PHASE 7.4.2
DMC
USER'S MANUAL

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Retain This Manual In A Safe Place For Future Reference

Please read this manual carefully to thoroughly familiarize yourself with the Phase 7 Dual Microprocessor Controller (DMC) computer system features, operational instructions, and programming characteristics. This manual contains important information on how to employ **ALL** the features of your new **ADC** dryer in the safest and most economical way.

American Dryer Corporation products embody advanced concepts in engineering, design, and safety. If this product is properly maintained, it will provide many years of safe, efficient, and trouble-free operation.

We have tried to make this manual as complete as possible and hope you will find it useful. **ADC** reserves the right to make changes from time to time, without notice or obligation, in prices, specifications, colors, and material, and to change or discontinue models.

⚠ WARNING

Proposition 65

Use of this product could expose you to substances from fuel combustion that contain chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

"IMPORTANT NOTE TO PURCHASER"

Information **must be** obtained from your local gas supplier on the instructions to be followed if the user smells gas. These instructions **must be** posted in a prominent location near the dryer.

WARNING

Power **must be** disabled prior to changing S.A.F.E. system temperature probe!! The S.A.F.E. system **will be** activated if probe is removed while dryer is powered on.

NOTE

If power to the dryer is off, the S.A.F.E. system is disabled.

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SECTION I
INTRODUCTION

Phase 7 Dual Microprocessor Controller (DMC) Computer Drying System

The Phase 7 DMC (computer) drying system has been designed to provide for better temperature regulation, efficiency, superior performance, consistency, and faster drying times.

Utilizing this microprocessor technology, the user simply has to place the load in the dryer, insert credit, and push one (1) button to start the drying cycle.

The Phase 7 DMC (computer) provides a very simple user interface, while simultaneously implementing state-of-the-art technology to ensure safety and performance. The Phase 7 DMC (computer) constantly monitors the dryer and **ALL** systems to ensure proper functionality and eliminates **ALL** guesswork in the maintenance of the dryer.

SECTION II

FEATURES

A. **Dependable Microprocessor Solid State Integrated Circuitry** – To eliminate as many moving parts as possible.

B. **Sensor Activated Fire Extinguishing (S.A.F.E.) System** – A feature, which continually monitors the basket (tumbler) for fires. In the event of a fire, a water supply to the basket (tumbler) will suppress the fire. The Phase 7 dual microprocessor controller (DMC) computer will also notify the user that a fire has taken place.

C. **Program Changes are Easily Made at the Keyboard (Touch Pad)** – Actual programs are viewed at the liquid crystal display (L.C.D.) startup or verification.

D. **Temperature Selections** – Accommodates three (3) temperature settings: "HI" , "MED" , and "LO" , each programmable to a drying temperature between 100°F (38°C) and 190°F (87°C) for radial airflow or 100°F (38°C) and 150°F (66°C) for axial airflow.

E. **Cool Down** – Cool down lowers the temperature in the basket (tumbler) to make the material cool enough to handle.

F. **L.C.D.** – Informs user of cycle status and programs; displays important diagnostic and fault codes.

G. **Wrinkle Guard Program** – Helps keep items wrinkle-free when they are not removed from the dryer promptly at the end of the drying and cooling cycles.

H. **Diagnostics** – Major circuits, including the door switch(es), microprocessor temperature sensor, heat output circuits, and more are individually monitored, allowing for precise messages of your failure.

I. **Audio Alert Signal** – The tone will sound at the end of a complete drying cycle at a 1-second rate for the duration programmed. It will also sound for any fault conditions at a quarter-second rate for 4-beeps. Finally, there is a 3-beep warning at the beginning of every Wrinkle Guard On Cycle, and a continuous rapid pulse is used for the entire duration of S.A.F.E. system activation.

J. **Temperature Conversion Status** – Temperature-related programs can be set in either Fahrenheit (°F) or Celsius (°C). **ALL** temperatures will automatically convert to the corresponding values (+/- 1°) when changes are made.

K. **High Temperature Protection** – If the Phase 7 DMC (computer) senses that the temperature in the basket (tumbler) has exceeded 180°F (82°C) for axial airflow or 210°F (98°C) for radial airflow, it will end the drying cycle, and a fault code will be displayed indicating an overheating problem.

L. **RPM** – The Phase 7 DMC (computer) monitors the speed of the basket (tumbler) rotation.

M. **Clean Lint** – This feature notifies the user when the lint access **should be** cleaned.

N. **Language Selection** – The Phase 7 DMC (computer) has the ability to display various languages.

O. **Model Selection** – The Phase 7 dual microprocessor controller (DMC) computer can be programmed to be used on six (6) different model dryers, defined by heat type and the quantity of motors.

P. **Keyboard (Touch Pad) Symbols** – = "PAUSE/CLEAR" key

= "MED/ENTER" key

= "HI/UP" key (scroll up)

= "LO/DOWN" key (scroll down)

Q. **Currency Symbol –** The Phase 7 DMC (computer) can be programmed to display **ALL** currency in one (1) of the following currency symbols, a token mode, none, and no symbol or decimal point.

USD / UK Pound / EURO / Yen / Token / None / No Symbol or Decimal

R. **Dry Mode –** The Phase 7 DMC (computer) can be programmed to operate in either Coin Mode or Free Dry Mode.

S. **Vending Safeguard –** This feature provides protection against counterfeit coins.

T. **Credit Retention** – In the event that the Phase 7 DMC (computer) experiences a power loss, the Phase 7 DMC (computer) will automatically retain the amount of remaining credit that a customer had at the time of the power loss. When power is restored, the Phase 7 DMC (computer) will prompt the user to select a temperature cycle, and will vend the appropriate amount of time according to the amount of remaining credit that was present at the time of the power loss.

U. **Time for Amount to Start** – Allows each temperature setting to vend its own amount of time for the amount of credit inserted to start a cycle.

V. **Time for Top Off** – Allows each temperature setting to vend its own amount of additional time for the amount of credit inserted for additional time.

W. **Ready Prompt** – This setting allows the user to remove the AMOUNT TO START from the "READY INSERT $XX.XX TO START" message so that the Phase 7 DMC (computer) will display "READY". This feature is useful for dryers that are equipped with debit card readers that display their own AMOUNT TO START.

X. **Scrolling Rate** – When in a menu item that has a numeric range, this feature will vary the scroll rate as you scroll through the numeric range to help decrease the programming time.

SECTION III

OPERATING INSTRUCTIONS

A. COIN MODE

1. When at least one (1) of the dryer's pockets is in the ready state and no cycle is in progress, the liquid crystal display (L.C.D.) screen will display a ready prompt depending on the READY PROMPT option in PL #01. If the option is set to "READY, INSERT AMOUNT TO START" the display will read "READY, INSERT $XX.XX TO START." If the READY PROMPT option in PL #01 is set to "READY" the display will read "READY". If both pockets are idle, both sections of the L.C.D. will display the selected READY PROMPT message.

2. Insert coin(s). Once the correct "AMOUNT TO START" has been inserted, the pocket will now display "SELECT TEMP TO START." If the other pocket was already in a cycle, that pocket will display "SELECT TEMP TO ADD TIME." If both pockets were idle, both pockets will display "SELECT TEMP TO START."

3. Select temperature by pressing "HI" , "MED" , or "LO" on the dryer pocket you wish to start the cycle in. The cycle will start, and the L.C.D. will display the Dry Cycle selected and the remaining time.

4. The dryer will continue through the drying and cooling cycles until the vended time has expired.

5. In Coin Mode, if more time is desired the customer will have to insert more credit. The Phase 7 dual microprocessor controller (DMC) computer will vend the additional time according to the configured Coin Mode. If the Phase 7 DMC (computer) is set to Accumulative Time, each coin inserted will yield some additional drying time. Once a coin is inserted any pocket that is idle will display "SELECT TEMP TO START" and any cycle that is in progress will display "SELECT TEMP TO ADD TIME". In Accumulative Coin Mode, the Phase 7 DMC (computer) will only vend additional drying time after the amount for top off has been met. In Accumulative Coin Mode, if a coin is inserted into the dryer, which does not meet the amount for top off the Phase 7 DMC (computer) will prompt the user to add more credit for more time. Once the AMOUNT FOR TOP OFF is inserted any pocket that is in progress will display "SELECT TEMP TO ADD TIME." If the AMOUNT FOR TOP OFF is less than the AMOUNT TO START the Phase 7 DMC (computer) will prompt for more credit in any pocket that is idle. If the AMOUNT FOR TOP OFF is more than the AMOUNT TO START the control will display "SELECT TEMP TO START" in any pocket that is idle. More information on Accumulative Time and Accumulative Coin can be found on **page 18 through page 21** under PL #06 VENDING PARAMETERS – VENDING MODE.

6. Upon completion of drying and cooling cycles the buzzer will sound, and the dryer will go into Wrinkle Guard Mode for 99 minutes or until the door has been opened.

B. FREE MODE

1. When the Phase 7 DMC (computer) is in the ready state and no cycle is in progress, the L.C.D. screen will display "SELECT TEMP TO START."

2. Select temperature by pressing "HI" , "MED" , or "LO" . The cycle will start and the Phase 7 DMC (computer) will display the Dry Cycle selected and the remaining time.

3. The dryer will continue through the drying and cooling cycles, until the drying time has expired.

4. In Free Mode, if more or less time is desired in a cycle press and hold either the "HI" key or "LO" key for 3-seconds. The control will now display the remaining time in the cycle. Pressing the "HI" key will increase the number of minutes remaining. Pressing the "LO" key will decrease the number of minutes remaining. Once the desired amount of time is reached, press the "MED" key and the control will save the time accordingly. In the event you **DO NOT** wish to save the new time simply press the "PAUSE" key and the control will back out to the normal cycle message.

5. Upon completion of the drying and cooling cycles, the buzzer will sound, and the dryer will go into Wrinkle Guard Mode for 99 minutes or until the door has been opened.

C. HOT KEYS

Hot Keys in Coin Mode – When the Phase 7 dual microprocessor controller (DMC) computer is in Coin Mode, the HOT KEYS are disabled. The HOT KEYS can be enabled only if the dryer is in a dry cycle. The HOT KEYS cannot be enabled if the dryer is in "READY, INSERT 25¢ TO START" Mode. To enable the HOT KEYS when the Phase 7 DMC (computer) is in a dry cycle, toggle the program switch to the "UP" position. Once the program switch is in the "UP" position, the HOT KEYS are enabled. The HOT KEYS are as follows:

Pressing and holding the "HI" key will show the remaining credit available.

Pressing and holding the "MED" key will show the temperature readings from **ALL** of the probes that are equipped with the dryer. **ALL** dryers will have an exhaust probe, the exhaust probe reading is always the first temperature reading; if the exhaust probe is the only probe the dryer is equipped with, it will be the only temperature reading shown. If the dryer is also equipped with a thermistor probe, this will be the second reading shown. If the dryer is of an axial configuration and is equipped with an axial probe and thermistor probe, the temperatures shown will be exhaust probe on the left, axial probe in the middle and thermistor probe on the right. If the dryer is equipped with an axial probe but no thermistor probe, the second temperature reading will be that of the axial probe.

Pressing and holding the "LO" key will show the RPMs of the basket (tumbler).

The "PAUSE" key will pause the dryer. If the dryer is paused, pressing the "HI" , "MED" , or "LO" key will restart the dryer into the appropriate drying cycle. Once the dry cycle has started again, the HOT KEYS will be enabled again.

Hot Keys in Free Mode – When the Phase 7 DMC (computer) is in Free Mode, the HOT KEYS are disabled. The HOT KEYS can be enabled only if the dryer is in a dry cycle. The HOT KEYS cannot be enabled if the dryer is in "SELECT TEMP TO START" Mode. To enable the HOT KEYS when the Phase 7 DMC (computer) is in a dry cycle, toggle the program switch to the "UP" position. Once the program switch is in the "UP" position, the HOT KEYS are enabled. The HOT KEYS are as follows:

Pressing and holding the "HI" key will show the remaining dry time available.

Pressing and holding the "MED" key will show the temperature readings from **ALL** of the probes that is equipped with the dryer. **ALL** dryers will have an exhaust probe, the exhaust probe reading is always the first temperature reading; if the exhaust probe is the only probe the dryer is equipped with, it will be the only temperature reading shown. If the dryer is also equipped with a thermistor probe, this will be the second reading shown. If the dryer is of an axial configuration and is equipped with an axial probe and thermistor probe, the temperatures shown will be exhaust probe on the left, axial probe in the middle and thermistor probe on the right. If the dryer is equipped with an axial probe but no thermistor probe, the second temperature reading will be that of the axial probe.

Pressing and holding the "LO" key will show the RPMs of the basket (tumbler).

The "PAUSE" key will pause the dryer. If the dryer is paused, pressing the "HI" , "MED" , or "LO" key will restart the dryer into the appropriate drying cycle. Once the dry cycle has started again, the HOT KEYS will be enabled again.

Hot Keys Lock On Mode – In addition to the HOT KEY features described in the previous two (2) paragraphs, the Phase 7 dual microprocessor controller (DMC) computer also has a HOT KEY feature that allows HOT KEY Mode to be locked on.

In order to Lock On the Hot Key Mode, press and hold the desired HOT KEY, then toggle the program switch up. This will lock the display onto the desired HOT KEY and the display will not be released until the program switch is toggled back down. If another HOT KEY is desired simply press the desired HOT KEY and the display will update to the new HOT KEY item. When in the HOT KEY Lock On Mode the Phase 7 DMC (computer) will respond as normal, a cycle can be stopped, paused and started, however the display will remain displaying the HOT KEY item and not the cycle information. This feature is intended for diagnostics and is not considered a normal operating mode.

D. SCROLLING RATE

When in a menu item that has a numeric range, this feature will vary the scroll rate as you scroll through the numeric range to help decrease the programming time. The "HI" and "LO" keys are used to increase and decrease the values in a menu item. When increasing or decreasing a value in a menu item, if you hold the "HI" or "LO" key for more than 3-seconds the scrolling rate will change to a faster rate.

E. PAUSE MODE

If the "PAUSE" key is pressed and the door is not opened, the dryer will restart in 20-seconds. If the "PAUSE" key is pressed and the dryer door is opened and left open, the dryer will wait for the pause time defined in PL #01 to expire. Once the pause time expires, the Phase 7 DMC (computer) will begin to count down the dry time. If the dryer door is opened without first pressing the "PAUSE" key, the Phase 7 DMC (computer) will continue to count down the dry time.

F. RPM

The Phase 7 DMC (computer) also displays the basket (tumbler) RPM by pressing and holding the "LO" key while the basket (tumbler) is rotating (the basket [tumbler] **must be** rotating for approximately 30-seconds before getting a true RPM reading). In Coin Mode, the program switch **must be** in the "UP" position.

G. CLEARING CREDIT/CLEARING CYCLE

In Coin Mode, credit can be cleared from the Phase 7 dual microprocessor controller (DMC) computer by pressing and holding the "PAUSE" key while entering the following key combination: "HI-HI-HI-LO-LO-MED". The combination is the "HI" key three (3) times followed by the "LO" key two (2) times and then the "MED" key one (1) time. Wait 1-second for the Phase 7 DMC (computer) to prompt the user with "CLEAR CREDIT?" If you want to proceed, simultaneously press the "PAUSE" key and one (1) of the remaining keys. This will clear the credit. A flowchart of this procedure has been provided in **Section VI** of this manual.

A cycle in Free Mode can be cleared by first pausing a cycle and then pressing the "PAUSE" key once again to clear the cycle.

H. ACCESSING COIN VAULT

The coin vault can be accessed by placing the program switch into the "UP" position. Once the program switch is in the "UP" position, press the "HI" key. The Phase 7 DMC (computer) will now display the amount of money in the coin vault. Press the "HI" key again and the Phase 7 DMC (computer) will ask to "CLEAR COIN VAULT TOTAL?" Press "PAUSE" for "NO" or press "MED" for "YES".

I. CLEARING FAULT RECORDS AND CREDIT

This feature allows the user to reset the coin vault, clear any credit still available for a cycle and **ALL** fault records. In order to activate this feature the Phase 7 DMC (computer) needs to be powered down and then restarted. Immediately after power has been applied to the Phase 7 DMC (computer) press and hold the "PAUSE" key and "HI" key simultaneously. The Phase 7 DMC (computer) will prompt the user with the following message "CLEAR FAULT RECORDS AND CREDIT?" Pressing "PAUSE" and any other key will indicate a YES, while pressing any key other than "PAUSE" will indicate a NO. Once the fault records, coin vault and credit are cleared, there is no way of restoring this information.

J. WRINKLE GUARD

This program keeps items wrinkle-free when they are not removed from the dryer promptly at the end of the drying cycle and/or cooling cycle.

When the drying and cooling cycles are completed, the dryer will shut off, the tone will sound, and the liquid crystal display (L.C.D.) will read "CYCLE DONE". If the door is not opened, the Phase 7 DMC (computer) will wait an initial 15 minutes delay time. Once the initial 15 minute delay time has expired, the fan will start and the basket (tumbler) will rotate (without heat) for an ON time of 15-seconds. When the fan and basket start, the display will read "WRINKLE GUARD". Immediately following the 15-second ON time, the Phase 7 DMC (computer) will go into a 5 minute OFF time at which point it will display "CYCLE DONE". The Phase 7 DMC (computer) will repeat this process of 15-seconds "ON" and 5 minutes "OFF" until either the doors are opened or 99 minutes have elapsed, whichever comes first. Prior to each ON time, there is a 3-beep warning that the fan and basket (tumbler) rotation are about to start. The beeps at the end of the Wrinkle Guard Cycle can be programmed to be ON/OFF. Refer to **page 14** for PL #01 – SELECT BUZZER MODE.

NOTE: The following information is an explanation of the Sensor Activated Fire Extinguishing (S.A.F.E.) system functionality. This feature is programmed at the factory and affects dryers that are equipped with the S.A.F.E. system.

K. S.A.F.E. SYSTEM

While the dryer is in an idle state, or 20-seconds after the heat turns off, the Phase 7 dual microprocessor controller (DMC) computer monitors the S.A.F.E. temperature probe located in the top of the basket (tumbler) chamber and records the minimum temperature. If the minimum recorded S.A.F.E. probe temperature is greater than 120°F (48°C) and the Phase 7 DMC (computer) detects a 50° rise in temperature, this will be the trip point, and the S.A.F.E. routine will activate.

While a drying cycle is in process and the heat has turned on at least once, the Phase 7 DMC (computer) monitors the exhaust temperature transducer. If the drying cycle temperature set point is set greater than 160°F (71°C) and the Phase 7 DMC (computer) detects an exhaust temperature rise 25°F greater than set point, this will be the trip point, and the S.A.F.E. routine will activate. If set point is below 160°F (71°C), the trip point will be 185°F (85°C).

Once the S.A.F.E. routine is activated, the display will read "S.A.F.E. SYSTEM ACTIVATED", and water will be injected into the basket (tumbler) chamber. Anytime water is being injected into the basket (tumbler), the basket (tumbler) drive will turn the load for 1-second every 15-seconds. This process will continue for a minimum of 2 minutes. After 2 minutes have elapsed, the Phase 7 DMC (computer) will check if the temperature remained above trip point; if so, water will remain on. The Phase 7 DMC (computer) will continue to check if temperature is above trip point every 30-seconds. If the water has been on for a constant 10 minutes, the water will be turned off regardless of the temperature, and the display will read "S.A.F.E. SYSTEM WAS ACTIVATED". If the temperature has dropped below trip point, the Phase 7 DMC (computer) will turn off the water prior to 10 minutes.

SECTION IV
L.C.D. OPERATING MESSAGES

The liquid crystal display (L.C.D.) informs the operator of cycle status and program verification and displays important diagnostic messages and fault information.

A. COIN MODE

When the dryer is idle and is in Ready Mode the Phase 7 dual microprocessor controller (DMC) computer will display:

READY, INSERT $XX.XX TO START

XX.XX represents the AMOUNT TO START defined in program memory location PL #06. If the AMOUNT TO START is less than $1.00, the Phase 7 DMC (computer) will display the necessary AMOUNT TO START in cents "XX¢". If the currency setting is changed to another currency symbol, the correct symbol will be used instead of the $ and ¢ symbols.

If the dryer is equipped with a Sensor Activated Fire Extinguishing (S.A.F.E.) system and there is an issue with the system, the Phase 7 DMC (computer) will display:

S.A.F.E. SYSTEM DISABLED...READY, INSERT $XX.XX TO START

The Phase 7 DMC (computer) will continue to display "S.A.F.E. System disabled" with **ALL** of the following messages until the temperature cycle is selected.

Once a coin has been inserted, the Phase 7 DMC (computer) will display:

ADD XX¢ TO START

OR

S.A.F.E. SYSTEM DISABLED...ADD XX¢ TO START

The Phase 7 DMC (computer) will continue to display this message until the appropriate AMOUNT TO START has been met. Then the Phase 7 DMC (computer) will display:

SELECT TEMP TO START

OR

S.A.F.E. SYSTEM DISABLED...SELECT TEMP TO START

In Coin Mode, if the Phase 7 DMC (computer) detects a malfunction, it will display:

OUT OF ORDER

To see the error fault, press "LO" , and the fault will be displayed. Refer to **Section VIII** for a complete list of faults and descriptions.

If the dryer is paused, the Phase 7 dual microprocessor controller (DMC) computer will display:

CYCLE PAUSED...

B. FREE MODE

If Phase 7 DMC (computer) is in Free Mode and is in a READY state, the Phase 7 DMC (computer) will display:

SELECT TEMP TO START

Likewise, if the dryer is equipped with a Sensor Activated Fire Extinguishing (S.A.F.E.) system and there is an issue with the system, the Phase 7 DMC (computer) will display:

S.A.F.E. SYSTEM DISABLED...SELECT TEMP TO START

If a malfunction is detected in Free Mode, the fault will be displayed. Refer to **Section VIII** for a complete list of faults and descriptions.

If the dryer is paused, the Phase 7 DMC (computer) will display:

CYCLE PAUSED…SELECT TEMP TO RESTART OR PAUSE TO CLEAR CYCLE

C. MESSAGES COMMON TO COIN AND FREE MODES

Once a dry cycle has been selected, regardless of Coin or Free Mode, the Phase 7 DMC (computer) will toggle between the following two (2) messages:

One (1) of the following messages, depending on the cycle selected:

LOW DRY TEMPERATURE
HIGH DRY TEMPERATURE
MEDIUM TEMPERATURE

And one (1) of the following messages, depending on time remaining:

XX:XX MINUTES REMAINING
00:XX SECONDS REMAINING

If the door is opened, the Phase 7 DMC (computer) will display:

MAIN DOOR OPEN

If the main door is open, and a dry cycle is selected, the Phase 7 DMC (computer) will display:

CLOSE MAIN DOOR

If the lint access is opened, the Phase 7 dual microprocessor controller (DMC) computer will display:

LINT ACCESS OPEN

If the lint access door is open, and a dry cycle is selected, the Phase 7 DMC (computer) will display:

CLOSE LINT ACCESS

SECTION V

PROGRAM SELECTIONS (PL #01-PL #07)

PL #01 – CONTROL SETTINGS

SELECT LANGUAGE

This location determines in what language (various available) **ALL** messages will be displayed.

SELECT TEMP SCALE

Temperature-related programs are programmable to be operated in either Fahrenheit (°F) or Celsius (°C). The temperature scale selection is made in "PL #01 TEMP SCALE". Programs affected are:

1. Temperature Display Mode
2. Drying Temperatures
3. Cool Down Temperatures

IMPORTANT: When changing the temperature conversion status from Fahrenheit to Celsius, or vice versa, **ALL** the temperatures **will be** changed accordingly. The Phase 7 dual microprocessor controller (DMC) computer automatically calculates and converts the temperatures in these programs to the previously set value. For example, when changing from °F to °C, if the drying temperature was set for 150°F, the Phase 7 DMC (computer) will change to 66°C (+/- 1°Celsius).

SELECT BUZZER MODE

This location determines whether the buzzer will sound at the end of each Wrinkle Guard Cycle. This option is toggled ON/OFF. Refer to the Wrinkle Guard description in **Section III** for an explanation of Wrinkle Guard functionality.

BEEP COUNT 1 TO 9 BEEPS

If the Buzzer Mode is set to "ON", this location determines how many times the buzzer will beep at the end of a Wrinkle Guard Cycle.

SELECT DRY MODE

This option determines whether the dryer operates in Free Mode or Coin Mode.

PAUSE TIME 0 TO 3 MINUTES

If the "PAUSE" key is pressed and the main door is open, the Phase 7 dual microprocessor controller (DMC) computer will wait for the pause time defined in this setting to expire. Once the time has expired, the Phase 7 DMC (computer) will begin to count down the drying time. If the "PAUSE" key is not pressed prior to opening the door, the Phase 7 DMC (computer) will not wait for the pause time before counting down the drying time.

READY PROMPT

This option controls whether the Phase 7 DMC (computer) displays "READY" or "READY, INSERT $XX.XX TO START", when the Phase 7 DMC (computer) is in a READY state while in Coin Mode. The READY option can be used when the dryer has a debit card system or central pay system implemented that is displaying its own AMOUNT TO START. When this option is selected the Phase 7 DMC (computer) will remain displaying "READY" until the AMOUNT TO START has been met, at this point the Phase 7 DMC (computer) will display "SELECT TEMP TO START". The "READY, INSERT AMOUNT TO START" option is used when the dryer has its own coin acceptor installed and wishes to have the Phase 7 Dual Microprocessor Board display the AMOUNT TO START. When in this option the Phase 7 DMC (computer) will display "READY, INSERT $XX.XX TO START". Once a coin is inserted, the Phase 7 DMC (computer) will display "ADD XX TO START" until the AMOUNT TO START has been met, at which time the Phase 7 DMC (computer) will display "SELECT TEMP TO START".

