

Holding Cabinets Electric

COMBI MATE
W A R M E R



20•20MW

Models:
12•20W
12•20MW
20•20W
20•20MW

- **INSTALLATION**
- **OPERATION**
- **MAINTENANCE**



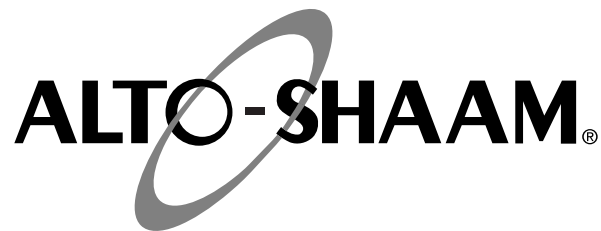
20•20W



12•20MW



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



Delivery	1
Unpacking	1
Safety Procedures and Precautions	2

Installation

Installation Requirements	3
Clearance Requirements	3
Electrical Specifications & Installation	4
Dimension Drawings, weights & capacities	5-6
User Safety Information	7

Operating Instructions

Control Set-up	8
General Holding Guidelines	9

Care and Cleaning

Cleaning and Preventative Maintenance	10
Protecting Stainless Steel Surfaces	10
Cleaning Agents	10
Cleaning Materials	10
Equipment Care	11

Sanitation

Sanitation/Food Safety	12
Internal Food Product Temperatures	12

Service

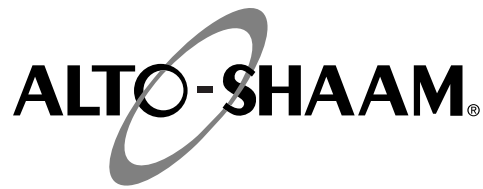
Electronic Control Accuracy	13
Trouble Shooting Guide	14
Trouble Shooting Error Codes	14
Trouble Shooting Internal Electronic Components ..	15
Service Parts List - 12.20MW & 12.20W	16
Cable Heating Kit - 12.20MW & 12.20W	16
Service View - 12.20MW & 12.20W	17
Service Parts List - 20.20MW & 20.20W	18
Cable Heating Kit - 20.20MW & 20.20W	18
Service View - 20.20MW & 20.20W	19
Service Parts List & View - Pan Carts	20

Wire Diagrams

208-240V	21
230V	22

Warranty

Transportation Damage and Claims	Back Cover
Limited Warranty	Back Cover



DELIVERY

This Alto-Shaam appliance has been thoroughly tested and inspected to ensure only the highest quality unit is provided. Upon receipt, 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.*

This appliance, complete with unattached items and accessories, may have been delivered in one or more packages. Check to ensure that all standard items and options have been received with each model as ordered.

Save all the information and instructions packed with the appliance. Complete and return the warranty card to the factory as soon as possible to ensure prompt service in the event of a warranty parts and labor claim.

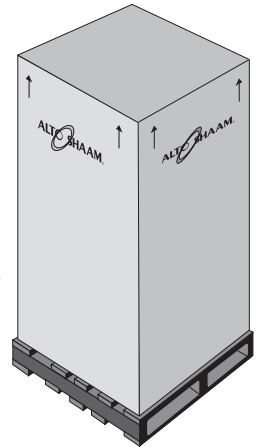
This manual must be read and understood by all people using or installing the equipment model. Contact the Alto-Shaam service department if you have any questions concerning installation, operation, or maintenance.

NOTE: All claims for warranty must include the full model number and serial number of the unit.

UNPACKING

1. Carefully remove the appliance from the carton or crate.

NOTE: Do not discard the carton and other packaging material until you have inspected the unit for hidden damage and tested it for proper operation.



2. Read all instructions in this manual carefully before initiating the installation of this appliance.

DO NOT DISCARD THIS MANUAL.

This manual is considered to be part of the appliance and is to be provided to the owner or manager of the business or to the person responsible for training operators. *Additional manuals are available from the Alto-Shaam service department.*

3. Remove all protective plastic film, packaging materials, and accessories from the appliance before connecting electrical power. Store any accessories in a convenient place for future use.

SAFETY PROCEDURES AND PRECAUTIONS

Knowledge of proper procedures is essential to the safe operation of electrically and/or gas energized equipment. In accordance with generally accepted product safety labeling guidelines for potential hazards, the following signal words and symbols may be used throughout this manual.

DANGER



Used to indicate the presence of a hazard that **WILL** cause severe personal injury, death, or substantial property damage if the warning included with this symbol is ignored.

WARNING



Used to indicate the presence of a hazard that **CAN** cause personal injury, possible death, or major property damage if the warning included with this symbol is ignored.

CAUTION



Used to indicate the presence of a hazard that can or will cause minor or moderate personal injury or property damage if the warning included with this symbol is ignored.

CAUTION

Used to indicate the presence of a hazard that can or will cause minor personal injury, property damage, or a potential unsafe practice if the warning included with this symbol is ignored.

NOTE: Used to notify personnel of installation, operation, or maintenance information that is important but not hazard related.

1. This appliance is intended to cook, hold or process foods for the purpose of human consumption. No other use for this appliance is authorized or recommended.
2. This appliance is intended for use in commercial establishments where all operators are familiar with the purpose, limitations, and associated hazards of this appliance. Operating instructions and warnings must be read and understood by all operators and users.
3. Any troubleshooting guides, component views, and parts lists included in this manual are for general reference only and are intended for use by qualified technical personnel.
4. This manual should be considered a permanent part of this appliance. This manual and all supplied instructions, diagrams, schematics, parts lists, notices, and labels must remain with the appliance if the item is sold or moved to another location.

NOTE




For equipment delivered for use in any location regulated by the following directive:

DO NOT DISPOSE OF ELECTRICAL OR ELECTRONIC EQUIPMENT WITH OTHER MUNICIPAL WASTE.

INSTALLATION

SITE INSTALLATION

1. This appliance, complete with unattached items and accessories, may be delivered in one or more packages. Check to insure that all items ordered have been received.
2. This appliance is designed for the purpose of maintaining hot food at a temperature for safe consumption. The unit must be installed on a level surface in a location that will permit the equipment to function for its intended purpose and allow adequate access for proper cleaning and maintenance.
3. The appliance must not be installed in any area where it will be affected by steam, grease, dripping water, high temperatures, or any other severely adverse conditions.
4. Level the appliance from side-to-side and front-to-back with the use of a spirit level.
 
5. In order to maintain standards established by the National Sanitation Foundation, floor models must be sealed at bottom by NSF approved sealant, or equipped with casters, or 6" (152mm) legs to provide minimum unobstructed space beneath the unit. Warranty will become null and void if these directions are not followed.

DANGER



IMPROPER INSTALLATION, ALTERATION, ADJUSTMENT, SERVICE, OR MAINTENANCE COULD RESULT IN SEVERE INJURY, DEATH, OR CAUSE PROPERTY DAMAGE.

READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.

CAUTION



TO PREVENT PERSONAL INJURY, USE CAUTION WHEN MOVING OR LEVELING THIS APPLIANCE.

CLEARANCE REQUIREMENTS

3-inches (76mm) at the back

2-inches (51mm) at the top

1-inch (25mm) at both sides

WEIGHT


	12•20MW with cart	12•20W with cart
NET	420 lb (191 kg)	420 lb (191 kg)
SHIP	515 lb (234 kg)	515 lb (234 kg)
	20•20MW with cart	20•20W with cart
NET	495 lb (225 kg)	495 lb (225 kg)
SHIP	730 lb (331 kg)	730 lb (331 kg)
CARTON DIMENSIONS:	60" x 40" x 48" (1524mm x 1016mm x 1219mm)	

INSTALLATION

ELECTRICAL CONNECTION

1. An identification tag is permanently mounted on the cabinet.
2. Plug the unit into a properly grounded receptacle ONLY. Arcing will occur when connecting or disconnecting the unit unless all controls are in the "OFF" position.
3. Position the unit so the cord is easily accessible in case of any emergencies. If necessary, a proper receptacle or outlet configuration, as required for the unit, must be installed by a licensed electrician in accordance with applicable, local electrical codes

230V:

To prevent an electrical shock hazard between the appliance and other appliances or metal parts in close vicinity, an equalization-bonding stud is provided. An equalization bonding lead must be connected to this stud and the other appliances / metal parts to provide sufficient protection against potential difference. The terminal is marked with the following symbol. 


NOTE: 230V appliances must be connected to an electrical circuit that is protected by an external GFCI outlet.

Hard wired models:


Hard wired models must be equipped with a country certified external allpole disconnection switch with sufficient contact separation.

If a power cord is used for the connection of the product an oil resistant cord like H05RN or H07RN or equivalent must be used.

DANGER




To avoid electrical shock, this appliance MUST be adequately grounded in accordance with local electrical codes or, in the absence of local codes, with the current edition of the National Electrical Code ANSI/NFPA No. 70. In Canada, all electrical connections are to be made in accordance with CSA C22.1, Canadian Electrical Code Part 1 or local codes.





