

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**

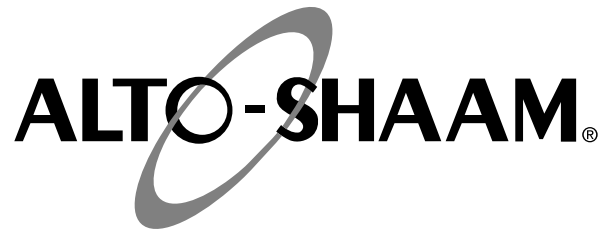
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www.alto-shaam.com



Consult instructions
for operation and use.





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Wire Diagrams

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

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 be delivered in one or more packages. Ensure all standard items and options have been received with each model as ordered.

Save all the information packed with the appliance. Register online at www.alto-shaam.com 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.

1-800-558-8744; servicedept@alto-shaam.com

SERIAL NUMBER IS REQUIRED FOR ALL INQUIRIES

Always include both model and serial numbers in your correspondence regarding the unit.

Model: _____

Serial Number: _____

Purchased From: _____

Date Installed: _____ Voltage: _____

WARNING

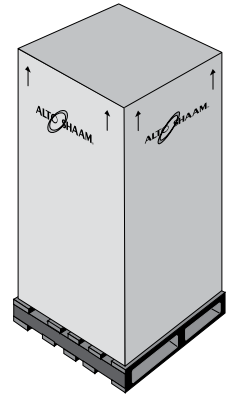


Appliance and accessories may be heavy. To prevent serious injury, **ALWAYS** use a sufficient number of trained and experienced workers when moving or leveling appliance and handling accessories.

UNPACKING

- Carefully remove the appliance from the carton or crate.

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



- Read all instructions in this manual carefully before installing this appliance, using the appliance or performing routine maintenance. Following procedures other than those indicated in this guide to use and clean the appliance is considered inappropriate and may cause damage, injury or fatal accidents, in addition to invalidating the guarantee and relieving Alto-Shaam of all liability.
- DO NOT DISCARD THIS MANUAL.** This manual is considered part of the appliance and is provided for the owner or manager of the business and for training personnel. *Additional manuals are available from the Alto-Shaam Tech Team Service Department.*
- 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.


ENVIRONMENTAL CONDITIONS

- Operational Environmental Conditions
- Unit must acclimate to room temperature in the environment it is placed. 24 hours is recommended.
- Ambient temperature range of 50° to 110°F (10° to 43°C).
- Relative humidity of less than 95% non-condensation.
- Atmospheric pressure range of 50KPa to 106KPa.

SAFETY PROCEDURES AND PRECAUTIONS

- This appliance is intended to cook, hold or process foods for the purpose of human consumption. No other use for this appliance is authorized and is therefore considered dangerous. The appliance must not be used to cook food containing flammable materials (such as food with alcohol). Substances with a low flash point can ignite spontaneously and cause a fire.
- 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. We recommend regular training of your staff to avoid the risk of accident or damage to the unit. Operators must also receive regular safety instructions.
- Any trouble shooting guides, component views, and parts lists included in this manual are for general reference only and are intended for use by qualified and trained technicians.
- 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.

NOTICE: 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.

Knowledge of proper procedures is essential to the safe operation of electrically and/or gas energized equipment. The following hazard 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.

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



Used to indicate that referral to operating instructions is a mandatory action. If not followed the operator could suffer personal injury.



Used to indicate that referral to operating instructions is recommended to understand operation of equipment.

ADDITIONAL SAFETY PROCEDURES AND PRECAUTIONS

- To prevent serious injury, death or property damage, your appliance should be inspected and serviced at least every twelve (12) months by an authorized service partner or trained technician.
- **ONLY** allow an authorized service partner or trained technician to service or to repair your appliance. Installation or repairs that are not performed by an authorized service partner or trained technician, or the use of non-factory authorized parts will void the warranty and relieve Alto-Shaam of all liability.
- When working on this appliance, observe precautions in the literature, on tags, on labels attached to or shipped with the appliance and other safety precautions that may apply.
- If the appliance is installed on casters freedom of movement of the appliance must be restricted so that utility connections (including gas, water, and electricity) cannot be damaged when the unit is moved. If the appliance is moved, make sure that all utility connections are properly disconnected. If the unit is returned to its original position, make sure that any retention devices and utility connections are properly connected.
- **ONLY** use the appliance when it is stationary. Mobile oven racks, mobile plate racks, transport trolleys, and appliances on casters can tip over when being moved over an uneven floor or threshold and cause serious injury.
- **ALWAYS** apply caster brakes on mobile appliances or accessories when these are not being moved. These items could move or roll on uneven floors and cause property damage or serious injury.

WARNING



To prevent **SERIOUS INJURY, DEATH, or PROPERTY DAMAGE:**

The appliance must be cleaned thoroughly to avoid deposits of grease and or food residues inside the appliance that may catch fire. If fat deposits and/or food waste inside the appliance ignite, shut down the appliance immediately and keep the appliance door closed to extinguish the fire. If further extinguishing is required, disconnect the appliance from the main power and use a fire extinguisher (do not use water to extinguish a grease fire!). Failure to clean the appliance properly invalidates the warranty and relieves Alto-Shaam of all liability.

WARNING



This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision concerning use of the appliance by person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

INSTALLATION

WARNING



Improper installation, alteration, adjustment, service, cleaning, or maintenance could result in property damage, severe injury, or death.

READ and **UNDERSTAND** the installation, operating and maintenance instructions thoroughly before installing, servicing, or operating this equipment.

CAUTION



To prevent **SEVERE PERSONAL INJURY** or **PROPERTY DAMAGE**:

ALWAYS use hand protection when operating this appliance to avoid burns. Metal parts of this equipment become extremely hot when in operation.

WARNING



Appliance and accessories may be heavy. To prevent serious injury, **ALWAYS** use a sufficient number of trained and experienced workers when moving or leveling appliance and handling accessories.

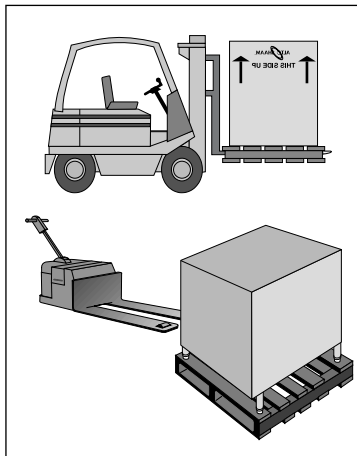
WARNING



FOR YOUR SAFETY
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)

