

MASTERING MOUNTING

Oversized Photographs And The Two-Step Method

by Chris A. Paschke, CPF



Chris A. Paschke, CPF is the owner of Designs Ink in Oxford, Connecticut, specializing in commercial framing, design, consultation and education. Ms. Paschke is a second generation, self-employed professional picture framer who teaches, lectures and demonstrates at various workshops and seminars on mounting, matting and design for numerous manufacturers, distributors and associations including Bienfang, Dahle, Fletcher-Terry, Larson-Juhl, Seal Products, TruVue Miller Artboard, PFM, and PPFA.

As an educator, I am occasionally asked about seemingly routine mounting procedures that have, somehow, gone awry. Let's concentrate for a moment on how, even when everything appears to be "right", something still turns out "wrong".

The situation could be the result of an unresolved chronic problem, but it could also be a matter of discovering an alternative to a particular mounting technique. Even when we have been doing something successfully for a long time, it's human nature to seek out reinforcement for our framing techniques and procedures.

If we can determine that the procedure we use is indeed the correct one, we can ward off that visit from "Freddy" and carry on with the confidence and professionalism we always knew we had.

This month's topic of mounting oversized photos with the two step method may help to prevent future oversized mounting problems.

It's not a matter of oversized photos being difficult to mount, it's more a matter of the effect a mounting press and the heating process has on oversized materials. The standard TTPM (time/temperature/pressure/moisture) process for mounting smaller non-breathables must be modified to better control the desired end product.

The RC Photo Problem

Photos, because of their physical makeup and non-breathable nature,

need to be dealt with carefully. RC (resin coated) photographs consist of a paper core coated on two sides with a polyethylene coating topped with a surface emulsion. Imagine an Oreo cookie with jam on top (Diagram 1). The polyethylene is designed to protect the paper core from absorbing water during the photo developing process.

Air cannot be compressed through the surface emulsion, paper, and polyethylene backing. It is also hard to find an adhesive that will adhere to a non-porous surface. Because of this, there are two things to consider when selecting an adhesive, substrate, and mounting procedure. First, a compatible adhesive should be selected. Second, every precaution should be taken during the mounting process to allow for air to escape and not become trapped within the mounting package.

The basic problem when mounting oversized non-breathables is the entrapment of air between the photo and the substrate. Also consider that the concept of "oversized" is relative. What is large in a 500-TX mechanical press (an 18" x 24" item, for example) would be considered rather small in a 40" x 60" hot vacuum press.

Procedural Considerations

Although breathable tissue core adhesive is suggested for use with non-breathable items (such as photographs and prints with non-porous inks or lacquered surfaces), not all of

continued on page 36

MASTERING MOUNTING

continued from page 35

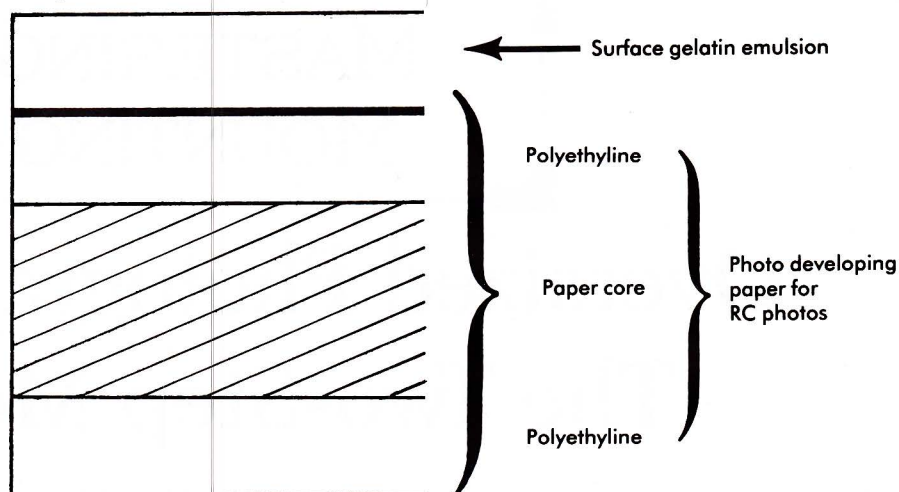
the air can be compressed through the entire tissue/substrate unit. Some of the air will pass through the tissue substrate, but since this occurs slowly most of the air will escape at the sides of the artwork. The bottom line: why, if the substrate is breathable, is *any* of the air ever trapped?

