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SAVAGE BROS. CO.

FireMixer-14
Table-Top Cooker

Installation, Operation, Maintenance and Parts Manual

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SINCE 1855 SAVAGE BROS CO.

CONTENTS

FireMixer-14 Table-Top Cooker (FM-14)

GENERAL CONCEPT OF OPERATION

1. The Savage Bros. Co. Table-Top Cooker is an electric cooker/mixer. ***Safe operation of the equipment is very important.*** Personnel that will work in the area of the machine must become familiar with the potential hazards.

2. The PLC (Programmable Logic Controller) is used by the machine for accurate cooking control. With a single point of operation, both product and cooker temperatures can be monitored and controlled more accurately.

3. The optional "Data Logging" feature records a variety of essential data during the cook process including time, temperature, setpoint and batch count.

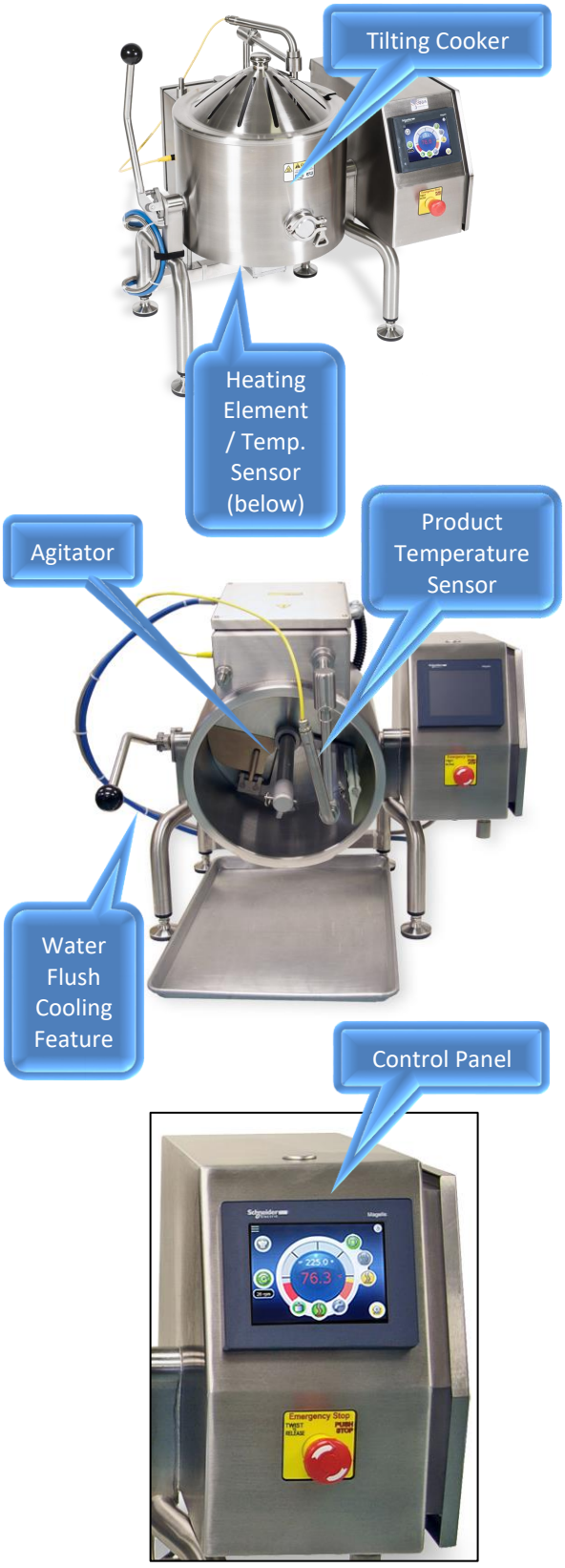
4. An electric scraper agitator stirs the product. The agitator is a rotating mechanical device. ***The agitator will not automatically stop*** if a body part, clothing or a rigid item gets caught in it. Keep hands and body clear of the rotating agitator.

5. The standard 208-240VAC 50/60Hz unit has a 3,000 watt electric heating element and a 1/8HP agitator motor with a gearbox designed for 150 inch-pounds of torque at 28 RPM.

6. The cooker is a tilting cooker, encased in a stainless steel cylinder. Within the cylinder is the electric heating element formed to fit the cooker bottom. A temperature sensor monitors the cooker skin temperature.

7. The cooker and the product being cooked may become very hot during operation. Although the cooker surface is insulated, take precaution not to allow bare skin to contact the cooker cylinder surface. The FM-14 has a water-flush cooling feature to control the cooking and speed up the cooling process.

8. A second temperature sensor is mounted along the agitator shaft and monitors the product temperature while the product is cooking.



IMPORTANT SAFETY MEASURES

General

Moving any type of machinery presents a risk of injury. This cooker weighs approximately 150 lbs. (68 kg).

The FM-14 tilts and agitates, which means the operator(s) must be alert at all times. Anyone who will operate the FM-14 must have training in its function and care.

1. It is strongly recommended that a qualified electrician perform all electrical work.

2. The machine requires a 208/240 volt, 50/60 Hz, 1 phase power source and a 20 amp fuse or circuit breaker protecting the circuit.

3. Before working on the machine — installation and maintenance — ensure the machine is properly locked out-tagged out.

Safety Rules

- Do not operate the FM-14 or other machinery if you:
  - Are tired; or
  - Have been drinking alcohol; or
  - Are taking any medication that makes you drowsy or sleepy.

- When operating, inspecting or maintaining the FM-14, always follow all work shop rules, safety regulations and precautions.

- Always pay attention to what you are doing and to other people in the area and surrounding conditions.

- Do not use the FM-14 for anything other than its intended purpose.

- Do not use broken tools or tools designed for another purpose for inspection or maintenance.

- SAFETY IS UP TO YOU.

Unauthorized Modification

- Modifications of any type to the FM-14 without specific written authorization from Savage Bros. Co. can create unknown hazards and voids the warranty.
- Before making any modification, consult the manufacturer. Savage Bros. Co. will not be responsible for any injury or damage caused by any unauthorized modification.
- Obstruction or limitation of movement and/or operator view can result if unauthorized equipment or parts are added to the FM-14.

INITIAL INSTALLATION

1. The cooker weighs approximately 150 lbs. (68 kg). Therefore, when removing the cooker from the shipping crate, lift up on the base or from below the cooker. Two or more people are required to lift the cooker.

2. Place the machine on a solid, level surface. To ensure the cooker is level, place a level atop the cooker. If the cooker is not level, the machine's four feet (arrows) are individually adjustable and are used to level the machine, Fig. 1.

Figure 1

3. To adjust the height of an individual leg, Fig. 2:

   a. Using an open-end wrench, loosen the locknut (A).

   b. Place a bubble level atop the cooker.

   c. Insert an open-end wrench onto the wrench flats (B) of the leg. Turn the wrench to increase or decrease the height of the individual leg while observing the level.

   d. Once the machine is level, remove the bubble level.

   e. Using an open-end wrench, tighten the locknut (A).

   f. It may be necessary to adjust two or more legs for the machine to be perfectly level. Repeat steps a through e for other legs as needed.

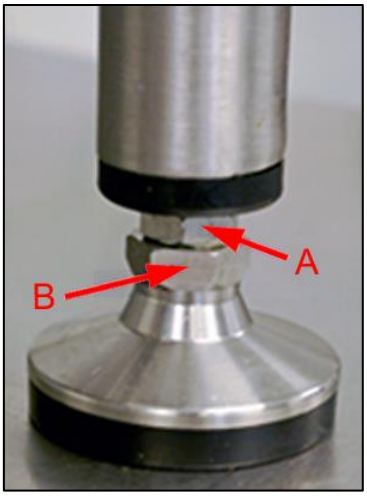


Figure 2

4. Ensure the red Emergency Stop (E-Stop), (arrow), Fig. 3, located on the front of the machine, is pushed into the STOP position.

5. The FM-14 has a water-flush cooling feature. Connect the blue hose, which has a standard hose fitting on the open end, to a cold-water source (Fig. 3.1) — a sink faucet is commonly used. Having water flow through the system removes heat from the cooker bottom, slowing the cooking process near the end of the batch.

6. The metal braided hose, which has a standard hose fitting on the open end, allows the water to drain from the machine. Connect another hose to the metal braided output hose, then route the hose assembly to a drain.

Figure 3

NOTE: **The drain hose must remain open to the atmosphere to avoid pressurizing the cooker. Do not restrict the drain hose in any way, for example, by putting on an excessively long hose, a small diameter hose, or routing the hose vertically, creating back pressure.**

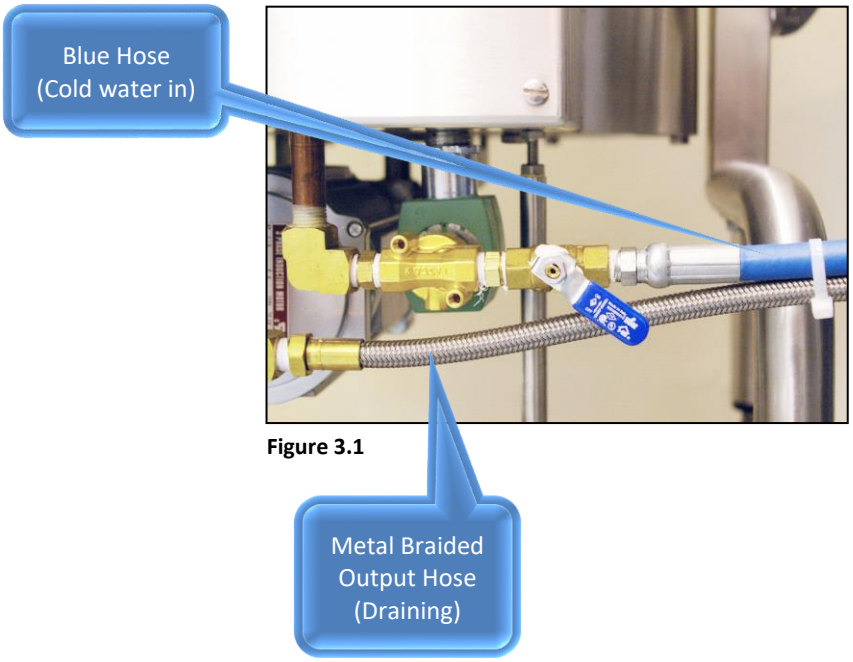


Figure 3.1

TURNING ON THE MACHINE

1. Insert the machine's electrical plug into a Nema 6-20r electrical outlet.

2. The **E-Stop Reset** screen appears, Fig. 4, if the **E-Stop** button is depressed, Fig. 5. To advance to the next screen, wait for ten seconds, which gives time for the VFD (Variable Frequency Drive) to discharge, then pull out the **E-Stop** button (arrow), Fig. 5.

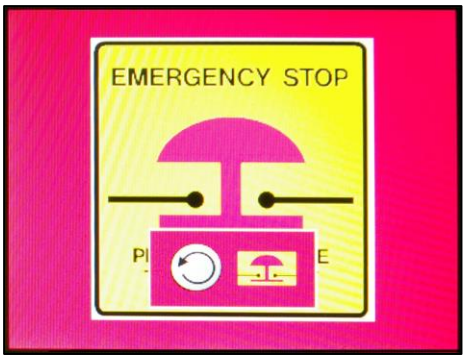


Figure 4

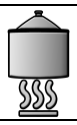
Figure 5

3. If this screen appears, after reading the WARNING, press the **Verify and Continue** button, Fig. 6.

Figure 6

COOKING CONTROL SCREEN

The following icons may be used on the FM-14 HMI screens:

	Agitator
	Chef Mode
	Flush
	Chef Mode
	Cook Temperature
	Settings
	Advanced Settings
	Cook Cycle ON
	Cook Cycle OFF
	Cooker Tilted
	Lid Switch
	Alarm
	Cooker

	Maximum Cook Power
	Low Cook
	High Cook
	Auto Shutdown
	Locked
	Unlocked
	Exit
	Accept
	Product Temperature Attained
	Help
	Information
	Maintenance
	Silence Alarm

	Jog
	Run
	Speed
	Minimum
	Medium
	Maximum
	VFD Speed HSP in HZ
	Command
	Minimum Temperature
	Maximum Temperature
	Factory Settings
	Reset
	HMI Brightness

Cooking Control Screen

The **Cooking Control** screen, Fig. 7A, is used as the starting point. From this screen you can select the Main Popup Menu from which you can open the Maintenance screen and the Advanced Settings screen and the Help/Information Screen. You can also select the Chef Mode On/Off screen. You can also select High Cook or Low Cook, start and Stop the Cook Cycle, turn the Agitator On and Off, select Agitator speed, open, and close the Flush and turn the Cook Audible On/Off. Familiarize yourself with all of the screens, controls, settings, and indicators, prior to making a batch. Operate the cooker from the Cooking Control Screen, Fig. 7.

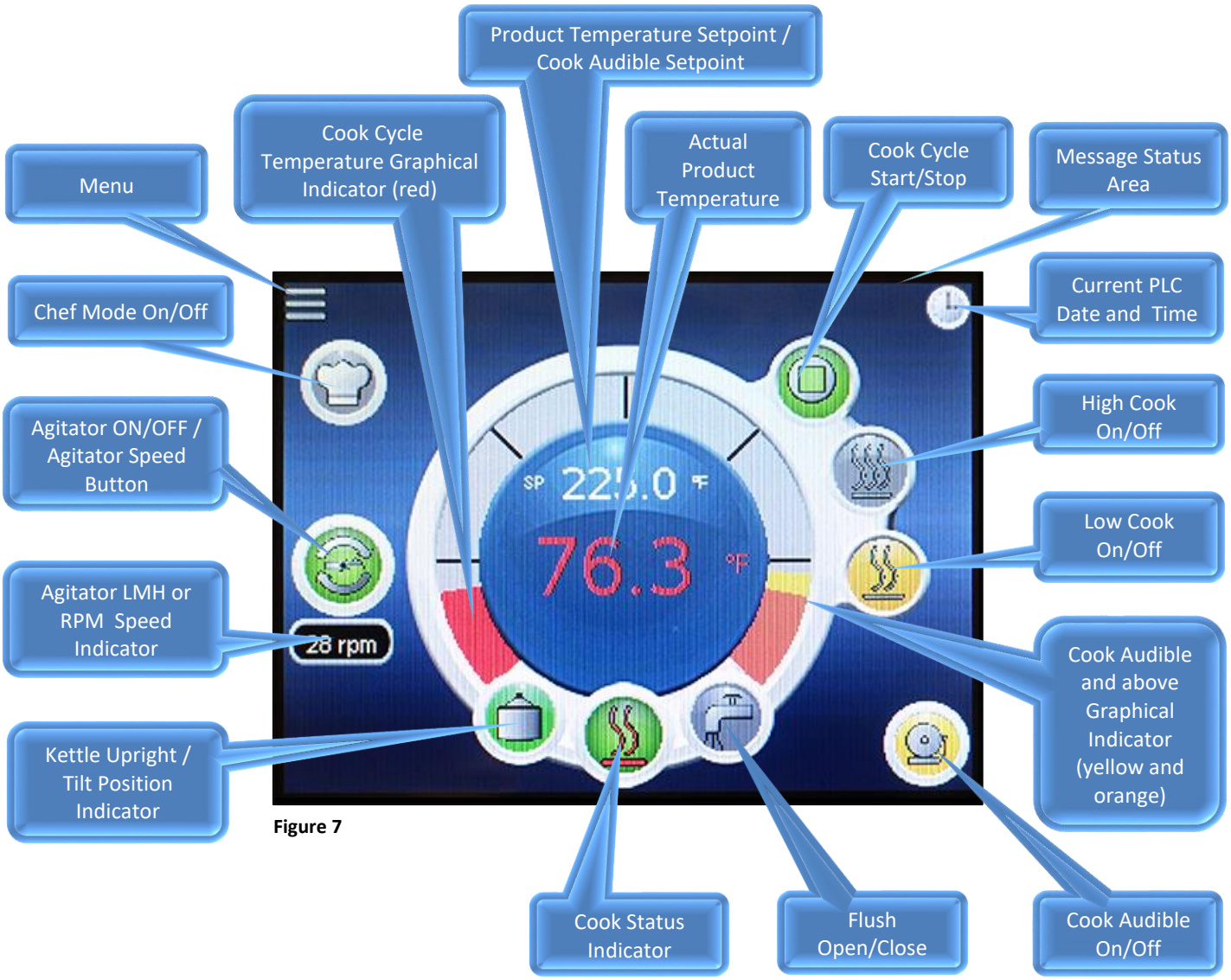


Figure 7

COOK CONTROL SCREEN FUNCTIONS AND MAIN POPUP MENU FUNCTIONS

The following are explanations of the Cook Control Screen functions (refer to Fig.7):

- **Menu** — Pressing the Menu icon brings up the Menu Popup Window
- **Actual Product Temperature** — Displays the Actual Product Temperature.
- **Message Status Area** — Messages are displayed at the top portion of the Cook Control Screen.
- **Product Temperature Setpoint / Cook Audible Setpoint** — Pressing the icon brings up the Popup Window where the setpoint of the product temperature and the setpoint of the Cook Audible can be entered.
- **Cook Audible** — Pressing the icon will Enable / Disable the Cook Audile mode.
  The "Cook Audible" is an option that can be used to notify the operator by visual and audible means, when a preset temperature, selected anywhere along the cooking process is reached, for example to indicate when to add an ingredient.
- **Flush Open /Closed Indicator** — Indicates Flush Open / Flush Closed status.
- **Cook Status Indicator** — Indicates, Ignite, Low Heat, and High Heat statuses of the burner.
- **Kettle Upright Position / Kettle Tilt Position Indicator** — Indicates Kettle In Upright Position / Kettle Tilt Position.
- **Cook Cycle Graphical Indicator** — Graphically Indicates the temperature of the cook cycle.
- **Agitator Speed Indicator** — Indicates the preset speed of the Agitator LMH (LOW, MEDIUM, HIGH) or RPM Speed (option selected in Advanced Settings, refer to Pg. 33).
- **Agitator ON/OFF / Agitator Speed Button**— Turns Agitator ON/OFF as well as Agitator LMH (LOW, MEDIUM or HIGH or RPM Speed Popup Window (after pressing and holding).
- **Chef Mode On/Off** — in Chef Mode, the operator can view and adjust the setpoint for the Kettle Temperature.
- **High Cook** — In High Cook mode, the product cooks at a higher rate.
- **Low Cook** — In Low Cook mode, the product cooks at a lower rate.

The following are explanations of the Main Popup Menu functions (refer to Fig. 8):

- **Current PLC Date and Time** — Pressing the icon will display the **Current PLC Date and Time**.
- **Maintenance**— Pressing the icon will bring up the **Maintenance** screen.
- **Advanced Settings** — Pressing the icon will bring up the **Advanced Settings** screen**.**
- **Help / Information** — Pressing the icon will bring up the **Help / Information** screen, refer to Pg. 45.
- **Exit** — Pressing the icon will exit without changes.

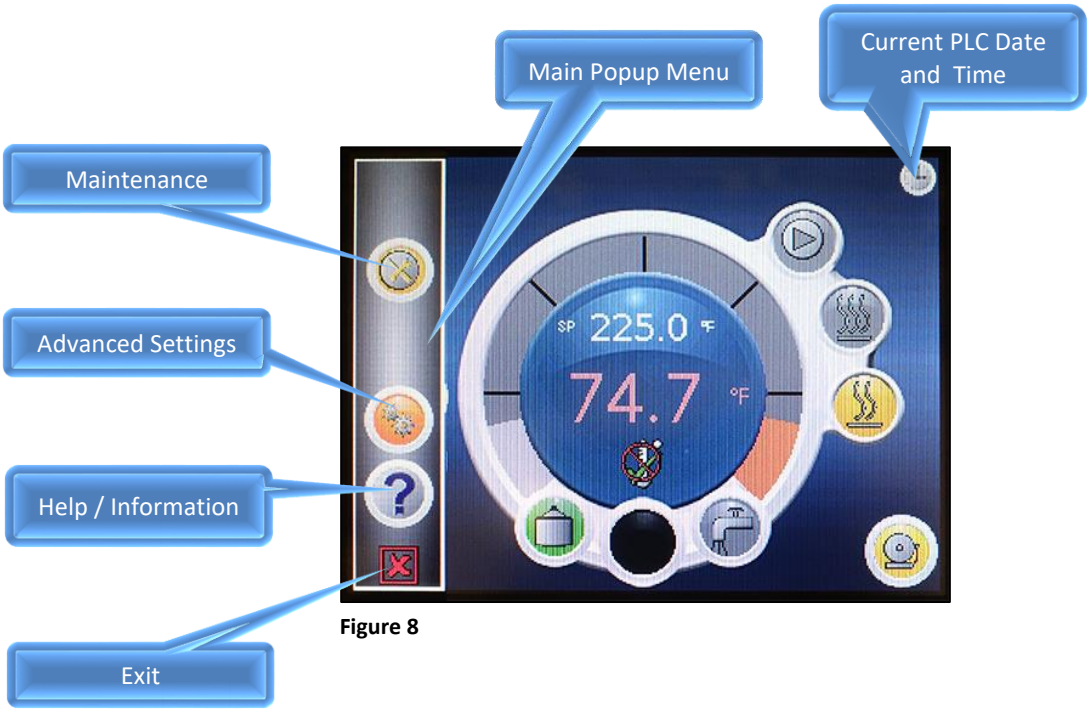


Figure 8

CURRENT PLC DATE AND TIME

To display “Current PLC Date and Time” press the “Current PLC Date and Time” button on the top right, on the Cooking Control screen, (Fig.9), which will bring up the “Current PLC Date and Time” popup window, (Fig 10). The “Current PLC Date and Time” can be changed (refer to “Advanced Settings Screen”. Press the “Exit” button to exit without changes.

Figure 9

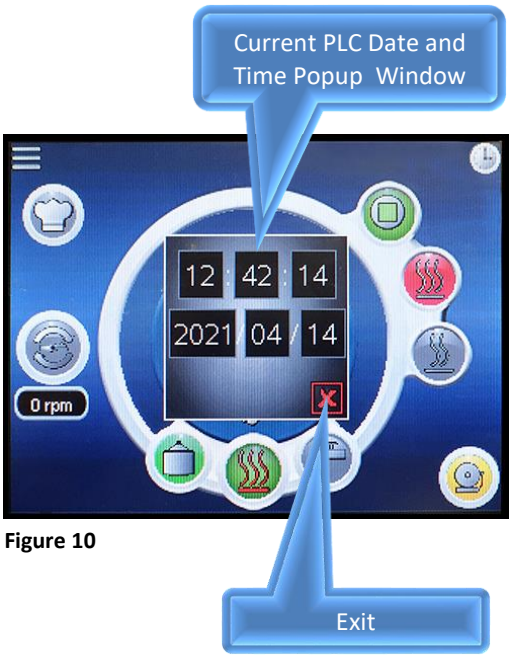


Figure 10

Product Temperature Setpoint

By touching the **Temperatures Setpoint** (white numbers), (Fig. 11), a popup window will appear, Fig. 12. Touch the **Product Temperature Setpoint** (top, black numbers, white background) in the popup window and a numeric keypad will appear, Fig. 13. Type in the desired temperature. The desired temperature can be changed before, after and during the cook cycle.

The maximum product temperature is 350 °F (177 °C). Press the **Exit** button to exit without changes.

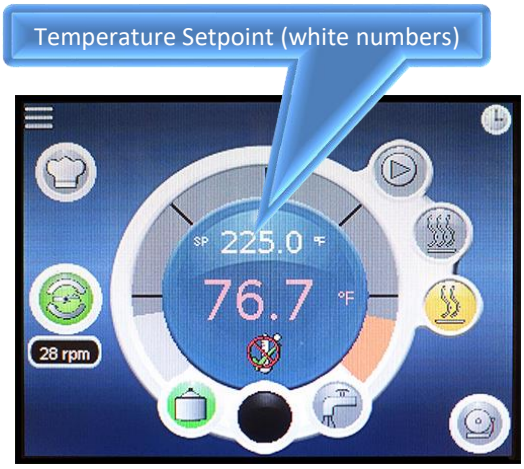


Figure 11

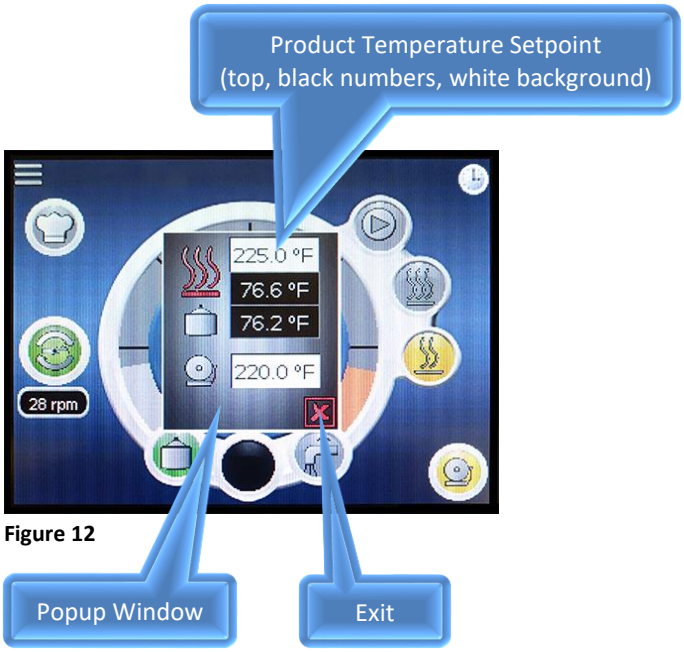


Figure 12

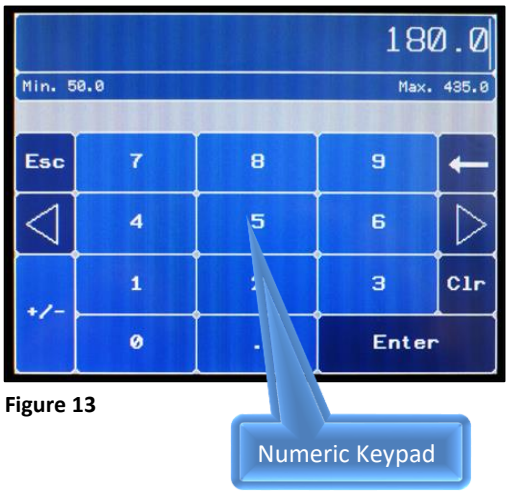


Figure 13

When the **Product Temperature Setpoint** is attained, the product Actual Product Temperature flashes green, an audible alarm turns on and **Product Temperature Attained** (with Accept symbol) is displayed in the Cook Status Indicator Area, Fig. 14. When this message appears, the user has one of three options:

- Press the **Cook Cycle Stop** button, which turns the heater off; or
- Increase the temperature setpoint and the unit resumes cooking until the new temperature setpoint is reached; or
- Do nothing, and the unit cycles the heater on and off to maintain the setpoint, unless the Auto Shutdown is turned on. In the case that the Auto Shutdown is turned on, (see Pg. 18 for info on Auto Shutdown) the cooking process will turn off after two hours from the point of pressing the **Cook Start,** as long as the maximum heat power is greater than 30 %.

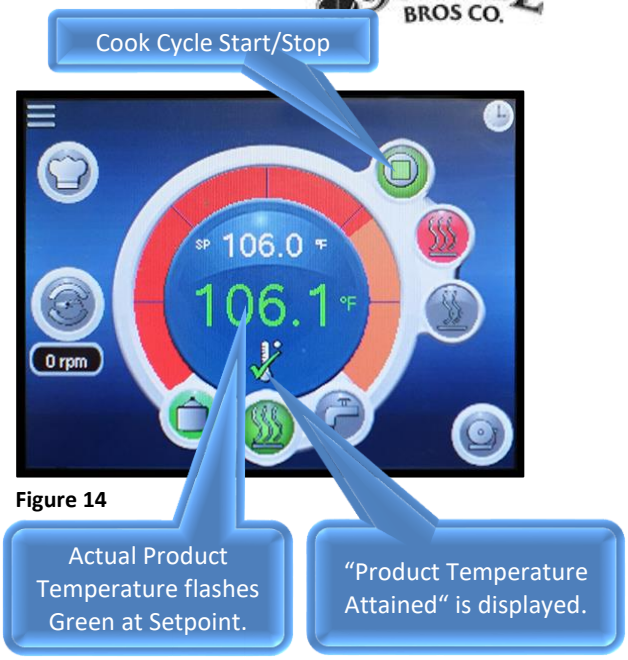


Figure 14

Cook Audible Setpoint

The "Cook Audible" is an option that can be used to notify the operator by visual and audible means that the preset temperature, has been reached, for example to indicate when to add an ingredient.

The **Cook Audible Setpoint** can be set by touching the Temperatures Setpoint, Fig. 15 after which a Popup Window will be displayed, Fig. 16.

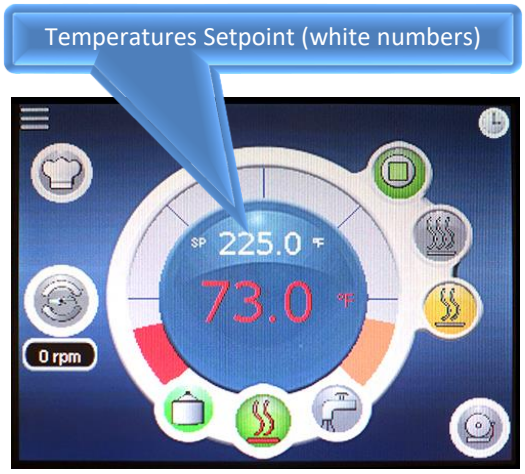


Figure 15

On the Popup Window, press on the **Cook Audible Temperature Setpoint** (bottom, black numbers with white background), after which a numeric keypad will be displayed. On the numeric keypad enter the desired setpoints. Press the Exit button to exit without changes.

