



HEAVY DUTY COMMERCIAL ELECTRIC FRYERS



EL120



ELT 500 TWIN FRYER



EL 900

OPERATION MANUAL

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EL170
EL250
EL270
ELT500

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SPECIFICATIONS

Model No.	Width (inches)	Depth (inches)	Working Ht. (inches)	Fat Capacity (lbs.)	Approx. Ship. Wt. (lbs.)
EL120, 170*	12¼	19½	9½	15	29
EL250, 270*	12¼	19½	9½	15	29
ELT500*	25½	20½	13½	30	75
EL310, 410*	18	21	11½	20	45
EL600*	18	22½	15½	20	50
EL750*	18	21½	15½	20	54
EL900*	18	21½	15½	20	54

*Add 4" to height for legs to all except EL120, EL250, EL310.



CECILWARE CORPORATION

43-05 20th AVENUE, LONG ISLAND CITY, N.Y. 11105 ■ 718-932-1414

UNPACKING AND INSPECTION:

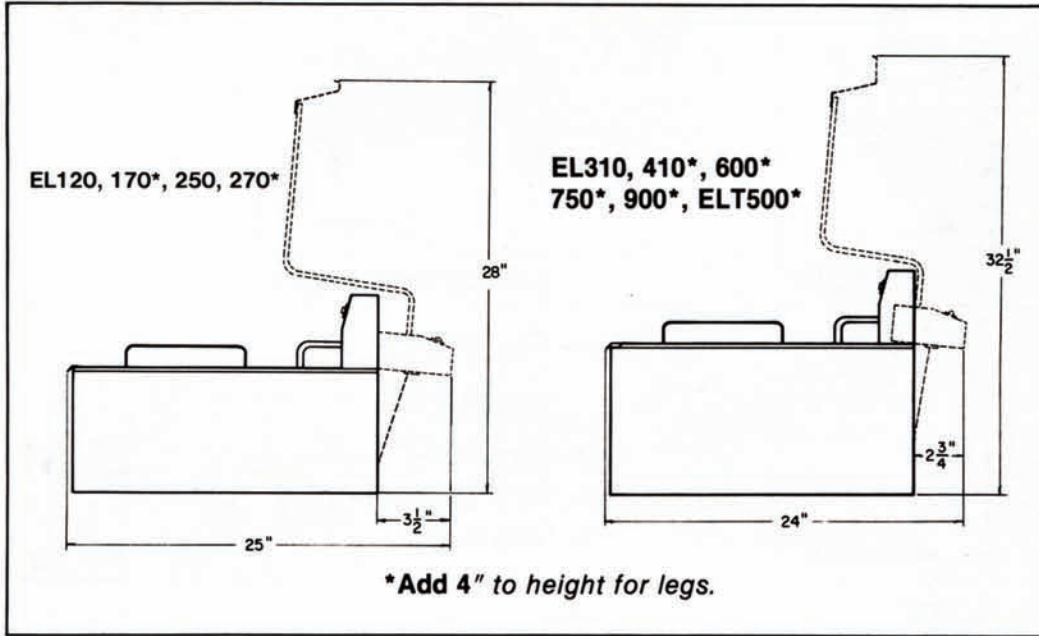
Carefully lift fryer out of shipping container, and inspect immediately for shipping damage.* On model nos. EL270, ELT500, EL410, EL600, EL750, and EL900, install 4-inch legs as follows: Remove the legs from plastic shipping bag, turn fryer on its back and screw legs into the four holes provided in bottom.

*NOTE: Your heavy duty commercial fryer was shipped in a carton designed to give it maximum protection in normal handling. It was thoroughly inspected before leaving the factory and the carrier accepted and signed for it. File any claims for shipping damage or irregularities directly with the carrier, not with the company.

FOR QUALIFIED SERVICE PERSONS ONLY

INSTALLATION: (Caution: Be sure to comply with local codes.)

Carefully place fryer in its permanent location. Allow clearance at rear to allow raising heating elements for cleaning as shown below:



All fryers must be installed with an approved hood system and fire safety. Check local codes for compliance.

Level fryer after final installation. Height of models with 4 inch legs may be adjusted by turning the legs up or down as desired.

The fryer is not fused internally; therefore, it must be connected to a fused circuit equipped with a suitable disconnect as may be required by local electrical code. See Electrical Data table below for the fuse or circuit breaker required for each fryer.

