ALTO SHAAM®

OPERATION and CARE MANUAL

HEATED DISPLAY CASE

MODELS: TY-48 TYSYS-48
TY-48/P TYSYS-48/P

24•7 Your Service Hotline 1-800-558-8744

HALO HEAT® COOK/HOLD/SERVE SYSTEMS

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls, Wisconsin 53052-0450 U.S.A.
PHONE: 262.251.3800 FAX: 262.251.7067, 800.329.8744 U.S.A. ONLY WEBSITE:
800.558.8744 U.S.A./CANADA 262.251.1907 INTERNATIONAL www.alto-shaam.com

PRINTED IN U.S.A. #854 •12/2002

ALTO-SHAAM® HEATED DISPLAY CASES

UNPACKING & SET-UP

The Alto-Shaam Hot Display Case has been thoroughly tested, checked for calibration, and inspected to insure only the highest quality cabinet is provided. When you receive your display case, check for any possible shipping damage and report it at once to the delivering carrier. See *Transportation Damage and Claims* section located in this manual.

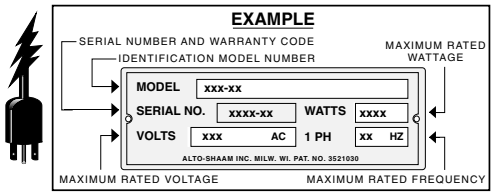
In order to maintain established National Sanitation Foundation standards, all stationary floor models must be sealed to the floor with a R.T.V. or silastic meeting N.S.F. requirements or have 6" (153mm) unobstructed clearance beneath the unit. Counter and table units must be mounted on legs of a sufficient 4" (102mm) height to provide minimum unobstructed space beneath the unit. Legs are supplied with the unit. Warranty will become null and void if these directions are not followed.

Save all the information and instructions packed inside the display case. Complete and return the warranty card to the factory as soon as possible to assure prompt service in the event of a warranty parts and labor claim.

***NOTE**: Any and all claims for warranty must include the full model and serial number of the display case.*

ELECTRICAL INSTALLATION

The unit must be installed by an licensed electrician in accordance with local, country or national codes.



ENSURE POWER SOURCE MATCHES VOLTAGE STAMPED ON UNIT'S NAMEPLATE

1. An identification tag is permanently mounted on the case.
2. Plug the case into a properly grounded receptacle ONLY, making sure the cord is accessible in case of an emergency. Arcing will occur when connecting or disconnecting the display case unless all controls are in the OFF position.
3. REGARDING INTERNATIONAL STANDARD UNITS: If the unit is not equipped with flexible cord with plug, an all-pole country approved disconnection device which has a contact separation of at least 3mm in all poles must be incorporated in the fixed wiring for disconnection. When using a cord without a plug, the green/yellow conductor shall be connected to the terminal which is marked with the ground symbol. If a plug is used, the socket outlet must be easily accessible. If the power cord needs replacement, use a similar one obtained from the distributor.

PROCEDURES

1. DO NOT ADD WATER TO THE CASE

Halo Heat display cases maintain a constant but gentle temperature and eliminate much of the moisture loss associated with conventional display cases. Because of this gentle heat, it is not necessary to add water to the case. As a matter of fact, **adding water is not recommended** since water will accelerate the deterioration of the product, and may damage the case and void the warranty.

2. PLACE DIVIDERS and SERVING PANS IN CASE

Refer to the pan layout diagrams for different types of pan accommodations. A complete pan configuration layout is located in this manual. **It is <u>VERY</u> important to note,** no matter what type of pan configuration chosen, pan separator bars or divider bars must be used to close all gaps between pans, and all gaps between the pans and the edges of the display case. If these gaps are not closed, heat can be pulled out of the bottom of the case into the display area. As a consequence, heat distribution can be uneven and uniform temperature will be difficult to hold. If needed, additional pan divider bars are available.

3. TURN POWER and/or BREAKER SWITCH ON

4. *SET THERMOSTATS AT NUMBER 10*

The display case should be preheated at the number 10 setting for a minimum of **30** minutes before loading with food. An indicator light will illuminate when the thermostats are turned ON and will remain lit as long as the unit is preheating or calling for heat. When preheating is completed, or whenever the unit reaches any temperature set by the operator between 1 and 10, the indicators will go OUT.

5. LOAD HOT FOODS - TURN LIGHTS ON

Be certain only hot food is transferred into the display case. Before loading food into the unit, use a pocket-type meat thermometer to make certain all products have reached an internal temperature of 140° to 160°F (60° to 71°C). If any food product is not at proper serving temperature, use a Halo Heat cooking and holding oven, set at 250° to 275°F (121° to 135°C), or a Combitherm oven to bring the product within the correct temperature range.

- ✔ Use hand protection when handling hot items.
- ✔ Be certain only hot PREPACKAGED foods in appropriate heat tested containers are used in the self service section of the display case.
- ✔ Do not stack food containers.

6. RESET THERMOSTAT AS NEEDED

After all products are loaded into the display case, and the doors are closed, it is necessary to reset the thermostat. For fully enclosed cases, reset the thermostat to the number 8 setting. For self-service cases, the thermostat should be maintained at the number 9 or 10 setting. Cases with a self-service section should also be maintained at number 9 or 10 at the self-service section only. *THESE SETTINGS WILL NOT NECESSARILY BE FINAL.* Since proper temperature range depends on the type of products and the quantities being held, it is necessary to periodically use a thermometer to check each item to make certain the correct temperatures are being maintained. Proper temperature range is between 140°F and 160°F (60°C and 71°C). Normally, this will require a thermostat setting between 6 and 8 in fully enclosed cases. Self-service cases or sections will always require a higher thermostat setting.

7. MULTIPLE TIMER/PROBE OPTION

A multiple timer/probe system is available for this case. This system is a timer-based food management system, utilized with HACCP programs, that ensures proper rotation, food integrity, safety and quality. The multiple-timer station keys correspond to various pan locations in the display case. Contact factory for more information.

8. PLACEMENT OF FOOD PROBE (OPTION)

If the unit is equipped with the probe accessory, wipe each probe and probe tip with a disposable alcohol pad to clean and sanitize before using. If the probe is left in its bracket, the LED temperature display will indicate the ambient air temperature inside the case. To place a probe into food kept in the case, remove the probe from the bracket and push the probe tip halfway into the product, positioning the tip at the center of the food mass.

When placing in solid foods such as meat roast or poultry breasts, push the probe in from a straight downward position or in from the side to the center position. When placing in a semi-liquid or liquid product, the probe cable will probably need to be secured to keep the probe positioned properly. Do not let the probe tip touch the edges or side of the container. Tape the probe cable to the lip or edge of the container. Wipe each probe tip with a clean paper towel to remove food debris after each use. Follow by wiping probes with a disposable alcohol pad. Return each probe to the proper bracket position.

9. SERVE FRESH HOT FOOD

Keep hot foods looking fresh. Occasionally stir or rotate foods as needed. Serve products in the proper package or container. Keep doors closed after serving. Wipe spills immediately to assure maximum eye appeal, and to ease end of-the-day cleanup.

CARE and CLEANING

The cleanliness and appearance of this unit will contribute considerably to operating efficiency and savory, appetizing food. Good equipment kept clean works better and lasts longer.

THOROUGHLY CLEAN UNIT DAILY

A. Turn lights and adjustable thermostat(s) to the **OFF** position, and disconnect unit from power source. Let unit cool.

B. Remove, cover or wrap, and store unused products under refrigeration.

C. Clean the interior metal surfaces of the cabinet with a damp cloth and any good alkaline or alkaline chlorinated based commercial detergent or grease solvent at the recommended strength. Use a plastic scouring pad or oven cleaner for difficult areas. Avoid the use of abrasive cleaning compounds, chloride based cleaners, or cleaners containing quaternary salts. Rinse carefully to remove all residue and wipe dry.

NOTE: Never use hydrochloric acid (muriatic acid) on stainless steel.

D. Clean the glass with a window cleaner.

E. To help maintain the protective film coating on polished stainless steel, clean the exterior of the unit with a cleaner recommended for stainless steel surfaces. Spray the cleaning agent on a clean cloth and wipe with the grain of the stainless steel.

CLEAN PROBES DAILY

Remove all food soil from probes. Wipe entire probe and cable assembly with warm detergent solution and a clean cloth. Remove detergent by wiping each probe and cable with clean rinse water and a cloth. Wipe probes with disposable alcohol pad or sanitizing solution recommended for food contact surfaces. Allow probe and cable to air dry in probe holding bracket.

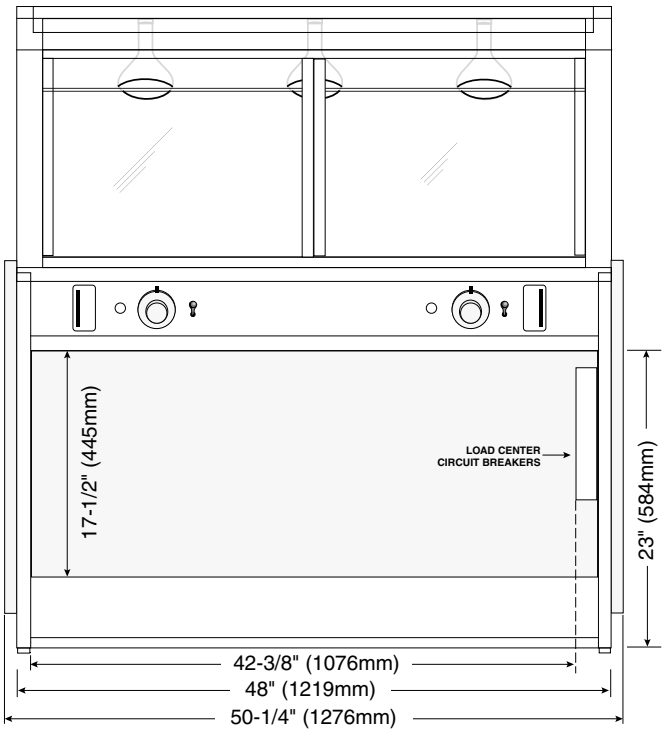
Always follow appropriate state or local health (hygiene) regulations regarding all applicable cleaning and sanitation requirements for food service equipment.

Remember to turn power and/or breaker switches **ON** before use.

At no time should the inside or outside of the unit be washed down, flooded with water or liquid solution. NEVER STEAM CLEAN. Severe damage or electrical hazard could result, voiding the warranty.

Disconnect from power source before cleaning or servicing.