PL #02 – MACHINE SETTINGS

SELECT MODEL

This location determines what type of dryer the Phase 7 DMC (computer) will be set up as. The six (6) possible models are Gas Dual Motor, Electric Dual Motor, Steam Dual Motor, Gas Quad Motor, Electric Quad Motor and Steam Quad Motor.

NOTE: In the event that the wrong model is selected, the Phase 7 DMC (computer) will go into a model fault and will default to a Gas Dual Motor dryer.

SELECT ROTATION SENSOR MODE

This option controls whether the Phase 7 DMC (computer) should monitor the rotation of the basket (tumbler). This program toggles ON/OFF.

ENTER LINT CLEANING FREQUENCY 0 TO 10 HOURS

This feature monitors the hours of drying time and compares it with the Lint Cleaning Frequency setting. Once the Lint Cleaning Frequency time has been met, the Phase 7 DMC (computer) will begin prompting the user to clean the lint drawer. The Phase 7 DMC (computer) will allow two (2) more hours of drying time before locking out the Phase 7 DMC (computer). The Phase 7 DMC (computer) will not respond until after the lint drawer has been cleaned out. When the lint drawer is opened, the display will read "LINT ACCESS OPEN", and when the lint drawer is closed, the Phase 7 DMC (computer) will go back to a READY state and will read "READY, INSERT 25¢ TO START".

AXIAL THERMISTOR INPUT

This location determines whether the Phase 7 dual microprocessor controller (DMC) computer will use the thermistor probe to monitor the axial temperature in an axial dryer. This menu can be toggled ON and OFF. When the option is turned on, the Phase 7 DMC (computer) will be configured to an axial dryer.

NOTE: In an axial configuration, the new exhaust probe temperature range for drying cycles **will be** between 100°F and 150°F.

THERMISTOR TEMP SET POINT 100 TO 400°F

This location is only active when the AXIAL THERMISTOR INPUT has been turned ON. If the AXIAL THERMISTOR INPUT is OFF, this location will display NOT AVAILABLE. When the AXIAL THERMISTOR INPUT is ON, this location will determine at what temperature the Phase 7 DMC (computer) will cycle the heat, using the temperature reading from the thermistor probe.

PL #03 – HI KEY, PL #04 – MED KEY, PL #05 – LO KEY SETTINGS

TIME FOR AMOUNT TO START 1 TO 99 MINUTES

This location determines the time that is vended once the AMOUNT TO START is met. It is programmable from 1 minute to 99 minutes, in 1 minute increments. Each temperature setting has its own TIME FOR AMOUNT TO START so that each temperature setting can charge at a different rate.

Once the Phase 7 DMC (computer) is in Pause Mode and the Phase 7 DMC (computer) is displaying "CYCLE PAUSED" for Coin Mode or "CYCLE PAUSED...SELECT TEMP TO RESTART OR PAUSE TO CLEAR CYCLE" for Free Mode, the user can restart the dryer in HI, MED, or LO.

COIN MODE

In Coin Mode, when the Phase 7 DMC (computer) is set to Accumulative Time Mode and a cycle is started, the Phase 7 DMC (computer) will calculate how much time is available for the temperature selected by using the TIME FOR AMOUNT TO START for the temperature key selected and the AMOUNT TO START. If the Phase 7 DMC (computer) is paused and a new temperature key is selected the Phase 7 DMC (computer) will calculate how much time is left in the cycle for the new temperature selected. These calculations are based on the TIME FOR AMOUNT TO START for the new temperature key and the amount of credit that was available at the time the Phase 7 DMC (computer) was placed into Pause Mode.

FREE MODE

In Free Mode the Phase 7 DMC (computer) will use the TIME FOR AMOUNT TO START for the temperature key selected to determine how much time is available for the cycle started.

When the Phase 7 DMC (computer) is placed into Pause Mode, the Phase 7 DMC (computer) will calculate a ratio of how much time was left in the cycle at the time the Phase 7 DMC (computer) was placed into Pause Mode and the TIME FOR AMOUNT TO START for the temperature key that was previously selected. Once this ratio is determined, the Phase 7 DMC (computer) will use the same ratio to determine how much time is left in the cycle, when a new temperature key is selected. The Phase 7 DMC (computer) will multiply the TIME FOR AMOUNT TO START for the new temperature key by the ratio and that will determine how much time is left in the cycle.

TIME FOR TOP OFF 1 TO 99 MINUTES

This location determines the time that is vended once the AMOUNT FOR TOP OFF is met. This is programmable from 1 minute to 99 minutes, in 1 minute increments. Each temperature setting has its own TIME FOR TOP OFF so that each temperature setting can charge at a different rate.

TIME FOR TOP OFF is only used when the Phase 7 dual microprocessor controller (DMC) computer is set in Accumulative Coin Mode. When a cycle is started, the Phase 7 DMC (computer) uses TIME FOR AMOUNT TO START 1 TO 99 MINUTES to determine the initial amount of time vended for a temperature key. Once a cycle is started, the Phase 7 DMC (computer) will then reference this TIME FOR TOP OFF for any additional time needed, before any additional time is vended the user will first need to meet the AMOUNT FOR TOP OFF. When a cycle is restarted from Pause Mode, the Phase 7 DMC (computer) will calculate how much time is left in the cycle for the new temperature selected. These calculations are based on a combination of the TIME FOR AMOUNT TO START and TIME FOR TOP OFF for the new temperature key selected and the amount of credit that was available at the time the Phase 7 DMC (computer) was placed into Pause Mode. In Accumulative Coin Mode, the AMOUNT TO START and AMOUNT FOR TOP OFF can differ, so the rate charged for TIME FOR AMOUNT TO START and TIME FOR TOP OFF can be different. The Phase 7 DMC (computer) accounts for the different rates by tracking how much credit is available from AMOUNT TO START and the credit that is available from TIME FOR TOP OFF. Using these ratios of credit and time, the Phase 7 DMC (computer) will determine how much time is left in the cycle for the new temperature key selected.

ENTER HIGH DRY TEMP 100 TO 190°F

Each temperature cycle "HIGH," "MED," and "LO" can be programmed to a dry temperature ranging from 100°F to 190°F (38°C to 87°C) in Radial Mode or 100°F to 150°F (38°C to 66°C) in Axial Mode.

COOL TIME 0 TO 9 MINUTES

Cool down time ranges from 0 to 9 minutes. The cool down time occurs at the end of a dry cycle. If your cool down time is set to 4 minutes, the last 4 minutes of the dry cycle will be in Cool Down Mode.

PL #06 – VENDING PARAMETERS

CURRENCY SYMBOL

The Phase 7 DMC (computer) can be programmed to display **ALL** currency in one (1) of the following currency symbols, a token mode, none, and no symbol or decimal point.

USD / UK Pound / EURO / Yen / Token / None / No Symbol or Decimal

NOTE: When the Phase 7 DMC (computer) is set to TOKEN **ALL** of the coin related menu items will change from currency to whole numbers. The LEFT and RIGHT COIN VALUES will change to a default of one (1) token. The AMOUNT TO START and AMOUNT FOR TOP OFF will also default to one (1). If the currency symbol is changed back to a currency symbol these menu items will change back to factory defaults. The default setting are LEFT COIN DENOMINATION – 0.25, RIGHT COIN DENOMINATION – 0.10, AMOUNT TO START – 0.25, and AMOUNT FOR TOP OFF – 0.25.

NOTE: Any time the Currency Symbol menu is accessed, the Phase 7 dual microprocessor controller (DMC) computer will clear any credit available on the Phase 7 DMC (computer) and will also reset the coin vault total.

SELECT VENDING MODE

The Vending Mode determines how the Phase 7 DMC (computer) will vend time to a customer when a coin is inserted into the dryer. The Phase 7 DMC (computer) uses this parameter to determine whether the Phase 7 DMC (computer) is in Accumulative Time or Accumulative Coin Mode. Depending on which mode the Phase 7 DMC (computer) is in, it will use a combination of the following program locations to determine how much time will be vended to the customer.

PL #03, PL #04, PL #05 – TIME FOR AMOUNT TO START
PL #06 – LEFT COIN DENOMINATION
PL #06 – RIGHT COIN DENOMINATION
PL #06 – AMOUNT TO START
PL #06 – AMOUNT FOR TOP OFF

ACCUMULATIVE TIME

In Accumulative Time Mode, after the initial AMOUNT TO START (PL #06) has been met, each additional coin afterward will have a specific value in time, which is determined by TIME FOR AMOUNT TO START (PL #03, PL #04, or PL #05) and AMOUNT TO START (PL #06).

Single Coin Acceptor

Example No. 1: If the dryer is equipped with a 25¢ coin acceptor and the AMOUNT TO START (PL #06) is 25¢, the **HI** key TIME FOR AMOUNT TO START (PL #03) is 30 minutes. Each coin entered into the dryer will yield 30 minutes.

Settings: **PL #06 (LEFT COIN DENOMINATION) 25**
PL #03 (TIME FOR AMOUNT TO START) 30
PL #06 (AMOUNT TO START) 25

Formula: (LEFT COIN DENOMINATION [PL #06] / AMOUNT TO START [PL #06])
(TIME FOR AMOUNT TO START [PL #03]) = Vended Time
(25¢/25¢)(30) = 30 minutes

Example No. 2: If the dryer is equipped with a 25¢ coin acceptor and the AMOUNT TO START (PL #06) is 50¢, the **MED** key TIME FOR AMOUNT TO START (PL #04) is 30 minutes. The insertion of the first two (2) coins into the dryer will yield 30 minutes; each additional coin entered into the dryer will yield 15 minutes.

Settings: **PL #06 (LEFT COIN DENOMINATION) 25**
PL #04 (TIME FOR AMOUNT TO START) 30
PL #06 (AMOUNT TO START) 50

Formula: (LEFT COIN DENOMINATION [PL #06] / AMOUNT TO START [PL #06])
(TIME FOR AMOUNT TO START [PL # 04]) = Vended Time
(50¢/50¢)(30) = 30 minutes
(25¢/50¢)(30) = 15 minutes

Dual Coin Acceptor

Example No. 1: If the dryer is equipped with a 10¢/25¢ dual coin acceptor and the AMOUNT TO START (PL #06) is 25¢, the **LO** key TIME FOR AMOUNT TO START (PL #05) is 15 minutes. After the initial AMOUNT TO START (PL #06) has been met, each additional 10¢ will yield 6 minutes and each additional 25¢ will yield 15 minutes.

Settings:
PL #06 (LEFT COIN DENOMINATION) 10
PL #06 (RIGHT COIN DENOMINATION) 25
PL #05 (TIME FOR AMOUNT TO START) 15
PL #06 (AMOUNT TO START) 50

Formula: (LEFT COIN DENOMINATION [PL #06] / AMOUNT TO START [PL #06])
(TIME FOR AMOUNT TO START [PL #05]) = Vended Time
(10¢/25¢)(15) = 6 minutes

(RIGHT COIN DENOMINATION [PL #06] / AMOUNT TO START [PL #06])
(TIME FOR AMOUNT TO START [PL #05]) = Vended Time
(25¢/25¢)(15) = 15 minutes

Example No. 2: If the dryer is equipped with a 10¢/25¢ dual coin acceptor and the AMOUNT TO START (PL #06) is 35¢, the **HI** key TIME FOR AMOUNT TO START (PL #03) is 14 minutes. After the initial AMOUNT TO START (PL #06) has been met, each additional 10¢ will yield 4 minutes and each additional 25¢ will yield 10 minutes.

Settings:
PL #06 (LEFT COIN DENOMINATION) 10
PL #06 (RIGHT COIN DENOMINATION) 25
PL #03 (TIME FOR AMOUNT TO START) 14
PL #06 (AMOUNT TO START) 35

Formula: (LEFT COIN DENOMINATION [PL #06] / AMOUNT TO START [PL #06])
(TIME FOR AMOUNT TO START [PL #03]) = Vended Time
(10¢/35¢)(14) = 4 minutes

(RIGHT COIN DENOMINATION [PL #06] / AMOUNT TO START [PL #06])
(TIME FOR AMOUNT TO START [PL #03]) = Vended Time
(25¢/35¢)(14) = 10 minutes

NOTE: If the vend time cannot be divided evenly by the AMOUNT TO START, the TIME FOR AMOUNT TO START will calculate precisely the amount of time entitled to the purchaser.

ACCUMULATIVE COIN

In Accumulative Coin Mode, additional time can only be achieved when the AMOUNT FOR TOP OFF (PL #06) has been inserted.

If a coin is inserted into the dryer, which is less than the AMOUNT FOR TOP OFF the Phase 7 dual microprocessor controller (DMC) computer will prompt the user to add more credit for more time with the following message "ADD XX FOR ADDITIONAL TIME". The Phase 7 DMC (computer) will scroll this message for 30-seconds and then will return to the normal drying cycle information. The credit that was just inserted will be kept in escrow until more credit is inserted to meet the AMOUNT FOR TOP OFF, or the cycle finishes. In the event that the cycle finishes, any credit that was left in escrow will now be applied to the next cycle. Below are examples of different scenarios in Accumulative Coin Mode.

Single Coin Acceptor

Example No. 1: If the dryer is equipped with a 25¢ coin acceptor and the AMOUNT TO START (PL #06) is 50¢, AMOUNT FOR TOP OFF (PL #06) is 50¢, the **HI** key TIME FOR AMOUNT TO START (PL #03) is 24 minutes, and the **HI** key TIME FOR TOP OFF (PL #03) is 12 minutes. The initial first two (2) coins will yield 24 minutes and each additional two (2) coins entered into the dryer will yield 12 minutes; no time will be vended if only one (1) coin is inserted.

Settings:
PL #06 (LEFT COIN DENOMINATION) 25
PL #03 (TIME FOR AMOUNT TO START) 24
PL #03 (TIME FOR TOP OFF) 12
PL #06 (AMOUNT TO START) 50
PL #06 (AMOUNT FOR TOP OFF) 50

Formula: (AMOUNT TO START [PL #06]) = Vended Time is TIME FOR AMOUNT TO START (PL #03)
50¢ = 24 minutes
(AMOUNT FOR TOP OFF [PL #06]) = Vended Time is TIME FOR TOP OFF (PL #03)
50¢ = 12 minutes

Example No. 2: If the dryer is equipped with a 25¢ coin acceptor and the AMOUNT TO START (PL #06) is 50¢, AMOUNT FOR TOP OFF (PL #06) is 25¢, the **MED** key TIME FOR AMOUNT TO START (PL #04) is 24 minutes, and the **MED** key TIME FOR TOP OFF is 12 minutes. The initial first two (2) coins will yield 24 minutes and each additional coin entered into the dryer will yield 12 minutes.

After the AMOUNT TO START (PL #06) has been met, each additional coin entered into the dryer will yield 12 minutes.

Settings:
PL #06 (LEFT COIN DENOMINATION) 25
PL #04 (TIME FOR AMOUNT TO START) 24
PL #04 (TIME FOR TOP OFF) 12
PL #06 (AMOUNT TO START) 50
PL #06 (AMOUNT FOR TOP OFF) 25

Formula: (AMOUNT TO START [PL #06]) = Vended Time is TIME FOR AMOUNT TO START (PL #04)
50¢ = 24 minutes
(AMOUNT FOR TOP OFF [PL #06]) = Vended Time is TIME FOR TOP OFF (PL #04)
25¢ = 12 minutes

Dual Coin Acceptor

Example No. 1: If the dryer is equipped with a 10¢/25¢ dual coin acceptor and the AMOUNT TO START (PL #06) is 50¢, the **LO** key AMOUNT FOR TOP OFF (PL #06) is 20¢, the **LO** key TIME FOR AMOUNT TO START (PL #05) is 20 minutes, and **LO** key TIME FOR TOP OFF is 10 minutes. After the initial AMOUNT TO START (PL #06) has been met, each additional 20¢ will yield 10 minutes and each additional 25¢ will yield 10 minutes with 5¢ left in escrow. Each time a 25¢ coin is inserted, the remaining 5¢ will be added to escrow. Once the amount in escrow reaches 20¢, another 10 minutes will be vended.

Settings:
PL #06 (LEFT COIN DENOMINATION) 10
PL #06 (RIGHT COIN DENOMINATION) 25
PL #05 (TIME FOR AMOUNT TO START) 20
PL #05 (TIME FOR TOP OFF) 10
PL #06 (AMOUNT TO START) 50
PL #06 (AMOUNT FOR TOP OFF) 20

Formula: (AMOUNT TO START [PL #06]) = Vended Time is TIME FOR AMOUNT TO START (PL #05)
50¢ = 20 minutes
(AMOUNT FOR TOP OFF [PL #06]) = Vended Time is TIME FOR TOP OFF (PL #05)
20¢ = 10 minutes

Example No. 2: If the dryer is equipped with a 10¢/25¢ dual coin acceptor and the AMOUNT TO START (PL #06) is 50¢, the AMOUNT FOR TOP OFF (PL #06) is 50¢, the **LO** key TIME FOR AMOUNT TO START (PL #03) is 20 minutes, and the **LO** key TIME FOR TOP OFF is 20 minutes. After the initial AMOUNT TO START (PL #06) has been met, each additional 50¢ will yield 20 minutes.

Settings:
PL #06 (LEFT COIN DENOMINATION) 10
PL #06 (RIGHT COIN DENOMINATION) 25
PL #05 (TIME FOR AMOUNT TO START) 20
PL #05 (TIME FOR TOP OFF) 10
PL #06 (AMOUNT TO START) 50
PL #06 (AMOUNT FOR TOP OFF) 20

Formula: (AMOUNT TO START [PL #06]) = Vended Time is TIME FOR AMOUNT TO START (PL #05)
50¢ = 20 minutes
(AMOUNT FOR TOP OFF [PL #06]) = Vended Time is TIME FOR TOP OFF (PL #05)
50¢ = 20 minutes

SELECT VENDING SAFEGUARD

The Phase 7 dual microprocessor controller (DMC) computer can be set to one (1) of the following safeguards:

Bad Coin Reset

When this option is selected and someone tampers with the coin acceptor or inserts a foreign object, the Phase 7 DMC (computer) will beep three (3) times and will not accept the entry. The Phase 7 DMC (computer) will automatically reset itself for the next entry.

Bad Coin Lock Out

When this option is selected and someone tampers with the coin acceptor or inserts a foreign object, the Phase 7 DMC (computer) will Lock Out and will not accept any coins for a period of 15-seconds. After 15-seconds, the Phase 7 DMC (computer) will reset itself for the next entry.

ENTER LEFT/RIGHT COIN DENOMINATION 0.05 TO 25.00

The left and right coin acceptors can be independently set to a value within the range of 0.05 to 25.00, adjustable in 0.01 increments.

AMOUNT TO START

This location determines the amount needed to start a dry cycle. The AMOUNT TO START is programmable from a minimum of 0.05 to a maximum of 25.00, adjustable in 0.01 increments.

AMOUNT FOR TOP OFF

This location determines the amount needed to add more time to a dry cycle. The amount for additional time is programmable from a minimum of 0.05 to a maximum of 25.00 minutes, adjustable in 0.01 increments.

PL #07 – FAULT RECORDING

NO FAULTS

No faults have occurred in the dryer and, therefore, no fault records have been created.

FAULTS

Whenever a fault occurs, the Phase 7 DMC (computer) will store the fault description in this location. The Phase 7 DMC (computer) will also store the hour logger time, and the temperature cycle that the pocket was in at the time of the fault. The Phase 7 DMC (computer) will store the last five (5) faults that occurred. Every time a new fault occurs, the oldest fault will be erased and the new fault will be stored.

SECTION VI
PROGRAMMING INSTRUCTIONS

A. INTRODUCTION TO PROGRAMMING

Various program selections are stored in the Phase 7 dual microprocessor controller (DMC) computer and are broken down into seven (7) program locations. PL #01 through PL #07 are for dryer parameters and PL #08 is reserved for factory settings.

ALL program changes are done through the keyboard (touch pad) selection keys on the front of the control panel.

ENTERING THE PROGRAMMING MODE:

First, make sure that no cycle is in progress and that the liquid crystal display (L.C.D.) reads "READY, INSERT 25¢ TO START". Then place the program switch in the "UP" position. This will put you into the programming mode.

EXITING THE PROGRAMMING MODE:

To exit the program mode, place the program switch in the "DOWN" position.

To alter the programming parameters, the operator will locate the parameter (program) that is to be changed. If the change is a numerical change (i.e., time and/or temperature), the operator will use the "HI" and "LO" keys to scroll through the numerical range of numbers, using "HI" to increase and "LO" to decrease. If an error is made, press the "PAUSE" key ONCE and the incorrect entry that was made will be cancelled. Once the entry is made and the parameter (program) set does not need to be changed, press the "MED" key, and the Phase 7 DMC (computer) will save the change and advance to the next parameter.

If the parameter (program) change is a feature change, such as changing the temperature conversion from degree Fahrenheit (°F) to degree Celsius (°C), the operator will press the "HI" or "LO" key; this will toggle between choices. Once the entry is made, or if the parameter (program) does not need to be changed, press the "MED" key and the Phase 7 DMC (computer) will save the change and advance to the next program selection.

The Phase 7 DMC (computer) allows the operator to scroll through the various programming locations and select the parameter to be changed. If no other programs (parameters) need to be changed, the user can get out of the program mode by toggling the program switch to the "DOWN" position. The Phase 7 DMC (computer) will be returned to the operating mode, and the L.C.D. will read "READY, INSERT 25¢ TO START" in Coin Mode or "SELECT TEMP TO START" in Free Mode.

B. PROGRAM LOCATION SUMMARY

PHASE 7.4.2 COIN PROGRAM LOCATION SUMMARY

TO ENTER OR EXIT PROGRAMMING MODE TOGGLE PROGRAM SWITCH
UP OR DOWN RESPECTIVELY

KEYPAD LEGEND
HI KEY- INCREMENT OR TOGGLE
MED KEY- ENTER
LO KEY- DECREMENT OR TOGGLE
PAUSE KEY- EXIT LOCATION WITHOUT SAVING

PL #01 CONTROL SETTINGS
- LANGUAGE
- TEMP SCALE
- BUZZER MODE
- BEEP COUNT 1 TO 9 BEEPS
- DRY MODE
- PAUSE TIME 0 TO 3 MINUTES
- READY PROMPT

PL #02 MACHINE SETTINGS
- MODEL
- ROTATION SENSOR
- LINT CLEANING FREQUENCY 0 TO 10 HOURS
- AXIAL THERMISTOR INPUT
- THERMISTOR TEMP SET POINT 100 TO 400°F

PL #03 HI KEY SETTINGS
- TIME FOR AMOUNT TO START 1 TO 99 MINUTES
- TIME FOR TOP OFF 1 TO 99 MINUTES
- DRY TEMP 100 TO 150°F*
- COOL TIME 0 TO 9 MINUTES

PL #04 MED KEY SETTINGS
- TIME FOR AMOUNT TO START 1 TO 99 MINUTES
- TIME FOR TOP OFF 1 TO 99 MINUTES
- DRY TEMP 100 TO 150°F*
- COOL TIME 0 TO 9 MINUTES

PL #05 LO KEY SETTINGS
- TIME FOR AMOUNT TO START 1 TO 99 MINUTES
- TIME FOR TOP OFF 1 TO 99 MINUTES
- DRY TEMP 100 TO 150°F*
- COOL TIME 0 TO 9 MINUTES

PL #06 VENDING PARAMETERS
- CURRENCY SYMBOL
- VENDING MODE
- VENDING SAFEGUARD
- LEFT COIN DENOMINATION 0.05 TO 25.00
- RIGHT COIN DENOMINATION 0.05 TO 25.00
- AMOUNT TO START 0.05 TO 25.00
- AMOUNT FOR TOP OFF 0.05 TO 25.00

PL #07 FAULT RECORDING
- NO UPPER DRYER FAULTS/UPPER DRYER FAULTS
- NO LOWER DRYER FAULTS/LOWER DRYER FAULTS

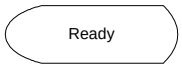
*190°F (88°C) MAXIMUM TEMP ON RADIAL MODELS

P/N: 114566

C. PROGRAMMING FLOWCHARTS

The following section of this manual explains the programming of the Phase 7 dual microprocessor controller (DMC) computer program locations (system parameters) through the use of flowcharts. A flowchart is a diagram of the programming process.

Five (5) different symbols will be used in these flowcharts:

display symbol 

HI

MED

LO

PAUSE

Each display symbol will represent a readout on the Phase 7 DMC (computer) liquid crystal display (L.C.D.), and each key symbol will represent a key that is pressed. For example:

1. If the flowchart shows the symbol

, the Phase 7 DMC (computer) L.C.D. display will read the same.

2. If the flowchart shows a key symbol, you will press that specific key on the keyboard (touch pad) label.

3. The flowchart arrows (i.e., ⟶) represent the program path.

   On the sides of these flowcharts are explanations of the flowchart procedure and, in some cases, the programming limits or options.

Listed on the next page is an index of the flowcharts to follow.