DANGER



ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED SERVICE TECHNICIAN IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.




ELECTRICAL - Model 12•20 COMBIMATE						
VOLTAGE	PHASE	CYCLE/HZ	AMPS	kW	CORD & PLUG	
208-240	(AGCY) 1	50/60	16.3	3.9		NEMA L6-30P 30A-250V Plug
208	1	50/60	13.9	2.9		
240	1	50/60	16.1	3.9		
230	1	50/60	15.6	3.4	NO CORD OR PLUG	

ELECTRICAL – Model 20•20 COMBIMATE						
VOLTAGE	PHASE	CYCLE/HZ	AMPS	kW	CORD & PLUG	
208-240	(AGCY) 1	50 / 60	17.1	4.1		NEMA L6-30P 30A-250V Plug
208	1	50 / 60	14.8	3.1		
240	1	50 / 60	17.1	4.1		
230	1	50 / 60	17.0	3.9		

Wire diagrams are located under the top cover of the unit.

DANGER



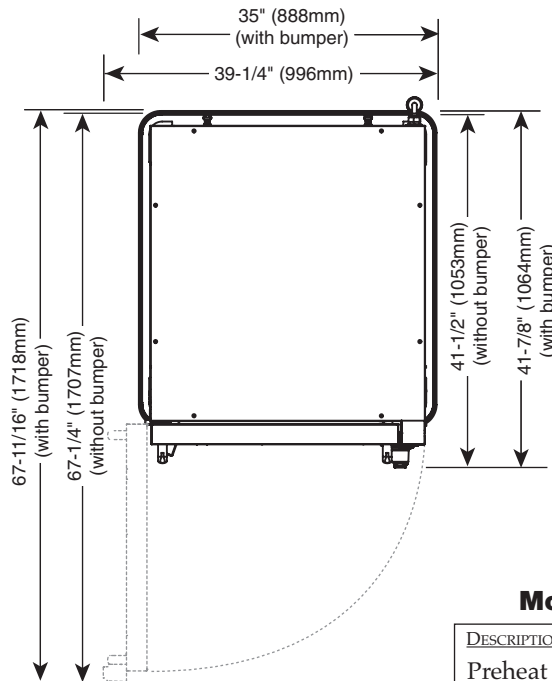
ENSURE POWER SOURCE MATCHES VOLTAGE STAMPED ON APPLIANCE NAMEPLATE.

INSTALLATION



CAUTION

**Do not operate
this holding cabinet
without
its appropriate
Roll-in Cart.**

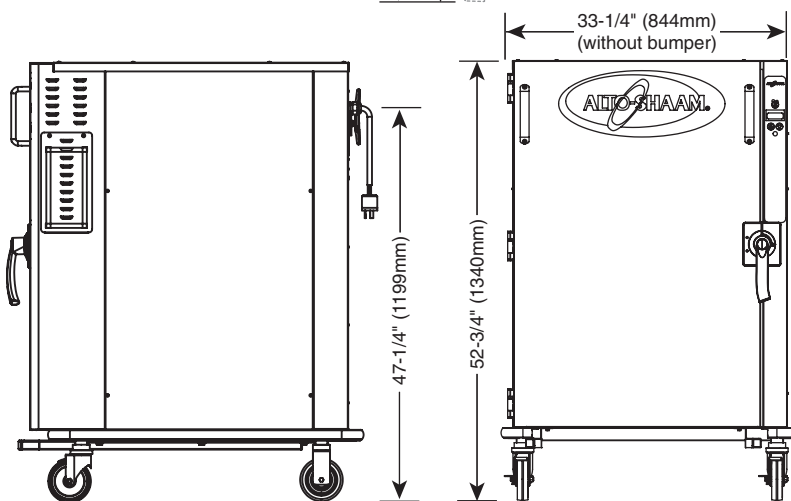


COMBI MATE
WARMER

12•20W, MW

**Max. Load Capacity
288 lbs.
(132 kg)**

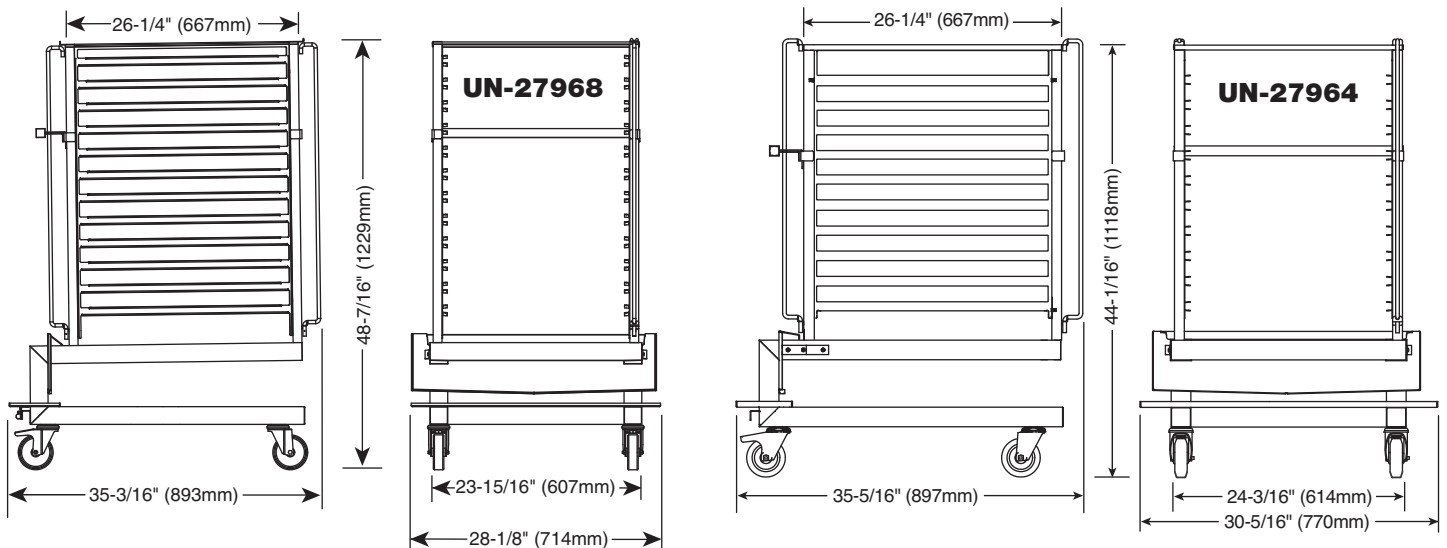
**Volume Max.
180 Quarts
(228 liters)**



Options & Accessories

Model 12•20 Combimate™ Warmers

DESCRIPTION	PART NO.
Preheat Sealing Strip	5007925
Model 12•20 Roll-in Pan Cart, electric oven ...	UN-27968
Model 10•20esG Roll-in Pan Cart, gas oven ...	UN-27964
Model 12•20 Roll-in Plate Cart, electric	UN-27969
(2-3/4" between plates)	
Model 12•20 Roll-in Plate Cart, electric	UN-28456
(3-3/4" between plates)	
Model 10•20esG Roll-in Plate Cart, gas	UN-27965
Compatible with Combitherm Model 12•20 Oven and QC-50 Quickchiller	
Stainless Steel Wire Shelves	SH-22473
(to accommodate full-size sheet pans)	



INSTALLATION

Options & Accessories

Model 20•20 Combimate™ Warmers

DESCRIPTION	PART NO.
Preheat Sealing Strip	5007925
Model 20•20 Roll-in Pan Cart	UN-27970
Model 20•20 Roll-in Plate Cart	
2-11/16" (69mm) spacing	UN-27971
3-1/2" (89mm) spacing	UN-28311
Compatible with	
Combitherm Model 20•20 Oven	
and QC-100 Quickchiller	
Stainless Steel Wire Shelves	SH-22473
(to accommodate full-size sheet pans)	

COMBI
WARMER **MATE**

20•20W, MW

Max. Load Capacity

480 lbs.

(218 kg)

Volume Max.