Outside Dimensions - TYSYS-48



SANITATION GUIDELINE

Food flavor and aroma are usually so closely related that it is difficult, if not impossible, to separate them. There is also an important, inseparable relationship between cleanliness and food flavor. Cleanliness, top operating efficiency, and appearance of equipment contribute considerably to savory, appetizing foods. Good equipment that is kept clean, works better and lasts longer.

Most food imparts its own particular aroma and many foods also absorb existing odors. Unfortunately, during this absorption, there is no distinction between *GOOD* and *BAD* odors. The majority of objectionable flavors and odors troubling food service operations are caused by bacteria growth. Sourness, rancidity, mustiness, stale or other *OFF* flavors are usually the result of germ activity.

The easiest way to insure full, natural food flavor is through comprehensive cleanliness. This means good control of both visible soil (dirt) and invisible soil (germs). A thorough approach to sanitation will provide essential cleanliness. It will assure an attractive appearance of equipment, along with maximum efficiency and utility. More importantly, a good sanitation program provides one of the key elements in the prevention of food-borne illnesses.

A controlled holding environment for prepared foods is just one of the important factors involved in the prevention of food-borne illnesses. Temperature monitoring and control during receiving, storage, preparation, and the service of foods are of equal importance.

The most accurate method of measuring safe temperatures of both hot and cold foods is by internal product temperature. A quality thermometer is an effective tool for this purpose, and should be routinely used on all products that require holding at a specific temperature.

INTERNAL FOOD PRODUCT TEMPERATURES		
HOT FOODS		
DANGER ZONE	40° TO 140°F	(4° TO 60°C)
CRITICAL ZONE	70° TO 120°F	(21° TO 49°C)
SAFE ZONE	140° TO 165°F	(60° TO 74°C)
COLD FOODS		
DANGER ZONE	ABOVE 40°F	(ABOVE 4°C)
SAFE ZONE	36°F TO 40°F	(2°C TO 4°C)
FROZEN FOODS		
DANGER ZONE	ABOVE 32°F	(ABOVE 0°C)
CRITICAL ZONE	0° TO 32°F	(-18° TO 0°C)
SAFE ZONE	0°F OR BELOW	(-18°C OR BELOW)

A comprehensive sanitation program should focus on the training of staff in basic sanitation procedures. This includes personal hygiene, proper handling of raw foods, cooking to a safe internal product temperature, and the routine monitoring of internal temperatures from receiving through service.

Most food-borne illnesses can be prevented through proper temperature control and a comprehensive program of sanitation. Both these factors are important to build quality service as the foundation of customer satisfaction. Safe food handling practices to prevent food-borne illness is of critical importance to the health and safety of your customers. HACCP, an acronym for Hazard Analysis (at) Critical Control Points, is a quality control program of operating procedures to assure food integrity, quality, and safety. Taking steps necessary to augment food safety practices are both cost effective and relatively simple. While HACCP guidelines go far beyond the scope of this manual, additional information is available by contacting the USDA/FDA Food-borne Illness Education Information Center at (301)504-6803.

GENERAL HOLDING GUIDELINE

Chefs, cooks and other specialized food service personnel employ varied methods of cooking. Proper holding temperatures for a specific food product must be based on the moisture content of the product, product density, volume, and proper serving temperatures. Safe holding temperatures must also be correlated with palatability in determining the length of holding time for a specific product.

Halo Heat maintains the maximum amount of product moisture content without the addition of water, water vapor, or steam. Maintaining maximum natural product moisture preserves the natural flavor of the product and provides a more genuine taste. In addition to product moisture retention, the gentle properties of Halo Heat maintain a consistent temperature throughout the cabinet without the necessity of a heat distribution fan, thereby preventing further moisture loss due to evaporation or dehydration.

In an enclosed holding environment, too much moisture content is a condition which can be relieved. A product achieving extremely high temperatures in preparation must be allowed to decrease in temperature before being placed in a controlled holding atmosphere. If the product is not allowed to decrease in temperature, excessive condensation will form increasing the moisture content on the outside of the product.

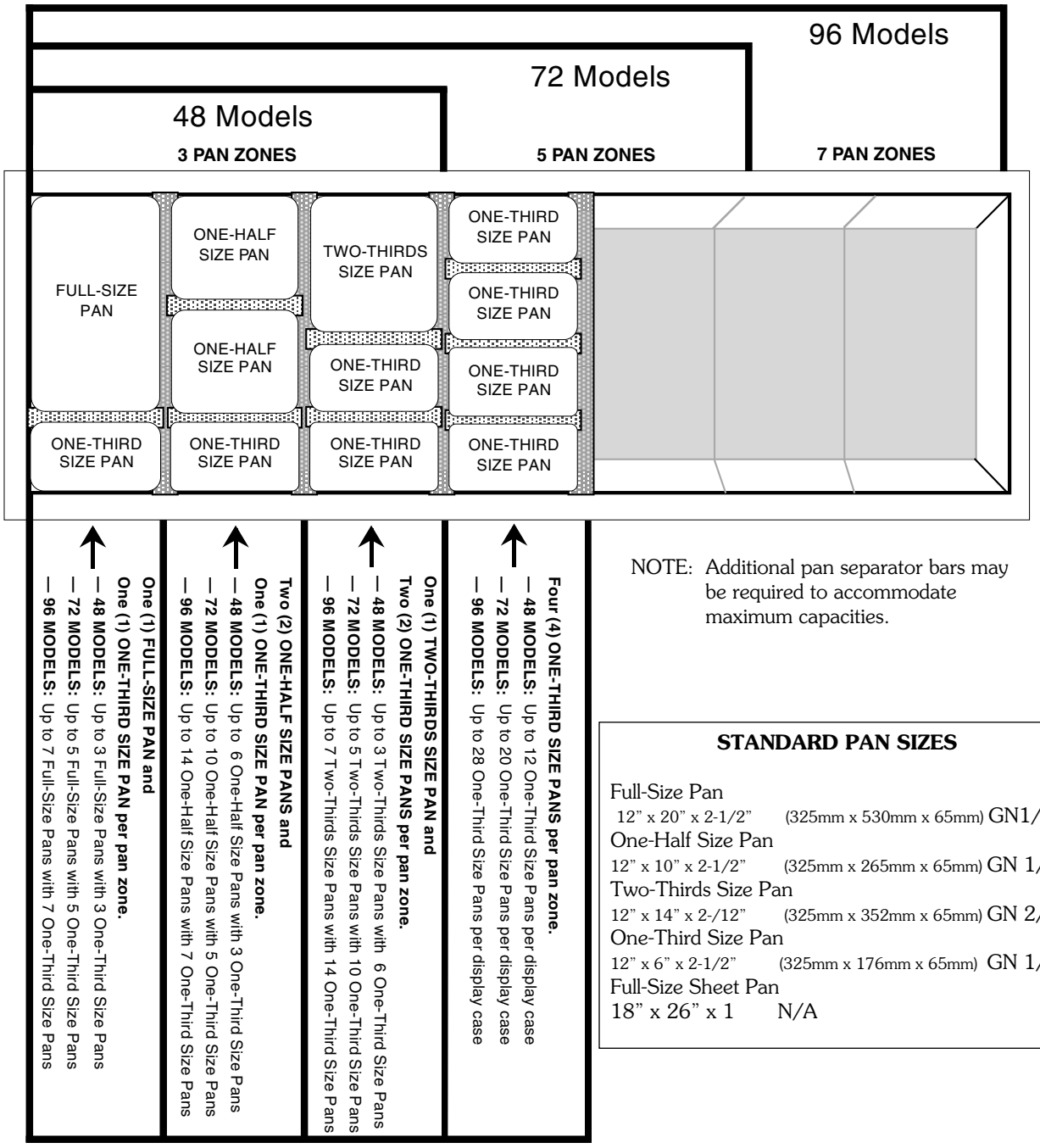
Most Halo Heat Holding Equipment is provided with a thermostat control between 60° and 200°F (16° to 93°C). If the unit is equipped with vents, close the vents for moist holding and open the vents for crisp holding.

If the unit is equipped with a thermostat indicating a range of between 1 and 10, use a metal-stemmed indicating thermometer to measure the internal temperature of the product(s) being held. Adjust the thermostat setting to achieve the best overall setting based on internal product temperature.

HOLDING TEMPERATURE RANGE

MEAT	FAHRENHEIT	CELSIUS
BEEF ROAST — Rare	140°F	60°C
BEEF ROAST — Med/Well Done	160°F	71°C
BEEF BRISKET	160° — 175°F	71° — 79°C
CORN BEEF	160° — 175°F	71° — 79°C
PASTRAMI	160° — 175°F	71° — 79°C
PRIME RIB — Rare	140°F	60°C
STEAKS — Broiled/Fried	140° — 160°F	60° — 71°C
RIBS — Beef or Pork	160°F	71°C
VEAL	160° — 175°F	71° — 79°C
HAM	160° — 175°F	71° — 79°C
PORK	160° — 175°F	71° — 79°C
LAMB	160° — 175°F	71° — 79°C
POULTRY		
CHICKEN — Fried/Baked	160° — 175°F	71° — 79°C
DUCK	160° — 175°F	71° — 79°C
TURKEY	160° — 175°F	71° — 79°C
GENERAL	160° — 175°F	71° — 79°C
FISH/SEAFOOD		
FISH — Baked/Fried	160° — 175°F	71° — 79°C
LOBSTER	160° — 175°F	71° — 79°C
SHRIMP — Fried	160° — 175°F	71° — 79°C
BAKED GOODS		
BREADS/ROLLS	120° — 140°F	49° — 60°C
MISCELLANEOUS		
CASSEROLES	160° — 175°F	71° — 79°C
DOUGH — Proofing	80° — 100°F	27° — 38°C
EGGS —Fried	150° — 160°F	66° — 71°C
FROZEN ENTREES	160° — 175°F	71° — 79°C
HORS D'OEUVRES	160° — 180°F	71° — 82°C
PASTA	160° — 180°F	71° — 82°C
PIZZA	160° — 180°F	71° — 82°C
POTATOES	180°F	82°C
PLATED MEALS	180°F	82°C
SAUCES	140° — 200°F	60° — 93°C
SOUP	140° — 200°F	60° — 93°C
VEGETABLES	160° — 175°F	71° — 79°C

The holding temperatures are suggested guidelines only.



