



BigRed4 Dryers (BR4D)

Assembly, Operating, and Maintenance Instructions for all BigRed4 Dryers 2020+



(BR4D-V30 Shown)

	Pg #
•Introduction / Safety	2-3
•Machine Assembly	4-5
•Exhaust Assembly	6
•Electrical Assebmly	7
•Conveyor Assembly	8
•Optional Drive Idler	9
•Belt Tracking	10
•Component Identification	11-12
•Controls	13-15
•Operation	16-17
•Maintenance	18
•Drive Chain Adjustment	19
•Belt Speed Adjustment	20
•Troubleshooting	21
•Warranty / Terms & Conditions	22

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Electrical Drawing #: _____ Rev: _____

Serial Number: VTX-_____ Date: ___/___/___

(Please log your machine's serial number and date of purchase for future reference.)

Introduction

Congratulations, you have chosen a VASTEX conveyor curing system. VASTEX has been designing and building dryers since 1960 and has the knowledge and expertise to supply a quality dryer and help you keep it running for years to come. VASTEX has innovated many of the features found in conveyor ovens today from control methods, modular features, air movements and belt tracking.

Your Vastex Infrared Dryer has been Factory tested and run at high heat for a period of 2-3 hours. All components are tested to be sure they work correctly when the Dryer leaves our factory.

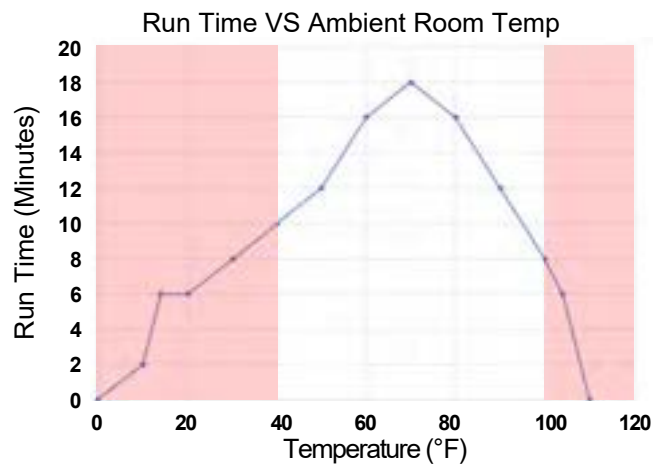
Environmental Conditions

Your conveyor dryer must be operated in a controlled environment to achieve best performance, longest service life, and to take advantage of an industry leading warranty period. Failure to follow these guidelines may result in machine damage and warranty being void.

Ambient Operating Temperature: No less than 40°F(5°C) and no more than 100°F(37°C)

Maximum Humidity: 80%

Maximum Duty cycle: 18 hrs @ 70°F(21°C)
Your dryer must be powered down for 30 minutes if it is to be operated in excess of recommended Run Time. Please see chart.



Safety

The Instruction Manual and Safety Instructions must be read and understood by anyone operating the Vastex Conveyor Curing System.

- The operator should read and understand the instruction manual before operating this equipment. Store instruction manual and safety instructions near equipment for easy access to operators.
- VASTEX Conveyor Curing System is intended for the curing of non-flammable inks on screen printed materials. Do not use for any other purpose unless authorized by Vastex International, Inc. Use of this equipment for any other purpose can be dangerous and may cause damage to this equipment, voiding the warranty.
- It is recommended that the area around this equipment be designated as a work area and only authorized employees be allowed in the area.
- Children and pets must be kept clear of the work area.
- Do not place any objects on top of the drying chamber. Surfaces are hot!
- Never leave equipment unattended.
- Do not operate conveyor or dryer with any cover or guard removed.
- Dryer cannot be operated with control panel removed.
- Operator must be familiar with controls of the dryer and conveyor.
- Never put excessive load on the conveyor belt.

— Safety, continued —

- Before starting production, the operator must check that all covers and guards are in place, no material has been left on the conveyor, and the work area is clear of obstructions.
- Switch on and verify conveyor belt is moving before turning on the heat.
- Allow dryer to cool to 300°F (149°C) before switching off conveyor.
- Always turn off power at the main disconnect at the end of production.
- In case an abnormal symptom occurs, for example excessive vibration, noise, and strong smell or smoke development, turn off the VASTEX Conveyor Curing System and contact a qualified technician.
- Immediately turn off the VASTEX Conveyor Curing System if products become jammed in the drying chamber or conveyor belt.
- Do not remove any cover or guard until power at the main disconnect is switched off and locked out. No unauthorized persons are to be allowed inside the control boxes.
- Turn off and lock out power at the main disconnect before any cleaning or maintenance.
- Only qualified technicians should be allowed to make repairs on the VASTEX Conveyor Drying System.
- **Noise and vibration:** This equipment does not produce sound levels exceeding 70 dB(A) at workstations.
- CE Declaration of Conformity available upon request.
- **Stability during use, transportation, assembly, dismantling when out of service, testing, and foreseeable breakdowns:** This equipment is designed and expected to be stable during all foreseeable conditions, so long as the procedures and instructions given in this manual are followed.
- **Safe handling, transport, and storage:** Before storing the unit, follow the shutdown procedure on P. 14 (control box cover) to allow the heater assembly to cool properly. No special handling considerations are necessary, except to be aware of the weight of the equipment and take standard precautions for moving such weights:
- **Machine Weights and dimensions:**
 - BR4D-V30: 600 lbs (272.2 kg), 105" x 51" x 57" (267 cm x 130 cm x 145 cm)
 - BR4D-V54: 900 lbs (408.2 kg), 105" x 75" x 57" (267 cm x 191 cm x 145 cm)

— Important —

***** REMOVE THE CLEAR HEATER / SENSOR PROTECTOR SHEET BEFORE OPERATING THE DRYER *****
(protector sheet is located between the heater face and the sensor bracket)

At the end of all shifts and / or production runs, follow the Dryer Shutdown Procedure posted on the control box cover of the dryer.

Any restriction in the dryer exhaust may result in excessive heat buildup within the chamber. Follow the Dryer & Exhaust Hood Ducting directions in the manual.

Placing your equipment into service and using your machine:

To place your machine into service:

- Read and understand **Component Identification, Controls, Operation, and Safety pages.**
- Follow **Assembly pages** before powering up machine

To use your machine, follow the instructions found in **Operation.**

Assembly (1of5)

Tools Needed: (1) Crowbar or Claw Hammer, (2) 9/16" open end wrenches, (1) 7/16" open end wrench or socket, (1) 1/4" nut driver or flat blade screw driver, (1) 1/8" allen wrench



1) Cut straps with tin snip



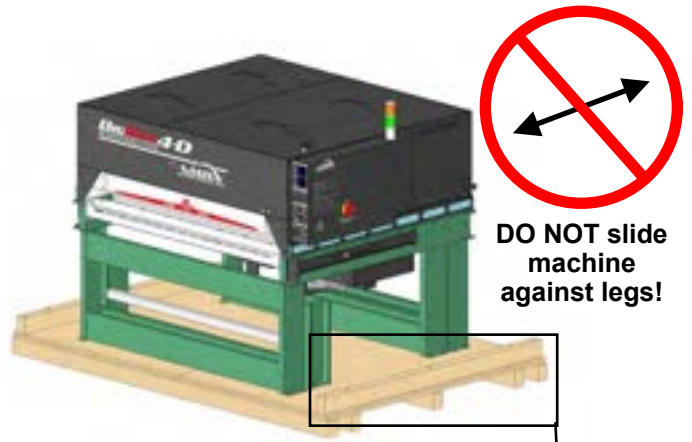
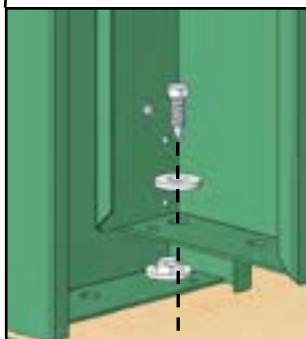
2) Using crow bar or claw hammer, pry off plywood carefully

3) Remove all wood supports



4) Remove front and rear conveyor pieces, additional legs, and any boxes shipped underneath chamber.

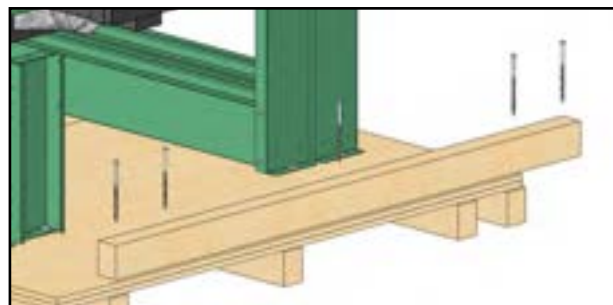
-Use 9/16 or 15mm socket/wrench to remove lag bolts



DO NOT slide machine against legs!

5) Remove side runner to slide machine off pallet.

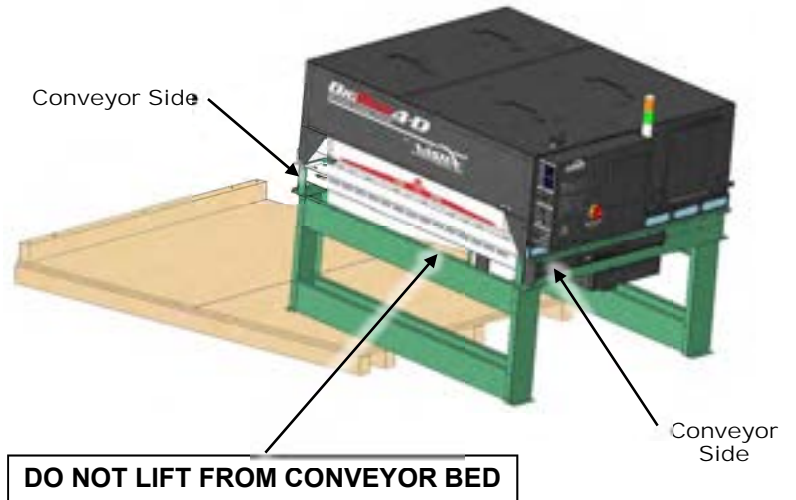
-Use 9/16 or 15mm socket/wrench to remove lag bolts



Assembly (2of5)

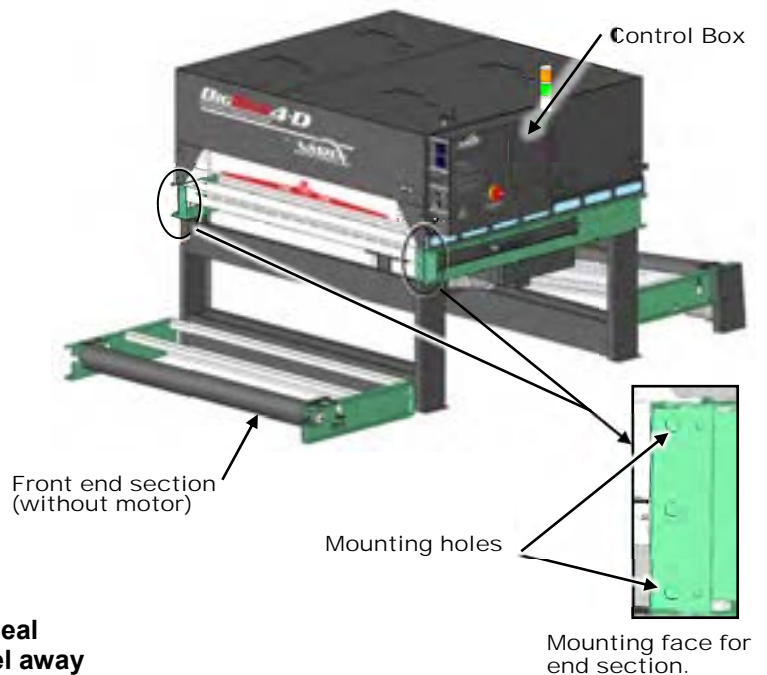
- 6) Carefully slide the dryer and conveyor assembly off the pallet and onto the shop floor.

