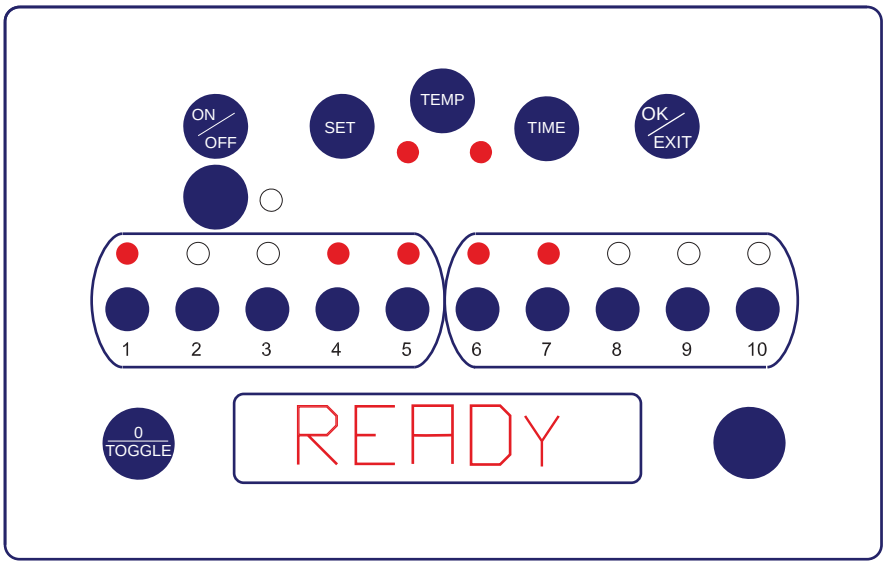
Flexible Fryer Control

Operation Instructions



10 Programmable Channels

Push Button with LED Display

AMETEK® NCC®

NATIONAL CONTROLS CORPORATION

INTRODUCTION

The Flexible Fryer Control (FCC) is a low profile, high performance, microprocessor-based computer designed for use in commercial cooking appliances. The FCC ensures food product quality since every batch is cooked the same way using pre-programmed time and temperature parameters. There are 10 programmable channels. Each channel can be programmed with up to 10 cooking stages along with independent times and temperatures. Up to 3 alarms can be set as reminders to take action such as stir or shake the food product during cooking. The control can also raise and lower the baskets when the fryer is equipped with an automatic basket lift feature. During cooking the control displays the time remaining in the cook cycle and the number being cooked.

Other features of the control include a melt cycle for solid shortening, an automatic set back to an energy saving mode when the fryer is idle, an alarm when the shortening needs to be filtered, an alarm when the shortening needs to be disposed and a boil-out mode. The control can be programmed for Fahrenheit or Celsius and is configurable for gas or electric models. It is equipped with probe fault detection and drain valve interlock for additional safety. The application software can be easily updated with a USB thumb drive.

The FFC can be easily upgraded if new customizable add-on features are required. Such features are, but not limited to, oil level sensing, oil quality detection, auto refill options, remote monitoring, remote provisioning, fryer to fryer control linking an external sounder to boost audible feedback and dual vat control.

