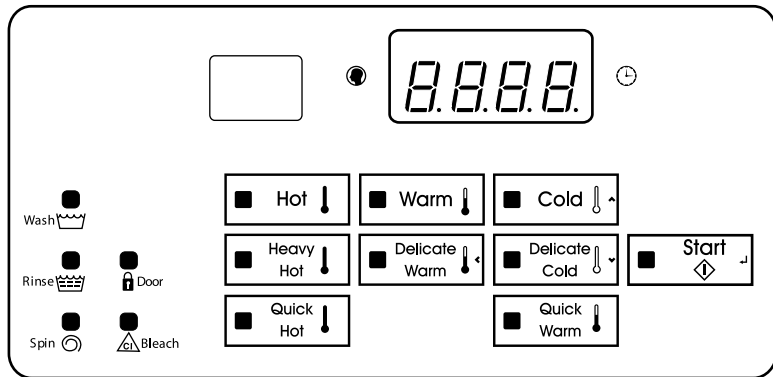


Washer-Extractor

Refer to Page 7 for Model Numbers



CHM1775C_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 [9.1 Kg]	HCH020HDF HCH020HXF HCL020HDF HCL020HXF	HCN020HC2 HCN020HCF HCN020HD2 HCN020HDF	HCN020HEF HCN020HXF HCN020HY2 HCN020HYF	HCU020HC2 HCU020HEF HCU020HL2 HCU020HX2	HCU020HXF
30 Pound [13.6 Kg]	HCH030HCF HCH030HDF HCH030HEF HCH030HLF HCH030HXF	HCL030HCF HCL030HDF HCL030HE2 HCL030HEF HCL030HLF	HCL030HXF HCN030HC2 HCN030HCF HCN030HD2 HCN030HDF	HCN030HEF HCN030HXF HCN030HY2 HCN030HYF HCU030HC2	HCU030HE2 HCU030HL2 HCU030HLF HCU030HX2 HCU030HXF
40 Pound [18.1 Kg]	HCB040HCF HCB040HXF HCH040HCF HCH040HDF HCH040HEF	HCH040HXF HCL040HC2 HCL040HCF HCL040HDF HCL040HE2	HCL040HEF HCL040HXF HCN040HC2 HCN040HCF HCN040HD2	HCN040HDF HCN040HEF HCN040HXF HCN040HY2 HCN040HYF	HCU040HC2 HCU040HLF HCU040HX2 HCU040HXF
60 Pound [27.2 Kg]	HCH060HCF HCH060HDF HCH060HXF HCL060HC2	HCL060HCF HCL060HDF HCL060HXF HCN060HC2	HCN060HCF HCN060HDF HCN060HEF HCN060HXF	HCN060HY2 HCN060HYF HCU060HC2 HCU060HL2	HCU060HLF HCU060HX2 HCU060HXF
80 Pound [36.3 Kg]	HCN080HCF HCN080HCV	HCN080HDF HCN080HYF	HCN080HYV	HCU080HCF	HCU080HXF
100 Pound [45.4 Kg]	HCN100HCF				

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:

Manufacturer/Factory:

Alliance Laundry Systems

Shepard Street

P.O. Box 990

Ripon, WI 54971-0990

U.S.A.

www.alliancelaundry.com

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

In Country Representative:

Alliance do Brazil Maquinas de Lavanderia Ltda.

Av. Eng. Luiz Carlos Berrini, 1748

Conj. 2104 – Cidade Monções

São Paulo – SP

Brasil 04571-000

Phone: 55 11 5505 2917

CNPJ: 17.658.250/0001-16

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 and wash temperature setting built in, however, the owner can change the default cycle, or any cycle, as needs permit.

The default cycle is Delicate Warm.

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

If a cycle is in progress and the power fails, the cycle status is saved in memory. When the power recovers, the machine will resume into the previously active cycle automatically without user input if the length of the power failure was less than two minutes.

If the length of the power failure is greater than two minutes, the control will return to Start Mode and the cycle step where the power failure occurred. User must press START (enter) pad to resume the cycle.

Communications

The control may be programmed manually or by infra-red communication with an external device.

Infra-red Communications

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.

Control Identification

Select Cycle Keypads

(Refer to *Figure 1*)

Select Cycle pads are used to select the specific machine cycle. These pads include Hot, Warm, Cold, Heavy Hot, Delicate Warm and Delicate Cold, Quick Hot and Quick Warm. These pads allow the user to select a cycle other than the default cycle (Delicate Warm).

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) keypad will start the cycle and deduct the vend price from the card.

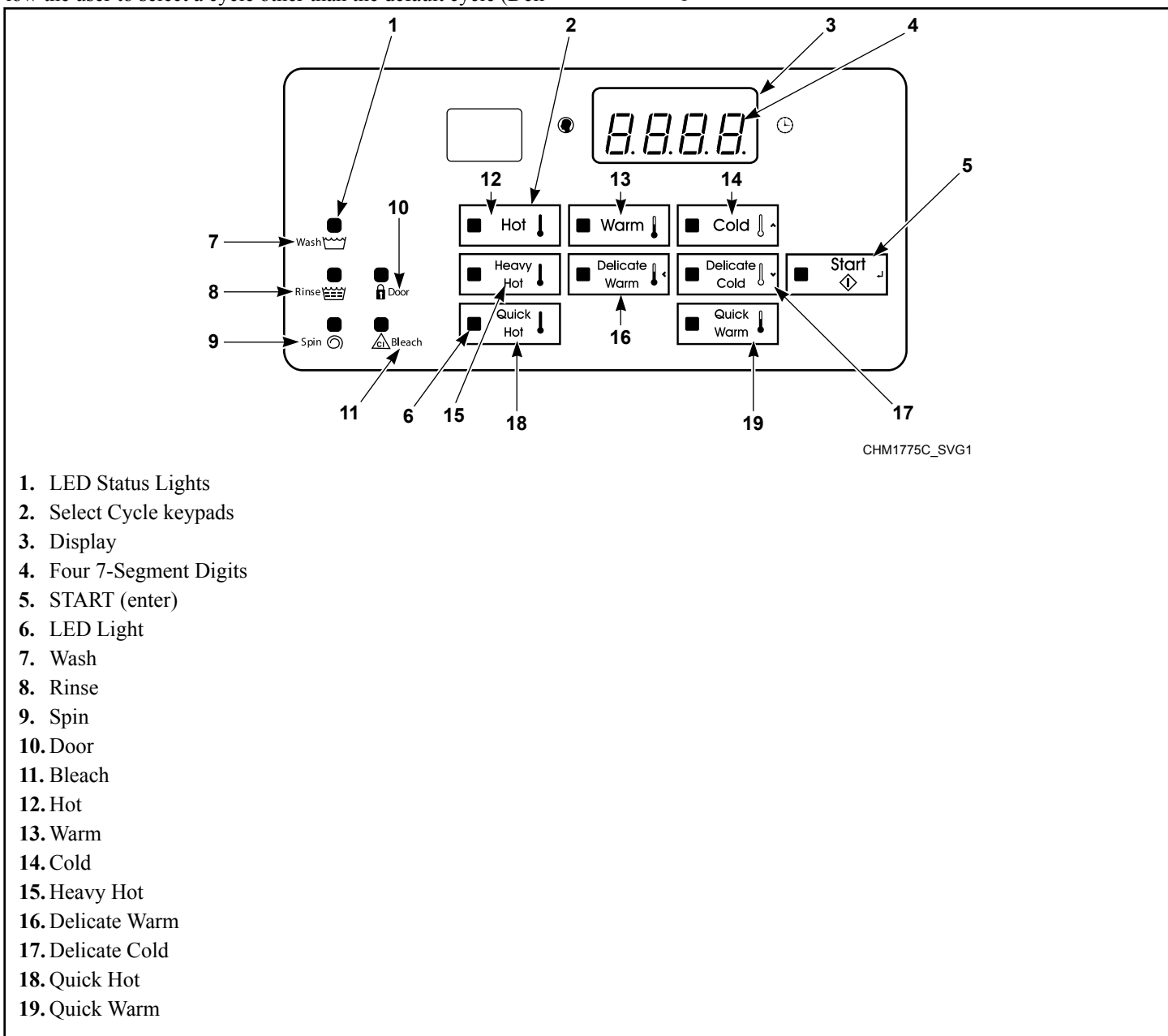


Figure 1

Display Identification

Light Emitting Diodes (LEDs)

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.