ELECTRICAL HOOKUP:

ELECTRICAL DATA

Model	Electrical Rating (KW)			Elements Required	Min. Wire Size		Fuse	
	120V	240V	208V		1 Phase	3 Phase	1 Phase	3 Phase
EL120, 170	1.8	-	-	1	No. 14	-	20A	-
EL250, 270	-	5.5	4.2	1	No. 10	-	30A	-
ELT500	-	11	8.4	2	No. 6	No. 8	50A	40A
EL310, 410	-	5.5	5.5	1	No. 10	-	30A	-
EL600	-	6.6	6.0	3	No. 10	No. 12	30A	20A
EL750	-	7.5	7.5	3	No. 8	No. 10	40A	25A
EL900	-	8.8	8.8	3	No. 6	No. 10	50A	30A

ELECTRICAL HOOKUP:

The EL120 is supplied with a standard 120V line cord and requires a 15 amp 120V outlet.

The EL250 and EL270 are both wired with a 240V line cord. Insert line cord into a NEMA-30.5 socket, wired with a minimum No. 10 wire size.

Hook up the EL310, EL410, EL600, EL750, EL900, and ELT500 as follows:

WARNING

THIS IS HIGH VOLTAGE EQUIPMENT. MAKE SURE MAIN DISCONNECT IS "OFF" BEFORE HOOKING UP FRYER.

1. Raise heating element(s) and remove fry tank.
2. Take out the screws holding rear inner cover (25, figure 1, or 26, figure 2), and remove inner cover. Main terminal block (29, figure 1, or 33, figure 2) will be exposed.
3. Refer to field wiring specification label, located near terminal block, or electrical data table on page 2, for proper wire sizes.

WARNING

MACHINE WARRANTY IS VOID IF FRYER IS CONNECTED TO ANY VOLTAGE OTHER THAN THAT FOR WHICH IT WAS DESIGNED.

4. Install a suitable conduit through 1¼ inch knockout in rear or floor of fryer. For 1 phase hookup, connect one hot wire each to terminals L1 and L2 of terminal block. For 3 phase hookup, connect one hot wire to each of the three terminals.
5. Connect ground wire (No. 14 min.) to grounding lug (30, figure 1, or 31, figure 2), to comply with local electrical codes.
6. Models EL750 and EL900 are provided with an auxiliary circuit terminal block, located adjacent to main terminal block, for connecting an external fire extinguishing system. Make wiring connections as follows: (Refer to bottom left figure on page 8.)
 - a. Remove jumper wire between two terminals of auxiliary circuit terminal block.
 - b. Run 1/2 inch trade size conduit carrying two wires from fire extinguishing system through 7/8 inch knockout provided in fryer.
 - c. If fire extinguishing system switch is rated 1 Amp @ 240V, connect directly, as shown in top of figure. If switch is rated at lower than 240V, or some voltage appears on switch when not connected to fryer, use relay, as shown in bottom of figure. (Refer to bottom right figure on page 8)
7. On all models, test that all connections are tight; then replace rear inner cover and fry tank. Lower heating elements into tank.

PREPARING FRYER:

Always use a top grade commercial shortening with a high smoke point and resistance to break down.

RESULTS: Longer fat life and better tasting food.

Pour in shortening up to the fat level line stamped on the rear of fry tank.

VERY IMPORTANT: If solid shortening is used be certain the shortening is PRE-MELTED. If not pack shortening tightly around heating elements. Set the thermostat dial to 200°F and add shortening until enough is melted to reach the FAT level line on the rear of the tank.

On Models EL750 and EL900, PRESS "POWER ON" SWITCH before setting the thermostat.

OPERATION:

After shortening is in tank, press power ON switch (EL750, 900 only), set thermostat dial to recommended temperature and allow fryer to preheat. Amber pilot light will come on during the short preheating period and go out when preset temperature is reached. You are now ready to start frying.

During frying the heating elements are energized periodically while the thermostat maintains the selected temperature. Turbulence is created above the heating elements, while the sediment space beneath is comparatively undisturbed. Fat expansion is approximately 15 % from room temperature to 400° F.

CAUTION: Keep the fat level above the top of the elements at all times.

Whenever possible, drain and dry food before frying. Excessively moist food breaks down shortening, hydrolyzing fat and releasing fatty acids. Such fats soon begin to smoke and their frying value is greatly diminished.

