Tumble Dryer

OPL Electronic Control

Refer to Page 3 for Model Identification

Programming

Keep These Instructions for Future Reference.
(If this machine changes ownership, this manual must accompany machine.)

Alliance Laundry Systems

www.comlaundry.com

Part No. 70444901R3
July 2011

Table of Contents

Introduction

Model Identification

	Gas			Steam/Thermal Oil	Electric
25 Pound	CHD25G2-CA025L	DR25G2-BU025L	ST025L	CHD25S2-CU025S	CHD25E2-CT025E
	CHD25G2-CA025N	HA025L	ST025N	CHD25S2-CT025S	CHD25E2-CU025E
	CHD25G2-CT025L	HA025N	SU025L	DR25S2-BT025S	DR25E2-BT025E
	CHD25G2-CT025N	HT025L	SU025N	DR25S2-BU025S	DR25E2-BU025E
	CHD25G2-CU025L	HT025N	UA025L	HT025S	HT025E
	CHD25G2-CU025N	HU025L	UA025N	HU025S	HU025E
	DR25G2-BA025L	HU025N	UT025L	IPD25S2-IT025S	IPD25E2-IT025E
	DR25G2-BA025N	IPD25G2-IT025N	UT025N	ST025S	ST025E
	DR25G2-BT025N	IPD25G2-IT025L	UU025L	SU025S	SU025E
	DR25G2-BT025L	SA025L	UU025N	UT025S	UT025E
	DR25G2-BU025N	SA025N		UU025S	UU025E
30 Pound	CHD30G2-CA030L	DR30G2-BU030L	ST030D	CHD30S2-CU030S	CHD30E2-CU030E
	CHD30G2-CA030N	SA030L	ST030L	CHD30S2-CT030S	CHD30E2-CT030E
	CHD30G2-CT030L	SA030N	ST030N	DR30S2-BT030S	DR30E2-BT030E
	CHD30G2-CT030N	HA030L	SU030L	DR30S2-BU030S	DR30E2-BU030E
	CHD30G2-CU030L	HA030N	SU030N	HT030S	HT030E
	CHD30G2-CU030N	HT030D	UA030L	HU030S	HU030E
	DR30G2-BA030N	HT030L	UA030N	IPD30S2-IT030S	IPD30E2-IT030E
	DR30G2-BA030L	HT030N	UT030L	ST030S	ST030E
	DR30G2-BT030D	HU030L	UT030N	SU030S	SU030E
	DR30G2-BT030L	HU030N	UU030L	UT030S	UT030E
	DR30G2-BT030N	IPD30G2-IT030N	UU030N	UU030S	UU030E
	DR30G2-BU030N	IPD30G2-IT030L			
30 Pound Stacked	CHD30STG2-CAT30L	DRST30G2-BTT30N	HUT30L	CHD30STS2-CUT30S	CHD30STE2-CUT30E
	CHD30STG2-CAT30N	DRST30G2-BUT30L	HUT30N	CHD30STS2-CTT30S	CHD30STE2-CTT30E
	CHD30STG2-CTT30L	DRST30G2-BUT30N	SAT30L	DRST30S2-BUT30S	DRST30E2-BUT30E
	CHD30STG2-CTT30N	HAT30L	SAT30N	DRST30S2-BTT30S	DRST30E2-BTT30E
	CHD30STG2-CUT30L	HAT30N	STT30D	HTT30S	HTT30E
	CHD30STG2-CUT30N	HTT30D	STT30L	HUT30S	HUT30E
	DRST30G2-BAT30L	HTT30L	STT30N	IPD30STS2-ITT30S	IPD30STE2-ITT30E
	DRST30G2-BAT30N	HTT30N	SUT30L	STT30S	STT30E
	DRST30G2-BTT30D	IPD30STG2-ITT30N	SUT30N	SUT30S	SUT30E
	DRST30G2-BTT30L	IPD30STG2-ITT30L			
35 Pound	CHD35G2-CA035L	DR35G2-BU035L	ST035L	CHD35S2-CU035S	CHD35E2-CT035E
	CHD35G2-CA035N	HA035L	ST035N	CHD35S2-CT035S	CHD35E2-CU035E
	CHD35G2-CT035L	HA035N	SU035L	DR35S2-BT035S	DR35E2-BT035E
	CHD35G2-CT035N	HT035L	SU035N	DR35S2-BU035S	DR35E2-BU035E
	CHD35G2-CU035L	HT035N	UA035L	HT035S	HT035E
	CHD35G2-CU035N	HU035L	UA035N	HU035S	HU035E
	DR35G2-BA035N	HU035N	UT035L	IPD35S2-IT035S	IPD35E2-IT035E
	DR35G2-BA035L	IPD35G2-IT035L	UT035N	ST035S	ST035E
	DR35G2-BT035N	IPD35G2-IT035N	UU035L	SU035S	SU035E
	DR35G2-BT035L	SA035L	UU035N	UT035S	UT035E
	DR35G2-BU035N	SA035N		UU035S	UU035E

Models continued on next page.

(Continued)

	Gas			Steam/Thermal Oil		Electric
45 Pound Stacked	CTT45L CTT45N DRST45G2-BAT45L DRST45G2-BAT45N DRST45G2-BTT45D DRST45G2-BTT45L DRST45G2-BTT45N DRST45G2-BUT45L DRST45G2-BUT45N	HAT45L HAT45N HTT45D HTT45L HTT45N HUT45L HUT45N IPD45STG2-ITT45N IPD45STG2-ITT45L	SAT45L SAT45N STT45D STT45L STT45N SUT45L SUT45N	Not Applicable		Not Applicable
50 Pound	CA050L CA050N CT050L CT050N CU050L CU050N DR55G2-BA050N DR55G2-BA050L DR55G2-BT050D DR55G2-BT050L DR55G2-BT050N DR55G2-BU050N	DR55G2-BU050L HA050L HA050N HT050D HT050L HT050N HU050L HU050N IPD50G2-IT050N IPD50G2-IT050L SA050L SA050N	ST050D ST050L ST050N SU050L SU050N UA050L UA050N UT050L UT050N UU050L UU050N	CT050S CT050T CU050S CU050T DR55S2-BT050T DR55S2-BT050S DR55S2-BU050S DR55S2-BU050T HT050S HT050T HU050S HU050T	IPD50S2-IT050S IPD50S2-IT050T ST050S ST050T SU050S SU050T UT050S UT050T UU050S UU050T	CT050E CU050E DR55E2-BT050E DR55E2-BU050E HT050E HU050E IPD50E2-IT050E ST050E SU050E UT050E UU050E
55 Pound	CA055L CA055N CT055L CT055N CU055L CU055N HA055L HA055N HT055D HT055L	HT055N HU055L HU055N IPD55G2-IT055N IPD55G2-IT055L SA055L SA055N ST055D ST055L ST055N	HU055L HU055N SU055L SU055N UA055L UA055N UT055L UT055N UU055L UU055N	Not Applicable		CT055E CU055E HT055E HU055E IPD55E2-IT055E ST055E SU055E UT055E UU055E
75 Pound	CA075L CA075N CT075L CT075N CU075L CU075N DR80G2-BA075N DR80G2-BA075L DR80G2-BT075D DR80G2-BT075L DR80G2-BT075N DR80G2-BU075N DR80G2-BU075L	HA075L HA075N HT075D HT075L HT075N HU075L HU075N IPD75G2-IT075L IPD75G2-IT075N SA075L SA075N ST075D ST075L	ST075N STF75L STF75N SU075L SU075N UA075L UA075N UT075L UT075N UTF75L UTF75N UU075L UU075N	CT075S CT075T CU075S CU075T DR80S2-BT075T DR80S2-BT075S DR80S2-BU075T DR80S2-BU075S HT075S HT075T HU075S HU075T IPD75S2-IT075T	IPD75S2-IT075S ST075S ST075T SU075S SU075T UT075S UT075T UU075S UU075T	CT075E CU075E DR80E2-BT075E DR80E2-BU075E HT075E HU075E IPD75E2-IT075E ST075E SU075E UT075E UU075E

Models continued on next page.

(Continued)

	Gas			Steam/Thermal Oil		Electric
120 Pound	CA120L	DR120G2-BU120N	ST120L	CT120S	HU120T	Not Applicable
	CA120N	HA120L	ST120N	CT120T	IPD120S2-IT120S	
	CT120L	HA120N	SU120L	CU120S	IPD120S2-IT120T	
	CT120N	HT120L	SU120N	CU120T	ST120S	
	CU120L	HT120N	UA120L	DR120S2-BT120T	ST120T	
	CU120N	HU120L	UA120N	DR120S2-BU120S	SU120S	
	DR120G2-BA120L	HU120N	UT120L	DR120S2-BU120T	SU120T	
	DR120G2-BA120N	IPD120G2-IT120N	UT120N	DR120S2-BT120S	UT120S	
	DR120G2-BT120L	IPD120G2-IT120L	UU120L	HT120S	UT120T	
	DR120G2-BT120N	SA120L	UU120N	HT120T	UU120S	
	DR120G2-BU120L	SA120N		HU120S	UU120T	
170 Pound	CA170L	DR170G2-BU170N	ST170L	CT170S	HU170T	Not Applicable
	CA170N	HA170L	ST170N	CT170T	IPD170S2-IT170T	
	CT170L	HA170N	SU170L	CU170S	IPD170S2-IT170S	
	CT170N	HT170L	SU170N	CU170T	ST170S	
	CU170L	HT170N	UA170L	DR170S2-BT170T	ST170T	
	CU170N	HU170L	UA170N	DR170S2-BU170S	SU170S	
	DR170G2-BA170L	HU170N	UT170L	DR170S2-BU170T	SU170T	
	DR170G2-BA170N	IPD170G2-IT170N	UT170N	DR170S2-BT170S	UT170S	
	DR170G2-BT170L	IPD170G2-IT170L	UU170L	HT170S	UT170T	
	DR170G2-BT170N	SA170L	UU170N	HT170T	UU170S	
	DR170G2-BU170L	SA170N		HU170S	UU170T	

Includes models with the following control suffixes:

EO – OPL electronic RE – reversing OPL electronic

Nameplate Location

The nameplate is located on the back of the machine and is programmed in the Control.

Preliminary Information

About the Control

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

The control allows the owner to program custom cycles, run diagnostic cycles, and retrieve audit and error information.

Tumblers shipped from the factory have default cycles and other settings built in. The owner can change the default cycle or any cycle.

IMPORTANT: It is extremely important that the tumbler has a positive ground and that all mechanical and electrical connections are made before applying power to or operating the tumbler.

Power Failure Recovery

If a cycle is in progress when the power fails, and if the power outage lasts three or more seconds, the cycle is lost and cannot be resumed when power recovers. If the power outage lasts less than three seconds, the control will resume the cycle when the power recovers.

Communications

The control has the ability to communicate with a PDA and a laptop with an IrDA device running the control software. Devices such as PDAs and laptops that are IrDA capable (able to transmit information to machine) that have been tested and approved for use with the software can be used as a tool for managing the machine.

Audit Information

The control collects and stores audit information, which can be accessed with a PDA or PC. Refer to the following list for some of the available audit information. Refer to ***PC and PDA Application User Instructions***.

- Total Number of Individual Cycle Counters
- End of Cycle to Loading Door Open Time
- End of Cycle to Start of Next Cycle Time
- Total Number of Machine Cycles
- Total Number of Operating Minutes
- Power Failure Audit Data

The PDA or PC can receive audit and program data from the control, and send programming data and diagnostic commands to the control. Refer to ***PC and PDA Application User Instructions*** for additional information.

Some of the above listed audit data is available manually. Refer to *Collecting Audit Information* section.

