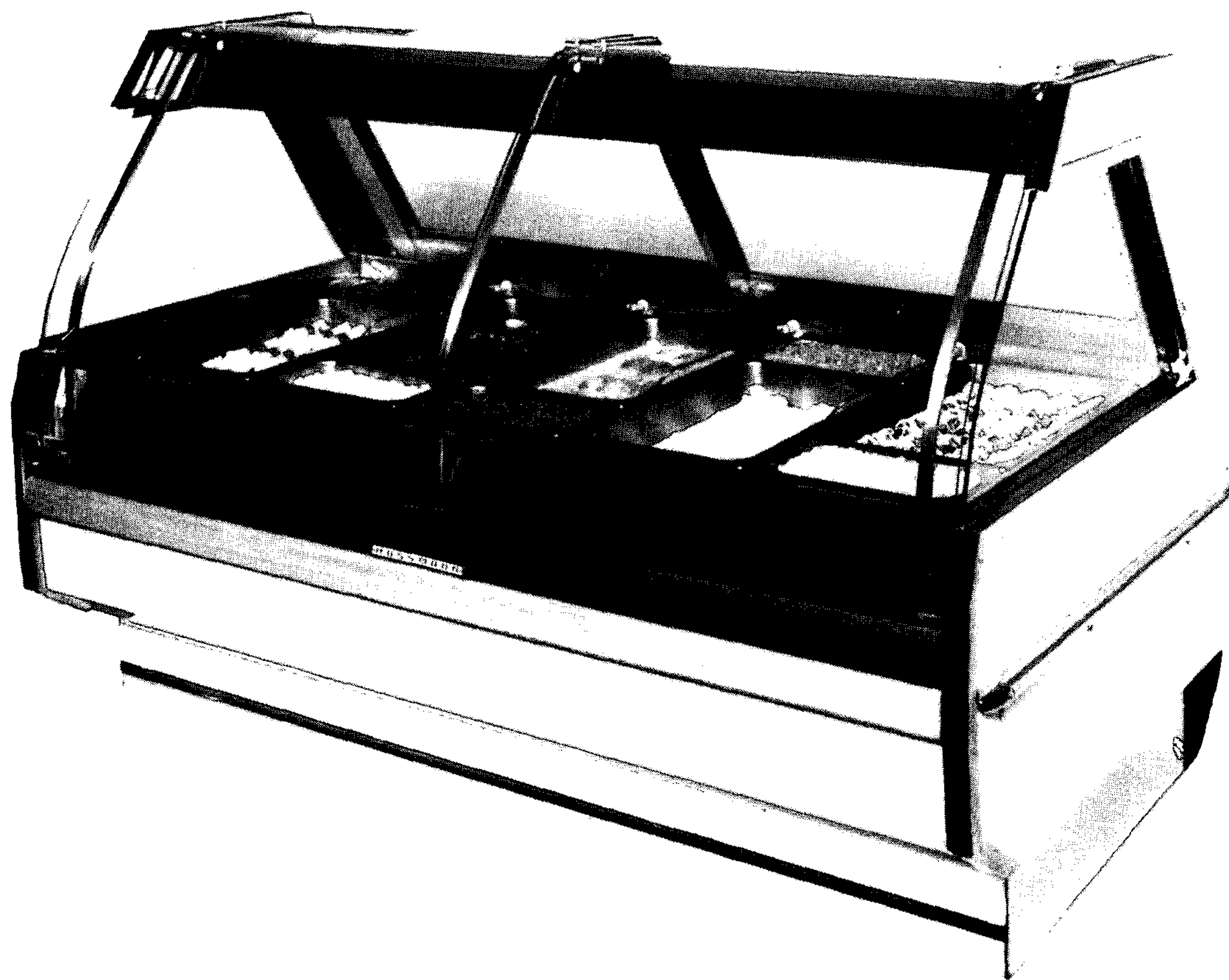


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## CORPORATION

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**CGHT, CSHT, CGHP  
CSHP & CGHPSD**

**CURVED GLASS HOT FOOD  
MERCHANDISERS**

**INSTALLATION / SERVICE INSTRUCTIONS**

**P/N 342718A**  
April, 1991  
Section 2

# CONTENTS

## GENERAL INFORMATION

Model Descriptions.....	1-1
Application .....	1-1
Plan Views and Cross Sections.....	1-2

## INSTALLATION

Shipping Damage .....	2-1
Shipping Braces (Not All Merchandisers).....	2-1
Exterior Loading.....	2-1
Leveling.....	2-1
Anchoring.....	2-1
Drain Connection (Hot Tables Only).....	2-1
Water Supply .....	2-1
Installing Splashguard .....	2-3
Sealing Splashguard to Floor.....	2-3

## ELECTRICAL

Connections .....	3-1
Serial Plate Amperages.....	3-1
Circuit Requirements.....	3-1
Electrical Schematics (Hot Plates) .....	3-3
Electrical Schematics (Hot Tables).....	3-5
Replacement Parts List.....	3-15

## USER INFORMATION

Care and Cleaning .....	4-1
Handling Food and Equipment.....	4-1
Using the Hot Table.....	4-2
Heating System.....	4-2
Lighting System.....	4-2
Manual Controls (Standard) .....	4-3
Electronic ACT 1 Controls (Optional) .....	4-4
Heat Wells (Hot Tables Only).....	4-8
Wet Wells.....	4-8
Dry Wells.....	4-8
Warm Up—Manual Controls.....	4-8
Warm Up—Electronic Controls .....	4-9
Stocking.....	4-9
Automatic Water Fill (Hot Tables Only) .....	4-9
Using the Hot Plate.....	4-11

Contents Continued on Next Page



## SERVICE

Double Curved Glass.....	5-1
Front Cylinders Replacement .....	5-1
Front Glass Replacement.....	5-1
Single Curved Glass .....	5-2
Front Cylinders Replacement .....	5-2
Front Glass Replacement.....	5-2
Plate Heater Replacement.....	5-3
Well Heater Replacement .....	5-4
Manual Control Replacement.....	5-5
Servicing Electronic Controls.....	5-6
General.....	5-6
Recording Information .....	5-6
Apparent Malfunctions.....	5-6
Food Probe Check .....	5-6
Thermocouple Test .....	5-6
Top Heater Test.....	5-7
Bottom Heater Test.....	5-7
Electronic Control Replacement.....	5-7
Troubleshooting and Checkout Procedures Table .....	5-8

## WARRANTY

### Revision Changes ("A")

1. Addition of Hot Plates
  - Application, Page 1-1
  - Plan View and Cross Sections, Page 1-2
  - Electrical, Page 3-1
  - User Information, Page 4-11
  - Plate Heater Replacement, Page 5-3
2. Adjusting Float Valve on Autofill System, Page 4-10
3. New Electrical Schematics, Page 3-3
4. New Section on Servicing Electronic Controls, Page 5-6

**IMPORTANT**  
**KEEP IN STORE FOR FUTURE REFERENCE**  
*Quality that sets industry standards*

This merchandiser conforms to the  
Commercial Refrigerator Manufacturer's Association  
Health and Sanitation Standard  
CRS-S1-86

## MODEL DESCRIPTIONS

This instruction covers the merchandisers listed below. Basic design features are listed to the right of each merchandiser.

CGHT	Service Type Hot Table, double curved hinged glass
CSHT	Service Type Hot Table, single curved hinged glass
CGHP	Service Type Hot Plate double curved hinged glass—6' Only
CSHP	Service Type Hot Plate single curved hinged glass—6' Only
CGHPSD	Self-service Hot Plate sliding door front—4' Only

Both the CGHT and CSHT are service models. Food is placed into display pans located over heated wells. The wells may contain heated water or may be used dry, depending on the food type. (For more even heat control and better food quality, Hussmann recommends the use of wet wells.)

The hot tables, CGHT and CSHT, are available as follows:

Length	Number of Wells
4 ft	3
6 ft	5
8 ft	7
10 ft	8
12 ft	10

## APPLICATION

Hot food merchandisers are designed for the display of hot, pre-cooked food. This equipment complies with the standards established by the National Sanitation Foundation and should be used in accordance with all local codes and regulations concerning the preparation, display and serving of hot food.

## IMPORTANT

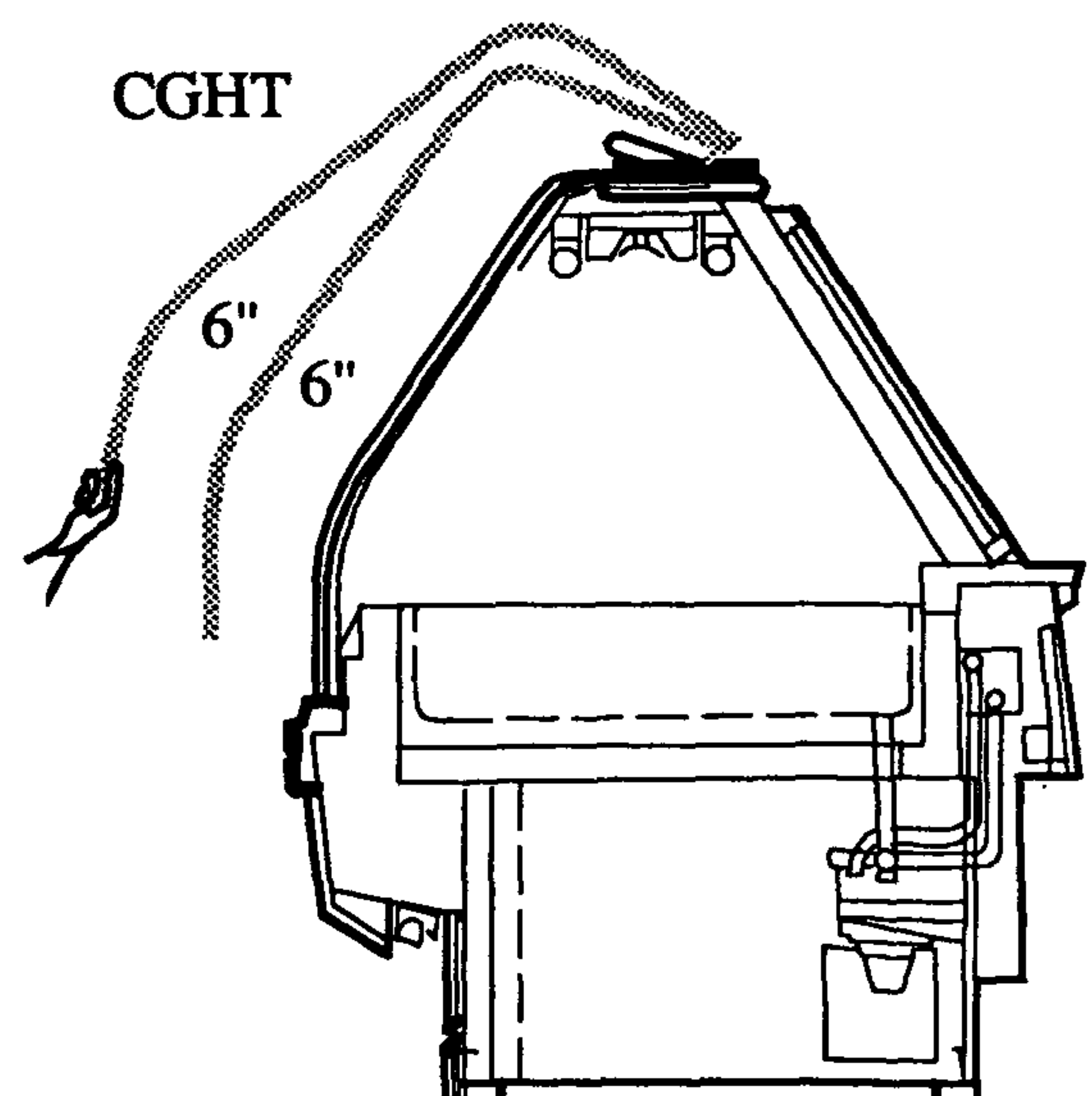
### READ BEFORE RAISING FRONT GLASS

The top cylinders, which allow the raising and lowering of this glass, have been carefully installed and tested for the proper tension before shipment. However, during shipment and storage, the lubricant inside the cylinders may have settled. This settling can cause excessive or uneven tension on the glass to the point of breakage.

**TO AVOID ANY DAMAGE, PLEASE  
DO THE FOLLOWING BEFORE COMPLETELY  
RAISING THE FRONT GLASS.**

1. Slowly raise and lower each glass section 6 times to a height of 6".
2. Increase the height to about 12" and raise and lower the glass 6 times.
3. Then raise the glass to the full extension and lower.

This should release any settled lubricant in the cylinders and prevent any stress on the front glass.





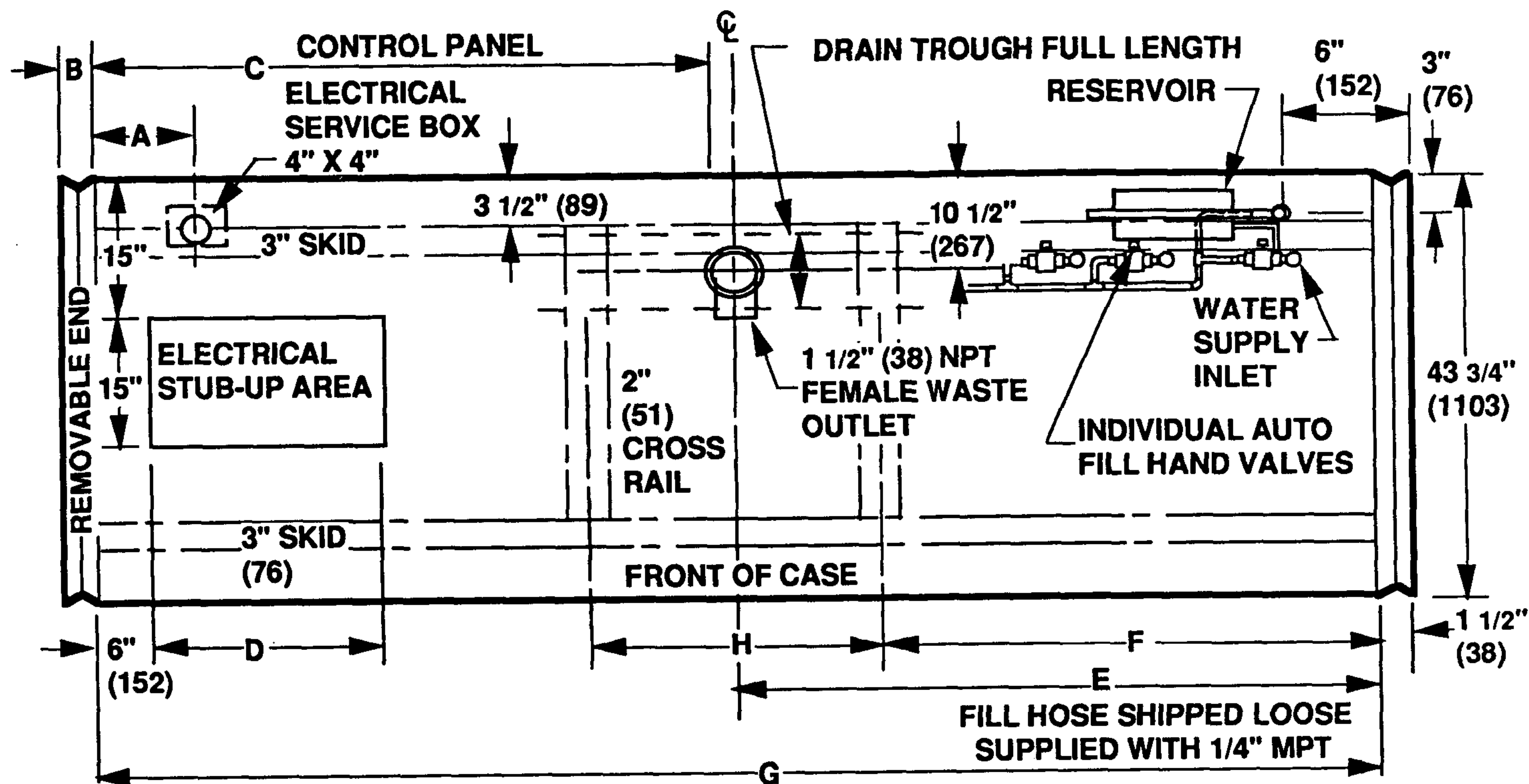
General Information

1-2

NOTE: Plan views and cross sections measurements are given in inches and in millimeters.

CGHT

CSHT



CASE	A	B	C	D	E	F	G	H
4'	9"	2"	44 1/2"	12"	24"	—	48 1/4"	—
6'	9"	2"	31"	12"	42"	36"	72 1/4"	—
8'	9"	2"	43"	24"	54"	48"	96 3/8"	—
10'	9"	2"	*	*	*	*	120 3/4"	*
12'	9"	2"	31"	36"	72"	49"	144 1/2"	48"

\*THE 10' CASE IS A COMBINATION OF THE 4' AND 6'.

Technical drawing of the front elevation of a refrigerator. The drawing includes the following dimensions and labels:

- Top width: 44" (1118)
- Top right side panel height: 18 3/8" (467)
- Right side panel height: 21 5/8" (549)
- Left side panel height: 50 7/8" (1292)
- Top left side panel height: 30 1/4" (768)
- Top left side panel width: 12" x 27" (305) (686)
- Top left side panel height: 27" (686)
- Top left side panel height: 18 1/2" (470)
- Tray Opening for Full Size Plus 1/3 Size Pans: 6" x 6" (152) (152) Opening
- Tray Opening for Full Size Plus 1/3 Size Pans: 4 3/8" (111)
- Tray Opening for Full Size Plus 1/3 Size Pans: 29" (737)
- Tray Opening for Full Size Plus 1/3 Size Pans: 37 1/2" (953)
- Auto Fill Reservoir: 9 1/8" (232)
- Control Panel: 29 1/4" (743)
- Control Panel: 6 1/2" (165)
- Control Panel: 6 1/4" (159)

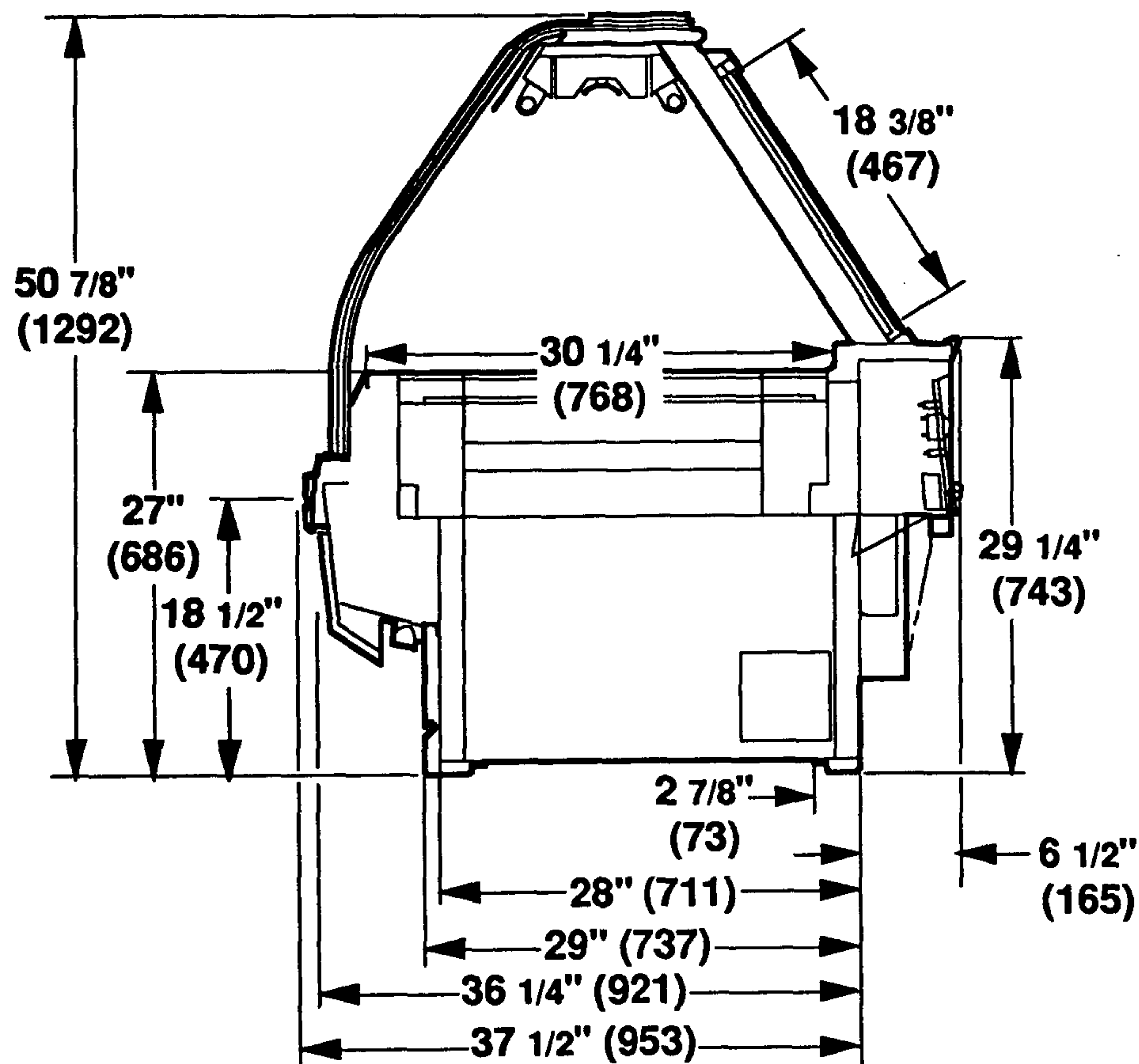
Technical drawing of the front elevation of a vending machine. The drawing includes the following dimensions and labels:

- Overall Height:** 50 1/2" (1283)
- Top Panel Height:** 18 3/8" (467)
- Tray Opening Width:** 30 1/4" (768)
- Tray Opening Height:** 12" x 27" (305) (686)
- Tray Opening Label:** Tray Opening for Full Size Plus 1/3 Size Pans
- Tray Opening Dimensions:** 6" x 6" (152) (152) Opening
- Auto Fill Reservoir Height:** 9 1/8" (232)
- Control Panel Height:** 29 1/4" (743)
- Control Panel Label:** Control Panel
- Control Panel Height (Bottom Section):** 6 1/2" (165)
- Control Panel Width:** 6 1/4" (159)
- Tray Opening Width (Bottom Section):** 4 3/8" (111)
- Tray Opening Width (Bottom Section):** 29" (737)
- Overall Width:** 43 3/4" (1111)
- Side Panel Height (Left):** 27" (686)
- Side Panel Height (Left):** 18 1/2" (470)

