

BUNN® TECHNICAL TRAINING

ITCB



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Unit Objectives

Given a realistic scenario depicting a new site install, the learner will be able to install and setup the brewer for retail turnover without error.

Given a new machine, all the necessary tools and safety equipment, the learner will be able to install the brewer without error.

The learner will be able to verify that the site requirements have been met.

The learner will be able to locate and document the serial number.

The learner will be able to hook up the water supply.

The learner will be able to hook up the electrical supply.

Installation

Site Requirements

Space

- Height clearance for either 30.87" or 34.04" depending on model
- Footprint able to accommodate 11W x 24D
- Counter able to support 100lbs. (operating weight of the brewer with a full 5 gallon tea server)
- Level installation surface, brewer level on the surface

Water Treatment

- Sediment filtration to reduce large particles
- Taste and odor filter to remove chlorine
- Scale filtration as needed
- For best results a Bunn Easy Clear® filtration system should be used

Plumbing

- .75-11.5 NH (hose thread) fitting (¼" flare adapter included)
- Dedicated water supply with shut-off
- Connected to the cold water supply
- Water pressure 20-90psi
- Minimum water flow of 1.25GPM

Electrical (120VAC)

- 120VAC
- 2-wire plus ground (L1, neutral, ground)
- 15 amp dedicated circuit (breaker, plug, and receptacle)
- Receptacle within 5 feet of the machine

Electrical (208VAC or 240VAC)

- 120/208VAC or 120/240VAC
- 3-wire plus ground (L1, L2, neutral, ground)
- 20 amp dedicated circuit (breaker, plug, and receptacle)
- Receptacle within 5 feet of the machine

Location of the Serial Number

The machine's serial number is located on the data plate which is adhered to the front panel below the dilution nozzle. The complete serial number will need to be documented on all work orders and warranty tags. The serial number is also stored in memory on the control board.



Water Supply Install

Step 1: Remove the shipping cap from the fitting on the rear of the brewer.

Step 2: Install the .75-11.5 NH to ¼" flare adapter on the rear of the brewer; be sure to use the included rubber washer.

Step 3: Flush the water line.

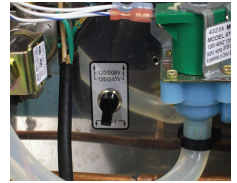
Step 4: Attach the water line to the ¼" flare fitting on the back of the machine.

Step 5: Turn on the water supply.

Electrical Install

An electrician must provide electrical service as specified in conformance with all local, state, and federal electrical codes.

The ITCB is a dual voltage unit. There is a voltage switch located on the back of the brewer. The brewer is wired from the factory with a 2-wire+ground power cord and plug rated for 120VAC at 15amps. For 208VAC or 240VAC configurations, the 3-wire+ground power cord must be ordered from BUNN: P/N: 01699.0000. The technician must supply a 20amp rated, 4-wire plug.



For 120V brewers:

Step 1: Plug brewer into the power source.

For 120/208VAC or 120/240VAC brewers:

Step 1: Remove the rear panel.

Step 2: Disconnect the 2-wire+ground cord from the terminal block.

Step 3: Feed the 3-wire+ground power cord through the strain relief.

Step 4: Attach the wire ends to the terminal block.

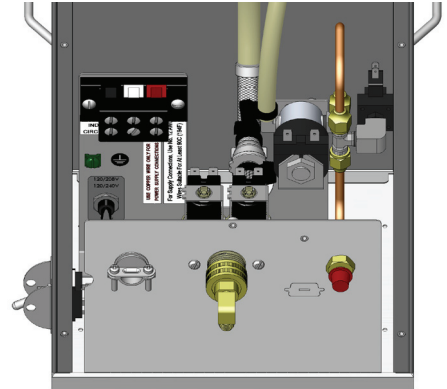
Step 5: Attach the ground wire to connector below the terminal block.

Step 6: Check that all connections are tight.

Step 7: Place the dual voltage toggle switch in the correct position.

Step 8: Tighten the strain relief and replace the rear panel.

Step 9: Plug the unit into the power source.



Initial Start-Up

Step 1: Place the main power switch into the On position.

When the machine is turned on and the Enable Brew On/Off switch is pressed, it will begin to fill the tank.

**PLEASE WAIT
TANK FILLING**

After the tank fills the machine will automatically begin the heating cycle. This will take approximately 20 minutes.

**HEATING
WATER TEMP XXXX°**

Once the water temperature has reached the programmed Brew Lockout temperature it will display the ready screen. The machine will continue to heat until it reaches its programmed shut-off temperature.

**READY TO BREW
WATER TEMP: 205°**



UNIT 2 SETUP

Unit Objectives

Given a realistic scenario depicting a new site install, the learner will be able to install and setup the brewer for retail turnover without error.

Given an installed machine, all the necessary tools and safety equipment, the learner will be able to set the machine up for initial operation.

The learner will be able to power on the machine.