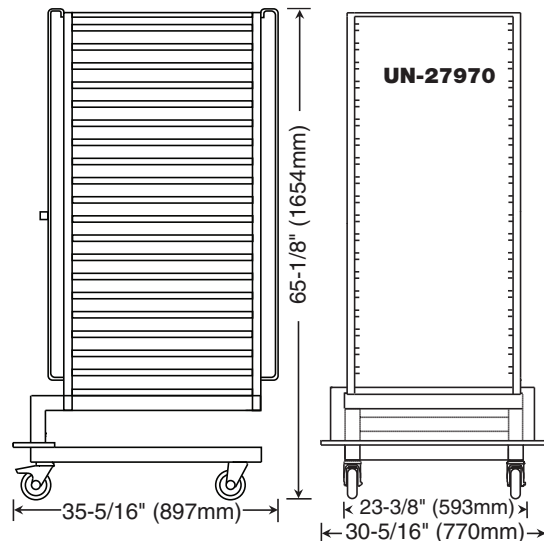
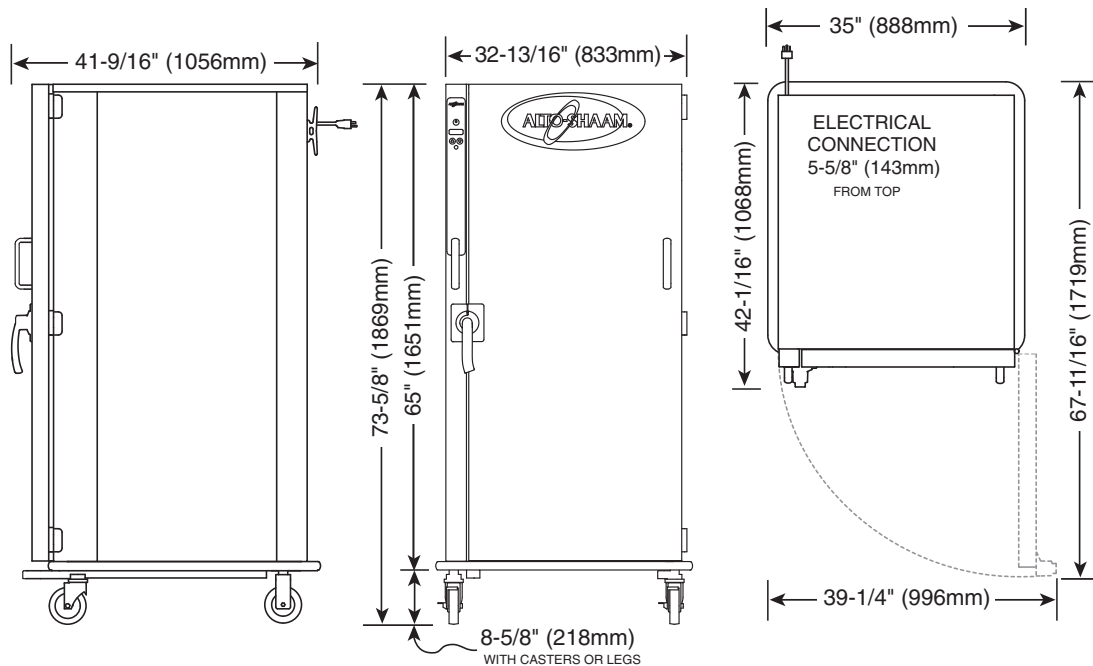
300 Quarts

(284 liters)



CAUTION

**Do not operate
this holding cabinet
without
its appropriate
Roll-in Cart.**



OPERATING INSTRUCTIONS

USER SAFETY INFORMATION

This appliance is intended for use in commercial establishments where all operators are familiar with the purpose, limitations, and associated hazards of this appliance. Operating instructions and warnings must be read and understood by all operators and users.

1. Make sure the unit is connected to the appropriate power source.
2. Use hand protection when handling hot items.
3. Preheat the unit for 30 minutes before use.
4. Be certain only hot foods are placed into the cabinet.
5. Do not operate the holding cabinet without the Roll-in Cart on Models 12•20 and 20•20.

PRODUCT\PAN CAPACITY - Model 12•20 COMBIMATE

288 lbs (132 kg) MAXIMUM

VOLUME MAXIMUM: 180 QUARTS (228 LITERS)

FULL-SIZE PANS: Twenty-four (24) 20" x 12" x 2-1/2" MAXIMUM

GN 1/1: Twenty-four (24) (530mm x 325mm x 65mm)

GN 2/1: Twelve (12) (650mm x 530mm x 65mm)

FULL-SIZE SHEET PANS: Six (6) 18" x 26" x 1"

(12 with added shelves)

PRODUCT\PAN CAPACITY - Model 20•20 COMBIMATE

480 lbs (218 kg) MAXIMUM

VOLUME MAXIMUM: 300 QUARTS (284 LITERS)

FULL-SIZE PANS: Forty (40) 20" x 12" x 2-1/2" MAXIMUM

GN 1/1: Forty (40) (530mm x 325mm x 65mm)

GN 2/1: Twenty (20) (650mm x 530mm x 65mm)

FULL-SIZE SHEET PANS: Ten (10) 18" x 26" x 1"

(20 with added Shelves)

HEATING CHARACTERISTICS

The cabinet is equipped with a special, low-heat-density heating cable. Through the Halo Heat concept, the heating cable is mounted against the walls of the warming compartment to provide an evenly applied heat source controlled by a thermostat. The design and operational characteristics of the cabinet eliminate the need for a moisture pan or a heat circulating fan. Through even heat application, the quality of a food product is maintained up to as much as several hours.

The primary purpose of the Model 12•20 and 20•20 Holding Cabinet is to operate as a functional extension of the Combitherm Combination Oven/Steamer. The combination oven is for high volume production – the Halo Heat companion holding cabinet preserves the quality and extends the longest possible holding life. The Roll-In Cart for the 12•20 and 20•20 are completely interchangeable between the Combitherm Oven and the Halo Heat Companion Holding Cabinet, along with compatible Alto-Shaam Quickchillers.

The Combitherm Combination Oven/Steamer, along with the Halo Heat companion holding cabinet and Alto-Shaam Quickchiller give the food service operator the advantage of advance full-load preparation, better work-load scheduling, and the ability to hold the product for prolonged periods without major deterioration.

BEFORE INITIAL USE:

Before operating the unit, clean both the interior and exterior with a clean, damp cloth and mild soap solution. Rinse carefully with a sponge and clean water. Clean and install the Roll-in Cart on Models 12•20 and 20•20.

OPERATING INSTRUCTIONS

CONTROL SET-UP

ON/OFF KEY



Press the on/off key once and the power indicator light will illuminate. Press and hold the on/off key until the LED display turns off (at least three seconds) and power indicator light goes out.

UP/DOWN ARROW KEY



The up and down arrow keys are used for a variety of settings when selecting the holding temperature. If an arrow key is pressed and released the display will show the current set temperature for two seconds. If an arrow key is held (at least eight seconds), the value will change at a rapid rate. If the arrow key is pressed and released in rapid succession, the set temperature will change by increments of one degree.

ENABLE/DISABLE BEEPER



A beeper sounds when an error code is displayed. To choose between beeper on and beeper off mode, the control must be off, then press and hold the down arrow key until either "on" or "off" is shown in the LED display. Release arrow key when desired mode is displayed.

FAHRENHEIT/CELSIUS

°F/°C



With the control off, to choose between Fahrenheit and Celsius, press and hold the up arrow key until either °F or °C is shown in LED display. Release key when desired setting is displayed.

The control has a four-digit LED display. When the display is on, it will show current holding temperature, as well as diagnostic information.

CONTROL LOCK



The warmer controls can be locked so that no changes can be made to the set temperature.



To lock the display, press and hold the ON/OFF key and the Up Arrow key at the same time. The lock LED will illuminate. When the lock LED is illuminated, additional programming will not be functional other than the key sequence required to unlock the panel.



To unlock the display, press and hold the ON/OFF key and the Down Arrow key at the same time. The lock LED will extinguish. The panel keys will resume normal function.

CONTROL OPERATION

1. PREHEAT AT 200°F (93°C) FOR 30 MINUTES.

Press the ON key, and set the temperature to 200°F (93°C) by using the UP/DOWN arrow keys.

Allow a minimum of 30 minutes preheating time before loading the holding cabinet with food. Closing the vents on the inside of the door will speed the preheating process. The LED heat indicator light will go "Out" after approximately 30 minutes preheat time, or when the air temperature inside the unit reaches the temperature set by the operator. The Set indicator will light up anytime the temperature is set or reset.

2. LOAD WITH HOT FOOD ONLY.

The purpose of the holding cabinet is to maintain hot food at proper serving temperature. Only hot food should be placed into the cabinet. Before loading the cabinet with food, use a food thermometer to make certain all products are at an internal temperature range of 140° to 160°F (60° to 71°C). Any food product not within the proper temperature range should be heated before loading into the holding cabinet.

3. RESET THE CONTROL TO 160°F (71°C).

Check to make certain the cabinet door is securely closed, and reset to 160°F (71°C) by using the UP/DOWN keys

THIS WILL NOT NECESSARILY BE THE FINAL SETTING.

The proper temperature range and open or closed door vent position will depend on the type and quantity of product. When holding food for prolonged periods, it is advisable to periodically check the internal temperature of each item with a food thermometer to assure maintenance of the proper temperature range of 140° to 160°F (60° to 71°C).