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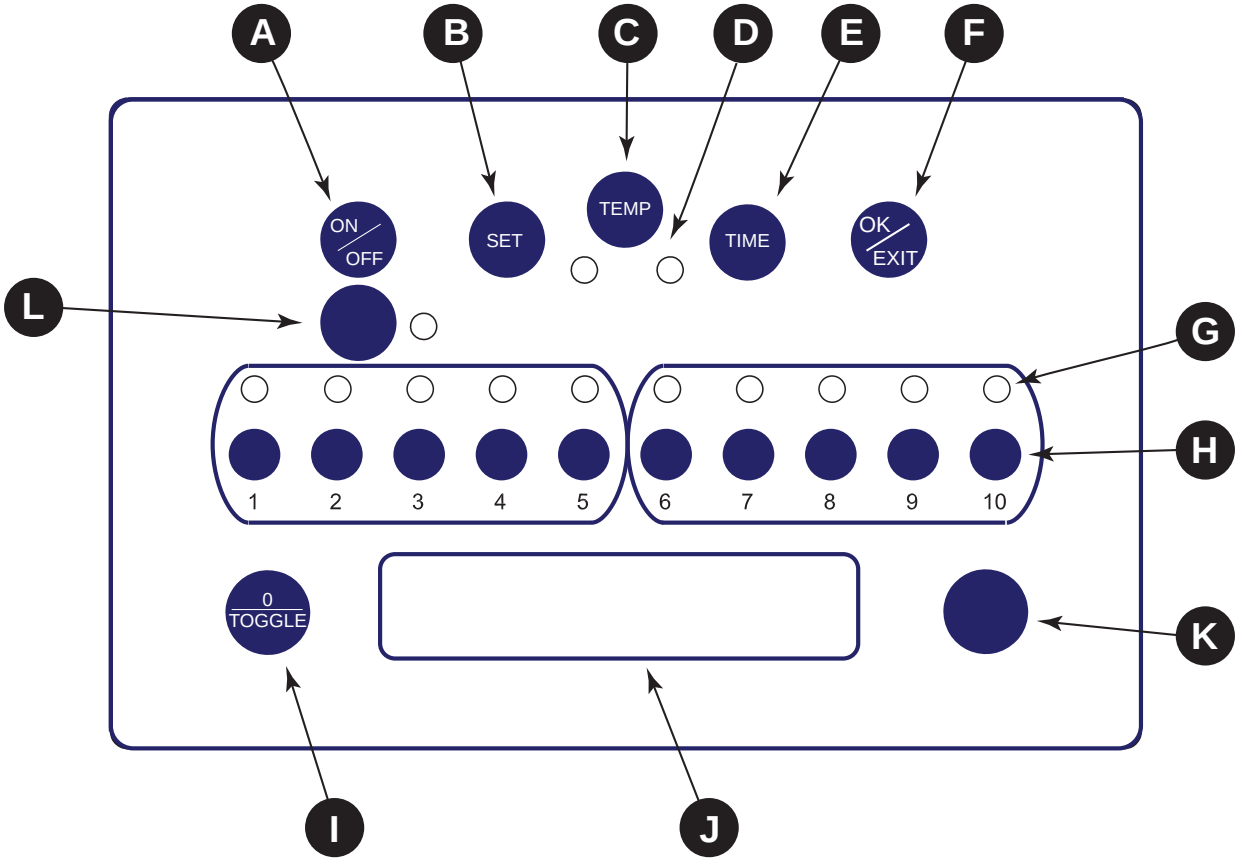
Hardware Specifications	
Input Power	24VAC ±25%, 50/60Hz, 24VA max.
Digital Inputs	One (1) 24VAC drain interlock digital input
Sensor Inputs	One (1) 91KΩ RT #16 NTC thermistor
Outputs	Two (2) relay drive outputs @24 VDC up to 100m are available to control the basket lift operation of left and right baskets
Audible Alarm	Piezoelectric beeper
Control Features	Setpoint Accuracy: ± 1% of full scale
	Fault Protection: Integral probe fault protection and shutdown circuity
User Interface	Eighteen (18) Dry Contact Buttons
	Thirteen (13) Red LED Indicators
	One (1) Display with Eight (8) 14 - Segment Red LED digits 1/2 inch high

CONTROL OVERVIEW



Control Panel Descriptions	
A.	**ON/OFF:** Turn control On or Off
B.	**SET:** Used by management for programming
C.	**TEMP:** View actual shortening temperature and set point temperature
D.	**HEAT ON:** LEDs (2) illuminate when control is calling for heat
E.	**TIME:** Starts timer when filtering the shortening
F.	**OK/EXIT:** act as a acceptance or confirmation during operation.
G.	**PRODUCT LEDs (10):** Illuminates when cook cycle can be activated, blinks fast when cooking, blinks slow when cycle is complete
H.	**PRODUCT KEYs (10):** Used to start or select a cook cycle
I.	**0/TOGGLE:** Used to display Filter Hit Counts/Time prompt
J.	**DISPLAY:** Displays modes, functions and operation of the computer
K.	*Button is inactive in this model*
L.	*Button is inactive in this model*

