



# La Spaziale S1 Vivaldi II *Double Boiler Espresso Machine*

## Owner's Manual Rev I

(Covers VII's with and w/o Enhanced Temperature Offset and Programmable Preinfusion)

Added Information on Pin Out of Ribbon Cable to Front Panel

12/24/2018



# S1 Vivaldi II Owner's Manual

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### 1 Feature Overview

- Dual Boiler
- Steam Boiler 2.5 liter
- Steam Boiler Element 1250 Watts
- Group Boiler .45 liter
- Group Boiler Element 800 Watts
- Direct Plumbed
- Rotary Pump
- Volumetric Dosing Adjustable Through Touch Pad
- Group Temperature Indicated by lamp Display
- Group Temperature Adjustable in 1°C Increments Through Touch Pad
- New and Upgraded machines since 7/1/2008 include Extended Temperature Offset Adjustment and Programmable Preinfusion
- Electronic Boiler Refill
- Built in Safety Thermostat
- Semi Automatic Hot Water Delivery
- Manual Steam Valve
- Fault Diagnosis Alarms
- Combined Boiler and Group Pressure Gauge
- Two Complete Portafilter handles - Single and Double Baskets
- Extra shower screens, removal wrench, cleaning brush, tamper
- Includes rubber back flush disk
- OPTIONAL Pre Infusion Chamber
- OPTIONAL 7 Day Programmable Timer
- OPTIONAL No Burn Steam Arm
- OPTIONAL longer La Spaziale steam arm
- OPTIONAL Drain Kit
- Color Black, Silver, or Red
- 110 volt
- Available in either 15 amp or 20 amp
- ETL Sanitation Listed (Conforms to ANSI/NSF STD 4)
- c ETL us Listed (Conforms to UL STD 197 Certified to CAN/CSA STD C22.2 NO. 109)

### 2 Reference Photos

These numbered photos will be referenced throughout the document; i.e. (13)



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FIGURE 1 – Indicator Lights and Control Buttons





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Label	Function	Label	Function	Label	Function	Label	Function
1	Drip Tray	8	Cup Warming Tray	15	92°C Lamp	22	On/Standby Lamp
2	Steam Arm	9	Control Panel	16	93°C Lamp	23	Hot Water Button
3	Rubber Feet	10	Group	17	94°C Lamp	24	Single Cup Button
4	Steam/Group Pressure Gauge	11	Portafilter Handle	18	95°C Lamp	25	Double Cup Button
5	Side Panels	12	Drip Tray Grate	19	96°C Lamp	26	Boiler Button
6	Steam Knob	13	Boiler Lamp	20	97°C Lamp	27	On/Off Button
7	Splash Panel	14	91°C Lamp	21	ECON Lamp	28	Hot Water Outlet

### 3 Document Scope – Caveats and Clarifications

This manual includes material that both duplicates and enhances the official LaSpaziale S1 Vivaldi II Instruction Manual in key areas. However, it does not duplicate the detailed and very important information covering machine certifications or ratings nor does it repeat all the warning and safety information contained on the “lawyer” pages. That information, as contained in LaSpaziale Instruction Manual, is considered included in this document by reference.

This document solely covers the S1 Vivaldi II plus options available and supported by Chris Coffee Service and/or other vendors supplied by Chris Coffee Service through its exclusive distribution agreements with La Spaziale S.p.A.

### 4 Basic Machine Operation

(**BOLD** = lamps, **Reverse** = buttons, numbers in parentheses reference to above table)

#### 4.1 15A or 20 Amp Operation

***Please read this section first, especially if you purchased the 20A version of the LaSpaziale VII Mini but do not currently have an available 20A outlet.***

The LaSpaziale VII is available in 15A and 20A versions. In actuality, they are both identical machines. There is an internal switch that selects the operating mode and they have different power cords installed. The power cord is the easiest way to tell which version you have. The 15A VII has a standard 3-prong AC plug with two parallel blades and a round ground pin. The 20A VII has a 3-prong plug with two perpendicular blades and a round ground pin. The 20A version therefore requires a 20A circuit which has a special 20A outlet which accepts the 20A plug.

Most modern kitchens have 20A circuits. However, they often do not use 20A outlets because multiple outlets may be on the same 20A circuit. If you have a 20A circuit with a 20A outlet this most likely means that outlet has its own dedicated 20A circuit and is safe to use with the VII. A 20A circuit with normal 15A outlets probably means that multiple kitchen outlets are on the one 20A circuit. Often this means the refrigerator outlet. 20A VII owners should contact their electrician if unsure how to proceed.





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The internal switch which places the VII in 15A mode does so by never allowing the group boiler and the steam boiler to operate at the same time. When the thermostats for both boilers try to turn on at the same time, the group boiler always has precedence, and then the steam boiler operates in sequential fashion. A number of 15A VII owners note that they see little operational effect when running in this mode.

The 20A VII allows both boilers to operate simultaneously. HOWEVER, it is possible to place the 20A VII into 15A mode without removing the covers from the machine and flipping the internal mode switch. This is called ECONOMY mode and is described later in this manual.

As a temporary solution, Economy mode is a great option for those that really want the 20A machine but that do not currently have a 20A circuit. However, this will require swapping out your standard 15A outlet with a 20A outlet. These are readily available from most hardware stores. For a more temporary solution there is an alternative such as this adapter cable available from Chris Coffee Service:

<http://www.chriscoffee.com/products/home/espressoaccs/20t015adaptorplug>. It is also available elsewhere or you can make your own with a quick trip to your local hardware store.



### Locating/Changing the 15A / 20A Mode Switch

1. The Vivaldi VII must be unplugged and allowed to cool down first.
2. Remove any cups from the cup warming tray (7)
3. Remove the single screw in the front middle of the cup warming tray (7) as shown in the photo below



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4. From the front of the machine look down into the top of the machine. In the right rear of the machine you will see a toggle switch with its positions labeled 15 and 20. Reach down with the same screwdriver you used to remove the cup warming tray and flip the switch to the desired position.



### 4.2 Optional On/Off Timer Accessory – Overview and WARNING

The S1V2 has an optional On/Off Timer that can be purchased which provides the capability for up to 3 On/Off cycles per day with a different program for all 7 days of the week, if so desired. Each new machine has the cable needed to plug this timer into cable tied into place just behind the front panel. More information including the installation manual can be found here: <http://s1cafe.com/s1v2/images/Vivaldi%20Timer%20Instructions.pdf>





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There is a switch labeled ON / OFF on top of the controller box adjacent to the 15A/20A switch shown in the above photo. (The ON/OFF switch is hidden in the photo.) This switch must be set to OFF if you do not have the Timer plugged in and it must be set to ON when the timer is installed. Also, the state of this switch is only sensed when the power cable is unplugged, then plugged back in. So if you need to change this switch you will need to unplug the machine for at least 5 seconds after you do so.

**WARNING:** If you do NOT have the Timer installed but you have the switch set to ON, the pump will not come on when you try to pull a shot.

### 4.3 Initial Installation Before Connecting Power

After removing the VII from its packing carton and setting it on the counter, check for additional installation instructions that may be included. You should also have all the accessories shown in the photo below including a rubber backflush disk (not shown).



Tip the VII on its side. Twist all four rubber feet (3) hand tight as they may vibrate loose during shipping. While performing that task, use a screwdriver to ensure that the four screws on the bottom (two on each side between the rubber feet) which fasten the two side panels (5) to the chassis bottom are tight. These steps will help ensure the quietest possible operation of your VII.