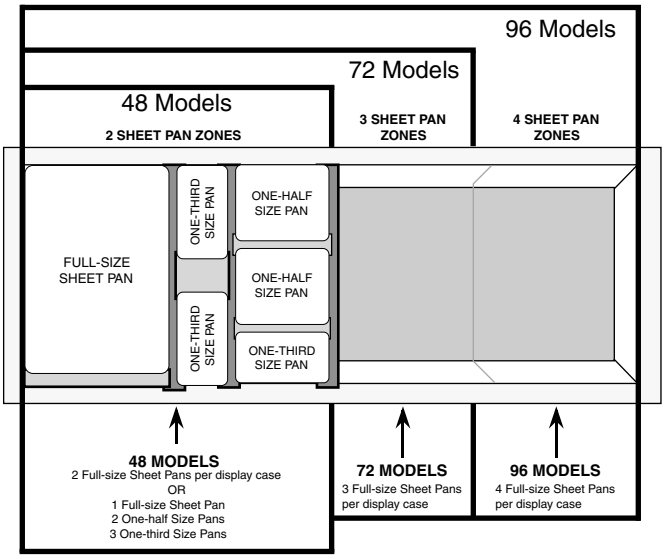
NOTE: Additional pan separator bars may be required to accommodate maximum capacities.

STANDARD PAN SIZES

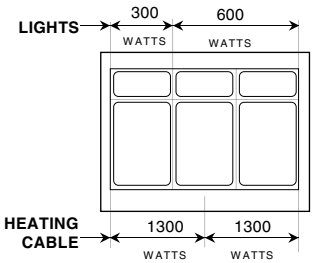
Full-Size Pan
12" x 20" x 2-1/2" (325mm x 530mm x 65mm) GN1/1
One-Half Size Pan
12" x 10" x 2-1/2" (325mm x 265mm x 65mm) GN 1/2
Two-Thirds Size Pan
12" x 14" x 2-/12" (325mm x 352mm x 65mm) GN 2/3
One-Third Size Pan
12" x 6" x 2-1/2" (325mm x 176mm x 65mm) GN 1/3
Full-Size Sheet Pan
18" x 26" x 1 N/A

STANDARD PAN DIVIDER & SEPARATOR BARS

ITEM NO.	DESCRIPTION	SIZE (W x L)		MODELS 48	72	96
11046	SHEET PAN DIVIDER BAR	1-3/8" x 27-13/16"	(35mm x 706mm)	1	—	—
11047	ONE-THIRD SIZE PAN	3-1/4" x 7"	(83mm x 178mm)	1	—	—
11317	FULL, HALF & THIRD SIZE - LONG	1" x 27-7/8"	(25mm x 708mm)	2	4	6
11318	FULL, HALF & THIRD SIZE - SHORT	1" x 12-3/4"	(25mm x 324mm)	9	15	21
11319	SHEET PAN DIVIDER BAR	3-1/4" x 27-3/16"	(83mm x 706mm)	1	—	—
11320	SHEET PAN DIVIDER BAR	1-3/4" x 17-3/4"	(45mm x 451mm)	2	3	4
11357	SHEET PAN DIVIDER BAR	5-29/32" x 27-13/16"	(150mm x 706mm)	—	2	3
11732	SHEET PAN FILLER	3-3/4" x 27-13/16"	(95mm x 706mm)	—	—	1
1865	GASTRONORM DIVIDER (220V)	7/8" x 27-7/8"	(22mm x 708mm)	2	4	6



TYSYS HOT DELI CASES
POWER CONFIGURATIONS



TYSYS-48 • TYSYS-48/P
TOTAL: 3500 Watts (maximum)

SAFETY ALERT

CAUTION

This units performance has been optimized using the factory provided bulbs. These bulbs should be replaced with an exact replacement or with a factory recommended replacement. These bulbs have been treated to resist breakage and must be replaced with similarly treated bulbs in order to maintain compliance with NSF standards.

CAUTION

CAUTION

Hood glass extended to the full upright position is stabilized through the use of gas struts designed for the full load bearing weight. These struts could weaken or fail due to wear, environmental conditions or aging.

Operators should be aware of any decrease in effort to lift the hood and initiate an immediate gas strut safety check.

DO NOT LIFT THE HOOD IN THIS CONDITION.

OPTIONS & ACCESSORIES • TY-48 SERIES

Bulbs
— 100 Watt, 130V, STANDARD LP-33592
— 100 Watt, 130V, BLUE TINT LP-33253
— 100 Watt, 230-250V, STANDARD LP-3384
Carving Station, Single Well 55299
Gauge, Interior Ambient Temperature GU-33384
Glass Panes, End, Reflective, Tempered
— RIGHT-HAND GL-22539
— LEFT-HAND GL-22538
Glass, Tempered, End Spacer GL-22719
Independent Circuit Cordset Pkg.* TY, 120/208-240 ONLY . 14221
Independent Load Center Pkg.* TYSYS,120/208-240 ONLY . 14220
*NOT CSA APPROVED
Pan, Self Service, 4" deep 16358
Pan Separator Bar
— Sheet Pan (long bar) 11046
— One-Third Size Pan 11047
— Full-Size (long) 11317
— Half-Size/Third Size 11318
— Sheet Pan 11319
— Sheet Pan (short bar) 11320
— Gastronorm 1865
— Half-Size Sheet Pan 11805
Panel, Front Custom Colors P119
Panels, End
— Black Patch, TYSYS ONLY PE-22708
— Solid Black Patch, right-hand, TYSYS ONLY PE-23674
— Solid Black Patch, left-hand, TYSYS ONLY PE-23675
Panels, End, Stainless Steel, KIOSK ASSEMBLY, TY ONLY . 14600
Panel, Stainless Steel Front 12644
Product Probe Package: 120/208-240 ONLY 5295
Scale Platform Package 120/208-240 ONLY 14102
Multiple Timer Bar Package w/probe outlet . . FACTORY INSTALLED
— TY, TYSYS-48/P 55194

TY-48 SERIES • CABLE REPLACEMENT KIT

CABLE HEATING SERVICE KIT No. 4880

includes:

CB-3044	Cable Heating Element	134 feet
CR-3226	Ring Connector	4
IN-3488	Insulation Corner	1 foot
BU-3105	Shoulder Bushing	4
BU-3106	Cup Bushing	4
SL-3063	Insulating Sleeve	4
TA-3540	Electrical Tape	1 roll
ST-22439	Stud, 10-32	4
NU-2215	Hex Nut	8

At no time should the inside or outside of the cabinet be washed down, flooded with water or liquid solution. NEVER STEAM CLEAN. Severe damage or electrical hazard could result.

CAUTION

TY-48

1/15/01

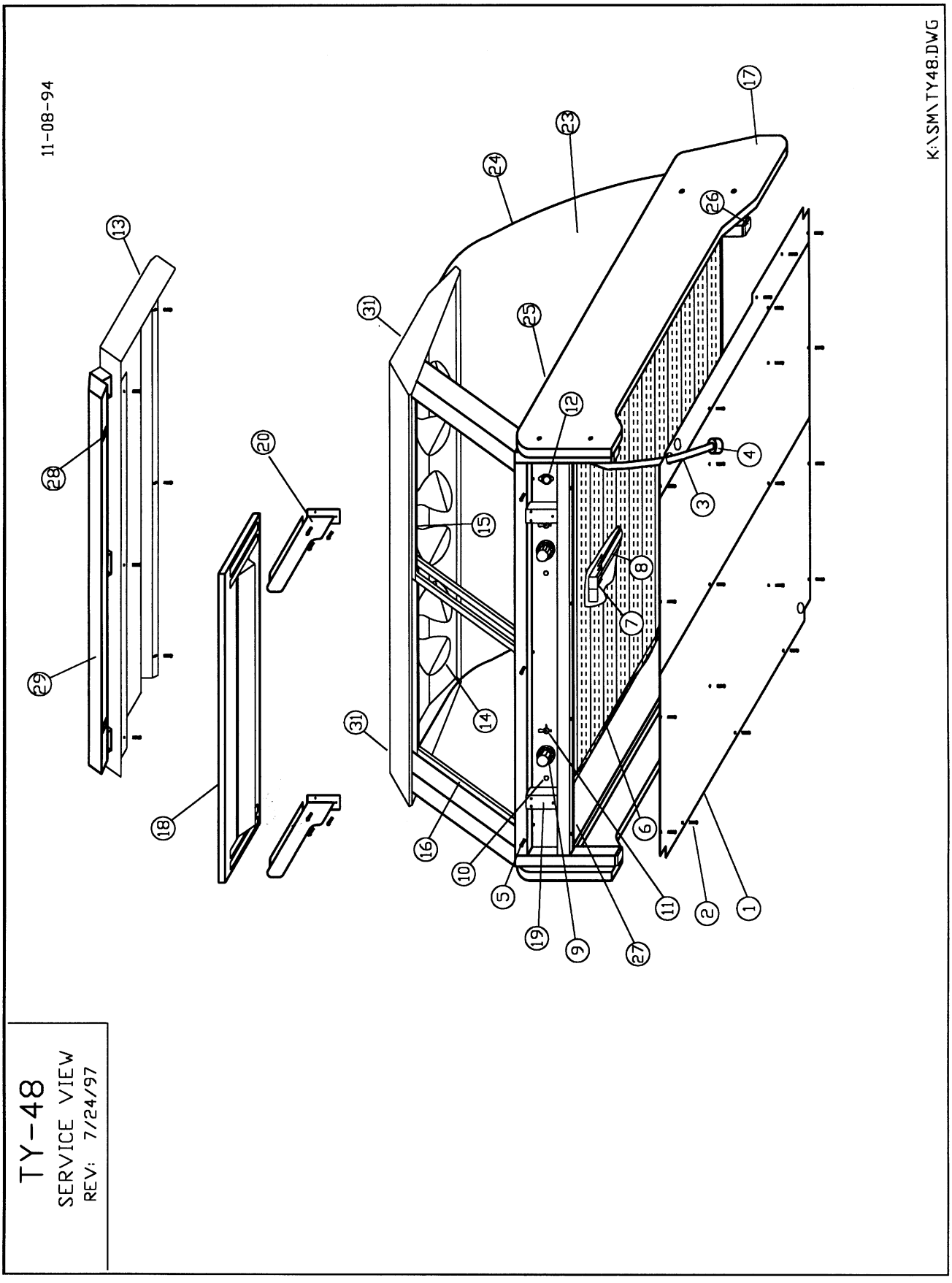
	PART DESCRIPTION	QTY	A/S PT NO.
1.	END PANEL BOTTOM	1	13028
	END PANEL BOTTOM, 230V	1	13986
	RIGHT-HAND BOTTOM PANEL, 4' (1219mm)	1	13029
	LEFT-HAND BOTTOM PANEL, 4' (1219mm)	1	13030
2.	BOTTOM MOUNTING SCREWS	17	SC-2425
	BOTTOM MOUNTING SCREWS	4	SC-2459
3.	CORD: 6' (1829mm), 120/240V	1	CD-3291
	CORD (230V)	1	CD-33490
4.	PLUG	1	PG-3267
5.	CONTROL PANEL MOUNTING SCREWS	3	SC-2459
6.	INSULATION: 25.5 x 120" (649mm x 3049mm)	1	IN-22364
7.	CABLE CONNECTION HARDWARE		
8.	HEATING CABLE: 132' (40234mm)	1	CB-3045
9.	THERMOSTAT	2	TT-3498
	THERMOSTAT KNOB	2	KN-3473
10.	INDICATOR LIGHT (125V)	2	LI-3025
	INDICATOR LIGHT (230V)	2	LI-3951
11.	BULB SWITCH	2	SW-3616
12.	FUSEHOLDER (120V UNITS), INCLUDES:	1	FU-33041
	FUSE, 15 AMP	1	FU-3775
	FUSEHOLDER MOUNTING SCREWS	2	SC-2077
13.	TOP	1	4379
	TOP MOUNTING SCREWS	3	SC-2425
	TOP MOUNTING SCREWS	3	SC-2459
14.	BULB, 120/240V	6	LP-33592
	BULB, 230V	6	LP-3384
15.	BULB SOCKET, 120/240V	6	RP-3952
	BULB SOCKET, 230V	6	RP-3955
16.	DOOR ASSEMBLY		
	LEFT HAND GLASS DOOR	1	DR-22480A
	RIGHT HAND GLASS DOOR	1	DR-22480B
	GUIDES #44049	8	DR-22480F
	DOOR BUMPER ASSEMBLY	1	DR-22480G
	TOP TRACK	1	TK-23748
	BOTTOM TRACK	1	TK-24265
17.	END PANEL	2	PE-22585
18.	CUTTING BOARD ASSEMBLY	1	4016
19.	CUTTING BOARD BRACKET (BASE)	2	12069
	CUTTING BOARD BRACKET MTG. SCREWS	6	SC-24520
20.	CUTTING BOARD BRACKET	2	BT-2342
23.	END GLASS	2	GL-22479
	END GLASS GASKET: 5' (1524mm)	1	GS-22547
24.	FRONT GLASS	1	GL-22477
25.	PAN DIVIDER BARS (NOT SHOWN)		
	SHEET PAN	1	11046
	THIRD SIZE PAN	1	11047
	FULL/HALF/THIRD (LONG BAR)	2	11317
	FULL/HALF/THIRD (SHORT BAR)	9	11318
	SHEET PAN	1	11319
	SHEET PAN	2	11320
26.	ADJUSTABLE LEGS	4	LG-22686
27.	TERMINAL BLOCKS, 4 POS	2	BK-3597
28.	SNAP-IN RECEPTACLES	2	RP-3396
	RECEPTACLE FUSE, 15 AMP	1	FU-33351
	RECEPTACLE FUSEHOLDER, 15 AMP	1	FU-33352
29.	OUTLET HOUSING COVER	1	4951
30.	4' PROBE PACKAGE OPTION (NOT SHOWN)	1	5295
31.	FRONT GLASS STRUTS	2	SU-22702
32.	OPTIONAL INDEPENDENT CIRCUIT CORDSET		
	120V, (NOT SHOWN) - NOT CSA APPROVED	1	14221

