

MEGASTAR PLUS™

PORCELAIN FURNACE



MANUAL

 **JELRUS**
INTERNATIONAL

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MEGASTAR PLUS™ SPECIFICATIONS

Electrical: 100V 50/60 Hz - 1700W

100V 50/60 Hz - 1700W

220V 50/60 Hz - 1700W

240V 50/60 Hz - 1700W

Muffle: 3.5 in. (8.9 cm) diameter

Dimensions: 18 1/4" W x 14 3/4" D x 17 3/4" H

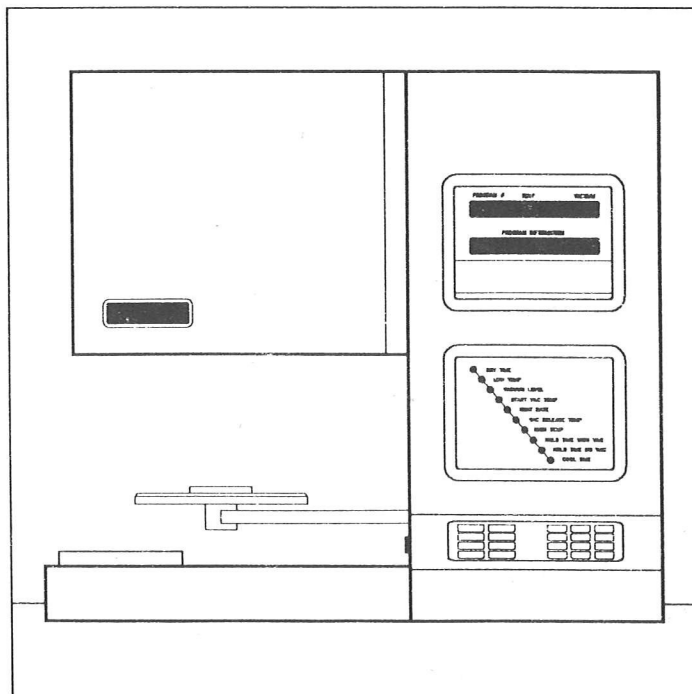
(46 cm W x 38 cm D x 45 cm H)

Requires external vacuum pump that can achieve
29.0 in. (73.6 cm) of Hg in 60 seconds.

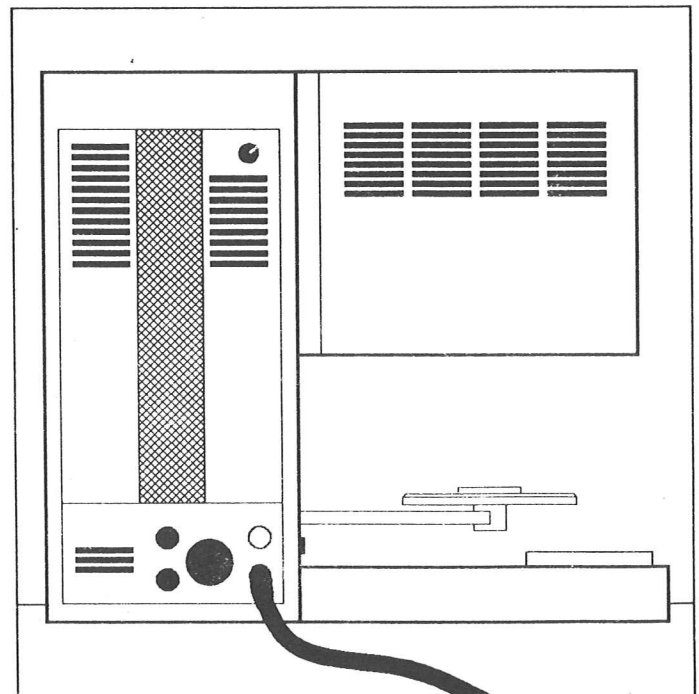
INSTALLATION

1. Remove all packing material from around the furnace.
2. Position the furnace in an area which permits comfortable operation. Make sure it is at least 2 inches (5cm) from any combustible surface.
3. Connect the vacuum pump hose from the vacuum pump to the vacuum hose connector on the rear panel of the furnace.
4. Plug the vacuum pump line cord into the vacuum pump receptacle on the rear panel of the furnace. The current rating of the pump must be less than 4.5 Amps.
5. Plug the power cord into the wall receptacle. A separate 15 Amp circuit is recommended for all voltages. Wait 5-10 seconds before turning on the power switch.
6. Press POWER switch ON. Furnace door will open automatically. Place firing block onto furnace door.
7. Your new Jelrus MEGASTAR PLUS has been factory-calibrated. It is not necessary to re-calibrate before use. If you wish to re-calibrate, see TEMPERATURE CALIBRATION, Page 11.
8. Your furnace is now ready for operation.