**Lift from Conveyor Sides only.
Do not lift from Conveyor Bed!**

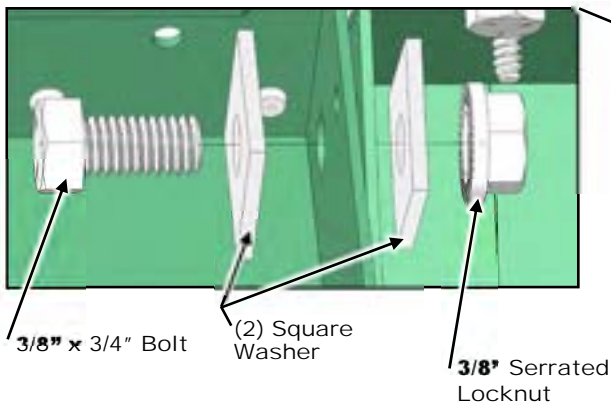


Caution! The heating chamber sits on top of the conveyor on 4 pins. Lifting the chamber will separate the chamber from the conveyor.

- 7) Position front end section (section without motor) on the floor in the front of the dryer as shown. Locate 3/8 bolts, square washers, and serrated locking nuts from hardware bag. Two 9/16" wrenches are required. Raise one side and attach with hardware as shown below through the upper mounting hole. Do not tighten at this time. Carefully raise the other side and insert both upper and lower bolts and nuts. Install remaining bolt on first side and tighten all bolts. Use the same procedure for installing rear end section. Be sure all end section mounting bolts are tight before continuing.



Caution! The rear section uses a Gasket Seal against the cooling tray. Be careful not to peel away the gasket during installation.

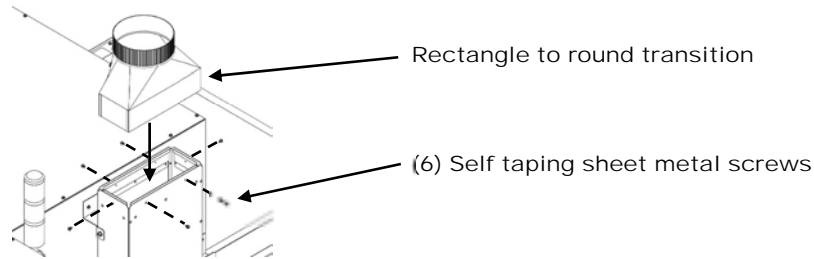


— Assembly(3of5) Exhaust —

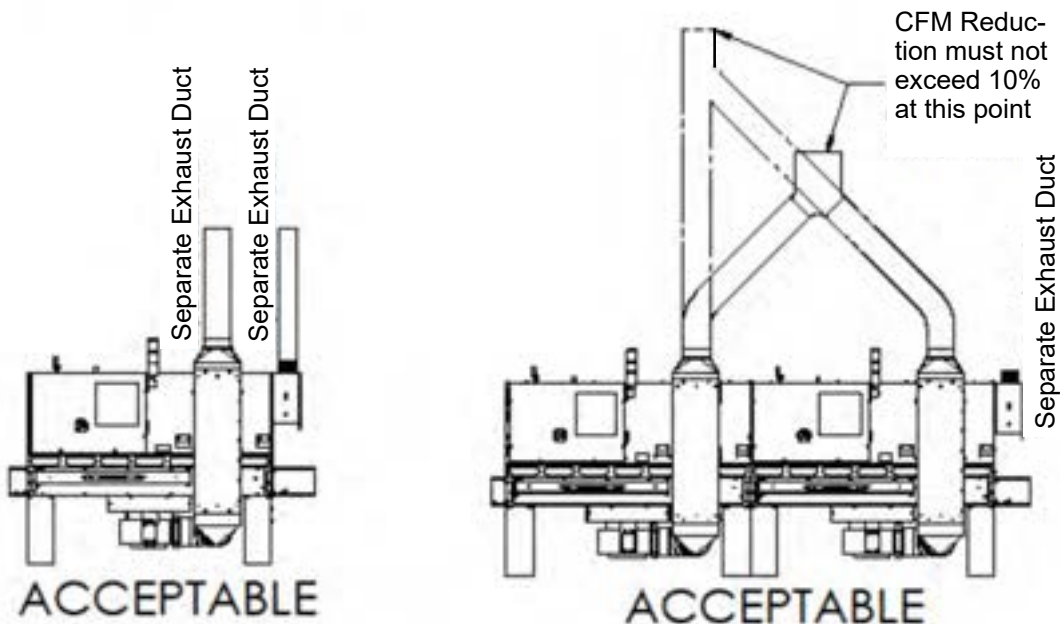
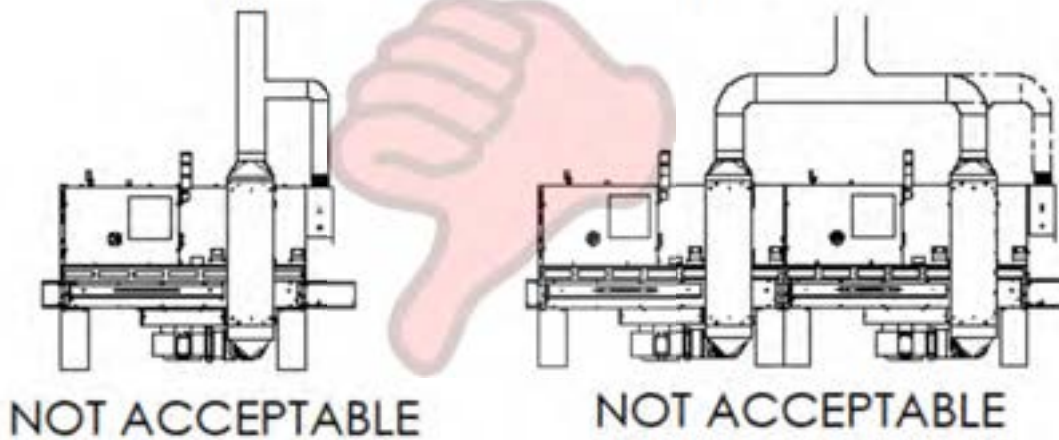
- 8) Before installing Dryer ducting install the rectangle to round transition on top of the dryer exhaust system using the provided (6) self tapping sheet metal screws. Install Dryer ducting. CFM cannot be reduced by more than 10% at exit of ducting. An exhaust booster must be used if CFM is reduced more than 10% due to length of duct or amount of bends. Please seek professional advice if this is not your area of expertise.

NOTE: For best operation and airflow, either no ducting or a maximum of a 10% reduction in airflow is acceptable. Depending on materials or chemicals introduced during curing, local regulations should be followed when choosing ducting methods.

Proper venting is important for safety of operator and work area as well as quality of product.



NO STRAIGHT "T" CONNECTIONS SHOULD BE USED.
DAMAGE TO BLOWERS WILL OCCUR.

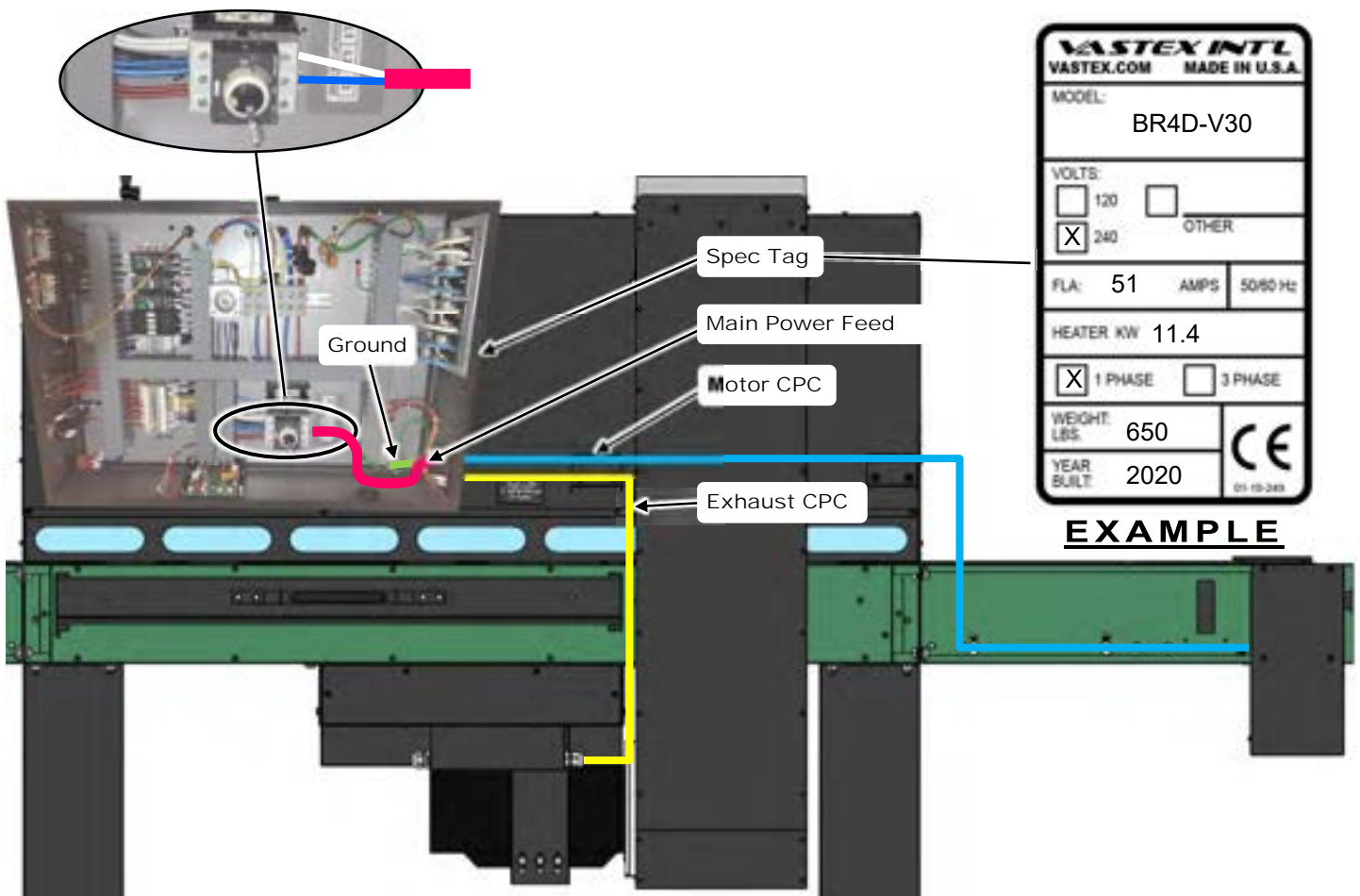


— Assembly(4of5) Electrical —

- 9) Have a licensed electrician complete the electrical hook-up and fill out the warranty card. Send it back to Vastex to validate your warranty. A wiring diagram has been included with this manual, and is also adhered to the inside of the control box cover.
- 10) Plug the wire from the conveyor motor into the motor cpc connector. (**Shown on Controls page 3**)
- 11) Plug the wire from the bottom exhaust into the larger exhaust cpc connector. (**Shown on Controls page 3**)
- 12) Have a licensed electrician test the shops voltage at the machines disconnect, for shops with less than 240V service, it is necessary to auto tune your controller. This procedure can be found in the **Troubleshooting** section.

