



# *Belshaw*<sup>®</sup>

## Countertop Fryer Model: 616B



# OPERATION AND MAINTENANCE MANUAL

814 44th Street NW, Suite 103 • Auburn, WA 98001 • USA  
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info@belshaw.com • service@belshaw.com • www.belshaw.com

## EQUIPMENT RECORD

Please provide information below when corresponding with Belshaw about your machine.

Purchased by \_\_\_\_\_

Installed by \_\_\_\_\_

Date of Installation \_\_\_\_\_

Model number \_\_\_\_\_

Serial number \_\_\_\_\_

## IN CASE OF DAMAGE TO EQUIPMENT

In case of damage to the equipment upon delivery, follow these steps immediately.

1. Inform the freight carrier. The phone number will be on the shipping receipt or label.
2. Take photographs of the equipment, both inside and outside the box or crate.
3. Do not throw away any packaging.
4. Report damage to the distributor (or other party) from whom you bought the equipment.
5. Email your photos to the distributor (or other party) AND to Belshaw Customer Service at [service@belshaw.com](mailto:service@belshaw.com). Include a Belshaw Order Number in your communications.

## IN CASE OF MISSING ITEMS

1. If possible, note the missing items on the delivery receipt of the freight carrier.
2. Take photographs of the entire shipment.
3. Follow steps 2 - 5 above.



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# PREFACE

The 616B fryers have been built using the finest materials and components available, following years of research and development. Many features are designed into this unit to ensure higher quality in your products and reduce operating costs. Attention to the instructions regarding installation, operation, and maintenance should result in years of trouble-free service.

The operator must always work safely and follow the instructions and warnings in this manual. A thorough understanding of how to install, maintain, and safely operate the fryer will prevent production delays and injuries.

Pay attention to the following warnings and all others that appear in this manual:

- To avoid damaging the machine, never use force to assemble, disassemble, operate, clean, or maintain it.
- Never let water and hot shortening come in contact with each other. Moisture causes hot shortening to spatter, which may cause serious burns.
- Do not overfill the kettle with shortening. If shortening overflows the kettle, it could cause serious burns or cause someone to slip on the floor and get seriously injured.
- Hot shortening can cause serious burns. Make sure that the system and shortening are cool before attempting any cleaning, adjustment, disassembly, or repair.
- To avoid electrocution or other injury, unplug the machine before cleaning, adjustment, disassembly, or repair.
- Be careful to not get shortening, water, or other materials on the floor. If anything spills, mop it up immediately. Materials on the floor can cause people to slip or fall, resulting in serious injury or fatality.
- To prevent unintentional startups and possible fire, unplug the machine if there is a power outage. When power is restored, it is safe to plug the machine in again.
- To avoid electrocution, make sure that all electrical cords are not frayed or cracked and that they do not pass through any water or shortening.
- Make sure that all electrical cords are routed so that no one will trip over them.

# INSTALLATION

## Unpacking the Fryer

1. Carefully transport the shipping box to the work station.
2. Break down the shipping box.
3. Remove all the packing materials from the fryer. These may include foam, tape, brown paper, plastic, and white protective coating.
4. Ensure all ordered parts, as well as loose items such as screens, lid, drain valve, and elbow, have been received.
5. Check the fryer carefully for any damage that may have occurred during shipping.
6. Position the fryer to allow sufficient space on either end of the machine for any equipment you plan to use with it.

## Initial Cleaning

Clean your fryer before using it. Wipe the inside of the kettle with a soft, damp cloth. Dry the kettle thoroughly.

### WARNING

**To avoid electrocuting yourself or damaging the machine, never allow water, steam, cleaning solution, or other liquids to enter the heater head or electrical box.**

### WARNING

**Never let water and hot shortening come into contact with each other. Moisture causes hot shortening to spatter, which may cause serious injury. Prior to use, make sure the kettle and any other parts you have washed are dry.**

## Installing the Fryer

1. Ensure the power requirements of the fryer, found on the data/name plate, match your power source.
2. Set the fryer cabinet on a flat, dry counter or table.
3. Install the drain valve and street elbow that comes with the fryer onto the pipe nipple of the fryer kettle with Teflon tape. Ensure the valve is tight and leak-free.
4. Level the fryer.
5. Connect the fryer to a properly grounded power source. Do not turn on the power.
6. When first filling the kettle with shortening, if a hydrogenated or semi-solid shortening is used, melt some shortening and pour it into the kettle.

### WARNING

**Do not turn the thermostat above 250°F (120°C) until all the shortening has melted.**

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# INSTALLATION

## Moving the Fryer

If you ever want to move the fryer to a different workstation, follow this procedure:

1. Turn off the fryer and disconnect it from the power source.
2. Allow the fryer and shortening to cool.

### WARNING

**Do not touch hot shortening.  
It can cause serious burns.**

3. Remove the shortening from the fryer as explained in the cleaning section of this manual.

### WARNING

**To avoid burns, falls, other injuries or death, never attempt to move the fryer when it has shortening or other liquid in it.**

### WARNING

**Thoroughly clean and dry the floor if shortening is spilled. Materials on the floor can cause people to slip or fall, resulting in serious injury or fatality.**

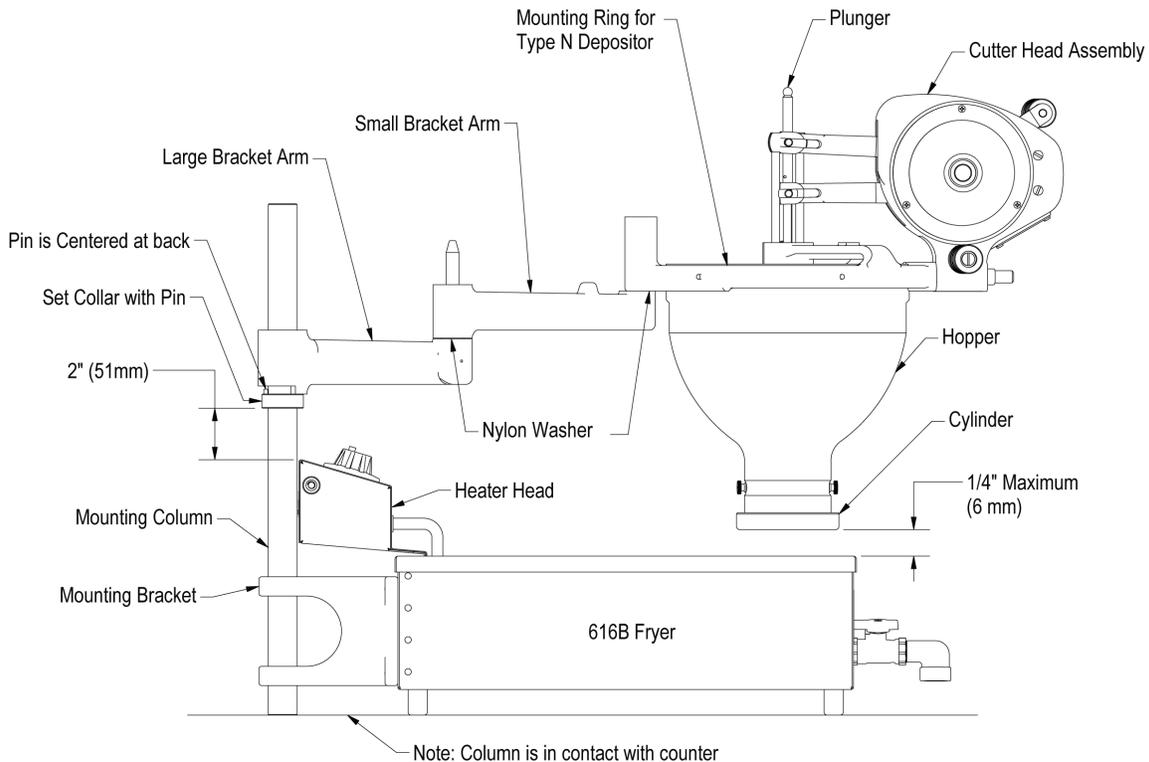
4. Level the fryer and connect it to the power source, as explained in “Installing the Fryer” on the previous page.



# INSTALLATION

## Installation with Type N Depositor (Optional)

This section shows how to mount a Type N Depositor with your 616B fryer.