DISPLAY DESCRIPTIONS	
ACT ###F/C	Actual temperature of the shortening in Fahrenheit or Celsius
##:##	Time remaining in cook cycle or other control function in MM:SS
BOIL ##:##	Time remaining in the BOIL mode in MM:SS
OFF	Unit is ready to be turned ON
MELT E, G, P	Heating MELT cycle is on
READY	The shortening has reached the lower end of its programmed (SETPOINT) temperature
HIGH	The shortening temperature is more than 40°F above the SETPOINT temperature
HIGH TEMP	The shortening temperature is ABOVE 420°F (216°C). An alarm will signal, turn unit OFF.
DONE 1-10	Cooking cycle has completed for that specific product key.
or	Left or Right arrow for two basket operation
1 thru 10	Indicates which product key number is needing an action
STIR	Indicates that an action is needed for the product being cooked
SHAKE	
DONE	
	Shown on display for one basket operation

BASIC COOKING OPERATION

There are two operation modes: single vat fryer, one basket and single vat fryer, two baskets.

The cooking operation mode can be set through production configuration or PC configuration tool.

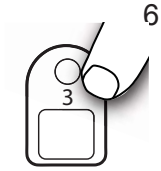
Single Vat Fryer, One Basket

1. After you have turned the fryer on per the manufacturer's instructions, press the **ON/OFF** button to turn on the fryer control.
   a. All the product key LED lights will be off.
   b. If the shortening in the fryer pot is less than 75°F (24°C), the display will show **MELT G** (Gas fryer) or **MELT E** (Electric fryer) or **MELT P** (Purge).
   c. When the shortening in the fryer pot reaches the proper melt point, a fast beep will sound for 5 seconds and the display will show **MELT EXIT**.

2. When the display flashes **MELT EXIT**, press the **OK/EXIT** button.
   a. The display will then show **HEATING**
   b. The product key LED or the last recipe used and the product key LEDs that share the same cook temperature will illuminate.
   c. You will be unable to use the fryer while the display shows **HEATING** when starting with a cold fryer.
   d. If the **OK/EXIT** button is not pressed then the display will continue flashing **MELT** alternating with **EXIT** until the shortening has reached the proper temperature.

3. Press the product key button of the desired recipe.
   a. The LED of the product key button pressed will illuminate.
   b. The product key LEDs that share the same cook temperature will also illuminate. The other product key LEDs will remain off or turn off.

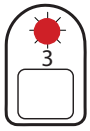
4. When the display shows **READY**, you can use the fryer.
5. Load the food product to be cooked into the basket.
6. Press the desired product key button. If the fryer is equipped with auto basket lifts then the basket will begin to lower into the shortening. If it is a manual fryer then immediately drop the basket.



CK3 3:00

   a. The LED of the product key button pressed will blink fast.
   b. The display will show the number of the product key button and the cook time counting down.
   c. Next to the product key number the display will show a **K** (Key).
   d. Next to the **K** the display will show a **C** (cook).

7. When indicated, stir or shake the food product according to your training.
   a. When required, an alarm will sound for 5 seconds and the display will show either **STIR** or **SHAKE**.
   b. The associated LED will blink and all the other LEDs will turn off.
   c. The alarm will automatically stop after 5 seconds and the display will go back to the product key number and time countdown.



DONE 3

8. When the display shows **DONE** and an alarm sounds the cook cycle is complete.
   a. The product key LED of the completed recipe will blink slower.
9. When the cook cycle is complete, the basket will begin to rise out of the shortening if the fryer is equipped with auto basket lifts. If it is a manual fryer then immediately remove the basket from the shortening and place on the hanger.

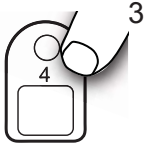
10. Press the blinking product key to silence the alarm and process the cooked food product according to your training.

NOTE: TERMINATE ANY RECIPE BY PRESSING THE PRODUCT KEY BUTTON AGAIN.

