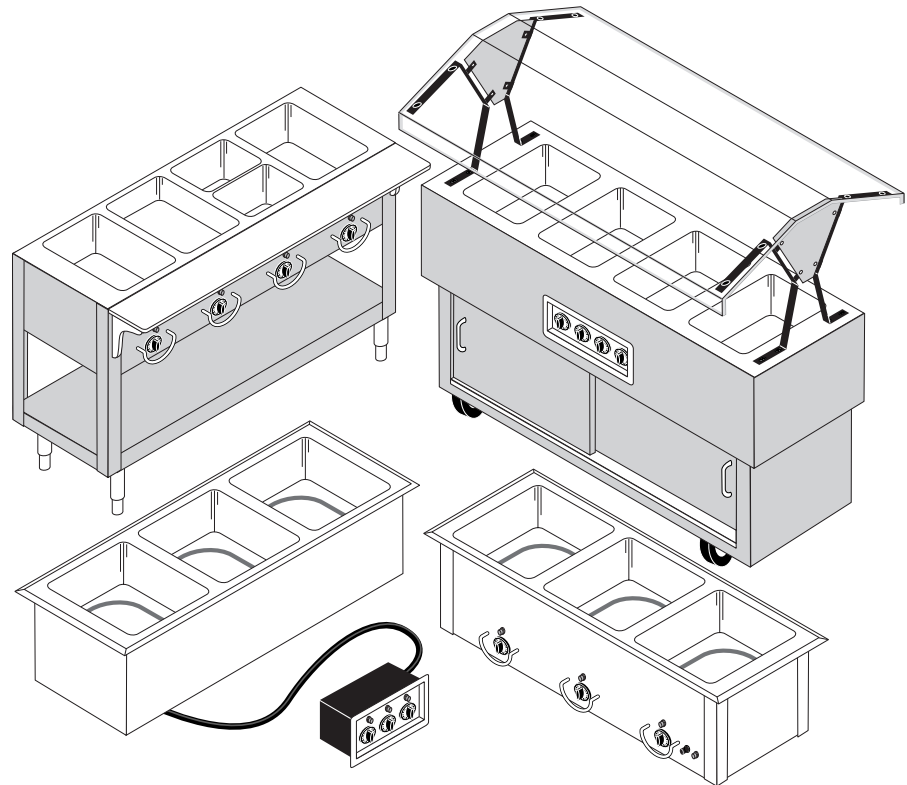




Your Solutions Partner

Service Manual

ELECTRIC OPEN WELL FOOD WARMERS



**Please read this manual completely before attempting to install,
operate or service this equipment**

This document is prepared for trained Duke service technicians. It is not to be used by anyone not properly qualified to perform these procedures.

This Service Manual is not all encompassing. If you have not been trained on servicing this product, be sure to read the manual completely before attempting servicing. Be sure all necessary tools, test equipment, and skills are available. Those procedures for which you do not have the proper skills and test equipment must be performed only by a qualified Duke trained service technician.

Written consent from Duke is required to reproduce any portion of this Manual. Unauthorized reproduction is prohibited.

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IMPORTANT WARNING AND SAFETY INFORMATION

WARNING

READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING, OR PERFORMING MAINTENANCE ON THE EQUIPMENT.

WARNING

FAILURE TO FOLLOW INSTRUCTIONS IN THIS MANUAL CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

WARNING

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

WARNING

DO NOT OPERATE THIS EQUIPMENT WITHOUT PROPERLY PLACING AND SECURING ALL COVER AND ACCESS PANELS.

CAUTION

Observe the following:

- Provide and maintain adequate minimum clearances from all walls and combustible materials.
- Provide and maintain adequate clearance for air openings.
- Keep the equipment area free and clear of combustible material.
- Operate equipment only on the type of electricity indicated on the specification plate.
- Retain this manual for future reference.