Be sure you connect the included water hose to the threaded water inlet on the bottom of the machine. Proper connection is obvious since there is only one place it can attach. The opposite end of the hose - which connects to the water supply - may require adapters from your local hardware store depending on your specific situation. Contact your VII dealer for advice if the solution isn't obvious. Also, your VII dealer may request that you check that your water hardness is below a certain level to ensure long life and trouble free operation.



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Hardness test strips may be included for this purpose. If your water fails this test, contact your VII dealer and discuss the available options.

Once water supply is properly attached, turned on, and the desired basket has been inserted into one of the portafilter handles, attach the portafilter to the group. Be sure that the drip tray is installed by sliding it into place at the bottom front of the machine.

### 4.4 Turning On and Heating the Machine

- 1) Insert the plug into the 110V AC socket, the **On/STBY** light (22) starts flashing. (Stand-by mode).
- 2) Press the **ON/OFF** (27) button and keep it pressed for about 3 seconds, the green **On/STBY** light (22) changes from flashing to steady indicating the machine is ON. At the same time the lights from (14) to (21) turn on steadily for about a second (indicating power on test mode).
- 3) The light corresponding to the set temperature starts flashing to indicate that the group is heating and the automatic boiler refill starts until the water level preset by the manufacturer is reached.
- 4) Once the filling process is finished, the **BOILER** light (13) starts flashing to indicate that the boiler is heating. However, after first switching on, the boiler doesn't work until the group has reached the set temperature.
- 5) Fasten the portafilter handle (11) to the brewing group (10).
- 6) Wait until the set temperature is reached, by checking that the lights on the control panel (9) gradually turn on as the temperature rises. The visualization starts as soon as the temperature reaches 91°C (turning on of light 14) and continues until the machine has reached its operating temperature (light from flashing to fixed).
- 7) When the group has reached the set temperature, the boiler heating starts (**BOILER** light (13) flashing), once it reaches the set temperature the light becomes fixed.
- 8) Every time the group temperature or the boiler temperature drops under the set value, the respective light starts flashing (heating phase) until the set temperature is reached.
- 9) The machine is now ready.

### **WARNING!!**

To activate and deactivate the boiler mode press the **BOILER** (26) button. Every time you turn on the machine, the boiler is in service.

When the boiler is turned off, it is impossible to use hot water for infusions or steam delivery.

The machine can also operate in the economy mode (see relative paragraph).

### 4.5 Espresso Brewing

1. Unfasten the portafilter handle (11) from the brewing group (10) and insert the filter for one or Double Cups. Fill it with ground coffee (aprox 7g for a single or 14-15g for a double), making sure not to leave coffee powder on the upper edge of the portafilter handle (11), and press it with the suitable coffee tamper provided.
2. Firmly attach the portafilter handle (11) to the brewing group (10).



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3. Place one or Double Cups under the portafilter handle (11).
4. Press the button corresponding to Single Cup (24) if you want to make one coffee or Double Cups (25) to start the delivery. Once the desired quantity of coffee programmed is reached, the delivery automatically stops.

### 4.6 Volumetric Dose Programming

The programmable volumetric dosing feature allows programming of the **Single Cup** (24) and **Double Cup** (25) buttons to dispense whatever quantities of espresso the user desires. Their use for single cup and double cup quantities is merely a suggestion. Many users only pull double shots and program the double shot button for 1.5-2.0oz for that purpose. Then they program the **Single Cup** button for a larger amount for use in flushing the portafilter basket and/or the group between shots. The beauty of the programmable dosing feature is that the machine owner can be creative. The following are the instructions for programming each button assuming they are being used for single and double shots.

1. With the machine on, press the **ON/OFF** (27) button and keep it pressed for about 3 seconds; the control light (22) and the one indicating the set temperature start flashing.
2. Insert the single cup basket into the portafilter handle (11) and fill it with 7-8g of ground coffee making sure not to leave coffee powder on the upper edge of the portafilter handle, and press it with the included plastic tamper or, more optimally, a high quality 53mm coffee tamper.
3. Fasten the portafilter handle (11) to the brewing group (10), placing a cup under the portafilter handle.
4. By pressing the **Single Cup** button (24) the delivery starts and the lights 14-15-16 turn on to show that the one shot espresso dose is being programmed.
5. When the coffee inside the cup has reached the desired quantity, again press the button (24) to stop the delivery.
6. You automatically return to the initial visualization.
7. Repeat the previous steps above using the **Double Cup** button (25) making sure you change the filter inside the portafilter handle (11) to the double shot basket and fill it with 14-16g of espresso first.

### 4.7 Hot Water Delivery

(only possible with the boiler turned on, **BOILER** light 13 on)

1. Place the pitcher below the hot water output (28):
2. Press the **Hot Water** delivery push-button (23).
3. The hot water delivery starts.
4. Once the desired quantity is reached, stop the delivery by pressing the **Hot Water** button (23) again

### 4.8 Steam Delivery

(only possible with the boiler turned on, light 13 turned on)

1. Insert the steam wand (2) in the pitcher containing the drink to be heated.
2. Turn the steam knob (6) counter-clockwise, regulating the steam flow according to the need.



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3. At the end of the heating phase of the drink, stop the steam delivery by turning the steam knob (6) clockwise
4. Remove the pitcher from the steam wand (2) and wipe the steam wand and tip immediately with a clean, damp sponge in order to remove all residue of the heated drink.

### **WARNING!!**

***Do not turn the steam knob (6) before placing the steam wand (2) inside the pitcher, in order to avoid burns.***

#### **4.9 Economy / Boiler Operational Modes**

On the 20 Amp models of the LaSpaziale VII, the **BOILER** button performs two standard roles:

1. Turning the Steam boiler on and off
2. Entry and exit of Economy mode

There are three possible operational modes of the two boilers in the La Spaziale VII 20A model:

1. Both boilers are completely independent, turning on and off according to the needs of each. Both can be on at the same time. This is the default mode.
2. The **BOILER** button can toggle the Boiler on and off. This mode is useful for those that only drink espresso and do not need steam or hot water and want to conserve energy.
3. The **BOILER** button can also be used to switch in and out of Economy mode. In this mode only one boiler can be on at a time. The VII automatically controls which is on according to demand with preference going to the group boiler. This is useful for those owning the 20A model but lacking a 20A circuit.

#### **Turning the Steam/Hot Water Boiler On and Off**

1. The VII must be in ON mode, not Standby for all operations below.
2. Momentarily press the **BOILER** button
3. The **Boiler** lamp turns off. Neither steam nor hot water is available.  
**Note: if you turn the VII Off then On again, or if power is removed and restored to the VII, the Boiler returns to the On state.**
4. Momentarily press the **BOILER** button again.
5. The **BOILER** lamp is on (or blinking). Steam and hot water are available.



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### Turning Economy Mode On and Off

1. The VII must be in ON mode, not Standby for all operations below.
2. Press the **BOILER** button for 10 seconds until the **ECON** lamp illuminates. Economy mode is now active.  
Note: if you turn the VII Off and On again or if power is removed and restored to the VII, Economy mode remains active until you perform step 6, below.
5. While in Economy mode you can momentarily press the **BOILER** button to completely turn off the boiler. Another momentary press returns you to Economy mode.
6. To exit Economy mode, press and hold the **BOILER** button for 10 seconds until the **ECON** lamp is extinguished.

### 4.10 V1/VII Mode Switch

The VII Controller board actually has a backward compatible mode that emulates the functionality of the original VI. None of the advanced features of the VII are available when the controller is in VI mode. If you don't seem to be able to access the VII features, your machine might have inadvertently gotten switched to VI mode. If in doubt as to which mode you are in, just unplug the VII and then plug back in to see if the three yellow or three green lamps blink once. Yellow = VII mode and Green = VI mode.

