

# Drawer Warmers

**Electric**



500-1D



500-1DN



500-2D



500-2DN



500-3D



500-3DN

## Models:

**500-1D, 1DN**

**500-2D, 2DN**

**500-3D, 3DN**

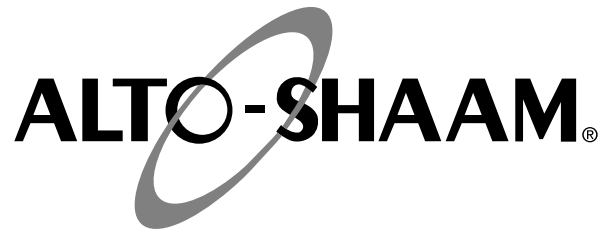
• **INSTALLATION**

• **OPERATION**

• **MAINTENANCE**



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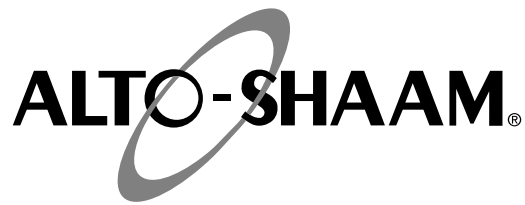
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**Wire Diagrams**

Always refer to the wire diagram(s) included with the unit for most current version.

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## 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.

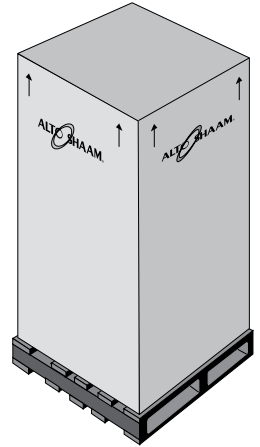
This manual must be read and understood by all people using or installing the equipment model. Contact the Alto-Shaam Tech Team Service Department if you have any questions concerning installation, operation, or maintenance.

**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 Tech Team 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.

<b>DANGER</b>	
	<b>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.</b>

<b>WARNING</b>	
	<b>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.</b>

<b>CAUTION</b>	
	<b>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.</b>

<b>CAUTION</b>	
<b>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.</b>	

**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.

<b>NOTE</b>	
	<b>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.</b>

# INSTALLATION

## 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



METAL PARTS OF THIS EQUIPMENT BECOME EXTREMELY HOT WHEN IN OPERATION. TO AVOID BURNS, ALWAYS USE HAND PROTECTION WHEN OPERATING THIS APPLIANCE.

## CAUTION



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



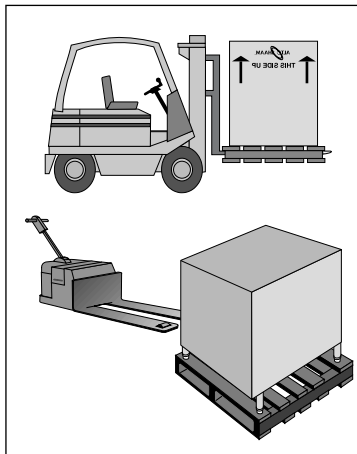
## DANGER



DO NOT store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

# SITE INSTALLATION

This Alto-Shaam appliance must be installed in a location that will permit it to function for its intended purpose and to allow adequate clearance for ventilation, proper cleaning, and maintenance access.



1. This appliance must be installed on a stable and level surface.
2. **DO NOT** install this appliance in any area where it may be affected by any adverse conditions such as steam, grease, dripping water, high temperatures, or any other severely adverse conditions.
3. This appliance must be kept free and clear of any obstructions blocking access for maintenance or service.

## MINIMUM CLEARANCE REQUIREMENTS

BACK	3" (76mm)
LEFT SIDE	1" (25mm)
RIGHT SIDE	1" (25mm)
TOP	2" (51mm)

## WEIGHT (EST.)

	500-1D	500-2D	500-3D
NET	80 lb (36 kg)	115 lb (52 kg)	150 lb (68 kg)
SHIP	90 lb (41 kg)	125 lb (57 kg)	165 lb (75 kg)

## WEIGHT (EST.)

	500-1DN	500-2DN	500-3DN
NET	67 lb (30 kg)	100 lb (45 kg)	130 lb (59 kg)
SHIP	75 lb (34 kg)	112 lb (51 kg)	145 lb (66 kg)

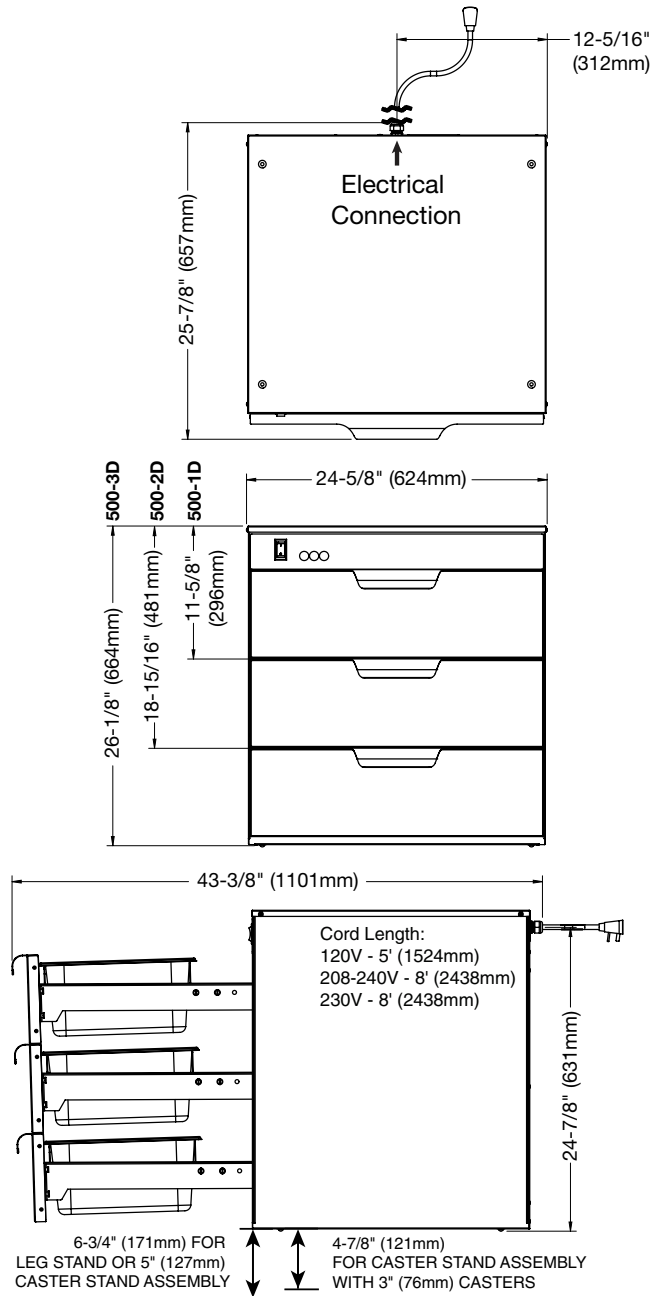
## PRODUCT CAPACITY

36 lbs (16 kg) MAXIMUM • EACH DRAWER  
(34 BAKED POTATOES, 50 DINNER ROLLS)

# INSTALLATION

## SITE INSTALLATION

### 500-1D, 500-2D, 500-3D



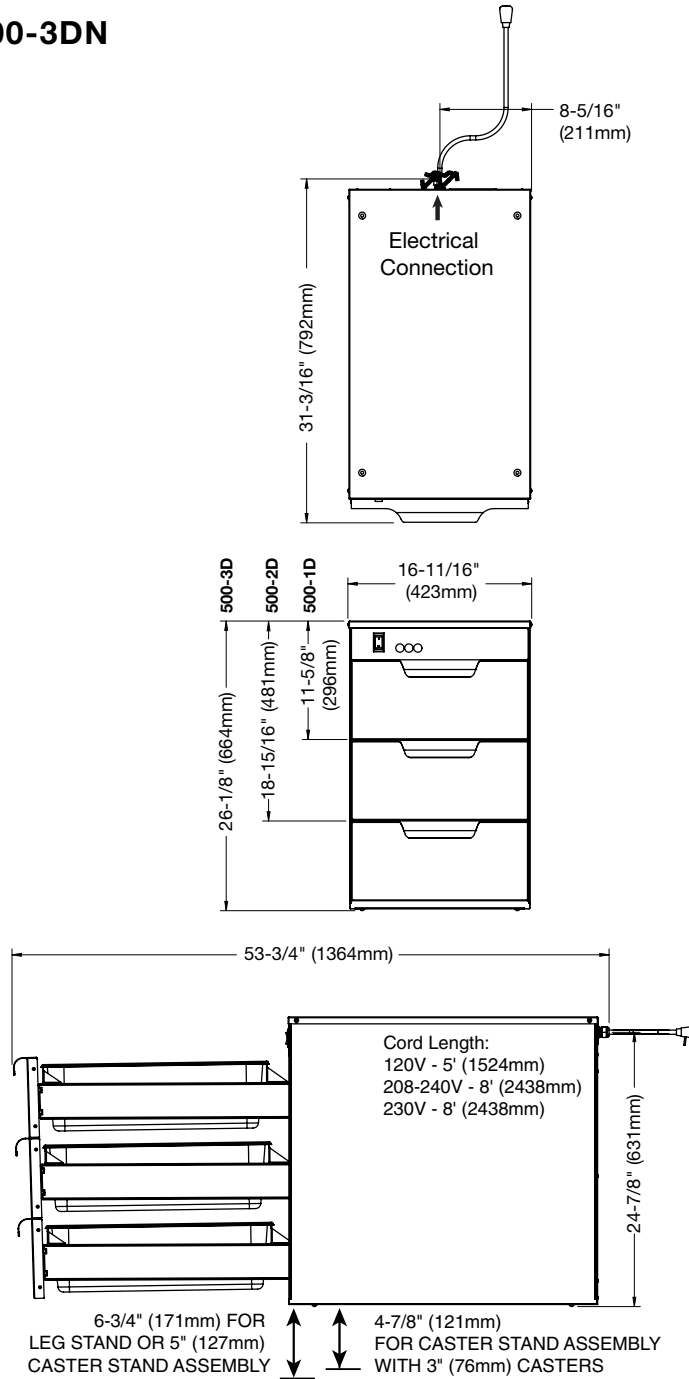
**CUTOUT DIMENSIONS (FOR UNITS WITH BUILT IN TRIM)**  
 Add 3/4" (19mm) to unit height and 1-1/2" (38mm) to unit width

