Warnings

DO NOT OPERATE THIS FURNACE WITH ANY OTHER POWER CORD.
DO NOT OPERATE WITH AN EXTENSION CORD.
OPERATING THIS FURNACE ON A CIRCUIT WITH OTHER FURNACES OR ELECTRICAL APPLIANCES THAT REQUIRE SIGNIFICANT POWER MAY CAUSE A CIRCUIT BREAKER TO TRIP.
WHEN OPERATING THE PRO 200, USE ONLY ARGON GAS.
ATTACHING ANY FLAMMABLE OR NOXIOUS GAS IN THIS FURNACE COULD CAUSE EXPLOSION OR PERSONAL INJURY!
CAUTION: METAL SURFACE IS HOT DURING OPERATION!

THE TRIANGULAR BLACK AND YELLOW STICKER ON THE FRONT CENTER OF THE MUFFLE HOOD IS A WARNING THAT THE METALLIC SURFACE CAN BECOME HOT TO THE TOUCH. NEVER PLACE YOUR HAND ON THIS SURFACE OR LEAN ON THE TOP OF THE HOOD WHEN THE UNIT IS IN OPERATION.

IMPORTANT: CONTACT YOUR DEALER OR THE FACTORY FOR COMPLETE INSTRUCTIONS ON CONVERTING THE FURNACE BETWEEN 115 VAC AND 220 VAC.

HAZARDOUS LIVE VOLTAGE PRESENT; DISCONNECT AC MAIN POWER CORD BEFORE REMOVING COVERS.

Warranty

United States and Canada
Whip Mix Corporation warrants the Pro 200 and Pro Press 200 to the original purchaser against defective workmanship and materials under normal procedures of installation, use and service within the dental profession, for a period of three years or 3750 muffle hours, whichever occurs first. During which time Whip Mix Corporation will replace, repair or deny warranty coverage at its discretion. Heat treating refractory materials, misuse, improper installation, improper maintenance, accident or abuse will void the warranty. Whip Mix coverage only applies to Whip Mix supplied parts, and repairs performed by Whip Mix certified repair technicians. Repairs performed during the warranty period do not extend the warranty period. Shipping damage is only covered from Whip Mix to the intended recipient.

International
Two years parts and labor from date of purchase from dealer.

Recommendations

Note: During shipping the muffle might absorb moisture from the air. So, it is recommended you heat the muffle to dry the moisture before firing any porcelain. To dry the muffle, set the idle temperature to 400° C (752° F) for one hour and 600° C (1112° F) for one hour.

Follow the numbered instructions in this section to set the idle temperature to the temperatures mentioned above. Whip Mix recommends leaving the furnace on at all times. Turning the furnace off overnight may cause damage to the muffle, contamination and void the warranty.

Leaving your furnace on will also extend the life of your furnace. See Night Mode, page 11 for further information.

The Pro Series Furnace comes complete with:

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<td>Program Magnet</td>
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<tr>
<td>Quick Cool Barb &amp; Hose</td>
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Intended Use:

The Pro 200 furnace is only intended for the firing of dental porcelain materials or the pneumatic pressing of molten porcelain materials into lost wax investment molds. If this furnace is not used in a manner specified by the Whip Mix Corporation, the protection provided by the product might be impaired.
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- Argon Hose Barb
- Top Muffle Cover
- Press Regulator Attachment
- Calibration Port
- Back Cover
- USB Port
- Vacuum Pump Power Outlet
- Lift Table
- Selector Knob
- Keyboard
- Power Switch
- Power Inlet Plug
- Fuses
- Quick Cool Jet Hose Barb
- Vacuum Pump Power Outlet
- Vacuum Pump Hose Barb
- Argon Hose Barb
- Top Muffle Cover
- Press Regulator Attachment
- Calibration Port
- Back Cover
- USB Port
Chapter One — Getting Started
You are undoubtedly eager to unpack, set up, and begin using your new furnace. Getting started will be much easier if you carefully review the information in this chapter and follow the steps as outlined.

Before Unpacking
- Save the carton and packing materials. These will be used again if there is ever a need to ship or return equipment.
- Read and save the printed shipping material packed with your furnace — it contains valuable information!
- DO NOT turn on the power to your furnace until you are instructed to do so, or you will damage your furnace!
- Sit the furnace on a non-flammable work surface.

Unpacking
- If the packaging materials and/or the furnace appear to be damaged, please call your dealer before continuing.
- Remove the furnace from the packaging materials and place it on a flat surface in the upright position.
- Look up into the muffle area and locate the shipping hardware and remove it. Keep these parts in case there is a need to ship the furnace back.

Press Version
- Connect the compressed air supply to the regulator using a standard pneumatic fitting available at most hardware stores.
- Adjust the pressure regulator to the recommended pressure from the ceramic manufacturer.
- If problems arise:
  - Check the air supply for sufficient pressure.
  - Check all connections. If problems persist, write down your serial number and call Technical Support.

Press Regulator Set-Up
The Pro Press 200 requires compressed air to run a press cycle. Generally minimum air pressure of 63 psi/4.25 BAR and a maximum of 150 psi/10 BAR. Check with the ceramic manufacturer.

WARNING: INPUTTING MORE PRESSURE COULD CAUSE AN EXPLOSION!
- Remove the regulator from the accessory box.
- Look at the female end of the brass quick connect and check for obstructions or foreign objects.
- With the clear plastic portion facing down, push the regulator onto the quick connect fitting at the back of the furnace, as shown. Make sure the quick connect is fastened.
- Connect the compressed air supply to the regulator using a standard pneumatic fitting.

If problems arise:
- Check the air supply for sufficient pressure.
- Check all connections.
If problems persist, write down your serial number and call Technical Support.

Installing the Vacuum Pump
If you have a Whip Mix vacuum pump, plug it directly into the furnace where indicated on the back. If the pump is not a Whip Mix pump, you will need an adaptor.
- Attach a 1/4” inch vacuum rated hose from the vacuum pump to the brass fitting marked VACUUM PUMP at the rear of the furnace.
DO NOT attach the Argon gas system to the Pro 200 until the furnace is installed, operating, and the setup procedures in the Special Functions chapter of this manual have been completed.
Quick-Cool Jet Installation for Pro 200 Furnaces with Air Cool Jet

Preparation:
1. Remove the vacuum pump from its box.
2. Remove the brass hose barb from the Furnace accessory box.
3. Remove the muffler from the output end of the vacuum pump. (The input and output valves are identified by arrow indicators on the vacuum pump near inlet or outlet.)
4. Install the brass barb to output end of the vacuum pump. (Where the muffler used to be.)
5. There should be two hoses included. One in the accessory box, the other inside the vacuum pump box. Use the hose included in the accessory box for the Quick-Cool Air Jet.

Installation:
1. Push one end of the clear hose included in the accessory box over the output barb fitting at the output end of the vacuum pump.
2. Place the other end over the silver Quick-Cool Jet barb located on the upper right back of the furnace. (See below.)
3. Using the other pink hose, place one end over the input side barb of the vacuum pump.
4. Place the other end over the vacuum barb at the back of the furnace.
5. Plug the power cord into the power outlet at the back of the furnace next to the furnace power inlet.

Using the Quick-Cool Jet:
The Quick-Cool Jet will activate when a program has been started with a lower entry temperature than the furnace’s current temperature.

1. To enable the Quick-Cool Jet, select and run a program with an entry temperature lower than the current temperature.
2. Once a program is complete, start the next program and the Quick-Cool Jet will engage.
Power

- The furnace requires 115 Vac and 12 Amps of current in the United States and 220–240 Vac and 6.3 Amps of current in Europe and some parts of Asia.

