cycle Sequence

Upon the start of a cycle, the control will display the total cycle time. The appropriate LEDs will light while the machine passes through different cycle steps. Any coin entered after the first fill step will be added to the total coin counter, but the user will not be able to change cycles.

## Run Mode

The control enters this mode when a cycle is running. The time remaining appears in the display, the status LEDs are lit and the loading door is locked.

## Door Unlocking Mode

The control enters this mode after cycle has ended. The control waits for confirmation that door is unlocked. Once confirmation is received that door is unlocked, control will enter End of Cycle Mode.

## Signals

The options for when a signal can be used during the machine operation are listed below:

1. **End of Cycle Signal** - By default, this signal is turned off. If turned on, the signal sounds for three (3) seconds at the end of a cycle.
2. **Signal On Keypad Depression** - By default, this signal is turned on and sounds for a quarter of a second each time a keypad is pressed.
3. **Signal On Coin Input/Card Insertion** - By default, this signal is turned on and will sound for a quarter of a second each time a coin or card is entered.

4. **Signal for Card Removal (Card Models Only)** - By default, this signal is turned on and will sound one (1) second on and one (1) second off when the control is prompting for card removal.
5. **Signal for Start** - By default, this signal is turned on and will sound one (1) second on and one (1) second off for 10 seconds after vend price has been satisfied.

**NOTE: Refer to *Programming the Control* to program signal options.**

## Changing Cycles

Cycles, wash temperatures and soil levels can be changed anytime during the first Fill step. After the first Fill step, all keypad presses are ignored.

Selecting a higher priced cycle or adding an extra rinse or wash will pause the first Fill step, and Insert Coins/Card will flash one (1) second on and one (1) second off until the vend price has been satisfied. After the vend price has been satisfied, the cycle will continue with the new selections. If the vend price is not satisfied within one (1) minute, the machine control will go back to the previously set cycle.

# Special Features

## Programming the Control

The control allows the machine owner to program the control with the use of the keypad. Cycle and vend options may be programmed and audit information may be viewed by pressing combinations of keypads.

For details on programming select cycle options, refer to *Programming Control*.

## Collecting Audit Information

The control will store audit information in its memory that can be retrieved by pressing various combinations of keypads. The control will record coins entered, total machine cycles, total start pulses and total rapid advance cycles.

For more information on the audit features, refer to *Collecting Audit Information*.

**NOTE: Additional audit information is retrievable with an external device, the card reader and the network. Refer to the appropriate instruction manual.**

## Testing Machine and Control Functions

Special diagnostic features built into the control allow the owner to run specific diagnostic tests. By opening and closing the top cover and then pressing various sequences of Select Cycle, Select Wash Temperature and Soil keypads, the owner may retrieve or perform the following tests:

- VFD Balance Weight Test (Design 1 models only)
- Drive DC Bus Display Test (Design 2 and 3 models only)
- Water Purge Test
- Water Leak Detection Test
- Drive Software Version Number (Design 2 and 3 models only)
- Drive Parameter Table Version Number (Design 2 and 3 models only)
- Drive Type (Design 2 and 3 models only)

For detailed information on running diagnostic tests, refer to *Testing Machine and Electronic Control Functions*.

## Rapid Advance Feature

If enabled in programming, this feature allows the user to manually advance through active cycles. This feature is useful when tests must be performed immediately on a machine currently in an active cycle. In this case, the user can manually advance through the cycles to Ready Mode. At this point, the user can perform the required tests and then return the machine to the point it was interrupted.

## Clearing the Vend Feature

This feature allows the user to return the control back to the Ready Mode if coins have been entered but the full vend price has not yet been satisfied.

For more information on using the Clear Vend feature, refer to *Clear Vend Feature*.

## Communications Mode

This feature allows the control to communicate with an external device, card reader or network. This allows the control to be programmed and have its data read without using the keypad.

For more detailed information on using the Communications Mode feature, refer to *Communications*.

## Coin Drop

The control will accept pulses from a single or dual coin drop to satisfy vend price. Each coin drop will have the ability to satisfy the vend.

## Start Pulse Operation

The control will accept pulses from optional payment systems. The machine can be programmed to receive a single start pulse or multiple start pulses, or the Start Pulse Option can be turned off. The Start Pulse Mode allows the machine to go from the Ready Mode to the Start Mode after a single or multiple pulses are received.

## Top Cover and Coin Vault Openings

The control will capture the times and dates of the openings of the Coin Vault and the Top Cover. The information is saved in memory. An open top cover combined with various keypad presses allows the control to enter manual modes of operation. These modes include Manual Programming, Audit Collection and Diagnostics.

## Special Vend

This feature allows the owner to program the control to allow programmable vend prices for specific hours and dates.

For details on programming Special Vend, refer to *Programming Control*.



## OPL Mode

This feature allows the user to start a cycle without satisfying the vend price.

For details on enabling OPL Mode, refer to *Programming Control*.

# Opening the Top Cover

To manually program the control, the top cover must be opened. Opening and closing the top cover trips a switch which allows access to various programming options. Once opened, the top cover may either be left open, and then closed after programming, or it may be closed immediately.

The top cover is located on the top of the machine.

1. Unlock top cover.
2. Slide top cover forward slightly to move notches away from the pegs on the front of cabinet.

3. Lift the top cover up. To completely remove, lift top cover away from both top cover hinges. Refer to *Figure 2*.

After removing, or opening and closing the top cover, the operator has 4 minutes and 15 seconds to begin programming. If the appropriate keypads have not been pressed in that time, the control will not accept operator programming. Should this happen, opening and closing the top cover will once again trip the switch which allows access to the programming options.

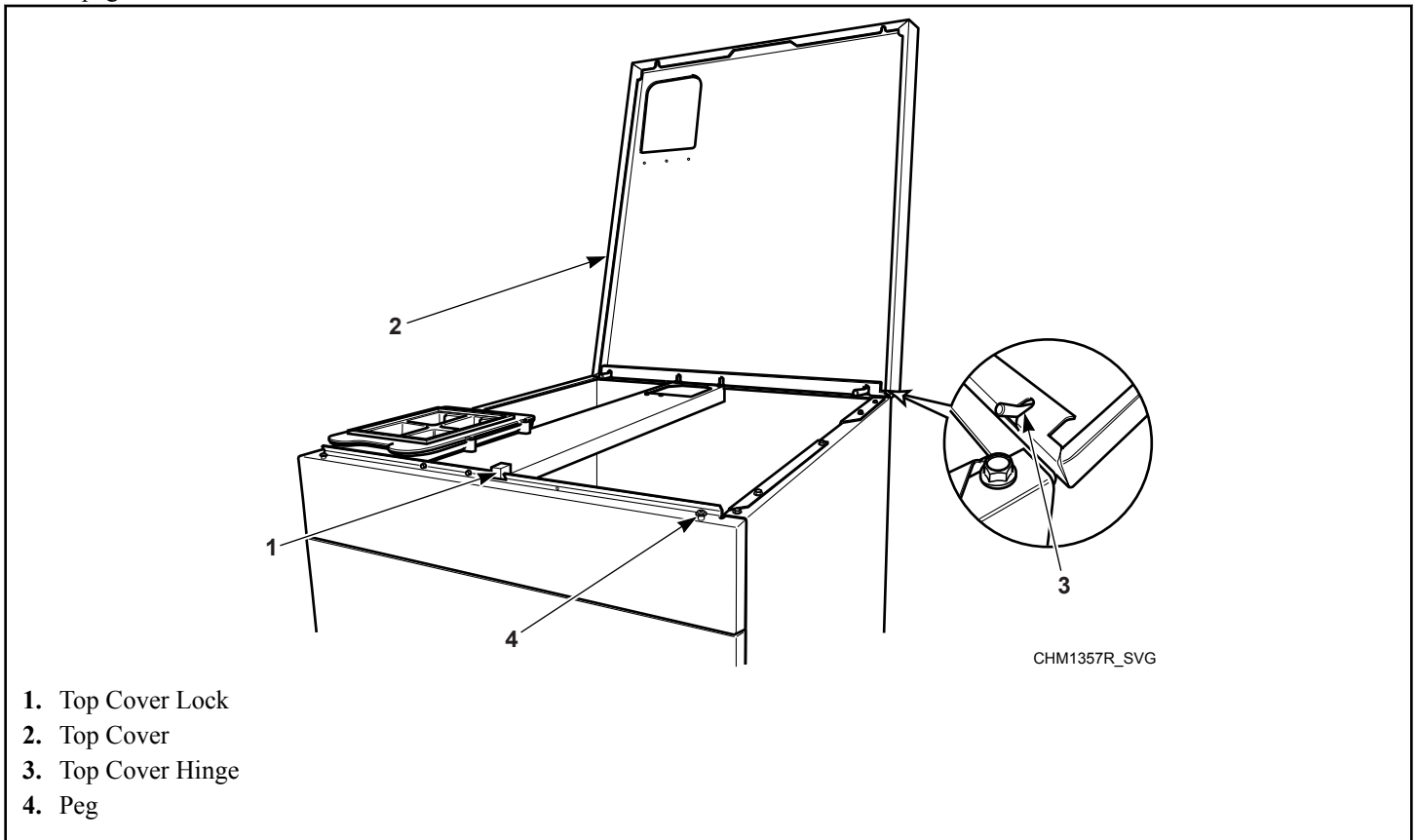


Figure 2

# Entering the Manual Mode

For programming, testing, and retrieving information from the control, it is often necessary to enter the Manual Mode by following the six (6) simple steps below.

For an overview the Manual Mode, refer to *Entering Manual Mode*.

## How to Enter the Manual Mode

1. If the machine is in an active cycle, rapid advance through the cycle. Refer to the *Rapid Advance Feature*. If coins or a card has been entered, refer to *Clear Vend Feature*.
2. Open the top cover. Refer to *Opening the Top Cover*.  
**NOTE: The coin vault switch must be closed to enter Manual Mode.**
3. While pressing and holding the PERM PRESS/ 90C keypad with one hand, press the NORMAL/ 90C keypad with the other hand.
4. The display will show *rRPd*.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the options until the desired option appears in the display.

6. Press the START (enter) keypad.

Manual Mode is broken into three (3) groups: Manual Programming, Manual Rapid Advance and Manual Diagnostics. Manual Programming can only be turned on or off with an external device or the network. Refer to the appropriate instruction manual. Manual Rapid Advance and Manual Diagnostics can be turned on and off using an external device, by manual programming (refer to *Manual Rapid Advance (Enable/Disable) rAE<sub>n</sub>* and *Manual Diagnostics (Enable/Disable) dAE<sub>n</sub> of Programming Control*), or with the network.

By default, all groups are turned **on**.

The manual features available in each group are as follows (the menu displayed on the display in this mode is in parentheses).

- **Manual Programming**
  - Manual Programming (*PrPg*)
  - Manual Read Audit (*RAudt*)
  - Manual Reset (*rSEt*)
- **Manual Rapid Advance**
  - Rapid Advance (*rRPd*)

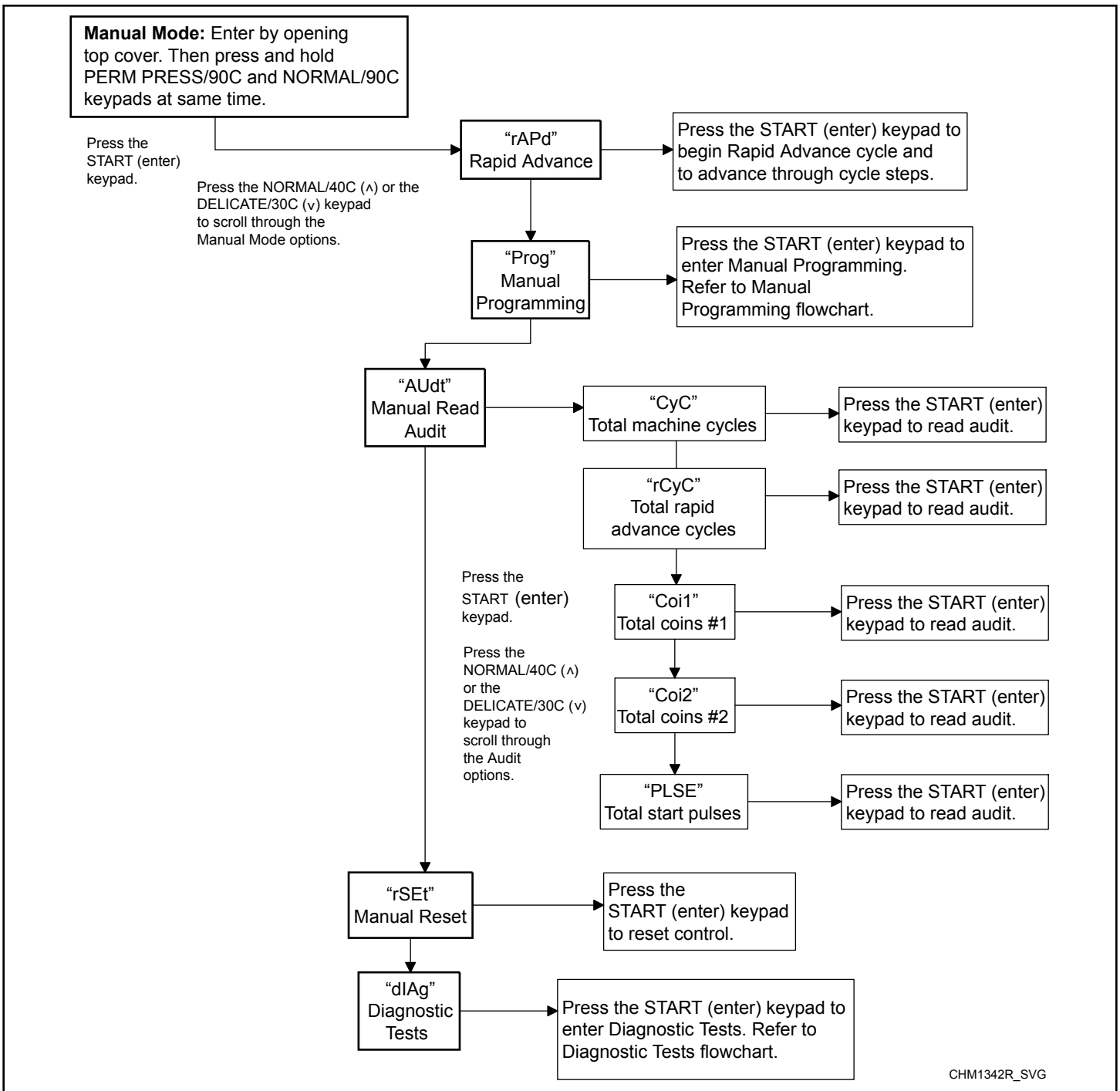


Figure 3

## How to Exit Programming Feature

Press the PERM PRESS/ 60C (<) keypad until the control returns to Ready Mode.

# Programming Control

## What Can Be Programmed?

This feature allows the owner to program cycle parameters, standard vend pricing, special vends and other features by using the keypads. The control must have the Manual Programming Mode enabled, which is the factory default. This mode can only be turned **OFF** and **ON** by using an external device or a network. Refer to this section when programming the control.

This section offers a detailed description of all available programmable options.

Each description includes instructions on when and why the option might be used and, more importantly, how to program the option.

For an overview of the programming organization, refer to the flowcharts on the following pages.

For more advanced users, see the quick reference list (refer to *Table 1*) and programming flowcharts (refer to *Programming Flowcharts*) for the options available through the programming mode.

**NOTE: The codes in the Option Display column of *Table 1* are displayed when that option is selected.**

## Programmable Options Available

Option Number	Option Display	Description	Default Value	Value Range
1	<i>RE51</i>	<b>NORMAL/ 90C Vend Price</b>	200	0-65535
2	<i>dEn1</i>	<b>Coin #1 Value</b>	25	1-65535
3	<i>dEn2</i>	<b>Coin #2 Value</b>	100	1-65535
4	<i>PL5E</i>	<b>Start Pulse Value</b>	25	1-65535
5	<i>PL5n</i>	<b>Start Pulse Mode</b>	128	128 (on-single pulse), 192 (on-multiple pulses), <b>oFF</b>
6	<i>REYP</i>	<b>Available Type</b>	0	0 (Ready Mode), 1 (Ready Mode, Partial Vend Mode), 2 (Ready Mode, End of Cycle Mode), 3 (Ready Mode, End of Cycle Mode, Partial Vend Mode)
7	<i>dCPC</i>	<b>Default Cycle</b>	5	1 (NORMAL/ 90C), 2 (NORMAL/ 60C), 3 (NORMAL/ 40C), 4 (PERM PRESS/ 90C), 5 (PERM PRESS/ 60C), 6 (DELICATE/ 30C), 7 (PERM PRESS/ 50C)
8	<i>oPL</i>	<b>OPL Mode Enable/Disable</b>	<b>oFF</b>	<b>on/oFF</b>
9	<i>AUd</i>	<b>Audio Signal</b>	29	0-31*
10	<i>CRd</i>	<b>Card Reader Display Control</b>	<b>oFF</b>	<b>on/oFF</b>
11	<i>Err-</i>	<b>Errors</b>	—	<b>Press START (enter) keypad to access options</b>
a.	<i>CEr-</i>	<b>Coin Error Parameters</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>CEr1</i>	Coin Error	<b>on</b>	<b>on/oFF</b>
2.	<i>CEr2</i>	Coin Error Penalty	<b>oFF</b>	<b>on/oFF</b>
3.	<i>CEr3</i>	Coin Drops Header Present Error	<b>on</b>	<b>on/oFF</b>

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
b.	<i>E FL</i>	<b>Fill Errors</b>	<i>on</i>	<i>on/off</i>
c.	<i>E dr</i>	<b>Drain Error</b>	<i>on</i>	<i>on/off</i>
d.	<i>E Ub</i>	<b>Unbalance Error Display (VFD only)</b>	<i>on</i>	<i>on/off</i>
e.	<i>E oP</i>	<b>Open Thermister Error Display (Models with Heat)</b>	<i>on</i>	<i>on/off</i>
f.	<i>E SH</i>	<b>Shorted Thermistor Error Display (Models with Heat)</b>	<i>on</i>	<i>on/off</i>
g.	<i>E Ht</i>	<b>Heat Error Display (Heater only)</b>	<i>on</i>	<i>on/off</i>
h.	<i>LEr-</i>	<b>Water Leak Detection Error</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>LEr 1</i>	Water Leak Detection During a Machine Cycle (On/Off)	<i>off</i>	<i>on/off</i>
2.	<i>LEr 2</i>	Water Leak Detection Day of Week Enable	127	0-127*
3.	<i>LEr 3</i>	Number of cycles between leak detection test	0*	0-127
i	<i>E Sd</i>	<b>Slow Drain Detection</b>	<i>off</i>	<i>on/off</i>
12	<i>CYC-</i>	<b>Cycle Programming</b>	Refer to <i>Table 1</i> for default cycle information	
a.	<i>AGI t</i>	<b>Cycle Agitate</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>tYPE</i>	<b>Agitate Type</b>	**	1-2*
2.	<i>ASPd</i>	<b>Agitate Speed (VFD only)</b>	**	<i>Lo/rEg*</i>
b.	<i>SEg-</i>	<b>Cycle Segment Programming</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>SEg n</i>	Segment Enable/Disable	**	<i>on/off</i>
c.	<i>FILL</i>	<b>Fill Step</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>FLEn</i>	Fill Step Enable/Disable	**	<i>on/off</i>
2.	<i>FLEU</i>	Fill Level	**	<i>HI /nEd/Lo</i>
3.	<i>tEnP</i>	Fill Temperature	**	<i>Cold/URrn/Hot</i>
d.	<i>SUPL</i>	<b>Supply Step</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>SUE n</i>	Supply Step Enable/Disable	**	<i>on/off</i>

