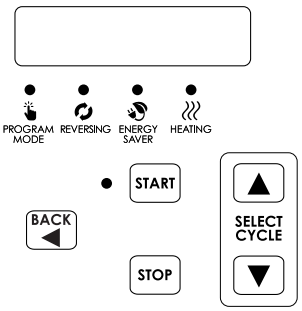
Tumble Dryer

OPL Micro Control

Refer to Page 7 for Model Identification

Programming



TMB2586N_SVG

Original Instructions
Keep These Instructions for Future Reference.
CAUTION: Read the instructions before using the machine.
(If this machine changes ownership, this manual must accompany machine.)

Part No. 70539201EN
January 2018

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.

Table of Contents

Introduction

Model Identification

Information in this manual is applicable to these models. **Refer to the machine serial plate for the model number.**

25 Series (11 Kg)							
GA025E	GG025E	GG025S	GH025N	GJ025L	GK025N	GU025N	KT025L
GA025L	GG025L	GH025E	GH025S	GJ025N	GU025E	GU025S	KT025N
GA025N	GG025N	GH025L	GJ025E	GJ025S	GU025L	KT025E	KT025S
GA025S							

30 Series (13 Kg)							
GA030E	GG030E	GG030S	GH030N	GJ030L	GK030N	GU030N	KT030L
GA030L	GG030L	GH030E	GH030S	GJ030N	GU030E	GU030S	KT030N
GA030N	GG030N	GH030L	GJ030E	GJ030S	GU030L	KT030E	KT030S
GA030S							

T30 Series (13/13 Kg)							
GAT30E	GGT30E	GGT30S	GHT30N	GJT30L	GKT30N	GUT30N	KTT30L
GAT30L	GGT30L	GHT30E	GHT30S	GJT30N	GUT30E	GUT30S	KTT30N
GAT30N	GGT30N	GHT30L	GJT30E	GJT30S	GUT30L	KTT30E	KTT30S
GAT30S							

35 Series (16 Kg)							
GA035E	GA035S	GG035N	GH035M	GJ035L	GK035N	GU035N	KT035M
GA035L	GG035E	GG035S	GH035N	GJ035M	GU035E	GU035S	KT035N
GA035M	GG035L	GH035E	GH035S	GJ035N	GU035L	KT035E	KT035S
GA035N	GG035M	GH035L	GJ035E	GJ035S	GU035M	KT035L	

T45 Series (20/20 Kg) * Only available in gas							
GAT45L	GGT45L	GHT45L	GJT45L	GKT45N	GUT45N	KTT45L	KTT45N
GAT45N	GGT45N	GHT45N	GJT45N	GUT45L			

50 Series (25 Kg)							
GA050E	GG050E	GG050S	GH050N	GJ050L	GK050N	GU050N	KT050L
GA050L	GG050L	GH050E	GH050S	GJ050N	GU050E	GU050S	KT050N
GA050N	GG050N	GH050L	GJ050E	GJ050S	GU050L	KT050E	KT050S
GA050S							

55 Series (24 Kg) * Only available in gas and electric							
GA055E	GG055E	GH055E	GJ055E	GJ055N	GU055E	GU055N	KT055L
GA055L	GG055L	GH055L	GJ055L	GK055N	GU055L	KT055E	KT055N
GA055N	GG055N	GH055N					

75 Series (34 Kg)							
GA075E	GA075S	GG075N	GH075M	GJ075L	GK075N	GU075N	KT075M
GA075L	GG075E	GG075S	GH075N	GJ075M	GU075E	GU075S	KT075N
GA075M	GG075L	GH075E	GH075S	GJ075N	GU075L	KT075E	KT075S
GA075N	GG075M	GH075L	GJ075E	GJ075S	GU075M	KT075L	

120 Series (55 Kg)							
GA120E	GG120E	GG120S	GH120N	GJ120L	GK120N	GU120N	KT120L
GA120L	GG120L	GH120E	GH120S	GJ120N	GU120E	GU120S	KT120N
GA120N	GG120N	GH120L	GJ120E	GJ120S	GU120L	KT120E	KT120S
GA120S							

170 Series (77 Kg) * Only available in gas and steam							
GA170L	GG170L	GH170L	GJ170L	GJ170S	GU170L	GU170S	KT170N
GA170N	GG170N	GH170N	GJ170N	GK170N	GU170N	KT170L	KT170S
GA170S	GG170S	GH170S					

200 Series (90 Kg)* Only available in gas and steam							
GA200L	GG200L	GH200L	GJ200L	GJ200S	GU200L	GU200S	KT200N
GA200N	GG200N	GH200N	GJ200N	GK200N	GU200N	KT200L	KT200S
GA200S	GG200S	GH200S					

Heater Digit (Position 6)
E - Electric
L - L.P. Gas
M - Medium Electric
N - Natural Gas
S - Steam

OPL Control Suffixes		
Control Digit (position 7)	**Actuation Digit (position 8)**	**Example Control Suffix Combination**
N - OPL Micro Control	N - OPL	NN - OPL Micro Control, OPL

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.

Tumble Dryers 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 tumble dryer has a positive ground and that all mechanical and electrical connections are made before applying power to or operating the tumble dryer.

Power Failure Recovery

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

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 #20. 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 = Enabled

Multi-Step Cycles = Disabled

Daylight Saving = Enabled

Key Pad Audio = Enabled

End of Cycle Audio = Enabled (5 seconds)

End of Cycle External Signal = Disabled

Clean Lint Screen Reminder = Off

Display Limit Cycles = Disabled

Manual Diagnostics = Enabled

*Reverse Cylinder Rotate Time = 30 (seconds)

*Reverse Cylinder Stop Time = 6 (seconds) (25-F75 models), 10 (seconds) (120-200 models)

*Advanced Reversing = Disabled

**Advanced Options for Moisture Dry = Disabled

**Display Moisture Sensor Error = Enabled

*Only available on units equipped with reversing feature.

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

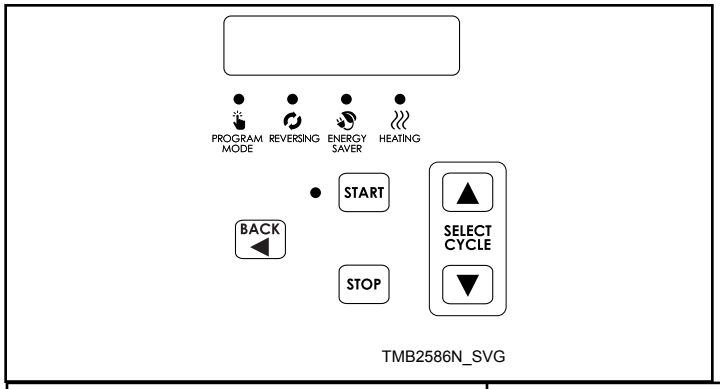
Refer to Factory Defaults, Menu section for information on Restoring Factory Defaults.

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 tumble dryer.

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 tumble dryer, the control becomes active and will display its software version as SHHH (HHH 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.

System Check Mode

The front end control enters this mode after Power-Up Mode. System Check Mode acts as an extension to Power-Up Mode and during this mode, the control will check if the correct drive motor, fan motor and ignition control (for gas machines only) are connected to the machine. If the motor type checks have successfully been completed or if the door is not closed prior to the five (5) second timer expiring, the front end control will continue to the next mode. The mode that is entered after System Check Mode completes is determined in Power-Up Mode. If the door was not closed and the motor type check was not completed, this check will be done the next time the motor drive contactor is enabled. If the test detects an incorrect drive motor, fan motor or ignition control, a Board ID Error will be set

Start Mode

The control enters this mode when it is ready to start or resume a cycle. The display will show CYC-HH where HH is the cycle number.

If there is no input from the operator for 4.25 minutes (i.e., keypad presses, opening or closing the loading door), the display will turn off. Operator input (i.e., keypad presses opening or closing the loading door) will turn on the display.

After pressing the START (enter) keypad if the door is closed, the cycle will begin. The cycle time in minutes will be displayed.

Run Mode

The Control enters Run Mode during a cycle. Loading and lint doors are closed during Run Mode.

While in Run Mode, any programmed value can be changed for the currently running cycle. Press the Up or Down keypads to scroll through the displays. Press the Back keypad to select a parameter and press Up or Down to change the value. Once the cycle is complete, the control will go back to the original programmed parameters. Refer to the Tables below for each cycle type's displays.

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.

Time Dry Cycle Display	6 Digit Display	Description
Display 1	MMM SS	Cycle Time Remaining in Minutes and Seconds
Display 2	CHH SY or CHHSCd	Cycle Number (HH) and Step Number (Y) or Cycle Number (HH) and Step Cooldown
Display 3	A HHHF or A HHHC	Actual Temperature
Display 4	P HHHF or P HHHC	Programmed Temperature
Display 5	SAvE	Custom Save Mode Display

Table 2

Moisture Dry Cycle Display	6 Digit Display	Description
Display 1	rnC HH	Actual Moisture Level
Display 2	CHH SY or CHHSCd	Cycle Number (HH) and Step Number (Y) or Cycle Number (HH) and Step Cooldown
Display 3	A HHHF or A HHHC	Actual Temperature
Display 4	P HHHF or P HHHC	Programmed Temperature
Display 5	PnCHH	Programmed Moisture Level
Display 6	SAvE	Custom Save Mode Display
Display 7	HH HH	Time Remaining Display (Time past target and cool-down only)

Table 3

Auto Dry Cycle Display	6 Digit Display	Description
Display 1	mmm ss	Elapsed Time in Minutes and Seconds
Display 2	CHH SY or CHHSCd	Cycle Number (HH) and Step Number (Y) or Cycle Number (HH) and Step Cooldown
Display 3	A HHHF or A HHHC	Actual Temperature
Display 4	P HHHF or P HHHC	Programmed Temperature
Display 5	P HH	Programmed Target Level

Table 4

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 cooldown step.

In the Cool Down step, 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.

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 CLOSE, 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.

Cool Down Mode

The control enters the Cool Down Mode after the heat step of the cycle is completed or fatal error occurs. The control turns the heater off and for steam heated units turns the damper motor on. The cool down step 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. Once Anti-Wrinkle Tumble is complete, Extended Tumble Mode is entered after 20 minutes.