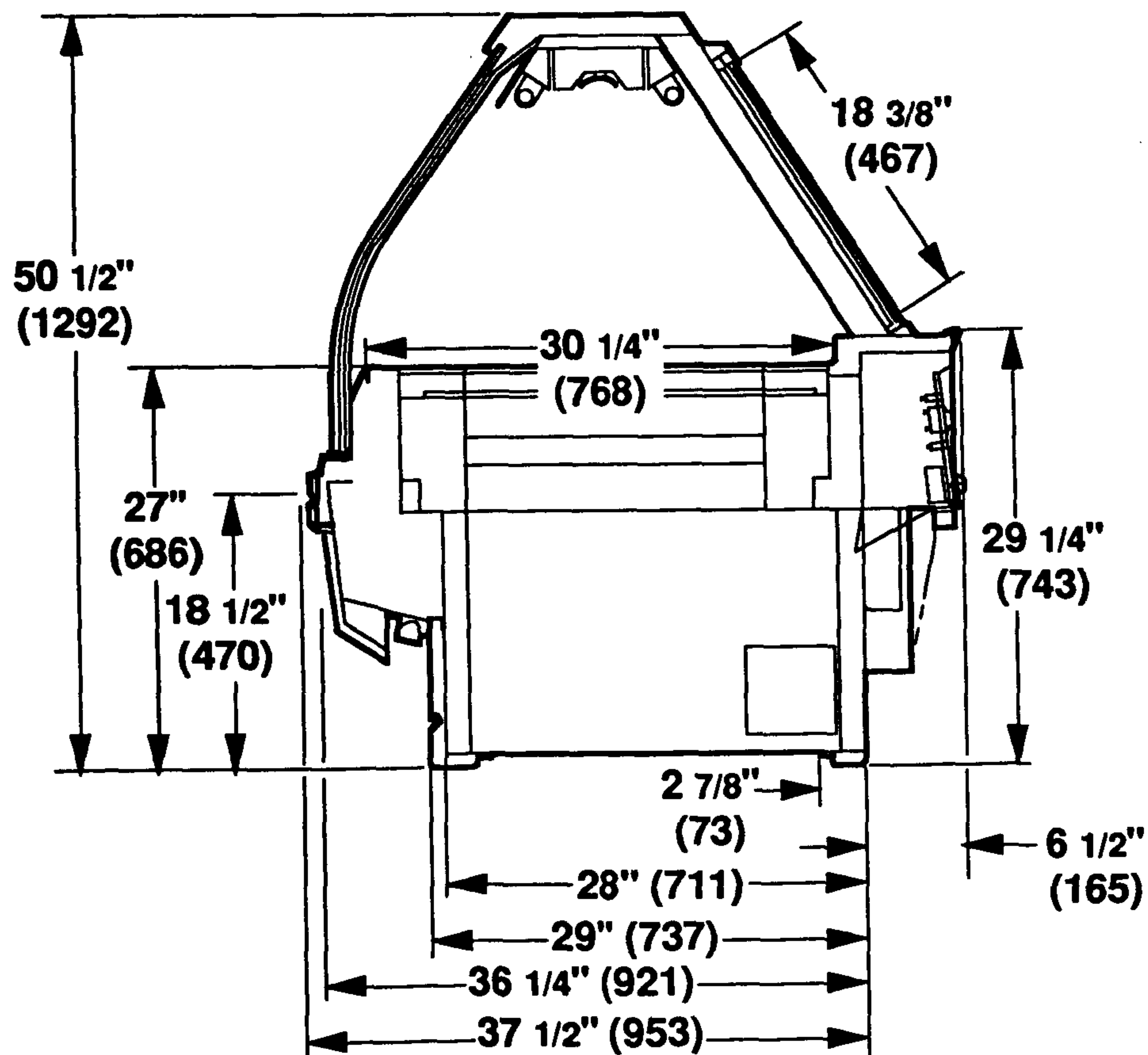
General Information

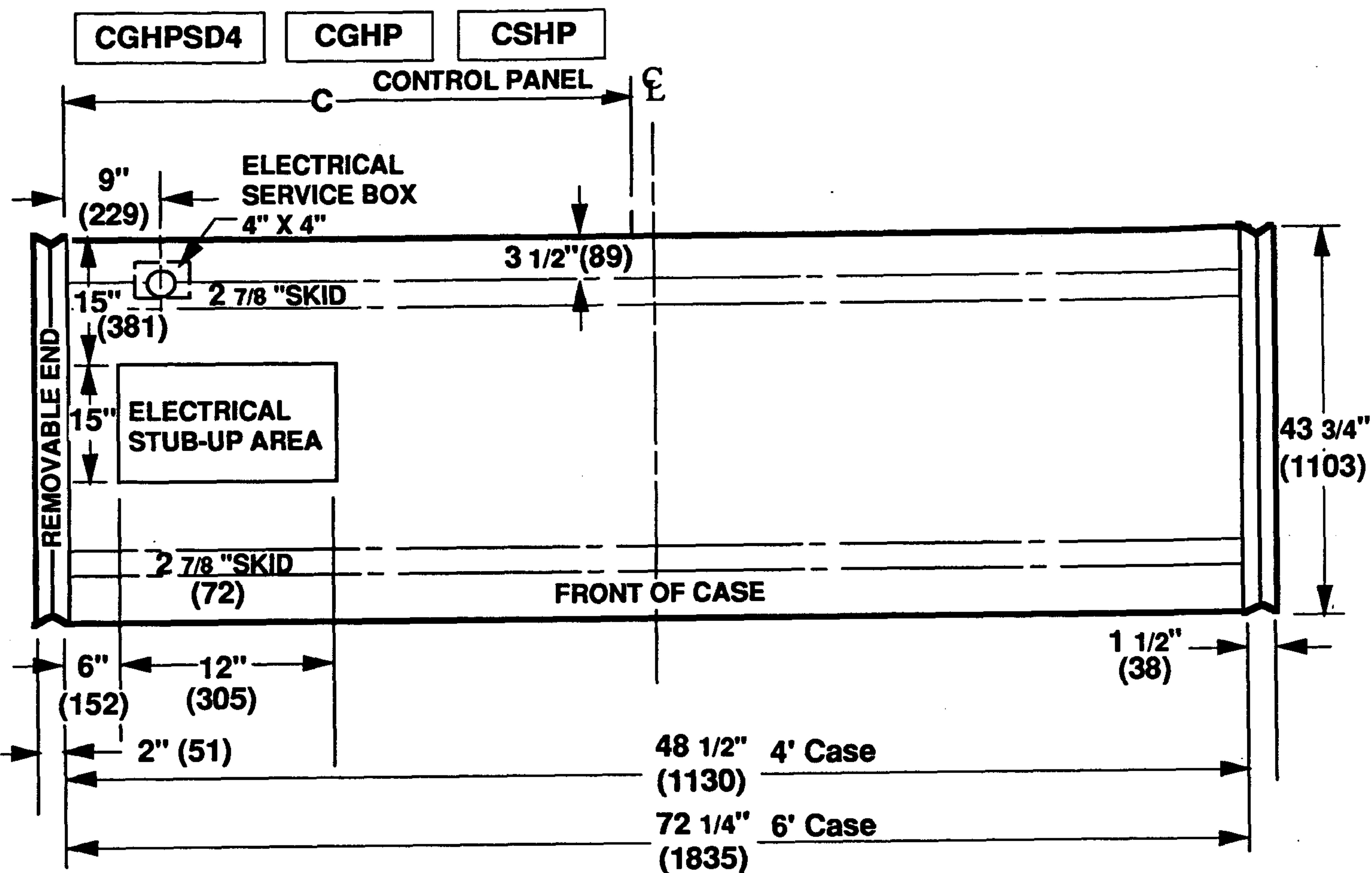
1-4

CGHP

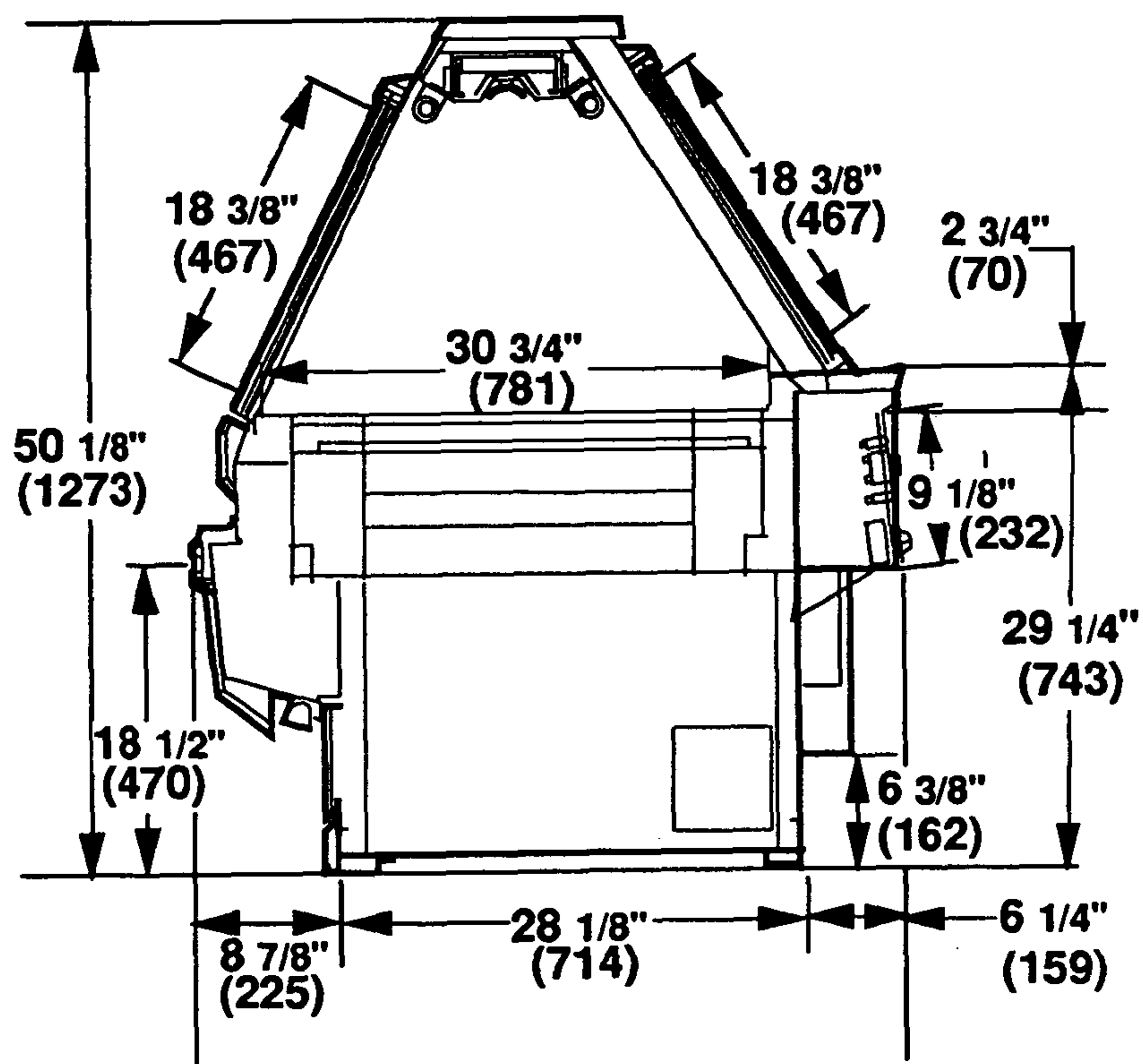


CSHP





CGHPSD4





## SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading.

This equipment has been carefully inspected at our factory and the carrier has assumed responsibility for safe arrival. If damaged, either apparent or concealed, claim must be made to the carrier.

### Apparent Loss Or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim. The carrier will supply necessary forms.

### Concealed Loss Or Damage

When loss or damage is not apparent until after equipment is uncrated, a claim for concealed damage is made. Upon discovering damage, make request in writing to carrier for inspection within 15 days and retain all packing. The carrier will supply inspection report and required claim forms.

## SHIPPING BRACES (Not All Merchandisers)

Move the fixture as close as possible to its permanent location and then remove all packaging and shipping braces. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves.

## EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur. Merchandisers are not structurally designed to support excessive external loading such as the weight of a person.

## LEVELING

Hot tables must be installed level to ensure proper operation of the Automatic Fill System. Use a carpenter's level as shown in the illustration

on the next page. Leveling shims or wedges are provided with each merchandiser for use if needed (10' hot tables must be shimmed at the center base if shims are used at either end). **NOTE:** To avoid removing concrete flooring, begin lineup leveling from the highest point of the store floor.

## ANCHORING

The hot tables have been designed with a low center of gravity so that anchoring is not necessary. If anchoring is desired, holes may be drilled in the rear base rail to lag the table to the floor.

## DRAIN CONNECTION (Hot Tables Only)

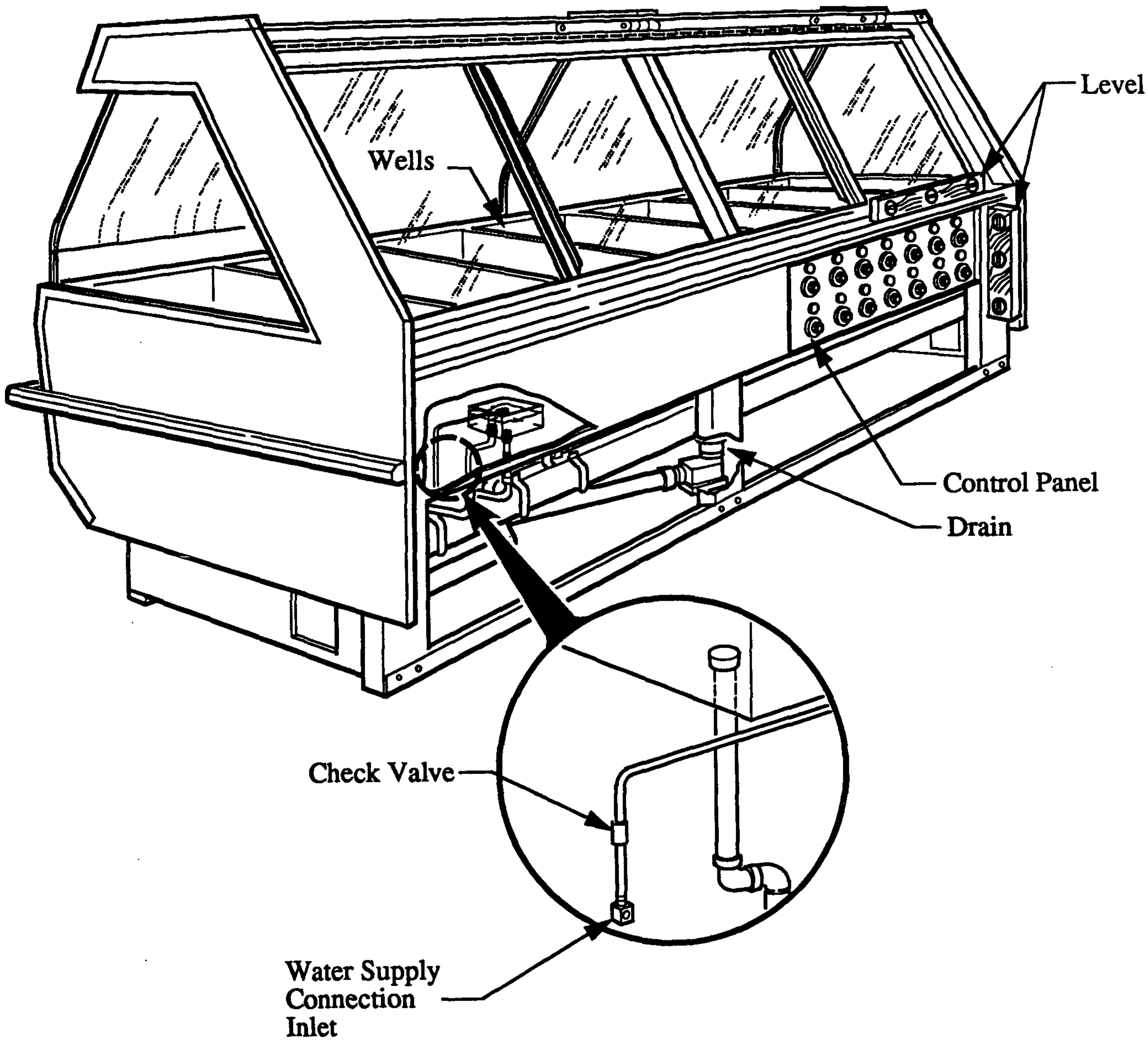
The hot tables will need to be connected to a floor drain. Their outlet has a plastic trap located as shown in the following illustration. The trap is sized for 1 1/2" drain pipe.

## WATER SUPPLY

Each hot table equipped with food wells must be connected to a water supply. A 3/8" waterline is all that is required. These hot tables are equipped with an automatic water fill system which, when connected, will automatically maintain the proper level of water in each well during operation.

The water supply connection is located beneath the rear, left-hand end as shown in the following illustration. We suggest that a hand shut-off valve be installed when making water connection. The float valve M.O.P. (maximum operating pressure) is 175 psi water pressure.

This equipment is to be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and used in accordance with the Food Service Sanitation Manual of the Food and Drug Administration (FDA).





## INSTALLING SPLASHGUARD

A splashguard/lower front assembly has been shipped inside each hot table. After the hot table has been leveled and joined, install this assembly to the front of the hot table.

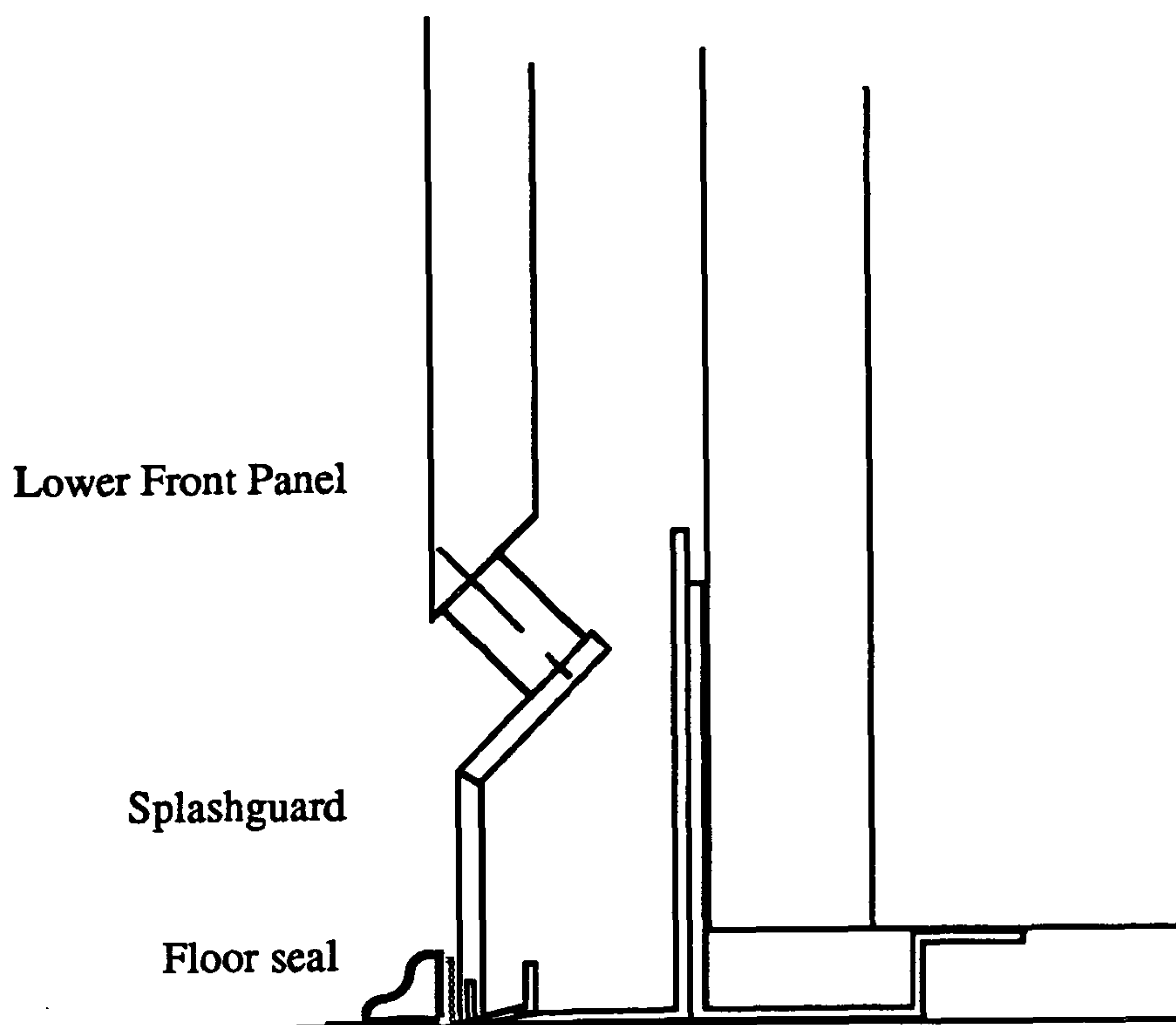
First, adjust the brackets on the lower base rail flush to the floor. Then position the assembly up behind the front panel of the hot table and then down onto the brackets. See illustration.

## SEALING SPLASHGUARD TO FLOOR

If required by local sanitation codes or if desired by the customer, the splashguards may be sealed to the floor using a vinyl cove base trim. The size of trim needed will depend on how much the floor is out of level.

To install the trim to the splashguard:

1. Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary. This is to ensure a good and secure installation.
2. Apply a good contact cement to the trim and allow proper drying time according to the directions supplied with the cement.
3. Install the trim to the splashguard so that it is lying flush with the floor.





**CONNECTIONS**

All electrical connections for these hot tables will be made in the electrical service "handy" box located at the rear of the hot table. The Serial Plate will be stamped with the electrical requirements.

**SERIAL PLATE AMPERAGES**

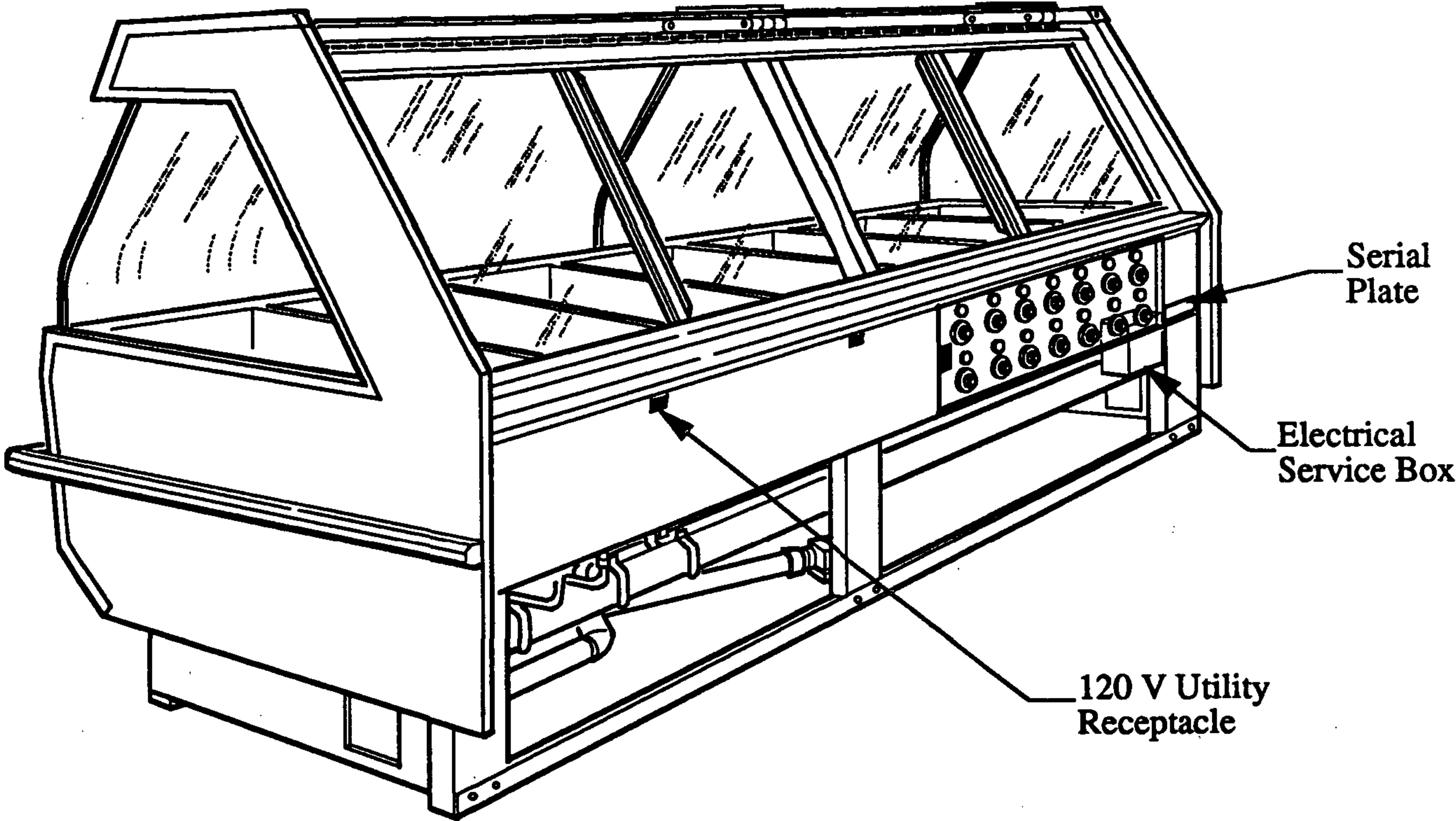
Serial Plate Amperages, are the amperage figures that are stamped on the fixtures Serial Plate. Although all field installed wiring must be sized to the serial plate amperages, the actual current or amps may be less than that specified.

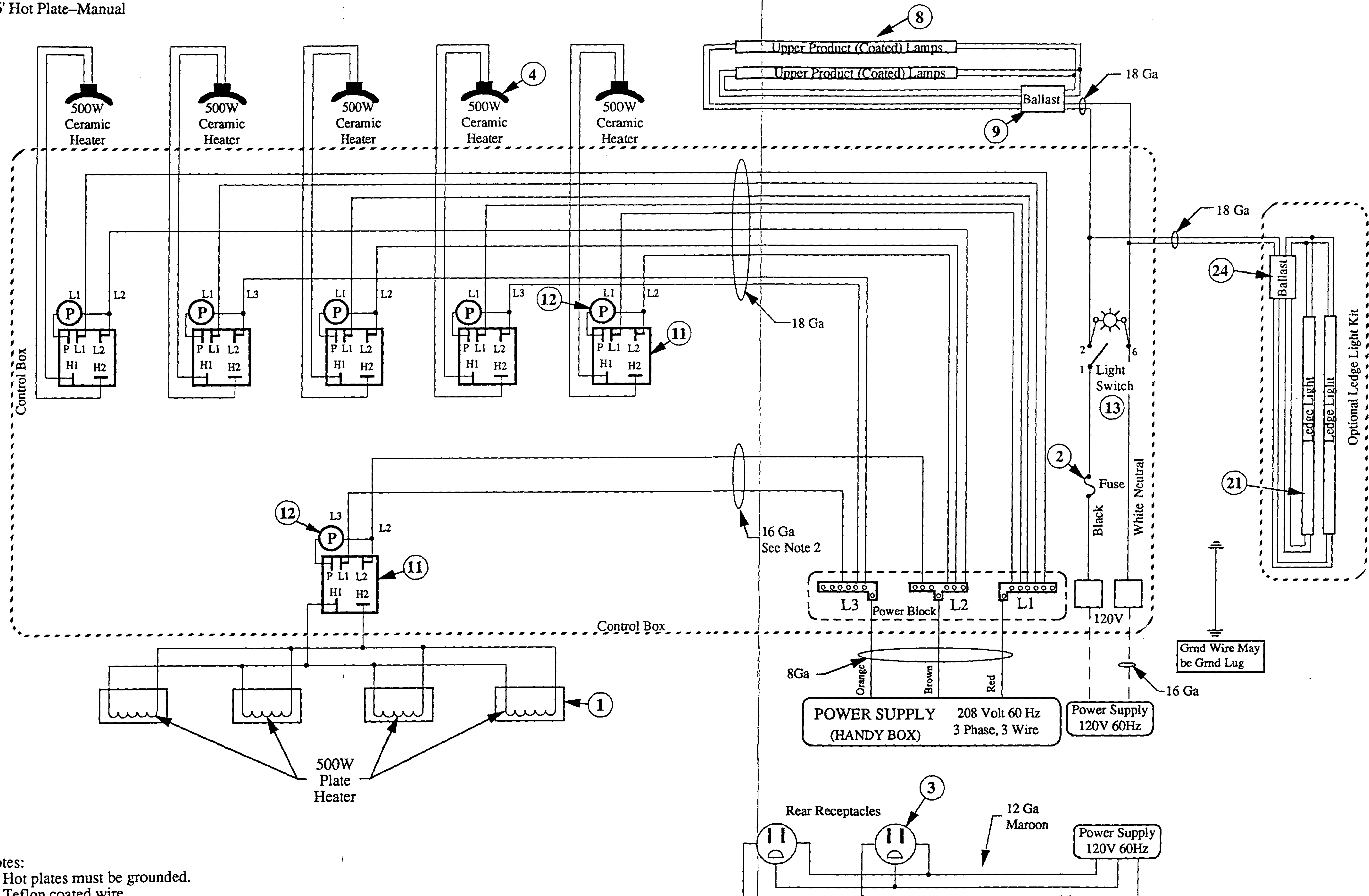
**CIRCUIT REQUIREMENTS**

<b>MODEL</b>	<b>208 VOLT, 60 HZ Three Phase AMPS</b>	<b>120 VOLT, 60 HZ</b>	
		<b>(Receptacles) AMPS</b>	<b>(Lights) AMPS</b>
<b>Hot Tables</b>			
4'	10.9	15	1.0
6'	17.5	15	1.4
8'	26.6	15	2.0
12'	35.0	15	2.9
<b>Hot Plates w/o sliding doors</b>			
6'	9.6	15	1.4
<b>w/sliding doors</b>			
4'	14.6	15	1.0

**NOTES:**

1. The amperage figures shown in this table are for the line with the highest amperage.
2. FIELD WIRING: USE CONDUCTORS RATED MINIMUM 75° C.
3. The receptacles located on the rear of the fixture are intended for small appliances, NOT for large motors or other high wattage appliances.
4. The 208 volt power is used on the heater circuits. 120 volt power is used for the fluorescent lamp ballasts, fan and transformer where applicable. A separate 120 volt power source is used for the electrical receptacles.