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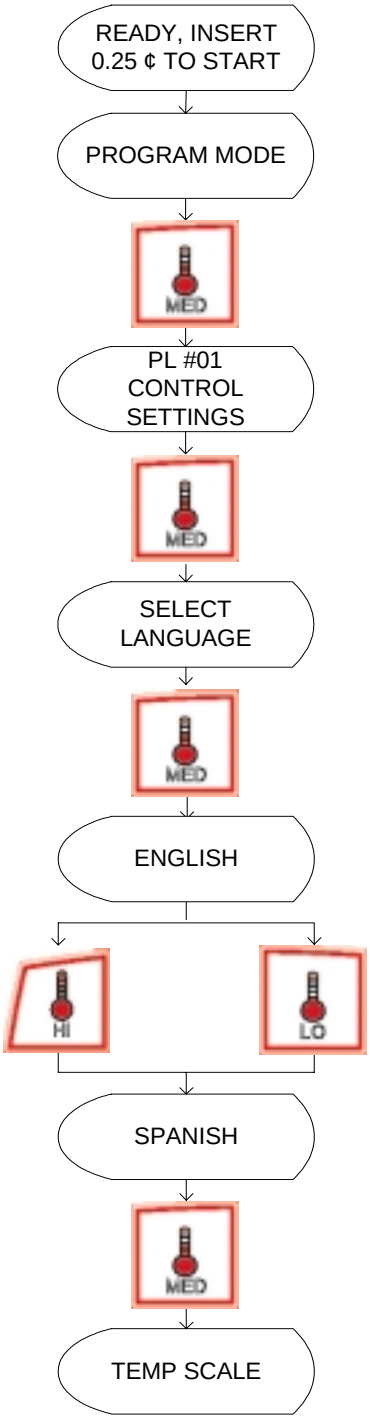
SELECTING DISPLAY LANGUAGE



FROM READY MODE TOGGLE PROGRAM SWITCH TO "UP" POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU

PRESS **"MED"** TO ENTER PL #01 CONTROL SETTINGS

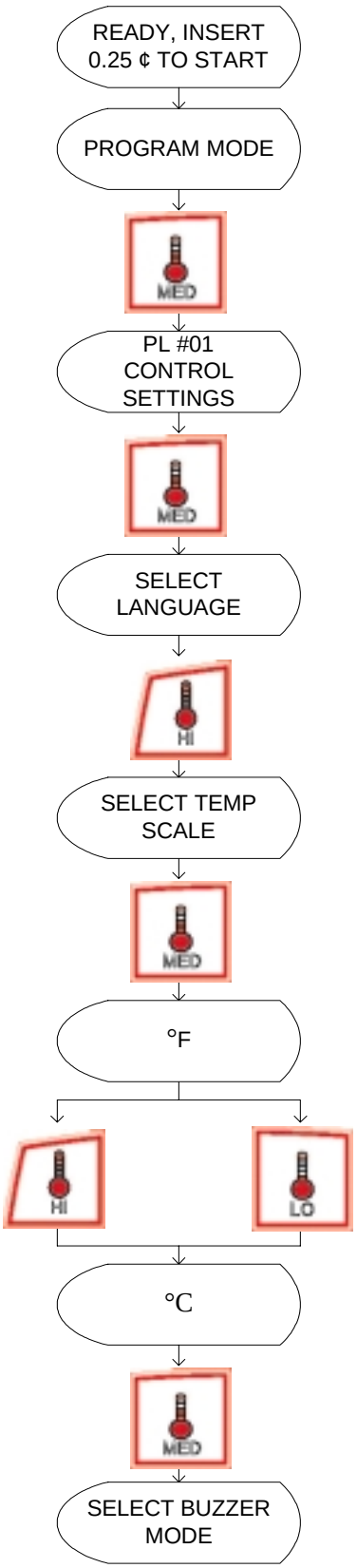
PRESS **"MED"** TO ENTER LANGUAGE PARAMETER

PRESS **"HI"** OR **"LO"** TO SCAN THROUGH DIFFERENT LANGUAGES: ENGLISH, FRENCH, ITALIAN, SPANISH, DUTCH, JAPANESE.

PRESS **"MED"** TO SELECT NEW LANGUAGE AND ADVANCE TO NEXT PARAMETER

NOTE: PRESS "PAUSE" TO EXIT PL #01 CONTROL SETTINGS MEMORY LOCATION

SELECTING TEMP SCALE



FROM READY MODE TOGGLE PROGRAM SWITCH TO UP POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU

PRESS **"MED"** TO ENTER PL #01 CONTROL SETTINGS

PRESS **"HI"** ONE (1) TIME TO SCAN UP TO TEMP SCALE PARAMETER

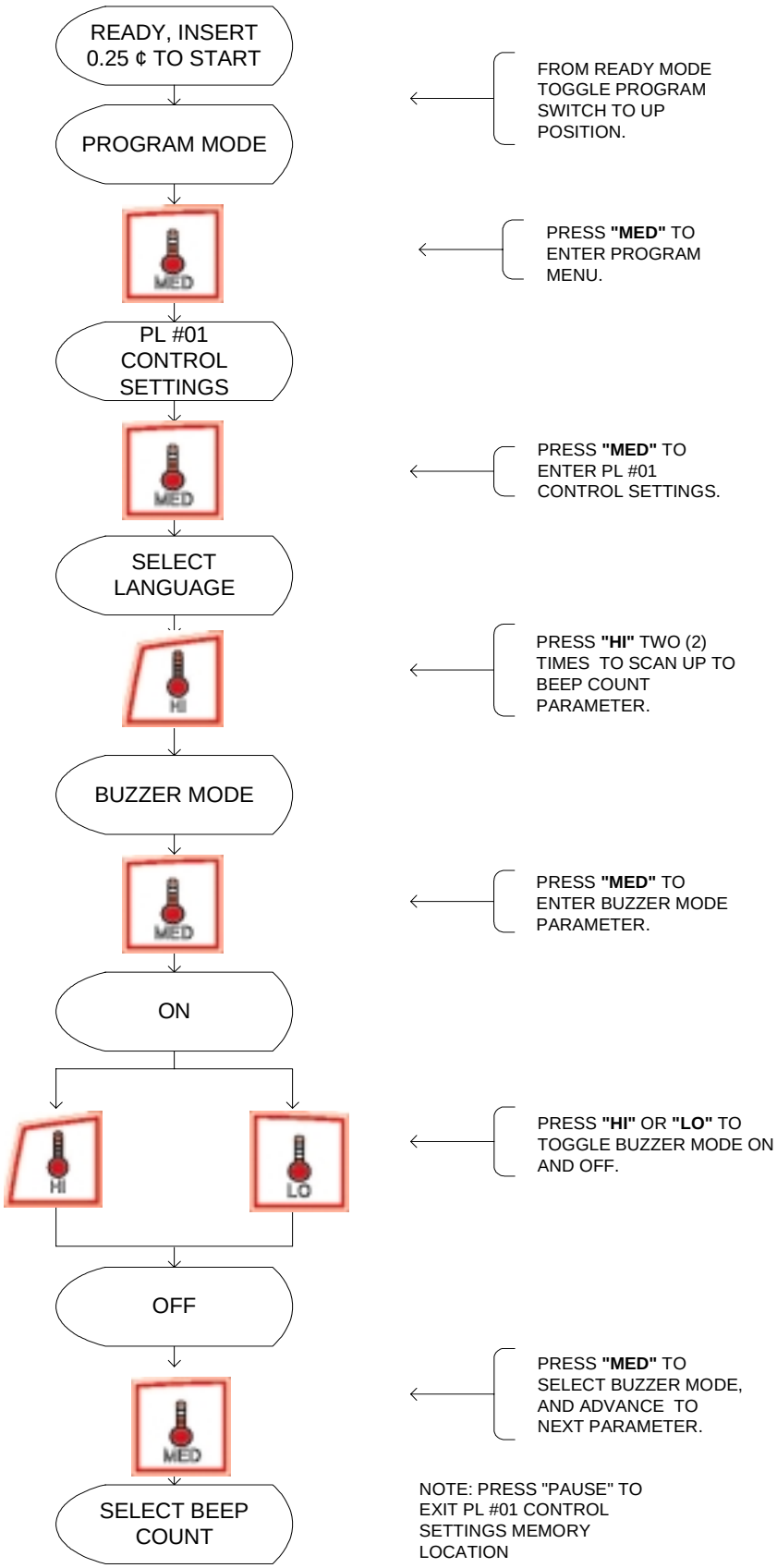
PRESS **"MED"** TO ENTER TEMP SCALE PARAMETER

PRESS **"HI"** OR **"LO"** TO TOGGLE BETWEEN °F AND °C.

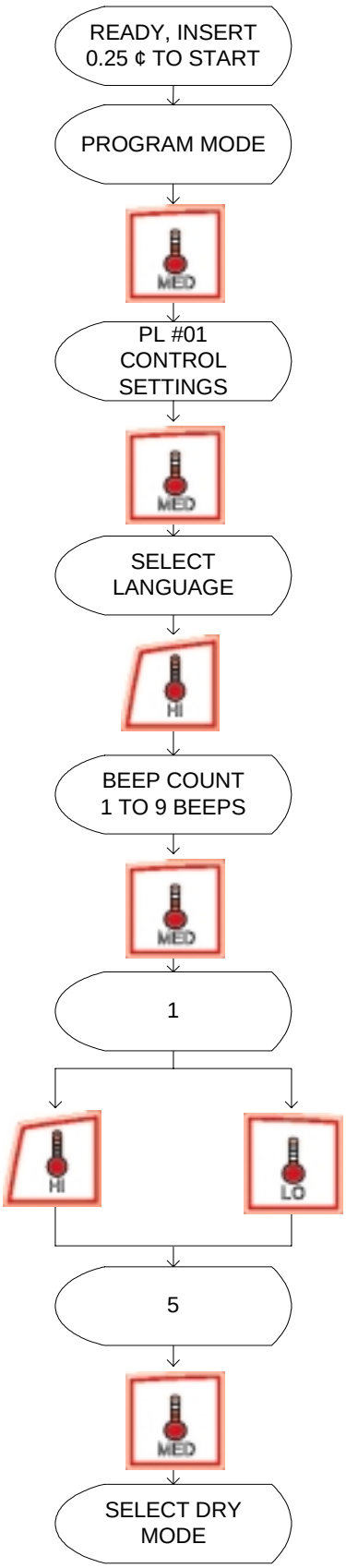
PRESS **"MED"** TO SELECT NEW TEMP SCALE, AND ADVANCE TO NEXT PARAMETER.

NOTE: PRESS "PAUSE" TO EXIT PL #01 CONTROL SETTINGS MEMORY LOCATION

SELECTING BUZZER MODE



SELECTING BEEP COUNT



FROM READY MODE TOGGLE PROGRAM SWITCH TO UP POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU.

PRESS **"MED"** TO ENTER PL #01 CONTROL SETTINGS.

PRESS **"HI"** THREE (3) TIMES TO SCAN UP TO BEEP COUNT PARAMETER.

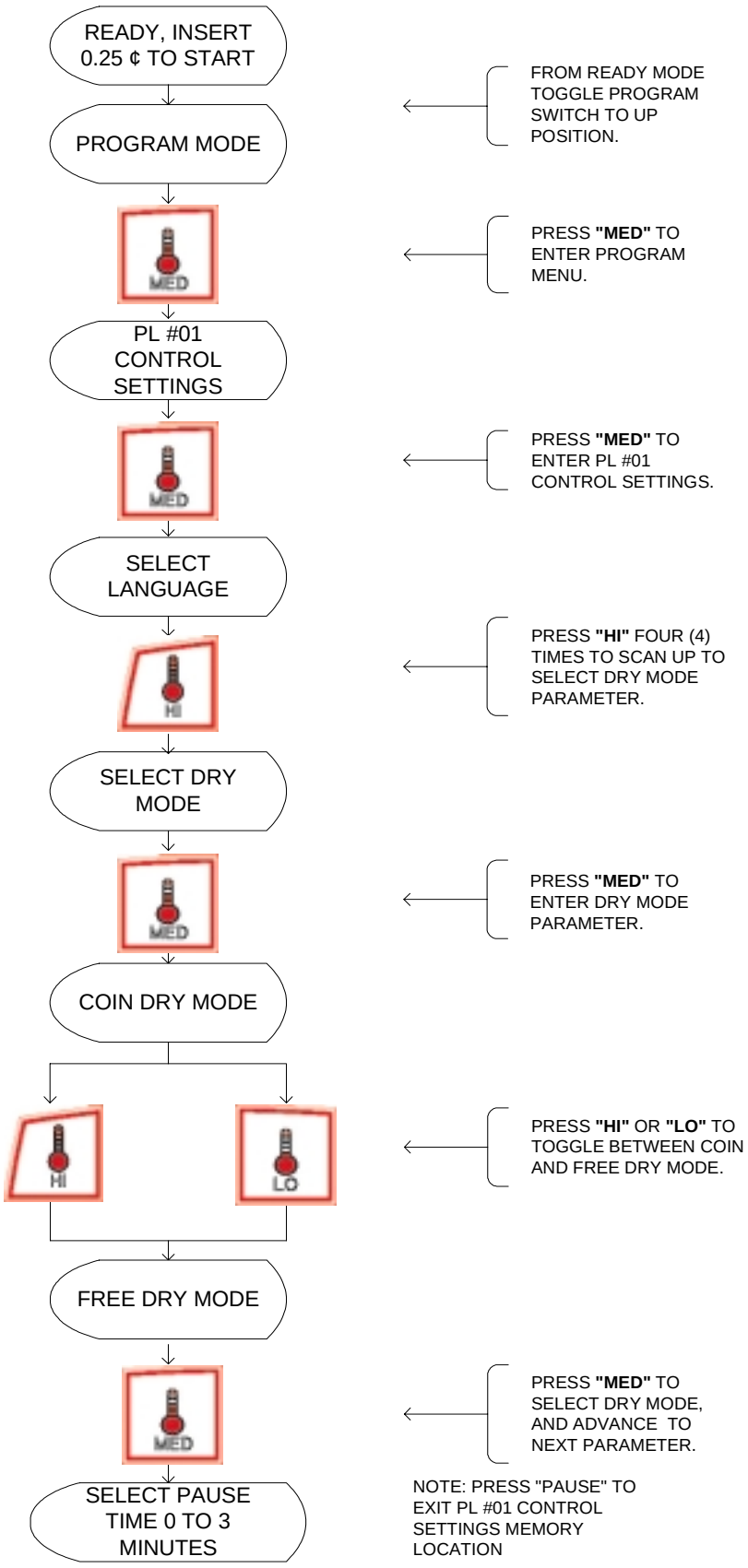
PRESS **"MED"** TO ENTER BEEP COUNT PARAMETER.

PRESS **"HI"** OR **"LO"** TO INCREASE OR DECREASE THE BEEP COUNT.

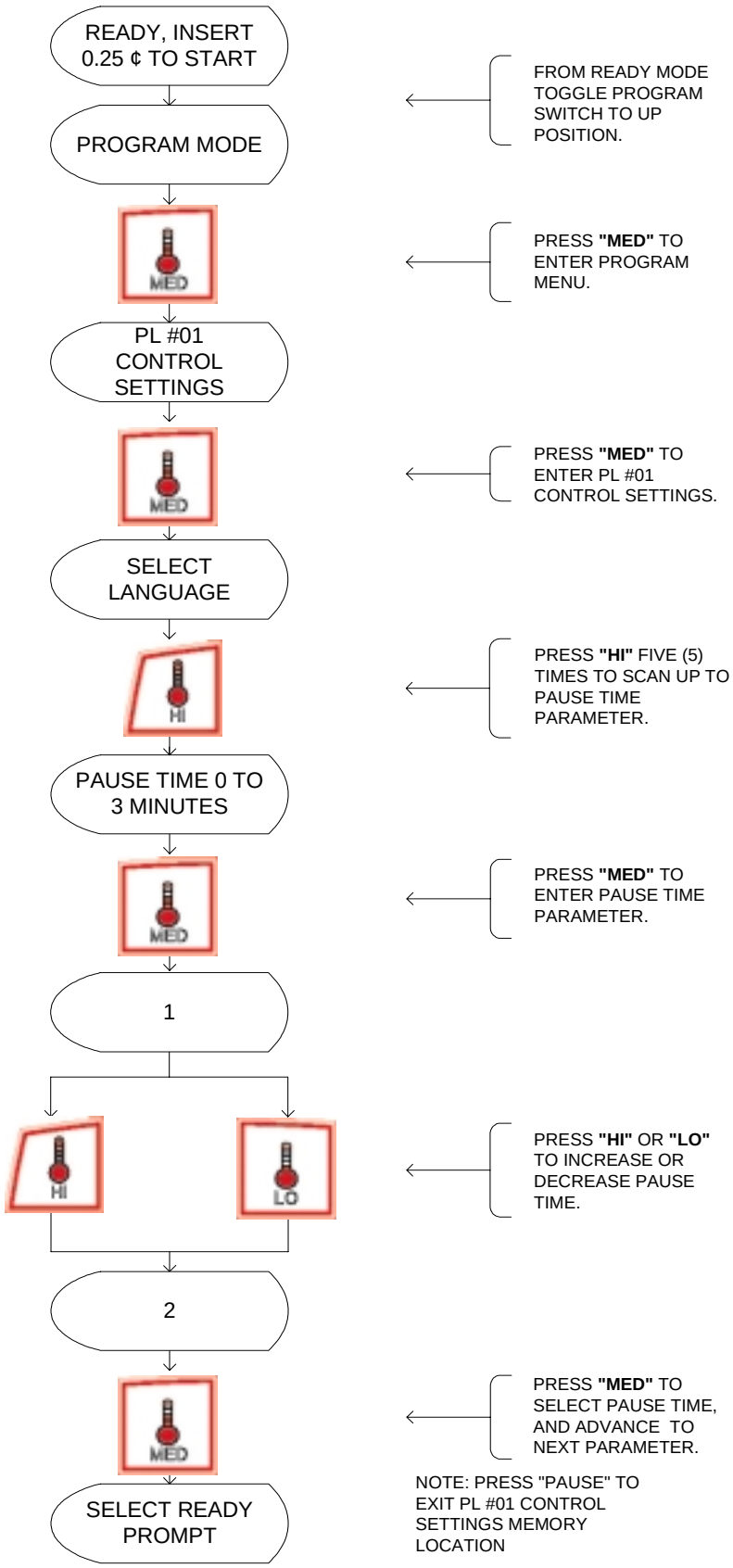
PRESS **"MED"** TO SELECT NEW BEEP COUNT, AND ADVANCE TO NEXT PARAMETER.

NOTE: PRESS "PAUSE" TO EXIT PL #01 CONTROL SETTINGS MEMORY LOCATION

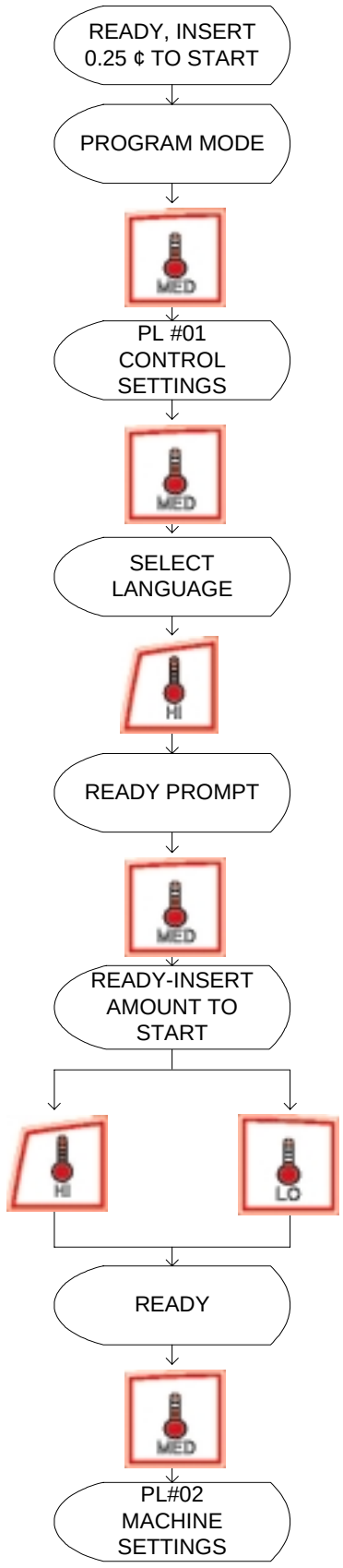
SELECTING DRY MODE



SELECTING PAUSE TIME



SELECTING READY PROMPT



FROM READY MODE TOGGLE PROGRAM SWITCH TO UP POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU.

PRESS **"MED"** TO ENTER PL #01 CONTROL SETTINGS.

PRESS **"HI"** SIX (6) TIMES TO SCAN UP TO READY PROMPT PARAMETER.

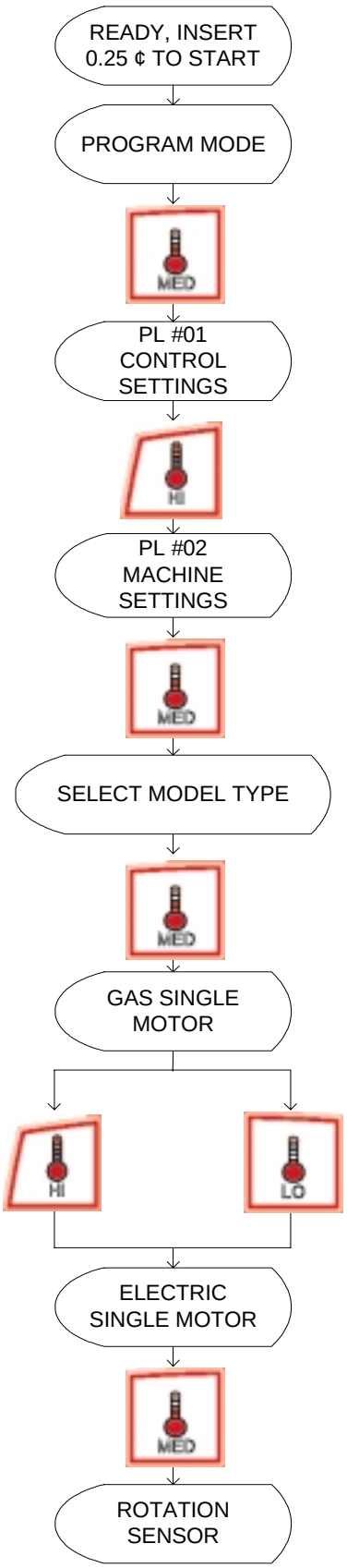
PRESS **"MED"** TO ENTER READY PROMPT PARAMETER.

PRESS **"HI"** OR **"LO"** TO TOGGLE BETWEEN "READY-INSERT AMOUNT TO START" AND "READY".

PRESS **"MED"** TO SELECT READY PROMPT AND ADVANCE TO NEXT PARAMETER.

NOTE: PRESS "PAUSE" TO EXIT PL #01 CONTROL SETTINGS MEMORY LOCATION

SELECTING MODEL TYPE



FROM READY MODE TOGGLE PROGRAM SWITCH TO UP POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU.

PRESS **"HI"** ONE (1) TIME TO SCAN UP TO PL #02 MACHINE SETTINGS.

PRESS **"MED"** TO ENTER PL #02 MACHINE SETTINGS.

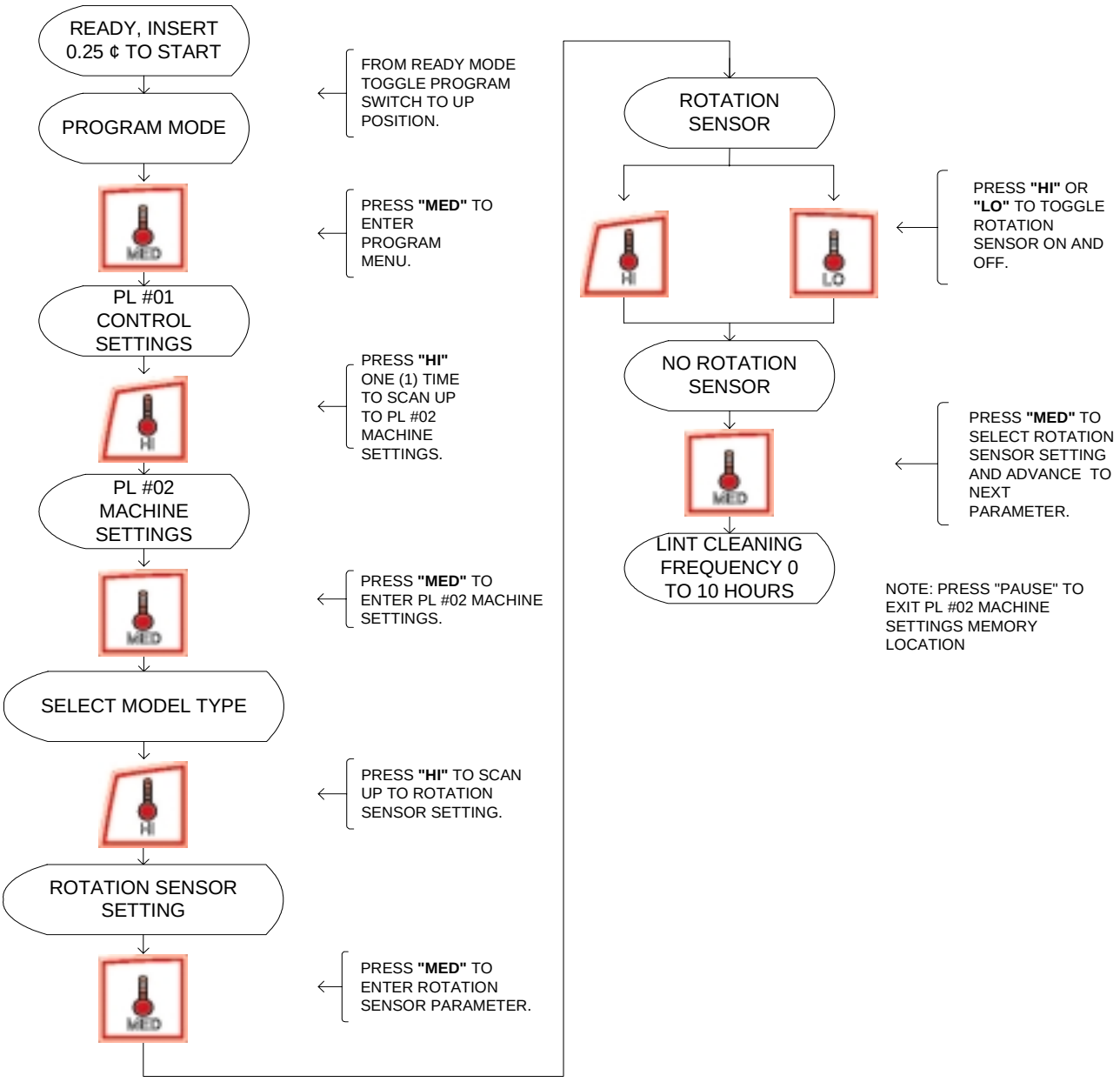
PRESS **"MED"** TO ENTER MODEL TYPE PARAMETER.