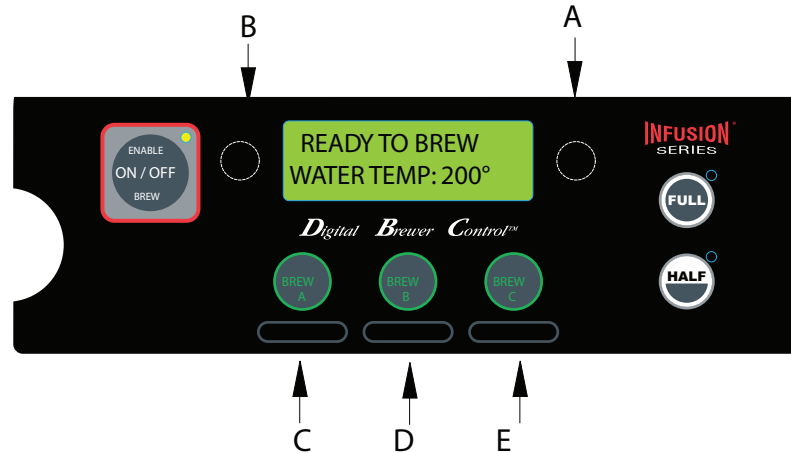
The learner will be able to access and scroll through the programming options.

The learner will be able to perform the calibrations.

Setup and Programming

Accessing and using the brewer's programming features is done from the front panel and requires no special tools.

The programming menu is accessed through a hidden switch located on the right side of the display. The hidden switch on the left side will allow you to scroll backwards.



A. Right Hidden Switch: This is used to access the programming mode and is also used to scroll forward through the function list.

B. Left Hidden Switch: This is used to scroll backwards through the function list.

C. Brew A: This is used to select options that appear on the display during programming.

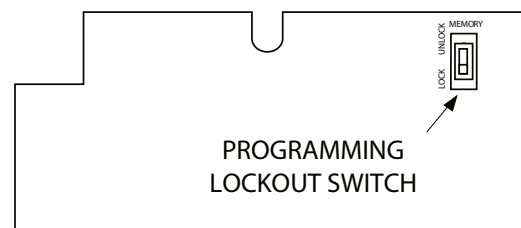
D. Brew B: This is used to select options that appear on the display during programming.

E. Brew C: This is used to select options that appear on the display during programming.

To exit the programming mode at any time, press and release the ON/OFF button located on the user interface. The display will return to the main screen.

Programming Lockout

If the programming cannot be access then the programming lockout switch is in the Lock position. The switch is located on the control board. Remove the top panel, locate the switch and place it into the Unlock position.



P3048

Note: Prior to serial number ICB00007479, the lockout switch will be located on the memory module board.

Level 1 Programming

Press the hidden switch for one second to access.

BREW LOCKOUT ?
ON DONE OFF

This function allows the operator to prevent or allow brewing if the water temperature is less than the Set Ready temperature.

Level 2 Programming

Press and hold the hidden switch for 5 seconds

Set Language?

NO YES

This function allows the operator to select the language used for the display.

UNITS

Metric DONE ENG

This function allows the operator to select if numeric settings are displayed in English or Metric units.

REVIEW RECIPES ?

NO YES

This function allows the operator to view the brew settings for the various coffee recipes stored into the brewer. It also allows the operator to modify any of the brew settings for a particular recipe stored in the brewer.

ASSIGN RECIPE ?

NO YES

This function allows the operator to assign a recipe to (or disable) each of the 3 brew switches (A, B, C). Any saved recipes listed under "Review Recipes" can be assigned to a brew switch. Only one recipe per brew switch is allowed.

SET NEW RECIPE ?

NO YES

This function allows the operator to set Brew Volumes, Bypass %, Pulse Brew/Preinfusion Times and Drip Out Times for each coffee name stored in the grinder's memory.

MASTER TEMP 205°

(-) DONE (+)

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

READY DEGREE 5°

(-) DONE (+)

This function allows the operator to set the minimum temperature allowable to start a brew cycle. The range can be from 2° to 20° F below the set temperature. The water must be at the Ready temperature or higher for the display to indicate Ready To Brew. If brew lockout is enabled, the brewing process won't start below this Ready temperature.

ENABLE ADS ?

NO DONE YES

This function allows the operator to choose whether or not to display an advertising message. An ad can be saved to the brewer by either writing the ad using the programming commands, or by entering the ad into the brewer using an Ad Card. This message will be displayed when the brewer is not in use.

ENABLE SANITATION

NO DONE YES

This function allows the operator to enable the sanitation function and set the time before a cleaning alert will be displayed.

ENABL ENERGYSAVR

NO DONE YES

This function allows the operator to enable the Energy Savings mode function and set the idle time. Once the set idle time has expired, the operator can choose to have the heaters either turn off, or reduce the tank holding temp to 140° F (60° C).

ENABLE FRESH TIMER

NO DONE YES

This function allows the operator to enable the Freshness Alert and set the expiration time. The expiration time is the amount of time the product is allowed to sit in the server/dispenser before a fresh batch is brewed.

XX REFILL XXX
(-) DONE (+)

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.

SPRAY OZ/M: XX.X
(-) DONE (+)

This function allows the operator to view or enter the actual flow rate coming out of each sprayhead. This is Not used to control the actual flow rate, but to tell the internal processor how fast the water is flowing.