With the VII in Standby mode (**ON/STBY** blinking green), press and hold the **Hot Water** button for at least 10 seconds. If three yellow lights blink once your machine is now in VII mode. If three green lights blink once the machine is now in VI mode. Each time you hold in the **Hot Water** button for 10 seconds while in Standby (**ON/STBY** blinking green), the mode toggles.

Note that if you change from VII mode and then back again all the V2 specific settings are lost and must be reset.

### 4.11 Espresso Group Water Temperature Regulation

#### 4.11.1 Standard Temperature Adjustment

1. When the machine is On (**ON/STBY** solid green), press the button **ON/OFF** (27) and keep it pressed for 3 seconds, the control light (22) and the one concerning the set temperature start flashing. For example, if the set temperature is 95°C, light (18) starts flashing.
2. In order to change the operating temperature, press and release the **Hot Water** button (23); every press of the button corresponds an increase of the temperature of 1°C (with the flashing of the corresponding light). When the maximum temperature of 97°C (20) is reached, the selection restarts from the minimum temperature of 91°C (14) (cyclic mode).
3. Once you choose the desired temperature, in order to lock in this value, press the **ON/OFF** (27) button, the machine will then go back to its normal functioning.

The value of the operating temperature of the machine is easily changed in order to improve the final result in the cup depending on the coffee blend used and the user's personal preference.





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### 4.11.2 Offset Temperature Adjustment

#### What Does Temperature Offset Do? / How Do I Use it?

The Vivaldi group design exhibits a temperature drop between where the group boiler temperature probe is located and where the hot water exits the group. Consequently, the temperature setting shown by the temperature lamps on the front panel may differ from the water temperature at the group. Ideally, most users would prefer that the temperature indicated by the temperate lamps exactly matches the water temperature exiting the group. LaSpaziale has partially accounted for this in its basic design. However, there are too many machine to machine electrical and mechanical variances for this to be completely effective. That's where the temperature offset comes in. The programmable temperature offset allows a user with accurate group temperature measuring equipment to enter an offset in the range of  $\pm 8^{\circ}\text{C}$  (for extended offset option or 0 to  $-8^{\circ}\text{C}$  for standard offset option) in order to allow their machines temperature lamps to exactly match the water temperature exiting the group.

Those purchasing new machines from Chris Coffee Service have had the temperature offset professionally programmed used a Scace device. However, for those obtaining the expanded offset capability via an upgrade, it is recommended that you note the current offset prior to upgrading and then duplicate that offset using the instructions below. If you do not know how to tell what your current offset is, you can find out by entering the temperature offset mode and then following instructions in paragraph 4.11.2.

#### To Which Machines Do These Instructions Apply?

Instructions are given in the two sections below both. This first is for machines with the original offset adjustment. The section that follows is for machines with the extended temperature offset adjustment. In general if you purchased a new VII from Chris Coffee after 7/1/2008 or if you know that you upgraded your older machine after that date, then the extended offset instructions should apply.

If you are unsure, try both methods outlined below. Only one will work and then you'll know which version you have.

#### 4.11.2.1 Standard Temperature Offset Adjustment

With the machine in Standby (only **ON/STBY** green lamp blinking), press the **BOILER** button until the green **ON/STBY** lamp and the red **BOILER** lamp are blinking (about 10 seconds).

If the Offset =  $0^{\circ}\text{C}$ , then no other lamps are lit. Assuming a start with Offset =  $0^{\circ}\text{C}$ , each press of the **BOILER** button, changes the offset by  $-1^{\circ}\text{C}$  and lights an additional lamp starting with the **91 $^{\circ}\text{C}$**  lamp and going up through the **ECON** lamp. Once all eight offset lamps are lit, an additional press of the **BOILER** button cycles back to  $0^{\circ}\text{C}$  offset.

To exit the Offset mode, press **ON/OFF** (machine in Standby – ON/STBY blinking). When entering the Offset mode the next time, the last stored value is displayed.

See table below:



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Offset	91°C Lamp	92°C Lamp	93°C Lamp	94°C Lamp	95°C Lamp	96°C Lamp	97°C Lamp	ECON Lamp
0°C	Off	Off	Off	Off	Off	Off	Off	Off
-1°C	On	Off	Off	Off	Off	Off	Off	Off
-2°C	On	On	Off	Off	Off	Off	Off	Off
-3°C	On	On	On	Off	Off	Off	Off	Off
-4°C	On	On	On	On	Off	Off	Off	Off
-5°C	On	On	On	On	On	Off	Off	Off
-6°C	On	On	On	On	On	On	Off	Off
-7°C	On	On	On	On	On	On	On	Off
-8°C	On	On	On	On	On	On	On	On

### 4.11.2.2 Extended Temperature Offset Adjustment

Start with the machine in Standby mode (**ON/STBY** blinking green). Press and hold the **BOILER** button for about 10 seconds until the **Boiler** light and the **ON/STBY** light start flashing. You are now in the temperature offset programming mode.

To enter a positive temperature offset between 0°C and +8°C push the **Single Cup** button. Each press will change the offset by +1°C. An offset of 0°C is designated by all temperature lamps off. A +8°C offset is designated by all temperature lamps plus **ECON** on (Low Water on VII Mini). If your positive offset is more than you wish, each press of the **Double Cup** button changes the offset by -1°C.

To enter a negative temperature offset between 0°C and -8°C mode push the **Double Cup** button. Each press will change the offset by -1°C. An offset of 0°C is designated by all temperature lamps off. A -8°C offset is designated by all temperature lamps plus **ECON** on. If your negative offset is more than you wish, each press of the **Single Cup** button changes the offset by +1°C.

### How Do I Tell If My Current Offset is Negative or Positive?

**Example:** You enter Offset Programming mode and see that three lamps are on. This can indicate either ±3°C. Which is it? Since each press of the **Double Cup** button changes the offset by -1°C, press it and see what happens. There will either be two or four lamps lit. If four lamps are lit the offset must have been -3°C since pressing **Double Cup** always changes the setting by -1°C with each press. If two lamps are lit the offset was +3°C. By pressing **Double Cup** the offset has changed to +2°C.



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-8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 °C Offset

-----> **Single Cup** Button

<----- **Double Cup** Button

Note that neither the **Single Cup** nor the **Double Cup** button presses wrap around when they reach the limit of their range. Once you get to +8°C additional presses of the **Single Cup** button do nothing. Same with the **Double Cup** button once -8°C is reached.

See table below:

Offset	91°C Lamp	92°C Lamp	93°C Lamp	94°C Lamp	95°C Lamp	96°C Lamp	97°C Lamp	ECON Lamp
0°C	Off	Off	Off	Off	Off	Off	Off	Off
±1°C	On	Off	Off	Off	Off	Off	Off	Off
±2°C	On	On	Off	Off	Off	Off	Off	Off
±3°C	On	On	On	Off	Off	Off	Off	Off
±4°C	On	On	On	On	Off	Off	Off	Off
±5°C	On	On	On	On	On	Off	Off	Off
±6°C	On	On	On	On	On	On	Off	Off
±7°C	On	On	On	On	On	On	On	Off
±8°C	On	On	On	On	On	On	On	On

### 4.11.3 Steam Pressure Adjustment

Steam pressure can be adjusted up or down in 1, 2, or 3 increments of slightly less than 0.1 bar each. The overall pressure range is from approximately 0.9 bar to about 1.4 bar. In reality this adjustment is changing the steam boiler temperature in increments of 1°C and you get the resulting pressure change.

This adjustment starts with the S2V2 in Standby mode (**ON/STBY** light flashing).