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 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 steps of the cycle. Factory default reversing rotate time is 30 seconds and reversing stop time is 6 seconds for all cycles with reversing enabled.

Machine Cycle Definition and Operation

There are 20 machine cycles that can be selected and run. Machine cycles can be modified or made “unavailable” by manually editing them in Modify Cycle Menu. 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 step by step 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 step is examined to see if it is programmed to on or oFF. If the step is programmed to oFF, control skips to the next step.

The control displays:

- Time counts down for Time Dry Cycles
- Time counts up for Auto Dry Cycles
- Moisture level is displayed for Moisture Dry Cycles
- Time counts down for Cool Down

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 desire results.

To Start a Cycle

1. Press the Up or Down keypad to change cycles.
2. Press Start to start selected cycle.

NOTE: If loading door is open when the Start keypad is pressed, display will show CLOSE, door If lint door is open when the start keypad is pressed, display will show CLOSE, L int, 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.

How to Enter the Manual Mode

1. Control must be in Start Mode.
2. Press and hold the Stop keypad, then press the Back keypad.
3. The display will show rAP id.
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 Start Mode.

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

Manual Rapid Advance (rAP id)

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.

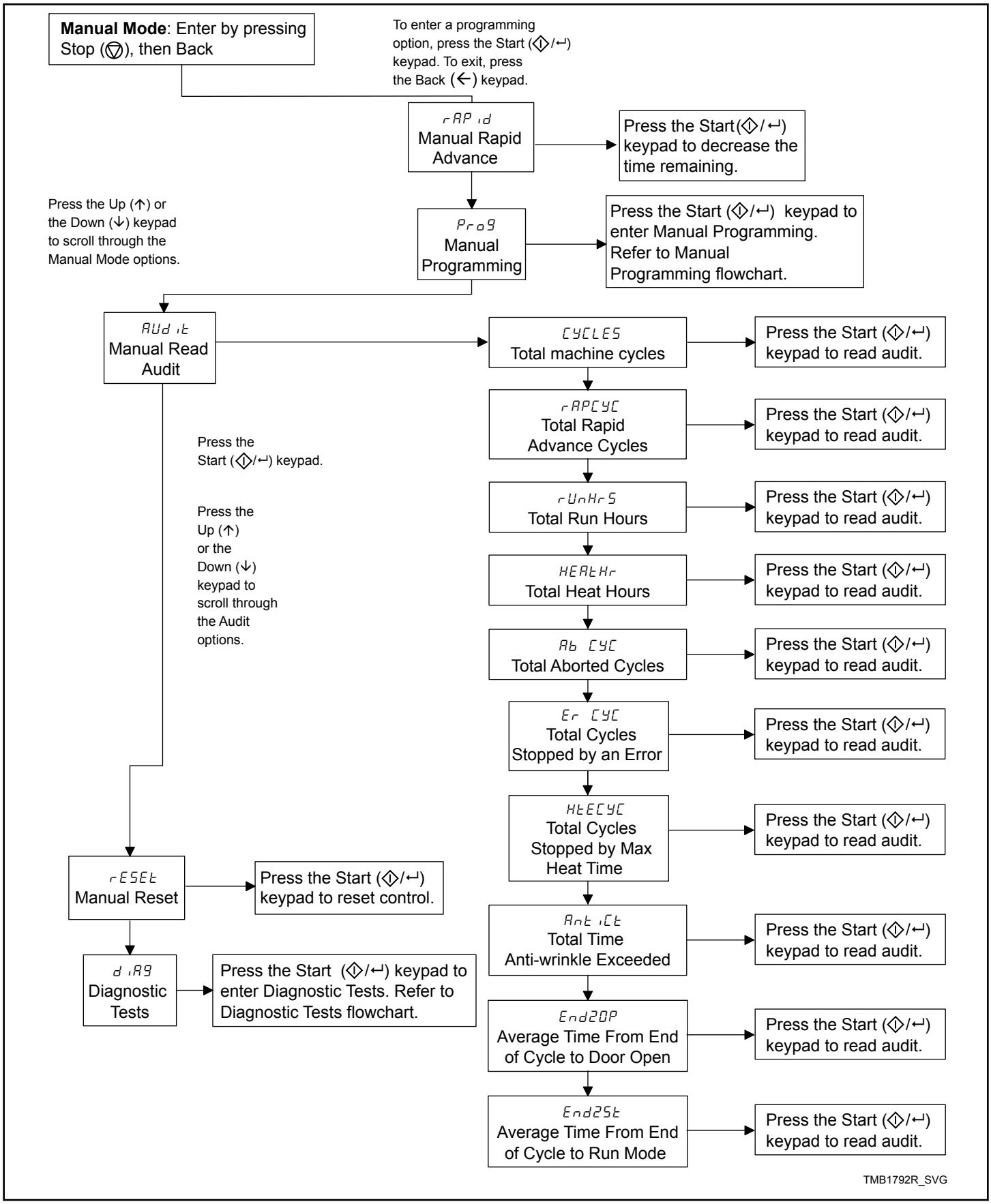


Figure 1

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 below.

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	Aud io-	Audio Signal	-	-
a	Aud 1	Keypad Feedback	1	1 (Enable), 0 (Disable)
b	Aud 2	End of Cycle	1	1 (Enable), 0 (Disable)
c	Aud 3	End of Cycle Duration (seconds)	5	1-120
2	Error-	Error Displays	-	-
a	E LM it	Limit Cycle Display	0	1 (Enable), 0 (Disable)
b	E Mo iS	Moisture Sensor Error Display	1	1 (Enable), 0 (Disable)
c	E FFLM	False Flame Error Display	0	1 (Enable), 0 (Disable)
d	CLrErr	Allow Error Clearing	1	1 (Enable), 0 (Disable)
3	Cd-	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
4	tEMP-	Temperature	-	-
a	tEMP 1	High Temperature	190°F [88°C]	160°-190°F [71°-88°C](35, T45, 55, 50, 75, 120, 170, 200 Pound Models), 155°-190°F [68°-88°C](25, 30, T30 Pound Models)

Table continues...

Option Number	Option Display	Description	Default Value	Value Range
b	tEMP 2	Medium Temperature	160°F [71°C]	140°-160°F [60°-71°C](50, 75, 120, 170, 200 Pound Models), 135°-160°F [57°-71°C](25, 30, T30 Pound Models),145°-165°F [63°-74°C](35, T45, 55 Pound Models)
c	tEMP 3	Low Temperature	140°F [60°C]	120°-140°F [49°-60°C](50, 75, 120, 170, 200 Pound Models), 105°-145°F [41°-63°C](25, 30, T30 Pound Models),125°-155°F [52°-68°C](35, T45, 55 Pound Models)
d	tEMP 4	Very Low Temperature	120°F [49°C]	100°-120°F [38°-49°C]
5	tP F C	Temperature (Fahrenheit/ Celcius)	0	0 (Fahrenheit), 1 (Celcius)
6	AI 9	Auto Ignite Retry	3	0-255
7	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
8	dLS-	Daylight Savings Parameters	-	-
a	dLS 1	Daylight Saving	on	on/oFF
b	dLS 2	Start Month	-	1-12
c	dLS 3	Start Day of Week	-	1-7
d	dLS 4	Start Week of Month	-	1-4
e	dLS 5	Start Hour	-	0-23
f	dLS 6	End Month	-	1-12
g	dLS 7	End Day of Week	-	1-7
h	dLS 8	End Week of Month	-	1-4
i	dLS 9	End Hour	-	0-23

Table continues...

Option Number	Option Display	Description	Default Value	Value Range
9	CYCLE-	Cycle Programming	-	-
a	CYCHH-	Cycle HH (HH represents cycles 1-20)	-	-
1	CHHEn	Cycle HH Enable Disable	-	on/oFF
2	CHHtYP	Cycle HH Type	-	tinE (Time Dry), Auto (Auto Dry), noiSt (Moisture Dry)
3	CHHnt	Cycle HH Matieral Type	-	0 (Cotton), 1 (Blend), 2 (Bedding), 3 (Delicate), 4 (Synthetic), 5 (Wool)
4	CHHtPt	Cycle HH Time Past Target (minutes)	-	0-15
5	CHHS1-	Step 1	-	CHHS11 (Step 1 Enable/Disable), CHHS12 (Step 1 Time), CHHS13 (Step 1 Temperature), CHHS14 (Step 1 Auto Dry Target Level), CHHS15 (Step 1 Moisture Dry Target Moisture), CHHS16 (Step 1 Reversing Enable/ Disable)
6	CHHCd-	Cool Down	-	CHHCd1 (Cool Down Temperature), CHHCd2 (Cool Down Time), CHHCd3 (Cool Down Step Reversing Enable/Disable)
7	CHHr-	Reversing	-	CHH r1 (Cycle Reversing Enable/Disable), CHH r2 (Cycle Reversing Rotate Time), CHH r3 (Cycle Reversing Stop Time)
10	rEu-	Reversing Parameters	-	-
a	rEu 1	Rotate Time (seconds)	3 (30)	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)
11	rAPdEn	Manual Rapid Advance	1	1 (Enable), 0 (Disable)
12	diAGEn	Manual Diagnostics	1	1 (Enable), 0 (Disable)
13	Ft En	Factory Test Cycle	1	1 (Enable), 0 (Disable)
14	Ht dP	Heating Indicator Decimal Point	0	1 (Enable), 0 (Disable)
15	Lint	Lint Screen Reminder	0	0 (oFF)-255
16	PwrSvE	Display Power Save	1	1 (Enable), 0 (Disable)
17	MdrYOP	Advanced Moisture Dry Options	0	1 (Enable), 0 (Disable)

Table continues...