OPTIONS & ACCESSORIES			
Built-in Trim Kit		Caster Stand Assembly	
500-1D	5015147	- with 5" (127mm) casters	15379
500-2D	5015149	- with 3" (76mm) casters	5010920
500-2D for BU2-48, BU2-72	5015151	Leg Stand Assembly	15380
500-2D for BU2-96	5015152	Pan, oversize, 15" x 20" x 5" (381 x 508 x 127mm)	PN-2123
500-3D	5005153	Perforated pan grid	
		15" x 20" (381mm x 508mm)	1231
		12" x 20" (305mm x 508mm)	16642

# INSTALLATION

## SITE INSTALLATION

500-1DN, 500-2DN, 500-3DN



**CUTOUT DIMENSIONS (FOR UNITS WITH BUILT IN TRIM)**  
 Add 3/4" (19mm) to unit height and 1-1/2" (38mm) to unit width

OPTIONS & ACCESSORIES			
Built-in Trim Kit		Caster Stand Assembly	
500-1DN	5015148	- with 5" (127mm) casters	55534
500-2DN	5015150	- with 3" (76mm) casters	5010921
500-3DN	5015154	Leg Stand Assembly	55535
		Perforated pan grid, 12" x 20" (305mm x 508mm)	16642

# INSTALLATION

## ELECTRICAL

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

**For CE approved units:** 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.






### 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.

**NOTE:** Where local codes and CE regulatory requirements apply, appliances must be connected to an electrical circuit that is protected by an external GFCI outlet.

ELECTRICAL						
VOLTAGE	PHASE	CYCLE/HZ	AMPS	kW		
120	1	60	5.3	0.64		NEMA 5-15P 15A, 125V PLUG
208-240	1	60	2.7	0.64		NEMA 6-15P 15A, 250V PLUG
230	1	50/60	2.6	0.59		CEE 7/7, 220-230V PLUG

Wire diagrams are located inside the bonnet of the unit.

## 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.



## DANGER



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

## 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.



# INSTALLATION

## 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 unit.**

### BEFORE INITIAL USE:

Before operating the unit, clean both the interior and exterior of the unit with a clean, damp cloth and mild soap solution. Rinse carefully. Clean and install the drawer warmer pan(s). The drawer assembly is completely removable. Clean as a sanitation measure.

### HEATING CHARACTERISTICS

The drawer warmer is equipped with a special heating element. Through this Halo Heat concept, the heating element is mounted against the walls of the unit to provide an evenly applied heat source controlled by a digital control. The design and operational characteristics of the unit eliminate the need for a moisture pan or a heat circulating fan. Through even heat application, the quality of food products is maintained up to several hours or more.

### FOOD PRODUCT TIPS

#### Bread and Rolls

Breads and rolls are traditionally difficult to hold for prolonged periods due to the very low moisture content of these products. For best results and longest possible holding life, it is recommended these products be placed in a plastic bag while in the warming drawer. Breads and rolls should be held at a temperature no higher than 120° to 140°F (49° to 60°C).

#### Potatoes

For the best results when holding potatoes:

##### 1. Do not overcook.

Regardless of the temperature at which potatoes are cooked or what type of oven is used, it is important that this product does not achieve a final internal product temperature in excess of 195°F (91°C). Over-cooking will further reduce the moisture content and consequently, reduce the holding life. Potatoes should be removed from the oven when they reach an internal temperature of approximately 190°F (88°C). After they are removed from the oven, the internal temperature will continue to increase.

##### 2. Allow potatoes to stabilize before placing in drawer warmer.

When potatoes are removed from a conventional high-temperature oven, they have an extremely high surface temperature. If they are placed in the drawer warmer while they are this hot on the outside, moisture will be pulled from the inside of the potato and condensation will form on the outside. Holding results under these conditions will not be totally satisfactory. Remove potatoes from the oven and allow the surface temperature to stabilize before placing them in the controlled holding atmosphere of the drawer warmer.

# OPERATION

## OPERATING INSTRUCTIONS

### 1. PREHEAT AT 200°F (93°C) FOR 30 MINUTES BEFORE LOADING FOOD.

Push power switch to "ON" position. The unit will begin operating at the previous set temperature.

2. Press the **Up** or **Down Arrow Keys** to 200°F (93°C). Pressing and releasing the Arrow Keys will increase the set point by 1 degree. Pressing and holding the Arrow Key will increase set point by 10 degrees. When Arrow Key is released, a new set point temperature is set. The *Set* temperature will appear in the **Digital Display** and the **Heat Indicator Light** will illuminate. Press the **Temperature Display Key** for three seconds at any time to display the *Actual* inside air temperature.

#### To toggle between *Set* and *Actual*:

Factory default is to display *Set* temperature in the **Digital Display**. To display *Actual* temperature:

Press and hold the **Temperature Display Key** and the **Up Arrow Key** for 5 seconds. The control will show **ACT**, then show the *Actual* temperature.

Repeat to toggle to *Set* point **SET**.

Press the **Temperature Display Key** at any time to display the alternate temperature.

3. When the inside air temperature reaches the desired holding temperature, the **Heat Indicator Light** will turn off.
4. **Load the cabinet with hot food only.** The purpose of the holding cabinet is to maintain hot food at proper serving temperatures. Only hot food should be placed into the cabinet. Before loading the unit with food, use a food thermometer to make certain all food products are at an internal temperature range of 140° to 160°F (60° to 71°C). All food not within the proper temperature range should be heated before loading into the holding cabinet.

5. Check to make certain the cabinet drawer is securely closed, and using the **Up** and **Down Arrow Keys**, set the temperature to 160°F (71°C).

**THIS WILL NOT NECESSARILY BE THE FINAL SETTING.**

The proper temperature range for the food being held will depend on the type and quantity of product. Whether or not the optional drawer vents should be open or closed will also depend on the type of food being held. When holding food for prolonged periods, it is advisable to periodically check the internal temperature of each item to assure maintenance of the proper temperature range. Reset the holding temperature accordingly.

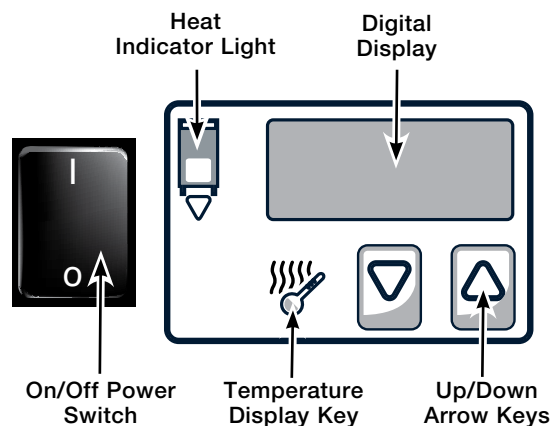
### TO TOGGLE BETWEEN FAHRENHEIT AND CELSIUS

Press the **Temperature Display Key** at any time to display the alternate temperature.

The factory default is Fahrenheit. To change to Celsius:

1. Press and hold the **Temperature Display Key** and the **Down Arrow Key** for 5 seconds.
2. The control will show **℥** for 3 seconds to verify selection and then show the temperature. (Set Point or Actual, whichever the user has selected) in °C.
3. Repeat to toggle to Fahrenheit.

*Note: With a power failure, factory test, etc., the control will retain the °C or °F setting selected by the user when power is restored.*



# OPERATION

## GENERAL HOLDING GUIDELINES

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. 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.

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.