Load fry baskets uniformly to one half and never more than two-thirds of their capacity. Overloading always results in an improperly cooked product. Save frying time by lowering baskets into fat immediately after amber pilot light goes out. At this time fat is at the peak of the temperature cycle.

Allow foods to cook until done, or leave longer for extra browning. When food is cooked, lift baskets out of fat and hang them on the basket supports to drain.

During slack periods, turn fryer off or at least reduce thermostat to 200° F. You will get much better mileage out of your shortening that way.

High Limit Control (24, figures 1 and 2): If, due to a defective thermostat, temperature of fat continues to rise, high limit control** automatically shuts off heating element(s). When this happens, red pilot light** on control panel comes on. If high limit control should activate, turn off thermostat and allow fryer to cool. Then press red reset button** on back of control panel, set thermostat back to desired temperature and resume frying. If high limit control reactivates, have fryer checked out by a qualified service person.

**The EL600 is equipped with two high limit pilot lights and 1 hi-limit control. The 3 phase model has two high limit controls.

Tilt Switch: The EL750 and EL900 are equipped with a tilt switch (12, figure 2). This safety feature automatically shuts off heating elements whenever they are raised. Otherwise, these high wattage elements would quickly overheat when removed from the fat at high thermostat settings, burning out and/or causing operator injury.

Fuse: The high power EL750 and EL900 fryers are provided with a 6 Amp. fuse for branch circuit protection. (See diagram on page 8)

MAINTENANCE:

Your fryer was designed to strip down for easy cleaning and maintenance, and has "self cleaning" elements. A clean fryer performs better, turns out higher quality foods, reduces fat costs, and makes for a safer operation.

CLEANING SUGGESTIONS:

1. Turn off power, remove fry baskets, and wait for fat to cool to a safe handling temperature.
2. Raise heating element(s) to half position to drain for a few minutes; then raise them fully upright until they lock in place.
3. Carefully remove fry tank(s) (use gloves or pot holders) and drain fat through several layers of cheese cloth or filters into a clean container.
4. Wash and rinse fry tank(s) and baskets thoroughly. Be sure all traces of soap and water are removed before placing them back in fryer.
5. Keep all exterior surfaces free of splashed grease and other dirt by washing with hot water and soap. Use scouring powder and a Scotchbrite pad with the grain for tough blemishes. Do not use steel wool, which will mar the bright stainless steel finish. Rinse and wipe dry; then polish with a soft cloth.

TO CLEAN HEATING ELEMENTS:

1. **All Models except EL750 and EL900:** First, wash and rinse visible surfaces of heating element braces; otherwise they will turn brown and be harder to clean. Then, simply lower elements into operating position in empty fry tank and set thermostat to 250° F. for a few minutes. When elements stop smoking, turn off thermostat. Wait for elements to cool; then brush off carbon deposits if necessary. Clean fry tank.
2. **EL750 and EL900 only:** First, wash and rinse visible surfaces of heating element braces; otherwise they will turn brown and be harder to clean. Then, simply lower elements into operating position in empty fry tank, press power ON switch, and set thermostat to 250° F. for a few minutes. When elements stop smoking, turn off thermostat and power switch. Wait for elements to cool; then brush off carbon deposits if necessary. Clean fry tank.

Your fryer is now completely clean and ready for the next day's operation.

ADJUSTMENTS

FOR QUALIFIED SERVICE PERSONS ONLY

1. **High Limit Control Test** (EL750, 900 only): To test whether high limit control is working properly, place a suitable thermometer in fry tank with bulb deeply immersed in hot fat. Pressing Hi Limit Test Switch (35, figure 2) bypasses thermostat, allowing fat to continue to heat up until high limit control is activated. When red Hi Limit pilot light goes on, note temperature on thermometer (should be between 440° and 475° F.). Allow fryer to cool, then press red reset button(s) on back of control panel. If high limit control does not shut off fryer before 475° F. is reached, have it replaced.

II Thermostat Adjustment

Problem: Temperature of fat does not appear to coincide with thermostat dial setting, causing improper frying of foods.

Remedy: Place a suitable thermometer with bulb deeply immersed in the fat. Turn thermostat dial to 375 degrees and carefully remove dial without disturbing setting. To remove dial, grasp knob and pull it toward you. A small adjusting screw will be visible in center of shaft. When temperature on thermometer approaches 375° F., slowly turn small adjusting screw in center of shaft clockwise until temp pilot light on control panel goes out.