Option Number	Option Display	Description	Default Value	Value Range
18	ES.9-	External Signal	-	-
a	ES.9 1	External Signal End of Cycle	0	1 (Enable), 0 (Disable)
b	ES.9 2	External Signal End of Cycle Duration (seconds)	5	1-120

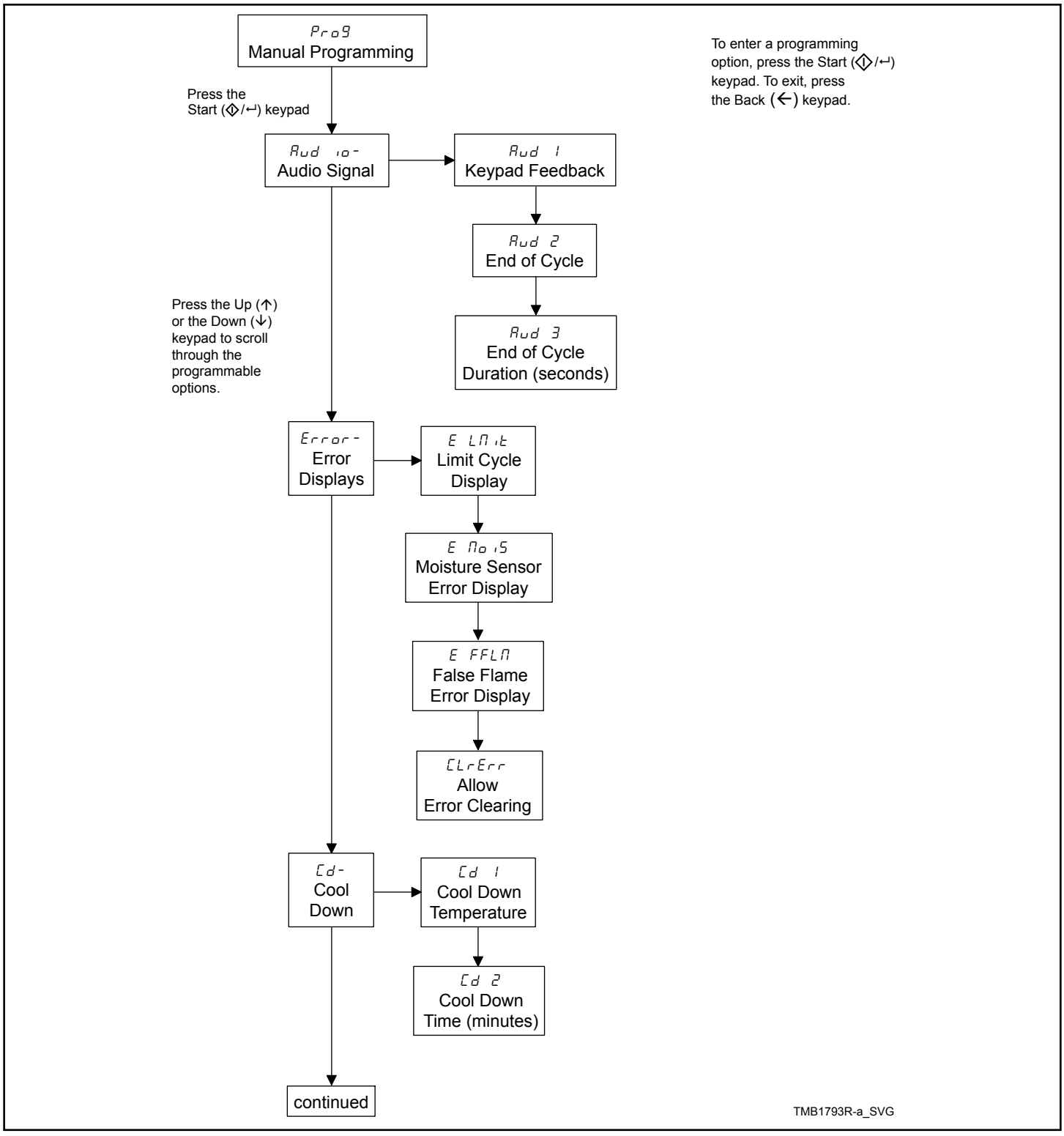


Figure 2

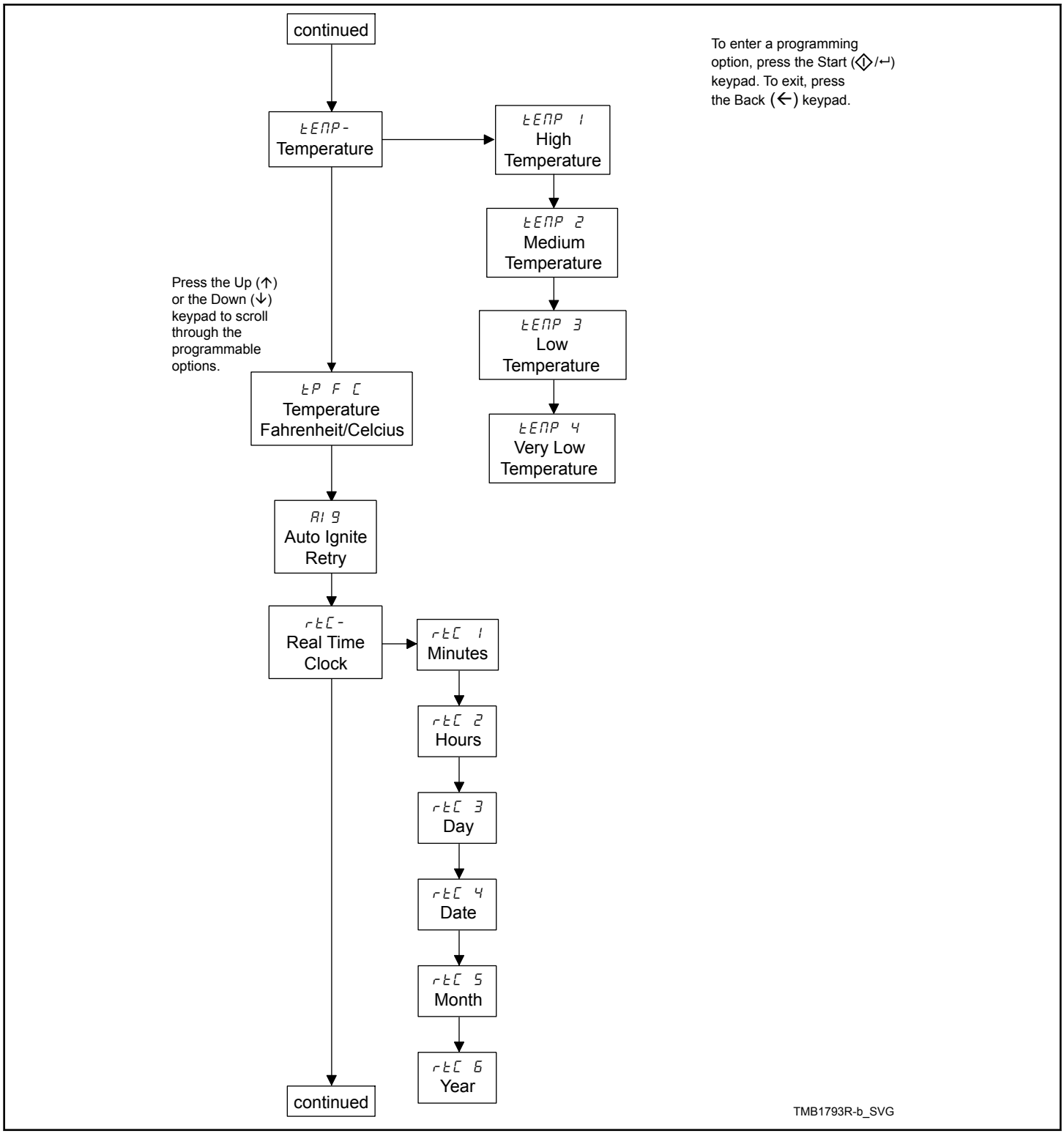
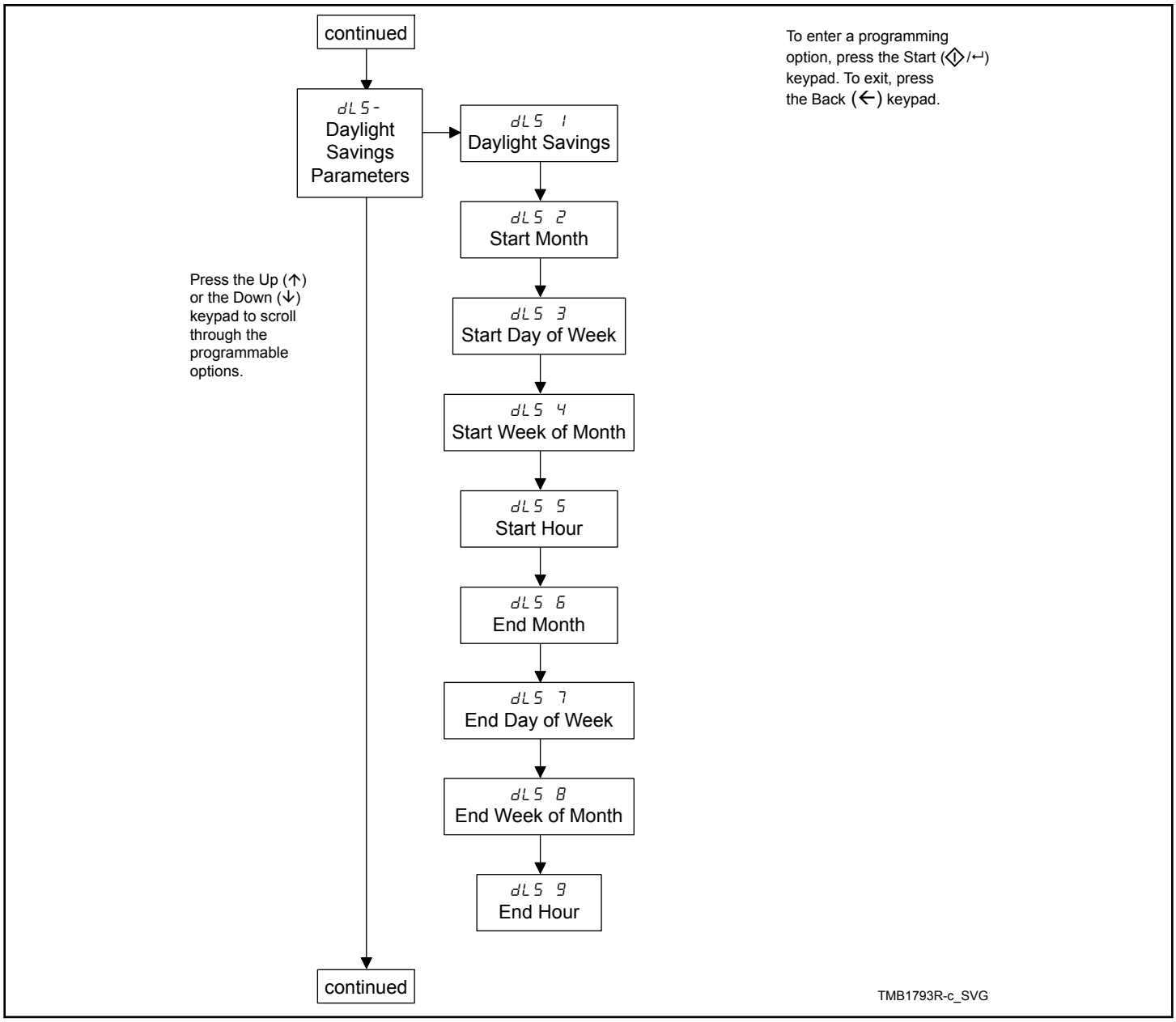