The **Cook Audible** can be turned On/Off by pressing the **Cook Audible** button. When turned on, the **Cook Audible On/Off** icon background turns yellow, Fig. 16.

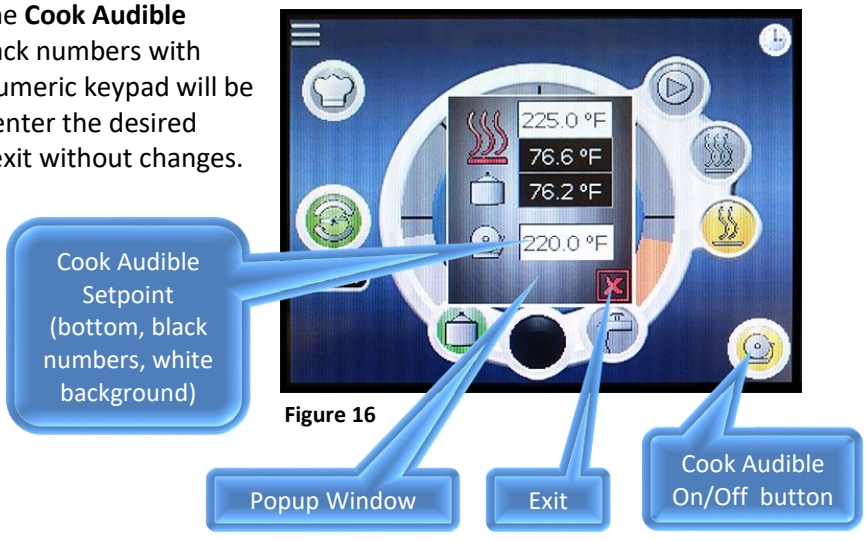


Figure 16

When the **Cook Audible Setpoint** is attained, an audible alarm turns on, until the alarm is acknowledged, the **Actual Product Temperature** (numeric value) flashes yellow and red, Fig. 17, alerting the operator the product temperature has reached the **Cook Audible Setpoint**. The alarm can be acknowledged by once more pressing the **Cook Audible On/Off** button.

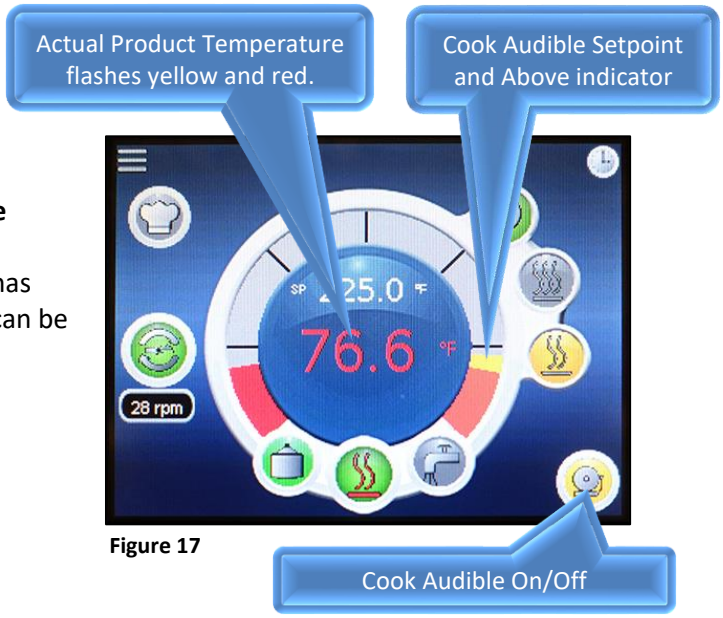


Figure 17

Cook Cycle Start/Stop Button

Pressing the **Cook Cycle Start/Stop** button starts the cooking process, Fig. 18. When **Coo**k is in the **Stop** position, the background on the **Cook Cycle Start/Stop** button is grey. To turn the heater on, press the **Cook Cycle Start/Stop** button to **Start,** at which point, its background turns green. At this point a red, flashing **Heater Image** appears, in the **Cook Status Indicator**, and the **Cook Cycle Temperature Graphical Indicator** turns red**,** Fig. 19.

During the Cook Cycle, pressing the **Cook Cycle Start/Stop** button to **Off** will turn the heater off again, which causes its background color to revert to grey, also the red flashing **Heater Image** and the **Cook Cycle Temperature Graphical Indicator** to turn off, Fig 19.

Figure 18

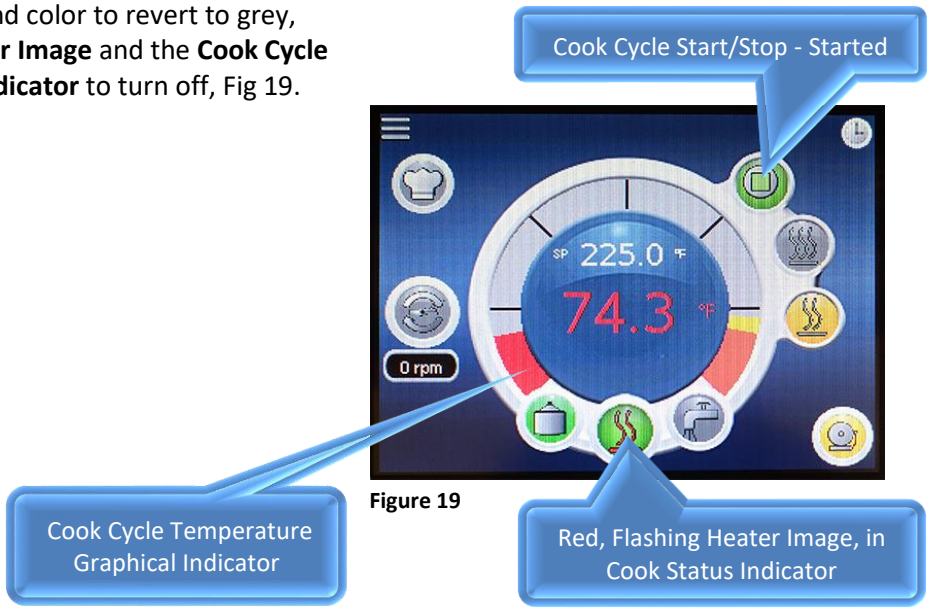


Figure 19

Auto Shutdown

Two hours after pressing the **Cook Start,** and if the maximum heat power is greater than 30 % and the Auto Shutdown is turned On (on the Advanced Settings screen, Pg. 33), the cooking process will be shut down. A countdown screen will be displayed 10 minutes prior to **Auto Shutdown**, Fig. 20. If the countdown screen is exited, it will reappear at 5, 2, and 1 minute prior to Auto Shutdown. The **Auto Shutdown Timer** can be reset by pressing the Reset Button. Press "Exit" to exit without changes.

Figure 20

Flush Open/Closed Button

The flush valve can be opened/or closed by selecting the **Flush Open/Closed** button, on the bottom right of the screen Fig. 21. When it is open, the **Cook Cycle Temperature Button background** turns blue.
Opening the flush removes the heat from the cooker to stop or slow the cooking process.

Figure 21

Agitator Start/Stop Button

Pressing the "Agitator Start /Stop button momentarily either starts or stops the agitator, Fig. 22. The agitator automatically stops if the cooker tilts past a certain point. The agitator cannot start turning again until the cooker is upright.

Figure 22

Agitator Speed

The Agitator runs on two different speed modes. To change Agitator speed mode, first open the Advanced Settings screen, Fig. 23, refer to Pg. 31 and follow it to the Advanced Settings screen, Pg33. On the Advanced Settings screen select between Agitator LMH (Low, Medium High) or RPM speed mode. Once the desired Agitator speed mode is selected, exit to the Cook Control screen.

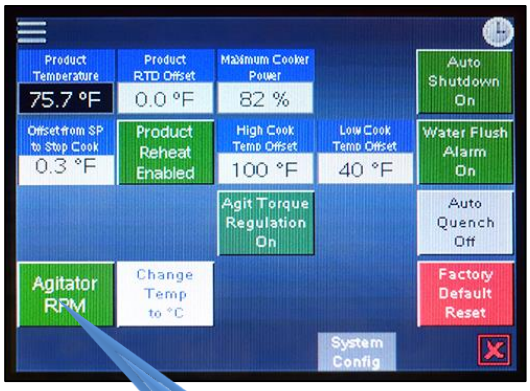


Figure 23

On the Cook Control screen, press and hold the Agitator ON/OFF / Agitator Speed button, Fig. 24, which will bring up an Agitator popup window, depending on the speed mode. When in LMH mode, on the popup window, select LMH (Low, Medium High), Fig. 25. Press “Exit” to exit without changes.

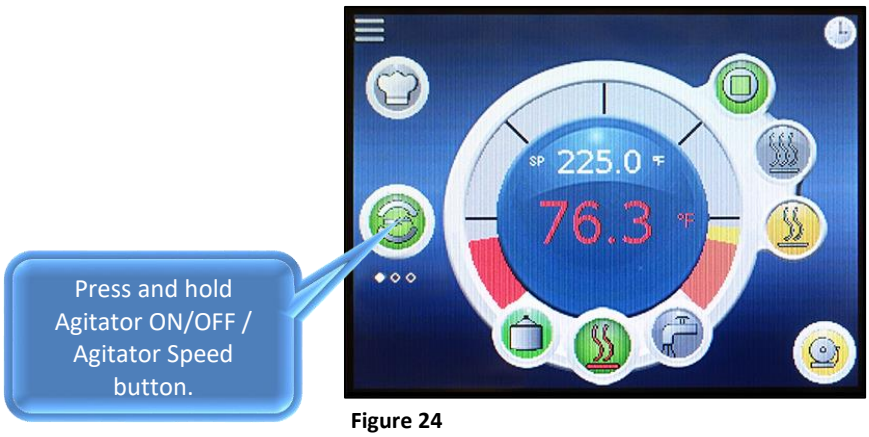


Figure 24

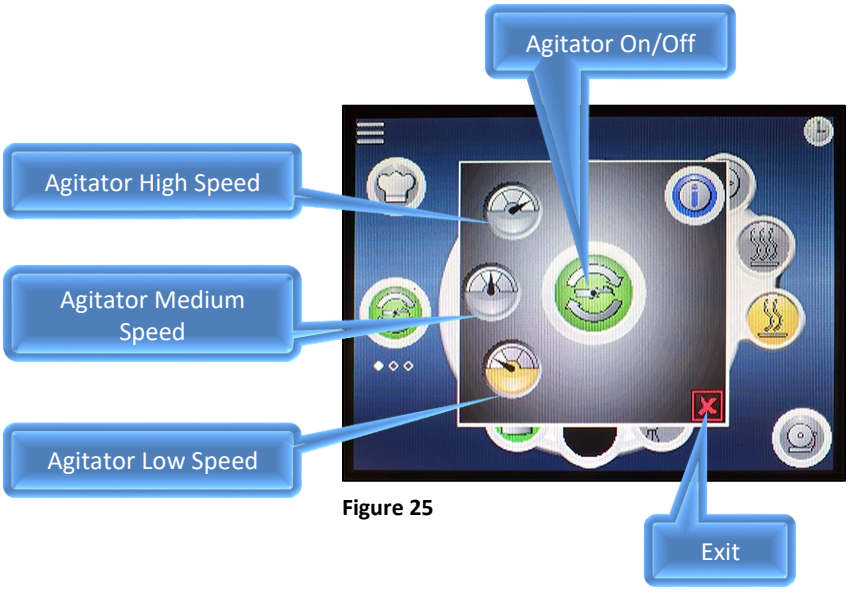


Figure 25

When in RPM mode, on the popup window, press on the Agitator RPM Setpoint button, Fig. 26, which will bring up a numeric keypad. On the keypad, type in the desired Agitator RPM speed, then press Enter. Press "Exit" to exit without changes.

Pressing the "Agitator Information" button, Fig. 26 will bring up the "Agitator Information" Popup window" which will display Agitator Information, Fig. 27. Press "Exit" to exit without changes.

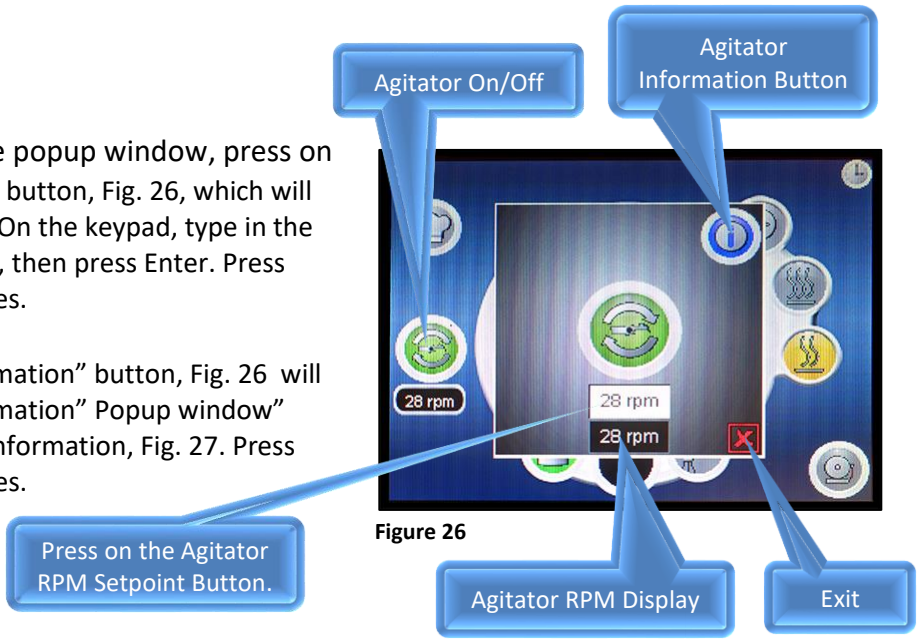


Figure 26

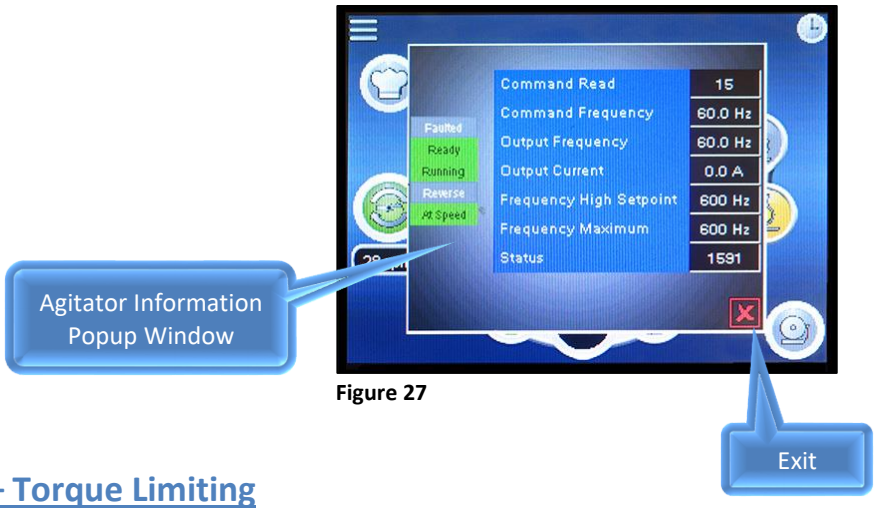


Figure 27

Agitator Speed Control – Torque Limiting

The agitator will automatically respond to load conditions and will decrease or increase agitator speed, depending on the agitator load (current on the Agitator Drive).
Agitator speed control, if enabled, will automatically slow the speed of the agitator when the agitator motor is experiencing high current. This is done to keep the agitator running and to prevent damage to the agitator.

How it works

The motor current (LCR) and the rated motor current (NCR) are read from the VFD. When the agitator is running, these values are compared.
If the motor current is at or above 100% of the rated current, the speed is dropped by 1 RPM every 8 seconds activating the speed reduction.
If the motor current is at or above 110% of the rated current, the speed is immediately reduced to 6 RPM also activating the speed reduction.

While in speed reduction, a message is displayed on the Message/Alarm banner is displayed on the HMI. The agitator icon will flash orange and green.
If the speed is already at the minimum allowable speed (6 RPM), the agitator is shut down and an alarm sounded.
While in speed reduction, If the motor current drops below 98% of the rated current, the speed is increased by 1 RPM every 8 seconds until reaching the original setpoint. This deactivates speed reduction.
If the agitator is turned off while in speed reduction for any reason, the speed reduction is deactivated and all setpoints returned to their initial values.
All the agitator VFD's internal faults will still be monitored. A VFD fault will be displayed on the HMI.
Speed reduction is not active in maintenance mode.

3-Speed Agitators
If in speed reduction, the user can still toggle between Low (L), Medium (M), and High (H) but with the following caveat, the new speed setpoint will be the lesser of the of the current speed or the Low Speed Setpoint (LSP) if selecting L or will be the lesser of the of the current speed or the Medium Speed Setpoint (MSP) if selecting M. If selecting H, the speed will remain at the current speed.
If the agitator load condition increases, the agitator speed will be automatically reduced to try to prevent a "torque limit" (Overload) condition. When the agitator speed is reduced, the Agitator On/Off / Set Speed button background will flash orange and white and the warning "Agitator Torque Reduction Active" will be displayed at the top of the HMI screen, see Fig. 28.

Figure 28

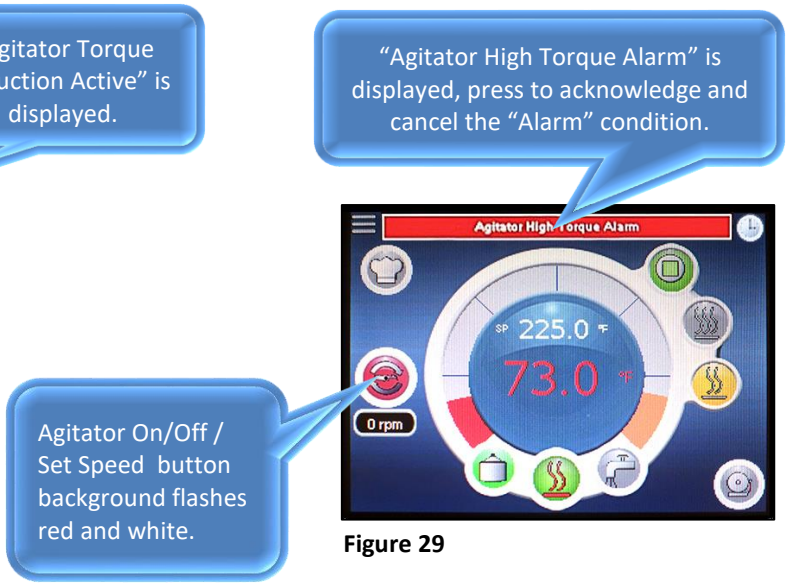


Figure 29

If the load condition continues and the Agitator speed continuously decreases for a longer duration, it may reach a point of "torque limit" (overload) condition. At that point, the Agitator On/Off / Set Speed button background will flash red, display "Alarm" symbol and "Agitator High Torque Alarm" will flash at the top of the HMI screen at which point the Agitator will stop, see Fig. 29.
Press on the "Agitator High Torque Alarm" display at the top of the HMI screen to acknowledge it and cancel the "Alarm" condition, otherwise it will time out and will no longer be displayed. The Once the alarm at the top of the HMI screen is no longer displayed, the Agitator can be restarted.

Product Reheat and Auto Quench

The “Product Reheat” can be “Enabled” or “Disabled” (refer to Advanced Settings Screen” section, Pg. 33. When “Enabled”, after the product setpoint temperature is reached, it reheats automatically to maintain product setpoint temperature.

The “Auto Quench” can also be turned On or “Off”, as stated in the “Advanced Settings Screen” section, Pg. 33. When “Auto Quench” is “On”, it will automatically cool the kettle temperature to slightly below product temperature setpoint once product has reached setpoint for the first time. This will slow/stop the cooking process.

If the “Cook” process is interrupted, the cook and auto quench processes will be stopped.

Low (Slow) Cook/High (Fast) Cook

Select the **Low (Slow) Cook or the High (Fast) Cook** button to switch between modes, Fig. 30, and Fig 31. In **High (Fast) Cook** mode, the product cooks at a higher rate and in **Low (Slow) Cook** mode the product cooks at a lower rate.

When using **Low (Slow) Cook** during cooking, the cooker temperature setpoint is calculated by taking the product temperature and adding in the "Low (Slow) Cook Temperature Offset" (set on the Advanced Settings Screen), for details see Pg. 33. The default "Low (Slow) Cook Temperature Offset" is 40°F (22°C).

To change the **Low (Slow) Cook** setpoint, press on the **Low (Slow) Cook** button, Fig. 30, which will bring up a popup window, Fig 32. On the popup window, press on the button, with black writing and white background, which will bring up a numeric keypad. Type in the desired **Low (Slow) Cook** temperature, then press "Enter". Press on the "Exit" button to exit without changes.

Figure 30

Figure 31

Figure 32

When using **High (Fast) Cook** during cooking, the cooking temperature setpoint is calculated by taking the product temperature and adding in the "High (Fast) Cook Temperature Offset" (set on the Advanced Settings Screen), for details see Pg. 33. The default "High (Fast) Cook Temperature Offset" is 100°F (55°C).

Figure 33

To change the **High (Fast) Cook** setpoint, press on the **High Cook** button, Fig. 3, which will bring up a popup window, Fig. 33. On the popup window, press on the High 9Fast) Cook Setpoint button, with black writing and white background, which will bring up a numeric keypad. Type in the desired **High (Fast) Cook** temperature, then press "Enter". Press on the "Exit" button to exit without changes.

Refer to Fig. 35 and Fig. 36 for Low (Slow) Cook / High (Fast) Cook explanations and examples.

Figure 34

Low Cook Confection		
Low Cook Explanation	**Products**	**Examples**
Any candy that cooks less than 250°F (121°C) degrees, or a cook that needs to be gentle.	caramels, fudges, ganache, gummies, jellies	Refer to Low Cook / High Cook Cooking Profile, on the following page (Fig. 26).

High Cook Confection		
High Cook Explanation	**Products**	**Examples**
Any candy that is 250°F (121°C) degrees and higher and requires a higher cook rate.	peanut brittles, hard candy	Refer to Low Cook / High Cook Cooking Profile, on the following page (Fig. 26).

Figure 35

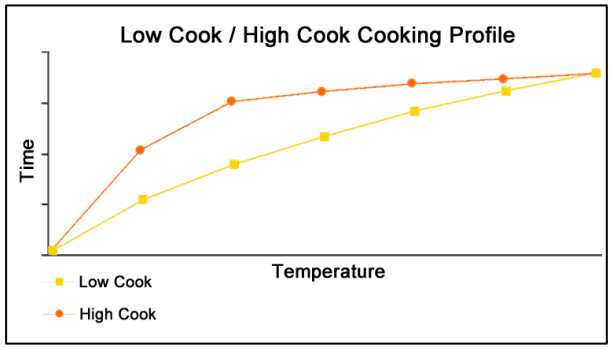


Figure 36

Product Temperature and Chef Mode/Kettle Temperature

The Product Temperature sensor monitors the changing temperature of the product while it cooks. The **Chef Mode- Kettle Temperature** determines how fast the product will cook.

In order to view and/or change the **Chef-Mode/Kettle Temperature**, press the **Chef Mode/Kettle Temperature** On/Off button, Fig. 37, at which point the button's background will turn green, indicating it is **On**. Also at that point, it will change the **Main Screen,** displaying the **Kettle Temperature Button**, Fig 38.

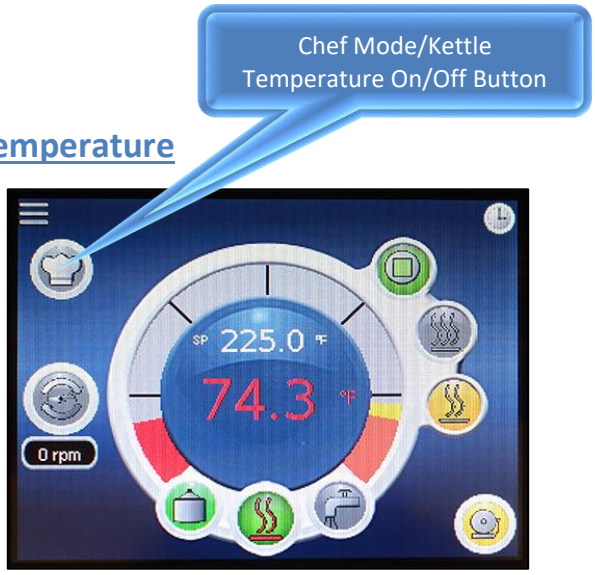


Figure 37

The **Chef Mode-Kettle Temperature SP** (setpoint) allows the operator to have control over the Kettle Temperature, Fig. 38.

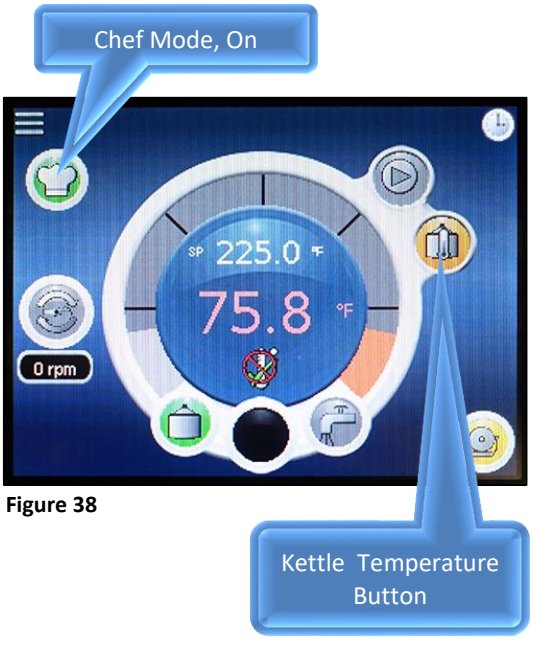


Figure 38

Chef Mode - Kettle Temperature Setpoint

Pressing the **Kettle Temperature** button**,** Fig. 39, will bring up a Popup Window, Fig. 40, on which, the operator can view and adjust the setpoint for the **Kettle Temperature**, the maximum temperature the Cooker is allowed to reach. Press the **Kettle Temperature Setpoint Button** (black numbers, white background). A numeric keypad screen now appears. On the keypad, type in the desired Maximum Kettle Temperature, and then press the **Enter** button. The maximum Kettle Temperature is 435 °F (224 °C).

Figure 39

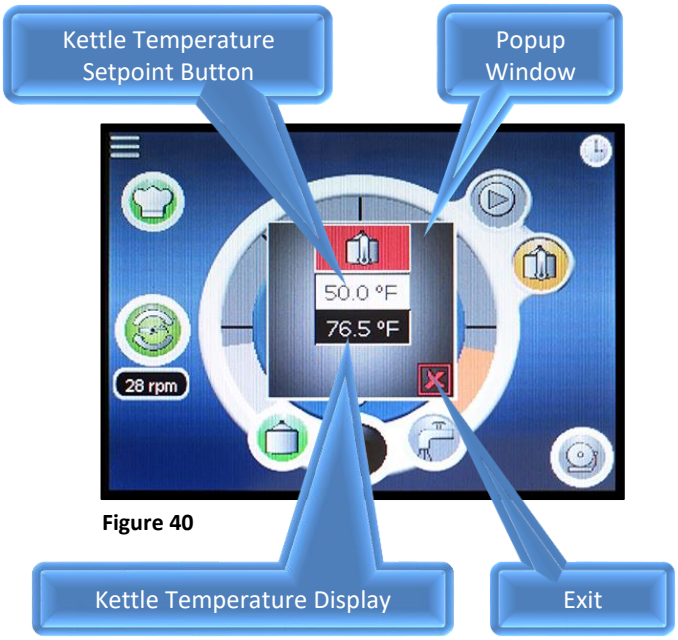


Figure 40

MAINTENANCE SCREEN

At the **Cook Control** screen, press the **Menu** button, Fig. 41, after which a **Popup Menu** appears, on the left side, Fig. 42.

On the **Popup Menu** press on the **Maintenance** button, after which the **Maintenance** screen appears, Fig. 42.

Figure 41

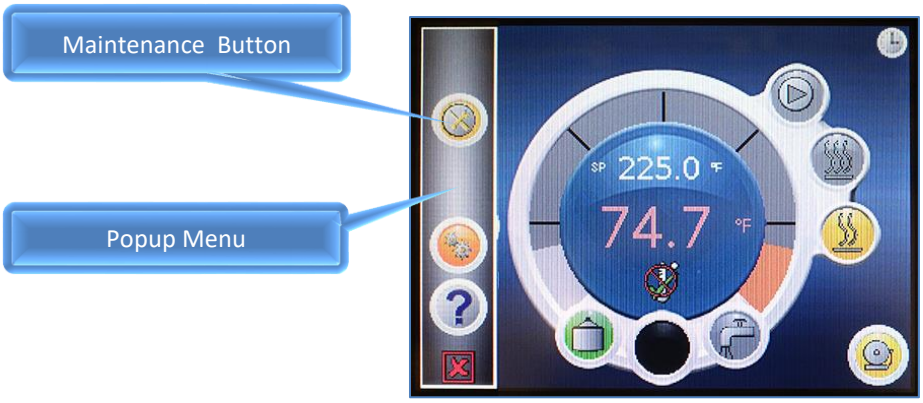


Figure 42

At the **Maintenance Screen**, Fig. 43, the operator can test that the **Tilt Switch** status (engages and disengages), the **Tank Water** flushes, the **Audible Alarm** sounds, the **Agitator** rotates, and the **Heater** works. The **Audible Alarm Test, Agitator Jog**, and **Heater Jog** buttons are momentary switches, meaning that as long as the user presses the button, the electrical circuit remains active, and the device operates. Its background turns to green when the device operates. Once the user removes pressure from the switch, the electrical circuit de-activates and the device being tested will stop operating.

