BUNN®

SINGLE SH®

WITH SMART FUNNEL™

INSTALLATION & OPERATING MANUAL

BUNN-O-MATIC CORPORATION

POST OFFICE BOX 3227
SPRINGFIELD, ILLINOIS 62708-3227
PHONE: (217) 529-6601 FAX: (217) 529-6644

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www.bunnomatic.com

WARRANTY

Bunn-O-Matic Corp. ("Bunn") warrants the equipment manufactured by it to be commercially free from defects in material and workmanship existing at the time of manufacture and appearing within one year from the date of installation. In addition:

1.) Bunn warrants electronic circuit and/or control boards to be commercially free from defects in material and workmanship for three years from the date of installation.

2.) Bunn warrants the compressor on refrigeration equipment to be commercially free from defects in material and workmanship for two years from the date of installation.

3.) Bunn warrants that the grinding burrs on coffee grinding equipment will grind coffee to meet original factory screen sieve analysis for three years from date of installation or for 30,000 pounds of coffee, whichever comes first.

This warranty does not apply to any equipment, component or part that was not manufactured by Bunn or that, in Bunn's judgement, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The agents, dealers or employees of Bunn are not authorized to make modifications to this warranty or to make additional warranties that are binding on Bunn. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

The Buyer shall give Bunn prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois, 62708-3227. If requested by Bunn, the Buyer shall ship the defective equipment prepaid to an authorized Bunn service location. If Bunn determines, in its sole discretion, that the equipment does not conform to the warranty, Bunn shall repair the equipment with no charge for parts during the warranty period and no charge for labor by a Bunn Authorized Service Representative during the warranty period. If Bunn determines that repair is not feasible, Bunn shall, at its sole option, replace the equipment or refund the purchase price for the equipment.

THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AS SPECIFIED HEREIN, TO REPAIR OR, AT BUNN'S SOLE OPTION, REPLACEMENT OR REFUND.

In no event shall Bunn be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

INTRODUCTION

This brewer incorporates a wireless interface system that allows the DBC Grinder to load certain information into the "programming tag" located inside the handle of the funnel. This information includes the name of the coffee ground and what batch size will be brewed (small, medium, or large). Once the correct name and amount of coffee is ground, the funnel is loaded into the brewer. The information from the funnel handle is then transferred into the brewer. The brewer then takes this information and dispenses the amount of water preset in the brewer for that particular coffee name and batch size. The brewer can also be programmed to adjust different functions of the brewing process, such as brew temperature, brew volumes, bypass percentages, pulse brew, etc. This allows the operator to program a certain "recipe" for each coffee name to be brewed.

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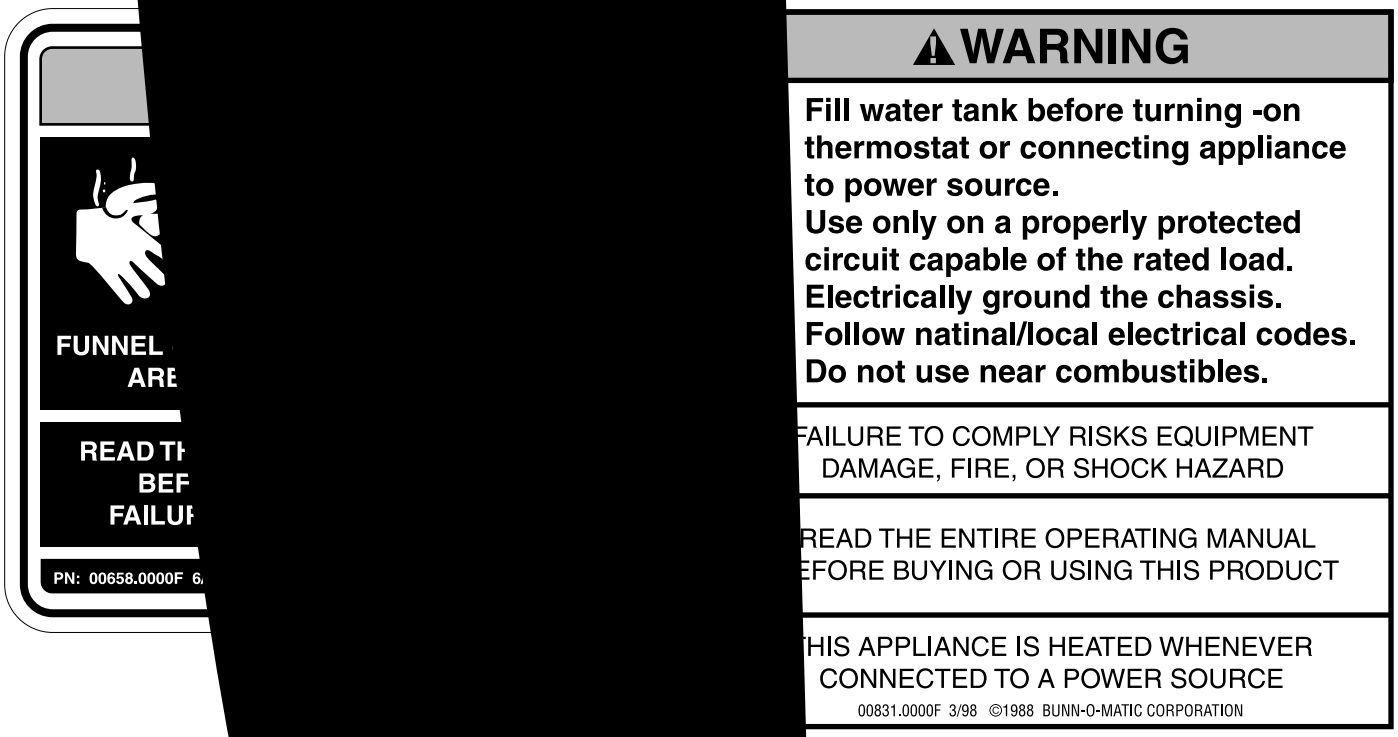

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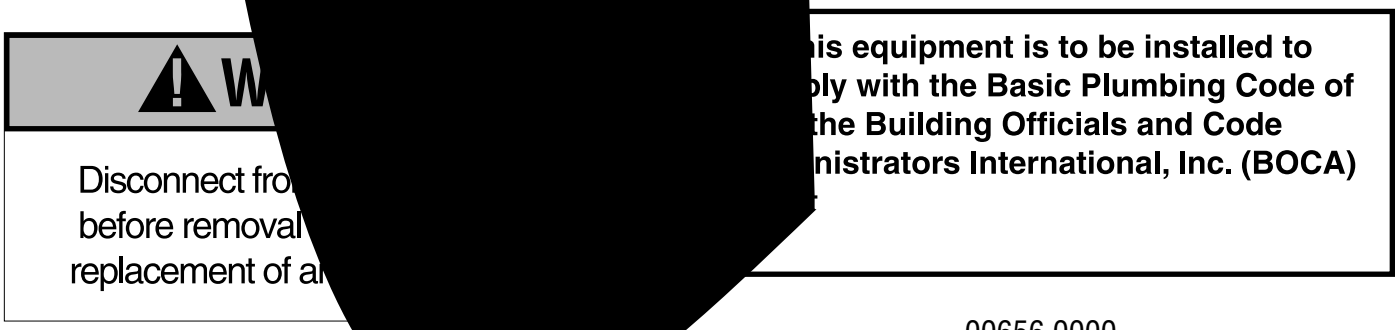

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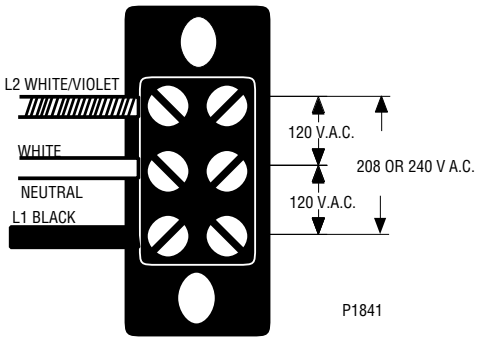
ELECTRICAL REQUIREMENTS

CAUTION - The brewer must be disconnected from the power source until specified in *Initial Set-Up.*



Requires 3-wire, grounded service rated 120/208 or 120/240 volts ac, 30 amp, single phase, 60 Hz.

ELECTRICAL HOOK-UP

CAUTION – Improper electrical installation will damage electronic components.

1. An electrician must provide electrical service as specified.
2. Using a voltmeter, check the voltage and color coding of each conductor at the electrical source.
3. Remove the front panel beneath the sprayheads.
4. Feed the cord through the strain relief and connect it to the terminal block.
5. Connect the brewer to the power source and verify the voltage at the terminal block before proceeding. Replace the front panel.
6. If plumbing is to be hooked up later be sure the brewer is disconnected from the power source. If plumbing has been hooked up, the brewer is ready for *Initial Set-Up*.

PLUMBING REQUIREMENTS

This brewer must be connected to a cold water system with operating pressure between 20 and 90 psi (138 and 620 kPa) from a ½" or larger supply line. A shut-off valve should be installed in the line before the brewer. Install a regulator in the line when pressure is greater than 90 psi (620 kPa) to reduce it to 50 psi (345 kPa). The water inlet fitting is ¼" flare or female quick connect.

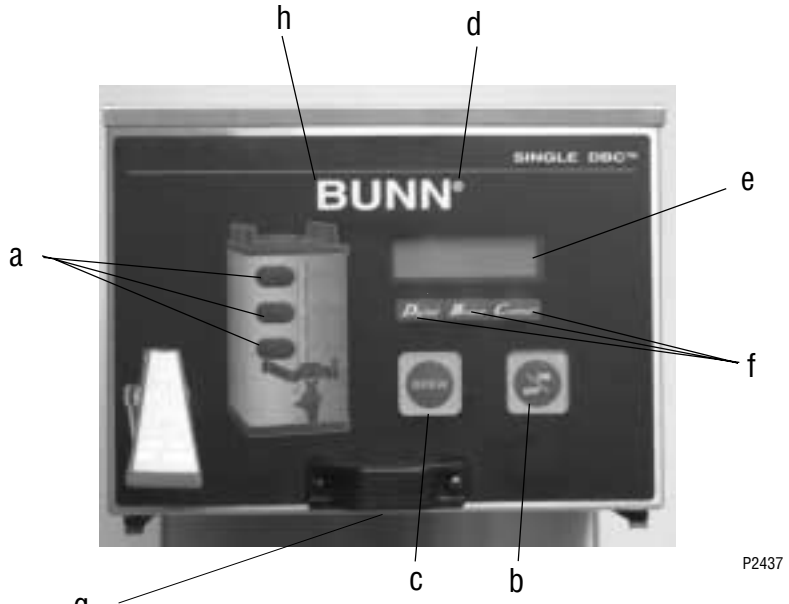
NOTE – Bunn-O-Matic recommends ¼" copper tubing for installations of less than 25 feet and ⅜" for more than 25 feet from the ½" water supply line. A tight coil of copper tubing in the water line will facilitate moving the brewer to clean the counter top. Bunn-O-Matic does not recommend the use of a saddle valve to install the brewer. The size and shape of the hole made in the supply line by this type of device may restrict water flow.

This equipment must be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).

PLUMBING HOOK-UP

1. Flush the water line and securely attach it to the flare fitting located on bottom of brewer.
2. Turn on the water supply.

OPERATING CONTROLS



OPERATING CONTROLS

(a) BATCH SELECTOR PADS

Pressing the pad corresponding to the Small, Medium, or Large batch selects the amount of coffee to be brewed. Pressing a different pad after a brew cycle has been initiated does not change the brew batch in progress. Light indicates the selected batch to brew.

(b) ON/OFF PAD

Pressing the ON/OFF pad alternately turns the brewer on and off. Pressing this pad during the brew cycle will interrupt the brew cycle, stopping the flow of water. Pressing this pad during the programming of the brewer will exit the setup and return to the main screen.

(c) BREW PAD

Momentarily pressing and releasing this pad begins a brew cycle.

(d) ® PAD

Pressing and holding the ® pad allows entry to the programming menus. Pressing and releasing the pad steps through each function screen during programming.

(e) FUNCTION SCREEN

This is the display which shows the various functions of the brewer and allows the programming to be accomplished.

(f) FUNCTION SCREEN PADS

These are the hidden pads which are used to program the brewer.

(g) FUNNEL SENSING COIL

This is used to "receive" information from the Smart Funnel™ handle (coffee name and batch size), and also from **TAG CARDS**.

(h) SCROLL BACKWARDS

The upper left corner of the B in BUNN® can be used to scroll backwards through the function list.

INITIAL SETUP

CAUTION – The brewer must be disconnected from the power source throughout the initial setup, except when specified in the instructions.

1. Insert an empty funnel into the funnel rails of the brew station.
2. Place an empty server under the funnel.
3. Connect the brewer to the power source. Water will begin flowing into the tank and stop when the tank is filled to its capacity. Display will show **PLEASE WAIT…TANK FILLING** until tank is filled with water.
4. Wait approximately twenty minutes for the water in the tank to heat to the proper temperature. Display will show **READY TO BREW…WATER TEMP: XXX**˚ when tank is at operating temperature.
5. Place a small vessel beneath the faucet and open the faucet handle. Release it when you hear the tank refilling.
6. Water volumes have been preset at the factory. Refer to adjustments for the *Set Brew Volumes* section of this manual should the volume need to be increased or decreased.
7. The brewer is now ready for use in accordance with the coffee brewing instructions.