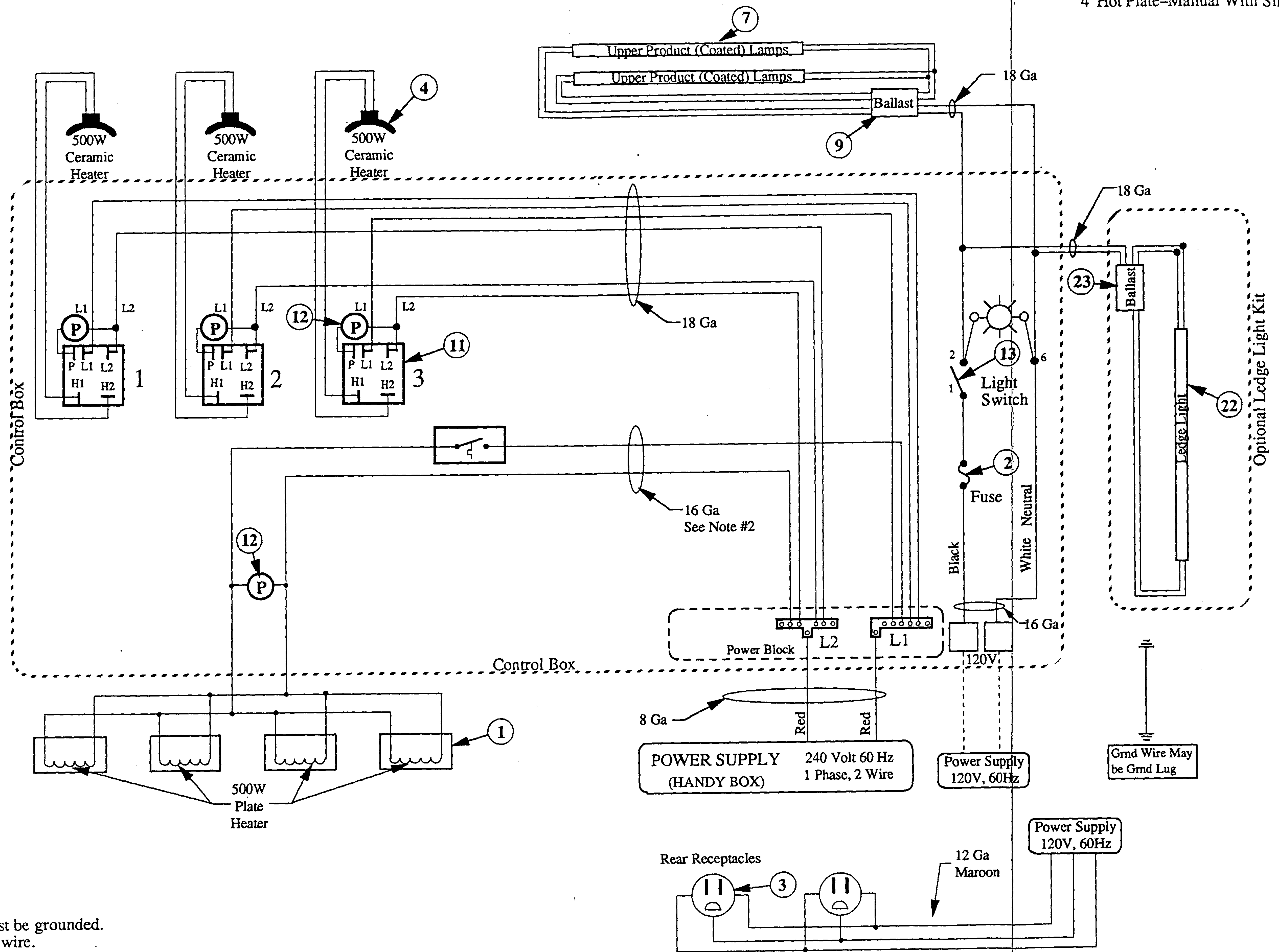


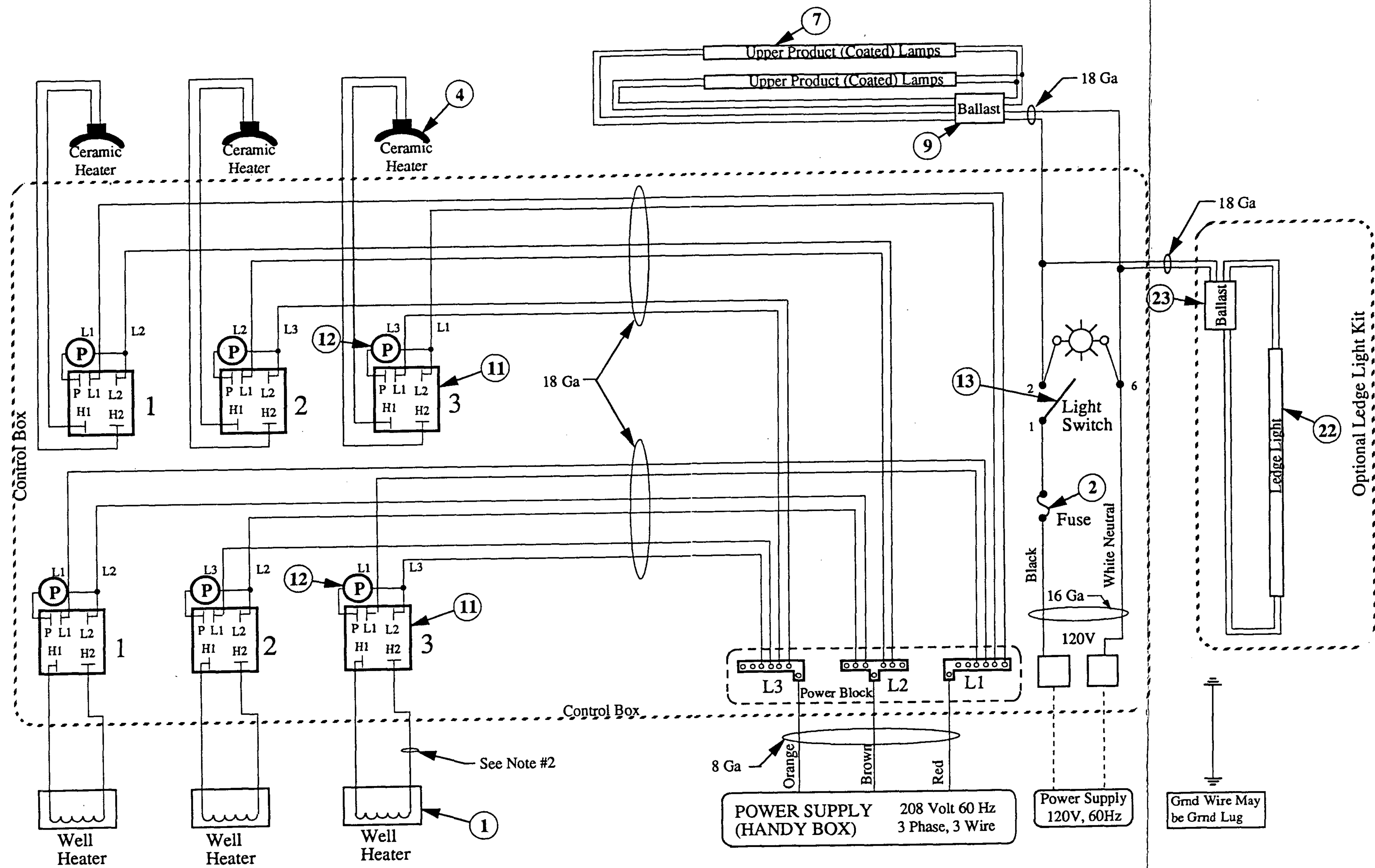


Notes:

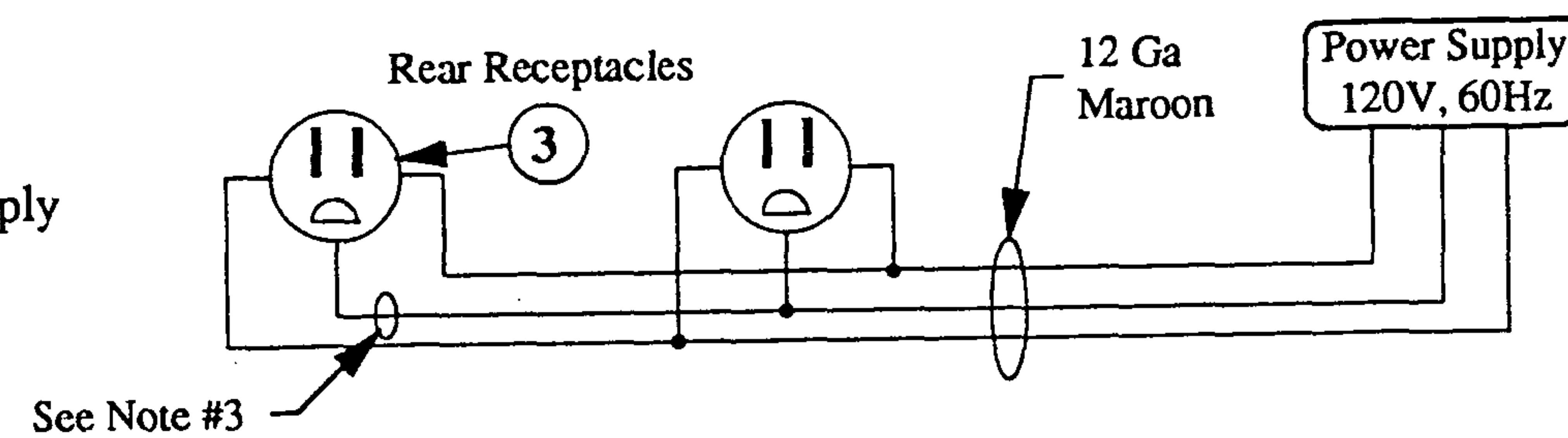
1. Hot plates must be grounded.
2. Teflon coated wire.



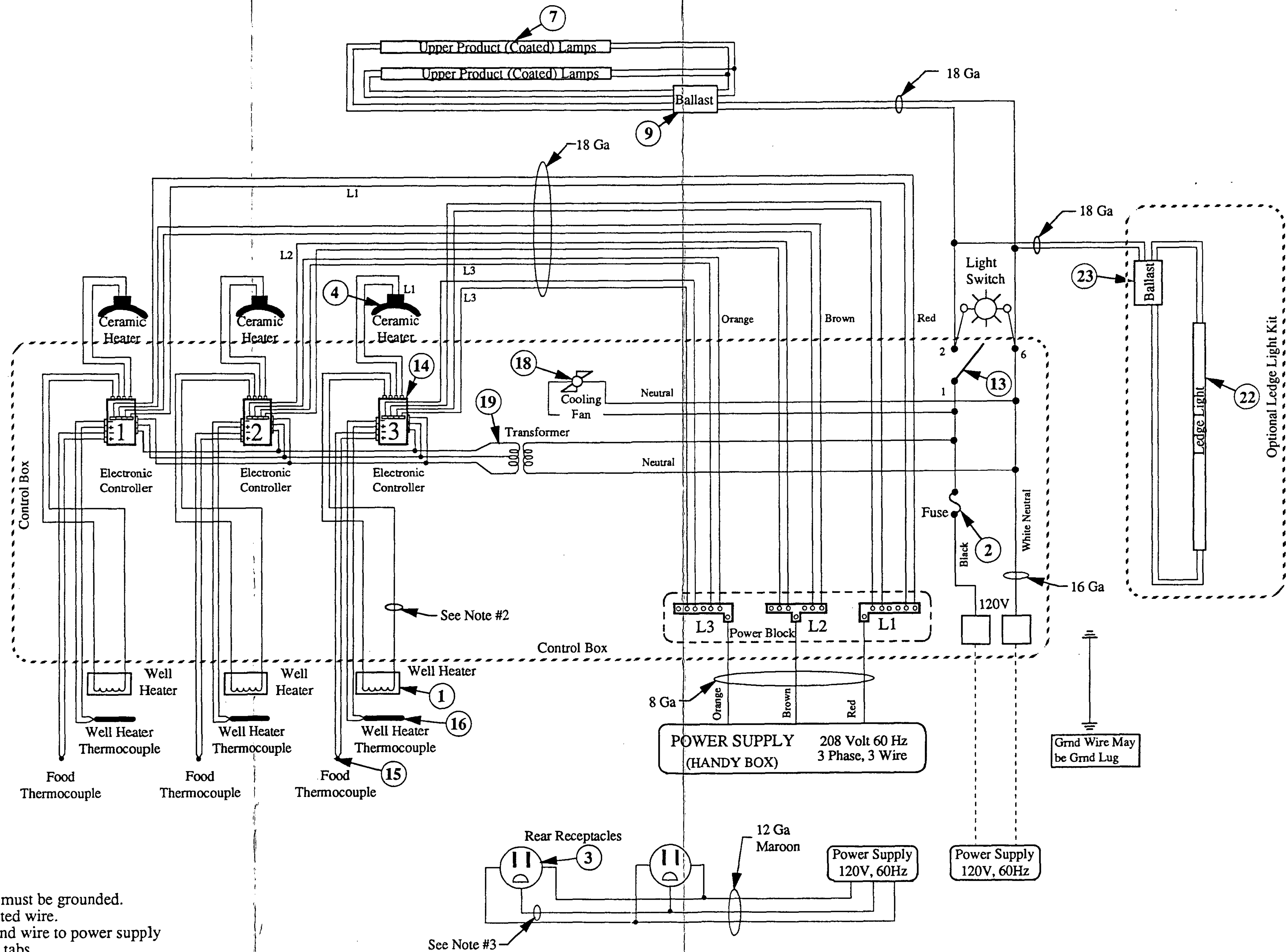




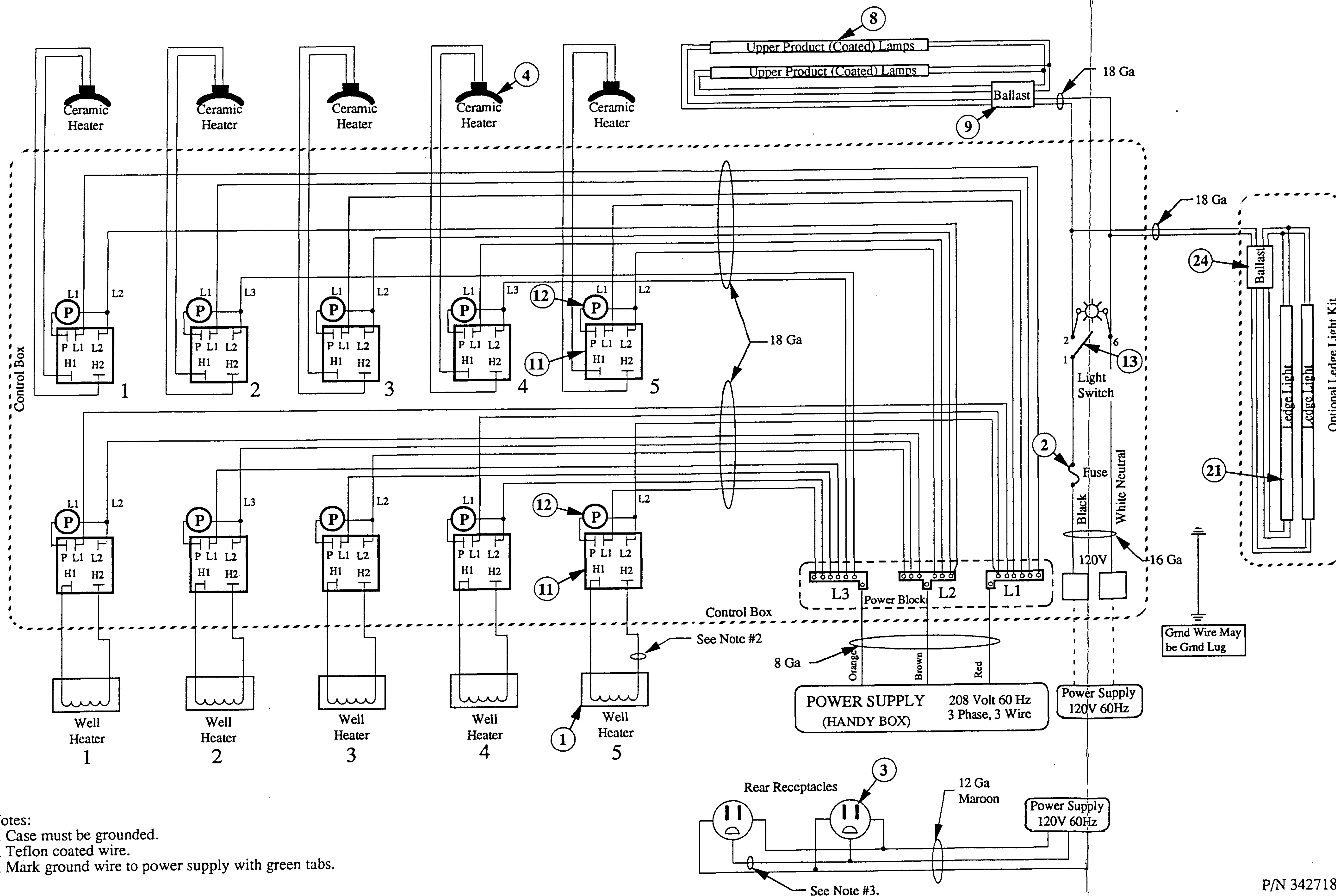
- Notes:
1. Hot tables must be grounded.
  2. Teflon coated wire.
  3. Mark ground wire to power supply with green tabs.

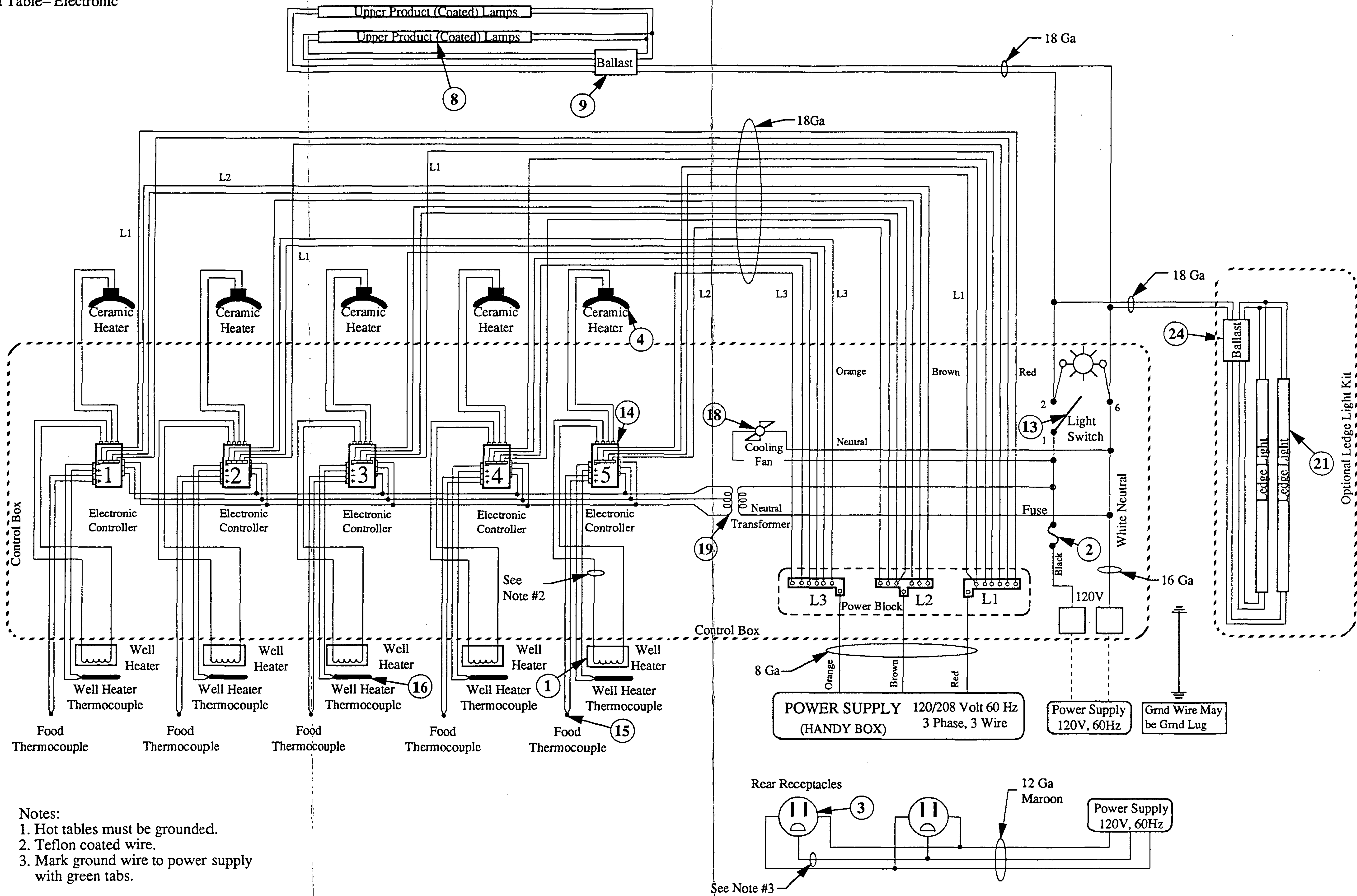






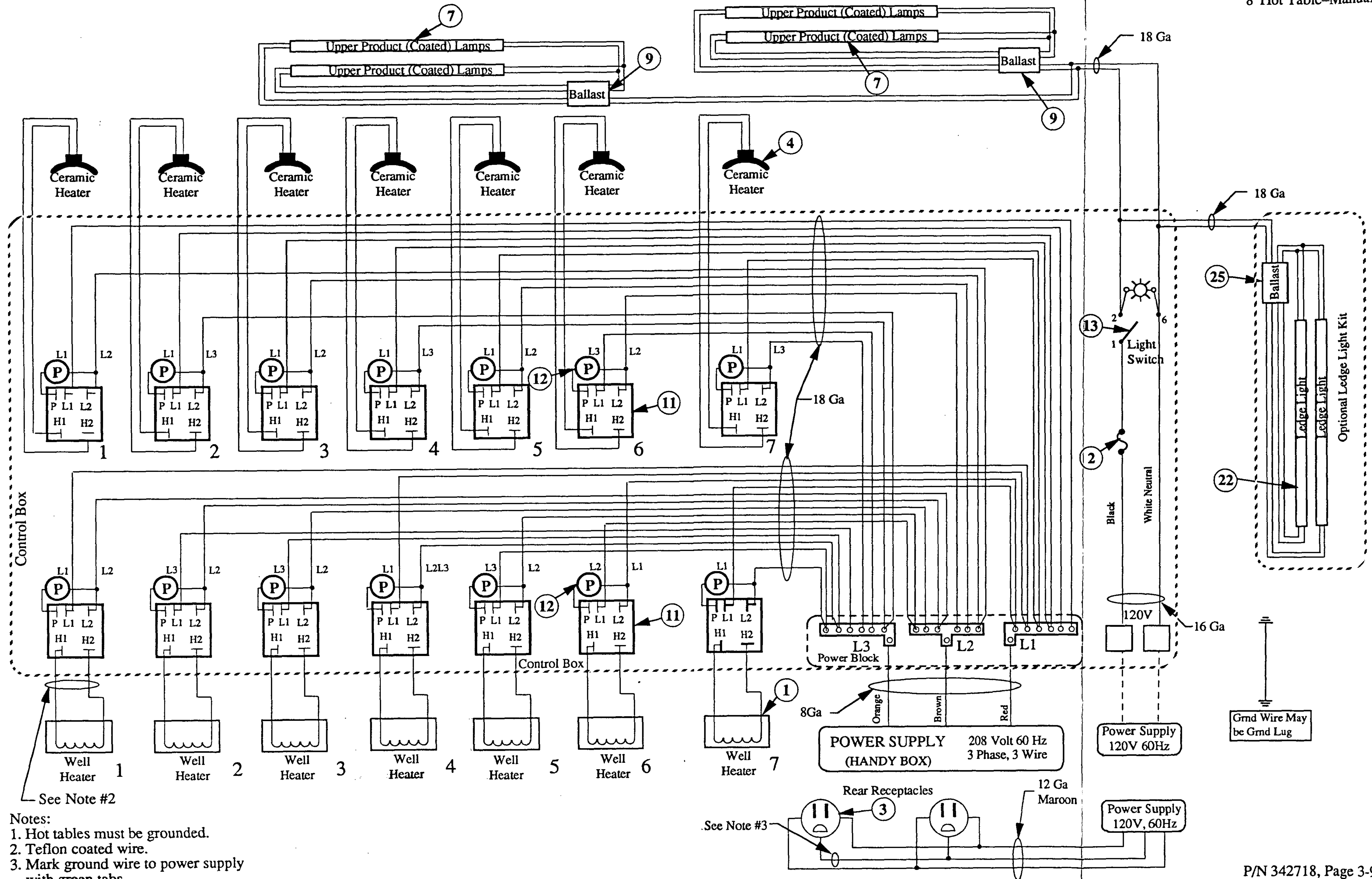






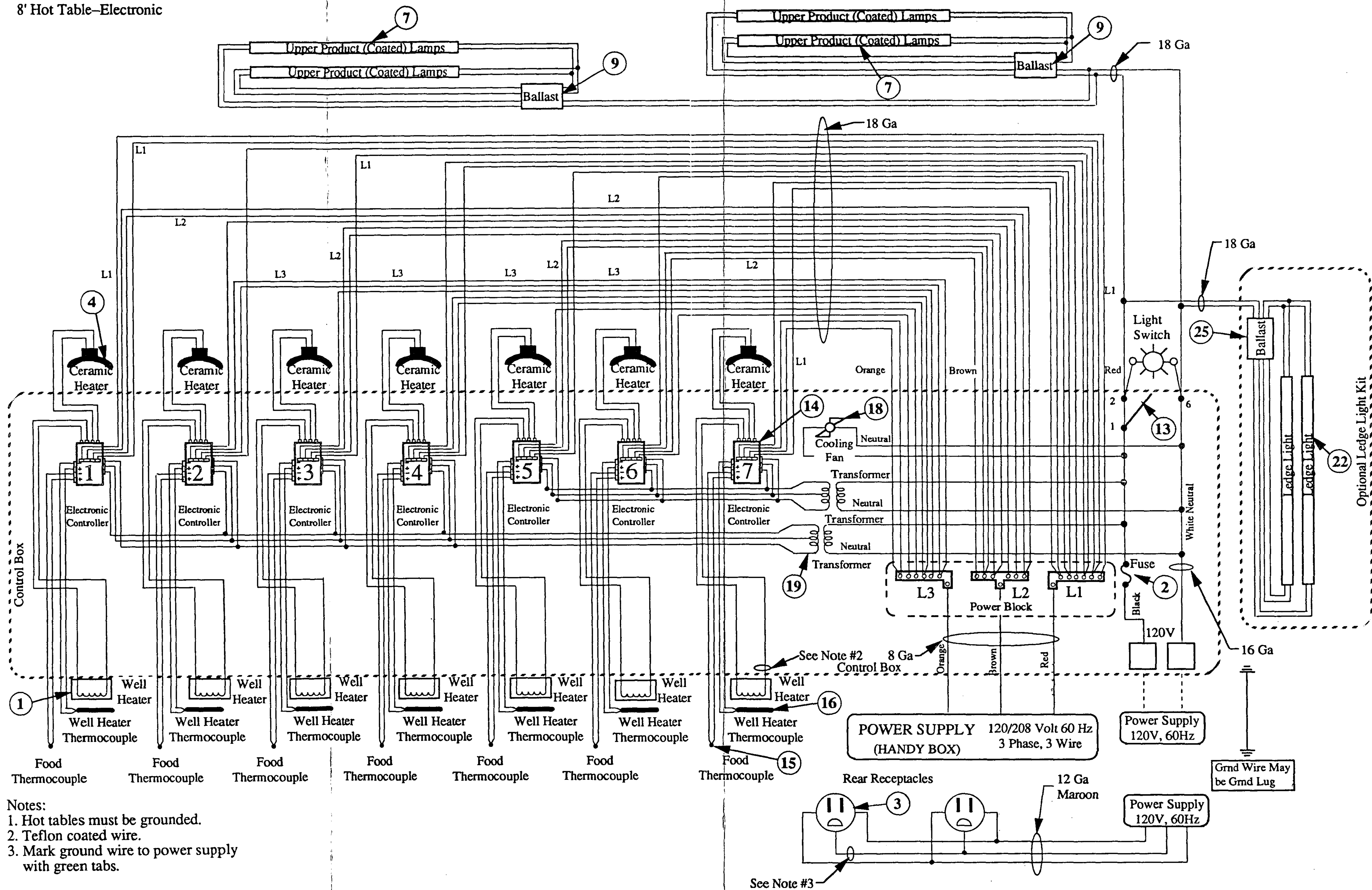
- Notes:
- 1. Hot tables must be grounded.
  - 2. Teflon coated wire.
  - 3. Mark ground wire to power supply with green tabs.







