Belshaw®

Donut Robot®
Mark VI

OPERATION AND MAINTENANCE MANUAL

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MN-0003 | 010526

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. 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.

TABLE OF CONTENTS

PREFACE

The Donut Robot® Mark VI is designed to automatically deposit and fry cake and yeast-raised donut products. It is not designed to deposit or fry any other products.

The Donut Robot® is designed to be used on a flat, stationary table or countertop, with the operator standing opposite the heater head. The operator must work safely at all times and read this manual and follow its instructions and warnings.

Study the instructions and warnings in this manual carefully. A thorough understanding of how to install, maintain, and safely operate the Donut Robot® will prevent production delays and injuries.

To use the Donut Robot® safely, heed the following warnings and all other warnings that appear in this manual:

- Ensure the machine is secured to the work surface. Doing so will prevent the machine from moving or falling, which could cause serious injury.
- 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, it could cause serious burns or cause someone to slip on the floor and be seriously injured.
- Hot shortening can cause serious burns. Ensure that the system and shortening are cool before attempting adjustment, repair, disassembly, or cleaning.
- To avoid electrocution or other injury, unplug the machine before attempting adjustment, repair, disassembly, or cleaning.
- To avoid damaging the machine, never use force to assemble, disassemble, operate, clean, or maintain it.
- Be careful never to get shortening, water, or other materials on the floor. If anything spills, clean the area immediately. Materials on the floor can cause people to slip or fall, resulting in serious injury or fatality.
- To prevent unintentional startup and possible fire, unplug the machine if there is a power outage. When power is restored, it is safe to plug the machine in.
- To avoid electrocution, ensure all electrical cords are not frayed or cracked and that they do not pass through any water or shortening.
- Ensure that all electrical cords are routed so that no one will trip over them.

INSTALLATION

The photo below shows the major visible components of a Donut Robot® Mark VI.

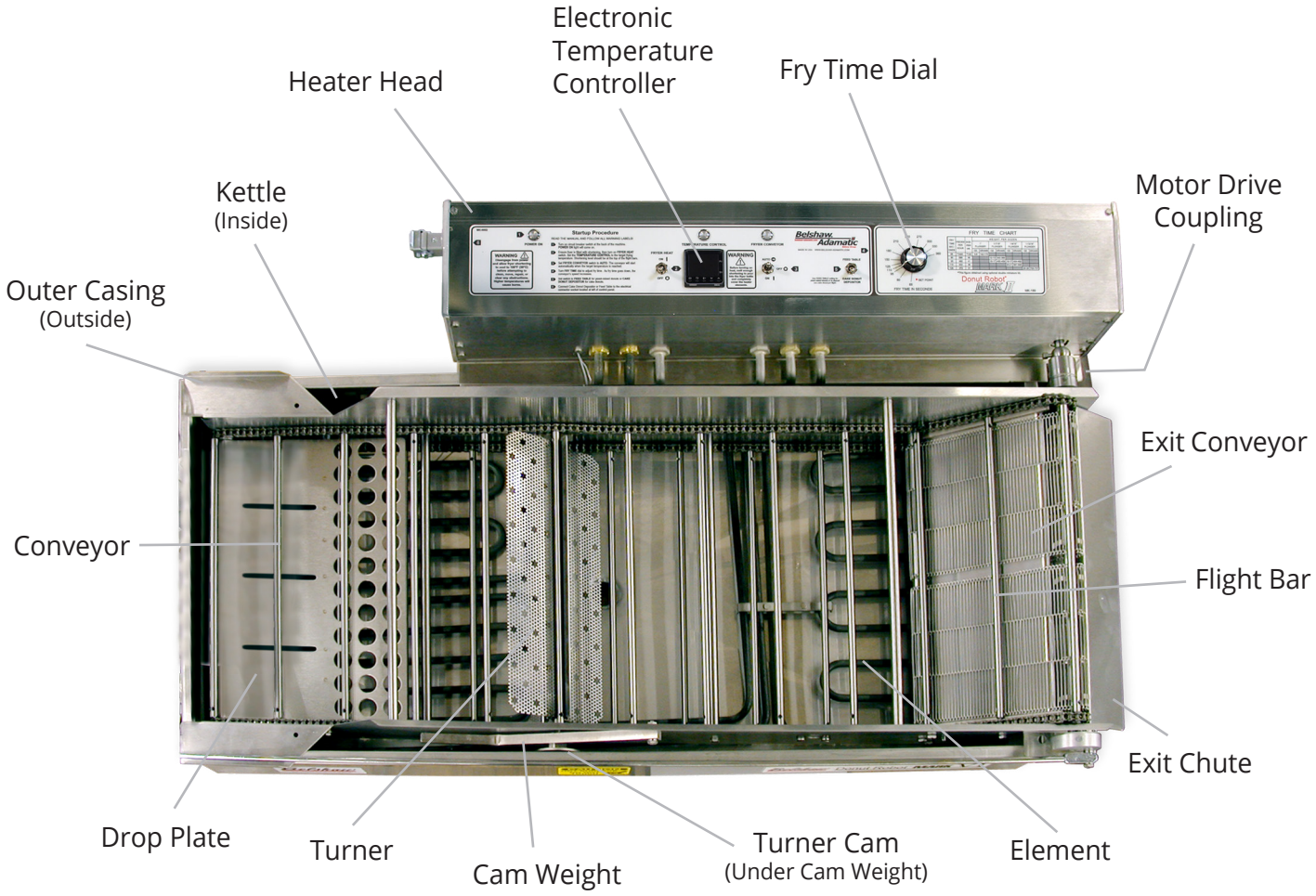


Figure 1
Donut Robot® Mark VI Components

INSTALLATION

Unpacking the Fryer

1. Remove the foam and other packing materials from the two boxes.
2. Remove the fryer and move to its supporting surface. Two people are recommended. Perform the following steps:
    a. Remove the conveyor from the fryer. See Figure 2.
    b. Remove the fryer and place in its working location. Do not drag the electrical cord along the floor, you may trip.
    c. Remove the cutter head of the depositor. Do not drag the electrical cord along the floor, you may trip.
    d. Remove the hopper, plunger, and column.

Initial Cleaning

Thoroughly clean your Donut Robot® before using. Use a household dishwashing detergent. Do not use strong alkali cleaners. Thoroughly dry and lubricate parts to prevent rusting. Full cleaning instructions are found in the "Cleaning" section in this manual.

After cleaning, assemble the fryer and depositor as follows.

WARNING

To avoid electrocution or damaging the machine, never allow water, steam, cleaning solution, or other liquid to enter the cutter head or fryer heater head compartments.

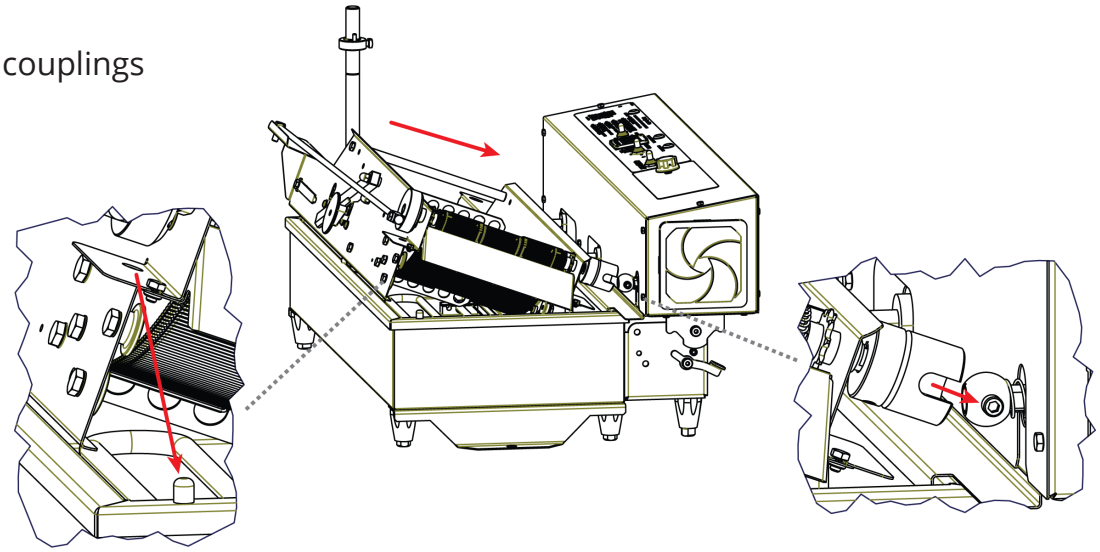
WARNING

Never let water and hot shortening come in contact. Moisture causes hot shortening to spatter, which may cause serious injury. Prior to use, ensure any parts you have washed are dry.

Setting up the Fryer

1. Ensure the fryer is on a sturdy, flat surface.
2. Screw the fryer's legs in as far as possible.
3. Reinstall the conveyor assembly as follows:
    a. Hold the conveyor at the angle shown in Figure 2 and slide the conveyor drive coupling over the main drive shaft coupling. The conveyor coupling has a notch in it. Turn the conveyor coupling so that the head of the socket head screw in the motor drive coupling can slide into this notch.
    b. Lower the front side of the conveyor assembly so the hole in the conveyor flange fits over the locating pin on the lip of the kettle.

Figure 2
Joining the couplings



If you are preparing to make yeast-raised donuts, skip to page 37 for installation of the optional feed table.

Installing the Dual Hopper Kit

1. Using a 7/16” wrench, install the swing connecting rod to the drive coupling as shown in Figure 3.
2. Remove the eight interior bolts and washers from the infeed end of the fryer case and discard. DO NOT REMOVE THE OUTERMOST TWO BOLTS. See Figure 4.
3. Install both post mounts using the supplied 7/8” hex bolts and lock washers as shown in Figure 5.

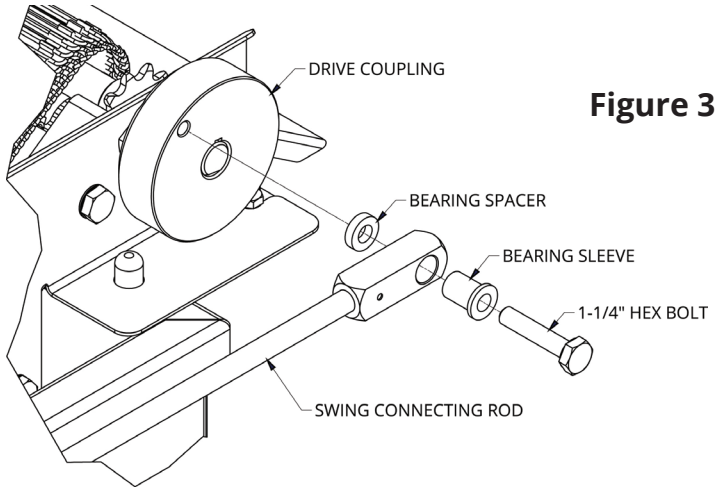


Figure 3

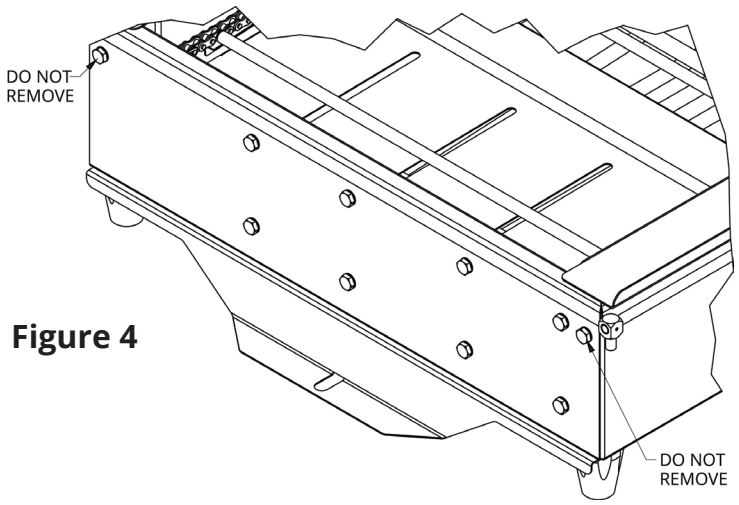


Figure 4

INSTALLATION

4. Install the left and right swing columns into the plastic sleeve bearings on the post mounts. Connect the two swing columns using the hopper tie rod. See Figure 5.
5. Install the left-hand and right-hand cutter heads on the swing columns shown in Figure 6, aligning the locating pin on the shaft collar with the corresponding notch on the cutter head mounting bracket.
6. Connect the power cord from the left-hand cutter head to the socket on the right-hand cutter head. Connect the power cord from the right-hand cutter head to the socket on the left side of the heater head on the fryer. Use the wire holders shown in Figure 6 to retain the wires and route them to the back side of the fryer.

Figure 5

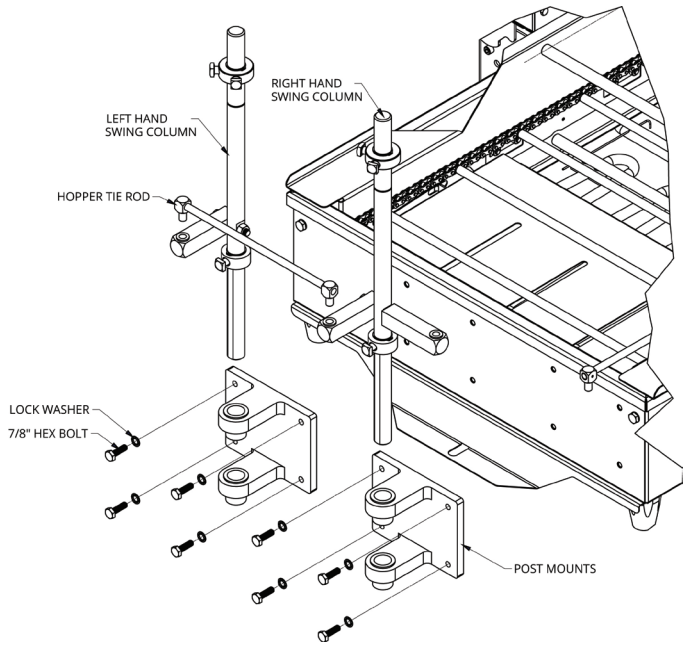
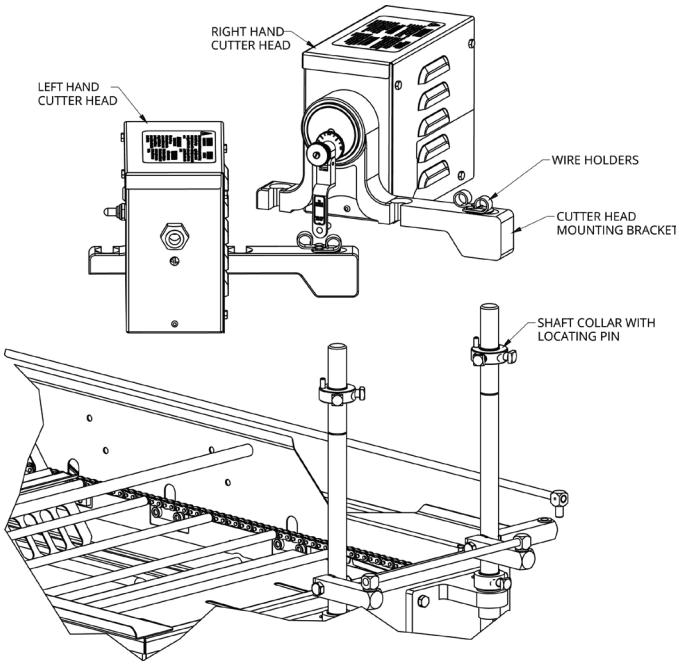


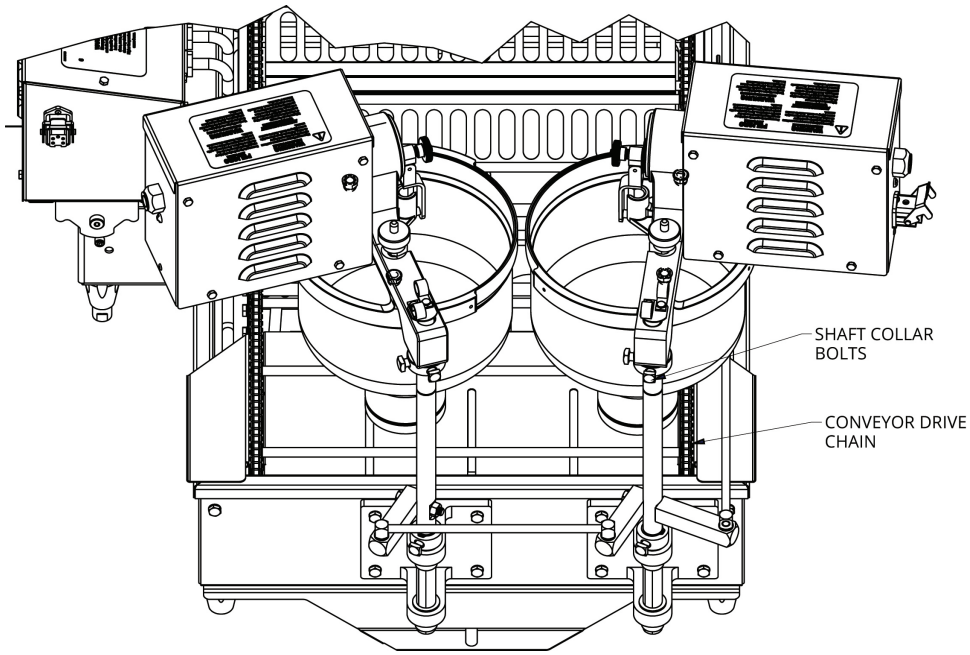
Figure 6



Adjusting the Hoppers

7. Install the hoppers onto both cutter heads shown in Figure 7.
8. Turn the fryer power on. Turn the fryer conveyor switch to the on position and cycle it back and forth. Turn the switch off when the swing connecting rod is in its extended position and the hoppers are toward the front side of the fryer, also shown in Figure 7.
9. The bottom of the right-hand (front) hopper should be approximately flush with the conveyor drive chain, and the left-hand hopper should be approximately 1/8” to 1/4" away from the right-hand hopper.
10. If adjustment is needed, use a 5/16” or adjustable wrench and loosen the two bolts on the shaft collars. See Figure 7. Rotate the cutter heads as necessary to get the proper alignment. Re-tighten the bolts when complete. Turn on the conveyor and cycle the hoppers back and forth. They should move freely without contacting each other or the conveyor.
11. You may need to repeat steps 9 and 10 for fine adjustment after running product.

Figure 7



INSTALLATION

Leveling and Securing the Fryer

Check to see if the fryer is level. If it is not, adjust the heights of the legs. Ensure all six legs rest on the work surface when leveled.

Bolt the fryer to the work surface as follows:

1. There are brackets on the ends of the fryer case. Each has a hole in it. Mark the locations of the holes on the work surface.
2. Drill holes through the work surface.
3. Insert bolts through the holes.
4. Tighten nuts onto the bolts to ensure that the Donut Robot® will not move.

Moving the Fryer

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

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

WARNING

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

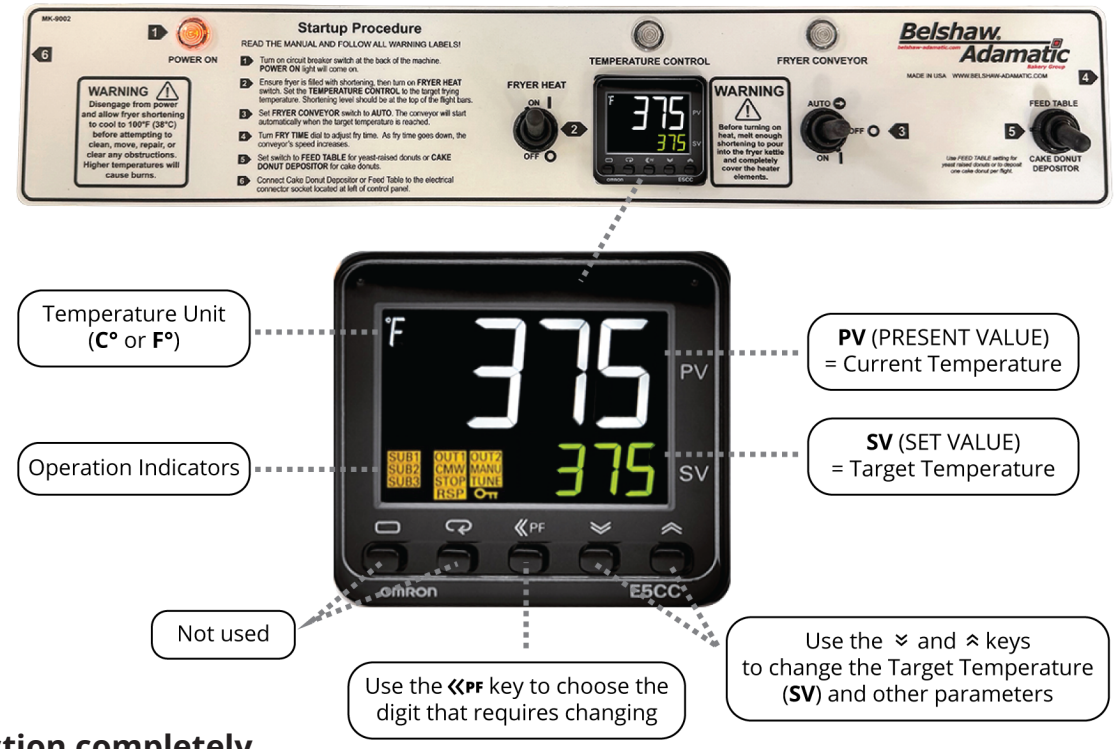
3. Remove and set aside the plunger, the hopper, and the cutter head, in that order.
4. Disconnect the swing connecting rod.
5. Remove the shortening from the fryer as explained in "Removing the Shortening" section.
6. Clean the fryer, floor, and work surfaces to prevent falling or dropping the fryer.