- Press and hold the **One Cup** button for 3 seconds.
- At this point the 94 °C and 95 °C yellow lamps will be on solid. If no other lights come on, your pressure is at the default settings and has not previously been raised or lowered from that setting.
- If additional lights are blinking here is the meaning:



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Offset	91°C Lamp	92°C Lamp	93°C Lamp	94°C Lamp	95°C Lamp	96°C Lamp	97°C Lamp	ECON Lamp
Default	Off	Off	Off	On	On	Off	Off	Off
+1	Off	Off	Off	On	On	Blinking	Off	Off
+2	Off	Off	Off	On	On	Blinking	Blinking	Off
+3	Off	Off	Off	On	On	Blinking	Blinking	Blinking
-1	Off	Off	Blinking	On	On	Off	Off	Off
-2	Off	Blinking	Blinking	On	On	Off	Off	Off
-3	Blinking	Blinking	Blinking	On	On	Off	Off	Off

- To increase steam pressure, press the **Two Cup** button. For each button press the blinking lights will cycle through indicating 0, +1, +2, +3, then back to 0, repeating this sequence for each **Two Cup** button press.
- To decrease steam pressure, press the **Hot Water** button. For each press the blinking lights will cycle through indicating 0, -1, -2, -3, then back to zero, repeating this sequence for each **Hot Water** button press.
- Once the blinking lights indicate your desired value, press the **One Cup** button to save the value and exit the steam pressure adjustment mode as indicated when the 94 °C and 95 °C lights turn off.

To check the current value for steam pressure without changing it, enter the adjustment mode as indicated above, check the state of the blinking lamps, then immediately press the **One Cup** button to exit back to Standby mode (**ON/STBY** light flashing). If you previously changed this adjustment the blinking lights reflect your last setting.

### 4.11.4 Extreme Temperature Set Function

Standard temperature programming described in section 4.10.1 allows a range from 91°C to 97°C in 1°C increments. There may be times when the user desires a temperature outside of this range. While the Offset mode described in section 4.10.2 could be used for this purpose, it is best to use the offset as intended. Once set properly, the offset should be left alone. Instead, the VII Mini includes a mode specifically for use in extending the temperature range above 97°C or below 91°C up to a max of 3°C. While the ability to extend the temperature above 97°C is of limited use, there are some types of coffee whose flavor is optimum in the 88°C to 90°C range.

**Note that the method below only works if the master temperature is set to either 91°C or 97°C. If the temperature is set to 91°C you can only use the instructions below to lower the temperature by 1°C, 2°C, or 3°C. If the temperature is set to 97°C you can only use the instructions below to raise the temperature by 1°C, 2°C, or 3°C.**



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Consequently you must use the instructions provided in section 4.10.1 to set the master temperature to 91°C or 97°C BEFORE using the instructions below. If this is not done, the instructions below for entering the Extreme Temperature Set mode will work as described, but once in that mode attempting to raise or lower the temperature has no effect.

Instructions for programming this mode AFTER setting the master temperature to 91°C or 97°C are:

- Start with the machine in Standby mode (**ON/STBY** light flashing).
- Press and hold the **Two Cup** button for ~3 seconds until lights 94°C (17) and 95°C(18) come on indicating that the Extreme Temperature Function setting mode is active.
- If you start with the master temperature set to 97°C, each time that the **Hot Water** button is pressed, lights 96°C (19), 97°C (20), and Econ (21) will switch on in succession. Each light indicates a 1°C increase. All three lights on = 100°C.
- If you start with the master temperature set to 91°C, each time that the **One Cup** button is pressed, lights 93°C (16), 92°C (15), and 91°C (14) will switch on in succession. Each light indicates a 1°C decrease. All three lights on = 88°C.
- Press the **Two Cup** button again to exit Extreme Temperature set mode and return back to Standby mode

### Notes:

*When you change the temperature of the 91°C and/or 97°C buttons according to the above instructions, the change only remains in effect until the temperature is changed. For example, if you change the 91°C selection by 3°C to yield 88 °C, then later change the temperature to 93C, the next time you select 91°C, you will get 91°C, not 88 °C. If you wish to obtain 88°C again you will need to follow the above instructions to reprogram in the 3 °C decrease.*

### 4.12 Programmable Preinfusion

Note: only machines purchased or upgraded after 7/1/08 have this feature.

With the machine on (**ON/STBY** (22) lit and not blinking), press and hold the **ON/OFF** button(27) for three seconds until the **ON/STBY** (22) and the current preset temperature lamps are both blinking. Then press the **BOILER** button (13) for 3 seconds. The temperature plus **ECON** lamps now display the current time delay between when the group water solenoid opens and when the pump is activation. This is the preinfusion time. If none of the lamps 14-21 are lit, the preinfusion time is 0 seconds which means no preinfusion. Each press of the **BOILER** button (13) increases preinfusion time by 1 second and lights one more lamp up to a maximum of 8 seconds when all of the temperature and **ECON** lamps (14-21) are lit. When preinfusion is set to 8 seconds, another press of the **BOILER** button (13) resets the preinfusion back to 0 seconds.





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Once the preinfusion time is set as desired, press the **ON/OFF** button (27) to exit the programmable preinfusion mode.

This feature should be coupled with an external pressure regulator plus a pressure gauge. Chris Coffee recommends an initial setting of 20-25PSI (~1.5bar) of input water pressure and 2-3 seconds of preinfusion time. Other articles on programmable preinfusion suggest a higher input pressure of around 45psi (3 bar). Feel free to experiment with both settings to optimize your espresso experience.

### 4.13 Ribbon Cable Pinout to Control Panel

There is a 16 pin ribbon cable that connects the controller board to the front panel's LED lights and buttons. The table below describes this pin out:

#### Buttons:

1. On/Off - Pin 1 (GND) and Pin 11 (5V)
2. Single Shot - Pin 2 and Pin 5
3. Double Shot - Pin 2 and Pin 7
4. Steam Boiler - Pin 2 and Pin 9
5. Hot Water - Pin 1 and Pin 3

#### Lights:

1. On/STBY LED - Pin 12 and Pin 13
2. Econ - Pin 8 and Pin 13
3. 97C LED - Pin 6 and Pin 13
4. 96C LED - Pin 4 and Pin 13
5. 95C LED - Pin 12 and Pin 14
6. 94C LED - Pin 10 and Pin 14
7. 93C LED - Pin 8 and Pin 14
8. 92C LED - Pin 6 and Pin 14
9. 91C LED - Pin 4 and Pin 14
10. BOILER LED - Pin 10 and Pin 13

Pins 13 and Pin 15 are connected together and  
Pins 14 and Pin 16 are also connected together.



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### 5 Alarm Handling

The VII uses computerized sensors to robustly handle VII device malfunctions. There are two types of alarms the VII can generate:

**Blocking Alarms** – these are the most serious. The VII will turn itself Off and display the alarm codes noted below when one of these alarms occurs.

**Non-Blocking Alarms** – These are informational only and, while they do represent an error condition, the machine will continue to function.

#### 5.1 Coffee Group Water Dosing System Failure

This is a non-blocking alarm. When the flow meter isn't working properly or when the coffee grind is too fine, this is indicated by the turning on of the lights 14-15-16; if you are making one coffee dose, and the lights 17-18-19 if you are making two coffee doses.

This alarm is actually useful when back flushing as an indication of when to turn off the pump and allow the 3-way valve to operate.

#### 5.2 Coffee Group Temperature Detection System Failure

This alarm is a blocking one, and occurs when the temperature probe of the group is in short circuit (temperature  $>145^{\circ}\text{C}$ ) or is in open circuit (disconnected) condition (temperature  $<60^{\circ}\text{C}$ ). The lights 20-21 turn on.