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SPECIFICATIONS

MODEL	DESCRIPTION	VOLTAGE	SIZE
E302 through E305	Stationary Aerohot	115VAC, 208VAC & 236VAC	Variable 2-well to 5-well
EP302 through EP305	Portable Aerohot	115VAC, 208VAC & 236VAC	Variable 2-well to 5-well
ADI1E through ADI5E	Aerohot Drop-In	115VAC, 208VAC & 236VAC	Variable 1-well to 5-well
ASI1E through ASI5E	Aerohot Slide-In	115VAC, 208VAC & 236VAC	Variable 1-well to 5-well
OPAH2 through OPAH4	Economate	115VAC, 208VAC & 236VAC	Variable 2-well to 4-well

INSTALLATION

LOCATION

The food warmers represented in this manual are intended for indoor use only. Be sure the chosen location has a floor strong enough to support the total weight of the unit fully loaded with food product. Reinforce the floor (stationary units) or cabinet (drop-in or slide-in units) if necessary to provide for maximum loading. Portable units (EP series Aerohot and Economate) should be placed on a level surface capable of supporting the unit's fully loaded weight. For the most efficient operation, be sure to provide good air circulation inside and out.

LEVELING

Be sure the floor units are placed on a firm, flat surface/floor. Check for cracks in flooring or tile and avoid these areas if possible. If necessary place support pads, properly rated for the weight of the unit, to "bridge" uneven or cracked flooring. Level the unit accordingly.

Make sure the top of the cabinet is level before installing Aerohot drop-in or slide-in units. It may be necessary to shim the unit to make it level.

STABILIZING

Use the leg adjustments to insure that the unit is solid to the floor surface at all contact points. Insure that the unit does not "rock" when pressure is applied to the top corners. Units with casters will require spacers to make it level on uneven surfaces. Casters must be locked when the unit is in service.

ELECTRICAL CONNECTION

The Aerohot and Economate Electric food warmers are available as 115VAC, 208VAC, or 236VAC, 50/60 Hz dependent on the needs of the customer. Portable units are available with a properly rated and wired cord set. Direct wiring of units to the power supply must be performed by a certified electrician and should comply with local electrical codes for your municipality.

MAINTENANCE

STAINLESS STEEL CARE AND CLEANING

Stainless steel contains 70-80% iron. Iron will rust. It also contains 12-30% chromium, which forms an invisible passive film over the steel surface and acts as a shield against corrosion. As long as the protective film remains intact, the metal will not corrode. However, if the film is broken or contaminated, outside elements can begin to breakdown the steel and begin to form rust or discoloration. To prevent rust and discoloration on stainless steel, several important steps need to be taken.

CAUTION: Never use steel wool pads, wire brushes or scrapers.



Avoid cleaning solutions that contain alkaline or chloride.

Use non-alkaline based or non-chloride cleaning solutions. Anything containing chloride will damage the protective film on stainless steel. Chlorides are found in household and industrial cleaners and also in hard water and salts. If a chloride or alkaline cleaner has been used, rinse repeatedly and dry thoroughly.

Always use only soft cloths or plastic scouring pads. For routine cleaning, use warm soapy water. For stubborn stains use a non-abrasive cleanser. For heavy grease use a degreaser. For best results, rub with the grain of the steel.

Pitting and cracking are early signs of stainless steel breakdown. Special stainless steel cleaners can restore and preserve the protective film. If signs of breakdown appear, thoroughly clean and dry all surfaces. Begin regular application of a high quality stainless steel cleaner according to the manufacturer's instructions. Again, always rub with the grain of the steel for best results.

CAUTION: Never use an acid-based cleanser! Be sure to clean all food products from any stainless surface. Many food products contain acid, which can deteriorate the finish. Common foods include tomatoes, peppers and other vegetables.



PARTS REPLACEMENT



WARNING

ALWAYS DISCONNECT THE UNIT FROM ITS POWER SOURCE BEFORE SERVICING!