ELECTRONIC CABINET CONTROL (SHOWN WITH OPTIONAL PROBE)

Power ON indicator light

ON/OFF key

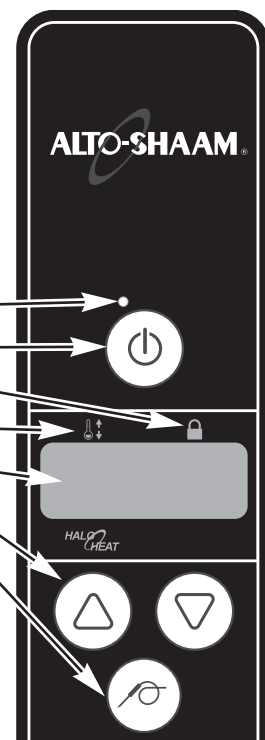
Lock indicator

Heat indicator

LED display

UP/DOWN arrow keys

PROBE key (optional)



OPERATING INSTRUCTIONS

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.

When product is removed from a high temperature cooking environment for immediate transfer into equipment with the lower temperature required for hot food holding, condensation can form on the outside of the product and on the inside of plastic containers used in self-service applications. Allowing the product to release the initial steam and heat produced by high temperature cooking can alleviate this condition. To preserve the safety and quality of freshly cooked foods however, a maximum of 1 to 2 minutes must be the only time period allowed for the initial heat to be released from the product.

This unit is equipped with a thermostat control between 60° and 205°F (16° and 96°C). If the unit is equipped with vents, close the vents for moist holding and open the vents for crisp holding. Use a metal-stemmed thermometer to measure the internal temperature of the product 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	130°F	54°C
BEEF ROAST — Med/Well Done	155°F	68°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	130°F	54°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	140° — 165°F	60° — 74°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 LISTED ARE SUGGESTED GUIDELINES ONLY. ALL FOOD HOLDING SHOULD BE BASED ON INTERNAL PRODUCT TEMPERATURES. ALWAYS FOLLOW LOCAL HEALTH (HYGIENE) REGULATIONS FOR ALL INTERNAL TEMPERATURE REQUIREMENTS.		

CLEANING AND PREVENTIVE MAINTENANCE

PROTECTING STAINLESS STEEL SURFACES



It is important to guard against corrosion in the care of stainless steel surfaces. Harsh, corrosive, or inappropriate chemicals can completely destroy the

protective surface layer of stainless steel. Abrasive pads, steel wool, or metal implements will abrade surfaces causing damage to this protective coating and will eventually result in areas of corrosion. Even water, particularly hard water that contains high to moderate concentrations of chloride, will cause oxidation and pitting that result in rust and corrosion. In addition, many acidic foods spilled and left to remain on metal surfaces are contributing factors that will corrode surfaces.

Proper cleaning agents, materials, and methods are vital to maintaining the appearance and life of this appliance. Spilled foods should be removed and the area wiped as soon as possible but at the very least, a minimum of once a day. Always thoroughly rinse surfaces after using a cleaning agent and wipe standing water as quickly as possible after rinsing.

CLEANING AGENTS

Use non-abrasive cleaning products designed for use on stainless steel surfaces. Cleaning agents must be chloride-free compounds and must not contain quaternary salts. Never use hydrochloric acid (muriatic acid) on stainless steel surfaces. Always use the proper cleaning agent at the manufacturer's recommended strength. Contact your local cleaning supplier for product recommendations.

CLEANING MATERIALS

The cleaning function can usually be accomplished with the proper cleaning agent and a soft, clean cloth. When more aggressive methods must be employed, use a non-abrasive scouring pad on difficult areas and make certain to scrub with the visible grain of surface metal to avoid surface scratches. Never use wire brushes, metal scouring pads, or scrapers to remove food residue.

 CAUTION	
 NO SCRAPERS	TO PROTECT STAINLESS STEEL SURFACES, COMPLETELY AVOID THE USE OF ABRASIVE CLEANING COMPOUNDS, CHLORIDE BASED CLEANERS, OR CLEANERS CONTAINING QUATERNARY SALTS. NEVER USE HYDROCHLORIC ACID (MURIATIC ACID) ON STAINLESS STEEL. NEVER USE WIRE BRUSHES, METAL SCOURING PADS OR SCRAPERS.
 NO WIRE BRUSHES	
 NO STEEL PADS	

CARE AND CLEANING

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



CLEAN THE UNIT THOROUGHLY AFTER EACH USE

1. Disconnect appliance from power source, and let cool.
2. Remove, cover or wrap, and store unused products under refrigeration.
3. Remove all detachable items such as plate carriers, wire shelves, side racks, and any drip pans. Clean these items separately.
4. Clean interior with a damp cloth or sponge and any good commercial detergent at the recommended strength.
5. Spray heavily soiled areas with a water soluble degreaser and let stand for 10 minutes, then remove soil with a plastic scouring pad.

NOTE: Avoid the use of abrasive cleaning compounds, chloride based cleaners, or cleaners containing quaternary salts. *Never* use hydrochloric acid (muriatic acid) on stainless steel.



DANGER



DISCONNECT UNIT FROM POWER SOURCE BEFORE CLEANING OR SERVICING.

6. Clean control panel, door vents, door handles, and door gaskets thoroughly since these areas harbor food debris.
7. Rinse surfaces by wiping with sponge and clean warm water.
8. Remove excess water with sponge and wipe dry with a clean cloth or air dry. Leave door open until interior is completely dry. Replace shelves.
9. Interior can be wiped with a sanitizing solution after cleaning and rinsing. This solution must be approved for use on stainless steel food contact surfaces.
10. To help maintain the protective film coating on polished stainless steel, clean the exterior of the cabinet 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.
11. Clean glass with a window cleaner.
12. Cart Cleaning —

Remove cart to a wash area and use any mild cleaning detergent and warm water. Handwipe all framing, slides, drip pan, and base. Thoroughly clean debris from the casters. A spray hose can be used for cart cleaning. Rinse detergent solution off with warm water. Wipe or spray with a sanitizing solution designed for use on metal and vinyl food contact surfaces. Allow cart to air dry.

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

DANGER



AT NO TIME SHOULD THE INTERIOR OR EXTERIOR BE STEAM CLEANED, HOSED DOWN, OR FLOODED WITH WATER OR LIQUID SOLUTION OF ANY KIND. DO NOT USE WATER JET TO CLEAN.



SEVERE DAMAGE OR ELECTRICAL HAZARD COULD RESULT.

WARRANTY BECOMES VOID IF APPLIANCE IS FLOODED

SANITATION

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.

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 is both cost effective and relatively simple. While HACCP guidelines go far beyond the scope of this manual, additional information is available by contacting:

**CENTER FOR FOOD SAFETY AND APPLIED
NUTRITION FOOD AND DRUG ADMINISTRATION
1-888-SAFEFOOD**

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° TO 40°F	(2° 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)

SERVICE

ELECTRONIC CONTROL ACCURACY

The electronic control is a precise instrument and is designed to offer trouble-free service. If you suspect the temperature inside the warming cabinet does not match the temperature indicated on the digital display, after stabilizing, follow the instructions listed below.

1. Check to make certain the unit voltage matches the power source. A power source less than that required to operate the unit will result in inaccurate temperatures.
2. Verify the temperature inside the holding compartment with a quality thermal indicator.
 - A. With the exception of the wire shelves, completely empty the holding compartment.
 - B. Make certain the holding cabinet sensor, located inside the holding compartment at the left side of the unit, is completely clean.
 - C. Suspend the thermal indicator in the center of the holding compartment.
 - D. Allow the temperature set on the electronic thermostat to stabilize for a minimum of one hour before comparing the digital display with the reading on the thermal indicator.

DO NOT OPEN THE CABINET DOOR(S)
DURING THE TEMPERATURE
STABILIZATION PERIOD.

If the reading on the thermal indicator does not match the digital display, there may be a problem with the air sensor. See troubleshooting guide in this manual, or call the factory service department for advice.

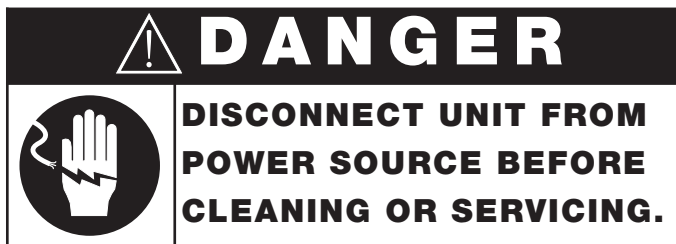
SPECIAL FEATURES

HEAT RECOVERY

The patented SureTemp™ heat recovery system in this unit will immediately compensate for any loss of heat when the door is opened. In order to maintain a more consistent cavity temperature, the control will automatically apply heat to the unit's interior while the door is open and for a short time after the door is closed. If the door remains open for more than three minutes, the solid state electronic control will sound three rapid beeps every ten seconds until the door is closed.

HACCP & KITCHEN MANAGEMENT SOFTWARE

These holding cabinets can be ordered equipped with an optional serial communication interface. The cabinets have the capability of being connected to the internet via a Gateway device. This can provide temperature recording data as well as setup and diagnostic information which can be used for HACCP documentation.