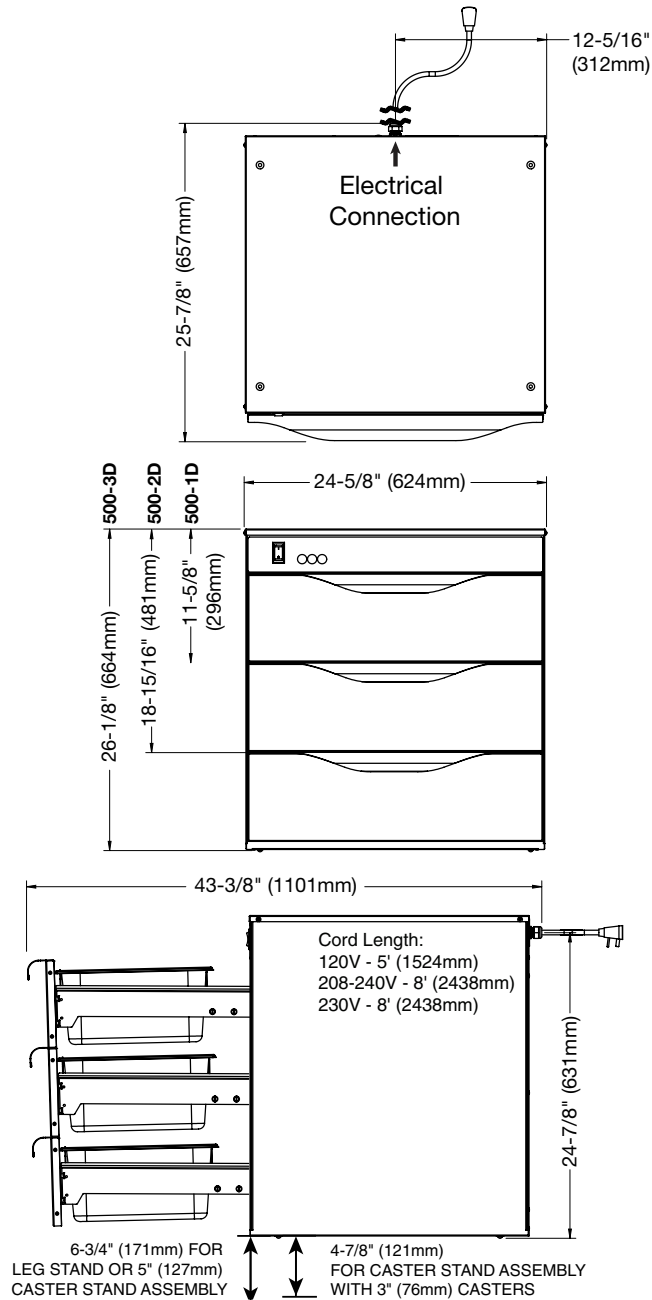
PRODUCT CAPACITY

Full-Size Pan (GN 1/1) - 12" x 20" x 6" (305 x 508 x 152mm) 36 lbs (16 kg) MAXIMUM • EACH DRAWER
Oversize Pan - 15" x 20" x 5" (381 x 508 x 127mm) 41 lbs (19 kg) MAXIMUM • EACH DRAWER

INSTALLATION

SITE INSTALLATION

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



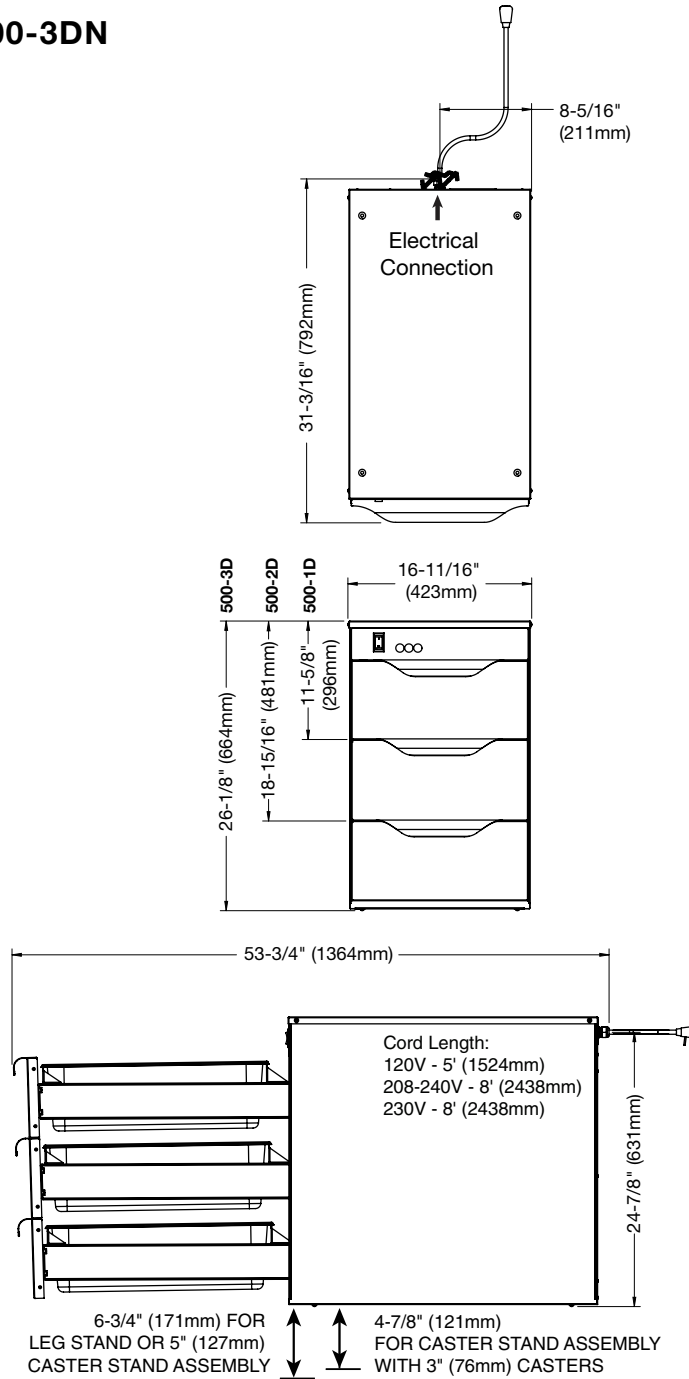
CUTOUT DIMENSIONS (FOR UNITS WITH BUILT IN TRIM)
 Add 3/4" (19mm) to unit height and 1-1/2" (38mm) to unit width

OPTIONS & ACCESSORIES			
Built-in Trim Kit		Leg Stand Assembly	15380
500-1D	5015147	Pan	
500-2D	5015149	Oversize, 15" x 20" x 5" (381 x 508 x 127mm)	PN-2123
500-2D for BU2-48, BU2-72	5015151	Full-size, 12 x 20 x 6 (305 x 508 x 152mm)	PN-25088
500-2D for BU2-96	5015152	Perforated pan grid	
500-3D	5005153	15" x 20" (381mm x 508mm)	1231
Caster Stand Assembly		12" x 20" (305mm x 508mm)	16642
- with 5" (127mm) casters	15379		
- with 3" (76mm) casters	5010920		

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.

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



This section is provided for the assistance of qualified and trained service technicians only and is not intended for use by untrained or unauthorized service personnel. Failure to observe this precaution may void the warranty.

WARNING



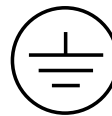
To prevent Serious injury, death, or property damage, **ALWAYS** disconnect unit from power source before cleaning or servicing.

WARNING



To prevent **SERIOUS INJURY, DEATH, or PROPERTY DAMAGE:**

All electrical connections must be made by a qualified and trained service technician in accordance with applicable electrical codes.



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.

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	2.6	0.59	PLUGS RATED 250V		
	CEE 7/7		CH2-16P		BS 1363		AS/NZS 3112

Wire diagrams are located inside the bonnet of the unit.

OPERATION

USER INFORMATION

BEFORE INITIAL USE:

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.

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 HOT 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 change the set point by 1 degree. Pressing and holding the Arrow Key will change 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 in the cabinet. Before loading the unit with food, use a food thermometer to ensure all food products are at an internal temperature range of 140°F to 160°F (60°C to 71°C). All food not within the proper temperature range should be heated to the proper temperature before loading into the holding cabinet.

5. Check to ensure the cabinet drawer is securely closed, and use the **Up or Down Arrow Keys** to 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 ensure maintenance of the proper temperature range. Reset the holding temperature accordingly.

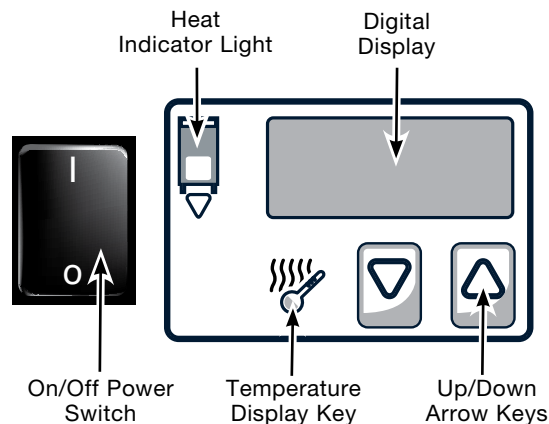
TO TOGGLE BETWEEN FAHRENHEIT AND CELSIUS

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.