COFFEE BREWING

1. Select the desired batch size on the grinder. It is not necessary to select a size on the brewer.
2. Insert a BUNN® filter into the funnel.
3. Grind the proper amount of fresh coffee into the Smart Funnel™ using the G92T DBC with Smart Funnel™ operation and level the grounds by gently shaking.
4. Slide the funnel into the funnel rails. The brewer will read the size ground through the chip in the funnel handle and will automatically select the correct size to brew. If the grounds are not obtained through a grinder compatible with a Smart Funnel™, a batch size must be chosen on the brewer.
5. Place an empty server under the funnel.
6. Momentarily press and release the 

pad. If the brewer has the funnel lock option and if it is activated, once a brew cycle has been started the funnel is locked in place. There may be certain situations in which the brew cycle will not begin when 

is pressed:

   a) **BREW TEMPERATURE TOO LOW** - wait until heated or cancel **BREW LOCKOUT** option. (Page 10)
   b) **FUNNEL NOT IN PLACE** (or using a standard brew funnel) - cancel **FUNNEL LOCKOUT** option. (Page 30)
   c) **CHECK FUNNEL** - remove funnel, empty previously brewed grounds and grind a new batch into the funnel.
   d) **SERVER NOT IN PLACE** - place Soft Heat Server, or cancel **SERVER LOCKOUT** option. (Page 31)

7. If none of the above messages are displayed, the display will read **NOW BREWING** along with the name of the coffee being brewed.
8. When brewing is completed the optional funnel lock will release following a programmed length of time that starts at the end of the brew cycle. Discard the grounds and filter.

CLEANING

1. The use of a damp cloth rinsed in any mild, nonabrasive, liquid detergent is recommended for cleaning all surfaces on Bunn-O-Matic equipment.
2. Check and clean the sprayhead. The sprayhead holes must always remain open.

NOTE – In hard water areas, this may need to be done daily. It will help prevent liming problems in the brewer and takes less than a minute.

GLOSSARY

BREW LOCKOUT: The inability to initiate a brew if the water temperature is less than the ready temperature programmed into the brewer.

BYPASS: The process of diverting a portion of the brew water to the outside of the paper filter so that it does not pass through the coffee grounds. This process is sometimes used to optimize the flavor of the finished brew.

DRIP TIME: The length of time from when the water spray over the grounds ends, to the time that no water drips from the funnel tip.

FACTORY DEFAULTS: The factory preset brew settings that were installed into the brewer's memory.

FIRST ON-TIME: During a pulse brew, this is the time set for the initial flow of water over the grounds.

FUNNEL LOCKOUT: The inability to initiate a brew cycle if the funnel is not properly inserted into the funnel rails.

FUNNEL SENSING COIL: A sensor on the front hood of the brewer, which reads what flavor and batch size of coffee was ground into the funnel and allows for the brewer to automatically set itself to what is read from the funnel handle.

LAST ON-TIME: During a pulse brew, this is the time set for the second on-time, and each alternating on-time for the remainder of the brew cycle.

MAIN SCREEN: The term used to describe the screen that is displayed when the brewer is not in use. This screen is also displayed after exiting the programming mode.

NO-NAME COFFEE: The term for the recipe used by the brewer when there is no coffee name stored in the funnel.

OFF-TIME: During a pulse brew or preinfusion, this is the time set for the length of time that the water is not spraying over the grounds.

PREINFUSION: The process of beginning a brewing cycle with an initial spray of water onto the grounds followed by a pause in the spray. After the programmed pause, the spray continues without interruption until the end of the brewing cycle.

PULSE BREW: The process which allows the brew water to start, then stop, repeatedly, over the grounds in order to derive the best flavor from the coffee. Pulse brew is also used in some instances to prevent a funnel overflow.

RECIPE: Set of brewing parameters stored in the brewer. The parameters are unique for each coffee name and include brew ounces, pulse brew, percent bypass, preinfusion and drip time.

SERVER LOCKOUT: The inability to initiate a brew cycle if the server is not properly placed on the stand below the brew funnel.

SOFT HEAT®: The type of server and brewer which are used as part of the Smart Funnel™ system. The server is placed on the brewer, and is connected through the receptacles on the brewer. The server contains a temperature-controlled heater which maintains the coffee at a constant temperature.

TAG: A computer chip containing either recipes for specific coffee flavors or advertising messages which are read by the sensing coils on the brewer. One tag is embedded in the Smart Funnel™ handle to carry the coffee flavor name and batch size ground from the grinder to the brewer.

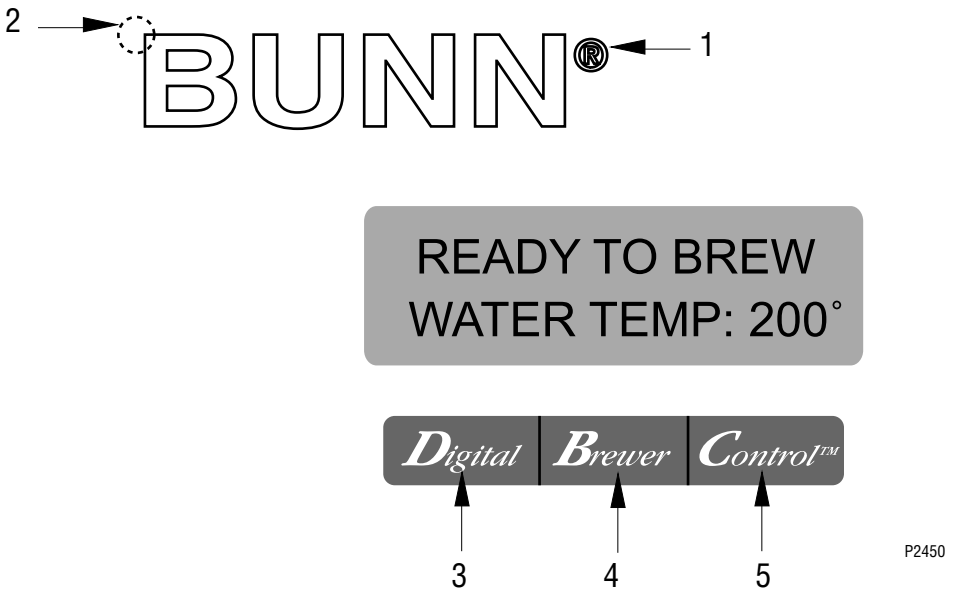
PROGRAMMING

Using the menu-driven display on the front of the brewer, the operator has the ability to alter or modify various brewing parameters such as brew temperatures, brew volumes, bypass percentages, etc. This allows for the precise brewing of various flavors of coffee.

Programming of the brewer is achieved by entering a certain function. Then, by the use of hidden programming switches, the operator can customize the brewing process to their specifications.

PROGRAMMING SWITCHES

To access the programming mode, and to scroll through the different function screens, hidden programming switches are used. There are five of these switches that will be used for the setup of the brewer.



1. **® symbol** (upper right of the BUNN logo)
   This is used to access the programming mode and is also used to scroll forward through the function list.

2. **Upper left corner** of the "B" in the BUNN logo
   This is used to scroll backwards through the function list.

3. **"Digital"** (lower left under the display)
   This is used to select options that appear on the display during programming.

4. **"Brewer"** (center under the display)
   This is used to select options that appear on the display during programming.

5. **"Control"** (lower right under the display)
   This is used to select options that appear on the display during programming.

MAIN SCREEN

PROGRAMMING THE BREWER (cont.)

PROGRAM FUNCTIONS - LEVEL 2

There are three methods of programming the various brewing parameters of the SINGLE™ SH® with Smart Funnel™ Brewer.

METHOD 1:

Using a Smart Funnel™ and a G92T DBC Grinder:

Certain coffee **NAMES** are stored in the G92T DBC's memory. When a particular name of coffee is ground into the Smart Funnel™, that name and the batch size selected are transferred from the grinder to the programming **TAG** located in the funnel's handle. The funnel is then inserted into the brewer's funnel rails. The sensor coil on the brewer reads the information contained in the handle. This then allows the operator to set the **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES** and **DRIP-OUT TIMES** for that particular coffee **NAME**. Each coffee **NAME** can be set individually to provide optimum brewing quality.

RECIPES

This diagram allows for the creating, modifying, or viewing of recipes in the brewer.

METHOD 2:

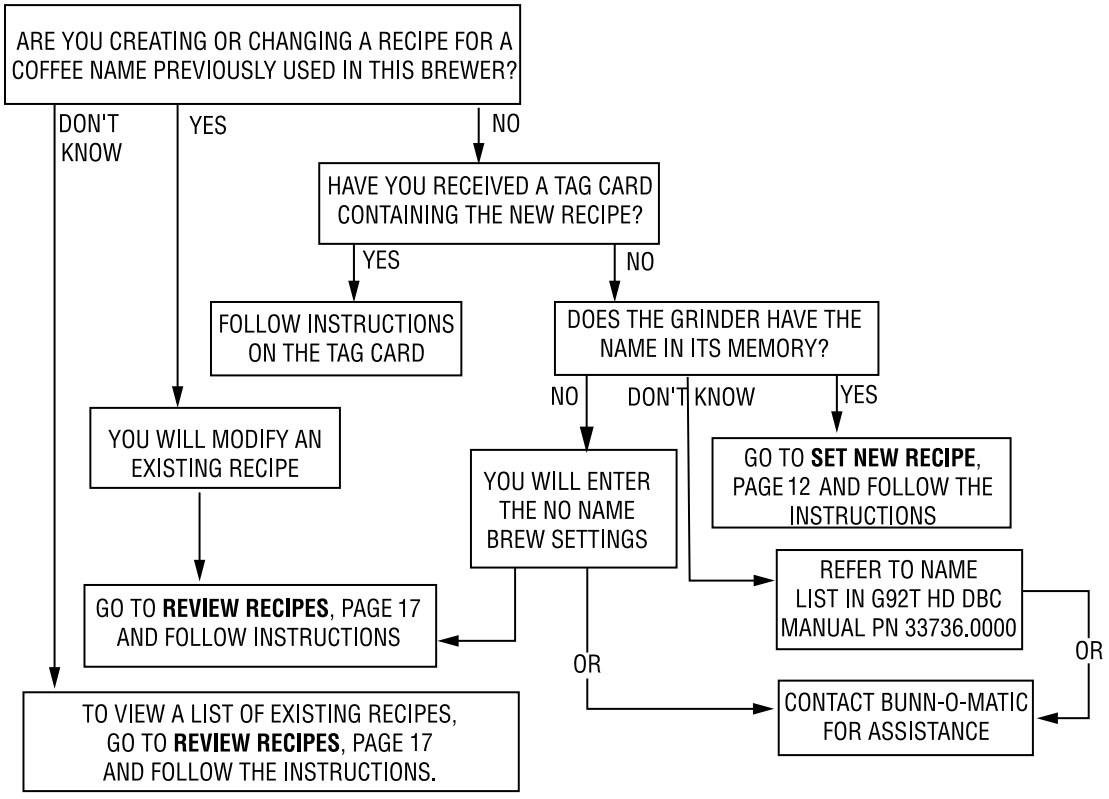
Using a TAG CARD to enter all of the brew settings at one time:

If using a coffee flavor not in the G92T DBC's memory, the customer can obtain a **TAG CARD** from the factory with all the information needed to set up that particular coffee flavor. This includes the name of the coffee, **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES,** and **DRIP-OUT TIMES.**

METHOD 3:

Not using a Smart Funnel™ and/or a G92T DBC Grinder:

This allows the operator to enter **ONE** set of brewing parameters in the event a Smart Funnel™ and/or a G92T DBC is not used with the SINGLE™ SH Brewer. This is referred to as a **NO NAME** coffee flavor. If the brewer does not read the information in the funnel handle, it automatically selects the **NO NAME** brewing parameters set up prior to brewing. This includes the **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES** and **DRIP-OUT TIMES** for the three batch sizes.



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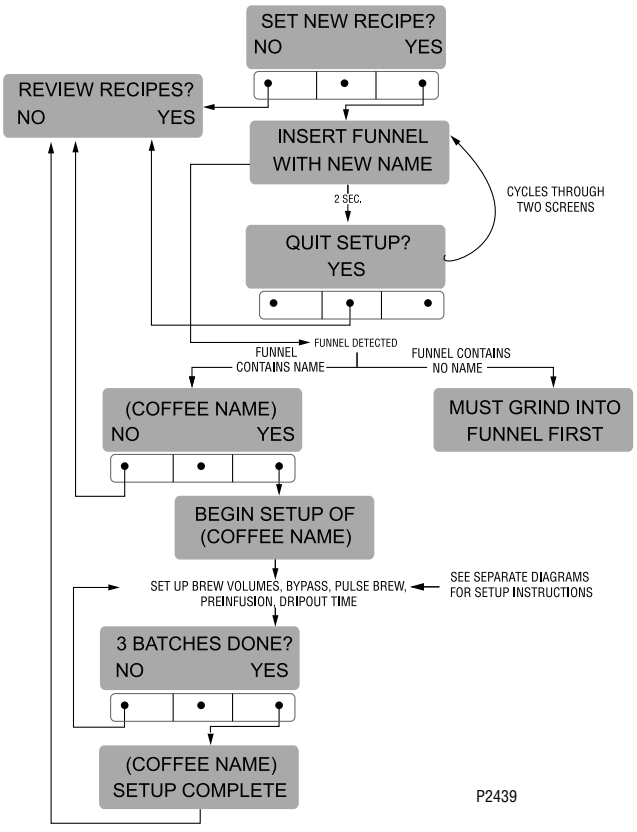
PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET NEW RECIPE

Using a Smart Funnel™ and a G92T DBC Grinder:

This function allows the operator to set **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES** and **DRIP-OUT TIMES** for each coffee name preset in the grinder's memory.