FRONT



BACK



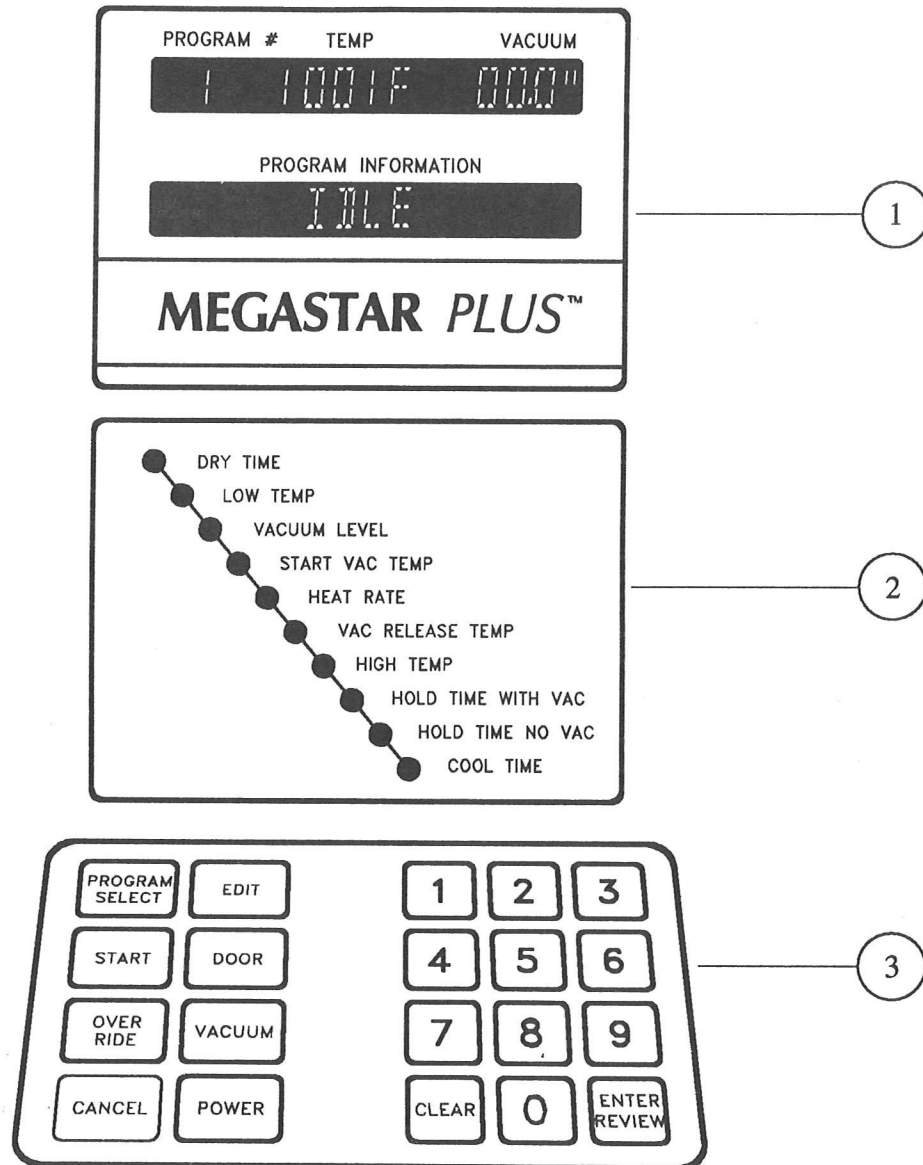
FRONT PANEL

Your new MEGASTAR PLUS Porcelain Furnace brings the power of the modern microcomputer to the dental laboratory. It will remember 25 different programs and perform each of them accurately at your command. In addition, it clearly displays all the program information. Your new MEGASTAR PLUS is also user programmable. You select all the program variables for each of the programs # 1-25.

<u>PARAMETER</u>	<u>RANGE*</u>	<u>DEFINITION</u>
DRY TIME	0 to 20 min.	Selected amount of time platform completes movement from fully open position to fully closed position.
LOW TEMP	100° to 2148°F (38° to 1175°C)	Temperature at which cycle starts. If LOW TEMP is selected to be less than 1000°F (538°C), MEGASTAR PLUS will idle at selected LOW TEMP. If LOW TEMP is selected to be above 1000°F (538°C), MEGASTAR will idle at 1000°F.
VAC LEVEL	0 10.00 to 28.00 in.Hg (25.0 to 71.0cm Hg) 1	Vacuum at which work is required to be fired. There are three options: OFF = No vacuum. User selected value. FULL = the maximum value attainable by the vacuum pump. (If the option to not use vacuum has been selected, START VAC TEMP, VAC RELEASE and HOLD TIME W/VAC will not be displayed and the program will not execute these steps.)
START VAC TEMP	This value cannot be less than LOW TEMP and must be less than VAC RELEASE TEMP.	Temperature at which vacuum will turn on. If selected value of START VAC TEMP is equal to LOW TEMP, vacuum starts as soon as door is closed.
HEAT RATE	40° to 400 °F/min. (22° to 222°C/min.)	Rate at which muffle temperature increases with time.
VAC RELEASE TEMP	VAC RELEASE TEMP must be greater than START VAC TEMP and not greater than HIGHTEMP.	Vacuum release temperature can be programmed to release vacuum before HIGH TEMP, at HIGH TEMP, or after holding at HIGH TEMP for up to 20 minutes.
HIGH TEMP	100° to 2200°F (38° to 1204°C)	Maximum temperature to which work must be heated during processing cycle.
HOLD TIME W/VAC	0 to 20 min.	Amount of time vacuum will be held at HIGH TEMP. When this time elapses, vacuum will be released.
HOLD TIME NO VAC	0 to 20 min.	Amount of time furnace will maintain HIGH TEMP after vacuum is released.
COOL TIME	0 to 20 min.	Selected amount of time in which platform completes movement from fully closed position to fully open position.

*NOTE: Attempts to enter a value outside of acceptable limits will result in an INVALID ENTRY message on the Main Display.

FRONT PANEL



1. MAIN DISPLAY - Shows Operating Conditions

PROGRAM #
TEMP
VACUUM
PROGRAM INFORMATION

2. PROGRAM SEQUENCE

This panel illustrates program sequence (Does not illuminate).

3. KEYPAD

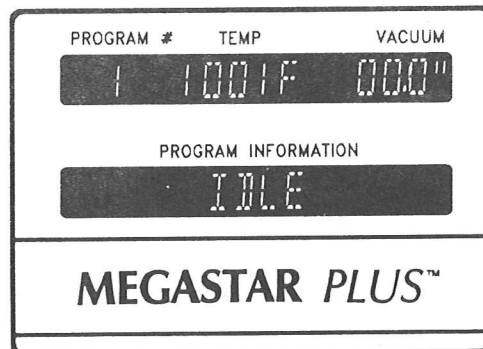
For selecting functions and entering desired data into programs.

