CTS Exposing Unit, LED

Operation Instructions

Year of Manufacture: 20____

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Vastex E-mail assistance

Purchasing & Product Info: sales@vastex.com
Electrical Support: stech@vastex.com
Tech Support, Mechanical Setup, and Operation: techsupport@vastex.com

Serial Number: VTX
Date: ___/___/______

(Please log your machine's serial number and date of purchase for future reference.)
Thank you for purchasing your printing equipment from Vastex International Inc.

Vastex has been designing and building printing equipment since 1960. We have knowledge and experience, and are proud to supply the printing industry with quality equipment at an affordable price. You can be confident your purchase will give you years of trouble-free service.

--- Machine Specifications & Part Numbers ---

<table>
<thead>
<tr>
<th>E2-CTS-2536</th>
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<tbody>
<tr>
<td>Overall Size</td>
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<tr>
<td>(lid closed)</td>
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<tr>
<td>Depth x Width x Height</td>
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<tr>
<td>Weight</td>
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<tr>
<td>Screen Capacity</td>
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<tr>
<td>Power Requirements</td>
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<tr>
<td></td>
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<tr>
<td>Control Board</td>
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<tr>
<td>Light Source</td>
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<td></td>
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<tr>
<td>Power Supply</td>
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<td>Floor Model/Tabletop</td>
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<td>Warranty</td>
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Essential Characteristics of tools which may be fitted to this machinery:

This equipment is not designed to be used with any additional attachments or tools, other than as specifically listed in this manual.
Intended Use:
This equipment is intended for the purpose of exposing screens and films with UV light in conjunction with UV sensitive emulsions.

Safety:
- The operator should read and understand this manual before operating this equipment. Store manual and safety information near equipment for easy access to operators.
- Never leave equipment unattended while in operation.
- Children and pets must be kept clear of the work area.
- Do not store any objects on top of the exposing unit.
- Unplug power cord before entering control box.
- Do not operate if any guard or cover has been removed.
- Do not operate if power cord is damaged.
- Safe Operating Temperature (Ambient): 55°F-100°F (13°C-38°C)
- Do not attempt to defeat safety interlocks.
- Noise and Vibration: This noise level produced by this equipment does not exceed 70 dB(A).

General Information
- UV Lights are used in this machine. The lights should Not Be viewed during operation without eye protection.

Tools Required
- Flat head screw driver or 1/4" nut driver
Operation

Overview:

Your exposing unit is equipped with UV lights and a touchscreen to digitally control the exposure time on your screens.

Sequence of Operation:

1) Adjust upper and lower screen tray with knobs located on each side of the machine.
2) Insert screen onto tray centered in front of UV lights.
3) Turn on control panel and set exposure time.

Exposure Time:

A full and complete exposure will be effected by several variables listed by importance.

1) Type and brand of emulsion
2) Thickness of stencil (qty. of coats or capillary film thickness)
3) Mesh color
4) Humidity

For this reason the only proper way to determine the correct time for a full and complete exposure is to use a “Exposure Calculator”. Several types of calculators are available, contact your supplier to determine which is best for you.

Approximate setting for single part or “Pure Photopolymer” is: 10 – 30 seconds. (LED)
Approximate setting for “Dual Cure”: 60 – 300 Seconds. (LED)
**Touchscreen Controls**
Set your exposure cycle by selecting either ENTER TIME or SELECT PRESET on the home screen. Your machine has the ability to save and recall up to 10 presets, storing exposure times.

**Setting the exposure time:**
1) From the setup screen press the number under the label EXPOSURE.
2) Enter a time from 0-999 seconds.
3) Press DELETE enough times to enter the desired time.
4) Press ENTER to confirm selection.

**Running an exposure cycle:**
1) From the setup screen, select RUN to start the exposure cycle.
2) The remaining exposing time is shown on the run screen. To end the cycle at any time, select CANCEL. Pressing CANCEL will return to the setup screen.
3) After completing a cycle, EXPOSURE COMPLETE will be displayed. Press OK to return to the setup screen.
Saving settings as a preset:
1) On the setup screen, select SAVE PRESET.
2) Select a letter to save the preset to. Settings currently stored to the letter selected will be shown on the right. Confirm all settings before overwriting a preset.
3) To cancel saving a preset, press the X in the upper right corner.