PRESS **"HI"** OR **"LO"** TO SCAN THROUGH THE DIFFERENT MODEL TYPES- GAS DUAL MOTOR, ELECTRIC DUAL MOTOR, STEAM DUAL MOTOR, GAS QUAD MOTOR, ELECTRIC QUAD MOTOR, STEAM QUAD MOTOR.

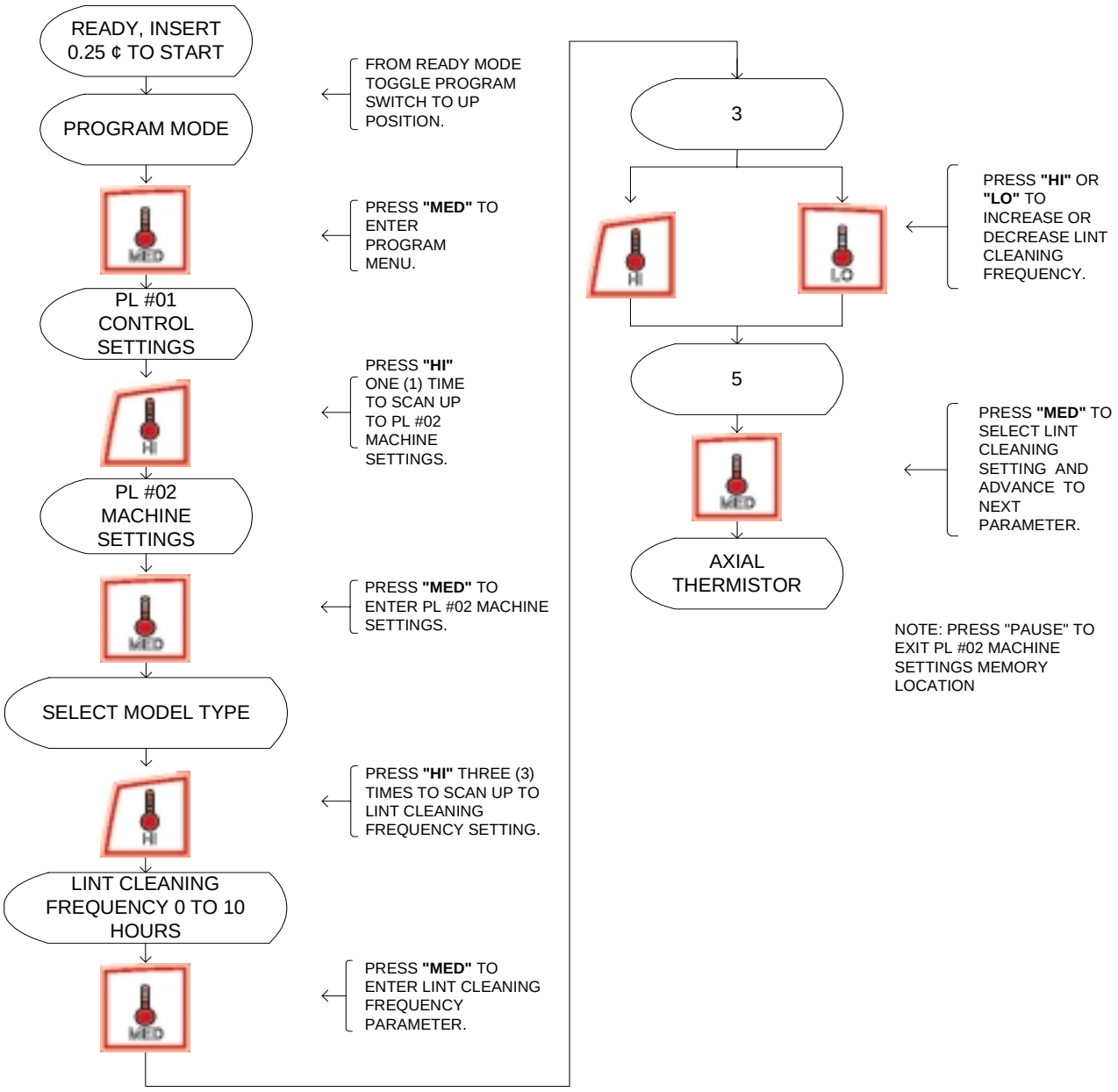
PRESS **"MED"** TO SELECT MODEL TYPE AND ADVANCE TO NEXT PARAMETER.

NOTE: PRESS "PAUSE" TO EXIT PL #02 MACHINE SETTINGS MEMORY LOCATION

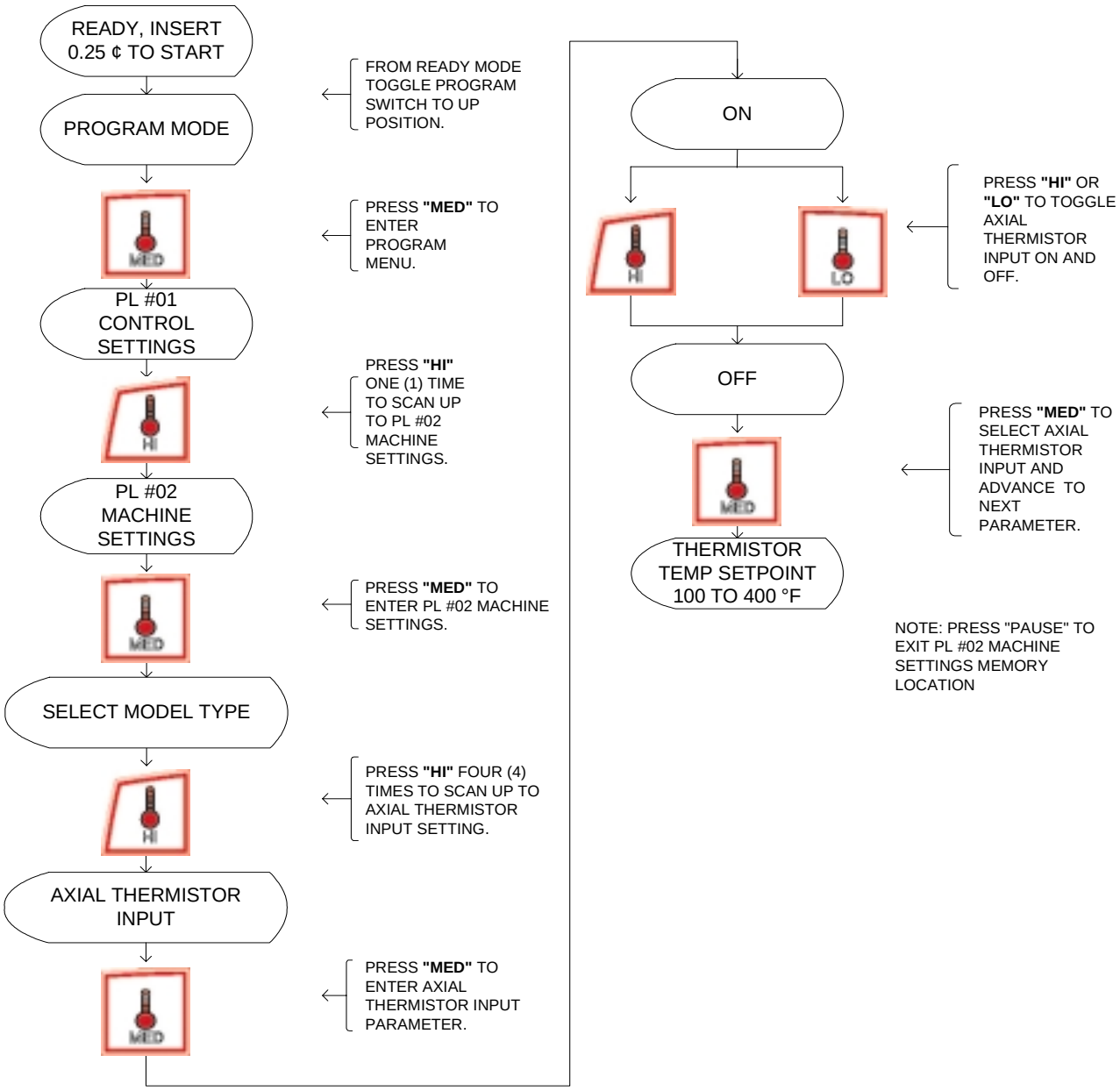
SETTING ROTATION SENSOR



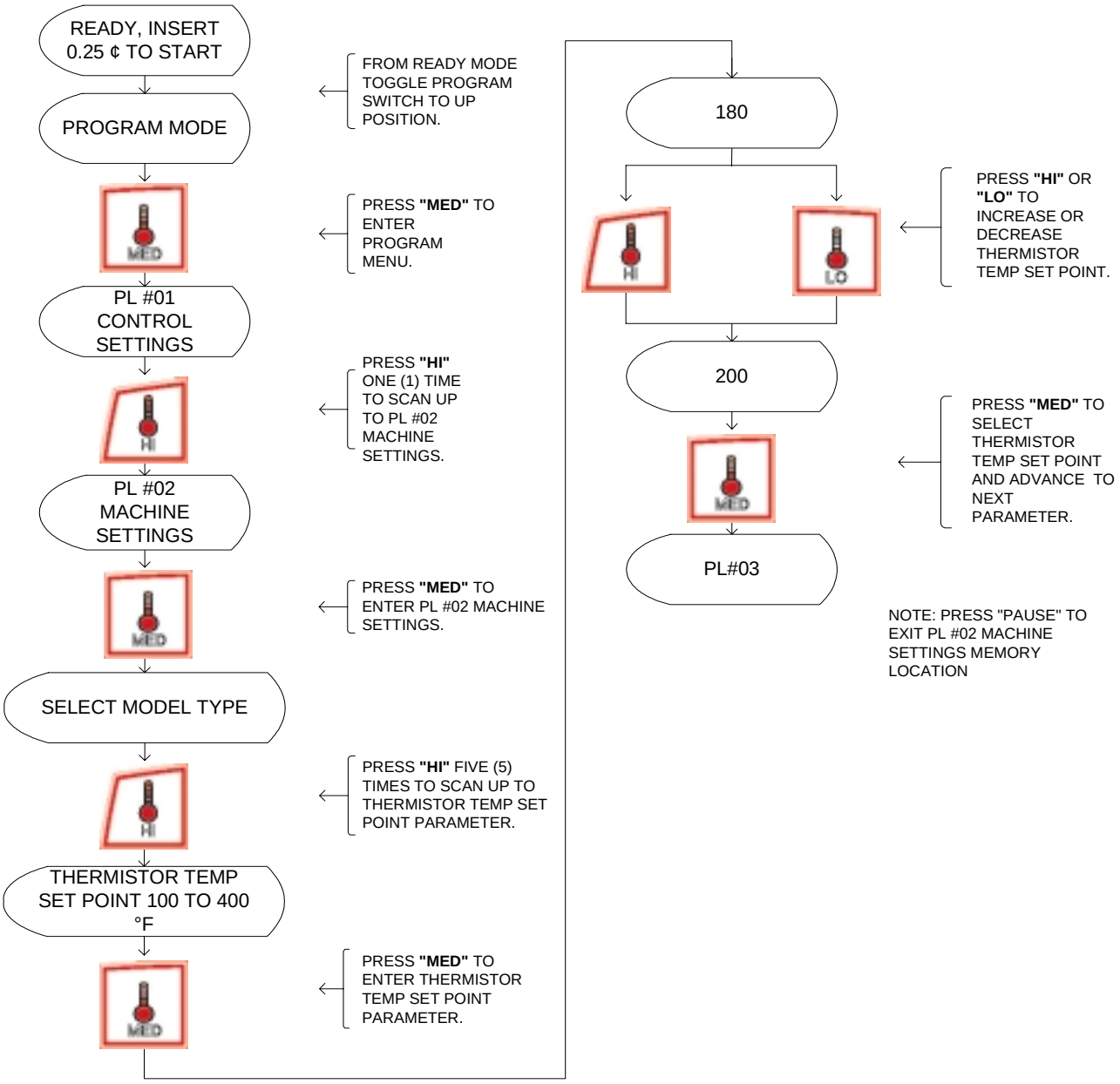
SETTING LINT CLEANING FREQUENCY



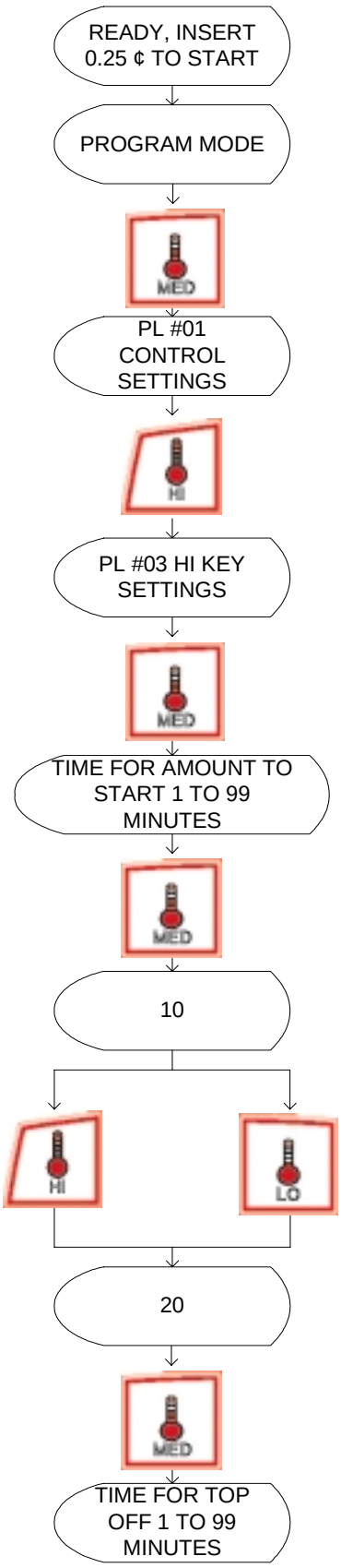
SETTING AXIAL THERMISTOR INPUT



SETTING THERMISTOR TEMP SET POINT



HI KEY- SETTING TIME FOR AMOUNT TO START



FROM READY MODE TOGGLE PROGRAM SWITCH TO UP POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU.

PRESS **"HI"** TWO (2) TIMES TO SCAN UP TO PL #03 HI KEY SETTINGS.

PRESS **"MED"** TO ENTER PL #03 HI KEY SETTINGS.

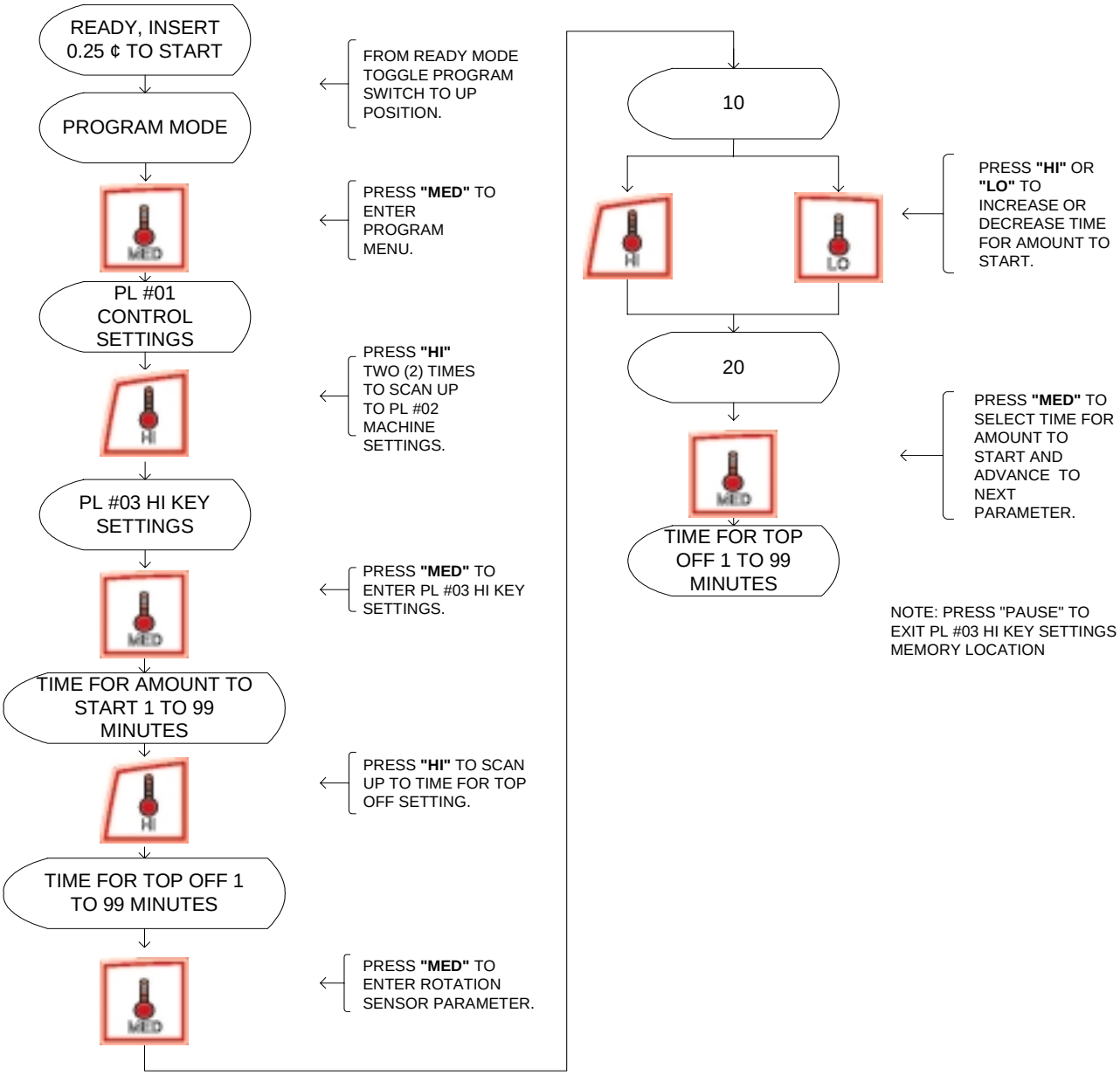
PRESS **"MED"** TO ENTER TIME FOR AMOUNT TO START PARAMETER.

PRESS **"HI"** OR **"LO"** TO INCREASE OR DECREASE TIME FOR AMOUNT TO START.

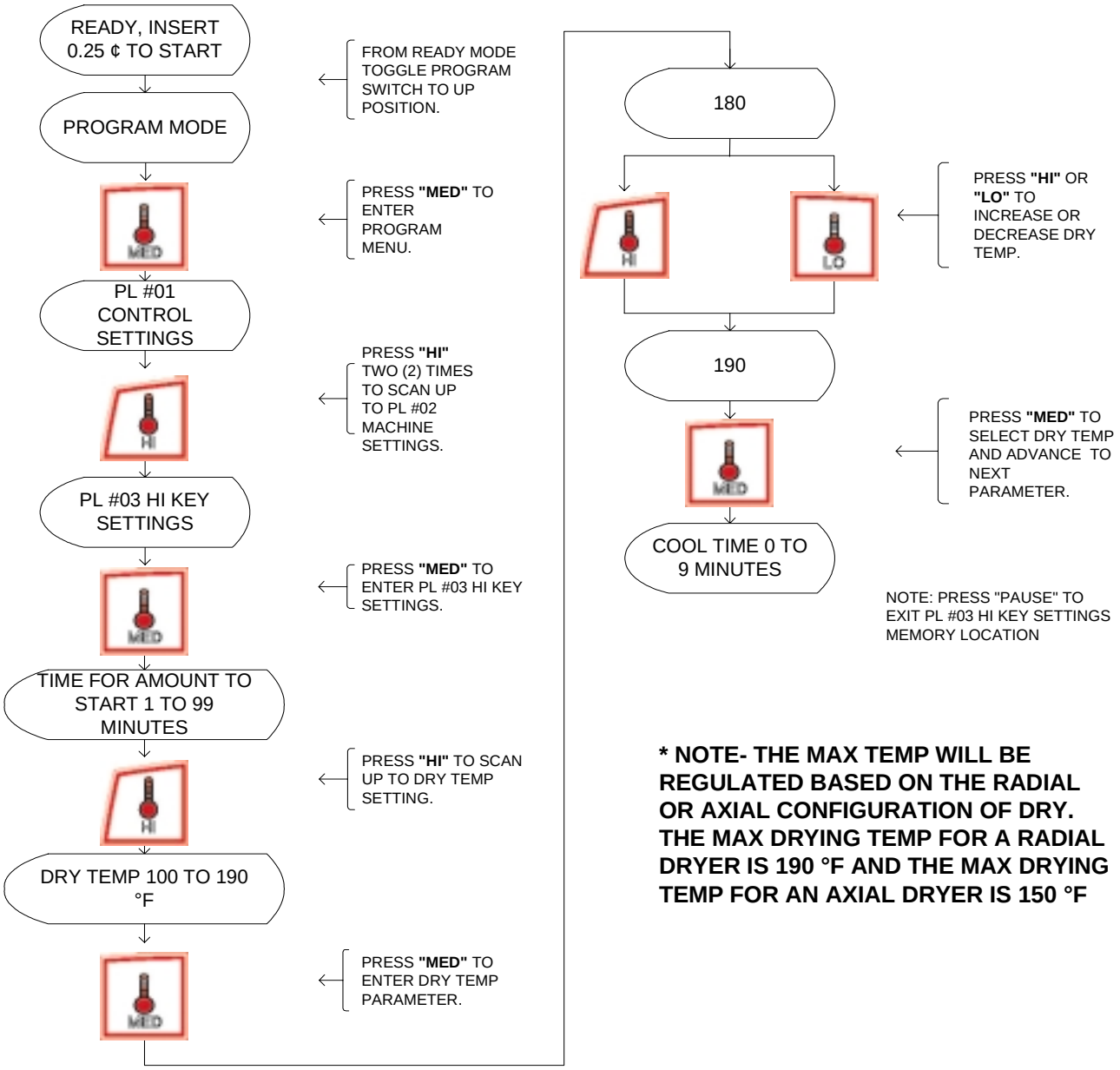
PRESS **"MED"** TO SELECT TIME FOR AMOUNT TO START AND ADVANCE TO NEXT PARAMETER.