**A special heavy-duty power cord has been supplied with your furnace.**

DO NOT OPERATE WITH ANY OTHER POWER CORD.
DO NOT OPERATE WITH AN EXTENSION CORD.
OPERATING THIS FURNACE ON A CIRCUIT WITH OTHER FURNACES OR ELECTRICAL APPLIANCES THAT REQUIRE SIGNIFICANT POWER MAY CAUSE A CIRCUIT BREAKER TO TRIP OR OTHER FUNCTION PROBLEMS WITH THE FURNACE. INSTALL THE HEAVY-DUTY POWER CORD AND PLUG THE FURNACE INTO A GROUNDED OUTLET.

- Position the furnace so that the front is facing you. You should be able to reach the power switch on the right side of the furnace at the rear. Be sure to have at least 8 inches on all sides of the furnace to allow sufficient airflow to keep the electronics of the furnace cool. Do not place anything flammable near the furnace.

- Minimum ambient room temperature: 60°F (15.5°C).
Maximum ambient room temperature: 80°F (26.6°C).
Minimum relative humidity: 45%.
Maximum relative humidity: 60%.

- Turn the furnace on using the power switch. The display should light up and the unit will perform an internal self test for about 30 seconds. The following screens will be displayed in this process.

**Front Panel Controls**

The front panel controls and their basic functions are described in this section. Please read this section carefully.

The front panel controls are divided into four groups:

- Menu selection button calls up various function selections:
  - Run Program
  - Change Program
  - Special Functions

- Information entry: **Selector Knob, Next and Last**

- Program **Abort** button

- Table control buttons: **Up/Down**
Menu Selection Buttons

The three menu selection items (Run Program, Change Program and Special Functions) will display different options. The menu options can be seen by turning the Selector Knob.

Run Program — Press the Run Program Selection to:

- Select a program to run.

Change Program — the following actions may be initiated by first pressing the Change Program item from the Main Menu, then turning the Selector Knob to display the following options:

- Look at a program
- Add/Edit a program
- Copy/change a program
- Move a program
- Erase a program

Special Functions — press the Selector Knob and turn the Selector Knob to one of the following actions:

- Start Night mode
- Change Idle temperatures
- Set vacuum level
- Select degree C (Centigrade, centimeters), or F (Fahrenheit, inches)
- Set program start delay
- Set Night mode temperature
- Select between constant vacuum pump or intermittent cycle vacuum pump
- Change volume level of sounds
- Select upper or lower case letters on the display
- Select Displayed Language (English, French, German, Italian, Spanish)
- Cal Low Fusing
- Cal High Fusing
- Cal Press (On Pro Press Only)
- Copy firing programs from Furnace to Memory Card (Export Programs)
- Copy firing programs from Memory Card to Furnace (Import Programs)
- Export Settings
- Import Settings
- Test Furnace
- Calibrate Oven
Information Display and Entry

DISPLAY — All information and user prompts will be shown on the display (four lines, twenty characters each).

SELECTOR KNOB — Turn the Selector Knob left or right to select menu options or to adjust parameters.

NEXT — Press the Next button to proceed to the next step within a function or program. (OR just push the Selector Knob inward to proceed).

LAST — Press this button to return to the preceding step within a function or program. If a program is not displayed then the furnace will beep to indicate an error.

TABLE UP — Press the † up arrow button to manually raise the table. Press the † up arrow button a second time and the table will stop.

TABLE DOWN — Press the ‡ down arrow button to manually lower the table. Press the ‡ down arrow button a second time and the table will stop.

The table control button will not operate while a program is running.

Start Program

• Immediately After Power-On Self-Test Completes — Rotate the Selector Knob to select a Program, then press the Selector Knob to initiate the Program.

• Immediately After a Previous Program Completes — Pressing the Selector Knob after a program has just finished will restart the same program. Or rotate the Selector Knob to a new Program selection and press the Selector Knob to initiate the Program.

Abort Program

• Press the Abort key on the Keypad. The temperature will begin dropping to Idle temp and the Table will automatically lower.
Using the Furnace

After the furnace has completed the self-test at power up, the Firmware Version appears on the screen, then the Display prompts the entry of a Program number for firing. Press the Menu button to bring up the Main Menu, then Select the Special Functions menu item and proceed with the initial setup of essential default values for functions like:

- Idle Temperature
- Vacuum Threshold Level for Intermittent Vacuum mode
- Temperature Display Units (C or F)
- Program Start Delay Time (Default is none)
- Night Mode Temperature
- Constant Vacuum Pump (Default is “NO” for Intermittent Vacuum)
- Sound Volume Adjust
- Capital Letter Display (Default is mixed upper and lower case display)
- Displayed Language

NOTE: IT IS VERY IMPORTANT TO SET UP THE OPERATING FEATURES OF THE FURNACE BEFORE YOU ATTEMPT TO PROGRAM THE FURNACE OR RUN PROGRAMS. FOR BEST RESULTS IN LEARNING TO USE YOUR NEW FURNACE, USE THE FOLLOWING STEPS, IN THIS ORDER:

1. Set up the operating features of the furnace by reading and following the instructions in Chapter 2 — Special Functions. This is VERY IMPORTANT because these operating features will affect how you enter and run programs.
2. Learn to program the furnace by reading Chapter 3 — Change Program. Enter a few of your own programs.
3. Read Chapter 4 — Run Program to understand how to run programs and what features are available while running a program.
Chapter Two — Special Functions

To look at or change a function, press the Special Functions item from the Main Menu. Turn the Selector Knob clockwise or counterclockwise until the desired function is displayed. Press the Selector Knob OR the Next button to look at or change this function. Each function will be described in this chapter.

Most Special Functions can be performed while a program is running, however this is not recommended because changing the operating features could affect how the current program runs.

Setting the Night Mode Temperature and Activation

The furnace has a Night Mode feature that will reduce the temperature in the muffle and raise the lift to prevent moisture build up.

The Night Mode can be started from idle mode or while a program is running.

The furnace will automatically enter Night Mode if no buttons have been pressed for 2 hours, or 45 minutes have passed since the last run program and no buttons have been pressed.

The furnace comes from the factory with the Night Mode temperature set at 150° C (302° F). This temperature may be adjusted from 0 to 400° C (752° F).

If Night Mode is activated while a program is running, the furnace will go to the night mode temperature after the completion of the program and will maintain the Night Mode temperature until any button is pressed or the power is turned off.

To adjust the Night Mode temperature:

1. From the Main Menu, press the Special Functions item.
2. Turn the Selector Knob until the display reads NIGHT MODE TEMP.
3. Press the Next button to look at or change the night mode temperature.
4. Turn the Selector Knob to change the temperature as desired.
5. Press the Next button to enter the temperature. You will be returned to the Main Menu automatically.

After the Night Mode Temperature has been set, follow these steps to activate night mode from idle mode or during a program.

1. From the Main Menu, select the Special Function item. Turn the Selector Knob to the displayed item Night Mode.
2a. Push the Selector Knob OR press the Next button to activate Night Mode.
2b. To start Night Mode at the end of the program while a program is running. Turn the Selector Knob to NEXT = NIGHT MODE and press the Selector Knob or Next button.

Change Idle Temperature

The idle temperature is the temperature the furnace will maintain between programs. The furnace comes from the factory with the idle temperatures set at 0° C, so you must enter a temperature for this feature to suit your needs.

1. Press the Menu button.
2. Select Special Functions, push Selector Knob OR press Next button
3. Turn the Selector Knob to display CHANGE IDLE TEMP.
4. Push Selector Knob OR press the Next button to look at or change the idle temperature.
5. The current setting will be displayed. Turn the Selector Knob to change to the desired temperature.
6. Push the Selector Knob OR press the Next button to enter the temperature. You will be returned to the Main Menu automatically.