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
2.	<i>dI SP</i>	Dispenser Options	**	<p><b>Design 1 models:</b> display will show Cx (compartment-oriented) or Sx (supply-oriented), depending on how option 5 (Supply/Compartment Dispenser Programming) is programmed.</p> <p><b>Design 2 and 3 models:</b> Compartment and Supply dispensing is programmed separately.</p> <p><b>Press START (enter) keypad to access options.</b></p>
a.	<i>C2 or S1</i>	Compartment #2/Supply #1 (Design 1 models)	**	<i>on/off</i>
b.	<i>C3 or S2</i>	Compartment #3/Supply #2 (Design 1 models)	**	<i>on/off</i>
c.	<i>C4 or S3</i>	Compartment #4/Supply #3 (Design 1 models)	**	<i>on/off</i>
d.	<i>S4</i>	Supply #4 (Design 1 models)	**	<i>on/off</i>
(1)	<i>C2</i>	Compartment #2 (Design 2 and 3 models)	**	<i>on/off</i>
(2)	<i>C3</i>	Compartment #3 (Design 2 and 3 models)	**	<i>on/off</i>
(3)	<i>C4</i>	Compartment #4 (Design 2 and 3 models)	**	<i>on/off</i>
(4)	<i>S1</i>	Supply #1 (Design 2 and 3 models)	**	<i>on/off</i>
(5)	<i>S2</i>	Supply #2 (Design 2 and 3 models)	**	<i>on/off</i>
(6)	<i>S3</i>	Supply #3 (Design 2 and 3 models)	**	<i>on/off</i>
(7)	<i>S4</i>	Supply #4 (Design 2 and 3 models)	**	<i>on/off</i>
e.	<i>SdUr</i>	<b>Supply Duration</b>	**	<b>Press START (enter) keypad to access options</b>
1.	<i>SEC</i>	Seconds	**	0-59
2.	<i>nl n</i>	Minutes	**	0-9
f.	<i>AgSt</i>	<b>Agitate Step</b>	—	<b>Press START (enter) keypad to access options</b>

Table 1 *continues...*



Option Number	Option Display	Description	Default Value	Value Range
1.	<i>AGEn</i>	Agitate Step Enable/Disable	**	<i>on/off</i>
2.	<i>ADUr</i>	Agitate Duration (in minutes)	**	1-30
3.	<i>HEAL</i>	Heat in Agitate (if heater is present)	**	<i>off/1/2**</i>
<b>g.</b>	<i>drAn</i>	<b>Drain Step</b>	<i>on</i>	<i>on/off</i>
<b>h.</b>	<i>SPI n</i>	<b>Extract Step</b>	—	<b>Press START (enter) keypad to access options</b>
1.	<i>SPEn</i>	Extract Step Enable/Disable	**	<i>on/off</i>
2.	<i>SSEC</i>	Extract Seconds	**	0-59
3.	<i>Snl n</i>	Extract Minutes	**	<p><b>Intermediate Extract:</b> Min. Step Time = 30 seconds Max. Step Time = 3:59 minutes</p> <p><b>Final Extract:</b> Min. Step Time = 30 seconds Max. Step Time = 9:59 minutes</p>
4.	<i>SSPd</i>	Extract Speed (VFD models only)	**	1-5* (Design 1) 1-6* (Design 2 and 3)
<b>i.</b>	<i>Cn in</i>	<b>Cycle Time</b>	0*	0-255 minutes
<b>13</b>	<i>SUPC</i>	<b>Supply/Compartment Dispenser Programming (Design 1 Models only)</b>	C (Compartment)	C (Compartment)/S (Supply Dispenser)
<b>14</b>	<i>bALr</i>	<b>Number of Balance Retries (VFD only)</b>	3 (Design 1) 1 (Design 2 and 3)	1-7
<b>15</b>	<i>IRR</i>	<b>IR Access (On/Off)</b>	<i>on</i>	<i>on/off</i>
<b>16</b>	<i>t FC</i>	<b>Fahrenheit/Celsius</b>	<i>FAHr</i> (Fahrenheit)	<i>FAHr</i> (Fahrenheit)/ <i>CEL</i> (Celsius)
<b>17</b>	<i>FH</i>	<b>Hot Water Temperature</b>	140°F [60°C]	35°F-194°F [2°C-90°C]
<b>18</b>	<i>FHC</i>	<b>Warm Water Temperature</b>	100°F [38°C]	35°F-194°F [2°C-90°C]
<b>19</b>	<i>FC</i>	<b>Cold Water Temperature</b>	35°F [2°C]	35°F-194°F [2°C-90°C]
<b>20</b>	<i>Codn</i>	<b>Cooldown Enable/Temperature</b>	<i>off</i>	<p><i>off</i></p> <p>50°F-160°F [10°C-71°C]</p>

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
21	<i>PtEn</i>	Production Test Cycle (On/Off)	<i>on</i>	<i>on/off</i>
22	<i>rREn</i>	Manual Rapid Advance (On/Off)	<i>on</i>	<i>on/off</i>
23	<i>nCtd</i>	No Cycle Time Display	<i>off</i>	<i>on/off</i>
24	<i>PCtd</i>	Cycle Time Display	<i>off</i>	<i>on/off</i>
25	<i>SdRd</i>	Slow Drain Detection Adjust	0	0-255
26	<i>SPRU</i>	Pause/Resume Mode	<i>off</i>	<i>on/off</i>
27	<i>Rt52</i>	NORMAL/ 60C Vend Price	200	0-65535
28	<i>Rt53</i>	NORMAL/ 40C Vend Price	200	0-65535
29	<i>Rt54</i>	PERM PRESS/ 90C Vend Price	200	0-65535
30	<i>Rt55</i>	PERM PRESS/ 60C Vend Price	200	0-65535
31	<i>Rt56</i>	DELICATE/ 30C Vend Price	200	0-65535
32	<i>Rt57</i>	PERM PRESS/ 50C Vend Price	200	0-65535
33	<i>rTc-</i>	Real Time Clock	—	Press START (enter) keypad to access options
a.	<i>rTc1</i>	Set Real Time Clock Minutes	—	00-59
b.	<i>rTc2</i>	Set Real Time Clock Hours	—	00-23
c.	<i>rTc3</i>	Set Real Time Clock Day	—	1 (Sunday)-7 (Saturday)
d.	<i>rTc4</i>	Set Real Time Clock Date	—	1-31
e.	<i>rTc5</i>	Set Real Time Clock Month	—	1-12
f.	<i>rTc6</i>	Set Real Time Clock Year	—	0 (2000)-99
g.	<i>rTc7</i>	Daylight Saving Option	<i>on</i>	<i>on/off</i>
34	<i>SPR-</i>	Special Vend A Data	<i>off</i>	Press START (enter) keypad to access options
a.	<i>SA01</i>	Special Vend A Days Enable	0	<i>off</i> /3-255 (odd numbers only)
b.	<i>SA02</i>	Special Vend A Start Hour	0	0-23
c.	<i>SA03</i>	Special Vend A Start Minute	0	0-59
d.	<i>SA04</i>	Special Vend A Length in Hours	0	0-24

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
e.	<i>SA05</i>	Special Vend A Start Month	0	0-12
f.	<i>SA06</i>	Special Vend A Start Date	0	0-31
g.	<i>SA08</i>	Special Vend A End Month	0	0-12
h.	<i>SA09</i>	Special Vend A End Date	0	0-31
i.	<i>SA 11</i>	Special Vend A NORMAL/ 90C Vend Price	0	0-65535
j.	<i>SA 12</i>	Special Vend A NORMAL/ 60C Vend Price	0	0-65535
k.	<i>SA 13</i>	Special Vend A NORMAL/ 40C Vend Price	0	0-65535
l.	<i>SA 14</i>	Special Vend A PERM PRESS/ 90CVend Price	0	0-65535
m.	<i>SA 15</i>	Special Vend A PERM PRESS/ 60C Vend Price	0	0-65535
n.	<i>SA 16</i>	Special Vend A DELICATE/ 30C Vend Price	0	0-65535
o.	<i>SA 17</i>	Special Vend A PERM PRESS/ 50C Vend Price	0	0-65535
p.	<i>SA20</i>	Special Vend A Wash Agitate Step Added Minutes	0	0-15
q.	<i>SA21</i>	Special Vend A Wash Agitate Step Subtracted Minutes	0	0-15
<b>35</b>	<b><i>SPb-</i></b>	<b>Special Vend B Days</b>	<b><i>oFF</i></b>	<b><i>oN/oFF</i></b>
<b>36</b>	<b><i>CnP-</i></b>	<b>Cycle Modifier Program- ming</b>	—	<b>Press START (enter) keypad to access options</b>
a.	<i>CnP1</i>	Cycle Modifier Extra Wash Vend Price Adder	25	0-65535
b.	<i>CnP2</i>	Cycle Modifier Extra Rinse Vend Price Adder	25	0-65535
<b>37</b>	<b><i>FLo</i></b>	<b>Low Water Level</b>	3	1-10
<b>38</b>	<b><i>FnEd</i></b>	<b>Medium Water Level</b>	15	11-20
<b>39</b>	<b><i>FHI</i></b>	<b>High Water Level</b>	27	21-30
<b>40</b>	<b><i>ALd-</i></b>	<b>Auto-Water Leak Detection</b>	—	<b>Press START (enter) keypad to access options</b>
a.	<i>ALd1</i>	Auto-Water Leak Detection (On/Off and cycles)	<i>oFF</i>	<i>oFF</i> /0-127 (Cycles)

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
b.	<i>RLd2</i>	Auto-Water Leak Detection Hour	0	0-23
c.	<i>RLd3</i>	Auto-Water Leak Detection Day of Week	127*	0-127*
<p>*Refer to programming section for value definition.  **Refer to the Cycle Charts for default cycle setting information.</p>				

Table 1

# Programming Flowcharts

## Entering Manual Mode

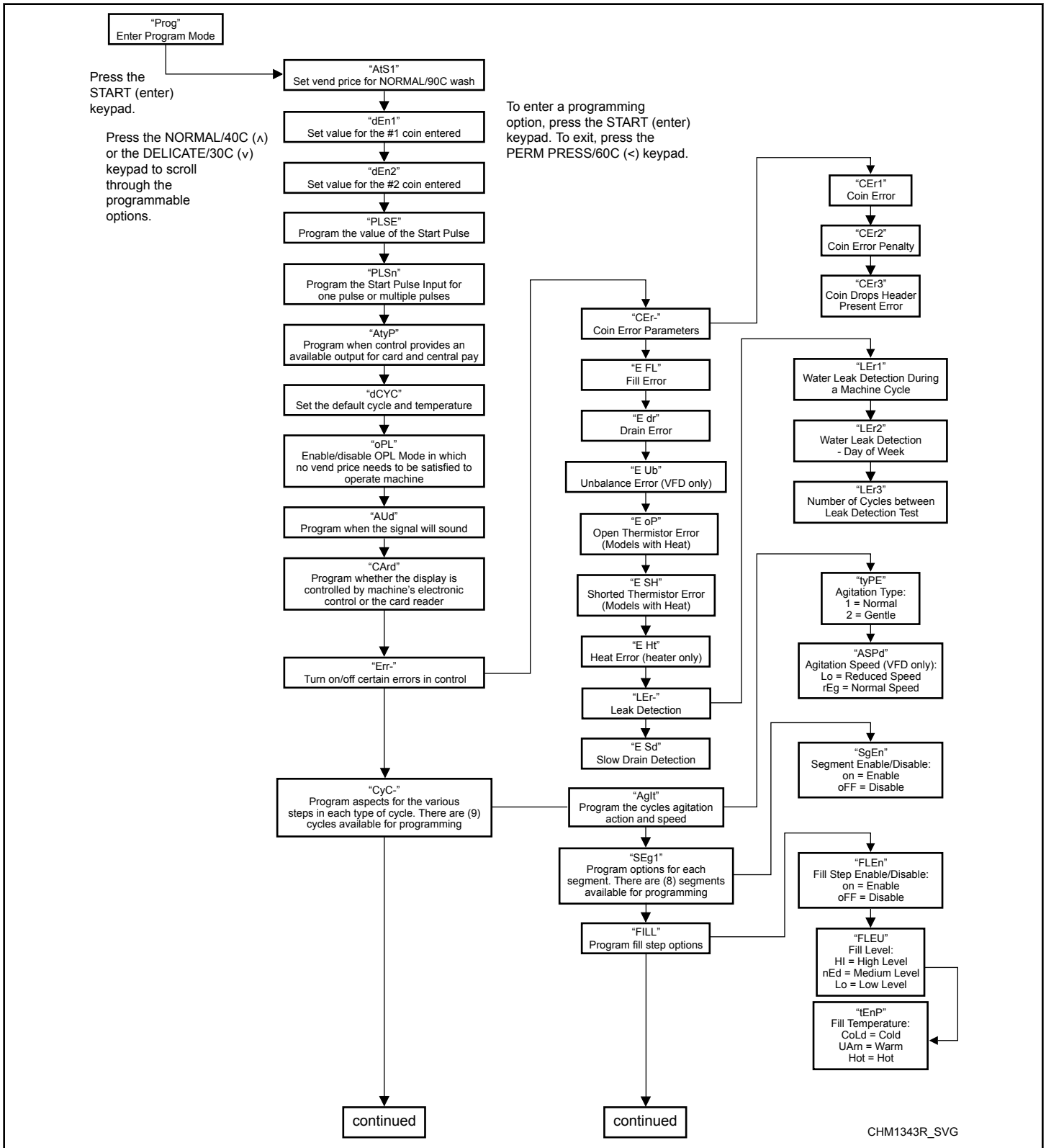
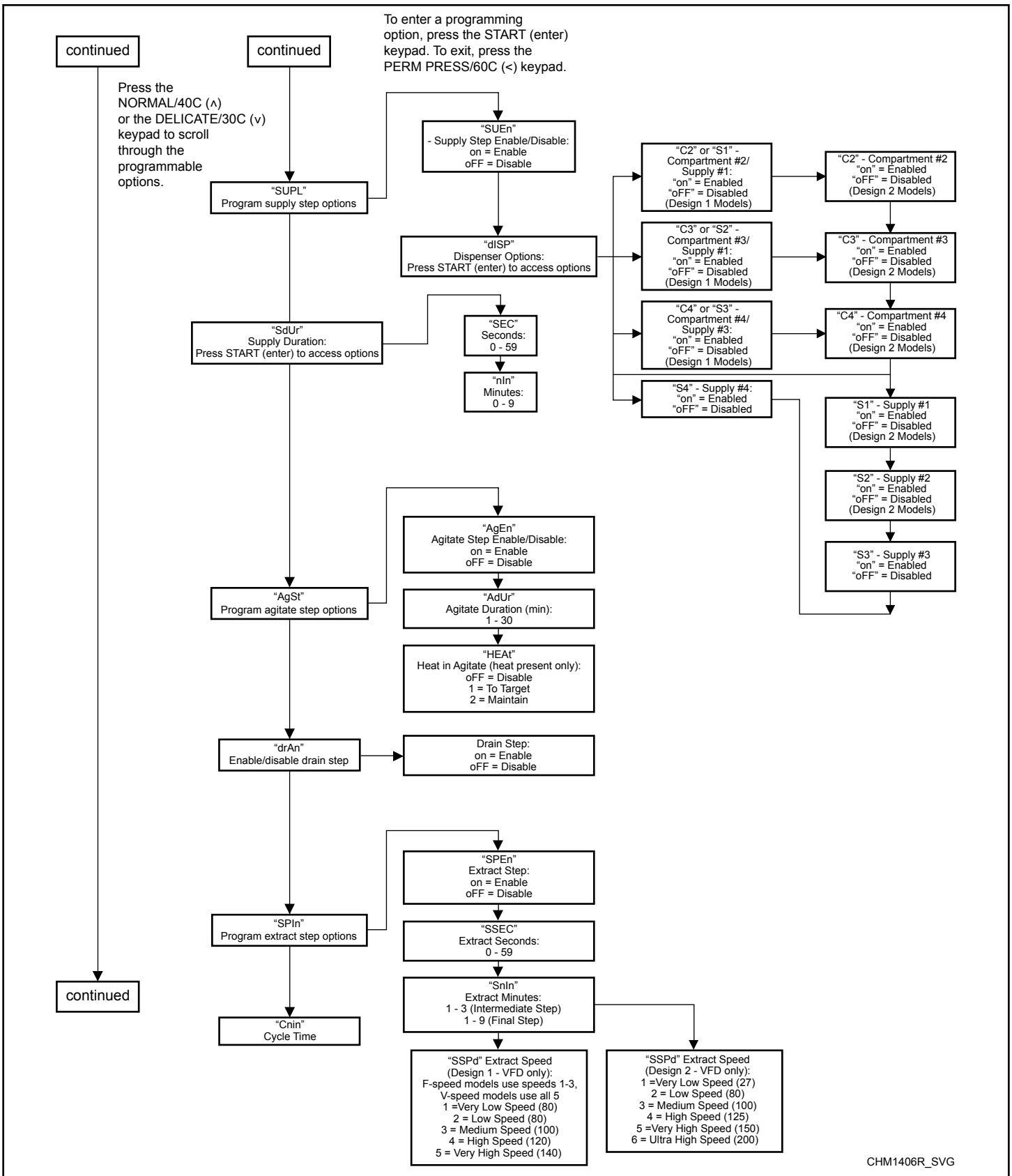