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
<b>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.</b>		

# CARE AND CLEANING

## CLEANING AND PREVENTATIVE 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.

 <b>CAUTION</b>	
	<b>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.</b>
	
	

# CARE AND CLEANING



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

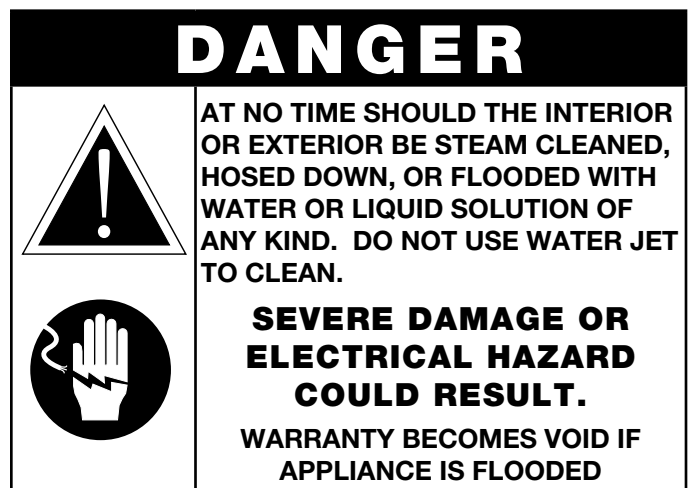
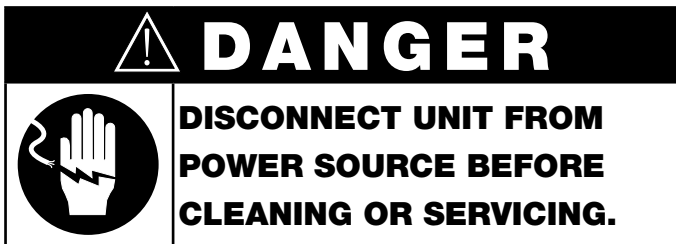
## THOROUGHLY CLEAN DAILY:

1. Disconnect unit from power source, and let cool.
2. Remove, cover or wrap, and refrigerate food.
3. Remove drawer pans and clean separately. The drawer assembly is completely removable. Remove from the cabinet and clean to prevent a build-up of food residue from interfering with the function of the drawer assembly. Regular cleaning will help prolong the life of these parts.
4. Clean interior metal surfaces of the unit with a damp, clean cloth and any good commercial detergent or grease solvent at the recommended strength. Use a plastic scouring pad or oven cleaner for difficult areas. Rinse carefully to remove all residue and wipe dry.
5. Wipe control panel, vents, handles, and gaskets thoroughly since these areas harbor food debris.
6. 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.
7. 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.



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

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.



# 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 not 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		
<b>HOT FOODS</b>		
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)
<b>COLD FOODS</b>		
DANGER ZONE	ABOVE 40°F	(ABOVE 4°C)
SAFE ZONE	36° TO 40°F	(2° TO 4°C)
<b>FROZEN FOODS</b>		
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)

# SANITATION

## THERMOSTAT ACCURACY

The electronic thermostat is a precise instrument and is designed to offer trouble free service. If you suspect the temperature inside the holding compartment does not match the temperature indicated on the digital display, 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. Completely empty the holding compartment.
  - b. Make certain the holding cabinet sensor, located inside the holding compartment, 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 DRAWER(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.

 <b>DANGER</b>	
	<b>DISCONNECT UNIT FROM POWER SOURCE BEFORE CLEANING OR SERVICING.</b>

<b>CAUTION</b>
<b>THIS SECTION IS PROVIDED FOR THE ASSISTANCE OF QUALIFIED SERVICE TECHNICIANS ONLY AND IS NOT INTENDED FOR USE BY UNTRAINED OR UNAUTHORIZED SERVICE PERSONNEL.</b>



## TROUBLESHOOTING

*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 main power circuit breaker to the unit and verify that the circuit breaker on the back of the unit is turned on, if applicable.

*Do not attempt to repair or service the 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.*

 <b>DANGER</b>	
	<b>DISCONNECT UNIT FROM POWER SOURCE BEFORE CLEANING OR SERVICING.</b>

<b>CAUTION</b>
<b>THIS SECTION IS PROVIDED FOR THE ASSISTANCE OF QUALIFIED SERVICE TECHNICIANS ONLY AND IS NOT INTENDED FOR USE BY UNTRAINED OR UNAUTHORIZED SERVICE PERSONNEL.</b>

# INSTALLATION

## TROUBLE SHOOTING - ELECTRONIC CONTROL

Code	Description	Possible Cause
E-10	<b>Cavity air sensor shorted</b>	Cavity air sensor reading < 5°F. Verify sensor integrity. See sensor test instructions below.
E-11	<b>Cavity air sensor open</b>	Cavity air sensor reading > 517°F. Verify sensor integrity. See sensor test instructions below.
E-20	<b>Product probe is shorted</b> <i>Oven will cook in time only</i>	Product probe reading < 5°F. Verify sensor integrity. See sensor test instructions below.
E-21	<b>Product probe is open</b> <i>Oven will cook in time only</i>	Product Probe reading > 517°F. Verify sensor integrity. See sensor test instructions below.
E-30	<b>Under temperature</b>	Unit has not reached (set-point - 25°F) for more than 90 minutes.
E-31	<b>Over temperature</b>	Unit has been higher than 25°F above the maximum cavity set-point for more than 2 minutes. <b>Note:</b> Holding Cabinets with this error code are more than 145°F higher than the maximum set-point.
E-50	<b>Temp. measurement error</b>	Contact factory.
E-51	<b>Temp. measurement error</b>	Contact factory.
E-60	<b>Real time clock error</b>	Data set to factory default. Ensure that date and time are correct if applicable.
E-61	<b>Real time clock error</b>	Contact factory.
E-64	<b>Clock is not oscillating</b>	Contact factory.
E-70	<b>Configuration connector error (DIP switch)</b>	Refer to wiring diagram for the particular model and ensure dip switches on the control match the settings called out on the WD. If the dip switch settings are correct according to the print replace the control.
E-78	<b>Voltage low</b>	Voltage below 90 VAC on a 125 VAC unit, or below 190 VAC on a 208-240 VAC unit. Correct voltage.
E-79	<b>Voltage high</b>	Voltage over 135 VAC on a 125 VAC unit, or over 250 VAC on a 208-240 VAC unit. Correct voltage.
E-80	<b>EEPROM Error</b>	Ensure that all temperatures and times are properly set. Contact factory if problem persists.
E-81	<b>EEPROM Error</b>	Contact factory.
E-82	<b>EEPROM Error</b>	Contact factory.
E-83	<b>EEPROM Error</b>	Contact factory.
E-85	<b>EEPROM Error</b>	All timers, if previously on, are now off. Possible bad EEPROM.
E-86	<b>EEPROM Error</b>	Stored HACCP memory corrupted. HACCP Address reset to 1. Possible bad EEPROM. Contact factory if problem persists.
E-87	<b>EEPROM Error</b>	Stored offsets corrupted. Offsets reset to 0. Control may need a recalibration. Possible bad EEPROM. Contact factory if problem persists.
E-88	<b>EEPROM Error</b>	All timer set-points are reset to 1 minute. Timers, if previously on, are now off. Possible bad EEPROM.
E-90	<b>Button stuck</b>	A button has been held down for >60 seconds. Adjust control. Error will reset when the problem has been resolved.
E-dS	<b>Datakey error</b>	Datakey digital signature incompatible. Cycle power, and install compatible Datakey if error persists.
E-dT	<b>Datakey error</b>	Datakey incompatible with control. Install compatible Datakey.
E-dU	<b>Datakey unplugged</b>	Install Datakey and cycle power to control to clear error.
dLto	<b>Datalogger has timed out</b>	Cycle power. Contact factory if error persists.
dLSD	<b>Micro SD card not plugged in</b>	Plug in SD card and cycle power. Contact factory if error persists.