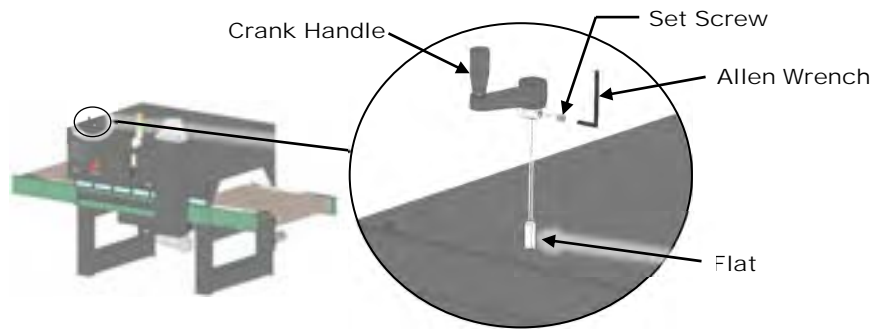
Please record your shops actual voltage here: _____

- Review spec tag and wiring diagram for electrical requirements.
- FLA refers to Full Load Amps, NOT the recommended line size.
- A licensed electrician should perform electrical installation.
- Please follow the NEC for wire selection and sizing.
- Do NOT use solid or aluminum wiring for main power hookup.
- All connections, especially power hookup, should be checked and tightened after one month of operation



Assembly (5of5)

- 13) Install the crank handle onto the shaft on top of the chamber. Align set screw to the flat on shaft and tighten with 1/8" allen wrench. Raise heaters to full up position.

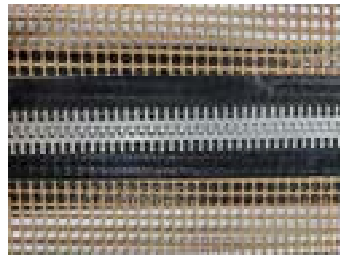


- 14) The belt needs to be installed as shown in the diagram below, the belt does have a top and bottom. For dryers with an (optional) rear drive idler, please see **Optional Drive Idler** page. Be sure the belt is routed over all braces on the conveyor and over the Aligner. To connect your belt, align the Alligator Lace and install the pin. Once the pin is installed use a wire cutter to trim the pin so it sticks past the Alligator Lace by 1/16" (1.6mm) on each side.

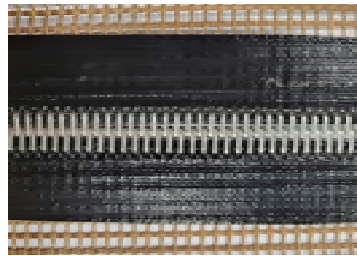
NOTE: If the pin walks out of the alligator lace during use, pull the pin out about 1 inch add a kink to it and push the pin back in.



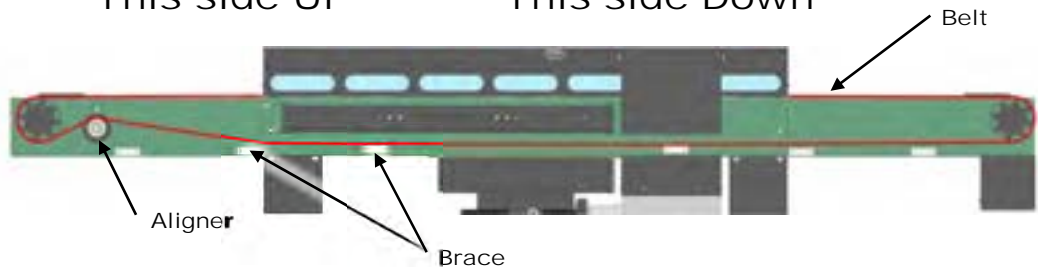
Alligator lace



This side UP



This side Down

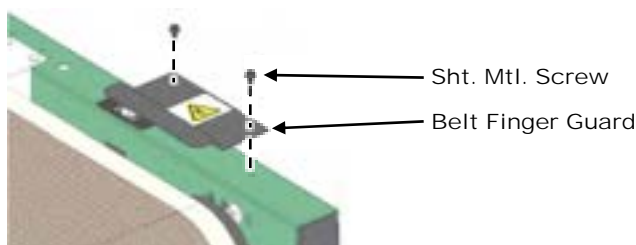


- 15) The belt needs to be tightened before the machine can be started. To tighten the belt, use the Aligner Bolts. To raise the Aligner, turn the Aligner Bolt clockwise with a 7/16" wrench. To lower it, turn it counter clockwise. Start with the belt centered on the pulley. Tighten the belt enough so that there is 2-3" of play above the conveyor. Typically, 3 fingers should fit snugly beneath the belt. It may be necessary to adjust tension during belt tracking.

- 16) Follow the **Startup Procedure** on page 1 of the **Operation** section.

- 17) Follow the instructions found on **Belt Tracking** page to align belt.

- 18) Install the Belt Finger Guards on the 4 corners of the dryer. The guards and hardware can be found in a separate bag. Use a 1/4" nut driver or flat blade screwdriver to install the sheet metal screws.

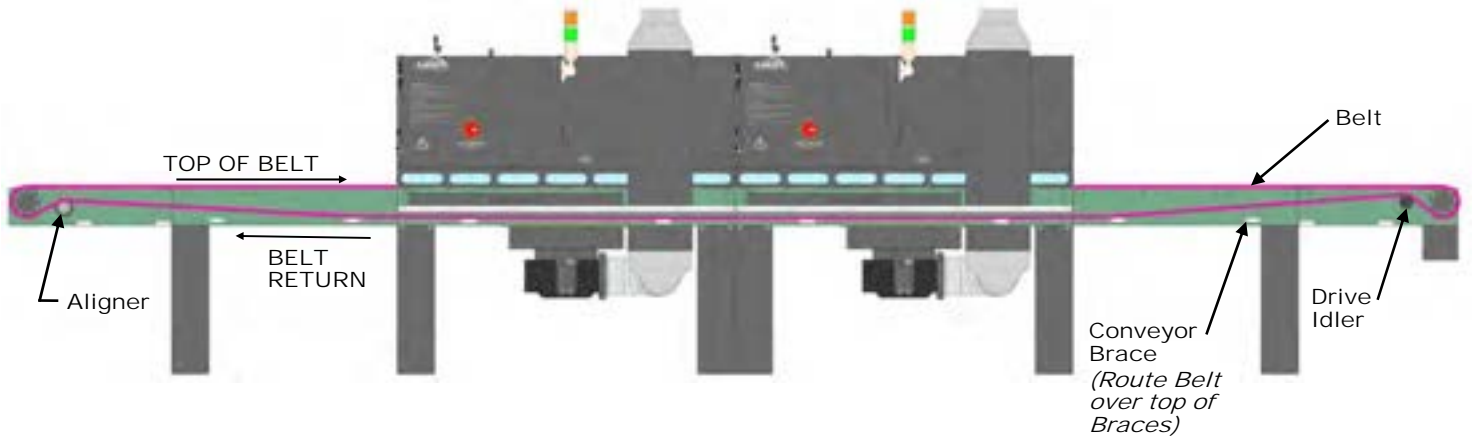


— Optional Drive Idler

Features:

- Drive Idler Provides additional grip on rear pulley.
- Required on machines over 17'(5m) in length

CONVEYOR BELT PATH

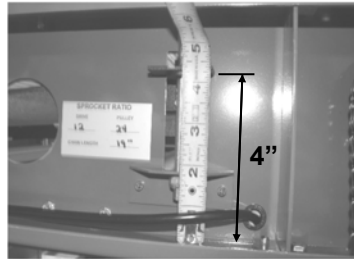


Drive Idler on 17'+
Long Conveyor

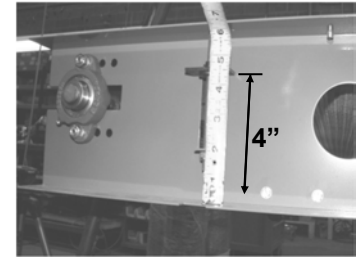


Bottom View Conveyor Drive End

DRIVE ROLLER TENSIONER



Drive End RH Side



Drive End LH Side

After conveyor belt is installed, adjust Drive Roller Tensioner to achieve 4" as shown.

Note: The conveyor belt should be adjusted at the front aligner end to maintain the belt centered on the pulleys. See manual page 6 for belt tracking.

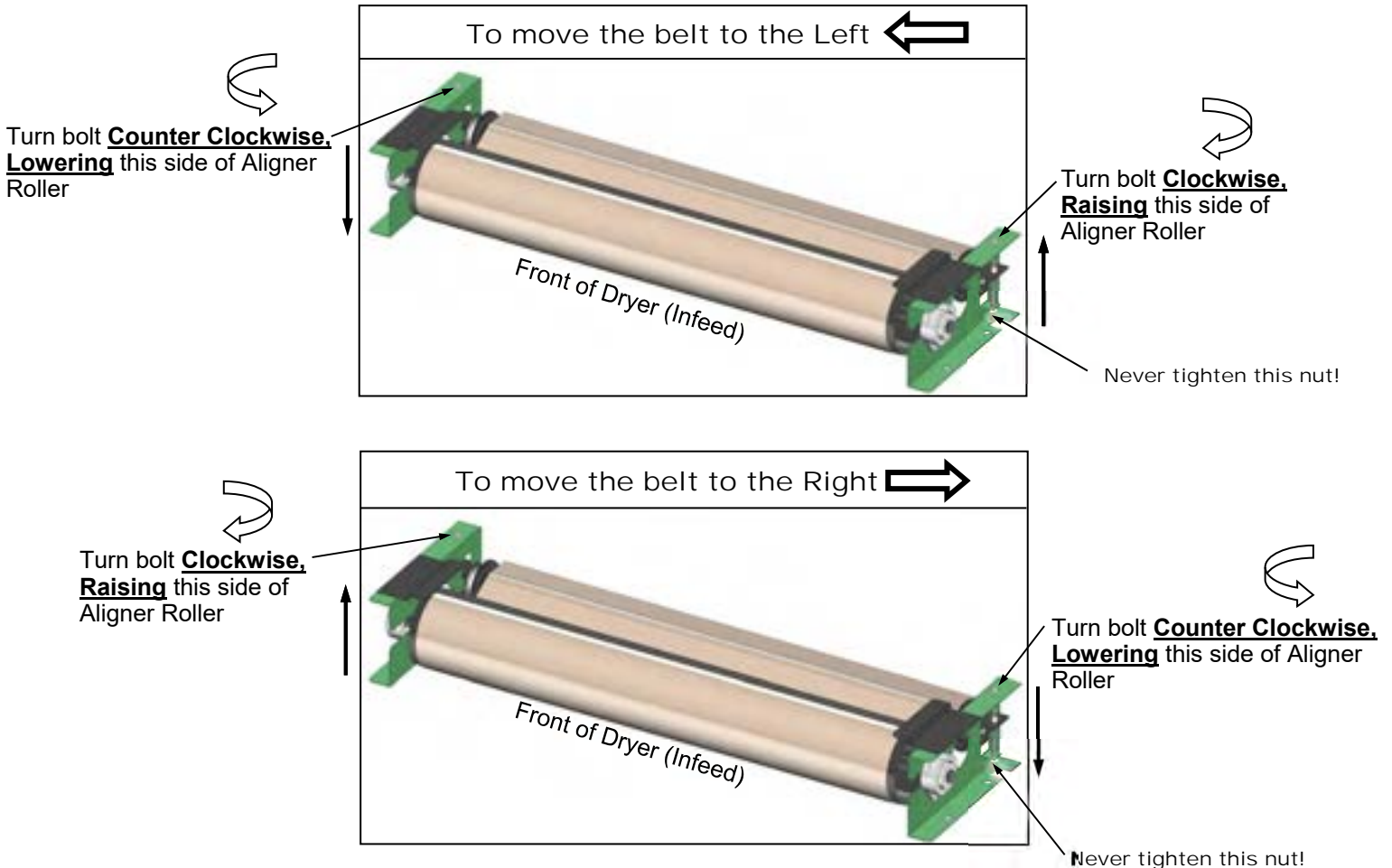
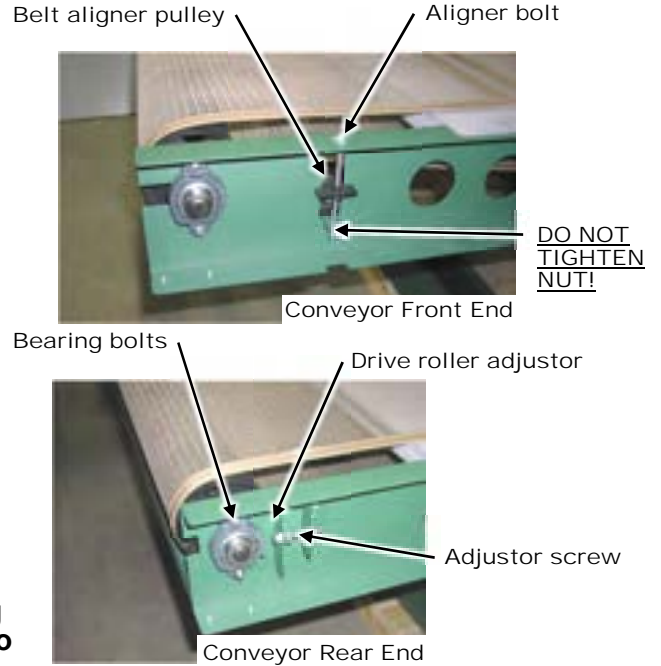
Belt Tracking