The Mechanical Approach

In order to best explain a solution I must first explain the nature of the equipment. The smaller mass of a mechanical press platen heats the mounting package from the outside towards the center. The entire mounting package must heat up to the required melting/fusing temperature to activate the adhesive and bond the materials.

The suggested adhesive for a non-breathable photograph is generally a permanent, breathable tissue. A permanent tissue bonds in the press *as* it reaches temperature. If the temperature selected is too high, the slower heat transfer from the outside to the center of the mounting package

Diagram 1



Resin coated (RC) photos are made of a paper core coated on two sides with a polyethylene coating topped with the surface emulsion used in developing, much like an Oreo cookie with jam on top.

may prematurely activate the outer edges of the adhesive. This will cause it to bond prior to the total escape of the air from the center.

Although some air may still be compressed through the tissue and the substrate, once a bubble has been created under a photo, the photo will not lie flat even if the air is removed. The domed shape (Diagram 2) of the photo created by the mounted outer edges will retard the press from

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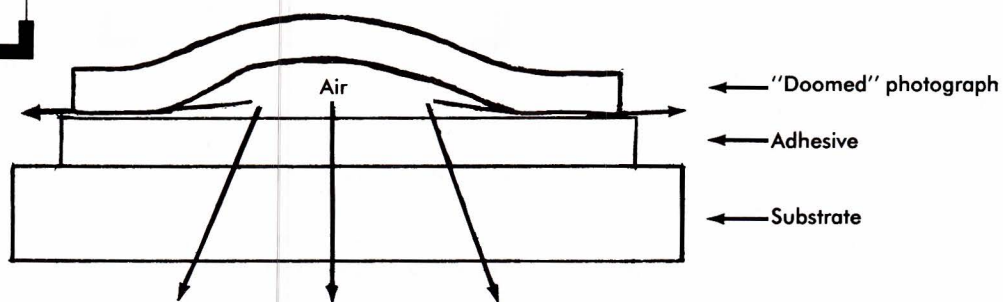
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Diagram 2

Air can be forced through the adhesive and substrate (but very slowly), most air will squish out the edges prior to actual mounting with small non-breathables.



In this exaggerated profile of a poorly mounted oversized photograph, the edges prematurely mounted prior to all of the air escaping to the edges (or through) during the compression/heat up of materials in a vacuum press. Large photos require the two-step mounting process/technique.

totally squishing the air or from shifting the outer photo edges, therefore preventing a flat bond.

Using a breathable tissue or pure adhesive will not remedy the problem. Pushing the air through thick porous adhesive is no better than blowing air through molasses with a straw. It's just too thick to happen quickly enough before the actual mounting.

Manufacturer's suggested mechanical press procedures for mounting an 18" x 24" photo include:

- a *breathable* RC approved adhesive
- the *lowest* indicated temperature for adhesive (T)
- *two to three sheets of release paper* on top (rather than board)
- recommended 2 *minutes* to mount (varies with size) (T)
- adjusted *pressure* for selected substrate (P)
- *pre-dry* materials prior to mounting (M)

Vacuum Press

Unlike the mechanical press, the vacuum press must suck all of the air from within the mounting unit before physically mounting the artwork. The premature mounting of the edges of a photo can also occur in a vacuum press if it is set too hot. Since it takes just under a minute to pull the vacuum, the time before pressure is applied to the mounting is the critical point when problems may occur. As the vacuum is pulled, the materials are already heating and the edges may begin to adhere prior to total compression, trapping air beneath the photo.

