3245 Corridor Drive, Eastvale, CA 91752
800.769.2414 • 951.360.1600
951.360.7500 (Fax)

OWNER'S MANUAL
INSTRUCTIONS, INSTALLATION, OPERATION, MAINTENANCE
MODELS: RHEF-45, 60, 75-CM

****READ THIS MANUAL IN ITS ENTIRETY BEFORE USING THE FRYER ****

FOR YOUR SAFETY	WARNING
DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.	**Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.**

Instruction to be followed in the event the user smells gas shall be posted in a prominent location. This information shall be obtained by consulting the local gas supplier. This equipment is design engineered for commercial use only.

RETAIN THIS MANUAL FOR FUTURE REFERENCES.

IMPORTANT. Installing, Operating and Service Personnel:
Installation of the equipment should be performed by qualified, certified, licensed and/or authorized personnel who are familiar with and experienced in state/local installation codes. Operation of the equipment should be performed by qualified or authorized personnel who have read this manual and are familiar with the functions of the equipment. Service of the equipment should performed by qualified personnel who are knowledgeable with ROYAL RANGE OF CALIFORNIA, INC.

SHIPPING DAMAGE CLAIM PROCEDURE

The equipment is inspected & crafted carefully by skilled personnel before leaving factory. The transportation company assumes full responsibility for safe delivery upon acceptance of this equipment. If shipment arrives damaged:

1. **Visible loss or damage:** Note on freight bill or express delivery and have signed by the person making delivery.
2. **File claim for damages immediately:** Regardless of the extent of damage.
3. **Concealed loss or damage:** If damage is noticed after unpacking, notify the transportation company immediately and file 'Concealed Damage' claims with them. This should be done within fifteen (15) days from the date delivery is made to you. Retain container for inspection.

INSTALLATION INSTRUCTIONS

The area around the appliance must be kept free and clear of combustibles such as solvents, cleaning liquid, broom, rags, etc. Proper clearances must be provided at the front of the appliance for servicing and proper operation. Provisions shall be incorporated in the design of the kitchen, to ensure adequate supply of fresh air and adequate clearance for air openings into the combustion chamber, for proper combustion, and ventilation.

For proper operation of the appliance, do not obstruct the flow of combustion and ventilation air. The installation must conform with local codes, or in the absence of local codes, to the national fuel gas code, ANSIZ223.1-1988 (or latest addenda), national gas installation code, CAN/CGA-B 149.1, or the propane installation code, CAN/CGA-B 149.2 as applicable.

The appliance and its individual shut off valve must be disconnected from the gas supply piping system during any pressure testing of that system in excess of ½ PSI.

The appliance must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing of the gas supply piping system at test pressure equal to or less than ½ PSI.

The gas supply line must be at least the same size as the inlet of the appliance. Installation on floor shall be with factory supplied legs or casters.

Clearance	Combustible	Non-Combustible
Sides	6”	0”
Rear	6”	0”

WARNING: Hot oil and hot surfaces can cause severe burns. Use caution when operating the fryer.
Do not attempt to move the fryer filled with hot oil or shortening.
Do not go near the area directly above the flue when fryer is in operation. Severe burns may be caused.
Drain hot oil in metal containers, do not use plastic buckets or glass containers.

FLEXIBLE COUPLINGS, CONNECTORS AND CASTERS

If the unit is to be installed with casters, the installation shall be made with a connector that complies with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69 or Connectors for Moveable Gas Appliances, CAN/CGA-6.16, and a quick-disconnect device that complies with the Standard for Quick-Disconnect Devices for Use With Gas Fuel, ANSI Z21.41, or Quick Disconnect Devices For Use with Gas Fuel CAN1-6.9. Locking front casters are provided to limit the movement of the appliances without depending on the connector or associated piping. A suitable strain relief must be installed with the flexible connector.

Restraining device may be attached to the back frame/panel of the unit.

All connections must be sealed with a joint compound suitable for LP gas and all connections must be tested for leaks with a soapy water solution before lighting pilots.