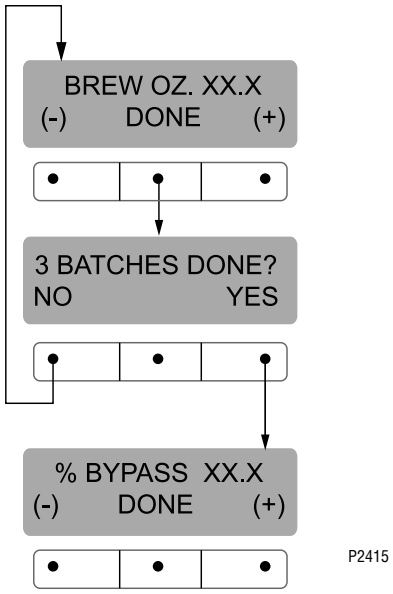
Certain coffee **NAMES** are stored in the G92T DBC's memory. When a particular name of coffee is ground into the Smart Funnel™, that name and the batch size selected are transferred from the grinder to the programming **TAG** located in the funnel handle. The funnel is then inserted into the brewer's left side funnel rails. The sensor coil on the brewer reads the information contained in the handle. The name of the coffee flavor will then appear on the display. This then allows the operator to set the **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES** and **DRIP-OUT TIMES** for that particular coffee **NAME**. It also allows the operator to set other brewing parameters, such as **BREW TEMPERATURE, READY TEMPERATURE, BREW LOCK-OUTS,** etc. Each coffee **NAME** can be set individually to provide optimum brewing quality.



Procedure for Setting the Recipe:

NOTE: Before beginning setup, place a server beneath the sprayhead.

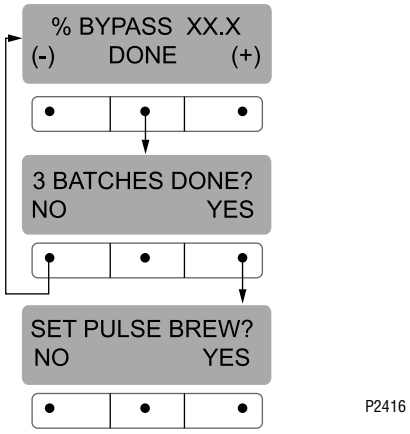
1. Insert the funnel into the grinder and select a batch size to grind. It is not necessary to have coffee beans in the hopper(s) in order to program the brewer. The coffee name is pre-selected and stored in the grinder's memory for the side being ground.
2. Press the GRIND pad. When the grinder stops grinding, remove the funnel.
3. On the brewer, press and hold the ® pad until the display reads **SET NEW RECIPE.** Release the ® pad.
4. Press and release **YES**. The display should read **INSERT FUNNEL WITH NEW NAME**, then **QUIT SETUP?** These two displays will repeatedly cycle.
5. Insert the funnel into the rails of the brewer. The display should read the **NAME** of the coffee that was ground into the funnel, along with a **NO** and **YES**. If the **NAME** on the display is correct, press **YES**.
6. If, for some reason, the name of the coffee from the grinder did not load properly into the funnel, or if a grind has not yet been done, the display will read **MUST GRIND INTO FUNNEL FIRST.** It will be necessary to grind another batch following steps 1 and 2.
7. If the grind is acknowledged by the brewer, the display will read **BEGIN SETUP OF (COFFEE NAME)**. Then the screen will display **BREW OZ**. and a batch light will be blinking. (Refer to page 18 for description of **BREW OZ.** function).



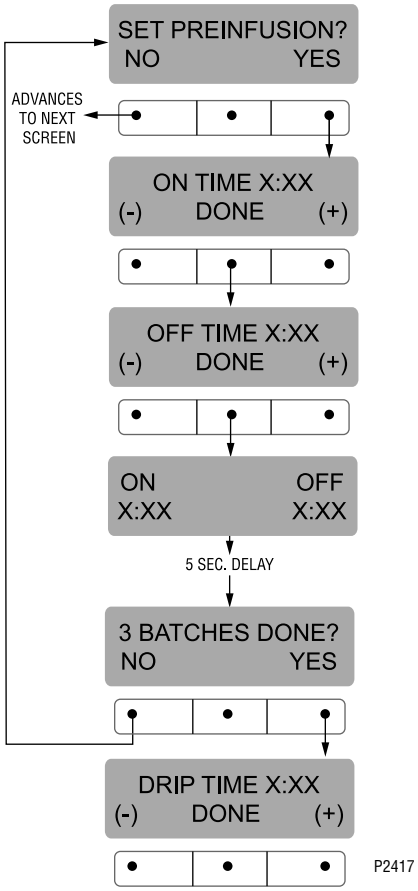
PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET NEW RECIPES (cont.)

8. Using **(-)** and **(+)**, set the amount of brew water, in ounces, to be dispensed **over** the grounds for that particular batch size.
9. When finished, press another batch size and repeat step #8 for that size. Continue setting all batch sizes.
10. When finished setting all batch sizes, press and release **DONE**. The display should read **3 BATCH SIZES DONE?**
11. If the three batch sizes are not correct, press and release **NO** to return to the **BREW OUNCES** setup screen and repeat steps 8 through 10. If the three batch sizes are correct, press **YES**. This will advance to the **% BYPASS** function. (Refer to page 19 for description of **% BYPASS** function.)



12. Using **(-)** and **(+)** set the amount of bypass water (percentage) to be dispensed **around** the grounds for that particular batch size.
13. When finished, press another batch size and repeat step #12 for each batch to be set.
14. When finished setting each batch size, press **DONE**. The display should read **3 BATCHES DONE?**
15. If the three batch sizes are not correct, press and release **NO** to return to the **% BYPASS** setup screen and repeat steps 12 through 15. If they are correct, press **YES**. This will advance to **SET PULSE BREW**. (Refer to page 20 for description of **SET PULSE BREW** function.
16. To **SET PULSE BREW,** if setting pulse brew **BY EXAMPLE** (brewing into a funnel) press **YES** and proceed with the setup instructions for *SETTING PULSE BREW - BY EXAMPLE,* on page 22.
17. If setting pulse brew by **ENTER TIMES** (entering known times) press **NO**. The display should read **ENTER TIMES.** Press and release **YES** and proceed with the setup instructions for *SETTING PULSE BREW - ENTER TIMES,* page 23. After S**ET PULSE BREW** has been accomplished, the next function will be **SET PREINFUSION.** (Refer to page 24 for description of **SET PREINFUSION** function.

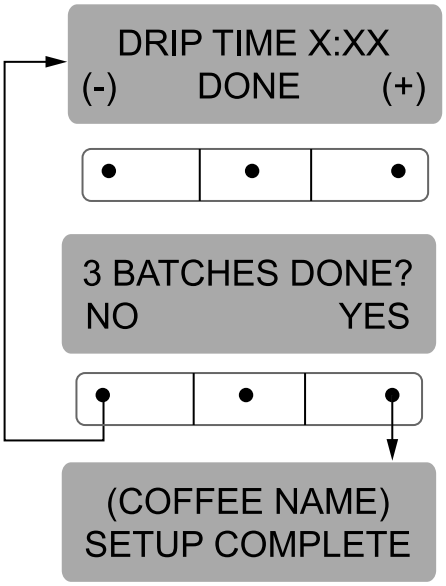


18. To **SET PREINFUSION** press **YES** in the **SET PREINFUSION** screen to proceed. The display should now read **ON TIME** and a batch light will be blinking.
19. Using **(-)** and **(+)**, set the amount of time the brew water will initially **presoak** the grounds for that particular batch size.
20. When finished, press another batch size and repeat until all three batch sizes are set.
21. When finished, press **DONE.** The display should now read **OFF TIME** and a batch light will be blinking.

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET NEW RECIPES (cont.)

22. Using **(-)** and **(+)**, set the amount of time the brew cycle will delay (after the presoak cycle shuts off) before resuming brewing.
23. When finished, press another batch size and repeat until all three batch sizes are set.
24. When finished setting all batch sizes, press **DONE.** The display will show the **ON** and **OFF TIMES** that were entered for a particular batch size. After a 5 second delay, the display should read **3 BATCHES DONE.**
25. If the three batches are not complete, press **NO** in order to return to **SET PREINFUSION**, and repeat steps 19 through 24.
26. If the three batches are correct, press **YES**. This will advance to the next function, **SET DRIP TIME.** (Refer to page 25 for description of **SET DRIP TIME** function.)



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27. The display should now read **DRIP TIME,** along with either the word **OFF**, or a time will be showing. A batch light should also be blinking.
28. Using **(-)** and **(+)**, set the amount of time from when the brew spray ends to when the funnel is emptied of hot liquid for that batch size.

NOTE: Set to **OFF** to prevent funnel locks from engaging (to disable this function), for a particular batch size. To set to **OFF**, continue to press and release **(-)** until **OFF** appears on the screen.

29. When finished, press another batch size and repeat step 28 until all three sizes are set.
30. When finished setting all batch sizes press **DONE**. The display should read **3 BATCHES DONE?**.
31. If the three batch sizes are not correct, press **NO** to return to the **DRIP TIME** setup screen and repeat steps 28 through 30.
32. If the three batch sizes are correct, press **YES**. The screen should show the name of the coffee being programmed (modified) along with **SETUP COMPLETE**.
32. After a 5 second delay, the display will advance to the next coffee name in the brewer's memory. If no other coffee names are present, the display will read **THAT WAS THE LAST RECIPE**, and return to the **REVIEW RECIPES** screen.

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET NEW RECIPE

Using a TAG CARD to load coffee names and brew settings into the SINGLE™ SH DBC with Smart Funnel™:

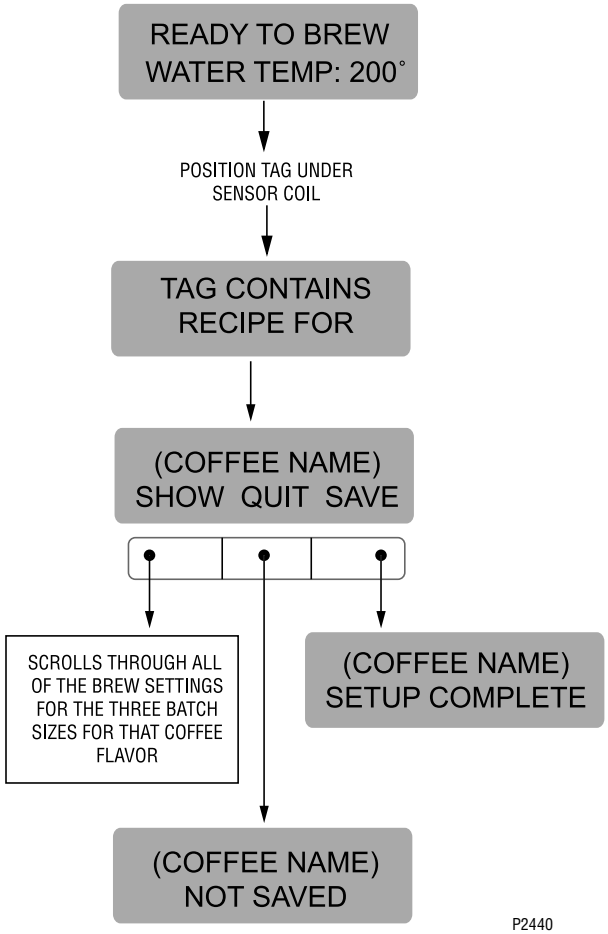
The G92T DBC's memory contains certain coffee names. If the operator uses a coffee name that is not already stored in the grinder's memory, a **TAG CARD** can be obtained from the factory. The **TAG CARD** would include all the information needed to set up that particular coffee name. The information from the **TAG CARD** is loaded into the grinder's memory, then into the brewer's memory by holding the tag up to the equipment's sensing coil. This information can include the coffee name, **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES** and **DRIP-OUT TIMES** for that particular coffee **NAME.** These can all be loaded in seconds.

Contact Bunn-O-Matic Corporation for the availability of **TAG CARDS.**

NOTE: Instructions to program the brewer and grinder are printed on the **TAG CARD,** along with the coffee name that is being programmed.

Procedure to program the coffee name:

1. Remove the funnel (if present) from the funnel rails.
2. Position the **TAG CARD** vertically, so that the top end of the **TAG** is beneath the funnel sensing coil.
3. After a short pause the display will read **TAG CONTAINS RECIPE FOR** then will change to **(COFFEE NAME) SHOW QUIT SAVE**. All brewing parameters for that coffee flavor are now transferred from the **TAG** to the brewer.
4. To show (view) this information, press and release **SHOW**. The display will scroll through all of the brew settings for all three batch sizes. The display will then return to **TAG CONTAINS RECIPE FOR** then will change to **(COFFEE NAME) SHOW QUIT SAVE**.
5. If all brew settings are correct, press **SAVE**. The display will read **(COFFEE NAME) SETUP COMPLETE**. All brew settings for that name are now stored in the brewer's memory.
6. If the brewing information is not correct, or it is desired to exit the setup before the settings are loaded into the brewer's memory, press **QUIT**. The display will read **(COFFEE NAME) NOT SAVED**. The display will then return to the **MAIN SCREEN**.



PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET NEW RECIPE:

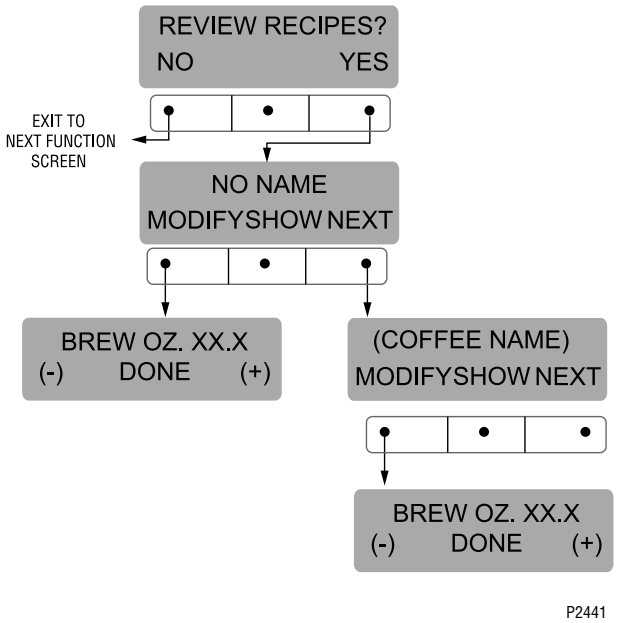
If not using a Smart Funnel™ (with a sensor coil) and/or a G92T DBC Grinder, the brewer will function as a standard BUNN® Single™ Brewer:

It is possible to operate the brewer without using a Smart Funnel™ and/or a G92T DBC Grinder. If a standard funnel, or if a non-DBC grinder is used the brewer will automatically select a **NO NAME** coffee flavor when the BREW pad is pressed. This means that no name was read from the funnel's handle.

There is a **NO NAME** coffee program that can be set in the brewer. This includes **BREW VOLUMES, BY-PASS PERCENTAGES, PULSE BREW TIMES, PREINFUSION TIMES** and **DRIP-OUT TIMES**. The brewer will perform in the same capacity as a standard BUNN Single™ Brewer.

The instructions for programming the **NO NAME** settings are on the following pages. The same steps are followed for setting the recipe as those that are used to **MODIFY A RECIPE**, beginning on page 18.

Note that when the display reads **NO NAME**, that is when **MODIFY** should be pressed in order to set the parameters for the **NO NAME** coffee.



NOTE: Before beginning setup, insert a funnel into the funnel rails, and place a Soft Heat® Server beneath the brew funnel.

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

REVIEW RECIPES/MODIFY RECIPES/SET UP NO NAME COFFEE FLAVORS:

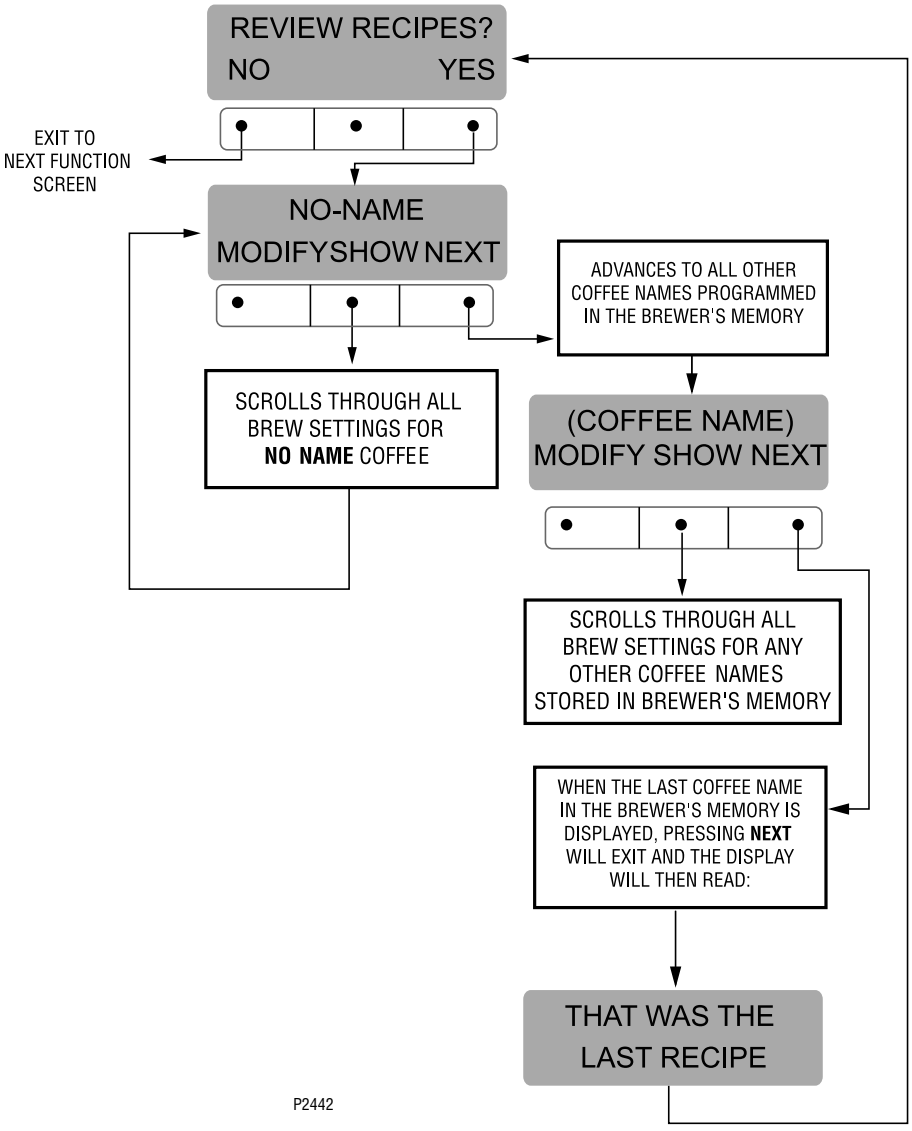
This function has three parts. It allows the operator to view the brew settings for the various coffee names programmed into the brewer.

It also allows the operator to modify (change) any of the **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PRE-INFUSION TIMES** and **DRIP-OUT TIMES** for a particular coffee name programmed into the brewer.

Finally, this function is used to set up the **NO NAME** coffee **BREW VOLUMES, BYPASS PERCENTAGES, PULSE BREW TIMES, PRE-INFUSION TIMES** and **DRIP-OUT TIMES.**

Procedure for reviewing recipes:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press the ® until the display reads **REVIEW RECIPES**.
2. Press **YES** to proceed. The display should now read **NO NAME,** along with **MODIFY, SHOW** and **NEXT.**
3. Press and release **SHOW.** The screen will scroll through all the brew settings for that particular coffee flavor name. When finished, the display will return to the coffee name just viewed.
4. To see settings again, press **SHOW.** To advance to the next coffee flavor name, press **NEXT.**
5. To exit, press **NEXT** until the display reads **THAT WAS THE LAST RECIPE.**
6. After 5 seconds, the display will return to the **REVIEW RECIPES** screen. Press and release **NO** to advance to the next function screen, or press the pad located on the front switch panel to exit the programming mode and return to the **MAIN SCREEN.**

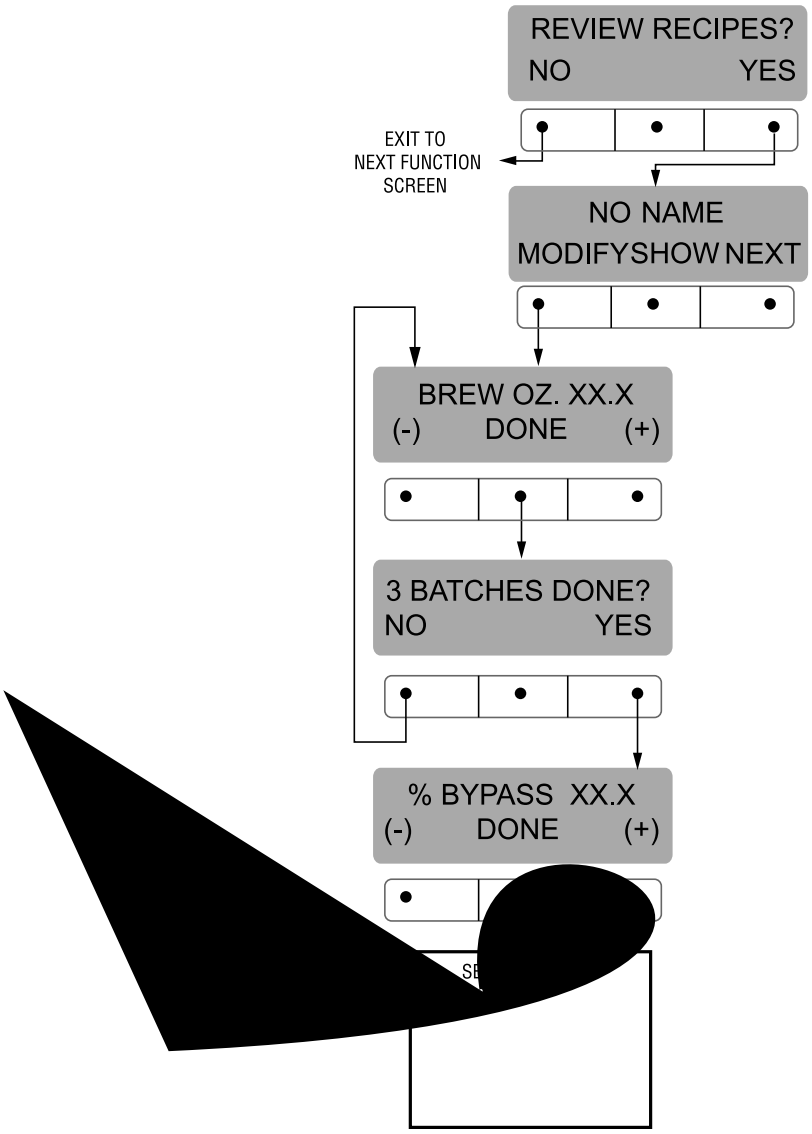


BREW OZ (SETTING OR ADJUSTING BREW VOLUMES)

This function allows adjustment of the brew volumes for each batch. The indicator signifies volume in ounces per batch.

Procedure for modifying recipes - brew ounces: Range: 10.0 oz to 400 oz for all three batch sizes

1. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Press the ® until the display reads **REVIEW RECIPES**.
2. Press **YES** to proceed. The display should now read **NO NAME,** along with **MODIFY, SHOW** and **NEXT.**
3. Press and release **NEXT** to advance to the desired coffee name to be modified.
4. Press and release **MODIFY.** The display should read **BREW OZ** and a batch light will be blinking.



PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

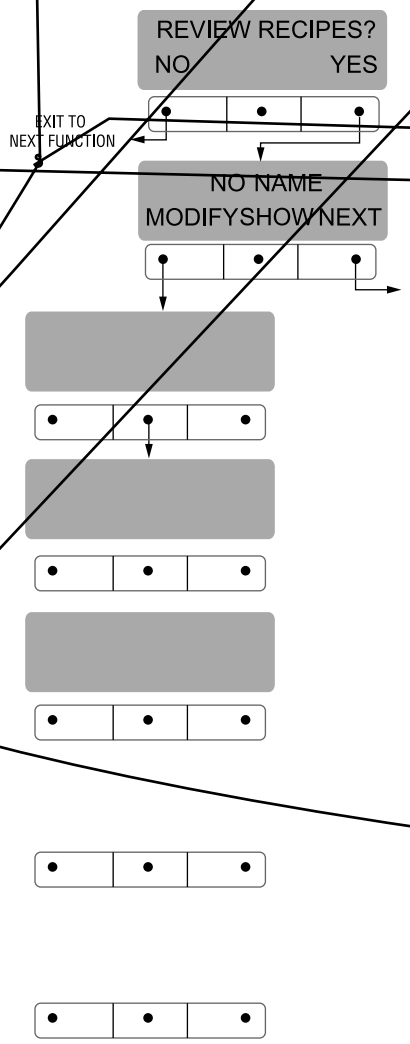
% BYPASS

This function allows adjustment of the amount of water that bypasses the grounds. The number signifies the percentage of the brew volume which does not flow over the coffee grounds.

Modifying recipes - bypass percentages:
Range: 0% to 90% for all three batch sizes

NOTE: If the brewer is already in the **% BYPASS** screen, it is not necessary to follow steps 1 through 6 in this section, but proceed directly to step 7.

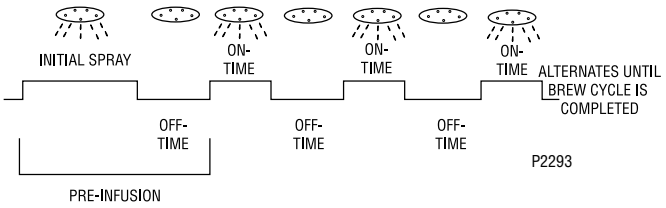
1. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Press the ® until the display reads **REVIEW RECIPES**.
2. Press **YES** to proceed. The display should now read **NO NAME,** along with **MODIFY, SHOW** and **NEXT.**
3. Press and release **NEXT** to advance to the desired coffee name to be modified.



PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET PULSE BREW:

This function allows the operator to program the brewer to "pulse" the sprayhead flow on and off during a brew cycle (start and stop the flow of water out of the sprayhead). This feature allows the ability to "fine-tune" the brewer for specific flavor profiles. Pulse brewing can be set up for any and all batches.



a) **1st ON TIME** - This time is the duration from when the BREW pad is pressed to when the desired water level in the funnel is reached. (Soaking the grounds)

b) **OFF-TIME -** This time is the duration from when the water in the funnel reaches the desired **ON TIME** level to when it drains out of the funnel to a desired lower level.

c) **LAST ON-TIME**- This time is the duration from when the water in the funnel drains down to the lower level to when it fills the funnel to a desired higher level. (Soaking the grounds).