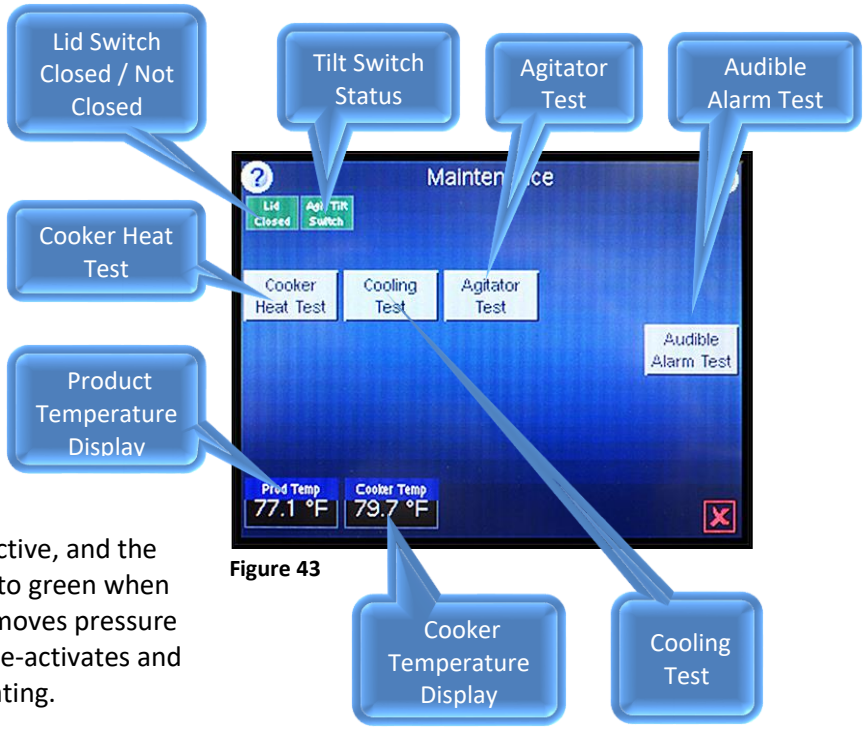


Figure 43

Tilt Switch

When the **Tilt Switch Engaged** is on, Fig. 44, the cooker is upright, which allows the agitator to rotate, if the operator chooses. To test that the tilt switch is functioning properly, ensure that the cooker is empty, after which tilt the cooker 90 degrees forward. The tilt switch display background should now turn gray, indicating the **Tilt Switch Open**. Returning the cooker to the upright position reverts the background to green background. If the tilt switch is not working properly, see the **Troubleshooting** section of this manual.

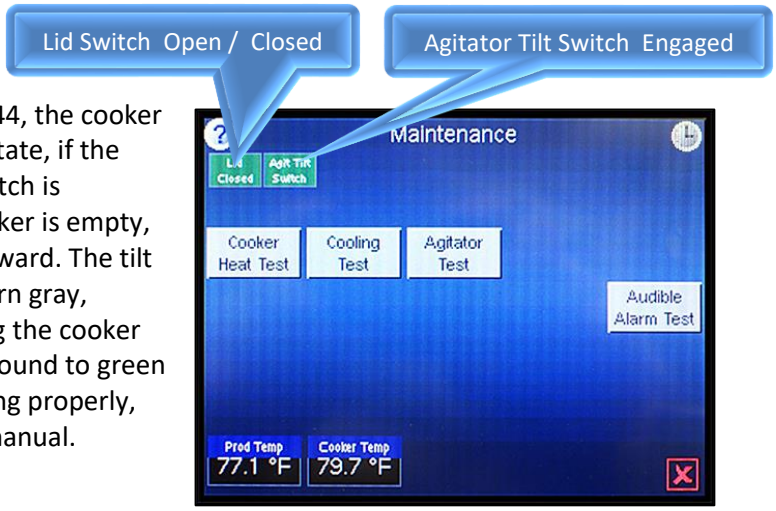


Figure 44

Lid Switch

If the cooker is equipped with the optional Lid-Off Agitator Stop interlock switch, when the lid is removed from the kettle, the agitator will stop. To test that the lift switch is functioning properly, lift the lid. The Lid Switch Display background should now turn gray, indicating **Lid Switch Open**, Fig. 44.

Cooling Test

Pressing this button changes its background to green indicating the **Flush Valve Open,** Fig. 45. If you cannot hear water running after pressing this button, see the **Troubleshooting** section of this manual. Once you are done testing the flush, press this button again to turn it off.

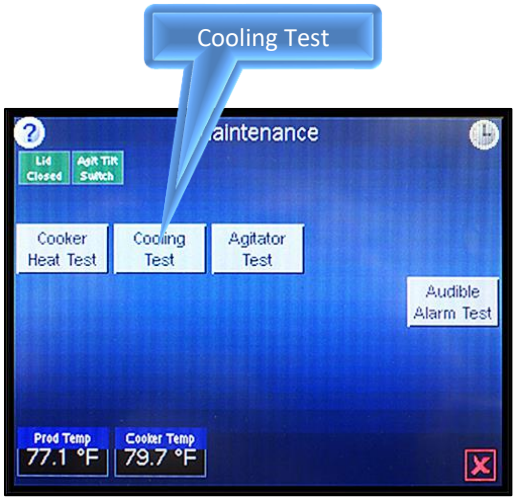


Figure 45

Audible Alarm Test

Pressing this button changes its background to green, Fig. 46, and you should hear an alarm. If the audible alarm cannot be heard during this test, see the **Troubleshooting** section of this manual. Removing pressure from this button causes it to revert to its original color and silences the alarm.

Figure 46

Cooker Heat Test

Pressing this button changes its background to green, Fig. 47, the heater turns on. You should notice the Cook Temperature increases before the Product Temperature increases. If the temperature does not increase while pressing this button, see the **Troubleshooting** section of this manual. Removing pressure from this button causes it to revert to its original color, the temperature display disappears, and the heater and status indicator turn off.

Figure 47

Agitator Test

Pressing this button changes its background to green, Fig. 48, the agitator should rotate. If the agitator fails to rotate while holding this button down, see the **Troubleshooting** section of this manual. Removing pressure from this button causes it to revert to its original color, and the agitator to turn off.

Press the **Exit** button, Fig. 48, to return to the **Cooking Control** screen.

Figure 48

ADVANCED SETTINGS SCREEN

To access the **Advanced Settings** screen, press the **Menu** button on the **Cook Control** screen, Fig. 49, after which a **Popup Menu** appears.
On the **Popup Menu** press **Advanced Settings** button, on **Popup Menu**, Fig. 50, after which a **Password Popup Window** appears, Fig. 50.

Figure 49

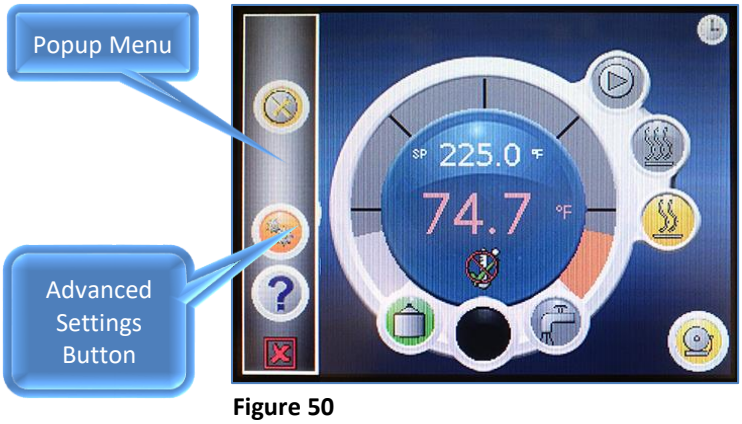


Figure 50

Press on the button with black asterisks and white background, inside the **Password Popup Window**, Fig. 51.

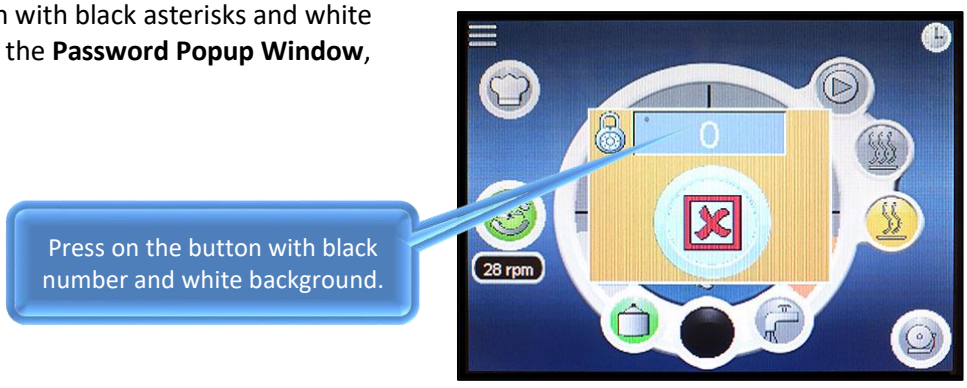


Figure 51

A numeric keypad screen now pops up. Using the on-screen keypad, Fig. 52, type in the password **(refer to the Password Addendum document)**, then press the **Enter** button, after which an unlock button appears, then press on the **Unlock button**, Fig. 53.

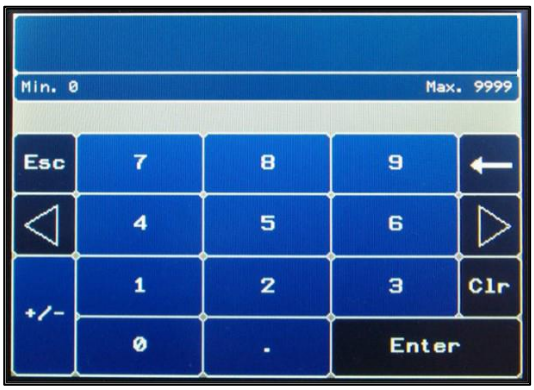


Figure 52

Figure 53

At the **Advanced Settings** screen, Fig. 54, the operator can navigate to or change the:

1. Product Temperature RTD Offset (also view Product Temperature Display)
2. Temperatures to display in degrees Celsius (°C) or back to Fahrenheit (°F).
3. Prod (High Cook and Low Cook) Temp RTD Offset – used for offsetting the High Cook temperature for faster cooking speed or the Low Cook temperature for slower cooking speed (depending on product cooking speed requirements).
4. Auto Shutdown On/Off.
5. Water Flush Alarm On/Off.
6. Factory Default Reset.
7. Agitator Speed LMH (Low, Medium High) or RPM –toggle between LMH (Low, Medium, High) or RPM Speeds.
8. Product Reheat Enabled/Disabled- when "On", after Product Setpoint temperature is reached, it reheats automatically to maintain Product Setpoint temperature.
9. Auto Quench On/Off – when "On", it will automatically cool kettle, when product has reached setpoint to stop/slow cooking process.

- Agitator Torque Regulation On/Off - the agitator will automatically respond to load conditions and will decrease or increase agitator speed, depending on the agitator load (current on the Agitator Drive).
- Low Cook Temperature Offset – (when not in Chef mode)
- High Cook Temperature Offset – (when not in Chef mode)
- Agitator Torque Regulation On/Off
- Maximum Cooker Power

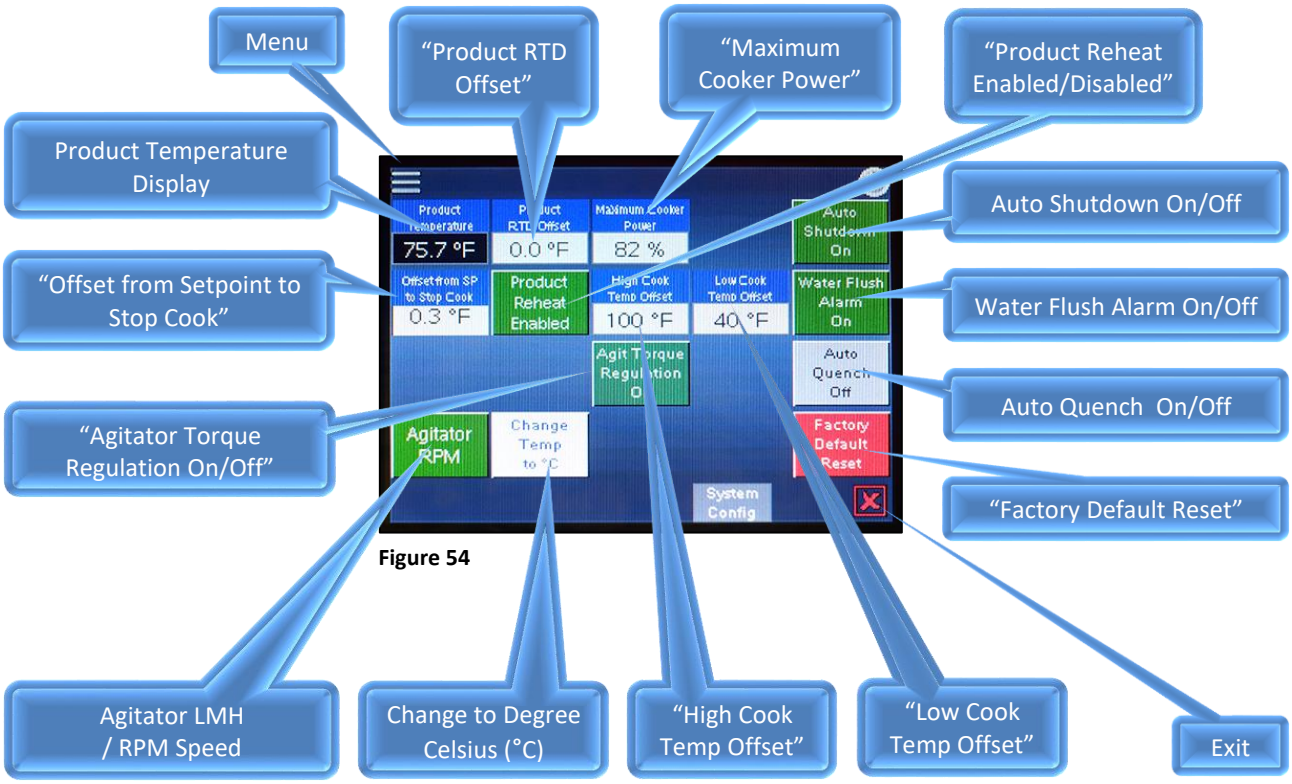


Figure 54

Factory Default Reset

Pressing the **Factory Default Reset** button, Fig. 54, will reset the FM-14 program back to the factory settings. Keep in mind that all **personal settings will be erased** after it is pressed.

Maximum Cooker Power Button/Display

Because line voltage going into a building can vary from location to location, adjust the heater power to compensate. Press the **Maximum Cooker Power** button, where the percentage is displayed, Fig. 54. A numeric keypad screen now pops up. Use the below guideline as to what percent to enter at the numeric keypad screen, and then press the **Enter** button.

208V = 100 percent
220V = 94 percent
230V = 87 percent
240V = 82 percent

Change Temperature to Degree °C Button

The default temperature displays in **Degrees Fahrenheit**. To change all of the displays to read in **Celsius**, simply press this button, Fig. 55. The button will now read **Change Temp to °F**, Fig. 56. To change back to display temperatures in **Fahrenheit**, simply press this button again, Fig. 56.

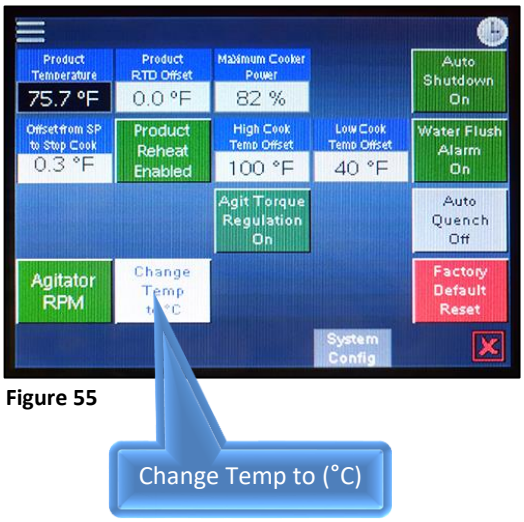


Figure 55

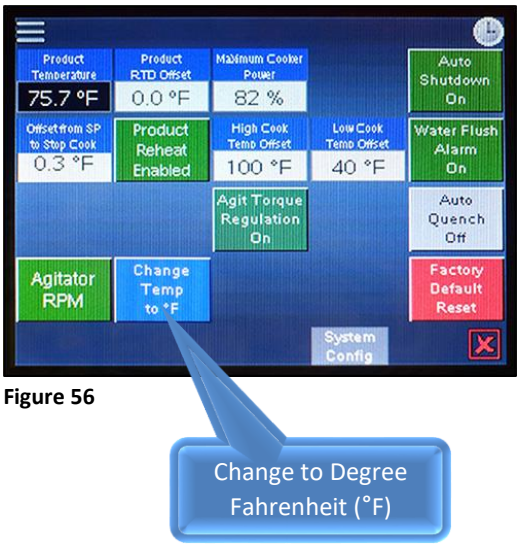


Figure 56

Advanced Settings Popup Menu

To Navigate to the **Popup Menu** on the **Advanced Settings** screen, press on the **Menu** button, Fig. 54.

At the **Popup Menu** on the **Advanced Settings** screen, Fig. 56, the operator can navigate to or change the:

10. VFD Setup screen
11. HMI Brightness screen.
12. Set Date and Time screen
13. System Error Log screen
14. Help/Information

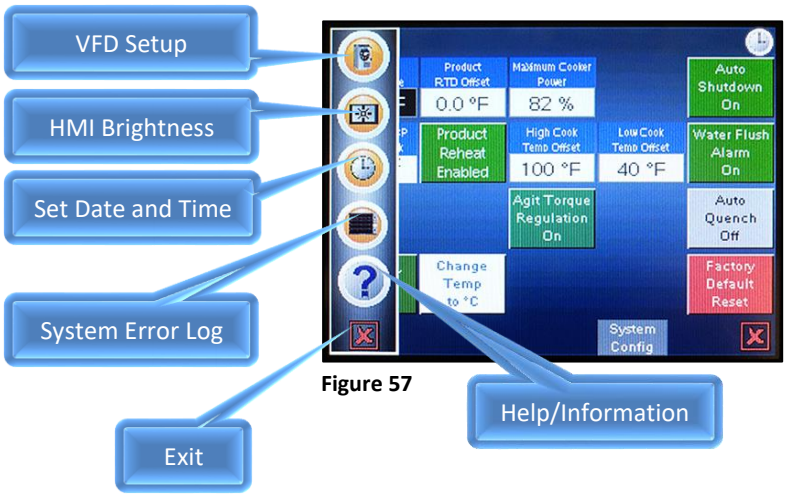


Figure 57

VFD Setup – Advanced Settings

On the **Popup Menu,** on the **Advanced Settings** screen, pressing the VFD Setup button, (Fig. 58) will take you to the **VFD Setup** screen. On the **VFD Setup** screen, (Fig. 59 or Fig. 60), depending on whether Agitator Single Speed or Agitator Low, Medium or High preset speed is selected, the VFD parameters can be changed and the agitator can be tested.

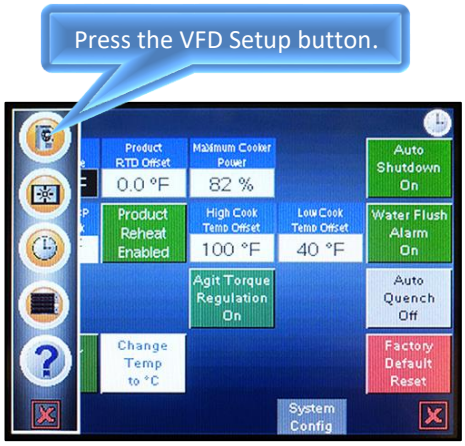


Figure 58

- **Max User Speed** — Maximum working screen (setpoint) agitator speed
- **Min User Speed** — Minimum working screen (setpoint) agitator speed
- **Jog Speed** — Maintenance test speed
- **VFD Speed HSP in Hz and Max in Hz** — Maximum frequency allowed for this motor.
- **Enter Maximum Measured Speed in RPM** — Rpm's that will be used when the motor is operated at maximum frequency.
- **UP/DOWN** speed adjust — Adjust the agitator testing speed.
- **Agitator Test RUN** — Press **RUN** to test the agitator.
- **Agitator Test STOP** — Press **STOP** to end the agitator test.
- **VFD Command** — Value read from the drive.
- **Command Speed in HZ** — The command speed is the actual value (in Hz) that the drive was commanded to run.
- **Forward / Reverse** — The Agitator can run in Forward or Reverse.

15. **Calibration** — The Agitator can be calibrated, if required.

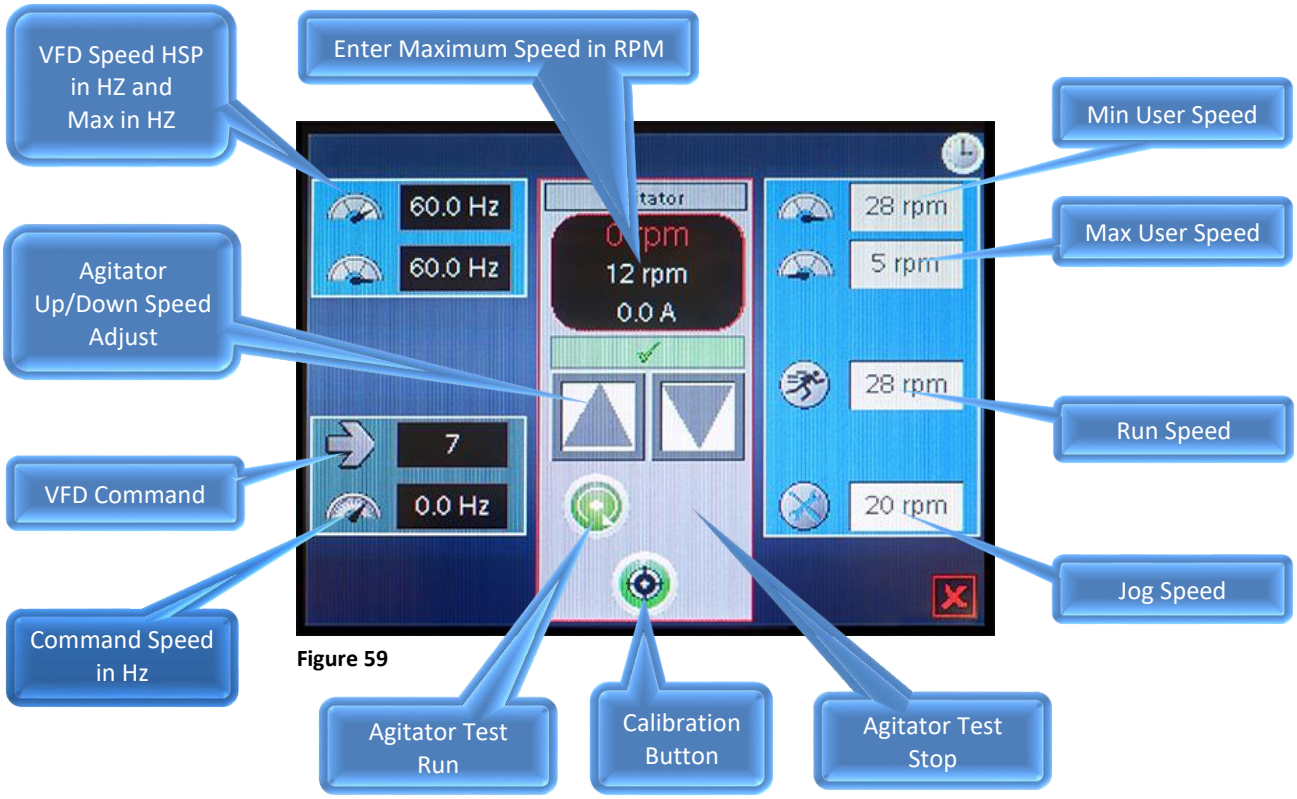


Figure 59

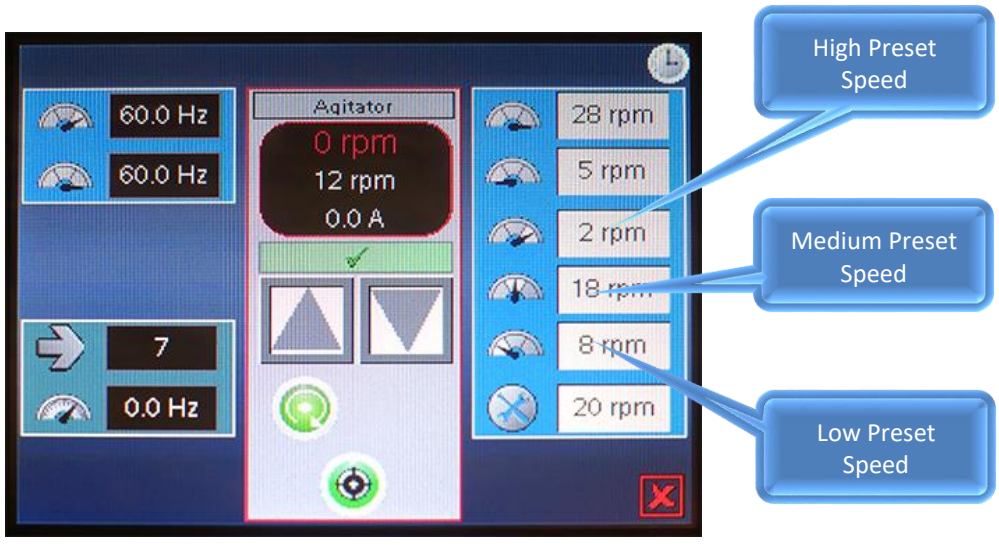


Figure 60

Agitator Calibration

The Agitator has been calibrated in the factory. If calibration is required, press the **Calibration** button, Fig. 61. As soon as you press the **Calibration** button, measure the actual maximum user units of the Agitator, then press on the **Agitator Test Stop** button, (Fig. 62), after which a popup window will appear, Fig. 63. Press on the **Measured Maximum User Units** (black numbers, white background) inside the popup window, after which a keyboard will appear Fig. 64. Enter the **Measured Maximum User Units** and press **Enter** on the keyboard. Press the **Exit** button on the popup window to exit without changes.

Figure 61

Figure 62

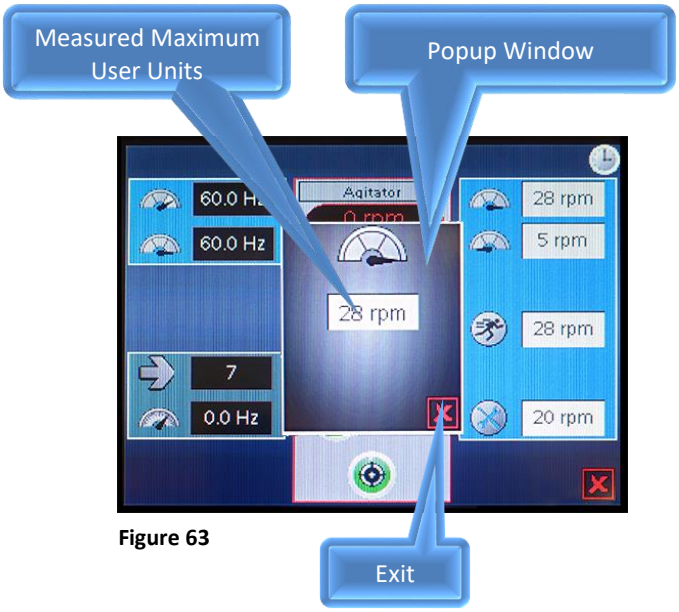


Figure 63

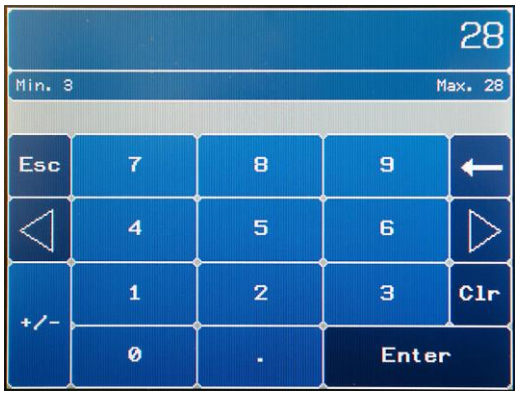


Figure 64

HMI Brightness Button

To adjust the brightness of the display, press the **HMI Brightness** button, Fig. 65, on the **Popup Menu,** on the **Advanced Settings** screen, which will bring up the **HMI Brightness** Popup Window, Fig. 66. Press on the left arrow to lower the brightness or press on the right arrow to increase the brightness, Fig. 66. The maximum level of brightness is 15. After entering the desired level of brightness, press the **Exit** button.