DILUTE OZ/M: XX.X
(-) DONE (+)

This function allows the operator to view or to enter the actual flow rate coming out of the dilution nozzle. This is not used to control the actual flow rate, but to tell the internal processor how fast the water is flowing.

CALIBRATE FLOW?
NO YES

This function allows the operator to test and enter the actual flow rate of the sprayhead(s) and the bypass/dilution for each side of the brewer by dispensing each separately for one minute. The volumes are then entered into the brewer.

BREW COUNTERS?
NO YES

This function allows the operator to track the total number of brew cycles completed, as well as the number of batches brewed using each of the brew buttons. There are (up to) three resettable counters, and one life counter that is not resettable.

SET RECIPES TEMPS
NO YES

This function allows the operator to set separate temperatures for each selected recipe.

ENTER ASSET #
NO YES

This function allows the operator to enter the machine's asset number. This can be useful for tracking the usage or service of an individual machine within a group.

ENTER SERVICE #
NO YES

This function allows the operator to enter in the telephone number to call if service is needed. The service number will be displayed anytime there is a fault message displayed.

SERVICE TOOLS
NO YES

(For Authorized Service Personnel Only)
This function allows the testing of individual components and the ability to check switches for proper function. This function also tests the funnel sensor coil's frequency (diagnostic tool for troubleshooting purposes only).
Refer to Service Manual for in depth procedures.

FACTORY DEFAULTS
NO YES

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.

Uploading a Recipe Using a Recipe Card

The recipe card includes all the information needed to set up that particular tea/coffee name. The information from the recipe card is loaded into the brewer's memory by holding the chip area up to the brewer's sensing coil. This information can include all the recipe settings for that particular name. These can all be loaded in seconds.

Note: Instructions to program the brewer are printed on the recipe card, along with the tea or coffee name that is being programmed.

Procedure to program the coffee name:

Step 1: Remove the funnel.

Step 2: Position the recipe card vertically, so that the top end of the chip is beneath the sensing coil (located on the under side of the front panel).

Step 3: After a short pause the display will read "Card Contains Recipe For" then will change to "Recipe Name" (SHOW-QUIT-SAVE). All brewing parameters for that recipe are now transferred from the card to the brewer.

Step 4: To show (view) this information, press and release SHOW. The display will scroll through all of the brew settings for that recipe. This display will then return to "Card Contains Recipe For" then will change to "Recipe Name" (SHOW-QUIT-SAVE).

Step 5: If all brew settings are correct, press SAVE. The display will read "Recipe Name Setup Complete". All brew settings for that name are now stored in the Brewer's memory.

Step 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 "Recipe Name Not Saved". The display will then return to the main screen.

Note: This just saves the recipe in the brewer's memory. To use for brewing, you must still assign the recipe to a brew button.

Calibrating the Sprayhead Flow Rate

Step 1: Place a measuring container with a minimum capacity of 60 ounces beneath the funnel of the brewer. Water can also be dispensed into the server and then into the measuring container.

Step 2: Press and hold the right hidden switch to enter level 2 programming. Continue to press the right hidden switch until the display reads "Calibrate Flow?".

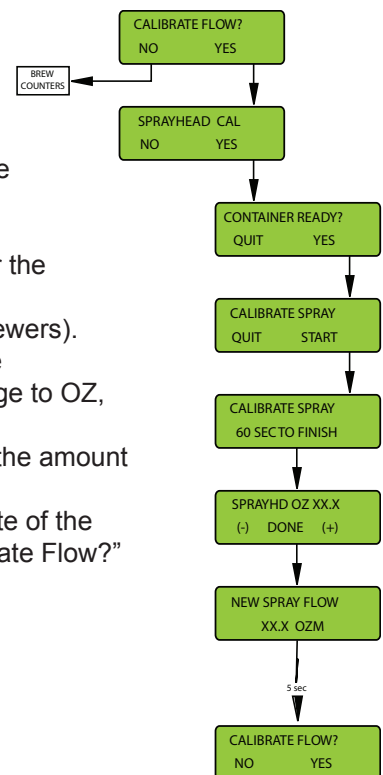
Step 3: Press YES to advance to the "Spray Head Cal?" function screen.

Step 4: Press YES. The display will read "Container Ready?" If the container is under the funnel, press YES. The display will read "Calibrate Spray...Press Brew to Start".

Step 5: Press and release the BREW switch (on the side to be calibrated for Dual Brewers). The display will read "Calibrate Spray...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 OZ, along with the existing ounces per minute.

Step 6: Measure the amount of water in the container and using the (-) or (+), adjust the amount on the display to match the amount in the container. Then press DONE.

Step 7: The display should now read "New Spray Flow" along with the correct flow rate of the sprayhead in ounces per minute. After 5 seconds, the display will return to the "Calibrate Flow?" screen.



Calibrating the Dilution Flow Rate

Step 1: Place the measuring container with a minimum capacity of 130 ounces beneath the dilution nozzle on the brewer. Water can also be dispensed into the server and then into the measuring container.

Step 2: Press and hold the right hidden switch to enter level 2 programming. Continue to press the right hidden switch until the display reads “Calibrate Flow?”.

Step 3: Press and release YES to advance to the “Sprayhead Cal?” function screen.