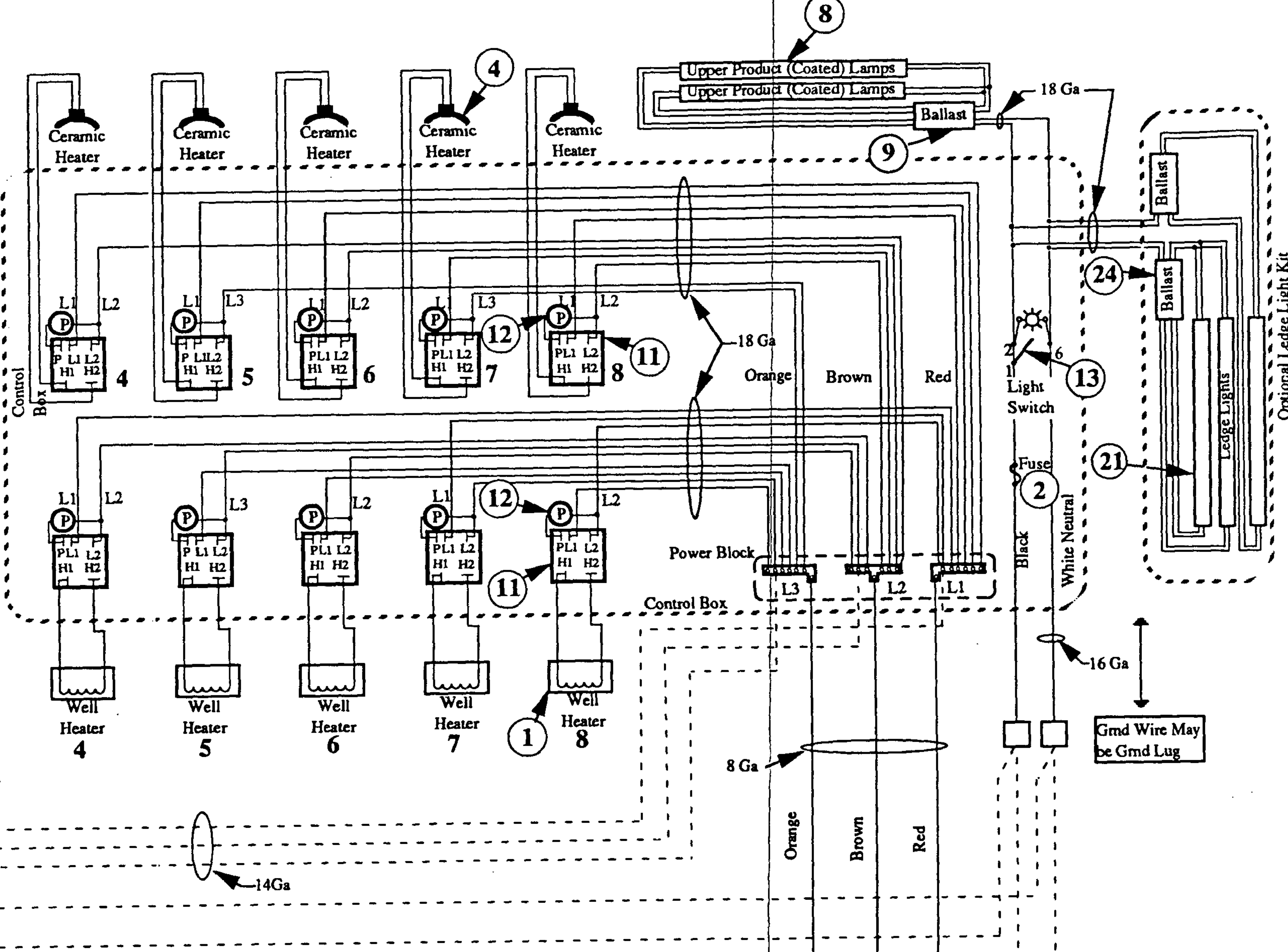
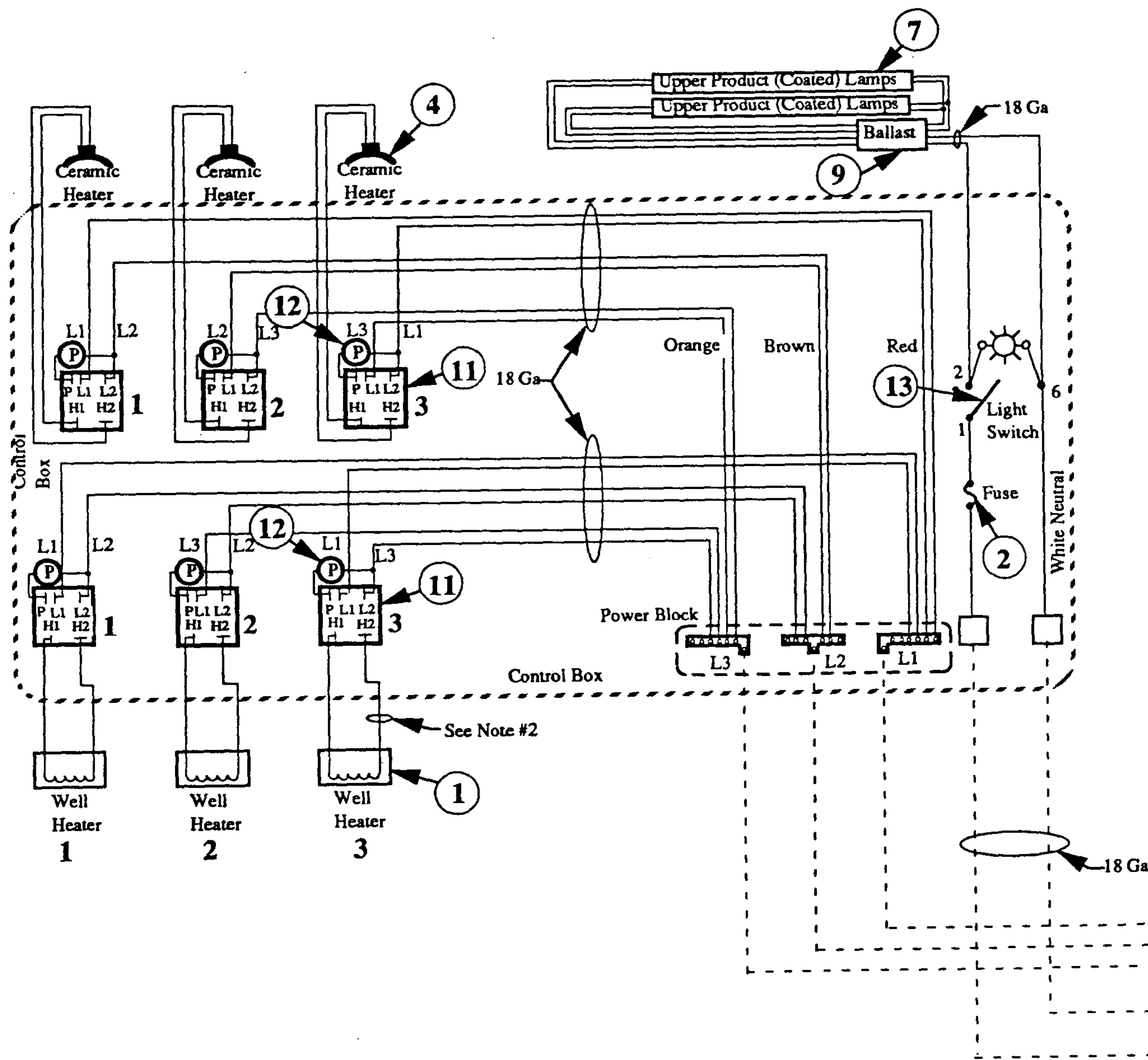
8' Hot Table-Electronic



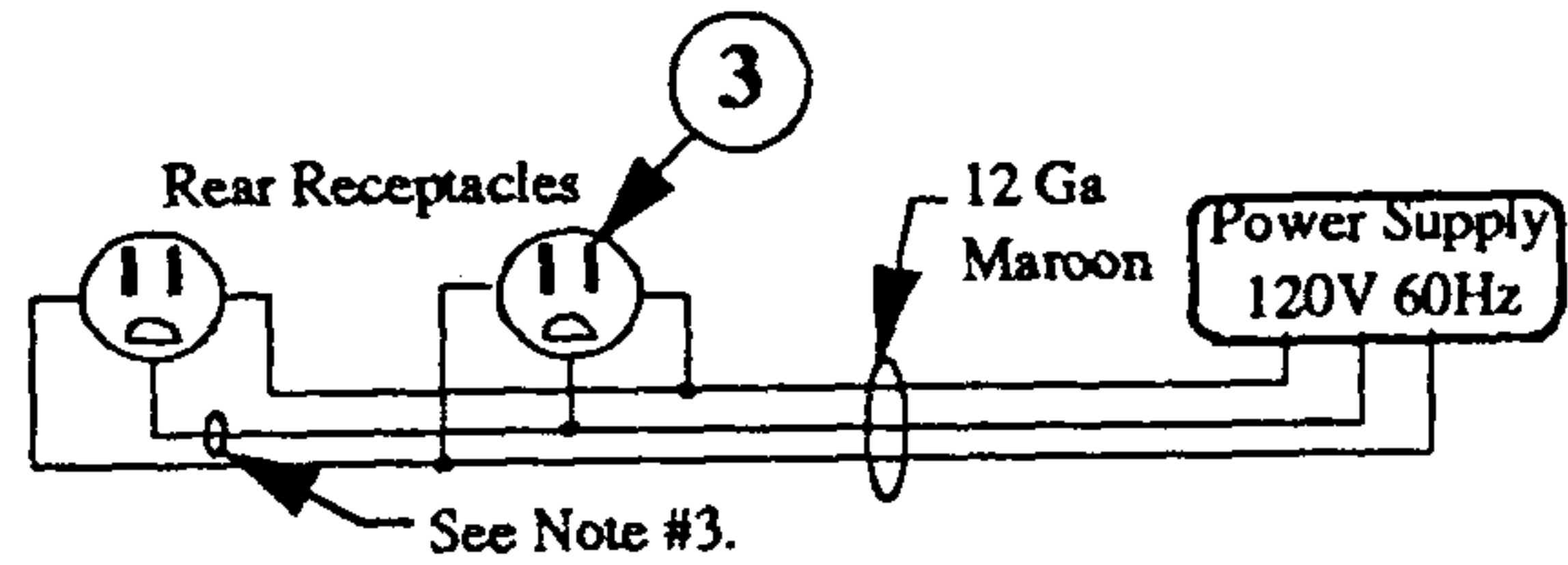
- Notes:
1. Hot tables must be grounded.
  2. Teflon coated wire.
  3. Mark ground wire to power supply with green tabs.

CGHT4 Core Chassis  
For more detail see 4 ft. Wiring Diagram

CGHT6 Core Chassis  
For more detail see 6ft. Wiring Diagram



- Notes:
- 1. Hot tables must be grounded.
  - 2. Teflon coated wire.
  - 3. Mark ground wire to power supply with green tabs.
  - 4. Join right-hand end of CGHT6 to left-hand end of CGHT4.
  - 5. Make interconnect wiring between to core chassis as indicated by dashed lines.



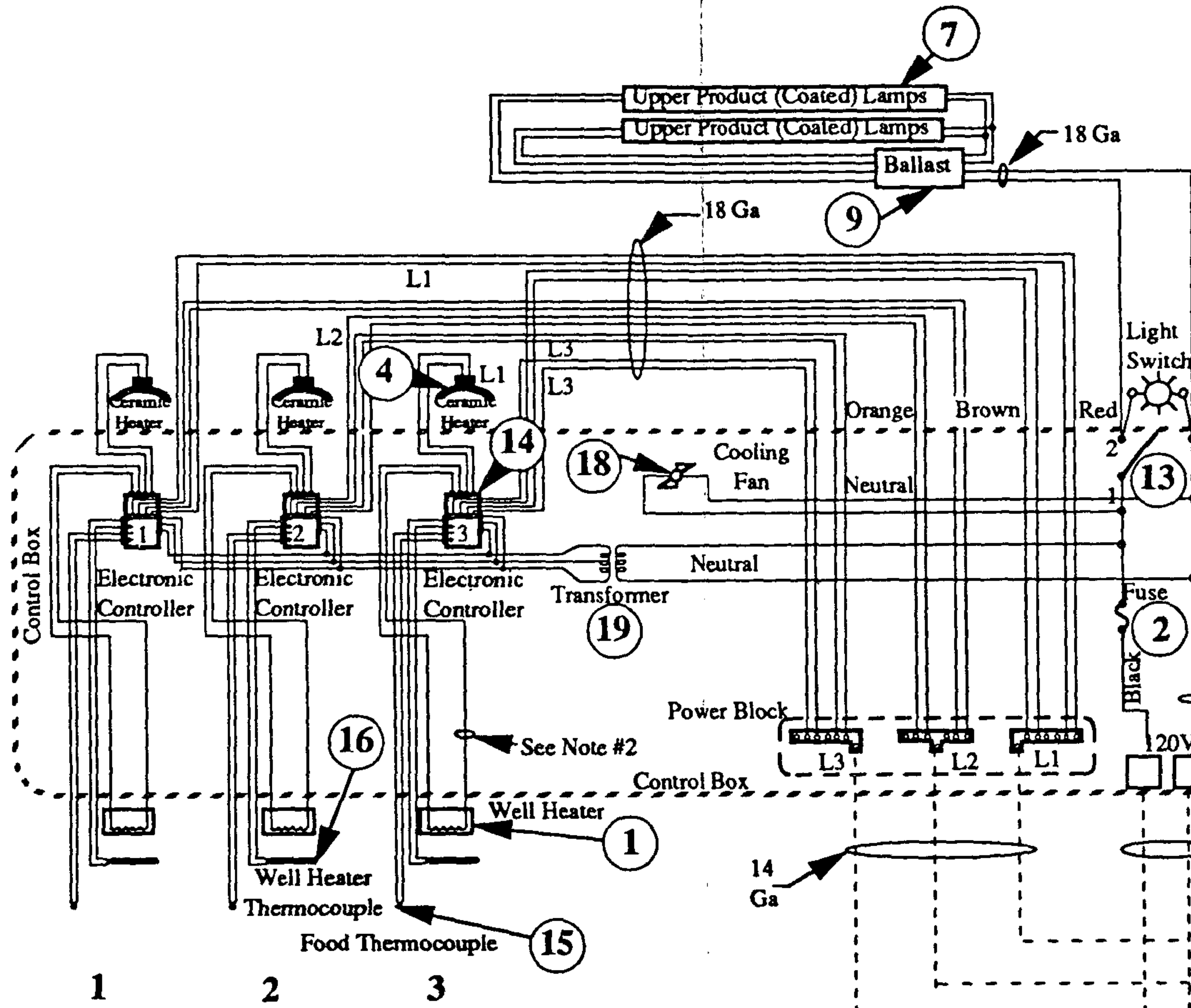
POWER SUPPLY 208 Volt 60 Hz  
(HANDY BOX) 3 Phase, 3 Wire

Power Supply  
120V 60Hz

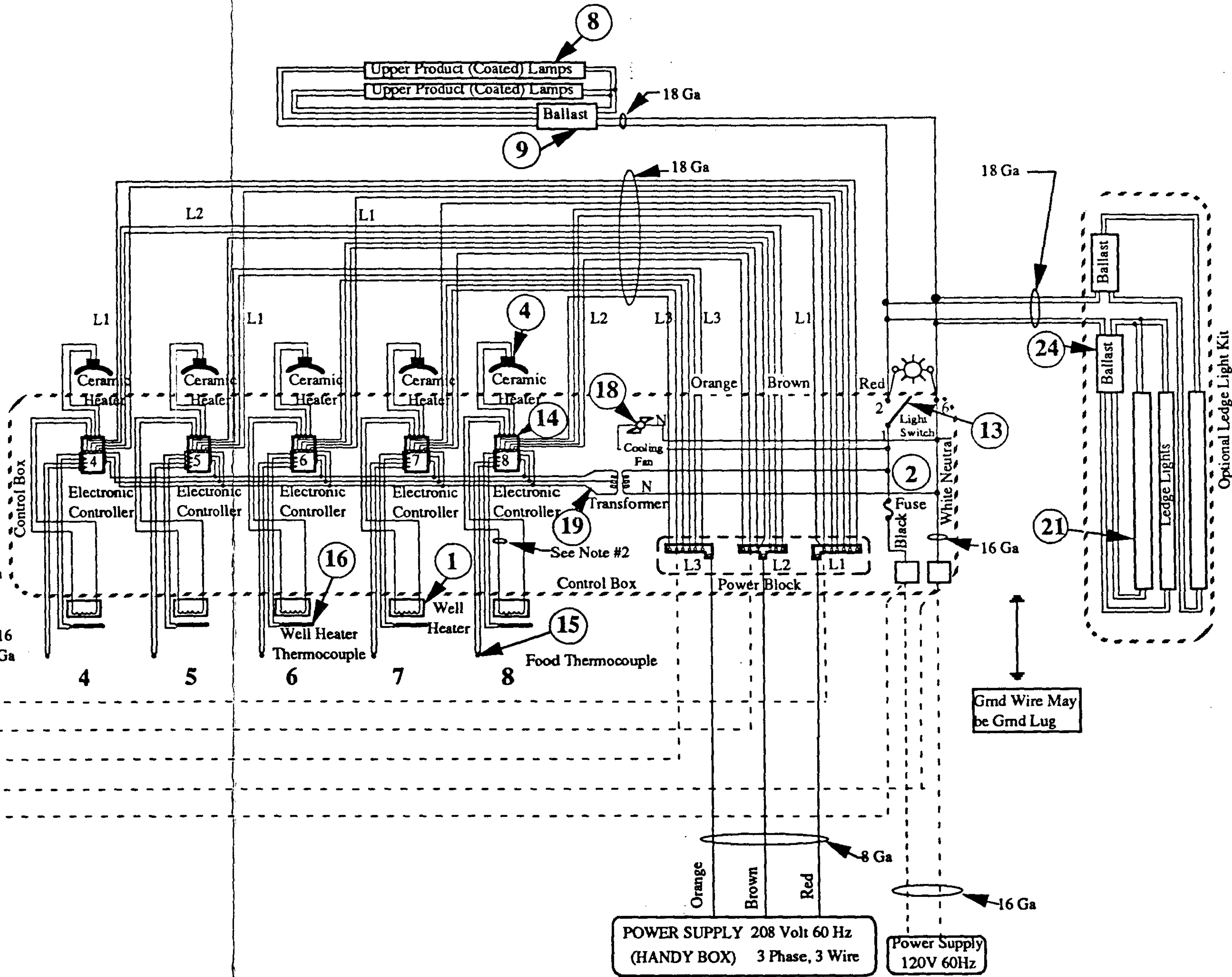
Gnd Wire May  
be Gnd Lug



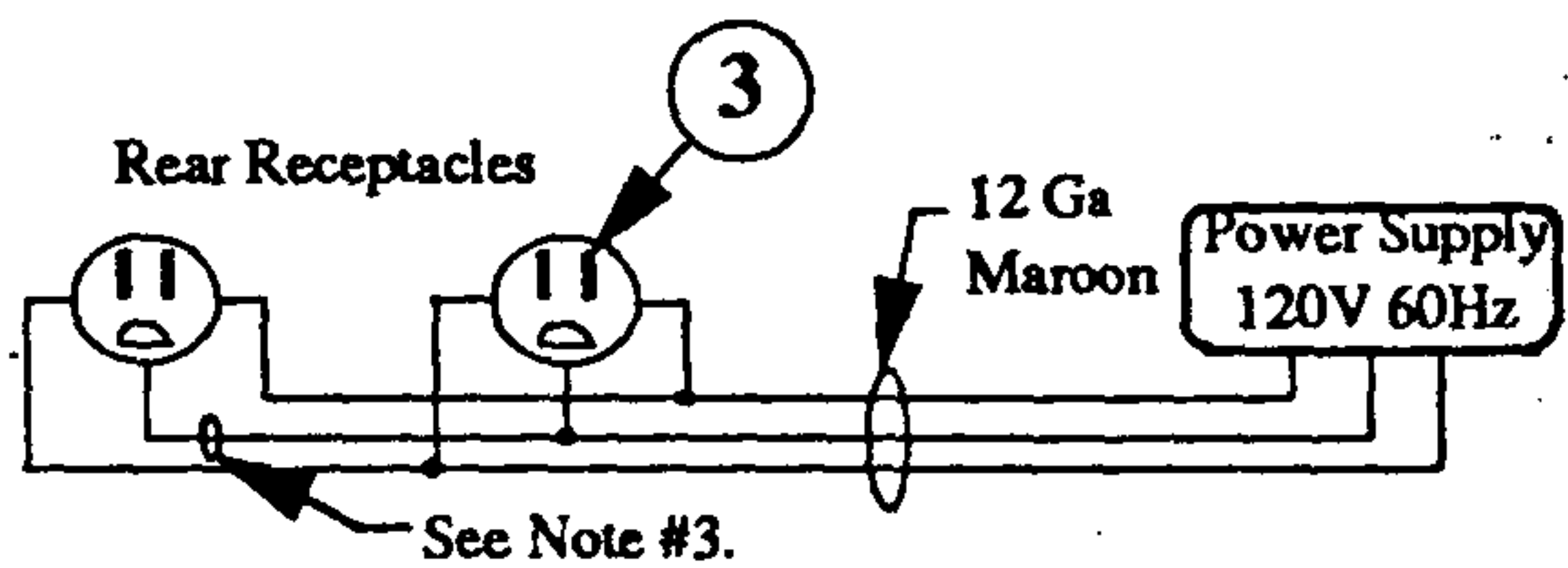
CGHT4 Core Chassis  
For more detail see 4 ft. Wiring Diagram



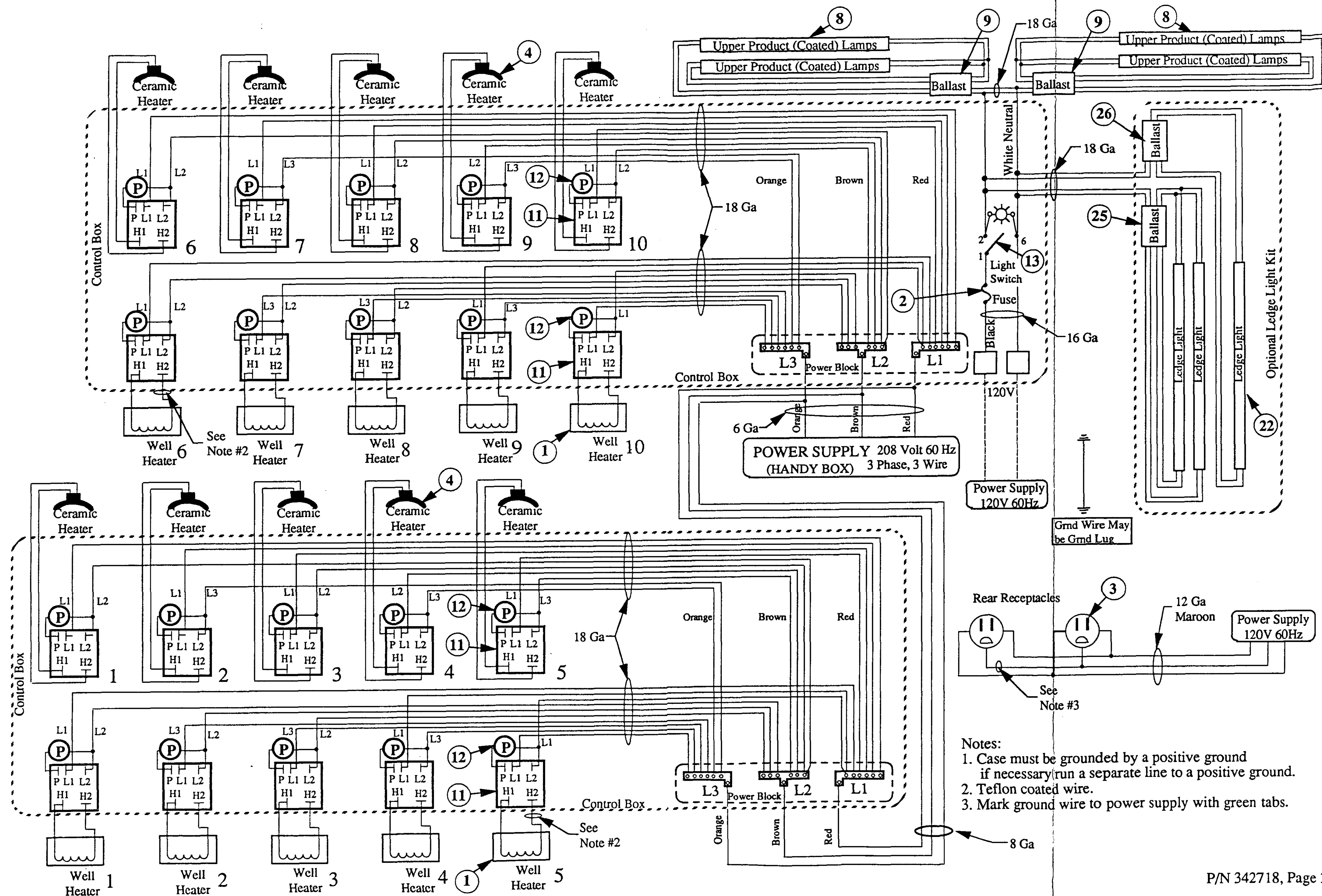
CGHT6 Core Chassis  
For more detail see 6ft. Wiring Diagram



- Notes:
1. Hot tables must be grounded.
  2. Teflon coated wire.
  3. Mark ground wire to power supply with green tabs.
  4. Join right-hand end of CGHT6 to left-hand end of CGHT4.
  5. Make interconnect wiring between to core chassis as indicated by dashed lines.