Belt Tracking

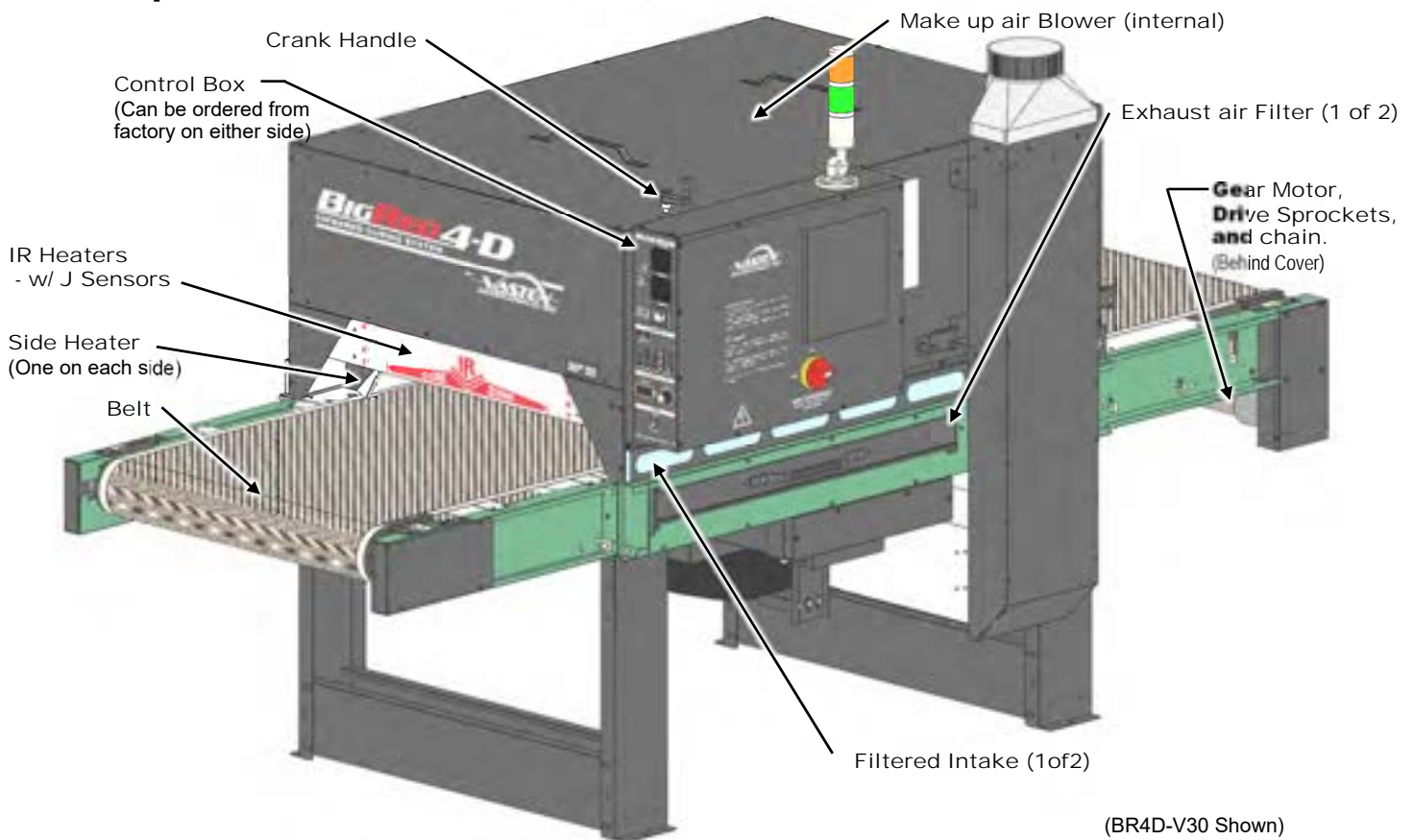
(Move in small increments while belt is moving. Do not leave conveyor running unattended.)

- If the belt is slipping, add belt tension by raising equally both sides of aligner roller. 1"-2" of belt sag at the bottom side is desirable. To raise roller turn adjustor bolt clockwise.
- **Belt moving to the left**, raise left side of aligner by turning aligner bolt clockwise 1/2 turn at a time.
- **Belt moving to the right**, raise right side of aligner by turning aligner bolt clockwise 1/2 turn at a time.
- If belt is tracking off center at the drive roller, slightly loosen bearing bolts, (2) 1/2" wrenches needed. Turn adjustor screw clockwise to move belt toward motor end of pulley and counter clockwise to move belt away from motor end of pulley, retighten all bolts. Recheck belt tracking at front end.

Note: Do not over-tighten belt. Final Belt tightness can be gauged by the ability to stop the rear (drive) pulley by applying a moderate force to the belt. Exceeding your drive's weight capacity should cause the belt to slip before motor damage occurs.

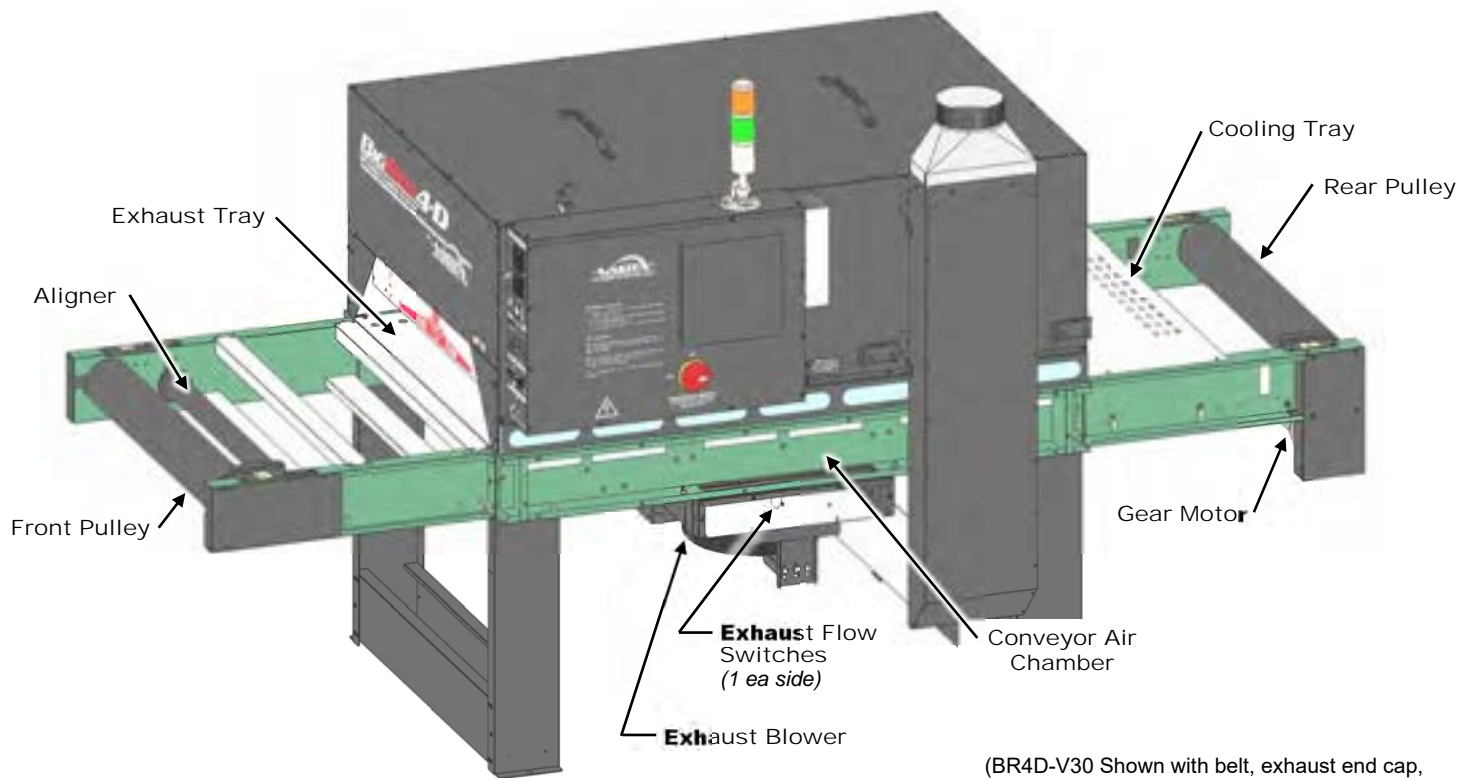


Component Identification (1of2)



- Belt** The conveyor belt is made of Teflon coated fiberglass. It is joined together with an alligator lace using a steel pin to connect each side. The belt will not burn under normal conditions, but the dryer should always have the belt moving while the heaters are above 300 degrees. The belt should remain tracked in the center of each pulley. (See "Belt Installation and Tracking" for adjustment instructions.)
- Control Box** The Control Box contains most electrical components and is designed for easy maintenance. Connections should be checked after the first (2) weeks of use and every (3) months after. More information on the Control Box and Controls found in section **Controls**.
- Crank Handle** Used to raise and lower IR Heater assembly. Turning the handle clockwise raises the elements, counterclockwise lowers them. Vastex dryers use three variables to control the curing process, 1) Belt speed, 2) Temperature and 3) Heater height (Heater Focusing).
- Gear Motor** A 130 Volt DC gear motor is located to the rear of the conveyor. It drives the rear pulley and belt with a roller and a #35 chain. The Gear Motor replacement part number can be found on your dryer's wiring diagram.
- Filtered Intake** Filters the incoming air, 1 located on each side. Clean or replace this filter often and as needed, replacement filters p/n (04-18-004)
- IR Heater** The infrared heaters in VASTEX dryers emit medium wave infrared heat, perfect for curing plastisol inks. The heater connections are located in the trough on the Control Box side of the heater, connected with high temperature terminals and stainless steel socket head cap screws.
- Side Heater** The side heaters objective is to widen the effective cure zone of the dryer, as well as make the temperature more even from edge to edge of the top heater. The exact temperature of these side heaters is not critical, so they are controlled with a digital percent timer.
- J Sensor** Vastex uses a mineral insulated "Type J" Thermocouple mounted under the first heating element on the right side. It is shielded to provide a near "closed loop" control system. The sensor reacts very quickly to heater changes and is designed to be aware of changes in the chamber's environment. The sensor is wired to the Digital Temperature Controller found on the control panel.
Refer to wiring diagram when replacing "J" Sensor. (if SBER is displayed on controller, "J" Sensor is malfunctioning)
- Make-Up Air Blower** A blower pulls it's air from both "Filtered Intakes" surfaces, across the top and side of the dryer, then back into the chamber. This feature is designed to cool the outer surface of the dryer while making up the air pulled out of the chamber by the exhaust. The air put into the chamber is never contaminated by exhaust fumes or moisture which accelerates the curing process.
BR4D-V30 has a 282CFM Make-Up Air Blower
BR4D-V54 has a 410CFM Make-Up Air Blower