SELECTING AND STARTING A PROGRAM

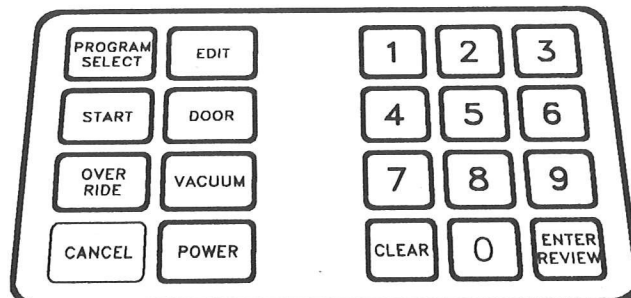
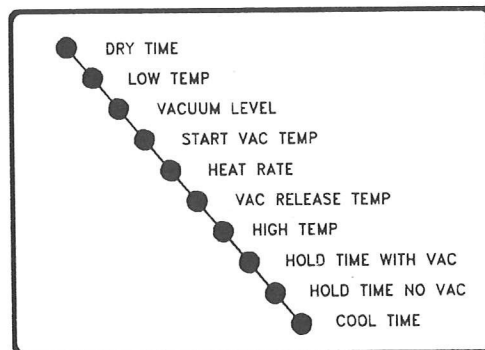
To run a program or to change a program, it is necessary to select that program number and have it displayed on the PROGRAM # display.

NOTE: If you make an error when using the Keypad, press CLEAR and then enter the correct data.

1. Once the furnace has been turned on press PROGRAM SELECT, then the program number, and then ENTER/REVIEW.
2. This program number will now be on the PROGRAM # display.
3. To start a program press START.
4. To stop a program while it is in progress press CANCEL.



NOTE: All programs must run from the beginning. If a program is started, the door will not begin to close until the temperature in the muffle is equal to LOW TEMP. This delay will occur if the temperature in the muffle is either below or above LOW TEMP.



USING OVERRIDE

OVERRIDE is a feature which allows you to reintroduce your work into the hot muffle for one minute or more at the same value of HIGH TEMP or at a higher value of HIGH TEMP. No vacuum is needed or activated during OVERRIDE.

WHEN OVERRIDE CAN BE ACTIVATED:

Initially, OVERRIDE can only be activated during COOL TIME, when the message "COOLING" flashes on the lower display. (The door first begins to open at this time.) Once "COOLING" ceases to flash and is displayed steadily, OVERRIDE cannot be activated. If it is desired to reintroduce the work after this cycle's completion, a new cycle would have to be initiated.

The amount of time available to determine whether or not to activate OVERRIDE is one minute if your COOL TIME is one minute or more. If your COOL TIME is less than one minute, the amount of time available for your decision is equal to the COOL TIME.

EXAMPLE 1: Your COOL TIME is 30 seconds, therefore you will have 30 seconds to determine whether to activate OVERRIDE once the message "COOLING" starts flashing on the lower display. If the 30 second interval has passed and OVERRIDE was not selected, your MEGASTAR PLUS will chime and display the message "COMPLETE".

EXAMPLE 2: Your COOL TIME is 2 minutes. You will have 1 minute to determine whether or not to use OVERRIDE since the message "COOLING" will flash for no more than 1 minute. Once the first minute has expired, "COOLING" will be displayed steadily for the remaining minute of your 2 minute COOL TIME. Once "COOLING" is displayed steadily, OVERRIDE cannot be activated and the program will come to its normal completion as programmed.

HOW TO ACTIVATE OVERRIDE:

Each OVERRIDE cycle is 1 minute in duration. Press the OVERRIDE button to initiate an OVERRIDE cycle. At this point, HIGH TEMP and its value is displayed for 10 seconds on the lower display and the unit reintroduces your work into the hot muffle for an additional minute of HOLD TIME. After the first 10 seconds have elapsed, "OVERRIDE" will flash on the display for the remaining 50 seconds of the one minute OVERRIDE cycle.

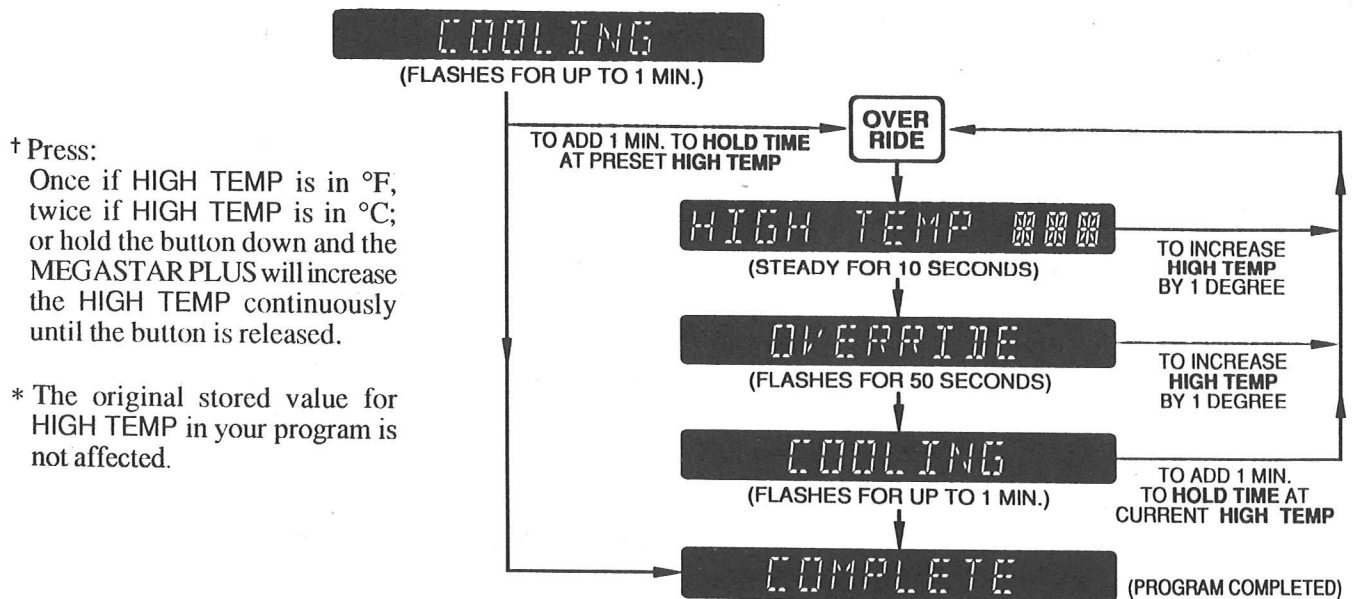
To increase HIGH TEMP press OVERRIDE again[†] while either "HIGH TEMP" or "OVERRIDE" is displayed. Every time you press the OVERRIDE button again[†] HIGH TEMP will increase by one degree*. You can increase HIGH TEMP up to a maximum of 50°F/28°C above the original setting. Your work will return into the hot muffle for one additional minute starting from the moment the OVERRIDE button was last pressed.