NOTE: DURING SHIPPING THE MUFFLE MIGHT ABSORB MOISTURE FROM THE AIR, SO IT IS RECOMMENDED YOU HEAT THE MUFFLE TO DRY THE MOISTURE BEFORE FIRING ANY PORCELAIN. TO DRY THE MUFFLE, SET THE IDLE TEMPERATURE TO 400° C (752° F) FOR ONE HOUR AND THEN 600° C (1112° F) FOR ONE HOUR. IT IS ALSO RECOMMENDED YOU KEEP THE FURNACE ON WITH SUFFICIENT NIGHT MODE TEMPERATURE TO PREVENT MOISTURE FROM ACCUMULATING INSIDE THE MUFFLE. THE RECOMMENDED TEMPERATURE IS A MINIMUM OF 150° C (302° F), IF LEAVING THE LAB FOR AN EXTENDED PERIOD OF TIME, YOU MAY TURN THE FURNACE OFF WITH THE TABLE IN THE CLOSED POSITION. BEFORE FIRING PORCELAIN AGAIN, GO THROUGH THIS DRY OUT PROCEDURE.
**Set Vacuum Level**

The factory setting for vacuum is 71 cm of mercury. The acceptable range is from 22 cm to 74–75 cm of mercury or 11.0 inches to 30.0 inches of mercury.

If the furnace does not pull a minimum vacuum of 10 inches within 20 seconds of calling for it, the program will be aborted and the furnace will display “Vacuum Error.”

Additionally, if the target vacuum level has not been reached within 1.5 inches of the vacuum setting by 100 seconds, the program will be aborted and a warning screen will be displayed, indicating a vacuum error. (see page 27 for error codes)

If Continuous VAC Pump has been selected by using the Special Functions menu, the vacuum pump will run throughout the vacuum cycle at full vacuum. If Continuous VAC Pump has not been selected, the vacuum pump will shut off after the target level has been reached and at least 5 seconds have elapsed. The vacuum pump will be restarted when the vacuum level has dropped to 1 inch below the Vacuum setting value.

The furnace uses an absolute vacuum sensor. With an absolute sensor, vacuum adjustments are not necessary at high altitudes.

**Select Constant Vacuum**

Selecting constant vacuum will cause the vacuum pump to run continuously during the vacuum cycle of a program.

1. Press the Main Menu button.
2. Select Special Functions, push the Selector Knob OR press Next button.
3. Turn the Selector Knob until the display reads CONSTANT VAC PUMP.
4. Push the Selector Knob OR press the Next button.
5. Turn the Selector Knob to display YES or NO.
   
   A selection of yes will cause the vacuum pump to run continuously during the vacuum cycle of a program.

   A selection of no will allow the vacuum pump to turn off and on to maintain the set vacuum level.

   **NOTE:** IF INTERMITTENT VACUUM IS SELECTED, BUT THE VACUUM PUMP RUNS CONTINUOUSLY DURING THE PROGRAM CYCLE, THE VACUUM LEVEL IS SET TOO HIGH. THE ACTUAL LEVEL IS WITHIN 3% OF THE SELECTED LEVEL, BUT THE PUMP CANNOT REACH THE FULL SELECTED LEVEL. THIS CAN BE CORRECTED BY REDUCING THE VACUUM LEVEL.

**Set Displayed Temperature Units (Celsius or Fahrenheit)**

1. Press the Menu button.
2. Select Special Functions, push the Selector Knob OR press Next button.
3. Turn the Selector Knob until TEMP IN C OR F?
   
   is displayed.
4. Push the Selector Knob OR press the Next button to look at or change the measurement system in use.
5. TEMP CENTIGRADE? Will be displayed. Turn the Selector Knob to select YES for metric Centigrade units, or if you select NO the furnace will automatically set to Fahrenheit units (American/English) (standard) units.
6. Push the Selector Knob OR press the Next button to save the selection. You will be returned to the Main Menu automatically.
**Set Program Start Delay**

The furnace has a unique feature that allows the operator to program a delay to occur before the start of all programs. This delay occurs before the entry time set into each program begins. This feature may be changed without affecting the programs or calibrations stored in the furnace.

1. Press the **Main Menu** button.
2. Select **Special Functions**, push the **Selector Knob** OR press the **Next** button.
3. Turn the **Selector Knob** until the second line on the display reads **PROG START DELAY**.
4. Press the **Next** button to look at or change the start delay time.
5. The display will read **TIME = 0.00** or any time delay previously entered. Turn the **Selector Knob** to change the time as desired.

6. Push the **Selector Knob** OR press the **Next** button to save your selection. You will be returned to the **Main Menu** automatically.

**NOTE:** THE DELAY FEATURE SUBTRACTS FROM THE TIME IT TAKES TO HEAT THE MUFFLE TO THE ENTRY TEMPERATURE SO THE DELAY TIME MAY APPEAR SHORTER THAN ORIGINALLY PROGRAMMED. AS AN EXAMPLE; LET’S ASSUME THE DELAY IS SET FOR 30 MINUTES, THE ENTRY TEMPERATURE IS 500° C, AND THE TIME IT TAKES THE FURNACE TO REACH 500° C FROM THE POINT WHICH YOU ENTERED THE DELAY IS 15 MINUTES. THE FURNACE WOULD COUNT DOWN 15 MINUTES TO THE BEGINNING OF THE PROGRAM AND THEN WOULD BEGIN HEATING TO THE ENTRY TEMPERATURE. THIS GIVES US A TOTAL OF 30 MINUTES BEFORE THE TABLE RISES TO THE MUFFLE.

**Set Music Volume Level**

1. Press the **Special Functions** button.
2. Turn the **Selector Knob** until display reads **CHANGE MUSIC VOLUME**.
3. Push the **Selector Knob** OR press the **Next** key. Continue to turn the **Selector Knob** to the desired volume. The cursor will appear to the left of the volume selected:

4. Rotate the **Selector Knob** and a sequence of tones will begin playing to give you an audible reference for the corresponding sound level. When the volume level is set to your liking, push the **Selector Knob** OR press the **Next** button to save your selection. You will be returned to the **Main Menu** automatically.

**Set to All Capital Text or Mixed Upper/Lower Case Text Display**

1. Press the **Special Functions** button.
2. Turn the **Selector Knob** until display reads **CAPITAL LETTER?**
3. Push the **Selector Knob** OR press the **Next** button.

4. If you want all Capital Letters displayed, rotate the **Selector Knob** to **Yes** and push the **Selector Knob** OR press the **Next** button. If you do not want all Capital letters, rotate to **No** for mixed upper/lower case letters and press the **Selector Knob** OR press the **Next** button.

**Select Displayed Language**

1. Press the **Special Functions** button.
2. Turn the **Selector Knob** until the display reads **SELECT LANGUAGE**.
3. Push the **Selector Knob** OR press the **Next** button.
4. Choose from the following list of languages:
   - English
   - Francais
   - Deutch
   - Italiano
   - Espanol

5. Rotate the **Selector Knob** until the cursor points to the desired language and push the **Selector Knob** OR press the **Next** button to save your selection. You will be returned to the **Main Menu** automatically.
**Saving Programs to a Flash Drive (Exporting)**

1. Place the Flash Drive in the USB slot on the left side of the furnace with the shiny metal contact facing upward.
2. Select the Special Functions item from the Main Menu.
3. Turn the Selector Knob until the display reads EXPORT PROGRAM, then press the Next button.
4. The display will show Check USB Driver, then Exporting >>>>>>>
5. The furnace will signal the end of the transfer with an audible tone.

**Transferring User Firing Programs to Other Furnaces (Importing)**

Once you have exported programs to the Flash Drive, either via the furnace EXPORT PROGRAM function OR via the PC Software, you can load these programs on a different furnace or return them to the same furnace.

1. Place the Flash Drive in the USB slot on the left side of the furnace with the shiny metal contact facing upward.
2. Select the Special Functions item from the Main Menu.
3. Turn the Selector Knob until the display reads IMPORT PROGRAM, then press the Next button.
4. The display will show Check USB Driver, then Importing >>>>>>>
5. The furnace will signal the end of the transfer with an audible tone.
Low Fusing Adjust
Calibration (800° C/1470° F or below)

1. Select the Special Functions item from the Main Menu.
2. Turn the Selector Knob until display reads CAL LOW FUSING.
3. Press the Next button.