(Refer to *Figure 1*)

CYCLE LED

(Hot, Warm, Cold, Heavy Hot, Delicate Warm, Delicate Cold, Quick Hot, Quick Warm)

Cycle 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.

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 by lighting the LEDs. The full current vend price for the cycle appears in the display.

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, soil level or wash water temperature 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.

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

Start Mode

The control enters this mode when the full vend price is satisfied, the vend price is zero (0), the control is in OPL Mode or the correct Drop Off Mode key sequence is entered. The 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, **5-E-R-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-R-E-E**. 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.

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.

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.

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.

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 any-time during the first Fill step. After the first Fill step, all keypad presses are ignored.

Special Features

Programming the Control

The control allows the operator to program the control with the use of the keypad. Cycle and vend options may be programmed, audit information may be viewed and diagnostic tests may be run by pressing combinations of keypads.

For details on programming select cycle and vend 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*.

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

This feature allows the user to quickly advance through active cycles or advance into a cycle from the Ready Mode. This feature is useful when tests must be performed immediately on a machine currently in an active cycle. In this case, the user can quickly advance through the cycles to the shake out step, then End of Cycle Mode. At this point, the user can perform the required tests and then return the machine to the point it was interrupted.

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*.

Communications Mode

This feature allows the control to communicate with an external device. 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 start a cycle.

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 Ready Mode to the Start Mode after a single pulse or multiple pulses are received.

Top Cover and Coin Vault Openings

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. Refer to *Opening the Top Cover*.

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.

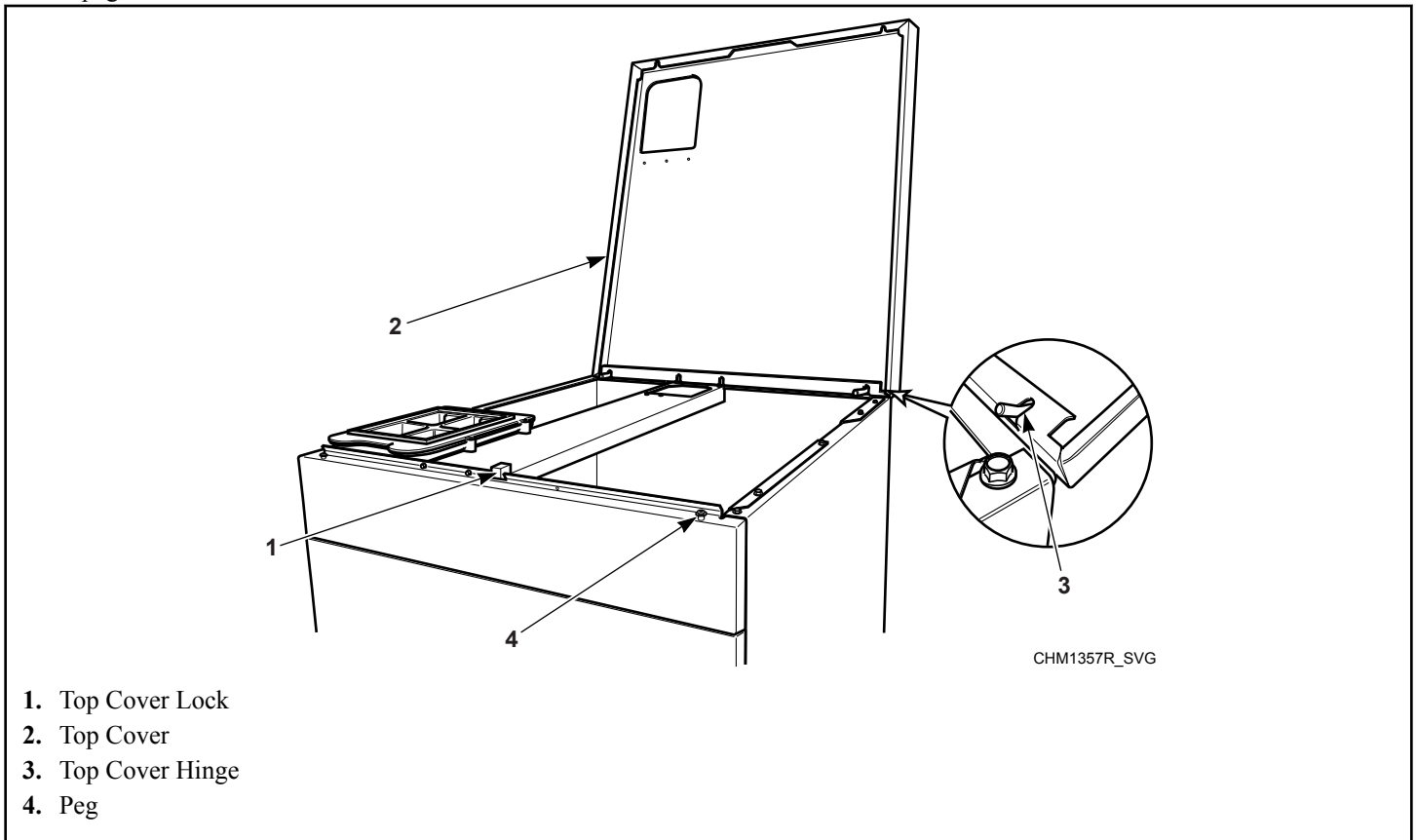


Figure 2

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 accessing Diagnostic Tests, be sure the machine is in the Ready Mode before continuing to step 2. 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 Heavy Hot keypad with one hand, press the Hot keypad with the other hand.
4. The display will show *rRPd*.
5. Press the Cold (Λ) or the Delicate Cold (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 two (2) groups: Manual Programming and Manual Rapid Advance. Manual Programming can only be turned on or off with an external device. Refer to the appropriate instruction manual. Manual Rapid Advance can be turned on and off using an external device or by manual programming (refer to *Manual Rapid Advance (Enable/Disable) rAEn of Programming Control*).

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*)

How to Exit Programming Feature

Press the Delicate Warm (<) 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 what will show in the display when that option is selected.

Programmable Options Available

Option Number	Option Display	Description	Default Value	Value Range
1	<i>Rt5</i>	Cycle Vend Price	200	0-65535
2	<i>dEn1</i>	Coin #1 Value	25	1-65535
3	<i>dEn2</i>	Coin #2 Value	100	1-65535
4	<i>PLSE</i>	Start Pulse Value	25	1-65535
5	<i>PLSn</i>	Start Pulse Mode	128	oFF /128/192
6	<i>RtYP</i>	Available Type	0	0-3
7	<i>dCPC</i>	Default Cycle	5*	1-8*
8	oPL	OPL Mode Enable/Disable	oFF	oN / oFF
9	<i>AUd</i>	Audio Signal	29*	0-31*
10	<i>Err-</i>	Errors	—	—
a.	<i>CEr-</i>	Coin Error Parameters	—	—
1.	<i>CEr1</i>	Coin Error	oN	oN / oFF
2.	<i>CEr2</i>	Coin Error Penalty	oFF	oN / oFF
3.	<i>CEr3</i>	Coin Drops Header Present Error	oN	oN / oFF
b.	<i>E FL</i>	Fill Errors	oN	oN / oFF
c.	<i>E dr</i>	Drain Error	oN	oN / oFF
d.	<i>E Ub</i>	Unbalance Error Display	oN	oN / oFF
e.	<i>E oP</i>	Open Thermister Error Display	oN	oN / oFF
f.	<i>E SH</i>	Shorted Thermistor Error Display	oN	oN / oFF