Loading a saved preset:
1) From the home screen, choose SELECT PRESET.
2) Select the desired preset. Settings saved in the preset are shown on the right side.
3) Select LOAD to load the desired preset.
4) To return to the home screen, select the X in the upper right corner.

Error messages:

EXPOSURE INCOMPLETE: POWER FAILURE
A power failure occurred during an exposure cycle. Loss of power to the unit or from the power supply will trigger this error. If the error occurs during the exposing part of the cycle, it is recommended to restart the exposure with a fresh screen.
Troubleshooting

Light Bar Replacement / Installation

Note:

It is important to wear dark shaded and UV rated eye protection while testing any UV Lights.
Do Not allow objects to contact the UV lights.

1) Inspection of LED light Bars. Open the front hinge panel by removing the (9) #8 sheet metal screws.

2) Put your sunglasses on and hit RUN on the setup screen. With the front hinge panel open view if ALL lights are working. If not proceed to step 3, contact factory for replacement light.

It may be possible to expose screens with LED lights out, but a repair is needed to ensure optimal performance.
3) Unplug main power cord.

4) Front hinge panel can be optionally placed on the ground for easier access by pushing panel catch inward.

5) Disconnect the defective light bar connector (each bar has its own connector), then remove the top, #8 nut holding down the light bar.

6) Installing the new light bar. Seat the light bar in its corresponding slot and attach the connector.

7) Test the new light bar. See above step 2.

8) Secure the bar with the #8 nut.

9) Close the front hinge panel and replace the #8 sheet metal screws.
Emulsion information for the screen printer

A technical information article by Douglas Grigar

Screen printers have available six types of photoreactive stencil materials. There are three direct emulsion choices, diazo, diazo/photopolymer (dual cure), and SBQ-photopolymer. There are also three photo reactive film choices, indirect film, direct/indirect film, and photoreactive capillary films.

Diazos are the least expensive and the first of the three emulsion types available on the market. Diazos are mid range in available exposure latitude and can have good edge definition. Drawbacks are that many require hardeners for long runs or water resistance lower solids content is often needed for reasonable viscosity.

Diazos are hybrid of the diazo and photopolymers and are also called dual cure. Dual cure emulsions are the newest available emulsions. Due to the hybrid nature they have the largest available feature and quality range. Dual cure emulsions will have the largest exposure latitude and are available in various levels of water and solvent resistant features. Dual cure emulsions generally have the best resolution, definition, and bridging qualities. Dual cure emulsions are midrange in price, and higher solids content versions are available with reasonable viscosity.

SBQ- Photopolymer emulsions are very fast in their exposure speeds but also have the smallest exposure latitude. They are pre mixed and have the longest shelf life. Pure photopolymer emulsions are the most expensive and are best matched with high quality single point exposure systems. Pure photopolymer emulsions have good resolution, definition, and bridging qualities. Pure photopolymer emulsions have the highest solids content available with reasonable and often excellent viscosity.

The solids content in an emulsion does example would be that pure photopolymer emulsions are available in very high solids content with low viscosity. Emulsion viscosity can also change with temperature. Lower temperatures cause the emulsions to thicken. Solids content less than 30% with low viscosity are often difficult to coat without a mess. In addition, lower solids percentage will require multiple coatings to achieve reasonable mesh coverage.

Emulsion Over Mesh or EOM is a measurement of the emulsion thickness on the face or substrate side of the mesh. EOM is a percentage of the mesh thickness. (Fig. 1) Too low of an EOM ratio will prevent a good gasket seal, prevent good details resolution, and increase chances of saw tooth edges. Manufacturers recommend an EOM ratio of 10 to 20 percent.

With an emulsion stencil, more is not better. Too much emulsion on the face of the screen can cause difficult ink transfer and details can break down in a run. Emulsion drip from the mesh while drying is a definite indication that the coated emulsion is too thick.

Your emulsion manufacturer can recommend a coating procedure for each mesh count using a rounded or sharp coating edge.