The display will show the current Low Fusing porcelain calibration offset. For new furnaces this should be “0”. If the Selector Knob is rotated clockwise note that the “0” value changes to a positive value, and if rotated counterclockwise it changes to a negative value. If you need to raise ALL your Low Fusing program firing temperatures by the same amount you can dial in a positive value then press the Next button to accept the offset value. Conversely, if you want to lower ALL your Low Fusing program firing temperatures by the same amount, dial in a negative value and press the Next button to accept the offset value.

Example: If your porcelain appears to be overfired by 25°, you would enter a negative (-25) twenty-five degree value to lower the effective firing temperature of ALL the Low Fusing program.

4. Turn the Selector Knob to enter the number of degrees you would like to adjust the temperature.

5. Press the Next button. The adjustment will be stored and you will be returned to the main menu.

Example:
If porcelain looks under-fired, increase temperature.
If porcelain looks over-fired, decrease temperature.

High Fusing Adjustment
Calibration (801° C/1471° F or above)

1. Select the Special Functions item from the Main Menu.
2. Turn Selector Knob until display reads CAL HIGH FUSING.
3. Press the Next button.

The display will show the current High Fusing porcelain calibration offset. For new furnaces this should be “0”. If the Selector Knob is rotated clockwise note that the “0” value changes to a positive value, and if rotated counterclockwise it changes to a negative value. If you need to raise ALL of your High Fusing program firing temperatures by the same amount you can dial in a positive value then press the Next button to accept the offset value. Conversely, if you want to lower ALL of your High Fusing program firing temperatures by the same amount, dial in a negative value and press the Next button to accept the offset value.

Example: If your porcelain appears to be overfired by 25°, you would enter a negative (-25) twenty-five degree value to lower the effective firing temperature of ALL the High Fusing programs.

4. Turn the Selector Knob to enter the number of degrees you would like to adjust the temperature.

5. Press the Next button. The adjustment will be stored and you will be returned to the main menu.

Example:
If porcelain looks under-fired, increase temperature.
If porcelain looks over-fired, decrease temperature.
Testing Your Furnace

The Pro Series Furnaces are capable of performing several tests to aid in diagnosing the furnace should a problem occur. A TOPS technician or Technical Support technician may ask you to run one or more of these tests to aid in diagnosing the problem. The tests include:

- Vacuum test
- Muffle test
- Motor Up test
- Motor down test
- Muffle hour reading. (The muffle hour reading is incremented by 1 for each hour the muffle temperature is above 605° C.)
- Press test (in ProPress 200)

To Begin Test:
1. Select the Special Functions item from the Main Menu.
2. Turn the Selector Knob until the display reads TEST FURNACE.
3. Push the Selector Knob OR press the Next button.
4. Turn the Selector Knob until the test you require is displayed.
5. Push the Selector Knob. (The individual test, which was selected, will now begin.)
6. Pressing the Next button will pause the test. Pressing the Next button again will restart.
7. Pressing the Menu button will end the test and return you to the Main Menu.

Calibrate Oven

CAUTION: THIS ITEM OF THE SPECIAL FUNCTIONS MENU IS TYPICALLY RESERVED FOR WHIP MIX CERTIFIED TECHNICIANS. ENTERING NUMBERS OTHER THAN THE FOUR DESCRIBED BELOW COULD RESULT IN PROGRAM AND CALIBRATION LOSS.

With this screen it is possible to activate the following features:

- **Fast Cool With Vacuum On (for cooling muffle to entry temp between programs)** Lowers the lift and runs the vacuum pump until the furnace reaches the entry temperature for a program. To activate this function, start a program with an entry temperature lower than the current temperature.
- **Enable Program Password Protection** (Call Whip Mix TOPS Technicians.)
- **On Pro Press 200; use Timed Press; Yes/No** Changes preference between Re-Press and Timed Press, press programs are factory set and include vacuum.
- **Load Code from “Flash Drive”** Enables you to order and upgrade software.

To access one of the four functions, do the following:
1. Select the Special Functions item from the Main Menu.
2. Turn the Selector Knob to CALIBRATE OVEN.
3. Push the Selector Knob OR press the Next button.
4. Turn the Selector Knob to select the numerical password needed.

<table>
<thead>
<tr>
<th>Password Function</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fast Cool with Vacuum On</td>
<td>Password 315</td>
</tr>
<tr>
<td>2. Enable Program Password Protection</td>
<td>(Call Whip Mix TOPS Technician)</td>
</tr>
<tr>
<td>3. Select Timed Press or Re-press Time</td>
<td>Password 315</td>
</tr>
<tr>
<td>If Yes is selected, then you will be prompted to enter the Repress Time. In this program 4 minutes will automatically be added to the time you enter. The default program is timed press which does not add and additional 4 minutes.</td>
<td></td>
</tr>
<tr>
<td>4. Load code from Flash Drive</td>
<td>(Call Whip Mix TOPS Technician)</td>
</tr>
</tbody>
</table>

Push the Selector Knob OR press the Next button. Enter the password and access the selected function.
Chapter Three — Change Program Menu

The Master Suite program included on the flash drive is an alternate means of adding or editing programs using a PC application. These programs may be transferred from the PC to the furnace using the same flash drive. Please refer to the separate instructions provided in pdf format also located on this same flash drive.

The Change/Edit Program menu item allows you to add, change, move, copy, print, or erase programmed firing cycles. This mode is reached by selecting the Change/Edit Program Item from the Main Menu.

All of the features described here may be performed while a program is running. Both the Pro 200 and Pro Press 200 furnaces use a unique method of numbering and naming programs to help the operator select the correct program to run.

The Program Number is shown first (0-199), followed by the Program Name.

Look at a Program

The Look at a Program feature allows the operator to view a program without changing any values:

1. Select the Change Program from the Main Menu.
2. Turn the Selector Knob until LOOK AT PROGRAM is displayed.
3. Push the Selector Knob OR press the Next button to select this feature.
4. Turn the Selector Knob to find the program you wish to view.
5. Push the Selector Knob OR press the Next button to continue viewing each step through the program.

The first line displays a parameter in the firing cycle program and its value.

Look at a Program

The following is an example of a program descriptor. The Program Number is displayed first, then a “-” character. The next fifteen characters contain the name entered to describe this program.

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Program Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 SYNS- BODY ADD</td>
<td>Synspar porcelain body add program</td>
<td></td>
</tr>
<tr>
<td>13 SYNS- GLAZE</td>
<td>Synspar porcelain glaze program</td>
<td></td>
</tr>
<tr>
<td>20 VITA- DE GAS</td>
<td>Vita porcelain de-gas program</td>
<td></td>
</tr>
</tbody>
</table>

In the example, the user has entered BODY ADD to indicate that this is a body add-on program. The following examples show how a user could make program identification easy:

This firing parameter cannot be changed while looking at a program.

Pushing the Selector Knob OR pressing the Next button will let you look at the next parameter in a program. Pressing the Last button will let you look at the preceding item in a program.

When the last item in a program has been viewed the display will return to the Main Menu.
Add/Edit a Program

Add/Edit a Program is used to enter a new program or Edit a pre-existing program. This selection will describe how to enter either a 1-Stage or a 2-Stage program.

The first four firing cycles are normal porcelain firing cycles. The following procedure describes how to enter a normal porcelain program.

1. Press the Main Menu button.
2. Select the CHANGE PROGRAM item and push the Selector Knob OR press the Next button.
3. Turn the Selector Knob until ADD/EDIT PROGRAM is displayed.
4. Push the Selector Knob OR press the Next button.
   A cursor pointing to the current program number will be displayed. If there is a name displayed after the program number this is a pre-existing program which you may edit by selecting it.
5. To Add a program, rotate the Selector Knob to find the program number to which you want to add your new program. If you select a program number that already has a program entered, you will overwrite the existing program with the new one by entering new values.