Restore to Factory Defaults

When the user resets to factory default, the control resets all of the default values. The control also resets Machine Cycles #1 through #30. The control will also reset the following to factory-defaults:

Default Global Settings

Ignition Retries = 3

Temperature Units = Fahrenheit (°F)

High (H) Temperature = 190 (°F)

Medium (M) Temperature = 160 (°F)

Low (L) Temperature = 140 (°F)

Very Low (VL) Temperature = 120 (°F)

Cool Down Temperature = 100 (°F)

Cool Down Time = 2 minutes

Rapid Advance = Disabled

Multi-Segment Cycles = Disabled

Daylight Saving = Enabled

Key Pad Audio = Enabled

End of Cycle Audio = Enabled (5 seconds)

End of Cycle External Signal = Enabled (5 seconds)

Clean Lint Screen Reminder = Off

Display Limit Errors = Disabled

Manual Diagnostics = Enabled

*Manual Programming = Enabled

**Reverse Cylinder Rotate Time = 120 (seconds)

**Reverse Cylinder Stop Time = 6 (seconds)

**Advanced Reversing = Disabled

***Advanced Options for Moisture Dry = Disabled

***Display Moisture Sensor Error = Disabled

*If manual programming is disabled, programming changes to the control can only be made with an external communication device. Refer to ***PC and PDA Application User Instructions.***

**Only available on units equipped with reversing feature.

***Only available on units equipped with moisture sensing feature.

Refer to Factory Defaults, Menu section for information on Restoring Factory Defaults.

Entering Program Mode

1. Press and hold Stop (⊽), then Back (←), then Up (↑) to enter the programming options.

Control Identification

Operational Keypad

The control includes five keypads. These functions are available to the operator and are intended to control and manage operation of the tumbler. Refer to *Figure 1*, *Figure 2*, *Figure 3*, *Figure 4* and *Table 1*.

S Models

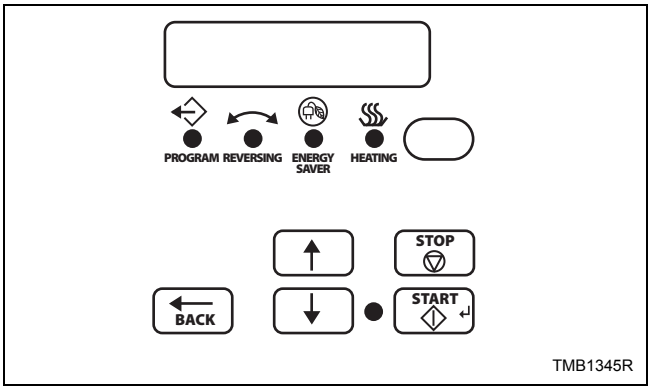


Figure 1

H Models

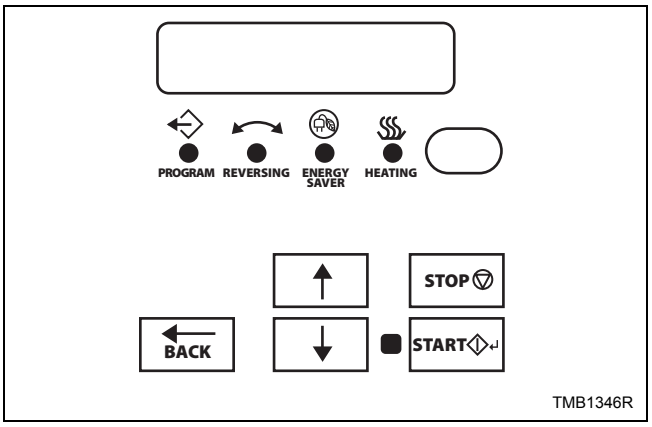


Figure 2

U Models

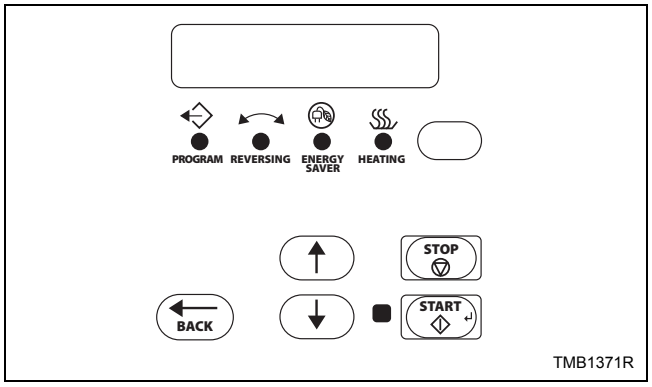


Figure 3

B, C, and I Models

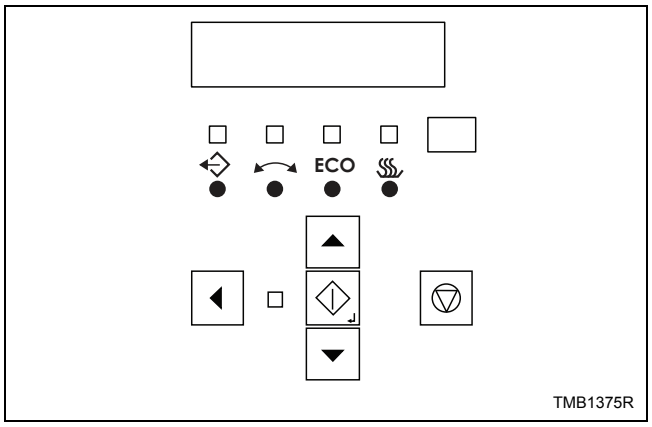


Figure 4

NOTE: The reversing feature is not available on all models.

Keypad	Description
UP ARROW ↑	Press to scroll through menu options and edit parameter values.
DOWN ARROW ↓	Press to scroll through menu options and edit parameter values.
BACK ARROW ←	Press to go to the list of parameters without saving the value when adjusting the value of a programming parameter. Also, press to go to the previous menu when the control displays a parameter, return to Idle Mode when the control displays the main menu or clear an error message from the display.
STOP	Press to pause a cycle while in Run Mode or abort a cycle if the control is in Pause Mode.
START /↵	Press to start the selected cycle, select an option when in the menu or save a value when editing a parameter.
Status Indicator LED	**Description**
PROGRAM	LED will light up if the control is in Manual Programming Mode or if a cycle is being modified.
REVERSING	LED will light up when cylinder is reversing.
ENERGY SAVER	LED will light up when a Moisture Dry or Auto Dry cycle is running.
HEATING	LED will light up when the machine is in the heat portion of the cycle.

Table 1

Operation Modes

General Modes of Operation

In each mode of operation, the user may press keypads or communicate with the control to change the displayed menu.

Power-up Mode

The control enters this mode at power-up. When power is applied to the tumbler, the control becomes active and will display its software version as "5XX" ("XX" is the version number) for one second. If the control was not powered down during a running cycle, it will enter the Idle Mode. After the control completes operation in the Power-up Mode it will enter Idle Mode.

Idle Mode

The control is ready for operation in Idle Mode. Control can display different menus depending on user input (keypad press, opening or closing the loading door, or PDA communication). If there is no user input for 10 minutes, display will turn off.

While in Idle Mode the control will display the active cycles. Anytime the control returns to Idle Mode after a cycle has been run, the control will display the last run cycle (except the first time the control is powered up it will show the first cycle).

Press the up arrow (↑) to increment the cycle number. Press the down arrow (↓) to decrease the cycle number. If the Start (◇/↵) keypad is pressed and either the loading door or lint door is open the control will show "door" for five seconds or until door is closed.

If the control is in Idle Mode, Cycle Menu is displayed, loading and lint door closed, and the Start (◇/↵) keypad is pressed, control will enter Run Mode.

Run Mode

The Control enters Run Mode during a cycle. Display shows machine cycle time remaining, the current cycle type, segment and temperature. Loading and lint doors are closed during Run Mode. Press Stop (▽) keypad to stop cycle and enter Pause Mode. Control enters Pause Mode if loading or lint door opens. Press Start (◇/↵) to Rapid Advance.

Rapid Advance Mode

If the Rapid Advance Option is enabled, the user can advance a running machine cycle by pressing the Start (◇/↵) keypad. In a Time Dry cycle, pressing the Start (◇/↵) keypad will decrease the remaining time by one minute. Pressing and holding the Start (◇/↵) keypad will decrease the remaining time by four minutes per second until the end of the cycle.

In the Auto-Dry and Moisture Dry cycles, pressing the Start (◇/↵) keypad will advance the cycle to the next enabled segment. Note that Auto-Dry cycles only have one programmable segment.

In the Cool Down segment, pressing the Start (◇/↵) keypad will decrease the remaining time by one minute.

When the cycle is completed, the audit counter, Total Rapid Advance Cycles, is incremented rather than the Total Machine Cycles audit counter. If the Rapid Advance Option is disabled preventing a manual Rapid Advance, the user may still execute a Rapid Advance using the PDA or PC. Refer to ***PC and PDA Application User Instructions*** for additional information on using a PDA or PC to Rapid Advance a cycle.

Pause Mode

If Stop (▽) keypad is pressed or the loading or lint door is opened while in Run Mode, control enters Pause Mode.

If the door was opened to enter Pause Mode, the control will show "door" until the door is closed or Pause Mode is exited. If the door is closed, the control will show "PUSH" for one second followed by "StArt" for one second as well as flash the Start (◇/↵) keypad LED one second on/one second off.

If the Stop (▽) keypad was pressed to enter Pause Mode and the loading door is closed, the control will show "PAUSE" until Pause Mode is exited.

Any time "PAUSE" is shown on the control, the Start (◇/↵) keypad LED will flash one second on/one second off to prompt the user to restart the cycle.

Error Mode

This mode will be entered to display all fatal machine errors.

Communication Mode

This mode is entered whenever the control is communicating with a PDA. Refer to ***PC and PDA Application User Instructions.***

Cool Down Mode

The control enters the Cool Down Mode after the heat segment of the cycle is completed. The control turns the heater off and for steam heated units turns the damper motor on. The cool down segment will end once the cool down temperature has been reached or the programmed cool down time expires, which ever happens first.

End of Cycle Mode

The control enters End of Cycle Mode after the cool down segment is finished. The display will toggle between "LOAd" and "rEAdY" for one second each until End of Cycle Mode is exited. If the door has not been opened or a keypad has not been pressed after two minutes, the machine will enter Extended Tumble Mode. This mode is exited when the door is opened or Stop (▽) keypad is pressed. The control will then return to Idle Mode.

Extended Tumble Mode

The Extended Tumble Mode has two portions. The Anti-Wrinkle Tumble is entered two minutes after the cycle has ended if the door is not opened. The cylinder will tumble for 30 seconds every two minutes for up to one hour.

If the door hasn't been opened and no keys have been pressed one hour after the Anti-Wrinkle Tumble has ended, the control increments the Anti-Wrinkle Time Exceeded audit counter and enters the Delayed Tumble. The cylinder will tumble for two minutes every 60 minutes for up to 18 hours.

Reversing Mode (reversing models only)

Models equipped with the reversing feature will rotate in the forward direction, pause, rotate in the reverse direction and then pause for programmable times and segments of the cycle. Factory default rotate time is 120 seconds and reversing stop time is 6 seconds for all cycles with reversing enabled.

Entering Diagnostic Mode From Idle Mode

When entered from the Idle Mode, the control will be running a test selected by the user via keypad presses or communication with a device.

Machine Cycle Definition and Operation

There are 30 machine cycles that can be selected and run. Machine cycles can be modified or made "unavailable" by manually editing them in Modify Cycle Menu or by using the PDA to download a modified machine cycle into the control. Machine cycles cannot be deleted, but can be made "unavailable" so that they are not visible from the Cycle Menu. New machine cycles cannot be created, but existing machine cycles that have been edited to be "unavailable" may be re-edited to be available again.

Machine Cycle Operation

When a cycle is run, the control runs the cycle segment by segment in a sequence. First the control examines the Cycle Type chosen to determine if it is a Time Dry, Auto-Dry or Moisture Dry (if equipped) cycle type. Then the first segment is examined to see if it is programmed to "on" or "oFF". If the segment is programmed to "oFF", control skips to the next segment.

At the start of some machine cycles, the control displays a Total Remaining Cycle time. This time is taken from the machine cycles as they are programmed. The Total Remaining Cycle Time begins to count down as soon as the cycle is started.

Time Dry Cycle

In this type of cycle, the control will regulate the temperature and time duration as programmed for the cycle chosen.

Auto-Dry Cycle

If this type of cycle is selected, the control determines the cycle time based on the temperature and dryness level programmed for the cycle chosen.

Moisture Dry Cycle (if equipped)

In this type of cycle, the control checks the programmed material type, programmed target moisture content, programmed temperature and the data received from the moisture sensing system to achieve the desired results.