If the group water temperature does not exceed  $60^{\circ}\text{C}$  within 5 minutes of turning the unit on, this alarm will also occur.

Turn off the VII and request service.

#### 5.3 Steam Boiler Temperature Detection System Failure

(only with the boiler turned on)

This is a blocking alarm and occurs when the temperature probe of the boiler is in short circuit (temperature  $>145^{\circ}\text{C}$ ) or it is in open circuit (disconnected) condition (temperature  $<60^{\circ}\text{C}$ ). The lights 19-20-21 turn on.

The alarm can be temporarily cleared by turning the boiler off (Press **BOILER** (26) button.) Eventually you will need to turn off the VII and request service.

#### 5.4 Damaged Group Heating Element Triac (SSR)

This alarm is a blocking one, and occurs when the group triac/SSR always remains in conduction (temperature  $>140^{\circ}\text{C}$ ). The lights 20-21 are flashing.

Turn off the VII and request service. Note: new machines use a dual Solid State Relay (SSR) rather than the triac.

#### 5.5 Damaged Boiler Heating Element Triac (SSR)

(only with the boiler turned on)

This alarm is a blocking one, and occurs when the boiler triac/SSR always remains in conduction (temperature  $>140^{\circ}\text{C}$ ). The lights 19-20-21 are flashing.



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Turn off the VII and request service. Note: new machines use a dual Solid State Relay (SSR) rather than the triac.

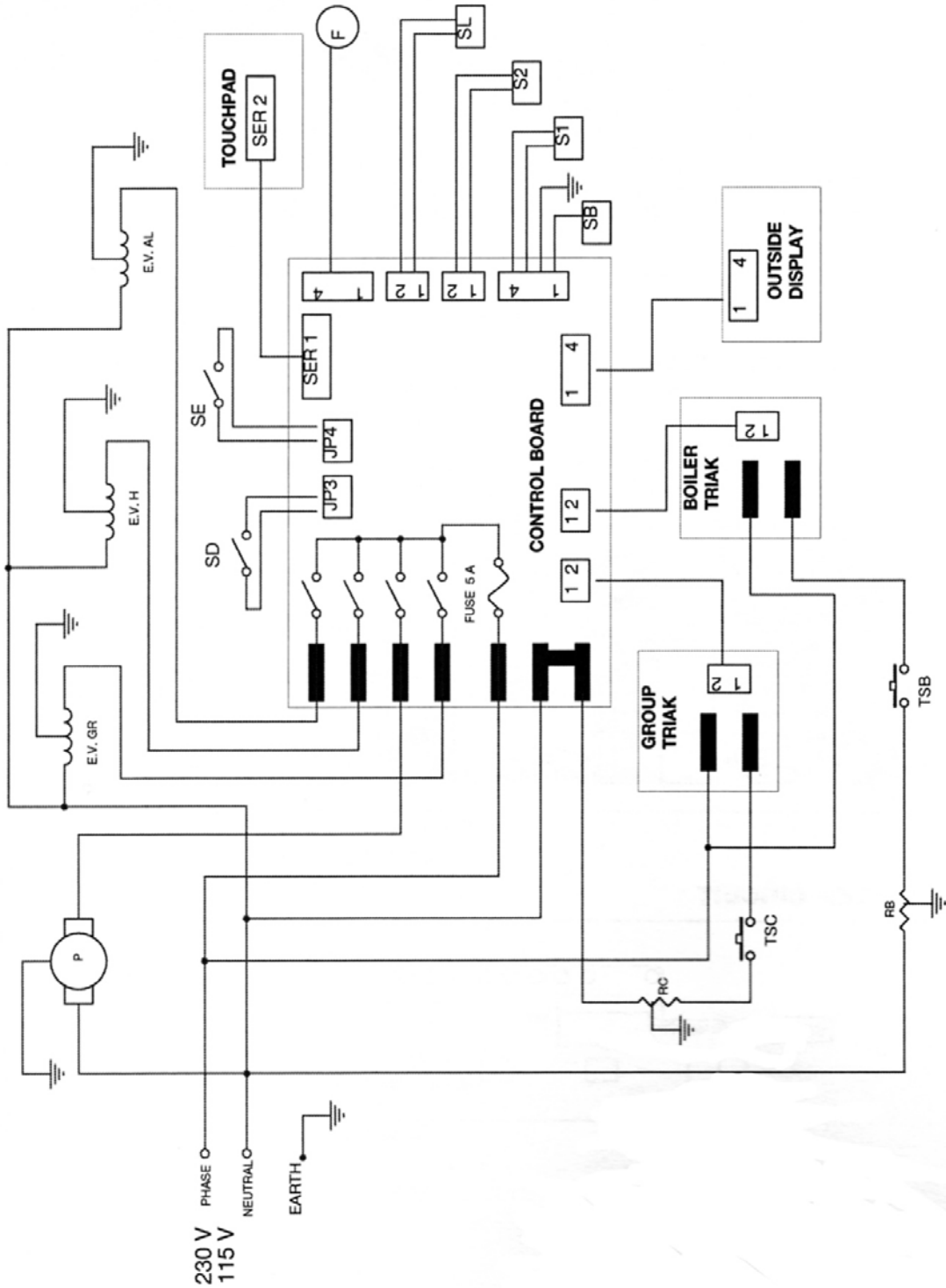
### 5.6 Boiler Automatic Refill System Failure (only with the boiler turned on)

This is a blocking alarm which is signaled by blinking of the **Boiler** (13) light. If the pump runs for more than 1 minute attempted to refill the boiler without the controller circuit receiving a boiler full signal, this alarm is triggered.

This alarm can be temporarily cancelled by pressing the **BOILER** (26) button to turn off the boiler. The VII can be operated with the steam boiler off until repairs to the boiler function occur.