Component Identification (2of2)



- Aligner** The aligner is a device for tracking the belt and keeping it on the pulley. As the belt moves from side to side the aligner is used for adjustments to keep it centered. The belt does not have to be perfectly centered on the pulley but should not be hanging over either edge.
- Conveyor Air Chamber** Area along side the "Exhaust Trays" where the air flows from the conveyor to the Conveyor Air Chamber and routed through the exhaust filters.
- Cooling Tray** This intake chamber, at the rear of the dryer, provides approximately 60-70 CFM of cooling air to reduce the temperature of garments as they exit.
- Exhaust** A blower pulls the air from inside the chamber through the "Exhaust Trays" and cooling tray then exits through the exhaust stack. This air is never re-circulated back into the chamber. Any ducting installed must not reduce the CFM measured at the stack by more than 10%. There are 2 lights on the Control Box to show the user if there is an obstruction or insufficient flow.
BR4D-V30 has a 600CFM blower and 6" Exhaust Diameter.
BR4D-V54 has a 1000CFM blower and 6" Exhaust Diameter.
- (Note: Restricting the dryers exhaust can affect the operation of the dryer causing excessive heat buildup within the chamber and fumes to fill the chamber and work area. The excessive heat buildup in the chamber may damage the dryers exhaust blower.)**
- Exhaust Flow Switches** These switches activate the Exhaust Fault Lights on the control panel when inadequate flow is detected.
- Exhaust Tray** Three separate air chambers make up the main conveyor bed. Ceramic insulation is sandwiched against the top surface to help reduce air temperature at the exhaust blower. These chambers draw in the exhaust air and deliver it to the "Conveyor Air Collection Chamber".
- Pulley** The pulleys at either end of the conveyor are made by VASTEX of 4 ½ inch steel tubing with ¾ inch center shaft. They are mounted on self aligning flange bearing blocks for precision rolling.

Controls (1of3)

Temperature Controller Set and control temperature here. 1 control for each zone. See **Dryer Operation** for Controller information.

Control Output Light A 250 volt GREEN pilot light is wired to the output side of each temperature controller. This light should cycle on & off with each controller. It verifies that the controller output voltage is going to the relay coil.

Relay Output Light This 250 volt RED pilot light is wired to the output side of the relay. This light will cycle on & off with the control output light. It verifies that the relay is working properly. 2 relays and lights are normally used. (1=Boost Relay, 2=Zone 2 Relay, 3=Side Heaters Relay)

Heater Light This 6 volt WHITE pilot light is wired to the IR Heaters. One light per heater is used. These lights indicate when electricity is flowing through each heater. (1=Boost Zone, 2-4=Zone 2, 5-6=Side Heaters)

Percent Timer Set and control the percentage of heat for the side heaters. See **Dryer Operation** for Controller information.

DC Volt Meter Digital Volt Meter displays, in volts, the amount of power going to the belt motor. This makes setting and adjusting belt speed much easier. An example table showing the time associated with voltage can be found in **Dryer Operation**.

Belt Speed Control An AC-DC converter is mounted to the face of the control panel which allows the operator to vary the DC volts to the motor.

Power Switch 2 position switch.
Top Position -Momentary UP position. Sends power to the control circuit. Must be pushed up to START machine.
Middle Position -Running Position. Switch resides in this position while machine is running under normal circumstances. (Energizes Control Circuit)

Exhaust Light Wired to air switches. These lights will go out when the exhaust is not performing due to air flow obstruction or fan failure. See **Troubleshooting** for more information

Heat Switch: 3 position switch.
Top Position- Sends power to the heaters from the Temp controller.
Middle Position- Stops power to heaters.
Bottom Position- (Momentary position) Activates Cool-down mode. Once activated, Cooldown Timer starts counting down to preset time. Once complete, the Control Circuit is de-energized, and the fan and motor will stop. It is then safe to turn the Power Switch to the STOP position.

Control Circuit Details

Relays: BigRed Dryers are equipped with Solid State Relays. The relays are the switching devices which send the power to the heaters. The relay coil is wired to lug #9 on the digital temperature controller. As the control gets a signal from the sensor, for heating or cooling, the relay opens and closes its solid state contactor to modulate power and maintain a consistent temperature. On 208V - 240V units, each relay is wired to an output light which helps to monitor their operation.

Controls (2of3)



Boost Temperature Control: Set and control temperature here. See Page 21 for Controller information.

Main Temperature Control: Set and control temperature here. See Page 21 for Controller information.

Side Heater Control: Using the ▲ and ▼ arrows, set the % of heat to the desired setting. 100% = full on, 50% = half heat. While factors like material and ink types will dictate the proper setting, for plastisol and water based inks on t-shirts, we recommend starting with 80%.

Boost (Boost Zone)

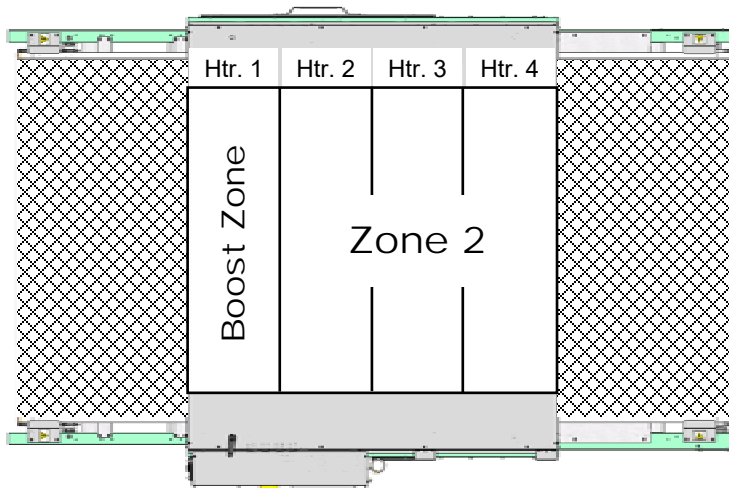
The Boost zone on your BR4D is controlled independently. This zone is used to superheat your garments on the way into the chamber. Depending on cure times the temperature setting of this heater will vary greatly.

Zone 2 (Main Zone)

The Main zone on your BR4D is controlled independently. This zone encompasses 75% of your cure time. If you are running plastisol or other non-specialty items, you may set the two zones to the same temp. The dryer will perform similar to other infrared dryers when both zones are set the same.

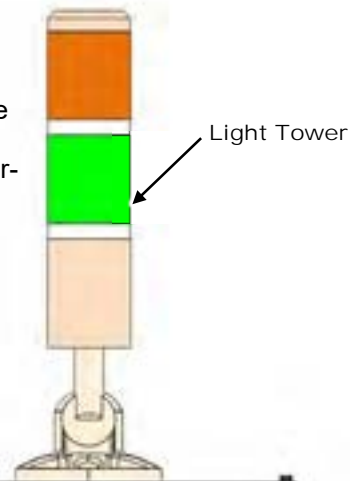
Zone 3 (Side Zone)

The Side Heaters on your BR4D are controlled by the percent timer. These heaters are designed to ensure an even temperature across the entire width of the cure zone, the cure zone can be the whole width of the top heater with side heaters installed.



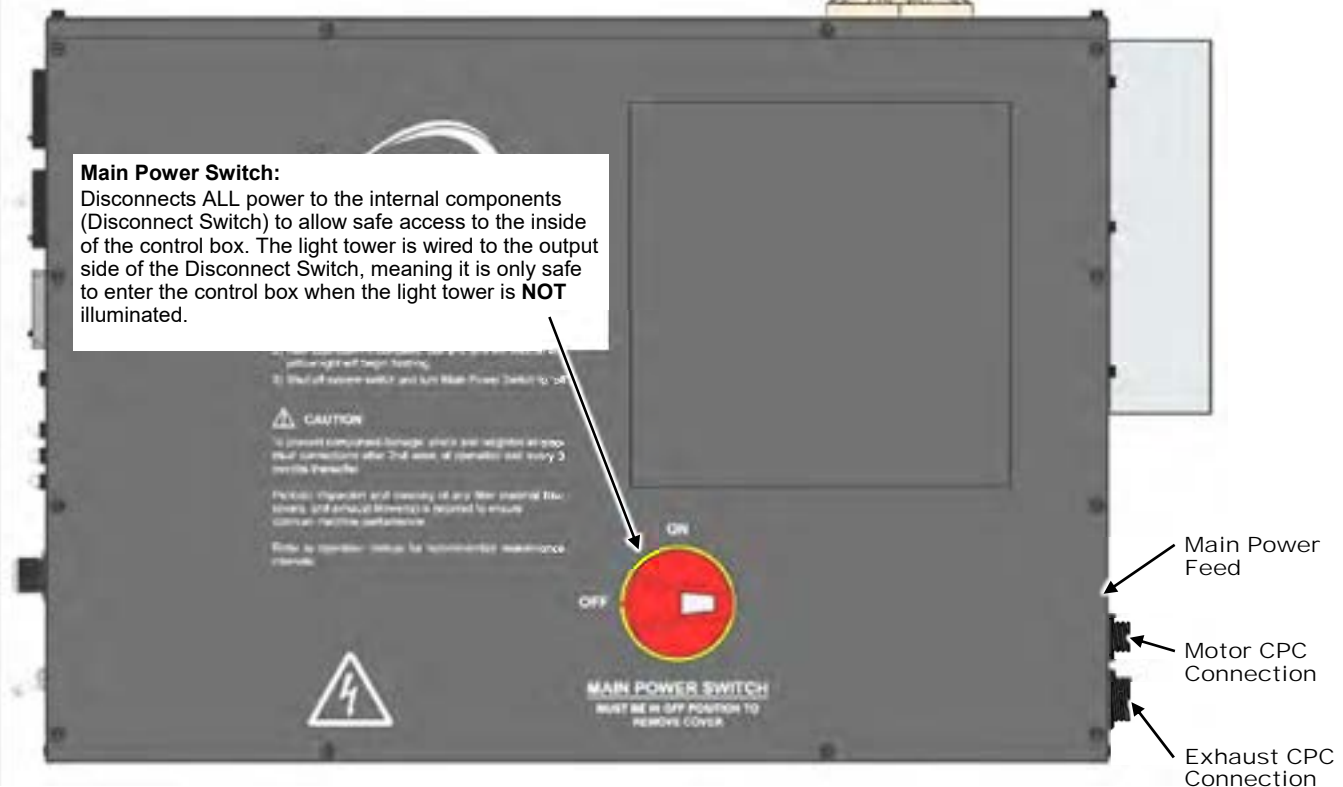
Flashing Orange: (Attention Required) Indicates the machine has finished Cooldown mode, or the system switch has not been flipped on to momentary START position, or power has been interrupted and restored.

Solid Green: Power has been turned on via power switch.



Main Power Switch:

Disconnects ALL power to the internal components (Disconnect Switch) to allow safe access to the inside of the control box. The light tower is wired to the output side of the Disconnect Switch, meaning it is only safe to enter the control box when the light tower is **NOT** illuminated.



Control Box cover removal and replacement

ONLY QUALIFIED TECHNICIANS SHOULD OPERATE/TEST CONTROL BOX COMPONENTS UNDER POWER

Removal

- 1) Main Power Switch **MUST** be in the OFF position to remove control box cover.
- 2) Remove all sheet metal screws.(5 on the front, 2 on the top. Use a flat blade screw driver or 1/4" nut driver)
-Control box cover is "hooked" on the top and bottom
- 3) Pull the bottom of control box towards you slightly to unhook.
- 4) Lift up slightly, to unhook top of cover, and pull straight off.