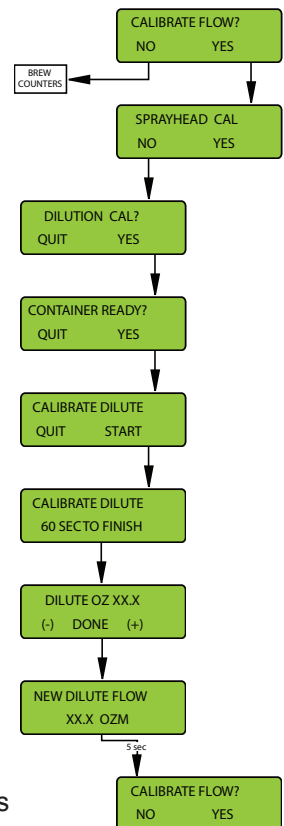
Step 4: Press and release NO to advance to the “Dilution Calibration” screen.

Step 5: Press YES. The display will read “Container Ready?” If the container is under the nozzle, press YES. The display should read “Calibrate Dilute .. Press Brew to Start”.

Step 6: Press and release the BREW switch. The display will read “Calibrate Dilute.... 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 “Dilute OZ/M” along with the existing ounces per minute.

Step 7: Measure the amount of water in the container and using the (-) or (+), adjust the amount on the display to match the amount in the container. Then press DONE.

Step 8: The display should now read “New Dilute 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.



Master Tank Temp

The Master tank temperature is the maximum temperature for the tank. The Set Recipe Temps allows the operator to set temperature for all recipes and will override the Master temp.

Explanation:

Setting recipe temps will override the Master Temp. The tank will hold at the lowest temperature between the three selected recipes stored in the brew buttons. For instance, let's say Brew A's recipe temperature is set at 205°, Brew B's recipe temperature is set at 205°, and Brew C's recipe temperature is set at 200°. The tank will hold at 200°. If Brew A or Brew B is pressed, the tank will heat to the 205° temperature. The brew button must be pressed again in order for a brew to start. After the completion of that brew, the tank will return to the 200° holding temperature. It may take awhile for the tank to return to the lower temperature.

Factory Default Values

Brew Lockout	Disabled
Set Language	English
Units	English
Master Temp	205°
Ready Degree	5°
Enable Ads	Disabled
Enable Sanitation	Disabled
Enable EnergySavr	Disabled
Enable Fresh timer	Disabled
Refill	155
Spray Oz.	24.0
Dilution Oz.	71.0
Set Recipe Temps	Coffee: 200°/Tea: 205°



UNIT 3 MACHINE COMPOSITION

Unit Objectives

Given a realistic scenario in which the learner has access to the machine's internal components the learner will understand the composition and functions of the brewer.

Given a realistic scenario requiring the learner to access the internal components of the machine the learner will be able to remove rear panel and top panel.

The learner will remove the rear panel and top panel.

Given an operating machine the learner will be able to give a general explanation of how the unit operates.

The learner will be able to identify the functions of the main control board .

The learner will be able to identify the components and functions of the filling system.

The learner will be able to identify the components and functions of the heating system.

The learner will be able to identify the components and functions of the dispensing system.

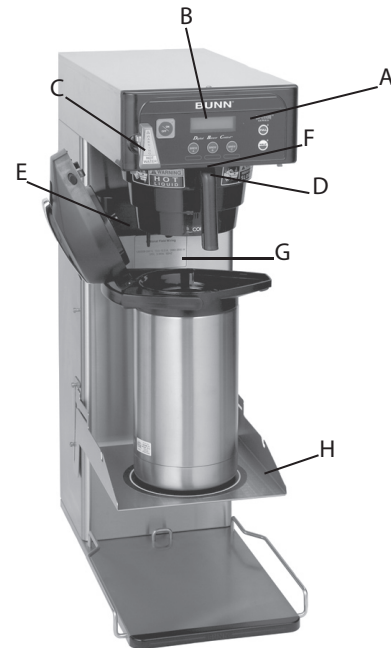
The learner will be able to identify the components and functions of the dilution system.

Machine Composition

Exterior Overview

Product Outlets and Removable Parts

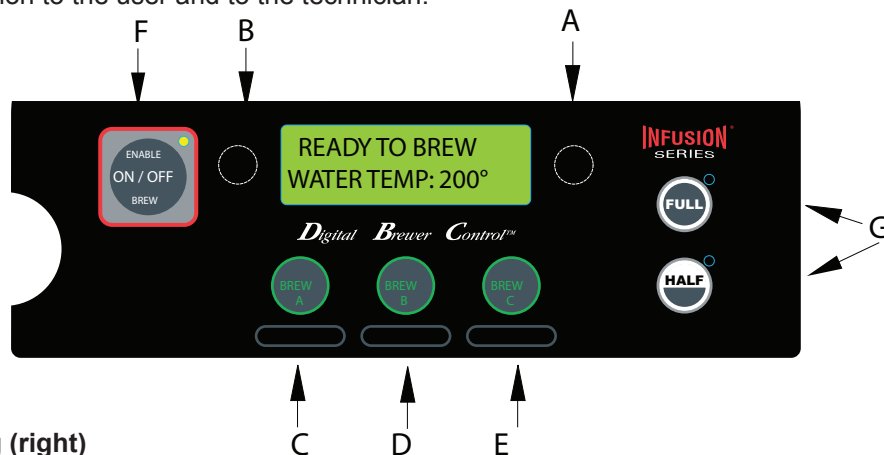
- User interface (A)
- Display (B)
- Hot water outlet (C)
- Sprayhead (D)
- Dilution Nozzle (E)
- Funnel sensing coil (F)
- Data plate (G)
- Flip down tray (H)
- On/off switch (on the side)