NOTE: PRESS "PAUSE" TO EXIT PL #03 HI KEY SETTINGS MEMORY LOCATION

HI KEY- SETTING TIME FOR TOP OFF

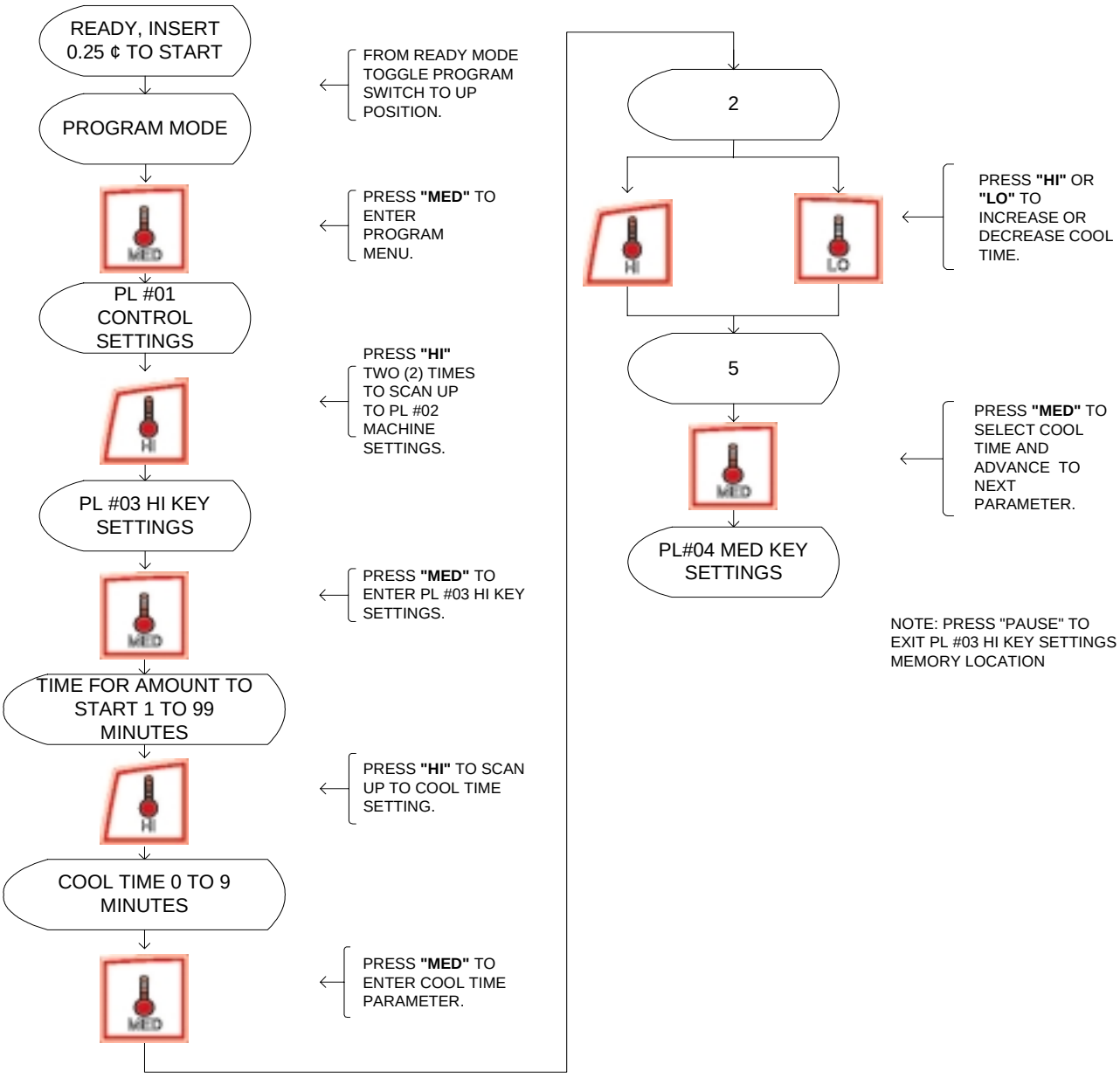


HI KEY- SETTING DRY TEMP 100 TO 190 °F *

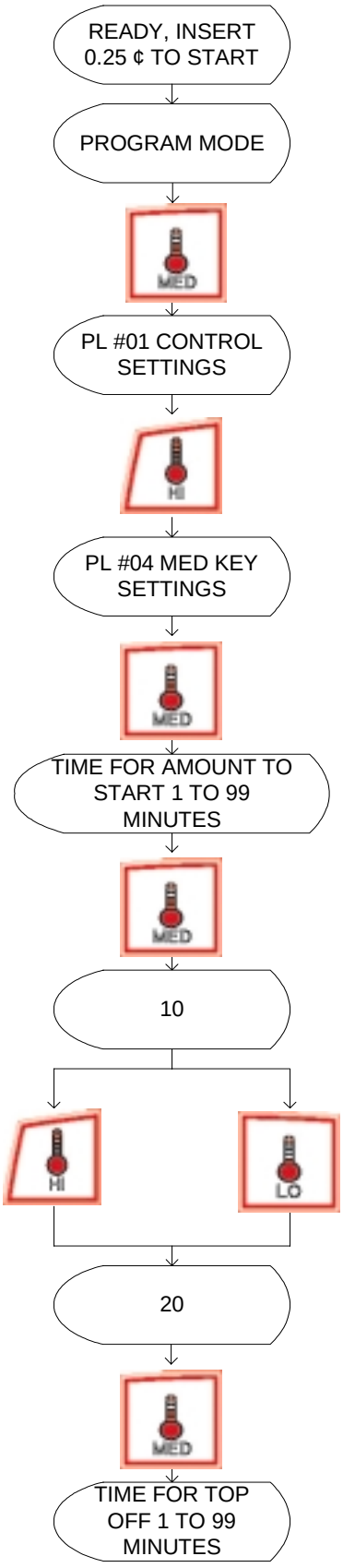


*** NOTE- THE MAX TEMP WILL BE REGULATED BASED ON THE RADIAL OR AXIAL CONFIGURATION OF DRY. THE MAX DRYING TEMP FOR A RADIAL DRYER IS 190 °F AND THE MAX DRYING TEMP FOR AN AXIAL DRYER IS 150 °F**

HI KEY- SETTING COOL TIME 0 TO 9 MINUTES



MED KEY- SETTING TIME FOR AMOUNT TO START



FROM READY MODE TOGGLE PROGRAM SWITCH TO UP POSITION.

PRESS **"MED"** TO ENTER PROGRAM MENU.

PRESS **"HI"** THREE (3) TIMES TO SCAN UP TO PL #04 MED KEY SETTINGS.

PRESS **"MED"** TO ENTER PL #04 MED KEY SETTINGS.

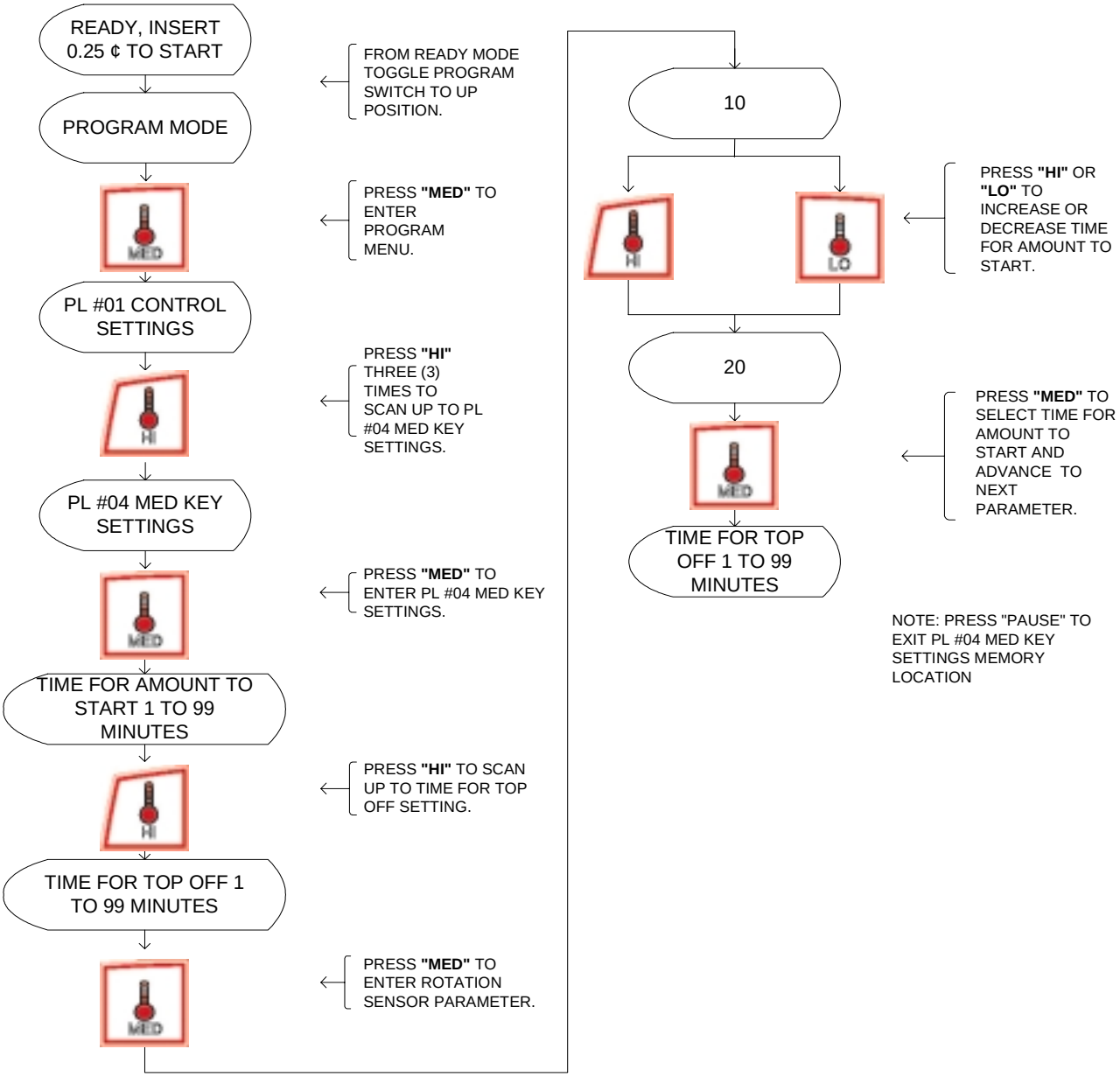
PRESS **"MED"** TO ENTER TIME FOR AMOUNT TO START PARAMETER.

PRESS **"HI"** OR **"LO"** TO INCREASE OR DECREASE TIME FOR AMOUNT TO START.

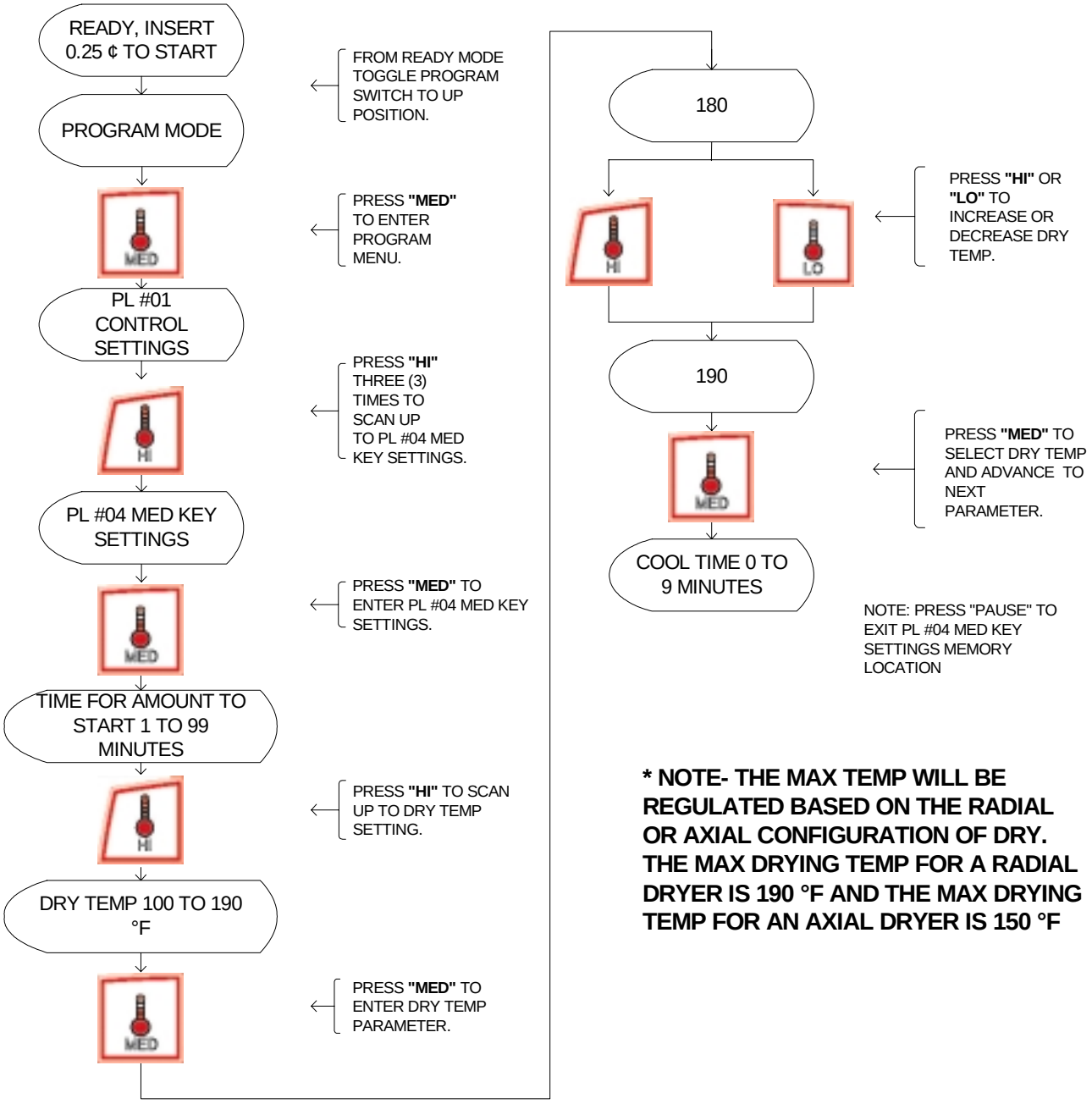
PRESS **"MED"** TO SELECT TIME FOR AMOUNT TO START AND ADVANCE TO NEXT PARAMETER.

NOTE: PRESS "PAUSE" TO EXIT PL #04 MED KEY SETTINGS MEMORY LOCATION

MED KEY- SETTING TIME FOR TOP OFF

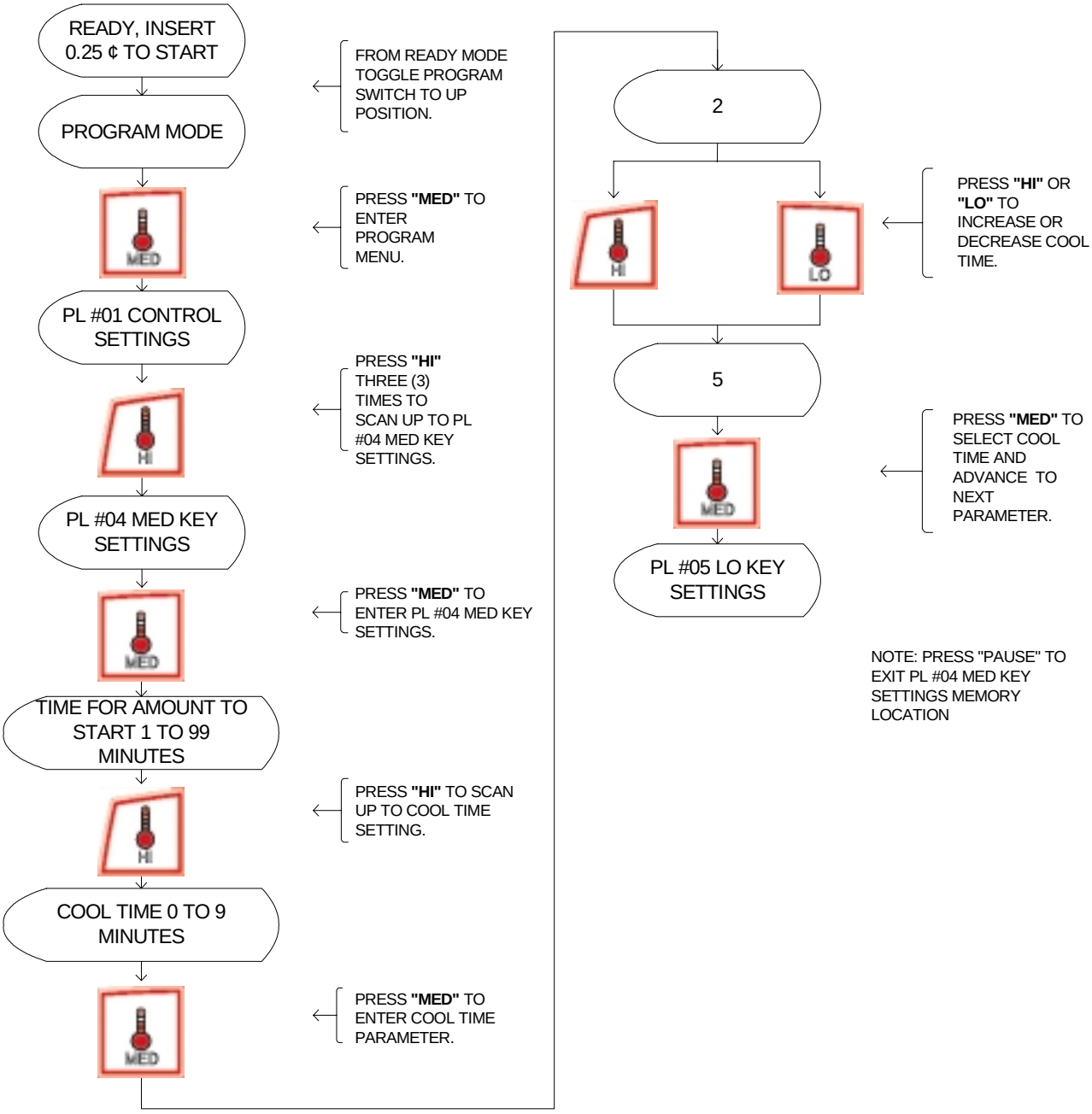


MED KEY- SETTING DRY TEMP 100 TO 190 °F *

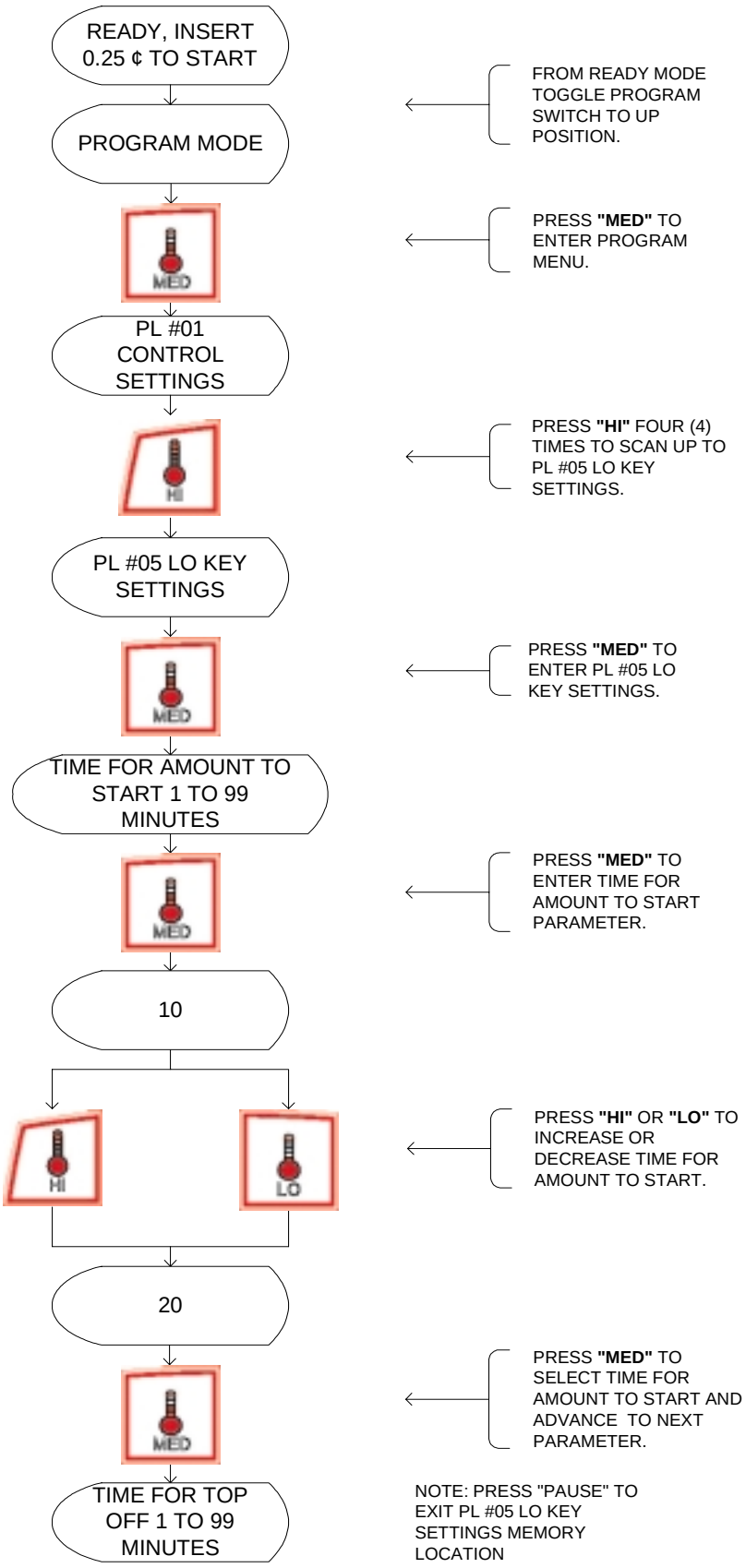


*** NOTE- THE MAX TEMP WILL BE REGULATED BASED ON THE RADIAL OR AXIAL CONFIGURATION OF DRY. THE MAX DRYING TEMP FOR A RADIAL DRYER IS 190 °F AND THE MAX DRYING TEMP FOR AN AXIAL DRYER IS 150 °F**

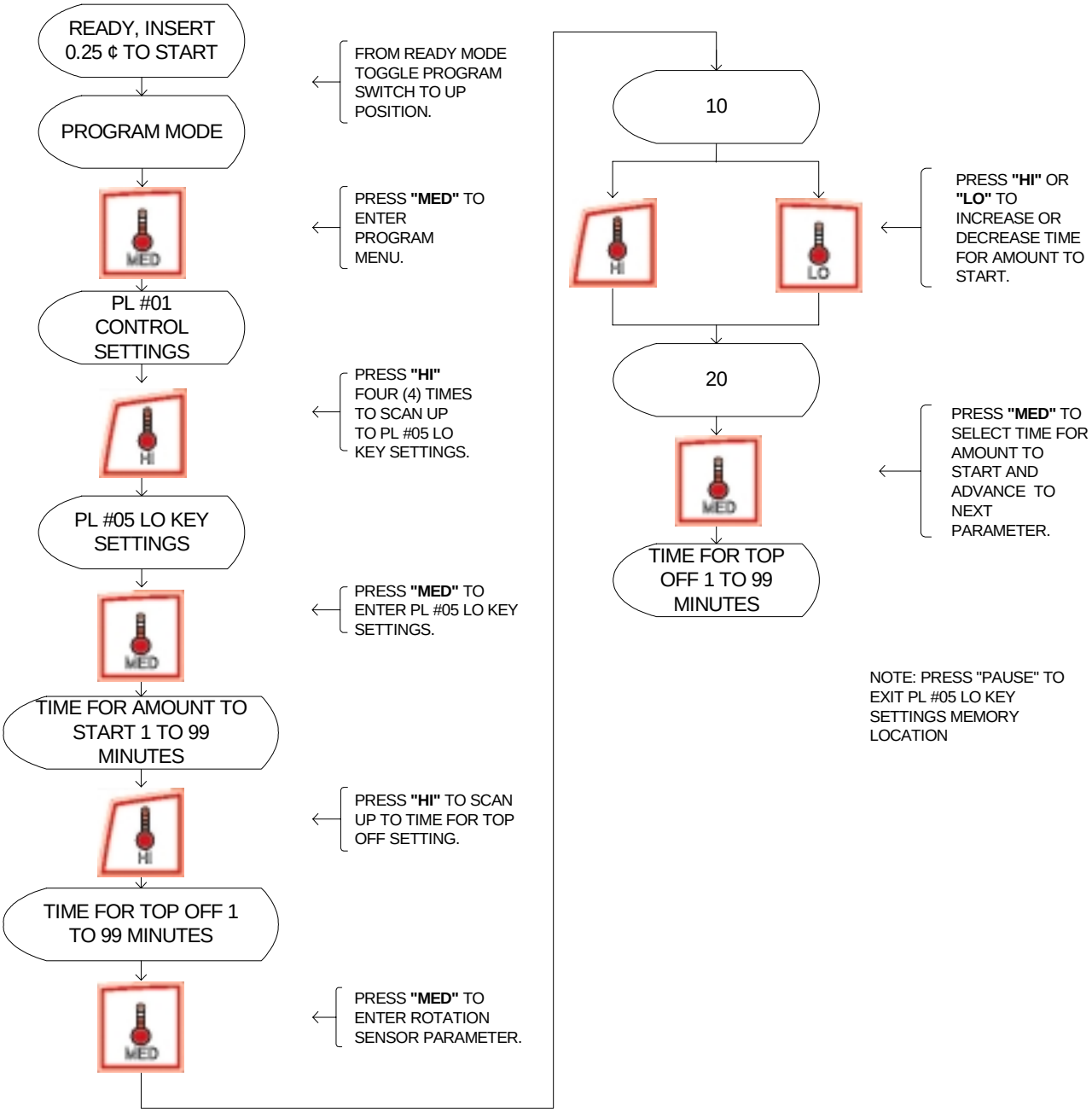
MED KEY- SETTING COOL TIME 0 TO 9 MINUTES