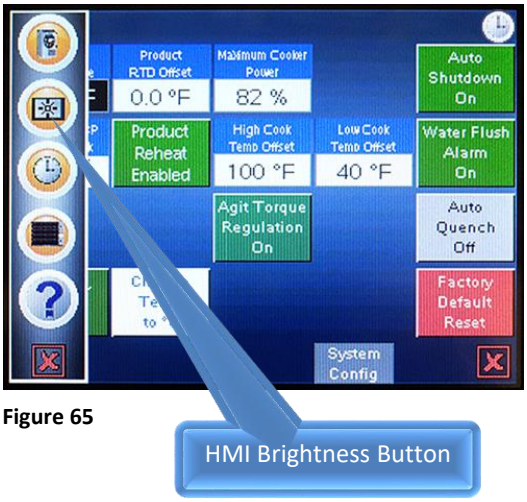


Figure 65

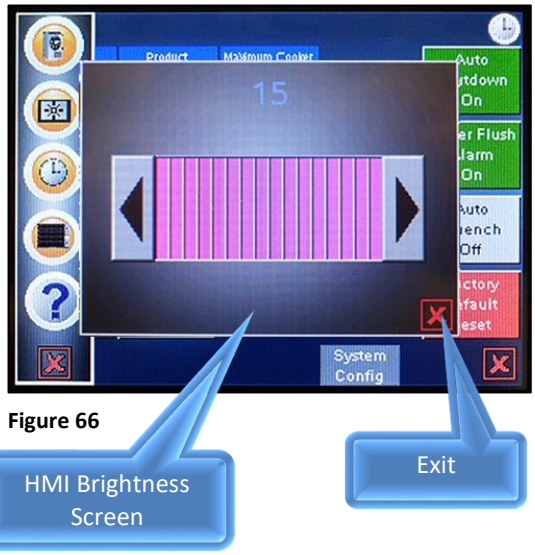


Figure 66

Set Date and Time Button

At the **Popup Menu** on the **Advanced Settings** screen, press on the "Set Date & Time" button, Fig. 67, which will bring up the "Set Date & Time" window, Fig. 68.

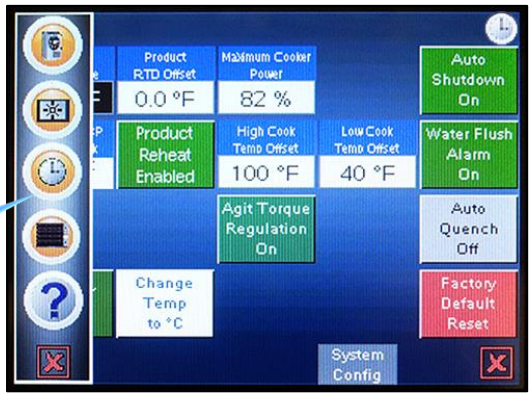


Figure 67

1. To adjust the **Day**, press inside the box (arrow) marked day, Fig. 68.

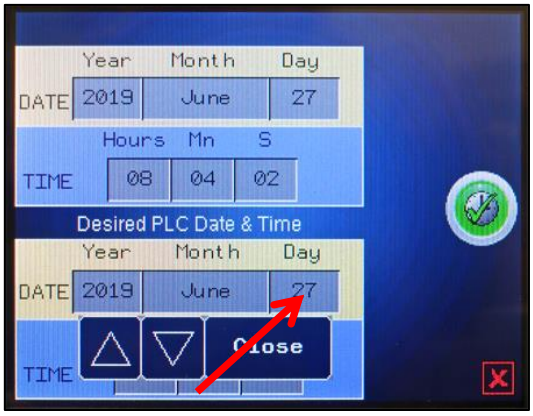


Figure 68

2. A numeric keypad screen now opens, Fig. 69. Type in the day and then press the **Enter** button

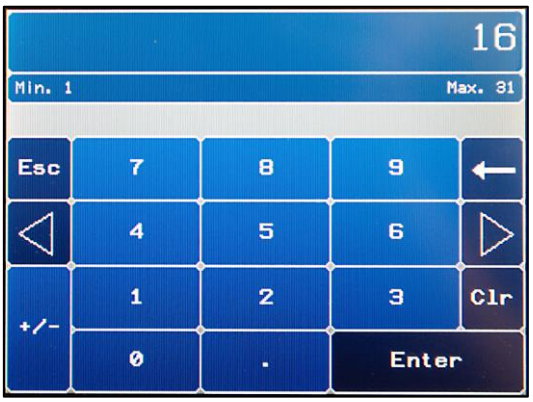


Figure 69

3. To change the month, press inside the **Month** box (arrow), Fig. 70.

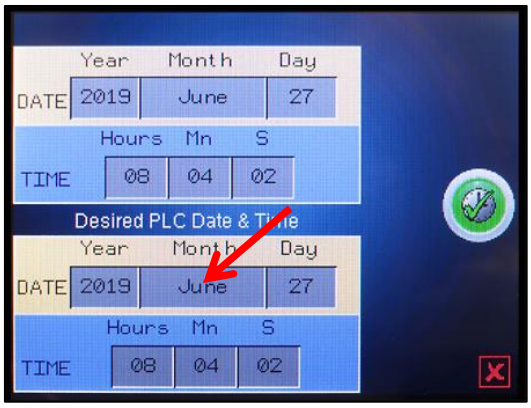


Figure 70

4. A drop-down menu now appears with up and down arrows, Fig. 71. Press either of the arrows until the desired month appears then press the **Close** button. Press the **Accept** button to accept the time change.

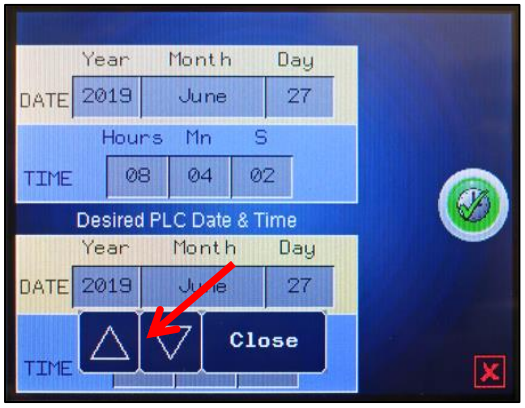


Figure 71

5. To adjust the year, press inside the **Year** box (arrow), Fig. 72.

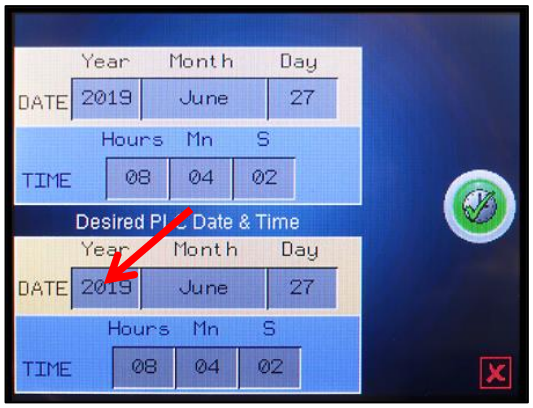


Figure 72

6. A numeric keypad opens, Fig. 73. Type in the desired year, and then press the **Enter** button. Press **Esc.** To exit the screen.

Figure 73

7. Press inside the **Hours box**, Fig. 74 to adjust the hour, and a numeric keypad opens Fig. 75. Type in the desired hours — using military time — and then press the **Enter** button**.**
8. Adjust the minutes and seconds the same way as changing the hours. Press the **Accept** button to accept the date and time changes. Press the **Exit** button to exit without changes.

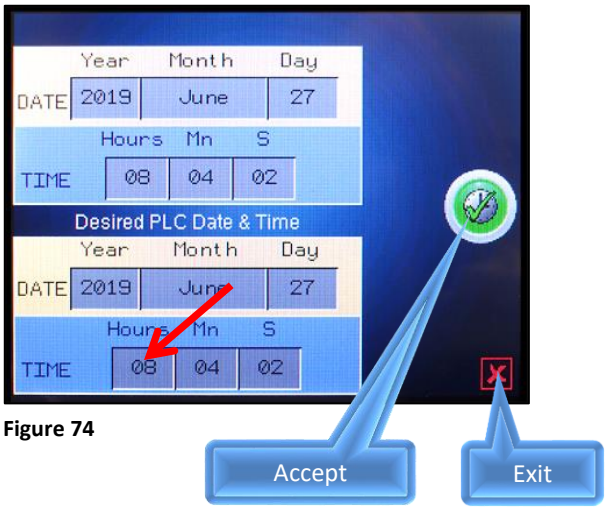


Figure 74

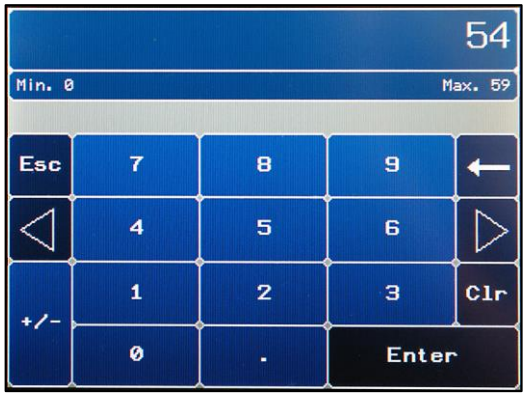


Figure 75

NOTE: When setting the time, this machine uses a 24-hour clock (also known as military time). That means from 1 a.m. to 12 noon, the time entered is just as the time appears on a clock. However, from 1 p.m. to midnight, add 12 to whatever the clock shows. For example: 1 p.m. now becomes 13; 5 p.m. now becomes 17; 9 p.m. now becomes 21 and midnight now becomes 24. After midnight, a new cycle begins and starts at 00. Thus, one minute after midnight now becomes 00 in the **Hours** box and 01 in the **Mn** box.

Product Temperature RTD Offset - Calibrating the Machine

The machine has been calibrated at the factory. The only time you will need to this button, Fig. 52, is to recalibrate your machine because the **Actual Product Temperature** displayed is not accurate or the temperature sensor needs replacement. The occasional need to recalibrate the machine is considered normal. However, if the machine needs *frequent* recalibration, the temperature sensor may be defective. If the temperature sensor is deemed defective or physically damaged and needs replacement, the machine will need recalibration after replacing the temperature sensor.

1. To start the procedure, boil water in the cooker. Because water boils at different temperatures at different elevations — (212°F (100 °C) at sea level and 202 °F (94.4 °C) in Denver, Colorado) — in order to determine the proper boiling point, first find out the elevation of your location. You may search online for the elevation by typing your zip code and the word “elevation”. Once you find the elevation, search online to find out what temperature water boils at your elevation. For example, Chicago has an elevation of 660 feet and the boiling temperature is 210.9 °F (99.39 °C).

2. Touch the **Actual Product Temperature** on the **Cooking Control** screen, after which a popup window will be displayed. In the popup window, touch the **Temperature** D**isplay** (white numbers) to display the on-screen numeric keypad. Using the keypad, Fig. 76, type in a temperature much higher than the boiling point for your elevation (for example, 220 °F or 104.4 °C), then press the **Enter** button which closes the window and then press the **Accept** button on the popup window. Press the **Exit** button to exit without changes.

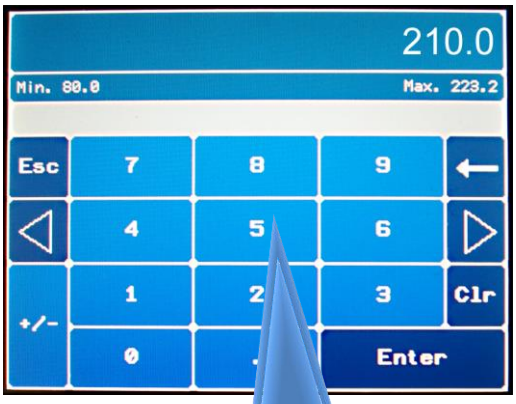


Figure 76

3. Pour clean tap water into the cooker.

4. Press the **Cook Cycle Start** button, which turns the heating element on, Fig. 77. When **Coo**k is in the **On** position, the background on the Cook Cycle On/Off button is red.

5. Wait for the water to boil, and then write down the temperature at which the water starts to boil.

6. When the water boils, press the **Cook Stop** button) (Square), Fig. 62, and it will revert to **Stop** with green background.

7. At the **Cooking Control** screen, press the **Menu** button, and then follow the password prompts to open the **Advanced Settings** screen, refer to pages 27 through 28.

Figure 77

8. You will need to do some basic math to determine the **Product Temp RTD Offset** number to enter:

   - **If using the Fahrenheit scale:** (examples)
     If the water boiled at 210 **°**F, subtract 210 from 212 and the offset is -2. If the water boiled at 202 **°**F, subtract 202 from 212 and the offset number is -10. However, if the water boiled at 214 **°**F, subtract 212 from 214 and the offset would +2… and so on.

9. Press the **Product Temp / RTD Offset** button, Fig. 78, to open the numeric keypad.

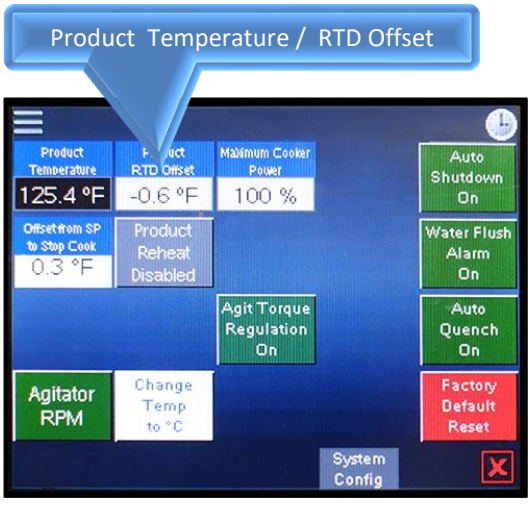


Figure 78

10. Using the on-screen numeric keypad, Fig. 79, type in the offset number. If the offset is a minus (-) number, press the **+/-** button so that the (-) sign appears on the display. However, if the offset is a positive number, no symbol will appear before the offset number. Press the **Enter** button.

11. The machine is now calibrated.

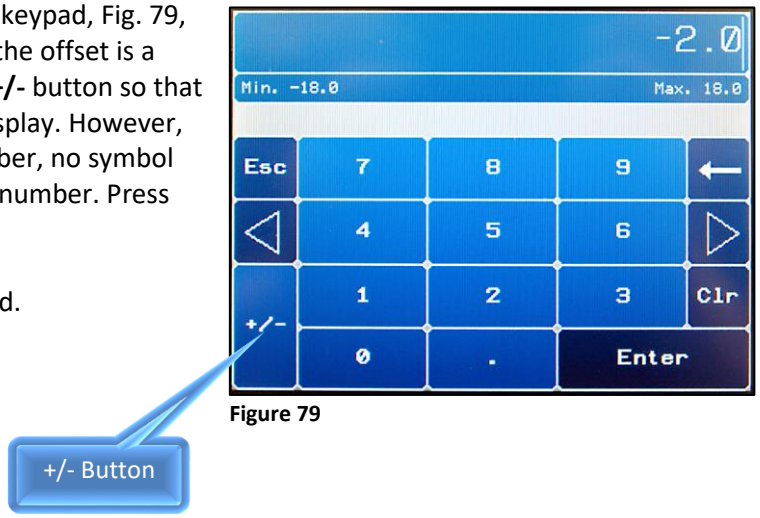


Figure 79

High (Fast) Cook Temperature Offset and Low (Slow) Cook Temperature Offset

The **High (Fast) Cooking Temperature Offset** is used to set the **cooker heater/cooking setpoint** (<= 435 °F (224 °C). For example, if the product setpoint is set for 225 °F (107 °C) and High (Fast) Cook Temperature Offset is set for 150 °F (83 °C), the cooker temperature setpoint will be 375 °F (191 °C).
To adjust, press the **High (Fast) Cook Temperature Offset button,** on the Advanced Settings Screen, Fig. 79.

The **Low (Slow) Cook Temperature Offset** is used to set the **cooker heater/cooking setpoint**. For example, if the product setpoint is set for 225 °F (107 °C) and Low (Slow) Cook Temperature Offset is set for 50 °F (28°C), the cooker temperature setpoint will be 275 °F (135 °C).

To adjust, press the **Low (Slow) Cook Temperature Offset** button, on the Advanced Settings Screen, Fig. 80.

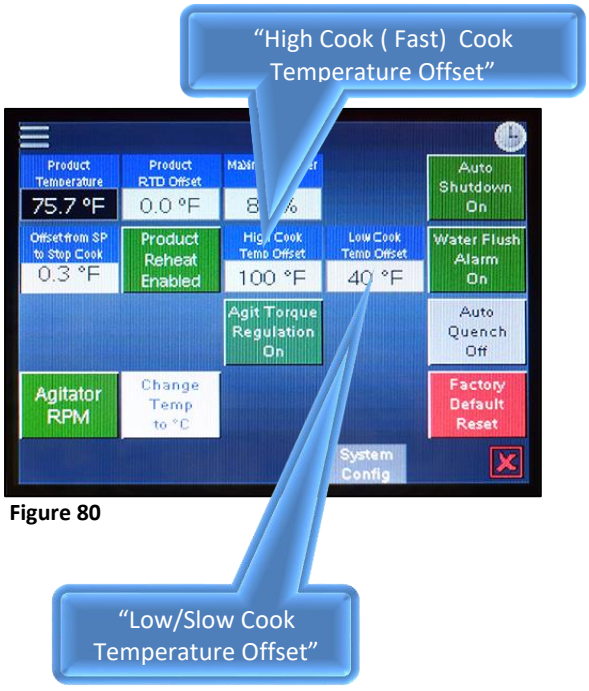


Figure 80

System Error Log Screen

At the **System Error Log** screen, Fig. 81, the Error Log can be viewed. Pressing **Exit** will take you back to the **Advanced Settings** screen**.**

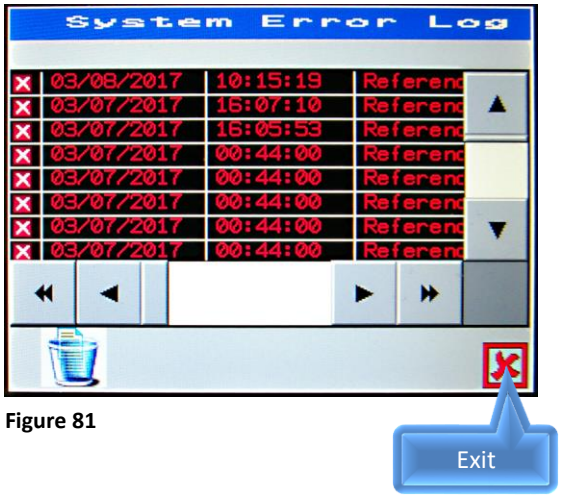


Figure 81

Auto Shutdown

The **Auto Shutdown** function can be turned On or Off by pressing the **Auto Shutdown On/Off** button, Fig. 82, for more details, refer to “AUTO SHUTDOWN”, Pg. 18.

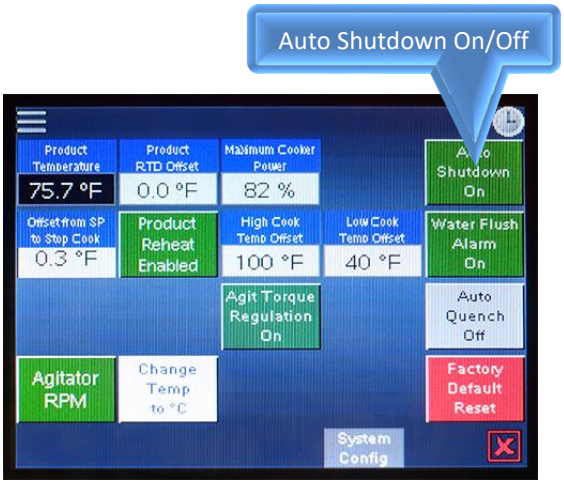


Figure 82

Help / Information Screen

At the **Cooking Control** screen, , press the **Help/Information** button, Fig. 83 to bring up the screen. At this screen press the **Information Button**, Fig. 84. The **Information** screen now appears, Fig. 85. If you call in for service, you will need to know the machine name, program name and password. You may also need to know the options code when you call in.

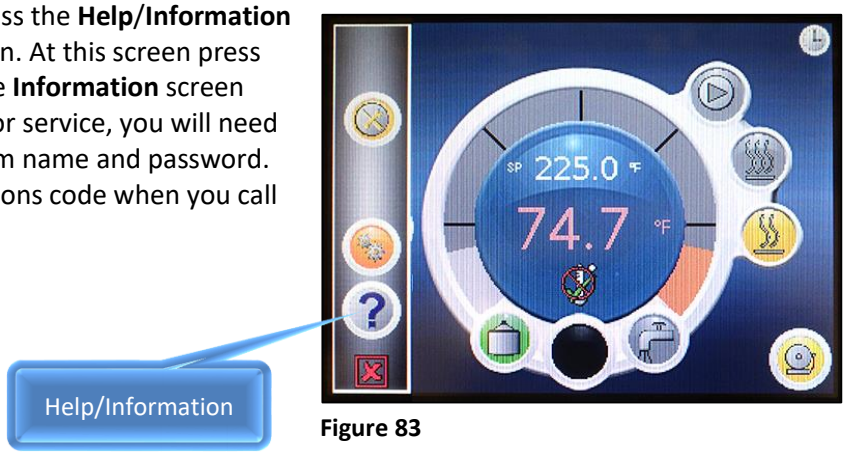


Figure 83

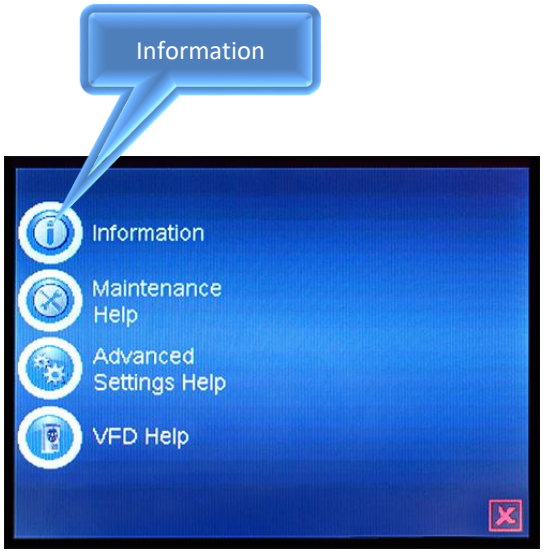


Figure 84

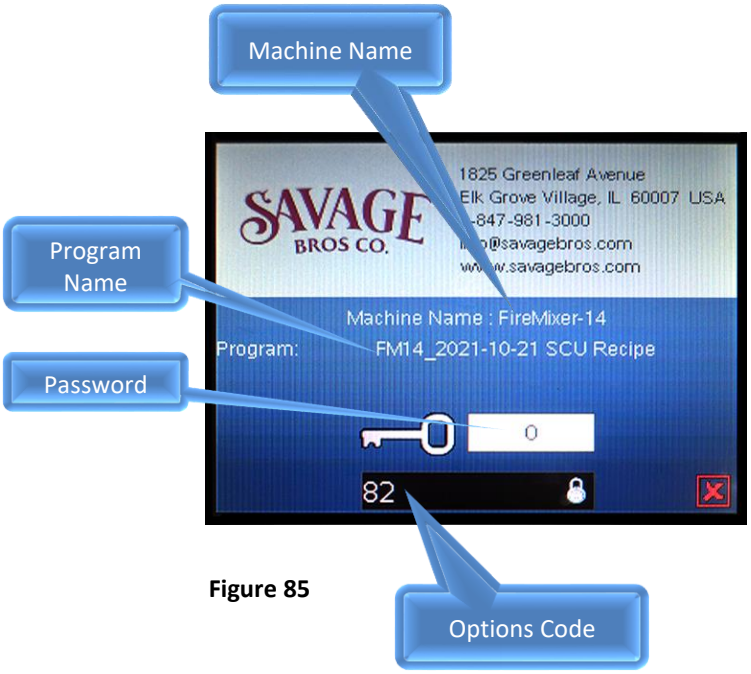


Figure 85

On the **Help/Information** screen, Fig. 83, press any of the **Help** screens to obtain help on a particular subject and a help screen will appear, Fig. 86.

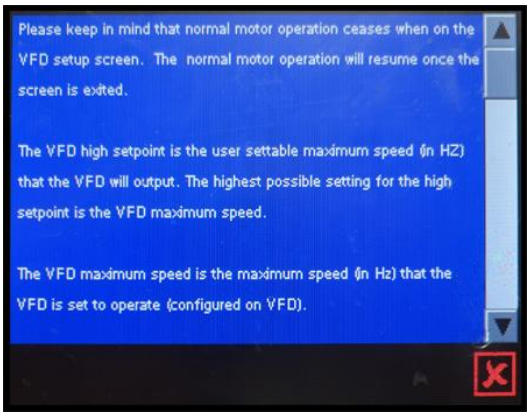


Figure 86

COOKING A BATCH

LOAD THE COOKER

- Before loading the cooker with ingredients: The cooker must be in the fully non-tilted (level) position, the lever engaged into the first slot (arrow), Fig. 87.
- Depending on the recipe, heat and agitation may or may not be required. Heat and agitation are independent of each other, offering the operator total flexibility in cooking.

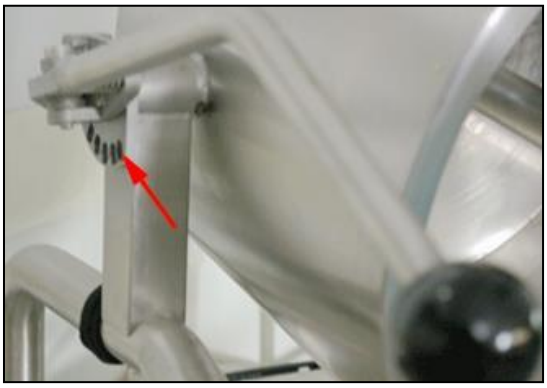


Figure 87

PROGRAM THE TEMPERATURE

- Establish both the product temperature setpoint and the cooker max temperature.
- **The cooker temp (setpoint) MUST be set higher than the product setpoint in order to cook.**
- The temperature differential from cooker maximum temperature and product setpoint will depend on the product being cooked. There are two preset cooking offset temperatures, which are **Low Cook and High Cook.** They are adjustable on the Advanced Settings screen.
- Select **Low Cook** or **High Cook** on the Cooking Control screen, depending on product.
- Refer to Figure 88 below for **Low Cook / High Cook** explanation and examples.

Low Cook Confections:		
Low Cook Explanation	**Products**	**Examples**
Any candy that cooks less than 250°F (121°C) degrees, or a cook that needs to be gentle.	caramels, fudges, ganache, gummies, jellies	For caramel and fudge, higher cooking time is required, therefore, set the Cook Temperature 40°F (4.44°C) hotter than the Product Temperature Setpoint.

High Cook Confections:		
High Cook Explaination	**Products**	**Examples**
Any candy that is 250°F (121°C) degrees and higher.	peanut brittles, hard candy	For toffee and brittle, shorter cooking time is required, therefore set the Cook Temperature 100°F (38°C) hotter than the Product Temperature Setpoint.

Figure 88

HEAT AND AGITATE

- If you turn off the heat and then turn the heat on again, the heater will resume heating the product until the **Product Temp** setpoint is attained.
- For a more thorough "mix and fold" action, operate the cooker in a partially tilted position. Tilt the cooker and lock into one of the first two indent positions. You may need to reduce the batch size to prevent spillage while cooking. Note that position 3 will deactivate the heater.

⚠CAUTION

WEAR PERSONAL PROTECTIVE EQUIPMENT AND USE CAUTION WHEN TILTING THE COOKER. WHEN THE COOKER IS TILTED, THE BATCH SIZE MAY NEED TO BE REDUCED IN ORDER TO PREVENT SPILLING OF PRODUCT THAT MAY BE 300+ °F ONTO YOURSELF, WHICH WOULD CAUSE BURNS.

WATER-FLUSH AT COOKING CYCLE END

- The cooker retains heat after turning off the heater, causing the batch to continue to cook beyond what is desired. You have two ways to counter this effect:
  - **Anticipate** the temperature rise and program a temperature setpoint below the final temperature required.
  - Use the **Flush Open** button on the **Cooking Control HMI** screen to **Water Flush** the heating element. Additionally, adjust the water flow by opening the water valve (blue handle), Fig. 89. As cold water flows into the cooker, the water absorbs the heat and carries it away. Adjust the water valve for incoming water pressure. If water pressure is low, open the valve more. Experience will teach at what point in time and at what flow rate will achieve the desired effect. When valve handle is in line with hose, water is fully on Figure 87 shows the water partially turned off. You can regulate the water flow rate by partially opening the valve.

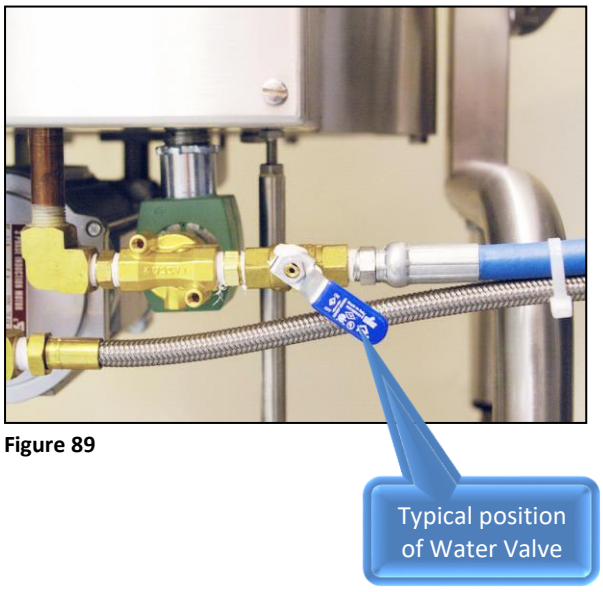


Figure 89

If you prefer the water flush method, attach a hose from an external cold water source — i.e. a sink faucet — to the machine's blue hose.