INFINITE SWITCH REPLACEMENT

Aerohot E and EP Model

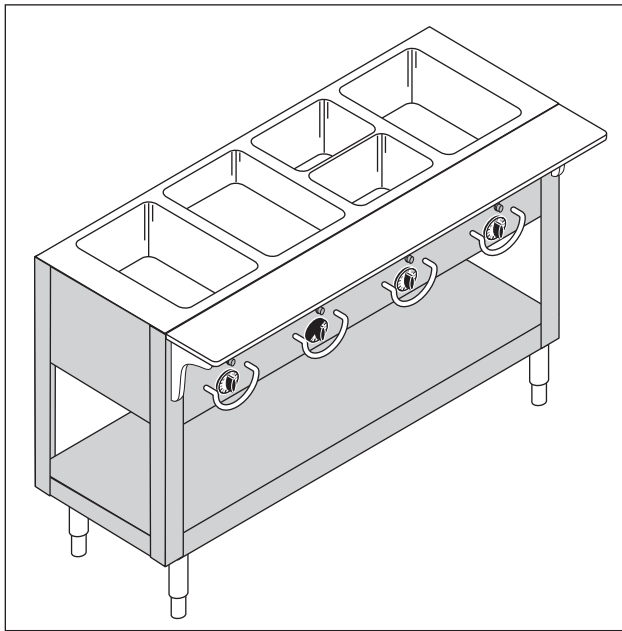


Figure 1. Location of Infinite Switch – Aerohot E and EP models

Infinite switches are located in front on the control panel below each pan. Figure 1 depicts the location of the switches on the Aerohot E and EP models.

1. Disconnect unit from power source.
2. Remove the screws that hold the bottom cover (see figure 2) in place.

3. Slide the bottom cover toward the back of the unit and provide support for it to prevent damage to the wiring harness.

Note: For easier access, tag the power wires, disconnect them and remove the bottom cover.

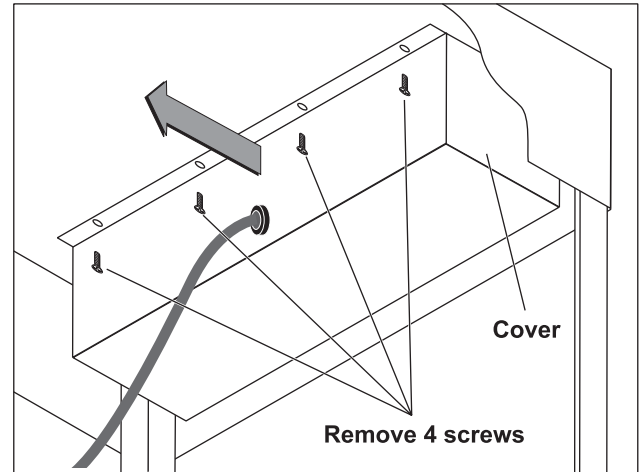


Figure 2. Removing bottom cover

4. Tag and disconnect the infinite switch wiring.
5. Remove the knob guard (if equipped).
6. Remove the knob.
7. Remove infinite switch mounting screws.
8. Remove infinite switch from control panel.
9. Install replacement infinite switch, mounting screws, knob and knob guard.
10. Reference the tags to reconnect the wires to the infinite switch.
11. Reconnect the power wires and reinstall the bottom cover.
12. Connect the unit to its power source.

INFINITE SWITCH REPLACEMENT

Aerohot ASI Model

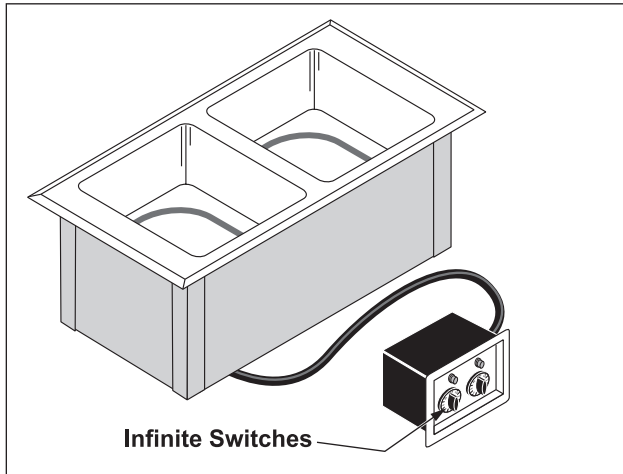


Figure 3. Location of Infinite Switch – Aerohot Drop-In (ADI) models

Infinite switches are located in a separate control panel that is mounted to the front of the cabinet. Figure 3 depicts an uninstalled ADI unit with the infinite switch control panel.

1. Disconnect unit from power source.
2. Remove the screws that hold the unit and its Infinite Switch Control Panel.
3. Pull the Infinite Switch Control Panel out of the cabinet for servicing.
4. Remove the screws that hold the back cover of the switch control panel in place.
5. Tag and disconnect the infinite switch wiring.
6. Remove the knob.
7. Remove infinite switch mounting screws.
8. Remove infinite switch from control panel.
9. Install replacement infinite switch, mounting screws and knob.
10. Reference the tags to reconnect the wires to the infinite switch.
11. Reinstall the back cover.
12. Reinstall the Infinite Switch Control Panel into the cabinet.
13. Connect the unit to its power source.

