



LittleRed-X Series Dryers

Assembly, Operating, and Maintenance Instructions LittleRed-X1-30 and LittleRed-X2-30 Dryers



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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.)

Vastex E-mail assistance

Purchasing & Product Info:
sales@vastex.com

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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 burned in for a period of 2-8 hours. All components are tested to be sure they work correctly when the Dryer leaves our factory.

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.
- Operator must be familiar with controls of the dryer and conveyor.
- Never put excessive load on the conveyor belt.
- 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 Curing System.
- **Noise and vibration:** This equipment does not produce noise exceeding 70 dB(A) at workstations.
- **Operating Temperature:** Vastex Equipment should not be operated in temperatures below 40°F(5°C) or above 105°F(41°C)

Safety, continued

- **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. 9 (or on the front of your machine) 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:

LittleRed-X1-30: 172 lbs (78 kg), 47.5" x 43" x 46" (121 cm x 102 cm x 122 cm)

LittleRed-X2-30: 304 lbs (138 kg), 83.5" x 40.3" x 48" (212 cm x 102 cm x 122 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 front 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, follow steps 1-10 on pages 4 and 5.

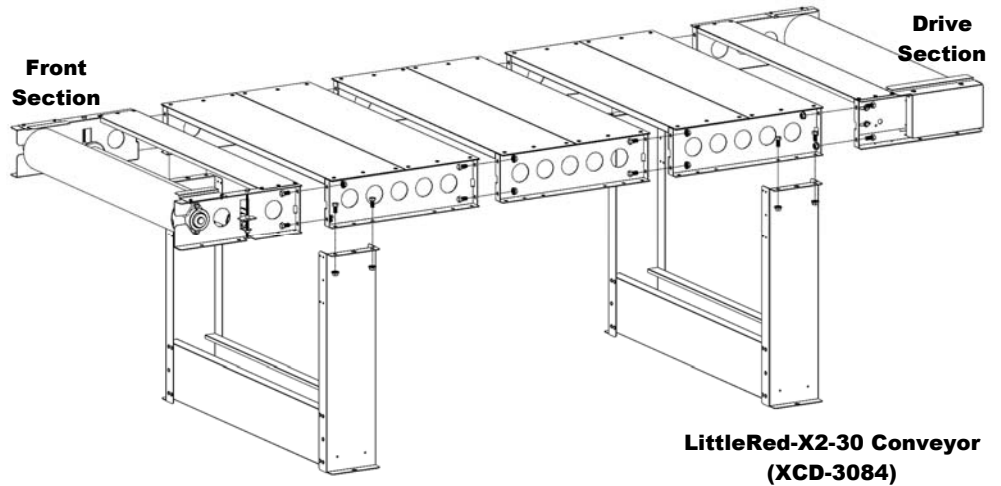
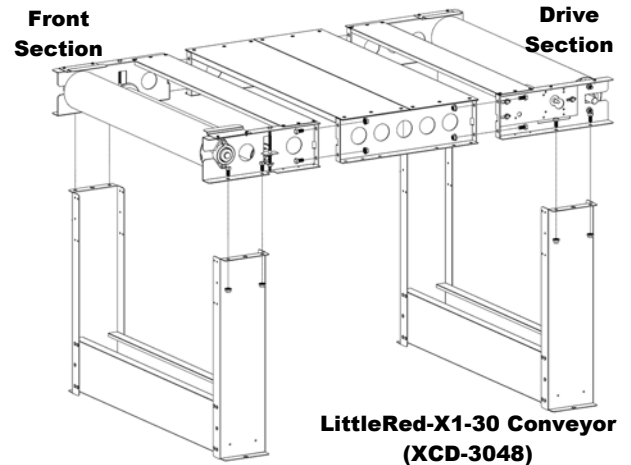
To use your machine, follow the instructions on pages 8 and 9, after familiarizing yourself with the controls of your machine (see pages 6 and 7).

