PHASE 7.1
OPL
USER'S MANUAL

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ADC Part No. 113108

Retain This Manual In A Safe Place For Future Reference

Please read this manual carefully to thoroughly familiarize yourself with the Phase 7 OPL 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.

"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.

IMPORTANT

YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE 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.**

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

DO NOT DRY MOP HEADS IN THE DRYER.

DO NOT USE DRYER IN THE PRESENCE OF DRY CLEANING FUMES.

CAUTION

DRYERS SHOULD NEVER BE LEFT UNATTENDED WHILE IN OPERATION.

WARNING

CHILDREN SHOULD NOT BE ALLOWED TO PLAY ON OR NEAR THE DRYERS.

CHILDREN SHOULD BE SUPERVISED IF NEAR DRYER(S) IN OPERATION.

WARNING

The dryer *must never be* operated with any of the back guards, outer tops, or service panels removed. PERSONAL INJURY or FIRE COULD RESULT.

WARNING

DRYER MUST NEVER BE OPERATED WITHOUT THE LINT FILTER OR SCREEN IN PLACE, EVEN IF AN EXTERNAL LINT COLLECTION SYSTEM IS USED.

IMPORTANT

PLEASE OBSERVE ALL SAFETY PRECAUTIONS displayed on the equipment and specified in the installation and operator's manual included with the dryer.

Dryers **must not be** installed or stored in an area where it will be exposed to water or weather.

The wiring diagram for the dryer is located in the front electrical control box area.

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SECTION I
INTRODUCTION

Phase 7 "On-Premise Laundry" Microprocessor Drying System

The **American Dryer Corporation's** Phase 7 On-Premise Laundry (OPL) Drying System has been designed with super performance in mind to provide for better temperature regulation, efficiency, performance, consistency, and faster drying times.

Specifically, **ADC's** Phase 7 OPL Drying System's higher performance emanates from the following enhancements:

1. The ability to better control the temperature inside the basket (tumbler) throughout the various cycles.

2. The Phase 7 OPL microprocessor controller (computer) responds immediately to any temperature variations from temperature selection, which enables the control temperature band to be ± 3º from this selected drying temperature. The narrower temperature control band greatly increases system efficiency, since it takes less heat to maintain a given temperature than to rise to a given temperature.

Among its many amenities, **ADC's** Phase 7 OPL Drying System has a true Automatic Drying Cycle. The Phase 7 OPL Automatic Drying Cycle **(Patent No. 4,827,627)** principle is based on one (1) of the most fundamental laws of thermodynamics, which governs the flow of heat in thermal systems.

Utilizing this microprocessor technology, the user simply has to place the load in the dryer and push one (1) single button to start the drying cycle. The Phase 7 OPL microprocessor controller (computer) will directly monitor the moisture content in the load and stop the drying cycle automatically when the selected percentage of extraction (dryness level) is reached.

The **ADC** Phase 7 OPL Automatic Drying Cycle **(Patent No. 4,827,627)** virtually eliminates **ALL** guess work. The Phase 7 OPL microprocessor controller (computer) determines how much drying time is needed and compensates for various types of fabrics and load sizes, thus, avoiding damage to fabrics by over drying, as well as avoiding wasted time and energy for any given load. Once the Phase 7 microprocessor controller (computer) determines the load is dry, the microprocessor controller (computer) will go into Cool Down Cycle until the preprogrammed time or temperature is reached, and then shuts the dryer off automatically.

SECTION II

FEATURES

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

B. **Program Changes Are Easily Made At The Keyboard (Touch Pad)** - Actual programs are viewed at the light emitting diode (L.E.D.) display for verification.

C. **Automatic Drying Cycle (Patent No. 4,827,627)** - Computerized monitoring of load dryness for precise, fast, and efficient drying.

D. **Timed (Manual) Drying Cycle** - For special loads, programming allows for a specific amount of time in minutes for both drying and Cool Down Cycles.

E. **Preprogrammed Cycles** - The Phase 7 OPL microprocessor controller (computer) can store in its memory six (6) preprogrammed cycles in either the Automatic Drying Mode **(Patent No. 4,827,627)** or Manual Drying Mode in the "A-F" keys and an additional 100 in the numerical memory of "0-99."

F. **Manually Loaded Cycles** - For occasional or onetime special loads, the user can set a specific program in either the Automatic Drying Cycle (**Patent No. 4,827,627)** or Manual Timed Drying Cycle.

G. **Variable (Programmable) Fabric/Temperature Selections** - Accommodates the type of fabric to be dried.

H. **Cool Down Program** - Lowers the temperature of the exhaust to make the material cool enough to handle.

I. **L.E.D. Display** - Informs user of cycle status, programs and displays important diagnostic and fault codes.

J. **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.

K. **Diagnostics** - Major circuits, including the door switch(es), microprocessor temperature sensor, motors, and heat output circuits and more are monitored.

L. **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.

M. **Temperature Conversion Status** - Temperature-related programs can be set in either Fahrenheit (ºF) or Celsius (ºC). **ALL** temperatures will automatically convert to the corresponding values (+/- 1º F [-17º C]) when changes are made.

N. **High-Temperature Protection** - If the Phase 7 OPL microprocessor controller (computer) senses that the temperature in the basket (tumbler) has exceeded 220º F (104º C), it will end the drying cycle and a fault code will appear in the L.E.D. display indicating an overheating problem.

O. **Cycle Preview** - Entire dryer parameters (programs) or the preprogrammed cycles are displayed for verification upon a coded entry to the keyboard (touch pad).

P. **Reversing Option** - Helps reduce the balling up or tangling of large items. A cycle can be set to have the reversing option where the basket (tumbler) will turn in the forward direction from 30 to 120-seconds, stop from 7 to 10-seconds, and then proceed in the reverse direction for the same time. This process is repeated throughout the drying and cooling cycles.

Q. **RPM** - Phase 7 microprocessor controller (computer) also displays basket (tumbler) RPM by pressing and holding the "DOWN ARROW" key and holding it while the basket (tumbler) is on. (The basket [tumbler] **must be** rotating for approximately 30-seconds before getting a true RPM reading).

NOTE: If the "DOWN ARROW" key is pressed while in "READY," the board voltage is displayed.

R. **Clean Lint** - This feature monitors the value of the "Lint Count" register. The register contains the acceptable limit of dryer cycles the machine will be allowed to operate before the microprocessor locks the user out. Once the feature prompts the user to "CLEAN LINT DRAWER" the dryer is now in a locked state and will not be cleared until the lint drawer has been cleaned. When the lint drawer is opened, the display will read "LINT DRAWER OPEN" and when the lint drawer is closed, the display will read "READY." **(NOTE:** The lint drawer **must be** opened for 15-seconds or more for the reset to occur.) The dryer circuit is now active and can be programmed.

S. **Language Selection** - Phase 7 has the ability to display 5 different languages, English, French, Spanish, Italian, and German.

T. **Model Selection** - The Phase 7 can be programmed to be used on 3 modes of heat.

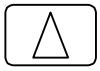
U. **Light Emitting Diode (L.E.D.) Display Test** - The L.E.D. pixels can be tested to insure **ALL** pixels are working. Press and hold the "STOP" key and the #4 key to do this check.

V. **Factory Settings** - This feature will set **ALL** programmed parameters to their default values.

W. **Keyboard (Touch Pad) Symbols** -

 = "STOP/CLEAR" key

 = "START/ENTER" key

 = "UP ARROW" key (scroll up)

 = "DOWN ARROW" key (scroll down)

SECTION III
PROGRAM SELECTIONS

A. PREPROGRAMMED CYCLES

"A-F" CYCLES

The Phase 7 OPL microprocessor controller (computer) can store in its memory six (6) preprogrammed cycles (keys "A-F" on the keyboard [touch pad]). This allows the user to have the six (6) most commonly used cycles, requiring only the push of a single keyboard (touch pad) entry to start the dryer.

"0-99" CYCLES

The Phase 7 OPL microprocessor controller (computer) can store 100 preprogrammed cycles in its numerical memory. (Use keys "0-99" on the keyboard [touch pad]). This allows the user to have up to 100 customized programmed cycles that may not be as commonly used as the six (6) "A-F." These are not one (1) touch entries to start the dryer like the "A-F." They are selected by entering the number, which represents the cycle desired and pressing the "START/ENTER" key to start the cycle.

Both types of the preprogrammed cycles can be set in either the Automatic Drying Mode **(Patent 4,827,627)**, where the drying cycle will end when the percentage of extraction (dryness level) programmed has been reached, or in the Manual Timed Drying Mode where the dryer will operate for the specific drying time programmed. These cycles can be programmed in any combination.

Once the heating cycle is completed, the Phase 7 OPL microprocessor controller (computer) then goes into the Cool Down Cycle where the articles are tumbled at room temperature. Once the programmed Cool Down Cycle is completed, the Phase 7 OPL microprocessor controller (computer) will go to the next step (Wrinkle Guard).

When the cooling cycle is completed, the dryer will go into the Wrinkle Guard Cycle. Where the load will be tumbled without heat for 2 minutes. It will then stop for 2 minutes. This process is repeated until either the doors are opened, the "STOP" key pressed, or 99 minutes has elapsed, whichever comes first. When Wrinkle Guard is ended, the display will read "CYCLE DONE." At this point the dryer is locked out from drying again until the doors are opened. This will insure that if a cycle has been completed, the operator will attend to it, before starting another heat cycle.

NOTE: On an Auto Door Machine, the door controls **are not** active while the fan motor is on. One (1) ***must press*** the "STOP/CLEAR" key to stop the fan motor and open the doors or wait for the fan motor to stop on its own (Wrinkle Guard Off Time) to open the doors.

PREPROGRAMMED CYCLE MENU SELECTIONS (CYCLES "A-F" or "0-99"):

1. Automatic Drying Cycle **(Patent No. 4,827,627)**

   a. The Phase 7 OPL microprocessor controller (computer) can be programmed to reverse or not reverse. This is done in "DRYER SETUP" parameter.

   b. Drying Temperature - Programmable from 160º F to 200º F (71º C to 93º C) in one-degree increments.

c. Dryness Level (percentage of extraction) - Programmable from ninety percent (90%) to one hundred percent (100%) in one percent (1%) increments.

d. Cool Down Time - Programmable from 0 to 99 minutes in 1 minute increments.

e. Cool Down Temperature - Programmable from 70º F to 100º F (21º C to 38º C) in one-degree increments.

f. "A" Factor - Programmable from 0 to 9.

g. "B" Factor - Programmable from 0 to 99.

2. Timed (Manual) Cycle

a. The Phase 7 OPL microprocessor controller (computer) can be programmed to reverse or not reverse. This is done in "DRYER SETUP" parameter.

b. Drying Time - Programmable from 0 to 99 minutes in 1 minute increments.

c. Drying Temperature - Programmable from 100º F to 200º F (38º C to 93º C) in one-degree increments.

d. Cool Down Time - Programmable from 0 to 99 minutes in 1 minute increments.

e. Cool Down Temperature - Programmable from 70º F to 100º F (21º C to 38º C) in one-degree increments.

f. The Spin Time can be programmed from 30-seconds to 120-seconds in 1-second increments.

g. The Stop (Dwell) Time can be programmed from 7-seconds to 10-seconds in 1-second increments.

ALL six (6) "A-F" preprogrammed cycles along with cycles "0-99" have been programmed by the factory as outlined in **Section VII**. However, even though cycles "A-F" are the most common cycles used, they **should be** reviewed to ensure they meet the location application or needs. Should changes be found necessary, refer to the Programming Section of this manual.

B. MANUALLY LOADED CYCLES

For occasional or onetime special loads, the operator **must enter** the specific program features needed. This cycle is not stored within the Phase 7 OPL microprocessor controller (computer) and **must be** entered each and every time.

The Manually Loaded Cycle can be set in either the Automatic Drying Mode **(Patent No. 4,827,627)** or the Timed (Manual) Drying Mode. These are selected by pressing the "AUTO" or "MAN" keys on the keyboard (touch pad).

MANUALLY LOADED CYCLE MENU SELECTIONS (CYCLES "AUTO" or "MAN"):

1. Automatic Drying Cycle ("AUTO" key) **(Patent No. 4,827,627)**

   a. Drying Temperature - Programmable from 160º F to 200º F (71º C to 93º C) in one-degree increments.

   b. Dryness Level (percentage of extraction) - Programmable from ninety percent (90%) less dry to one hundred percent (100%) more dry in one percent (1%) increments.

   c. The operator has the choice of Reverse or no reverse. If reverse is selected, then the Spin Time and Dwell Time is fixed at 2-1/2 minutes and 7-seconds.

   d. Press "START/ENTER" [I]. This will start the cycle.

The Manually Loaded Auto Cycle has the "A" and "B" factors set in "DRYER SETUP." The "A-F" and "0-99" cycles that have been selected to be Auto, have separate factors for each cycle. **ALL** the parameters set in "COOL DOWN SETUP" also pertain to the Manually Loaded Auto and Manual Cycles.

2. Manual Drying Cycle ("MAN" Key)

   a. Drying Time - Programmable from 0 to 99 minutes in 1 minute increments.

   b. Cool Down Time - Programmable from 0 to 99 minutes in 1 minute increments.

   c. Drying Temperature - Programmable from 100° F to 200° F (38º C to 93º C) in one-degree increments.

   d. The operator has the choice of reverse or no reverse. If reverse is selected, then the Spin Time and Dwell Time that is set in "System Parameters" under Cool Down menu is active.

   e. Press "START/ENTER" [I]. This will start the cycle.

C. AUTOMATIC DRYING CYCLE **(PATENT NO. 4,827,627)** OPERATIONS

In this mode, the Phase 7 OPL microprocessor controller (computer) determines how much drying time is needed and compensates for various types of fabrics and load sizes, **ALL** automatically. The Phase 7 OPL microprocessor controller (computer) accomplishes this by calculating the dryness level (percentage of extraction) using the temperature selected, as well as, the "A" and "B" factors preset by the factory.

The Phase 7 OPL microprocessor controller (computer) monitors the first three (3) heat peaks (slopes), at which time it calculates the "A" slope and "B" (heat loss) factors along with the percentage of extraction selected. When the Phase 7 OPL microprocessor controller (computer) determines that **ALL** the factors are met, the drying cycle will end, and the dryer will go into the Cool Down Cycle.

AUTOMATIC DRYING CYCLE PARAMETER SELECTIONS:

1. Drying Temperature - Programmable from 160º F to 200º F (71º C to 93º C) in one-degree increments.

2. Dryness Level (percentage of extraction) - Programmable from ninety percent (90%) less dry to one hundred percent (100%) more dry in one percent (1%) increments.

3. Cool Down Time - Programmable from 0 to 99 minutes in 1 minute increments.

4. Cool Down Temperature - Programmable from 70º F to 100º F (21º C to 38º C) in one-degree increments.

5. Wrinkle Guard is always active.

6. Factors (Program Location - "DRYER SETUP")

    a. Factor "A" Slope Program - The Phase 7 OPL microprocessor controller (computer) monitors how long it takes to get to the selected temperature.

        1) Program selections are 1 through 9 in increments of one (1).

    b. Factor "B" Heat Loss (Offset) Program - This factor setting is dependent upon the model dryer and the type of heating unit.

        1) Program selections are 1 through 99 in increments of one (1).

The Manually Loaded Auto Cycle has the "A" and "B" factors set in "DRYER SETUP." The "A-F" and "0-99" cycles that have been selected to be Auto, have separate factors for each cycle. **ALL** the parameters set in "COOL DOWN SETUP" also pertain to the Manually Loaded Auto and Manual Cycles.

The "A" and "B" factors have been preprogrammed by the factory as outlined in **Section IX** and **should not be** changed unless the Phase 7 OPL microprocessor controller (computer) should fail and is being replaced. The replacement Phase 7 OPL microprocessor controller (computer) **must be** programmed for the particular dryer model and heating unit as shown in the "A" and "B" factors table in **Section IX** of this manual.