Economate

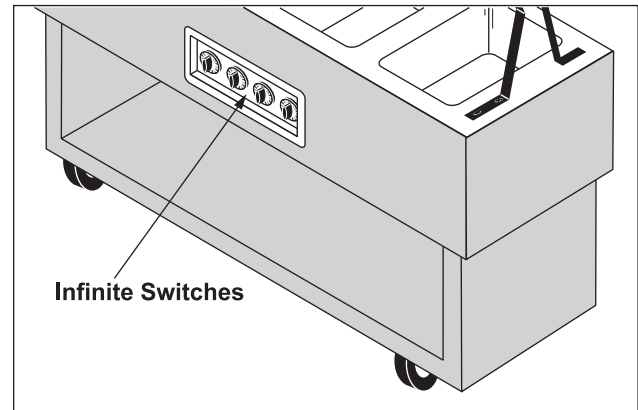


Figure 4. Location of Infinite Switch – Economate

Infinite switches are located in a switch pan mounted in the center of the unit's front panel. Figure 4 depicts the location of infinite switches on all Economate models.

1. Disconnect unit from power source.
2. Remove the four screws that hold the switch pan in place.
3. Carefully pull the switch pan forward until it is free of the unit.

CAUTION: Don't pull the wiring too tightly as the pan is pulled out.



4. Tag and disconnect the infinite switch wiring.
5. Remove the knob.
6. Remove infinite switch mounting screws.
7. Remove infinite switch from switch pan.
8. Install replacement infinite switch, mounting screws and knob.
9. Reference the tags to reconnect the wires to the infinite switch.
10. Reinstall the switch pan.
11. Connect the unit to its power source.

ELECTRONIC THERMOSTAT REPLACEMENT

Aerohot ASI Model

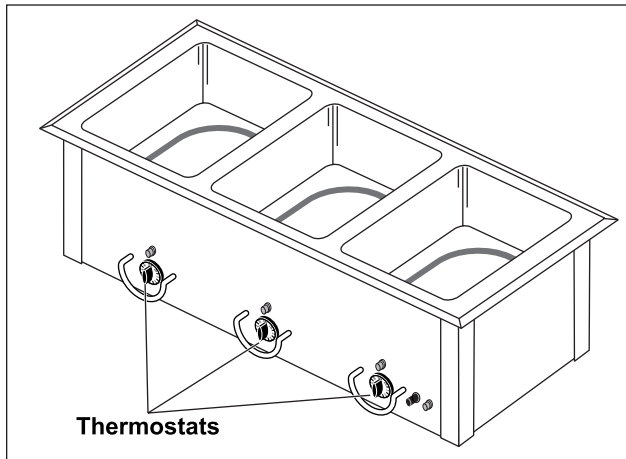


Figure 5. Location of electronic thermostat – Aerohot Slide-In (ASI) models

Thermostats are located in front on the control panel below each pan. Figure 5 depicts the location of the electronic thermostat.

1. Disconnect the unit from its power source.
 2. Slide the unit out of its cabinet.
 3. Turn the unit upside down and remove the screws that hold the bottom cover in place.
 4. Slide the bottom cover toward the back of the unit and lift it out as depicted in figure 2.
 5. Tag and disconnect the electronic thermostat wiring.
 6. Remove the knob.
 7. Remove the electronic thermostat mounting screws.
 8. Remove the electronic thermostat and sensor probe.
 9. Install the electronic thermostat probe into the slide-in tube in the pan.
- Note:** Do not kink the electronic thermostat probe when reinstalling it.
10. Install the new electronic thermostat, mounting screws and knob.
 11. Reference the tags to reconnect the wiring to the electronic thermostat.