BASIC COOKING OPERATION
Single Vat Fryer, Two Baskets

1. After you have turned the fryer on per the manufacturer's instructions, press the **ON/OFF** button to turn on the fryer control.
   a. All the product key LED lights will be off.
   b. If the shortening in the fryer pot is less than 75°F (24°C), the display will show **MELT G** (Gas fryer) or **MELT E** (Electric fryer) or **MELT P** (Purge).
   c. When the shortening in the fryer pot reaches the proper melt point, a fast beep will sound for 5 seconds and the display will show **MELT EXIT**.

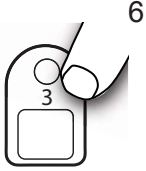
2. When the display flashes **MELT EXIT**, press the **OK/EXIT** button.
   a. The display will then show **HEATING**
   b. The product key LED of the last recipe used and the product key LEDs that share the same cook temperature will illuminate.
   c. You will be unable to use the fryer while the display shows **HEATING** when starting with a cold fryer.
   d. If the **OK/EXIT** button is not pressed then the display will continue flashing **MELT** alternating with **EXIT** until the shortening has reached the proper temperature.



3. Press the product key button of the desired recipe.
   a. The LED of the product key button pressed will illuminate.
   b. The product key LEDs that share the same cook temperature will also illuminate. The other product key LEDs will remain off or turn off.

4. When the display shows **READY**, you can use the fryer.

5. Load the food product to be cooked into the basket.
   a. When the desired recipe is represented by product keys 1 through 5, load the food product to be cooked into the left basket.
   b. When the desired recipe is represented by product keys 6 through 10, load the food product to be cooked into the right basket.



K3 3:00

Left Arrow
Right Arrow

6. Press the desired product key button. If the fryer is equipped with auto basket lifts then the basket will begin to lower into the shortening. If it is a manual fryer then immediately drop the basket.
   a. The LED of the product key button pressed will blink fast.
   b. The display will show the number of the product key button and the cook time counting down.
   c. Next to the product key number the display will show a **K** (Key).
   d. Next to the **K** the display will show an arrow pointing to the basket being used. The arrow will point to the left basket when recipes 1 through 5 are cooking or point to the right basket when recipes 6 through 10 are cooking.

7. If the food product being cooked has a multistage recipe *(a recipe that automatically changes temperature during cooking)* then a second product cannot be cooked in the remaining empty basket. Skip to step 12. If the food product being cooked has a single stage recipe then continue to step 8.

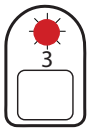
8. A second food product can be cooked in the remaining empty basket if:
   a. The second desired recipe is not a multistage recipe.
   b. The second desired recipe product key LED is illuminated.
   c. The second desired recipe product key is on the same side as the empty basket: the left basket is empty and the product key is one of 1 through 5 or the right basket is empty and the product key is one of 6 through 10. This is necessary only if the fryer is equipped with auto basket lifts.

9. If all the requirements in step 8 are met, load the food product to be cooked into the empty basket.

10. Press the desired product key button. If the fryer is equipped with auto basket lifts then the basket will begin to lower into the shortening. If it is a manual fryer then immediately drop the basket.
    a. The LED of the product key button pressed will blink fast.
    b. The display will show the number of the product key and the time counting down.
    c. Next to the product key number the display will show a **K** (Key)
    d. Next to the **K** the display will show an arrow pointing to the basket being used. The arrow will point to the left basket when recipes 1 through 5 are cooking or point to the right basket when recipes 6 through 10 are cooking.

K6 3:30

11. The display will alternate between the first recipe and the second recipe.
12. When indicated, stir or shake the food product according to your training.
    a. When required, an alarm will sound for 5 seconds and the display will show either **STIR** or **SHAKE**.
    b. The associated LED will blink and all the other LEDs will turn off.
    c. The alarm will automatically stop after 5 seconds and the display will go back to the product key number and time countdown.