Assembly

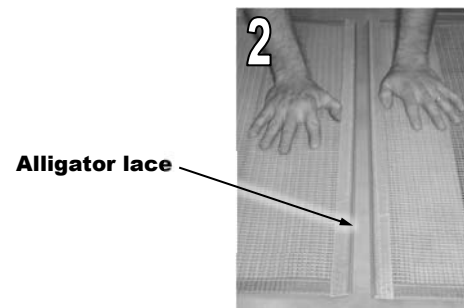
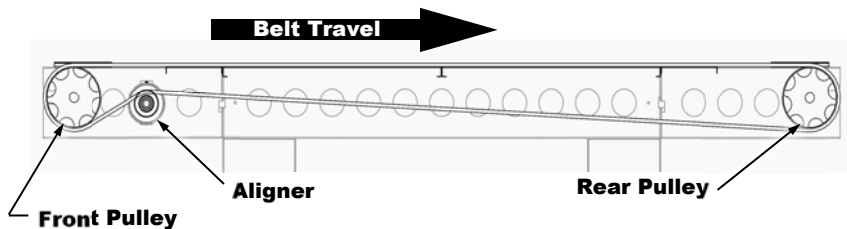
Tools Needed: (2) 9/16" open end wrenches, (1) 7/16" open end wrench or socket, (1) 1/4" nut driver OR flat blade screw driver

1) The conveyors for the LittleRed-X1 and X2 are assembled in the same way. Each conveyor has a pair of legs, a Front section, Rear Section, and middle conveyor pieces. Bolt together each section, as shown in the diagrams.

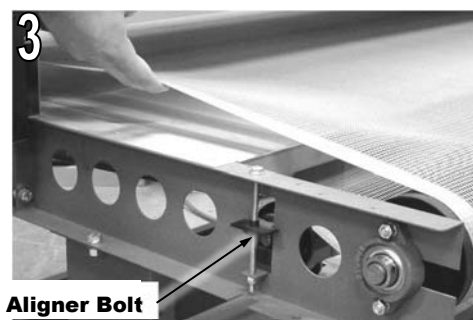
- All parts are attached together using 3/8-16 x 3/4" bolts and 3/8" Serrated locknuts.
- Assemble the Front Section, Rear Section, and middle conveyor pieces first.
- Place assembled conveyor onto legs, attach using 3/8-16 x 3/4" Bolts and 3/8" Locknuts
- Tighten all with 9/16" open end or socket.



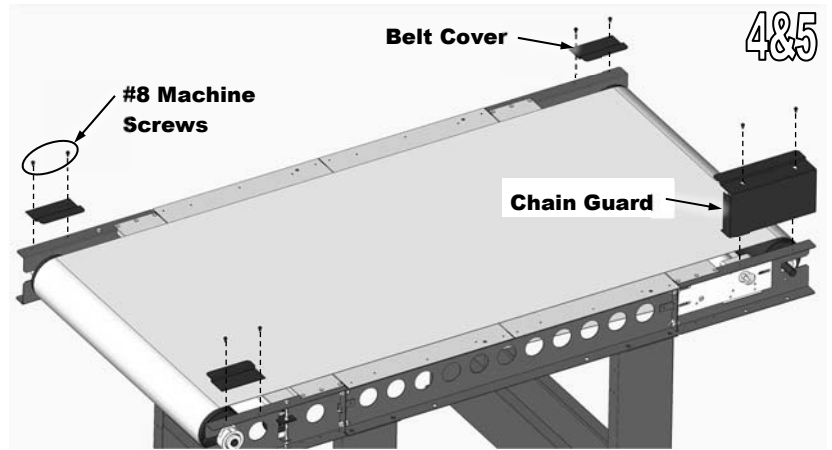
2) The belt needs to be installed as shown in the diagram. To connect your belt, align the Alligator Lace and install the pin.



3) The belt needs to be tightened and adjusted. To tighten and adjust 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. Raise the Aligner until you have about 2"-2½" of slack as shown on right.

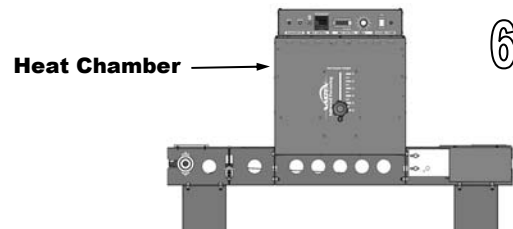


- 4) Install the chain guard with the (2) black #8 machine screws. Tighten with 1/4" nut driver. See Maintenance section for chain adjustment
- 5) Install the (3) Belt covers. Each uses (2) black #8 Screws. Tighten with 1/4" nut driver.



Do not operate with Chain Guard removed. Serious Injury may result!

- 6) Place the Heat Chamber on the conveyor, centered between the belt's rollers, with the Control Panel on the right side.