D. TIMED (MANUAL) DRYING CYCLE OPERATION

This drying cycle is intended for special loads where a specific amount of drying time and cooling time is needed, especially for fine, delicate items which require very low temperatures and long drying and/or Cool Down Time periods.

ALL the parameters set in "COOL DOWN SETUP" pertain to the Manually Loaded Manual and Auto Cycles. The "A-F" and "0-99" cycles that have been selected to be manual, have separate settings for **ALL** the parameters contained in the "COOL DOWN SETUP" menu.

TIMED (MANUAL) CYCLE SELECTIONS:

1. Drying Time - Programmable from 0 to 99 minutes in 1 minute increments.

2. Cool Down Time - Programmable from 0 to 99 minutes in 1 minute increments.

3. Drying Temperature - Programmable from 100° F to 200° F (38º C to 93º C) in one-degree increments.

4. For optional reversing, the Phase 7 OPL microprocessor controller (computer) can be programmed to reverse or no reverse.

5. Wrinkle Guard is always active.

E. TEMPERATURE SELECTIONS (DRYING TEMPERATURES)

OPERATING TEMPERATURE SELECTIONS:

1. Automatic Drying Cycle **(Patent No. 4,827,627)** - Programmable from 160º F to 200º F (71º C to 93º C) in one-degree increments.

2. Timed (Manual) Drying Cycle - Programmable from 100º F to 200º F (38º C to 93º C) in one-degree increments.

F. COOL DOWN CYCLE

COOL DOWN CYCLE SELECTIONS:

1. Preprogrammed Cycles (Auto/Manual)

   a. Cool Down Time - 0 to 99 minutes in 1 minute increments.

   b. Cool Down Temperature - 70º F to 100º F (21º C to 38º C) in one-degree increments.

NOTE: The Cool Down Cycle will run either until the Cool Down Temperature is reached or until the Cool Down Time has expired, whichever comes first.

2. Manually Loaded Cycles

   a. Automatic Drying Cycle **(Patent No. 4,827,627)**

      1) Cool Down Time - 0 to 99 minutes in 1 minute increments.

      2) Cool Down Temperature - 70º F to 100º F (21º C to 38º C) in one-degree increments.

NOTE: Both the Cool Down Time and the Cool Down Temperature are selected in "COOL DOWN SETUP." The Spin and Stop (Dwell) Time are fixed.

   b. Timed (Manual) Drying Cycle

      1) Cool Down Time - 0 to 99 minutes in 1 minute increments.

      2) Cool Down Temperature - 70º F to 100º F (21º C to 38º C) in one-degree increments.

NOTE: The Cool Down Temperature, Spin Time, and Stop (Dwell) Time is selected in "COOL DOWN SETUP."

NOTE: The Cool Down Cycle will run either until the Cool Down Temperature is reached or until the Cool Down Time has expired, whichever comes first.

NOTE: If there has been no Drying Time selected, then the Cool Down Cycle will ignore the Cool Down Temperature and do the Cool Down Time only.

G. LIGHT EMITTING DIODE (L.E.D.) DOT MATRIX DISPLAY

The L.E.D. display informs the user of cycle status, program verification, and displays important diagnostic and fault information. A complete listing of the various display messages and their meanings are shown in **Section V** of this manual.

The L.E.D. dot matrix display can be tested to assure that **ALL** the dots are working. This can be done by pressing and holding the "STOP" key and the #4 key.

CYCLE IN PROGRESS DISPLAY STATUS

During the Drying Cycle, the display will indicate the type of cycle in progress by presenting either one (1) of the following:

1. "AUTO DRYING CYCLE" - Manually Loaded Auto Cycle.
2. "AUTO DRYING CYCLE #" - The "#" is replaced with "A-F" or "0-99."
3. "MANUAL DRYING CYCLE" - Manually Loaded Manual Cycle.
4. "MANUAL DRYING CYCLE #" - The "#" is replaced with "A-F" or "0-99."

H. CYCLE IN PROGRESS TEMPERATURE DISPLAY

While the dryer cycle is in progress, the temperature in the basket (tumbler) can be displayed by pressing and holding the "UP ARROW" key. The temperature will be displayed in either Fahrenheit (ºF) or Celsius (ºC), depending on what the system temperature has been set for in "DRYER SETUP."

I. TEMPERATURE CONVERSION STATUS

Temperature related programs are programmable to be operated in either Fahrenheit (ºF) or Celsius (ºC). The temperature selection is made in "SYSTEM TEMP." 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 Temperature Selections and Cool Down Temperatures **will be** changed accordingly. The Phase 7 OPL microprocessor controller (computer) automatically calculates and converts the temperatures in these programs to the previously set value. For example, when changing from ºF to ºC, if the preprogrammed Cycle "A" drying temperature was set for 160º F, the Phase 7 OPL microprocessor controller (computer) will change to 71º C (+/- [1] one-degree Celsius).

J. WRINKLE GUARD PROGRAM

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 light emitting diode (L.E.D.) display will read "WRINKLE GUARD." If the door is not opened or the cycle stopped, the Phase 7 OPL microprocessor controller (computer) will wait until the Wrinkle Guard Delay Time of 2 minutes has expired, at which time the fan will start and the basket (tumbler) will rotate (without heat) for the Wrinkle Guard On Time of 2 minutes. The Phase 7 OPL microprocessor controller (computer) will repeat this process until the Maximum Wrinkle Guard Time of 99 minutes has expired or until the door is opened, or cycle stopped, 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. This is done in "WRINKLE GUARD SETUP."

WRINKLE GUARD PROGRAM SELECTIONS:

1. Wrinkle Guard Audio Alert On/Off

   The operator can select to turn on or off the beeps at the end of each Wrinkle Guard Cycle. The amount of beeps are programmed in "AUDIO ALERT ON TIMES."

K. AUDIO ALERT ON TIMES 0 TO 10

The tone will sound at the end of the Cool Down Cycle to indicate that the cycle is complete. Programming allows for the elimination of the tone during the Wrinkle Guard Cycle. This is done in "WRINKLE GUARD SETUP." Programming also allows the beeps to be set from 0 to 10 times in increments of one (1). This is done in "DRYER SETUP."

L. PREPROGRAMMED CYCLE PREVIEW

The parameters of the preprogrammed cycles can be displayed for verification. To view an "A-F" preset program (parameter), simply press the "START/ENTER" key and the desired preset program "A-F." The light emitting diode (L.E.D.) display will read the program parameter settings, then return to the "READY" display mode. To view a "0-99" preset program parameter, simply press the "START/ENTER" key and the desired preset program number "0-99" followed by "START/ENTER" key again. The L.E.D. display will read the program parameter settings, then return to the "READY" display mode.

M. REVERSING OPTION

This feature helps reduce balling up or tangling of large items.

REVERSING OPTION SELECTIONS:

1. Reverse On or Reverse Off
2. This Is Set For Each Cycle
3. Basket (Tumbler) Spin Time and Dwell (Stop) Time
    a. Fixed in the Automatic "AUTO" Mode and **cannot** be changed.
        1) Spin Time - 2-1/2 minutes forward and 2 minute reverse.
        2) Dwell (Stop) Time - 7-seconds.
    b. Programmable in the Manual Mode.
        1) Spin Time - Programmable from 30-seconds to 120-seconds in 1-second increments.
        2) Dwell (Stop) Time - Programmable from 7-seconds to 10-seconds in 1-second increments.

N. DIAGNOSTICS

The Phase 7 OPL, microprocessor controller (computer) monitors both "Drying and Mechanical function." They are as follows:

1. Drying Functions: These include temperatures, burners, sail switches, blower, basket (tumbler), and lint drawer.
2. Mechanical Functions: These involve doors and tilts.

O. PROGRAM LOCATIONS

This is where system parameters are programmed. These system parameters (programs) are stored in memory. Access to this location is acquired by pressing the "STOP/CLEAR" [O] and the "UP ARROW" together. To exit the Programming Location, simply press the "STOP/CLEAR" [O] key. If you are several menu layers deep, continue to press the "STOP/CLEAR" [O] key to back up the menu until you are **ALL** the way out of the programming mode.

0. SELECT LANGUAGE - This menu allows the selection of five (5) different languages to operate the dryer. The language that is selected will be used for every displayed message as well as faults and menus.

ENGLISH
FRANCAIS
ESPANOL
ITALIANO
DEUTSCH

1. SELECT SYSTEM PARAMETERS - This menu level has four (4) sections. **ALL** programmable parameters other than preprogrammed cycles are done here.

   0. DRYER SETUP - **ALL** parameters that pertain to drying are in this menu level.

      0. SELECT MODEL - This allows the selection of the heat source applied to the dryer.

GAS DOUBLE BURNER
GAS SINGLE BURNER
STEAM

      1. SYSTEM TEMP - This selection controls whether the temperature-related programs will be operated in Fahrenheit (ºF) or Celsius (ºC). The programs affected are as follows:

         1) Temperature Display Mode

         2) Drying Temperatures

         3) Cool Down Temperatures

IMPORTANT: The Phase 7 OPL microprocessor controller (computer) automatically calculates and converts the temperatures in these programs to the previously set value. For example, when changing from ºF to ºC, if the preprogrammed Cycle "A" drying temperature was set for 160º F, the Phase 7 OPL microprocessor controller (computer) will change to 71º C (+/- one-degree Celsius).

      2. ENTER "A" FACTOR 1 TO 9 - This parameter (program) is one (1) of the factors that the Phase 7 OPL microprocessor controller (computer) uses when programmed in the Automatic Drying Cycle **(Patent No. 4,827,627)**. This factor pertains to the thermal characteristics of each model dryer. In this Slope Program the Phase 7 OPL microprocessor controller (computer) monitors how long it takes for the dryer to get to the selected temperature. The range of adjustment of this slope factor is 1 through 9 in increments of one (1).

1) This slope factor has been programmed by the factory as outlined in **Section IX** and **should not be** changed unless the Phase 7 OPL microprocessor controller (computer) should fail and is being replaced. The replacement Phase 7 OPL microprocessor controller (computer) **must be** programmed for the particular dryer model and heating unit as shown in the "A" and "B" factors table in **Section IX** of this manual.

NOTE: The settings made in this location are for the Manually Loaded Auto Cycles.

3. ENTER "B" FACTOR 1 TO 99 - This parameter (program) is one (1) of the factors that the Phase 7 OPL microprocessor controller (computer) uses when programmed in the Automatic Drying Cycle **(Patent No. 4,827,627)**. This factor also pertains to the thermal characteristics of each model dryer. This factor setting is dependent upon the model dryer and the type of heating unit. The range of adjustment of this slope factor is 1 through 99 in increments of one (1).

   1) This factor (factor "B") has been programmed by the factory as outlined in **Section IX** and **should not be** changed unless the Phase 7 OPL microprocessor controller (computer) should fail and is being replaced. The replacement Phase 7 OPL microprocessor controller (computer) **must be** programmed for the particular dryer model and heating unit as shown in the "A" and "B" factors table in **Section IX** of this manual.

NOTE: The settings made in this location are for the Manually Loaded Auto Cycles.

4. ENTER LINT COUNT 1 TO 5 - This selection sets the maximum amount of cycles it will run before being locked out (out of service). The operator will be prompted to clean the lint drawer to continue drying.

NOTE: A minimum of 15-seconds is required to have the lint drawer opened in order to return to the "READY" state once it is closed.

5. ENTER AUDIO ALERT ON TIMES 0 TO 10 - This selection allows the operator to adjust the amount of signal tones. This parameter (program) affects the tone at the end of the Cool Down Cycle, as well as, at the end of the Wrinkle Guard On Time.

1. COOL DOWN SETUP - The parameters that pertain to the Cool Down is in this menu level.

   0. ENTER COOL DOWN TIME 0 TO 99 MINUTES - This parameter (program) affects ONLY the Manually Loaded Auto Cycle.

   1. ENTER COOL DOWN TEMPERATURE - This parameter (program) affects ONLY the Manually Loaded Auto Cycle. The Cool Down Temperature is programmable from 70º F to 100º F (21º C to 38º C) in one-degree increments.

   2. ENTER SPIN TIME 30 TO 120-SECONDS - This parameter (program) is fixed at 2-1/2 minutes in the forward direction and 2 minutes in the reverse direction for the Automatic Mode. In the Manual Mode, it is programmable. This Spin Time is programmed here for the Manually Loaded Manual Cycle only.

   3. ENTER STOP TIME 7 TO 10-SECONDS - This parameter (program) is fixed at 7-seconds in the Automatic Mode and programmable in the Manual Mode. This Stop (Dwell) Time is programmed here for the Manually Loaded Manual Cycle only.

2. WRINKLE GUARD SETUP - The parameters that pertain to the Wrinkle Guard is in this menu level.

    0. WRINKLE GUARD AUDIO ALERT - This parameter (program) allows the operator to turn the Audio Alert tone on or off at the end of each Wrinkle Guard Cycle. The amount is the same that is selected in "DRYER SETUP" for AUDIO ALERT ON TIMES 0 TO 10.

AUDIO ALERT ON
AUDIO ALERT OFF

2. PROGRAM "A-F" CYCLE - This menu allows the programming of cycle "A-F." The parameters selected in this menu for each letter will be stored in memory for that key. This will allow the operator to utilize one (1) touch drying through keys "A-F."

3. PROGRAM "0-99" CYCLE - This menu allows the programming of cycle "0-99." The parameters selected in this menu for each number will be stored in memory for that number key(s). This will allow the operator to utilize preprogrammed drying cycles stored in memory under a numerical location.

NOTE: BOTH THE "A-F" and "0-99" ALLOWS FOR A TOTAL OF 106 PREPROGRAMMED LOCATIONS FOR CUSTOM DRYING.

4. DEFAULT SETTINGS - This menu allows the operator to set **ALL** the programmable parameters to the default settings. This option has a password selection of 1 2 3. It will then ask to confirm settings. It will default to "NO." Use the arrow keys to select "YES."

CAUTION: Once the settings have been set to their default settings, there is no way to retrieve the old settings. Use caution when using this feature.

SECTION IV
OPERATING INSTRUCTIONS

The Phase 7 OPL microprocessor controller (computer) allows the operator to choose from six (6) preprogrammed cycles (keys "A-F"). These have been preprogrammed by the factory with the parameters (programs) shown in **Section VII**. There are an additional ("0-99") preprogrammable cycles that are preprogrammed by the factory with the parameters (programs) shown in **Section VII**. For occasional or onetime special loads, the Manually Loaded Cycles can be used where the operator **must set** the specific program(s) needed.

NOTE: Refer to **Section III** of this manual for a complete explanation of the various cycles/selections available.

After the load is put into the basket (tumbler) and the dryer is ready to dry, determine which cycle will best suit the application (type of load). We recommend using the Automatic Drying Cycle **(Patent No. 4,827,627)** for most loads. This cycle provides for the best drying in the shortest time, **ALL** automatically.

A. OPERATING SEQUENCE

1. Preprogrammed Cycles

   a. Automatic Drying Cycle **(Patent No. 4,827,627)**

      1) Light emitting diode (L.E.D.) display reads "READY" (no cycle in progress).

      2) Press the letter on the keyboard (touch pad) corresponding to the cycle desired (i.e., key "A").

NOTE: "0-99" will require the "START/ENTER" key to be pressed after the number is selected in order to accept the selection and start drying.

      3) The dryer will then start. (I.e., Blower, basket [tumbler], and heat).

      4) L.E.D. display reads AUTO DRYING CYCLE "A," ELAPSED TIME __ MIN 00:00. During the drying cycle, the Phase 7 OPL microprocessor controller (computer) will monitor the amount of moisture in the load. Once the temperature is above 160º F (71º C), the Cycle Status portion of the L.E.D. will change from ELAPSED TIME __ MIN to __ % DRY. The display will count upward until the percentage of extraction programmed is reached.

NOTE: Press and hold the "UP ARROW" to view the basket (tumbler) temperature at any time.