Figure 4



CHM1406R\_SVG

Figure 5

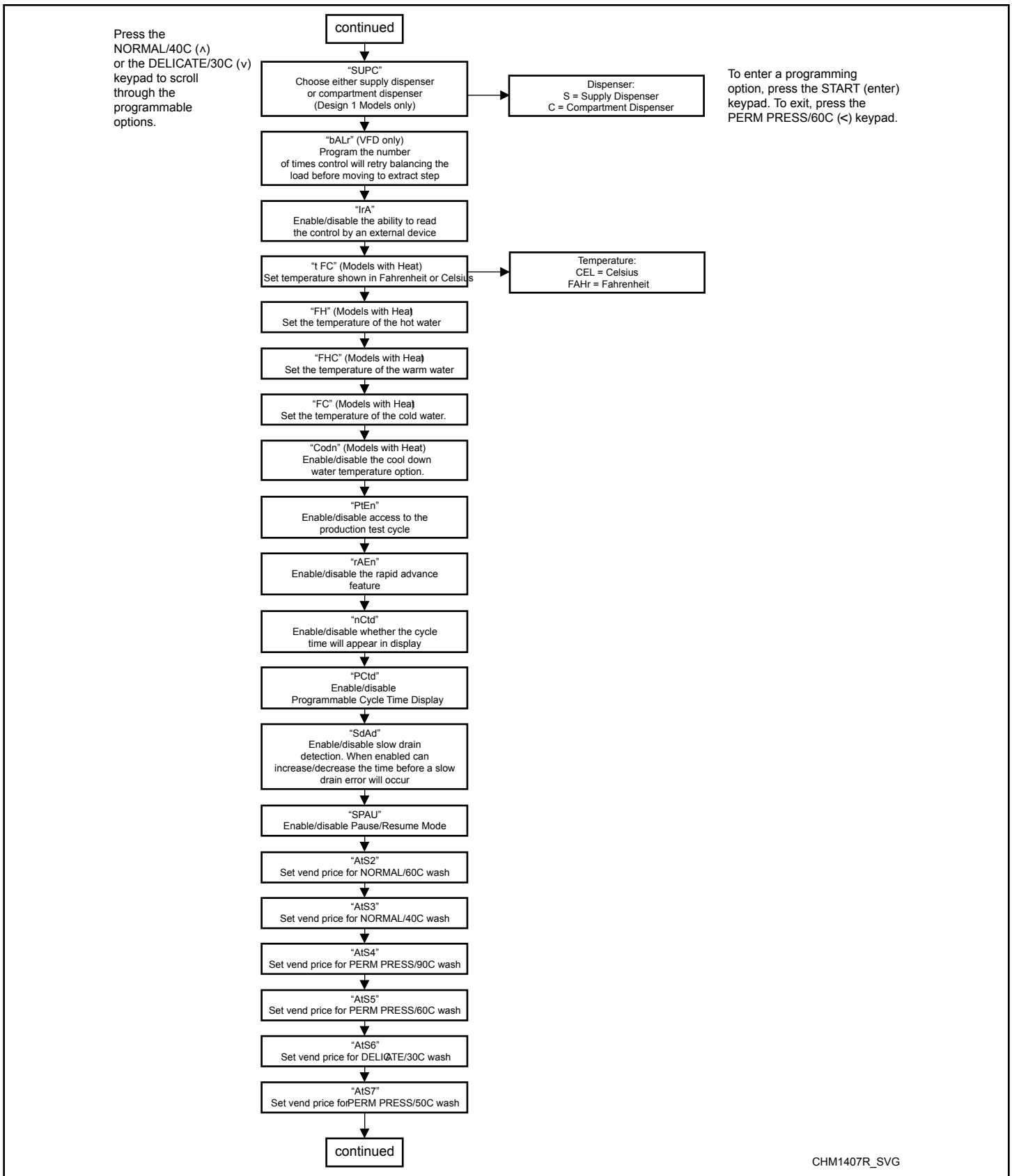


Figure 6

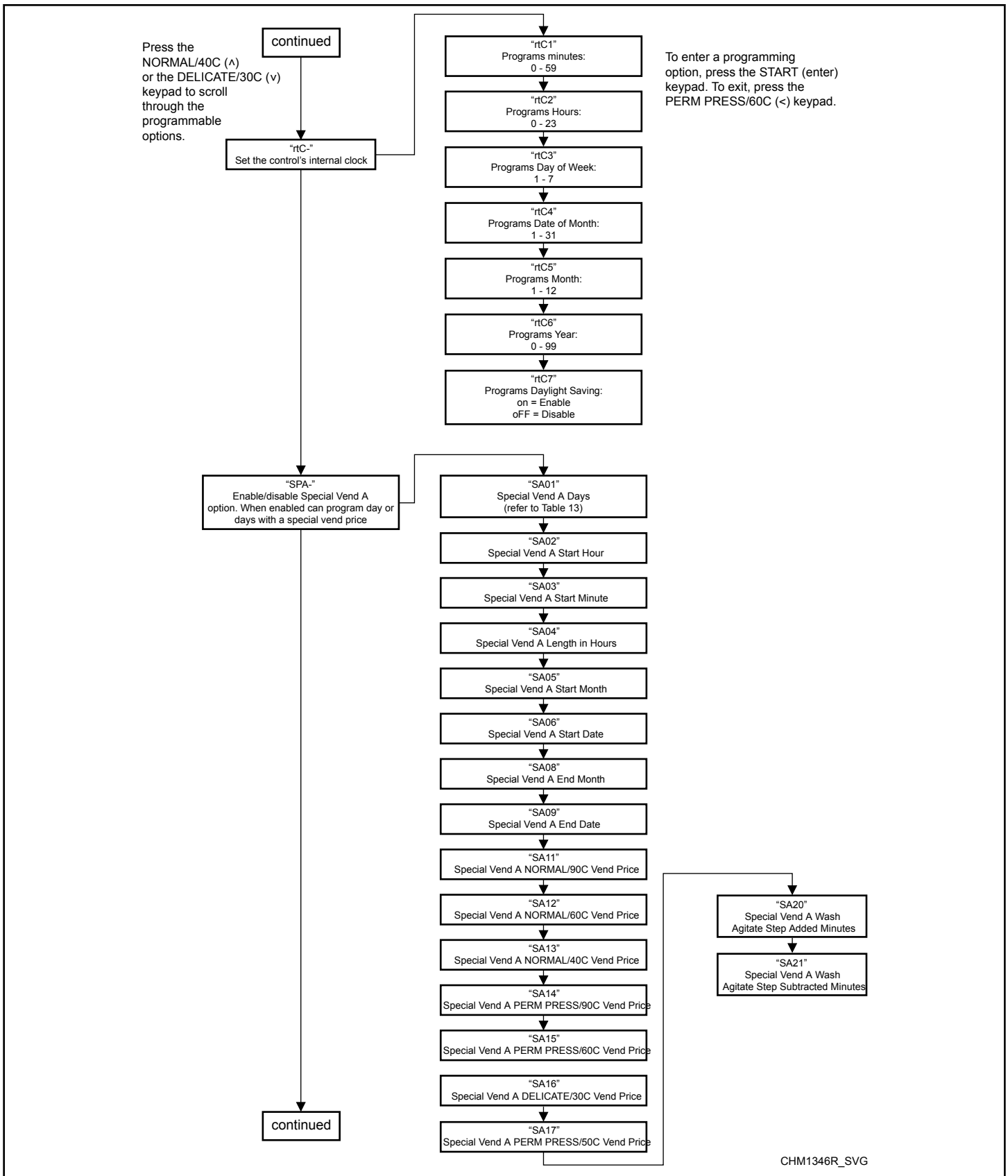


Figure 7



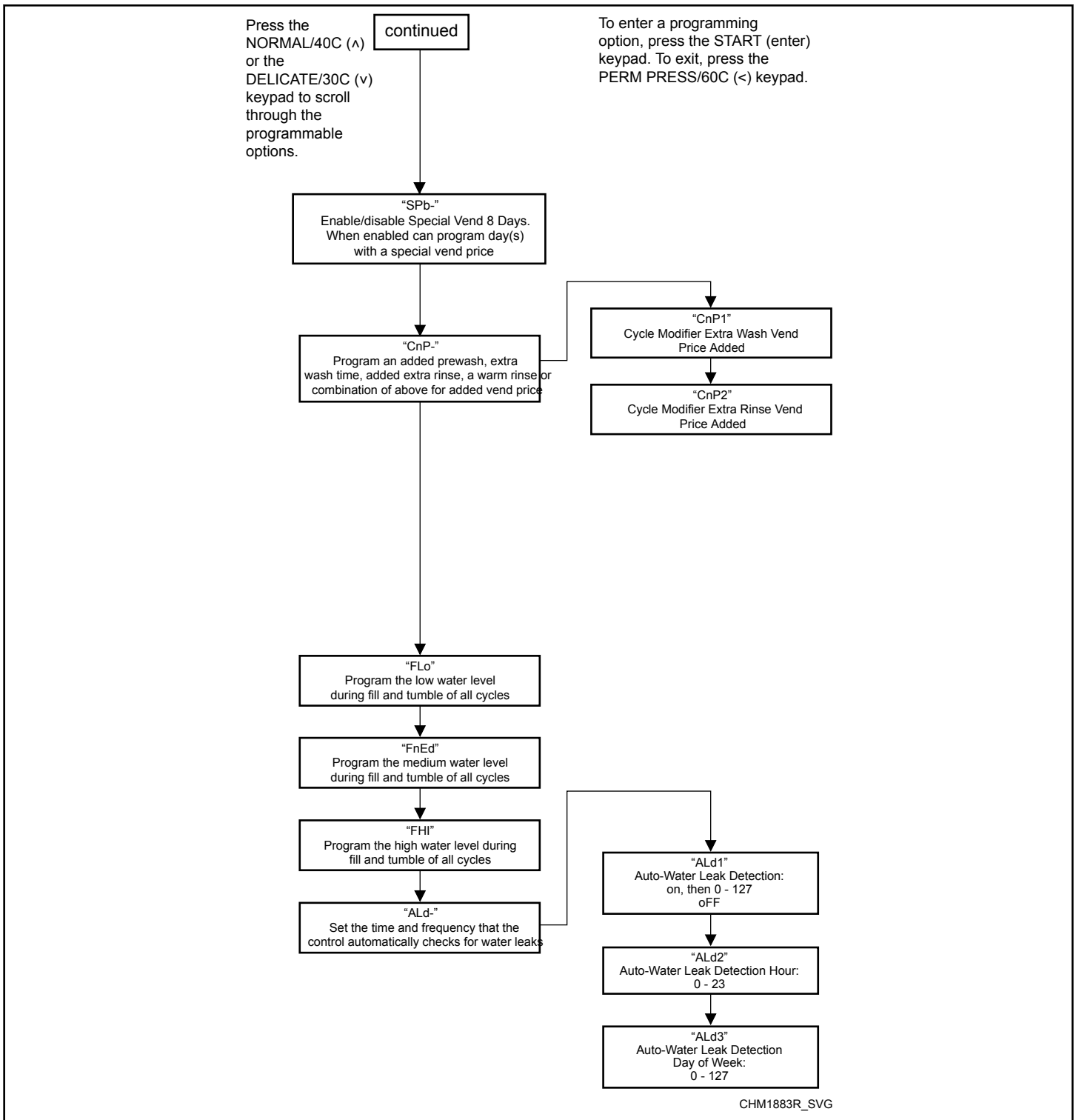


Figure 8

## Diagnostics

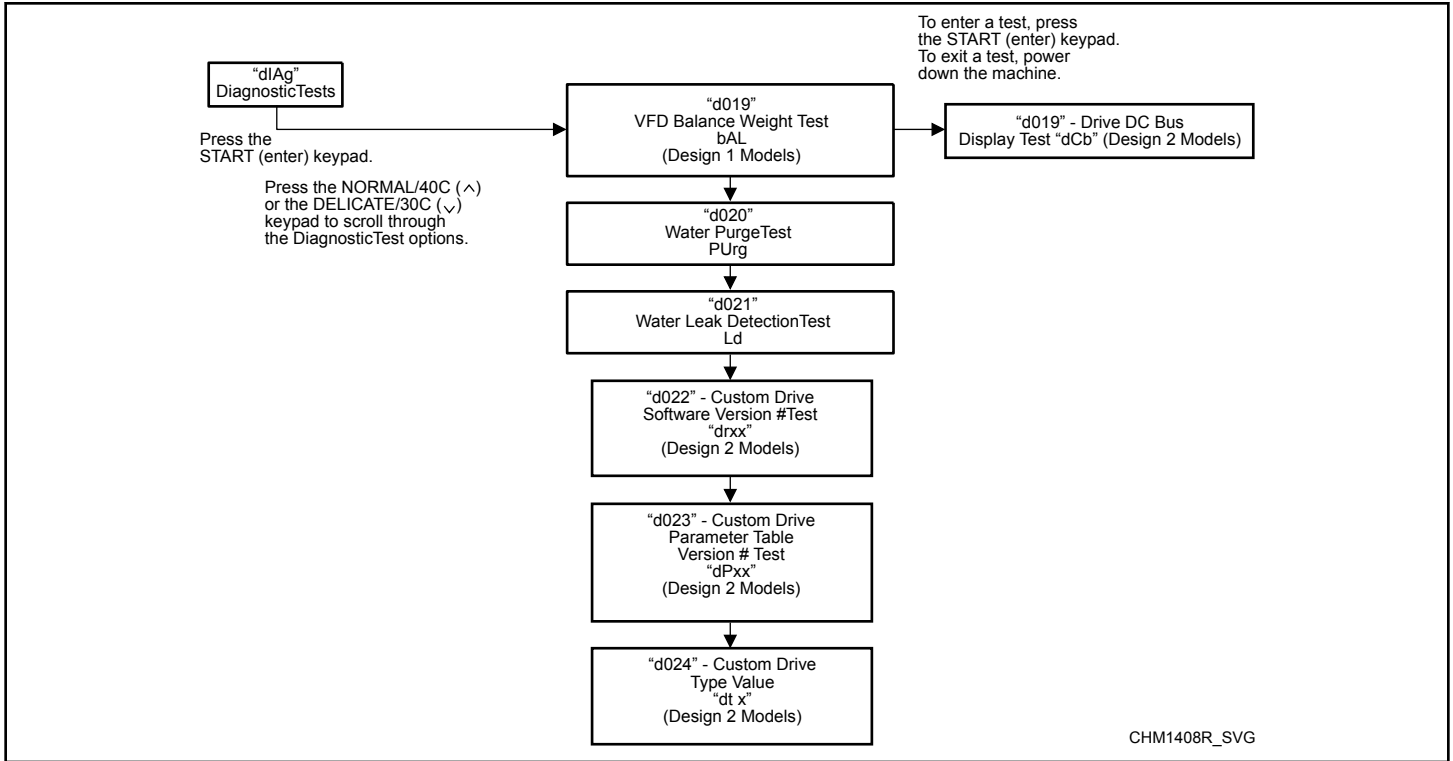


Figure 9

## NORMAL/ 90C Vend Price *RE5 I*

This option allows the owner to set the vend price for a NORMAL/ 90C wash. This vend price will be shown in the display when NORMAL/ 90C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad.
3. *RE5 I* will appear in the display. Press the START (enter) keypad. The NORMAL/ 90C LED will be lit to show which cycle/temperature price is being programmed.
4. There are five (5) digits in NORMAL/ 90C Vend Price. The fifth digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 10*.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 10

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *dEn I*, will appear in the display.
 

**NOTE: To program *dEn I* (Coin #1 Value), refer to *Coin #1 Value dEn1*. To program other options, refer to the appropriate section.**

## Coin #1 Value *dEn1*

This option allows the owner to set a specific numerical value for a coin entered. For example, in the United States the coin value for one quarter would be measured in cents (25). Therefore, the coin value entered for one quarter would be **00025**.

If the *NORMAL/ 90C Vend Price AtS1* is set for **.75**, and the Coin Value is set for **00025**, the vend price displayed will decrease by **.25** for each coin entered.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad until **Prog** appears in the display. Press the *START (enter)* keypad and **Alt 5 1** will appear in the display.
3. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad to scroll through the programmable options until **dEn1** appears in the display.
4. When **dEn1** appears in the display, press the *START (enter)* keypad. There are five (5) digits in the Coin #1 Value. The fifth (5) digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 11*.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 11

5. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The coin value can be set from 1 to 65,535. The default coin value is 25.**
6. Press the *START (enter)* keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the *PERM PRESS/ 60C (<)* keypad.**
7. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad to increase or decrease the value of the active digit and the *START (enter)* keypad to enter the value of the digit and advance to the next digit.
8. Press the *START (enter)* keypad with the last active digit. The next option, **dEn2**, will appear in the display.

**NOTE: To program *dEn2* (Coin #2 Value), refer to *Coin #2 Value dEn2*. To program other options, refer to the appropriate section.**

## Coin #2 Value *dEn2*

This option allows the owner to set a specific numerical value for a coin entered when using the dual coin drop. For example, the coin value for a dollar coin would be measured in cents (100). Therefore, the coin value entered for one dollar coin would be **00 100**.

If the *NORMAL/ 90C Vend Price AtS1* is set for **200**, and the Coin Value is set for **00 100**, the vend price displayed will decrease by 1.00 for each dollar coin entered.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad until *Prog* appears in the display. Press the *START (enter)* keypad and *Alt 1* will appear in the display.
3. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad to scroll through the programmable options until *dEn2* appears in the display.
4. When *dEn2* appears in the display, press the *START (enter)* keypad. There are five (5) digits in the Coin #2 Value. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to *Figure 12*.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 12

5. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad to increase or decrease the value of the fifth (5) digit.

**NOTE: The coin value can be set from 1 to 65,535. The default coin value is 100.**

6. Press the *START (enter)* keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the *PERM PRESS/ 60C (<)* keypad.**

7. Press the *NORMAL/ 40C (Λ)* or the *DELICATE/ 30C (v)* keypad to increase or decrease the value of the active digit and the *START (enter)* keypad to enter the value of the digit and advance to the next digit.
8. Press the *START (enter)* keypad with the last active digit. The next option, *PLSE*, will appear in the display.

**NOTE: To program *PLSE* (Start Pulse Value), refer to *Start Pulse Value PLSE*. To program other options, refer to the appropriate section.**

## Start Pulse Value *PL5E*

This option allows the owner to program the value of the Start Pulse if used for multiple pulses with an after-market central card reader or pay system. Refer to *Start Pulse Mode PLSn* for additional information.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *PL5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *PL5E* appears in the display.
4. When *PL5E* appears in the display, press the START (enter) keypad. There are five (5) digits in the Start Pulse Value. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to *Figure 13*.

**NOTE: If the Start Pulse Value is \$100.00 or more, the fifth digit is 1-5. If the Start Pulse Value is \$99.99 or less, the fifth digit is 0.**



Figure 13

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The Start Pulse Value can be set from 1 to 65,535. The default Start Pulse Value value is 25.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *PL5n*, will appear in the display.
 

**NOTE: To program *PL5n* (Start Pulse Mode), refer to *Start Pulse Mode PLSn*. To program other options, refer to the appropriate section.**

## Start Pulse Mode *PL5n*

This option allows the owner to program the Start Pulse Input. The Start Pulse Mode can be used for after-market central pay or card systems. The central system sends the start pulse to the Start Pulse Input of the control to start the cycle. If set for single pulse, one (1) start pulse from the central system will start the cycle. If set for multiple pulses, each pulse will deduct from the vend price value set up in *Start Pulse Value PLSE* until the vend is satisfied.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *PL5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *PL5n* appears in the display.
4. When *PL5n* appears in the display, press the START (enter) keypad. *OFF* or a number will appear in the display. This number corresponds to the current Start Pulse Mode Programming Value.
5. Locate the desired number in the first column of *Table 2* below.

<i>PL5n</i>		
Start Pulse Mode Value	Start Pulse ON/OFF	Single Pulse/ Multiple Pulses
<i>OFF</i>	OFF	OFF
128*	ON	Single Pulse
192	ON	Multiple Pulses
*Factory Default Setting		

Table 2

6. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the current number until correct.

**NOTE: To go back to the current programmable option without changing the current value, press the PERM PRESS/ 60C (<) keypad.**

7. Press the START (enter) keypad when the correct number appears in the display.

**NOTE: To program *ALYP* (Available Type), refer to *Available Type AtyP*. To program other options, refer to the appropriate section.**

## Available Type *AEYP*

This option allows the owner to program when the control provides an available output for card and central pay systems.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *AE 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *AEYP* appears in the display.
4. When *AEYP* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current Available Type Value.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the current number to the desired number selected from *Table 3*.

Available Type Value	Mode(s) in Which Available Signal is Active
0*	Ready Mode only
1	Ready Mode, Partial Vend Mode
2	Ready Mode, End of Cycle Mode
3	Ready Mode, End of Cycle Mode, Partial Vend Mode
*Factory default setting	

Table 3

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *dEPC*, will appear in the display.

**NOTE: To program *dEPC* (Default Cycle), refer to *Default Cycle dCYC*. To program other options, refer to the appropriate section.**



## Default Cycle $dCPL$

This option allows the owner to set the default cycle and temperature the machine will enter when in the Ready Mode. When programming the default cycle, refer to *Table 4*.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until **PrOG** appears in the display. Press the START (enter) keypad and **RL51** will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until **dCPL** appears in the display.
4. When **dCPL** appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current default cycle value. *Table 4*.
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the current number to the desired number. *Table 4*.
6. Press the START (enter) keypad when the correct number appears in the display. The next option, **oPL**, will appear in the display.

**NOTE: To program oPL (OPL Mode), refer to OPL Mode Enable/Disable oPL. To program other options, refer to the appropriate section.**

### How to Read Default Cycle Chart

To determine the correct number required to program Default Cycle, use the following table. The Default Value column contains the number required in step 5. The other columns correspond to cycle type and wash temperature.

Default Cycle ( $dCPL$ ) Chart		
Default Value	Cycle Type	Wash Temperature
1	Hot	90C
2	Warm	60C
3	Cold	40C
4	Perm Press	90C
5*	Perm Press	60C
6	Delicate	30C
7	Perm Press	50C
*Factory default setting		

Table 4

## OPL Mode Enable/Disable **oPL**

This option allows the owner to enable or disable the OPL Mode in which no vend price needs to be satisfied to operate the machine.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until **Pr o g** appears in the display. Press the START (enter) keypad and **Rt 5 1** will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until **oPL** appears in the display.
4. When **oPL** appears in the display, press the START (enter) keypad. The current OPL Mode Enable/Disable status will appear in the display.

**o n** = Option Enabled

**o FF** = Option Disabled (Default Setting)

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, **AUd**, will appear in the display.

**NOTE: To program **AUd** (Audio Signal), refer to *Audio Signal AUd*. To program other options, refer to the appropriate section.**

## Audio Signal *AUD*

This option allows the owner to program when the signal will sound.

The occasions when a signal may sound during operation are listed below:

- **End of Cycle Signal** - By default, the signal is turned off. If turned on, the signal will sound for three (3) seconds at the end of a cycle.
- **Keypad Depression Signal** - By default, this signal is turned on and will sound for a quarter of a second. This signal will sound each time a keypad is pressed.
- **Coin Input/Card Insertion Signal** - By default, this signal is turned on and will sound for a quarter of a second each time a coin or card is entered.
- **Remove Card Signal (Card Models Only)** - By default, this signal is turned on and will sound one (1) second on and one (1) second off when the control is prompting for card removal.
- **Signal for Start** - By default, this signal is turned on and will sound one (1) second on and one (1) second off for 10 seconds after vend price has been satisfied.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *AL51* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *AUD* appears in the display.

4. When *AUD* appears in the display press the START (enter) keypad. A number will appear in the display. This number corresponds to the current Audio Signal Programming Value.
5. Locate the desired number in the first column of *Table 5*.
6. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the current number until correct.

**For Example:** A user might wish to have the signal sound only when a keypad is pressed. Entering the number 1 in step 5 would turn off all the options except KEYPAD. In this instance, the signal would sound only when a keypad is pressed.