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.

7. Set aside the conveyor.
8. To prevent tripping, coil the power cord.
9. Move the fryer to its new location.
10. Move and install the conveyor.
11. Move and install the swing column. Connect the swing connecting rod.
12. Move and install the depositor's cutter head (the motor and electrical compartment).
13. Level and secure the fryer.

Figure 8
Temperature Controller



Read this section completely before operating the machine.

Operating Controls

1. Ensure that the Donut Robot® has been connected to the correct power source.
2. Ensure the fryer is filled with shortening. If there is no shortening in the fryer, see the "Inserting Shortening" section.
3. Turn on the main circuit breaker on the back of the heater head. (The power light will turn on).
4. Turn on the "FRYER HEAT" switch. (The temperature controller will turn on).
5. Set the temperature control to the target temperature. ("TEMPERATURE CONTROL" light will turn on when fryer is heating).
6. Set "FRYER CONVEYOR" switch to AUTO. (The conveyor will start automatically when the target temperature is reached).

   Note: The fryer conveyor switch can also be turned to "ON". The conveyor will run immediately. Ensure the shortening is completely melted before turning on.
7. Turn the fry time dial to adjust the fry time to desired speed. As the fry time goes down, the speed of the conveyor increases.
8. Set the feed table/cake donut depositor switch to FEED TABLE for yeast-raised donuts or CAKE DONUT DEPOSITOR for cake donuts or mini donuts.
9. Connect the cake donut depositor or feed table to electrical connector socket located at the left end of the heater head.

OPERATION

WARNING

Hot shortening is hotter than boiling water and can cause severe burns if it touches your skin. Always exercise extreme caution and never touch hot shortening. Use gloves suitable for working near hot shortening.

Inserting Shortening

1. When the shortening reaches the correct frying temperature, it should reach the top of the flight bars or chains.
2. If your fryer has a drain, close the drain valve.
3. Put shortening in the kettle using one of these methods:
   a. Melt shortening in a pan on the stove and carefully pour it into the kettle.
   b. Use the optional EZMelt to melt shortening and transfer it to the kettle. See your EZMelt manual.
   c. Put solid shortening into the kettle, packing it tightly around the elements and bulbs without air spaces.

WARNING

Shortening expands as it increases in temperature. Do not fill shortening all the way up to the flight bars or chains, if it is cold. The shortening level will rise up to 1" (25 mm) when it is fully heated.

WARNING

Air spaces can cause the shortening to overheat and catch on fire. Pack the shortening tightly without air spaces.

Heating Shortening

1. Turn on the "FRYER HEAT" switch (the temperature controller will turn on).
2. Wait for the shortening to reach the desired temperature. Once it does, the "TEMPERATURE CONTROL" light on the front of the heater head will turn off and the conveyor will start. Do not run the conveyor until all shortening has melted.
3. If you are using the optional shortening reserve tank, fill it with shortening. Then position it on the conveyor side panels either ahead of or behind the turner, but not above it. The heat of the fryer will melt the shortening in the tank.

WARNING

If the power light is on but the temperature controller fails to turn on, the high temperature limit control could be tripped. Push the red reset button on the back bottom of the heater head.

Making Cake Donuts

1. The Dual Hopper Kit must be installed prior to making cake donuts.
2. Disconnect the swing connecting rod. Tilt the bearing struts back on the swing columns and rotate hoppers over the edge of the kettle so they are outside the fryer.

Note: Steps 3-5 need to be completed for both hoppers.

3. Adjust the size selector dial on the depositor's crankshaft assembly. This dial regulates the donut weight. The higher the setting, the larger the donuts will be. Adjust the dial setting as follows:
   a. Loosen the outer dial lock nut 1/2 turn.
   b. Turn the numbered inner dial to desired position, as indicated by the marks on crank plate.
   c. Tighten the outer dial in place with the lock nut by hand.
4. Put batter into the hopper. Prime the hopper to expel any air that may be trapped in the bottom of hopper. To prime the hopper:
   a. Hold a mixing bowl or other receptacle under the hopper.
   b. Hold down the switch on the depositor until it has dropped two or three donuts into the bowl.
   c. Put the batter back into the hopper.

Note: Holding down the prime switch causes the depositor to run continuously without the normal delay between cuts.

5. Return the hopper into position over the fryer and reconnect the swing connecting rod to the swing column throw arm.
6. Turn the fry time dial to adjust the fry time to the desired speed.
7. For 2 donuts (or 4 mini donuts) per row, set the Feed Table/Cake Donut Depositor switch to "CAKE DONUT DEPOSITOR". For 1 donut (or 2 mini donuts) per row, set the switch to "FEED TABLE".
8. Turn on the cake donut depositor by pushing up the switch on the depositor to the "ON" position.
9. Set fryer conveyor switch to "AUTO".
10. Continue adding shortening to the kettle to maintain proper shortening level (top of flight bars or chains).
11. Continue adding batter to the hopper as needed.
    - You can add batter to the hopper without priming it again as long as it does not become empty.
    - If the hopper does become empty, you must prime it again.
    - When you fill the hopper for the last time, you will want to use all of the batter inside. To do so, push the dough to the bottom of the hopper using a rubber scraper or spatula.

WARNING

To avoid injury, never put your hand in or under the hopper while the fryer is on.

OPERATION

Note: If the conveyor becomes jammed, a warning buzzer will sound about a minute later and stop when the conveyor is turned off. The conveyor drive motor is impedance-protected so it will not burn out due to jamming.

If the conveyor becomes jammed:

1. Turn off the conveyor drive and heater.
2. Allow the system to cool down. Hot shortening is dangerous.
3. Determine the cause of the jamming.
4. Clear it.
5. Restart the system.

Making Yeast-Raised Donuts

To make yeast-raised donuts, remove both depositors and swing columns if previously installed and unplug them from the heater head. They will not be used for yeast-raised donuts.

Proceed to page 37 for installation and operation of the optional feed table.

1. Install the feed table using the instructions supplied with the feed table kit.
2. Turn the fry time dial to adjust the fry time to desired speed.
3. Set the fryer conveyor switch to "AUTO."
4. Set the "FEED TABLE/CAKE DONUT DEPOSITOR" switch to "FEED TABLE."
5. Load proof cloths with donuts onto the feed table as needed.

CLEANING

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 electric shock or damage to the machine, never allow water, steam, shortening, cleaning solution, or any other liquid to enter heater head or depositor.

Cleaning the Hopper and Plunger

You must clean the hopper and the plunger daily, or after each use. Follow these general guidelines:

- Use household dishwashing detergent. Do not use strong alkali cleaners, as these discolor and corrode aluminum.
- Wash, dry, and lubricate parts thoroughly to prevent rusting.
- When washing parts by hand, wash each part separately; do not put any other untensil or dish in the sink with the part being washed.

Cleaning Method

1. Unplug the depositor power cord.
2. Remove the plunger and hopper.
    a. Pull the plunger connecting rod up and away from the plunger to release the top of the plunger.
    b. Lift out the plunger and set aside.
    c. Loosen the two mounting studs holding the top of the hopper.
    d. Remove the hopper.
3. Wash the hopper and the plunger thoroughly in hot water and mild detergent.
4. Rinse the hopper and the plunger separately in clean, hot water.
5. Dry each part completely.
6. Dip the plunger and the hopper cylinder in vegetable oil or shortening to prevent rust and sticking.
7. Wipe the depositor assembly with a soft cloth dampened with hot water and an appropriate cleaner. Wipe with another damp cloth to remove cleaner. Wipe dry.

WARNING

Never immerse the depositor's cutter head in water. This may cause an electric shock and/or damage to the machine.

CLEANING

Cleaning the Conveyor and Kettle

The conveyor and fryer kettle should be well cleaned once per week for normal usage.

After cleaning, dry the conveyor, then return it to the fryer and cover with shortening. If left open to the air overnight, water trapped in the chain may cause staining.

Step 1: Drain the Shortening

WARNING

To avoid getting burned or electrocuted, disconnect from the power source before cleaning the fryer.

1. Disconnect fryer from power source.
2. Unplug the depositor power cord.
3. Let the shortening cool to 100°F (38°C).
4. Lift the depositor off the swing column, and set to one side.
5. Lift off the swing connecting rod that extends to the base of the column supporting the depositor.
6. Drain the shortening, using the drain valve under the fryer (if installed) or Filter-Flo Siphon.
    a. If the fryer has a drain valve and an EZMelt filtration system, open the drain valve and empty the fryer kettle.
    b. If you have a Filter-Flo Siphon, use this to transfer the shortening into a large metal bucket.

Step 2: Wash the Kettle and Conveyor

1. Pour hot water into the kettle, up to the level of the chains. Add about 2 oz (59 ml) of appropriate cleaner.
2. Connect the machine to the power source. Using the temperature controller, heat the solution to 200°F (93°C). Turn on the conveyor and keep running for 15-20 minutes.
3. Scrub the soiled parts of the kettle and conveyor while the solution is under heat. Use suitable gloves for protection.
4. Turn off the heater and disconnect the machine from the power source.
5. Clean the control panel with a damp cloth. Do not clean the control panel while power is connected. Do not allow cleaning solution or water onto the control panel.

Step 3: Drain the Cleaning Solution

1. Allow the cleaning solution to cool to 100°F (38°C).
2. Drain the cleaning solution from the kettle using one of these methods:
    a. If the fryer has a drain valve, drain the water into a large bucket. Do not drain the cleaning solution into the EZMelt.
    b. If you have a Filter-Flo Siphon, remove its filter assembly. Then use the Filter Flo to siphon the cleaning solution into one or more large buckets.
3. Properly discard the solution.

WARNING

Clean and dry any floor spills immediately. Liquid on the floor can cause serious injury or fatality.

Step 4: Rinse with Water

1. Pour clean water into the kettle, up to the normal level of the shortening.
2. Connect the machine to the power source. Heat the water to 200°F (93°C).
3. Run the conveyor for 5-10 minutes.
4. Turn off the heater and disconnect the machine from the power source. Allow the water to cool to 100°F (38°C).
5. Drain the rinse water from the kettle using the same method as described in Step 3: Drain the Cleaning Solution.

Step 5: Remove the Conveyor

1. Ensure that the conveyor is cool to the touch. If possible, ask another person to help you lift it. Use suitable gloves.
2. Remove the conveyor from the fryer as follows:
   a. Lift the infeed side of the conveyor up by 2" (5 cm), to rise above the locator pins on the infeed side.
   b. Lift the front of the conveyor (the side closest to you) up by 4" (10 cm).
   c. Pull the entire conveyor toward you, and away from the control panel.
   d. The conveyor should now be free from the rest of the fryer.
3. Place the conveyor on a clean surface to dry. You can also use two pieces of wood approximately 1" x 3" x 15." Place on top of the kettle and then rest the conveyor on top of the wood as shown in Figure 9.

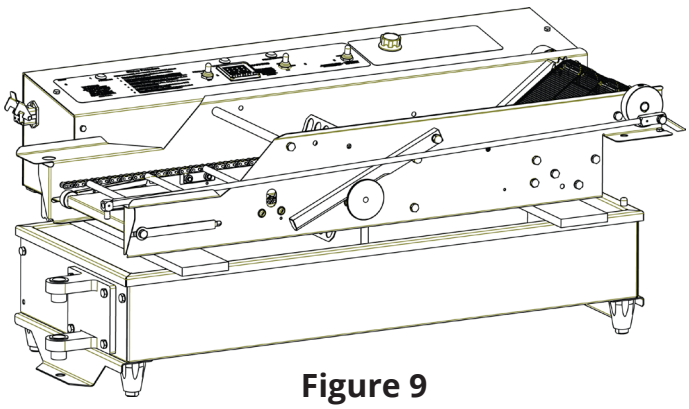


Figure 9
Rest conveyor on fryer

Step 6: Dry All Parts

Thoroughly dry all parts, including the conveyor, heating element(s), the inside of the kettle, and the drain.

WARNING

Failure to dry all parts of the Donut Robot® completely will cause shortening to spatter or overflow the fryer and may result in fire, injury, or fatality.

- There should be no water drops anywhere in or on the Donut Robot®.
- If your kettle has the optional drain assembly, ensure no water is in the drain or drain tube.
- After cleaning, return the conveyor to the fryer and cover with shortening. Water trapped in the chain may cause staining.

CLEANING

Step 7: Cleaning the Turner, Heating Element, and Kettle

If the turner requires extra cleaning, remove and clean it as follows:

1. Set the conveyor on a clean surface.
2. Use the same pieces of wood as the previous step to raise the conveyor 1" (25 mm) from the surface. This willenable the turner to turn freely.
3. Move the flight bars of the conveyor until the turner is in the middle of a flight pocket. Do this by turning the round motor coupling on the outfeed end of the conveyor.
4. Swing the turner cam weight up out of position. See Figure 10.

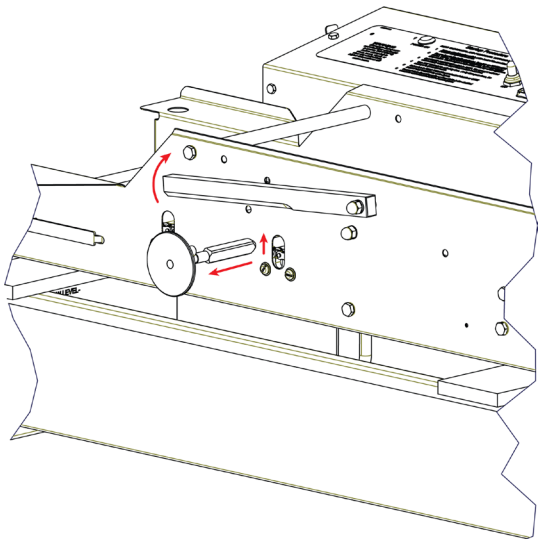


Figure 10
Removing turner cam

5. Holding the turner in one hand, lift up and pull out the turner cam with the other hand.
6. Lift out the turner. See Figure 11.

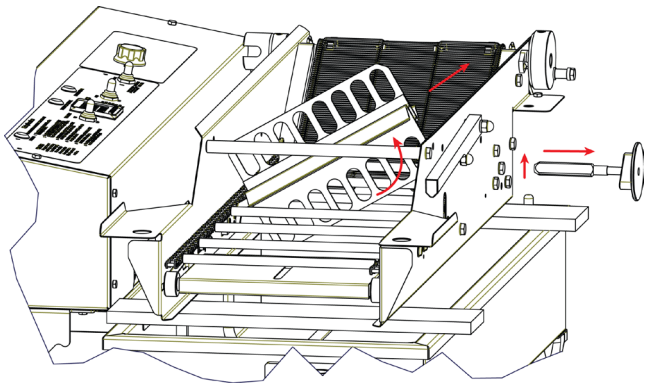


Figure 11
Removing the turner

7. Wash the turner cam and turner using mild detergent and warm water.
8. Rinse the turner cam and turner in clean water.
9. Dry thoroughly.

WARNING

All parts must be dried thoroughly. Moisture causes hot shortening to spatter, which may cause serious injury.

10. To clean the drop plate, remove it by lifting its outfeed end and sliding it toward the infeed side of the conveyor. See Figure 12.
11. Wipe the drop plate with a damp cloth.

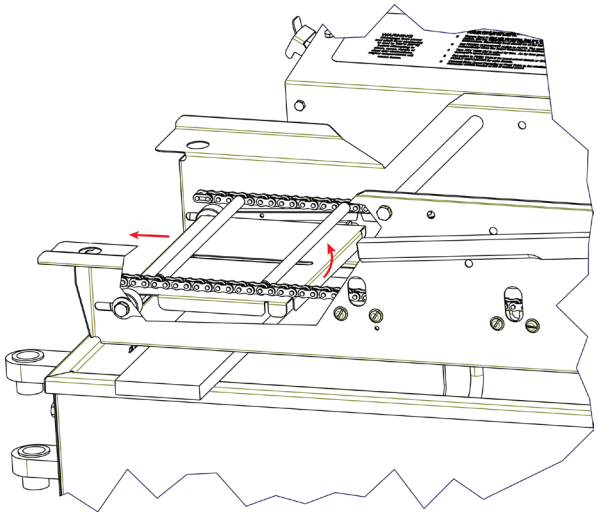


Figure 12
Removing the drop plate

CAUTION

If the drop plate is scratched, donuts will stick to it. Always wipe the drop plate in the direction of the grain in the metal, which runs parallel to the length of the conveyor. Never use abrasive cleaners.

12. To clean the elements, tilt the heater head assembly back, raising the heating element out of the kettle. See Figure 13.

13. Brush off any carbon that has accumulated on the heating element. Accumulated carbon can cause corrosion and ineffective heating.

14. Lift the kettle out of the fryer case. The safety latch on the outfeed side will automatically engage, preventing the elements from falling forward. See Figure 13.

15. Clean all parts of the kettle if needed, inside and out.

16. Ensure all parts are dry.

17. Replace kettle and lower the heater head. Push the bottom of the safety latch back to disengage the heater head.

18. Put the drop plate, turner cam, and turner back on the conveyor.

19. Replace the conveyor by lining up the notch in the drive coupling with the large bolt in the motor drive (at the right end of the heater head).

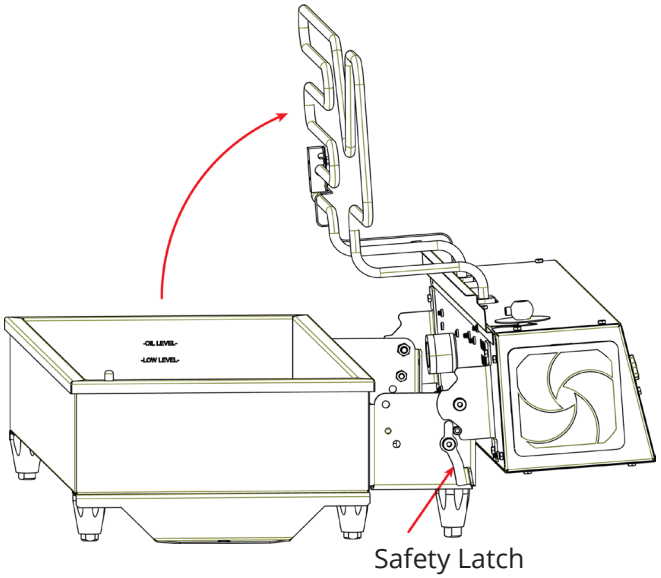


Figure 13
Tilting the heater head back

MAINTENANCE

WARNING

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

Taking Care of the Plunger, Hopper, and Cylinder

The plunger, hopper, and cylinder of your Donut Robot® are precision equipment. With proper care, they will perform well for many 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 several drops of food grade mineral oil to the plunger connecting rod. The oil should penetrate the ball lock and the spring socket. See Figure 14.

Weekly

Apply a few drops of food grade mineral oil to the swing column where it contacts the swing column bracket. See Figure 15.

Yearly

Lubricate the conveyor drive gears as follows:

1. Disconnect the machine from the power source.
2. Remove the cover of the heater head.
3. Lightly coat the gear teeth with food grade grease. See Figure 16.