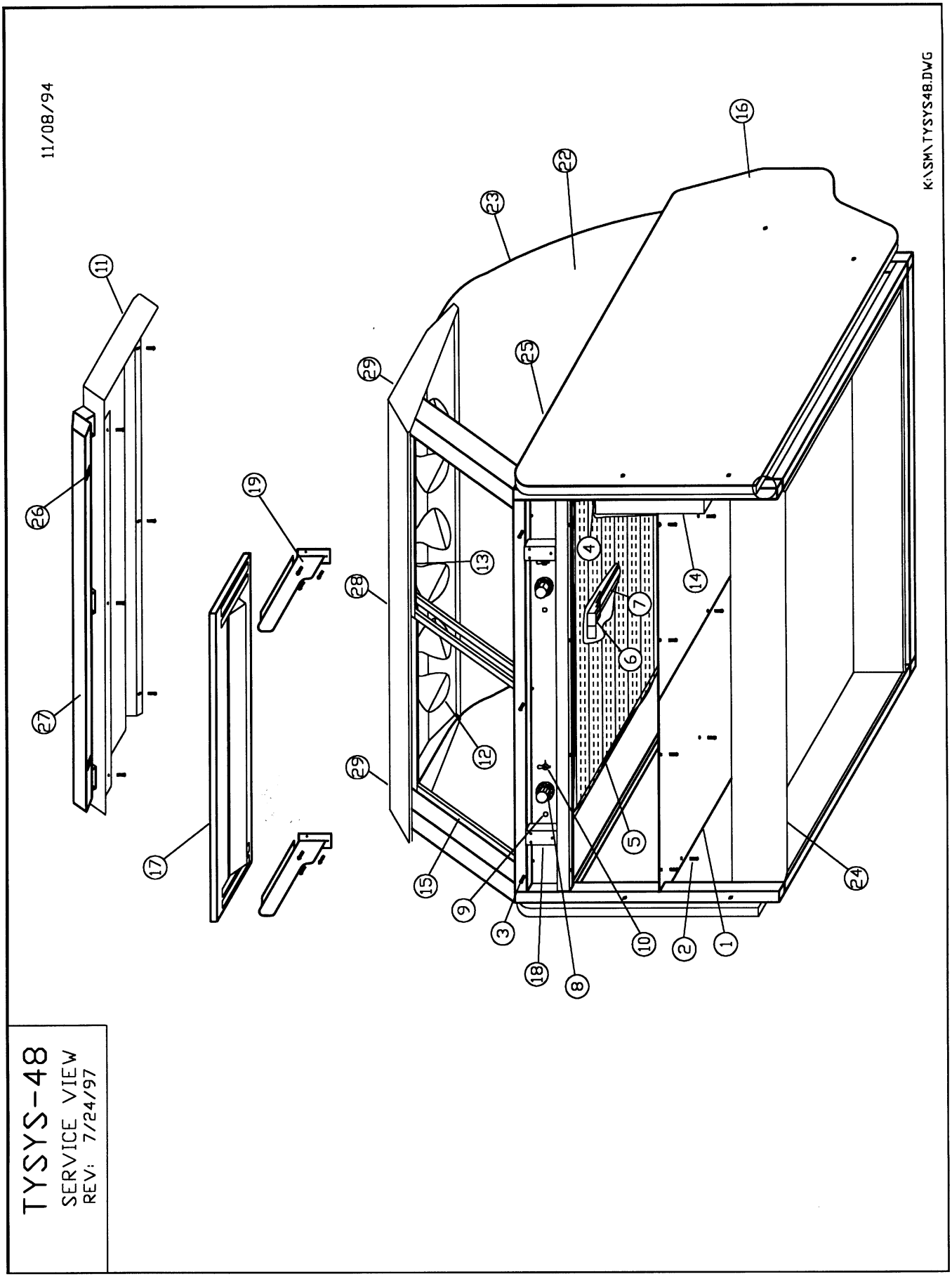
TYSYS-48

1/15/01

	PART DESCRIPTION	QTY	A/S PT NO.
1.	END PANEL BOTTOM	1	13028
	RIGHT-HAND BOTTOM PANEL, 4' (1219mm)	1	13029
	LEFT-HAND BOTTOM PANEL, 4' (1219mm)	1	13030
2.	BOTTOM MOUNTING SCREWS	17	SC-2425
	BOTTOM MOUNTING SCREWS	4	SC-2459
3.	CONTROL PANEL MOUNTING SCREWS	3	SC-2459
4.	CONDUIT TUBING: 6" (152mm)	2	TU-3874
5.	INSULATION: 25.5 x 120" (649mm x 3049mm)	1	IN-22364
6.	CABLE CONNECTION HARDWARE		
7.	HEATING CABLE: 132' (40234mm)	1	CB-3045
8.	THERMOSTAT	2	TT-3498
	THERMOSTAT KNOB	2	KN-3473
9.	INDICATOR LIGHT (125V)	2	LI-3025
	INDICATOR LIGHT (230V)	2	LI-3951
10.	BULB SWITCH	2	SW-3616
11.	TOP	1	4379
	TOP MOUNTING SCREWS	3	SC-2425
	TOP MOUNTING SCREWS	3	SC-2459
12.	BULB, 120/240V	6	LP-33592
	BULB, 230V	6	LP-3844
13.	BULB SOCKET, 120/240V	6	RP-3952
	BULB SOCKET, 230V	6	RP-3955
14.	CIRCUIT BOX **(120V)**	1	CI-3906
	INCLUDES BREAKER, 15 AMP	1	CI-33071
	GROUND BAR KIT	1	CI-3878
	BREAKER, 20 AMP	2	CI-3907
	CIRCUIT BOX **(230V)**	1	CI-3906
	INCLUDES BREAKER, 15 AMP	2	CI-33071
	GROUND BAR KIT	1	CI-3878
	BREAKER, 20 AMP	2	CI-3907
15.	DOOR ASSEMBLY		
	LEFT HAND GLASS DOOR	1	DR-22480A
	RIGHT HAND GLASS DOOR	1	DR-22480B
	GUIDES #44049	8	DR-22480F
	DOOR BUMPER ASSEMBLY	1	DR-22480G
	TOP TRACK	1	TK-23748
	BOTTOM TRACK	1	TK-24265
16.	END PANEL	2	PE-22493
17.	CUTTING BOARD ASSEMBLY	1	4016
18.	CUTTING BOARD BRACKET (BASE)	2	12069
	CUTTING BOARD BRACKET MTG. SCREWS	6	SC-24520
19.	CUTTING BOARD BRACKET	2	BT-2342
22.	END GLASS	2	GL-22479
	END GLASS GASKET: 5' (1524mm)	1	GS-22547
23.	FRONT GLASS	1	GL-22477
24.	BASE BOTTOM	1	1288
25.	PAN DIVIDER BARS (NOT SHOWN)		
	SHEET PAN	1	11046
	THIRD SIZE PAN	1	11047
	FULL/HALF/THIRD (LONG BAR)	2	11317
	FULL/HALF/THIRD (SHORT BAR)	9	11318
	SHEET PAN	1	11319
	SHEET PAN	2	11320
26.	SNAP-IN RECEPTACLES	2	RP-3396
27.	OUTLET HOUSING COVER	1	4951
28.	RECEPTACLE FUSE, 15 AMP	1	FU-33351
	RECEPTACLE FUSEHOLDER, 15 AMP	1	FU-33352
29.	FRONT GLASS STRUTS	2	SU-22702
30.	4' PROBE PACKAGE OPTION (NOT SHOWN)	1	5295
31.	LOAD CTR.PKG. OPTION (NOT SHOWN)INCLUDES:	1	14220
	LOAD CENTER	1	CI-3877
	GROUND BAR KIT	1	CI-3878
	BREAKER, 15 AMP	1	CI-33071
	CONNECTOR	1	CR-3953
	NUT	1	NU-3954

Disconnect Unit from Power Source Before Cleaning or Servicing.