7) Electrical Connections

- Route the Conveyor Motor wire (the smaller wire coming from the control box) along the bottom of the conveyor side as shown. P clips are provided to manage the wire along the conveyor. Connect the threaded cpc connection to the motor plate.
- Connect the Machine Power wire to an outlet or hardwired connection. **See Electrical Drawing for electrical requirements. Many variations available.**
- If the incoming power comes from the ceiling, remove the Wire Clips using a 1/4" nut driver, and separate the power wire from the Motor Wire. Reinstall the Wire Clips with just the Motor Wire routed through them.



Machine Power Wire

Threaded CPC connection

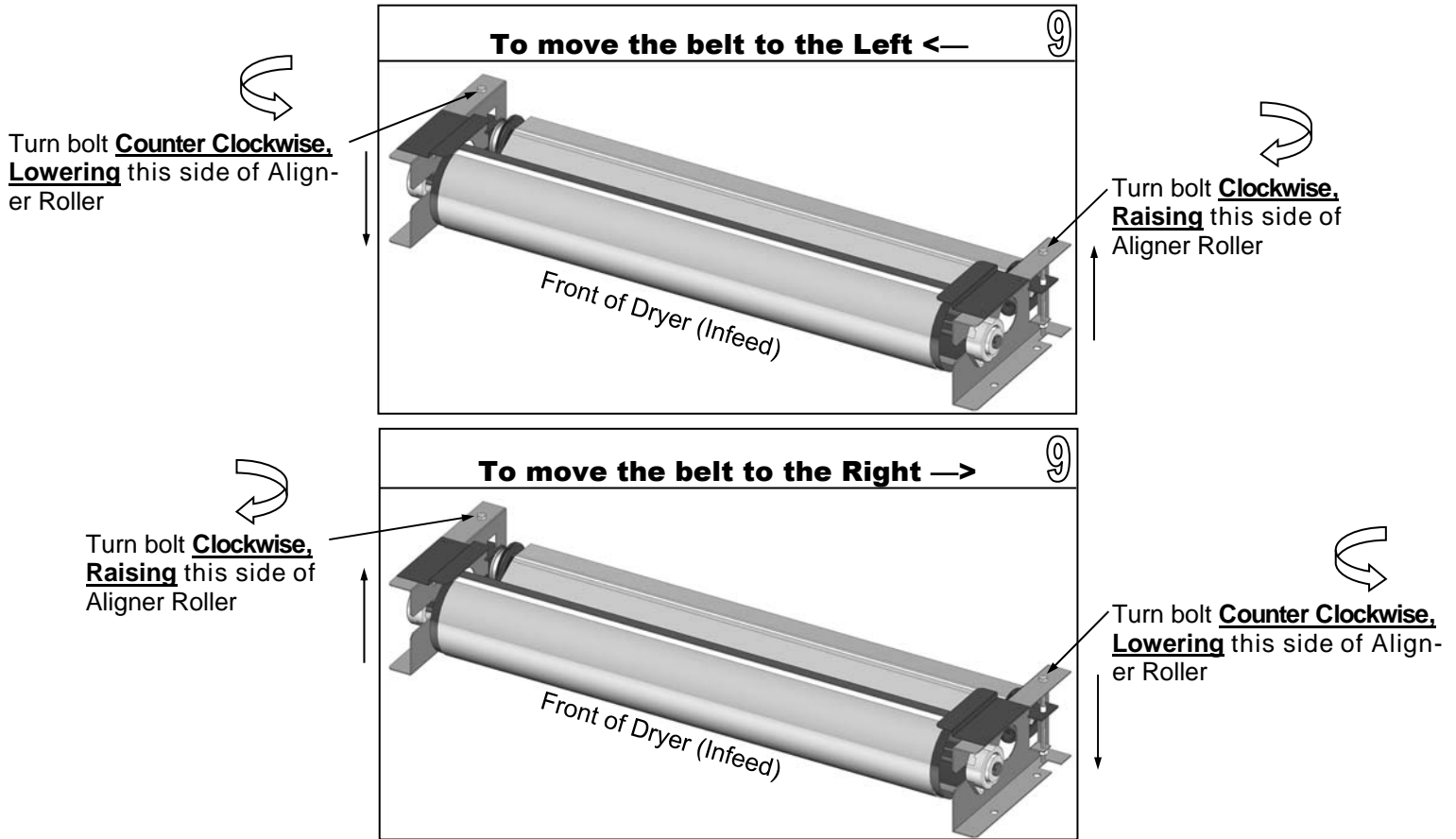
Motor Plate

8) Ducting