These three times can be set two different ways. The first is by observing the flow of water for on and off times. This is accomplished by utilizing the **SET BY EXAMPLE** screen and following the subsequent steps under that function.

The other allows the actual times to be entered for each of the settings. This is done by utilizing the **ENTER TIMES** screen and following the subsequent steps under that function.

Either of these methods can be used to set the pulse brew for each batch.

Modifying pulse brew:

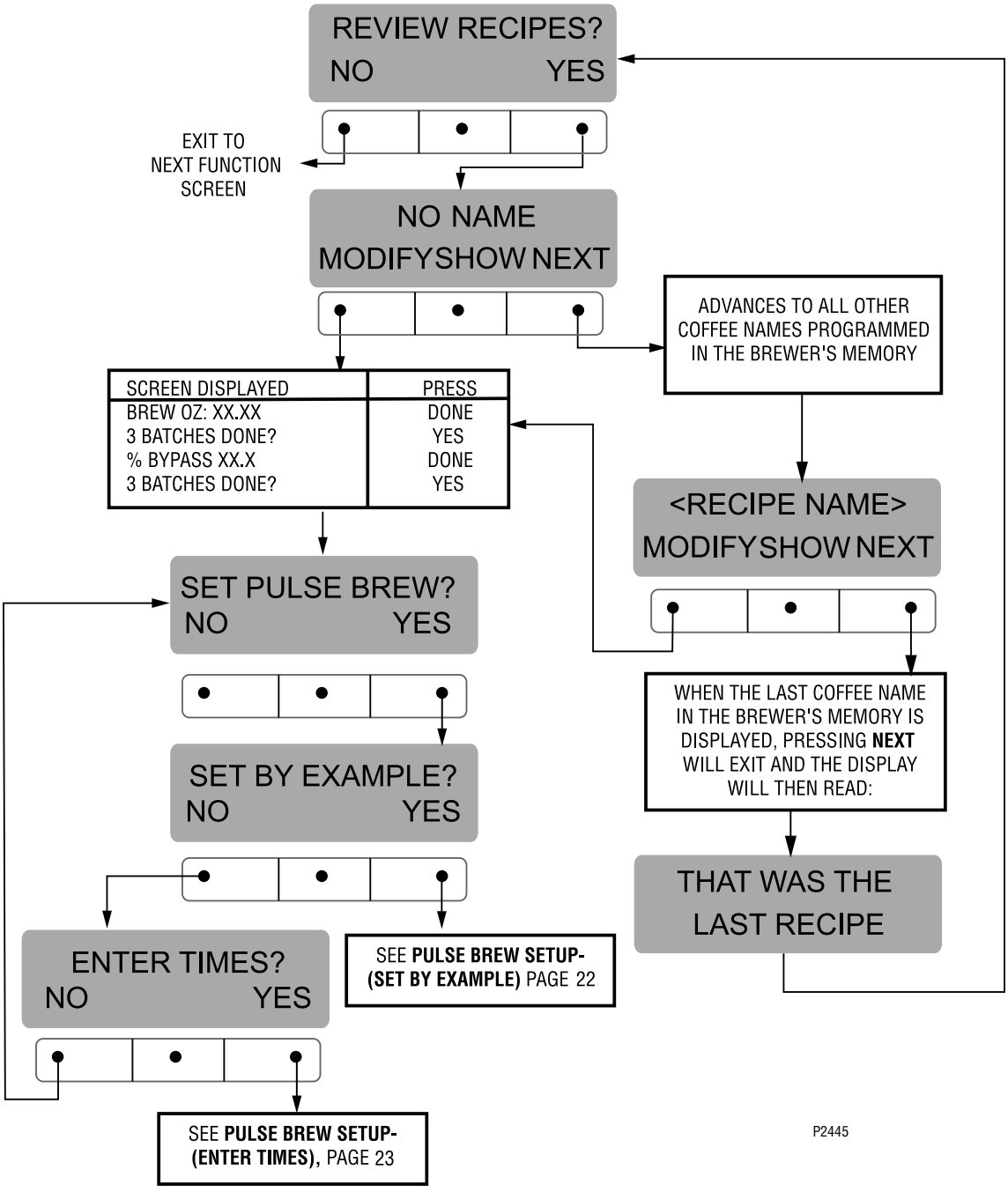
Range: 1st on time - off to 4 minutes
Off time - off to 4 minutes
Last on time - Preinfusion to 4 minutes

NOTE: If the brewer is already in the **SET PULSE BREW** screen, it is not necessary to follow steps 1 through 8 in this section, but proceed directly to step 9.

1. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Press the ® until the display reads **REVIEW RECIPES**.
2. Press **YES** to proceed. The display should now read **NO NAME,** along with **MODIFY, SHOW** and **NEXT.**
3. Press and release **NEXT** to advance to the desired coffee name to be modified.
4. Press and release **MODIFY.** The display should read **BREW OZ.**
5. Press and release **DONE**. The display should read **3 BATCHES DONE?**.
6. Press and release **YES**. The display should now read **% BYPASS.**
7. Press and release **DONE**. The display should read **3 BATCHES DONE?**.
8. Press and release **YES.** The display should now read **SET PULSE BREW.**
9. Press and release **YES.** The display should now read **SET BY EXAMPLE.**
10. If setting pulse brew **BY EXAMPLE** (brewing into a funnel) press **YES** and proceed with the setup instructions for *SETTING PULSE BREW - BY EXAMPLE,* on page 22.
11. If setting pulse brew by **ENTER TIMES** (entering known times) press **NO**. The display should read **ENTER TIMES.** Press and release **YES** and proceed with the setup instructions for *SETTING PULSE BREW - ENTER TIMES,* page 23.

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET PULSE BREW (cont.)



PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

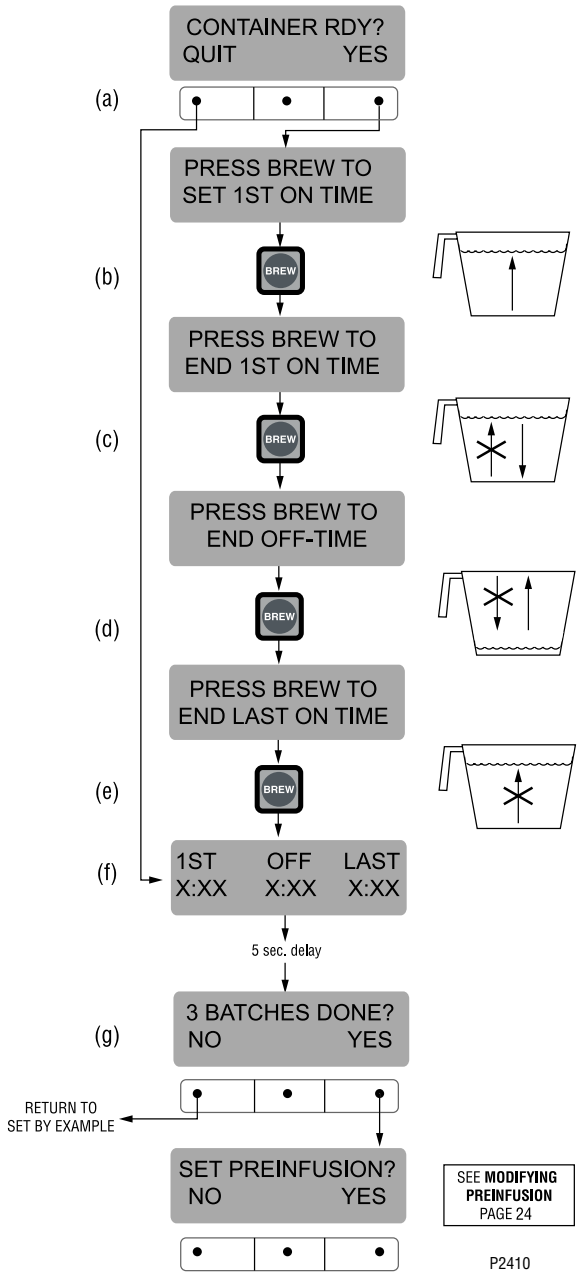
Setting Pulse Brew - BY EXAMPLE:

1. This display should read **CONTAINER READY?** Place a container under the sprayhead. Place a brew funnel containing a filter and grounds on top of the container so that the spray and coffee bed can be viewed. (See Fig. 1)
2. Choose the batch size to be set by pressing the pad next to the indicator light on the left brew side. The batch size indicator selected will be flashing.
3. If everything is in place, press YES in the **CONTAINER READY?** screen. The display should read **PRESS BREW TO START 1ST ON TIME.(a)**
4. Press and release the BREW pad. The brew water will start to flow into the funnel and the water level will rise.**(b)**
5. Watch the flow of water. When it reaches the desired level in the funnel, press and release the BREW pad again to end the **1ST ON TIME.(c)**
6. The spray will stop and the brew funnel will start to empty. When the water level in the funnel drains to the desired level, press BREW again to end the **OFF-TIME**. This also begins the spray of water for the final setting.**(d)**
7. The brew water will begin again and the water level in the funnel will rise. Watch the flow of water. When it reaches the desired level, press BREW to end the **LAST ON TIME.(e)**
8. The display should now show the 1st, off and last times for the batch size just programmed. After a 5 second delay, the display will read **3 BATCHES DONE? (f and g)**
9. If other batches need to be modified, press **NO.** The display will go back to **SET BY EXAMPLE.** Press **YES**, then press a different batch size pad and repeat steps 1 through 8. Repeat until all the desired batch sizes are set for the left side. **(g)**
10. When finished press **YES** in **3 BATCHES DONE?.** The display will then read **SET PREINFUSION.** Another alternative is to press the ON/OFF pad located on the front panel of the brewer to exit **SET PULSE BREW** and return to the **MAIN SCREEN**.

NOTE: Pressing ® before reaching the final setting screen exits the setup and retains the old values.

FIG. 1

SET BY EXAMPLE
FROM PAGE 20



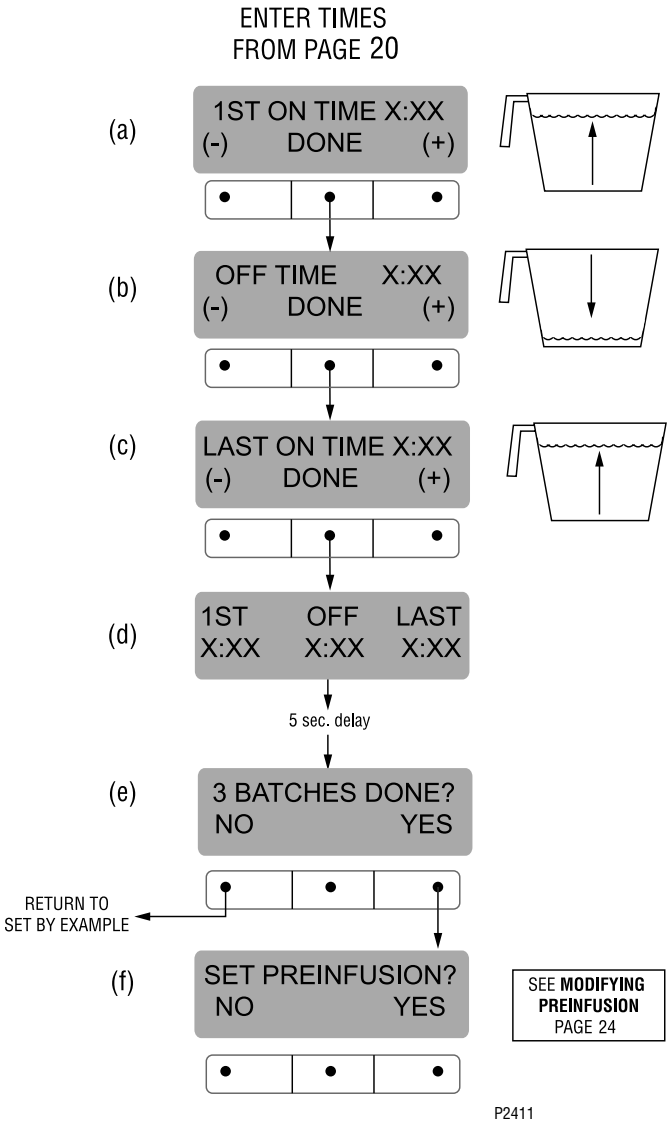
PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

Setting Pulse Brew - ENTER TIMES:

NOTE: No water should flow from the brewer during this set-up process.

1. This display should read **1ST ON TIME X:XX.** Choose the batch size to be set by pressing the pad next to the indicator light on the front panel. The batch size indicator selected will be flashing.
2. Adjust the **1ST ON TIME** using **(-)** and **(+).** When finished, press **DONE. (a)**
3. The display will now read **OFF TIME X:XX.** Adjust the **OFF TIME** using **(-)** and **(+).** When finished, press **DONE.(b)**
4. The display will now read **LAST ON TIME X:XX.** Adjust the **LAST ON TIME** using **(-)** and **(+).** When finished, press **DONE.(c)**
5. The display will show the three times just entered for that batch size. After a 5 second delay, the display will read **3 BATCHES DONE?(d and e)**
6. If other batch sizes need to be modified, press **NO.** The display will then read **SET BY EXAMPLE.**
7. In that screen, press **NO**. The display should now read **ENTER TIMES.**
8. Press **YES** in this screen, then press a different batch size pad and repeat steps 2 through 4. Repeat until all the desired batch sizes are set for the left side.
9. When finished press **YES** in **3 BATCHES DONE?.** The display will then read **SET PREINFUSION.** Another alternative is to press the  pad located on the front panel of the brewer to exit **SET PULSE BREW** and return to the **MAIN SCREEN**.