6. Push the Selector Knob OR press the Next button to select a program for Addition or Editing. The display will present the “stage” type selection as below:

   Select Program
   > 001–
   Press Knob = Continue

   If the program you wish to Add requires only a single Rate Rise and Hold Temperature, select 1-Stage. If the program requires an initial Rate Rise and Hold Temperature, followed by a secondary Rate Rise and Hold Temperature, select 2-Stage.

   Push the Selector Knob OR press the Next button to select the program type.

7. The display will change as shown below:

   * Add/Edit Program *
   Enter Program Name
   001 –

   HEAT RISE
   HOLD TIME
   ENTRY TIME
   VACUUM

   The ^ symbol under the line identifies the current character position being entered. Rotate the Selector Knob to bring up the desired character, then push the Selector Knob OR press the Next button to advance to the next character in the Program Name. You may enter up to 15 characters. If you do not require all 15 characters then simply hold down the Next button to space through the unneeded characters or press the Selector Knob and jump to the first Parameter entry screen.

8. Dry Time Entry

   Dry Time is the time it takes the table to go from the full down/open position to the table up/closed position. This will occur with several pauses in up motion during the travel to allow the work piece to dry gradually.

   The range of values is 00 minutes, 00 seconds, to a maximum of 99 minutes.

   Rotate the Selector Knob to select the time value, then push the Selector Knob OR press the Next button to store the parameter.

   * Add/Edit Program *
   Dry Time 00:03:00
   (00:00:00–01:39:00)

9. Entry Temperature

   Entry Temperature is the temperature at which the table is closed completely and the temperature rise begins.

   The range of values is 25° C (77° F) to a maximum of 980° C (1796° F).

   Rotate the Selector Knob to select the temperature value, then push the Selector Knob OR press the Next button to store the parameter.

   * Add/Edit Program *
   Entry Temp 400C
   (25C – 980C)

10. Rate Rise

    Rate Rise or ramp up, is the number of degrees per minute the temperature will rise after the table has closed.

    The range of values is 0° C/Minute (0° F) to a maximum of 100° C/Minute (180° F).

    Rotate the Selector Knob to select the heat rate value, then push the Selector Knob OR press the Next button to store the parameter.

   * Add/Edit Program *
   Rate Rise 40C/M
   (00C/M – 100C/M)
11. Hold Temperature

Hold Temperature or the top temperature is the final, highest temperature in a 1-Stage Program, and an intermediate stopover temperature in a 2-Stage Program.

The range of values is 400° C (752° F) to a maximum of 1200° C (2192° F).

Rotate the Selector Knob to select the temperature value, then push the Selector Knob OR press the Next button to store the parameter.

12. Hold Time

Hold Time is the length of time the furnace stays at the top Hold Temperature. If the Program is a 2-Stage Program, there will be separate Hold Times for both Hold Temperature 1 and Hold Temperature 2.

The range of values is 00 hours, 00 minutes, 00 seconds, to a maximum of 49 minutes on Pro, and 18 hours, 10 minutes on Pro Press.

Rotate the Selector Knob to select the time value, then push the Selector Knob OR press the Next button to store the parameter.

13. Program Fusing Adjustment Parameter

IMPORTANT NOTE: THE FUSING ADJUSTMENT PROGRAM PARAMETER IS SIMILAR TO THE HIGH FUSING ADJUST AND LOW FUSING ADJUST FUNCTIONS FROM THE SPECIAL FUNCTIONS MENU IN THAT ANY VALUE ENTERED HERE WILL EITHER ADD TO, OR SUBTRACT FROM, THE HOLD TEMPERATURE PARAMETER IN THE PROGRAM. THE PROGRAM LEVEL FUSE ADJUST PARAMETER ADJUSTS THE HOLD TEMPERATURE ONLY FOR THE PROGRAM IT IS ENTERED IN, WHEREAS THE SPECIAL FUNCTIONS/ HIGH FUSING ADJUST AFFECTS ALL PROGRAMS WITH A HOLD TEMPERATURE >800 C AND THE SPECIAL FUNCTIONS/Low FUSING ADJUST AFFECTS ALL PROGRAMS <800 C.

Why do you need program fusing adjustments?

The Program level Fusing Adjust is useful for making minor adjustments to a single, specific Program without altering the original Program design.

All furnaces have individual firing characteristics, even with identical settings. The Special Functions High/Low Fusing Adjustment features are useful for matching the firing characteristics of two furnaces so that they fire identically.

At the initial Program Addition, you will want to use the original suggested Program parameters, until your experience suggests a Program specific adjustment is indicated.

Select either UNDERFIRES OR OVERFIRES by rotating the Selector Knob, then push the Selector Knob OR press the Next button and leave the default value of 0 Degrees, then push the Selector Knob OR press the Next button again. You can come back later and Edit the Program level Fusing Adjust parameter.

14. Table Down Temperature

The Table Down Temperature is the temperature at which the table will open after the Hold Time expires.

The range of values is 25° C (77° F) to a maximum of the final temperature.

Rotate the Selector Knob to select the temperature value, then push the Selector Knob OR press the Next button to store the parameter.

15. Cool Time

The Cool Time parameter specifies the length of time the table takes to go from the full up position to the full down position, with several intermediate pauses along the way.

The range of values is 00 minutes, 00 seconds, to a maximum of 99 minutes on Pro, and 01 hour, 39 minutes on Pro Press.

Rotate the Selector Knob to select the time value, then push the Selector Knob OR press the Next button to store the parameter.

16. Use Argon*

Inert Argon gas may be required for firing or sintering metals like Titanium to prevent oxidation. If enabled; any time the table is closed and there is no vacuum present in the muffle, the argon valve will open to allow inert argon gas to flow into the muffle.

The default value for Use Argon is NO. If you wish to use Argon select YES.

Rotate the Selector Knob to select the setting, then push the Selector Knob OR press the Next button to store the parameter.
The following procedures describe how to enter a pressing program:

1. Press the **Main Menu** button:
2. Select the **CHANGE PROGRAM** item and push the **Selector Knob** OR press the **Next** button.
3. Turn the **Selector Knob** until **ADD/EDIT PROGRAM** is displayed.
4. Push the **Selector Knob** OR the **Next** button.

A cursor pointing to the current program number will be displayed. If there is a name displayed after the program number this is a pre-existing program which you may Edit by selecting it.

To Add a program, rotate the **Selector Knob** to find the program number you want to add your new program into. If you select a program number that already has a program entered, you may overwrite the existing program with the new one.

6. Push the **Selector Knob** OR the **Next** button to select a program for Addition or Editing. The display will present the stage type selection as below:

- **Rate Rise (1)** Range: 406 C to 900 C
- **Hold Time (1)** Range: 0 to 30 Seconds
- **Rate Rise 2 (2-Stage Program)** Range: 900 C to 1025 C
- **Hold Time 2 (2-Stage Program)** Range: 0 to 4 Minutes

Rotate the **Selector Knob** to select the setting, then push the **Selector Knob** OR press the **Next** button to store the parameter.

17. Use Vacuum

The default value for Use Vacuum is **YES**.

First, enter the Level of Vacuum desired. This is the value at which the pump will cut off if you are using Intermittent Vacuum (See Special Functions selections for choosing Intermittent or Constant Vacuum) If the value drops more than 2 cm of mercury lower than the value specified here during Intermittent Vacuum use, the vacuum pump will automatically start and run until the programmed Level is once again reached, then automatically cut off. This will occur as many times as required.

The range of Vacuum Level settings is 28 cm of mercury to a maximum of 75 cm of mercury, although pumps weaken over time and usage. 71 cm of mercury is the default Level.

Rotate the **Selector Knob** to select the vacuum value, then push the **Selector Knob** OR press the **Next** button to store the parameter.

