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OWNER'S MANUAL
INSTRUCTIONS, INSTALLATION, OPERATION, MAINTENANCE
REF SERIES (ELECTRIC FRYER)

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

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.**

RETAIN THIS MANUAL FOR FUTURE REFERENCES.

IMPORTANT. Installing, Operating and Service Personnel:

Safe and satisfactory operation of your equipment depends to a great extent on its proper installation. Installation must conform with local codes, or in the absence of local codes, to the **National Electrical Code, ANSI/NFPA-70** (latest edition). In Canada, Installation should conform to **Canadian Electrical Code CSA-C22.2.**

Electrical wiring from the electric meter, main control box or service outlet to appliance must be electrically grounded in accordance with local codes, or in the absence of local codes, with the **National Electrical Code ANSI/NFPA- 70** (latest edition) or the **Canadian Electrical Code CSA-C22.2.**

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 be performed by qualified personnel who are knowledgeable with ROYAL RANGE OF CALIFORNIA, INC.

SHIPPING DAMAGE:

The equipment is inspected and crated carefully by skilled personnel before leaving the factory. The transportation company assumes full responsibility for safe delivery upon acceptance of this equipment. Upon receipt of shipment, immediately unpack and check for possible shipping damage. If the range is found to be damaged, save the packaging material and contact the carrier immediately.

RATING PLATE:

The rating plate is located on the inside of the front door. Information on this plate includes the model, serial number, power input, ampere draw and clearances. This data is essential for proper identification when communicating with the factory regarding a unit, requesting parts or information.

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ROYAL RANGE COOKING APPLIANCES MUST BE CONNECTED ONLY TO THE POWER INPUT IDENTIFIED ON THE RATING PLATE.

CLEARENCES:

The appliance area must be kept free and clear of all combustibles.

Install only in noncombustible surroundings.

If legs or casters are not used, the unit must extend 2" beyond the front edge of a noncombustible curb or platform.

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.
Drain hot oil in metal containers, do not use plastic buckets or glass containers.

ASSEMBLY:

The fryer is shipped fully assembled, except for the legs. The fryer is provided with 6" (152 mm) adjustable steel legs (hardware included), packaged in a bag inside the unit. A set of 6" (152 mm) casters are available as an optional field installable accessory.

INSTALLATION OF LEGS/CASTERS:

Please reference illustrated instructions provided with this manual.

Caster with locks shall be installed at the front of the unit and after fryer is positioned in it's final location brakes must be engaged to

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 that the electrical service agrees with the specifications on the rating plate located on the inside of the front door.

The installation must conform to local codes, or in the absence of local codes, to the National Electrical Code ANSI/NFPA 70-(latest edition).

ELECTRICAL CONNECTION:

Position the fryer in its final location. Bring conduit containing the proper supply wire to the fryer through the hole located in the back of the electrical box. Select the size and type of field wire in accordance with the National Electrical code suitable for carrying the equipment's rated amps and voltage. Use field wires suitable for 75°C on units carrying more than 80 amps.

Royal Range Electrical appliances have a single point power connection at the terminal block. Check for single phase or three phase connection and connect accordingly. 208V or 240V single and three phase wires must be properly connected as shown in the wiring diagram located on the inside of the door. Do not cut or remove the grounding wire. Disconnect power supply before cleaning or servicing. The electrical service in the building must be equipped with a properly grounded receptacle, in accordance with local codes, or in the absence of local codes, with the **National Electrical Code, ANSI/NFPA 70-(latest edition).**

NOTE: This appliance is not capable of being operated in the event of power failure. No attempt should be made to operate this appliance during power failure.

Connect supply leads to field terminal block and green grounding lead to the labeled ground lug. The supply wire should be anchored through the access hole with a bulkhead fitting. Fryers are shipped wired for 3 phase or 1 phase service but may be changed in the field. Refer to wiring diagram and schematic decal attached to the range for necessary alterations.

FLEXIBLE COUPLING, CONNECTORS AND CASTERS:

If the unit is to be installed with flexible couplings and /or quick-disconnect fittings, the installer must use a certified commercial flexible connector (with suitable strain relief). If disconnection of the restraint is necessary, make sure to reconnect restraint after the appliance has been returned to its originally installed position. Restraining device may be attached to the back frame/panel of unit.

If the unit is to be installed with casters, a flexible connector must be used, and the same **ANSI** standard apply. Locking front casters are provided to limit the movement of the appliance without depending on the connector or associated cables. A suitable strain relief must be installed.

"CAUTION – HOT SURFACE"
"ATTENTION SURFACE CHAUDE"

WARNING: RISK OF ELECTRIC SHOCK - APPLIANCE MUST BE SECURED TO BUILDING STRUCTURE" SEE INSTALLATION INSTRUCTION IN THE OWNER'S MANUAL.