NOTE: Turning the screw clockwise lowers the temperature; counterclockwise raises it.

III Fryer Not Heating Properly

Problem: Fat does not heat when thermostat is turned "ON" and pilot light does not light (Power ON switch pressed on EL750, 900).

Possible Causes:

- A. High limit control tripped due to high fat temperature.
- B. Loss of power to fryer.
- C. Thermostat not completing circuit to heaters.
- D. Heating element is not in fry tank (EL750, EL900).
- E. Fault in auxiliary circuitry (EL750, EL900).

Remedies:

- A. Reset high limit control by depressing red button at rear of control panel.
- B. Check line fuse or circuit breaker from power source. Replace or reset as necessary.
- C. Check thermostat for continuity and wiring to heaters.
- D. Lower heating element in fry tank (EL750, EL900).
- E. If fire extinguishing system is connected to the fryer (EL750, EL900), check auxiliary circuit and fuse in control panel. Replace the fuse (SC-6) as necessary.

IV Insufficient Heat

Problem: Thermostat and pilot light are working properly, but there is insufficient heat.

Possible Causes:

- A. On 3 phase fryers, fuse in one leg of 3 phase line may be burned out or circuit breaker tripped.
- B. Heating element(s) may be burned out.

Remedy:

- A. Replace fuse if needed or reset circuit breaker.
- B. Disconnect electrical power from fryer and remove back cover from control panel. Remove element braces supporting element(s) and disconnect electrical connections to burned out element(s). Unscrew mounting nuts from element(s), remove elements, and replace with new ones.

CAUTION: Replacement element(s) must have the same voltage rating as the one(s) removed.

V Hi-Limit Pilot Continues to Light

Possible Cause: Thermostat out of adjustment or broken.

Remedy: If the thermostat adjustment procedure, as outlined above, does not produce any favorable results, replace thermostat.

CAUTION: Do not attempt to adjust high limit control. This control was set at the factory and must be replaced with a new one if it is not operating properly. The high limit control (24, figures 1 and 2) is located in control panel under the thermostat (except the EL600, which has two high limit control only in control panel) and is removed in a similar manner (described below).

VI Replacing Thermostat

Remove back cover of control panel. On all fryers except the EL600, thermostat (15, figure 1, or 16, figure 2) is located in control panel. Disconnect wires and remove mounting screws.

On the EL600, lift out fry tank and remove front inner cover and left wire shield. Take out screws holding holding thermostat and disconnect wires from terminals. On all fryers, remove bulb clamps from heating element and pull bulb through rubber grommet in control panel. Install new thermostat and route capillary tubing the same as old one. Follow adjustment procedure as outlined in Thermostat Adjustment paragraph above.

NOTE: Before removing thermostat and bulb, note routing of capillary tubing and slack bend areas so that replacement can be installed in the same manner.