7. Press the START (enter) keypad when the correct number appears in the display. The next option, *CRd*, will appear in the display.

**NOTE:** To program *CRd* (Card Reader Display Control), refer to *Card Reader Display Control Card*. To program other options, refer to the appropriate section.

### How to Read Audio Signal Chart

To determine the correct number required to program the Audio Signal, use the following chart. The Signal Value column contains the number required in step 6. The other columns correspond to individual options.

Each column of options contains a unique combination of the words ON and OFF that indicates if that column's option is turned on or off when the Signal Value is entered. Select the desired combination of options and enter the number found in the Signal Value column.

Audio Signal ( <i>AUD</i> ) Chart					
Signal Value	Start Mode	Remove Card	Coin/Card Input	End of Cycle	Key Pressed
0	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	ON	ON
4	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	ON	OFF	ON
6	OFF	OFF	ON	ON	OFF
7	OFF	OFF	ON	ON	ON
8	OFF	ON	OFF	OFF	OFF

Table 5 continues...

<b>Audio Signal (AUD) Chart</b>					
<b>Signal Value</b>	<b>Start Mode</b>	<b>Remove Card</b>	<b>Coin/Card Input</b>	<b>End of Cycle</b>	<b>Key Pressed</b>
9	OFF	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON	OFF
11	OFF	ON	OFF	ON	ON
12	OFF	ON	ON	OFF	OFF
13	OFF	ON	ON	OFF	ON
14	OFF	ON	ON	ON	OFF
15	OFF	ON	ON	ON	ON
16	ON	OFF	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON
18	ON	OFF	OFF	ON	OFF
19	ON	OFF	OFF	ON	ON
20	ON	OFF	ON	OFF	OFF
21	ON	OFF	ON	OFF	ON
22	ON	OFF	ON	ON	OFF
23	ON	OFF	ON	ON	ON
24	ON	ON	OFF	OFF	OFF
25	ON	ON	OFF	OFF	ON
26	ON	ON	OFF	ON	OFF
27	ON	ON	OFF	ON	ON
28	ON	ON	ON	OFF	OFF
29*	ON	ON	ON	OFF	ON
30	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON

\*Factory default setting

Table 5

## Card Reader Display Control *CRd*

This option allows the owner to program whether the display is controlled by the machine's electronic control or by the card reader.

**NOTE: This feature does not need to be programmed manually. The card reader itself makes this determination.**

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *CRd* appears in the display.
4. When *CRd* appears in the display, press the START (enter) keypad. The current Card Reader Display Control Status will appear in the display.

*on* = Card Reader controls display

*oFF* = Machine Electronic Control controls display (default setting)

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *Err-*, will appear in the display.

**NOTE: To program *Err-* (Error Code Programming), refer to *Error Code Programming Err-*. To program other options, refer to the appropriate section.**

## Error Code Programming *E r r -*

This option allows the owner to turn on or turn off certain errors in the control.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *E r r -* appears in the display.
4. When *E r r -* appears in the display, press the START (enter) keypad. Refer to *Table 6* for a list of programmable error code parameters.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to select error code.
6. Press the START (enter) keypad when the correct code appears in the display. The current status will appear in the display.

*o n* = Option Enabled

*o F F* = Option Disabled

7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the status.
8. Press the START (enter) keypad when the correct status appears in the display. The next Error Code Programming option will appear in the display.

**NOTE: To program *LC- (Cycle Programming)*, press the PERM PRESS/ 60C (<) keypad, then the NORMAL/ 40C (Λ) keypad and refer to *Cycle Programming CyC-*. To program other options, refer to the appropriate section.**

<i>LCr-</i>	Coin Error Parameters	
	<i>LCr 1</i>	Coin Error - Determines if display will show error.
	<i>LCr 2</i>	Coin Error Penalty - If enabled, coin error will erase previous coins entered and reset the vend price.
	<i>LCr 3</i>	Coin Drops Header Present Error - If enabled and coin drop header is unplugged, control ignores coin inputs.

Table 6 *continues...*

<i>LCr-</i>	Coin Error Parameters	
<i>E FL</i>	Fill Error	
<i>E dr</i>	Drain Error	
<i>E Ub</i>	Unbalance Error Display (VFD models only)	
<i>E oP</i>	Open Thermistor Error Display	
<i>E SH</i>	Shorted Thermistor Error Display	
<i>E Ht</i>	Heat Error Display (heater only)	
<i>LEr-</i>	<b>Leak Detection Error</b> If Water Leak Detection during a machine cycle is enabled, then, on the enabled day(s) of the week, the control will check for water leaks during running machine cycles. If a leak is detected, the control will display the <i>E Ld</i> error for one (1) minute after the cycle is completed. It will also light the right-most decimal point on the display. The Water Leak Detection diagnostic test can be used to verify the leak.	
	<i>LEr 1</i>	Water Leak Detection During a Machine Cycle –Determines if water level drops below target level.
	<i>LEr 2</i>	Water Leak Detection During a Machine Cycle– Day of Week Enable (Refer to <i>Table 7</i> ).
	<i>LEr 3</i>	Number of cycles between Leak Detection Tests.
<i>E 5d</i>	<b>Slow Drain Detection – Determines if machine is draining slower than normal.</b> If Slow Drain Detection is enabled, the control will check for slow drain operation during running machine cycles. If a slow drain is detected, the control will display the <i>E 5d</i> error for one (1) minute after the cycle is completed. It will also light the right-most decimal point on the display.	

Table 6

<b>Day(s) of the Week Enabled Values</b>							
<b>Day Of Week Value</b>	<b>SAT</b>	<b>FRI</b>	<b>THUR</b>	<b>WED</b>	<b>TUE</b>	<b>MON</b>	<b>SUN</b>
0	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	OFF	OFF	ON	OFF	ON
6	OFF	OFF	OFF	OFF	ON	ON	OFF
7	OFF	OFF	OFF	OFF	ON	ON	ON
8	OFF	OFF	OFF	ON	OFF	OFF	OFF
9	OFF	OFF	OFF	ON	OFF	OFF	ON
10	OFF	OFF	OFF	ON	OFF	ON	OFF
11	OFF	OFF	OFF	ON	OFF	ON	ON
12	OFF	OFF	OFF	ON	ON	OFF	OFF
13	OFF	OFF	OFF	ON	ON	OFF	ON
14	OFF	OFF	OFF	ON	ON	ON	OFF
15	OFF	OFF	OFF	ON	ON	ON	ON
16	OFF	OFF	ON	OFF	OFF	OFF	OFF
17	OFF	OFF	ON	OFF	OFF	OFF	ON
18	OFF	OFF	ON	OFF	OFF	ON	OFF
19	OFF	OFF	ON	OFF	OFF	ON	ON
20	OFF	OFF	ON	OFF	ON	OFF	OFF
21	OFF	OFF	ON	OFF	ON	OFF	ON
22	OFF	OFF	ON	OFF	ON	ON	OFF
23	OFF	OFF	ON	OFF	ON	ON	ON
24	OFF	OFF	ON	ON	OFF	OFF	OFF
25	OFF	OFF	ON	ON	OFF	OFF	ON
26	OFF	OFF	ON	ON	OFF	ON	OFF
27	OFF	OFF	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON	OFF	OFF
29	OFF	OFF	ON	ON	ON	OFF	ON
30	OFF	OFF	ON	ON	ON	ON	OFF

Table 7 continues...

<b>Day(s) of the Week Enabled Values</b>							
<b>Day Of Week Value</b>	<b>SAT</b>	<b>FRI</b>	<b>THUR</b>	<b>WED</b>	<b>TUE</b>	<b>MON</b>	<b>SUN</b>
31	OFF	OFF	ON	ON	ON	ON	ON
32	OFF	ON	OFF	OFF	OFF	OFF	OFF
33	OFF	ON	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	ON	OFF
35	OFF	ON	OFF	OFF	OFF	ON	ON
36	OFF	ON	OFF	OFF	ON	OFF	OFF
37	OFF	ON	OFF	OFF	ON	OFF	ON
38	OFF	ON	OFF	OFF	ON	ON	OFF
39	OFF	ON	OFF	OFF	ON	ON	ON
40	OFF	ON	OFF	ON	OFF	OFF	OFF
41	OFF	ON	OFF	ON	OFF	OFF	ON
42	OFF	ON	OFF	ON	OFF	ON	OFF
43	OFF	ON	OFF	ON	OFF	ON	ON
44	OFF	ON	OFF	ON	ON	OFF	OFF
45	OFF	ON	OFF	ON	ON	OFF	ON
46	OFF	ON	OFF	ON	ON	ON	OFF
47	OFF	ON	OFF	ON	ON	ON	ON
48	OFF	ON	ON	OFF	OFF	OFF	OFF
49	OFF	ON	ON	OFF	OFF	OFF	ON
50	OFF	ON	ON	OFF	OFF	ON	OFF
51	OFF	ON	ON	OFF	OFF	ON	ON
52	OFF	ON	ON	OFF	ON	OFF	OFF
53	OFF	ON	ON	OFF	ON	OFF	ON
54	OFF	ON	ON	OFF	ON	ON	OFF
55	OFF	ON	ON	OFF	ON	ON	ON
56	OFF	ON	ON	ON	OFF	OFF	OFF
57	OFF	ON	ON	ON	OFF	OFF	ON
58	OFF	ON	ON	ON	OFF	ON	OFF
59	OFF	ON	ON	ON	OFF	ON	ON
60	OFF	ON	ON	ON	ON	OFF	OFF
61	OFF	ON	ON	ON	ON	OFF	ON

Table 7 continues...



<b>Day(s) of the Week Enabled Values</b>							
<b>Day Of Week Value</b>	<b>SAT</b>	<b>FRI</b>	<b>THUR</b>	<b>WED</b>	<b>TUE</b>	<b>MON</b>	<b>SUN</b>
62	OFF	ON	ON	ON	ON	ON	OFF
63	OFF	ON	ON	ON	ON	ON	ON
64	ON	OFF	OFF	OFF	OFF	OFF	OFF
65	ON	OFF	OFF	OFF	OFF	OFF	ON
66	ON	OFF	OFF	OFF	OFF	ON	OFF
67	ON	OFF	OFF	OFF	OFF	ON	ON
68	ON	OFF	OFF	OFF	ON	OFF	OFF
69	ON	OFF	OFF	OFF	ON	OFF	ON
70	ON	OFF	OFF	OFF	ON	ON	OFF
71	ON	OFF	OFF	OFF	ON	ON	ON
72	ON	OFF	OFF	ON	OFF	OFF	OFF
73	ON	OFF	OFF	ON	OFF	OFF	ON
74	ON	OFF	OFF	ON	OFF	ON	OFF
75	ON	OFF	OFF	ON	OFF	ON	ON
76	ON	OFF	OFF	ON	ON	OFF	OFF
77	ON	OFF	OFF	ON	ON	OFF	ON
78	ON	OFF	OFF	ON	ON	ON	OFF
79	ON	OFF	OFF	ON	ON	ON	ON
80	ON	OFF	ON	OFF	OFF	OFF	OFF
81	ON	OFF	ON	OFF	OFF	OFF	ON
82	ON	OFF	ON	OFF	OFF	ON	OFF
83	ON	OFF	ON	OFF	OFF	ON	ON
84	ON	OFF	ON	OFF	ON	OFF	OFF
85	ON	OFF	ON	OFF	ON	OFF	ON
86	ON	OFF	ON	OFF	ON	ON	OFF
87	ON	OFF	ON	OFF	ON	ON	ON
88	ON	OFF	ON	ON	OFF	OFF	OFF
89	ON	OFF	ON	ON	OFF	OFF	ON
90	ON	OFF	ON	ON	OFF	ON	OFF
91	ON	OFF	ON	ON	OFF	ON	ON
92	ON	OFF	ON	ON	ON	OFF	OFF

Table 7 continues...

Day(s) of the Week Enabled Values							
Day Of Week Value	SAT	FRI	THUR	WED	TUE	MON	SUN
93	ON	OFF	ON	ON	ON	OFF	ON
94	ON	OFF	ON	ON	ON	ON	OFF
95	ON	OFF	ON	ON	ON	ON	ON
96	ON	ON	OFF	OFF	OFF	OFF	OFF
97	ON	ON	OFF	OFF	OFF	OFF	ON
98	ON	ON	OFF	OFF	OFF	ON	OFF
99	ON	ON	OFF	OFF	OFF	ON	ON
100	ON	ON	OFF	OFF	ON	OFF	OFF
101	ON	ON	OFF	OFF	ON	OFF	ON
102	ON	ON	OFF	OFF	ON	ON	OFF
103	ON	ON	OFF	OFF	ON	ON	ON
104	ON	ON	OFF	ON	OFF	OFF	OFF
105	ON	ON	OFF	ON	OFF	OFF	ON
106	ON	ON	OFF	ON	OFF	ON	OFF
107	ON	ON	OFF	ON	OFF	ON	ON
108	ON	ON	OFF	ON	ON	OFF	OFF
109	ON	ON	OFF	ON	ON	OFF	ON
110	ON	ON	OFF	ON	ON	ON	OFF
111	ON	ON	OFF	ON	ON	ON	ON
112	ON	ON	ON	OFF	OFF	OFF	OFF
113	ON	ON	ON	OFF	OFF	OFF	ON
114	ON	ON	ON	OFF	OFF	ON	OFF
115	ON	ON	ON	OFF	OFF	ON	ON
116	ON	ON	ON	OFF	ON	OFF	OFF
117	ON	ON	ON	OFF	ON	OFF	ON
118	ON	ON	ON	OFF	ON	ON	OFF
119	ON	ON	ON	OFF	ON	ON	ON
120	ON	ON	ON	ON	OFF	OFF	OFF
121	ON	ON	ON	ON	OFF	OFF	ON
122	ON	ON	ON	ON	OFF	ON	OFF
123	ON	ON	ON	ON	OFF	ON	ON

Table 7 continues...

Day(s) of the Week Enabled Values							
Day Of Week Value	SAT	FRI	THUR	WED	TUE	MON	SUN
124	ON	ON	ON	ON	ON	OFF	OFF
125	ON	ON	ON	ON	ON	OFF	ON
126	ON	ON	ON	ON	ON	ON	OFF
127*	ON	ON	ON	ON	ON	ON	ON
*Factory default setting							

Table 7

## Cycle Programming *CYC* -

This option allows the owner to program different aspects for various steps in each type of cycle. There are six (6) cycles available for programming.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *CYC* - appears in the display. Press the START (enter) keypad and *CYC 1* will appear in the display.
4. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the cycles to program. Press the START (enter) keypad when the desired cycle appears in the display.
5. The first Cycle Programming option, *AGI 1*, will appear in the display.

**NOTE: To program *AGI 1* (Cycle Agitate), continue to next option. To program other options, press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypads and refer to the appropriate section.**

### How to Program Cycle Agitate *AGI 1*

This option allows the owner to program the cycle's agitation action and speed. These options apply to the entire cycle.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Cycle Programming options until *AGI 1* appears in the display.
2. When *AGI 1* appears in the display, press the START (enter) keypad. The first Cycle Agitate option will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options. Refer to *Table 8*.
4. Press the START (enter) keypad when the desired programmable option appears in the display. The current status will appear in the display. Refer to *Table 8*.

Final Spin Step	Description	Status
<i>TYPE</i>	Agitate Type	1 = Normal 2 = Gentle

Table 8 continues...

Final Spin Step	Description	Status
<i>RSPd</i>	Agitate Speed (VFD only)	<i>L0</i> = Reduced Speed <i>rE9</i> = Normal Speed

Table 8

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next Cycle Agitate option will appear in the display.

**NOTE: To program *SE9 1* (Cycle Segment 1) press the PERM PRESS/ 60C (<) keypad and continue to next Cycle Programming option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Cycle Segment *SE9 1*

There are eight (8) programmable cycle segments. Within each segment, there are several programmable options.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the eight (8) programmable Cycle Segments until the desired segment appears in the display.
2. When the desired segment appears in the display, press the START (enter) keypad. *SE9n* (Segment Enable/Disable) will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the Cycle Segment programmable options.

**NOTE: If the Segment Enable/Disable is programmed *OFF*, the other Cycle Segment programming options can't be accessed.**

4. Press the START (enter) keypad when the desired Cycle Segment programmable option appears in the display.

### Programming Segment Enable/Disable

1. When *SE9n* appears in the display, press the START (enter) keypad. The current Segment Enable/Disable status will appear in the display.

*ON* = Option Enabled

*OFF* = Option Disabled

2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.

**NOTE: If the Segment Enable/Disable is programmed *OFF*, the other Cycle Segment programming options can't be accessed.**

3. Press the START (enter) keypad when the desired status appears in the display. The next Cycle Segment option, *FILL*, will appear in the display.

**NOTE: To program *FILL* (Fill Step), continue to next Cycle Segment option. To program other options, press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypads and refer to the appropriate section.**

*Programming Fill Step*

1. When *FILL* appears in the display, press the START (enter) keypad. The first Fill step programming option will appear in the display.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Fill step options. Refer to *Table 9*.

**NOTE: Fill Step *FLEN* must be enabled to scroll through all Fill Step options.**

3. Press the START (enter) keypad when the desired option appears in the display. The current status will appear in the display. Refer to *Table 9*.

Fill Step	Description	Status
<i>FLEN</i>	Fill Step Enable/ Disable	<i>on/off</i>
<i>FLEU</i>	Fill Level	<i>HI</i> = High <i>nEd</i> = Medium <i>Lo</i> = Low
<i>LENP</i>	Fill Temperature	<i>Cold</i> = Cold <i>URrn</i> = Warm <i>Hot</i> = Hot

Table 9

4. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.
5. Press the START (enter) keypad when the desired status appears in the display. The next Fill step option will appear in the display.

**NOTE: To program *SUPL* (Supply Step), continue to next Cycle Segment option. To program other options, press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypads and refer to the appropriate section.**

*Programming Supply Step*

1. When *SUPL* appears in the display, press the START (enter) keypad. The first Supply step programming option will appear in the display.

2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Supply step options. Refer to *Table 10*.

**NOTE: Supply Step *SUEN* must be enabled to scroll through all Supply Step options.**

3. Press the START (enter) keypad when the desired option appears in the display. The current status value will appear in the display. Refer to *Table 10*.

**NOTE: For the Dispenser options, the display will show *CH* or *SH* depending whether or not the control is programmed as compartment-oriented or supply-oriented. Refer to *Supply Compartment Dispenser Programming SUPC (Design 1 Models Only)*.**

Supply Step	Description	Status/ Value	
<i>SUE<sub>n</sub></i>	Supply Step Enable/Disable	<i>on/off</i>	
<i>d,SP</i>	Dispenser options (Design 1 models only)	Press START (enter) to access options	
	<i>C2</i> or <i>S1</i>	Compartment 2/ Supply #1	<i>on/off</i>
	<i>C3</i> or <i>S2</i>	Compartment 3/ Supply #2	<i>on/off</i>
	<i>C4</i> or <i>S3</i>	Compartment 4/ Supply #3	<i>on/off</i>
	<i>S4</i>	Supply #4	<i>on/off</i>
	Dispenser options (Design 2 and 3 models only)	Press START (enter) to access options	
	<i>C2</i>	Compartment 2	<i>on/off</i>
	<i>C3</i>	Compartment 3	<i>on/off</i>
	<i>C4</i>	Compartment 4	<i>on/off</i>
	<i>S1</i>	Supply #1	<i>on/off</i>
	<i>S2</i>	Supply #2	<i>on/off</i>
	<i>S3</i>	Supply #3	<i>on/off</i>
	<i>S4</i>	Supply #4	<i>on/off</i>
	<i>SdUr</i>	Supply Duration	Press START (enter) to access options
<i>SEC</i>		Seconds	0-59
<i>nl n</i>		Minutes	0-9

Table 10

- Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status/value.
- Press the START (enter) keypad when the desired status/value appears in the display. The next Supply step option will appear in the display.

**NOTE: To program #95E (Agitate Step), continue to next Cycle Segment option. If in the Dispenser Options or Supply Duration programming option, press the PERM PRESS/ 60C (<) keypad first. To program other options, press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypads and refer to the appropriate section.**

**Programming Agitate Step**

- When #95E appears in the display, press the START (enter) keypad. The first Agitate step programming option will appear in the display.
- Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable Agitate step options. Refer to Table 11.

**NOTE: Agitate Step #9En must be enabled to scroll through all Agitate Step options.**

- Press the START (enter) keypad when the desired option appears in the display. The current status/value will appear in the display. Refer to Table 11.