### SAFETY NOTICE

The Cut-N-Fry unit should be located on a solid countertop with the heater head toward the wall. When the fryer is not mounted near the wall and is accessible from all sides, the 616B fryer should be bolted to the table (or other surface that supports it). A hole can be drilled through the bottom of the outer case after removing the kettle.

### Mounting Instructions

1. Mount the **Mounting Brackets** at the rear of the 616B fryer.
  - Fasten securely to the metal block using the included bolts.
2. Place the **616B fryer** in the position where it will be used, and slide the **Mounting Column** into place.
  - The column should rest on the countertop surface. Tighten the set screws in the mounting brackets.

# INSTALLATION

3. Place the **Set Collar with Pin** onto the column as shown, approximately 2" (51mm) above the **Heater Head** of the fryer.
  - The pin should point upward. Tighten the set screw securely. Oil the column above the set collar with light machine oil.
4. Slide the **Large Bracket Arm** onto the **Mounting Column** until it rests on the **Set Collar With Pin**.
  - Oil the pin slightly and install the **Nylon Washer**.
5. Place the **Small Bracket Arm** onto the pin of the **Large Bracket Arm**.
  - Oil the pin slightly and install the **Nylon Washer**.
6. The **Hopper Base** of the Type N Depositor shall be mounted on the pin of the **Small Bracket Arm**.
  - The bottom of the depositor should be 1/4" (6 mm) above the rim of the **616B Fryer**.

# OPERATION

Read each step **completely** prior to operating this equipment.

1. Put enough shortening in the kettle to completely cover the heating elements, thermocouple, and high-temperature limit control probe.

## WARNING

**Hot shortening causes severe burns.**

Put shortening in the kettle using one of these methods:

- Melt shortening in a pan on the stove and pour it into the kettle.
- Put solid shortening into the kettle, packing it tightly around the heating elements, thermocouple, and high-temperature limit control probe.

## WARNING

**Air spaces can cause the shortening to overheat and catch on fire.**

2. Turn on the unit by turning the switch ON. When the unit is turned on, the power light located next to the thermostat knob will be lit.
3. Set the thermostat to 250°F (121°C). The “Heating” pilot light above the elements will light up, indicating that the shortening has not yet reached the selected temperature.

4. Continue adding shortening to the kettle until it reaches the “Oil Level” marks on the kettle.

## WARNING

**To avoid serious burns, be very careful not to splatter hot shortening while adding shortening to the kettle.**

Because shortening expands as it increases in temperature, put shortening in the kettle gradually. Let the shortening in the kettle heat up before adding more.

After all of the shortening has melted, set the thermostat to the desired frying temperature.

The “Power” and Heating” pilot light will go out if the high temperature limit control breaks the circuit.

Note: If the high temperature limit control does break the circuit, push the red reset button on the back of the heater head.

6. Wait for the shortening to reach the desired temperature.

## WARNING

**To avoid serious burns, when the fryer is operating, do not touch any part of the fryer that is in contact with the hot shortening.**

# OPERATION

7. If you are frying cake or French donuts, move the cutter into place over the fryer. Refer to the depositor manual (Type N Depositor) for complete installation and operation instructions.

To fry yeast-raised donuts, place donuts on the fry screen and slowly lower the screen into the fryer. With the donut stick, turn the donuts over to fry the top side. Remove the fry screen and donuts when the donuts are completely fried by lifting up the fry screen with the donuts on top of it. Immediately place on or over a tray to catch dripping shortening.

## WARNING

**Hot shortening will drip off the fry screens, causing a slip hazard. To avoid serious injury or fatality, be very careful and immediately clean up any drips.**

## WARNING

**To avoid serious burns, be careful of hot shortening dripping from the fry screens. Do not touch hot shortening and immediately clean up spills and drips.**

8. Continue supplying shortening to the kettle as required. Keep the kettle filled up to the "Oil Level" marks on the side.
9. When you are done frying donuts, move the thermostat knob counter-clockwise as far as it will go.

## Frying Tips

1. Use a high quality hydrogenated shortening.
2. Store your shortening supply at room temperature.
3. To prolong the life of the shortening, do not keep shortening at high temperature if the fryer is not being used.
4. Drain and strain shortening periodically. Several layers of cheesecloth will do a good job of filtering.
5. Keep the fryer and screens clean.
6. Maintain shortening at the proper level in the fryer. Add fresh shortening to keep the level at the "Oil Level" marks stamped on the kettle sides.
7. Add at least 15% fresh shortening to your kettle daily.
8. Discard shortening as soon as it tends to bubble or foam during frying.

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# CLEANING

For your safety, observe the following warnings throughout the cleaning process.

## WARNING

**Thoroughly clean and dry the floor if shortening, water, or other materials are spilled. Materials spilled on the floor can cause serious injury or fatality.**

## WARNING

**To avoid electrocuting yourself or damaging the machine, never allow water, steam, shortening, cleaning solution, or any other liquid to enter the electrical box.**

## WARNING

**To avoid serious burns while cleaning, do not touch the flue, exhaust manifold, stacks, gas burners, or any part of the fryer that is in contact with hot liquids.**

There are four basic steps to cleaning the fryer: removing the shortening, washing, rinsing, and drying. You must perform all four steps and perform them in the order listed.

## WARNING

**To avoid being burned or electrocuted, disconnect the fryer from the power source before cleaning it.**

## Removing the Shortening

1. Disconnect the fryer from the power source.
2. Let the shortening cool to 250°F (120°C).
3. Place a metal container under the drain valve of the fryer.

## WARNING

**Do not use a plastic container. If the shortening is not cool enough, the container will melt, possibly causing you to get burned, and causing shortening to get on the floor.**

4. Open the drain valve and allow all the shortening to drain into the container.

## WARNING

**Do not allow the shortening to overflow the containers. Shortening will get on the floor, and if the shortening is not cool enough, you may get burned.**

5. Using a non-abrasive, non-metallic spatula, scrape the sediment and any remaining shortening.
6. Close the drain valve.

## WARNING

**Thoroughly clean and dry the floor if shortening is spilled. Shortening on the floor can cause serious injury or fatality.**

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# CLEANING

## WARNING

**To avoid fire, serious injury, and equipment damage, do not attempt to burn carbon off of the heating elements.**

## Washing

1. Pour hot water into the kettle, up to the normal level of the shortening. Add appropriate cleaner.

## WARNING

**To avoid severe damage to the kettle, never turn on the heat unless the heating elements are completely covered by liquid.**

2. Connect the fryer to the power source. Move the on/off switch to ON. Set the temperature control to 200°F (93°C). Keep the cleaning solution at this temperature for 15-20 minutes.
3. Scrub the soiled parts while the solution is hot. Do not use any abrasive cleaners or scrapers.

## WARNING

**To avoid getting burned, be very careful as you work with hot cleaning solution. Never put your hands in the solution. Wear gloves and long sleeves in case any solution splashes.**

4. Move the on/off switch to OFF and disconnect the fryer from the power source. Allow the cleaning solution to cool to 100°F (38°C).
5. Place a large metal container under the drain valve.

## WARNING

**Do not use plastic containers. If the cleaning solution is not cool enough, the container will melt, possibly causing you to get burned, and causing cleaning solution to get on the floor.**

6. Open the drain valve and allow the cleaning solution to drain into the container.
7. Watch the container to ensure the cleaning solution does not overflow. If the container becomes full, close the drain valve, put another large metal container under the drain valve, and open the drain valve again.

## WARNING

**Do not allow the cleaning solution to overflow the containers. Cleaning solution will get on the floor, and if the solution is not cool enough, you may get burned.**

8. When the draining is complete, close the drain valve.
9. Carefully carry the container(s) to the sink and slowly pour the solution into the sink.

# CLEANING

## WARNING

**Thoroughly clean and dry the floor if cleaning solution is spilled. Liquid on the floor can cause serious injury or fatality.**

## WARNING

**To avoid severe damage to the kettle, never turn on the heat unless the heating elements are completely covered by liquid.**

## Rinsing

1. Pour clean water into the kettle, up to the normal level of shortening.
2. Connect the machine to the power source. Move the on/off switch to ON. Set the temperature controls at 200°F (93°C). Leave the water at this temperature for 5-10 minutes.
3. Move the on/off switch to OFF and disconnect the machine from the power source. Allow the water to cool to 100°F (38°C).
4. Place a large metal container under the drain valve.