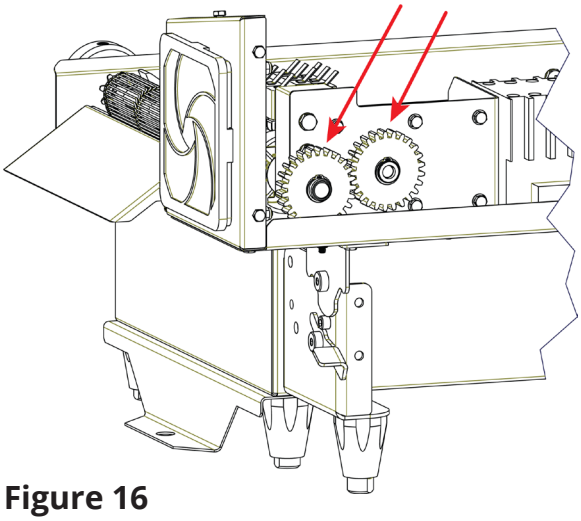


Figure 16
Lubricating the drive gears

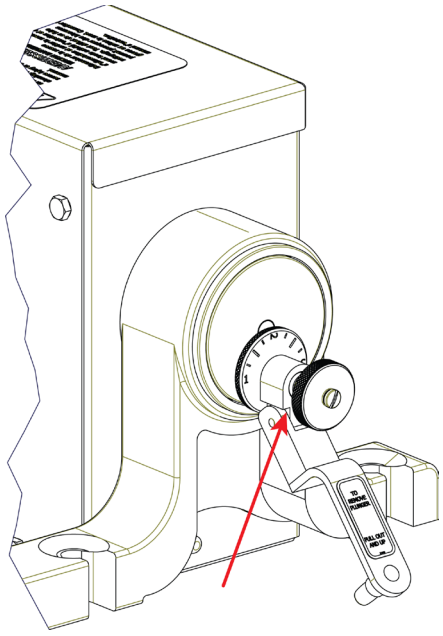


Figure 14
Lubricating connecting rod

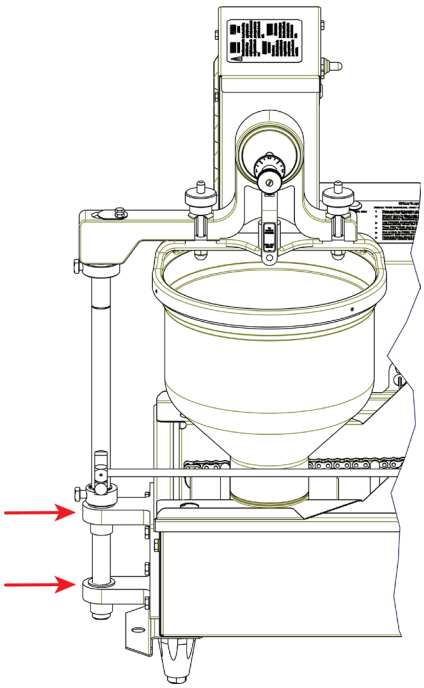


Figure 15
Lubricating the swing column

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 Donut Robot® that you cannot solve, call your dealer or another qualified technician.

If your dealer cannot help you, please call Belshaw.

When you call, please specify the following:

- The model name of the machine.
- The serial number of the machine.
- The voltage, phase, and frequency 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
To avoid being burned, turn off the machine and allow the shortening to cool.

WARNING
To avoid injury, turn off the machine and remove the hopper.

The donuts ball or blister	
Possible Causes	**What To Do**
The dough is too cold.	See "Donut Making Tips" section.
The shortening is too hot.	Decrease the temperature setting.
The dough is overmixed.	Review the mixing procedure.
The donuts are too large.	Adjust the dial on the depositor to produce smaller donuts.
The shortening is old or contaminated.	Replace the bad shortening with fresh.

The donuts are shaped imperfectly	
Possible Causes	**What To Do**
The shortening level is too low.	Add shortening to reach the proper level.
The drop plate is out of position.	Reposition the drop plate.
The tip of the cylinder is dirty.	Clean the cylinder.
The tip of the cylinder is nicked.	Replace the hopper.
The size-selection dial is not tightened.	Tighten the thumb nut.
The dough is overmixed.	Review the mixing procedure.

TROUBLESHOOTING

The donuts are undercooked	
Possible Causes	**What To Do**
The shortening is not hot enough.	Increase the temperature setting.
The conveyor is moving too quickly.	Decrease the speed of the conveyor using the knob labeled "Fry Time in Seconds."
The dough is too cold.	See "Donut Making Tips" section.
The dough has not had enough floor time.	See "Donut Making Tips" section.
The thermostat reads inaccurately.	Calibrate the thermostat.

The donuts are overcooked	
Possible Causes	**What To Do**
The shortening is too hot.	Decrease the temperature setting. The temperature setting should never exceed 375°F (191°C).
The conveyor is moving too slowly.	Increase the speed of the conveyor using the knob labeled "Fry Time in Seconds."
The thermostat reads inaccurately.	Calibrate the thermostat.

The depositor swing column chatters	
Possible Causes	**What To Do**
The nylon thrust washer is missing.	Install the nylon thrust washer between the swing column bracket and the set collar.
There is not enough lubrication between the swing column and the swing column mounting bracket.	Lubricate the upper and lower legs of the bracket with SAE 30 machine oil.

The conveyor bites the donuts	
Possible Causes	**What To Do**
The donuts are not cooking enough.	See "the donuts are undercooked" section on the previous page.
The shortening level is too low.	Add shortening to reach the proper level.
The turner is bent or packed with cooked food particles.	Straighten and/or clean the turner.
The cam weight is sticking due to accumulation of varnish.	Clean to remove the cooked-on varnish.
The fryer is not level.	Level the fryer.

The depositor operates continuously	
Possible Causes	**What To Do**
One of the microswitches is defective.	There are three microswitches in the conveyor drive assembly and one in the depositor. Test and replace any defective microswitches.
Something is interfering with the nylon brake dog in the depositor.	Clear away the cause of the interference.
The brake spring in the depositor is weak or broken.	Replace the spring.

TROUBLESHOOTING

The donuts drop at the wrong time	
Possible Causes	**What To Do**
The hopper swing is adjusted incorrectly.	Adjust the hopper swing. See "Adjusting the Hopper" in the Installation section.

The heating element fails to maintain the proper temperature	
Possible Causes	**What To Do**
The input voltage is incorrect.	Supply the correct power as specified on the data plate.
Sediment has accumulated around the thermostat bulb.	Clean to remove the sediment. Clean the Donut Robot® regularly and thoroughly.
The thermostat has been calibrated incorrectly.	Recalibrate the thermostat.
The thermostat is defective.	Replace the thermostat.

The motor overheats	
Possible Causes	**What To Do**
The power requirements of the machine do not match the power source.	Supply the correct power as specified on the data plate.
The motor is binding.	Repair or replate the motor.
The motor is defective.	Repair or replace the motor.

TROUBLESHOOTING

The conveyor is jammed	
Possible Causes	**What To Do**
Food particles are wedged between a chain opening and sprocket tooth.	Clean to remove the particles. Clean the Donut Robot® regularly and thoroughly.
The turner slot is packed with cooked food particles.	Clean to remove the particles.
The drop plate is out of position and is interfering with the conveyor.	Reposition the drop plate.
Something is interfering with the free movement of turner cam and cam weight.	Remove the obstruction.
The heating element is bent and is interfering with the turner.	Straighten the heating element.
The turner is out of position and is catching on a flight bar below.	Lift and move the outfeed end of the conveyor to disengage the conveyor coupling from the conveyor drive shaft. Turn the conveyor back 2-3 pockets. The turner will return to the correct position.
The conveyor drive shaft and the drive motor shaft are out of alignment.	Remove the cover of the drive assembly. Loosen the four mounting spacers so the drive assembly can be moved. Align the motor shaft with the conveyor shaft. When they are aligned, tighten the mounting spacers. Replace the cover.

WARNING

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

TROUBLESHOOTING

The depositor cuts double when you have selected one cut per pocket	
Possible Causes	**What To Do**
The nylon brake dog is binding on the depositor brake motor.	Loosen the brake dog. If the spring is missing or weak, replace it. If the brake dog is worn, replace it.
An internal wire is interfering with the nylon brake dog.	Move the wire.
The arm on the depositor microswitch is bent.	Bend the arm back into position or replace the microswitch.
The wires on the microswitch are reversed.	Make the correct connections.

The depositor will not operate, but the conveyor runs	
Possible Causes	**What To Do**
The depositor power cord is not plugged in to the outlet on back of heater head.	Connect the depositor power cord to the correct outlet.
The set screws in depositor cam are loose.	Tighten the set screws.
The depositor power cord is broken.	Replace the depositor power cord.
The depositor motor is defective.	Replace the depositor motor.
One of the microswitches is defective.	There are three microswitches in the conveyor drive assembly and one in the depositor. Test and replace any defective microswitches.
The depositor power switch is defective.	Replace the depositor power switch.
The circuit breaker on the back of the heater head is defective.	Replace the circuit breaker.

The depositor will not operate, but the conveyor runs (continued)	
Possible Causes	**What To Do**
The depositor's wiring harness is not connected.	Check the connection between the pin housing in the conveyor drive assembly and the socket housing in the fryer's heater head. Ensure the pins are securely seated in the pin housing.
The Feed Table/Cake Donuts switch is defective.	Replace the switch.

The element will not heat, and the conveyor will not run	
Possible Causes	**What To Do**
The power cord is not plugged in, or the outlet has no power.	Connect the machine to a good power source.
The power cord is defective.	Replace the power cord.
The transformer is defective.	Replace the transformer.
The connections to transformer are bad.	Rewire the connections to transformer.

WARNING

To avoid getting burned, electrocuted, or otherwise injured, turn off the machine, allow the shortening to cool, and disconnect the machine from the power source before doing any of the following.

TROUBLESHOOTING

The element will not heat, but the conveyor runs	
Possible Causes	**What To Do**
The high temperature limit control switch has been tripped.	Push the red reset button on the back panel of the heater head.
The temperature controller is displaying the wrong temperature.	Recalibrate the temperature controller.
The high temperature limit control is defective.	Replace the high temperature limit control.
The temperature controller is defective.	Replace the temperature controller.
The contactor for the transistor is defective.	Replace the contactor.
The connections to the contactor are bad.	Rewire the connections to the contactor.

The element heats, but the conveyor will not run	
Possible Causes	**What To Do**
The input voltage is incorrect.	Supply the correct power as specified on the data plate.
The circuit breaker has been tripped.	Reset it by moving the white switch on the back of the heater head to "off" and then to "on." If the conveyor will still not run, see that the power source agrees with the specifications on the data plate. If the problem persists, see below.
There is a short circuit.	Find and repair it. (First see "the circuit breaker has been tripped" above.)

The element heats, but the conveyor will not run (continued)	
Possible Causes	**What To Do**
The wiring harness in the conveyor drive assembly is not connected.	Check the connection of the pin connector from the conveyor drive assembly to the socket connector in the heater head enclosure. Make sure the pins in the pin housing are securly seated in the housing.
The conveyor drive power switch is defective.	Replace the switch.
The nylon brake dog is binding on the conveyor brake motor.	If the brake dog is worn, replace it. If it is too tight, loosen it. If the spring is weak or missing, replace it.
The brake motor is defective.	Replace the brake motor.
An internal wire is interfering with the nylon brake dog.	Move the wire.
A fan blade is caught on a wire.	Move the wire.
The conveyor is jammed.	Clear the obstruction.
The couplings are not engaged.	Engage the couplings.
The conveyor drive coupling is slipping.	Tighten the two set screws.

TROUBLESHOOTING

FT2-DW Feed Table

The following is a troubleshooting chart to help identify and solve problems with the FT2-DW Feed Table.

WARNING

To avoid getting burned, electrocuted, or otherwise injured, unplug machine and allow it to cool before disassembling, repairing or wiring.

The conveyor chains do not advance when main power is on or when the prime switch is pressed, and the pilot light does not come on	
Possible Causes	**What To Do**
The power cord is not connected.	Plug in the power cord.
The circuit breaker for the gear box outlet on the Donut Robot®'s heater head is tripped.	Push the white reset button near the outlet.
The black or white wire in the power cord is broken or poorly connected.	Repair the cord and/or make the proper connection. Replace if broken.
The fuse on the Feed Table is blown.	Replace the fuse.
The fuse for the Donut Robot®'s conveyor is blown.	Replace the fuse.

The conveyor chains do not advance when the main power is on, but they do advance when the prime switch is pressed	
Possible Causes	**What To Do**
The red wire in the power cord is broken or poorly connected.	Repair the cord and/or make the proper connection. Replace if broken.
The microswitch in the power head is defective.	Replace the microswitch.
The microswitch in the Donut Robot®'s signal circuit is defective.	Replace the microswitch.

TROUBLESHOOTING

The conveyor chains do not advance at all, do not advance far enough, or do not advance the same distance during each cycle, but the pilot light does come on	
Possible Causes	**What To Do**
The cam in the power head is loose.	Tighten the cam set screw.

The conveyor chains advance continuously when main power is on	
Possible Causes	**What To Do**
The brake is defective.	Repair or replace the brake.
The cam in the power head is loose.	Tighten the cam set screw.
The microswitch in the power head is defective.	Replace the microswitch.
The microswitch for the Donut Robot®'s signal circuit is defective.	Replace the microswitch.

Two rows of donuts are advanced during each cycle	
Possible Causes	**What To Do**
The brake is defective.	Repair or replace the brake.
The cam in the power head is loose.	Tighten the cam set screw.

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 ranges 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 1¼" (3.2 cm) 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-crusted.

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

   Donuts should absorb 1½ 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	+70	+21.1	+70	+21.1
Total **A**	142	43.3	142	43.3
Desired batter temperature	75	23.9	80	26.7
	x 3	x 3	x 3	x 3
Total **B**	225	71.7	240	80.1
Total **B**	225	71.7	240	80.1
– Total **A**	- 142	- 43.3	- 142	- 43.3
Desired water temperature for cake donuts	**83°F**	**28.4°C**	98	36.8
			↓	↓
Figure from above			98	36.8
Temperature increase during mixing (average: 30°F/17°C)			- 30	-17
Desired water temperature for yeast-raised donuts			**68°F**	**19.8°C**

DONUT MAKING TIPS

Ratios of Plunger Sizes to Donut Weights

The weights given are for donuts without icing or other toppings. They are provided for reference only, as weights vary according to the density of the batter.

Plunger Size	Donut Weight per Dozen
1"	5-8 oz / 142-227 g
1 5/8"	14-17 oz / 397-482 g
1 3/4"	16-20 oz / 454-567 g
1 7/8"	19-24 oz / 539-680 g
2"	22-27 oz / 624-765 g

Temperature Conversion

To convert temperatures from Fahrenheit to Celsius, subtract 32 from °F and divide the result by 1.8. For example, 212°F - 32/1.8 = 100°C.

To convert temperatures from Celsius to Fahrenheit, multiply °C by 1.8 and add 32 to the result. For example, (100°C x 1.8) + 32 = 212°F.

°F	°C	°F	°C
55	12.8	340	171.1
60	15.6	345	173.9
65	18.3	350	176.7
70	21.2	355	179.4
75	23.9	360	182.2
80	26.7	365	185.0
325	162.8	370	187.8
330	165.6	375	190.6
335	168.3	380	193.3

ACCESSORIES

This section contains information about accessories that can be used with your Donut Robot®.

- Feed Table
- Roto Cooler
- Filter-Flo Siphon
- Shortening Reserve Tank

FT2-DW Feed Table

The FT2-DW Feed Table is designed to supply proofed yeast-raised donuts to the Donut Robot®. It produces less than 70 dB(A) of equivalent A-weighted sound pressure at work stations. This has been determined while running the machine, using a Bruel & Kjaer sound level meter, type 2236. The Feed Table is meant to be used on a flat, stationary table or countertop, positioned end-to-end with the Donut Robot®. The operator is expected to read and follow these instructions.

Figure 17
FT2-DW Feed Table with Feed Table Cloth

SPECIFICATIONS				
Dimensions	**Shipping Weight**	**Electrical Data**	**Construction**	**Standard Equipment**
L = 52" (132 cm) W = 20" (51 cm) H = 11¾ (30 cm)	70 lb (31.8 kg)	115 V 1 Phase 50 or 60 Hz	Stainless steel, nickel-plated mild steel, and aluminum alloys.	Complete conveyor assembly, including drive system and controls. Does not include proofing cloths or proofing boards.

Installation

1. Unplug the depositor power cord of your Donut Robot®.
2. Release the plunger from the depositor.
3. Unscrew and lift off hopper assembly.
4. Lift off the depositor and swing column.
5. Lift the outfeed end of the Feed Table and set the brace under the trip shelf over the edge of the kettle
6. Plug the Feed Table power cord into the outlet on the end of the heater head.
7. Set the switch on the control panel to "Feed Table".

ACCESSORIES

WARNING

To avoid injury, ensure that the Feed Table is turned off before proceeding.

Operation

1. Test to make sure that the automatic timing for the Feed Table is working. Follow these steps:

   a. Turn on the Donut Robot®'s conveyor drive.

   b. Turn on the Feed Table's conveyor drive.

   The Feed Table should receive a signal from the Donut Robot®, move forward the distance needed to supply one pocket of donuts, and then stop until it receives the next signal.

2. Proof your donuts on the proofing cloths from the Feed Table.
3. Put a proofing tray, with a proofing cloth on it, on the Feed Table.
4. Press the prime switch on the power head assembly. The hooks on the Feed Table will grab the proofing cloth off of the proofing board. Allow the cloth to advance to the front of the Feed Table.
5. Release the prime switch and turn on the main power. Remove the proofing board.

   When the Feed Table is on, the Feed Table automatically advances donuts when the Donut Robot® is ready to accept them. After the donuts go into the fryer, the proofing cloths are carried underneath the Feed Table and fall onto the work surface.

6. Continue putting proofing cloths on the Feed Table.

WARNING

To avoid damage, never use force to assemble or operate the Feed Table.

Maintenance and Cleaning

After each use, use a soft, damp cloth for cleaning.

WARNING

To avoid electrocuting yourself or damaging the machine, never allow any liquid to enter the power head.

If you ever need to adjust the tension of the conveyor chains, follow these steps:

1. Loosen the hex head bolts that hold the roller shaft at the outfeed end of the conveyor.
2. Pull the shaft until the chains reach the correct tension. The tension is correct when you can lift the chains about 1" (2.5 cm) above the surface of the Feed Table. Each chain should have the same tension.
3. Tighten the hex head bolts that hold the roller shaft.

Roto Cooler

Figure 18
Roto Cooler

SPECIFICATIONS				
Dimensions	**Shipping Weight**	**Electrical Data**	**Construction**	**Standard Equipment**
Dia.=24" (61 cm) H=6-5/8" (17 cm)	16 lb (7.3 kg)	120 V 1 Phase 50 Hz	Basket: high-density polyethylene. Base: spun, polished, heavy-gauge aluminum.	Basket and turntable base with power cord and motor.

The Roto Cooler is designed to catch and cool donuts as they drop from the outfeed end of the Donut Robot®.

The Roto Cooler produces less than 70 dB(A) of equivalent A-weighted sound pressure at work stations. This has been determined while running the machine, using a Bruel & Kjaer sound level meter, type 2236.

The Roto Cooler is meant to be used on a flat, stationary table or countertop. The operator must read and follow these instructions.

To use the Roto Cooler:

1. Place the Roto Cooler near the outfeed end of the Donut Robot® so donuts will fall into it.
2. Connect the Roto Cooler power cord to the 120 V outlet on back of the Donut Robot®'s heater head.
3. Turn on the Roto Cooler. It will rotate and receive donuts. Remove cooled donuts from the Roto Cooler as needed.
4. When you are finished using the Roto Cooler, turn it off and unplug it.
5. Clean the Roto Cooler using soap and water and a non-abrasive cloth or scrubber.

WARNING

To avoid electrocuting yourself or damaging the machine, never submerge the base of the Roto Cooler.

ACCESSORIES

Filter-Flo Siphon

The Filter-Flo Siphon is designed to drain and filter shortening from the kettle of the Donut Robot®. The operator is expected to read and follow these instructions.

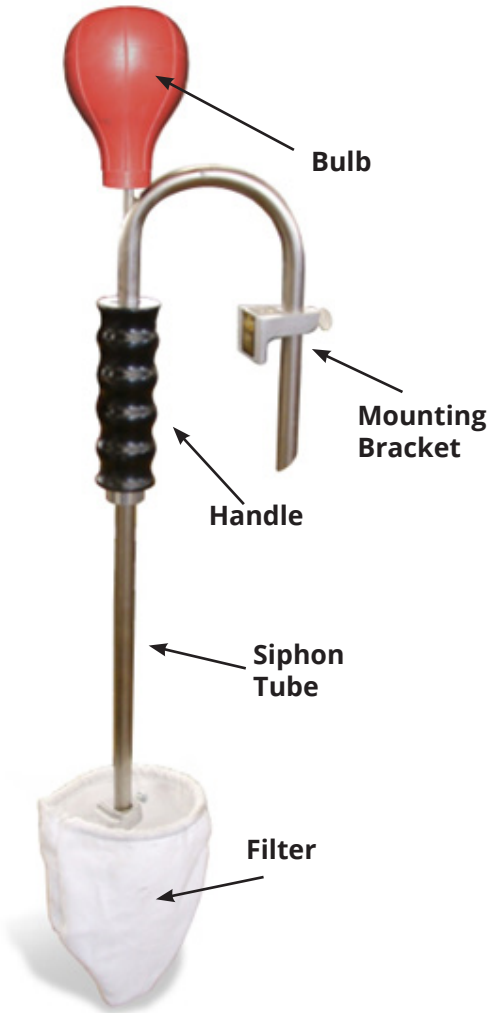


Figure 19
Filter-Flo Siphon

Installation

1. Let the shortening cool to 100°F (38°C).

WARNING

Hot shortening can cause serious burns. Never touch hot shortening. Never wear shorts while using the Filter-Flo Siphon.