SERVICE

TROUBLESHOOTING

Error Code	Description/Results	Possible Cause Service Required
E-10	Air sensor fault (shorted)	Air sensor is shorted or defective, or there is a connection failure. See following page for air sensor test.
E-11	Air sensor fault (open)	Air sensor is open or defective, or there is a connection failure. See following page for air sensor test.
E-20	Product probe fault (shorted) <i>Oven will cook in time only</i>	Product probe is shorted or defective, or there is a connection failure. See following page for probe sensor test.
E-21	Product probe fault (open) <i>Oven will cook in time only</i>	Product Probe is open, defective, or there is a connection failure. See following page for probe sensor test.
E-30	Under temperature	The unit has been below its set temperature for 90 minutes. Check the following: Oven door may be open or door gasket may need replacement. Verify that the oven has been preheated, does not contain frozen products, and is not overloaded. Air sensor, probe, or relay may be defective, there may be a bad wire connection, an open heating cable, or the high limit switch may be tripped. Contact service if problem persists.
E-31	Over temperature	This error will display if the unit reaches a temperature of 25 degrees above its maximum allowable set point. If the unit reaches 50 degrees above its maximum allowable set point the control will turn off. Check the following: Shorted cable, defective solid state relay, or defective air sensor. If none of the above, contact service.
E-60	Real time clock error	This is likely caused by the unit having been unplugged for an extended amount of time. The data stored in the Real-Time Clock has been reset to the factory default values. Beeper volume will default to on, and the temperature scale will default to °F. Turn main breaker to the unit off for 10 seconds and then restore power. Contact service if problem persists.
E-70	Configuration connector error	Check control connections for loose wires. If none, control must be replaced.
E-78	Voltage low	Voltage below 90 VAC on a 125 VAC unit, or below 190 VAC on a 208-240 VAC unit. Correct voltage.
E-79	Voltage high	Voltage over 130 VAC on a 125 VAC unit, or over 250 VAC on a 208-240 VAC unit. Correct voltage.
E-80	Function data values were reset.	Ensure that all temperatures and times are properly set. Contact service if problem persists.
E-82	Internal control calibration error	Contact service.
E-84	EEPROM - Unit ID error	Contact service.
E-86	EEPROM - HACCP address error	If using HACCP, the unit's address has been reset to 1. Ensure that your oven is set to the correct address (1-247). Contact service if problem persists.

Troubleshooting Guide

Repairs should be made by authorized service agents only.

TROUBLE	POSSIBLE CAUSE	REMEDY
Unit does not operate.	Insufficient power supply. Defective power cord or plug.	Check power source. Check and replace if necessary.
Cannot control temperature but sensor and electronic control checks O.K.	Faulty power supply board. Faulty electronic control.	Check line voltage at terminals L and N on power supply. Check for 12V DC at terminals V+ and V- at power supply and at pins 1 and 2 at J-3 connector on board. Replace control.
Cannot control temperature but sensor and electronic control checks O.K.	Faulty relay Heating element grounded.	Test and replace or repair relay as needed. Test and replace or repair element as needed.
Temperature readout incorrect.	Dirty or faulty sensor.	Test sensor by placing in an ice water bath and checking its resistance. The reading should be 100 ohms +/-2. Repair or replace sensor as required

SERVICE

This section is provided for the assistance of qualified technicians only and is not intended for use by untrained or unauthorized service personnel. If your Alto-Shaam® unit is not operating properly, check the following before calling your Authorized Alto-Shaam® Service Agent:

- ☛ Check the power flow to the unit. Plug in outlet? Circuit breaker switch at back of unit turned on?
Do not attempt to repair or service the Holding Cabinet unit beyond this point. Contact Alto-Shaam® for the nearest authorized service agent. Repairs made by any other service agents without prior authorization by Alto-Shaam® will void the warranty on the unit.

TROUBLE SHOOTING INTERNAL ELECTRICAL COMPONENTS

A. No power. Display will not light.

1. Verify that power is available at the outlet or junction box.
2. Verify that the circuit breaker switch on the back of the unit is turned on.
3. Verify that the power cord is not open. Check continuity with a VOM meter.
4. If none of the above steps help, call a qualified service technician or refer to the Service Manual for this particular cabinet.

B. Display is lit and unit calls for heat, but unit is not heating; Error Code E-30

Check to verify that the high limit switch located at the rear of the unit top has not been tripped. If it has been tripped, reset by pressing the high limit reset button at the rear of the oven.

After resetting, the cause of the high limit trip must be corrected. If the high limit switch will not reset, the high limit switch is defective and must be replaced. *This is a safety device and must not be jumped out or removed from the circuit.*

C. To test air sensor:

Test air sensor by placing sensor in ice water bath and using an ohmmeter set on the ohm scale. The reading should be 100 ohms resistance. If it is more than 2 ohms higher or lower, sensor needs to be replaced.

D. To test probe sensor:

Test food probe by placing in ice water bath and using an ohmmeter set on the ohm scale. The reading should be 100 ohms resistance.



DANGER



**DISCONNECT UNIT FROM
POWER SOURCE BEFORE
CLEANING OR SERVICING.**

CAUTION

**THIS SECTION IS PROVIDED FOR THE ASSISTANCE
OF QUALIFIED SERVICE TECHNICIANS ONLY AND
IS NOT INTENDED FOR USE BY UNTRAINED OR
UNAUTHORIZED SERVICE PERSONNEL.**

NOTE

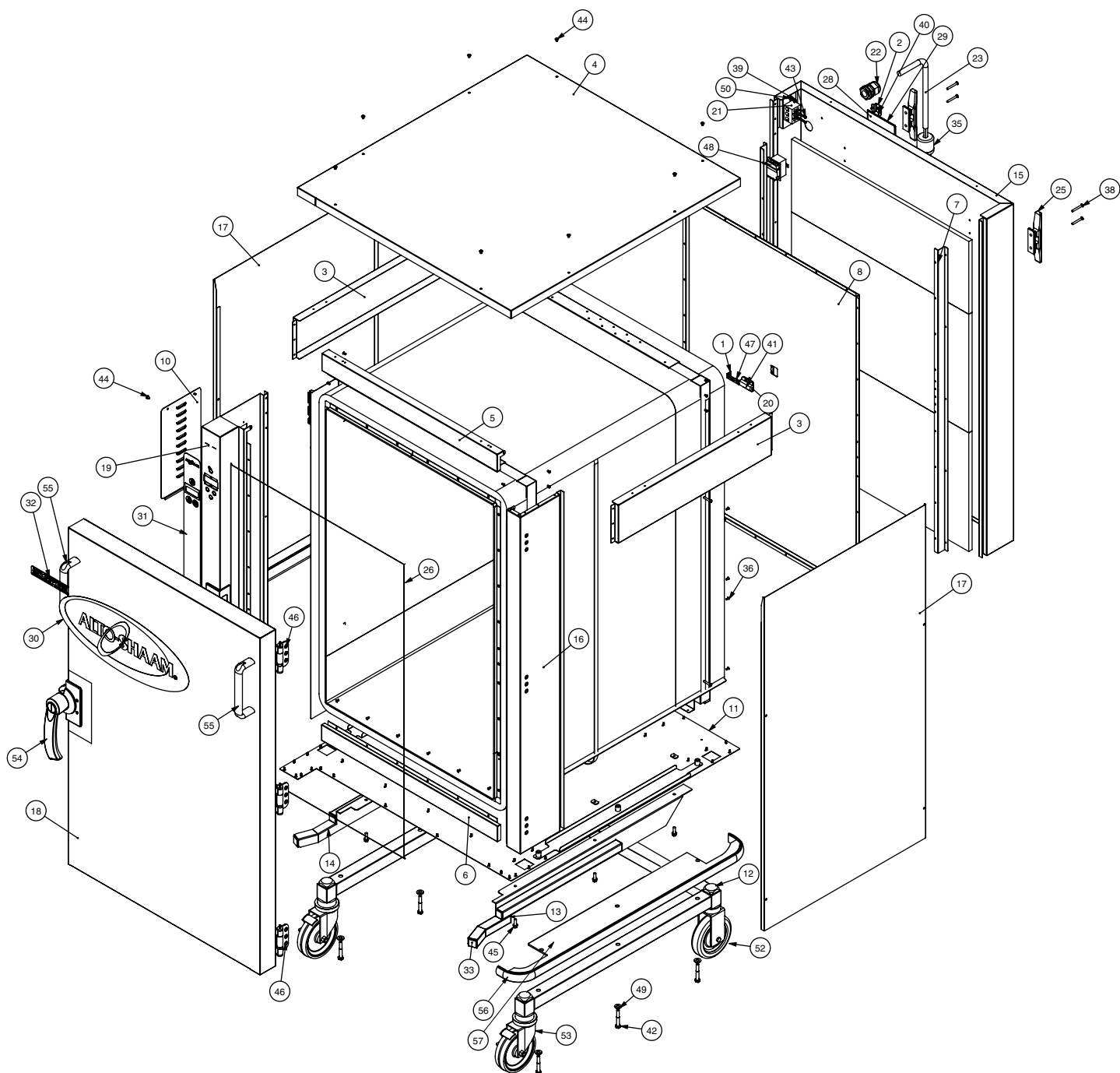
If the appliance has been unplugged for an extended period of time, the Real Time Clock may require recharging. Turn main breaker to the unit off for 10 seconds and then restore power. For more information, see Error Code E-60 in the Troubleshooting section of this manual.