Figure 3



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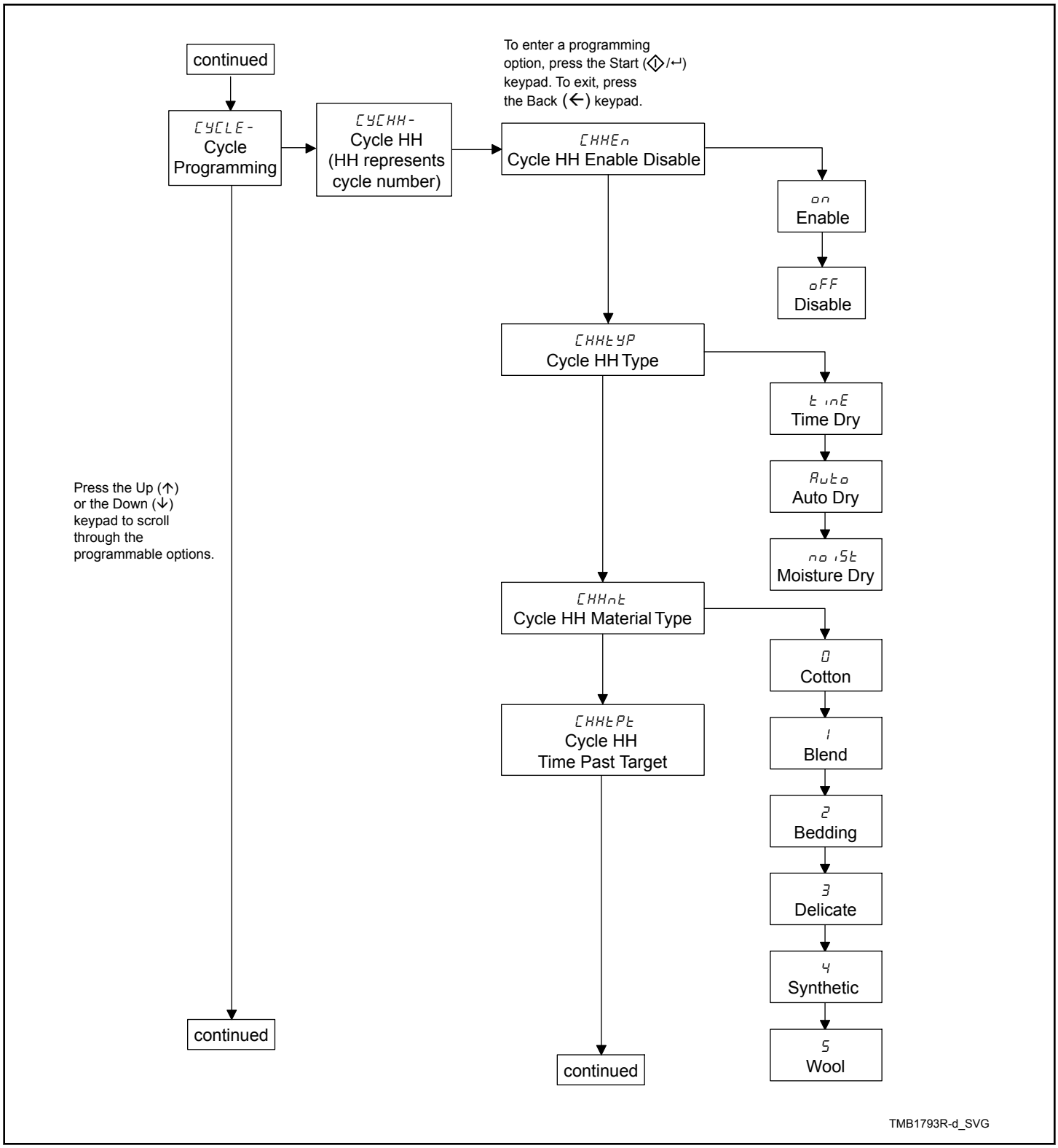