NOTE: Pressing ® before reaching the final setting screen exits the setup and retains the old values.



PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SET PREINFUSION

This function allows the operator to set an initial soaking of the grounds and a delay time, before the complete brew cycle starts.

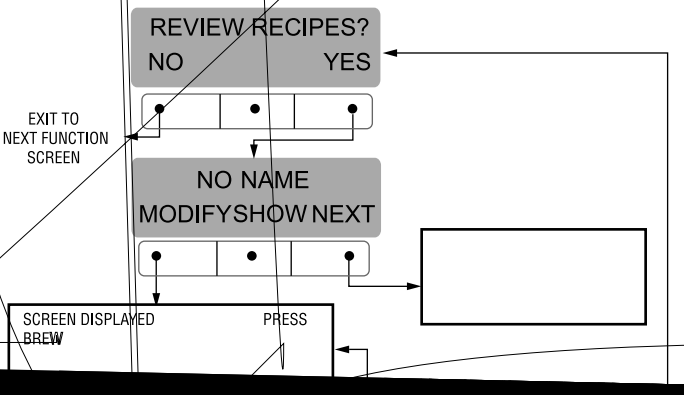
Procedure for Modifying preinfusion times:

Range: **On time** - off to 4 minutes
Off time - off to 4 minutes for all three batch sizes

NOTE: If the brewer is already in the **SET PREINFUSION** screen, it is not necessary to follow steps 1 through 9 in this section, but proceed directly to step 10.

1. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Press the ® until the display reads **REVIEW RECIPES**.
2. Press **YES** to proceed. The display should now read **NO NAME,** along with **MODIFY, SHOW** and **NEXT.**
3. Press and release **NEXT** to advance to the desired coffee name to be modified.
4. Press and release **MODIFY.** The display should read **BREW OZ.**

16. When finished, press **DONE.** The display will show the **ON** and **OFF TIMES** that were entered for a particular batch size.
17. After a 5 second delay, the display should read **3 BATCHES DONE?.** If the three batches are not complete, press **NO** in order to return to **SET PREINFUSION**, and repeat steps 10 through 14.
18. If the three batches are done, press **YES**. This will advance to the next function, **SET DRIP TIME.** Another alternative is to press the ON/OFF pad located on the front panel of the brewer to exit **SET PULSE BREW** and return to the **MAIN SCREEN**.



ROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

DRIP TIME (used on brewers with funnel locks)

This function allows the setting or modification of the funnel locks to stay engaged after the end of a brew cycle. This ensures that the funnel cannot be removed until after the liquid has emptied out of the funnel.

Procedure to modify drip times:

Range: OFF to 10 minutes for all three batch sizes.

OTE: If the brewer is already in the **DRIP TIMES** en, it is not necessary to follow steps 1 through 10 section, but proceed directly to step 11.

and hold the ® pad until the display reads **W RECIPES.** Release the ® pad. Press the e display reads **REVIEW RECIPES**.

to proceed. The display should now **ME,** along with **MODIFY, SHOW** and

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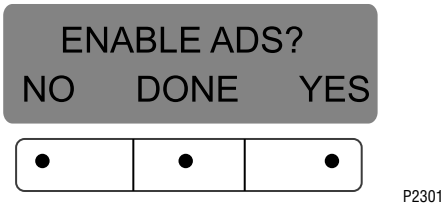
PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

ENABLE ADS?

This function allows the operator to choose whether or not to display the advertising message that was entered into the brewer. This message will be displayed when the brewer is not in use.



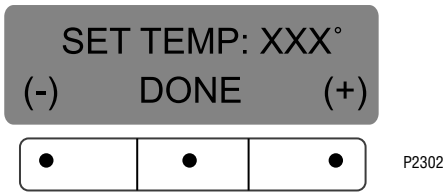
Procedure to Enable/Disable Ads:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® until the display reads **ENABLE ADS**. The **YES** or **NO** will be flashing to indicate the current selection.
2. Press and release the **NO** pad to disable this function (no ads will be displayed on the screen), or;
3. Press and release the **YES** pad to enable this function (ads will be displayed on screen).
4. When finished, press and release **DONE** to save the new setting, exit the **ENABLE ADS** function and advance to the next function screen, **SET TEMP.**

   Another alternative is to press the ON/OFF pad located on the front switch panel to exit the **ENABLE ADS** function and return to the **MAIN SCREEN.**

SET TEMP - Range: 185˚F (85˚C) to 205˚F(96˚C)

This function allows the operator to set the brew water temperature in the tank. It also sets the hot water faucet dispense temperature.



Procedure to set brew temperature:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release button. Press and release the ® until the display reads **SET TEMP**.
2. To adjust the brew temperature, press **(-)** to decrease or **(+)** to increase the brew temperature.
3. When finished, press and release **DONE** to save the new setting, exit the **SET TEMP** function and advance to the next function screen, **SET READY.**

   Another alternative is to press the ON/OFF pad located on the front switch panel to exit the **SET TEMP** function and return to the **MAIN SCREEN.**

SET READY - Range: 185˚F (85˚C) to 203˚F(95˚C)

This function allows the operator to set the minimum temperature allowable to start a brew cycle. The range can be from 185˚F (85˚C) to within 2˚F of the **SET TEMP.** The water must be at the **SET READY** temperature or higher for the display to indicate **READY TO BREW**. If brew lockout is enabled, the brewing process will not start below this **READY** temperature.

NOTE: The upper limit is the water temperature control setting minus 2˚F.

Procedure to set ready temperature:

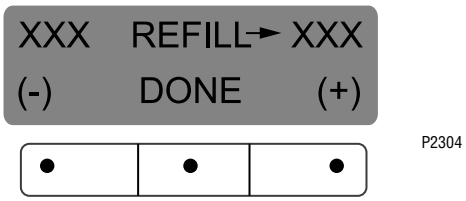
1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ® pad. Press and release the ® pad until the display reads **SET READY**.
2. To adjust the ready temperature, press the **(-)** button to decrease, or **(+)** to increase the ready temperature.
3. When finished, press and release **DONE** to save the new setting, exit the **SET READY** function and advance to the next function screen, **REFILL.**

   Another alternative is to press the ON/OFF pad located on the front switch panel to exit the **SET READY** function and return to the **MAIN SCREEN.**

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

REFILL - Range: 20 to 230

This function allows the operator to adjust the sensitivity of the refill circuit. This is mainly a troubleshooting feature. Water in different geographical locations can have different conductivities. By adjusting the sensitivity of the refill circuit, this will allow the brewer to operate under various water conditions.



P2304

Procedure to set the sensitivity threshold of the refill circuit:

NOTE: Make sure the water in the tank is touching the refill probe.

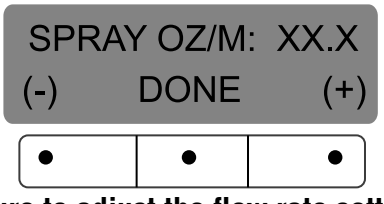
1. Press and hold the ® until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® pad until the display reads **REFILL** and shows a number on both sides of the word.
2. To adjust the threshold setting, press **(-)** to decrease, or **(+)** to increase the setting.

NOTE: Always make sure that the number on the right is larger than the number on the left when water is in contact with the refill probe in the tank.

3. When finished, press and release **DONE**. This saves the new setting and advances to the next function screen, **SPRAY OZ/M.** Another alternative is to press the ON/OFF pad located on the front switch panel to exit **REFILL** and return to the **MAIN SCREEN.**

SPRAY OZ/M

This function allows the operator to view or to enter the actual flow rate coming out of the sprayhead. This is **NOT** used to change the actual flow rate, but to tell the internal controller how fast the water is flowing. The unit of measure is ounces per minute.



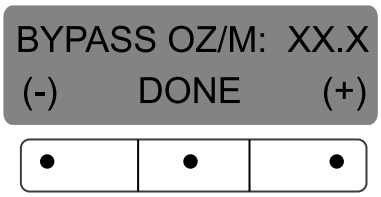
P2305

Procedure to adjust the flow rate setting:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® pad until the display reads **SPRAY OZ/M**. The number represents what the brewer thinks is the flow rate of the sprayhead valve in ounces per minute.
2. If the actual flow rate of the sprayhead valve is known, but is different than the number on the display, use the **(-)** and **(+)** pads to enter the correct flow rate in ounces per minute.
3. When finished, press and release **DONE**. This saves the new setting and advances to the next function screen, **BYPASS OZ/M.** Another alternative is to press the ON/OFF pad located on the switch panel to exit **SPRAY OZ/M** function and return to the **MAIN SCREEN.**

BYPASS OZ/M

This function allows the operator to view or to enter the actual flow rate coming out of the bypass nozzle. This is **NOT** used to change the actual flow rate, but to tell the internal controller how fast the water is flowing. The unit of measure is ounces per minute.



P2306

Procedure to adjust the flow rate setting:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® pad until the display reads **BYPASS OZ/M**. The number represents what the brewer thinks is the flow rate of the bypass valve in ounces per minute.
2. If the actual flow rate of the bypass valve is known, but is different than the number on the display, use the **(-)** and **(+)** pads to enter the correct flow rate in ounces per minute.
3. When finished, press and release the **DONE** pad. This saves the new setting and advances to the next function screen, **CALIBRATE FLOW.** Another alternative is to press the ON/OFF pad located on the front switch panel to exit the **BYPASS OZ/M** function and return to the **MAIN SCREEN.**

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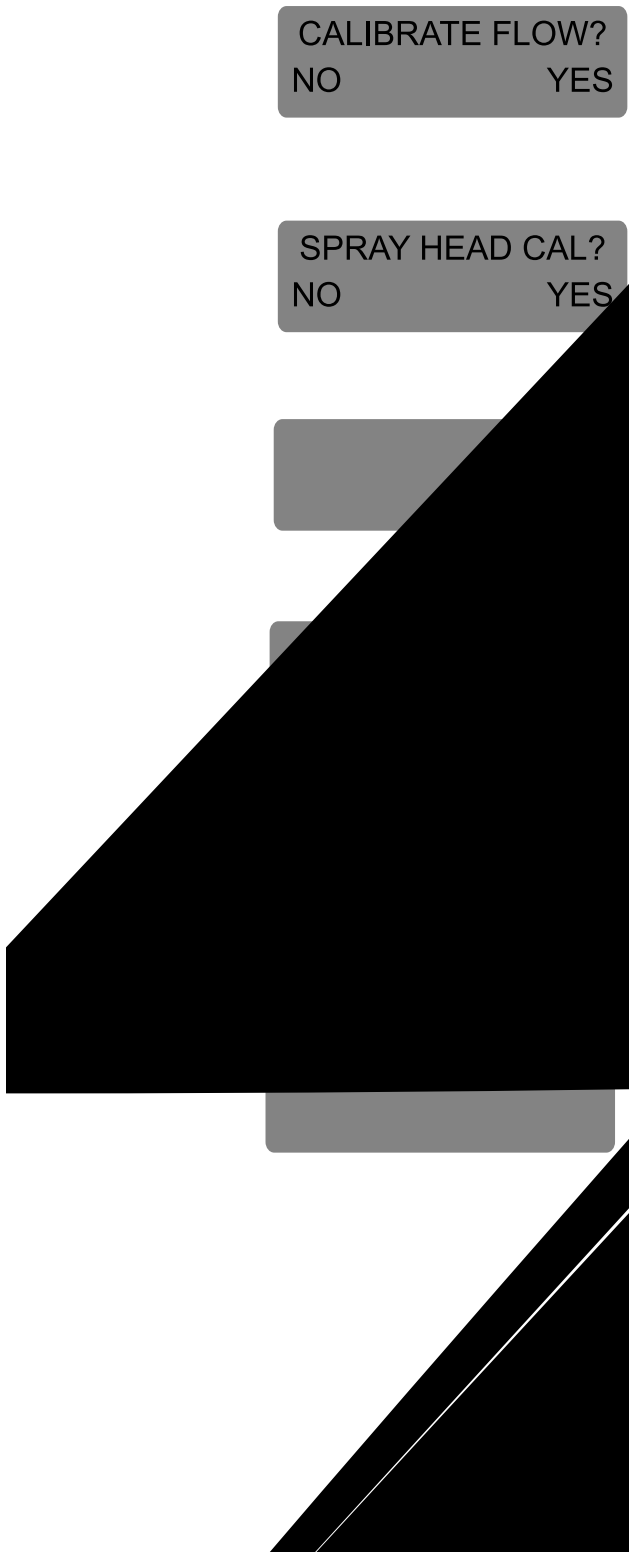
CALIBRATE FLOW (cont.)