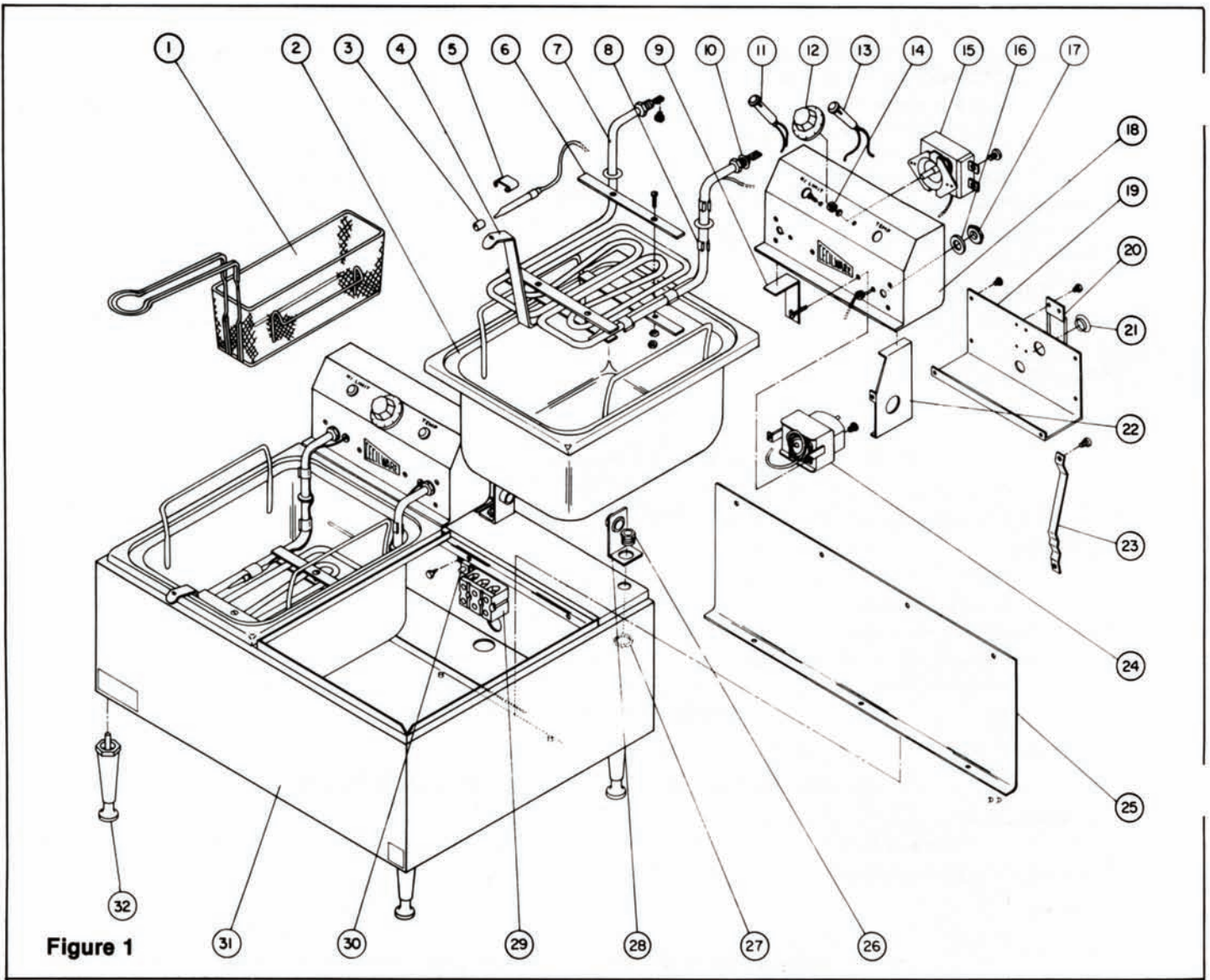


Figure 1

REPAIR PARTS LIST

**EL120, EL250, EL270, ELT500
(ELT500 Shown)**

Item No.	Description	EL120	EL250, EL270	ELT500
1	Fry Basket, right	V091A	V091A	V091A
	Fry Basket, left	V092A	V092A	V092A
2	Fry Tank	T044Q	T044Q	T044Q
3	Tinnerman Cylinder	P069A	P069A	P069A
4	Handle, Heating Element	U125A	U125A	U125A
5	Large Tinnerman Clip	P097A	P097A	P097A
6	Brace, Heating Element	U117A	U117A	U117A
7	Heating Element	G039A	G042A	G042A
8	Small Tinnerman Clip	P096A	P096A	P096A
9	Rear Wire Shield	-	-	U535A
10	Gasket, Heating Element	M079A	M079A	M079A
11	Red Pilot Light	C100A	C100A	C100A
12	Knob, Thermostat	M120A	M120A	M120A
13	Amber Pilot Light	C076A	C076A	C076A
14	Grommet	M039A	M039A	M039A
15	Thermostat	L041A	L041A	L041A
16	Washer, Heating Element	P093A	P093A	P093A
17	Nut, Heating Element	P094A	P094A	P094A
18	Top Control Box (less controls)	L087Q	L087Q	L472Q
19	Back Cover	T198A	T198A	T460A
20	Hinge Loop	U123A	U123A	U123A