MAINTENANCE

CLEANING:

For continued performance efficiency and longevity of your Fryer, it is essential to carry out a good maintenance program.

DAILY:

1. Remove all "LOOSE" parts (Basket hangers, baskets, crumb screen, etc.) and wash thoroughly.
2. Wipe clean all exterior and interior accessible surfaces and parts.
3. Filter the liquid oil/shortening at the end of the day, replace if necessary. If fryer is under heavy use, filter more often during the day.

WEEKLY:

1. Shut down the fryer. Allow oil to cool down.
2. Drain the oil in a filter pan or steel container. Flush out sediments at the bottom of the vessel with liquid oil.
3. Close the drain valve and fill the vessel with a mixture of boil-out solution and water.
4. Turn on the fryer.
5. Follow BOIL-OUT procedures in this Manual.
6. Drain out solution, scrub the insides with a brush and rinse thoroughly.
7. Repeat the cleaning procedure, if necessary.
8. Wipe dry with soft towels and refill with clean oil/shortening.

WARNING: All water must be removed before adding oil or shortening. Not doing so can result in splattering of hot oil.

STAINLESS STEEL PARTS

Do not use steel wool, abrasive cloths, cleaners or powders to clean stainless steel surfaces. All stainless steel parts should be wiped regularly with hot soapy water during the day and a stainless steel liquid cleaner at the end of the day. To remove encrusted materials, soak in hot water to loosen the material, then use a wood or nylon scraper.

Contact the factory, factory representative or an authorized, qualified service company to perform maintenance and repairs.

CONTROL PANEL BUTTON DESCRIPTIONS

CONTROL PANEL BUTTON DESCRIPTIONS

1. **CM BOARD**

2. **ON/OFF BUTTON**
   Turns the Fryer ON and OFF.

3. **SET BUTTON**
   a. In “operating” mode, allows access to the programming mode.
   b. In “programming” mode, allows exit back to operating mode.

4. **HEAT DEMAND LEDs**
   When lit bright, indicate that the computer is calling for heat.

5. **TEMPERATURE BUTTON**
   a. When pressed once, displays actual shortening/oil temperature.
   b. When pressed twice within 3 seconds, displays current set point temperature.

6. **TIME BUTTON**
   Not applicable on this Fryer.

7. **OK/EXIT BUTTON**
   a. In “operating” mode - used to exit the shortening melt mode.
   b. In “programming” mode - serves as an ACCEPT or ENTER button.

8. **PRODUCT LEDs (1 THROUGH 10)**
   a. When BLINKING fast in “cooking mode”, indicates cooking of that product is in progress.

9. **PRODUCT COOK BUTTONS (A through H) and PROGRAMMING BUTTONS (0 through 9)**
   a. In "operating" mode, (A through H) are used to start and stop a product cook cycle.
   b. In "programming" mode, (0 through 9) are used to enter numerical values and to select RECIPES or FEATURES to be programmed.

10. **BUTTON (0)**
    In "programming" mode, when pressed, is used to:
    1. Enter the numerical value "0".
    2. a. Select FLEX or STRAIGHT time modes.
       b. Select CELSIUS or FAHRENHEIT units.
       c. Set ALARM volume
       d. Choose MELT Mode duration.

11. **DISPLAY WINDOW**
    Displays modes, functions and operation of the computer.

12. **BUTTON (9)**
    In programming mode, used to enter the numerical value "9".

**** WARNING: DO NOT START THE FRYER UNLESS SHORTENING/OIL IS AT THE LEVEL INDICATED ON THE REAR WALL OF THE FRYER. STARTING THE FRYER WITHOUT SHORTENING/OIL COMPLETELY COVERING THE HEAT TUBES WILL CAUSE HEAT STRESS AND LEAD TO POTENTIAL OIL LEAKS. ****

USING THE FRYER FOR THE FIRST TIME:

New units have a coating of oil on the interior of the vessel (vat). To remove this coating, a BOIL OUT procedure must be performed. See section below.