Figure 5

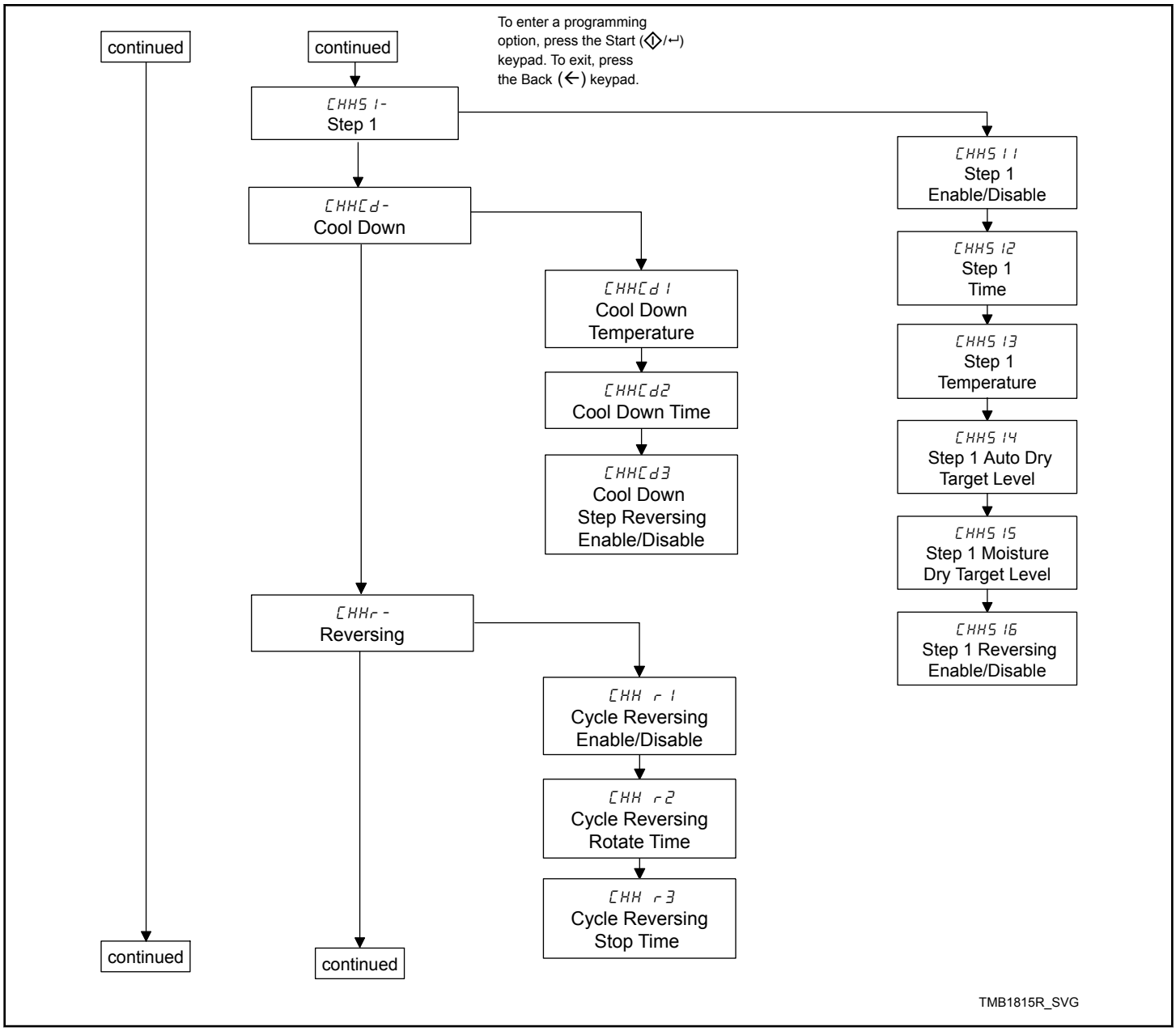

Figure 6

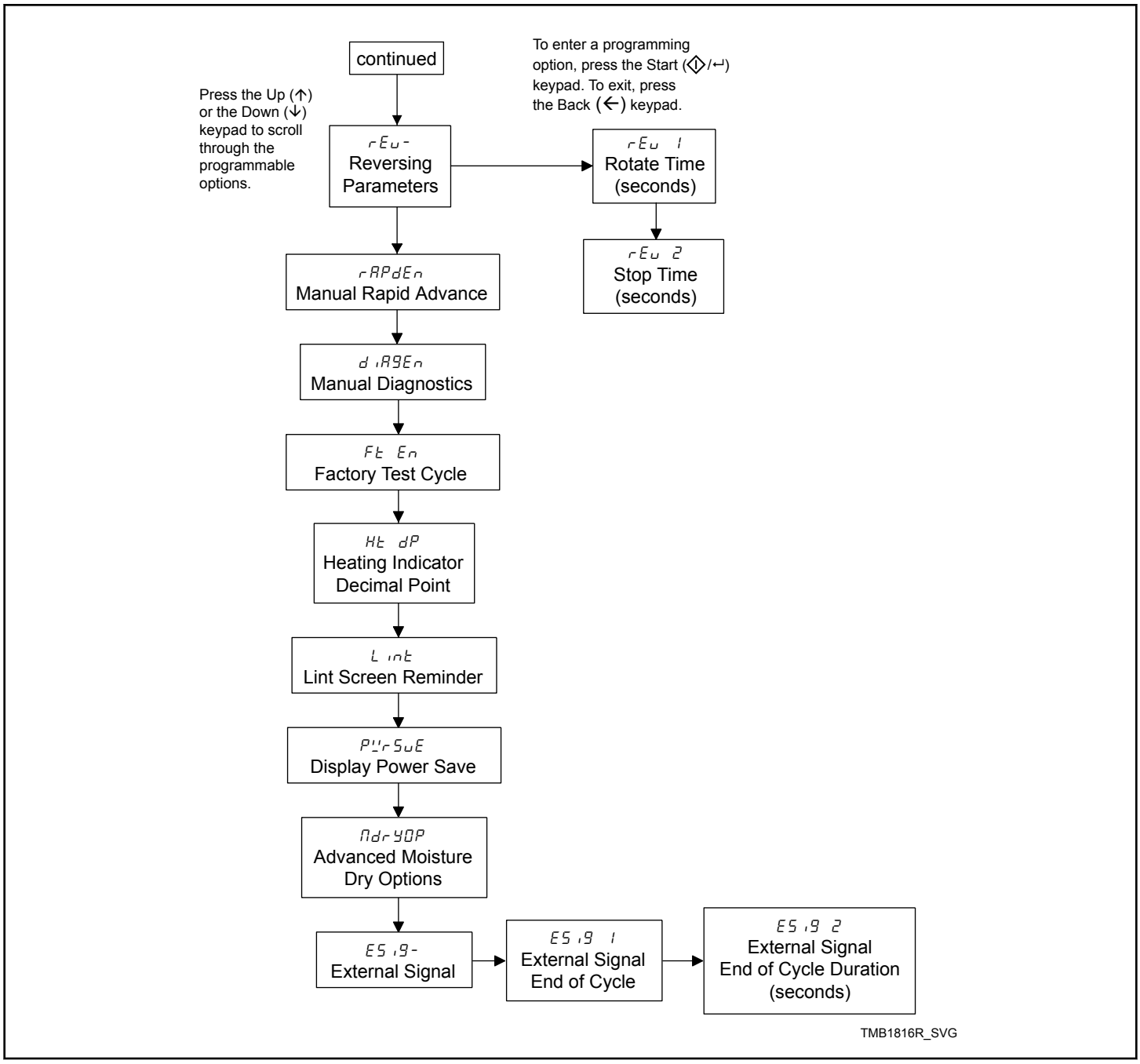

Figure 7

Collecting Audit Information

This feature allows the owner to retrieve audit information stored in the tumble dryer by pressing a sequence of pads on the control. For an explanation of the audit options available, refer to *Table 1*.

How to Enter Audit Feature

1. Control must be in Manual Mode to start. Refer to *How to Enter the Manual Mode*.
2. Press the Up or the Down keypad until Aud it appears.
3. Press the Start keypad. CYCLES will appear.

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 *Table 5* for an explanation of the audit options available.

Audit Options List	
Display	Description
CYCLES	Total # of machine cycles
rAPCYC	Total # of rapid advance cycles
rUnHrS	Total # of run hours
HEAtHr	Total # of heat hours
Ab CYC	Total # of aborted cycles
Er CYC	Total # of cycles stopped by an error
HtECYC	Total # of cycles stopped by max heat time
Ant iCt	Total # of times anti-wrinkle exceeded
End20P	Average time from end of cycle to door open (last 25 cycles)
End25t	Average time from end of cycle to run mode (last 25 cycles)

Table 5

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 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 Up or Down keypad until rAP id appears in the display.
3. Press the Up or Down keypad to scroll through the programmable options until rESEt appears in the display.
4. When rESEt appears in the display, press the Start keypad. If reset is disabled, oFF will appear in the display. If enabled 9LobAL will appear in the display.
5. Press the Up or Down keypad to change the current status.
6. Press the Start keypad when the correct status appears in the display.

Global Programming Parameters	
9LobAL	Global Programming Parameters
rCYC-	Individual Cycles Sub Menu
rCYC 1	Cycle 1
.....	.....
rCYC20	Cycle 20
ALLCYC	All Cycles
ALL	All Cycles and Global Programming Parameters

Table 6

Custom Save

This feature allows the owner to save a current cycle. For time dry cycles, the custom save will reprogram the cycle time to the time that has elapsed in the current cycle. For moisture dry cycles, the custom save feature will save the current moisture level as the target moisture level for the current cycle.

1. While a cycle is running, press the Back and Start keypads.
2. Display will change to SAVE and Start keypad will flash.
3. Press the Start keypad.

Testing Machine and Electronic Control Functions

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

- Control Software Version Number
- Input/Output Board Software Version Number
- Drive Software Version Number
- Fan Software Version Number
- Ignition Control Software Version Number (gas models only)
- Service Door Opening Test
- Dryer On TemperatureTest
- Door Switch Input Test
- Lint Door Switch Test
- Temperature Sensor Display Test
- 12.5VDC Voltage Test
- 24VDC Voltage Test
- AC Mains Voltage Test
- Machine Configuration #1 Display Test
- Machine Configuration #2 Display Test
- Machine Configuration #3 Display Test
- Machine Configuration #4 Display Test
- Machine Configuration #5 Display Test
- ICM Alarm Status (gas models only)
- ICM Reset Test (gas models only)
- Heat Interlock Test (Cabinet Limit Thermostat, Stove Limit Thermostat 1, Stove Limit Thermostat 2, Manual Reset Limit Thermostat)
- Air Flow Switch Test
- Fan Motor Test
- Damper Motor Test (steam models only)
- Drive Motor Test
- Moisture Sensor Test (Shorted)
- Moisture Sensor Test (Resistance)

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 *How to Enter the Manual Mode*.
2. Press the Up or Down keypad until **d iAg** appears.
3. Press the START (enter) keypad. Display will change to **d 1** indicating the control software version number test.
4. Press the Up or 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 7*). 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 Start mode.

Diagnostic (Testing) Mode – Quick Reference Chart

Test Number	Diagnostic Mode	Display
d 1	Control Software Version Number	S HHH
d 2	Input/Output Board Software Number	ob HH
d 3	Drive Software Version Number	dbHHHH
d 4	Fan Software Version Number	FbHHHH
d 5	Ignition Control Software Version Number	iC HH
d 8	Service Door Opening Test	S oP or S CL
d 14	Dryer On Temperature Test	HHHF or HHHC

Table 7 *continues...*

Diagnostic (Testing) Mode – Quick Reference Chart		
d 15	Door Switch Input Test	dr oP or dr CL
d 16	Lint Door Switch Test	L intoP or L intCL
d 19	Temperature Sensor Display Test (Heater/Temp Sensor only)	HHHF or HHHC (Short, oPEn)
d 20	12.5VDC Voltage Test	HH.HH
d 21	24VDC Voltage Test	HH.HH
d 28	AC Mains Voltage Test	HHH.H
d 29	Machine Configuration Display #1 Test	A HHH
d 30	Machine Configuration Display #2 Test	B HHH
d 31	Machine Configuration Display #3 Test	C HHH
d 32	Machine Configuration Display #4 Test	D HHH
d 33	Machine Configuration Display #5 Test	E HHH
d 34	ICM Alarm Status	iAL on or iALoFF
d 35	ICM Reset Test	rESEt
d 36	Heat Interlock Test	-
-	Cabinet Limit Thermostat	CAb oP or CAb CL
-	Stove Limit Thermostat 1	SL 1 oP or SL 1 CL
-	Stove Limit Thermostat 2	SL2 oP or SL2 CL
-	Manual Reset Limit Thermostat	MrL oP or MrL CL
d 37	Air Flow Switch Test	AF oP or AF CL
d 38	Fan Motor Test	PAUSE, FAn
d 39	Damper Motor Test	PAUSE, dAmPEr
d 40	Drive Motor Test	Frd , PAUSE , rEu
d 41	Moisture Sensor Test (Shorted)	rnC 1
d 42	Moisture Sensor Test (Resistance)	rnC 2