13. When the display shows **DONE** and an alarm sounds the cook cycle is complete for one of the baskets.
    a. The product key LED of the completed recipe will blink slow, the other product key LEDs will turn off or remain off.
    b. The display will show **DONE** along with the associated product key number.
    c. The arrow icon will point to the designated basket.

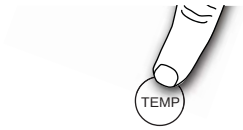
DONE 3

14. When the cook cycle is complete, the basket will begin to rise out of the shortening if the fryer is equipped with auto basket lifts. If it is a manual fryer then immediately remove the basket from the shortening and place on the hanger.

15. Press the blinking product key to silence the alarm and process the cooked food product according to your training.
16. If a second recipe is still cooking in the other basket and there are no other recipes to be cooked at this time then skip to step 12. If a second recipe is still cooking in the other basket and there are other recipes to be cooked then skip to step 9.

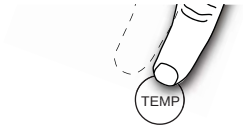
NOTE: TERMINATE ANY RECIPE BY PRESSING THE PRODUCT KEY BUTTON AGAIN.

VIEW TEMPERATURE



ACT 200°F

ACTUAL TEMPERATURE: To view the actual temperature of the shortening, press the TEMP button.



SET 275°F

SET POINT: To view the set point (the programmed cook temperature) of a given recipe, be sure the LED of that product key is illuminated. If not, press the desired product key. The product key LEDs that share this cook temperature or set point will be illuminated. Press **TEMP** button and the display shows the actual temperature. Press the **TEMP** button again and the display will show the set temperature.

PROMPTS

STIR — When the display shows **STIR**, then according to your training, stir the food product being cooked in the basket indicated by the number also shown on the display.

SHAKE — When the display shows **SHAKE**, then according to your training, shake the food product being cooked in the basket indicated by the number also shown on the display.

FILTER — See **FILTER SHORTENING** section

DISPOSE — See **DISPOSE SHORTENING** section

HIGH — When the display shows **HIGH** then the shortening is more than **40°F (22°C)** above the set point. This may affect food product quality. See a manager to discuss options or wait until the shortening has cooled and the display shows **READY**. This is a caution warning, the fryer and control will still function when a product key button is pressed.

ALERTS

SET BACK — When the display shows **SETBACK** the control is in energy saving mode, see the **ENERGY SAVING MODE (SETBACK)** section.

HIGH TEMP — When the display shows **HIGH TMP** an audible alarm will also sound. Silence the alarm by pressing the **ON/OFF** button to turn the control off. **HIGH TMP** means the shortening is above **420°F (216°C)** or it is too high for cooking. Wait for the shortening temperature to cool then use the fryer again. If the alarm sounds and the display shows **HIGH TMP** again then service or maintenance is probably required. Turn off the control and the fryer. Report this to the manager.

PB OPEN
PB SHORT
OVERRIDE — When the display shows **PB OPEN**, **PB SHORT**, or **OVERRIDE** an audible alarm will also sound. Silence the alarm by pressing the **ON/OFF** button to turn the control off. **PB OPEN**, **PB SHORT**, or **OVERRIDE** means there is a problem with the shortening temperature sensing probe. All cooking and heating terminate and you will not be able to use the fryer. Service or maintenance is required. Turn off the fryer. Report this to the manager.

DRAINING — Drain Valve Interlock: If the drain valve is opened while using the fryer, all cook timers will cancel and the display will alternate between draining and turn off.
Also see **FILTER SHORTENING** and **DISPOSE SHORTENING**.

ENERGY SAVINGS MODE (SETBACK)

AUTOMATIC: The control may be programmed to automatically enter energy saving mode when the fryer has not been in use for a specified amount of time. The control has automatically gone in to energy saving mode when the display shows **SETBACK**.

1. When the display shows **SETBACK** the shortening temperature will cool and be maintained at a pre-programmed temperature that is lower than the lowest set point.
2. The fryer will remain in **SETBACK** mode until terminated.
3. The **SETBACK** mode is terminated by pressing the **OK/EXIT** button or any product key button.
4. The display shows **HEATING**.
5. You will be unable to use the fryer while the display shows **HEATING**.
6. When the display shows **READY,** you can use the fryer.