*Note: If in doubt, always cycle the power to the control and contact factory if the problem persists.*

### To test probe and air sensor:

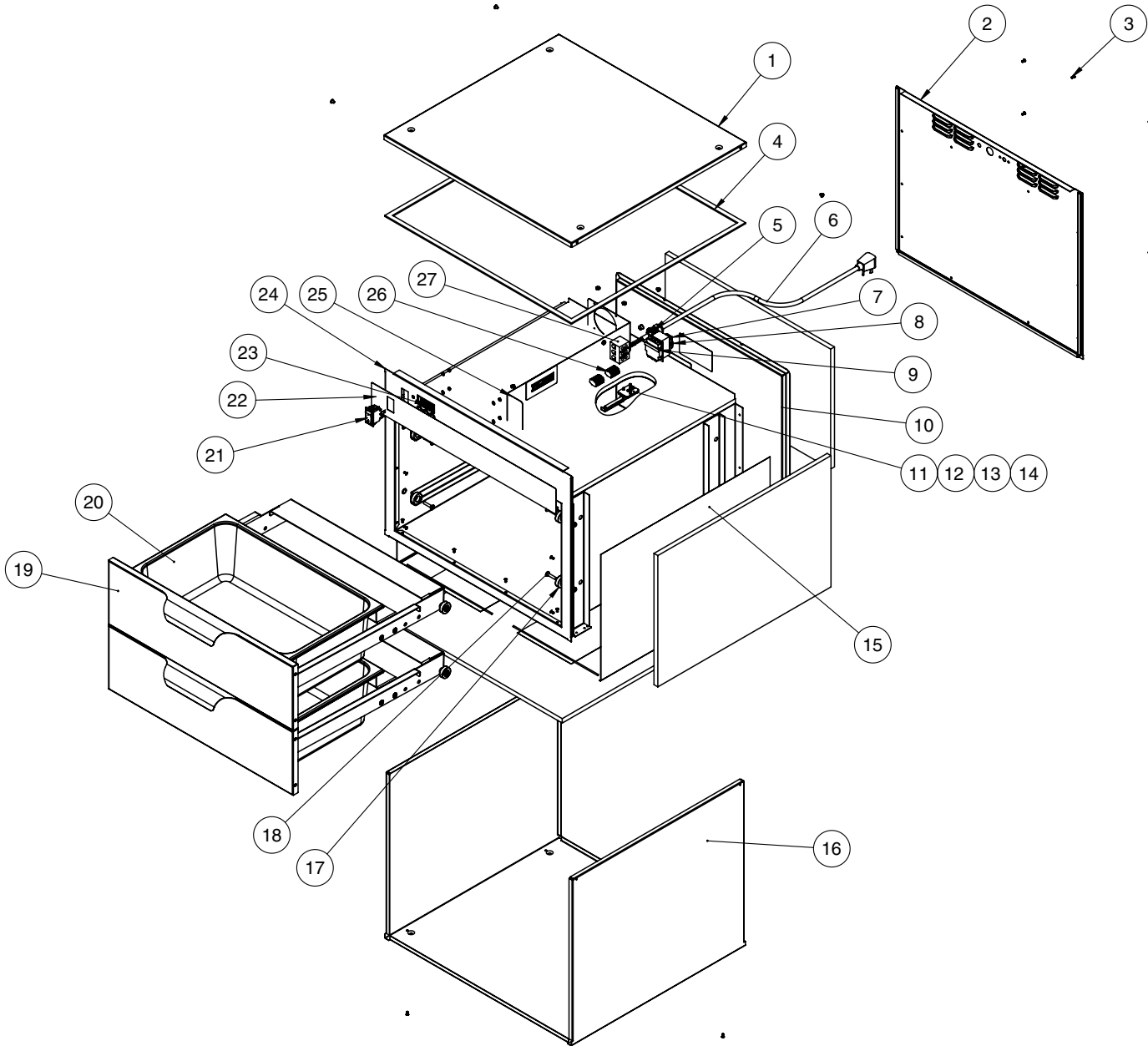
Test probe and air sensor by placing sensor in ice water bath and using an ohmmeter set on the ohm scale. The reading should be 100 ohms resistance. If it is more than 2 ohms higher or lower, sensor needs to be replaced.



# SERVICE

## SERVICE VIEW - EXTERIOR

500-2D Shown



Part numbers and drawings are subject to change without notice.

# SERVICE

## SERVICE VIEW - EXTERIOR PARTS LIST

MODEL >		500-1D		500-2D		500-3D	
ITEM	DESCRIPTION	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY
1	TOP COVER	1012473	1	1012473	1	1012473	1
2	REAR TRIM	1012665	1	1012674	1	1012446	1
3	RIVET, BLIND, #44, S/S 28	RI-2100	24	RI-2100	28	RI-2100	30
4	GASKET ADHESIVE 0.125 x 0.375 [lin ft]	GS-23622	8	GS-23622	8	GS-23622	8
5	BUSHING, STRAIGHT, STRAIN RELIEF	BU-3964	1	BU-3964	1	BU-3964	1
6	CORDSET, 120V - 5' (1524mm)	CD-3232	1	CD-3232	1	CD-3232	1
	CORDSET, 208-240V - 8' (2438mm)	CD-3551	1	CD-3551	1	CD-3551	1
	CORDSET, 230V - 8' (2438mm)	CD-3922	1	CD-3922	1	CD-3922	1
7	HI-LIMIT PROTECTION COVER	1003936	1	1003936	1	1003936	1
8	SCREW, M4-0.7X6MM PHIL	SC-22271	2	SC-22271	2	SC-22271	2
9	HI-LIMIT THERMOSTAT	TT-33476	1	TT-33476	1	TT-33476	1
10	INNER BACK PANEL	1012667	1	1012673	1	1012439	1
11	BRACKET, SENSOR MOUNTING	1008272	1	1008272	1	1008272	1
12	SENSOR, MOUNTING BLOCK	BK-27878	1	BK-27878	1	BK-27878	1
13	PROBE, TEMPERATURE SENSOR	PR-34494	1	PR-34494	1	PR-34494	1
14	SCREW, 6-32 X 1/2", NC PHIL, FLAT	SC-2239	2	SC-2239	2	SC-2239	2
15	ELEMENT, 320W, FOIL PAD HEATER	EL-29875	1	EL-29875	2	EL-29875	2
16	OUTER CASING	1012664	1	1012671	1	1012445	1
17	BEARING, DRAWER WARMER	BG-24890	2	BG-24890	4	BG-24890	6
18	SCREW, 1/4-20 x 1-1/8" FLAT HD, BEARING MOUNT	SC-25018	2	SC-25018	4	SC-25018	6
19	DRAWER FRAME ASSEMBLY, COMPLETE	5013915	1	5013915	2	5013915	3
20	PAN, FULL SIZE, 20-3/4" x 12-3/4" x 6"	PN-25088	1	PN-25088	2	PN-25088	3
21	SWITCH, ROCKER, 125-277V, 20A	SW-34769	1	SW-34769	1	SW-34769	1
22	OVERLAY, CONTROL PANEL	PE-29685	1	PE-29685	1	PE-29685	1
23	CONTROL	CC-34970	1	CC-34970	1	CC-34970	1
24	FRONT TRIM STUD ASSEMBLY	5014253	1	5014255	1	5013914	1
25	ELECTRIC CHASSIS SPOT	5014441	1	5014441	1	5014441	1
26	CONNECTOR-5 CONDUCTOR	CR-34646	2	CR-34646	2	CR-34646	2
27	T-BLOCK	BK-3019	1	BK-3019	1	BK-3019	1
28*	BUSHING, 3/8" BLACK HOLE	BU-3419	1	BU-3419	1	BU-3419	1
29*	CONNECTOR, #12 FERRULE	CR-34830	3	CR-34830	3	CR-34830	3
30*	INSULATION	IN-2003	5	IN-2003	5	IN-2003	5
31*	NUT, HEX #8-32	NU-2296	3	NU-2296	3	NU-2296	3
32*	NUT, 6-32 HEX, S/S	NU-2361	4	NU-2361	4	NU-2361	4
33*	PLUG, 3/8" HOLE	PG-25574	1	PG-25574	1	PG-25574	1
34*	SCREW, 10-32" X 1/4" PAN HD GROUND	SC-2190	1	SC-2190	1	SC-2190	1
35*	SCREW, 6-32 X 1-1/4" ROUND HD	SC-2365	2	SC-2365	2	SC-2365	2
36*	SCREW, 8-32 X 1/4" PHIL	SC-2459	4	SC-2459	4	SC-2459	4
37*	WASHER, 6-32, FLAT, NYLON	WS-23148	1	WS-23148	1	WS-23148	1
38*	WASHER, INT. LOCK	WS-2467	1	WS-2467	1	WS-2467	1