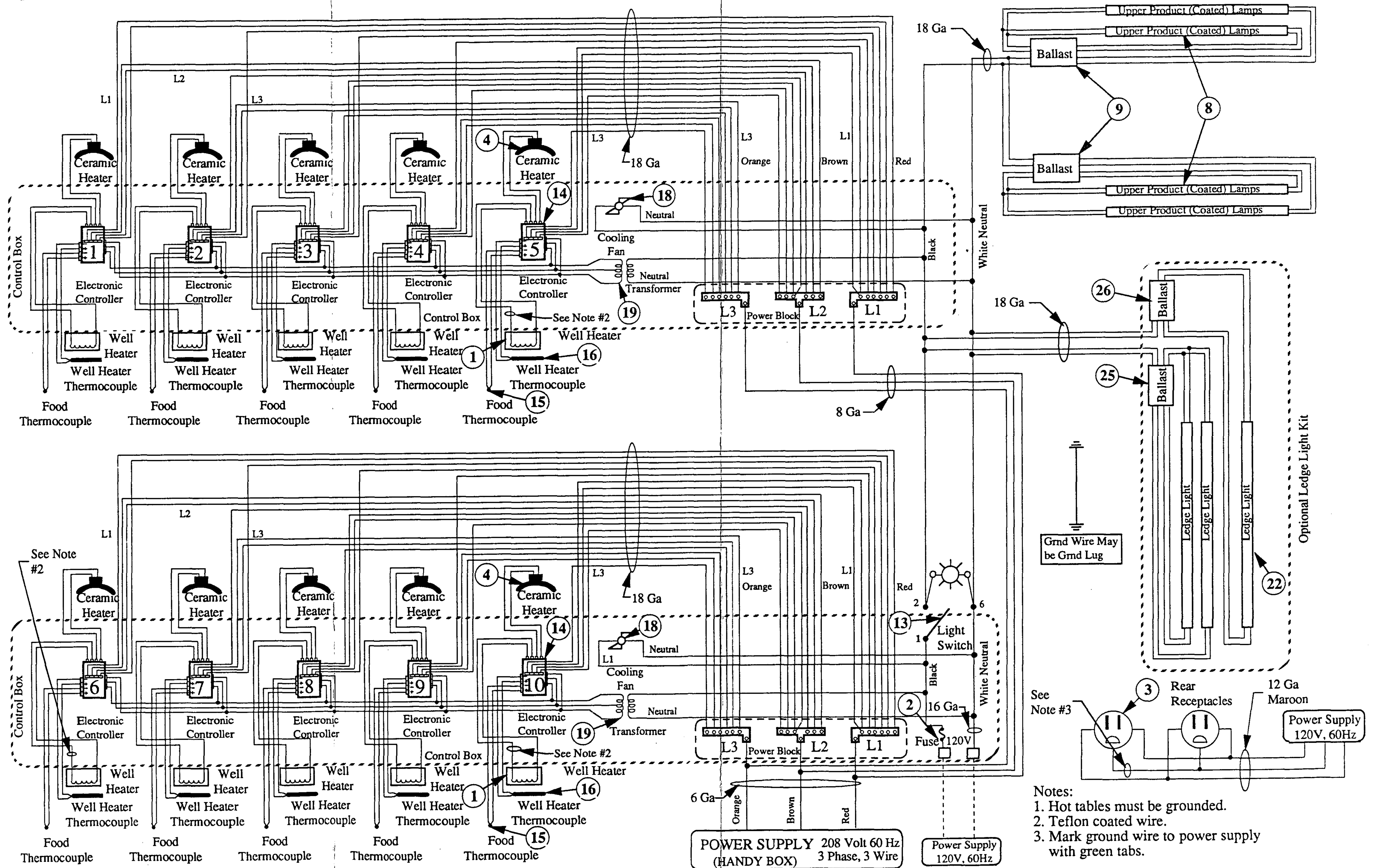








12' Hot Table- Electronic





## REPLACEMENT PARTS LIST

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>USED ON</u>
1.	0348320*	Dispersion plate and heater assembly	all hot <u>tables</u>
	0321199	Plate heater, 500W, 240V	all hot <u>plates</u>
2.	0317832	Fuse (Bussmann SC20)	all cases
3.	0343735	Receptacle 120 volt utility outlet	all cases
4.	0341036	Ceramic heaters	4' cases
	0341037		6' cases
	0341038		8' cases
	0348314	(Left-hand wiring)	12' cases
	0348315	(Right-hand wiring)	12' cases
5.	0341086	Cylinder 600N (not shown)	6' CGHT cases
6.	0341087	Cylinder 700N (not shown)	4, 8 and 12' CGHT cases
	0334677	Cylinder-double damped (not shown)	4, 6, 8 and 12' CSHT cases
7.	0353599	Fluorescent lamp F48T12/CW/HO Kenlon coated	4 and 8' cases
8.	0353600	Fluorescent lamp F72T12/CW/HO Kenlon coated	6 and 12' cases
9.	0147091	Lamp ballast	all cases
10.	0348321	Water pan (not shown)	all cases
11.	0319715	Heater, control Robertshaw #INF-240-31B	manual cases
12.	0252675	Pilot lamp, red, Jemco #2225-5L4	manual cases
13.	0342706	Switch, rocker	all cases

\*Hussmann Service Part Number



**REPLACEMENT PARTS LIST CONTINUED**

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>USED ON</u>
14.	0348381*	Board, printed circuit automatic control	electronic cases
15.	0342703	Thermocouple probe, food	electronic cases
16.	0342730	Well heater thermocouple	electronic cases
17.	0342704	Receptacle thermocouple two pin (not shown)	electronic cases
18.	0342711	Fan, cooling	electronic cases
19.	0342712	Transformer	electronic cases
20.	0342709	Timer, optional electronic timer (not shown)	electronic cases
21.	0104043	Fluorescent lamp F30T12/CWX optional ledge light	6' cases
22.	0020725	Fluorescent lamp F40T12/CWX optional ledge light	4, 8 and 12' cases
23.	0143354	Lamp ballast optional ledge light	4' cases
24.	0147089	Lamp ballast optional ledge light	6' cases
25.	0147080	Lamp ballast optional ledge light	8 and 12' cases
26.	0147082	Lamp ballast optional ledge light	12' cases

\* When this board is used to replace the older model (P/N 342702) jumpers must be added. Install 16 GA jumpers to 1/4" Tab Terminals connecting HTR1 and HTR2, and connecting HTR3 and HTR4.

**CARE AND CLEANING**

Long life and satisfactory performance of any equipment is dependent upon the care it receives. With this in mind, all of the exposed work surfaces have been made entirely of easy to clean stainless steel.

Stainless steel is one of the easiest materials to clean and keep clean. Normally it is just a matter of wiping spills off the surface when they happen, followed by a thorough cleaning with soap and water at the end of the day. After each cleaning all surfaces must be thoroughly rinsed to remove all traces of the cleansing agent.

Frequent and regular cleaning will prevent the build-up of baked-on difficult to remove spills. Many types of cleansers are available that are safe to use on stainless steel. However, ordinary steel wool and steel brushes should NOT be used. Small particles of the steel wool may become imbedded into the stainless steel surfaces and will eventually rust and stain.

**General Cleaning Rules**

Turn off heaters and lamps

Allow surfaces to cool before cleaning

Clean frequently and regularly

Rinse thoroughly after cleaning

Remove surface spills immediately  
with a damp cloth

The EXTERIOR surfaces of these hot tables must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. Never use abrasive cleansers or scouring pads.

**Cleaning Front Glass**

The front glass should be cleaned frequently. If cleaning is not thorough, moisture condensation on the glass will result in poor visibility.

Soap and water or any non-abrasive glass cleaning agent may be used to clean the curved front glass, inside and outside.

**HANDLING FOOD AND EQUIPMENT**

The following guidelines are provided only as a general guide for the use of this equipment. The local health agency for your area can provide specific temperature requirements.

Critical attention must be given to the heat controls for these hot tables. Both the upper and lower heat controls must be adjusted to achieve proper food temperatures. Hot foods should be held at a constant temperature of at least 140° F (60° C) to prevent spoiling. However, increasing the temperature above 140° F will cause the food to dry out, lose its flavor and texture, and to discolor. Food held for prolonged periods at high temperatures will also lose some of its nutritional value.



Different foods will require different control settings. The type, amount and length of time that the foods are to remain in the hot table all must be considered when establishing control settings. Therefore, it must be the user's responsibility to establish the correct control settings to maintain the food at the safest, tastiest and most saleable condition.

**NOTE:** FDA Food Sanitation Manual states that all hot food MUST be maintained above an internal temperature of 140°F for holding. An exception is made for rare roast beef (130°F).

A Public Health inspector will require all food with an internal temperature of LESS than 140°F to be disposed of. **It is suggested that the operator probe the food frequently to determine that the minimum (140°F) temperature is maintained.**

## USING THE HOT TABLE

Hot tables are designed for **short-term** holding and display of **pre-cooked hot food**. They are **not intended to cook or reheat food**. The temperature of the food should be at least 140° F when first put into the hot table.

They are best suited when used in a cafeteria type application where the food is held and served rapidly. Any attempt to use the hot table to display large amounts of food for long periods of time will result in dehydrated,

over-cooked and unsafe food. The quality of the food progressively worsens as the length of time increases.

The deterioration of product quality is a function of time and temperature. All foods are affected even though this may not be readily apparent. For example, foods that are in a gravy or other liquid may appear to withstand the temperature better than "dry" foods such as fried chicken, but this is not necessarily true. ALL foods will continue to be affected by prolonged exposure to elevated temperatures.

## Heating System

The heater is attached to a dispersion plate (located under the well) that distributes heat to the underside of the pan. There is also a ceramic heating element attached to the top of the case above each well. The temperature of the bottom and top heaters is controlled separately. With the optional electronic control, probes monitor the temperature of the food in the wells and automatically adjust the heaters to prescribed settings.

## Lighting System

Coated fluorescent lamps are located above the wells to provide illumination. If the lamps are shattered, the glass will be contained by the coating. This prevents the glass from contaminating the food in the wells below.

**Manual Controls (Standard)**

The control panel, located at the rear of the hot table contains all the controls to regulate the temperature of both the well and ceramic heaters. See the illustration of an 8' case below.

**Ceramic Heater Control (Top Heater)**

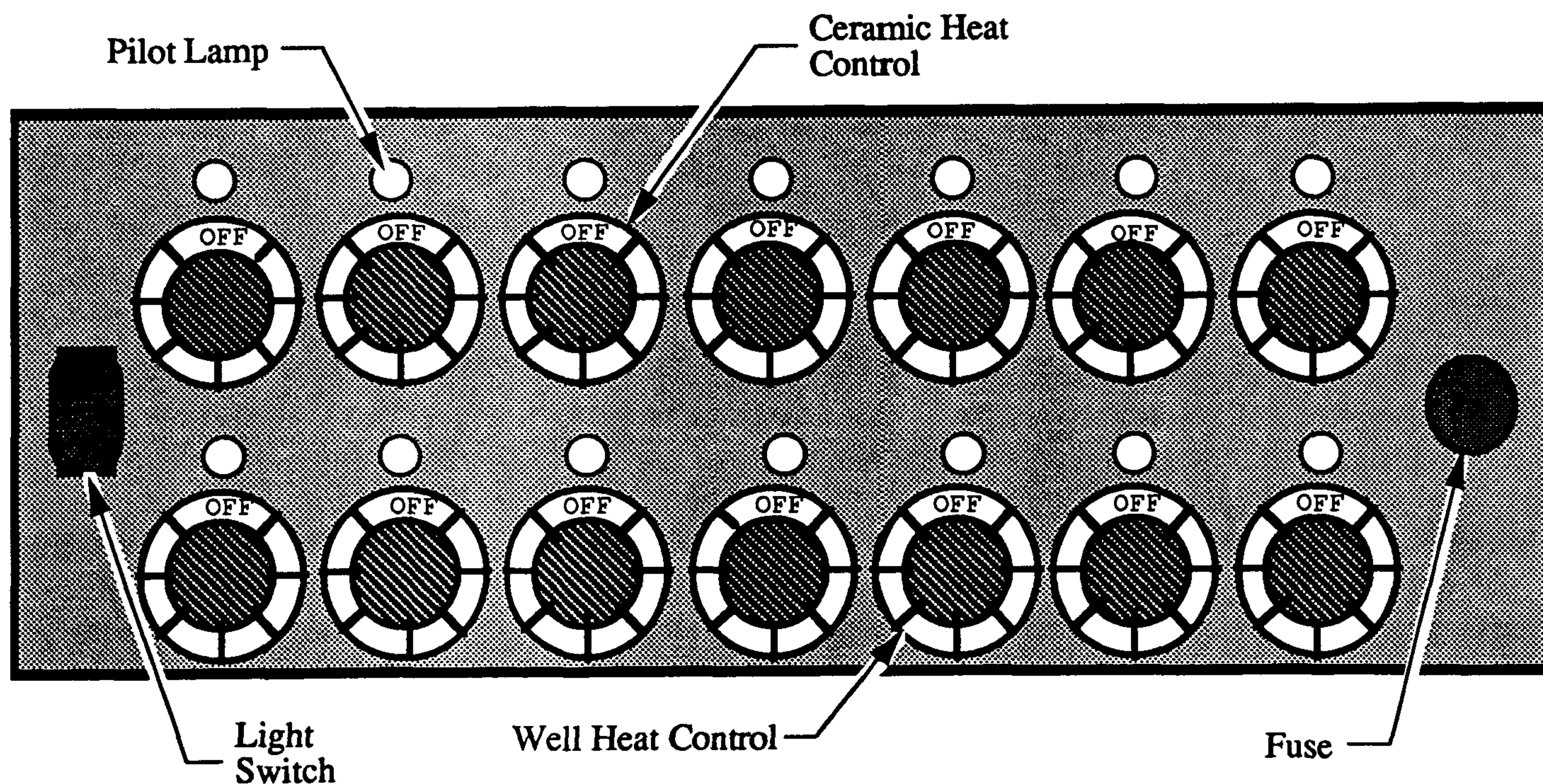
A ceramic heater is located above each well. There is a control knob for each ceramic (top) heater. The pilot lamp above each control knob indicates when the top heater control is on. The pilot lamp will NOT go off until the control is turned off.

**Well Heater Control (Bottom Heater)**

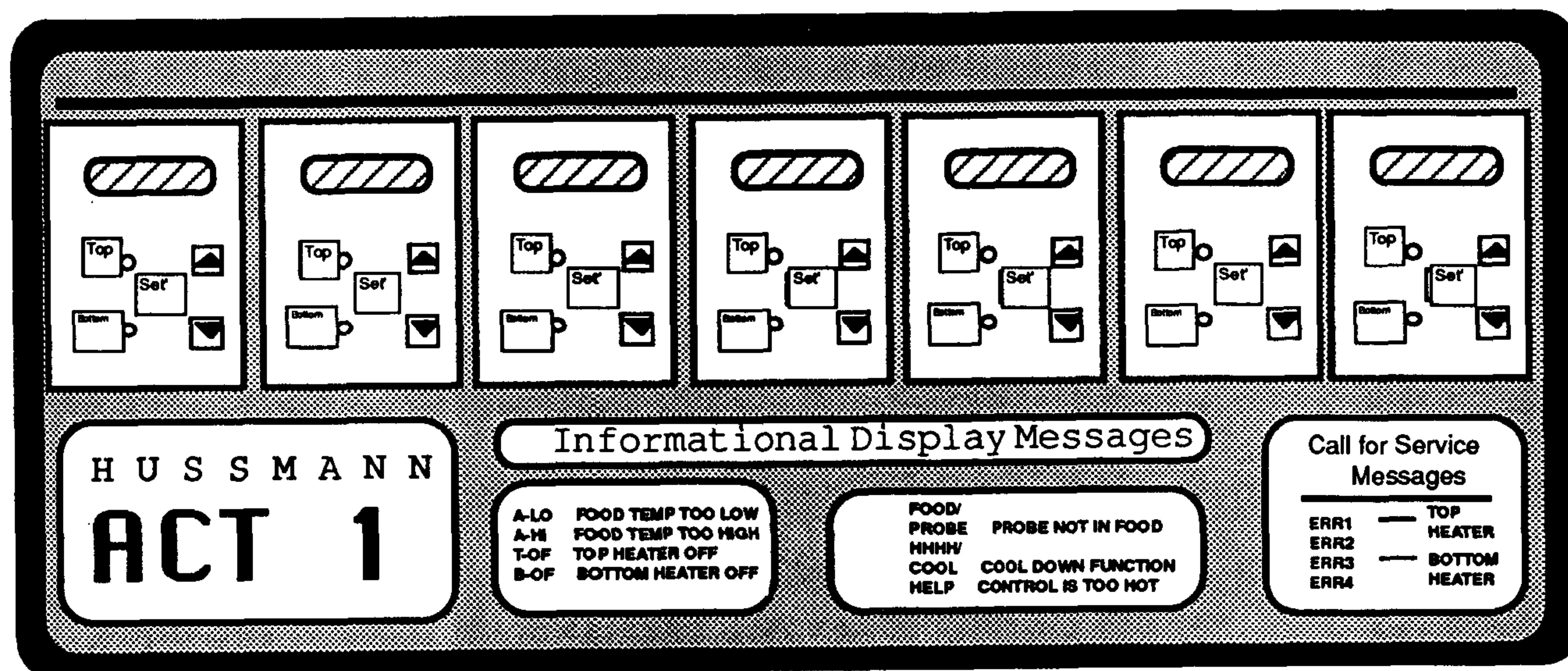
Each well has an individual control with which to regulate temperature. The pilot lamp above each control knob indicates when the well heater control is turned on. This lamp also will not go off until the control is turned off.

**Light Switch**

A coated fluorescent lamp is located on either side of the ceramic heaters. These lamps are controlled by a switch and operate independently of the heater controls.







### Electronic Controls (Optional)

The new electronic control panel eliminates the guess work. Each food well has a separate control that handles its bottom and top (ceramic) heaters. Each control automatically adjusts its heat settings (up or down) to maintain the desired (set point) temperature for that well. Thus, food temperatures are maintained within 1°F of the set point. Visual alarms display when product temperature, as measured by the food probe, is too low or too high. Also, if food is taken directly from the refrigerator or oven and placed in the hot table it could cause an alarm.

The drawing above depicts an electronic control panel for an 8' case. The control for the fluorescent lamps is located to the right of the panel.

This panel is also available with an optional 7-day programmable timer for automatic warm up and shut down. See page 4-6 for more information.

### Turning Heaters On / Off

To turn off a heater, press the TOP or BOTTOM button once. The indicator will go off and the display will read "t-OFF or b-OFF." Press the button again to turn the heater back on.

### Establishing Set Points

To establish the set point, hold the SET key while pressing an ARROW key (up or down) until you reach the desired temperature setting.

### Displays

The display readings are what the microprocessor understands the temperatures to be. If they are way off from what you observe the temperature to be, there is probably a problem with the probe, the wiring or the microprocessor itself.

Simulations of the ACT 1 displays are shown on the next page.

DISPLAY	DESCRIPTION
FOOD	Flashes FOOD then PROB. Problem with food probe. Check to see that the end of the probe is inserted in the product.
PROB	This alarm will also flash if the product was placed in the merchandiser too cold. Remove and reheat food.
A-LO	Food temperature is too low (less than 135°F for more than 5 minutes). Check to see that the end of the food probe is inserted in the product. Remove and reheat food.
A-HI	Food temperature is too high (more than 175°F for more than 5 minutes). Food was placed in merchandiser too hot.
t-OFF	Top heater is off. To turn it on, press button labeled top.
b-OFF	Bottom heater is off. To turn it on, press button labeled bottom. Note: The "b" tends to look like a six.
HHHH	Cool down function; appears when both heaters are turned off. This function may be initiated automatically (by optional electronic timer) or manually (by pressing top and bottom heater buttons). To restart manually, press buttons again.
HHH	
HH	
H	
COOL	
ERR#	The ERR# and HELP screens indicate that service is needed. See Section 5—SERVICE.
HELP	



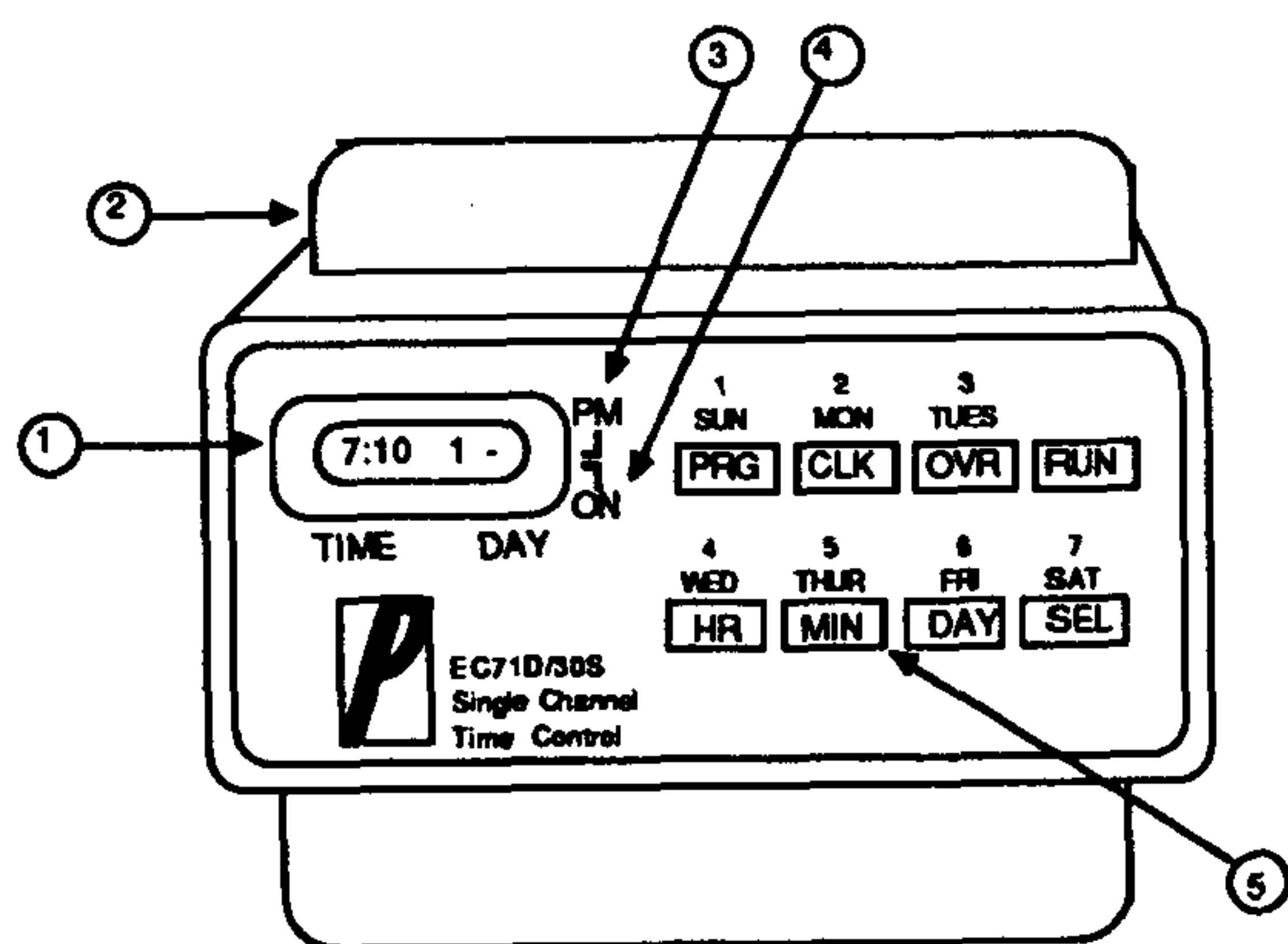
## User Information

4-6

### Optional Electronic Timer

An optional 7-day programmable electronic timer is available with the electronic control version of the hot table. (The timer is not available for use on tables with manual controls.) The timer allows you to program the table to power up and shut down automatically. The 7-day programming capability allows a different schedule for each day of the week and it may be set for either a 12- or 24-hour day. With 30 set points available, this timer can meet the most demanding schedules.