Notice: 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°F — 175°F	71°C — 79°C
CORN BEEF	160°F — 175°F	71°C — 79°C
PASTRAMI	160°F — 175°F	71°C — 79°C
PRIME RIB — Rare	130°F	54°C
STEAKS — Broiled/Fried	140°F — 160°F	60°C — 71°C
RIBS — Beef or Pork	160°F	71°C
VEAL	160°F — 175°F	71°C — 79°C
HAM	160°F — 175°F	71°C — 79°C
PORK	160°F — 175°F	71°C — 79°C
LAMB	160°F — 175°F	71°C — 79°C
POULTRY		
CHICKEN — Fried/Baked	160°F — 175°F	71°C — 79°C
DUCK	160°F — 175°F	71°C — 79°C
TURKEY	160°F — 175°F	71°C — 79°C
GENERAL	160°F — 175°F	71°C — 79°C
FISH/SEAFOOD		
FISH — Baked/Fried	160°F — 175°F	71°C — 79°C
LOBSTER	160°F — 175°F	71°C — 79°C
SHRIMP — Fried	160°F — 175°F	71°C — 79°C
BAKED GOODS		
BREADS/ROLLS	120°F — 140°F	49°C — 60°C
MISCELLANEOUS		
CASSEROLES	160°F — 175°F	71°C — 79°C
DOUGH — Proofing	80°F — 100°F	27°C — 38°C
EGGS — Fried	150°F — 160°F	66°C — 71°C
FROZEN ENTREES	160°F — 175°F	71°C — 79°C
HORS D'OEUVRES	160°F — 180°F	71°C — 82°C
PASTA	160°F — 180°F	71°C — 82°C
PIZZA	160°F — 180°F	71°C — 82°C
POTATOES	180°F	82°C
PLATED MEALS	140°F — 165°F	60°C — 74°C
SAUCES	140°F — 200°F	60°C — 93°C
SOUP	140°F — 200°F	60°C — 93°C
VEGETABLES	160°F — 175°F	71°C — 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.		

CARE AND CLEANING

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 per 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. Failure to observe this precaution will void the warranty. Always use the proper cleaning agent at the manufacturer's recommended strength. Contact your local cleaning supplier for product recommendations.

CLEANING MATERIALS

Cleaning can usually be accomplished with the proper cleaning agent and a soft, clean cloth. When more aggressive methods are needed, 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. Failure to observe this precaution will void the warranty.

CAUTION



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.

WARNING



To prevent **SERIOUS INJURY, DEATH, or PROPERTY DAMAGE:**

The appliance must be cleaned thoroughly to avoid deposits of grease and or food residues inside the appliance that may catch fire. If fat deposits and/or food waste inside the appliance ignite, shut down the appliance immediately and keep the appliance door closed to extinguish the fire. If further extinguishing is required, disconnect the appliance from the main power and use a fire extinguisher (do not use water to extinguish a grease fire!). Failure to clean the appliance properly invalidates the warranty and relieves Alto-Shaam of all liability.

CARE AND CLEANING

DANGER

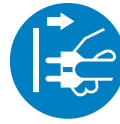


To prevent serious personal injury, death, or property damage:

DO NOT steam clean, hose down or flood the interior or exterior with water or liquid solution of any kind. DO NOT use water jet to clean.

Failure to observe this precaution will void the warranty.

WARNING



To prevent Serious injury, death, or property damage, **ALWAYS** disconnect unit from power source before cleaning or servicing.

CLEAN THE DRAWER WARMER 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 the interior metal surfaces of the warmer with a damp clean cloth or sponge and any good commercial detergent.
Notice: Never use abrasive cleaning compounds, chloride-based cleaners, or cleaners containing quaternary salts. Never use hydrochloric acid (muriatic acid) on stainless steel.
5. Spray heavily soiled areas with a water soluble degreaser and let stand for 10 minutes, then remove soil with a plastic scouring pad.
6. Wipe control panel, drawer vents, handles, and 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 drawers open until interior is completely dry.
9. Wipe door gaskets and control panel dry with a clean, soft cloth.
10. 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.
11. 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.

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

FOOD SAFETY

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.

Most food imparts its own particular aroma and many foods also absorb existing odors. Unfortunately, during this absorption there is not a 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 ensure 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 ensure 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 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.

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

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

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

Hazard Analysis (at) Critical Control Points (HACCP), 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. Additional HACCP information is available by contacting:

*Center for Food Safety and Applied Nutrition
Food and Drug Administration
PHONE: 1-888-SAFEFOOD
www.foodsafety.gov*

SERVICE

THERMOSTAT ACCURACY

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. Ensure the unit voltage matches the power source.
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. Ensure 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 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 trouble shooting guide in this manual; or call the Alto-Shaam service department for advice.



TROUBLE SHOOTING

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.

WARNING



To prevent Serious injury, death, or property damage, **ALWAYS** disconnect unit from power source before cleaning or servicing.



This section is provided for the assistance of qualified and trained service technicians only and is not intended for use by untrained or unauthorized service personnel. Failure to observe this precaution may void the warranty.

SERVICE

TROUBLE SHOOTING - ELECTRONIC CONTROL

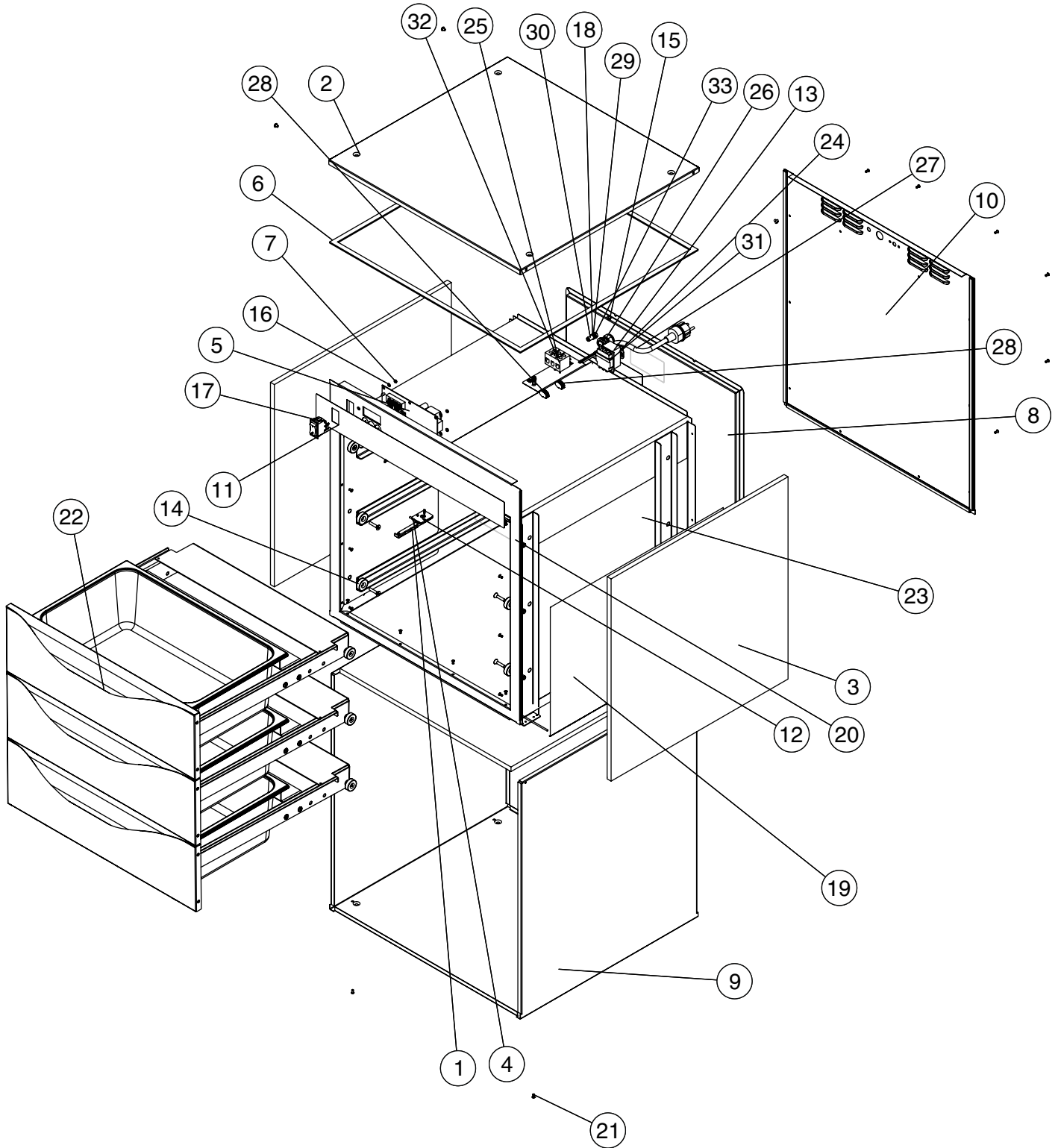
Code	Description	Possible Causes
E-10	Cavity air sensor shorted	Cavity air sensor reading < 5°F (-15°C). Verify sensor integrity. See sensor test instructions below.
E-11	Cavity air sensor open	Cavity air sensor reading > 517°F (269°C). Verify sensor integrity. See sensor test instructions below.
E-20	Product probe is shorted <i>Oven will cook in time only</i>	Product probe reading < 5°F (-15°C). Verify sensor integrity. See sensor test instructions below.
E-21	Product probe is open <i>Oven will cook in time only</i>	Product Probe reading > 517°F (269°C). Verify sensor integrity. See sensor test instructions below.
E-30	Under temperature	Unit has been more than 25°F (14°C) below set point for longer than 90 minutes.
E-31	Over temperature	Unit has been more than 60°F (33°C) above the maximum set-point for longer than 3 minutes. Notice: Holding Cabinets with this error code are more than 145°F (81°C) above the maximum set-point.
E-32	Safety switch open (Aux hi-limit switch)	Contact factory.
E-38	Internal software error	Contact factory.
E-39	Sensor error	Contact factory.
E-50	Temp. measurement error	Contact factory.
E-51	Temp. measurement error	Contact factory.
E-60	Real time clock error	Data set to factory default. Ensure that date and time are correct if applicable.
E-61	Real time clock error	Contact factory.
E-64	Clock is not oscillating	Contact factory.
E-70	Configuration connector error (DIP switch)	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	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 135 VAC on a 125 VAC unit, or over 250 VAC on a 208-240 VAC unit. Correct voltage.
E-80	EEPROM Error	Ensure that all temperatures and times are properly set. Contact factory if problem persists.
E-81	EEPROM Error	Contact factory.
E-82	EEPROM Error	Contact factory.
E-83	EEPROM Error	Contact factory.
E-85	EEPROM Error	All timers, if previously on, are now off. Possible bad EEPROM.
E-86	EEPROM Error	Stored HACCP memory corrupted. HACCP Address reset to 1. Possible bad EEPROM. Contact factory if problem persists.
E-87	EEPROM Error	Stored offsets corrupted. Offsets reset to 0. Control may need a recalibration. Possible bad EEPROM. Contact factory if problem persists.
E-88	EEPROM Error	All timer set-points are reset to 1 minute. Timers, if previously on, are now off. Possible bad EEPROM.
E-90	Button stuck	A button has been held down for > 60 seconds. Adjust control. Error will reset when the problem has been resolved.
E-91	Input failure	Contact factory.
E-dS	Datakey error	Datakey digital signature incompatible. Cycle power, and install compatible Datakey if error persists.
E-dT	Datakey error	Datakey incompatible with control. Install compatible Datakey.
E-dU	Datakey unplugged	Install Datakey and cycle power to control to clear error.
dLto	Datalogger has timed out	Cycle power. Contact factory if error persists.
dLSD	Micro SD card not plugged in	Plug in SD card and cycle power. Contact factory if error persists.