NOTE: The drain hose must remain open to the atmosphere to avoid pressurizing the cooker. Position the open end of the drain hose into a sink (refer to NOTE, Page 8).

UNLOADING PRODUCT FROM THE COOKER

1. Turn the **heat and agitator OFF**.
2. If your machine has the optional Lid-Off Agitator Stop Interlock Switch (outside of U.S.A. only): Removing the lid from the cooker turns off the agitator.
3. **TILT THE COOKER** to pour out or spoon out product. Pull the tilt lever — which is on the left side of cooker — downward, Fig. 88. The tilt lever has five (5) locking positions for holding the cooker at various angles. The first locking indent (1 arrow) locks the cooker in the full upright position.
4. Tilting the cooker past the third locking indent, Fig. 90, automatically turns OFF the agitator and heat as a safety precaution.

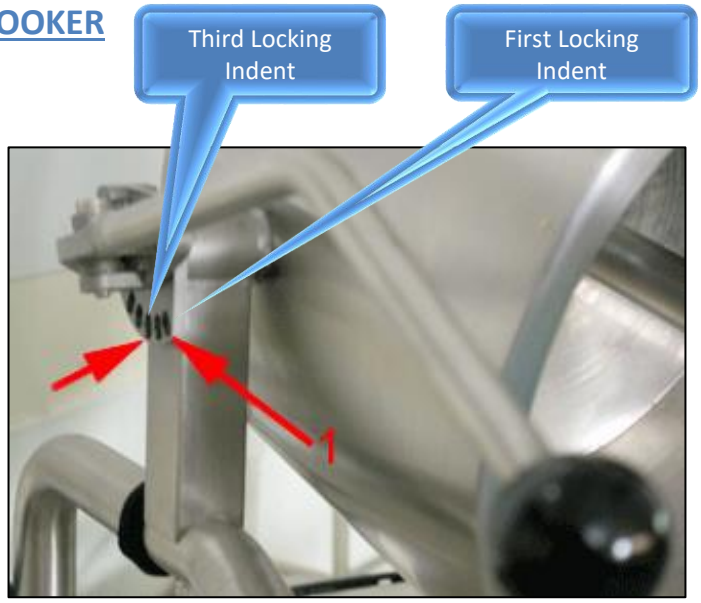


Figure 90

⚠CAUTION

WEAR PERSONAL PROTECTIVE EQUIPMENT AND USE CAUTION WHEN TILTING THE COOKER. WHEN THE COOKER IS TILTED, THE BATCH SIZE MAY NEED TO BE REDUCED IN ORDER TO PREVENT SPILLING OF PRODUCT THAT MAY BE 300+ °F ONTO YOURSELF, WHICH WOULD CAUSE BURNS.

DRAW-OFF VALVE. Instead of tilting the cooker to pour out the product, an ***optional*** draw-off valve is available, contact the Savage Bros. Co. parts department, Fig. 91. This valve regulates the product flow from the cooker.

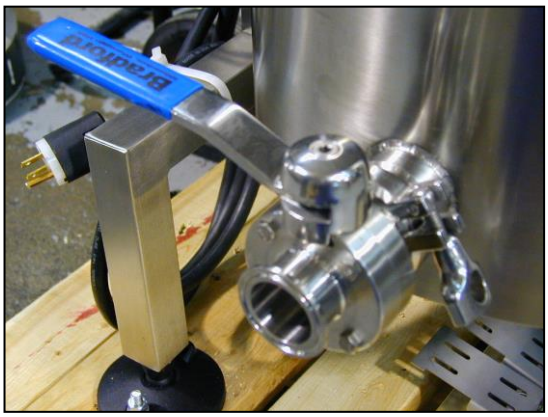


Figure 91

CLEANING THE COOKER

Cooker Cleaning

1. The easiest method to clean the cooker is to “cook” it clean. Fill cooker with water to a level above the agitator scrapers.
2. **BOIL water in the cooker (with the lid on).**
3. Run the agitator for 10 minutes. These steps will soften any product that may have accumulated on the cooker surface or agitator scrapers.
4. Pour out water with softened product from cooker.
5. If needed, use a copper scraper or other non-abrasive scraper to remove product that was not removed by boiling the water and running the agitator in step 1.
6. Clean the inside of the cooker with Scotch-Brite or 3M, non-abrasive scrubber. It is recommended to scrub around the cooker with the direction of the grain.
7. Rinse leftover residue with water then pour out.

Agitator Cleaning

The agitator can be easily removed from the motor shaft for cleaning or changing. Notice that the hub at the top of the agitator shaft has a large pin, Fig. 92. Pull the pin out and then lift up the agitator. After removing the agitator, place it on a flat surface, with the front part of the bronze, bottom scraper facing you, Fig. 93. The nylon scrapers of the agitator may be more thoroughly cleaned by removing them. To remove, turn them to the point where their notches clear the pin on top of their shaft and lift them out.

Next, clean and rinse the metal agitator with bronze scraper and plastic scrapers with a Scotch-Brite or 3M, non-abrasive scrubber and if detergent is required, only use Dawn dishwashing liquid. After cleaning all parts, reinstall them, reversing the direction of removal, making sure the writing on the nylon scrapers is facing you.

After reinstalling the agitator, push the pin back in place.

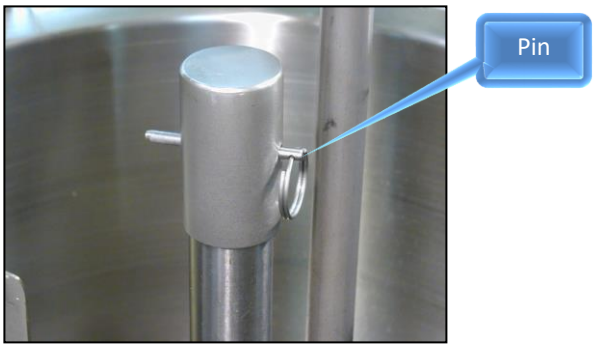


Figure 92

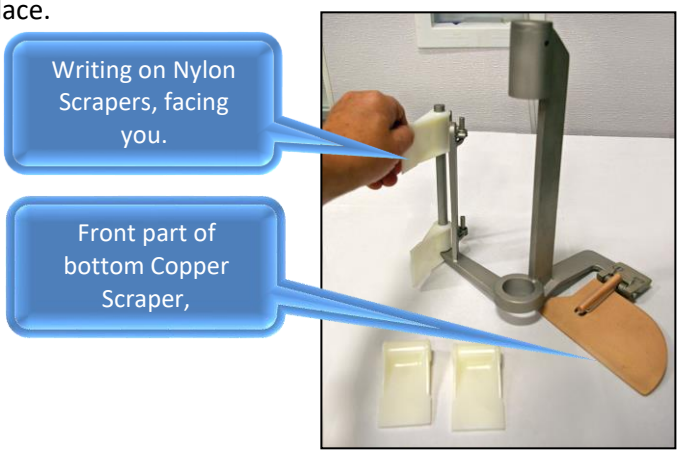


Figure 93

Exterior

Use only a damp cloth to clean the cooker exterior. The cooker is not watertight so should **not** be “washed down” with a pressurized hose. Be particularly cautious of the temperature controller when cleaning the cooker.

MAINTENANCE

Lubrication		
Item	**Service Action**	**Frequency**
AGITATOR GEARMOTOR	The agitator motor and gearbox on this unit is a sealed unit and has been pre-lubricated. There is no further lubrication required.	N/A
Inspection		
Item	**Service Action**	**Frequency**
AGITATOR	Inspect the scrapers for chips or cracks and excessive discoloration. Inspect the springs. Replace as required.	Weekly
COOKER	Inspect all moving and wearable parts of the FM-14 Cooker.	Biweekly

Main Control Box

⚠WARNING

IN ORDER TO PERFORM SERVICE AND MAINTENANCE, ONLY CERTIFIED ELECTRICAL TECHNICIANS SHOULD OPEN THE MAIN CONTROL BOX.

In the event that service such as resetting circuit breakers is required inside the main control box, Fig. 94, first disconnect the machine's electrical power cord from the electrical outlet. Loosen the two cam latches with a flat head screwdriver and open it. Do not touch any electrical wires inside the main control box. If needed, refer to the Electrical Schematics section.

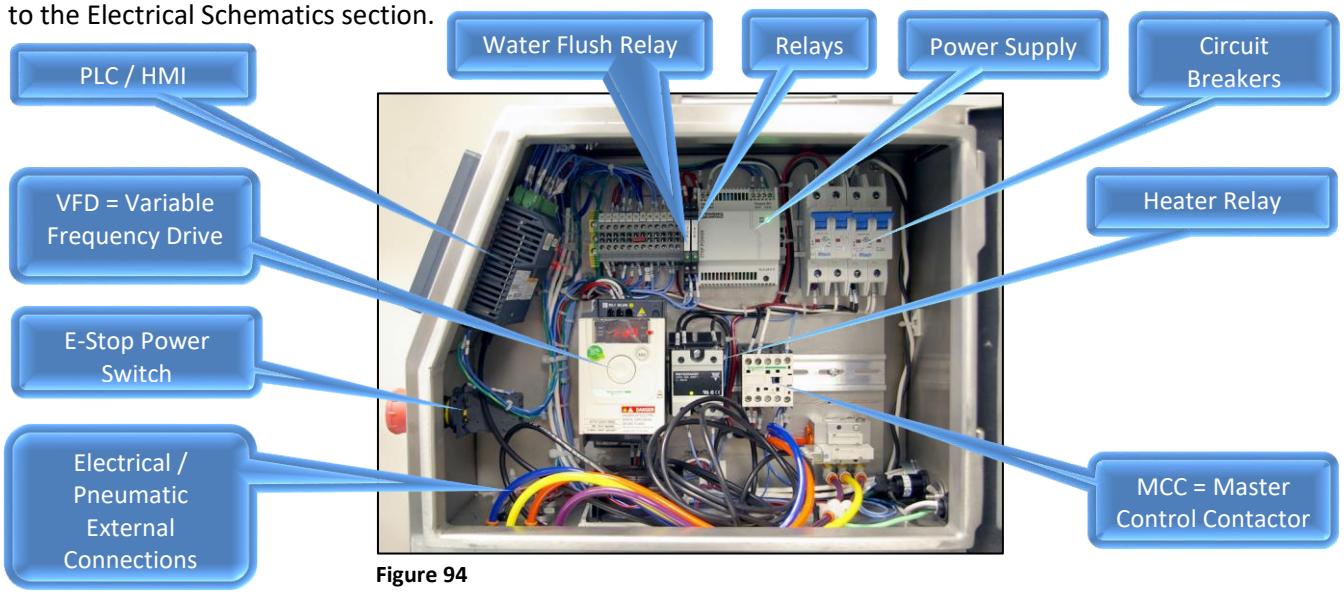


Figure 94

TROUBLESHOOTING

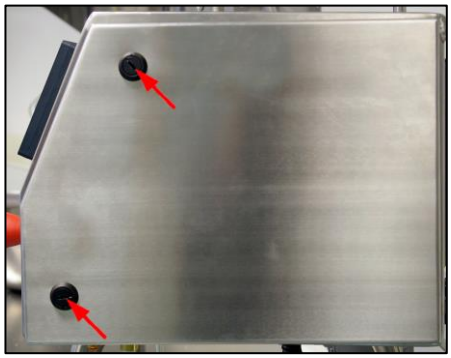
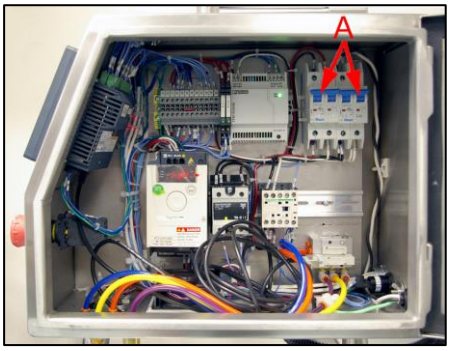
TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
PRODUCT TEMPERATURE DISPLAY INACCURATE	Temperature sensor is not inserted sufficiently into the product.	1. Make sure the tip of the temperature sensor is at least 1 in. into the product. If the sensor tip is not at least 1 in. into the product, increase the batch size.
		2. Verify that the product temperature on the control panel display is inaccurate. Insert an external thermometer into the product and compare the reading to the product temperature display on the control panel. *Ensure that the external thermometer used to check the product temperature is accurate.* If the temperature on the external thermometer differs from the control panel display, recalibrate the machine. See pages 37 through 39 to calibrate the machine.
	Temperature sensor is not calibrated properly.	3. Boil water in the cooker. While observing the control panel display, see if the water boils at the same temperature as it has in the past. If the water does not boil at the same temperature, recalibrate the machine. See pages 37 through 39 to calibrate the machine. If the problem continually persists, call Savage Bros.
OVERCOOKING / PRODUCT SCORCHING	Cooker maximum temperature is set too high.	1. Check the cooker maximum temperature. If set too high, the bottom skin of the cooker may become too hot too fast. The correct settings can be determined by trial and error, as they will vary with confection recipes.
	Product is building up on the temperature sensor.	2. STOP the agitator and use a spatula to remove product from the sensor tip. *Be careful not to damage the sensor tip, which is glass encapsulated and is sensitive*.
	Agitator may not be operating properly or scrapers out of adjustment.	3. Be certain the agitator is operating, and the scrapers are just touching the bottom and walls of the cooker. If the bottom, bronze scraper needs adjustment (high spot), remove the agitator from the motor shaft. Place the scraper on a piece of wood for support and tap the scraper with a hammer.

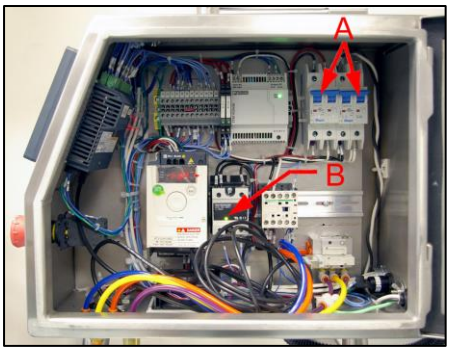
TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
OVER COOKING / TEMPERATURE CONTINUES TO RISE AFTER SHUTOFF	A certain amount of heat is retained within the heating space below the cooker.	The cooker is a highly efficient appliance. It is possible that even after the heat has been turned off and water flushed, the amount of heat that is retained within the heating space below the cooker is sufficient to cause product to continue to cook. 1. Set the program to Program a lower product temperature setpoint and/or cooker setpoint to turn off the heater sooner. 2. Turn the water of the Water-Flush feature on sooner in the cooking process.
TILT SWITCH INOPERATIVE At the **MAINTENANCE SCREEN**: the tilt switch failed to engage and disengage during the test.	Possible causes: 1. Misadjusted switch. 2. Magnet misaligned. 3. Magnet missing. 4. Defective switch.	Readjust and realign the switch and magnet. Call Savage Bros. to assist with the diagnosis. Align the magnet. Install the magnet. Replace the defective switch. Call Savage Bros.to assist with diagnosis.
TANK WATER FLUSH INOPERATIVE At the **MAINTENANCE SCREEN**: Water not heard running after pressing the **TANK WATER FLUSH** button. A distinct click not heard when pressing the **TANK WATER FLUSH** button.	The manual water valve has not been opened.	Open the manual water valve.
	The solenoid regulating the water may be defective.	The solenoid regulating the water may need to be replaced. Call Savage Bros. to assist with further diagnosis.
	The water flush relay may be defective.	The water flush relay inside the main control box may need to be replaced (refer to “COOLING TEST”, Pg. 29 for testing the flush). Refer to Fig. 73 for location of the water flush relay (1CR). Normally, the LED on the water flush relay turns bright when the “COOLING TEST” is on. Call Savage Bros. to assist with further diagnosis.

TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
AUDIBLE ALARM NOT HEARD At the **MAINTENANCE SCREEN:** An audible alarm cannot be heard after pressing the **AUDIBLE ALARM TEST** button.	The alarm/speaker may be defective.	The alarm/speaker, located at the lower rear of the control box, may need to be replaced. Call Savage Bros. to assist with the diagnosis.
HEATER INOPERATIVE At the **MAINTENANCE SCREEN**: While testing that the heater works, by pressing the **HEATER JOG** button, the temperature does not display an increase. **NOTE: the HEATER JOG** button is a momentary switch, meaning that as long as the user presses the button, the electrical circuit remains active and the device operates. Once the user removes pressure from the switch, the electrical circuit de-activates and the device being tested will stop operating.	The heater is not in the heating cycle.	To determine that the heater works, make sure heater is in heating cycle.
	The circuit breakers (inside the main control box) may be tripped.	Disconnect the machine's electrical power cord from the electrical outlet. Loosen the two cam latches on the face of the control box (arrows) with a flat head screwdriver, Fig. 95, and open it. Be careful not to touch any electrical wires inside the main control box. Visually inspect if all circuit breaker levers are pointed up (arrows), Fig. 96-A, indicating the circuit is on. However, if the circuit breaker levers are pointed down, flip them up to reconnect power to the circuit.  **Figure 95**  **Figure 96**

TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
HEATER INOPERATIVE (continued)	The heater relay may be defective.	Visually inspect if all circuit breaker levers are pointed up (arrows), Fig. 97-A, indicating the circuit is on. If the circuit breaker levers are pointing up, and the heater is inoperative, the heater relay, (arrow) Fig. 97-B may be defective. Normally, the LED on the relay for the heater turns bright when the heater is on. Call Savage Bros. to assist with further diagnosis.  **Figure 97**
	The heater coil may be defective.	The heater coil may need to be replaced. Call Savage Bros. to assist with the diagnosis.
	The E-Stop Power Switch may be defective.	Replace the E-Stop Power Switch, if it is determined to be defective. Call Savage Bros. to assist with the diagnosis.
	The **TANK WATER FLUSH** is on.	To properly determine if the heater is working or not, make sure that the **TANK WATER FLUSH** is not on.

TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
AGITATOR DOES NOT ROTATE	1. The agitator control circuit breaker is tripped. **MODBUS COM ERROR** is displayed on the screen.	Disconnect the machine's electrical power cord from the electrical outlet. Loosen the two cam latches on the face of control box (arrows) with a flat head screwdriver, Fig. 95, and open it. Be careful not to touch any electrical wires inside the main control box. Visually inspect if all circuit breaker levers are pointed up (arrows), Fig. 97-A, indicating the circuit is on. However, if the circuit breaker levers are pointed down, flip them up to reconnect the circuit. When the unit is on and a VFD fault occurs, on the Cooking Control screen, press on the "Agitator High Torque Alarm" display at the top of the HMI screen to acknowledge it, reset the agitator VFD and cancel the "Alarm" condition, otherwise it will time out and will no longer be displayed, Fig. 98.
	2. The communication cable to the VFD is not fully connected.	Fully connect the communication cable to the VFD.
	Too much product or product is too thick (not melted) sufficiently, resulting in a "torque limit" (Overload) condition which will cause the VFD to drop out. The following are two overload conditions: 1. Time over current 2. Instantaneous current limit	1. Do not overload unit with product. 2. Melt product sufficiently before turning on the agitator. 3. Reset the VFD, following on screen commands.

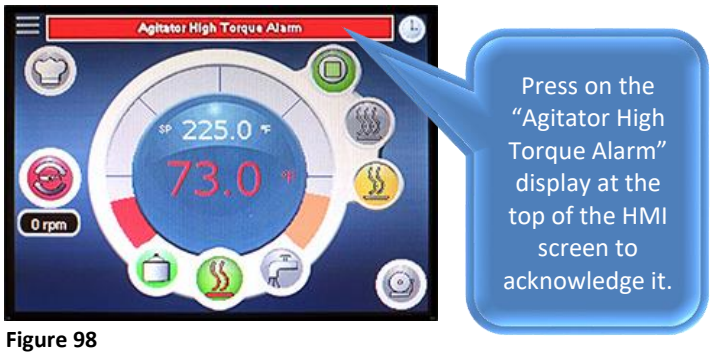


Figure 98

TROUBLESHOOTING (CONTINUED)

PROBLEM	CAUSE	SOLUTION
AGITATOR DOES NOT ROTATE (continued)	The VFD needs to be reset.	1. Reset drive by unplugging the machine and plugging it back in after ten seconds. 2. Press on the E-Stop button to reset the VFD. To advance to the next screen, wait for ten seconds then pull out the **E-Stop** button (refer to Pg. 9).

WARRANTY POLICY

Savage Bros. Co. machinery includes a warranty for a one year period from delivery of equipment for all parts and for all labor performed in our shop. Exceptions to this policy are:

- Damage to equipment from improper usage. Improper usage includes tank damage due to water pressurization.
- Damage to equipment due to improper handling by the freight carrier.
- Local acquisition of parts or labor. However, this situation may be allowed under terms of the warranty but must be approved in writing by Savage Bros. Co. before acquisition of parts or labor.

Obtaining Replacement Parts During the Warranty

1. Notify Savage Bros. Co. of the defective part needing replacement.
2. Savage Bros. Co. will invoice and ship the part to the customer based on the customer's established credit terms with us (i.e. net 30). Savage Bros. will absorb the cost of ***standard transportation***. If priority transportation is requested, the customer shall be responsible for the cost in full.
3. If Savage Bros. Co. requires the defective part to be returned for warranty examination, Savage Bros. will notify the customer. Upon receipt and inspection of the defective part, either a full credit for the invoiced replacement part and shipping will be issued under the terms of the warranty, or the customer will be advised as to the reason the warranty cannot be honored.
4. If the defective part does not need to be returned, the invoice for the replacement part will include the full credit.
5. In most instances, parts are designed to be installed by the user. At the option of Savage Bros. Co., it may authorize the customer to obtain local installation service assistance. If necessary, labor for part installation is determined to be warranty, Savage Bros. Co. will reimburse the customer for fair and reasonable charges.
6. Any acquisition of parts or labor directly by the customer will not be honored under the terms of this warranty unless approved in advance by Savage Bros. Co.

It is the goal of Savage Bros. Co. to manufacture quality, reliable machinery. Should a part failure occur, we pledge to expedite a solution as quickly as possible to minimize any inconvenience to the customer.

MECHANICAL DRAWINGS, PARTS LISTS & Etc.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	2410-01	LEFT HANDED TILT BASE
2	1	2400-05	SHELL WELDMENT 50# COOKER
3	1	2400-07-200	MOTOR MOUNT PLATE WELDMENT
4	1	2400-07-101	SUMITOMO MOTOR SHAFT ASM
5	1	2400-14-100	50#COOKER TEMP PROBEHOLDER WELDMENT
6	1	2400-10	50# COOKER AGITATOR ASSY
7	1	2400-14-203	KETTLE PROBE-NSF CABLE ASSY
8	1	2400-21-102	FM14 HEATING ELEMENT 3000W - 208VAC
9	1	2400-07-021	INSULATION - ELEMENT TO CLAMP
10	1	9700-20-153	SHAFT COLLAR, 3/4", SS303
11	2	9200-60-117	3/16" X 2" QUICK RELEASE
12	1	9300-83-002	Z CLAMP 1-1/2
13	1	9700-60-929	O RING AS568A-023 VITON
14	1	9600-01-013	RTD - TEMPS SENSOR W/ 16" LEADS
15	1	2400-11-019	SOLIDSTATE RELAY HEATSINK
16	1	2400-11-021	BACK COVER
17	1	2400-01-100	50# COOKER LID ASSY

MAT.
PER PART

FIN.
-

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES
TOLERANCES ARE
1/X = ±1/16
.X = ±.1
.XX = ±.02
.XXX = ±.005
.XXXX = ±.0005
ANGLES = ±0.5°
SURFACE FINISH = 125 MIC. IN
BREAK AND DEBURR ALL EDGES

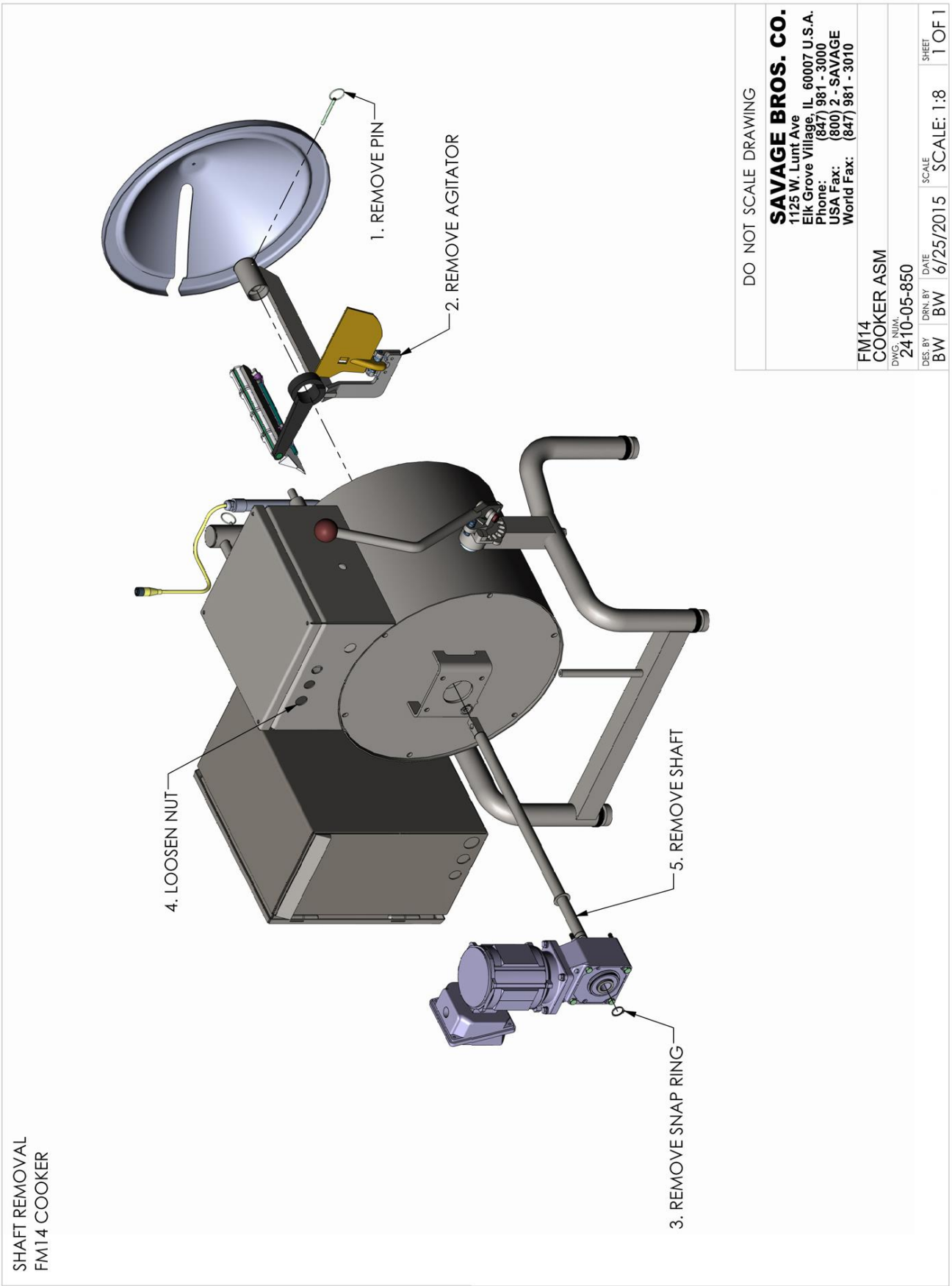
DO NOT SCALE DRAWING

SAVAGE BROS. CO.
1125 W. Lunt Ave
Elk Grove Village, IL 60007 U.S.A.
Phone: (847) 981 - 3000
USA Fax: (800) 2 - SAVAGE
World Fax: (847) 981 - 3010

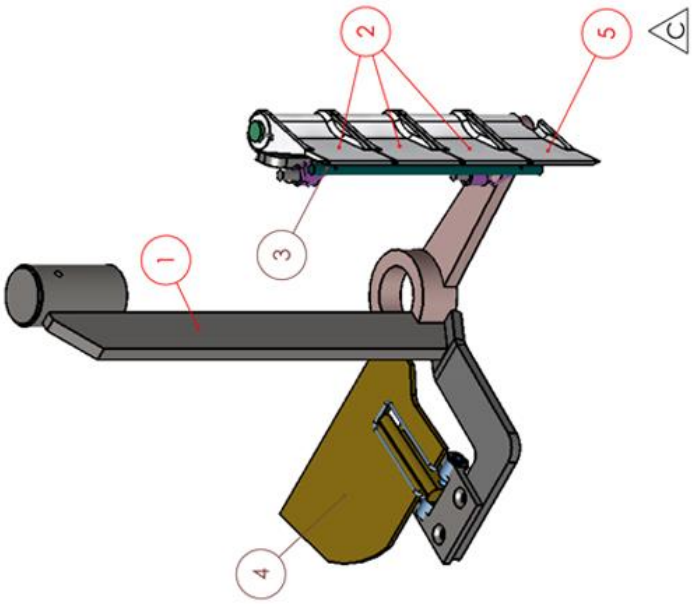
FM14
COOKER ASM

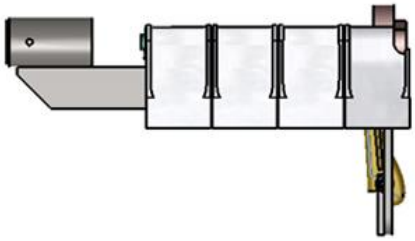
DWG. NUM.
2410-05-850

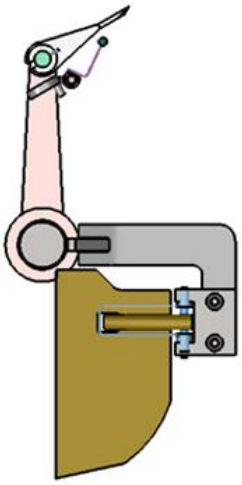
DES. BY	DRN. BY	DATE	SCALE	SHEET
BW	BW	6/25/2015	SCALE: 1:12	1 OF 1