TY-48
SERVICE VIEW
REV: 7/24/97
11-08-94
K:\SM\TY48.DWG


TYSYS-48
SERVICE VIEW
REV: 7/24/97
11/08/94
K:\SM\TYSYS48.DWG

TY-48/P PASS THRU

12/22/00

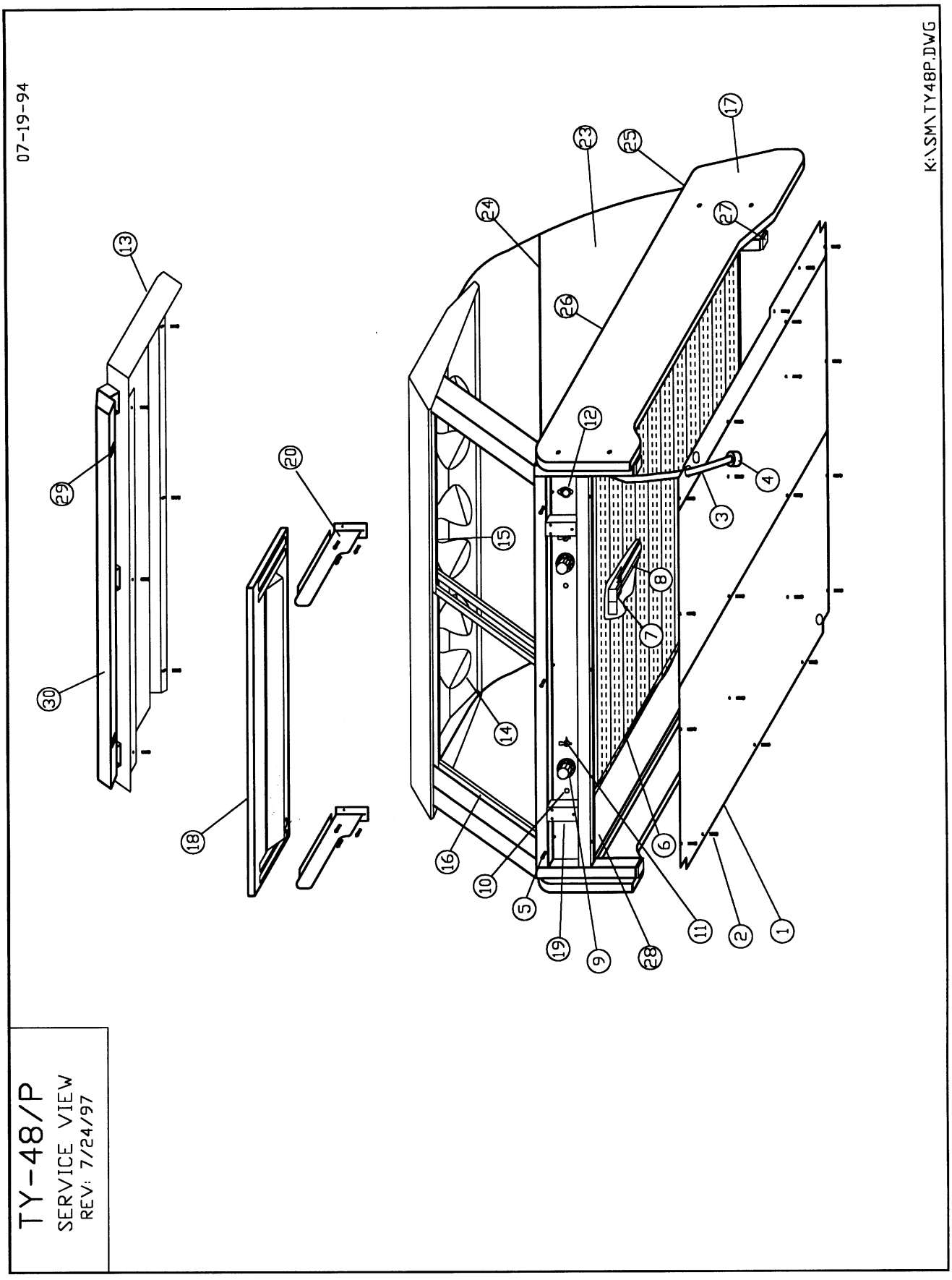
	PART DESCRIPTION	QTY	A/S PT NO.
1.	END PANEL BOTTOM	1	13028
	END PANEL BOTTOM, 230V	1	13986
	RIGHT-HAND BOTTOM PANEL, 4' (1219mm)	1	13029
	LEFT-HAND BOTTOM PANEL,4' (1219mm)	1	13030
2.	BOTTOM MOUNTING SCREWS	17	SC-2425
	BOTTOM MOUNTING SCREWS	4	SC-2459
3.	CORD: 6' (1829mm) 120/240V	1	CD-3291
	CORD (230V)	1	CD-33490
4.	PLUG	1	PG-3267
5.	CONTROL PANEL MOUNTING SCREWS	3	SC-2459
6.	INSULATION, 25.5" x 120" (649mm x 3049mm)	1	IN-22364
7.	CABLE CONNECTION HARDWARE		
8.	HEATING CABLE: 132' (40234mm)	1	CB-3045
9.	THERMOSTAT	2	TT-3498
	THERMOSTAT KNOB	2	KN-3473
10.	INDICATOR LIGHT, 125V	2	LI-3025
	INDICATOR LIGHT, 230V	2	LI-3951
11.	BULB SWITCH	2	SW-3616
12.	FUSEHOLDER, 120V	1	FU-33041
	INCLUDES:		
	FUSE, 15 AMP	1	FU-3775
	FUSEHOLDER MOUNTING SCREWS	2	SC-2425
13.	TOP	1	4379
	TOP MOUNTING SCREWS	3	SC-2425
	TOP MOUNTING SCREWS	3	SC-2459
14.	BULB, 120/240V	6	LP-33592
	BULB, 230V	6	LP-3384
15.	BULB SOCKET, 120/240V	6	RP-3952
	BULB SOCKET, 230V	6	RP-3955
16.	DOOR ASSEMBLY		
	LEFT HAND GLASS DOOR	1	DR-22480A
	RIGHT HAND GLASS DOOR	1	DR-22480B
	GUIDES #44049	8	DR-22480F
	DOOR BUMPER ASSEMBLY	1	DR-22480G
	TOP TRACK	1	TK-23748
	BOTTOM TRACK	1	TK-24265
17.	END PANEL	2	PE-22585
18.	CUTTING BOARD ASSEMBLY	1	4016
19.	CUTTING BOARD BRACKET (BASE)	2	12069
	CUTTING BOARD BRACKET MTG. SCREWS	6	SC-24520
20.	CUTTING BOARD BRACKET	2	BT-2342
23.	END GLASS	2	GL-22479
	END GLASS GASKET: 3' (914mm)	1	GS-22547
24.	FRONT GLASS	1	GL-22475
25.	CUSTOMER GUARD: 4' (1219mm)	1	11096
	SPACER	2	SP-24586
	MOUNTING SCREWS	2	SC-2073
26.	PANS (NOT SHOWN)		
	SELF-SERVE PAN	1	11624
	SELF-SERVE PAN GRID	2	PN-22048
27.	ADJUSTABLE LEGS	4	LG-22686
28.	TERMINAL BLOCKS, 4 POS	2	BK-3597
29.	SNAP-IN RECEPTACLES	2	RP-3396
	RECEPTACLE FUSE, 15 AMP	1	FU-33351
	RECEPTACLE FUSEHOLDER, 15 AMP	1	FU-33352
30.	OUTLET HOUSING COVER	1	4951
31.	4' PROBE PACKAGE OPTION (NOT SHOWN)	1	5295
32.	OPTIONAL INDEPENDENT CIRCUIT CORDSET		
	120V, (NOT SHOWN) - NOT CSA APPROVED	1	14221