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

SERVICE

SERVICE VIEW - EXTERIOR

500-3D Shown



Part numbers and drawings are subject to change without notice.

SERVICE

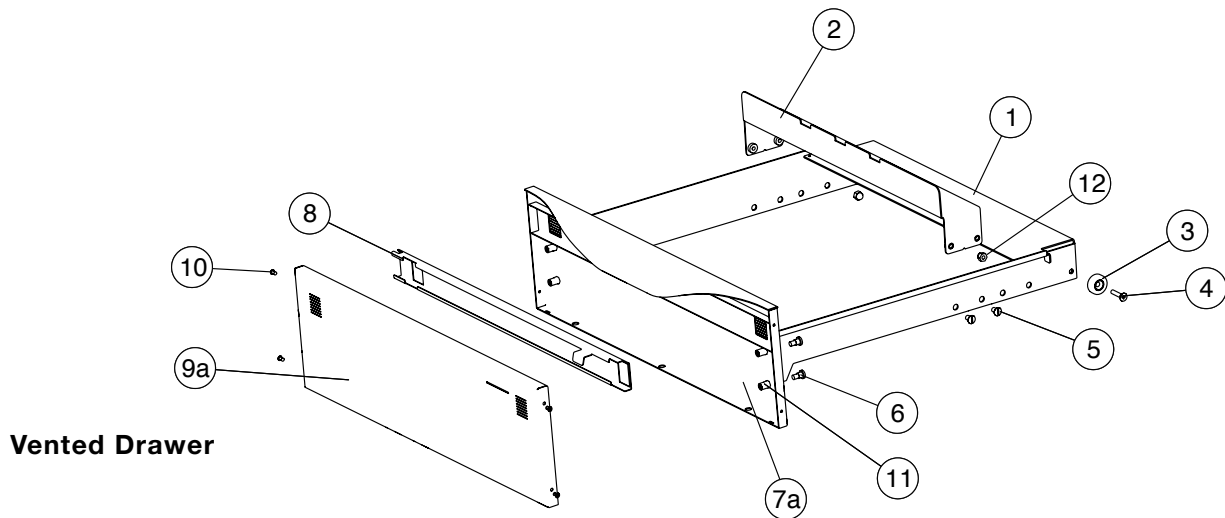
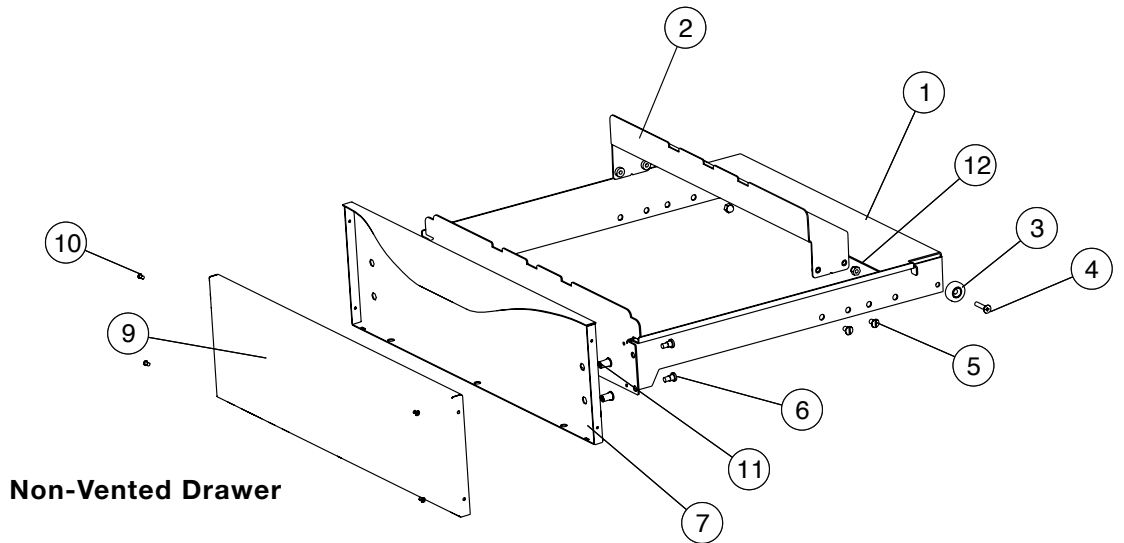
SERVICE VIEW - EXTERIOR PARTS LIST