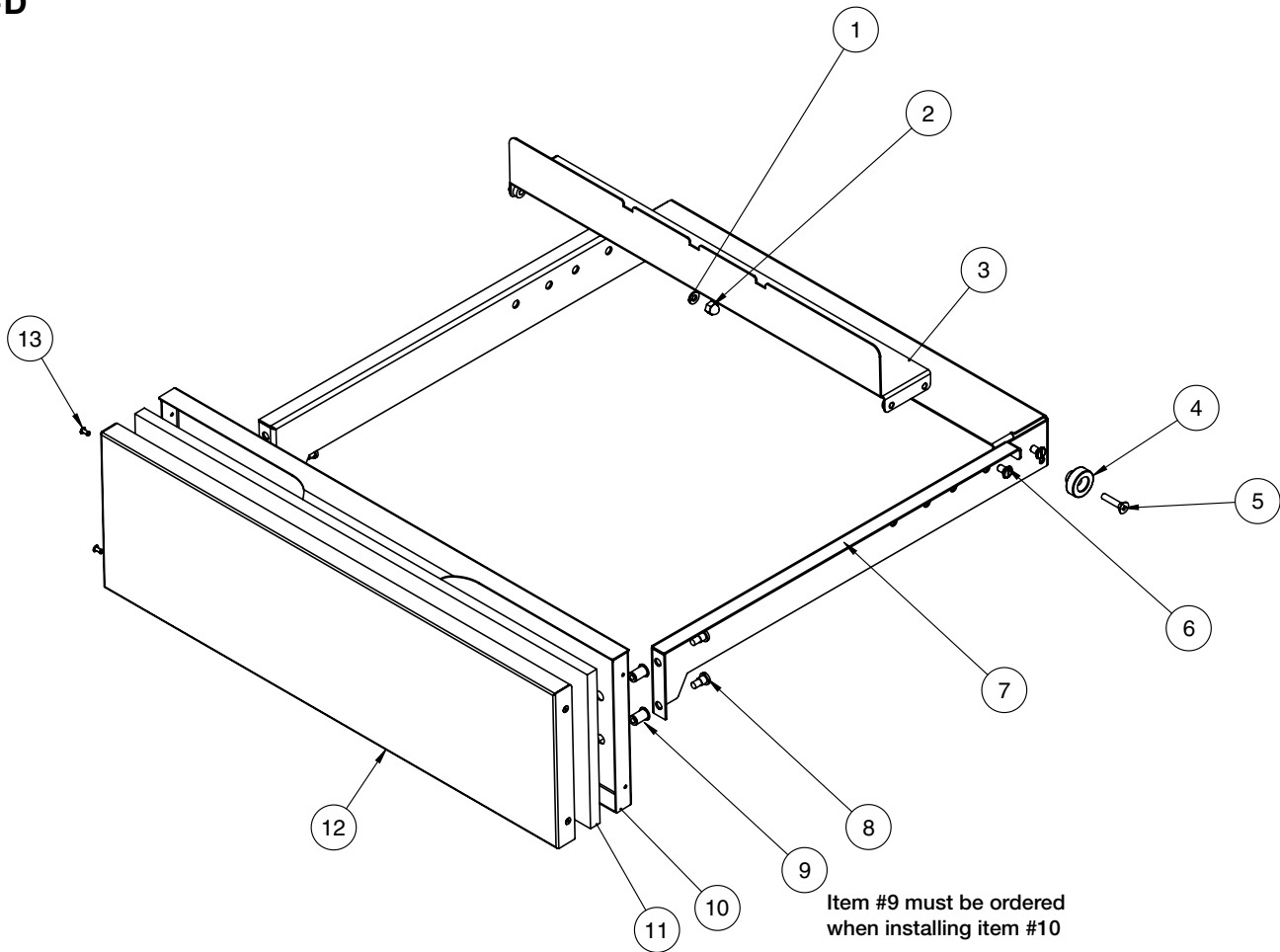
\*NOT SHOWN



# SERVICE

## SERVICE VIEW - DRAWER ASSEMBLY (5013915)

500-D



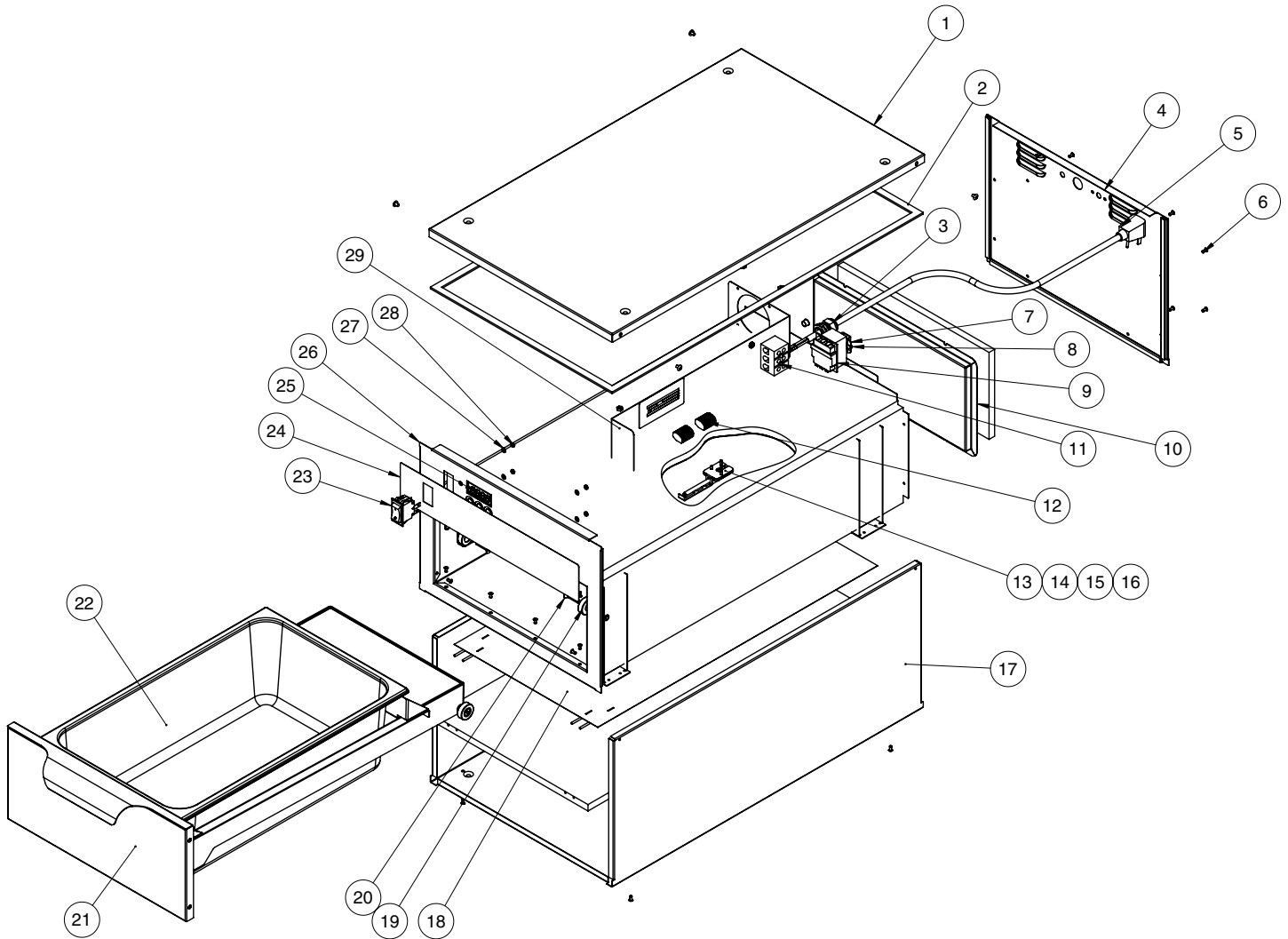
Part numbers and drawings are subject to change without notice.

ITEM	DESCRIPTION	PART NO.	QTY
1	WASHER, 1/4" LOCK	WS-2294	2
2	NUT 1/4-20 NC ACORN #18-8 S/S	NU-2187	2
3	PAN SUPPORT, DRAWER WARMER	5013916	1
4	BEARING, DRAWER WARMER	BG-24890	2
5	SCREW, 1/4-20 x 1-1/8" FLAT HD	SC-25018	2
6	STUD, SHOULDER, SHORT, S/S	ST-2546	4
7	DRAWER FRAME	1012476	1
8	STUD, S/S PIVOT	ST-25019	4
9	NUT, INSERT THREADED, 1/4-20	NU-24613	4
10	DRAWER FRONT SPOT	5013917	1
11	INSULATION, 7.13" X 16" X .50" THICK	IN-2003	1
12	OUTER DRAWER	16467	1
13	RIVET, BLIND, #44, S/S	RI-2100	4

# SERVICE

## SERVICE VIEW - EXTERIOR

500-1DN Shown



Part numbers and drawings are subject to change without notice.