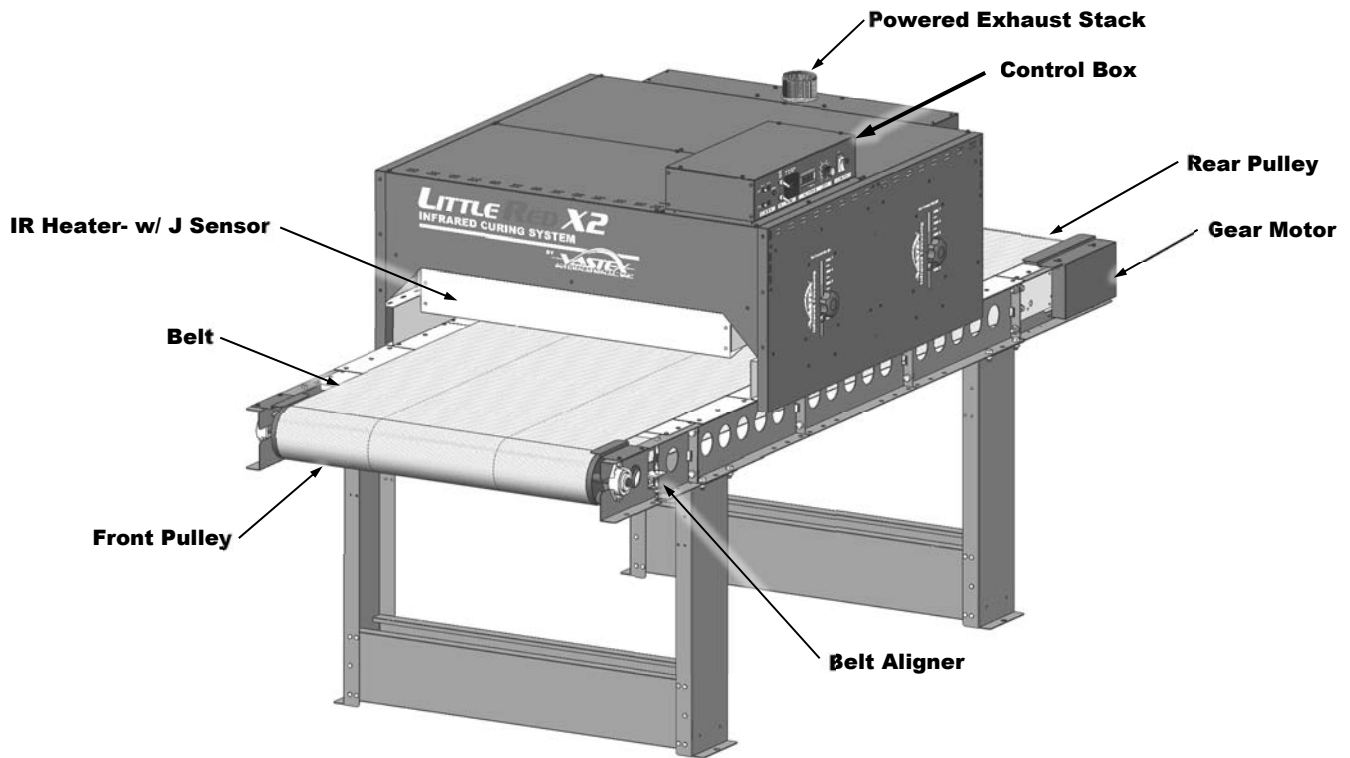
- **A 10% reduction of airflow is permitted due to customer added ducting. The output of the exhaust fan is 177CFM. Output of added ducting MUST be 159+CFM. If customer added ducting decreases flow by more than 10%, a duct fan MUST be added. Please Contact Vastex or refer to document 01-15-003C for additional Ducting information.**

Assembly (cont'd)

9) **Tracking** the belt is the final step in setting up your Dryer. The belt speed should be turned up during belt tracking. The model below shows how to track the belt. Be sure to adjust the Aligner bolts at 1/4 turn at a time. The dryer should be on a flat surface for proper belt tracking. Start with both Aligner bolts at the same height.