## WARNING

**Do not use plastic containers. If the water is not cool enough, the containers will melt, possibly causing you to get burned, and causing water to get on the floor.**

5. Open the drain valve and allow the water to drain into the container.
6. Watch the container to ensure the water does not overflow. If the container becomes full, close the drain valve, put another large metal container under the drain valve, and open the valve again.

## WARNING

**Do not allow the water to overflow the containers. Water will get on the floor, and if the water is not cool enough, you may get burned.**

7. When the draining is complete, close the drain valve.
8. Carefully carry the container(s) to the sink and slowly pour the water into the sink.

## WARNING

**Thoroughly clean and dry the floor if water is spilled. Liquid on the floor can cause serious injury or fatality.**

9. Dry the kettle, drain valve, and heating elements thoroughly. Ensure there is no water in the drain or drain tube.

## WARNING

**Dry all parts of the fryer thoroughly. Failure to dry the fryer and kettle completely will cause an eruption. Shortening will overflow the sides of the fryer and may result in fire, injury, or fatality.**

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# CLEANING

## Cleaning the Exterior Surfaces

1. Clean the polished and painted surfaces of the fryer with a soft, damp cloth. Use a non-abrasive cleaner to remove any discoloration.
2. Polish these surfaces with a soft, dry cloth.

## Cleaning the Frying Screen and Drain Tray

1. In a sink or a dishwasher, wash the frying screen using warm water and mild detergent. Do not use an abrasive cleaner or scraper.
2. Rinse and fry screen and drain tray in clean water.
3. Dry the frying screen thoroughly, using a soft cloth, before you use it again.

### WARNING

**Dry the frying screen thoroughly. Moisture causes hot shortening to spatter, which may cause serious injury.**

# MAINTENANCE

## WARNING

**To avoid getting burned, electrocuted, or otherwise injured, always unplug the machine and allow it to cool down before making adjustments, clearing obstructions, lubricating, cleaning, or disassembling.**

## Taking Care of the Plunger, Hopper, and Cylinder

The plunger, hopper, and cylinder are precision instruments. With proper care, they will perform well for years. Follow these guidelines:

- Clean these parts only in the manner explained in this manual.
- Handle these parts with care. Avoid dropping them on hard surfaces.
- Do not force the machine if it becomes jammed. To avoid damaging the plunger, disassemble the machine and remove any obstructions.

## Lubrication

### Daily

Before using the machine each day, apply food grade mineral oil to the plunger connecting rod. The oil should penetrate the ball lock and the spring socket.

### Weekly

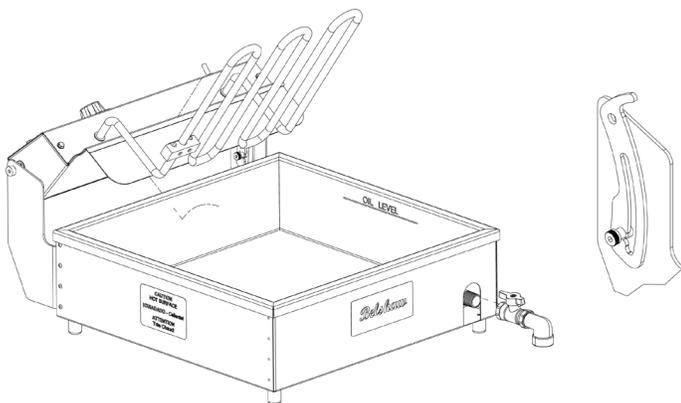
Apply a few drops of food grade mineral oil to the swing column where it contacts the swing column bracket.

# REMOVING THE KETTLE

## Instructions for Removing the Kettle

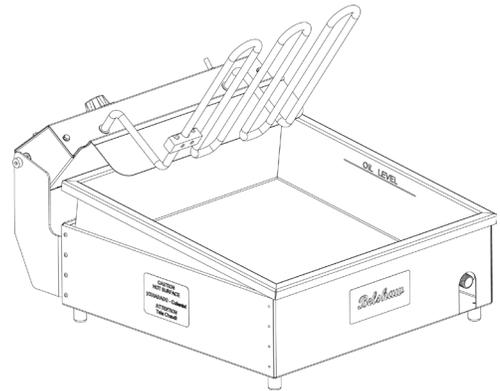
Removing the kettle is not necessary and is not recommended frequently, as cleaning can be done without removing it. However, if you need to remove the kettle for any reason, follow the steps below.

1. Remove the Shortening: Follow the instructions in the "Cleaning Section: Removing the Shortening" (Page 11)
2. Drain the Kettle: Once the kettle is empty, unscrew the drain valve and set it aside for reinstallation later.
3. Secure the Heater Head: Tilt the heater head upward. Latch it into the safety latch and ensure it is securely in place.

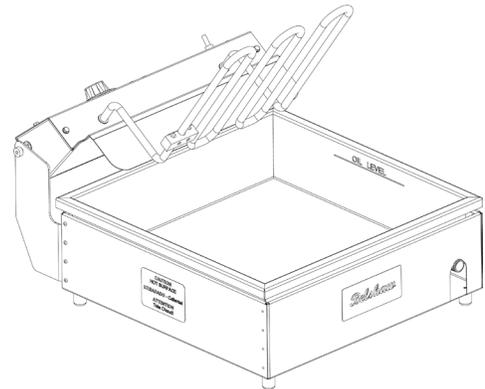


4. Prepare to Remove the Kettle: Removing the kettle can be a bit tricky due to the pipe nipple. With the correct angle and care, it can be removed easily.
5. Tilt and Release the Kettle: Tilt the kettle slightly backward, allowing the pipe

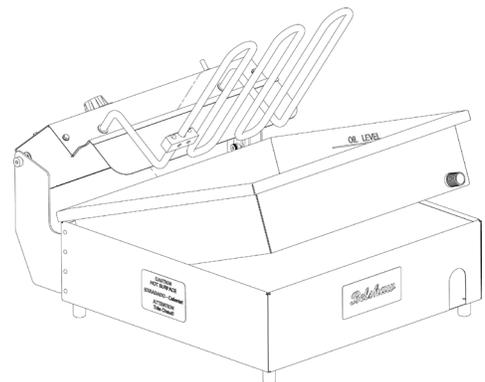
nipple to move inward and not interfere with the fryer case surface.



6. Lift the Kettle: Once the pipe nipple is inside the fryer case surface, pull the kettle upward in a straight motion.



7. Final Removal Step: After the kettle reaches the top edge of the fryer case, tilt it downward slightly and lift it out.



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# TROUBLESHOOTING

The following section is designed as an aid in troubleshooting to help you identify and solve some basic problems. It does not cover every possible problem that might arise, and is not a substitute for a qualified technician. Follow all warnings to ensure your safety.

If you have a problem with your fryer that you cannot solve, call your dealer or another qualified technician.

If your dealer cannot help you, please call Belshaw at (206) 322-5474. When you call, please specify the following:

- The model name of the machine.
- The serial number of the machine.
- The voltage, phase, and cycle of the machine.

## WARNING

**If you perform repairs yourself or have them performed by anyone other than a service technician authorized by Belshaw, you do so at your own risk.**

## WARNING

**To avoid getting burned, electrocuted, or otherwise injured, unplug the machine from the power source before disassembling, repairing or wiring.**



# TROUBLESHOOTING

## WARNING

Before doing any of the following, turn off the machine and allow the shortening to cool.

### The fryer will not turn on or heat

Possible Causes	What To Do
The on/off switch is not in the ON position.	Move the on/off switch to the ON position.
The high-temperature limit control switch has been tripped.	Press the red reset button on the back of the heater head.
The primary power distribution circuit breaker has been tripped.	Flip the circuit breaker.
A fuse is blown.	Replace the fuse.

### The heating elements fail to maintain the proper temperature

Possible Causes	What To Do
The thermostat is out of adjustment or defective.	Replace the thermostat.
Sediment has accumulated around the thermostat bulb.	Remove the shortening from the fryer, as explained in the cleaning section. Remove the sediment from the thermostat bulb.

# TROUBLESHOOTING

## The heating elements will not heat

Possible Causes	What To Do
The fryer's circuit breaker has been tripped.	Press the red reset button on the back of the heater head.
The high-temperature limit control switch has been tripped.	Press the red reset button on the back of the heater head.
The contactor is defective.	Replace the contactor.
A heating element is defective.	Replace the defective heating element.
The high-temperature limit control is defective.	Replace the high-temperature limit control.
The thermostat is out of adjustment or defective.	Replace the thermostat.