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
g.	E Ht	Heat Error Display (Heater only)	on	on/off
h.	LEr-	Water Leak Detection Error	—	—
1.	LEr 1	Water Leak Detection During a Machine Cycle (On/Off)	off	on/off
2.	LEr 3	Number of cycles between Leak Detection Test	0*	0-127*
i	E Sd	Slow Drain Detection	off	on/off
11	CYC-	Cycle Programming	Refer to <i>Default Cycles</i> for default cycle information	
a.	AGI t	Cycle Agitate	—	—
1.	tYPE	Agitate Type	**	1-2*
2.	RSPd	Agitate Speed (VFD only)	**	Lo/rE9*
b.	SE9-	Cycle Segment Programming		
1.	SEEn	Segment Enable/Disable	**	on/off
2.	FILL	Fill Step	—	—
a.	FLEn	Fill Step Enable/Disable	**	on/off
b.	FLEU	Fill Level	**	HI /nEd/Lo
c.	tEnP	Fill Temperature	**	hot/URrn/CoLd
3.	SUPL	Supply Step	—	—
a.	SUEn	Supply Step Enable/Disable	**	on/off
b.	dI SP	Dispenser Options	**	<p>Design 1 models: display will show CH (compartment-oriented) or SH (supply-oriented), depending on how option 5 (Supply/Compartment Dispenser Programming) is programmed.</p> <p>Design 2 and 3 models: Compartment and Supply dispensing is programmed separately.</p> <p>Press START keypad to access options.</p>
(1)	C2 or S1	Compartment #2/Supply #1 (Design 1 models)	**	on/off

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
(2)	<i>C3</i> or <i>S2</i>	Compartment #3/Supply #2 (Design 1 models)	**	<i>on/off</i>
(3)	<i>C4</i> or <i>S3</i>	Compartment #4/Supply #3 (Design 1 models)	**	<i>on/off</i>
(4)	<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>
c.	<i>SdUr</i>	Supply Duration	**	Press START (enter) keypad to access options
(1)	<i>SEC</i>	Seconds	**	0-59
(2)	<i>nl n</i>	Minutes	**	0-9
4.	<i>AgSt</i>	Agitate Step	—	—
a.	<i>AgEn</i>	Agitate Step Enable/Disable	**	<i>on/off</i>
b.	<i>AdUr</i>	Agitate Duration (in minutes)	**	1-30 for agitate types 1 or 2
c.	<i>HEAt</i>	Heat in Agitate (if heater is present)	**	<i>off/1/2</i> **
5.	<i>DrRn</i>	Drain Step	<i>on</i>	<i>on/off</i>
6.	<i>SPIn</i>	Extract Step	—	—
a.	<i>SPEn</i>	Extract Step Enable/Disable	**	<i>on/off</i>
b.	<i>SSEc</i>	Extract Seconds	**	0-59

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
c.	<i>Snl n</i>	Extract Minutes	**	Intermediate Extract: Min. Step Time = 30 seconds Max. Step Time = 3:59 minutes Final Extract: Min. Step Time = 30 seconds Max. Step Time = 9:59 minutes
d.	<i>SSPd</i>	Extract Speed (VFD models only)	**	1-3* (Design 1) 1-6* (Design 2 and 3)
c.	<i>Ln in</i>	Cycle Time	0*	0-255 minutes
12	<i>SUPC</i>	Supply/Compartment Dispenser Programming (Design 1 models only)	C (Compartment)	C (Compartment) S (Supply Dispenser)
13	<i>bALr</i>	Number of Balance Retries (VFD models only)	Design 1:3 Design 2 and 3:1	1-7
14	<i>l rR</i>	IR Access (Enable/Disable)	<i>on</i>	<i>on/off</i>
15	<i>tFC</i>	Fahrenheit/Celsius	FAHr (Fahrenheit)	FAHr (Fahrenheit) CEL (Celsius)
16	<i>FH</i>	Hot Water Temperature	140°F [60°C]	35°F-194°F [2°C- 90°C]
17	<i>FHC</i>	Warm Water Temperature	100°F [38°C]	35°F-194°F [2°C- 90°C]
18	<i>FC</i>	Cold Water Temperature	35°F [2°C]	35°F- 194°F [2°C- 90°C]
19	<i>Co dn</i>	Cooldown Enable/Temperature	<i>off</i>	<i>off</i> 50°F-160°F [10°C-71°C]
20	<i>PEEn</i>	Production Test Cycle (On/Off)	<i>on</i>	<i>on/off</i>
21	<i>rREn</i>	Manual Rapid Advance (On/Off)	<i>on</i>	<i>on/off</i>
22	<i>nCtd</i>	No Cycle Time Display	<i>off</i>	<i>on/off</i>
23	<i>PCtd</i>	Programmable Cycle Time Display	<i>off</i>	<i>on/off</i>
24	<i>SdRd</i>	Slow Drain Detection Adjust	0	0-255
25	<i>SPAU</i>	Pause/Resume Mode	<i>off</i>	<i>on/off</i>

Table 1 continues...

Option Number	Option Display	Description	Default Value	Value Range
<p>*Refer to programming section for value definition.</p> <p>**Refer to the <i>Default Cycles</i> for default cycle setting information.</p>				