Table 7

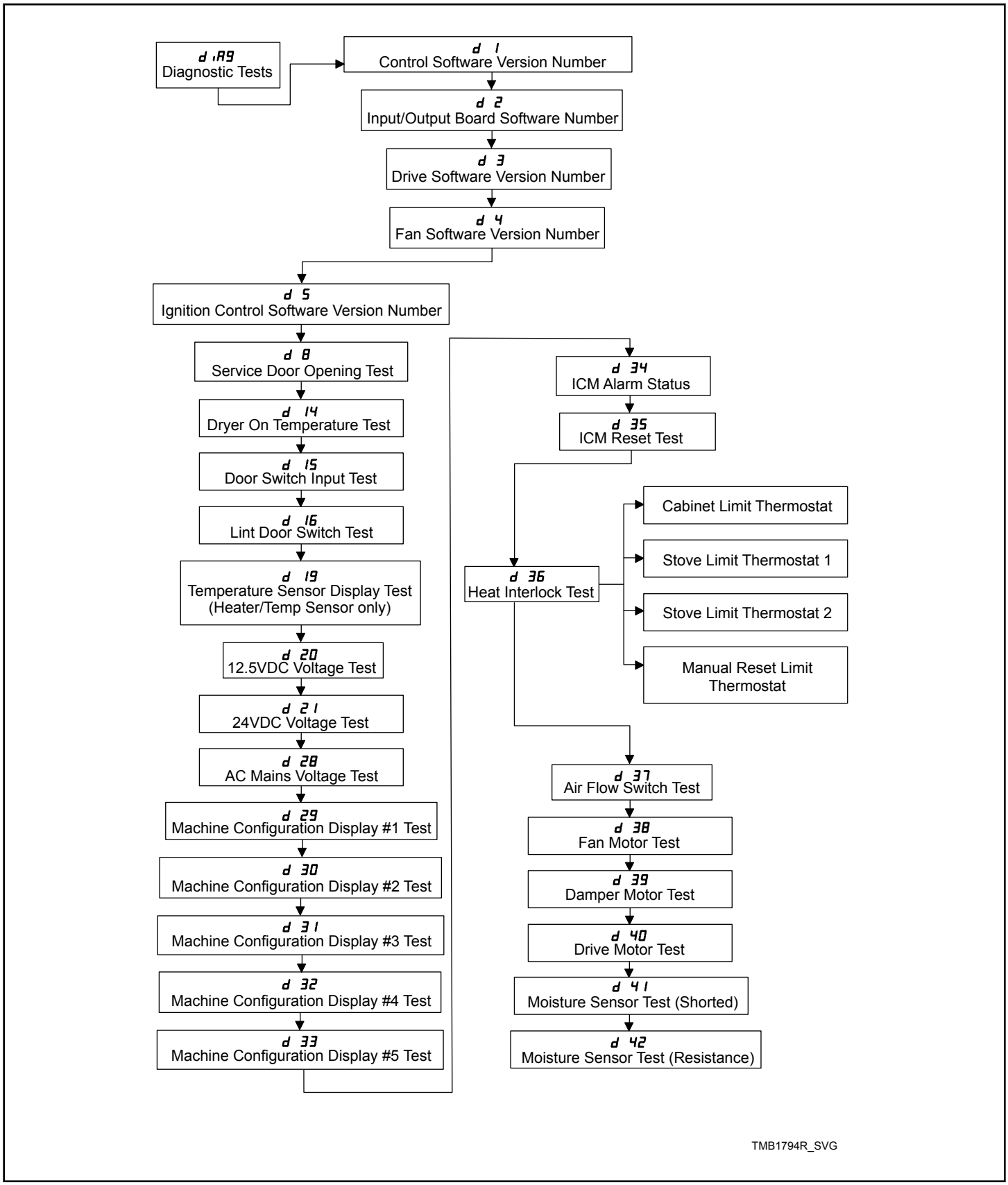

Figure 8

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 (enter) keypad. The display will show 5 HHH where HHH is the software version number.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Input/Output Board Software Version Number Test

This option displays the input/output board 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 (enter) keypad. The display will show ob HH where HH is the software version number.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Drive Software Version Number Test

This option displays the current drive 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 (enter) keypad. The display will show dbHH.HH where HH.HH is the software version number.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Fan Software Version Number Test

This option displays the current fan 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 (enter) keypad. The display will show FbHH.HH where HH.HH is the software version number.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Ignition Control Software Version Number Test (gas models only)

This option displays the current ignition 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 (enter) keypad. The display will show iC HH where HH is the software version number.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Service Door Opening Test

This option tests the service 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 (enter) keypad. The display will show 5 oP when the service door switch is open and 5 CL when the service door switch is closed.

The service door switch has to be closed for at least one second and opened for at least a half a second to make a valid count. This test will add counts to the service door opening counter for the audit and save the date/time for each opening of the test.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Dryer 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 (enter) keypad when the Start LED is flashing. The machine will run until it has reached the selected cycle temperature. The display will show HHHF for degrees in Fahrenheit or HHHC for degrees in Celsius. The HHH will show the degrees. During cool down, the control will display the time remaining as MM (minutes) or MM SS (minutes and seconds).

To exit the test, open the door. The control will then return to the testing mode.

Door Switch Input Test

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

To enter, press the START (enter) keypad. The display will show dr oP if loading door is open or dr CL if loading door is closed.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Lint Door Switch 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 (enter) 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 test, press the Back keypad. The control will return to the Testing Mode.

Temperature Sensor Display Test

This option displays the temperature sensed at the thermistor in 1°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 (enter) 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 SHort. If the control senses an open thermistor, the display will show oPEn.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

12.5VDC Voltage Test

This test displays the value of the 12.5VDC supply. 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 (enter) keypad. The display will show HH.HH where HH.HH is the voltage.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

24VDC Voltage Test

This test displays the value of the 24VDC supply. 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 (enter) keypad. The display will show HH.HH where HH.HH is the voltage.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

AC Mains Voltage Test

This test displays the value of the curent AC Mains Voltage. 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 (enter) keypad. The display will show HHH.H where HHH is the voltage.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Machine Configuration Display #1 Test

This option shows whether communication interfaces are connected. 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 (enter) keypad. The display will show A HHH, with HHH a number corresponding to whether or not coin drops are connected, or serial card reader or network board are connected.

Refer to *Table 8* for test information.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

CONFIGVALUE	COMM BOARD "A" HEADER PRESENT	COMM BOARD "B" HEADER PRESENT
0	NO	NO
8	YES	NO
16	NO	YES
24	YES	YES

Table 8

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 (enter) keypad. The display will show B HHH, with HHH the number corresponding to the machine capacity. Refer to *Table 9* .

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Value	Description
0	Invalid
1	25 Pound Tumble Dryer
2	30 Pound Tumble Dryer
3	35 Pound Tumble Dryer
4	T30 Pound Stack Tumble Dryer
5	T45 Pound Stack Tumble Dryer
6	50 Pound Tumble Dryer
7	55 Pound Tumble Dryer
9	75 Pound Tumble Dryer
10	F75 Pound Tumble Dryer

Table 9 *continues...*

Value	Description
14	120 Pound Tumble Dryer
15	170 Pound Tumble Dryer
16	200 Pound Tumble Dryer

Table 9

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 (enter) keypad. The display will show C HHH, with HHH representing the machine capacity. Refer to *Table 10* .

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Value	Description
0	Invalid
1	Tumble Dryer Single Pocket
2	Stack Tumble Dryer
3	Stack Tumble Dryer - Lower Pocket
4	Stack Tumble Dryer - Upper Pocket
17	25 Pound Tumble Dryer
18	30 Pound Tumble Dryer
19	30 Pound Stack Tumble Dryer
20	30 Pound Stack Tumble Dryer – Lower Pocket
21	30 Pound Stack Tumble Dryer – Upper Pocket
22	35 Pound Tumble Dryer
23	45 Pound Stack Tumble Dryer
24	45 Pound Stack Tumble Dryer – Lower Pocket
25	45 Pound Stack Tumble Dryer – Upper Pocket

Table 10 *continues...*

Value	Description
26	50 Pound Tumble Dryer
27	55 Pound Tumble Dryer
28	75 Pound Tumble Dryer
29	120 Pound Tumble Dryer
30	170 Pound Tumble Dryer
31	200 Pound Tumble Dryer

Table 10

Machine Configuration Display #4 Test

This option shows which dipswitches are set on the control. 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 (enter) keypad. The display will show D HHH, with HHH representing the machine capacity. Refer to *Table 11* .

Config Value	Heat Type	120VAC Supply
0	Non-CE Gas	120VAC
1	Non-CE Gas	240VAC
4	Non-CE Gas	120VAC
5	Non-CE Gas	240VAC
64	Electric	120VAC
65	Electric	240VAC
68	Electric	120VAC
69	Electric	240VAC
128	CE Gas	120VAC
129	CE Gas	240VAC
132	CE Gas	120VAC
133	CE Gas	240VAC
192	Steam	120VAC
193	Steam	240VAC
196	Steam	120VAC
197	Steam	240VAC

Table 11

If supply voltage is 100-127VAC per phase, the voltage configuration should be 120VAC.

If supply voltage is 200-240VAC per phase, the voltage configuration should be 240VAC.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Machine Configuration Display #5 Test

This option shows the machine configuration values for the voltage. 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 (enter) keypad. The display will show E HHH, with HHH representing the voltage. Refer to *Table 12* .

Config Value	Adjust Fan Speed for Heat Type	480V Motor Drives (1 for Yes, 0 for No)
2	Gas/Steam	0
3	Gas/Steam	1
4	Electric	0
5	Electric	1
6	Eco Gas	0
7	Eco Gas	1
8	Eco Electric	0
9	Eco Electric	1
10	Low kW Electric	0
11	Low kW Electric	1

Table 12

To exit the test, press the Back keypad. The control will return to the Testing Mode.

ICM Alarm Status (gas models only)

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 (gas models only)

The ICM Reset Test can be used to clear/reset an active alarm. When the test is entered, the display will show rESEt . Press START (enter). When this test is started, the ICM reset will become active. If the reset signal is active for a long enough period of time (3.5 seconds) the ICM Lockout input will become inactive (3.5 seconds) and then stop the ICM Reset Test.

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 four 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.

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Cabinet 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 Limit Thermostat 1

The display will show SL 1 oP if sensed open for at least 1.6 seconds and SL 1 CL if sensed closed for at least one second.

Stove Limit Thermostat 2

The display will show SL2 oP if sensed open for at least 1.7 seconds and SL2 CL if sensed closed for at least one second.

Manual Reset Limit Thermostat

The display will show MrL oP if the switch is sensed open for at least 3.0 seconds and MrL CL if the switch is sensed closed for at least one second.

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 the 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 PAUSE to indicate the fan motor is going to run. When test is running, FAn is displayed.

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

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Damper Motor Test (steam models only)

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 PAUSE to indicate the damper motor is going to run. When test is running, dAmPEr is displayed.

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

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Drive Motor Test

NOTE: For nonreversing models, the display will show Frd indefinitely.

This option shows the drive motor running. The test will turn the cylinder forward for 30 seconds, pause for 6 seconds, rotate in the reverse direction for 30 seconds and pause for 6 seconds.

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 Frd when spinning in forward direction, PAUSE when the cylinder is paused and rEu when spinning in the reverse direction.

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

To exit the test, press the Back keypad. The control will return to the Testing Mode.

Moisture Sensor Test (Shorted Test Jumper)

This step is skipped if the control is not configured for Moisture Sensing. When entering this test, the control will show rnC 1 while flashing the Start LED one second on/one second off, allowing the user to short the cylinder to the baffle (orange jumper). When the Start key is pressed, this test step energizes the Fan Motor Contactor and Forward Motor Contactor and the control will show HH. The moisture sensor test is 30 seconds. During this 30 second period, the control is continually monitoring the moisture sensor input for the expected short circuit. If an intermittent signal or high resistance is sensed before the 30 seconds expire, the test is terminated and the control will show OPEn , indicating that the test has failed. At this time the user has the option to press the Back keypad to return and run the test again. If the control ran the whole test reading the expected moisture sensor level and without an intermittent signal or high resistance, PASS will be shown. If either the loading or lint doors are opened during the test, the control will reset the test step and allow it to be run again. When the test is complete and result is displayed, the control sounds a 5 second audio signal. Press a key to advance to the next test step. If the Up or Down keypad is pressed while the test is in progress the control will toggle between displays HH, rnC HH and SnrHHH. If the display is left on rnC HH or SnrHHH for 5 seconds the control will revert to showing rnC 1.