To reintroduce your work into the muffle again without increasing HIGH TEMP, wait until the message "COOLING" is flashing before pressing the OVERRIDE button. You may repeat this as many times as you wish - each additional OVERRIDE will be 1 minute in duration.

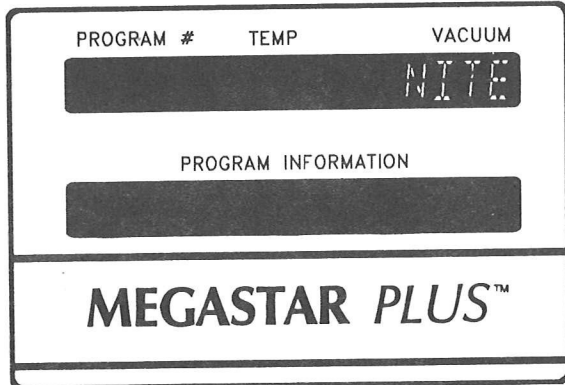
HOW TO CANCEL OVERRIDE:

To cancel OVERRIDE at any time, press the DOOR button. "COOLING" will be displayed, the COOL TIME sequence will begin again, and the furnace door will open.

HOLD TIME ENDS, COOL TIME BEGINS, "COOLING" STARTS FLASHING ON THE LOWER DISPLAY...



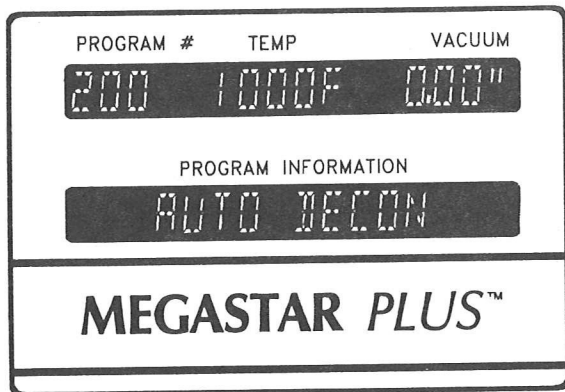
SPECIAL PROGRAMS



NITE MODE

Program #100

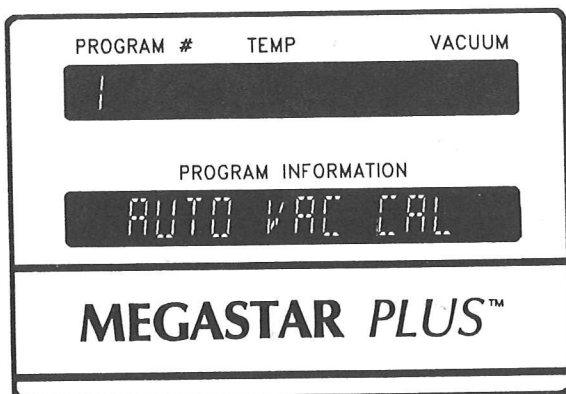
A program which keeps the door closed and maintains muffle temperature at 250°F (121°C). Simply press PROGRAM SELECT, enter PROGRAM # 100, and press ENTER/REVIEW. The door will close and display will only show the word NITE. Press CANCEL to get out of NITE mode.



AUTOMATIC DECONTAMINATION

Program # 200

Simply place Jelrus Pur-I-Fire™ decontamination pellets into their tray, place onto the firing block and the MEGASTAR PLUS does the rest - automatically. (See Page 14)



AUTOMATIC VACUUM CALIBRATION

Program #900

AUTOMATIC TEMPERATURE CALIBRATION

(Automatic Silver wire calibration)

See Page 11 for instructions.

Program #912

Program #913

Degrees Fahrenheit / English
Degrees Celsius/ Metric

ENTERING INFORMATION: PROGRAMS #1 - 25

NOTES: a. If you make an error when using the Keypad, press CLEAR button then press the correct values.
b. Time is expressed in minutes and seconds. For example, one minute is pressed as '1 0 0' which is 1 minute and 00 seconds.

1. Push the PROGRAM SELECT button, then the digits for the program number desired, and finally the ENTER/REVIEW button. The program number will appear on the display.
2. Push the EDIT button on the keypad. The word EDIT will flash on the display. In the Edit mode any or all of the program information can be changed.
3. The display will show all the values, one at a time, in that particular program. Each time you press ENTER/REVIEW the next firing parameter in that program will appear on the display. Initially the display will read DRY TIME.
4. **DRY TIME.** The message DRY TIME will appear on the display. If you wish to change the value displayed, enter the value desired by depressing the proper numbers on the Keypad. After the proper value is displayed, press ENTER/REVIEW on the keypad. This enters the value into the program.

The words DRY TIME will go off and LOW TEMPerature will appear. This value is now ready to be changed, or if you want to keep the value displayed, simply press ENTER/REVIEW.

5. **LOW TEMP.** Now enter the desired LOW TEMP. After pressing the ENTER/REVIEW button, the message VAC LEVEL will appear on the display.
6. The **VAC LEVEL** will be displayed as one of the following:
 - a. FULL - meaning maximum vacuum attainable by your pump.
 - b. OFF - no vacuum desired.
 - c. 10.00 to 28.00 in. Hg (25.0-71.0 cm Hg) if a specific vacuum level is desired.

To select the desired vacuum level:

- For Full Vacuum, press 1 on Keypad, then ENTER/REVIEW.
- For No Vacuum, press 0 on the Keypad, then ENTER/REVIEW.
- For specific vacuum, press the digits for the numerical value of the vacuum you desire between 10.0 in. and 28.0 in. Hg (25.0 and 71.0 cm Hg), then ENTER/REVIEW.

EXAMPLE: To select 28.60 in. Hg, press the digits 2, 8 and 6. The computer will automatically insert the decimal point and the last zero. When the desired number is shown on the main display, press the ENTER/REVIEW button. When using any program with vacuum, we recommend FULL vacuum.

7. **START VAC TEMP.** The message VAC START will now appear. The MEGASTAR PLUS will skip the Vacuum Start (VAC START) and go to the Heat Rate Parameter (HEAT RATE) if you have selected to run a cycle without vacuum (VAC LEVEL OFF - displayed).