# SERVICE

## SERVICE VIEW - EXTERIOR PARTS LIST

MODEL >		500-1DN		500-2DN		500-3DN	
ITEM	DESCRIPTION	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY
1	TOP COVER	1012779	1	1012779	1	1012779	1
2	GASKET ADHESIVE 0.125 x 0.375 [lin ft]	GS-23622	8	GS-23622	8	GS-23622	8
3	BUSHING, STRAIGHT, STRAIN RELIEF	BU-3964	1	BU-3964	1	BU-3964	1
4	REAR TRIM	1012796	1	1012791	1	1012781	1
5	CORDSET, 120V - 5' (1524mm)	CD-3232	1	CD-3232	1	CD-3232	1
	CORDSET, 208-240V - 8' (2438mm)	CD-3551	1	CD-3551	1	CD-3551	1
	CORDSET, 230V - 8' (2438mm)	CD-3922	1	CD-3922	1	CD-3922	1
6	RIVET, BLIND, #44, S/S 28	RI-2100	24	RI-2100	28	RI-2100	30
7	HI-LIMIT PROTECTION COVER	1003936	1	1003936	1	1003936	1
8	SCREW, M4-0.7X6MM PHIL	SC-22271	2	SC-22271	2	SC-22271	2
9	HI-LIMIT THERMOSTAT	TT-33476	1	TT-33476	1	TT-33476	1
10	INNER BACK PANEL	1012797	1	1012790	1	1012778	1
11	T-BLOCK	BK-3019	1	BK-3019	1	BK-3019	1
12	CONNECTOR-5 CONDUCTOR	CR-34646	2	CR-34646	2	CR-34646	2
13	BRACKET, SENSOR MOUNTING	1008272	1	1008272	1	1008272	1
14	SENSOR MOUNTING BLOCK	BK-27878	1	BK-27878	1	BK-27878	1
15	TEMPERATURE SENSOR	PR-34494	1	PR-34494	1	PR-34494	1
16	SCREW, 6-32 X 1/2", NC PHIL, FLAT	SC-2239	2	SC-2239	2	SC-2239	2
17	OUTER CASING	1012795	1	1012792	1	1012777	1
18	ELEMENT, 320W, FOIL PAD HEATER	—	—	EL-29875	2	EL-29875	2
	ELEMENT, 250W, FOIL PAD HEATER	EL-29738	1	—	—	—	—
19	BEARING, DRAWER WARMER	BG-24890	2	BG-24890	4	BG-24890	6
20	SCREW, 1/4-20 x 1-1/8" FLAT HD, BEARING MOUNT	SC-25018	2	SC-25018	4	SC-25018	6
21	DRAWER FRAME ASSEMBLY, COMPLETE	5014435	1	5014435	2	5014435	3
22	PAN, FULL SIZE, 20-3/4" x 12-3/4" x 6"	PN-25088	1	PN-25088	2	PN-25088	3
23	SWITCH, ROCKER, 125-277V, 20A	SW-34769	1	SW-34769	1	SW-34769	1
24	OVERLAY, CONTROL PANEL	PE-29686	1	PE-29686	1	PE-29686	1
25	CONTROL	CC-34970	1	CC-34970	1	CC-34970	1
26	FRONT TRIM STUD ASSEMBLY	5014432	1	5014430	1	5014427	1
27	WASHER, 6-32 FLAT, NYLON	WS-23148	4	WS-23148	4	WS-23148	4
28	NUT, 6-32, HEX, S/S	NU-2361	4	NU-2361	4	NU-2361	4
29	ELECTIC CHASSIS SPOT	5014441	1	5014441	1	5014441	1
30*	BUSHING, 3/8" BLACK HOLE	BU-3419	1	BU-3419	1	BU-3419	1
31*	CONNECTOR, #12 FERRULE	CR-34830	3	CR-34830	3	CR-34830	3
32*	INSULATION	IN-2003	5	IN-2003	5	IN-2003	5
33*	NUT, HEX #8-32	NU-2296	3	NU-2296	3	NU-2296	3
34*	NUT, 6-32 HEX, S/S	NU-2361	4	NU-2361	4	NU-2361	4
35*	PLUG, 3/8" HOLE	PG-25574	1	PG-25574	1	PG-25574	1
36*	SCREW, 10-32" X 1/4" PAN HD GROUND	SC-2190	1	SC-2190	1	SC-2190	1
37*	SCREW, 6-32 X 1-1/4" ROUND HD	SC-2365	2	SC-2365	2	SC-2365	2
38*	SCREW, 8-32 x 1/4" PHIL	SC-2459	4	SC-2459	4	SC-2459	4
39*	WASHER, 6-32, FLAT, NYLON	WS-23148	1	WS-23148	1	WS-23148	1
40*	WASHER, INT. LOCK	WS-2467	1	WS-2467	1	WS-2467	1