Table 1

Programming Flowcharts

Entering Manual Mode

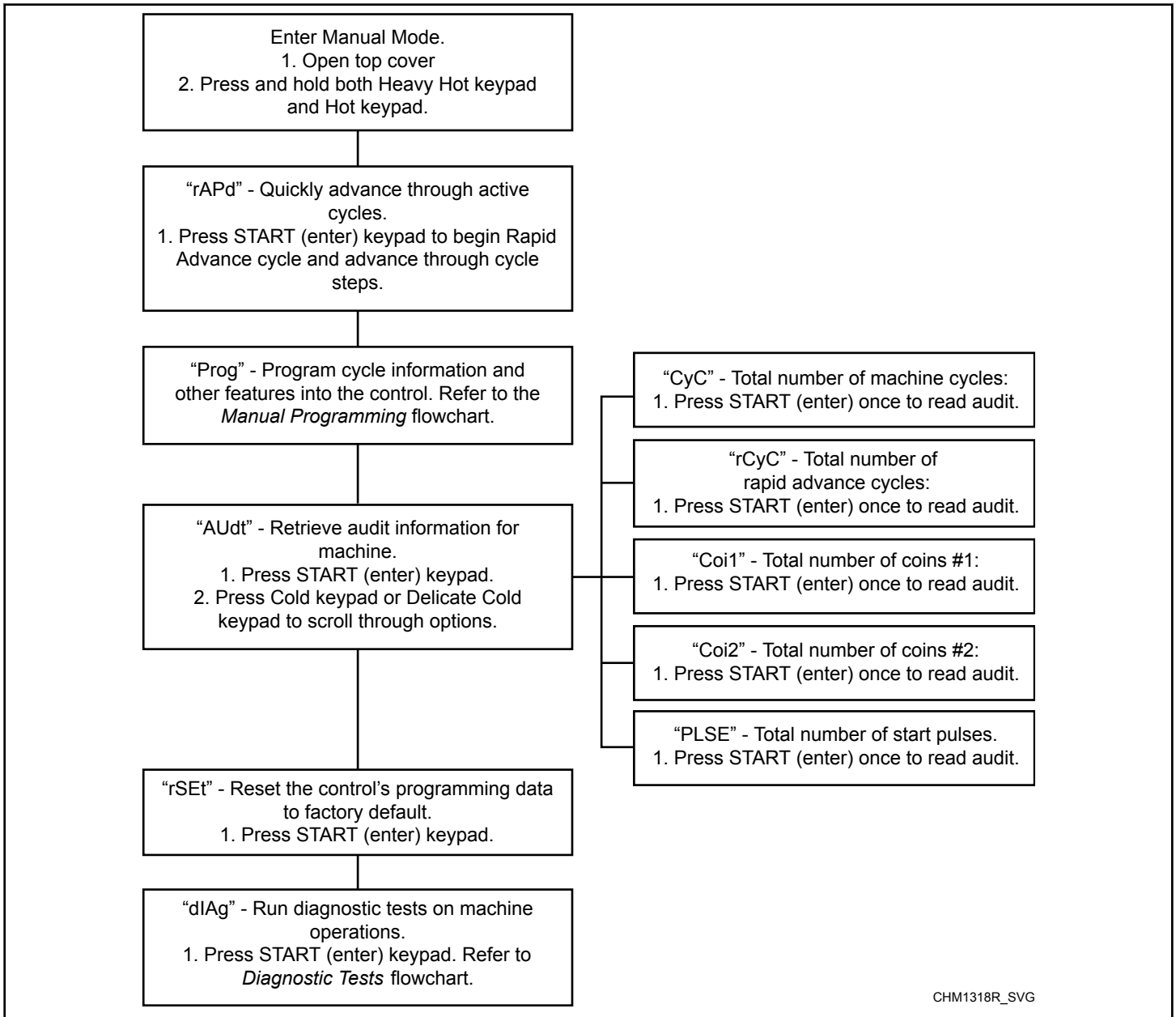


Figure 3

Manual Programming

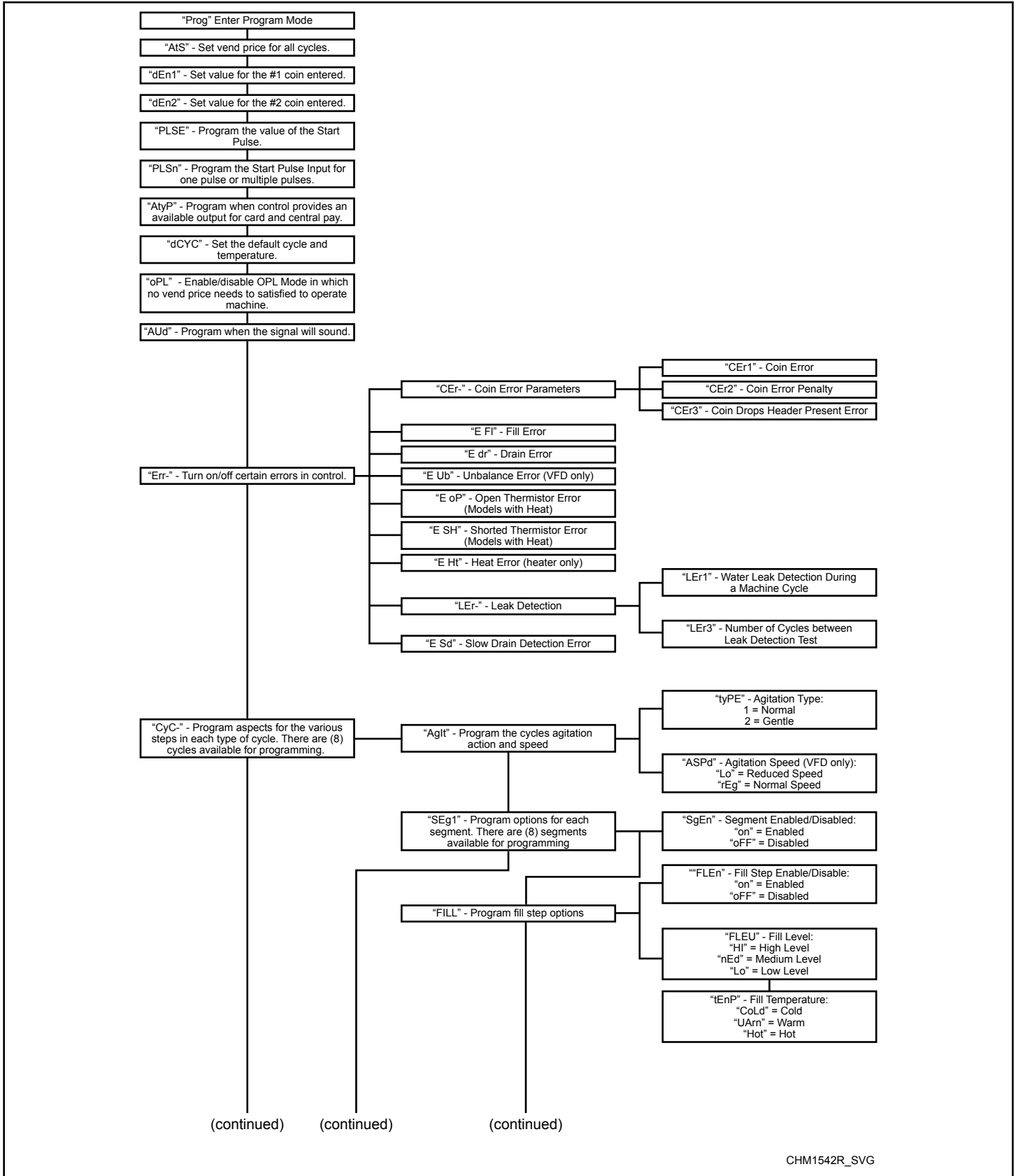


Figure 4

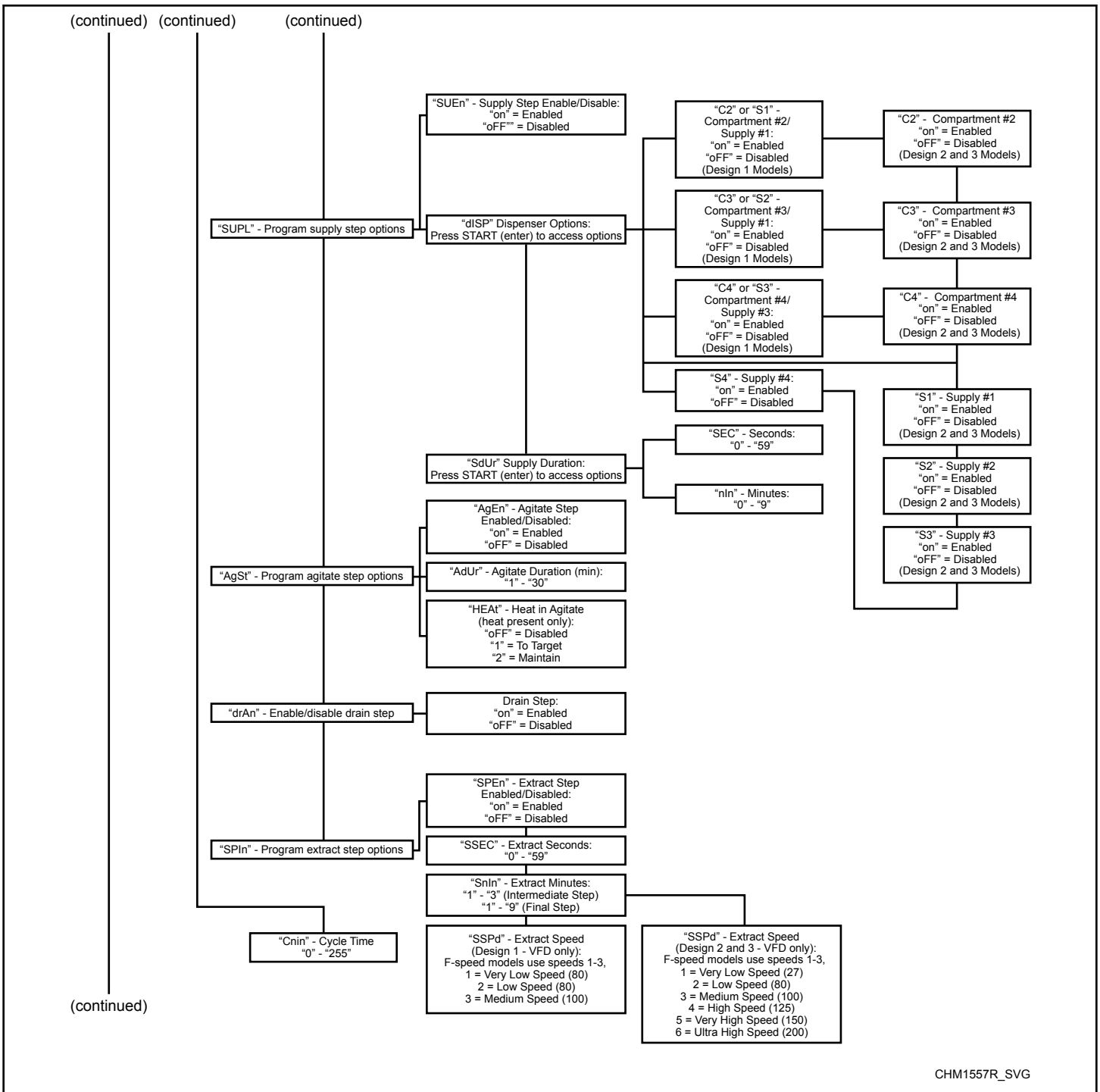


Figure 5

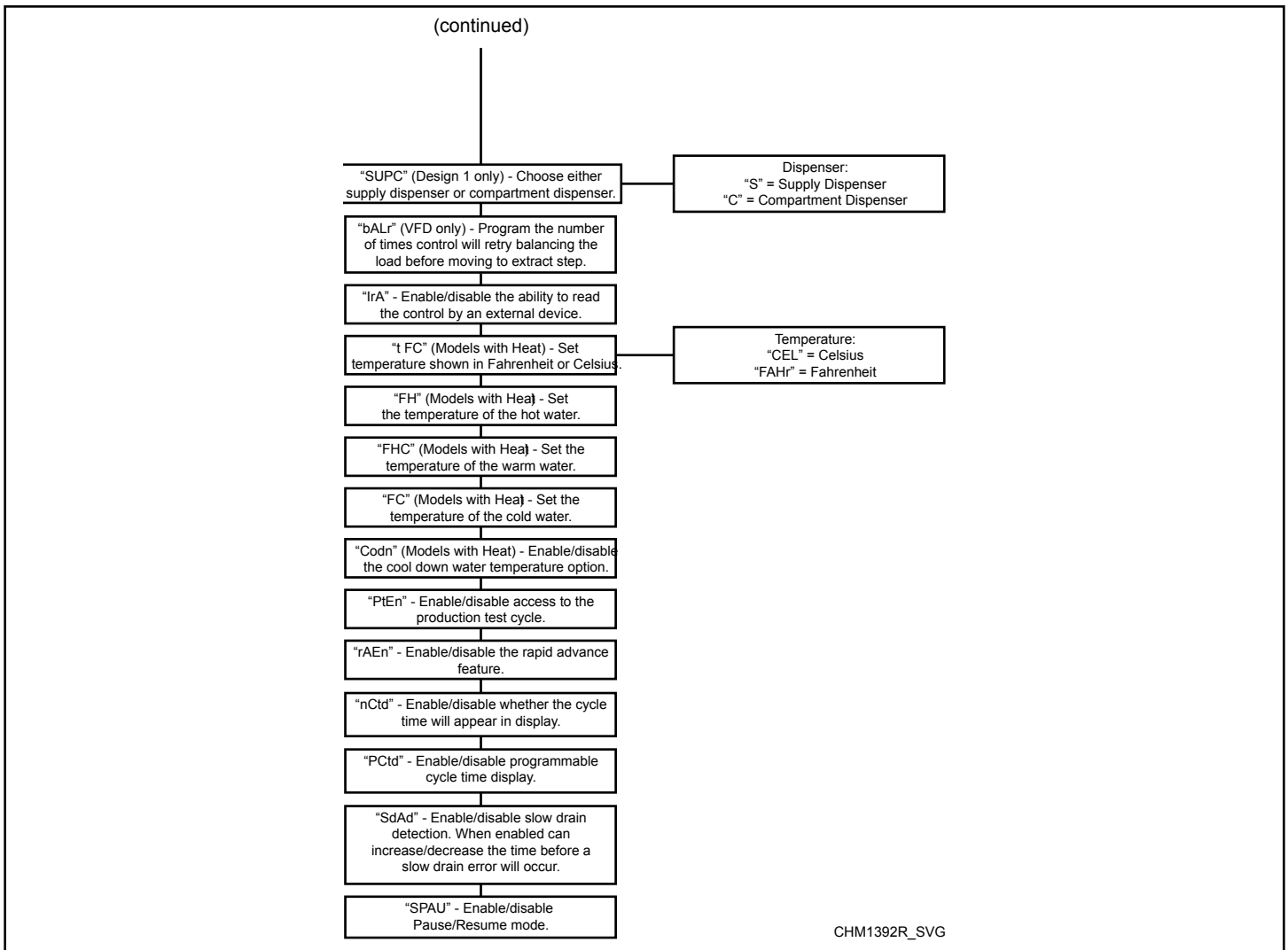


Figure 6

Diagnostics

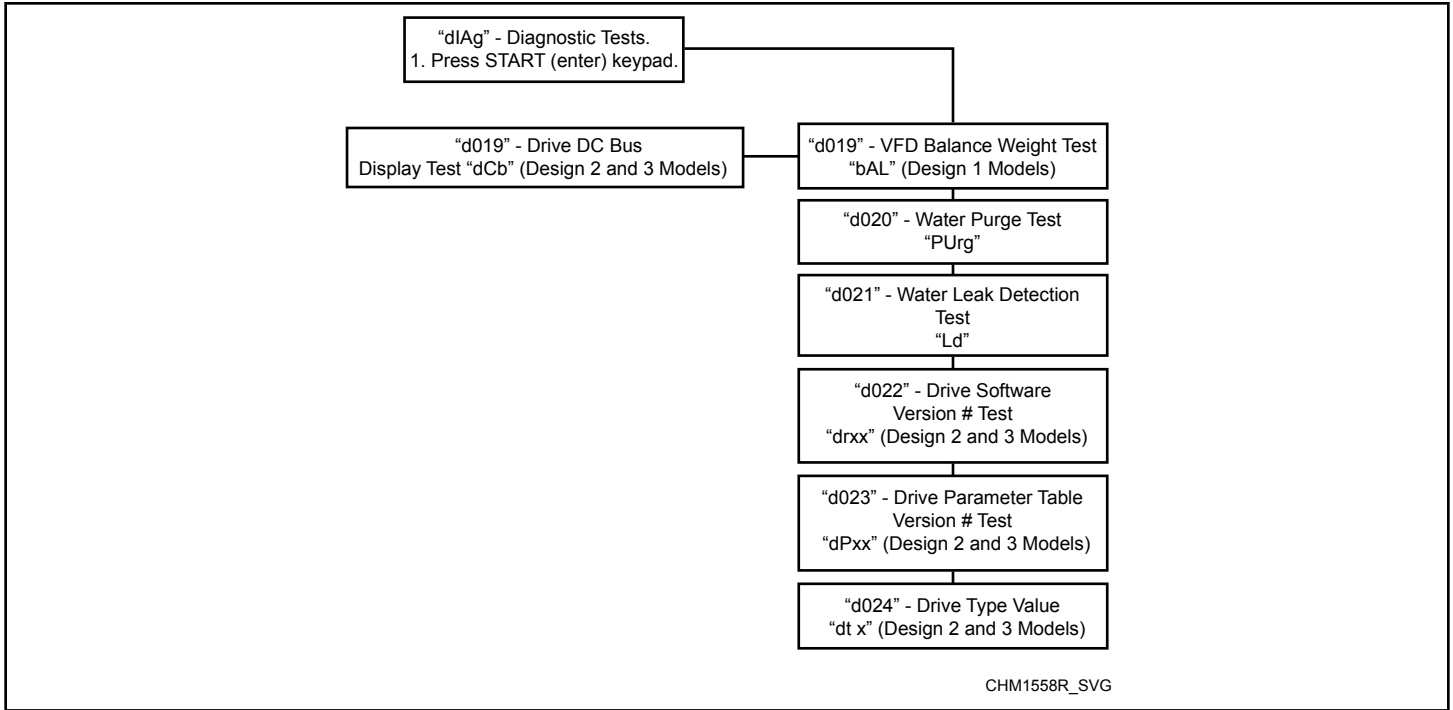


Figure 7 CHM1558R

Cycle Vend Price *PrE5*

This option allows the owner to set the vend price for all cycles. This vend price will be shown in the display when any cycle is selected.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad until *PrE5* appears in the display. Press the START (enter) keypad.
3. *PrE5* will appear in the display. Press the START (enter) keypad.
4. There are five (5) digits in Cycle 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 8*.