Your MEGASTAR PLUS has a feature which enables you to start your program without vacuum and have vacuum come on later at a temperature of your choice. If you desire the vacuum to start as soon as the door closes at LOW TEMP, enter the same value for START VAC TEMP as you have entered for LOW TEMP.

ENTERING INFORMATION INTO PROGRAMS #1 - 25

If you desire to start the vacuum at a temperature higher than the LOW TEMP, enter this higher value for VAC START TEMP. After pressing ENTER/REVIEW, the message HEAT RATE will now appear.

8. **HEAT RATE.** The MEGASTAR PLUS can be programmed to operate at any heat rate from 40 to 400°F min. (22 to 222°C/min.). Enter the HEAT RATE desired on the keypad. After pressing ENTER/REVIEW the message VAC RELEASE will appear.
9. **VAC RELEASE TEMP.** The vacuum can be released below HIGH TEMP, at HIGH TEMP, or after holding at HIGH TEMP. After pressing ENTER/REVIEW, the message HIGH TEMP will appear.
10. **HIGH TEMP.** Enter on the keypad any value equal to or greater than the VACUUM RELEASE TEMP selected in step 9, up to a value of 220°F (1204 Deg.C). Press ENTER/REVIEW.
11. **HOLD TIME W/VAC.** When you have selected the HIGH TEMP equal to the VAC RELEASE TEMP, the message HOLD W/VAC will appear after you press the ENTER/REVIEW button. Enter the time, from 0 to 20 minutes, you want to have the furnace execute **HOLD TIME W/VAC** at HIGH TEMP before releasing the vacuum.
12. **HOLD TIME NO VAC.** If you have selected a VACUUM RELEASE TEMP lower than the HIGH TEMP, the furnace cannot execute HOLD TIME W/VAC at HIGH TEMP since the vacuum has already been released. The MEGASTAR PLUS computer knows this and the status light will skip over this setting right to the HOLD TIME NO VAC (hold time without vacuum). Enter the time desired, from 0 to 20 minutes, to input HOLD TIME NO VAC at HIGH TEMP.
13. **COOL TIME.** Press the desired cool time, between 0 and 20 minutes, on the Keypad. Press ENTER REVIEW. The message DRY TIME will appear. You have now completed entering the information into this program, and the MEGASTAR PLUS is now at item 4 of this section of instructions (see page 9).

GENERAL:

You may review your entire program by pressing the ENTER/REVIEW button. Continue to press this button to review each individual firing parameter from DRY TIME through COOL TIME.

If you would like to change any values, you can display any parameter you wish to change by pressing ENTER/REVIEW. Pressing ENTER/REVIEW again will change the parameter displayed to the next parameter. Holding ENTER/REVIEW down will automatically move the displayed information rapidly from one parameter to those following it.

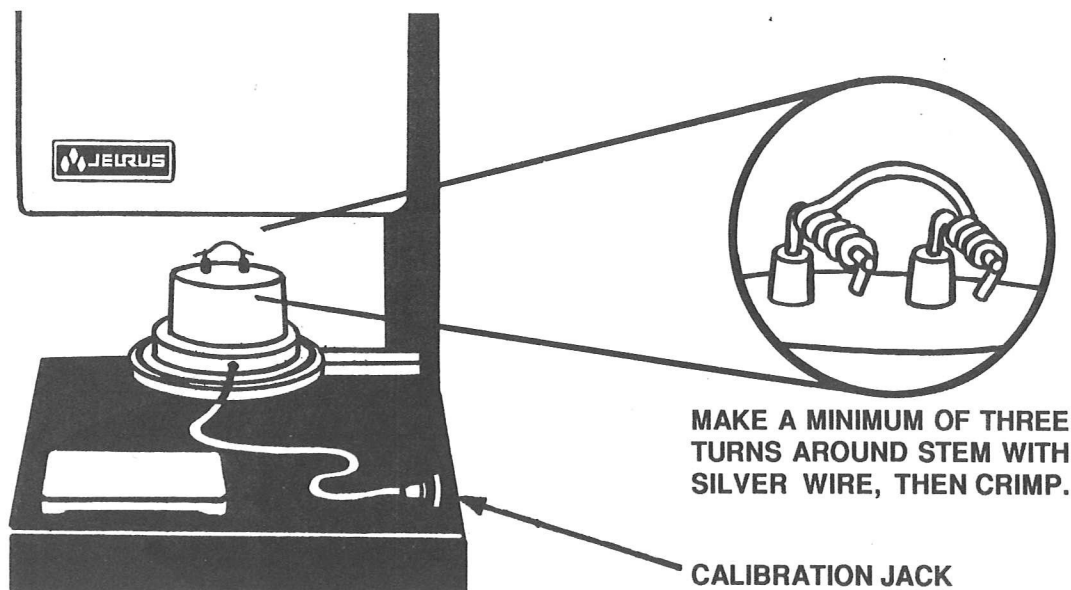
To leave the EDIT mode and put the MEGASTAR PLUS into the IDLE mode, press EDIT. The PROGRAM INFORMATION window will display the word IDLE. THE MEGASTAR PLUS is programmed to IDLE at 1000°F (538°C). If you have selected a LOW TEMP below 1000°F, the MEGASTAR PLUS will idle at your selected LOW TEMP.

TEMPERATURE CALIBRATION

Your MEGASTAR PLUS has been factory calibrated. It is not necessary to re-calibrate unless you suspect a temperature related problem. Best results are obtained by running one program (with a HIGH TEMP set at 1760°F/960°C) prior to performing temperature calibration.