# DONUT MAKING TIPS

## Tips on Making Quality Cake Donuts

### 1. Use the correct batter temperature.

In general, the correct batter temperature is 75-80°F (24-27°C). Check the mix manufacturer's instructions, as the recommended temperature range may vary.

If the batter is too warm, the donuts will lack volume and may "ring out" or be misshapen. If the batter is too cold, the donuts will stay under the shortening too long, fry too slowly, and crack open or ball up. They may also absorb excess shortening and lose volume.

### 2. Use the correct floor time.

A floor time of 10 minutes between mixing and cutting allows the baking powder to react with the water. This helps the donuts attain the proper volume for the proper level of shortening penetration.

If the floor time exceeds 30 minutes, the mix will gas off, the donuts will lose volume and shape and will absorb too much shortening.

### 3. Use the correct frying temperature.

The correct shortening temperature for frying is 370°-380°F (188°-193°C).

If the shortening is too hot, the donuts will fry too quickly on the outside and will lose volume. The donuts may also become dense inside.

If the shortening is too cold, the donuts will spread too rapidly, form large rings, tend to crack open, be too light in appearance, and absorb too much shortening.

### 4. Maintain the proper shortening level.

We recommend a distance of 1 1/4" between the cutter and the shortening.

If the shortening is too deep, the donuts may not turn over when they reach the turner, causing them to cook unevenly.

If the shortening is too shallow (too far below the cutter), the donuts may not drop flat, turn over while submerging and surfacing, and become irregular, cracked, or rough-crust.

### 5. Ensure that the donuts absorb the right amount of shortening.

Donuts should absorb 1-1/2 to 3 oz (42 to 85 g) of shortening per dozen, depending on their weight. You can achieve proper absorption by following tips 1-3.

If the donuts do not absorb enough shortening, they will not keep well.

If they absorb too much shortening, they will lose volume and may become misshapen. If this happens, mix the batter a little longer than usual, turn the donuts as soon as they become golden brown, and turn the donuts only once.

# DONUT MAKING TIPS

## Calculating Correct Water Temperature

The following is an example of how to calculate the correct water temperature. You must use your actual room temperature, dry mix temperature, desired batter temperature, and, if you are making yeast-raised donuts, estimated temperature increase during mixing.

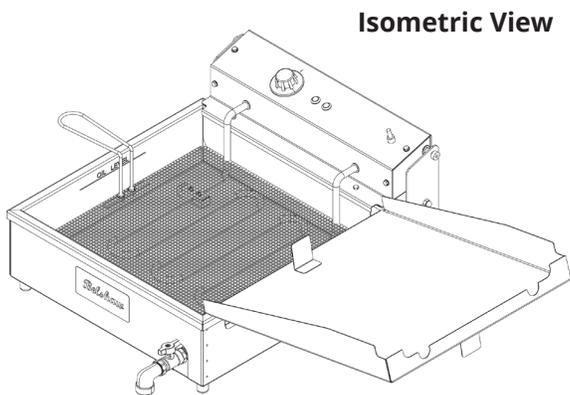
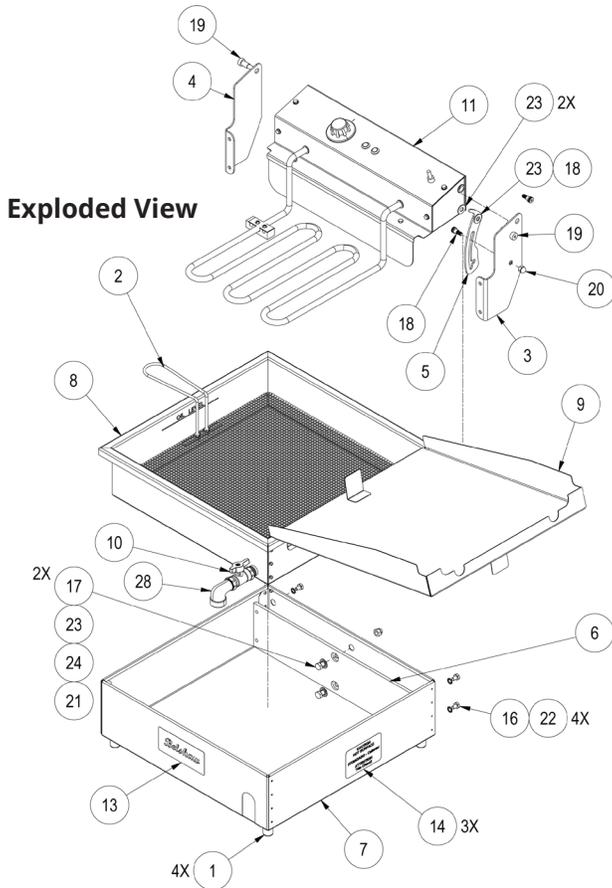
	Cake Donuts		Yeast-Raised Donuts	
	°F	°C	°F	°C
Room temperature	72	22.2	72	22.2
Dry mix temperature	<u>+70</u>	<u>+21.1</u>	<u>+70</u>	<u>+21.1</u>
<b>Total A</b>	142	43.3	142	43.3
Desired batter temperature	75	23.9	80	26.7
	<u>x 3</u>	<u>x 3</u>	<u>x 3</u>	<u>x 3</u>
<b>Total B</b>	225	71.7	240	80.1
<b>Total B</b>	225	71.7	240	80.1
<b>- Total A</b>	<u>- 142</u>	<u>- 43.3</u>	<u>- 142</u>	<u>- 43.3</u>
<b>Desired water temperature for cake donuts</b>	<b>83°F</b>	<b>28.4°C</b>	98	36.8
			↓	↓
		Figure from above	98	36.8
Temperature increase during mixing (average: 30°F/17°C)			<u>- 30</u>	<u>- 17</u>
<b>Desired water temperature for yeast-raised donuts</b>			<b>68°F</b>	<b>19.8°C</b>