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 8

5. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Special Vend A option without changing the value of the active digit, press the Delicate Warm (\lt) keypad.

7. Press the Cold (\wedge) or the Delicate Cold (\vee) 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, *dEn1*, will appear in the display.

NOTE: To program *dEn1* (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 *Hot Vend Price AtSI* 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 Cold (\wedge) or the Delicate Cold (v) keypad until **Prog** appears in the display. Press the START (enter) keypad and **Alt5** will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (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 9*.

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 9

5. Press the Cold (\wedge) or the Delicate Cold (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 Delicate Warm (<) keypad.

7. Press the Cold (\wedge) or the Delicate Cold (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 *Hot Vend Price AtSI* 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 Cold (\wedge) or the Delicate Cold (\vee) keypad until **Prog** appears in the display. Press the START (enter) keypad and **PL5** will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 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 Cold (\wedge) or the Delicate Cold (\vee) 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 Delicate Warm (\lessdot) keypad.

7. Press the Cold (\wedge) or the Delicate Cold (\vee) 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, **PL5E**, will appear in the display.

NOTE: To program *PL5E* (Start Pulse Value), refer to *Start Pulse Value PL5E*. 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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *PL5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 11*.

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 11

5. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Delicate Warm (\leftarrow) keypad.

7. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (Λ) or the Delicate Cold (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *PL5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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 Delicate Warm (<) keypad.

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

NOTE: To program *ATYP* (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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *AE5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *RL5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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, *CYC 1*, and the corresponding cycle keypad LED is lit. This number corresponds to the current default cycle value. Refer to *Table 4*.
5. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad to increase or decrease the current number to the desired number. Refer to *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.

Default Cycle (<i>dCPL</i>) Chart	
Default Value (Keypad)	Cycle Type
1	Normal Hot
2	Normal Warm
3	Normal Cold
4	Heavy Hot
5*	Delicate Warm
6	Delicate Cold
7	Quick Hot
8	Quick Warm

Table 4 *continues...*

Default Cycle (<i>dCPL</i>) Chart	
Default Value (Keypad)	Cycle Type
*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 Cold (**Λ**) or the Delicate Cold (**v**) keypad until **Prog** appears in the display. Press the START (enter) keypad and **Rt5** will appear in the display.
3. Press the Cold (**Λ**) or the Delicate Cold (**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.

on = Option Enabled

oFF = Option Disabled (Default Setting)

5. Press the Cold (**Λ**) or the Delicate Cold (**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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Alt 5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) 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, *Err -*, will appear in the display.

NOTE: To program *Err - (Errors)*, refer to *Error Code Programming Err-*. 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...

Audio Signal (AUD) Chart					
Signal Value	Start Mode	Remove Card	Coin/Card Input	End of Cycle	Key Pressed
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

Error Code Programming *E r r -*

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

- Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
- Press the Cold (Λ) or the Delicate Cold (∇) keypad until *PrOg* appears in the display. Press the START (enter) keypad and *RE5* will appear in the display.
- Press the Cold (Λ) or the Delicate Cold (∇) keypad to scroll through the programmable options until *E r r -* appears in the display.
- 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.
- Press the Cold (Λ) or the Delicate Cold (∇) keypad to select error code.
- 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

- Press the Cold (Λ) or the Delicate Cold (∇) keypad to change the status.
- 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 Delicate Warm (\lt) keypad, then the Cold (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.
<i>E FL</i>	Fill Error	
<i>E dr</i>	Drain Error	
<i>E Ub</i>	Unbalance Error Display (VFD models only)	

Table 6 *continues...*

<i>LCr-</i>	Coin Error Parameters	
<i>E oP</i>	Open Thermistor Error Display (models with heat)	
<i>E SH</i>	Shorted Thermistor Error Display (models with heat)	
<i>E Ht</i>	Heat Error Display (heater only)	
<i>LEr-</i>	Leak Detection Error 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 3</i>	Number of cycles between Leak Detection Tests.
<i>E 5d</i>	Slow Drain Detection – Determines if machine is draining slower than normal. 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

Cycle Programming *CYC* -

This option allows the owner to program different aspects for various steps in each type of cycle. There are eight(8) cycles available for programming.

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the Cold (Λ) or the Delicate Cold (v) keypad until *PROG* appears in the display. Press the START (enter) keypad and *RL5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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 L*, will appear in the display.

NOTE: To program *AGI L* (Cycle Agitate), continue to next option. To program other options, press the Cold (Λ) or the Delicate Cold (v) keypads and refer to the appropriate section.

How to Program Cycle Agitate *AGI L*

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

1. Press the Cold (Λ) or the Delicate Cold (v) keypad to scroll through the programmable Cycle Programming options until *AGI L* appears in the display.
2. When *AGI L* appears in the display, press the START (enter) keypad. The first Cycle Agitate option will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (v) keypad to scroll through the programmable options. Refer to *Table 7*.
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 7*.

Final Spin Step	Description	Status
<i>TYPE</i>	Agitate Type	1 = Normal 2 = Gentle
<i>RSPd</i>	Agitate Speed (VFD only)	<i>Ld</i> = Reduced Speed <i>RE9</i> = Normal Speed

Table 7

5. Press the Cold (Λ) or the Delicate Cold (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 *5E9 1* (Cycle Segment 1) press the Delicate Warm (<) keypad and continue to next Cycle Programming option. To program other options, press the Delicate Warm (<) keypad and refer to the appropriate section.

How to Program Cycle Segment *5E9 1*

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

1. Press the Cold (Λ) or the Delicate Cold (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. *5E9n* (Segment Enable/Disable) will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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 *5E9n* 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 Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (v) keypad to scroll through the programmable Fill step options. Refer to *Table 8*.

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 8*.

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>Warm</i> = Warm <i>Hot</i> = Hot

Table 8

4. Press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (v) keypad to scroll through the programmable Supply step options. Refer to *Table 9*.

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 9*.

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_n</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 9

- Press the Cold (Λ) or the Delicate Cold (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 Delicate Warm (<) keypad first. To program other options, press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (V) keypad to scroll through the programmable Agitate step options. Refer to Table 10.
- 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 10.

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 10

- Press the Cold (Λ) or the Delicate Cold (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 #rAn (Drain Step), continue to next Cycle Segment option. To program other options, press the Cold (Λ) or the Delicate Cold (V) keypads and refer to the appropriate section.

Programming Drain Step

- When #rAn appears in the display, press the START (enter) keypad. The current status will be displayed.
- Press the Cold (Λ) or the Delicate Cold (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 SPI_n (Extract Step), continue to next Cycle Segment option. To program other options press the Cold (Λ) or the Delicate Cold (ν) keypads and refer to the appropriate section.