Rotation Sensor Equipped Machines

On machines equipped with a rotation sensor, the control monitors the rotation sensor to verify the cylinder is rotating. The control calculates the cylinder's RPM. If the RPM drops to zero while the cylinder is supposed to be rotating, the control will advance to the Cool Down segment of the cycle and an error message will be displayed.

To Start a Cycle

1. Press the Up (↑) or Down (↓) keypad to change cycles.
2. Press Start (◇/↵) to start selected cycle.

NOTE: If door is not closed when the Start (◇/↵) keypad is pressed, display will show "door".

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 steps below.

For an overview of entering the Manual Mode, refer to the flowchart on the following page.

How to Enter the Manual Mode

1. Control must be in Idle Mode.
2. Press and hold the Stop (▽) keypad, then press and hold the Back (←) keypad, then press the Up (↑) keypad.
3. The display will show "Prog".
4. Press the Up (↑) or the Down (↓) keypad to scroll through the options until the desired option appears in the display.
5. Press the Start (◇/↵) keypad to enter the displayed mode.
6. To exit, press the Back (←) keypad. The control will revert back to Idle Mode.

Manual Programming can only be turned on or off with an external device. Refer to the appropriate instruction manual. Diagnostics can be turned on and off using an external device by manual programming.

By default, Manual Programming is 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 (Prog)

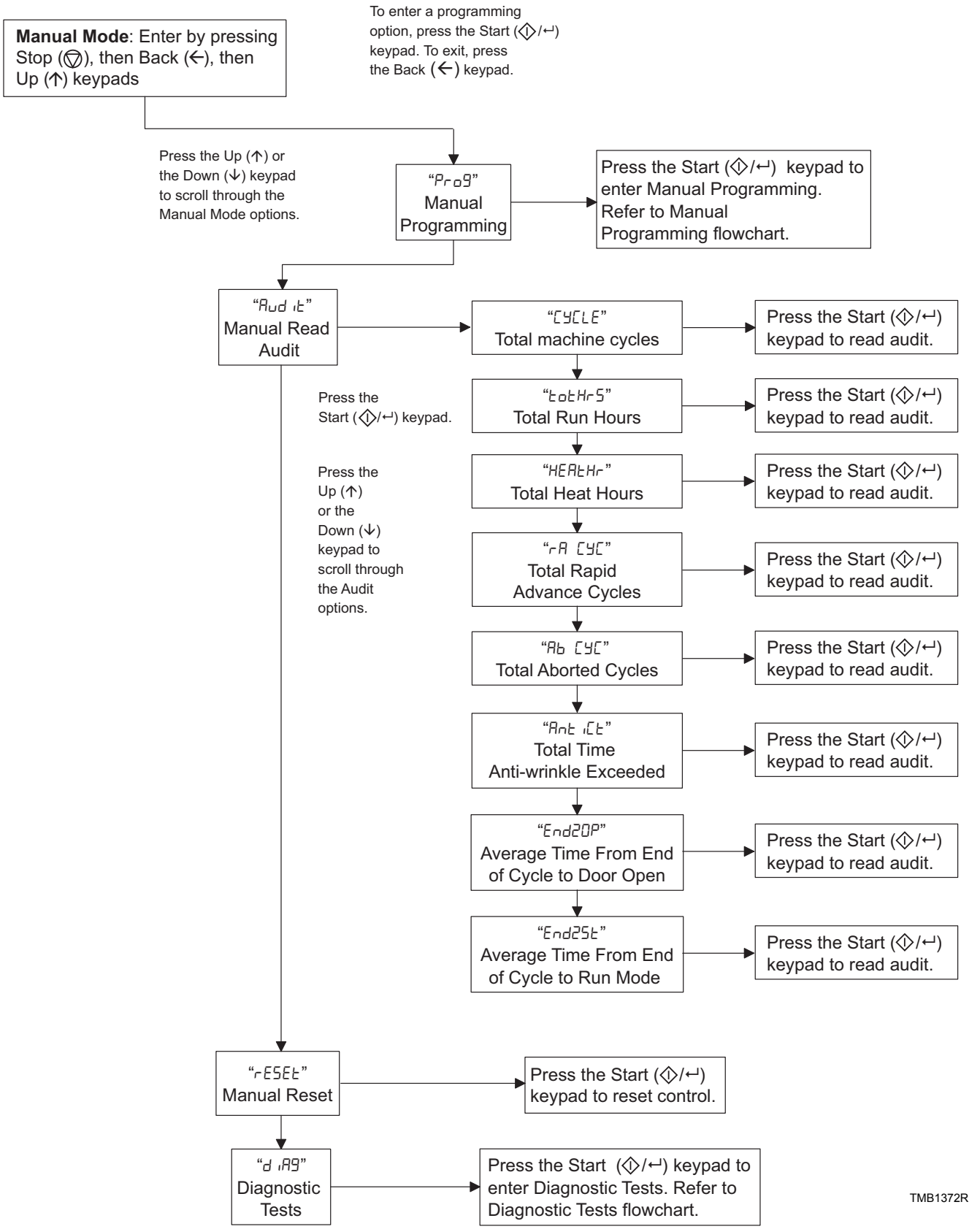
Manual Read Audit (Aud it)

Manual Reset (rESEt)

Diagnostic Tests (d iAG)

If a manual parameter is turned off or unavailable (ex: trying to enter diagnostics while a cycle is running), the display will change from the selected feature to "oFF", an audio signal will sound for one second and the features in the parameter cannot be entered. The display will then return to the selected feature.

Entering the Manual Mode



Programming Control

What Can Be Programmed?

This feature allows the owner to program cycle parameters 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. Refer to this section when programming the control.

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

For more advanced users, a quick reference list of the options available through the programming mode is located on this page.

NOTE: The codes in the Option Display column of the Programmable Options List are what will show in the display when that option is selected.

How to Program a Cycle

1. Press the Up (↑) or Down (↓) keypad to scroll through the option list.
2. Press Start (◈/↵) to select an option to program.
3. Press the Up (↑) or Down (↓) keypad to change the value of that option.
4. Press Start (◈/↵) to save the change.

NOTE: Press the Back (←) keypad to leave the option without saving any change.

5. After pressing Start (◈/↵), control will go to the next option in the list.
6. Press Back (←) keypad to go to Idle Mode.