Component Identification



(LR-X2 Shown)

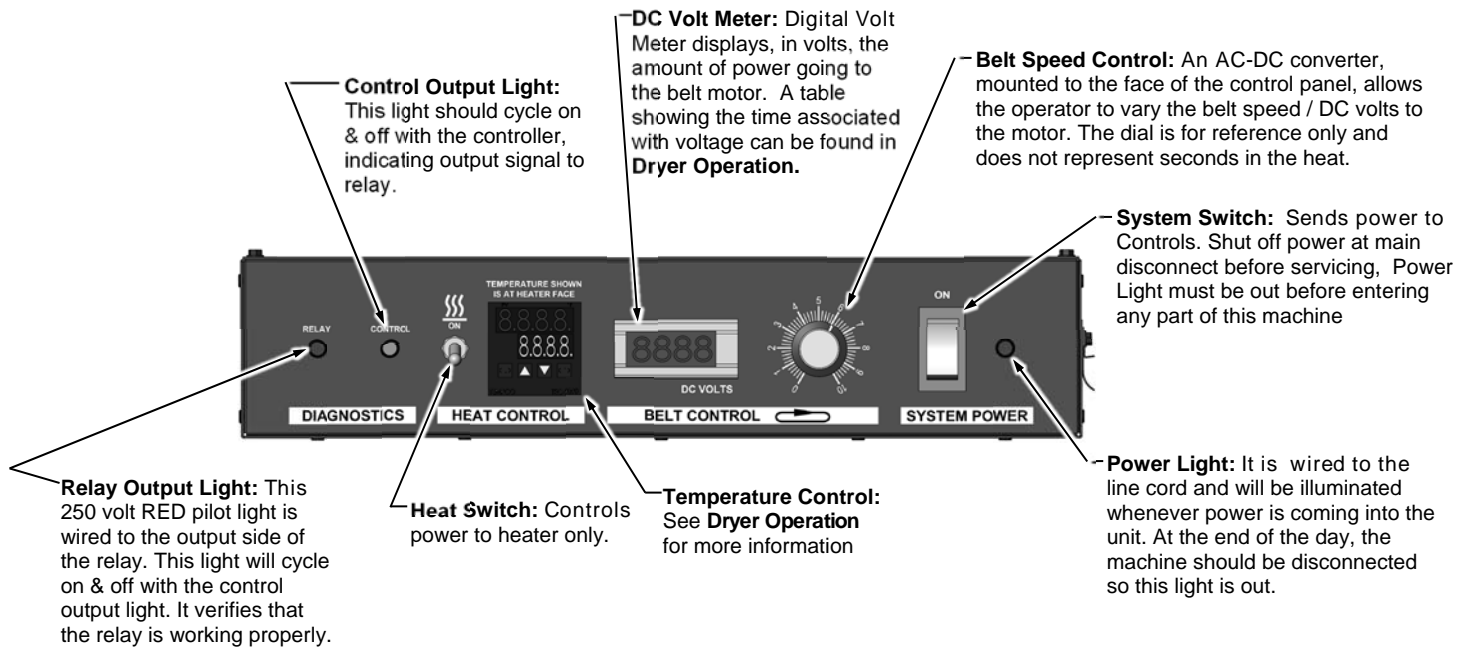
Chamber Components

- 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 right side of the heater, connected with high temperature terminals and stainless steel socket head cap screws. The LittleRed-X1 has a single 24" wide x 12" deep, 2,600 watt(240v) or 2,000 watt(120v) heater in the chamber. The LittleRed-X2 has two 2,600 watt heating elements.
- J Sensor** The sensor is mounted under the heating element, on the side closer to the control panel, with a shield beneath it. The sensor is wired to the temperature controller using two wires, a red (positive) and a white (negative). They must be attached to the proper terminals on the controller. Refer to wiring diagram when replacing "J" Sensor. (if SBER is displayed on controller "J" Sensor is malfunctioning)
- Control Box** The Control Box houses all the electrical components of the Dryer except the Drive motor. More information on the Control Box and Control Panel found in section **Controls**.
- Exhaust Stack (Optional)** 3" exhaust stack. Powered exhaust removes fumes/moisture from the chamber. See Dryer & Exhaust Hood Ducting for proper venting. Powered exhaust is standard on LittleRed-X2 models and Optional on LittleRed-X1