Programming Extract Step

1. When SPI_n appears in the display, press the START (enter) keypad. The first Extract step programming option will appear in the display.
2. Press the Cold (Λ) or the Delicate Cold (ν) keypad to scroll through the programmable Extract step options. Refer to *Table 11*.

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 11*.

Extract Step	Description	Status/Value
SPE_n	Extract Step Enable/Disable	on/off
$SSEC$	Extract Seconds	0-59
Snl_n	Extract Minutes	<p>Intermediate Extract:</p> <p>Min. Step Time = 30 seconds</p> <p>Max. Step Time = 3:59 minutes</p> <p>Final Extract:</p> <p>Min. Step Time = 30 seconds</p> <p>Max. Step Time = 9:59 minutes</p>
$SSPd$	Extract Speed* (G) (Design 1-VFD only)	1 = Very low (80) 2 = Low (80) 3 = Medium (100)
	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)

Table 11 continues...

Extract Step	Description	Status/Value
*F-speed models use speeds 1-3.		

Table 11

NOTE: If drain is disabled, the extract will not occur.

4. Press the Cold (Λ) or the Delicate Cold (ν) 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, will appear in the display.

NOTE: To program Ln_in (Cycle Time), continue to next Cycle Segment option. To program other options press the Cold (Λ) or the Delicate Cold (ν) keypads and refer to the appropriate section.

How to Program Cycle Time Ln_in

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

1. Press the Cold (Λ) or the Delicate Cold (ν) keypad to scroll through the programmable Cycle Programming options until Ln_in appears in the display.

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

2. When Ln_in appears in the display, press the START (enter) keypad. The first cycle time value will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (ν) 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 Cold (Λ) or the Delicate Cold (ν) keypads 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 Cold (Λ) or the Delicate Cold (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *AL5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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.

S = Supply Dispenser

C = Compartment Dispenser (default setting)

5. Press the Cold (Λ) or the Delicate Cold (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 *IrA* (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 (VFD Only)*. For 2 speed models: To program *IrA* (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* (VFD Only)

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 Cold (Λ) or the Delicate Cold (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *AL5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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, *IrA*, will appear in the display.

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

IR Access (Enable/Disable) *IrA*

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 Cold (Λ) or the Delicate Cold (V) keypad until *PrOG* appears in the display. Press the START (enter) keypad and *AL5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (V) keypad to scroll through the programmable options until *IrA* appears in the display.
4. When *IrA* 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 Cold (Λ) or the Delicate Cold (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 Cold (\wedge) or the Delicate Cold (\vee) keypad until **Prog** appears in the display. Press the START (enter) keypad and **FL5** will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FE5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) keypad to increase or decrease the current Hot Water Temperature value to the desired Hot Water Temperature value.

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


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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FE5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad to scroll through the programmable options until *FHC* appears in the display.

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 Cold (\wedge) or the Delicate Cold (\vee) 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].

	WARNING
<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, *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.

Cold Water Temperature *FC*

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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FE5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad to scroll through the programmable options until *FC* appears in the display.
4. When *FC* 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 Cold (\wedge) or the Delicate Cold (\vee) 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].

	WARNING
<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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *FE5* will appear in the display.

3. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (Λ) or the Delicate Cold (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Pt5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (v) keypad until *Prog* appears in the display. Press the START (enter) keypad and *Pt5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (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 Cold (Λ) or the Delicate Cold (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 *nCtd*

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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *RE5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad to scroll through the programmable options until *nCtd* appears in the display.
4. When *nCtd* 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 Cold (\wedge) or the Delicate Cold (\vee) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *PCtd*, will appear in the display.

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

Programmable Cycle Time Display *PCtd*

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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *Prog* appears in the display. Press the START (enter) keypad and *RE5* will appear in the display.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad to scroll through the programmable options until *PCtd* appears in the display.
4. When *PCtd* 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 *CnIn* in Cycle Programming to program minutes to the cycle time display.

5. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 *SdRd*

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 Cold (Λ) or the Delicate Cold (v) keypad until *PrO9* appears in the display. Press the START (enter) keypad and *AE5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (v) keypad to scroll through the programmable options until *SdRd* appears in the display.
4. When *SdRd* 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 Cold (Λ) or the Delicate Cold (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, *SPAU*, will appear in the display.

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

Pause/Resume Mode (Enabled/Disabled) *SPAU*

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 Cold (Λ) or the Delicate Cold (v) keypad until *PrO9* appears in the display. Press the START (enter) keypad and *AE5* will appear in the display.
3. Press the Cold (Λ) or the Delicate Cold (v) keypad to scroll through the programmable options until *SPAU* appears in the display.
4. When *SPAU* 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 Cold (Λ) or the Delicate Cold (v) keypad to change the current status.
6. Press the START (enter) keypad when the desired status appears in the display. The next option, *AE5*, will appear in the display.

NOTE: To program *AE5* (Cycle Vend Price), refer to *Warm Vend Price AtS2*. 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 12*.

Entering the Audit Feature by Manual Mode

1. Control must be in Manual Mode. Refer to *Entering the Manual Mode*.
2. Press the Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) keypad to scroll through various options until the desired option is shown in the display. Refer to the Audit Options List, *Table 12*, 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 12

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 Delicate Warm (\lessdot) 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 Cold (\wedge) or the Delicate Cold (\vee) 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 Cold (\wedge) or the Delicate Cold (\vee) keypad until **dI R9** appears.
3. Press the START (enter) keypad. Display will change to **d00 I** indicating the Front End Control Software Version Number test.
4. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad to scroll through the diagnostic test options.

How to Start Tests

To start a diagnostic test, refer to the quick reference chart (*Table 13*). 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 Delicate Warm (\lessdot) 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
d0 19	VFD Balance Weight Test (Design 1 models)	bRL
d0 19	Drive DC Bus Display Test (Design 2 and 3 models)	dCb
d020	Water Purge Test	PUr9
d02 I	Water Leak Detection Test	Ld
d022 (Design 2 and 3 models only)	Drive Software Version Number	d r HH
d023 (Design 2 and 3 models only)	Drive Parameter Table Version Number	dPHH
d024 (Design 2 and 3 models only)	Drive Type Value	d t H

Table 13

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 14*.

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

Table 14

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 Delicate Warm (<) 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 Delicate Warm (<) 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 **dE HH** where **HH** is the custom drive type value. Refer to *Table 15*.

Display	Drive Type
dE 1	2 HP drive
dE 2	3 HP drive

Table 15 continues...

Display	Drive Type
dE 3	5 HP 280V drive
dE 4	5 HP 480V drive

Table 15

To exit the Custom Drive Type Value, press the Delicate Warm (<) 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 Cold (Λ) keypad with one hand, press the Quick Hot 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 16* 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
5 HH	FEC Control Software Version	HH is the software version number.
o HH	Output Board Software Version	HH is the software version number.
Ct 2	Control Type	2 is the control type.
USA	Control Type	Domestic
COI n	Control Type	Coin
drAn	Drain Type	Gravity drain
drAn or PUnP	Drain Type	Drain or pump
tEnP	Temp Sensor	Step skipped if not equipped with temp sensor.

Table 16 continues...

Production Test Cycle - Quick Reference Chart		
Display	Test Cycle Step	Comments
<i>HEAt</i>	Heater	Step skipped if not heater-equipped.
<i>L dL</i> or <i>L RL</i>	Door Lock Type	<i>L dL</i> for 24 VDC lock or <i>L RL</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.
<i>BBBB</i> + all LEDs	Display Test	All display elements are lit.
<i>PAHH</i> where <i>HH</i> = 1, 2, 3, 5, 6, 7, 8, 9, 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>HFI L</i>	Hot Fill to Low Level	All water outputs turned off when Low Level reached.
<i>CFI L</i>	Cold Fill to Low Level	All water outputs turned off when Low Level reached.
<i>bFI L</i>	Warm Fill to Low Level	All water outputs turned off when Low Level reached.
<i>bFI H</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>5 2</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>5 3</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>5 4</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.