Moisture Sensor Test (Resistance Test Jumper)

This step is skipped if the control is not configured for Moisture Sensing. When entering this test, the control will show rnC 2 while flashing the Start key LED one second on/one second off, allowing the user to place the 510k Ohm resistor between the cylinder and the baffle (black jumper) which simulates an expected moisture sensor level. When the Start keypad is pressed, this step energizes the Fan Motor Contactor and Forward Motor Contactor and the control will show HH. The moisture sensor test is 30 seconds. During this 30 second period, the control is continually monitoring the moisture sensor input for the expected moisture sensor level. If an intermittent signal or unexpected resistance is sensed before the time expires, the test is terminated and the control will show OPEn , indicating that the test has failed. At this time, the user has the option to press the Back keypad to return and run the test again. If the control ran the test reading the expected moisture sensor level and without an inttermittent signal or unexpected resistance, PASS will be shown. If either the loading or lint doors are opened during the test, the control will reset the test step and allow it to be run again. When the test is complete and result is displayed, the control sounds a 5 second audio signal. Press a key to advance to the next test step. If the Up or Down keypad is pressed while the test is in progress the control will toggle between HH, rnC HH and SnrHHH. If the display is left on rnC HH or SnrHHH for 5 seconds the control will revert to showing rnC 2.

Factory Test Cycle

To Enter Factory Test Cycle

1. Be certain control is in Start Mode, and service door or coin vault is open.
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 Factory Test Cycle, it will first display td for product type (tumble dryer).
4. The control will advance through the sequence of test steps whenever the START (enter) keypad is pressed, with the exception of the Keypad Test. Refer to *Table 13* for all tests in the Factory Test Cycle.

To Exit Factory Test Cycle

The control must be powered down to end the test.

Factory Test Cycle Quick Reference Table		
Display	**Test Mode**	**Comments**
tdd	Machine Type	tdd is the machine type (tumble dryer).
SHHH	Software Version	HHH is the software version number.
.HH (skipped if 0)	Software Subversion	HH is the software subversion.
obHH	Output Board Version Number	HH is the output board version number.
.HH (skipped if 0)	Output Board Subversion Number	HH is the output board subversion number.
dbHH	Drive Software Version Number	HH is the drive software version number.
FbHH	Fan Drive Software Version Number	HH is the fan drive software version number.
.cHH (skipped if electric or steam machine)	ICM Software Version	HH is the ICM software version number.
AH	Control Type	H is the feature level of the control.
HH	DipSwitch Configuration	HH is the machine type. 00 is 120V and 01 is 240V.
HHH	Machine Size	HHH is the configured machine size. tHH is for stack machines and FHH is for fast dry.
PAd or PAHH	Keypad Test	When a key is pressed, the control will display the number assigned to the keypad. As each keypad is pressed, its corresponding LED will be lit and remain on for the duration of the test. When all keypads have been pressed, the control will advance to Show Entire Display Mode test cycle.
All LEDs and display segments will light	Show Entire Display Mode	This mode will light all display elements and sound the audio.
S oP or S CL	Service Door Switch Test	oP signifies the service door switch is open or CL signifies the service door switch is closed.
droP or drCL	Loading Door Test	oP signifies the loading door is open or CL signifies the loading door is closed.
LtoP or LtCL	Lint Door Test	oP signifies the lint door is open or CL signifies the lint door is closed.
HHHF or HHHC	Thermistor Temperature Test	The temperature will be displayed in either Fahrenheit or Celsius, depending on machine's configuration. If control senses a shorted thermistor, SH will be displayed. If control senses an open thermistor, oP will be displayed.

Table 13 *continues...*

Factory Test Cycle Quick Reference Table

Display	Test Mode	Comments
rnC 1	Moisture Sensor Test (Shorted)	This step is skipped if the control is not configured for Moisture Sensing. When entering this test, the control will show rnC 1 while flashing the Start LED one second on/one second off, allowing the user to short the cylinder to the baffle (orange jumper). When the Start key is pressed, this test step energizes the Fan Motor Contactor and Forward Motor Contactor and the control will show HH. The moisture sensor test is 30 seconds. During this 30 second period, the control is continually monitoring the moisture sensor input for the expected short circuit. If an intermittent signal or high resistance is sensed before the 30 seconds expire, the test is terminated and the control will show OPEn , indicating that the test has failed. At this time the user has the option to press the Back keypad to return and run the test again. If the control ran the whole test reading the expected moisture sensor level and without an intermittent signal or high resistance, PASS will be shown. If either the loading or lint doors are opened during the test, the control will reset the test step and allow it to be run again. When the test is complete and result is displayed, the control sounds a 5 second audio signal. Press a key to advance to the next test step. If the Up or Down keypad is pressed while the test is in progress the control will toggle between displays HH, rnC HH and SnrHHH. If the display is left on rnC HH or SnrHHH for 5 seconds the control will revert to showing rnC 1.
rnC 2	Moisture Sensor Test (Resistance)	This step is skipped if the control is not configured for Moisture Sensing. When entering this test, the control will show rnC 2 while flashing the Start key LED one second on/one second off, allowing the user to place the 510k Ohm resistor between the cylinder and the baffle (black jumper) which simulates an expected moisture sensor level. When the Start keypad is pressed, this step energizes the Fan Motor Contactor and Forward Motor Contactor and the control will show HH. The moisture sensor test is 30 seconds. During this 30 second period, the control is continually monitoring the moisture sensor input for the expected moisture sensor level. If an intermittent signal or unexpected resistance is sensed before the time expires, the test is terminated and the control will show OPEn , indicating that the test has failed. At this time, the user has the option to press the Back keypad to return and run the test again. If the control ran the test reading the expected moisture sensor level and without an inttermittent signal or unexpected resistance, PASS will be shown. If either the loading or lint doors are opened during the test, the control will reset the test step and allow it to be run again. When the test is complete and result is displayed, the control sounds a 5 second audio signal. Press a key to advance to the next test step. If the Up or Down keypad is pressed while the test is in progress the control will toggle between HH, rnC HH and SnrHHH. If the display is left on rnC HH or SnrHHH for 5 seconds the control will revert to showing rnC 2.

Table 13 *continues...*

Factory Test Cycle Quick Reference Table		
Display	**Test Mode**	**Comments**
10	10 Minute Test Cycle	Determines if dryer can function in a cycle for 10 minutes. LED display will flash one second on and one second off. If the door is opened while the START LED is flashing, the control will display door until the door is closed. While this 10 Minute Test Cycle is running, the START pad may be used to decrement the remaining cycle time. If power to the control is turned off before this test cycle has ended, the cycle is cleared. When the control is powered back up, it will be reset to Ready Mode.
Pd	Power Down	This is the final step of the Factory Test Cycle and when displayed it signifies the test has been completed.

Table 13

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

Error Codes

Following is a list of possible error codes for an electronic control. Errors beginning with EC refer to card reader errors. All other errors refer to machine errors.

Display	Description	Cause/ Corrective Action
ALArM	Break-In Alarm Error	Check the service door or coin vault switches.
E AF	Airflow Switch Bounces	Inspect lint screen, ductwork and make-up air. Cycle power to machine (power down, then power up).
E Co	SCI Communications Error	Communication failure. Power down, power up, check connections and try again. If error persists, replace control or output board.
E dS	Brownout/Voltage Configuration	Unexpected supply voltage. Check wiring at input of machine to make sure the correct input voltage is supplied to the machine. Check the harness connections between the user control and the output board. If the user control was replaced, set dipswitch #1 to the same setting as the previous control. If reworking the machine to use a different supply voltage, the dip switch #1 setting may need to be changed. If the dip switch #1 setting is changed, power down, power up and try again.
E HEAt	Machine Did Not Reach Expected Temperature	The ignition control has power, but a flame was not sensed after the programmed amount of retries. Be sure that gas and gas valve are turned on. If problem persists, troubleshoot the ignition circuit. (Igniter, Cable, Ignition Control Module.) For electric machines, check wiring to auxiliary switch on electric contactors and make sure contactors work properly.
E id	Board ID Error	Incorrect replacement control. Replace user control or output board with correct part. The board ID error will also be set if the wrong drive motor, fan motor or ignition control are connected. The display will show dr iuE, FAn or iCM. Check machine configurations and connect correct drive motor, fan motor or ignition control.
E nr	Drive/Output Board Not Ready	Hardware failure. Replace output board.
E oP	Open Thermistor Error	Remove any lint build-up around thermistor. Check wire connections. If problem persists, replace control or thermistor.
E SH	Shorted Thermistor Error	Remove any lint build-up around thermistor. If problem persists, replace control or thermistor.
EAF 1	Airflow Switch Failed to Open	Inspect lint screen and ductwork. Wipe clean and completely dry off the airflow switch vane as well as the mating material. Once error is cleared, control will go back to previous mode of operation.
EAF2	Airflow Switch Failed to Close	If machine is newly installed, make sure shipping tie has been removed from airflow switch. Inspect lint screen and ductwork. Cycle power to machine (power down, then power up).
ECAb	Cabinet Limit Cycle	Remove any lint build-up around thermostat. If problem persists, replace control or thermostat. Check thermistor function. Error can also be caused by running no load or a small load.