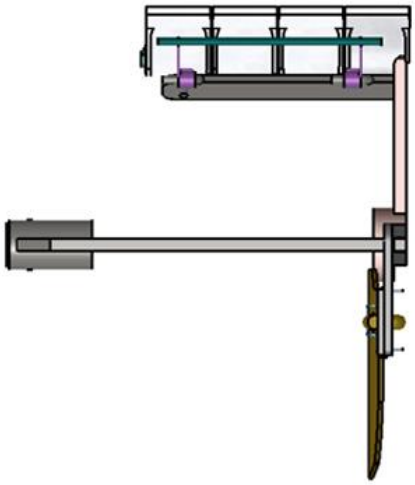

1. REMOVE PIN
2. REMOVE AGITATOR
3. REMOVE SNAP RING
4. LOOSEN NUT
5. REMOVE SHAFT
SHAFT REMOVAL
FM14 COOKER
DO NOT SCALE DRAWING
SAVAGE BROS. CO.
1125 W. Lunt Ave
Elk Grove Village, IL 60007 U.S.A.
Phone: (847) 981 - 3000
USA Fax: (800) 2 - SAVAGE
World Fax: (847) 981 - 3010
FM14
COOKER ASM
DWG. NUM.
2410-05-850
DES. BY BW
DRN. BY BW
DATE 6/25/2015
SCALE SCALE: 1:8
SHEET 1 OF 1

ITEM	QTY	PART NO.	DESCRIPTION
1	1	2400-02-101	STANDARD AGITATOR WELDMENT
2	3	0904	NYLON SCRAPER
3	1	2400-02-011	FM-14 - ROD AND SPRING ASSEMBLY
4	1	2400-10-250	SCRAPER - FM-14 BOTTOM
5	1	0904-01-007	FM-14 BOTTOM VERTICAL SCRAPER









AFTER 05/2005

MAT.
AS PER PART
FIN. -

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES
TOLERANCES ARE
.X = ±.03
.XX = ±.01
.XXX = ±.005
ANGLES = ±0.5°
SURFACE FINISH = 125 MIC. IN
BREAK AND DEBURR ALL EDGES

DO NOT SCALE DRAWING

SAVAGE BROS. CO.
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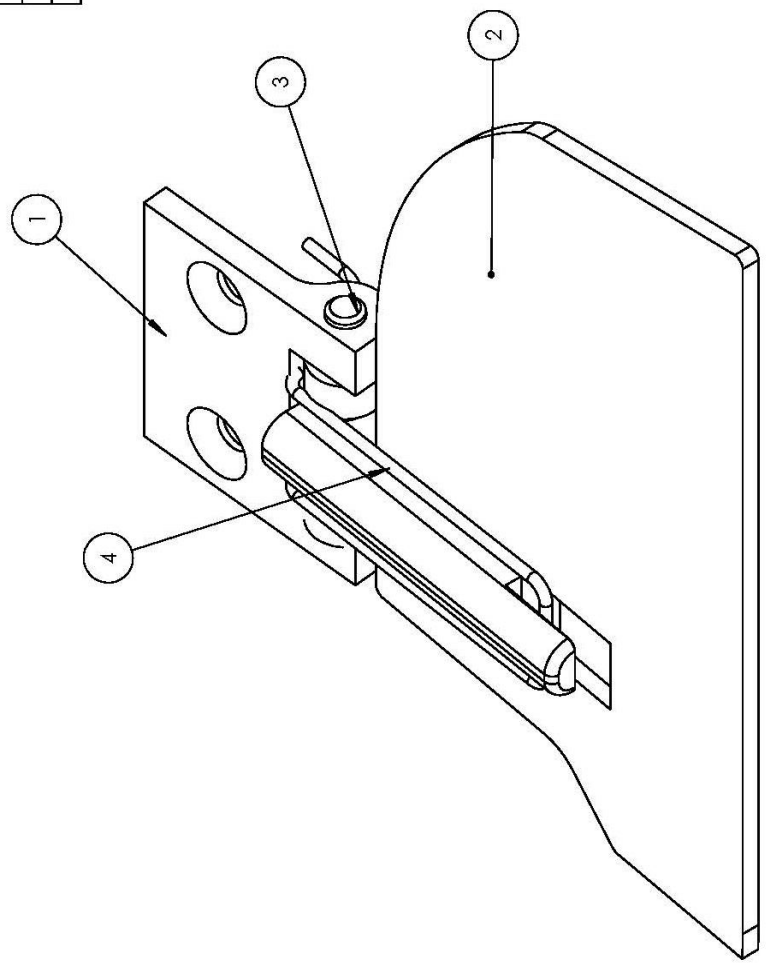
World Fax: (847) 981 - 3010

FIREMIXER-14
AGITATOR BOTTOM DRIVE

DWG. NUM. 2400-10
DRAWN BY ML
DATE 12.12.03
SCALE SCALE: 1:5
SHEET 1 OF 1

REV.	DATE	DESCRIPTION	BY
D	05.17.11	REVISED FOR SMALL BATCH	ML
C	04-29-08	CHANGED BOTTOM VERTICAL SCRAPER	MP/PS
B	03-13-08	NOW 2400-02-011 - WAS 0912-02-013	AS

ITEM	QTY	PART NO	DESCRIPTION
1	1	1840-10-002	SCRAPER BRACKET SS-88 DAIRY METAL
2	1	2400-10-001	50# COOKER BOTTOM SCRAPER
3	1	0340-10-001	PIN SS FM/PA SCRAPER
4	1	9200-70-001	SCRAPER SPRING



DO NOT SCALE DRAWING

SAVAGE BROS. CO.
1125 W. Lunt Ave
Elk Grove Village, IL 60007 U.S.A.
Phone: (847) 981 - 3000
USA Fax: (800) 2 - SAVAGE
World Fax: (847) 981 - 3010

MAT. AS PER PART
FIN. -

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
TOLERANCES ARE
X = ±.03
XX = ±.01
XXX = ±.005
ANGLES = ±0.5°
SURFACE FINISH = 125 MIC. IN
BREAK AND DEBURR ALL EDGES

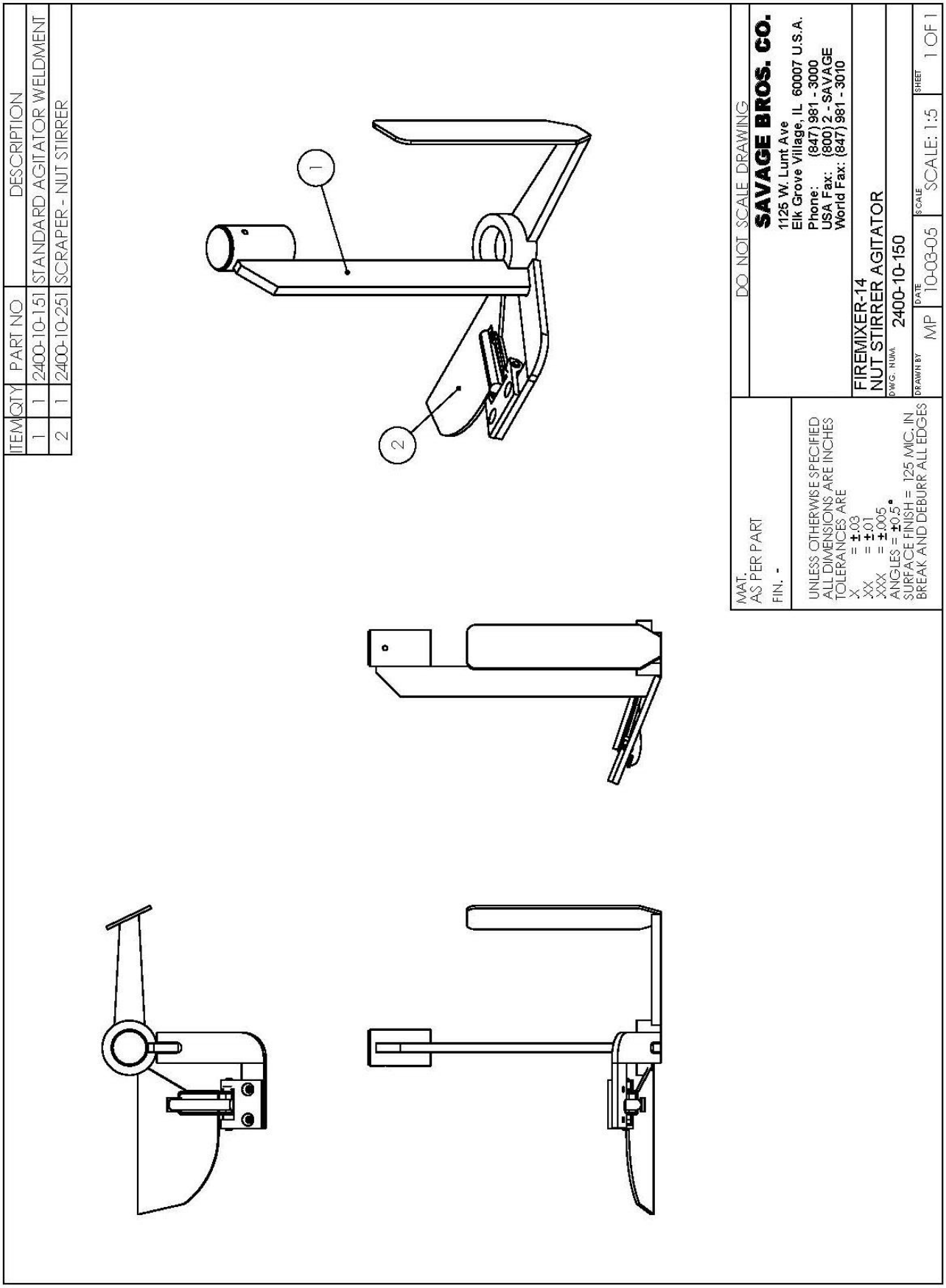
50# COOKER
BOTTOM SCRAPER

DWG. NUM. 2400-10-250

DRAWN BY ML | DATE 01.05.04 | SCALE SCALE:1:1 | SHEET 1 OF 1

REV.	DATE	DESCRIPTION	BY
A	01.10.05	REVISED FOR UPDATED SCRAPER	ML

ITEM	QTY	PART NO	DESCRIPTION
1	1	2400-10-151	STANDARD AGITATOR WELDMENT
2	1	2400-10-251	SCRAPER - NUT STIRRER



DO NOT SCALE DRAWING

SAVAGE BROS. CO.
1125 W. Lunt Ave
Elk Grove Village, IL 60007 U.S.A.
Phone: (847) 981 - 3000
USA Fax: (800) 2 - SAVAGE
World Fax: (847) 981 - 3010

FIREMIXER-14
NUT STIRRER AGITATOR

DWG. NUM. 2400-10-150

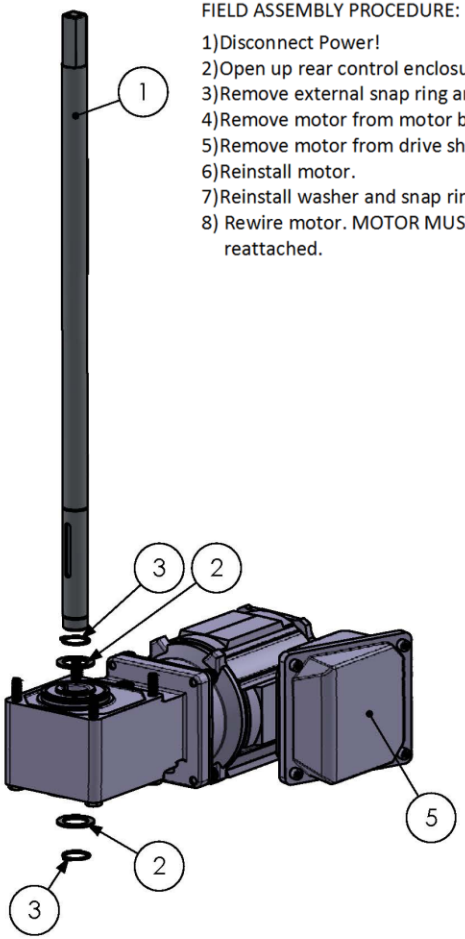
DRAWN BY MP | DATE 10-03-05 | SCALE SCALE: 1:5 | SHEET 1 OF 1

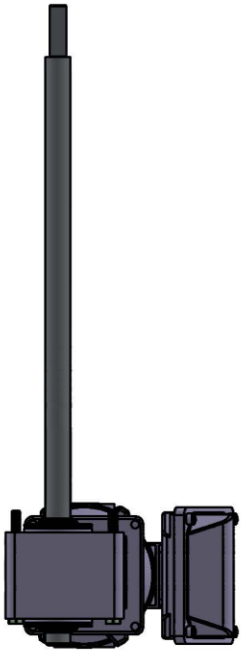
MAT. AS PER PART
FIN. -

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES
TOLERANCES ARE
X = ±.03
XX = ±.01
XXX = ±.005
ANGLES = ±0.5°
SURFACE FINISH = 125 MIC. IN.
BREAK AND DEBURR ALL EDGES

FIELD ASSEMBLY PROCEDURE:

1)Disconnect Power!
2)Open up rear control enclosure & disconnect wiring.
3)Remove external snap ring and washer from the bottom of drive shaft.
4)Remove motor from motor bracket by unscrewing the four ¼ x 20 hex screws.
5)Remove motor from drive shaft.
6)Reinstall motor.
7)Reinstall washer and snap ring.
8) Rewire motor. MOTOR MUST BE GROUNDED, make sure the green wire is reattached.





ITEM	QTY	PART NO.	DESCRIPTION
1	1	0934-30-115	DRIVE SHAFT
2	2	0937-30-116	MOTOR WASHER
3	2	9700-60-227	EXTERNAL SNAP RING 3/4"
4	4	9200-10-259	1/4-20 X 3.25 LG HHCS, S.S.
5	1	9400-00-144	FUDGEMAKER DRIVE MOTOR

REVISIONS			
REV.	DATE	DESCRIPTION	BY
B	4/20/2016	0934-30-115 was 0937-30-115	GL

Note

MAT.

FIN.

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES
TOLERANCES ARE
1/X = ±1/16
.X = ±.1
.XX = ±.02
.XXX = ±.005
.XXXX = ±.0005
ANGLES = ±0.5°
SURFACE FINISH=125 MIC. IN
BREAK AND DEBURR ALL EDGES
REMOVE WELD SPATTER & DISCOLORATION

THIRD ANGLE

DO NOT SCALE DRAWING

SAVAGE BROS. CO.
1825 Greenleaf Ave
Elk Grove Village, IL 60007 U.S.A.
Phone: (847) 981 - 3000
USA Fax: (800) 2 - SAVAGE
World Fax: (847) 981 - 3010

50LB CHOCOLATE MELTER MOTOR DRIVE ASM

DWG. NUM. 0934-07-002

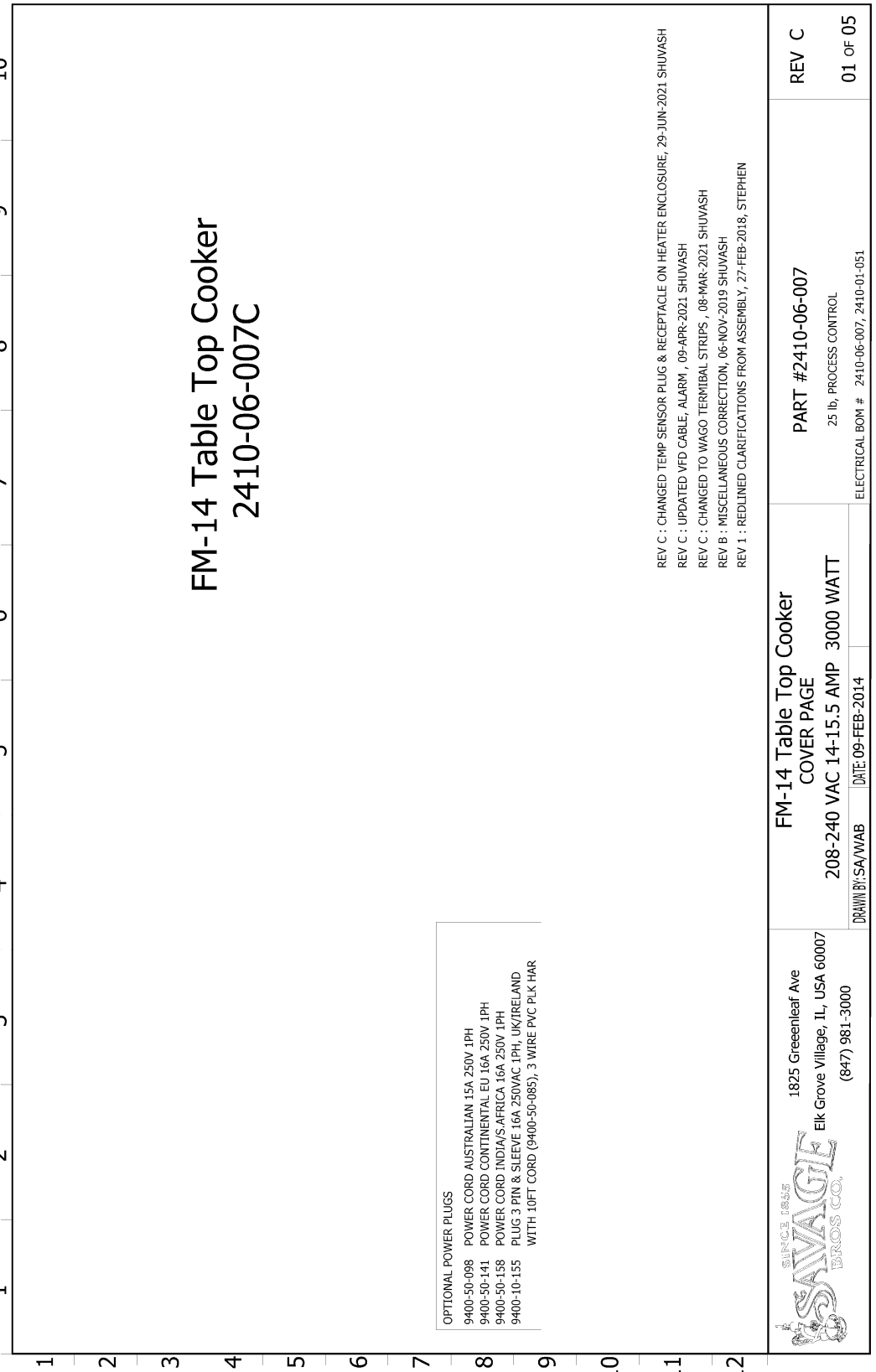
DES. BY	DRN. BY	DATE	SCALE	SHEET
ML	ML	Friday, July	SCALE: 1:1	1 OF 1

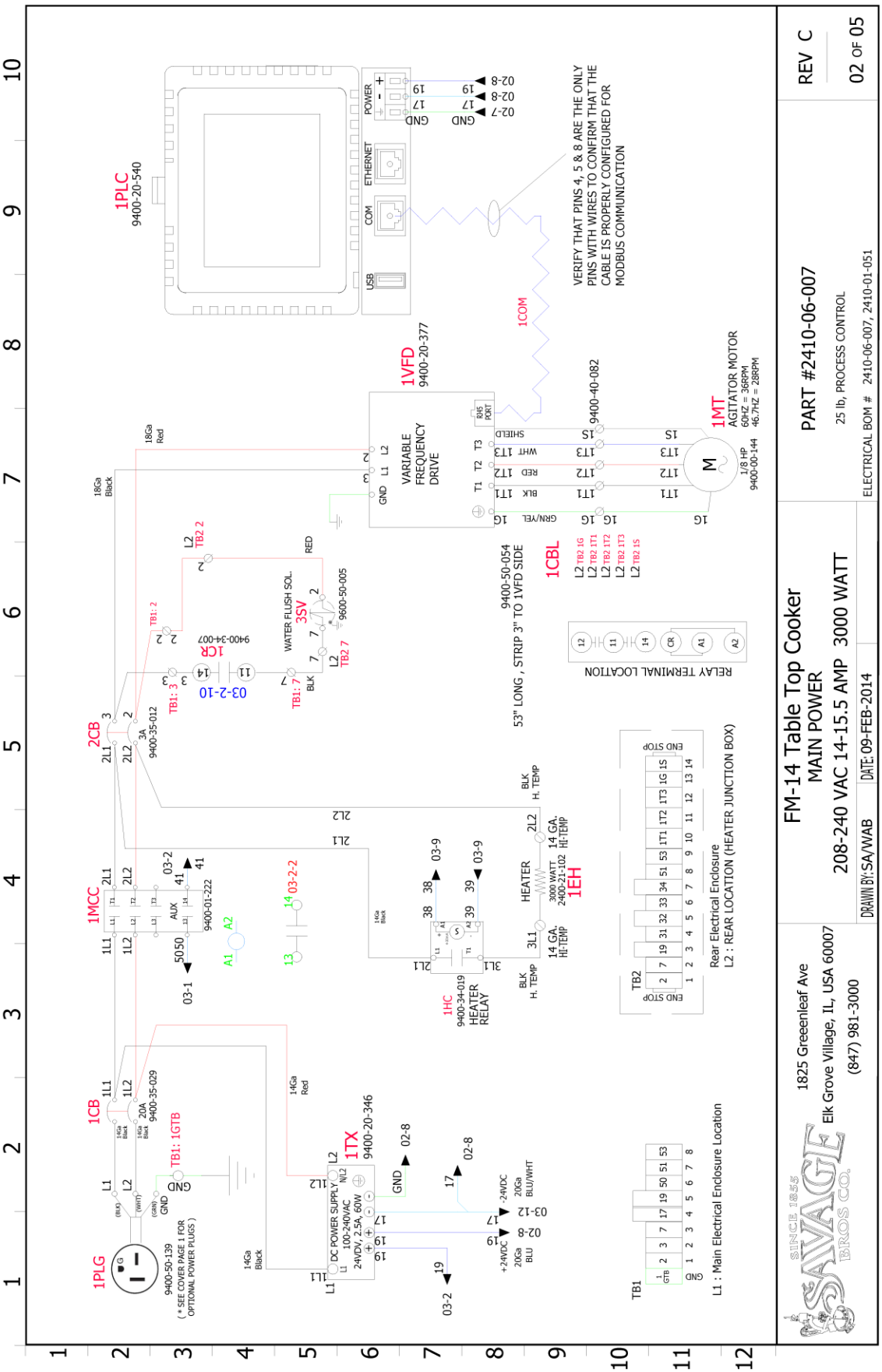
Drawing saved by Brant

Model saved by Brant on Thursday, April 6, 2017 9:42:19 AM

RICE CRISPY KIT
PART#: 2400-10-203
AGITATOR WITH
FIXED SCRAPER
PART#: 2400-10-150
STANDARD
AGITATOR
PART#: 2400-10
AGITATOR
2 - BLADE NUT PLOW
PART#: 2400-10-160
DO NOT SCALE DRAWING
SAVAGE BROS. CO.
1125 W. Lunt Ave
Elk Grove Village, IL 60007 U.S.A.
Phone: (847) 981 - 3000
USA Fax: (800) 2 - SAVAGE
World Fax: (847) 981 - 3010
FM14
AGITATOR OPTIONS
DWG. NUM. RD-FM14-AGITATORS_OPTIONS
DRAWN BY ML
DATE 3/15/2013
SCALE SCALE: 1:6
SHEET 1 OF 1
MAT.
FIN. #4
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE INCHES
TOLERANCES ARE
.X = ±.03
.XX = ±.01
.XXX = ±.005
ANGLES = ±0.5°
SURFACE FINISH = 125 MIC. IN
BREAK AND DEBURR ALL EDGES

ELECTRICAL SCHEMATICS & ELECTRICAL PARTS LIST




1PLC
9400-20-540
1VFD
9400-20-377
VARIABLE FREQUENCY DRIVE
1COM
VERIFY THAT PINS 4, 5 & 8 ARE THE ONLY PINS WITH WIRES TO CONFIRM THAT THE CABLE IS PROPERLY CONFIGURED FOR MODBUS COMMUNICATION
1MT
AGITATOR MOTOR
1/8 HP
9400-00-144
60HZ = 36RPM
46.7HZ = 28RPM
9400-40-082
1CBL
9400-50-054
53" LONG , STRIP 3" TO 1VFD SIDE
2CB
9400-35-012
3A
1CR
9400-34-007
03-2-10
3SV
WATER FLUSH SOL.
9600-50-005
1MCC
9400-01-222
AUX
5050
1CB
9400-35-029
20A
1PLG
9400-50-139
(* SEE COVER PAGE 1 FOR OPTIONAL POWER PLUGS)
TB1: 1GTB
1TX
9400-20-346
DC POWER SUPPLY
100-240VAC
24VDV, 2.5A, 60W
1HC
9400-34-019
HEATER RELAY
1EH
HEATER
3000 WATT
2400-21-102
14 GA. HI-TEMP
BLK H. TEMP
RELAY TERMINAL LOCATION
TB1
TB2
END STOP
Rear Electrical Enclosure
L2 : REAR LOCATTION (HEATER JUNCTION BOX)
L1 : Main Electrical Enclosure Location
FM-14 Table Top Cooker
MAIN POWER
208-240 VAC 14-15.5 AMP 3000 WATT
DRAWN BY: SA/WAB
DATE: 09-FEB-2014
PART #2410-06-007
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051
REV C
02 OF 05
1825 Greenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000
SAVAGE BROS CO.
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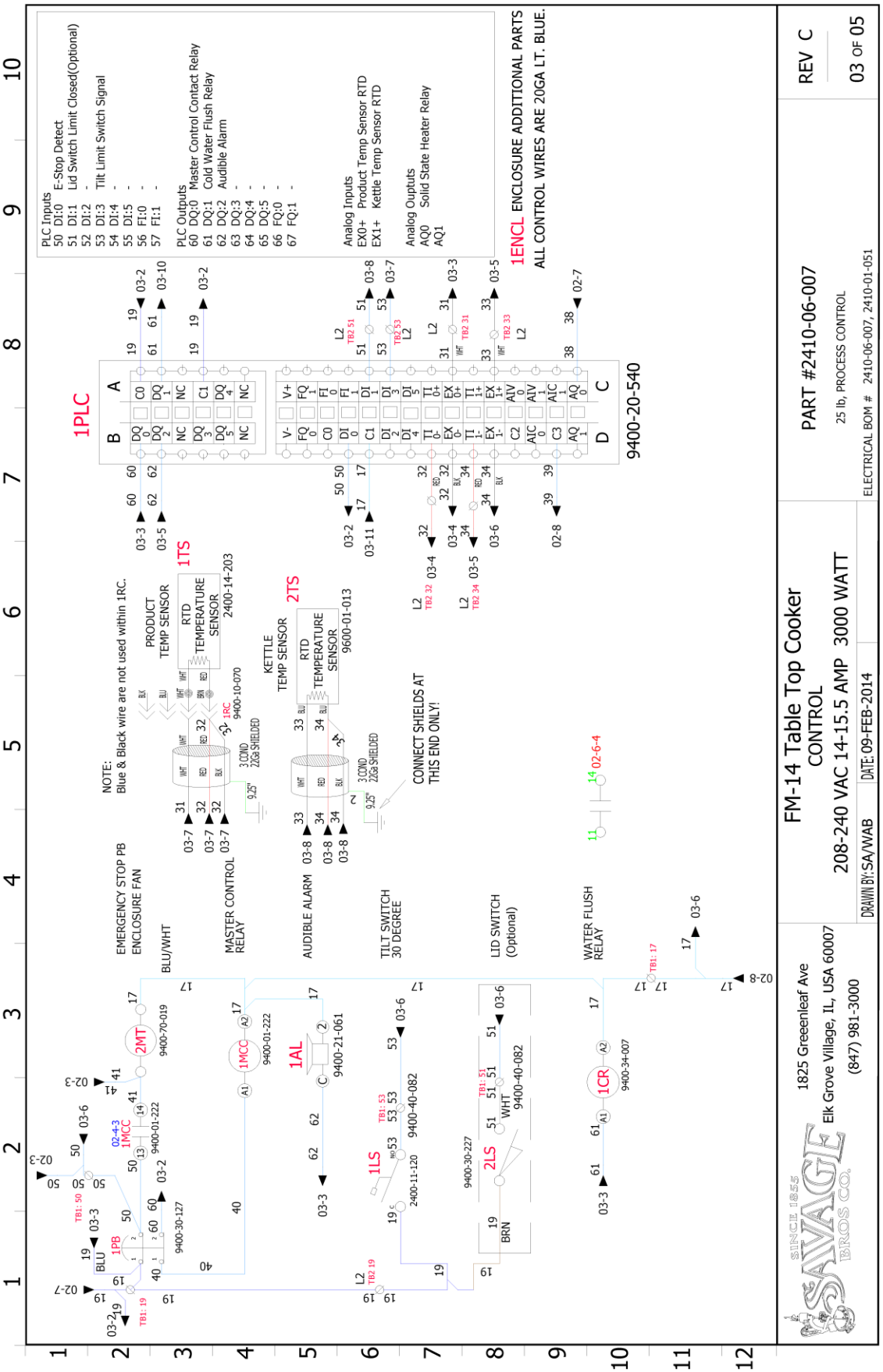