1. Clean the calibrating instrument electrodes with sandpaper or emery cloth then bridge them with the pure silver wire* as shown. Wrap the wire tightly around each electrode at least three times. Crimp in place. Leave a small loop of wire between the electrodes. **DO NOT STRETCH** the wire between the electrodes.
2. Remove the door insulating platform and replace it with the calibration instrument. Guide the wire leads from the calibration instrument out toward the front of the furnace.
3. Insert the plug from the calibration instrument into the CALIBRATION JACK. Make sure the plug is completely inserted. Observe that the display reads AUTO TEMP CAL.
4. Press the START button. The display will read TEMP CAL RUNNING. When the low temperature has been achieved the door will close automatically and the furnace will execute the Calibration Program. There is a ten minute heat soak at 1300°F (704°C) before the temperature rise begins. At 1760°F (960°C) the silver wire will melt. The MEGASTAR PLUS will automatically adjust the temperature shown on the main display to 1760°F (960°C). A tone will sound to let you know that this has taken place.
5. After a short time the door will open. Verify that the silver wire has melted. Remove the calibration instrument plug from the CALIBRATION jack.
6. Using tongs or tweezers, remove the calibration instrument and replace it with the regular firing block.

*NOTE: Additional silver wire is available - Reorder #28383



DIAGNOSTIC MESSAGES

<u>MESSAGE</u>	<u>CAUSE</u>	<u>COMMENTS</u>
1. INVALID ENTRY	Number entered is outside of allowable limits. OR Two or more parameters are in conflict.	Press CLEAR and enter new number. Press CLEAR and enter new parameter.
2. INVALID PROGRAM	Program number entered is outside of allowable limits.	Press CLEAR and enter new program number.
3. CHECK VACUUM	Low or no vacuum.	Press CLEAR. Check pump, hoses, and connections. Pump must achieve selected vacuum within one minute.
4. CHECK DOOR	Debris on gasket, obstruction or door sensor difficulty.	Press CLEAR.
5. DO SILVER CAL	Temperature calibration has drifted.	Press CLEAR. Perform silver wire calibration.
6. CHECK SIL WIRE	Silver wire is not properly attached to calibration brick.	Press CLEAR. Check silver wire and crimp onto calibration block.
7. DO VACUUM CAL	Vacuum calibration has drifted.	Press CLEAR. Run program 900 - Automatic Vacuum Calibration.

DIAGNOSTIC MESSAGES

<u>MESSAGE</u>	<u>CAUSE</u>	<u>COMMENTS</u>
8. POWER FAIL	Power Failure.	Can occur during program running or edit. Press CLEAR.
9. CHECK SET VALUES	Incorrect program parameters.	Determine which parameter is improper and re-program or press CLEAR and try again.
10. OPEN TC*	Open Thermocouple.	Thermocouple needs to be repaired or replaced. Press CLEAR.
11. MUFFLE GOOD		Initiated by Muffle Test Program 930.
MUFFLE OPEN*	Faulty Muffle.	Initiated by Muffle Test Program 930. Check connections, replace Muffle if necessary.
12. TRIAC SHORTED*	Defective Triac or Triac Circuit.	Initiated by Triac Test Program 931 or self-diagnostics. Press CLEAR.
TRIAC OPEN*		Initiated by Program 931. Replace Triac.
TRIAC GOOD		Initiated by Program 931. Press CLEAR.
REPLACE TRIAC*	Faulty Triac, or Thermocouple leads are reversed.	Initiated by self-diagnostics. Repair is required.

* You may wish to contact your Jelrus Technical Service Representative for assistance.

AUTOMATIC DECONTAMINATION

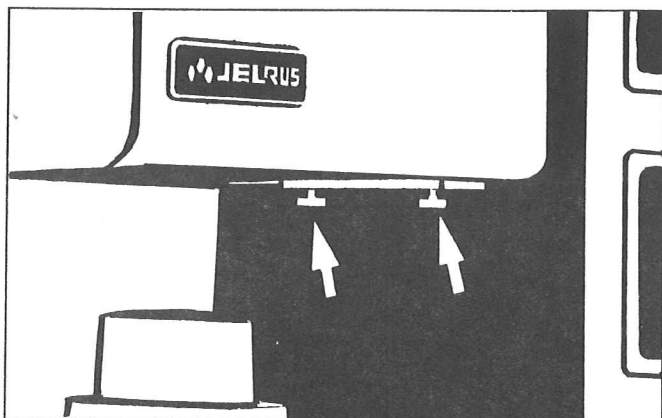
It is good practice to decontaminate your furnace at least twice a month. Even if you do not use silver/palladium alloys, contamination can take place simply from the use of steel tweezers or tongs. We recommend the use of Pur-I-Fire™ Decontaminant (Jelrus Order #7102).

1. Place a single layer of Pur-I-Fire™ pellets on the ceramic tray provided. Place the ceramic tray on the firing block.
2. Select program number 200.
3. Press the START button. When the LOW TEMP is reached, the door will close and the MEGASTAR PLUS will automatically perform the proper decontamination program. This will take about 20 to 25 minutes.
4. When the door opens, remove the tray and discard the used Pur-I-fire™ pellets. Save the tray for reuse.

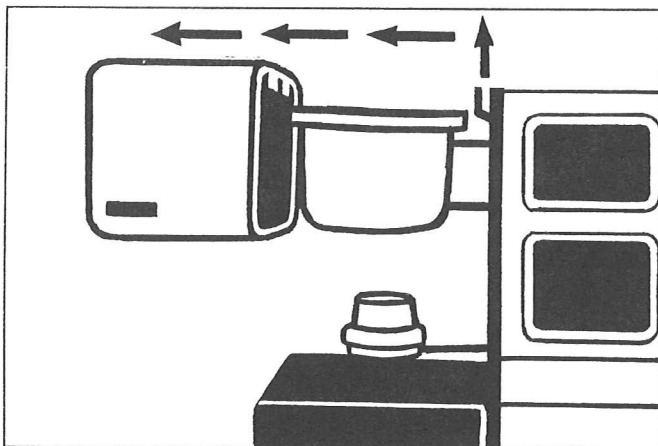
Notes: It may be necessary to decontaminate an excessively contaminated muffle and/or door brick more than once.

Ensure that there is adequate ventilation during decontamination.