continued on page 38

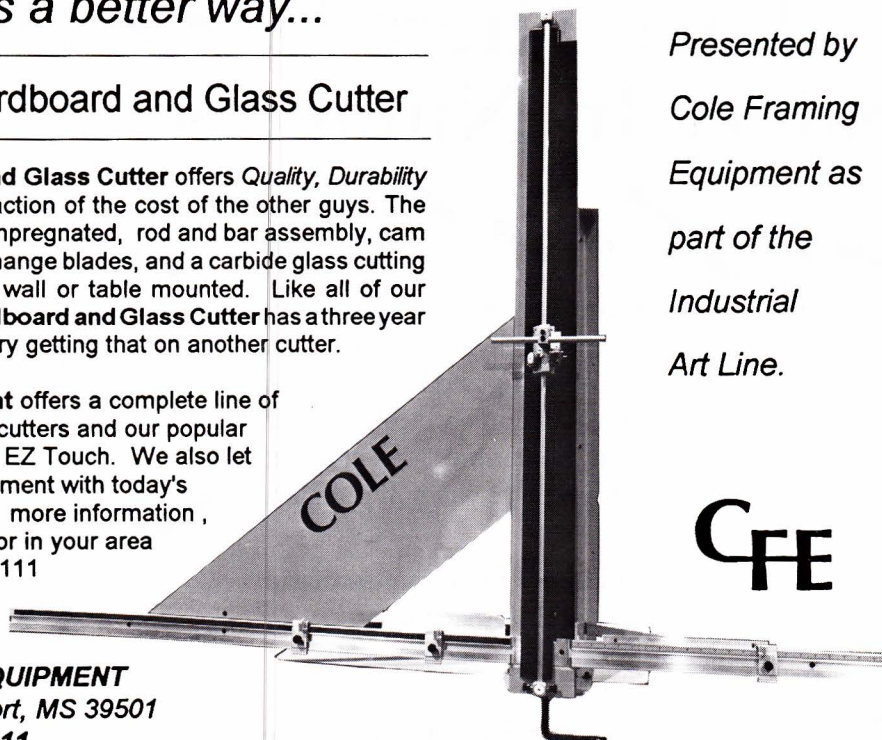
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This rarely occurs with small photos or non-breathables, since the air manages to reach the edges more quickly, escaping entrapment prior to mounting. The addition of two to three sheets of release paper slows the heat transfer, allowing additional time for the air to escape.

Manufacturers' suggested mounting procedure when working with a vacuum press and photos up to 18" x 24":

- a *breathable* RC approved adhesive
- the *lowest* indicated temperature for adhesive (T)
- *two to three sheets of release paper* on top (rather than board)
- recommended *4 minutes* (varies with size) (T)
- pressure (P) and pre-drying (M) are automatic

Two-Step Mounting

There is a different method for trouble-free mounting of oversized photos in a vacuum press (those over 18" x 24"). To understand this varia-

tion in method you need to understand the process of vacuum mounting.

The suggested time for standard mounting is three to five minutes in the press. This total time includes one minute to pull the vacuum plus the time needed to reach the temperature needed for adhesive activation. The actual mounting takes only about one minute to complete after all the materials have reached stabilized temperature. Once you understand this you can understand the "two-step mounting method" suggested for oversized photographs.

Begin the cycle with the vacuum press set at 10°F less than the lowest required mounting temperature (around 170°F). After the cycle begins (has been turned on), turn the press up 10°F (to 180°F). This will

MASTERING MOUNTING

allow the vacuum to be pulled in order to force all of the air from between the photo and the tissue/substrate before the press reaches the required temperature for adhesion.

The entire process should take about six minutes, not four. The first five minutes will pull the vacuum and increase the temperature. The final one minute will stabilize the materials and create the bond. The actual time/temperature ratio may vary depending upon the overall size and thickness of the materials to be mounted.

When dealing with true oversized photos (larger than 18" x 24") the suggested two-step mounting method will include:

- a *breathable* suitable tissue
- two to three sheets of single or double release paper
- beginning at 10°F less (170°F) to force out air (P)
- turn press up 10°F (180°F) to mount (T)
- once the press achieves the desired temp, all one additional minutes for actual mounting (approximately six minutes total) (T)

Credibility

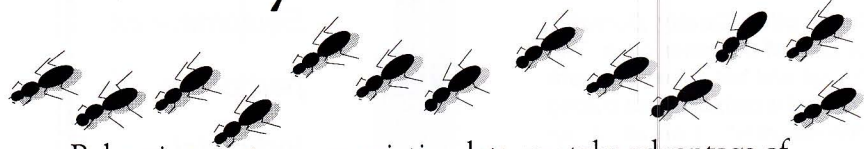
The two-step procedure is commonly employed by large professional color photo labs for mounting 4' x 8' (i.e. Seal Magnapex) commercial display work, either photographs and lacquered advertising images as seen in shopping malls and airports. They are often set up with a two-step timer system.