Note: Cover cannot be removed with the main power switch in the ON position. The handle and shaft are keyed to prevent this.

Installation is the reverse of Removal. Be sure to leave the main power switch in the OFF position for correct alignment to the handle.

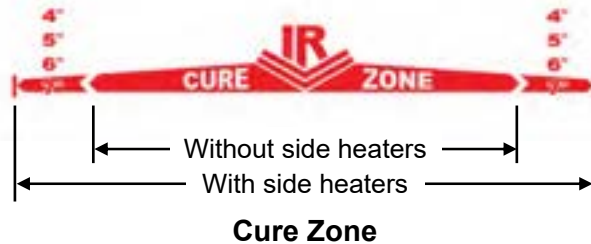
Operation (1of2)

Control System Summary:

The control system in your dryer is called a “closed loop system”. The system includes a Digital Controller mounted to the control panel, a Sensor mounted in a shield under the heater, a relay and an Infrared Heater. The digital controller is set to the desired temperature and the Sensor measures the temperature at the face of the heater. The sensor reports back to the control, and the relay switches the heat on and off to the heater.

Operation Tips

- While machine is in operation, it is necessary to have the belt moving while the heater is above 300°F (149°C).
- Allow approximately 15 minutes for dryer to reach 700°F - 800°F (371° - 427°C).
- Periodically check ink temperature at the exit of the dryer. It is recommended that you check the temperature of the ink towards the outside of the printed image. An Atkins probe is best for an accurate check.
- A laser gun will only see top skin of ink, shoot the ink while it is still under the heater, and subtract up to 80 degF.
- See “CURE ZONE for usable width.



Startup Procedure

- 1 Rotate main power switch to ON:** The orange section of the light tower will begin to flash. Main Power Switch located on side of control box.
- 2 Check belt path:** Remove any objects from the conveyor and belt.
- 3 Set power start switch to START:** Power is sent to the control circuit, the belt and fan starts to run.
- 4 Adjust the conveyor:** Set speed to desired setting. (See volts/seconds chart located on control box)
- 5 Set heat switches to ON:** Turns on the Temperature Controllers and Percent Timer, set desired temperature and percentage of heat.

How to determine Temperature set point:

The sensor is located directly under the heater so it will read a much higher temperature than seen at the product. Most important, is the product and/or ink temperature. There are two methods that can be used to check the product temperature, 1) a non contact heat or laser gun for a surface check and, 2) a contact type like an Atkins probe which will be embedded into the ink for very accurate measurement. The heat gun will not be accurate but can be used as a reference. Refer to Vastex doc# 01-28-010c for detailed info about the Atkins probe. Temperature set point, heater distance to the garment, and belt speed will all effect the ink temp. See the next two sections for recommendations.

Curing Plastisol with infrared:

Plastisol ink can fully cure in approximately 20-40* seconds. The ink must achieve 310°-320°F (154°-160°C) to cure and fuse to the garment. Use an Atkins probe to determine the accurate ink temperature. We recommend* a starting temperature 750°F (400°C), 3" heater height and a belt speed of 30 seconds in the chamber

DTG, Discharge, or water based:

Water based products require more time than plastisol to cure due to the fact that the water/moisture must be evaporated before the ink can cure. The more moisture in the shirt, the longer the garment must remain at cure temperature. We have seen cure times from 50 to 90* seconds to achieve a full cure or discharge and not damage the garment. Some DTG Processes can take several minutes to fully cure the print and pre-treat. Please note as the time is increased the temperature must be decreased to protect the garment from scorching.

***Actual cure times can vary depending on conditions such as garment moisture and color, ink color, ink thickness, and environmental conditions. All three variables should be used to maximize production while insuring a proper cure.**

See document# 01-31-003 for suggested settings and various curing profiles.

Operation (2of2)

7 Set the temperature:



For Zone 1 & 2

With the power on, push and hold the up arrow, the (SV) will climb. The longer you hold the button, the faster the (SV) will climb, it will start climbing by one, then ten, then hundreds. Set the desired temperature and allow approximately 15 minutes for heat up.

-Refer to the **Troubleshooting** section for Controller Error Messages.

For Zone 3 (Side Heaters)

With the power on, push and hold the up arrow, the percentage will climb. Vastex suggest setting the percentage between 50% and 100%.

8 Set the Heater Height:



Rotate the Hand Crank on top of the Dryer Chamber, clockwise to raise the heaters, and counter-clockwise to lower them. Set the desired heater height for your job. It is recommended to run the heater height at about 4" above the garment.

9 Set the Belt Speed:



Rotate the Belt Speed Control Knob clockwise to increase speed and counter-clockwise to decrease it. Refer to the example chart below for Time Through Chamber settings. For Plastisol inks, a good starting point is 20-25 seconds in the chamber.

Time through chamber

As explained on the **Controls** page, your Vastex dryer displays Voltage sent to the motor in reference to Conveyor speed. Below you will find an example chart relating Voltage to Time Through Chamber. Time Through Chamber is the time it takes an object to travel from the beginning to the end of the Heat Chamber. This is also known as "Time in Heat".

- Example time chart shown below.
- Specific chart for your machine can be found on a label on the control box.
- Times below may not pertain to your machine.
- Always verify times with label on machine and Stop Watch.

EXAMPLE		Time Through Chamber	Volts	Time Through Chamber	Volts
The chart at the right is based on... <ul style="list-style-type: none"> • A 54" Single Chamber heat zone. • 12 tooth Motor Sprocket • 24 tooth Pulley Sprocket • 130VDC, 20RPM Gear Motor Sprocket information can be found on your dryer, next to the Drive Motor.	23 Sec	130 V	1 Min 14 Sec	40 V	
	26 Sec	115 V	1 Min 25 Sec	35 V	
	33 Sec	90 V	1 Min 39 Sec	30 V	
	37 Sec	80 V	1 Min 59 Sec	25 V	
	43 Sec	70 V	2 Min 29 Sec	20 V	
	50 Sec	60 V	3 Min 19 Sec	15 V	
	60 Sec	50 V	TOO SLOW FOR MOTOR	10 V	

Shut Down Procedure

1 Set heat switch to COOLDOWN:

Depress the Heat Switch down to begin the cool down timer (15 minutes minimum). This switch has a momentary position to start the CoolDown mode. It will spring back to the off position after being depressed. If Cooldown mode is not used, please wait at least 15 minutes before turning the machine off via the Disconnect Switch.

2 Assess the dryer:

After cooldown is complete, Belt motor and fans will continue to run and the orange light will begin flashing. Check the temperature controllers to be sure the dryer is cooler than 300°F (149°C).

3 Rotate main disconnect switch to OFF:

The dryer must be shut off via the Main Disconnect Switch at the end of every shift.

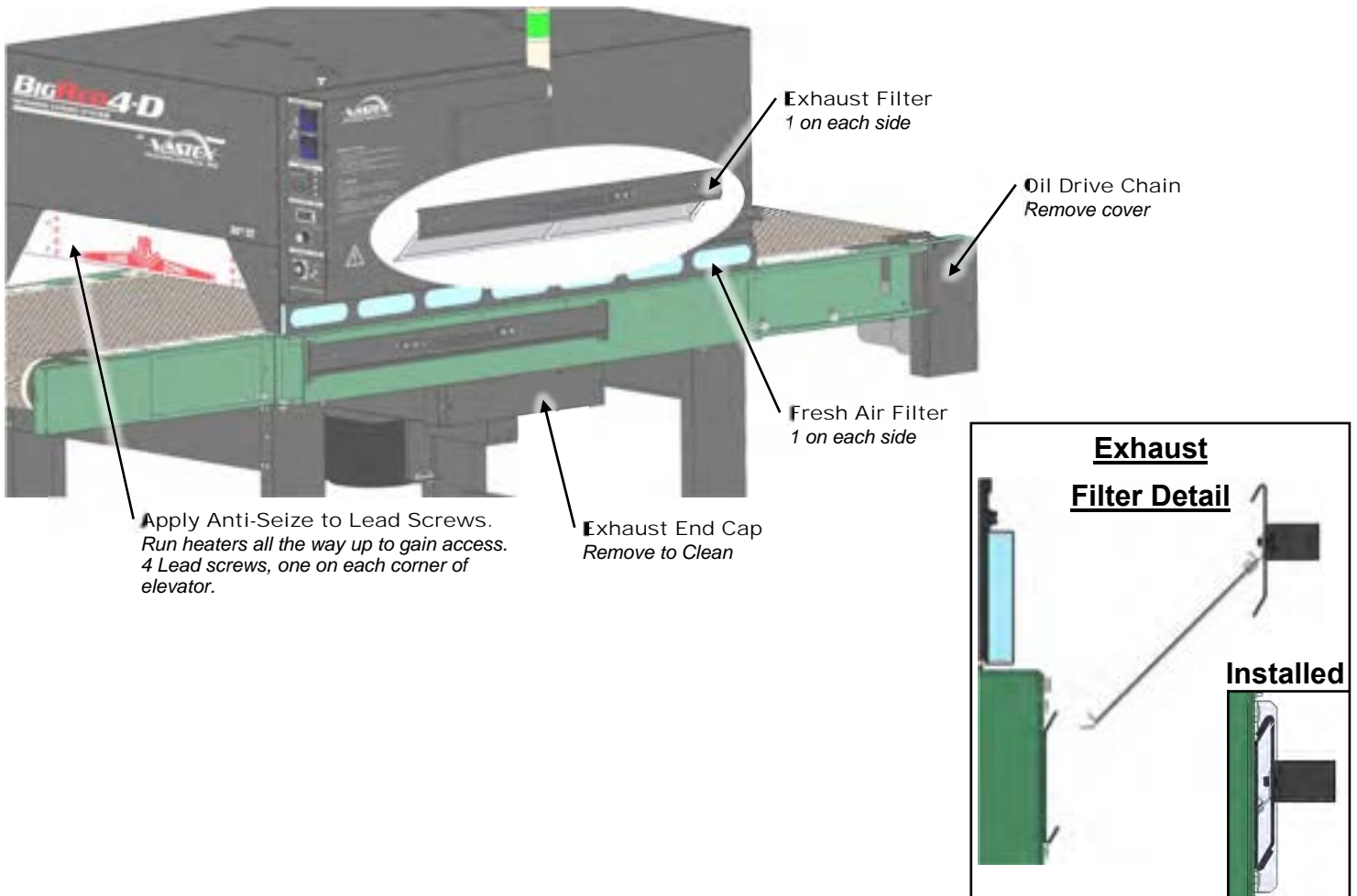
At this point, no lights should be illuminated on the Control Box.

Always follow dryer shutdown procedure at the end of all shifts and / or production runs. The Dryer Shutdown Procedure is also defined on the side of the Control Box

Maintenance

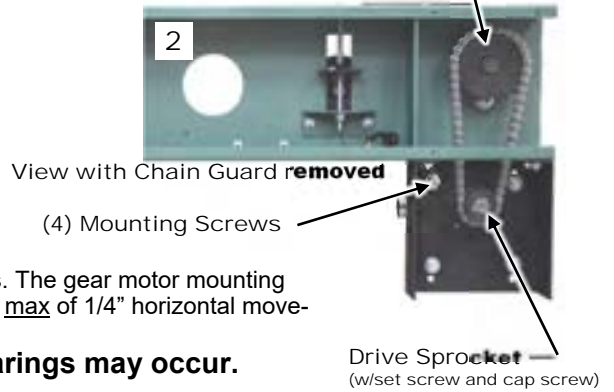
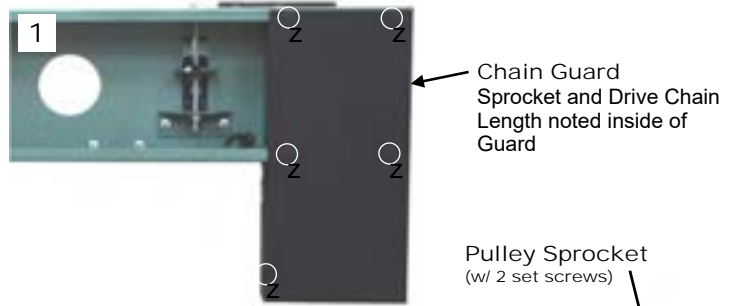
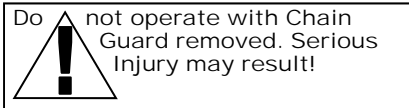
Caution! Power must be turned off at the external disconnect, or the machine unplugged, before entering any part of this machine. The red Power Light labeled "Power" must be off!! A qualified electrician should perform any internal testing requiring power on!