Table 16 *continues...*

Production Test Cycle - Quick Reference Chart		
Display	Test Cycle Step	Comments
<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.
<i>L0R9</i>	Reduced Wash Speed Forward with No Agitation Action	This step skipped on 2 speed models.
<i>R9</i>	Wash Speed Forward with No Agitation Action	
<i>rR9</i>	Wash Speed Reverse with No Agitation Action	
<i>dRRI</i>	Drain Distribution Speed	
<i>PUr9</i>	Factory Valve Purge	
<i>SP 1</i>	Extract Speed #1 “very low”	This step skipped on 2 speed models.
<i>SP 2</i>	Extract Speed #2 “low”	This step skipped on 2 speed models.
<i>SP 3</i>	Extract Speed #3 “medium”	This step skipped on 2 speed models.
<i>SP 4</i> (VFD models) or <i>SPIn</i> (2 speed models)	Extract Speed #4 “high”	Design 2 and 3 models only. This step skipped on F-speed models.
<i>SP 5</i>	Extract Speed #5 “very high”	Design 2 and 3 models only. This step skipped on F-speed models.
<i>SP 6</i>	Extract Speed #6 “ultra high”	Design 2 and 3 models only.
<i>Prdn</i>	End of Test	Turn power off.

Table 16

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. 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>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.

Table 17 *continues...*

Display	Description	Cause/Corrective Action
<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)	Control senses a drop in water level during diagnostic testing. Power down machine to clear. Control shows error after door is open (when cycle is completed) for one (1) 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 LF**</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 Sd</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 d01**</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 d02**</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 d03**</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 d04**</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.

Table 17 *continues...*

Display	Description	Cause/Corrective Action
<i>E_{d05}**</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_{d06}**</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_{d07}**</i>	No Setup Error	The drive receives movement commands without receiving a set-up packet. Power down, power up and try again.
<i>E_{d08}**</i>	Max Over Current Error	The drive detects motor output overcurrent condition. Power down, power up and try again.
<i>E_{d09}**</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>*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 17

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 Cold (\wedge) or the Delicate Cold (\vee) keypad until *rAPd* 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 Heavy Hot keypad with one hand, press the Hot keypad with the other hand.
3. Press the Cold (\wedge) or the Delicate Cold (\vee) keypad until *rAPd* 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) rAEn 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 Heavy Hot keypad with one hand, press the Warm keypad with the other hand. The control will reset to the Ready Mode.

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

Infra-red Communications

The Infra-red Communications feature allows the control to communicate with an external device. The control can be programmed and have its data read without using the keypad.

How to Begin Communications with an External Device

The control will go blank and the display will show **-L-** until the communication is complete. If an error occurs that terminates communication, the display will show **E1 HH** (**HH** represents the error code).

NOTE: The Infra-red Communications option must be turned on. Refer to *IR Access (Enable/Disable) IrA in Programming the Control.*

Default Cycles

Cycle Steps	Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Wash 1 (ON/OFF)	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	4	4	4	2	2
Fill Temperature	Warm	Warm	Cold	Warm	Warm	Cold	Cold	Cold
Fill Level	High	High	High	Low	High	High	Low	Low
Supply	C1(S1)	C1(S1)	C1(S1)	C1(S1)	C1(S1)	C1(S1)	C1(S1)	C1(S1)
Heat (if enabled)	2	2	2	2	2	2	2	2
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	0	0	0	0	0	0	0	0
Wash 2 (ON/OFF)	ON	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	6	6	6	6	6	6	4	4
Fill Temperature	Hot	Warm	Cold	Hot	Warm	Cold	Hot	Warm
Fill Level	Low	Low	Low	Low	Low	Low	Low	Low
Supply	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)	C1, C2, C3 (S1, S2)
Heat (if enabled)	2	2	2	2	2	2	2	2
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	0	0	0	0	0	0	0	0
Wash 3 (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	Low	Low	Low	Low	Low	Low	Low	Low
Supply	C1, C2, C3	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	2

Table 18 continues...

Cycle Steps	Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	0	0	0	0	0	0	0	0
Wash 4 (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	Low	Low	Low	Low	Low	Low	Low	Low
Supply	C1, C2, C3	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	2
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	0	0	0	0	0	0	0	0
Rinse 1 (ON/OFF)	ON	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	2	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	Low	Low	Low	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	C1, C2, C3
Heat (if enabled)	0	0	0	0	0	0	0	0
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	0	0	0	0	0	0	0	0
Rinse 2 (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	Low	Low	Low	Low	Low	Low	Low	Low
Supply	C1, C2, C3	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	0
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 18 continues...

Cycle Steps	Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Spin (min.)(spin speed)	0	0	0	0	0	0	0	0
Rinse 3 (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Time for agitation (min.)	2	2	2	2	3	3	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	High	High	High	High	High	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	C1, C2, C3
Heat (if enabled)	0	0	0	0	0	0	0	0
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	1 (High)	1 (High)	1 (High)	0	1 (High)	1 (High)	0	0
Rinse 4 (ON/OFF)	ON	ON	ON	ON	ON	ON	ON	ON
Time for agitation (min.)	4	4	4	4	2	2	2	2
Fill Temperature	Cold	Cold	Cold	Cold	Cold	Cold	Cold	Cold
Fill Level	Low	Low	Low	Low	Low	Low	Low	Low
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)	C1, C2, C3, C4 (S3, S4)
Heat (if enabled)	0	0	0	0	0	0	0	0
Drain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spin (min.)(spin speed)	4 (Design 1: Very High) (Design 2 and 3: Ultra High)	4 (Design 1: Very High) (Design 2 and 3: Ultra High)	4 (Design 1: Very High) (Design 2 and 3: Ultra High)	3 (Design 1: Very High) (Design 2 and 3: Ultra High)	3 (High)	3 (High)	2 (Design 1: Very High) (Design 2 and 3: Ultra High)	2 (Design 1: Very High) (Design 2 and 3: Ultra High)

Table 18 continues...

Cycle Steps		Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)		CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type		18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Default Cycle Time (hh:mm:ss)	2 speed	00:22:20	00:22:20	00:22:20	00:26:20	00:19:20	00:19:20	00:16:20	00:16:20
	F and V-speed (Design 1)	00:23:05	00:23:05	00:23:05	00:27:05	00:20:05	00:20:05	00:17:05	00:17:05
	F and V-speed (Design 2 and 3)	00:23:17	00:23:17	00:23:17	00:27:17	00:20:17	00:20:17	00:17:17	00:17:17

Table 18

Cycle Steps		Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)		CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type		18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Wash 1 (ON/OFF)									
Time for agitation (min.)									
Fill Temperature									
Fill Level									
Supply									
Heat (if enabled)									
Drain									
Spin (min.)(spin speed)									
Wash 2 (ON/OFF)									
Time for agitation (min.)									

Table continues...

Cycle Steps	Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Fill Temperature								
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)(spin speed)								
Wash 3 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)(spin speed)								
Wash 4 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)(spin speed)								
Rinse 1 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								

Table continues...

Default Cycles

Cycle Steps	Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)	CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)(spin speed)								
Rinse 2 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)(spin speed)								
Rinse 3 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								
Fill Level								
Supply								
Heat (if enabled)								
Drain								
Spin (min.)(spin speed)								
Rinse 4 (ON/OFF)								
Time for agitation (min.)								
Fill Temperature								
Fill Level								

Table continues...

Cycle Steps		Hot	Warm	Cold	Heavy Hot	Delicate Warm	Delicate Cold	Quick Hot	Quick Warm
Cycle reference (display in Program Mode)		CYC1	CYC2	CYC3	CYC4	CYC5	CYC6	CYC7	CYC8
Agitation type		18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	18/3/18 Normal	3/12/3 Gentle	3/12/3 Gentle	18/3/18 Normal	18/3/18 Normal
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)								