NOTE: The dryer can be stopped at any time by pressing the "STOP/CLEAR" ⊙ key. If the temperature is above the Cool Down set point when the "STOP/CLEAR" ⊙ is pressed, the dryer will go into a Cool Down Cycle. If the "STOP/CLEAR" ⊙ key is pressed again at this point, the cycle that was in progress **will be** cancelled and returned to the "READY" state. If the temperature is below the Cool Down set point, the cycle that was in progress **will be** cancelled and go to the Wrinkle Guard.

5) Once the preprogrammed percentage of extraction (dryness level) is reached, the drying cycle will end and the Cool Down Cycle will begin.

6) Once the Cool Down Cycle begins at the end of the heat cycle, the light emitting diode (L.E.D.) display will read COOL DOWN TEMP ___/___ MINUTES REMAINING. At the end of the heat cycle, the dryer will shut off the heat and continue the fan and basket (tumbler) until the Cool Down Time or temperature is reached.

7) Once the Cool Down Cycle is completed the Phase 7 OPL microprocessor controller (computer) will proceed into the Wrinkle Guard Cycle. The Audio Alert tone will sound (for amount set in Audio Alert On Time). The L.E.D. display will read "WRINKLE GUARD." The times are fixed at 2 minutes OFF, 2 minutes ON for a maximum time of 99 minutes. These times are not programmable. During the ON time, the blower (fan) and the basket (tumbler) will start to rotate (without heat for 2 minutes). The Phase 7 OPL microprocessor controller (computer) will repeat this process until the Maximum Wrinkle Guard On Time has expired (99 minutes). The L.E.D. display will then read "CYCLE DONE" and lockout the dryer functions until the doors are opened. It will then return to "READY."

NOTE: Mechanical functions of the dryer **are not** allowed during the ON time. The blower (fan) ***must be*** OFF to perform mechanical functions. However the "STOP/CLEAR" [O] key may be pressed at any time to end the Wrinkle Guard Cycle. Mechanical functions of the dryer are allowed during the OFF time.

b. Timed (Manual) Drying Cycle

1) L.E.D. display reads "READY" (no cycle in progress).

2) Press the letter on the keyboard (touch pad) corresponding to the cycle desired (i.e., key "D").

NOTE: "0-99" WILL REQUIRE THE "START/ENTER" [I] KEY TO BE PRESSED AFTER THE NUMBER IS SELECTED IN ORDER TO ACCEPT THE SELECTION and START DRYING.

3) The dryer will then start. (I.e, blower, basket [tumbler], and heat).

4) The L.E.D. display will read MANUAL DRYING CYCLE D, 00:00 MIN REMAIN.

NOTE: Press and hold the "UP ARROW" to view the basket (tumbler) temperature at any time.

NOTE: The dryer can be stopped at any time by pressing the "STOP/CLEAR" [O] key. If the temperature is above the Cool Down set point when the "STOP/CLEAR" [O] is pressed, the dryer will go into a Cool Down Cycle. If the "STOP/CLEAR" [O] key is pressed again at this point, the cycle that was in progress **will be** cancelled and returned to the "READY" state. If the temperature is below the Cool Down set point, the cycle that was in progress **will be** cancelled and go to the Wrinkle Guard.

NOTE: Press and hold the "DOWN ARROW" to view the basket (tumbler) RPM.

5) When the programmed drying time has expired, the Phase 7 OPL microprocessor controller (computer) will proceed into the Cool Down Cycle.

6) Once the Cool Down Cycle begins at the end of the heat cycle, the light emitting diode (L.E.D.) display will read COOL DOWN TEMP ___/___ MINUTES REMAINING. At the end of the heat cycle, the dryer will shut off the heat and continue the fan and basket (tumbler) until the Cool Down Time or temperature is reached.

7) Once the Cool Down Cycle is completed the Phase 7 OPL microprocessor controller (computer) will proceed into the Wrinkle Guard Cycle. The Audio Alert tone will sound (for amount set in Audio Alert On Time). The L.E.D. display will read "WRINKLE GUARD." The times are fixed at 2 minutes OFF, 2 minutes ON for a maximum time of 99 minutes. These times are not programmable. During the ON time, the blower (fan) and the basket (tumbler) will start to rotate (without heat for 2 minutes). The Phase 7 OPL microprocessor controller (computer) will repeat this process until the Maximum Wrinkle Guard On Time has expired (99 minutes). The L.E.D. display will then read "CYCLE DONE" and lockout the dryer functions until the doors are opened. It will then return to "READY."

NOTE: Mechanical functions of the dryer **are not** allowed during the ON time. The blower (fan) ***must be*** OFF to perform mechanical functions. However the "STOP/CLEAR" [O] key may be pressed at any time to end the Wrinkle Guard Cycle. Mechanical functions of the dryer are allowed during the OFF time.

2. Manually Loaded Cycles

a. Automatic Drying Cycle **(Patent No. 4,827,627)**

1) L.E.D. display reads "READY" (no cycle in progress).

2) Press [AUTO] key.

3) L.E.D. display will now read ENTER DRY TEMP 160 TO 200. (Defaults to 160° F [71° C]). Enter the temperature desired (from 160º F to 200º F [71º C to 93º C] in one-degree increments). I.e., for 180º F (82º C), press key "1," key "8," key "0," and then press the "START/ENTER" [I] key to accept the value.

4) L.E.D. display will now read ENTER DRY LEVEL 90 TO 100. Enter the percentage of extraction (dryness level desired) from ninety percent (90%) to one hundred percent (100%) in one percent (1%) increments (defaults to 100%). I.e., for ninety-five percent (95%), press key "9," key "5," and then press the "START/ENTER" [I] key to accept the value.

5) L.E.D. display will now read "REVERSE MODE" (defaults to ON). The ON/OFF selection can be toggled with the "UP ARROW" and "DOWN ARROW." Once selected, press the "START/ENTER" [I] key to accept selection.

NOTE: In addition to entering a value by pressing the number keys, the "UP ARROW" and "DOWN ARROW" can be used to scroll to the number desired or toggle between selections.

6) The dryer will now display "PRESS START." Press the "START/ENTER" [I] key to start the dryer. The L.E.D. display will read AUTO DRYING CYCLE, ELAPSED TIME __ MIN. During the Drying Cycle, the Phase 7 OPL microprocessor controller (computer) is monitoring the moisture in the load. Once the temperature is above 160º F (71º C), the Cycle Status portion of the L.E.D. will change from ELAPSED TIME __ MIN to __ % DRY. The display will count upward until the percentage of extraction programmed is reached.

NOTE: Press and hold the "UP ARROW" to view the basket (tumbler) temperature at any time.

NOTE: The dryer can be stopped at any time by pressing the "STOP/CLEAR" [O] key. If the temperature is above the Cool Down set point when the "STOP/CLEAR" [O] key is pressed, then it will go into a Cool Down Cycle. If the "STOP/CLEAR" [O] key is pressed again at this point, the cycle that was in progress **will be** cancelled and returned to the "READY" state. If the temperature is below the Cool Down set point, the cycle that was in progress **will be** cancelled and go to the Wrinkle Guard.

NOTE: Press and hold the "DOWN ARROW" to view the basket (tumbler) RPM.

7) Once the preprogrammed percentage of extraction (dryness level) is reached, the drying cycle will end, and the Cool Down Cycle will begin.

8) Once the Cool Down Cycle begins at the end of the heat cycle, the light emitting diode (L.E.D.) display will read COOL DOWN TEMP ___/___MINUTES REMAINING. At the end of the heat cycle, the dryer will shut off the heat and continue the fan and basket (tumbler) until the Cool Down Time or temperature is reached.

9) Once the Cool Down Cycle is completed the Phase 7 OPL microprocessor controller (computer) will proceed into the Wrinkle Guard Cycle. The Audio Alert tone will sound (for amount set in Audio Alert On Time). The L.E.D. display will read "WRINKLE GUARD." The times are fixed at 2 minutes OFF, 2 minutes ON for a maximum time of 99 minutes. These times are not programmable. During the ON time, the blower (fan) and the basket (tumbler) will start to rotate (without heat for 2 minutes). The Phase 7 OPL microprocessor controller (computer) will repeat this process until the Maximum Wrinkle Guard On Time has expired (99 minutes). The L.E.D. display will then read "CYCLE DONE" and lockout the dryer functions until the doors are opened. It will then return to "READY."

NOTE: Mechanical functions of the dryer **are not** allowed during the ON time. The blower (fan) ***must be*** OFF to perform mechanical functions. However the "STOP/CLEAR" [O] key may be pressed at any time to end the Wrinkle Guard Cycle. Mechanical functions of the dryer are allowed during the OFF time.

b. Timed (Manual) Drying Cycle

1) L.E.D. display reads "READY" (no cycle in progress).

2) Press [MAN] key.

3) L.E.D. display will now read "ENTER DRY TIME 0 TO 99 MINUTES" (defaults to 0). I.e., for 40 minutes, press key "4," key "0," and then press the "START/ENTER" [I] key to accept the value.

4) L.E.D. display will now read "ENTER DRY TEMP __ TO __" (defaults to 100° F [38° C]). Enter the temperature desired (from 100º F to 200º F [38º C to 93º C] in one-degree increments). I.e., for 182º F (83º C), press key "1," key "8," key "2," and then press the "START/ENTER" [I] key to accept the value.

5) Light emitting diode (L.E.D.) display will now read "ENTER COOL DOWN TIME 0 TO 99 MINUTES." I.e., for 10 minutes, press key "1," key "0," and then press the "START/ENTER" [I] key to accept the value.

6) L.E.D. display will now read "REVERSE MODE" (defaults to ON). The ON/OFF selection can be toggled with the "UP ARROW" and "DOWN ARROW." Once selected, press the "START/ ENTER" [I] key to accept selection.

7) The dryer will now display "PRESS START." Press the "START/ENTER" [I] key to start the dryer. The L.E.D. display will read MANUAL DRYING CYCLE, __MINUTES REMAIN.

NOTE: The dryer can be stopped at any time by pressing the "STOP/CLEAR" [O] key. If the temperature is above the Cool Down set point when the "STOP/CLEAR" [O] key is pressed, then it will go into a Cool Down Cycle. If the "STOP/CLEAR" [O] key is pressed again at this point, the cycle that was in progress **will be** cancelled and returned to the "READY" state. If the temperature is below the Cool Down set point, the cycle that was in progress **will be** cancelled and go to the Wrinkle Guard.

8) Once the programmed drying time has expired, the Phase 7 OPL microprocessor controller (computer) will proceed into the Cool Down Cycle (Mode).

9) Once the Cool Down Cycle begins at the end of the heat cycle, the L.E.D. display will read COOL DOWN TEMP ___/___ MINUTES REMAINING. At the end of the heat cycle, the dryer will shut off the heat and continue the fan and basket (tumbler) until the Cool Down Time or temperature is reached.

10) Once the Cool Down Cycle is completed the Phase 7 OPL microprocessor controller (computer) will proceed into the Wrinkle Guard Cycle. The Audio Alert tone will sound (for amount set in Audio Alert On Time). The L.E.D. display will read "WRINKLE GUARD." The times are fixed at 2 minutes OFF, 2 minutes ON for a maximum time of 99 minutes. These times are not programmable. During the ON time, the blower (fan) and the basket (tumbler) will start to rotate (without heat for 2 minutes). The Phase 7 OPL microprocessor controller (computer) will repeat this process until the Maximum Wrinkle Guard On Time has expired (99 minutes). The L.E.D. display will then read "CYCLE DONE" and lockout the dryer functions until the doors are opened. It will then return to "READY."

NOTE: Mechanical functions of the dryer **are not** allowed during the OM time. The blower (fan) ***must be*** OFF to perform mechanical functions. However the "STOP/CLEAR" [O] key may be pressed at any time to end the Wrinkle Guard Cycle. Mechanical functions of the dryer are allowed during the OFF time.

B. OPERATING NOTES

1. **ALL** mechanical functions on an Auto machine (doors/tilt) can only take place when the blower (fan) is turned off. I.e., if the selector switch for opening the doors is selected while in a drying cycle, there will be no action until the blower (fan) is turned off.

2. On a Manual machine, the Phase 7 OPL microprocessor controller (computer) will display a fault condition and stop the cycle if the doors open or machine tilts in the middle of a cycle. (Blower still on).

3. The RPM of the basket (tumbler) can be displayed by pressing and holding the "DOWN ARROW" key while a cycle is in progress. If cycle has not been started, the display will read CPU Board Voltage Value. (23-26 Volts is normal).

4. The dryer can be stopped at anytime by pressing the "STOP/CLEAR" O key. If the temperature is above the Cool Down set point when the "STOP/CLEAR" O key is pressed, the dryer will go into a Cool Down Cycle. If the "STOP/CLEAR" O key is pressed again at this point, the cycle that was in progress will be cancelled and returned to the "READY" state. If the temperature is below the Cool Down set point, the cycle that was in progress will be cancelled and go to the Wrinkle Guard.

5. When programming a Manually Loaded Cycle, if an error is made making an entry, press the "STOP/CLEAR" O key ONCE, and the entry will be cancelled. Reenter the selection. If the selection is entered and an error is made, the "STOP/CLEAR" O key will cancel the program and return to the "READY" state.

6. Use the "UP ARROW" and "DOWN ARROW" to scroll through menus or increase/decrease number values or toggle between choices.

7. In the programming mode, the number of keys can be used to jump to menu levels without scrolling through them **ALL**. I.e., from 0 select Model in "DRYER SETUP"; you can jump to menu level five (5). Enter lint count under "DRYER SETUP" by pressing the five (5) key followed by "START/ENTER" I key to accept value. Light emitting diode (L.E.D.) display will read five (5): ENTER Lint Count 1 to 5.

8. The basket (tumbler) temperature can be displayed by pressing and holding the "UP ARROW" key.

9. The programmed cycle parameter can be viewed by pressing the "START/ENTER" I key followed by the "A-F" key. To view "0-99" cycles, press "START/ENTER" I key followed by the number desired to view followed by "START/ENTER" I key. The viewing can be stopped by pressing the "STOP/CLEAR" O key at anytime.

SECTION V
L.E.D. DISPLAY MESSAGES

The light emitting diode (L.E.D.) display informs the operator of cycle status, program verification, and displays important diagnostic messages and fault information.

A. L.E.D. DISPLAY OPERATING STATUS

1. Cycles in Progress

   a. While the dryer is operating, the L.E.D. display will read which cycle is in progress. I.e., in a Manual Drying Cycle (Mode), the L.E.D. display will read "MANUAL DRYING CYCLE." In the Cool Down Cycle (Mode) the L.E.D. display will read "COOL DOWN TEMP __, __ MINUTES REMAIN."

2. Cycle Status

   a. While a cycle is in progress, the L.E.D. display will show the progress of the cycle that is being processed.

      1) Automatic Drying Cycle

         a) While a cycle is in progress the cycle status will display ELAPSED TIME __ MIN. During the Drying Cycle, the Phase 7 OPL microprocessor controller (computer) is monitoring the moisture in the load. Once the temperature has reached set point temperature and cycled ON/OFF for three (3) times, the cycle status portion of the L.E.D. will change from ELAPSED TIME __ MIN to __% DRY. The display will count upward until the percentage of extraction programmed is reached.

      2) Timed (Manual) Drying Cycle

         a) While a cycle is in progress the cycle status will display __ MINUTES REMAIN.

3. Alternate Display Programs

   a. The basket's (tumbler's) RPM can be displayed by pressing and holding the "DOWN ARROW" key while a cycle is in progress. If a cycle is not in progress, the board voltage is displayed.

   b. The basket (tumbler) temperature can be displayed by pressing and holding the "UP ARROW" key at any time.