User Interface

The user interface is a membrane switch adhered to the front of the brewer. The membrane is connected to the control board by a ribbon cable. The user interface allows the user to select the product, batch size and to begin the brew cycle.

The machine's display is mounted to the control board. The display is visible on the front of the machine and provides information to the user and to the technician.



A. Programming (right)

Pressing and holding this pad allows entry into the programming menus. Pressing and releasing the pad steps through each function screen while in the programming mode.

B. Programming (left)

This hidden pad can be used to scroll backwards through the function list while in programming mode.

C, D, E. Brew (A, B, C) and Function

When the ON/OFF is ON and the brewer is on the main screen (not in programming mode), momentarily pressing and releasing this pad will begin a brew cycle. These are also used to program the brewer when in the programming mode.

F. On/Off Switch

Pressing the "ON/OFF" pad will alternately turn 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 programming of the brewer will exit the setup and return to the main screen.

G. BATCH SELECTOR PADS

Pressing the pad corresponding to the Half or Full batch selects the amount of product 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. Also used in programming to adjust settings on both batch sizes.

Accessing the Inside of the Brewer

The majority of service work to the ITCB brewer will require the removal of either the rear panel or the top panel. The top panel is secured with 1 flathead screw. The rear panel is secured with either 6, 7 or 10 flathead screws, depending on the age of the machine.

Machine Function and Operations

Main Control Board

The main control is the brain of the brewer. In the Digital Brewer Control (DBC®) system, the control board is the single component that contains all of the programming software, it interprets all the data it receives from the level and temperature sensors and activates components to fulfill those demands. The main control board responds to the users input through the membrane switch and activates and controls the brew cycle. The control board can receive data from Smart Funnels® through a sensing coil on the front of the machine.

In a digital tea brewer the control board takes the place of the liquid level control board, the timer board, the dilution timer and the mechanical thermostat. All of these components are combined into a single unit.

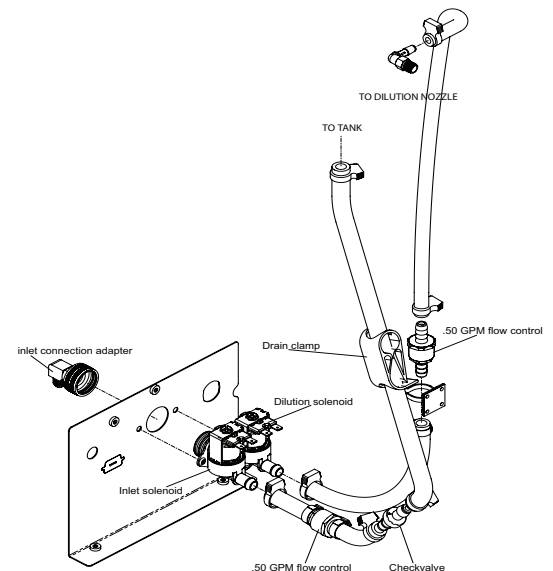
Filling System

The fill system maintains the level of water in the brewer's tank. Anytime water is drawn off of the tank during a brew cycle or from the hot water outlet, the fill circuit activates to refill the tank.

The fill system consists of:

- 120VAC solenoid inlet valve
- Flow control
- Fill probe

Water enters the rear of the brewer from the supply line and first goes through a plastic strainer mounted in the combination inlet solenoid/dilution solenoid assembly. From the solenoid valve the water flows through a .50 gallon per minute flow control washer and then into the bottom of the water tank.



The 120VAC solenoid inlet valve is activated by the control board anytime the brewer calls for water. The valve opens and allows water to flow, under line pressure, to the tank where the silicon tube connects to a fill tube attached to the tank.

The control board monitors the level of water in the tank through a low voltage level probe mounted to the top of the tank. The control board grounds a 2.5VAC signal to the tank through the water. If it loses this signal, the control board will activate the inlet valve.

Heating System

The heating system consists of:

- Water tank
- Heating elements
- High-limit thermostats
- Temperature sensor
- DV switch

The heating circuit maintains the water in the tank at a preset temperature this ensures that the water is always ready for brewing.

Water for brewing is contained in a 200 ounce stainless steel tank. This tank contains a 1680W @ 120VAC heating element that is powered by the line voltage into the machine. The heating element is controlled by the control board through a mechanical relay. The dual voltage ITCB brewer adds an additional 1800W for 208/240VAC heating element; the two elements are wired in series.

The control board monitors the water in the tank by a temperature sensor that is in contact with the water. This temperature sensor is a digital thermistor; the control board reads the temperature as value of resistance. The temperature sensor allows the control board to trigger the heating element triac when the temperature drops below its programmed value and shut down the trigger voltage when the water temperature reaches the programmed holding value.