18. Start Vacuum

This parameter controls when the vacuum pump comes on. The selections are made by rotating the **Selector Knob** as in the example below. The range will be different depending on the values already put into the program.

- **Rate Rise (1)** Range: 425 C to 900 C
- **Hold Time (1)** Range: 0 to 30 Seconds
- **Rate Rise 2 (2-Stage Program)** Range: 900 C to 1025 C
- **Hold Time 2 (2-Stage Program)** Range: 6 Seconds to 4 Minutes
- **When Table Opens**

Rotate the **Selector Knob** to select the setting, then push the **Selector Knob** OR press the **Next** button to store the parameter. This is the final parameter. You will automatically be returned to the **Main Menu**.

---

**Press Firing Cycle Program** *(Pro Press 200 only)*

The following procedures describe how to enter a pressing program:

1. Press the **Main Menu** button:
2. Select the **CHANGE PROGRAM** item and push the **Selector Knob** OR press the **Next** button.
3. Turn the **Selector Knob** until **ADD/EDIT PROGRAM** is displayed.
4. Push the **Selector Knob** OR the **Next** button.

If the program you wish to Add requires only a single Rate Rise and Hold Temperature, select 1-Stage. If the program requires an initial Rate Rise and Hold Temperature, followed by a secondary Rate Rise and Hold Temperature, select 2-Stage. Push the **Selector Knob** OR press the **Next** button to select the program type.

7. The display will change as shown below:

   - **Rate Rise (1)** Range: 425 C to 900 C
   - **Hold Time (1)** Range: 0 to 30 Seconds
   - **Rate Rise 2 (2-Stage Program)** Range: 900 C to 1025 C
   - **Hold Time 2 (2-Stage Program)** Range: 6 Seconds to 4 Minutes
   - **When Table Opens**

   Rotate the **Selector Knob** to bring up the desired character, then push the **Selector Knob** OR press the **Next** button to advance to the next character in the Program Name. You may enter up to 15 characters. If you do not require all 15 characters then simply continue to press the **Next** button until the cursor is all the way to the right side and the display changes to the one below:

   - **Add/Edit Program**
   - **Enter Program Name**
   - **008 –**

   The ^ symbol under the position identifies the current character being entered. Rotate the **Selector Knob** to bring up the desired character, then push the **Selector Knob** OR press the **Next** button to advance to the next character in the Program Name. You may enter up to 15 characters. If you do not require all 15 characters then simply continue to press the **Next** button until the cursor is all the way to the right side and the display changes to the one below:
8. Entry Temperature
Entry Temperature is the temperature at which the table will close completely.

The range of values is 25°C (77°F) to a maximum of 980°C (1796°F).

Rotate the Selector Knob to select the temperature value, then push the Selector Knob or press the Next button to store the parameter.

9. Rate Rise
Rate Rise is the number of degrees per minute the temperature will rise after the table has closed.

The range of values is 0°C/Minute (0°F) to a maximum of 100°C/Minute (180°F).

Rotate the Selector Knob to select the heat rate value, then push the Selector Knob or press the Next button to store the parameter.

10. Hold Temperature
Hold Temperature is the final, highest temperature in a 1-Stage Program, or an intermediate stopover temperature in a 2-Stage Program.

The range of values is 400°C (752°F) to a maximum of 1200°C (2192°F).

Rotate the Selector Knob to select the temperature value, then push the Selector Knob or press the Next button to store the parameter.

11. Hold Time

HOLD TIME is displayed. This is the amount of time desired to hold the porcelain at the final temperature, before the furnace begins to press.

The range of values is 00 minutes, 00 seconds, to a maximum of 99 minutes.

Rotate the Selector Knob to select the time value, then push the Selector Knob or press the Next button to store the parameter.

NOTE: IF YOU ARE ADDING A 2-STAGE PROGRAM, THE RATE RISE 2, FOLLOWED BY THE HOLD TEMPERATURE 2, AND THE HOLD TIME 2 PARAMETERS WILL APPEAR HERE. IF NOT, THE TABLE DOWN TEMPERATURE WILL APPEAR NEXT.

NOTE: RE-PRESS IS SELECTED IN THE CALIBRATE OVEN SECTION OF THIS MANUAL, USING PASSWORD 315.

12. Fusing Adjustment Parameter

Why do you need fusing adjustments?
The Program Level Fusing Adjust is useful for making minor adjustments to a single, specific Program without altering the original Program design.

The Special Functions High/Low Fusing Adjustments features are useful for matching the firing characteristics of two furnaces so that they fire identically, no matter which furnace you use.

Upon initial Program Addition, you will want to use the original Program parameters as directed, until your experience suggests a specific Program adjustment is indicated.

Select either UNDERFIRES OR OVERFIRES by rotating the Selector Knob, then push the Selector Knob or press the Next button and leave the default value of 0 Degrees, push the Selector Knob or press the Next button again. You can come back later and Edit the Program level Fusing Adjust parameter.

13. PRESS TIME or RE-PRESS TIME is now displayed.

- PRESS TIME — Turn the Selector Knob to select the amount of time required to press your ceramic material. This function allows control of the press time from 1—30 minutes, but does not give you RE-PRESS time. After selecting the correct amount of time; press the Next button or press the Selector Knob to enter the program.

- RE-PRESS TIME — This function is password protected and adds an additional four (4) minutes to the selected amount when entering parameters under Re-Press Time. To use this function, you must have selected it in the Special Functions section under Calibration (see page 17 of instructions). The press rod remains extended during this period with no pause between the amount of time selected in the parameters and the additional four (4) minutes of the re-press.

NOTE: THE PRESS ROD STAYS EXTENDED DURING AND BETWEEN BOTH THE INITIAL AND RE-PRESS TIMES.

14. Cool Time

The Cool Time parameter specifies the length of time the table takes to go from the full up position to the full down position, with several intermediate pauses along the way.

The range of values is 00 minutes, 00 seconds, to a maximum of 99 minutes.

Rotate the Selector Knob to select the time value, then push the Selector Knob or press the Next button to store the parameter.
Copy/Change a Program
The Copy/Change a program feature allows a program to be copied from one program number to another and then changed. This feature is very useful when there are only minor differences between programs.

Procedures:
1. Press the Main Menu button.
2. Select Change Program, push the Selector Knob OR press the Next button.
3. Turn the Selector Knob until COPY/CHANGE PROG is displayed. Push Selector Knob OR press the Next button to select this feature.
4. COPY FROM: is displayed. The second line displays a program number and name. Turn the Selector Knob to find the program to be copied. Push the Selector Knob OR press the Next button to continue.
5. COPY TO: is displayed. Turn the Selector Knob to select a location for the copied program. If a program that is already entered is selected, you will write over the existing program. Push the Selector Knob OR press the Next button.
6. At this point, changes to the program may be made in the same manner as described in the section Add a Program on page 19. Refer to that section for instructions specific to each type of firing program.

NOTE: THE NAME OF THE NEW PROGRAM MUST BE CHANGED BECAUSE THE FURNACE DOES NOT ALLOW DUPLICATE PROGRAM NAMES.

Move a Program
The Move program feature allows a program to be moved from one number to another. This feature is useful for grouping programs for operator convenience.

Procedure:
1. Press the Main Menu button.
2. Select Change Program, push the Selector Knob OR press Next button.
3. Turn the Selector Knob until MOVE PROGRAM is displayed. Push Selector Knob OR press Next button to select this feature.
4. MOVE FROM: is displayed. The second line displays a program number and name. Turn the Selector Knob to find the program you wish to move. Push the Selector Knob OR press Next button.
5. MOVE TO: is displayed. Turn the Selector Knob to find the program number you wish to move to. If you select a program that is already entered, you will write over the existing program. Push the Selector Knob OR press the Next button to finish. You will be returned to the Main Menu automatically.

Erase a Program
This feature allows you to erase a program from memory. The space occupied by any program erased will become available for adding a new program.