FRYER VESSEL BOIL-OUT

Boil out each new fryer. Follow the cleaning instructions on the boil out solution's label. **WARNING:** ONLY USE A COMMERCIAL GRADE "NON-CHLORINE" BOIL-OUT PRODUCT!!

BOIL-OUT PROCEDURE:

1. Ensure that Drain Lever is in the closed position. Add water into the vessel (vat) to the level mark on the rear wall.
2. Add the amount of BOIL-OUT solution per directions on its label.
3. Turn the POWER switch to ON.
4. Press ON/OFF button on computer board.
5. To start the BOIL MODE, press the following Computer buttons in the order shown: TEMP, 2, 1, 2. Display will read **"BOIL 30:00"** and the Computer will turn the burners ON and OFF to heat and maintain the boil-out solution at 192°F (89°C).
6. During boil-out, frequently scrub the sides, front and rear of the fryer vessel (vat).
7. After 30 minutes an alarm will sound indicating the end of the boil out cycle. Display will read **"BOIL, DONE, TURN OFF"**. Press the ON/OFF button to EXIT BOIL MODE. Fryer will turn off.

8. Carefully dispose of the boil-out solution.
9. Use a scrubbing pad to remove any buildup on the heating tubes and vessel (vat) walls.
10. Rinse with hot water until the water coming out of the drain valve is clear.
11. Thoroughly wipe the sides, heat tubes and bottom of vessel (vat) with clean, lint- free dry towels to remove any remaining water.

USE OF SOLID SHORTENING

MELTING SOLID SHORTENING:

1. Fryer must be off and cool.
2. Ensure that Drain Lever is in the closed position.
3. Remove crumb screen.
4. Place small pieces of shortening into the vessel (vat) and THOROUGHLY pack them between, below and above the HEAT tubes. Fill to level mark on the rear wall.
5. Turn the POWER switch to ON.
6. Press ON/OFF button on computer board. Display will read **"MELT G"** indicating the Computer is in the MELT MODE. The burners will turn ON and OFF periodically to gently heat and melt the solid shortening. If necessary continue adding solid shortening. Do not overfill the vessel.
7. Once the heat tubes are COMPLETELY covered with LIQUID to the level mark on the rear wall, place the crumb screen in the vessel (vat).

USE OF OIL

1. Fryer must be off and cool.
2. Ensure that Drain Lever is in the closed position.
3. Add oil to the level mark on the rear wall. Do not overfill the vessel.

COMPUTER SETTINGS AND PROGRAMMING

The computer has two (2) modes of operation: OPERATING MODE and PROGRAMMING MODE.

1. OPERATING MODE – Allows the user to choose programmed recipes: cook times, temperatures and action alarms for buttons (A through H).

2. PROGRAMMING MODE - Allows the user to add, delete or modify product RECIPES or FEATURES.
- **a.** RECIPE programming allows changes to: staged cook times, temperatures and action alarms of products.
- **b.** FEATURE programming allows changes to: Celsius/Fahrenheit, computer setback time/temperature and melt cycle options.

OPERATION

LIGHTING/START:

1. Turn the POWER switch to ON.
2. Press ON/OFF button on computer board to start the fryer. The computer will initiate the MELT MODE and the display will read **"MELT G"**. This mode is used to gently melt solid or congealed shortening. Each time the Fryer is turned on, the computer will enter the MELT MODE. The burners will turn ON and OFF periodically to gently melt and heat the shortening/oil to a preset temperature.

** NOTE: Upon starting the fryer, if the oil temperature is greater than 135°F, the user will be prompted to exit the Melt Mode.

The Computer will keep the Fryer in the MELT MODE until the Melt Release Temperature is reached, at which time the display will read **"EXIT"** (until then the Fryer CANNOT exit from MELT MODE). Melt Release Temperature is factory set to (135°F, 57°C). This is user changeable. Once the Melt Release Temperature is reached, the user must exit the Melt Mode by pressing the OK/EXIT button.