MANUAL: If the control has not automatically entered in to energy saving mode (SETBACK) but, the fryer will not be in use for a long period of time, you can save energy by manually placing the fryer in **SETBACK** mode. This can be done as long as the control is not in the **MELT** cycle and the shortening actual temperature is greater than **220°F (104°C)**.

1. Press the **TEMP** button then press the **OK/EXIT** button
2. The display shows **SETBACK.**
3. When the display shows **SETBACK** the shortening temperature will cool and be maintained at a pre-programmed temperature that is lower than the lowest set point.
4. The fryer will remain in **SETBACK** mode until terminated.
5. The **SETBACK** mode is terminated by pressing the **OK/EXIT** button or any product key button.
6. The display shows **HEATING**.
7. You will be unable to use the fryer while the display shows **HEATING**.
8. When the display shows **READY**, you can use the fryer.

FILTER SHORTENING

In most cases management will establish shortening filter frequencies that coincide with the parts of the day. When the display shows **FILTER** and alternates between the normal display, plan to filter the shortening at the next convenient time.

CAUTION

Refer to the fryer manufacturer's owner's manual or management's specific instructions for filtering the shortening. Be sure to obey all safety precautions listed such as wearing safety goggles, neoprene insulated gloves and an apron as the shortening is extremely hot and will cause devastating and permanent damage to your body if it comes in contact with skin.

The following instructions are meant to compliment the fryer manufacturer's owner's manual and/or management's specific instructions:

1. Set up and make ready a Filter Tub or other container, install a stand pipe and otherwise prepare any other equipment or accessories to filter the shortening per the fryer manufacturer's owner's manual and/or management's specific instructions.
2. Turn off the fryer itself but do **NOT** turn off the control. If it is a gas fryer then also turn off the manual gas valve for the fryer to be filtered. Complete any other fryer turn off procedures per the fryer manufacturer's owner's manual and/or management's specific instructions.
3. If required, add filter agent and stir per the fryer manufacturer's owner's manual and/or management's specific instructions.
4. Skim the shortening to remove any floating crumbs or debris.
5. Perform any other instructions required by the fryer manufacturer's owner's manual and/or management's specific instructions before opening the drain.
6. Open the drain.
7. When the drain is open the control display shows **DRAINING** alternating with **FILTER**.
8. When the display shows **DRAINING FILTER**, press the **TIME** button. The display then shows **FILT** and a 10 minute timer which begins to count down.
9. When the filter timer times out the display shows **FILTER** alternating with **DONE** and an alarm will sound for 5 seconds.
    a. The filter timer can be terminated early by pressing the **OK/EXIT** button. The display then shows **DRAIN** alternating with **CLOSE**.
10. When the display shows **FILTER DONE**, press the **OK/EXIT** button. The display then shows **DRAIN** alternating with **CLOSE**.
11. Complete all remaining steps for filtering the shortening per the fryer manufacturer's owner's manual and/or management's specific instructions.
12. When required by the fryer manufacturer's owner's manual and/or management's specific instructions close the drain. The display then shows **TURN OFF**.
13. When the display shows **TURN OFF**, press the **ON/OFF** button to turn off the control.
14. Perform all remaining shortening filtering tasks per the fryer manufacturer's owner's manual and/or management's specific instructions.

BOIL OUT

Management will establish boil out frequencies that coincide with certain days and/or parts of the day.

CAUTION

Refer to the fryer manufacturer's owner's manual or management's specific instructions for boiling out the fryer. Be sure to obey all safety precautions listed such as wearing safety goggles, neoprene insulated gloves and an apron as the shortening is extremely hot and will cause devastating and permanent damage to your body if it comes in contact with skin.