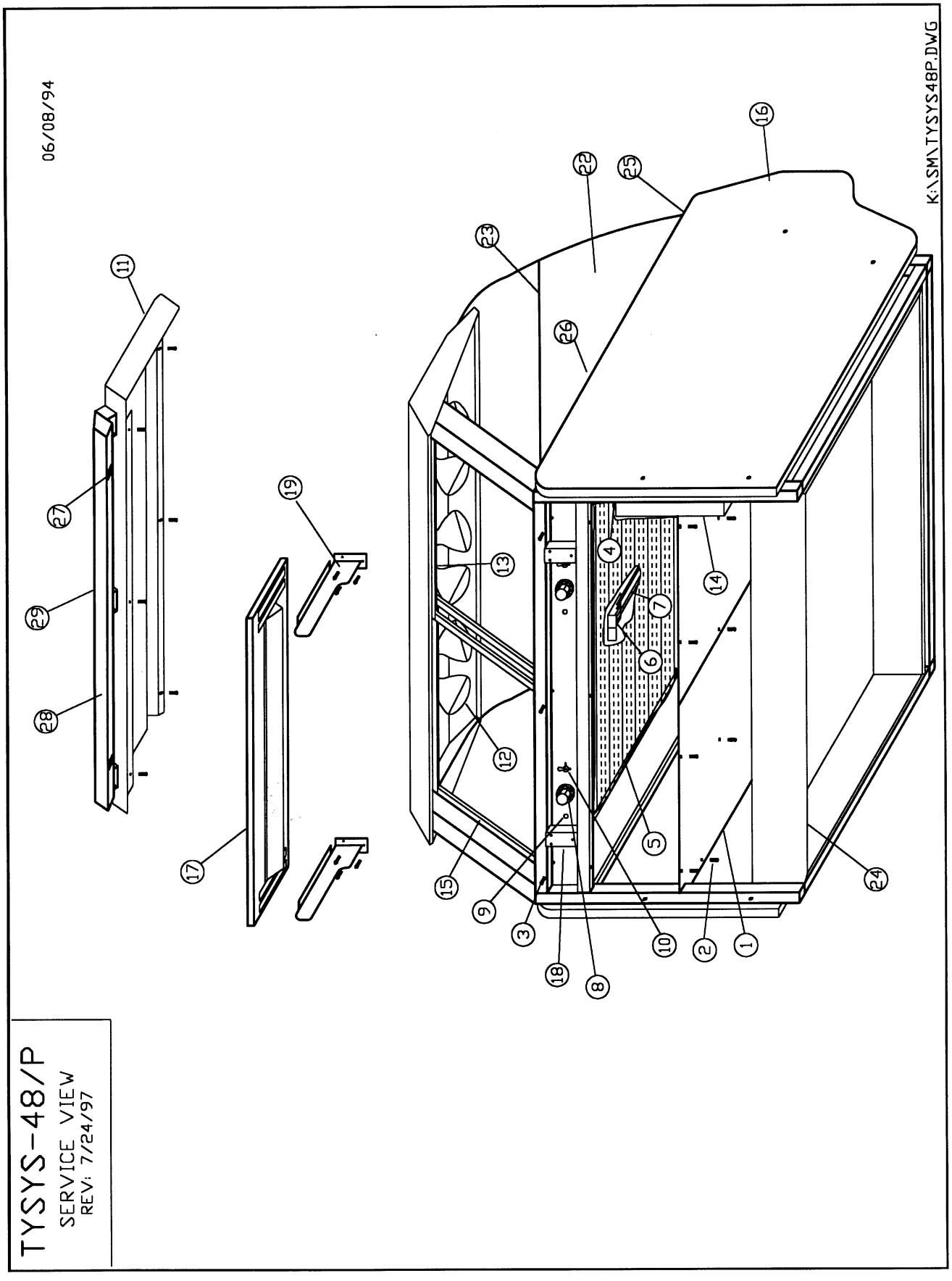
TYSYS-48/P PASS-THRU

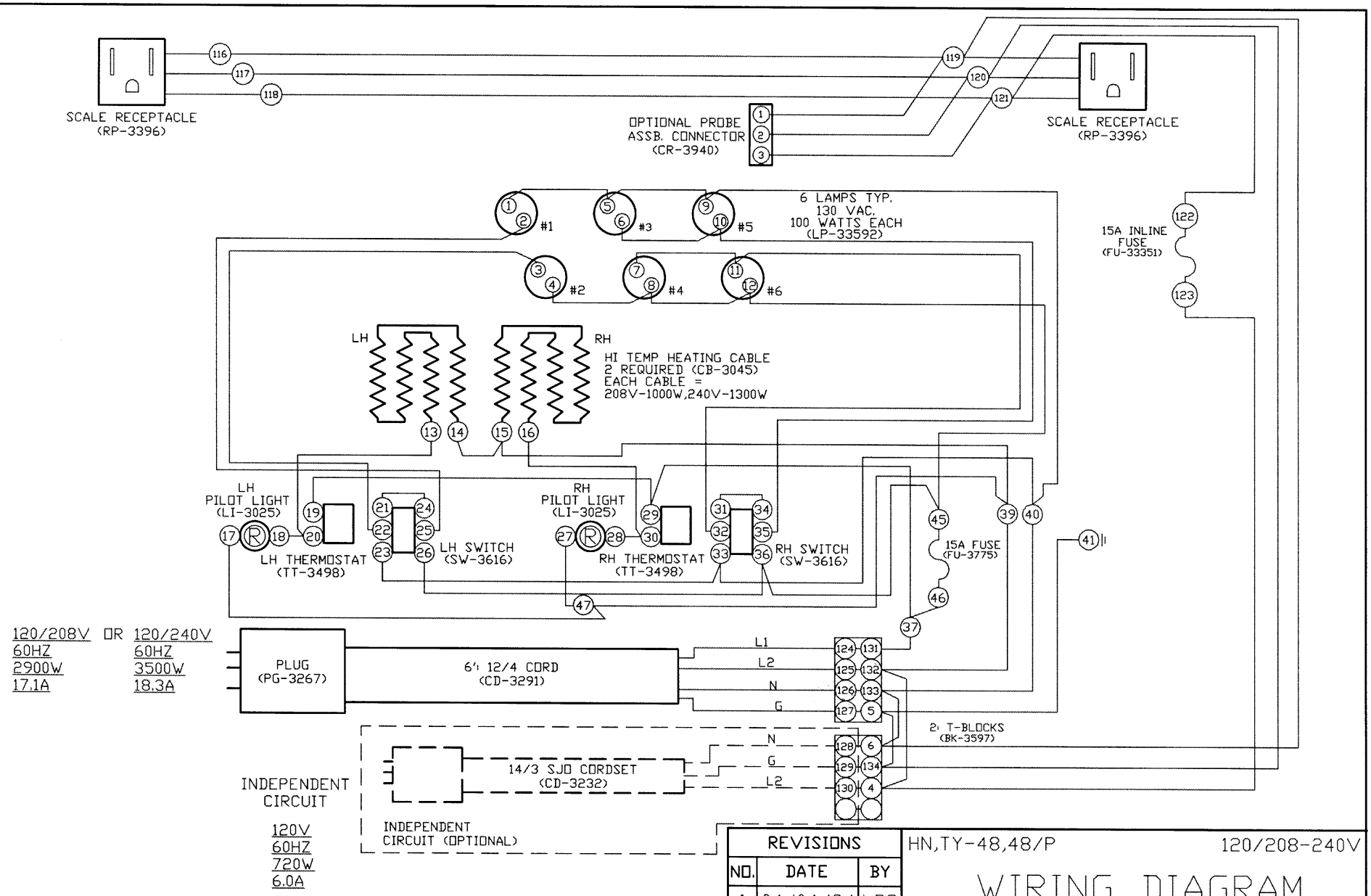
1/15/01

	PART DESCRIPTION	QTY	A/S PT NO.
1.	END PANEL BOTTOM	1	13028
	RIGHT-HAND BOTTOM PANEL, 4' (1219mm)	1	13029
	LEFT-HAND BOTTOM PANEL,4' (1219mm)	1	13030
2.	BOTTOM MOUNTING SCREWS	17	SC-2425
	BOTTOM MOUNTING SCREWS	4	SC-2459
3.	CONTROL PANEL MOUNTING SCREWS	3	SC-2459
4.	CONDUIT TUBING: 6" (152mm)	2	TU-3874
5.	INSULATION, 25.5" x 120" (649mm x 3049mm)	1	IN-22364
6.	CABLE CONNECTION HARDWARE		
7.	HEATING CABLE: 132' (40234mm)	1	CB-3045
8.	THERMOSTAT	2	TT-3498
	THERMOSTAT KNOB	2	KN-3473
9.	INDICATOR LIGHT, 125V	2	LI-3025
	INDICATOR LIGHT, 230V	2	LI-3951
10.	BULB SWITCH	2	SW-3616
11.	TOP	1	4379
	TOP MOUNTING SCREWS	3	SC-2425
	TOP MOUNTING SCREWS	3	SC-2459
12.	BULB, 120/240V	6	LP-33592
	BULB, 230V	6	LP-3384
13.	BULB SOCKET, 120/240V	6	RP-3952
	BULB SOCKET, 230V	6	RP-3955
14.	CIRCUIT BOX **(120V)**	1	CI-3906
	INCLUDES BREAKER, 15 AMP	1	CI-33071
	GROUND BAR KIT	1	CI-3878
	BREAKER, 20 AMP	2	CI-3907
	CIRCUIT BOX **(230V)**	1	CI-3906
	INCLUDES BREAKER, 15 AMP	2	CI-33071
	GROUND BAR KIT	1	CI-3878
	BREAKER, 20 AMP	2	CI-3907
15.	DOOR ASSEMBLY		
	LEFT HAND GLASS DOOR	1	DR-22480A
	RIGHT HAND GLASS DOOR	1	DR-22480B
	GUIDES #44049	8	DR-22480F
	DOOR BUMPER ASSEMBLY	1	DR-22480G
	TOP TRACK	1	TK-23748
	BOTTOM TRACK	1	TK-24265
16.	END PANEL	2	PE-22493
17.	CUTTING BOARD ASSEMBLY	1	4016
18.	CUTTING BOARD BRACKET (BASE)	2	12069
	CUTTING BOARD BRACKET MTG. SCREWS	6	SC-24520
19.	CUTTING BOARD BRACKET	1	BT-2342
22.	END GLASS	2	GL-22479
	END GLASS GASKET: 3' (914mm)	1	GS-22547
23.	FRONT GLASS	1	GL-22475
24.	BASE BOTTOM	1	1288
25.	CUSTOMER GUARD: 4' (1219mm)	1	11096
	SPACER	2	SP-24586
	MOUNTING SCREWS	2	SC-2073
26.	PANS (NOT SHOWN)		
	SELF-SERVE PAN	1	11624
	SELF-SERVE PAN GRID	2	PN-22048
27.	SNAP-IN RECEPTACLES	2	RP-3396
28.	OUTLET HOUSING COVER	1	4951
29.	RECEPTACLE FUSE, 15 AMP	1	FU-33351
	RECEPTACLE FUSEHOLDER, 15 AMP	1	FU-33352
30.	4' PROBE PACKAGE OPTION (NOT SHOWN)	1	5295
31.	LOAD CTR. PKG OPTION (NOT SHOWN) INCLUDES :	1	14220
	LOAD CENTER	1	CI-3877
	GROUND BAR KIT	1	CI-3878
	BREAKER, 15 AMP	1	CI-33071
	CONNECTOR	1	CR-3953
	NUT	1	NU-3954

Disconnect Unit from Power Source Before Cleaning or Servicing.