B. DISPLAY MESSAGES

AUDIO ALERT OFF
AUDIO ALERT ON
AUTO

AUTO DRYING CYCLES __, DRYING TEMP __, DRYING LEVEL __
MANUAL DRYING CYCLES __, DRYING TEMP __, DRYING TIME __, MINUTES
AUTO DRYING CYCLES __, ELAPSE TIME __ : __ MINUTES
AUTO DRYING CYCLES, __ % DRY
MANUAL DRYING CYCLES __, __ :__ MINUTES REMAIN
COOL DOWN TEMP __, __ : __ MINUTES REMAIN
COOL DOWN TEMP __, COOL DOWN TIME __ MINUTES

BAD PROBE
CALL FOR SERVICE
CHECK CONTROL POWER
CLEAN LINT DRAWER
CONFIRM DEFAULTS
COOL DOWN SETUP
CYCLE DONE
DEFAULT SET
DEFAULT SETTINGS
DEG C
DEG F
DEUTSCH
DRY ENABLE FAULT
DRYER SETUP

ENGLISH
ENTER 00-99
ENTER “A” FACTOR 1 TO 9
ENTER AUDIO ALERT ON TIMES 0 TO 10-SECONDS
ENTER “B” FACTOR 1 TO 99
ENTER LINT COUNT 1 TO 5
ENTER COOL DOWN TEMP __ TO __
ENTER COOL DOWN TIME 0 TO 99 MINUTES
ENTER DRY LEVEL 90 TO 100 __ %
ENTER DRY TEMP __ TO __
ENTER DRY TIME 0 TO 99 MINUTES
ENTER PASSWORD
ENTER SPIN TIME 30 TO 120-SECONDS
ENTER STOP TIME 7 TO 10-SECONDS
ESPANOL
ERROR ERROR
EXHAUST HIGH LIMIT FAULT
EXHAUST HIGH TEMP FAULT

FACTOR “A” __
FACTOR “B” __
FAN CONTACTOR FAULT
FAN OVERLOAD FAULT
FRANCAIS
FRONT BURNER HIGH LIMIT FAULT
FRONT BURNER IGNITION CONTROL FAULT
FRONT BURNER VALVE FAULT
FRONT DOORS NOT CLOSED
FRONT NOT DOWN
FRONT SAIL SWITCH CLOSE FAULT
FRONT SAIL SWITCH OPEN FAULT

GAS DOUBLE BURNER
GAS SINGLE BURNER
ITALIANO
LINT DRAWER OPEN
LOW VOLTAGE FAULT
MANUAL
MODEL ERROR, ENTER CORRECT MODEL
NO
OFF
ON
PRESS START
PROGRAM 00-99 CYCLE
PROGRAM “A-F” CYCLE
READY
REAR BURNER IGNITION CONTROL FAULT
REAR BURNER HIGH LIMIT FAULT
REAR BURNER VALVE FAULT
REAR DOORS NOT CLOSED
REAR NOT DOWN
REAR SAIL SWITCH CLOSE FAULT
REAR SAIL SWITCH OPEN FAULT
ROTATION FAULT

SELECT “A-F” KEY
SELECT CYCLE TYPE
SELECT LANGUAGE
SELECT MODEL
SELECT SYSTEM PARAMETERS
SENSOR OFF
SENSOR ON
SPIN TIME __
STEAM
STOP TIME __
SYSTEM TEMP

TUMBLER OVERLOAD FAULT
VIEW CYCLE?
WRINKLE GUARD
WRINKLE GUARD AUDIO ALERT
WRINKLE GUARD SETUP
YES

SECTION VI
PROGRAMMING INSTRUCTIONS

A. INTRODUCTION TO PROGRAMMING

The various program selections are stored in the Phase 7 OPL microprocessor controller (computer) and are broken down into five (5) categories:

0. Language (ENGLISH, FRANCAIS, ESPANOL, ITALIANO, and DEUTSCH).

1. System Parameters (Dryer Setup, Display Setup, Cool Down Setup, and Wrinkle Guard Setup).

2. Preprogrammed Cycles (Key "A-F").

    a. This feature allows the operator to have six (6) most commonly used cycle selections awaiting the push of a single keyboard (touch pad) entry to start the dryer.

3. Preprogrammed Cycles ("0-99").

    a. This feature allows the operator to have an added one hundred (100) preprogrammed cycle selections. These can be started by selecting the number and pressing the "START/ENTER" [I] key.

4. Default Settings (returns **ALL** the programmable parameters to the default settings).

Both the preprogrammed cycles and the system parameters (programs) have been preprogrammed by the factory with the parameters shown in **Section VII** of this manual. The various program selections for the preprogrammed cycles and system parameters are outlined in **Section III** of this manual.

ALL program changes for the preprogrammed cycles and system parameters (programs) 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 light emitting diode (L.E.D.) display reads "READY," then press the "STOP/CLEAR" [O] key and the "UP ARROW" key together. This will put you into the programming mode.

EXITING THE PROGRAMMING MODE:

The "STOP/CLEAR" [O] key will return you to the previous menu level. Continue to press the "STOP/CLEAR" [O] key until you are **ALL** the way out of the Programming Mode.

To alter the programming parameters, the operator will locate the parameter (program) that is to be changed. If the change is a numerical one (1) (i.e., time and/or temperature), the operator will simply enter the numerical value desired. If an error is made, press the "STOP/CLEAR" [O] 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 "START/ENTER" [I] key and the Phase 7 OPL microprocessor controller (computer) will advance to the next program selected.

If the parameter (program) change is a feature change, such as changing the temperature conversion from degree Fahrenheit (ºF) to degree Celsius (ºC) or from "AUTO" (Automatic Drying Cycle - **[Patent No. 4,827,627]**) to "MANUAL" (Timed [Manual] Drying Cycle), the operator will press and hold the "UP ARROW" or "DOWN ARROW" key. This will toggle between choices. Once the entry is made or if the parameter (program) does not need to be changed, press the "START/ENTER" key and the Phase 7 OPL microprocessor controller (computer) will advance to the next program selection.

When making numerical changes, please keep in mind to stay within the programming limits shown. If an erroneous entry is made, the Phase 7 OPL microprocessor controller (computer) will display "ERROR" and ignore the entry made when the "START/ENTER" key is pressed and will return to the numerical value previously set.

The Phase 7 OPL microprocessor controller (computer) allows the operator to scroll through the various parameters (programs) and select the parameter to be changed. At this point, the operator can go to the next Program Location (system parameter) to be changed. If no other programs (parameters) need to be changed, the user can get out of the program mode by pressing the "STOP/CLEAR" key until it is out of the programming mode. The Phase 7 OPL microprocessor controller (computer) will be returned to the operating mode, and the light emitting diode (L.E.D.) display will read "READY."

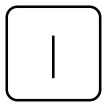
B. PROGRAMMING FLOW CHARTS

The following section of this manual (**page 28 through page 43**) explains the programming of the preprogrammed cycles and Program Locations (system parameters) through the use of flow charts. A flow chart is nothing more than a diagram of the programming process.

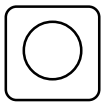
Four (4) different symbols will be used in these flow charts:

a rectangle 

a square 

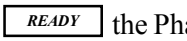


START/ENTER



STOP/CLEAR

Each rectangle will represent a readout on the Phase 7 OPL microprocessor controller (computer) L.E.D. display, and each square will represent a key that is pressed. For example:

1. If the flow chart shows the symbol  the Phase 7 OPL microprocessor controller (computer) L.E.D. display will read the same.
2. If the flow chart shows the symbol  you will press that specific key on the keyboard (touch pad) label.
3. This symbol represents "STOP/CLEAR." 
4. This symbol represents "START/ENTER." 
   a. The flow chart arrows (i.e., ⟶) represents the program path.
   b. On the sides of these flow charts are explanations of the flow chart procedure, and in some cases the programming limits.

Listed below, is an index of the flow charts on the following pages.

Flow Chart Titles

NOTE: To review the preset Program Locations, simply press the "START/ENTER" key followed by the letter location while the light emitting diode (L.E.D.) display reads "READY." To review a number location, simply follow the same process as a letter with the addition of the "START/ENTER" key being pressed again after the number is selected.

PHASE 7
MENU PROGRAMMING PROCEDURE

EVERY INDENTED STEP REPRESENTS THE "START/ENTER" KEY BEING PRESSED TO SELECT A MENU ITEM. EVERY MESSAGE WITH A NUMBER BEFORE IT, INDICATES THAT IT IS A MENU SELECTION CHOICE. EVERY MESSAGE WITHOUT A NUMBER BEFORE IT, INDICATES THAT IT IS THE LAST MENU LEVEL.

I.E. MENU FLOW

FROM **("1: SELECT SYSTEM PARAMETERS")**
PRESSING **"START/ENTER"** PUTS YOU AT **(0: DRYER SETUP)**
PRESSING **"UP ARROW"** PUTS YOU AT **(1: COOL DOWN SETUP)**
PRESSING **"DOWN ARROW"** PUTS YOU BACK AT **(0: DRYER SETUP)**

PROGRAMMING MODE:

ENTERING:

MUST BE IN THE "READY" STATE.
PRESS "STOP/CLEAR" and "UP ARROW" KEY TOGETHER.
(THIS WILL GET YOU INTO THE PROGRAMMING MODE.)

EXITING:

PRESSING THE "STOP/CLEAR" KEY REPEATEDLY UNTIL YOU ARE BACK TO THE "READY" DISPLAY. THE "STOP/CLEAR" KEY WILL BRING YOU BACK ONE (1) MENU LEVEL AT A TIME. AT THE FIRST MENU LEVEL, IT WILL EXIT YOU FROM THE PROGRAMMING MODE and RETURN TO THE "READY" STATE.

NOTES:

THE "UP ARROW" and "DOWN ARROW" KEYS ARE USED TO SCROLL UP and DOWN A MENU SELECTION.

THE NUMBER KEYS CAN ALSO BE USED TO BRING YOU DIRECTLY TO A KNOWN MENU ITEM. PRESS THE NUMBER YOU WANT FOLLOWED BY THE "START/ENTER" KEY TO BRING YOU RIGHT TO THE MENU CHOICE ASSIGNED TO THE NUMBER SELECTED.

0: SELECT LANGUAGE
ENGLISH
FRANCAIS
ESPANOL
ITALIANO
DEUTSCH

1: SELECT SYSTEM PARAMETERS

0: DRYER SETUP

0: SELECT MODEL
GAS DOUBLE BURNER
GAS SINGLE BURNER
STEAM
1: SYSTEM TEMP
DEG F
DEG C
2: ENTER “A” FACTOR 1 TO 9
“A” = 5 (5 = DEFAULT VALUE)
3: ENTER “B” FACTOR 1 TO 99
“B” = 78 (78 = DEFAULT VALUE)
4: ENTER LINT COUNT 1 TO 5
5 (5 = DEFAULT VALUE)
5: ENTER AUDIO ALERT ON TIMES 0 TO 10
5 (5 = DEFAULT VALUE)

1: COOL DOWN SETUP

0: ENTER COOL DOWN TIME 0 TO 99 MINUTES
3 (3 = DEFAULT VALUE)
1: ENTER COOL DOWN TEMP 70º TO 100º F
100º F (100º F = DEFAULT VALUE)
2: ENTER SPIN TIME 30 TO 120-SECONDS
60 SEC (60 = DEFAULT VALUE)
3: ENTER STOP TIME 7 TO 10-SECONDS
7 SEC (7 = DEFAULT VALUE)

2: WRINKLE GUARD SETUP

0: WRINKLE GUARD AUDIO ALERT
AUDIO ALERT ON
AUDIO ALERT OFF

2: PROGRAM “A-F” CYCLE

SELECT “A-F” KEY
* (“*” DISPLAY THE LETTER CHOSEN. DEFAULTS TO “A”)
SELECT CYCLE TYPE
* (“*” DISPLAY THE CYCLE TYPE “AUTO” or “MANUAL”)

AUTO

0: REVERSE MODE
ON
OFF
1: ENTER DRY TEMP 160º TO 200º F
*** F (“***” = THE DEFAULT DRY TEMP FOR THAT CYCLE)
2: ENTER DRY LEVEL 90 TO 100%
*** % (“***” = THE DEFAULT DRY LEVEL FOR THAT CYCLE)
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
** MIN (“***” = THE DEFAULT TIME FOR THAT CYCLE)
4: ENTER COOL DOWN TEMP 70º TO 100º F
*** F (“***” = THE DEFAULT TEMP FOR THAT CYCLE)
5: ENTER “A” FACTOR 1 TO 9
“A” = 5 (5 = DEFAULT VALUE)
6: ENTER “B” FACTOR 1 TO 99
“B” = 78 (78 = DEFAULT VALUE)

MANUAL

0: REVERSE MODE
ON
OFF
1: ENTER DRY TIME 0 TO 99 MINUTES
** MIN (“**” = THE DEFAULT MINUTES FOR THAT CYCLE)
2: ENTER DRY TEMP 100º TO 200º F
*** F (“***” = THE DEFAULT DRY TEMP FOR THAT CYCLE)
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
** MIN (“**” = THE DEFAULT TIME FOR THAT CYCLE)
4: ENTER COOL DOWN TEMP 70º TO 100º F
*** F (“***” = THE DEFAULT TEMP FOR THAT CYCLE)
5: ENTER SPIN TIME 30 TO 120-SECONDS
*** SEC (“***” = THE DEFAULT TIME FOR THAT CYCLE)
6: ENTER STOP TIME 7 TO 10-SECONDS
*** SEC (“***” = THE DEFAULT TIME FOR THAT CYCLE)

3: PROGRAM “0-99” CYCLE

SELECT “0-99” CYCLE
** (“**” DISPLAY THE NUMBER CHOSEN. DEFAULTS TO “0”)
SELECT CYCLE TYPE
* (“*” DISPLAY THE CYCLE TYPE “AUTO” or “MANUAL”)

AUTO

0: REVERSE MODE
ON
OFF
1: ENTER DRY TEMP 160º TO 200º F
*** F (“***” = THE DEFAULT DRY TEMP FOR THAT CYCLE)
2: ENTER DRY LEVEL 90 TO 100%
*** % (“***” = THE DEFAULT DRY LEVEL FOR THAT CYCLE)
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
** MIN (“***” = THE DEFAULT TIME FOR THAT CYCLE)
4: ENTER COOL DOWN TEMP 70º TO 100º F
*** F (“***” = THE DEFAULT TEMP FOR THAT CYCLE)
5: ENTER “A” FACTOR 1 TO 9
“A” = 5 (5 = DEFAULT VALUE)
6: ENTER “B” FACTOR 1 TO 99
“B” = 78 (78 = DEFAULT VALUE)

MANUAL

0: REVERSE MODE
ON
OFF
1: ENTER DRY TIME 0 TO 99 MINUTES
** MIN (“**” = THE DEFAULT MINUTES FOR THAT CYCLE)
2: ENTER DRY TEMP 100º TO 200º F
*** F (“***” = THE DEFAULT DRY TEMP FOR THAT CYCLE)
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
** MIN (“**” = THE DEFAULT TIME FOR THAT CYCLE)
4: ENTER COOL DOWN TEMP 70º TO 100º F
*** F (“***” = THE DEFAULT TEMP FOR THAT CYCLE)
5: ENTER SPIN TIME 30 TO 120-SECONDS
*** SEC (“***” = THE DEFAULT TIME FOR THAT CYCLE)
6: ENTER STOP TIME 7 TO 10-SECONDS
*** SEC (“***” = THE DEFAULT TIME FOR THAT CYCLE)

4: DEFAULT SETTINGS

ENTER PASSWORD
(PRESS “1” “2” “3”)
CONFIRM DEFAULTS
NO (DEFAULT VALUE)
YES

NOTE: "NO" WILL RETURN YOU BACK TO "4: DEFAULT SETTINGS"
"YES" WILL SET **ALL** THE PARAMETERS TO THE DEFAULT SETTINGS. DISPLAY WILL READ "DEFAULTS SET" and RETURN TO "4: DEFAULT SETTINGS"

MANUALLY LOADED MANUAL CYCLE:

FROM "READY" STATE
(PRESS "MAN" KEY)

ENTER DRY TIME 0 TO 99 MINUTES
0 MIN (0 = DEFAULT VALUE)

ENTER DRY TEMP 100º TO 200º F (38º C TO 93º C)
100º F (38º C) (100 = DEFAULT VALUE)