Item	Part	Description	Qty
1	1008272	BRACKET, SENSOR MTG.	1
2	1012473	TOP COVER	1
3	IN-2003	INSULATION, FIBERGLASS, #3 DENS 1/2"	1
4	BK-29606	CONTROL SENSOR BLOCK	1
5	CC-34970	WARMER CONTROL	1
6	GS-23622	GASKET, WITH ADHESIVE 0.125 x 0.375 [lin ft]	1
7	NU-2361	NUT, 6-32 HEX, S/S	4
8	1012439	INNER BACK PANEL, 500-3D	1
	1012673	INNER BACK PANEL, 500-2D	1
	1012667	INNER BACK PANEL, 500-1D	1
9	1012445	OUTER CASING, 500-3D	1
	1012671	OUTER CASING, 500-2D	1
	1012664	OUTER CASING, 500-1D	1
10	1012446	REAR TRIM, 500-3D	1
	1012674	REAR TRIM, 500-2D	1
	1012665	REAR TRIM, 500-1D	1
11	PE-29685	OVERLAY, 500-D, SIMPLE CONTROL	1
12	PR-34494	PROBE	1
13	SC-22271	SCREW, M4-0.7 x 6mm PHIL	4
14	BG-24890	BEARING, DRAWER WARMER	6
15	SC-2459	SCREW, 8-32 x 1/4" PHIL SCREW	4
16	WS-23148	WASHER, 6-32, FLAT, NYLON	4
17	SW-34769	SWITCH, ROCKER, 125-277V, 20A	1
18	WS-22302	WASHER, SPLIT LOCK	1
19	EL-29738	ELEMENT, HEATER	2
	EL-29875	ELEMENT, 320W, FOIL PAD HEATER	1
20	SC-25018	1/4-20 x 1-1/8" FLAT HD	6
21	RI-2100	RIVET, BLIND, #44, STAINLESS	28
22	5013915	DRAWER FRAME ASSB	3
	5014559	VENTED DRAWER FRAME ASSB	2
23	5013913	TUBE SPOT ASSB, 500-3D	1
	5014254	TUBE SPOT ASSB, 500-2D	1
	5014252	TUBE SPOT ASSB, 500-1D	1
24	1003936	HI-LIMIT PROTECTION COVER	1
25	BK-3019	T-BLOCK	1
26	BU-3964	BUSHING, STRAIGHT, STRAIN RELIEF	1
27	CD-3922	CORDSET-16AWG, 3/C, INT'L HARM	1
28	CR-34967	CONNECTOR-2 CONDUCTOR	2
29	WS-22297	WASHER, FLAT	2
30	NU-22770	NUT, THREADED INSERT, M6	1
31	TT-33476	THERMOSTAT, 300°F HI-LIMIT	1
32	SC-2365	SCREW, 6-32 x 1-1/4" ROUND HD	2
33	SC-22924	SCREW, HHCS, M6 x 20, W/NO MARKING	1

SERVICE

SERVICE VIEW - DRAWER ASSEMBLY

500-D



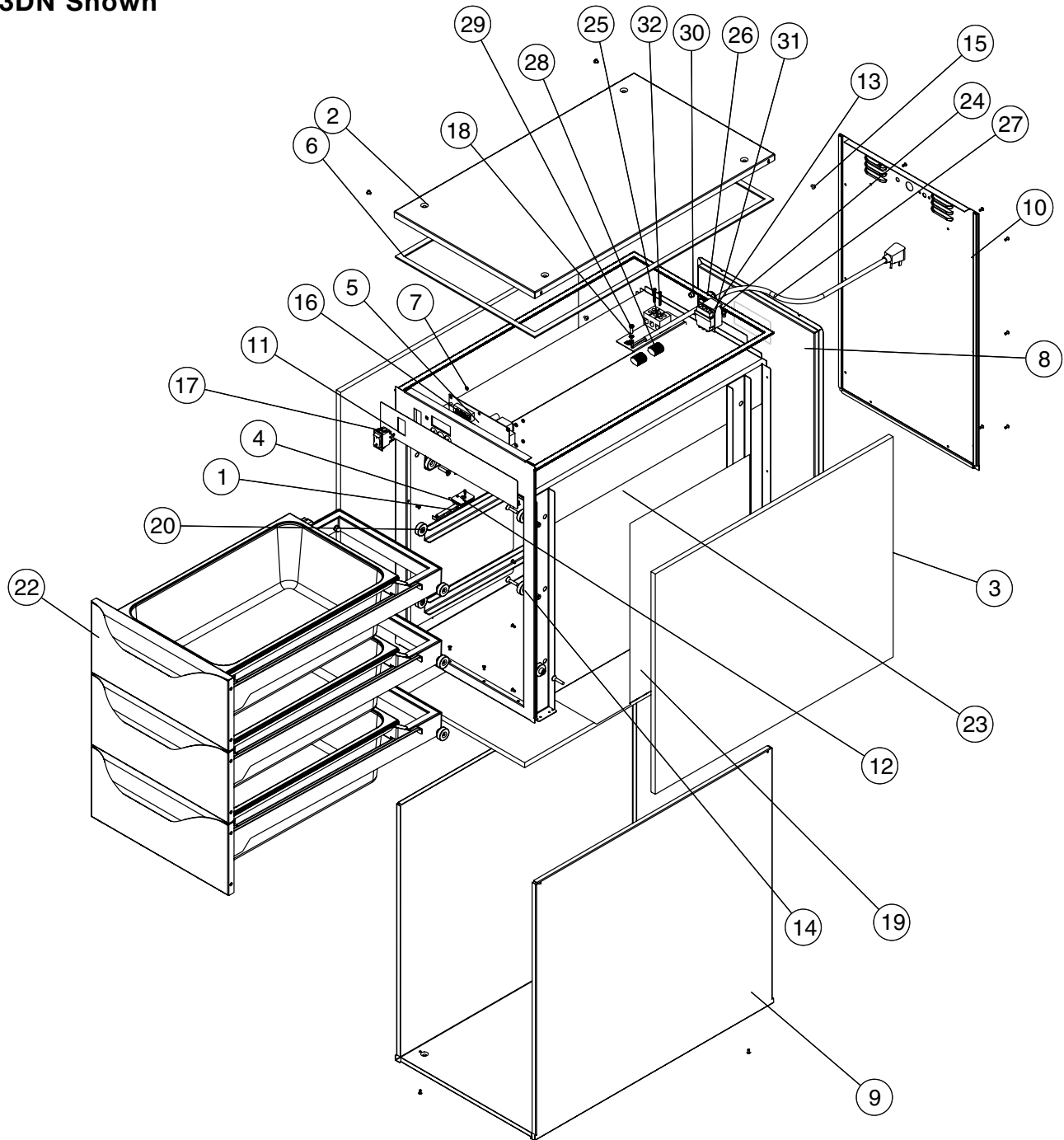
Part numbers and drawings are subject to change without notice.

Item	Part	Description	Qty
1	5017810	DRAWER FRAME SPOT	1
2	5013916	PAN SUPPORT	1
3	BG-24890	BEARING, ROLLER	1
4	SC-25018	SCREW, 1/4-20 x 1-1/8" FLAT HD	2
5	ST-2546	STUD, SHOULDER, SHORT, S/S	4
6	ST-25019	STUD, S/S PIVOT	4
7	5013917	DRAWER INNER W/HANDLE	1
7a	5014558	VENTED DRAWER FRONT SPOT	1
8	1019159	VENT SLIDE	1
9	16467	DRAWER, OUTER	1
9a	1012899	VENTED DRAWER, OUTER	1
10	RI-2100	RIVET, BLIND, #44, S/S	4
11	NU-36239	NUT, INSERT, THREADED, 1/4-20	4
12	NU-2187	NUT, 1/4-20, NC ACORN #18-8, S/S	2

SERVICE

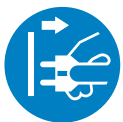
SERVICE VIEW - NARROW EXTERIOR

500-3DN Shown



Part numbers and drawings are subject to change without notice.

WARNING



To prevent Serious injury, death, or property damage, ALWAYS disconnect unit from power source before cleaning or servicing.

! DANGER



To prevent SERIOUS INJURY, DEATH, OR PROPERTY DAMAGE, ALWAYS lock-out or post breaker panel until service work has been completed.