Item No.	Description	EL120	EL250, EL270	ELT500
21	Plug	P115A	P115A	P115A
22	End Piece, right	-	-	U530V
	End Piece, left	-	-	U531V
23	Hinge Spring	U124A	U124A	U124A
24	High Limit Control	L027A	L027A	L027A
25	Fire Wall	-	-	T469A
26	Conduit Nipple	-	-	B019A
27	Conduit Nut	-	-	B020A
28	Pivot Bracket	-	-	U532A
29	Terminal Block	-	-	B000A
30	Ground Lug	-	-	B039A
31	Body	T119Q	T119Q	T471Q
32	Legs (Set of 4)	*M172A	*M172A	M172A
	Not Shown			
	Strain Relief	B012A	B007A	-
	Line Cord	C185A	C208A	-
	Rubber Bumper	M098A	M098A**	-
	6" Hinge	U001A	U001A	-
	*EL270 only			
	**EL250			
	*EL170 only			

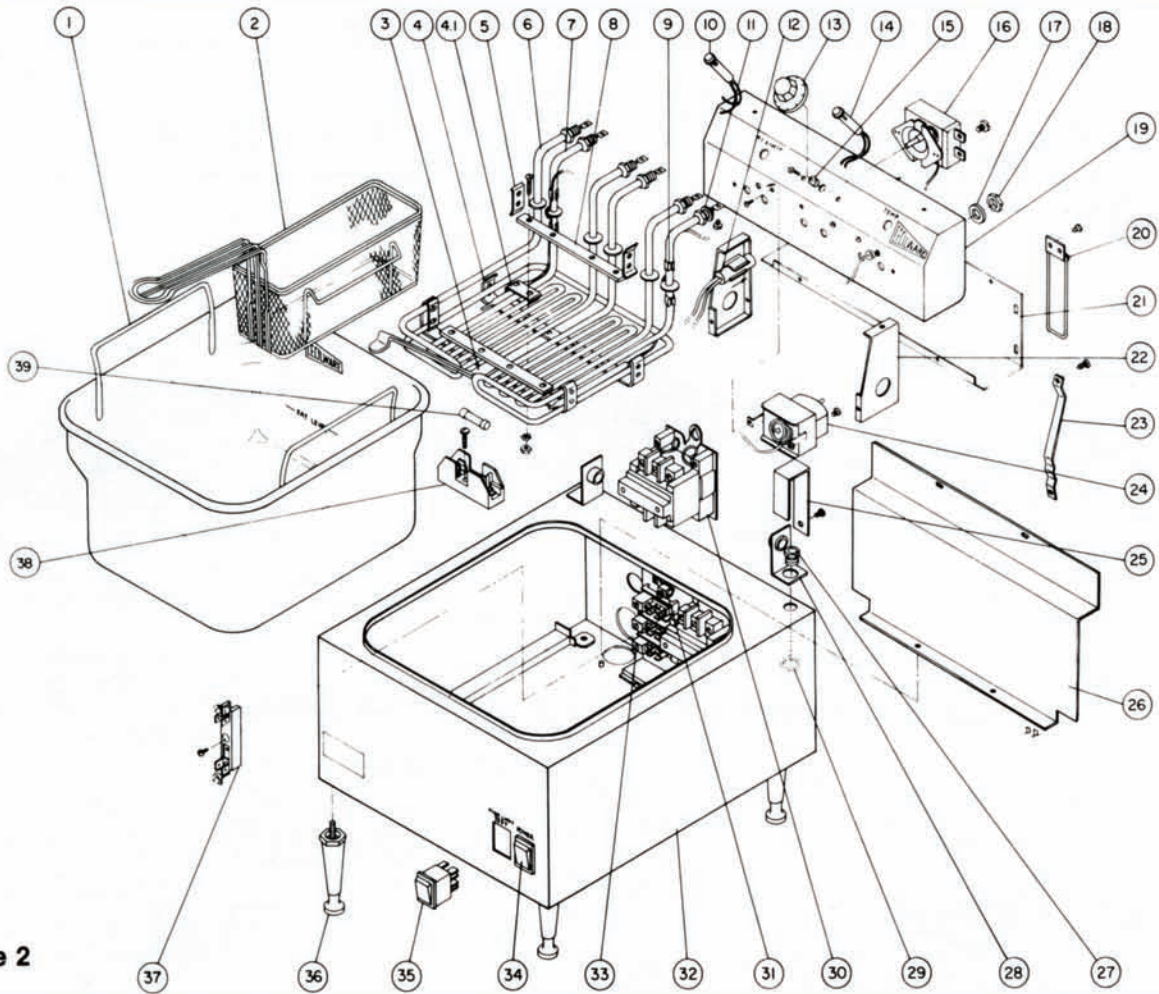


Figure 2

REPAIR PARTS LIST
EL310, EL410, EL600, EL750, EL900
(EL750 Shown)