TY-48/P
SERVICE VIEW
REV: 7/24/97
07-19-94
K:\SM\TY48P.DWG


TYSYS-48/P
SERVICE VIEW
REV: 7/24/97
06/08/94
K:\SM\TYSYS48P.DWG
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
22
23
24
25
26
27
28
29



NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8685 FOR HN WIRE ASSEMBLIES
NOTE #3: SEE DRW. #B-8902 FOR TY WIRE ASSEMBLIES

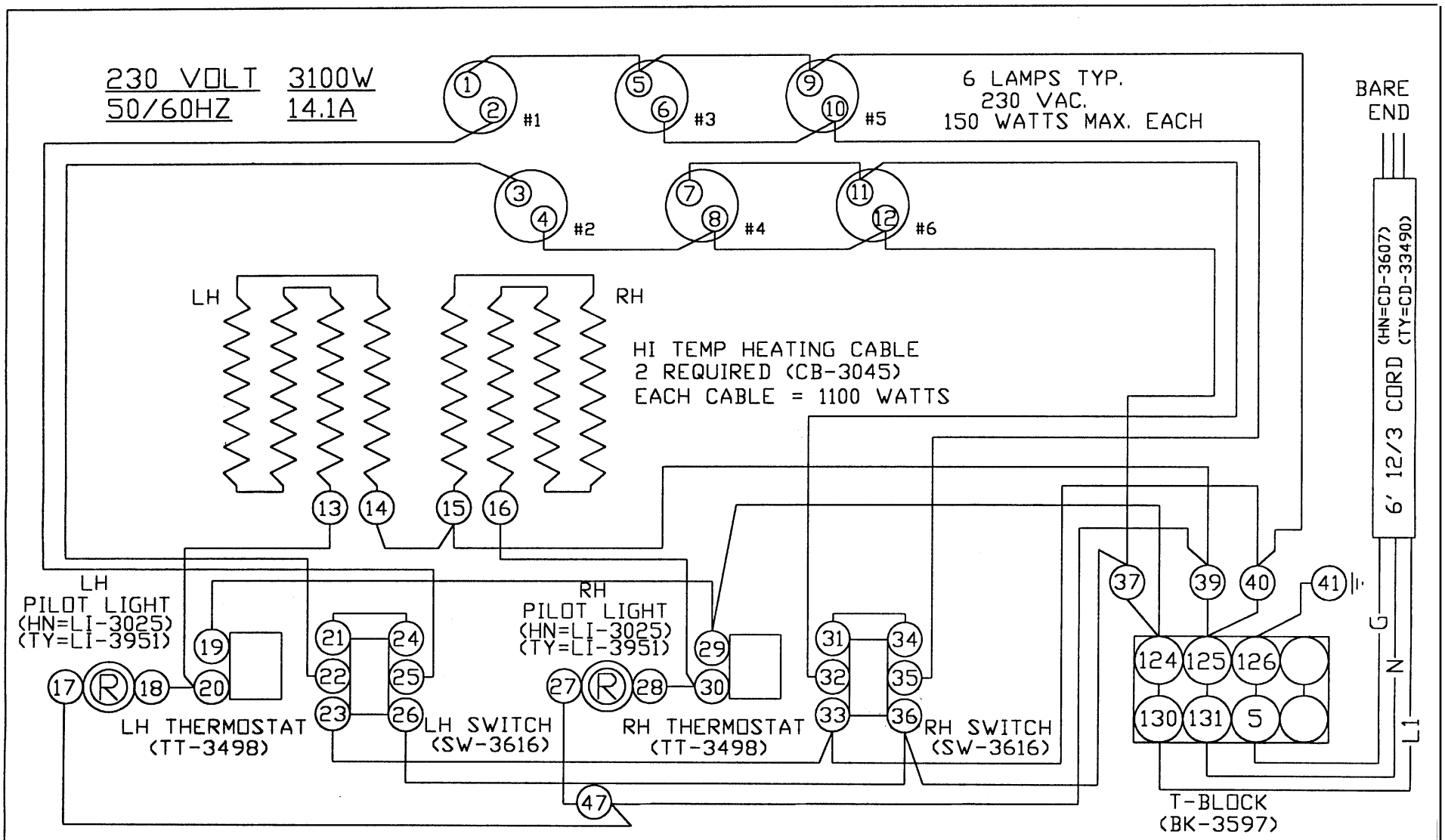
REVISIONS		
NO.	DATE	BY
1	04/04/94	LRP
2	07/19/94	RS
3	02/05/97	RS
4	01/15/01	NWW
5		

HN,TY-48,48/P 120/208-240V

WIRING DIAGRAM

ALTO-SHAAM INC.
MENOMONEE FALLS, WISCONSIN

DRAWN BY RS	SCALE 1/2"=1"	DWG. NO.
APP'D DAR	DATE 9/15/93	A-7361



NOTE #1: ALL NUMBERS IN () = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8719 FOR WIRE ASSEMBLIES

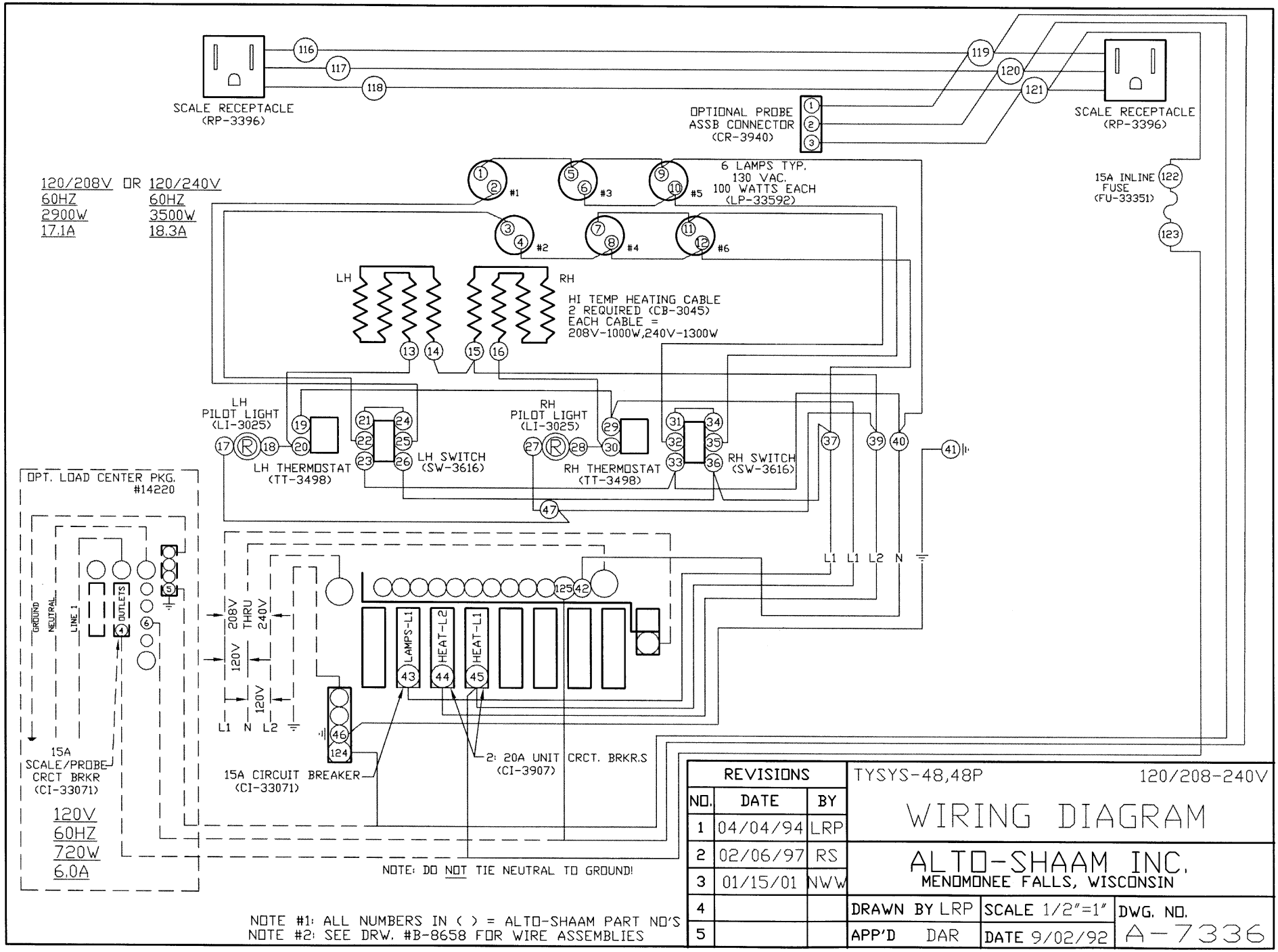
REVISIONS		
NO.	DATE	BY
1	02/06/97	RS
2	06/18/98	RS
3	03/02/99	JMM
4		
5		

HN,TY-48,48/P 230V,50HZ

WIRING DIAGRAM

ALTO-SHAAM INC.
MENOMONEE FALLS, WISCONSIN

DRAWN BY RS	SCALE NONE	DWG. NO.
APP'D MSM	DATE 11/21/94	A-7396



NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8658 FOR WIRE ASSEMBLIES

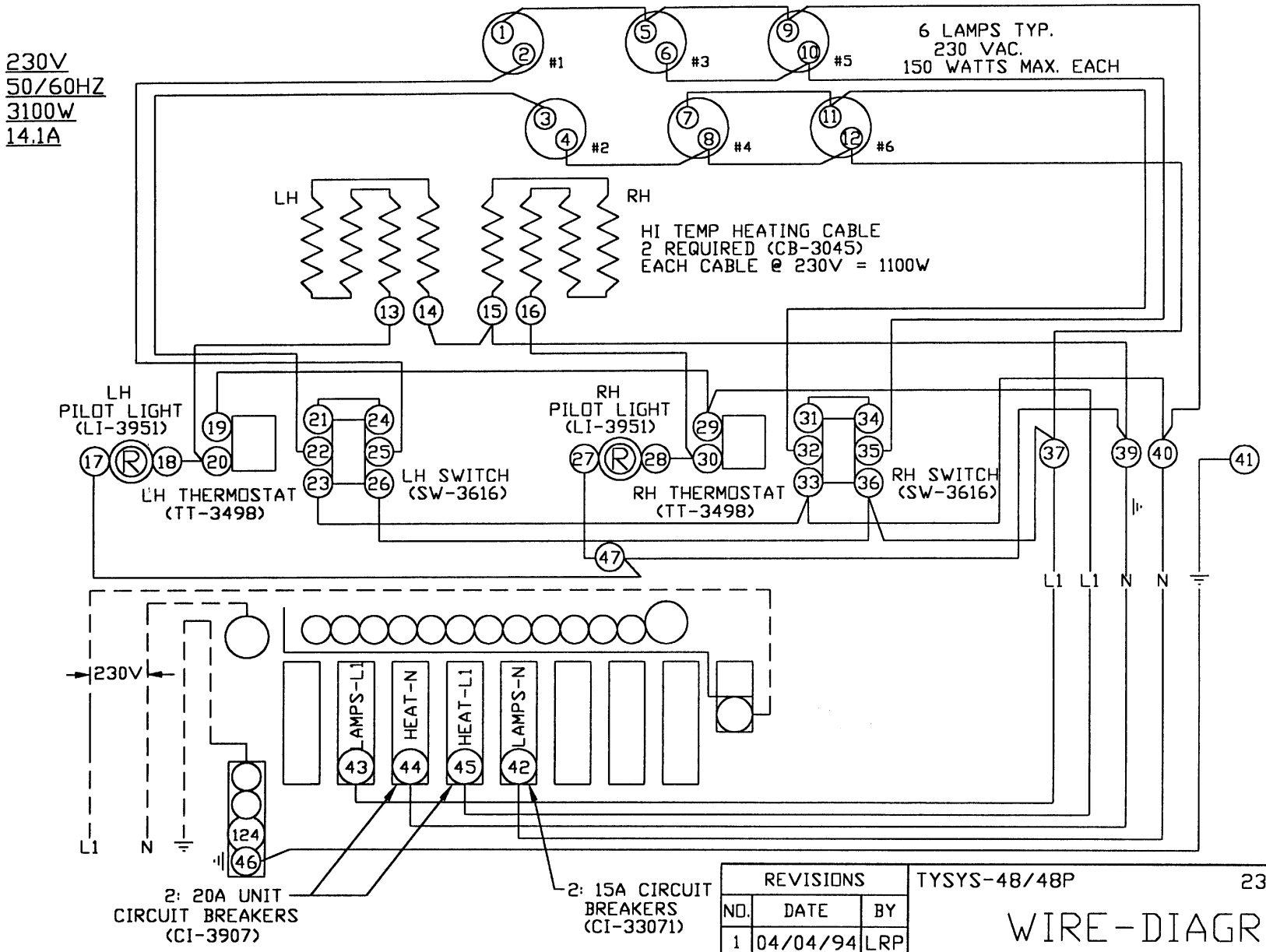
REVISIONS		
NO.	DATE	BY
1	04/04/94	LRP
2	02/06/97	RS
3	01/15/01	NWW
4		
5		