# PARTS AND ELECTRICAL DIAGRAMS

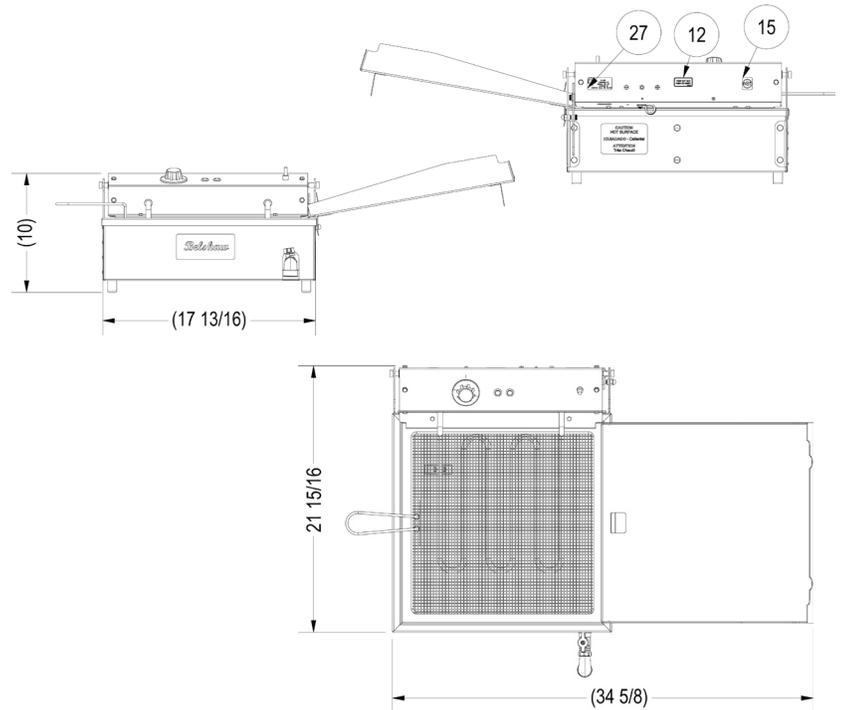
## Final Assembly

Model: 616B

Diagram: 616B-2011



BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	611-0020	FOOT (RUBBER)
2	1	616-0512	FRYING SCREEN ASSEMBLY
3	1	616-7016	HEAD MT BKT, SMT, RH
4	1	616-7017	HEAD MT BKT, SMT, LH
5	1	616-7029	TILT LATCH
6	1	616-7030	BACK-UP PLATE
7	1	616-7036	616, FRYER CASE
8	1	616-8000	616, FRYER KETTLE, WLDT
9	1	616-8006	DRAIN TRAY ASSY
10	1	616-9003	1/2 VALVE, BALL, SHUTOFF
11	1	616B-1510	616, HEATER HEAD, MECH. ASSY
12	1	FM200-0066	LABEL; TEMPERATURE CUT OUT
13	1	LBL-9043	LABEL; BELSHAW LOGO
14	3	MK-0186	CAUTION HOT SURFACE LABEL
15	1	TM100-0264	NSF LABEL
16	4	903-0961SS	SCREW, HHMB, 1/4-20 X 3/8, SS
17	2	903-1319SS	5/16-18X5/8 UNC SS HHMA SCREW
18	2	903-2010	SCREW, SB 5/16 X 1/4, 1/4-20, SS
19	2	903-3503X5_8	SB; 3/8 DIA X 3/8; 5/16-18 THRD
20	1	903-5201.A	ACORN NUT, 1/4-20, PLATED
21	2	903-6455	5/16-18 SS ACORN NUT CAP
22	4	903-7529	1/4 SS INT TOOTH LOCK WASHER
23	4	903-7540SS	SST, 5/16 FLAT WASHER, REGULAR
24	2	903-7542SS	WASHER, LOCK INT, 5/16, SST 304
27	1	904-0040	LABEL; ETL LISTED; UL STD 197
28	1	959-0014-D	1/2 SS STREET ELBOW



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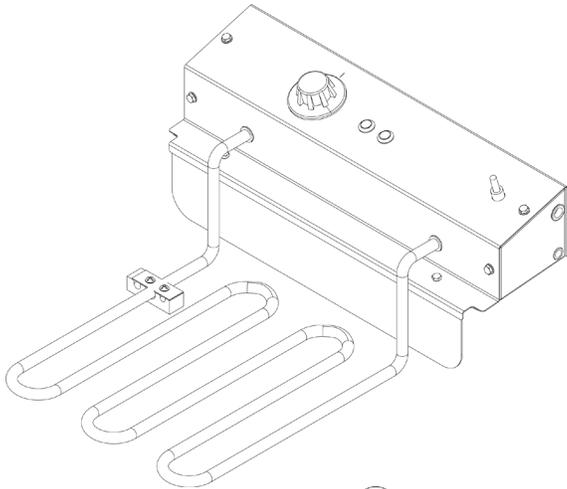
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# PARTS AND ELECTRICAL DIAGRAMS

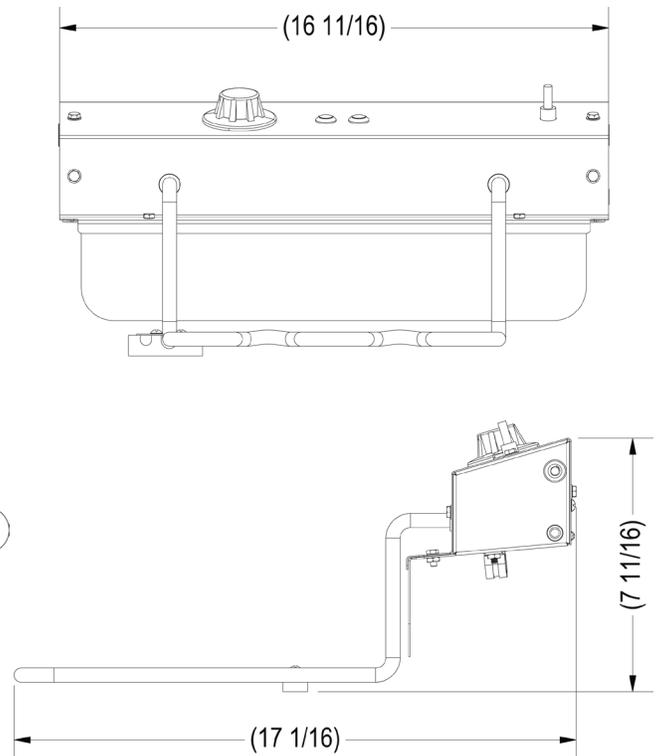
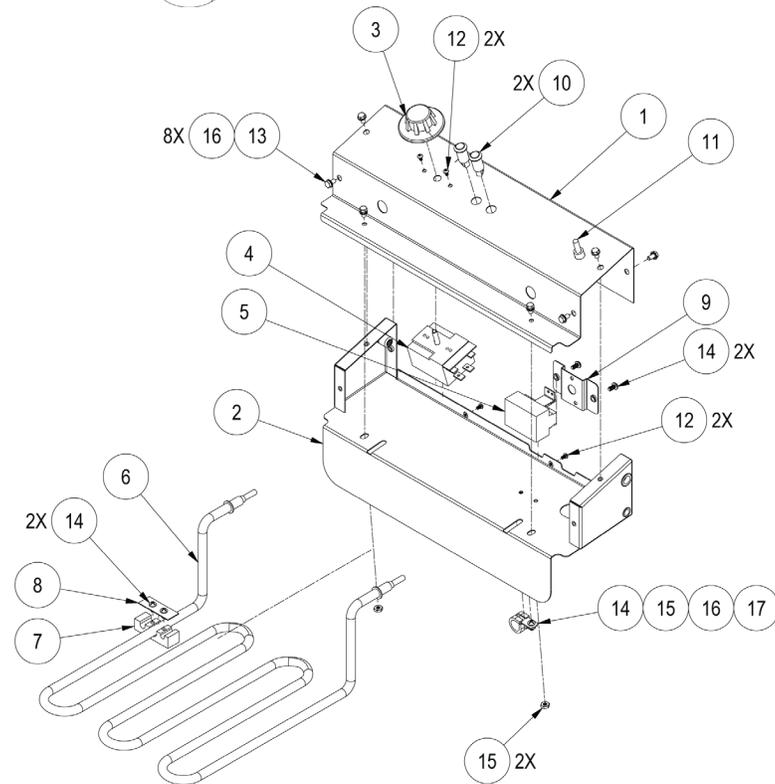
## Heater Head, Mech. Assembly

Model: 616B

Diagram: 616B-1510



BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	616-7032	HEATER HEAD ENCLOSURE
2	1	616-7035	HEATER HEAD, SIDE & BOTTOM COVER
3	(REF)	618-0008A	KNOB, THERMOSTAT
4	(REF)	618-0008	THERMOSTAT, 125VA PILOT DUTY
5	(REF)	FM200-0065M	SWT, HILIM, 450 F, MANUAL RESET
6	(REF)	H-0001	HEATING ELEMENT
7	1	MK-0274	BULB BRACKET CLAMP, UNIVERSAL
8	1	MK-0275	BULB CLAMP TOP
9	1	MK-0283	HIGH LIMIT MOUNTING BRACKET
10	(REF)	PLT-0001	PILOT LIGHT,CLEAR
11	(REF)	SWT-0049	TOGGLE SWITCH SPST, CE
12	4	903-0302.A	SCREW,MS,PN,PH,6-32X1/4 SS
13	8	903-0501SS	10-24 X 3/8 SS HEX HD MACH SCREW
14	5	903-0516SS	10-24 X 3/8 SLOT ROUND HD M/S SS
15	3	903-5105.A	NUT, HEX, 10-24, SS
16	9	903-7514	WASHER, LOCK INT, #10, SST
17	1	992-0100-3/4	3/4 CABLE CLAMP STEEL/NEOPRENE



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# PARTS AND ELECTRICAL DIAGRAMS

## Heater Head Parts List

Model: 616B

Diagram: 616B-1705

616B-1705 R00: FRYER HEATER HEAD BILL OF MATERIAL				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
100	PHTM LCH LIMIT CONTROL ASSEMBLY, 125V, 450P, MANUAL RESET	BELSHAW ASSY	1	#HLC-1001 R00
101	CLEAR NEON PILOT LIGHT 250V ARCOELECTRIC	ARCOELECTRIC CORP.:NL589C3C	2	#PLT-0001
102	SWITCH, TOGGLE, DPST ON-OFF, 30A, 250VAC, SCREW	NKK SWITCHES: S821UL	1	#SWT-0049 R00
103	LABEL SERIAL PLATE STD	BELSHAW ASSY	1	0160 R00
104	TS, 1P, THERMOSTAT, 125VA PILOT DUTY, 25A AC-1, 200-400F	ROBERTSHAW: K-133-36	1	618-0008 <sup>Δ1</sup>
105	WIRE HARNESS	BELSHAW ASSY	1	616B-1000
106	CLIP, CORD, 3/4, STEEL/NEOPRENE	ALLIED ELECTRONICS: 70209054	1	992-0100-3/4
107	LABEL_TEMP CUTOUT	BELSHAW ASSY	1	FM200-0066
108	CORD CLAMP, 1" MONTING, 0.875-1.187" ROUND CABLE OD	HEYCO: 1287	1	H-0012
109	LABEL WARNING ELECTRIC SHOCK	BELSHAW ASSY	1	MK-0187