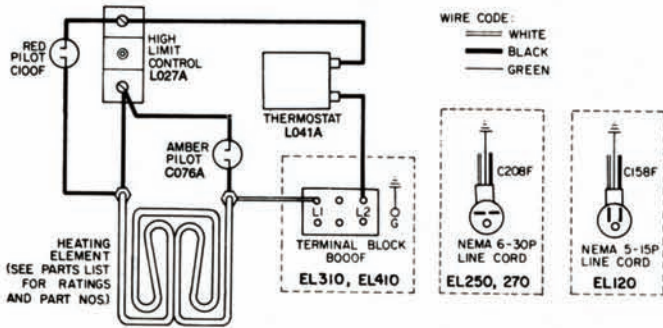
Item No.	Description	EL310, EL410	EL600	EL750	EL900
1	Fry Tank	T031Q	T031Q	T031Q	T031Q
2	Fry Basket, Right	V077A	V077A	V077A	V077A
	Fry Basket, Left	V078A	V078A	V078A	V078A
3	Lift Handle, Assy.	U122A	U117Q	U117Q	U117Q
4	Outer Element Brace	U120A	U537A	U537A	U537A
5	Clamp	-	U294A	U294A	U294A
6	Outer Element (240V)	-	G002A	G002A	G214A
6	Outer Element (208V)	-	G002A	G214A	G214A
7	Inner Element (240V)	-	G029A	G213A	G216A
7	Inner Element (208V)	-	G037A	G215A	G217A
8	Inner Element Brace	U120A	U117A	U117A	U117A
9	Small Tinnerman Clip	P096A	P096A	P096A	P096A
	Large Tinnerman Clip	P097A	-	-	-
10	Red Hi-Limit Pilot Light	C100A	C285A	C100A	C100A
11	Gasket, Heating Element	M097A	M097A	M097A	M097A
12	Tilt Switch	-	-	L325A	L325A
13	Knot Thermostat	M120A	M120A	M120A	M120A
14	Amber Temp. Pilot Light	C076A	-	C076A	C076A
15	Grommet	M039A	M039A	M039A	M039A
16	Thermostat	L041A	-	L041A	L041A
17	Washer, Heating Element	P093A	P260A	P260A	P260A
18	Nut, Heating Element	P094A	P259A	P259A	P259A
19	To pControl Box (less controls)	L129A	L153A	L329A	L329A
20	Hinge Loop	U123A	U123A	U123A	U123A

Item No.	Description	EL310, EL410	EL600	EL750	EL900
21	Back Cover	T150A	T223A	T223A	T223A
22	End Piece, Right	U268A	U268A	U268A	U268A
	End Piece, Left	U267A	U267A	U267A	U267A
23	Hinge Spring	U124A	U124A	U124A	U124A
24	High Limit Control	L027A	L027A	L027A	L027A
25	Rear Wire Shield	T184A	T184A	T184A	T184A
26	Inner Cover	T221A	T221A	T221A	T221A
27	Conduit Nipple	B019A	B019A	B019A	B019A
28	Pivot Bracket	U116A	U116A	U116A	U116A
29	Conduit Nut	B020A	B020A	B020A	B020A
30	Contactor	-	-	C034A	C034A
31	Ground Lug	B039A	B039A	B039A	B039A
32	Brody	T212Q	T219Q	T473Q	T473Q
33	Terminal Block, Main	B000A	B000A	B083A	B083A
34	Power On/Off Switch	-	-	L155A	L155A
35	High Limit Test Switch	-	-	L264A	L264A
36	Legs (set of 4)	M172A*	M172A	M172A	M172A
37	Terminal Block, Auxiliary Circuit	-	-	L084A	L084A
38	Fuse Holder	-	-	C395A	C395A
39	Fuse (SC-6)	-	-	C908A	C908A
	Not Shown				
	Heating Element (240V)	G042A	-	-	-
	Heating Element (208V)	G041A	-	-	-
	Thermostat (1 phase)	-	L072A	-	-
	Thermostat (3 phase)	-	L073A	-	-
	Rubber Bumper	M098A*	-	-	-