Procedure:
1. Press the Main Menu button.
2. Select Change Program, push the Selector Knob OR press Next button.
3. Turn the Selector Knob until ERASE A PROGRAM is displayed. Push the Selector Knob OR press Next button to select this feature.
4. ERASE A PROGRAM: is displayed. Turn the Selector Knob to find the program you wish to erase. Push the Selector Knob OR press Next button to continue.
5. ERASE ??? NO is displayed. Turn the Selector Knob to YES to erase this program or NO to abort. Push the Selector Knob OR press Next button to continue. You will be returned to the Main Menu automatically.
Chapter Four — Run Program Menu

Turn the Selector Knob until the desired program is displayed. If the table has not been lowered, do so now.

Press the Selector Knob to begin this program.

Continue through this chapter to learn all of the displays and features available while a program is running.

The Run Program mode allows you to run programs and to view programs as they are running.


Running a Program – Repeat Programs

The furnace features a one-button repeat feature. If a program needs to be repeated, simply press the Selector Knob and the last program run will be repeated.

NOTE: THIS FEATURE IS DISABLED IF ANY SPECIAL FUNCTIONS HAVE BEEN ACCESSED OR IF THE CHANGE PROGRAM FEATURE HAS BEEN USED AFTER THE LAST PROGRAM WAS RUN.

Loading Your Work Into the Furnace

Press the down arrow key to lower the work platform. Place your work on the firing tray, press the Selector Knob and it will raise automatically under program control.

Features and Displays Available While a Program is Running

The following illustration shows the display when a program is running:

```
<Prog No. – Prog. Name>
> <Current Program Segment>
<Program Time Remaining>
      HH:MM:SS
<Current muffle temperature> <Current Vacuum
```

Rotating the Selector Knob while the Program is running will display additional information in four, successive screens:

The first alternate screen:

```
Target Temperature: <XXXX C>
Actual Temperature: <YYYY C>
Vacuum: <ZZZ CM>
```

The second alternate screen:

```
<Prog No. – Prog. Name>
Time Left: <HH:MM:SS>
Step Left: <HH:MM:SS>
NEXT = SKIP STEP
```

NOTE: IF THE NEXT BUTTON IS Pressed FROM THIS SCREEN THE PROGRAM WILL SKIP TO THE NEXT PROGRAM SEGMENT.

The third alternate screen:

```
<Prog No. – Prog. Name>
Change This Program?
Press Knob = Continue
```

NOTE: IF THE SELECTOR KNOB IS Pressed WHILE THIS SCREEN IS BEING VIEWED YOU WILL AUTOMATICALLY FIND YOURSELF IN THE PROGRAM EDIT MODE WITH THE FIRST PARAMETER DISPLAYED BEING THE NEXT PROGRAM SEGMENT AFTER THE CURRENTLY RUNNING SEGMENT. THIS FEATURE ALLOWS YOU TO ALTER THE PROGRAM WHILE IT IS RUNNING. AFTER THE PROGRAM FINISHES THIS RUN THE EDITED PARAMETERS WILL CHANGE BACK TO THE ORIGINALLY STORED VALUES. THE CHANGES YOU MAKE USING THIS ALTERNATE SCREEN, DURING A RUNNING PROGRAM WILL NOT BE PERMANENT.

The fourth alternate screen:

```
<Prog No. – Prog. Name>
Night Mode After?
> No
Next = Option Change
```

Pressing the Next button will toggle the “No” in the screen above to “Yes”. Pressing the Next button a second time will change the “Yes” to “No”.

23
The LED Graph

The LED graph follows the running Program's progress and provides a quick visual reference on how far the program has progressed.

The illustrations below demonstrate the progression of LEDs on a 1-Stage Program:

> Pre Dry segment:

*Argon feature is only available on Pro 200

**Press function is only available on Pro Press 200

> Rate Rise segment:

> Hold Temp segment:

> Closed Cool segment:

> Open Cool segment:

The illustrations below demonstrate the progression of LEDs on a 2-Stage Program:

> Pre Dry segment:

> First Rise segment:

> First Hold segment

> Second Rise segment:

> Second Hold segment:

> Closed Cool segment:

> Open Cool segment:
Running a Pressing Program

(Pro Press 200 only)

The Pro Press 200 can press into a 100 or 200 gram investment mold. Configure the firing tray and press insert as shown below for each size mold.

1. If the muffle temperature is below the entry temperature specified in the program, the table will raise to the closed position while the temperature rises. If the muffle temperature is above the entry temperature specified in the program, the table will remain down while the muffle cools. When the programmed entry temperature is reached, the furnace will begin to beep continuously.

2. After pressing the Next button, the table will lower. Place the ring onto the firing table and press the Next button. The display will read:

   Next = Raise table

3. The Pressing program will begin running.

   NOTE: IF THE RE-PRESS FEATURE IS DISABLED, (CALIBRATION PASSWORD 315 SET TO “TIMED PRESS = YES”) THEN THE PRESS TIME SPECIFIED IN THE PRESSING PROGRAM PARAMETERS WILL BE THE ACTUAL PRESS TIME. IF THE RE-PRESS FEATURE IS ENABLED, (CALIBRATION PASSWORD 315 SET TO “TIMED PRESS = NO”) THEN THE PRESS TIME WILL BE FOUR MINUTES PLUS THE AMOUNT OF RE-PRESS TIME SPECIFIED.

Running a Re-Press Program

To run a Re-Press Program, Calibration Password number 315 must be set to “Timed Press = No”

Press the Special Functions Key, then rotate the Selector knob to the “Calibration Password” prompt and press the Next key. At the password entry prompt rotate the Selector knob until the display says “315” and press Next key.

Timed Press = No

Rotate the Selector Knob until the screen looks like the one above and press the Next button. This has activated the Re-Press mode.

1. If the muffle temperature is below the entry temperature specified in the program, the table will raise to the closed position while the temperature rises. If the muffle temperature is above the entry temperature specified in the program, the table will remain down while the muffle cools. When the entry temperature is reached, the furnace will begin to beep continuously. The display will read:

   Next = Raise table

2. If the table is up, press the Next button, the table will lower. With the table in the down position, place the ring onto the firing table and press the Next button.

3. The Pressing program will begin running.

4. The temperature will now rise to the final temperature selected in the program. When the final temperature is reached, the hold time will begin.

5. When the hold time has expired the display will read as shown below. The furnace will begin the first press. The first press will continue for four minutes. After the first press has been completed re-pressing will occur if password 315 is activated.

   (See the Calibrate Oven section of this manual for further information.)

6. When running a re-press program the furnace will automatically press for four minutes and then the additional “Re-Press” time. The display will now say RE-PRESSING and the furnace will begin to re-press the work for the amount of time specified in the program. When the re-press time has expired, the press will fully retract and the table will lower automatically.
Chapter Five — Maintenance
Cleaning The Furnace

Your new furnace may be cleaned by using a soft cloth and kitchen cleaners such as Fantastic® or Formula 409®. The front panel should be cleaned with a window cleaner such as Windex®.

Never clean the display window with a dry cloth or tissue as this will scratch the surface.

Always moisten the cleaning cloth with a cleaner such as Windex® or water.

Cleaning The Furnace

Chapter Five — Maintenance

Argon Gas Requirements and Installation (Pro 200 only)

Enter your own program based on the manufacturer’s instructions for the de-contamination material you are using.

The best source of Argon is from your local bottled gas dealer. Usually the same dealer who furnishes Oxygen can also supply Argon. If not, he can recommend a reliable source.

There are generally three grades of Argon available and your dealer can tell you the cost of each. Most furnace buyers use the lower cost commercial or industrial grade of Argon.

The same dealer should be able to supply a regulator for the bottled Argon. It should have a gauge showing the pressure inside the tank, and a smaller gauge showing the pressure applied to the outside system. The smaller gauge should read no more than 120 PSI maximum applied to the furnace.