616B-1705-1 R00: PHTM 616B DOMESTIC 208VAC 1 PH WITH PLUG				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
200	PHTM 616B FRYER HEATER HEAD ELECTRICAL	BELSHAW ASSY	1	616B-1705 R00 <sup>Δ2</sup>
201				
202	PLUG, 30AMP, 250V, NEMA 6-30P	HUBBELL: HBL9331	1	634-0266
203	CABLE, 10-3, FLEXIBLE, UL/CSA/ICE, 0.670 OD, 90C, OFLEX, 500W	BELSHAW ASSY	6	995-0112
204	ELEM 208V/4000W WATLOW	WATLOW: 6-32-539-1	1	H-0001

616B-1705-1A R00: 616B EXPORT 208VAC 1 PH W/O PLUG CELSIUS				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
300	PHTM 616B FRYER HEATER HEAD ELECTRICAL	BELSHAW ASSY	1	616B-1705 R00
301	CABLE, 10-3, FLEXIBLE, UL/CSA/ICE, 0.670 OD, 90C, OFLEX, 500W	LAPP USA: 321003	6	995-0112 <sup>Δ2</sup>
302				
303	ELEM 208V/4000W WATLOW	WATLOW: 6-32-539-1	1	H-0001

616B-1705-2 R00: PHTM 616B DOMESTIC 240VAC 1 PH WITH PLUG				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
400	PHTM 616B FRYER HEATER HEAD ELECTRICAL	BELSHAW ASSY	1	616B-1705 R00 <sup>Δ2</sup>
401				
402	PLUG, 30AMP, 250V, NEMA 6-30P	HUBBELL: HBL9331	1	634-0266
403	CABLE, 10-3, FLEXIBLE, UL/CSA/ICE, 0.670 OD, 90C, OFLEX, 500W	LAPP USA: 321003	6	995-0112
404	HEATING ELEMENT 4400W/240V	WATLOW: 6-32-539-2	1	H-0001A

616B-1705-3 R00: 616B EXPORT/CE 220/240VAC 1 PH W/O PLUG				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
500	PHTM 616B FRYER HEATER HEAD ELECTRICAL	BELSHAW ASSY	1	616B-1705 R00
501	CABLE, 10-3, FLEXIBLE, UL/CSA/ICE, 0.670 OD, 90C, OFLEX, 500W	LAPP USA: 321003	6	995-0112 <sup>Δ2</sup>
502				
503	HEATING ELEMENT 4400W/240V	WATLOW: 6-32-539-2	1	H-0001A

616B-1705-3A R00: 616B EXPORT/CE 220/240VAC 1 PH W/O PLUG FAHRENHEIT				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
600	PHTM 616B FRYER HEATER HEAD ELECTRICAL	BELSHAW ASSY	1	616B-1705 R00 <sup>Δ2</sup>
601				
602	CABLE, 10-3, FLEXIBLE, UL/CSA/ICE, 0.670 OD, 90C, OFLEX, 500W	LAPP USA: 321003	6	995-0112
603	HEATING ELEMENT 4400W/240V	WATLOW: 6-32-539-2	1	H-0001A

616B-1705-4 R00: 616B RYO 240VAC 1 PH W/O PLUG				
ITEM	DESCRIPTION	MANUFACTURER	QTY	BELSHAW PART NO.
700	PHTM 616B FRYER HEATER HEAD ELECTRICAL	BELSHAW ASSY	1	616B-1705 R00
701	CABLE, 14-3 PVC, 0.356" OD, 90C	LAPP USA: 601403	6	995-0106 <sup>Δ2</sup>
702				
703	HEATING ELEMENT 4400W/240V	WATLOW: 6-32-539-2	1	H-0001A



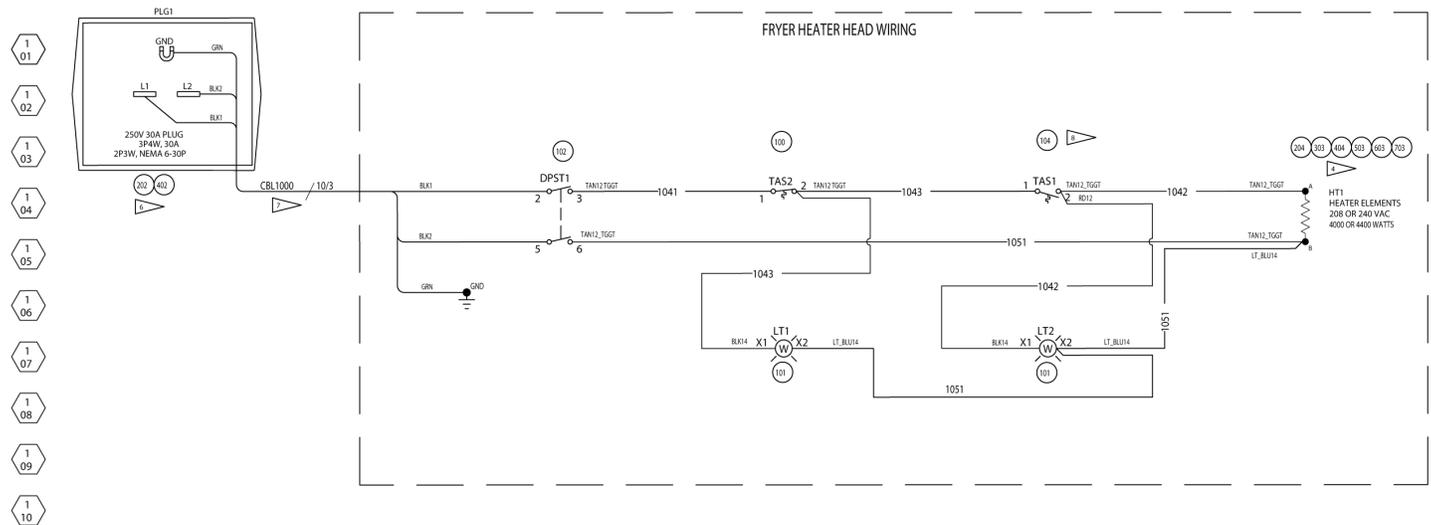
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# PARTS AND ELECTRICAL DIAGRAMS

## Heater Head Wiring Diagram

Model: 616B

Diagram: 616B-1705



616B-1000 R00 WIRING HARNESS, 208-240V							
WIRE/CBL NO.	TYPE	PART NO.	LENGTH (IN)	CMP1	CMP2	TERM1 P/N	TERM2 P/N
10/3 CBL1000	BLK1	995-0112	96	NEMA6-30P	SWT-2	N/A	990-0522
	BLK2				SWT-5		990-0522
	BLK3				GND		990-0522
1041	TANI2 TGGT	995-0240	5	SWT-3	TAS2	990-0522	990-0563
1042	TANI2 TGGT	995-0240	5	TAS2	TAS1	990-0563	990-0563
1042	BLK14	995-0671	5	TAS2	LT1	990-0558	990-0558
1043	TANI2 TGGT	995-0240	5	TAS1	HT1-A	990-0563	990-0522
1043	BLK14	995-0671	5	TAS2	LT1	990-0558	990-0558
1051	TANI2 TGGT	995-0240	5	SWT-6	HT1-B	990-0522	990-0522
1051	LT_BLU14	995-0676	5	SWT-6	LT1	990-0522	990-0563
1051	LT_BLU14	995-0676	5	LT1	LT2	990-0563	990-0563

### DATA TAG

	220V	240V	RVO ONLY
208V			240V
50/60HZ	50/60HZ	50/60HZ	50/60HZ
1 PHASE	1 PHASE	1 PHASE	1 PHASE
4KW	3.4KW	4.4KW	4.4KW
19.3 A	16.8 A	18.3 A	18.3 A

### Notes:

1. Unless otherwise specified, use 105° machine tool wire.
2. This device is CE certified. Do not make any changes without first reviewing the technical construction files.
3. All spade and ring terminals to be fully insulated.
4. Use H-0001 for 208V system and use H-0001A for 220/240V system.
5. Ground wire to provided hole located in the back inside edge of heater head case.
6. Provide plug for domestic system, customer to provide plug for export/CE system.
7. For RVO customer, use 6 ft. of 995-0106, 14-3 PVC power cord UL/CSA/CE.
8. Use 618-0008A F knob for domestic customer, DR42-0338 C knob for export/CE customer.