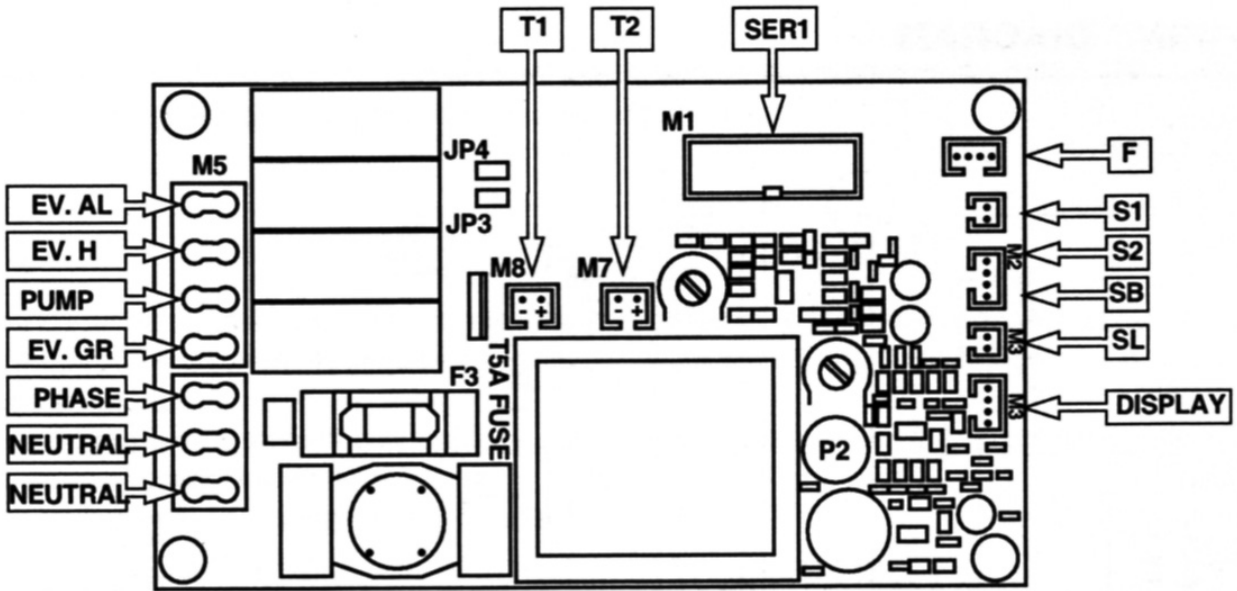
## 6 Connection Diagrams

### 6.1 Electrical Connection Diagram



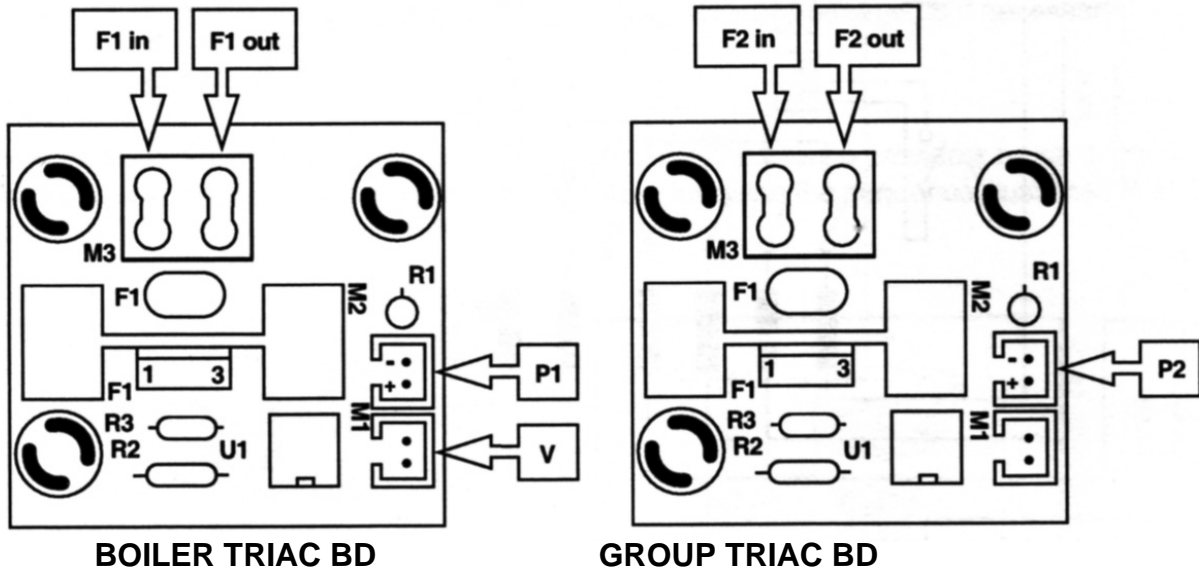
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### 6.2 Control Board Connection Diagram



### 6.3 Triac Board Connection Diagram

Note: the latest model of the V2 has replaced both these triac boards and the fan with a single Solid State Relay (SSR) Module.

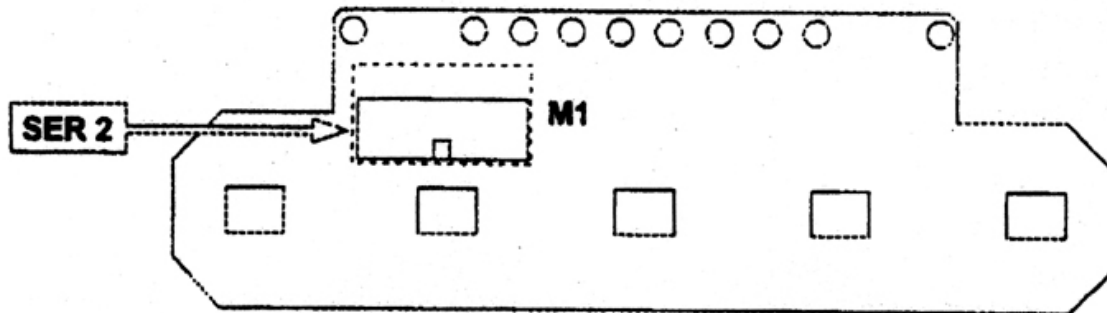


(Cooling Fan is below this board and runs only when boiler is heating)



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### 6.4 Control Panel Connection Diagram



### 6.5 Wiring Diagram Definitions

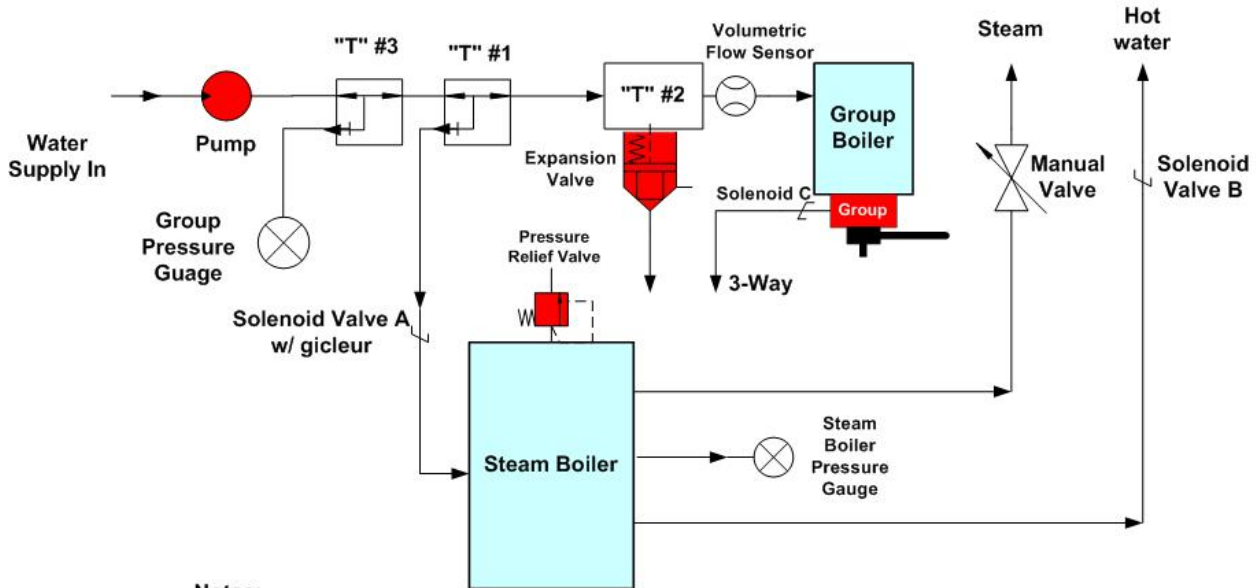
EV GR	Coffee brewing group solenoid valve
EV H	Hot water delivery solenoid valve
EV AL	Automatic refill system solenoid valve
T1	Connection on control board of the triac that feeds the boiler heating element
T2	Connection on control board of the triac that feeds the group heating element
P1	Connection of the control board on the triac that feeds the boiler heating element
P2	Connection of the control board on the triac that feeds the group heating element
SER 1	Connection control panel on control board
SER 2	Connection control board on control panel
F	Flow meter
F1 in	Phase inlet into the triac that feeds the boiler heating element
F2 out	Phase outlet from the triac that feeds the boiler heating element
F2 in	Phase inlet into the triac that feeds the group heating element
F2 out	Phase outlet from the triac that feeds the group heating element
S1	Boiler temperature probe
S2	Brewing group temperature probe
SL	Boiler water level control
SB	Only used on the VII Mini Models
V	Ventilator connection (boiler triac cooling fan)
MP	Motor pump
RC	Heating element brewing group
TSC	Safety thermostat for brewing group heating element
RB	Boiler heating element
TSB	Safety thermostat for boiler heating element
JP4	15/20A Mode Selector Connection
JP3	Optional Timer Switch Connector
SD	Optional Timer On/Off Switch
SE	15/20A Mode Switch

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## 7 VII Water Flow Diagram

The information below is provided strictly as a reference for VII owners who are curious about the function of their VII Dual Boiler design.