Agitate Step	Description	Status/Value
<i>#9En</i>	Agitate Step Enable/Disable	<i>on/off</i>
<i>#dUr</i>	Agitate Duration (in minutes)	<i>1-30</i>
<i>HEAT</i>	Heat in Agitate (if heater is present)	<i>off</i> <i>1</i> = To target <i>2</i> = Maintain

Table 11

- Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status/value.
- Press the START (enter) keypad when the desired status/value appears in the display. The next Agitate step option will appear in the display.

**NOTE: To program #dRn (Drain Step), continue to next Cycle Segment option. To program other options, press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypads and refer to the appropriate section.**

**Programming Drain Step**

- When #dRn appears in the display, press the START (enter) keypad. The current status will be displayed.
- Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status.

*on* = Option Enabled

*off* = Option Disabled

**NOTE: Drain must be enabled to activate Extract step.**

- Press the START (enter) keypad when the desired status appears in the display. The next Cycle Segment option, *SPIn*, will appear in the display.

**NOTE: To program  $SPIn$  (Extract Step), continue to next Cycle Segment option. To program other options press the NORMAL/ 40C ( $\Lambda$ ) or the DELICATE/ 30C ( $\nu$ ) keypads and refer to the appropriate section.**

**Programming Extract Step**

1. When  $SPIn$  appears in the display, press the START (enter) keypad. The first Extract step programming option will appear in the display.
2. Press the NORMAL/ 40C ( $\Lambda$ ) or the DELICATE/ 30C ( $\nu$ ) keypad to scroll through the programmable Extract step options. Refer to *Table 12*.

**NOTE: Extract Step  $SPE_n$  must be enabled to scroll through all Extract Step options.**

3. Press the START (enter) keypad when the desired option appears in the display. The current status/value will appear in the display. Refer to *Table 12*.

Extract Step	Description	Status/Value
$SPE_n$	Extract Step Enable/Disable	$on/off$
$SSEC$	Extract Seconds	0-59
$SnIn$	Extract Minutes	<p><b>Intermediate Extract:</b></p> <p>Min. Step Time = 30 seconds</p> <p>Max. Step Time = 3:59 minutes</p> <p><b>Final Extract:</b></p> <p>Min. Step Time = 30 seconds</p> <p>Max. Step Time = 9:59 minutes</p>

Table 12 continues...

Extract Step	Description	Status/Value
$SSPd$	Extract Speed* (G) (Design 1-VFD only)	1 = Very low (80) 2 = Low (80) 3 = Medium (100) 4 = High (120) 5 = Very high (140)
	Extract Speed* (G) (Design 2 and 3-VFD only)	1 = Very low (27) 2 = Low (80) 3 = Medium (100) 4 = High (125) 5 = Very high (150) 6 = Ultra high (200)
*F-speed models use speeds 1-3.		

Table 12

4. Press the NORMAL/ 40C ( $\Lambda$ ) or the DELICATE/ 30C ( $\nu$ ) keypad to change the current status/value.
5. Press the START (enter) keypad when the desired status/value appears in the display. The next Cycle Segment step option,  $SPE_n$  will appear in the display.

**NOTE: To program  $LnIn$  (Cycle Time), continue to next Cycle Segment option. To program other options press the NORMAL/ 40C ( $\Lambda$ ) or the DELICATE/ 30C ( $\nu$ ) keypads and refer to the appropriate section.**

**How to Program Cycle Time  $LnIn$**

This option allows the owner to program minutes to the cycle's display time

1. Press the NORMAL/ 40C ( $\Lambda$ ) or the DELICATE/ 30C ( $\nu$ ) keypad to scroll through the programmable Cycle Programming options until  $LnIn$  appears in the display.

**NOTE: The option  $PLCd$  Programmable Cycle Time Display must be programmed  $on$  to access the  $LnIn$  option, refer to *Programmable Cycle Time Display PCtd*.**

2. When  $LnIn$  appears in the display, press the START (enter) keypad. The first cycle time value will appear in the display.
3. Press the NORMAL/ 40C ( $\Lambda$ ) or the DELICATE/ 30C ( $\nu$ ) keypad to change the current value.

**NOTE: The Program Cycle Time can be set from 0 to 255 minutes. The default value is 0.**

4. Press the START (enter) keypad when the desired cycle time value appears in the display.

**NOTE: Programming display time (in minutes) does not actually change time in the cycle, only to the displayed cycle time for the user.**

**NOTE: To program another cycle, repeat Cycle Programming steps. To program other options, press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) key-pads and refer to the appropriate section.**



## Supply Compartment Dispenser Programming *SUPC* (Design 1 Models Only)

This option allows the owner to choose between the supply dispenser or compartment dispenser.

**NOTE: Supply Dispenser must only be selected if machine is connected to an external chemical supply system.**

1. Control must be in Manual Mode. Refer to *Entering Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *RL5 I* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *SUPC* appears in the display.
4. When *SUPC* appears in the display, press the START (enter) keypad. The current dispenser option will appear in the display.

**5** = Supply Dispenser

**C** = Compartment Dispenser (default setting)

5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to change the dispenser type.
6. Press the START (enter) keypad when the desired dispenser type appears in the display. The next option, *bALr* (VFD models) or *IR* (2 speed models), will appear in the display.

**NOTE: For VFD models: To program *bALr* (Number of Balance Retries), refer to *Number of Balance Retries bALr*. For 2 speed models: To program *IR* (IR Access [Enable/Disable]), refer to *IR Access (Enable/Disable) IrA*. To program other options, refer to the appropriate section.**

## Number of Balance Retries *bALr*

This option allows the owner to program how many times the control will retry balancing the load before moving into Extract step.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *RL5 I* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *bALr* appears in the display.
4. When *bALr* appears in the display, press the START (enter) keypad. The current value will appear in the display.
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the current value.

**NOTE: The number of balance retries can be set from 1-7. The default balance retries is set at 3 for Design 1 models and 1 for Design 2 and 3 models.**

6. Press the START (enter) keypad when the desired value appears in the display. The next option, *IR*, will appear in the display.

**NOTE: To program *IR* (IR Access [Enable/Disable]), refer to *IR Access (Enable/Disable) IrA*. To program other options, refer to the appropriate section.**

## IR Access (Enable/Disable) *IR*

This option allows the owner to enable or disable allowing the control to be read by an external device.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *RL5 I* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *IR* appears in the display.
4. When *IR* appears in the display, press the START (enter) keypad. The current IR Access status will appear in the display.

**ON** = Option Enabled (default setting)

**OFF** = Option Disabled

5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *tFC* (models with heat) or *PtEn* (non-heat models), will appear in the display.

**NOTE: For Models with Heat: To program *tFC* (Fahrenheit/Celsius), refer to *Fahrenheit/Celsius tFC (Models with Heat)*. For Non-heat Models: To program *PtEn* (Production Test Cycle [Enable/Disable]), refer to *Production Test Cycle (Enable/Disable) PtEn*. To program other options, refer to the appropriate section.**

## Fahrenheit/Celsius $\pm$ $FL$ (Models with Heat)

This option allows the owner to set whether the display will be shown in Fahrenheit or Celsius.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until **Prog** appears in the display. Press the START (enter) keypad and **FL51** will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until  $\pm FL$  appears in the display.
4. When  $\pm FL$  appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current Fahrenheit/Celsius setting.

$CEL$  = Celsius

$FHR$  = Fahrenheit (default setting)


5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the current number to the desired number.
6. Press the START (enter) keypad when the correct number of degrees appears in the display. The new value is saved and the next option,  $FH$ , will appear in the display.

**NOTE: To program  $FH$  (Hot Water Temperature), refer to *Hot Water Temperature FH*. To program other options, refer to the appropriate section.**

## Hot Water Temperature *FH*

This option allows the owner to program the hot water temperature for models equipped with heat.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FL51* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *FH* appears in the display.
4. When *FH* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current Hot Water Temperature value.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the current Hot Water Temperature value to the desired Hot Water Temperature value.

	<b>WARNING</b>
<p><b>To prevent personal injury, avoid contact with inlet water temperatures higher than 125° Fahrenheit [51° Celsius] and hot surfaces.</b></p>	
W748	

**NOTE: Hot Water Temperature is selectable between 35° and 194° Fahrenheit [2° and 90° Celsius]. Default temperature is 140° Fahrenheit [60° Celsius].**


**NOTE: Refer to *Fahrenheit/Celsius t FC (Models with Heat)* to select Celsius or Fahrenheit display.**

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *FHC*, will appear in the display.

**NOTE: To program *FHC* (Warm Water Temperature), refer to *Warm Water Temperature FHC*. To program other options, refer to the appropriate section.**

4. When *FHC* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current Warm Water Temperature value.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the current Warm Water Temperature value to the desired Warm Water Temperature value.

**NOTE: Warm Water Temperature is selectable between 35° and 194° Fahrenheit [2° and 90° Celsius]. Default temperature is 100° Fahrenheit [38° Celsius].**

	<b>WARNING</b>
<p><b>To prevent personal injury, avoid contact with inlet water temperatures higher than 125° Fahrenheit [51° Celsius] and hot surfaces.</b></p>	
W748	

**NOTE: Refer to *Fahrenheit/Celsius t FC (Models with Heat)* to select Celsius or Fahrenheit display.**

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *FL*, will appear in the display.

**NOTE: To program *FL* (Cold Water Temperature), refer to *Cold Water Temperature FC*. To program other options, refer to the appropriate section.**

## Warm Water Temperature *FHC*

This option allows the owner to program the warm water temperature for models equipped with heat.


1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FL51* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *FHC* appears in the display.

## Cold Water Temperature *FL*

This option allows the owner to program the cold water temperature for models equipped with heat.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FL 51* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *FL* appears in the display.
4. When *FL* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current Cold Water Temperature value.
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the current Cold Water Temperature value to the desired Cold Water Temperature value.

**NOTE: Cold Water Temperature is selectable between 35° and 194° Fahrenheit [2° and 90° Celsius]. Default temperature value is 35° Fahrenheit [2° Celsius].**

	<b>WARNING</b>
<p>To prevent personal injury, avoid contact with inlet water temperatures higher than 125° Fahrenheit [51° Celsius] and hot surfaces.</p>	
W748	

**NOTE: Refer to *Fahrenheit/Celsius t FC (Models with Heat)* to select Celsius or Fahrenheit display.**

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *Codn*, will appear in the display.

**NOTE: To program *Codn* (Cooldown Enable/Temperature), refer to *Cooldown Enable/Temperature Codn (Models with Heat)*. To program other options, refer to the appropriate section.**

## Cooldown Enable/Temperature *Codn* (Models with Heat)

This option allows the owner to enable or disable the Cooldown Water Temperature option. If enabled, the owner can also set the cooldown water temperature.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FL 51* will appear in the display.

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *Codn* appears in the display.
4. When *Codn* appears in the display, press the START (enter) keypad. A number or *OFF* will appear in the display. The number corresponds to the current Cooldown Water Temperature value, and *OFF* appears when cool down is disabled.
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to change the current status.

**NOTE: Cooldown Water Temperature is selectable between 50° and 160° Fahrenheit [10° and 71° Celsius]. Default is temperature value *OFF*.**

6. Press the START (enter) keypad when the desired value appears in the display.

**NOTE: Refer to *Fahrenheit/Celsius t FC (Models with Heat)* to select Celsius or Fahrenheit display.**

7. Press the START (enter) keypad when the correct number appears in the display. The next option, *PtEn*, will appear in the display.

**NOTE: To program *PtEn* (Production Test Cycle [Enable/ Disable]), refer to *Production Test Cycle (Enable/ Disable) PtEn*. To program other options, refer to the appropriate section.**

## Production Test Cycle (Enable/Disable)

### *PtEn*

This option allows the owner to enable or disable access to the production test cycle. Refer to *Production Test Cycle* section for more information.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *PtEn* appears in the display.
4. When *PtEn* appears in the display, press the START (enter) keypad. The current Production Test Cycle status will appear in the display.

*on* = Option Enabled (default setting)

*off* = Option Disabled

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *rREN*, will appear in the display.

**NOTE: To program *rREN* (Manual Rapid Advance [Enable/ Disable]), refer to *Manual Rapid Advance (Enable/Disable) rREN*. To program other options, refer to the appropriate section.**

## Manual Rapid Advance (Enable/Disable) *rREN*

This option allows the owner to enable or disable the rapid advance feature. Refer to *Rapid Advance Feature* section for more information.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *rREN* appears in the display.
4. When *rREN* appears in the display, press the START (enter) keypad. The current Manual Rapid Advance status will appear in the display.

*on* = Option Enabled (default setting)

*off* = Option Disabled

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status.

6. Press the START (enter) keypad when the desired status appears in the display. The next option, *nCtd*, will appear in the display.

**NOTE: To program *nCtd* (No Cycle Time Display), refer to *No Cycle Time Display nCtd*. To program other options, refer to the appropriate section.**

## No Cycle Time Display *nCt d*

This option allows the owner to enable or disable whether the cycle time will appear in the display.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *nCt d* appears in the display.
4. When *nCt d* appears in the display, press the START (enter) keypad. The current No Cycle Time Display status will appear in the display.

*on* = Option Enabled

*off* = Option Disabled (default setting)

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *Pct d*, will appear in the display.

**NOTE: To program *Pct d* (Programmable Cycle Time Display), refer to *Programmable Cycle Time Display Pct d*. To program other options, refer to the appropriate section.**

## Programmable Cycle Time Display *Pct d*

This option allows the owner to program the displayed cycle time.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *Pct d* appears in the display.
4. When *Pct d* appears in the display, press the START (enter) keypad. The current Programmable Cycle Time Display status will appear in the display.

*on* = Option Enabled

*off* = Option Disabled (default setting)

**NOTE: Enabling this option will not change the cycle time, only the display time for the user. Refer to option *Cn in* in Cycle Programming to program minutes to the cycle time display.**

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.

6. Press the START (enter) keypad when the desired status appears in the display. The next option, *SdAd*, will appear in the display.

**NOTE: To program *SdAd* (Slow Drain Detection Adjust Value), refer to *Slow Drain Detection Adjust Value SdAd*. To program other options, refer to the appropriate section.**

## Slow Drain Detection Adjust Value *5dRd*

This option allows the owner to increase or decrease the Slow Drain Detection threshold by adding additional seconds to the threshold value. When enabled it increases the time before a Slow Drain Error will occur.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *#E51* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *5dRd* appears in the display.
4. When *5dRd* appears in the display, press the START (enter) keypad. The current Slow Drain Detection Adjust value will appear in the display.

*on* = Option Enabled

*oFF* = Option Disabled (default setting)

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current value.

**NOTE: The Slow Drain Detection Adjust Value can be set from 0 to 255 seconds. The default Slow Drain Detection Adjust value is 0.**

6. Press the START (enter) keypad when the desired value appears in the display. The next option, *SPRU*, will appear in the display.

**NOTE: To program *SPRU* (Pause/Resume Mode), refer to *Pause/Resume Mode (Enabled/Disabled) SPRU*. To program other options, refer to the appropriate section.**

## Pause/Resume Mode (Enabled/Disabled) *SPRU*

This option allows the owner to enable or disable Pause/Resume Mode. When enabled, users can press the START (enter) keypad three times (during first three [3] minutes of cycle) to pause the cycle.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *#E51* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *SPRU* appears in the display.
4. When *SPRU* appears in the display, press the START (enter) keypad. The current Pause/Resume status will appear in the display.

*on* = Option Enabled

*oFF* = Option Disabled (default setting)

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *#E52*, will appear in the display.

**NOTE: To program *#E52* (NORMAL/ 60C Vend Price), refer to *NORMAL/ 60C Vend Price AtS2*. To program other options, refer to the appropriate section.**

## NORMAL/ 60C Vend Price *At 52*

This option allows the owner to set the vend price for a normal/warm wash. This vend price will be shown in the display when NORMAL/ 60C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *At 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *At 52* appears in the display. The NORMAL/ 60C LED will be lit to show which cycle/temperature price is being programmed.
4. When *At 52* appears in the display, press the START (enter) keypad. There are five (5) digits in the NORMAL/ 60C Vend Price. The fifth digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 14*.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 14

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *At 53*, will appear in the display.
 

**NOTE: To program *At 53* (NORMAL/ 40C Vend Price), refer to *NORMAL/ 40C Vend Price At 53*. To program other options, refer to the appropriate section.**



## NORMAL/ 40C Vend Price *At 53*

This option allows the owner to set the vend price for a normal/cold wash. This vend price will be shown in the display when NORMAL/ 40C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *At 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *At 53* appears in the display. The NORMAL/ 40C LED will be lit to show which cycle/temperature price is being programmed.
4. When *At 53* appears in the display, press the START (enter) keypad. There are five (5) digits in the NORMAL/ 40C Vend Price. The fifth digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 15*.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 15

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *At 54*, will appear in the display.
 

**NOTE: To program *At 54* (PERM PRESS/ 90C Vend Price), refer to *PERM PRESS/ 90C Vend Price At 54*. To program other options, refer to the appropriate section.**

## PERM PRESS/ 90C Vend Price *At 54*

This option allows the owner to set the vend price for a perm press/hot wash. This vend price will be shown in the display when PERM PRESS/ 90C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Pr09* appears in the display. Press the START (enter) keypad and *At 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *At 54* appears in the display. The PERM PRESS/ 90C LED will be lit to show which cycle/temperature price is being programmed.
4. When *At 54* appears in the display, press the START (enter) keypad. There are five (5) digits in the PERM PRESS/ 90C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 16*.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 16

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *At 55*, will appear in the display.
 

**NOTE: To program *At 55* (PERM PRESS/ 60C Vend Price), refer to *PERM PRESS/ 60C Vend Price At 55*. To program other options, refer to the appropriate section.**

## PERM PRESS/ 60C Vend Price *At 55*

This option allows the owner to set the vend price for a perm press/warm wash. This vend price will be shown in the display when PERM PRESS/ 60C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *At 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *At 55* appears in the display. The PERM PRESS/ 60C LED will be lit to show which cycle/temperature price is being programmed.
4. When *At 55* appears in the display, press the START (enter) keypad. There are five (5) digits in the PERM PRESS/ 60C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 17*.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**

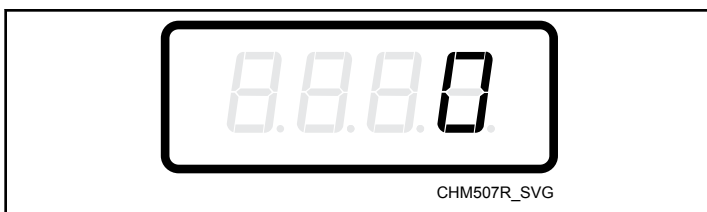


Figure 17

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *At 55*, will appear in the display.

**NOTE: To program *At 55* (DELICATE/ 30C Vend Price), refer to *DELICATE/ 30C Vend Price At 56*. To program other options, refer to the appropriate section.**

## DELICATE/ 30C Vend Price *At 56*

This option allows the owner to set the vend price for a perm press/cold wash. This vend price will be shown in the display when DELICATE/ 30C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *At 5 1* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *At 56* appears in the display. The DELICATE/ 30C LED will be lit to show which cycle/temperature price is being programmed.
4. When *At 56* appears in the display, press the START (enter) keypad. There are five (5) digits in the DELICATE/ 30C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 18*.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 18

5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *At 5 7*, will appear in the display.
 

**NOTE: To program *At 5 7* (PERM PRESS/ 50C Vend Price), refer to *PERM PRESS/ 50C Vend Price At 57*. To program other options, refer to the appropriate section.**

## PERM PRESS/ 50C Vend Price *RL57*

This option allows the owner to set the vend price for a Perm Press/hot wash. This vend price will be shown in the display when PERM PRESS/ 50C is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *RL57* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *RL57* appears in the display. The PERM PRESS/ 50C LED will be lit to show which cycle/temperature price is being programmed.
4. When *RL57* appears in the display, press the START (enter) keypad. There are five (5) digits in the PERM PRESS/ 50C Vend Price. The fifth digit will appear in the display and will flash one (1) second on, one (1) second off. Refer to *Figure 19*.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 19

5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535. The default vend price is 200.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
7. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next option, *RLC-*, will appear in the display.