Dispensing System

The dispensing system consists of:

- Dispense valve
- Sprayhead
- Funnel

The ITCB brewer is a gravity dump brewing system. During the brew cycle the dispense valve will open allowing water to flow from the tank to the sprayhead. The dispense solenoid is 120VAC valve. The sprayhead not only serves to diffuse the water over the product but also serves as the outlet flow control.

For coffee brewing the ITCB can be programmed with pulse brew routines. The control board will open and close the dispense valve multiple times during the brew cycle.

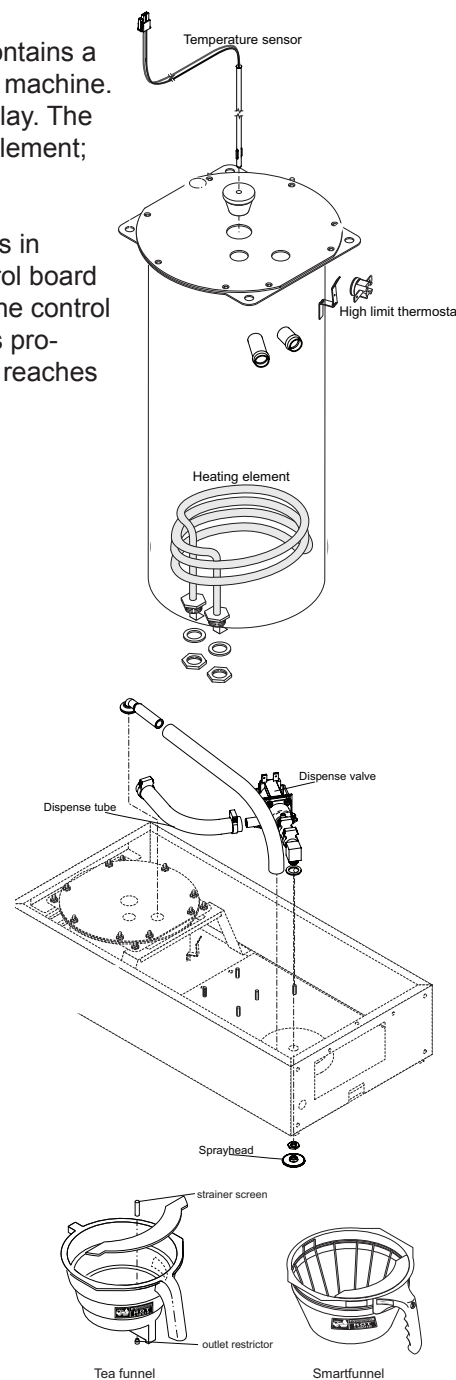
Because the ITCB can brew both coffee and tea it can accept multiple funnels. For tea brewing the funnel will have a small outlet restrictor to facilitate the water have a longer contact time with the tea (steeping) and a strainer screen to prevent tea leaves from following to the server. For coffee brewing the ITCB can accept a standard coffee funnel or a Smart funnel.

Dilution System

The dilution system consists of:

- Dilution valve
- Flow regulator
- Dilution nozzle

The ITCB features quick brew by default, but a delay can be programmed. The brewer will dump water directly into the tea server to dilute the tea concentrate during the tea brew cycle. The dilution solenoid is a 120VAC valve mounted onto the same body as the inlet solenoid. During a tea brew cycle, the dilution solenoid will open; water will flow through a .50GPM flow control washer and out of the dilution nozzle.





UNIT 4 PREVENTIVE MAINTENANCE

Unit Objectives

Given a realistic scenario depicting a machine requiring a preventive maintenance, the learner will be able to identify which elements of a component need to be serviced without error.

Given a machine, all the necessary tools and safety equipment, the learner will be able to identify the components that need to be serviced for the PM.

In order to maintain proper operation and long service life BUNN recommends performing the preventative maintenance every 6 months. Individual customers will vary with some customers choosing not to receive preventative maintenance.

Tools Required:

- Flat blade screwdriver
- Channel lock pliers
- Needle nose pliers
- Deliming tool (BUNN P/N: 38227.0000)

Prior to servicing the brewer:

- Disconnect the electrical supply
- Shut off the water supply
- Remove the top panel
- Drain the tank (see below)

Draining the Tank

Step 1: Use a flat blade screwdriver to remove the 7 or 10 screws securing the rear panel onto the chassis, remove the panel.

Step 2: Locate the hose clamp on the fill tube, and clamp off the water line.

Step 3: Remove the clip securing the bottom end of the fill line to the check valve and remove the line from the check valve.

Step 4: Place the water line over a sink or bucket and remove the hose clamp to allow the tank to drain.

PM Steps

Step 1: Disassemble and clean the strainer assembly:

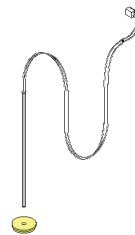
- Use Channel lock pliers to remove the 1/4" flare to 3/4" hose thread adapter fitting from the water inlet assembly
- Use needle nose pliers to gently pull the strainer straight out.
- Rinse the mesh screen to remove any debris build-up.
- Reassembly is the opposite of disassembly.