The following instructions are meant to compliment the fryer manufacturer's owner's manual and/or management's specific instructions:

1. Set up and make ready a Filter Tub or other container, install a stand pipe and otherwise prepare any other equipment or accessories to remove the shortening per the fryer manufacturer's owner's manual and/or management's specific instructions.
2. Turn off the fryer and the control. If it is a gas fryer then also turn off the manual gas valve for the fryer whose shortening is to be removed. Complete any other fryer turn off procedures per the fryer manufacturer's owner's manual and/or management's specific instructions.
3. Perform any other instructions required by the fryer manufacturer's owner's manual and/or management's specific instructions before opening the drain.
4. Open the drain.
5. Put the shortening off to the side if it is to be re-used. Otherwise, perform any instructions for disposing of the shortening required by the fryer manufacturer's owner's manual and/or management's specific instructions.
6. Perform any instructions for closing the drain valve and adding water to the fry pot as required by the fryer manufacturer's owner's manual and/or management's specific instructions.
7. Add boil out compound per the fryer manufacturer's owner's manual and/or management's specific instructions.

8. After turning on the fryer according to the manufacturer's instructions, press the **ON/OFF** button to turn on the fryer control.
9. Place the control in to **BOIL OUT** mode by pressing the **TEMP** button followed by product button 2, then product button 1, then product button 2 **(TEMP, 2, 1, 2)**.
   a. The display shows **BOIL 30:00** and will begin to count down.
   b. The control will heat and maintain the water temperature at **192F (89C)** throughout the 30 minute boil out procedure.
10. Frequently scrub the sides, front and rear of the fryer pot and perform any other boil out cleaning procedures required by the fryer manufacturer's owner's manual and/or management's specific instructions.
11. After 30 minutes the **BOIL OUT** timer will time out and the display will alternate between **DONE** and **TURN OFF**.

12. Press the **ON/OFF** button to exit the **BOIL OUT** mode.
13. Perform all remaining **BOIL OUT** tasks per the fryer manufacturer's owner's manual and/or management's specific instructions.

DISPOSE SHORTENING

In many cases management will establish shortening disposal frequencies that coincide with certain days and/or parts of the day. When the display shows **DISPOSE** and alternates between the normal display, plan to dispose of the shortening at the next convenient time.

CAUTION

Refer to the fryer manufacturer's owner's manual or management's specific instructions for disposing of the shortening. Be sure to obey all safety precautions listed such as wearing safety goggles, neoprene insulated gloves and an apron as the shortening is extremely hot and will cause devastating and permanent damage to your body if it comes in contact with skin.

The following instructions are meant to compliment the fryer manufacturer's owner's manual and/or management's specific instructions:

1. If the store is equipped with a Shortening Disposal System then perform the shortening disposal procedure per the fryer manufacturer's owner's manual and/or management's specific instructions. Skip to step 3.
2. If the store is not equipped with a Shortening Disposal System then set up and make ready a Filter Tub or other container, install a stand pipe and otherwise prepare any other equipment or accessories to dispose of the shortening per the fryer manufacturer's owner's manual and/or management's specific instructions.
3. Turn off the fryer. The control may be turned off or remain on. If it is a gas fryer then also turn off the manual gas valve for the fryer whose shortening is to be disposed. Complete any other fryer turn off procedures per the fryer manufacturer's owner's manual and/or management's specific instructions.
4. Perform any other instructions required by the fryer manufacturer's owner's manual and/or management's specific instructions before opening the drain.
5. Open the drain.
   a. If the fryer and control have not been turned off then the display will show **DISPOSE** alternating with **DRAINING**.
6. Perform any instructions for disposing of the shortening and/or cleaning the fryer pot required by the fryer manufacturer's owner's manual and/or management's specific instructions.
7. Perform any instructions for closing the drain valve and refilling the fryer pot with new cooking oil or solid shortening required by the fryer manufacturer's owner's manual and/or management's specific instructions.

8. After turning on the fryer according to the manufacturer's instructions, press the **ON/OFF** button to turn on the fryer control.
9. The display will show **DISPOSE** and alternates between the normal display, The ***DISPOSAL HIT COUNT*** needs to be reset to clear the **DISPOSE** prompt on the display.
10. Perform any instructions by the fryer manufacturer's owner's manual and/or management's specific instructions to clear the prompt.

Flexible Fyrer Control (FFC)

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