12. Install the bottom cover.
13. Slide the unit back into its cabinet.
14. Connect the unit to its power source.

INDICATOR LAMP REPLACEMENT

Aerohot

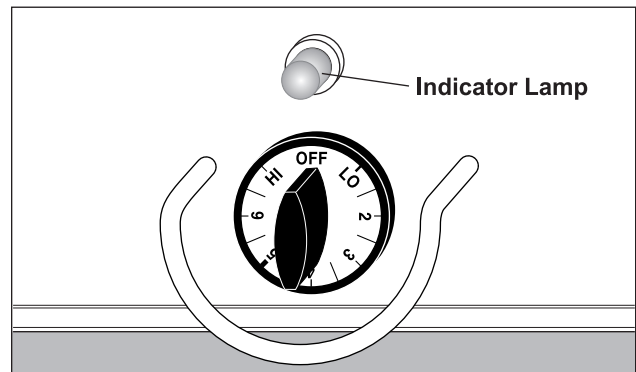


Figure 6. Location of Indicator Lamp

The indicator lamp is located on the control panel above the infinite switch or electronic thermostat (slide-in units only) on all electric units as depicted in figure 6. Economate units do not have an indicator lamp.

1. Disconnect unit from power source.
- Note:** Slide-in and drop-in units must be removed from their cabinets.
2. Remove the screws that hold the bottom cover in place.
 3. **E, EP and ASI models:** Slide the bottom cover toward the back of the unit and lift it out as depicted in figure 2.
 4. Disconnect the indicator lamp wiring from the infinite switch or electronic thermostat.
 5. Unscrew the indicator lamp lens.
 6. Remove the indicator lamp assembly.
 7. Replace the indicator lamp assembly.
 8. Screw the indicator lamp lens on.
 9. Reconnect the indicator lamp wiring.
 10. Install the bottom cover.

Note: Reinstall slide-in units into their cabinets.

11. Connect the unit to its power source.

DOME ELEMENT REPLACEMENT

Aerohot

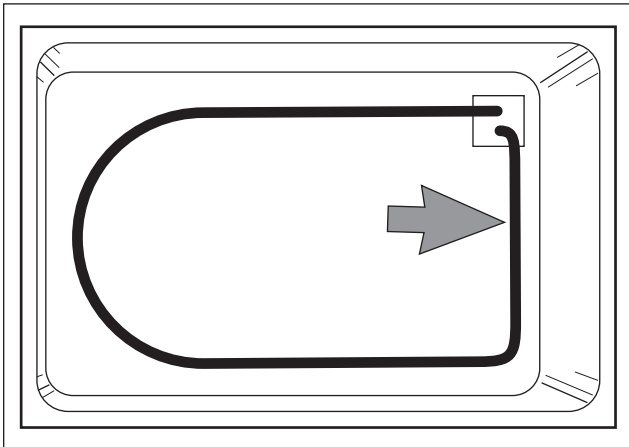


Figure 7. Location of Dome Element

The dome element is located inside each pan as depicted in figure 7. Use replacement elements that are rated for the model being serviced.

1. Disconnect unit from power source.

Note: Drop-in and slide-in units must be removed from their cabinets.

2. Remove the screws that hold the bottom cover in place (see figure 2).

3. Slide the bottom cover toward the back of the unit and lift it out as depicted in figure 2.

4. Disconnect the dome element wiring.

5. Remove the dome element support clip in the pan.

6. Remove the dome element support clip from the element.

7. Remove the dome element mounting screws.

8. Remove the dome element from the pan.

9. Replace the dome element.

10. Replace the dome element support clip.

11. Replace the screws that hold the dome element and support clip in place.

12. Connect the dome element wiring.

13. Install the bottom cover.

14. Connect the unit to its power source.

Economate

The dome element is located inside each pan as depicted in figure 7. Make sure you have the correct element for the unit and power source before attempting to change it.

1. Disconnect unit from power source.

2. **Countertop models:** Go to step 3.

Storage base models: Remove the unit from the base cabinet first.

3. Remove the wire harness cover.

4. Disconnect the dome element wiring.

5. Remove the dome element support clip in the pan.

6. Remove the dome element support clip from the element.

7. Remove the dome element mounting screws.

8. Remove the dome element from the pan.

9. Replace the dome element.

10. Replace the dome element support clip.

11. Replace the screws that hold the dome element and support clip in place.

12. Connect the dome element wiring.

13. Install the wire harness cover.

14. **Countertop models:** Install the bottom cover.

Storage base models: Reassemble the unit to the storage base.