**LaSpaziale V2 Water Flow Diagram**



**Notes:**

- 1) The pump does not block water flow when it is not running. When the pump is off, street water pressure remains at the pump outlet in the V2. This means that water pressure is constantly applied through 3-way T #1, through 3-Way T #2, and into the group boiler.  
 Refill of the steam boiler requires activation of Solenoid Valve A which occurs in response to the water level sensor inside the Steam Boiler. Even though the pump delivers full pressure when it needs to fill the steam boiler, a gicleur which is part of Solenoid valve A, restricts the pressure and flow into the steam boiler.
- 2) A properly adjusted expansion valve should open >12bar. This situation might arise if the pump pressure is too high and has insufficient flow through the group or if the group boiler pressure gets too high even when the pump is off.
- 3) Connector T#3 has a one way valve at its output to prevent water from flowing backwards into the water mains when the pump is not running. Connectors T#1 and T#2 are open to pass water in all directions at all times. When the pump is running whether flow is to the steam boiler or the group boiler is determined by which solenoid valve is active.
- 4) The Volumetric Flow Sensor sends a signal to the computer controller board so it can sense the pre-programmed flow to the group and shut off the pump when the correct amount of water has been delivered.



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### 8 Adjustments and Maintenance

#### 8.1 External VII Surface Cleaning

Use a damp sponge and wipe dry with a soft cloth. Alternately, window cleaner wiped off with a dry soft cloth works well.

#### 8.2 Routine Group Cleaning

The extra pair of shower screens was not included with your VII so you'd have an extra set. They are included as part of LaSpaziale's recommended cleaning regimen which is targeted at light commercial use where there is no time for a complete detergent based back flush routine. The reason for LaSpaziale's double shower screen arrangement is to trap grounds between the screens so that the 3-way valve rarely, if ever, needs a detergent cleaning.

- With the VII on and fully heated, use the included key wrench to remove the shower screen bolt.
- Drop out the two screens and the dispersion disk.
- Use the included plastic handled wire brush to quickly scrub the group head while water is running through the group to flush out the particles. (This is why the long handled brush - to keep your hands away from hot water.)
- Also, give the dispersion disk a quick scrub.
- Reassemble using the other set of screens.
- Soak the original set of screens in Cafiza, Joe Glo, or similar detergent, scrub, rinse, and put away for next time.

#### The Way Most Mini V2 Users Actually Do It:

As noted above the official LaSpaziale method was developed assuming the machine is in light commercial use. This is certainly not the target market for the Mini V2. Here is how most users clean their coffee group:

- ✚ Start with the basic procedure above, though most folks use something like a Pallo brush rather than the wire brush that came with the machine for the 3<sup>rd</sup> step. Once the clean screens and dispersion disk are back in the machine perform the following steps.
- ✚ Using 1/3 tsp Cafiza, Joe Glo, or similar detergent every 2-4 weeks is plenty for home use. Backflush the S1 Vivaldi II Mini more often with plain water.
- ✚ Place the backflush disk in the double basket with 1/3 tsp of Cafiza powder.
- ✚ Press the single cup button. In 5-10 seconds the three yellow LEDs will start to blink.
- ✚ Press the single cup button again to stop the pump which automatically engages the 3-way valve. (The three yellow LEDs normally come on when you grind too fine and choke the machine. So the instant this condition is sensed is the ideal point at which to engage the 3-way valve.)
- ✚ Perform the above cycle 5 times waiting about 30 seconds between each cycle.



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- ✚ Then rinse the remaining detergent from the basket and replace the portafilter with the backflush disk still installed.
- ✚ Backflush for 5 more cycles to rinse the remaining residue from the group and 3-way valve.
- ✚ Remove the backflush disk, make shot of espresso and throw it out.

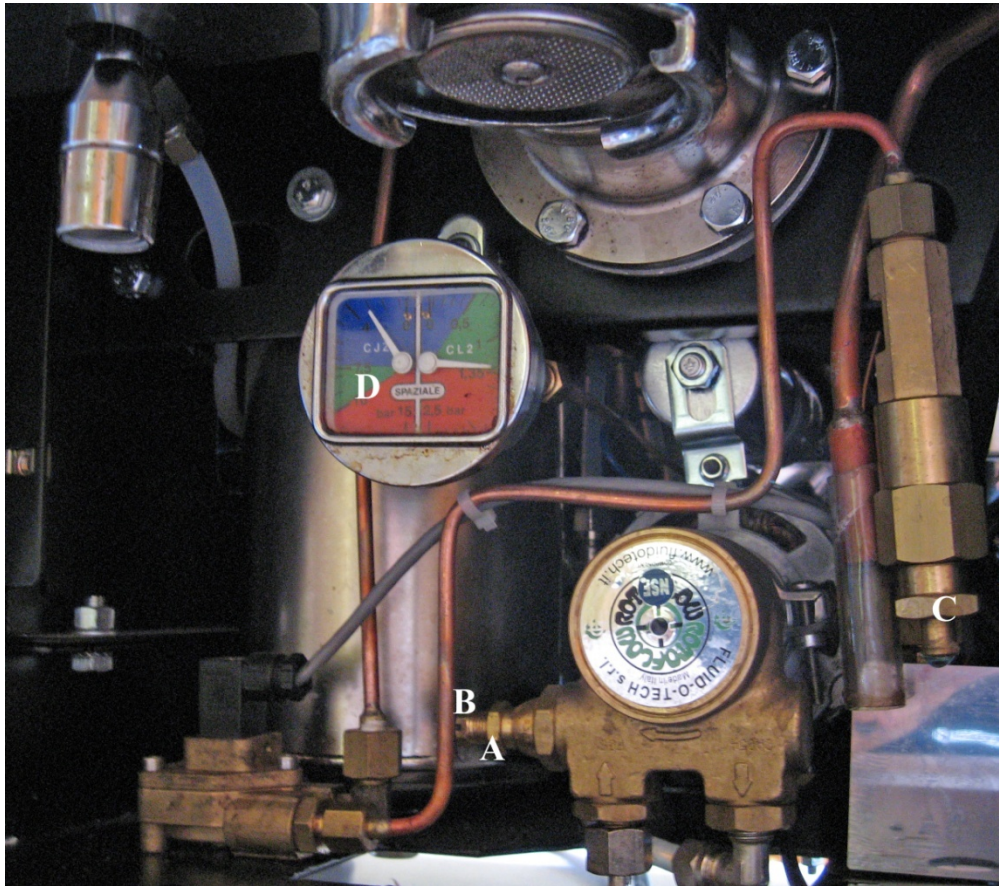
***Important Tip: To maximize the effectiveness of the cleaning process and minimize how often a detergent cleaning is required, after every series of shots is pulled, run a shot with the PF remove. Scrub the screens and around the gasket with a Pallo brush while the hot water is exiting the group. This will flush most of the grounds and sediment into the drip tray.***

***NOTE: The following are advanced maintenance and adjustment procedures. Do not perform them without the proper tools and confidence that you can do them properly. When in doubt always contact your VII dealer first.***

### 8.3 Group Pressure Test and Adjustment

This adjustment and the one covered in the next section require that use of a Portafilter with the rubber disk or blind filter basket. (The same one used for back flushing.) For clarity the portafilter is not shown in the photo but it **MUST** be used.