2. Place the mounting bracket, with the siphon tube in it, on the lip of the kettle. You may place it on the infeed end of the kettle, or on the front side of the kettle. If you place it on the front side, you must disconnect the swing connecting rod from the throw arm and move it out of the way.
3. Position the opening of the siphon tube near the bottom of the kettle.
4. Tighten the thumb screw in the mounting bracket.
5. Attach the filter assembly to the lower part of the siphon tube, as shown in Figure 20. To do this:
   a. Slide the opening in the filter mounting bracket around the siphon tube.
   b. Adjust the filter mounting bracket vertically to ensure that the filter does not touch the valve assembly.
   c. Tighten the screw that holds the filter mounting bracket to the siphon tube.
   d. Tighten the screw that holds the filter retaining ring to the filter mounting bracket.

WARNING

Ensure that both screws in the filter assembly are tight. If they are not, the filter assembly might slide off the siphon tube during operation, causing shortening to splatter.

6. Place a five-gallon metal container under the filter.

WARNING

Do not use a plastic container. Hot shortening could melt the container.

Operation

1. Compress the bulb quickly and release it quickly. Do this only once. Shortening should flow into the container.

WARNING

Do not compress the bulb more than once. Doing so could allow hot shortening to get into the bulb, damaging your equipment.

2. Watch the container as the shortening flows into it. If the shortening rises to within 2" (5 cm) of the top of the container, do the following:
   a. Hold the siphon by the handle with one hand. With the other, loosen the thumb screw that holds the siphon assembly to the mounting bracket on the lip of the kettle.
   b. Slowly lift the siphon assembly so its opening is above the shortening. Do not remove it from the mounting bracket.
   c. Tighten the thumb screw.
   d. When the shortening stops flowing and the valve closes, move the container out from under the filter.
   e. Place another five-gallon metal container under the filter.
   f. With one hand, hold the siphon by the handle. With the other hand, loosen the thumb screw that holds the siphon assembly to the mounting bracket on the lip of the kettle.
   g. Slowly lower the siphon assembly so its opening is near the bottom of the kettle.
   h. Tighten the thumb screw.
   i. Restart the siphon, as explained in step 1.
   j. Continue watching the container and repeat the procedure as needed.

WARNING

If shortening overflows the container, it could burn you and get on the floor. Shortening on the floor can cause slips, falls, injury, or fatality. If shortening spills, clean and dry the floor immediately.

3. When the shortening stops flowing, tilt up the side of the kettle opposite the siphon. Place a wedge under the side of the kettle to hold it up. The remaining shortening will now flow toward the siphon.

4. Set aside the container of shortening.
5. Remove the filter assembly.
6. Place a different container under the valve assembly and start the siphon again. Drain the remaining shortening and discard it; it will be full of sediment.

Cleaning

1. Remove the siphon from the Donut Robot®.
2. Squeeze the bulb several times to expel shortening from the siphon.
3. Wipe the siphon clean and hang it with the bulb side up so any remaining shortening will drain. Place a pan under the siphon to collect the shortening.
4. Rinse the filter bag and hang it to dry. You may launder it as needed.

WARNING

After washing, be sure the Filter-Flo Siphon is completely dry before using it again. Moisture will cause hot shortening to spatter, which may cause serious injury.

OMRON TEMPERATURE CONTROLLER

Changing Parameters on the Electronic Temperature Controller

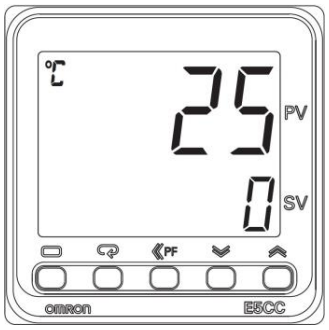
To change parameters on the temperature controller, see the Service Bulletin SB-0446 on the following pages.

MKII Temperature Controller Programming procedure

This service bulletin covers the procedure for programing the TJ-0184D-3 or 4 (Omron E5CC-RX3DM-000) temperature controller used in a Mark II, Mark V or Mark VI.

The TJ-0184D-2 controller comes per-programmed and protected so the operator cannot change the setup parameters. To change any setting you must first unlock the controller.

Note: Only the settings that are changed from the Factory settings are listed below.



To unlock the controller:

1. Press the ○ + ↩ keys for more than 3 seconds
2. Press the ↩ key to move to the next parameter
3. Press the ∧ or ∨ to change the parameter aAPt and LCPt from 2 to 0
4. Press the ○ + ↩ keys for more than 1 second to return to operator screen

Parameter	Factory default setting	Present setting	Unit	Front panel	Explanation of present setting
Protection parameters					
Operation/Adjustment Protect	0	2	.	aAPt	2:Display and change of only "PV" and "PV/SP" parameters is allowed. [2]
Initial Setting/Communications Protect	1	2	.	LCPt	2:Prohibited [2]

To change operator set points: (Must be unlocked to change Alarm Value 1)

1. Press the ↩ key to move to the next parameter
2. Press the ∧ or ∨ to change the parameter
3. Press the ○ key to return to operator screen

Operator set points					
Set Point	0	375/190	°F/°C	.	.
Alarm Value 1	0	-1	°F/°C	AL-1	Latches Aux 1, conveyor auto start

To change operator level parameters: (Must be unlocked)

1. Press the ⊙ key for less than 1 second
2. Press the ⊡ key to move to the next parameter
3. Press the ⊼ or ⊻ to change the parameter
4. Press the ⊙ key to return to operator screen

Operator level parameters					
Process Value Input Shift	0.0	0.0	°F/°C	INS	**This is the offset setting for calibration**
Hysteresis (Heating)	1.0	1.0	°F/°C	HYS	.

To change initial level parameters: (Must be unlocked)

1. Press the ⊙ key for move than 1 second to adjust intial parameters
2. Press the ⊡ key to move to the next parameter
3. Press the ⊼ or ⊻ to change the parameter
4. Press the ⊙ key for more than 1 second return to operator screen

Initial level parameters					
Input Type	5	7	.	IN-t	7:Thermocouple[J] (-100 to 850°C or -100 to 1500°F) [7]
Temperature Unit	0	1	.	d-U	°F [F]
SP Upper Limit	130	400/200	°F/°C	SL-H	.
SP Lower Limit	-20	0	°F/°C	SL-L	.
Alarm 2 Type	2	0	.	ALt2	0:Alarm function OFF [0]
Alarm 3 Type	2	0	.	ALt3	0:Alarm function OFF [0]
Alarm 4 Type	2	0	.	ALt4	0:Alarm function OFF [0]

To change advanced level parameters: (Must be unlocked)

1. Unlock the controller
2. Press the ⊙ key for more than 1 second to adjust intial parameters
3. Press the ⊡ key until you get to parameter AMōV
4. Press the ⊼ or ⊻ to change AMōV parameter to -169

Advanced level parameters					
Alarm 1 Latch	0	1	.	A 1Lt	Enabled [ōN]
PV/SP No. 1 Display Selection	4	1	.	SPd 1	1:"PV/SP/No display" [1]
PV Decimal Point Display	1	0	.	PVdP	OFF [ōFF]

After programming: To lock the controller:

1. Press the ○ + ↵ keys for more than 3 seconds
2. Press the ↵ key to move to the next parameter
3. Press the ⌃ or ⌄ to change the parameter oAPt and CCPt from 0 to 2
4. Press the ○ + ↵ keys for more than 1 second to return to operator screen

To set the controller back to factory default settings: (Must be unlocked, see page 1)

1. Press the ○ key for more than 1 second to adjust intial parameters
2. Press the ↵ key until you get to parameter AMoV
3. Press the ⌃ or ⌄ to change AMoV parameter to -169
4. Change parameter CNCt from oFF to FACt
5. Press the ○ key for more than 1 second return to intial screen
6. Press the ○ key for more than 1 second return to operator screen

Please do not hesitate to contact Belshaw Adamatic Bakery Group for additional assistance at (206) 322-5474, (800) 578-2547or e-mail at *service@belshaw.com*.

PARTS AND ELECTRICAL DIAGRAMS

Fryer models are identified by an item number. You need your fryer's item number to find the correct parts diagrams for your fryer. The item number is located on a data tag attached to the back of the electrical panel.

PARTS AND ELECTRICAL DIAGRAMS

Hoppers and Plungers

PLUNGERS	
Part Number	**Description**
U-1001	Plain Plunger, 1-9/16"
U-1001S	Star Plunger, 1-9/16"
DR42-1136	Plain Plunger, 1-13/16"
DR42-1136S	Star Plunger, 1-13/16"
U-1019	Hole Plunger, 1-9/16"
U-1024	Mochi Plunger, 1-9/16"

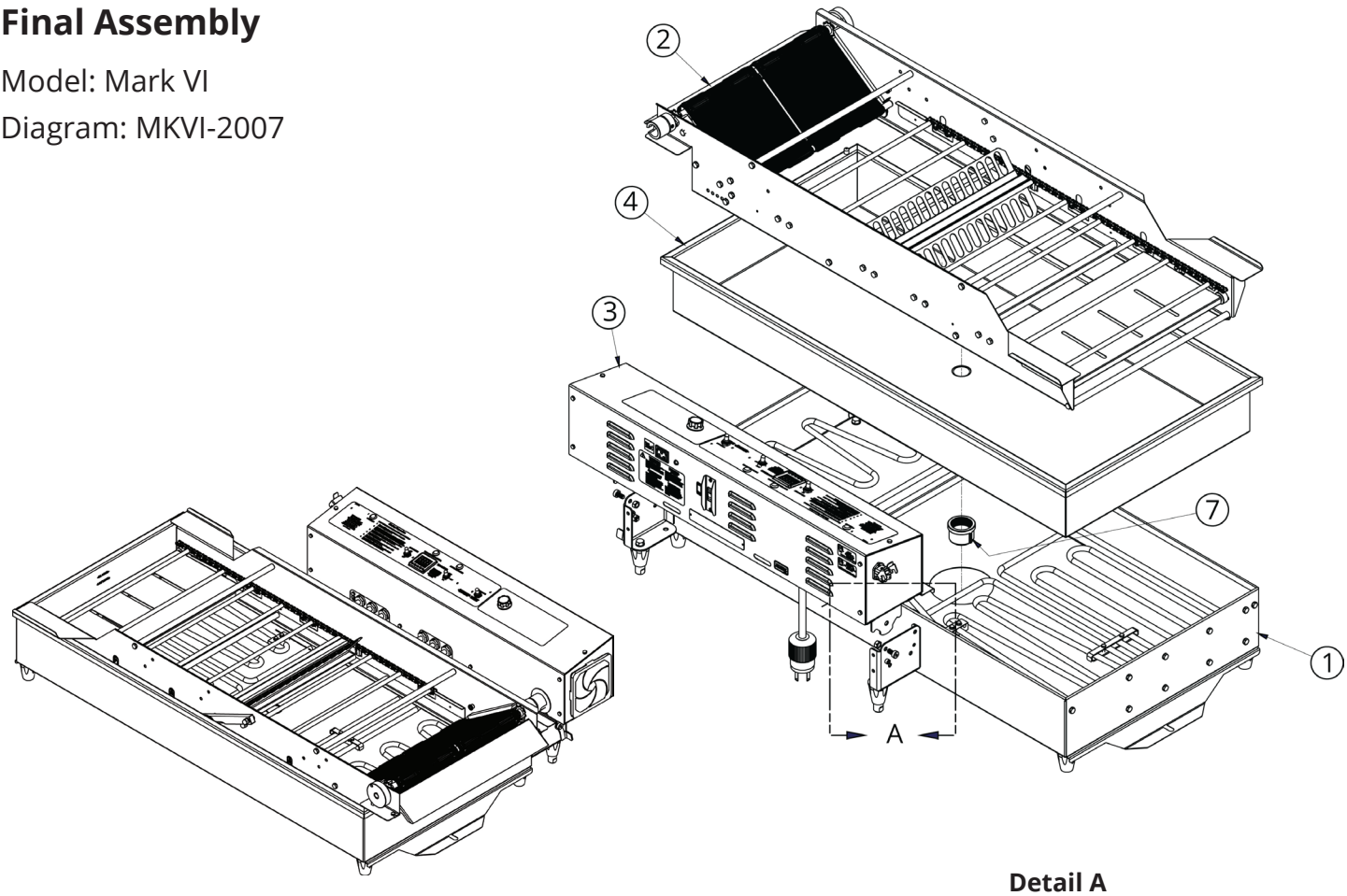
HOPPERS	
Part Number	**Description**
MK-1026X1-9/16	Hopper Assembly, 1-9/16"
MK-1026X1-13/16	Hopper Assembly, 1-13/16"

PARTS AND ELECTRICAL DIAGRAMS

Final Assembly

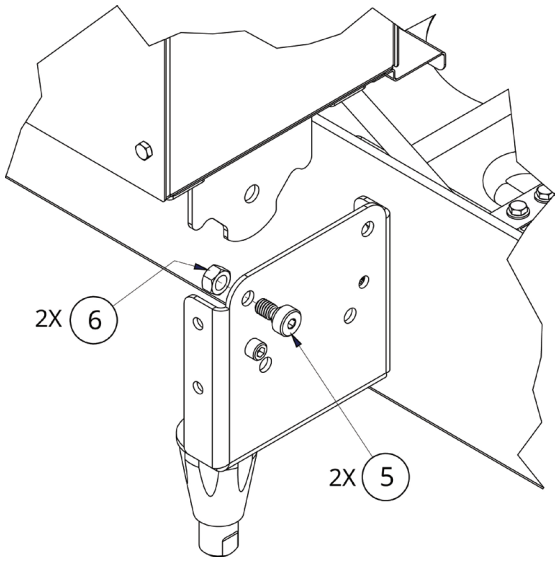
Model: Mark VI

Diagram: MKVI-2007



BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	MKVI-1203	FRYER CASE ASSY; MKVI
2	1	MKVI-1205-3.75	CONVEYOR ASSY 3.75, MKVI
	1	MKVI-1205-4.50	CONVEYOR ASSY 4.50, MKVI
3	1	MKVI-1600A	MKVI-DN-208/220,60,3-D-3.75/4.50 - C1
	1	MKVI-1600B	MKVI-DN-230/240,60,3-D-3.75- C1
	1	MKVI-1600C	MKVI-DN-380,50,3-C-3.75/4.50 - C1
	1	MKVI-1600D	MKVI-DN-380,60,3-B-3.75- C1
	1	MKVI-1600E	MKVI-DN-400,50,3-C-4.50- C1
	1	MKVI-1600F	MKVI-DN-400,60,3-C-4.50- C1
	1	MKVI-1600G	MKVI-DN-415,50,3-C-4.50- C1
4	1	MKVI-8010	KETTLE ASSEMBLY, MKVI
5	2	903-0090	SCREW,SB,SC,3/8" DIA X 1/8" LG, 5/16"-18
6	2	903-6103	5/16-18 UNC SS HEX NUT
7	1	959-0016-G	PIPE FITTING, END CAP, 1-1/4" NPT, SST 304

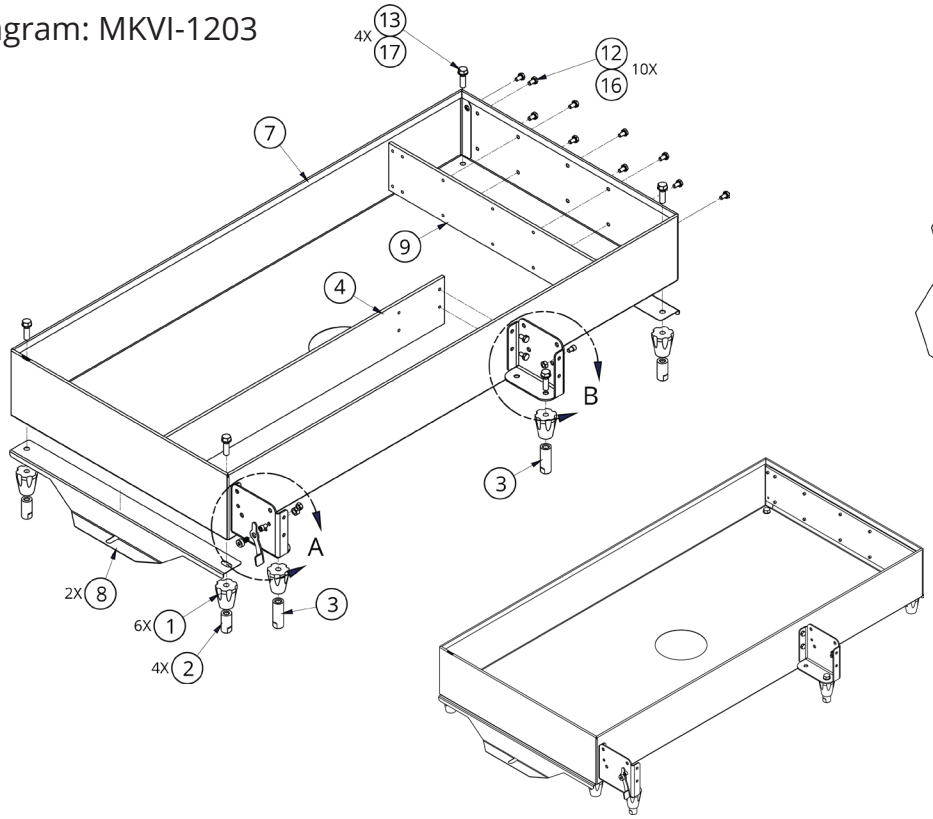
Detail A



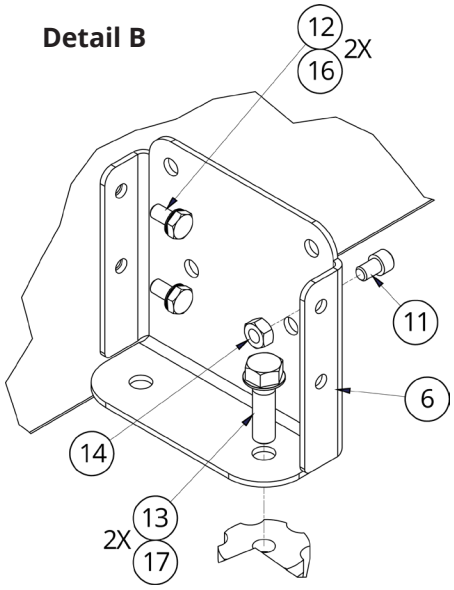
Case Assembly

Model: Mark VI

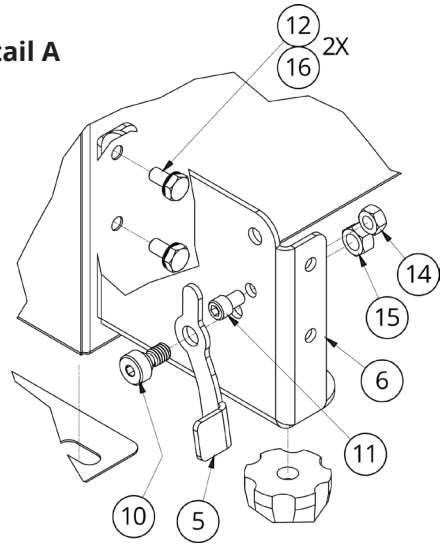
Diagram: MKVI-1203



Detail B



Detail A



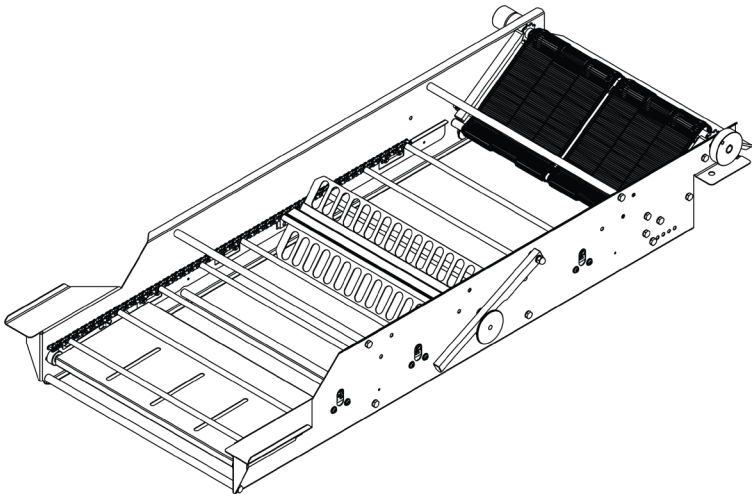
BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	6	MK-0022	FRYER CASE LEG
2	4	MK-0037	FRYER CASE LEG FOOT
3	2	MK-0038	HEATER HEAD MTG BRKT LEG (2 1/8 LG)
4	1	MK-0277	STIFFENER PLATE - LONG
5	1	MK-7029	HTR HEAD SAFETY STOP
6	2	MK-7030	HTR HEAD MOUNTING BRKT
7	1	MKVI-7025	OUTER CASE, MKVI
8	2	MKVI-7058	BRKT, OUTER CASE HOLD DOWN, MKVI
9	1	MKVIDC-6028-1	PLATE, STIFFENER, 4 ACROSS MKVI
10	1	903-0090	SCREW,SB,SC,3/8" DIA X 1/8" LG, 5/16"-18
11	2	903-0963	SCREW, SOC, 1/4-20X3/8, SST
12	14	903-0970SS	1/4-20X1/2 SS HEX CAP SCREW
13	6	903-1457	SCREW, HHMB, 3/8-16X1-1/4, SST
14	2	903-5200	NUT,HEX,1/4-20 SS
15	1	903-6103	5/16-18 UNC SS HEX NUT
16	14	903-7529	1/4 SS INT TOOTH LOCK WASHER
17	6	903-7548	WASHER, INTERNAL TOOTH LOCK, 3/8 SST