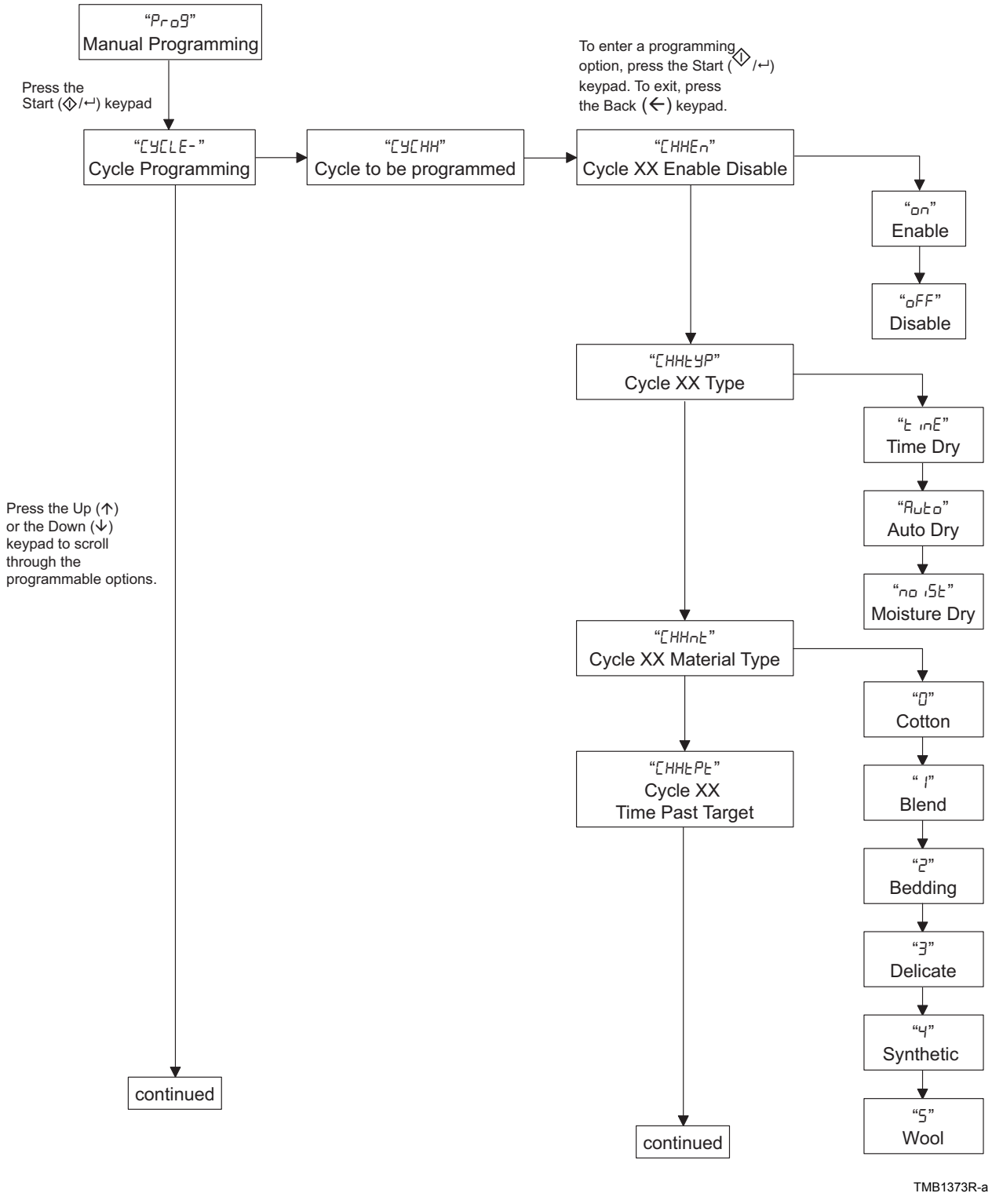
Programmable Options Available

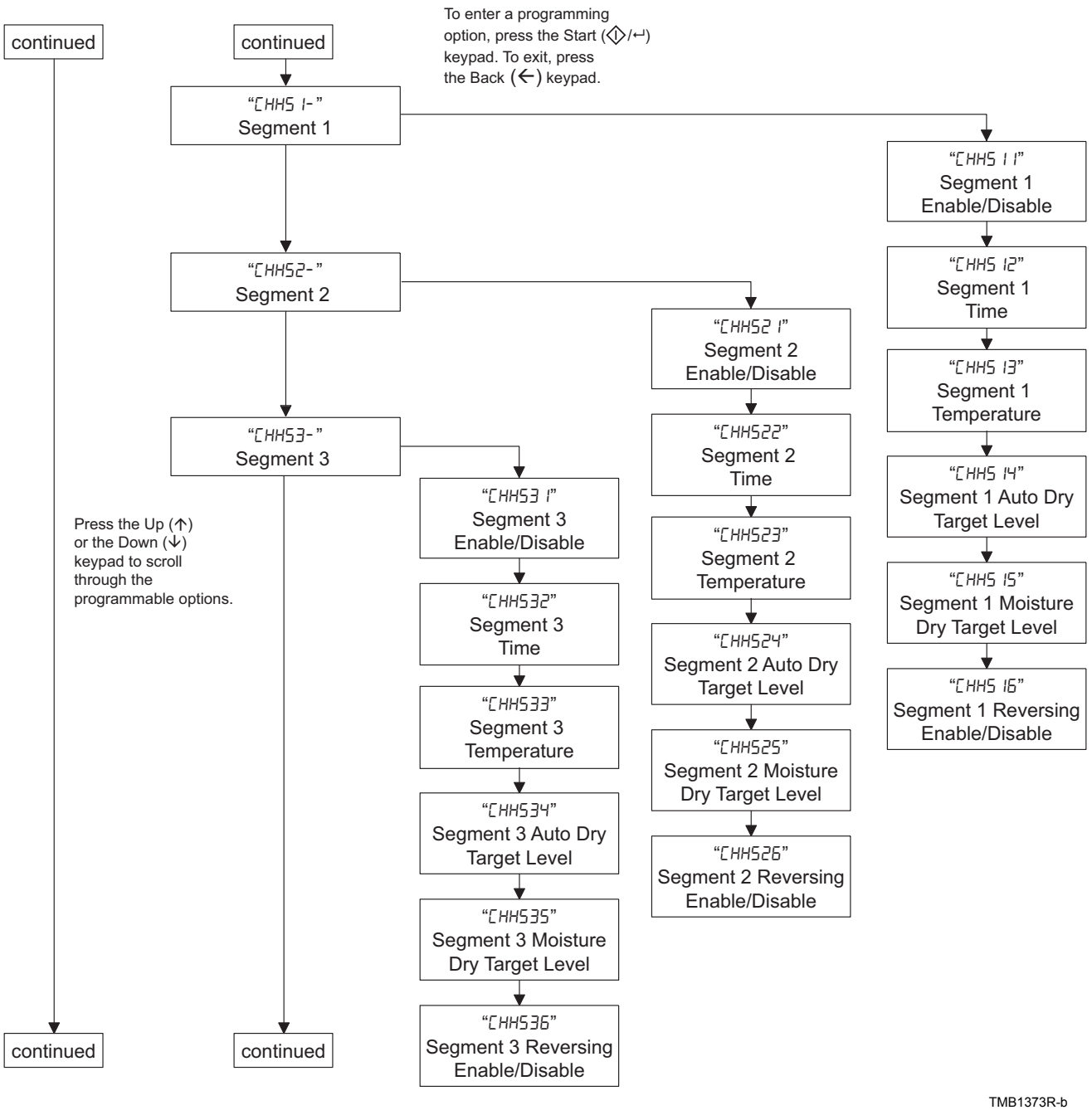
Option Number	Option Display	Description	Default Value	Value Range
1	"CYCLE-"	**Cycle Programming**	-	-
a	"CYCHH-"	Cycle XX (XX represents cycles 1-30)	-	-
1	"CHHEn"	Cycle XX Enable Disable	-	on/oFF
2	"CHHtYP"	Cycle XX Type	-	tinE (Time Dry), Auto (Auto Dry), noist (Moisture Dry)
3	"CHHnt"	Cycle XX Material Type	-	0 (Cotton), 1 (Blend), 2 (Bedding), 3 (Delicate), 4 (Synthetic), 5 (Wool)
4	"CHHtPt"	Cycle XX Time Past Target (minutes)	-	0-15
5	"CHHS 1-"	Segment 1	-	CXXS11 (Segment 1 Enable/Disable), CXXS12 (Segment 1 Time), CXXS13 (Segment 1 Temperature), CXXS14 (Segment 1 Auto Dry Target Level), CXXS15 (Segment 1 Moisture Dry Target Moisture), CXXS16 (Segment 1 Reversing Enable/ Disable)
6	"CHHS2-"	Segment 2	-	CXXS21 (Segment 2 Enable/Disable), CXXS22 (Segment 2 Time), CXXS23 (Segment 2 Temperature), CXXS24 (Segment 2 Auto Dry Target Level), CXXS25 (Segment 2 Moisture Dry Target Moisture), CXXS26 (Segment 2 Reversing Enable/ Disable)

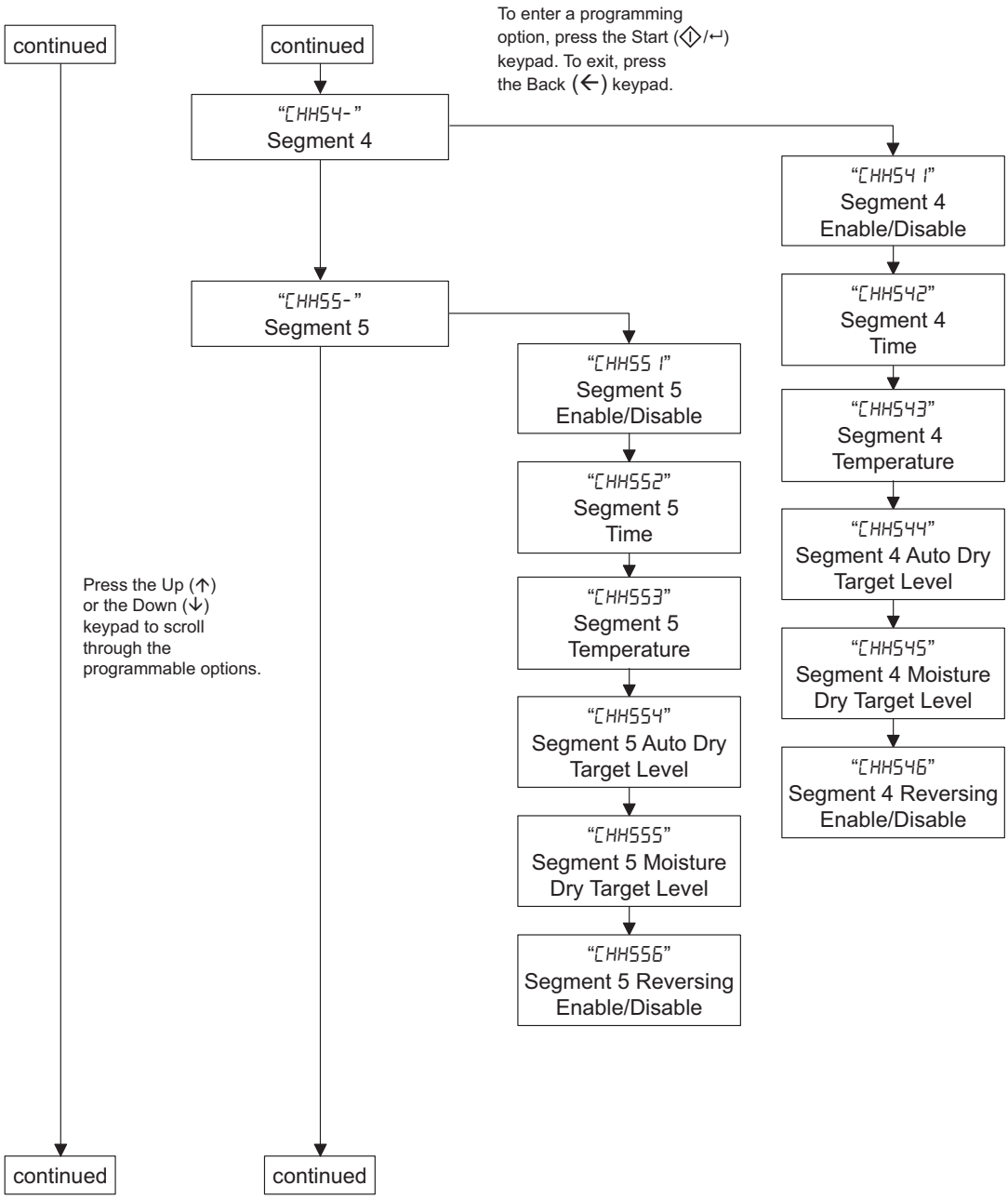
Option Number	Option Display	Description	Default Value	Value Range
7	"CHH53-"	Segment 3	-	CXXS31 (Segment 3 Enable/Disable), CXXS32 (Segment 3 Time), CXXS33 (Segment 3 Temperature), CXXS34 (Segment 3 Auto Dry Target Level), CXXS35 (Segment 3 Moisture Dry Target Moisture), CXXS36 (Segment 3 Reversing Enable/ Disable)
8	"CHH54-"	Segment 4	-	CXXS41 (Segment 4 Enable/Disable), CXXS42 (Segment 4 Time), CXXS43 (Segment 4 Temperature), CXXS44 (Segment 4 Auto Dry Target Level), CXXS45 (Segment 4 Moisture Dry Target Moisture), CXXS46 (Segment 4 Reversing Enable/ Disable)
9	"CHH55-"	Segment 5	-	CXXS51 (Segment 5 Enable/Disable), CXXS52 (Segment 5 Time), CXXS53 (Segment 5 Temperature), CXXS54 (Segment 5 Auto Dry Target Level), CXXS55 (Segment 5 Moisture Dry Target Moisture), CXXS56 (Segment 5 Reversing Enable/ Disable)
10	"CHHCd-"	Cool Down	-	CXXCd1 (Cool Down Temperature), CXXCd2 (Cool Down Time), CXXCd3 (Cool Down Segment Reversing Enable/Disable)
11	"CHHr--"	Reversing	-	CXX r1 (Cycle Reversing Enable/Disable), CXX r2 (Cycle Reversing Rotate Time), CXX r3 (Cycle Reversing Stop Time)
2	"**Cd-**"	**Global Cool Down**	**-**	**-**
a	"Cd 1"	Cool Down Temperature	100°F/38°C	70°-110°F/21°-43°C
b	"Cd 2"	Cool Down Time (minutes)	2	1-15
3	**"rEu-"**	**Global Reversing Parameters**	**-**	**-**
a	"rEu 1"	Rotate Time (seconds)	7 (120)	3-9 (30-540 seconds)
b	"rEu 2"	Stop Time (seconds)	0 (6)	0-4 (6-10 seconds)
c	"rEu 3"	Advanced Reversing	0	0 (oFF), 1 (on)
4	**"tEnP-"**	**Global Temperatures**	**-**	**-**
a	"tEnP 1"	Global Very Low Temperature	120°F/49°C	100°-120°F/38°-49°C
b	"tEnP 2"	Global Low Temperature	140°F/60°C	120°-140°F/49°-60°C (50, 75, 120, 170 Pound Models), 105°-145°F/41°-63°C (25, 30, T30 Pound Models), 125°-155°F/52°-68°C (35, T45, 55 Pound Models)
c	"tEnP 3"	Global Medium Temperature	160°F/71°C	140°-160°F/60°-71°C (50, 75, 120, 170 Pound Models), 135°-160°F/57°-71°C (25, 30, T30 Pound Models), 145°-165°F/63°-74°C (35, T45, 55 Pound Models)

Option Number	Option Display	Description	Default Value	Value Range
d	"tEnP 4"	Global High Temperature	190°F/88°C	160°-190°F/71°-88°C (35, T45, 55, 50, 75, 120, 170 Pound Models), 155°-190°F/68°-88°C (25, 30, T30 Pound Models)
5	**"Aud io-"**	**Global Audio Signal**	**-**	**-**
a	"Aud 1"	End of Cycle	1	0 (oFF), 1 (on)
b	"Aud 2"	End of Cycle Duration (seconds)	5	1-120
c	"Aud 3"	Keypad Feedback	1	0 (oFF), 1 (on)
6	**"ES ig-"**	**External Signal**	**-**	**-**
a	"ES ig 1"	External Signal End of Cycle	1	0 (oFF), 1 (on)
b	"ES ig 2"	External Signal End Of Cycle Duration (seconds)	5	1-120
7	**"nuLSEG"**	**Multi-Segment Cycles**	**0**	**1 (Enable), 0 (Disable)**
8	**"ndrYOP"**	**Advanced Moisture Dry Options**	**0**	**1 (Enable), 0 (Disable)**
9	**"Error-"**	**Error Displays**	**-**	**-**
a	"L in itS"	Display Limit Errors	0	1 (Enable), 0 (Disable)
b	"no iSt "	Display Moisture Sensor Error	1	1 (Enable), 0 (Disable)
10	**"t FC"**	**Temperature**	**0**	**0 (Fahrenheit), 1 (Celsius)**
11	**"AI g"**	**Auto Ignite Retry**	**3**	**0-255**
12	**"L int"**	**Clean Lint Reminder**	**0**	**0 (off)-255**
13	**"rtC-"**	**Real Time Clock**	**-**	**-**
a	"rtC 1"	Minutes	-	0-59
b	"rtC 2"	Hours	-	0-23
c	"rtC 3"	Day	-	1-7
d	"rtC 4"	Date	-	1-31
e	"rtC 5"	Month	-	1-12
f	"rtC 6"	Year	-	0-99
g	"rtC 7"	Daylight Saving	1	1 (Enable), 0 (Disable)
14	**"rAPdEn"**	**Manual Rapid Advance**	**0**	**1 (Enable), 0 (Disable)**
15	**"d iAGEn"**	**Manual Diagnostics**	**1**	**1 (Enable), 0 (Disable)**