The timer has a manual override and a back-up battery. During power outage, the time and program (set points) are maintained, but the output relays remain de-energized. The length of the carryover depends on the type of battery selected. A 9-volt alkaline battery provides 100 hours of carryover while a 9-volt lithium (Kodak U9VL) battery provides 275 hours.



### Front Panel Description—

1. Time/Day Indicator—displays hours, minutes and day of week (1=Sunday, 2=Monday, 3=Tuesday, 4=Wednesday, 5=Thursday, 6=Friday and 7=Saturday).
2. Battery Cover.
3. AM/PM Indicator—displays whether time is AM or PM (12-hour format) An upper bar (˘) appears during PM hours. The bar disappears during AM hours.

4. ON/OFF Indicator—displays whether load is ON or OFF. A lower bar (˘) appears when load is ON. The bar disappears when load is OFF.

### 5. Keypad—

SUN or PRG— Initiates set point programming or review.

MON or CLK—Initiates clock-setting and toggles between 12- and 24-hour formats.

TUE or OVR— Initiates override.

RUN— Enters programmed information and initiates or restores normal operation.

WED or HR— Advances the hour

THU or MIN— Advances the minutes

FRI or DAY— Selects day of week

SAT or SEL— Selects type of event, ON or OFF

### Set Time and Day—

The 12-hour AM/PM format uses the (˘) indicator to distinguish PM hours. See 2 above. The 24-hour format displays 0:00 at midnight and 23:00 at 11:00 P.M.

1. Install battery/power. Control displays 12-hour format.
2. Press CLK to switch to 24-hour format. Press again to return to 12-hour format.
3. Press RUN to enter 12- or 24-hour format. Displays 12:00 1 or 0:00 1 (colon flashing).
4. Press CLK to stop flashing indicating that you're ready to set current time.
5. Press HR to advance to current hour.
6. Press MIN to advance to current minute.
7. Press DAY to advance to to current day (1=Sunday, 2=Monday, etc.).
8. Press RUN to enter time and day (colon starts flashing). Current time and day are displayed.

**NOTE:** These instructions depict the timer immediately following power up. Because the control begins to keep time as soon as power is applied, the display described in Step 3 will not match the display on your control if a delay occurs between power up and programming. In other words, if six minutes pass before any keys are pressed, 12:06 will be displayed instead of 12:00.

### Establishing Set Points—

Consider the following business hours:

Monday	8:00 A.M.—8:00 P.M.
Tuesday	8:00 A.M.—5:00 P.M.
Wednesday	8:00 A.M.—5:00 P.M.
Thursday	8:00 A.M.—5:00 P.M.
Friday	8:00 A.M.—9:00 P.M.
Saturday	10:00 A.M.—6:00 P.M.
Sunday	11:00 A.M.—2:00 P.M.

The set points that correspond to this schedule are:

ON	8:00 A.M. Mon., Tue., Wed., Thu., Fri.
ON	10:00 A.M. Sat.
ON	11:00 A.M. Sun.
OFF	8:00 P.M. Mon.
OFF	5:00 P.M. Tue., Wed., Thu.
OFF	9:00 P.M. Fri.
OFF	6:00 P.M. Sat.
OFF	2:00 P.M. Sun.

### Programming Set Points—

- | Step | Key         | Description  |
|------|-------------|--|
| 1.   | PRG         | Displays E:01, indicating Event 1.   |
| 2.   | HR          | Displays 12:00 - or 0:00 - continue pressing the HR key to set the hour at which the event will occur.   |
| 3.   | MIN         | Advance to the correct minute for the event.   |
| 4.   | SEL         | A bar (.) appears, indicating an ON event. To select OFF instead, press SEL key again. Repeated pressing toggle between ON and OFF.  |
| 5.   | DAY         | Displays the word <u>day</u> . (On which day(s) will the event occur?)   |
| 6.   | SUN—<br>SAT | Select the first day on which the event will occur. (1=Sun., 2=Mon., etc.) Continue to add days by repeating Steps 5 and 6. The selected days will appear or flash sequentially. |
| 7.   |             | <b>Repeat Steps 1-6 to program additional set points.</b>  |
| 8.   | RUN         | Enters set points into memory. Time and day displayed (colon flashing).  |

Use the chart below to determine and record your set points.

Set Point Worksheet													
NO.	TYPE	TIME	DAY OF WEEK							NO.	TYPE	TIME	DAY OF WEEK
1.	ON or OFF		S	M	T	W	T	F	S	16.	ON or OFF		S M T W T F S
2.	ON or OFF									17.	ON or OFF		
3.	ON or OFF									18.	ON or OFF		
4.	ON or OFF									19.	ON or OFF		
5.	ON or OFF									20.	ON or OFF		
6.	ON or OFF									21.	ON or OFF		
7.	ON or OFF									22.	ON or OFF		
8.	ON or OFF									23.	ON or OFF		
9.	ON or OFF									24.	ON or OFF		
10.	ON or OFF									25.	ON or OFF		
11.	ON or OFF									26.	ON or OFF		
12.	ON or OFF									27.	ON or OFF		
13.	ON or OFF									28.	ON or OFF		
14.	ON or OFF									29.	ON or OFF		
15.	ON or OFF									30.	ON or OFF		



## User Information

4-8

### Reviewing Set Points—

Press the PRG key. The first set point will be displayed, with the time followed by the day(s) in sequence. A lower bar ( \_ ) indicates an ON event; no bar indicates an OFF event. Advance through set points by repeatedly pressing PRG. Press RUN to restore normal operation.

### Changing Set Points—

Advance through set points using the review procedure above. If the time of a set point is incorrect, press HR and MIN keys to change the time. To add or delete a day from the set point, press DAY and then press the appropriate day, SUN-SAT. Press RUN to enter programming changes and restore normal operation.

### Manual Override—

Manual Override temporarily reverses the current output state. Loads that are ON turn immediately OFF; loads that are OFF turn immediately ON. Override remains in effect until programming is overridden again or until the next set point is reached.

### **To initiate override-press OVR.**

Output state is verified by the On/Off Indicator. See Number 3 of Front Panel Description.

Example: 3:54 1\_ (load is ON);

3:54 1 (load is OFF)

**To cancel override-press OVR again.** Output reverts to previous state.

### Battery—

1. Remove battery cover by pressing sides together and pulling left or right.
2. Snap a 9-volt alkaline or lithium battery (Kodak U9VL) into battery clip.
3. Replace battery cover.

Alkaline battery should be replaced approximately every 2 years and Kodak's U9VL battery approximately every 5 years. A battery log is provided inside the battery cover to record battery replacement dates.

## HEAT WELLS (Hot Tables Only)

The wells of the hot tables may be used either wet (with water in them) or dry (without water in them). Hussmann recommends the use of water in all wells to reduce product dehydration.

### **Wet Wells**

Wet wells must be used when the food pans above them contain food that is not in a liquid, juice or gravy. The water, as it is heated, evaporates and some of this moisture will be absorbed into the product helping to prevent dehydration. When water is used, the well should be filled no deeper than 1".

**CAUTION: NEVER INTRODUCE FILL WATER INTO HOT, DRY WELL. THIS COULD CAUSE WELL TO CRACK.**

Well **MUST** be cooled prior to adding water, then reheated to desired temperature. Too much water or too much heat will cause excessive condensation on the front glass decreasing visibility. **NOTE:** Gaps between display pans will allow steam to pass through. Steam could condensate on glass decreasing visibility.

### **Dry Wells**

Dry wells may be used when the food pans above them contain food which is in a liquid, juice or gravy. **NOTE:** For more even heat control and better food quality, Hussmann recommends the use of wet wells.

Should you choose to use the wells dry, the bottom heat should be adjusted at a lower setting than when used wet. Less heat is necessary to maintain food temperature of items that are in liquids.

### **Warm Up-Manual Controls**

Open the rear doors and cover any wet wells to prevent condensation on the front glass.

Set both the bottom and the top heat controls on "5".

After approximately one hour, place the food items into display pans over the wells, close the rear doors and adjust the bottom heat control down.

Adjust the top and bottom heat controls to obtain the correct food temperatures, experience alone will determine these settings.

### **Warm Up—Electronic Controls**

The food probes should be installed in the case at daily start-up. As the case is powered up in the morning the control will try to maintain the set point temperature on the end of the food probe. To allow temperatures to stabilize, the A-LO and A-HI alarms will not display until 30 minutes following power up. If there is a heater error, however, the alarm will display immediately.

The probes, which are dishwasher safe, should be cleaned each evening after their daily use.

### **Stocking**

1. Food must always be placed into a display pan over the well, never directly into the well.
2. Food should not be stacked above the top of the pan. Food above the top of the pan will dry out rapidly.
3. Food juice or gravy should be stirred frequently and any meats should be basted with the gravy.
4. Stacked food should be rotated periodically from bottom to top.
5. If practical, the food should be covered during slack sale periods to reduce dehydration.

### **AUTOMATIC WATER FILL (Hot Tables Only)**

The automatic water fill system installed in these hot tables is designed to continually maintain the correct level of water in each well.

Water is stored in a reservoir which has a float shut-off to prevent overflow. The reservoir is located slightly above the bottom of the wells and as the water level in the wells drops due to evaporation, additional water slowly flows from the reservoir and into the well by gravity. This system will eliminate manual refilling of wells and provide a more constant food temperature.

To initially fill the wells, turn the valve handle down to the position shown, each well has its own valve. If a well is to be used dry, turn handle up to the dry position, this position also drains the well. In a given hot table, the individual wells may be used as desired, for example, the first well wet, the next two dry, the next wet, etc..

To empty wells for cleaning, turn all well valves to the dry position.

**NOTE:** If water used to fill the hot table has a high mineral content, lime deposits may develop. Use a de-liming agent to remove lime deposits. It is important to use a de-liming agent often so deposits do not build up. Recommendation — A cartridge type filtration device can be used on the 3/8" inlet water line to minimize lime build-up.



## User Information

4-10

### Components of Automatic Water Fill System

The automatic water fill system controls the amount of water in the wells. This system automatically keeps each well filled no deeper than 1". The basic component parts of this system are located as shown below.

### Adjusting Float Valve on Autofill System

The Autofill System float valve is pre-set at the factory to hold 1" of water in each of the wells. Under certain circumstances, such as varying water pressure or an unlevel installation of the merchandiser, the float valve setting may require adjustment.

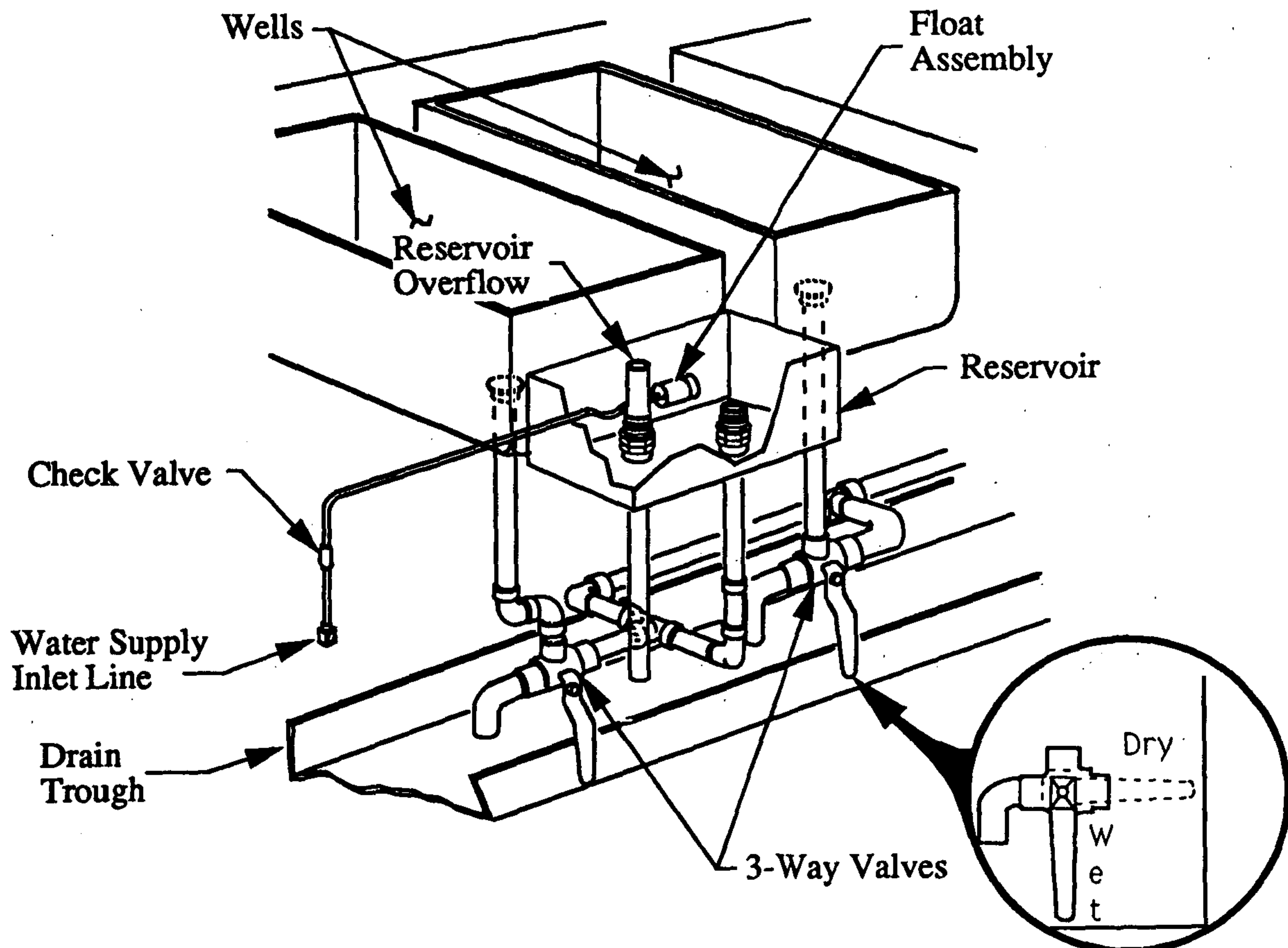
To adjust the setting:

1. Gain access to the autofill reservoir.

A. On 4 foot tables—remove the two screws holding the small access cover on the left of the rear panel in order to gain access to the autofill reservoir.

B. On larger tables—Open the rear access door at the bottom of the table and remove the two screws holding the panel in place (the screws are located on the underside of the rear panel ledge). Then loosen the top panel trim and pull the rear panel down and out.

2. Remove the top of the autofill reservoir. The top simply lifts off; there are no screws.
3. Bend the rod holding the float ball until the system provides each well with approximately 1" of water. Bend up to increase the water level or down to decrease the water level. **NOTE:** Take care that the float is turned to swing in a vertical direction only.
4. Replace all covers and screws.





## USING THE HOT PLATE

These are self-service hot plates for short term heated display of packaged hot food designed to improve customer service during times of peak demand. With these hot plates, individual servings can be prepared in advance and be ready for the customers and reduce the demand on the deli operator. the hot plate will maintain the temperature of the food until the customers select and remove their choices through the large open front.

Obviously, food containers that will burn, melt or deteriorate from heat are not to be used with these hot plates. Also, metallic containers retain heat and may become too hot for handling. Various types of oven-proof paperboard trays and clear polyester films and lids are available that are specifically manufactured for hot plate application.

As previously stated, these hot plates are for short term display of cooked and packaged hot food. They should not be used to cook, reheat or maintain food for extended periods. Any food that is not sold during these peak times should be

removed to avoid dehydration and deterioration. These hot plates should be energized approximately one-half hour before they are to be needed. The exact control settings are dependent upon environmental conditions, types of food, packaging material and the local requirements. Experience alone will determine the correct settings.

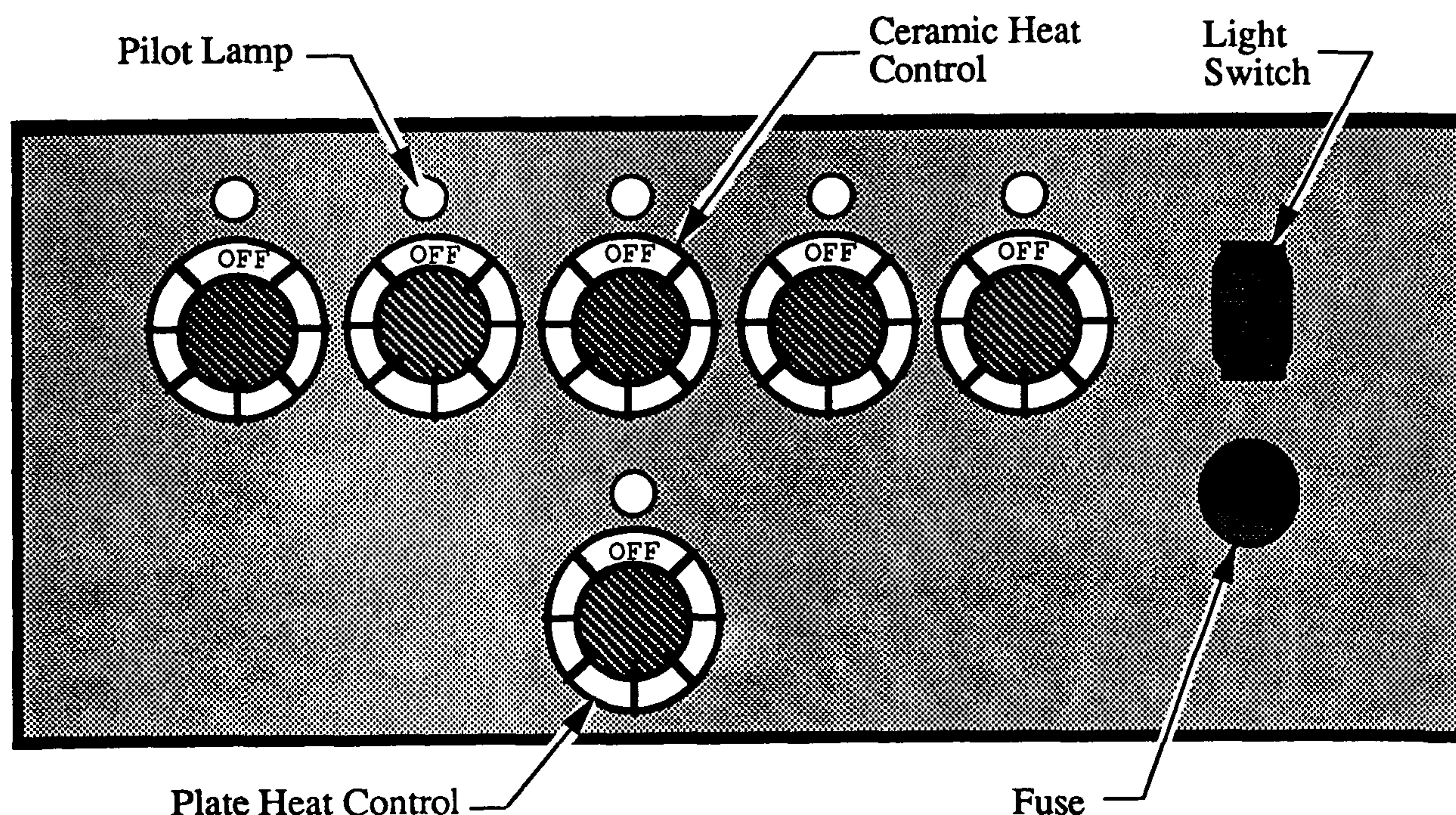
### Heating System

The stainless steel serving plate has heaters fastened to its underside. Ceramic heaters are located above the plate. The temperatures of the plate and ceramic heaters are controlled separately.

### Hot Plate Controls

The control panel, located at the rear of the hot plate, contains all the controls to regulate the temperature of both the plate and ceramic heaters. See illustration below.

**NOTE:** To obtain the proper food temperatures, the plate and ceramic heaters must both be adjusted. Maximum limits should be avoided to prevent overcooking or drying out food.





## SERVICE

### WARNING

Always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to such items as fans, heaters, thermostats and lights.

## DOUBLE CURVED GLASS

### Front Cylinders Replacement

1. Raise the front glass to open completely.
2. Remove Screw "A" to free cylinder at front using a slotted screw driver.

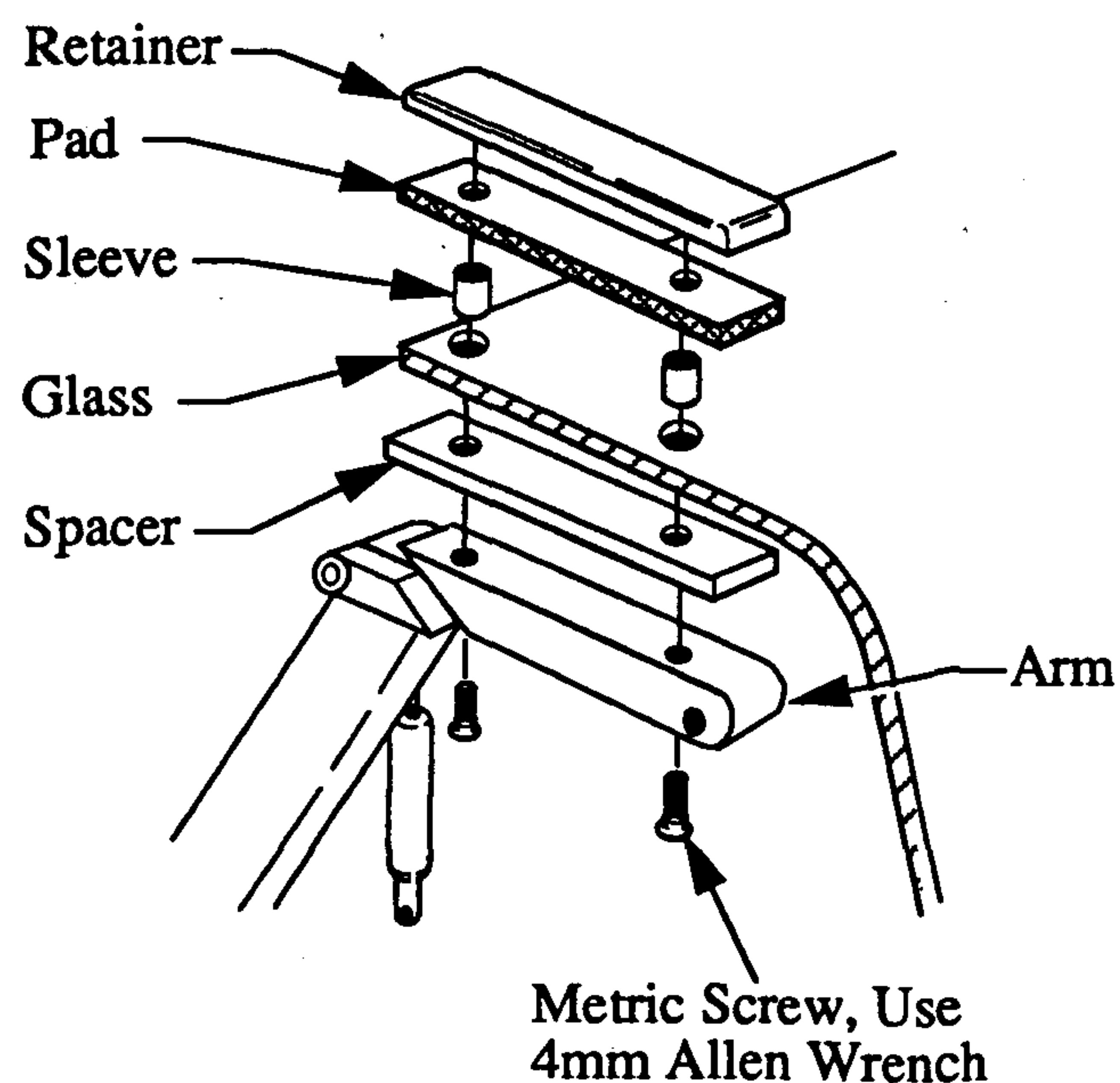
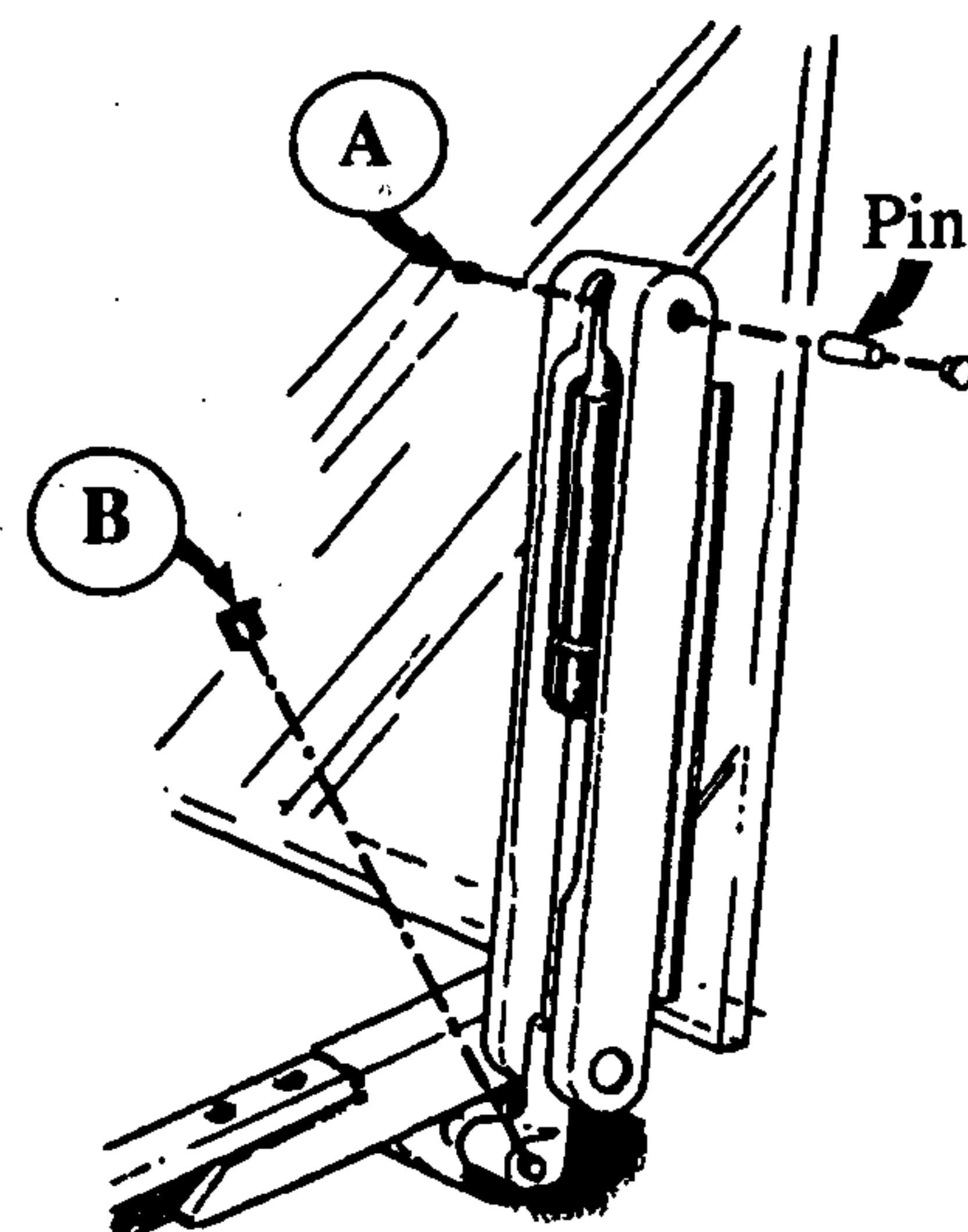
### WARNING

Once the cylinder is released, the front glass will have no support to maintain it in a raised position. Support the front glass at all times until cylinder is replaced or the glass is lowered.