SERVICE

MODEL >		12•20MW AND 12•20MW					
ITEM	DESCRIPTION	PART NO.	QTY	ITEM	DESCRIPTION	PART NO.	QTY
1	SENSOR GUARD	1493	1	27	INSULATION (NOT SHOWN)	IN-2003	2
2	HI-LIMIT PROTECTION COVER	1003936	1	28	RATING TAG LABEL	LA-26348	2
3	INNER TOP SUPPORT PANEL	1005911	2	29	LAMINATE LABEL PROTECTOR	LA-26349	1
4	RH OUTER TOP PANEL	1005914	1	30	DOOR SWIPE OVERLAY	PE-27775	1
	LH OUTER TOP PANEL	1006476	1	31	PANEL OVERLAY	PE-28379	1
5	TOP DOOR TRIM	1005917	1	32	COMBIMATE PANEL OVERLAY	PE-28806	1
6	BOTTOM DOOR TRIM	1005918	1	33	PLUG, 1" SQ TUBING	PG-22882	8
7	BACKSIDE CASING MOUNT	1008579	2	34	3/8" HOLE PLUG (NOT SHOWN)	PG-25574	1
8	INNER TUBE BACK PANEL	1008580	1	35	PLUG, 30A/250V, L6-30P, NEMX	PG-34207	1
9	HACCP PROBE COVER	1008807	1	36	RIVET, BLIND, #44, STNLS	RI-2100	134
10	ELECTRICAL ACCESS PANEL	1008928	1	37	SCREW, 8-32 x 1 (NOT SHOWN)	SC-2069	8
11	RH BOTTOM PANEL SPOT	5004775	1	38	SCREW, 10-32x1-1/2, NF, PHIL	SC-2073	4
	LH BOTTOM PANEL SPOT	5005209	1	39	10-32 x 1/4 PAN HD GRND SCREW	SC-2190	1
12	MOBILE BASE ASSB (INCLUDES CASTERS)	5004777	1	40	SCREW, PAN HEAD M4 X 7MM	SC-22271	2
13	RH TROLLEY TRACK ASSB	5004973	1	41	6-32 x 1/2" PHIL FLAT HD SCREW	SC-2239	2
14	LH TROLLEY TRACK ASSB	5004974	1	42	5/16-18 x 2" HEX HEAD	SC-22423	6
15	RH CASING BACK SPOT	5007683	1	43	6-32 x 1 1/4" ROUND HD	SC-2365	2
	LH CASING BACK SPOT	5008418	1	44	8-32 x 1/4" PHIL SCREW	SC-2459	12
16	LH CORNER POST SPOT	5007685	1	45	1/4-20 x 3/4" FLANGED HD	SC-25286	6
	RH CORNER POST SPOT	5008415		46	HINGE	HG-26015	3
17	SIDE PANEL SPOT ASSB	5007687	2	47	SENSOR, 1 3/4"L	SN-33541	1
18	RH DOOR ASSEMBLY	5007688	1	48	HI-LIMIT T-STAT, 300F	TT-33476	1
	LH DOOR ASSEMBLY	5008420	1	49	5/16 FLAT WASHER	WS-23725	6
19	RH CONTROL ASSEMBLY	5010591	1	50	STAR LOCK WASHER	WS-2467	1
	LH CONTROL ASSEMBLY	5004860	1	51	LEGS - 12.20M (NOT SHOWN)	LG-22185	4
20	SENSOR MOUNTING BLOCK	BK-24427	1	52	RIGID CASTER	CS-24874	2
21	T-BLOCK	BK-3019	1	53	SWIVEL CASTER	CS-24875	2
22	STRAIN RELIEF BUSHING	BU-33505	1	54	RH DOOR HANDLE	HD-26966	1
23	10 GA, 3 CONDUCTOR	CD-3304	10'		LH DOOR HANDLE	HD-26969	1
24	CANOE CLIP	CL-22820	2	55	PULL HANDLE	HD-22257	2
25	HANGER 6-1/2" ROPE CLEAT	E2097HR	2	56	BUMPER, RUBBER 9.5 FT.	BM-24766	1
26	DOOR GASKET	GS-28378	1	57	BUMPER	BM-27755	1

CABLE HEATING KIT #4881 12•20MW AND 12•20W

DESCRIPTION	PART NO.	QTY
CABLE HEATING ELEMENT	CB-3045	210 FT
RING CONNECTOR	CR-3226	12
INSULATION CORNER	IN-3488	1 FT
SHOULDER BUSHING	BU-3105	12
CUP BUSHING	BU-3106	12
STUD	ST-2439	12
HEX NUT	NU-2215	24
INSULATING SLEEVE	SL-3063	12
ELECTRICAL TAPE	TA-3540	1 ROLL



Part numbers and drawings are subject to change without notice.

SERVICE

MODEL >				20•20MW AND 20•20MW			
ITEM	DESCRIPTION	PART NO.	QTY	ITEM	DESCRIPTION	PART NO.	QTY
1	GUARD SENSOR	1493	1	27	U-HANDLE	HD-22257	1
2	HI-LIMIT PROTECTION COVER	1003936	1	28	INSULATION, FIBERGLASS*	IN-2003	1
3	INNER TUBE BACK PANEL	1005552	1	29	RATING TAG LABEL	LA-26348	1
4	INNER TOP SUPPORT PANEL	1005911	4	30	LAMINATE LABEL PROTECTOR	LA-26349	1
5	RH OUTER TOP PANEL	1005914	1	31	NUT, HEX #8-32 2*	NU-2296	2
	LH OUTER TOP PANEL	1006476	1	32	PANEL OVERLAY	PE-27139	1
6	TOP DOOR TRIM	1005917	1	33	DOOR SWIPE OVERLAY	PE-27775	1
7	BOTTOM DOOR TRIM	1005918	1	34	COMBIMATE PANEL OVERLAY	PE-28806	1
8	BACKSIDE CASING MOUNT	1005923	2	35	PLUG, 1" SQ TUBING	PG-22882	8
9	HACCP PROBE COVER	1008807	1	36	3/8" HOLE PLUG	PG-25574	1
10	ELECTRICAL ACCESS PANEL	1008928	1	37	PLUG, 30A/250V, L6-30P, NEMX	PG-34207	1
11	SIDE PANEL SPOT	5004561	2	38	RIVET, BLIND, #44, STNLS	RI-2100	162
12	RH POCKET DOOR ASSB	5004774	1	39	SCREW, 8-32 X 1, NC PHILLIPS PAN	SC-2069	8
	LH POCKET DOOR ASSB	5005210	1	40	SCREW, 10-32 X 3/4, NF PHIL	SC-2072	9
13	RH BOTTOM PANEL SPOT	5004775	1	41	SCREW, 10-32X1-1/2, NF, PHIL	SC-2073	4
	LH BOTTOM PANEL SPOT	5005209	1	42	SCREW, PAN HEAD M4 X 7MM	SC-22271	2
14	MOBILE BASE ASSB (INCLUDES CASTERS)	5004777	1	43	1/4-20 X 3/4" U-HANDLE SCREWS*	SC-22339	2
15	CONTROL ASSEMBLY	5004860	1	44	6-32 x 1/2" PHIL FLAT HEAD SCREW	SC-2239	2
16	RH CORNER POST WELD ASSB	5004807	1	45	5/16-18 X 2" HEX HEAD	SC-22423	6
	LH CORNER POST WELD ASSB	5005214	1	46	6-32 X 1 1/4" ROUND HD	SC-2365	2
17	RH CASING BACK SPOT	5004813	1	47	8-32 x 1/4" PHIL SCREW	SC-2459	12
	LH CASING BACK SPOT	5005217	1	48	1/4-20 X 3/4" FLANGED HD	SC-25286	6
18	RH TROLLEY TRACK ASSB	5004973	1	49	SENSOR, 1 3/4"L, QC'S, 1200/SR	SN-33541	1
19	LH TROLLEY TRACK ASSB	5004974	1	50	T-STAT, 300 F HI-LIMIT	TT-33476	1
20	SENSOR MOUNTING BLOCK*	BK-24427	1	51	WASHER, #8 EXT LOCK	WS-2333	2
21	T-BLOCK*	BK-3019	1	52	5/16 FLAT WASHER	WS-23725	6
22	STRAIN RELIEF BUSHING	BU-33505	1	53	LEG	LG-22185	4
23	10 GA, 3 CONDUCTOR	CD-3304	1	54	RIGID CASTER	CS-24874	2
24	CANOE CLIP*	CL-22820	2	55	SWIVEL CASTER	CS-24875	2
25	HANGER 6-1/2" ROPE CLEAT	E2097HR	2	56	BUMPER, RUBBER 9.5 FT.	BM-24766	1
26	DOOR GASKET	GS-28255	1	57	BUMPER	BM-27755	1