PLC Inputs
50 DI:0 E-Stop Detect
51 DI:1 Lid Switch Limit Closed(Optional)
52 DI:2 -
53 DI:3 Tilt Limit Switch Signal
54 DI:4 -
55 DI:5 -
56 FI:0 -
57 FI:1 -
PLC Outputs
60 DQ:0 Master Control Contact Relay
61 DQ:1 Cold Water Flush Relay
62 DQ:2 Audible Alarm
63 DQ:3 -
64 DQ:4 -
65 DQ:5 -
66 FQ:0 -
67 FQ:1 -
Analog Inputs
EX0+ Product Temp Sensor RTD
EX1+ Kettle Temp Sensor RTD
Analog Ouputs
AQ0 Solid State Heater Relay
AQ1
1ENCL ENCLOSURE ADDITIONAL PARTS
ALL CONTROL WIRES ARE 20GA LT. BLUE.
1PLC
9400-20-540
NOTE:
Blue & Black wire are not used within 1RC.
PRODUCT TEMP SENSOR
RTD TEMPERATURE SENSOR 2400-14-203
1TS
KETTLE TEMP SENSOR
RTD TEMPERATURE SENSOR 9600-01-013
2TS
CONNECT SHIELDS AT THIS END ONLY!
EMERGENCY STOP PB ENCLOSURE FAN
BLU/WHT
MASTER CONTROL RELAY
AUDIBLE ALARM
TILT SWITCH 30 DEGREE
LID SWITCH (Optional)
WATER FLUSH RELAY
1PB
2MT 9400-70-019
1MCC 9400-01-222
1AL 9400-21-061
1LS 2400-11-120
2LS
1CR 9400-34-007
9400-30-127
9400-30-227
9400-40-082
FM-14 Table Top Cooker
CONTROL
208-240 VAC 14-15.5 AMP 3000 WATT
PART #2410-06-007
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051
REV C
03 OF 05
DRAWN BY: SA/WAB
DATE: 09-FEB-2014
1825 Greenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000

ITEM	Qty	Part Number	Description
1LS	1	2400-11-120	FM-14 TILT SWITCH ASM
1ENCL	1	2400-11-122	FM-14 SUBPANEL
1TS	1	2400-14-203	50# COOKER PROBEHOLDER ASSY
1EH	1	2400-21-102	PLATE HEATER 208VAC 1PH 3000 WATT
1ENCL	1	2410-01-050	FM-14, CONTROL BOX, MOUNT WELDMENT
1HC	1	9100-00-403	T SINK COMPOUND-8OZ JAR #12008
3SV	1	9300-00-310	1/2" NPT CLOSE NIPPLE, SS
3SV	1	9300-00-403	1/4" NPT X 3.5" NIPPLE, BRASS
3SV	1	9300-00-404	1/4" NPT X 5 1/2" NIPPLE, BRASS
3SV, 3SV, 3SV	3	9300-60-062	LOCKNUT 1/2" CONDUIT CONNECTOR
1MT	1	9400-00-144	50 LB HYPONIC 1/8 HP RIGHT ANGLE GEARMOTOR
1MCC, 1MCC	2	9400-01-222	CONTACTOR MINI 3P 16A 24VDC W/1NO AUX
1RC	1	9400-10-070	RECEPTACLE 4 SOC SINGLE KEYWAY FEMALE THREAD Pg9 22GA MICRO
1TX	1	9400-20-346	POWER SUPPLY 60W 24VDC 100-240VAC WIDE
1VFD	1	9400-20-377	VAR FREQ DRIVE 0.25HP 240V 1PH ATV12
1PLC	1	9400-20-540	PLC 5.7" COLOR HMI/PLC WITH 8 DIGITAL IN/OUT 4 ANALOG INPUTS 2 ANALOG OUTS
1AL	1	9400-21-061	ALARM AUDIBLE 12-24VAC/DC Panel Mount
1COM	1	9400-21-123	RJ-45 CABLE MODBUS 2FT
1PB	1	9400-30-127	PUSH BUTTON - MUSHROOM (PUSH-PULL), IP66, 40mm COLOR CAP
2LS	1	9400-30-227	RND CODED MAG. SWITCH, CMS-R-C (084575) & RND EUCHNER CODED MAGNET CMS-M-C (084577)
3SV	1	9400-33-020	PLAST. BUSHING 1/2"NPT FEMALE
1CR	1	9400-34-007	RELAY &SOCKET 24AC/DC 6AMP DIN MT
1HC	1	9400-34-019	RELAY SOLID STATE 25A 240V 4-20mA Analog COIL
1HC	1	9400-34-020	HEAT SINK for SOLID STATE RELAY 50A HOCKEY PUCK
2CB	1	9400-35-012	CIRCUIT BREAKER 3A 2P UL489 480VAC MAX RATING

SAVAGE BROS CO. SINCE 1855
1825 Greeenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000

FM-14 Table Top Cooker
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: SA/WAB | DATE: 09-FEB-2014

PART #2410-06-007
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051

REV C

04 OF 05

Document realized with version : 2020.0.5.6

ITEM	Qty	Part Number	Description
1CB	1	9400-35-029	Circuit Breaker; Therm/Mag; Hndl; Cur-Rtg 20A; DIN Rail; 2 Pole; Screw Snap; L Series; C
1ENCL	1	9400-40-022	MOUNTING RAIL DIN - 35MM STEEL 2 METER RAW LENGTH CUT INTO INCHES
1PB	1	9400-40-049	CONTACT BLOCK 1NC 22MM E-STOP W/ LATCH
1PB	1	9400-40-069	CONTACT BLOCK 1NC 22MM E-STOP W/O LATCH
TB2-1G, TB1:-7, TB2-7, TB2-2, TB1:-53, TB1:-50, TB2-51, TB2-1T1, TB2-31, TB1:-51, TB1:-3, TB1:-2, TB2-33, TB2-53, TB2-1T2, TB2-1T3, TB2-1S	17	9400-40-082	TERMINAL BLOCK SPRING GRAY RAIL MNT 2 TERMS 4mmSq, TERM. BLOCK GRAY DIN RAIL MNT
TB1:-17, TB2-32, TB2-34, TB2-19, TB1:-19	5	9400-40-086	TERMINAL BLOCK SPRING GRAY RAIL MNT 3 TERMS 4mmSq
TB1:	1	9400-40-093	TERMINAL BLOCK SPRING GREEN RAIL MNT 3 TERMS 4mmSq
1MT	1	9400-50-054	67" LENGTH CORD 18/4 SOOW BLACK /FM-16/ (53" VFD to Box + 14" MOTOR to Box)
1PLG	1	9400-50-139	POWER CORD, 6-20P, 12/3, 8', SJT, 20A/250VAC (See FRONT Page for other Countries)
1TS, 2TS	2	9400-50-169	3 CONDUCTOR 22GA 600V, SHIELD, COMM. AND INSTR. CABLE
1CBL	1	9400-50-356	CABLE 18GA, 1000V, 4CND, SHIELDED, 90°C, 0.354"OD for Low Power VFD to MOTOR Connections
1ENCL	1	9400-60-034	3/4" LIQUITITE STRAIGHT CONNECTOR
1PLG	1	9400-60-066	CORD GRIP W/FLEX CAP SEALCON .39-.55" (OR 9400-60-093)
1PLG, 1MT	2	9400-60-067	CORD GRIP LOCKNUT FOR 1/2"NPT
1MT	1	9400-60-080	CORD GRIP CONN. .312" - .437"
1ENCL	1	9400-60-114	3/4" 90° LIQUITITE CONNECTOR ST-9075 APPL
1ENCL	1	9400-60-168	28.5" LENGTH LIQUIDTITE 3/4 HIGH FLEX NON-METALIC CONDUIT HUBBELL B2075 POLYTUFF II
2MT	1	9400-70-019	FAN FILTERFAN, IP54, NEMA12, 24VDC, 32 CFM, 4.88"Sq CUTOUT, 2.31" DEEP, WASHABLE FILTER, 5.5 WATT
1MT	1	9400-90-487	LABEL SET FM-14 >= 2018
2TS	1	9600-01-013	TEMP SENSOR RTD .63"L 16"LEAD
3SV	1	9600-50-005	SOLENOID VALVE 230V 1/4"NPT X

SAVAGE BROS CO. SINCE 1855
1825 Greeenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000

FM-14 Table Top Cooker
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: SA/WAB DATE: 09-FEB-2014

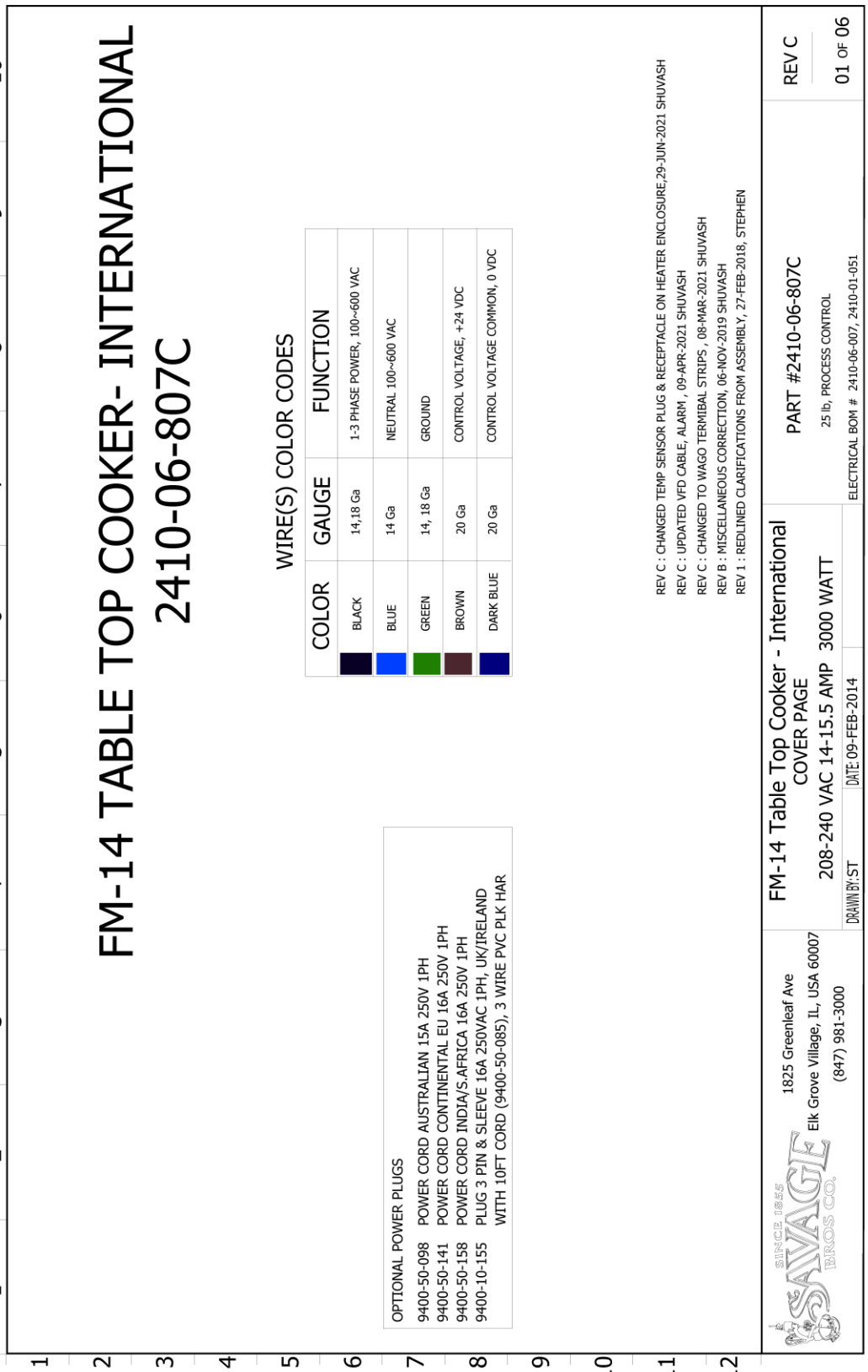
PART #2410-06-007
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051

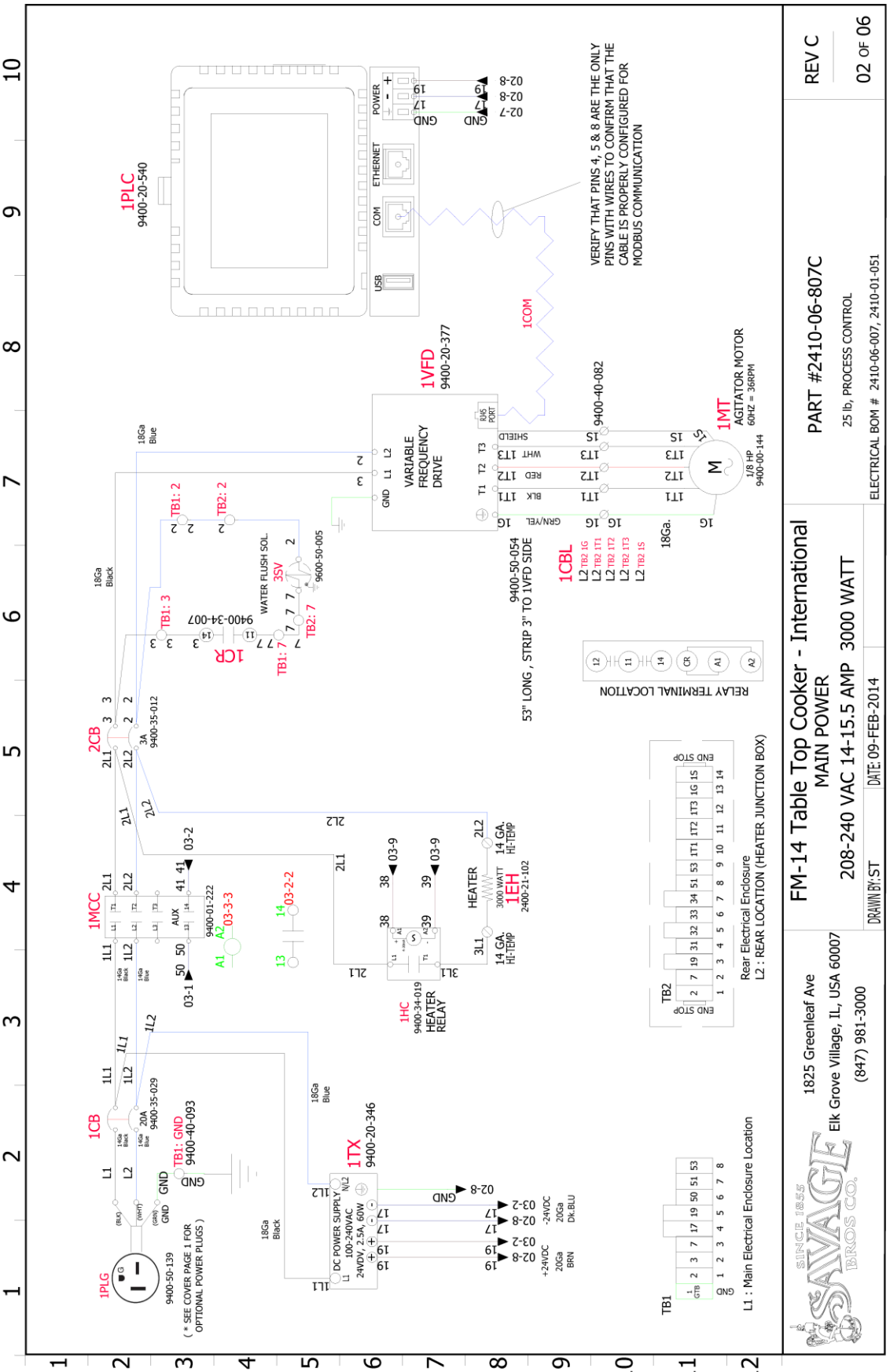
REV C

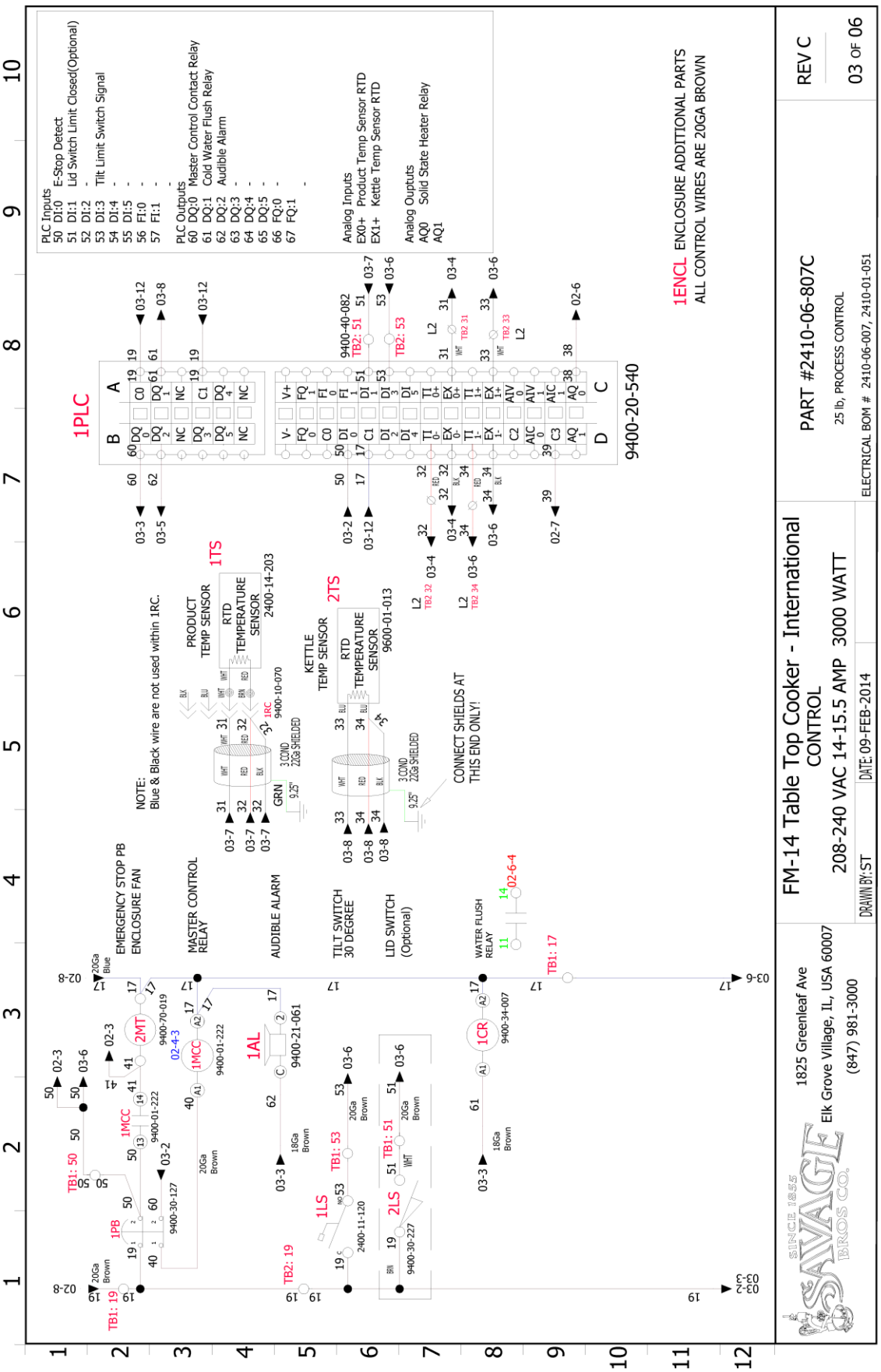
05 OF 05

Document realized with version : 2020.0.5.6

ELECTRICAL SCHEMATICS & ELECTRICAL PARTS LIST / INTERNATIONAL




FM-14 Table Top Cooker - International
MAIN POWER
208-240 VAC 14-15.5 AMP 3000 WATT
PART #2410-06-807C
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051
REV C
02 OF 06
DRAWN BY: ST
DATE: 09-FEB-2014
1825 Greenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000
1PLC 9400-20-540
1VFD 9400-20-377
VARIABLE FREQUENCY DRIVE
1MT AGITATOR MOTOR 60HZ = 36RPM 1/8 HP 9400-00-144
1COM
VERIFY THAT PINS 4, 5 & 8 ARE THE ONLY PINS WITH WIRES TO CONFIRM THAT THE CABLE IS PROPERLY CONFIGURED FOR MODBUS COMMUNICATION
9400-40-082
9400-50-054
53" LONG , STRIP 3" TO 1VFD SIDE
1CBL
RELAY TERMINAL LOCATION
1CB 9400-35-029
2CB 9400-35-012
1MCC 9400-01-222
AUX
1CR 9400-34-007
3SV WATER FLUSH SOL. 9600-50-005
1HC 9400-34-019 HEATER RELAY
1EH 2400-21-102 3000 WATT HEATER
1TX 9400-20-346 DC POWER SUPPLY 100-240VAC 24VDV, 2.5A, 60W
1PLG 9400-50-139
(* SEE COVER PAGE 1 FOR OPTIONAL POWER PLUGS)
TB1: GND 9400-40-093
TB1
TB2
END STOP
Rear Electrical Enclosure
L2 : REAR LOCATION (HEATER JUNCTION BOX)
L1 : Main Electrical Enclosure Location
Document realized with version : 24.20.0.5.6


1PLC
9400-20-540
PLC Inputs
50 DI:0 E-Stop Detect
51 DI:1 Lid Switch Limit Closed(Optional)
52 DI:2 -
53 DI:3 Tilt Limit Switch Signal
54 DI:4 -
55 DI:5 -
56 FI:0 -
57 FI:1 -
PLC Outputs
60 DQ:0 Master Control Contact Relay
61 DQ:1 Cold Water Flush Relay
62 DQ:2 Audible Alarm
63 DQ:3 -
64 DQ:4 -
65 DQ:5 -
66 FQ:0 -
67 FQ:1 -
Analog Inputs
EX0+ Product Temp Sensor RTD
EX1+ Kettle Temp Sensor RTD
Analog Outputs
AQ0 Solid State Heater Relay
AQ1
1ENCL ENCLOSURE ADDITIONAL PARTS
ALL CONTROL WIRES ARE 20GA BROWN
NOTE:
Blue & Black wire are not used within 1RC.
PRODUCT TEMP SENSOR
RTD TEMPERATURE SENSOR 2400-14-203
1TS
KETTLE TEMP SENSOR
RTD TEMPERATURE SENSOR 9600-01-013
2TS
CONNECT SHIELDS AT THIS END ONLY!
EMERGENCY STOP PB ENCLOSURE FAN
MASTER CONTROL RELAY
AUDIBLE ALARM
TILT SWITCH 30 DEGREE
LID SWITCH (Optional)
WATER FLUSH RELAY
1PB
2MT
1MCC
1AL
1LS
2LS
1CR
FM-14 Table Top Cooker - International
CONTROL
208-240 VAC 14-15.5 AMP 3000 WATT
PART #2410-06-807C
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051
REV C
03 OF 06
DRAWN BY: ST
DATE: 09-FEB-2014
1825 Greenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000

Mark	Qty	Part Number	Description
1LS	1	2400-11-120	FM-14 TILT SWITCH ASM
1ENCL	1	2400-11-122	FM-14 SUBPANEL
1TS	1	2400-14-203	50# COOKER PROBEHOLDER ASSY
1EH	1	2400-21-102	PLATE HEATER 208VAC 1PH 3000 WATT
1ENCL	1	2410-01-052	FM-14 CONTROL BOX WELDMENT
1ENCL	1	2410-01-055	FM-14 CONTROL BOX DOOR WELDMENT
1HC	1	9100-00-403	T SINK COMPOUND-8OZ JAR #12008
3SV	1	9300-00-310	1/2" NPT CLOSE NIPPLE, SS
3SV	1	9300-00-403	1/4" NPT X 3.5" NIPPLE, BRASS
3SV	1	9300-00-404	1/4" NPT X 5 1/2" NIPPLE, BRASS
1MT	1	9400-00-144	50 LB HYPONIC 1/8 HP RIGHT ANGLE GEARMOTOR
1MCC	1	9400-01-222	CONTACTOR MINI 3P 16A 24VDC W/1NO AUX
1RC	1	9400-10-070	RECEPTACLE 4 SOC SINGLE KEYWAY FEMALE THREAD Pg9 22GA MICRO
1TX	1	9400-20-346	POWER SUPPLY 60W 24VDC 100-240VAC WIDE
1VFD	1	9400-20-377	VAR FREQ DRIVE 0.25HP 240V 1PH ATV12
1PLC	1	9400-20-540	PLC 5.7" COLOR HMI/PLC WITH 8 DIGITAL IN/OUT 4 ANALOG INPUTS 2 ANALOG OUTS
1AL	1	9400-21-061	ALARM AUDIBLE 12-24VAC/DC Panel Mount
1COM	1	9400-21-123	RJ-45 CABLE MODBUS 2FT
1PB	1	9400-30-127	PUSH BUTTON - MUSHROOM (PUSH-PULL), IP66, 40mm COLOR CAP
2LS	1	9400-30-227	RND CODED MAG. SWITCH, CMS-R-C (084575) & RND EUCHNER CODED MAGNET CMS-M-C (084577)
3SV	1	9400-33-020	PLAST. BUSHING 1/2"NPT FEMALE
1CR	1	9400-34-007	RELAY &SOCKET 24AC/DC 6AMP DIN MT
1HC	1	9400-34-019	RELAY SOLID STATE 25A 240V 4-20mA Analog COIL
1HC	1	9400-34-020	HEAT SINK for SOLID STATE RELAY 50A HOCKEY PUCK
2CB	1	9400-35-012	CIRCUIT BREAKER 3A 2P UL489 480VAC MAX RATING

SAVAGE BROS CO. SINCE 1855
1825 Greenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000

FM-14 Table Top Cooker - International
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: ST | DATE: 09-FEB-2014

PART #2410-06-807C
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051

REV C

04 OF 06

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Mark	Qty	Part Number	Description
1CB	1	9400-35-029	CIRCUIT BREAKER 20A 2P UL489
1ENCL, 1ENCL	2	9400-40-021	MOUNTING RAIL DIN - WIDTH=35MM, LENGTH=4-1/4", MOUNTING RAIL DIN - WIDTH=35MM, LENGTH=10-5/8"
TB2:	1	9400-40-035	TERM. BLOCK GRAY DIN RAIL MNT
1PB	1	9400-40-049	CONTACT BLOCK 1NC 22MM E-STOP W/ LATCH
1PB	1	9400-40-069	CONTACT BLOCK 1NC 22MM E-STOP W/O LATCH
TB2:-51, TB2:-53, TB1:-3, TB1:-7, TB2:-7, TB2:-2, TB1:-2, TB1:-50, TB1:-51, TB1:-53, TB2-33, TB2-31, TB2-1T1, TB2-1G, TB2-1T2, TB2-1T3, TB2-1S	17	9400-40-082	TERMINAL BLOCK SPRING GRAY RAIL MNT 2 TERMS 4mmSq
TB2-34, TB2-32, TB1:-19, TB1:-17, TB2:-19	5	9400-40-086	TERMINAL BLOCK SPRING GRAY RAIL MNT 3 TERMS 4mmSq
TB1:-GND	1	9400-40-093	TERMINAL BLOCK SPRING GREEN RAIL MNT 3 TERMS 4mmSq
1MT	1	9400-50-054	67" LENGTH CORD 18/4 SOOW BLACK /FM-16/ (53" VFD to Box + 14" MOTOR to Box)
1PLG	1	9400-50-139	POWER CORD, 6-20P, 12/3, 8', SJT, 20A/250VAC (See FRONT Page for other Countries)
1TS, 2TS	2	9400-50-169	3 CONDUCTOR 22GA 600V, SHIELD, COMM. AND INSTR. CABLE
1CBL	1	9400-50-356	CABLE 18GA, 1000V, 4CND, SHIELDED, 90°C, 0.354"OD for Low Power VFD to MOTOR Connections
1EH, 1EH	2	9400-60-020	RING TERMINAL, HEAVY DUTY, NONINSULATED, FOR 16-14 GAUGE AND #10 SCREWS
1ENCL	1	9400-60-034	3/4" LIQUITITE STRAIGHT CONNECTOR
3SV, 3SV, 3SV	3	9400-60-062	LOCKNUT 1/2" CONDUIT CONNECTOR
1PLG	1	9400-60-066	CORD GRIP W/FLEX CAP SEALCON .39-.55" (OR 9400-60-093)
1MT, 1PLG	2	9400-60-067	CORD GRIP LOCKNUT FOR 1/2"NPT SEALCON, CORD GRIP LOCKNUT FOR 1/2"NPT
1MT	1	9400-60-080	CORD GRIP CONN. .312" - .437"
1ENCL	1	9400-60-114	3/4" 90° LIQUITITE CONNECTOR ST-9075 APPL
1ENCL	1	9400-60-168	28" LENGTH LIQUIDTITE 3/4 HIGH FLEX NON-METALIC CONDUIT HUBBELL B2075 POLYTUFF II
2MT	1	9400-70-019	FAN FILTERFAN, IP54, NEMA12, 24VDC

SAVAGE BROS CO. SINCE 1855
1825 Greenleaf Ave
Elk Grove Village, IL, USA 60007
(847) 981-3000

FM-14 Table Top Cooker - International
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: ST | DATE: 09-FEB-2014

PART #2410-06-807C
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2410-06-007, 2410-01-051