**NOTE: To program *RLC-* (Set Real Time Clock), refer to *Set Real-Time Clock rTC-*. To program other options, refer to the appropriate section.**

## Set Real-Time Clock $r\text{t}C$ -

This option allows the owner to set the control's internal clock to the correct time and date.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until **Prog** appears in the display. Press the START (enter) keypad and **rt5 1** will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until **rtC** - appears in the display. Press the START (enter) keypad and **rtC 1** will appear in the display.
4. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options. Refer to *Table 13*.

Programmable Options	
$r\text{t}C 1$	Programs Minutes (0-59)
$r\text{t}C 2$	Programs Hours (0-23)
$r\text{t}C 3$	Programs Day of Week (1-7)
$r\text{t}C 4$	Programs Date of Month (1-31)
$r\text{t}C 5$	Programs Month (1-12)
$r\text{t}C 6$	Programs Year (0-99)
$r\text{t}C 7$	Programs Daylight Saving (on*/off)
*Factory default setting	

Table 13

5. When the desired option appears in the display, press the START (enter) keypad. The current value will appear in the display.
6. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the minutes, hours, day of week, date of the month, month, year to the correct time or date.

**NOTE: The hours will be displayed in military time. For day of week, Sunday is considered day one 00 1, Monday is day two 00 2 and so on. For year, the year 2000 is 00, the year 2001 is 0 1 and so on.**

If programming Daylight Saving,  $r\text{t}C 7$ , on enables Daylight Saving Time and off disables Daylight Saving Time.

7. Press the START (enter) keypad when the correct time or date appears in the display. The next Set Real-Time Clock option will appear in the display.

**NOTE: To program 5PR- (Special Vend A Data), press the PERM PRESS/ 60C (<) keypad and refer to *Special Vend A Data SPA-*. To program other options, refer to the appropriate section.**

## Special Vend A Data *SPR-*

This option allows the owner to set the day or days of a special vend.

Special Vend A is used to change the standard vend prices for special occasions. The special vend can be programmed to start and end on a specific day or days of the week.

The owner may also turn the Special Vend A option on or off if desired.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *SPR-* appears in the display. Press the START (enter) keypad and *SAD 1* will appear in the display.
4. When *SAD 1* appears in the display, press the START (enter) keypad. A number will appear in the display that corresponds to the current Special Vend A Days Enable Programming Value.
5. Locate the desired number in the first column of *Table 14* on the following pages.

6. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the current number until correct.

**NOTE: The value can be set to OFF or from 3-255 (odd numbers only).**

7. Press the START (enter) keypad when the correct number appears in the display. The next Special Vend A option, *SAD2*, will appear in the display.

**NOTE: To program *SAD2* (Special Vend A Start Hour), continue to the next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Read Special Vended A Days Chart

To determine the correct number required to program the Special Vend Days Enable, use the following table. The Special Vend Value column contains the number required in step 6. The other columns correspond to individual days.

Each column of days contains a unique combination of the words *on* and *off* that indicates if that column's day is turned on or off when the value is entered. Select the desired combination of days and enter the number found in the value column.

Special Vended A Days ( <i>SAD 1</i> ) Chart								
SPECIAL VEND VALUE	SAT	FRI	THUR	WED	TUE	MON	SUN	ON/OFF
0*	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON
5	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON
7	OFF	OFF	OFF	OFF	OFF	ON	ON	ON
9	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
11	OFF	OFF	OFF	OFF	ON	OFF	ON	ON
13	OFF	OFF	OFF	OFF	ON	ON	OFF	ON
15	OFF	OFF	OFF	OFF	ON	ON	ON	ON
17	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
19	OFF	OFF	OFF	ON	OFF	OFF	ON	ON
21	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
23	OFF	OFF	OFF	ON	OFF	ON	ON	ON
25	OFF	OFF	OFF	ON	ON	OFF	OFF	ON

Table 14 continues...

<b>Special Vended A Days (SAD 1) Chart</b>								
<b>SPECIAL VEND VALUE</b>	<b>SAT</b>	<b>FRI</b>	<b>THUR</b>	<b>WED</b>	<b>TUE</b>	<b>MON</b>	<b>SUN</b>	<b>ON/OFF</b>
27	OFF	OFF	OFF	ON	ON	OFF	ON	ON
29	OFF	OFF	OFF	ON	ON	ON	OFF	ON
31	OFF	OFF	OFF	ON	ON	ON	ON	ON
33	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
35	OFF	OFF	ON	OFF	OFF	OFF	ON	ON
37	OFF	OFF	ON	OFF	OFF	ON	OFF	ON
39	OFF	OFF	ON	OFF	OFF	ON	ON	ON
41	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
43	OFF	OFF	ON	OFF	ON	OFF	ON	ON
45	OFF	OFF	ON	OFF	ON	ON	OFF	ON
47	OFF	OFF	ON	OFF	ON	ON	ON	ON
49	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
51	OFF	OFF	ON	ON	OFF	OFF	ON	ON
53	OFF	OFF	ON	ON	OFF	ON	OFF	ON
55	OFF	OFF	ON	ON	OFF	ON	ON	ON
57	OFF	OFF	ON	ON	ON	OFF	OFF	ON
59	OFF	OFF	ON	ON	ON	OFF	ON	ON
61	OFF	OFF	ON	ON	ON	ON	OFF	ON
63	OFF	OFF	ON	ON	ON	ON	ON	ON
65	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
67	OFF	ON	OFF	OFF	OFF	OFF	ON	ON
69	OFF	ON	OFF	OFF	OFF	ON	OFF	ON
71	OFF	ON	OFF	OFF	OFF	ON	ON	ON
73	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
75	OFF	ON	OFF	OFF	ON	OFF	ON	ON
77	OFF	ON	OFF	OFF	ON	ON	OFF	ON
79	OFF	ON	OFF	OFF	ON	ON	ON	ON
81	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
83	OFF	ON	OFF	ON	OFF	OFF	ON	ON
85	OFF	ON	OFF	ON	OFF	ON	OFF	ON

Table 14 continues...



<b>Special Vended A Days (SAD 1) Chart</b>								
<b>SPECIAL VEND VALUE</b>	<b>SAT</b>	<b>FRI</b>	<b>THUR</b>	<b>WED</b>	<b>TUE</b>	<b>MON</b>	<b>SUN</b>	<b>ON/OFF</b>
87	OFF	ON	OFF	ON	OFF	ON	ON	ON
89	OFF	ON	OFF	ON	ON	OFF	OFF	ON
91	OFF	ON	OFF	ON	ON	OFF	ON	ON
93	OFF	ON	OFF	ON	ON	ON	OFF	ON
95	OFF	ON	OFF	ON	ON	ON	ON	ON
97	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
99	OFF	ON	ON	OFF	OFF	OFF	ON	ON
101	OFF	ON	ON	OFF	OFF	ON	OFF	ON
103	OFF	ON	ON	OFF	OFF	ON	ON	ON
105	OFF	ON	ON	OFF	ON	OFF	OFF	ON
107	OFF	ON	ON	OFF	ON	OFF	ON	ON
109	OFF	ON	ON	OFF	ON	ON	OFF	ON
111	OFF	ON	ON	OFF	ON	ON	ON	ON
113	OFF	ON	ON	ON	OFF	OFF	OFF	ON
115	OFF	ON	ON	ON	OFF	OFF	ON	ON
117	OFF	ON	ON	ON	OFF	ON	OFF	ON
119	OFF	ON	ON	ON	OFF	ON	ON	ON
121	OFF	ON	ON	ON	ON	OFF	OFF	ON
123	OFF	ON	ON	ON	ON	OFF	ON	ON
125	OFF	ON	ON	ON	ON	ON	OFF	ON
127	OFF	ON	ON	ON	ON	ON	ON	ON
129	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
131	ON	OFF	OFF	OFF	OFF	OFF	ON	ON
133	ON	OFF	OFF	OFF	OFF	ON	OFF	ON
135	ON	OFF	OFF	OFF	OFF	ON	ON	ON
137	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
139	ON	OFF	OFF	OFF	ON	OFF	ON	ON
141	ON	OFF	OFF	OFF	ON	ON	OFF	ON
143	ON	OFF	OFF	OFF	ON	ON	ON	ON
145	ON	OFF	OFF	ON	OFF	OFF	OFF	ON

Table 14 continues...

<b>Special Vended A Days (SAD 1) Chart</b>								
<b>SPECIAL VEND VALUE</b>	<b>SAT</b>	<b>FRI</b>	<b>THUR</b>	<b>WED</b>	<b>TUE</b>	<b>MON</b>	<b>SUN</b>	<b>ON/OFF</b>
147	ON	OFF	OFF	ON	OFF	OFF	ON	ON
149	ON	OFF	OFF	ON	OFF	ON	OFF	ON
151	ON	OFF	OFF	ON	OFF	ON	ON	ON
153	ON	OFF	OFF	ON	ON	OFF	OFF	ON
155	ON	OFF	OFF	ON	ON	OFF	ON	ON
157	ON	OFF	OFF	ON	ON	ON	OFF	ON
159	ON	OFF	OFF	ON	ON	ON	ON	ON
161	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
163	ON	OFF	ON	OFF	OFF	OFF	ON	ON
165	ON	OFF	ON	OFF	OFF	ON	OFF	ON
167	ON	OFF	ON	OFF	OFF	ON	ON	ON
169	ON	OFF	ON	OFF	ON	OFF	OFF	ON
171	ON	OFF	ON	OFF	ON	OFF	ON	ON
173	ON	OFF	ON	OFF	ON	ON	OFF	ON
175	ON	OFF	ON	OFF	ON	ON	ON	ON
177	ON	OFF	ON	ON	OFF	OFF	OFF	ON
179	ON	OFF	ON	ON	OFF	OFF	ON	ON
181	ON	OFF	ON	ON	OFF	ON	OFF	ON
183	ON	OFF	ON	ON	OFF	ON	ON	ON
185	ON	OFF	ON	ON	ON	OFF	OFF	ON
187	ON	OFF	ON	ON	ON	OFF	ON	ON
189	ON	OFF	ON	ON	ON	ON	OFF	ON
191	ON	OFF	ON	ON	ON	ON	ON	ON
193	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
195	ON	ON	OFF	OFF	OFF	OFF	ON	ON
197	ON	ON	OFF	OFF	OFF	ON	OFF	ON
199	ON	ON	OFF	OFF	OFF	ON	ON	ON
201	ON	ON	OFF	OFF	ON	OFF	OFF	ON
203	ON	ON	OFF	OFF	ON	OFF	ON	ON
205	ON	ON	OFF	OFF	ON	ON	OFF	ON

Table 14 continues...

Special Vended A Days (SAD 1) Chart								
SPECIAL VEND VALUE	SAT	FRI	THUR	WED	TUE	MON	SUN	ON/OFF
207	ON	ON	OFF	OFF	ON	ON	ON	ON
209	ON	ON	OFF	ON	OFF	OFF	OFF	ON
211	ON	ON	OFF	ON	OFF	OFF	ON	ON
213	ON	ON	OFF	ON	OFF	ON	OFF	ON
215	ON	ON	OFF	ON	OFF	ON	ON	ON
217	ON	ON	OFF	ON	ON	OFF	OFF	ON
219	ON	ON	OFF	ON	ON	OFF	ON	ON
221	ON	ON	OFF	ON	ON	ON	OFF	ON
223	ON	ON	OFF	ON	ON	ON	ON	ON
225	ON	ON	ON	OFF	OFF	OFF	OFF	ON
227	ON	ON	ON	OFF	OFF	OFF	ON	ON
229	ON	ON	ON	OFF	OFF	ON	OFF	ON
231	ON	ON	ON	OFF	OFF	ON	ON	ON
233	ON	ON	ON	OFF	ON	OFF	OFF	ON
235	ON	ON	ON	OFF	ON	OFF	ON	ON
237	ON	ON	ON	OFF	ON	ON	OFF	ON
239	ON	ON	ON	OFF	ON	ON	ON	ON
241	ON	ON	ON	ON	OFF	OFF	OFF	ON
243	ON	ON	ON	ON	OFF	OFF	ON	ON
245	ON	ON	ON	ON	OFF	ON	OFF	ON
247	ON	ON	ON	ON	OFF	ON	ON	ON
249	ON	ON	ON	ON	ON	OFF	OFF	ON
251	ON	ON	ON	ON	ON	OFF	ON	ON
253	ON	ON	ON	ON	ON	ON	OFF	ON
255	ON	ON	ON	ON	ON	ON	ON	ON
*Factory Default Setting								

Table 14

**How to Program Special Vend A Start Hour *SAD2***

This option allows the owner to set the hour that Special Vend A will begin.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until *SAD2* appears in the display.
2. When *SAD2* appears in the display, press the START (enter) keypad. The current start time (in military time) will appear in the display.

**NOTE: The hours will be displayed in military time (0-23). The default value is 0.**

3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the start hour to the desired hour.
4. Press the START (enter) keypad when the correct hour appears in the display. The next Special Vend A option, **SA03**, will appear in the display.

**NOTE: To program SA03 (Special Vend A Start Minute), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A Start Minute SA03

This option allows the owner to set the minute that Special Vend A will begin.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until **SA03** appears in the display.
2. When **SA03** appears in the display, press the START (enter) keypad. The current start minute will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the start minute to the desired minute.

**NOTE: The value can be set from 0-59. The default value is 0.**

4. Press the START (enter) keypad when the correct minute appears in the display. The next Special Vend A option, **SA04**, will appear in the display.

**NOTE: To program SA04 (Special Vend A Length in Hours), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A Length in Hours SA04

This option allows the owner to set the length in hours for Special Vend A.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until **SA04** appears in the display.
2. When **SA04** appears in the display, press the START (enter) keypad. The current length in hours will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the current length of hours to the desired number of hours.

**NOTE: The value can be set from 0-24. The default value is 0.**

4. Press the START (enter) keypad when the correct hour appears in the display. The next Special Vend A option, **SA05**, will appear in the display.

**NOTE: To program SA05 (Special Vend A Start Month), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A Start Month SA05

This option allows the owner to set the month that Special Vend A will begin.

**NOTE: If Special Vend A Start Month, Start Date, End Month, or End Date are programmed to zero (default is zero), the Special Vend A will be active every week on the days programmed in Table 14 .**

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until **SA05** appears in the display.
2. When **SA05** appears in the display, press the START (enter) keypad. The current start month will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the start month to the desired month.

If **0** is selected and Special Vend A is on, Special Vend A will occur at the time and days of week selected, regardless of the month.

**NOTE: The value can be set at 0 (off) or from 1-12. The default value is 0.**

4. Press the START (enter) keypad when the correct month appears in the display. The next Special Vend A option, **SA06**, will appear in the display.

**NOTE: To program SA06 (Special Vend A Start Date), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A Start Date SA06

This option allows the owner to set the date that Special Vend A will begin.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until **SA06** appears in the display.
2. When **SA06** appears in the display, press the START (enter) keypad. The current start date will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the start date to the desired date.

If **0** is selected and Special Vend A is on, Special Vend A will occur at the time and days of week selected, regardless of the date.

**NOTE: The value can be set at 0 (off) or from 1-31. The default value is 0.**

4. Press the START (enter) keypad when the correct date appears in the display. The next Special Vend A option, **SA08**, will appear in the display.

**NOTE: To program 5A0B (Special Vend A End Month), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A End Month 5A0B

This option allows the owner to set the month that Special Vend A will end.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until 5A0B appears in the display.
2. When 5A0B appears in the display, press the START (enter) keypad. The current end month will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the end month to the desired month.

If 0 is selected and Special Vend A is on, Special Vend A will occur at the time and day of week selected, regardless of the month.

**NOTE: The value can be set at 0 (off) or from 1-12. The default value is 0.**

4. Press the START (enter) keypad when the correct month appears in the display. The next Special Vend A option, 5A09, will appear in the display.

**NOTE: To program 5A09 (Special Vend A End Date), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A End Date 5A09

This option allows the owner to set the date that Special Vend A will end.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until 5A09 appears in the display.
2. When 5A09 appears in the display, press the START (enter) keypad. The current end date will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the end date to the desired date.

If 0 is selected and Special Vend A is on, Special Vend A will occur at the time or days of week selected, regardless of the date.

**NOTE: The value can be set at 0 (off) or from 1-31. The default value is 0.**

4. Press the START (enter) keypad when the correct date appears in the display. The next Special Vend A option, 5A11, will appear in the display.

**NOTE: To program 5A11 (Special Vend A NORMAL/ 90C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A NORMAL/ 90C Vend Price 5A11

This option allows the owner to set the vend price for a NORMAL/ 90C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until 5A11 appears in the display.
2. When 5A11 appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A NORMAL/ 90C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to Figure 20.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth (5) digit is 0.**

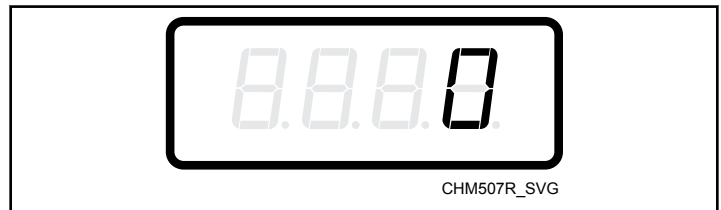


Figure 20

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, 5A12, will appear in the display.

**NOTE: To program 5A12 (Special Vend A NORMAL/ 60C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

## How to Program Special Vend A NORMAL/ 60C Vend Price 5A 12

This option allows the owner to set the vend price for a NORMAL/ 60C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until 5A 12 appears in the display.
2. When 5A 12 appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A NORMAL/ 60C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to Figure 21.

**NOTE: If the vend price is \$100.00 or more, the fifth digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**

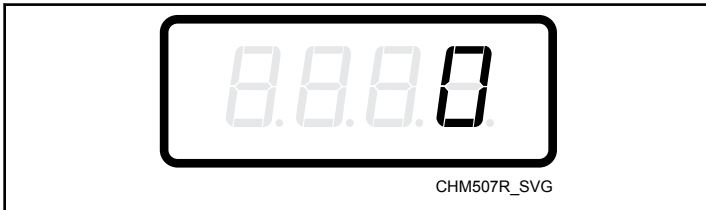


Figure 21

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, 5A 13, will appear in the display.
 

**NOTE: To program 5A 13 (Special Vend A NORMAL/ 40C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

## How to Program Special Vend A NORMAL/ 40C Vend Price 5A 13

This option allows the owner to set the vend price for a NORMAL/ 40C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until 5A 13 appears in the display.
2. When 5A 13 appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A NORMAL/ 40C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to Figure 22.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 22

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price can be set from 0 to 65,535.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, 5A 14, will appear in the display.
 

**NOTE: To program 5A 14 (Special Vend A PERM PRESS/ 90C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

## How to Program Special Vend A PERM PRESS/ 90C Vend Price 5A 14

This option allows the owner to set the vend price for a PERM PRESS/ 90C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until 5A 14 appears in the display.
2. When 5A 14 appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A PERM PRESS/ 90C Vend Price. The fifth (5) digit will appear in the

display and will flash one (1) second on and one (1) second off. Refer to *Figure 23* .

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 23

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.  
**NOTE: The vend price can be set from 0 to 65,535.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.  
**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, *5A 15*, will appear in the display.  
**NOTE: To program 5A 15 (Special Vend A PERM PRESS/ 60C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

**How to Program Special Vend A PERM PRESS/ 60C Vend Price 5A 15**

This option allows the owner to set the vend price for a PERM PRESS/ 60C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until *5A 15* appears in the display.
2. When *5A 15* appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A PERM PRESS/ 60C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to *Figure 24* .

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 24

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.  
**NOTE: The vend price can be set from 0 to 65,535.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.  
**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, *5A 15*, will appear in the display.  
**NOTE: To program 5A 15 (Special Vend A DELICATE/ 30C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

**How to Program Special Vend A DELICATE/ 30C Vend Price 5A 15**

This option allows the owner to set the vend price for a DELI-CATE/ 30C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Special Vend A options until *5A 15* appears in the display.
2. When *5A 15* appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A DELI-CATE/ 30C Vend Price. The fifth (5) digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to *Figure 25* .