Removal of the chrome panel behind the portafilter is required. This is the panel through which protrudes the boiler/group pressure gauge. Use a large Phillips screwdriver to remove the two screws adjacent to the numbers (5) on the diagram on page 2. Then remove the panel. Attach the portafilter with rubber disk or blind basket. The adjustment screws are designated by the letters "A" and "B" in the diagram below. First, loosen the lock nut "A" (14mm wrench). Press the **Single Cup** (24) or **Double Cup** (25) button and wait for the group pressure gauge "D" to stabilize. Most users prefer group pressure in the range 8.2-9.0 bar. Turning the adjuster nut "B" (10mm wrench) counter-clockwise lowers the pressure, turning it clockwise increases the pressure. When it is set to your preferred pressure, tighten the lock nut and recheck. Then reattach the front panel. Should your water supply pressure change significantly, readjustment will be required as the rotary pump supplies an adjustable boost to the supply pressure. However, if you add an in-line pressure regulator to the water supply line this should not be required. If your water supply pressure is higher than 30psi, a water pressure regulator can also reduce or eliminate expansion valve drips.



### 8.4 Expansion Valve Release Adjustment

This procedure starts by removing the chrome front panel as in the above procedure and also requires the portafilter with rubber disk or blind filter basket.

1. Adjust the group pressure to 12.5 bar per the following instructions:
  - a) Loosen lock nut "A" using the 14mm wrench
  - b) Tighten nut "B" 1-2 turns using the 10mm wrench
  - c) Turn on pump until pressure on the Group Pressure gauge "D" stabilizes
  - d) Repeat steps b & c until pressure reads 12.5 bar
2. The expansion valve "C" should open at 12.5 bar
3. If no water is dripping or running from the tube below nut "C" at 12.5 bar the expansion valve is set too high. Use the 21mm socket to loosen nut "C" (rotate counter-clockwise as viewed from the bottom of this valve) until the valve just opens when running the pump as the pressure reaches 12.5 bar.
4. If water is pouring out of tube below "C" before the pressure hits 12.5 bar, use the 21mm socket to tighten nut "C" (rotate clockwise and viewed from the bottom of this valve) until the valve is just opening at this pressure. If you back off the PF pressure to 12 bar all dripping should stop - though it may take a minute or two for residual moisture to drip out.





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5. Once you are convinced that the expansion valve is properly calibrated, readjust the rotary pump pressure by unscrewing "B" to reach your preferred pressure - normally in the range of 8.2 to 9.0 bar. Then tighten lock nut "A".

### Notes:

- 1) ***Make small adjustments, then turn the pump on and check. Don't attempt any of these adjustments while the pump is on.***
- 2) The term expansion valve is somewhat of a misnomer as this device is really the overpressure valve for the group boiler. The steam boiler has its own dedicated valve.

## 9 Optional Accessories

### Drain Kit



### Programmable Timer

Use this link to download the installation and programming guide for this device:

<http://s1cafe.com/s1v2/images/Vivaldi%20Timer%20Instructions.pdf>





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**Longer Steam Arm (Shown next to stock arm)**





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Optional "No Burn" Steam Arm (shown next to stock steam arm)



### Optional 4 Hole Tip for "No Burn" Steam Arm

This tip is available on the Chris Coffee website: <http://www.chriscoffee.com>

Pictured below side-by-side are the stock 2 hole tip and the new 4 hole tip.





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### 53mm Triple Basket

By popular demand Chris Coffee now sources a triple basket for the S1. This basket can be purchased by itself or it is included with purchase of a bottomless portafilter.



### 10 Other LaSpaziale VII Resources

In addition to your VII supplier, current users are an excellent information resource: Check out these internet sites:

<http://www.home-barista.com> – reviews, forums, and lively discussions on all coffee topics

<http://www.coffeegeek.com> - Here you will find lively debate on all things coffee and VII information, including reviews by owners.

<http://www.s1cafe.com/s1v2> – Website devoted solely to the VII with links to one dedicated to the V1 and to the forum below

<http://www.s1cafe.com> - an on-line forum for V1, VII, and VII Mini owners to share information and ask questions.

<http://www.bellabarista.co.uk/pdf/Laspaziales1vivaldiMKIICloserlookv4.pdf> - Detailed review of the European model called the MKII.



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## 11 Quick Setting Guide

Feature	Starting State (ON/STBY)	Key Press	How Long? (Seconds)	How to know when in correct state to configure feature?	Next Button Press	Next Button Press	Exit Strategy
Set Volumetric Dosing for Single Cup	ON	ON/OFF	3	ON/STBY and current set temp lamps blinking	Single Cup Button	Single Cup again when desired amount of water is dispensed	Momentarily Press ON/STBY to exit and save setting
Set Volumetric Dosing for Double Cup					Double Cup Button	Double Cup again when desired amount of water is dispensed	
Set Main Temp					Hot Water	Press and release Hot Water Button until desired temp lamp is On	
Programmable Preinfusion					Hold BOILER button for 3sec. (Displays current setting)	Each subsequent press of BOILER lights one more lamp. No lamps on = 0 sec preinfusion. All eight on = 8 sec preinfusion. When all 8 lamps are lit, one more BOILER press cycles back to 0 sec preinfusion.	
Economy Mode ON/OFF	ON	BOILER	10	ECON Lamp switches state	Note: Remains in current ECON state until this step is repeated even through ON/STBY transitions and Power Fail conditions		
Boiler ON/OFF			Momentary	BOILER Lamp switches state	Note: Boiler off state is not "remembered" through ON/STBY transitions or Power Fail conditions. Boiler always returns to On.		
Standard Temp Offset Machines w/o upgraded controller board	STBY	BOILER	10	On/STBY and BOILER lamps blinking	BOILER	Each press of Boiler lights one more lamp. No lamps on = 0C offset. All eight on = -8C offset. When all 8 lamps are lit, 1 more BOILER press cycles back to 0C offset	Momentarily Press ON/STBY to exit and save setting
Enhanced Temp Offset Machines with upgraded controller board					Double Cup or Single Cup	Double Cup decreases offset by 1C for each press up to -8C. Single Cup increases offset by 1C up to +8C	
V1/VII Mode Change	STBY	HOT WATER	3	3 Yellow Lamps Blink = VII mode 3 Green Lamps Blink = VI mode <b>Warning: If you change modes and later switch to back to original mode, all configuration changes for that mode are lost. If you want to know what mode you are in without losing your current configuration, unplug V2, then plug back in. Mode lamps blink once when plugged in.</b>			
Steam Pressure - Higher	STBY	One Cup	3	94°C (17) and 95°C(18) lights on steady	Two Cup	Pressure increases by .1 bar for each press up to .3 bar as indicated by blinking lights	Momentarily press One Cup to exit and save setting
Steam Pressure - Lower	STBY	One Cup	3	94°C (17) and 95°C(18) lights on steady	HOT WATER	Pressure decreases by .1 bar for each press up to .3 bar as indicated by blinking lights	Momentarily press One Cup to exit and save setting
Extreme Temp Set - Higher	STBY w/ Master Temp = 97C	Two Cup	3	94°C (17) and 95°C(18) lights on steady	Hot Water	Hot Water increases temp by 1C for each press up to +3C as indicated by lights	Momentarily press Two Cup to exit and save setting
Extreme Temp Set - Lower	STBY w/ Master Temp = 91C	Two Cup	3	94°C (17) and 95°C(18) lights on steady	One Cup	One Cup decreases temp by 1C for each press down to -3C as indicated by lights	Momentarily press Two Cup to exit and save setting