Step 2: Remove and clean the temperature sensor:

- Gently pull the temperature sensor from the grommet in the top of the tank.
- Wipe any mineral build-up from the probe.
- Reinstallation is the opposite of removal.

Step 3: Remove and clean the fill probe:

- Gently pull the fill probe out of the grommet .
- Wipe any mineral deposits off of the probe.
- Reinstallation is the opposite of removal.

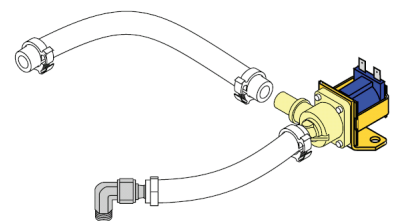


Step 4: Remove and clean the sprayhead:

- Using the pointed end of the deliming tool, remove any mineral build-up from the sprayhead outlet holes.
- Clean sprayhead fitting

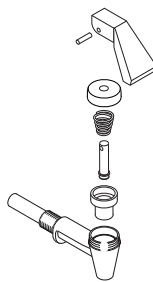
Step 5: Rebuild the dispense solenoid:

- Remove the hose clamps that secure the tubing to the valve.
- Remove the two nuts that hold the solenoid bracket to the machine.
- Gently remove the tubing from the valve body.
- Using a flat blade screwdriver, remove the four screws and separate the valve assembly.
- Replace plunger, spring, and rubber seat using the rebuild kit BUNN P/N: 11517.0008.
- Clean any mineral build-up from the valve.
- Reassembly is the opposite of disassembly.



Step 6: Replace the seat cup in the hot water faucet:

- Unscrew the faucet bonnet from the assembly.
- Remove the old faucet seat cup.
- Install the new seat cup BUNN P/N: 02766.0000.
- Reassembly is the opposite of disassembly.
- Visually examine the power cord for any damage.
- Visually examine the water supply for any leaks.

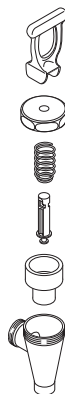


Step 7: Clean the funnel:

- Unscrew the outlet tip and remove the tip and screen.
- Sanitize the tip, screen, and funnel with warm water and sanitize solution.

Step 8: Replace the tea server seat cups:

- Drain the server.
- Unscrew the faucet handle.
- Remove and replace the seat cup.



Step 9: Calibrate the sprayhead and dilution flow rates.





Unit Objectives

Given a realistic scenario depicting a broken machine, the learner will be able to effectively troubleshoot, diagnosis, and repair the problem returning the machine to normal operation.

Given a machine displaying an error message, all the necessary tools and safety equipment, the learner will be able to diagnosis the problem.

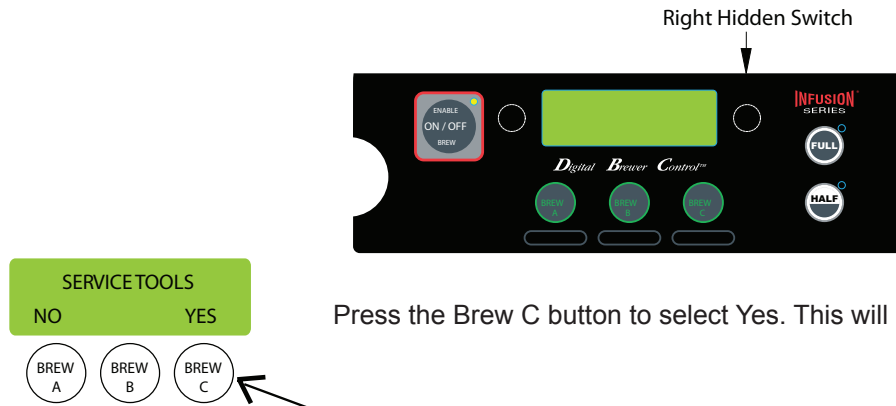
Given a list of error messages and issues, the learner will be to identify the probable cause of the message or issue.

Given a brewer with a defective component, the learner will be able to test the component to determine the cause of the defect.

Service Tools

The ITCB brewer features on-board troubleshooting. Since all of the machine's components are controlled or activated by the control board you can activate and test components individually from the user interface. This allows you to listen to solenoid valves opening, observing the flow of water or test to see if a component is receiving voltage using a meter.

The Service Tools option is located in Level 2 of the programming. Enter level 2 programming by pressing and holding the right hidden switch for 5 seconds. Use the right hidden switch to scroll to the Service Tools Screen.



Press the Brew C button to select Yes. This will enter the Service Tools feature.

In the Service Tools selection there are 3 screens available, by selecting Yes, you will enter that test function, by selecting NO you will move to the next test.

TEST OUTPUTS?

NO YES

Outputs- Test Outputs supplies voltage to load components in the brewer

TEST SWITCHES?

NO YES

Switches- Tests the inputs from the membrane switch

TEST FREQUENCY?

NO YES

Frequency- Indicates the transmit frequency of the funnel sensing coil

Test Outputs

TEST OUTPUTS?