ENTER COOL DOWN TIME 0 TO 99 MINUTES
3 MIN (3 = DEFAULT VALUE)

REVERSE MODE
ON
OFF

PRESS START

MANUALLY LOADED AUTO CYCLE

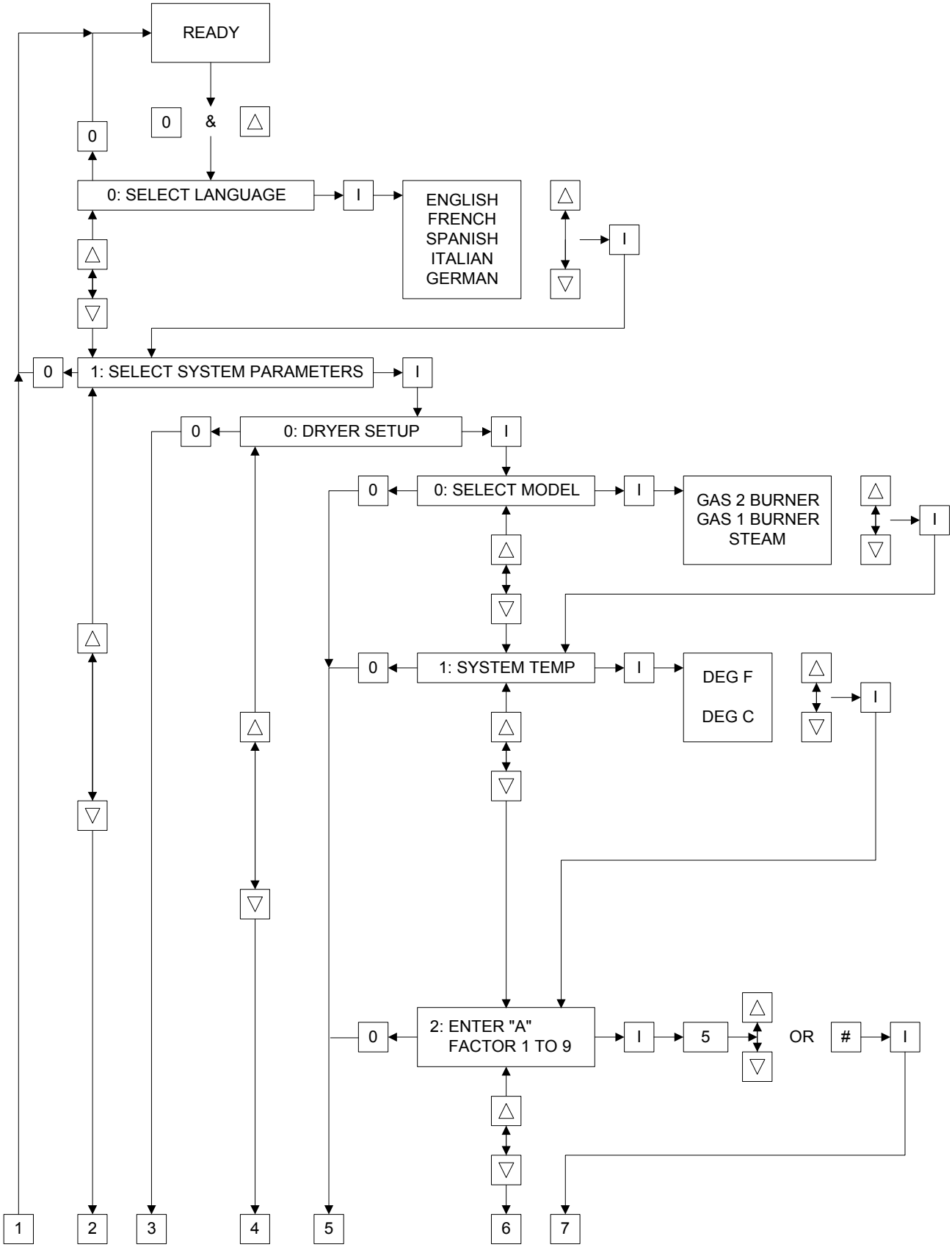
FROM "READY" STATE
(PRESS "AUTO" KEY)

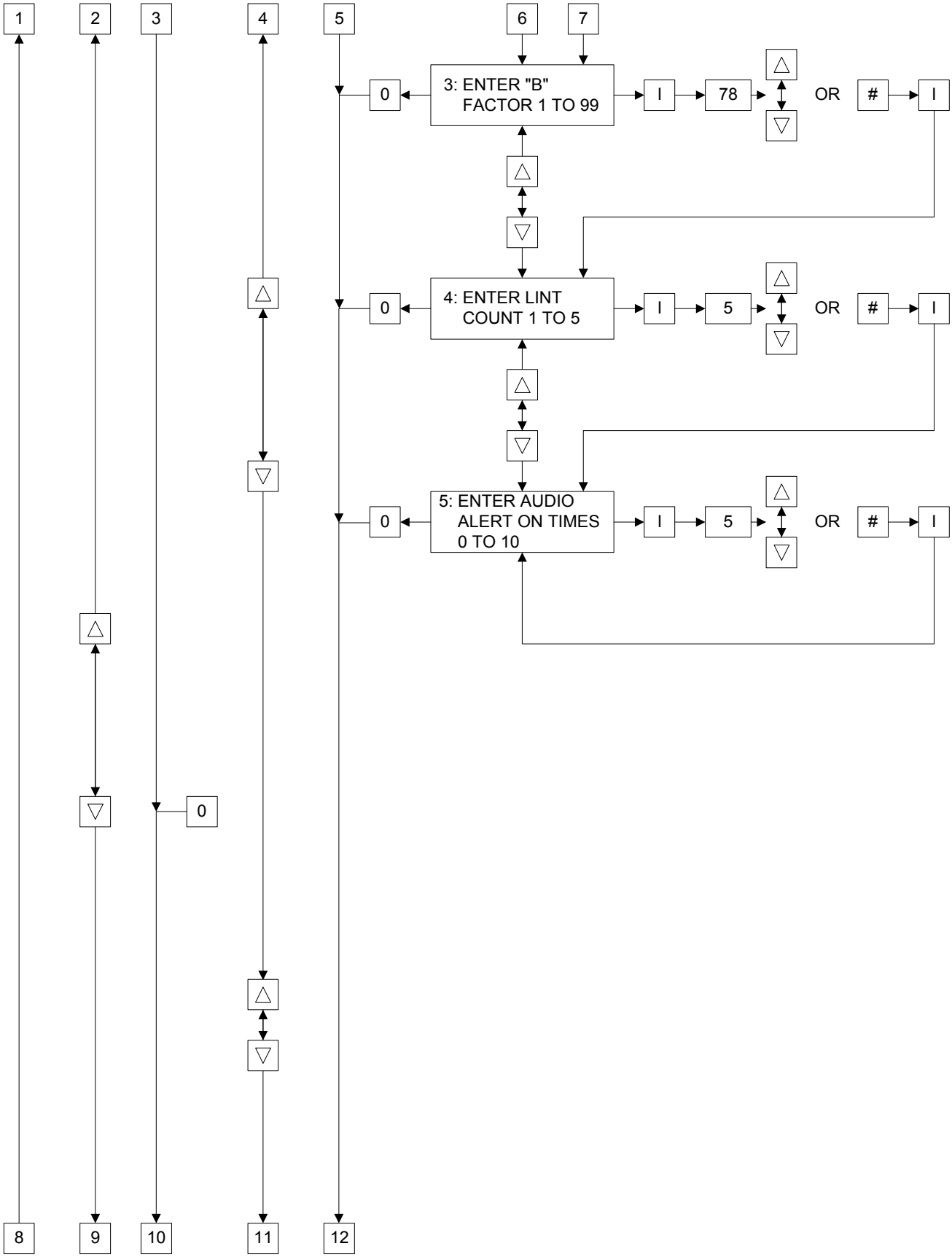
ENTER DRY TEMP 160º TO 200º F (71º C TO 93º C)
160º F (71º C) (160 = DEFAULT VALUE)

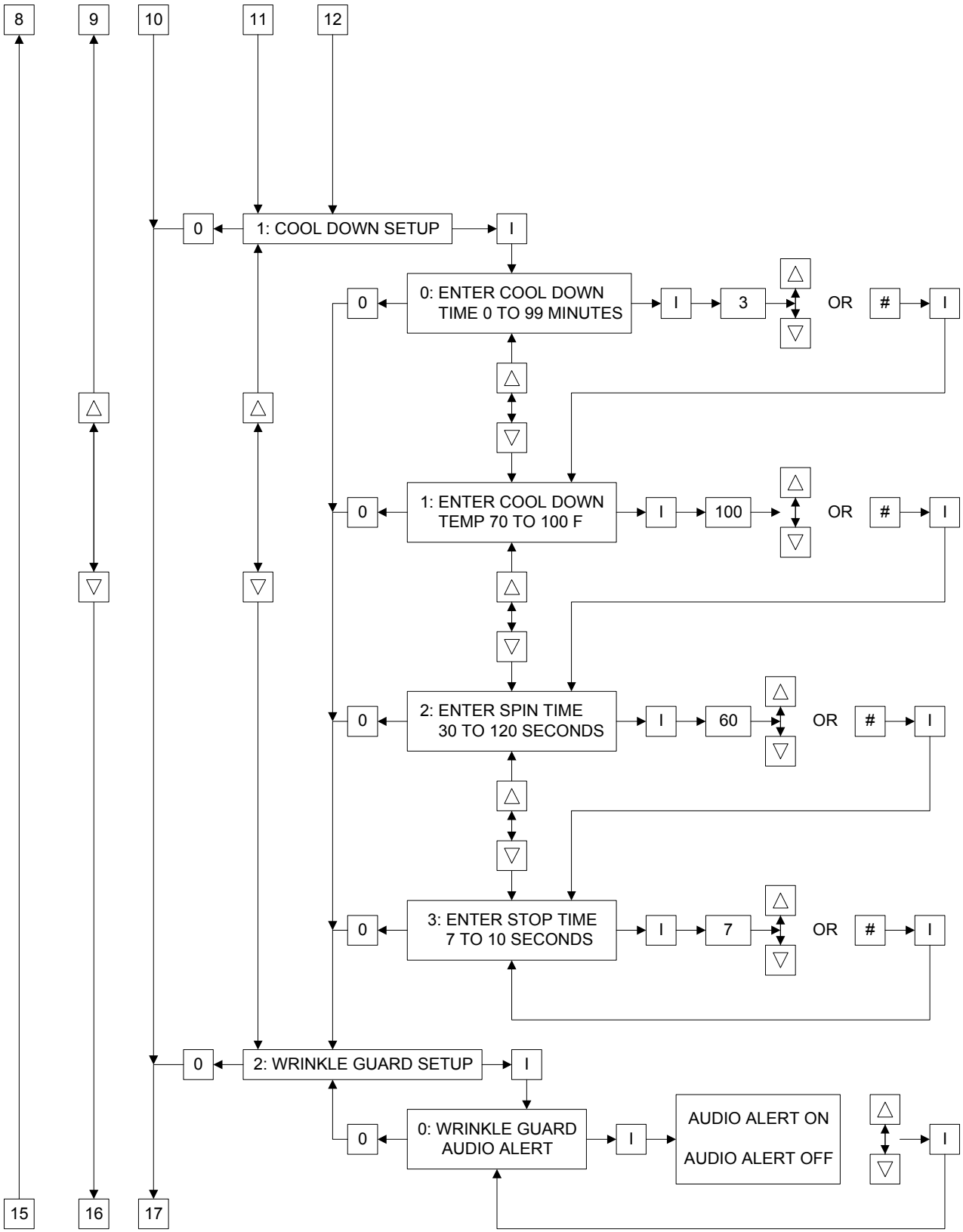
ENTER DRY LEVEL 90 TO 100%
100% (100 = DEFAULT VALUE)