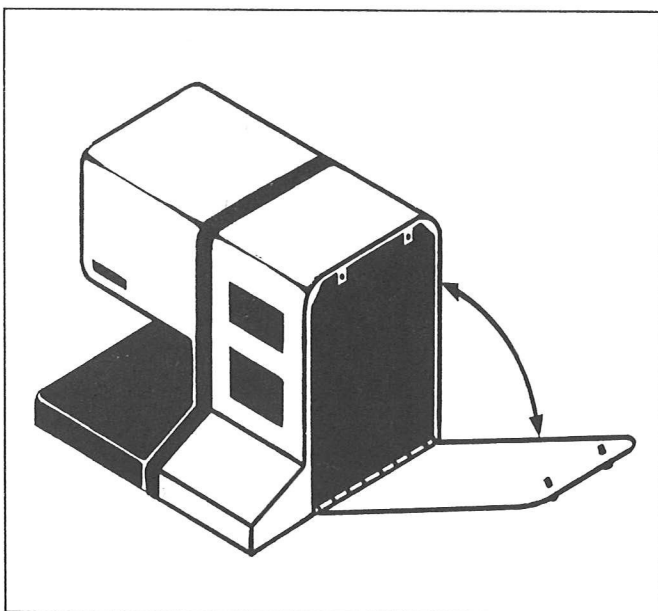
SERVICE



Open door.
SHUT OFF POWER - DISCONNECT PLUG.
Remove both thumb screws.



Carefully lift cover up and over muffle.



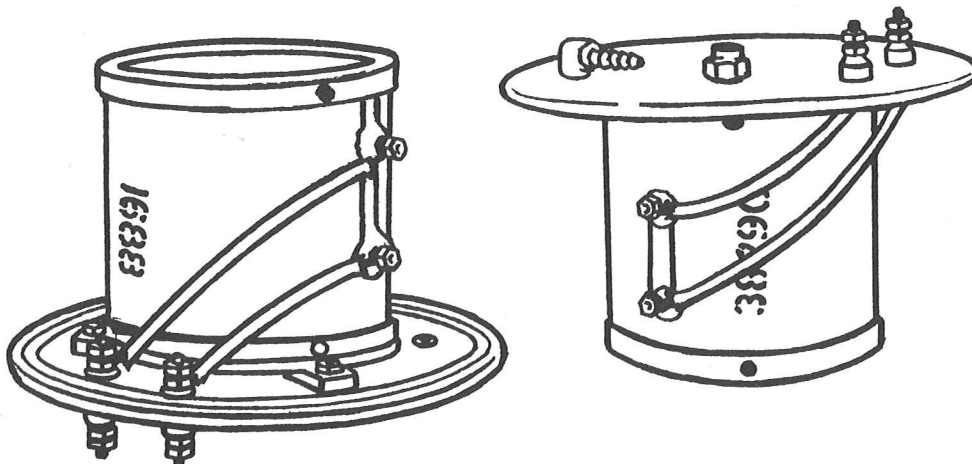
To service the electrical module:
Loosen two screws on side panel of MEGASTAR PLUS.

The electrical module can now easily fold open.

MUFFLE REPLACEMENT

I. MUFFLE REMOVAL

1. Be sure that the line cord is disconnected from the power receptacle.
2. Remove the muffle housing (See SERVICE, Page 15).
3. Remove the two thermocouple leads which are attached to the black terminal strip on the main casting. Note the position and color coding of the thermocouple leads so they may be reattached the same way.
4. Remove the two orange power leads which are attached to the power terminals on the top plate. Note that the lug on each power lead is secured to the power terminal with a hex nut above and below the lug. **DO NOT** attempt to loosen the top hex nut without holding the bottom hex nut with a wrench or pliers.
5. Remove the vacuum hose from the barbed fitting on the top plate. Rotate the hose gently in both directions to facilitate its removal from the fitting.
6. Loosen the nut on the clamping ring until the ring can be sprung open far enough so that it falls free of the side plate.
7. Remove the top plate from the vacuum chamber. Turn it over and place it on the top of the vacuum chamber with the muffle side up. This position is recommended in order to prevent damage to the thermocouple lead wires protruding from the thermocouple gland on the top plate. The top plate can also be placed on any level surface if spacers are used to protect the thermocouple gland.
8. Remove the two muffle power leads which are attached to the two power terminals on the exposed (bottom) side of the top plate. Note that the lug on each muffle power lead is secured to the power terminal with a hex nut above and below the lug. **DO NOT** attempt to loosen the top hex nut without first holding the bottom hex nut with a wrench or pliers.
9. Remove the three screws which secure the muffle to the muffle base.
10. Carefully lift the muffle STRAIGHT UP from the muffle base. Muffle base will remain attached to the top plate.
Note: **DO NOT** "ROCK" the muffle from side to side when removing it, as this may damage the thermocouple.
11. Remove old O-ring from the top plate.



MUFFLE REPLACEMENT

II. NEW MUFFLE INSTALLATION

1. Carefully align the thermocouple hole in the replacement muffle with the thermocouple itself protruding from the top plate. Slide the replacement muffle over the thermocouple and then over the muffle base.

NOTE: DO NOT "ROCK" the muffle from side to side when replacing it, as this may damage the thermocouple.

2. Install the three sets of screws and washers which secure the muffle to the muffle base.
3. Clean O-ring groove on top plate..
4. Apply a thin uniform coat of vacuum grease (supplied with your new muffle) to the O-ring. Place the O-ring into the O-ring groove on the top plate.
5. Hold the O-ring in place while placing the top plate on the vacuum chamber.
6. Rotate the top plate so that the small depression close to the edge of the plate lines up with the edge of the hole in the casting that is closest to the black terminal block. This corresponds roughly to the "three o'clock" position when looking down at the top plate from the front of the machine.
7. Reconnect the vacuum hose, being careful not to kink the hose. This connection will determine the position in which the top plate should be secured by the "V-clamp". (See 8.)
8. Align the outside diameter of the muffle housing on the top plate and install the "V-clamp." Position the clamping screw of the "V-clamp" so that it is diagonally opposite the depression in the top plate (at the position corresponding to "nine o'clock" when looking down at the top plate from the front of the machine). Tighten the nut until the "V-clamp" is snug, then continue tightening the nut an additional 3 to 4 full turns. Be sure not to rotate the top plate to keep the vacuum connection secure.
9. Using two wrenches, reconnect the muffle heater wires to the power terminals on the top plate.
10. Observing the color convention, black to red and red to black, reconnect the thermocouple. Tighten the connections securely.
11. Replace the muffle housing (See SERVICE, Page 15).
12. Run an initial cycle using the following program parameters: DRY TIME 5 min, LOW TEMP 1000°F (538°C), VACUUM 0, HIGH TEMP 1800°F (982°C), HOLD TIME 5 min, COOL TIME 0. This will break in the new muffle and eliminate any moisture which may have been absorbed by the muffle and the firing block. (Moisture can affect vacuum.)