REV C

05 OF 06

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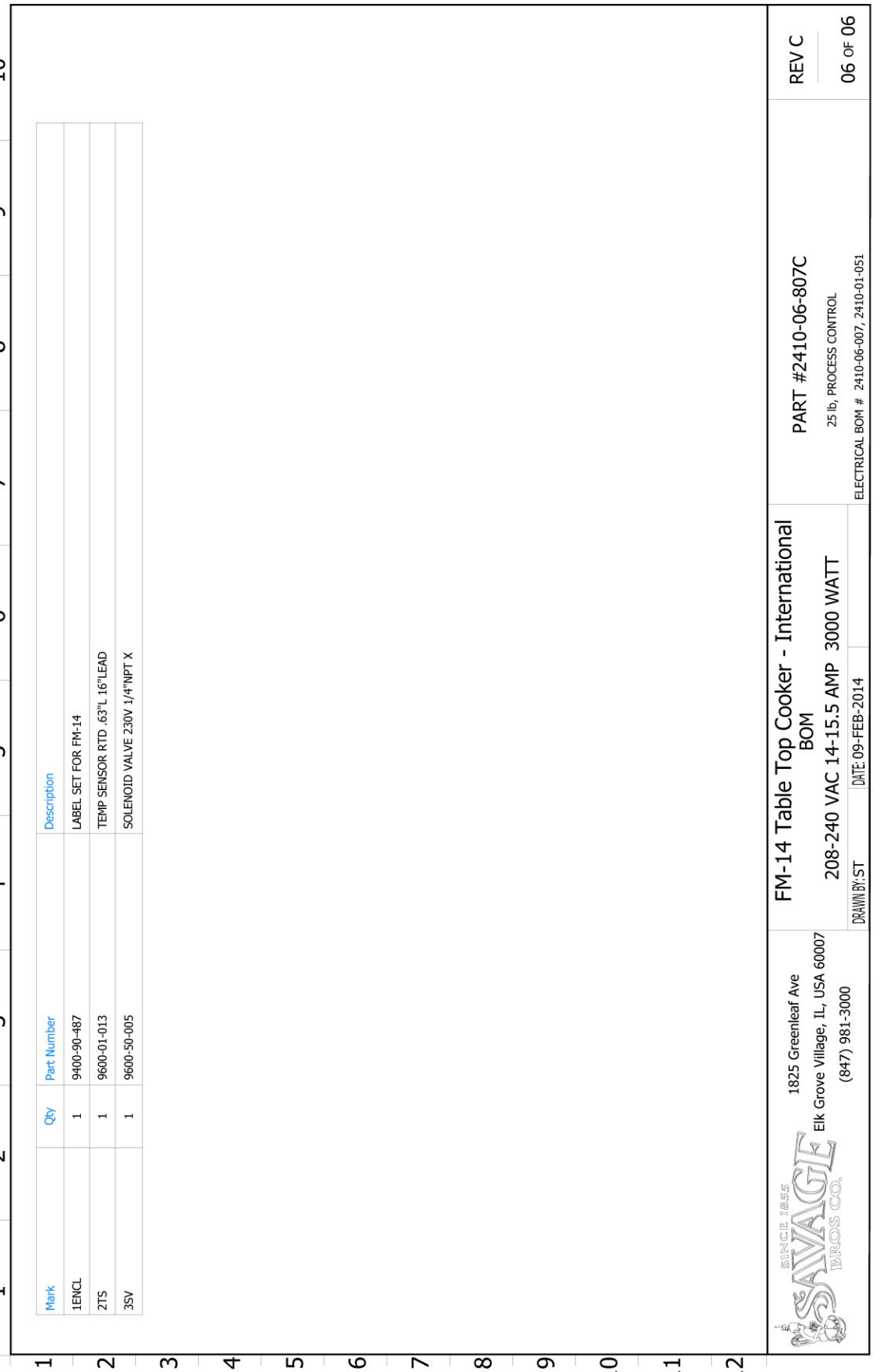
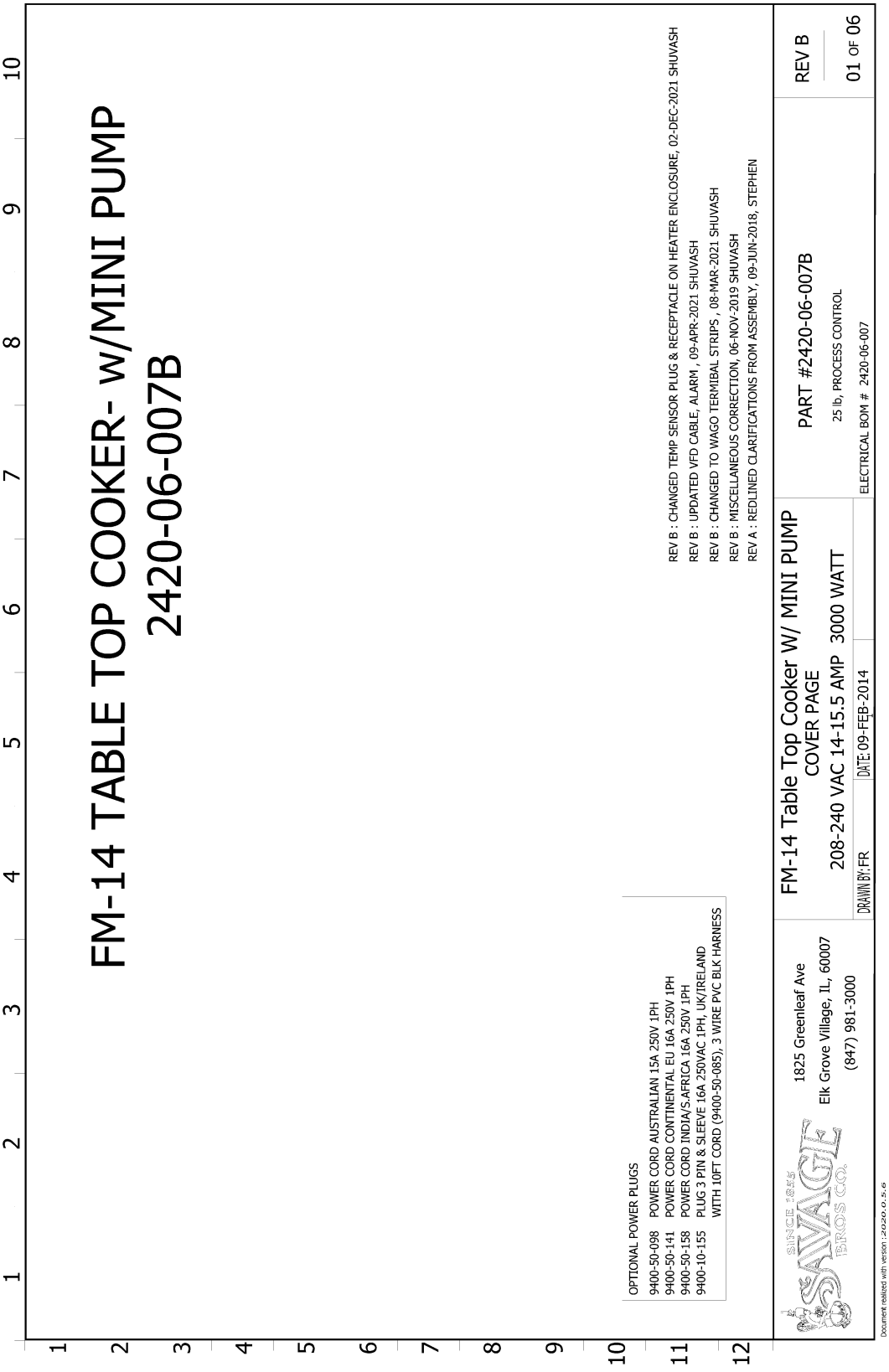
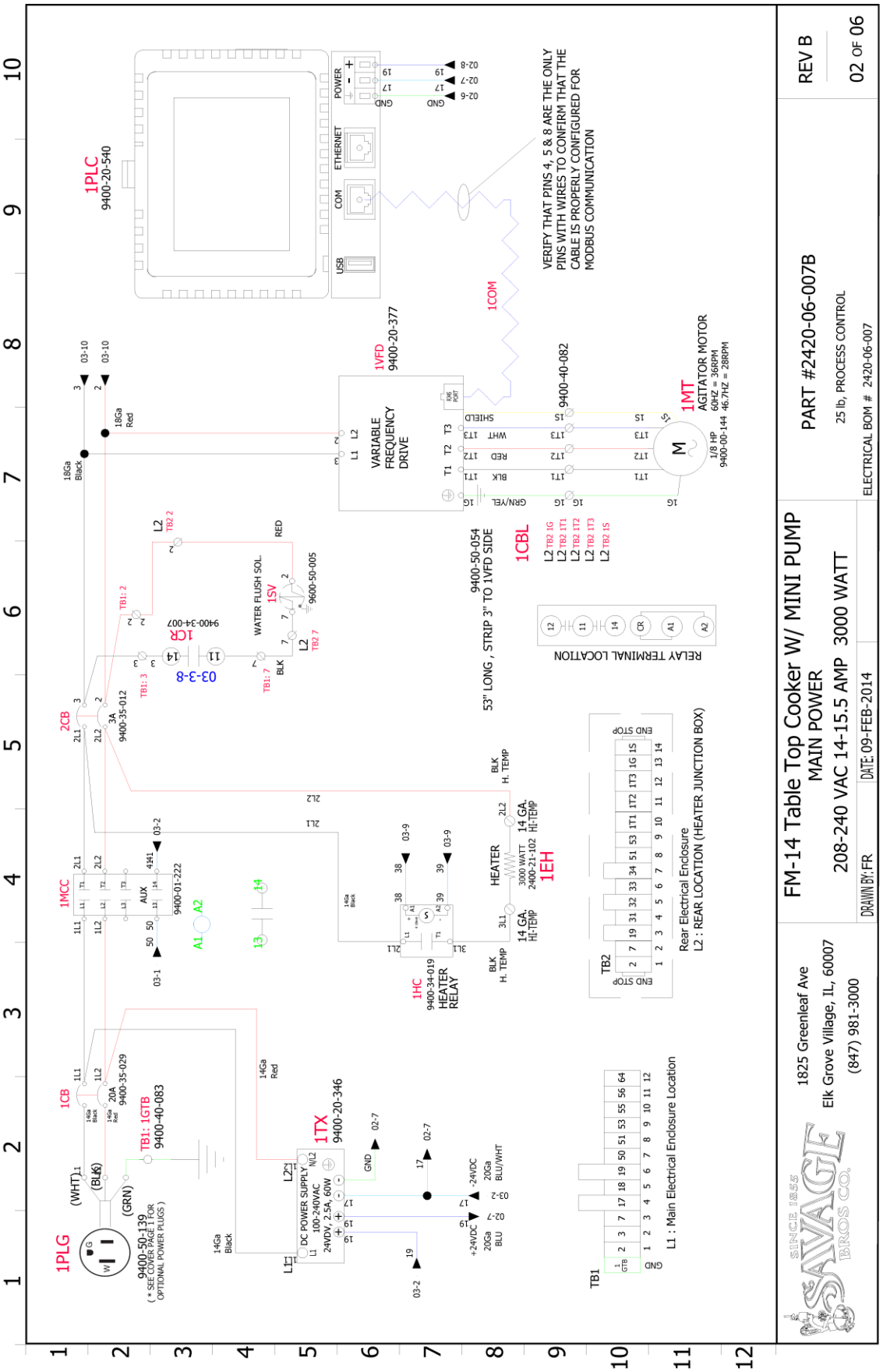
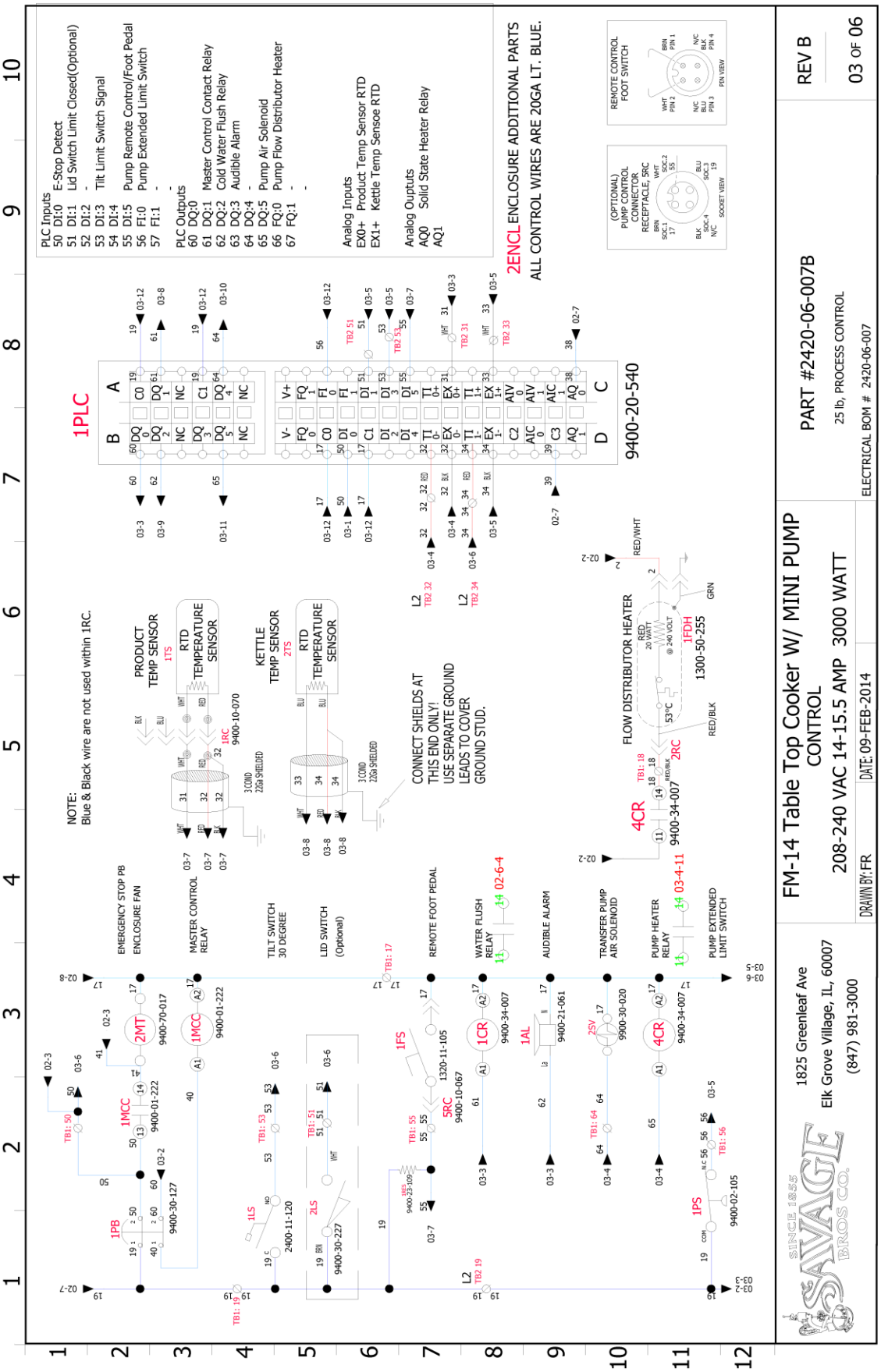


Mark	Qty	Part Number	Description
1ENCL	1	9400-90-487	LABEL SET FOR FM-14
2TS	1	9600-01-013	TEMP SENSOR RTD .63"L 16"LEAD
3SV	1	9600-50-005	SOLENOID VALVE 230V 1/4"NPT X

ELECTRICAL SCHEMATICS & ELECTRICAL PARTS LIST W/ MINI PUMP




FM-14 Table Top Cooker W/ MINI PUMP
MAIN POWER
208-240 VAC 14-15.5 AMP 3000 WATT
PART #2420-06-007B
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2420-06-007
REV B
02 OF 06
DRAWN BY: FR
DATE: 09-FEB-2014
1825 Greenleaf Ave
Elk Grove Village, IL, 60007
(847) 981-3000
1PLC
9400-20-540
1VFD
9400-20-377
VARIABLE FREQUENCY DRIVE
1COM
9400-40-082
VERIFY THAT PINS 4, 5 & 8 ARE THE ONLY PINS WITH WIRES TO CONFIRM THAT THE CABLE IS PROPERLY CONFIGURED FOR MODBUS COMMUNICATION
1MT
AGITATOR MOTOR
60HZ = 36RPM
46.7HZ = 28RPM
1/8 HP
9400-00-144
1CBL
9400-50-054
53" LONG , STRIP 3" TO 1VFD SIDE
RELAY TERMINAL LOCATION
1CB
20A
9400-35-029
TB1: 1GTB
9400-40-083
1PLG
9400-50-139
(* SEE COVER PAGE 1 FOR OPTIONAL POWER PLUGS)
1TX
9400-20-346
DC POWER SUPPLY
100-240VAC
24VDV, 2.5A, 60W
2CB
3A
9400-35-012
1MCC
9400-01-222
1CR
9400-34-007
03-3-8
WATER FLUSH SOL.
1SV
9600-50-005
1HC
9400-34-019
HEATER RELAY
HEATER
3000 WATT
2400-21-102
1EH
14 GA. HI-TEMP
TB1
TB2
Rear Electrical Enclosure
L2 : REAR LOCATION (HEATER JUNCTION BOX)
L1 : Main Electrical Enclosure Location
Document realized with version : 24.2.0. o. 5. 6


FM-14 Table Top Cooker W/ MINI PUMP
CONTROL
208-240 VAC 14-15.5 AMP 3000 WATT
PART #2420-06-007B
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2420-06-007
REV B
03 OF 06
DRAWN BY: FR
DATE: 09-FEB-2014
1825 Greenleaf Ave
Elk Grove Village, IL, 60007
(847) 981-3000
1PLC
9400-20-540
2ENCL ENCLOSURE ADDITIONAL PARTS
ALL CONTROL WIRES ARE 20GA LT. BLUE.
NOTE:
Blue & Black wire are not used within 1RC.
CONNECT SHIELDS AT
THIS END ONLY!
USE SEPARATE GROUND
LEADS TO COVER
GROUND STUD.
PLC Inputs
50 DI:0 E-Stop Detect
51 DI:1 Lid Switch Limit Closed(Optional)
52 DI:2 -
53 DI:3 Tilt Limit Switch Signal
54 DI:4 -
55 DI:5 Pump Remote Control/Foot Pedal
56 FI:0 Pump Extended Limit Switch
57 FI:1 -
PLC Outputs
60 DQ:0 -
61 DQ:1 Master Control Contact Relay
62 DQ:2 Cold Water Flush Relay
63 DQ:3 Audible Alarm
64 DQ:4 -
65 DQ:5 Pump Air Solenoid
66 FQ:0 Pump Flow Distributor Heater
67 FQ:1 -
Analog Inputs
EX0+ Product Temp Sensor RTD
EX1+ Kettle Temp Sensoe RTD
Analog Ouputs
AQ0 Solid State Heater Relay
AQ1
EMERGENCY STOP PB
ENCLOSURE FAN
MASTER CONTROL
RELAY
TILT SWITCH
30 DEGREE
LID SWITCH
(Optional)
REMOTE FOOT PEDAL
WATER FLUSH
RELAY
AUDIBLE ALARM
TRANSFER PUMP
AIR SOLENOID
PUMP HEATER
RELAY
PUMP EXTENDED
LIMIT SWITCH
PRODUCT
TEMP SENSOR
1TS
RTD
TEMPERATURE
SENSOR
KETTLE
TEMP SENSOR
2TS
RTD
TEMPERATURE
SENSOR
FLOW DISTRIBUTOR HEATER
1300-50-255
(OPTIONAL)
PUMP CONTROL
CONNECTOR
RECEPTACLE, SRC
REMOTE CONTROL
FOOT SWITCH
SOCKET VIEW
PIN VIEW
1PB
2MT
1MCC
1MCC
1MCC
1LS
2LS
1FS
5RC
1CR
1AL
2SV
4CR
4CR
1PS
1RC
2RC
1FDH
9400-70-017
9400-01-222
9400-01-222
9400-30-127
2400-11-120
9400-30-227
1320-11-105
9400-10-067
9400-34-007
9400-21-061
9400-30-020
9400-34-007
9400-02-105
9400-10-070
9400-34-007
3 COND
22GA SHIELDED
3 COND
22GA SHIELDED
20 WATT
@ 240 VOLT
53°C
L2
TB2 19
L2
TB2 32
L2
TB2 34
TB2 51
TB2 53
TB2 31
TB2 33
02-3
02-7
02-8
02-2
03-1
03-2
03-3
03-4
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03-7
03-8
03-9
03-10
03-11
03-12
RED/WHT
RED/BLK
GRN
RED/BLK
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Mark	Qty	Part Number	Description
1FDH	1	1300-50-255	FLOW DISTRIBUTOR HEATER, AL, 240V, 127*F/53*C, RECEPT 4PIN (Use with CORDSET 1330-02-029)
1FS	1	1320-11-105	FOOT PEDAL SWITCH ASSEMBLY
2SV	1	1382-09-310	AIR REGULATOR AND FILTER ASSEMBLY
1LS	1	2400-11-120	FM-14 TILT SWITCH ASM
1ENCL, 2ENCL	2	2400-11-122	FM-14 SUBPANEL
1TS	1	2400-14-203	50# COOKER PROBEHOLDER ASSY
1EH	1	2400-21-102	PLATE HEATER 208VAC 1PH 3000 WATT
1ENCL, 2ENCL	2	2410-01-050	FM-14, CONTROL BOX, MOUNT WELDMENT
1HC	1	9100-00-403	T SINK COMPOUND-8OZ JAR #12008
1SV	1	9300-00-310	1/2" NPT CLOSE NIPPLE, SS
1SV	1	9300-00-403	1/4" NPT X 3.5" NIPPLE, BRASS
1SV	1	9300-00-404	1/4" NPT X 5 1/2" NIPPLE, BRASS
1SV, 1SV, 1SV	3	9300-60-062	LOCKNUT 1/2" CONDUIT CONNECTOR
1MT	1	9400-00-144	50 LB HYPONIC 1/8 HP RIGHT ANGLE GEARMOTOR
1MCC, 1MCC	2	9400-01-222	CONTACTOR MINI 3P 16A 24VDC W/1NO AUX
1PS	1	9400-02-105	SWITCH AIR PRES. .5 TO 60PSI AIRTROL PRESSURE SWITCH FLUSH MNT
2RC	1	9400-10-034	RECEPTACLE 4 SOCKET 1/4"NPT 22GA
5RC	1	9400-10-067	RECEPTACLE 4 SOC 1/4" FEMALE INTTH
1RC	1	9400-10-070	RECEPTACLE 4 SOC SINGLE KEYWAY FEMALE THREAD Pg9 22GA MICRO
1TX	1	9400-20-346	POWER SUPPLY 60W 24VDC 100-240VAC WIDE
1VFD	1	9400-20-377	VAR FREQ DRIVE 0.25HP 240V 1PH ATV12
1PLC, 1PLC	2	9400-20-540	PLC 5.7" COLOR HMI/PLC WITH 8 DIGITAL IN/OUT 4 ANALOG INPUTS 2 ANALOG OUTS
1AL	1	9400-21-061	ALARM AUDIBLE 12-24VAC/DC Panel Mount
1COM	1	9400-21-123	RJ-45 CABLE MODBUS 2FT
1RES	1	9400-23-109	RESISTOR 2.2k OHMS 1/2 WATT

SAVAGE BROS CO. SINCE 1855
1825 Greenleaf Ave
Elk Grove Village, IL, 60007
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FM-14 Table Top Cooker W/ MINI PUMP
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: FR | DATE: 09-FEB-2014

PART #2420-06-007B
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2420-06-007

REV B

04 OF 06

Document realized with version : 2020.0.5.6

Mark	Qty	Part Number	Description
1PB	1	9400-30-127	PUSH BUTTON - MUSHROOM (PUSH-PULL), IP66, 40mm COLOR CAP
2LS	1	9400-30-227	RND CODED MAG. SWITCH, CMS-R-C (084575) & RND EUCHNER CODED MAGNET CMS-M-C (084577)
1SV	1	9400-33-020	PLAST. BUSHING 1/2"NPT FEMALE
1CR, 4CR	2	9400-34-007	RELAY &SOCKET 24AC/DC 6AMP DIN MT
1HC	1	9400-34-019	RELAY SOLID STATE 25A 240V 4-20mA Analog COIL
1HC	1	9400-34-020	HEAT SINK for SOLID STATE RELAY 50A HOCKEY PUCK
2CB	1	9400-35-012	CIRCUIT BREAKER 3A 2P UL489 480VAC MAX RATING
1CB	1	9400-35-029	Circuit Breaker; Therm/Mag; Hndl; Cur-Rtg 20A; DIN Rail; 2 Pole; Screw Snap; L Series; C
1ENCL	1	9400-40-014	TERMINAL BLOCK 8 POS 2 ROW
1ENCL, 1ENCL	2	9400-40-021	MOUNTING RAIL DIN - WIDTH=35MM, LENGTH=4-1/4", MOUNTING RAIL DIN - WIDTH=35MM, LENGTH=10-5/8"
2ENCL	1	9400-40-022	MOUNTING RAIL DIN - 35MM STEEL 2 METER RAW LENGTH CUT INTO INCHES
1PB	1	9400-40-049	CONTACT BLOCK 1NC 22MM E-STOP
TB2-7, TB1:-18, TB1:-50, TB1:-53, TB1:-51, TB1:-55, TB1:-64, TB2-31, TB2-53, TB1:-56, TB2-2, TB1:-3, TB1:-7, TB1:-2, TB2-51, TB2-33, TB2-1T1, TB2-1G, TB2-1T2, TB2-1T3, TB2-1S	21	9400-40-082	TERM. BLOCK GRAY DIN RAIL MNT , TERMINAL BLOCK SPRING GRAY RAIL MNT 2 TERMS 4mmSq
TB1:-1GTB	1	9400-40-083	TERM. BLOCK GROUND DIN RAIL MNT
TB1:-19, TB2-34, TB2-32, TB1:-17, TB2-19	5	9400-40-086	TERMINAL BLOCK SPRING GRAY RAIL MNT 3 TERMS 4mmSq
1MT	1	9400-50-054	67" LENGTH CORD 18/4 SOOW BLACK /FM-16/ (53" VFD to Box + 14" MOTOR to Box)
1PLG	1	9400-50-139	POWER CORD, 6-20P, 12/3, 8', SJT, 20A/250VAC (See FRONT Page for other Countries)
1CBL	1	9400-50-356	CABLE 18GA, 1000V, 4CND, SHIELDED, 90°C, 0.354"OD for Low Power VFD to MOTOR Connections
2ENCL, 1ENCL	2	9400-60-034	3/4" LIQUITITE STRAIGHT CONNECTOR
1PLG	1	9400-60-066	CORD GRIP W/FLEX CAP SEALCON .39-.55" (OR 9400-60-093)
1PLG, 1MT	2	9400-60-067	CORD GRIP LOCKNUT FOR 1/2"NPT

SAVAGE BROS CO. SINCE 1855

1825 Greenleaf Ave
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FM-14 Table Top Cooker W/ MINI PUMP
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: FR | DATE: 09-FEB-2014

PART #2420-06-007B
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2420-06-007

REV B

05 OF 06

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Mark	Qty	Part Number	Description
1MT	1	9400-60-080	CORD GRIP CONN. .312" - .437"
1ENCL, 2ENCL	2	9400-60-114	3/4" 90° LIQUITITE CONNECTOR ST-9075 APPL
2ENCL, 1ENCL	2	9400-60-168	28.5" LENGTH LIQUIDTITE 3/4 HIGH FLEX NON-METALIC CONDUIT HUBBELL B2075 POLYTUFF II, 28" LENGTH LIQUIDTITE 3/4 HIGH FLEX NON-METALIC CONDUIT HUBBELL B2075 POLYTUFF II
2MT	1	9400-70-017	FAN FILTERFAN, IP54, NEMA12, 24VDC, 32 CFM, 4.88"Sq CUTOUT, 2.31" DEEP, WASHABLE FILTER, 5.5 WATT
1MT	1	9400-90-487	LABEL SET FM-14 >= 2018
2TS	1	9600-01-013	TEMP SENSOR RTD .63"L 16"LEAD
1SV	1	9600-50-005	SOLENOID VALVE 230V 1/4"NPT X
2SV	1	9900-30-020	AIR SOLENOID VALVE 24VDC
2SV	1	9900-30-021	AIR SOLENOID VALVE BRACKET
2SV, 2SV	2	9900-40-009	ONE TCH 90 ELBOW 1/4X1/8"NPT
1PS	1	9900-40-010	ONE TOUCH TEE 1/4" OD TUBING
2SV	1	9900-40-062	ONE TCH BULKHD 1/4" OD TUBE
2SV	1	9900-40-064	ONE TCH BULKHD 1/4"ODX 1/4NPTF
2SV	1	9900-40-075	ONE TCH Y FITTING 1/4"X1/4"X1/4"
1PS	1	9900-40-076	ONE TOUCH REDUCER 1/4"TO
1PS	1	9900-40-077	ONE TCH STR FTG 5/32"OD X 10-32
1PS	1	9900-40-081	ONE TOUCH FLOW CTRL 1/4TUBE INLINE
2SV	1	9900-60-009	EXHAUST MUFFLER 1/4"NPT

SAVAGE BROS CO. SINCE 1855
1825 Greenleaf Ave
Elk Grove Village, IL, 60007
(847) 981-3000

FM-14 Table Top Cooker W/ MINI PUMP
BOM
208-240 VAC 14-15.5 AMP 3000 WATT

DRAWN BY: FR | DATE: 09-FEB-2014

PART #2420-06-007B
25 lb, PROCESS CONTROL
ELECTRICAL BOM # 2420-06-007

REV B

06 OF 06

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