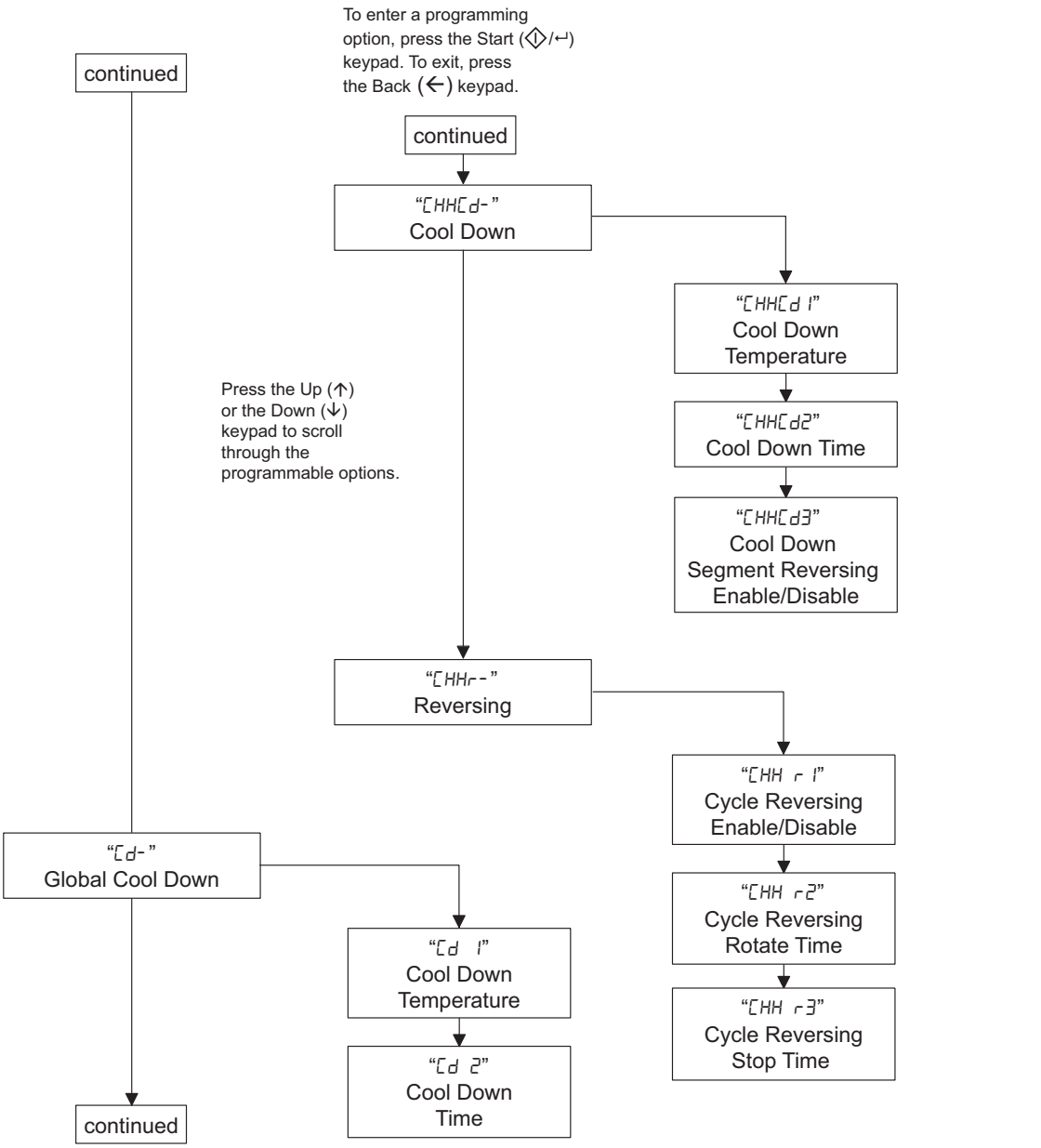
Programming Control







TMB1373R-c



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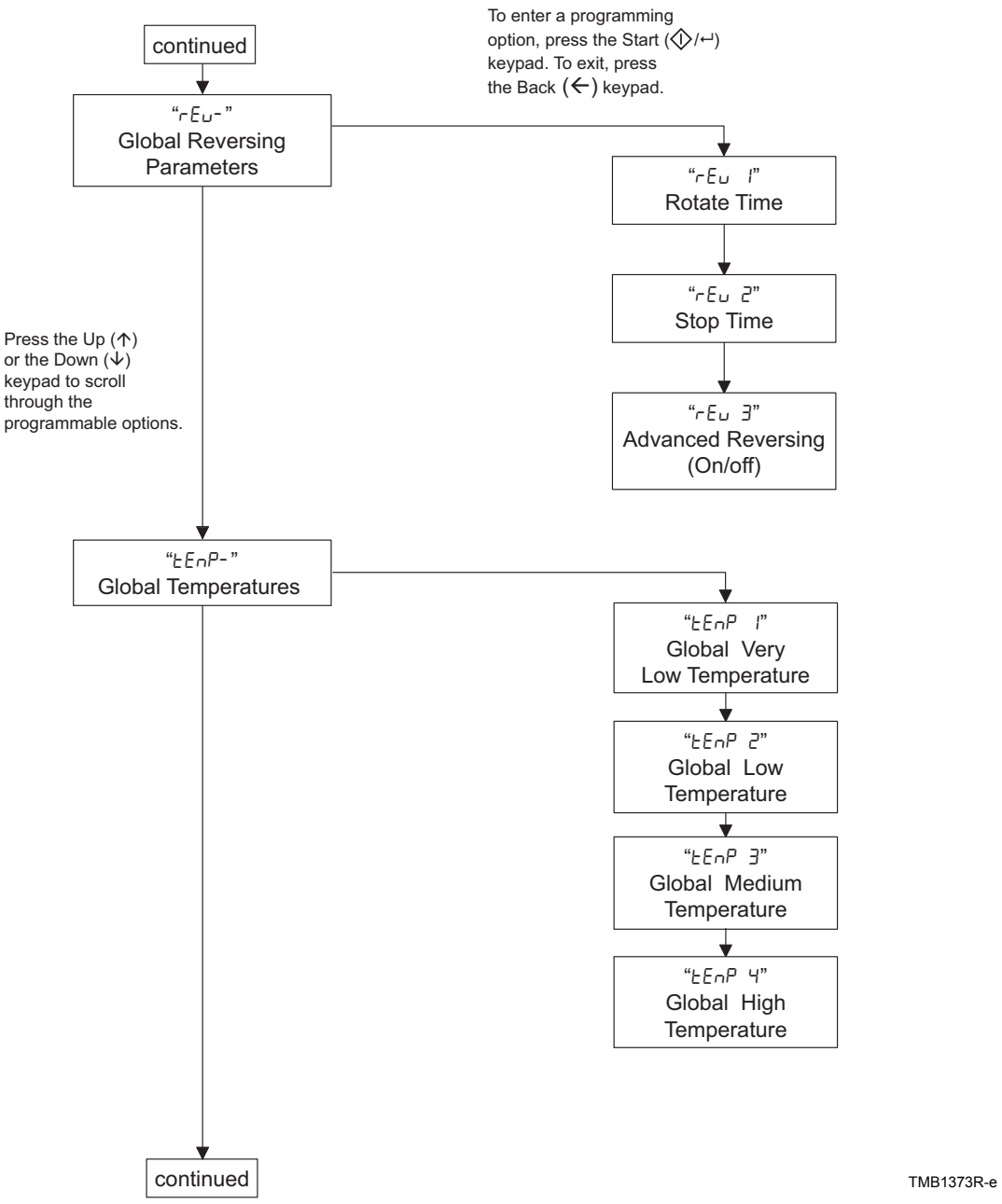
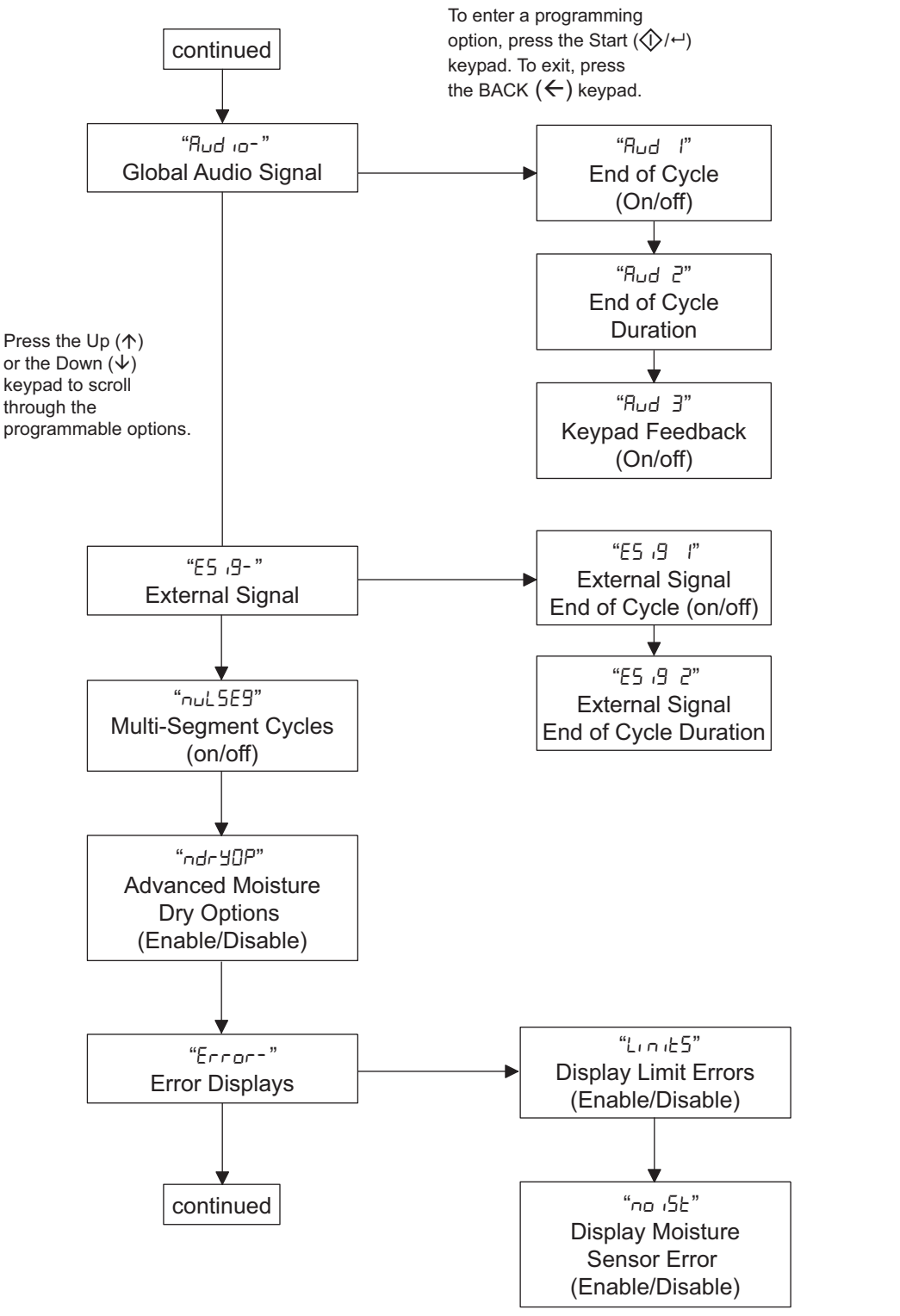
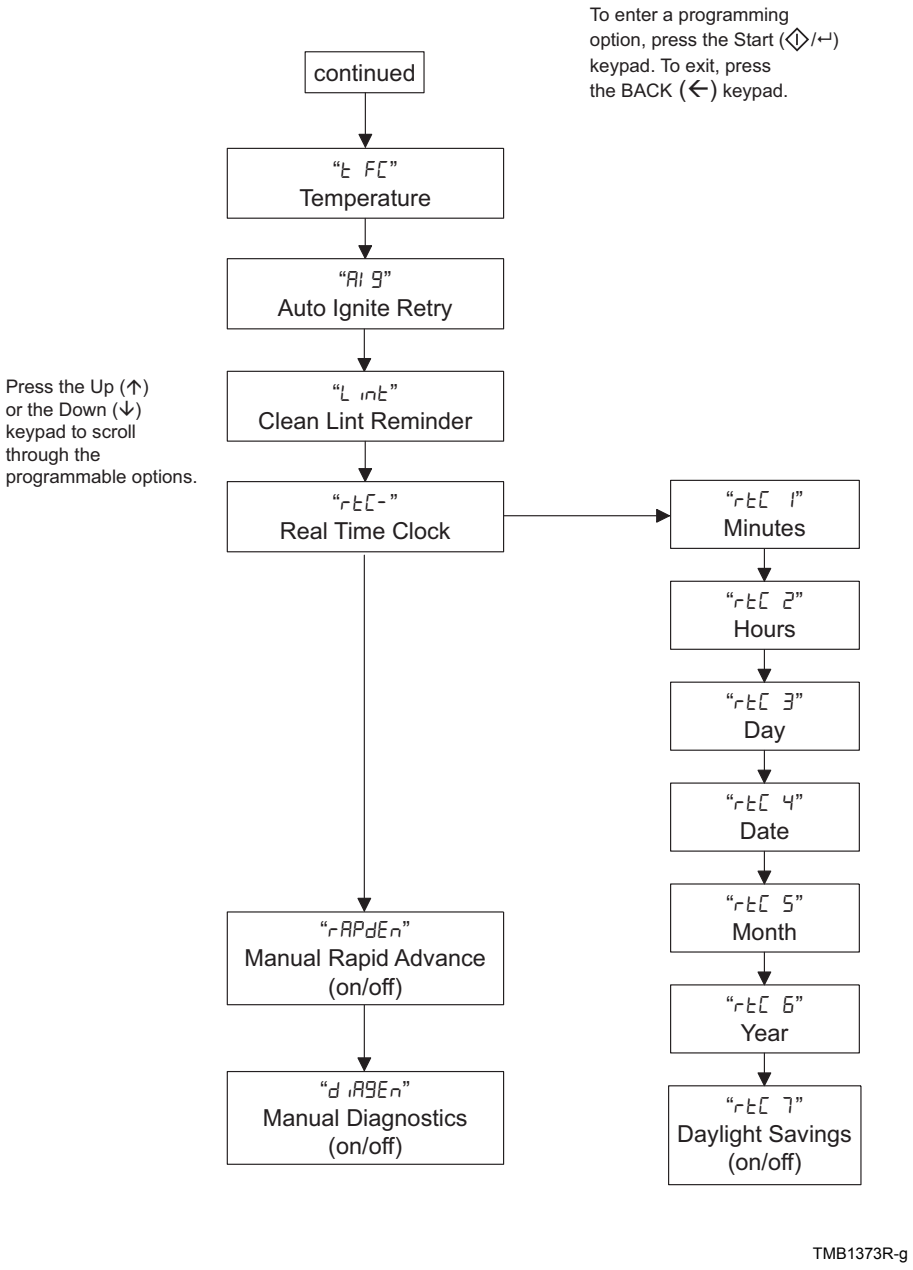