Table 14 *continues...*

Display	Description	Cause/ Corrective Action
ECodru, ECoFAn	Drive and Fan Communication Error	Communication failure. Power down for at least 1 minute, power up, check connections between I/O board and Drive/Fan and try again. If error persists, replace tumbler I/O board or motor with which the error occurred (Fan or Drive).
ECo iCn	ICM Communication Error	Communication failure. Power down, power up, check connections and try again. If error persists, replace tumbler I/O board or ignition control.
Ed 04	Drive Motor Stall Error	Check that cylinder turns freely, make sure machine is not overloaded. Error can be cleared by any key press.
Ed 05	Drive Motor Coherence Check Error	Can be caused by an unbalanced load. Try to redistribute the load and lengthen the reversing pause time if reversing is enabled. Error can be cleared by any key press.
Ed 11	Drive Motor Overload Error	Check that cylinder turns freely, make sure machine is not overloaded. Error can be cleared by any key press.
Ed 13	Drive Motor Hall Sensor Failure	Power down machine to clear error.
EFAn02, Ed 02	Fan and Drive Motor High DC Bus Error	Voltage to Fan/Drive is too high. Unpower machine to clear error. Check voltage input and check wiring to machine. Replace fan/drive motor if error persists.
EFAn04	Fan Motor Stall Error	Check that blower wheel spins freely. Error can be cleared by any key press.
EFAn05	Fan Motor Coherence Check Error	Check that blower wheel spins freely. Error can be cleared by any key press.
EFAn06, Ed 06	Fan and Drive Motor IPM Overtemp Error	IPM temperature is detected too high. Check that heat sink on the fan/drive is clear of lint or any other obstruction and check that cylinder spins freely when empty. Replace fan/drive motor if error persists.
EFAn08, Ed 08	Fan and Drive Motor Current Limit Error	Check that cylinder/fan turns freely, make sure machine is not overloaded. Replace fan/drive motor if error persists.
EFAn09, Ed 09	Fan and Drive Motor 460V Drive Overcurrent	Check that cylinder/fan turns freely, make sure machine is not overloaded. Replace fan/drive motor if error persists.
EFAn 10, Ed 10	Fan and Drive Motor Low DC Bus Error	Voltage to Fan/Drive is too low. For 120V machines, make sure wire harness jumper is connected which connects pins 1 and 2 of the 5-pin connector on the motor. Check voltage input and check wiring to machine. Replace fan/drive motor if error persists.
EFAn 12, Ed 12	Fan and Drive Motor Microcontroller Fault	Try to power down and power up the machine to clear the error. If error persists replace fan/drive motor.
EFLt01	Optional Heat Output Shorted	Check wiring to valve/motor connected to output, replace valve/motor.
EFLt02	Motor Relay Enable Output Shorted	Check motor power relay connected between, if error persists replace relay.
EFLt03	Spare Relay Enable Ouptut Shorted	Check relay powered by KM2 output, if error persists replace relay.

Table 14 *continues...*

Display	Description	Cause/ Corrective Action
EFLt04	Auxiliary Relay 1 Ouput Shorted Error	Check relay powered by Aux 1 output, if error persists replace relay.
EFLt05	Run Relay Output Shorted Error	Check Relay powered by the Run output, if error persists replace relay.
EFLt06	Gas Valve 1 Output Shorted Error	Check gas valve 1, if error persists replace valve.
EFLt07	Gas Valve 2 Output Shorted Error	Check gas valve 2, if error persists replace valve.
E iCn	ICM Lockout Alarm Active	Check that the gas is turned on and that the ignition circuit functions. Also check that the gas valve is operational.
E iCn01	False Flame Error	Press any key, open the loading door or cycle power to machine.
E iCn02	ICM Alarm Reset Shorted Error	Check wiring between the I/O board and the ignition control. Power down and power up machine to clear the error.
E iCn03	ICM Hardware Failure Error	Ignition control has detected a hardware fault. Power down and power machine to clear error. Replace ignition control if error persists.
E io 06	I/O Board 24VDC Supply Over Voltage Error	Check machine input voltage. Power down and power up the machine to clear error. If error persists replace I/O board.
E io 07	I/O Board 24VDC Supply Under Voltage Error	Check machine input voltage, clear any debris or lint from the I/O board. Power down and power up the machine to clear error. If error persists replace I/O board.
E io 08	Heat Output Shorted Error	Power down machine to clear error, power up machine, try heating again. If error persists, replace I/O board.
E io 15	Mosfet Enabled Shorted Error	Power down machine to clear error, power up machine, try running a cycle. If error persists, replace I/O board.
EMo iSt	Moisture Sensor Error	Make sure cylinder is empty and check slip ring connection on back of machine.
EMrL	Manual Reset Limit Error	Inspect tumble dryers venting/ventwork to ensure that the ventwork is adequate and that there are no blockages. Be sure to clean and inspect lint screen. Remove any lint buildup around the thermostat. Check thermistor and cabinet limit function. Limit needs to be manually reset and machine needs to be powered down to clear the error. If problem persists, replace thermostat.
EnHH	Machine ID Chip Error	Communication failure. Power down, power up and try again. If error persists, check connection between user control and Machine ID chip, or try replacing the user control or the Machine ID chip.
ESL 1	Stove Limit 1 Cycle	Inspect tumble dryers venting/ventwork to ensure that the ventwork is adequate and that there are no blockages. Be sure to clean and inspect lint screen. Remove any lint buildup around the thermostat. Check make-up air and gas pressure. If problem persists, replace thermostat.
ESL2	Stove Limit 2 Cycle	Inspect tumble dryers venting/ventwork to ensure that the ventwork is adequate and that there are no blockages. Be sure to clean and inspect lint screen. Remove any lint buildup around the thermostat. Check make-up air and gas pressure. If problem persists, replace thermostat.

Table 14

Manual Rapid Advance

Manual Rapid Advance allows the user to quickly advance through an active cycle. 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 cycle to the *Start Mode*. At this point, the user can perform the required tests and then return the machine to the active cycle.

How to Rapid Advance

Press the START (enter) keypad to start a cycle. If in an active time dry cycle, pressing START (enter) keypad will decrease time. If in an active moisture sensing or auto-dry cycle, pressing START (enter) keypad will advance to the next cycle step.

NOTE: The Rapid Advance option must be turned on for Rapid Advance to work.

Cycle Charts

Moisture Sensing Machine Cycles

Cycle No.	Cycle Name	Cycle Type	Material Type	Reversing	Temperature	Target Moisture or Time
1	Towels	Moisture Dry	Cotton	OFF	190°F [88°C]	1%
2	Sheets Blend	Moisture Dry	Bedding	ON	160°F [71°C]	3%
3	Sheets Cotton	Moisture Dry	Bedding	ON	190°F [88°C]	3%
4	Sheets Blend Iron	Moisture Dry	Bedding	ON	160°F [71°C]	20%
5	Sheets Cotton Iron	Moisture Dry	Bedding	ON	190°F [88°C]	20%
6	Duvet Cotton	Moisture Dry	Bedding	ON	190°F [88°C]	5%
7	Duvet Blend	Moisture Dry	Bedding	ON	160°F [71°C]	5%
8	Napkins Synthetic	Moisture Dry	Synthetic	OFF	140°F [60°C]	3%
9	Napkins Blend	Moisture Dry	Blend	OFF	160°F [71°C]	3%
10	Napkins Synthetic Iron	Moisture Dry	Synthetic	OFF	140°F [60°C]	20%
11	Napkins Blend Iron	Moisture Dry	Blend	OFF	160°F [71°C]	20%
12	Napkins Cotton Iron	Moisture Dry	Cotton	OFF	190°F [88°C]	20%
13	30 Minute High	Time Dry	n/a	OFF	190°F [88°C]	30 minutes
14	30 Minute Med	Time Dry	n/a	OFF	160°F [71°C]	30 minutes
15	30 Minute Low	Time Dry	n/a	OFF	140°F [60°C]	30 minutes
16	30 Minute No Heat	Time Dry	n/a	OFF	n/a	30 minutes
17	15 Minute High	Time Dry	n/a	OFF	190°F [88°C]	15 minutes
18	15 Minute Med	Time Dry	n/a	OFF	160°F [71°C]	15 minutes
19	15 Minute Low	Time Dry	n/a	OFF	140°F [60°C]	15 minutes
20	15 Minute No Heat	Time Dry	n/a	OFF	n/a	15 minutes

Table continues...

n/a = not applicable

- All cycles include a 2 minute, 100°F [38°C] cool down period

- All cycles with reversing on rotate for 30 seconds and pause for: 6 seconds (25-75 pound models), 10 seconds (120-200 pound models).

- 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. Refer to *Standard Non-Moisture Sensing Machine Cycles*.

Non-Moisture Sensing Machine Cycles

Cycle No.	Cycle Name	Cycle Type	Material Type	Reversing	Temperature	Dryness Level or Time
1	Towels	Auto Dry	Cotton	OFF	190°F [88°C]	-2
2	Sheets Blend	Auto Dry	Bedding	ON	160°F [71°C]	5
3	Sheets Cotton	Auto Dry	Bedding	ON	190°F [88°C]	4
4	Sheets Blend Iron	Auto Dry	Bedding	ON	160°F [71°C]	1
5	Sheets Cotton Iron	Auto Dry	Bedding	ON	190°F [88°C]	1
6	Duvet Cotton	Auto Dry	Bedding	ON	190°F [88°C]	3
7	Duvet Blend	Auto Dry	Bedding	ON	160°F [71°C]	3
8	Napkins Synthetic	Auto Dry	Synthetic	OFF	140°F [60°C]	-3
9	Napkins Blend	Auto Dry	Blend	OFF	160°F [71°C]	-2
10	Napkins Synthetic Iron	Auto Dry	Synthetic	OFF	140°F [60°C]	-5
11	Napkins Blend Iron	Auto Dry	Blend	OFF	160°F [71°C]	-5
12	Napkins Cotton Iron	Auto Dry	Cotton	OFF	190°F [88°C]	-5
13	30 Minute High	Time Dry	n/a	OFF	190°F [88°C]	30 minutes
14	30 Minute Med	Time Dry	n/a	OFF	160°F [71°C]	30 minutes
15	30 Minute Low	Time Dry	n/a	OFF	140°F [60°C]	30 minutes
16	30 Minute No Heat	Time Dry	n/a	OFF	n/a	30 minutes
17	15 Minute High	Time Dry	n/a	OFF	190°F [88°C]	15 minutes
18	15 Minute Med	Time Dry	n/a	OFF	160°F [71°C]	15 minutes
19	15 Minute Low	Time Dry	n/a	OFF	140°F [60°C]	15 minutes
20	15 Minute No Heat	Time Dry	n/a	OFF	n/a	15 minutes

n/a = not applicable

- All cycles include a 2 minute, 100°F [38°C] cool down period

- All cycles with reversing on rotate for 30 seconds and pause for: 6 seconds (25-75 pound models), 10 seconds (120-200 pound models).

- Cool down and reversing settings can be changed from what is pre-programmed from the factory.