SERVICE

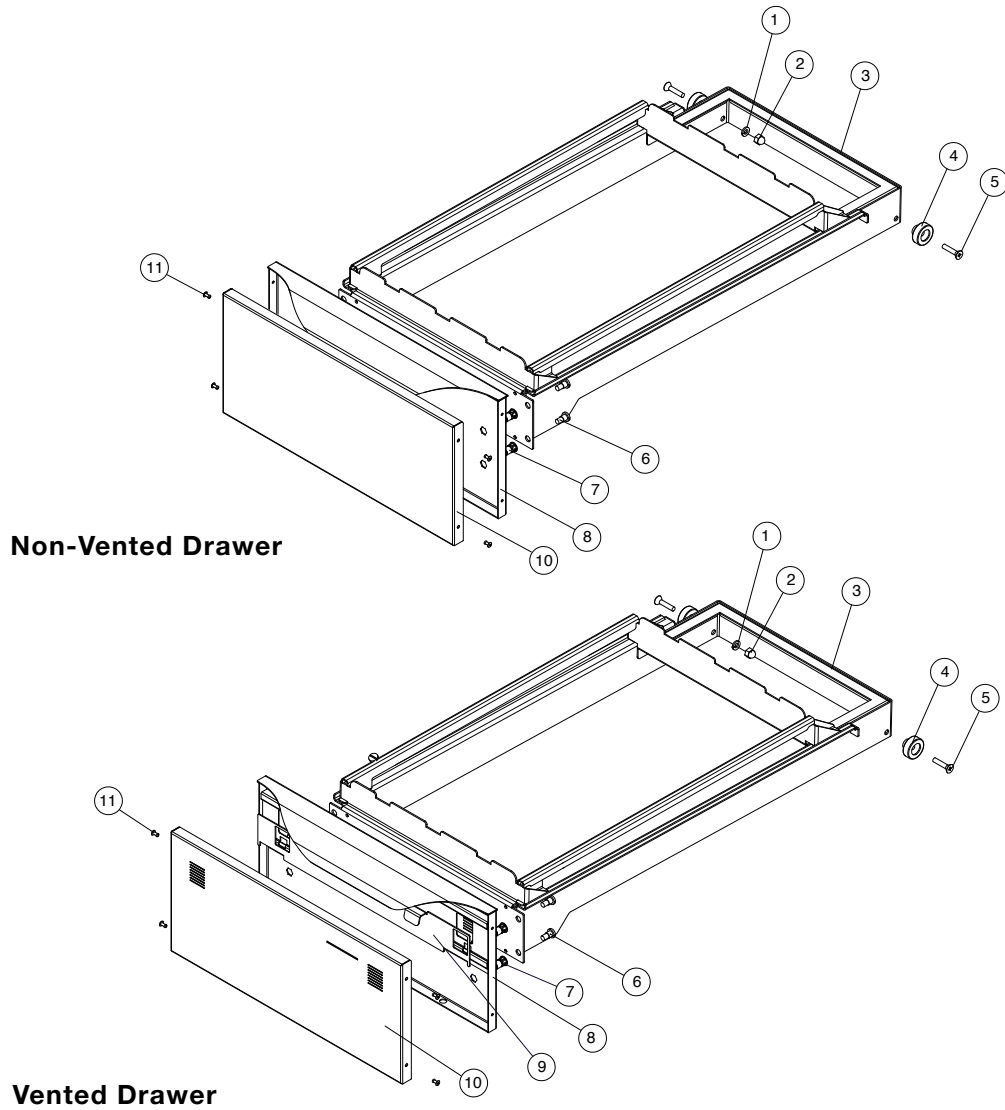
SERVICE VIEW - NARROW EXTERIOR PARTS LIST

Item	Part	Description	Qty
1	1008272	BRACKET, SENSOR MTG.	1
2	1012779	TOP COVER	1
3	IN-2003	INSULATION	1
4	BK-29606	CONTROL SENSOR BLOCK	1
5	CC-34970	WARMER CONTROL	1
6	GS-23622	GASKET ADHESIVE 0.125 x 0.375 [lin ft]	1
7	NU-2361	NUT, 6-32 HEX, S/S	4
8	1012778	INNER BACK PANEL, 500-3DN	1
	1012790	INNER BACK PANEL, 500-2DN	1
	1012797	INNER BACK PANEL, 500-1DN	1
9	1012777	OUTER CASING, 500-3DN	1
	1012792	OUTER CASING, 500-2DN	1
	1012795	OUTER CASING, 500-1DN	1
10	1012781	REAR TRIM, 500-3DN	1
	1012791	REAR TRIM, 500-2DN	1
	1012796	REAR TRIM, 500-1DN	1
11	PE-29686	PANEL OVERLAY	1
12	PR-34494	PROBE	1
13	SC-22271	SCREW, M4-0.7 x 6mm PHIL	2
14	BG-24890	BEARING, DRAWER WARMER	6
15	SC-2459	SCREW, 8-32 x 1/4" PHIL SCREW	4
16	WS-23148	WASHER, 6-32, FLAT, NYL	4
17	SW-34769	SWITCH, ROCKER, 125-277V, 20A	1
18	WS-2467	WASHER, INT. LOCK	1
19	EL-29738	ELEMENT, 320W, FOIL PAD HEATER	2
20	SC-25018	SCREW, 1/4-20 x 1-1/8" FLAT HD	6
21	RI-2100	RIVET, BLIND, #44, STAINLESS	14
22	5014435	DRAWER FRAME ASSEMBLY	3
	5014561	DRAWER FRAME ASSEMBLY, VENTED	1
23	5014426	TUBE SPOT ASSEMBLY, 500-3DN	1
	5014428	TUBE SPOT ASSEMBLY, 500-2DN	1
	5014431	TUBE SPOT ASSEMBLY, 500-1DN	1
24	1003936	HI-LIMIT PROTECTION COVER	1
25	BK-3019	T-BLOCK	1
26	BU-3964	BUSHING, STRAIGHT, STRAIN RELIEF	1
27	CD-3232	CORDSET, 14/3 SJTOW, 125V	1
28	CR-34646	CONNECTOR-5 CONDUCTOR	2
29	SC-36973	SCREW, PAN PH, METRIC, M5	1
30	PG-25574	3/8" HOLE PLUG	1
31	TT-33476	THERMOSTAT, 300F HI-LIMIT	1
32	SC-2365	SCREW, 6-32 x 1-1/4" ROUND HEAD	2