TMB1373R-f

Programming Control



TMB1373R-g

Collecting Audit Information

This feature allows the owner to retrieve audit information stored in the tumbler by pressing a sequence of pads on the control. For an explanation of the audit options available, refer to the Audit Options List on this page.

How to Enter Audit Feature

1. Control must be in Manual Mode to start. Refer to ***Entering the Manual Mode***.
2. Press the Up (↑) or the Down (↓) keypad until "AUd it" appears.
3. Press the Start (◇/↵) keypad. "CYCLE" will appear.

If the procedure did not work, the control will return to the Idle Mode.

How to Read Audit Data

1. Use the Up (↑) or the Down (↓) keypad to scroll through various options until the desired option is shown in the display. Refer to the Audit Options List, *Table 2*, for an explanation of the audit options available.

Audit Options List	
Display	**Description**
CYCLE	Total # of Machine Cycles
totHrS	Total # of Run Hours
HEAtHr	Total # of Heat Hours
rA CYC	Total # of Rapid Advance Cycles
Ab CYC	Total # of Aborted Cycles
Ant iCt	Total # of Times Anti-Wrinkle Exceeded
End2OP	Average Time from End of Cycle to Door Open (Last 25 Cycles)
End2St	Average Time from End of Cycle to Run Mode (Last 25 Cycles)

Table 2

2. Once the desired option appears in the display, press the Start (◇/↵) keypad **once** to start the audit count.
3. Press the Start (◇/↵) 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 – 3.

How to Exit Audit Feature

Press the Back (←) keypad until the control returns to Idle Mode.

Manual Reset

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

How to Enter Manual Reset

1. Control must be in Manual Mode to start. Refer to ***Entering the Manual Mode***.
2. Press the Up (↑) or the Down (↓) keypad until "rESEt" appears.
3. Press the Start (◇/↵) keypad. The control will be blank until the programming is complete. Once the program has been reset, the control will revert back to the Manual Mode, displaying "d iAG".

Testing Machine and Electronic Control Functions

This feature allows the owner to run diagnostic tests on various tumbler operations without servicing the tumbler. The tests that are available are shown in *Table 3*.

For an overview of the manual diagnostic test feature, refer to the flowchart on the following page.

How to Enter Testing Feature

1. Enter Manual Mode. Refer to ***Entering the Manual Mode***.
2. Press the Up (↑) or the Down (↓) keypad until "d iAG" appears.
3. Press the Start (◇/↵) keypad. Display will change to "dSoFt" indicating the control software version number test.
4. Press the Up (↑) or the Down (↓) keypad to scroll through the diagnostic test options.

How to Start Tests

To start a diagnostic test, refer to the quick reference chart below (*Table 3*). Press the Start (◇/↵) keypad when the desired test is displayed. For detailed information on each test, read the appropriate description.

How to Exit Testing Feature

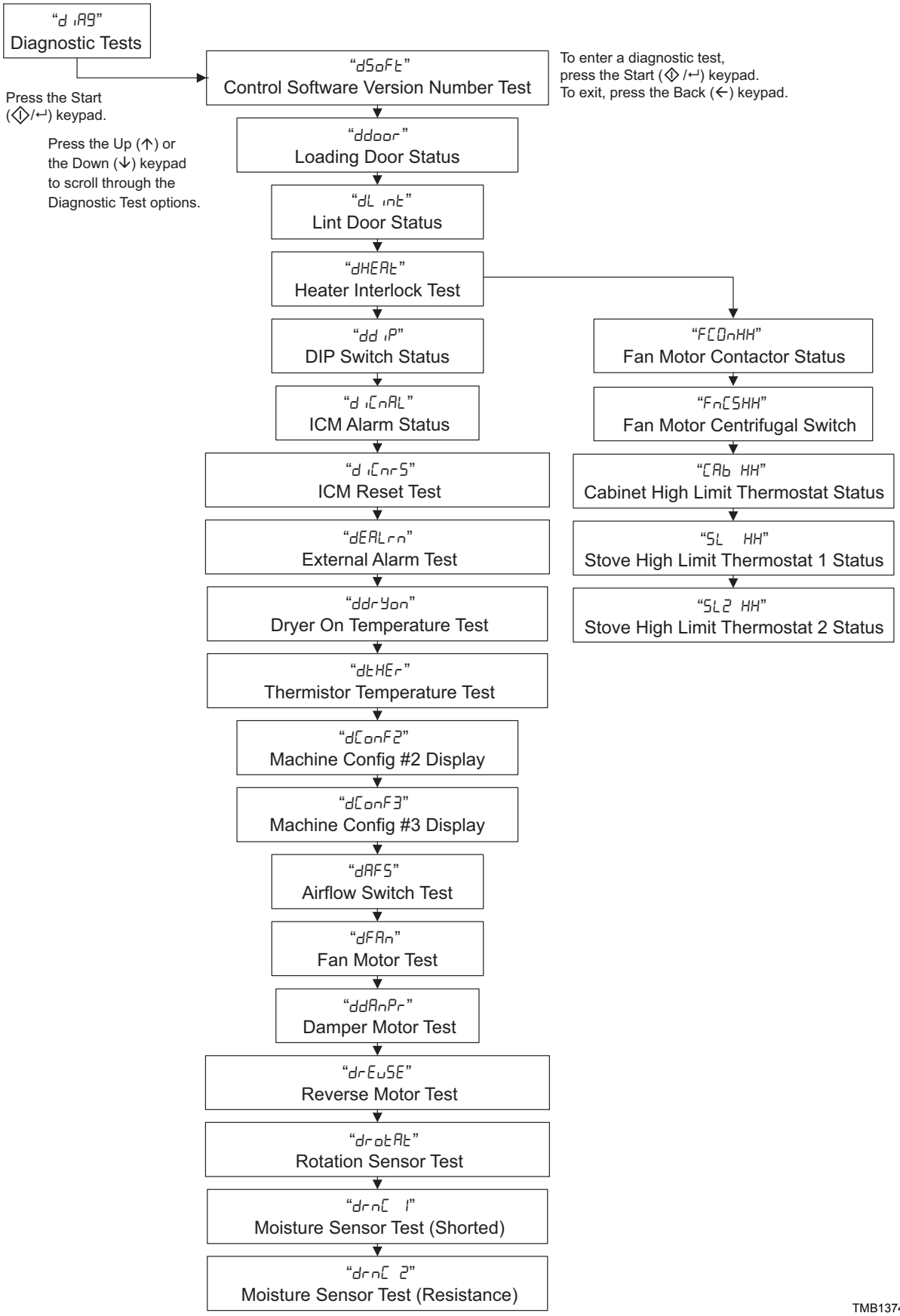
Press the Back (←) keypad. The display will return to Idle Mode.

Diagnostic (Testing) Mode - Quick Reference Chart	
Display	**Diagnostic Mode**
"dSoFt"	Control Software Version
"ddoor"	Loading Door Status
"dL int"	Lint Door Status
"dHEAt"	Heater Interlock Test
"FCOnHH"	Fan Motor Contactor Status (HH represents input status, open "OP" or closed "CL"
"FnCSHH"	Fan Motor Centrifugal Switch Status (HH represents input status, open "OP" or closed "CL"
"CAb HH"	Cabinet High Limit Thermostat Status (HH represents input status, open "OP" or closed "CL"
"SL HH"	Stove High Limit Thermostat 1 Status (HH represents input status, open "OP" or closed "CL"
"SL2 HH"	Stove High Limit Thermostat 2 Status (HH represents input status, open "OP" or closed "CL"
"dd iP"	DIP Switch Status
"d iCnAL"	ICM Alarm Status
"d iCnrS"	ICM Reset Test
"dEALrn"	External Alarm Test
"ddrYon"	Dryer On Temperature Test
"dtHEr"	Thermistor Temperature Test
"dConF2"	Machine Config #2 Display
"dConF3"	Machine Config #3 Display
"dAFS"	Airflow Switch Test
"dFAn"	Fan Motor Test
"ddAnPr"	Damper Motor Test*
"drEuSE"	Reverse Motor Test*
"drotAt"	Rotation Sensor Test*
"drnC 1"	Moisture Sensor Test (Shorted test jumper)*
"drnC 2"	Moisture Sensor Test (Resistance test jumper)*

* = Tests only shown if enabled by the DIP switch configuration.

Table 3

Testing Machine and Electronic Control Functions



TMB1374R

Diagnostic Test Descriptions

Control Software Version Number Test

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

To enter, press the Start (◈/↵) keypad. The display will show "5 xx" where "xx" is the software version number.

To exit the Software Version Number Test, press the Back (←) keypad. The control will return to the testing mode.

Loading Door Test

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

To enter, press the Start (◈/↵) keypad. The display will show "doorOP" when the loading door switch is open and "doorCL" when the loading door switch is closed.

The loading door switch has to be closed or open for at least one second for the control to register the switch as closed or open.

To exit the Loading Door Test, press the Back (←) keypad. The control will return to the testing mode.

Lint Door Test

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

To enter, press the Start (◈/↵) keypad. The display will show "L intOP" when the lint door switch is open and "L intCL" when the lint door switch is closed.

The lint door switch has to be closed or open for at least one second for the control to register the switch as closed or open.

NOTE: Loading door must be closed while testing lint door.

To exit the Lint Door Test, press the Back (←) keypad. The control will return to the testing mode.

Heater Interlock Test

While this test is running, the control will show the status of the following inputs for two seconds each. The control will continue scrolling through the input status displays until the test is aborted.