15. Connect the unit to its power source.

CARVING BOARD SHELF REPLACEMENT

Aerohot E and EP Models

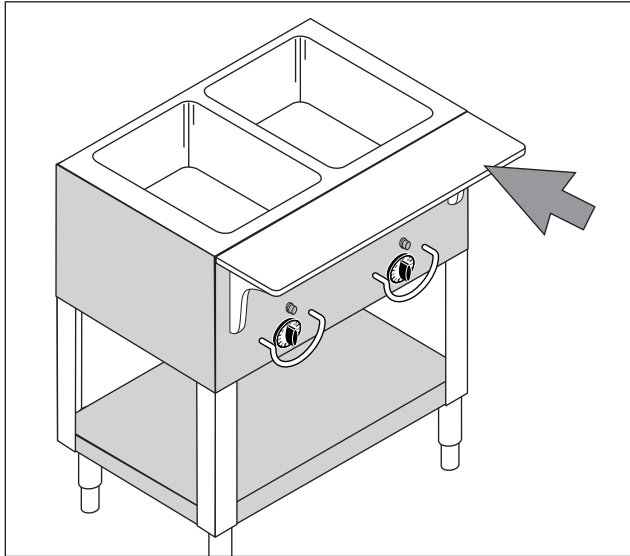


Figure 8. Location of Carving Board Shelf

The carving board and carving board shelf are located on the front of the unit above the infinite switches as depicted in figure 8. The carving board is replaceable as a separate unit if needed.

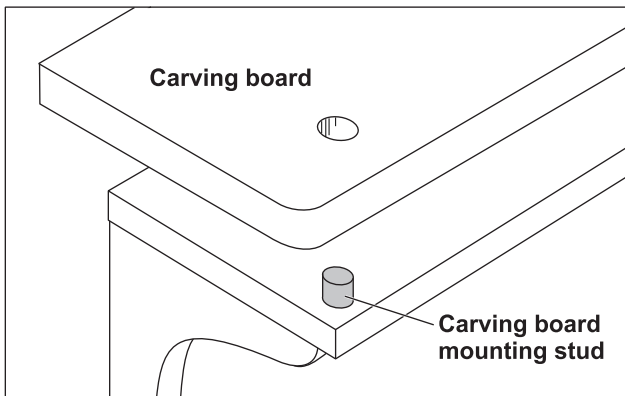


Figure 9. Carving board mounting stud

1. Lift the carving board off of its mounting studs depicted in figure 9.

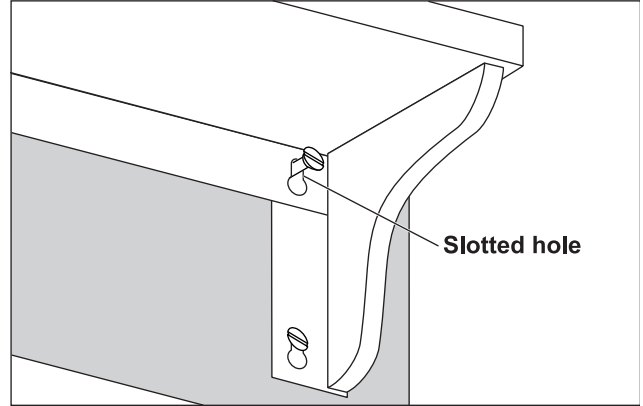


Figure 10. Carving board shelf mounting brackets

2. Loosen the top screw in the slotted hole at the top of the bracket on both sides of the unit as depicted in figure 10.
3. Remove the rest of the screws that hold the shelf on the unit.
4. Lift the shelf up and away from the unit.
5. Replace the shelf with the new one.
6. Reinstall the screws.
7. Tighten the screws in the slotted holes.
8. Insert the new carving board into the mounting studs on the shelf.

ECONOMATE PLEXIGLAS CANOPY REPLACEMENT

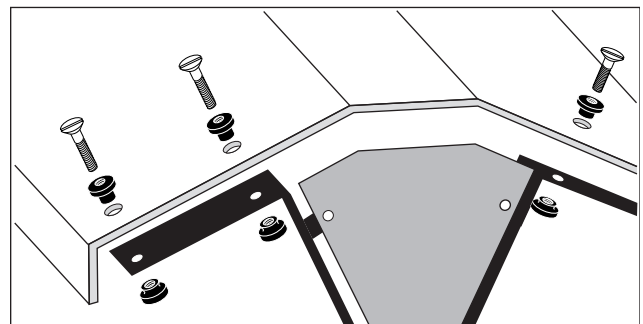


Figure 11. Economate Plexiglas Canopy

The Plexiglas canopy is mounted to the canopy brackets using rubber grommets.