SERVICE

SERVICE VIEW - DRAWER ASSEMBLY

500-DN

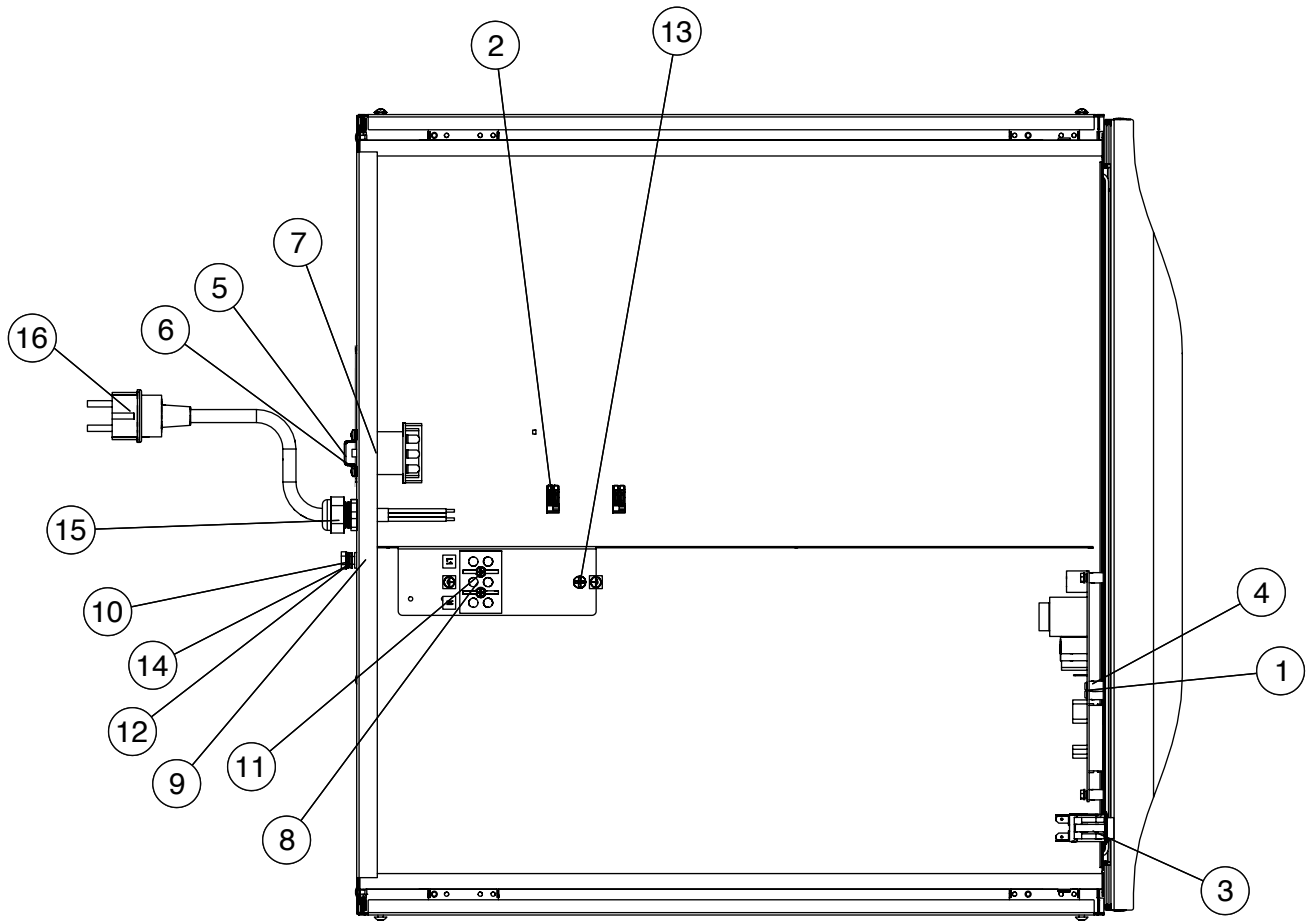


Part numbers and drawings are subject to change without notice.

Item	Part	Description	Qty
1	WS-2294	WASHER, 1/4" LOCK	2
2	NU-2187	NUT, 1/4-20 NC ACORN #18-8 S/S	2
3	5017809	DRAWER FRAME	1
4	BG-24890	BEARING, DRAWER WARMER	2
5	SC-25018	SCREW, 1/4-20 x 1-1/8" FLAT HD	2
6	ST-25019	STUD, S/S PIVOT	4
7	NU-36239	NUT, INSERT, THREADED, 1/4-20	4
8	5014560	DRAWER FRONT SPOT	NON-VENTED DRAWER 1
	5014439		VENTED DRAWER 1
9	1019169	VENT SLIDE	1
10	1012804	OUTER DRAWER	NON-VENTED DRAWER 1
	1012901		VENTED DRAWER 1
11	RI-2100	RIVET, BLIND, #44, S/S	4

SERVICE

SERVICE VIEW - ELECTRICAL



Item	Part	Description	Qty
1	CC-34970	WARMER CONTROL	1
2	CR-34967	CONNECTOR-2 CONDUCTOR	2
3	SW-34769	SWITCH, ROCKER, 125-277V, 20A	1
4	SP-29392	SPACER, SNAP-IN, 7/16	6
5	1003936	HI-LIMIT PROTECTION COVER	1
6	SC-22271	SCREW, M4-0.7 x 6mm PHIL	2
7	TT-33476	THERMOSTAT, 300F HI-LIMIT	1
8	BK-3019	T-BLOCK	1
9	NU-22770	NUT, THREADED INSERT, M6	1
10	SC-22924	SCREW, HHCS, M6 X 20, W/NO MARKING	1
11	SC-2365	SCREW, 6-32 X 1 1/4" ROUND HD	2

Item	Part	Description	Qty
12	WS-22297	WASHER, FLAT	2
13	SC-36973	SCREW, PAN PH, METRIC, M5	1
14	WS-22302	WASHER, SPLIT LOCK	2
15	BU-3964	BUSHING, STRAIGHT, STRAIN RELIEF	1
16	5015002	NEMA 5-15P CORDSET, 120V	1
	5017194	NEMA 6-15P CORDSET, 208-240V	1
	5013670	CEE 7/7 CORDSET, 230V	1
	5014997	BS 1363 CORDSET, 230V	1
	5016998	CH2-16P CORDSET, 230V	1
	5020353	AS/NZS 3112 CORDSET, 230V	1

Part numbers and drawings are subject to change without notice.

WARNING



To prevent Serious injury, death, or property damage, ALWAYS disconnect unit from power source before cleaning or servicing.

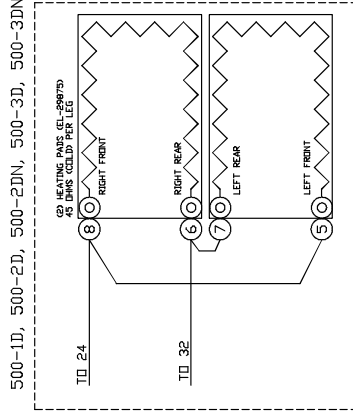
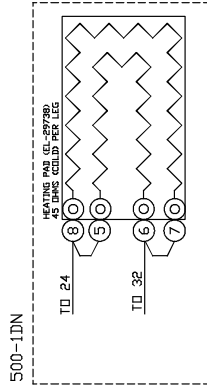
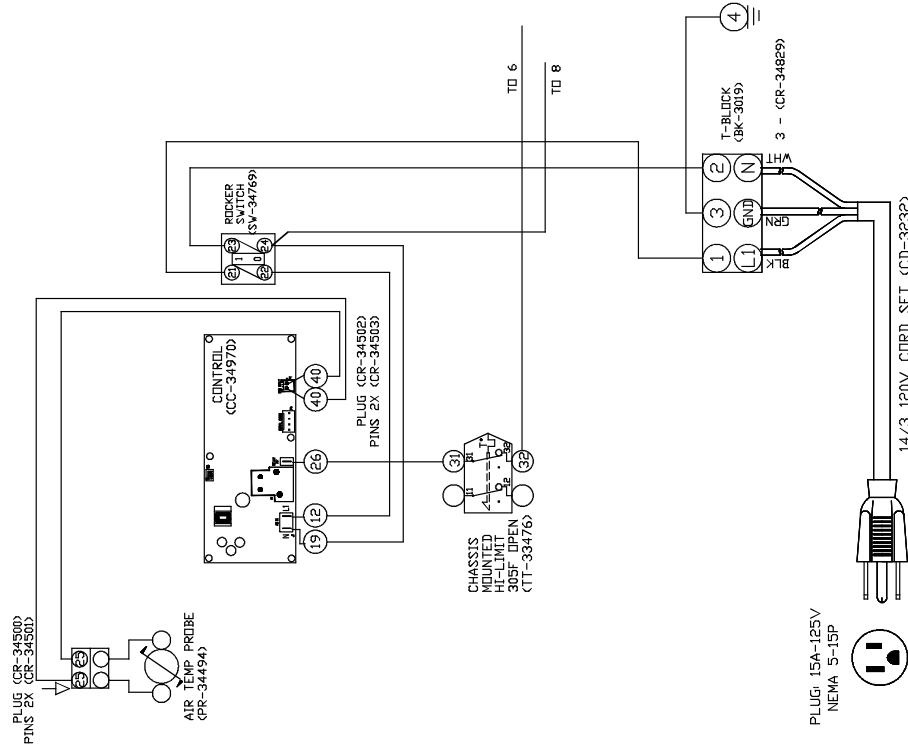
⚠ DANGER



To prevent SERIOUS INJURY, DEATH, OR PROPERTY DAMAGE, ALWAYS lock-out or post breaker panel until service work has been completed.