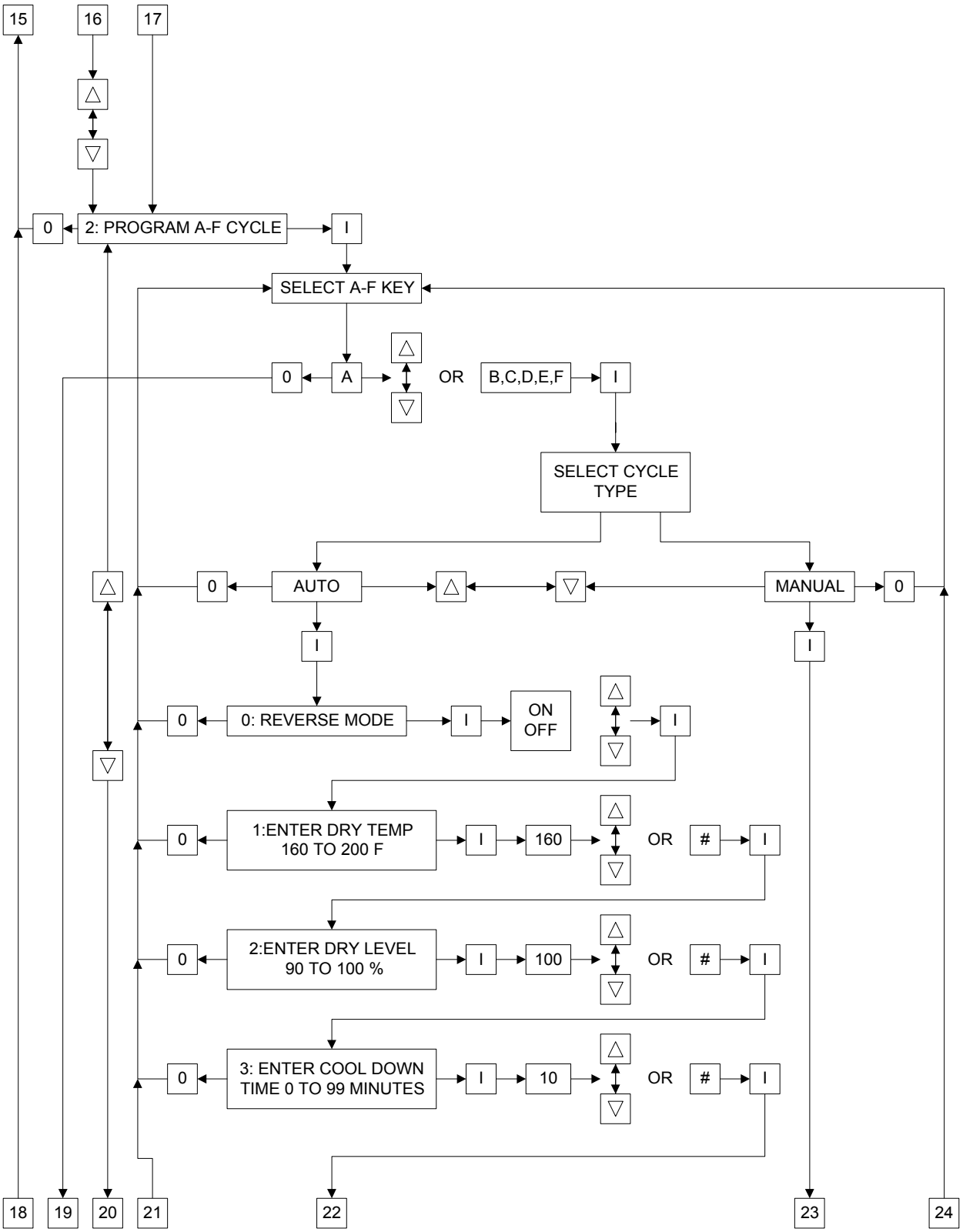
REVERSE MODE
ON
OFF

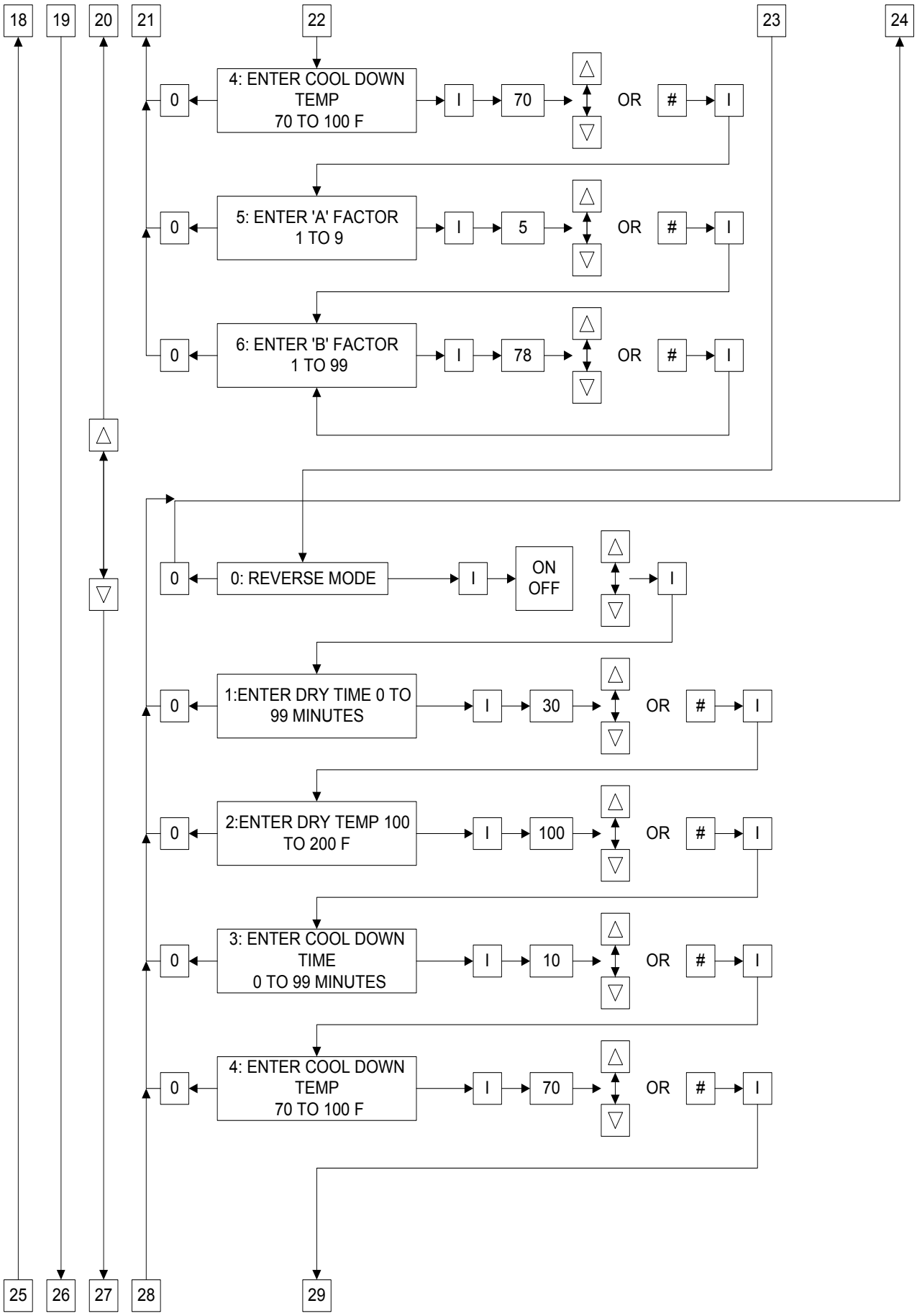
PRESS START

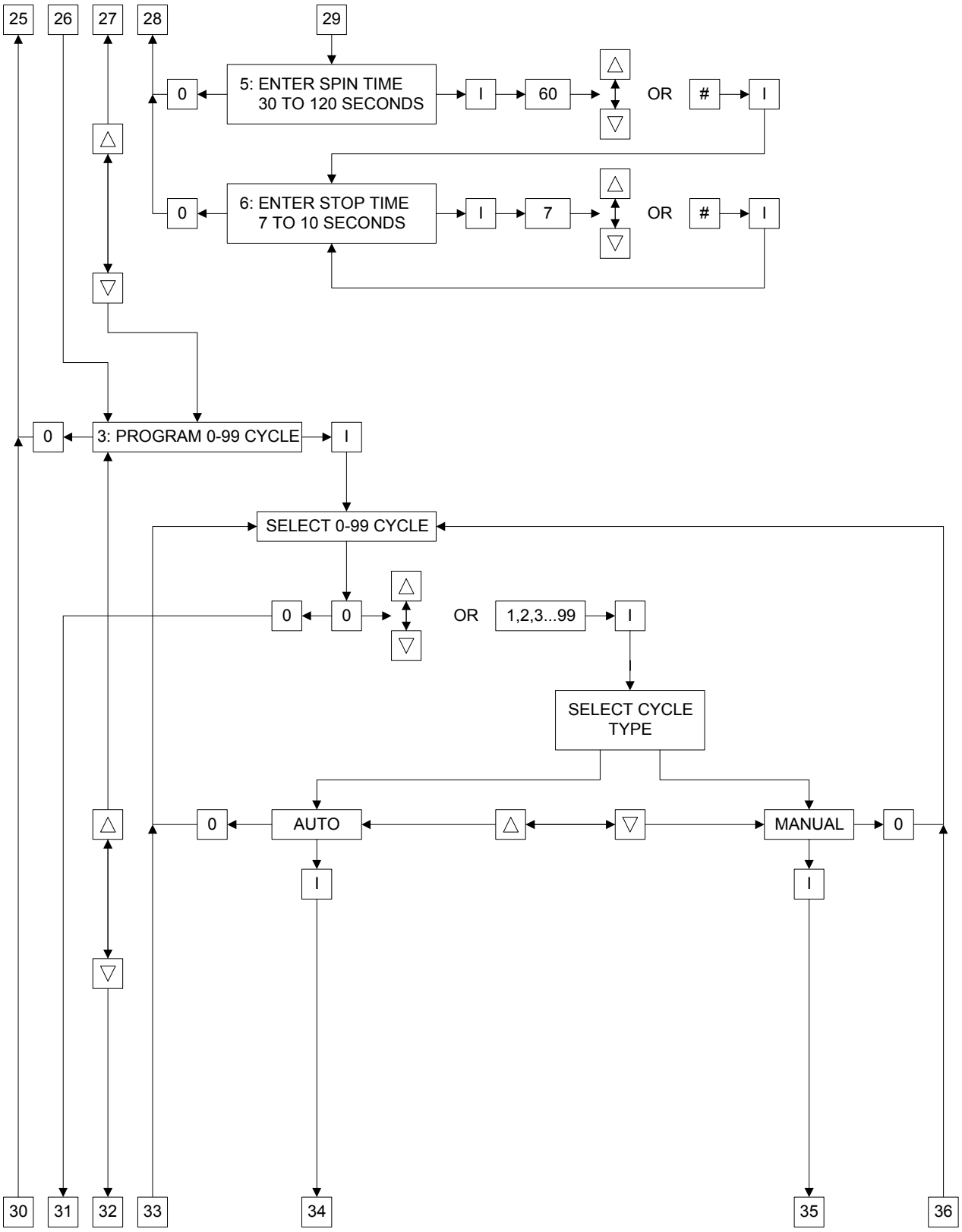

READY
0
&
△
0
0: SELECT LANGUAGE
I
ENGLISH
FRENCH
SPANISH
ITALIAN
GERMAN
△
▽
I
△
▽
0
1: SELECT SYSTEM PARAMETERS
I
0
0: DRYER SETUP
I
0
0: SELECT MODEL
I
GAS 2 BURNER
GAS 1 BURNER
STEAM
△
▽
I
△
▽
0
1: SYSTEM TEMP
I
DEG F
DEG C
△
▽
I
△
▽
△
▽
△
▽
0
2: ENTER "A"
FACTOR 1 TO 9
I
5
△
▽
OR
#
I
△
▽
1
2
3
4
5
6
7

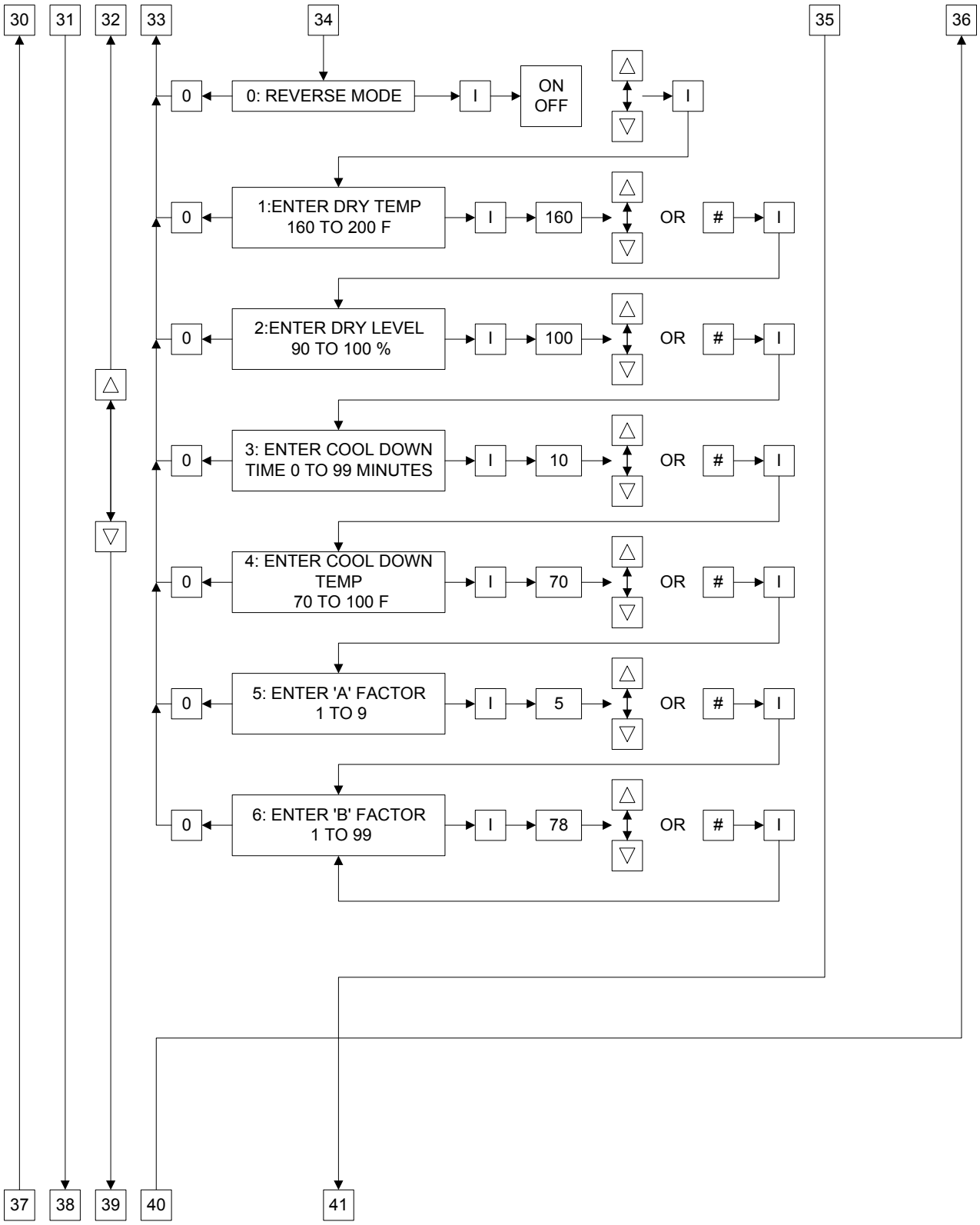

1
2
3
4
5
6
7
0
3: ENTER "B"
FACTOR 1 TO 99
1
78
OR
#
1
0
4: ENTER LINT
COUNT 1 TO 5
1
5
OR
#
1
0
5: ENTER AUDIO
ALERT ON TIMES
0 TO 10
1
5
OR
#
1
0
8
9
10
11
12

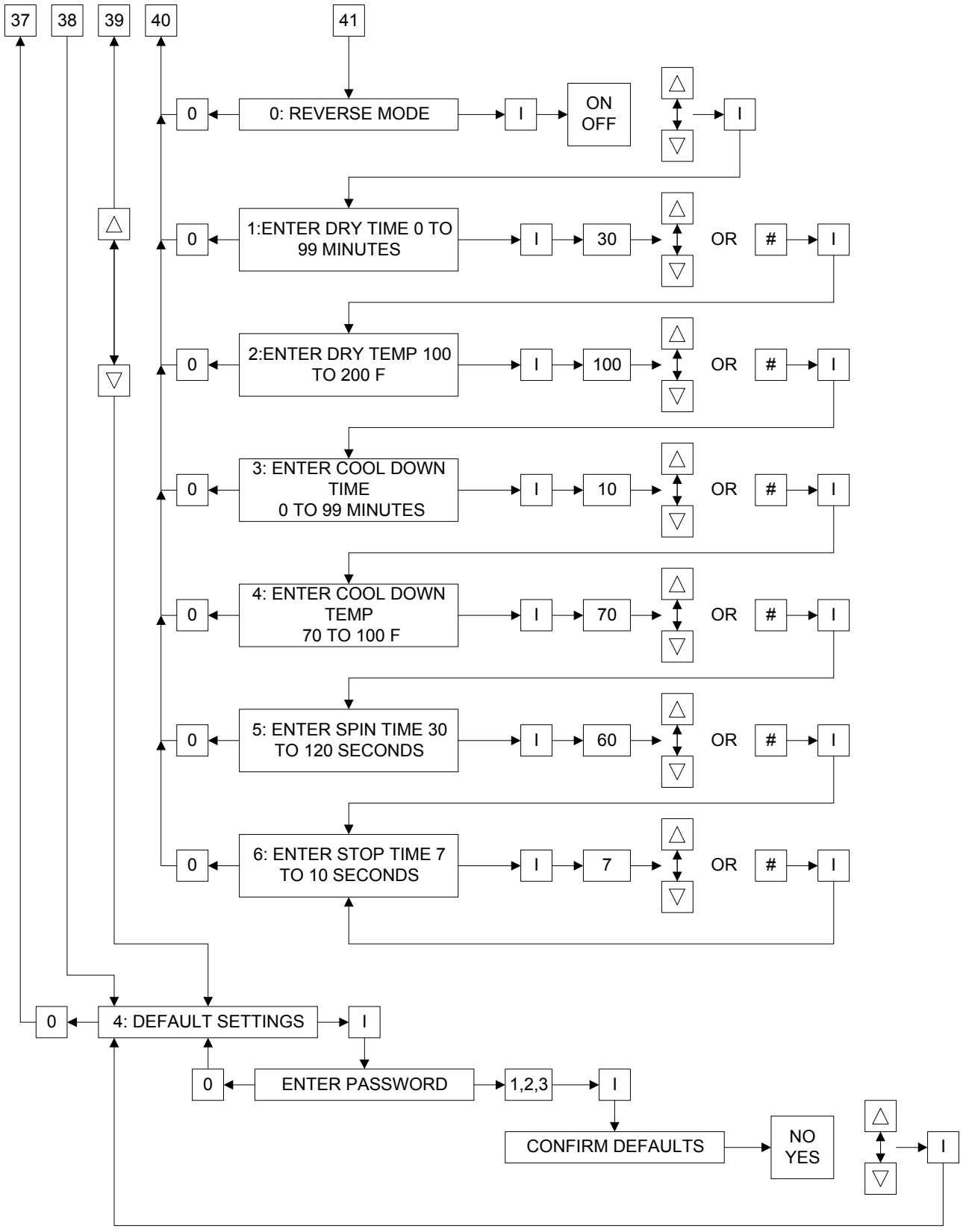

8
9
10
11
12
0
1: COOL DOWN SETUP
I
0
0: ENTER COOL DOWN TIME 0 TO 99 MINUTES
I
3
OR
#
I
0
1: ENTER COOL DOWN TEMP 70 TO 100 F
I
100
OR
#
I
0
2: ENTER SPIN TIME 30 TO 120 SECONDS
I
60
OR
#
I
0
3: ENTER STOP TIME 7 TO 10 SECONDS
I
7
OR
#
I
0
2: WRINKLE GUARD SETUP
I
0
0: WRINKLE GUARD AUDIO ALERT
I
AUDIO ALERT ON
AUDIO ALERT OFF
I
15
16
17