PARTS AND ELECTRICAL DIAGRAMS

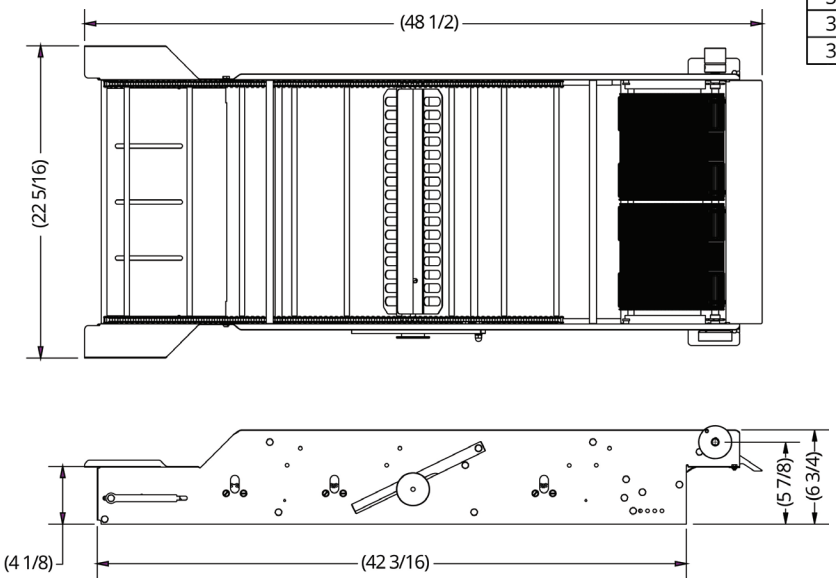
3.75 Conveyor Assembly

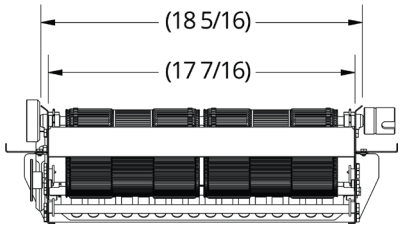
Model: Mark VI

Diagram: MKVI-1205-3.75



BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	C100-0501	HOLD DOWN BUTTON
2	1	DMM-0135	TURNER SUPPORT SADDLE
3	1	DMM-0136	TURNER CAM SUPPORT SADDLE
4	2	DR42-0116-1	WOODRUFF KEY, #404, GROUND
5	1	DR42-0240	TURNER WEIGHT THRUST BEARING
6	1	MK-0013	SWING CONNECTOR COUPLING
7	1	MK-0092	CONVEYOR DRIVE COUPLING
8	2	MK-0095	HOLD DOWN BUTTON
9	2	MK-0103	CONVEYOR DRIVE SHAFT SPACER
10	1	MK-6020	TURNER CAM WEIGHT
11	2	MK-7051	DROP PLATE SUPPORT, MK
12	1	MK-8013	CONVEYOR SIDE PANEL ASSEMBLY - REAR
13	1	MK-8014	CONVEYOR SIDE PANEL ASSY. FRONT
14	6	MKV-0022	CHAIN RAIL INSERT
15	2	MKV-0023-3.75	CONVEYOR CHAIN 3.75
16	1	MKVI-1207-3.75	CONV DRIVE SHAFT ASSY, 3.75, MKVI
17	1	MKVI-1208	DROP PLATE SHAFT ASSEMBLY
18	7	MKVI-6030	CONVEYOR SPACER ROD - 1/2" DIA
19	25	MKVI-6031	FLIGHT BAR
20	1	MKVI-7013	DROP PLATE, LONG, MKVI
21	1	MKVI-7027	EXIT CHUTE, MKVI
22	1	MKVI-8011	OUTFEED BELTING SUPPORT PLATE, MKVI
23	1	MKVI-8012-3.75	TURNER ASSEMBLY 3.75" SPACING
24	1	U-0008	DIAL SCREW COLLAR
25	1	634-0673	ASSY, TURNER CAM
26	2	901-0019	WIRE BELT, 7 1/2 X 1/8 X .050
27	2	903-0506	10-24 X 1/4 SS HEX HD MACH SCREW
28	3	903-0957.A	1/4-20X3/8 SS SOC SETSCREW, CUP POINT
29	33	903-0961SS	SCREW, HHMB, 1/4-20 X 3/8, SS
30	8	903-0962	1/4-20X3/8 PAN HD SLOT SCW ZP
31	1	903-1004	SCREW, HHMB, 1/4-20X1 SS
32	2	903-5201.A	ACORN NUT, 1/4-20, SS
33	42	903-7529	1/4 SS INT TOOTH LOCK WASHER



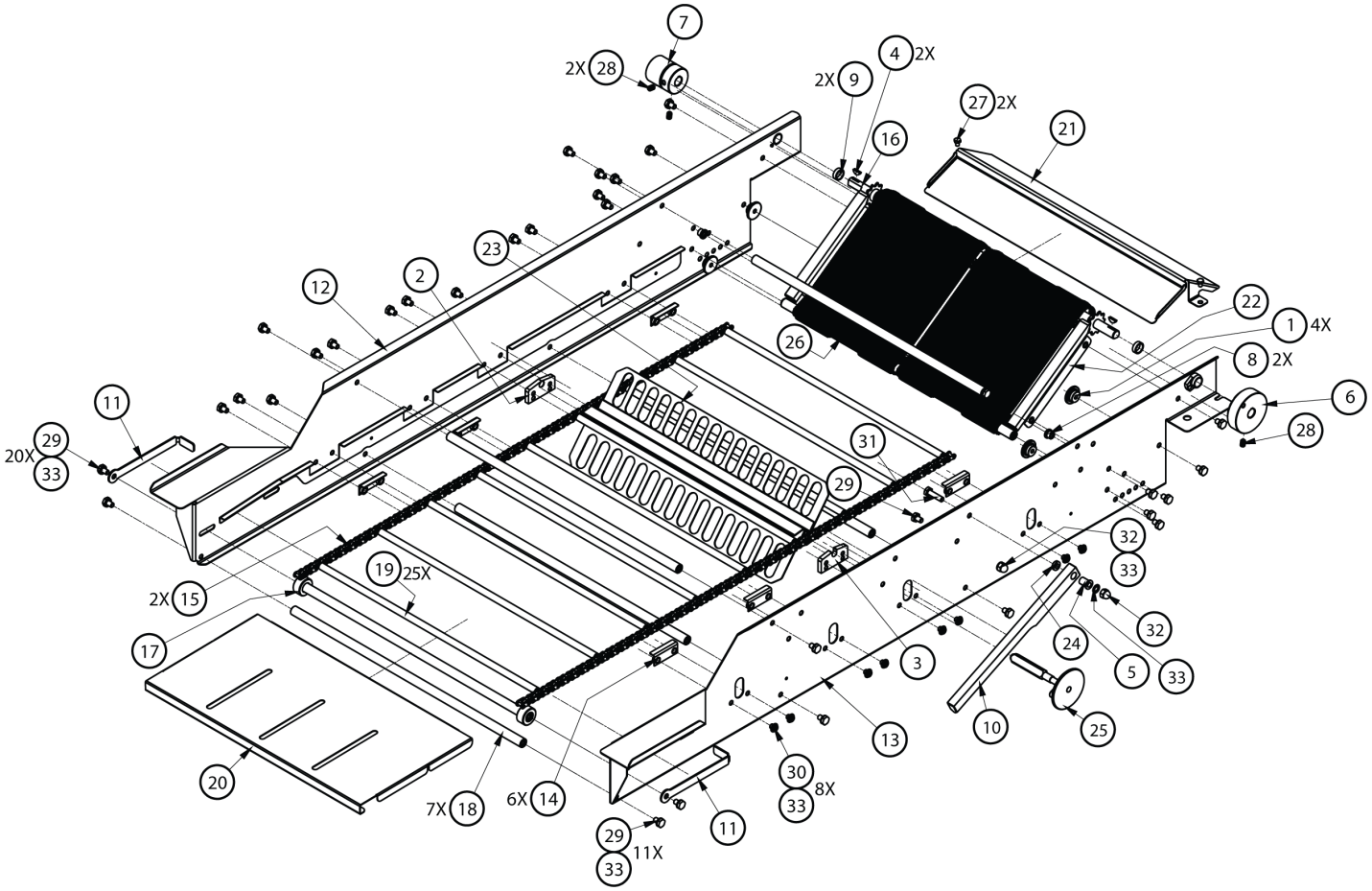


PARTS AND ELECTRICAL DIAGRAMS

3.75 Conveyor Assembly

Model: Mark VI

Diagram: MKVI-1205-3.75

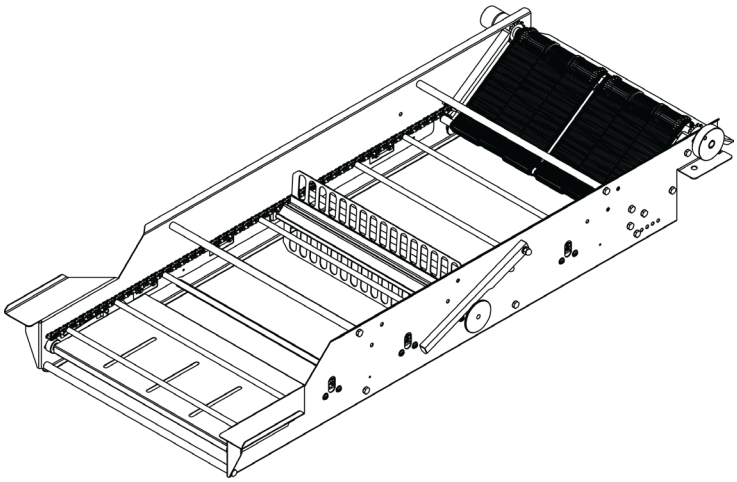


PARTS AND ELECTRICAL DIAGRAMS

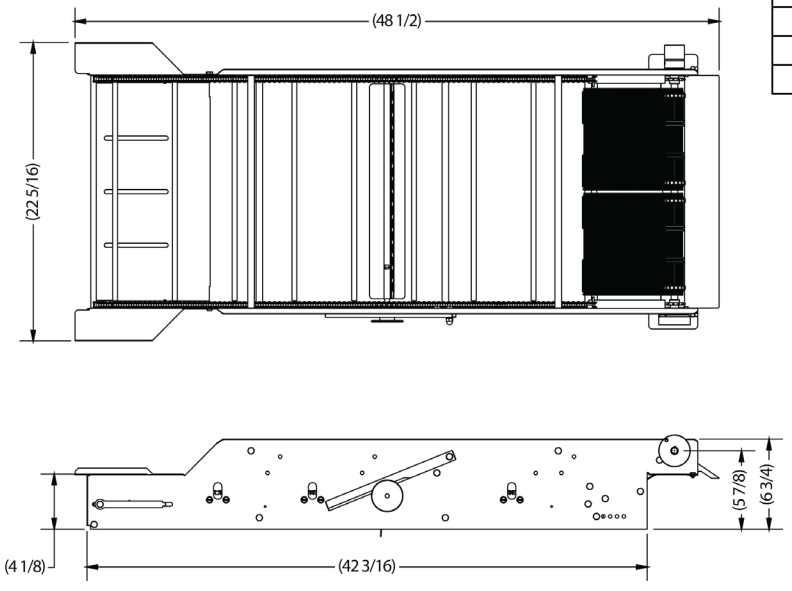
4.50 Conveyor Assembly

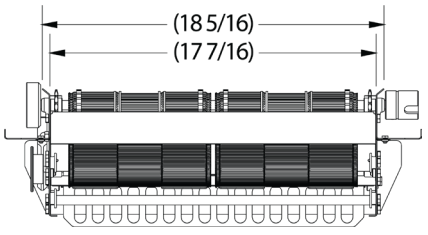
Model: Mark VI

Diagram: MKVI-1205-4.50



BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	C100-0501	HOLD DOWN BUTTON
2	1	DMM-0135	TURNER SUPPORT SADDLE
3	1	DMM-0136	TURNER CAM SUPPORT SADDLE
4	2	DR42-0116-1	WOODRUFF KEY, #404, GROUND
5	1	DR42-0240	TURNER WEIGHT THRUST BEARING
6	1	MK-0013	SWING CONNECTOR COUPLING
7	1	MK-0092	CONVEYOR DRIVE COUPLING
8	2	MK-0095	HOLD DOWN BUTTON
9	2	MK-0103	CONVEYOR DRIVE SHAFT SPACER
10	1	MK-6020	TURNER CAM WEIGHT
11	2	MK-7051	DROP PLATE SUPPORT, MK
12	1	MK-8013	CONVEYOR SIDE PANEL ASSEMBLY - REAR
13	1	MK-8014	CONVEYOR SIDE PANEL ASSY. FRONT
14	6	MKV-0022	CHAIN RAIL INSERT
15	2	MKV-0023-4.50	CONVEYOR CHAIN 4.50
16	1	MKVI-1207-4.50	CONV DRIVE SHAFT ASSY (4.50 SPACING)
17	1	MKVI-1208	DROP PLATE SHAFT ASSEMBLY
18	7	MKVI-6030	CONVEYOR SPACER ROD - 1/2" DIA
19	21	MKVI-6031	FLIGHT BAR
20	1	MKVI-7013	DROP PLATE, LONG, MKVI
21	1	MKVI-7027	EXIT CHUTE, MKVI
22	1	MKVI-8011	OUTFEED BELTING SUPPORT PLATE, MKVI
23	1	MKVI-8012-3.75	TURNER ASSEMBLY 3.75" SPACING
24	1	U-0008	DIAL SCREW COLLAR
25	1	634-0673	ASSY, TURNER CAM
26	2	901-0019	WIRE BELT, 7 1/2 X 1/8 X .050
27	2	903-0506	10-24 X 1/4 SS HEX HD MACH SCREW
28	3	903-0957.A	1/4-20X3/8 SS SOC SETSCREW, CUP POINT
29	33	903-0961SS	SCREW, HHMB, 1/4-20 X 3/8, SS
30	8	903-0962	1/4-20X3/8 PAN HD SLOT SCW ZP
31	1	903-1004	SCREW, HHMB, 1/4-20X1 SS
32	2	903-5201.A	ACORN NUT, 1/4-20, SS
33	42	903-7529	1/4 SS INT TOOTH LOCK WASHER