Conveyor Components

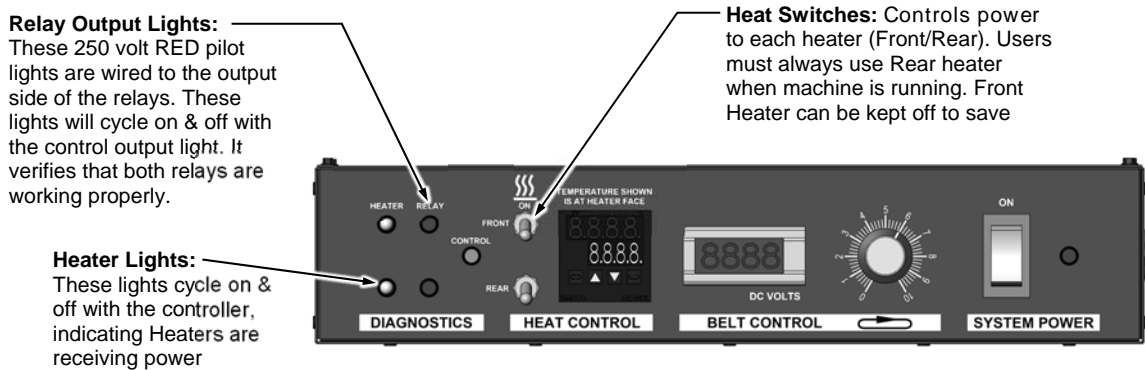
- Belt** The conveyor belt is made of Teflon coated fiberglass. It is joined together with an alligator lace using a steel pin to connect each side. The belt will not burn under normal conditions but the dryer should always have the belt moving while the heaters are above 300°F(149°C). The belt should remain tracked in the center of each pulley. (See "Belt Installation and Tracking" for adjustment instructions.)
- 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. LittleRed-X1 and X2 come standard with an aligner roller.
- Pulley** The pulleys at either end of the conveyor are made by VASTEX of 4 ½ inch tubing with ¾ inch center shaft. They are mounted on self aligning flange bearing blocks for precision rolling.
- Gear Motor** A 90 Volt DC gear motor is located to the rear of the conveyor. It drives the rear pulley and belt with a roller and a #25chain. Replacement part numbers can be found on the wiring diagram.

Controls (LittleRed-X1)



Controls (LittleRed-X2)

Controls between all LittleRed-X Models are similar. Refer to the LittleRed-X1 for all unlisted controls.



Dryer Operation

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.

Startup Procedure

- 1 Turn on Power on Main Disconnect:** The red Power Light will illuminate. The LittleRed should be wired to a Main Power Disconnect. (Optional) Disconnect bracket available.
- 2 Check belt path:** Remove any objects from the conveyor and belt.
- 3 Turn on System Switch:** Power is sent to the heater switch, belt speed control and the powered exhaust blower turns on.
- 4 Turn on Conveyor:** Set speed to desired setting.
- 5 Turn on Heat Switch:** Turn on the temperature controller and set desired temperature.

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 garment. Set the temperature several hundred degrees higher to compensate for this difference. A non contact heat gun can be used to read the temperature of the ink at the end of the dryer while it is still under the last heater. Take into consideration the thickness of the ink when using the heat gun. It will measure the top layer of the ink. If the ink is very thick you must add a buffer to be sure cure temperature is reached throughout the ink. Temperature set point, heater distance to the garment, and belt speed will all effect the ink temp.




Curing Plastisol with infrared:

Plastisol ink can fully cure in approximately 20-30* seconds. The ink must achieve 310°-320° F (154°-160°C) to cure and fuse to the garment. We recommend* a starting temperature 800°F (400°C) , 3” heater height, and 25 seconds in the chamber.

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. We have seen cure times from 50 to 90* seconds to achieve a full cure or discharge and not damage the garment. 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.**

- 6 Set the temperature:**  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 **trouble shooting** section for Controller Error Messages.
- 7 Set the Heater Height:**  Using the knobs on the side of the dryer, Raise or lower each side of the heater(s) to desired height. Loosen the knob, raise or lower it to the desired height, then tighten.
- 8 Set the Belt Speed:**  Rotate the Belt Speed Control Knob clockwise to increase speed and counter-clockwise to decrease it. Refer to the charts on the next page for “Time Through Chamber” settings. For Plastisol inks, a good starting point is 20-25 seconds in the chamber.