VIEW FROM REAR OF BONNET

(FRONT)



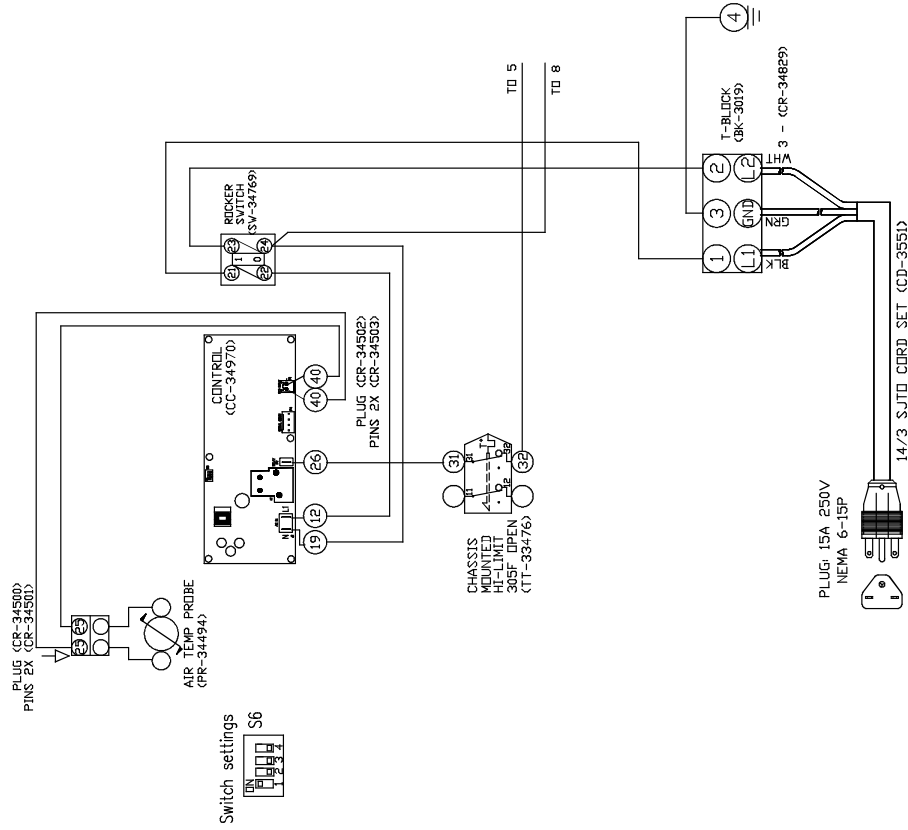
NOTE #1: ALL NUMBERS IN () = ALTO-SHAAM PART NUMBERS
 NOTE #2: SEE DRW. 5015439 FOR MAIN WIRE ASSEMBLY
 SEE DRW. 5015441 FOR 120V WIRE ASSEMBLY



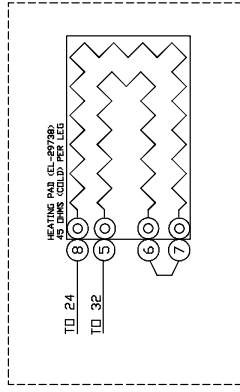
2	7514	Control Upgrade	02/12/16	TJG
1	6183	ADDED TT-33476, H-LIMIT	5/29/12	TJG
0	6183	INITIAL RELEASE	11/16/11	AFT
REV	ECO	DESCRIPTION	DATE	APP
500 SERIES DRAWER WARMERS, 120V 60HZ				
ALTO-SHAAM			WIRING DIAGRAM	
DWG: 77422			SHEET	
BY: AFT DATE: 11/15/11			1_DF_1	

VIEW FROM REAR OF BONNET

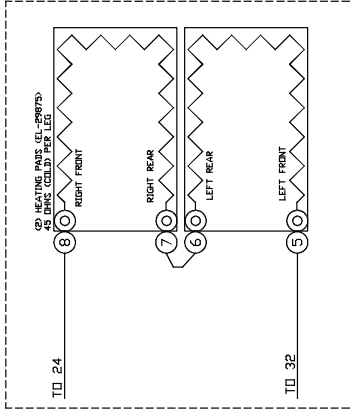
(FRONT)



500-1DN



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



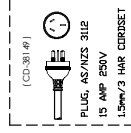
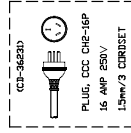
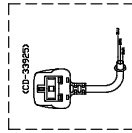
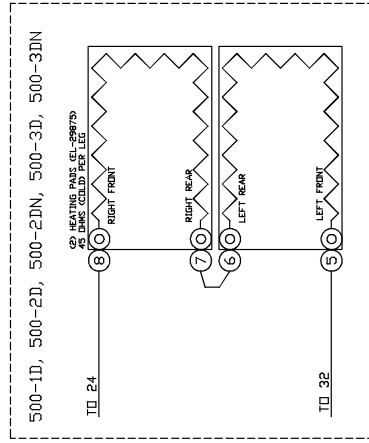
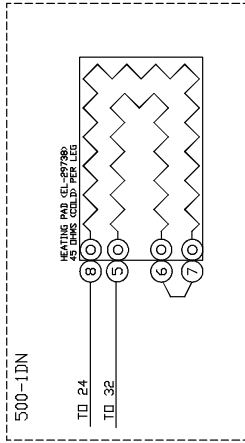
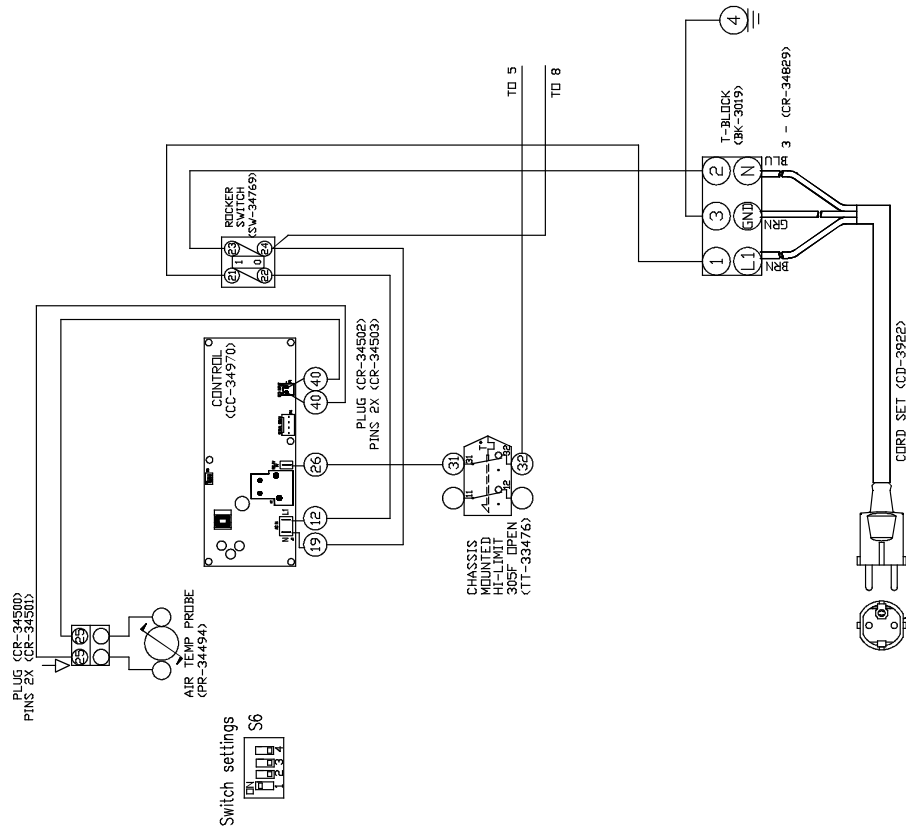
NOTE #1: ALL NUMBERS IN () =
ALTO-SHAAM PART NUMBERS
NOTE #2: SEE DRV. 5015439 FOR MAIN WIRE ASSEMBLY
NOTE #3: SEE DRV. 5015442 FOR 208-240V WIRE ASSEMBLY

(REAR)

2	7514	Control Upgrade	02/03/16	TJG
1	6183	ADDED TT-33476, HLIMIT	5/29/12	TJG
0	6183	INITIAL RELEASE	11/16/11	AFT
REV	ECO	DESCRIPTION	DATE	APP
500 SERIES DRAWER WARMERS, 208-240V 60HZ				
ALTO-SHAAM			WIRING DIAGRAM	
BY: AFT DATE: 11/16/11			DWG: 77423	
			SHEET	
			1_DF_1	

VIEW FROM REAR OF BONNET

< FRONT >



5	7514	Control Upgrade	02/12/16	TJG
4	7470	ADDED CD-38149, CORDSET	8/04/15	TJG
3	6758	ADDED CD-36231, CHINA CORD	8/06/14	TJG
REV	ECO	DESCRIPTION	DATE	APP
500 SERIES DRAWER WARMERS, 230V 50HZ				
ALTO-SHAAM			WIRING DIAGRAM	
BY: AFT DATE: 11/16/11			DWG: 77424	
			SHEET	
			1_OF_1	

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

< REAR >

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, do not put the appliance into service until the damage has been inspected by an authorized Alto-Shaam service provider.

Shipping damages are 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

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