3. Remove rear snap ring "B" and remove cylinder.

### Front Glass Replacement

1. Remove cylinders at each end of glass, see above.
2. Lower the front glass and remove glass from upright arm.



## SINGLE CURVED GLASS

## Front Cylinders Replacement

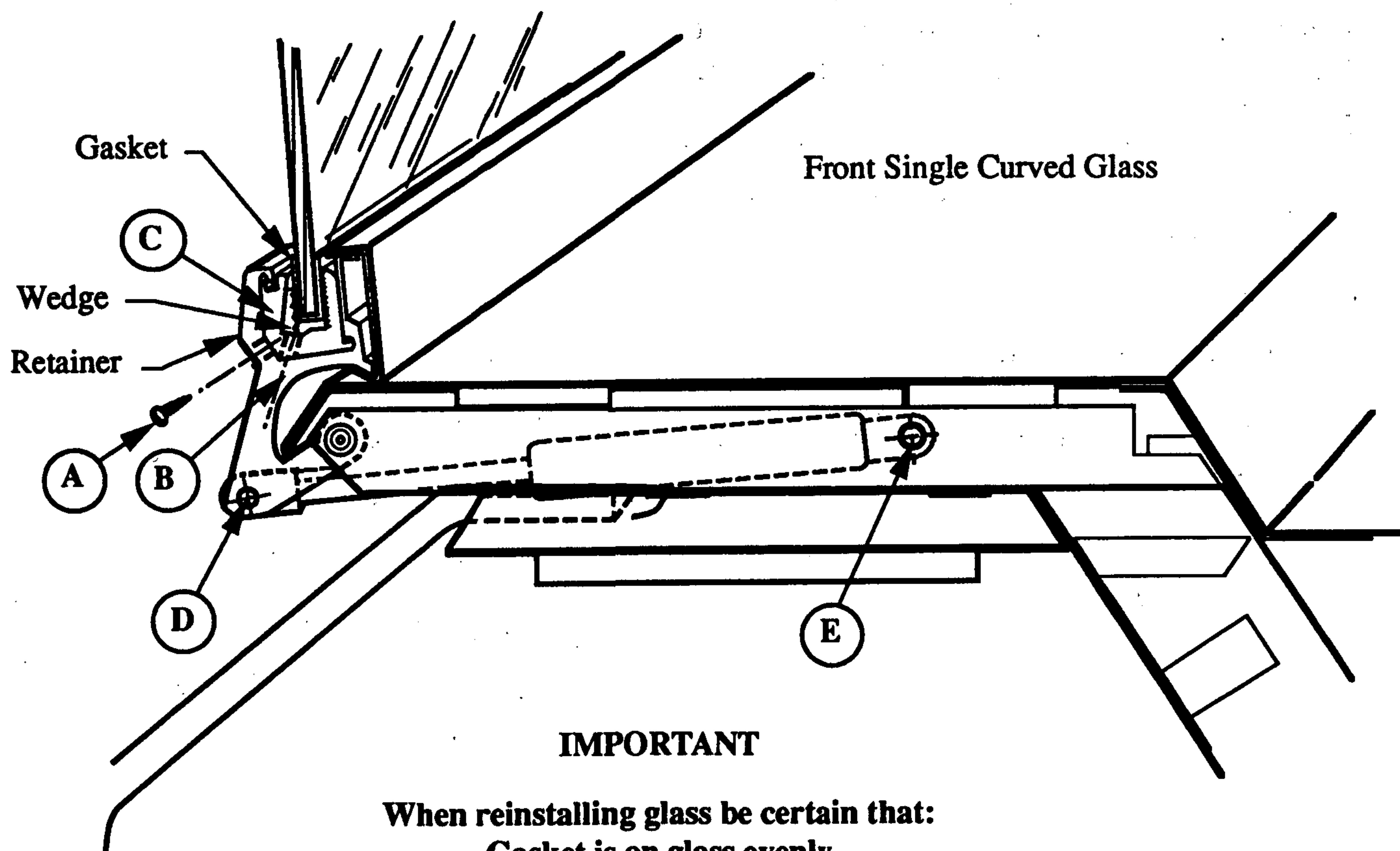
1. It is not necessary to remove the glass to change a cylinder. If both cylinders are to be removed, however, the glass **MUST** be supported.
2. Remove retainer clip from pin at "D" and "E".
3. Slide cylinder off pins.

## Front Glass Replacement

1. Raise the front glass to open completely.
2. Loosen Allen Set Screws "A" on EACH hinge assembly and slide glass out of hinge assembly.
3. Now remove glass from Extrusion "C" by loosening Set Screw "B" and sliding glass out.

**WARNING**

Once the cylinder is released, the front glass will have no support to maintain it in a raised position. Support the front glass at all times until cylinder is replaced or the glass is lowered.

**IMPORTANT**

When reinstalling glass be certain that:

Gasket is on glass evenly

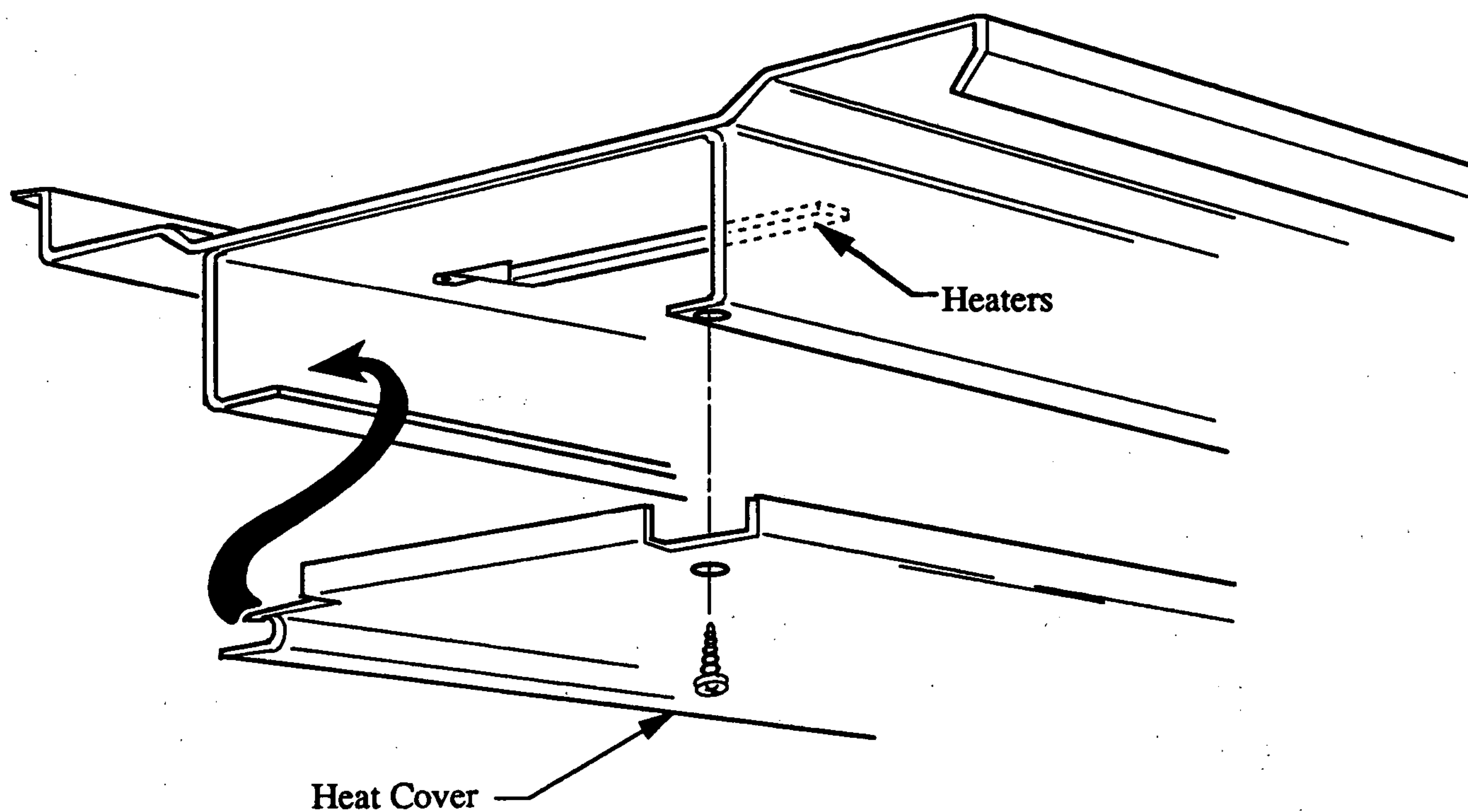
Glass is fully bottomed in retainer

Wedge is in retainer and when set screws are tightened, glass is firmly held in place by the wedge



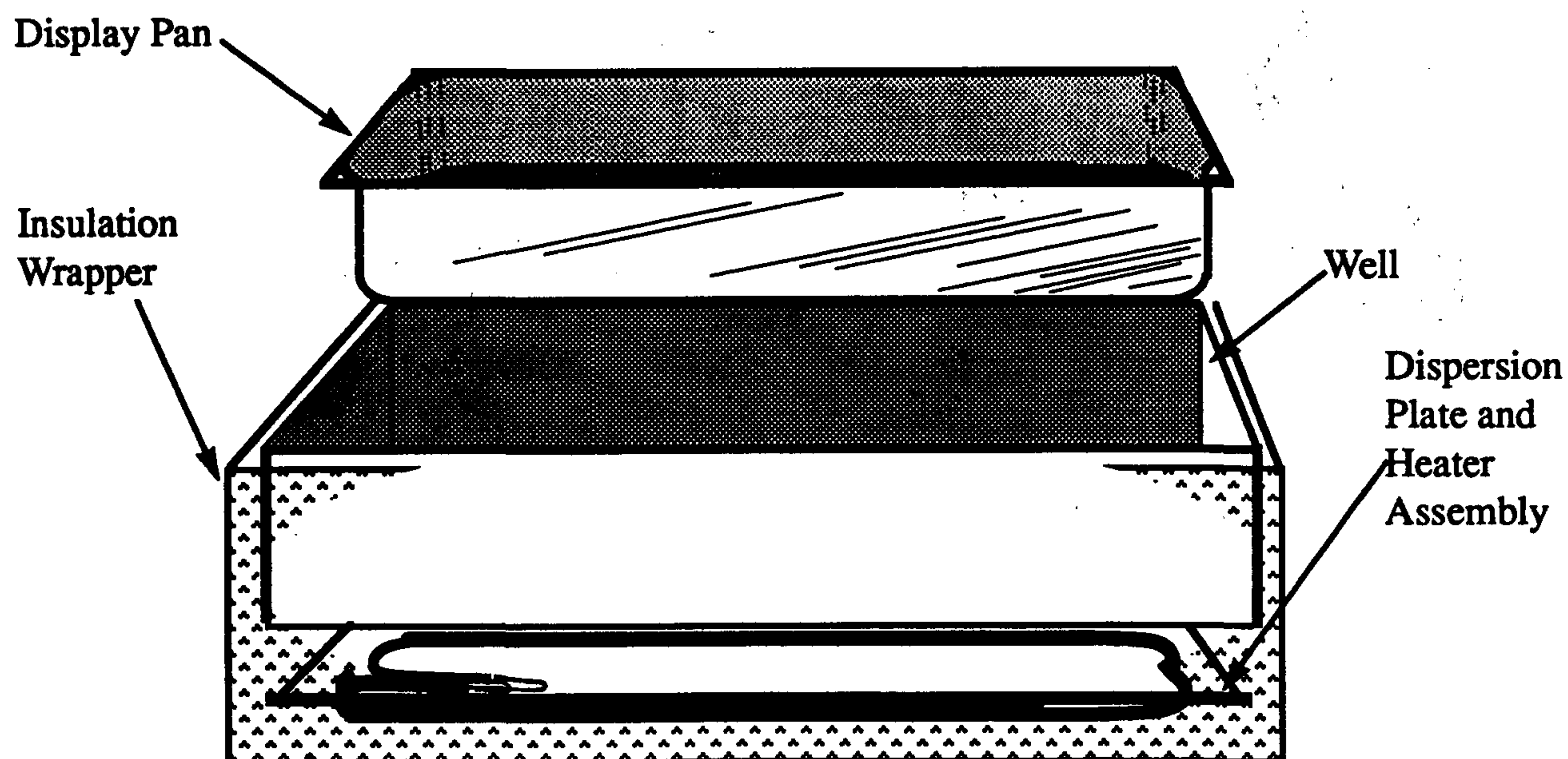
## PLATE HEATER REPLACEMENT

1. DISCONNECT ELECTRICAL POWER TO HOT PLATE AND ALLOW ALL SURFACES TO COOL.
2. Remove heater cover from beneath hot table.
3. Disconnect and remove heater.
4. Replace with new heater.
5. Replace heater cover.
6. Reconnect power.



**WELL HEATER REPLACEMENT**

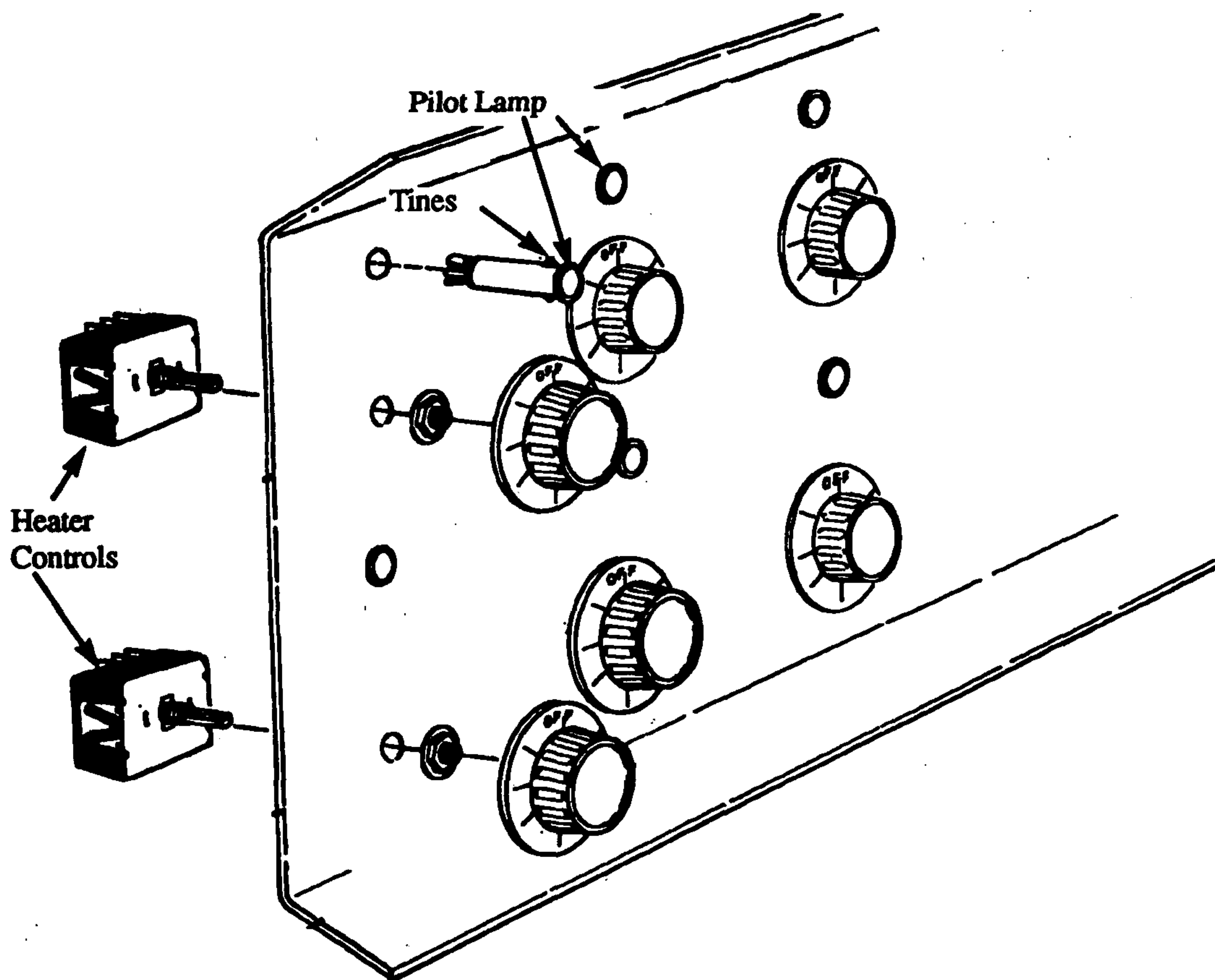
1. **DISCONNECT ELECTRICAL POWER TO HOT TABLE AND ALLOW ALL SURFACES TO COOL.**
2. **Disconnect individual well's drain plumbing union.**
3. **Remove display pan(s).**
4. **Use a screw driver to break silicone seal and pop up retaining clips on sides of well pan. There are three clips on each side.**
5. **Remove well, and replace the heater and dispersion plate assembly.**
6. **Replace the well and reseal.**
7. **Reconnect plumbing.**
8. **Reconnect power.**





## MANUAL CONTROL REPLACEMENT

1. **DISCONNECT ELECTRICAL POWER TO HOT TABLE.**
2. Remove the screws that fasten control panel to hot table. Carefully remove control panel.
3. **A. Controls** — Remove knob. Loosen lock nut that holds control in place. Disconnect wiring and remove control. Replace with new control. Note orientation of "TOP" embossed on back of control.  
**B. Pilot Lamps** — Disconnect wiring, compress tines and push lamp from panel. Replace with new lamp.
4. Carefully reposition control panel. Reconnect power.



SERVICING ELECTRONIC CONTROLS

General

This section is designed to assist service personnel in troubleshooting the electronic ACT 1 control panel (ACT 1 controls are not available for hot plates). A step by step checkout procedure is included to isolate the cause of the malfunction.

Recording Information

Upon arrival at the site record the following information for future reference.

Model and serial number \_\_\_\_\_

Options Installed:

Electronic Timer	Yes/No
------------------	--------

Activate the diagnostic function by simultaneously pressing the two right-hand (arrow) buttons on any individual control. The following will appear in sequence; record them as they appear.

Bottom heater actual temperature \_\_\_\_\_°F  
(Range: 150 – 350°F)

Bottom heater set point \_\_\_\_\_°F  
(Range: 150 – 300°F)

Actual product (food probe) temperature \_\_\_\_\_°F  
(Range: 90 – 180°F)

Product set point \_\_\_\_\_°F  
(Range: 140 – 170°F)

Control ambient temperature \_\_\_\_\_°F  
(Range: 65 – 135°F)

Top heater intensity \_\_\_\_\_% ON  
(Range: 0 – 100%)

Internal diagnostic Code 1 \_\_\_\_\_

Internal diagnostic Code 2 \_\_\_\_\_

PC Board (Electronic Control) Replacement  
Before replacing a control, perform the Checkout and Troubleshooting Procedures.

1. DISCONNECT ELECTRICAL POWER TO HOT TABLE.
2. Remove stainless steel control panel back. Be careful not to jar wiring.
3. Disconnect plugs to individual control.
4. Remove 5 screws that hold circuit board in place.
5. Remove and replace PC board. **NOTE:** If P/N 0348381 is replacing P/N 0342702, 16 GA jumpers must be installed to 1/4" Tab Terminals connecting HTR1 and HTR2, and connecting HTR3 and HTR4.
6. Replace 5 screws.
7. Reconnect plugs.
8. Carefully replace control panel back.
9. Reconnect power.

**NOTE:** Each control must be wired on the same phase or power leg as the top heater it operates. Hot tables are factory wired with all loads balanced. See the wiring diagrams in Section 3 for details. If non-tab terminal PC board P/N 0342702 see wiring diagrams starting on Page 5-11.

Apparent Malfunctions

Food Probe Check

1. Check to be sure that the food probe is properly inserted in the panel jack. Be sure food probe polarity is not reversed.
2. Verify that food probe is within the food and not extending out into the air.
3. Compare the actual temperature of the food (using a separate thermometer with an accuracy range of ± 2°F) with the diagnostic reading.
4. If problem continues do the Thermocouple test.



**Thermocouple Test**

1. **SHUT OFF POWER TO HOT TABLE AND LOWER CONTROL PANEL.**
2. Inspect connector (thermocouple plug assembly) to be sure that it is properly inserted in the panel jack.
3. Check to be sure that the connector wires are installed properly—Yellow to + and Red to – (see illustration on Page 5-8).
4. Verify that the food probe Yellow and Red wires go to the panel jack plug assembly.
5. Verify that the heater probe Yellow and Red wires go to the heater probe.
6. Remove and inspect the plug assembly for loose wires, touching strands, wires shorted to ground, etc.
7. Be sure that the plug clamp is in contact with the stripped wire and not the insulation.
8. Check the thermocouple probes to the top and the bottom heaters.
  - A. Check Thermocouple Connection to Food Probe**—Try a different probe in the panel jack assembly. If the problem persists, check wire connections at the panel jack. If the problem is corrected, replace the probe.
  - B. Check Thermocouple Connection to Bottom Heater**—Use a K-type thermocouple meter to verify diagnostic reading of the control panel with probe reading. If the range is off by more than 20°F, try a different control.
9. When all else fails, remove and inspect panel jack for loose or crossed wires. The panel jack plug has polarity.

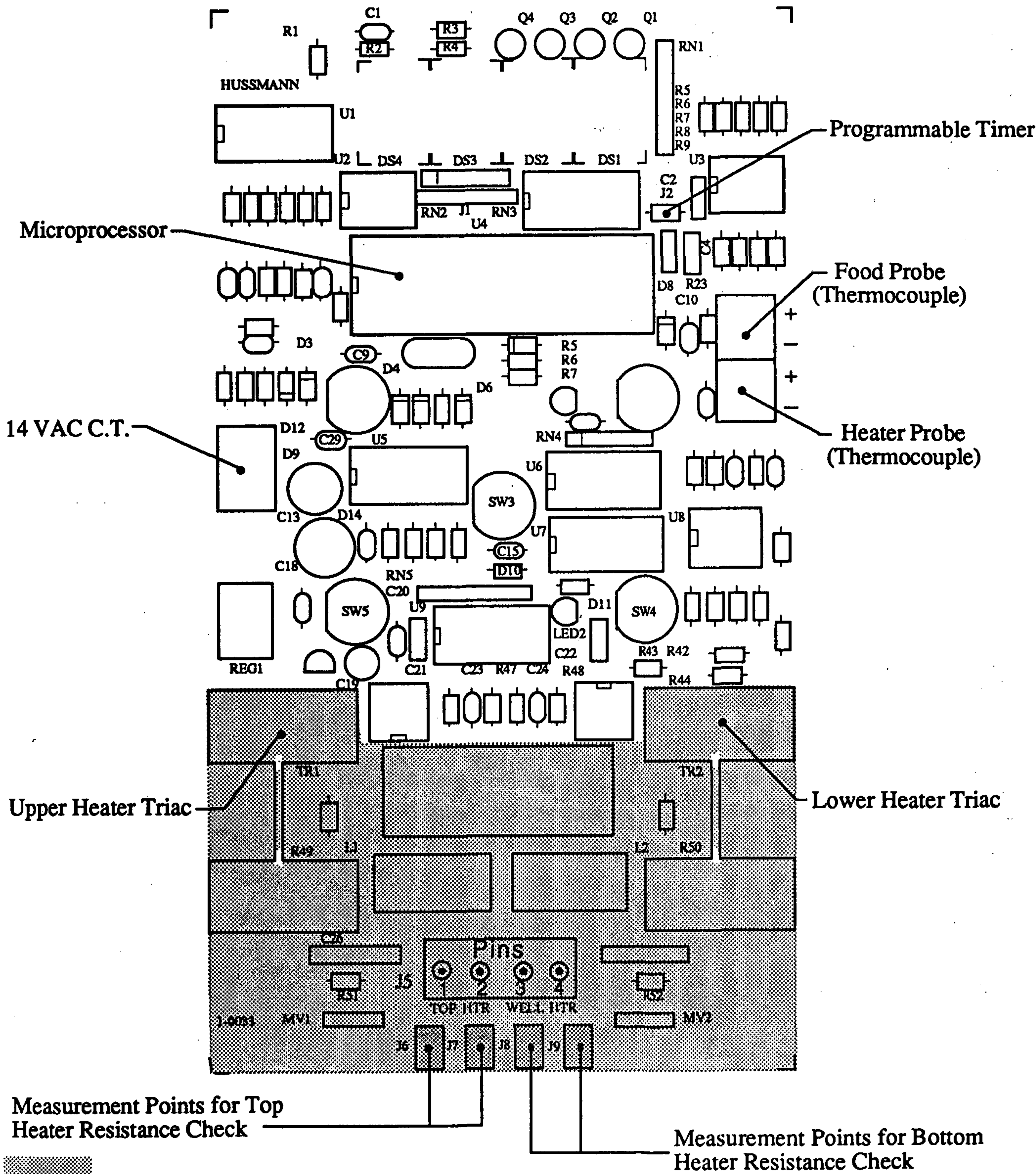
**Top and Bottom Heater Test****Tab Terminal PC Board—P/N 0348381**

(Also see non-tab terminal board on Page 5-9.)