The first begins each cycle at 170°F. Once the first timer has run two minutes, the second timer automatically begins, turning the temperature up to 180°F for an additional eight minutes. When the cycle is completed, the timers reset in preparation for the next mounting.

It takes ten minutes to mount a 4' x 8' image due to the size of the materials. The only other difference between a 4' x 8' press and a 32" x 40" vacuum press is the requirement of three sheets of cushion paper (an 80# bleached white kraft paper) in addition to the two to three sheets of top release paper.

continued on page 40

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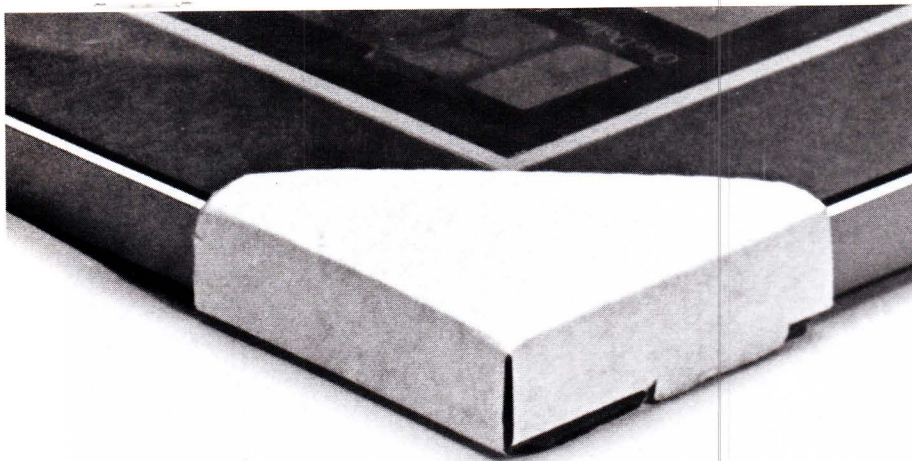


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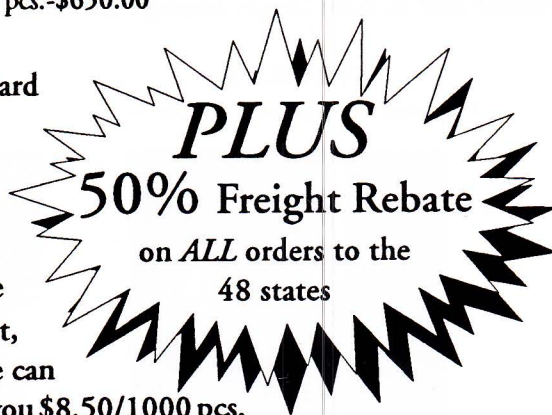
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continued from page 38

Proper Procedures Revisited

Whether using a mechanical or vacuum press, always use the lowest temperature setting for any selected adhesive. Manufacturers often suggest the use of a release board. The release board will slow down the process of heating up the mounting package. This slower heat transfer allows the air to escape and avoid entrapment. Release boards may create a greater textural "orange peel" effect than other single and double sided release papers, however. Using extra release sheets (two to three layers) as a buffer material between the release board and the photo slows the heat transfer with less tendency for undesired textures.

Trapped air bubbles often trigger the desire to turn up the press to make sure it is hot enough to adequately melt all the adhesive for bonding. Projects are sometimes repeatedly subjected to longer times within the press in additional attempts to continue the mounting process.

Higher temperatures only result in setting the edges more quickly. A better solution is a reduction in press temperature. Remember what is truly happening: the adhesive is setting more quickly at the edges, sealing the air in the center. You need to slow down the process.

The moral of the story: slow down and remember that "It's better to be slow and safe than fast and foolhardy", as often expounded by Seal Technical Service operators. Fear not the oversized photograph; it can be tamed quite easily if you practice the two-step method. 

Note: Thanks to Kodak and Seal Products for mounting techniques and information contained in this article.