CAUTION – TO REDUCE THE RISK OF FIRE, INSTALL ONLY IN NONCOMBUSTIBLE SURROUNDINGS. SEE INSTALLATION INSTRUCTIONS."

CAUTION – TO REDUCE THE RISK OF FIRE; USE ONLY NONCOMBUSTIBLE MOUNTING FLOORS. SEE INSTALLATION INSTRUCTIONS."

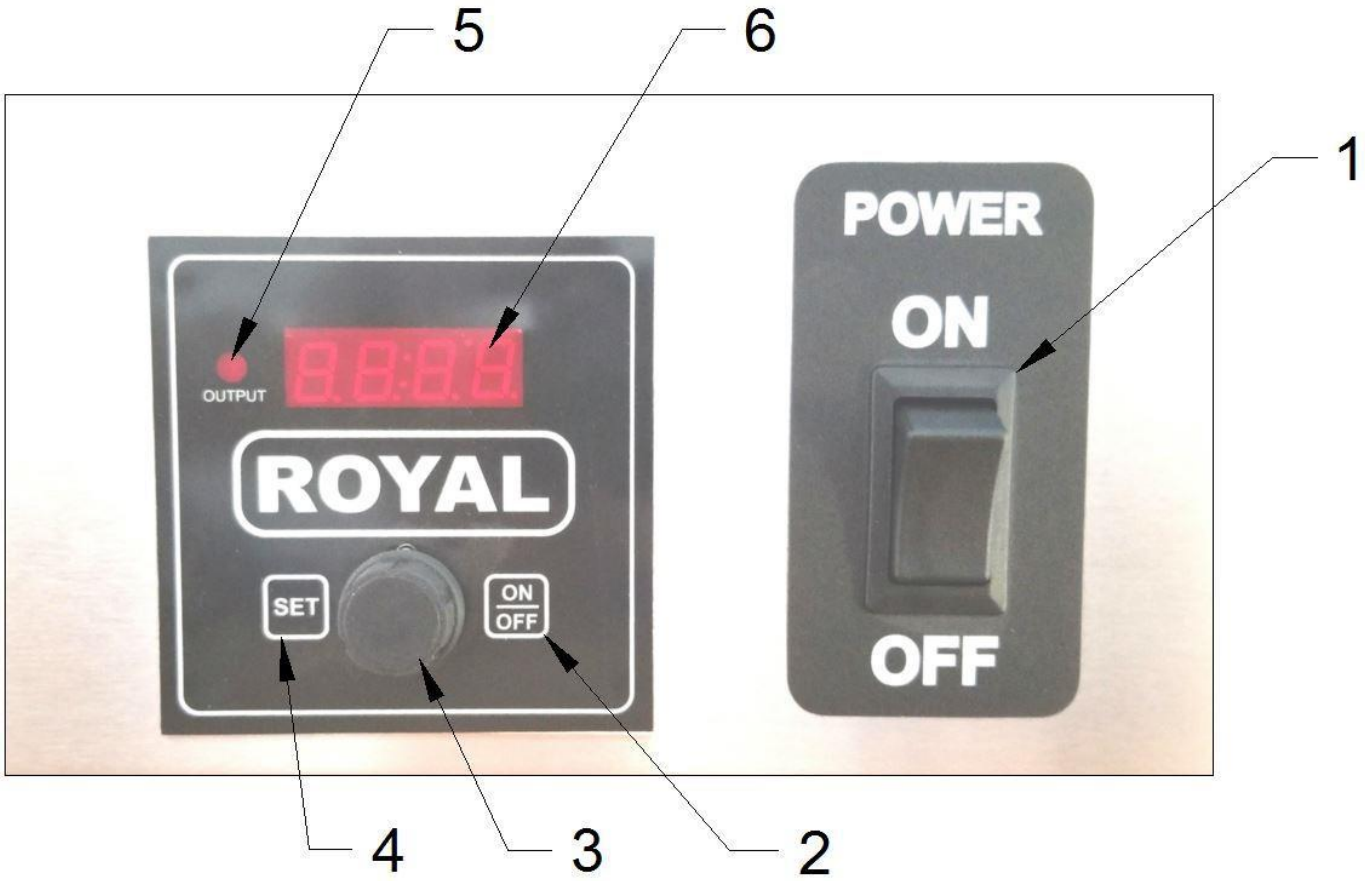
WARNING: ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

WARNING: DISCONNECT ELECTRICAL POWER SUPPLY AND PLACE A TAG AT THE DISCONNECT SWITH TO INDICATE THAT YOU ARE WORKING ON THE CIRCUIT.

POWER OUTAGE:

If a power outage occurs, the fryer will automatically shut down. When power is restored, the fryer will automatically resume normal functions. If the fryer is left unattended during the power outage, turn all control knobs/switches OFF. When power is restored, turn desired control knobs/switches back on.