Volts vs Time in Heat

Time Through Chamber LittleRed X1-30 15/36 Sprocket Ratio	Volts
12 Sec	90 V
18 Sec	60 V
27 Sec	40 V
37 Sec	30 V
57 Sec	20 V
120 Sec	10 V

Time Through Chamber LittleRed X2-30 22/22 Sprocket Ratio	Volts
12 Sec	90 V
18 Sec	60 V
27 Sec	40 V
37 Sec	30 V
57 Sec	20 V
128 Sec	10 V

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)
- If no garments are being run through the dryer for more than 10 minutes, it is recommended to lower the heat set point to 500°F (260°C). It will take approximately 10 minutes to return to operating temperature.
- 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.
- When checking temperature with a laser gun, shoot the ink while it is still under heater

Shut Down Procedure

- 1 Turn off Heat Switch:** Turn the Heat Switch off. Allow the heaters to drop to a maximum of 300°F (149°C) before turning off the conveyor.
- 2 Turn off Conveyor:** **(optional)** Once the dryer cools down to 300°F (149°C) or lower, turn the Belt Speed down to the off position. Skip this step if leaving the conveyor belt speed set for the following shift.
- 3 Turn off System Switch:** Turn the System Switch OFF only after dryer has cooled to 300°F (149°C) or lower. Verify that the only Diagnostic light still on is the Power Light.
- 4 Shut Main Disconnect:** Your LittleRed should be wired to a Main Power Disconnect. The dryer must be shut off via a Main Disconnect 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 a label affixed to the front of the dryer.

— **Zone Control (X2 only)**

Zone “Rear”

Zone “Rear” on your LittleRed-X2 is the rear heater. On the control panel, Zone “Rear” heat is turned on and off with the BOTTOM toggle switch labeled “Rear”. When operating your LittleRed, Zone “Rear” must be used. Zone “Rear” has the temperature sensor attached to it, and controls the heat for both heaters. Use only zone “Rear” if you are running the dryer slower, and want to conserve on energy costs.

Zone “Front”

Zone “Front” on your LittleRed-X2 is the Front Heater. On the control panel, Zone “Front” heat is turned on with the TOP toggle switch labeled “Front”. The Relay and Heater lights next to the “Front” switch show its operation. **The temperature control measures the heat under Zone “Rear” only.**

- Zone “Rear” MUST be on to run zone “Front”
- Zone “Front” requires an average of 15 minutes to heat up to 750°F (400°C) .



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!

Electrical Connections

Electrical connections will loosen in time from heating and cooling. Every three (3) months the **power should be turned off** at the external disconnect, or unplugged, and all the points of connection should be inspected and tightened.

Lint Buildup

As with your clothes dryer at home, lint will build up where ever air is flowing over garments. The bottom perforated surface of the exhaust hood should periodically be wiped clean of lint buildup.

Every six months

- The top cover should be removed to clean around the heater and any other visible debris buildup.
- The exhaust blower, located on the rear of the machine, should be cleaned every **2-3 months**. To access the exhaust blower, remove the black #8 machine screws securing the exhaust hood cover to the chamber.

Drive Chain

Chains can loosen in time and should be inspected, adjusted, and lubricated when necessary. The drive chain is located in the rear of the conveyor behind the Chain Guard.

Drive Chain Adjustment

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



View with chain guard removed

Gear Motor

(04-02-005) Standard 90vdc gear motor shown
(04-02-039) Optional H.D. Motor

Control assembly mounting screws (3 total)



Control assembly mounting screw (3 total)

Motor Sprocket

Pulley Sprocket

- 2) To adjust the drive chain you will need to loosen the three Control assembly mounting screws. The Drive plate is slotted to allow the entire assembly to slide left or right to loosen or tighten the chain. Adjust the chain so there is approximately 1/4" of vertical movement in the chain.

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

- 3) Check the set screws on each sprocket before re-installing the Chain guard. Set screws must be tightened with a 1/8" allen key.

Troubleshooting

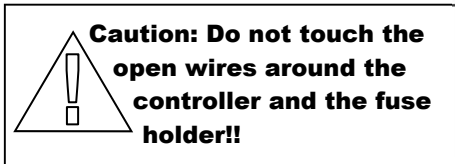
Caution! Power must be turned off at the external disconnect, or the machine unplugged, before entering any part of this machine. The red Power Light labeled “Power” must be off!! A qualified electrician should perform any internal testing requiring power on!