NO YES

The following components can be tested individually:

- Brew valve
- Dilution valve
- Refill valve
- Tank heater triac
- Sweetener valve

Test Switches

TEST SWITCHES?

NO

YES

Press any of the input buttons on the membrane switch, the display will show which button is being pressed.



Test Frequency

TEST FREQUENCY?

NO

YES

The funnel sensing circuit is tuned to 125 kHz. If the circuit is not tuned correctly, then the funnel information will not be transferred to the brewer. Therefore, the microprocessor is constantly fine tuning to get as close as possible to 125 kHz. It has eight possible tuning steps numbered 0 - 7. When you look at the "TEST FREQUENCY" screen you see something like (124.7 KHZ .5) The 124.7 is the frequency, and the 5 is the tuning step. The decimal point next to the 5 indicates the funnel is being detected; if the funnel is removed the decimal point should turn off.

Service Fault Messages

The brewer features several error messages for problems occurring within the machine. These error messages will show up on the display.

**HEATING TIME
TOO LONG**

This message will be shown if the control board does not see the programmed water temperature with 60 minutes.

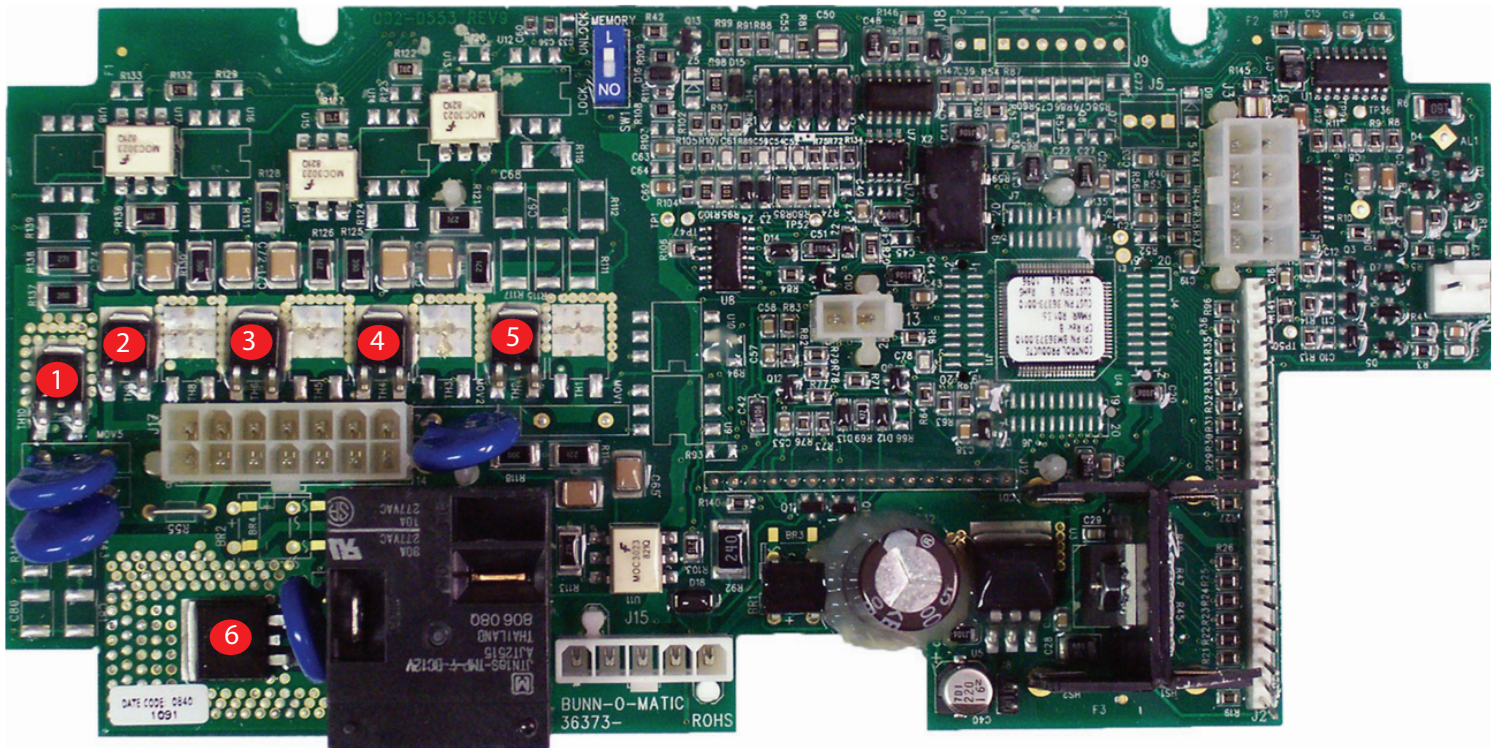
**FILL TIME TOO
LONG**

This message will be shown if the control board does not see the tank fill within 30 minutes.

**TEMP SENSOR
OUT OF RANGE**

This message will be shown if the control board loses contact with the temperature sensor or senses a short in the connection.

Triac Map



1. TH10 = Sweetener
2. TH9 = Dilution Valve
3. TH6 = Brew Valve
4. TH4 = Refill Valve
5. TH2 = Funnel Lock Solenoid
6. TH7 = Heater Triac