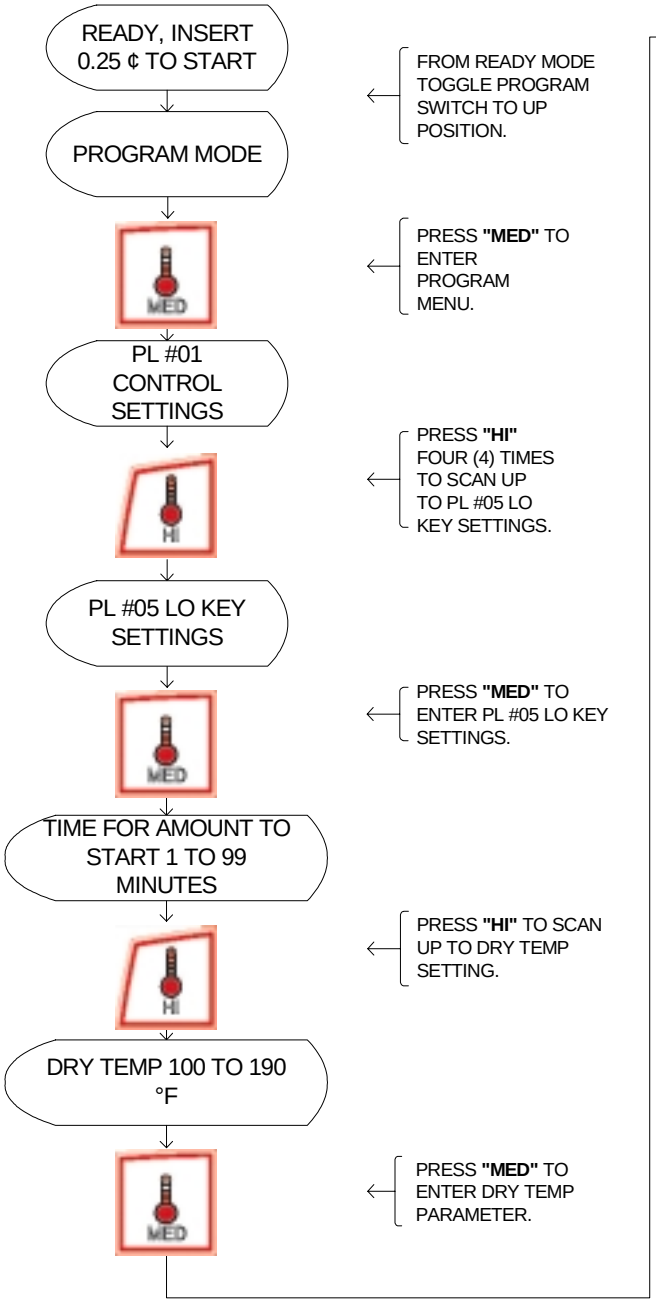
LO KEY- SETTING TIME FOR AMOUNT TO START

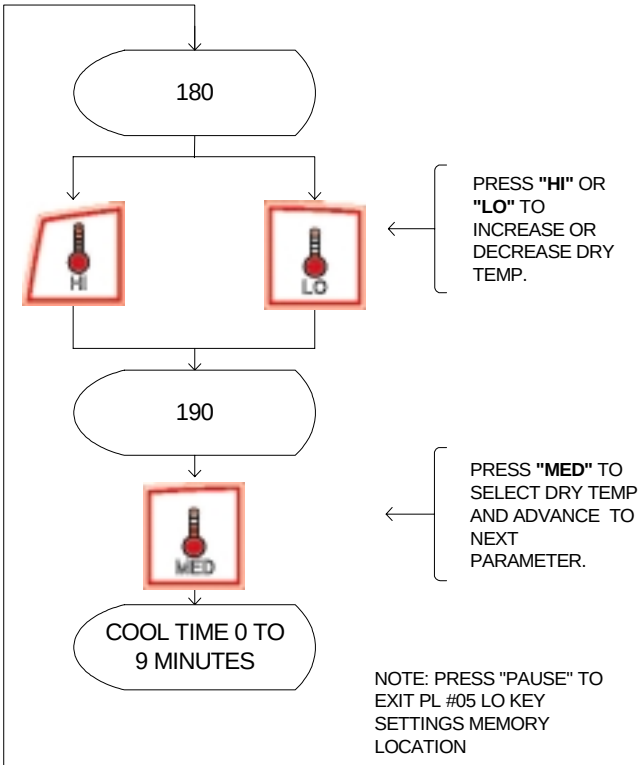


LO KEY- SETTING TIME FOR TOP OFF



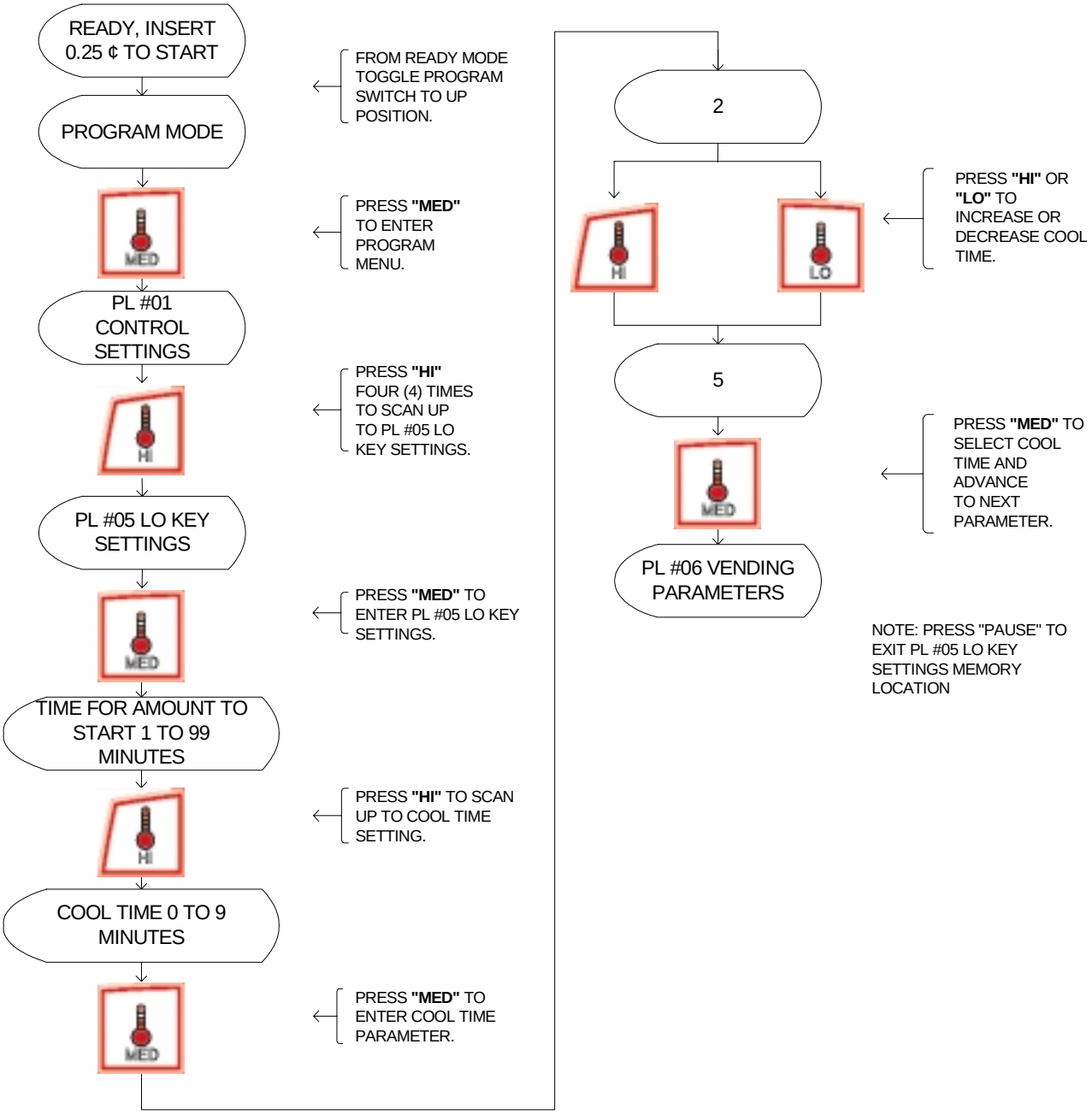
LO KEY- SETTING DRY TEMP 100 TO 190 °F *



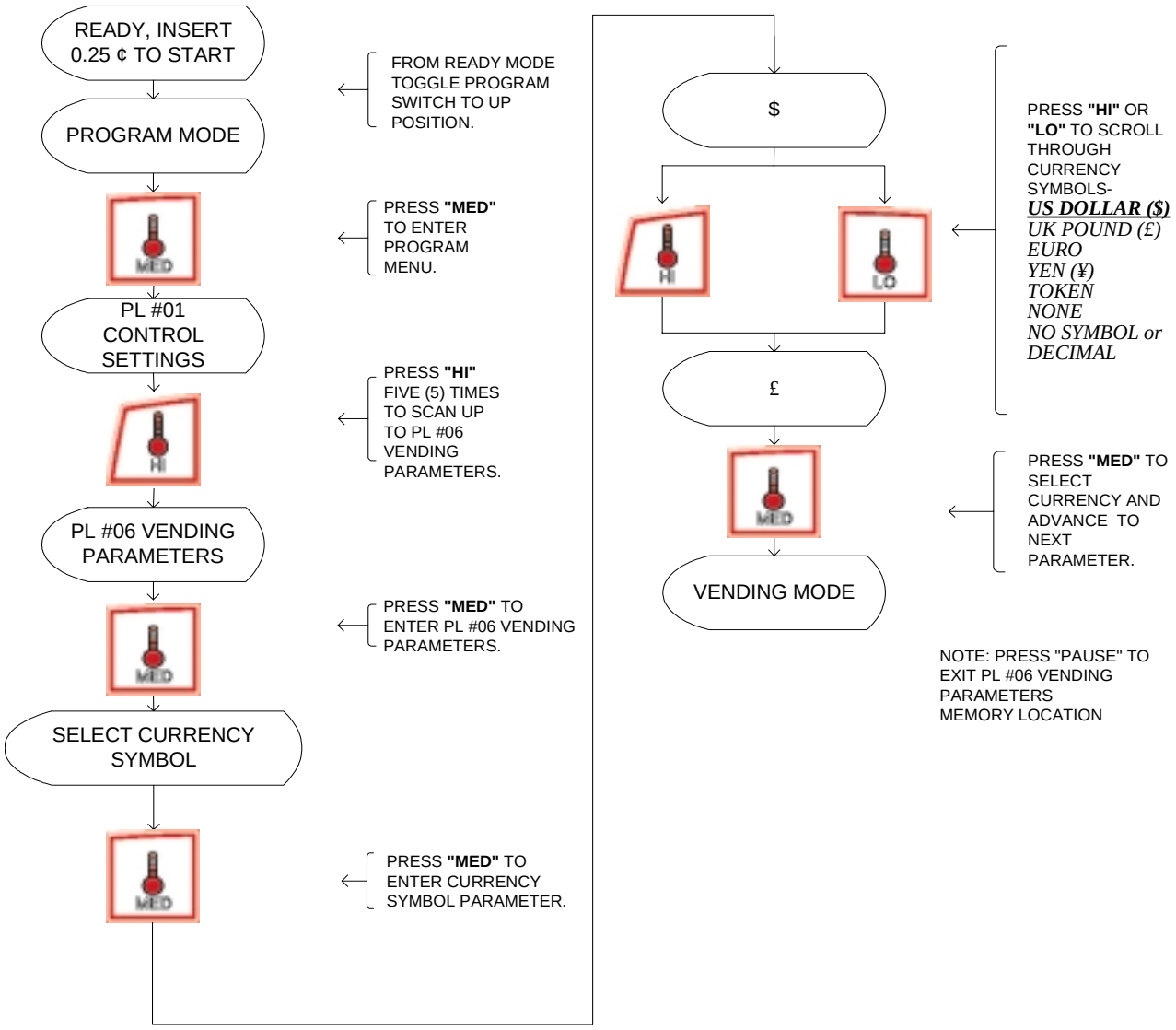


*** NOTE- THE MAX TEMP WILL BE REGULATED BASED ON THE RADIAL OR AXIAL CONFIGURATION OF DRY. THE MAX DRYING TEMP FOR A RADIAL DRYER IS 190 °F AND THE MAX DRYING TEMP FOR AN AXIAL DRYER IS 150 °F**

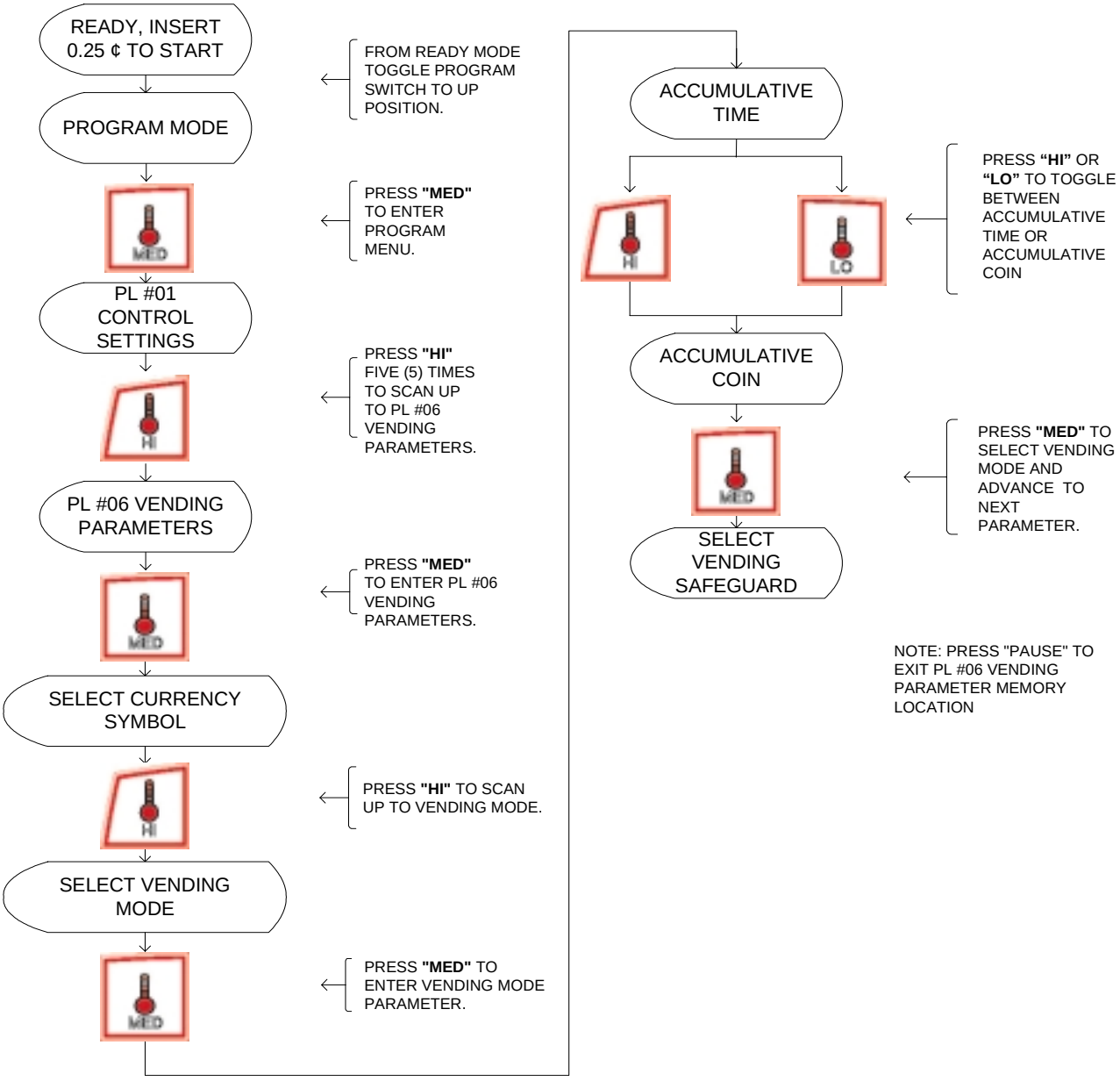
LO KEY- SETTING COOL TIME 0 TO 9 MINUTES