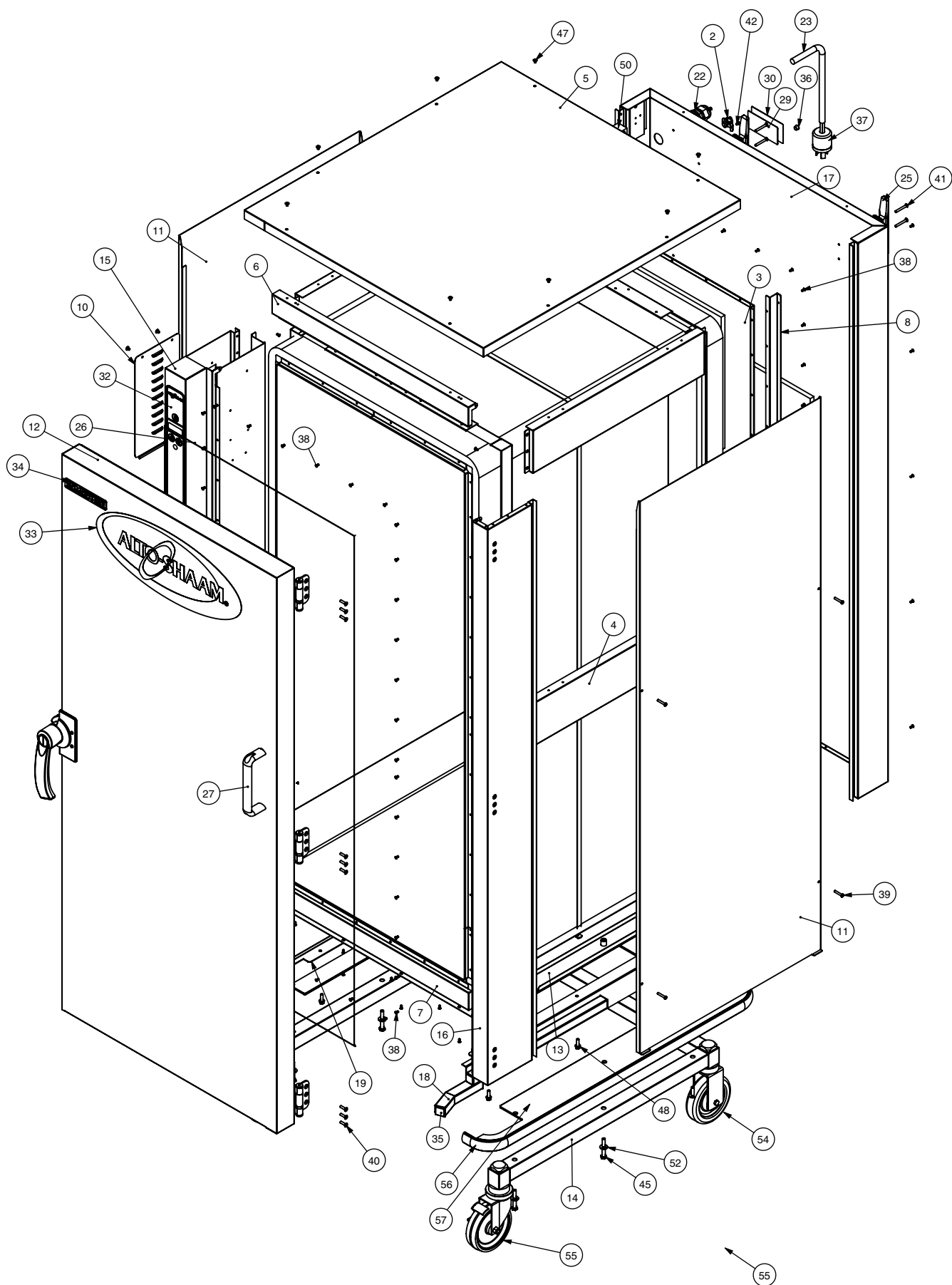
*NOT SHOWN

CABLE HEATING KIT #14228 20•20MW/20•20W - 1 KIT NEEDED

DESCRIPTION	PART NO.	QTY
CABLE HEATING ELEMENT	CB-3045	280 FT
RING CONNECTOR	CR-3226	16
INSULATION CORNER	IN-3488	1 FT
SHOULDER BUSHING	BU-3105	16
CUP BUSHING	BU-3106	16
STUD	ST-2439	16
HEX NUT	NU-2215	32
INSULATING SLEEVE	SL-3063	16
ELECTRICAL TAPE	TA-3540	1 ROLL

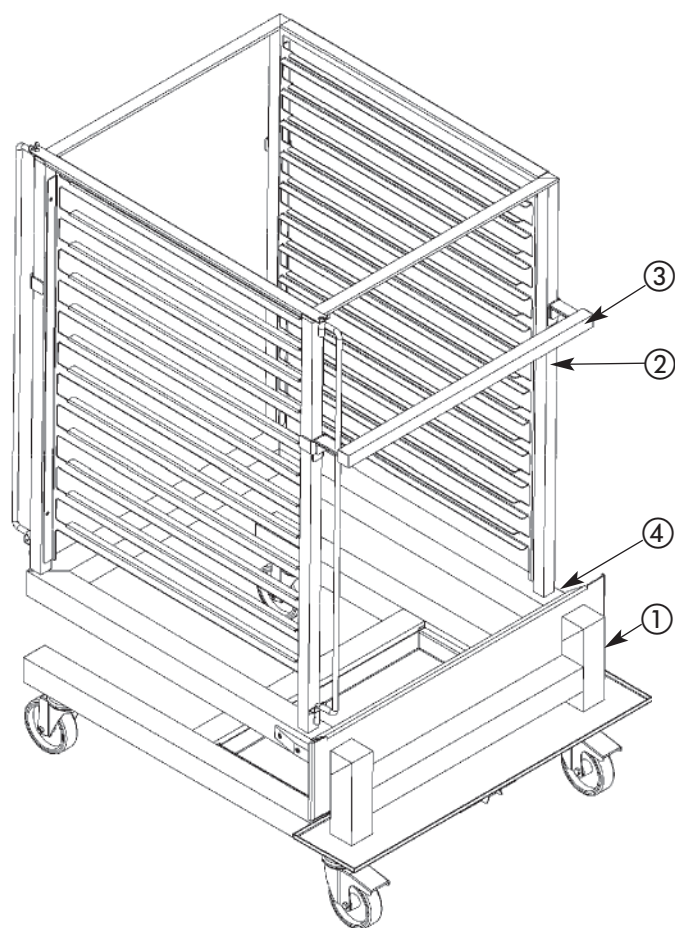
CABLE HEATING KIT #4878 20•20MW/20•20W - 1 KIT NEEDED

DESCRIPTION	PART NO.	QTY
CABLE HEATING ELEMENT	CB-3045	85 FT
RING CONNECTOR	CR-3226	4
INSULATION CORNER	IN-3488	8 FT
SHOULDER BUSHING	BU-3105	4
CUP BUSHING	BU-3106	4
STUD	ST-2439	4
HEX NUT	NU-2215	8
INSULATING SLEEVE	SL-3063	4
ELECTRICAL TAPE	TA-3540	1 ROLL