3. When shortening/oil reaches the Melt Release Temperature, the display will read **"EXIT".** Press the OK/EXIT button. The display will read **"HEATING"** and the burners will turn on until the set temperature is reached.
4. When shortening/oil reaches the set temperature, the display will read **"READY"** and the Fryer is ready to Cook after the shortening/oil is thoroughly stirred.

COOKING:

1. To **START a cook cycle**, press a product button. If that button is programmed, its LED will rapidly blink during cooking, the set cooking time will be displayed, (e.g. 5:30) and the countdown will begin. The computer will count down to 00:00, an alarm will SOUND and "**DONE"** will appear in the display. Press the blinking button to silence the alarm and reset that product button for another cook cycle.

2. To **CANCEL a cook cycle**, press and hold the product button for 3 seconds. Display will read **"READY"**.

** For complete **SHUT DOWN,** press "ON/OFF" button and turn the Power Switch to "OFF". **

ACTION ALARMS:

Some audible alarms are optional and may be chosen when programming cook recipes. When this feature is used, the Computer will alert the operator with RAPID BEEPING and the display will read **"STIR"** and continue counting to the next action alarm time.

RECIPE PROGRAM DISPLAYS

DISPLAY READS	DISPLAY DESCRIPTIONS
"**PROGRAM"**	Computer is in the program mode and allows the user to select between Recipe programming or Feature programming.
"RECIPE"	Computer is in the RECIPE program mode in which product staged cook times, temperatures, and action alarms may be programmed.
"TOO HIGH"	Number of steps, time, temperature, or action alarms entered is too high and is NOT ACCEPTABLE.
"TOO LOW"	Number of steps, time, temperature, or action alarms entered is too low and is NOT ACCEPTABLE.
"01 STEPS"	Default cook steps.
"S1 05:00"	Default cook time. (S1 = Step 1, 05:00 = 5 minutes for that step)
"STRAIGHT"	Default cook time mode where the product is cooked at a certain temperature for a certain time.
"FLEX"	Cook time mode where the computer adjusts the actual cook time based on the temperature variations due to load size, initial product temperature, product moisture content, and other factors affecting the cook cycle.
"S1 350F"	Default cook temperature of cook step. (S1 =Step 1, 350F = 350°F for that step). NOTE: different recipe buttons may have different cook steps and cook temperatures.
"ALARMS 0"	Default number of alarms.
"HITS"	Shortening/Oil degradation and abuse weight factor of the product button being programmed. This parameter is not used

FEATURE PROGRAM DISPLAYS

DISPLAY READS	DISPLAY DESCRIPTIONS
"**PROGRAM"**	Computer is in the program mode and allows the user to select between **Recipe** programming or **Feature** programming.
"FEATURE"	Computer is in the Feature mode in which the user can select: a. Celsius or Fahrenheit. b. Alarm volume. c. Setback time and temperature. d. Melt Mode Parameters.
"TOO HIGH"	Time or temperature entered is too high and is NOT ACCEPTABLE.
"TOO LOW"	Time or temperature entered is too low and is NOT ACCEPTABLE.
"DEGREE F"	Default degree unit (Fahrenheit).
"VOLUME 3"	Default volume setting.
"SETB 00:00"	Default SETBACK time in hours and minutes.
"SETB000F/C"	Default SETBACK temperature in degrees, Fahrenheit or Celsius.
"MELT G"	Default Melt mode for a gas fryer.
"M REL HI"	HIGH Melt Release temperature.
"M REL LO"	LOW Melt Release temperature.

COMPUTER PROGRAMMING

RECIPE PROGRAMMING:

Recipe programming allows the user to program:

a. Number of cook steps.
b. Cook time.
c. Straight or Flex Mode.
d. Cook temperature.
e. Number of alarms.

FEATURE PROGRAMMING:

Feature programming allows the user to program:

a. Degrees (C or F).
b. Alarm
volume.
c. Setback time and
temperature.
d. Melt Mode Parameters.