Procedures to calibrate the bypass flow rate:

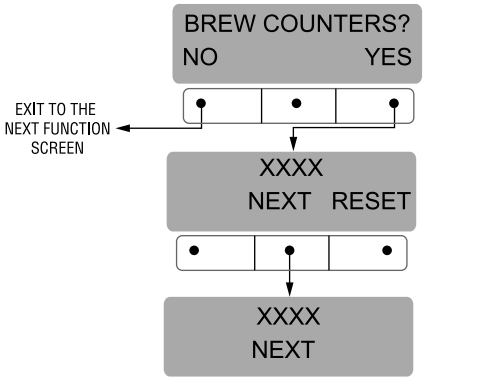
1. Place a container, accurately graduated in ounces, and with a minimum capacity of 60 ounces, below the funnel on the brewer.
2. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ® pad. Press and release the ® pad until the display reads **CALIBRATE FLOW**.
3. Press and release **YES** to advance to the **SPRAYHEAD CAL** function screen. (Pressing **NO** in the **CALIBRATE FLOW** screen will advance to the next function screen, **BREW COUNTERS).**
4. Press and release **NO** to advance to the **BYPASS CALIBRATION** screen.
5. Press and release the **YES** pad. The display should read **CONTAINER READY?** If the container is under the funnel, press **YES.** The display should read **CALIBRATE BYPASS .. PRESS BREW TO START.**
6. Press and release the BREW pad. The display should read **CALIBRATE BYPASS .. 60 SEC TO FINISH.** The 60 second timer on the display will count down to zero. When the counter reaches zero, the display will change to **ENTER OZ.,** along with a number measured in ounces per minute.
7. Measure the amount of water in the container, and using **(-)** or **(+)**, adjust the amount on the display to match the amount in the container. Then press **DONE**.
8. The display should now read **NEW BYPASS FLOW**, along with the correct flow rate of the bypass in ounces per minute. After about 5 seconds, the display will return to the **CALIBRATE FLOW** screen.
9. To exit the **CALIBRATE FLOW** function, press and release **NO** to advance to the next function screen, or press the ON/OFF pad located on the front switch panel to exit the **CALIBRATE FLOW** function and return to the **MAIN SCREEN.**



PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

BREW COUNTERS

This function allows the operator to track the number of brew cycles completed. There is one resettable counter, and one life counter that is not resettable.



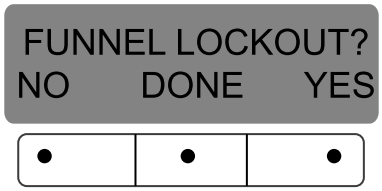
P2448

Procedures to view/reset the brew counters:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® pad until the display reads **BREW COUNTERS**.
2. Pressing **NO** in this screen will advance to the next function. Press **YES** to view the first brew counter. This number represents the brew cycles initiated since that counter was last reset.
3. To reset the resettable counter to zero press and release **RESET** when viewing that particular counter's screen.
4. To advance to the other counter, press and release **NEXT.** This will advance to total brews (non-resettable).
5. When finished, press **NEXT** until the display reads **BREW COUNTERS.** Press and release **NO** to advance to the next function screen, or press the pad on the front switch panel to exit the **BREW COUNTERS** function and return to the **MAIN SCREEN.**

FUNNEL LOCKOUT (optional)

This function allows the operator to prevent the start of a brew cycle if a Smart Funnel™ is not positioned correctly in the funnel rails.



P2309

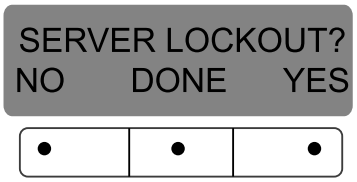
Procedure to set funnel lockout:

1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® pad until the display reads **FUNNEL LOCKOUT**.
2. **NO** or **YES** should be flashing to indicate the current setting.
4. Select **YES** to prevent brewing if a Smart Funnel™ is not correctly situated in the rails. If this function is activated and a brew cycle is attempted with the funnel not properly situated, the display will read, **FUNNEL NOT IN PLACE**, until one is in place.
5. Select **NO** to allow brewing without a Smart Funnel™ in place. This is selected when brewing with a funnel other than a Smart Funnel™ (a regular brew funnel).
6. When finished, press and release **DONE**. This will retain the changes, exit this function screen and advance to the next. Another alternative is to press the pad located on the front switch panel to exit the **FUNNEL LOCKOUT** and return to the **MAIN SCREEN.**

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SERVER LOCKOUT

This function allows the operator to prevent the start of a brew cycle if a Soft Heat® server is not positioned correctly on the brewer.



P2310

Procedures to set server lockout:

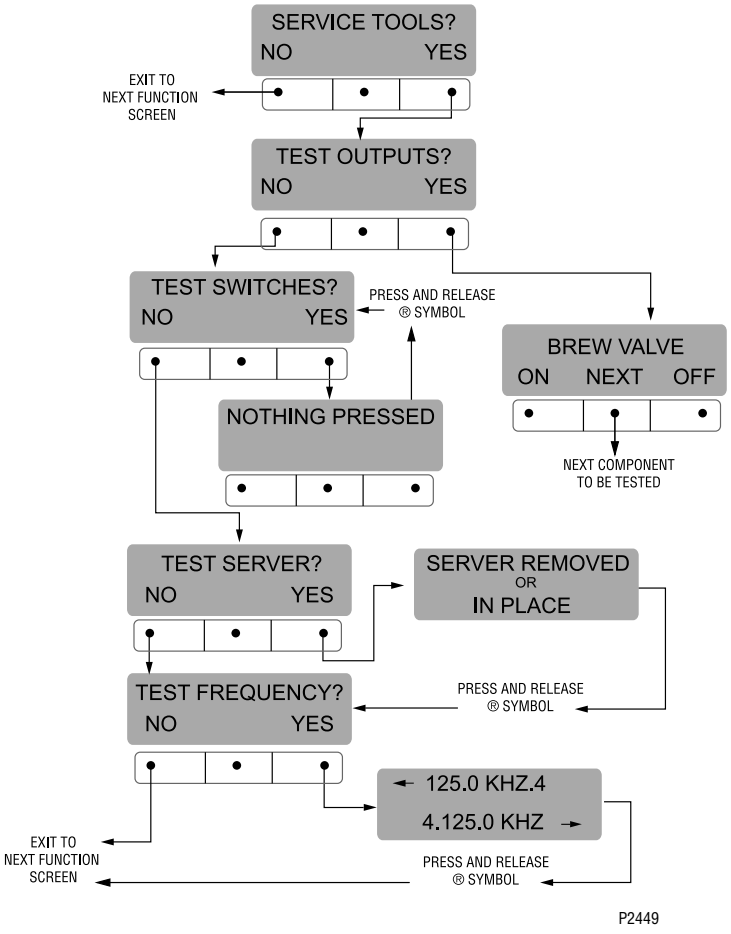
1. Press and hold the ® pad until the display reads **SET NEW RECIPES**. Release the ®. Press and release the ® pad until the display reads **SERVER LOCKOUT**.
2. The **NO** or **YES** flashes to indicate the current selection.
3. Select **YES** to prevent brewing if the Soft Heat server is not correctly positioned on the brewer beneath the funnel.

NOTE: If **YES** is selected and a brew cycle is attempted with a server not properly placed, the display will read **SERVER NOT IN PLACE**.

4. Select **NO** to allow brewing without a Soft Heat server in place. This is selected when brewing into a container other than a Soft Heat Server.
5. When finished, press and release **DONE**. This will save the new setting, exit the function screen and advance to the next. Another alternative is to press the  pad located on the front switch panel to exit the **SERVER LOCKOUT** function and return to the **MAIN SCREEN.**

SERVICE TOOLS

This function allows the testing of individual components and the ability to check switches for proper function. This function also tests the Soft Heat® server's status on the brewer (in place or removed), and the funnel sensor coil's frequency (diagnostic tool for troubleshooting purposes only).



P2449

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SERVICE TOOLS (cont.)

Testing individual components (outputs):

This will allow the operator to test the operation of individual components and outputs of the brewer. The components that can be individually tested are as follows:

Brew Valve
Bypass Valve
Funnel Lock
Server
Refill Valve
Tank Heaters

Procedure to test components (outputs):

1. Place brew funnels into rails on the brewer.
2. Place a Soft Heat® server beneath the brew funnel.
3. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Continue pressing and releasing the pad until **SERVICE TOOLS** appears.
4. Press **YES** to run tests on various components and outputs within the brewer. Pressing **NO** will exit this function and advance to the next function screen.
5. The display should read **TEST OUTPUTS.**
6. Press and release **YES.** The display should read **BREW VALVE.**
7. To test **BREW VALVE,** press **ON.** If the brew valve is functional, water should run from the brewer.
8. Press **OFF** to end flow of water.
9. Press **NEXT** to advance to the next component to be tested.

NOTE: To bypass testing any component, press **NEXT** to advance to the next one, without testing the previous component.

10. To test **BREW BYPASS**, press **ON**. If the bypass valve is functional, water should run from the brew bypass.
11. Press **OFF** to end flow of water.
12. Press **NEXT** to advance to the next component to be tested.
13. To test **FUNNEL LOCK**, press **ON**. If the funnel lock is functional, the lock will come down to hold the funnel in place.
14. Press **OFF** to retract the funnel lock.
15. Press **NEXT** to advance to the next component to be tested.
16. To test **SERVER**, press **ON**. If the server and the sensor are functional, the light on the lower right corner of the server will illuminate.
17. Press **OFF** to end testing of server.
18. Press **NEXT** to advance to the next component to be tested.
19. To test **REFILL VALVE**, press **ON**. If the refill valve is functional, the sound of the valve operating will be heard.
20. Press **OFF** to end testing of refill valve.
21. Press **NEXT** to advance to the next component to be tested.
22. To test **TANK HEATER**, connect a voltmeter to the tank heater to check for voltage.
23. Press **ON**. The correct voltage should be present at the heater terminals.
24. Press **OFF** to end testing of the tank heaters.

NOTE: The tank heater will automatically turn off if left on too long.

25. After testing the tank heater, press **NEXT** to advance to the next test.
26. The **SPARE TRIAC** is reserved for future use.
27. Press **NEXT** to return to **TEST OUTPUTS.**
28. To exit **SERVICE TOOLS,** press the  pad located on the front switch panel. This will return to the **MAIN SCREEN**.

Procedure to test switches:

This function allows the operator to test the operation of the individual switches on the front panel.

1. Place brew funnels into rails on the brewer.
2. Place a Soft Heat® server beneath the brew funnel.
3. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Continue pressing and releasing the ® pad until **SERVICE TOOLS** appears.
4. Press **YES** to run tests on various components and outputs within the brewer. (Pressing **NO** will exit this function and advance to the next function screen.)

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

SERVICE TOOLS (cont.)

5. The display should read **TEST OUTPUTS.**
6. In **TEST OUTPUTS** screen, press **NO**. This advances to **TEST SWITCHES**.
7. Pressing **NO** in this screen will advance to the next function. Press **YES** in the **TEST SWITCHES** screen to test the switches. The display will read **NOTHING PRESSED**.
8. From this screen, press any of the switches on the front of the brewer. While the switch is pressed, the display shows the name of that switch. If the name does not appear, or if it remains after the switch has been released, the switch is defective. Each switch can be tested in this manner.
9. After all switches have been tested, press the  pad located on the front switch panel. This will exit **TEST SWITCHES** and return to the **MAIN SCREEN.**

Procedures to test server:

This function allows the operator to test the operation of the Soft Heat® server. It will also show if the server is correctly placed on the brewer stand.

1. Place brew funnels into rails of the brewer.
2. Place a Soft Heat® server beneath the brew funnel.
3. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Continue pressing and releasing the ® pad until **SERVICE TOOLS** appears.
4. Pressing **NO** will exit this function and advance to the next function screen. Press **YES** to run tests on various components and outputs within the brewer.
5. The display should read **TEST OUTPUTS**
6. In **TEST OUTPUTS** screen, press **NO**. This advances to **TEST SWITCHES**. Press and release **NO** once more. The display should now read **TEST SERVER.**
7. Press **YES** in the **TEST SERVER** screen to show if a server is in place. The display should read **IN PLACE.**
8. Lift and pull the Soft Heat server forward about 2 inches so that the two contacts on the server do not touch the two contacts on the brewer.
9. The display should then read **SERVER REMOVED**.
10. After the servers has been tested, press and release the  pad located on the front switch panel. This will exit **TEST SERVER** and return to the **MAIN SCREEN.**

Procedures to test coil frequency:

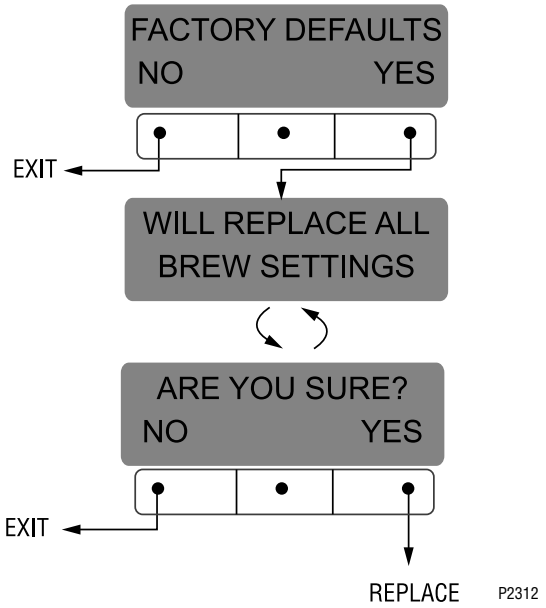
1. Place brew funnel into rails of the brewer.
2. Place a Soft Heat® server beneath the brew funnel.
3. Press and hold the ® pad until the display reads **SET NEW RECIPES.** Release the ® pad. Continue pressing and releasing the ® pad until **SERVICE TOOLS** appears.
4. Pressing **NO** will exit this function and advance to the next function screen. Press **YES** to run tests on various components and outputs within the brewer.
5. The display should read **TEST OUTPUTS.**
6. In **TEST OUTPUTS** screen, press **NO**. Continue to press and release **NO** until the display reads **TEST FREQUENCY.**
7. Press and release **YES**. The display will show the frequency of the sensor coil circuits. This is for diagnostic service use when troubleshooting this circuit.
8. After the coils have been tested, press and release either of the  pads located on the front switch panel. This will exit the **TEST FREQUENCY** function and return to the **MAIN SCREEN.**

NOTE: If the operator wishes to test more than one function in the **SERVICE TOOLS** section (outputs, switches, servers, or coil frequency), it is not necessary to exit the program. Use the flow chart for **SERVICE TOOLS** to navigate to a particular function.