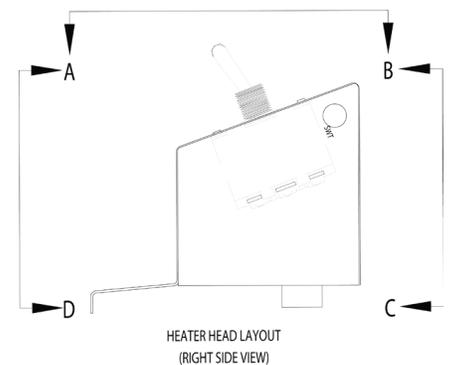
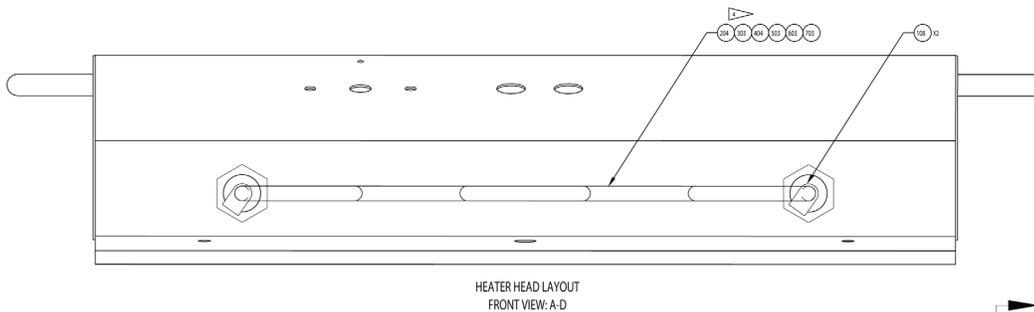
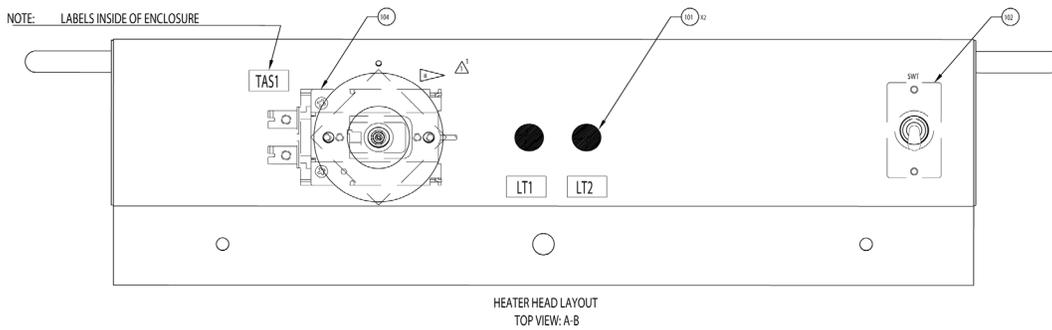
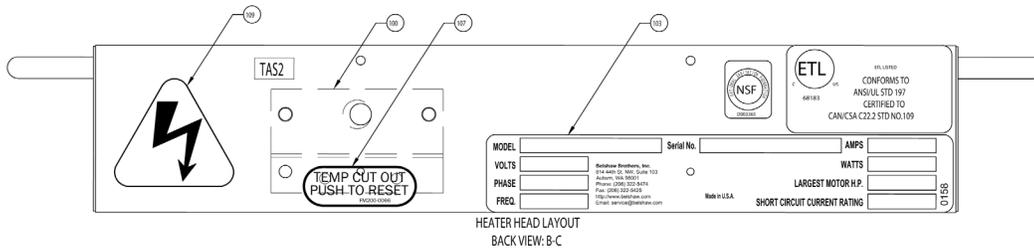
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# PARTS AND ELECTRICAL DIAGRAMS

## Heater Head Assembly

Model: 616B

Diagram: 616B-1705





## Belshaw Adamatic Bakery Group Terms & Conditions of Sale

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### **PLEASE READ THESE TERMS AND CONDITIONS VERY CAREFULLY:**

THE TERMS AND CONDITIONS FOR ALL BELSHAW ADAMATIC BAKERY GROUP ("SELLER") EQUIPMENT, PARTS, AND SERVICE PROJECTS ARE LIMITED TO THOSE CONTAINED HEREIN. ANY LANGUAGE THAT IS IN ADDITION TO OR DIFFERENT FROM THAT WHICH IS WRITTEN IN THESE STANDARD TERMS AND CONDITIONS IN ANY FORM DELIVERED BY YOU ("BUYER") ARE HEREBY DEEMED TO BE MATERIAL ALTERATIONS WHICH SHALL BE OBJECTED TO AND REJECTED UNLESS AGREED TO BY THE SELLER PRIOR TO THE PURCHASE. NO CHANGES WILL BE PERMITTED AFTER THE PURCHASE PROCESS. BY ACCEPTING DELIVERY OF THE EQUIPMENT, PARTS OR SERVICES, THE BUYER AGREES TO AND ACCEPTS ALL THE STATED TERMS AND CONDITIONS OF SALE UNLESS THE SELLER AND THE BUYER HAS SIGNED A SEPARATE AGREEMENT, IN WHICH CASE THE SEPARATE AGREEMENT WILL GOVERN.

UNLESS OTHERWISE SPECIFIED, THESE TERMS AND CONDITIONS OF SALE APPLY TO ALL EQUIPMENT AND/OR PARTS SOLD BY THE SELLER. DUE TO THE COMPLEXITY OF EITHER BELSHAW OR ADAMATIC INDUSTRIAL EQUIPMENT, A SEPARATE TERMS AND CONDITIONS OF SALE DOCUMENT WILL BE WRITTEN SPECIFIC FOR THE PROJECT OR EQUIPMENT BEING SOLD AND WILL REQUIRE THE SIGNATURE OF THE BUYER.

TERMS AND CONDITIONS OF SALE FOR ANY SHIPMENT MADE OUTSIDE THE UNITED STATES WILL REQUIRE REVISION AS THESE STANDARD TERMS AND CONDITIONS WILL NOT APPLY IN MOST CASES. ANY EQUIPMENT SOLD IN THE UNITED STATES AND EXPORTED TO AN INTERNATIONAL COUNTRY WITHOUT THE WRITTEN CONSENT OF THE SELLER WILL BE CAUSE FOR ALL WARRANTY AND RETURN PROVISIONS TO BE DEEMED NULL AND VOID.

### **EXECUTION:**

Upon execution of this Agreement or upon delivering of an order for products, services, or equipment identified in this Agreement (hereinafter collectively the "Equipment"), the Buyer agrees to the following applicable terms and conditions.

### **DELIVERY and STORAGE:**

Unless otherwise agreed to, all shipments are made F.O.B. Seller's shipping point, Auburn, WA. Risk of loss, damage or shortage shall pass from the Seller to the Buyer upon delivery to and receipt by the freight carrier from the Seller. Although the Seller will use all reasonable efforts to meet quoted and acknowledged delivery date(s), they are approximate and not guaranteed. The Seller reserves the right to make partial shipments unless otherwise agreed to prior to the purchase. If the shipment is postponed or delayed for any reason by the Buyer, the Buyer agrees to reimburse the Seller for all storage costs and any other expenses resulting from this.

Damaged Shipment -- As a matter of customer service, the Seller will assist in filing damage or shortage claims, provided the equipment was shipped prepaid and add. If the shipment was sent "Freight Collect," the Buyer has the full responsibility of filing the claim against the freight company. In all cases, the Buyer has the responsibility to inspect the shipment for completeness and to assure it is free of any visible damage. If the order does not appear complete or there is visible damage, the Buyer must mark "shipment not complete" or "visible damage upon receipt" on the Bill of Lading and notify the Seller and freight carrier no later than one (1) day after the shipment was received. To make resolution of the claim easier, it is recommended that the Buyer photograph all visible damage and forward copies to the Seller and freight carrier. All concealed freight damage claims must be submitted to the freight carrier no later than fifteen (15) calendar days after receipt of the shipment.