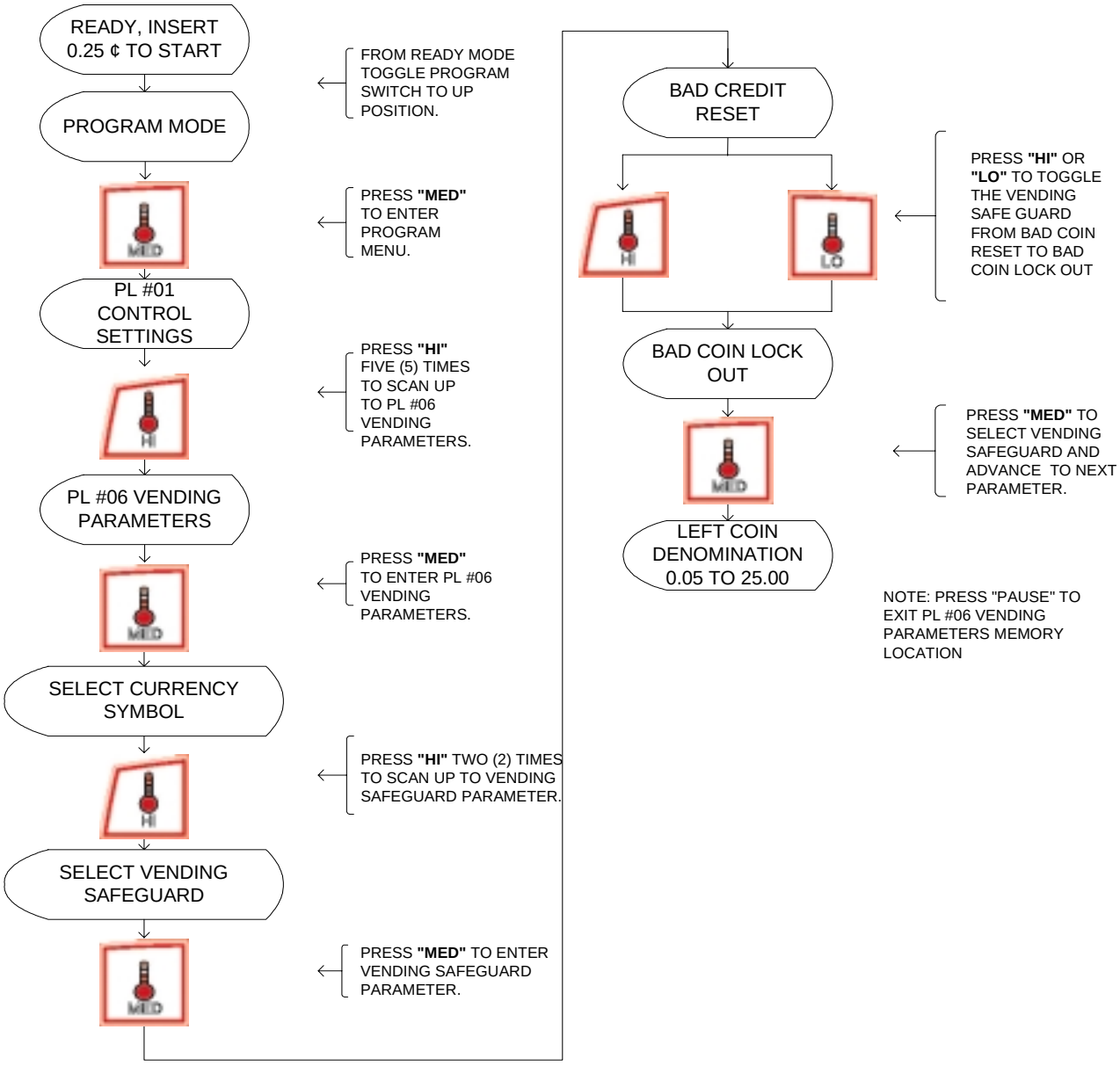
SELECTING CURRENCY SYMBOL



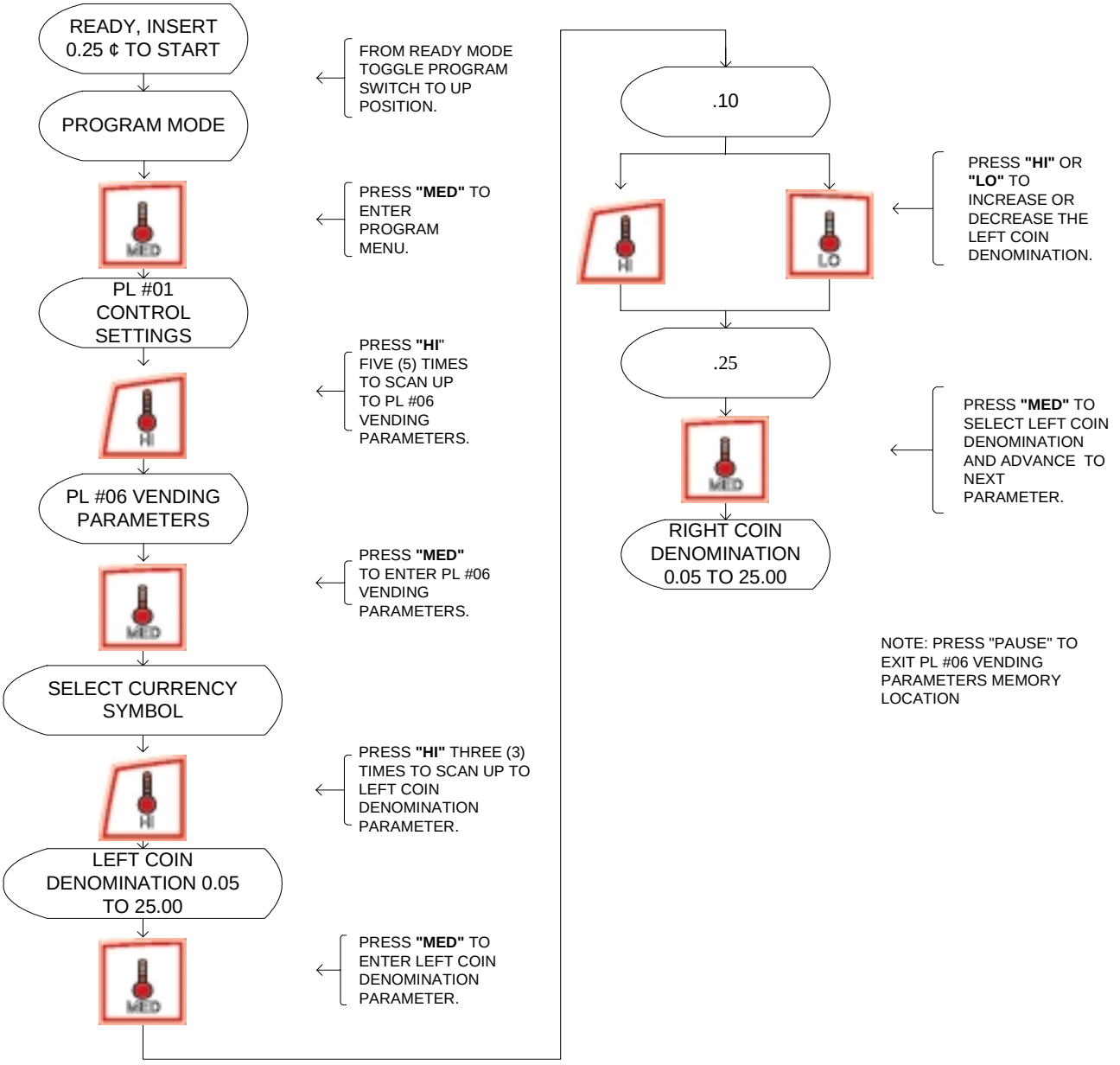
SELECTING VENDING MODE



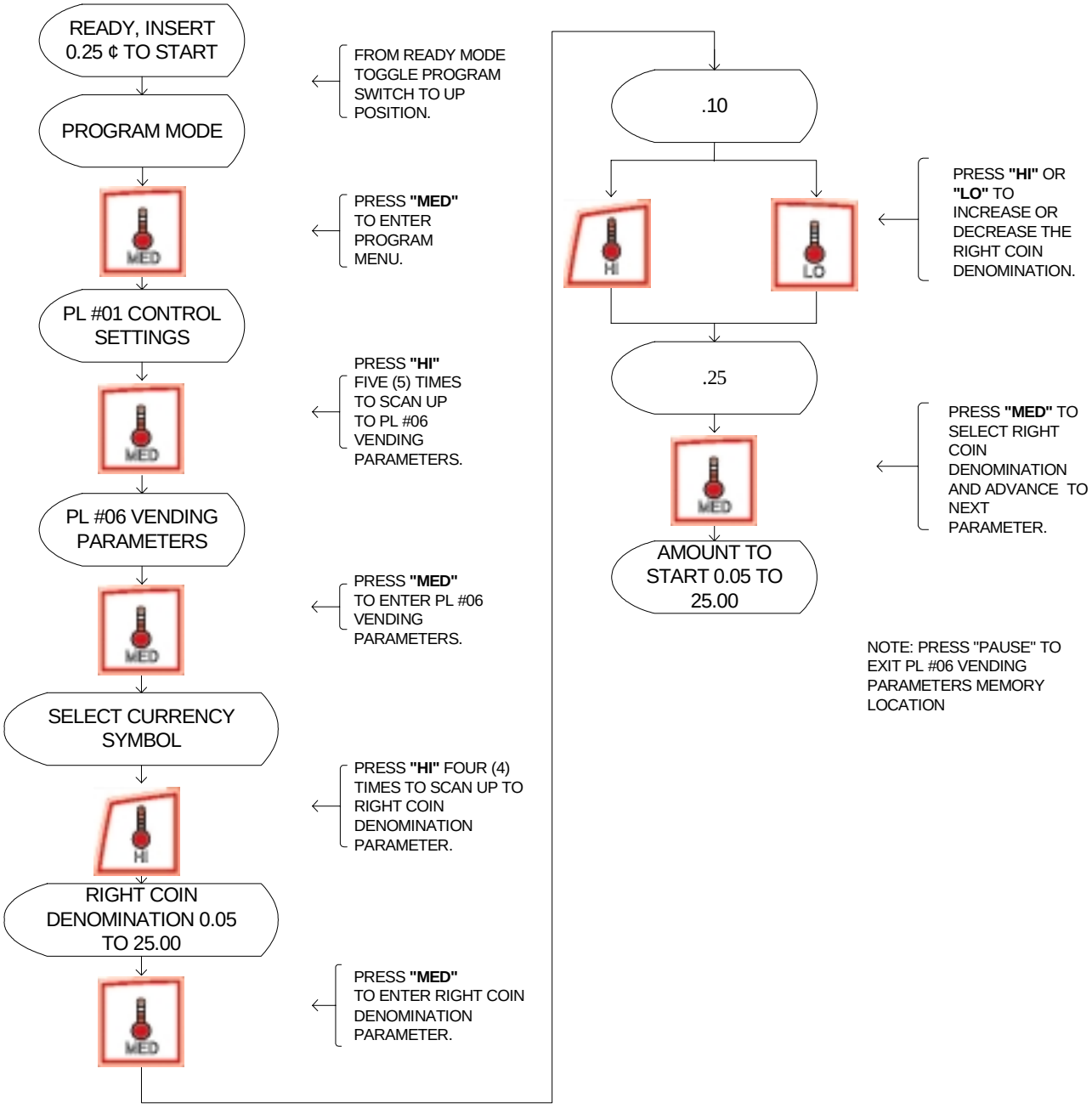
SELECTING VENDING SAFEGUARD



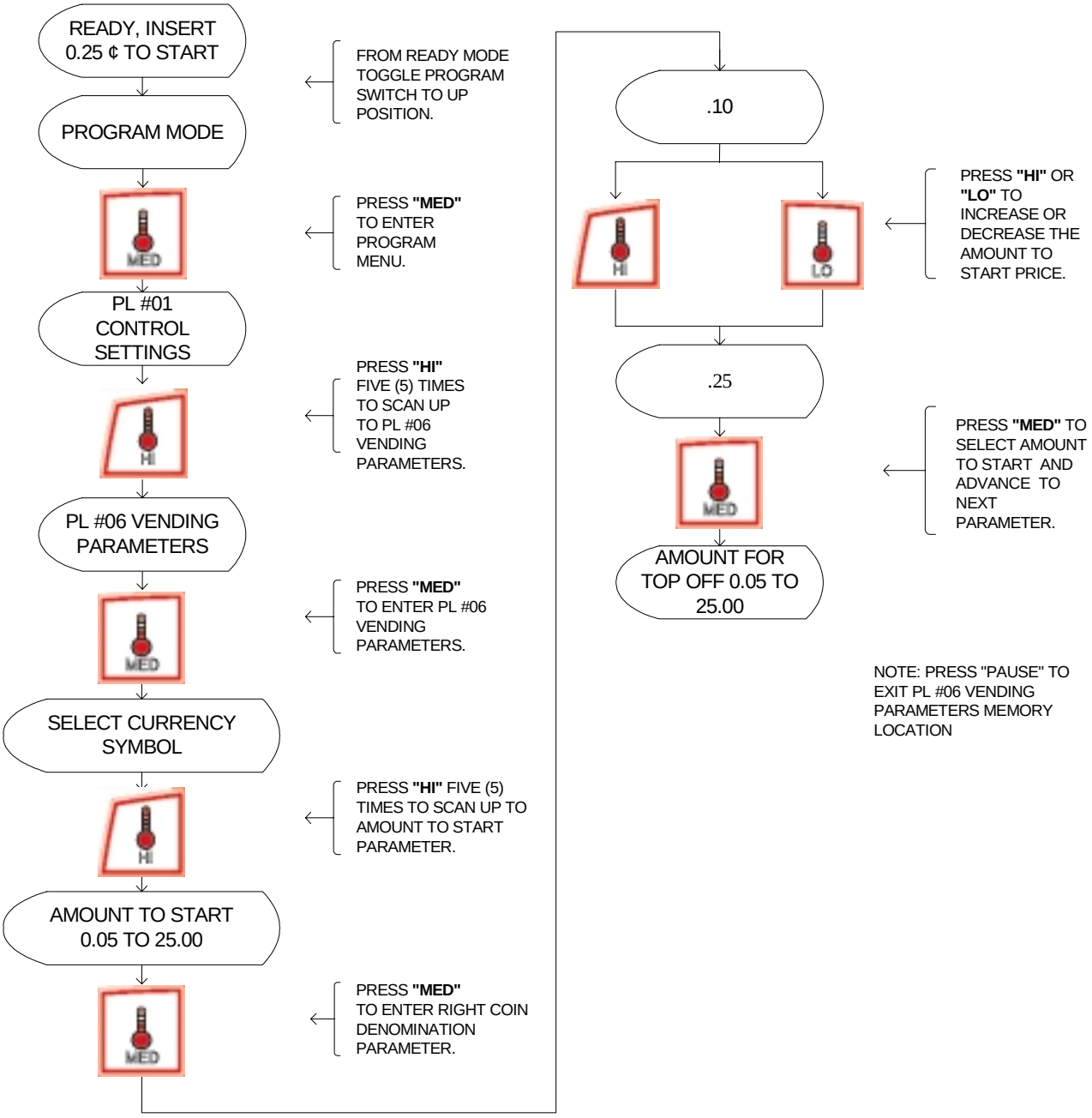
SETTING LEFT COIN DENOMINATION



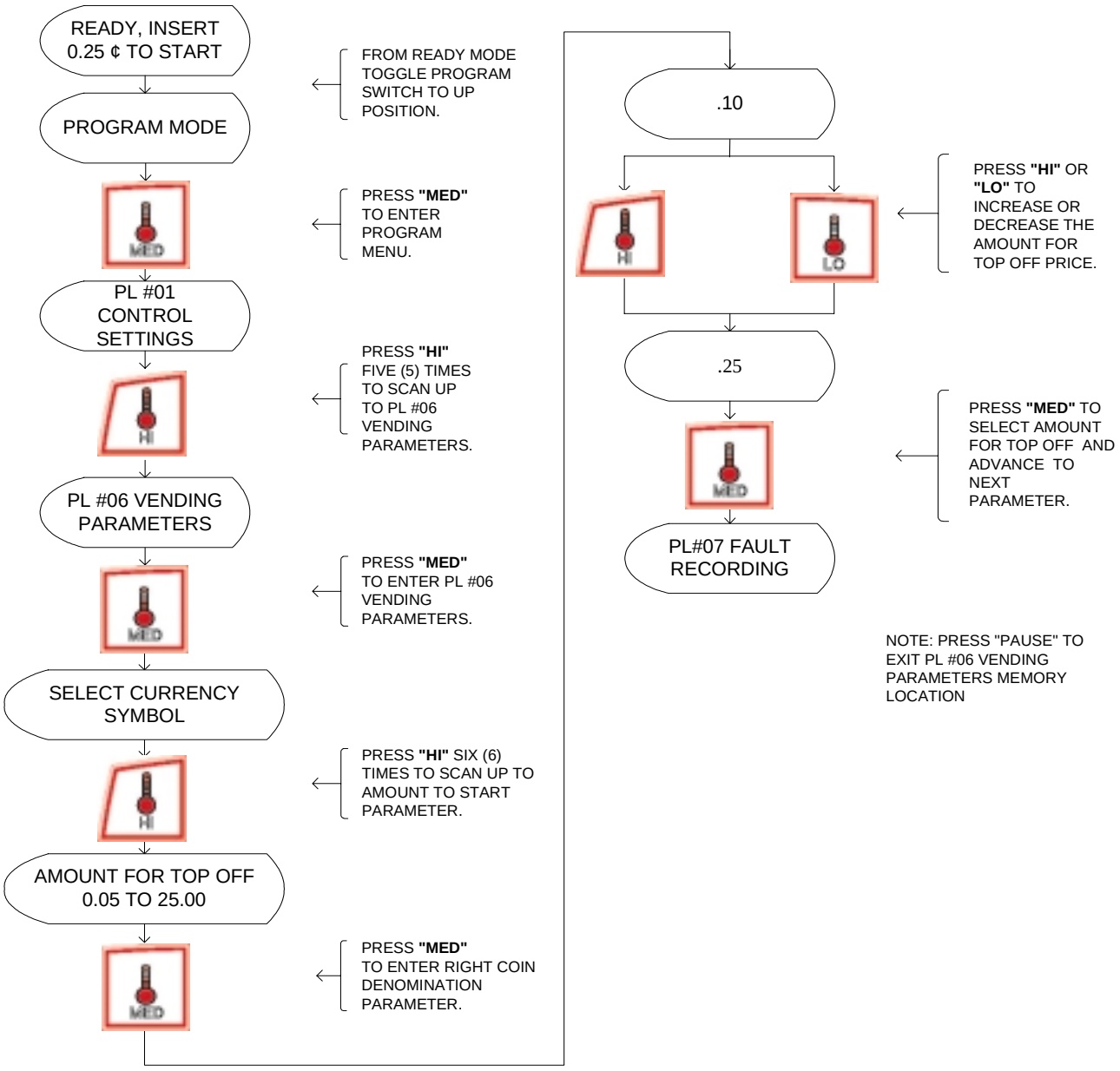
SETTING RIGHT COIN DENOMINATION



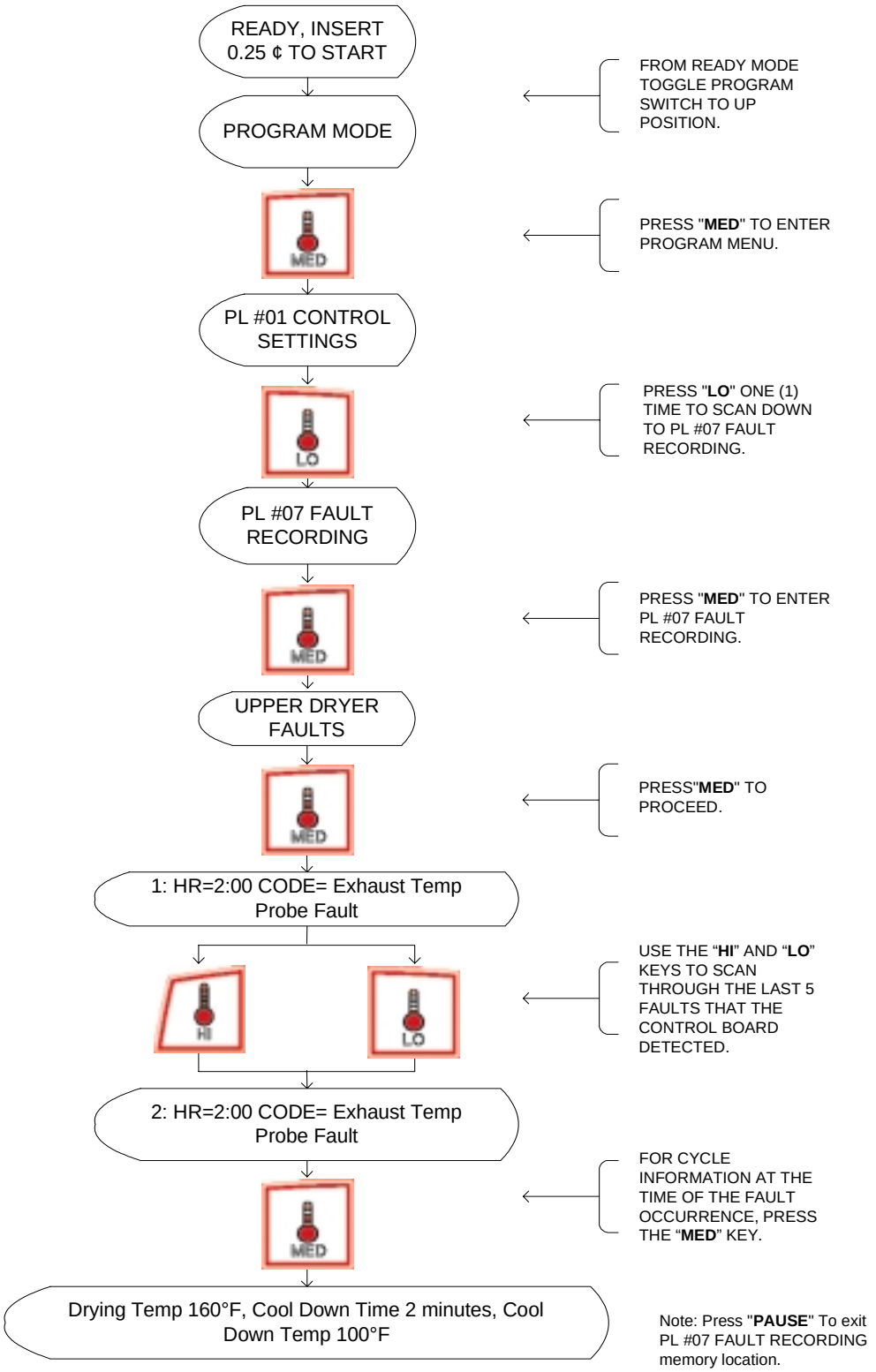
SETTING AMOUNT TO START



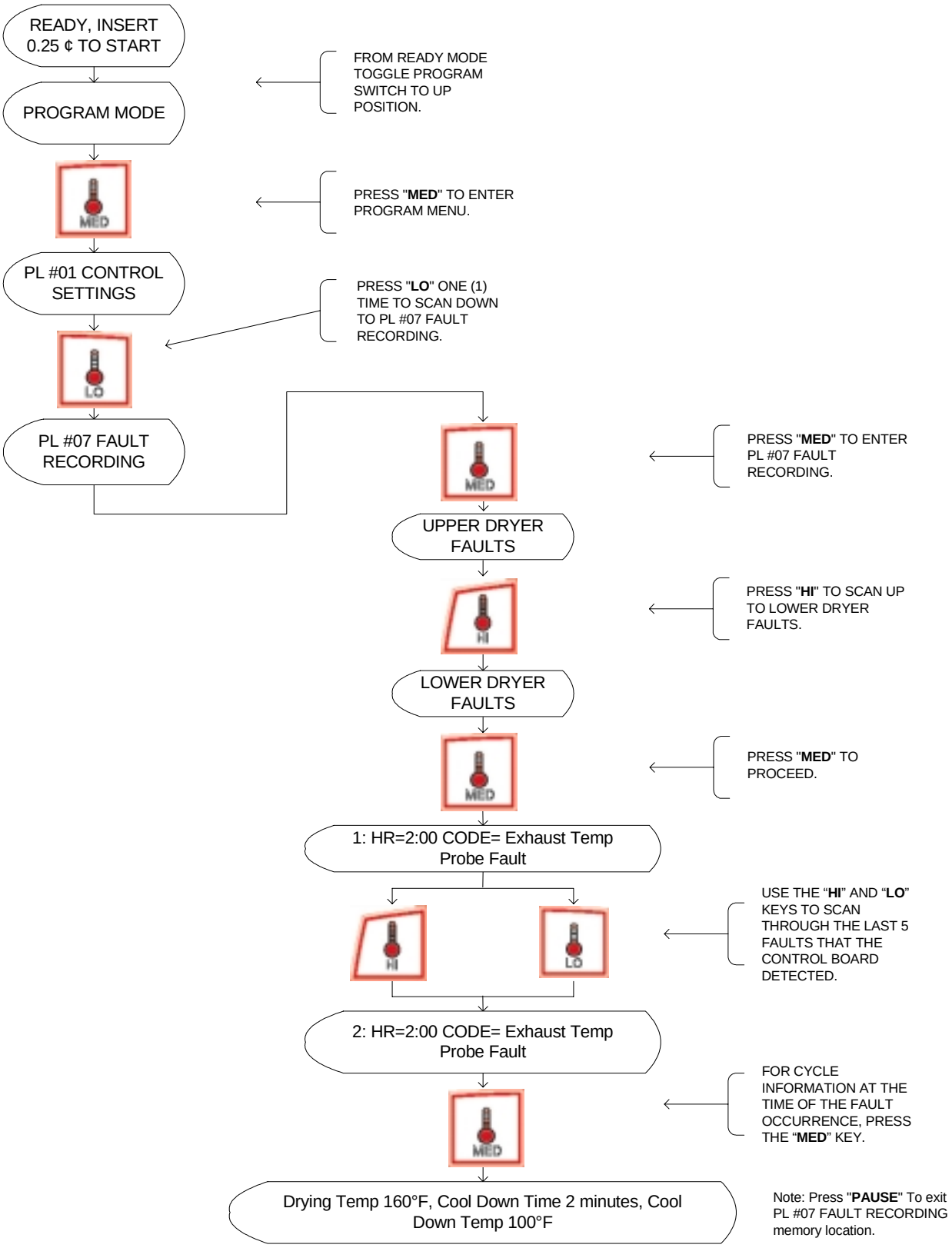
SETTING AMOUNT FOR TOP OFF 0.05 TO 25.00



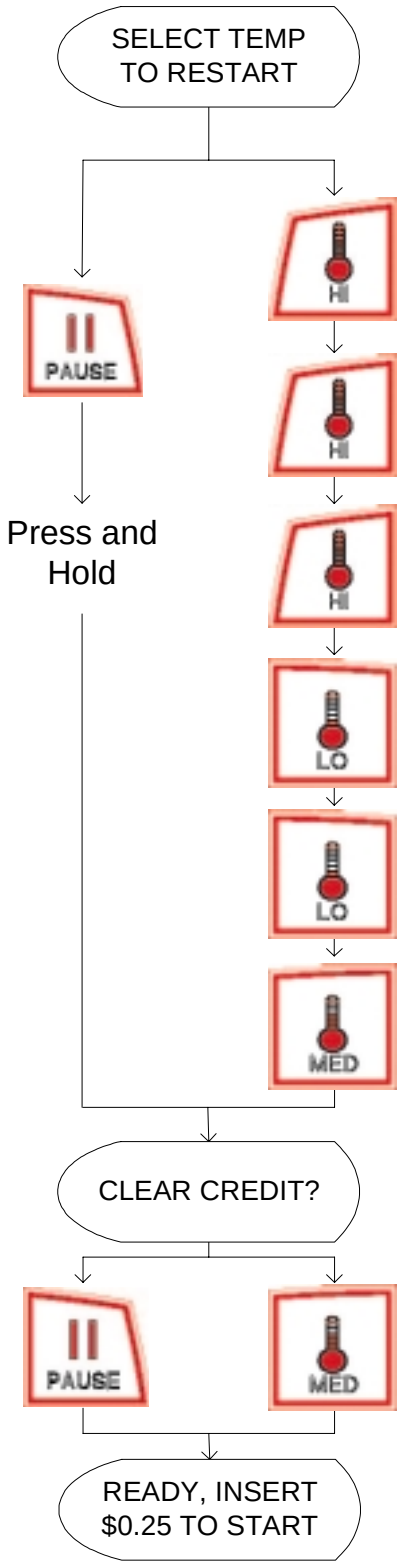
ACCESSING UPPER DRYER FAULT RECORDS



ACCESSING LOWER DRYER FAULT RECORDS



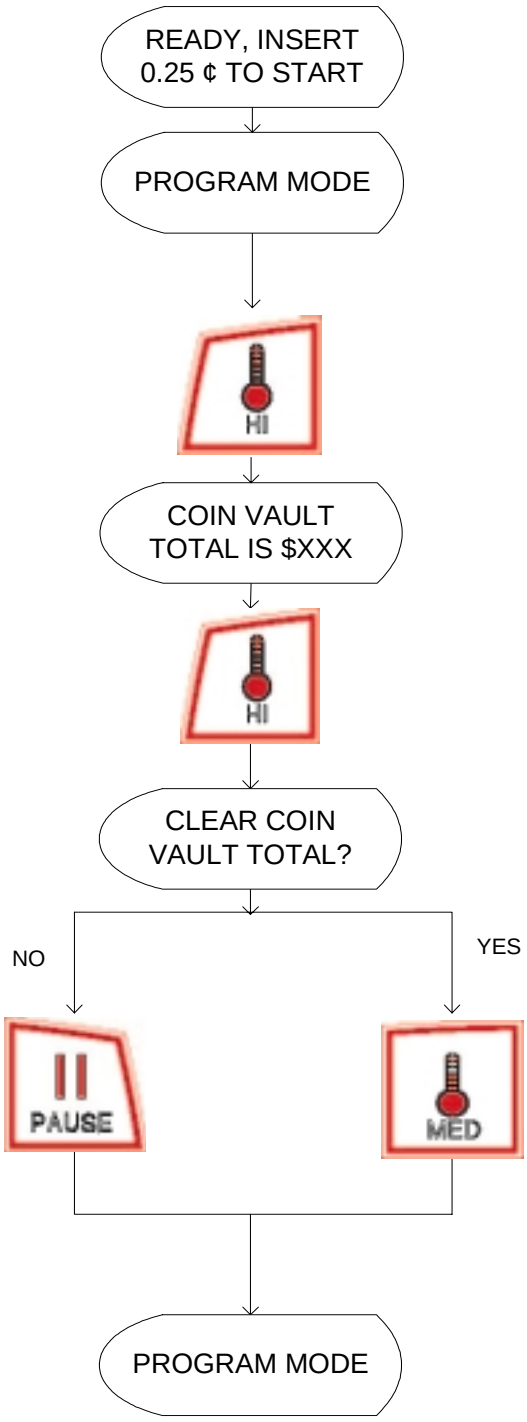
Flowchart for Clearing Credit



- Stop Dry Cycle by Opening and Closing Door. <u>Do Not</u> use the **"PAUSE"** Key.
- Make Sure Program Switch is Down.
- Enter the Following Key Sequence

- While holding **"PAUSE"** at all TIMES, press **"HI"** 3 times, **"LO"** 2 times, and **"MED"** once.
- Wait for Display to Say CLEAR CREDIT?
- Hold PAUSE and press **"MED"**.

Accessing and Clearing Coin Vault Total



Enter Program Mode by Setting the program switch to UP position from a Ready Mode

Press **"HI"** one (1) time and controller will display the Coin Vault Total.

Press **"HI"** one (1) more time and control will prompt to clear Coin Vault Total

Press **"MED"** for YES or press **"PAUSE"** for NO

SECTION VII

FACTORY PRESETS

For AD-330 Dryer Model

		FACTORY DEFAULTS
CONTROL SETTINGS		
PL#01	LANGUAGE	ENGLISH
	TEMP SCALE	°F
	BUZZER MODE	BUZZ
	BEEP COUNT 1 TO 9 BEEPS	5
	DRY MODE	COIN
	PAUSE TIME 0 to 3 MINUTES	1
	READY PROMPT	READY-INSERT AMOUNT TO START
MACHINE SETTINGS		
PL#02	MODEL	reference dryer model type
	ROTATION SENSOR	ON
	LINT CLEANING FREQUENCY 0 TO 10 HOURS	3
	AXIAL THERMISTOR INPUT	OFF
	THERMISTOR TEMP SET POINT 100 TO 400 °F	180
HI KEY SETTINGS		
PL#03	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	150
	COOL TIME 0 TO 9 MINUTES	2
MED KEY SETTINGS		
PL#04	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	130
	COOL TIME 0 TO 9 MINUTES	2
LO KEY SETTINGS		
PL#05	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	120
	COOL TIME 0 TO 9 MINUTES	2
VENDING PARAMETERS		
PL #06	CURRENCY SYMBOL	USD
	VENDING MODE	ACCUMULATIVE TIME
	VENDING SAFEGUARD	BAD COIN RESET
	LEFT COIN DENOMINATION 0.05 TO 25.00 *	0.25
	RIGHT COIN DENOMINATION 0.05 TO 25.00 *	0.10
	AMOUNT TO START 0.05 TO 25.00	0.25
	AMOUNT FOR TOP OFF 0.05 TO 25.00	0.25
FAULT RECORDING		
PL#07	NO UPPER DRYER FAULTS / UPPER DRYER FAULTS	
	NO LOWER DRYER FAULTS / LOWER DRYER FAULTS	

* Note- This setting will differ depending on the coin acceptor installed on the dryer.

For SL-30 Dryer Model.

		FACTORY DEFAULTS
CONTROL SETTINGS		
PL#01	LANGUAGE	ENGLISH
	TEMP SCALE	°F
	BUZZER MODE	BUZZ
	BEEP COUNT 1 TO 9 BEEPS	5
	DRY MODE	COIN
	PAUSE TIME 0 to 3 MINUTES	1
	READY PROMPT	READY-INSERT AMOUNT TO START
MACHINE SETTINGS		
PL#02	MODEL	reference dryer model type
	ROTATION SENSOR	ON
	LINT CLEANING FREQUENCY 0 TO 10 HOURS	2
	AXIAL THERMISTOR INPUT	ON
	THERMISTOR TEMP SET POINT 100 TO 400 °F	180
HI KEY SETTINGS		
PL#03	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	150
	COOL TIME 0 TO 9 MINUTES	2
MED KEY SETTINGS		
PL#04	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	130
	COOL TIME 0 TO 9 MINUTES	2
LO KEY SETTINGS		
PL#05	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	120
	COOL TIME 0 TO 9 MINUTES	2
VENDING PARAMETERS		
PL #06	CURRENCY SYMBOL	USD
	VENDING MODE	ACCUMULATIVE TIME
	VENDING SAFEGUARD	BAD COIN RESET
	LEFT COIN DENOMINATION 0.05 TO 25.00 *	0.25
	RIGHT COIN DENOMINATION 0.05 TO 25.00 *	0.10
	AMOUNT TO START 0.05 TO 25.00	0.25
	AMOUNT FOR TOP OFF 0.05 TO 25.00	0.25
FAULT RECORDING		
PL#07	NO UPPER DRYER FAULTS / UPPER DRYER FAULTS	
	NO LOWER DRYER FAULTS / LOWER DRYER FAULTS	

* Note- This setting will differ depending on the coin acceptor installed on the dryer.