\*NOT SHOWN



## DANGER



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



## DANGER

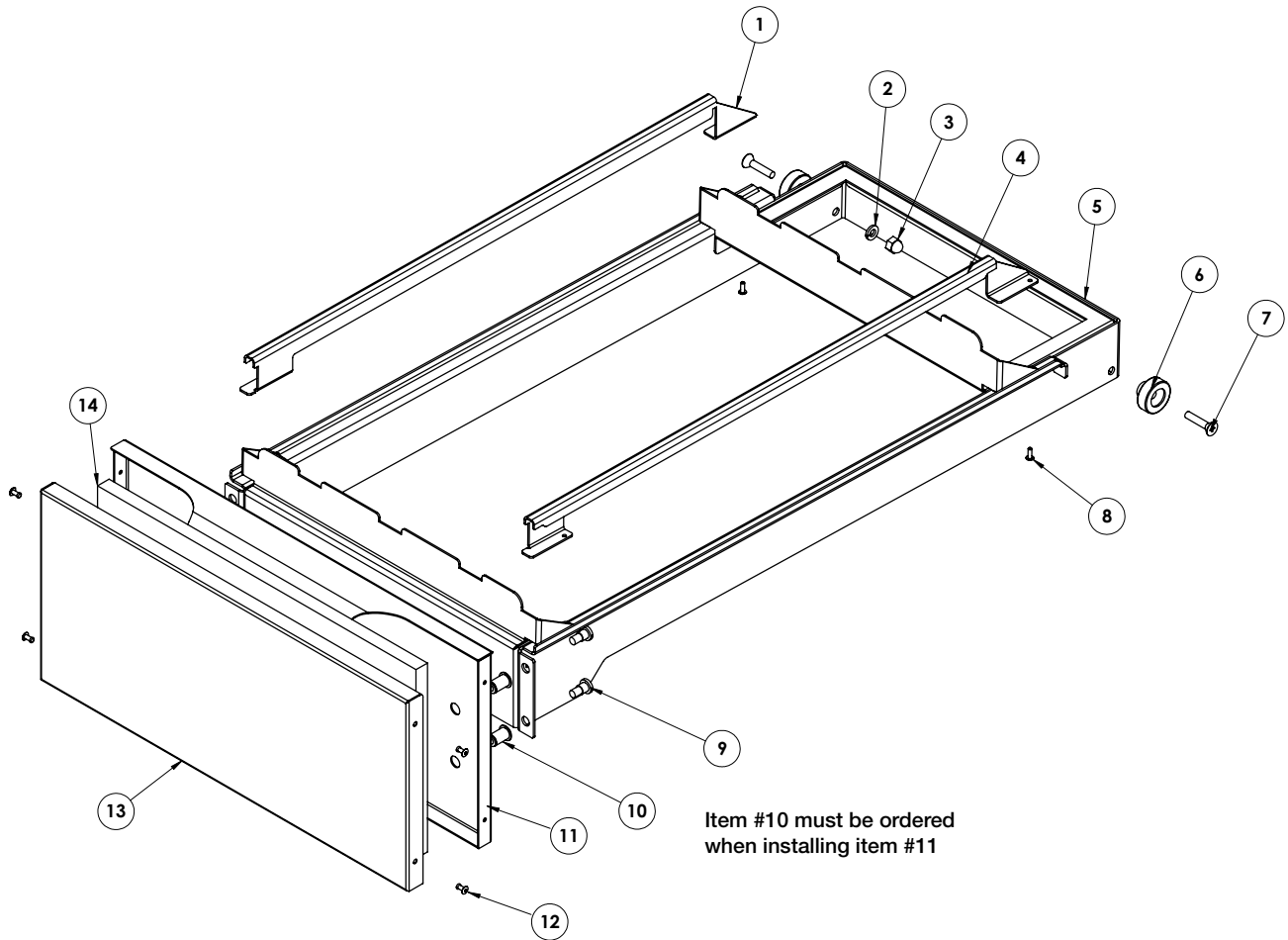


**LOCK-OUT OR POST  
BREAKER PANEL UNTIL  
SERVICE WORK HAS  
BEEN COMPLETED.**

# SERVICE

## SERVICE VIEW - DRAWER ASSEMBLY (5014435)

500-DN

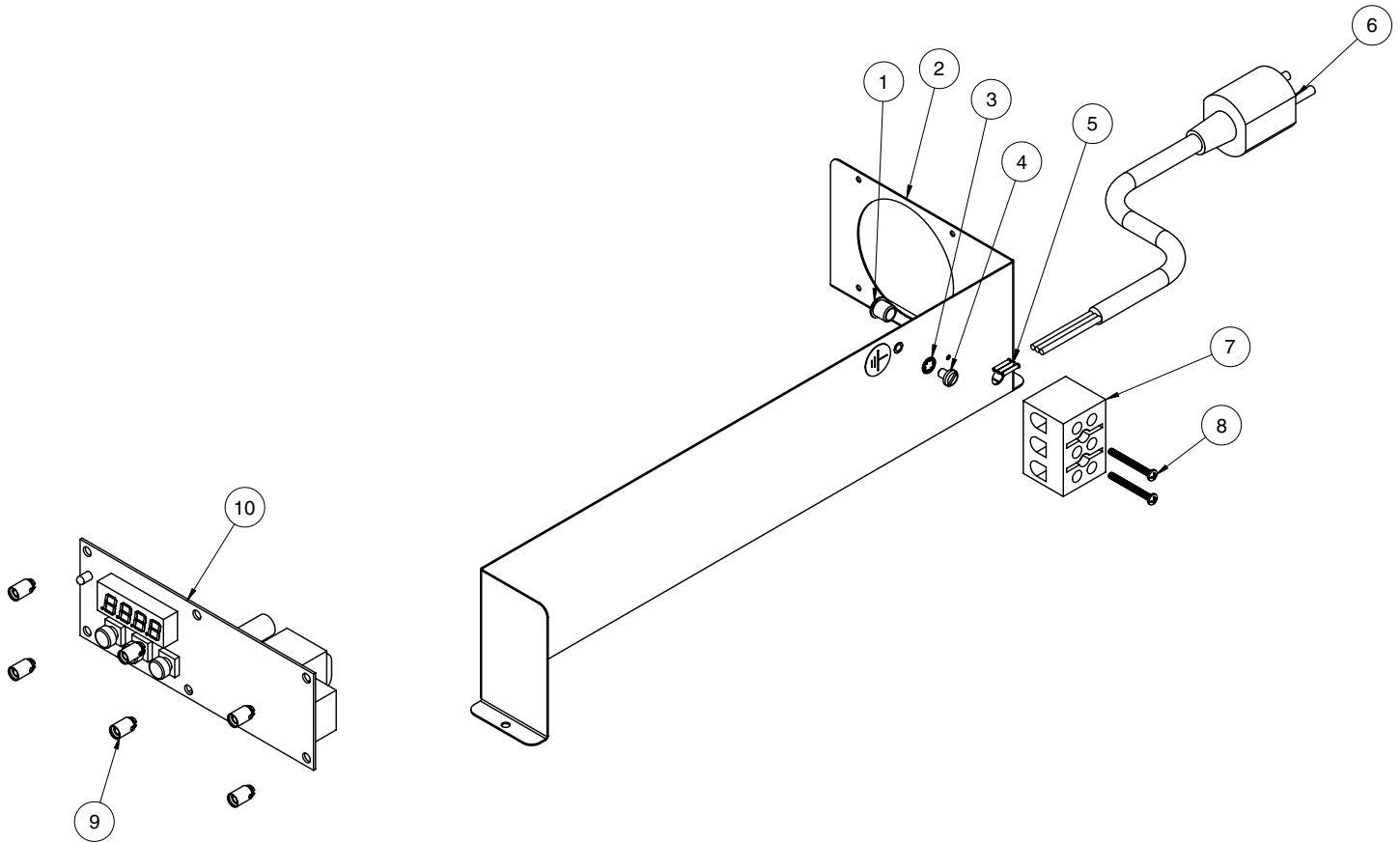


Part numbers and drawings are subject to change without notice.

ITEM	DESCRIPTION	PART NO.	QTY
1	RAIL, PAN, LEFT-HAND	1014652	1
	RAIL, PAN, LEFT-HAND (PRIOR TO 4/1/13)	1014370	1
2	LOCK WASHER 1/4"	WS-2294	2
3	NUT, 1/4-20 NC ACORN #18-8 S/S	NU-2187	2
4	RAIL, PAN, RIGHT-HAND	1014654	1
	RAIL, PAN, RIGHT-HAND (PRIOR TO 4/1/13)	1014391	1
5	DRAWER FRAME, SPOT	5014439	1
6	BEARING, DRAWER WARMER	BG-24890	2
7	SCREW, 1/4-20 x 1-1/8" FLAT HD	SC-25018	2
8	RIVET, SEALED	RI-27108	2
9	STUD, S/S PIVOT	ST-25019	4
10	NUT, INSERT THREADED, 1/4-20	NU-24613	4
11	DRAWER, INNER, WITH HANDLE	1012802	1
12	RIVET, BLIND, #44, S/S	RI-2100	4
13	OUTER DRAWER, NARROW	1012804	1
14	INSULATION, 7.13" X 16" X .50" THICK	IN-2003	1

# SERVICE

## SERVICE VIEW - ELECTRICAL



Part numbers and drawings are subject to change without notice.

ITEM	DESCRIPTION	PART NO.	QTY
1	BUSHING, 3/8" HOLE	BU-3419	1
2	ELECTRIC CHASSIS	5014441	1
3	WASHER, INT. LOCK	WS-2467	1
4	SCREW, 10-32 X 1/4 PAN HD GROUND	SC-2190	1
5	CONNECTOR, #16 FERRULE	CR-34828	3
6	CORDSET, 120V - 5' (1524mm)	CD-3232	1
	CORDSET, 208-240V - 8' (2438mm)	CD-3551	1
	CORDSET, 230V - 8' (2438mm)	CD-3922	1
7	T-BLOCK	BK-3019	1
8	SCREW, 6-32 X 1-1/4" ROUND HD	SC-2365	2
9	SPACER, SNAP-IN 7/16"	SP-29392	6
10	CONTROL	CC-34970	1

DANGER

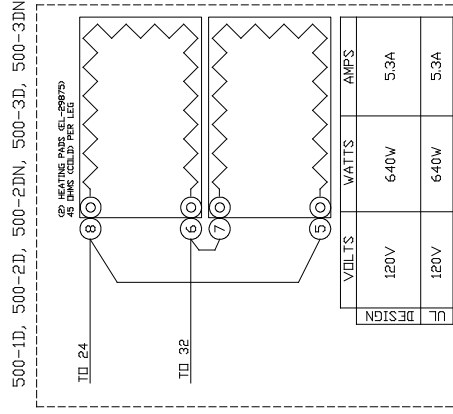
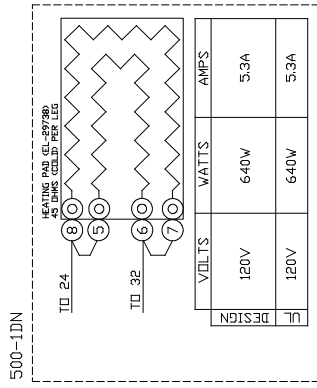
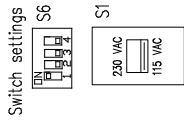
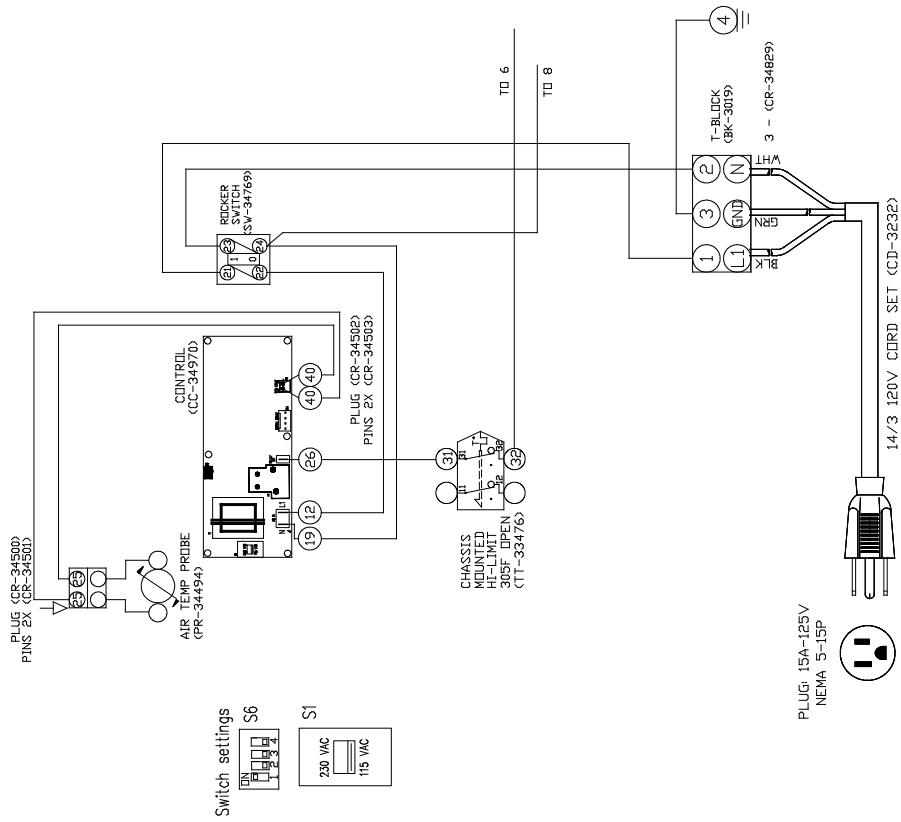
**DISCONNECT UNIT FROM  
POWER SOURCE BEFORE  
CLEANING OR SERVICING.**

DANGER

**LOCK-OUT OR POST  
BREAKER PANEL UNTIL  
SERVICE WORK HAS  
BEEN COMPLETED.**

VIEW FROM REAR OF BONNET

<FRONT>



1	6183	ADDED TT-33476 HLIMIT	5/29/12	TAG
0	6188	INITIAL RELEASE	11/16/11	APF
REV	ECO	DESCRIPTION	DATE	APP
500 SERIES DRAWER WARMERS, 120V 60HZ				
<b>AUTO-SHAM</b>			<b>WIRING DIAGRAM</b>	
BY: AFT DATE: 11/15/11	DWG: 77422	SHEET		
			1 OF 1	