CONTROL PANEL DESCRIPTIONS



1. **POWER SWITCH**
   Main Power.

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 - serves as an ACCEPT button.

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

5. **THERMOSTAT CONTROL KNOB**
   a. When rotated, changes the parameter values.
   b. When pressed once, displays current set point temperature.

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

PREPARATION FOR USE

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 Thermostat control.
5. Allow to BOIL for 10 minutes.
6. During boil-out, frequently scrub the sides, front and rear of the fryer vessel (vat).
7. After 10 minutes, turn the Thermostat control off.
8. Carefully dispose of the boil-out solution.
9. Use a scrubbing pad to remove any buildup on the vessel (vat) walls.
10. Rinse with hot water until the water coming out of the drain valve is clear.
11. Thoroughly wipe the sides and bottom of vessel (vat) with clean, lint- free dry towels to remove any remaining water.

**** 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 HEATING ELEMENTS WILL CAUSE HEAT STRESS AND LEAD TO POTENTIAL DAMAGE. ****

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 HEATING ELEMENTS.
5. Turn the POWER switch to "ON".
6. Press ON/OFF button on Thermostat control. If necessary, continue adding solid shortening to the level mark on the rear wall. Do not overfill the vessel.
7. Place the crumb screen inside 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.

OPERATION

LIGHTING/START:

1. Turn the POWER switch to "ON".
2. Press "ON/OFF" button on Thermostat control, HEATING ELEMENTS will come on and preheat shortening/oil to set temperature.
3. When shortening/oil reaches the set temperature, the Fryer is ready to Cook after the shortening/oil is thoroughly stirred.

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

MOMENTARY PROGRAM DISPLAYS

DISPLAY READS	DISPLAY DESCRIPTIONS
"**Op"**	Computer is in the OPERATING program mode. This feature cannot be changed.
"F C"	Computer is in the temperature DEGREE unit program mode.
"SPHi"	Computer is in the HI TEMPERATURE program mode. This is Factory set, DO NOT change.
"SPLo"	Computer is in the LOW TEMPERATURE program mode. This is Factory set, DO NOT change.
"HYS"	Computer is in the HYSTERESIS program mode. This program mode is intended for the Authorized, Qualified Service Agent. DO NOT change.
"oFS"	Computer is in the temperature OFFSET program mode. This program mode is intended for the Authorized, Qualified Service Agent. DO NOT change.
"di SP"	Computer is in the temperature DISPLAY program mode.
"Snsr"	Default cook time mode where the product is cooked at a certain temperature for a certain time.

CONTROLLER PROGRAMMING

**** NOTE:** Thermostat controller programming mode can only be accessed while the controller is idling.

COOK TEMPERATURE PROGRAMMING:

1. Temperature set point is changed one digit at a time beginning with the right most digit then the center digit and finally the left most digit.
2. Press SET, Display will read **"350°F"** and the digit currently being changed blinks on and off. Rotate the knob to change the number and press SET to move on to the next digit.
3. When Temperature set point programming is complete, the Thermostat controller will return to display the actual temperature.

FEATURE PROGRAMMING:

Feature programming allows the user to program:

a) Degrees (C or F).
b) Max. Set Point Hi. (DO NOT SET BEYOND 400°F).
c) Min. Set Point Lo. (DO NOT SET BELOW 200°F).
d) Hysteresis (4 degrees recommended).
e) Sensor Offset. (Do not change).
f) Actual or Set point temperature display at all times.

HOW TO PROGRAM FEATURE:

1. Turn the POWER switch to ON.
2. Press ON/OFF button on Thermostat control.
3. Press the following button sequence: **SET, ON/OFF, KNOB, KNOB, SET.** Display will read **"Op"** momentarily and then read **"Op3".** This parameter cannot be changed.
4. Press SET. Display will read **"F C"** momentarily and then read **"F"**. Press SET to accept the default (Fahrenheit) or rotate the knob to change temperature unit.
5. Press SET. Display will read **"SPHi"** momentarily and then read **"400°F"**. Do not change this setting higher to avoid flash point.
6. Press SET. Display will read **"SPLo"** momentarily and then read **"200°F"**. Do not change this setting.
7. Press SET. Display will read **"HYS"** momentarily and then read **"003°F"**. Recommended setting for best cook results.
8. Press SET. Display will read **"oFS"** momentarily and then read **"000°F**. This setting will only be changed by a Service Technician if required.
9. Press SET. Display will read **"di SP"** momentarily and then read **"ACT"**. Press set to accept the default of Actual temperature being displayed at all times or rotate the knob to change to Set Point Temperature.
10. Press SET. Display will read **"Snsr"** momentarily and then read **"tC 1**. This parameter cannot be changed.
11. Press SET. You have finished the FEATURE programming.

**** NOTE:** A "programming timeout" will occur if no buttons are pressed for 10 seconds and the controller will return to normal operation.

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.