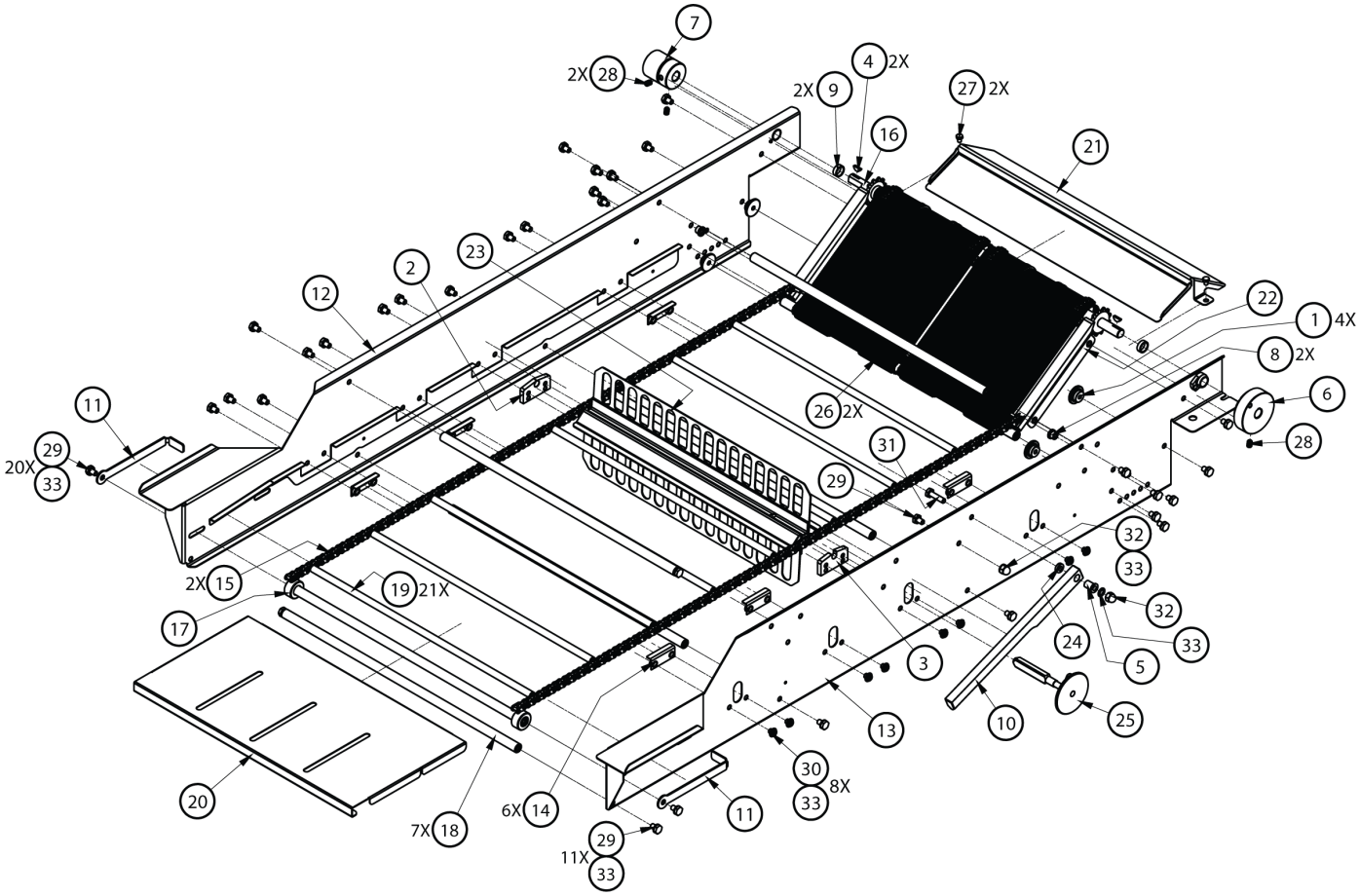


PARTS AND ELECTRICAL DIAGRAMS

4.50 Conveyor Assembly

Model: Mark VI

Diagram: MKVI-1205-4.50



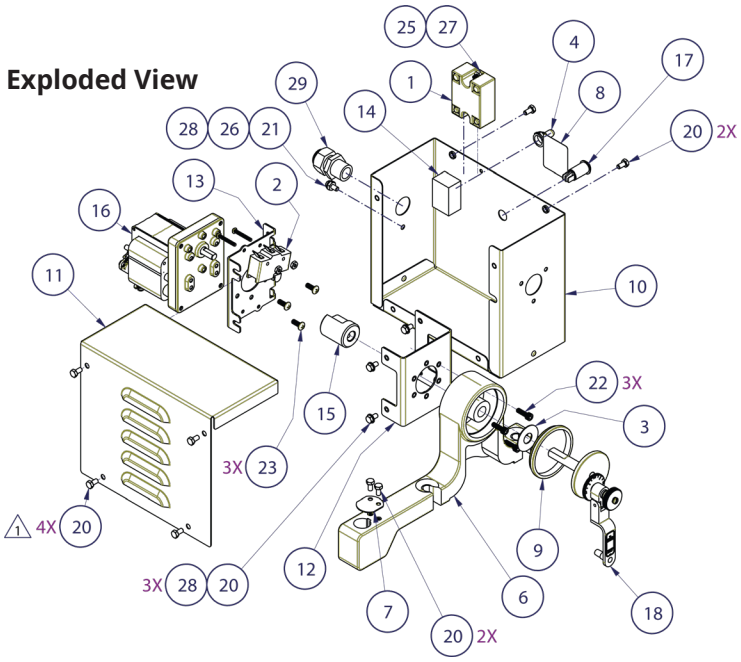
PARTS AND ELECTRICAL DIAGRAMS

Left Cutter Head Assembly

Model: Mark VI

Diagram: MK-1242

Exploded View

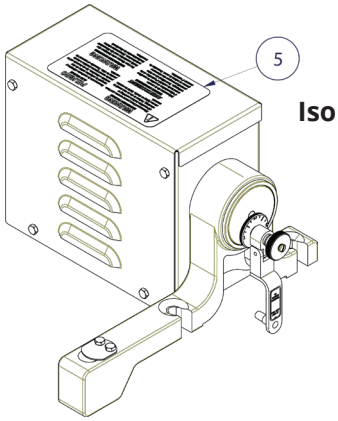


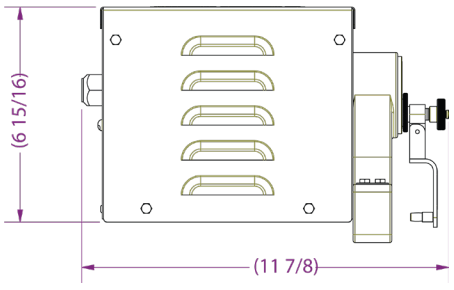
ITEM	QTY	PART NUMBER	DESCRIPTION
1	REF	#RLY-0020	RLY SSR 100-240VAC 25A IDEC
2	REF	DR42-0048	MICRO SWITCH HONEYWELL
3	1	DR42-0157	FIBRE WASHER
4	1	DR42-0339	MULTIFLEX SEAL (TOGGLE SWITCH)
5	1	MDD-0459	LABEL; WARNING; HAZ VOLTAGE
6	1	MK-0025	BEARING STRUT
7	1	MK-0071	COLUMN COVER PLATE
8	1	MK-0182	LABEL; CUTTER HEAD PRIME
9	1	MK-6021	CRANKSHAFT BEZEL, MK
10	1	MK-7057	CUTTER HEAD BOX ASSY
11	1	MK-7058	CUTTER HEAD COVER
12	1	MK-7065	MOTOR BRKT BASE ASSY
13	1	MK-7066	MOTOR BRKT
14	REF	MKV-0010	TOGGLE SWITCH
15	1	MKV-0103	CAM
16	REF	MTR-0010	MOTOR 115V, 50/60, 50 RPM
17	REF	PLT-0002	PILOT LIGHT, 120V CE
18	1	U-1013	POWER CRANK ASSY
19	2	903-0380	SS SCW ROUND HEAD SLOTTED 6-32 UNC X 1
20	11	903-0501SS	10-24 X 3/8 SS HEX HD MACH SCREW
21	1	903-0504	10-24 X 3/8 ONE WAY RH MACH SCW
22	3	903-0526	SCREW, SC, 10-24X5/8, SST
23	3	903-0710	SCREW, MS, RH, SL, 10-32X1/2, SST
24	2	903-5075SS	NUT, HEX, 6-32, SST
25	1	903-5085	8-32 SS HEX NUT
26	1	903-5100	10-24 HEX NUT
27	1	903-7508SS	#8 INTERNAL TOOTH LOCKWASHER SS
28	4	903-7514	#10 SS INTERNAL TOOTH LOCK WASHER
29	1	992-0052	CORD CLAMP, NYLON, .170-.450

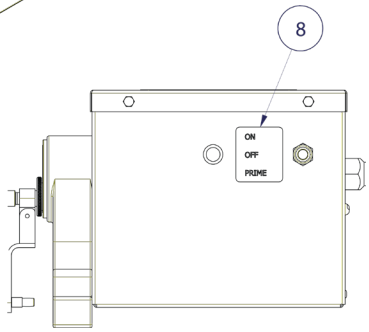
SEE MKCH-4000, MKCH-4002 FOR ELECTRICAL DIAGRAM

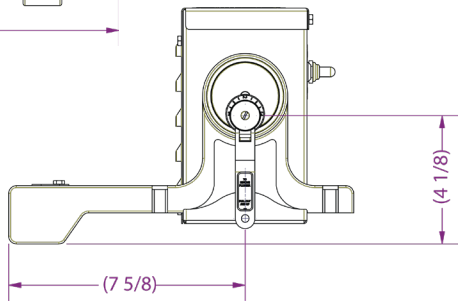
PART NUMBER	DESCRIPTION	ELEC. DWG
MK-1242A	CUTTER HEAD ASSY DOM	MK-1700
MK-1242B	CUTTER HEAD ASSY EXP/CE	MK-1704
MK-1242C	CUTTER HEAD ASSY DOM, MKIIG	MK-1700-1
MK-1242D	CUTTER HEAD ASSY EXP/CE, MKIIG	MK-1700CE-1

Isometric View









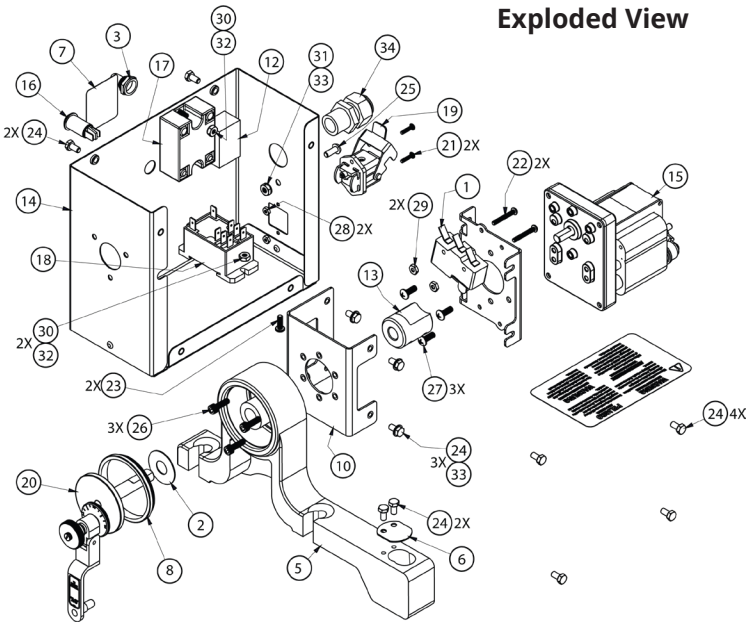
PARTS AND ELECTRICAL DIAGRAMS

Cutter Head Assembly

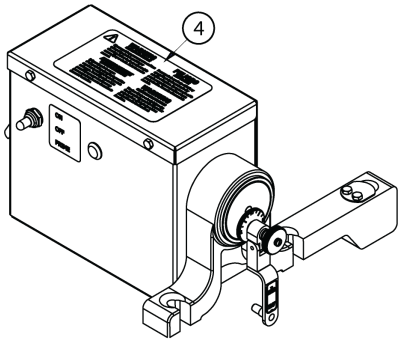
Model: Mark VI

Diagram: MKVI-1242

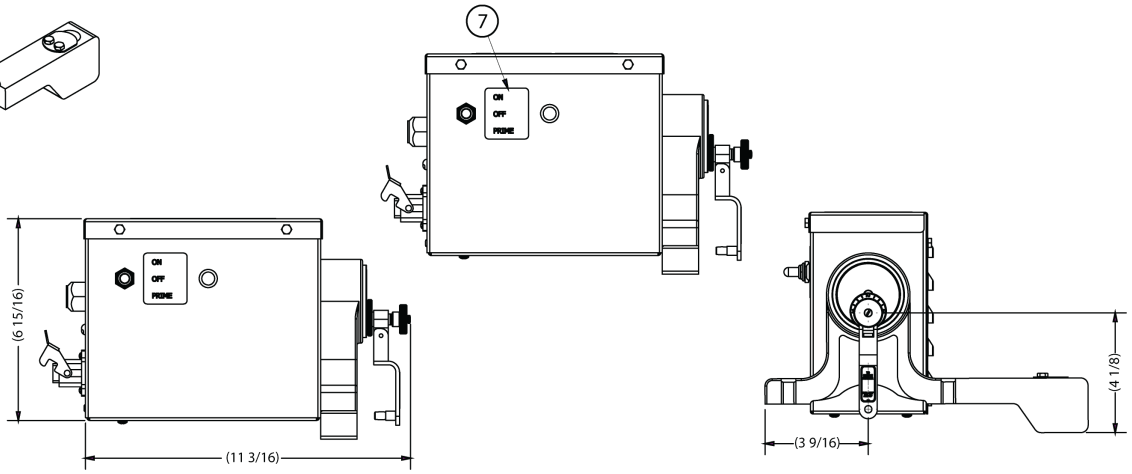
Exploded View



Isometric View



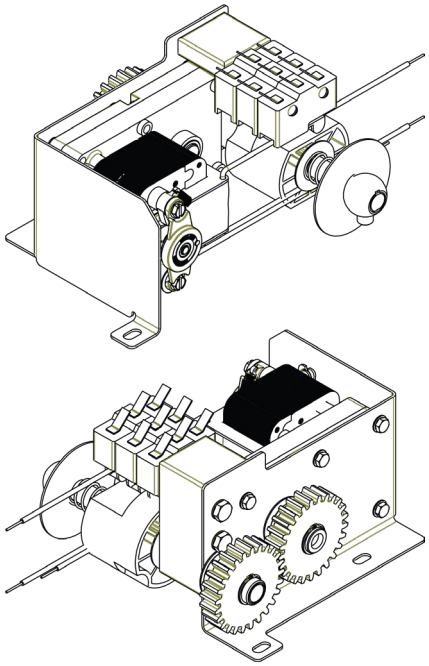
ITEM	QTY	PART NUMBER	DESCRIPTION
1	REF	DR42-0048	MICRO SWITCH HONEYWELL
2	1	DR42-0157	FIBRE WASHER
3	1	DR42-0339	MULTIFLEX SEAL (TOGGLE SWITCH)
4	1	MDD-0459	LABEL; WARNING; HAZ VOLTAGE
5	1	MK-0025-1	BEARING STRUT LH
6	1	MK-0071	COLUMN COVER PLATE
7	1	MK-0182	LABEL; CUTTER HEAD PRIME
8	1	MK-6021	CRANKSHAFT BEZEL, MK
9	1	MK-7058	CUTTER HEAD COVER
10	1	MK-7065	MOTOR BRKT BASE ASSY
11	1	MK-7066	MOTOR BRKT
12	REF	MKV-0010	TOGGLE SWITCH
13	1	MKV-0103	CAM
14	1	MKVI-7057	CUTTER HEAD BOX ASSY, MKVI
15	REF	MTR-0010	MOTOR 115V, 50/60, 50 RPM
16	REF	PLT-0002	PILOT LIGHT, 120V CE
17	REF	RLY-0020	RLY SSR 100-240VAC 25A IDEC
18	REF	RLY-0034	RLY DPDT,30A 120V
19	REF	SKT-0700	SOCKET
20	1	U-1013	POWER CRANK ASSY
21	2	903-0250	SCREW, MS, RH, SL, 4-40X3/8, SST
22	2	903-0380	SS SCW ROUND HEAD SLOTTED 6-32 UNC X 1
23	2	903-0414SS	8-32X1/2 PHIL PAN T/S SS
24	11	903-0501SS	10-24 X 3/8 SS HEX HD MACH SCREW
25	1	903-0504	10-24 X 3/8 ONE WAY RH MACH SCW
26	3	903-0526	SCREW, SC, 10-24X5/8, SST
27	3	903-0710	SCREW, MS, RH, SL, 10-32X1/2, SST
28	2	903-5050	NUT, HEX, 4-40, SST
29	2	903-5075SS	NUT, HEX, 6-32, SST
30	3	903-5085	8-32 SS HEX NUT
31	1	903-5100	10-24 HEX NUT
32	3	903-7508SS	#8 INTERNAL TOOTH LOCKWASHER SS
33	4	903-7514	#10 SS INTERNAL TOOTH LOCK WASHER
34	1	992-0052	CORD CLAMP, NYLON, .170-.450



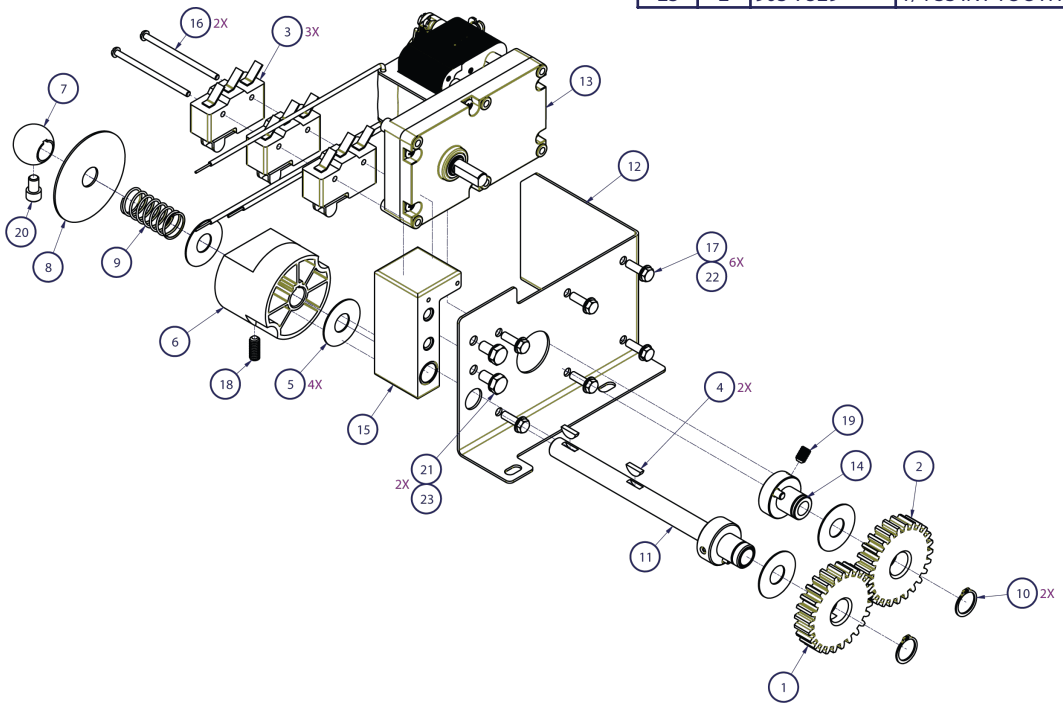
Conveyor Drive Assembly

Model: Mark VI

Diagram: MK-1114



BILL OF MATERIAL			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	DR42-0045-20S	CHANGE GEAR; CONVEYOR (STEEL), 25 TOOTH, 5/8 BORE
2	1	DR42-0045-30S	CHANGE GEAR; CONVEYOR (STEEL), 25 TOOTH, 5/8 BORE
3	3	DR42-0048	MICRO SWITCH HONEYWELL
4	2	DR42-0116-1	WOODRUFF KEY, #404, GROUND
5	4	DR42-0157	FIBRE WASHER
6	1	MK-0019	SIGNAL CAM
7	1	MK-0045	DRIVE COUPLING
8	1	MK-0067	SEALING PLATE
9	1	MK-0068	SEALING PLATE PRESSURE SPRING
10	2	MK-0105	EXTERNAL SNAP RING 5/8
11	1	MK-0607	MAIN DRIVE SHAFT ASSEMBLY
12	1	MK-7025	CONVEYOR DRIVE MOTOR BRKT
13	1	MKDW-0009	BRAKE MTR 115 50/60 7RPM CE
14	1	MKDW-0508	CHANGE GEAR COLLAR ASSEMBLY
15	1	MKVI-0019	DRIVE SHAFT BEARING BLOCK
16	2	903-0365	6-32X2-1/2 SS SLOT ROUND M/S
17	6	903-0528	SCREW, HHMB, 10-24X5/8, SS
18	1	903-0930	SCREW,SET,SC,CUP,1/4-20X5/8 STL
19	1	903-0957.A	1/4-20X3/8 SS SOC SETSCREW, CUP POINT
20	1	903-0963	SCREW, SOC,1/4-20X3/8 SS
21	2	903-0970SS	1/4-20X1/2 SS HEX CAP SCREW
22	6	903-7514	#10 SS INTERNAL TOOTH LOCK WASHER
23	2	903-7529	1/4 SS INT TOOTH LOCK WASHER