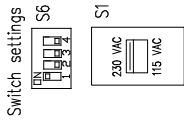
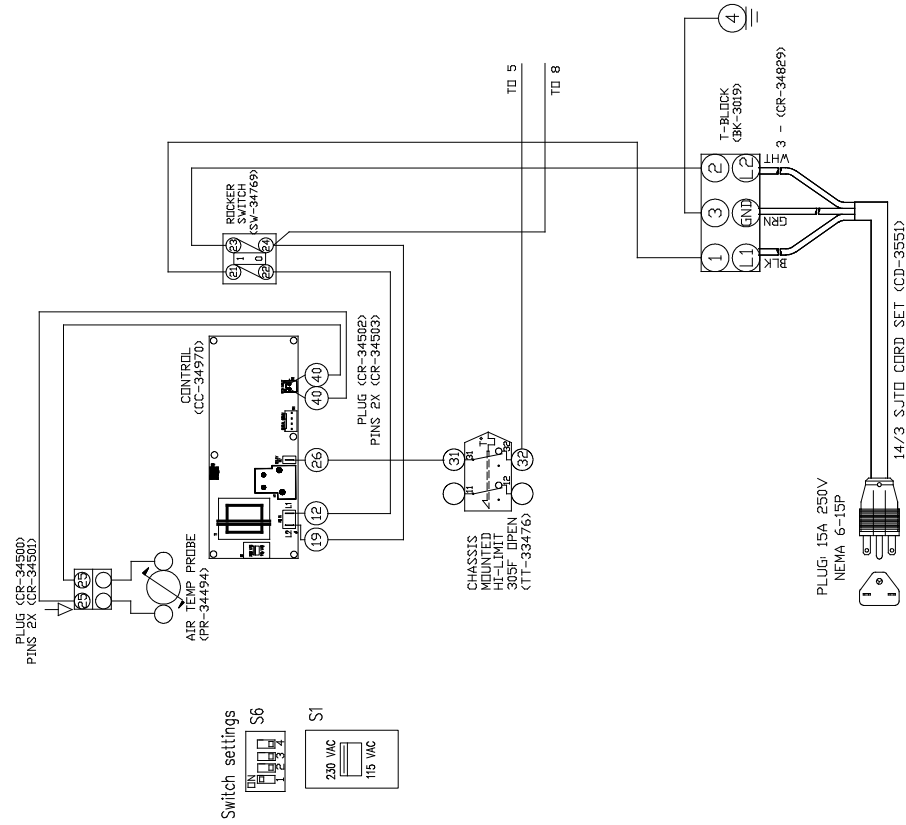
NOTE #1: ALL NUMBERS IN ( ) =  
ALTO-SHAM PART NUMBERS

NOTE #2: SEE DRW. 5015439 FOR MAIN WIRE ASSEMBLY  
SEE DRW. 5015441 FOR 120V WIRE ASSEMBLY



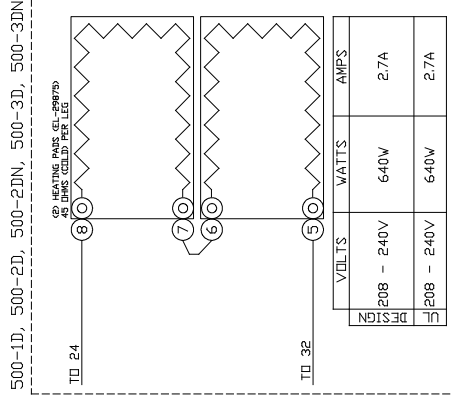
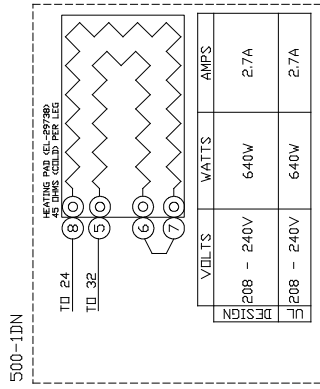
VIEW FROM REAR OF BONNET

(FRONT)



NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NUMBERS  
 NOTE #2: SEE DRW. 5015439 FOR MAIN WIRE ASSEMBLY  
 NOTE #3: SEE DRW. 5015442 FOR 208-240V WIRE ASSEMBLY

(REAR)



REV	ECO	DESCRIPTION	DATE	APP
1	6183	ADDED TT-33476, IH-LIMIT	5/29/12	TJG
0	6183	INITIAL RELEASE	11/16/11	AFT

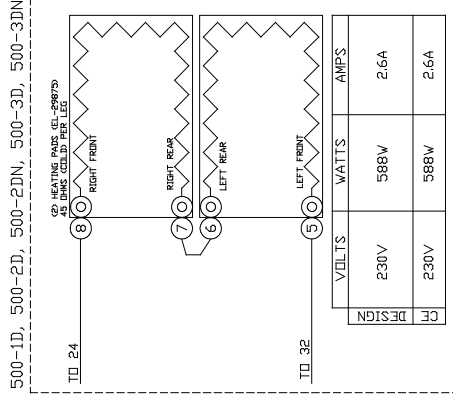
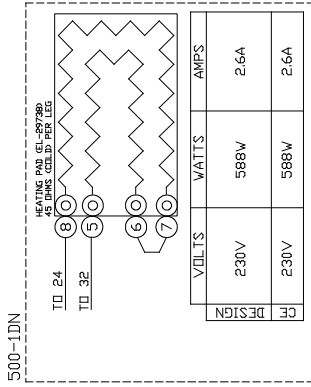
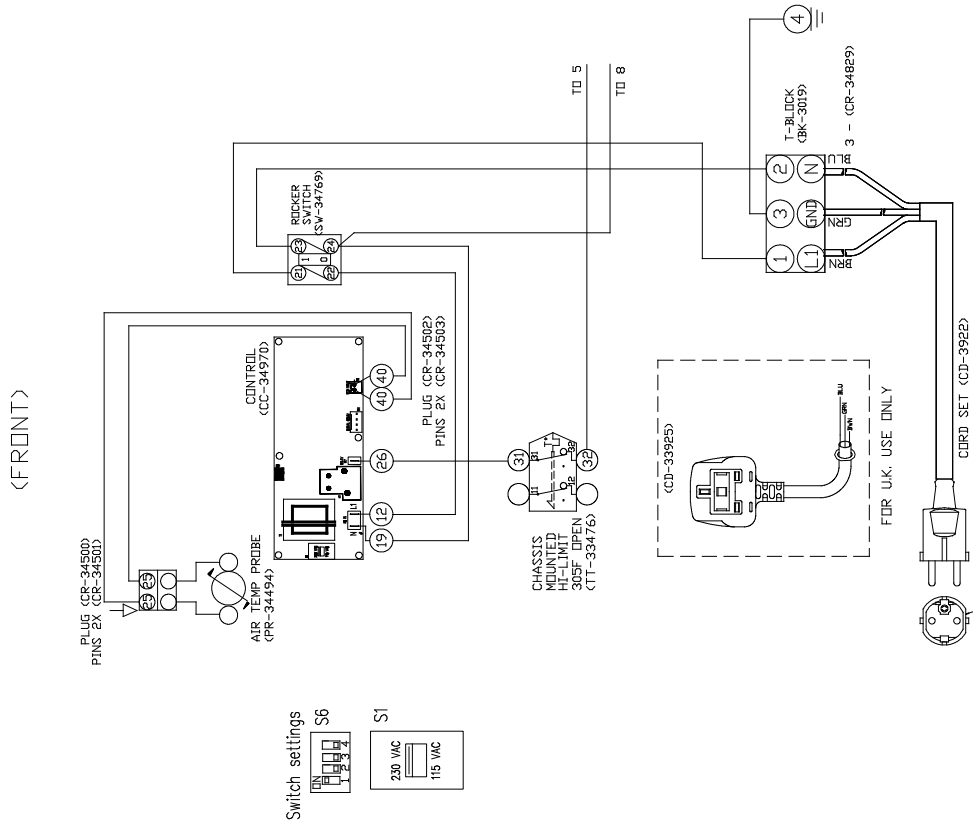
  

REV	ECO	DESCRIPTION	DATE	APP
500		SERIES DRIVER WARMERS, 208-240V 60HZ		

<b>ALTO-SHAAM</b>		<b>WIRING DIAGRAM</b>	
BY: AFT/DAE	11/16/11	DWG: 77423	SHEET 1_OF_1

VIEW FROM REAR OF BONNET



NOTE #1: ALL NUMBERS IN ( ) = ALTO-SHAAM PART NUMBERS

NOTE #2: SEE DRW. 5015439 FOR MAIN WIRE ASSEMBLY SEE DRW. 5015443 FOR 230V WIRE ASSEMBLY

REV	ECO	DESCRIPTION	DATE	APP
2	6183	ADDED CD-3925, UK CORD	9/05/12	JJS
1	6183	ADDED TT-33476, H LIMIT	5/29/12	TJG
0	6183	INITIAL RELEASE	11/14/11	AFT

500 SERIES DRAWER WARMERS, 230V 50HZ

**ALTO-SHAAM** WIRING DIAGRAM

DWG: 77424

BY: AFT DATE: 11/15/11

SHEET 1 OF 1

# 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 original parts warranty period is as follows:

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

For the heating element on Halo Heat® cooking and holding ovens, as long as the original purchaser owns the oven. This excludes holding only equipment.

For all other original parts, one (1) year from the date of installation of appliance 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, door gaskets, and/or the replacement of 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, food product, revenue, 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 November 1, 2012

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: \_\_\_\_\_

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