PROGRAMMING FUNCTIONS - LEVEL 2 (cont.)

FACTORY DEFAULTS

This function allows the operator to erase **all** of the previously entered recipes and ad messages. Factory-set default values will replace **all** previous settings.



Procedure to set factory defaults:

1. Press and hold the ® pad until **SET NEW RECIPES** appears. Release the ® pad. Press and release ® until the display reads **FACTORY DEFAULTS**.
2. Pressing **NO** in this screen will revert to the **MAIN SCREEN**. Press **YES** to replace the defaults. This advances to **WILL REPLACE ALL BREWING SETTINGS**. This screen will alternate with **ARE YOU SURE?**.
3. Pressing **NO** in the confirmation screen will revert to **MAIN SCREEN**, without resetting the brewing setups to the defaults. Press **YES** to load the defaults. This will then revert to the **MAIN SCREEN**, and the factory default values will replace **all** previously entered values.

FACTORY DEFAULT VALUES

Brew Lockout	YES
BREW VOLUMES:	
Small Batch	64 oz.
Medium Batch	128 oz.
Large Batch	192 oz.
BYPASS PERCENTAGE:	
Small Batch	0%
Medium Batch	20%
Large Batch	20%
PULSE BREW TIMES:	
Small Batch	40 - 1st on; 10 - off; 5 last on
Medium Batch	OFF
Large Batch	OFF
PREINFUSION TIMES:	
Small Batch	OFF
Medium Batch	OFF
Large Batch	OFF
DRIP OUT TIMES:	
Small Batch	OFF
Medium Batch	OFF
Large Batch	OFF
ENABLE ADS	YES
BREW TEMPERATURE	200˚F (93˚C)
READY TEMPERATURE	195˚F (91˚C)
SPRAY (OZ/MINUTE)	39.2
BYPASS (OZ/MINUTE)	24.1
FUNNEL LOCKOUT	YES
SERVER LOCKOUT	YES

TROUBLESHOOTING

TROUBLESHOOTING (cont.)

Screen Displayed	Possible Cause	Troubleshooting Procedure
NO FUNNEL PRESENT	1. **SMART FUNNEL** not fully inserted into the funnel rails.	Position the funnel so that the sensor is directly beneath the sensor coil on the brewer.
	2. Not using a **SMART FUNNEL**, and the **FUNNEL LOCKOUT** function is activated (on).	Disable the **FUNNEL LOCKOUT** function. See page 30 for procedure.
TEMPERATURE TOO LOW	1. Water temperature in the tank does not meet the **SET READY TEMPERATURE.**	(a) Wait for the brewer to heat to the proper temperature. (b) Disable the **BREW LOCKOUT** function. See page 10 for procedure.
CHECK FUNNEL FOR FRESH	1. Brew funnel was not removed after the previous brew cycle was finished.	Remove funnel, check contents, and insert back into the funnel rails. **OR** Press **BREW** to start a brew cycle without removing the funnel.
	1. Brew funnel was moved out of position after the brew cycle was started.	To resume brewing, correctly position the funnel and press **BREW** again. The brew cycle will resume from the point it was interrupted. **OR** Press **ON/OFF** to terminate the cycle.

TROUBLESHOOTING (cont.)

Screen Displayed	Possible Cause	Troubleshooting Procedure
BREW STOPPED! SERVER REMOVED? ↓ TO FINISH: PRESS BREW ↓ TO CANCEL PRESS ON/OFF	1. Soft Heat® Server was moved out of position after the brew cycle was started.	To resume brewing, correctly position the Soft Heat Server and press **BREW** again. The brew cycle resumes from the point it was interrupted. **OR** Press **ON/OFF** to terminate the brew cycle.
BREW STOPPED! IS SWITCH OFF? ↓ TO FINISH: PRESS BREW ↓ TO CANCEL PRESS ON/OFF	1. **ON/OFF** switch was pressed after the brew cycle was started.	To resume brewing, press BREW again. The brew cycle resumes form the point it was interrupted. **OR** Press **ON/OFF** to terminate the brew cycle.
HEATING TIME TOO LONG ↓	1. Tank Heater failure	Service Required
	2. Triac Failure	Service Required
	3. Control Board/Thermistor failure	Service Required

TROUBLESHOOTING (cont.)

Screen Displayed	Possible Cause	Troubleshooting Procedure
FILL TIME TOO LONG ↓ CHECK WATER SUPPLY	1. Water shut off to brewer	Check water supply shut-off
	2. Inlet Solenoid Valve failure	Service required
	3. Control Board Failure	Service required
TEMP SENSOR OUT OF RANGE ↓ CHECK FOR BAD CONNECTIONS	1. Temperature Sensor Probe wire(s) broken or not making connection.	Check wire and connection of both black and white wires of temperature probe.
TEMP SENSOR OUT OF RANGE ↓ CHECK WIRE FOR SHORTS	1. Temperature Sensor Probe wire(s) shorted to housing, or to each other.	Check to confirm that wire(s) are not pinched between two surfaces or connected to each other.

TROUBLESHOOTING (cont.)

Problem	Possible Cause	Troubleshooting Procedure
Equipment will not operate.	1. No power or incorrect voltage.	Measure the voltage at the terminal block and confirm that it matches the voltage specified on the brewer data plate within +/- 10%.
Brew cycle will not start.	1. No water	Check plumbing and shut-off valves
	2. ON/OFF switch	Test the ON/OFF switch. Refer to the switch test procedures on page 32.
	3. Brew switch	Test the BREW switch. Refer to the switch test procedures on page 32.
	4. Brew Valve	Test the Brew valve. Refer to *Testing Individual Components* on page 32.
	5. Electronic Control Board	Substitute a control board known to be in good working order.
Automatic refill will not operate or display shows FILL TIME TOO LONG	1. No water	Check plumbing and shut-off valves.
	2. Water strainer/flow control (.750 GPM)	(A) Direction of flow arrow must be pointing towards direction of water flow. (B) Remove the strainer/flow control and check for obstructions. Clear or replace.

Problem	Possible Cause	Troubleshooting Procedure
Automatic refill will not operate or display shows FILL TIME TOO LONG (cont.)	3. Refill Probe or Sensitivity Setting	Check the sensitivity setting. Refer to the *Refill* function on page 27. If the left three digit number is less than the right number, the machine "thinks" it is full and the refill valve should be off. If the left number is larger than the right, then the refill valve will automatically be turned on to fill the tank. The right number is the threshold setting and can be adjusted to compensate for extreme water conditions: very pure, low conductance water requires a higher setting, while high mineral content, high conductance water requires a lower setting. Note that the left number changes from a high value when water is NOT touching the refill probe to a low value when water IS touching the probe. For best operation, the right number should be set to a value midway between these low and high numbers. Before changing the setting, confirm that the refill probe is free of scale buildup and the connection to it is secure.
	4. Refill Valve	Test the Refill valve. Refer to *Testing Individual Components* on page 32.
	5. Overflow Protection Switch	When this condition occurs, the brewer will display OVERFLOW CUP FULL. EMPTY CUP. The reason for overfilling could be a defective refill valve, an incorrect sensitivity setting, (see above) or boiling.
	6. Electronic Control Board	Substitute a control board known to be in good working order.
Water flows into tank continuously with power removed from brewer.	1. Refill valve	Foreign material lodged in valve, holding it in open state.

TROUBLESHOOTING (cont.)

Problem	Possible Cause	Troubleshooting Procedures
Water flows into tank continuously with power applied to brewer.	1. Refill Probe or Sensitivity Setting	Check the sensitivity setting. Refer to the *Refill* function on page 27. If the left three digit number is less than the right number, the machine "thinks" it is full and the refill valve should be off. If the left number is larger than the right, then the refill valve will automatically be turned on to fill the tank. The right number is the threshold setting and can be adjusted to compensate for extreme water conditions: very pure, low conductance water requires a higher setting, while high mineral content, high conductance water requires a lower setting. Note that the left number changes from a high value when water is NOT touching the refill probe to a low value when water IS touching the probe. For best operation, the right number should be set to a value midway between these low and high numbers. Before changing the setting, confirm that the refill probe is free of scale buildup and the connection to it is secure.
	2. Electronic Control Board	Substitute a control board known to be in good working order.
Water will not heat or display shows HEATING TIME TOO LONG	1. Limit Thermostat **CAUTION -** Do not eliminate or bypass limit thermostat. Use only replacement part #23717.0001.	Remove power from the brewer. Press reset button on limit thermostat. Then check for continuity through it.
	2. Tank Heaters	Remove power from the brewer. Check for continuity through the tank heaters.

Problem	Possible Cause	Troubleshooting Procedures
Water will not heat or display shows HEATING TIME TOO LONG (cont.)	3. Triac	Remove power from the brewer. Connect a voltmeter across one of the tank heaters. Reapply power to the brewer and refer to *Testing Individual Components* on page 32. If the full supply voltage is measured when the tank heater is turned on, and zero voltage is measured with the triac off, then the triac is good. If half the supply voltage is measured, the triac is defective. If very low, or zero voltage is measured, there could be a defective triac or a defective control board.
	4. Electronic Control Board	Perform the above procedure for testing triacs. If the voltage measured is very low or zero, then substitute a control board known to be in good working order.
Spitting or unusual steaming from sprayhead or air vents. (Water too hot)	1. Triac	Remove power from the brewer. Connect a voltmeter across one of the tank heaters. Reapply power to the brewer and refer to *Testing Individual Components* on page 32. If the full supply voltage is measured when the tank heater is turned on, and zero voltage is measured with the triac off, then the triac is good. If half the supply voltage is measured, the triac is defective. If very low, or zero voltage is measured, there could be a defective triac or a defective control board.
	2. Lime Buildup **CAUTION -** Tank and tank components should be delimed regularly depending on local water conditions. Excessive mineral buildup on stainless steel surfaces can initiate corrosive reactions resulting in serious leaks.	Inspect the tank assembly for excessive lime deposits. Delime as required.

Problem	Possible Cause	Troubleshooting Procedures
Spitting or unusual steaming from sprayhead or air vents. (Water too hot) (cont.)	3. Electronic control board	Perform the above procedure for testing triacs. If the voltage measured is very low or zero, then substitute a control board known to be in good working order.
Inconsistent beverage level in server.	1. Strainer/flow control (.750 GPM)	(A) Direction of flow arrow must be pointing towards the brewer. (B) Remove the strainer/flow control and check for obstructions. Clear or replace.
	2. Improper water pressure	Check operating water pressure to the brewer. It must be between 20 and 90 psi (138 and 620 kPa).
	3. Brew Valve	Test the Brew Valve. Refer to *Testing Individual Components* on page 32. Turn the valve on for 30 seconds and collect the water dispensed from the sprayhead. Repeat the test several times to confirm a consistent volume of dispensed water. If not consistent, check the valve, tubing and sprayhead for lime buildup.
	4. Bypass Valve	If bypass is being used on the inconsistent brewing recipe, test the Bypass Valve. Refer to *Testing Individual Components* on page 32. Turn the valve on for 30 seconds and collect the water collected from the bypass opening. Repeat the test several times to confirm a consistent volume of dispensed water. If not consistent, check the valve, tubing and bypass opening for lime buildup.
	5. Lime buildup	Inspect for lime buildup that could block the tank, tank fittings, tubing, valves and sprayhead.

TROUBLESHOOTING (cont.)

Problem	Possible Cause	Troubleshooting Procedures
Consistently high or low beverage level in server.	1. Brew Volume adjustment	Adjust the brew volume as required to achieve the recommended volume for each brew cycle.
Dripping from sprayhead.	1. Brew Valve	Repair or replace leaky valve.
Water overflows filter.	1. Type of paper filters	BUNN® paper filters should be used for proper extraction.
	2. No sprayhead	Check sprayhead
Beverage overflows server.	1. Beverage left in server from previous brew	The brew cycle should be started only with an empty server under the funnel.
	2. Brew Volume adjustment	Adjust the brew volume as required to achieve the recommended volume for each brew cycle.
Weak beverage.	1. Type of paper filters	BUNN® paper filters should be used for proper extraction.
	2. Coffee	A sufficient quantity of fresh drip or regular grind should be used for proper extraction.
	3. Sprayhead	B.O.M. sprayhead #01082.0002 should be used to properly wet the bed of ground coffee in the funnel.
	4. Funnel Loading	The BUNN® paper filter should be centered in the funnel and the bed of ground coffee leveled by gentle shaking.
	5. Water temperature	Empty the server, remove its cover, and place the server beneath the sprayhead. Place empty funnel over the server entrance, with ON/OFF switch in the "ON" position press the start switch and release it. Check the water temperature immediately below the sprayhead with a thermometer. The reading should not be less than 195˚F(91˚C).

TROUBLESHOOTING (cont.)

Problem	Possible Cause	Troubleshooting Procedures
Weak beverage (cont.)	6. Incorrect Recipe	Consider adjusting bypass percentage, preinfusion, or pulse brew. Contact Bunn-O-Matic for suggestions.
Brewer is making unusual noises.	1. Solenoid (Inlet)	The nut on back of the solenoid must be tight or it will vibrate during operation
	2. Plumbing lines	Plumbing lines should not be resting on the counter top.
	3. Water Supply	(A) The brewer must be connected to a cold water line. (B) Water pressure to the brewer must not be higher than 90 psi (620 kPa). Install a regulator if necessary to lower the working pressure to approximately 50 psi (345 kPa).
	4. Tank Heaters.	Remove and clean lime off tank heaters.

SCHEMATIC WIRING DIAGRAM
SINGLE SH with SMART FUNNEL (DBC)