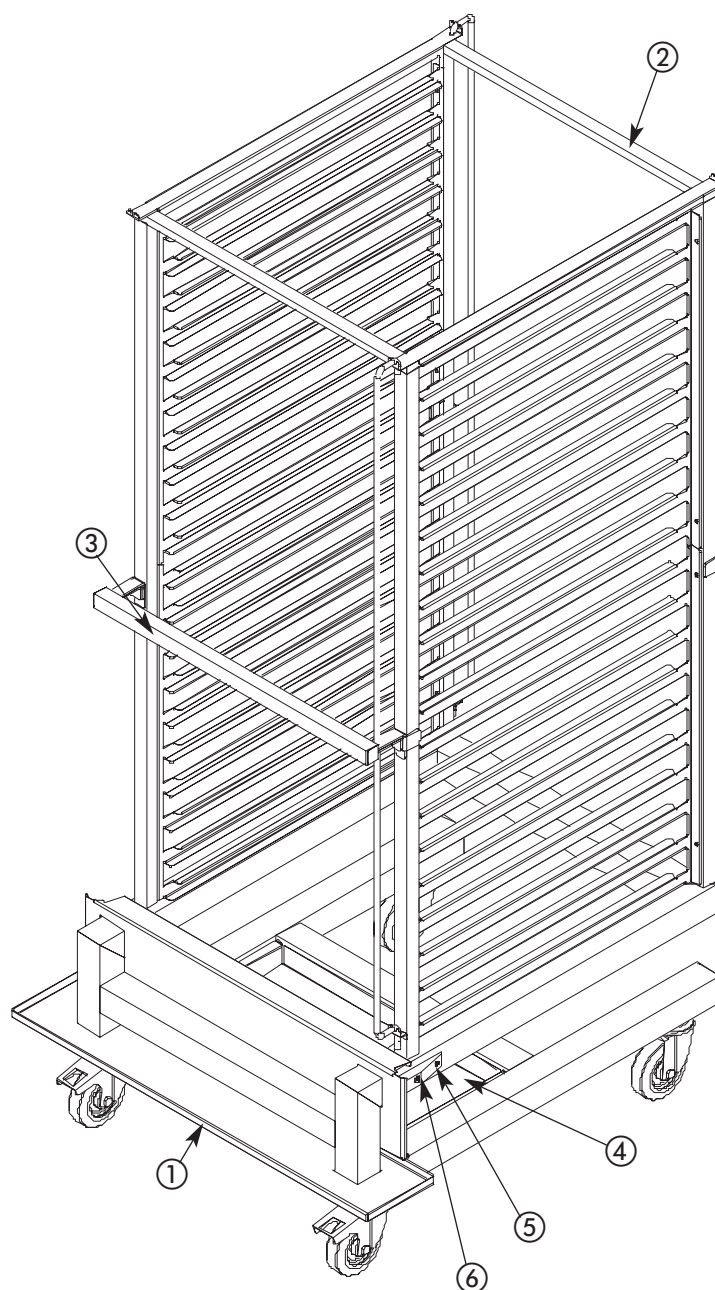
Part numbers and drawings are subject to change without notice.

12•20MW AND 12•20W SERVICE



12•20MW PAN CART

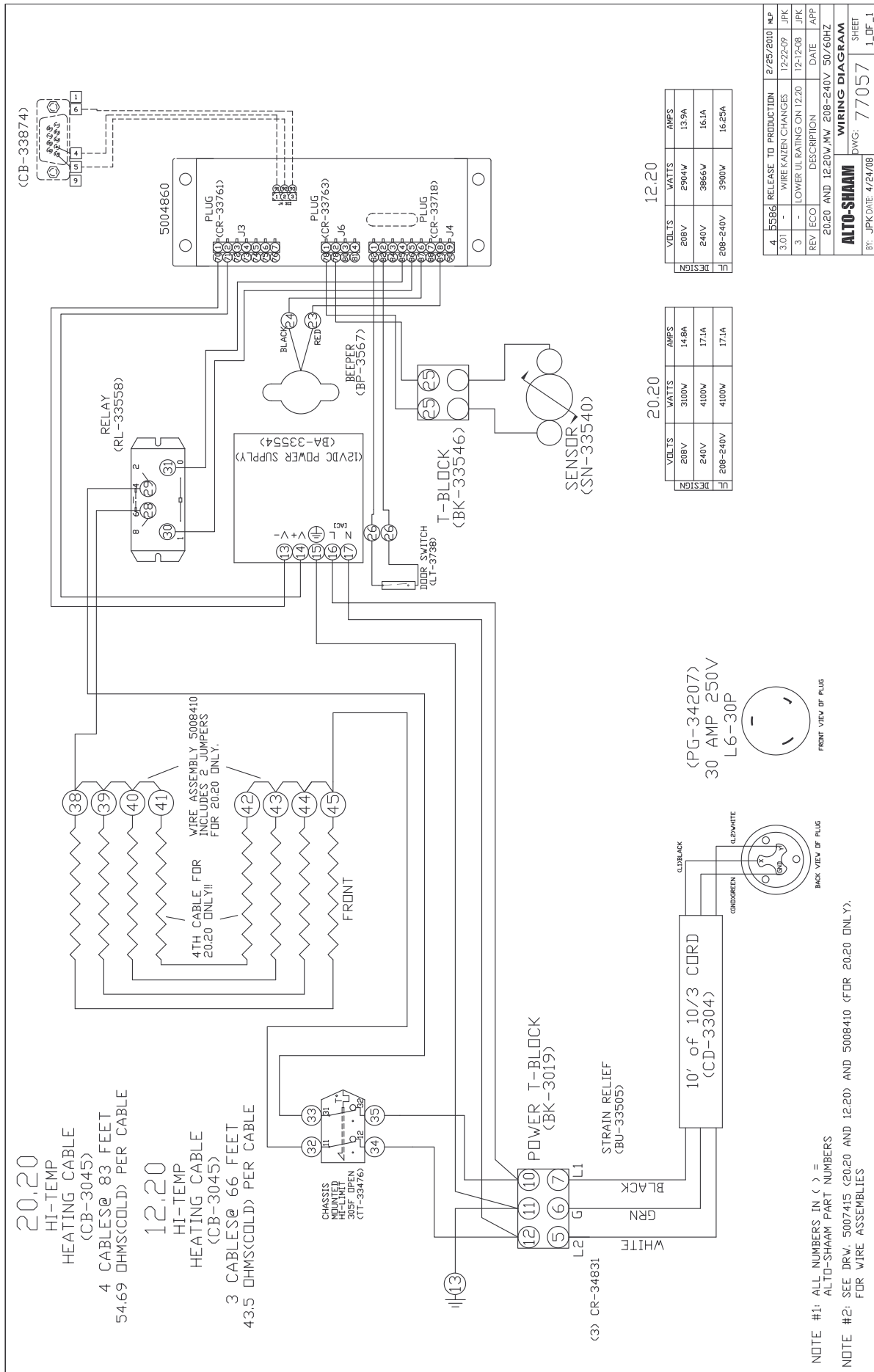
	DESCRIPTION	PART NO.	QTY
1	Trolley Base	5006095	1
2	Trolley Rack Assembly	5007289	1
3	Trolley Handle Mount	5006099	1
4	Drip Tray Collector	1007306	1



20•20MW PAN CART

	DESCRIPTION	PART NO.	QTY
1	Trolley Frame Assembly	5006095	1
2	Trolley Rack Assembly	5006007	1
3	Trolley Handle Assembly	5006099	1
4	Drip Pan	1007306	1
5	Teflon Block	BK-22100	1
6	Block Screw	SC-2072	2

Part numbers and drawings are subject to change without notice.



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.

LIMITED WARRANTY

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

The parts warranty period is as follows:

For the refrigeration compressor on Alto-Shaam Quickchillers™, five (5) years from the date of installation.

For the heating element on Halo Heat® cook/hold ovens, as long as the original purchaser owns the oven.

For all other parts, one (1) year from the date of installation or fifteen (15) months from the shipping date, whichever occurs first.

The labor warranty period is one (1) year from the date of installation or fifteen (15) months from the shipping date, whichever occurs first.

Alto-Shaam will bear normal labor charges performed during standard business hours, excluding overtime, holiday rates or any additional fees.

To be valid, a warranty claim must be asserted during the applicable warranty period. This warranty is not transferable.

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, including but not limited to, equipment subjected to harsh or inappropriate chemicals, including but not limited to, compounds containing chloride or quaternary salts, poor water quality, or equipment with missing or altered serial numbers.
5. Damage incurred as a direct result of poor water quality, inadequate maintenance of steam generators and/or surfaces affected by water quality. Water quality and required maintenance of steam generating equipment is the responsibility of the owner/operator.
6. Damage caused by use of any cleaning agent other than Alto-Shaam's Combitherm® Cleaner, including but not limited to damage due to chlorine or other harmful chemicals. **Use of Alto-Shaam's Combitherm® Cleaner on Combitherm® ovens is highly recommended.**
7. Any losses or damage resulting from malfunction, including loss of product or consequential or incidental damages of any kind.
8. 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, express or implied, including the implied warranties of merchantability and fitness for a particular purpose. In no event shall Alto-Shaam be liable for loss of use, loss of revenue or profit, or loss of product, or for any indirect, special, incidental, or consequential damages. No person except an officer of Alto-Shaam, Inc. is authorized to modify this warranty or to incur on behalf of Alto-Shaam any other obligation or liability in connection with Alto-Shaam equipment.

Effective 02/09



RECORD THE MODEL AND SERIAL NUMBER OF THE APPLIANCE FOR EASY REFERENCE.
ALWAYS REFER TO BOTH MODEL AND SERIAL NUMBER IN ANY CONTACT WITH ALTO-SHAAM REGARDING THIS APPLIANCE.

Model: _____ Date Installed: _____
Voltage: _____ Purchased From: _____
Serial Number: _____

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

PHONE: 262.251.3800 • 800.558-8744 USA/CANADA

FAX: 262.251.7067 • 800.329.8744 U.S.A. ONLY

www.alto-shaam.com

PRINTED IN U.S.A.