HOW TO PROGRAM RECIPE BUTTONS (A THROUGH H):

1. Turn the POWER switch to ON.
2. Press ON/OFF button on computer board to start the fryer.
3. Press SET button. Display will read **"PROGRAM"**.
4. Enter CODE **3660.** All recipe buttons will light and display will read **"RECIPE"**.
5. Press a recipe button (A through H) to be programmed. Display will read **"01 STEPS"**. Press OK/EXIT button to accept the default (single step cook cycle) or enter number of cook steps.
6. Press OK/EXIT button. Display will read **"S1 05:00"** (1 step for 5 min). Press OK/EXIT button to accept the default (5 min time) or enter desired cook time.
7. Press OK/EXIT button. Display will read **"STRAIGHT"**. Press OK/EXIT button to accept the default (STRAIGHT TIME) or press the "0" button to change to FLEX TIME.
8. Press OK/EXIT button. Display will read **"S1 350F"** (1 step at 350°F). Press OK/EXIT button to accept the default (350F) or enter desired cook temperature.
9. Press OK/EXIT button. Display will read **"ALARMS 0"**. Press OK/EXIT button to accept the default (0 - alarms) or enter desired number of alarms. (e.g. 1, 2 or 3). These alarms are used to alert the user during the recipe cook cycles. An alarm will still sound at the end of cook cycles regardless of number of alarms chosen in the feature.
10. Press OK/EXIT button. Display will read **"HITS 00"** (This feature is not used).
11. Press OK/EXIT button. Display will read **"RECIPE"**. You are now ready to program the next button or exit programming mode by pressing SET button twice.

** **NOTE:** A "programming timeout" will occur if no buttons are pressed for TWO (2) minutes and the computer will return to normal operation.

FEATURE BUTTONS (2 THROUGH 5)

Button 2 = Temperature units (C or F)
Button 3 = Alarm volume (1 through 3)
Button 4 = Setback (Time & Temperature), Time = Period of inactivity, Temperature = Set back temperature after that period.
Button 5 = Melt Mode (E, G & P) and Release Temperature (M REL HI & M REL LO).

**** In FEATURE programming, buttons 1, 6, 7 & 8 are not applicable to this fryer ****

HOW TO PROGRAM FEATURE BUTTONS (2 THROUGH 5):

1. Turn the POWER switch to ON.
2. Press ON/OFF button on computer board to start the fryer.
3. Press SET button. Display will read **"PROGRAM"**.
4. Enter CODE **3661.** Recipe buttons 2 through 8 will light and display will read **"FEATURE"**.
5. Press a Feature button (2 through 5 listed above) to be programmed.

   a. To change temperature units, press button **2**. Display will read **"DEGREE C/F"**. Press OK/EXIT button to accept the default setting (FAHRENHEIT) or press the "0" button to change to CELSIUS, then press OK/EXIT. Display will read **"FEATURE"**. You are now ready to program the next Feature button or exit programming mode by pressing SET button twice.

   b. To change alarm volume, press button **3.** Display will read **"VOLUME 3"**. Press OK/EXIT button to accept the default setting (VOLUME 3) or press the "0" button to change the volume, then press OK/EXIT. Display will read **"FEATURE"**. You are now ready to program the next Feature button or exit programming mode by pressing SET button twice.

   c. To change setback feature, press button **4.** Display will read **"SETB 00:00"**. Enter the time of INACTIVITY. Press OK/EXIT button. Display will read **"SETB 000F/C"**. Enter the setback temperature to be reduced to. Press OK/EXIT button. Display will read **"FEATURE"**. You are now ready to program the next Feature button or exit programming mode by pressing SET button twice.

   d. To change melt features, press button **5** for selection. Display will read **"MELT G"**. Press OK/EXIT button to accept the default setting (MELT G) or press the "0" button to change the Melt options. Display will read **"M RELEASE HI"**. Press OK/EXIT button to accept the default setting (M RELEASE HI) or press the "0" button to change the RELEASE setting, Then press OK/EXIT. Display will read **"FEATURE"**. You are now ready to program the next Feature button or exit programming mode by pressing SET button twice.

**** NOTE:** A "programming timeout" will occur if no buttons are pressed for TWO (2) minutes and the computer will return to normal operations.