1. Disconnect unit from power source.
2. Remove the screws that hold the canopy on as depicted in figure 11.

Note: If canopy bracket replacement is required they can be removed once the Plexiglas canopy is removed.

3. Remove the rubber grommets from the old canopy.
4. Remove the protective plastic covering from the new canopy.
5. Install the rubber grommets in the new canopy.
6. Install the new canopy.

Note: Install new canopy brackets first if replacing them.

CAUTION: Do not overtighten the screws.



Overtightened screws will crack the Plexiglas.

7. Connect the unit to its power source.

ECONOMATE CASTER REPLACEMENT

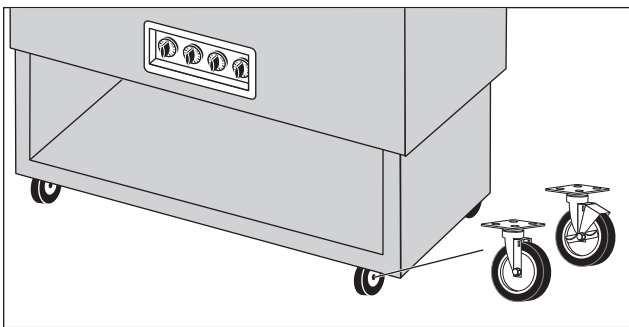


Figure 12. Economate Casters

Economate units are supplied with NSF listed 5" black stem casters. Two casters are provided with locks.

1. Disconnect the unit from its power source.
2. Remove the unit from its base.
3. Turn the base upside down.

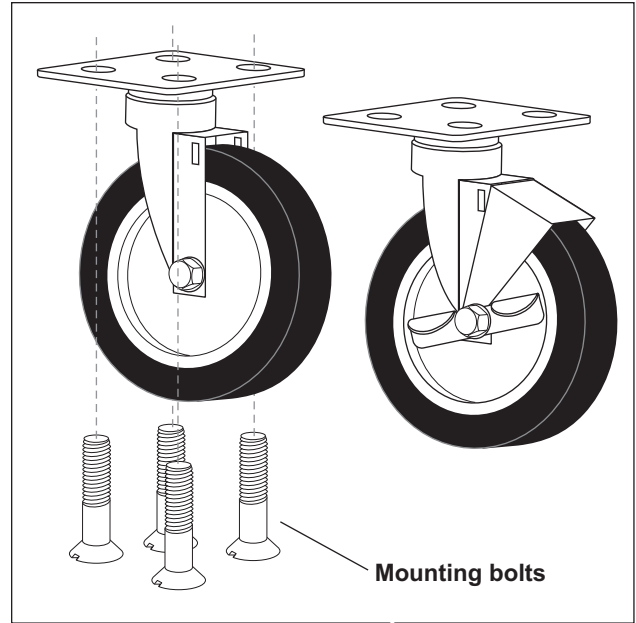


Figure 13. Location of stem bolt in caster inserted here

4. Loosen the bolts that secure the caster.
5. Grip the caster snugly and pull it free of the base unit.
6. Place the new caster onto the base of the leg.

Note: Casters with brakes must be replaced with brake unit.
7. Reattach the mounting bolts and tighten them properly.
8. Turn the base unit right side up and reinstall the warmer assembly.
9. Reconnect the unit to its power source.

TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Element does not heat	Unit not plugged in Defective thermostatic switch or infinite switch No power to unit Open element	Plug unit in. Replace with proper part rated for the model. Check circuit breakers or fuses. Test for continuity and replace if necessary.
Unit not level	Legs not adjusted properly (floor models) Cabinet not level (drop-in or slide-in units)	Using the leg adjusters, adjust the legs until level. Shim cabinet until level.