**INSTALLATION:**

Where applicable, the Buyer at its own expense shall arrange for timely completion of all necessary preparations for installation, including permits and utilities (water, gas, electricity, HVAC, etc.) for the purchased equipment. All utilities must conform to equipment requirements as provided by Seller. The Buyer is responsible for the suitable construction of foundations or flooring under the equipment. The Buyer shall provide safe, suitable working conditions for the installation of the equipment. The Buyer is responsible for the cost of modifying equipment sold by the Seller in order to comply with federal, state and local codes. If installation, trial run or start-up cannot begin, continue or be accepted due to a cause for which the Seller has no control, the Buyer shall pay the Seller for any delays, waiting time or travel expenses incurred as a result of this.

**SALES TAX:**

It is the responsibility of the Buyer to collect and/or pay all Sales, Use or other applicable taxes to the local state taxing authority, as required by law. The Buyer must submit a signed Resale Certificate for equipment purchased for resale or a signed Manufacturer's Sales and Use Tax Exemption Certificate for equipment engaged in manufacturing product for resale. The manufacturing exemption regulations vary from State to State; please consult your tax consultant for your exemption qualification. Further, the Buyer shall indemnify and hold harmless Belshaw Adamatic Bakery Group for all costs, expenses and/or penalties for the failure to pay sales, use or other applicable taxes.

**UCC FILINGS:**

Where applicable, the Buyer understands and agrees that the Belshaw Adamatic Bakery Group retains title of all equipment until said equipment is paid for in full. Further, the Buyer agrees that as part of the sales contract they will be required to sign a Security Agreement. Further, the Buyer agrees that the Belshaw Adamatic Bakery Group may file any and all protective UCC filings in relation to the Equipment or this Agreement including, but are not limited to, financing statements, financing statement amendments, correction statements, information requests, and addendums to the full extent allowed by law (hereinafter collectively the "UCC Filings").

By executing this Agreement, the Buyer represents that the Buyer is fully authorized, as either a principal of the Buyer or a personal guarantor of the Buyer, to enter into all obligations related to the UCC filings

In states where permissible, the Buyer explicitly authorizes the filing and recording of UCC financing statements showing the Belshaw Adamatic Bakery Group's interest in the Equipment as a secured party and grants the Belshaw Adamatic Bakery Group the right to execute Buyer's name as debtor thereto. The Buyer further agrees to provide the Belshaw Adamatic Bakery Group any and all requested information necessary for any UCC Filings. This information includes but is not limited to all current address, contact information, organization identification number, and any other information as required.

**CREDIT INFORMATION:**

The Buyer further authorizes Belshaw Adamatic Bakery Group and its actual or potential affiliates, successors, designees, or assignees to obtain consumer credit reports relating to the Buyer's credit history and/or creditworthiness. The Buyer's authorization shall extend to obtaining a credit profile in considering this application and subsequently for the purposes of update, renewal or extension of such credit or additional credit and for reviewing or collecting the resulting account. The Buyer also authorizes the Belshaw Adamatic Bakery Group, trade references, and financial institutions the right to release credit information.

**LIMITED WARRANTY:**

Please reference the Seller's Limited Warranty document for complete details of our warranty program.

## **CANCELLATIONS, RETURNS and DELAY IN ACCEPTANCE:**

Any cancellation by the Buyer after receipt of their order may result in a cancellation penalty equal to 30% of the order value or the calculated cost of materials, labor and overhead for the ordered equipment at the time of cancellation, whichever is greater. Buyer must give disposition of canceled equipment within 30 days of cancellation date. If Buyer fails to give disposition for canceled equipment within the period, Seller shall be authorized to dispose of canceled equipment as Seller sees fit.

**ALL** Special Orders and/or custom equipment will be identified as such and cannot be canceled or returned. NO EXCEPTIONS.

Unless otherwise specified, the Seller offers the Buyer a thirty (30) calendar day return policy on most equipment or parts sold based on the date of invoicing. All requests for cancellation or return requests must be submitted in writing and received at Seller's home office (Auburn, WA) within thirty (30) calendar days from the invoice date.

- Return Restrictions:
  - Defective "Non-Usable" Equipment – The Buyer may return most defective "non-usable" equipment or parts directly to Seller within thirty (30) calendar days from the date of invoicing. The Seller has the sole discretion on which option applies -- credit, repair, replacement or exchange. After this thirty (30) calendar day period only the Seller's warranty applies
  - Non-Defective Equipment – The Buyer may return most non-defective equipment or parts, unless they are specified as special order or custom, directly to the Seller within thirty (30) calendar days from the date of invoicing. In this situation the Seller will impose a mandatory restocking fee which will reduce the value of any credit or exchange by 35% of original invoice amount or \$50, whichever is greater.
- Shipment of Returned Equipment or Parts:
  - Return Goods Authorization (RGA) Number -- No return of any type will be accepted by the Seller unless accompanied by a unique RGA number, which the Buyer must obtain by providing the following information to Seller's Customer Service Agent. The required information is your customer number, applicable invoice number, equipment serial number, and details of the Buyer's reason for the return. The Buyer has thirty (30) calendar days to return the equipment and/or part from the date that the applicable RGA is issued. After such date, the RGA issued is invalid and the Seller reserves the right to refuse the return. The Seller will not accept the return of any equipment or part that has not been assigned an RGA number.
  - Returned Equipments Must Be Complete, Clean and Free of Damage -- All equipment or parts MUST be returned 100% complete, including all original boxes, packing materials, manuals, blank warranty cards and other accessories provided by Seller. The equipment MUST be clean, free of any damage and in the same condition as delivered to the Buyer. The Seller reserves the right to refuse the return of any equipment or part that does not conform to this provision. If accepted, the cost of reconditioning and the aforementioned restocking fee will be charged.
  - Responsibility for Shipping Costs and Risk -- The Buyer is responsible for the cost of shipping all returned items; the Seller is responsible for the cost of shipping replacements or exchanges of returned items and will match Buyer's shipping method provided the returned items are not due to the Seller's fault. Buyer must adequately pack or crate the returned equipment to protect from damage in transit.
  - Buyer Shipping Insurance -- The Buyer is strongly advised to purchase full insurance to cover loss and damage in transit for shipments of returned equipment or parts and to always use a carrier or shipping method that provides proof of delivery. The Seller is not responsible for damage or loss during shipment.

**LIMITATION OF LIABILITY:**

**UNDER NO CIRCUMSTANCES AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY SET FORTH HEREIN, WILL THE SELLER, ITS AFFILIATES OR ITS OR THEIR SUPPLIERS, SUBCONTRACTORS OR AGENTS BE LIABLE FOR: (A) ANY INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, BUSINESS, REVENUES OR SAVINGS , EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES OR IF SUCH DAMAGES ARE OTHERWISE FORESEEABLE, IN EACH CASE, WHETHER A CLAIM FOR ANY SUCH LIABILITY IS PREMISED UPON BREACH OF CONTRACT, WARRANTY, NEGLIGENCE, STRICT LIABILITY OR OTHER THEORY OF LIABILITY; (B) ANY CLAIMS, DEMANDS OR ACTIONS AGAINST BUYER BY ANY THIRD PARTY; (C) ANY LOSS OR CLAIM ARISING OUT OF OR IN CONNECTION WITH BUYER'S IMPLEMENTATION OF ANY CONCLUSIONS OR RECOMMENDATIONS BY SELLER OR ITS AFFILIATES BASED ON, RESULTING FROM, ARISING OUT OF OR OTHERWISE RELATED TO THE EQUIPMENTS OR SERVICES; OR (D) ANY UNAVAILABILITY OF THE EQUIPMENT FOR USE. IN THE EVENT OF ANY LIABILITY INCURRED BY SELLER OR ANY OF ITS AFFILIATES, THE ENTIRE LIABILITY OF SELLER AND ITS AFFILIATES FOR DAMAGES FROM ANY CAUSE WHATSOEVER WILL NOT EXCEED THE LESSER OF: (A) THE DOLLAR AMOUNT PAID BY BUYER FOR THE EQUIPMENT(S) GIVING RISE TO THE CLAIM OR THE SPECIFIC SERVICES GIVING RISE TO THE CLAIM; OR (B) \$50,000.00.**



# *Belshaw*<sup>®</sup>

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