Maintenance Schedule	WEEKLY	MONTHLY	3 MONTHS	6 MONTHS	12 MONTHS
Visually check both Fresh Air and Exhaust Filters	X	X	X	x	x
Check Belt Tracking and Belt Condition	X	X	X	X	X
Remove and Clean Exhaust Filters		X	X	X	X
Oil Drive Chain			X	X	X
Clean Optional Rear Exhaust Hood intake			X	X	X
Check Electrical Connections in Control Box			X	X	X
Apply Anti-Seize lubricant to Lead screws				X	X
Replace Fresh Air Filters				X	X
Clean Upper Air Chamber. Remove lids and clean all lint.				X	X
Remove and clean exhaust ducting					X
Remove Exhaust End Cap and clean with long vacuum end or wooden tool.					X



— Drive Chain Adjustment

1) To remove the chain guard, unfasten the five black sheet metal screws. Be sure to replace the guard after adjustment is made.



2) To adjust the drive chain you will need to loosen the four mounting screws. The gear motor mounting plate is slotted to allow for chain adjustment. Adjust the chain so there is a max of 1/4" horizontal movement in the chain.

CAUTION! Do not over tighten chain, damage to bearings may occur.

3) Check that both set screws/ bolts on each sprocket are tight before re-installing the Chain guard. A 1/8" and 3/16" Allen Key is required.

Belt Speed Adjustment

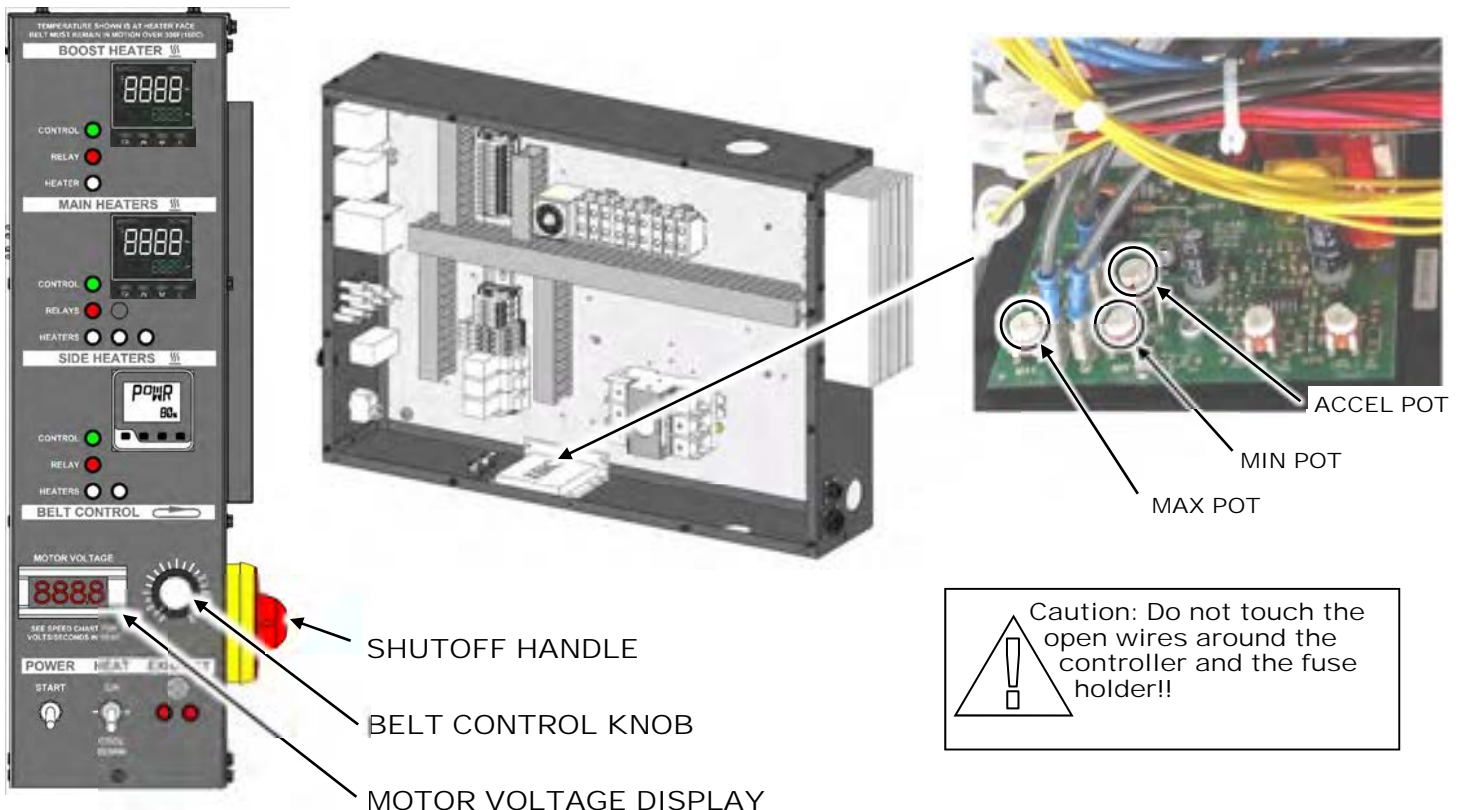
Caution! Power must be turned off at the external disconnect, or the machine unplugged, before entering any part of this machine. The red Power Light labeled “Power” must be off!! A qualified electrician should perform any internal testing requiring power on!

NOTE: When an adjustment is made to the MAXIMUM speed of the conveyor; whether higher or lower; there is a direct impact on the MINIMUM speed which must also be adjusted.

To change the maximum speed of the conveyor for dryers equipped with KBIC control, the power must be on. A Qualified electrician must perform these changes.

- 1) Remove Control Box Cover by turning off shutoff handle and removing (7) sht metal screws with 1/4” nut driver. Power must be re-engaged by manually turning shutoff back on with pliers.
- 2) Rotate the BELT CONTROL knob on the control face to the maximum setting by turning it clockwise until it stops.
- 3) Rotate the MAX POT screw (shown below) to achieve the desired result. Clockwise raises the max speed, Counterclockwise lowers the max speed.
-The lowest setting of the MAX POT is 70 volts. The Highest setting of the MAX POT is indicated on the motor’s spec tag. Most BR4 Max Motor Voltage is 130V
- 4) Rotate the BELT CONTROL knob on the control face to the minimum setting by turning it counterclockwise until it stops.
- 5) Rotate the MIN POT screw (shown below) to achieve desired result. Clockwise raises the min speed, Counterclockwise lowers the min speed. **Do not set below 10V**
- 6) Turn the BELT CONTROL knob back to the maximum setting to check maximum speed voltage.
- 7) Continue adjusting the MAX and MIN POTS accordingly to achieve desired results.

NOTE: DO NOT ATTEMPT TO SET MAX. CONVEYOR SPEED ABOVE 130 VOLT OR BELOW 10 VOLT!!!



Symptom	What to check:
No Heat & power light is off	<ul style="list-style-type: none"> Incoming power. Shop Disconnect, Fuses, or breakers. Power cord and it's connections
No Heat & power light is on	<ul style="list-style-type: none"> Check for burned out heater System fuses on control panel Note operation of pilot lights, Call Vastex
Heat too high	<ul style="list-style-type: none"> Note operation of pilot lights (Relay can stick on or off)
Heat too low	<ul style="list-style-type: none"> Note operation of pilot lights (Relay can stick on or off)
Temperature fluctuates	<ul style="list-style-type: none"> Check sensor location Clean sensor connections Eliminate Wind or Draft in shop Note operation of pilot lights, Call Vastex
Belt Stopped or is erratic	<ul style="list-style-type: none"> Check plug at motor power cord Check sprocket and chain Check output voltage at plug (90VDC) Check for obstruction in belt path Check belt tension Check brushes on motor (Optional HD motor)

Temperature Controller Error Codes

Symptom	Cause (s)	Solution (s)
SbEr	Sensor break error	Replace RTD or sensor. Use manual mode operation
LLEr	Process display beyond the low range set point	Re-Adjust LL, E value
HLEr	Process display beyond the high range set point	Re-adjust HL, E value
AHEr	Analog hybrid module damage	Replace module. Check for outside source of damage such as transient voltage spikes
AEr	Incorrect operation of auto tune procedure Prop. Band set to 0	Repeat procedure. Increase Prop. Band to a number larger than 0
OPEr	Manual mode is not allowable for an ON-OFF control system	Increase proportional band
CSEr	Check sum error. Values in memory may have changed accidentally	Check and reconfigure the control parameters

Temperature Controller

Auto Tuning Automatic Tuning has been performed at factory for all machines. Automatic Tuning must be performed by the customer for the following reasons; When equipment is other than 240v (e.g. 208v), replacing a controller, replacing a sensor, and/or new heating elements. Controller set point value must be set to 500°F (260°C) for 120V units, for all other units set to 700°F (372°C). Set point value must be entered before going to the auto tuning selection screen. Auto tuning should only be performed when the heater temperature is below 300° F (150° C).

Procedure

- 1) Press and hold the scroll button until A-T is displayed. Release the button.
- 2) Press and hold the scroll button again until the output indicator displays TUNE and is flashing. Release the button.
- 3) After releasing the button, the work PASS will be displayed. Press the scroll button one time and the word will disappear.
- 4) TUNE will continue to flash on the output indicator until the auto tuning process is complete.
- 5) The process can take as long as 30 minutes.

Manual Mode In the event of a faulty sensor, the display will read "SbEr" and the controller will automatically go into manual mode. Directly below the "SbEr" will be H0.00 and the output indicator will display MAN and be flashing. (Display on controller will show H0.00. Press the up or down arrow to set percentage of time the heater will cycle on and off. (i.e. a setting of 80.0 will cycle heater on 80% of time and off 20%). Controller can remain in this mode while resuming production.)

If the need arises to put the controller in manual mode for any reason other than a faulty sensor, follow the procedure below.

Procedure

- 1) Press and hold the scroll button until the work HANd is displayed. Release the button.
- 2) Press and hold the scroll button again until the output indicator displays MAN and is flashing.
- 3) After releasing the button, the work FILE will be displayed. Press the scroll button one time and the word will disappear.

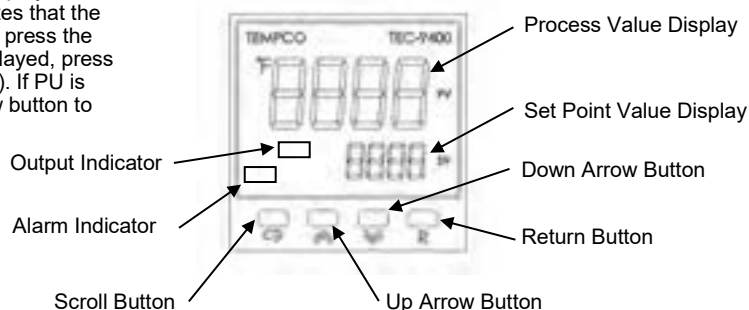
Celsius / Fahrenheit The temperature controller on your Vastex Infrared dryer is normally set to Fahrenheit as a default. Follow the procedure below to switch the controller from Fahrenheit to Celsius.