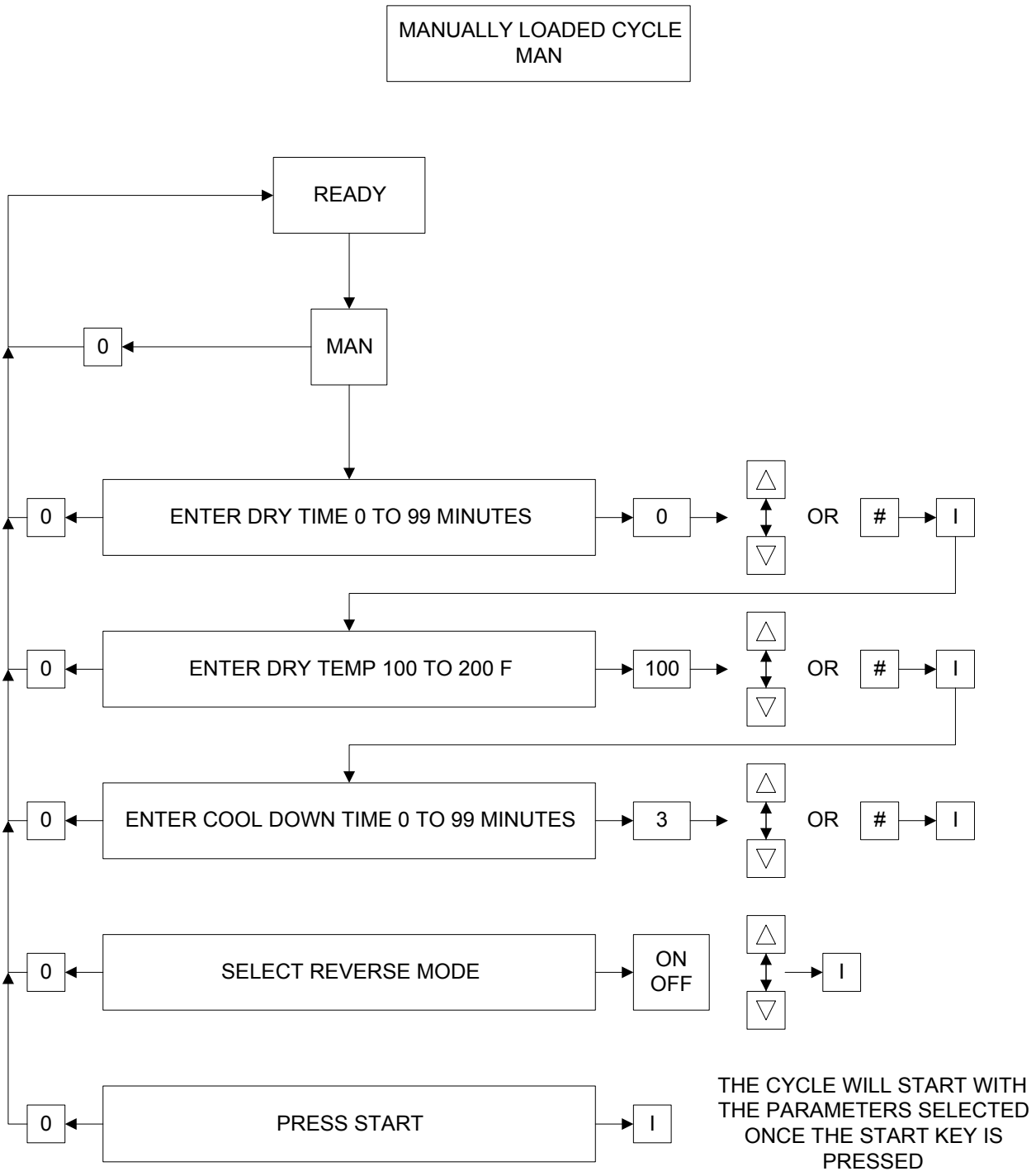

15
16
17
0
2: PROGRAM A-F CYCLE
I
SELECT A-F KEY
0
A
OR
B,C,D,E,F
I
SELECT CYCLE TYPE
0
AUTO
MANUAL
0
I
I
0
0: REVERSE MODE
I
ON OFF
I
0
1:ENTER DRY TEMP 160 TO 200 F
I
160
OR
#
I
0
2:ENTER DRY LEVEL 90 TO 100 %
I
100
OR
#
I
0
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
I
10
OR
#
I
18
19
20
21
22
23
24

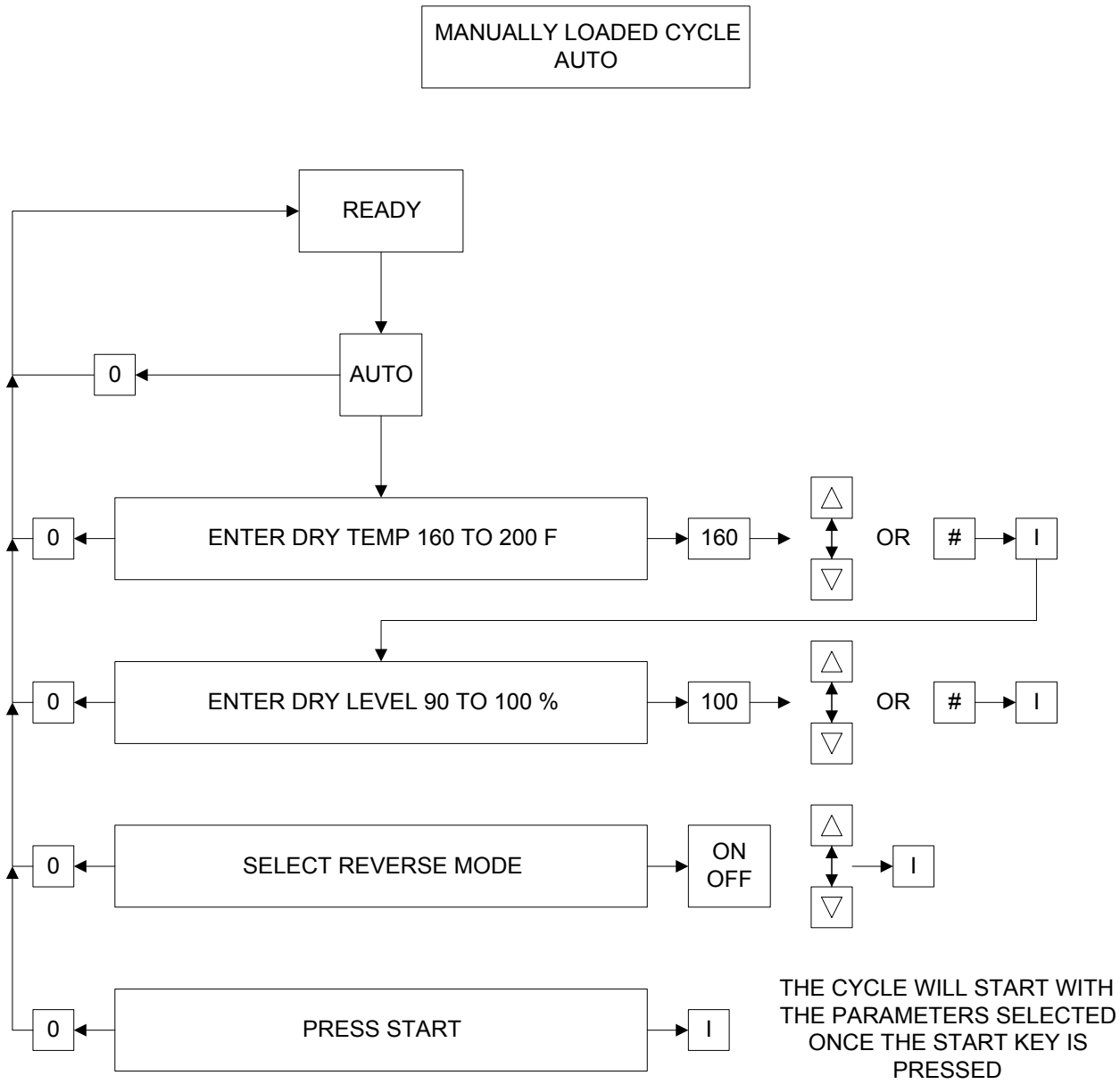

18
19
20
21
22
23
24
4: ENTER COOL DOWN TEMP 70 TO 100 F
0
I
70
OR
#
5: ENTER 'A' FACTOR 1 TO 9
5
6: ENTER 'B' FACTOR 1 TO 99
78
0: REVERSE MODE
ON OFF
1:ENTER DRY TIME 0 TO 99 MINUTES
30
2:ENTER DRY TEMP 100 TO 200 F
100
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
10
25
26
27
28
29


25
26
27
28
29
0
5: ENTER SPIN TIME
30 TO 120 SECONDS
I
60
OR
#
I
0
6: ENTER STOP TIME
7 TO 10 SECONDS
I
7
OR
#
I
0
3: PROGRAM 0-99 CYCLE
I
SELECT 0-99 CYCLE
0
0
OR
1,2,3...99
I
SELECT CYCLE
TYPE
0
AUTO
MANUAL
0
I
I
30
31
32
33
34
35
36


30
31
32
33
34
35
36
0
0: REVERSE MODE
I
ON
OFF
I
0
1:ENTER DRY TEMP
160 TO 200 F
I
160
OR
#
I
0
2:ENTER DRY LEVEL
90 TO 100 %
I
100
OR
#
I
0
3: ENTER COOL DOWN
TIME 0 TO 99 MINUTES
I
10
OR
#
I
0
4: ENTER COOL DOWN
TEMP
70 TO 100 F
I
70
OR
#
I
0
5: ENTER 'A' FACTOR
1 TO 9
I
5
OR
#
I
0
6: ENTER 'B' FACTOR
1 TO 99
I
78
OR
#
I
37
38
39
40
41


37
38
39
40
41
0
0: REVERSE MODE
I
ON
OFF
I
1:ENTER DRY TIME 0 TO 99 MINUTES
30
OR
#
2:ENTER DRY TEMP 100 TO 200 F
100
3: ENTER COOL DOWN TIME 0 TO 99 MINUTES
10
4: ENTER COOL DOWN TEMP 70 TO 100 F
70
5: ENTER SPIN TIME 30 TO 120 SECONDS
60
6: ENTER STOP TIME 7 TO 10 SECONDS
7
4: DEFAULT SETTINGS
ENTER PASSWORD
1,2,3
CONFIRM DEFAULTS
NO
YES


MANUALLY LOADED CYCLE
MAN
READY
MAN
0
ENTER DRY TIME 0 TO 99 MINUTES
0
OR
#
I
ENTER DRY TEMP 100 TO 200 F
100
ENTER COOL DOWN TIME 0 TO 99 MINUTES
3
SELECT REVERSE MODE
ON
OFF
PRESS START
THE CYCLE WILL START WITH THE PARAMETERS SELECTED ONCE THE START KEY IS PRESSED


MANUALLY LOADED CYCLE
AUTO
READY
AUTO
0
0
ENTER DRY TEMP 160 TO 200 F
160
OR
#
I
0
ENTER DRY LEVEL 90 TO 100 %
100
OR
#
I
0
SELECT REVERSE MODE
ON
OFF
I
0
PRESS START
I
THE CYCLE WILL START WITH THE PARAMETERS SELECTED ONCE THE START KEY IS PRESSED

SECTION VII

FACTORY PRESET PARAMETERS (PROGRAMS)

A. CYCLE "A-F" PARAMETERS (PROGRAMS) PRESET BY THE FACTORY

CYCLE A:

Automatic Mode, Reverse, Dry Temperature 180º F (82º C), Dryness Level one hundred percent (100%), Cool Down Time 6 minutes, Cool Down Temperature 80º F (27º C), "A" Factor 5, "B" Factor 78.

CYCLE B:

Automatic Mode, Reverse, Dry Temperature 180º F (82º C), Dryness Level ninety-eight percent (98%), Cool Down Time 6 minutes, Cool Down Temperature 80º F (27º C), "A" Factor 5, "B" Factor 78.

CYCLE C:

Automatic Mode, Reverse, Dry Temperature 160º F (71º C), Dryness Level ninety-eight percent (98%), Cool Down Time 4 minutes, Cool Down Temperature 80º F (27º C), "A" Factor 5, "B" Factor 78.

CYCLE D:

Manual (Timed) Mode, Reverse, Dry Time 40 minutes, Dry Temperature 190º F (88º C), Cool Down Time 6 minutes, Cool Down Temperature 80º F (27º C), Spin Time 60-seconds, Stop (Dwell) Time 7-seconds.

CYCLE E:

Manual (Timed) Mode, Reverse, Dry Time 30 minutes, Dry Temperature 180º F (82º C), Cool Down Time 4 minutes, Cool Down Temperature 80º F (27º C), Spin Time 60-seconds, Stop (Dwell) Time 7-seconds.

CYCLE F:

Manual (Timed) Mode, Reverse, Dry Time 10 minutes, Dry Temperature 170º F (77º C), Cool Down Time 2 minutes, Cool Down Temperature 80º F (27º C), Spin Time 60-seconds, Stop (Dwell) Time 7-seconds.

B. CYCLE "0-99" PARAMETERS (PROGRAMS) PRESET BY THE FACTORY

CYCLE "0-99":

Manual (Timed) Mode, Reverse, Dry Time = 0, Dry Temp = 100, Cool Down Time = 3 Minutes, Cool Down Temp = 100, Spin Time = 60, Stop (Dwell) Time = 7.

SECTION VIII

PHASE 7 OPL PROGRAMMING LIMITS

A. PREPROGRAMMED CYCLES

1. Automatic Drying Cycle **(Patent No. 4,827,627)**

   a. Drying Temperature from 160º F to 200º F (71º C to 93º C) in one-degree increments.

   b. Dryness Level (percentage of dryness) from ninety percent (90%) to one hundred percent (100%) in one percent (1%) increments.

   c. Cool Down Time from 0 to 99 minutes in 1 minute increments.

   d. Cool Down Temperature from 70º F to 100º F (21º C to 38º C) in one-degree increments.

2. Timed (Manual) Drying Cycle

   a. Drying Temperature from 100º F to 200º F (38º C to 93º C) in one-degree increments.

   b. Drying Time from 0 to 99 minutes in 1 minute increments.

   c. Cool Down Time from 0 to 99 minutes in 1 minute increments for preprogrammed cycle.

   d. Cool Down Temperature from 70º F to 100º F (21º C to 38º C) in one-degree increments.

   e. Reversing Models

      1) Automatic Drying Cycle **(Patent No. 4,827,627)** Spin Time and Stop Time is not programmable. (Refer to **Fixed Parameters** on next page).

      2) Manual Timed Cycle

         a) Spin Time (**"SPIN TIME"**) from 30-seconds to 120-seconds in 1-second increments.

         b) Stop (Dwell) Time (**"STOP TIME"**) from 7-seconds to 10-seconds in 1-second increments.

B. SYSTEM PARAMETERS (PROGRAM LOCATIONS)

1. Factor “A” (Slope) from 1 to 9 in increments of one (1).
2. Factor “B” (Heat Loss - Offset) from 1 to 99 in increments of one (1).
3. Manually Loaded Auto Cycle (“COOL DOWN TIME”) from 0 to 99 minutes in 1 minute increments.
4. Audio Alert 0-10.
5. Lint Count 1-5.

C. FIXED PARAMETERS

1. Spin Time (**“SPIN TIME”**) is fixed at 2-1/2 minutes in forward and 2 minutes in reverse.
2. Stop (Dwell) Time (**“STOP TIME”**) is fixed at 7-seconds (in the Auto Mode) and is not adjustable.