Heater Head

Model: Mark VI

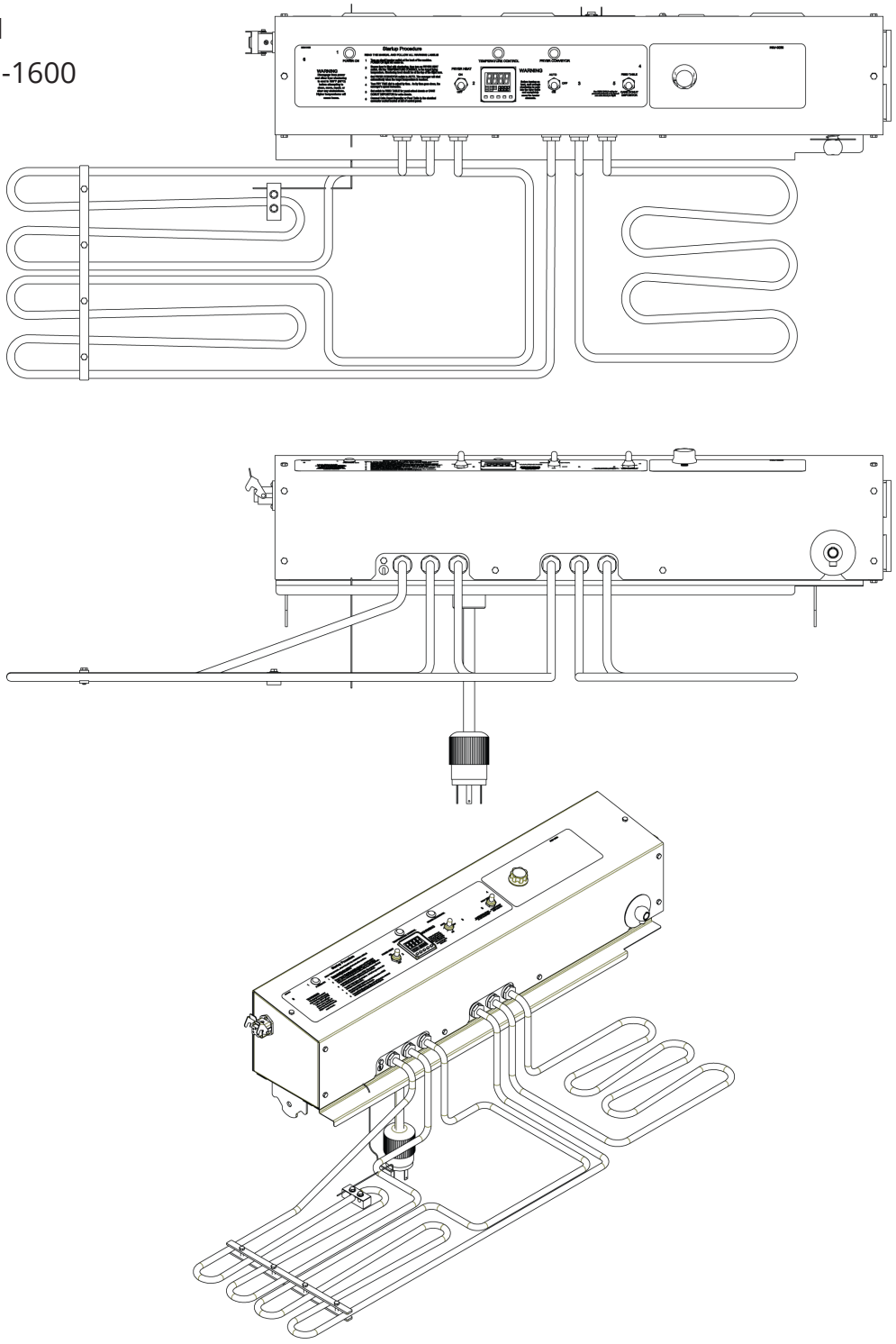
Diagram: MKVI-1600

BILL OF MATERIAL			MKVI-1600A	MKVI-1600B	MKVI-1600C	MKVI-1600D	MKVI-1600E	MKVI-1600F	MKVI-1600G
ITEM	PART NUMBER	DESCRIPTION	MK-1742	MK-1742	MK-1741	MK-1741	MK-1741	MK-1741	MK-1741
1	ACF-0008	FAN, AXIAL 115V, 11/14W 50/60HZ,	1	1	1	1	1	1	1
2	ACS-0005	FINGER SAFE KIT (TRANSFORMER, 2 PER KIT)	NA	NA	1	1	1	1	1
3	CBR-0001B	CBR, 5A, UL, CE, E-T-A	1	1	1	1	1	1	1
4	CTR-0030	CONTACTOR, 110V, 50A, 3 POLE	2	2	2	2	2	2	2
5	DR42-0050	TOGGLE SWITCH SPST	1	1	1	1	1	1	1
6	DR42-0216	HEATER HEAD ROTO COOLER OUTLET LABEL	1	1	1	1	1	1	1
7	DR42-0339	MULTIFLEX SEAL (TOGGLE SWITCH)	3	3	3	3	3	3	3
8	FM200-0065M	SWT, HILIM, 450 F, MANUAL RESET	1	1	1	1	1	1	1
9	FM200-0066	LABEL; TEMPERATURE CUT OUT	1	1	1	1	1	1	1
10	FM200-0105	LABEL; ON/OFF (NO HOLE)	1	1	1	1	1	1	1
11	MDD-0459	LABEL; WARNING; HAZ VOLTAGE	1	1	1	1	1	1	1
12	MK-0054	TIMER, 60 SEC	1	1	1	1	1	1	1
13	MK-0066	TRANSIENT VOLTAGE SUPRESSOR	1	1	1	1	1	1	1
14	MK-0275	BULB CLAMP TOP	1	1	1	1	1	1	1
15	MK-0276	CAPILLARY TUBE COVER	1	1	1	1	1	1	1
16	MK-0282-1	INSULATOR, ELEMENT TERMINAL	6	6	6	6	6	6	6
17	MK-0283	HIGH LIMIT MOUNTING BRACKET	1	1	1	1	1	1	1
18	MK-0790	POTENTIOMETER ASSEMBLY	1	1	1	1	1	1	1
19	MK-1050	WIRE HARNESS DOMESTIC	1	1	NA	NA	NA	NA	NA
20	MK-1051	WIRE HARNESS EXPORT	NA	NA	1	1	1	1	1
21	MK-1112	HTR HEAD BTM ASSY	1	1	1	1	1	1	1
22	MK-1114	CONV DRIVE ASSY, STD	1	1	1	1	1	1	1
23	MK-6001	BULB BRACKET CLAMP, UNIVERSAL	1	1	1	1	1	1	1
24	MK-7023	END CAP LEFT	1	1	1	1	1	1	1
25	MK-7024	END CAP RIGHT	1	1	1	1	1	1	1
26	MK-7026	HTR HEAD HINGE BRKT	2	2	2	2	2	2	2
27	MK-7028	HEATER HEAD ENCLOSURE 3PH	1	1	1	1	1	1	1
28	MK-7063	CIRCUIT BREAKER BRKT, MK	1	1	1	1	1	1	1
29	MK-9002	LABEL, STARTUP PROCEDURE	1	1	1	1	1	1	1
30	MK-9004	FAN GUARD W/FILTER	1	1	1	1	1	1	1
31	MKDW-0005-1A	ELE, OF, 200/240 3756/5000W	1	1	1	1	1	1	1
32	MKDW-0005-2A	ELE, IF FR, 200/240 3756/5000W	1	1	1	1	1	1	1
33	MKDW-0005-3A	ELE, IF BK, 200/240 3756/5000W	1	1	1	1	1	1	1
34	MKVI-0015	UPPER ELEMENT TIE BAR-LONG	1	1	1	1	1	1	1
35	MKVI-0016	UPPER ELEMENT TIE BAR-SHORT	1	1	1	1	1	1	1
36	MKVI-0017	LOWER ELEMENT TIE BAR-LONG	1	1	1	1	1	1	1
37	MKVI-0018	LOWER ELEMENT TIE BAR-SHORT	1	1	1	1	1	1	1
38	MKVI-9010	LABEL,FRY TIME, MKVI	1	1	1	1	1	1	1
39	PLG-0519	POWER CORD	1	1	NA	NA	NA	NA	NA
40	PLT-0002	PILOT LIGHT, 120V CE	3	3	3	3	3	3	3
41	SKT-0003	OUTLET, HEATER HEAD	1	1	1	1	1	1	1
42	SKT-0700	SOCKET	1	1	1	1	1	1	1
43	SWT-0042	SWITCH, TOGGLE, SPDT, ON/OFF/ON	1	1	1	1	1	1	1
44	TCPL-0005	THERMOCOUPLE, TYPE J, .063X18	1	1	1	1	1	1	1
45	TDR-0013	BUZZER 40 SEC DELAY	1	1	1	1	1	1	1
46	TDR-0014	SOLID STATE OFF DELAY TIMER	1	1	1	1	1	1	1
47	TJ-0184D-3	TEMP CTRL; 100-240 VAC; MKII F	1	1	NA	NA	NA	NA	NA
48	TJ-0184D-4	TEMP CTRL, 100-240 VAC, MKII, C	NA	NA	1	1	1	1	1
49	TM200-0120	TOGGLE SWITCH, SPDT ON-ON	1	1	1	1	1	1	1
50	XFM-0002	XFMR 250A 208-460X110	NA	NA	1	1	1	1	1
51	XFM-0052	XFMR 250A 208/230/460-115	1	1	NA	NA	NA	NA	NA
52	XFS-0005	FINGER SAFE KIT (TRANSFORMER, 2 PER KIT)	1	1	NA	NA	NA	NA	NA
53	0158	LABEL; DATA PLATE	1	1	1	1	1	1	1
54	634-0234	KNOB	1	1	1	1	1	1	1
55	634-0383	TERMINAL BLOCK	1	1	1	1	1	1	1
56	903-0250	SCREW, MS, RH, SL, 4-40X3/8, SST	2	2	2	2	2	2	2
57	903-0325.F	6-32X3/8 SS PHILIPS HEAD	4	4	4	4	4	4	4
58	903-0465.A	SCREW, RH, PH, 8-32X1-1/2, SST	4	4	4	4	4	4	4
59	903-0501SS	10-24 X 3/8 SS HEX HD MACH SCREW	23	23	23	23	23	23	23
60	903-0504	10-24 X 3/8 ONE WAY RH MACH SCW	2	2	2	2	2	2	2
61	903-0516SS	10-24 X 3/8 SLOT ROUND HD M/S SS	9	9	9	9	9	9	9
62	903-0536	SST, #10-24 X 0.750 HEX HEAD MACHINE SCREW	5	5	5	5	5	5	5
63	903-0604	10-24 X 1 SS SLOT RND M/S	3	3	3	3	3	3	3
64	903-0625	10-24 X 1.5 SS SLOT RND M/S	2	2	2	2	2	2	2
65	903-5050	NUT, HEX, 4-40, SST	2	2	2	2	2	2	2
66	903-5088	#8-32 UNC ESNA LOCK NUT	4	4	4	4	4	4	4
67	903-5105.A	NUT, HEX, 10-24, SS	4	4	4	4	4	4	4
68	903-7504SS	WASHER, FLAT, #8 (.0172 ID X .375 OD) SS	4	4	4	4	4	4	4
69	903-7513	#10 FLAT WASHER SAE SS	2	2	2	2	2	2	2
70	903-7514	#10 SS INTERNAL TOOTH LOCK WASHER	17	17	17	17	17	17	17
71	904-0035	LABEL; ETL LISTED; NSF STD 4	1	1	1	1	1	1	1
72	904-0040	LABEL; ETL LISTED; UL STD 197	1	1	1	1	1	1	1
73	992-0023	SHC-1040 CORD CLAMP, .500-.625	1	1	1	1	1	1	1
74	995-0111	10-4 PVC POWER CORD UL/CSA/CE	NA	NA	1	1	1	1	1