SCHEMATICS

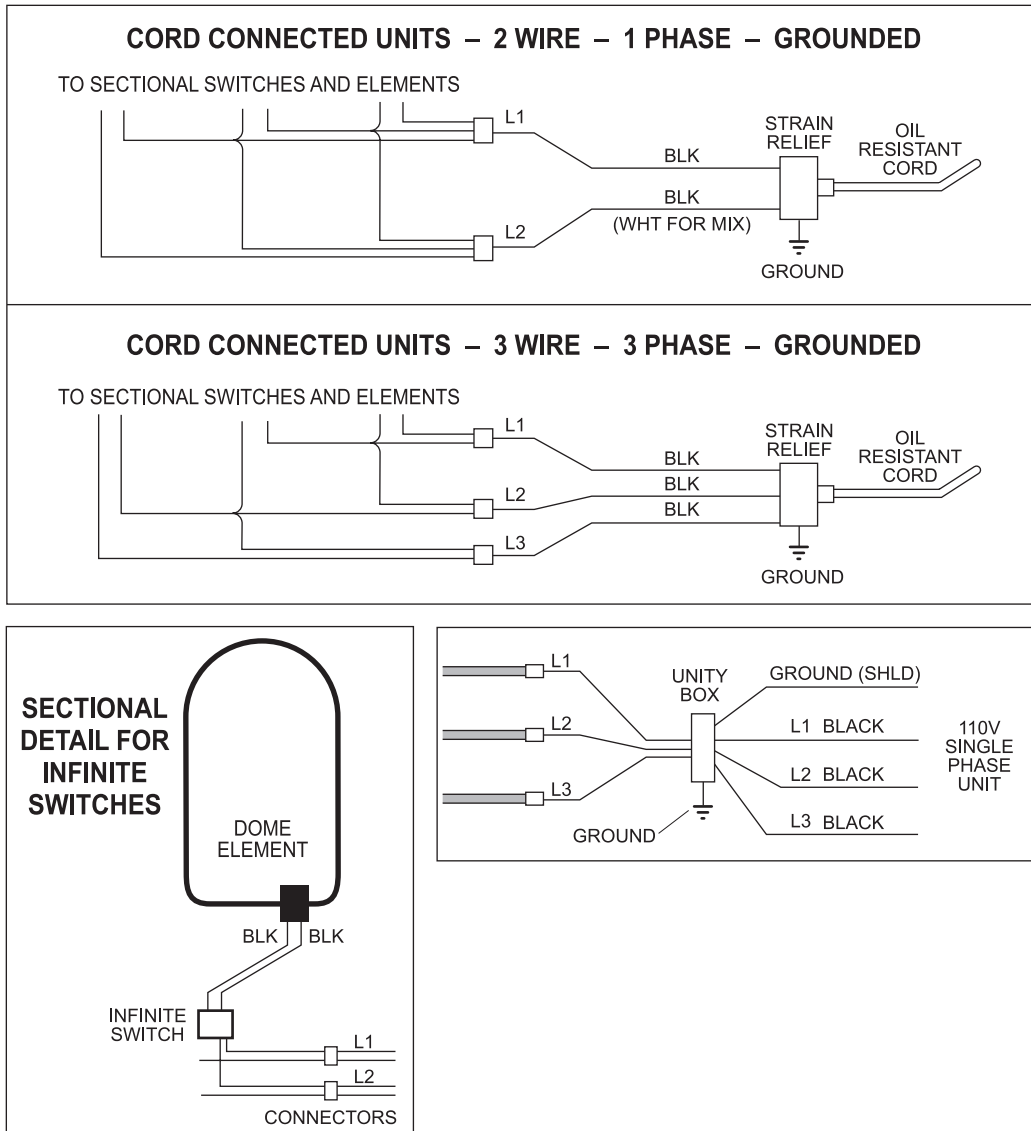


Figure 14. Schematics of Open Well Units with Electronic Thermostats or Infinite Switches

NOTES:

CUSTOMER ASSISTANCE

To aid in reporting this unit in case of loss or theft, please record below the model number and serial number located on the unit. We also suggest you record all the information listed and retain for future reference.

MODEL NUMBER _____	SERIAL NUMBER _____
DATE OF PURCHASE _____	
DEALER _____	TELEPHONE _____
SERVICER _____	TELEPHONE _____

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TO ACCESS INTERNET: www.dukemfg.com

Please provide the following information when you write or call: model number, serial number, date of purchase, your complete mailing address (including zip code), and description of the problem.



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