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



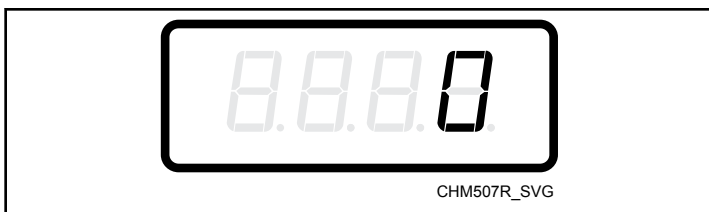


Figure 25



Figure 26

3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the fifth (5) digit.  
**NOTE: The vend price can be set from 0 to 65,535.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.  
**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, *5A 17*, will appear in the display.  
**NOTE: To program 5A 17 (Special Vend A PERM PRESS/ 50C Vend Price), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the fifth (5) digit.  
**NOTE: The vend price can be set from 0 to 65,535.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.  
**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Special Vend A option, *5A20*, will appear in the display.  
**NOTE: To program 5A20 (Special Vend A Wash Agitate Step Added Minutes), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Special Vend A PERM PRESS/ 50C Vend Price *5A 17*

This option allows the owner to set the vend price for a PERM PRESS/ 50C wash in Special Vend A. The corresponding LED will be lit while programming.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable Special Vend A options until *5A 17* appears in the display.
2. When *5A 17* appears in the display, press the START (enter) keypad. There are five (5) digits in the Special Vend A PERM PRESS/ 50C Vend Price. The fifth digit will appear in the display and will flash one (1) second on and one (1) second off. Refer to *Figure 26*.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**

### How to Program Special Vend A Wash Agitate Step Added Minutes *5A20*

This option allows the owner to add time to the wash agitate part of the cycle in Special Vend A.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable Special Vend A options until *5A20* appears in the display.
2. When *5A20* appears in the display, press the START (enter) keypad.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the number of minutes displayed to the desired number of added minutes.

**NOTE: The Special Vend A Added Wash Agitate Time can be set from zero 0 to 15 minutes.**

4. Press the START (enter) keypad when the correct number of minutes appears in the display. The next Special Vend A option, *5A2 1*, will appear in the display.

**NOTE: To program 5A2 1 (Special Vend A Wash Agitate Step Subtracted Minutes), continue to next Special Vend A option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**



## How to Program Special Vend A Wash Agitate Step Subtracted Minutes *5A2 I*

This option allows the owner to subtract time from the wash agitate part of the cycle in Special Vend A.

1. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable Special Vend A options until *5A2 I* appears in the display.
2. When *5A2 I* appears in the display, press the START (enter) keypad.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the number of minutes displayed to the desired number of subtracted minutes.

**NOTE: The Special Vend A Subtracted Wash Agitate Time can be set from zero 0 to 15 minutes.**

4. Press the START (enter) keypad when the correct number of minutes appears in the display. The next Special Vend A option, *5A0 I*, will appear in the display.

**NOTE: To program *5Pb* - (Special Vend B Enable/Disable), press the PERM PRESS/ 60C (<) keypad and refer to *Special Vend B Days Enable/Disable SPb*-. To program other options refer to the appropriate section.**

## Special Vend B Days Enable/Disable

### **5Pb-**

This option allows the owner to enable or disable a second special vend in Manual Mode.

Special Vend B can be further programmed using an external device or network.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until **Prog** appears in the display. Press the START (enter) keypad and **Alt 5 1** will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until **5Pb-** appears in the display.
4. When **5Pb-** appears in the display, press the START (enter) keypad. The current Special Vend B Enable/Disable status will appear in the display.

**on** = Option Enabled

**off** = Option Disabled (default setting)

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, , will appear in the display.

## Cycle Modifier Programming $\llcorner nP-$

This option allows the owner to program the extra vend price for an added prewash or an added extra rinse to the customers for an added vend price. This option is selected when EXTRA WASH or EXTRA RINSE is selected.

### How to Program Cycle Modifier EXTRA WASH Vend Price Adder $\llcorner nP 1$

This price setting will be added to the current vend price. For example, if the vend price is \$1.50 and Cycle Modifier EXTRA WASH Vend Price Adder is set to .25, the total vend price when the Medium Soil is chosen will be \$1.75.

When the customer selects and pays for an EXTRA WASH, the Cycle Segment #1 is enabled and run as part of the machine cycle.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until **Prog** appears in the display. Press the START (enter) keypad and **RLS 1** will appear in the display.
3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until  $\llcorner nP-$  appears in the display. Press the START (enter) keypad and  $\llcorner nP 1$  will appear in the display.
4. When  $\llcorner nP 1$  appears in the display, press the START (enter) keypad. There are five (5) digits in the Cycle Modifier EXTRA WASH Vend Price Adder. The fifth (5) digit will appear in the display and will flash for one (1) second on, one (1) second off. Refer to *Figure 27*.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**

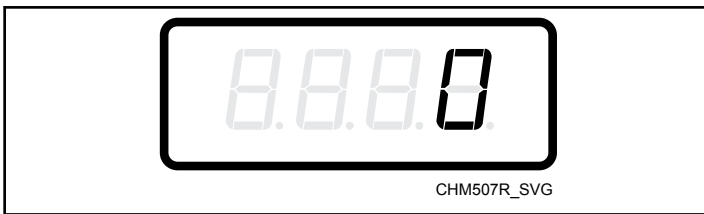


Figure 27

5. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price adder can be set from 1 to 65,535. The default vend price adder is 25.**
6. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**

7. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
8. Press the START (enter) keypad with the last active digit. The next Cycle Modifier option,  $\llcorner nP2$ , will appear in the display.

**NOTE: To program  $\llcorner nP2$  (Cycle Modifier EXTRA RINSE Vend Price Adder), continue to next Cycle Modifier option. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

### How to Program Cycle Modifier Vend Price Adder $\llcorner nP2$

When the customer selects and pays for an EXTRA RINSE, the Cycle Segment #7 is enabled and run as part of the machine cycle.

1. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the programmable Cycle Modifier options until  $\llcorner nP2$  appears in the display.
2. When  $\llcorner nP2$  appears in the display, press the START (enter) keypad. There are five (5) digits in the Cycle Modifier Vend Price Adder. The fifth (5) digit will appear in the display and will flash for one (1) second on, one (1) second off. Refer to *Figure 28*.

**NOTE: If the vend price is \$100.00 or more, the fifth (5) digit is 1-5. If the vend price is \$99.99 or less, the fifth digit is 0.**



Figure 28

3. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the fifth (5) digit.
 

**NOTE: The vend price adder can be set from 1 to 65,535. The default vend price adder is 25.**
4. Press the START (enter) keypad to enter the fifth (5) digit and display remaining four (4) digits. The active digit will flash one (1) second on and one (1) second off.
 

**NOTE: To go back to the current programmable Special Vend A option without changing the value of the active digit, press the PERM PRESS/ 60C (<) keypad.**

5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the value of the active digit and the START (enter) keypad to enter the value of the digit and advance to the next digit.
6. Press the START (enter) keypad with the last active digit. The next Cycle Modifier option, *CnP3*, will appear in the display.

**NOTE: To program *FL0* (Low Water Level) , back out to *CnP-* (Cycle Modifier Programming) and refer to *Low Water Level FLo*. To program other options, press the PERM PRESS/ 60C (<) keypad and refer to the appropriate section.**

## Low Water Level *FL0*

This option allows the owner to program the low water level during fill and agitate of all cycles.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *Pr09* appears in the display. Press the START (enter) keypad and *RL51* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through the programmable options until *FL0* appears in the display.
4. When *FL0* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current low water level during agitate and fill of all cycles.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to increase or decrease the current water level to the desired water level.

**NOTE: The Low Water Level value can be set from 1 to 10. The default Low Water Level value is 3.**

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *FnEd*, will appear in the display.

**NOTE: To program *FnEd* (Medium Water Level), refer to *Medium Water Level FnEd* . To program other options, refer to the appropriate section.**

## Medium Water Level *FnEd*

This option allows the owner to program the medium water level during fill and agitate of all cycles.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *FnEd* appears in the display.
4. When *FnEd* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current medium water level during agitate and fill of all cycles.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the current water level to the desired water level.

**NOTE: The Medium Water Level value can be set from 11 to 20. The default Medium Water Level is 15.**

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *FHI*, will appear in the display.

**NOTE: To program *FHI* (High Water Level), refer to *High Water Level FHI*. To program other options, refer to the appropriate section.**

## High Water Level *FHI*

This option allows the owner to program the high water level during fill and agitate of all cycles.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5 1* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *FHI* appears in the display.
4. When *FHI* appears in the display, press the START (enter) keypad. A number will appear in the display. This number corresponds to the current high water level during agitate and fill of all cycles.
5. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to increase or decrease the current water level to the desired water level.

**NOTE: The High Water Level value can be set from 21 to 30. The default High Water Level is 27.**

6. Press the START (enter) keypad when the correct number appears in the display. The next option, *ALd-*, will appear in the display.

**NOTE: To program *ALd-* (Auto-Water Leak Detection), press the PERM PRESS/ 60C (<) keypad and refer to *Auto-Water Leak Detection ALd-*. To program other options, refer to the appropriate section.**

## Auto-Water Leak Detection *AL d-*

This option allows the owner to set the time and frequency that the control automatically checks the water level. The owner programs which day(s) of the week and hour of day(s) they want this test to occur. The owner may also program this test to only occur after *HH* number of machine cycles have been completed since the last time the test was run. In order for this Auto-Water Leak Detection test to occur, the machine's door must be closed.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *Pr09* appears in the display. Press the START (enter) keypad and *AL51* will appear in the display.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options until *AL d-* appears in the display. Press the START (enter) keypad and *AL d1* will appear in the display.
4. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to scroll through the programmable options. Refer to *Table 15*.

Programmable Options	
<i>AL d1</i>	Auto-Water Leak Detection ( <i>OFF*</i> or <i>0-127</i> cycles [ <i>00</i> ] – Number of completed cycles after which this test will occur.)
<i>AL d2</i>	Auto-Water Leak Detection Hour ( <i>0*-23</i> – Hour of the day this test will occur.)
<i>AL d3</i>	Auto-Water Leak Detection Day of Week ( <i>0-127*</i> – Refer to <i>Table 7</i> .)
*Factory default setting	

Table 15

5. When the desired option appears in the display, press the START (enter) keypad. The current value will appear in the display.
6. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad to enable during cycles, disable, increase or decrease the hours or day.

**NOTE: The hours will be displayed in military time. For day of week, Sunday is considered day one (001), Monday is day two (002) and so on. Refer to Table 7.**

7. Press the START (enter) keypad when the correct value appears in the display. The next option, *AL51*, will appear in the display.

**NOTE: To program *AL51* (NORMAL/ 90C Vend Price), refer to *NORMAL/ 90C Vend Price AtS1*. To program other options, refer to the appropriate section.**

# Collecting Audit Information

This feature allows the owner to retrieve audit information stored in the machine by pressing a sequence of pads on the control. For an explanation of the audit options available, refer to *Table 16*.

## How to Enter Audit Feature

There are two (2) methods the owner can use to enter the Audit Feature.

## Entering the Audit Feature by Manual Mode

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad until *AUDt* appears.
3. Press the START (enter) keypad. *CYC* will appear.

## Entering the Audit Feature with the Coin Vault Open

1. Open coin vault. Make sure top cover is closed.
2. Press the START (enter) keypad.

## How to Read Audit Data

1. Use the NORMAL/ 40C (Λ) or the DELICATE/ 30C (V) keypad to scroll through various options until the desired option is shown in the display. Refer to the Audit Options List, *Table 16*, for an explanation of the audit options available.

Audit Options List		
#	Display	Description
1	<i>CYC</i>	Total # of machine cycles
2	<i>rCYC</i>	Total # of rapid advanced cycles
3	<i>Co #1</i>	Total # of coins #1
4	<i>Co #2</i>	Total # of coins #2
5	<i>PLSE</i>	Total # of start pulses

Table 16

2. Once the desired option appears in the display, press the START (enter) keypad **once** (1) to start the audit count. At this point, the display will show the first four (4) digit segment of the audit value. If the audit count is 10,000 or higher, press the START (enter) keypad again to view the last four (4) digits of the number.

**NOTE: The display can show up to 4 digits at one time. Audit counts 10,000 or higher are separated into two 4-digit segments. Each time the START (enter) keypad is pressed in step 2, the display will show the next four (4) digit segment in the audit value. If the value is 9,999 or less, only one 4-digit segment will be shown.**

**For Example:** In the Total Number of Coins #1 option with *Co #1* shown in the display, the audit has counted 10,009 coins. Pressing the START (enter) keypad one time will show *\_ \_ \_ 1* to represent ten thousand. Pressing the START (enter) keypad a second time will display *0009* meaning nine. The total equals *000 10009* or 10,009.

3. Press the START (enter) keypad again. The control will go to the next audit option in the Audit Options List.
4. To select other audit options, repeat steps 1–4.

## How to Exit Audit Feature

Press the PERM PRESS/ 60C (<) keypad.

**NOTE: To exit Audit Feature when using Coin Vault Open method, owner must close coin vault.**

# Manual Reset

This feature allows the owner to reset the machine control's programming data to the factory default settings by pressing a sequence of keypads on the control. For an explanation of the Factory Default Settings, refer to *Programming Control*.

## How to Enter Manual Reset

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until **r 5Et** appears.
3. Press the START (enter) keypad. The control will be blank until the programming is complete. Once the program has been reset, the control will display the next Manual Mode option, **dI R9**.



# Testing Machine and Electronic Control Functions

This feature allows the owner to run diagnostic tests on various machine operations without servicing the machine. The following tests are available:

- VFD Balance Weight Test (Design 1 models only)
- Water Purge Test
- Water Leak Detection Test

The following tests are available on Design 2 and 3 models only:

- Drive Software Version Number
- Drive Parameter Table Version Number
- Drive Type Value
- Drive DC Bus Display Test

2. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad until **dI R9** appears.
3. Press the START (enter) keypad. Display will change to **d0 19** indicating the Front End Control Software Version Number test.
4. Press the NORMAL/ 40C (A) or the DELICATE/ 30C (V) keypad to scroll through the diagnostic test options.

## How to Start Tests

To start a diagnostic test, refer to the quick reference chart (*Table 17*). Press the START (enter) keypad when the desired test number is displayed. For detailed information on each test, read the appropriate description.

## How to Exit Diagnostic Testing Feature

Press the PERM PRESS/ 60C (<) keypad. The display will return to the previous mode of operation.

## How to Enter Diagnostic Testing Feature

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.

Diagnostic (Testing) Mode – Quick Reference Chart		
Test Number	Diagnostic Mode	Display
<b>d0 19</b>	VFD Balance Weight Test (Design 1 models)	<b>bRL</b>
<b>d0 19</b>	Drive DC Bus Display Test (Design 2 and 3 models)	<b>dCb</b>
<b>d020</b>	Water Purge Test	<b>PUr9</b>
<b>d02 1</b>	Water Leak Detection Test	<b>Ld</b>
<b>d022</b> (Design 2 and 3 models only)	Drive Software Version Number	<b>d rHH</b>
<b>d023</b> (Design 2 and 3 models only)	Drive Parameter Table Version Number	<b>dPHH</b>
<b>d024</b> (Design 2 and 3 models only)	Drive Type Value	<b>d t H</b>

Table 17

## Diagnostic Test Descriptions

### VFD Balance Weight Test (Design 1 models)

This test is only available on machines equipped with a variable frequency motor drive.

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

To enter, press the START (enter) keypad. The display will show **bAL** and the START (enter) keypad LED will flash. Close the door. Press the START (enter) keypad. The door will lock. The motor will turn at distribution speed. The control monitors the VFD balance switch for frequency and displays a corresponding message. Refer to *Table 18*.

VFD Balance Switch Frequency	Description	Display
0	Switch is always closed	<b>CLoS</b>
1 Hz		<b>1 H</b>
2 Hz		<b>2 H</b>
3 Hz		<b>3 H</b>
	Switch is always open	<b>oPEn</b>

Table 18

Press the START (enter) keypad to stop the test. The door will not unlock until the basket stops or the coast time has expired.

### Drive DC Bus Display Test (Design 2 and 3 models)

This test is only available on machines equipped with a custom drive.

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

To enter, press the START (enter) keypad. The display will show **dCb** and the START (enter) keypad LED will flash. Close the door. Press the START (enter) keypad. The door will lock. The control will turn on the drive and ramp up the motor to distribution speed. The drive's DC Bus Voltage will display.

### Water Purge Test

This option empties all water from the machine.

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

To enter, press the START (enter) keypad. The display will show **PUr9** and the START (enter) keypad LED will flash. Close the door. Press the START (enter) keypad. The door will lock. The display will show **FL5H**. The control will energize all water valves and supply outputs while keeping the drain valves open.

The test will end, return to Water Purge Test start prompt, and door will unlock if any keypad is pressed, the door is unlocked or opened, if an end test communication is received or if two (2) minutes has occurred since the test began. The control will prevent the door from being unlocked until there is no water in the machine.

### Water Leak Detection Test

This option allows the owner to test for a water leak in the machine.

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

To enter, press the START (enter) keypad. The display will show **Ld** and the START (enter) keypad LED will flash if the door is closed. Press the START (enter) keypad. The door will lock. The control closes the drain valve, turns the pump off and fills the machine with cold water to low level. The water level is monitored for two (2) minutes and the display shows an alternating horizontal segment while the control is monitoring the water level. If after two (2) minutes the water level is the same, control will display **PASS**, water will drain, door will unlock and control will return to Ready Mode. If water level is lower, indicating a leak in the drain, control will display **FRI L**, water will drain, door will unlock and water leak detection error will display as **E Ld**.

On Design 2 and 3 models, if water level is higher, indicating a leak in the fill valve, control will display **FRI L**, water will drain, door will unlock and water leak detection error will display as **E LF**.

### Drive Software Version Number Test (Design 2 and 3 models)

This option displays the custom drive software version number.

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

To enter, press the START (enter) keypad. The display will show **drHH** where **HH** is the custom drive software version number.

To exit the Custom Drive Software Version Number Test, press the PERM PRESS/ 60C (<) keypad. The control will return to the Diagnostic Testing Mode.

### Drive Parameter Table Version Number (Design 2 and 3 models)

This option displays the custom drive parameter table version number.

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

To enter, press the START (enter) keypad. The display will show *dPHH* where *HH* is the custom drive parameter table version number.

To exit the Custom Drive Parameter Table Version Number Test, press the PERM PRESS/ 60C (<) keypad. The control will return to the Diagnostic Testing Mode.

### Drive Type Value (Design 2 and 3 models)

This option displays the custom drive type value.

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

To enter, press the START (enter) keypad. The display will show *dt HH* where *HH* is the custom drive type value. Refer to *Table 19*.

Display	Drive Type
<i>dt 1</i>	2 HP drive
<i>dt 2</i>	3 HP drive
<i>dt 3</i>	5 HP 280V drive

Table 19 continues...

Display	Drive Type
<i>dt 4</i>	5 HP 480V drive

Table 19

To exit the Custom Drive Type Value, press the PERM PRESS/ 60C (<) keypad. The control will return to the Diagnostic Testing Mode.

### Production Test Cycle

**NOTE: Machine should be empty of water before starting Production Test Cycle.**

#### To Enter Production Test Cycle

1. Be certain control is in Ready Mode and top cover or coin vault is open.
2. While pressing and holding the NORMAL/ 40C (Λ) keypad with one hand, press the EXTRA WASH keypad with the other hand.
3. When the control enters the Production Test Cycle, it will first display *5 HH* with the *HH* showing the software version of the front end control.
4. The control will advance through the sequence of test steps whenever any key is pressed. Refer to *Table 20* for all tests in the *Production Test Cycle*.

#### To Exit Production Test Cycle

To exit a test step, power down the machine.

Production Test Cycle - Quick Reference Chart		
Display	Test Cycle Step	Comments
<i>5 HH</i>	FEC Control Software Version	<i>HH</i> is the software version number.
<i>o HH</i>	Output Board Software Version	<i>HH</i> is the software version number.
<i>Ct 3</i>	Control Type	3 is the control type.
<i>COI n</i>	Control Type	Coin
<i>I nEL</i>	Control Type	International
<i>drRn</i> or <i>PUnP</i>	Drain Type	Drain or pump
<i>tEnP</i>	Temp Sensor	Step skipped if not equipped with temp sensor.
<i>HEAt</i>	Heater	Step skipped if not heater-equipped.

Table 20 continues...