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

To enter, press Start (◈/↵). Refer to five sections below for more details on individual statuses.

NOTE: These switches are tested in sequence. If one switch is sensed open, the rest will be open as well. For example, if the fan motor contactor switch is open, all of the switches will be open.

To exit the test, press the Back (←) keypad. The control will return to the testing mode.

Fan Motor Contactor Switch

The display will show "FCOnOP" if the switch is sensed open and "FCOnCL" if the switch is sensed closed.

Fan Motor Centrifugal Switch

The display will show "FnCSOP" if the switch is sensed open and "FnCSCL" if the switch is sensed closed.

Cabinet High Limit Thermostat

The display will show "CAb OP" if sensed open for at least 1.5 seconds and "CAb CL" if sensed closed for at least one second.

Stove High Limit Thermostat 1

The display will show "SL OP" if sensed open for at least 1.5 seconds and "SL CL" if sensed closed for at least one second.

Stove High Limit Thermostat 2

The display will show "SL2 OP" if sensed open for at least 1.5 seconds and "SL2 CL" if sensed closed for at least one second.

Dip Switch Status

The control will show the displays in *Table 4* according to the DIP switch configuration. The control will show which switches are in the ON position.

DS8	DS7	DS6	DS5	DS4	DS3	DS2	DS1	Display
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	dSC000
OFF	OFF	OFF	OFF	OFF	OFF	OFF	**ON**	dSC001
OFF	OFF	OFF	OFF	OFF	OFF	**ON**	OFF	dSC002
OFF	OFF	OFF	OFF	OFF	**ON**	OFF	OFF	dSC004
OFF	OFF	OFF	OFF	**ON**	OFF	OFF	OFF	dSC008
OFF	OFF	OFF	**ON**	OFF	OFF	OFF	OFF	dSC016
OFF	OFF	**ON**	OFF	OFF	OFF	OFF	OFF	dSC032
OFF	**ON**	OFF	OFF	OFF	OFF	OFF	OFF	dSC064
ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	dSC124

Table 4

ICM Alarm Status

This option shows the status of the ICM (Ignition Control Module) Alarm.

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

To enter, press the Start (◇/↵) keypad. The display will show "iAL on" if the alarm is active for at least one second or "iALOFF" if the alarm is not active for one second.

To exit the test, press the Back (←) keypad. The control will return to the testing mode.

ICM Reset Test

The ICM Reset Test can be used to both activate the ICM alarm signal and reset the ICM alarm. When this test is started, the ICM reset will become active. If the reset signal is active for a long enough period of time (4 seconds) the ICM Lockout input will become active. To reset the ICM, stop the ICM Reset Test and then start the test again until the ICM Lockout input becomes inactive (4 seconds) and then stop the ICM Reset Test. If "irESEt" shows on the display, ICM Reset output is active.

External Alarm Test

This option tests whether the external alarm is working.

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

To enter, press the Start (◇/↵) keypad. The display will show "EALArn" and the external alarm will sound until the test is exited.

To exit this test, press the Back (←) keypad. The control will return to the testing mode.

Tumbler On Temperature Test

This option tests the temperature inside the cylinder while running a cycle.

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

To enter, press the Start (◇/↵) keypad. The display will show "P HHHF" (Fahrenheit) or "P HHHC" (Celsius). Use the Up (↑) or the Down (↓) keypad to select desired temperature. Press the Start (◇/↵) keypad to begin cycle. While the test is running the control will display the temperature estimated in the cylinder ("HHH F " or "HHH C "). Once the cylinder temperature stabilizes at the target temperature, the heater is turned off and there is a two minute cool down period. During cool down, the control will display the time remaining as " nn 55".

NOTE: This test does not increment the Total # of Cycles audit counter.

To exit the test, press the Back (←) keypad. The control will return to the testing mode.

Thermistor Temperature Test

This option displays the temperature sensed at the thermistor in 5°F increments.

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

To enter, press the Start (◇/↵) keypad. The display will show " HHHF" or " HHHC". The "F" will show Fahrenheit, the "C" will show Celsius and the "HHH" will show degrees. If control senses a shorted thermistor, the display will show " SH ". If the control senses an open thermistor, the display will show " OP ".

To exit this test, press the Back (←) keypad. The control will return to the testing mode.

Machine Configuration Display #2 Test

This option shows the machine configuration values for the machine type.

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

To enter, press the Start (◇/↵) keypad. The display will show "C XXX", with "XXX" the number corresponding to the machine capacity. Refer to *Table 5*.

Value	Description
2	25, 30 Pound Tumbler
4	30, 45 Pound Stack Tumbler
5	35, 55 Pound Tumbler
12	50, 75, F75, 120, 170 Pound Tumbler

Table 5

To exit Machine Configuration Display #2 Test, press the Back (←) keypad. The control will return to the testing mode.

Machine Configuration Display #3 Test

This option shows the machine configuration values for the machine capacity.

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

To enter, press the Start (◇/↵) keypad. The display will show "d XXX", with "XXX" representing the machine capacity. Refer to *Table 6*.

To exit Machine Configuration Display #3 Test, press the Back (←) keypad. The control will return to the testing mode.

Value	Description
0	Tumbler
17	25 Pound Tumbler
18	30 Pound Tumbler
19	30 Pound Stack Tumbler
20	30 Pound Stack Tumbler – Lower Pocket
21	30 Pound Stack Tumbler – Upper Pocket
22	35 Pound Tumbler
23	45 Pound Stack Tumbler
24	45 Pound Stack Tumbler – Lower Pocket
25	45 Pound Stack Tumbler – Upper Pocket
26	50 Pound Tumbler
27	55 Pound Tumbler
28	75, F75 Pound Tumbler
29	120 Pound Tumbler
30	170 Pound Tumbler

Table 6

Airflow Switch Test

This option shows the current state of the airflow switch.

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

To enter, press the Start (◇/↵) keypad. The display will show "AF OP" or "AF CL", with "AF OP" being open and "AF CL" being closed.

Switch has to be closed for at least one second or open for at least one second for a valid change.

To exit Airflow Switch Test, press the Back (←) keypad. The control will return to the testing mode.

Fan Motor Test

This option shows the fan motor running.

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

To enter, press the Start (◇/↵) keypad. The display will show "FAn " to indicate the fan motor is going to run.

The test must run for at least six seconds before it can be exited and off for six seconds before the test can be run again.

NOTE: This test does not count towards the total machine run time operation.

To exit Fan Motor Test, press the Back (←) keypad. The control will return to the testing mode.

Damper Motor Test

This option shows the damper motor running.

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

To enter, press the Start (◇/↵) keypad. The display will show "dAmPEr" to indicate the damper motor is going to run.

The test must run for at least six seconds before it can be exited and off for six seconds before the test can be run again.

NOTE: This test does not count towards the total machine run time operation.

To exit Damper Motor Test, press the Back (←) keypad. The control will return to the testing mode.

Reverse Motor Test

This option shows the reverse motor running.

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

To enter, press the Start (◇/↵) keypad. The display will show "rmotor" to indicate the reverse motor is going to run.

The test must run for at least six seconds before it can be exited and off for six seconds before the test can be run again.

NOTE: This test does not count towards the total machine run time operation.

To exit Reverse Motor Test, press the Back (←) keypad. The control will return to the testing mode.

Production Test Cycle

To Enter Production Test Cycle

1. Be certain control is in Idle Mode.
2. While pressing and holding the Down (↓) keypad with one hand, press the Back (←) 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 control.
4. The control will advance through the sequence of test steps whenever any keypad is pressed, with the exception of the Keypad Test. Refer to *Table 7* for all tests in the Production Test Cycle.

To Exit Production Test Cycle

The test will be exited when the time reaches "00" on the control in the 10 Minute Test Cycle. Otherwise, the control must be powered down to end the test.

Production Test Cycle Quick Reference Table

Display	Test Mode	Comments
"5 HH"	Software Version	XX is the software version number.
"CtYPE HHH"	Control Type	2, 3, 4, 5 or 6, depending on brand.
"PAd "	Keypad Test	When a key is pressed, the control will display the number assigned to the keypad. As each keypad is pressed, the control will display the number assigned to it in the last digit of the display until the next key is pressed (example, if Key 1 is pressed the control will show "PAd 1"). When all keypads have been pressed, the control will advance to next step after a one second delay.
"doorOP" or "doorCL"	Loading Door Test	The control will display the status of the loading door: "doorOP" if door is open or "doorCL" if door is closed.
"L intOP" or "L intCL"	Lint Door Test	The control will display the status of the lint door: "L intOP" if door is open or "L intCL" if door is closed. Loading door must be closed.
All LEDs and display segments will light	Show Entire Display Mode	The audio signal is turned off. Control will stay in this mode until any key is pressed.
"C HH"	Machine Configuration #2 Display	HH is the configuration byte value. The control will remain in this mode until any key is pressed.
–	DIP Switch Configuration	The control will show the sum of all switches in the On position. The control will remain in this mode until any key is pressed.
Degrees in 5°F increments, " SH ", " OP "	Thermistor Temperature Test	The temperature will be displayed in either Fahrenheit or Celsius, depending on machine's configuration (refer to ***Programming Control***). If control senses a shorted thermistor, SH will be displayed. If control senses an open thermistor, OP will be displayed.
–	Moisture Sensor 1 Test (Shorted)	Refer to ***Diagnostic Test Descriptions***. Test step lasts for 15 seconds.
–	Moisture Sensor 2 Test (Resistance)	Refer to ***Diagnostic Test Descriptions***. Test step lasts for 15 seconds.
" nn 55"	10 Minute Test Cycle	Determines if tumbler can function in a cycle for 10 minutes. Start pad will flash one second on and one second off. The Start pad can be used to decrease time remaining. If Start pad is not pressed within 4.25 minutes, the control will return to Idle Mode.

NOTE: If power to the control is turned off before 10 Minute Test Cycle has ended, the cycle will be cleared from control.

Table 7

Machine Errors

The control displays and logs errors as they occur. When the control senses the error condition, the audit counter for that error increases by one. The control saves the time and date of the last eight (8) errors that have occurred. Following is a list of possible errors:

PDA Communications Error

These errors may occur during communications. When an error occurs, the display indicates the error message on the control for a few seconds. When a PDA communication error occurs, the audit counter Total Bad IR Communications is incremented, the hour, date, and year of the event are saved, and the error code is saved. An active machine cycle is not affected when there is an error during PDA communications and this error information is not stored in the Last Eight Alarms Menu.

Open Thermistor Error

Any time the control senses a temperature less than 0 °F after the first three minutes of an active cycle, the control will go to Cool Down, display this error message, and then turn on the audio signal. The control will continue to display the error message until any of the keypads are pressed, the Cool Down portion of the cycle has ended, and the temperature reading is greater than 0°F. Press any keypad to stop audio signal. Once all three occur, the control will return to the Idle Mode. This error will cause the corresponding Open Thermistor Audit Counter to be incremented and is saved in the Last Eight Alarms Menu.

Shorted Thermistor Error

Any time the control senses a temperature greater than 210 + 4 °F during an active cycle, the control will enter the Cool Down portion of the cycle, display this error message, and turn on the audio signal. The control will continue to display the error message until any of the keypads are pressed, the Cool Down portion of the cycle has ended, and the temperature reading is less than 210 °F. Press any keypad to stop audio signal. Once all three occur, the control will return to the Idle Mode. This error will cause the corresponding Shorted Thermistor Error Audit Counter to be incremented and is saved in the Last Eight Alarms Menu.

Stove and Cabinet Limit Errors

There are up to two Stove Limit thermostats and one Cabinet Limit thermostat on the machine. While the heat relay is on, if the stove temperature or cabinet temperature reaches the high temperature for the particular limit thermostat, the heater will turn off automatically and the control will continue the cycle with no heat until the limit thermostat resets. Once the control reaches the End of Cycle the control will display the appropriate error message, if programmed to do so, and sound the audio signal. The control will continue displaying the error message until the control returns to Idle mode.

The control will increment the appropriate stove or cabinet error counter and record the error in the Last Eight Alarms Menu.

NOTE: On some models the stove and cabinet limit thermostats need to be manually reset. The remainder of the cycle will be run with no heat. On these models, the thermostat(s) must be reset prior to cycling power or the control will return back to Error Mode.