SECTION IX

PHASE 7 AUTO CYCLE **(PATENT NO. 4,827,627)**
"A" and "B" FACTORS PARAMETERS

GAS SINGLE BURNER		
MODEL	**"A"**	**"B"**
ADG-200	5	78

STEAM		
MODEL	**"A"**	**"B"**
ADS-200	5	72
ADS-310	5	72
ADS-410	5	65

GAS DOUBLE BURNER		
MODEL	**"A"**	**"B"**
ADG-310	5	78
ADG-410	5	65

IMPORTANT: If your particular model/dryer "A" and "B" factors **are not** shown in the above charts, contact the **ADC** Service Department for the appropriate factors for your particular dryer. When doing so, please have the dryer **model** and **serial numbers** available.

IMPORTANT: The "A" and "B" factors have been preprogrammed by the factory, but can be changed in the field. If the Phase 7 OPL microprocessor controller (computer) should fail and is being replaced. **THE REPLACEMENT PHASE 7 OPL MICROPROCESSOR CONTROLLER (COMPUTER)** ***MUST BE*** **REPROGRAMMED FOR THE SPECIFIC MODEL SHOWN IN THE "A" and "B" FACTORS PARAMETERS CHARTS ABOVE. THE "A" and "B" FACTORS LABEL IS LOCATED ON THE TOP CONTROL PANEL, BEHIND THE PHASE 7 KEYBOARD (TOUCH PAD) DISPLAY DOOR.**

NOTE: For fine-tuning the Auto Cycle for certain loads. If cloths come out wet, then ***decrease*** the "B" factor, if cloths come out too dry, ***increase*** the "B" factor.

SECTION X

PHASE 7 OPL SYSTEM DIAGNOSTICS

IMPORTANT: YOU MUST DISCONNECT and LOCKOUT THE ELECTRIC SUPPLY and THE GAS SUPPLY or THE STEAM 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 door, microprocessor temperature sensor, heat and motor circuits are monitored. The Phase 7 OPL microprocessor controller (computer) will inform the user, via the light emitting diode (L.E.D.) display of certain failure messages, along with L.E.D. indicators on the Input/Output (I/O) board on the back panel of the front right control door.

A. DIAGNOSTIC (L.E.D. DISPLAY) FAULT MESSAGES

CALL FOR SERVICE - Indicates a board communication failure.

FRONT DOOR NOT CLOSED - A front door is open when it **should be** closed.

REAR DOOR NOT CLOSED - A rear door is open when it **should be** closed.

CHECK CONTROL POWER - Indicates control power is off.

EXHAUST HIGH TEMP FAULT - Indicates the temperature in the basket (tumbler) is above 220º F (104º C).

LINT DRAWER OPEN - Indicates the lint drawer is open and needs to be closed.

DRY ENABLE FAULT - A signal from the PLC that indicates the dryer is not level and **ALL** doors closed. Not ready to start drying.

FRONT NOT DOWN - Dryer is tilted back.

REAR NOT DOWN - Dryer is tilted forward.

TUMBLER OVERLOAD FAULT - Indicates the basket (tumbler) overload has tripped opened.

FAN OVERLOAD FAULT - Indicates the fan overload has tripped opened.

EXHAUST HIGH LIMIT FAULT - Indicates the temperature disk in the exhaust has opened.

FRONT SAIL SWITCH CLOSED FAULT - Front sail switch is closed and **should be** opened.

FRONT SAIL SWITCH OPEN FAULT - Front sail switch is open and **should be** closed.

REAR SAIL SWITCH CLOSED FAULT - Rear sail switch is closed and **should be** opened.

REAR SAIL SWITCH OPEN FAULT - Rear sail switch is open and **should be** closed.

FAN CONTACTOR FAULT - The fan contactor was not pulled in.

FRONT BURNER HIGH LIMIT FAULT - Indicates the temperature disk in the front burner has opened.

REAR BURNER HIGH LIMIT FAULT - Indicates the temperature disk in the rear burner has opened.

FRONT BURNER VALVE FAULT - Indicates front gas valve is not working or no gas is turned on or flame out.

REAR BURNER VALVE FAULT - Indicates rear gas valve is not working or no gas is turned on or flame out.

FRONT BURNER IGNITION CONTROL FAULT - Front ignition module is not working or failure to ignite.

REAR BURNER IGNITION CONTROL FAULT - Rear ignition module is not working or failure to ignite.

ROTATION FAULT - Indicates the basket (tumbler) is not rotating.

BAD PROBE - Indicates the temperature probe is open or shorted.

LOW VOLTAGE FAULT - Indicates power has dropped below the operating values and will shut down.

FRONT BURNER PURGE FAULT - The front gas valve signal is present during the prepurge time.

REAR BURNER PURGE FAULT - The rear gas valve signal is present during the prepurge time.

MODEL ERROR, ENTER CORRECT MODEL - The wrong model was selected for the dryer.

EE PROM FAULT ### - Error in memory location. The ### indicates the location of the fault.

B. INPUT/OUTPUT (I/O) BOARD LIGHT EMITTING DIODE (L.E.D.) INDICATORS

INPUTS: (RED)

1. FDRC - Front Door Closed
2. FDRO - Front Door Open
3. TBOL - Basket (Tumbler) Overload
4. FNOL - Fan Overload
5. RDWN - Rear Down
6. FDWN - Front Down
7. RDRC - Rear Door Closed
8. RDRO - Rear Door Open
9. FAN - Blower Fan On
10. RBHL - Rear Burner High Limit
11 R_SS - Rear Sail Switch
12. FBHL - Front Burner High Limit
13. F_SS - Front Sail Switch
14. EXHL - Exhaust High Limit
15. DRY - Dry Enable Bit
16. LINT - Lint Drawer
17. R_HE - Rear Heat Enable
18. F_HE - Front Heat Enable
19. 24VIN - Control Voltage 24 Volts AC
20. SPR5 - Spare Input #5
21. SPR4 - Spare Input #4
22. SPR3 - Spare Input #3
23. SPR2 - Spare Input #2
24. SPR1 - Spare Input #1
25. RVLV - Rear Gas Valve
26. FVLV - Front Gas Valve
27. 24IN - Board 24 Volt AC
28. +5V - Regulated Voltage
29. Model - Communication

OUTPUTS: (GREEN)

1. R_HEAT - Rear Heat
2. AUDIO ALERT - Horn On
3. FWD - Basket (Tumbler) Forward
4. REV - Basket (Tumbler) Reverse
5. AIR JET - Air Jet On
6. FAN - Blower Fan On
7. F_HEAT - Front Heat
8. PRG1 - Programmable Output #1
9. PRG2 - Programmable Output #2
10. PRG3 - Programmable Output #3
11. PRG4 - Programmable Output #4
12. OCL1 - Open Collector Output #1
13. OCL2 - Open Collector Output #2
14. OCL3 - Open Collector Output #3
15. OCL4 - Open Collector Output #4
16. OCL5 - Open Collector Output #5
17. OCL6 - Open Collector Output #6
18. OCL7 - Open Collector Output #7
19. OCL8 - Open Collector Output #8
20. EOC - End Of Cycle Light

INPUTS:

1. FDRC – (RED L.E.D.) This light emitting diode (L.E.D.) will indicate the status of the front doors. If the doors are closed, then the L.E.D. is ON.

2. FDRO – (RED L.E.D.) This L.E.D. will indicate the status of the front doors. If the doors are open, then the L.E.D. is ON.

3. TBOL – (RED L.E.D.) This L.E.D. will indicate the status of the basket (tumbler) overload contact. If the contact is closed, then the L.E.D. is ON. If it faults open, then the L.E.D. is OFF.

4. FNOL – (RED L.E.D.) This L.E.D. will indicate the status of the fan overload contact. If the contact is closed, then the L.E.D. is ON. If it faults open, then the L.E.D. is OFF.

5. RDWN – (RED L.E.D.) This L.E.D. will indicate the status of the rear tilt. If the rear of the dryer is down, then the L.E.D. is ON.

6. FDWN – (RED L.E.D.) This L.E.D. will indicate the status of the front tilt. If the front of the dryer is down, then the L.E.D. is ON.

7. RDRC – (RED L.E.D.) This L.E.D. will indicate the status of the rear doors. If the doors are closed, then the L.E.D. is ON.

8. RDRO – (RED L.E.D.) This L.E.D. will indicate the status of the rear doors. If the doors are open, then the L.E.D. is ON.

9. FAN – (RED L.E.D.) This L.E.D. will indicate the status of the blower fan. If the fan is on, then the L.E.D. is ON.

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

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

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

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

14. 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.

15. DRY – (RED L.E.D.) This L.E.D. will indicate the status of the PLC. If the mechanical functions of the dryer have been set to the DRY position, the PLC will send a signal to the Phase 7 board. This signal will indicate that **ALL** the doors are closed and the dryer is level. When these conditions are met, then the L.E.D. is ON.

16. 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.

17. R_HE — Supply power for rear heat output.

18. F_HE — Supply power for front heat output.

19. 24VIN – (RED L.E.D.) — This L.E.D. will indicate the status of the control voltage. If the POWER ON button is pressed (green button light is on), then the L.E.D. is ON.

20. SPR5 – (RED L.E.D.) — This is for a spare input to be used with programmable outputs.

21. SPR4 – (RED L.E.D.) — This is for a spare input to be used with programmable outputs.

22. SPR3 – (RED L.E.D.) — This is for a spare input to be used with programmable outputs.

23. SPR2 – (RED L.E.D.) — This is for a spare input to be used with programmable outputs.

24. SPR1 – (RED L.E.D.) — This is for a spare input to be used with programmable outputs.

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

26. FVLV – (RED L.E.D.) — This light emitting diode (L.E.D.) will indicate the status of the front gas valve. If the front gas valve is open (ON), then the L.E.D. is ON.

27. 24IN – (RED L.E.D.) — This L.E.D. will indicate 24 VAC to the board.

28. +5V — The 24 VAC regulated to power components on the board.

29. Mode (blinking) communication between display and input/output (I/O) boards.

OUTPUTS:

1. R_HEAT – (GREEN L.E.D.)	This light emitting diode (L.E.D.) will indicate the status of the rear heat output. If the request to turn on the rear heater is made, then the L.E.D. is ON.
2. AUDIO ALERT – (GREEN L.E.D.)	This L.E.D. will indicate the status of the horn output. If the request to turn on the horn is made, then the L.E.D. is ON.
3. FWD – (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 drum in the forward direction is made, then the L.E.D. is ON.
4. REV – (GREEN L.E.D.)	This L.E.D. will indicate the status of the basket (tumbler) reverse direction output. If the request to tumble the drum in the reverse direction is made, then the L.E.D. is ON.
5. AIR JET – (GREEN L.E.D.)	This L.E.D. will indicate the status of the air jet output. If the request to turn on the air jet is made, then the L.E.D. is ON.
6. 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.
7. F_HEAT – (GREEN L.E.D.)	This L.E.D. will indicate the status of the front heat output. If the request to turn on the front heater is made, then the L.E.D. is ON.
8. PGR1 – (GREEN L.E.D.)	This is for a spare output to be programmed.
9. PGR2 – (GREEN L.E.D.)	This is for a spare output to be programmed.
10. PGR3 – (GREEN L.E.D.)	This is for a spare output to be programmed.
11. PGR4 – (GREEN L.E.D.)	This is for a spare output to be programmed.
12. OCL1 – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Open Collector Output #1. If the request to turn on the Open Collector Output #1 is made, then the L.E.D. is ON. (Programmable and defaulted to Front Door Open).
13. OCL2 – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Open Collector Output #2. If the request to turn on the Open Collector Output #2 is made, then the L.E.D. is ON. (Programmable and defaulted to Front Door Closed).
14. OCL3 – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Open Collector Output #3. If the request to turn on the Open Collector Output #3 is made, then the L.E.D. is ON. (Programmable and defaulted to Lint Drawer).
15. OCL4 – (GREEN L.E.D.)	This L.E.D. will indicate the status of the Open Collector Output #4. If the request to turn on the Open Collector Output #4 is made, then the L.E.D. is ON. (Programmable and defaulted to Front Down).

16. OCL5 – (GREEN L.E.D.) This light emitting diode (L.E.D.) will indicate the status of the Open Collector Output #5. If the request to turn on the Open Collector Output #5 is made, then the L.E.D. is On. (Programmable and defaulted to Rear Down).

17. OCL6 – (GREEN L.E.D.) This L.E.D. will indicate the status of the Open Collector Output #6. If the request to turn on the Open Collector Output #6 is made, then the L.E.D. is ON. (Programmable and defaulted to Rear Door Open).

18. OCL7 – (GREEN L.E.D.) This L.E.D. will indicate the status of the Open Collector Output #7. If the request to turn on the Open Collector Output #7 is made, then the L.E.D. is ON. (Programmable and defaulted to Rear Door Closed).

19. OCL8 – (GREEN L.E.D.) This L.E.D. will indicate the status of the Open Collector Output #8. If the request to turn on the Open Collector Output #8 is made, then the L.E.D. is ON. (Programmable and defaulted to Spare).

20. EOC – (GREEN L.E.D.) This L.E.D. will indicate the status of the End Of Cycle Light output. If the request to turn on the End Of Cycle Light is made, then the L.E.D. is ON.

SECTION XI

CUSTOMER CUSTOM PARAMETER SETTINGS

This section is set aside for customer use where customer or specific parameters/settings can be documented, as programmed by them for their specific dryer. It is suggested that any parameter changes or customer cycles be documented here for future reference.

CUSTOMER USE

LANGUAGE: _____

MODEL: _____

SYSTEM TEMP: _____

FACTOR "A": _____

FACTOR "B:" _____

LINT COUNT: _____

AUDIO ALERT: _____

SCROLL TYPE: _____

SCROLL SPEED: _____

SPIN TIME: _____

STOP TIME: _____

WRINKLE GUARD AUDIO ALERT: _____

STEAM INJECTION: (OPTION) _____

1ST ON TIME: _____

OFF TIME: _____

2ND ON TIME: _____

OFF TIME: _____

3RD ON TIME _____

OFF TIME: _____

4TH ON TIME: _____

OFF TIME: _____

5TH ON TIME: _____

OFF TIME: _____

PROGRAMMED CYCLE A-F:

Cycle: _____

Cycle Type: **AUTO**

Reverse Mode: _____ (Option)

Dry Temp: _____

Dry Level: _____

Cool Down Time: _____

Cool Down Temp: _____

Factor "A": _____

Factor "B": _____

Controlled Cool Down: _____

Cycle Type: **MANUAL**

Reverse Mode: _____ (Option)

Dry Time: _____

Dry Temp: _____

Cool Down Time: _____

Cool Down Temp: _____

Spin Time: _____

Stop Time: _____

Controlled Cool Down: _____

Steam Injection: _____ (Option)

1ST ON TIME: _____

OFF TIME: _____

2ND ON TIME: _____

OFF TIME: _____

3RD ON TIME _____

OFF TIME: _____

4TH ON TIME: _____

OFF TIME: _____

5TH ON TIME: _____

OFF TIME: _____

PROGRAMMED CYCLE 0-99:

Cycle: _____

Cycle Type: **AUTO**

Reverse Mode: _____ (Option)

Dry Temp: _____

Dry Level: _____

Cool Down Time: _____

Cool Down Temp: _____

Factor "A": _____

Factor "B": _____

Controlled Cool Down: _____

Cycle Type: **MANUAL**

Reverse Mode: _____ (Option)

Dry Time: _____

Dry Temp: _____

Cool Down Time: _____

Cool Down Temp: _____

Spin Time: _____

Stop Time: _____

Controlled Cool Down: _____

Steam Injection: _____ (Option)

1ST ON TIME: _____

OFF TIME: _____

2ND ON TIME: _____

OFF TIME: _____

3RD ON TIME _____

OFF TIME: _____

4TH ON TIME: _____

OFF TIME: _____

5TH ON TIME: _____

OFF TIME: _____


American Dryer Corp.