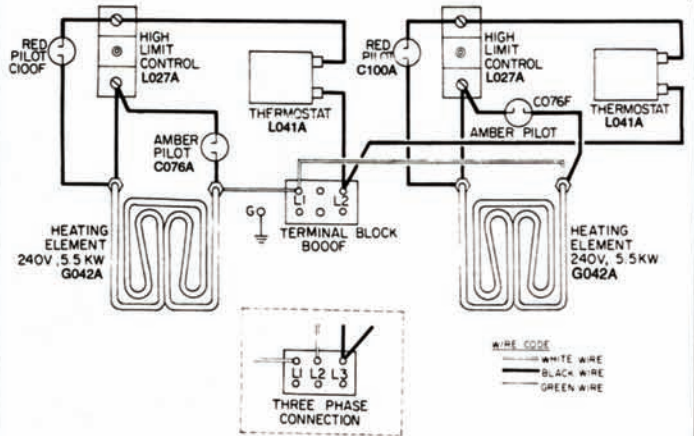
*EL410 only **EL310 only

WIRING DIAGRAMS

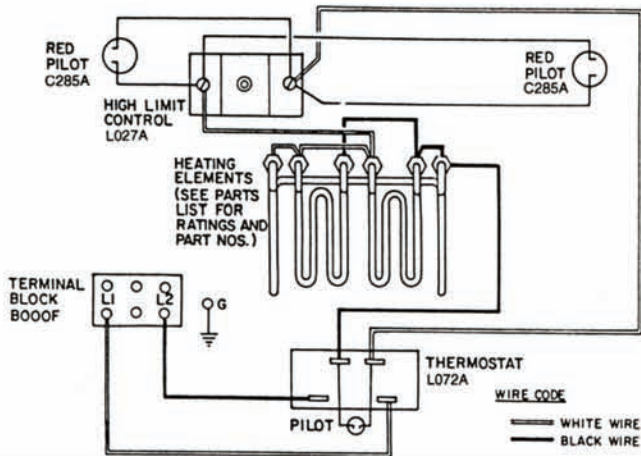
**EL120, 170, 250, 270, 310, 410
WIRING DIAGRAM**



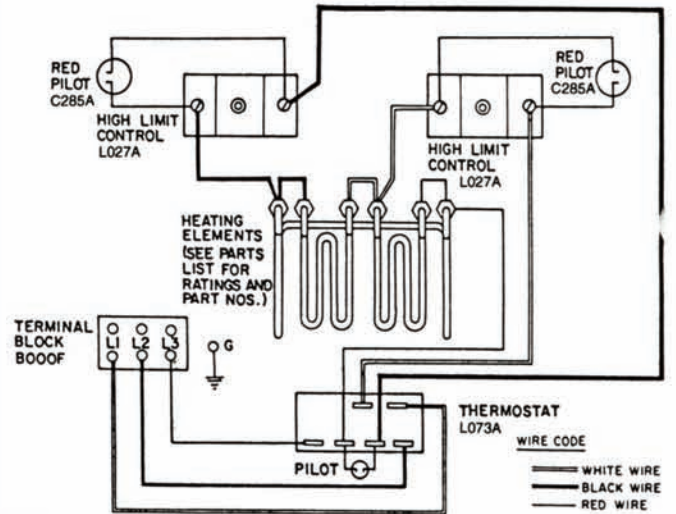
ELT500 WIRING DIAGRAM



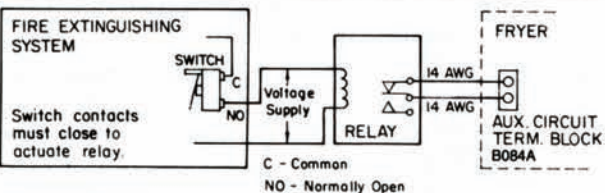
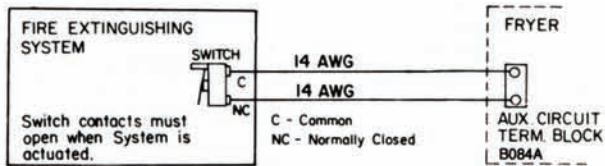
EL600 SINGLE PHASE WIRING DIAGRAM



EL600 THREE PHASE WIRING DIAGRAM



EL750, 900 FIRE EXTINGUISHING SYSTEM



Relay specifications:
 Coil voltage: Voltage available at Fire Extinguishing System
 Contacts: 1 Amp, 240VA, 240V

EL750, 900 WIRING DIAGRAM