TYSYS-48,48P 120/208-240V

WIRING DIAGRAM

ALTO-SHAAM INC.
MENOMONEE FALLS, WISCONSIN

DRAWN BY LRP	SCALE 1/2"=1"	DWG. NO.
APP'D DAR	DATE 9/02/92	A-7336



REVISIONS		
NO.	DATE	BY
1	04/04/94	LRP
2	02/11/97	RS
3	06/18/98	RS
4	03/02/99	JMM
5		

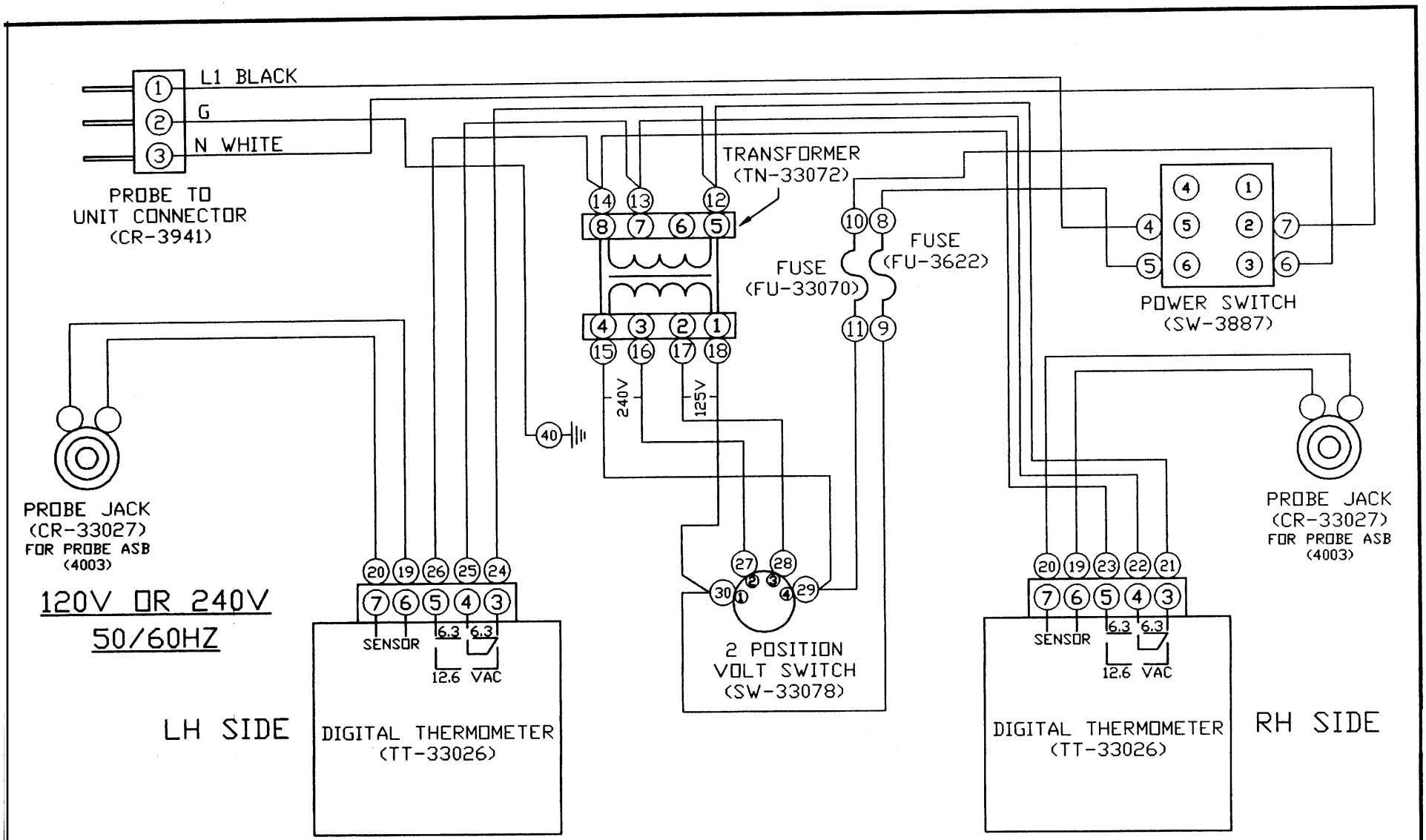
TYSYS-48/48P 230V, 50/60HZ

WIRE-DIAGRAM

ALTO-SHAAM INC.
MENOMONEE FALLS, WISCONSIN

DRAWN BY RS	SCALE 1/2"=1"	DWG. NO.
APP'D MSM	DATE 3/31/93	A-7352

NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8777 FOR WIRE ASSEMBLIES



NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NO'S
NOTE #2: SEE DRW. #B-8699 FOR WIRE ASSEMBLIES

REVISIONS		
NO.	DATE	BY
1		
2		
3		
4		
5		

HN,TY,HNSYS,TYSYS-48,48P 4' PROBE OPT
72PR,72PL

WIRING DIAGRAM

ALTO-SHAAM INC.
MENOMONEE FALLS, WISCONSIN

DRAWN BY LRP	SCALE 3/4"=1"	DWG. NO.
APP'D	DATE 04/08/94	A-7370

TRANSPORTATION DAMAGE and CLAIMS

All Alto-Shaam equipment is sold F.O.B. shipping point, and when accepted by the carrier, such shipments become the property of the consignee.

Should damage occur in shipment, it is a matter between the carrier and the consignee. In such cases, the carrier is assumed to be responsible for the safe delivery of the merchandise, unless negligence can be established on the part of the shipper.

1. Make an immediate inspection while the equipment is still in the truck or immediately after it is moved to the receiving area. Do not wait until after the material is moved to a storage area.

2. Do not sign a delivery receipt or a freight bill until you have made a proper count and inspection of all merchandise received.

3. Note all damage to packages directly on the carrier's delivery receipt.

4. Make certain the driver signs this receipt. If he refuses to sign, make a notation of this refusal on the receipt.

5. If the driver refuses to allow inspection, write the following on the delivery receipt:
   Driver refuses to allow inspection of containers for visible damage.

6. Telephone the carrier's office immediately upon finding damage, and request an inspection. Mail a written confirmation of the time, date, and the person called.

7. Save any packages and packing material for further inspection by the carrier.

8. Promptly file a written claim with the carrier and attach ***copies*** of all supporting paperwork.

We will continue our policy of assisting our customers in collecting claims which have been properly filed and actively pursued. We cannot, however, file any damage claims for you, assume the responsibility of any claims, or accept deductions in payment for such claims.

ALTO-SHAAM® LIMITED WARRANTY

Alto-Shaam, Inc. warrants to the original purchaser that any original part that is found to be defective in material or workmanship will, at our option, subject to provisions hereinafter stated, be replaced with a new or rebuilt part.

The labor warranty remains in effect one (1) year from installation or fifteen (15) months from the shipping date, whichever occurs first.

The parts warranty remains in effect one (1) year from installation or fifteen (15) months from the shipping date, whichever occurs first.

Exceptions to the one year part warranty period are as listed:

A. Halo Heat cook/hold ovens include a five (5) year parts warranty on the heating element. Labor will be covered under the terms of the standard warranty period of one (1) year or fifteen (15) months.

B. Alto-Shaam Quickchillers include a five (5) year parts warranty on the refrigeration compressor. Labor will be covered under the terms of the standard warranty period of one (1) year or fifteen (15) months.

This warranty does not apply to:

1. Calibration
2. Replacement of light bulbs and/or the replacement of display case glass due to damage of any kind.
3. Equipment damage caused by accident, shipping, improper installation or alteration.
4. Equipment used under conditions of abuse, misuse, carelessness or abnormal conditions.
5. Any losses or damage resulting from malfunction, including loss of product or consequential or incidental damages of any kind.
6. Equipment modified in any manner from original model, substitution of parts other than factory authorized parts, removal of any parts including legs, or addition of any parts.

This warranty is exclusive and is in lieu of all other warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose. In no event shall the Company be liable for loss of use, loss of revenue, or loss of product or profit, or for indirect or consequential damages. This warranty is in lieu of all other warranties expressed or implied and Alto-Shaam, Inc. neither assumes or authorizes any persons to assume for it any other obligation or liability in connection with Alto-Shaam equipment.

ALTO-SHAAM, INC.

Warranty effective January 1, 2000

Record the model and serial numbers of the unit for easy reference. Always refer to both model and serial numbers in your correspondence regarding the unit.

Model: _____

Serial Number: _____

Purchased From: _____

Date Installed: _____ Voltage: _____

HALO HEAT COOK/HOLD/SERVE SYSTEMS BY ALTO-SHAAM®

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls, Wisconsin 53052-0450 • U.S.A.

PHONE: 262.251.3800 FAX: 262.251.7067 • 800.329.8744 U.S.A./CANADA WEBSITE:
800.558.8744 U.S.A./CANADA 262.251.1907 INTERNATIONAL www.alto-shaam.com

PRINTED IN U.S.A.