Production Test Cycle - Quick Reference Chart		
Display	Test Cycle Step	Comments
<i>L dC</i> or <i>L AC</i>	Door Lock Type	<i>L dC</i> for 24 VDC lock or <i>L AC</i> if 240 VAC unlock solenoid.
<i>dr oP</i> or <i>dr CL</i>	Door Status	Door status open or closed.
<i>dr UL</i> or <i>dr Lo</i>	Door Lock Status	Door will lock.
<b>BBBB</b> + all LEDs	Display Test	All display elements are lit.
<i>PAHH</i> where <i>HH</i> = 1-11	Keypad Test Step	Advance after all keypads are pressed.
<i>A HH</i>	Top Cover Switch Test	<i>HH</i> is either <i>CL</i> for closed or <i>oP</i> for open.
<i>U HH</i>	Coin Vault Switch Test	<i>HH</i> is either <i>CL</i> for closed or <i>oP</i> for open.
<i>CHCH</i>	Coin Drop Test	1st <i>H</i> is number of Coin Drop #1 coins. 2nd <i>H</i> is number of Coin Drop #2 coins.
<i>CHHH</i> or <i>PHHH</i>	Machine Type/Size	<i>HHH</i> is machine capacity.
<i>dr HH</i>	Drive Software Version Number	<i>HH</i> is the drive software version number. Design 2 and 3 models only.
<i>dPHH</i>	Drive Parameter Table Version Number	<i>HH</i> is the drive parameter table version number. Design 2 and 3 models only.
<i>dt HH</i>	Drive Type Value	<i>HH</i> is the drive type value. Design 2 and 3 models only.
<i>HFIL</i>	Hot Fill to Low Level	All water outputs turned off when Low Level reached.
<i>CFIL</i>	Cold Fill to Low Level	All water outputs turned off when Low Level reached.
<i>bFIL</i>	Warm Fill to Low Level	All water outputs turned off when Low Level reached.
<i>bFIH</i>	Warm Fill to High Level	All water outputs turned off when High Level reached.
<i>5 1</i> for supply or <i>C2Co</i> for compartment	Supply #1 or Compartment #2 Cold Fill	External supply #1. Design 2 and 3 models only.
<i>52</i> for supply or <i>C2Ho</i> for compartment	Supply #2 or Compartment #2 Hot Fill	External supply #4. Design 2 and 3 models only.
<i>53</i> for supply or <i>C3Co</i> for compartment	Supply #3 or Compartment #3 Cold Fill	External supply #2. Design 2 and 3 models only.
<i>54</i> for supply or <i>C4Ho</i> for compartment	Supply #4 or Compartment #4 Hot Fill	External supply #3. Design 2 and 3 models only.
<i>HHHF</i> degrees F or <i>HHHC</i> degrees C depending on the Fahrenheit/Celsius programming parameter	Heat water to 110°F [43°C] or display temperature	<i>HHH</i> is degree temperature. This step skipped if not heat model. Heater turned off when temperature reached.

Table 20 continues...

Production Test Cycle - Quick Reference Chart		
Display	Test Cycle Step	Comments
<i>L o A9</i> then <i>HHH</i>	Reduced Wash Speed Forward with No Agitation Action	This step skipped on 2 speed models.
<i>A9</i> then <i>HHH</i>	Wash Speed Forward with No Agitation Action	
<i>r A9</i> then <i>HHH</i>	Wash Speed Reverse with No Agitation Action	
<i>d r A1</i> then <i>HHH</i>	Drain Distribution Speed	
<i>P U r 9</i>	Factory Valve Purge	
<i>SP 1</i> then <i>HHH</i>	Extract Speed #1 “very low”	This step skipped on 2 speed models.
<i>SP 2</i> then <i>HHH</i>	Extract Speed #2 “low”	This step skipped on 2 speed models.
<i>SP 3</i> then <i>HHH</i>	Extract Speed #3 “medium”	This step skipped on 2 speed models.
<i>SP 4</i> (VFD models) or <i>SP1 n</i> (2 speed models) then <i>HHH</i>	Extract Speed #4 “high”	This step skipped on F-speed models.
<i>SP 5</i> then <i>HHH</i>	Extract Speed #5 “very high”	This step skipped on 2 speed and F-speed models.
<i>SP 6</i> then <i>HHH</i>	Extract Speed #6 “ultra high”	Design 2 and 3 models only.
<i>P r d n</i>	End of Test	Turn power off.
<b>NOTE: On models equipped with a rotation sensor, <i>HHH</i> will represent RPMs and <i>HHH</i> will alternate with other display.</b>		

Table 20

# Error Codes

Following is a list of possible error codes for an electronic control. Errors beginning with *EI* refer to external device Infra-red

communication errors. Errors beginning with *EC* refer to card reader errors. All other errors refer to machine errors.

Display	Description	Cause/Corrective Action
<i>EI 01</i>	Transmission Failure	Communication failure. Re-aim external device and try again.
<i>EI 02</i>	Time-out Error	Communication failure. Re-aim external device and try again.
<i>EI 03</i>	Invalid Command Code	Communication successful, but the command was not valid for this machine type, or the control could not perform the command in its current mode of operation. Ensure data is for current machine type and control is in correct mode.
<i>EI 04</i>	Expecting Upload Request	Communication failure. Re-aim external device and try again.
<i>EI 05</i>	Invalid or Out-of-Range Data	The value in at least one of the programming options is invalid or out of range. Recheck the programming option's value and try again.
<i>EI 09</i>	CRC-16 Error	Communication failure. Re-aim external device and try again.
<i>EI 0A</i>	Framing Error	Communication error. Re-aim external device and try again.
<i>EI 0C</i>	Time-out Exceeded	Communication error. Re-aim external device and try again.
<i>EI 0E</i>	Encryption Error	Communication error. Re-aim external device and try again. If the problem persists, check that the security code is correct.
<i>EI 0F</i>	Infra-red Disabled	Communication failure or infra-red is disabled. Manually enable infra-red on control or re-aim external device and try again.
<i>EC02</i>	Time-out Error	Communication failure. Try card again.
<i>EC03</i>	Invalid Command Code	Communication successful, but the command was not valid for this machine type, or the control could not perform the command in its current mode of operation. Ensure data is for current machine type and control is in correct mode.
<i>EC05</i>	Invalid or Out-of-Range Data	The value in at least one of the programming options is invalid or out of range. Recheck the programming option's value and try again.
<i>EC 11</i>	No Card Reader Initialization	Communication is valid, but there is no card reader initialization. Power down, power up and try again.
<i>EC 1B</i>	No Communication	Card reader is initialized, communication lost. Power down, power up and try again. If error persists, replace control or card reader.
<i>EC 19</i>	No Card Reader Communication	Communication failure. Power down, power up and try again. If error persists, replace control or card reader.
Right most decimal point Lit†	Network Communication Error	Communication problem. Wait for 1.5 minutes for error to clear. If error doesn't clear, power-down and power-up the machine. If error persists, replace control or network board.

Table 21 *continues...*

Display	Description	Cause/Corrective Action
<i>E FL</i>	Fill Error	Programmed water level not reached within 10 minutes in any fill agitate cycle. End cycle. Power down machine to clear.
<i>E SP</i>	SPI Communications Error	Front End control cannot communicate with output board. Power down the machine, power up and try again.
<i>E dL</i>	Door Lock Error	Door does not lock immediately upon closing (open and re-close door) or doesn't unlock 5 seconds after cycle completion. Power down machine and retry.
<i>E do</i>	Door Open Error	Control detects door open. Caused by pulling on door while locked or about to lock. Correct inoperative door locking system. End cycle. Power down machine to clear.
<i>E Ub</i>	Unbalance Error	Unable to balance load. Redistribute load and run cycle.
<i>door</i>	Door Open Indicator	Door is not closed in Start Mode. If door is closed, check for improper wiring or faulty door switch.
<i>Err</i>	Coin Error	Invalid coin pulse or inoperative coin sensor. Check coin drop area and remove obstructions. If error persists, tampering may have occurred. Evaluate security procedures.
<i>E dr</i>	Drain Alarm Error	Machine not drained within 15 minutes (or other programmed length of time) in any drain step. End cycle. Power down machine to clear.
<i>E Ht</i>	Heat Alarm Error	Programmed heat alarm time of 120 minutes or other programmed length of time is exceeded. Turns off heater output for remainder of cycle.
<i>E oP</i>	Open Temperature Sensor Error	Control senses temperature less than 0°F [-18°C] in machine equipped with temperature sensor. Heater and thermistor related operations are disabled for remainder of cycle.
<i>E SH</i>	Shorted Temperature Sensor Error	Control senses temperature greater than 220°F [104°C] in machine equipped with temperature sensor. Heater and thermistor related operations are disabled for remainder of cycle.
<i>E ro</i>	Rotation Sensor Error	Invalid signal received from Rotation Sensor. Control will activate coast times to complete cycle.
<i>E FS</i>	Frame Stability Switch Error	Control detects Frame Stability Switch open. End cycle.
<i>E db</i>	Drive Balance Switch Error	Control detects VFD Balance Switch input closed at start of drain step. End cycle. Power down machine to clear.
<i>E Ld</i>	Water Leak Detection Error (Drain Valve)	If control senses a drop in water level during diagnostic testing. Power down machine to clear. When error occurs during a cycle, <i>E Ld</i> is displayed for one (1) minute after opening the door at the end of the cycle and lights the right-most decimal point* on the display. When the error occurs during the test, <i>E Ld</i> is displayed immediately after the test until the machine is powered down to clear the error.

Table 21 *continues...*

Display	Description	Cause/Corrective Action
<i>E L F**</i>	Water Leak Detection Error	Control senses an increase in water level during diagnostic testing. Power down machine to clear. Control shows error after door is open (when cycle is completed) for one minute or after test has been completed, the right-most decimal point on display lights* and the error information will be logged in audit data.
<i>E 5d</i>	Slow Drain Error	Control senses the time required to drain the water is too long, the control shows error after door is open (when cycle is completed) for one (1) minute, the right-most decimal point on display lights* and the error information will be logged in audit data.
<i>E 5d</i>	Slow Drain Error	Control shows error after door is open (when cycle is completed) for one (1) minute, the error information will be logged in audit data.
<i>E d 0 1**</i>	SPI Communication Error	Front End control cannot communicate with motor drive. Power down, verify input power and 6-pin communication connection on drive and Front End control, power up and try again.
<i>E d 0 2**</i>	DC Bus Error	The control detects the DC bus is too high. Power down, verify line voltage is within specification, power up and try again.
<i>E d 0 3**</i>	Tachometer Error	The drive detects the tachometer input is damaged during power up or no tachometer signal is detected after initiating motor output. Power down, verify H3 on drive and tachometer connections on motor, power up and try again.
<i>E d 0 4**</i>	Locked Rotor Error	Motor does not reach speed at startup. Power down, verify motor mounting and look for obstructions, power up and try again.
<i>E d 0 5**</i>	IGBT Overcurrent Error	The drive detects an overcurrent shunt condition. Power down machine for a minimum of two minutes, verify the motor is not shorted phase to phase or phase to ground. Power up and try again. If problem persists, replace drive.
<i>E d 0 6**</i>	Thermal Error	The control detects a high IPM temperature. Power down, verify convection around drive heat sink, power up and try again.
<i>E d 0 7**</i>	No Setup Error	The drive receives movement commands without receiving a set-up packet. Power down, power up and try again.
<i>E d 0 8**</i>	Max Over Current Error	The drive detects motor output overcurrent condition. Power down, power up and try again.
<i>E d 0 9**</i>	Current Sensor Error	The drive detects a current sensor is not operating properly at startup. Power down, power up and try again. If problem persists, replace drive.
<p>†The right-most decimal point will also light for Water Leak Detection and Slow Drain Detection errors, refer to <i>E L d</i> and <i>E 5d</i>.</p> <p>*To clear the decimal point on display, press the START (enter) keypad 3 times in succession (within 5 seconds).</p> <p>**Design 2 and 3 models only.</p>		

Table 21



# Rapid Advance Feature

The Rapid Advance feature allows the user to quickly advance through active cycles or advance into a cycle from the Ready Mode.

## How to Enter Rapid Advance

1. If control is in Ready Mode, control must be put into Manual Mode. Refer to *Entering Manual Mode*.
2. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *rRPd* appears in the display.
3. Press the START (enter) keypad. The display will show cycle time and the START (enter) keypad LED will flash.
4. Press the START (enter) keypad to start cycle.

**NOTE: Door must be closed to start cycle.**

## How to Enter Rapid Advance During an Active Cycle

1. Be certain top cover is open and coin vault switch is closed.
2. While pressing and holding the PERM PRESS/ 90C keypad with one hand, press the NORMAL/ 90C keypad with the other hand.
3. Press the NORMAL/ 40C (Λ) or the DELICATE/ 30C (v) keypad until *rRPd* appears in the display.
4. Press START (enter) to activate Rapid Advance cycle.

## How to Use Rapid Advance

Control may be in an active cycle or in the Ready Mode to use the Rapid Advance feature.

While in the Rapid Advance Mode, pressing the START (enter) keypad will advance the machine to the next cycle step. The cycle indicator lights will tell which cycle step the machine is in.

**For Example:** If the machine is in the first Fill cycle step, pressing the START (enter) keypad will advance the machine into the Agitate cycle step.

Continue pressing the START (enter) keypad until the cycle is completed.

## How to Exit Rapid Advance Feature

Advance through the cycles until reaching the Ready Mode.

**NOTE: The Manual Rapid Advance option must be turned on for Rapid Advance to work. Refer to *Manual Rapid Advance (Enable/Disable) rAE* in *Programming Control*.**

# Clear Vend Feature

This feature allows the owner to clear a control which is in the middle of satisfying a vend price, and set it back to the Ready Mode.

For more information on using the Clear Vend feature, refer to *How to Clear Vend*.

## How to Clear Vend

1. Open the top cover. Refer to *Opening the Top Cover*.
2. While pressing and holding the PERM PRESS/ 90C keypad with one hand, press the NORMAL/ 60C keypad with the other hand. The control will reset to the Ready Mode.

# Power Fail Recovery

The Power Fail Recovery feature allows the cycle status to be saved in memory in the event of a power failure.

If the power failure lasted less than 2 minutes, the cycle will resume without requiring the user to press the START (enter) keypad to restart.

If the power failure lasted longer than 2 minutes, the START (enter) keypad will flash until it is pressed and the cycle will restart from the point it left off.

# Default Cycles

Cycle Chart							
Cycle Steps	NOR-MAL/ 90C	NOR-MAL/ 60C	NOR-MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI-CATE/ 30C	PERM PRESS/ 50C
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
<b>Wash 1 (ON/OFF)</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2
Fill Temperature	Warm (40C)	Warm (40C)	Warm (40C)	Warm (40C)	Warm (40C)	Warm (30C)	Warm (40C)
Fill Level	Low	Low	Low	Low	Low	Low	Low
Supply	C1	C1	C1	C1	C1	C1	C1
Heat (if enabled)	2	2	2	2	2	2	2
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
<b>Wash 2 (ON/OFF)</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2
Fill Temperature	Warm (40C)	Warm (40C)	Warm (40C)	Warm (40C)	Warm (40C)	Warm (30C)	Warm (40C)
Fill Level	Low	Low	Low	Low	Low	Low	Low
Supply	C1	C1	C1	C1	C1	C1	C1
Heat (if enabled)	2	2	2	2	2	2	2
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
<b>Wash 3 (ON/OFF)</b>	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	6	6	6	6	6	3	6
Fill Temperature	Hot (90C)	Hot (90C)	Warm (40C)	Hot (90C)	Hot (90C)	Warm (30C)	Hot (90C)
Fill Level	Low	Low	Low	Low	Low	Low	Low
Supply	C1, C2, C3 or S1, S2	C1, C2, C3 or S1, S2	C1, C2, C3 or S1, S2	C1, C2, C3 or S1, S2	C1, C2, C3 or S1, S2	C1, C2, C3 or S1, S2	C1, C2, C3 or S1, S2

Table 22 continues...

Cycle Chart							
Cycle Steps	NOR- MAL/ 90C	NOR- MAL/ 60C	NOR- MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI- CATE/ 30C	PERM PRESS/ 50C
Cycle reference (dis- play in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
Heat (if enabled)	2	2	2	2	2	2	2
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
<b>Wash 4 (ON/OFF)</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	High	High	High	Low	High	Low	Low
Supply	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3
Heat (if enabled)	2	2	2	2	2	2	2
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
<b>Rinse 1 (ON/OFF)</b>	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	High	High	High	Low	High	High	High
Supply	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3
Heat (if enabled)	0	0	0	0	0	0	0
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	OFF	OFF	OFF	OFF	OFF	OFF	OFF
<b>Rinse 2 (ON/OFF)</b>	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	High	High	High	High	High	High	High
Supply	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3

Table 22 continues...

Cycle Chart							
Cycle Steps	NOR-MAL/ 90C	NOR-MAL/ 60C	NOR-MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI-CATE/ 30C	PERM PRESS/ 50C
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
Heat (if enabled)	0	0	0	0	0	0	0
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High
<b>Rinse 3 (ON/OFF)</b>	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	High	High	High	Low	High	High	High
Supply	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3	C1, C2, C3
Heat (if enabled)	0	0	0	0	0	0	0
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.)	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High	ON, 1, High
<b>Rinse 4 (ON/OFF)</b>	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	3	3	3	3	3	3	3
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	High	High	High	Low	High	High	High
Supply	C1, C2, C3, C4 (S3, S4)	C1, C2, C3, C4 (S3, S4)	C1, C2, C3, C4 (S3, S4)	C1, C2, C3, C4 (S3, S4)	C1, C2, C3, C4 (S3, S4)	C1, C2, C3, C4 (S3, S4)	C1, C2, C3, C4 (S3, S4)
Heat (if enabled)	0	0	0	0	0	0	0
Drain	ON	ON	ON	ON	ON	ON	ON
Spin (min.) (spin speed)	5 (Design 1: Very High) (Design 2 and 3: Ultra High)	5 (Design 1: Very High) (Design 2 and 3: Ultra High)	5 (Design 1: Very High) (Design 2 and 3: Ultra High)	3 (Design 1: Very High) (Design 2 and 3: Ultra High)	3 (Design 1: Very High) (Design 2 and 3: Ultra High)	2 (High)	3 (Design 1: Very High) (Design 2 and 3: Ultra High)

Table 22 continues...

Cycle Chart								
Cycle Steps		NOR-MAL/ 90C	NOR-MAL/ 60C	NOR-MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI-CATE/ 30C	PERM PRESS/ 50C
Cycle reference (display in Program Mode)		CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type		18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
Default Cycle Time (hh:mm:ss)	2 speed	00:27:20	00:27:20	00:27:20	00:25:20	00:25:20	00:21:20	00:25:20
	F and V-speed (Design 1)	00:28:50	00:28:50	00:28:50	00:26:50	00:26:50	00:22:50	00:26:50
	F and V-speed (Design 2 and 3)	00:29:02	00:29:02	00:29:02	00:27:02	00:27:02	00:23:02	00:27:02

Table 22

Cycle Chart								
Cycle Steps		NOR-MAL/ 90C	NOR-MAL/ 60C	NOR-MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI-CATE/ 30C	PERM PRESS/ 50C
Cycle reference (display in Program Mode)		CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type		18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
Wash 1 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)								

Table 23 continues...

Cycle Chart							
Cycle Steps	NOR- MAL/ 90C	NOR- MAL/ 60C	NOR- MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI- CATE/ 30C	PERM PRESS/ 50C
Cycle reference (dis- play in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
<b>Wash 2 (ON/OFF)</b>							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.)							
<b>Wash 3 (ON/OFF)</b>							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.)							
<b>Wash 4 (ON/OFF)</b>							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.)							

Table 23 continues...



Cycle Chart							
Cycle Steps	NOR- MAL/ 90C	NOR- MAL/ 60C	NOR- MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI- CATE/ 30C	PERM PRESS/ 50C
Cycle reference (dis- play in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
<b>Rinse 1 (ON/OFF)</b>							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.)							
<b>Rinse 2 (ON/OFF)</b>							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.)							
<b>Rinse 3 (ON/OFF)</b>							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.)							

Table 23 continues...

Cycle Chart							
Cycle Steps	NOR-MAL/ 90C	NOR-MAL/ 60C	NOR-MAL/ 40C	PERM PRESS/ 90C	PERM PRESS/ 60C	DELI-CATE/ 30C	PERM PRESS/ 50C
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle
Rinse 4 (ON/OFF)							
Time for agitation (min.)							
Fill Temperature							
Fill Level							
Supply							
Heat (if enabled)							
Drain							
Spin (min.) (spin speed)							
Default Cycle Time (hh:mm:ss)	2 speed						
	F and V-speed (Design 1)						
	F and V-speed (Design 2 and 3)						

Table 23