THERMOCOUPLE REPLACEMENT

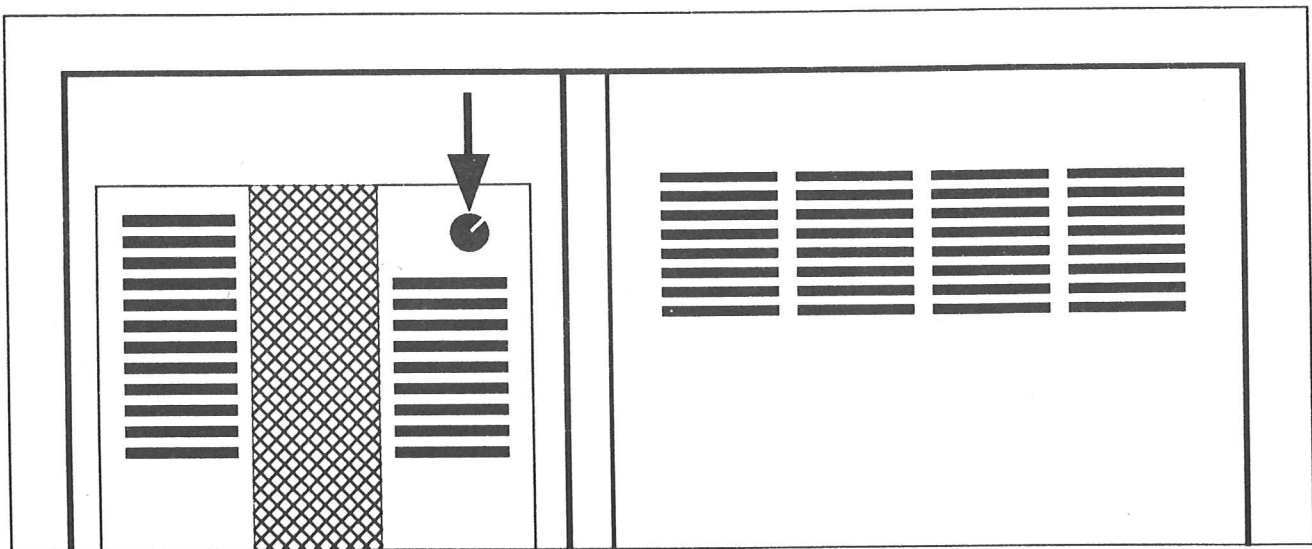
1. Be sure that the line cord is disconnected from the power receptacle.
2. Remove Muffle housing (See SERVICE, Page 15).
3. Remove the two thermocouple leads which are attached to the terminal strip at the side of the Muffle housing. Note the position and color coding of the two thermocouple leads, so they may be reattached in the same manner.
4. Loosen the thermocouple fitting.
5. Lift the thermocouple out of the thermocouple fitting.
6. Reverse this procedure to install the replacement thermocouple. Tighten the connections securely, observing the color convention black to red and red to black (for type "S" thermocouples).
7. Re-calibrate the furnace after replacing the thermocouple (as outlined under CALIBRATION INSTRUCTIONS, Page 11).

NOTE: The thermocouple used in this furnace contains PLATINUM and may be returned for credit against the purchase of a replacement thermocouple.

POWER FAILURE

If the power fails while a program is running and you want to remove your work from the muffle:

1. Turn knob on the back of the MEGASTAR PLUS in the direction marked "open" to release vacuum. (Be sure to close this knob tightly after vacuum is released)
2. Gently pull down on the lift mechanism and remove work.



REPLACEMENT PARTS LIST - MEGASTAR/MEGASTAR PLUS

<u>DESCRIPTION</u>	<u>100V</u>	<u>115V</u>	<u>220V</u>	<u>240V</u>
MUFFLE REPLACEMENT KIT	16906	16905	16925	16925
MUFFLE VACUUM HOSE	16328	16328	16328	16328
MUFFLE TERMINAL GASKET	28369-C	28369-C	28369-C	28369-C
MUFFLE TOP PLATE O-RING	16342	16342	16342	16342
THERMOCOUPLE	38250	38250	38250	38250
TRIAC REPLACEMENT KIT	16907	16907	16907	16907
CALIBRATION INSTRUMENT KIT	16903	16903	16903	16903
VACUUM LINE FILTER ASSEMBLY	16280	16280	16280	16280
VACUUM LINE TUBING	13181	13181	13181	13181
VACUUM TRANSDUCER BOARD	16160	16160	16160	16160
VACUUM MANIFOLD A'SSY. REPLACEMENT KIT	13920	13920	13920	13290
MAIN BOARD	13450-9	13450-1	13450-9	13450-9
DISPLAY BOARD	13460	13460	13460	13460
INTERFACE BOARD	13470-1	13470-1	13470-2	13470-2
DOOR SENSOR BOARD KIT	16966	16966	16966	16966
FUSE KIT/INTERNAL ASSEMBLY	16909	16909	16909	16909
LIFT MECHANISM KIT	16945	16945	16945	16945
DOOR GASKET	16361	16361	16361	16361
RELAY ASSEMBLY KIT	13160	13160	13160	13160
POWER TRANSFORMER	13185	13180	13190	13195
AUTO TRANSFORMER	16208	-----	16207	16211
SUPPRESSOR ASSEMBLY - RELAY	13165	13165	13175	13175
SUPPRESSOR ASSEMBLY - PUMP	16175	16175	16465	16465
KEYPAD	13117	13117	13117	13117
LINE FILTER	115354	115654	115654	115654
FIRING BLOCK	16358	16358	16358	16358
BACK PANEL	13130	13130	13130	13130

ACCESSORIES

COOLING TRAY	16357
CERAMIC SUPPORT TRAY - 3" DIA.	700037
SILVER WIRE	28383
PUR - I - FIRE™ DECONTAMINANT	7102



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