For AD-360 Dryer Model

		FACTORY DEFAULTS
CONTROL SETTINGS		
PL#01	LANGUAGE	ENGLISH
	TEMP SCALE	°F
	BUZZER MODE	BUZZ
	BEEP COUNT 1 TO 9 BEEPS	5
	DRY MODE	COIN
	PAUSE TIME 0 to 3 MINUTES	1
	READY PROMPT	READY-INSERT AMOUNT TO START
MACHINE SETTINGS		
PL#02	MODEL	reference dryer model type
	ROTATION SENSOR	ON
	LINT CLEANING FREQUENCY 0 TO 10 HOURS	3
	AXIAL THERMISTOR INPUT	OFF
	THERMISTOR TEMP SET POINT 100 TO 400 °F	180
HI KEY SETTINGS		
PL#03	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	150
	COOL TIME 0 TO 9 MINUTES	2
MED KEY SETTINGS		
PL#04	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	130
	COOL TIME 0 TO 9 MINUTES	2
LO KEY SETTINGS		
PL#05	TIME FOR AMOUNT TO START 1 TO 99 MINUTES	10
	TIME FOR TOP OFF 1 TO 99 MINUTES	10
	DRY TEMP 100 TO 190°F	120
	COOL TIME 0 TO 9 MINUTES	2
VENDING PARAMETERS		
PL#06	CURRENCY SYMBOL	USD
	VENDING MODE	ACCUMULATIVE TIME
	VENDING SAFEGUARD	BAD COIN RESET
	LEFT COIN DENOMINATION 0.05 TO 25.00 *	0.25
	RIGHT COIN DENOMINATION 0.05 TO 25.00 *	0.10
	AMOUNT TO START 0.05 TO 25.00	0.25
	AMOUNT FOR TOP OFF 0.05 TO 25.00	0.25
FAULT RECORDING		
PL#07	NO UPPER DRYER FAULTS / UPPER DRYER FAULTS	
	NO LOWER DRYER FAULTS / LOWER DRYER FAULTS	

* Note- This setting will differ depending on the coin acceptor installed on the dryer.

SECTION VIII

PHASE 7 DUAL MICROPROCESSOR CONTROLLER (DMC) COMPUTER SYSTEM DIAGNOSTICS

IMPORTANT: YOU MUST DISCONNECT AND LOCK OUT THE ELECTRIC SUPPLY AND THE GAS OR STEAM SUPPLY BEFORE ANY COVERS OR GUARDS ARE REMOVED FROM THE MACHINE, TO ALLOW ACCESS FOR CLEANING, ADJUSTING, INSTALLATION, OR TESTING OF ANY EQUIPMENT PER OSHA (Occupational Safety and Health Administration) **STANDARDS.**

ALL major circuits, including the door, the microprocessor temperature sensor, and the heat and motor circuits are monitored. The Phase 7 dual microprocessor controller (DMC) computer will inform the user via the liquid crystal display (L.C.D.) of certain failure messages, along with light emitting diode (L.E.D.) indicators on the Inputs/Outputs (I/O) on the Phase 7 DMC (computer) board.

ERROR MESSAGES:

NOTE: Any error associated with the "Out of Order" message can be identified by pressing the "LO" key while in the "Out of Order" condition. If the "HI" key is pressed during this time, the remaining credit can be viewed. Any "Out of Order" message is immediately followed by a 3-second tone. If the fault has been corrected, holding the "PAUSE" key for 3-seconds will clear the fault message. If more than one (1) fault occurred at the same time after the first fault is cleared, the next fault **will be** displayed and will need to be cleared. This will occur until **ALL** faults have been displayed. In Free Mode, the Phase 7 DMC (computer) **will not** display "Out of Order"; it will just display the fault.

A. DIAGNOSTIC L.C.D. FAULT MESSAGES

MODEL FAULT – This routine monitors the inputs, such as the sail switch and gas valve, to determine the type of dryer the Phase 7 DMC (computer) is. Steam dryers **DO NOT** use a sail switch or valve input, and an electric dryer will not use a gas valve input. These signals allow the Phase 7 DMC (computer) to interpret what type of dryer it is controlling. The Phase 7 DMC (computer) determines what the expected dryer responses **should be** for that specific heat-type dryer. Anytime a model fault is detected, the Phase 7 DMC (computer) will interrupt the cycle and will display "MODEL FAULT" and will go into a Fault Mode with a brief audio indication. If the basket (tumbler) temperature is above 100°F (38°C) at the time of the failure, the Phase 7 DMC (computer) will continue to display "MODEL FAULT" while the dryer cools by running with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the basket (tumbler) temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode until the dryer is addressed.

NOTE: If a model error occurs, the microprocessor will always default to the "gas" type for safety reasons. Also, the dryer is stopped and forced into a restart condition to reevaluate **ALL** expected responses.

SAIL SWITCH CLOSED FAULT – This routine prevents the startup of the dryer unless the sail switch is in the open position. If the sail switch is in the closed position prior to starting, the Phase 7 dual microprocessor controller (DMC) computer will display "PLEASE WAIT START UP IN PROCESS" and will allow the Phase 7 DMC (computer) 10-seconds for the sail switch to open before faulting out on a "SAIL SWITCH CLOSED FAULT –SELECT TEMPERATURE TO RESTART". This routine is also monitored at every startup, including a startup after being in Pause Mode. If the sail switch is in the closed position prior to starting from a Pause Mode, the Phase 7 DMC (computer) will display "PLEASE WAIT RESTART IN PROCESS" and will allow the Phase 7 DMC (computer) 10-seconds for the sail switch to open before faulting out on a "SAIL SWITCH CLOSED FAULT –SELECT TEMPERATURE TO RESTART". Again, once the dryer faults out on the "SAIL SWITCH CLOSED FAULT –SELECT TEMPERATURE TO RESTART", the dryer will not be allowed to start. Anytime the fault occurs, there will be an audio indication and start/restart will be prevented until a temperature cycle has been selected again.

SAIL SWITCH OPEN FAULT – If the sail switch does not close within 8-seconds of starting or restarting a cycle, the Phase 7 DMC (computer) will display "SAIL SWITCH OPEN FAULT – CHECK LINT AND MAIN DOOR THEN SELECT TEMPERATURE TO RESTART" condition. If the sail switch opens during a cycle, the Phase 7 DMC (computer) will immediately shut off the heat output and will monitor how long the sail switch is open. If the sail switch is open for more than 30-seconds, the Phase 7 DMC (computer) will display "SAIL SWITCH OPEN FAULT – CHECK LINT AND MAIN DOOR THEN SELECT TEMPERATURE TO RESTART" condition and with a brief audio indication. Once this condition occurs the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in this mode until the dryer is addressed and a new temperature cycle has been selected.

BURNER HIGH-LIMIT FAULT – This routine monitors the burner high-limit switch. If the Phase 7 DMC (computer) senses the switch open for more than 3-seconds, it will consider this an error and will proceed accordingly. If the switch opens during the cycle, while the heat is on and stays open for more than 15 minutes, the dryer will display "BURNER HIGH-LIMIT FAULT" and will go into a Fault Mode with a brief audio indication. Also, if the switch opens three (3) times within 1 hour of drying time, the dryer will display "BURNER HIGH-LIMIT FAULT" and will go into a Fault Mode with a brief audio indication. Once a fault is detected, the Phase 7 DMC (computer) will check the basket (tumbler) temperature. If the exhaust probe temperature is above 100°F (38°C), the dryer will continue to display "BURNER HIGH-LIMIT FAULT" while the dryer cools by running with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the exhaust probe temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode.

EXHAUST HIGH-LIMIT FAULT – This routine monitors the exhaust high-limit switch. If the Phase 7 DMC (computer) senses the switch open for more than 3-seconds it will consider this an error and will proceed accordingly. If the switch opens and stays open for more than 15 minutes, the dryer will display "EXHAUST HIGH-LIMIT FAULT" and will go into a Fault Mode with a brief audio indication. Also, if the switch opens three (3) times within 1 hour of drying time, the dryer will display "EXHAUST HIGH-LIMIT FAULT" and will go into a Fault Mode with a brief audio indication. Once a fault is detected, the Phase 7 DMC (computer) will check the basket (tumbler) temperature. If the exhaust probe temperature is above 100°F (38°C), the dryer will continue to display "EXHAUST HIGH-LIMIT FAULT", while the dryer cools by running with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the exhaust probe temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode.

BURNER CONTROL FAULT – This routine monitors the gas return valve signal and compares it with the Direct Spark Ignition (DSI) purge time setting. If the gas return valve signal does not turn on by the DSI purge time expires or if it turns on for less than 200 ms, the Phase 7 dual microprocessor controller (DMC) computer will turn off the heat output, increase a counter and wait the interpurge time before reattempting to ignite the burner. Once this fault condition occurs five (5) consecutive times, the Phase 7 DMC (computer) will interrupt the cycle and will display "BURNER CONTROL FAULT" and will go into a Fault Mode with a brief audio indication. If the basket (tumbler) temperature is above 100°F (38°C) at the time of the failure, the Phase 7 DMC (computer) will continue to display "BURNER CONTROL FAULT" while the dryer cools by running with no heat for 3 minutes or until the temperature drops below 100°F (38°C). If the basket (tumbler) temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode until the dryer is addressed.

IGNITION FAULT – After the Phase 7 DMC (computer) receives a gas valve return for more than 200 ms signal within the DSI purge time, the Phase 7 DMC (computer) will begin a DSI proof time. The Phase 7 DMC (computer) will continue to recheck the gas valve return signal. If the signal is lost during the DSI proof time, the Phase 7 DMC (computer) will turn off the heat output and will determine what the retry count is set at. If the retry count is greater than zero, the Phase 7 DMC (computer) will wait the interpurge time and will attempt to reignite the flame. If the failure condition occurs again, the Phase 7 DMC (computer) will retry until the retry count has been satisfied. Once the retry count has been satisfied, the Phase 7 DMC (computer) will interrupt the cycle and will display "IGNITION FAULT" condition and will go into a Fault Mode with a brief audio indication. If the basket (tumbler) temperature is above 100°F (38°C), the Phase 7 DMC (computer) will continue to display "IGNITION FAULT" while the dryer cools by running with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the basket (tumbler) temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode until dryer is addressed.

FLAME FAULT – After the Phase 7 DMC (computer) has verified that the gas valve signal was present throughout the DSI purge time and the DSI proof time, the Phase 7 DMC (computer) will continue to monitor the gas valve return signal. In the event that the gas valve return signal is lost anytime after the DSI proof time, the Phase 7 DMC (computer) will turn off the heat output and will increase a counter. Once this fault condition occurs five (5) consecutive times, the Phase 7 DMC (computer) will interrupt the cycle and will display "FLAME FAULT" condition and will go into a Fault Mode with a brief audio indication. If the basket (tumbler) temperature is above 100°F (38°C), the Phase 7 DMC (computer) will continue to display "FLAME FAULT" while the dryer cools by running with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the basket (tumbler) temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode until the dryer is addressed.

CLEAN LINT – This routine monitors the opening of the lint drawer switch and compares the time between openings to the Lint Cleaning Frequency setting. This routine will first prompt the user to clean lint before locking out the dryer. Once the time between cleanings is equal to the Lint Cleaning Frequency setting, the display will prompt the user to clean lint. The Lint Cleaning Frequency limits the amount of time the dryer will run before the Phase 7 DMC (computer) locks the dryer out for further use. If the lint drawer is not cleaned within 2 hours of run time, the Phase 7 DMC (computer) will be locked out.

CHECK CONTROL BOARD FUSE #1 – This routine identifies the opening of the main fuse (fuse 1) on the Phase 7 DMC (computer). If the fuse has opened, the Phase 7 DMC (computer) will not allow a cycle to begin and will display "CHECK CONTROL BOARD FUSE #1" condition. If the fuse has opened after the cycle has begun, it will still trigger the CHECK CONTROL BOARD FUSE #1. The dryer will shut off **ALL** outputs and will go into a Fault Mode with a brief audio indication. The Phase 7 DMC (computer) will then monitor the Phase 7 DMC (computer) Fuse #1 Input. If the Phase 7 DMC (computer) Fuse #1 signal returns for more than 30-seconds, the Phase 7 DMC (computer) will reset itself and will return to Ready Mode.

CHECK CONTROL BOARD FUSE #2 – This routine identifies the opening of the main fuse (fuse 2) on the Phase 7 dual microprocessor controller (DMC) computer. If the fuse has opened, the Phase 7 DMC (computer) will not allow a cycle to begin and will display "CHECK CONTROL BOARD FUSE #2" condition. If the fuse has opened after the cycle has begun, it will still trigger the CHECK CONTROL BOARD FUSE #2. The dryer will shut off **ALL** outputs and will go into a Fault Mode with a brief audio indication. The Phase 7 DMC (computer) will then monitor the Phase 7 DMC (computer) Fuse #2 Input. If the Phase 7 DMC (computer) Fuse #2 signal returns for more than 30-seconds, the Phase 7 DMC (computer) will reset itself and will return to Ready Mode.

EXHAUST PROBE FAULT/AXIAL FAULT – This routine indicates a problem with the temperature sensor circuit. If the Phase 7 DMC (computer) senses an issue that lasts for more than 3-seconds, it considers this an error; it will trigger an "EXHAUST PROBE FAULT" or "AXIAL PROBE FAULT" condition and will go into a Fault Mode with a brief audio indication. The dryer will run with no heat for 3 minutes. Once the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in fault. The Phase 7 DMC (computer) will then monitor the temperature sensor input. If the temperature sensor returns for more than 30-seconds, the Phase 7 DMC (computer) will reset itself and will return to Ready Mode.

ROTATION SENSOR FAULT – This routine monitors the pulses from the rotational sensor input. It times the dwell (stop) between signals. If the time between the pulses exceeds 10-seconds, the Phase 7 DMC (computer) will trigger a "ROTATION SENSOR FAULT" condition and will go into a Fault Mode with a brief audio indication. Depending on the model type, the dryer will run the fan with no heat for 3 minutes or until the temperature drops below 100°F (38°C) for GAS QUAD MOTOR, ELECTRIC QUAD MOTOR and STEAM QUAD MOTOR models. Once the basket (tumbler) temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode until the dryer is addressed. If the dryer model is a GAS DUAL MOTOR, ELECTRIC DUAL MOTOR or STEAM DUAL MOTOR model, the Phase 7 DMC (computer) will immediately shut off **ALL** outputs, regardless of the basket (tumbler) temperature, and will remain in Fault Mode until the dryer is addressed.

EXHAUST HIGH TEMPERATURE FAULT – This error routine indicates a problem with overheating. If the Phase 7 DMC (computer) senses a high temperature condition for more than 3-seconds, it considers this an error and will proceed accordingly. If the condition exists for more than 15 minutes, the dryer will display "EXHAUST HIGH TEMP FAULT" and will go into a Fault Mode with a brief audio indication. Also, if the condition occurs three (3) times within 1 hour of drying time, the dryer will display "EXHAUST HIGH TEMP FAULT" and will go into a Fault Mode with a brief audio indication. The Phase 7 DMC (computer) determines this error by monitoring the temperature sensor input to have a steady gradual increase in temperature to a known upper limit (the limit typically is 20° over the maximum allowed programmable set point). The dryer will run with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the basket (tumbler) temperature is below 100°F (38°C), or 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode.

BURNER PURGE FAULT – If the Phase 7 DMC (computer) detects the presence of the gas return signal before sending the heat signal out, the Phase 7 DMC (computer) will trigger a "BURNER PURGE FAULT" condition and will go into a Fault Mode with a brief audio indication. The dryer will run with no heat for 3 minutes or until the temperature drops below 100°F (38°C). Once the basket (tumbler) temperature is below 100°F (38°C), or the 3 minutes expire, the Phase 7 DMC (computer) will shut off **ALL** outputs and will remain in Fault Mode until the dryer is addressed.

B. S.A.F.E. SYSTEM DIAGNOSTIC CONDITIONS

In the event that the Phase 7 dual microprocessor controller (DMC) computer detects a fault in the Sensor Activated Fire Extinguishing (S.A.F.E.) system, the Phase 7 DMC (computer) will display the message "S.A.F.E. SYSTEM DISABLED…READY". To find out the reason why the S.A.F.E. system disabled, press and hold the "PAUSE" and "LO" keys; this will cause the Phase 7 DMC (computer) to display one (1) of the following diagnostic messages:

OPEN THERMISTOR PROBE – This message indicates that the S.A.F.E. system thermistor probe is either not connected or is damaged. If this condition is detected, the Phase 7 DMC (computer) will immediately enter S.A.F.E. SYSTEM DISABLED Mode.

SHORTED THERMISTOR PROBE – This message indicates that the S.A.F.E. system thermistor probe is damaged or the wiring is shorted. If this condition is detected, the Phase 7 DMC (computer) will immediately enter S.A.F.E. SYSTEM DISABLED Mode.

DISCONNECTED WATER VALVE – This message indicates that the water valve is open or that it is not connected to the Phase 7 DMC (computer). If this condition is detected, the Phase 7 DMC (computer) will continue to monitor the condition for a period of 5 minutes before entering S.A.F.E. SYSTEM DISABLED Mode. Once the condition is corrected, the Phase 7 DMC (computer) will continue to monitor the condition for 1 minute before exiting S.A.F.E. SYSTEM DISABLED Mode.

SHORTED WATER VALVE – This message indicates that the water valve is shorted or the wiring to the valve is shorted. If this condition is detected, the Phase 7 DMC (computer) will continue to monitor the condition for a period of 5 minutes before entering S.A.F.E. SYSTEM DISABLED Mode. Once the condition is corrected, the Phase 7 DMC (computer) will continue to monitor the condition for 1 minute before exiting S.A.F.E. SYSTEM DISABLED Mode.

WATER NOT CONNECTED – This message indicates that there is no water pressure at the water valve. This will occur if water is not connected to the dryer or if there is low water pressure in the water line coming to the dryer. This could also signal a defective pressure switch or wiring to the pressure switch. If this condition is detected, the Phase 7 DMC (computer) will continue to monitor the condition for a period of 5 minutes before entering S.A.F.E. SYSTEM DISABLED Mode. Once the condition is corrected, the Phase 7 DMC (computer) will continue to monitor the condition for 1 minute before exiting S.A.F.E. SYSTEM DISABLED Mode.

C. INPUT/OUTPUT (I/O) BOARD L.E.D. INDICATORS

1. Top Pocket Inputs

H2O – (RED L.E.D.) This light emitting diode (L.E.D.) will indicate the status of the water pressure sensor. If the water pressure is present, the L.E.D. will be ON.

LINT – (RED L.E.D.) This L.E.D. will indicate the status of the lint drawer. If the drawer is closed, then the L.E.D. is ON.

EXHL – (RED L.E.D.) This L.E.D. will indicate the status of the exhaust high limit disk. If the disk is closed (temperature below 225º F [107º C]), then the L.E.D. is ON.

SAIL – (RED L.E.D.) This L.E.D. will indicate the status of the sail switch. If the switch is closed, then the L.E.D. is ON.

GAS_V – (RED L.E.D.) This L.E.D. will indicate the status of the gas valve. If the gas valve is open (ON), then the L.E.D. is ON.

MAIN – (RED L.E.D.) This L.E.D. will indicate the status of the main door. If the door is closed, then the L.E.D. is ON.

FUSE – (RED L.E.D.) This L.E.D. should be on at **ALL** times. If L.E.D. is off this will indicate that fuse # F1 is blown.

BRHL – (RED L.E.D.) This L.E.D. will indicate the status of the burner high limit disk. If the disk is closed (temperature below 330º F [166º C]), then the L.E.D. is ON.

2. Top Pocket Outputs

HEAT – (GREEN L.E.D.) This L.E.D. will indicate the status of the heat output. If the request to turn on the heater is made, then the L.E.D. is ON.

DRIVE – (GREEN L.E.D.) This L.E.D. will indicate the status of the basket (tumbler) forward direction output. If the request to tumble the basket (tumbler) in the forward direction is made, then the L.E.D. is ON.

FAN – (GREEN L.E.D.) This L.E.D. will indicate the status of the fan output. If the request to turn on the fan (blower) is made, then the L.E.D. is ON.

FSS – (GREEN L.E.D.) This L.E.D. will indicate that the S.A.F.E. system is active.

3. Bottom Pocket Inputs

LINT – (RED L.E.D.) This light emitting diode (L.E.D.) will indicate the status of the lint drawer. If the drawer is closed, then the L.E.D. is ON.

EXHL – (RED L.E.D.) This L.E.D. will indicate the status of the exhaust high limit disk. If the disk is closed (temperature below 225º F [107º C]), then the L.E.D. is ON.

SAIL – (RED L.E.D.) This L.E.D. will indicate the status of the sail switch. If the switch is closed, then the L.E.D. is ON.

GAS_V – (RED L.E.D.) This L.E.D. will indicate the status of the gas valve. If the gas valve is open (ON), then the L.E.D. is ON.

MAIN – (RED L.E.D.) This L.E.D. will indicate the status of the main door. If the door is closed, then the L.E.D. is ON.

FUSE – (RED L.E.D.) This L.E.D. should be on at **ALL** times. If L.E.D. is off this will indicate that fuse # F2 is blown.

BRHL – (RED L.E.D.) This L.E.D. will indicate the status of the burner high limit disk. If the disk is closed (temperature below 330º F [166º C]), then the L.E.D. is ON.

4. Bottom Pocket Outputs

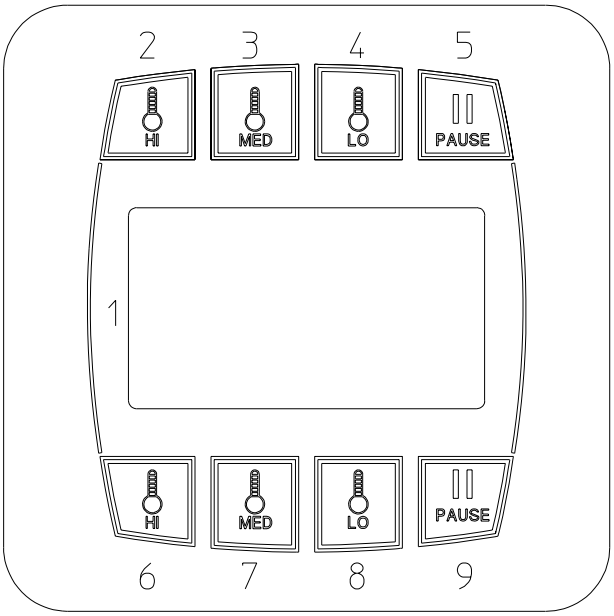
HEAT – (GREEN L.E.D.) This L.E.D. will indicate the status of the heat output. If the request to turn on the heater is made, then the L.E.D. is ON.

DRIVE – (GREEN L.E.D.) This L.E.D. will indicate the status of the basket (tumbler) forward direction output. If the request to tumble the basket (tumbler) in the forward direction is made, then the L.E.D. is ON.

FAN – (GREEN L.E.D.) This L.E.D. will indicate the status of the fan output. If the request to turn on the fan (blower) is made, then the L.E.D. is ON.

D. KEYBOARD (TOUCH PAD) LAYOUT

1. Liquid Crystal Display
2. HI Button
3. MED Button
4. LO Button
5. PAUSE Button
6. HI Button
7. MED Button
8. LO Button
9. PAUSE Button



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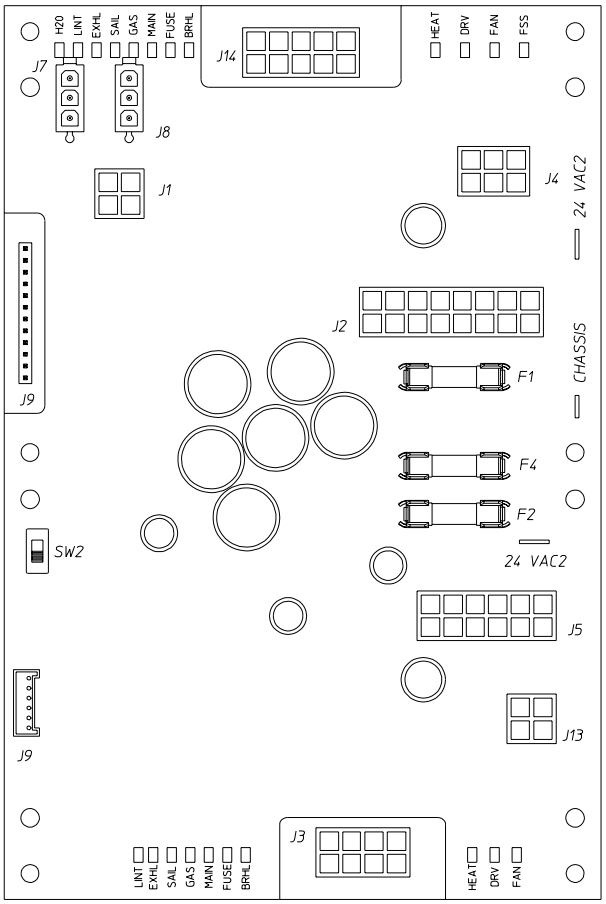

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