PARTS AND ELECTRICAL DIAGRAMS

Heater Head

Model: Mark VI
Diagram: MKVI-1600

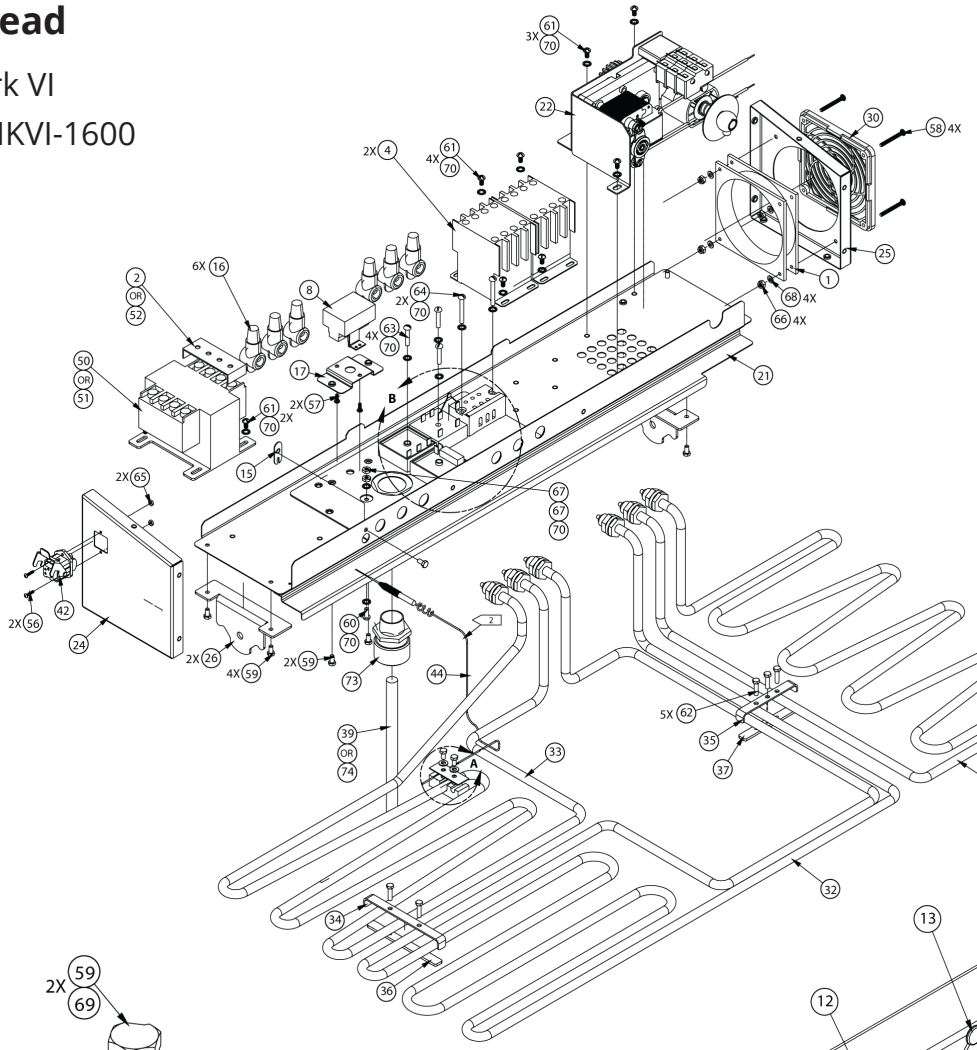


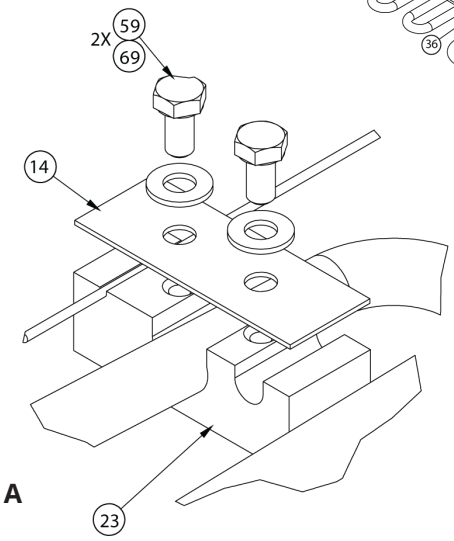
PARTS AND ELECTRICAL DIAGRAMS

Heater Head

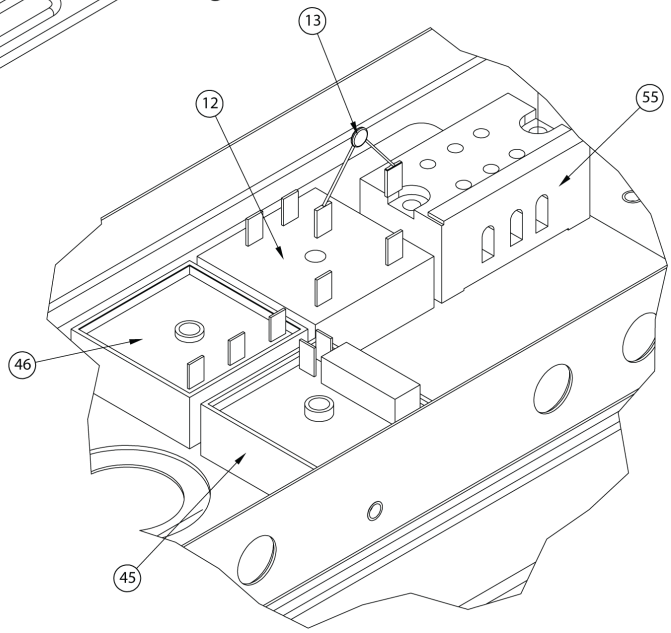
Model: Mark VI

Diagram: MKVI-1600





Detail A



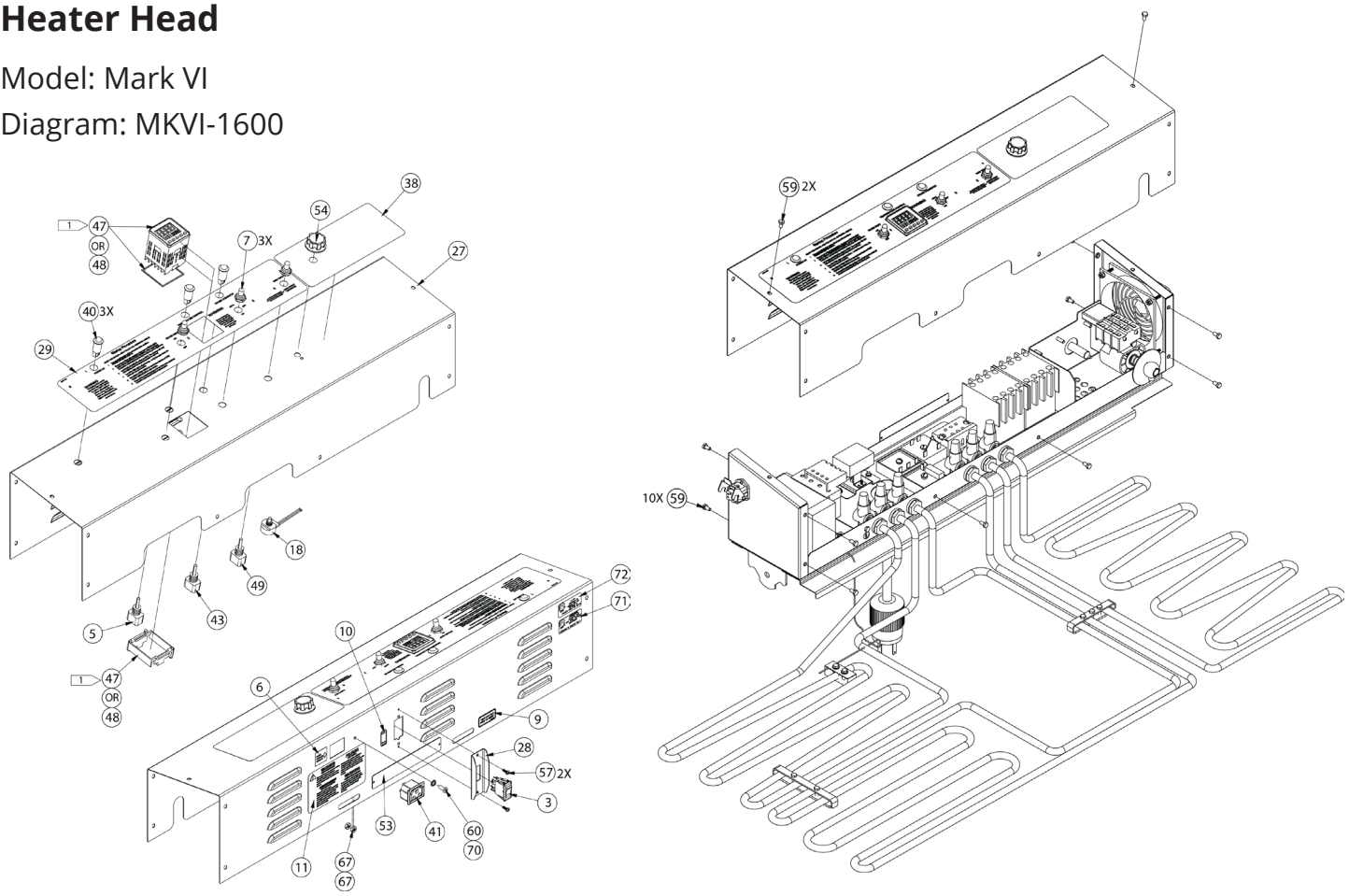
Detail B

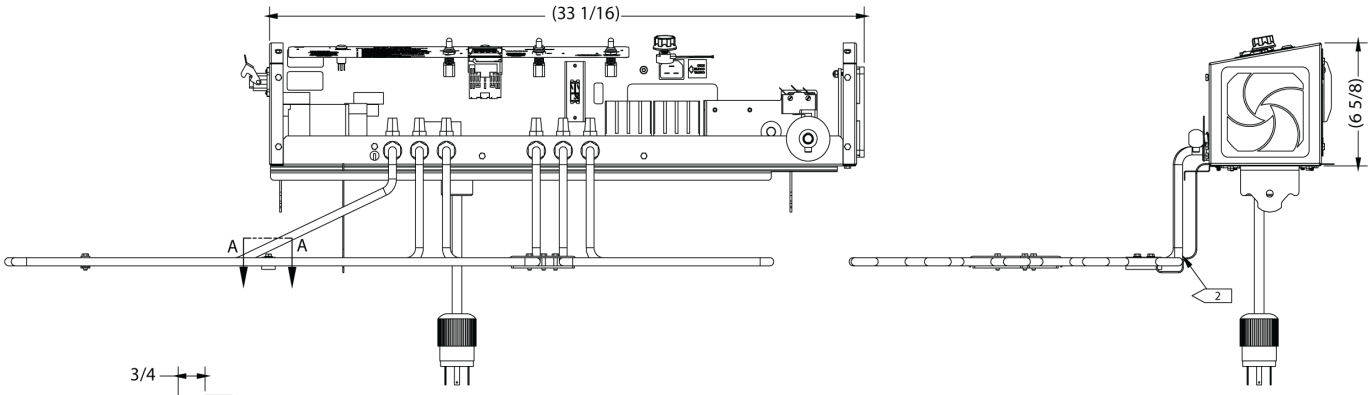
PARTS AND ELECTRICAL DIAGRAMS

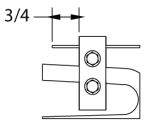
Heater Head

Model: Mark VI

Diagram: MKVI-1600





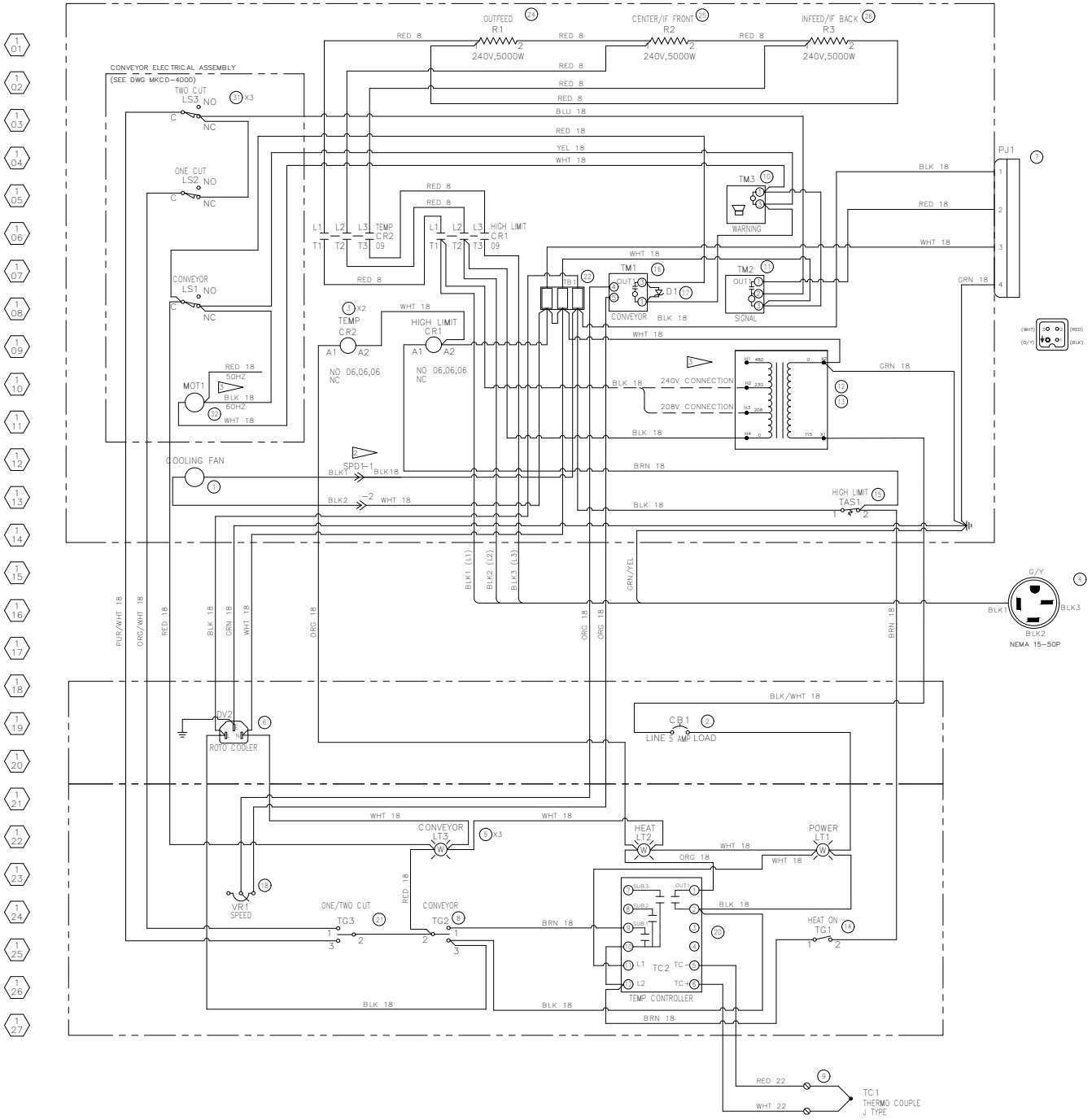


SECTION A-A

208-240/60/3 DOM

Model: Mark VI

Diagram: MK-1742

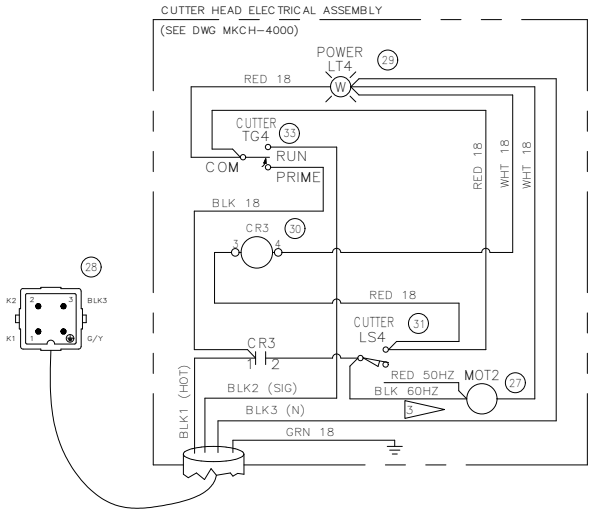


PARTS AND ELECTRICAL DIAGRAMS

208-240/60/3 DOM

Model: Mark VI

Diagram: MK-1742



BOM: MK-1742 MKVI/D 208-240/60/3 DOM COM					
ITEM #	DESCRIPTION	MANUFACTURER	QTY	UNIT	BELSHAW PART NO.
1	FAN, AXIAL 115V, 11/14W 50/60HZ	MECHATRONICS: UF12B12-BTHR	1	EA	#ACF-0008
2	BREAKER 5A	ETA: 1410-F110-W14QE3-5A	1	EA	#CBR-0001B
3	CTR, 3P, 50A, 110V COIL	SQUARE D: 8910DPA43V02	2	EA	#CTR-0030
4	POWER CORD 250V 50A 3PH N15-50	BELSHAW FAB	1	EA	#PLG-0519
5	CLEAR NEON PILOT LIGHT 125V	ARCO: NL589C2C	3	EA	#PLT-0002
6	OUTLET, HEATER HEAD	QUALTEK: 716W-X2/03	1	EA	#SKT-0003
7	PANEL MOUNT SOCKET ASSY	BELSHAW FAB	1	EA	#SKT-0700
8	SWITCH, TOGGLE, SPDT,ON/OFF/ON	ARCOLECTRIC: C3920BA	1	EA	#SWT-0042
9	THERMOCOUPLE, TYPE J, .063X14	EUSTIS: MFJ41G12E01S0	1	EA	#TCPL-0005
10	BUZZER 40 SECOND DELAY	AIROTRONIC: TZC1040SC	1	EA	#TDR-0013
11	SOLID STATE DELAY OFF TIMER	MACRO: THS-1054A-F0.6S	1	EA	#TDR-0014
12	XFMR 208/230/460-115	MICRON: B250MBT13XKF	1	EA	#XFM-0052
13	FINGER SAFE KIT, TRANSFORMER	MICRON: TPTC-1001	1	EA	#XFS-0005
14	TOGGLE SWITCH SPST	ARCOLECTRIC CORP: C3900BA	1	EA	DR42-0050
15	SWT, HILIM, 125VA, 450F, MANUAL	PECO: LB117-009	1	EA	FM200-0065M
16	TIMER-60 SEC.	SSAC: TS1422-1	1	EA	MK-0054
17	TRANSIENT VOLTAGE SUPPRESSOR	BELSHAW FAB	1	EA	MK-0066
18	POTENTIOMETER ASY 1.5MEG 20K	BELSHAW FAB	1	EA	MK-0790
19	WIRE HARNESS DOMESTIC	BELSHAW FAB	1	EA	MK-1050
20	TEMP CRTL, 1/16 DIN, MKII f	OMRON: E5CC-RX3A5M-000	1	EA	TJ-0184D-3
21	TOGGLE SWITCH, SPDT ON-ON	ARCOLECTRIC CORP: C3910BA	1	EA	TM200-0120
22	TERMINAL BLOCK	MARATTHON: 1103P	1	EA	634-0383

BOM: MK-1742-1 ELEC MKVI 208-240 60 3 DOM					
ITEM #	DESCRIPTION	MANUFACTURER	QTY	UNIT	BELSHAW PART NO.
23	MKVI/D 208-240/50/60/3 DOM COM	BELSHAW FAB	1	EA	MK-1742
24	ELE, OF, 200/240 3756/5000W	CHROMALOX: 393-877313-001	1	EA	MKDW-0005-1A
25	ELE, IF FR/CEN, 200/240 3756/5000W	CHROMALOX: 393-877345-001	1	EA	MKDW-0005-2A
26	ELE, IF/IF BACK, 200/240 3756/5000W	CHROMALOX: 393-877291-002	1	EA	MKDW-0005-3A

MK-1742 REFERENCE PARTS					
ITEM #	DESCRIPTION	MANUFACTURER	QTY	UNIT	BELSHAW PART NO.
27	MOTOR 115V, 50/60, 50 RPM	MOLON: ZZM-8084-X	1	EA	#MTR-0010
28	SIGNAL CORD ASSY DOM/CE 54	BELSHAW FAB	1	EA	#PLG-0500-4
29	CLEAR NEON PILOT LIGHT 125V	ARCOLECTRIC CORP: NL589C2C	1	EA	#PLT-0002
30	RELAY SSR 100-240VAC 25A	IDEC: RSSAN-25A	1	EA	#RLY-0020
31	MICRO SWITCH	HONEYWELL: BZ-2RW822-D612	4	EA	DR42-0048
32	BRAKE MTR 115 50/60 8RPM CE	MOLON: APM-HDZEM-6007-1	1	EA	MKDW-0009
33	TOGGLE SWITCH DPDT 15A 125V	ARCOLECTRIC CORP: C3971BA	1	EA	MKV-0010

REVISION HISTORY: R02				
REVISION SUMARY: REPLACE CIRCIT BREAKER			REV BY: JAH	DATE: 12/18/25
SHEET	ITEM	DESCRIPTION		ECR:
1	1	REPLACE #CBR-0001A WITH #CBR-0001B		4896

TERMINAL CONNECTIONS			
HEATER HEAD	VOLTAGE	MOTOR WIRING	XFM CONNECTION
MKVI-1600A	208/220, 60HZ	BLACK WIRE	H4-H3
MKVI-1600B	230/240, 60HZ	BLACK WIRE	H4-H2

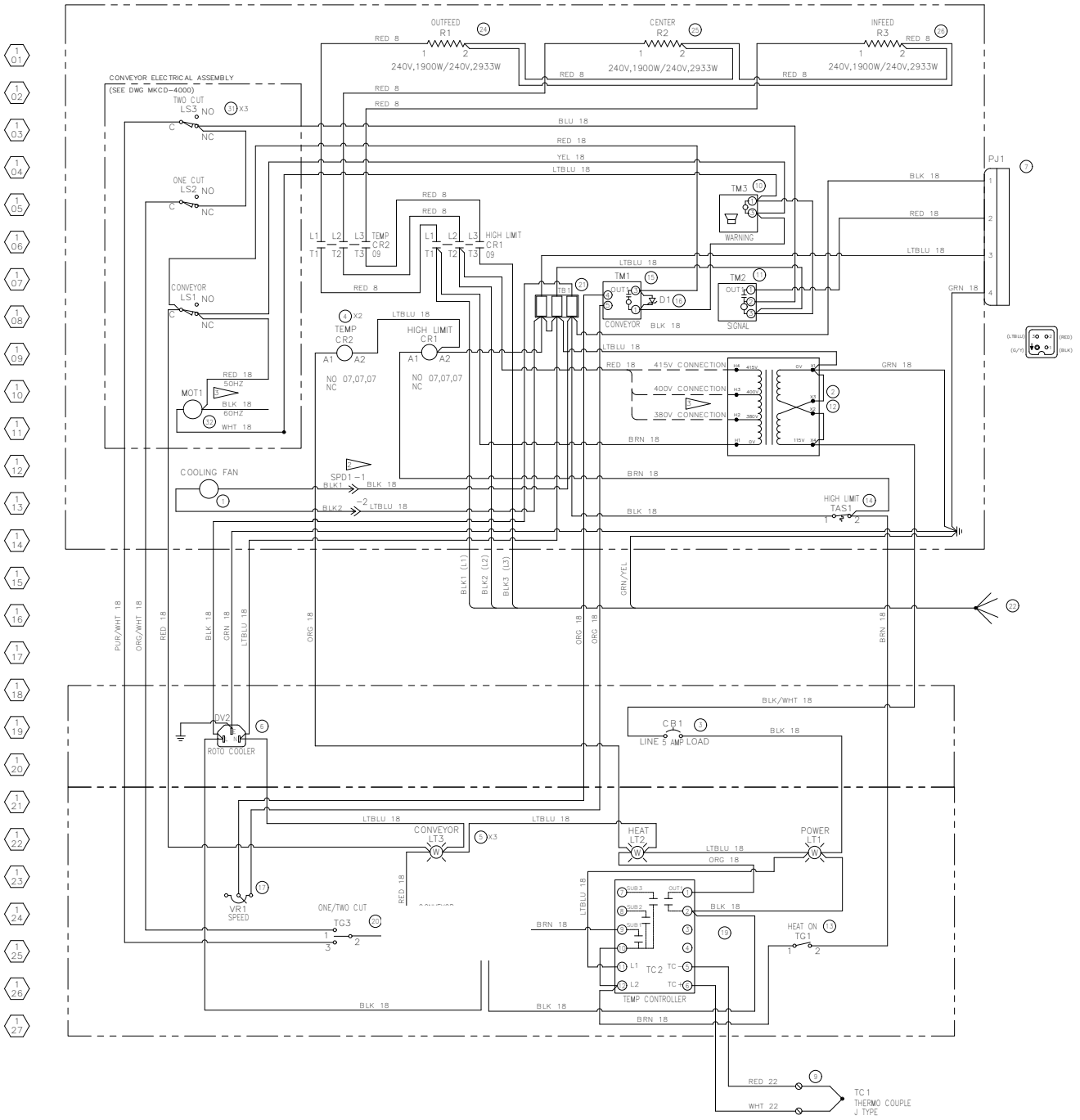
NOTES:
1. USE FULLY INSULATED RING AND SPADE TERMINAL ONLY.
2. EXTEND WIRE FROM COOLING FAN WITH 990-0584. ADD 7" PIGTAIL WITH 990-0560 FROM TERMINAL BLOCK.

DATA TAG - MKVI				
VOLTAGE	208VAC	220VAC	230VAC	240VAC
HERTZ	60 HZ			
PHASE	3 PH			
KW	11.9	13.2	14.4	15.6
FLA	32.9	34.6	36.1	37.5
LARGEST MTR HP	0.01			
AIC	10KAIC			

380/400/415/50/60/3 CE

Model: Mark VI

Diagram: MK-1741

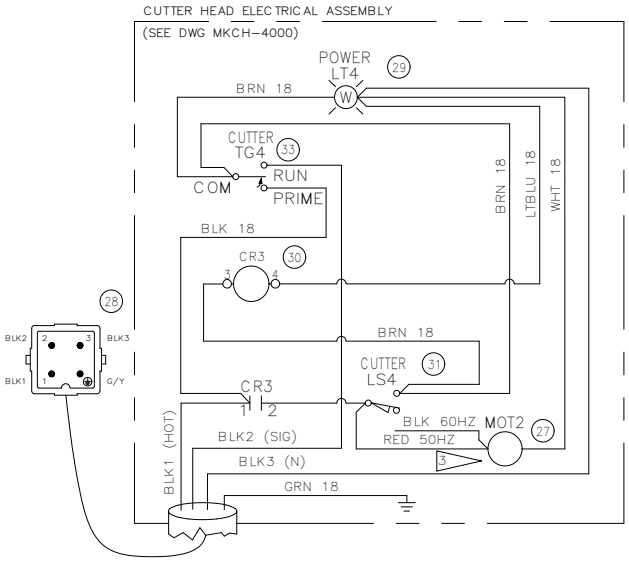


PARTS AND ELECTRICAL DIAGRAMS

380/400/415/50/60/3 CE

Model: Mark VI

Diagram: MK-1741



BOM: MK-1741 MKVI 380/400/415/50/60/3 CE COM					
ITEM #	DESCRIPTION	MANUFACTURER	QTY	UNIT	BELSHAW PART NO.
1	FAN, AXIAL 115V, 11/14W 50/60HZ	MECHATRONICS: UF12B12-BTHR	1	EA	#ACF-0008
2	FINGER SAFE KIT (TRANSFORMER)	SCHNEIDER: 9070FSC23	1	EA	#ACS-0005
3	BREAKER 5A	ETA: 1410-F110-W14QE3-5A	1	EA	#CBR-0001B
4	CTR, 3P, 50A, 110V COIL	SQUARE D: 8910DPA43V02	2	EA	#CTR-0030
5	CLEAR NEON PILOT LIGHT 125V	ARCO: NL589C2C	3	EA	#PLT-0002
6	OUTLET, HEATER HEAD	QUALTEK: 716W-X2/03	1	EA	#SKT-0003
7	PANEL MOUNT SOCKET ASSY	BELSHAW FAB	1	EA	#SKT-0700
8	SWITCH, TOGGLE, SPDT,ON/OFF/ON	ARCOLECTRIC: C3920BA	1	EA	#SWT-0042
9	THERMOCOUPLE, TYPE J, .063X14	EUSTIS: MFJ41G12E01S0	1	EA	#TCPL-0005
10	BUZZER 40 SECOND DELAY	AIROTRONIC: TZC1040SC	1	EA	#TDR-0013
11	SOLID STATE OFF DELAY TIMER	MACRO: THS-1054A-F0.6S	1	EA	#TDR-0014
12	XFM 1PH 380/400X115/230 250VA	SCHNEIDER: 9070T250D33	1	EA	#XFM-0002
13	TOGGLE SWITCH SPST	ARCOLECTRIC CORP: C3900BA	1	EA	DR42-0050
14	SWT, HILIM, 125VA, 450F, MANUAL	PECO: LB117-009	1	EA	FM200-0065M
15	TIMER-60 SEC.	SSAC: TS1422-1	1	EA	MK-0054
16	TRANSIENT VOLTAGE SUPPRESSOR	BELSHAW FAB	1	EA	MK-0066
17	POTENTIOMETER ASY 1.5MEG 20K	BELSHAW FAB	1	EA	MK-0790
18	WIRE HARNESS DOMESTIC	BELSHAW FAB	1	EA	MK-1050
19	TEMP CRTL, 1/16 DIN, MKII C	OMRON: E5CC-RX3A5M-000	1	EA	TJ-0184D-4
20	TOGGLE SWITCH, SPDT ON-ON	ARCOLECTRIC CORP: C3910BA	1	EA	TM200-0120
21	TERMINAL BLOCK	MARATTHON: 1103P	1	EA	634-0383
22	10-4 PVC POWER CORD UL/CSA/CE	OFLEX LAPP: 601004	6	FT	995-0111

BOM: MK-1741-1 ELEC MKVI 380/400/415/50/60/3 CE					
ITEM #	DESCRIPTION	MANUFACTURER	QTY	UNIT	BELSHAW PART NO.
23	MKVI/D 380/400/415/5/6/3CE COM	BELSHAW FAB	1	EA	MK-1741
24	ELE, OF, 200/240 3756/5000W	CHROMALOX: 393-877313-001	1	EA	MKDW-0005-1A
25	ELE, IF FR/CEN, 200/240 3756/5000W	CHROMALOX: 393-877345-001	1	EA	MKDW-0005-2A
26	ELE, IF/IF BACK, 200/240 3756/5000W	CHROMALOX: 393-877291-002	1	EA	MKDW-0005-3A

MK-1741 REFERENCE PARTS					
ITEM #	DESCRIPTION	MANUFACTURER	QTY	UNIT	BELSHAW PART NO.
27	MOTOR 115V, 50/60, 50 RPM	MOLON: ZZM-8084-X	1	EA	#MTR-0010
28	SIGNAL CORD ASSY DOM/CE 54	BELSHAW FAB	1	EA	#PLG-0500-4
29	CLEAR NEON PILOT LIGHT 125V	ARCOLECTRIC CORP: NL589C2C	1	EA	#PLT-0002
30	RELAY SSR 100-240VAC 25A	IDEC: RSSAN-25A	1	EA	#RLY-0020
31	MICRO SWITCH	HONEYWELL: BZ-2RW822-D612	4	EA	DR42-0048
32	BRAKE MTR 115 50/60 8RPM CE	MOLON: APM-HDZEM-6007-1	1	EA	MKDW-0009
33	TOGGLE SWITCH DPDT 15A 125V	ARCOLECTRIC CORP: C3971BA	1	EA	MKV-0010

REVISION HISTORY: R02				
REVISION SUMARY: REPLACE CIRCIT BREAKER			REV BY: JAH	DATE: 12/18/25
SHEET	ITEM	DESCRIPTION		ECR:
1	1	REPLACE #CBR-0001A WITH #CBR-0001B		4896

TERMINAL CONNECTIONS			
HEATER HEAD	VOLTAGE	MOTOR WIRING	XFM CONNECTION
MKVI-1600C	380 VOLTS, 50 HZ	RED WIRE	H2-H1
MKVI-1600D	380 VOLTS, 60 HZ	BLACK WIRE	H2-H1
MKVI-1600E	400 VOLTS, 50 HZ	RED WIRE	H3-H1
MKVI-1600F	400 VOLTS, 60 HZ	BLACK WIRE	H3-H1
MKVI-1600G	415 VOLTS, 50 HZ	RED WIRE	H4-H1

NOTES:
1. USE FULLY INSULATED RING AND SPADE TERMINAL ONLY.
2. EXTEND WIRE FROM COOLING FAN WITH 990-0584. ADD 7" PIGTAIL WITH 990-0560 FROM TERMINAL BLOCK.

DATA TAG - MKVI			
VOLTAGE	380VAC	400VAC	415VAC
HERTZ	60		
PHASE	3		
KW	11.8	13.1	14.0
FLA	18.1	19.0	19.7

Belshaw Adamatic Bakery Group

Terms & Conditions of Sale

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.

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