Procedure

- 1) Press and hold the scroll button until the word SEt is displayed. Release the button.
- 2) Press the scroll button 5 times until the word UNIt is displayed. Below the word UNIt you will see °F in green. This indicates that the temperature displayed in Fahrenheit. If °F is displayed, press the down arrow button to change to °C (Celsius). If °C is displayed, press the up arrow button one time to change to °F (Fahrenheit). If PU is displayed in green, don't panic, just press the down arrow button to either °F or °C.



NOTE: The temperature controller was updated on or around mid November 2020. Model number changed from a TEC-9090 to TEC-9400.



Vastex Warranty

Doc#01-00-005D Revised 2/20/2018

(1.) Vastex, hereinafter referred to as "seller" warrants only to its original "purchaser", who holds a copy of the original invoice and is the original end user of the equipment in question, its new equipment against manufacturer defects in materials or workmanship on a pro-rated basis. Warranty period begins from date of shipment to the buyer and will only apply to customers paid in full. Warranty periods are as follows: one (1) year for E-1000, three (3) years for all other complete machines (including F-Flash), fifteen (15) years for infrared heaters (excluding F-Flash) installed by Vastex in a new dryer, three (3) years for replacement infrared heaters, and one (1) year for replacement parts. Rubber blankets, light bulbs and glass on exposure units are particularly subject to wear while in use. Wear is not covered by this warranty but as stated above only manufacturers defects are covered. All sales made through Vastex dealers must be certified by that dealer before a warranty replacement is issued. All equipment is thoroughly tested and inspected before packaging. This warranty does not cover minor cosmetic damages that occur during shipment that do not affect the functionality of the equipment.

(2.) **This warranty is expressly contingent upon the buyer delivering to seller, at the address below, with all transportation charges prepaid, the part or parts claimed to be defective within the above mentioned warranty periods stated in paragraph one. The defective part or parts will be repaired or replaced at the discretion of Vastex International, Inc. If the equipment in question is less than one (1) year old, it will be shipped to the customer at no charge, with an RGA issued by Vastex for the defective part. The defective part must be shipped back to Vastex freight prepaid within 30 days or the account will be billed. If the equipment is more than a year old, the part will be shipped after we receive the defective part. If it's necessary to expedite the movement of parts and to minimize down time to the buyer, the replacement part shall be supplied on a C.O.D. basis. If testing and analysis of said part by the seller or its supplier discloses that said part is defective, the cost of said part will be refunded to the buyer on a prorated basis.**

(3.) Except as otherwise provided herein, the equipment is being sold "as-is". Final determination of the suitability of the equipment for the use contemplated by the buyer, is the sole responsibility of buyer, and seller shall have no responsibility in connection with the suitability.

(4.) All warranties implied by law, including the implied warranties of merchantability and fitness are hereby limited to manufacturer defects in materials or workmanship during the warranty period stated in paragraph one. The express warranty and remedies contained herein and such implied limited warranties are made solely to the sole warranties and remedies and are in lieu of all other warranties, guarantees, agreements, and other liabilities, whether express or implied, and all other remedies for breach of warranty or any other liability of seller, in no event shall seller be liable for consequential damages.

No person, agent, distributor, or service representative is authorized to change, modify or extend the terms hereof in any manner whatsoever.

These terms and conditions are an essential part of the transaction between the parties and constitute the entire agreement between them with respect to the same.

Some states do not allow limitation on how long an implied warranty lasts of the exclusion or limitation of incidental, or consequential damages, so the above limitation may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Infrared heaters are the only replacement parts covered for a period of (3) years from date of shipment and contingent to receipt of payment in full.

Electrical components cannot be returned once installed unless proven defective.

Please refer to doc. 01-00-015 for specific terms and conditions of sale and the limited warranty.

Please refer to doc. 01-00-017 for V-2000HD printer warranty.

Updates: V1000 to 3 year warranty 01/09/12, Heater warranty to 15 years 01/02/2012.

TERMS AND CONDITIONS OF SALE AND LIMITED WARRANTY Doc.#01-00-015

1. Buyer's order will constitute an offer in accordance with the terms hereof and such offer, upon acknowledgment of Seller, will constitute the agreement between Buyer and Seller. Buyer's order after such acknowledgment by Seller will not be subject to cancellation, change or reduction in amount, or suspension by Buyer of deliveries, unless prior to such action Buyer has obtained Seller's written consent. Notwithstanding anything to the contrary in Buyer's Purchase Order or other communications, the parties agree to be bound by these Terms and Conditions. Acceptance of the product by the Buyer shall be deemed to constitute unconditional acceptance of these Terms and Conditions.
2. Any of these terms, conditions and provisions of Buyer's order which are inconsistent with Seller's acknowledgment and these Terms and Conditions of Sale shall not be binding on the Seller and shall be considered not applicable to any sale so made. No waiver, alteration or modification of any of the provisions on either side of the document shall be binding upon Seller unless agreed to in writing by Seller.
3. (a) All prices are F.O.B. Seller's Plant and method of delivery and routing shall be at Seller's discretion, unless specifically otherwise stated herein. Notwithstanding any agreement to pay freight, delivery of products purchased hereunder to a common carrier or licensed trucker shall constitute delivery to Buyer and be determinative of the date and time of shipment and all risk of loss or damage in transit shall be borne by Buyer. If the Buyer fails to accept the goods from the common carrier or licensed trucker, the Seller shall be entitled to claim payment from the Buyer. Seller shall arrange for storage, the risk and the cost, including insurance costs, to be borne by the Buyer (and Buyer agrees to pay such amounts upon demand) except if the failure to accept delivery is due to any of the exceptions noted in Paragraph 4.
(b) Terms of payment shall be as stated on invoice.
4. It is understood that deliveries will be made in accordance with Seller's regular production schedule. Every reasonable effort will be made to meet the Buyer's required delivery dates but Seller will not be liable for damages or be deemed to be in default by reason of any failure to deliver or delay in delivery due to any preference, priority, allocation or allotment order issued by the Government, whether Federal, State or local, or causes beyond its control including but not limited to, Acts of God or a public enemy, acts of Government, fires, floods, epidemics, quarantine restrictions, strikes, lockouts, freight embargoes, severe weather, unavailability of materials or shipping space, delays of carriers or suppliers or delays of any subcontractors. Should delay in delivery be caused by any of the circumstances mentioned in this paragraph, such extension of the delivery period shall be granted as is reasonable under the circumstances of the case. Should delay be caused by an event not specifically mentioned in this paragraph, damages will be limited to cancellation of the purchase order without penalty, and refund of any monies deposited or prepaid on the purchase order with no liability for any consequential or incidental damages.
5. Seller reserves the right to increase the prices prior to Seller's acceptance of order and/or after expiration of any price quoted by Seller.
6. Unless otherwise stated in writing, Seller's prices do not include sales, excise, value-added or other taxes. Consequently, in addition to the price specified herein, the amount of any present or future sales, use, excise, value-added or other tax applicable to the manufacture, sale, purchase or use of the products hereunder shall be paid by Buyer, or in lieu thereof, Buyer shall provide Seller with a valid tax exemption certificate acceptable to the taxing authorities.
7. Seller reserves the right, at any time, to revoke any credit extended to Buyer because of Buyer's failure to pay for any products when due or for any other reason deemed good and sufficient by Seller and in such event, all subsequent shipments shall be paid for prior to at delivery at Seller's option.
8. (a) SELLER'S LIABILITY SHALL BE LIMITED TO SELLER'S STATED SELLING PRICE PER UNIT OF ANY DEFECTIVE GOODS AND SHALL IN NO EVENT INCLUDE BUYER'S MANUFACTURING COSTS, LOST PROFITS, GOODWILL, OR ANY OTHER SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, ARISING OUT OF THE AGREEMENT, THIS CONTRACT, THE SALE OF THE PRODUCTS TO THE BUYER OR THE USE OR THE PERFORMANCE OF THE PRODUCTS. Seller may at its discretion repair, replace or give the Buyer credit (pro-rated) for such defective products.
(b) Notwithstanding anything herein to the contrary, Seller shall have no liability for alleged defects with the products which are not specified in written notice from the Buyer to the Seller within thirty-six (36) months from the date of shipment of machines. Seller shall pass to Buyer any warranty received by Seller from the manufacturer of Limited Life Components, which in most cases is 12 to 18 months.
(c) Seller shall have no liability under this Limited Warranty unless Buyer has paid in full for the products. Further, this Limited Warranty is expressly contingent on Buyer's delivery to Seller, all costs prepaid, the defective part(s) within thirty-six (36) months of shipment to Buyer, together with a written statement specifying the alleged defect(s). Any replacement part(s) shall be shipped to Buyer on a C.O.D. basis.
(d) SELLER SPECIFICALLY EXCLUDES ALL WARRANTIES, EXPRESSED, IMPLIED OR OTHERWISE, EXCEPT AS STATED EXPLICITLY IN THESE TERMS AND CONDITIONS OF SALE. SELLER DISCLAIMS THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
9. The remedies herein reserved by Seller shall be cumulative and in addition to any other legal remedies. No waiver of a breach of any portion of this contract shall constitute a waiver of continuing or future breach of such provision or of any other provisions hereof.
10. These Terms and Conditions constitute the entire agreement of the parties. No amendments, changes, revisions or discharges hereof in whole or in part shall have any force or effect unless set forth in writing and signed by the parties hereto. This contract shall not be assignable by Buyer voluntarily by operation of law or otherwise without Seller's written consent.
11. This contract shall be governed and shall be construed according to the domestic laws of the Commonwealth of Pennsylvania.
12. Anything herein to the contrary notwithstanding, any action for alleged breach by Seller of the contract between the parties, including but not limited to any action for breach of the warranties herein set forth, shall be barred unless commenced by Buyer within one (1) year from the date such cause of action accrued.
13. This agreement shall inure to the benefit of and be binding upon the parties hereto, their respective successors and permitted assigns.
14. **All notices required by this contract to be given by either party shall be sent in writing or by facsimile and shall be addressed to the last known address of such other party. Notices shall be deemed to have been received on the fifth business day following deposit in the mail.**

EC DECLARATION OF CONFORMITY

MANUFACTURER

Company name: Vastex International Inc
Full address: 7 Emery Street
Postal code: 18015-1982
Place: Bethlehem, PA
Country: United States of America

EUROPEAN AUTHORISED REPRESENTATIVE

Which is established in the European Union and has access to the Technical File

Company name: Certification Experts
Full address: Stationsplein 30
Postal code: 1382 AD
Place: Weesp
Country: The Netherlands

DESCRIPTION AND IDENTIFICATION OF THE MACHINERY

Generic name: Premium Conveyor Dryers
Function: Infrared Conveyor Ovens
Model: [EC-I-30] – XX [BR3-30] – XX
[EC-I-54] – XX [BR3-54] – XX
[EC-II-30] – XX [BR4-30] – XX
[EC-II-54] – XX [BR4-54] – XX
Serial number: VTX-xxxxx
Commercial name: EconoRed and BigRed

COMPLIANCE

The manufacturer declares that the above mentioned machinery fulfills all relevant provisions of

Machinery Directive 2006/42/EC
Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU

*In conjunction with the following harmonised standards
and where appropriate other technical standards and specifications*

for the risk assessment

EN-ISO 12100:2010

for the design and manufacture

EN 12882:2008; EN-IEC 60204-1:2006; EN 574:1997+A1:2008;
NEN-EN 349:1994+A1:2008; NEN-EN 953:1998+A1:2009; NEN-EN-IEC 61000-6-2:2005;
NEN-EN-IEC 61000-6-4:2007/A1:2011

Certifications Experts B.V. in Weesp the Netherlands, has determined the presumption of conformity of the
above mentioned installation with the applicable Directives and standards

Place: Weesp Name: Rebecca Brust
The Netherlands Function: Operation and Certification Manager
Date: 1 May 2018 Signature: 