1. **DISCONNECT POWER.**
2. Remove control panel.
3. Unplug heater plug assembly.
4. Check heaters by measuring resistance.
  - A. Top Heater**
    1. Check upper heater by measuring resistance between tab terminals J6 and J7 (see illustration on Page 5-8).
    2. If resistance measures between 80-100  $\Omega$ , the heater is ok; go to the next step. If not, replace the heater.
    3. Check wiring. If the resistance between Pin 1 and Pin 2 on the J5 Connector of the PC board is NOT infinity, there is a wiring problem such as a short. If it is infinity, check for loose or disconnected wires. **NOTE:** After wiring errors have been corrected, check the PC board. If the board is damaged, replace it.
  - B. Bottom Heater**
    1. Check the bottom heater by measuring the resistance between tab terminals J8 and J9 (see illustration on Page 5-8).
    2. If resistance measures between 40-50  $\Omega$  the heater is ok; go to the next step. If not, replace the heater.
    3. Check wiring. If the resistance between Pin 3 and Pin 4 on the J5 Connector of the PC board is NOT infinity, there is a wiring problem such as a short. If it is infinity, check for loose or disconnected wires. **NOTE:** After wiring errors have been corrected, check the PC board. If the board is damaged, replace it.



ACT 1 Electronic Control  
Tab Terminal PC Board P/N 0348381





**Top and Bottom Heater Test****Non-Tab Terminal PC Board—P/N 0342702****1. DISCONNECT POWER.**

2. Remove control panel.

3. Unplug heater plug assembly.

4. Check heaters by measuring resistance.

**A. Top Heater**

1. Measure resistance between Pin 2 of J5 (see illustration below) and corresponding power leg (L1, L2 or L3) for that heater. See the wiring diagrams in this section (Page 5-11) to determine which power leg to use.

2. If resistance measures between 80-100  $\Omega$ , the heater is ok; go to the next step. If not, replace the heater.

3. Check wiring. If the resistance between Pin 1 and Pin 2 on the J5 Connector of the PC board is NOT infinity, there is a wiring problem such as a short. If it is infinity, check for loose or disconnected wires.

**NOTE:** After wiring errors have been corrected, check the PC board. If the board is damaged, replace it.

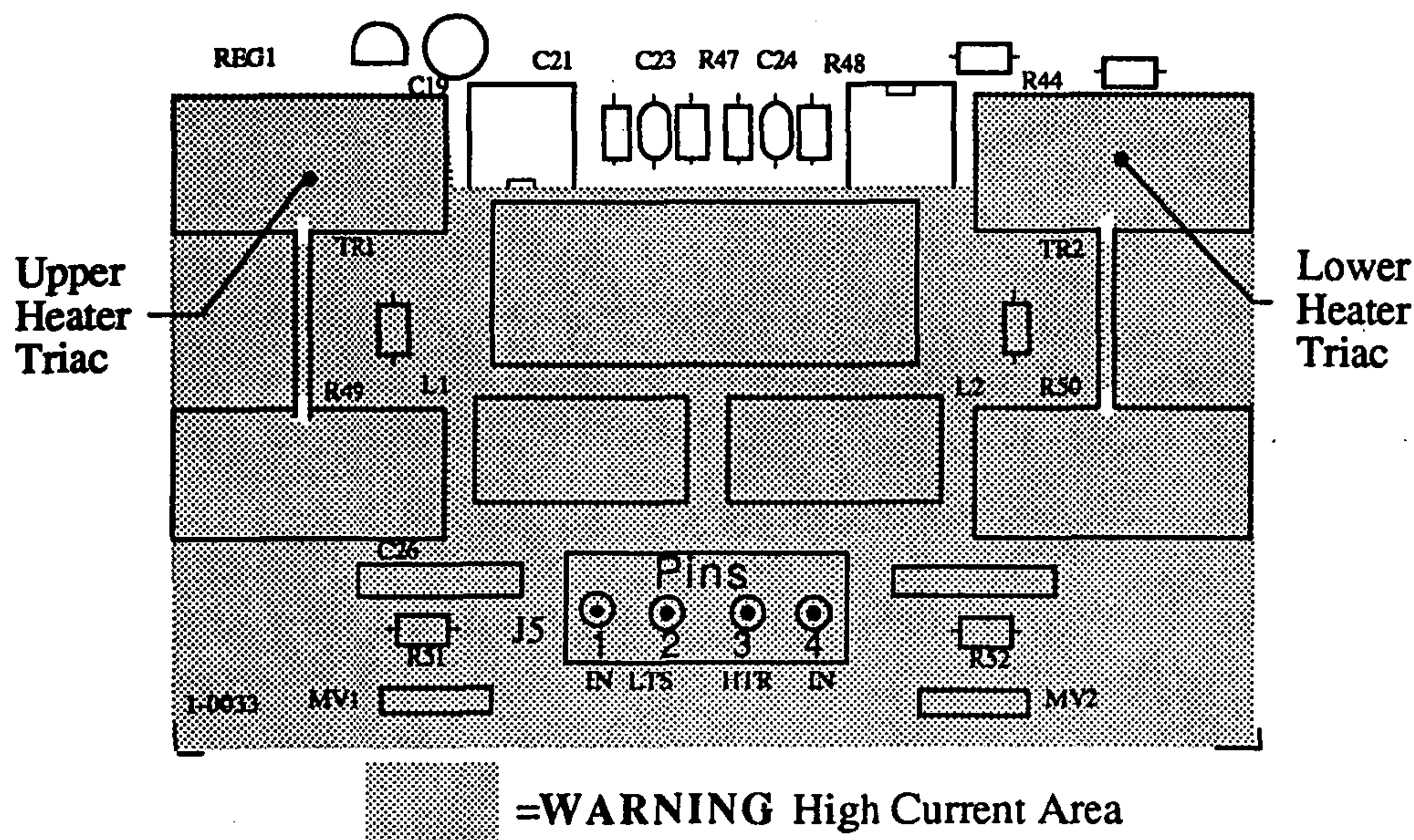
**B. Bottom Heater**

1. Measure the resistance between Pin 3 of J5 (see illustration below) and corresponding power leg (L1, L2 or L3) for that heater. See the wiring diagrams in this section (Page 5-11) to determine which power leg to use.

2. If resistance measures between 40-50  $\Omega$  the heater is ok; go to the next step. If not, replace the heater.

3. Check wiring. If the resistance between Pin 3 and Pin 4 on the J5 Connector of the PC board is NOT infinity, there is a wiring problem such as a short. If it is infinity, check for loose or disconnected wires. **NOTE:** After wiring errors have been corrected, check the PC board. If the board is damaged, replace it.

**Detail of Lower Portion of  
Non-Tab Terminal PC Board P/N 0342702**

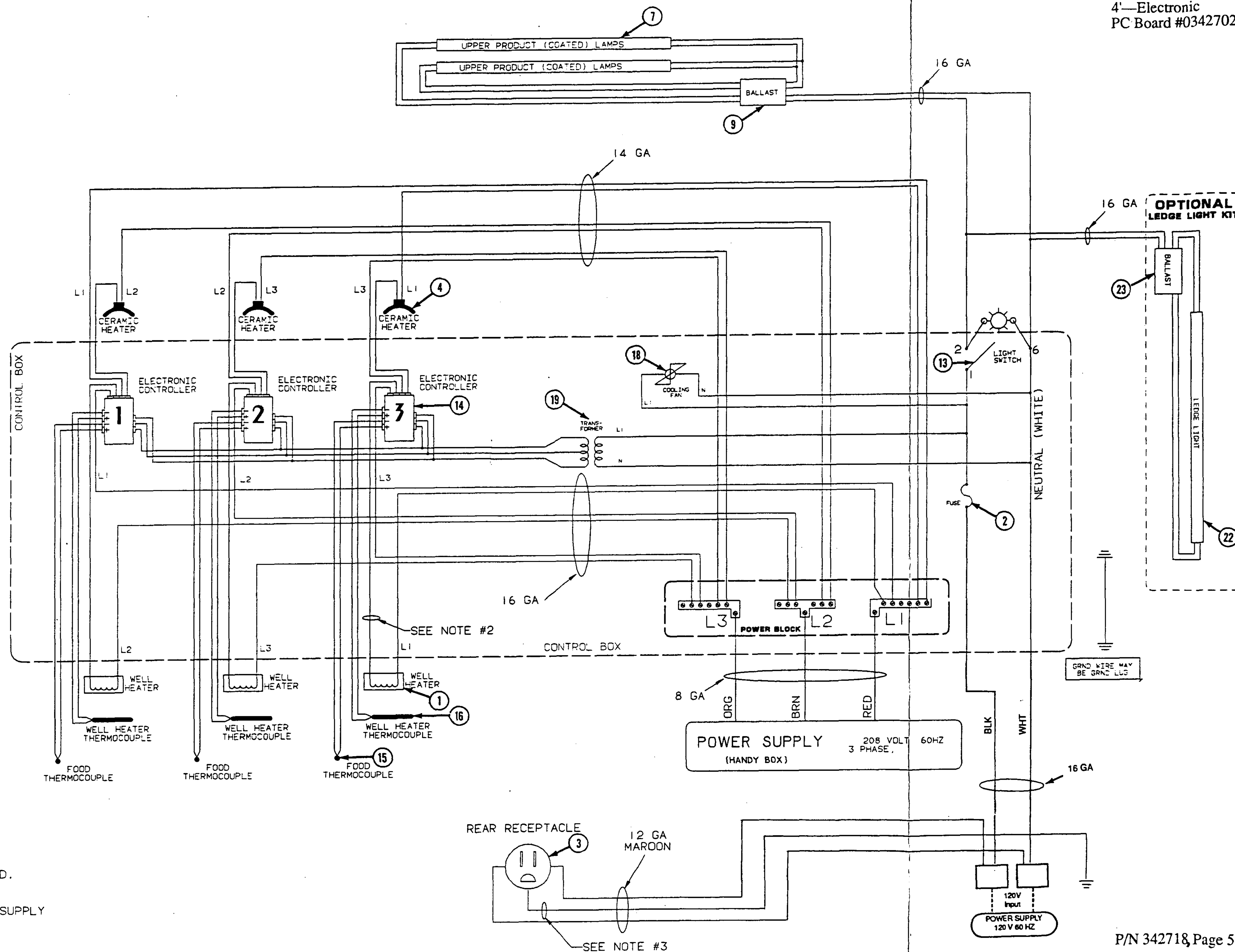




**TROUBLESHOOTING AND CHECKOUT PROCEDURES TABLE**

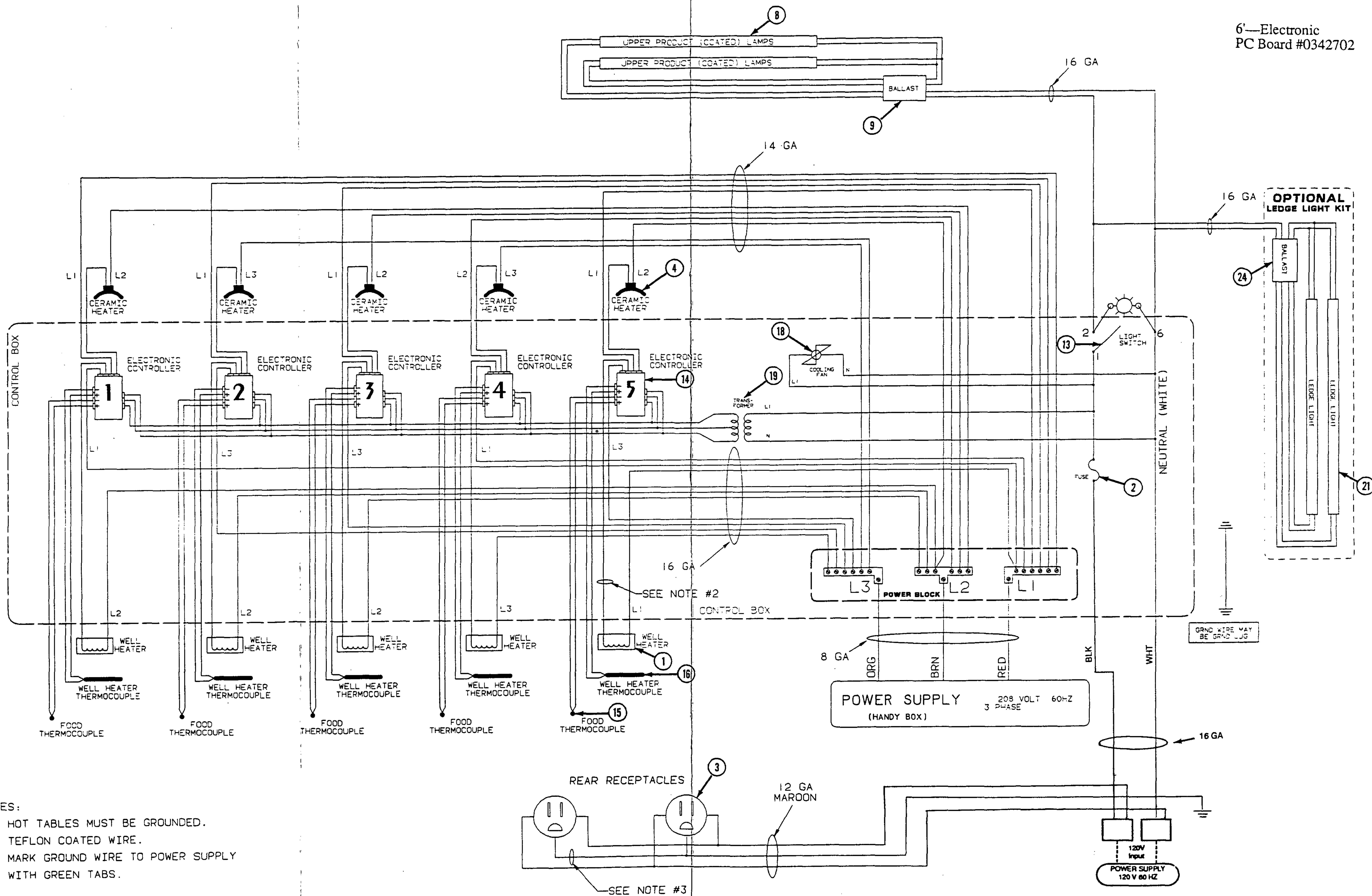
<b>OBSERVATION</b>	<b>PROBABLE CAUSE</b>	<b>CHECKOUT PROCEDURE</b>
<b>Display Blank</b>	<ul style="list-style-type: none"> <li>-Power Failure</li> <li>-Fuse Failure</li> <li>-Transformer Failure</li> <li>-14V AC Power Cable</li> <li>-Processor Failure</li> </ul>	<ul style="list-style-type: none"> <li>-Check for 120 VAC to Primary</li> <li>-Check for 14 VAC from Secondary</li> </ul>
<b>ERR 1 and ERR 2</b>	<ul style="list-style-type: none"> <li>-Top Heater has shorted (1) or Opened (2)</li> </ul>	<ul style="list-style-type: none"> <li>-Top Heater Test, Page 5-7 or 5-9</li> </ul>
<b>ERR 3 and ERR 4</b>	<ul style="list-style-type: none"> <li>-Bottom Heater has Shorted (3) or Opened (4)</li> </ul>	<ul style="list-style-type: none"> <li>-Bottom Heater Test, Page 5-7 or 5-9</li> </ul>
<b>HHHH</b>	<ul style="list-style-type: none"> <li>-Programmer Timer Problem</li> <li>-Short in Wire Harness</li> <li>-Disconnect Buttons are Pushed In</li> </ul>	<ul style="list-style-type: none"> <li>-Check Program Schedule</li> <li>-Steps 1-4 of Bottom Heater Test, Page 5-7 or 5-9</li> <li>-Thermocouple Test, Page 5-7</li> <li>-Check Push Buttons</li> </ul>
<b>A-LO</b>	<ul style="list-style-type: none"> <li>-Food Placed in Merchandiser Cold</li> <li>-Food Probe Problem</li> <li>-Thermocouple/Wiring Problem</li> </ul>	<ul style="list-style-type: none"> <li>-Reheat Food</li> <li>-Reposition Food Probe</li> <li>-Food Probe Check, Page 5-6</li> <li>-Thermocouple Test, Page 5-7</li> </ul>
<b>A-HI</b>	<ul style="list-style-type: none"> <li>-Food Placed in Merchandiser too Hot</li> <li>-Food Probe Touching Bottom of Pan</li> <li>-Thermocouple/Wiring Problem</li> </ul>	<ul style="list-style-type: none"> <li>-Wait for Temperature to Drop</li> <li>-Reposition Food Probe</li> <li>-Thermocouple Test, Page 5-7</li> </ul>
<b>FOOD PROB</b>	<ul style="list-style-type: none"> <li>-Food Probe Not Inserted Correctly</li> <li>-Thermocouple/Wiring Problem</li> </ul>	<ul style="list-style-type: none"> <li>-Food Probe Check, Page 5-7</li> <li>-Reposition Food Probe</li> <li>-Thermocouple Test, Page 5-7</li> </ul>
<b>HELP</b>	<ul style="list-style-type: none"> <li>-Fan Failure</li> <li>-Thermocouple/Wiring Problem</li> </ul>	<ul style="list-style-type: none"> <li>-Check that Fan is Not Blocked and Running Correctly</li> <li>-Thermocouple Test, Page 5-7</li> <li>-Check that fan is blowing into Control Panel</li> </ul>



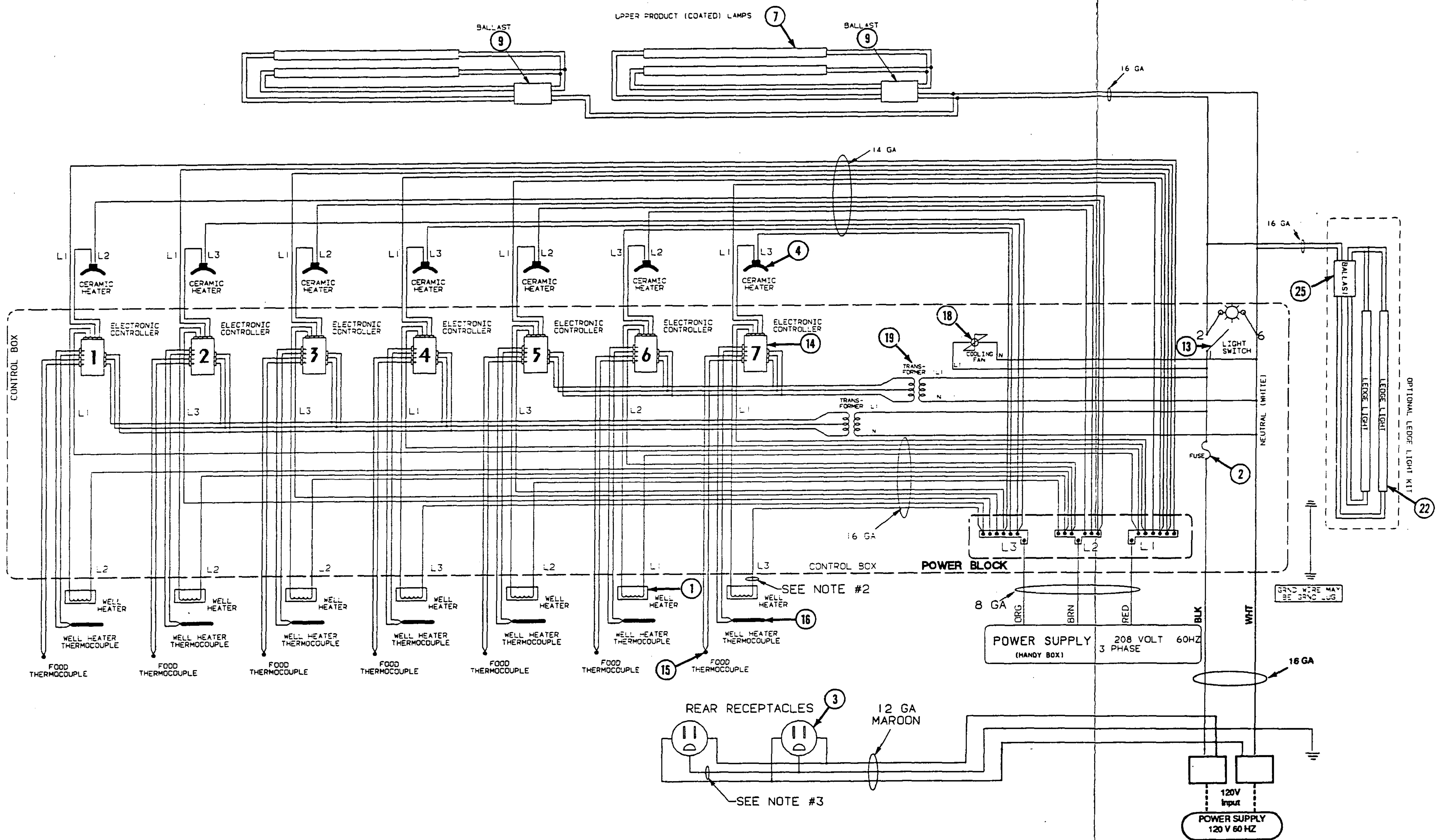


NOTES:

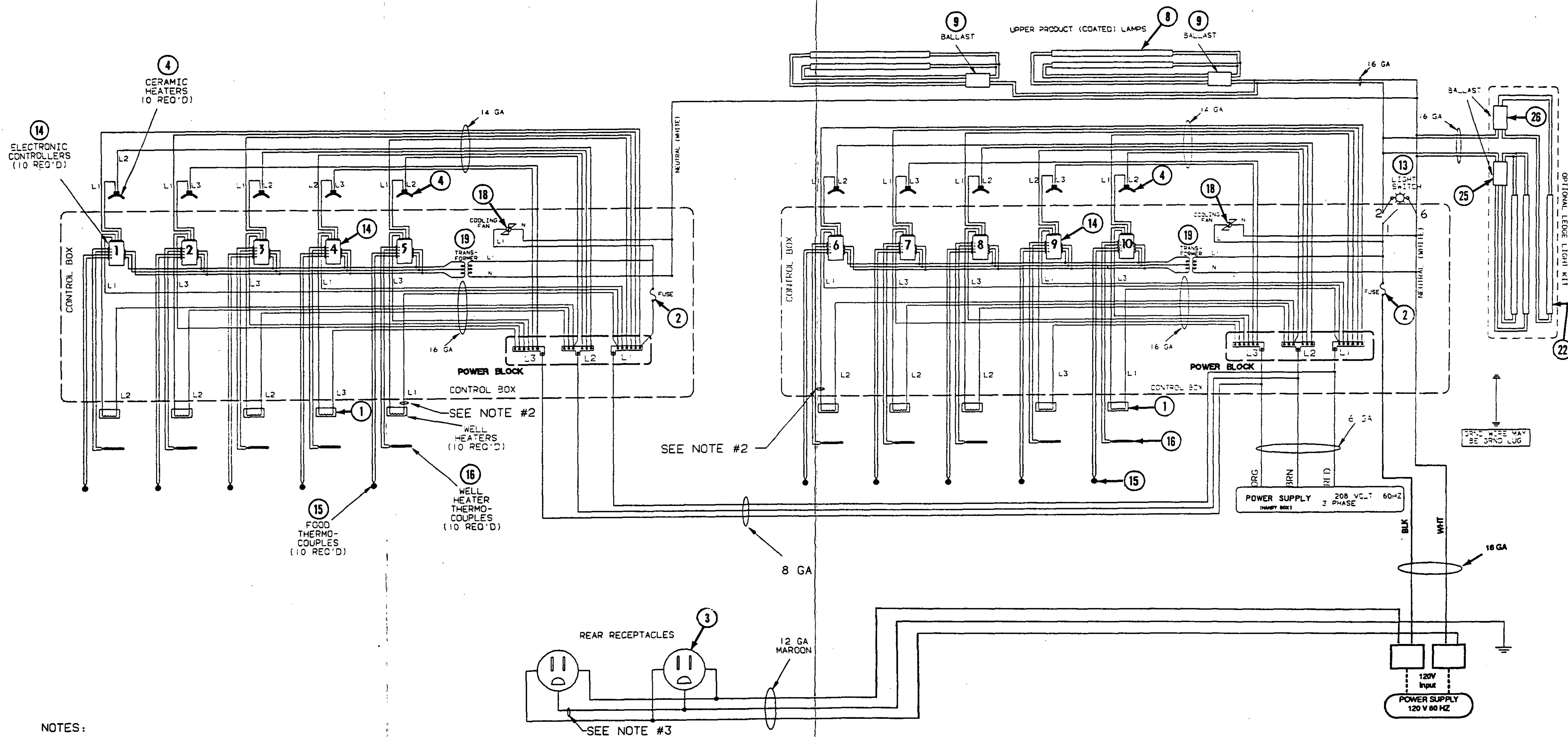
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2. TEFLON COATED WIRE.
3. MARK GROUND WIRE TO POWER SUPPLY WITH GREEN TABS.







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