Belt Speed Min/Max Adjustment

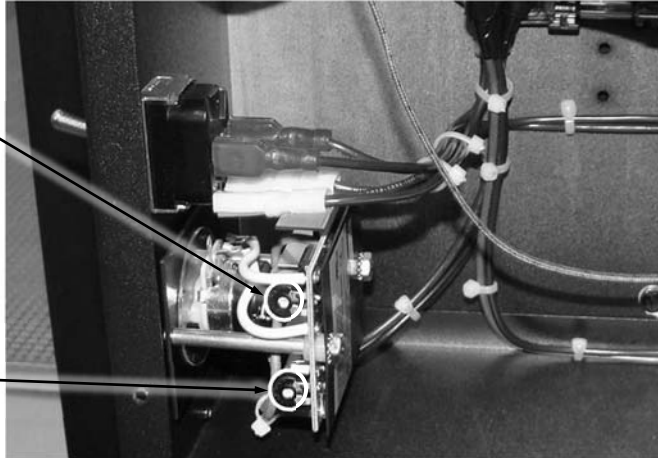
Setting the low speed pot adjustment: The low speed pot should be set so the belt (or sprocket) moves very slow at the lowest setting on the controller, just before the controller is clicked in the off position.

Setting the High speed pot adjustment: The high setting is set so 90 VDC is the maximum voltage to the motor, a volt meter is needed for the high speed adjustment.

Pot near the white wires **LOW SPEED**



Pot near the blue wires **HIGH SPEED**



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 “J” sensor, and/or new heating elements. Controller set point value must be set between 650° - 700°F (343° - 371°C) before beginning auto-tuning. Auto tuning should only be performed when the heater temperature is below 300° F (150° C).

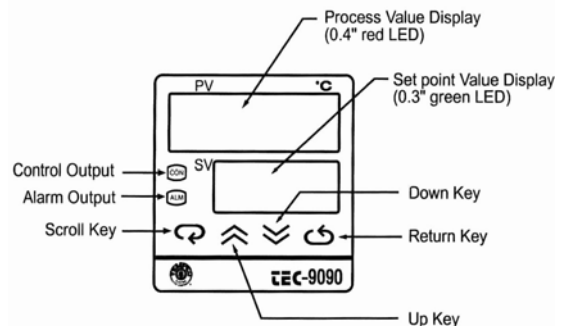
- Procedure:
- Press the return key for at least 6 seconds (maximum 16 seconds). This initializes the auto-tune function. (To abort auto-tuning procedure, press and release the return key.)
 - The decimal point in the lower right hand corner of the PV display flashes to indicate that auto-tuning is in progress. Auto-tune is complete when flashing stops
 - Automatic Tuning may take up to ½ hour. Remember, while the display point flashes, the controller is auto tuning.

Note: If an AT error (AtEr) occurs, the automatic tuning process is aborted due to the system operating in ON-OFF control mode (PB=0). The process will also be aborted if the set point is set too close to the process temperature or if there is insufficient capacity in the system to reach the set point (e.g. inadequate heating power available). Upon completion of auto-tuning the new PID settings are automatically entered into the controller's non-volatile memory.

Manual Mode In the event of a faulty J Sensor, the display will read “SbEr”. Entering manual mode will bypass the faulty sensor and allow you to run your dryer manually.. Press and hold both the scroll and return key for 6 seconds to enter manual mode. Display on controller will show H000. 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.

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.

- Press and hold the Scroll Key button for 6 seconds. When you let go, the display will change to “ASPI” and a numerical value will be given.
- Press the Scroll key 6 times to display the letters “td” and a numerical value will be given again.
- Press and hold the Scroll Key for 6 seconds. Release the button and the display will change to “LoCL” and a numerical value given.
- Press the Scroll key 6 times to display the letters “CF”. If machine is set to display Fahrenheit, this value will be 0. If the machine is set to Celsius, this value will be “1”
- To change the controller from Fahrenheit to Celsius:**
-Press the Up Key one time to change the displayed number to “1”. The display will now read in Celsius.
- To change the controller from Celsius to Fahrenheit:**
-Press the Down key one time to change the displayed number to “0”. The display will now read in Fahrenheit
- Press the Return Key one time to take you back to normal operation



Troubleshooting

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)

Controller Error Codes

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

Vastex Warranty

Doc#01-00-005B Revised 04/10/12

(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 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.

(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 workmanship and defective parts to a 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.