Auto Ignition Retry (Gas Models Only)

If the Ignition Control Module (ICM) fails to ignite the gas valve the ICM will send an ICM Lockout Alarm to the control. When the control receives the ICM Lockout Alarm it will increment the ICM Lockout Alarm audit counter. When the error becomes fatal (user input needed to restart the machine) the control will increment the Heat Error audit counter and record the Heat Error in the Last Eight Alarms Menu.

If the ICM needs to be manually reset, when the control receives the ICM Lockout Alarm it will display the Cycle Stopped Menu with text prompting the user to press the Start (◇/↵) keypad to reset the ICM. The user can continue to reset the ICM until there are no more programmable retry attempts (factory default is 3) or the gas ignites. On machines equipped with an ICM that does not need to be manually reset, when the control receives the ICM Lockout Alarm it will turn the heat relay off for twenty (20) seconds and then turn it back on to try and ignite the gas. The control will continue to try and ignite the gas until there are no more programmable retry attempts (factory default is 3) or the gas ignites. If the ICM fails to ignite the gas on the last attempt the control will start the Cool Down portion of the cycle, display the heat error message and sound the audio signal. When the Cool Down portion of the cycle ends the control will continue to display the error message until power is cycled to the machine or a user presses the Back (←) keypad.

Air Flow Switch Errors

The control will flag an Airflow Switch Error under several conditions. Airflow Switch Errors will be processed differently depending upon what state the machine was in when the error was detected.

Airflow Switch Sensed Closed While Not In Run Mode

If an airflow switch is sensed closed 30 seconds after entering Idle Mode, Pause Mode or End of Cycle Mode, the control will display an error message until power is cycled or the error clears. The cycle will not start and all user inputs will be ignored. If the error does clear, the control will go back to its previous mode of operation. When this error occurs the Airflow Switch 1 error counter will be incremented and the error will also be saved to the Last Eight Alarms Menu.

Airflow Switch Does Not Close After Cycle Started

If the airflow switch does not close within 5 seconds of the start/re-start of a cycle, the control will go to the Cool Down portion of the cycle, display an error message and sound the audio alarm. Once the Cool Down portion of the cycle ends, the control will continue to display the error message until the power is cycled to the machine or the Back (←) keypad is pressed. When this error occurs, the Airflow Switch 2 error counter will be incremented and the error will also be saved to the Last Eight Alarms Menu.

Airflow Switch Bounces During A Running Cycle

If the airflow switch is open for at least one second, the heat will be turned off and will remain off until the switch is observed closed for at least 5 seconds (it is flagged as an airflow switch bounce). If there are 5 airflow switch bounces within 5 minutes the control will go to the Cool Down portion of the cycle, display an error message and sound the audio signal. When the Cool Down portion of the cycle ends, the control will continue displaying the error message until power is cycled or a user presses the Back (←) keypad. When this error occurs, the Airflow Switch Bounce Error will be incremented and the error will also be saved to the Last Eight Alarms Menu. The Airflow Switch Bounce counter will be incremented for every instance of an airflow switch bounce.

Rotation Sensor Error

If the machine is equipped with a rotation sensor, the control will constantly monitor the input and calculate the cylinder's rpm. If the rpm drops to zero while the cylinder is supposed to be spinning, the control will go to the Cool Down portion of the cycle. The control will display an error message and sound the audio signal. Once the Cool Down portion ends, the control will continue to display the error message until power is cycled to the machine. This error will increment the Rotation Sensor Error counter and will be saved in the Last Eight Alarms Menu.

Fan Motor Contactor Error

If the control attempts to turn on the heater relay and the control does not sense that the Fan Motor Contactor is closed, the control will go to the Cool Down portion of the cycle, display an error message and turn on the audio signal. Once the Cool Down portion of the cycle ends, the control will continue displaying the error message until power is cycled or the Back (←) keypad is pressed. This error will increment the Fan Motor Contactor Error counter and will be saved in the Last Eight Alarms Menu.

Fan Motor Centrifugal Switch Error

If the control attempts to turn on the fan motor and the fan motor contactor is sensed closed but the Fan Motor Centrifugal Switch fails to close, the control will go into the Cool Down portion of the cycle, display an error message and turn on the audio signal. Once the Cool Down portion of the cycle ends, the control will continue displaying the error message until power is cycled or the Back (←) keypad is pressed. This error will increment the Fan Motor Centrifugal Switch error counter and will be saved in the Last Eight Alarms Menu.

DIP Switch/Harness Index Mismatch Error

On power up the control reads the Temperature Index Harness value and compares that with the value of switch 1, switch 2 and switch 3 on the DIP switch configuration. If the result is an invalid setup the control will not enter Idle mode and instead enter Error Mode. The control will ignore all user inputs and display an error message. The machine must be powered down and the correct temperature index harness must be installed and/or the DIP switch configuration must be corrected.

Moisture Sensor Error

When in Idle Mode, the control will begin to monitor the moisture sensor input. If the moisture sensor circuitry detects a load present signal read consistently (every second) for a ten minute period without user input, the control will declare a load sensed. If at any time during this sensing period, user input is detected or the control determines that there is no load present, it resets the load detected counter. After this ten minute period with a consistent load sensed, the control queues the "is dryer empty" (display " ıS", "dr YEr", "EnPtY" each for two seconds) prompting the user to answer whether the machine is currently empty, pressing the Up (↑) or Down (↓) keypads will toggle between yes and no. If the operator selects "no" (display "no"), the control returns to the Idle Mode display. If the operator selects "yes" (display "YES") the control will increment the Moisture Sensor Error counter and record the error in the queue of the last eight machine errors and display the Moisture Sensor Error (display "Eno ıSt"), pressing the Back (←) keypad will clear the error. The "is dryer empty" prompt will only appear once a day unless machine power is cycled.

Error Codes

Following is a list of possible error codes for an electronic control. Errors beginning with "E1 " refer to external device Infra-red communication errors. All other errors refer to machine errors.

Display	Description	Cause/ Corrective Action
E1 01	Transmission Failure	Communication failure. Re-aim external device and try again.
E1 02	Device Time-out	Communication failure. Re-aim external device and try again.
E1 03	Invalid Command Code	Incorrect machine type. Before downloading, ensure data is for current machine type.
E1 05	Invalid or Out-of-Range Data	Incorrect machine type. Before downloading, ensure data is for current machine type and values entered are within the minimum and maximum limits.
E1 09	CRC-16 Error	Communication failure. Re-aim external device and try again.
E1 0A	Framing Error	Communication error. Re-aim external device and try again.
E1 0C	Time-out Exceeded	Communication error. Re-aim external device and try again.
E1 0E	Encryption Error	Incorrect machine type. Before downloading, ensure data is for current machine type.
E1 0F	Invalid Wake-up or Infra-red Disabled	Communication failure or infra-red is disabled. Manually enable infra-red on control or re-aim external device and try again.
E5H	Shorted Thermistor Error	Remove any lint build-up around thermistor. If problem persists, replace control or thermistor.
EoP	Open Thermistor Error	Remove any lint build-up around thermistor. If problem persists, replace control or thermistor.
E AF 1	Airflow Switch Error (Switch Fails to Open At End of Cycle)	Inspect lint screen and ductwork. Once error is cleared, control will go back to previous mode of operation.
E AF2	Airflow Switch Error (Switch Does Not Close After Cycle Starts)	Inspect lint screen and ductwork. Cycle power to machine (power down, then power up) or push Back (←) keypad.
E AF	Airflow Switch Error (Switch Bounces During Cycle)	Inspect lint screen and ductwork. Cycle power to machine (power down, then power up) or push Back (←) keypad.

Table 8 (continued)

Table 8 (continued)

Display	Description	Cause/ Corrective Action
E HEAt	Machine Did Not Reach Expected Temperature	Check heating connections, cycle power to machine.
E SL	Stove Limit 1 Error	Remove any lint build-up around thermostat. If problem persists, replace control or thermostat.
E SL2	Stove Limit 2 Error	Remove any lint build-up around thermostat. If problem persists, replace control or thermostat.
E CAb	Cabinet Limit Error	Remove any lint build-up around thermostat. If problem persists, replace control or thermostat.
E iCn	ICM Lockout Alarm Active	
E rot	Rotation Sensor Error	Check for broken or worn belts. Make sure machine is not over loaded and check if rotation sensor is working. If problem persists, replace rotation sensor or control.
ESEtUP	DIP Switch Configuration Size Mismatch Error	Check temperature index harness and dipswitch settings. If problem persists, replace temperature index harness or control.
E FCOn	Fan Motor Contactor Error	Check signal to control. If problem persists, replace fan motor or control.
E FnCS	Fan Motor Centrifugal Switch Error	Check signal to control. If problem persists, replace fan motor or control.
Eno iSt	Moisture Sensor Error	Push Back (←) keypad to clear the error.

Table 8

Communications Mode

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. It may also be used to start and stop various diagnostic tests.

How to Begin Communications with An External Device

The control will go blank and the display will show " -C- " until the communication is complete. The display will return to the previous mode. If an error occurs that terminates communication, the display will show the appropriate error code.

NOTE: The Infra-red Communications option must be turned on.

Cycle Charts

Cycle No	Cycle Name	Cycle Type	Material Type	Reversing	Temperature	Target Moisture or Time
1	Towels	Moisture	Cotton	OFF	190°F/88°C	1%
2	Sheets Blend	Moisture	Bedding	ON	160°F/71°C	5%
3	Sheets Cotton	Moisture	Bedding	ON	190°F/88°C	5%
4	Sheets Blend Iron	Moisture	Bedding	ON	160°F/71°C	20%
5	Sheets Cotton Iron	Moisture	Bedding	ON	190°F/88°C	20%
6	Duvet Cotton	Moisture	Bedding	ON	190°F/88°C	5%
7	Duvet Blend	Moisture	Bedding	ON	160°F/71°C	5%
8	Napkins Synthetic	Moisture	Synthetic	OFF	140°F/60°C	3%
9	Napkins Blend	Moisture	Blend	OFF	160°F/71°C	3%
10	Napkins Synthetic Iron	Moisture	Synthetic	OFF	140°F/60°C	20%
11	Napkins Blend Iron	Moisture	Blend	OFF	160°F/71°C	20%
12	Napkins Cotton Iron	Moisture	Cotton	OFF	190°F/88°C	20%
13	Uniform Perm Press	Moisture	Synthetic	OFF	140°F/60°C	5%
14	Uniform Cotton	Moisture	Cotton	OFF	190°F/88°C	5%
15	30 Min High	Time Dry	n/a	OFF	190°F/88°C	30 minutes
16	30 Min Med	Time Dry	n/a	OFF	160°F/71°C	30 minutes
17	30 Min Low	Time Dry	n/a	OFF	140°F/60°C	30 minutes
18	30 Min No Heat	Time Dry	n/a	OFF	n/a	30 minutes
19	15 Min High	Time Dry	n/a	OFF	190°F/88°C	15 minutes
20	15 Min Med	Time Dry	n/a	OFF	160°F/71°C	15 minutes
21	15 Min Low	Time Dry	n/a	OFF	140°F/60°C	15 minutes
22	15 Min No Heat	Time Dry	n/a	OFF	n/a	15 minutes
23	10 Min High	Time Dry	n/a	OFF	190°F/88°C	10 minutes
24	10 Min Med	Time Dry	n/a	OFF	160°F/71°C	10 minutes
25	10 Min Low	Time Dry	n/a	OFF	140°F/60°C	10 minutes
26	10 Min No Heat	Time Dry	n/a	OFF	n/a	10 minutes
27	5 Min High	Time Dry	n/a	OFF	190°F/88°C	5 minutes
28	5 Min Med	Time Dry	n/a	OFF	160°F/71°C	5 minutes
29	5 Min Low	Time Dry	n/a	OFF	140°F/60°C	5 minutes
30	5 Min No Heat	Time Dry	n/a	OFF	n/a	5 minutes

n/a = not applicable
- All cycles include a 2 minute, 100°F (38°C) cool down.
- All cycles with reversing on rotate for 120 seconds and pause for 6 seconds.
- Cool down and reversing settings can be changed from what is pre-programmed from the factory.
- If machine does not have the moisture sensing option, the moisture sensing cycles in the table above are automatically changed to Auto-Dry cycle type with Dryness Level 0 (zero).