The furnace requires between one and two PSI of Argon gas pressure. The use of more pressure will not improve the performance of the furnace. If you plan to use the Argon gas feature of this furnace you should also purchase a low-pressure Argon post regulator kit.

The low-pressure post regulator kit attaches to the regulator supplied by your gas supplier. Installation of the low pressure regulator is as follows:

1. The regulator supplied by the bottled gas company usually has a hose barb fitting to attach your hose. Remove this fitting.

2. The low-pressure regulator kit has a 1/4 inch male pipe thread fitting supplied on one end. The other end has a hose barb fitting for the supply hose to the furnace.

3. Attach one end of the supplied hose to the low-pressure regulator. Do not attach the other end to the furnace yet.

4. Turn on the gas supply to the regulators.

5. Adjust the pre-regulator (supplied by your gas dealer) to around 20 PSI.

6. Pull the red locking ring on the low-pressure regulator towards the black Selector Knob on the bottom of the regulator to release the low-pressure Argon post regulator kit.

7. Turn the black Selector Knob clockwise until the low-pressure gauge reads between 1 and 1.5 PSI. You may adjust the regulator at this time.

8. Push the red locking ring up towards the gauge. This will lock the pressure setting.

9. Turn off the gas supply from the bottle. Be sure to turn off the supply when the gas is not being used to avoid the loss of gas due to fitting leaks.

10. Attach the hose to the Argon connector on the back of the furnace.

The furnace is now ready to run titanium and sintering programs, which require Argon gas.

If, for any reason, you need to access the interior of the chassis for the purpose of minor servicing or replacement of components such as valve plungers, you must remove the chassis top plate via two screws on the rear of the chassis, then slide the chassis top plate towards the front of the furnace, then lift it up and set it aside. DO NOT remove the six screws on the bottom of the chassis in an attempt to remove the entire chassis top assembly as the bottom portion contains various electrical connections which will prevent the removal of the bottom or subject the electrical connections to damaging stress unless first disconnected from the top.

NOTE: IF HAZARDOUS MATERIAL IS SPILLED ON OR INSIDE THE FURNACE, CONTACT WHIP MIX TECHNICAL SUPPORT IF THERE IS ANY DOUBT AS HOW TO SAFELY REMOVE THE MATERIAL.
Purge/Decontamination

Moisture removal must be done first:

When the furnace is unused for prolonged periods of time, the muffle insulation will absorb moisture. This moisture can cause firing problems if not removed before firing porcelain. Moisture can also shorten the life of the vacuum pump. To remove moisture, change your idle temperature to 651°C/1204°F and leave your table open for at least an hour with the firing tray in place.

The purpose of a purge is to clean out cross-contaminations in the muffle. Charcoal can be used but can shorten the life of the thermocouple.

Follow the instructions for “Adding a program” to set up your Purge cycle using the following parameters.

- Select 1 Stage
- Name the program “Purge”
- Dry Time: 30 seconds
- Entry Temp: 400°C/752°F
- Rate Rise: 50°C/90°F
- Hold Temp: 1050°C/1922°F
- Hold Time: 15 Minutes
- Fuse Adjust: NO
- Table Down: 1050°C/1922°F
- Cool Time: 10 minutes
- Use Vacuum: YES
- Vacuum Level: 71cm/28in
- Start Vacuum During: Rate Rise @ 400°C/752°F
- Release Vacuum During: Hold time @ 5 Minutes

If you have any further questions regarding these instructions please contact TOPS at Whip Mix.

Trouble Shooting Guide

The Pro 200 and Pro Press 200 furnaces offer a number of self checks and warning messages that are designed to identify problems. Several of these are listed below:

Not Enough Vacuum
This error occurs if the furnace has not achieved its target vacuum level within 90 seconds. The program will abort automatically. Check the vacuum level setting. If the barometric pressure is unusual, you may have to call for fewer vacuums.

Duplicate Name
This error occurs if you have entered a program name that is identical to one already stored in memory. Press the Next button to continue. Enter a different name for this program.

Check Programs
The computer has detected a corruption of the memory in the area where programs are stored. Check all programs and correct any that have been changed.

Call for assistance.

Temp Cal Error
An error has been detected in the temperature calibration. Recalibrate the temperature to correct this problem.

Vac Cal Error
An error has been detected in the vacuum calibration. Recalibrate the vacuum temperature to correct this problem.

Call for assistance.

Max Temp Error
The computer has detected a temperature reading higher than the maximum allowed. The furnace will automatically shut the heating elements off. Turn the power off to reset this error. If the error occurs again call for assistance.

Thermocouple Error
This error occurs if the furnace detects an open thermocouple for a period of 25 seconds. The furnace will automatically turn off the heating elements. The furnace should be turned off and on again to clear this error. If the error occurs again, the thermocouple should be replaced.

Call for assistance.
Vacuum Test

1. Press the † Up arrow button to raise the table fully up. You cannot start a vacuum test until the table is fully up.
2. Select the Special Functions item.
3. Turn the Selector Knob to Test Furnace. Press the Next button.
4. Turn the Selector Knob to Vacuum Test. Press the Next button. The vacuum test will automatically begin.

Fuses

The furnace contains two fuses:
• On the rear, just below and to the right of the power cord, there are two 12 Amp (115 Vac) Slo-Blo or two 7 Amp (220 Vac) Slo-Blo, .25 x 1.25 inch ceramic fuses.

If More Help is Needed

We hope you have many years of trouble-free service from your furnace. If you do have problems with the furnace, or if you have questions about the furnace not covered in the manual, contact your dealer or Whip Mix at:

www.whipmix.com
Phone: 800-626-5651
Fax: 502-634-4512
E-Mail: tops@whipmix.com

Be prepared to provide the following information:

1. Your name
2. Your lab’s name and address
3. Your lab’s phone number
4. Your lab’s fax number
5. Furnace model and serial number (serial number can be found on the rear of the furnace)
6. Your question/problem

When you call, it would be helpful if you are near the furnace. The technician will probably ask you to run tests and report the results, or read the display while the test is running.
### Replacement Parts

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<tr>
<th>Part Number</th>
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<tr>
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<td>Power Cord 115V</td>
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<tr>
<td>96008</td>
<td>Power Cord 230V</td>
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<td>96001</td>
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<td>96020</td>
<td>Investment Ringliner Pkg of 10</td>
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<td>Press Regulator with Quick disconnect</td>
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<td>96012</td>
<td>Press Insert Trays</td>
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<td>96013</td>
<td>Firing Tray with recess (Press)</td>
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<tr>
<td>96015</td>
<td>Firing Tray Regular (Pro 200 &amp; Press)</td>
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<tr>
<td>96339</td>
<td>Encoder Assembly (Selector Knob Control)</td>
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<td>96336</td>
<td>Key Pad Assembly</td>
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<td>96341</td>
<td>Vacuum Sensor Assembly</td>
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<td>Flash Drive Pro 200</td>
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<td>96098</td>
<td>Flash Drive Pro Press 200</td>
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<td>96016</td>
<td>Fuses (115 VAC – 12 Amp) Pkg of 2</td>
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<tr>
<td>96092</td>
<td>Fuses (250 V – 7 Amp Slo-Blo) Pkg of 2</td>
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Note: Other replacement parts available. Contact TOPS at 800-626-5651 for assistance. **Must have serial number on unit to identify correct part.**

### Technical Specifications

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<tr>
<td>Power Supply</td>
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<td>Power Consumption</td>
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<td>Pro Press 200 - 71 lbs.</td>
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<td>Muffle Chamber</td>
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<td>Maximum Temperature</td>
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<td>Pro Press 200: 11&quot; W x 16&quot; D x 25&quot; H</td>
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Pro Series Accessories

High-Efficiency Vacuum Pump

ProCal
### Fahrenheit to Centigrade

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### Centigrade to Fahrenheit

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