Dry your screen as normal. When dry, face coat with the sharp edge of the squeegee two thirds of the screen from a crossing direction (perpendicular) then face up. When the screen is dry apply the last coat of emulsion on the face side covering only one third of the same direction as the last face coat, then dry. With the face coatings there will be nine examples of coating thicknesses. Pick an exposure time that fits the median coating technique and expose the screen with a test positive that covers all of the coating changes.

Wash out and dry as normal. Now you can view the emulsion with a loop or microscope. Inspect the changes in thickness, then print with this screen and inspect the printed results. With the printed results compared to the visual inspection, the best coating technique for that mesh count can be determined. Standardized mesh thread thickness and weave for each mesh count is needed for consistent and reliable results.

The step coating procedure can be used while eliminating some of the steps, or replace the face coatings with all wet on wet coating strokes.

All manufacturers recommend drying coated screens with the face down (squeegee side up) in a horizontal position. A slightly elevated temperature (not over 110 deg. F.), in a filtered drying room or cabinet, will dry screens in record time, often less than half an hour. A dehumidifier will drop emulsion drying time further.

Once the screen is dry, direct emulsion will dry and conform to the profile of the mesh fabric causing small hills and dips in the surface. The smoothness of the dry emulsion can be measured and is represented by the term Rz value. (Fig. 3) The lower the Rz measurement number, the smoother the surface.
Surface smoothness can affect your substrate to stencil gasket. The lower Rz numbers will be produced only by machine coating or film products. Direct/indirect and capillary films will produce the lowest Rz numbers possible for screen stencils. High solids content emulsions and face coating (second or more coats of emulsion over dry first coatings) can also lower your Rz measurements. (Fig. 4) Exact EOM and Rz numbers can only be measured by special testing equipment.

**Indirect film products** are presensitized emulsions on film. They are produced to expose and develop before they are attached to the screen mesh. Indirect film has fallen out of general use as products that are easier to use and have superior reproduction properties are now available.

**Capillary films** are a photosensitive emulsion layered onto a film backing. (Fig. 5) The name is indicative of the action that causes the adhesion, capillary action. With wet screen fabric the film will draw into the mesh when placed in contact with the face of the screen.

Capillary films suffer from past bad reputation for delamination (Fig. 6) the current products available are capable of long runs and excellent detail. Capillary films produce the lowest Rz numbers possible and can save large amounts of screen room production time.

**Direct/indirect film products** (combination stencils) are two-part film and emulsion combinations. Films assure low Rz numbers and high detail print quality. Direct emulsions produce high stencil durability. Direct/indirect film systems combine the best features of direct emulsion and film products, creating a strong, high definition stencil that will make longer runs possible with direct emulsion.

Direct/indirect film products require a coating of direct emulsion. Then the film can be adhered to the face (substrate side) of the screen. One method is to coat the screen (one stroke on each side of the screen) then place the screen (squeegee side up) on the film (emulsion side up) and stroke the squeegee side of the screen with a low pressure stroke with a soft squeegee. (Fig. 9) The use of newsprint on your work surface will help with clean up.

Stay consistent and you will be able to predict your results with greater accuracy. Your goal should be consistency, predictability, and repeatability.

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Douglas Grigar dgrigar@hotmail.com
Vastex Warranty

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

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 goods by Buyer shall not constitute a 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 such 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 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.

4. (b) Terms of delivery are as stated on invoice.

5. 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 held responsible for failure to deliver or delay in delivery due to any preference, priority or allotment order issued by the Government, whether or not such order is in the form of a written allotment, assignment, or in any other form.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. In the event delayed by any 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. 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. 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 in 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.

6. 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 will be paid for in advance at Seller’s option.

7. (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.

8. 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. 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 of the defective parts or components to Seller 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.

9. Seller specifically excludes all warranties, expressed, implied or otherwise, except as stated explicitly in these Terms and Conditions. Seller disclaims the warranty of merchantability and fitness for any particular purpose.

10. 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.

11. This contract shall be governed and shall be construed according to the domestic laws of the Commonwealth of Pennsylvania.

12. Any action by Seller against Buyer arising out of or relating to the transaction hereunder, and any action by Buyer against Seller shall be brought in any court of competent jurisdiction in the Commonwealth of Pennsylvania, and Buyer hereby consents to the exclusive jurisdiction of such courts.

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.